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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC1867

Sampling Dates: 01/10/23 - 01/11/23



Report to:

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Total number of pages in report: 670



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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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: FC1867-1: AF-RHMW225401-WGN01B-2301W2	7
4.2: FC1867-2: AF-RHMW12A-WGN01LF-2301W2	10
4.3: FC1867-3: AF-RHMW12A-WGFD01LF-2301W2	13
4.4: FC1867-4: AF-HDMW225303-WGN01LF-2301W2	16
4.5: FC1867-5: AF-RHMW16-WGN01LF-2301W2	19
4.6: FC1867-6: AF-RHMW10-WGN01LF-2301W2	22
Section 5: Misc. Forms	25
5.1: Chain of Custody	26
5.2: QC Evaluation: DOD QSM5.x Limits	32
Section 6: MS Semi-volatiles - QC Data Summaries	33
6.1: Method Blank Summary	34
6.2: Blank Spike Summary	40
6.3: Matrix Spike Summary	44
6.4: Duplicate Summary	46
6.5: Injection Standard Area Summaries	48
6.6: TDCA Retention Time Checks	52
6.7: Ion Ratio Summaries	58
6.8: Isotope Dilution Standard Recovery Summaries	59
6.9: Initial and Continuing Calibration Summaries	62
6.10: Run Sequence Reports	78
Section 7: MS Semi-volatiles - Raw Data	82
7.1: Samples	83
7.2: Method Blanks	151
7.3: Blank Spikes	185
7.4: Matrix Spikes	229
7.5: Duplicates	251
7.6: Retention Time Markers	262
7.7: Initial and Continuing Calibrations	314
7.8: Instrument Run Logs	624
7.9: Standard Prep Logs	630
7.10: Sample Prep Logs	670



Sample Summary

AECOM, INC.

Job No: FC1867

**N6274223F0104 RH Fire Suppression System
Project No: 60697810**

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FC1867-1	01/11/23	11:20 NT	01/12/23	AQ	Ground Water	AF-RHMW225401-WGN01B-2301W2
FC1867-2	01/10/23	10:10 NT	01/12/23	AQ	Ground Water	AF-RHMW12A-WGN01LF-2301W2
FC1867-3	01/10/23	10:10 NT	01/12/23	AQ	Ground Water	AF-RHMW12A-WGFD01LF-2301W2
FC1867-4	01/10/23	10:35 NT	01/12/23	AQ	Ground Water	AF-HDMW225303-WGN01LF-2301W2
FC1867-5	01/10/23	12:34 NT	01/12/23	AQ	Ground Water	AF-RHMW16-WGN01LF-2301W2
FC1867-6	01/10/23	13:15 NT	01/12/23	AQ	Ground Water	AF-RHMW10-WGN01LF-2301W2

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC1867

Site: N6274223F0104 RH Fire Suppression System

Report Date: 1/18/2023 9:18:01 PM

On 01/12/2023, 6 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 3.2 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC1867 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: OP94995

Sample(s) FC1745-2MS, FC1745-3DUP 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: FC1867
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 01/10/23 thru 01/11/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC1867-1 AF-RHMW225401-WGN01B-2301W2

Perfluorohexanoic acid	1.0 J	4.7	0.94	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	0.77 J	4.7	0.94	ng/l	EPA DRAFT 1633
Perfluorooctanoic acid	0.98 J	4.7	0.94	ng/l	EPA DRAFT 1633
Perfluorobutanesulfonic acid	0.68 J	4.7	0.94	ng/l	EPA DRAFT 1633
Perfluorohexanesulfonic acid	1.6 J	4.7	1.9	ng/l	EPA DRAFT 1633
Perfluorooctanesulfonic acid	1.1 J	4.7	1.9	ng/l	EPA DRAFT 1633

FC1867-2 AF-RHMW12A-WGN01LF-2301W2

Perfluoropentanoic acid	4.6 J	8.9	1.8	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.2 J	4.5	0.89	ng/l	EPA DRAFT 1633

FC1867-3 AF-RHMW12A-WGFD01LF-2301W2

Perfluoropentanoic acid	4.6 J	9.4	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.3 J	4.7	0.94	ng/l	EPA DRAFT 1633

FC1867-4 AF-HDMW225303-WGN01LF-2301W2

No hits reported in this sample.

FC1867-5 AF-RHMW16-WGN01LF-2301W2

No hits reported in this sample.

FC1867-6 AF-RHMW10-WGN01LF-2301W2

No hits reported in this sample.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW225401-WGN01B-2301W2		
Lab Sample ID:	FC1867-1	Date Sampled:	01/11/23
Matrix:	AQ - Ground Water	Date Received:	01/12/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q11532.D	1	01/18/23 01:36	MV	01/16/23 09:00	OP94995	S6Q180
Run #2							

Run #	Initial Volume	Final Volume
Run #1	530 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.8 U	19	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	9.4	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	1.0	4.7	0.94	0.47	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.77	4.7	0.94	0.47	ng/l	J
335-67-1	Perfluorooctanoic acid	0.98	4.7	0.94	0.47	ng/l	J
375-95-1	Perfluorononanoic acid	1.9 U	4.7	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.7	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.68	4.7	0.94	0.47	ng/l	J
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.6	4.7	1.9	0.66	ng/l	J
375-92-8	Perfluoroheptanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.1	4.7	1.9	0.51	ng/l	J
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.7	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.7	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.7	3.8	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	4.7	1.9	0.63	ng/l	
31506-32-8	MeFOSA	1.9 U	4.7	1.9	0.94	ng/l	
4151-50-2	EtFOSA	1.9 U	4.7	1.9	0.94	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-RHMW225401-WGN01B-2301W2		
Lab Sample ID:	FC1867-1	Date Sampled:	01/11/23
Matrix:	AQ - Ground Water	Date Received:	01/12/23
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
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PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.8 U	4.7	3.8	0.94	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.7	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.4 U	47	9.4	4.1	ng/l	
1691-99-2	EtFOSE	19 U	47	19	7.0	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.8 U	19	3.8	0.94	ng/l	
919005-14-4	ADONA	3.8 U	19	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	9.4	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	9.4	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	9.4	3.8	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	19	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	19	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	9.4	1.9	0.74	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.4 U	24	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.4	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	114%		20-150%
	13C5-PFPeA	118%		20-150%
	13C5-PFHxA	120%		20-150%
	13C4-PFHpA	122%		20-150%
	13C8-PFOA	115%		20-150%
	13C9-PFNA	112%		20-150%
	13C6-PFDA	129%		20-150%
	13C7-PFUnDA	119%		20-150%
	13C2-PFDoDA	102%		20-150%
	13C2-PFTeDA	87%		20-150%
	13C3-PFBS	105%		20-150%
	13C3-PFHxS	110%		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

4.1
4

Report of Analysis

Client Sample ID:	AF-RHMW225401-WGN01B-2301W2		
Lab Sample ID:	FC1867-1	Date Sampled:	01/11/23
Matrix:	AQ - Ground Water	Date Received:	01/12/23
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	112%		20-150%
	13C8-FOSA	109%		20-150%
	d3-MeFOSA	84%		20-150%
	d5-EtFOSA	80%		20-150%
	d3-MeFOSAA	104%		20-150%
	d5-EtFOSAA	100%		20-150%
	d7-MeFOSE	89%		20-150%
	d9-EtFOSE	91%		20-150%
	13C2-4:2FTS	117%		20-150%
	13C2-6:2FTS	121%		20-150%
	13C2-8:2FTS	114%		20-150%
	13C3-HFPO-DA	124%		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

Page 1 of 3

Client Sample ID:	AF-RHMW12A-WGN01LF-2301W2		
Lab Sample ID:	FC1867-2	Date Sampled:	01/10/23
Matrix:	AQ - Ground Water	Date Received:	01/12/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q11533.D	1	01/18/23 01:50	MV	01/16/23 09:00	OP94995	S6Q180
Run #2							

Run #	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	4.6	8.9	1.8	0.84	ng/l	J
307-24-4	Perfluorohexanoic acid	1.2	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	7.1 U	18	7.1	3.1	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.1 U	18	7.1	3.7	ng/l	
PERFLUOROOCCTANE 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-2301W2		
Lab Sample ID:	FC1867-2	Date Sampled:	01/10/23
Matrix:	AQ - Ground Water	Date Received:	01/12/23
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
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PERFLUOROOCCTANE 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	

PERFLUOROOCCTANE 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
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	13C4-PFBA	119%		20-150%
	13C5-PFPeA	119%		20-150%
	13C5-PFHxA	115%		20-150%
	13C4-PFHpA	122%		20-150%
	13C8-PFOA	108%		20-150%
	13C9-PFNA	114%		20-150%
	13C6-PFDA	114%		20-150%
	13C7-PFUnDA	99%		20-150%
	13C2-PFDoDA	100%		20-150%
	13C2-PFTeDA	90%		20-150%
	13C3-PFBS	108%		20-150%
	13C3-PFHxS	104%		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-2301W2		
Lab Sample ID:	FC1867-2	Date Sampled:	01/10/23
Matrix:	AQ - Ground Water	Date Received:	01/12/23
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	109%		20-150%
	d3-MeFOSA	98%		20-150%
	d5-EtFOSA	91%		20-150%
	d3-MeFOSAA	108%		20-150%
	d5-EtFOSAA	101%		20-150%
	d7-MeFOSE	99%		20-150%
	d9-EtFOSE	99%		20-150%
	13C2-4:2FTS	128%		20-150%
	13C2-6:2FTS	123%		20-150%
	13C2-8:2FTS	111%		20-150%
	13C3-HFPO-DA	127%		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

Page 1 of 3

Client Sample ID:	AF-RHMW12A-WGFD01LF-2301W2		
Lab Sample ID:	FC1867-3	Date Sampled:	01/10/23
Matrix:	AQ - Ground Water	Date Received:	01/12/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q11534.D	1	01/18/23 02:04	MV	01/16/23 09:00	OP94995	S6Q180
Run #2							

Run #	Initial Volume	Final Volume
Run #1	530 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.8 U	19	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	4.6	9.4	1.9	0.89	ng/l	J
307-24-4	Perfluorohexanoic acid	1.3	4.7	0.94	0.47	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.7	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.7	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.7	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.7	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.7	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.7	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.7	3.8	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	4.7	1.9	0.63	ng/l	
31506-32-8	MeFOSA	1.9 U	4.7	1.9	0.94	ng/l	
4151-50-2	EtFOSA	1.9 U	4.7	1.9	0.94	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-2301W2		
Lab Sample ID:	FC1867-3	Date Sampled:	01/10/23
Matrix:	AQ - Ground Water	Date Received:	01/12/23
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
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PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.8 U	4.7	3.8	0.94	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.7	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.4 U	47	9.4	4.1	ng/l	
1691-99-2	EtFOSE	19 U	47	19	7.0	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.8 U	19	3.8	0.94	ng/l	
919005-14-4	ADONA	3.8 U	19	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	9.4	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	9.4	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	9.4	3.8	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	19	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	19	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	9.4	1.9	0.74	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.4 U	24	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.4	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	121%		20-150%
	13C5-PFPeA	122%		20-150%
	13C5-PFHxA	116%		20-150%
	13C4-PFHpA	120%		20-150%
	13C8-PFOA	108%		20-150%
	13C9-PFNA	113%		20-150%
	13C6-PFDA	115%		20-150%
	13C7-PFUnDA	101%		20-150%
	13C2-PFDoDA	89%		20-150%
	13C2-PFTeDA	70%		20-150%
	13C3-PFBS	107%		20-150%
	13C3-PFHxS	111%		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-2301W2		
Lab Sample ID:	FC1867-3	Date Sampled:	01/10/23
Matrix:	AQ - Ground Water	Date Received:	01/12/23
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	111%		20-150%
	13C8-FOSA	112%		20-150%
	d3-MeFOSA	99%		20-150%
	d5-EtFOSA	92%		20-150%
	d3-MeFOSAA	115%		20-150%
	d5-EtFOSAA	99%		20-150%
	d7-MeFOSE	98%		20-150%
	d9-EtFOSE	92%		20-150%
	13C2-4:2FTS	126%		20-150%
	13C2-6:2FTS	118%		20-150%
	13C2-8:2FTS	125%		20-150%
	13C3-HFPO-DA	122%		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

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Report of Analysis

Page 1 of 3

Client Sample ID:	AF-HDMW225303-WGN01LF-2301W2		
Lab Sample ID:	FC1867-4	Date Sampled:	01/10/23
Matrix:	AQ - Ground Water	Date Received:	01/12/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q11535.D	1	01/18/23 02:18	MV	01/16/23 09:00	OP94995	S6Q180
Run #2							

Run #	Initial Volume	Final Volume
Run #1	520 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	3.8 U	19	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	9.6	1.9	0.90	ng/l	
307-24-4	Perfluorohexanoic acid	0.96 U	4.8	0.96	0.48	ng/l	
375-85-9	Perfluoroheptanoic acid	0.96 U	4.8	0.96	0.48	ng/l	
335-67-1	Perfluorooctanoic acid	0.96 U	4.8	0.96	0.48	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.8	1.9	0.59	ng/l	
335-76-2	Perfluorodecanoic acid	0.96 U	4.8	0.96	0.48	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.8	1.9	0.58	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.8	1.9	0.58	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.8	1.9	0.81	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.96 U	4.8	0.96	0.48	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.96 U	4.8	0.96	0.48	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.8	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.8	1.9	0.67	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.96 U	4.8	0.96	0.48	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.8	1.9	0.52	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.8	1.9	0.55	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.8	1.9	0.62	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.8	3.8	1.1	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.1	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.7 U	19	7.7	4.0	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.9 U	4.8	1.9	0.64	ng/l	
31506-32-8	MeFOSA	1.9 U	4.8	1.9	0.96	ng/l	
4151-50-2	EtFOSA	1.9 U	4.8	1.9	0.96	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-HDMW225303-WGN01LF-2301W2		
Lab Sample ID:	FC1867-4	Date Sampled:	01/10/23
Matrix:	AQ - Ground Water	Date Received:	01/12/23
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
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PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.8 U	4.8	3.8	0.96	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.8	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.6 U	48	9.6	4.2	ng/l	
1691-99-2	EtFOSE	19 U	48	19	7.1	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.8 U	19	3.8	0.96	ng/l	
919005-14-4	ADONA	3.8 U	19	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	9.6	1.9	0.96	ng/l	
863090-89-5	PFMBA	3.8 U	9.6	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	9.6	3.8	1.2	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	19	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	19	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	9.6	1.9	0.75	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.6 U	24	9.6	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.4	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.5	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	121%		20-150%
	13C5-PFPeA	122%		20-150%
	13C5-PFHxA	121%		20-150%
	13C4-PFHpA	118%		20-150%
	13C8-PFOA	116%		20-150%
	13C9-PFNA	109%		20-150%
	13C6-PFDA	129%		20-150%
	13C7-PFUnDA	114%		20-150%
	13C2-PFDoDA	108%		20-150%
	13C2-PFTeDA	94%		20-150%
	13C3-PFBS	122%		20-150%
	13C3-PFHxS	123%		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

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Report of Analysis

Client Sample ID:	AF-HDMW225303-WGN01LF-2301W2		
Lab Sample ID:	FC1867-4	Date Sampled:	01/10/23
Matrix:	AQ - Ground Water	Date Received:	01/12/23
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	120%		20-150%
	13C8-FOSA	114%		20-150%
	d3-MeFOSA	97%		20-150%
	d5-EtFOSA	101%		20-150%
	d3-MeFOSAA	114%		20-150%
	d5-EtFOSAA	110%		20-150%
	d7-MeFOSE	113%		20-150%
	d9-EtFOSE	106%		20-150%
	13C2-4:2FTS	138%		20-150%
	13C2-6:2FTS	134%		20-150%
	13C2-8:2FTS	143%		20-150%
	13C3-HFPO-DA	131%		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

Page 1 of 3

Client Sample ID:	AF-RHMW16-WGN01LF-2301W2		
Lab Sample ID:	FC1867-5	Date Sampled:	01/10/23
Matrix:	AQ - Ground Water	Date Received:	01/12/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q11536.D	1	01/18/23 02:32	MV	01/16/23 09:00	OP94995	S6Q180
Run #2							

Run #	Initial Volume	Final Volume
Run #1	570 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.5 U	18	3.5	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	8.8	1.8	0.82	ng/l	
307-24-4	Perfluorohexanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
375-85-9	Perfluoroheptanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
335-67-1	Perfluorooctanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	4.4	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	4.4	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	4.4	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	4.4	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.88 U	4.4	0.88	0.44	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.5 U	4.4	3.5	0.98	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	4.4	1.8	0.61	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.88 U	4.4	0.88	0.44	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	4.4	1.8	0.47	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	4.4	1.8	0.50	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	4.4	1.8	0.56	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.5 U	4.4	3.5	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.0 U	18	7.0	2.8	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.0	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.6	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	4.4	1.8	0.59	ng/l	
31506-32-8	MeFOSA	1.8 U	4.4	1.8	0.88	ng/l	
4151-50-2	EtFOSA	1.8 U	4.4	1.8	0.88	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-2301W2		Date Sampled:	01/10/23
Lab Sample ID:	FC1867-5		Date Received:	01/12/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.5 U	4.4	3.5	0.88	ng/l	
2991-50-6	EtFOSAA	3.5 U	4.4	3.5	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	8.8 U	44	8.8	3.8	ng/l	
1691-99-2	EtFOSE	18 U	44	18	6.5	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.5 U	18	3.5	0.88	ng/l	
919005-14-4	ADONA	3.5 U	18	3.5	1.6	ng/l	
377-73-1	PFMPA	1.8 U	8.8	1.8	0.88	ng/l	
863090-89-5	PFMBA	3.5 U	8.8	3.5	1.0	ng/l	
151772-58-6	NFDHA	3.5 U	8.8	3.5	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.5 U	18	3.5	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.5 U	18	3.5	1.5	ng/l	
113507-82-7	PFEESA	1.8 U	8.8	1.8	0.68	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	8.8 U	22	8.8	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	110	18	7.7	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	110	18	6.9	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	119%		20-150%
	13C5-PFPeA	117%		20-150%
	13C5-PFHxA	111%		20-150%
	13C4-PFHpA	114%		20-150%
	13C8-PFOA	118%		20-150%
	13C9-PFNA	109%		20-150%
	13C6-PFDA	120%		20-150%
	13C7-PFUnDA	107%		20-150%
	13C2-PFDoDA	99%		20-150%
	13C2-PFTeDA	95%		20-150%
	13C3-PFBS	117%		20-150%
	13C3-PFHxS	125%		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-RHMW16-WGN01LF-2301W2		Date Sampled:	01/10/23
Lab Sample ID:	FC1867-5		Date Received:	01/12/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	108%		20-150%
	13C8-FOSA	108%		20-150%
	d3-MeFOSA	96%		20-150%
	d5-EtFOSA	93%		20-150%
	d3-MeFOSAA	98%		20-150%
	d5-EtFOSAA	105%		20-150%
	d7-MeFOSE	94%		20-150%
	d9-EtFOSE	96%		20-150%
	13C2-4:2FTS	140%		20-150%
	13C2-6:2FTS	136%		20-150%
	13C2-8:2FTS	130%		20-150%
	13C3-HFPO-DA	126%		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

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Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW10-WGN01LF-2301W2		
Lab Sample ID:	FC1867-6	Date Sampled:	01/10/23
Matrix:	AQ - Ground Water	Date Received:	01/12/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q11537.D	1	01/18/23 02:46	MV	01/16/23 09:00	OP94995	S6Q180
Run #2							

Run #	Initial Volume	Final Volume
Run #1	530 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.8 U	19	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	9.4	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.7	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.7	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.7	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.7	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.7	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.7	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.7	3.8	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	4.7	1.9	0.63	ng/l	
31506-32-8	MeFOSA	1.9 U	4.7	1.9	0.94	ng/l	
4151-50-2	EtFOSA	1.9 U	4.7	1.9	0.94	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-RHMW10-WGN01LF-2301W2		
Lab Sample ID:	FC1867-6	Date Sampled:	01/10/23
Matrix:	AQ - Ground Water	Date Received:	01/12/23
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
---------	----------	--------	-----	-----	----	-------	---

PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.8 U	4.7	3.8	0.94	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.7	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.4 U	47	9.4	4.1	ng/l	
1691-99-2	EtFOSE	19 U	47	19	7.0	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.8 U	19	3.8	0.94	ng/l	
919005-14-4	ADONA	3.8 U	19	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	9.4	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	9.4	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	9.4	3.8	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	19	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	19	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	9.4	1.9	0.74	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.4 U	24	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.4	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
---------	------------------------	--------	--------	--------

	13C4-PFBA	124%		20-150%
	13C5-PFPeA	122%		20-150%
	13C5-PFHxA	123%		20-150%
	13C4-PFHpA	125%		20-150%
	13C8-PFOA	116%		20-150%
	13C9-PFNA	120%		20-150%
	13C6-PFDA	119%		20-150%
	13C7-PFUnDA	95%		20-150%
	13C2-PFDoDA	93%		20-150%
	13C2-PFTeDA	84%		20-150%
	13C3-PFBS	114%		20-150%
	13C3-PFHxS	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

Report of Analysis

Client Sample ID:	AF-RHMW10-WGN01LF-2301W2	
Lab Sample ID:	FC1867-6	Date Sampled: 01/10/23
Matrix:	AQ - Ground Water	Date Received: 01/12/23
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	124%		20-150%
	13C8-FOSA	123%		20-150%
	d3-MeFOSA	106%		20-150%
	d5-EtFOSA	107%		20-150%
	d3-MeFOSAA	117%		20-150%
	d5-EtFOSAA	117%		20-150%
	d7-MeFOSE	100%		20-150%
	d9-EtFOSE	106%		20-150%
	13C2-4:2FTS	131%		20-150%
	13C2-6:2FTS	131%		20-150%
	13C2-8:2FTS	115%		20-150%
	13C3-HFPO-DA	131%		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



Chain of Custody

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PAGE 1 OF 1

4405 Vineland Road, Suite C-15 Orlando, FL 32811
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Client / Reporting Information			Project Information				Analytical Information										Matrix Codes										
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System				<div style="display: flex; align-items: center;"> PFAS EPA Draft 1633 <div style="border: 1px solid black; padding: 5px; margin-left: 10px;"> NT 01/11/2023 </div> </div>										Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid MUP - Unknown										
Address: 1001 Bishop St. ste 1600			Street																								
City: Honolulu		State: HI		Zip: 96813		City Honolulu												State Hawaii									
Project Contact: Katie Abbott Project Manager: Watson Tanji Phone #: 303-796-4624 / 808-964-4612			Project # 60697810																								
Sampler 1: NOAA Turbid Sampler 2:			Client Purchase Order #																								
SGS Orlando Sample #	Field ID / Point of Collection		COLLECTION			CONTAINER INFORMATION										LAB USE ONLY											
	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONI	HCl	NH ₄ OH	NH ₃ OH	H ₂ SO ₄	H ₂ O ₂	NACHOH	DI WATER	MEDIA												
1	AF-RHMW225401-WGN01B-2301W2		01/11/23	1120	NTkw/TN	GW	3	X																			
										INITIAL ASSESSMENT					ZB												
										LABEL VERIFICATION					PA												
Turnaround Time (Business days)				Data Deliverable Information				Comments / Remarks																			
10 Day (Business) 7 Day <input checked="" type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other				Approved By: / Date: <input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S				EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWP 016-82354775																			
Rush T/A Data Available VIA Email or Lablink																											
Relinquished by Sampler/Affiliation		Date Time:		Received By/Affiliation				Relinquished By/Affiliation				Date Time:		Received By/Affiliation													
1 <i>Watson Tanji</i> AECOM		01/11/23		2 <i>Katie Abbott</i> AECOM				3 <i>Katie Abbott</i> AECOM				01/11/23		4 <i>John Smith</i> IGOO													
5				6				7						8													

Lab Use Only: Cooler Temperature (s) Celsius (corrected): 1.2 TB1

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5.1
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COC # 2301W2AFSG05
PAGE 1 OF 1

Client / Reporting Information		Project Information										Analytical Information										Matrix Codes
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System										<div style="position: relative; height: 100px;"> <div style="position: absolute; top: 0; right: 0; font-size: 2em;"> <p>01/10/23</p> </div> </div>										Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid LAB - Lab
Address: 1001 Bishop St. ste 1600		Street																				
City: Honolulu State: HI Zip: 96813		City: Honolulu State: Hawaii																				
Project Contact: Katie Abbott Email: katie.abbott@aecom.com Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Project # 60697810																				
Phone #: 303-796-4624 / 808-954-4512		Fax #										Client Purchase Order #										
Sampler(s) Name(s) (Printed) Sampler 1: JVO JV CH Sampler 2:												PFAS EPA Draft 1633										
SGS Orlando Sample #	COLLECTION				CONTAINER INFORMATION											LAB USE ONLY						
	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NO3H	NO3	H2SO4	NACH-ZINC	DIWATER	MEDH							
2	AF-RHMW12A-WGN01LF-2301W2	01/10/23	1010	JVO JV CH	GW	3		X								X						
3	AF-RHMW12A-WGFD01LF-2301W2	01/10/23	1015	JVO JV CH	GW	3		X								X						
		<div style="position: relative; height: 100px;"> <div style="position: absolute; top: 0; right: 0; font-size: 2em;"> <p>01/10/23</p> </div> </div>																				
Turnaround Time (Business days)		Data Deliverable Information										Comments / Remarks										
10 Day (Business) 7 Day <input checked="" type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other _____ Rush T/A Data Available VIA Email or Lablink		Approved By: / Date: _____ <input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S										EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW 016- United AWB 8566(11)										
Relinquished by Sampler/Affiliation		Date Time:	Received By/Affiliation		Relinquished By/Affiliation		Date Time:	Received By/Affiliation		Relinquished By/Affiliation		Date Time:	Received By/Affiliation									
1 Jackson V6 AECOM		01/10/23 1350	2 Jackson AECOM		3 Jackson AECOM		1/10/23 1330	4 Jackson AECOM		1/10/23 1600		5 Jackson AECOM										
5			6		7			8														
Lab Use Only: Cooler Temperature (s) Celsius (corrected):		3.021										http://www.sgs.com/en/terms-and-conditions										

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Page 2 of 6



5.1
5



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SGS - ORLANDO JOB #

COC #: 2301W2AFSG04
PAGE 1 OF 1

Client / Reporting Information		Project Information		SGS - ORLANDO Quote #										SKIFF #			
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		Analytical Information										Matrix Codes			
Address: 1001 Bishop St. ste 1600		Street		<div style="text-align: right; font-size: 2em; font-weight: bold;">8/10/23</div>										LW - 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 - Wine			
City: Honolulu State: HI Zip: 96813		City Honolulu State Hawaii															
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # 60697810															
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #															
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order #		PFAS EPA Draft 1633										LAB USE ONLY			
COLLECTION		CONTAINER INFORMATION															
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NH4OH/NAC	DI WATER	MEDI		
4	AF-HDMW225303-WGN01F-2301W2	01/10/2023	1035	cw/NT/tn	GW	3			X								X
Turnaround Time (Business days)		Data Deliverable Information										Comments / Remarks					
10 Day (Business) Approved By: / Date: 7 Day <input checked="" type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S										EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW 016- United AWB 85661111					
Rush T/A Data Available VIA Email or Lablink		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	Relinquished By/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation			
1 <i>Katie Abbott</i> / AECOM	01/10/23	2 <i>Ken Giam</i> AECOM	3 <i>Ken Giam</i> AECOM	01/10/23	4 <i>Ken Giam</i> AECOM	5 <i>Ken Giam</i> AECOM	6 <i>Ken Giam</i> AECOM	7 <i>Ken Giam</i> AECOM	8 <i>Ken Giam</i> AECOM	01/10/23	9 <i>Ken Giam</i> AECOM	10 <i>Ken Giam</i> AECOM	11/03/23	12 <i>Ken Giam</i> AECOM			

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Page 3 of 6





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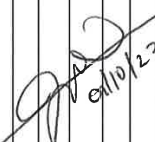
4405 Vineland Road, Suite C-15 Orlando, FL 32811
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FC1867

COC # 2301W2AFSG06

SGS - ORLANDO JOB # :

PAGE 1 OF 1

Client / Reporting Information		Project Information		Analytical Information										Matrix Codes		
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		<div style="text-align: center;">  </div>										DW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WAP - Waxes		
Address: 1001 Bishop St. ste 1600		Street														
City: Honolulu	State: HI	Zip: 96813	City: Honolulu											State: Hawaii		
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # 60697810														
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #														
Sampler(s) Name(s) (Printed) Sampler 1: JVO JW CH		Client Purchase Order #		PFAS EPA Draft 1633 X										LAB USE ONLY		
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NOVINE	KCI	NOACH	NOO3	NOBQ4	NOCH2BAG	NOVATER	MECH	
S	AF-RHMW16-WGN01LF-2301W2	01/10/23	1234	JVO JW CH	GW	3		X								
Turnaround Time (Business days)		Data Deliverable Information				Comments / Remarks										
10 Day (Business) _____ 7 Day _____ <input checked="" type="checkbox"/> 5 Day 3 Day RUSH _____ 2 Day RUSH _____ 1 Day RUSH _____ Other _____ Rush T/A Data Available VIA Email or Lablink		Approved By: / Date: _____ <input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S				EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW 016- United AWB 8566111										
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	Relinquished By/Affiliation	Date Time	Received By/Affiliation	Relinquished By/Affiliation	Date Time	Received By/Affiliation	Relinquished By/Affiliation	Date Time	Received By/Affiliation	Relinquished By/Affiliation	Date Time
1 JVO JW CH AECOM	01/10/23 1350	2 [Signature] AECOM	3 [Signature] AECOM	1/10/23 1530	4 [Signature] AECOM	5 [Signature] AECOM	6 [Signature] AECOM	7 [Signature] AECOM	8 [Signature] AECOM	9 [Signature] AECOM	10 [Signature] AECOM	11 [Signature] AECOM	12 [Signature] AECOM	13 [Signature] AECOM	14 [Signature] AECOM	15 [Signature] AECOM
Lab Use Only : Cooler Temperature (s) Celsius (corrected): _____																
http://www.sgs.com/en/terms-and-conditions																

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FC1867: Chain of Custody

Page 4 of 6





Chain of Custody

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Client / Reporting Information				Project Information											Analytical Information												Matrix Codes
Company Name: AECOM				Project Name: N6274223F0104 RH Fire Suppression System											<div style="display: flex; justify-content: space-between;"> PPAS EPA Draft 1633 01/10/23 </div>												3 DW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WPT - Wastewater
Address: 1001 Bishop St. ste 1600				Street																							
City: Honolulu State: HI Zip: 96813				City Honolulu State Hawaii																							
Project Contact: Katie Abbott Email: katie.abbott@aecom.com				Project # 60697810																							
Project Manager: Watson Tanji Email: watson.tanji@aecom.com				Fax #																							
Phone #: 303-796-4624 / 808-954-4512				Client Purchase Order #																							
Sampler(s) Name(s) (Printed)																											
Sampler 1: NOAA TURNER Sampler 2:																											
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION													LAB USE ONLY									
		DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONI	HCl	MSH	MGB	H2SO4	NONH-ZINC	DISTILLER	MEDIA												
6	AF-RHMW10-WGN01LF-2301W2	01/10/23	1315	CW/TN/NR	GW	3		X																			
				<i>(Handwritten signature/initials)</i>																							
Turnaround Time (Business days)				Data Deliverable Information											Comments / Remarks												
10 Day (Business) _____ Approved By: / Date: 7 Day _____ <input checked="" type="checkbox"/> 5 Day 3 Day RUSH _____ 2 Day RUSH _____ 1 Day RUSH _____ Other _____				<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S											EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWB 016-8566111												
Rush T/A Data Available VIA Email or Lablink				Sample Custody must be documented below each time samples change possession, including courier delivery.																							
Relinquished by Sampler/Affiliation 1 <i>Watson Tanji/AECOM</i>		Date Time: 01/10/23		Received By/Affiliation 2 <i>Watson Tanji/AECOM</i>				Relinquished By/Affiliation 3 <i>Watson Tanji/AECOM</i>				Date Time: 11/10/23		Received By/Affiliation 4 <i>Watson Tanji/AECOM</i>													
Relinquished by/Affiliation 5		Date Time: 6		Received By/Affiliation 7				Relinquished By/Affiliation 8				Date Time: 9		Received By/Affiliation 10													
Lab Use Only : Cooler Temperature (s) Celsius (corrected):				http://www.sgs.com/en/terms-and-conditions																							

SGS_ORLANDO_COC.xls Rev 031318



5.1 5

SGS Sample Receipt Summary

Job Number: FC1867

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 1/12/2023 4:00:00 PM

Delivery Method: United Cargo/Airspace

Airbill #'s: United AWB #: 016-85661111 & 016-82354775

Therm ID: IR 1;

Therm CF: 0.2;

of Coolers: 2

Cooler Temps (Raw Measured) °C: Cooler 1: (3.0); Cooler 2: (1.2);

Cooler Temps (Corrected) °C: Cooler 1: (3.2); Cooler 2: (1.4);

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 Samples shipped on Tuesday 01/10/23; United Cargo AWB #: 016-85661111 were Delayed and delivered on Thursday - 01/12/2023

SM001
Rev. Date 05/24/17

Technician: ZANEB

Date: 1/12/2023 4:00:00 PM

Reviewer: CD

Date: 1/16/2023

FC1867: Chain of Custody

Page 6 of 6

QC Evaluation: DOD QSM5.x Limits

Job Number: FC1867
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 01/10/23 thru 01/11/23

QC Sample ID	CAS#	Analyte	Sample Result Type	Result Type	Units	Limits
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No DOD QSM5.x Limits found for methods in this job.

* Sample used for QC is not from job FC1867

5.2
5

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: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q180-IBLK	6Q11517.D	1	01/17/23	MV	n/a	n/a	S6Q180

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC1867-1, FC1867-2, FC1867-3, FC1867-4, FC1867-5, FC1867-6

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	
757124-72-44:2	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	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Instrument Blank

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q180-IBLK	6Q11517.D	1	01/17/23	MV	n/a	n/a	S6Q180

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC1867-1, FC1867-2, FC1867-3, FC1867-4, FC1867-5, FC1867-6

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	
914637-49-35:3	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	106%	20-150%
	13C5-PFHxA	105%	20-150%
	13C4-PFHpA	108%	20-150%
	13C8-PFOA	95%	20-150%
	13C9-PFNA	106%	20-150%
	13C6-PFDA	100%	20-150%
	13C7-PFUnDA	101%	20-150%
	13C2-PFDoDA	102%	20-150%
	13C2-PFTeDA	96%	20-150%
	13C3-PFBS	102%	20-150%
	13C3-PFHxS	104%	20-150%
	13C8-PFOS	102%	20-150%
	13C8-FOSA	100%	20-150%
	d3-MeFOSA	98%	20-150%
	d5-EtFOSA	93%	20-150%
	d3-MeFOSAA	109%	20-150%
	d5-EtFOSAA	98%	20-150%
	d7-MeFOSE	93%	20-150%
	d9-EtFOSE	95%	20-150%
	13C2-4:2FTS	111%	20-150%
	13C2-6:2FTS	108%	20-150%
	13C2-8:2FTS	108%	20-150%
	13C3-HFPO-DA	107%	20-150%

6.1.1
6

Continuing Calibration Blank

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q180-ICCB	6Q11531.D	1	01/18/23	MV	n/a	n/a	S6Q180

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC1867-1, FC1867-2, FC1867-3, FC1867-4, FC1867-5, FC1867-6

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	
757124-72-44:2	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	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q180-ICCB	6Q11531.D	1	01/18/23	MV	n/a	n/a	S6Q180

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC1867-1, FC1867-2, FC1867-3, FC1867-4, FC1867-5, FC1867-6

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	
914637-49-35:3	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	98% 20-150%
	13C5-PFHxA	95% 20-150%
	13C4-PFHpA	101% 20-150%
	13C8-PFOA	105% 20-150%
	13C9-PFNA	109% 20-150%
	13C6-PFDA	110% 20-150%
	13C7-PFUnDA	100% 20-150%
	13C2-PFDoDA	98% 20-150%
	13C2-PFTeDA	95% 20-150%
	13C3-PFBS	100% 20-150%
	13C3-PFHxS	108% 20-150%
	13C8-PFOS	108% 20-150%
	13C8-FOSA	105% 20-150%
	d3-MeFOSA	93% 20-150%
	d5-EtFOSA	96% 20-150%
	d3-MeFOSAA	102% 20-150%
	d5-EtFOSAA	103% 20-150%
	d7-MeFOSE	99% 20-150%
	d9-EtFOSE	95% 20-150%
	13C2-4:2FTS	113% 20-150%
	13C2-6:2FTS	125% 20-150%
	13C2-8:2FTS	121% 20-150%
	13C3-HFPO-DA	101% 20-150%

Method Blank Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP94995-MB	6Q11522.D	1	01/17/23	MV	01/16/23	OP94995	S6Q180

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC1867-1, FC1867-2, FC1867-3, FC1867-4, FC1867-5, FC1867-6

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	
757124-72-44:2	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	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Method Blank Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP94995-MB	6Q11522.D	1	01/17/23	MV	01/16/23	OP94995	S6Q180

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC1867-1, FC1867-2, FC1867-3, FC1867-4, FC1867-5, FC1867-6

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	
914637-49-35:3	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	114% 20-150%
	13C5-PFPeA	117% 20-150%
	13C5-PFHxA	117% 20-150%
	13C4-PFHpA	122% 20-150%
	13C8-PFOA	110% 20-150%
	13C9-PFNA	107% 20-150%
	13C6-PFDA	119% 20-150%
	13C7-PFUnDA	107% 20-150%
	13C2-PFDoDA	105% 20-150%
	13C2-PFTeDA	73% 20-150%
	13C3-PFBS	102% 20-150%
	13C3-PFHxS	113% 20-150%
	13C8-PFOS	106% 20-150%
	13C8-FOSA	102% 20-150%
	d3-MeFOSA	78% 20-150%
	d5-EtFOSA	78% 20-150%
	d3-MeFOSAA	104% 20-150%
	d5-EtFOSAA	96% 20-150%
	d7-MeFOSE	87% 20-150%
	d9-EtFOSE	85% 20-150%
	13C2-4:2FTS	119% 20-150%
	13C2-6:2FTS	129% 20-150%
	13C2-8:2FTS	118% 20-150%
	13C3-HFPO-DA	117% 20-150%

Blank Spike Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP94995-LLBS	6Q11521.D	1	01/17/23	MV	01/16/23	OP94995	S6Q180

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC1867-1, FC1867-2, FC1867-3, FC1867-4, FC1867-5, FC1867-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.04	0.0376	94	40-150
2706-90-3	Perfluoropentanoic acid	0.02	0.0193	97	40-150
307-24-4	Perfluorohexanoic acid	0.01	0.0088	88	40-150
375-85-9	Perfluoroheptanoic acid	0.01	0.0091	91	40-150
335-67-1	Perfluorooctanoic acid	0.01	0.0117	117	40-150
375-95-1	Perfluorononanoic acid	0.01	0.0101	101	40-150
335-76-2	Perfluorodecanoic acid	0.01	0.0086	86	40-150
2058-94-8	Perfluoroundecanoic acid	0.01	0.0091	91	40-150
307-55-1	Perfluorododecanoic acid	0.01	0.0091	91	40-150
72629-94-8	Perfluorotridecanoic acid	0.01	0.0091	91	40-150
376-06-7	Perfluorotetradecanoic acid	0.01	0.0096	96	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00887	0.0086	97	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00941	0.0084	89	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00914	0.0095	104	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00953	0.0097	102	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00928	0.0086	93	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00962	0.0092	96	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00965	0.0084	87	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0097	0.0083	86	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0375	0.0394	105	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.038	0.0319	84	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0384	0.0350	91	40-150
754-91-6	PFOSA	0.01	0.0092	92	40-150
31506-32-8	MeFOSA	0.01	0.0097	97	40-150
4151-50-2	EtFOSA	0.01	0.0094	94	40-150
2355-31-9	MeFOSAA	0.01	0.0102	102	40-150
2991-50-6	EtFOSAA	0.01	0.0079	79	40-150
24448-09-7	MeFOSE	0.1	0.0922	92	40-150
1691-99-2	EtFOSE	0.1	0.0922	92	40-150
13252-13-6	HFPO-DA (GenX)	0.04	0.0349	87	40-150
919005-14-4	ADONA	0.0378	0.0357	94	40-150
377-73-1	PFMPA	0.02	0.0185	93	40-150
863090-89-5	PFMBA	0.02	0.0184	92	40-150
151772-58-6	NFDHA	0.02	0.0196	98	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0374	0.0355	95	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0378	0.0349	92	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP94995-LLBS	6Q11521.D	1	01/17/23	MV	01/16/23	OP94995	S6Q180

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC1867-1, FC1867-2, FC1867-3, FC1867-4, FC1867-5, FC1867-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0178	0.0173	97	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.05	0.0414	83	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.25	0.208	83	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.25	0.237	95	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	112%	20-150%
	13C5-PFPeA	118%	20-150%
	13C5-PFHxA	120%	20-150%
	13C4-PFHpA	120%	20-150%
	13C8-PFOA	114%	20-150%
	13C9-PFNA	101%	20-150%
	13C6-PFDA	106%	20-150%
	13C7-PFUnDA	99%	20-150%
	13C2-PFDoDA	98%	20-150%
	13C2-PFTeDA	82%	20-150%
	13C3-PFBS	101%	20-150%
	13C3-PFHxS	105%	20-150%
	13C8-PFOS	103%	20-150%
	13C8-FOSA	101%	20-150%
	d3-MeFOSA	84%	20-150%
	d5-EtFOSA	79%	20-150%
	d3-MeFOSAA	99%	20-150%
	d5-EtFOSAA	102%	20-150%
	d7-MeFOSE	85%	20-150%
	d9-EtFOSE	87%	20-150%
	13C2-4:2FTS	110%	20-150%
	13C2-6:2FTS	123%	20-150%
	13C2-8:2FTS	119%	20-150%
	13C3-HFPO-DA	123%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP94995-BS	6Q11520.D	1	01/17/23	MV	01/16/23	OP94995	S6Q180

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC1867-1, FC1867-2, FC1867-3, FC1867-4, FC1867-5, FC1867-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0944	94	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0484	97	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0240	96	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0246	98	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0262	105	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0235	94	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0258	103	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0249	100	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0233	93	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0238	95	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0233	93	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0220	99	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0214	91	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0209	91	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0227	95	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0217	94	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0224	93	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0210	87	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0193	80	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0928	99	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0860	91	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0998	104	40-150
754-91-6	PFOSA	0.025	0.0237	95	40-150
31506-32-8	MeFOSA	0.025	0.0232	93	40-150
4151-50-2	EtFOSA	0.025	0.0230	92	40-150
2355-31-9	MeFOSAA	0.025	0.0217	87	40-150
2991-50-6	EtFOSAA	0.025	0.0226	90	40-150
24448-09-7	MeFOSE	0.25	0.237	95	40-150
1691-99-2	EtFOSE	0.25	0.239	96	40-150
13252-13-6	HFPO-DA (GenX)	0.1	0.0911	91	40-150
919005-14-4	ADONA	0.0945	0.0893	94	40-150
377-73-1	PFMPA	0.05	0.0472	94	40-150
863090-89-5	PFMBA	0.05	0.0478	96	40-150
151772-58-6	NFDHA	0.05	0.0440	88	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0935	0.0880	94	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0945	0.0865	92	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP94995-BS	6Q11520.D	1	01/17/23	MV	01/16/23	OP94995	S6Q180

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC1867-1, FC1867-2, FC1867-3, FC1867-4, FC1867-5, FC1867-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0437	98	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.110	88	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.576	92	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.650	104	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	112%	20-150%
	13C5-PFPeA	109%	20-150%
	13C5-PFHxA	107%	20-150%
	13C4-PFHpA	111%	20-150%
	13C8-PFOA	118%	20-150%
	13C9-PFNA	116%	20-150%
	13C6-PFDA	108%	20-150%
	13C7-PFUnDA	107%	20-150%
	13C2-PFDoDA	105%	20-150%
	13C2-PFTeDA	91%	20-150%
	13C3-PFBS	104%	20-150%
	13C3-PFHxS	114%	20-150%
	13C8-PFOS	112%	20-150%
	13C8-FOSA	112%	20-150%
	d3-MeFOSA	97%	20-150%
	d5-EtFOSA	92%	20-150%
	d3-MeFOSAA	111%	20-150%
	d5-EtFOSAA	109%	20-150%
	d7-MeFOSE	89%	20-150%
	d9-EtFOSE	87%	20-150%
	13C2-4:2FTS	120%	20-150%
	13C2-6:2FTS	129%	20-150%
	13C2-8:2FTS	113%	20-150%
	13C3-HFPO-DA	115%	20-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP94995-MS	6Q11525.D	1	01/17/23	MV	01/16/23	OP94995	S6Q180
FC1745-2	6Q11524.D	1	01/17/23	MV	01/16/23	OP94995	S6Q180

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC1867-1, FC1867-2, FC1867-3, FC1867-4, FC1867-5, FC1867-6

CAS No.	Compound	FC1745-2 ug/l	Spike Q	ug/l	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.018 U	0.0877	0.0835	95	40-150	
2706-90-3	Perfluoropentanoic acid	0.0088 U	0.0439	0.0425	97	40-150	
307-24-4	Perfluorohexanoic acid	0.0044 U	0.0219	0.0211	96	40-150	
375-85-9	Perfluoroheptanoic acid	0.0044 U	0.0219	0.0207	94	40-150	
335-67-1	Perfluorooctanoic acid	0.0044 U	0.0219	0.0214	98	40-150	
375-95-1	Perfluorononanoic acid	0.0044 U	0.0219	0.0207	94	40-150	
335-76-2	Perfluorodecanoic acid	0.0044 U	0.0219	0.0210	96	40-150	
2058-94-8	Perfluoroundecanoic acid	0.0044 U	0.0219	0.0211	96	40-150	
307-55-1	Perfluorododecanoic acid	0.0044 U	0.0219	0.0210	96	40-150	
72629-94-8	Perfluorotridecanoic acid	0.0044 U	0.0219	0.0206	94	40-150	
376-06-7	Perfluorotetradecanoic acid	0.0044 U	0.0219	0.0233	106	40-150	
375-73-5	Perfluorobutanesulfonic acid	0.0044 U	0.0195	0.0198	102	40-150	
2706-91-4	Perfluoropentanesulfonic acid	0.0044 U	0.0206	0.0199	96	40-150	
355-46-4	Perfluorohexanesulfonic acid	0.0044 U	0.02	0.0194	97	40-150	
375-92-8	Perfluoroheptanesulfonic acid	0.0044 U	0.0209	0.0203	97	40-150	
1763-23-1	Perfluorooctanesulfonic acid	0.0044 U	0.0204	0.0188	92	40-150	
68259-12-1	Perfluorononanesulfonic acid	0.0044 U	0.0211	0.0204	97	40-150	
335-77-3	Perfluorodecanesulfonic acid	0.0044 U	0.0212	0.0179	85	40-150	
79780-39-5	Perfluorododecanesulfonic aci	0.0044 U	0.0213	0.0181	85	40-150	
757124-72-44:2	Fluorotelomer sulfonate	0.018 U	0.0822	0.0760	92	40-150	
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U	0.0833	0.0798	96	40-150	
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U	0.0842	0.0935	111	40-150	
754-91-6	PFOSA	0.0044 U	0.0219	0.0225	103	40-150	
31506-32-8	MeFOSA	0.0044 U	0.0219	0.0193	88	40-150	
4151-50-2	EtFOSA	0.0044 U	0.0219	0.0193	88	40-150	
2355-31-9	MeFOSAA	0.0044 U	0.0219	0.0215	98	40-150	
2991-50-6	EtFOSAA	0.0044 U	0.0219	0.0210	96	40-150	
24448-09-7	MeFOSE	0.044 U	0.219	0.194	88	40-150	
1691-99-2	EtFOSE	0.044 U	0.219	0.209	95	40-150	
13252-13-6	HFPO-DA (GenX)	0.018 U	0.0877	0.0817	93	40-150	
919005-14-4	ADONA	0.018 U	0.0829	0.0795	96	40-150	
377-73-1	PFMPA	0.0088 U	0.0439	0.0418	95	40-150	
863090-89-5	PFMBA	0.0088 U	0.0439	0.0425	97	40-150	
151772-58-6	NFDHA	0.0088 U	0.0439	0.0417	95	40-150	
756426-58-19	Cl-PF3ONS (F-53B Major)	0.018 U	0.082	0.0685	84	40-150	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.018 U	0.0829	0.0668	81	40-150	

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP94995-MS	6Q11525.D	1	01/17/23	MV	01/16/23	OP94995	S6Q180
FC1745-2	6Q11524.D	1	01/17/23	MV	01/16/23	OP94995	S6Q180

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC1867-1, FC1867-2, FC1867-3, FC1867-4, FC1867-5, FC1867-6

CAS No.	Compound	FC1745-2 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0088 U	0.039	0.0362	93	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.022 U	0.11	0.0968	88	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.11 U	0.548	0.517	94	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.11 U	0.548	0.508	93	40-150

CAS No.	ID Standard Recoveries	MS	FC1745-2	Limits
	13C4-PFBA	115%	112%	20-150%
	13C5-PFPeA	116%	111%	20-150%
	13C5-PFHxA	117%	105%	20-150%
	13C4-PFHpA	117%	112%	20-150%
	13C8-PFOA	110%	111%	20-150%
	13C9-PFNA	107%	110%	20-150%
	13C6-PFDA	119%	111%	20-150%
	13C7-PFUnDA	107%	106%	20-150%
	13C2-PFDoDA	106%	99%	20-150%
	13C2-PFTeDA	93%	85%	20-150%
	13C3-PFBS	102%	108%	20-150%
	13C3-PFHxS	106%	111%	20-150%
	13C8-PFOS	109%	96%	20-150%
	13C8-FOSA	107%	107%	20-150%
	d3-MeFOSA	95%		20-150%
	d5-EtFOSA	91%		20-150%
	d3-MeFOSAA	108%	107%	20-150%
	d5-EtFOSAA	103%	104%	20-150%
	d7-MeFOSE	99%		20-150%
	d9-EtFOSE	92%		20-150%
	13C2-4:2FTS	121%	131%	20-150%
	13C2-6:2FTS	117%	126%	20-150%
	13C2-8:2FTS	99%	115%	20-150%
	13C3-HFPO-DA	124%		20-150%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP94995-DUP	6Q11527.D	1	01/18/23	MV	01/16/23	OP94995	S6Q180
FC1745-3	6Q11526.D	1	01/18/23	MV	01/16/23	OP94995	S6Q180

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC1867-1, FC1867-2, FC1867-3, FC1867-4, FC1867-5, FC1867-6

CAS No.	Compound	FC1745-3 ug/l	DUP Q ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.018 U	ND	nc		30
2706-90-3	Perfluoropentanoic acid	0.0088 U	ND	nc		30
307-24-4	Perfluorohexanoic acid	0.0044 U	ND	nc		30
375-85-9	Perfluoroheptanoic acid	0.0044 U	ND	nc		30
335-67-1	Perfluorooctanoic acid	0.0044 U	ND	nc		30
375-95-1	Perfluorononanoic acid	0.0044 U	ND	nc		30
335-76-2	Perfluorodecanoic acid	0.0044 U	ND	nc		30
2058-94-8	Perfluoroundecanoic acid	0.0044 U	ND	nc		30
307-55-1	Perfluorododecanoic acid	0.0044 U	ND	nc		30
72629-94-8	Perfluorotridecanoic acid	0.0044 U	ND	nc		30
376-06-7	Perfluorotetradecanoic acid	0.0044 U	ND	nc		30
375-73-5	Perfluorobutanesulfonic acid	0.0044 U	ND	nc		30
2706-91-4	Perfluoropentanesulfonic acid	0.0044 U	ND	nc		30
355-46-4	Perfluorohexanesulfonic acid	0.0044 U	ND	nc		30
375-92-8	Perfluoroheptanesulfonic acid	0.0044 U	ND	nc		30
1763-23-1	Perfluorooctanesulfonic acid	0.0044 U	ND	nc		30
68259-12-1	Perfluorononanesulfonic acid	0.0044 U	ND	nc		30
335-77-3	Perfluorodecanesulfonic acid	0.0044 U	ND	nc		30
79780-39-5	Perfluorododecanesulfonic aci	0.0044 U	ND	nc		30
757124-72-44:2	Fluorotelomer sulfonate	0.018 U	ND	nc		30
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U	ND	nc		30
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U	ND	nc		30
754-91-6	PFOSA	0.0044 U	ND	nc		30
31506-32-8	MeFOSA	0.0044 U	ND	nc		30
4151-50-2	EtFOSA	0.0044 U	ND	nc		30
2355-31-9	MeFOSAA	0.0044 U	ND	nc		30
2991-50-6	EtFOSAA	0.0044 U	ND	nc		30
24448-09-7	MeFOSE	0.044 U	ND	nc		30
1691-99-2	EtFOSE	0.044 U	ND	nc		30
13252-13-6	HFPO-DA (GenX)	0.018 U	ND	nc		30
919005-14-4	ADONA	0.018 U	ND	nc		30
377-73-1	PFMPA	0.0088 U	ND	nc		30
863090-89-5	PFMBA	0.0088 U	ND	nc		30
151772-58-6	NFDHA	0.0088 U	ND	nc		30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.018 U	ND	nc		30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.018 U	ND	nc		30

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP94995-DUP	6Q11527.D	1	01/18/23	MV	01/16/23	OP94995	S6Q180
FC1745-3	6Q11526.D	1	01/18/23	MV	01/16/23	OP94995	S6Q180

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC1867-1, FC1867-2, FC1867-3, FC1867-4, FC1867-5, FC1867-6

CAS No.	Compound	FC1745-3 ug/l	DUP Q ug/l	Q RPD	Limits
113507-82-7	PFEESA	0.0088 U	ND	nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.022 U	ND	nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.11 U	ND	nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.11 U	ND	nc	30

CAS No.	ID Standard Recoveries	DUP	FC1745-3	Limits
	13C4-PFBA	109%	118%	20-150%
	13C5-PFPeA	117%	116%	20-150%
	13C5-PFHxA	118%	112%	20-150%
	13C4-PFHpA	114%	111%	20-150%
	13C8-PFOA	101%	115%	20-150%
	13C9-PFNA	107%	107%	20-150%
	13C6-PFDA	109%	105%	20-150%
	13C7-PFUnDA	92%	111%	20-150%
	13C2-PFDoDA	92%	103%	20-150%
	13C2-PFTeDA	91%	97%	20-150%
	13C3-PFBS	105%	110%	20-150%
	13C3-PFHxS	106%	113%	20-150%
	13C8-PFOS	98%	111%	20-150%
	13C8-FOSA	102%	115%	20-150%
	d3-MeFOSA	81%		20-150%
	d5-EtFOSA	79%		20-150%
	d3-MeFOSAA	96%	110%	20-150%
	d5-EtFOSAA	91%	106%	20-150%
	d7-MeFOSE	85%		20-150%
	d9-EtFOSE	85%		20-150%
	13C2-4:2FTS	116%	133%	20-150%
	13C2-6:2FTS	115%	136%	20-150%
	13C2-8:2FTS	106%	118%	20-150%
	13C3-HFPO-DA	123%		20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q180-CC174	Injection Date:	01/17/23
Lab File ID:	6Q11518.D	Injection Time:	22:20
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	41027	3.00	40803	5.59	84639	7.20	36296	7.74	29775	8.24
Check Std ^c	40023	2.98	38829	5.57	85987	7.16	34849	7.70	28684	8.20
Upper Limit ^d	82054	3.38	81606	5.97	169278	7.56	72592	8.10	59550	8.60
Lower Limit ^e	12308	2.58	12241	5.17	25392	6.76	10889	7.30	8933	7.80

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
OP94995-BS	32123	3.00	31696	5.55	62550	7.16	28921	7.70	23360	8.20	1
OP94995-LLBS	32797	3.00	29620	5.57	64200	7.16	31352	7.70	25709	8.20	1
OP94995-MB	32724	3.00	30074	5.57	67678	7.16	31877	7.70	24298	8.20	1
ZZZZZZ	32187	3.02	29601	5.57	68793	7.16	28988	7.70	24268	8.20	1
FC1745-2	33005	3.00	31797	5.57	68398	7.16	29486	7.70	24372	8.20	1
OP94995-MS	32962	3.00	30976	5.57	66515	7.16	29068	7.70	22323	8.20	1
FC1745-3	32722	3.00	31659	5.57	67464	7.16	30375	7.70	23793	8.20	1
OP94995-DUP	33736	3.00	30868	5.57	71559	7.16	30377	7.70	23714	8.20	1
ZZZZZZ	32263	3.00	31114	5.57	69902	7.16	30421	7.70	24307	8.20	1
ZZZZZZ	33778	3.00	33290	5.57	68630	7.16	28183	7.70	23129	8.20	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: S6Q174-ICC174 6Q10952.D 01/11/23 12:32. 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: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q180-CC174	Injection Date:	01/17/23
Lab File ID:	6Q11518.D	Injection Time:	22:20
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	7121	7.34	11560	8.42
Check Std ^c	7372	7.30	11164	8.38
Upper Limit ^d	14242	7.70	23120	8.78
Lower Limit ^e	2136	6.90	3468	7.98

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
OP94995-BS	5586	7.29	9439	8.37	1
OP94995-LLBS	5999	7.29	10344	8.37	1
OP94995-MB	6045	7.29	10191	8.37	1
ZZZZZZ	5669	7.29	9053	8.37	1
FC1745-2	5860	7.30	9918	8.37	1
OP94995-MS	6030	7.30	9695	8.37	1
FC1745-3	5665	7.29	9388	8.37	1
OP94995-DUP	6128	7.30	10147	8.37	1
ZZZZZZ	5738	7.30	9717	8.38	1
ZZZZZZ	6286	7.30	9902	8.38	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q174-ICC174 6Q10952.D 01/11/23 12:32. 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: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q180-CC174	Injection Date:	01/18/23
Lab File ID:	6Q11530.D	Injection Time:	01:08
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	41027	3.00	40803	5.59	84639	7.20	36296	7.74	29775	8.24
Check Std ^c	40145	2.99	38852	5.57	80027	7.16	35681	7.70	28588	8.20
Upper Limit ^d	82054	3.39	81606	5.97	169278	7.56	72592	8.10	59550	8.60
Lower Limit ^e	12308	2.59	12241	5.17	25392	6.76	10889	7.30	8933	7.80

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
S6Q180-ICCB	34853	2.98	33960	5.57	71448	7.16	30575	7.70	24602	8.20	1
FC1867-1	33158	3.02	30892	5.57	67390	7.16	30624	7.70	23487	8.20	1
FC1867-2	33300	3.02	32066	5.57	68515	7.16	30069	7.70	24494	8.20	1
FC1867-3	32817	3.00	31414	5.57	67454	7.16	29346	7.70	24046	8.20	1
FC1867-4	32807	3.00	30882	5.57	66272	7.16	30697	7.70	22295	8.20	1
FC1867-5	33026	3.00	32424	5.57	66691	7.16	30104	7.70	23669	8.21	1
FC1867-6	32860	3.00	31699	5.57	67525	7.16	29154	7.70	24178	8.20	1
ZZZZZZ	33125	3.00	33166	5.57	67989	7.16	29422	7.70	24021	8.20	1
ZZZZZZ	33151	3.00	32885	5.57	69810	7.16	30035	7.70	22821	8.20	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: S6Q174-ICC174 6Q10952.D 01/11/23 12:32. 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: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q180-CC174	Injection Date:	01/18/23
Lab File ID:	6Q11530.D	Injection Time:	01:08
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	7121	7.34	11560	8.42
Check Std ^c	7058	7.29	12026	8.38
Upper Limit ^d	14242	7.69	23120	8.78
Lower Limit ^e	2136	6.89	3468	7.98

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q180-ICCB	5996	7.29	9964	8.37	1
FC1867-1	5983	7.30	10254	8.37	1
FC1867-2	6216	7.29	10172	8.37	1
FC1867-3	6053	7.30	9856	8.37	1
FC1867-4	5534	7.29	9692	8.38	1
FC1867-5	5671	7.30	10218	8.38	1
FC1867-6	6116	7.29	9224	8.37	1
ZZZZZZ	5988	7.29	10232	8.37	1
ZZZZZZ	5826	7.29	10518	8.37	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q174-ICC174 6Q10952.D 01/11/23 12:32. 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.

6.5.2
6

TDCA Retention Time Check

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q174-RT	Injection Date:	01/11/23
Lab File ID:	6Q10946.D	Injection Time:	11:03
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.421	--	--
TDCA	6.846	1.575	1.000
TCDCA	6.697	1.724	1.000
TUDCA	5.820	2.601	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
S6Q174-IC174	6Q10948.D	01/11/23	11:36	00:33	Mass Calibration Verification
S6Q174-IC174	6Q10949.D	01/11/23	11:50	00:47	Initial cal 1
S6Q174-IC174	6Q10950.D	01/11/23	12:04	01:01	Initial cal 2
S6Q174-IC174	6Q10951.D	01/11/23	12:18	01:15	Initial cal 3
S6Q174-ICC174	6Q10952.D	01/11/23	12:32	01:29	Initial cal 4
S6Q174-IC174	6Q10953.D	01/11/23	12:46	01:43	Initial cal 5
S6Q174-IC174	6Q10954.D	01/11/23	13:00	01:57	Initial cal 6
S6Q174-IC174	6Q10955.D	01/11/23	13:14	02:11	Initial cal 7
S6Q174-IC174	6Q10956.D	01/11/23	13:28	02:25	Initial cal 8
S6Q174-IBLK	6Q10957.D	01/11/23	13:42	02:39	Instrument Blank
S6Q174-IBLK	6Q10957.D	01/11/23	13:42	02:39	Instrument Blank
S6Q174-ICV174	6Q10958.D	01/11/23	13:56	02:53	Initial cal verification 4
S6Q174-ICV174	6Q10959.D	01/11/23	14:10	03:07	Initial cal verification 4
S6Q174-CC174	6Q10960.D	01/11/23	14:24	03:21	Continuing cal 4
S6Q174-CC174	6Q10961.D	01/11/23	14:38	03:35	Continuing cal 1.0LL
OP94887-BS	6Q10962.D	01/11/23	14:52	03:49	Blank Spike
OP94887-LLBS	6Q10963.D	01/11/23	15:06	04:03	Blank Spike
OP94887-MB	6Q10964.D	01/11/23	15:20	04:17	Method Blank
ZZZZZZ	6Q10965.D	01/11/23	15:34	04:31	(unrelated sample)
ZZZZZZ	6Q10966.D	01/11/23	15:48	04:45	(unrelated sample)
ZZZZZZ	6Q10968.D	01/11/23	16:16	05:13	(unrelated sample)
ZZZZZZ	6Q10969.D	01/11/23	16:30	05:27	(unrelated sample)
ZZZZZZ	6Q10970.D	01/11/23	16:44	05:41	(unrelated sample)
S6Q174-CC174	6Q10971.D	01/11/23	17:06	06:03	Continuing cal 4
S6Q174-ICCB	6Q10972.D	01/11/23	17:20	06:17	Continuing Calibration Blank
ZZZZZZ	6Q10973.D	01/11/23	17:34	06:31	(unrelated sample)
JD56436-2	6Q10974.D	01/11/23	17:48	06:45	(used for QC only; not part of job FC1867)
ZZZZZZ	6Q10975.D	01/11/23	18:02	06:59	(unrelated sample)
ZZZZZZ	6Q10976.D	01/11/23	18:16	07:13	(unrelated sample)
ZZZZZZ	6Q10977.D	01/11/23	18:30	07:27	(unrelated sample)
ZZZZZZ	6Q10978.D	01/11/23	18:44	07:41	(unrelated sample)
ZZZZZZ	6Q10979.D	01/11/23	18:58	07:55	(unrelated sample)
ZZZZZZ	6Q10980.D	01/11/23	19:12	08:09	(unrelated sample)
ZZZZZZ	6Q10981.D	01/11/23	19:26	08:23	(unrelated sample)

TDCA Retention Time Check

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q174-RT	Injection Date:	01/11/23
Lab File ID:	6Q10946.D	Injection Time:	11:03
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q10982.D	01/11/23	19:40	08:37	(unrelated sample)
S6Q174-CC174	6Q10983.D	01/11/23	19:54	08:51	Continuing cal 4
S6Q174-ICCB	6Q10984.D	01/11/23	20:08	09:05	Continuing Calibration Blank
ZZZZZZ	6Q10985.D	01/11/23	20:22	09:19	(unrelated sample)
ZZZZZZ	6Q10986.D	01/11/23	20:36	09:33	(unrelated sample)
ZZZZZZ	6Q10987.D	01/11/23	20:50	09:47	(unrelated sample)
ZZZZZZ	6Q10988.D	01/11/23	21:04	10:01	(unrelated sample)
ZZZZZZ	6Q10989.D	01/11/23	21:18	10:15	(unrelated sample)
JD56436-3	6Q10990.D	01/11/23	21:32	10:29	(used for QC only; not part of job FC1867)
ZZZZZZ	6Q10991.D	01/11/23	21:46	10:43	(unrelated sample)
ZZZZZZ	6Q10992.D	01/11/23	22:00	10:57	(unrelated sample)
ZZZZZZ	6Q10993.D	01/11/23	22:14	11:11	(unrelated sample)
ZZZZZZ	6Q10994.D	01/11/23	22:28	11:25	(unrelated sample)
S6Q174-CC174	6Q10995.D	01/11/23	22:42	11:39	Continuing cal 4
S6Q174-ICCB	6Q10996.D	01/11/23	22:56	11:53	Continuing Calibration Blank
ZZZZZZ	6Q10997.D	01/11/23	23:10	12:07	(unrelated sample)
ZZZZZZ	6Q10998.D	01/11/23	23:24	12:21	(unrelated sample)
ZZZZZZ	6Q10999.D	01/11/23	23:38	12:35	(unrelated sample)
ZZZZZZ	6Q11000.D	01/11/23	23:52	12:49	(unrelated sample)
ZZZZZZ	6Q11001.D	01/12/23	00:06	13:03	(unrelated sample)
ZZZZZZ	6Q11002.D	01/12/23	00:20	13:17	(unrelated sample)
S6Q174-CC174	6Q11003.D	01/12/23	00:33	13:30	Continuing cal 4
S6Q174-ICCB	6Q11004.D	01/12/23	00:48	13:45	Continuing Calibration Blank
OP94694-BS	6Q11005.D	01/12/23	01:01	13:58	Blank Spike
OP94694-LLBS	6Q11006.D	01/12/23	01:15	14:12	Blank Spike
OP94694-MB	6Q11007.D	01/12/23	01:29	14:26	Method Blank
ZZZZZZ	6Q11008.D	01/12/23	01:43	14:40	(unrelated sample)
ZZZZZZ	6Q11009.D	01/12/23	01:57	14:54	(unrelated sample)
FC1246-3	6Q11010.D	01/12/23	02:11	15:08	(used for QC only; not part of job FC1867)
OP94694-MS	6Q11011.D	01/12/23	02:25	15:22	Matrix Spike
OP94694-MSD	6Q11012.D	01/12/23	02:39	15:36	Matrix Spike Duplicate
ZZZZZZ	6Q11013.D	01/12/23	02:53	15:50	(unrelated sample)
ZZZZZZ	6Q11014.D	01/12/23	03:07	16:04	(unrelated sample)
S6Q174-CC174	6Q11015.D	01/12/23	03:21	16:18	Continuing cal 4
S6Q174-ICCB	6Q11016.D	01/12/23	03:35	16:32	Continuing Calibration Blank
ZZZZZZ	6Q11017.D	01/12/23	03:49	16:46	(unrelated sample)
ZZZZZZ	6Q11018.D	01/12/23	04:03	17:00	(unrelated sample)
ZZZZZZ	6Q11019.D	01/12/23	04:17	17:14	(unrelated sample)
ZZZZZZ	6Q11020.D	01/12/23	04:31	17:28	(unrelated sample)
ZZZZZZ	6Q11021.D	01/12/23	04:45	17:42	(unrelated sample)
ZZZZZZ	6Q11022.D	01/12/23	04:59	17:56	(unrelated sample)
ZZZZZZ	6Q11023.D	01/12/23	05:13	18:10	(unrelated sample)
ZZZZZZ	6Q11024.D	01/12/23	05:27	18:24	(unrelated sample)
ZZZZZZ	6Q11025.D	01/12/23	05:41	18:38	(unrelated sample)

6.6.1
6

TDCA Retention Time Check

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q174-RT	Injection Date:	01/11/23
Lab File ID:	6Q10946.D	Injection Time:	11:03
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q174-CC174	6Q11027.D	01/12/23	06:09	19:06	Continuing cal 4
S6Q174-ICCB	6Q11028.D	01/12/23	06:23	19:20	Continuing Calibration Blank
ZZZZZZ	6Q11029.D	01/12/23	06:37	19:34	(unrelated sample)
ZZZZZZ	6Q11030.D	01/12/23	06:51	19:48	(unrelated sample)
ZZZZZZ	6Q11033.D	01/12/23	07:33	20:30	(unrelated sample)
ZZZZZZ	6Q11034.D	01/12/23	07:47	20:44	(unrelated sample)
ZZZZZZ	6Q11035.D	01/12/23	08:01	20:58	(unrelated sample)
ZZZZZZ	6Q11036.D	01/12/23	08:15	21:12	(unrelated sample)
ZZZZZZ	6Q11037.D	01/12/23	08:29	21:26	(unrelated sample)
ZZZZZZ	6Q11038.D	01/12/23	08:43	21:40	(unrelated sample)
S6Q174-ECC174	6Q11039.D	01/12/23	08:57	21:54	Ending cal 4
S6Q174-ICCB	6Q11040.D	01/12/23	09:11	22:08	Continuing Calibration Blank

6.6.1
 6

TDCA Retention Time Check

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q180-RT	Injection Date:	01/17/23
Lab File ID:	6Q11514.D	Injection Time:	21:24
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.372	--	--
TDCA	6.833	1.539	1.000
TCDCA	6.672	1.700	1.000
TUDCA	5.808	2.564	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
S6Q180-IBLK	6Q11517.D	01/17/23	22:06	00:42	Instrument Blank
S6Q180-IBLK	6Q11517.D	01/17/23	22:06	00:42	Instrument Blank
S6Q180-CC174	6Q11518.D	01/17/23	22:20	00:56	Continuing cal 4
S6Q180-CC174	6Q11519.D	01/17/23	22:34	01:10	Continuing cal 1.0LL
OP94995-BS	6Q11520.D	01/17/23	22:48	01:24	Blank Spike
OP94995-LLBS	6Q11521.D	01/17/23	23:02	01:38	Blank Spike
OP94995-MB	6Q11522.D	01/17/23	23:16	01:52	Method Blank
ZZZZZZ	6Q11523.D	01/17/23	23:30	02:06	(unrelated sample)
FC1745-2	6Q11524.D	01/17/23	23:44	02:20	(used for QC only; not part of job FC1867)
OP94995-MS	6Q11525.D	01/17/23	23:58	02:34	Matrix Spike
FC1745-3	6Q11526.D	01/18/23	00:12	02:48	(used for QC only; not part of job FC1867)
OP94995-DUP	6Q11527.D	01/18/23	00:26	03:02	Duplicate
ZZZZZZ	6Q11528.D	01/18/23	00:40	03:16	(unrelated sample)
ZZZZZZ	6Q11529.D	01/18/23	00:54	03:30	(unrelated sample)
S6Q180-CC174	6Q11530.D	01/18/23	01:08	03:44	Continuing cal 4
S6Q180-ICCB	6Q11531.D	01/18/23	01:22	03:58	Continuing Calibration Blank
FC1867-1	6Q11532.D	01/18/23	01:36	04:12	AF-RHMW225401-WGN01B-2301W2
FC1867-2	6Q11533.D	01/18/23	01:50	04:26	AF-RHMW12A-WGN01LF-2301W2
FC1867-3	6Q11534.D	01/18/23	02:04	04:40	AF-RHMW12A-WGFD01LF-2301W2
FC1867-4	6Q11535.D	01/18/23	02:18	04:54	AF-HDMW225303-WGN01LF-2301W2
FC1867-5	6Q11536.D	01/18/23	02:32	05:08	AF-RHMW16-WGN01LF-2301W2
FC1867-6	6Q11537.D	01/18/23	02:46	05:22	AF-RHMW10-WGN01LF-2301W2
ZZZZZZ	6Q11538.D	01/18/23	03:00	05:36	(unrelated sample)
ZZZZZZ	6Q11539.D	01/18/23	03:14	05:50	(unrelated sample)
S6Q180-CC174	6Q11540.D	01/18/23	03:28	06:04	Continuing cal 4
S6Q180-ICCB	6Q11541.D	01/18/23	03:42	06:18	Continuing Calibration Blank
OP94976-BS	6Q11542.D	01/18/23	03:56	06:32	Blank Spike
OP94976-LLBS	6Q11543.D	01/18/23	04:10	06:46	Blank Spike
OP94976-MB	6Q11544.D	01/18/23	04:24	07:00	Method Blank
ZZZZZZ	6Q11545.D	01/18/23	04:38	07:14	(unrelated sample)
ZZZZZZ	6Q11546.D	01/18/23	04:52	07:28	(unrelated sample)
FC1703-1	6Q11547.D	01/18/23	05:06	07:42	(used for QC only; not part of job FC1867)
OP94976-MS	6Q11548.D	01/18/23	05:20	07:56	Matrix Spike
FC1703-2	6Q11549.D	01/18/23	05:34	08:10	(used for QC only; not part of job FC1867)

TDCA Retention Time Check

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q180-RT	Injection Date:	01/17/23
Lab File ID:	6Q11514.D	Injection Time:	21:24
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP94976-DUP	6Q11550.D	01/18/23	05:48	08:24	Duplicate
ZZZZZZ	6Q11551.D	01/18/23	06:02	08:38	(unrelated sample)
S6Q180-CC174	6Q11552.D	01/18/23	06:15	08:51	Continuing cal 4
S6Q180-ICCB	6Q11553.D	01/18/23	06:29	09:05	Continuing Calibration Blank
ZZZZZZ	6Q11554.D	01/18/23	06:43	09:19	(unrelated sample)
ZZZZZZ	6Q11555.D	01/18/23	06:57	09:33	(unrelated sample)
ZZZZZZ	6Q11556.D	01/18/23	07:11	09:47	(unrelated sample)
ZZZZZZ	6Q11557.D	01/18/23	07:25	10:01	(unrelated sample)
ZZZZZZ	6Q11558.D	01/18/23	07:39	10:15	(unrelated sample)
ZZZZZZ	6Q11559.D	01/18/23	07:53	10:29	(unrelated sample)
ZZZZZZ	6Q11560.D	01/18/23	08:07	10:43	(unrelated sample)
ZZZZZZ	6Q11561.D	01/18/23	08:21	10:57	(unrelated sample)
ZZZZZZ	6Q11562.D	01/18/23	08:35	11:11	(unrelated sample)
ZZZZZZ	6Q11563.D	01/18/23	08:49	11:25	(unrelated sample)
S6Q180-CC174	6Q11564.D	01/18/23	09:03	11:39	Continuing cal 4
S6Q180-ICCB	6Q11565.D	01/18/23	09:17	11:53	Continuing Calibration Blank
ZZZZZZ	6Q11566.D	01/18/23	09:31	12:07	(unrelated sample)
ZZZZZZ	6Q11567.D	01/18/23	09:45	12:21	(unrelated sample)
ZZZZZZ	6Q11568.D	01/18/23	09:59	12:35	(unrelated sample)
ZZZZZZ	6Q11569.D	01/18/23	10:13	12:49	(unrelated sample)
S6Q180-CC174	6Q11570.D	01/18/23	10:27	13:03	Continuing cal 4
S6Q180-ICCB	6Q11571.D	01/18/23	10:41	13:17	Continuing Calibration Blank
S6Q180-CC174	6Q11572.D	01/18/23	10:55	13:31	Continuing cal 1.0LL
OP94824-BS	6Q11573.D	01/18/23	11:09	13:45	Blank Spike
OP94824-LLBS	6Q11574.D	01/18/23	11:23	13:59	Blank Spike
OP94824-MB	6Q11575.D	01/18/23	11:38	14:14	Method Blank
FC1536-48	6Q11576.D	01/18/23	11:52	14:28	(used for QC only; not part of job FC1867)
OP94824-MS	6Q11577.D	01/18/23	12:06	14:42	Matrix Spike
OP94824-MSD	6Q11578.D	01/18/23	12:20	14:56	Matrix Spike Duplicate
ZZZZZZ	6Q11579.D	01/18/23	12:34	15:10	(unrelated sample)
ZZZZZZ	6Q11580.D	01/18/23	12:48	15:24	(unrelated sample)
ZZZZZZ	6Q11581.D	01/18/23	13:02	15:38	(unrelated sample)
ZZZZZZ	6Q11582.D	01/18/23	13:15	15:51	(unrelated sample)
S6Q180-CC174	6Q11583.D	01/18/23	13:29	16:05	Continuing cal 4
S6Q180-ICCB	6Q11584.D	01/18/23	13:43	16:19	Continuing Calibration Blank
ZZZZZZ	6Q11585.D	01/18/23	13:57	16:33	(unrelated sample)
ZZZZZZ	6Q11586.D	01/18/23	14:11	16:47	(unrelated sample)
ZZZZZZ	6Q11587.D	01/18/23	14:34	17:10	(unrelated sample)
ZZZZZZ	6Q11588.D	01/18/23	14:48	17:24	(unrelated sample)
ZZZZZZ	6Q11589.D	01/18/23	15:02	17:38	(unrelated sample)
ZZZZZZ	6Q11590.D	01/18/23	15:18	17:54	(unrelated sample)
ZZZZZZ	6Q11591.D	01/18/23	15:32	18:08	(unrelated sample)
ZZZZZZ	6Q11592.D	01/18/23	15:46	18:22	(unrelated sample)
ZZZZZZ	6Q11593.D	01/18/23	16:00	18:36	(unrelated sample)

6.6.2
6

TDCA Retention Time Check

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q180-RT	Injection Date:	01/17/23
Lab File ID:	6Q11514.D	Injection Time:	21:24
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q11594.D	01/18/23	16:14	18:50	(unrelated sample)
S6Q180-CC174	6Q11595.D	01/18/23	16:28	19:04	Continuing cal 4
S6Q180-ICCB	6Q11596.D	01/18/23	16:42	19:18	Continuing Calibration Blank
ZZZZZZ	6Q11597.D	01/18/23	16:56	19:32	(unrelated sample)
ZZZZZZ	6Q11598.D	01/18/23	17:10	19:46	(unrelated sample)
ZZZZZZ	6Q11599.D	01/18/23	17:24	20:00	(unrelated sample)
ZZZZZZ	6Q11600.D	01/18/23	17:38	20:14	(unrelated sample)
ZZZZZZ	6Q11601.D	01/18/23	17:52	20:28	(unrelated sample)
S6Q180-ECC174	6Q11605.D	01/18/23	18:48	21:24	Ending cal 4
S6Q180-ICCB	6Q11606.D	01/18/23	19:02	21:38	Continuing Calibration Blank

6.6.2

6

Ion Ratio Summary

Job Number: FC1867
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q180 Method: EPA DRAFT 1633

Lab Sample ID	Lab File ID	Ion Ratios						
		PFPeA	PFHxA	PFHpA	PFOA	PFBS	PFHxS	PFOS
S6Q174-ICC174	6Q10952.D	0	4.1	13	14.4	48.2	56.6	58.7
FC1867-1	6Q11532.D		4.5	11.5	14.7	52.2	44.3	68.2
FC1867-2	6Q11533.D	0	5.1					
FC1867-3	6Q11534.D	0	4.9					
FC1867-4	6Q11535.D							
FC1867-5	6Q11536.D							
FC1867-6	6Q11537.D							

6.7.1
6

Isotope Dilution Standard Recovery Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6	S7	S8
FC1867-1	6Q11532.D	114	118	120	122	115	112	129	119
FC1867-2	6Q11533.D	119	119	115	122	108	114	114	99
FC1867-3	6Q11534.D	121	122	116	120	108	113	115	101
FC1867-4	6Q11535.D	121	122	121	118	116	109	129	114
FC1867-5	6Q11536.D	119	117	111	114	118	109	120	107
FC1867-6	6Q11537.D	124	122	123	125	116	120	119	95
OP94995-BS	6Q11520.D	112	109	107	111	118	116	108	107
OP94995-DUP	6Q11527.D	109	117	118	114	101	107	109	92
OP94995-LLBS	6Q11521.D	112	118	120	120	114	101	106	99
OP94995-MB	6Q11522.D	114	117	117	122	110	107	119	107
OP94995-MS	6Q11525.D	115	116	117	117	110	107	119	107
S6Q180-IBLK	6Q11517.D	100	106	105	108	95	106	100	101
S6Q180-ICCB	6Q11531.D	100	98	95	101	105	109	110	100

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: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S9	S10	S11	S12	S13	S14	S15	S16
FC1867-1	6Q11532.D	102	87	105	110	112	109	84	80
FC1867-2	6Q11533.D	100	90	108	104	103	109	98	91
FC1867-3	6Q11534.D	89	70	107	111	111	112	99	92
FC1867-4	6Q11535.D	108	94	122	123	120	114	97	101
FC1867-5	6Q11536.D	99	95	117	125	108	108	96	93
FC1867-6	6Q11537.D	93	84	114	116	124	123	106	107
OP94995-BS	6Q11520.D	105	91	104	114	112	112	97	92
OP94995-DUP	6Q11527.D	92	91	105	106	98	102	81	79
OP94995-LLBS	6Q11521.D	98	82	101	105	103	101	84	79
OP94995-MB	6Q11522.D	105	73	102	113	106	102	78	78
OP94995-MS	6Q11525.D	106	93	102	106	109	107	95	91
S6Q180-IBLK	6Q11517.D	102	96	102	104	102	100	98	93
S6Q180-ICCB	6Q11531.D	98	95	100	108	108	105	93	96

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%

6.8.1

6

Isotope Dilution Standard Recovery Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S17	S18	S19	S20	S21	S22	S23	S24
FC1867-1	6Q11532.D	104	100	89	91	117	121	114	124
FC1867-2	6Q11533.D	108	101	99	99	128	123	111	127
FC1867-3	6Q11534.D	115	99	98	92	126	118	125	122
FC1867-4	6Q11535.D	114	110	113	106	138	134	143	131
FC1867-5	6Q11536.D	98	105	94	96	140	136	130	126
FC1867-6	6Q11537.D	117	117	100	106	131	131	115	131
OP94995-BS	6Q11520.D	111	109	89	87	120	129	113	115
OP94995-DUP	6Q11527.D	96	91	85	85	116	115	106	123
OP94995-LLBS	6Q11521.D	99	102	85	87	110	123	119	123
OP94995-MB	6Q11522.D	104	96	87	85	119	129	118	117
OP94995-MS	6Q11525.D	108	103	99	92	121	117	99	124
S6Q180-IBLK	6Q11517.D	109	98	93	95	111	108	108	107
S6Q180-ICCB	6Q11531.D	102	103	99	95	113	125	121	101

Isotope Dilution Standards	Recovery Limits
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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%

6.8.1
6

Initial Calibration Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q174-ICC174
 Lab FileID: 6Q10952.D

Initial Calibration Report

Method Path	Method File	Batch Name	Last Calib Update	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD		
D:\MassHunter\Methods	1633_011123_S6Q174.quantmethod.xml	D:\MassHunter\Data\011123_1633_S6Q174	1/11/2023 2:54:49 PM	D:\MassHunter\Data\011123_1633_S6Q174\6Q10949.d	Avg RF	0.2805	0.2313	0.2404	0.2529	0.2491	0.2605	0.2753	0.2623	0.2565	6.494		
D:\MassHunter\Data\011123_1633_S6Q174\6Q10950.d	D:\MassHunter\Data\011123_1633_S6Q174\6Q10951.d	D:\MassHunter\Data\011123_1633_S6Q174\6Q10952.d	D:\MassHunter\Data\011123_1633_S6Q174\6Q10953.d	D:\MassHunter\Data\011123_1633_S6Q174\6Q10954.d	D:\MassHunter\Data\011123_1633_S6Q174\6Q10955.d	D:\MassHunter\Data\011123_1633_S6Q174\6Q10956.d											
Level Name	Acq. Date-Time	Level Last Update Time															
1	1/11/2023 11:50:22 AM	1/11/2023 2:54:49 PM															
2	1/11/2023 12:04:23 PM	1/11/2023 2:54:49 PM															
3	1/11/2023 12:18:22 PM	1/11/2023 2:54:49 PM															
4	1/11/2023 12:32:22 PM	1/11/2023 2:54:49 PM															
5	1/11/2023 12:46:21 PM	1/11/2023 2:54:49 PM															
6	1/11/2023 1:00:22 PM	1/11/2023 2:54:49 PM															
7	1/11/2023 1:14:21 PM	1/11/2023 2:54:49 PM															
8	1/11/2023 1:28:22 PM	1/11/2023 2:54:49 PM															
Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD						
I M4-PFBA	Avg RF	0.2805	0.2313	0.2404	0.2529	0.2491	0.2605	0.2753	0.2623	0.2565	6.494						
T PFBA																	
I M5-PFPeA	Avg RF	0.3312	0.2813	0.2828	0.2990	0.2948	0.3045	0.3210	0.3167	0.3039	5.917						
T PFMPA	Avg RF	0.0656	0.0530	0.0544	0.0569	0.0562	0.0578	0.0621	0.0619	0.0585	7.386						
T 3:3FTCA	Avg RF	1.2360	1.0027	1.0266	1.0832	1.0807	1.1082	1.1418	1.1046	1.0980	6.513						
T PFPeA	Avg RF	0.3782	0.3005	0.3273	0.3365	0.3309	0.3503	0.3603	0.3557	0.3425	6.977						
T PFMBa																	
I M5-PFHxA	Avg RF	0.0726	0.0533	0.0688	0.0676	0.0647	0.0628	0.0700	0.0643	0.0655	9.009						
T NFDHA	Avg RF	1.1932	0.9314	0.9018	0.9809	0.9665	0.9800	1.1159	1.0119	1.0102	9.635						
T PFHxA	Avg RF	1.4652	1.2555	1.3652	1.4542	1.4640	1.3291	1.4593	1.4584	1.4064	5.703						
T PFEEA	Avg RF	0.2322	0.1870	0.1994	0.2151	0.2016	0.1998	0.2288	0.2167	0.2101	7.489						
T 5:3FTCA	Avg RF	0.1526	0.1258	0.1349	0.1464	0.1443	0.1320	0.1467	0.1501	0.1416	6.738						
T 7:3FTCA																	
I M4-PFHpA	Avg RF	1.6154	1.3692	1.4716	1.4869	1.4945	1.4908	1.5889	1.5443	1.5077	5.070						
T PFHpA																	
I M8-PFOA	Avg RF	1.3500	0.9999	1.0558	1.0366	1.0819	1.1920	1.1345	1.0983	1.1186	9.893						
T PFOA																	
I M9-PFNA	Avg RF	0.8487	0.7684	0.7926	0.8780	0.9594	0.8749	0.9310	0.8664	0.8649	7.359						
T PFNA																	
I M6-PFDA	Avg RF	1.6051	1.2876	1.5050	1.5745	1.4746	1.5170	1.5722	1.4849	1.5026	6.562						
T PFDA																	
I M7-PFUnDA	Avg RF	1.0075	0.9086	0.9785	1.1247	1.0237	1.0241	1.1661	1.1305	1.0454	8.375						
T PFUnDA																	
I M2-PFDaDA																	



Initial Calibration Summary

Job Number: FC1867
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q174-ICC174
 Lab FileID: 6Q10952.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	1.0525	0.8655	0.9990	1.0305	1.0194	1.0760	0.9569	0.8669	0.9833	8.179
T PFTfDA	Avg RF	1.0750	0.8965	0.8961	0.9385	0.9660	0.9625	0.9558	0.8194	0.9387	7.849
I M2-PFTeDA	Avg RF	1.7107	1.3184	1.4071	1.6217	1.4543	1.4622	1.4562	1.4887	1.4899	8.241
T PFTeDA	Avg RF										
I M8-FOSA	Avg RF	1.0336	0.9549	0.9483	1.0399	0.9846	1.0300	1.0558	1.0322	1.0099	4.087
T FOSA	Avg RF										
I M3-PFBS	Avg RF	1.1637	0.9269	0.9833	0.9980	0.9790	0.9673	1.0427	1.0328	1.0117	7.061
T PFBS	Avg RF										
I M3-PFHxS	Avg RF	1.6706	1.3155	1.3040	1.4217	1.2816	1.4208	1.4572	1.3999	1.4089	8.783
T PFPeS	Avg RF	1.4173	1.1972	1.1055	1.1545	1.0727	1.1426	1.1914	1.2407	1.1903	8.908
T PFHxS	Avg RF										
I M8-PFOS	Avg RF	1.2466	1.0750	1.1411	1.0688	1.1289	1.1269	1.2266	1.1362	1.1438	5.565
T PFHpS	Avg RF	1.3921	0.9704	1.2169	1.1906	1.1409	1.1959	1.3526	1.2260	1.2107	10.657
T PFOS	Avg RF	1.4265	1.0111	1.1612	1.1768	1.1325	1.2469	1.3349	1.1685	1.2073	10.597
T PRNS	Avg RF	0.8876	0.7652	0.7914	0.8654	0.8107	0.8934	1.0409	0.8482	0.8628	9.874
T PFDS	Avg RF	0.6155	0.4966	0.5083	0.5328	0.4942	0.5304	0.5936	0.5333	0.5381	8.231
T PFDoDS	Avg RF										
I M2-4:2FTS	Avg RF	13.63	10.65	10.71	13.31	11.11	12.43	12.12	11.17	11.89	9.755
T 4:2FTS	Avg RF										
I M2-6:2FTS	Avg RF	8.6152	6.5015	7.4392	8.1334	8.1074	8.7703	7.8848	6.7737	7.7782	10.518
T 6:2FTS	Avg RF										
I M2-8:2FTS	Avg RF	5.3639	3.9004	3.8257	4.3974	4.2581	3.8029	4.5256	3.2953	4.1712	14.896
T 8:2FTS	Avg RF										
I M3-MeFOSAA	Avg RF	1.2473	0.8222	0.8759	1.0901	1.0020	1.0133	1.1822	1.0128	1.0307	13.831
T MeFOSAA	Avg RF										
I M3-HFO-DA	Avg RF	1.1422	0.8906	0.9700	1.0404	1.0056	1.0629	1.0506	0.9278	1.0112	7.971
T HFO-DA	Avg RF	23.26	20.49	22.67	22.78	23.23	22.64	21.97	20.84	22.23	4.736
T ADONA	Avg RF	13.21	11.36	12.34	12.66	12.38	13.14	12.49	11.00	12.32	6.350
T 9Cl-PF3ONS	Avg RF	8.1940	7.0707	7.2191	7.9707	8.0154	7.7251	7.8384	6.6288	7.5828	7.226
T 11Cl-PF3OUds	Avg RF										
I M5-EFOSAA	Avg RF	0.8128	0.6836	0.8173	0.8569	0.7599	0.8052	0.8089	0.8409	0.7982	6.798
T EFOSAA	Avg RF										
I M7-MeFOSE	Avg RF	1.0503	0.9611	0.9839	0.9708	1.0799	1.0901	1.0787	1.0460	1.0326	5.106
T MeFOSE	Avg RF										
I M9-EFOSE	Avg RF	1.1610	0.9768	1.0039	1.0893	1.1046	1.0966	1.1657	1.2253	1.1029	7.526
T EFOSE	Avg RF										

Generated at 2:55 PM on 1/11/2023

Page 2 of 4

Initial Calibration Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q174-ICC174
 Lab FileID: 6Q10952.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA		1.4403	1.0964	1.1089	1.2088	1.1498	1.2454	1.2753	1.1530	1.2097	9.296
T EFOSA	Avg RF					ISTD					
I M3-MeFOSA		1.3173	0.9875	1.0477	1.0804	1.0844	1.0866	1.1735	1.0591	1.1046	9.073
T MeFOSA	Avg RF					ISTD					
I 13C4-PFOS		1.1707	1.3472	1.1997	1.0635	1.2074	1.3093	1.1109	1.2215	1.2038	7.781
S d3-MeFOSAA	Linear					ISTD					
S 13C8-PFOS	Linear	0.7474	0.8826	0.7934	0.7567	0.8256	0.8304	0.7349	0.8198	0.7989	6.298
S d5-EFOSAA	Linear	1.0546	1.0703	1.0285	0.9902	1.0875	1.1411	1.0478	1.0292	1.0562	4.280
S 13C8-FOSA	Linear	1.6058	1.8114	1.6856	1.5941	1.7582	1.7696	1.6225	1.6620	1.6886	4.870
S d7-MeFOSE	Linear	0.3151	0.3309	0.3125	0.3078	0.3073	0.3290	0.3158	0.3274	0.3182	3.000
S d3-MeFOSA	Linear	0.6906	0.8165	0.7537	0.7210	0.7661	0.8205	0.7580	0.8586	0.7731	7.186
S d9-EFOSE	Linear	0.2317	0.2599	0.2410	0.2350	0.2398	0.2635	0.2415	0.2344	0.2434	4.878
S d5-EFOSA	Linear	0.7951	0.9117	0.8333	0.8095	0.8995	0.9022	0.8490	0.9278	0.8660	5.840
I 13C3-PFBA		1.1464	1.1389	1.1347	1.1540	1.1394	1.1516	1.1265	1.1443	1.1420	0.791
S 13C4-PFBA	Linear					ISTD					
I 1802-PFHxS		0.1443	0.1399	0.1384	0.1269	0.1367	0.1306	0.1115	0.1150	0.1304	9.133
S 13C2-4:2FTS	Linear	2.1517	2.0301	2.0213	2.0396	2.0707	2.2613	2.0624	2.1368	2.0967	3.906
S 13C3-PFBS	Linear	0.2028	0.1961	0.1810	0.1840	0.1759	0.1701	0.1565	0.1620	0.1786	8.903
S 13C2-6:2FTS	Linear	1.3952	1.2698	1.4027	1.3589	1.4033	1.4336	1.2537	1.3413	1.3573	4.831
S 13C3-PFHxS	Linear	0.1967	0.1968	0.2078	0.1920	0.1907	0.2169	0.1641	0.1944	0.1949	7.831
S 13C2-8:2FTS	Linear					ISTD					
I 13C4-PFOA		0.7758	0.8417	0.8701	0.8580	0.8317	0.8251	0.8643	0.8367	0.8379	3.555
S 13C8-PFOA	Linear					ISTD					
I 13C2-PFDA		0.7491	0.7856	0.6982	0.6591	0.5981	0.7380	0.7700	0.6957	0.7117	8.736
S 13C6-PFDA	Linear	0.9630	0.8958	0.9012	0.8547	0.7802	0.9028	0.8504	0.8001	0.8685	6.870
S 13C7-PFUDA	Linear	1.0233	0.9801	1.0113	0.9657	0.8434	0.9754	1.0706	1.0583	0.9910	7.145
S 13C2-PFDODA	Linear	0.6151	0.6071	0.5875	0.5456	0.5001	0.6001	0.6371	0.5656	0.5823	7.519
S 13C2-PFEDA	Linear					ISTD					
I 13C5-PFNA		0.8869	0.9067	0.8780	0.9210	0.8219	0.9191	0.9077	0.8650	0.8883	3.758
S 13C9-PFNA	Linear					ISTD					
I 13C2-PFHxA		0.5728	0.5409	0.5700	0.5813	0.5908	0.5703	0.5293	0.5065	0.5577	5.204
S 13C5-PPeA	Linear	1.0407	0.9880	1.0131	1.0365	1.0485	1.0651	0.9309	0.9069	1.0037	5.739
S 13C5-PFHxA	Linear	1.061	0.0991	1.042	1.041	1.0161	1.0141	0.0995	0.1017	0.1031	2.637
S 13C3-HFOO-DA	Linear	1.0372	1.0073	1.0172	1.0744	1.0793	1.0106	0.9569	0.9260	1.0136	5.211
S 13C4-PFHxA	Linear					ISTD					

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

Initial Calibration Summary

Job Number: FC1867
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q174-ICC174
 Lab FileID: 6Q10952.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PBBA	Linear	$y = 1.141960 * x$	
S 13C5-PFPeA	Linear	$y = 0.557734 * x$	
S 13C2-4:2FTS	Linear	$y = 0.130399 * x$	
S 13C3-PFBS	Linear	$y = 2.096744 * x$	
S 13C5-PFHxA	Linear	$y = 1.003710 * x$	
S 13C3-HFPO-DA	Linear	$y = 0.103114 * x$	
S 13C4-PFHpA	Linear	$y = 1.013623 * x$	
S 13C8-PFOA	Linear	$y = 0.178567 * x$	
S 13C3-PFHxS	Linear	$y = 0.837918 * x$	
S 13C9-PFNA	Linear	$y = 1.357298 * x$	
S 13C2-8:2FTS	Linear	$y = 0.888277 * x$	
S 13C6-PEDA	Linear	$y = 0.194916 * x$	
S d3-MeFOSAA	Linear	$y = 0.711730 * x$	
S 13C8-PFOS	Linear	$y = 1.203781 * x$	
S d5-EFOSAA	Linear	$y = 0.798860 * x$	
S 13C7-PFUdA	Linear	$y = 1.056160 * x$	
S 13C2-PFDODA	Linear	$y = 0.8668528 * x$	
S 13C8-FOSA	Linear	$y = 0.991004 * x$	
S 13C2-PFTeDA	Linear	$y = 1.688630 * x$	
S d7-MeFOSE	Linear	$y = 0.582276 * x$	
S d3-MeFOSA	Linear	$y = 0.318223 * x$	
S d9-EFOSE	Linear	$y = 0.773138 * x$	
S d5-EFOSA	Linear	$y = 0.243360 * x$	
S d5-EFOSA	Linear	$y = 0.866005 * x$	

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

Initial Calibration Verification

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q174-ICV174
 Lab FileID: 6Q10958.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\011123_1633_S6Q174\S6Q174.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\011123_1633_S6Q174\6Q10949.d
 2:D:\MassHunter\Data\011123_1633_S6Q174\6Q10950.d
 3:D:\MassHunter\Data\011123_1633_S6Q174\6Q10951.d
 4:D:\MassHunter\Data\011123_1633_S6Q174\6Q10952.d
 5:D:\MassHunter\Data\011123_1633_S6Q174\6Q10953.d
 6:D:\MassHunter\Data\011123_1633_S6Q174\6Q10954.d
 7:D:\MassHunter\Data\011123_1633_S6Q174\6Q10955.d
 8:D:\MassHunter\Data\011123_1633_S6Q174\6Q10956.d

Data File: 6Q10958
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.717	-5.7	94.3
13C2-6:2FTS	5.000	5.231	4.6	104.6
13C2-8:2FTS	5.000	4.795	-4.1	95.9
13C2-PFDoDA	1.250	1.144	-8.4	91.6
13C2-PFTeDA	1.250	1.144	-8.5	91.5
13C3-PFBS	2.500	2.436	-2.5	97.5
13C3-PFHxS	2.500	2.309	-7.6	92.4
13C4-PFBA	10.000	10.050	0.5	100.5
13C4-PFHpA	2.500	2.481	-0.7	99.3
13C5-PFHxA	2.500	2.535	1.4	101.4
13C5-PFPeA	5.000	5.086	1.7	101.7
13C6-PFDA	1.250	1.201	-4.0	96.0
13C7-PFUnDA	1.250	1.267	1.3	101.3
13C8-FOSA	2.500	2.634	5.4	105.4
13C8-PFOA	2.500	2.405	-3.8	96.2
13C8-PFOS	2.500	2.712	8.5	108.5
13C9-PFNA	1.250	1.259	0.7	100.7
4:2FTS	9.375	8.968	-4.3	95.7
6:2FTS	9.500	8.106	-14.7	85.3
8:2FTS	9.600	9.124	-5.0	95.0
d3-MeFOSAA	5.000	5.706	14.1	114.1
EtFOSAA	2.500	2.388	-4.5	95.5
FOSA	2.500	2.462	-1.5	98.5
MeFOSAA	2.500	2.201	-12.0	88.0
PFBA	10.000	8.925	-10.7	89.3
PFBS	2.218	1.897	-14.5	85.5
PFDA	2.500	2.379	-4.8	95.2
PFDoDA	2.500	2.318	-7.3	92.7
PFDS	2.413	2.196	-9.0	91.0
PFHpA	2.500	2.292	-8.3	91.7
PFHpS	2.383	2.112	-11.4	88.6
PFHxA	2.500	2.246	-10.1	89.9
PFHxS	2.285	2.153	-5.8	94.2
PFNA	2.500	2.371	-5.2	94.8
PFNS	2.405	2.393	-0.5	99.5
PFOA	2.500	2.197	-12.1	87.9
PFOS	2.320	2.065	-11.0	89.0

Initial Calibration Verification

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q174-ICV174
 Lab FileID: 6Q10958.D

PFPeA	5.000	4.443	-11.1	88.9
PFPeS	2.353	2.248	-4.4	95.6
PFTeDA	2.500	2.338	-6.5	93.5
PFTTrDA	2.500	2.376	-5.0	95.0
PFUnDA	2.500	2.157	-13.7	86.3
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--		
11C1-PF3OUdS	9.450	9.226	-2.4	97.6
13C3-HFPO-DA	10.000	9.589	-4.1	95.9
9C1-PF3ONS	9.350	9.210	-1.5	98.5
ADONA	9.450	9.136	-3.3	96.7
HFPO-DA	10.000	9.285	-7.2	92.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.000	-11.9	88.1
5:3FTCA	62.400	55.355	-11.3	88.7
7:3FTCA	62.400	57.713	-7.5	92.5
d3-MeFOSA	2.500	2.550	2.0	102.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.443	-2.3	97.7
EtFOSE	25.000	22.372	-10.5	89.5
MeFOSA	2.500	2.459	-1.6	98.4
MeFOSE	25.000	23.072	-7.7	92.3
PFDoDS	2.425	2.240	-7.6	92.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.191	3.8	103.8
d7-MeFOSE	25.000	27.157	8.6	108.6
d9-EtFOSE	25.000	27.202	8.8	108.8
d5-EtFOSA	2.500	2.556	2.2	102.2
NFDHA	5.000	4.681	-6.4	93.6
PFMBA	5.000	4.565	-8.7	91.3
PFMPA	5.000	4.493	-10.1	89.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.113	-7.6	92.4

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q174-ICV174
 Lab FileID: 6Q10959.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\011123_1633_S6Q174\S6Q174.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\011123_1633_S6Q174\6Q10949.d
 2:D:\MassHunter\Data\011123_1633_S6Q174\6Q10950.d
 3:D:\MassHunter\Data\011123_1633_S6Q174\6Q10951.d
 4:D:\MassHunter\Data\011123_1633_S6Q174\6Q10952.d
 5:D:\MassHunter\Data\011123_1633_S6Q174\6Q10953.d
 6:D:\MassHunter\Data\011123_1633_S6Q174\6Q10954.d
 7:D:\MassHunter\Data\011123_1633_S6Q174\6Q10955.d
 8:D:\MassHunter\Data\011123_1633_S6Q174\6Q10956.d

Data File: 6Q10959
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.154	3.1	103.1
13C2-6:2FTS	5.000	4.939	-1.2	98.8
13C2-8:2FTS	5.000	5.159	3.2	103.2
13C2-PFDoDA	1.250	1.252	0.1	100.1
13C2-PFTeDA	1.250	1.233	-1.3	98.7
13C3-PFBS	2.500	2.394	-4.3	95.7
13C3-PFHxS	2.500	2.395	-4.2	95.8
13C4-PFBA	10.000	9.999	0.0	100.0
13C4-PFHpA	2.500	2.376	-5.0	95.0
13C5-PFHxA	2.500	2.478	-0.9	99.1
13C5-PFPeA	5.000	5.074	1.5	101.5
13C6-PFDA	1.250	1.253	0.3	100.3
13C7-PFUnDA	1.250	1.317	5.4	105.4
13C8-FOSA	2.500	2.652	6.1	106.1
13C8-PFOA	2.500	2.541	1.6	101.6
13C8-PFOS	2.500	2.699	8.0	108.0
13C9-PFNA	1.250	1.320	5.6	105.6
4:2FTS	20.000	19.616	-1.9	98.1
6:2FTS	20.000	21.520	7.6	107.6
8:2FTS	20.000	19.768	-1.2	98.8
d3-MeFOSAA	5.000	5.195	3.9	103.9
EtFOSAA	20.000	22.050	10.3	110.3
FOSA	20.000	21.082	5.4	105.4
MeFOSAA	20.000	20.436	2.2	102.2
PFBA	20.000	20.371	1.9	101.9
PFBS	20.000	23.182	15.9	115.9
PFDA	20.000	22.170	10.8	110.8
PFDoDA	20.000	19.443	-2.8	97.2
PFDS	20.000	20.413	2.1	102.1
PFHpA	20.000	21.569	7.8	107.8
PFHpS	20.000	20.227	1.1	101.1
PFHxA	20.000	20.742	3.7	103.7
PFHxS	20.000	22.383	11.9	111.9
PFNA	20.000	22.553	12.8	112.8
PFNS	20.000	20.071	0.4	100.4
PFOA	20.000	20.363	1.8	101.8
PFOS	20.000	17.622	-11.9	88.1

Initial Calibration Verification

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q174-ICV174
 Lab FileID: 6Q10959.D

PFPeA	20.000	20.534	2.7	102.7
PFPeS	20.000	21.166	5.8	105.8
PFTeDA	20.000	21.034	5.2	105.2
PFTTrDA	20.000	19.341	-3.3	96.7
PFUnDA	20.000	19.954	-0.2	99.8
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--		
11C1-PF3OUdS	20.000	22.057	10.3	110.3
13C3-HFPO-DA	10.000	10.217	2.2	102.2
9C1-PF3ONS	20.000	19.409	-3.0	97.0
ADONA	20.000	20.425	2.1	102.1
HFPO-DA	20.000	19.280	-3.6	96.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	19.791	-1.0	99.0
5:3FTCA	20.000	20.981	4.9	104.9
7:3FTCA	20.000	21.007	5.0	105.0
d3-MeFOSA	2.500	2.636	5.4	105.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	20.334	1.7	101.7
EtFOSE	100.000	98.550	-1.5	98.5
MeFOSA	20.000	20.008	0.0	100.0
MeFOSE	100.000	93.455	-6.5	93.5
PFDoDS	20.000	19.462	-2.7	97.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.184	3.7	103.7
d7-MeFOSE	25.000	26.353	5.4	105.4
d9-EtFOSE	25.000	25.869	3.5	103.5
d5-EtFOSA	2.500	2.592	3.7	103.7
NFDHA	20.000	19.296	-3.5	96.5
PFMBA	20.000	19.505	-2.5	97.5
PFMPA	20.000	19.798	-1.0	99.0
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	17.396	-13.0	87.0

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q180-CC174
 Lab FileID: 6Q11518.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\011123_1633_S6Q179\s6q180.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\011123_1633_S6Q174\6Q10949.d
 2:D:\MassHunter\Data\011123_1633_S6Q174\6Q10950.d
 3:D:\MassHunter\Data\011123_1633_S6Q174\6Q10951.d
 4:D:\MassHunter\Data\011123_1633_S6Q174\6Q10952.d
 5:D:\MassHunter\Data\011123_1633_S6Q174\6Q10953.d
 6:D:\MassHunter\Data\011123_1633_S6Q174\6Q10954.d
 7:D:\MassHunter\Data\011123_1633_S6Q174\6Q10955.d
 8:D:\MassHunter\Data\011123_1633_S6Q174\6Q10956.d

Data File: 6Q11518
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.051	1.0	101.0
13C2-6:2FTS	5.000	5.118	2.4	102.4
13C2-8:2FTS	5.000	5.294	5.9	105.9
13C2-PFDoDA	1.250	1.169	-6.5	93.5
13C2-PFTeDA	1.250	1.222	-2.3	97.7
13C3-PFBS	2.500	2.385	-4.6	95.4
13C3-PFHxS	2.500	2.406	-3.7	96.3
13C4-PFBA	10.000	9.931	-0.7	99.3
13C4-PFHpA	2.500	2.476	-1.0	99.0
13C5-PFHxA	2.500	2.456	-1.7	98.3
13C5-PFPeA	5.000	5.036	0.7	100.7
13C6-PFDA	1.250	1.256	0.4	100.4
13C7-PFUnDA	1.250	1.328	6.3	106.3
13C8-FOSA	2.500	2.549	2.0	102.0
13C8-PFOA	2.500	2.417	-3.3	96.7
13C8-PFOS	2.500	2.763	10.5	110.5
13C9-PFNA	1.250	1.234	-1.3	98.7
4:2FTS	9.375	8.539	-8.9	91.1
6:2FTS	9.500	8.544	-10.1	89.9
8:2FTS	9.600	8.519	-11.3	88.7
d3-MeFOSAA	5.000	4.825	-3.5	96.5
EtFOSAA	2.500	2.258	-9.7	90.3
FOSA	2.500	2.376	-5.0	95.0
MeFOSAA	2.500	2.455	-1.8	98.2
PFBA	10.000	9.111	-8.9	91.1
PFBS	2.218	2.016	-9.1	90.9
PFDA	2.500	2.283	-8.7	91.3
PFDoDA	2.500	2.381	-4.8	95.2
PFDS	2.413	2.116	-12.3	87.7
PFHpA	2.500	2.300	-8.0	92.0
PFHpS	2.383	1.906	-20.0	80.0
PFHxA	2.500	2.247	-10.1	89.9
PFHxS	2.285	1.984	-13.2	86.8
PFNA	2.500	2.346	-6.2	93.8
PFNS	2.405	2.129	-11.5	88.5
PFOA	2.500	2.325	-7.0	93.0
PFOS	2.320	1.941	-16.3	83.7

Continuing Calibration Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q180-CC174
 Lab FileID: 6Q11518.D

PFPeA	5.000	4.612	-7.8	92.2
PFPeS	2.353	2.140	-9.1	90.9
PFTeDA	2.500	2.272	-9.1	90.9
PFTTrDA	2.500	2.515	0.6	100.6
PFUnDA	2.500	2.193	-12.3	87.7
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--		
11C1-PF3OUdS	9.450	9.084	-3.9	96.1
13C3-HFPO-DA	10.000	10.169	1.7	101.7
9C1-PF3ONS	9.350	8.425	-9.9	90.1
ADONA	9.450	8.517	-9.9	90.1
HFPO-DA	10.000	8.846	-11.5	88.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.141	-10.7	89.3
5:3FTCA	62.400	57.646	-7.6	92.4
7:3FTCA	62.400	62.542	0.2	100.2
d3-MeFOSA	2.500	2.376	-4.9	95.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.308	-7.7	92.3
EtFOSE	25.000	22.898	-8.4	91.6
MeFOSA	2.500	2.385	-4.6	95.4
MeFOSE	25.000	23.846	-4.6	95.4
PFDODS	2.425	2.110	-13.0	87.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.382	7.6	107.6
d7-MeFOSE	25.000	23.467	-6.1	93.9
d9-EtFOSE	25.000	23.660	-5.4	94.6
d5-EtFOSA	2.500	2.332	-6.7	93.3
NFDHA	5.000	4.619	-7.6	92.4
PFMBA	5.000	4.498	-10.0	90.0
PFMPA	5.000	4.506	-9.9	90.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.226	-5.0	95.0

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q180-CC174
 Lab FileID: 6Q11519.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\011123_1633_S6Q179\s6q180.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\011123_1633_S6Q174\6Q10949.d
 2:D:\MassHunter\Data\011123_1633_S6Q174\6Q10950.d
 3:D:\MassHunter\Data\011123_1633_S6Q174\6Q10951.d
 4:D:\MassHunter\Data\011123_1633_S6Q174\6Q10952.d
 5:D:\MassHunter\Data\011123_1633_S6Q174\6Q10953.d
 6:D:\MassHunter\Data\011123_1633_S6Q174\6Q10954.d
 7:D:\MassHunter\Data\011123_1633_S6Q174\6Q10955.d
 8:D:\MassHunter\Data\011123_1633_S6Q174\6Q10956.d

Data File: 6Q11519
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.533	10.7	110.7
13C2-6:2FTS	5.000	5.710	14.2	114.2
13C2-8:2FTS	5.000	5.228	4.6	104.6
13C2-PFDoDA	1.250	1.273	1.8	101.8
13C2-PFTeDA	1.250	1.228	-1.7	98.3
13C3-PFBS	2.500	2.388	-4.5	95.5
13C3-PFHxS	2.500	2.502	0.1	100.1
13C4-PFBA	10.000	10.019	0.2	100.2
13C4-PFHpA	2.500	2.432	-2.7	97.3
13C5-PFHxA	2.500	2.364	-5.4	94.6
13C5-PFPeA	5.000	4.771	-4.6	95.4
13C6-PFDA	1.250	1.245	-0.4	99.6
13C7-PFUnDA	1.250	1.236	-1.1	98.9
13C8-FOSA	2.500	2.528	1.1	101.1
13C8-PFOA	2.500	2.580	3.2	103.2
13C8-PFOS	2.500	2.705	8.2	108.2
13C9-PFNA	1.250	1.419	13.5	113.5
4:2FTS	0.750	0.634	-15.4	84.6
6:2FTS	0.760	0.682	-10.2	89.8
8:2FTS	0.768	0.678	-11.7	88.3
d3-MeFOSAA	5.000	5.418	8.4	108.4
EtFOSAA	0.200	0.203	1.5	101.5
FOSA	0.200	0.196	-1.9	98.1
MeFOSAA	0.200	0.189	-5.3	94.7
PFBA	0.800	0.707	-11.6	88.4
PFBS	0.177	0.166	-6.0	94.0
PFDA	0.200	0.180	-10.1	89.9
PFDoDA	0.200	0.185	-7.5	92.5
PFDS	0.193	0.166	-14.0	86.0
PFHpA	0.200	0.183	-8.5	91.5
PFHpS	0.191	0.142	-25.6	74.4
PFHxA	0.200	0.185	-7.7	92.3
PFHxS	0.183	0.173	-5.4	94.6
PFNA	0.200	0.183	-8.4	91.6
PFNS	0.192	0.162	-15.5	84.5
PFOA	0.200	0.200	0.2	100.2
PFOS	0.186	0.162	-12.7	87.3

Continuing Calibration Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q180-CC174
 Lab FileID: 6Q11519.D

PFPeA	0.400	0.379	-5.3	94.7
PFPeS	0.188	0.164	-12.7	87.3
PFTeDA	0.200	0.191	-4.5	95.5
PFTTrDA	0.200	0.175	-12.5	87.5
PFUnDA	0.200	0.192	-4.2	95.8
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--		
11C1-PF3OUdS	0.756	0.644	-14.9	85.1
13C3-HFPO-DA	10.000	10.076	0.8	100.8
9C1-PF3ONS	0.748	0.654	-12.5	87.5
ADONA	0.756	0.647	-14.4	85.6
HFPO-DA	0.800	0.734	-8.3	91.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.852	-14.7	85.3
5:3FTCA	4.992	4.451	-10.8	89.2
7:3FTCA	4.992	4.515	-9.6	90.4
d3-MeFOSA	2.500	2.250	-10.0	90.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.200	0.187	-6.3	93.7
EtFOSE	2.000	1.798	-10.1	89.9
MeFOSA	0.200	0.197	-1.3	98.7
MeFOSE	2.000	1.915	-4.2	95.8
PFDoDS	0.194	0.165	-15.0	85.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.049	1.0	101.0
d7-MeFOSE	25.000	23.080	-7.7	92.3
d9-EtFOSE	25.000	23.872	-4.5	95.5
d5-EtFOSA	2.500	2.340	-6.4	93.6
NFDHA	0.400	0.399	-0.3	99.7
PFMBA	0.400	0.382	-4.6	95.4
PFMPA	0.400	0.387	-3.3	96.7
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.330	-7.3	92.7

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q180-CC174
 Lab FileID: 6Q11530.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\011623_1633_S6Q179\s6q180.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\011123_1633_S6Q174\6Q10949.d
 2:D:\MassHunter\Data\011123_1633_S6Q174\6Q10950.d
 3:D:\MassHunter\Data\011123_1633_S6Q174\6Q10951.d
 4:D:\MassHunter\Data\011123_1633_S6Q174\6Q10952.d
 5:D:\MassHunter\Data\011123_1633_S6Q174\6Q10953.d
 6:D:\MassHunter\Data\011123_1633_S6Q174\6Q10954.d
 7:D:\MassHunter\Data\011123_1633_S6Q174\6Q10955.d
 8:D:\MassHunter\Data\011123_1633_S6Q174\6Q10956.d

Data File: 6Q11530
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.722	14.4	114.4
13C2-6:2FTS	5.000	5.400	8.0	108.0
13C2-8:2FTS	5.000	5.534	10.7	110.7
13C2-PFDoDA	1.250	1.270	1.6	101.6
13C2-PFTeDA	1.250	1.169	-6.5	93.5
13C3-PFBS	2.500	2.500	0.0	100.0
13C3-PFHxS	2.500	2.589	3.6	103.6
13C4-PFBA	10.000	9.900	-1.0	99.0
13C4-PFHpA	2.500	2.565	2.6	102.6
13C5-PFHxA	2.500	2.415	-3.4	96.6
13C5-PFPeA	5.000	5.054	1.1	101.1
13C6-PFDA	1.250	1.314	5.1	105.1
13C7-PFUnDA	1.250	1.245	-0.4	99.6
13C8-FOSA	2.500	2.443	-2.3	97.7
13C8-PFOA	2.500	2.576	3.1	103.1
13C8-PFOS	2.500	2.420	-3.2	96.8
13C9-PFNA	1.250	1.200	-4.0	96.0
4:2FTS	9.375	7.741	-17.4	82.6
6:2FTS	9.500	8.554	-10.0	90.0
8:2FTS	9.600	8.644	-10.0	90.0
d3-MeFOSAA	5.000	4.909	-1.8	98.2
EtFOSAA	2.500	2.377	-4.9	95.1
FOSA	2.500	2.379	-4.8	95.2
MeFOSAA	2.500	2.279	-8.8	91.2
PFBA	10.000	9.245	-7.5	92.5
PFBS	2.218	2.024	-8.8	91.2
PFDA	2.500	2.307	-7.7	92.3
PFDoDA	2.500	2.187	-12.5	87.5
PFDS	2.413	2.260	-6.4	93.6
PFHpA	2.500	2.290	-8.4	91.6
PFHpS	2.383	2.202	-7.6	92.4
PFHxA	2.500	2.291	-8.4	91.6
PFHxS	2.285	2.006	-12.2	87.8
PFNA	2.500	2.592	3.7	103.7
PFNS	2.405	2.261	-6.0	94.0
PFOA	2.500	2.337	-6.5	93.5
PFOS	2.320	2.082	-10.3	89.7

Continuing Calibration Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q180-CC174
 Lab FileID: 6Q11530.D

PFPeA	5.000	4.653	-6.9	93.1
PFPeS	2.353	2.036	-13.5	86.5
PFTeDA	2.500	2.338	-6.5	93.5
PFTTrDA	2.500	2.462	-1.5	98.5
PFUnDA	2.500	2.415	-3.4	96.6
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--		
11C1-PF3OUdS	9.450	9.318	-1.4	98.6
13C3-HFPO-DA	10.000	10.134	1.3	101.3
9C1-PF3ONS	9.350	8.421	-9.9	90.1
ADONA	9.450	8.898	-5.8	94.2
HFPO-DA	10.000	9.442	-5.6	94.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.158	-10.6	89.4
5:3FTCA	62.400	58.820	-5.7	94.3
7:3FTCA	62.400	60.147	-3.6	96.4
d3-MeFOSA	2.500	2.201	-12.0	88.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.379	-4.8	95.2
EtFOSE	25.000	22.067	-11.7	88.3
MeFOSA	2.500	2.416	-3.3	96.7
MeFOSE	25.000	23.511	-6.0	94.0
PFDoDS	2.425	2.373	-2.2	97.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.785	-4.3	95.7
d7-MeFOSE	25.000	22.542	-9.8	90.2
d9-EtFOSE	25.000	22.995	-8.0	92.0
d5-EtFOSA	2.500	2.166	-13.3	86.7
NFDHA	5.000	4.974	-0.5	99.5
PFMBA	5.000	4.527	-9.5	90.5
PFMPA	5.000	4.662	-6.8	93.2
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.212	-5.4	94.6

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q180-CC174
 Lab FileID: 6Q11540.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\011123_1633_S6Q179\s6q180.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\011123_1633_S6Q174\6Q10949.d
 2:D:\MassHunter\Data\011123_1633_S6Q174\6Q10950.d
 3:D:\MassHunter\Data\011123_1633_S6Q174\6Q10951.d
 4:D:\MassHunter\Data\011123_1633_S6Q174\6Q10952.d
 5:D:\MassHunter\Data\011123_1633_S6Q174\6Q10953.d
 6:D:\MassHunter\Data\011123_1633_S6Q174\6Q10954.d
 7:D:\MassHunter\Data\011123_1633_S6Q174\6Q10955.d
 8:D:\MassHunter\Data\011123_1633_S6Q174\6Q10956.d

Data File: 6Q11540
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.280	5.6	105.6
13C2-6:2FTS	5.000	5.254	5.1	105.1
13C2-8:2FTS	5.000	5.337	6.7	106.7
13C2-PFDoDA	1.250	1.375	10.0	110.0
13C2-PFTeDA	1.250	1.379	10.3	110.3
13C3-PFBS	2.500	2.335	-6.6	93.4
13C3-PFHxS	2.500	2.509	0.4	100.4
13C4-PFBA	10.000	10.098	1.0	101.0
13C4-PFHpA	2.500	2.575	3.0	103.0
13C5-PFHxA	2.500	2.430	-2.8	97.2
13C5-PFPeA	5.000	4.943	-1.1	98.9
13C6-PFDA	1.250	1.414	13.1	113.1
13C7-PFUnDA	1.250	1.352	8.1	108.1
13C8-FOSA	2.500	2.561	2.4	102.4
13C8-PFOA	2.500	2.597	3.9	103.9
13C8-PFOS	2.500	2.845	13.8	113.8
13C9-PFNA	1.250	1.132	-9.4	90.6
4:2FTS	9.375	8.687	-7.3	92.7
6:2FTS	9.500	8.870	-6.6	93.4
8:2FTS	9.600	8.727	-9.1	90.9
d3-MeFOSAA	5.000	5.303	6.1	106.1
EtFOSAA	2.500	2.265	-9.4	90.6
FOSA	2.500	2.312	-7.5	92.5
MeFOSAA	2.500	2.214	-11.4	88.6
PFBA	10.000	8.953	-10.5	89.5
PFBS	2.218	2.143	-3.4	96.6
PFDA	2.500	2.333	-6.7	93.3
PFDoDA	2.500	2.328	-6.9	93.1
PFDS	2.413	2.074	-14.0	86.0
PFHpA	2.500	2.280	-8.8	91.2
PFHpS	2.383	1.840	-22.8	77.2
PFHxA	2.500	2.361	-5.6	94.4
PFHxS	2.285	2.125	-7.0	93.0
PFNA	2.500	2.394	-4.3	95.7
PFNS	2.405	2.005	-16.6	83.4
PFOA	2.500	2.292	-8.3	91.7
PFOS	2.320	1.943	-16.3	83.7

Continuing Calibration Summary

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q180-CC174
 Lab FileID: 6Q11540.D

PFPeA	5.000	4.651	-7.0	93.0
PFPeS	2.353	2.086	-11.3	88.7
PFTeDA	2.500	2.143	-14.3	85.7
PFTTrDA	2.500	2.269	-9.2	90.8
PFUnDA	2.500	2.289	-8.4	91.6
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--		
11C1-PF3OUdS	9.450	8.346	-11.7	88.3
13C3-HFPO-DA	10.000	10.055	0.5	100.5
9C1-PF3ONS	9.350	8.896	-4.9	95.1
ADONA	9.450	9.200	-2.6	97.4
HFPO-DA	10.000	9.176	-8.2	91.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.050	-11.5	88.5
5:3FTCA	62.400	59.220	-5.1	94.9
7:3FTCA	62.400	58.561	-6.2	93.8
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	2.345	-6.2	93.8
EtFOSE	25.000	23.282	-6.9	93.1
MeFOSA	2.500	2.497	-0.1	99.9
MeFOSE	25.000	22.343	-10.6	89.4
PFDoDS	2.425	2.002	-17.4	82.6
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.455	9.1	109.1
d7-MeFOSE	25.000	25.383	1.5	101.5
d9-EtFOSE	25.000	24.207	-3.2	96.8
d5-EtFOSA	2.500	2.306	-7.8	92.2
NFDHA	5.000	4.639	-7.2	92.8
PFMBA	5.000	4.684	-6.3	93.7
PFMPA	5.000	4.738	-5.2	94.8
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.253	-4.4	95.6

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q174	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q174-RT	6Q10946.D	01/11/23 11:03	n/a	Retention Time Marker
S6Q174-RT	6Q10947.D	01/11/23 11:22	n/a	Retention Time Marker
S6Q174-IC174	6Q10948.D	01/11/23 11:36	n/a	Mass Calibration Verification
S6Q174-IC174	6Q10949.D	01/11/23 11:50	n/a	Initial cal 1
S6Q174-IC174	6Q10950.D	01/11/23 12:04	n/a	Initial cal 2
S6Q174-IC174	6Q10951.D	01/11/23 12:18	n/a	Initial cal 3
S6Q174-ICC174	6Q10952.D	01/11/23 12:32	n/a	Initial cal 4
S6Q174-IC174	6Q10953.D	01/11/23 12:46	n/a	Initial cal 5
S6Q174-IC174	6Q10954.D	01/11/23 13:00	n/a	Initial cal 6
S6Q174-IC174	6Q10955.D	01/11/23 13:14	n/a	Initial cal 7
S6Q174-IC174	6Q10956.D	01/11/23 13:28	n/a	Initial cal 8
S6Q174-IBLK	6Q10957.D	01/11/23 13:42	n/a	Instrument Blank
S6Q174-IBLK	6Q10957.D	01/11/23 13:42	n/a	Instrument Blank
S6Q174-ICV174	6Q10958.D	01/11/23 13:56	n/a	Initial cal verification 4
S6Q174-ICV174	6Q10959.D	01/11/23 14:10	n/a	Initial cal verification 4
S6Q174-CC174	6Q10960.D	01/11/23 14:24	n/a	Continuing cal 4
S6Q174-CC174	6Q10961.D	01/11/23 14:38	n/a	Continuing cal 1.0LL
OP94887-BS	6Q10962.D	01/11/23 14:52	OP94887	Blank Spike
OP94887-LLBS	6Q10963.D	01/11/23 15:06	OP94887	Blank Spike
OP94887-MB	6Q10964.D	01/11/23 15:20	OP94887	Method Blank
ZZZZZZ	6Q10965.D	01/11/23 15:34	OP94887	(unrelated sample)
ZZZZZZ	6Q10966.D	01/11/23 15:48	OP94887	(unrelated sample)
ZZZZZZ	6Q10968.D	01/11/23 16:16	OP94675	(unrelated sample)
ZZZZZZ	6Q10969.D	01/11/23 16:30	OP94675	(unrelated sample)
ZZZZZZ	6Q10970.D	01/11/23 16:44	OP94667	(unrelated sample)
S6Q174-CC174	6Q10971.D	01/11/23 17:06	n/a	Continuing cal 4
S6Q174-ICCB	6Q10972.D	01/11/23 17:20	n/a	Continuing Calibration Blank
ZZZZZZ	6Q10973.D	01/11/23 17:34	OP94599	(unrelated sample)
JD56436-2	6Q10974.D	01/11/23 17:48	OP94599	(used for QC only; not part of job FC1867)
ZZZZZZ	6Q10975.D	01/11/23 18:02	OP94599	(unrelated sample)
ZZZZZZ	6Q10976.D	01/11/23 18:16	OP94599	(unrelated sample)
ZZZZZZ	6Q10977.D	01/11/23 18:30	OP94599	(unrelated sample)
ZZZZZZ	6Q10978.D	01/11/23 18:44	OP94599	(unrelated sample)
ZZZZZZ	6Q10979.D	01/11/23 18:58	OP94599	(unrelated sample)
ZZZZZZ	6Q10980.D	01/11/23 19:12	OP94599	(unrelated sample)
ZZZZZZ	6Q10981.D	01/11/23 19:26	OP94599	(unrelated sample)
ZZZZZZ	6Q10982.D	01/11/23 19:40	OP94599	(unrelated sample)
S6Q174-CC174	6Q10983.D	01/11/23 19:54	n/a	Continuing cal 4
S6Q174-ICCB	6Q10984.D	01/11/23 20:08	n/a	Continuing Calibration Blank
ZZZZZZ	6Q10985.D	01/11/23 20:22	OP94599	(unrelated sample)
ZZZZZZ	6Q10986.D	01/11/23 20:36	OP94599	(unrelated sample)
ZZZZZZ	6Q10987.D	01/11/23 20:50	OP94599	(unrelated sample)
ZZZZZZ	6Q10988.D	01/11/23 21:04	OP94599	(unrelated sample)
ZZZZZZ	6Q10989.D	01/11/23 21:18	OP94599	(unrelated sample)
JD56436-3	6Q10990.D	01/11/23 21:32	OP94600	(used for QC only; not part of job FC1867)
ZZZZZZ	6Q10991.D	01/11/23 21:46	OP94600	(unrelated sample)

Run Sequence Report

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q174	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	6Q10992.D	01/11/23 22:00	OP94600	(unrelated sample)
ZZZZZZ	6Q10993.D	01/11/23 22:14	OP94600	(unrelated sample)
ZZZZZZ	6Q10994.D	01/11/23 22:28	OP94600	(unrelated sample)
S6Q174-CC174	6Q10995.D	01/11/23 22:42	n/a	Continuing cal 4
S6Q174-ICCB	6Q10996.D	01/11/23 22:56	n/a	Continuing Calibration Blank
ZZZZZZ	6Q10997.D	01/11/23 23:10	OP94600	(unrelated sample)
ZZZZZZ	6Q10998.D	01/11/23 23:24	OP94600	(unrelated sample)
ZZZZZZ	6Q10999.D	01/11/23 23:38	OP94600	(unrelated sample)
ZZZZZZ	6Q11000.D	01/11/23 23:52	OP94600	(unrelated sample)
ZZZZZZ	6Q11001.D	01/12/23 00:06	OP94600	(unrelated sample)
ZZZZZZ	6Q11002.D	01/12/23 00:20	OP94668	(unrelated sample)
S6Q174-CC174	6Q11003.D	01/12/23 00:33	n/a	Continuing cal 4
S6Q174-ICCB	6Q11004.D	01/12/23 00:48	n/a	Continuing Calibration Blank
OP94694-BS	6Q11005.D	01/12/23 01:01	OP94694	Blank Spike
OP94694-LLBS	6Q11006.D	01/12/23 01:15	OP94694	Blank Spike
OP94694-MB	6Q11007.D	01/12/23 01:29	OP94694	Method Blank
ZZZZZZ	6Q11008.D	01/12/23 01:43	OP94694	(unrelated sample)
ZZZZZZ	6Q11009.D	01/12/23 01:57	OP94694	(unrelated sample)
FC1246-3	6Q11010.D	01/12/23 02:11	OP94694	(used for QC only; not part of job FC1867)
OP94694-MS	6Q11011.D	01/12/23 02:25	OP94694	Matrix Spike
OP94694-MSD	6Q11012.D	01/12/23 02:39	OP94694	Matrix Spike Duplicate
ZZZZZZ	6Q11013.D	01/12/23 02:53	OP94694	(unrelated sample)
ZZZZZZ	6Q11014.D	01/12/23 03:07	OP94694	(unrelated sample)
S6Q174-CC174	6Q11015.D	01/12/23 03:21	n/a	Continuing cal 4
S6Q174-ICCB	6Q11016.D	01/12/23 03:35	n/a	Continuing Calibration Blank
ZZZZZZ	6Q11017.D	01/12/23 03:49	OP94694	(unrelated sample)
ZZZZZZ	6Q11018.D	01/12/23 04:03	OP94694	(unrelated sample)
ZZZZZZ	6Q11019.D	01/12/23 04:17	OP94694	(unrelated sample)
ZZZZZZ	6Q11020.D	01/12/23 04:31	OP94694	(unrelated sample)
ZZZZZZ	6Q11021.D	01/12/23 04:45	OP94694	(unrelated sample)
ZZZZZZ	6Q11022.D	01/12/23 04:59	OP94694	(unrelated sample)
ZZZZZZ	6Q11023.D	01/12/23 05:13	OP94694	(unrelated sample)
ZZZZZZ	6Q11024.D	01/12/23 05:27	OP94694	(unrelated sample)
ZZZZZZ	6Q11025.D	01/12/23 05:41	OP94694	(unrelated sample)
S6Q174-CC174	6Q11027.D	01/12/23 06:09	n/a	Continuing cal 4
S6Q174-ICCB	6Q11028.D	01/12/23 06:23	n/a	Continuing Calibration Blank
ZZZZZZ	6Q11029.D	01/12/23 06:37	OP94694	(unrelated sample)
ZZZZZZ	6Q11030.D	01/12/23 06:51	OP94694	(unrelated sample)
ZZZZZZ	6Q11033.D	01/12/23 07:33	OP94694	(unrelated sample)
ZZZZZZ	6Q11034.D	01/12/23 07:47	OP94694	(unrelated sample)
ZZZZZZ	6Q11035.D	01/12/23 08:01	OP94694	(unrelated sample)
ZZZZZZ	6Q11036.D	01/12/23 08:15	OP94694	(unrelated sample)
ZZZZZZ	6Q11037.D	01/12/23 08:29	OP94694	(unrelated sample)
ZZZZZZ	6Q11038.D	01/12/23 08:43	OP94694	(unrelated sample)
S6Q174-ECC174	6Q11039.D	01/12/23 08:57	n/a	Ending cal 4
S6Q174-ICCB	6Q11040.D	01/12/23 09:11	n/a	Continuing Calibration Blank

6-10-1

6

Run Sequence Report

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q180	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q180-RT	6Q11514.D	01/17/23 21:24	n/a	Retention Time Marker
S6Q180-RT	6Q11515.D	01/17/23 21:38	n/a	Retention Time Marker
S6Q180-IBLK	6Q11517.D	01/17/23 22:06	n/a	Instrument Blank
S6Q180-IBLK	6Q11517.D	01/17/23 22:06	n/a	Instrument Blank
S6Q180-CC174	6Q11518.D	01/17/23 22:20	n/a	Continuing cal 4
S6Q180-CC174	6Q11519.D	01/17/23 22:34	n/a	Continuing cal 1.0LL
OP94995-BS	6Q11520.D	01/17/23 22:48	OP94995	Blank Spike
OP94995-LLBS	6Q11521.D	01/17/23 23:02	OP94995	Blank Spike
OP94995-MB	6Q11522.D	01/17/23 23:16	OP94995	Method Blank
ZZZZZZ	6Q11523.D	01/17/23 23:30	OP94995	(unrelated sample)
FC1745-2	6Q11524.D	01/17/23 23:44	OP94995	(used for QC only; not part of job FC1867)
OP94995-MS	6Q11525.D	01/17/23 23:58	OP94995	Matrix Spike
FC1745-3	6Q11526.D	01/18/23 00:12	OP94995	(used for QC only; not part of job FC1867)
OP94995-DUP	6Q11527.D	01/18/23 00:26	OP94995	Duplicate
ZZZZZZ	6Q11528.D	01/18/23 00:40	OP94995	(unrelated sample)
ZZZZZZ	6Q11529.D	01/18/23 00:54	OP94995	(unrelated sample)
S6Q180-CC174	6Q11530.D	01/18/23 01:08	n/a	Continuing cal 4
S6Q180-ICCB	6Q11531.D	01/18/23 01:22	n/a	Continuing Calibration Blank
FC1867-1	6Q11532.D	01/18/23 01:36	OP94995	AF-RHMW225401-WGN01B-2301W2
FC1867-2	6Q11533.D	01/18/23 01:50	OP94995	AF-RHMW12A-WGN01LF-2301W2
FC1867-3	6Q11534.D	01/18/23 02:04	OP94995	AF-RHMW12A-WGFD01LF-2301W2
FC1867-4	6Q11535.D	01/18/23 02:18	OP94995	AF-HDMW225303-WGN01LF-2301W2
FC1867-5	6Q11536.D	01/18/23 02:32	OP94995	AF-RHMW16-WGN01LF-2301W2
FC1867-6	6Q11537.D	01/18/23 02:46	OP94995	AF-RHMW10-WGN01LF-2301W2
ZZZZZZ	6Q11538.D	01/18/23 03:00	OP94995	(unrelated sample)
ZZZZZZ	6Q11539.D	01/18/23 03:14	OP94995	(unrelated sample)
S6Q180-CC174	6Q11540.D	01/18/23 03:28	n/a	Continuing cal 4
S6Q180-ICCB	6Q11541.D	01/18/23 03:42	n/a	Continuing Calibration Blank
OP94976-BS	6Q11542.D	01/18/23 03:56	OP94976	Blank Spike
OP94976-LLBS	6Q11543.D	01/18/23 04:10	OP94976	Blank Spike
OP94976-MB	6Q11544.D	01/18/23 04:24	OP94976	Method Blank
ZZZZZZ	6Q11545.D	01/18/23 04:38	OP94976	(unrelated sample)
ZZZZZZ	6Q11546.D	01/18/23 04:52	OP94976	(unrelated sample)
FC1703-1	6Q11547.D	01/18/23 05:06	OP94976	(used for QC only; not part of job FC1867)
OP94976-MS	6Q11548.D	01/18/23 05:20	OP94976	Matrix Spike
FC1703-2	6Q11549.D	01/18/23 05:34	OP94976	(used for QC only; not part of job FC1867)
OP94976-DUP	6Q11550.D	01/18/23 05:48	OP94976	Duplicate
ZZZZZZ	6Q11551.D	01/18/23 06:02	OP94976	(unrelated sample)
S6Q180-CC174	6Q11552.D	01/18/23 06:15	n/a	Continuing cal 4
S6Q180-ICCB	6Q11553.D	01/18/23 06:29	n/a	Continuing Calibration Blank
ZZZZZZ	6Q11554.D	01/18/23 06:43	OP94976	(unrelated sample)
ZZZZZZ	6Q11555.D	01/18/23 06:57	OP94976	(unrelated sample)
ZZZZZZ	6Q11556.D	01/18/23 07:11	OP94976	(unrelated sample)
ZZZZZZ	6Q11557.D	01/18/23 07:25	OP94976	(unrelated sample)
ZZZZZZ	6Q11558.D	01/18/23 07:39	OP94976	(unrelated sample)
ZZZZZZ	6Q11559.D	01/18/23 07:53	OP94976	(unrelated sample)

Run Sequence Report

Job Number: FC1867
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q180	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	6Q11560.D	01/18/23 08:07	OP94976	(unrelated sample)
ZZZZZZ	6Q11561.D	01/18/23 08:21	OP94976	(unrelated sample)
ZZZZZZ	6Q11562.D	01/18/23 08:35	OP94976	(unrelated sample)
ZZZZZZ	6Q11563.D	01/18/23 08:49	OP94976	(unrelated sample)
S6Q180-CC174	6Q11564.D	01/18/23 09:03	n/a	Continuing cal 4
S6Q180-ICCB	6Q11565.D	01/18/23 09:17	n/a	Continuing Calibration Blank
ZZZZZZ	6Q11566.D	01/18/23 09:31	OP94976	(unrelated sample)
ZZZZZZ	6Q11567.D	01/18/23 09:45	OP94976	(unrelated sample)
ZZZZZZ	6Q11568.D	01/18/23 09:59	OP94976	(unrelated sample)
ZZZZZZ	6Q11569.D	01/18/23 10:13	OP94976	(unrelated sample)
S6Q180-CC174	6Q11570.D	01/18/23 10:27	n/a	Continuing cal 4
S6Q180-ICCB	6Q11571.D	01/18/23 10:41	n/a	Continuing Calibration Blank
S6Q180-CC174	6Q11572.D	01/18/23 10:55	n/a	Continuing cal 1.0LL
OP94824-BS	6Q11573.D	01/18/23 11:09	OP94824	Blank Spike
OP94824-LLBS	6Q11574.D	01/18/23 11:23	OP94824	Blank Spike
OP94824-MB	6Q11575.D	01/18/23 11:38	OP94824	Method Blank
FC1536-48	6Q11576.D	01/18/23 11:52	OP94824	(used for QC only; not part of job FC1867)
OP94824-MS	6Q11577.D	01/18/23 12:06	OP94824	Matrix Spike
OP94824-MSD	6Q11578.D	01/18/23 12:20	OP94824	Matrix Spike Duplicate
ZZZZZZ	6Q11579.D	01/18/23 12:34	OP94824	(unrelated sample)
ZZZZZZ	6Q11580.D	01/18/23 12:48	OP94824	(unrelated sample)
ZZZZZZ	6Q11581.D	01/18/23 13:02	OP94824	(unrelated sample)
ZZZZZZ	6Q11582.D	01/18/23 13:15	OP94694	(unrelated sample)
S6Q180-CC174	6Q11583.D	01/18/23 13:29	n/a	Continuing cal 4
S6Q180-ICCB	6Q11584.D	01/18/23 13:43	n/a	Continuing Calibration Blank
ZZZZZZ	6Q11585.D	01/18/23 13:57	OP94824	(unrelated sample)
ZZZZZZ	6Q11586.D	01/18/23 14:11	OP94824	(unrelated sample)
ZZZZZZ	6Q11587.D	01/18/23 14:34	OP94824	(unrelated sample)
ZZZZZZ	6Q11588.D	01/18/23 14:48	OP94824	(unrelated sample)
ZZZZZZ	6Q11589.D	01/18/23 15:02	OP94824	(unrelated sample)
ZZZZZZ	6Q11590.D	01/18/23 15:18	OP94824	(unrelated sample)
ZZZZZZ	6Q11591.D	01/18/23 15:32	OP94824	(unrelated sample)
ZZZZZZ	6Q11592.D	01/18/23 15:46	OP94824	(unrelated sample)
ZZZZZZ	6Q11593.D	01/18/23 16:00	OP94824	(unrelated sample)
ZZZZZZ	6Q11594.D	01/18/23 16:14	OP94824	(unrelated sample)
S6Q180-CC174	6Q11595.D	01/18/23 16:28	n/a	Continuing cal 4
S6Q180-ICCB	6Q11596.D	01/18/23 16:42	n/a	Continuing Calibration Blank
ZZZZZZ	6Q11597.D	01/18/23 16:56	OP94824	(unrelated sample)
ZZZZZZ	6Q11598.D	01/18/23 17:10	OP94824	(unrelated sample)
ZZZZZZ	6Q11599.D	01/18/23 17:24	OP94824	(unrelated sample)
ZZZZZZ	6Q11600.D	01/18/23 17:38	OP94824	(unrelated sample)
ZZZZZZ	6Q11601.D	01/18/23 17:52	OP94824	(unrelated sample)
S6Q180-ECC174	6Q11605.D	01/18/23 18:48	n/a	Ending cal 4
S6Q180-ICCB	6Q11606.D	01/18/23 19:02	n/a	Continuing Calibration Blank

6-10-2

6

MS Semi-volatiles

Raw Data

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Mike Eger
 01/18/23 19:08

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11532.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/18/2023 1:36:15 AM
 Sample Name : FC1867-1
 Vial : P4-B2
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.013	216.8 -> 171.9	86664	10.00 µg/L	0.012
M5-PFPeA	4.384	268.3 -> 223.0	40663	5.00 µg/L	0.000
M5-PFHxA	5.564	318.0 -> 273.0	37141	2.50 µg/L	0.000
M4-PFHpA	6.516	367.1 -> 322.0	38147	2.50 µg/L	0.000
M8-PFOA	7.160	421.1 -> 376.0	65063	2.50 µg/L	0.000
M9-PFNA	7.702	472.1 -> 427.0	30598	1.25 µg/L	-0.013
M6-PFDA	8.195	519.1 -> 474.1	21555	1.25 µg/L	-0.012
M7-PFUnDA	8.662	570.0 -> 525.1	24285	1.25 µg/L	-0.012
M2-PFDoDA	9.104	615.1 -> 570.0	23760	1.25 µg/L	-0.012
M2-PFTeDA	9.844	715.2 -> 670.0	11885	1.25 µg/L	-0.012
M8-FOSA	9.568	506.1 -> 77.8	18939	2.50 µg/L	0.000
M3-PFBS	5.519	302.1 -> 79.9	13228	2.50 µg/L	-0.012
M3-PFHxS	7.300	402.1 -> 79.9	8924	2.50 µg/L	0.000
M8-PFOS	8.371	507.1 -> 79.9	9196	2.50 µg/L	-0.012
M2-4:2FTS	5.241	329.1 -> 80.9	1832	5.00 µg/L	0.012
M2-6:2FTS	6.934	429.1 -> 80.9	2579	5.00 µg/L	0.000
M2-8:2FTS	7.970	529.1 -> 80.9	2656	5.00 µg/L	-0.012
M3-MeFOSAA	8.240	573.2 -> 419.0	25666	5.00 µg/L	0.000
M3-HFPO-DA	5.941	286.9 -> 168.9	15835	10.00 µg/L	0.000
M5-EtFOSAA	8.436	589.2 -> 419.0	21767	5.00 µg/L	-0.012
M7-MeFOSE	10.591	623.2 -> 58.9	29057	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	22612	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	7112	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	6676	2.50 µg/L	0.000
13C4-PFOS	8.372	502.8 -> 79.9	10254	2.50 µg/L	-0.012
13C3-PFBA	3.016	216.0 -> 172.0	33158	5.00 µg/L	0.012
18O2-PFHxS	7.299	403.0 -> 83.9	5983	2.50 µg/L	0.000
13C4-PFOA	7.160	417.1 -> 372.0	67390	2.50 µg/L	-0.012
13C2-PFDA	8.196	515.1 -> 470.1	23487	1.25 µg/L	-0.012
13C5-PFNA	7.703	468.0 -> 423.0	30624	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	30892	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.241	329.1 -> 80.9	1832	5.87 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.4%		
13C2-6:2FTS	6.934	429.1 -> 80.9	2579	6.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.7%		
13C2-8:2FTS	7.970	529.1 -> 80.9	2656	5.69 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.9%		
13C2-PFDoDA	9.104	615.1 -> 570.0	23760	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-PFTeDA	9.844	715.2 -> 670.0	11885	1.09 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.9%		
13C3-PFBS	5.519	302.1 -> 79.9	13228	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C3-PFHxS	7.300	402.1 -> 79.9	8924	2.75 µg/L	0.000

7.1.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.9%	
13C4-PFBA	3.013	216.8 -> 171.9	86664	11.44 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.4%	
13C4-PFHpA	6.516	367.1 -> 322.0	38147	3.05 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 121.8%	
13C5-PFHxA	5.564	318.0 -> 273.0	37141	2.99 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.8%	
13C5-PFPeA	4.384	268.3 -> 223.0	40663	5.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.0%	
13C6-PFDA	8.195	519.1 -> 474.1	21555	1.61 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 128.9%	
13C7-PFUnDA	8.662	570.0 -> 525.1	24285	1.49 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 119.1%	
13C8-FOSA	9.568	506.1 -> 77.8	18939	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.4%	
13C8-PFOA	7.160	421.1 -> 376.0	65063	2.88 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.2%	
13C8-PFOS	8.371	507.1 -> 79.9	9196	2.81 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.3%	
13C9-PFNA	7.702	472.1 -> 427.0	30598	1.41 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.5%	
d3-MeFOSAA	8.240	573.2 -> 419.0	25666	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C3-HFPO-DA	5.941	286.9 -> 168.9	15835	12.43 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 124.3%	
d3-MeFOSA	10.683	515.0 -> 219.0	6676	2.11 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.2%	
d5-EtFOSAA	8.436	589.2 -> 419.0	21767	5.02 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
d7-MeFOSE	10.591	623.2 -> 58.9	29057	22.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.0%	
d9-EtFOSE	10.849	639.2 -> 58.9	22612	22.65 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.6%	
d5-EtFOSA	10.927	531.1 -> 219.0	7112	2.00 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.1%	

Target Compounds	RT	Transition	Response	Conc. Units	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	5.520	298.7 -> 79.9	385	0.07 µg/L	90
		298.7 -> 98.8	201		
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	9.055	613.1 -> 569.0	0	µg/L m	1
		613.1 -> 319.0	0		
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.516	599.0 -> 98.8				
		363.1 -> 319.0	1868	0.08	µg/L	96
PFHpS	-	363.1 -> 169.0	215			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.567	449.0 -> 98.9				
		313.0 -> 269.0	1625	0.11	µg/L	97
PFHxS	7.301	313.0 -> 118.9	73			
		398.7 -> 79.9	716	0.17	µg/L	m 87
PFNA	-	398.7 -> 98.9	317			
		463.0 -> 419.0	-	N.D.		
PFNS	-	463.0 -> 219.0				
		548.8 -> 79.9	-	N.D.		
PFOA	7.174	548.8 -> 98.9				
		413.0 -> 369.0	3030	0.10	µg/L	m 98
PFOS	8.385	413.0 -> 169.0	446			
		498.9 -> 79.9	510	0.11	µg/L	m 89
PFPeA	-	498.9 -> 98.8	348			
		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.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				
PFEESA	-					

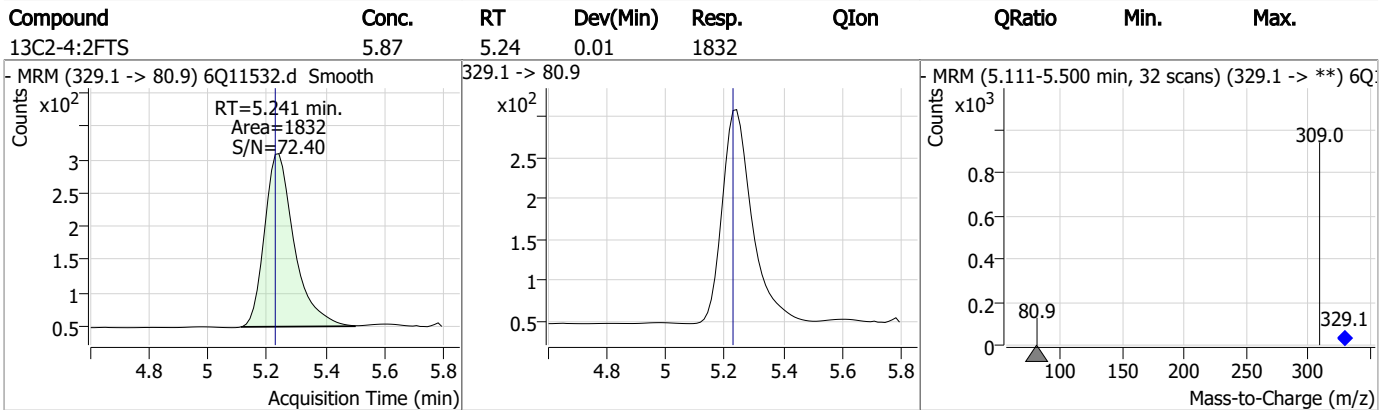
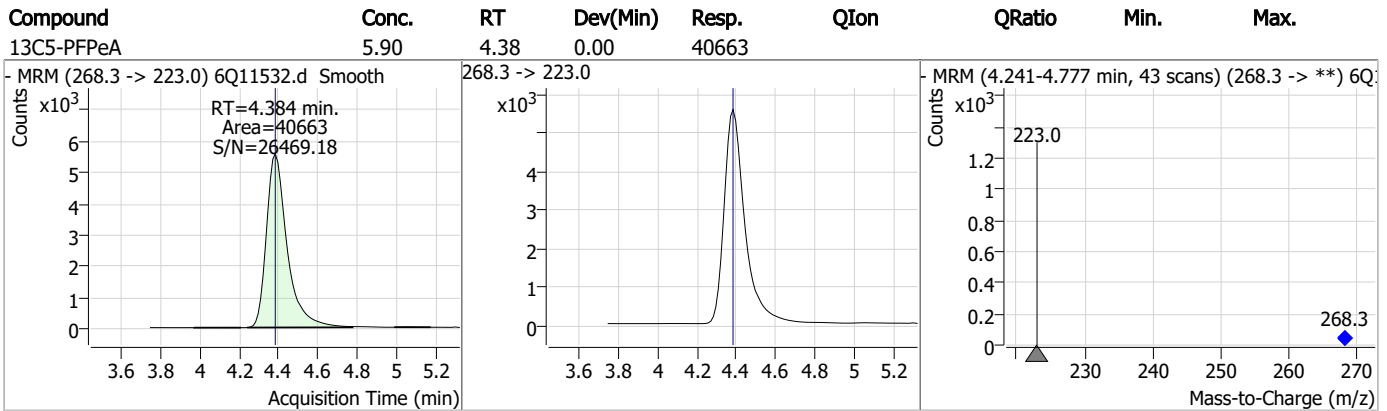
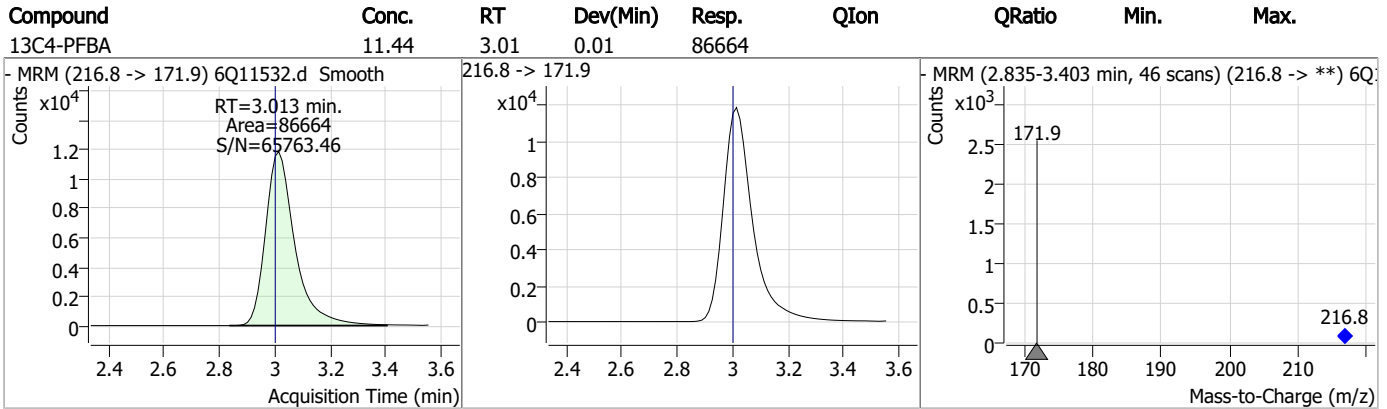
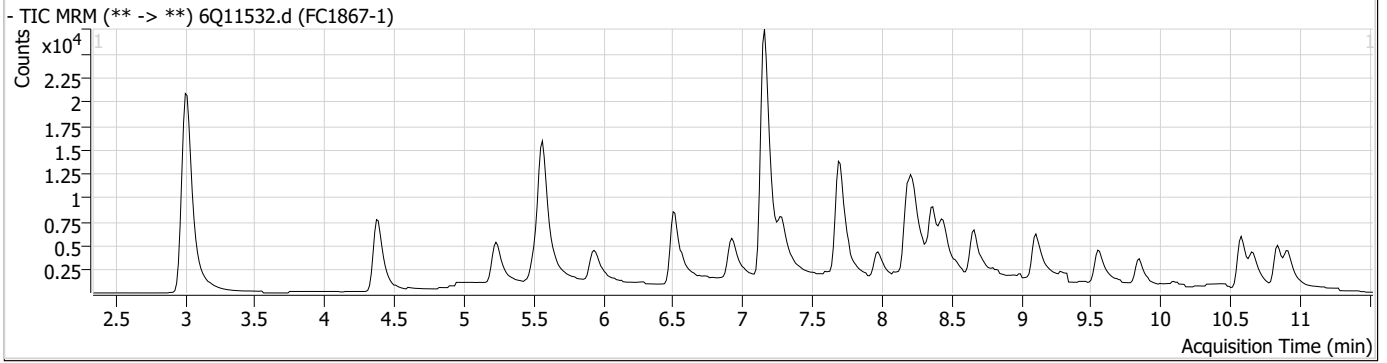
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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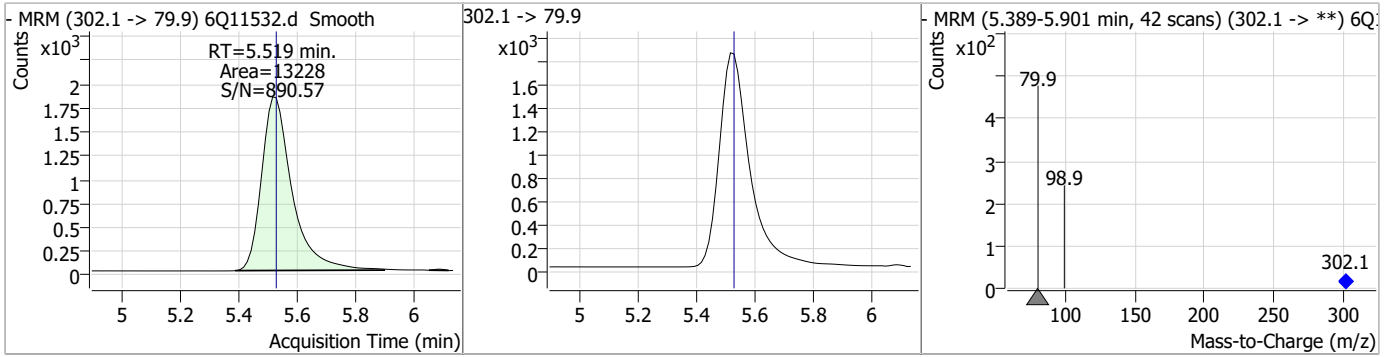
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Perfluorinated Compounds by LC/MS/MS

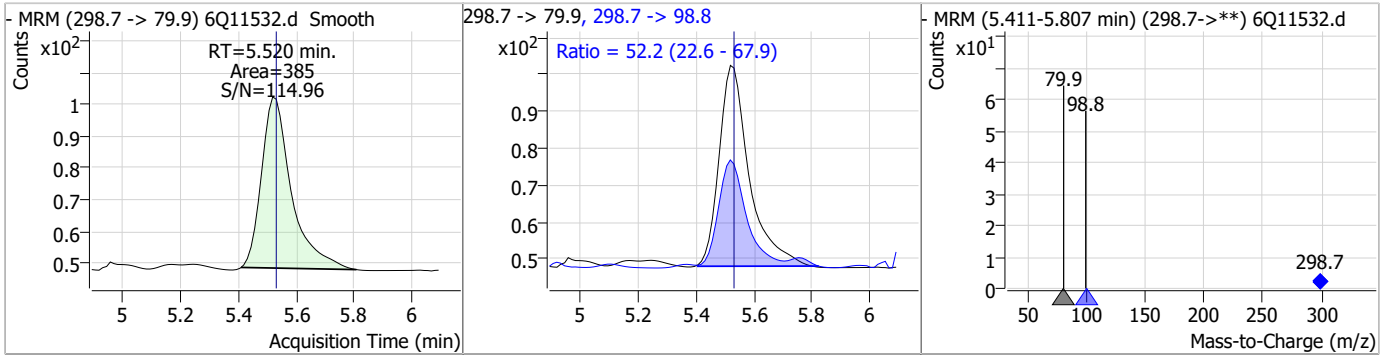


Perfluorinated Compounds by LC/MS/MS

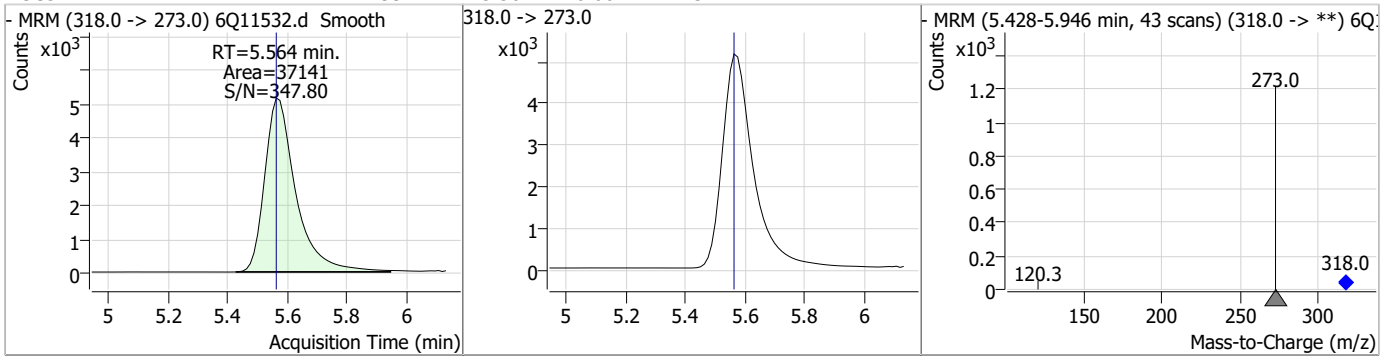
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.64	5.52	-0.01	13228				



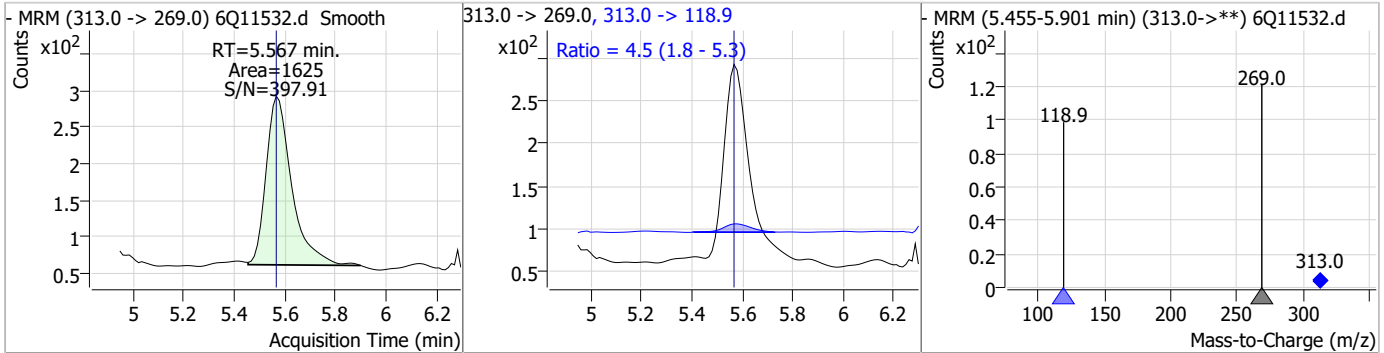
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.07	5.52	-0.01	385	298.7 -> 98.8	52.2	22.6	67.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.99	5.56	0.00	37141				

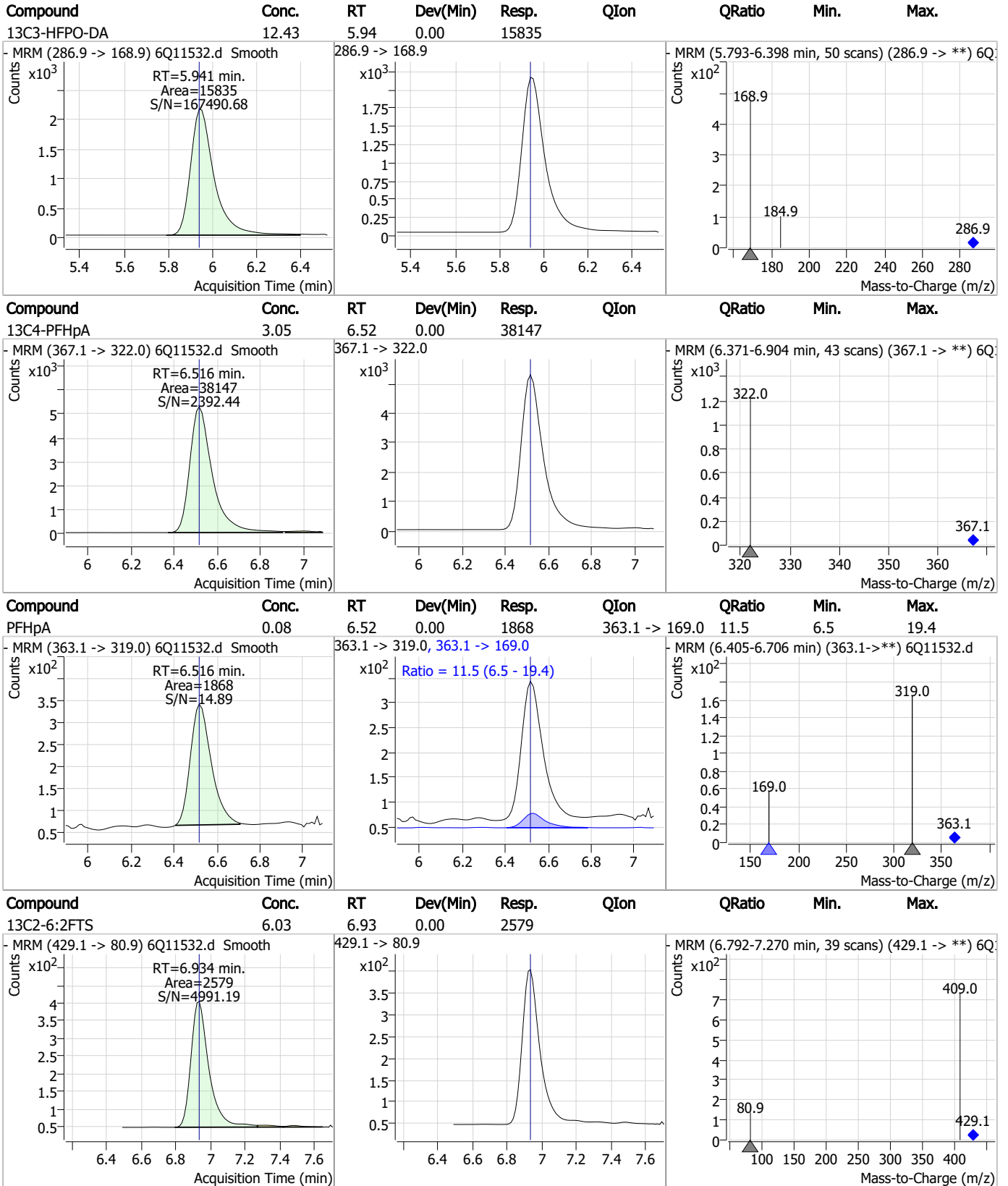


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.11	5.57	0.00	1625	313.0 -> 118.9	4.5	1.8	5.3



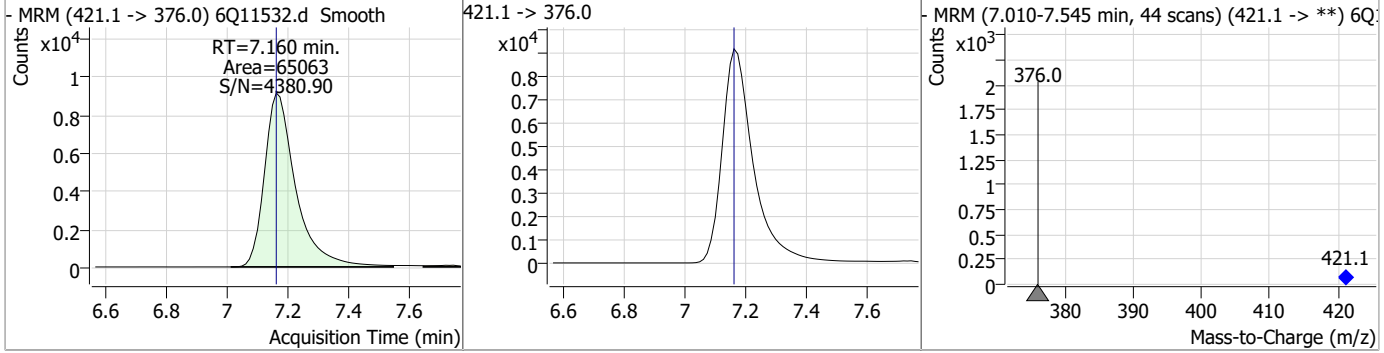
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Perfluorinated Compounds by LC/MS/MS

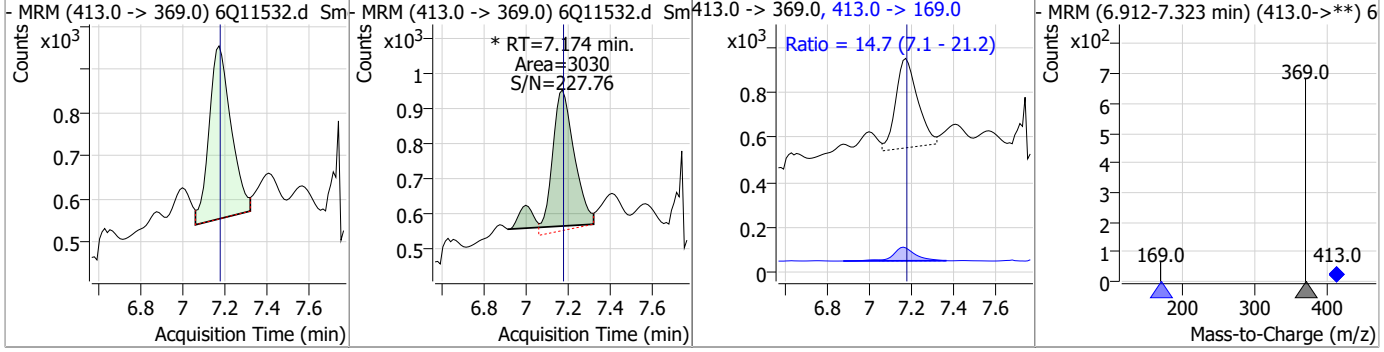


Perfluorinated Compounds by LC/MS/MS

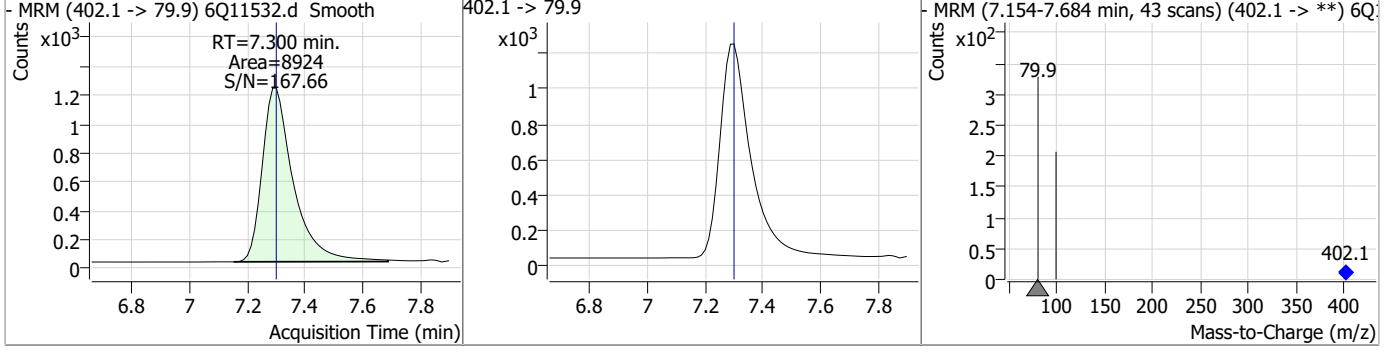
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.88	7.16	0.00	65063				



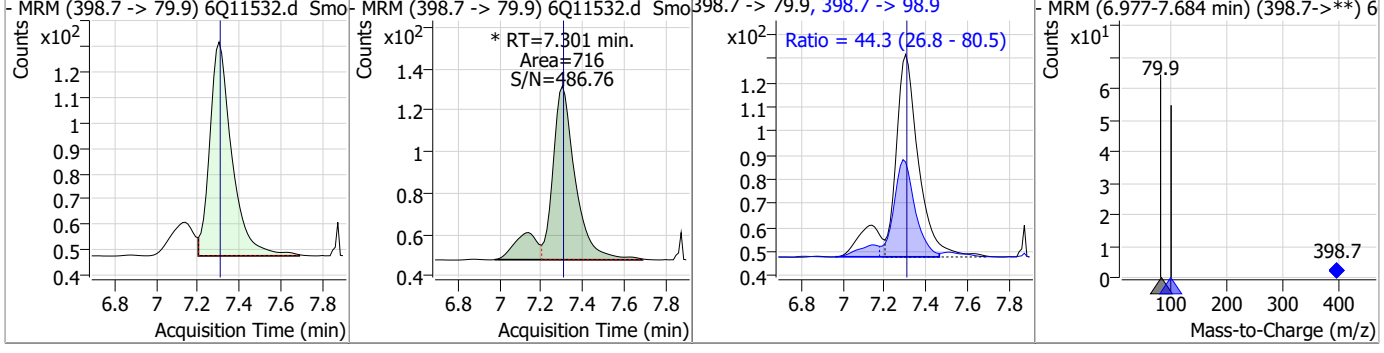
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.10	7.17	0.00	3030 (m)	413.0 -> 169.0	14.7	7.1	21.2



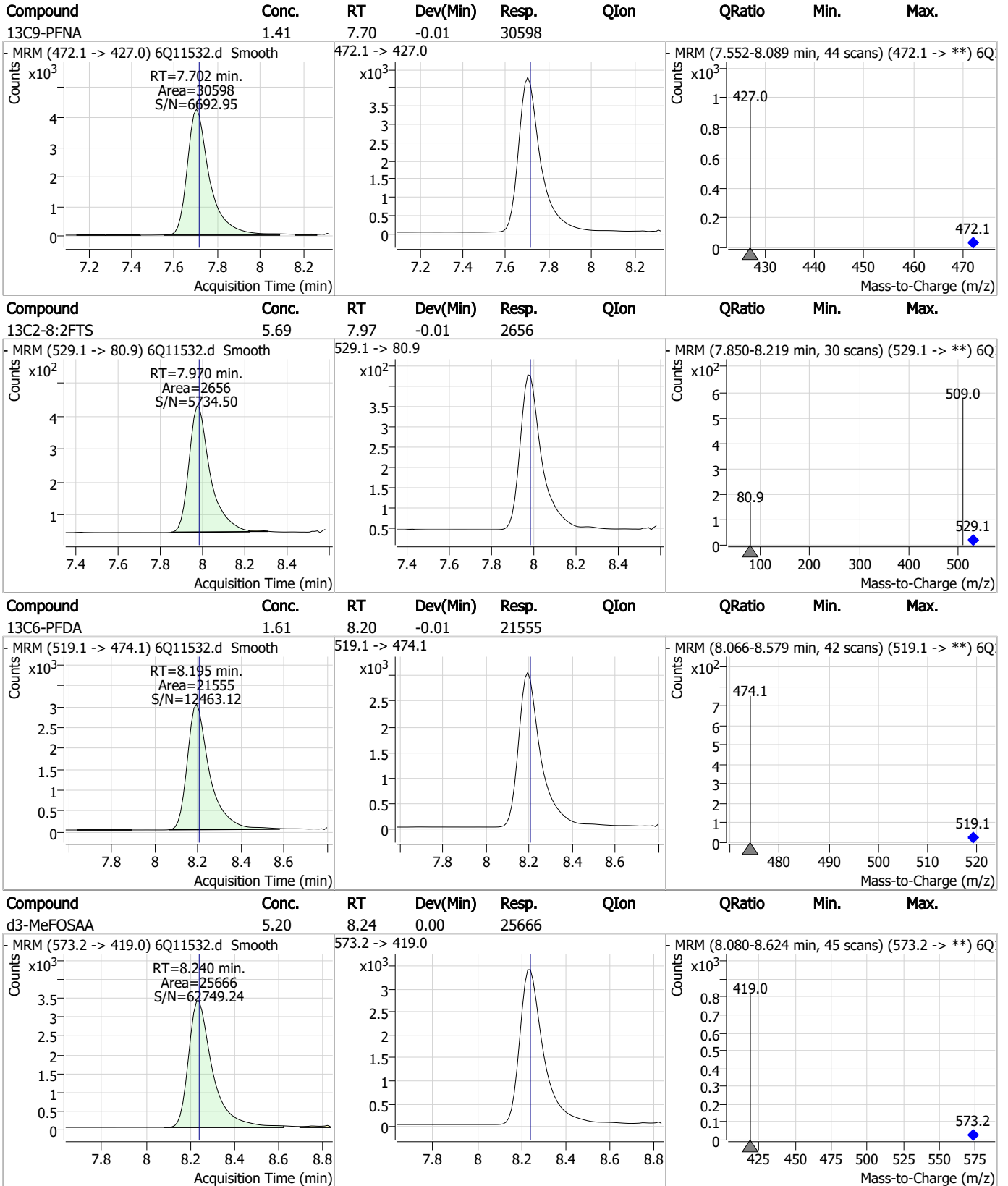
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.75	7.30	0.00	8924				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.17	7.30	0.00	398.7 (m)	398.7 -> 98.9	44.3	26.8	80.5



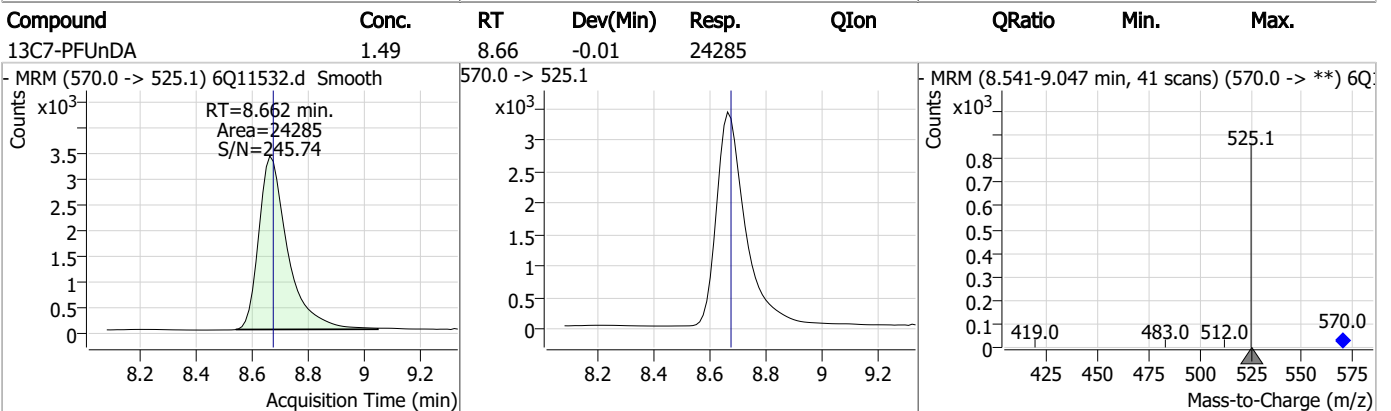
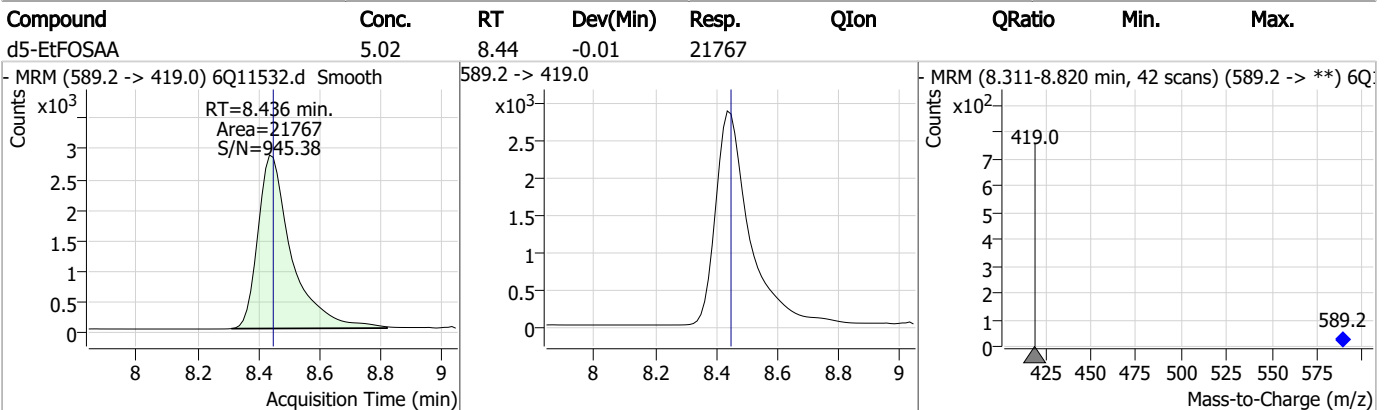
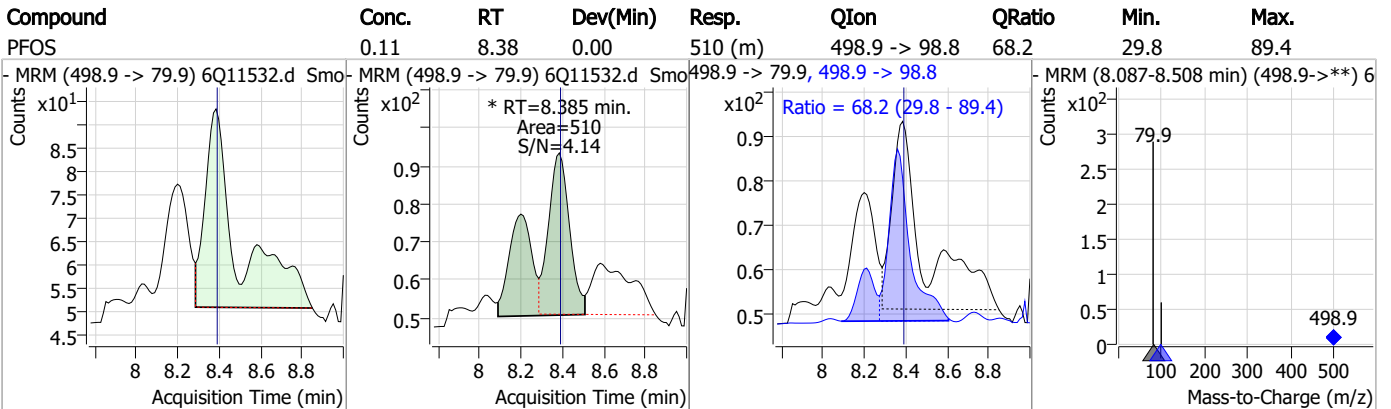
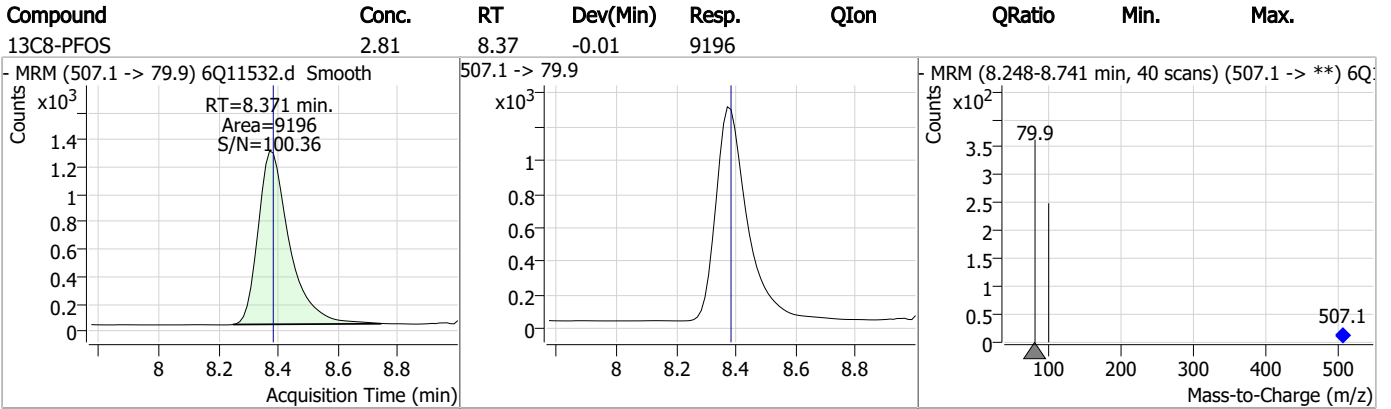
Perfluorinated Compounds by LC/MS/MS



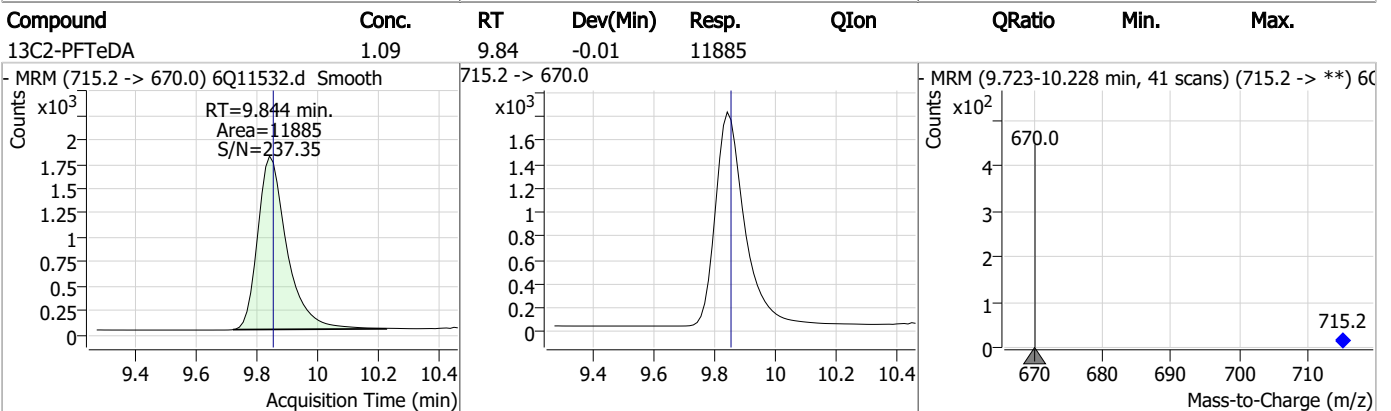
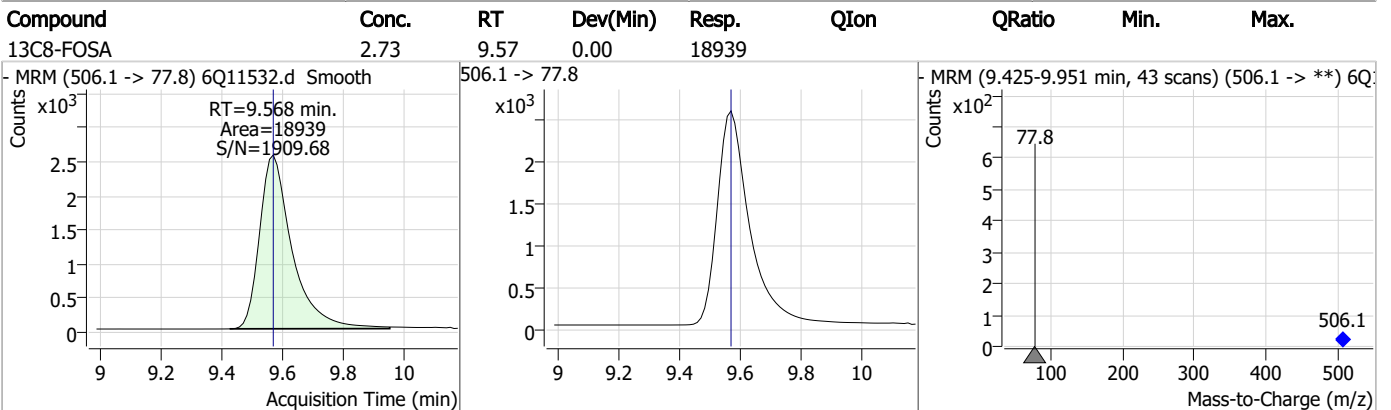
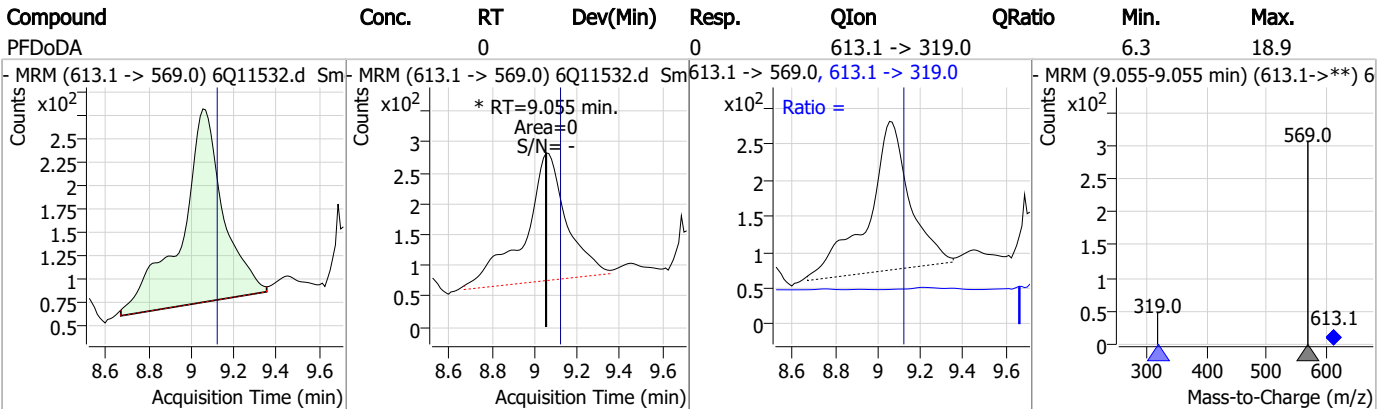
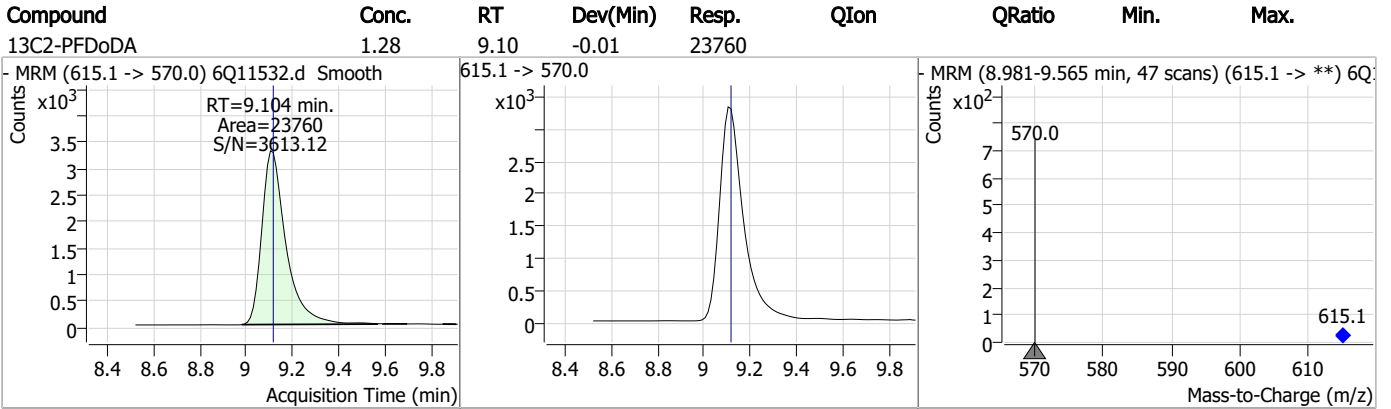
7.1.1

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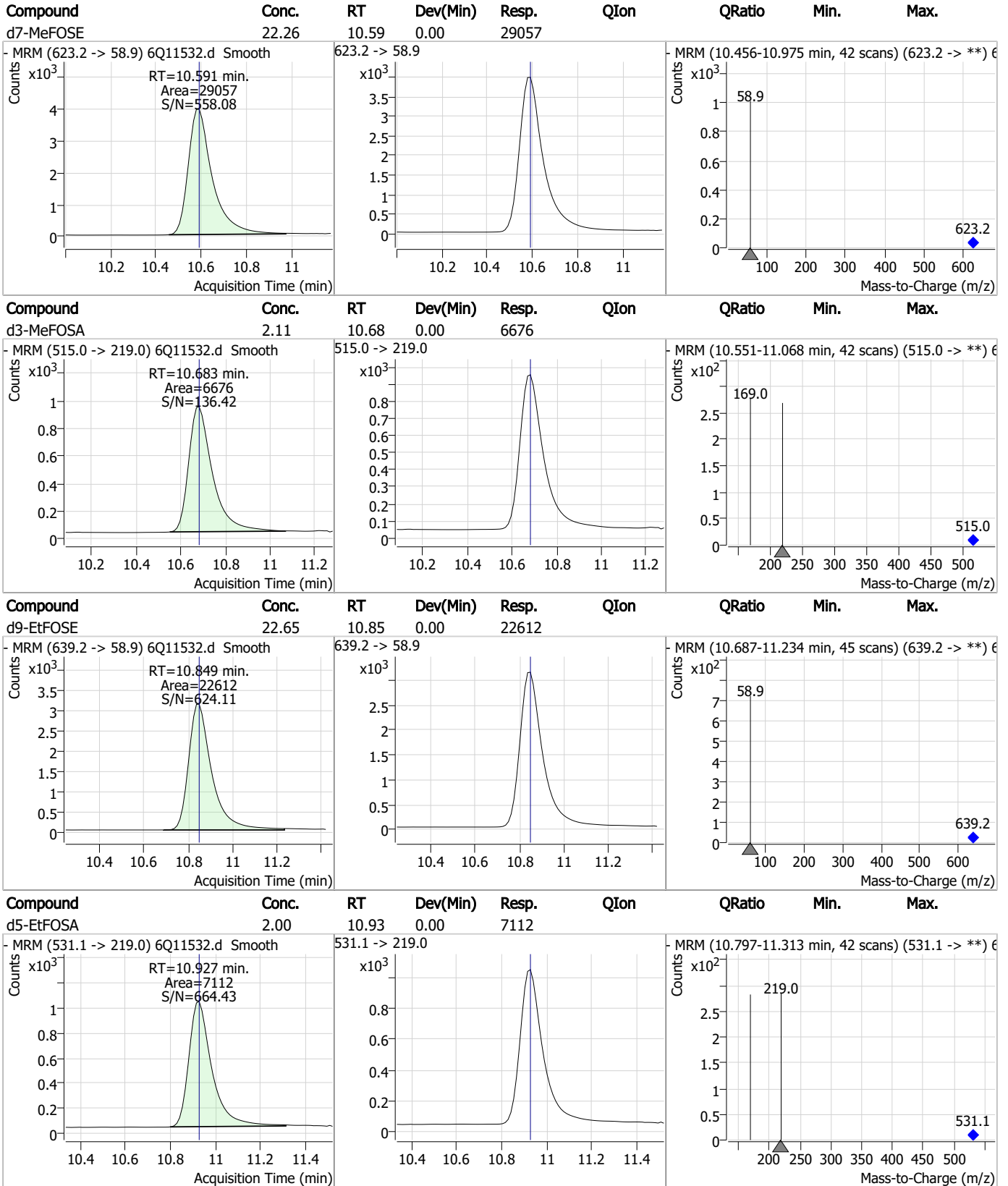
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: FC1867-1 Method: EPA DRAFT 1633
Lab FileID: 6Q11532.D Analyst approved: 01/18/23 15:42 Martha Valls
Injection Time: 01/18/23 01:36 Supervisor approved: 01/18/23 19:08 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.17	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.38	Split peak

7.1.1.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11533.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/18/2023 1:50:13 AM
 Sample Name : FC1867-2
 Vial : P4-B3
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,560,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.013	216.8 -> 171.9	90440	10.00 µg/L	0.012
M5-PFPeA	4.384	268.3 -> 223.0	42400	5.00 µg/L	0.000
M5-PFHxA	5.564	318.0 -> 273.0	37001	2.50 µg/L	0.000
M4-PFHpA	6.516	367.1 -> 322.0	39773	2.50 µg/L	0.000
M8-PFOA	7.160	421.1 -> 376.0	62223	2.50 µg/L	0.000
M9-PFNA	7.702	472.1 -> 427.0	30388	1.25 µg/L	-0.013
M6-PFDA	8.195	519.1 -> 474.1	19933	1.25 µg/L	-0.012
M7-PFUnDA	8.662	570.0 -> 525.1	21138	1.25 µg/L	-0.012
M2-PFDoDA	9.104	615.1 -> 570.0	24270	1.25 µg/L	-0.012
M2-PFTeDA	9.844	715.2 -> 670.0	12845	1.25 µg/L	-0.012
M8-FOSA	9.568	506.1 -> 77.8	18714	2.50 µg/L	0.000
M3-PFBS	5.519	302.1 -> 79.9	14018	2.50 µg/L	-0.012
M3-PFHxS	7.288	402.1 -> 79.9	8783	2.50 µg/L	-0.012
M8-PFOS	8.371	507.1 -> 79.9	8401	2.50 µg/L	-0.012
M2-4:2FTS	5.228	329.1 -> 80.9	2076	5.00 µg/L	0.000
M2-6:2FTS	6.921	429.1 -> 80.9	2730	5.00 µg/L	-0.012
M2-8:2FTS	7.982	529.1 -> 80.9	2685	5.00 µg/L	0.000
M3-MeFOSAA	8.240	573.2 -> 419.0	26554	5.00 µg/L	0.000
M3-HFPO-DA	5.941	286.9 -> 168.9	16785	10.00 µg/L	0.000
M5-EtFOSAA	8.436	589.2 -> 419.0	21605	5.00 µg/L	-0.012
M7-MeFOSE	10.579	623.2 -> 58.9	32071	25.00 µg/L	-0.012
M9-EtFOSE	10.849	639.2 -> 58.9	24478	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	8005	2.50 µg/L	0.000
M3-MeFOSA	10.670	515.0 -> 219.0	7676	2.50 µg/L	-0.012
13C4-PFOS	8.372	502.8 -> 79.9	10172	2.50 µg/L	-0.012
13C3-PFBA	3.016	216.0 -> 172.0	33300	5.00 µg/L	0.012
18O2-PFHxS	7.287	403.0 -> 83.9	6216	2.50 µg/L	-0.012
13C4-PFOA	7.160	417.1 -> 372.0	68515	2.50 µg/L	-0.012
13C2-PFDA	8.196	515.1 -> 470.1	24494	1.25 µg/L	-0.012
13C5-PFNA	7.703	468.0 -> 423.0	30069	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	32066	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.228	329.1 -> 80.9	2076	6.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.1%		
13C2-6:2FTS	6.921	429.1 -> 80.9	2730	6.15 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.0%		
13C2-8:2FTS	7.982	529.1 -> 80.9	2685	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.8%		
13C2-PFDoDA	9.104	615.1 -> 570.0	24270	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C2-PFTeDA	9.844	715.2 -> 670.0	12845	1.13 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.1%		
13C3-PFBS	5.519	302.1 -> 79.9	14018	2.69 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C3-PFHxS	7.288	402.1 -> 79.9	8783	2.60 µg/L	-0.012

7.12
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C4-PFBA	3.013	216.8 -> 171.9	90440	11.89 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 118.9%	
13C4-PFHpA	6.516	367.1 -> 322.0	39773	3.06 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 122.4%	
13C5-PFHxA	5.564	318.0 -> 273.0	37001	2.87 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.0%	
13C5-PFPeA	4.384	268.3 -> 223.0	42400	5.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.5%	
13C6-PFDA	8.195	519.1 -> 474.1	19933	1.43 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.3%	
13C7-PFUnDA	8.662	570.0 -> 525.1	21138	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C8-FOSA	9.568	506.1 -> 77.8	18714	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C8-PFOA	7.160	421.1 -> 376.0	62223	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C8-PFOS	8.371	507.1 -> 79.9	8401	2.58 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C9-PFNA	7.702	472.1 -> 427.0	30388	1.42 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.8%	
d3-MeFOSAA	8.240	573.2 -> 419.0	26554	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C3-HFPO-DA	5.941	286.9 -> 168.9	16785	12.69 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 126.9%	
d3-MeFOSA	10.670	515.0 -> 219.0	7676	2.44 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
d5-EtFOSAA	8.436	589.2 -> 419.0	21605	5.03 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
d7-MeFOSE	10.579	623.2 -> 58.9	32071	24.77 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
d9-EtFOSE	10.849	639.2 -> 58.9	24478	24.72 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
d5-EtFOSA	10.927	531.1 -> 219.0	8005	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.9%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	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.	



7.12
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.	
		363.1 -> 319.0			
PFHpS	-	363.1 -> 169.0	-	N.D.	
		449.0 -> 79.9			
PFHxA	5.567	449.0 -> 98.9	1989	0.13 µg/L	95
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	101	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		463.0 -> 419.0			
PFNS	-	463.0 -> 219.0	-	N.D.	
		548.8 -> 79.9			
PFOA	-	548.8 -> 98.9	-	N.D.	
		413.0 -> 369.0			
PFOS	-	413.0 -> 169.0	-	N.D.	
		498.9 -> 79.9			
PFPeA	4.386	498.9 -> 98.8	4821	0.52 µg/L	100
		263.0 -> 219.0			
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.	
		511.9 -> 219.0			
MeFOSA	-	511.9 -> 169.0	-	N.D.	
		616.1 -> 58.9			
MeFOSE	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
PFDoDS	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
NFDHA	-	279.0 -> 85.1	-	N.D.	
		229.0 -> 84.9			
PFMBA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

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



7.1.2
7

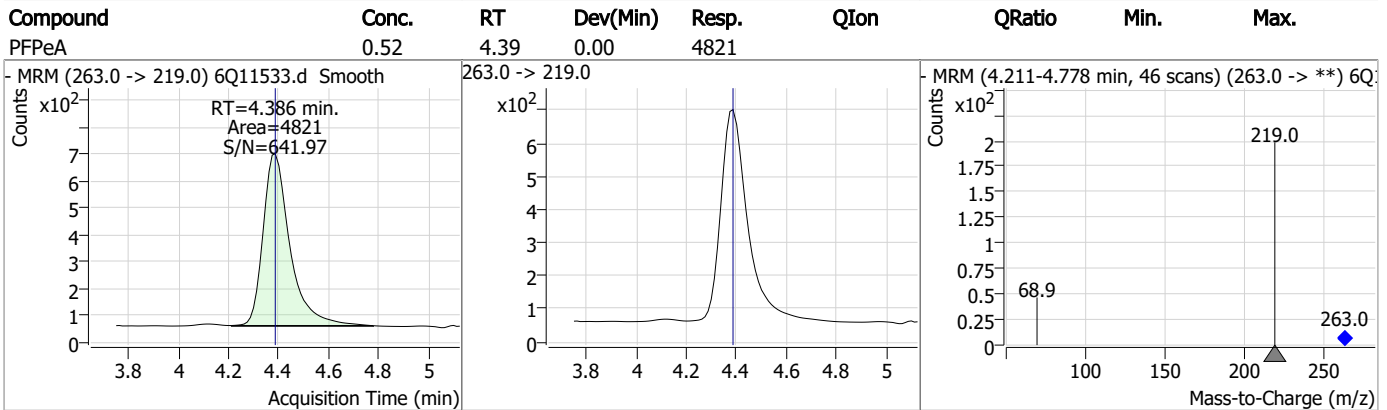
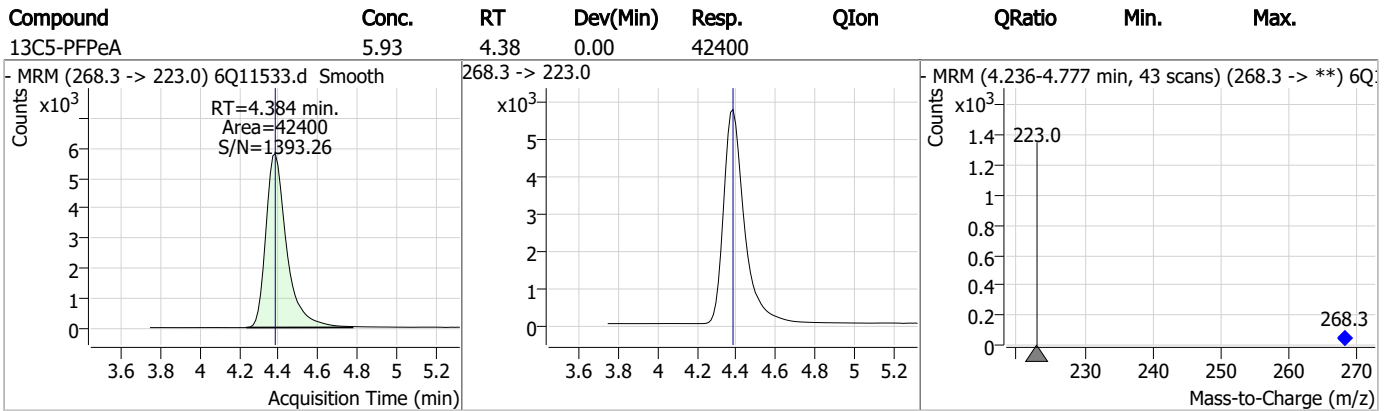
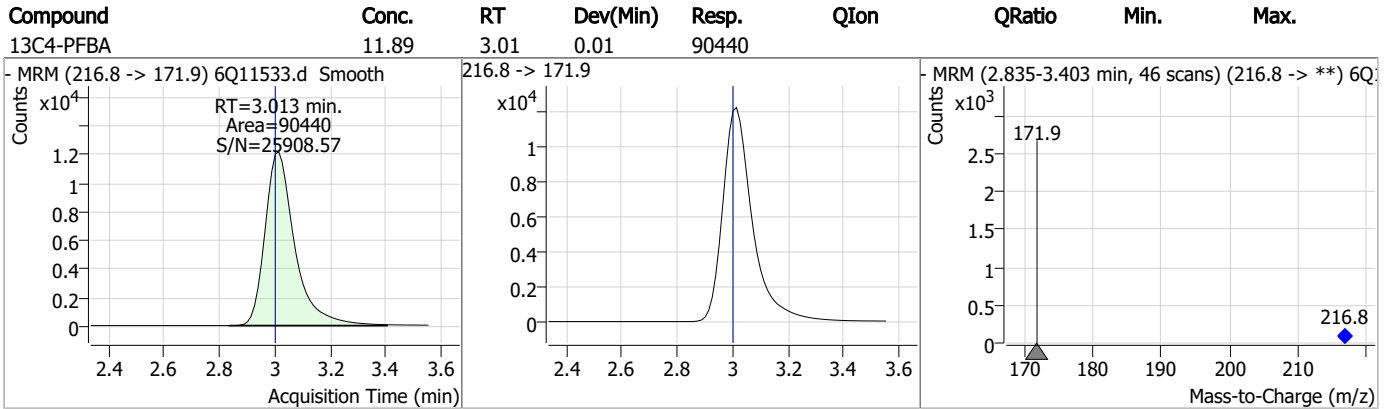
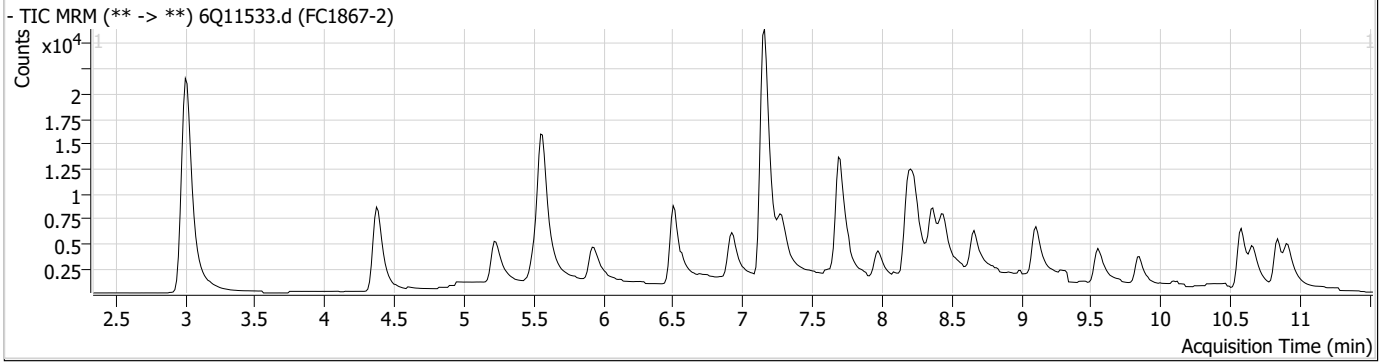
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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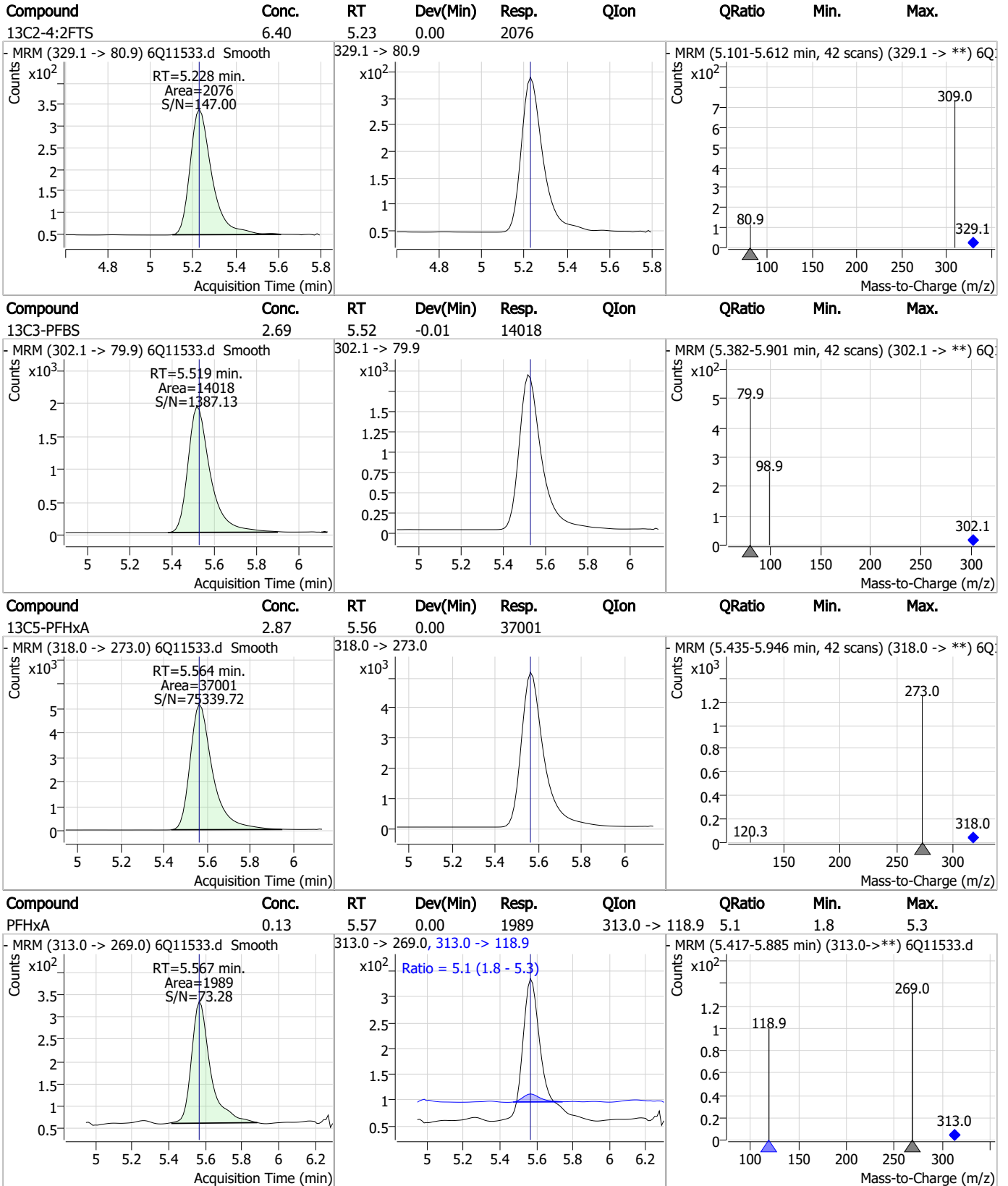
7.1.2
7



Perfluorinated Compounds by LC/MS/MS

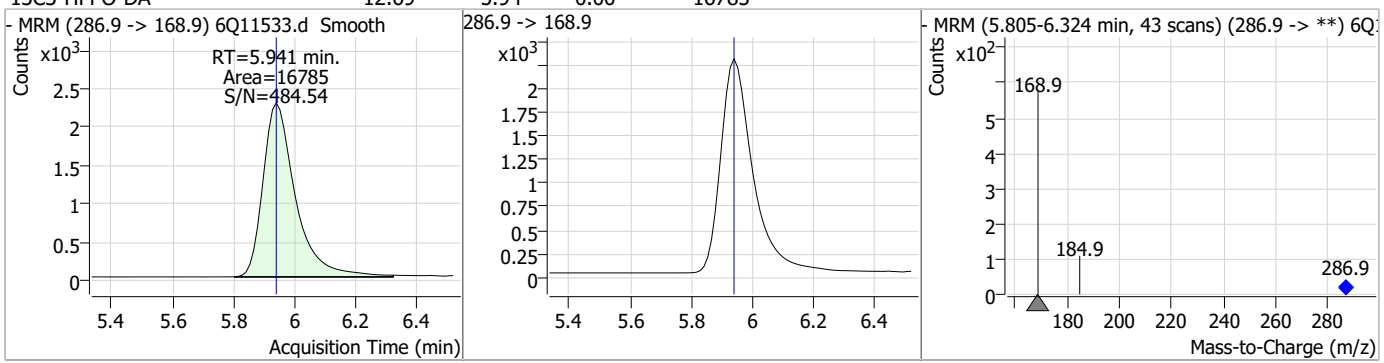


Perfluorinated Compounds by LC/MS/MS

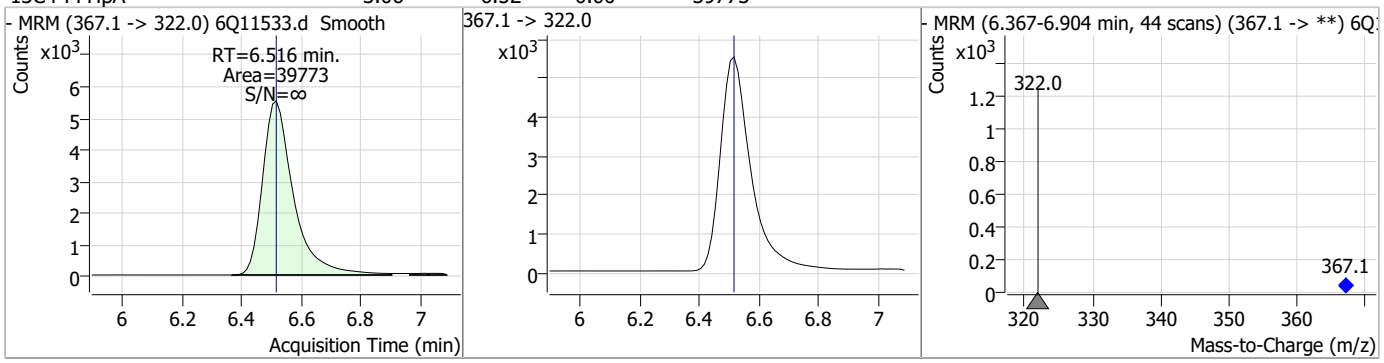


Perfluorinated Compounds by LC/MS/MS

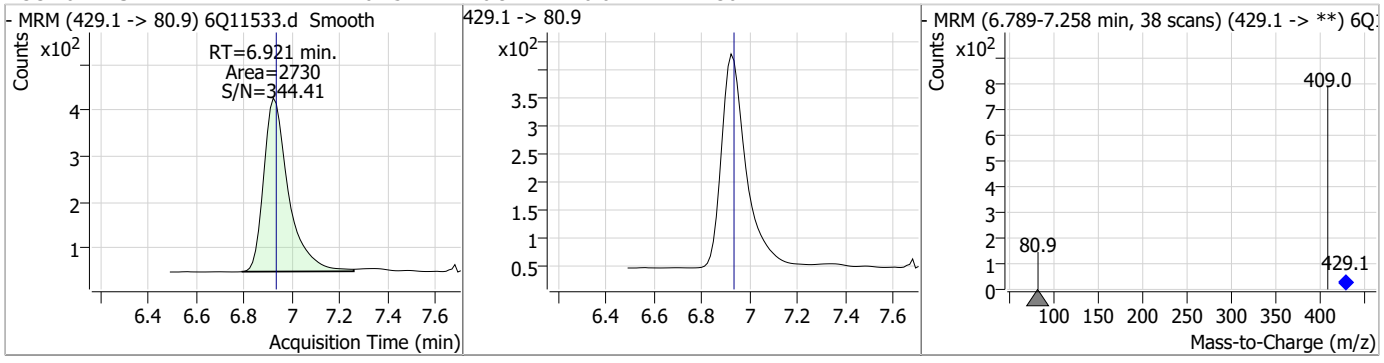
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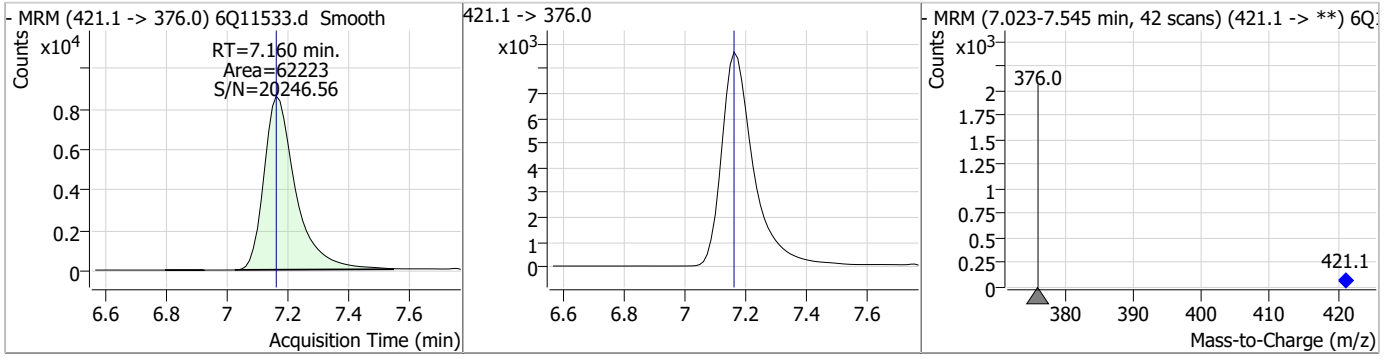
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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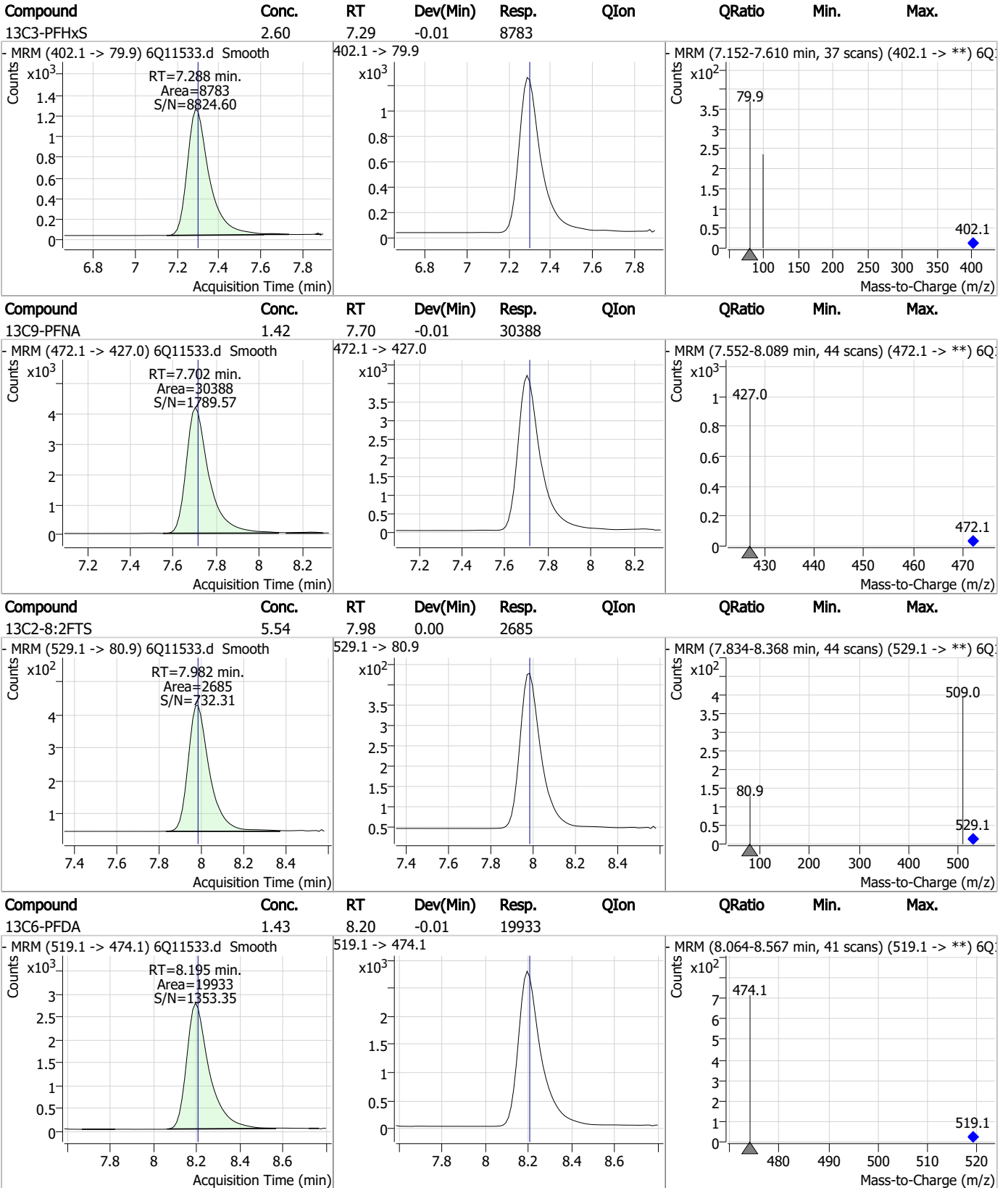


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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7.1.2
7

Perfluorinated Compounds by LC/MS/MS

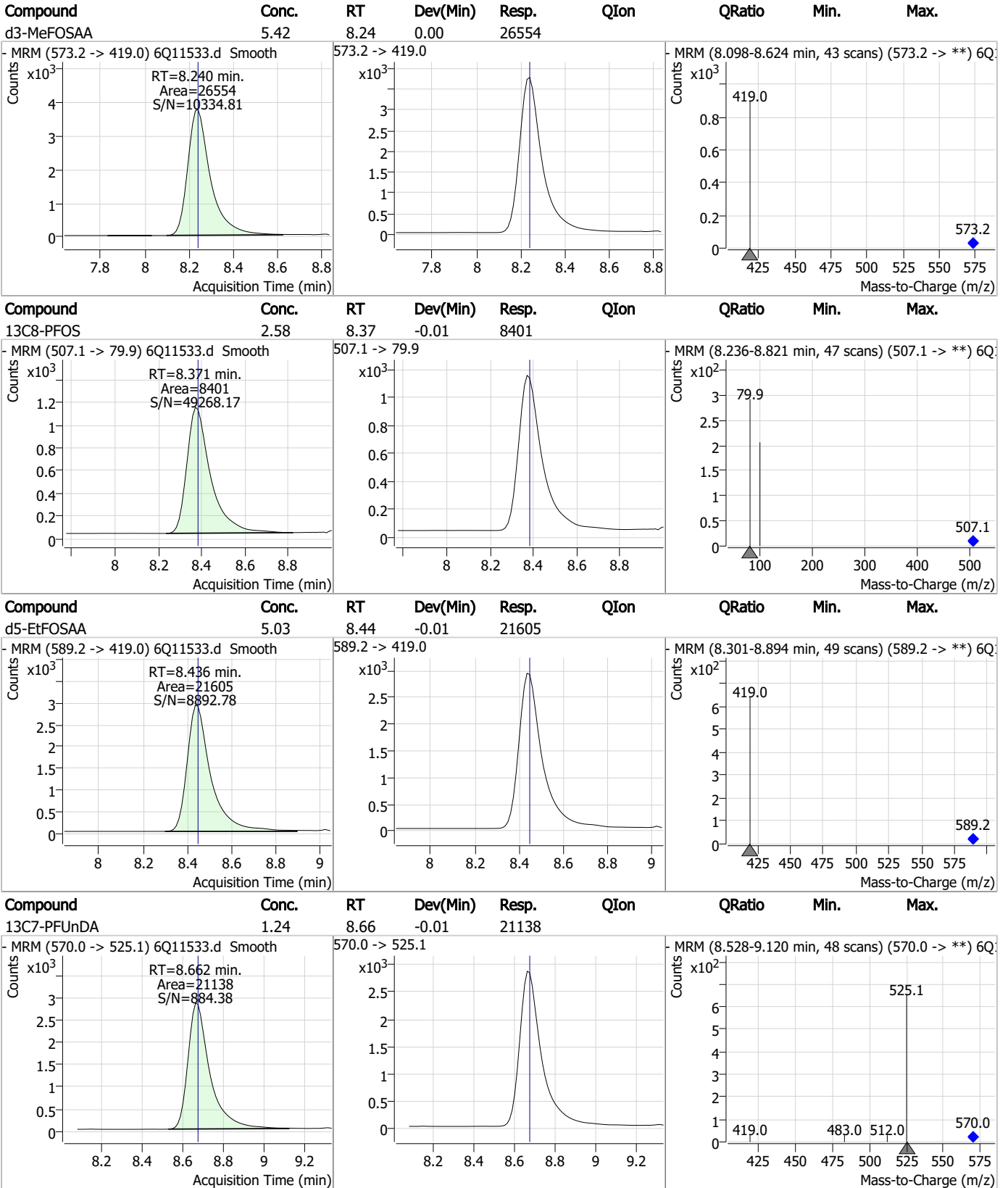


7.1.2

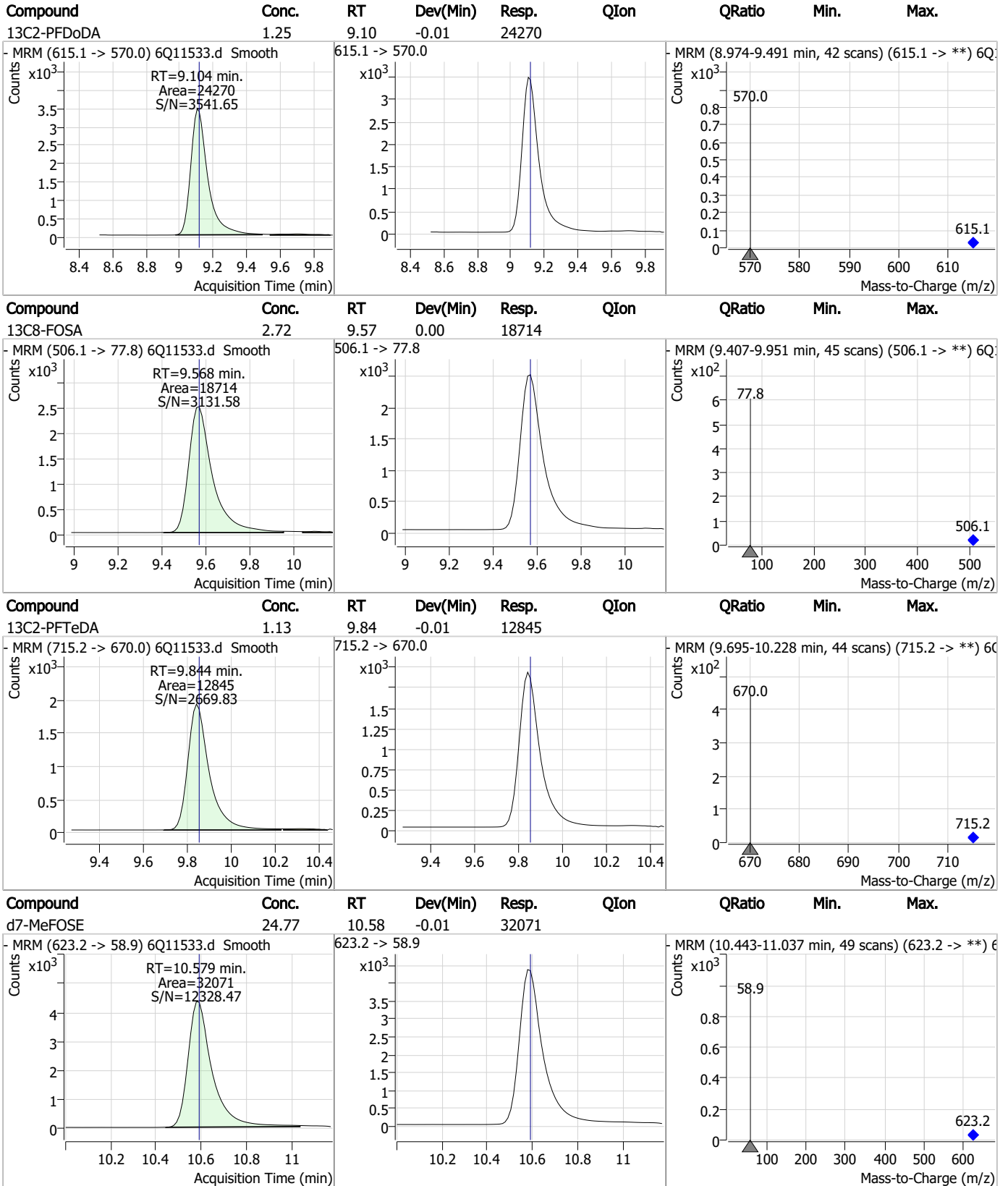
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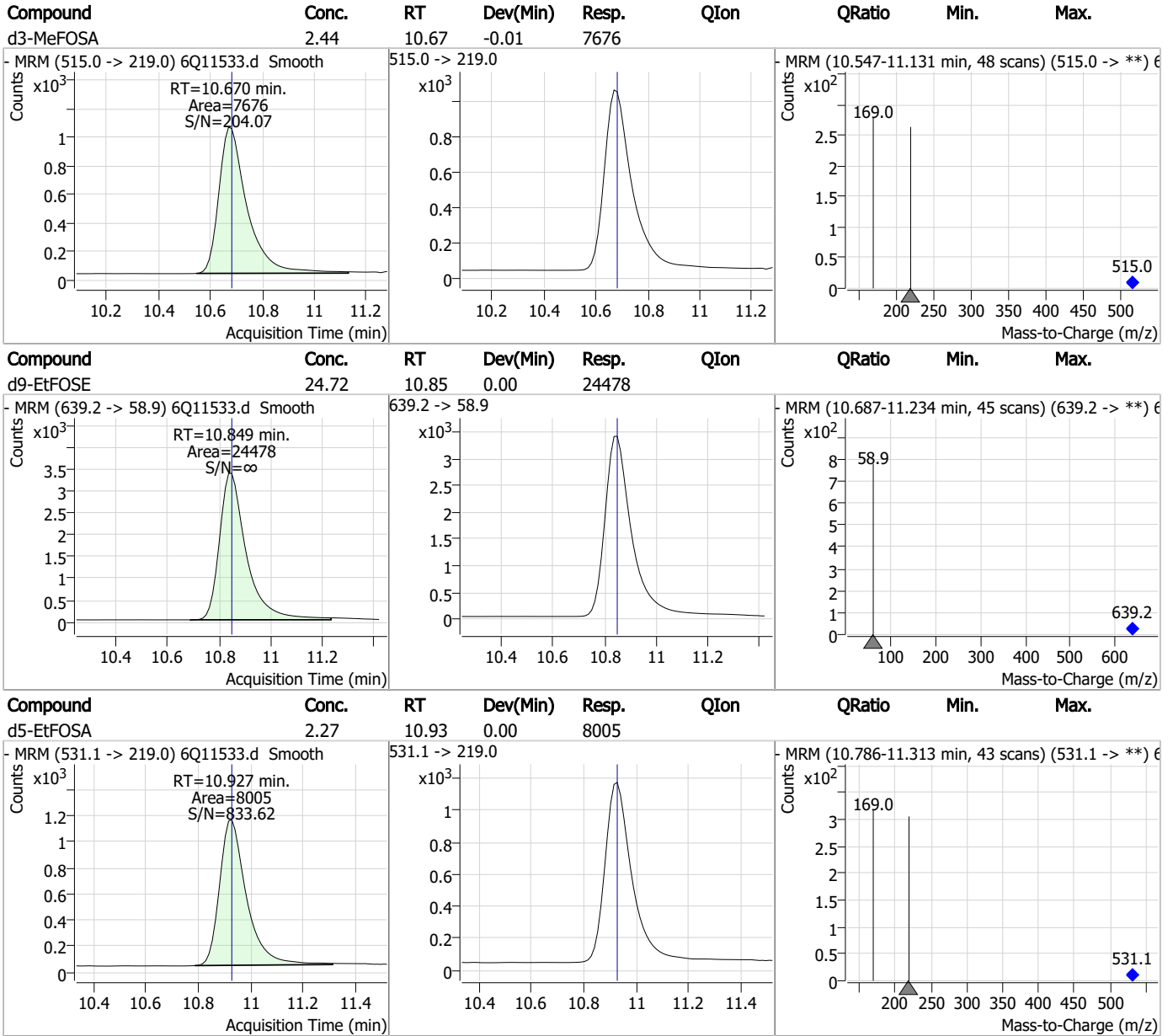
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.2

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11534.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/18/2023 2:04:13 AM
 Sample Name : FC1867-3
 Vial : P4-B4
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.013	216.8 -> 171.9	90434	10.00 µg/L	0.012
M5-PFPeA	4.384	268.3 -> 223.0	42737	5.00 µg/L	0.000
M5-PFHxA	5.564	318.0 -> 273.0	36698	2.50 µg/L	0.000
M4-PFHpA	6.516	367.1 -> 322.0	38315	2.50 µg/L	0.000
M8-PFOA	7.160	421.1 -> 376.0	61084	2.50 µg/L	0.000
M9-PFNA	7.702	472.1 -> 427.0	29360	1.25 µg/L	-0.013
M6-PFDA	8.195	519.1 -> 474.1	19730	1.25 µg/L	-0.012
M7-PFUnDA	8.662	570.0 -> 525.1	21034	1.25 µg/L	-0.012
M2-PFDoDA	9.117	615.1 -> 570.0	21206	1.25 µg/L	0.000
M2-PFTeDA	9.844	715.2 -> 670.0	9757	1.25 µg/L	-0.012
M8-FOSA	9.568	506.1 -> 77.8	18687	2.50 µg/L	0.000
M3-PFBS	5.519	302.1 -> 79.9	13639	2.50 µg/L	-0.012
M3-PFHxS	7.300	402.1 -> 79.9	9078	2.50 µg/L	0.000
M8-PFOS	8.371	507.1 -> 79.9	8739	2.50 µg/L	-0.012
M2-4:2FTS	5.228	329.1 -> 80.9	1982	5.00 µg/L	0.000
M2-6:2FTS	6.921	429.1 -> 80.9	2544	5.00 µg/L	-0.012
M2-8:2FTS	7.982	529.1 -> 80.9	2943	5.00 µg/L	0.000
M3-MeFOSAA	8.240	573.2 -> 419.0	27375	5.00 µg/L	0.000
M3-HFPO-DA	5.941	286.9 -> 168.9	15806	10.00 µg/L	0.000
M5-EtFOSAA	8.448	589.2 -> 419.0	20646	5.00 µg/L	0.000
M7-MeFOSE	10.579	623.2 -> 58.9	30655	25.00 µg/L	-0.012
M9-EtFOSE	10.849	639.2 -> 58.9	22175	25.00 µg/L	0.000
M5-EtFOSA	10.915	531.1 -> 219.0	7817	2.50 µg/L	-0.012
M3-MeFOSA	10.683	515.0 -> 219.0	7549	2.50 µg/L	0.000
13C4-PFOS	8.372	502.8 -> 79.9	9856	2.50 µg/L	-0.012
13C3-PFBA	3.004	216.0 -> 172.0	32817	5.00 µg/L	0.000
18O2-PFHxS	7.299	403.0 -> 83.9	6053	2.50 µg/L	0.000
13C4-PFOA	7.160	417.1 -> 372.0	67454	2.50 µg/L	-0.012
13C2-PFDA	8.196	515.1 -> 470.1	24046	1.25 µg/L	-0.012
13C5-PFNA	7.703	468.0 -> 423.0	29346	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	31414	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.228	329.1 -> 80.9	1982	6.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 125.6%		
13C2-6:2FTS	6.921	429.1 -> 80.9	2544	5.88 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.7%		
13C2-8:2FTS	7.982	529.1 -> 80.9	2943	6.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.7%		
13C2-PFDoDA	9.117	615.1 -> 570.0	21206	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.0%		
13C2-PFTeDA	9.844	715.2 -> 670.0	9757	0.87 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 69.7%		
13C3-PFBS	5.519	302.1 -> 79.9	13639	2.69 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.5%		
13C3-PFHxS	7.300	402.1 -> 79.9	9078	2.76 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 = 110.5%	
13C4-PFBA	3.013	216.8 -> 171.9	90434	12.07 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 120.7%	
13C4-PFHpA	6.516	367.1 -> 322.0	38315	3.01 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 120.3%	
13C5-PFHxA	5.564	318.0 -> 273.0	36698	2.91 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.4%	
13C5-PFPeA	4.384	268.3 -> 223.0	42737	6.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 122.0%	
13C6-PFDA	8.195	519.1 -> 474.1	19730	1.44 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.3%	
13C7-PFUnDA	8.662	570.0 -> 525.1	21034	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C8-FOSA	9.568	506.1 -> 77.8	18687	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.3%	
13C8-PFOA	7.160	421.1 -> 376.0	61084	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.1%	
13C8-PFOS	8.371	507.1 -> 79.9	8739	2.77 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.0%	
13C9-PFNA	7.702	472.1 -> 427.0	29360	1.41 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.6%	
d3-MeFOSAA	8.240	573.2 -> 419.0	27375	5.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.4%	
13C3-HFPO-DA	5.941	286.9 -> 168.9	15806	12.20 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 122.0%	
d3-MeFOSA	10.683	515.0 -> 219.0	7549	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
d5-EtFOSAA	8.448	589.2 -> 419.0	20646	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d7-MeFOSE	10.579	623.2 -> 58.9	30655	24.43 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d9-EtFOSE	10.849	639.2 -> 58.9	22175	23.11 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.5%	
d5-EtFOSA	10.915	531.1 -> 219.0	7817	2.29 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.6%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	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)
PFHpA	-	599.0 -> 98.8	-	N.D.	
		363.1 -> 319.0			
PFHpS	-	363.1 -> 169.0	-	N.D.	
		449.0 -> 79.9			
PFHxA	5.567	449.0 -> 98.9	2036	0.14 µg/L	96
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	100	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		463.0 -> 419.0			
PFNS	-	463.0 -> 219.0	-	N.D.	
		548.8 -> 79.9			
PFOA	-	548.8 -> 98.9	-	N.D.	
		413.0 -> 369.0			
PFOS	-	413.0 -> 169.0	-	N.D.	
		498.9 -> 79.9			
PFPeA	4.386	498.9 -> 98.8	4536	0.48 µg/L	100
		263.0 -> 219.0			
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.	
		511.9 -> 219.0			
MeFOSA	-	511.9 -> 169.0	-	N.D.	
		616.1 -> 58.9			
MeFOSE	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
PFDoDS	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
NFDHA	-	279.0 -> 85.1	-	N.D.	
		229.0 -> 84.9			
PFMBA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

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

7.1.3
7

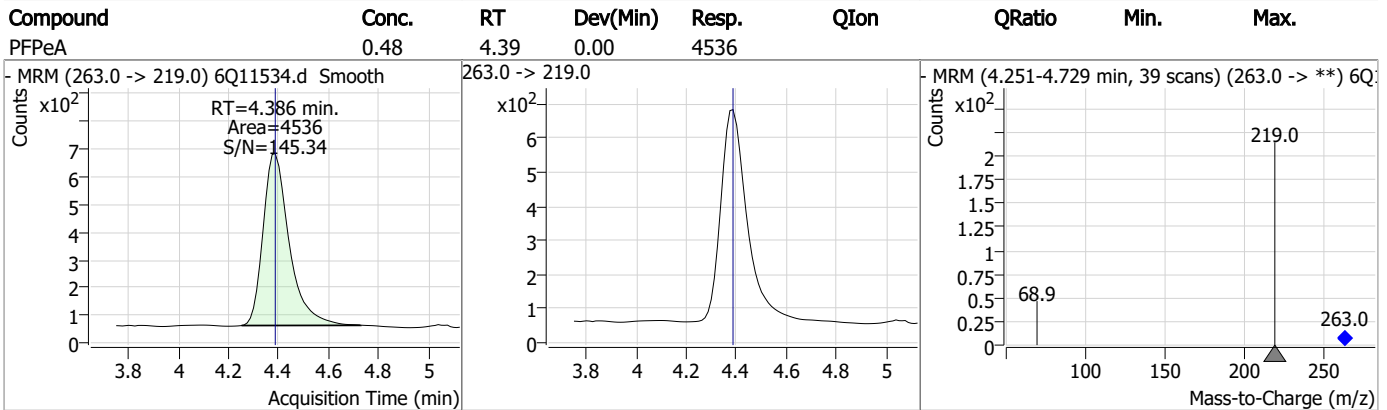
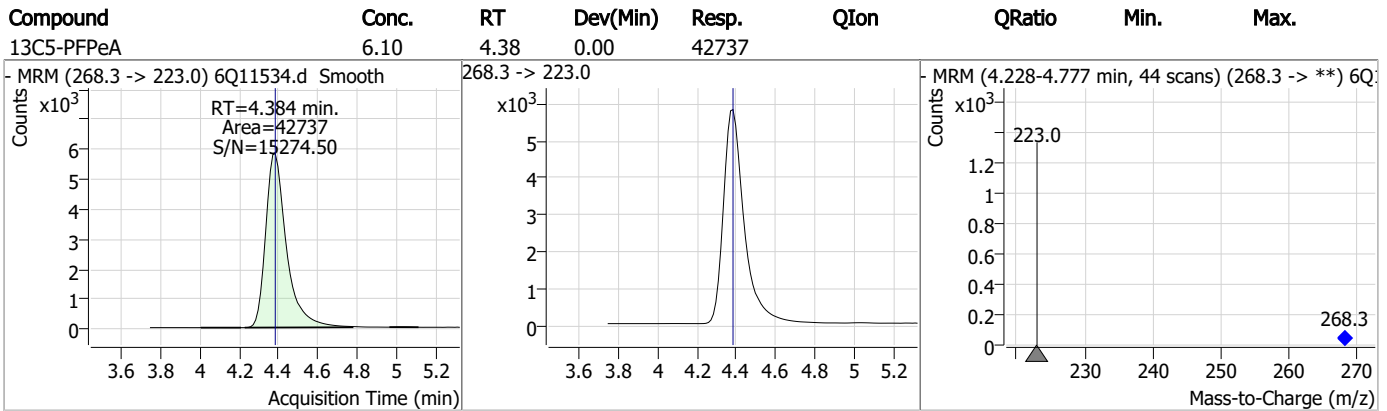
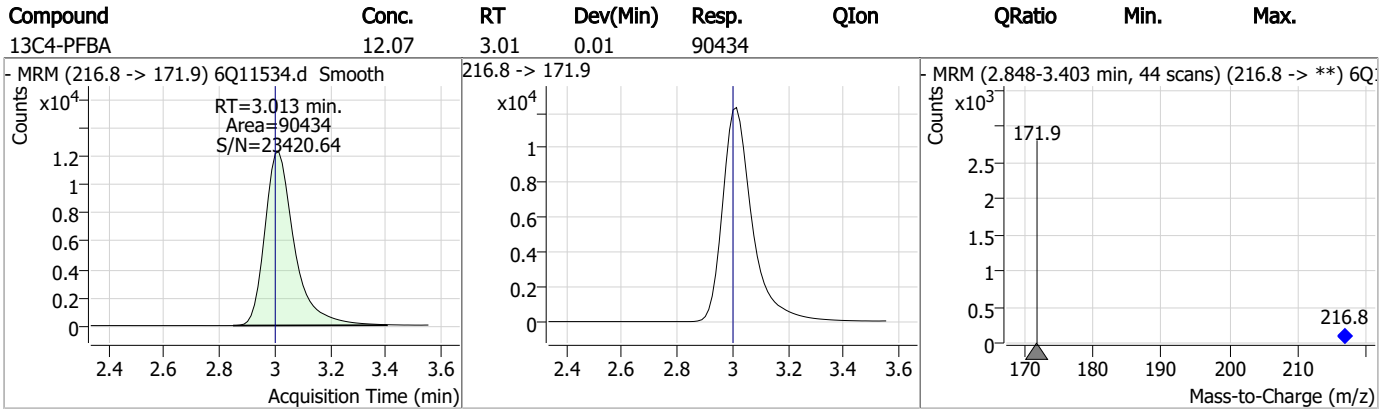
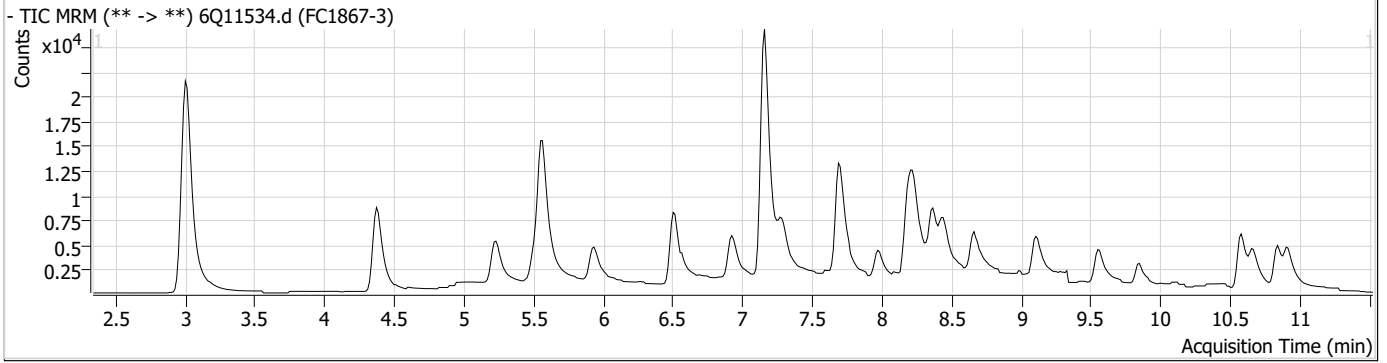
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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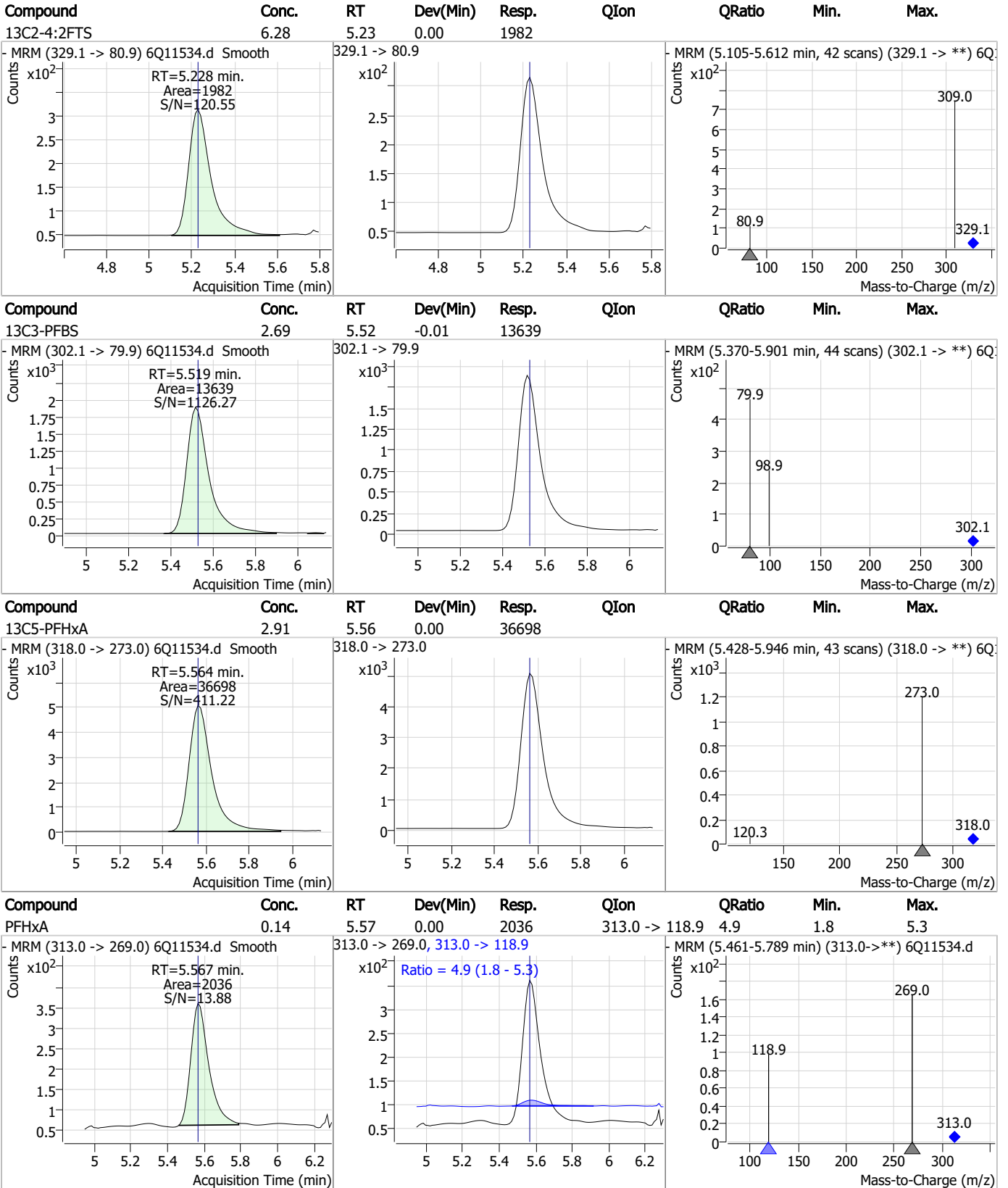
7.1.3
7



Perfluorinated Compounds by LC/MS/MS



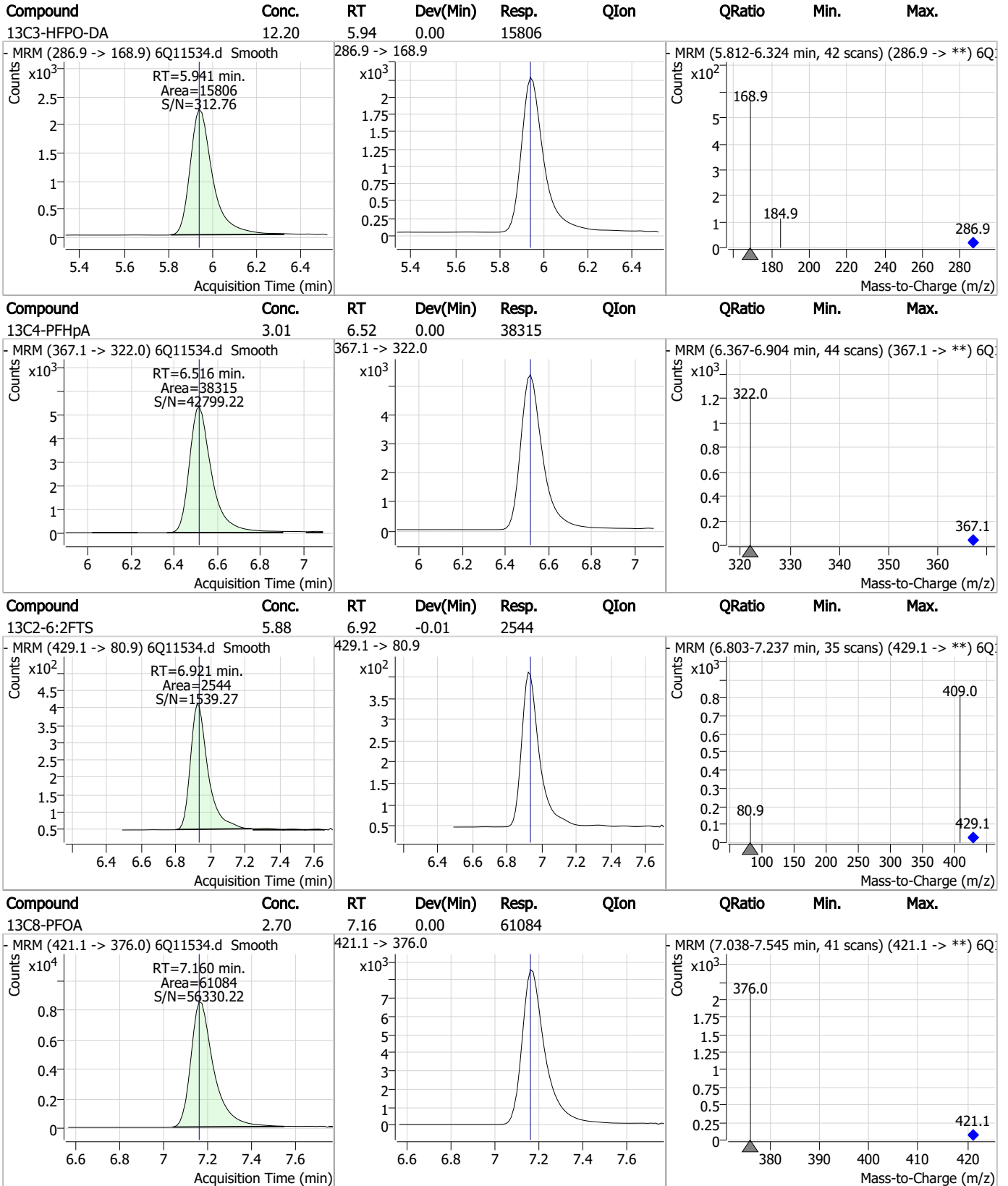
Perfluorinated Compounds by LC/MS/MS



7.1.3

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Perfluorinated Compounds by LC/MS/MS



7.1.3

7

Perfluorinated Compounds by LC/MS/MS

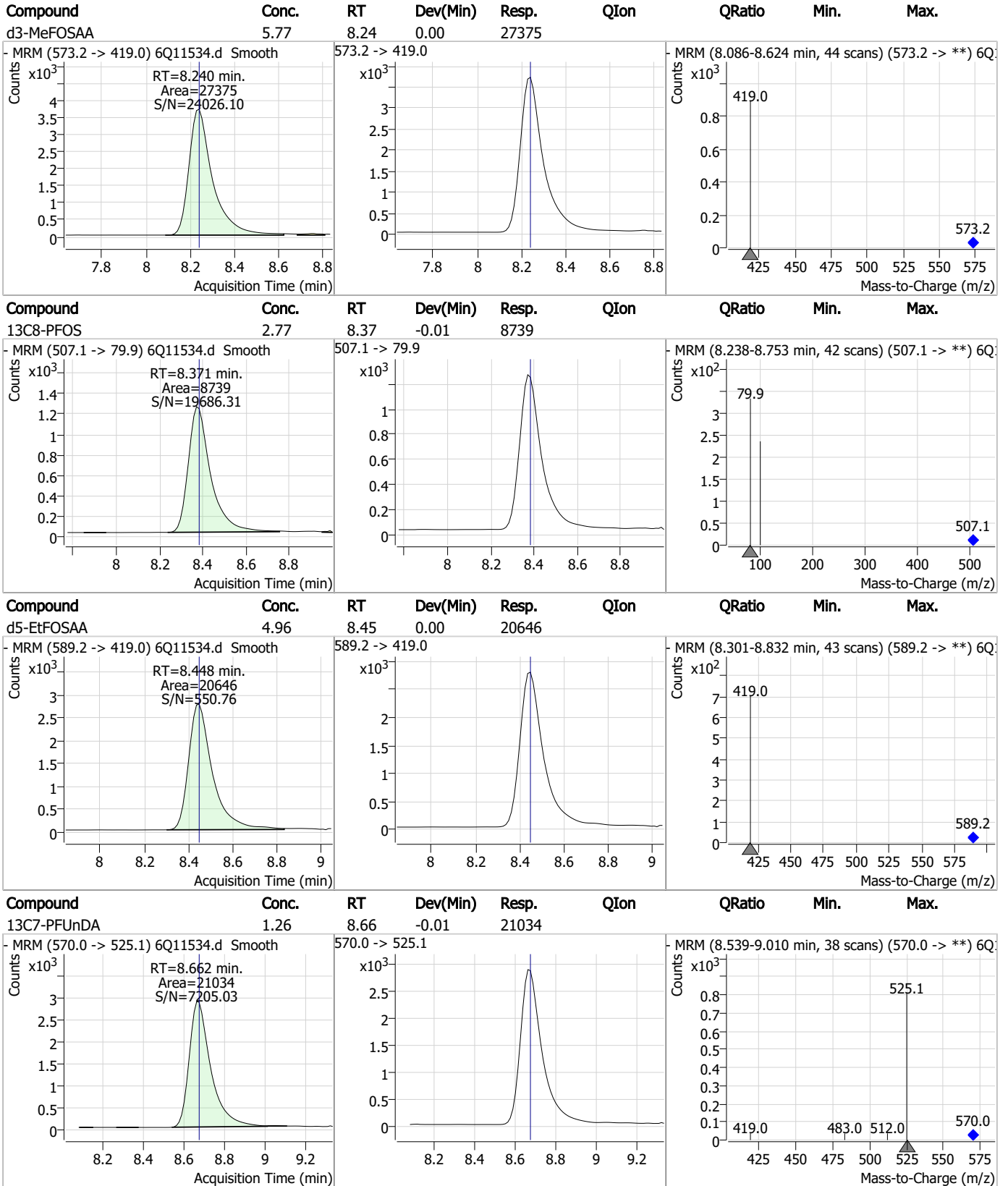
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.76	7.30	0.00	9078				
13C9-PFNA	1.41	7.70	-0.01	29360				
13C2-8:2FTS	6.24	7.98	0.00	2943				
13C6-PFDA	1.44	8.20	-0.01	19730				

7.1.3

7



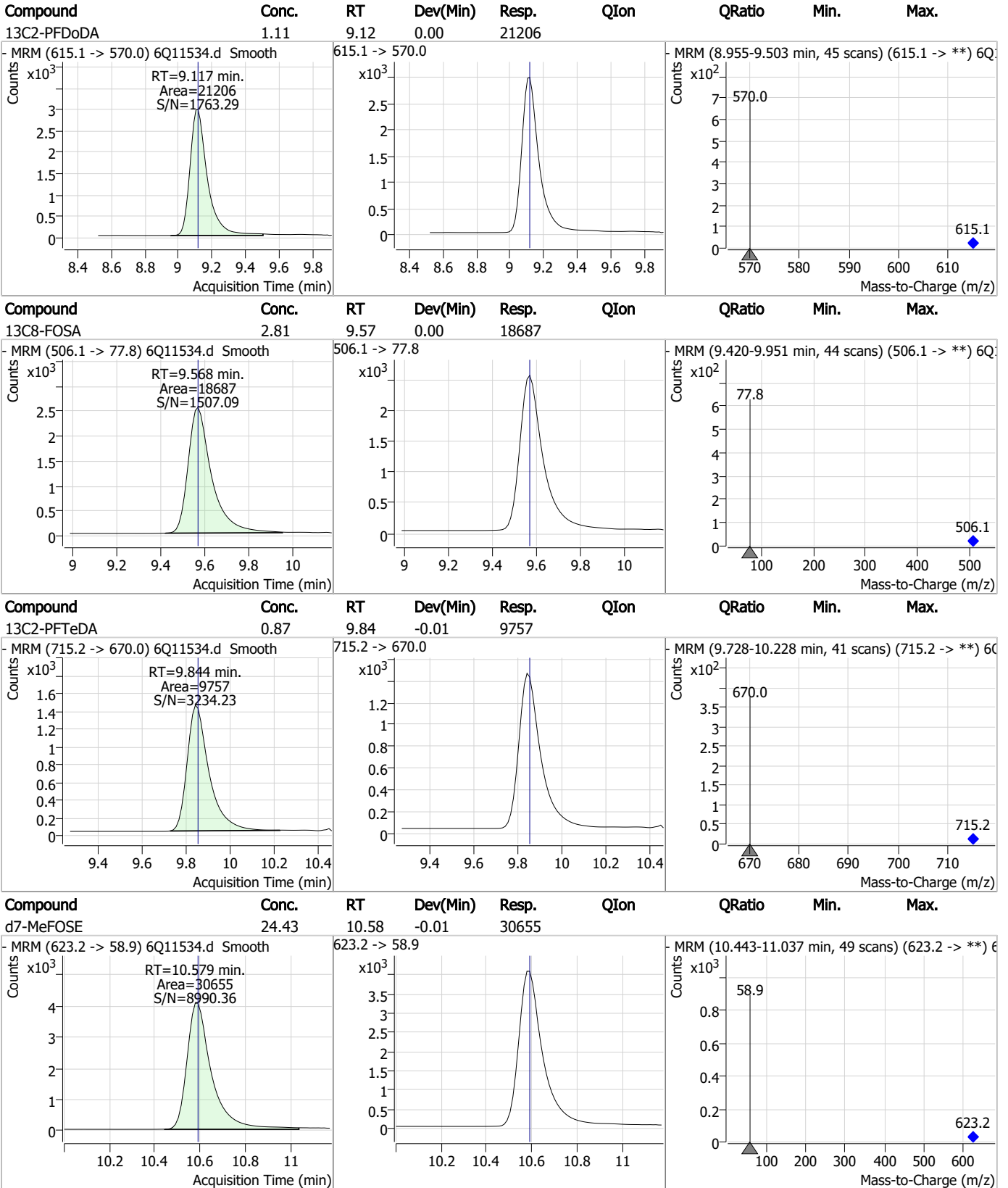
Perfluorinated Compounds by LC/MS/MS



7.1.3

7

Perfluorinated Compounds by LC/MS/MS

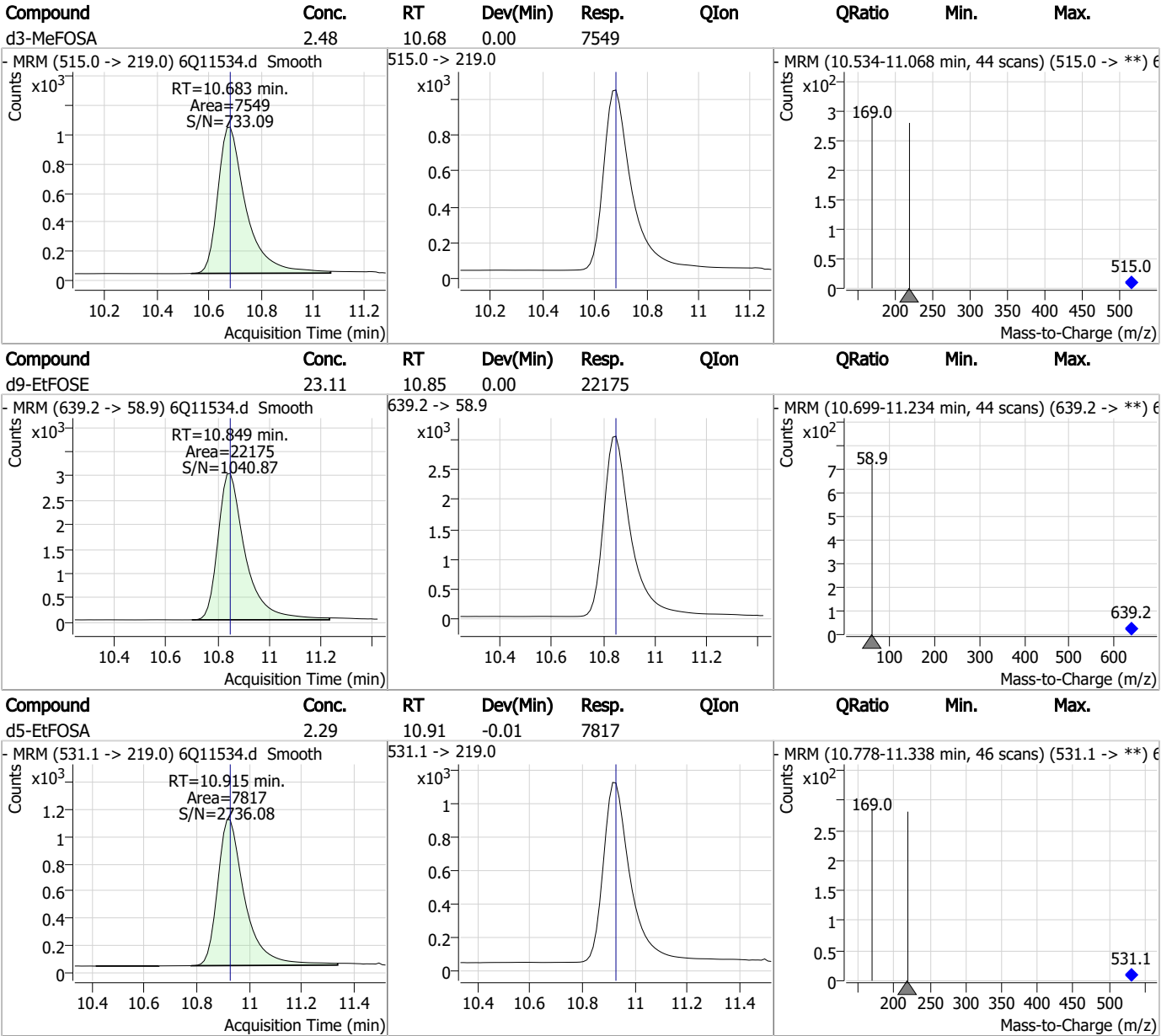


7.1.3

7



Perfluorinated Compounds by LC/MS/MS



7.1.3

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11535.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/18/2023 2:18:12 AM
 Sample Name : FC1867-4
 Vial : P4-B5
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,520,,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	90481	10.00 µg/L	0.000
M5-PFPeA	4.371	268.3 -> 223.0	42108	5.00 µg/L	-0.012
M5-PFHxA	5.564	318.0 -> 273.0	37546	2.50 µg/L	0.000
M4-PFHpA	6.503	367.1 -> 322.0	36984	2.50 µg/L	-0.012
M8-PFOA	7.160	421.1 -> 376.0	64610	2.50 µg/L	0.000
M9-PFNA	7.702	472.1 -> 427.0	29792	1.25 µg/L	-0.013
M6-PFDA	8.195	519.1 -> 474.1	20408	1.25 µg/L	-0.012
M7-PFUnDA	8.674	570.0 -> 525.1	22056	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	23783	1.25 µg/L	0.000
M2-PFTeDA	9.844	715.2 -> 670.0	12208	1.25 µg/L	-0.012
M8-FOSA	9.568	506.1 -> 77.8	18596	2.50 µg/L	0.000
M3-PFBS	5.519	302.1 -> 79.9	14151	2.50 µg/L	-0.012
M3-PFHxS	7.300	402.1 -> 79.9	9247	2.50 µg/L	0.000
M8-PFOS	8.371	507.1 -> 79.9	9308	2.50 µg/L	-0.012
M2-4:2FTS	5.228	329.1 -> 80.9	1994	5.00 µg/L	0.000
M2-6:2FTS	6.921	429.1 -> 80.9	2640	5.00 µg/L	-0.012
M2-8:2FTS	7.982	529.1 -> 80.9	3074	5.00 µg/L	0.000
M3-MeFOSAA	8.240	573.2 -> 419.0	26534	5.00 µg/L	0.000
M3-HFPO-DA	5.941	286.9 -> 168.9	16743	10.00 µg/L	0.000
M5-EtFOSAA	8.448	589.2 -> 419.0	22444	5.00 µg/L	0.000
M7-MeFOSE	10.591	623.2 -> 58.9	34816	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	24911	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	8460	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	7257	2.50 µg/L	0.000
13C4-PFOS	8.384	502.8 -> 79.9	9692	2.50 µg/L	0.000
13C3-PFBA	3.004	216.0 -> 172.0	32807	5.00 µg/L	0.000
18O2-PFHxS	7.287	403.0 -> 83.9	5534	2.50 µg/L	-0.012
13C4-PFOA	7.160	417.1 -> 372.0	66272	2.50 µg/L	-0.012
13C2-PFDA	8.196	515.1 -> 470.1	22295	1.25 µg/L	-0.012
13C5-PFNA	7.703	468.0 -> 423.0	30697	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	30882	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.228	329.1 -> 80.9	1994	6.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 138.1%		
13C2-6:2FTS	6.921	429.1 -> 80.9	2640	6.68 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 133.6%		
13C2-8:2FTS	7.982	529.1 -> 80.9	3074	7.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 142.5%		
13C2-PFDoDA	9.117	615.1 -> 570.0	23783	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C2-PFTeDA	9.844	715.2 -> 670.0	12208	1.18 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C3-PFBS	5.519	302.1 -> 79.9	14151	3.05 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 122.0%		
13C3-PFHxS	7.300	402.1 -> 79.9	9247	3.08 µg/L	0.000

7.14
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 123.1%	
13C4-PFBA	3.000	216.8 -> 171.9	90481	12.08 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 120.8%	
13C4-PFHpA	6.503	367.1 -> 322.0	36984	2.95 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 118.1%	
13C5-PFHxA	5.564	318.0 -> 273.0	37546	3.03 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 121.1%	
13C5-PFPeA	4.371	268.3 -> 223.0	42108	6.11 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 122.2%	
13C6-PFDA	8.195	519.1 -> 474.1	20408	1.61 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 128.6%	
13C7-PFUnDA	8.674	570.0 -> 525.1	22056	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.9%	
13C8-FOSA	9.568	506.1 -> 77.8	18596	2.84 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.6%	
13C8-PFOA	7.160	421.1 -> 376.0	64610	2.91 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.4%	
13C8-PFOS	8.371	507.1 -> 79.9	9308	3.01 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 120.2%	
13C9-PFNA	7.702	472.1 -> 427.0	29792	1.37 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.3%	
d3-MeFOSAA	8.240	573.2 -> 419.0	26534	5.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.7%	
13C3-HFPO-DA	5.941	286.9 -> 168.9	16743	13.14 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 131.4%	
d3-MeFOSA	10.683	515.0 -> 219.0	7257	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
d5-EtFOSAA	8.448	589.2 -> 419.0	22444	5.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.6%	
d7-MeFOSE	10.591	623.2 -> 58.9	34816	28.22 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 112.9%	
d9-EtFOSE	10.849	639.2 -> 58.9	24911	26.40 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
d5-EtFOSA	10.927	531.1 -> 219.0	8460	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	

7.14
7

Target Compounds	RT	Transition	Response	Conc. Units	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)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
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.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

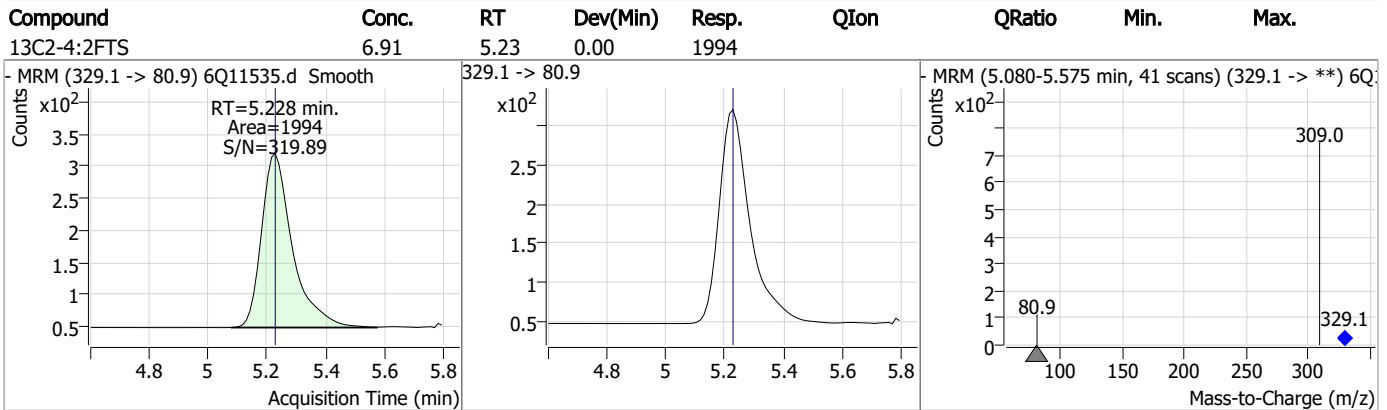
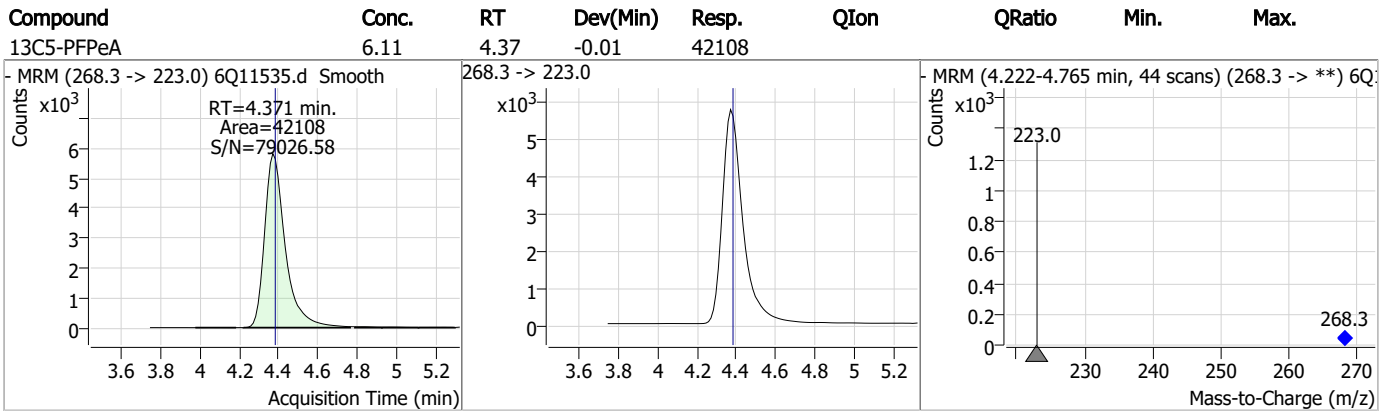
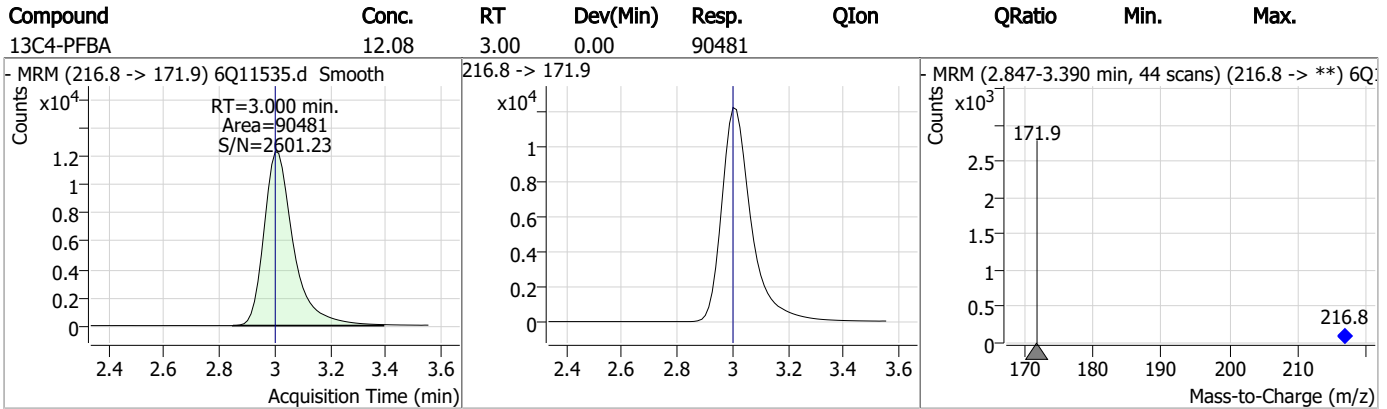
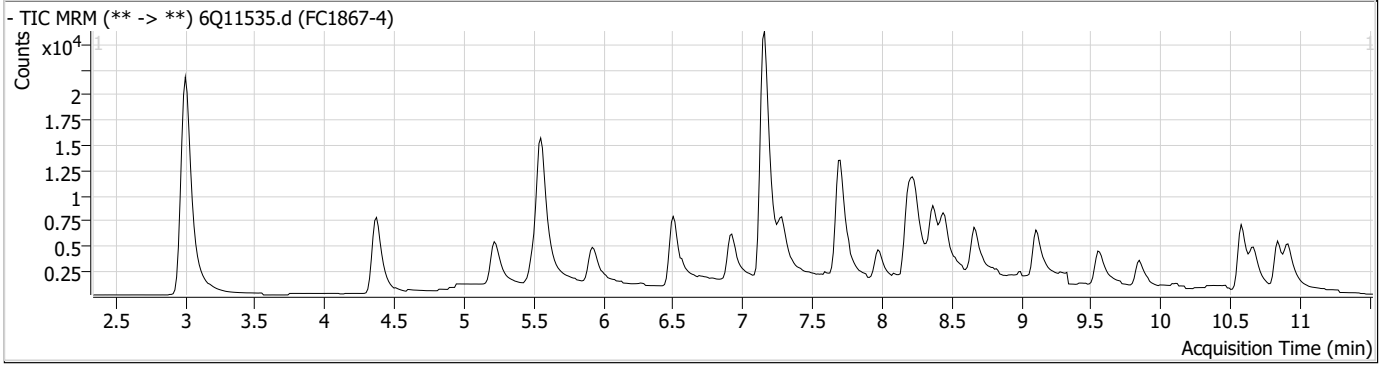
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.1.4
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

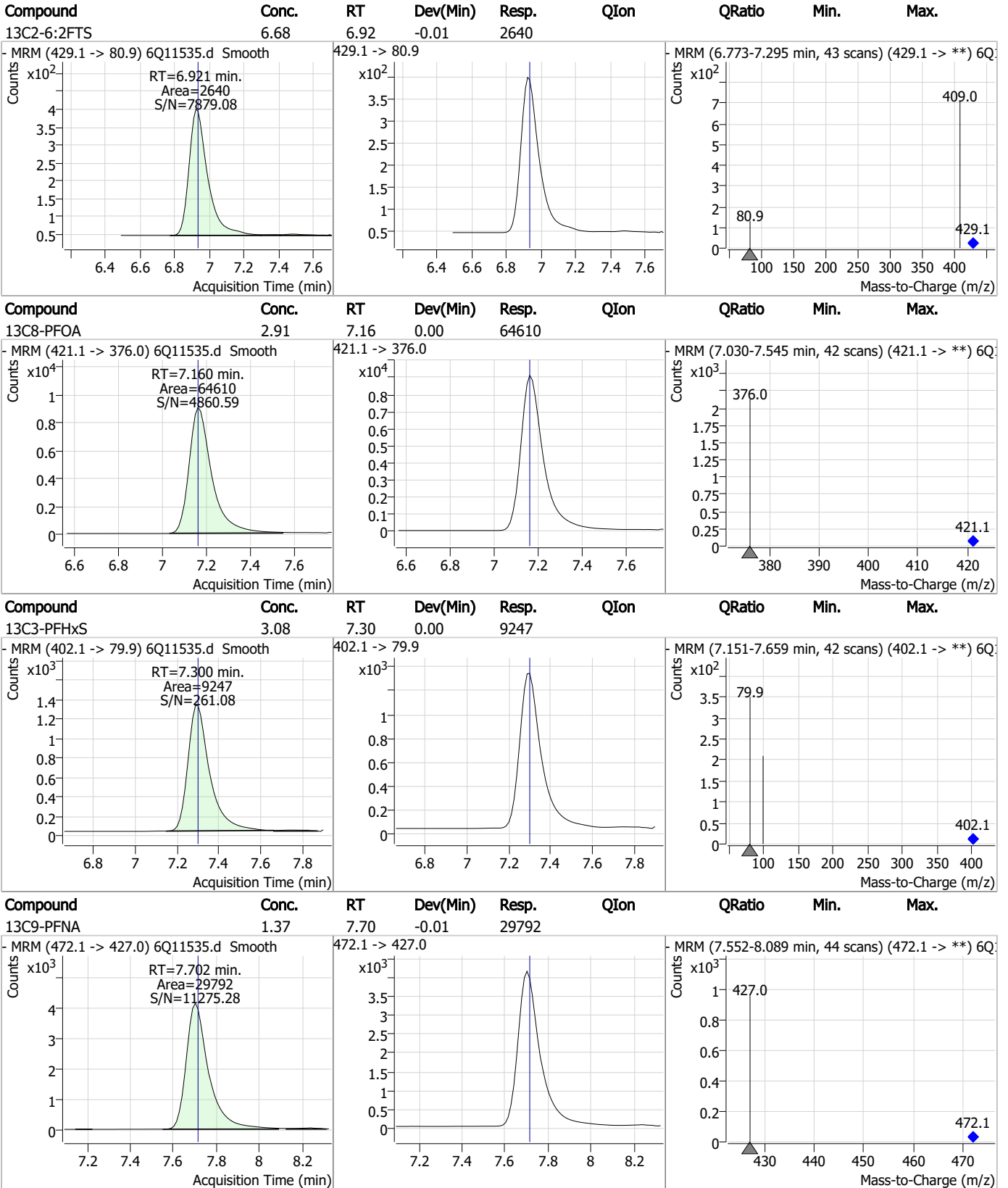
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	3.05	5.52	-0.01	14151				
13C5-PFHxA	3.03	5.56	0.00	37546				
13C3-HFPO-DA	13.14	5.94	0.00	16743				
13C4-PFHpA	2.95	6.50	-0.01	36984				

7.1.4

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Perfluorinated Compounds by LC/MS/MS

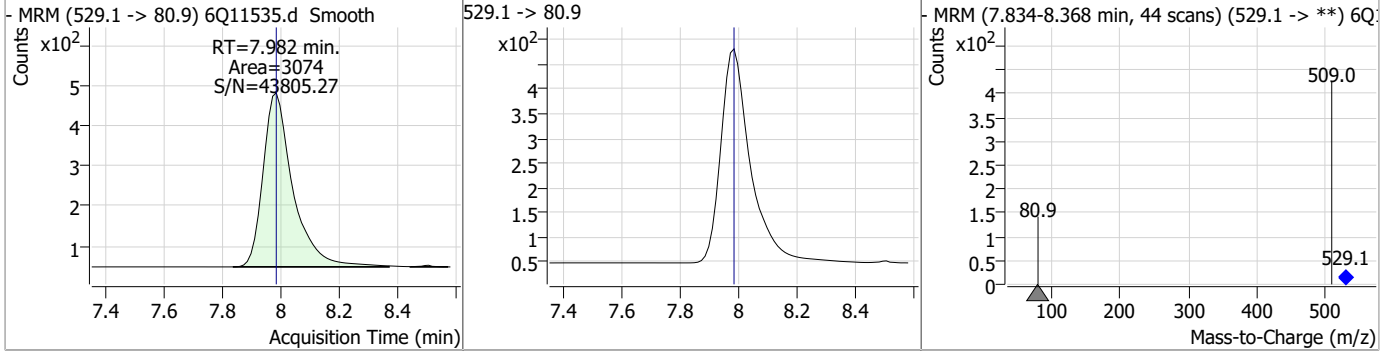


7.1.4

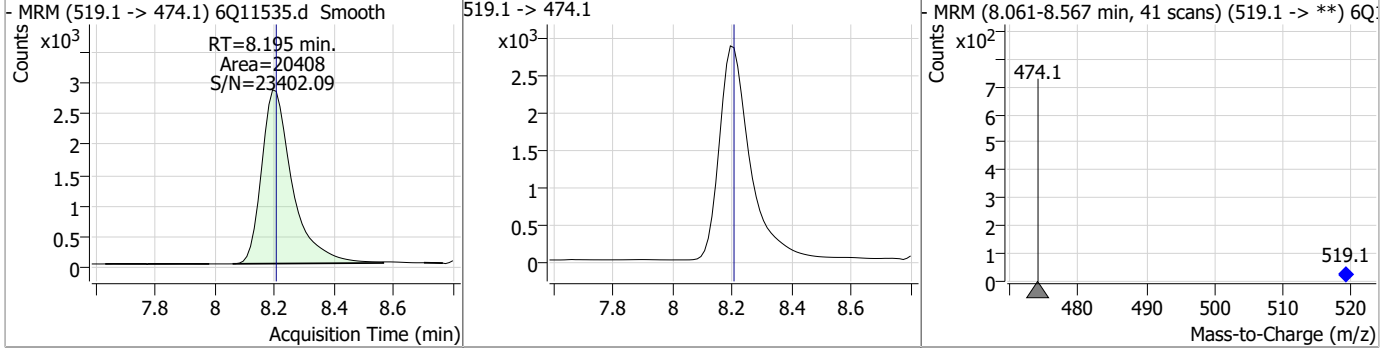
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Perfluorinated Compounds by LC/MS/MS

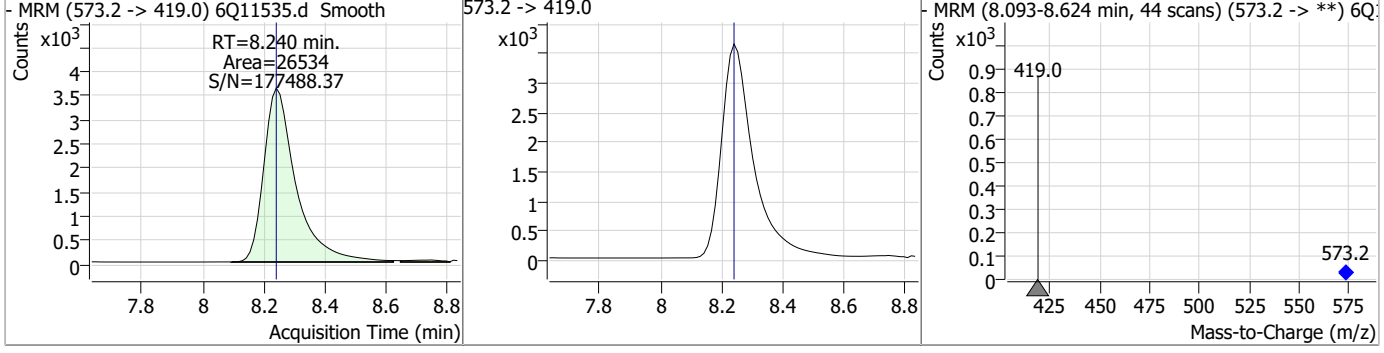
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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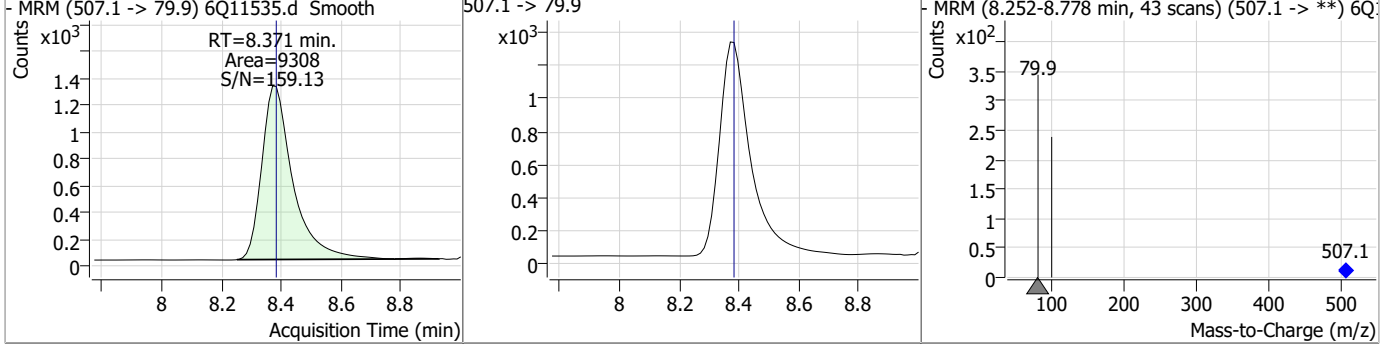
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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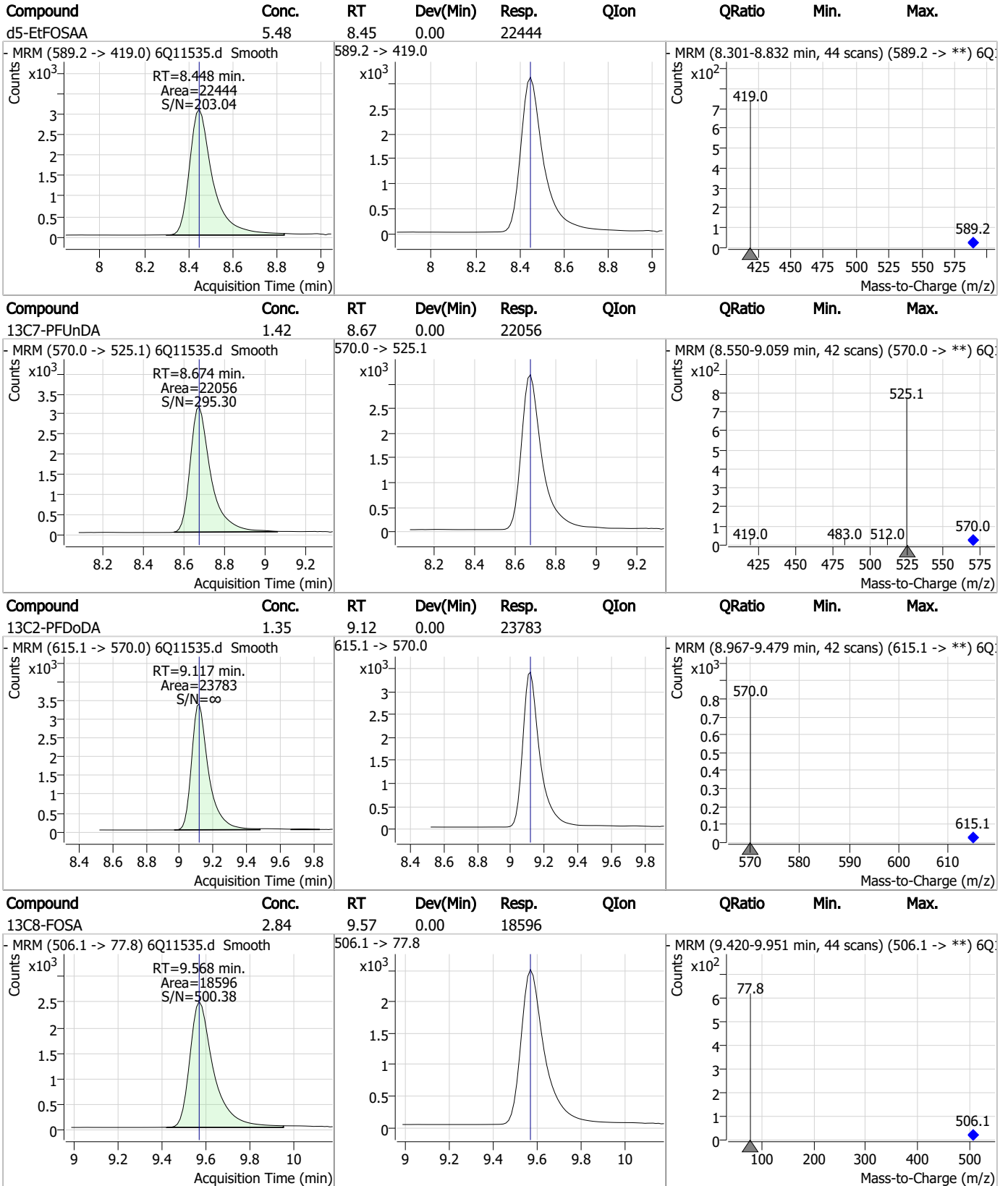


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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7.1.4

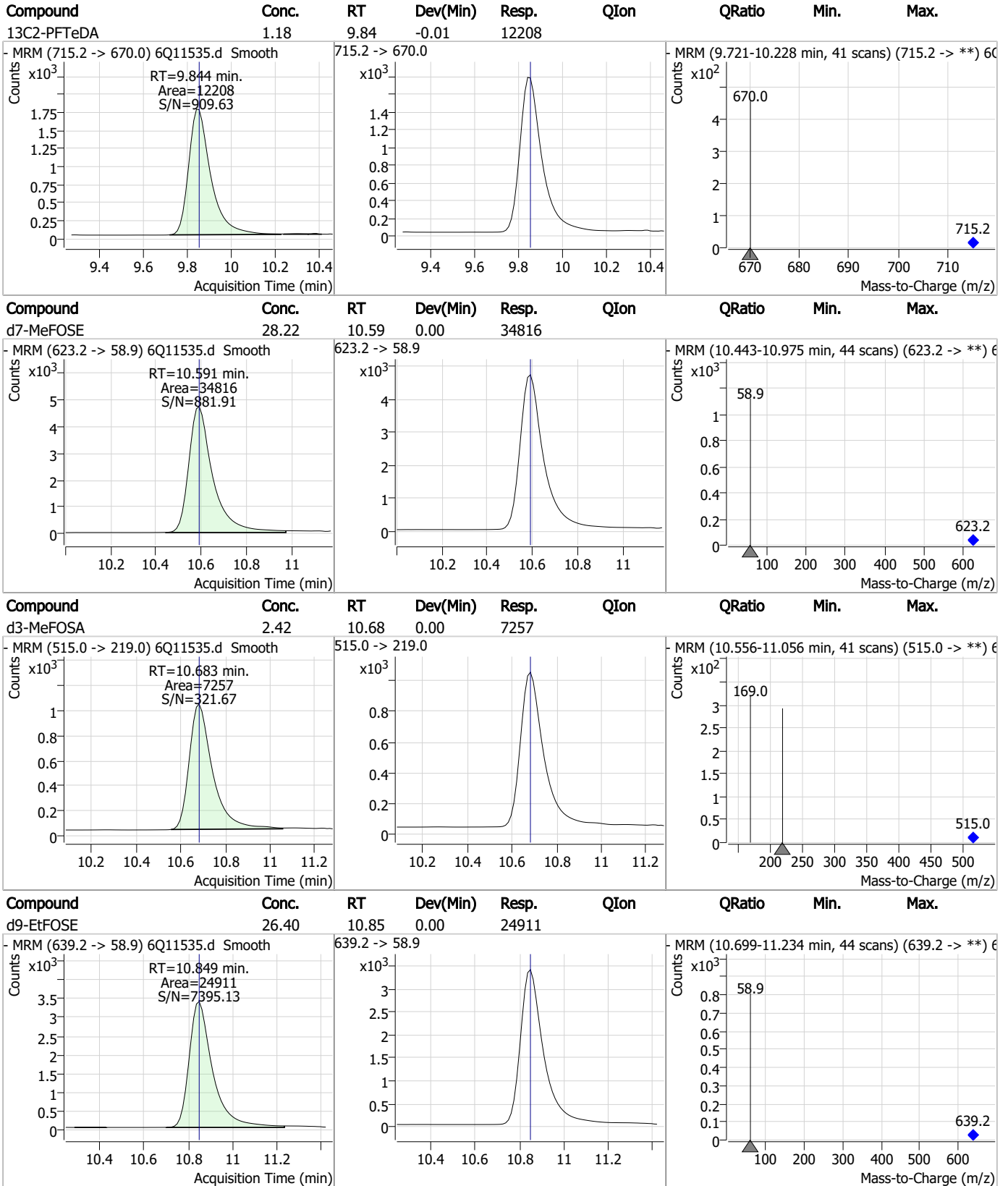
Perfluorinated Compounds by LC/MS/MS



7.1.4

7

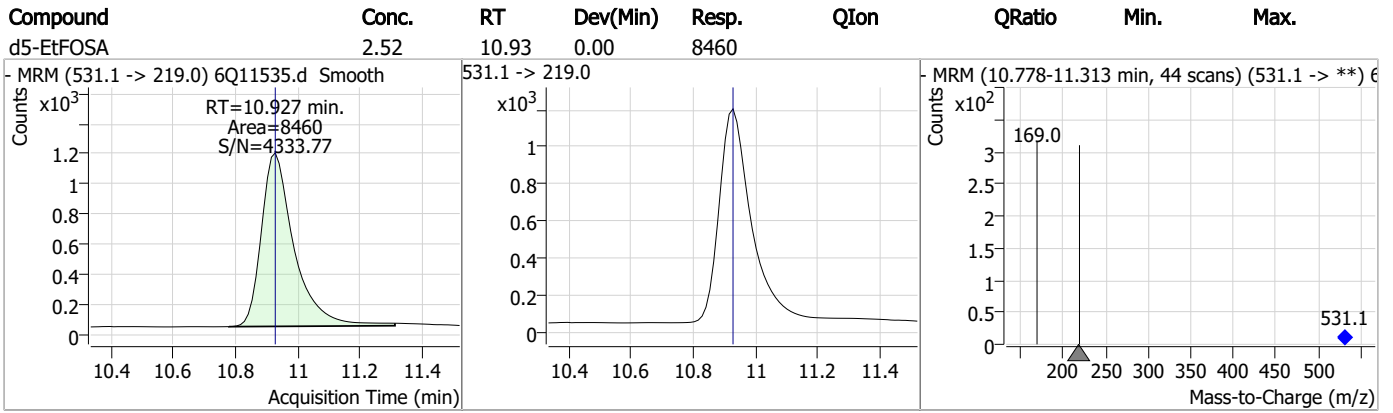
Perfluorinated Compounds by LC/MS/MS



7.1.4

7

Perfluorinated Compounds by LC/MS/MS



7.1.4
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11536.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/18/2023 2:32:11 AM
 Sample Name : FC1867-5
 Vial : P4-B6
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	89898	10.00 µg/L	0.000
M5-PFPeA	4.371	268.3 -> 223.0	42427	5.00 µg/L	-0.012
M5-PFHxA	5.564	318.0 -> 273.0	36146	2.50 µg/L	0.000
M4-PFHpA	6.503	367.1 -> 322.0	37615	2.50 µg/L	-0.012
M8-PFOA	7.160	421.1 -> 376.0	65696	2.50 µg/L	0.000
M9-PFNA	7.702	472.1 -> 427.0	29270	1.25 µg/L	-0.013
M6-PFDA	8.195	519.1 -> 474.1	20200	1.25 µg/L	-0.012
M7-PFUnDA	8.674	570.0 -> 525.1	22085	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	23190	1.25 µg/L	0.000
M2-PFTeDA	9.856	715.2 -> 670.0	13086	1.25 µg/L	0.000
M8-FOSA	9.568	506.1 -> 77.8	18657	2.50 µg/L	0.000
M3-PFBS	5.519	302.1 -> 79.9	13947	2.50 µg/L	-0.012
M3-PFHxS	7.288	402.1 -> 79.9	9640	2.50 µg/L	-0.012
M8-PFOS	8.383	507.1 -> 79.9	8831	2.50 µg/L	0.000
M2-4:2FTS	5.216	329.1 -> 80.9	2071	5.00 µg/L	-0.012
M2-6:2FTS	6.921	429.1 -> 80.9	2753	5.00 µg/L	-0.012
M2-8:2FTS	7.982	529.1 -> 80.9	2882	5.00 µg/L	0.000
M3-MeFOSAA	8.240	573.2 -> 419.0	24098	5.00 µg/L	0.000
M3-HFPO-DA	5.928	286.9 -> 168.9	16877	10.00 µg/L	-0.012
M5-EtFOSAA	8.448	589.2 -> 419.0	22565	5.00 µg/L	0.000
M7-MeFOSE	10.591	623.2 -> 58.9	30716	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	23938	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	8193	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	7550	2.50 µg/L	0.000
13C4-PFOS	8.384	502.8 -> 79.9	10218	2.50 µg/L	0.000
13C3-PFBA	3.004	216.0 -> 172.0	33026	5.00 µg/L	0.000
18O2-PFHxS	7.299	403.0 -> 83.9	5671	2.50 µg/L	0.000
13C4-PFOA	7.160	417.1 -> 372.0	66691	2.50 µg/L	-0.012
13C2-PFDA	8.208	515.1 -> 470.1	23669	1.25 µg/L	0.000
13C5-PFNA	7.703	468.0 -> 423.0	30104	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	32424	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.216	329.1 -> 80.9	2071	7.00 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 140.0%		
13C2-6:2FTS	6.921	429.1 -> 80.9	2753	6.80 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 135.9%		
13C2-8:2FTS	7.982	529.1 -> 80.9	2882	6.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 130.4%		
13C2-PFDoDA	9.117	615.1 -> 570.0	23190	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C2-PFTeDA	9.856	715.2 -> 670.0	13086	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C3-PFBS	5.519	302.1 -> 79.9	13947	2.93 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 117.3%		
13C3-PFHxS	7.288	402.1 -> 79.9	9640	3.13 µg/L	-0.012

7.1.5
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 125.2%	
13C4-PFBA	3.000	216.8 -> 171.9	89898	11.92 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 119.2%	
13C4-PFHpA	6.503	367.1 -> 322.0	37615	2.86 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.5%	
13C5-PFHxA	5.564	318.0 -> 273.0	36146	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.1%	
13C5-PFPeA	4.371	268.3 -> 223.0	42427	5.87 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.3%	
13C6-PFDA	8.195	519.1 -> 474.1	20200	1.50 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 119.9%	
13C7-PFUnDA	8.674	570.0 -> 525.1	22085	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C8-FOSA	9.568	506.1 -> 77.8	18657	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.1%	
13C8-PFOA	7.160	421.1 -> 376.0	65696	2.94 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 117.6%	
13C8-PFOS	8.383	507.1 -> 79.9	8831	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C9-PFNA	7.702	472.1 -> 427.0	29270	1.37 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.5%	
d3-MeFOSAA	8.240	573.2 -> 419.0	24098	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C3-HFPO-DA	5.928	286.9 -> 168.9	16877	12.62 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 126.2%	
d3-MeFOSA	10.683	515.0 -> 219.0	7550	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
d5-EtFOSAA	8.448	589.2 -> 419.0	22565	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
d7-MeFOSE	10.591	623.2 -> 58.9	30716	23.62 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
d9-EtFOSE	10.849	639.2 -> 58.9	23938	24.07 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d5-EtFOSA	10.927	531.1 -> 219.0	8193	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.6%	

7.15
7

Target Compounds	RT	Transition	Response	Conc. Units	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)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
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.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.1.5
7

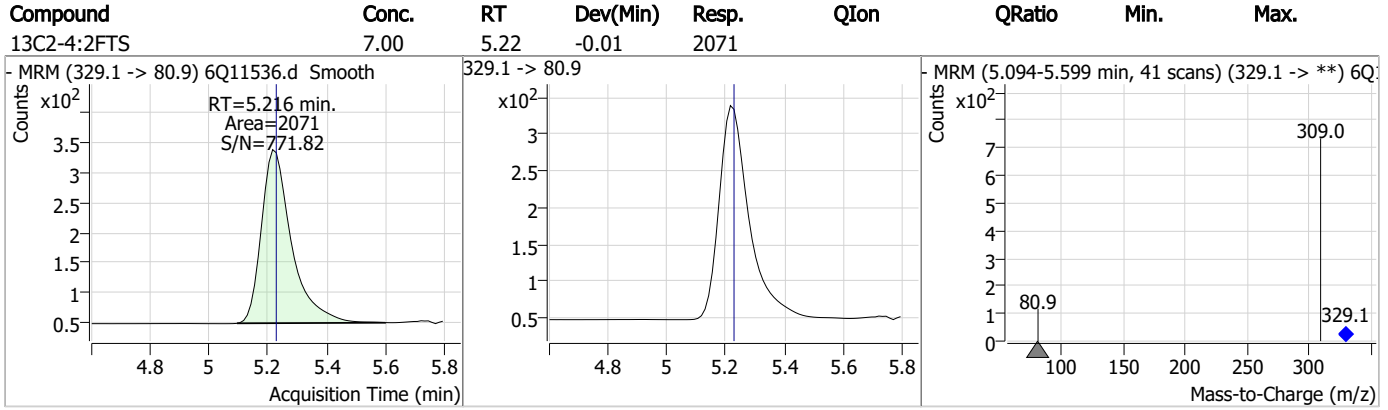
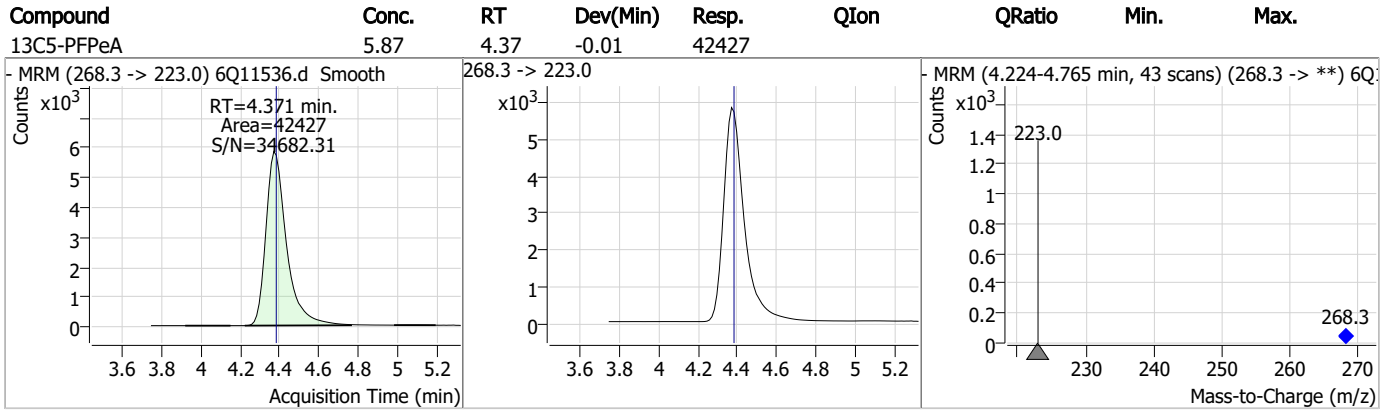
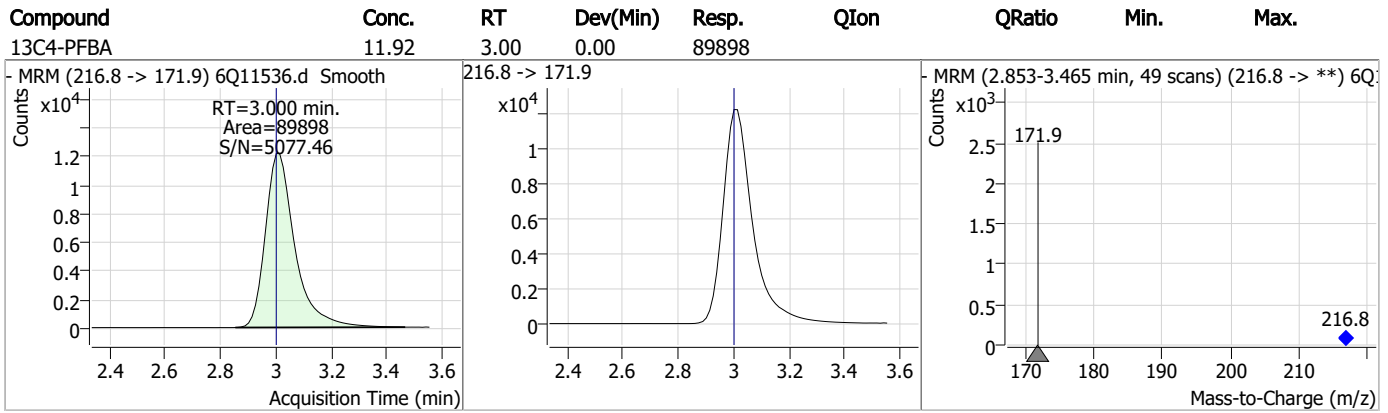
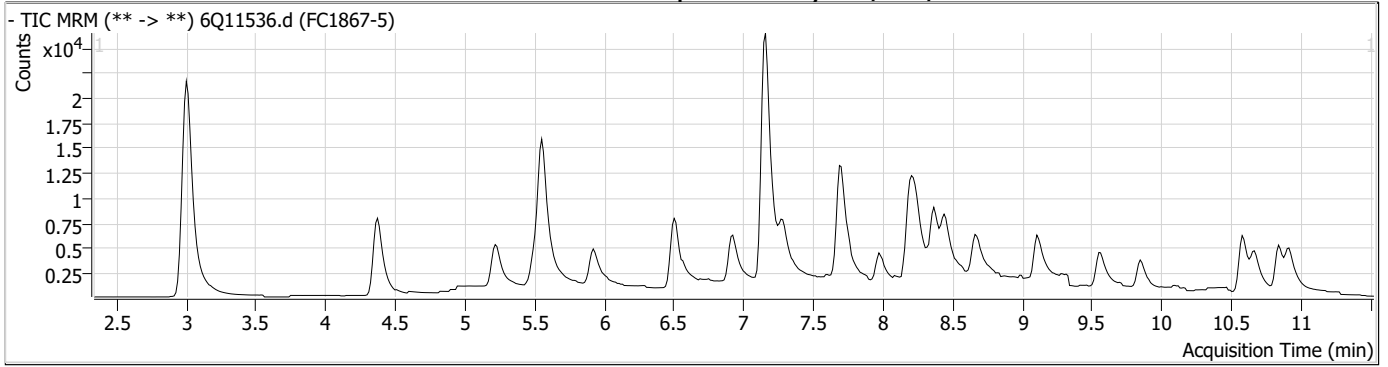
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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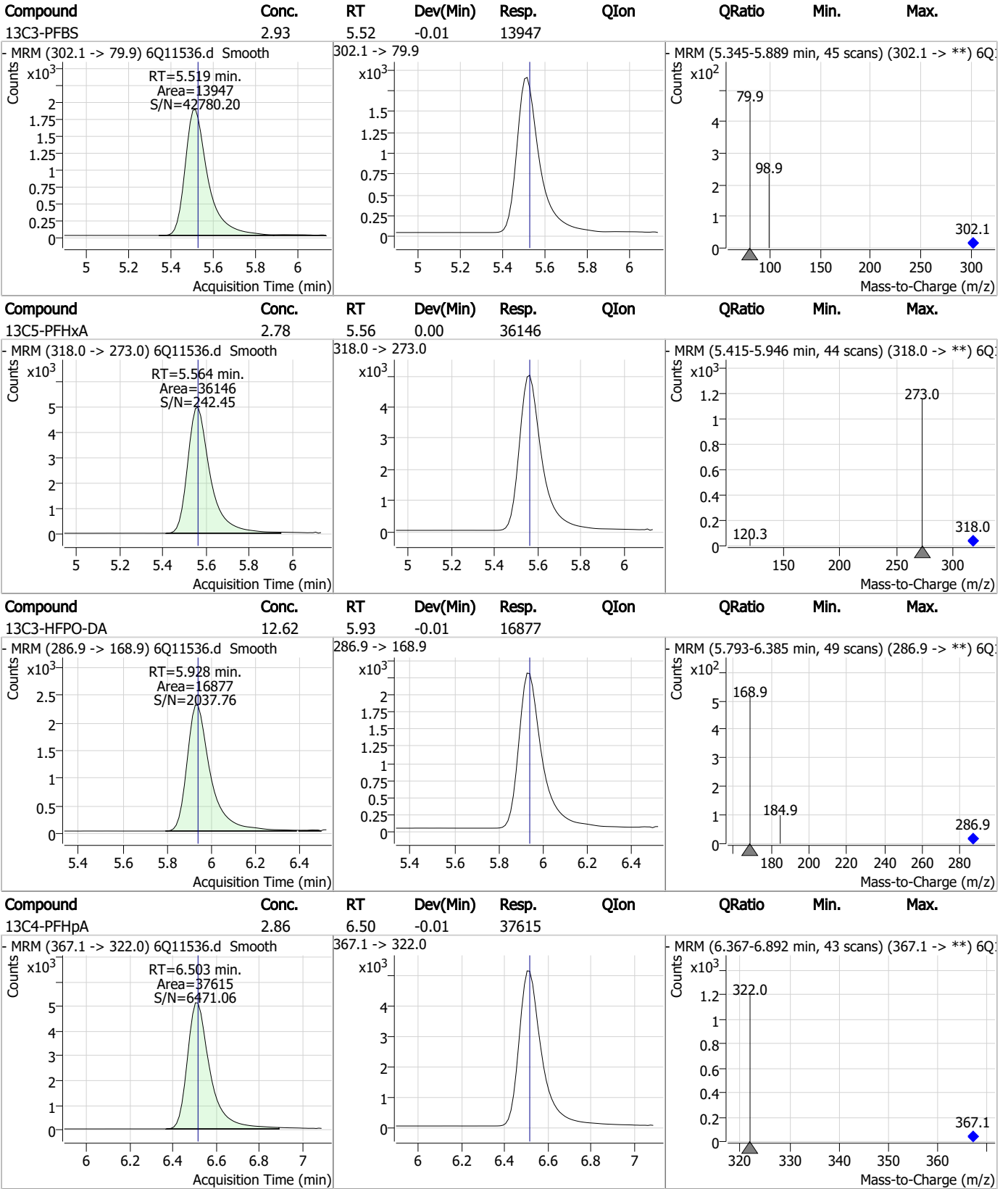
7.1.5
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.5

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Perfluorinated Compounds by LC/MS/MS

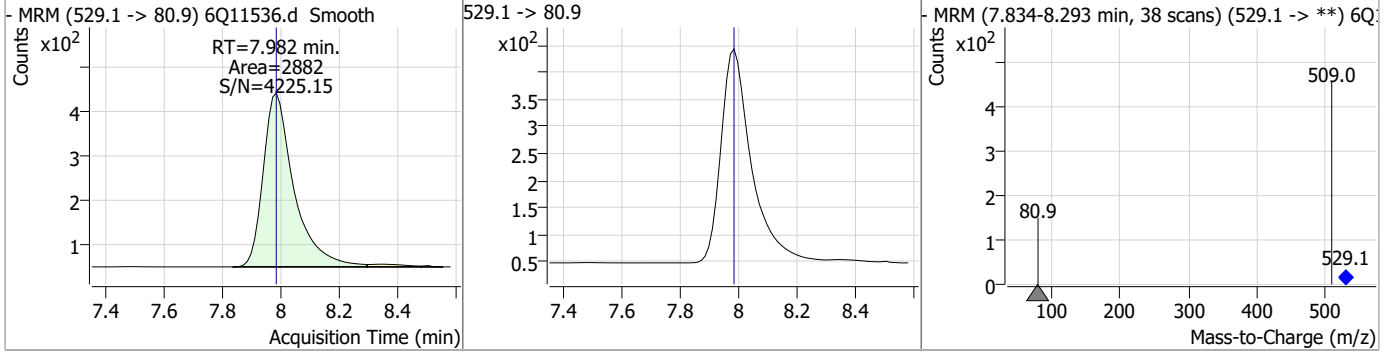
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	6.80	6.92	-0.01	2753				
13C8-PFOA	2.94	7.16	0.00	65696				
13C3-PFHxS	3.13	7.29	-0.01	9640				
13C9-PFNA	1.37	7.70	-0.01	29270				

7.1.5

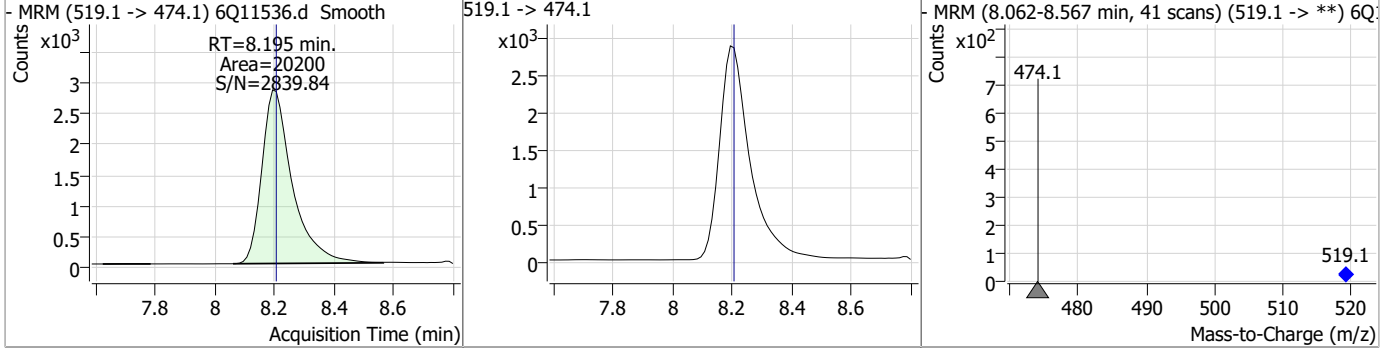
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Perfluorinated Compounds by LC/MS/MS

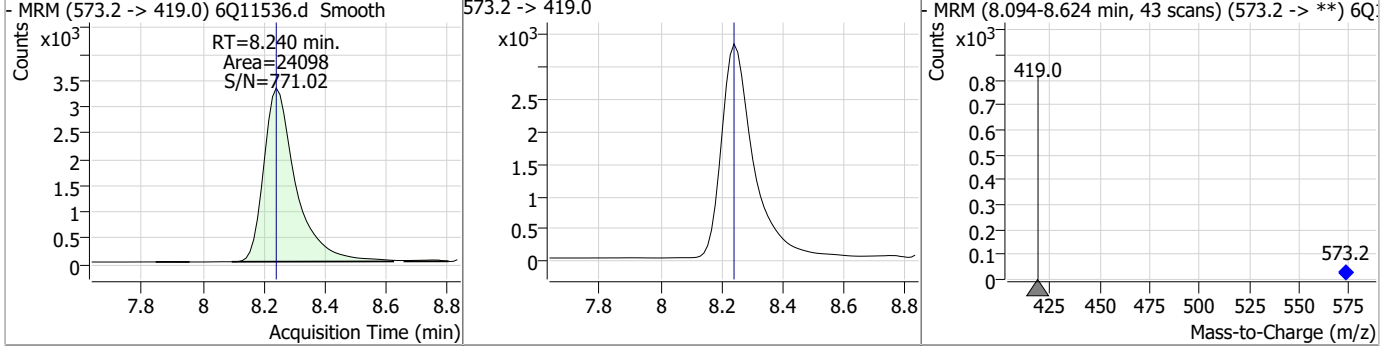
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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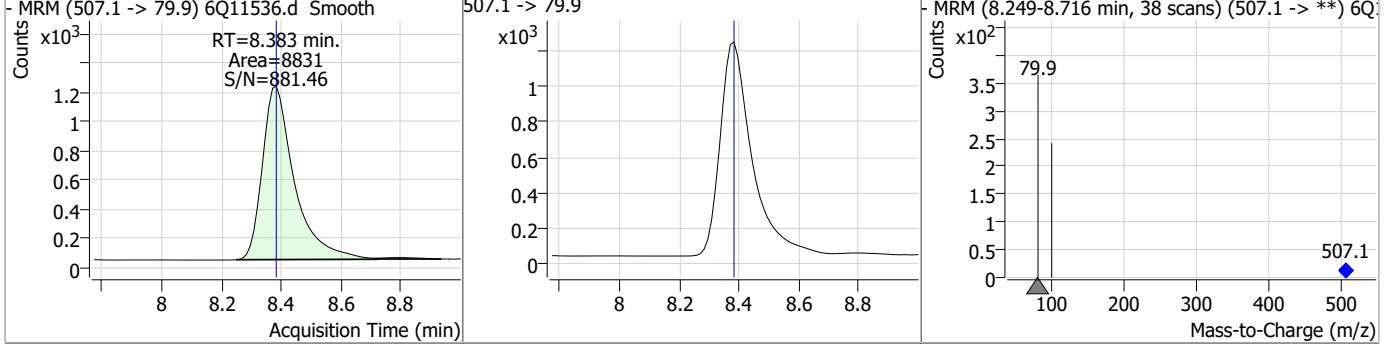
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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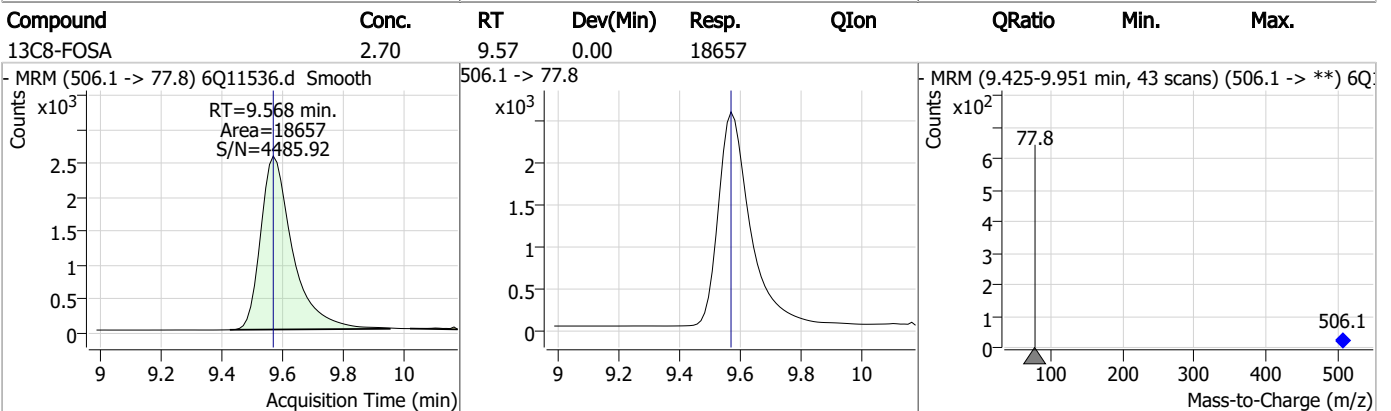
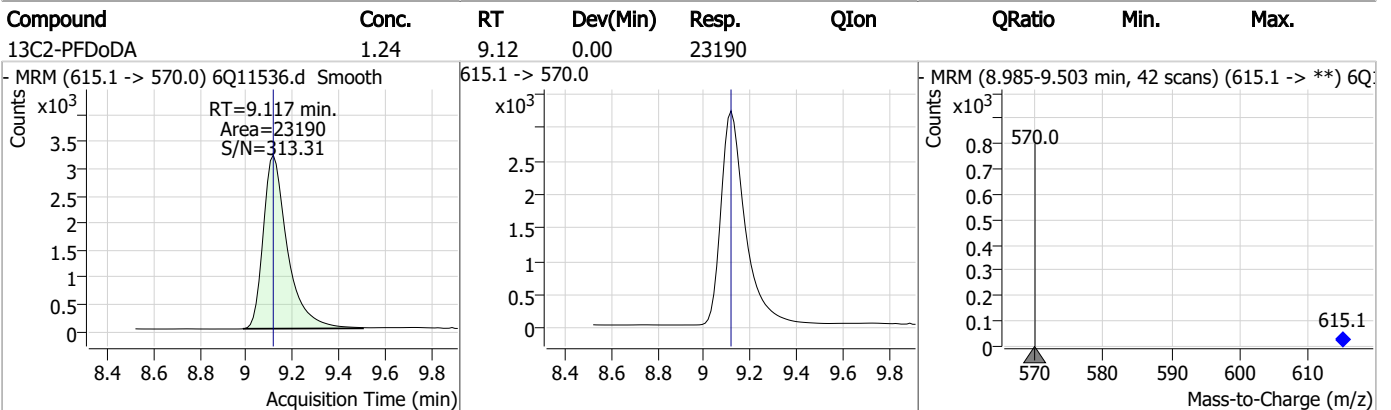
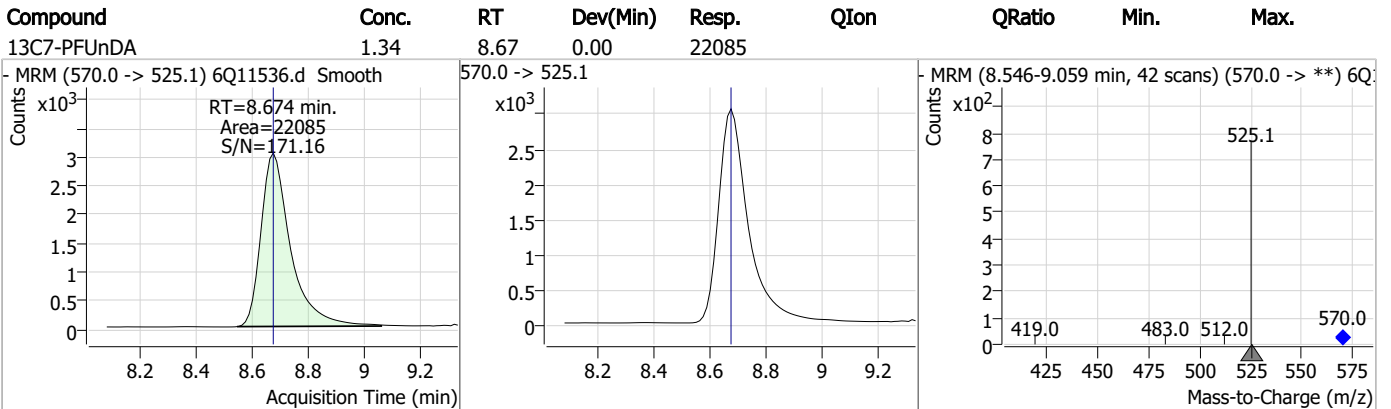
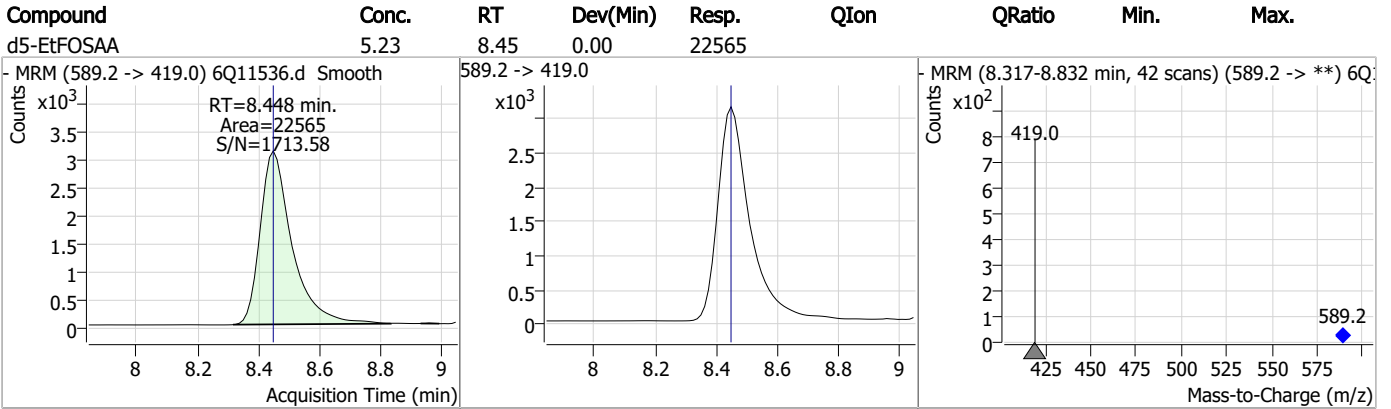


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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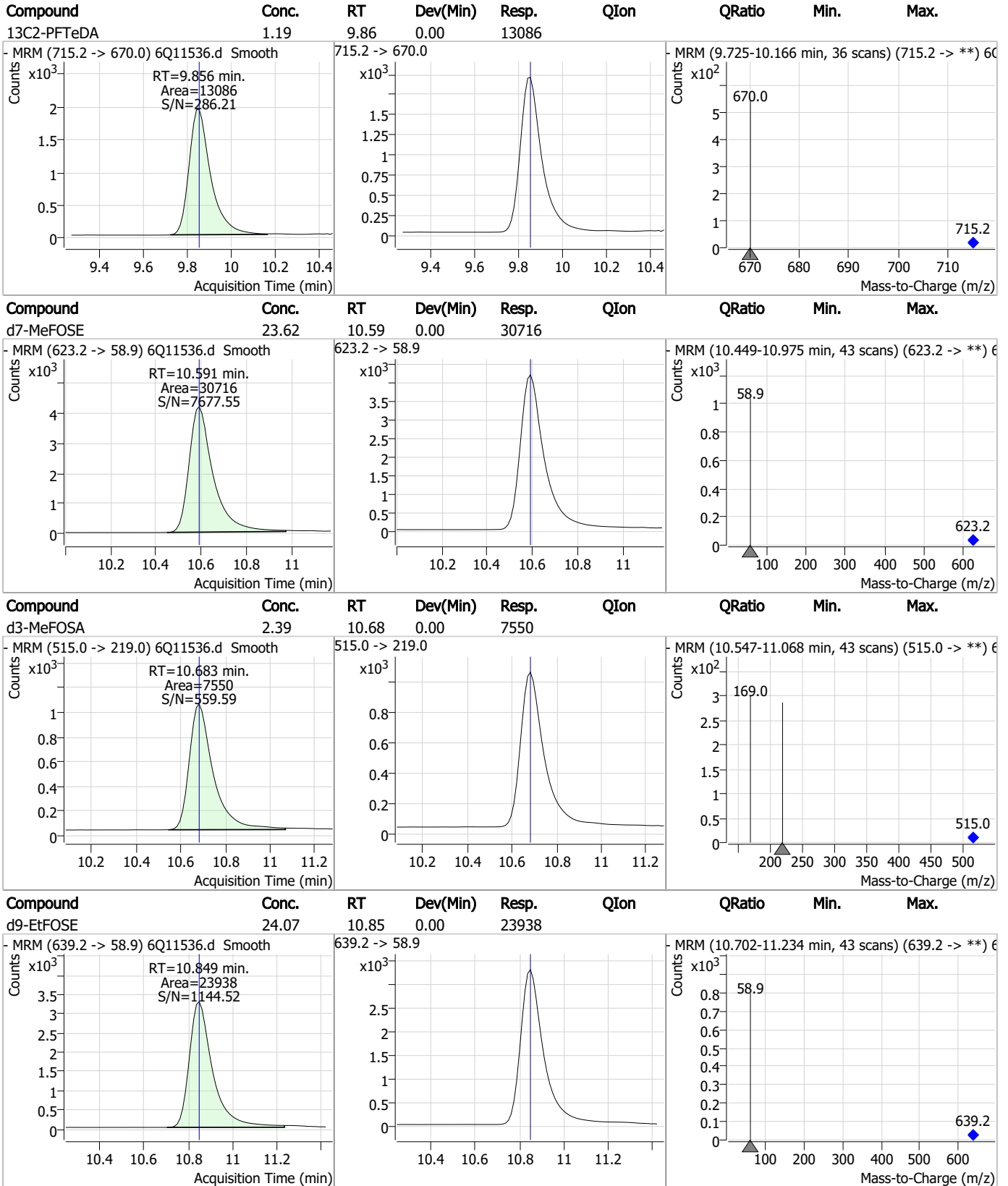


7.1.5
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Perfluorinated Compounds by LC/MS/MS

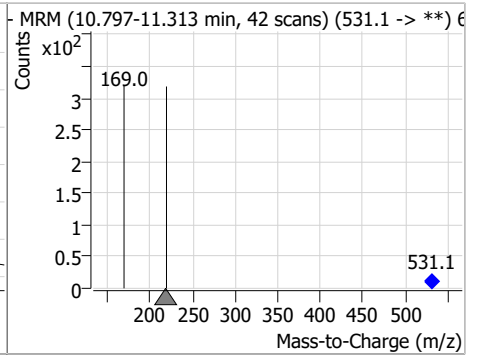
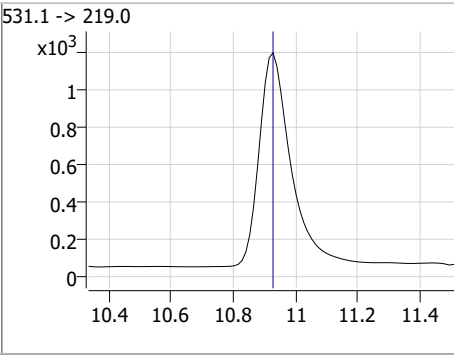
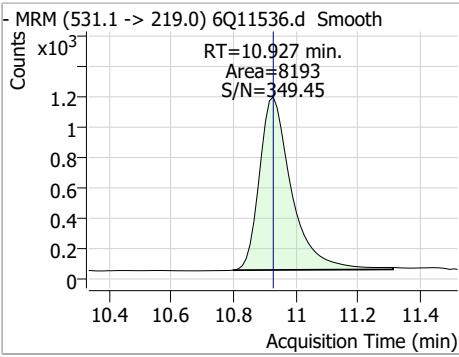


Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.31	10.93	0.00	8193				



7.1.5
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11537.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/18/2023 2:46:12 AM
 Sample Name : FC1867-6
 Vial : P4-B7
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	93361	10.00 µg/L	0.000
M5-PFPeA	4.371	268.3 -> 223.0	43212	5.00 µg/L	-0.012
M5-PFHxA	5.564	318.0 -> 273.0	39190	2.50 µg/L	0.000
M4-PFHpA	6.503	367.1 -> 322.0	40211	2.50 µg/L	-0.012
M8-PFOA	7.160	421.1 -> 376.0	65847	2.50 µg/L	0.000
M9-PFNA	7.690	472.1 -> 427.0	31203	1.25 µg/L	-0.025
M6-PFDA	8.195	519.1 -> 474.1	20483	1.25 µg/L	-0.012
M7-PFUnDA	8.674	570.0 -> 525.1	19967	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	22170	1.25 µg/L	0.000
M2-PFTeDA	9.844	715.2 -> 670.0	11894	1.25 µg/L	-0.012
M8-FOSA	9.568	506.1 -> 77.8	19233	2.50 µg/L	0.000
M3-PFBS	5.519	302.1 -> 79.9	14570	2.50 µg/L	-0.012
M3-PFHxS	7.288	402.1 -> 79.9	9601	2.50 µg/L	-0.012
M8-PFOS	8.371	507.1 -> 79.9	9108	2.50 µg/L	-0.012
M2-4:2FTS	5.228	329.1 -> 80.9	2095	5.00 µg/L	0.000
M2-6:2FTS	6.921	429.1 -> 80.9	2869	5.00 µg/L	-0.012
M2-8:2FTS	7.970	529.1 -> 80.9	2746	5.00 µg/L	-0.012
M3-MeFOSAA	8.228	573.2 -> 419.0	25944	5.00 µg/L	-0.012
M3-HFPO-DA	5.928	286.9 -> 168.9	17136	10.00 µg/L	-0.012
M5-EtFOSAA	8.436	589.2 -> 419.0	22750	5.00 µg/L	-0.012
M7-MeFOSE	10.591	623.2 -> 58.9	29425	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	23882	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	8510	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	7545	2.50 µg/L	0.000
13C4-PFOS	8.372	502.8 -> 79.9	9224	2.50 µg/L	-0.012
13C3-PFBA	3.004	216.0 -> 172.0	32860	5.00 µg/L	0.000
18O2-PFHxS	7.287	403.0 -> 83.9	6116	2.50 µg/L	-0.012
13C4-PFOA	7.160	417.1 -> 372.0	67525	2.50 µg/L	-0.012
13C2-PFDA	8.196	515.1 -> 470.1	24178	1.25 µg/L	-0.012
13C5-PFNA	7.703	468.0 -> 423.0	29154	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	31699	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.228	329.1 -> 80.9	2095	6.57 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 131.4%		
13C2-6:2FTS	6.921	429.1 -> 80.9	2869	6.57 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 131.3%		
13C2-8:2FTS	7.970	529.1 -> 80.9	2746	5.76 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.2%		
13C2-PFDoDA	9.117	615.1 -> 570.0	22170	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.5%		
13C2-PFTeDA	9.844	715.2 -> 670.0	11894	1.06 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 84.5%		
13C3-PFBS	5.519	302.1 -> 79.9	14570	2.84 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.6%		
13C3-PFHxS	7.288	402.1 -> 79.9	9601	2.89 µg/L	-0.012

7.1.6
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.7%	
13C4-PFBA	3.000	216.8 -> 171.9	93361	12.44 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 124.4%	
13C4-PFHpA	6.503	367.1 -> 322.0	40211	3.13 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 125.1%	
13C5-PFHxA	5.564	318.0 -> 273.0	39190	3.08 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 123.2%	
13C5-PFPeA	4.371	268.3 -> 223.0	43212	6.11 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 122.2%	
13C6-PFDA	8.195	519.1 -> 474.1	20483	1.49 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 119.0%	
13C7-PFUnDA	8.674	570.0 -> 525.1	19967	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C8-FOSA	9.568	506.1 -> 77.8	19233	3.09 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 123.5%	
13C8-PFOA	7.160	421.1 -> 376.0	65847	2.91 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.4%	
13C8-PFOS	8.371	507.1 -> 79.9	9108	3.09 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 123.6%	
13C9-PFNA	7.690	472.1 -> 427.0	31203	1.51 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 120.5%	
d3-MeFOSAA	8.228	573.2 -> 419.0	25944	5.84 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.8%	
13C3-HFPO-DA	5.928	286.9 -> 168.9	17136	13.11 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 131.1%	
d3-MeFOSA	10.683	515.0 -> 219.0	7545	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.8%	
d5-EtFOSAA	8.436	589.2 -> 419.0	22750	5.84 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.8%	
d7-MeFOSE	10.591	623.2 -> 58.9	29425	25.06 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d9-EtFOSE	10.849	639.2 -> 58.9	23882	26.60 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.4%	
d5-EtFOSA	10.927	531.1 -> 219.0	8510	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	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)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
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.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

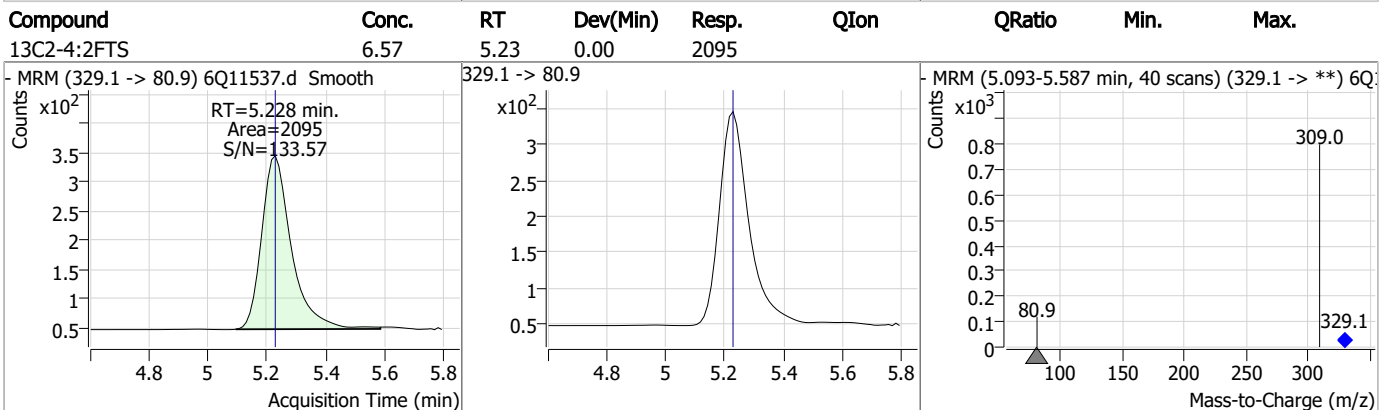
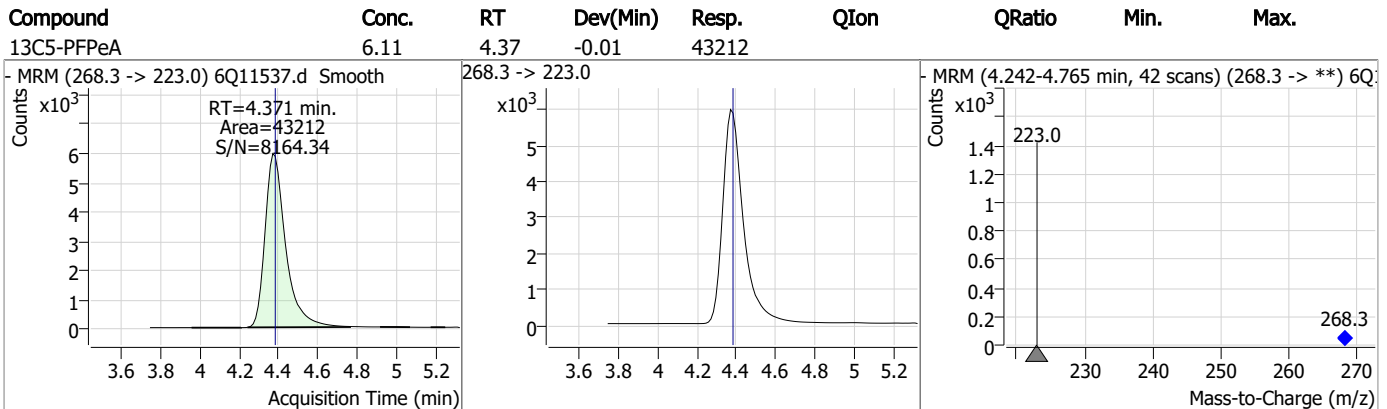
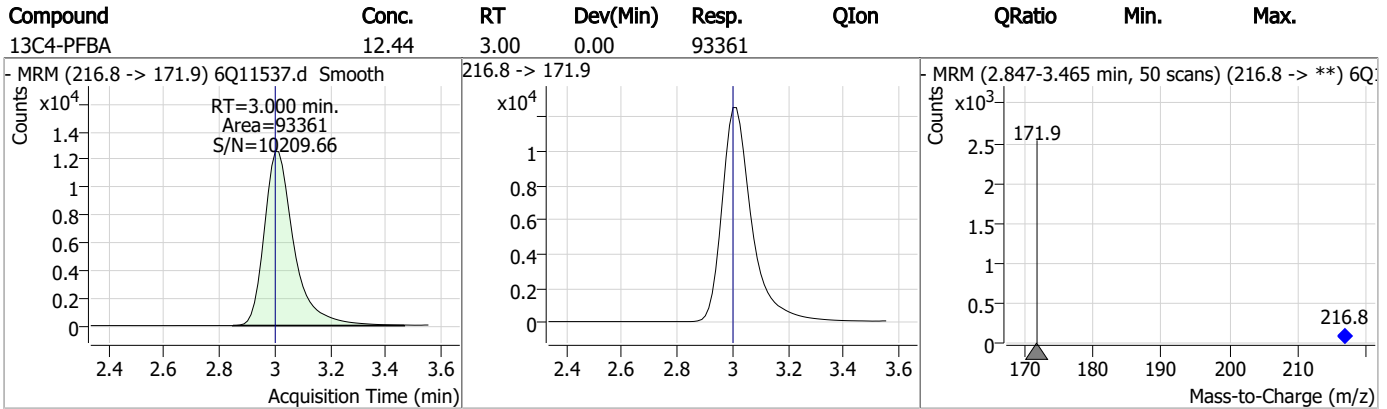
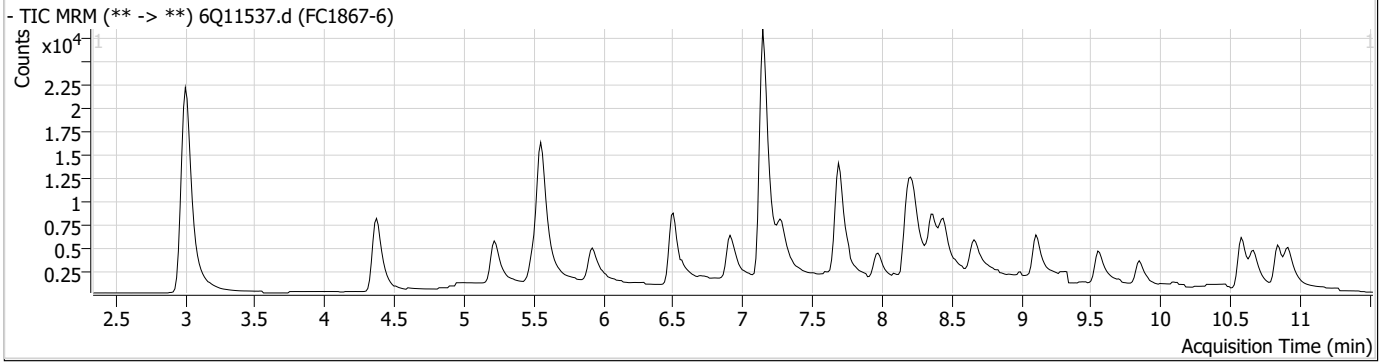
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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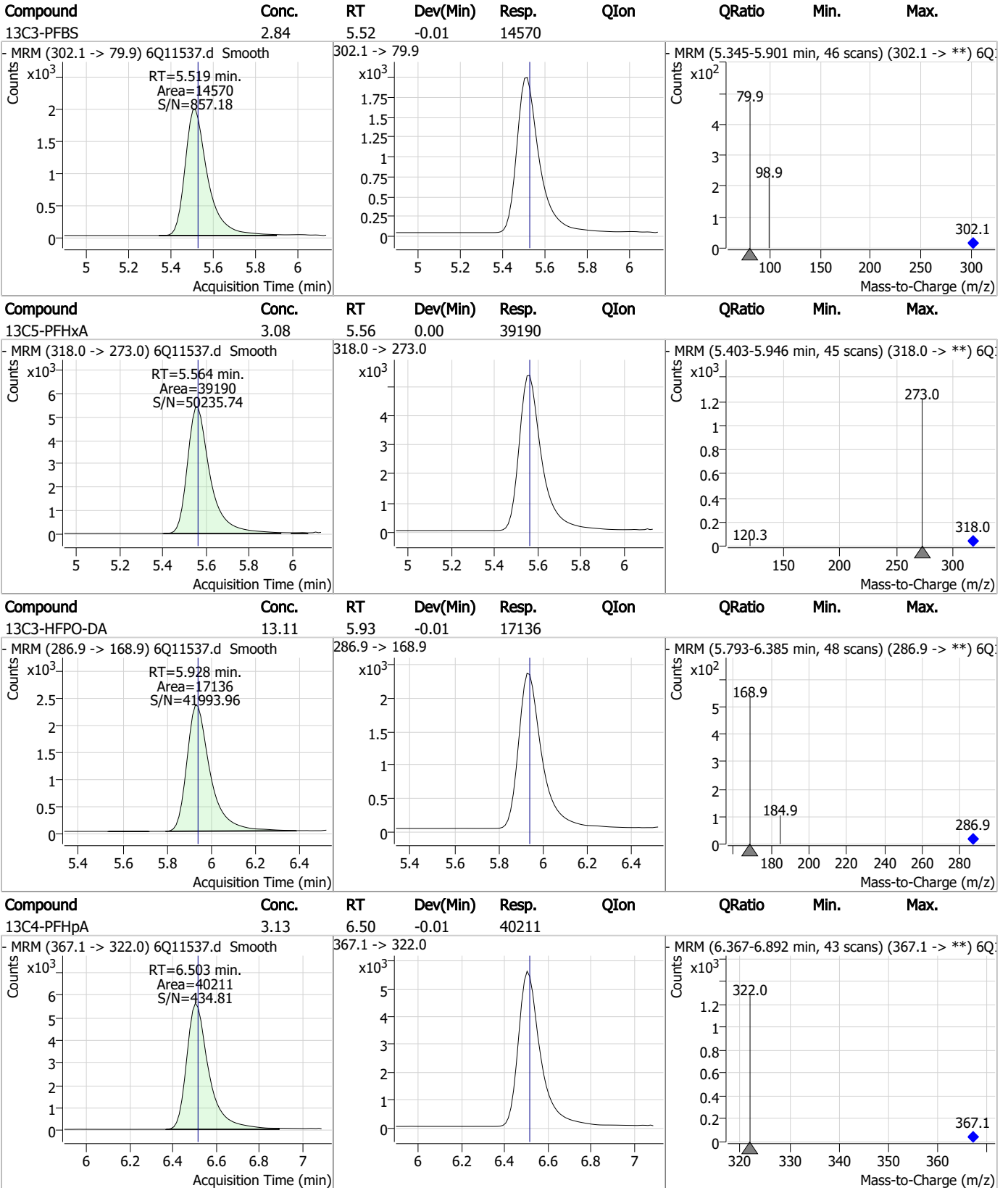
7.1.6

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Perfluorinated Compounds by LC/MS/MS

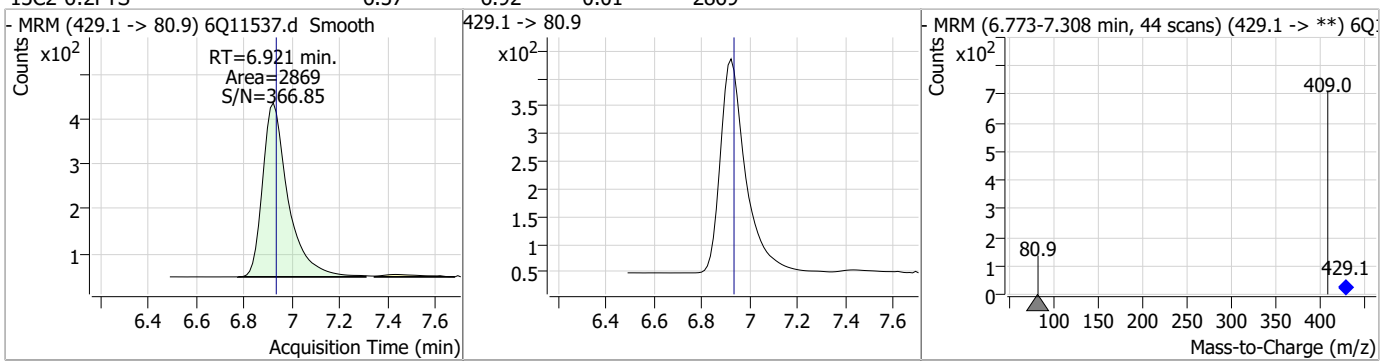


Perfluorinated Compounds by LC/MS/MS

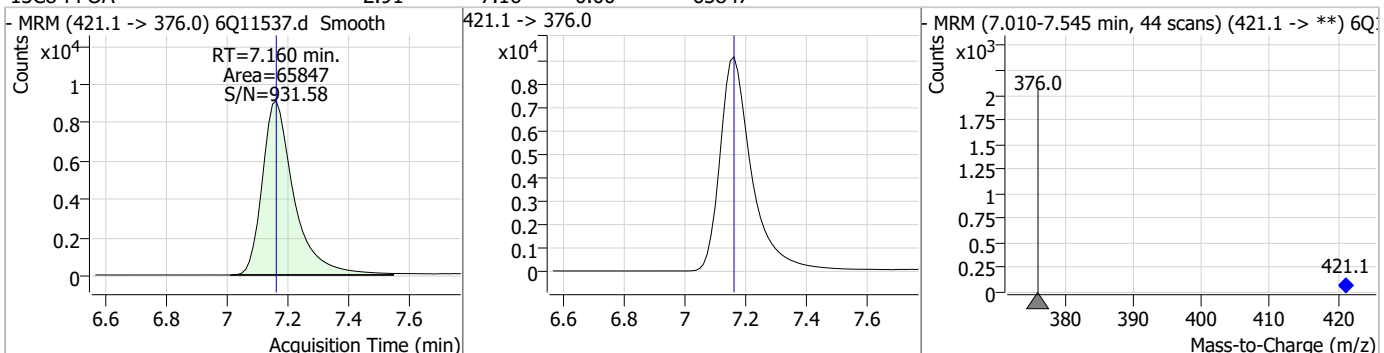


Perfluorinated Compounds by LC/MS/MS

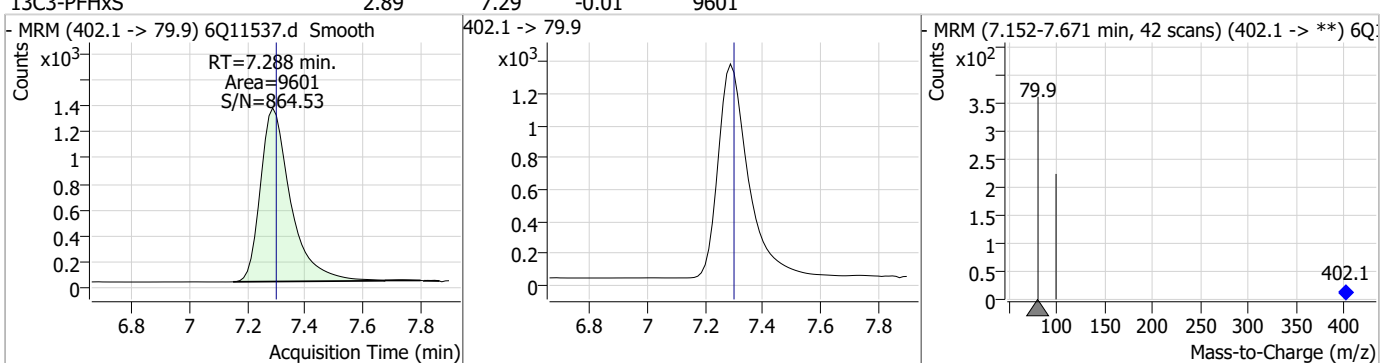
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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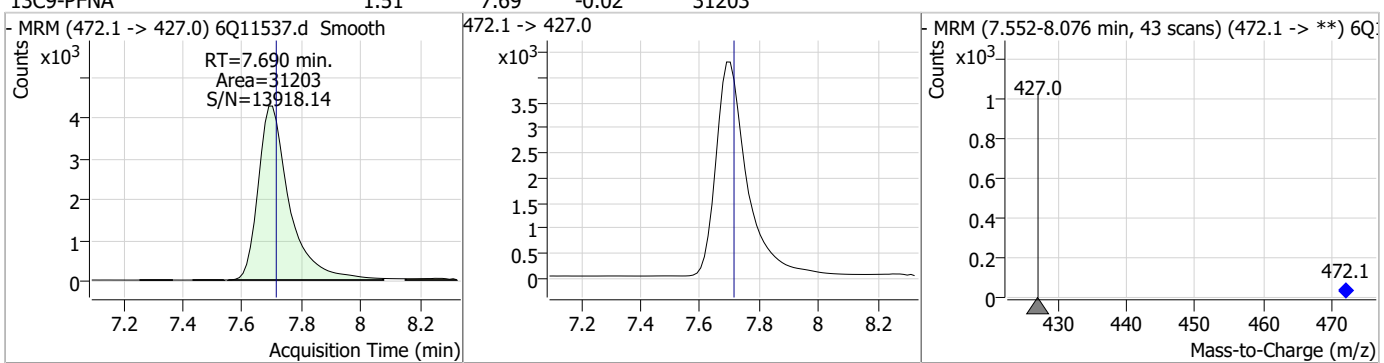
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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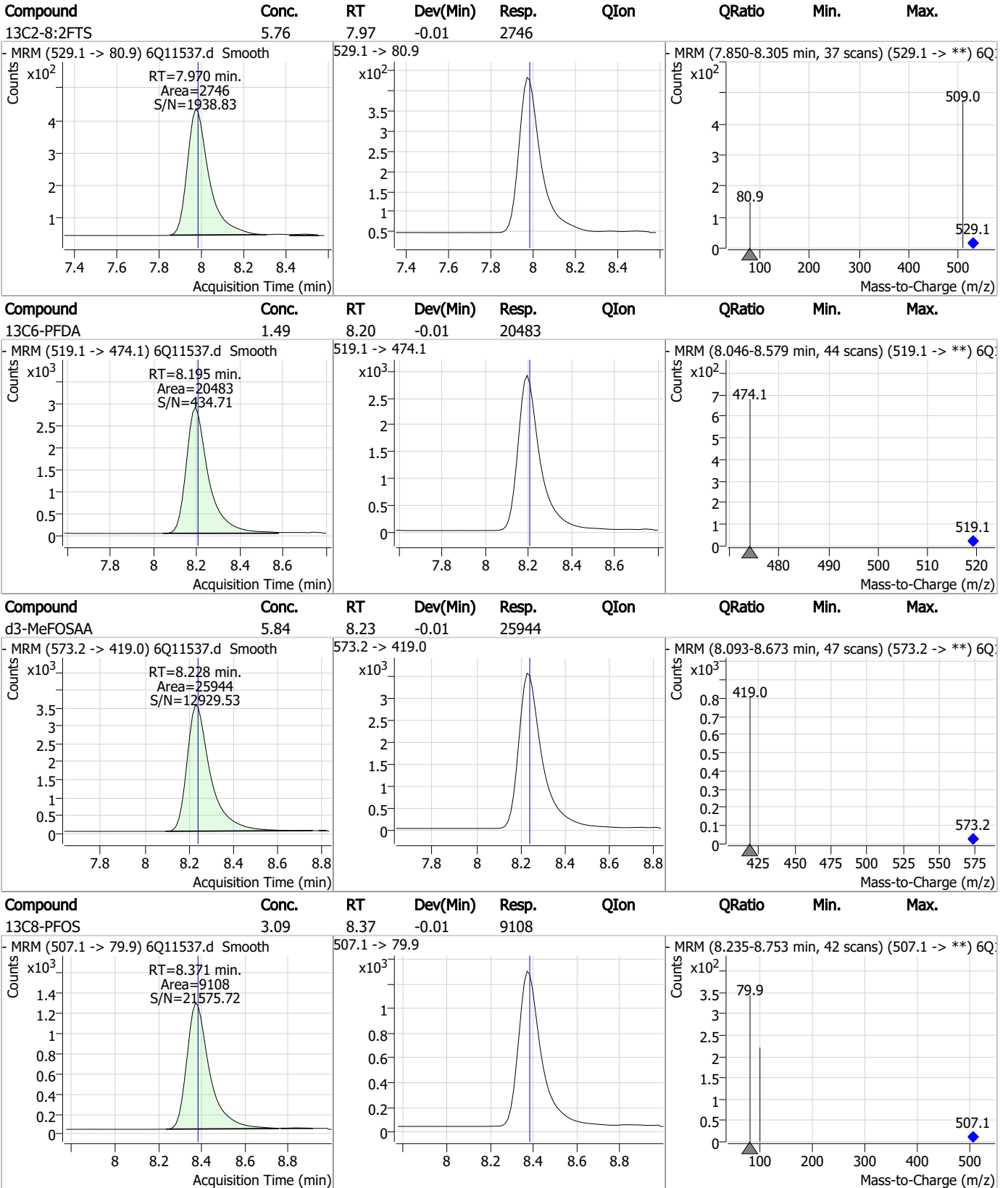


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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7.1.6

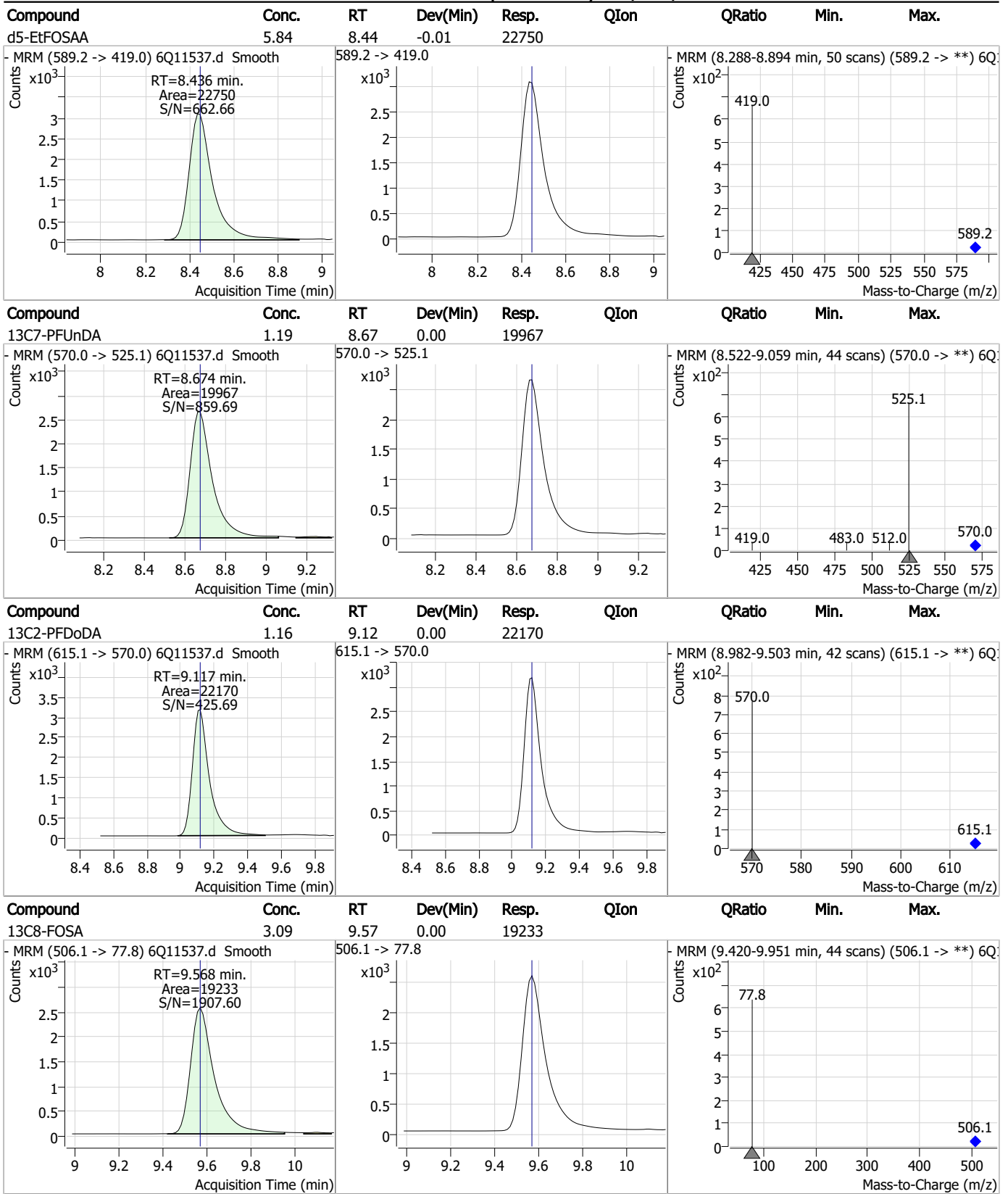
Perfluorinated Compounds by LC/MS/MS



7.1.6

7

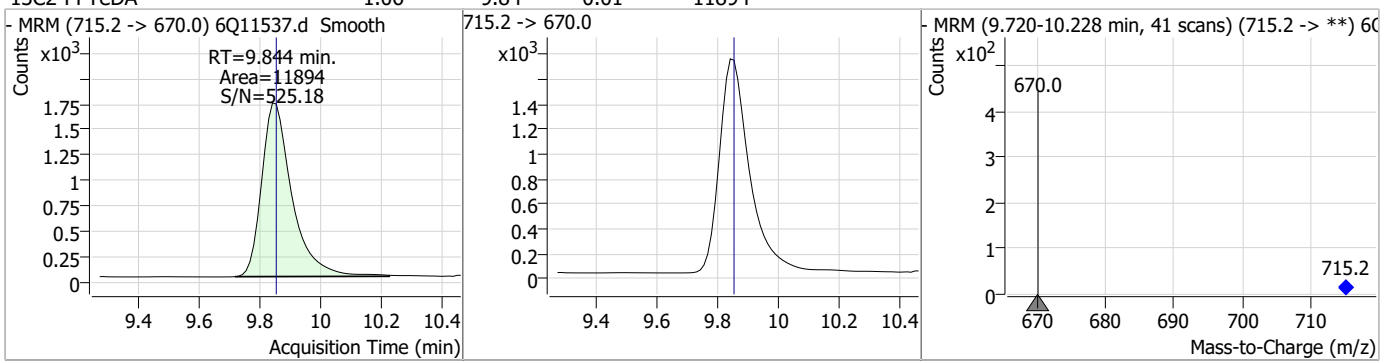
Perfluorinated Compounds by LC/MS/MS



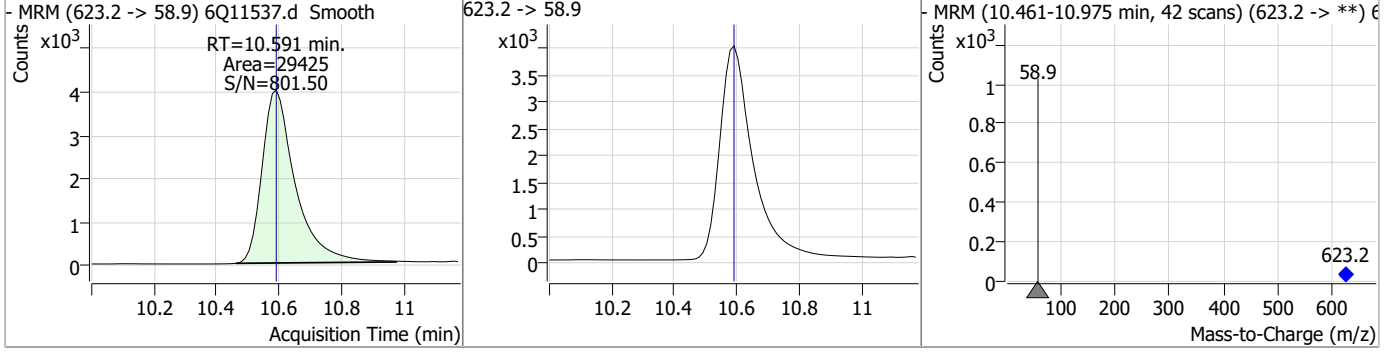
7.1.6
7

Perfluorinated Compounds by LC/MS/MS

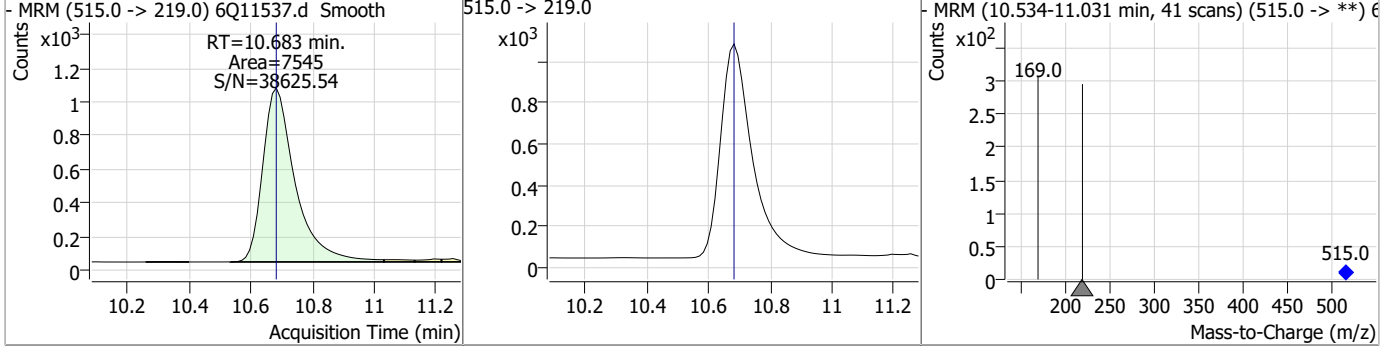
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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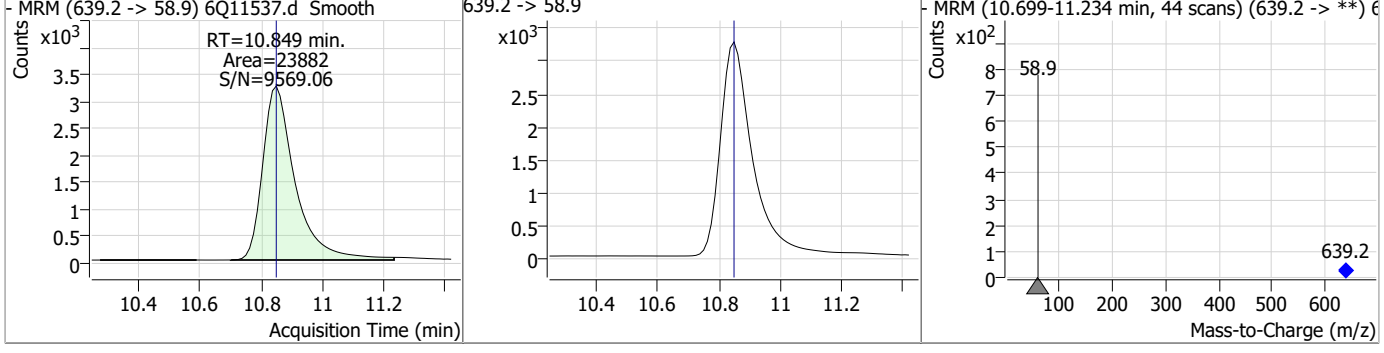
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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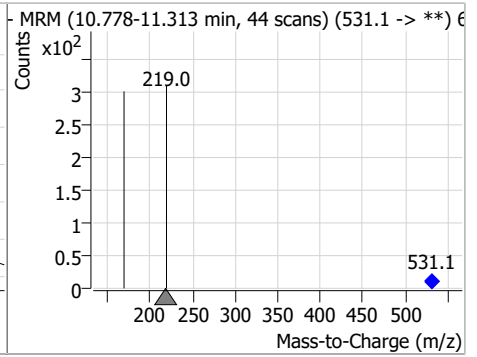
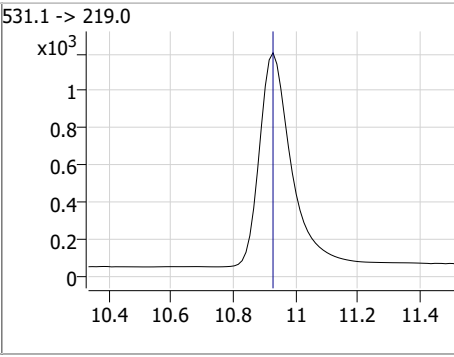
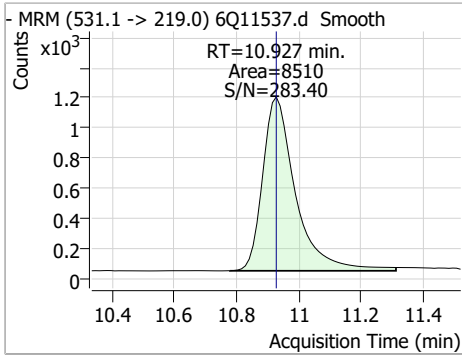
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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7.1.6
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.66	10.93	0.00	8510				



7.1.6
7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11522.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/17/2023 11:16:22 PM
 Sample Name : op94995-mb
 Vial : P4-A3
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.013	216.8 -> 171.9	84871	10.00 µg/L	0.012
M5-PFPeA	4.384	268.3 -> 223.0	39254	5.00 µg/L	0.000
M5-PFHxA	5.564	318.0 -> 273.0	35269	2.50 µg/L	0.000
M4-PFHpA	6.503	367.1 -> 322.0	37156	2.50 µg/L	-0.012
M8-PFOA	7.160	421.1 -> 376.0	62574	2.50 µg/L	0.000
M9-PFNA	7.690	472.1 -> 427.0	30394	1.25 µg/L	-0.025
M6-PFDA	8.195	519.1 -> 474.1	20640	1.25 µg/L	-0.012
M7-PFUnDA	8.662	570.0 -> 525.1	22572	1.25 µg/L	-0.012
M2-PFDoDA	9.104	615.1 -> 570.0	25241	1.25 µg/L	-0.012
M2-PFTeDA	9.844	715.2 -> 670.0	10348	1.25 µg/L	-0.012
M8-FOSA	9.568	506.1 -> 77.8	17477	2.50 µg/L	0.000
M3-PFBS	5.519	302.1 -> 79.9	12885	2.50 µg/L	-0.012
M3-PFHxS	7.288	402.1 -> 79.9	9238	2.50 µg/L	-0.012
M8-PFOS	8.371	507.1 -> 79.9	8657	2.50 µg/L	-0.012
M2-4:2FTS	5.228	329.1 -> 80.9	1877	5.00 µg/L	0.000
M2-6:2FTS	6.921	429.1 -> 80.9	2792	5.00 µg/L	-0.012
M2-8:2FTS	7.970	529.1 -> 80.9	2776	5.00 µg/L	-0.012
M3-MeFOSAA	8.228	573.2 -> 419.0	25478	5.00 µg/L	-0.012
M3-HFPO-DA	5.941	286.9 -> 168.9	14564	10.00 µg/L	0.000
M5-EtFOSAA	8.436	589.2 -> 419.0	20636	5.00 µg/L	-0.012
M7-MeFOSE	10.591	623.2 -> 58.9	28109	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	21180	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	6890	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	6154	2.50 µg/L	0.000
13C4-PFOS	8.372	502.8 -> 79.9	10191	2.50 µg/L	-0.012
13C3-PFBA	3.004	216.0 -> 172.0	32724	5.00 µg/L	0.000
18O2-PFHxS	7.287	403.0 -> 83.9	6045	2.50 µg/L	-0.012
13C4-PFOA	7.160	417.1 -> 372.0	67678	2.50 µg/L	-0.012
13C2-PFDA	8.196	515.1 -> 470.1	24298	1.25 µg/L	-0.012
13C5-PFNA	7.703	468.0 -> 423.0	31877	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	30074	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.228	329.1 -> 80.9	1877	5.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.1%		
13C2-6:2FTS	6.921	429.1 -> 80.9	2792	6.47 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.3%		
13C2-8:2FTS	7.970	529.1 -> 80.9	2776	5.89 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.8%		
13C2-PFDoDA	9.104	615.1 -> 570.0	25241	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C2-PFTeDA	9.844	715.2 -> 670.0	10348	0.91 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 73.1%		
13C3-PFBS	5.519	302.1 -> 79.9	12885	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C3-PFHxS	7.288	402.1 -> 79.9	9238	2.82 µg/L	-0.012

7.2.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.6%	
13C4-PFBA	3.013	216.8 -> 171.9	84871	11.36 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.6%	
13C4-PFHpA	6.503	367.1 -> 322.0	37156	3.05 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 121.9%	
13C5-PFHxA	5.564	318.0 -> 273.0	35269	2.92 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.8%	
13C5-PFPeA	4.384	268.3 -> 223.0	39254	5.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.0%	
13C6-PFDA	8.195	519.1 -> 474.1	20640	1.49 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 119.4%	
13C7-PFUnDA	8.662	570.0 -> 525.1	22572	1.34 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C8-FOSA	9.568	506.1 -> 77.8	17477	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C8-PFOA	7.160	421.1 -> 376.0	62574	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.3%	
13C8-PFOS	8.371	507.1 -> 79.9	8657	2.66 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C9-PFNA	7.690	472.1 -> 427.0	30394	1.34 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.3%	
d3-MeFOSAA	8.228	573.2 -> 419.0	25478	5.19 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C3-HFPO-DA	5.941	286.9 -> 168.9	14564	11.74 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 117.4%	
d3-MeFOSA	10.683	515.0 -> 219.0	6154	1.95 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.1%	
d5-EtFOSAA	8.436	589.2 -> 419.0	20636	4.79 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
d7-MeFOSE	10.591	623.2 -> 58.9	28109	21.67 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.7%	
d9-EtFOSE	10.849	639.2 -> 58.9	21180	21.35 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 85.4%	
d5-EtFOSA	10.927	531.1 -> 219.0	6890	1.95 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.1%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	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.	



7.2.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.	
		363.1 -> 319.0			
PFHpS	-	363.1 -> 169.0	-	N.D.	
		449.0 -> 79.9			
PFHxA	-	449.0 -> 98.9	-	N.D.	
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	-	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		463.0 -> 419.0			
PFNS	-	463.0 -> 219.0	-	N.D.	
		548.8 -> 79.9			
PFOA	-	548.8 -> 98.9	-	N.D.	
		413.0 -> 369.0			
PFOS	-	413.0 -> 169.0	-	N.D.	
		498.9 -> 79.9			
PFPeA	-	498.9 -> 98.8	-	N.D.	
		263.0 -> 219.0			
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.	
		511.9 -> 219.0			
MeFOSA	-	511.9 -> 169.0	-	N.D.	
		616.1 -> 58.9			
MeFOSE	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
PFDoDS	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
NFDHA	-	279.0 -> 85.1	-	N.D.	
		229.0 -> 84.9			
PFMBA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

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

7.2.1
7

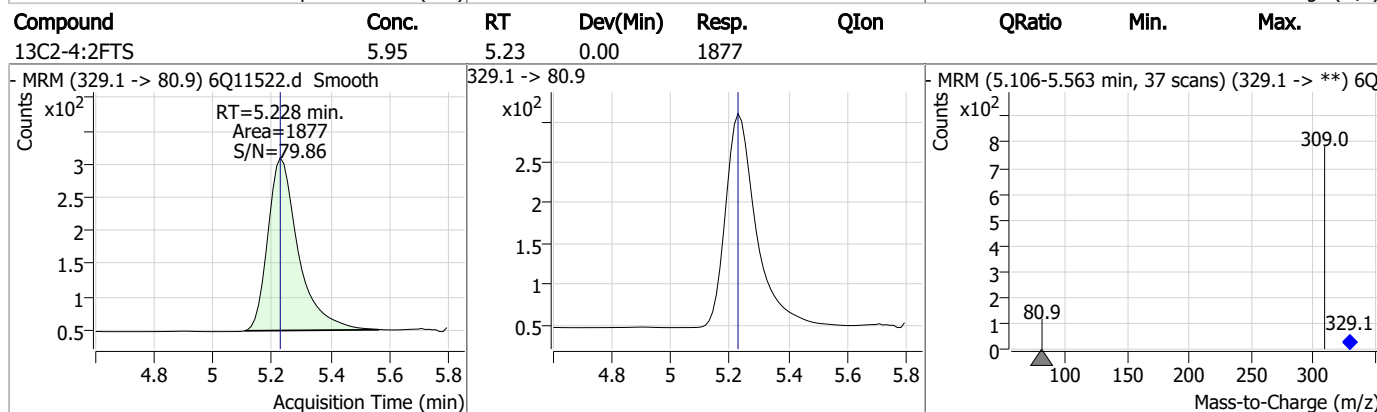
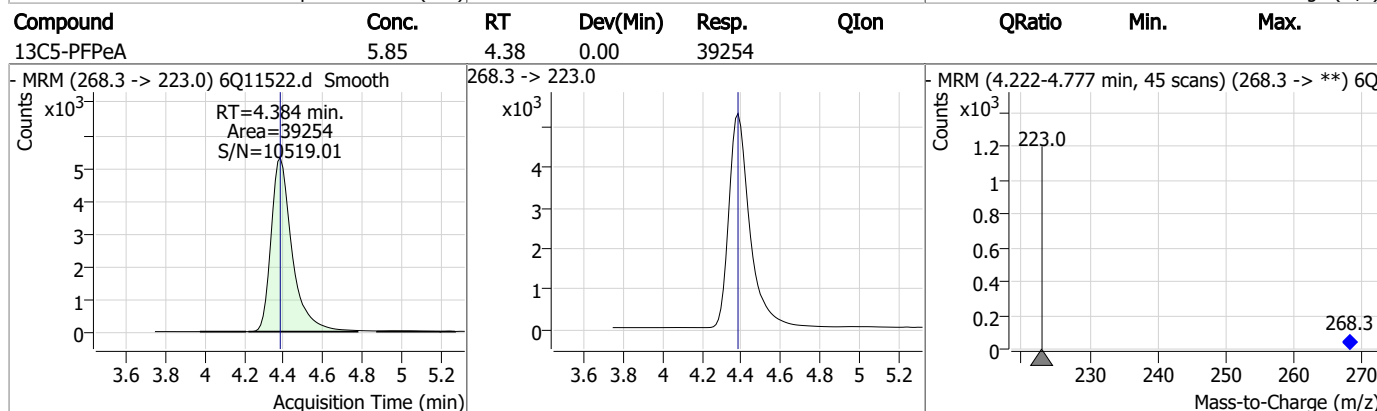
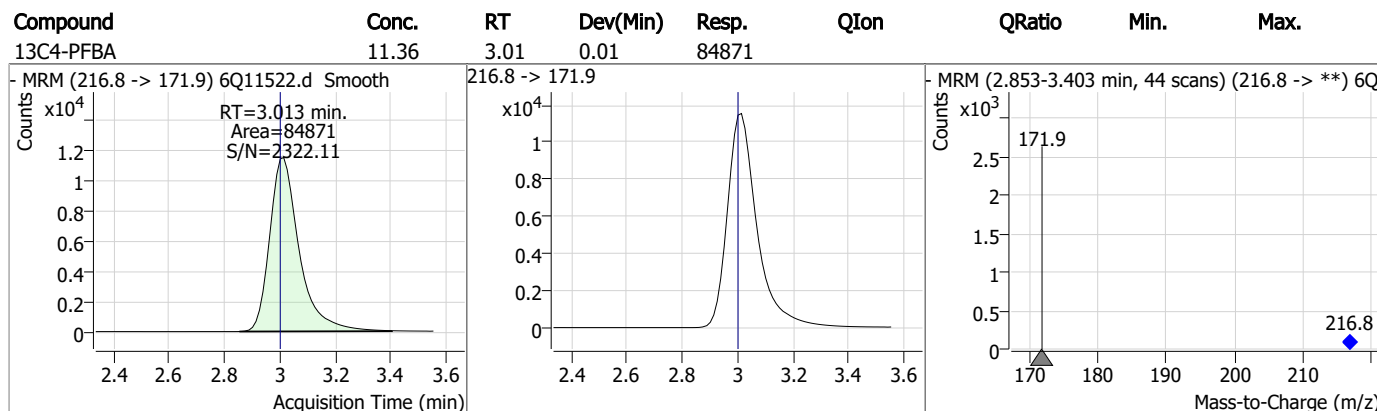
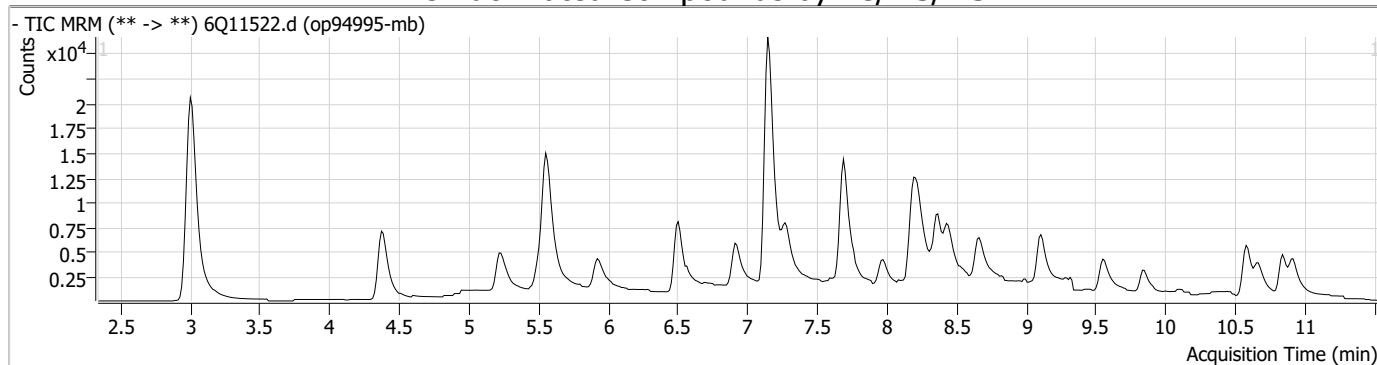
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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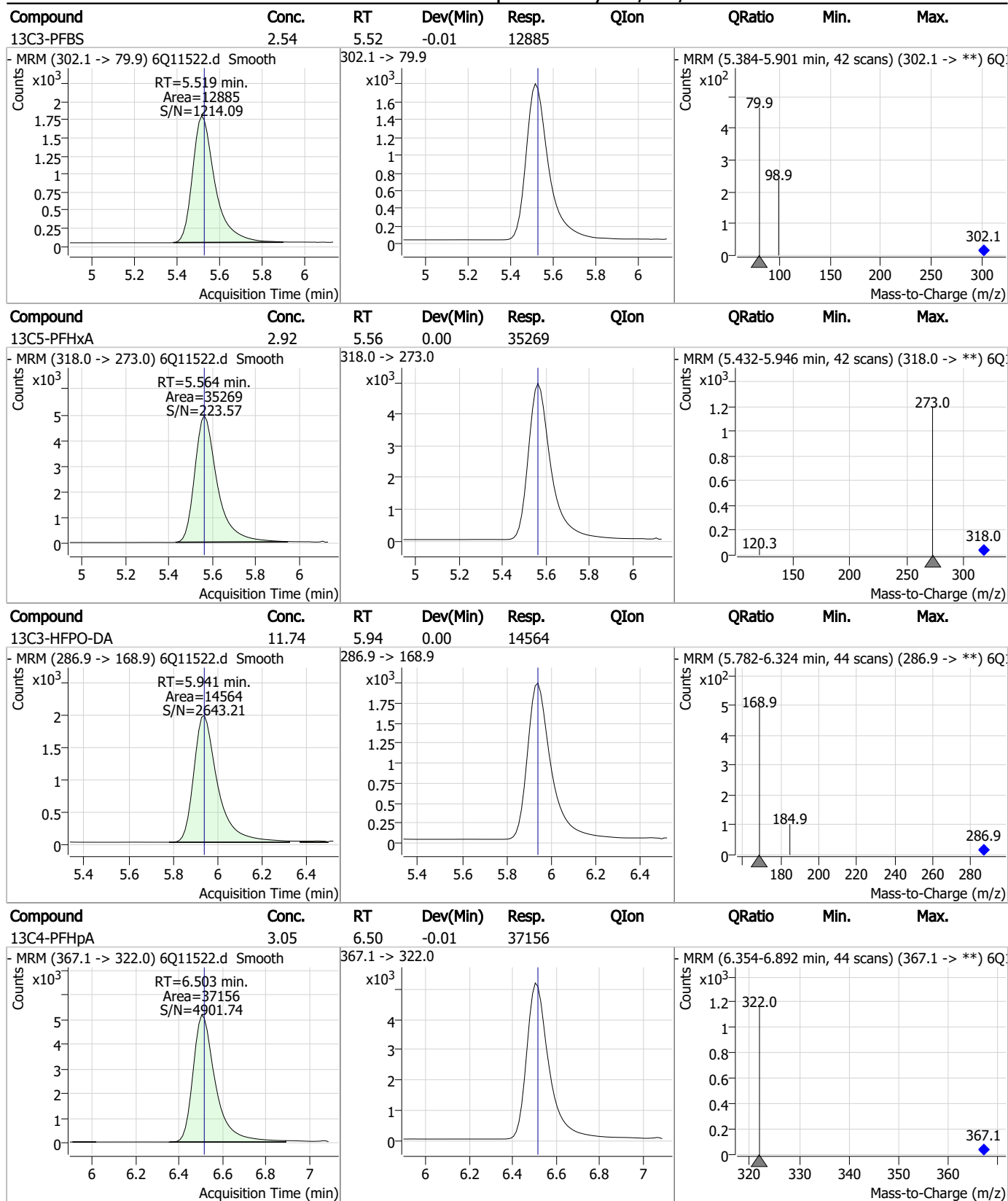
7.2.1

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Perfluorinated Compounds by LC/MS/MS

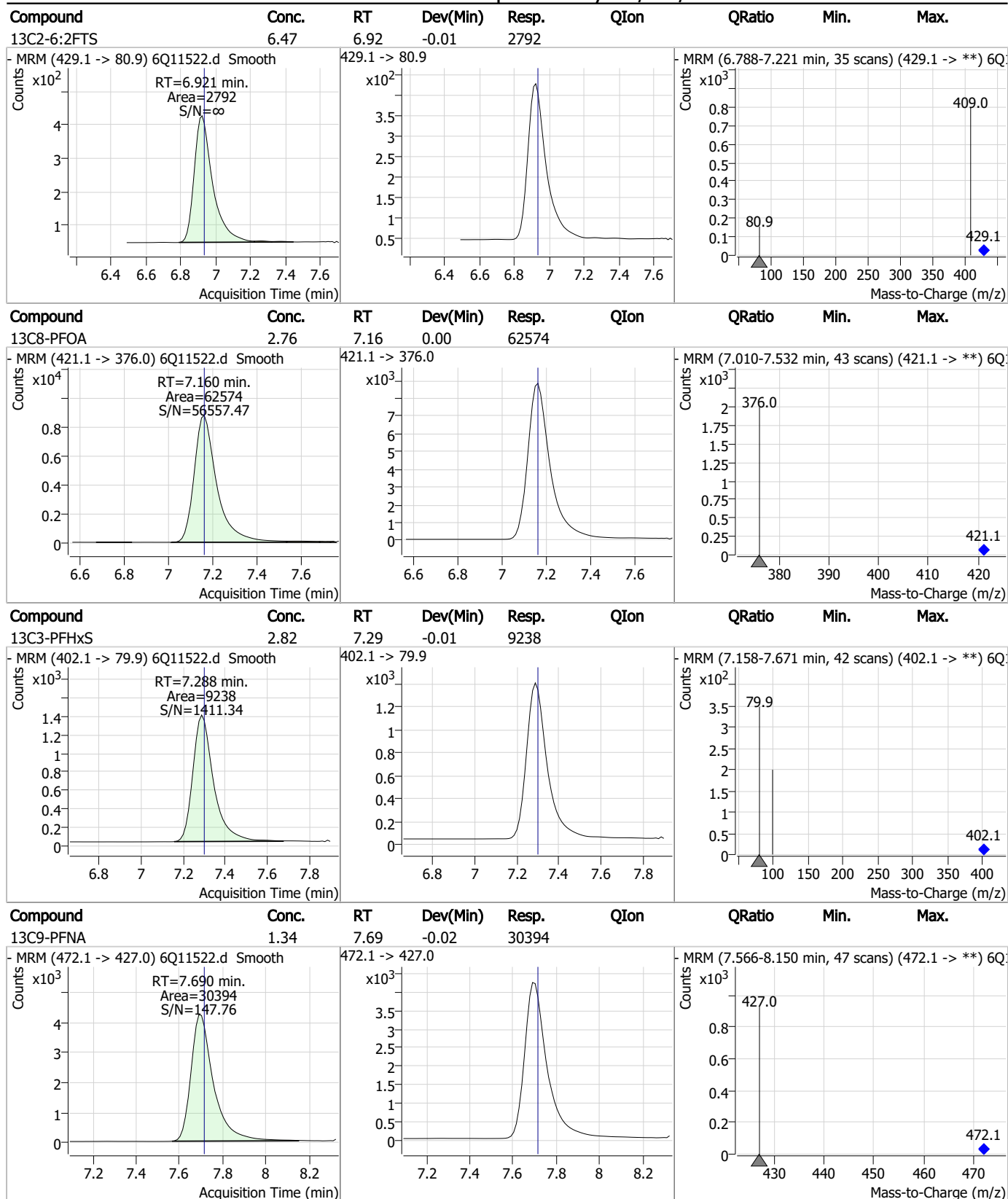


Perfluorinated Compounds by LC/MS/MS



7.2.1
7

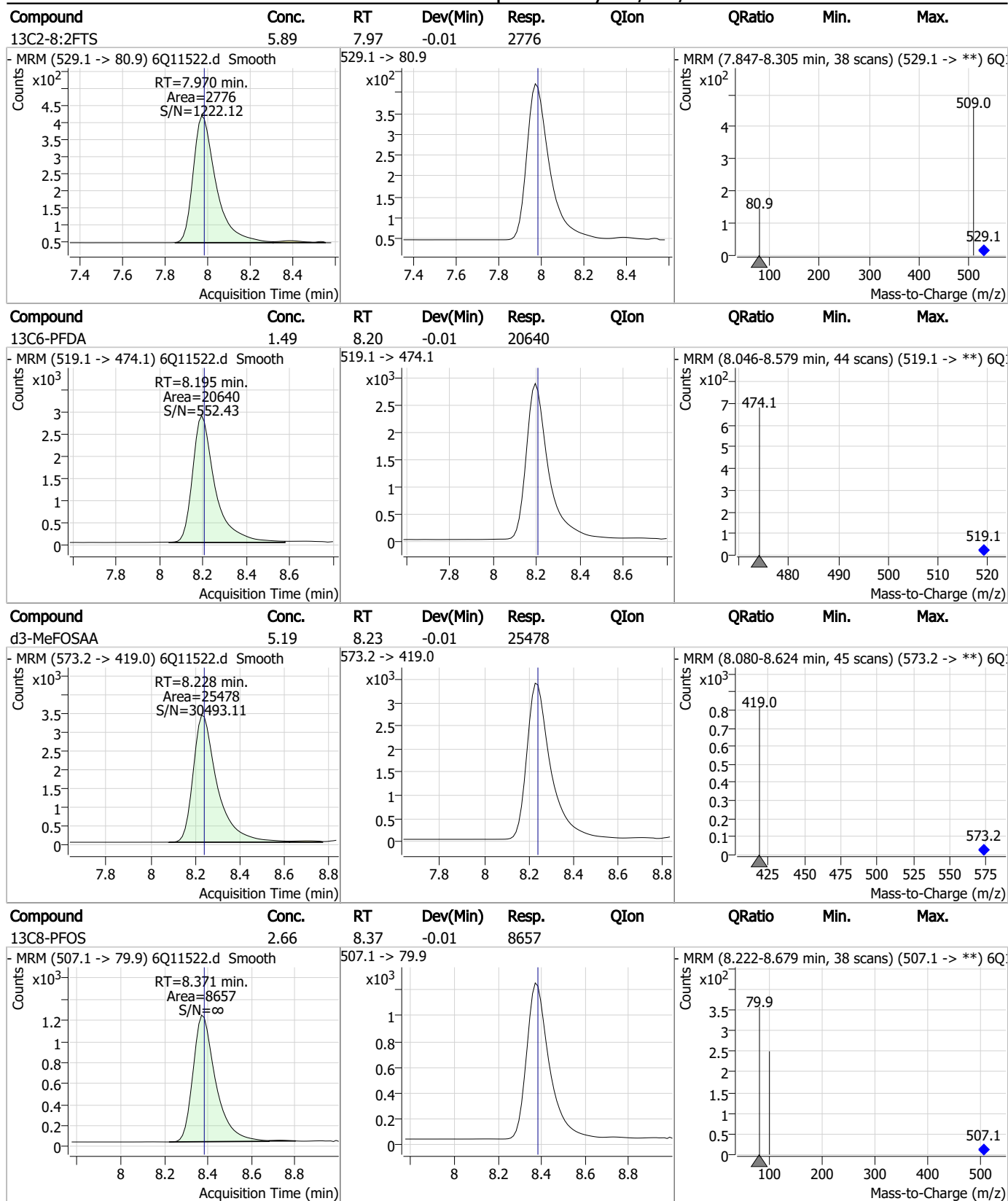
Perfluorinated Compounds by LC/MS/MS



7.2.1
7

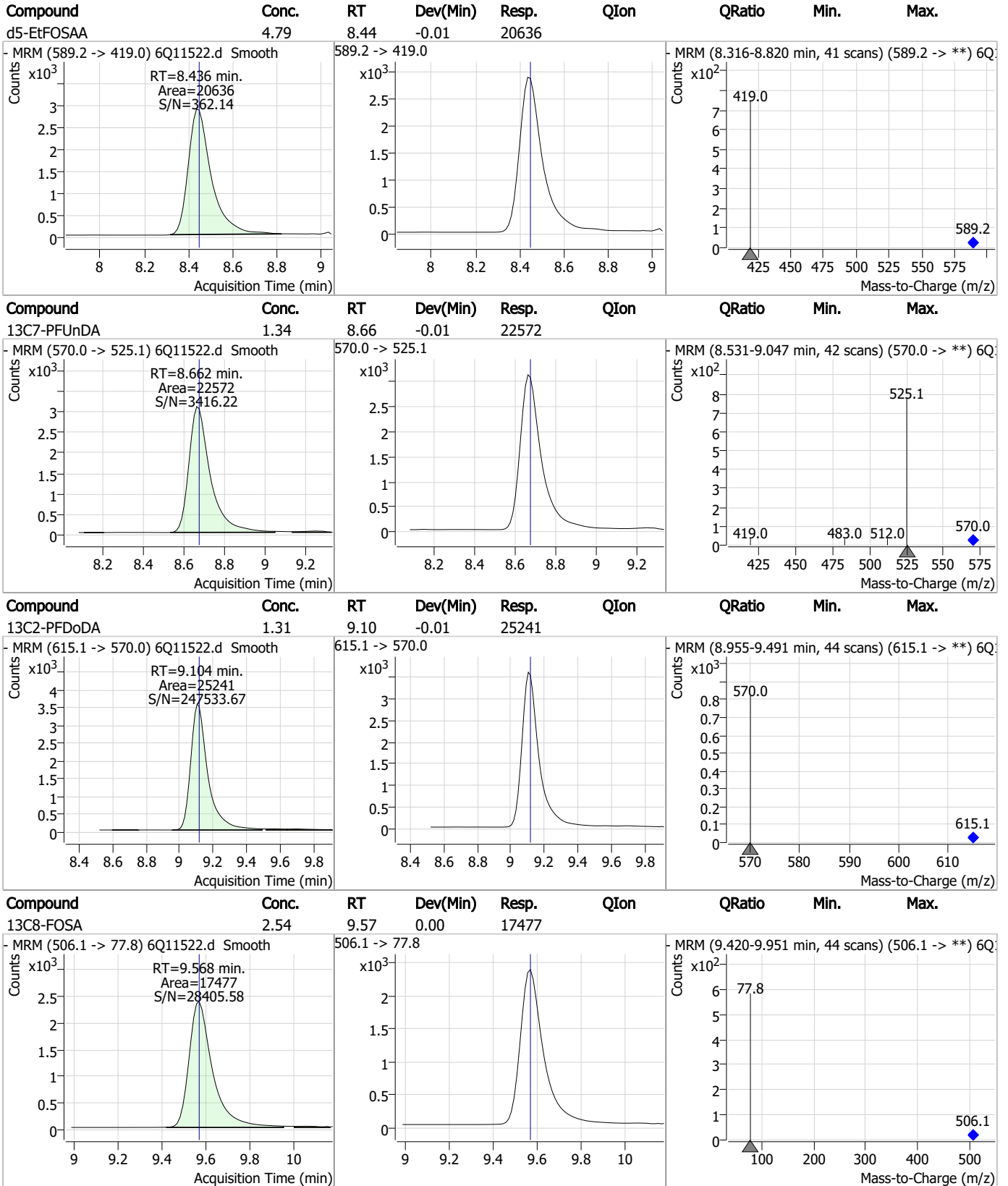


Perfluorinated Compounds by LC/MS/MS



7.2.1
7

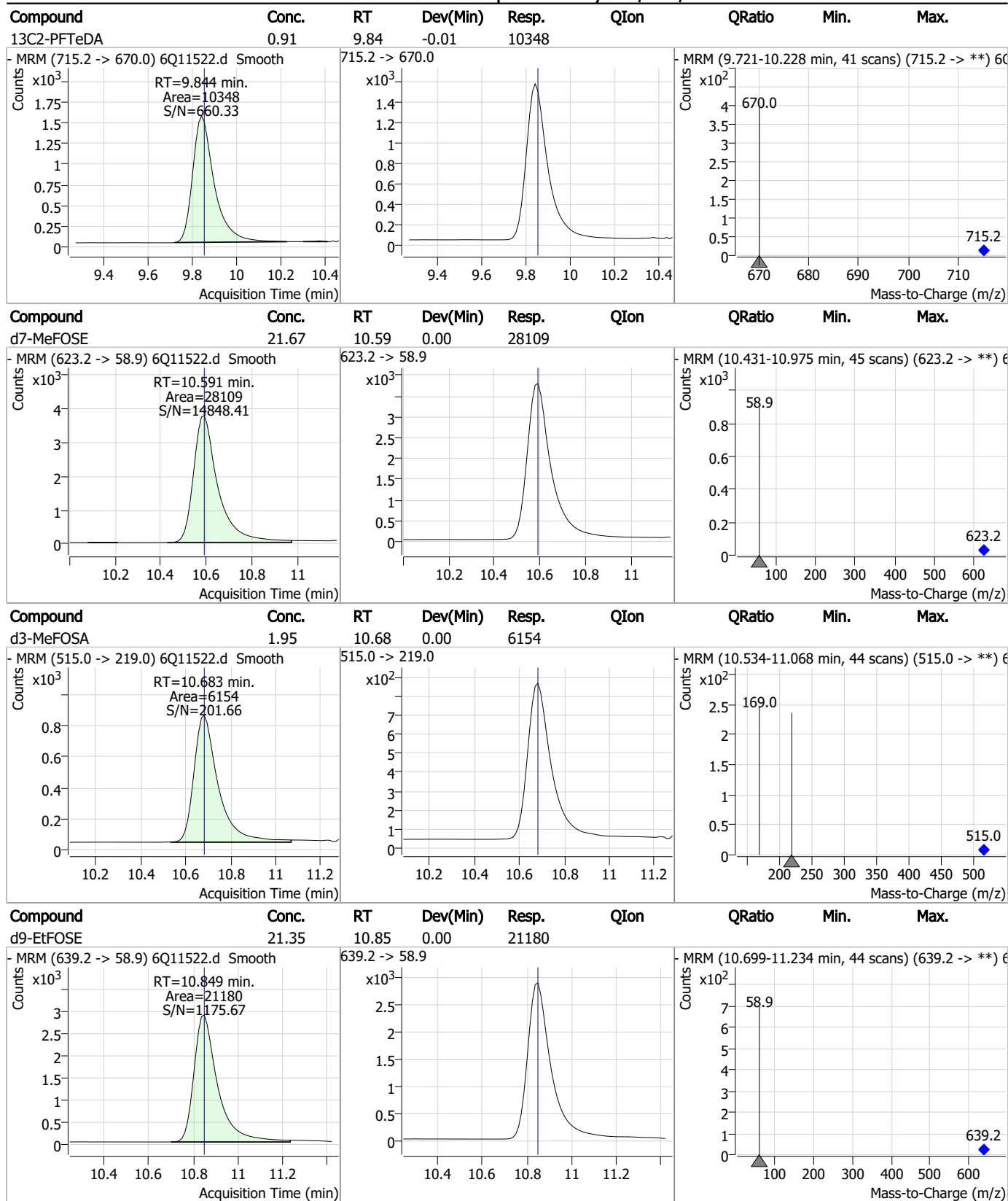
Perfluorinated Compounds by LC/MS/MS



7.2.1

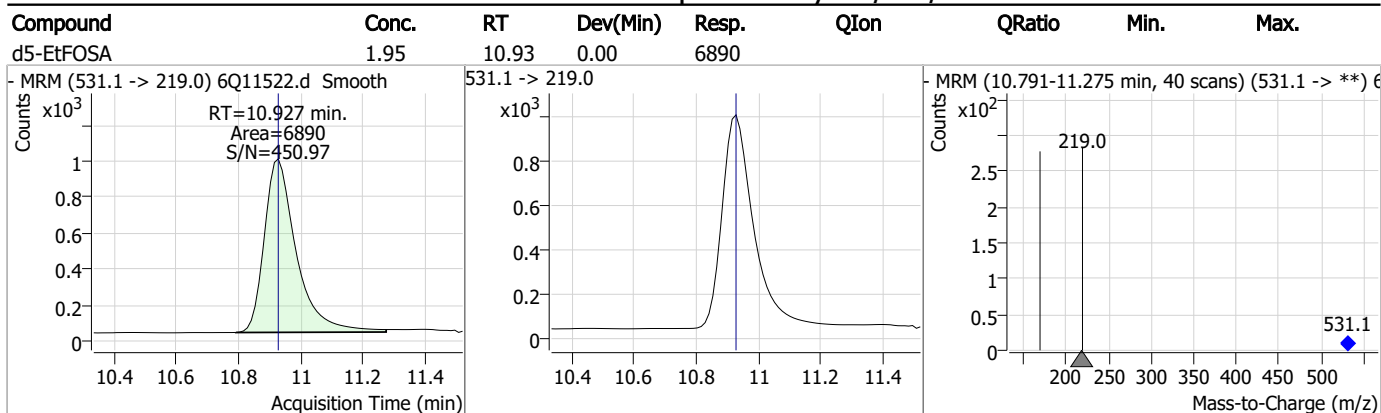
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Perfluorinated Compounds by LC/MS/MS



7.2.1
7

Perfluorinated Compounds by LC/MS/MS



7.2.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11517.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/17/2023 10:06:29 PM
 Sample Name : IBLK
 Vial : P1-C1
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	78943	10.00 µg/L	-0.025
M5-PFPeA	4.371	268.3 -> 223.0	37824	5.00 µg/L	-0.012
M5-PFHxA	5.564	318.0 -> 273.0	33881	2.50 µg/L	0.000
M4-PFHpA	6.503	367.1 -> 322.0	34986	2.50 µg/L	-0.012
M8-PFOA	7.160	421.1 -> 376.0	58665	2.50 µg/L	0.000
M9-PFNA	7.702	472.1 -> 427.0	28490	1.25 µg/L	-0.013
M6-PFDA	8.195	519.1 -> 474.1	17799	1.25 µg/L	-0.012
M7-PFUnDA	8.662	570.0 -> 525.1	21949	1.25 µg/L	-0.012
M2-PFDoDA	9.117	615.1 -> 570.0	25369	1.25 µg/L	0.000
M2-PFTeDA	9.844	715.2 -> 670.0	14001	1.25 µg/L	-0.012
M8-FOSA	9.568	506.1 -> 77.8	16973	2.50 µg/L	0.000
M3-PFBS	5.519	302.1 -> 79.9	12662	2.50 µg/L	-0.012
M3-PFHxS	7.288	402.1 -> 79.9	8348	2.50 µg/L	-0.012
M8-PFOS	8.371	507.1 -> 79.9	8125	2.50 µg/L	-0.012
M2-4:2FTS	5.216	329.1 -> 80.9	1708	5.00 µg/L	-0.012
M2-6:2FTS	6.921	429.1 -> 80.9	2266	5.00 µg/L	-0.012
M2-8:2FTS	7.970	529.1 -> 80.9	2481	5.00 µg/L	-0.012
M3-MeFOSAA	8.240	573.2 -> 419.0	26174	5.00 µg/L	0.000
M3-HFPO-DA	5.941	286.9 -> 168.9	14133	10.00 µg/L	0.000
M5-EtFOSAA	8.448	589.2 -> 419.0	20646	5.00 µg/L	0.000
M7-MeFOSE	10.591	623.2 -> 58.9	29492	25.00 µg/L	0.000
M9-EtFOSE	10.836	639.2 -> 58.9	23200	25.00 µg/L	-0.012
M5-EtFOSA	10.927	531.1 -> 219.0	8046	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	7583	2.50 µg/L	0.000
13C4-PFOS	8.372	502.8 -> 79.9	10002	2.50 µg/L	-0.012
13C3-PFBA	2.979	216.0 -> 172.0	34627	5.00 µg/L	-0.025
18O2-PFHxS	7.287	403.0 -> 83.9	5894	2.50 µg/L	-0.012
13C4-PFOA	7.160	417.1 -> 372.0	73481	2.50 µg/L	-0.012
13C2-PFDA	8.196	515.1 -> 470.1	25128	1.25 µg/L	-0.012
13C5-PFNA	7.703	468.0 -> 423.0	30153	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	32068	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.216	329.1 -> 80.9	1708	5.56 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.1%		
13C2-6:2FTS	6.921	429.1 -> 80.9	2266	5.38 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C2-8:2FTS	7.970	529.1 -> 80.9	2481	5.40 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C2-PFDoDA	9.117	615.1 -> 570.0	25369	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C2-PFTeDA	9.844	715.2 -> 670.0	14001	1.20 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C3-PFBS	5.519	302.1 -> 79.9	12662	2.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C3-PFHxS	7.288	402.1 -> 79.9	8348	2.61 µg/L	-0.012

7.22
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C4-PFBA	2.975	216.8 -> 171.9	78943	9.98 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.503	367.1 -> 322.0	34986	2.69 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C5-PFHxA	5.564	318.0 -> 273.0	33881	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C5-PFPeA	4.371	268.3 -> 223.0	37824	5.29 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C6-PFDA	8.195	519.1 -> 474.1	17799	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C7-PFUnDA	8.662	570.0 -> 525.1	21949	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C8-FOSA	9.568	506.1 -> 77.8	16973	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-PFOA	7.160	421.1 -> 376.0	58665	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C8-PFOS	8.371	507.1 -> 79.9	8125	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C9-PFNA	7.702	472.1 -> 427.0	28490	1.33 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.4%	
d3-MeFOSAA	8.240	573.2 -> 419.0	26174	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C3-HFPO-DA	5.941	286.9 -> 168.9	14133	10.69 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.9%	
d3-MeFOSA	10.683	515.0 -> 219.0	7583	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
d5-EtFOSAA	8.448	589.2 -> 419.0	20646	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d7-MeFOSE	10.591	623.2 -> 58.9	29492	23.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.7%	
d9-EtFOSE	10.836	639.2 -> 58.9	23200	23.83 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
d5-EtFOSA	10.927	531.1 -> 219.0	8046	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.9%	

Target Compounds	RT	Transition	Response	Conc. Units	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	8.449	584.2 -> 419.1	265	0.08 µg/L	m 70
		584.2 -> 526.0	214		
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.	

7.2.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.	
		363.1 -> 319.0			
PFHpS	-	363.1 -> 169.0	-	N.D.	
		449.0 -> 79.9			
PFHxA	-	449.0 -> 98.9	-	N.D.	
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	-	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		463.0 -> 419.0			
PFNS	-	463.0 -> 219.0	-	N.D.	
		548.8 -> 79.9			
PFOA	-	548.8 -> 98.9	-	N.D.	
		413.0 -> 369.0			
PFOS	-	413.0 -> 169.0	-	N.D.	
		498.9 -> 79.9			
PFPeA	-	498.9 -> 98.8	-	N.D.	
		263.0 -> 219.0			
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.	
		511.9 -> 219.0			
MeFOSA	-	511.9 -> 169.0	-	N.D.	
		616.1 -> 58.9			
MeFOSE	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
PFDoDS	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
NFDHA	-	279.0 -> 85.1	-	N.D.	
		229.0 -> 84.9			
PFMBA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

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

7.2.2
7

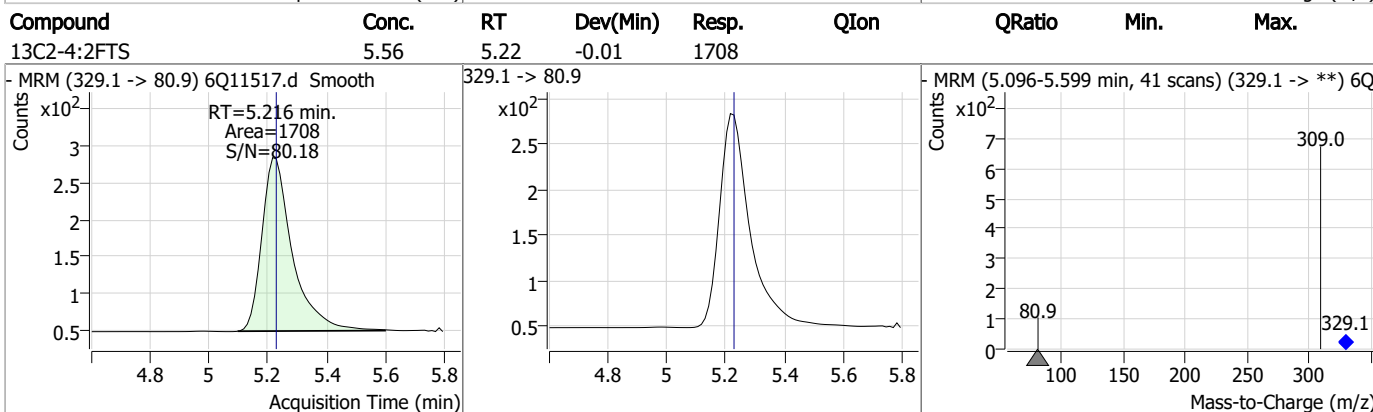
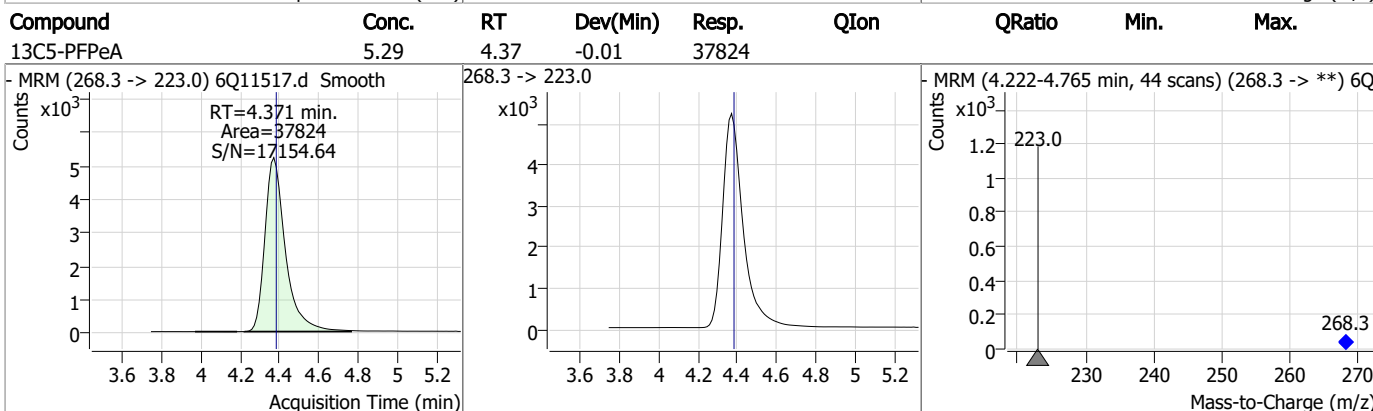
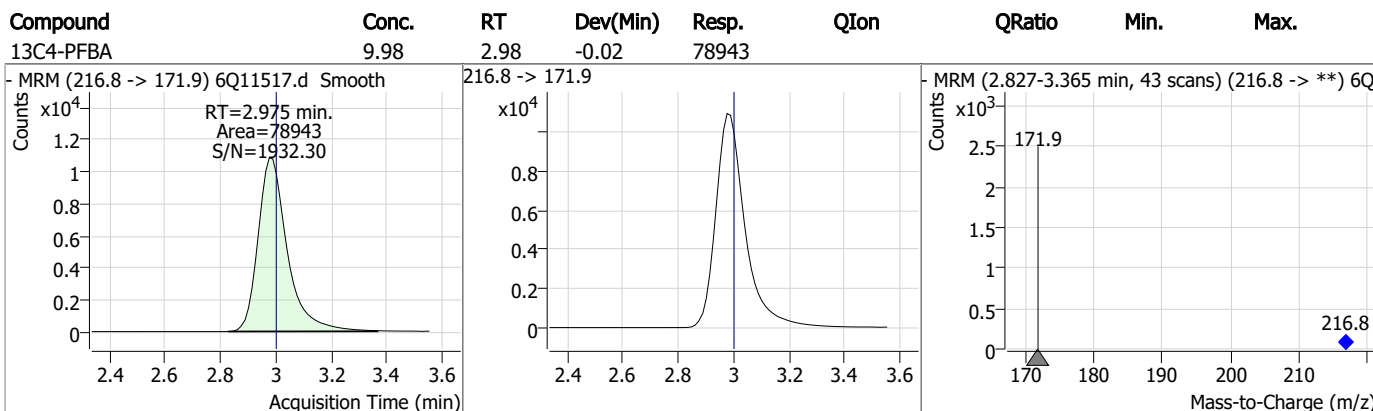
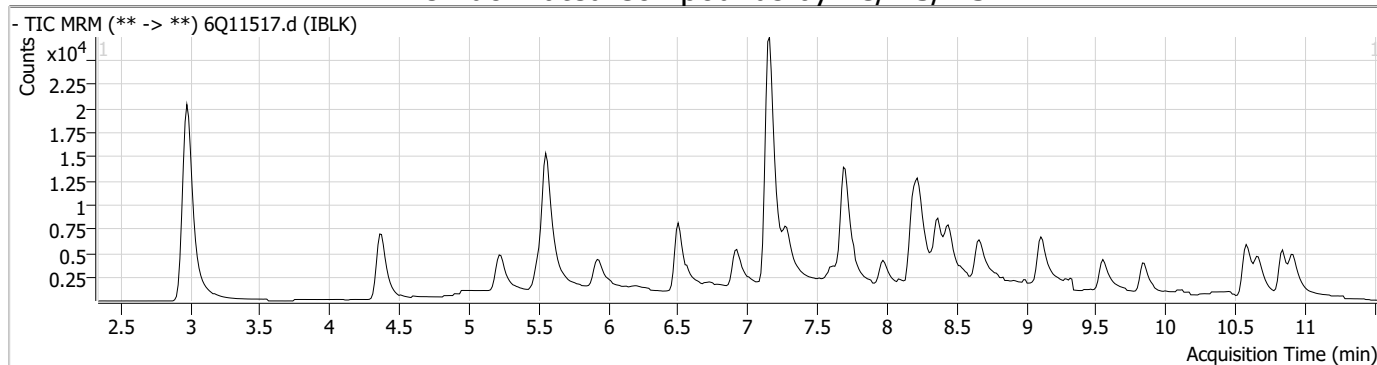
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.2.2

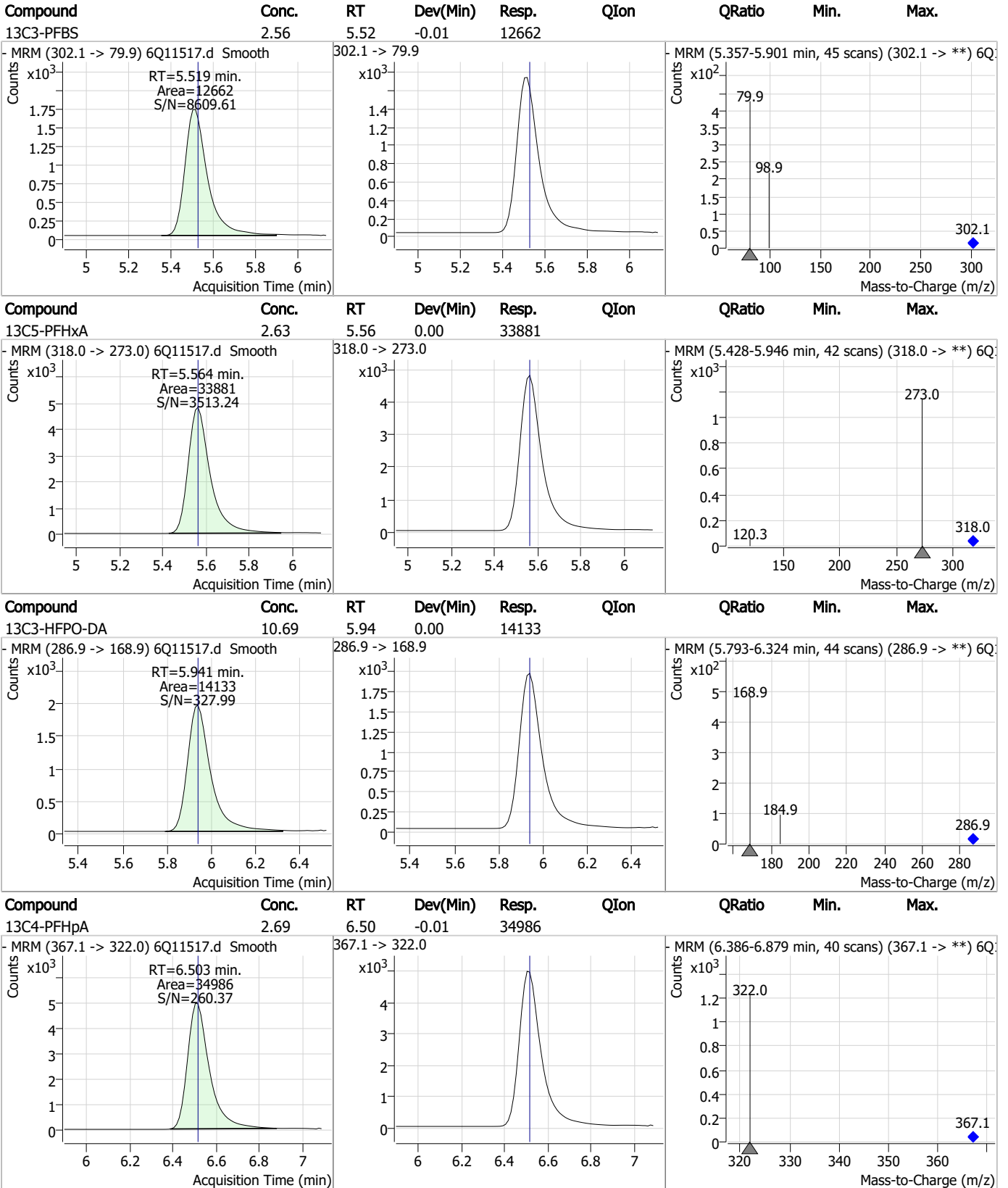
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Perfluorinated Compounds by LC/MS/MS



7.2.2
7

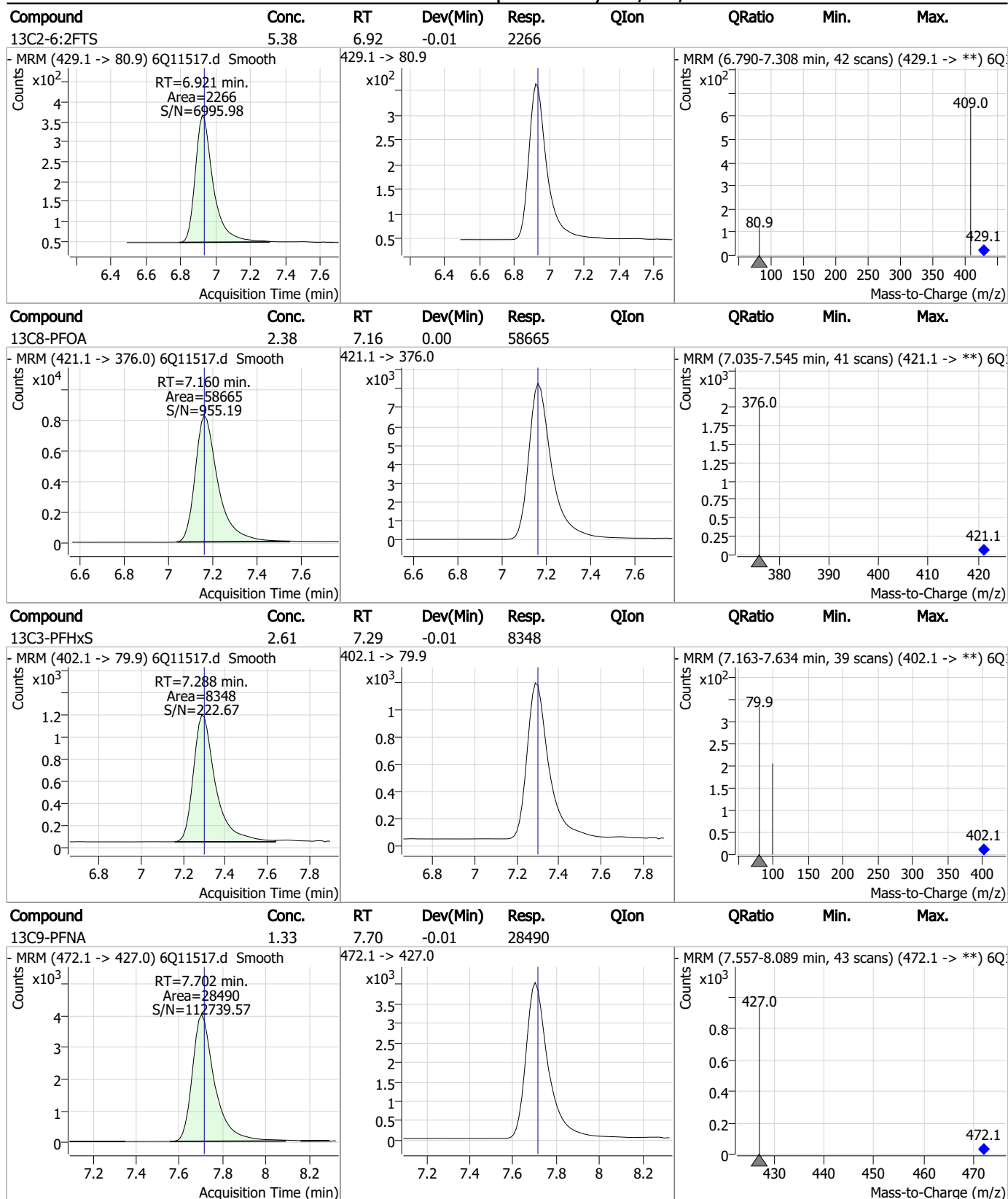
Perfluorinated Compounds by LC/MS/MS



7.2.2

7

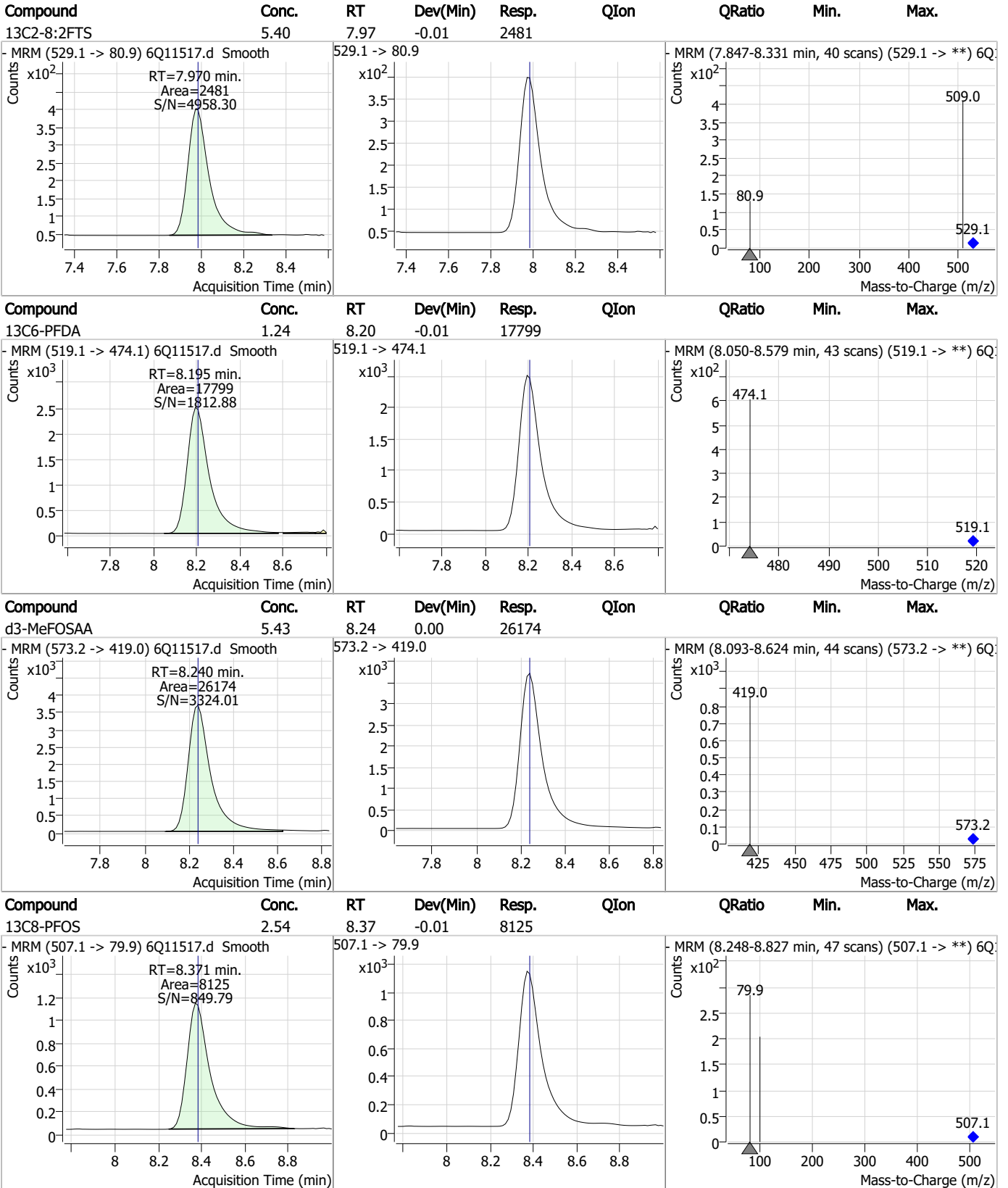
Perfluorinated Compounds by LC/MS/MS



7.2.2
7



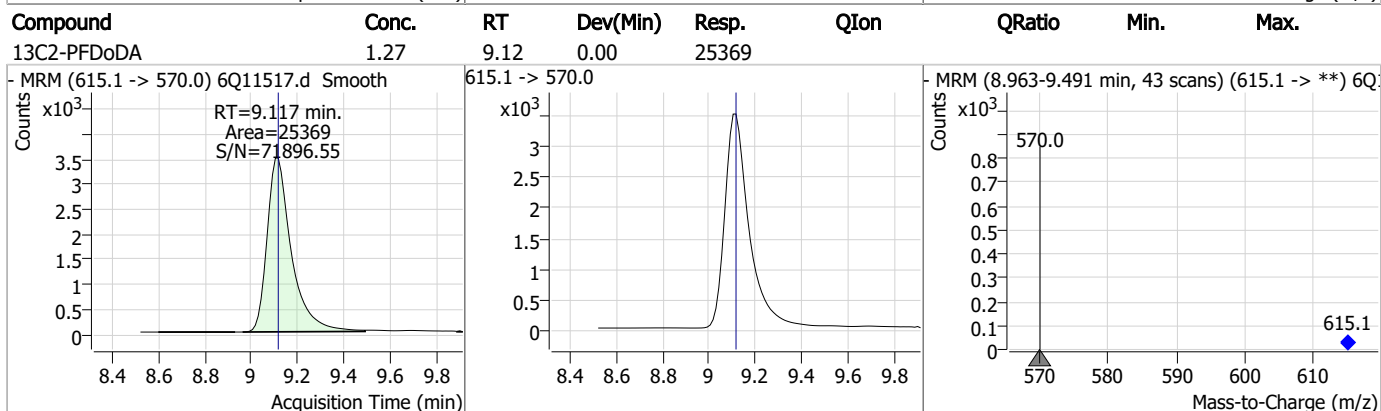
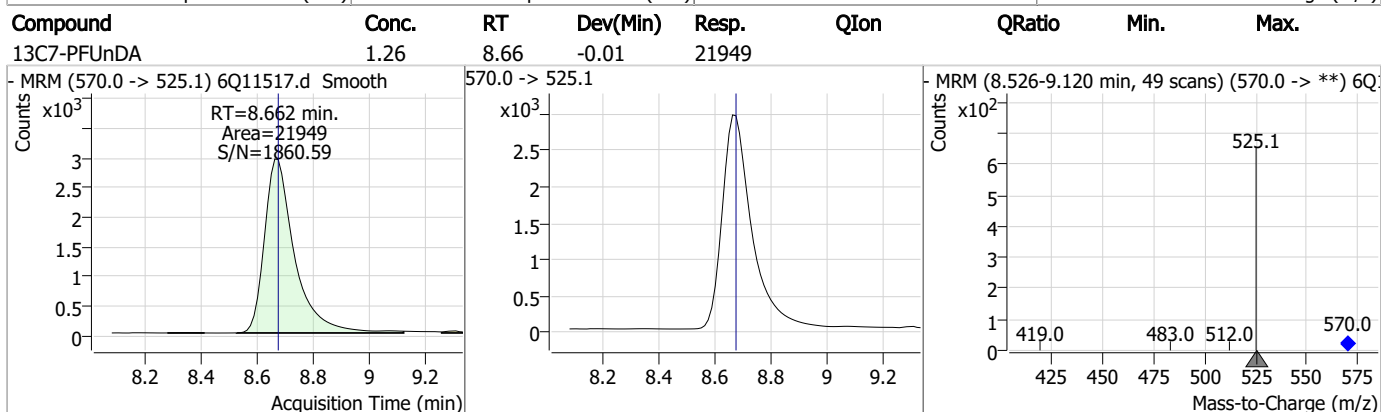
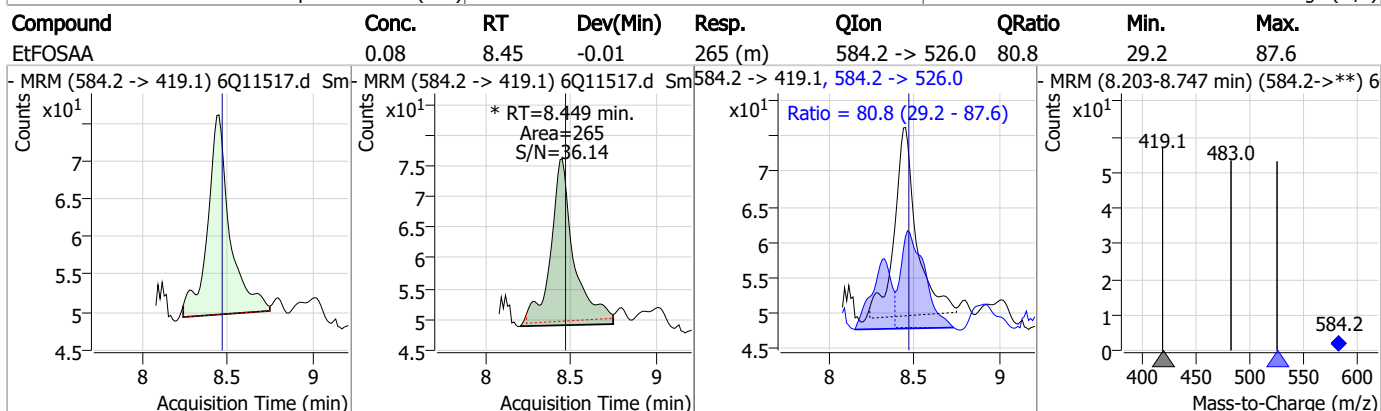
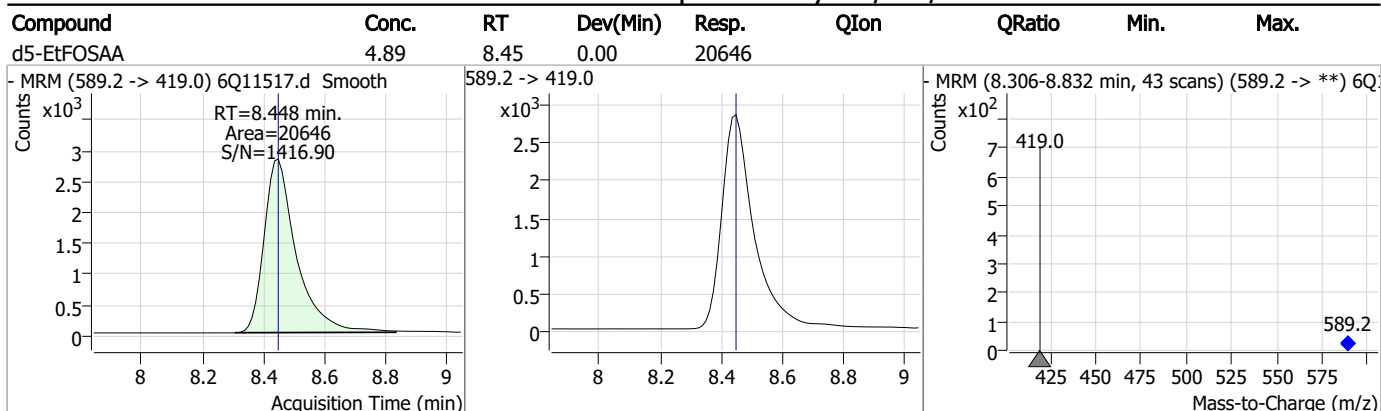
Perfluorinated Compounds by LC/MS/MS



7.2.2

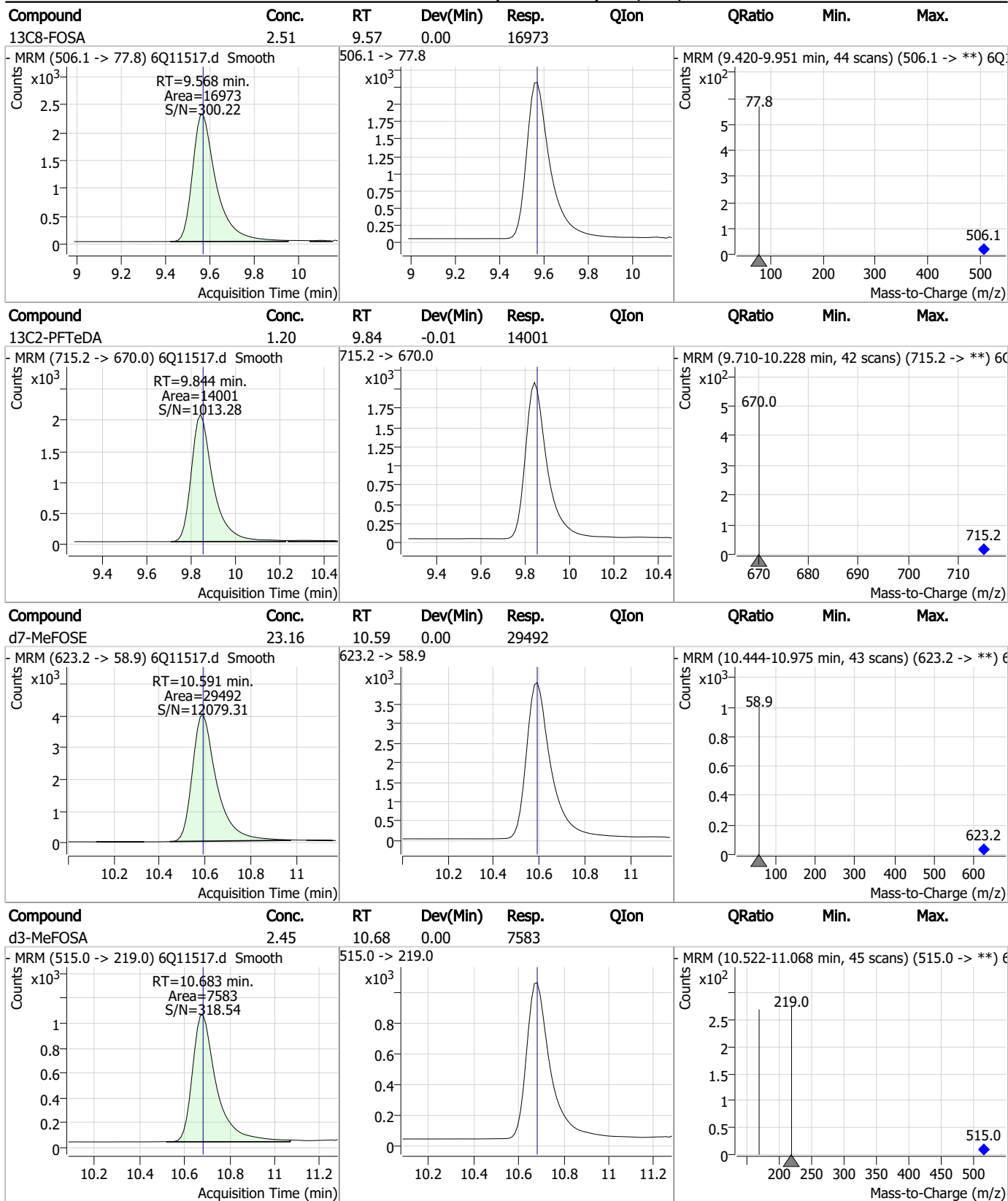
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Perfluorinated Compounds by LC/MS/MS



7.2.2
7

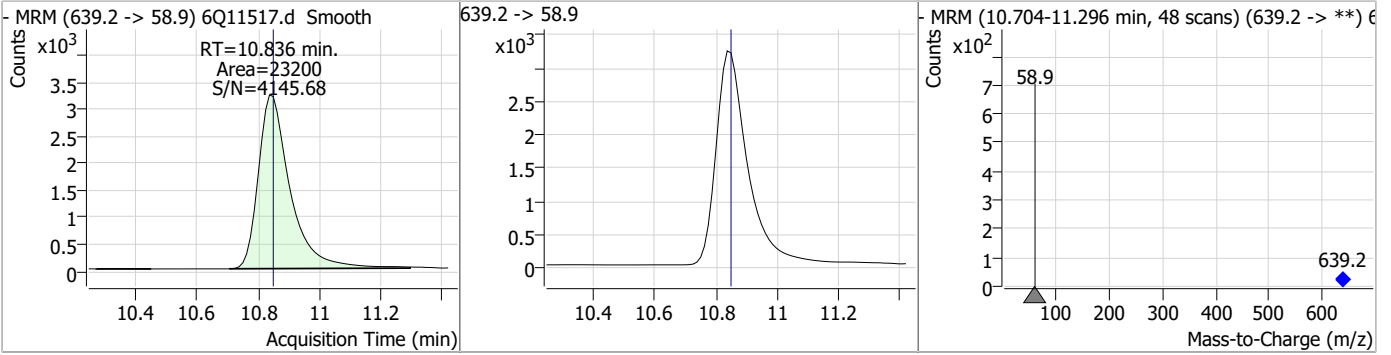
Perfluorinated Compounds by LC/MS/MS



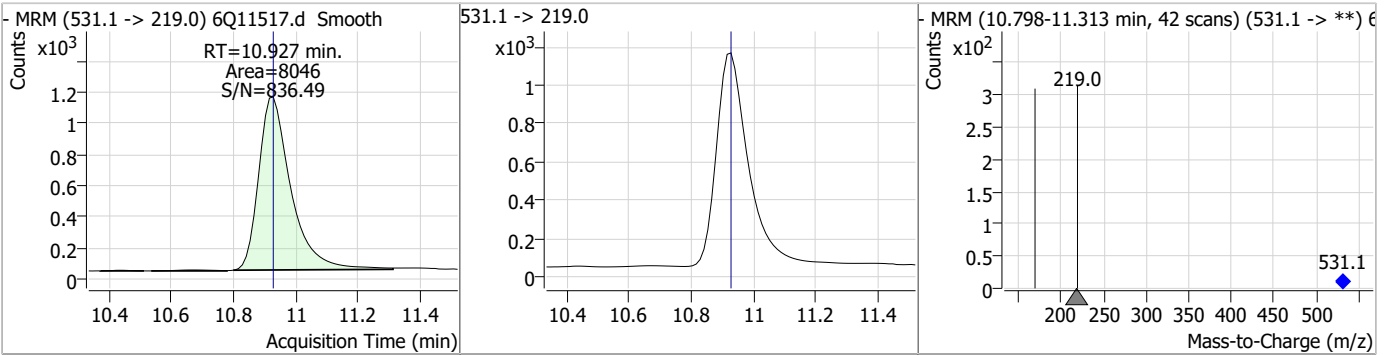
7.2.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.83	10.84	-0.01	23200				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.32	10.93	0.00	8046				



7.2.2

7

Manual Integration Approval Summary

Sample Number: S6Q180-IBLK Method: EPA DRAFT 1633
Lab FileID: 6Q11517.D Analyst approved: 01/18/23 15:20 Martha Valls
Injection Time: 01/17/23 22:06 Supervisor approved: 01/18/23 19:08 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
EiFOSAA	2991-50-6		8.45	Split peak

7.2.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11531.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/18/2023 1:22:15 AM
 Sample Name : iccb
 Vial : P1-C1
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.988	216.8 -> 171.9	79421	10.00 µg/L	-0.012
M5-PFPeA	4.371	268.3 -> 223.0	37179	5.00 µg/L	-0.012
M5-PFHxA	5.564	318.0 -> 273.0	32211	2.50 µg/L	0.000
M4-PFHpA	6.516	367.1 -> 322.0	34681	2.50 µg/L	0.000
M8-PFOA	7.160	421.1 -> 376.0	63136	2.50 µg/L	0.000
M9-PFNA	7.702	472.1 -> 427.0	29652	1.25 µg/L	-0.013
M6-PFDA	8.195	519.1 -> 474.1	19338	1.25 µg/L	-0.012
M7-PFUnDA	8.662	570.0 -> 525.1	21261	1.25 µg/L	-0.012
M2-PFDoDA	9.104	615.1 -> 570.0	23956	1.25 µg/L	-0.012
M2-PFTeDA	9.844	715.2 -> 670.0	13674	1.25 µg/L	-0.012
M8-FOSA	9.556	506.1 -> 77.8	17662	2.50 µg/L	-0.012
M3-PFBS	5.519	302.1 -> 79.9	12532	2.50 µg/L	-0.012
M3-PFHxS	7.288	402.1 -> 79.9	8807	2.50 µg/L	-0.012
M8-PFOS	8.371	507.1 -> 79.9	8583	2.50 µg/L	-0.012
M2-4:2FTS	5.228	329.1 -> 80.9	1763	5.00 µg/L	0.000
M2-6:2FTS	6.921	429.1 -> 80.9	2675	5.00 µg/L	-0.012
M2-8:2FTS	7.970	529.1 -> 80.9	2839	5.00 µg/L	-0.012
M3-MeFOSAA	8.228	573.2 -> 419.0	24512	5.00 µg/L	-0.012
M3-HFPO-DA	5.941	286.9 -> 168.9	14146	10.00 µg/L	0.000
M5-EtFOSAA	8.436	589.2 -> 419.0	21705	5.00 µg/L	-0.012
M7-MeFOSE	10.591	623.2 -> 58.9	31459	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	22990	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	8306	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	7172	2.50 µg/L	0.000
13C4-PFOS	8.372	502.8 -> 79.9	9964	2.50 µg/L	-0.012
13C3-PFBA	2.979	216.0 -> 172.0	34853	5.00 µg/L	-0.025
18O2-PFHxS	7.287	403.0 -> 83.9	5996	2.50 µg/L	-0.012
13C4-PFOA	7.160	417.1 -> 372.0	71448	2.50 µg/L	-0.012
13C2-PFDA	8.196	515.1 -> 470.1	24602	1.25 µg/L	-0.012
13C5-PFNA	7.703	468.0 -> 423.0	30575	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	33960	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.228	329.1 -> 80.9	1763	5.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.7%		
13C2-6:2FTS	6.921	429.1 -> 80.9	2675	6.25 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.9%		
13C2-8:2FTS	7.970	529.1 -> 80.9	2839	6.07 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.4%		
13C2-PFDoDA	9.104	615.1 -> 570.0	23956	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C2-PFTeDA	9.844	715.2 -> 670.0	13674	1.19 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C3-PFBS	5.519	302.1 -> 79.9	12532	2.49 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C3-PFHxS	7.288	402.1 -> 79.9	8807	2.71 µg/L	-0.012

7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C4-PFBA	2.988	216.8 -> 171.9	79421	9.98 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.516	367.1 -> 322.0	34681	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C5-PFHxA	5.564	318.0 -> 273.0	32211	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C5-PFPeA	4.371	268.3 -> 223.0	37179	4.91 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C6-PFDA	8.195	519.1 -> 474.1	19338	1.38 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.4%	
13C7-PFUnDA	8.662	570.0 -> 525.1	21261	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C8-FOSA	9.556	506.1 -> 77.8	17662	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C8-PFOA	7.160	421.1 -> 376.0	63136	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C8-PFOS	8.371	507.1 -> 79.9	8583	2.70 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.8%	
13C9-PFNA	7.702	472.1 -> 427.0	29652	1.36 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.2%	
d3-MeFOSAA	8.228	573.2 -> 419.0	24512	5.11 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C3-HFPO-DA	5.941	286.9 -> 168.9	14146	10.10 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d3-MeFOSA	10.683	515.0 -> 219.0	7172	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.1%	
d5-EtFOSAA	8.436	589.2 -> 419.0	21705	5.16 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
d7-MeFOSE	10.591	623.2 -> 58.9	31459	24.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d9-EtFOSE	10.849	639.2 -> 58.9	22990	23.70 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.8%	
d5-EtFOSA	10.927	531.1 -> 219.0	8306	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	

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.

7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
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.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.3
7

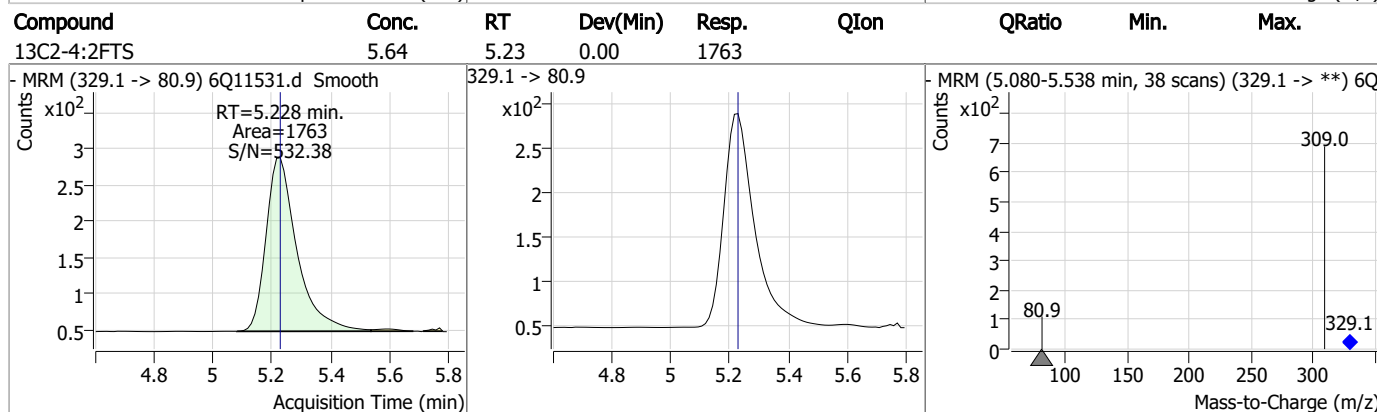
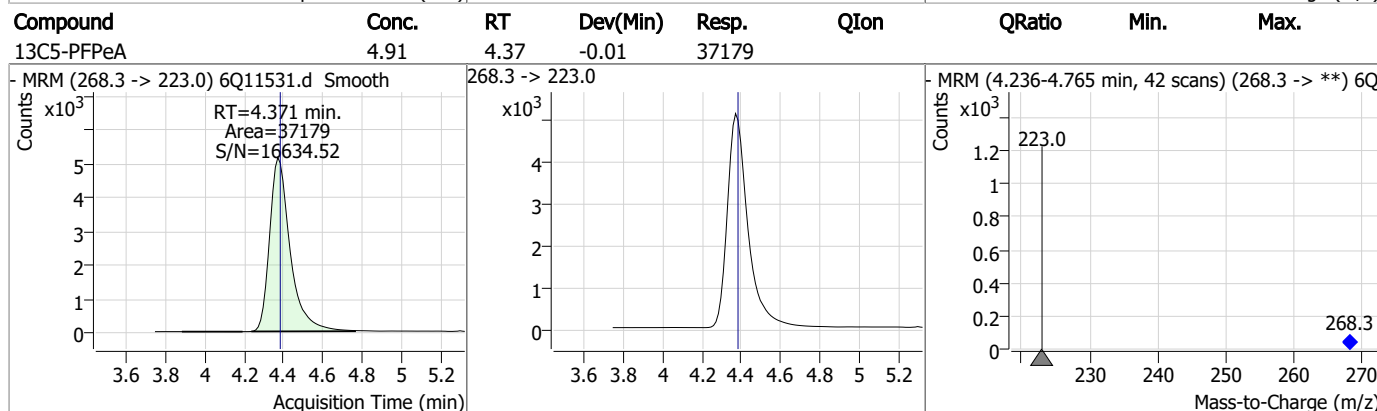
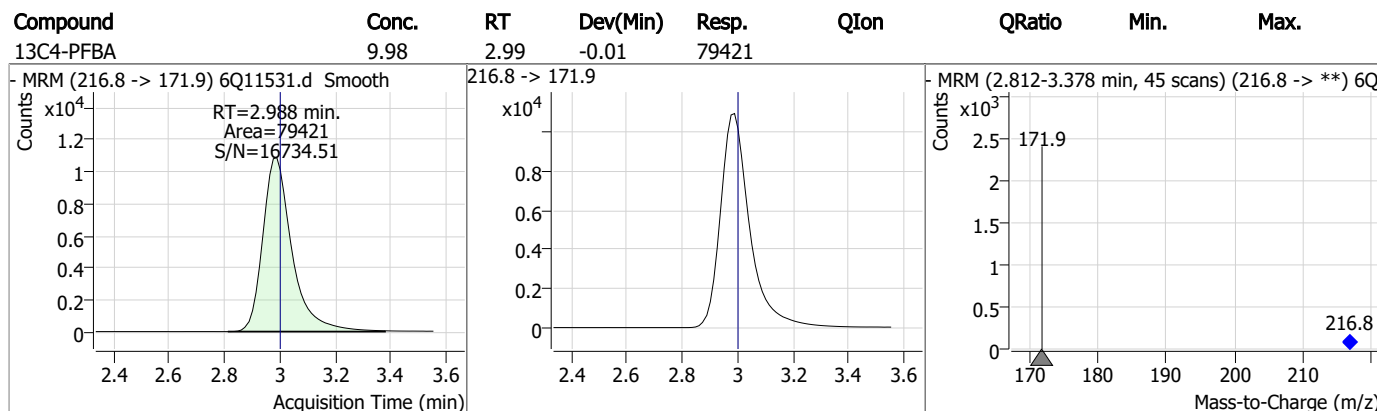
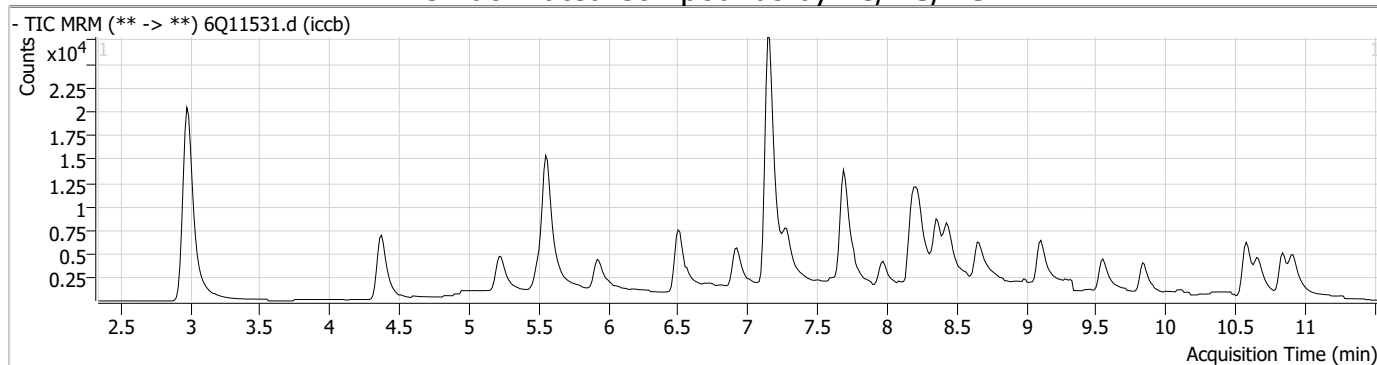
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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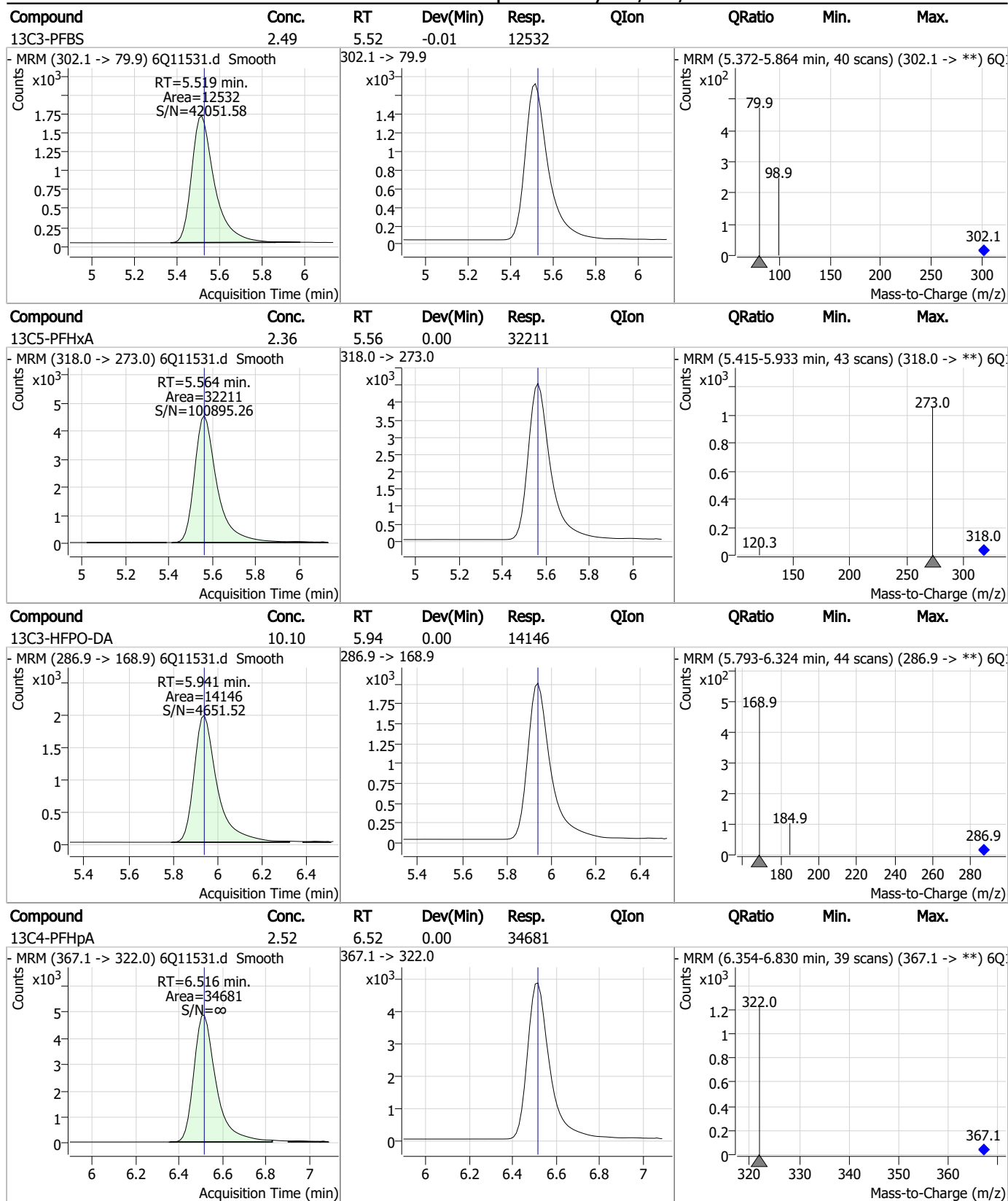
7.2.3

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Perfluorinated Compounds by LC/MS/MS

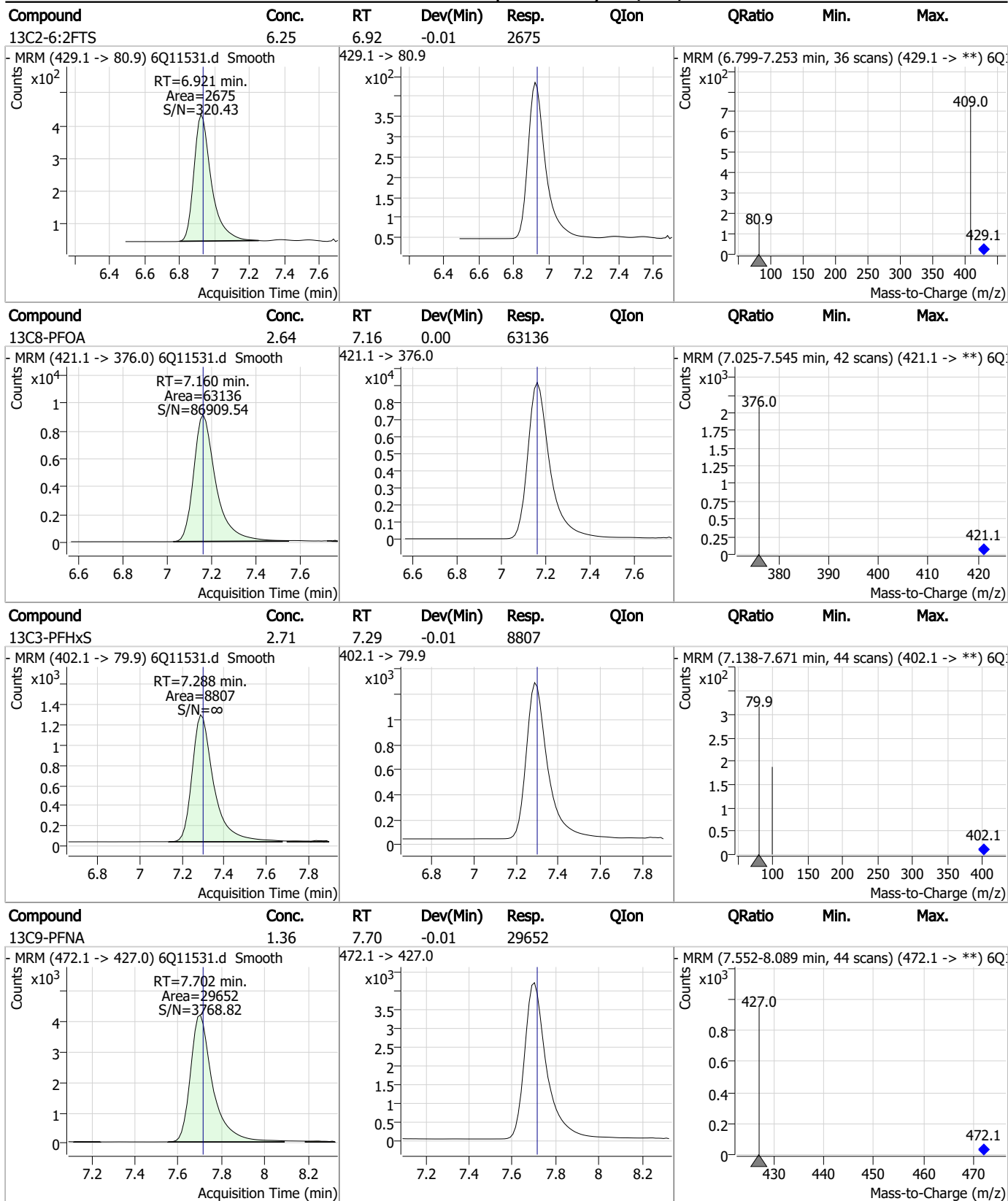


Perfluorinated Compounds by LC/MS/MS



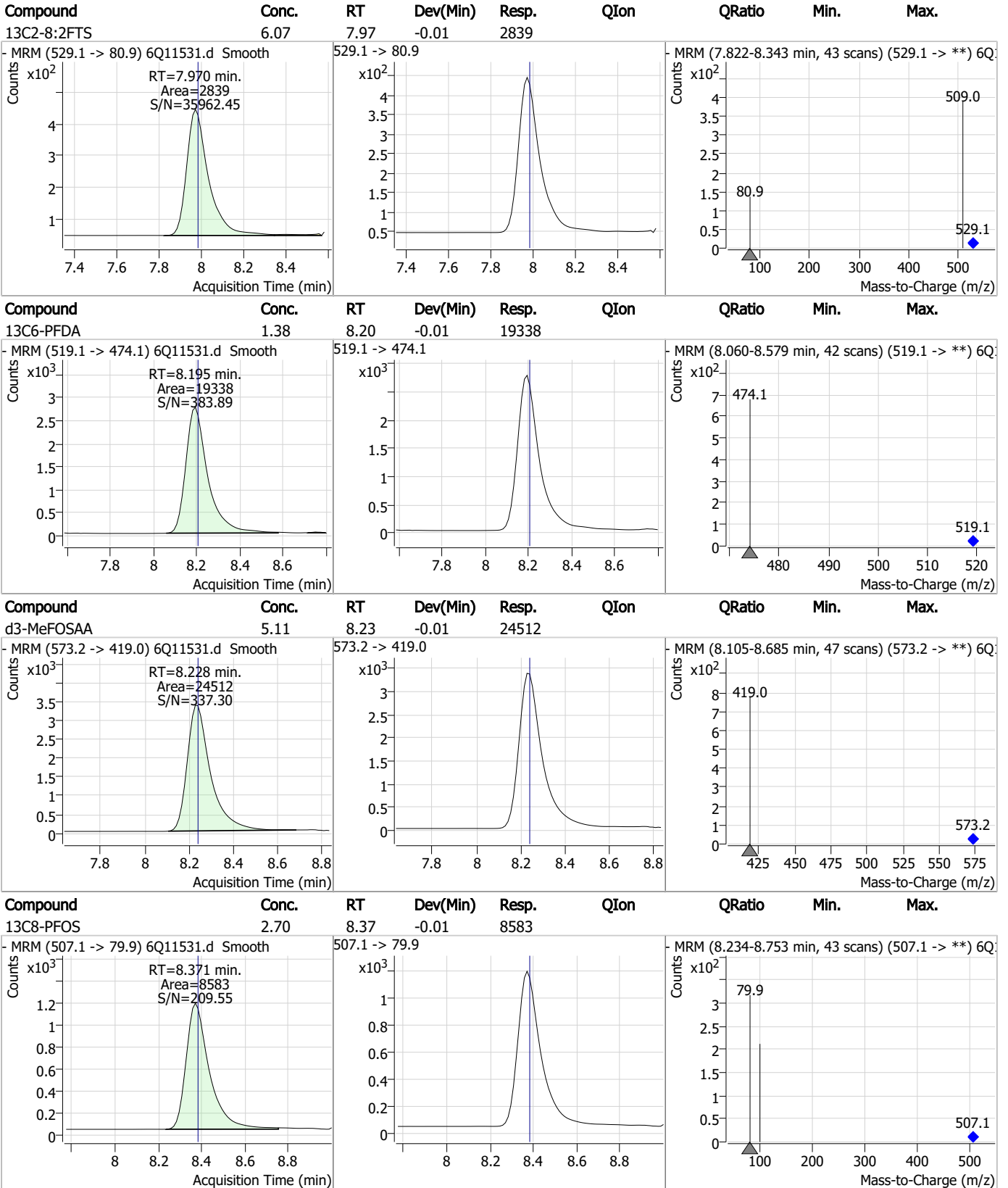
7.2.3
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Perfluorinated Compounds by LC/MS/MS



7.2.3
7

Perfluorinated Compounds by LC/MS/MS

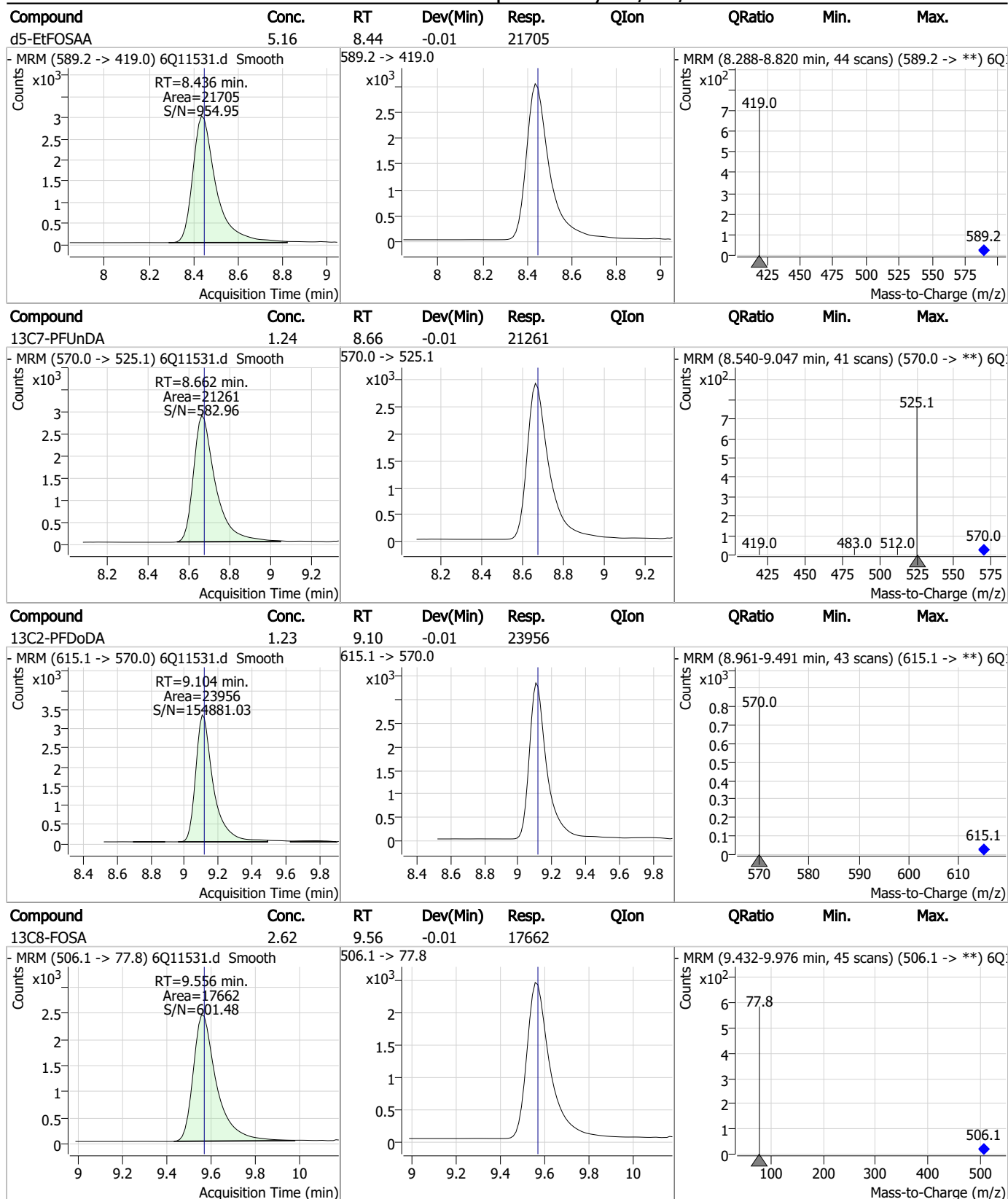


7.2.3

7

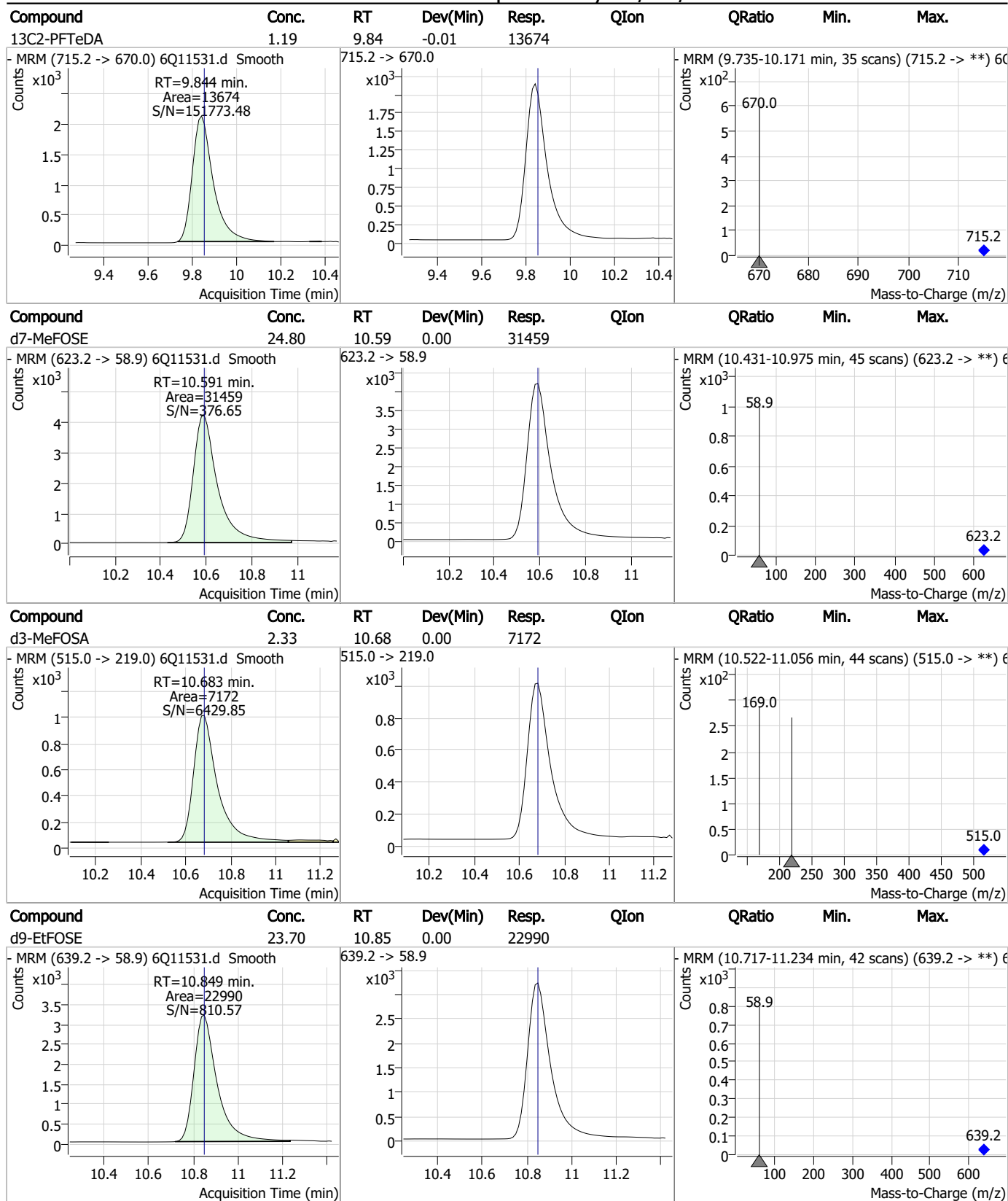


Perfluorinated Compounds by LC/MS/MS



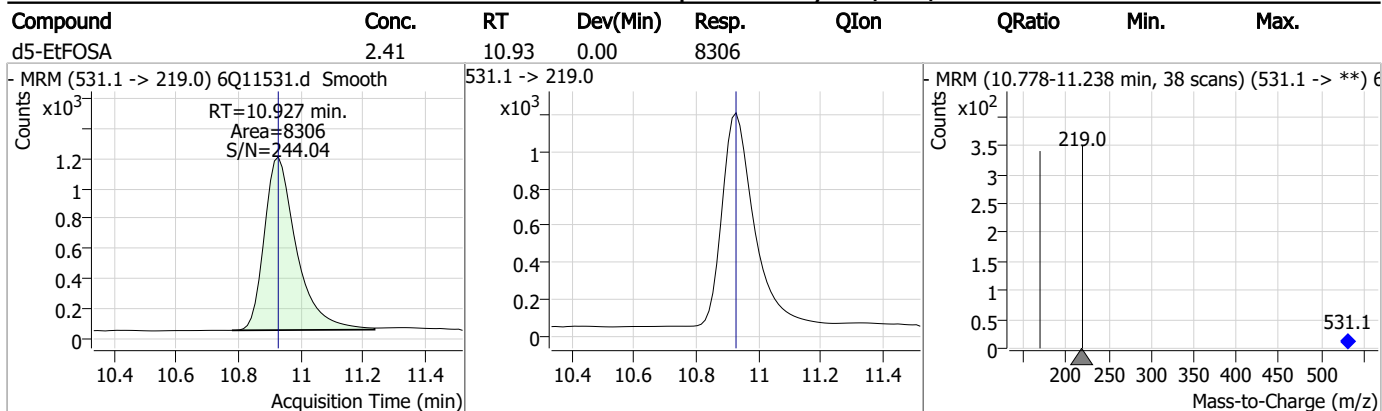
7.2.3
7

Perfluorinated Compounds by LC/MS/MS



7.2.3
7

Perfluorinated Compounds by LC/MS/MS



7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11520.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/17/2023 10:48:25 PM
 Sample Name : op94995-bs
 Vial : P4-A1
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	82004	10.00 µg/L	0.000
M5-PFPeA	4.371	268.3 -> 223.0	38412	5.00 µg/L	-0.012
M5-PFHxA	5.564	318.0 -> 273.0	34030	2.50 µg/L	0.000
M4-PFHpA	6.503	367.1 -> 322.0	35701	2.50 µg/L	-0.012
M8-PFOA	7.160	421.1 -> 376.0	61636	2.50 µg/L	0.000
M9-PFNA	7.702	472.1 -> 427.0	29716	1.25 µg/L	-0.013
M6-PFDA	8.195	519.1 -> 474.1	17879	1.25 µg/L	-0.012
M7-PFUnDA	8.674	570.0 -> 525.1	21767	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	24414	1.25 µg/L	0.000
M2-PFTeDA	9.844	715.2 -> 670.0	12429	1.25 µg/L	-0.012
M8-FOSA	9.568	506.1 -> 77.8	17825	2.50 µg/L	0.000
M3-PFBS	5.519	302.1 -> 79.9	12146	2.50 µg/L	-0.012
M3-PFHxS	7.288	402.1 -> 79.9	8627	2.50 µg/L	-0.012
M8-PFOS	8.371	507.1 -> 79.9	8418	2.50 µg/L	-0.012
M2-4:2FTS	5.216	329.1 -> 80.9	1752	5.00 µg/L	-0.012
M2-6:2FTS	6.921	429.1 -> 80.9	2571	5.00 µg/L	-0.012
M2-8:2FTS	7.970	529.1 -> 80.9	2462	5.00 µg/L	-0.012
M3-MeFOSAA	8.240	573.2 -> 419.0	25294	5.00 µg/L	0.000
M3-HFPO-DA	5.928	286.9 -> 168.9	15063	10.00 µg/L	-0.012
M5-EtFOSAA	8.448	589.2 -> 419.0	21656	5.00 µg/L	0.000
M7-MeFOSE	10.591	623.2 -> 58.9	26855	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	20030	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	7493	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	7052	2.50 µg/L	0.000
13C4-PFOS	8.372	502.8 -> 79.9	9439	2.50 µg/L	-0.012
13C3-PFBA	3.004	216.0 -> 172.0	32123	5.00 µg/L	0.000
18O2-PFHxS	7.287	403.0 -> 83.9	5586	2.50 µg/L	-0.012
13C4-PFOA	7.160	417.1 -> 372.0	62550	2.50 µg/L	-0.012
13C2-PFDA	8.196	515.1 -> 470.1	23360	1.25 µg/L	-0.012
13C5-PFNA	7.703	468.0 -> 423.0	28921	1.25 µg/L	0.000
13C2-PFHxA	5.552	315.1 -> 270.0	31696	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.216	329.1 -> 80.9	1752	6.02 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.3%		
13C2-6:2FTS	6.921	429.1 -> 80.9	2571	6.44 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.9%		
13C2-8:2FTS	7.970	529.1 -> 80.9	2462	5.65 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C2-PFDoDA	9.117	615.1 -> 570.0	24414	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C2-PFTeDA	9.844	715.2 -> 670.0	12429	1.14 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.4%		
13C3-PFBS	5.519	302.1 -> 79.9	12146	2.59 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C3-PFHxS	7.288	402.1 -> 79.9	8627	2.84 µg/L	-0.012

7.31
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.8%		
13C4-PFBA	3.000	216.8 -> 171.9	82004	11.18 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C4-PFHpA	6.503	367.1 -> 322.0	35701	2.78 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.1%		
13C5-PFHxA	5.564	318.0 -> 273.0	34030	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.0%		
13C5-PFPeA	4.371	268.3 -> 223.0	38412	5.43 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.6%		
13C6-PFDA	8.195	519.1 -> 474.1	17879	1.34 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.5%		
13C7-PFUnDA	8.674	570.0 -> 525.1	21767	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.3%		
13C8-FOSA	9.568	506.1 -> 77.8	17825	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C8-PFOA	7.160	421.1 -> 376.0	61636	2.94 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 117.6%		
13C8-PFOS	8.371	507.1 -> 79.9	8418	2.79 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.6%		
13C9-PFNA	7.702	472.1 -> 427.0	29716	1.45 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 115.7%		
d3-MeFOSAA	8.240	573.2 -> 419.0	25294	5.57 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.3%		
13C3-HFPO-DA	5.928	286.9 -> 168.9	15063	11.52 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 115.2%		
d3-MeFOSA	10.683	515.0 -> 219.0	7052	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.6%		
d5-EtFOSAA	8.448	589.2 -> 419.0	21656	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.6%		
d7-MeFOSE	10.591	623.2 -> 58.9	26855	22.35 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 89.4%		
d9-EtFOSE	10.849	639.2 -> 58.9	20030	21.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 87.2%		
d5-EtFOSA	10.927	531.1 -> 219.0	7493	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.7%		
Target Compounds					QValue
4:2FTS	5.229	327.1 -> 307.0	38685	9.28 µg/L	97
		327.1 -> 80.9	8549		
6:2FTS	6.922	427.1 -> 407.0	34404	8.60 µg/L	99
		427.1 -> 80.9	7078		
8:2FTS	7.971	527.1 -> 507.0	20491	9.98 µg/L	97
		527.1 -> 80.8	4782		
EtFOSAA	8.449	584.2 -> 419.1	7823	2.26 µg/L	m 100
		584.2 -> 526.0	4554		
FOSA	9.571	498.1 -> 77.9	17066	2.37 µg/L	98
		498.1 -> 478.0	592		
MeFOSAA	8.241	570.1 -> 419.0	11335	2.17 µg/L	m 99
		570.1 -> 483.0	2206		
PFBA	3.007	212.8 -> 168.9	19864	9.44 µg/L	100
PFBS	5.520	298.7 -> 79.9	10819	2.20 µg/L	92
		298.7 -> 98.8	5465		
PFDA	8.196	512.9 -> 469.0	55424	2.58 µg/L	97
		512.9 -> 219.0	6773		
PFDoDA	9.117	613.1 -> 569.0	44776	2.33 µg/L	99
		613.1 -> 319.0	5526		
PFDS	9.293	599.0 -> 79.9	6098	2.10 µg/L	98

7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3186			
PFHpA	6.504	363.1 -> 319.0	52918	2.46	µg/L	98
		363.1 -> 169.0	7260			
PFHpS	7.854	449.0 -> 79.9	8744	2.27	µg/L	96
		449.0 -> 98.9	4760			
PFHxA	5.554	313.0 -> 269.0	32957	2.40	µg/L	100
		313.0 -> 118.9	1186			
PFHxS	7.289	398.7 -> 79.9	8567	2.09	µg/L	m 93
		398.7 -> 98.9	5011			
PFNA	7.691	463.0 -> 419.0	48303	2.35	µg/L	98
		463.0 -> 219.0	9190			
PFNS	8.850	548.8 -> 79.9	9117	2.24	µg/L	93
		548.8 -> 98.9	5281			
PFOA	7.161	413.0 -> 369.0	72241	2.62	µg/L	95
		413.0 -> 169.0	8792			
PFOS	8.372	498.9 -> 79.9	8836	2.17	µg/L	m 99
		498.9 -> 98.8	5324			
PFPeA	4.374	263.0 -> 219.0	40842	4.84	µg/L	100
PFPeS	6.582	349.1 -> 79.9	10387	2.14	µg/L	99
		349.1 -> 98.9	5474			
PFTeDA	9.844	713.1 -> 669.0	34588	2.33	µg/L	97
		713.1 -> 168.9	2521			
PFTrDA	9.501	663.0 -> 619.0	43557	2.38	µg/L	97
		663.0 -> 168.9	3242			
PFUnDA	8.675	563.1 -> 519.0	45342	2.49	µg/L	100
		563.1 -> 269.1	6431			
11CI-PF3OUdS	9.565	630.9 -> 450.9	98770	8.65	µg/L	97
		632.9 -> 452.9	30058			
9CI-PF3ONS	8.727	530.8 -> 351.0	163251	8.80	µg/L	95
		532.8 -> 353.0	50128			
ADONA	6.754	376.9 -> 250.9	298972	8.93	µg/L	98
		376.9 -> 84.8	63700			
HFPO-DA	5.929	284.9 -> 168.9	13871	9.11	µg/L	95
		284.9 -> 184.9	1937			
3:3FTCA	3.852	241.0 -> 177.0	4929	10.97	µg/L	97
		241.0 -> 117.0	640			
5:3FTCA	6.194	341.0 -> 237.1	164850	57.65	µg/L	95
		341.0 -> 217.0	147398			
7:3FTCA	7.618	441.0 -> 316.9	125210	64.96	µg/L	99
		441.0 -> 336.9	244713			
EtFOSA	10.929	526.0 -> 219.0	8338	2.30	µg/L	86
		526.0 -> 169.0	8004			
EtFOSE	10.862	630.0 -> 58.9	21118	23.90	µg/L	100
MeFOSA	10.685	511.9 -> 219.0	7227	2.32	µg/L	86
		511.9 -> 169.0	7732			
MeFOSE	10.604	616.1 -> 58.9	26313	23.72	µg/L	100
PFDoDS	9.984	699.1 -> 79.9	3504	1.93	µg/L	95
		699.1 -> 98.8	2060			
NFDHA	5.446	295.0 -> 201.0	3928	4.40	µg/L	88
		295.0 -> 84.9	1921			
PFMBA	4.789	279.0 -> 85.1	12579	4.78	µg/L	100
PFMPA	3.538	229.0 -> 84.9	11025	4.72	µg/L	100
PFEESA	6.060	314.8 -> 134.9	83657	4.37	µg/L	100
		314.8 -> 82.9	2294			

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

7.3.1
7

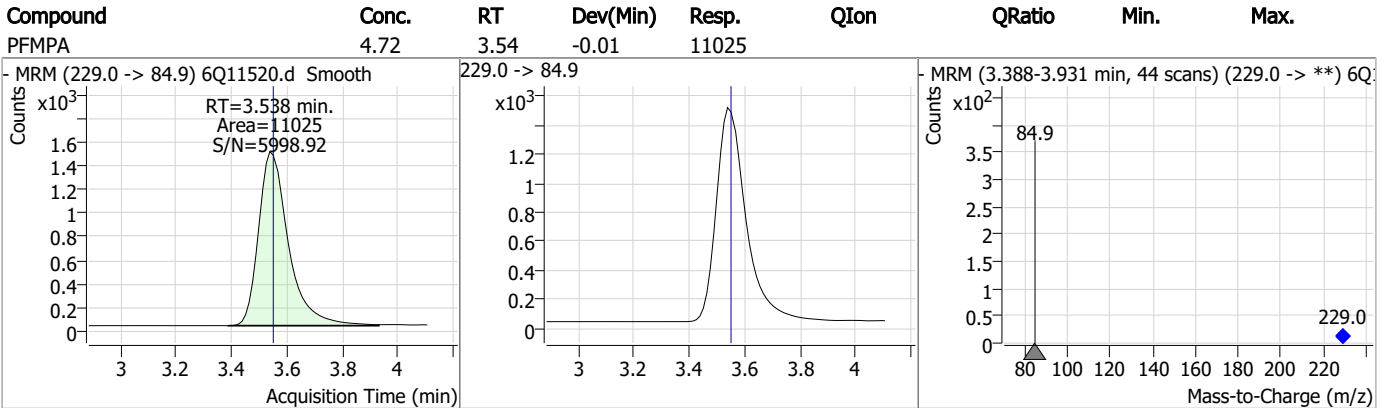
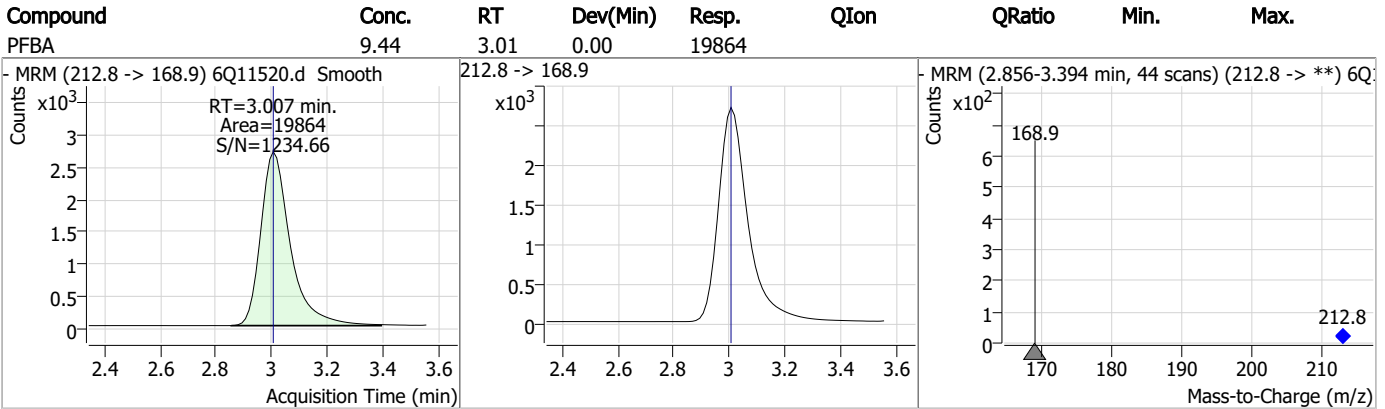
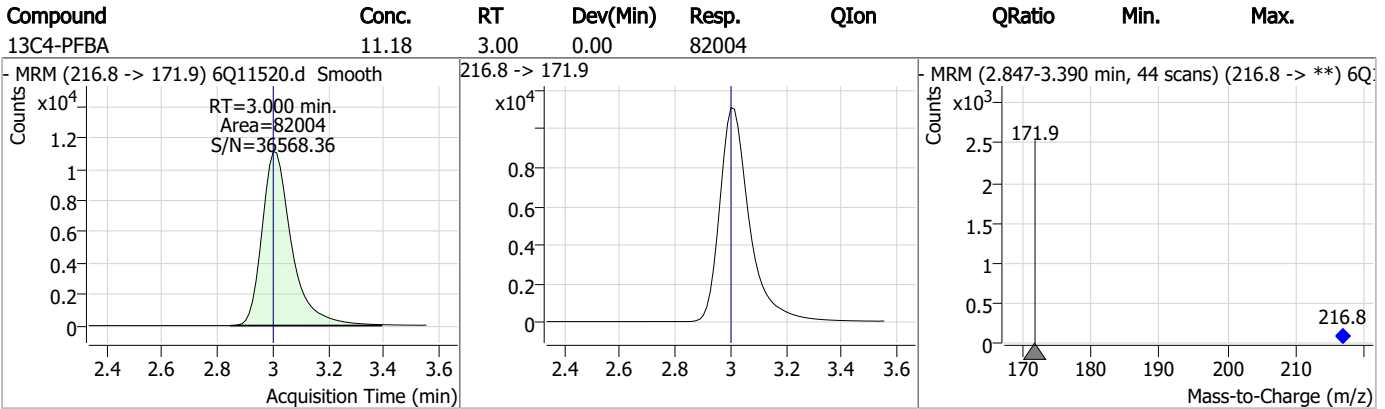
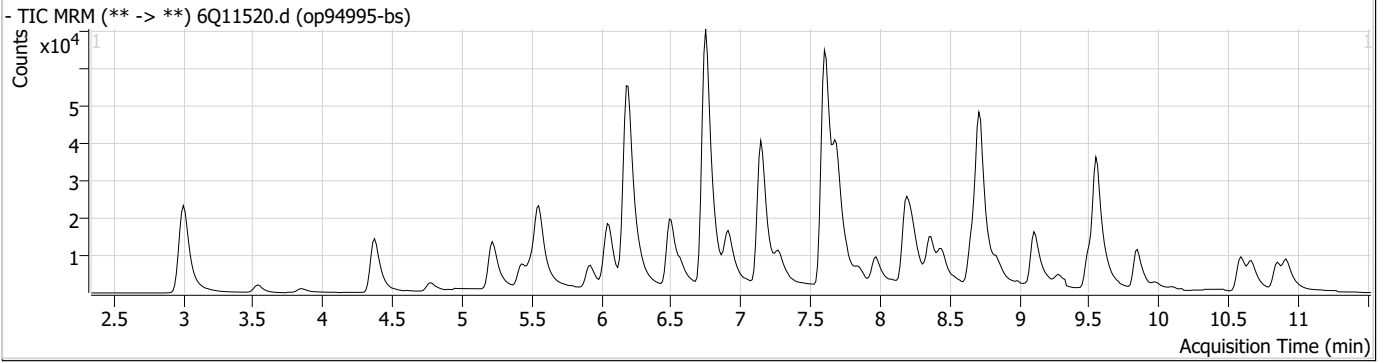
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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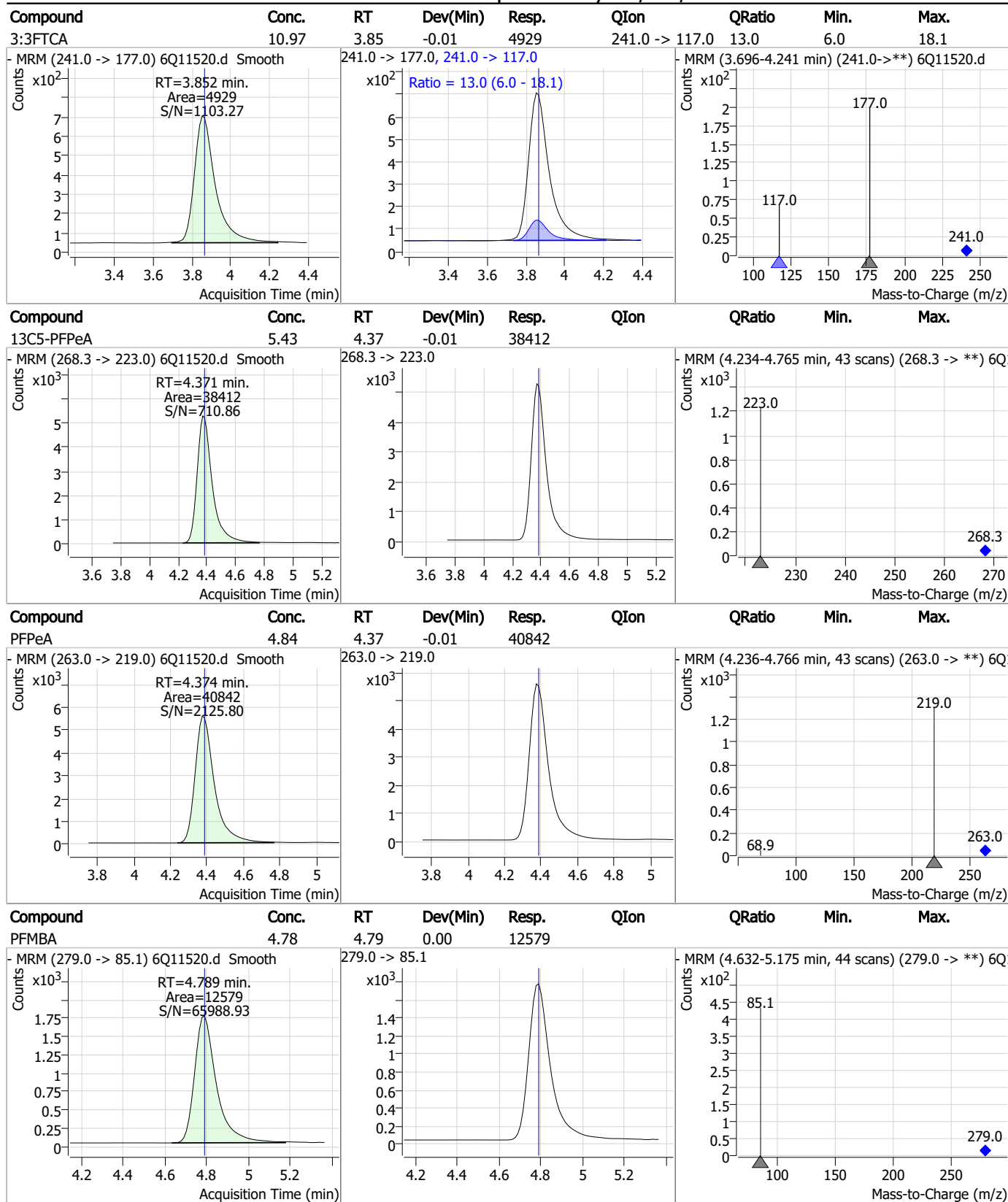
7.3.1

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Perfluorinated Compounds by LC/MS/MS



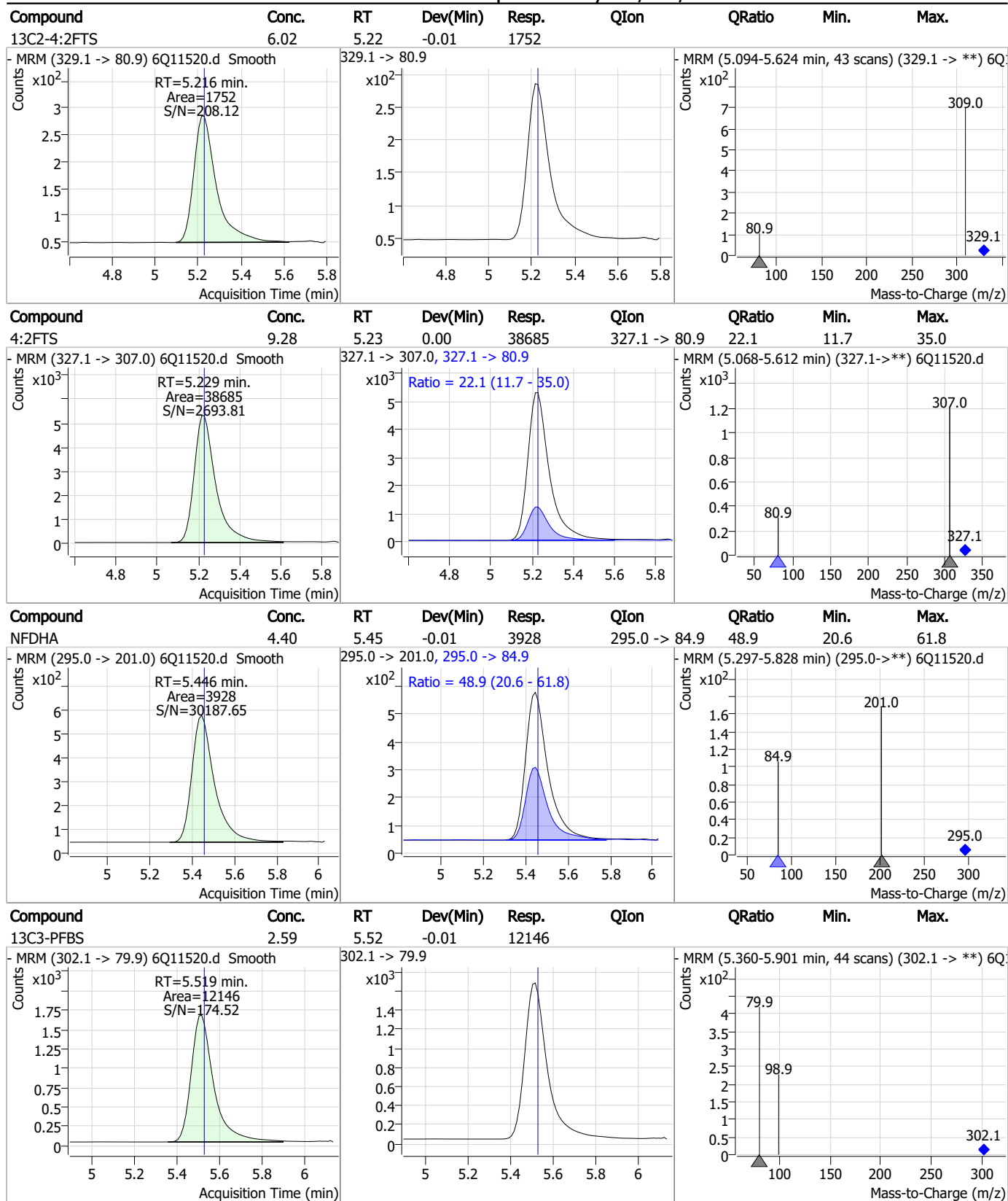
Perfluorinated Compounds by LC/MS/MS



7.3.1
7



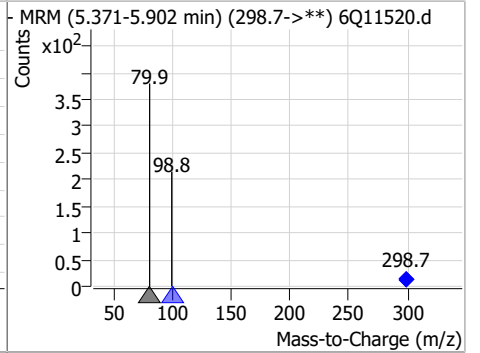
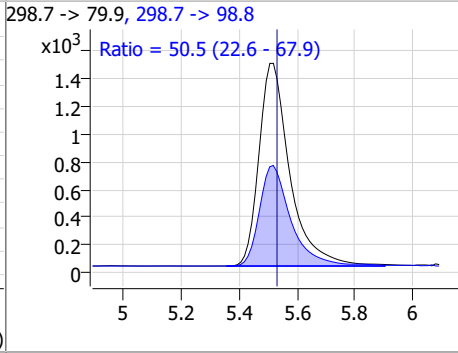
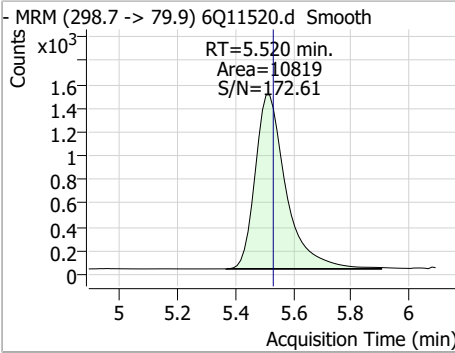
Perfluorinated Compounds by LC/MS/MS



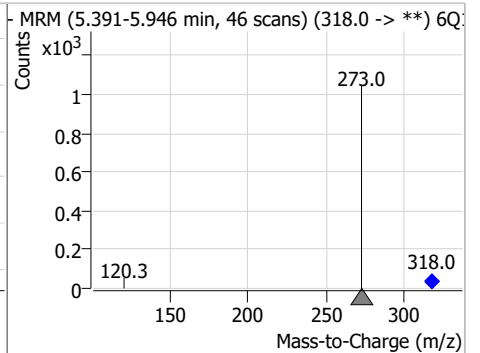
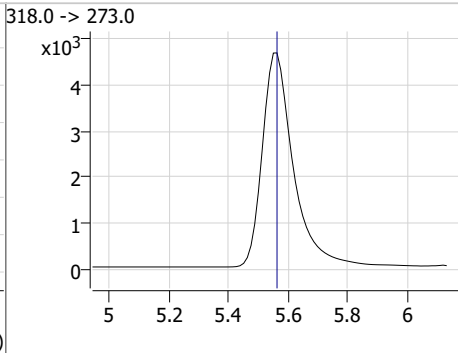
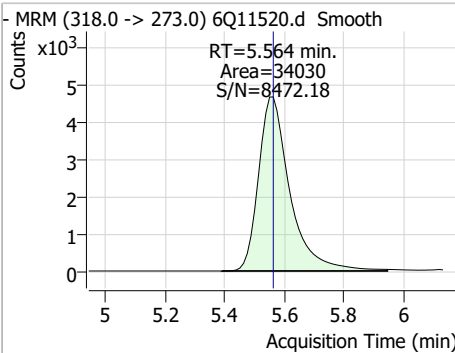
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Perfluorinated Compounds by LC/MS/MS

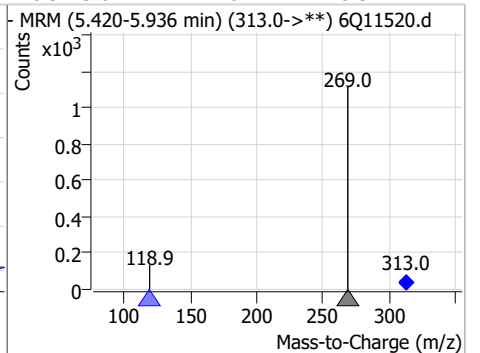
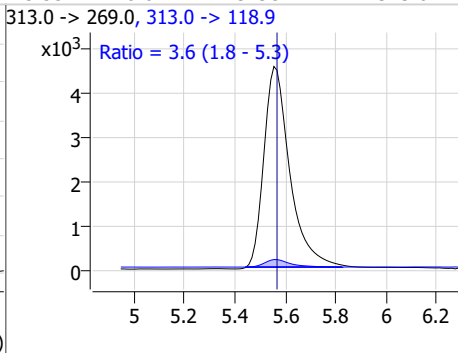
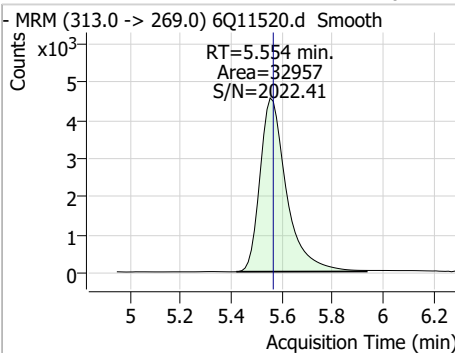
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.20	5.52	-0.01	10819	298.7 -> 98.8	50.5	22.6	67.9



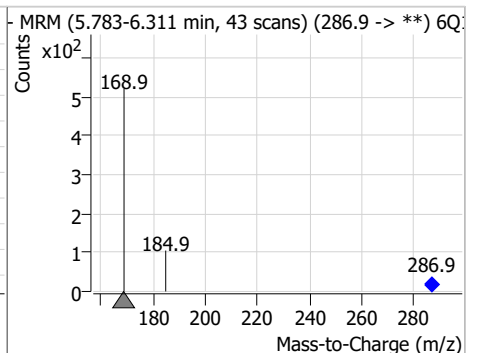
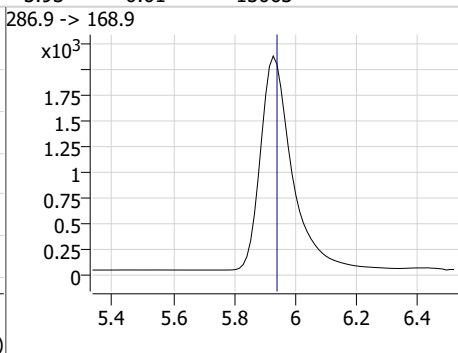
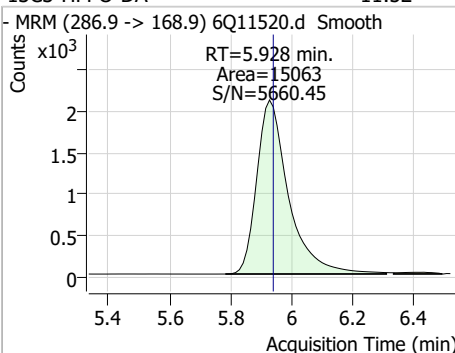
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.67	5.56	0.00	34030				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.40	5.55	-0.01	32957	313.0 -> 118.9	3.6	1.8	5.3

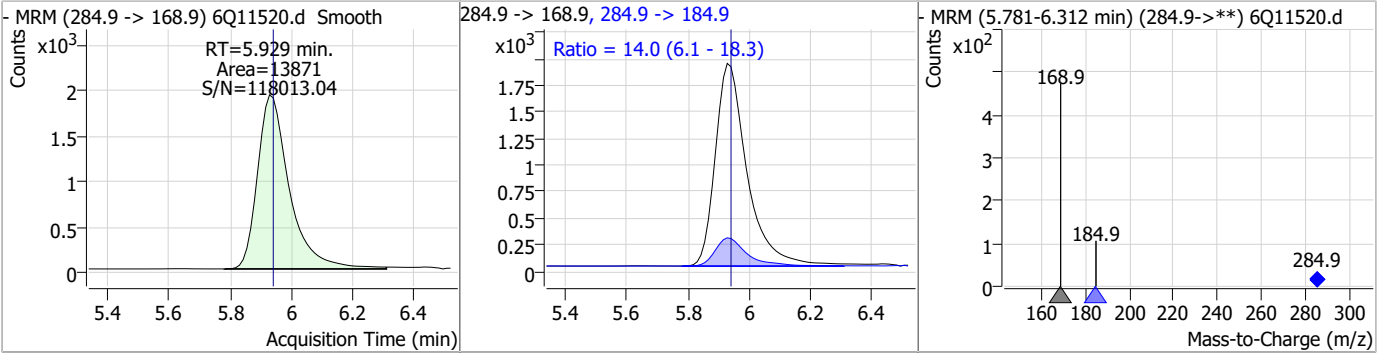


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.52	5.93	-0.01	15063				

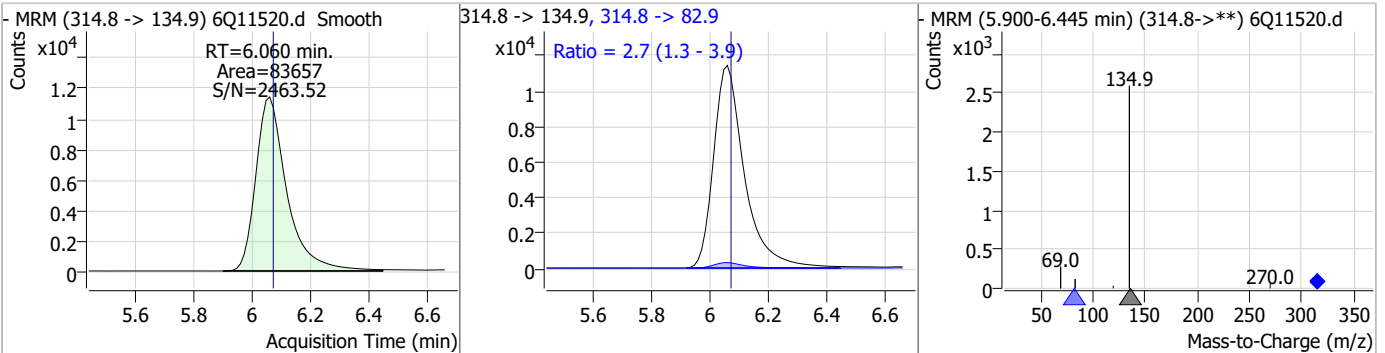


Perfluorinated Compounds by LC/MS/MS

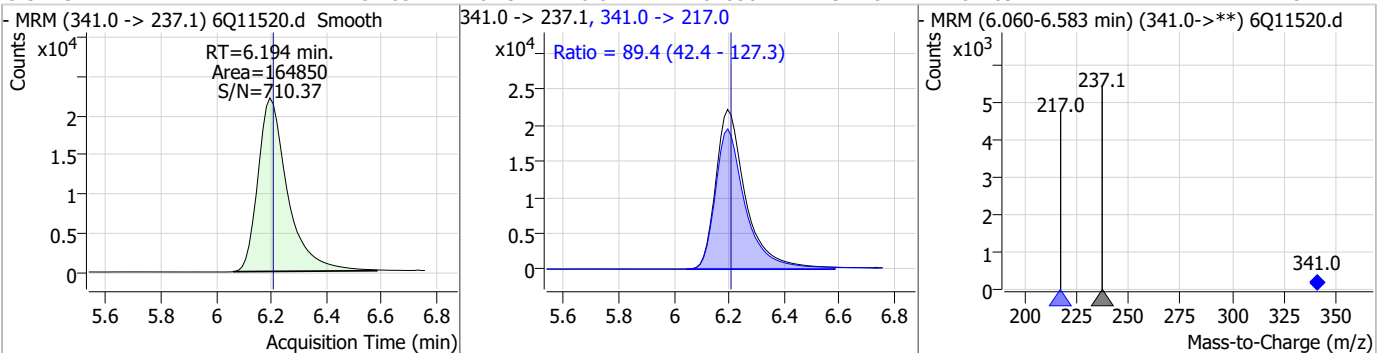
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.11	5.93	-0.01	13871	284.9 -> 184.9	14.0	6.1	18.3



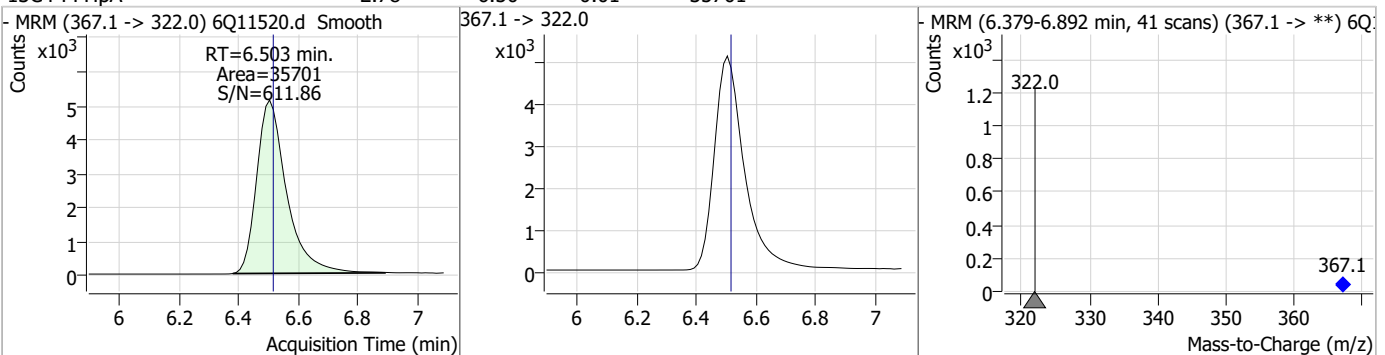
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.37	6.06	-0.01	83657	314.8 -> 82.9	2.7	1.3	3.9



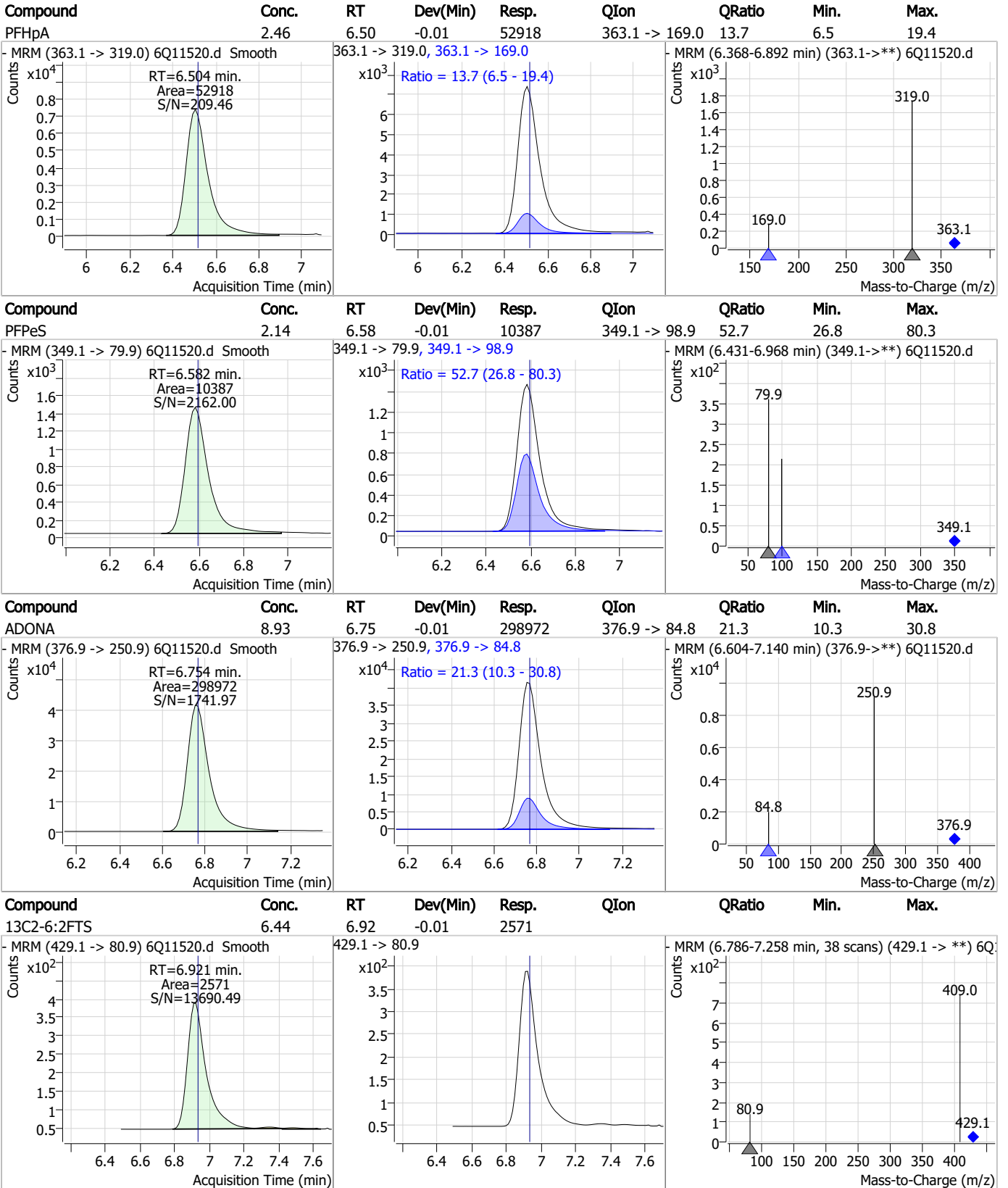
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	57.65	6.19	-0.01	164850	341.0 -> 217.0	89.4	42.4	127.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.78	6.50	-0.01	35701	367.1 -> 322.0			



Perfluorinated Compounds by LC/MS/MS

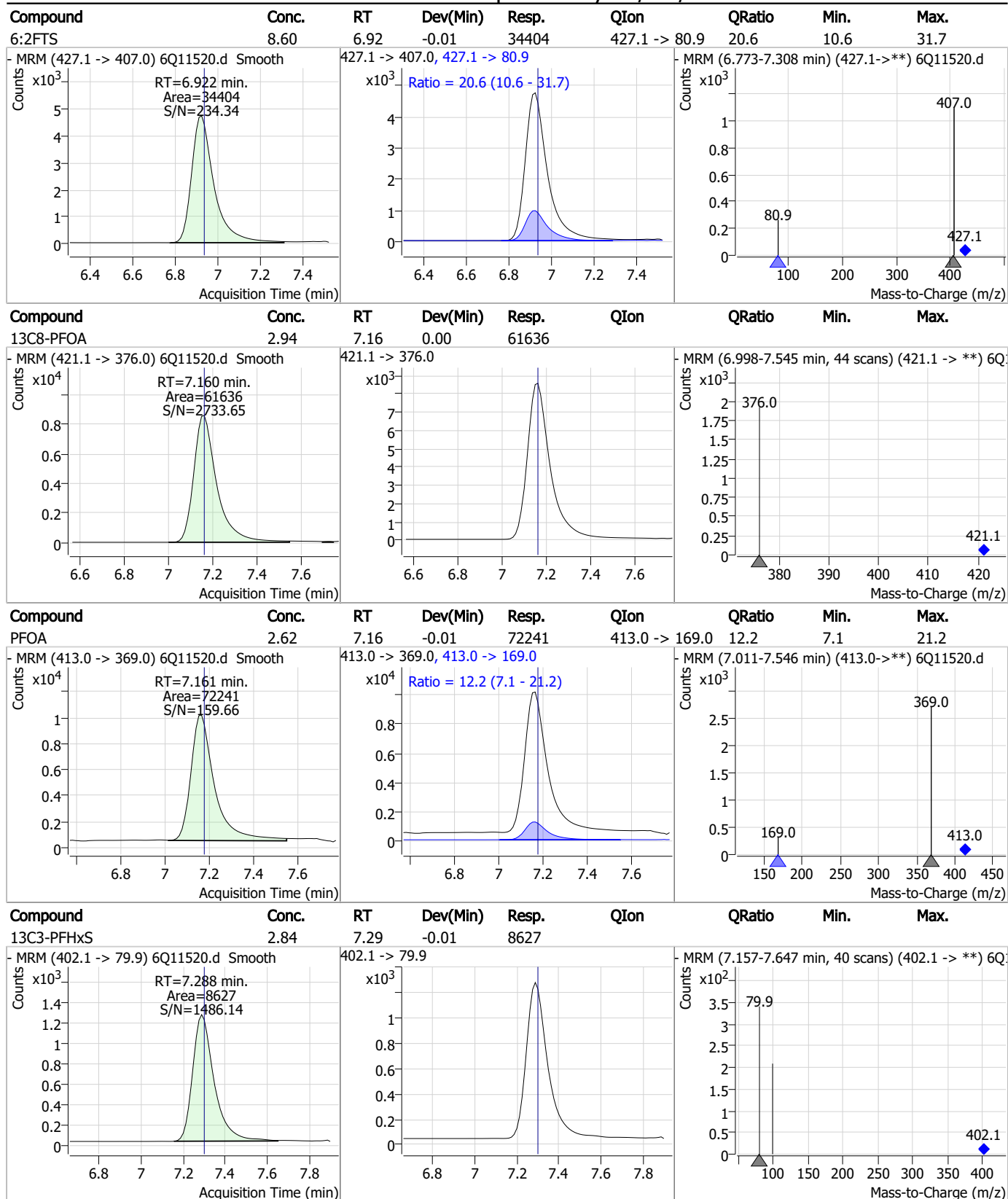


7.3.1

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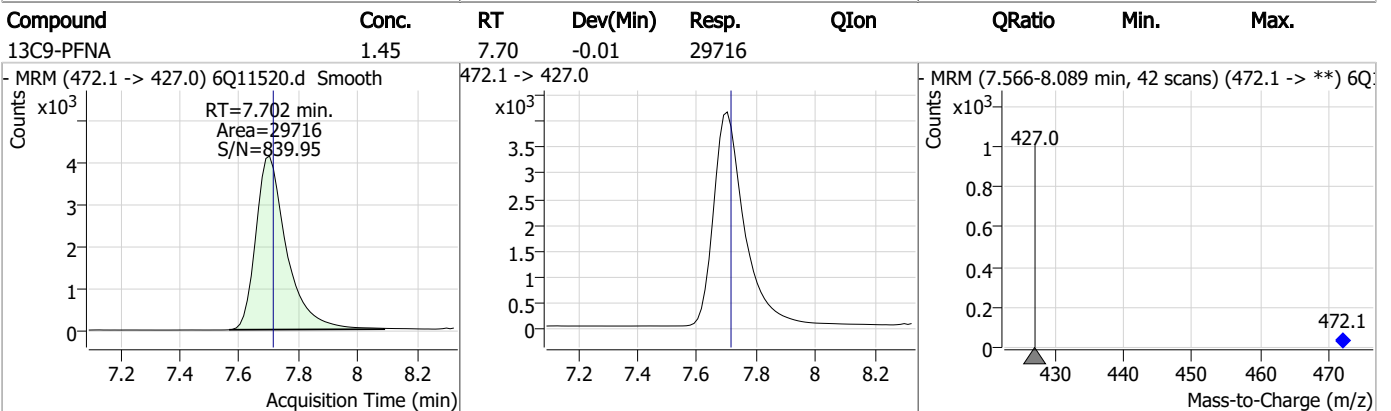
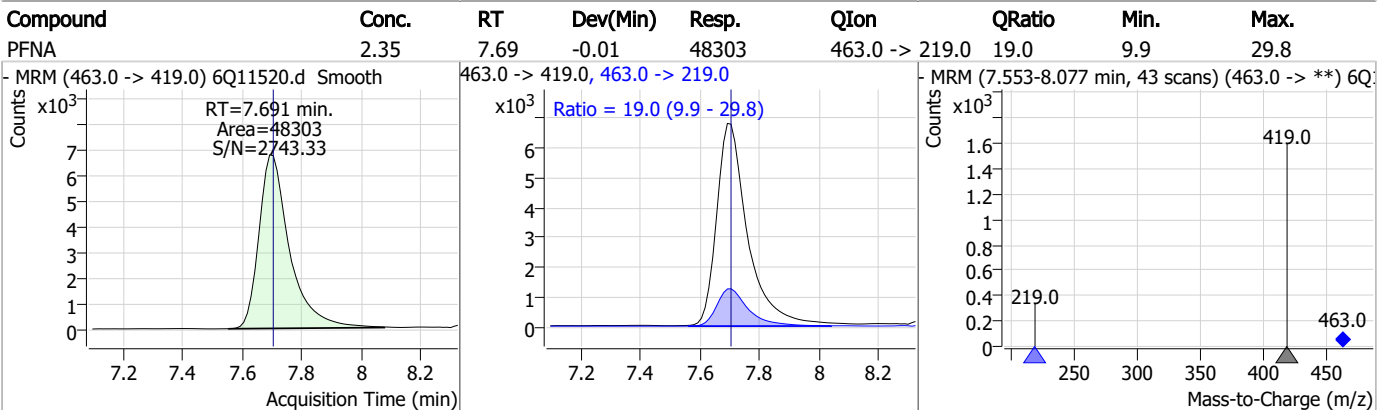
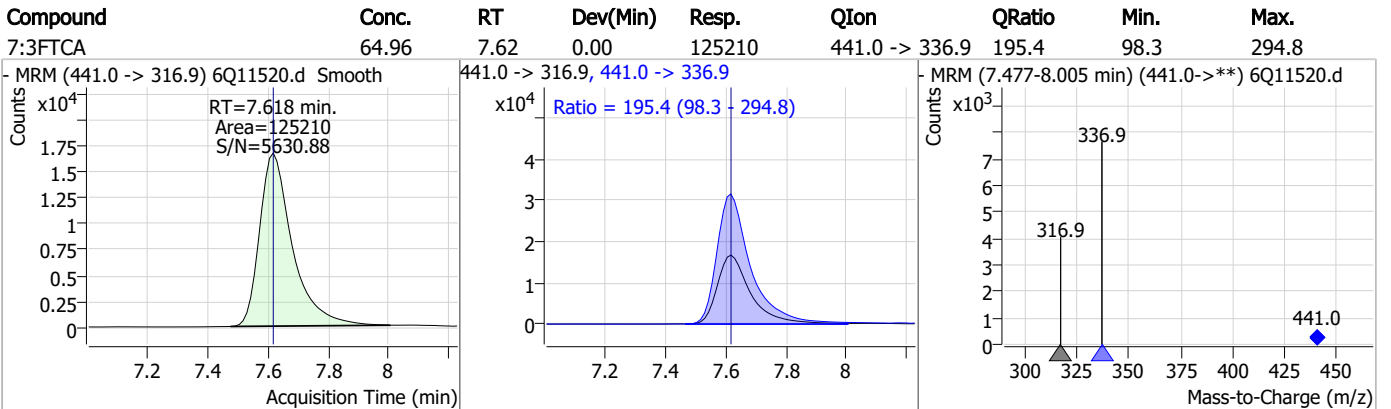
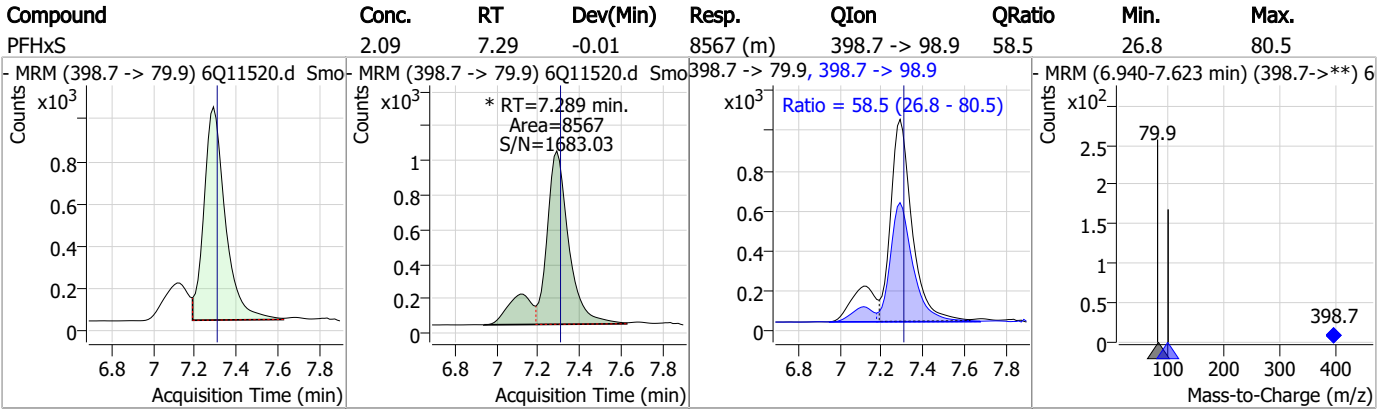


Perfluorinated Compounds by LC/MS/MS



7.3.1

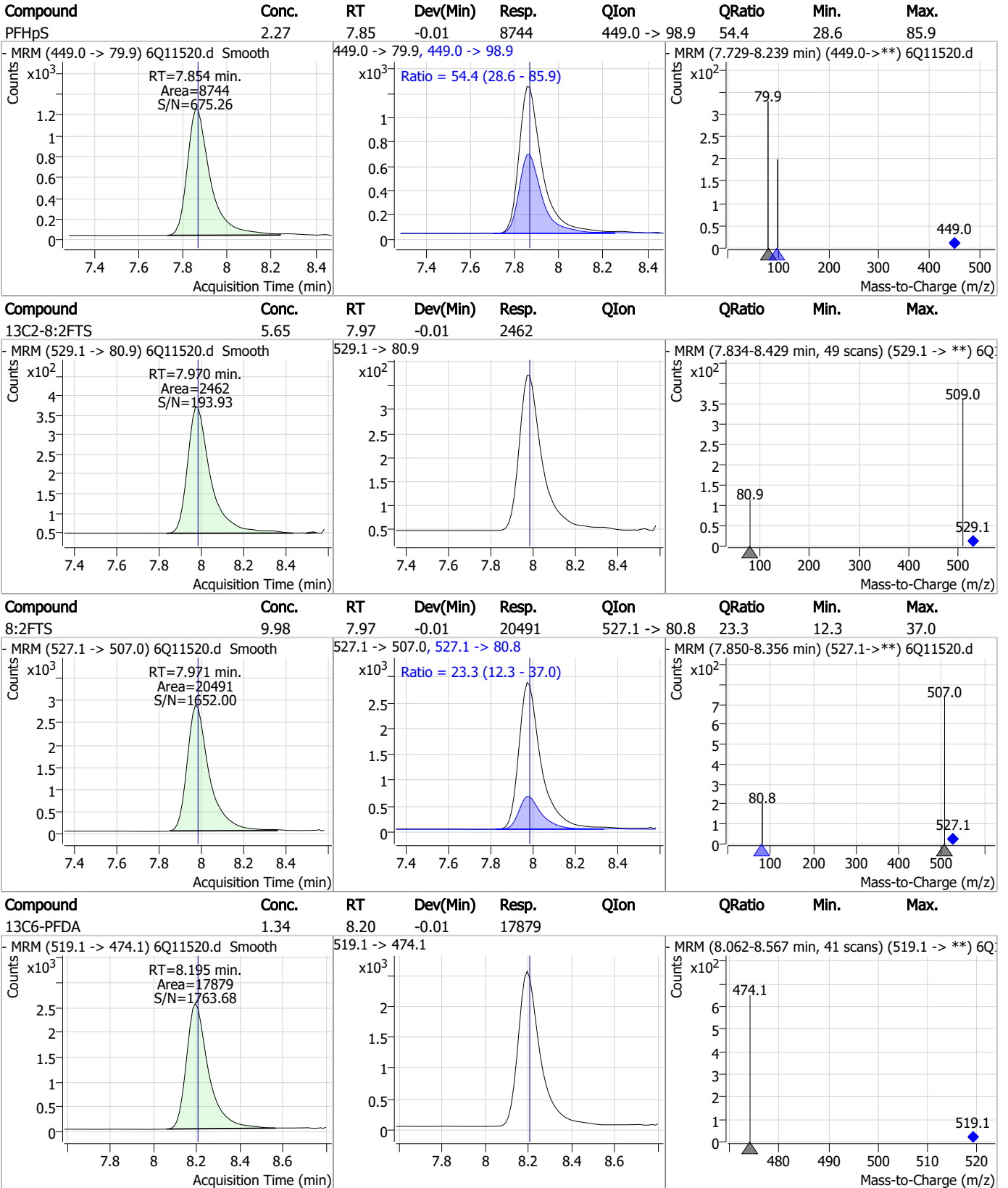
Perfluorinated Compounds by LC/MS/MS



7.3.1

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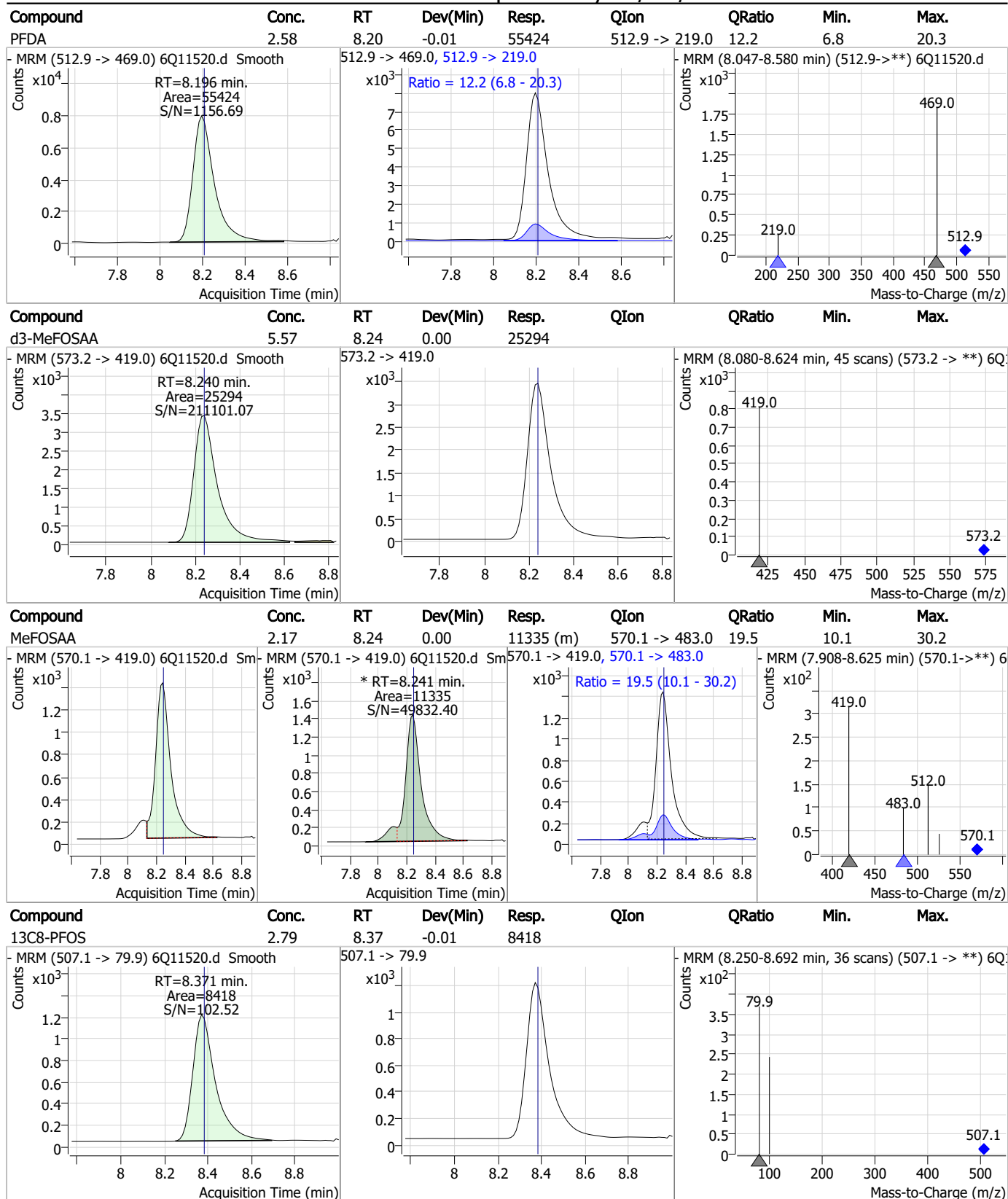
Perfluorinated Compounds by LC/MS/MS



7.3.1

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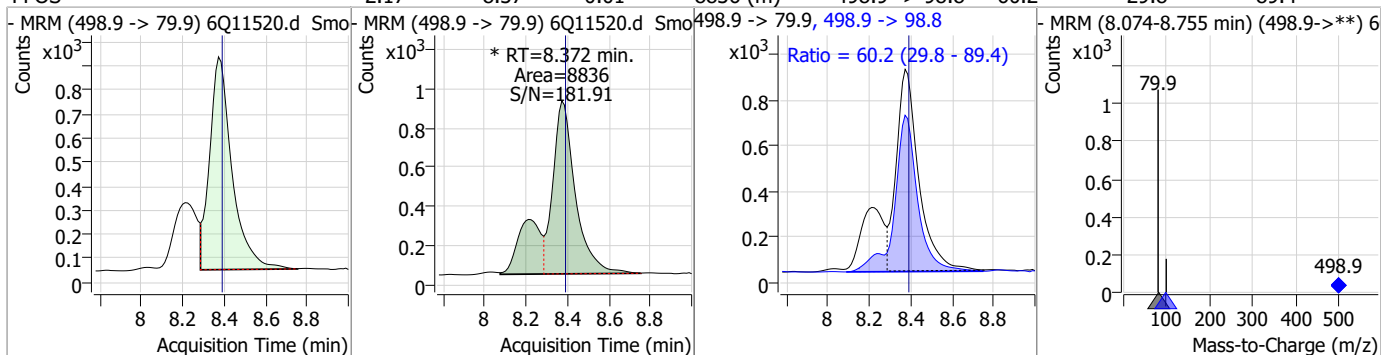
Perfluorinated Compounds by LC/MS/MS



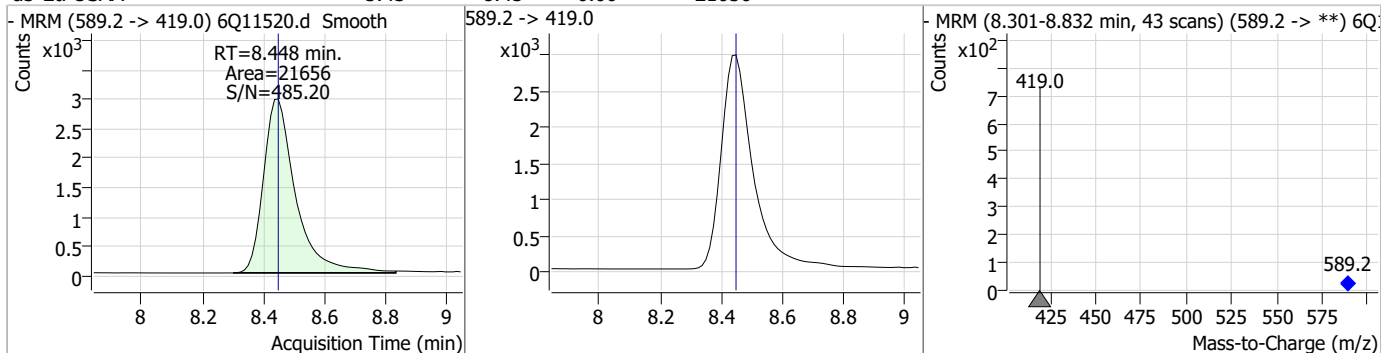
7.3.1
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Perfluorinated Compounds by LC/MS/MS

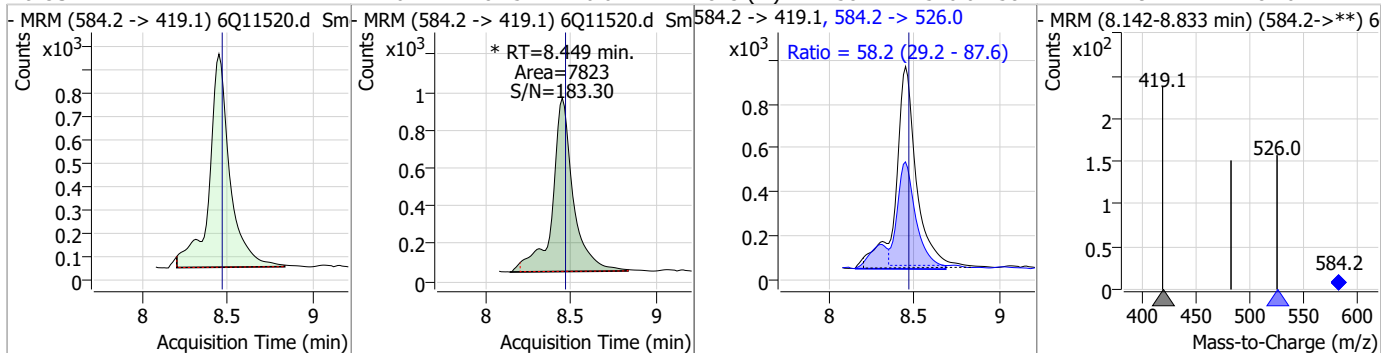
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.17	8.37	-0.01	8836 (m)	498.9 -> 98.8	60.2	29.8	89.4



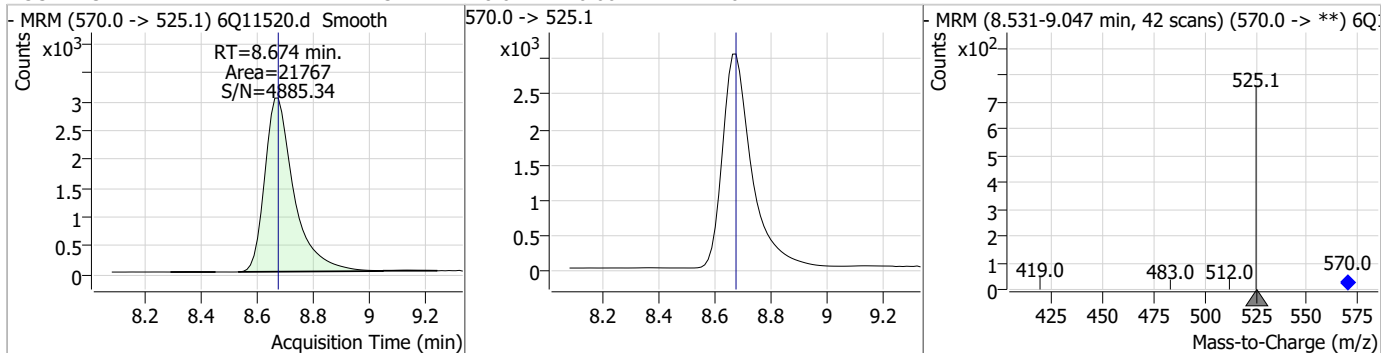
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.43	8.45	0.00	21656				



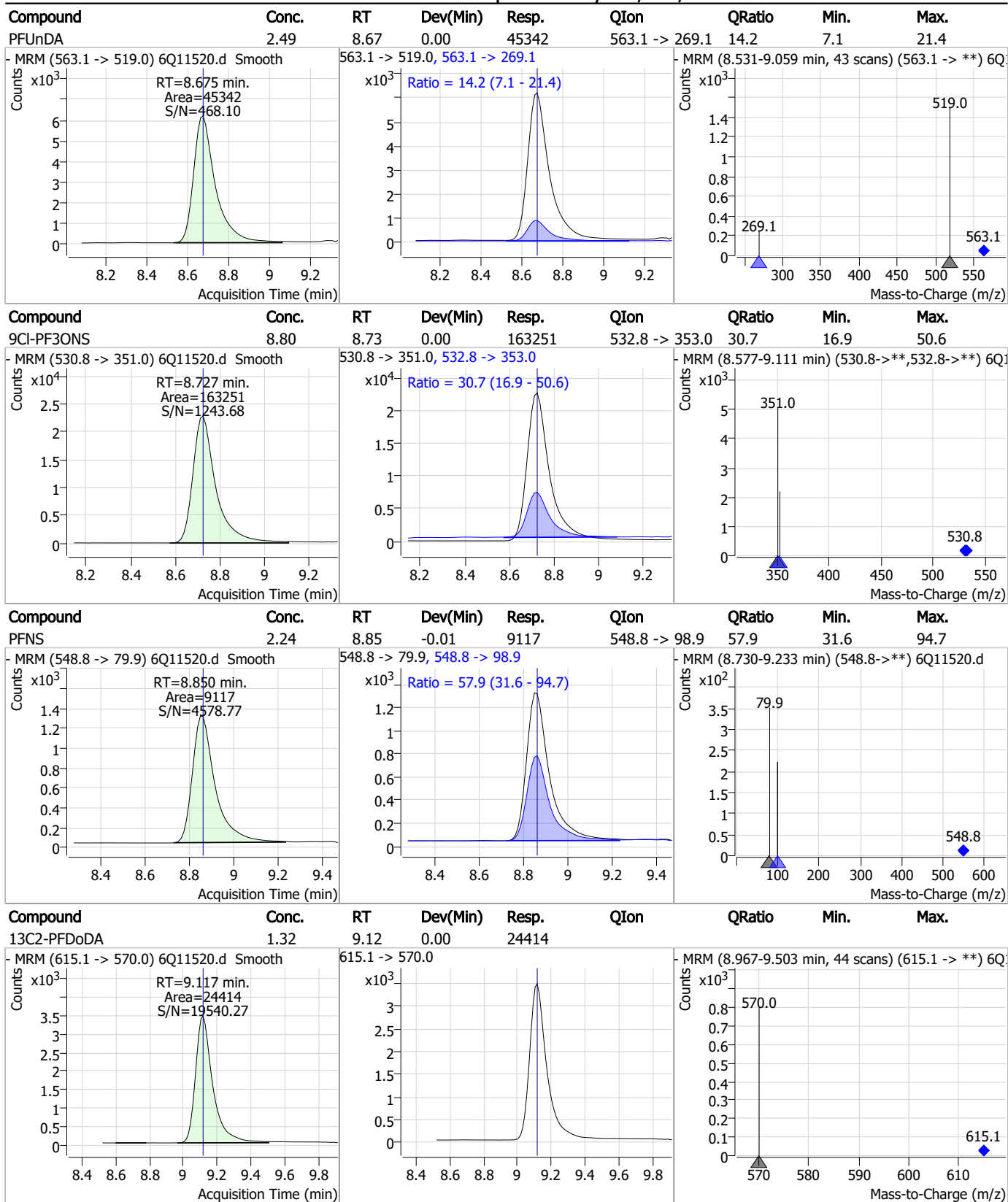
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.26	8.45	-0.01	7823 (m)	584.2 -> 526.0	58.2	29.2	87.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.34	8.67	0.00	21767				



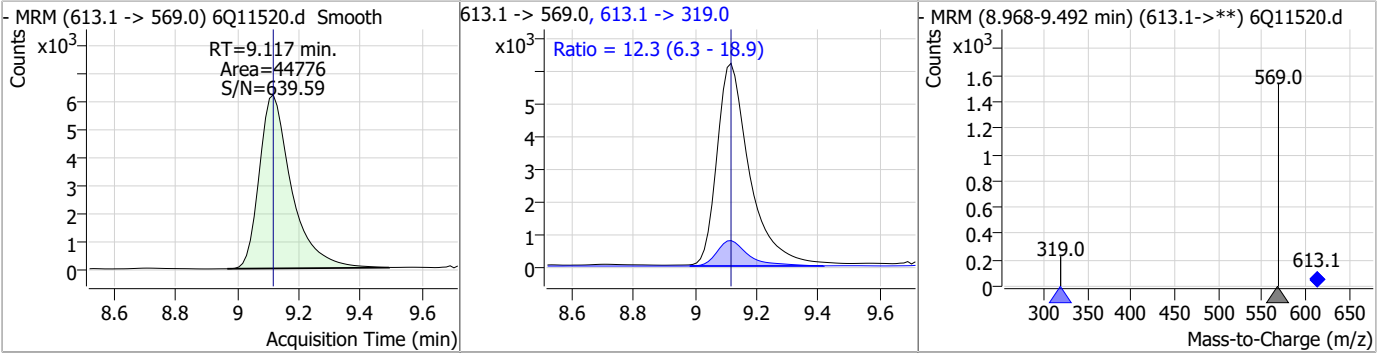
Perfluorinated Compounds by LC/MS/MS



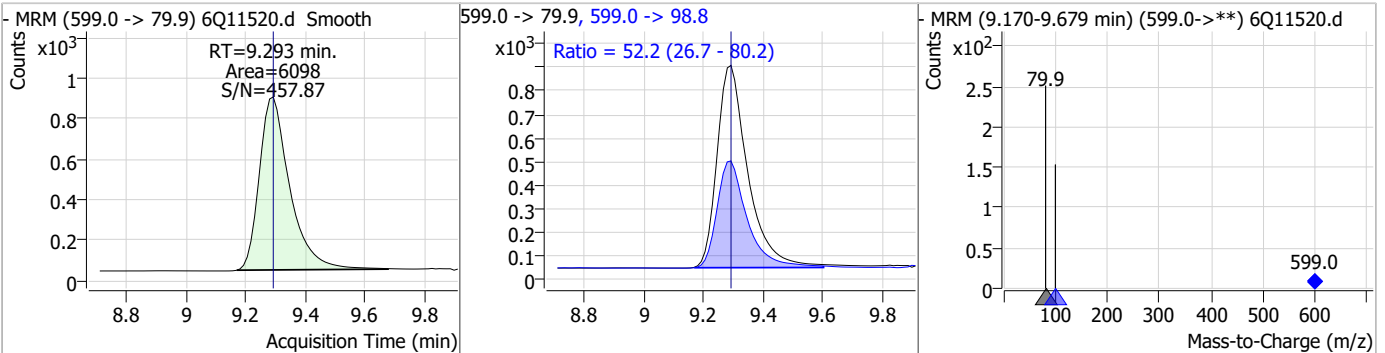
7.3.1
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Perfluorinated Compounds by LC/MS/MS

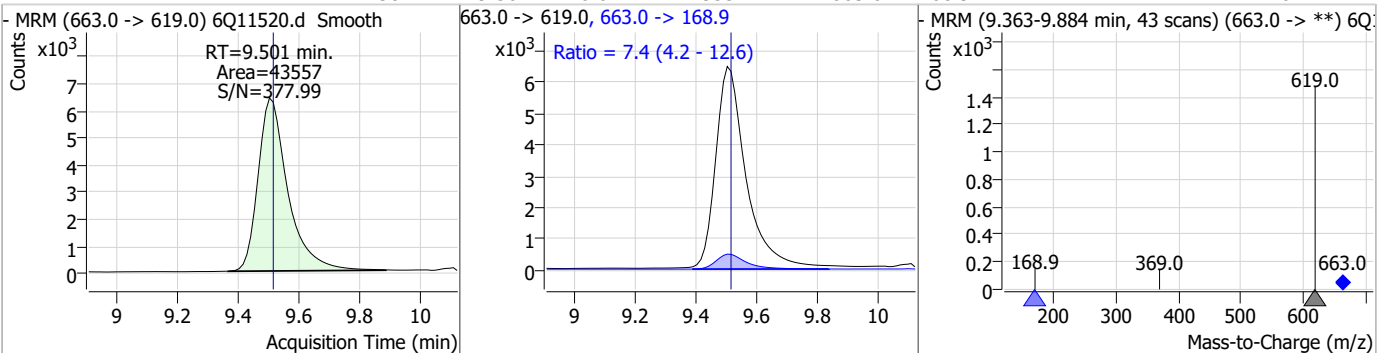
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DA	2.33	9.12	0.00	44776	613.1 -> 319.0	12.3	6.3	18.9



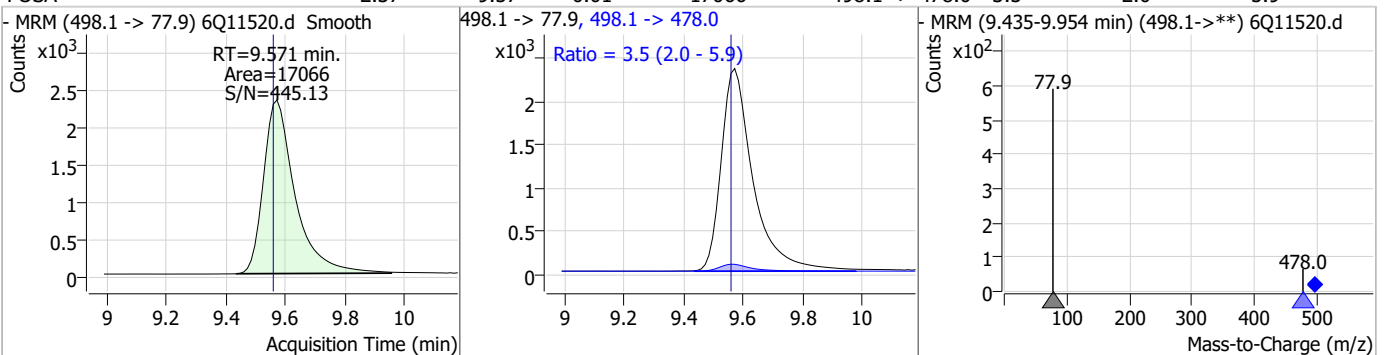
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _S	2.10	9.29	0.00	6098	599.0 -> 98.8	52.2	26.7	80.2



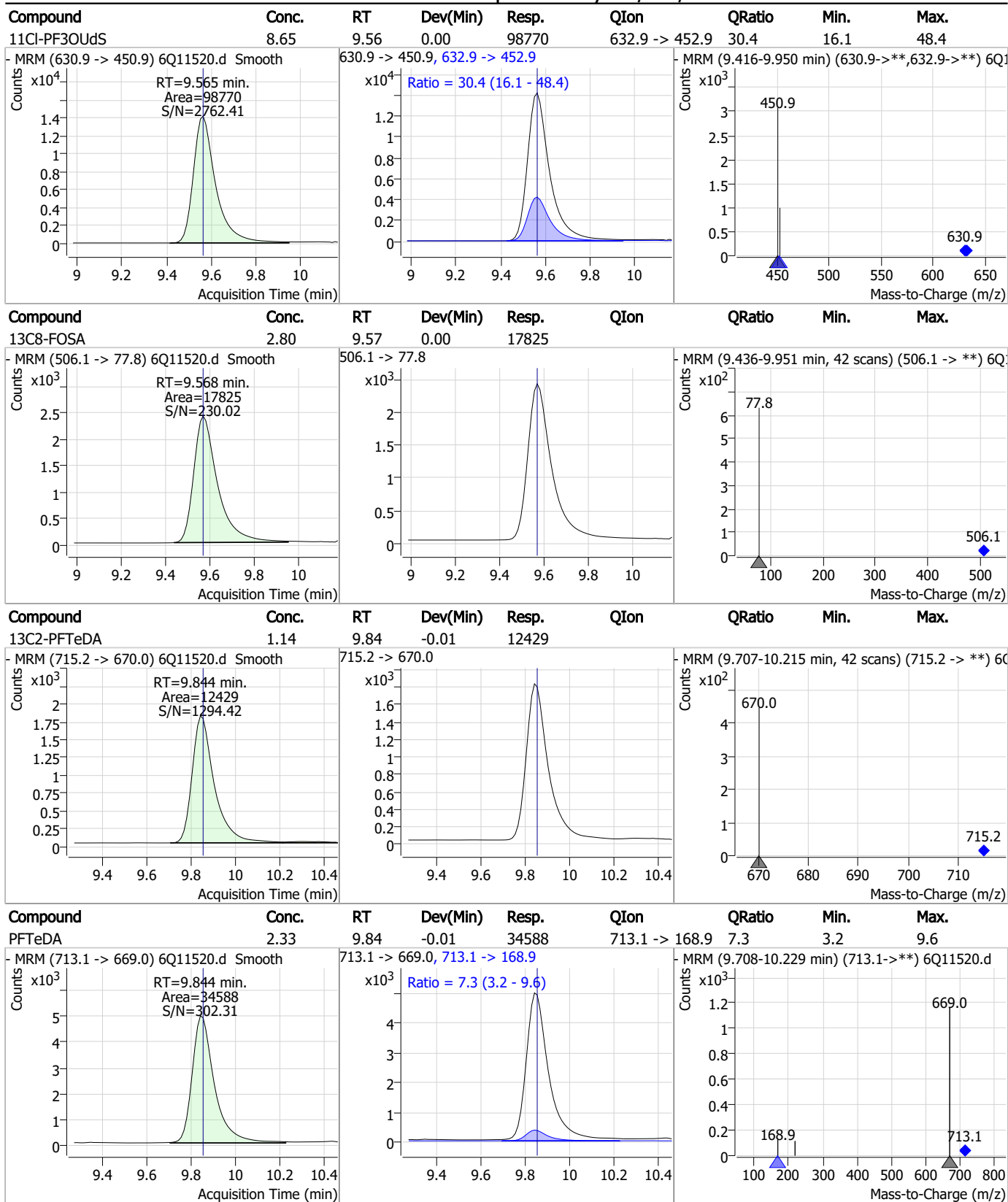
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFT _r DA	2.38	9.50	-0.01	43557	663.0 -> 168.9	7.4	4.2	12.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.37	9.57	0.01	17066	498.1 -> 478.0	3.5	2.0	5.9



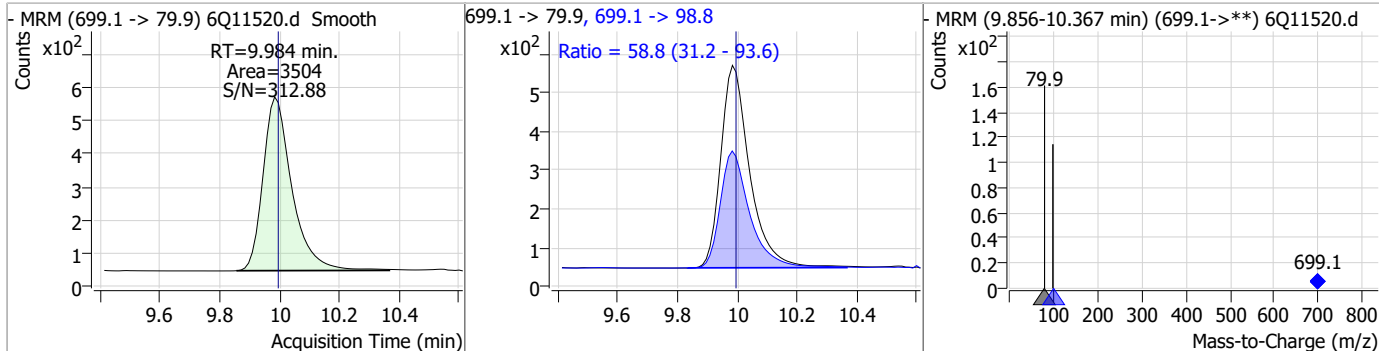
Perfluorinated Compounds by LC/MS/MS



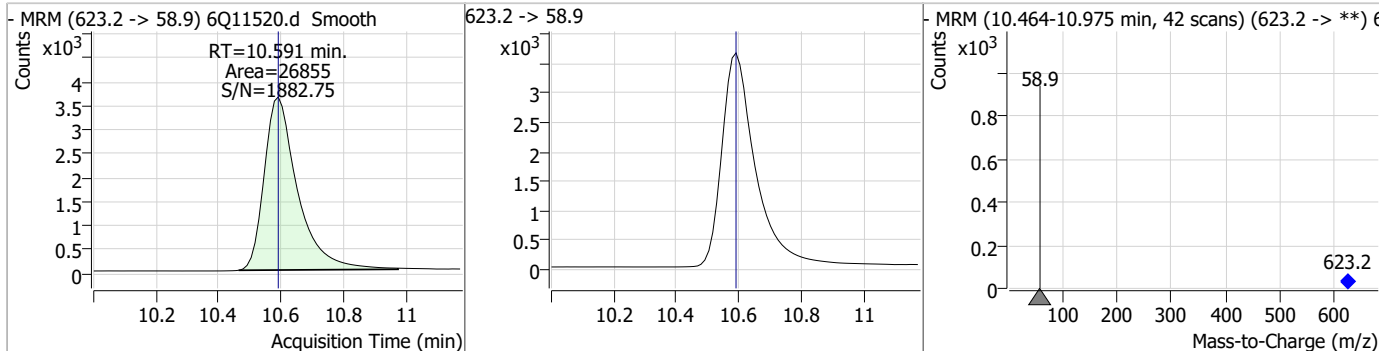
7.3.1
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Perfluorinated Compounds by LC/MS/MS

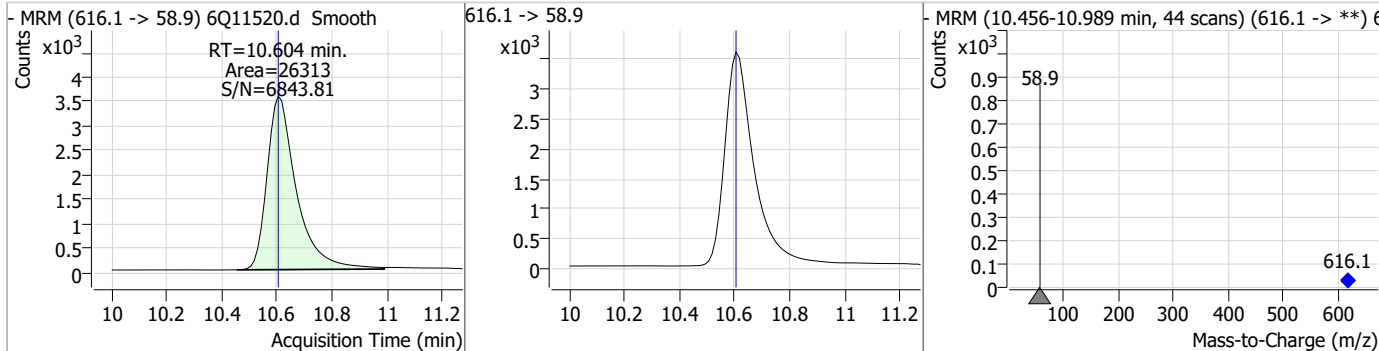
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	1.93	9.98	-0.01	3504	699.1 -> 98.8	58.8	31.2	93.6



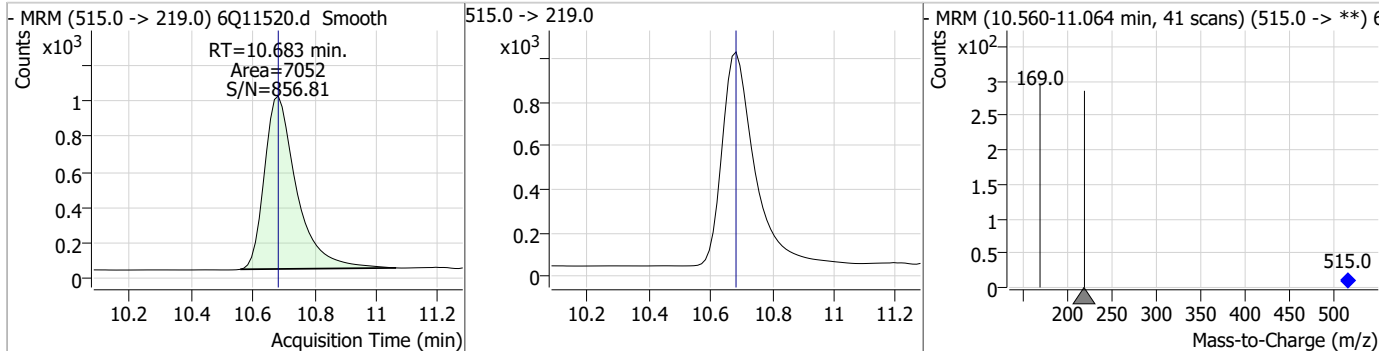
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.35	10.59	0.00	26855				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	23.72	10.60	0.00	26313				

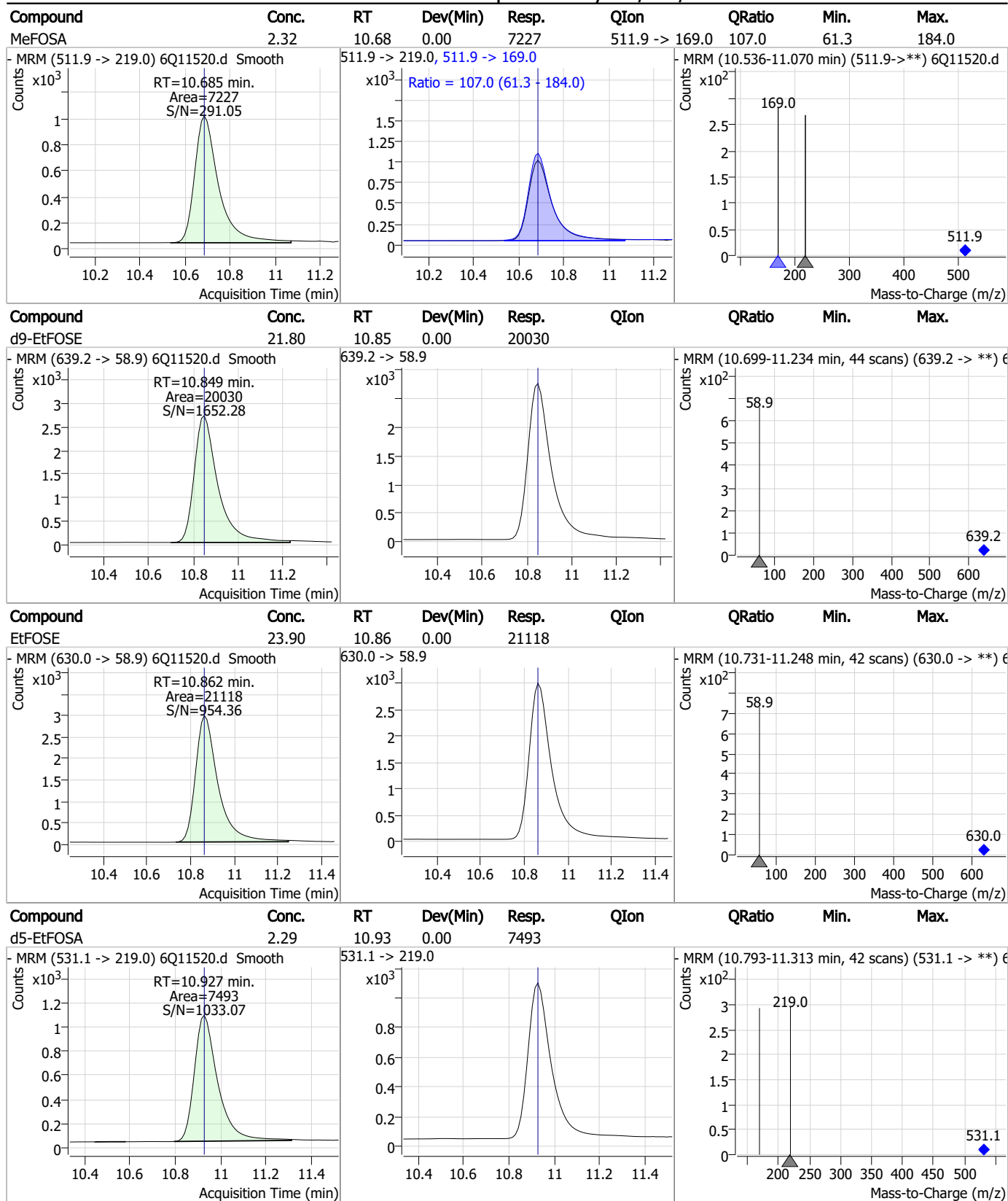


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.42	10.68	0.00	7052				



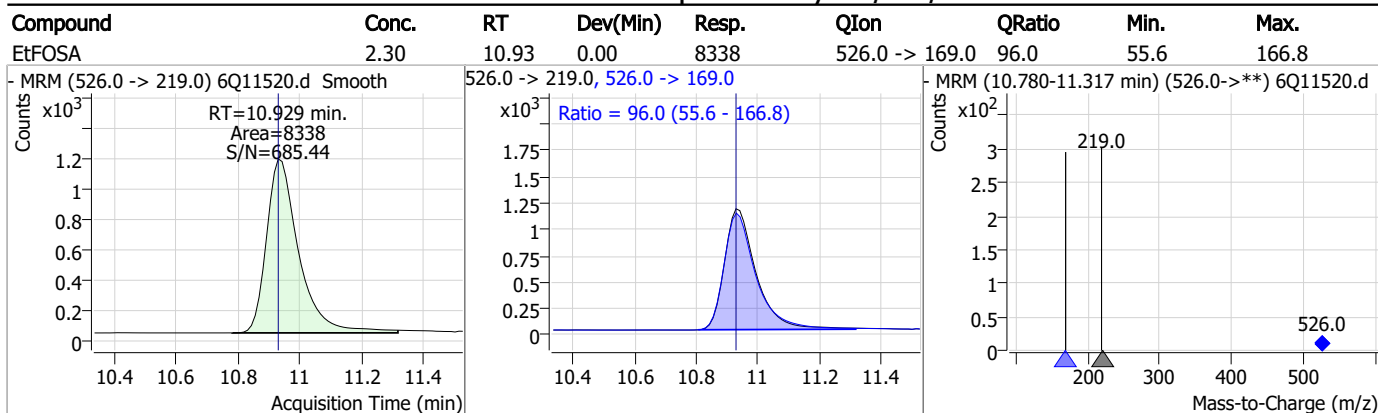
7.3.1
7

Perfluorinated Compounds by LC/MS/MS



7.3.1
7

Perfluorinated Compounds by LC/MS/MS



7.3.1
7

Manual Integration Approval Summary

Sample Number: OP94995-BS Method: EPA DRAFT 1633
Lab FileID: 6Q11520.D Analyst approved: 01/18/23 15:20 Martha Valls
Injection Time: 01/17/23 22:48 Supervisor approved: 01/18/23 19:08 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.3.1.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11521.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/17/2023 11:02:23 PM
 Sample Name : op94995-llbs:3
 Vial : P4-A2
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.013	216.8 -> 171.9	83718	10.00 µg/L	0.012
M5-PFPeA	4.371	268.3 -> 223.0	39056	5.00 µg/L	-0.012
M5-PFHxA	5.564	318.0 -> 273.0	35795	2.50 µg/L	0.000
M4-PFHpA	6.503	367.1 -> 322.0	36015	2.50 µg/L	-0.012
M8-PFOA	7.160	421.1 -> 376.0	61466	2.50 µg/L	0.000
M9-PFNA	7.702	472.1 -> 427.0	28189	1.25 µg/L	-0.013
M6-PFDA	8.195	519.1 -> 474.1	19377	1.25 µg/L	-0.012
M7-PFUnDA	8.662	570.0 -> 525.1	22187	1.25 µg/L	-0.012
M2-PFDoDA	9.104	615.1 -> 570.0	24912	1.25 µg/L	-0.012
M2-PFTeDA	9.844	715.2 -> 670.0	12250	1.25 µg/L	-0.012
M8-FOSA	9.568	506.1 -> 77.8	17681	2.50 µg/L	0.000
M3-PFBS	5.519	302.1 -> 79.9	12651	2.50 µg/L	-0.012
M3-PFHxS	7.288	402.1 -> 79.9	8566	2.50 µg/L	-0.012
M8-PFOS	8.371	507.1 -> 79.9	8522	2.50 µg/L	-0.012
M2-4:2FTS	5.228	329.1 -> 80.9	1716	5.00 µg/L	0.000
M2-6:2FTS	6.921	429.1 -> 80.9	2628	5.00 µg/L	-0.012
M2-8:2FTS	7.970	529.1 -> 80.9	2774	5.00 µg/L	-0.012
M3-MeFOSAA	8.228	573.2 -> 419.0	24663	5.00 µg/L	-0.012
M3-HFPO-DA	5.941	286.9 -> 168.9	15040	10.00 µg/L	0.000
M5-EtFOSAA	8.436	589.2 -> 419.0	22362	5.00 µg/L	-0.012
M7-MeFOSE	10.591	623.2 -> 58.9	28025	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	22000	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	7081	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	6712	2.50 µg/L	0.000
13C4-PFOS	8.372	502.8 -> 79.9	10344	2.50 µg/L	-0.012
13C3-PFBA	3.004	216.0 -> 172.0	32797	5.00 µg/L	0.000
18O2-PFHxS	7.287	403.0 -> 83.9	5999	2.50 µg/L	-0.012
13C4-PFOA	7.160	417.1 -> 372.0	64200	2.50 µg/L	-0.012
13C2-PFDA	8.196	515.1 -> 470.1	25709	1.25 µg/L	-0.012
13C5-PFNA	7.703	468.0 -> 423.0	31352	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	29620	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.228	329.1 -> 80.9	1716	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C2-6:2FTS	6.921	429.1 -> 80.9	2628	6.13 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.7%		
13C2-8:2FTS	7.970	529.1 -> 80.9	2774	5.93 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.6%		
13C2-PFDoDA	9.104	615.1 -> 570.0	24912	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C2-PFTeDA	9.844	715.2 -> 670.0	12250	1.02 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 81.8%		
13C3-PFBS	5.519	302.1 -> 79.9	12651	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C3-PFHxS	7.288	402.1 -> 79.9	8566	2.63 µg/L	-0.012

7.32
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C4-PFBA	3.013	216.8 -> 171.9	83718	11.18 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C4-PFHpA	6.503	367.1 -> 322.0	36015	3.00 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 120.0%		
13C5-PFHxA	5.564	318.0 -> 273.0	35795	3.01 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 120.4%		
13C5-PFPeA	4.371	268.3 -> 223.0	39056	5.91 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.2%		
13C6-PFDA	8.195	519.1 -> 474.1	19377	1.32 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C7-PFUnDA	8.662	570.0 -> 525.1	22187	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C8-FOSA	9.568	506.1 -> 77.8	17681	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C8-PFOA	7.160	421.1 -> 376.0	61466	2.86 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 114.3%		
13C8-PFOS	8.371	507.1 -> 79.9	8522	2.58 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C9-PFNA	7.702	472.1 -> 427.0	28189	1.27 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.2%		
d3-MeFOSAA	8.228	573.2 -> 419.0	24663	4.95 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C3-HFPO-DA	5.941	286.9 -> 168.9	15040	12.31 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 123.1%		
d3-MeFOSA	10.683	515.0 -> 219.0	6712	2.10 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 83.9%		
d5-EtFOSAA	8.436	589.2 -> 419.0	22362	5.12 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
d7-MeFOSE	10.591	623.2 -> 58.9	28025	21.28 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 85.1%		
d9-EtFOSE	10.849	639.2 -> 58.9	22000	21.85 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 87.4%		
d5-EtFOSA	10.927	531.1 -> 219.0	7081	1.98 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 79.0%		
Target Compounds					QValue
4:2FTS	5.229	327.1 -> 307.0	16068	3.94 µg/L	100
		327.1 -> 80.9	3746		
6:2FTS	6.922	427.1 -> 407.0	13024	3.19 µg/L	99
		427.1 -> 80.9	2781		
8:2FTS	7.971	527.1 -> 507.0	8107	3.50 µg/L	99
		527.1 -> 80.8	2053		
EtFOSAA	8.449	584.2 -> 419.1	2837	0.79 µg/L	m 89
		584.2 -> 526.0	1885		
FOSA	9.558	498.1 -> 77.9	6604	0.92 µg/L	99
		498.1 -> 478.0	245		
MeFOSAA	8.229	570.1 -> 419.0	5201	1.02 µg/L	m 91
		570.1 -> 483.0	821		
PFBA	3.007	212.8 -> 168.9	8082	3.76 µg/L	100
PFBS	5.520	298.7 -> 79.9	4415	0.86 µg/L	99
		298.7 -> 98.8	2024		
PFDA	8.196	512.9 -> 469.0	20082	0.86 µg/L	96
		512.9 -> 219.0	3021		
PFDODA	9.105	613.1 -> 569.0	17739	0.91 µg/L	99
		613.1 -> 319.0	2137		
PFDS	9.280	599.0 -> 79.9	2473	0.84 µg/L	96

7.3.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.504	599.0 -> 98.8	1392	0.91	µg/L	95
		363.1 -> 319.0	19708			
PFHpS	7.867	363.1 -> 169.0	2936	0.97	µg/L	95
		449.0 -> 79.9	3769			
PFHxA	5.567	449.0 -> 98.9	2295	0.88	µg/L	98
		313.0 -> 269.0	12696			
PFHxS	7.289	313.0 -> 118.9	513	0.95	µg/L	95
		398.7 -> 79.9	3882			
PFNA	7.703	398.7 -> 98.9	1948	1.01	µg/L	97
		463.0 -> 419.0	19789			
PFNS	8.850	463.0 -> 219.0	3709	0.92	µg/L	92
		548.8 -> 79.9	3771			
PFOA	7.161	548.8 -> 98.9	2131	1.17	µg/L	95
		413.0 -> 369.0	32127			
PFOS	8.372	413.0 -> 169.0	3842	0.86	µg/L	97
		498.9 -> 79.9	3532			
PFPeA	4.374	498.9 -> 98.8	2174	1.93	µg/L	100
		263.0 -> 219.0	16580			
PFPeS	6.582	349.1 -> 79.9	4051	0.84	µg/L	96
		349.1 -> 98.9	2269			
PFTeDA	9.844	713.1 -> 669.0	14040	0.96	µg/L	98
		713.1 -> 168.9	999			
PFTrDA	9.501	663.0 -> 619.0	17092	0.91	µg/L	99
		663.0 -> 168.9	1482			
PFUnDA	8.662	563.1 -> 519.0	16908	0.91	µg/L	95
		563.1 -> 269.1	2734			
11CI-PF3OUdS	9.565	630.9 -> 450.9	39810	3.49	µg/L	96
		632.9 -> 452.9	11872			
9CI-PF3ONS	8.714	530.8 -> 351.0	65766	3.55	µg/L	92
		532.8 -> 353.0	19345			
ADONA	6.767	376.9 -> 250.9	119254	3.57	µg/L	96
		376.9 -> 84.8	26752			
HFPO-DA	5.941	284.9 -> 168.9	5310	3.49	µg/L	96
		284.9 -> 184.9	730			
3:3FTCA	3.864	241.0 -> 177.0	1890	4.14	µg/L	98
		241.0 -> 117.0	241			
5:3FTCA	6.194	341.0 -> 237.1	62545	20.79	µg/L	87
		341.0 -> 217.0	60249			
7:3FTCA	7.618	441.0 -> 316.9	48012	23.68	µg/L	95
		441.0 -> 336.9	98092			
EtFOSA	10.929	526.0 -> 219.0	3220	0.94	µg/L	92
		526.0 -> 169.0	3299			
EtFOSE	10.862	630.0 -> 58.9	8945	9.22	µg/L	100
		511.9 -> 219.0	2869			
MeFOSA	10.685	511.9 -> 169.0	3078	0.97	µg/L	86
		616.1 -> 58.9	10674			
MeFOSE	10.604	699.1 -> 79.9	1517	9.22	µg/L	100
		699.1 -> 98.8	843			
PFDoDS	9.984	295.0 -> 201.0	1836	0.83	µg/L	91
		295.0 -> 84.9	785			
NFDHA	5.446	279.0 -> 85.1	4934	1.84	µg/L	100
		229.0 -> 84.9	4395			
PFMBA	4.789	314.8 -> 134.9	34747	1.85	µg/L	100
		314.8 -> 82.9	788			
PFMPA	3.538			1.73	µg/L	99
PFEESA	6.060					

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

7.3.2
7

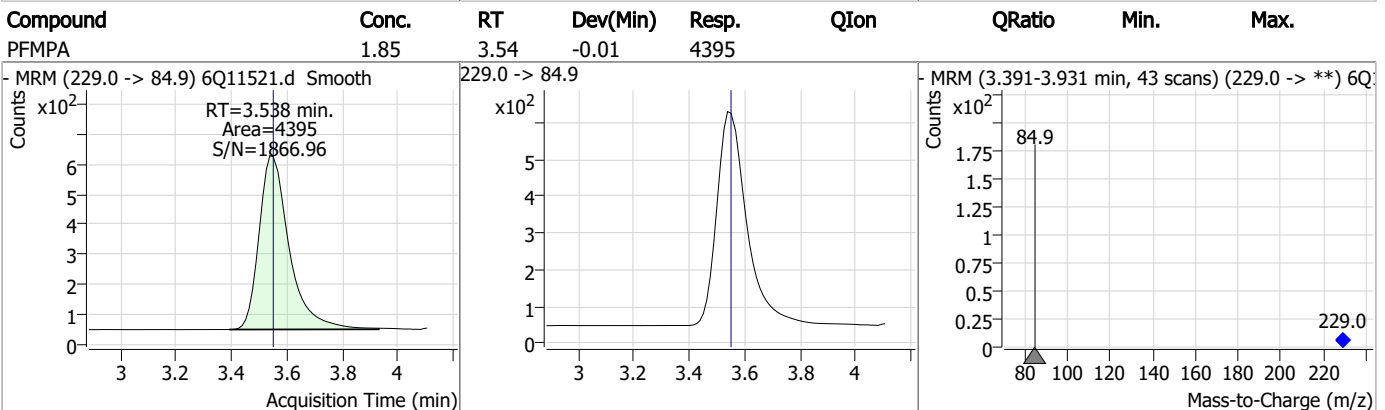
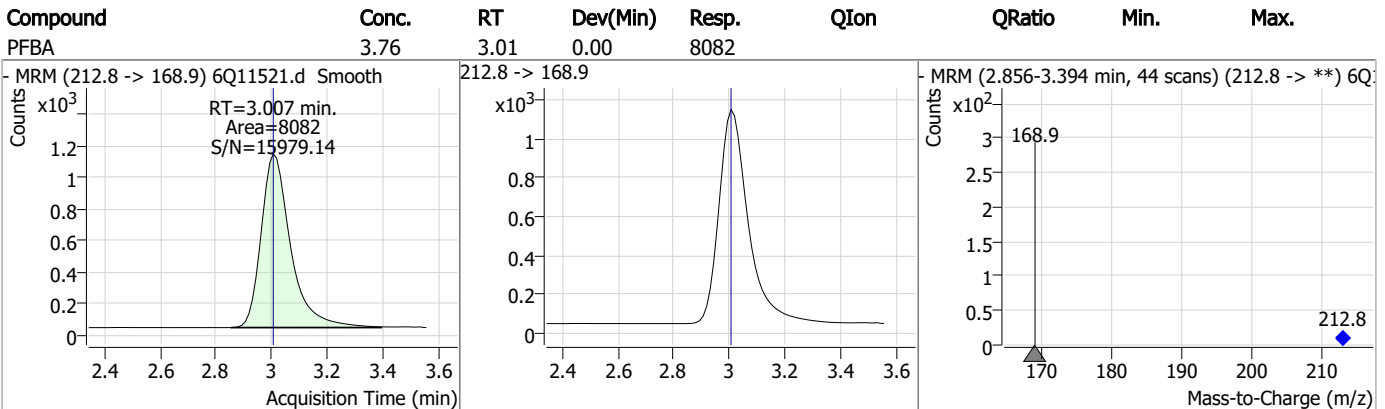
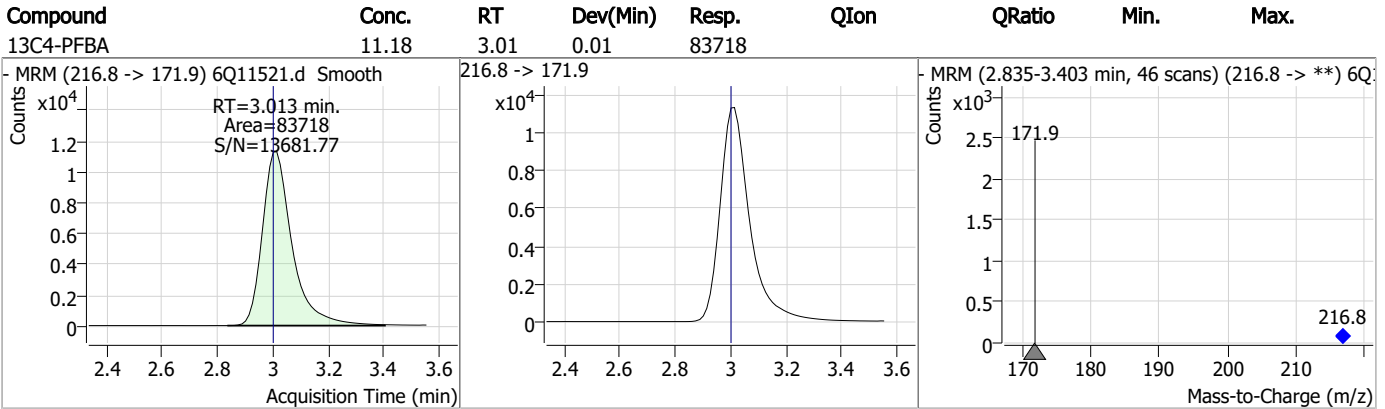
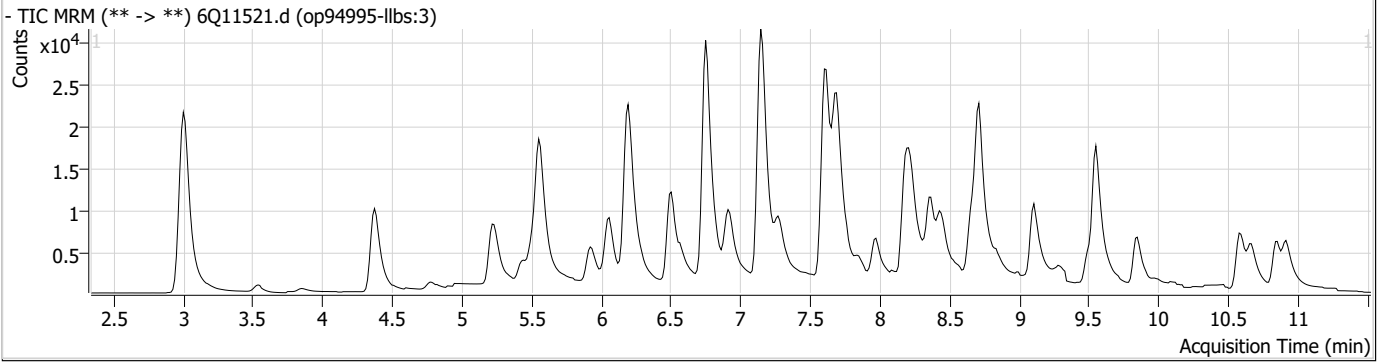
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.3.2

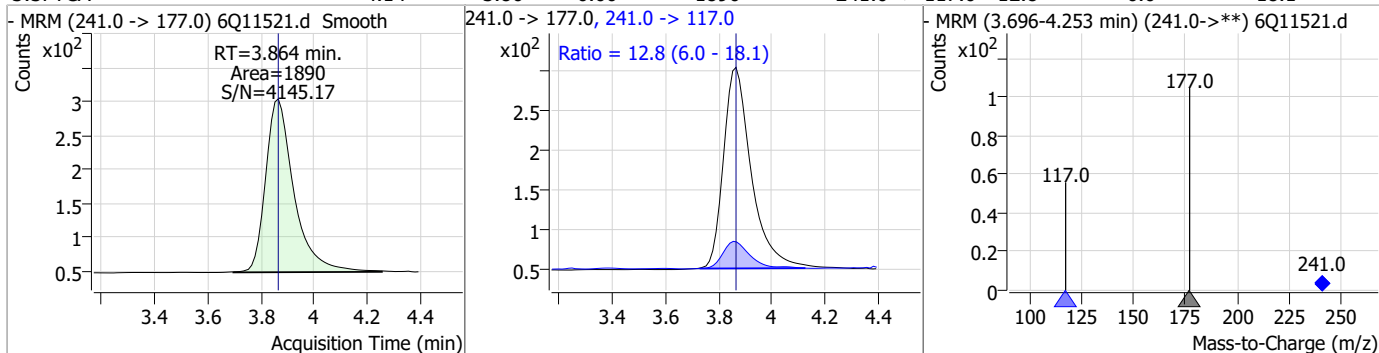
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Perfluorinated Compounds by LC/MS/MS

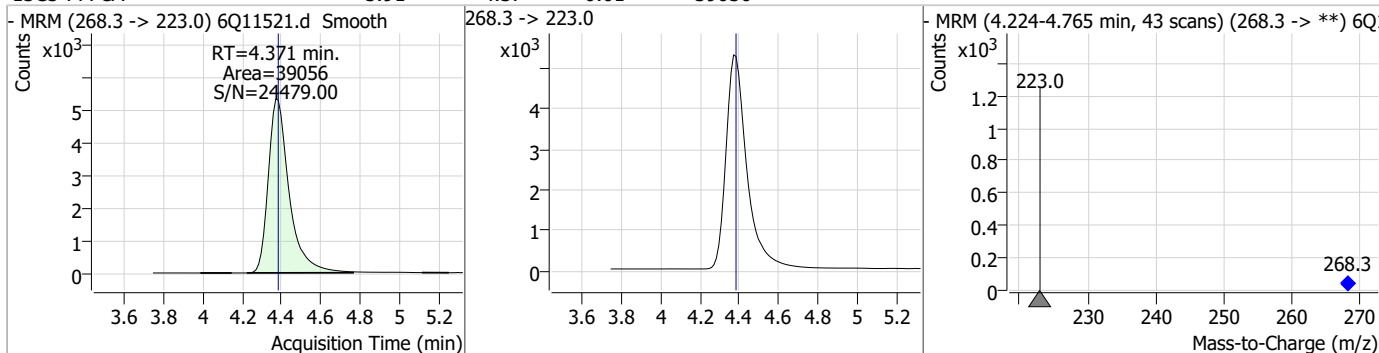


Perfluorinated Compounds by LC/MS/MS

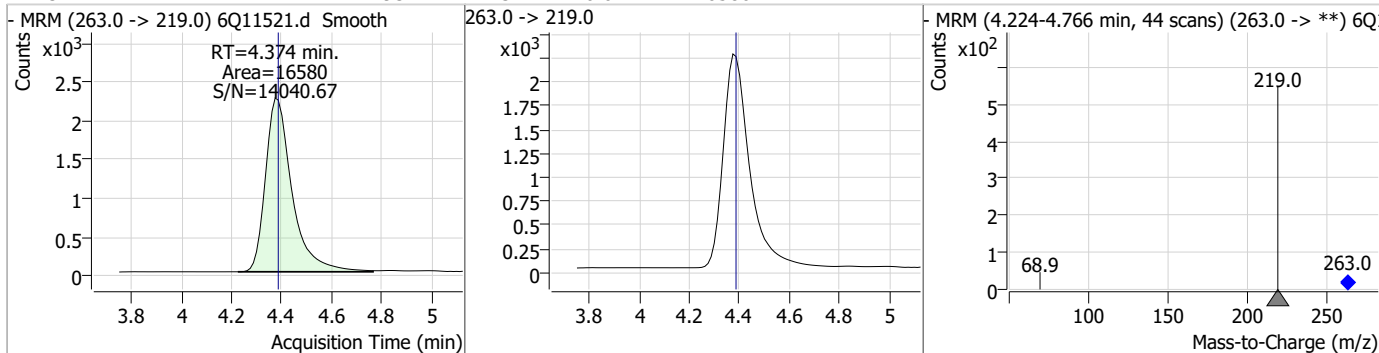
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	4.14	3.86	0.00	1890	241.0 -> 117.0	12.8	6.0	18.1



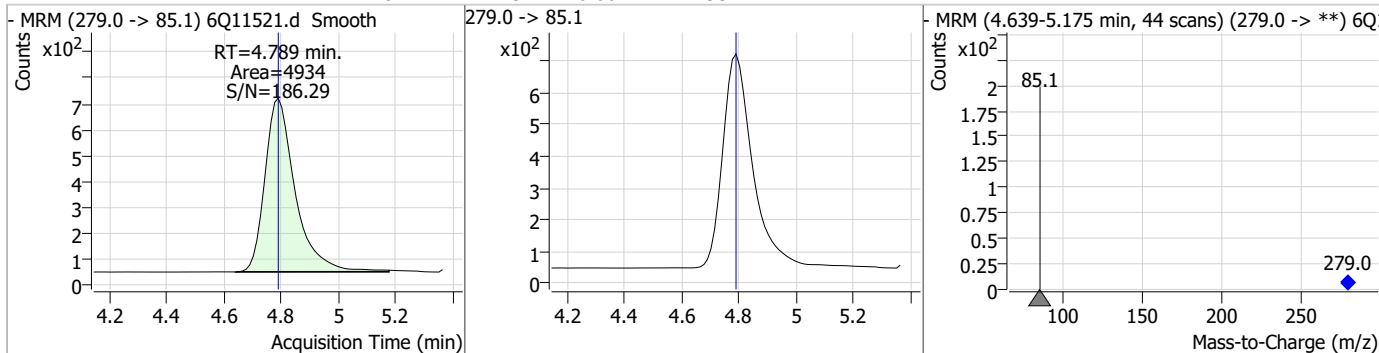
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.91	4.37	-0.01	39056				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.93	4.37	-0.01	16580				

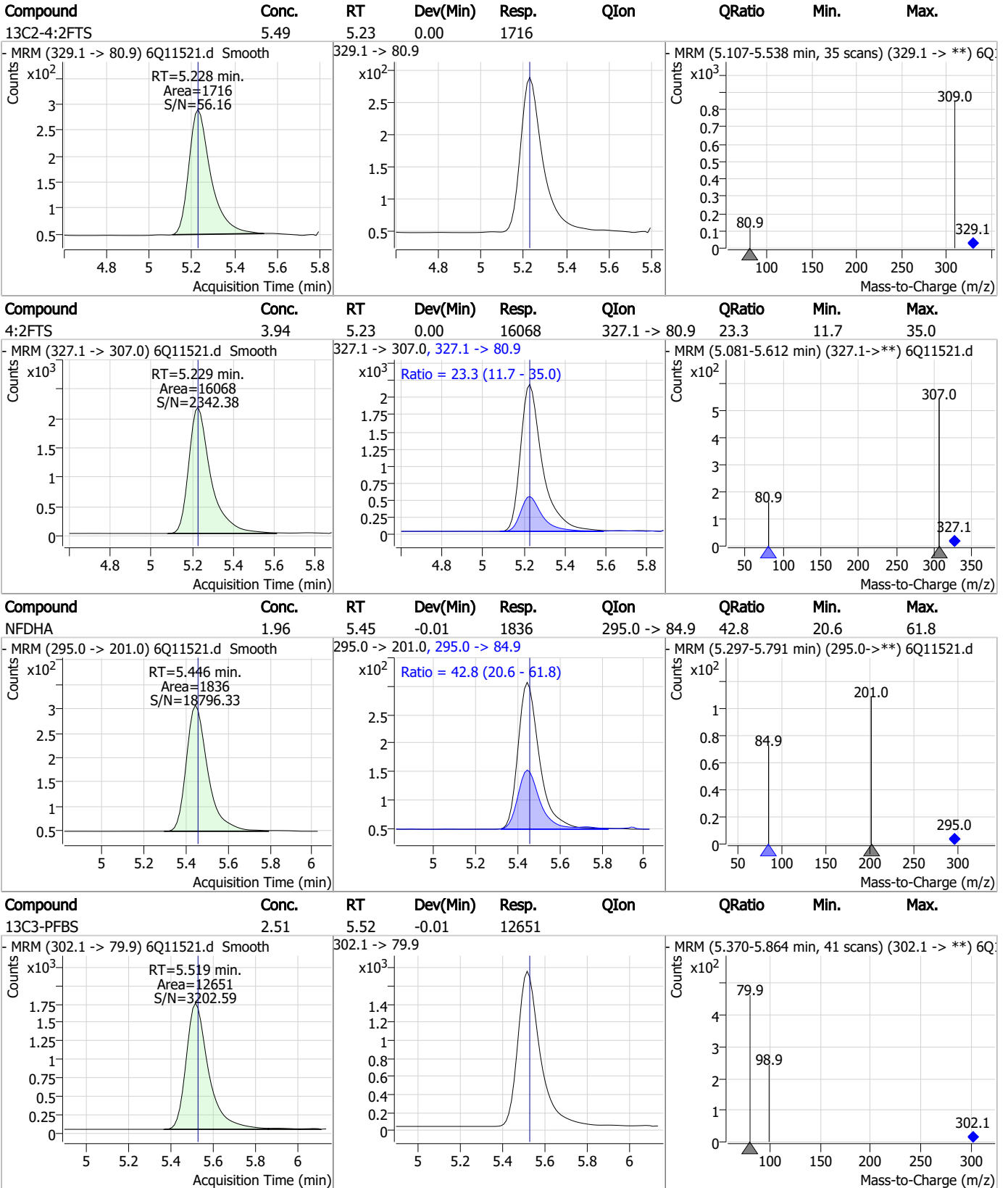


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	1.84	4.79	0.00	4934				



7.3.2
7

Perfluorinated Compounds by LC/MS/MS

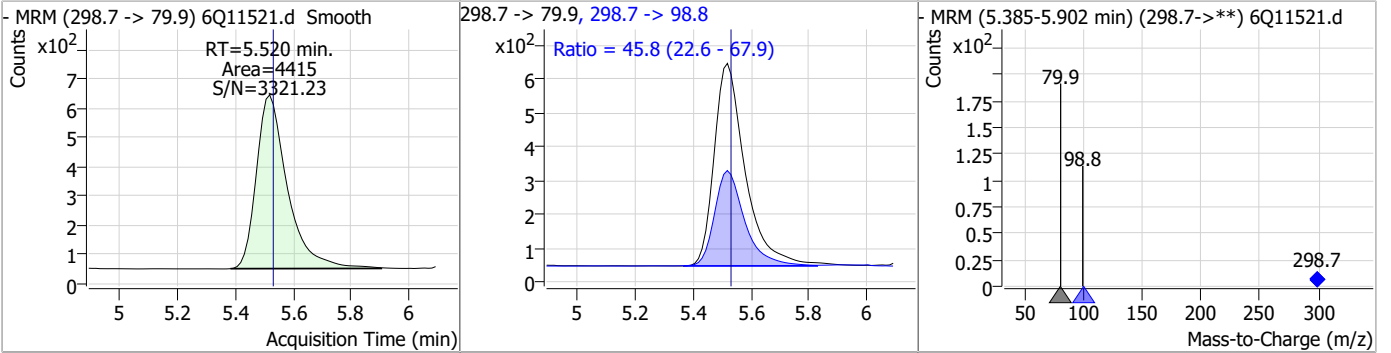


7.3.2

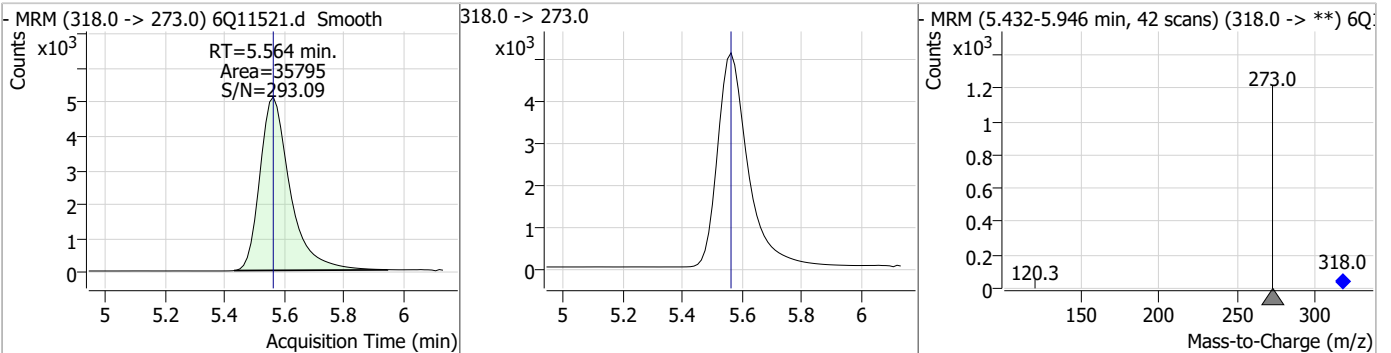
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Perfluorinated Compounds by LC/MS/MS

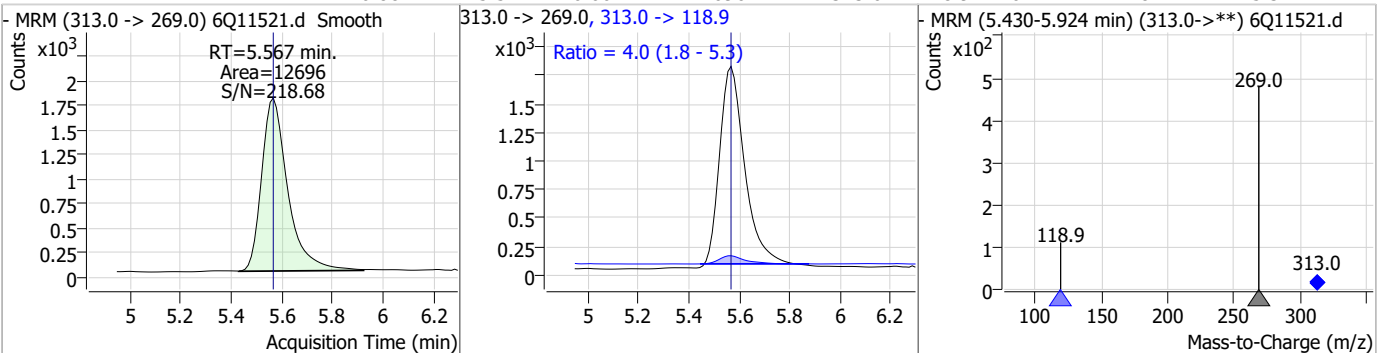
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.86	5.52	-0.01	4415	298.7 -> 98.8	45.8	22.6	67.9



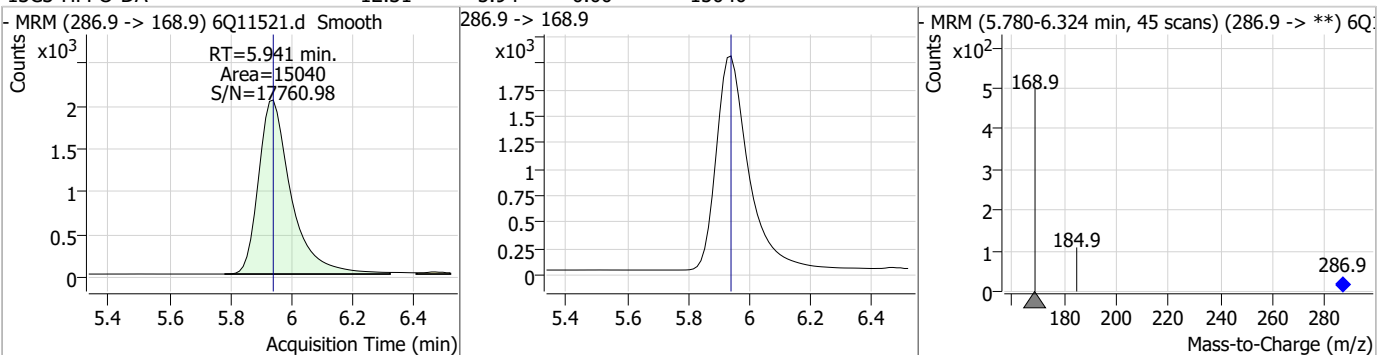
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	3.01	5.56	0.00	35795				



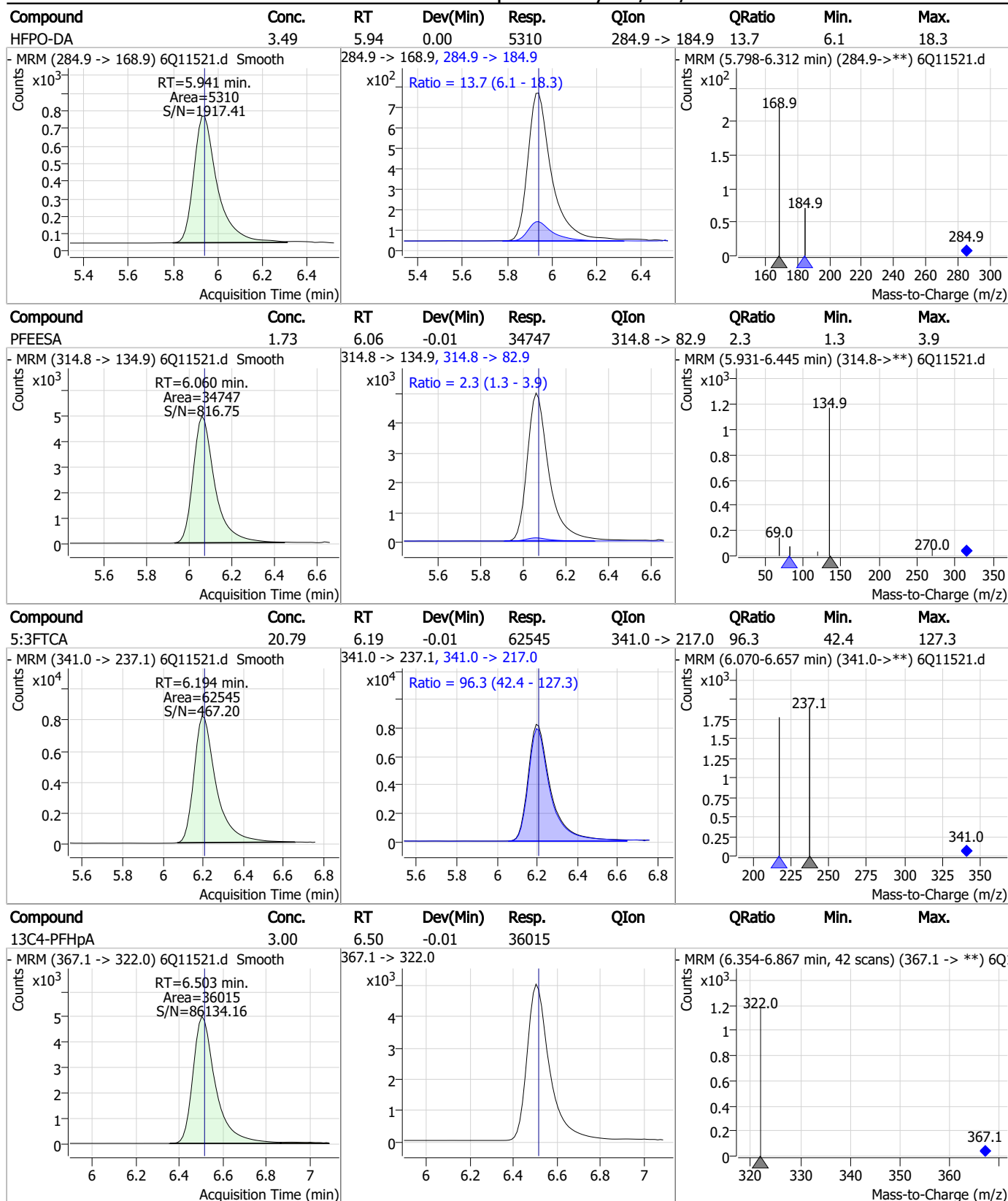
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.88	5.57	0.00	12696	313.0 -> 118.9	4.0	1.8	5.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	12.31	5.94	0.00	15040				



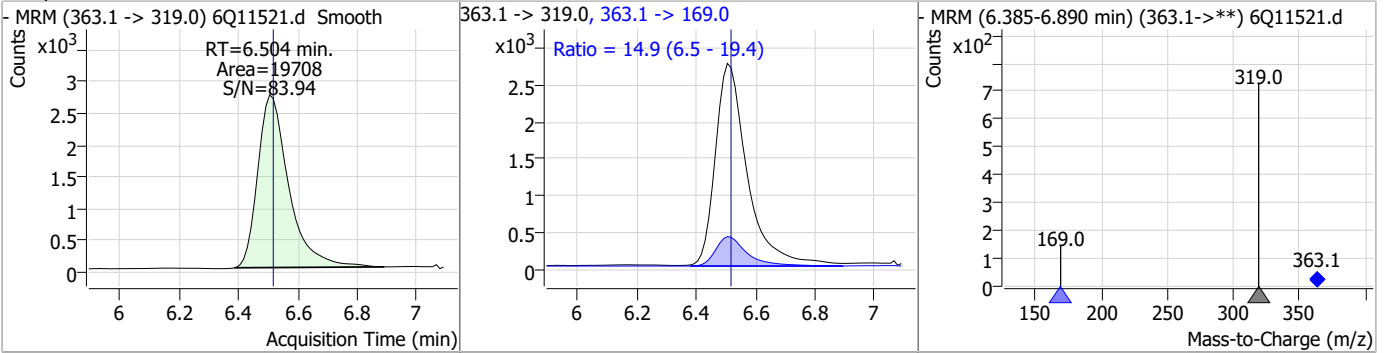
Perfluorinated Compounds by LC/MS/MS



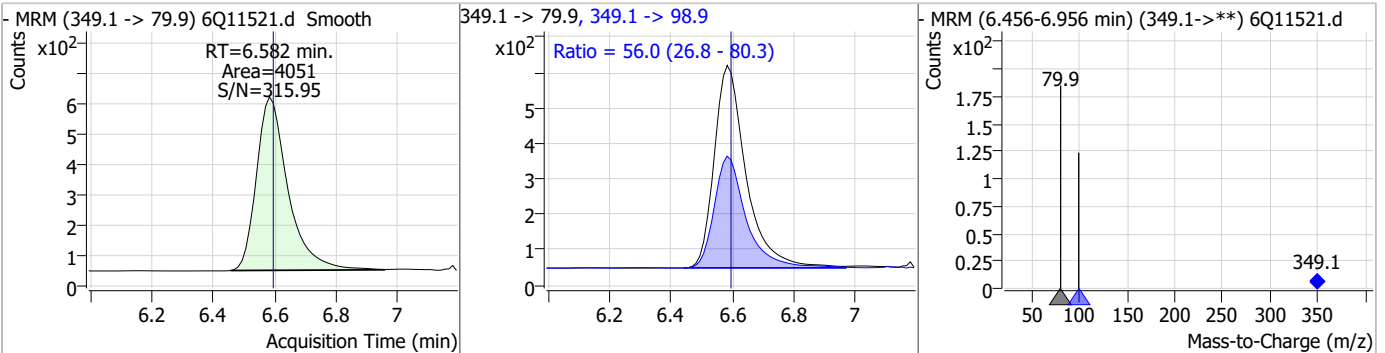
7.3.2
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Perfluorinated Compounds by LC/MS/MS

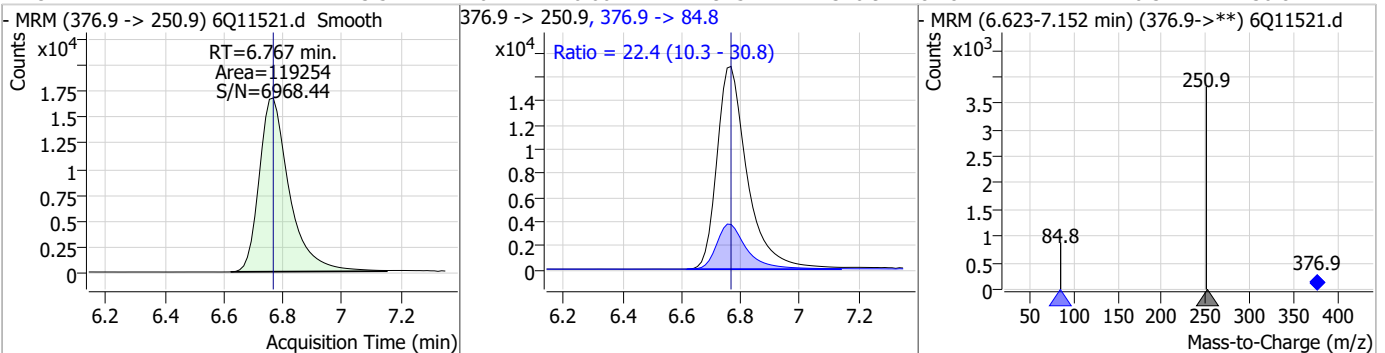
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.91	6.50	-0.01	19708	363.1 -> 169.0	14.9	6.5	19.4



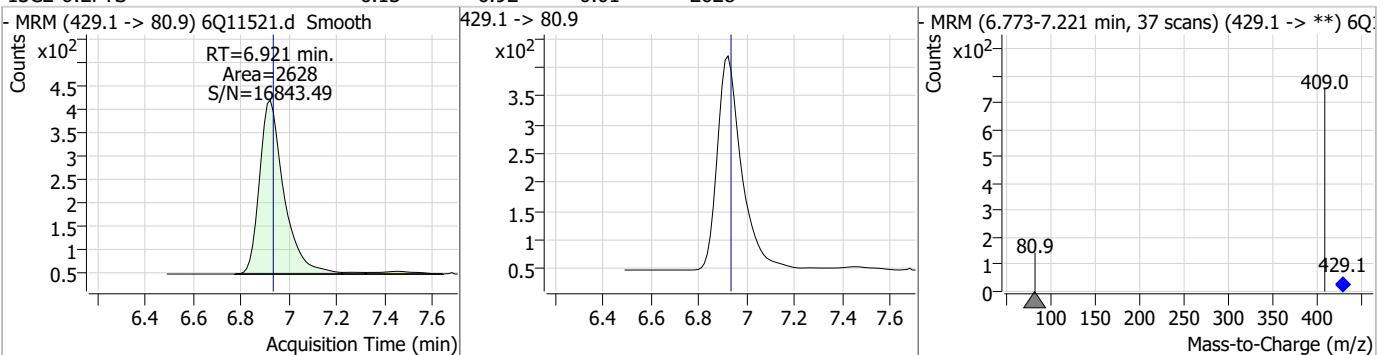
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.84	6.58	-0.01	4051	349.1 -> 98.9	56.0	26.8	80.3



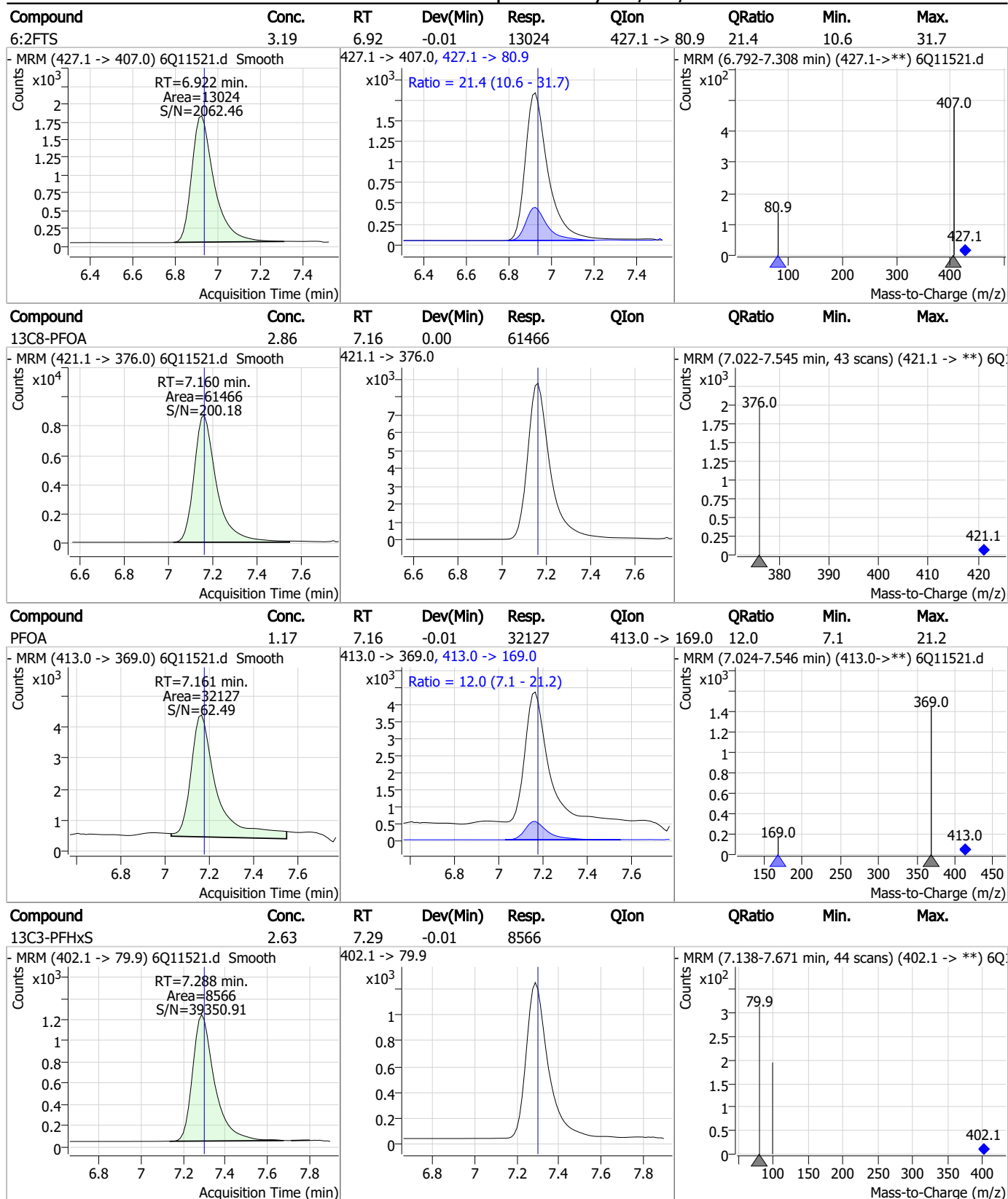
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	3.57	6.77	0.00	119254	376.9 -> 84.8	22.4	10.3	30.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2F7S	6.13	6.92	-0.01	2628	429.1 -> 80.9			

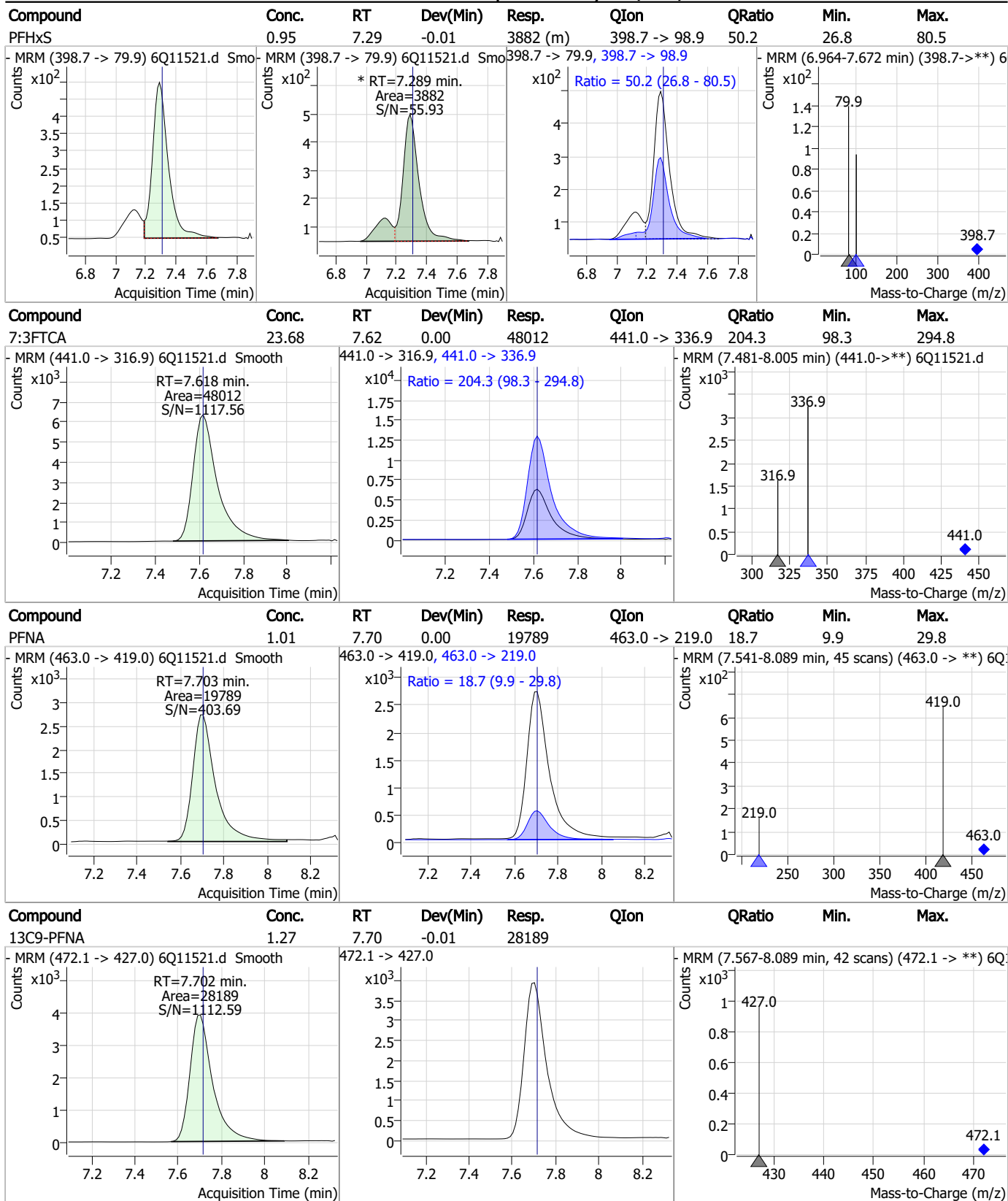


Perfluorinated Compounds by LC/MS/MS



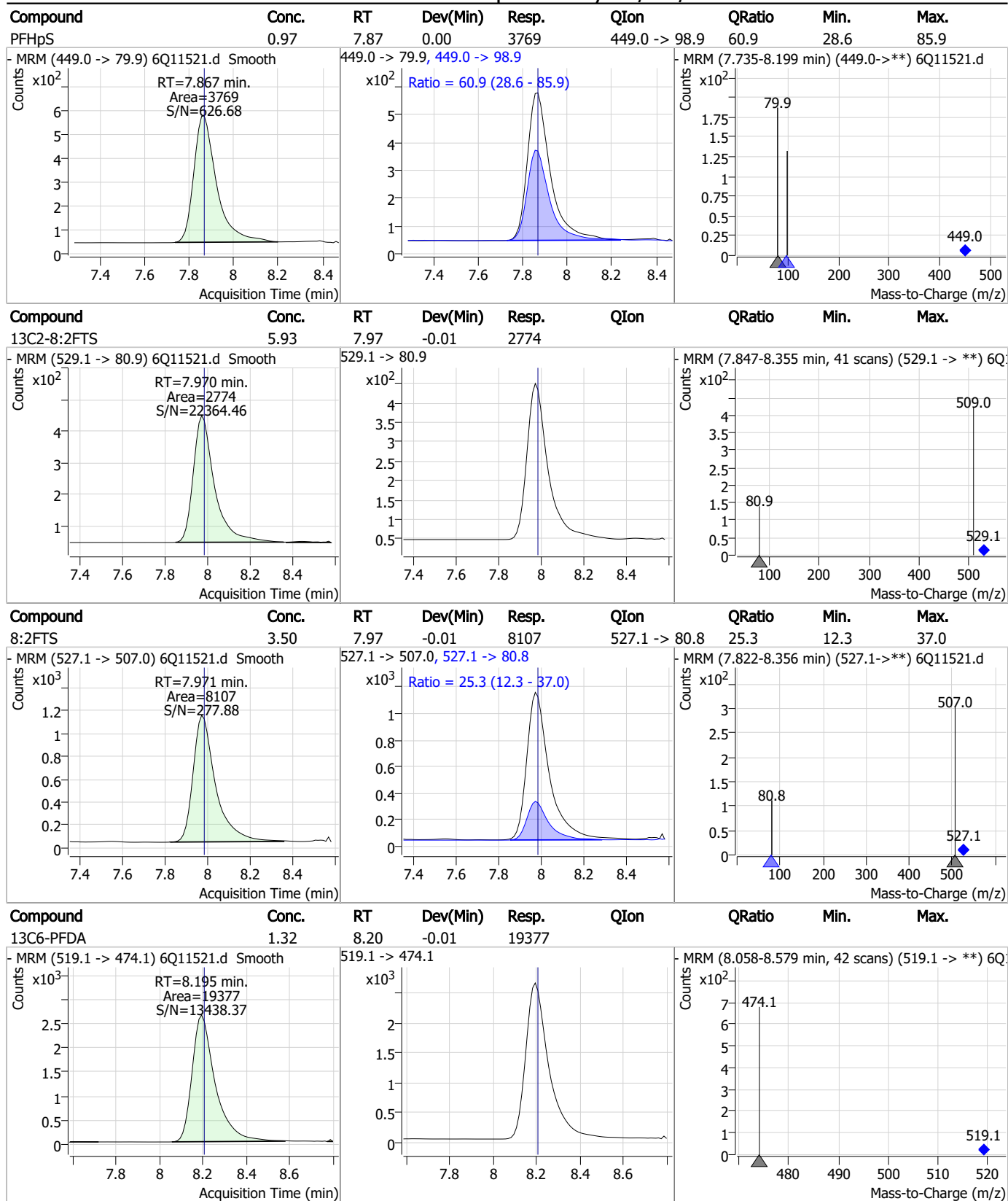
7.3.2
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Perfluorinated Compounds by LC/MS/MS



7.3.2
7

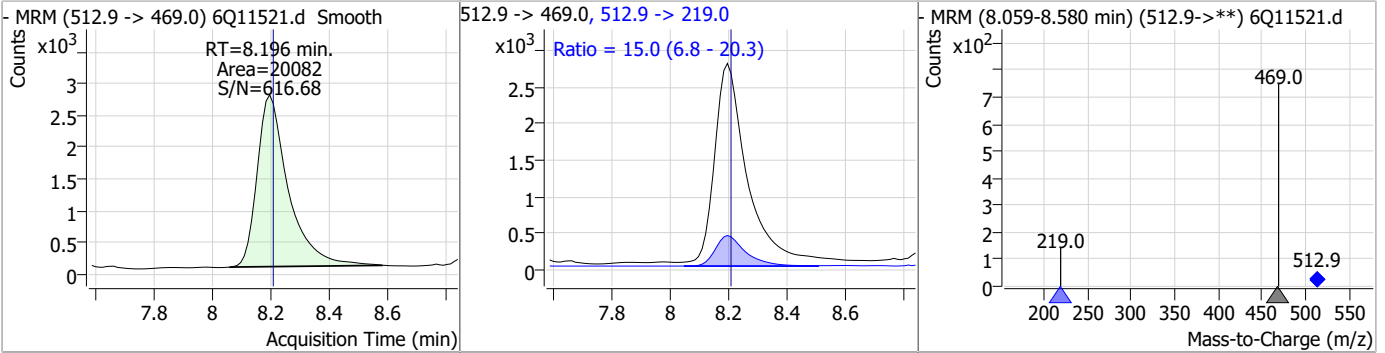
Perfluorinated Compounds by LC/MS/MS



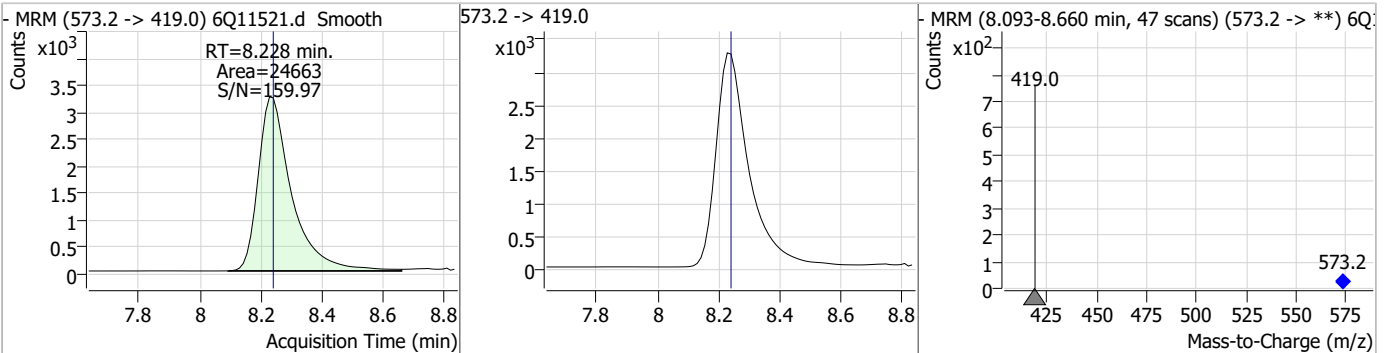
7.3.2
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Perfluorinated Compounds by LC/MS/MS

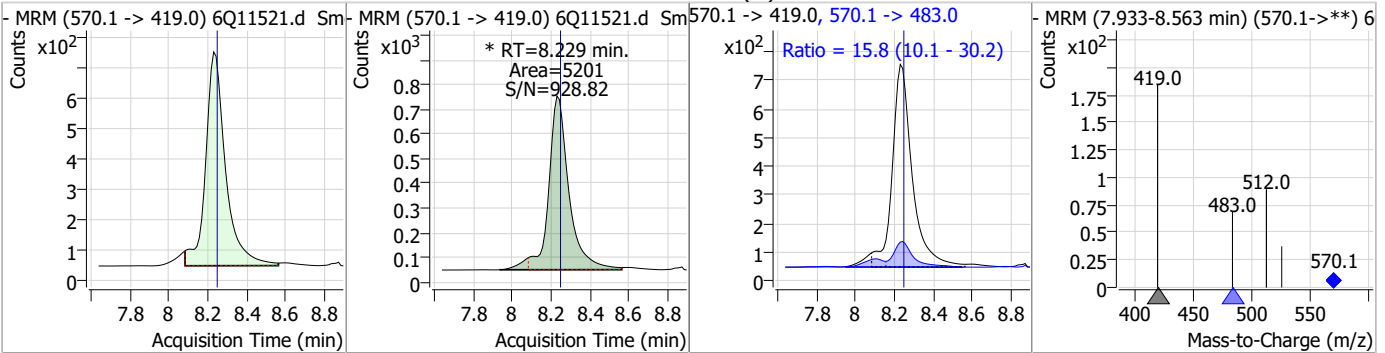
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.86	8.20	-0.01	20082	512.9 -> 219.0	15.0	6.8	20.3



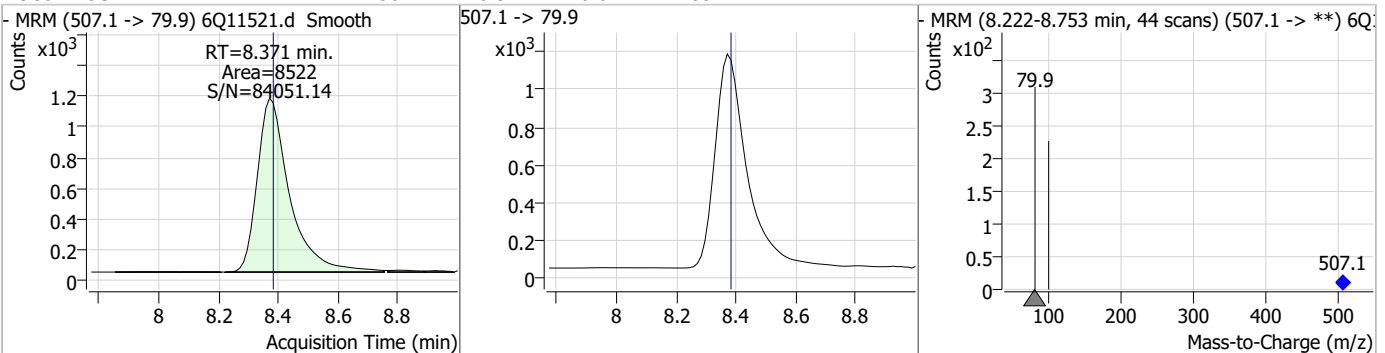
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.95	8.23	-0.01	24663				



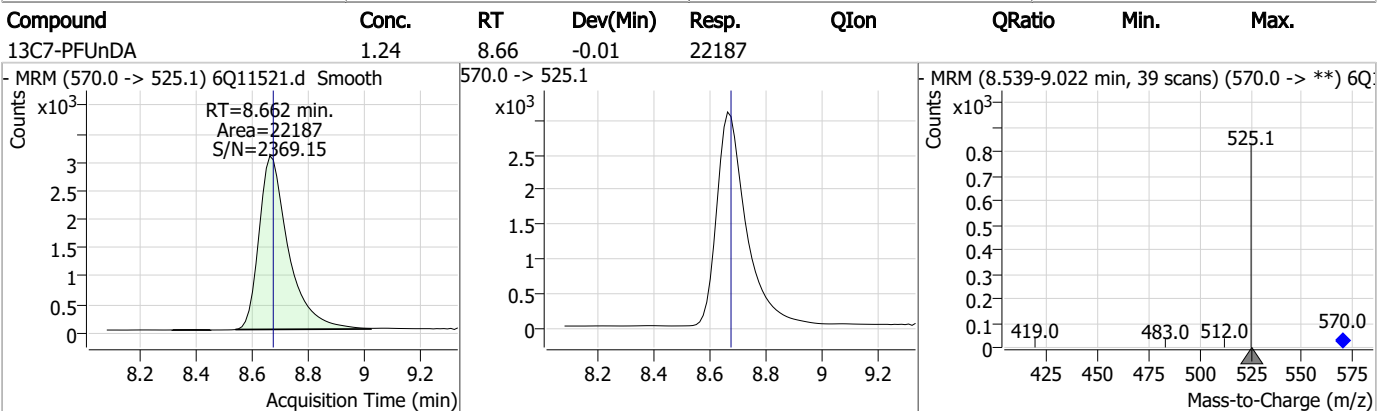
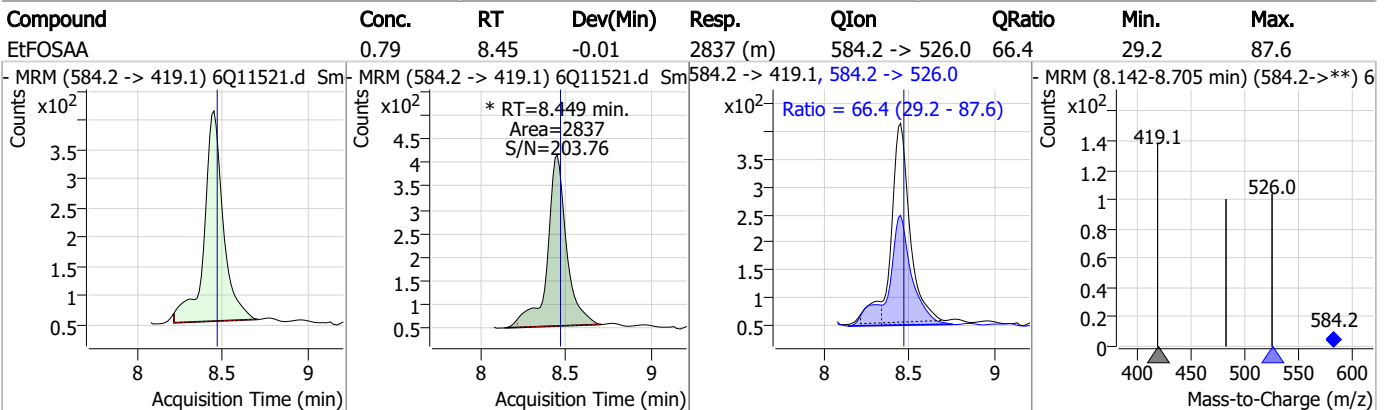
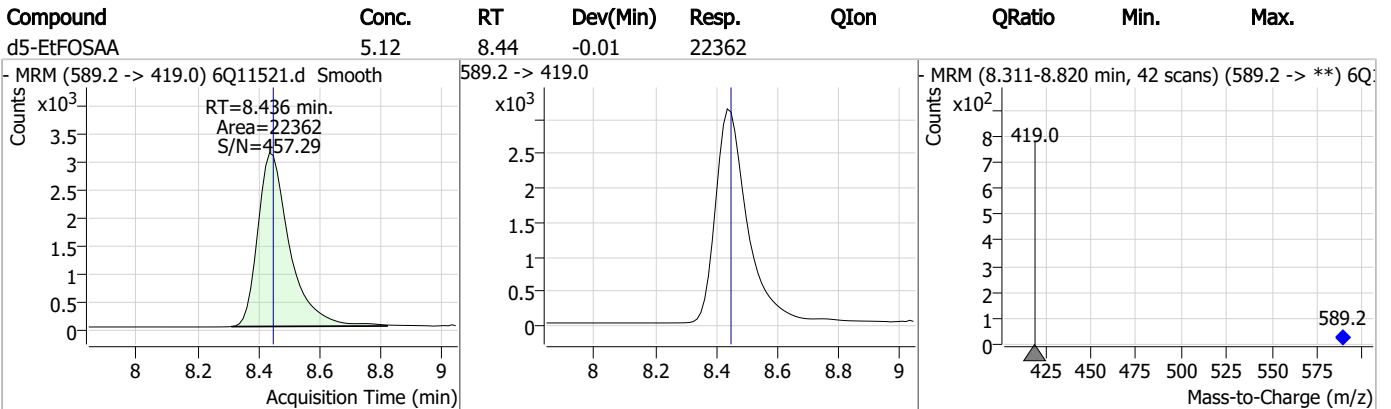
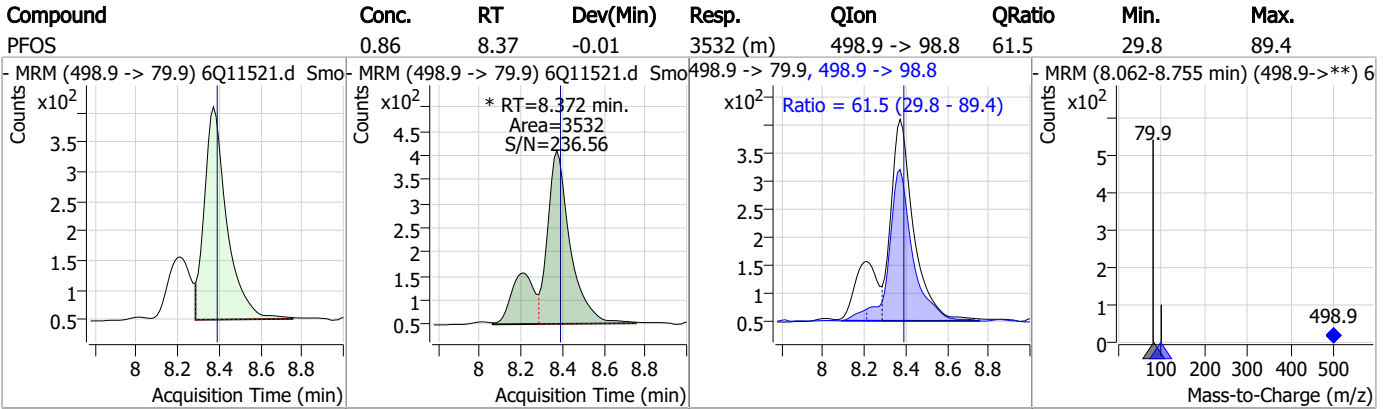
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.02	8.23	-0.01	5201 (m)	570.1 -> 483.0	15.8	10.1	30.2



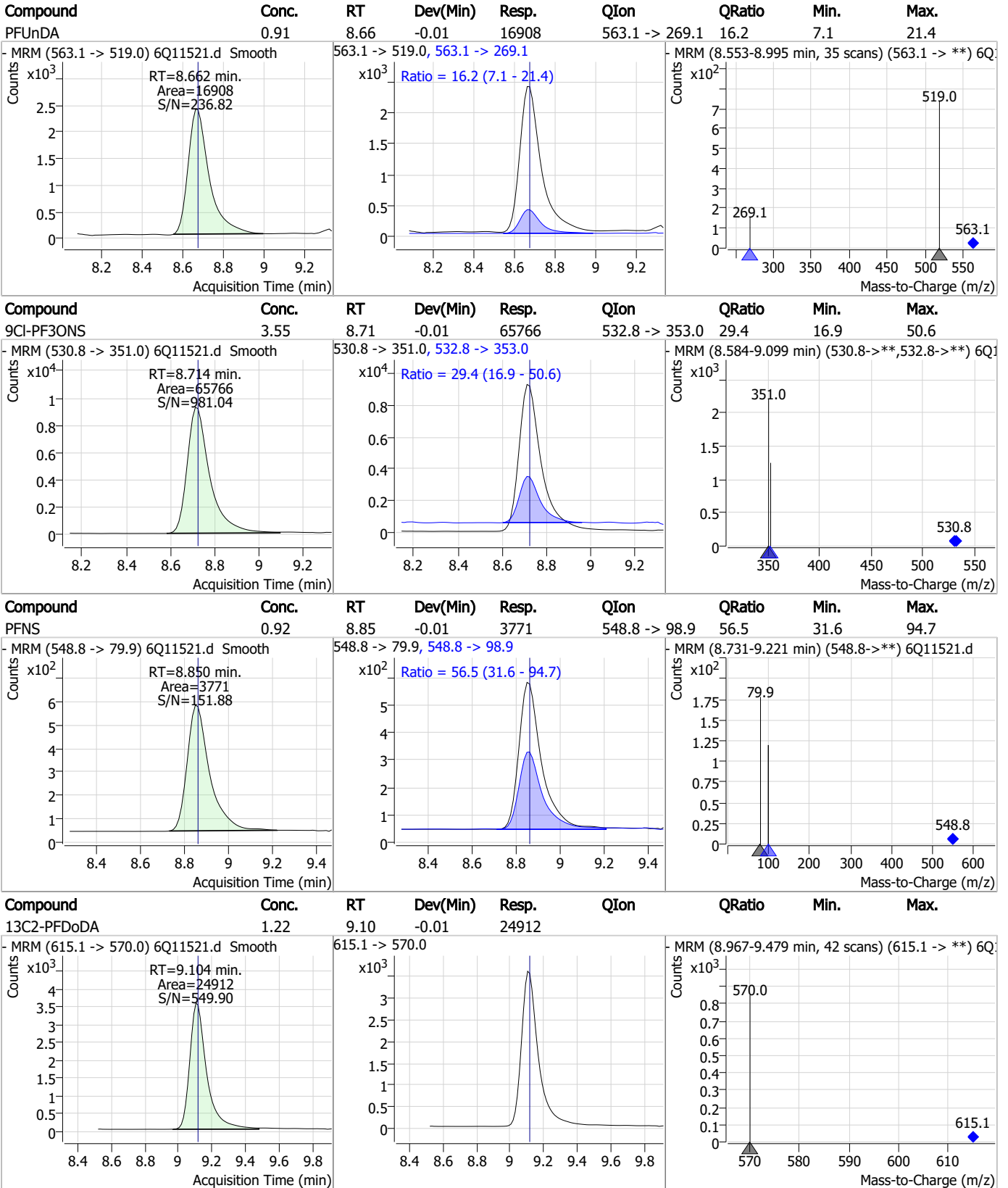
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.58	8.37	-0.01	8522				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

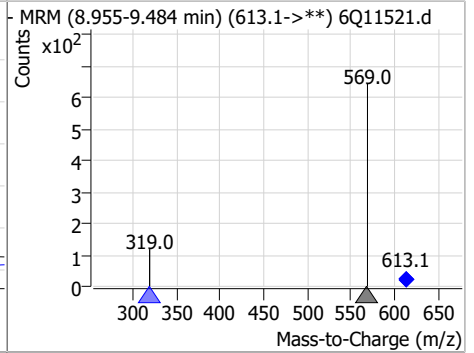
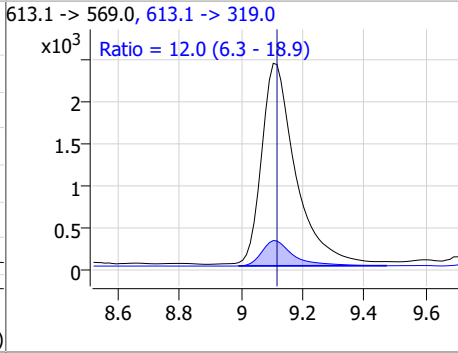
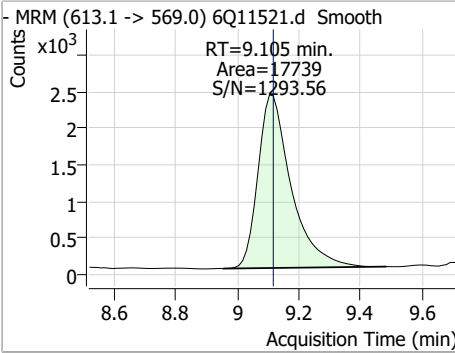


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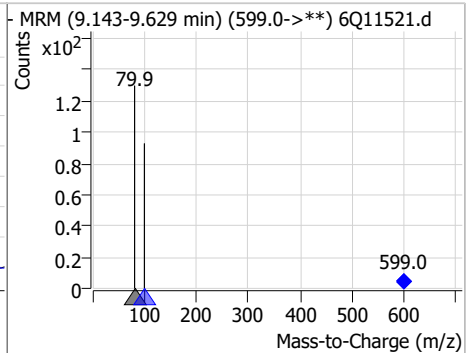
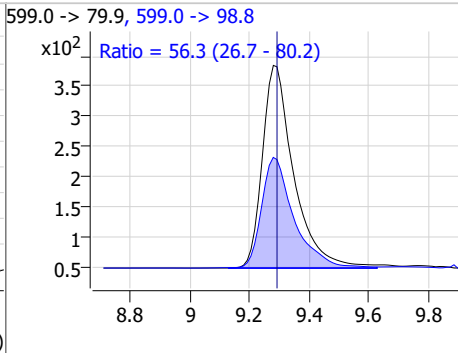
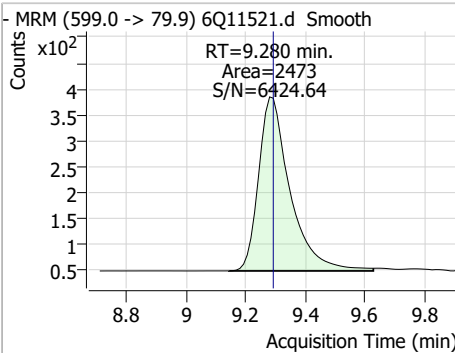
7

Perfluorinated Compounds by LC/MS/MS

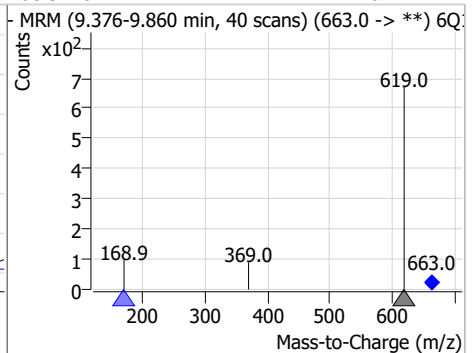
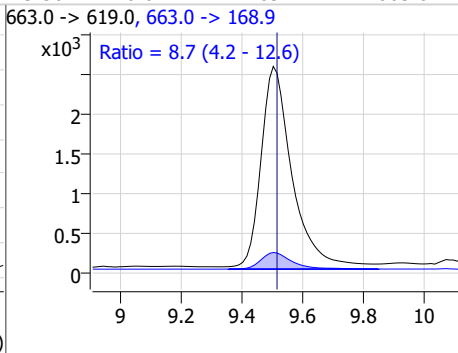
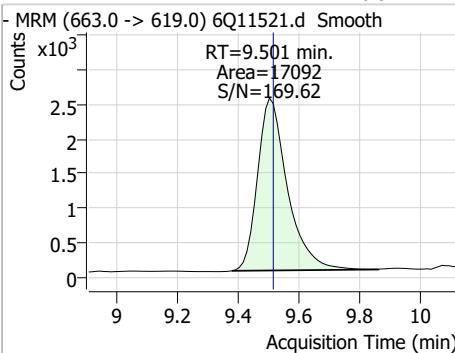
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	0.91	9.10	-0.01	17739	613.1 -> 319.0	12.0	6.3	18.9



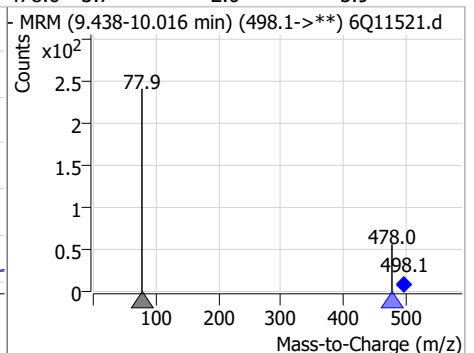
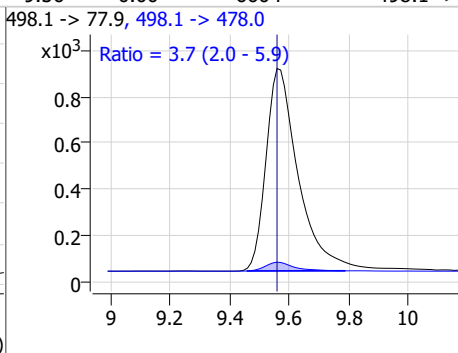
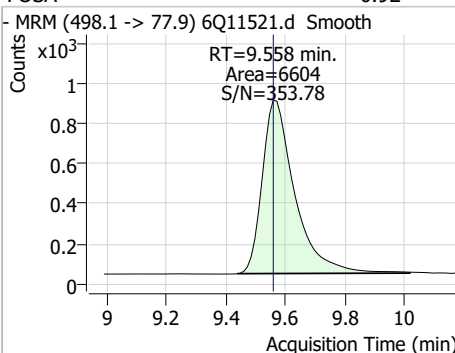
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDs	0.84	9.28	-0.01	2473	599.0 -> 98.8	56.3	26.7	80.2



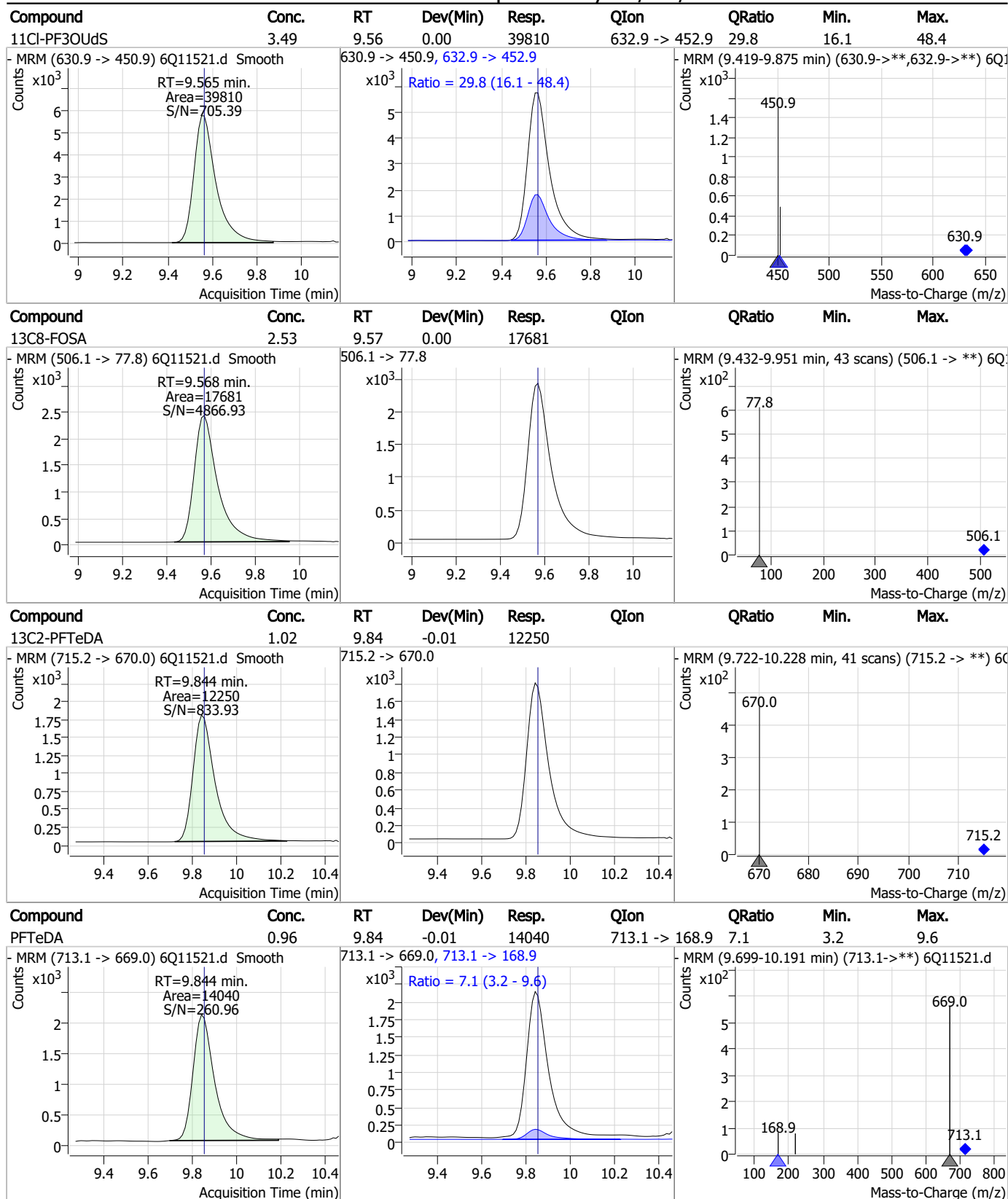
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.91	9.50	-0.01	17092	663.0 -> 168.9	8.7	4.2	12.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.92	9.56	0.00	6604	498.1 -> 478.0	3.7	2.0	5.9



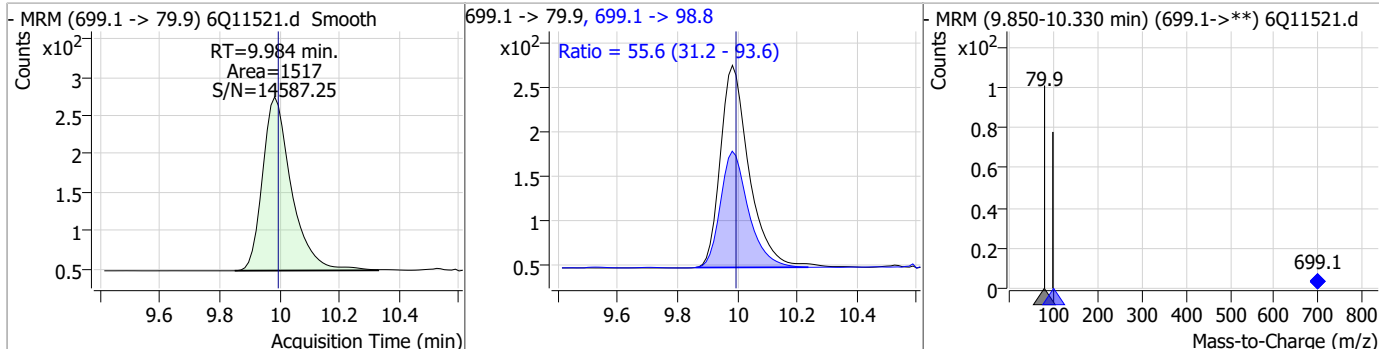
Perfluorinated Compounds by LC/MS/MS



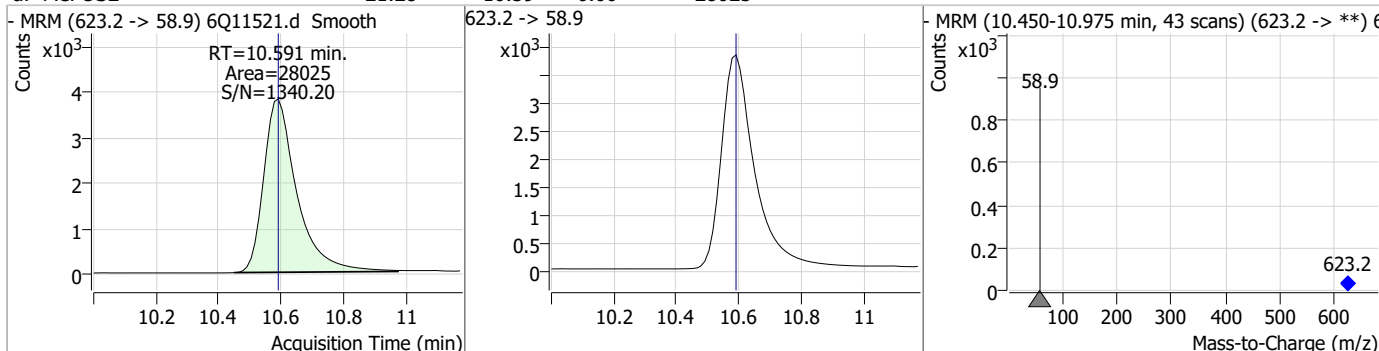
7.3.2
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Perfluorinated Compounds by LC/MS/MS

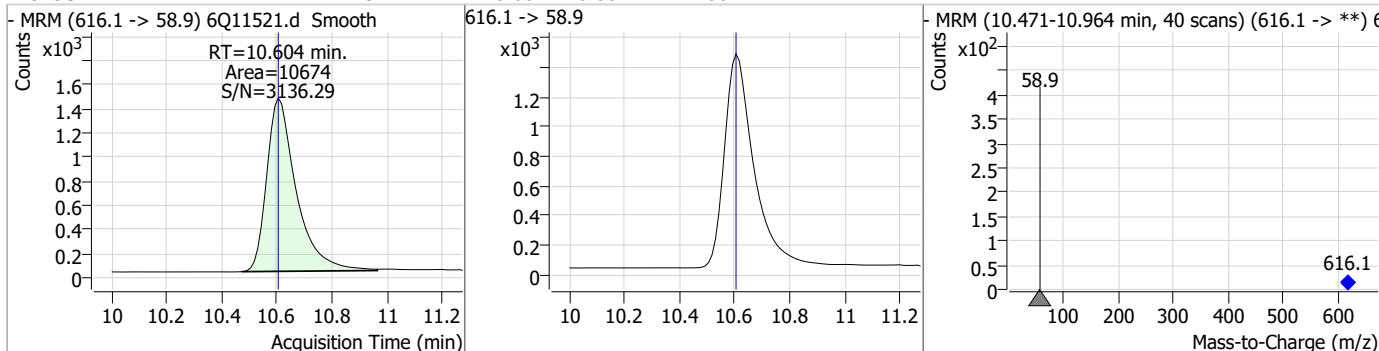
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.83	9.98	-0.01	1517	699.1 -> 98.8	55.6	31.2	93.6



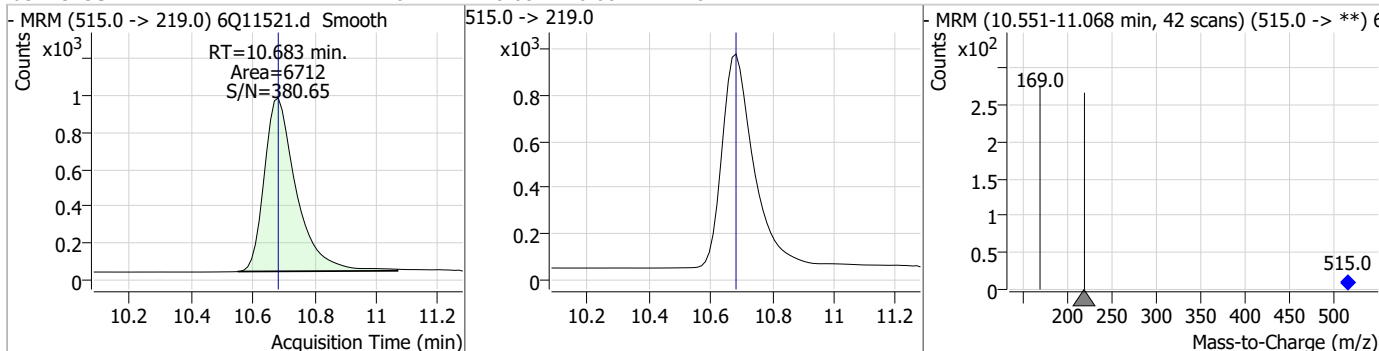
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.28	10.59	0.00	28025				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	9.22	10.60	0.00	10674				

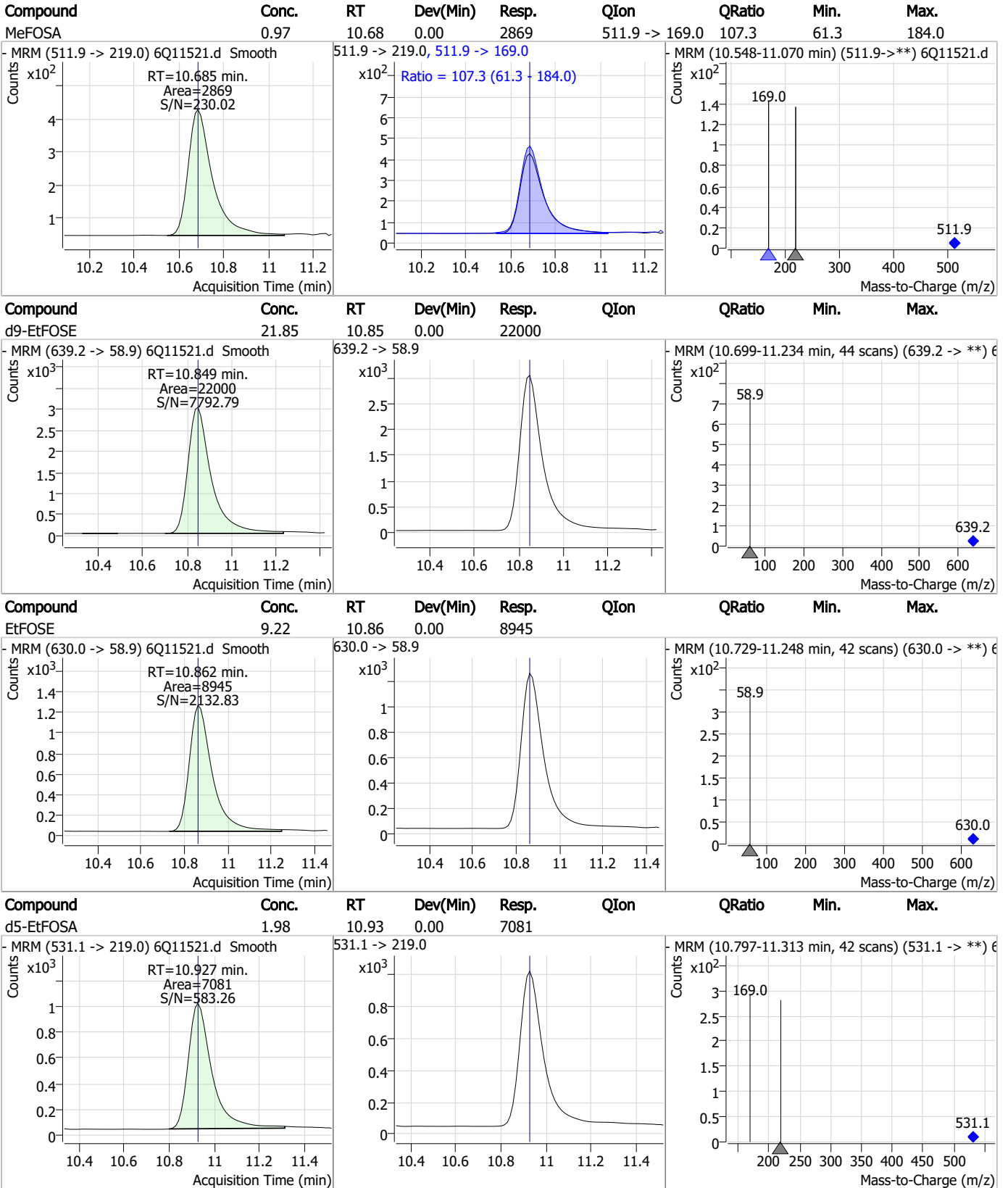


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.10	10.68	0.00	6712				



7.3.2
7

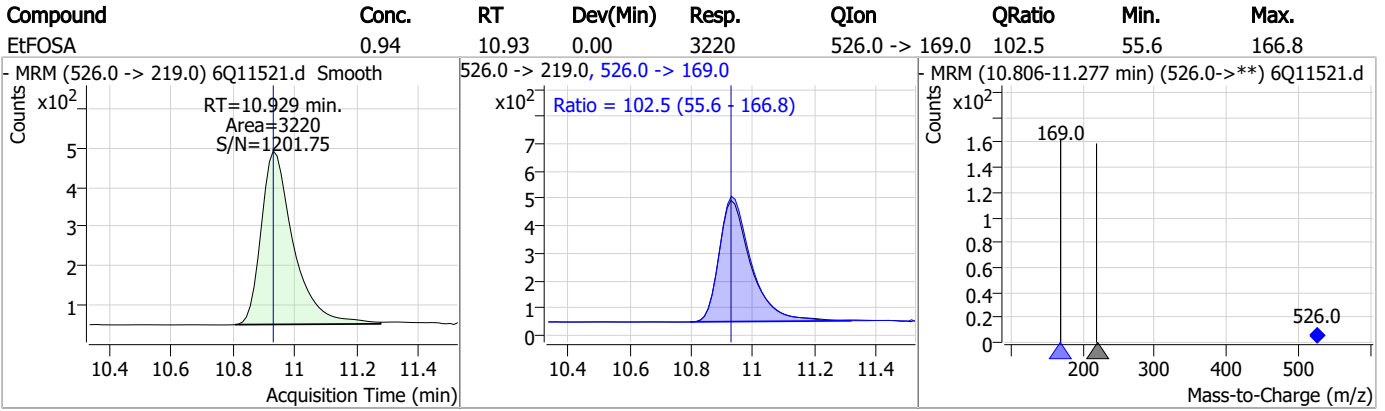
Perfluorinated Compounds by LC/MS/MS



7.3.2

7

Perfluorinated Compounds by LC/MS/MS



7.3.2

7

Manual Integration Approval Summary

Sample Number: OP94995-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q11521.D Analyst approved: 01/18/23 15:20 Martha Valls
Injection Time: 01/17/23 23:02 Supervisor approved: 01/18/23 19:08 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.3.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11525.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/17/2023 11:58:19 PM
 Sample Name : op94995-ms
 Vial : P4-A6
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.013	216.8 -> 171.9	86262	10.00 µg/L	0.012
M5-PFPeA	4.384	268.3 -> 223.0	40004	5.00 µg/L	0.000
M5-PFHxA	5.564	318.0 -> 273.0	36419	2.50 µg/L	0.000
M4-PFHpA	6.516	367.1 -> 322.0	36791	2.50 µg/L	0.000
M8-PFOA	7.160	421.1 -> 376.0	61344	2.50 µg/L	0.000
M9-PFNA	7.702	472.1 -> 427.0	27660	1.25 µg/L	-0.013
M6-PFDA	8.195	519.1 -> 474.1	18886	1.25 µg/L	-0.012
M7-PFUnDA	8.662	570.0 -> 525.1	20838	1.25 µg/L	-0.012
M2-PFDoDA	9.117	615.1 -> 570.0	23408	1.25 µg/L	0.000
M2-PFTeDA	9.844	715.2 -> 670.0	12061	1.25 µg/L	-0.012
M8-FOSA	9.568	506.1 -> 77.8	17452	2.50 µg/L	0.000
M3-PFBS	5.519	302.1 -> 79.9	12837	2.50 µg/L	-0.012
M3-PFHxS	7.288	402.1 -> 79.9	8655	2.50 µg/L	-0.012
M8-PFOS	8.371	507.1 -> 79.9	8436	2.50 µg/L	-0.012
M2-4:2FTS	5.228	329.1 -> 80.9	1900	5.00 µg/L	0.000
M2-6:2FTS	6.921	429.1 -> 80.9	2520	5.00 µg/L	-0.012
M2-8:2FTS	7.982	529.1 -> 80.9	2338	5.00 µg/L	0.000
M3-MeFOSAA	8.228	573.2 -> 419.0	25244	5.00 µg/L	-0.012
M3-HFPO-DA	5.941	286.9 -> 168.9	15844	10.00 µg/L	0.000
M5-EtFOSAA	8.436	589.2 -> 419.0	21017	5.00 µg/L	-0.012
M7-MeFOSE	10.591	623.2 -> 58.9	30659	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	21624	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	7656	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	7154	2.50 µg/L	0.000
13C4-PFOS	8.372	502.8 -> 79.9	9695	2.50 µg/L	-0.012
13C3-PFBA	3.004	216.0 -> 172.0	32962	5.00 µg/L	0.000
18O2-PFHxS	7.299	403.0 -> 83.9	6030	2.50 µg/L	0.000
13C4-PFOA	7.160	417.1 -> 372.0	66515	2.50 µg/L	-0.012
13C2-PFDA	8.196	515.1 -> 470.1	22323	1.25 µg/L	-0.012
13C5-PFNA	7.703	468.0 -> 423.0	29068	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	30976	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.228	329.1 -> 80.9	1900	6.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.8%		
13C2-6:2FTS	6.921	429.1 -> 80.9	2520	5.85 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.0%		
13C2-8:2FTS	7.982	529.1 -> 80.9	2338	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C2-PFDoDA	9.117	615.1 -> 570.0	23408	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C2-PFTeDA	9.844	715.2 -> 670.0	12061	1.16 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.8%		
13C3-PFBS	5.519	302.1 -> 79.9	12837	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C3-PFHxS	7.288	402.1 -> 79.9	8655	2.64 µg/L	-0.012

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C4-PFBA	3.013	216.8 -> 171.9	86262	11.46 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.6%	
13C4-PFHpA	6.516	367.1 -> 322.0	36791	2.93 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 117.2%	
13C5-PFHxA	5.564	318.0 -> 273.0	36419	2.93 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 117.1%	
13C5-PFPeA	4.384	268.3 -> 223.0	40004	5.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.8%	
13C6-PFDA	8.195	519.1 -> 474.1	18886	1.49 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 118.9%	
13C7-PFUnDA	8.662	570.0 -> 525.1	20838	1.34 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C8-FOSA	9.568	506.1 -> 77.8	17452	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C8-PFOA	7.160	421.1 -> 376.0	61344	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C8-PFOS	8.371	507.1 -> 79.9	8436	2.72 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C9-PFNA	7.702	472.1 -> 427.0	27660	1.34 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.1%	
d3-MeFOSAA	8.228	573.2 -> 419.0	25244	5.41 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C3-HFPO-DA	5.941	286.9 -> 168.9	15844	12.40 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 124.0%	
d3-MeFOSA	10.683	515.0 -> 219.0	7154	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.5%	
d5-EtFOSAA	8.436	589.2 -> 419.0	21017	5.13 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d7-MeFOSE	10.591	623.2 -> 58.9	30659	24.84 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
d9-EtFOSE	10.849	639.2 -> 58.9	21624	22.91 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.7%	
d5-EtFOSA	10.927	531.1 -> 219.0	7656	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.2%	
Target Compounds					QValue
4:2FTS	5.229	327.1 -> 307.0	39170	8.67 µg/L	100
		327.1 -> 80.9	9121		
6:2FTS	6.922	427.1 -> 407.0	35637	9.09 µg/L	98
		427.1 -> 80.9	7776		
8:2FTS	7.971	527.1 -> 507.0	20783	10.66 µg/L	98
		527.1 -> 80.8	5298		
EtFOSAA	8.449	584.2 -> 419.1	8051	2.40 µg/L	m 92
		584.2 -> 526.0	4239		
FOSA	9.558	498.1 -> 77.9	18077	2.56 µg/L	98
		498.1 -> 478.0	599		
MeFOSAA	8.241	570.1 -> 419.0	12777	2.46 µg/L	m 96
		570.1 -> 483.0	2330		
PFBA	3.007	212.8 -> 168.9	21074	9.52 µg/L	100
PFBS	5.520	298.7 -> 79.9	11714	2.25 µg/L	98
		298.7 -> 98.8	5151		
PFDA	8.196	512.9 -> 469.0	54263	2.39 µg/L	96
		512.9 -> 219.0	8122		
PFDODA	9.105	613.1 -> 569.0	44172	2.40 µg/L	100
		613.1 -> 319.0	5640		
PFDS	9.280	599.0 -> 79.9	5950	2.04 µg/L	98

7.4.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.516	599.0 -> 98.8	3256	2.37	µg/L	96
		363.1 -> 319.0	52478			
PFHpS	7.867	363.1 -> 169.0	7615	2.31	µg/L	95
		449.0 -> 79.9	8924			
PFHxA	5.567	449.0 -> 98.9	5418	2.40	µg/L	100
		313.0 -> 269.0	35369			
PFHxS	7.301	313.0 -> 118.9	1252	2.22	µg/L	96
		398.7 -> 79.9	9128			
PFNA	7.703	398.7 -> 98.9	5138	2.36	µg/L	99
		463.0 -> 419.0	45257			
PFNS	8.850	463.0 -> 219.0	8812	2.33	µg/L	93
		548.8 -> 79.9	9484			
PFOA	7.161	548.8 -> 98.9	5448	2.44	µg/L	99
		413.0 -> 369.0	67071			
PFOS	8.372	413.0 -> 169.0	9309	2.15	µg/L	95
		498.9 -> 79.9	8774			
PFPeA	4.386	498.9 -> 98.8	5553	4.84	µg/L	100
		263.0 -> 219.0	42523			
PFPeS	6.595	349.1 -> 79.9	11047	2.26	µg/L	97
		349.1 -> 98.9	6163			
PFTeDA	9.844	713.1 -> 669.0	38114	2.65	µg/L	100
		713.1 -> 168.9	2459			
PFTrDA	9.501	663.0 -> 619.0	41271	2.35	µg/L	98
		663.0 -> 168.9	3240			
PFUnDA	8.662	563.1 -> 519.0	41827	2.40	µg/L	100
		563.1 -> 269.1	6013			
11CI-PF3OUdS	9.565	630.9 -> 450.9	91496	7.62	µg/L	99
		632.9 -> 452.9	30107			
9CI-PF3ONS	8.714	530.8 -> 351.0	152340	7.80	µg/L	100
		532.8 -> 353.0	51743			
ADONA	6.767	376.9 -> 250.9	319096	9.06	µg/L	94
		376.9 -> 84.8	56697			
HFPO-DA	5.942	284.9 -> 168.9	14926	9.32	µg/L	98
		284.9 -> 184.9	1953			
3:3FTCA	3.864	241.0 -> 177.0	5164	11.03	µg/L	98
		241.0 -> 117.0	662			
5:3FTCA	6.207	341.0 -> 237.1	180276	58.91	µg/L	100
		341.0 -> 217.0	153129			
7:3FTCA	7.618	441.0 -> 316.9	119380	57.87	µg/L	88
		441.0 -> 336.9	256435			
EtFOSA	10.929	526.0 -> 219.0	8171	2.21	µg/L	90
		526.0 -> 169.0	8186			
EtFOSE	10.862	630.0 -> 58.9	22722	23.82	µg/L	100
		511.9 -> 219.0	6972			
MeFOSA	10.685	511.9 -> 169.0	7155	2.21	µg/L	82
		616.1 -> 58.9	27946			
MeFOSE	10.604	699.1 -> 79.9	3742	22.07	µg/L	100
		699.1 -> 98.8	2380			
PFDoDS	9.984	295.0 -> 201.0	4537	2.06	µg/L	98
		295.0 -> 84.9	1976			
NFDHA	5.458	279.0 -> 85.1	13275	4.75	µg/L	96
		229.0 -> 84.9	11583			
PFMBA	4.789	314.8 -> 134.9	84570	4.84	µg/L	100
		314.8 -> 82.9	2181			
PFMPA	3.550			4.76	µg/L	100
PFEESA	6.060			4.13	µg/L	100

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

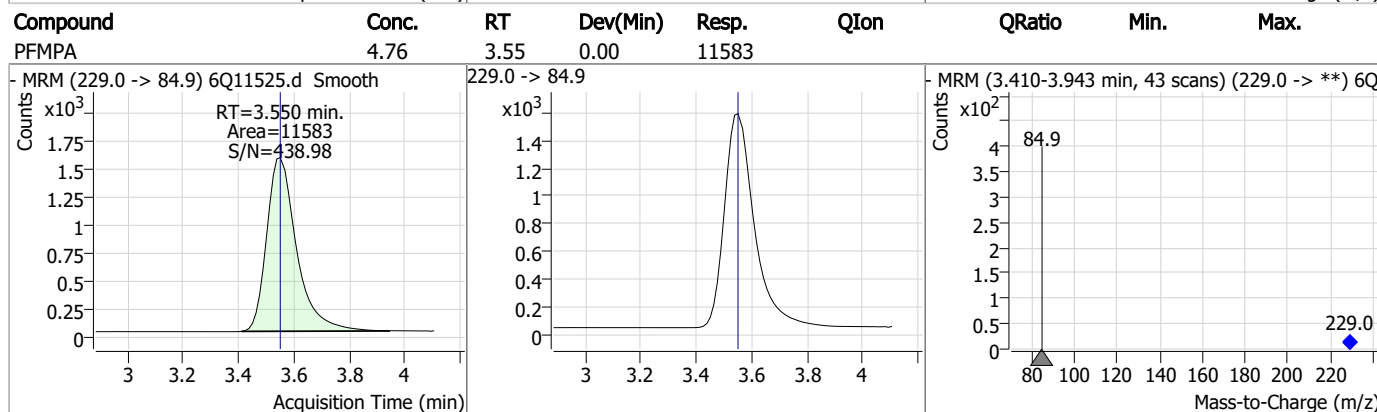
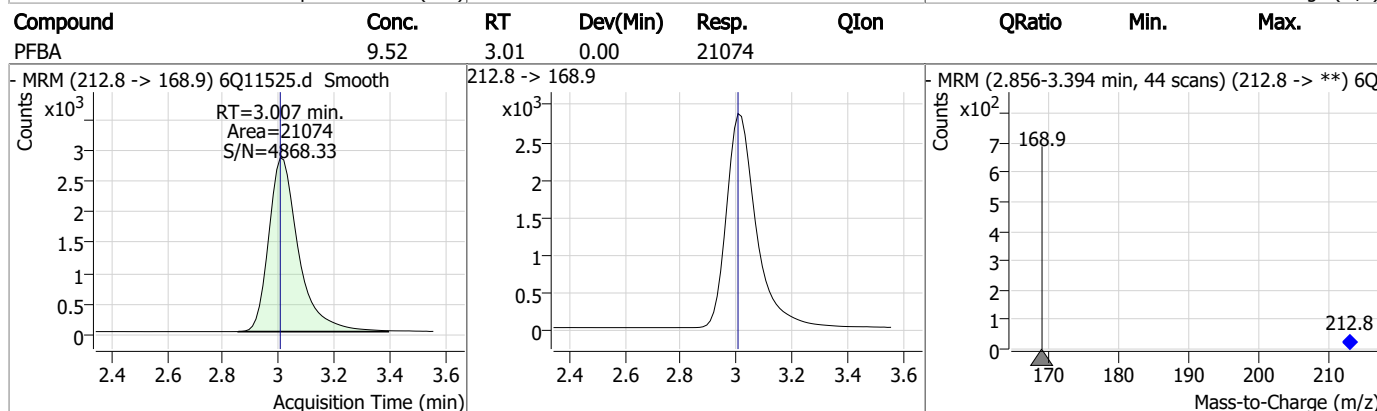
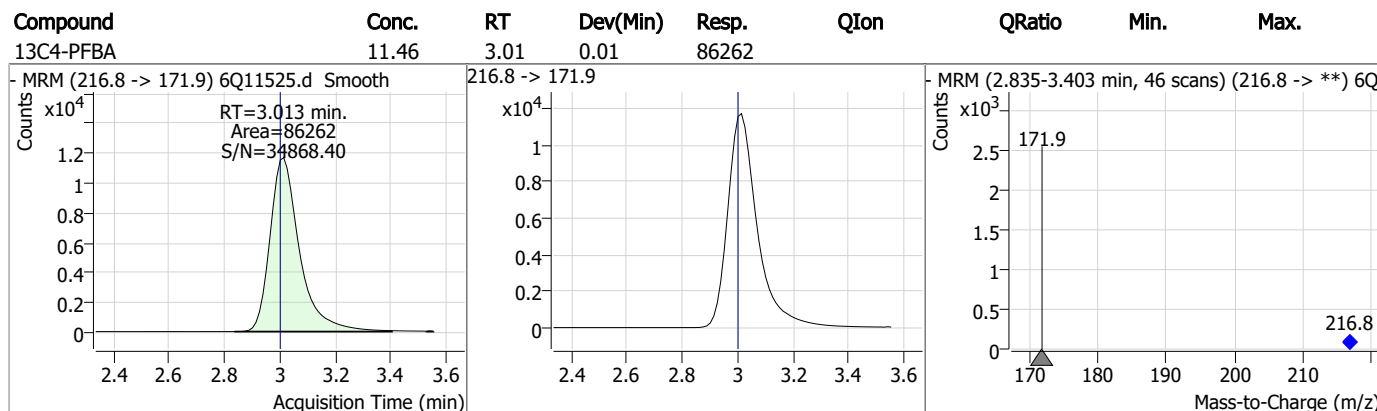
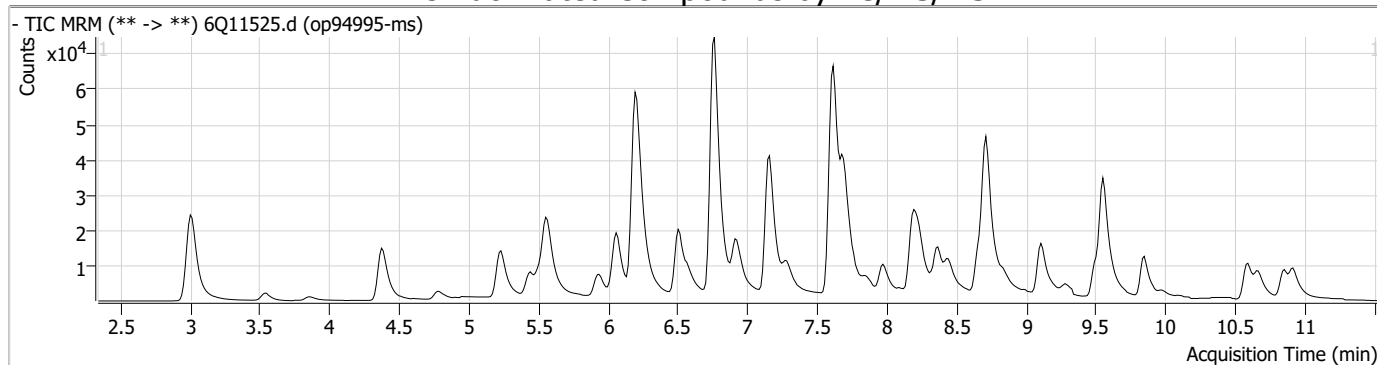
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.4.1

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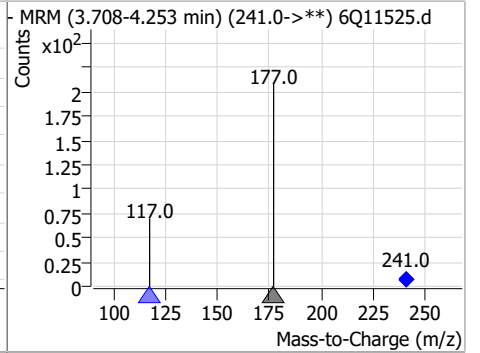
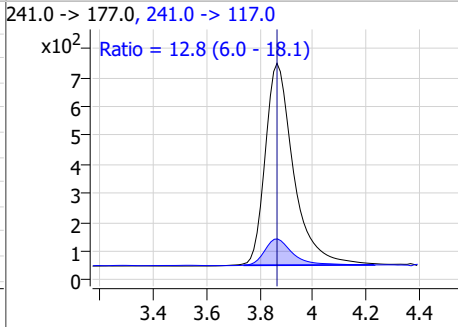
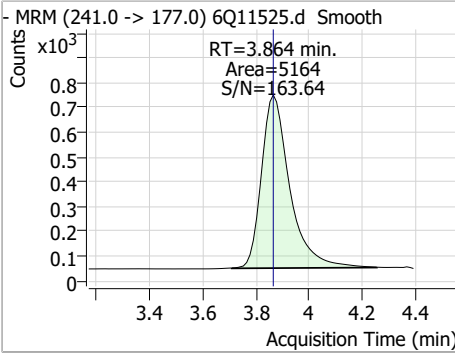
Perfluorinated Compounds by LC/MS/MS



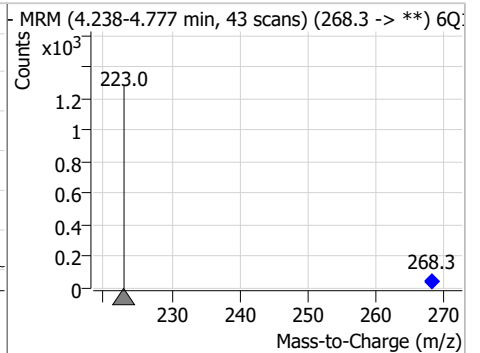
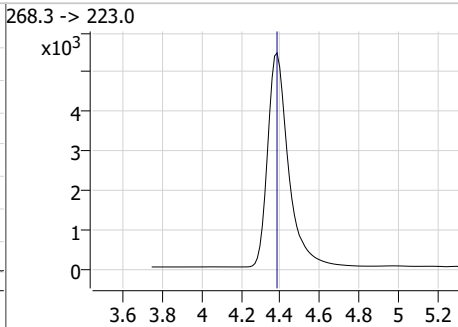
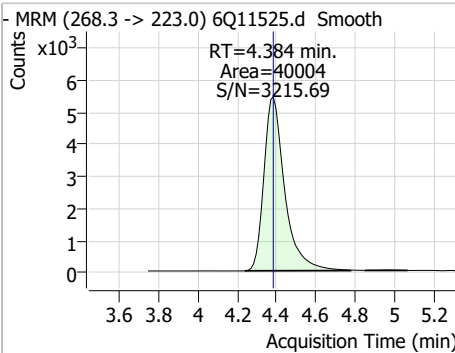
7.4.1
7

Perfluorinated Compounds by LC/MS/MS

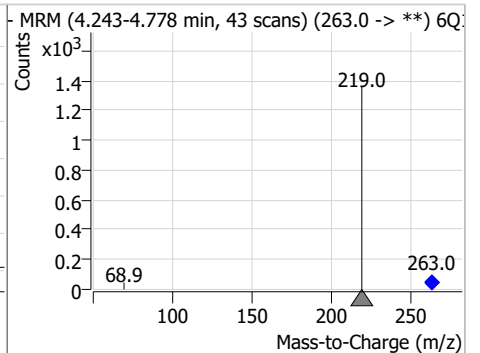
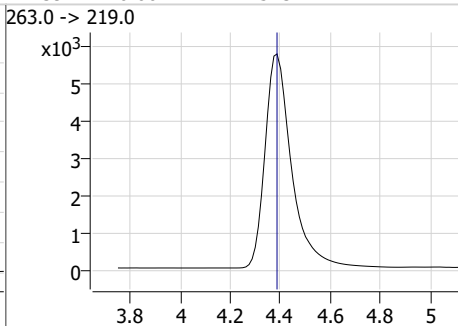
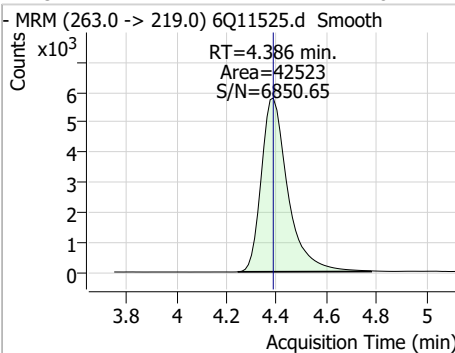
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.03	3.86	0.00	5164	241.0 -> 117.0	12.8	6.0	18.1



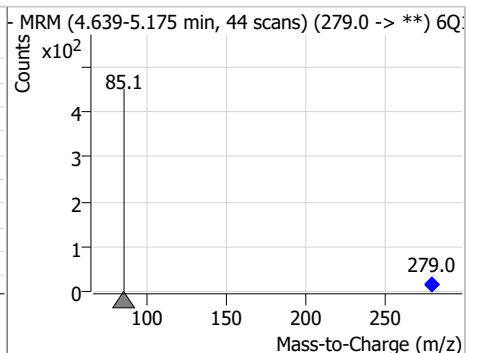
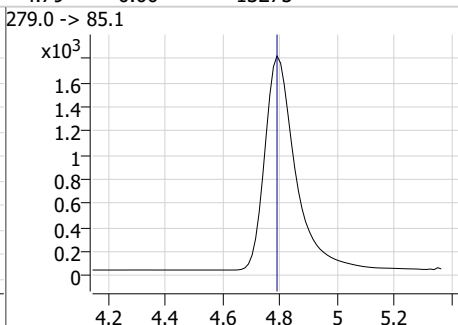
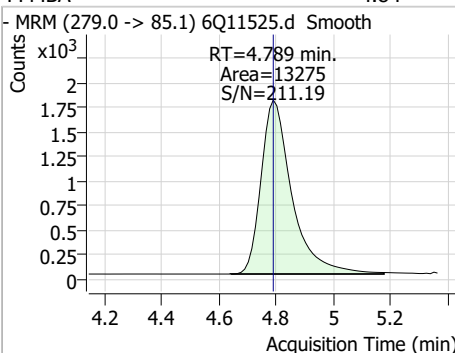
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.79	4.38	0.00	40004				



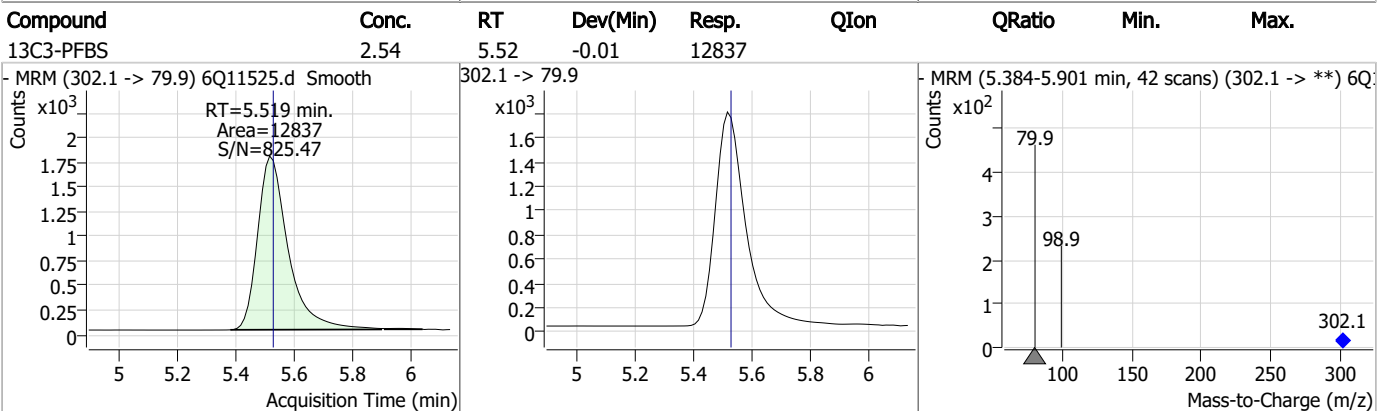
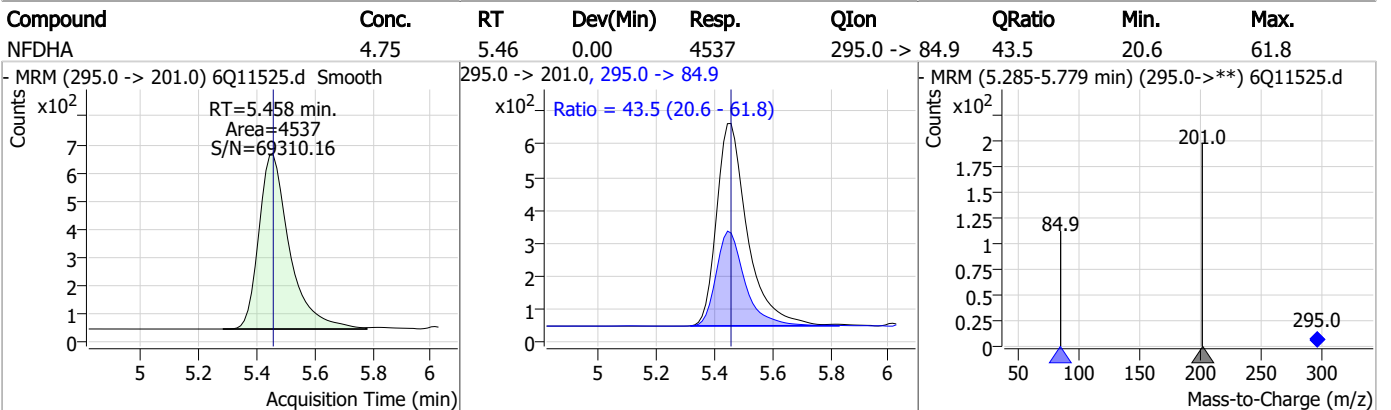
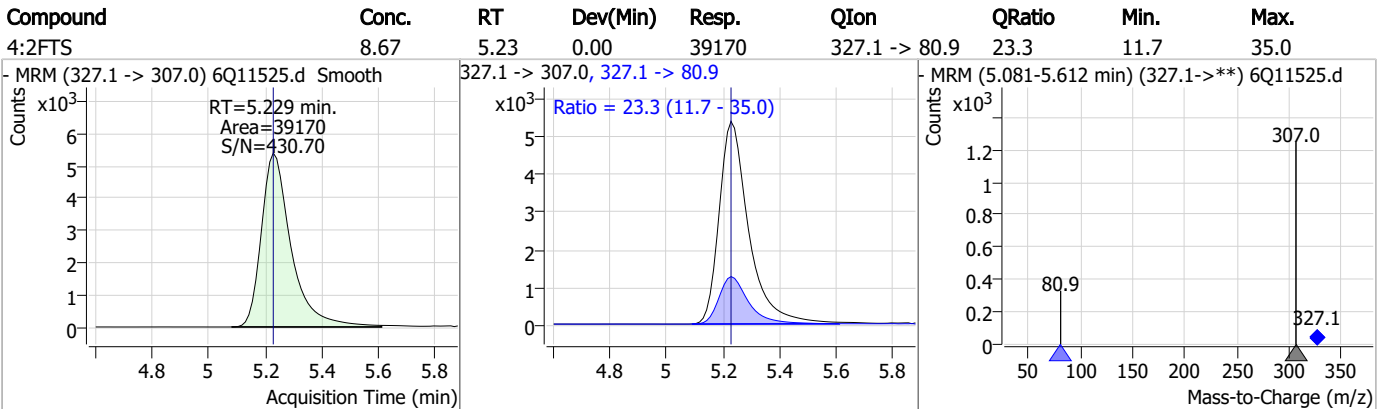
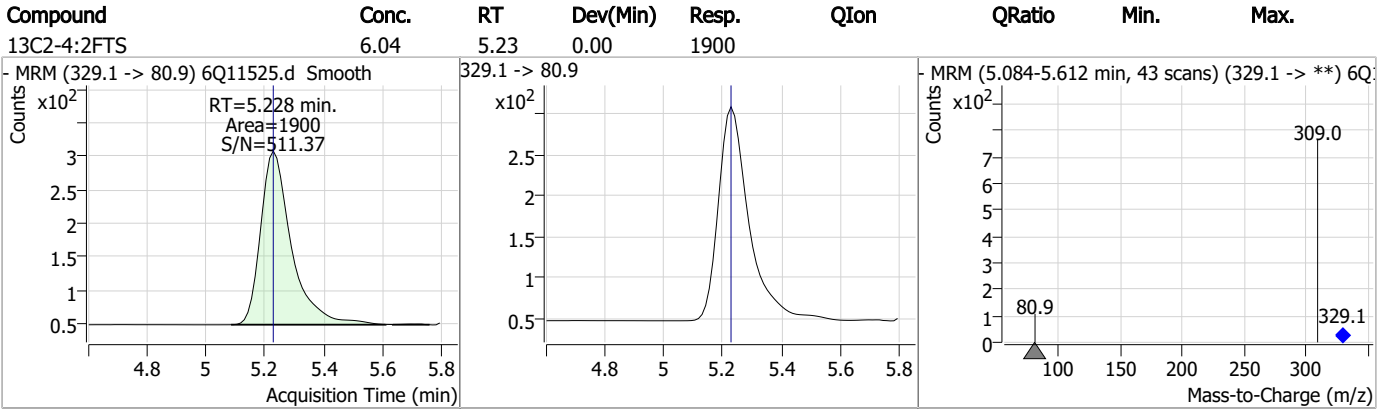
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.84	4.39	0.00	42523				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.84	4.79	0.00	13275				

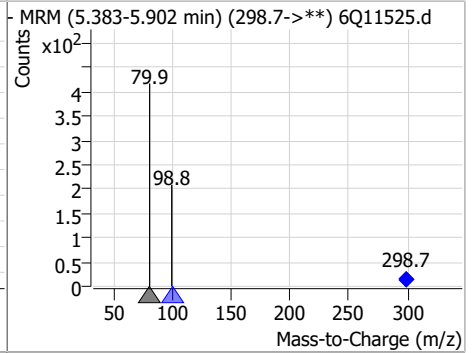
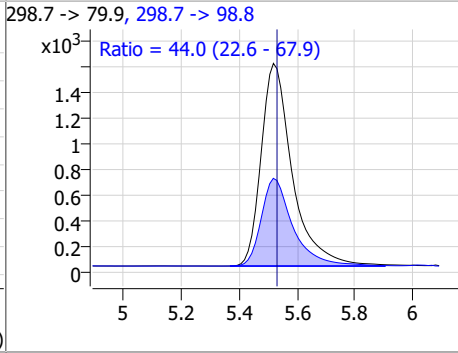
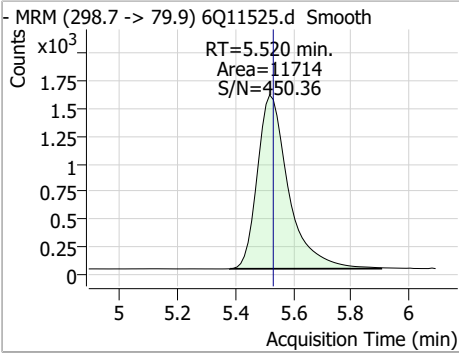


Perfluorinated Compounds by LC/MS/MS

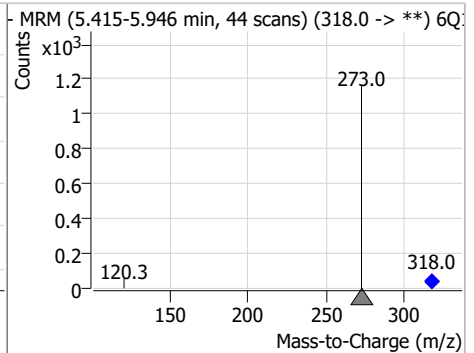
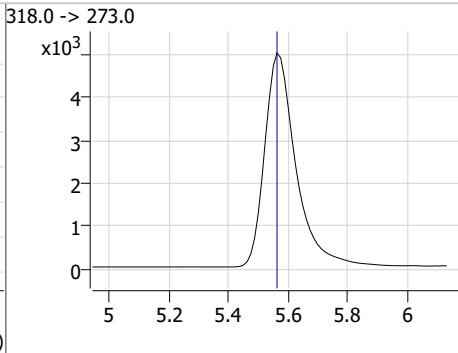
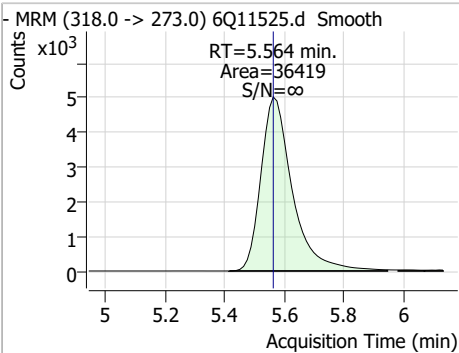


Perfluorinated Compounds by LC/MS/MS

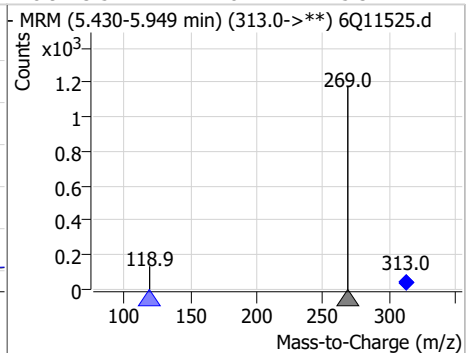
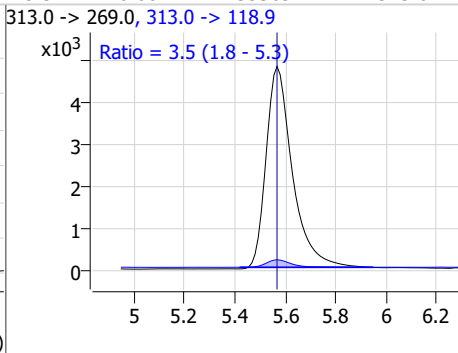
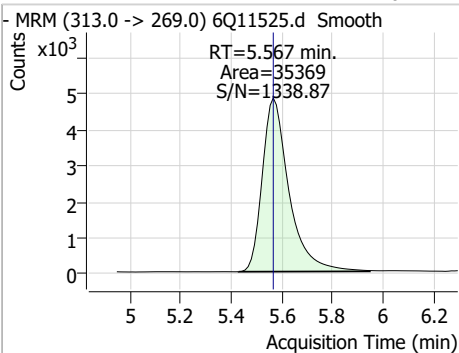
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.25	5.52	-0.01	11714	298.7 -> 98.8	44.0	22.6	67.9



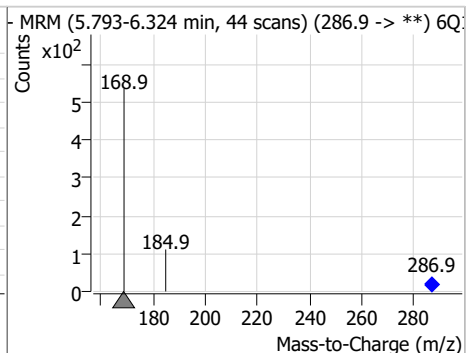
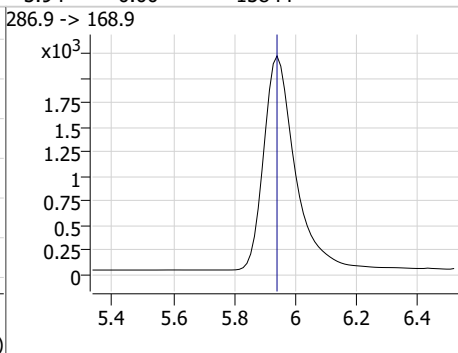
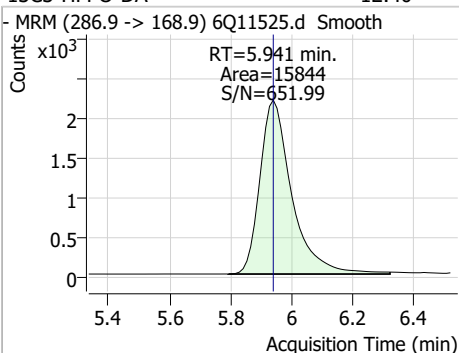
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.93	5.56	0.00	36419				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.40	5.57	0.00	35369	313.0 -> 118.9	3.5	1.8	5.3

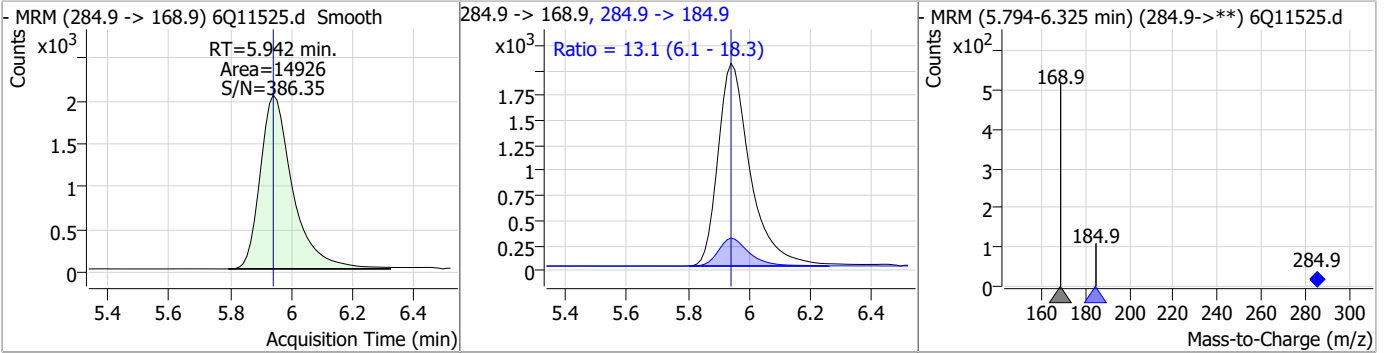


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	12.40	5.94	0.00	15844				

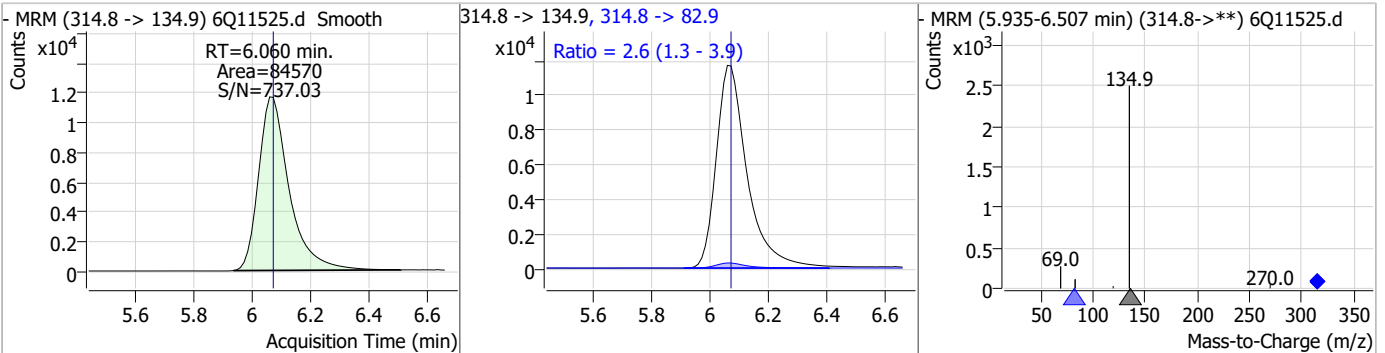


Perfluorinated Compounds by LC/MS/MS

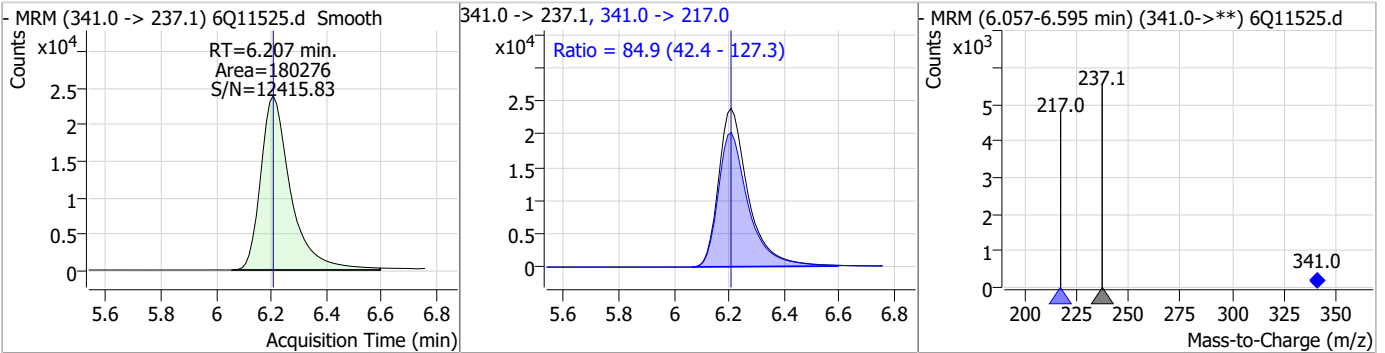
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.32	5.94	0.00	14926	284.9 -> 184.9	13.1	6.1	18.3



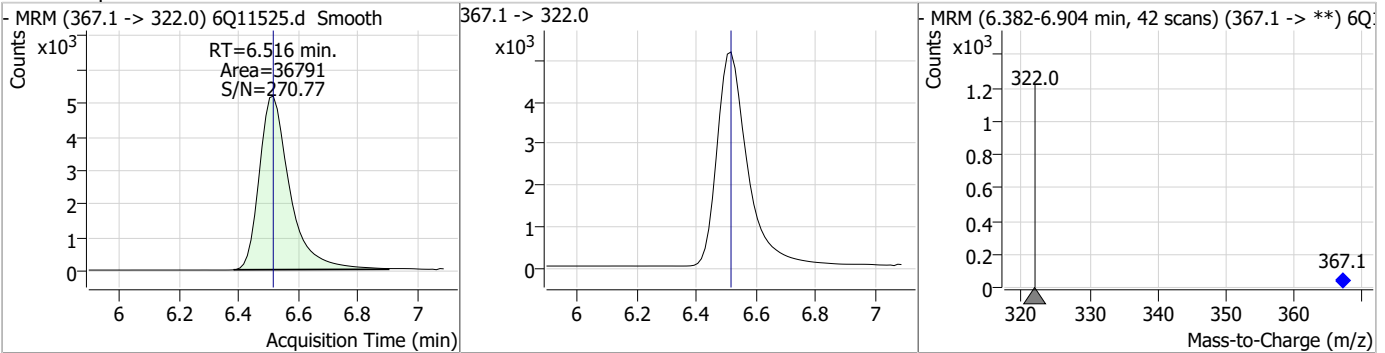
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.13	6.06	-0.01	84570	314.8 -> 82.9	2.6	1.3	3.9



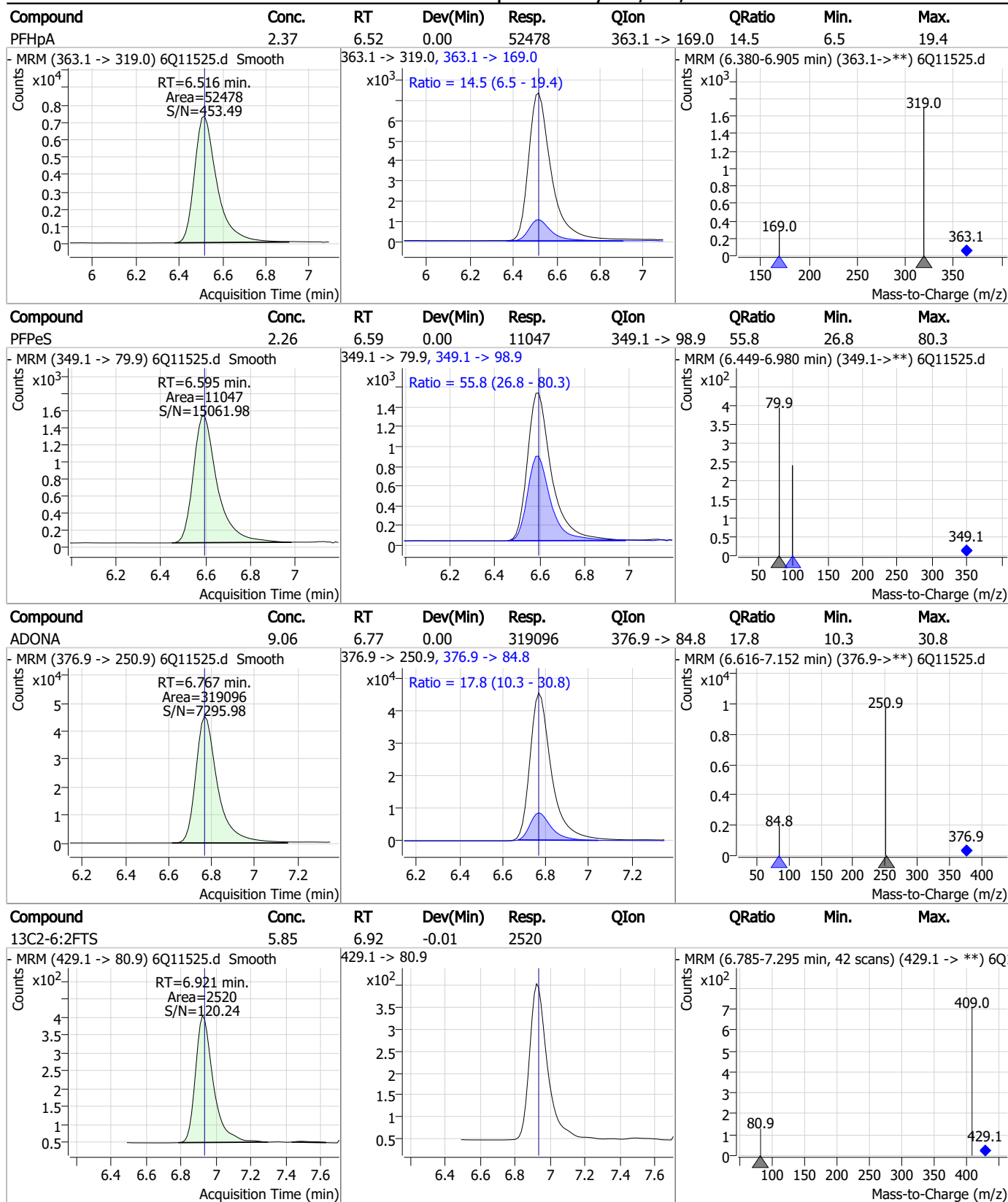
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	58.91	6.21	0.00	180276	341.0 -> 217.0	84.9	42.4	127.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.93	6.52	0.00	36791	367.1 -> 322.0	-	-	-



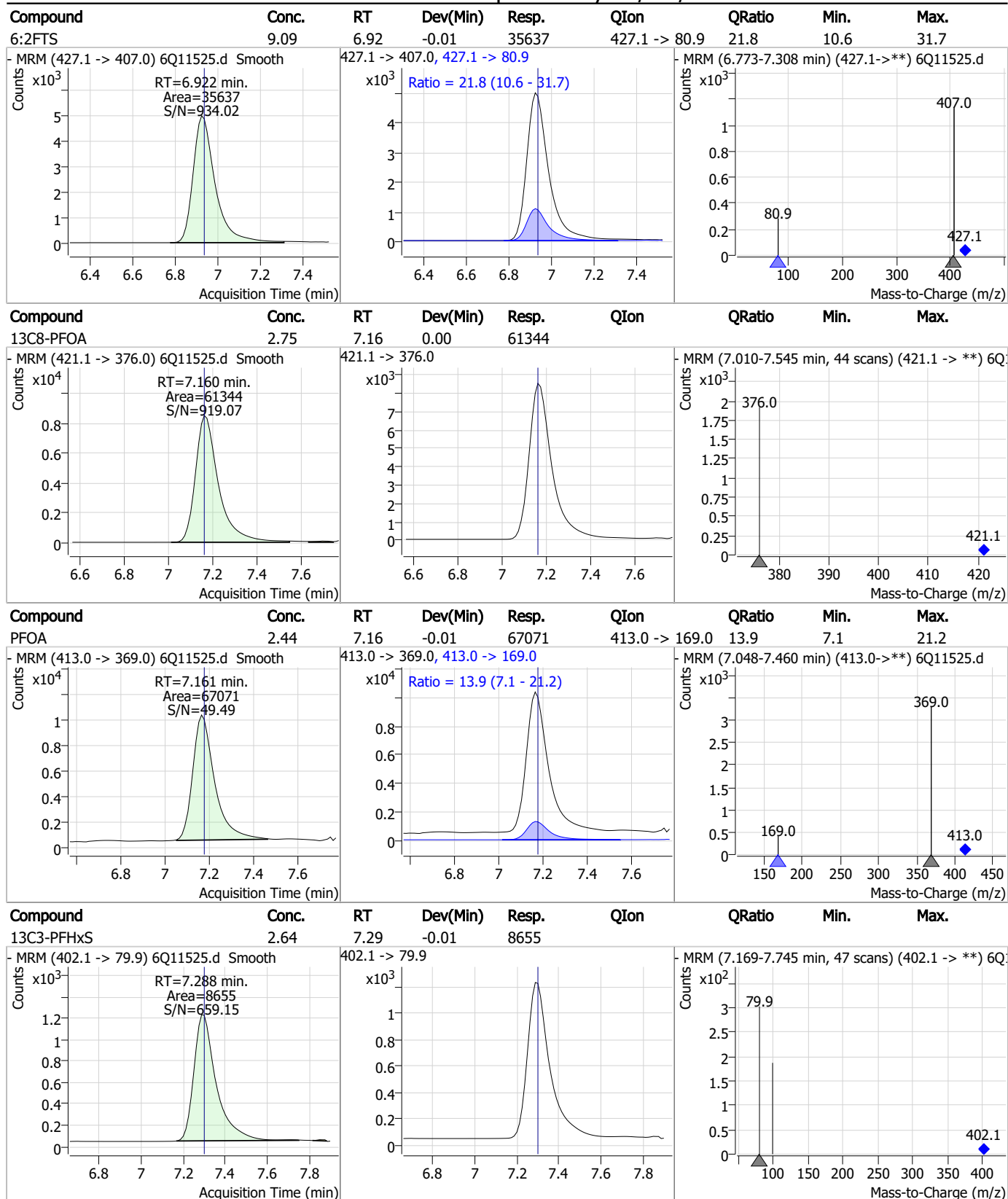
Perfluorinated Compounds by LC/MS/MS



7.4.1

7

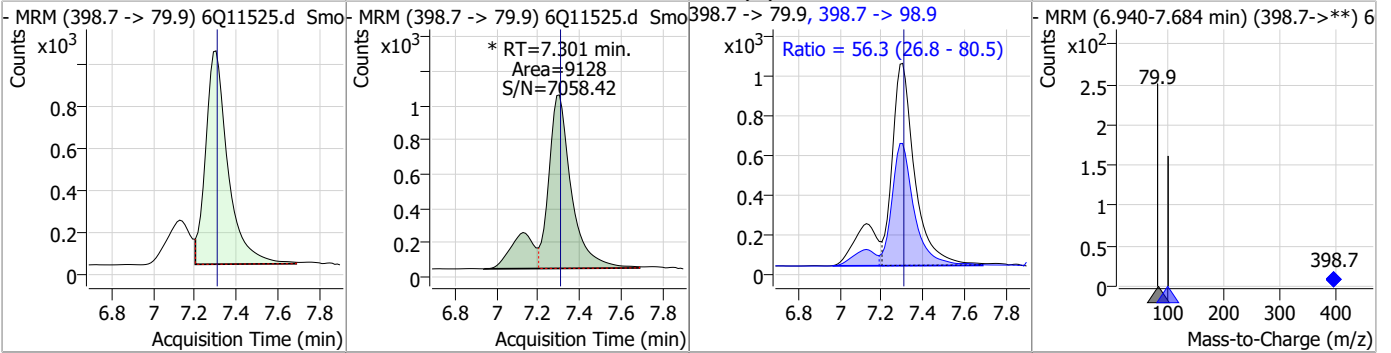
Perfluorinated Compounds by LC/MS/MS



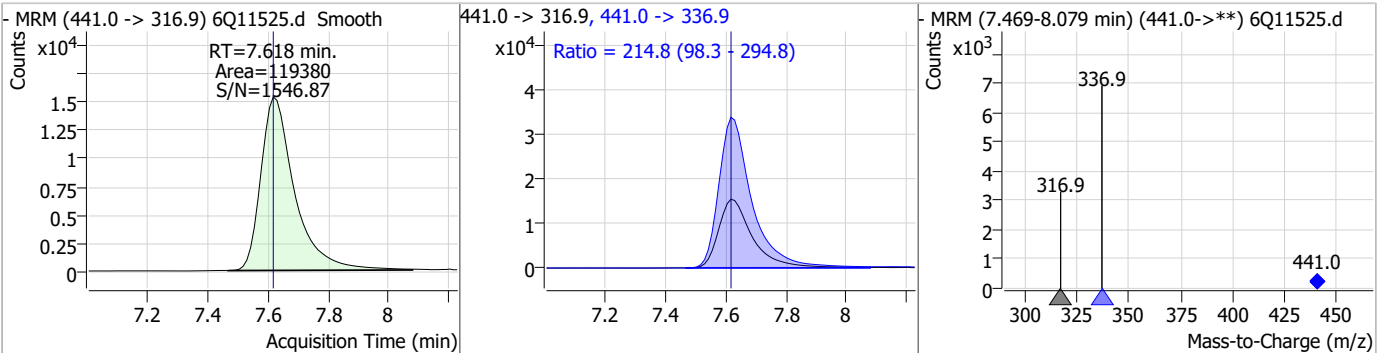
7.4.1

Perfluorinated Compounds by LC/MS/MS

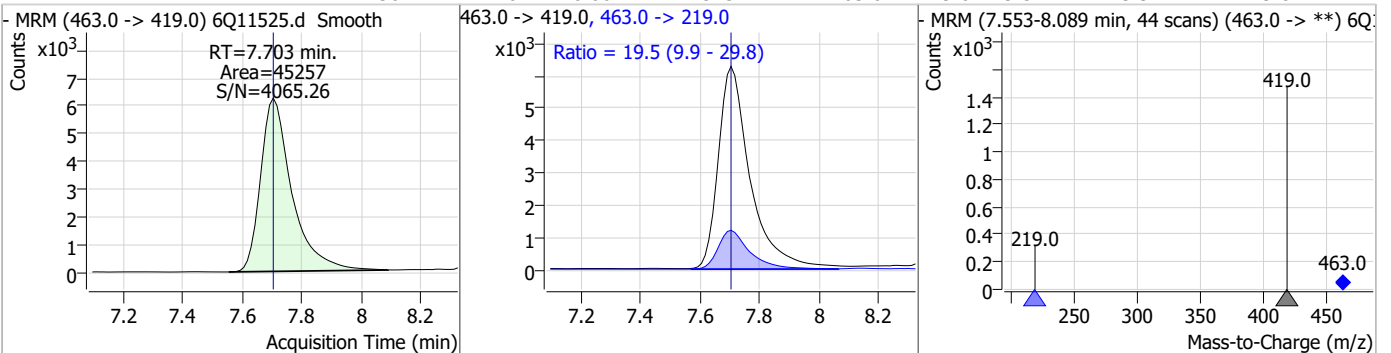
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.22	7.30	0.00	9128 (m)	398.7 -> 98.9	56.3	26.8	80.5



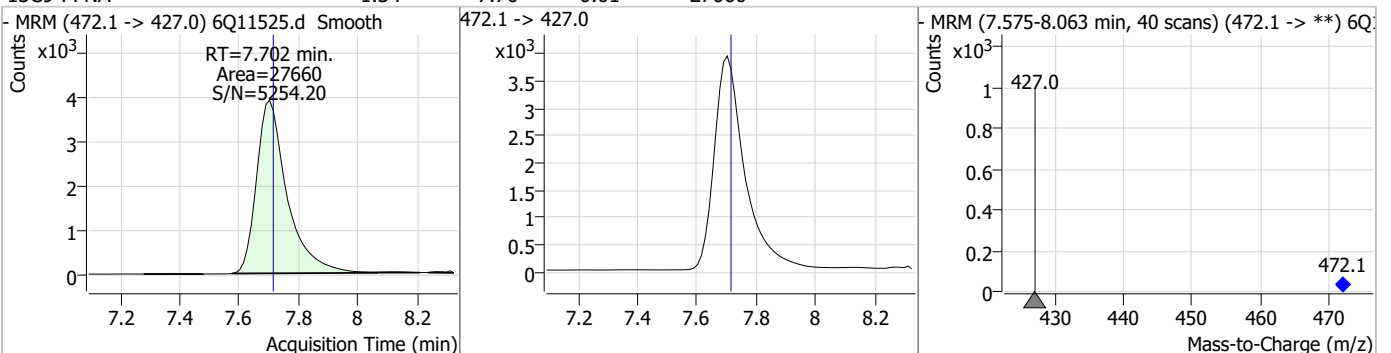
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	57.87	7.62	0.00	119380	441.0 -> 336.9	214.8	98.3	294.8



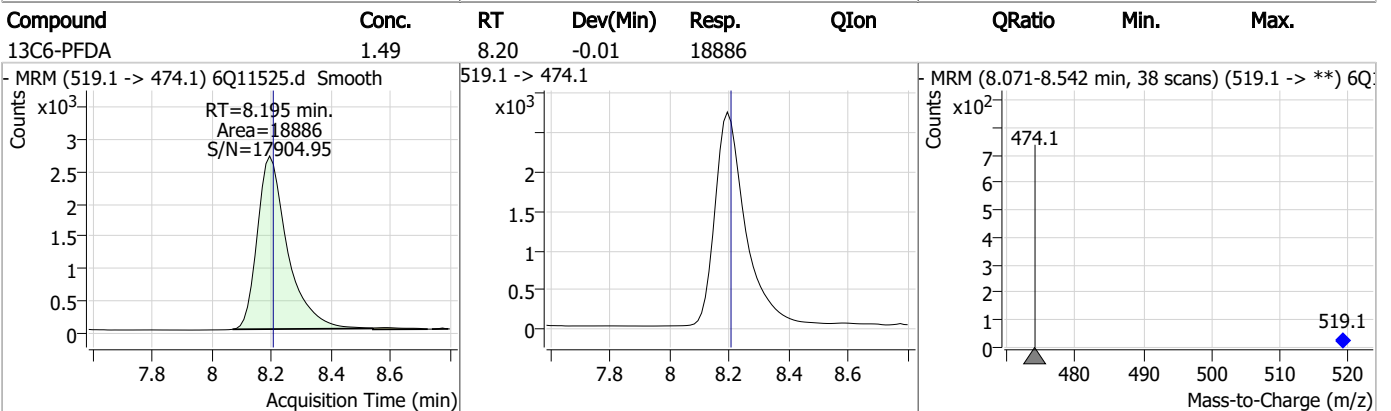
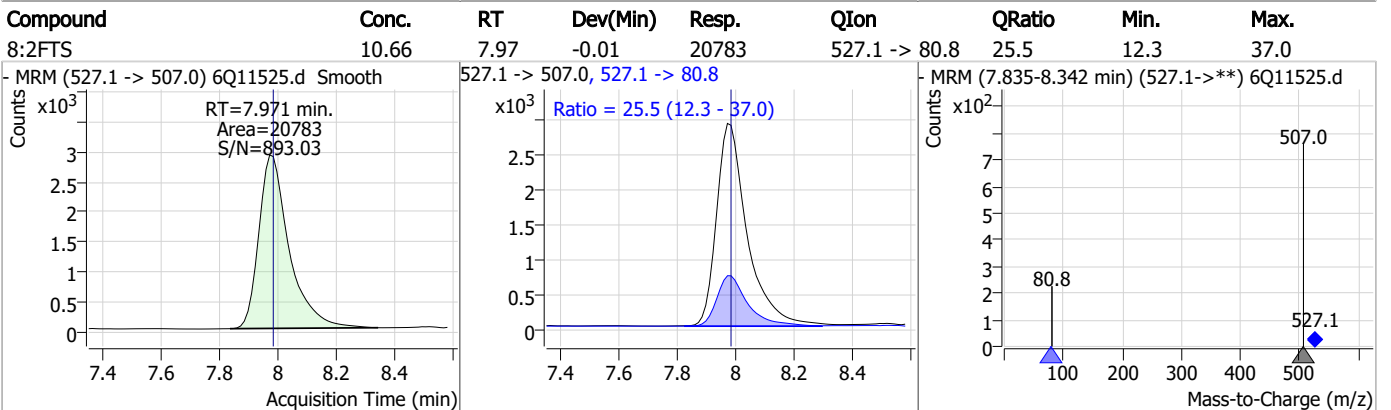
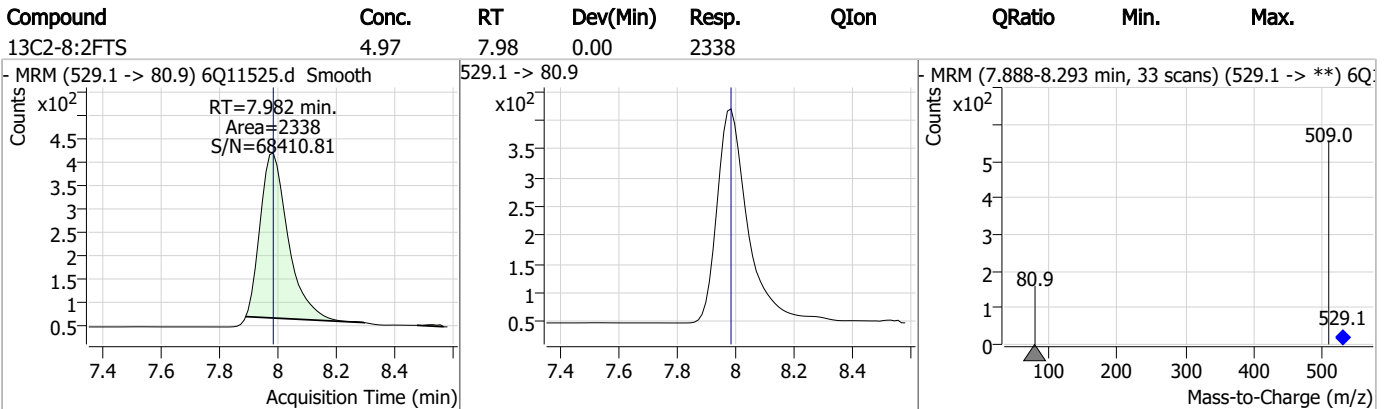
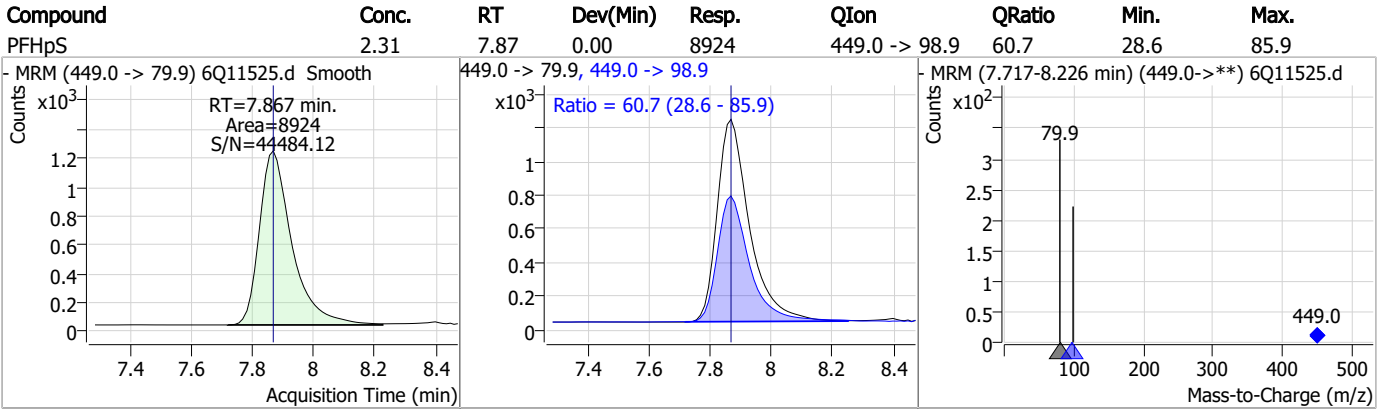
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.36	7.70	0.00	45257	463.0 -> 219.0	19.5	9.9	29.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.34	7.70	-0.01	27660	472.1 -> 427.0			



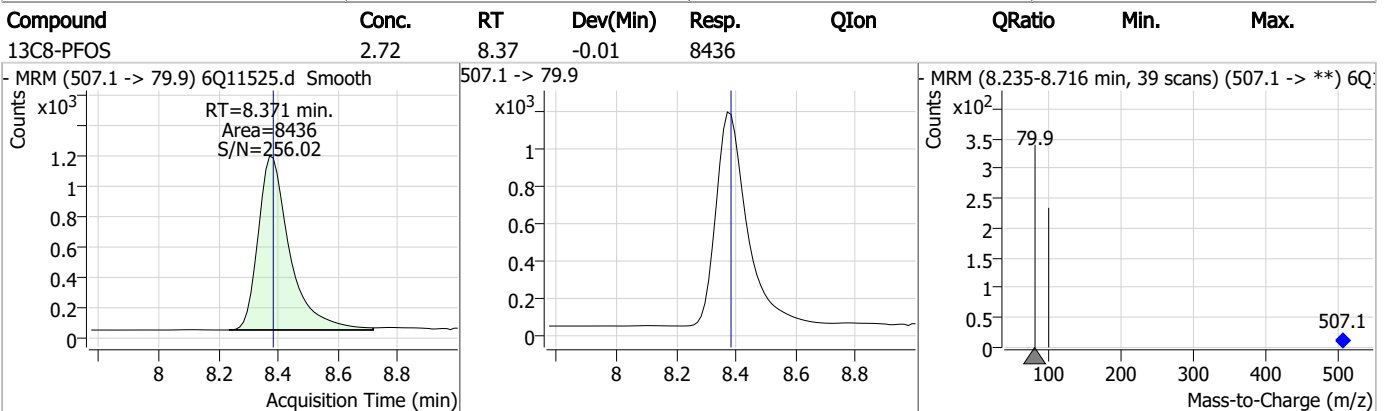
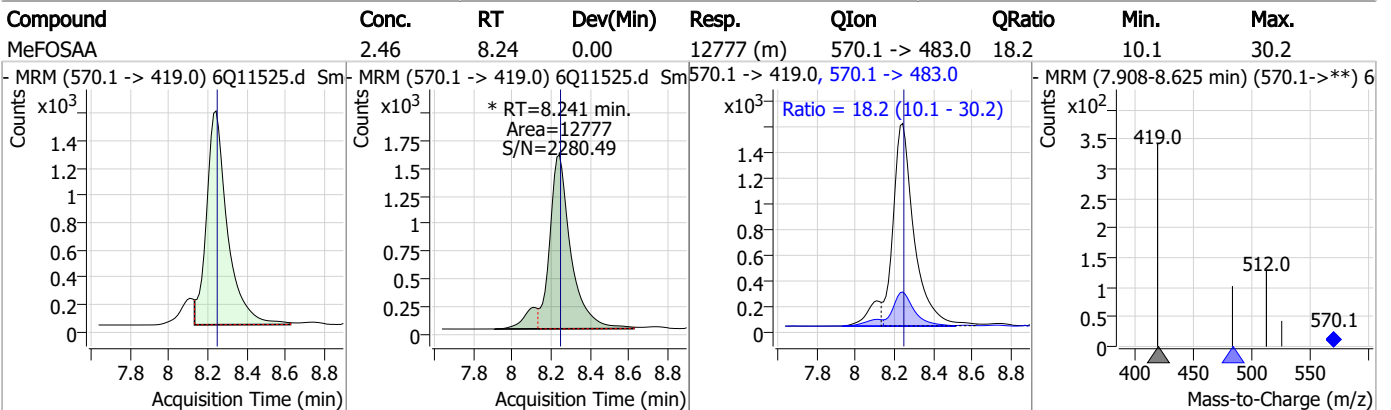
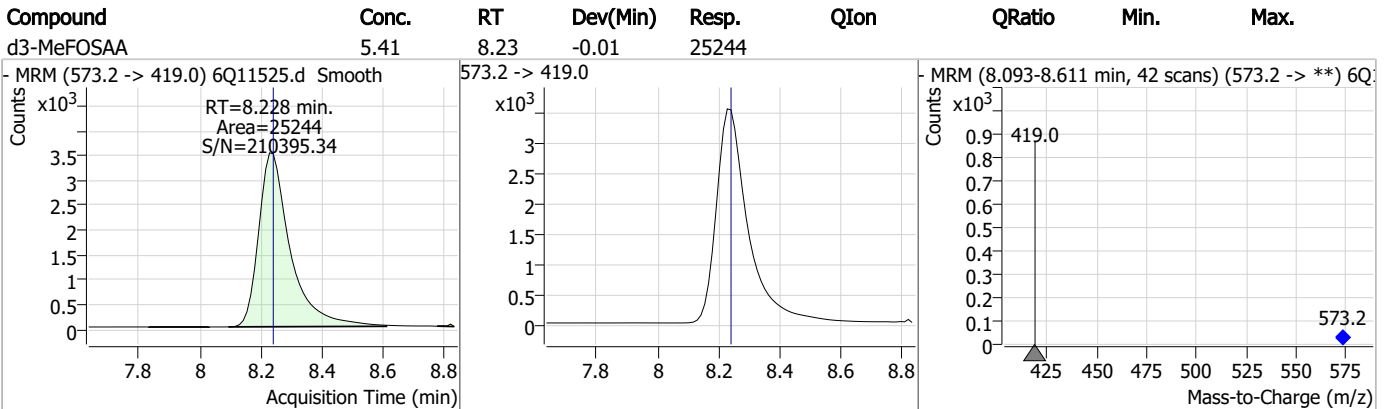
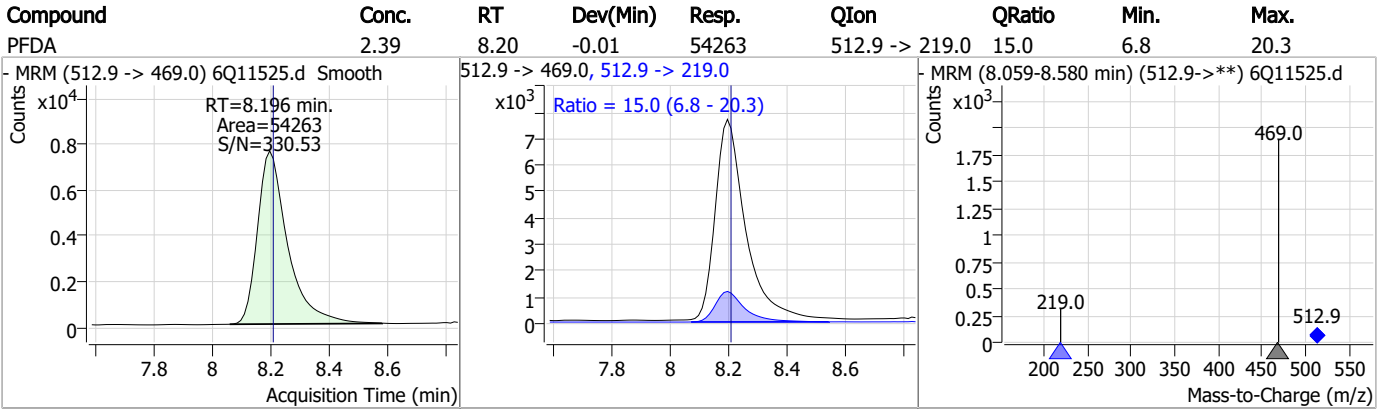
Perfluorinated Compounds by LC/MS/MS



7.4.1

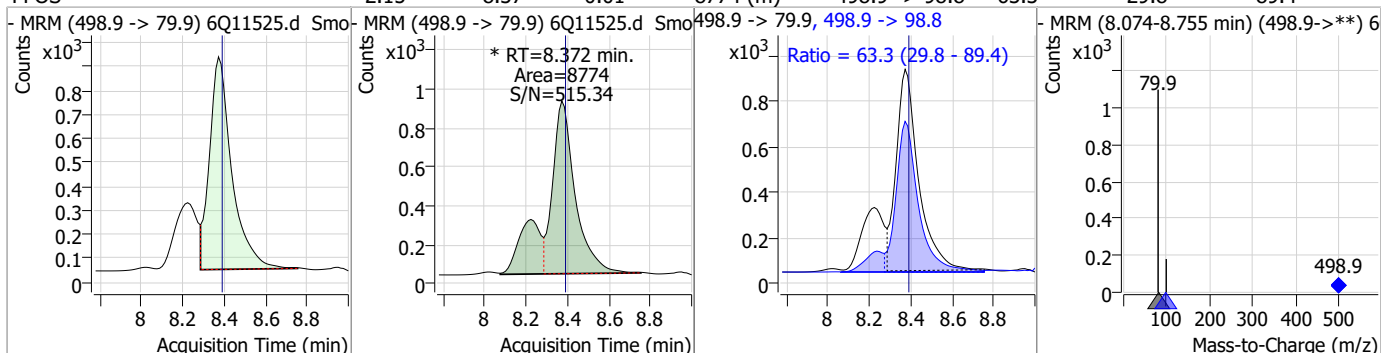
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Perfluorinated Compounds by LC/MS/MS

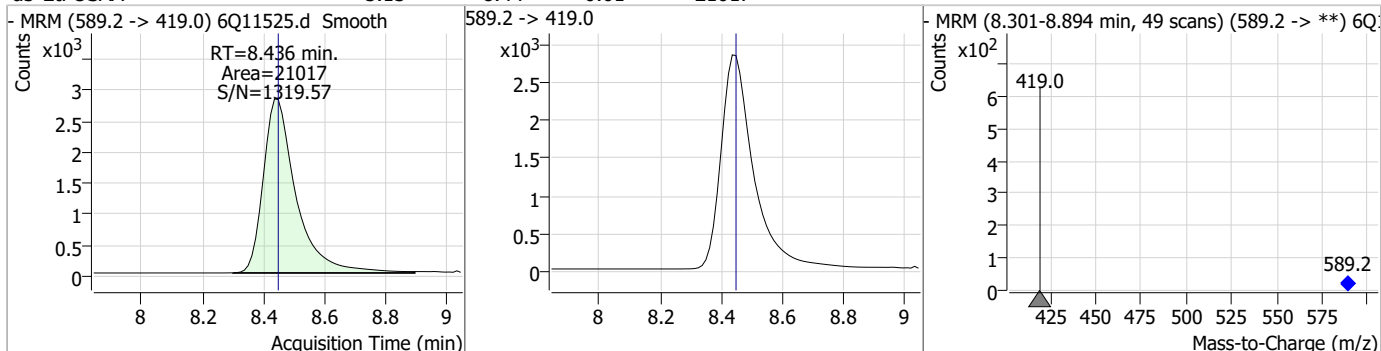


Perfluorinated Compounds by LC/MS/MS

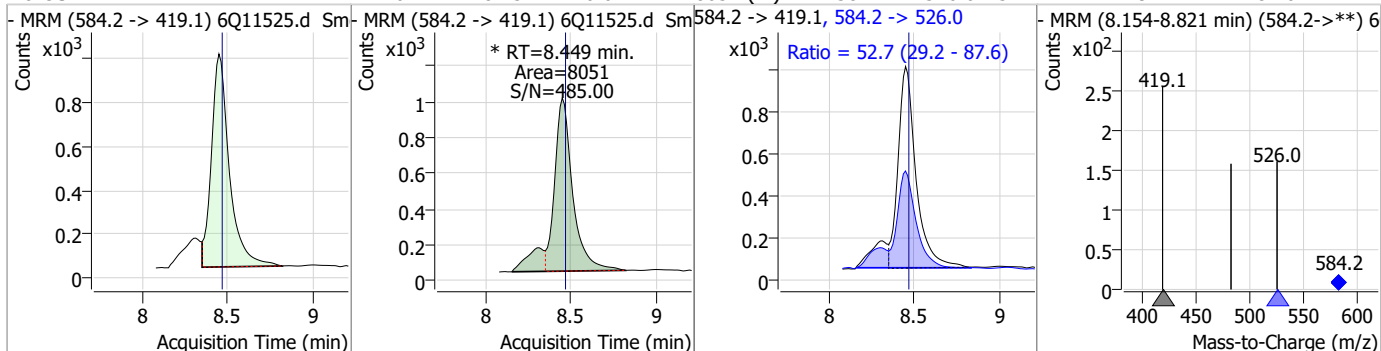
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.15	8.37	-0.01	8774 (m)	498.9 -> 98.8	63.3	29.8	89.4



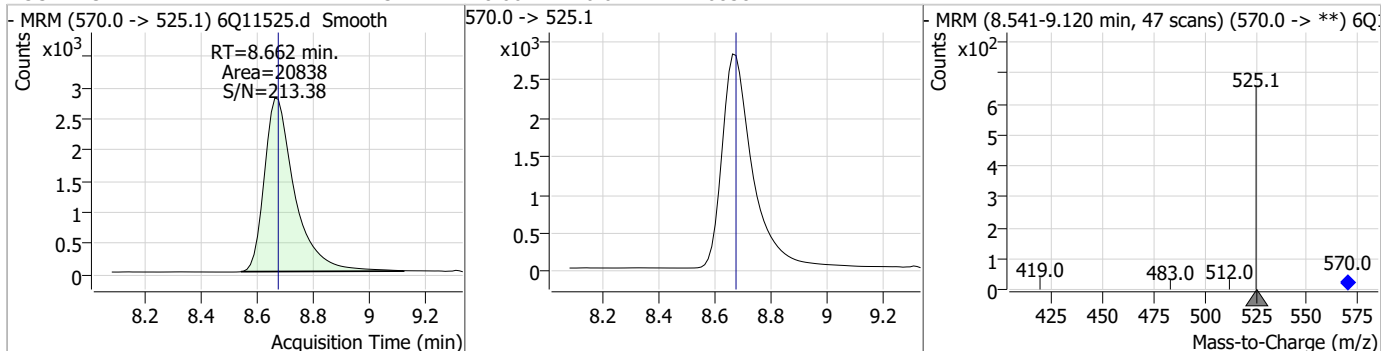
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.13	8.44	-0.01	21017				



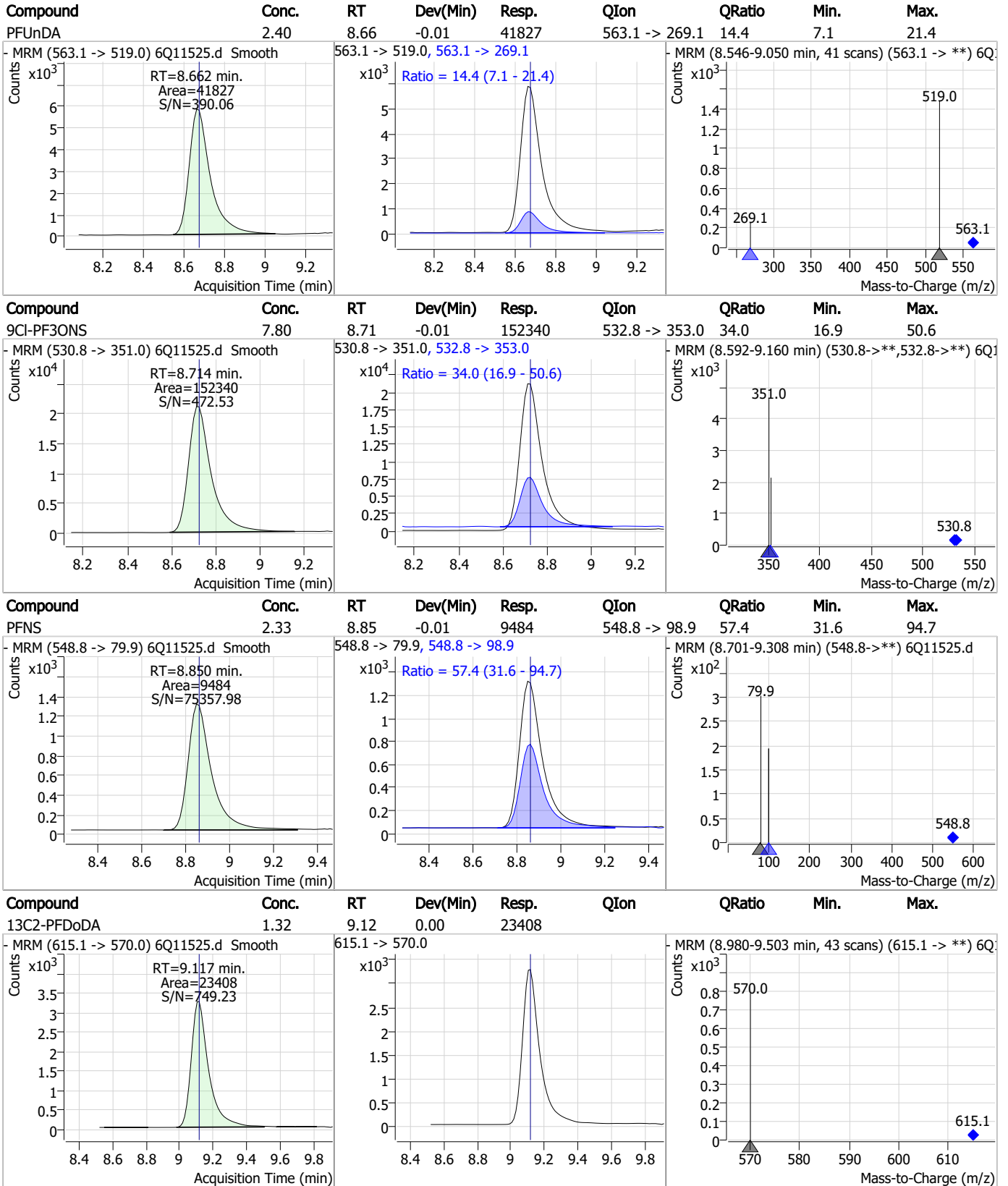
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.40	8.45	-0.01	8051 (m)	584.2 -> 526.0	52.7	29.2	87.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.34	8.66	-0.01	20838				



Perfluorinated Compounds by LC/MS/MS

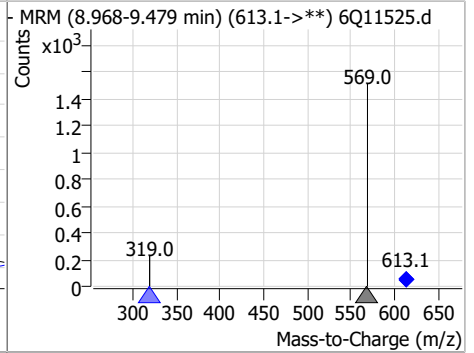
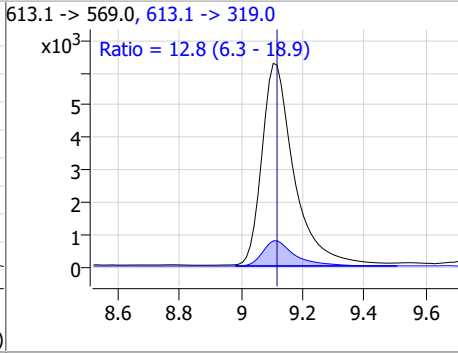
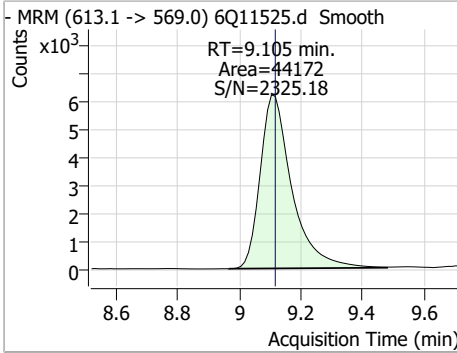


7.4.1

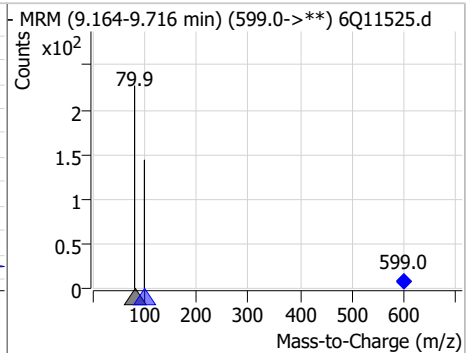
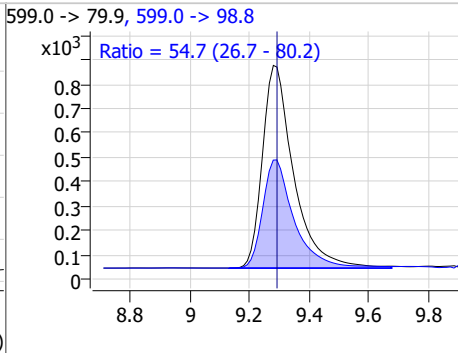
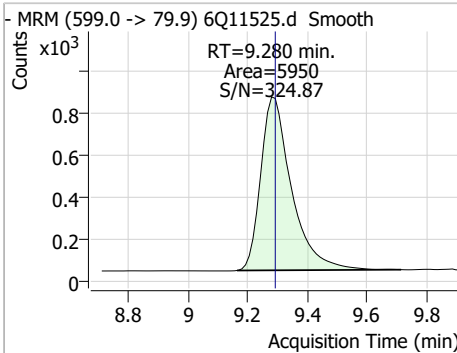
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Perfluorinated Compounds by LC/MS/MS

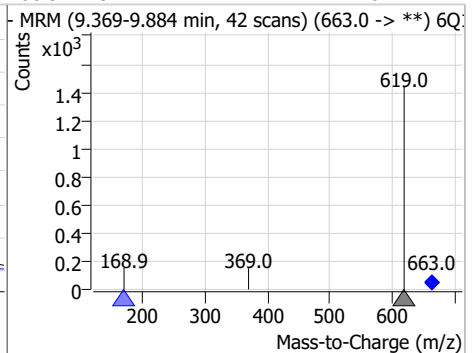
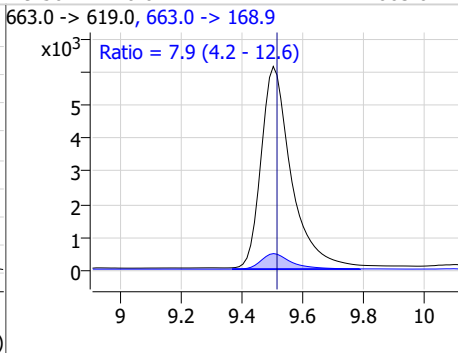
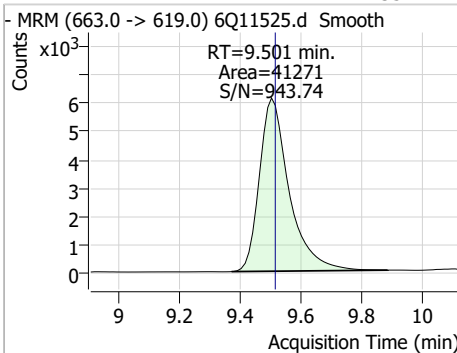
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DA	2.40	9.10	-0.01	44172	613.1 -> 319.0	12.8	6.3	18.9



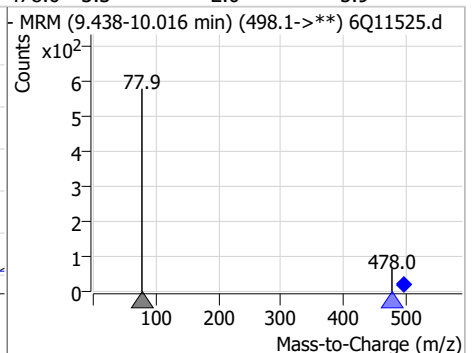
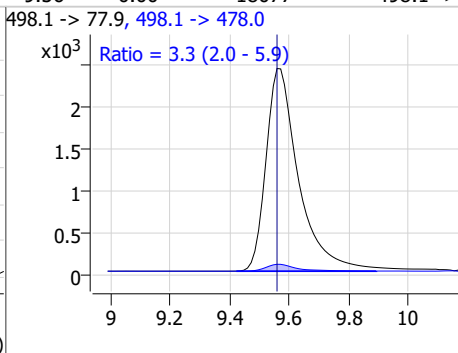
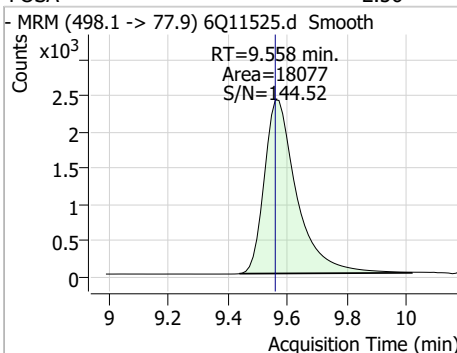
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _S	2.04	9.28	-0.01	5950	599.0 -> 98.8	54.7	26.7	80.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFT _r DA	2.35	9.50	-0.01	41271	663.0 -> 168.9	7.9	4.2	12.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.56	9.56	0.00	18077	498.1 -> 478.0	3.3	2.0	5.9

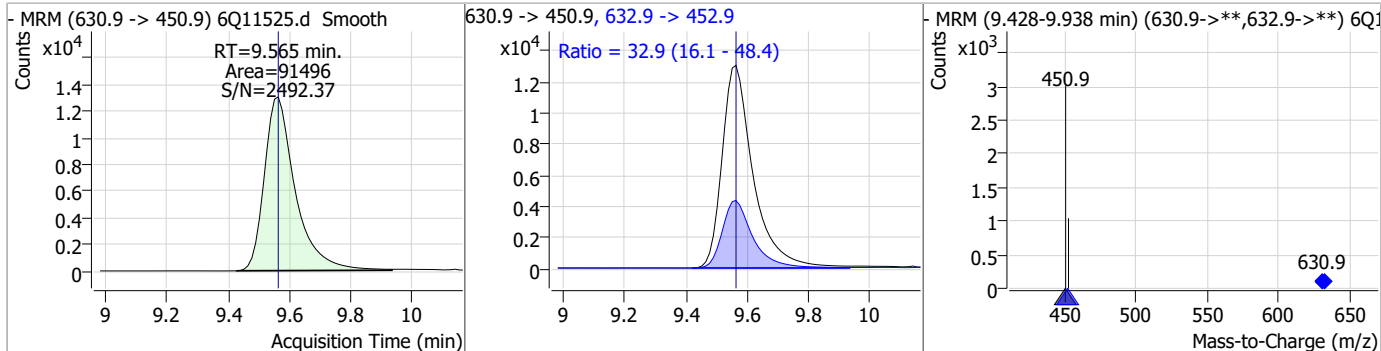


7.4.1

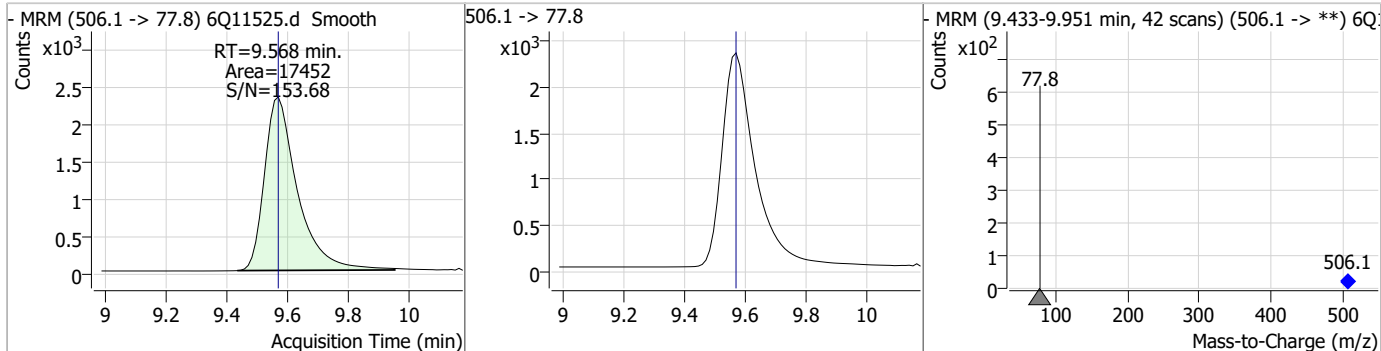
7

Perfluorinated Compounds by LC/MS/MS

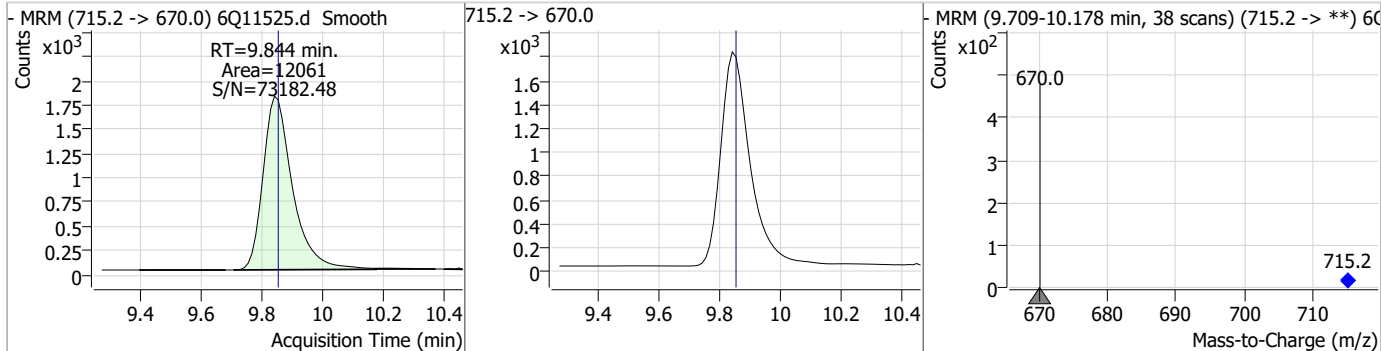
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	7.62	9.56	0.00	91496	632.9 -> 452.9	32.9	16.1	48.4



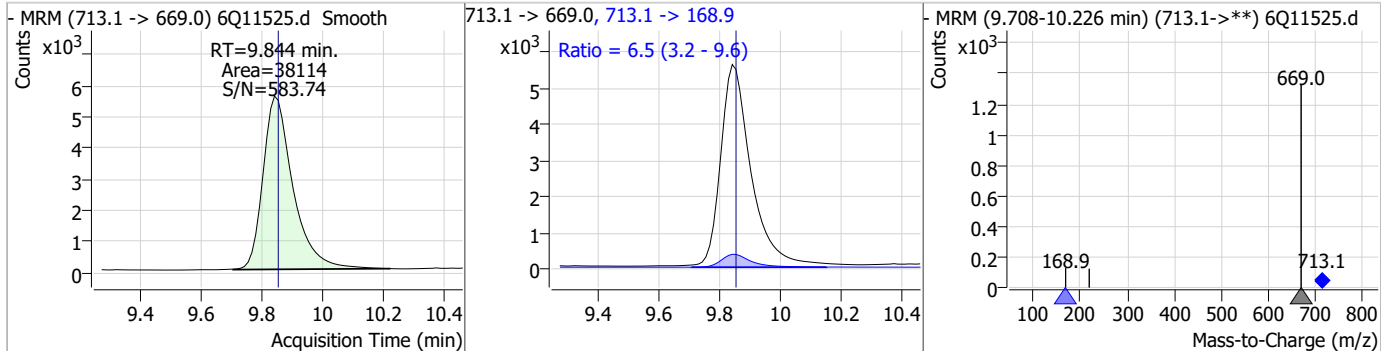
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.67	9.57	0.00	17452				



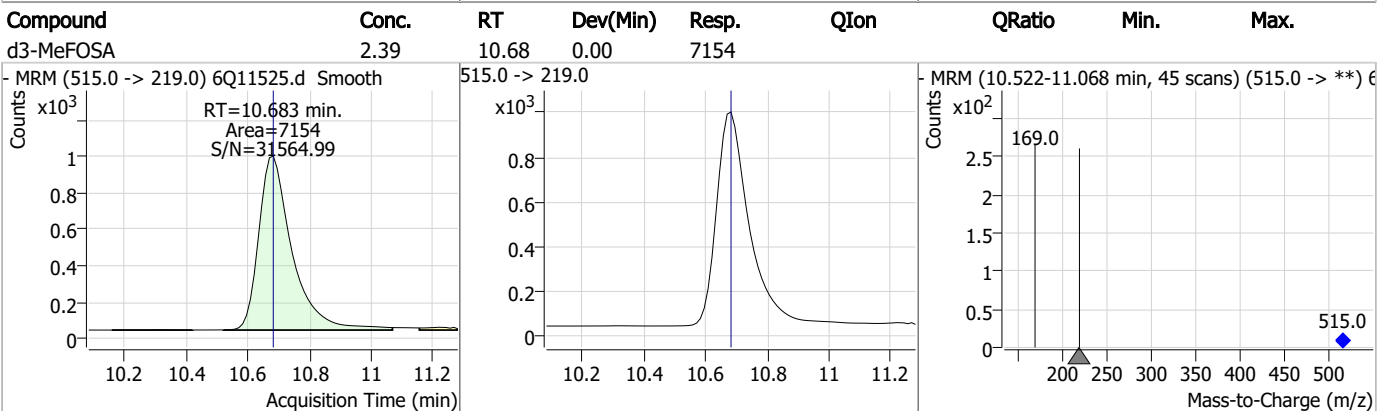
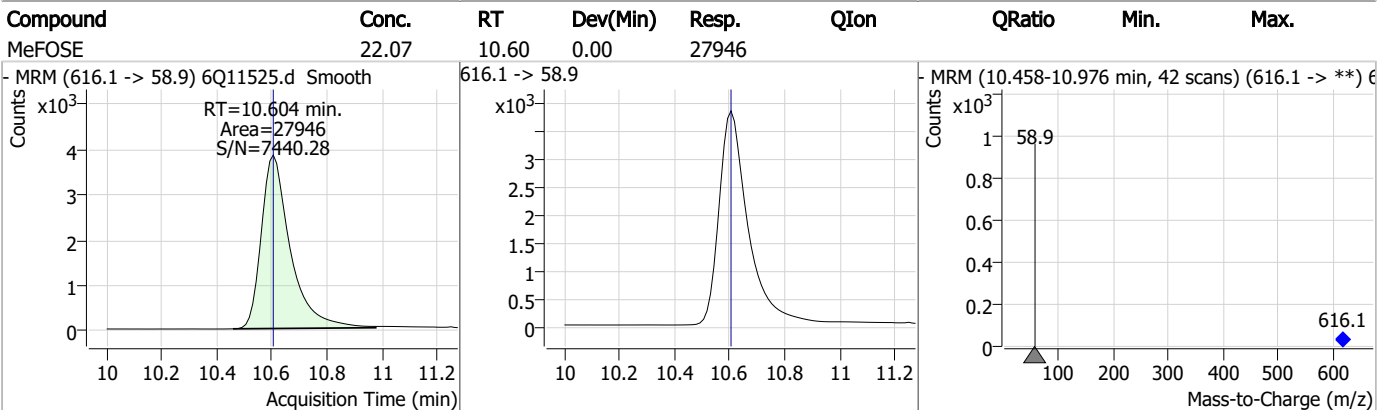
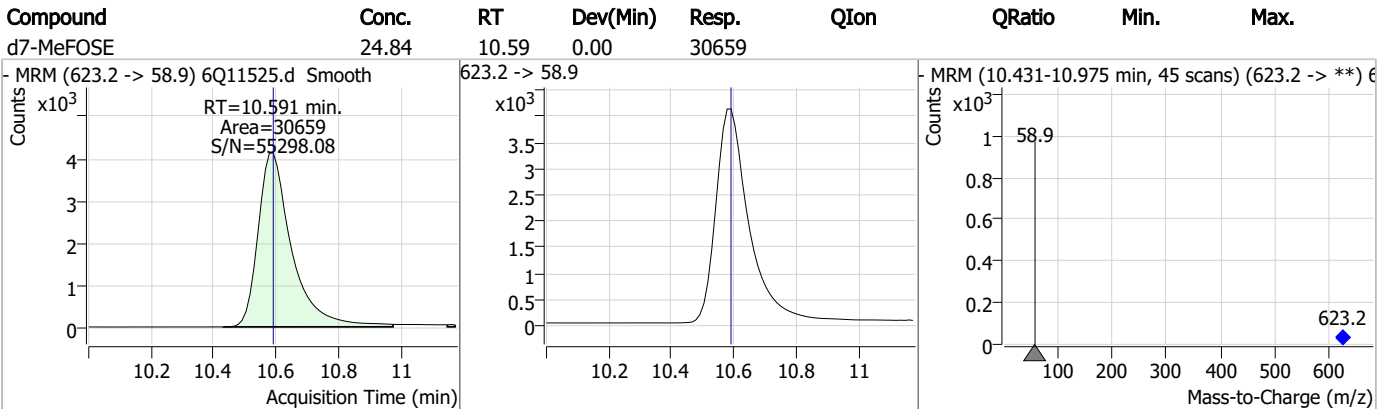
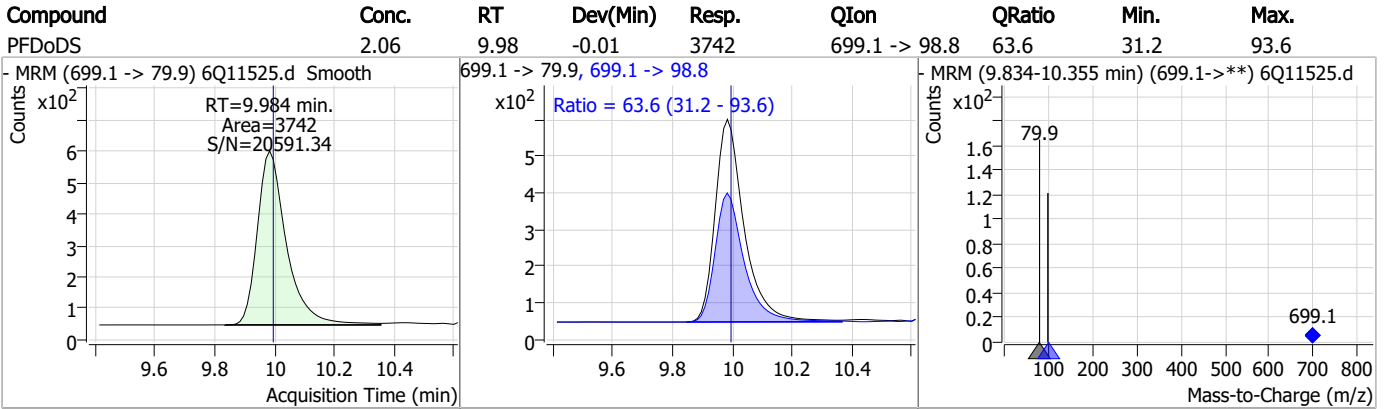
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.16	9.84	-0.01	12061				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.65	9.84	-0.01	38114	713.1 -> 168.9	6.5	3.2	9.6



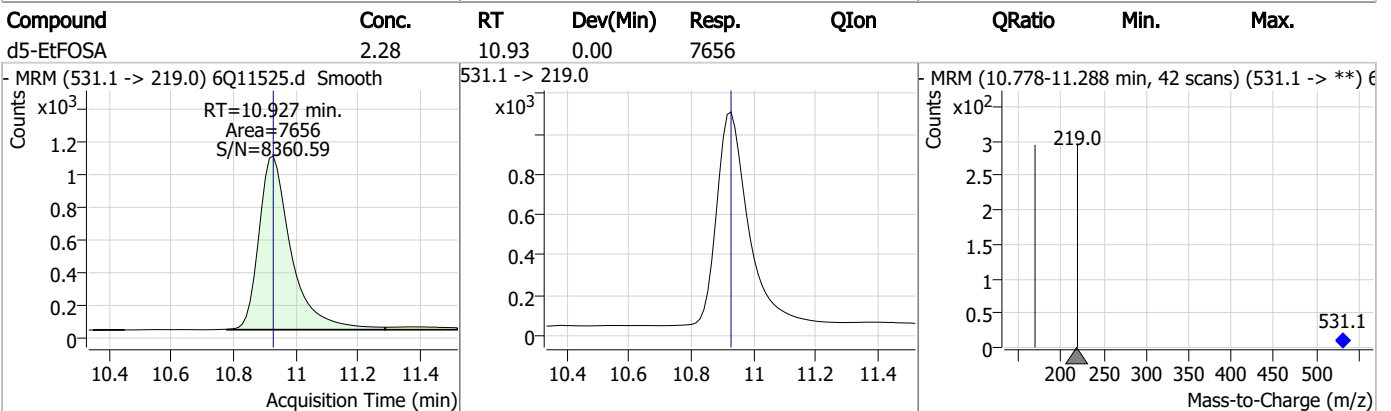
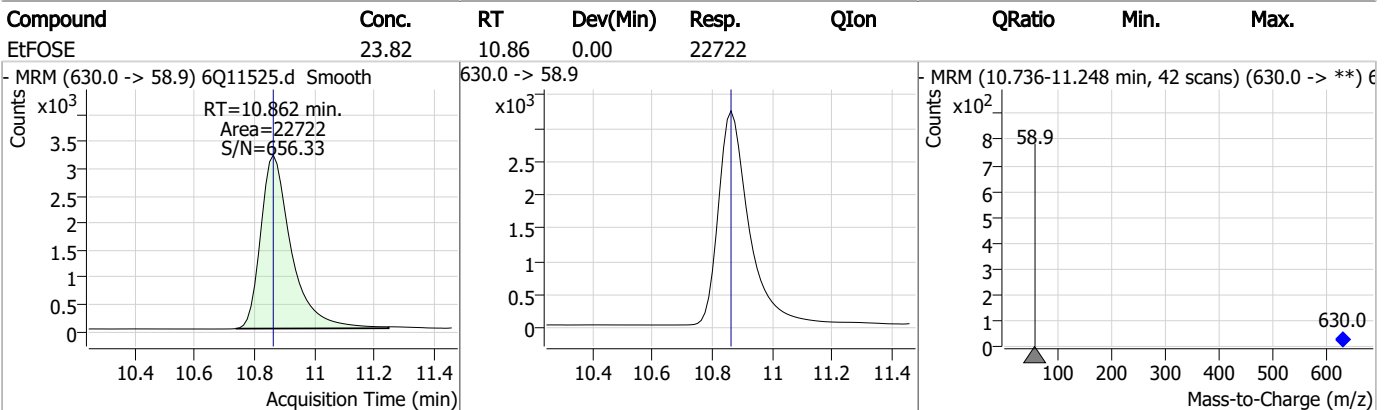
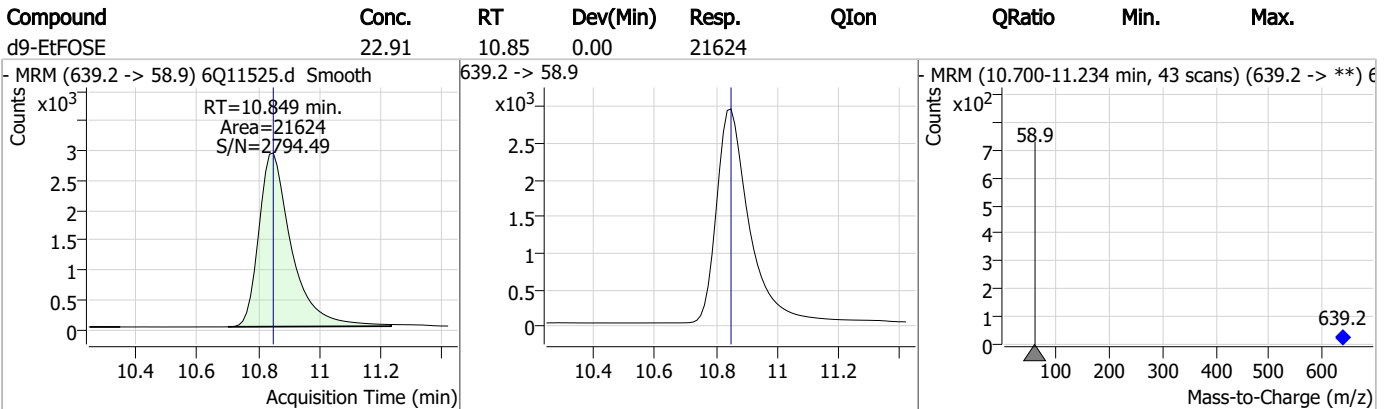
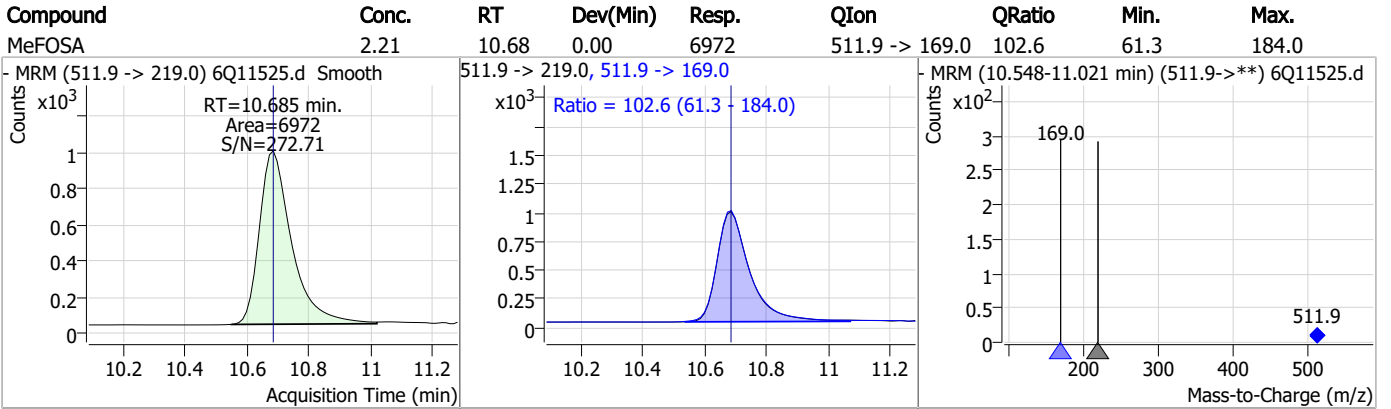
Perfluorinated Compounds by LC/MS/MS



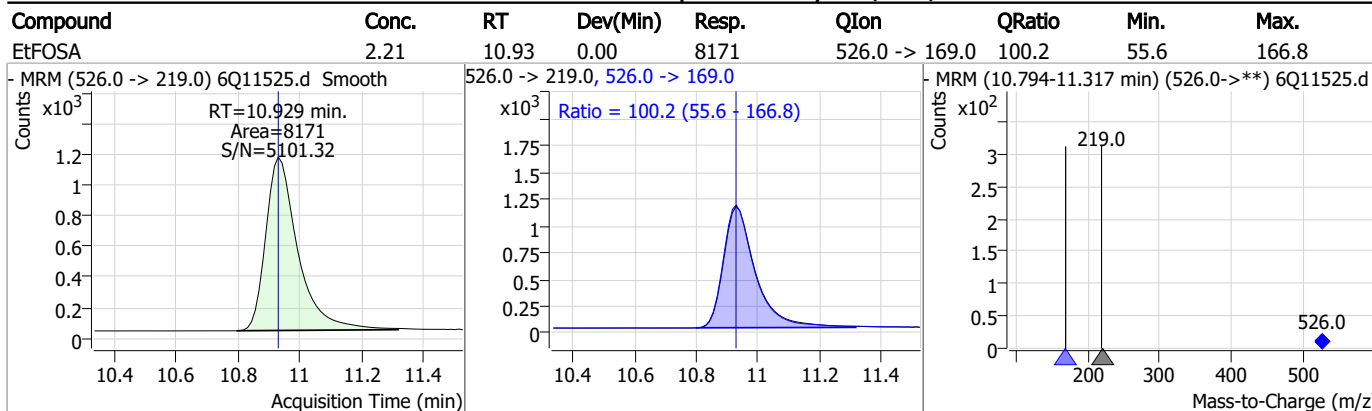
7.4.1

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Manual Integration Approval Summary

Sample Number: OP94995-MS Method: EPA DRAFT 1633
Lab FileID: 6Q11525.D Analyst approved: 01/18/23 15:42 Martha Valls
Injection Time: 01/17/23 23:58 Supervisor approved: 01/18/23 19:08 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.4.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11527.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/18/2023 12:26:19 AM
 Sample Name : op94995-dup
 Vial : P4-A8
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	84294	10.00 µg/L	0.000
M5-PFPeA	4.371	268.3 -> 223.0	40176	5.00 µg/L	-0.012
M5-PFHxA	5.564	318.0 -> 273.0	36693	2.50 µg/L	0.000
M4-PFHpA	6.516	367.1 -> 322.0	35624	2.50 µg/L	0.000
M8-PFOA	7.160	421.1 -> 376.0	60389	2.50 µg/L	0.000
M9-PFNA	7.702	472.1 -> 427.0	28746	1.25 µg/L	-0.013
M6-PFDA	8.195	519.1 -> 474.1	18435	1.25 µg/L	-0.012
M7-PFUnDA	8.674	570.0 -> 525.1	18956	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	21697	1.25 µg/L	0.000
M2-PFTeDA	9.844	715.2 -> 670.0	12590	1.25 µg/L	-0.012
M8-FOSA	9.568	506.1 -> 77.8	17560	2.50 µg/L	0.000
M3-PFBS	5.519	302.1 -> 79.9	13487	2.50 µg/L	-0.012
M3-PFHxS	7.300	402.1 -> 79.9	8799	2.50 µg/L	0.000
M8-PFOS	8.383	507.1 -> 79.9	7974	2.50 µg/L	0.000
M2-4:2FTS	5.228	329.1 -> 80.9	1851	5.00 µg/L	0.000
M2-6:2FTS	6.921	429.1 -> 80.9	2507	5.00 µg/L	-0.012
M2-8:2FTS	7.982	529.1 -> 80.9	2539	5.00 µg/L	0.000
M3-MeFOSAA	8.240	573.2 -> 419.0	23464	5.00 µg/L	0.000
M3-HFPO-DA	5.941	286.9 -> 168.9	15622	10.00 µg/L	0.000
M5-EtFOSAA	8.448	589.2 -> 419.0	19411	5.00 µg/L	0.000
M7-MeFOSE	10.591	623.2 -> 58.9	27440	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	21071	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	6937	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	6375	2.50 µg/L	0.000
13C4-PFOS	8.372	502.8 -> 79.9	10147	2.50 µg/L	-0.012
13C3-PFBA	3.004	216.0 -> 172.0	33736	5.00 µg/L	0.000
18O2-PFHxS	7.299	403.0 -> 83.9	6128	2.50 µg/L	0.000
13C4-PFOA	7.160	417.1 -> 372.0	71559	2.50 µg/L	-0.012
13C2-PFDA	8.196	515.1 -> 470.1	23714	1.25 µg/L	-0.012
13C5-PFNA	7.703	468.0 -> 423.0	30377	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	30868	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.228	329.1 -> 80.9	1851	5.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.8%		
13C2-6:2FTS	6.921	429.1 -> 80.9	2507	5.73 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.6%		
13C2-8:2FTS	7.982	529.1 -> 80.9	2539	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C2-PFDoDA	9.117	615.1 -> 570.0	21697	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C2-PFTeDA	9.844	715.2 -> 670.0	12590	1.14 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.2%		
13C3-PFBS	5.519	302.1 -> 79.9	13487	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C3-PFHxS	7.300	402.1 -> 79.9	8799	2.64 µg/L	0.000

7.5.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C4-PFBA	3.000	216.8 -> 171.9	84294	10.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.4%	
13C4-PFHpA	6.516	367.1 -> 322.0	35624	2.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.9%	
13C5-PFHxA	5.564	318.0 -> 273.0	36693	2.96 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 118.4%	
13C5-PFPeA	4.371	268.3 -> 223.0	40176	5.83 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.7%	
13C6-PFDA	8.195	519.1 -> 474.1	18435	1.37 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C7-PFUnDA	8.674	570.0 -> 525.1	18956	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.0%	
13C8-FOSA	9.568	506.1 -> 77.8	17560	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C8-PFOA	7.160	421.1 -> 376.0	60389	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C8-PFOS	8.383	507.1 -> 79.9	7974	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C9-PFNA	7.702	472.1 -> 427.0	28746	1.33 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.5%	
d3-MeFOSAA	8.240	573.2 -> 419.0	23464	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C3-HFPO-DA	5.941	286.9 -> 168.9	15622	12.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 122.7%	
d3-MeFOSA	10.683	515.0 -> 219.0	6375	2.03 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.3%	
d5-EtFOSAA	8.448	589.2 -> 419.0	19411	4.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.6%	
d7-MeFOSE	10.591	623.2 -> 58.9	27440	21.25 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 85.0%	
d9-EtFOSE	10.849	639.2 -> 58.9	21071	21.33 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 85.3%	
d5-EtFOSA	10.927	531.1 -> 219.0	6937	1.97 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.9%	

7.5.1
7

Target Compounds	RT	Transition	Response	Conc. Units	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)
PFHpA	-	599.0 -> 98.8	-	N.D.	
		363.1 -> 319.0			
PFHpS	-	363.1 -> 169.0	-	N.D.	
		449.0 -> 79.9			
PFHxA	-	449.0 -> 98.9	-	N.D.	
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	-	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		463.0 -> 419.0			
PFNS	-	463.0 -> 219.0	-	N.D.	
		548.8 -> 79.9			
PFOA	-	548.8 -> 98.9	-	N.D.	
		413.0 -> 369.0			
PFOS	-	413.0 -> 169.0	-	N.D.	
		498.9 -> 79.9			
PFPeA	-	498.9 -> 98.8	-	N.D.	
		263.0 -> 219.0			
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.	
		511.9 -> 219.0			
MeFOSA	-	511.9 -> 169.0	-	N.D.	
		616.1 -> 58.9			
MeFOSE	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
PFDoDS	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
NFDHA	-	279.0 -> 85.1	-	N.D.	
		229.0 -> 84.9			
PFMBA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

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

7.5.1
7

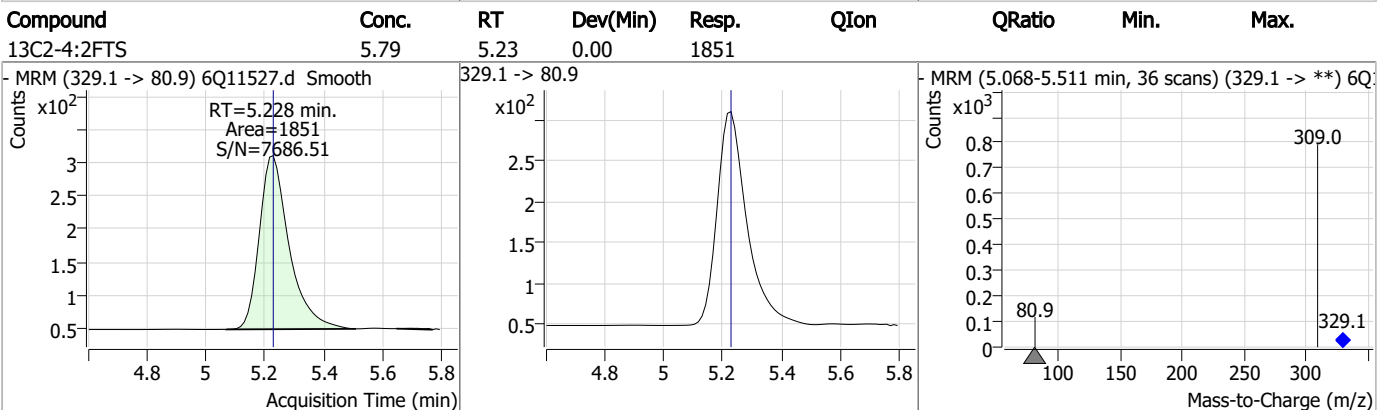
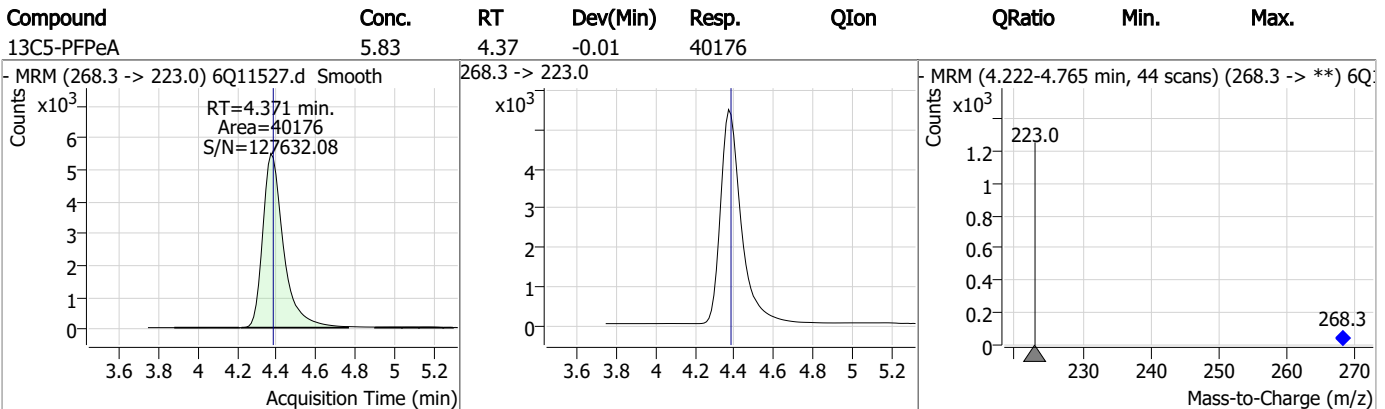
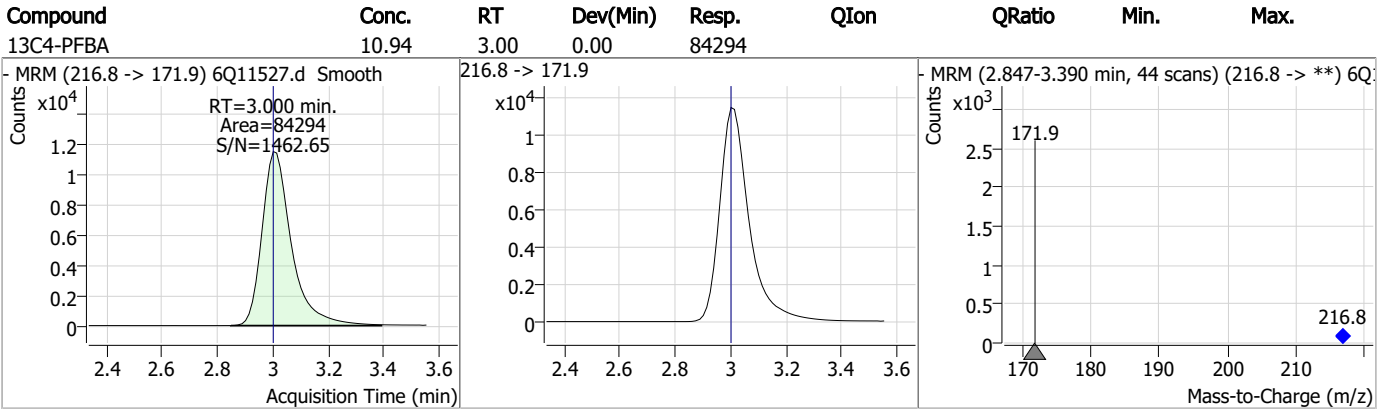
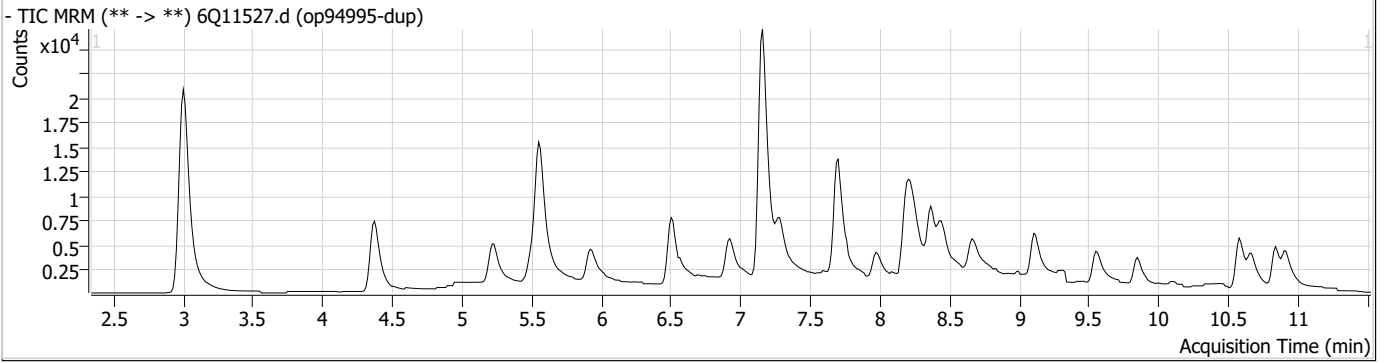
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.5.1

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Perfluorinated Compounds by LC/MS/MS



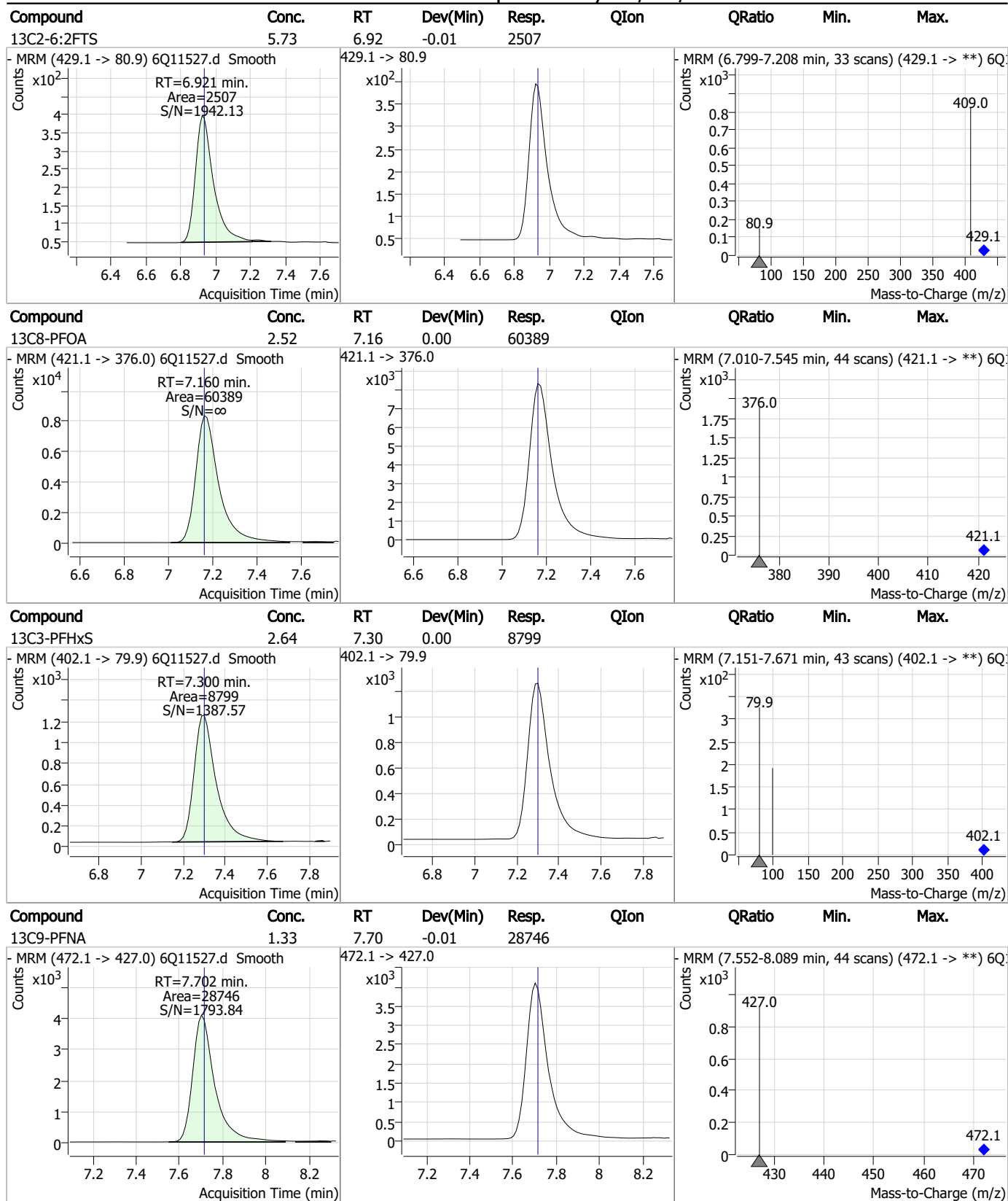
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.62	5.52	-0.01	13487				
13C5-PFHxA	2.96	5.56	0.00	36693				
13C3-HFPO-DA	12.27	5.94	0.00	15622				
13C4-PFHpA	2.85	6.52	0.00	35624				

7.5.1
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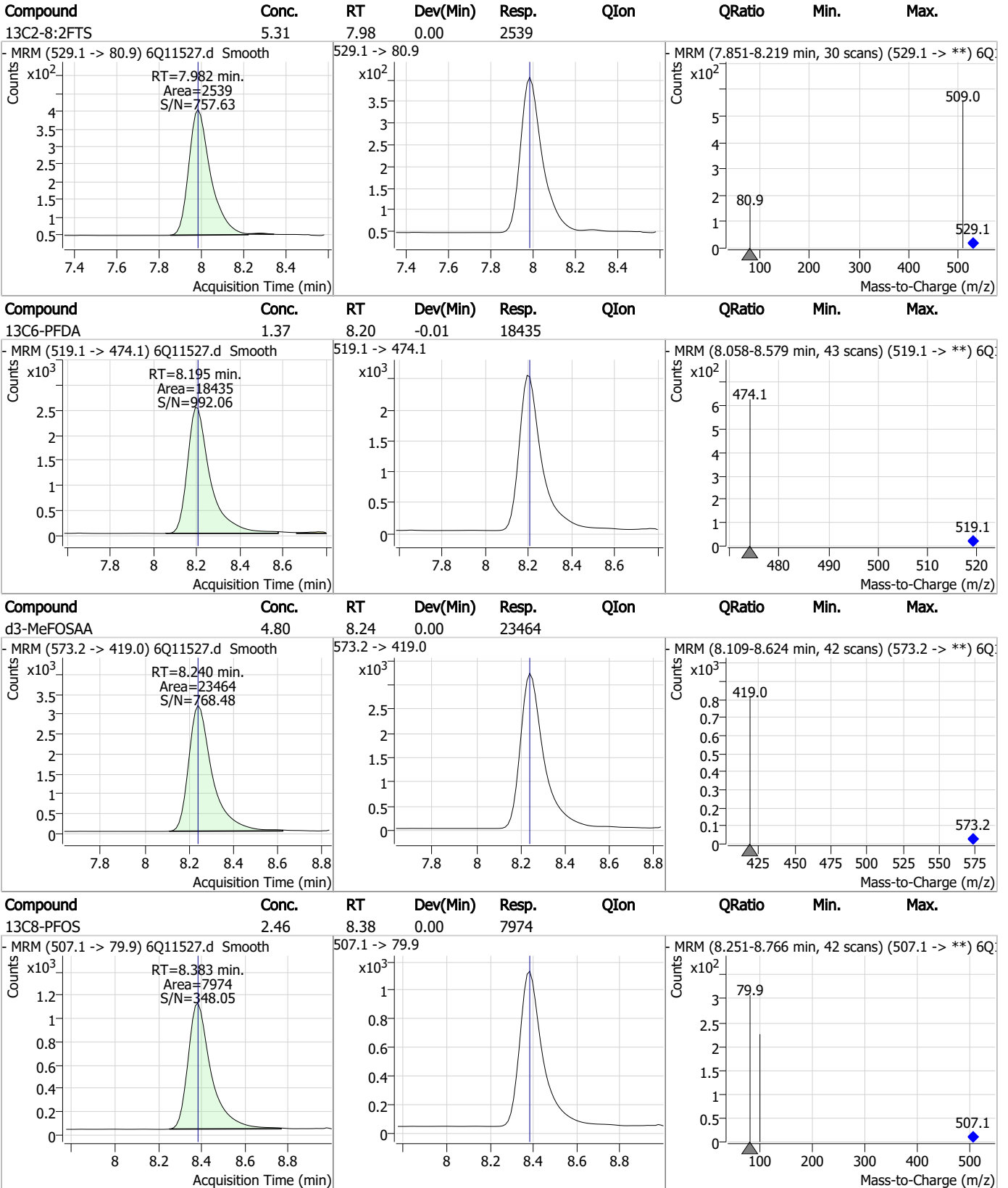
Perfluorinated Compounds by LC/MS/MS



7.5.1
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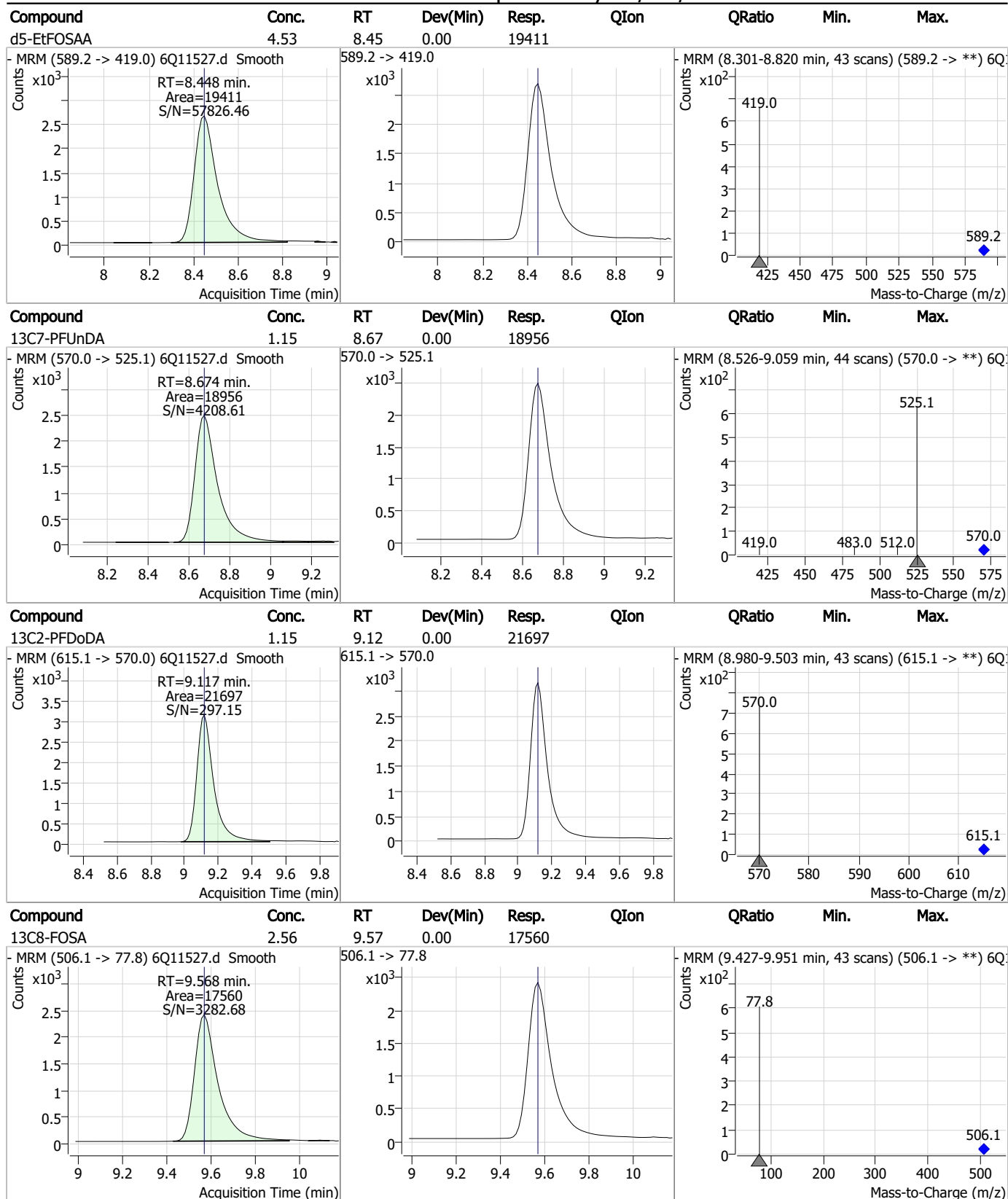
Perfluorinated Compounds by LC/MS/MS



7.5.1

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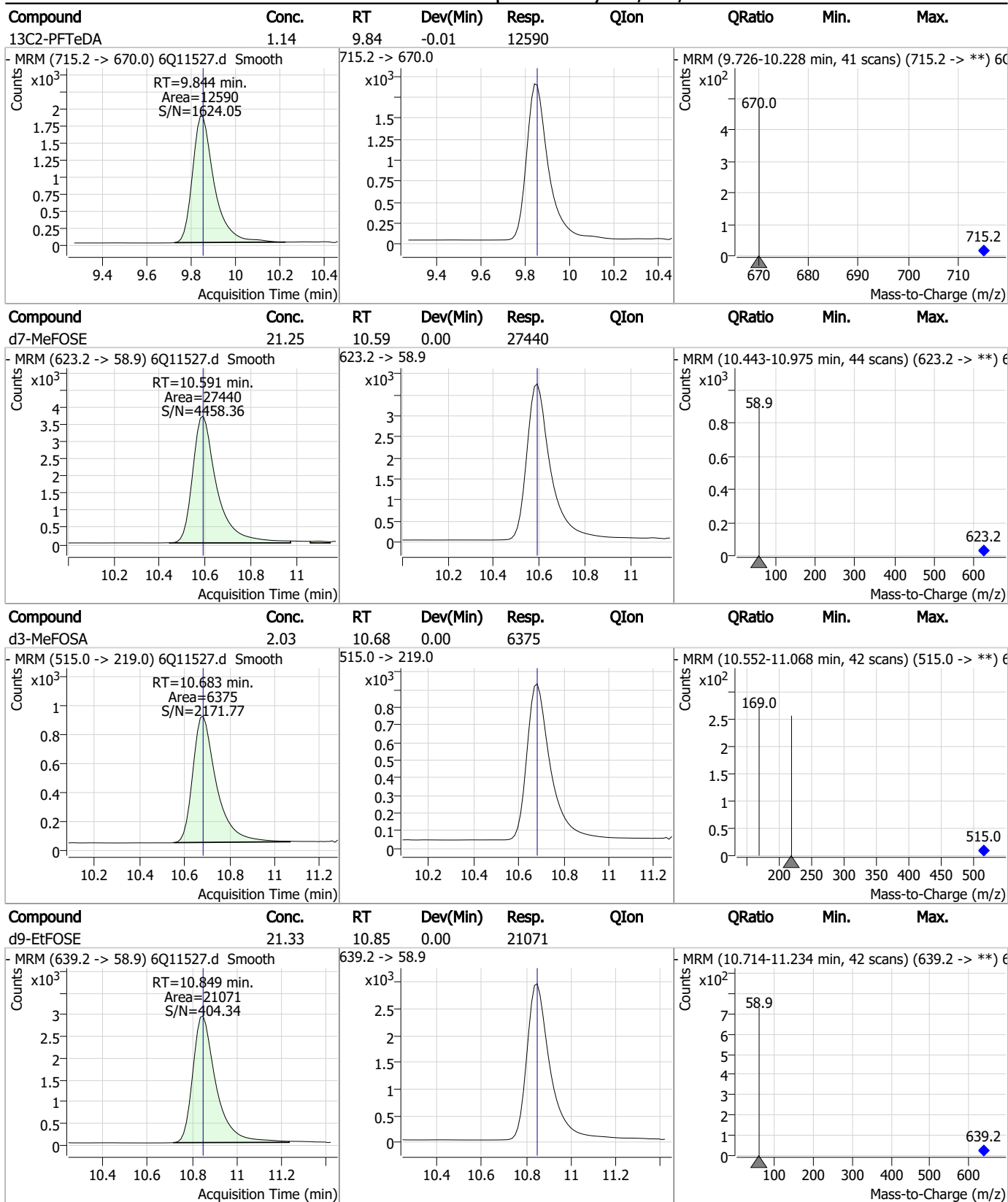
Perfluorinated Compounds by LC/MS/MS



7.5.1
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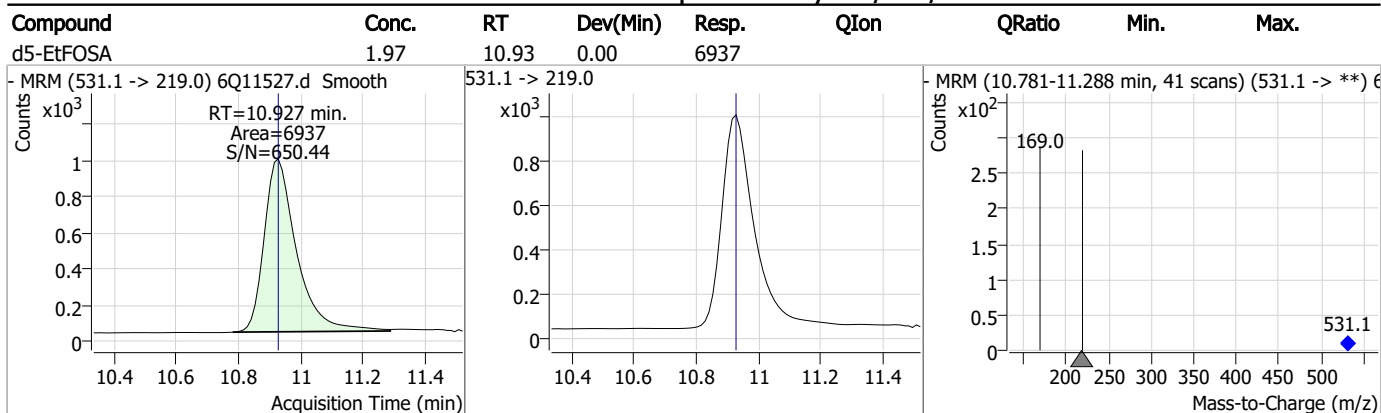
Perfluorinated Compounds by LC/MS/MS



7.5.1

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Perfluorinated Compounds by LC/MS/MS



7.5.1

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Perfluorinated Compounds by LC/MS/MS

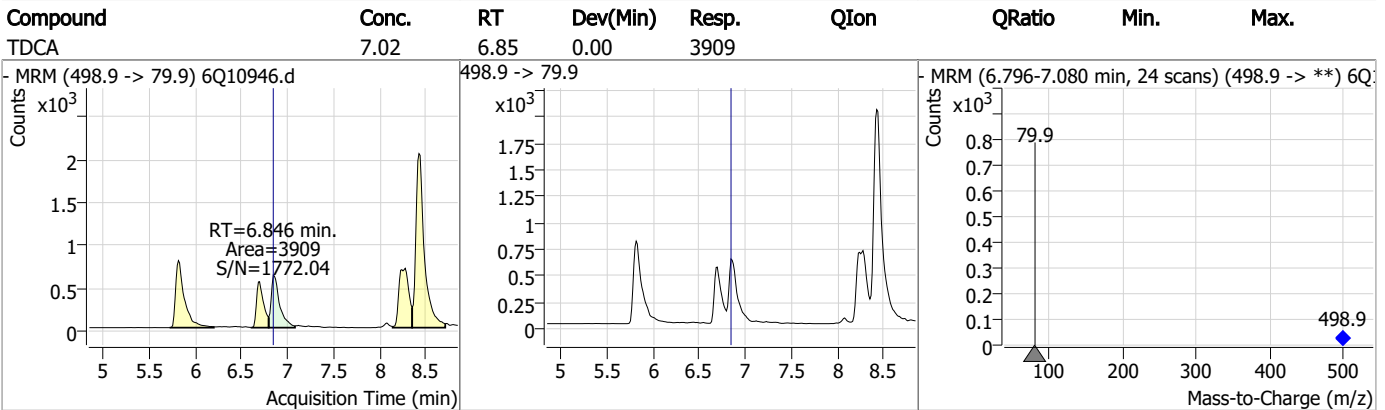
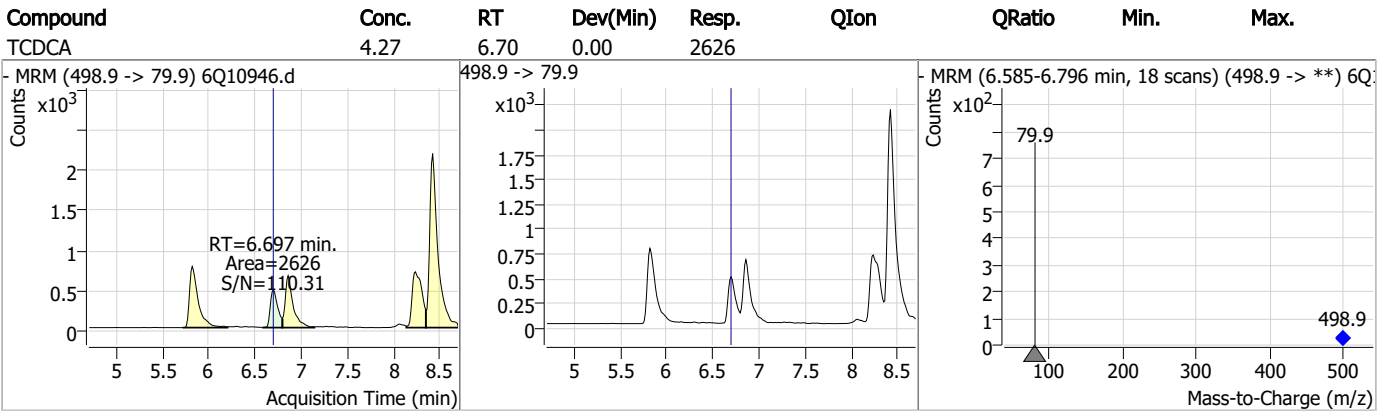
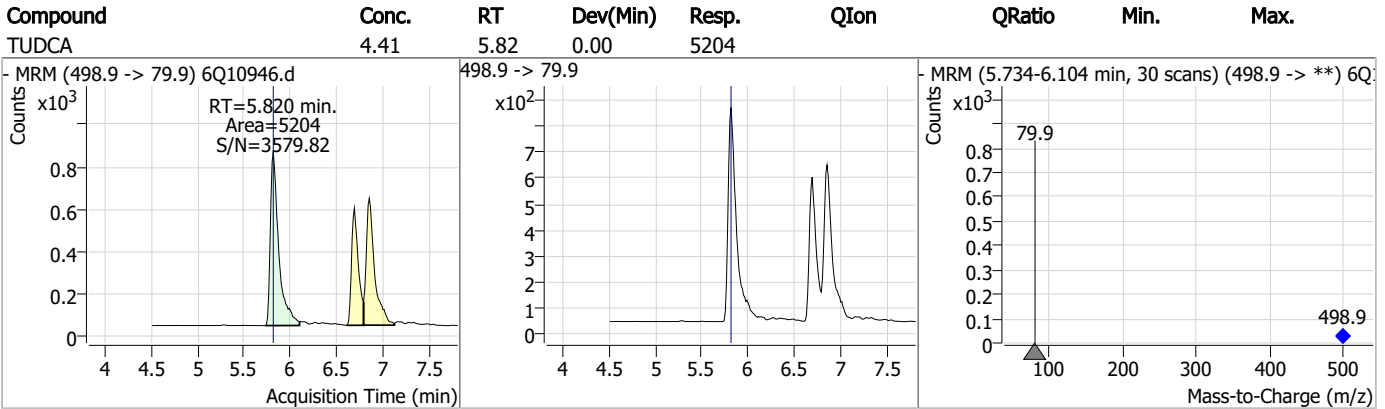
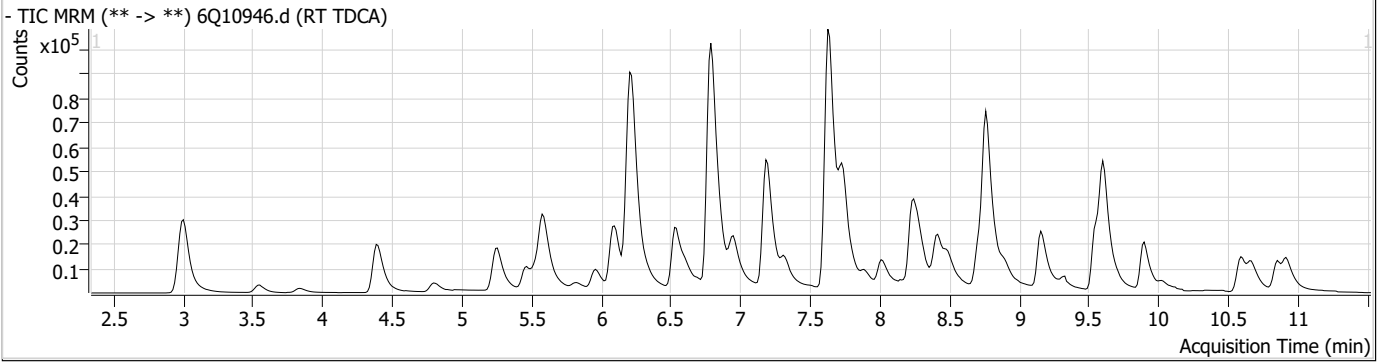
Data File : 6Q10946.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/11/2023 11:03:43 AM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : S6Q174 TDCA.batch.bin
 Sample Information : OP94795,S6Q174,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.432	507.1 -> 79.9	13323	2.50	µg/L	0.000	
13C4-PFOS	8.421	502.8 -> 79.9	17365	2.50	µg/L	0.000	
System Monitoring Compounds							
13C8-PFOS	8.432	507.1 -> 79.9	13323	1.95	µg/L	0.000	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 77.8%				
Target Compounds							
PFOS	8.421	498.9 -> 79.9 498.9 -> 98.8	17636 11189	3.87	µg/L	m	78
TCDCa	6.697	498.9 -> 79.9	2626	4.27	ng/ml		100
TDCA	6.846	498.9 -> 79.9	3909	7.02	ng/ml		100
TUDCA	5.820	498.9 -> 79.9	5204	4.41	ng/ml		100

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

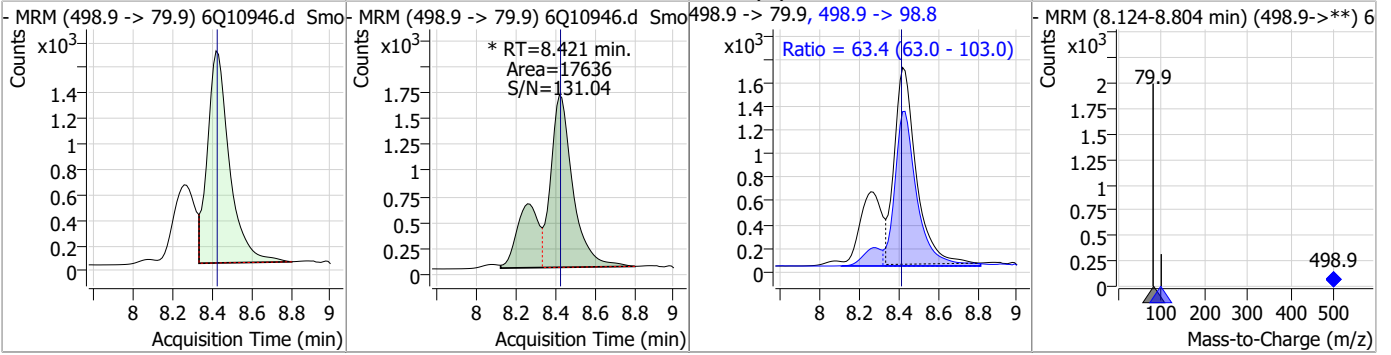
7.6.1
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Perfluorinated Compounds by LC/MS/MS

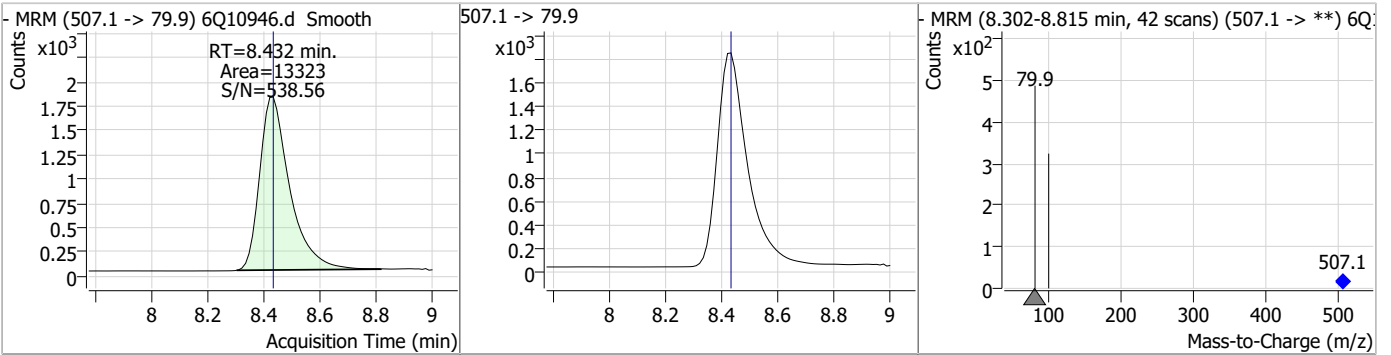


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.87	8.42	0.00	17636 (m)	498.9 -> 98.8	63.4	63.0	103.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	1.95	8.43	0.00	13323				



7.6.1

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Manual Integration Approval Summary

Sample Number: S6Q174-RT Method: EPA DRAFT 1633
Lab FileID: 6Q10946.D Analyst approved: 01/12/23 11:46 Martha Valls
Injection Time: 01/11/23 11:03 Supervisor approved: 01/12/23 15:42 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.42	Split peak

7.6.1.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q10947.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/11/2023 11:22:20 AM
 Sample Name : RT br-ln
 Vial : P1-B4
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : S6Q174.batch.bin
 Sample Information : OP94795,S6Q174,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.038	216.8 -> 171.9	90756	10.00 µg/L	0.037
M5-PFPeA	4.422	268.3 -> 223.0	44380	5.00 µg/L	0.025
M5-PFHxA	5.601	318.0 -> 273.0	39100	2.50 µg/L	0.012
M4-PFHpA	6.542	367.1 -> 322.0	41603	2.50 µg/L	0.000
M8-PFOA	7.197	421.1 -> 376.0	65523	2.50 µg/L	0.000
M9-PFNA	7.740	472.1 -> 427.0	29368	1.25 µg/L	0.000
M6-PFDA	8.245	519.1 -> 474.1	19681	1.25 µg/L	0.000
M7-PFUnDA	8.724	570.0 -> 525.1	24196	1.25 µg/L	0.012
M2-PFDoDA	9.166	615.1 -> 570.0	28199	1.25 µg/L	0.012
M2-PFTeDA	9.893	715.2 -> 670.0	17131	1.25 µg/L	0.000
M8-FOSA	9.568	506.1 -> 77.8	18910	2.50 µg/L	0.000
M3-PFBS	5.556	302.1 -> 79.9	14748	2.50 µg/L	0.000
M3-PFHxS	7.337	402.1 -> 79.9	8799	2.50 µg/L	0.000
M8-PFOS	8.432	507.1 -> 79.9	9303	2.50 µg/L	0.012
M2-4:2FTS	5.265	329.1 -> 80.9	1666	5.00 µg/L	0.012
M2-6:2FTS	6.958	429.1 -> 80.9	2370	5.00 µg/L	0.000
M2-8:2FTS	8.019	529.1 -> 80.9	2768	5.00 µg/L	0.000
M3-MeFOSAA	8.290	573.2 -> 419.0	25266	5.00 µg/L	0.012
M3-HFPO-DA	5.978	286.9 -> 168.9	15846	10.00 µg/L	0.000
M5-EtFOSAA	8.498	589.2 -> 419.0	20927	5.00 µg/L	0.012
M7-MeFOSE	10.591	623.2 -> 58.9	35438	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	25756	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	9535	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	8525	2.50 µg/L	0.000
13C4-PFOS	8.433	502.8 -> 79.9	10614	2.50 µg/L	0.012
13C3-PFBA	3.041	216.0 -> 172.0	40378	5.00 µg/L	0.037
18O2-PFHxS	7.336	403.0 -> 83.9	6936	2.50 µg/L	0.000
13C4-PFOA	7.198	417.1 -> 372.0	81259	2.50 µg/L	0.000
13C2-PFDA	8.245	515.1 -> 470.1	28390	1.25 µg/L	0.000
13C5-PFNA	7.740	468.0 -> 423.0	33565	1.25 µg/L	0.000
13C2-PFHxA	5.602	315.1 -> 270.0	39511	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.265	329.1 -> 80.9	1666	4.61 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.1%		
13C2-6:2FTS	6.958	429.1 -> 80.9	2370	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C2-8:2FTS	8.019	529.1 -> 80.9	2768	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-PFDoDA	9.166	615.1 -> 570.0	28199	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C2-PFTeDA	9.893	715.2 -> 670.0	17131	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C3-PFBS	5.556	302.1 -> 79.9	14748	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C3-PFHxS	7.337	402.1 -> 79.9	8799	2.34 µg/L	0.000

7.6.2
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.5%		
13C4-PFBA	3.038	216.8 -> 171.9	90756	9.84 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C4-PFHpA	6.542	367.1 -> 322.0	41603	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C5-PFHxA	5.601	318.0 -> 273.0	39100	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C5-PFPeA	4.422	268.3 -> 223.0	44380	5.03 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C6-PFDA	8.245	519.1 -> 474.1	19681	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C7-PFUnDA	8.724	570.0 -> 525.1	24196	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C8-FOSA	9.568	506.1 -> 77.8	18910	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C8-PFOA	7.197	421.1 -> 376.0	65523	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C8-PFOS	8.432	507.1 -> 79.9	9303	2.74 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C9-PFNA	7.740	472.1 -> 427.0	29368	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.5%		
d3-MeFOSAA	8.290	573.2 -> 419.0	25266	4.94 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C3-HFPO-DA	5.978	286.9 -> 168.9	15846	9.72 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.2%		
d3-MeFOSA	10.683	515.0 -> 219.0	8525	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.9%		
d5-EtFOSAA	8.498	589.2 -> 419.0	20927	4.67 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.3%		
d7-MeFOSE	10.591	623.2 -> 58.9	35438	26.23 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 104.9%		
d9-EtFOSE	10.849	639.2 -> 58.9	25756	24.93 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.7%		
d5-EtFOSA	10.927	531.1 -> 219.0	9535	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.7%		
Target Compounds					QValue
4:2FTS	5.266	327.1 -> 307.0	198926	50.20 µg/L	96
		327.1 -> 80.9	45454		
6:2FTS	6.959	427.1 -> 407.0	168323	45.65 µg/L	99
		427.1 -> 80.9	34135		
8:2FTS	8.020	527.1 -> 507.0	99523	43.10 µg/L	97
		527.1 -> 80.8	25589		
EtFOSAA	8.499	584.2 -> 419.1	47690	14.28 µg/L	m 89
		584.2 -> 526.0	26142		
FOSA	9.571	498.1 -> 77.9	231431	30.30 µg/L	m 99
		498.1 -> 478.0	8643		
MeFOSAA	8.290	570.1 -> 419.0	60526	11.62 µg/L	93
		570.1 -> 483.0	11228		
PFBA	3.044	212.8 -> 168.9	118482	50.89 µg/L	100
PFBS	5.557	298.7 -> 79.9	63694	10.67 µg/L	97
		298.7 -> 98.8	29462		
PFDA	8.246	512.9 -> 469.0	316318	13.37 µg/L	100
		512.9 -> 219.0	41791		
PFDoDA	9.166	613.1 -> 569.0	278751	12.57 µg/L	96
		613.1 -> 319.0	35547		
PFDS	9.344	599.0 -> 79.9	38214	11.90 µg/L	95

7.6.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	18973			
PFHpA	6.542	363.1 -> 319.0	297622	11.86	µg/L	99
		363.1 -> 169.0	39481			
PFHpS	7.917	449.0 -> 79.9	48765	11.46	µg/L	91
		449.0 -> 98.9	26733			
PFHxA	5.604	313.0 -> 269.0	197447	12.50	µg/L	99
		313.0 -> 118.9	7373			
PFHxS	7.338	398.7 -> 79.9	49218	11.75	µg/L	m 93
		398.7 -> 98.9	26782			
PFNA	7.740	463.0 -> 419.0	523399	25.76	µg/L	m 92
		463.0 -> 219.0	115721			
PFNS	8.911	548.8 -> 79.9	48552	10.81	µg/L	96
		548.8 -> 98.9	30449			
PFOA	7.199	413.0 -> 369.0	785203	26.78	µg/L	m 100
		413.0 -> 169.0	113040			
PFOS	8.434	498.9 -> 79.9	46572	10.34	µg/L	m 90
		498.9 -> 98.8	29504			
PFPeA	4.426	263.0 -> 219.0	241498	24.78	µg/L	100
PFPeS	6.632	349.1 -> 79.9	59493	12.00	µg/L	97
		349.1 -> 98.9	32449			
PFTeDA	9.894	713.1 -> 669.0	248661	12.18	µg/L	100
		713.1 -> 168.9	16054			
PFTrDA	9.550	663.0 -> 619.0	282661	13.35	µg/L	97
		663.0 -> 168.9	21317			
PFUnDA	8.725	563.1 -> 519.0	263199	13.01	µg/L	100
		563.1 -> 269.1	39663			
11Cl-PF3OUdS	9.614	630.9 -> 450.9	613170	51.03	µg/L	100
		632.9 -> 452.9	190687			
9Cl-PF3ONS	8.776	530.8 -> 351.0	924827	47.37	µg/L	98
		532.8 -> 353.0	289772			
ADONA	6.804	376.9 -> 250.9	1739268	49.37	µg/L	98
		376.9 -> 84.8	378191			
HFPO-DA	5.978	284.9 -> 168.9	82175	51.28	µg/L	98
		284.9 -> 184.9	9255			
3:3FTCA	3.902	241.0 -> 177.0	32480	62.56	µg/L	99
		241.0 -> 117.0	4034			
5:3FTCA	6.232	341.0 -> 237.1	982898	299.15	µg/L	96
		341.0 -> 217.0	865451			
7:3FTCA	7.656	441.0 -> 316.9	717708	324.07	µg/L	92
		441.0 -> 336.9	1386934			
EtFOSA	10.929	526.0 -> 219.0	141417	30.65	µg/L	86
		526.0 -> 169.0	159413			
EtFOSE	10.862	630.0 -> 58.9	167338	147.27	µg/L	100
MeFOSA	10.685	511.9 -> 219.0	112519	29.87	µg/L	81
		511.9 -> 169.0	136774			
MeFOSE	10.604	616.1 -> 58.9	198010	135.28	µg/L	100
PFDoDS	10.033	699.1 -> 79.9	22588	11.28	µg/L	100
		699.1 -> 98.8	13630			
NFDHA	5.483	295.0 -> 201.0	23253	22.69	µg/L	95
		295.0 -> 84.9	10870			
PFMBA	4.826	279.0 -> 85.1	74035	24.36	µg/L	100
PFMPA	3.579	229.0 -> 84.9	66100	24.50	µg/L	100
PFEESA	6.109	314.8 -> 134.9	487684	22.17	µg/L	100
		314.8 -> 82.9	12572			

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

7.6.2
7

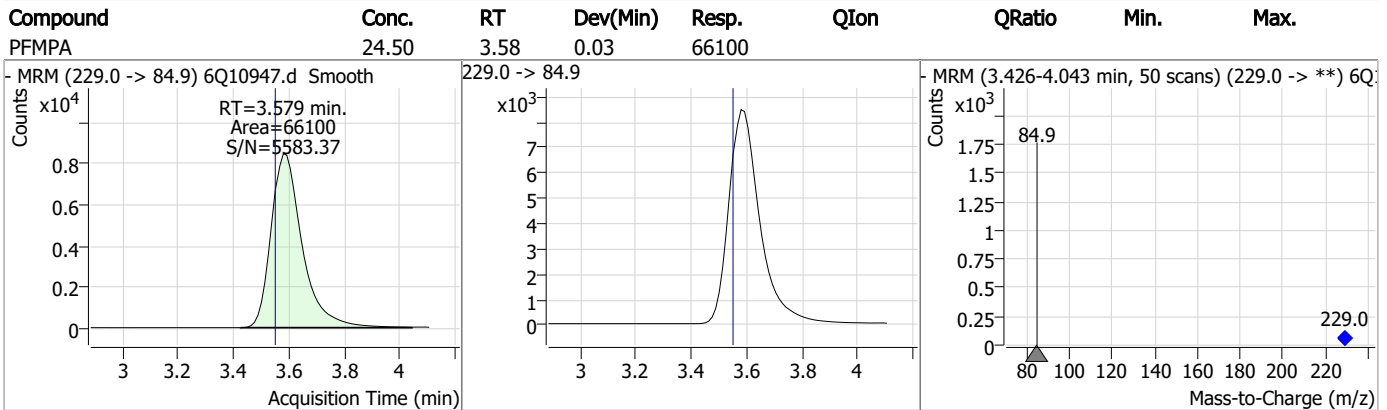
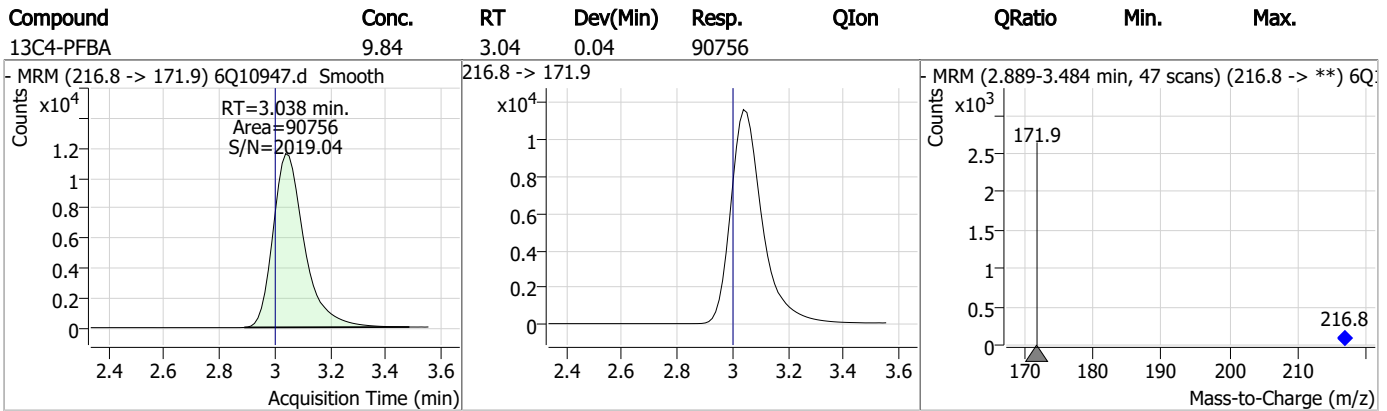
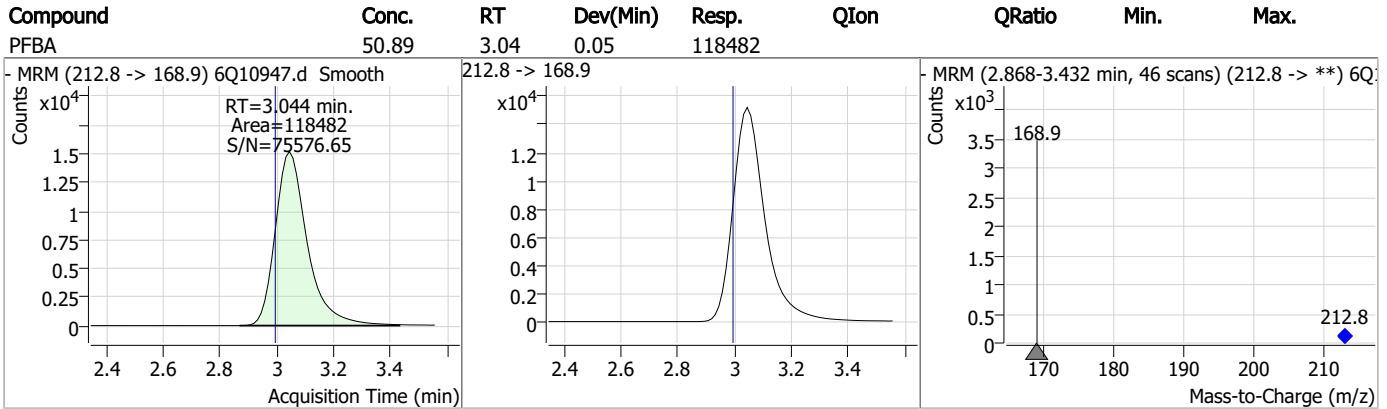
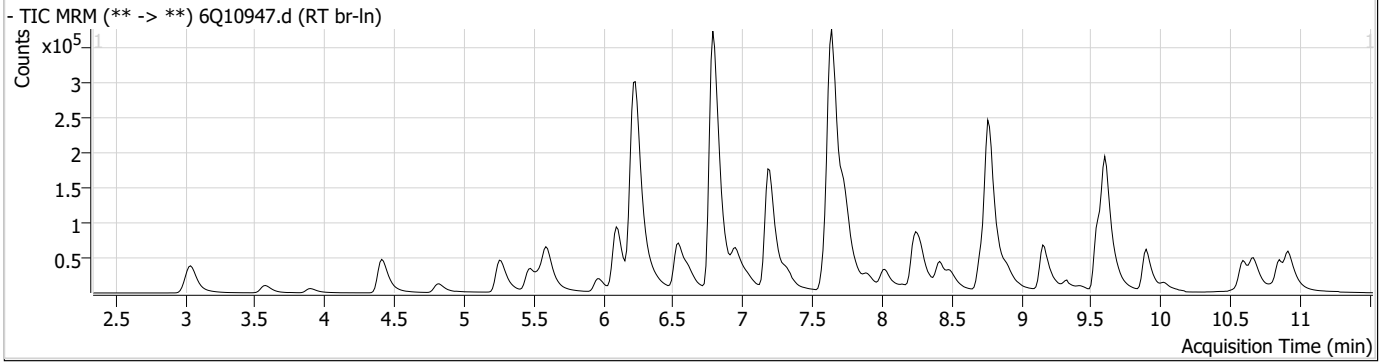
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.2

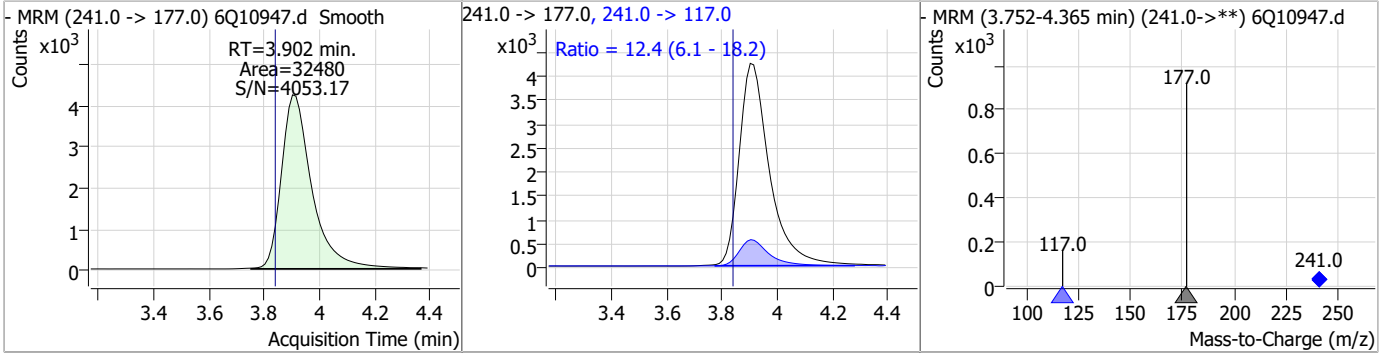
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Perfluorinated Compounds by LC/MS/MS

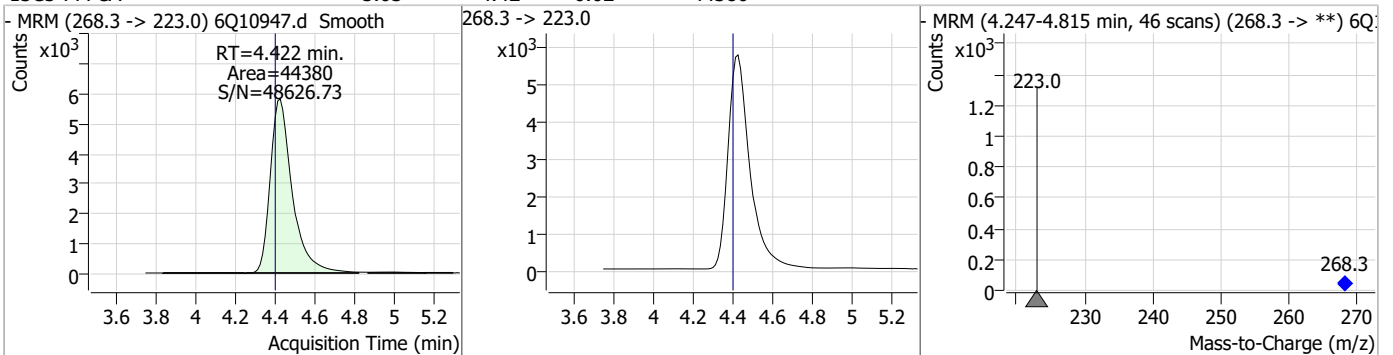


Perfluorinated Compounds by LC/MS/MS

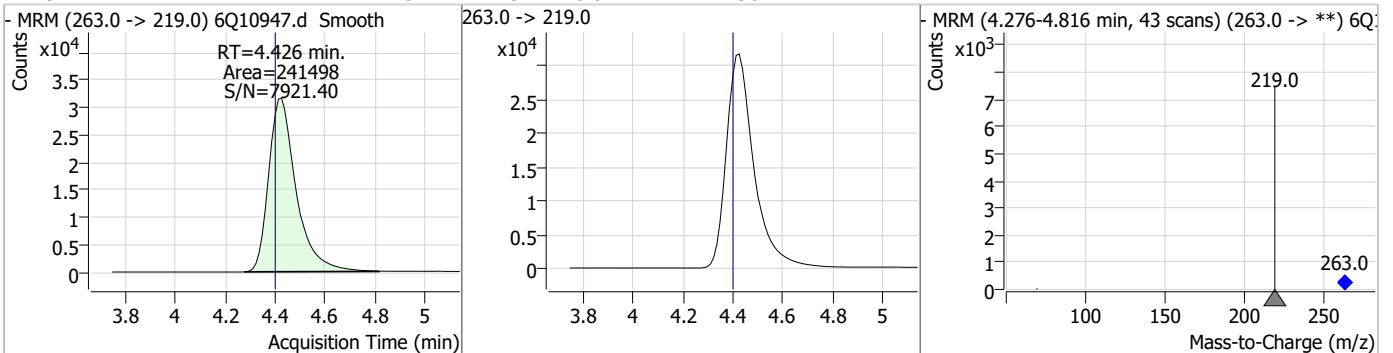
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	62.56	3.90	0.06	32480	241.0 -> 117.0	12.4	6.1	18.2



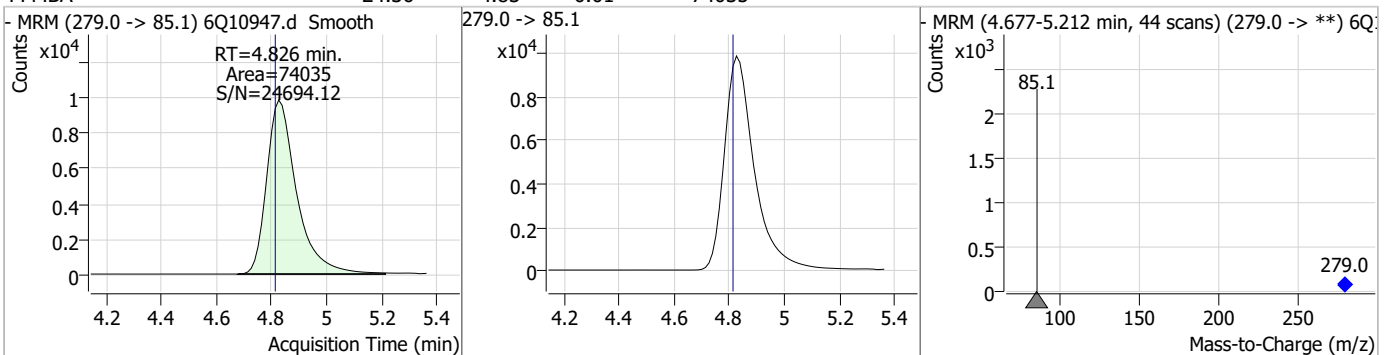
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.03	4.42	0.02	44380				



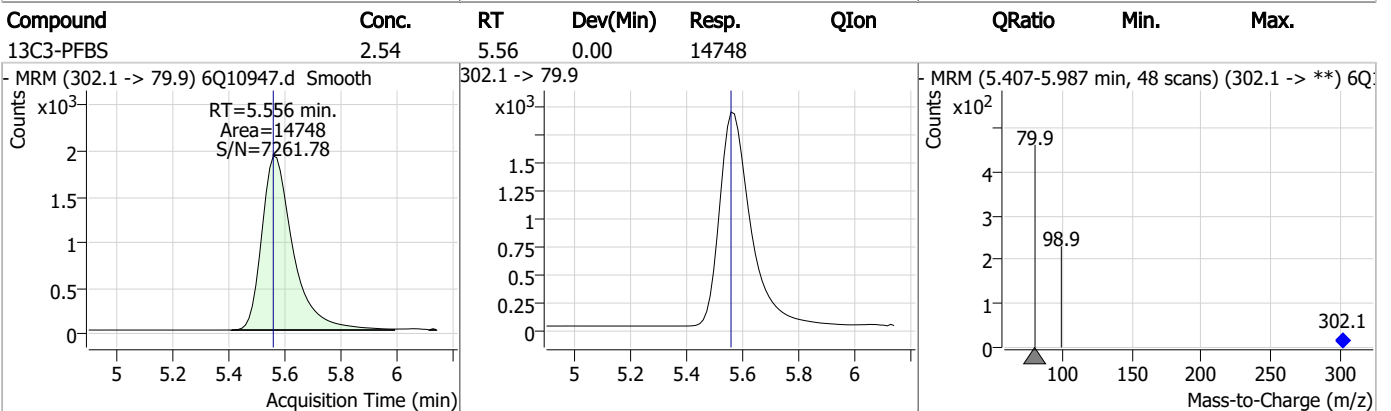
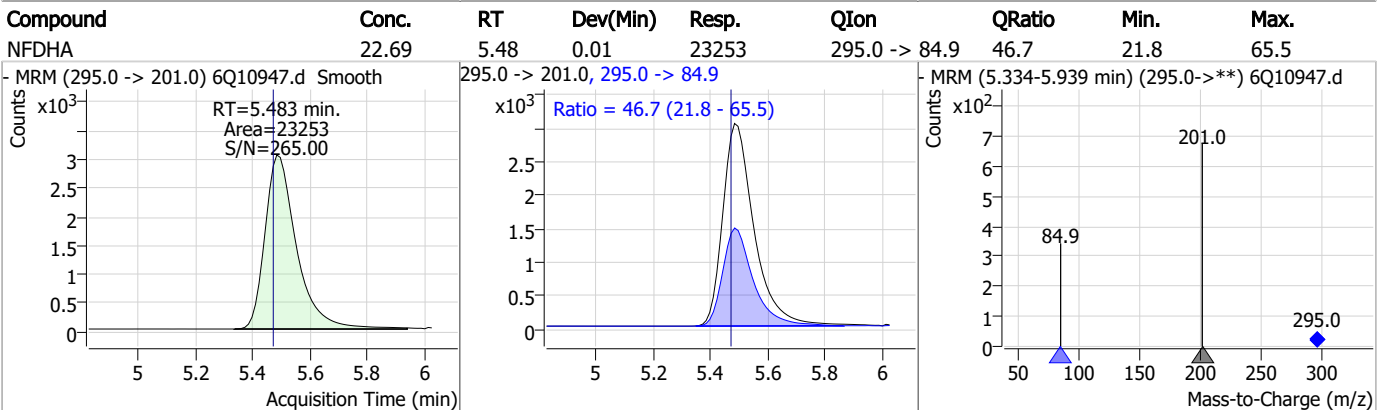
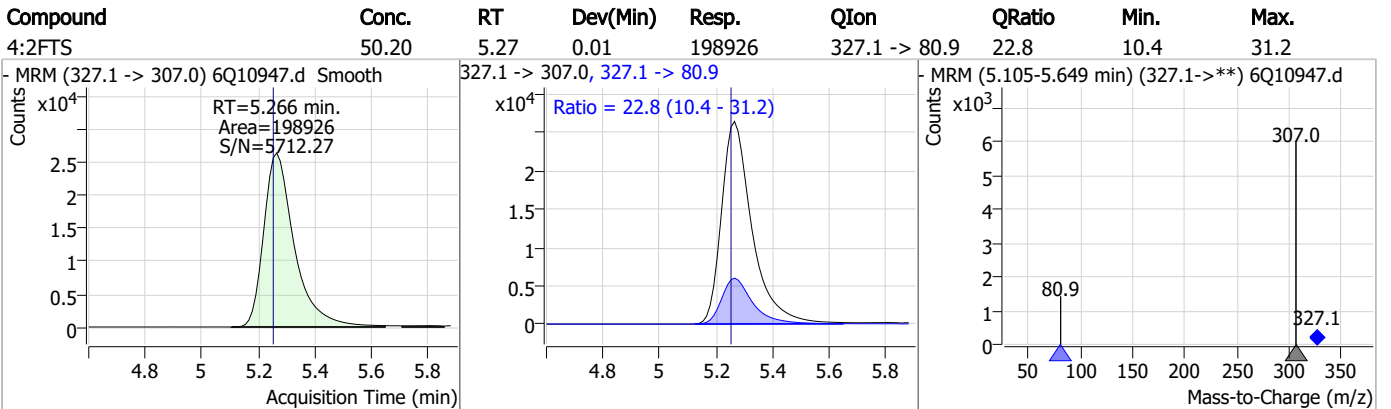
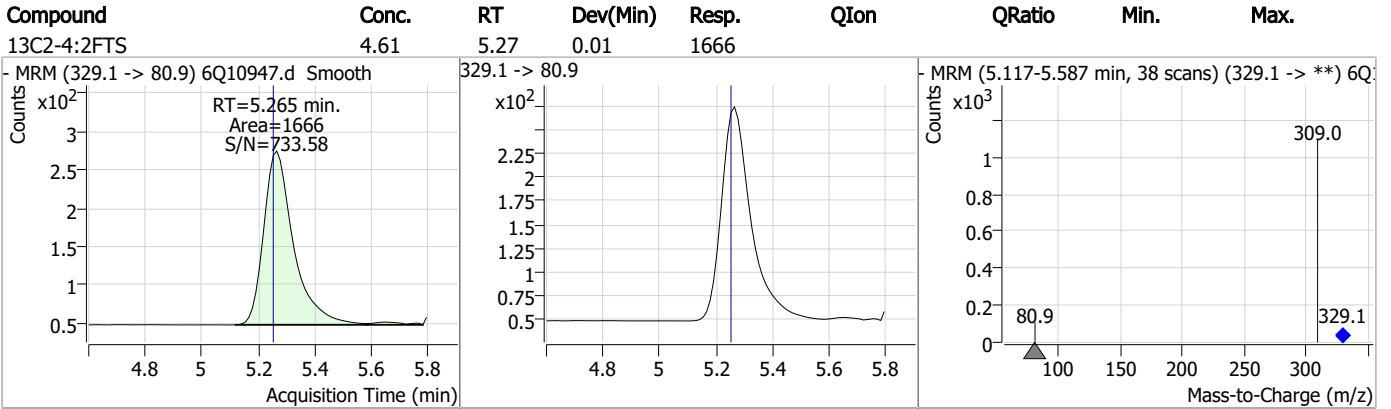
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	24.78	4.43	0.02	241498				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	24.36	4.83	0.01	74035				

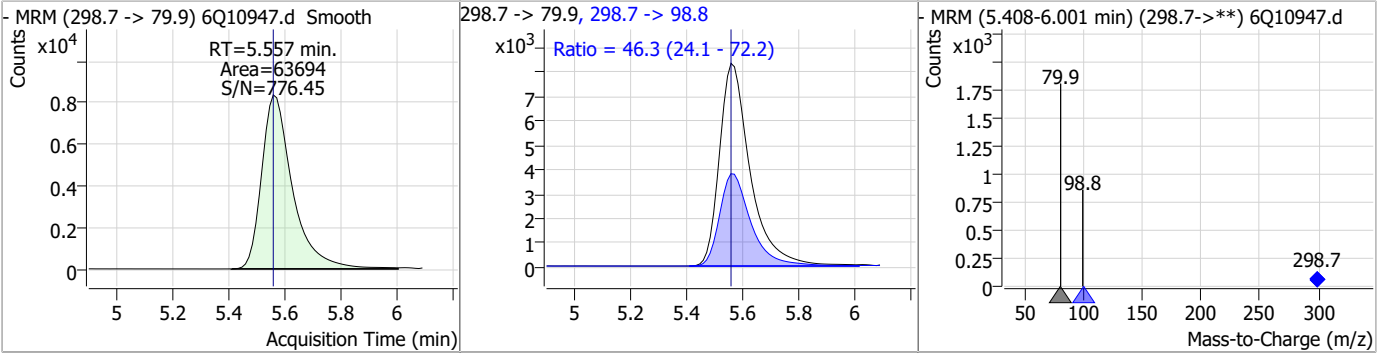


Perfluorinated Compounds by LC/MS/MS

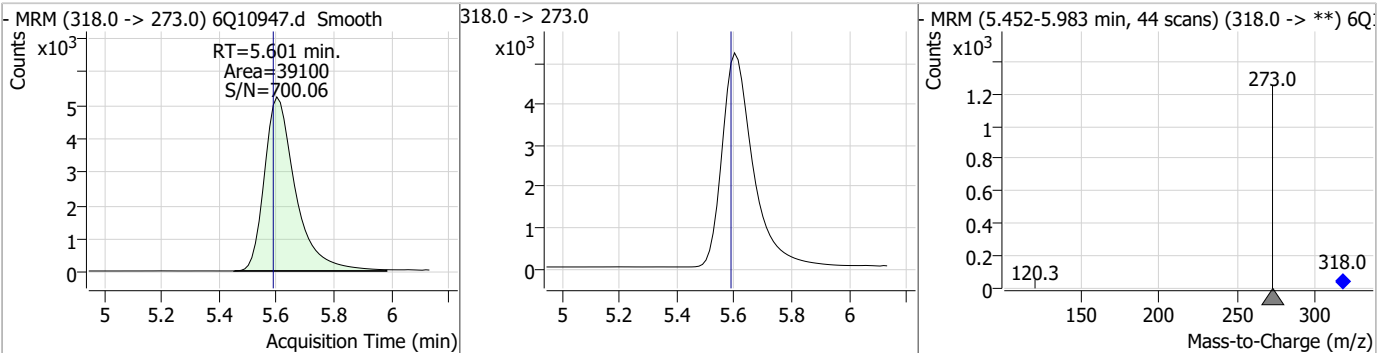


Perfluorinated Compounds by LC/MS/MS

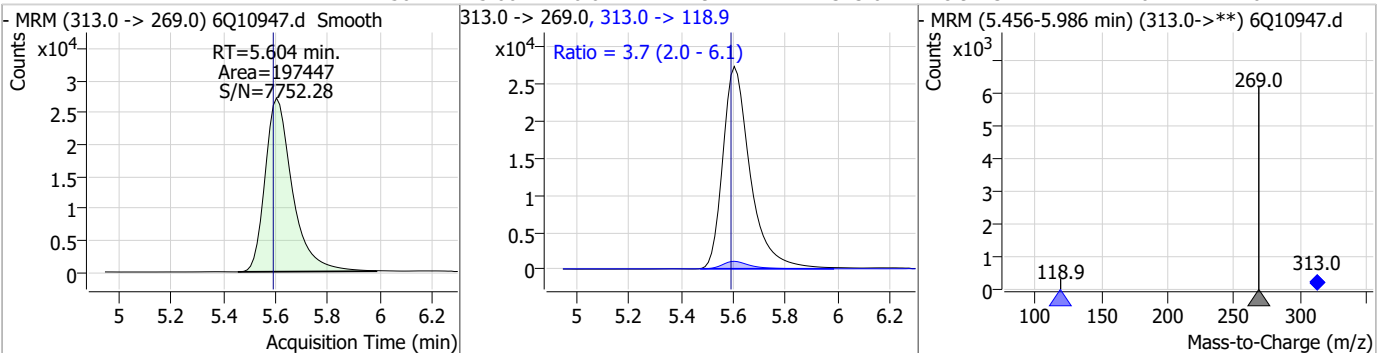
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	10.67	5.56	0.00	63694	298.7 -> 98.8	46.3	24.1	72.2



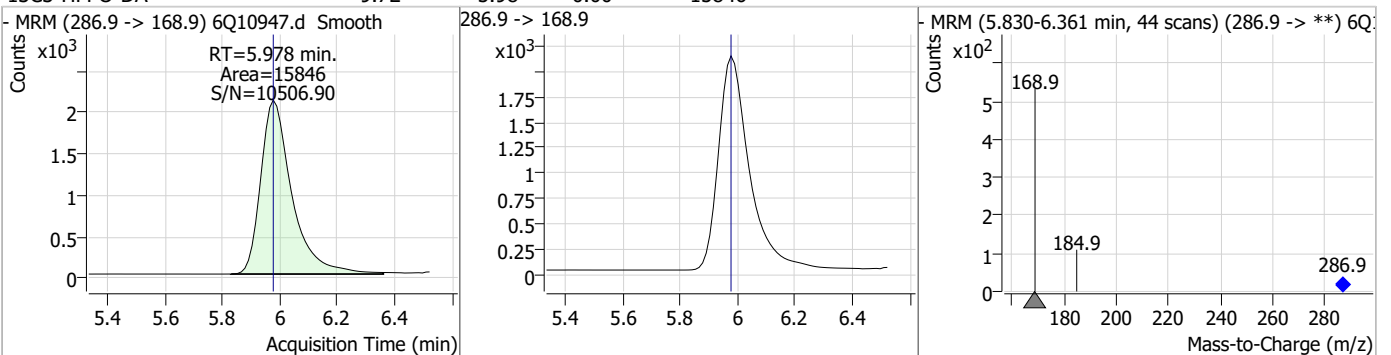
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.60	0.01	39100				



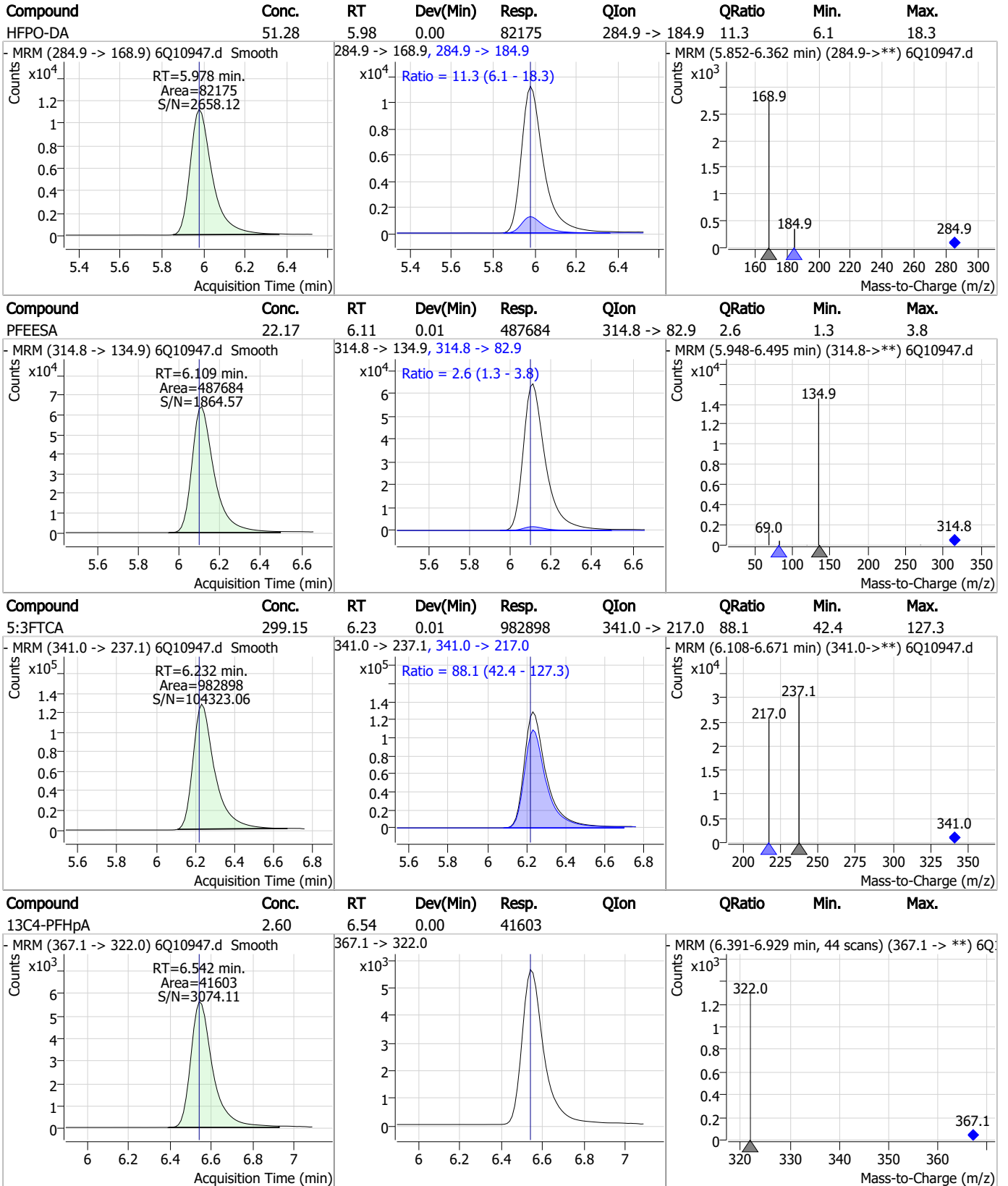
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	12.50	5.60	0.01	197447	313.0 -> 118.9	3.7	2.0	6.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.72	5.98	0.00	15846				



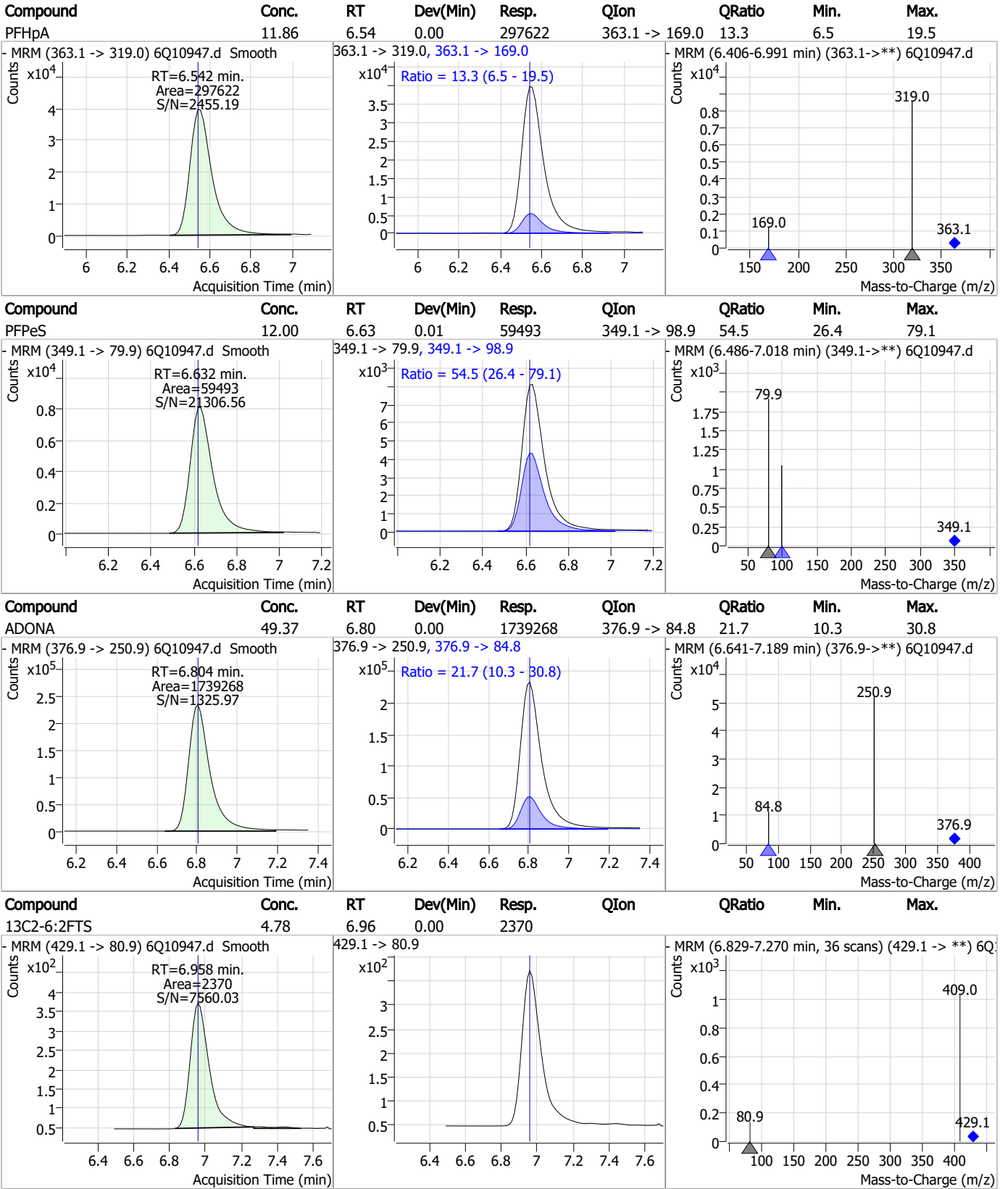
Perfluorinated Compounds by LC/MS/MS



7.6.2

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Perfluorinated Compounds by LC/MS/MS

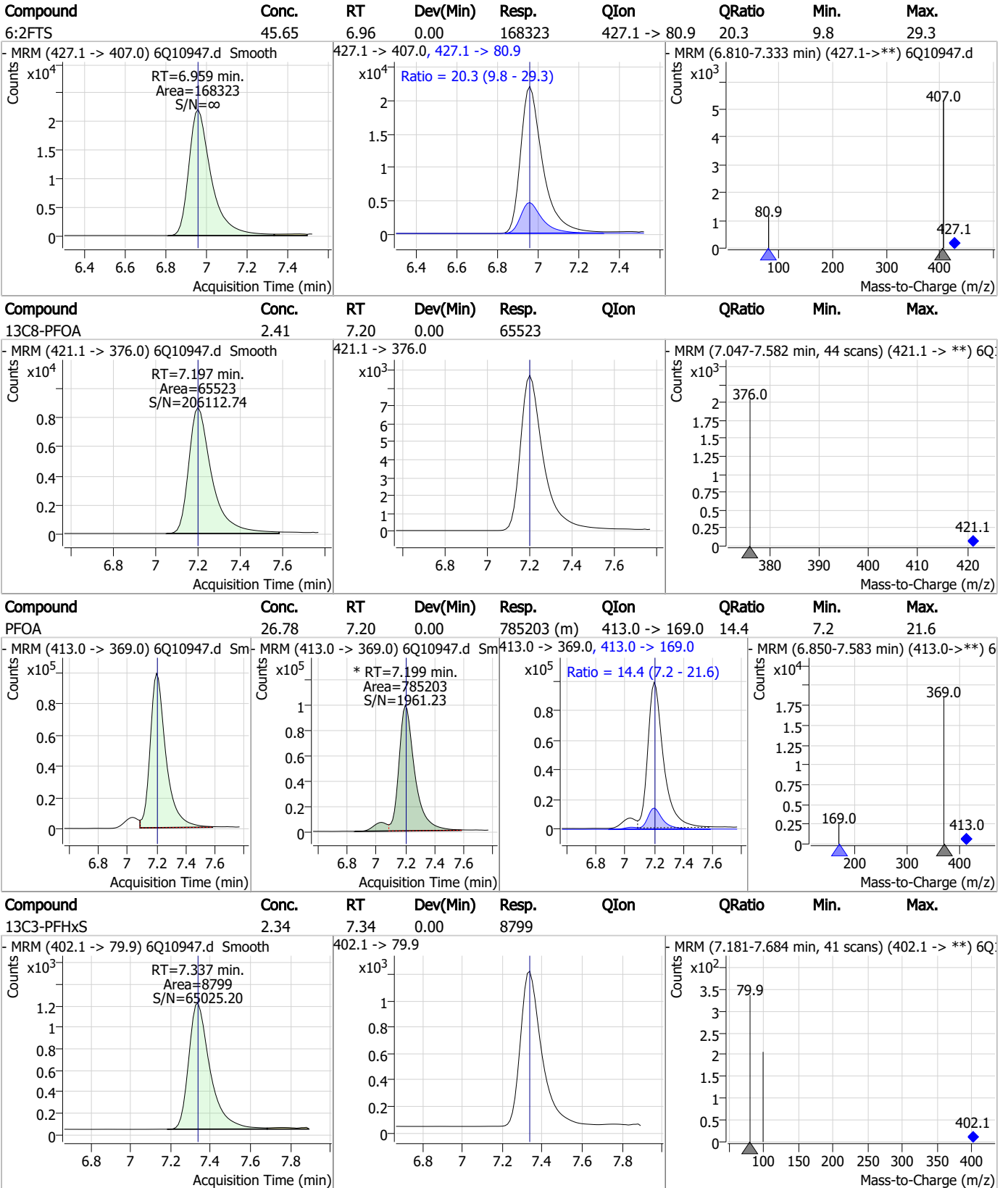


7.6.2

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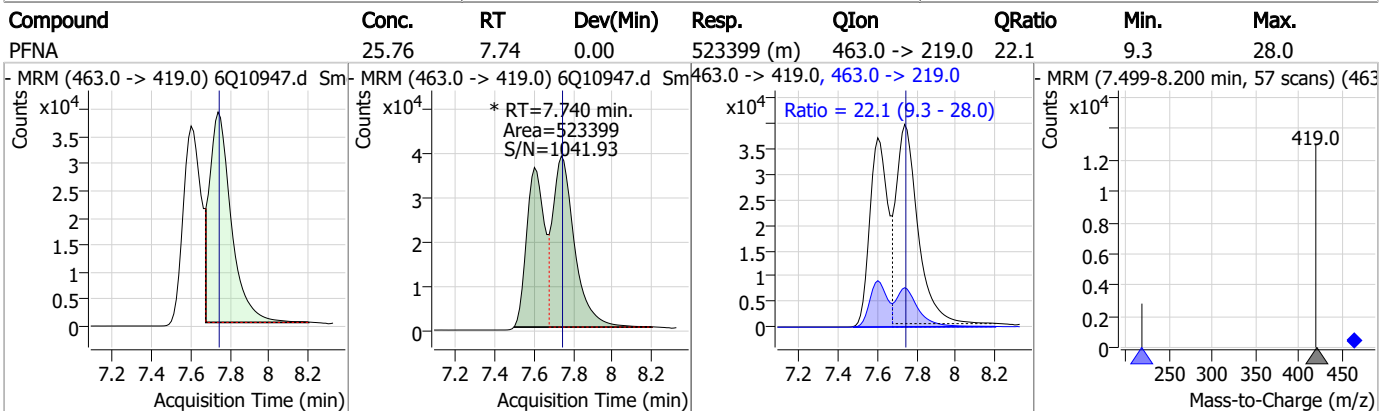
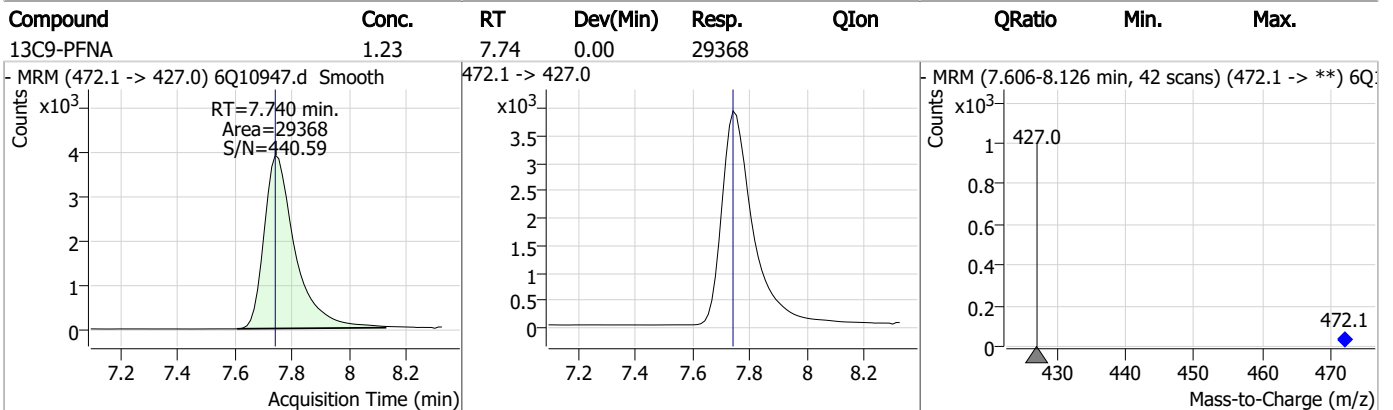
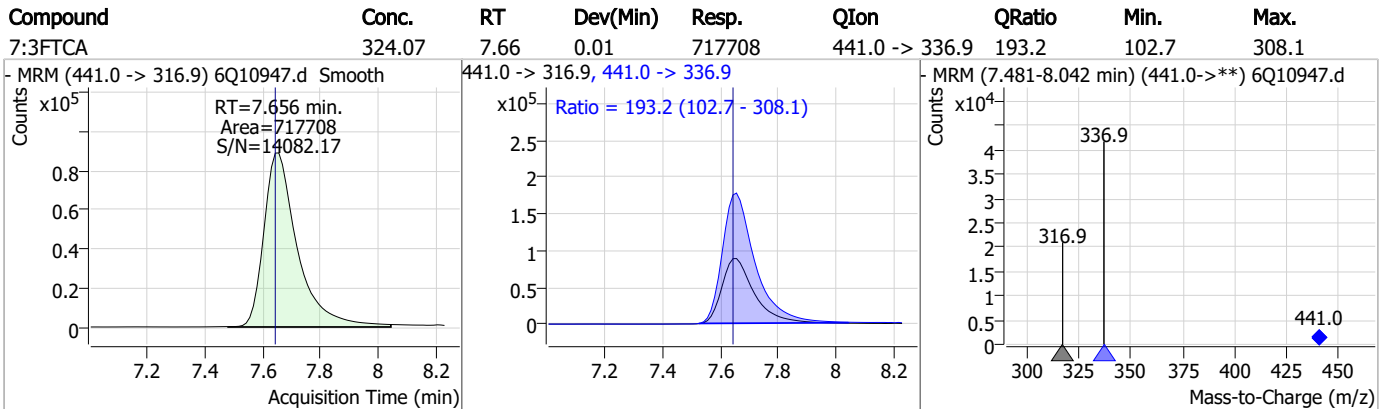
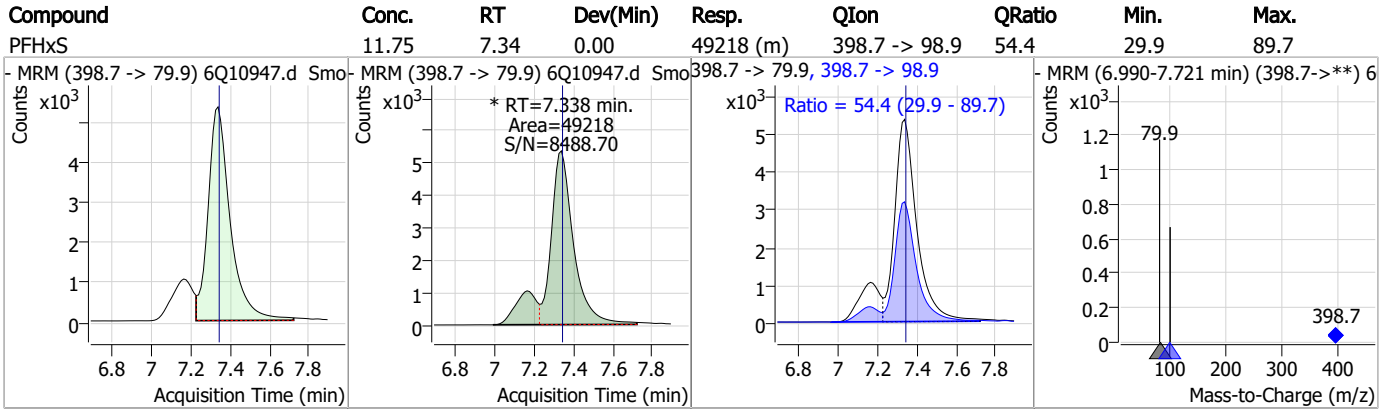
Perfluorinated Compounds by LC/MS/MS



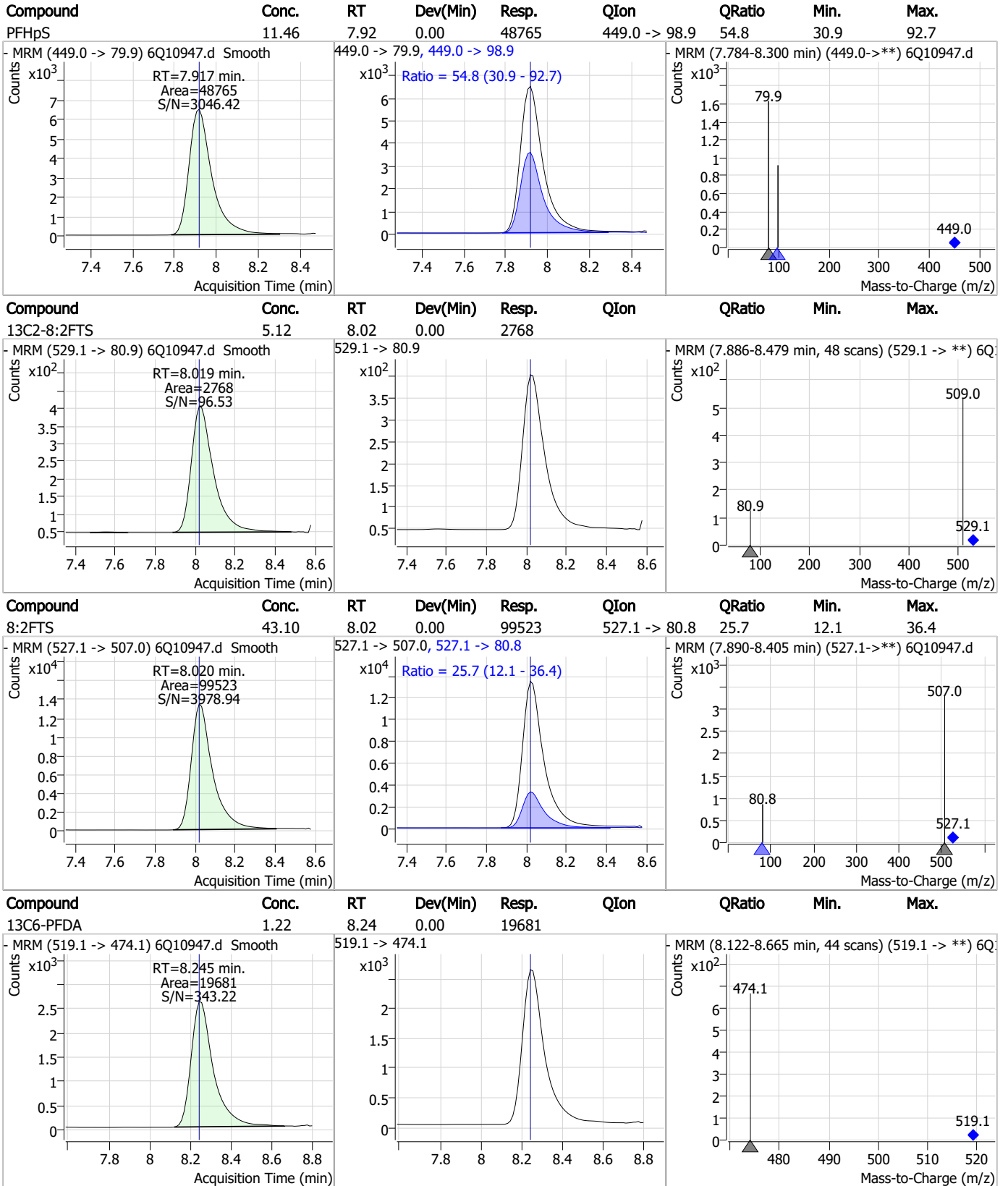
7.6.2

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

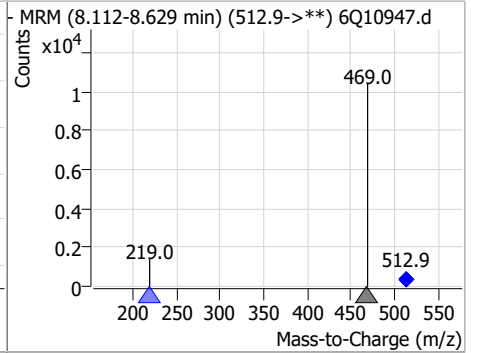
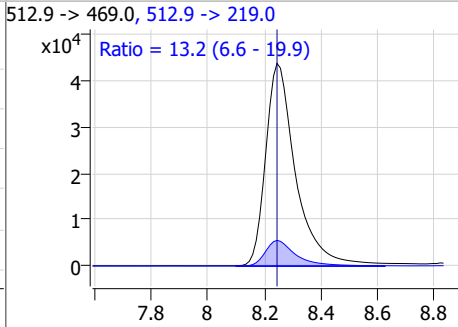
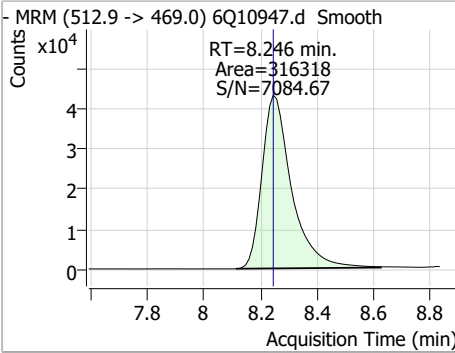


7.6.2

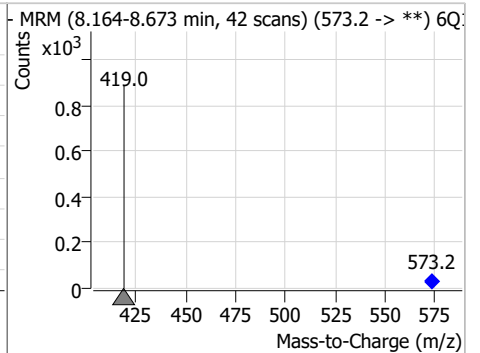
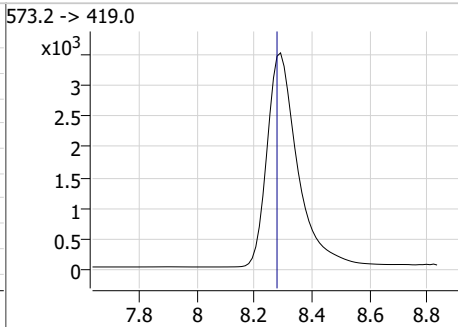
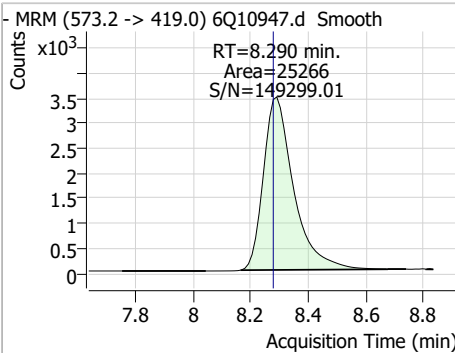
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Perfluorinated Compounds by LC/MS/MS

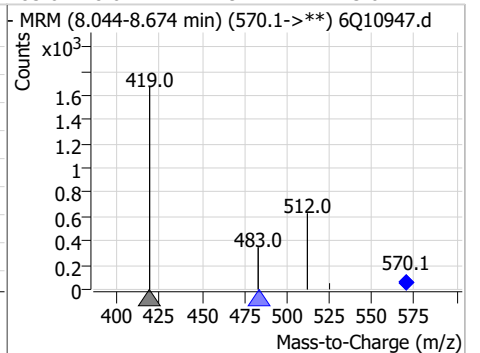
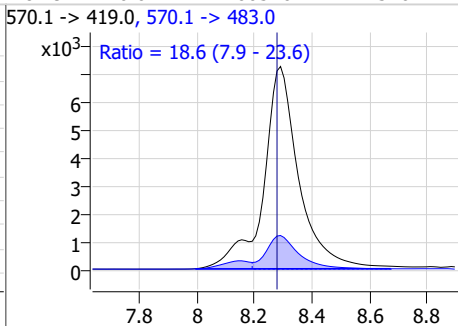
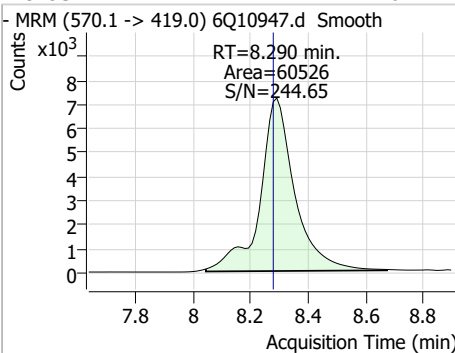
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	13.37	8.25	0.00	316318	512.9 -> 219.0	13.2	6.6	19.9



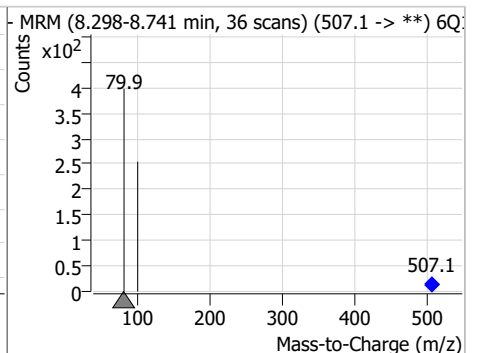
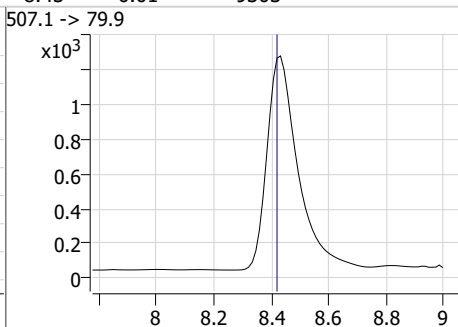
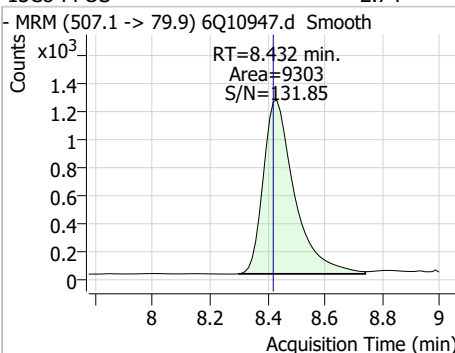
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.94	8.29	0.01	25266				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	11.62	8.29	0.01	60526	570.1 -> 483.0	18.6	7.9	23.6

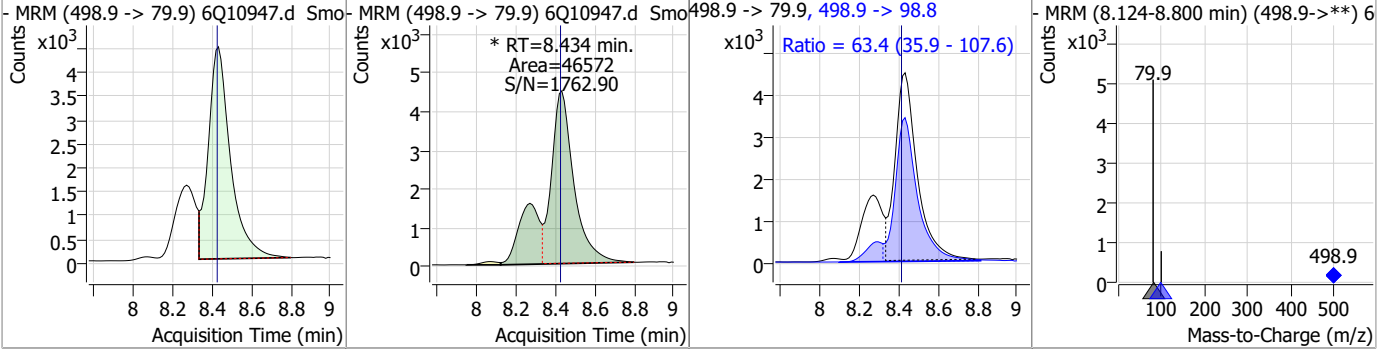


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.74	8.43	0.01	9303				

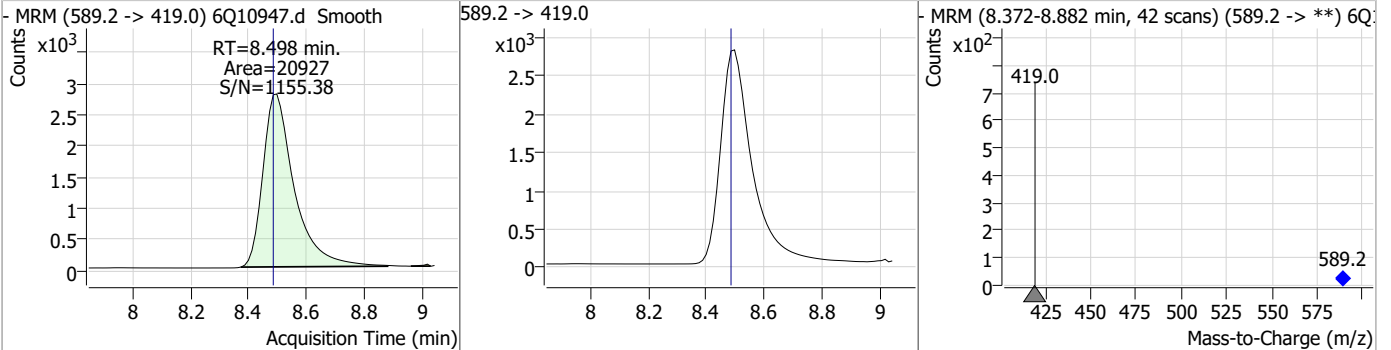


Perfluorinated Compounds by LC/MS/MS

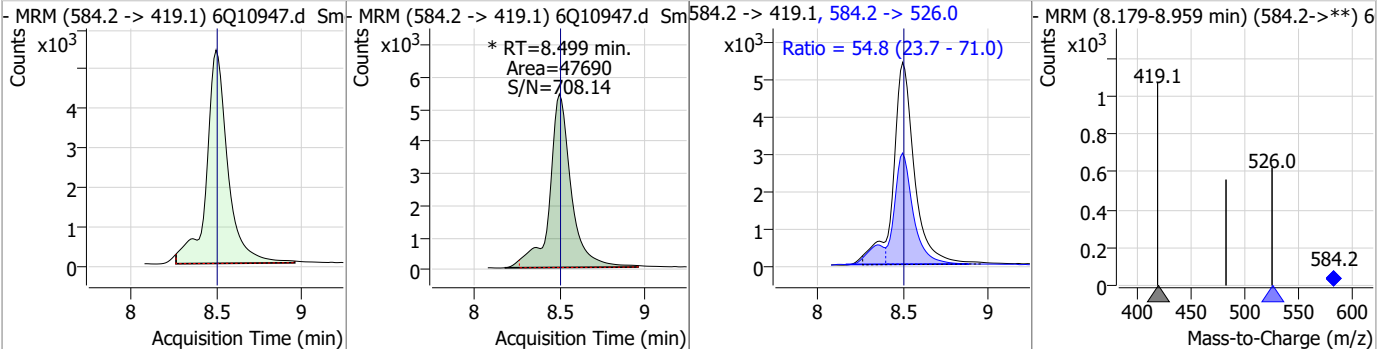
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	10.34	8.43	0.01	46572 (m)	498.9 -> 98.8	63.4	35.9	107.6



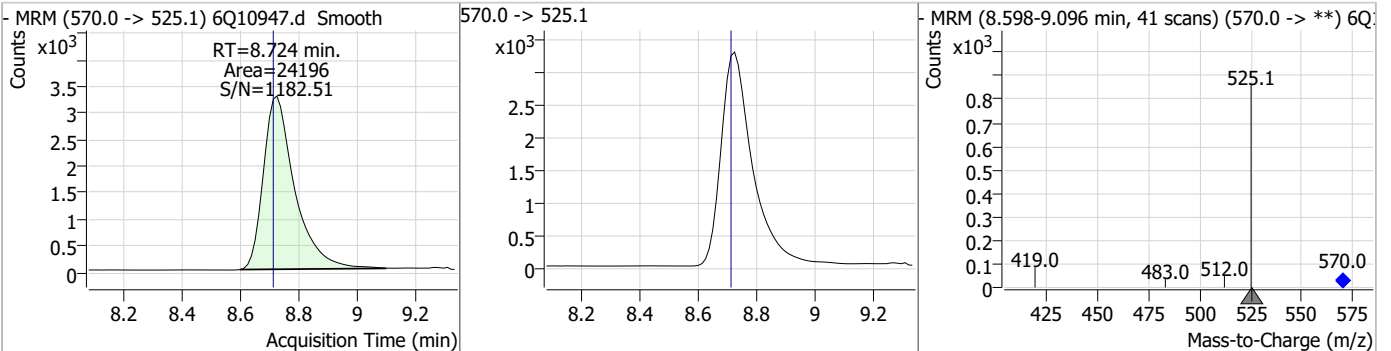
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.67	8.50	0.01	20927				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	14.28	8.50	0.00	47690 (m)	584.2 -> 526.0	54.8	23.7	71.0

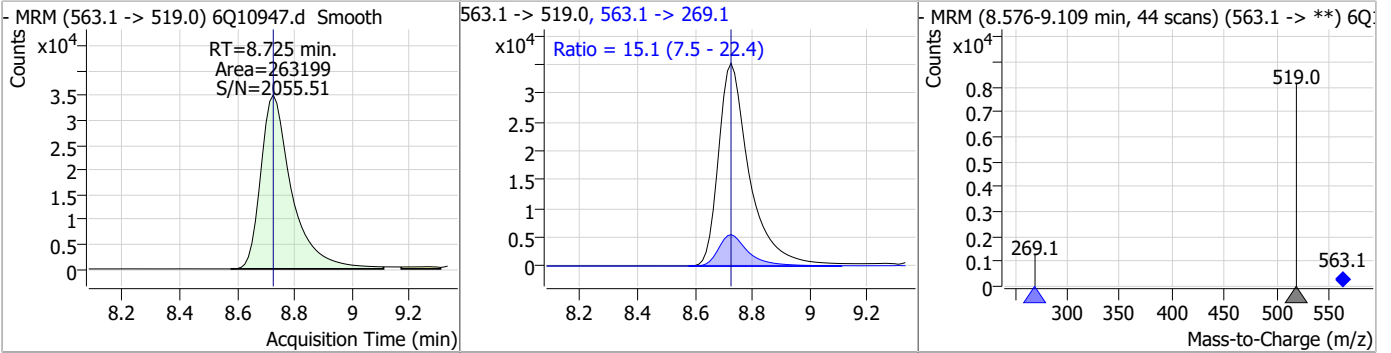


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.23	8.72	0.01	24196				

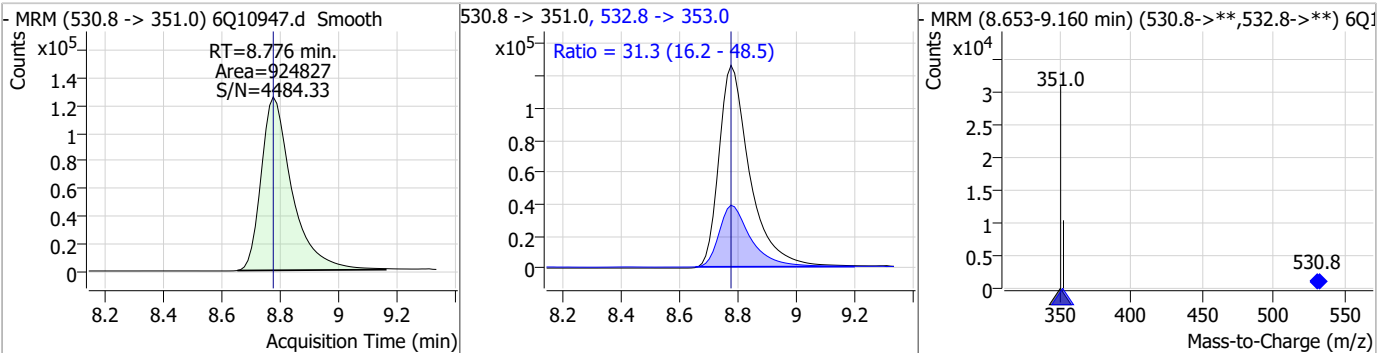


Perfluorinated Compounds by LC/MS/MS

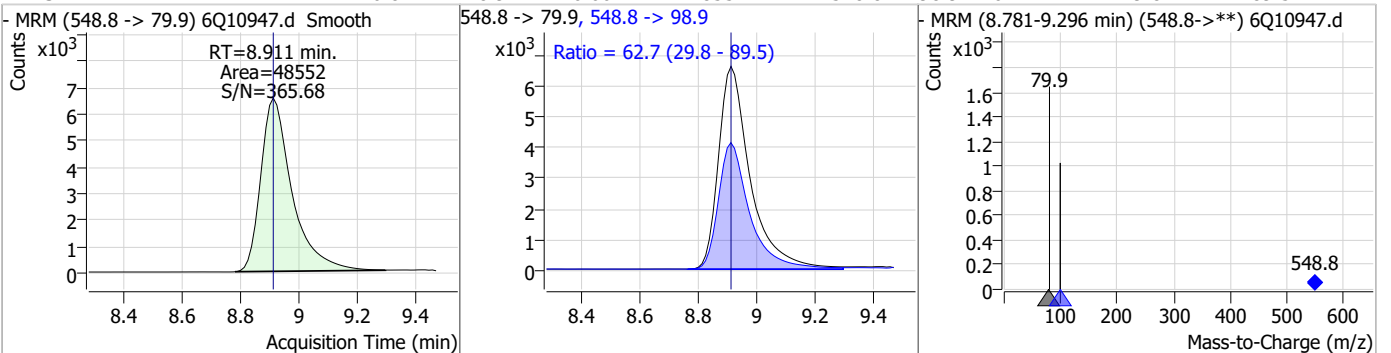
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	13.01	8.72	0.00	263199	563.1 -> 269.1	15.1	7.5	22.4



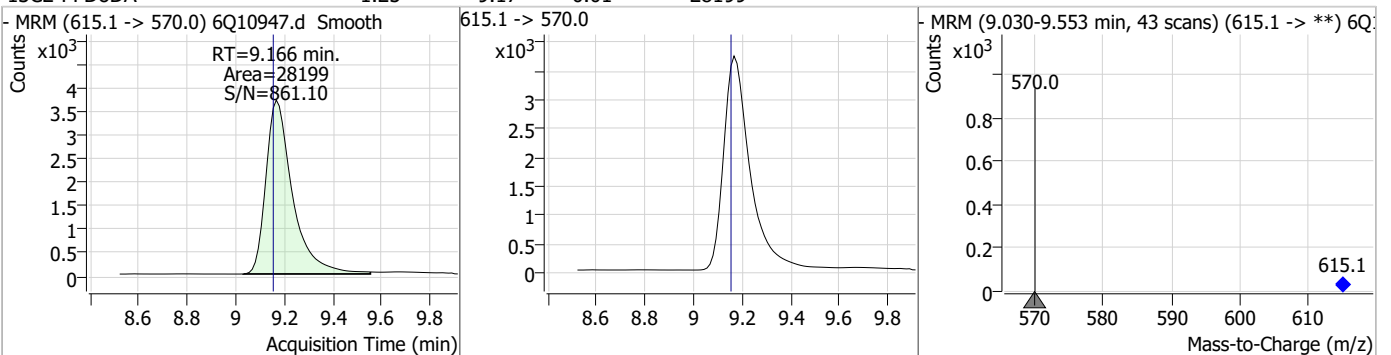
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	47.37	8.78	0.00	924827	532.8 -> 353.0	31.3	16.2	48.5



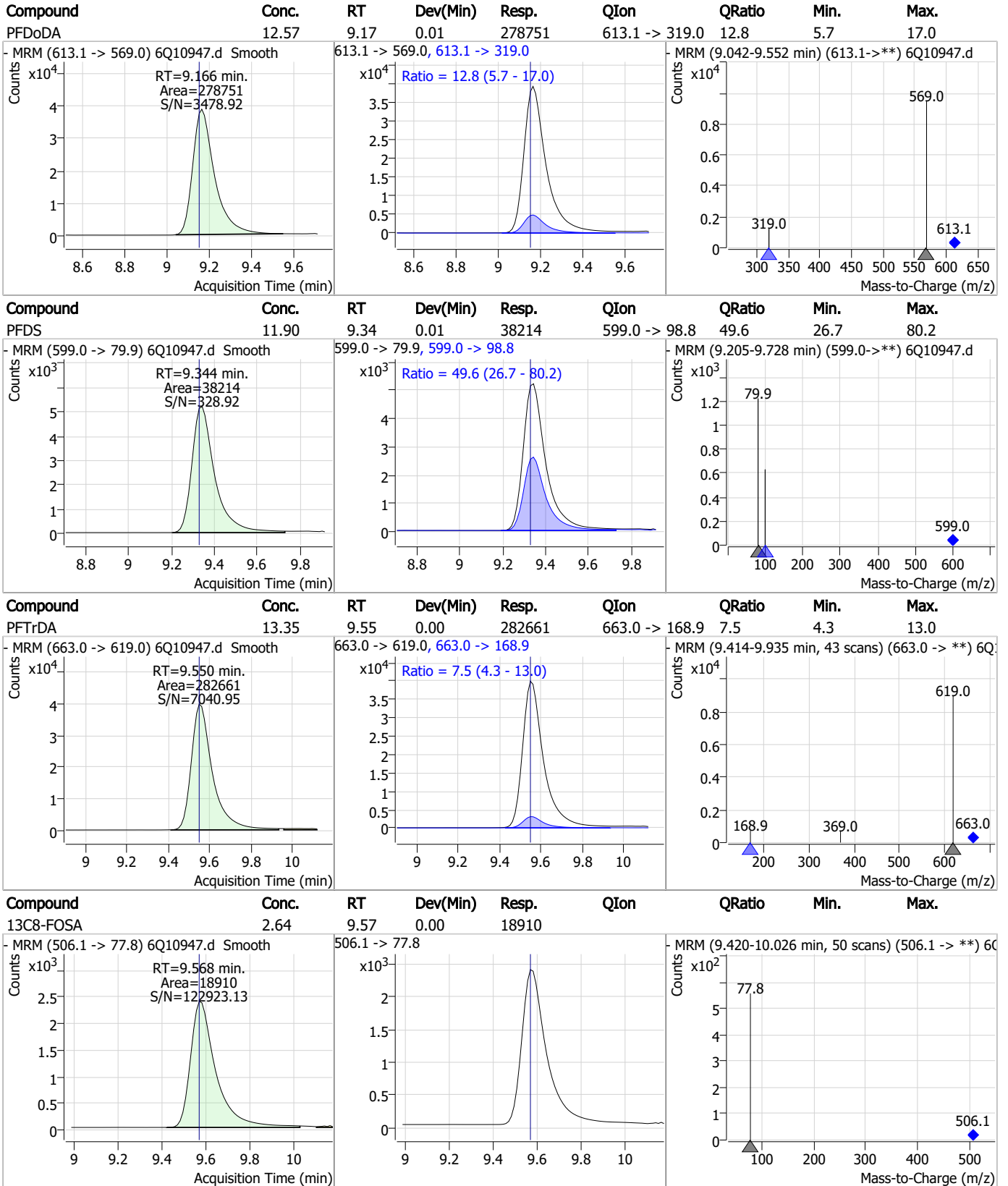
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	10.81	8.91	0.00	48552	548.8 -> 98.9	62.7	29.8	89.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.25	9.17	0.01	28199	615.1 -> 570.0	-	-	-



Perfluorinated Compounds by LC/MS/MS



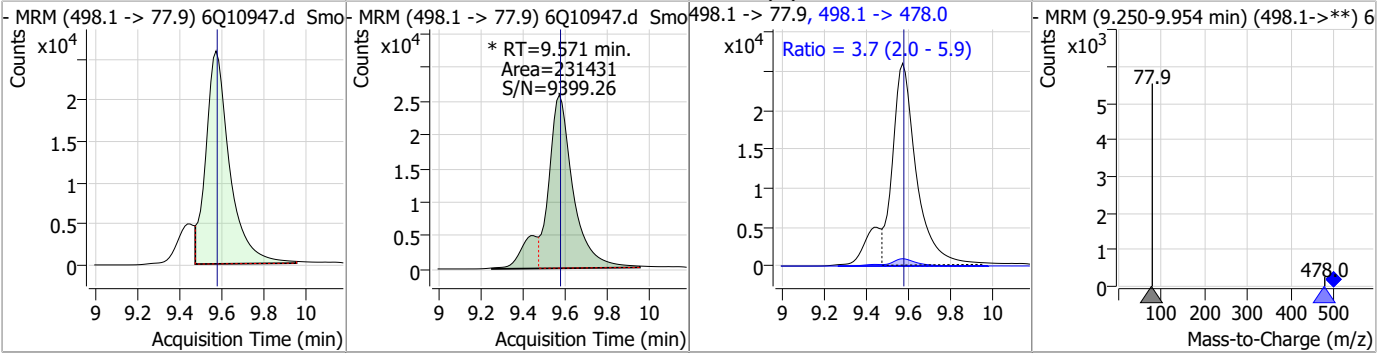
7.6.2

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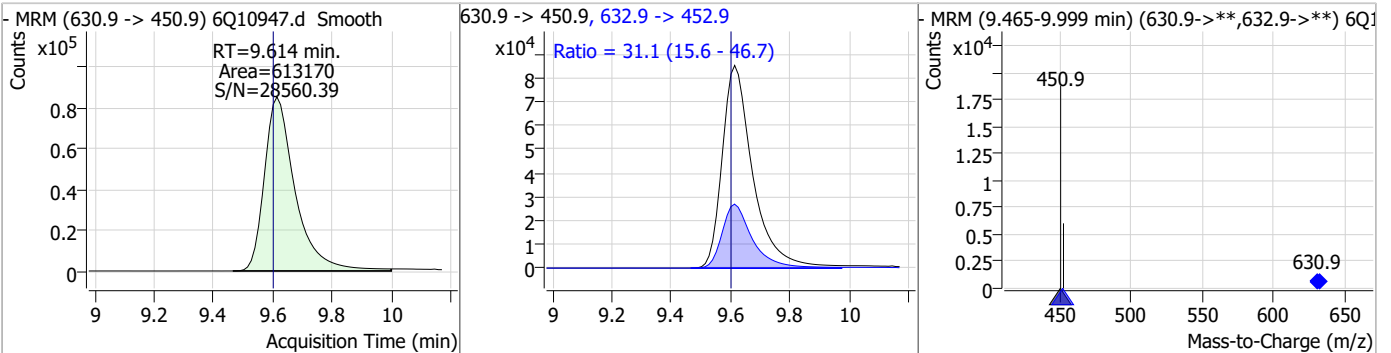


Perfluorinated Compounds by LC/MS/MS

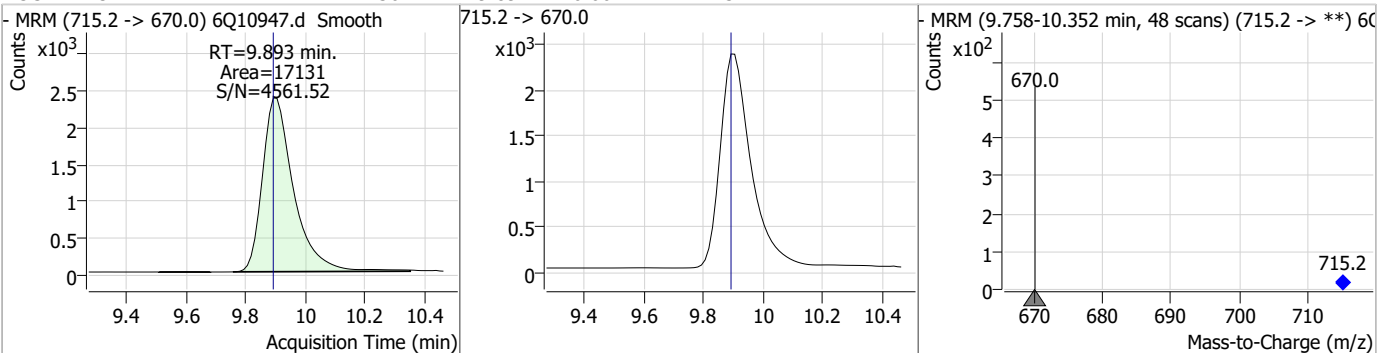
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	30.30	9.57	0.00	231431 (m)	498.1 -> 478.0	3.7	2.0	5.9



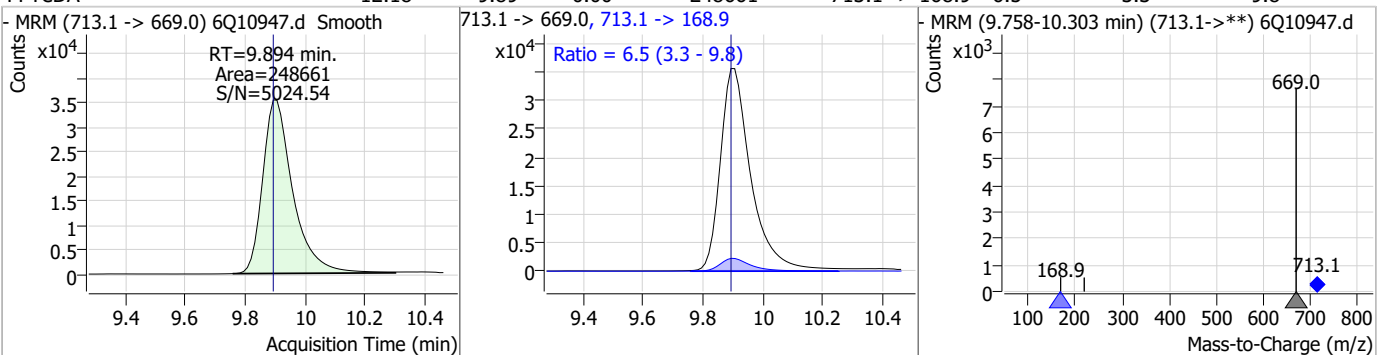
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	51.03	9.61	0.01	613170	632.9 -> 452.9	31.1	15.6	46.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.30	9.89	0.00	17131	715.2 -> 670.0	6.5	3.3	9.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	12.18	9.89	0.00	248661	713.1 -> 168.9	6.5	3.3	9.8



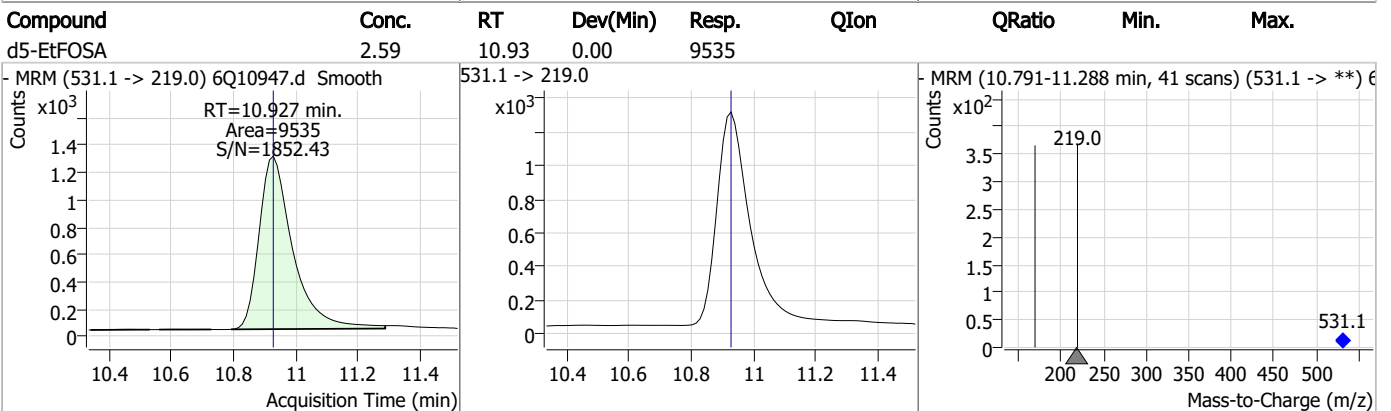
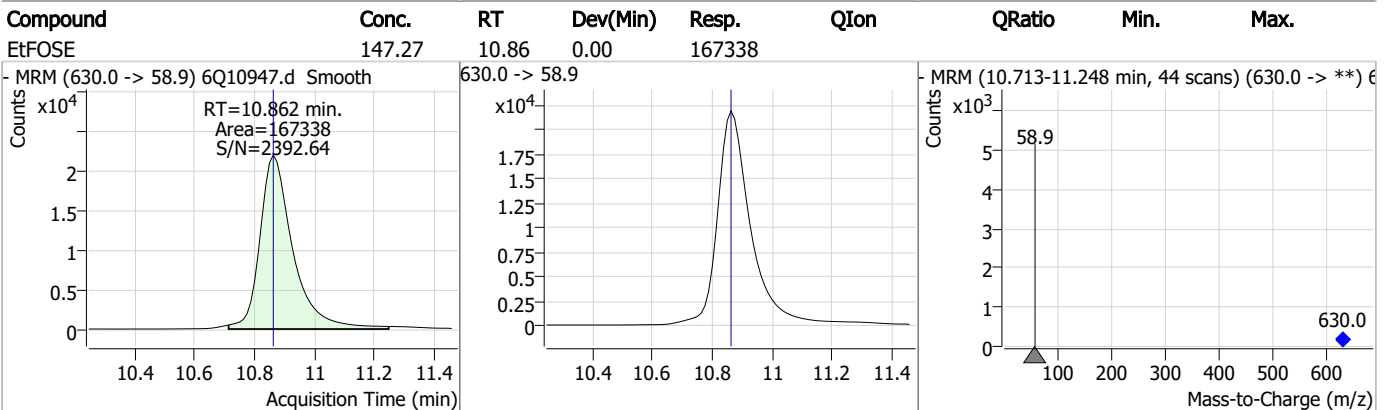
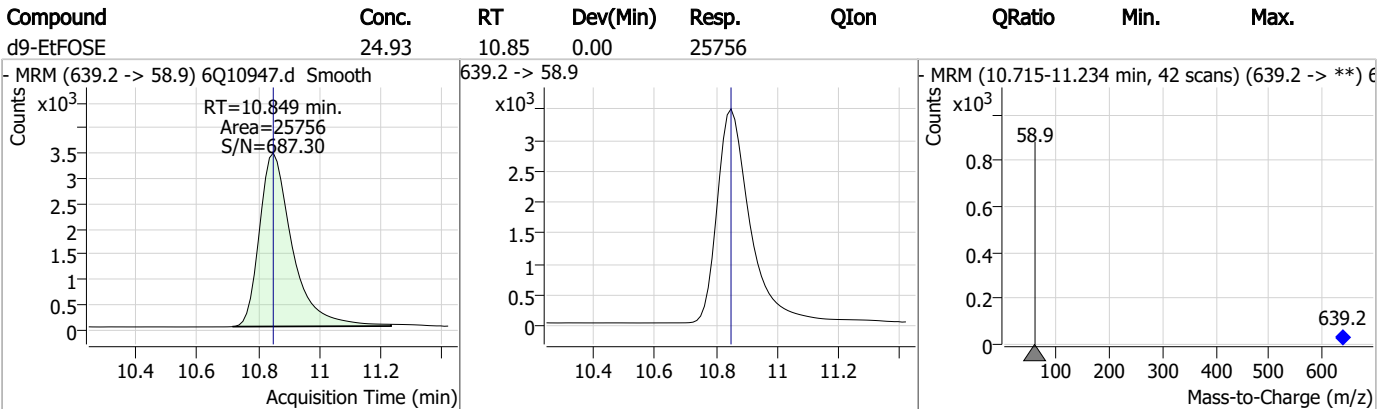
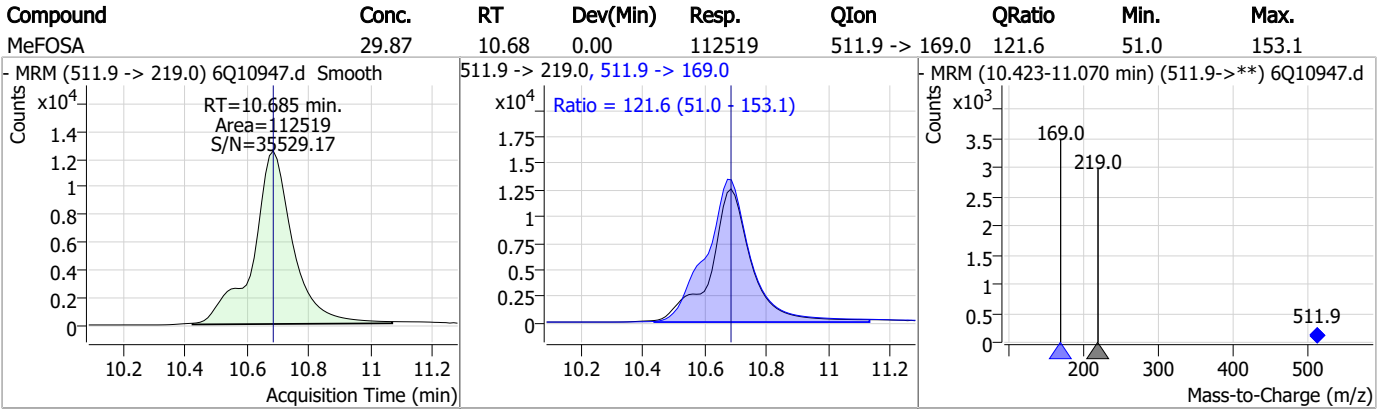
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	11.28	10.03	0.00	22588	699.1 -> 98.8	60.3	30.4	91.1
d7-MeFOSE	26.23	10.59	0.00	35438	623.2 -> 58.9	60.3	30.4	91.1
MeFOSE	135.28	10.60	0.00	198010	616.1 -> 58.9	60.3	30.4	91.1
d3-MeFOSA	2.60	10.68	0.00	8525	515.0 -> 219.0	60.3	30.4	91.1

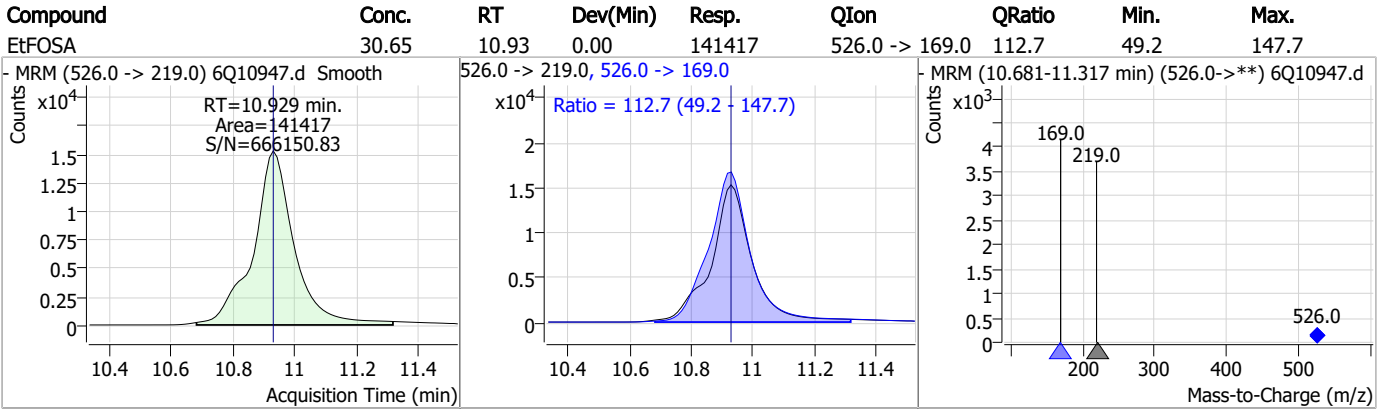
7.6.2

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S6Q174-RT Method: EPA DRAFT 1633
Lab FileID: 6Q10947.D Analyst approved: 01/12/23 11:46 Martha Valls
Injection Time: 01/11/23 11:22 Supervisor approved: 01/12/23 15:42 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.20	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.34	Split peak
Perfluorononanoic acid	375-95-1		7.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak
EtFOSAA	2991-50-6		8.50	Split peak
PFOSA	754-91-6		9.57	Split peak

7.6.2.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Mike Eger
 01/18/23 19:08

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11514.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/17/2023 9:24:29 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : S6Q180 TDCA.batch.bin
 Sample Information : OP94995,S6Q180,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.371	507.1 -> 79.9	14330	2.50	µg/L	-0.062	
13C4-PFOS	8.372	502.8 -> 79.9	17783	2.50	µg/L	-0.049	
System Monitoring Compounds							
13C8-PFOS	8.371	507.1 -> 79.9	14330	2.04	µg/L	-0.062	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 81.8%				
Target Compounds							
PFOS	8.372	498.9 -> 79.9 498.9 -> 98.8	18932 12287	3.87	µg/L m		80
TCDCa	6.672	498.9 -> 79.9	2965	4.48	ng/ml		100
TDCA	6.833	498.9 -> 79.9	4587	7.66	ng/ml		100
TUDCA	5.808	498.9 -> 79.9	5971	4.70	ng/ml		100

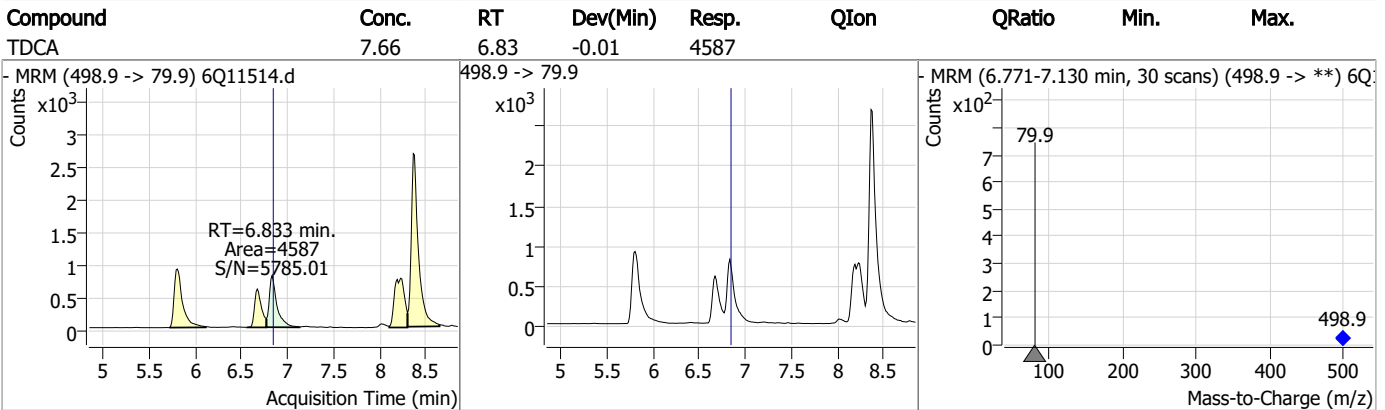
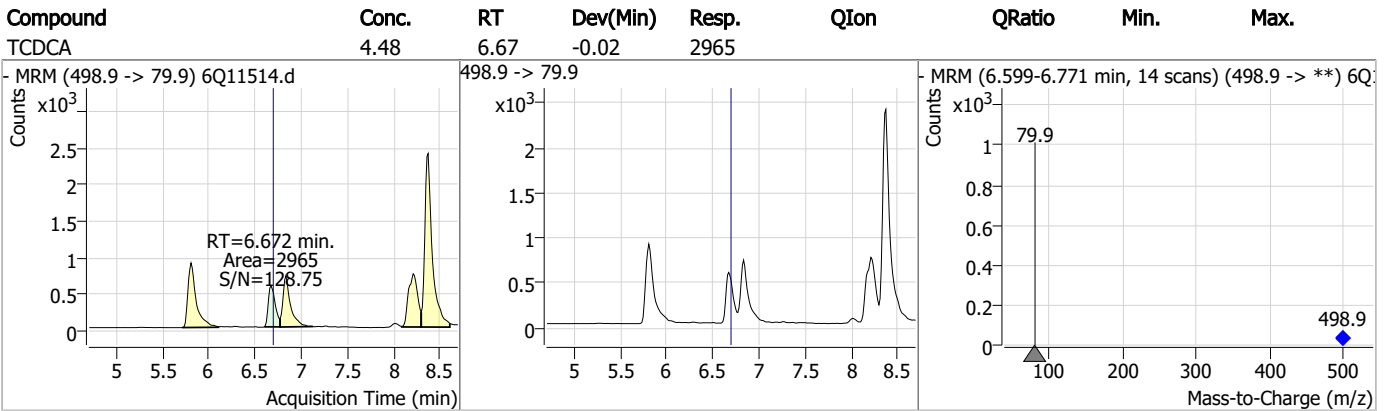
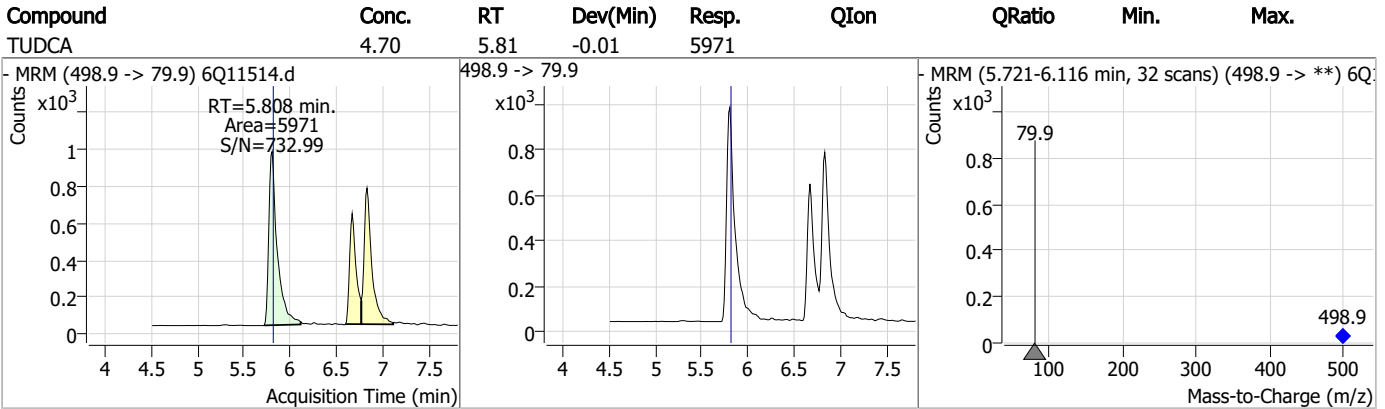
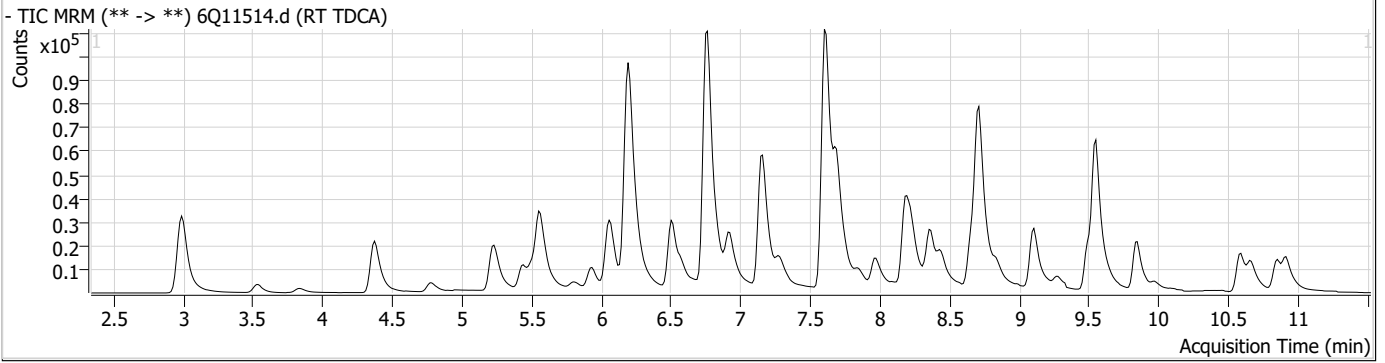
= Qualifier out of range, m = manually integrated, + = Area summed

7.6.3

7

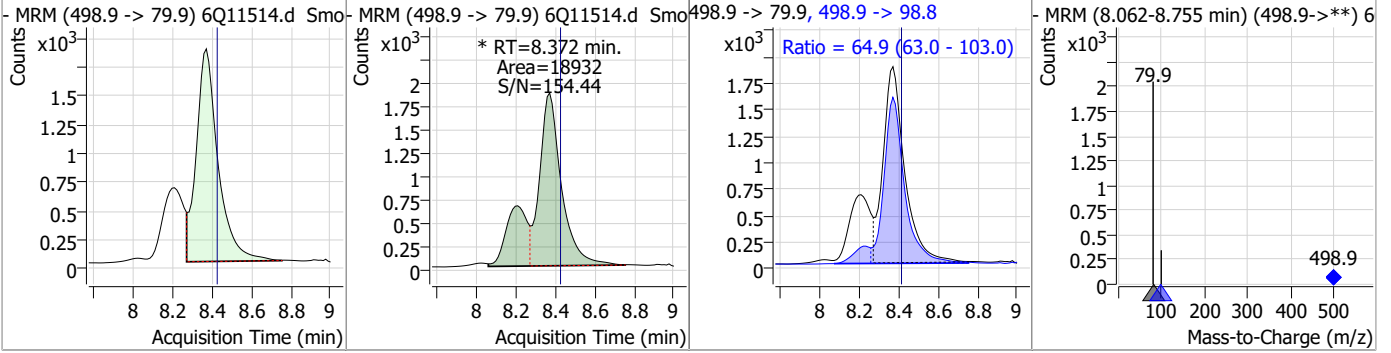


Perfluorinated Compounds by LC/MS/MS

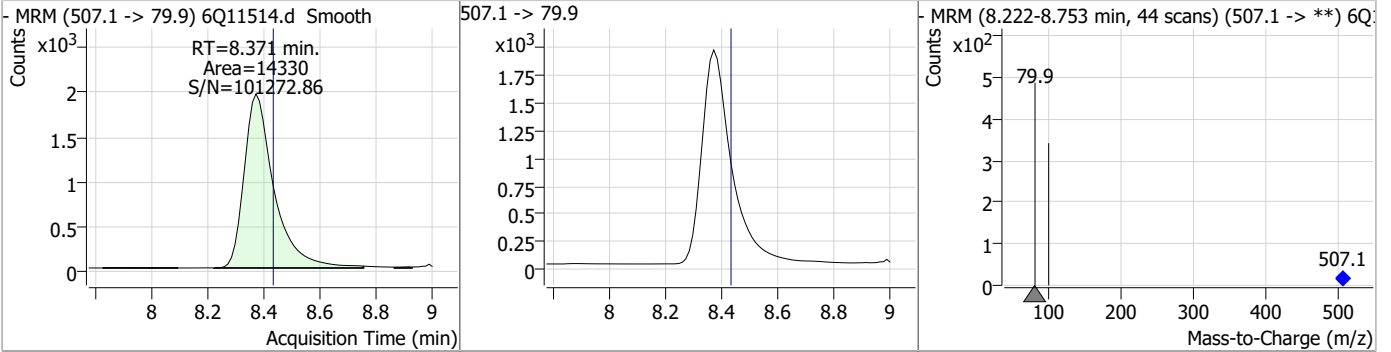


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.87	8.37	-0.05	18932 (m)	498.9 -> 98.8	64.9	63.0	103.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.04	8.37	-0.06	14330				



7.6.3

7

Manual Integration Approval Summary

Sample Number: S6Q180-RT Method: EPA DRAFT 1633
Lab FileID: 6Q11514.D Analyst approved: 01/18/23 15:20 Martha Valls
Injection Time: 01/17/23 21:24 Supervisor approved: 01/18/23 19:08 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak

7.6.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11515.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/17/2023 9:38:27 PM
 Sample Name : RT br-ln
 Vial : P1-B4
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	85327	10.00 µg/L	0.000
M5-PFPeA	4.384	268.3 -> 223.0	41104	5.00 µg/L	0.000
M5-PFHxA	5.564	318.0 -> 273.0	35270	2.50 µg/L	0.000
M4-PFHpA	6.516	367.1 -> 322.0	37273	2.50 µg/L	0.000
M8-PFOA	7.160	421.1 -> 376.0	66759	2.50 µg/L	0.000
M9-PFNA	7.702	472.1 -> 427.0	28513	1.25 µg/L	-0.013
M6-PFDA	8.195	519.1 -> 474.1	18012	1.25 µg/L	-0.012
M7-PFUnDA	8.662	570.0 -> 525.1	23185	1.25 µg/L	-0.012
M2-PFDoDA	9.104	615.1 -> 570.0	26890	1.25 µg/L	-0.012
M2-PFTeDA	9.844	715.2 -> 670.0	15095	1.25 µg/L	-0.012
M8-FOSA	9.568	506.1 -> 77.8	18248	2.50 µg/L	0.000
M3-PFBS	5.519	302.1 -> 79.9	13390	2.50 µg/L	-0.012
M3-PFHxS	7.300	402.1 -> 79.9	9047	2.50 µg/L	0.000
M8-PFOS	8.371	507.1 -> 79.9	8606	2.50 µg/L	-0.012
M2-4:2FTS	5.228	329.1 -> 80.9	1782	5.00 µg/L	0.000
M2-6:2FTS	6.921	429.1 -> 80.9	2360	5.00 µg/L	-0.012
M2-8:2FTS	7.982	529.1 -> 80.9	2380	5.00 µg/L	0.000
M3-MeFOSAA	8.240	573.2 -> 419.0	26988	5.00 µg/L	0.000
M3-HFPO-DA	5.941	286.9 -> 168.9	15334	10.00 µg/L	0.000
M5-EtFOSAA	8.436	589.2 -> 419.0	22546	5.00 µg/L	-0.012
M7-MeFOSE	10.579	623.2 -> 58.9	32406	25.00 µg/L	-0.012
M9-EtFOSE	10.836	639.2 -> 58.9	23880	25.00 µg/L	-0.012
M5-EtFOSA	10.927	531.1 -> 219.0	8677	2.50 µg/L	0.000
M3-MeFOSA	10.670	515.0 -> 219.0	8038	2.50 µg/L	-0.012
13C4-PFOS	8.372	502.8 -> 79.9	10367	2.50 µg/L	-0.012
13C3-PFBA	3.004	216.0 -> 172.0	37742	5.00 µg/L	0.000
18O2-PFHxS	7.299	403.0 -> 83.9	6427	2.50 µg/L	0.000
13C4-PFOA	7.160	417.1 -> 372.0	79318	2.50 µg/L	-0.012
13C2-PFDA	8.196	515.1 -> 470.1	27614	1.25 µg/L	-0.012
13C5-PFNA	7.703	468.0 -> 423.0	32750	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	35782	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.228	329.1 -> 80.9	1782	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C2-6:2FTS	6.921	429.1 -> 80.9	2360	5.14 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-8:2FTS	7.982	529.1 -> 80.9	2380	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C2-PFDoDA	9.104	615.1 -> 570.0	26890	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C2-PFTeDA	9.844	715.2 -> 670.0	15095	1.17 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C3-PFBS	5.519	302.1 -> 79.9	13390	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C3-PFHxS	7.300	402.1 -> 79.9	9047	2.59 µg/L	0.000

7.6.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C4-PFBA	3.000	216.8 -> 171.9	85327	9.90 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C4-PFHpA	6.516	367.1 -> 322.0	37273	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C5-PFHxA	5.564	318.0 -> 273.0	35270	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C5-PFPeA	4.384	268.3 -> 223.0	41104	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C6-PFDA	8.195	519.1 -> 474.1	18012	1.15 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.6%	
13C7-PFUnDA	8.662	570.0 -> 525.1	23185	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C8-FOSA	9.568	506.1 -> 77.8	18248	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C8-PFOA	7.160	421.1 -> 376.0	66759	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C8-PFOS	8.371	507.1 -> 79.9	8606	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C9-PFNA	7.702	472.1 -> 427.0	28513	1.23 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.0%	
d3-MeFOSAA	8.240	573.2 -> 419.0	26988	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.1%	
13C3-HFPO-DA	5.941	286.9 -> 168.9	15334	10.39 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
d3-MeFOSA	10.670	515.0 -> 219.0	8038	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
d5-EtFOSAA	8.436	589.2 -> 419.0	22546	5.15 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
d7-MeFOSE	10.579	623.2 -> 58.9	32406	24.56 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d9-EtFOSE	10.836	639.2 -> 58.9	23880	23.66 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.7%	
d5-EtFOSA	10.927	531.1 -> 219.0	8677	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	
Target Compounds					QValue
4:2FTS	5.229	327.1 -> 307.0	195432	46.12 µg/L	96
		327.1 -> 80.9	42325		
6:2FTS	6.922	427.1 -> 407.0	179754	48.97 µg/L	94
		427.1 -> 80.9	33146		
8:2FTS	7.971	527.1 -> 507.0	101284	51.02 µg/L	97
		527.1 -> 80.8	26241		
EtFOSAA	8.449	584.2 -> 419.1	47322	13.15 µg/L	m 89
		584.2 -> 526.0	23688		
FOSA	9.558	498.1 -> 77.9	225674	30.61 µg/L	99
		498.1 -> 478.0	8342		
MeFOSAA	8.241	570.1 -> 419.0	64511	11.60 µg/L	m 95
		570.1 -> 483.0	11381		
PFBA	3.007	212.8 -> 168.9	109428	49.99 µg/L	100
PFBS	5.520	298.7 -> 79.9	58744	10.84 µg/L	95
		298.7 -> 98.8	28471		
PFDA	8.196	512.9 -> 469.0	306228	14.14 µg/L	98
		512.9 -> 219.0	39355		
PFDoDA	9.105	613.1 -> 569.0	253252	11.97 µg/L	99
		613.1 -> 319.0	31094		
PFDS	9.280	599.0 -> 79.9	37313	12.56 µg/L	100

7.6.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	19837			
PFHpA	6.516	363.1 -> 319.0	283629	12.62	µg/L	100
		363.1 -> 169.0	36650			
PFHpS	7.867	449.0 -> 79.9	45505	11.56	µg/L	99
		449.0 -> 98.9	26267			
PFHxA	5.567	313.0 -> 269.0	177608	12.46	µg/L	100
		313.0 -> 118.9	6492			
PFHxS	7.289	398.7 -> 79.9	47205	10.96	µg/L	m 95
		398.7 -> 98.9	27012			
PFNA	7.566	463.0 -> 419.0	532778	27.00	µg/L	m 97
		463.0 -> 219.0	112829			
PFNS	8.850	548.8 -> 79.9	49358	11.88	µg/L	96
		548.8 -> 98.9	29639			
PFOA	7.161	413.0 -> 369.0	746694	25.00	µg/L	m 98
		413.0 -> 169.0	110897			
PFOS	8.372	498.9 -> 79.9	46854	11.24	µg/L	m 96
		498.9 -> 98.8	29224			
PFPeA	4.374	263.0 -> 219.0	221401	24.53	µg/L	100
PFPeS	6.595	349.1 -> 79.9	57347	11.25	µg/L	96
		349.1 -> 98.9	29083			
PFTeDA	9.844	713.1 -> 669.0	216346	12.02	µg/L	99
		713.1 -> 168.9	14321			
PFTrDA	9.501	663.0 -> 619.0	244538	12.11	µg/L	99
		663.0 -> 168.9	19750			
PFUnDA	8.662	563.1 -> 519.0	262364	13.53	µg/L	96
		563.1 -> 269.1	33654			
11CI-PF3OUdS	9.552	630.9 -> 450.9	589747	50.72	µg/L	96
		632.9 -> 452.9	177818			
9CI-PF3ONS	8.714	530.8 -> 351.0	921690	48.79	µg/L	97
		532.8 -> 353.0	297049			
ADONA	6.767	376.9 -> 250.9	1695222	49.72	µg/L	99
		376.9 -> 84.8	342154			
HFPO-DA	5.942	284.9 -> 168.9	76246	49.17	µg/L	99
		284.9 -> 184.9	9543			
3:3FTCA	3.864	241.0 -> 177.0	28970	60.24	µg/L	98
		241.0 -> 117.0	3717			
5:3FTCA	6.207	341.0 -> 237.1	938698	316.72	µg/L	100
		341.0 -> 217.0	793921			
7:3FTCA	7.618	441.0 -> 316.9	636096	318.41	µg/L	90
		441.0 -> 336.9	1349156			
EtFOSA	10.929	526.0 -> 219.0	129334	30.80	µg/L	95
		526.0 -> 169.0	150601			
EtFOSE	10.862	630.0 -> 58.9	152283	144.55	µg/L	100
MeFOSA	10.685	511.9 -> 219.0	108025	30.42	µg/L	92
		511.9 -> 169.0	122917			
MeFOSE	10.604	616.1 -> 58.9	182755	136.54	µg/L	100
PFDoDS	9.984	699.1 -> 79.9	21979	11.87	µg/L	99
		699.1 -> 98.8	13494			
NFDHA	5.446	295.0 -> 201.0	23820	25.77	µg/L	95
		295.0 -> 84.9	10629			
PFMBA	4.789	279.0 -> 85.1	69719	24.76	µg/L	100
PFMPA	3.538	229.0 -> 84.9	60875	24.37	µg/L	100
PFEESA	6.060	314.8 -> 134.9	452838	22.82	µg/L	100
		314.8 -> 82.9	11384			

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

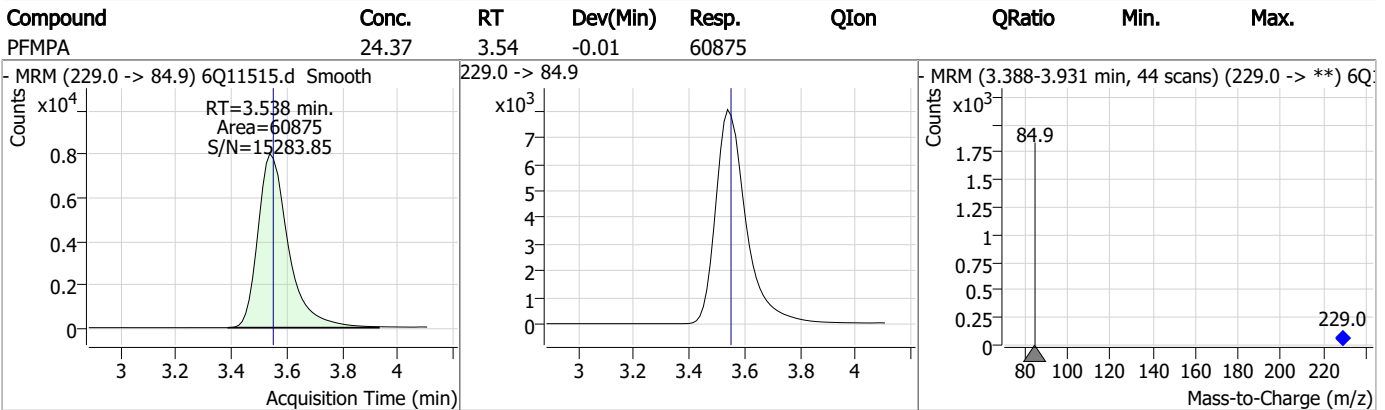
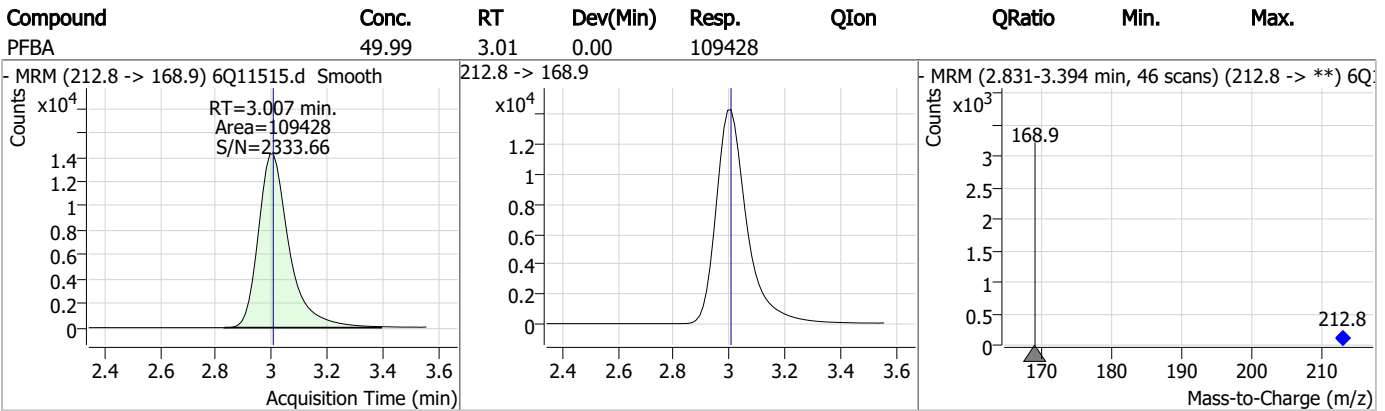
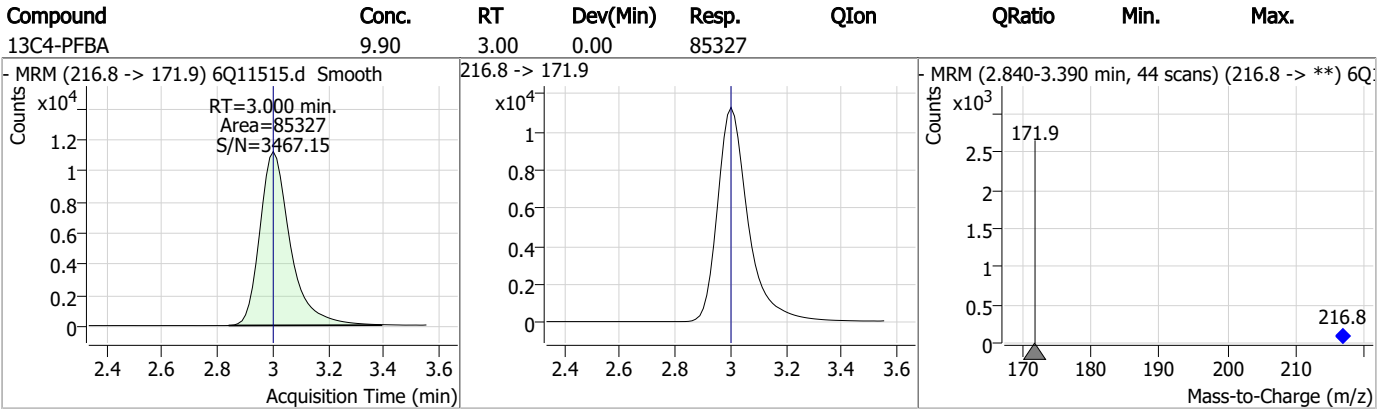
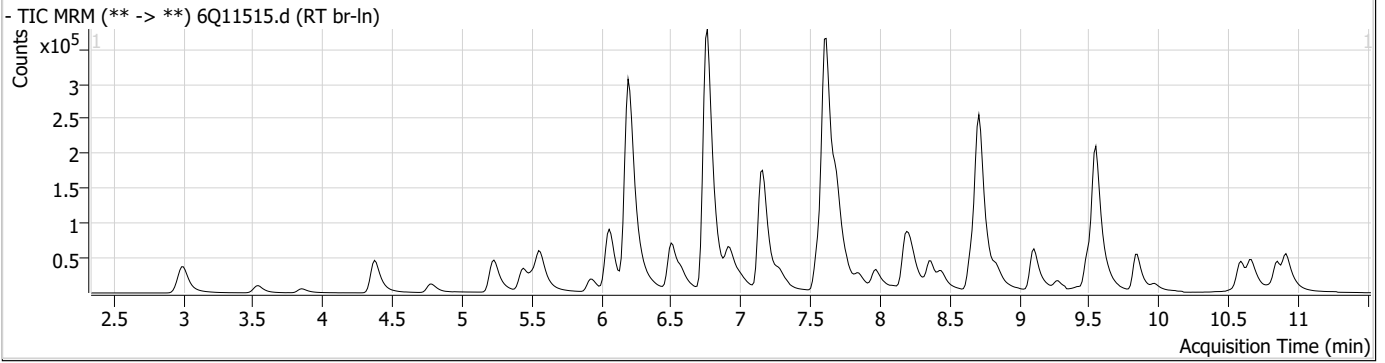
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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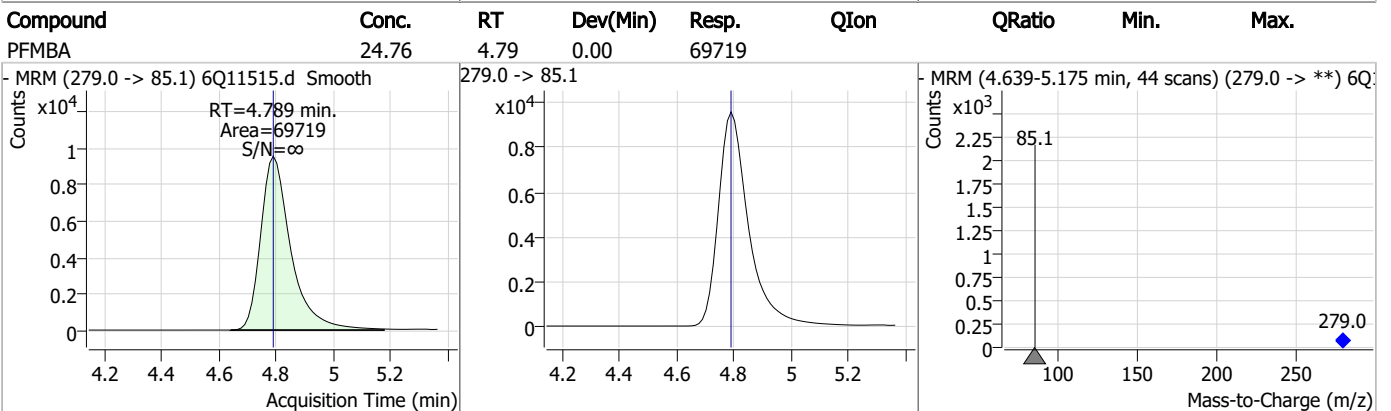
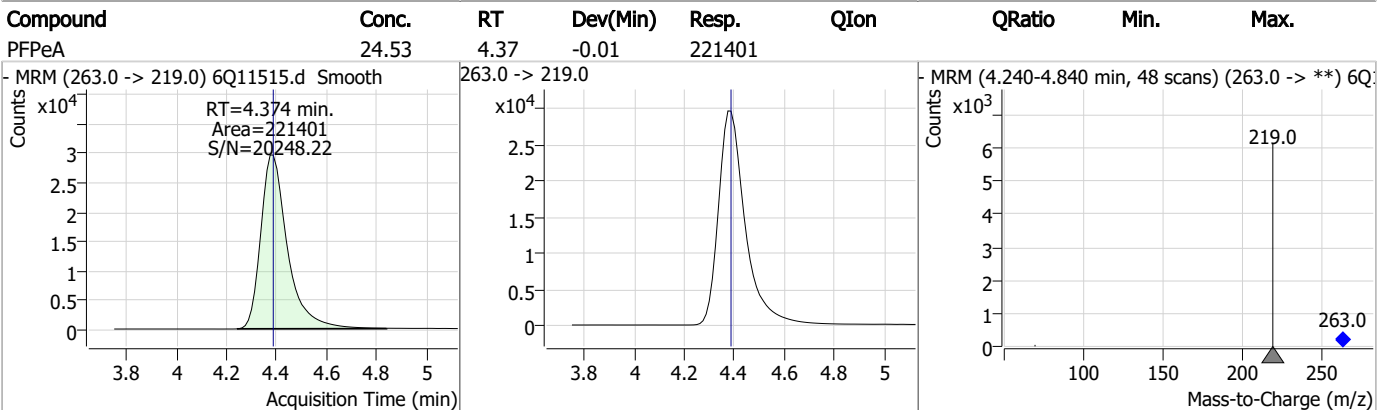
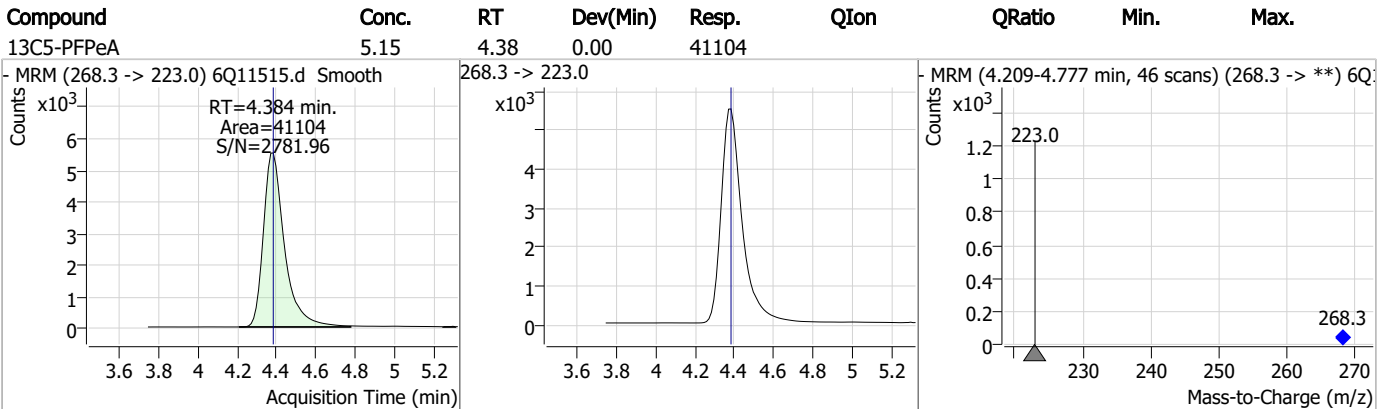
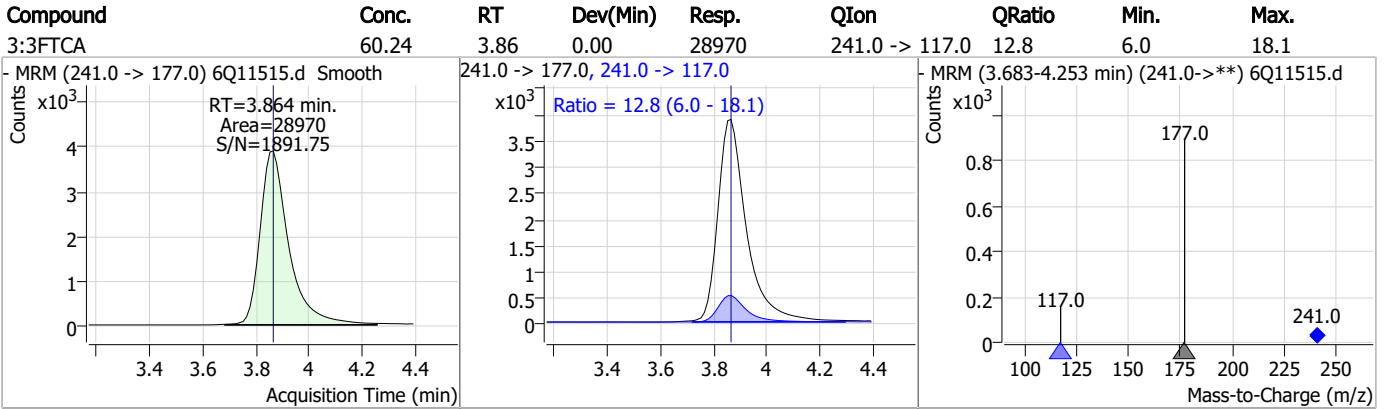
7.6.4

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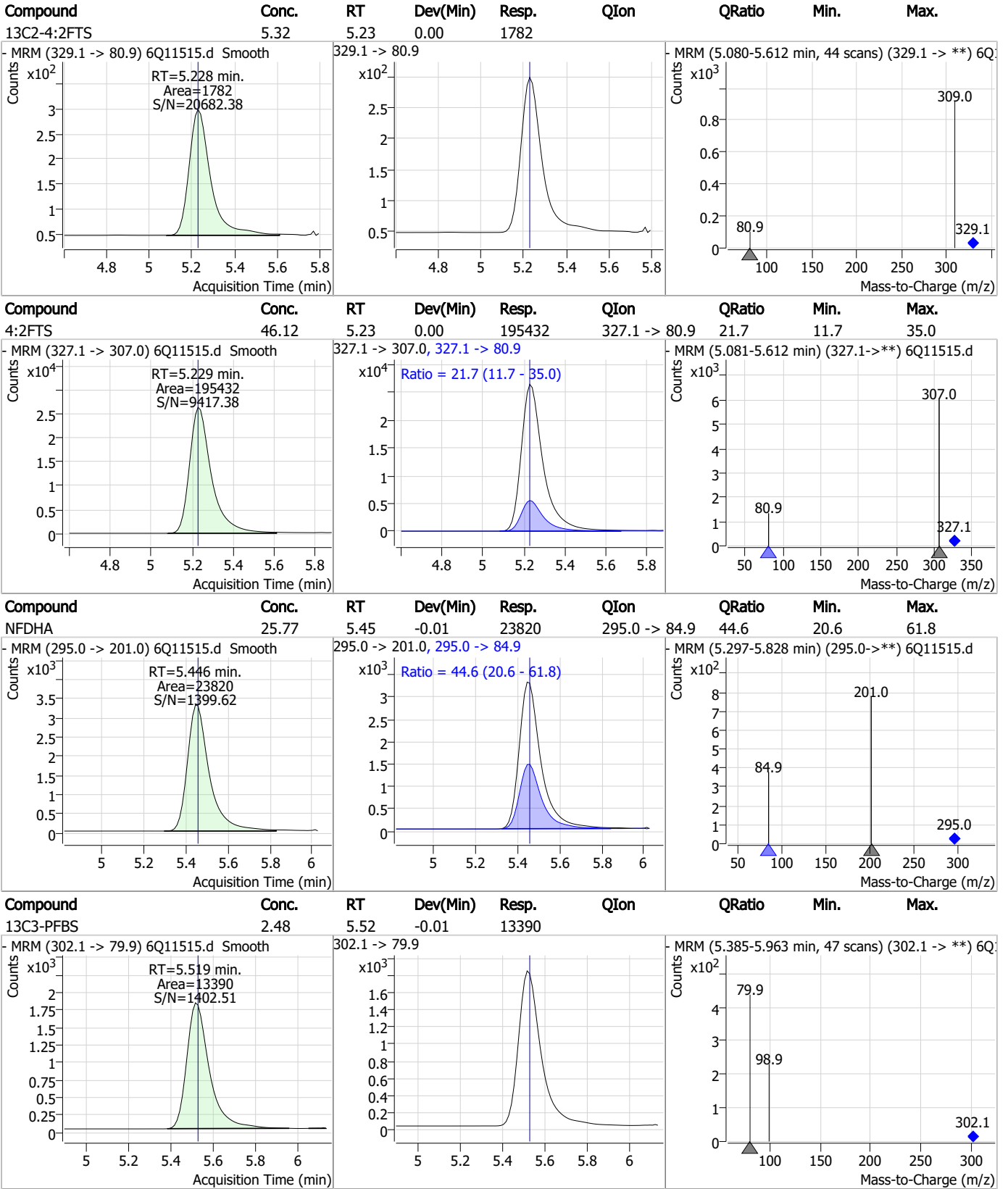
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

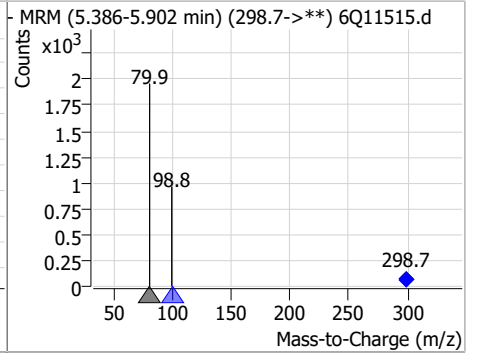
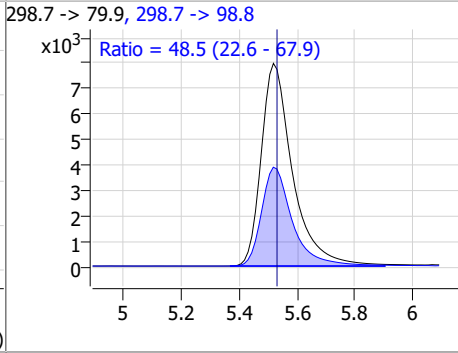
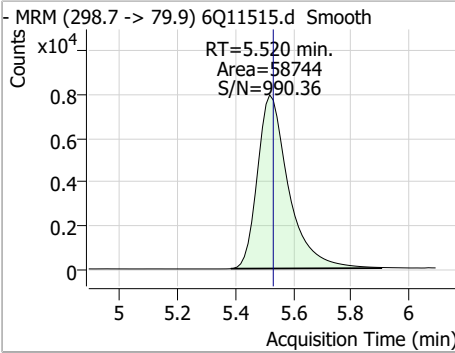


Perfluorinated Compounds by LC/MS/MS

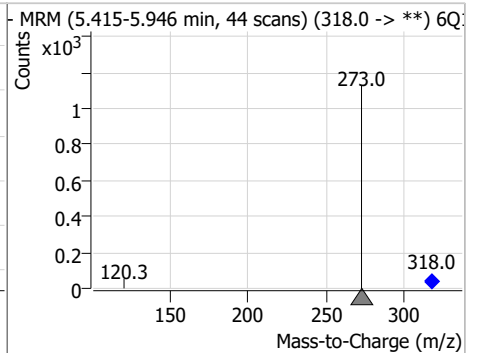
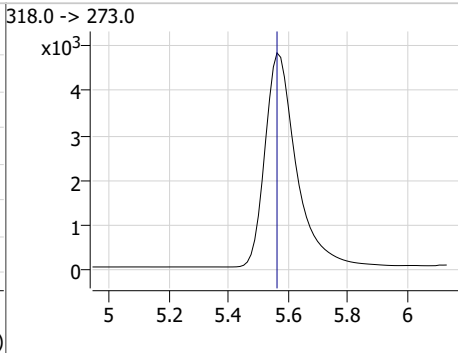
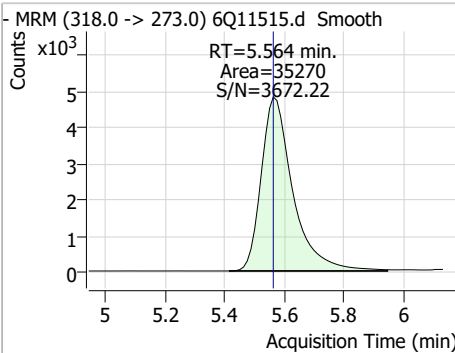


Perfluorinated Compounds by LC/MS/MS

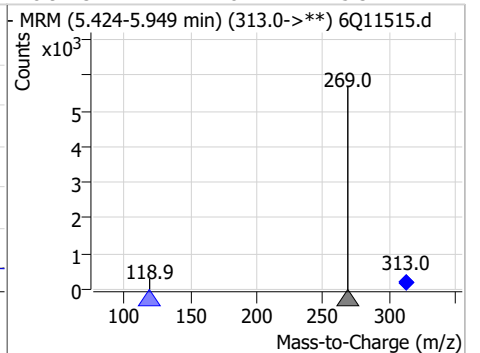
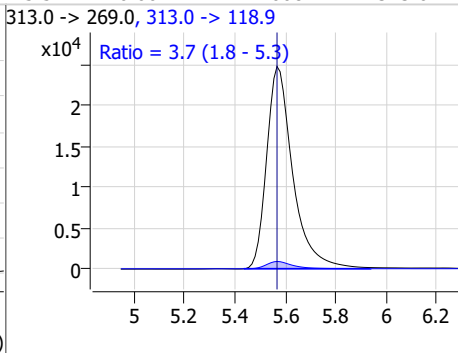
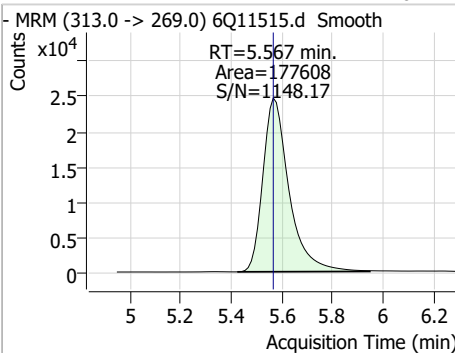
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	10.84	5.52	-0.01	58744	298.7 -> 98.8	48.5	22.6	67.9



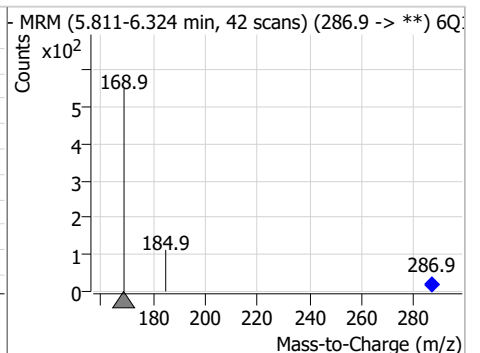
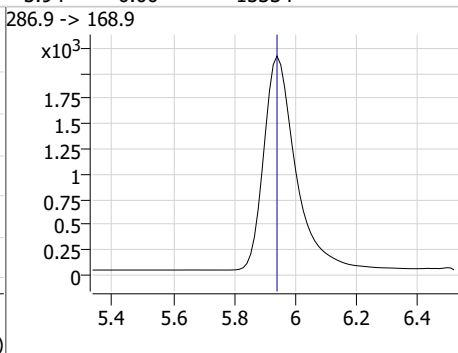
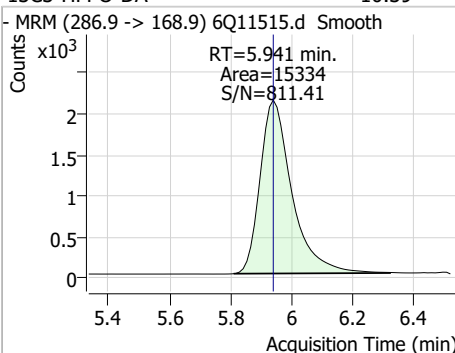
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.56	0.00	35270				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	12.46	5.57	0.00	177608	313.0 -> 118.9	3.7	1.8	5.3

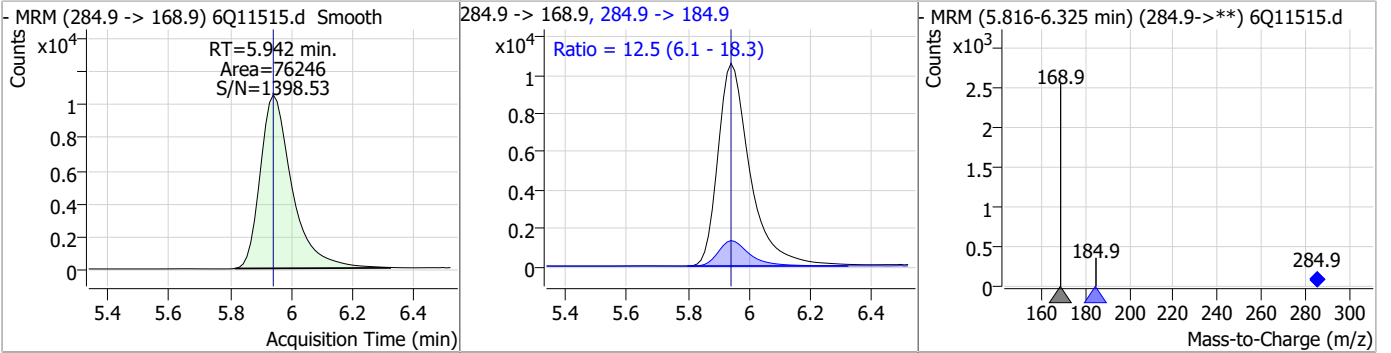


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.39	5.94	0.00	15334				

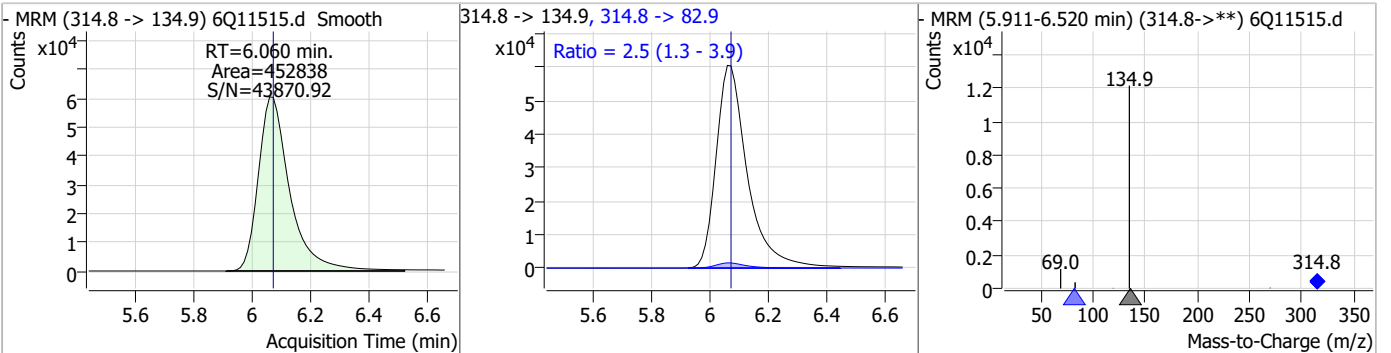


Perfluorinated Compounds by LC/MS/MS

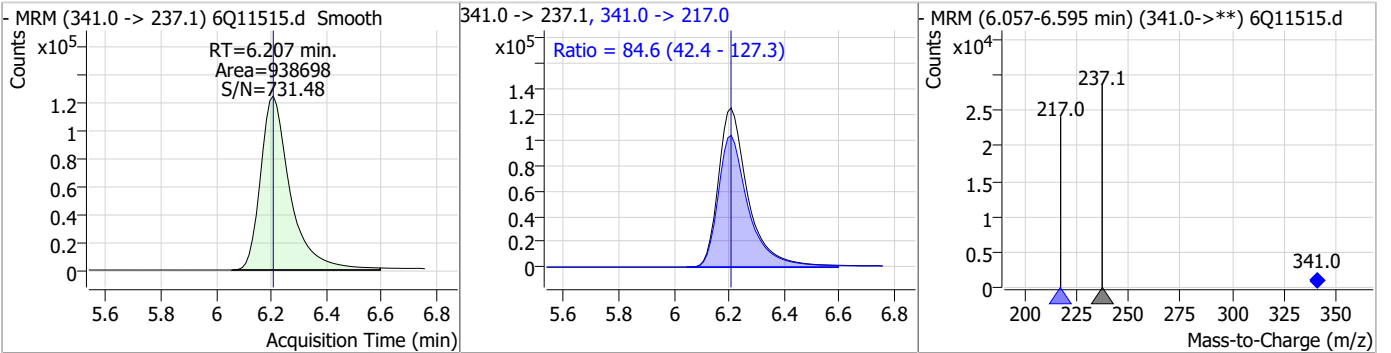
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	49.17	5.94	0.00	76246	284.9 -> 184.9	12.5	6.1	18.3



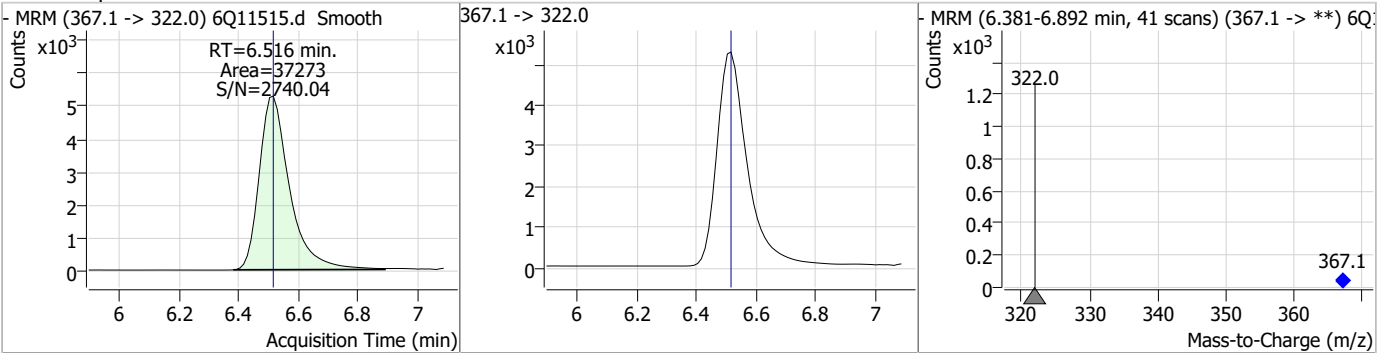
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	22.82	6.06	-0.01	452838	314.8 -> 82.9	2.5	1.3	3.9



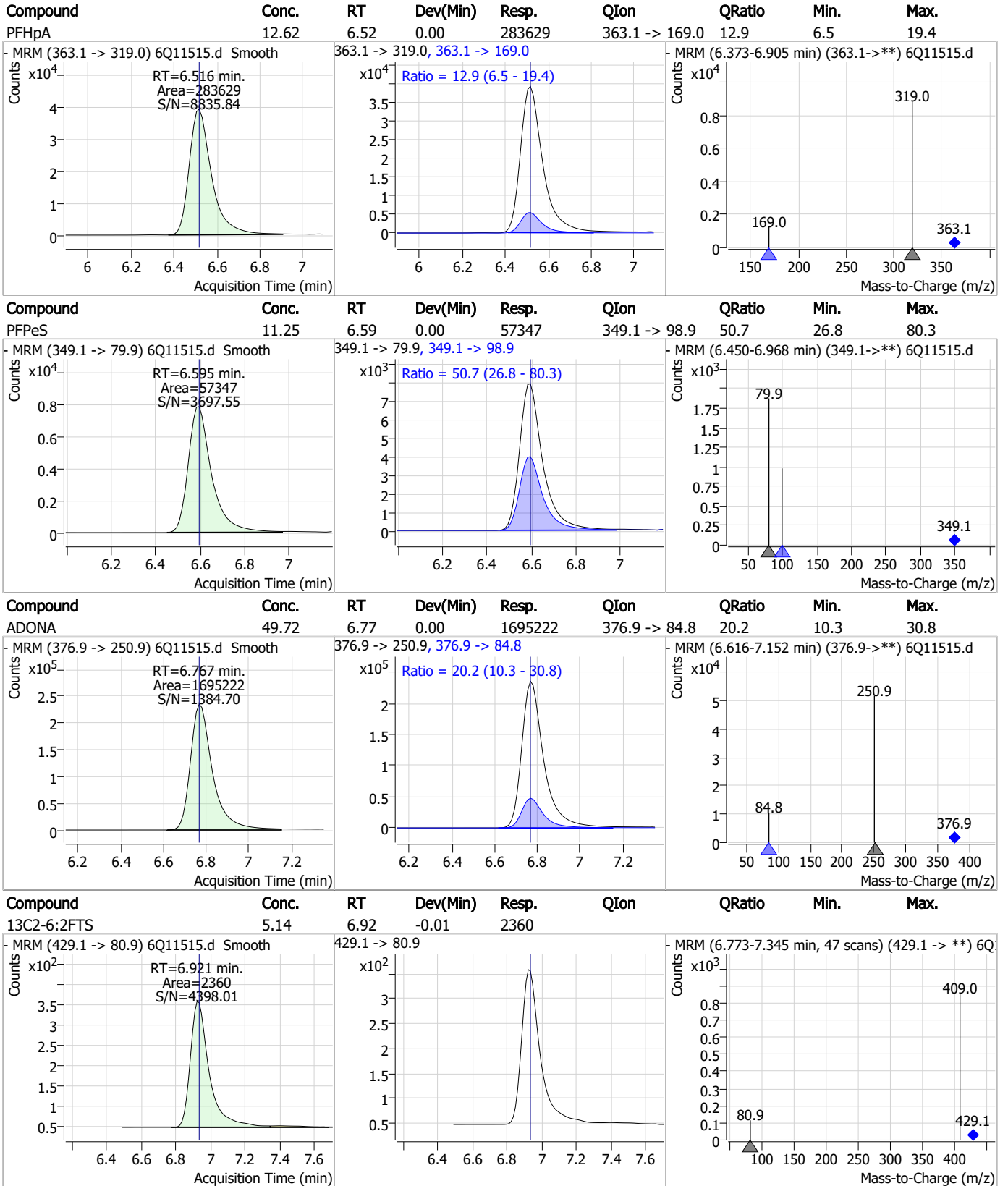
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	316.72	6.21	0.00	938698	341.0 -> 217.0	84.6	42.4	127.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.57	6.52	0.00	37273	367.1 -> 322.0			



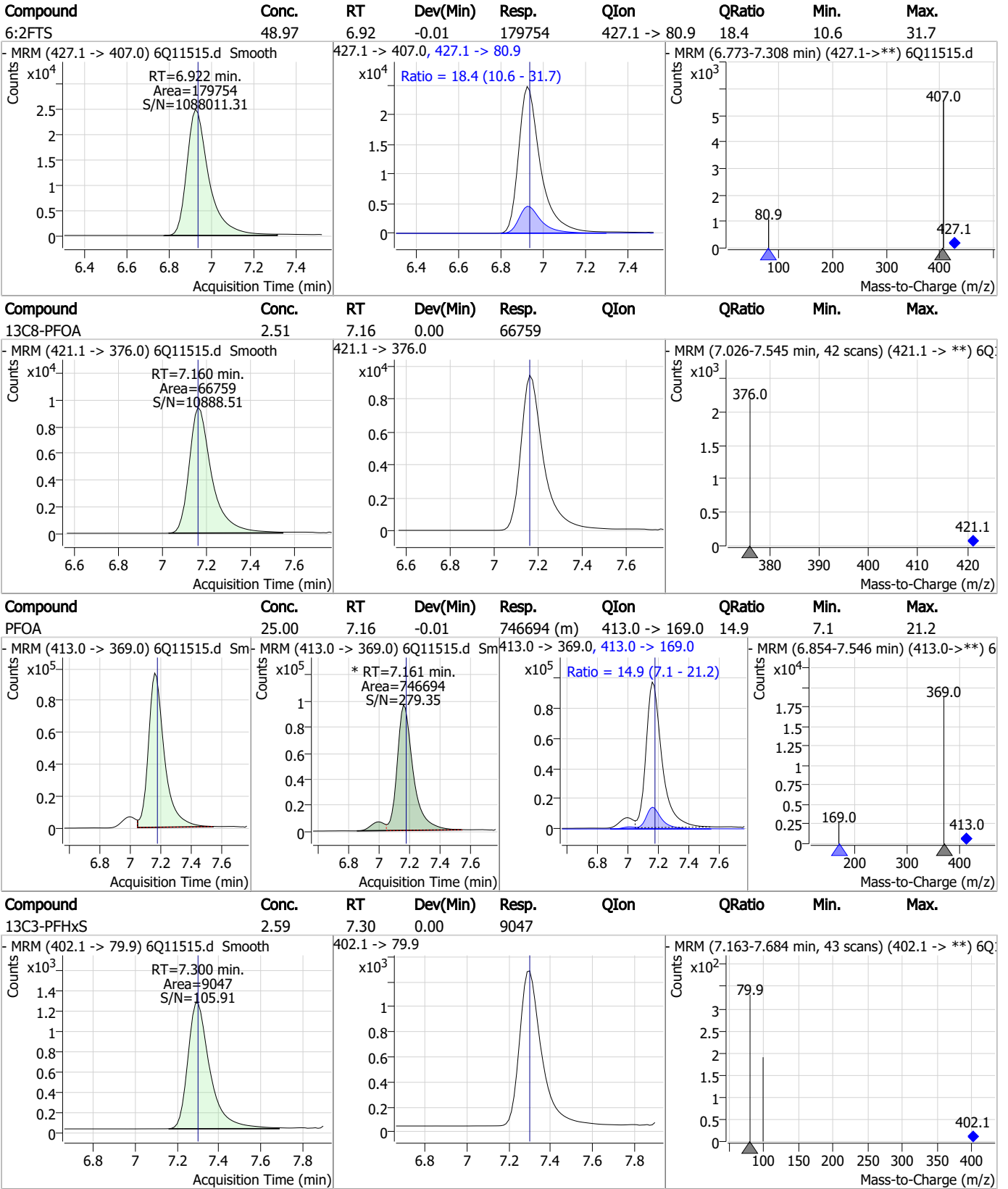
Perfluorinated Compounds by LC/MS/MS



7.6.4

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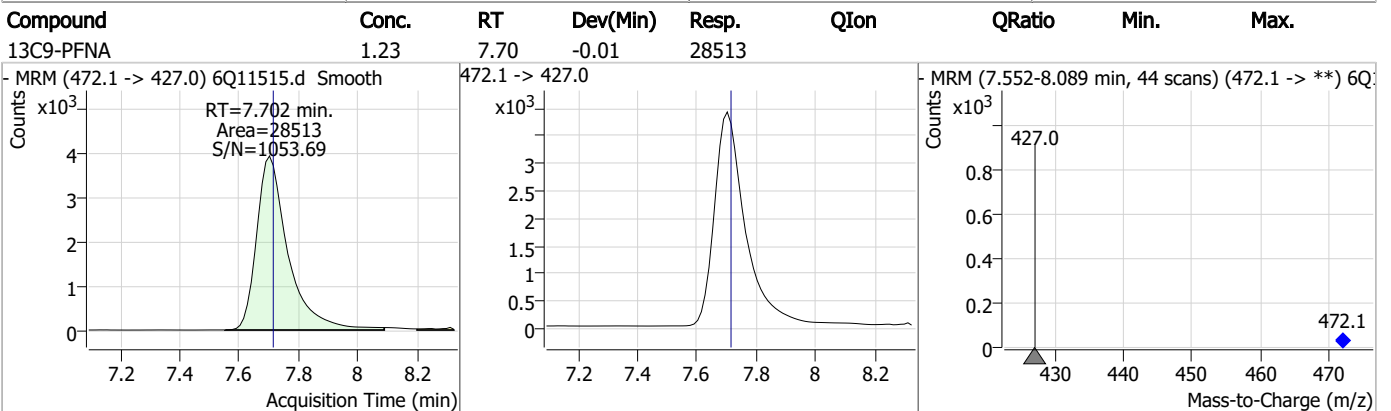
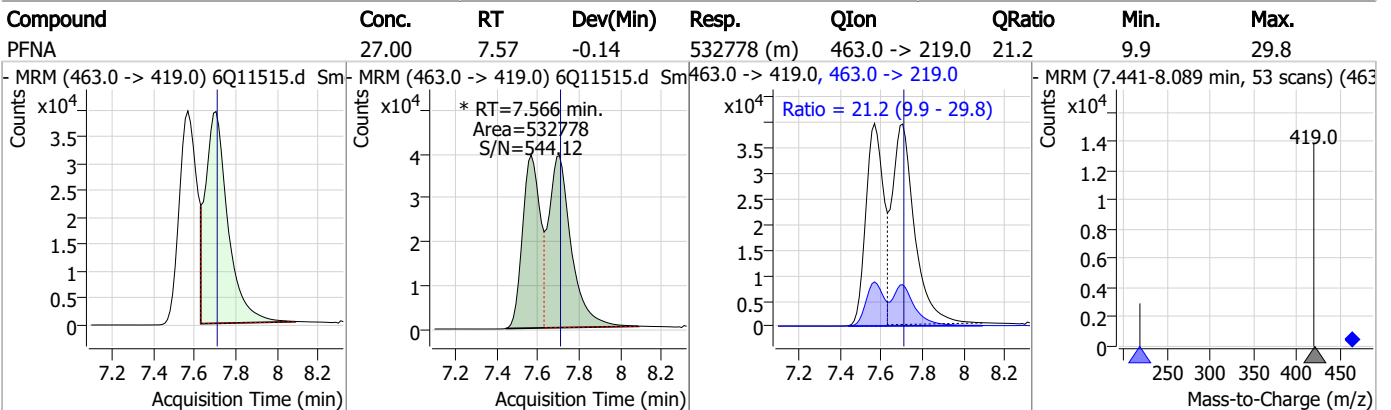
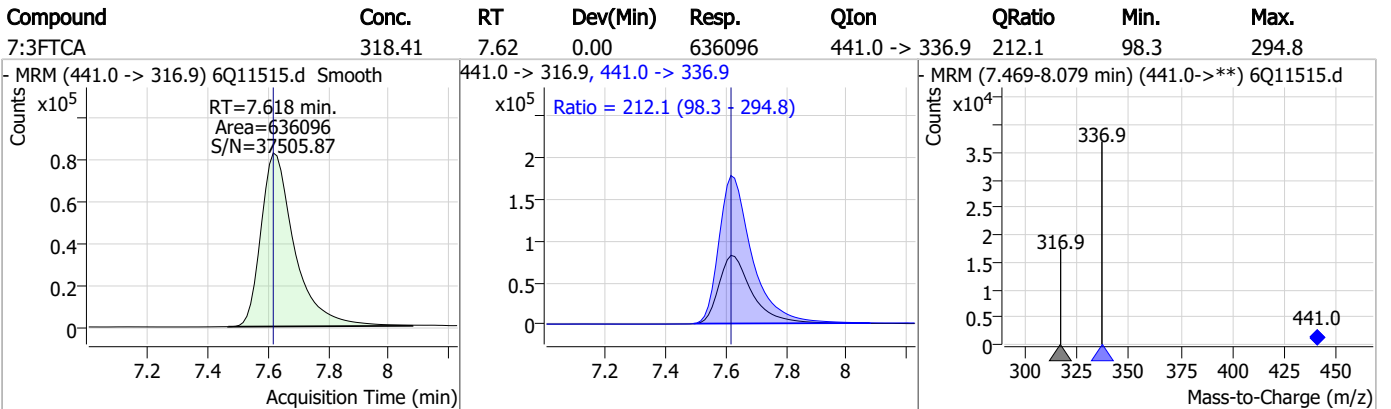
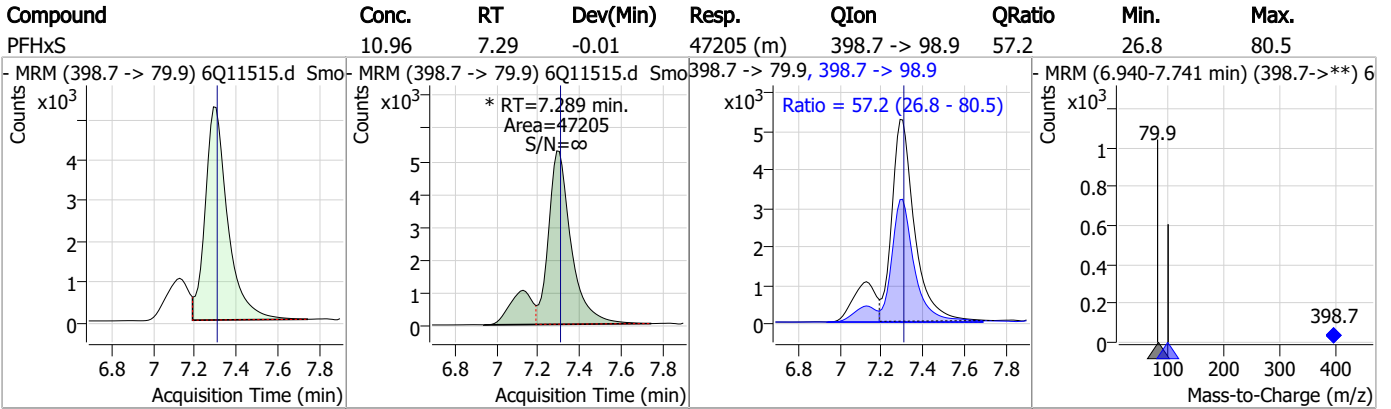
Perfluorinated Compounds by LC/MS/MS



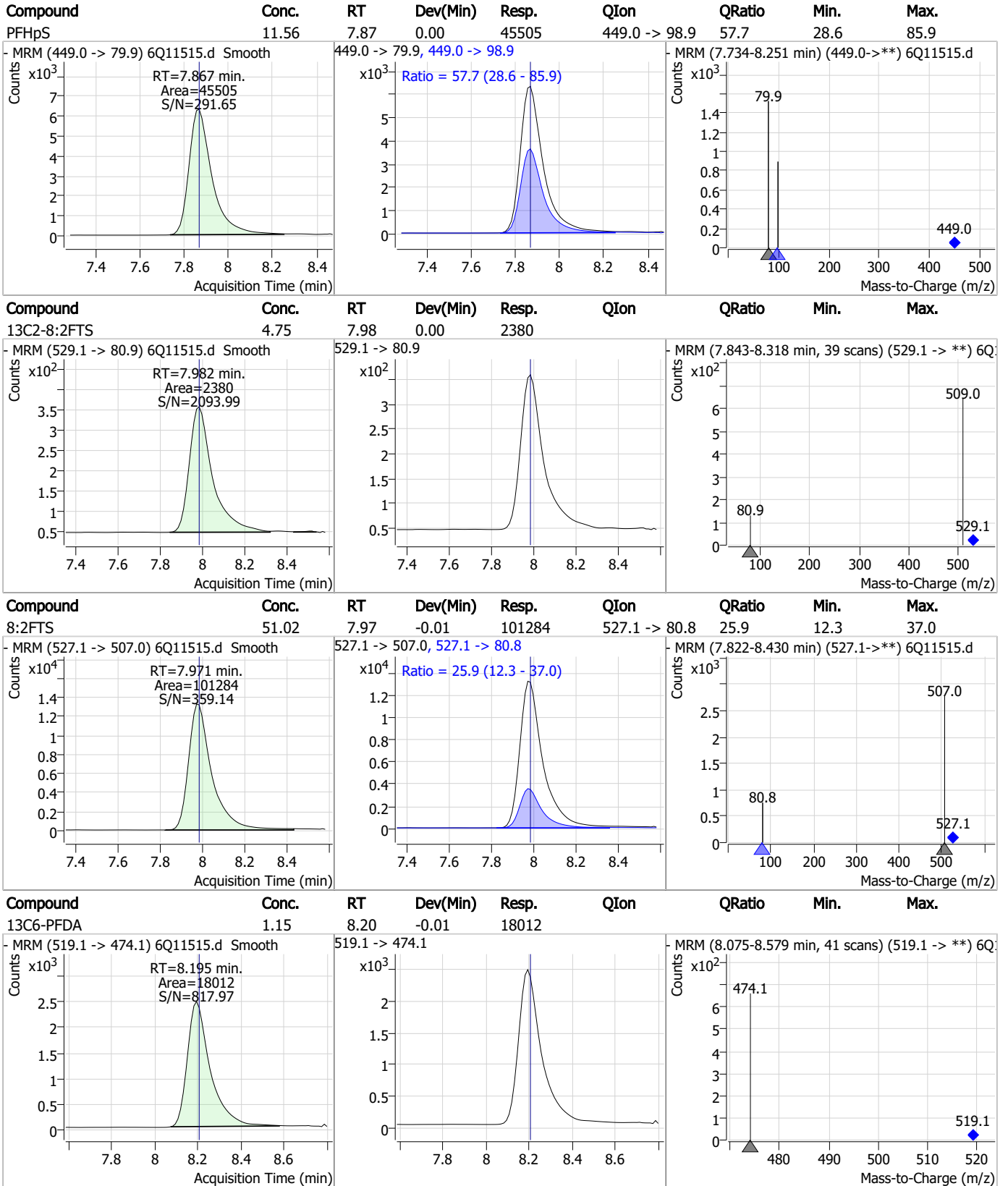
7.6.4

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Perfluorinated Compounds by LC/MS/MS



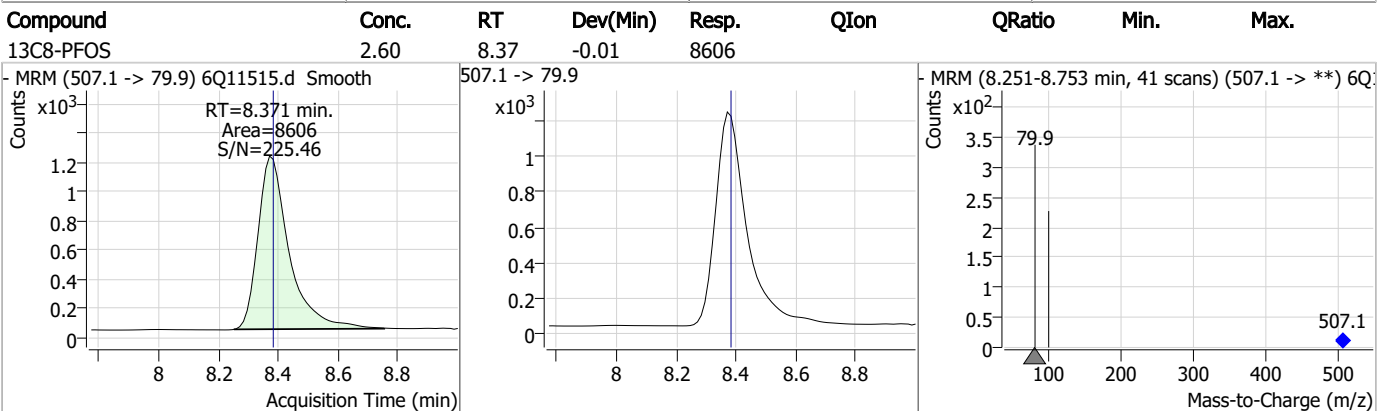
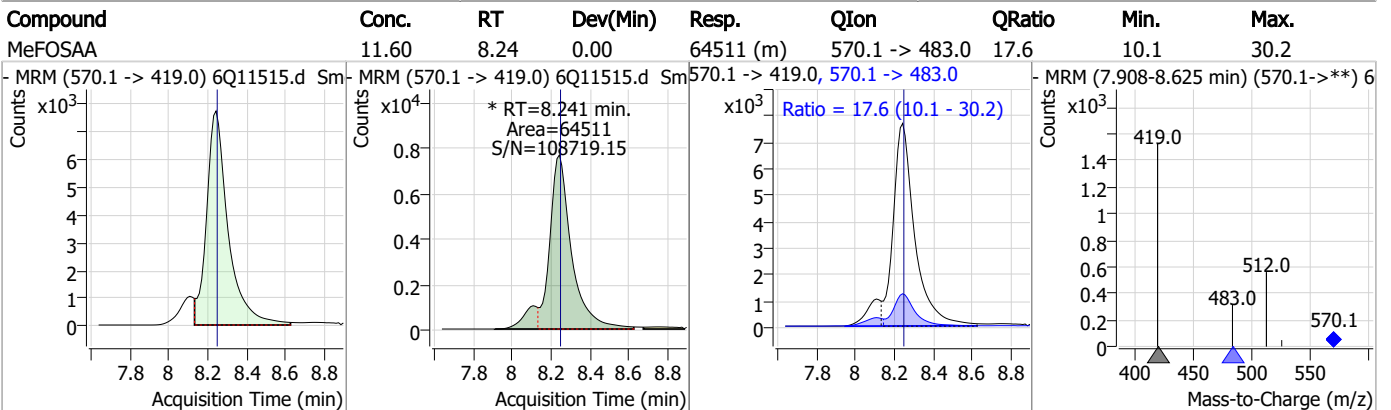
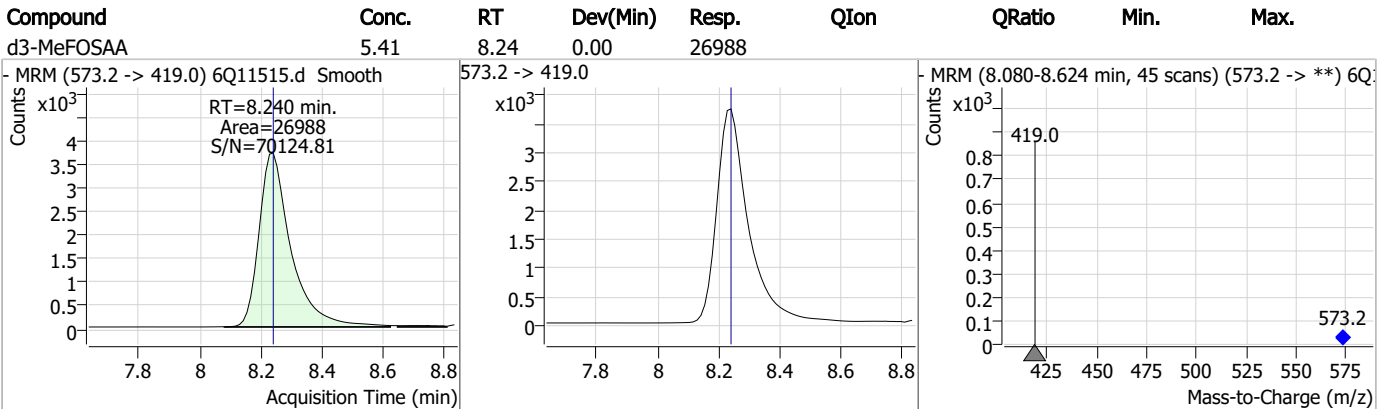
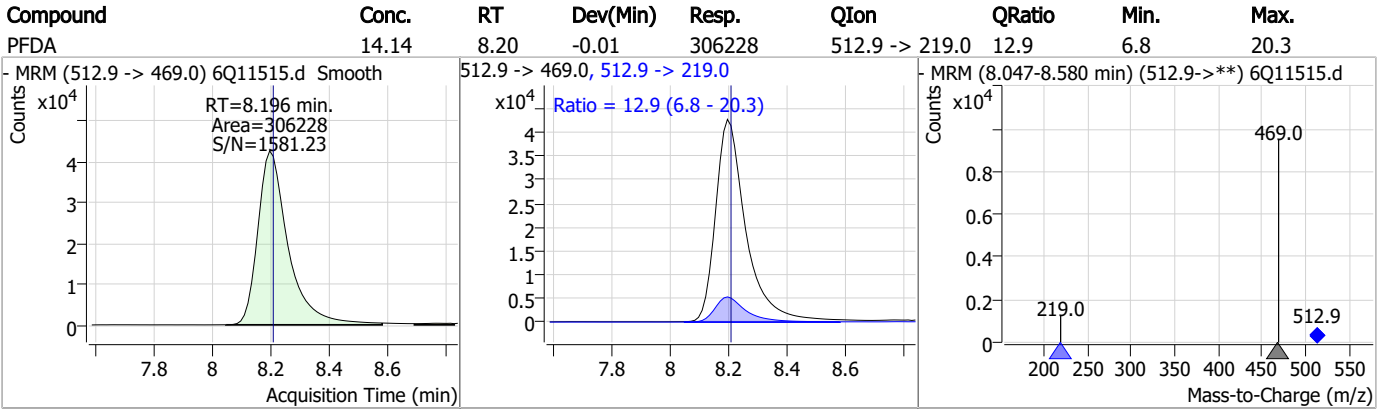
Perfluorinated Compounds by LC/MS/MS



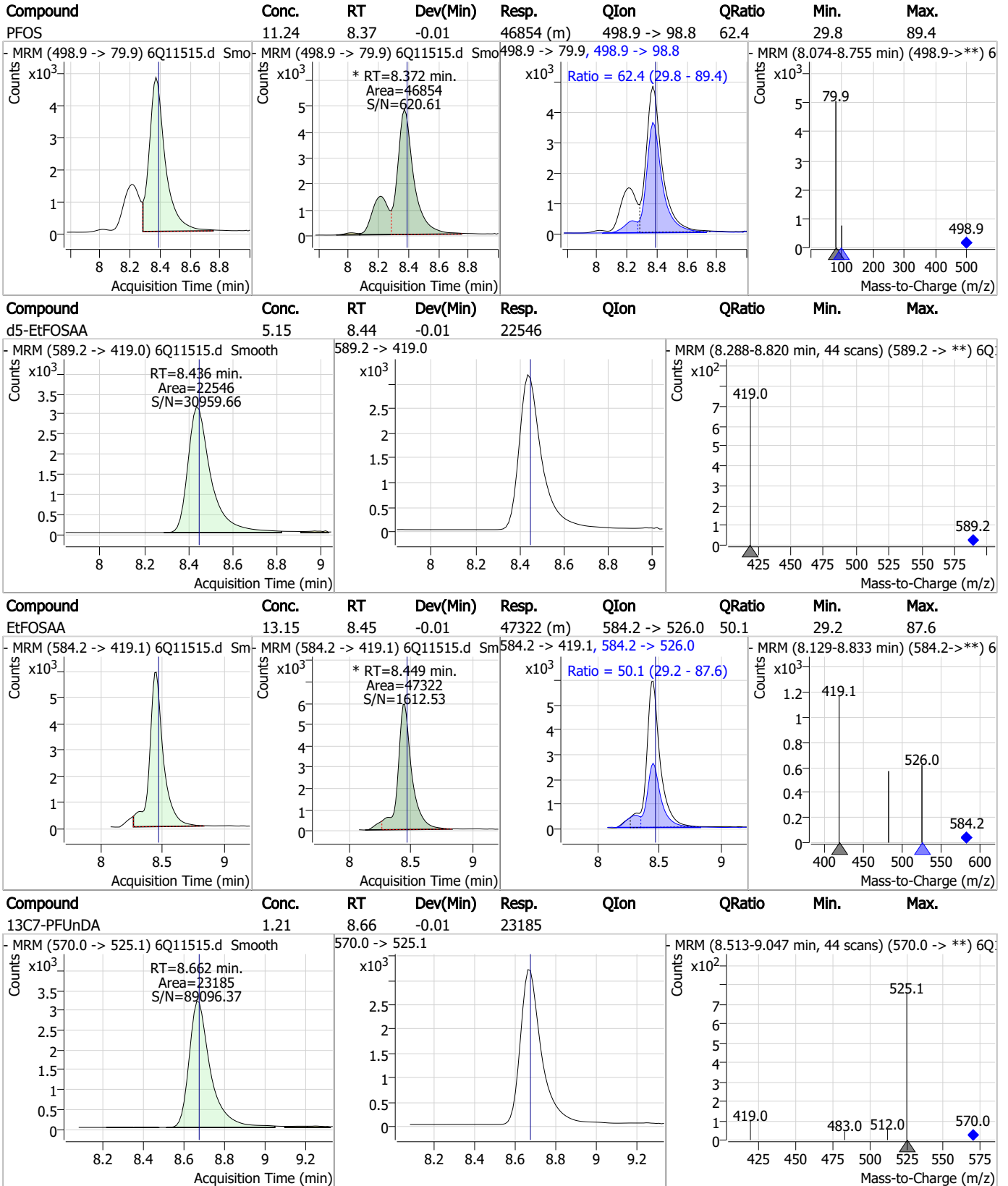
7.6.4

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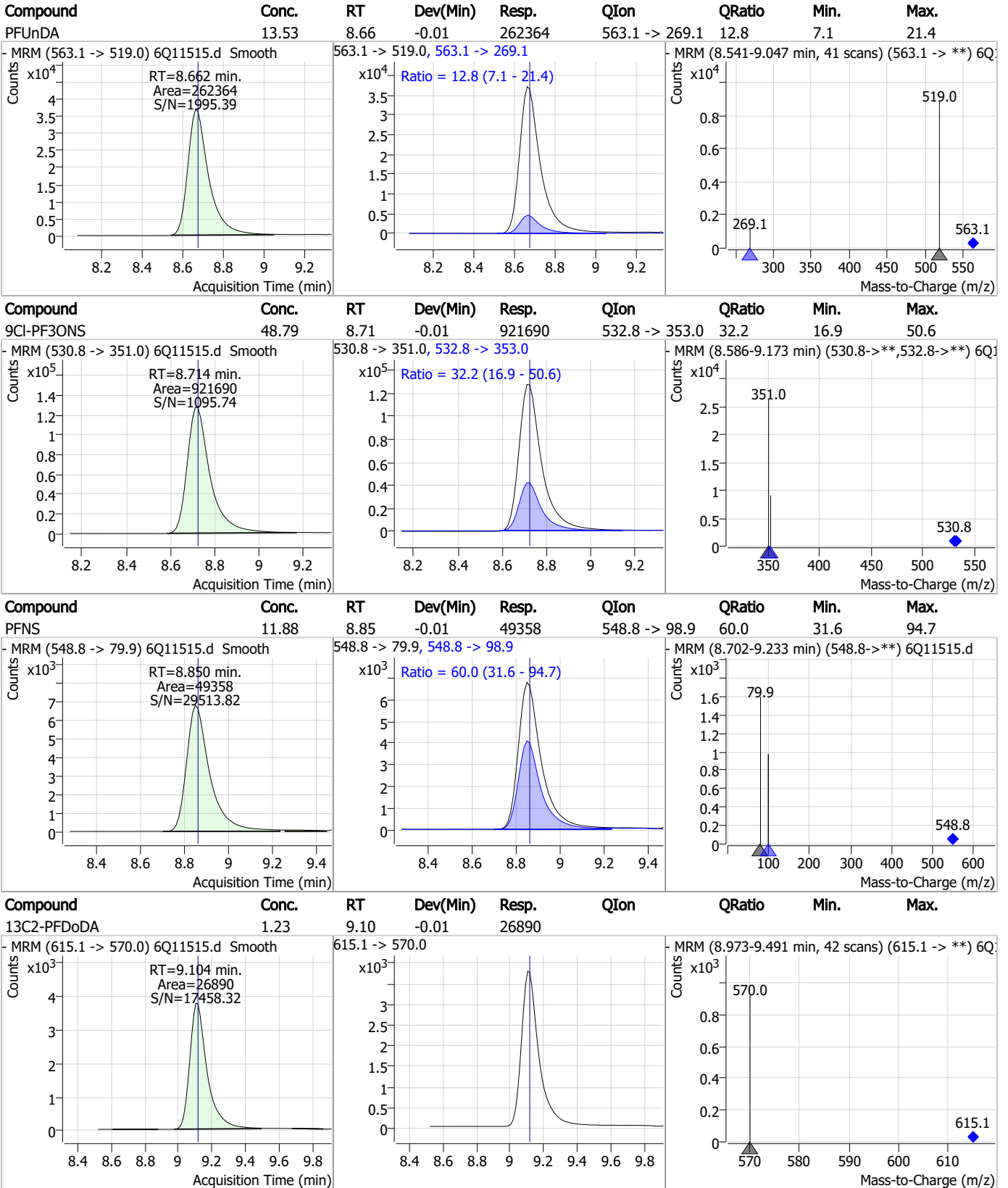
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



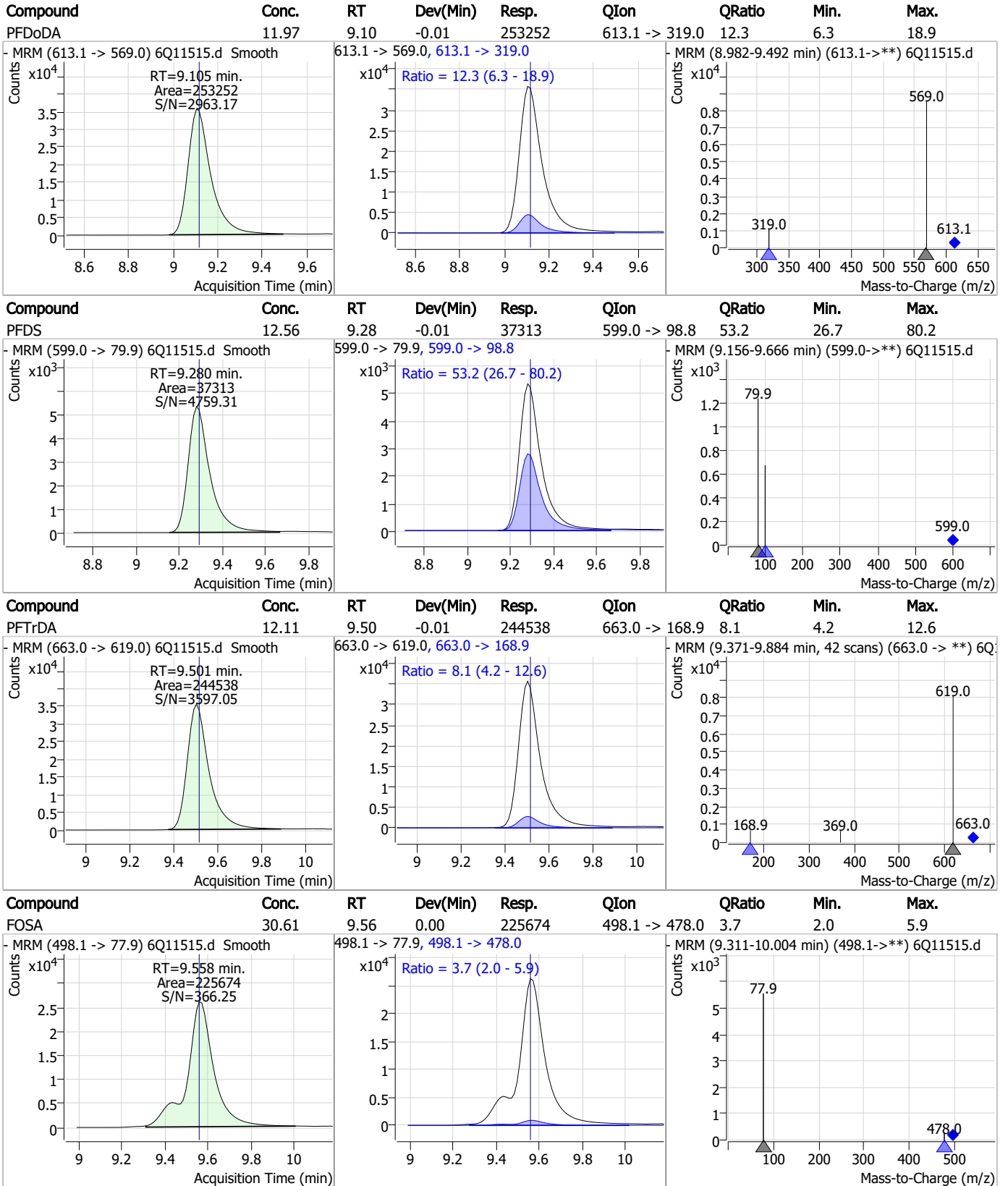
Perfluorinated Compounds by LC/MS/MS



7.6.4

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Perfluorinated Compounds by LC/MS/MS

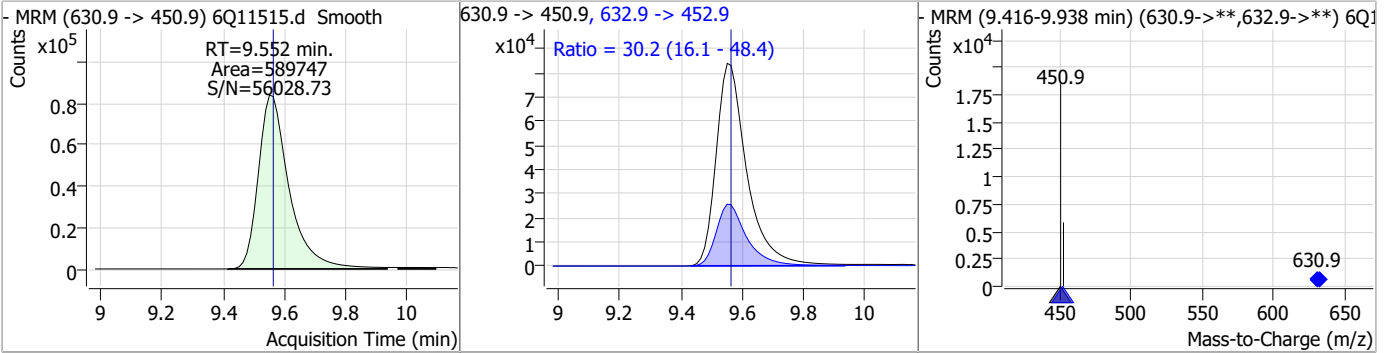


7.6.4

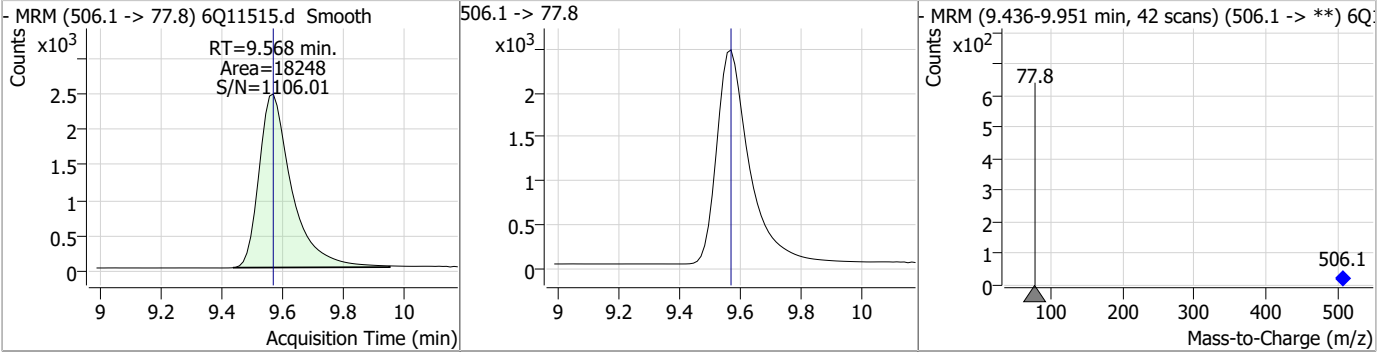
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Perfluorinated Compounds by LC/MS/MS

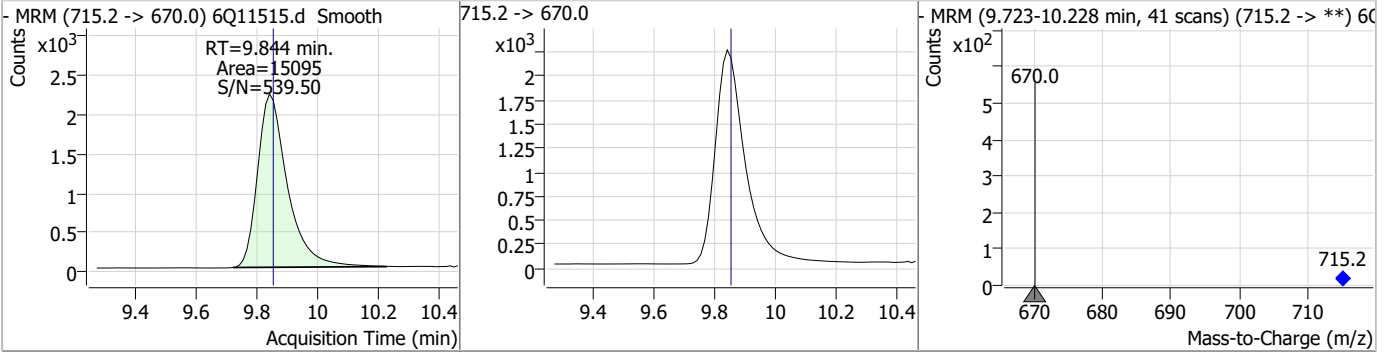
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	50.72	9.55	-0.01	589747	632.9 -> 452.9	30.2	16.1	48.4



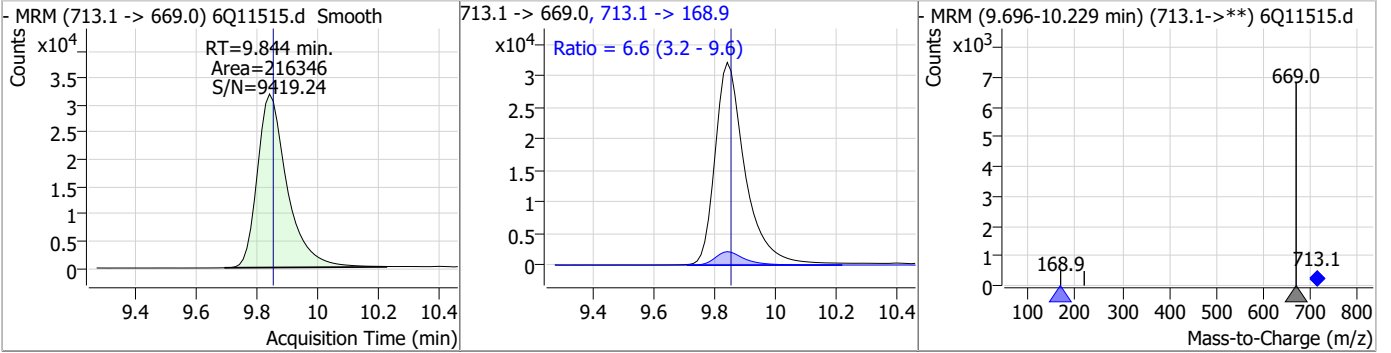
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.61	9.57	0.00	18248				



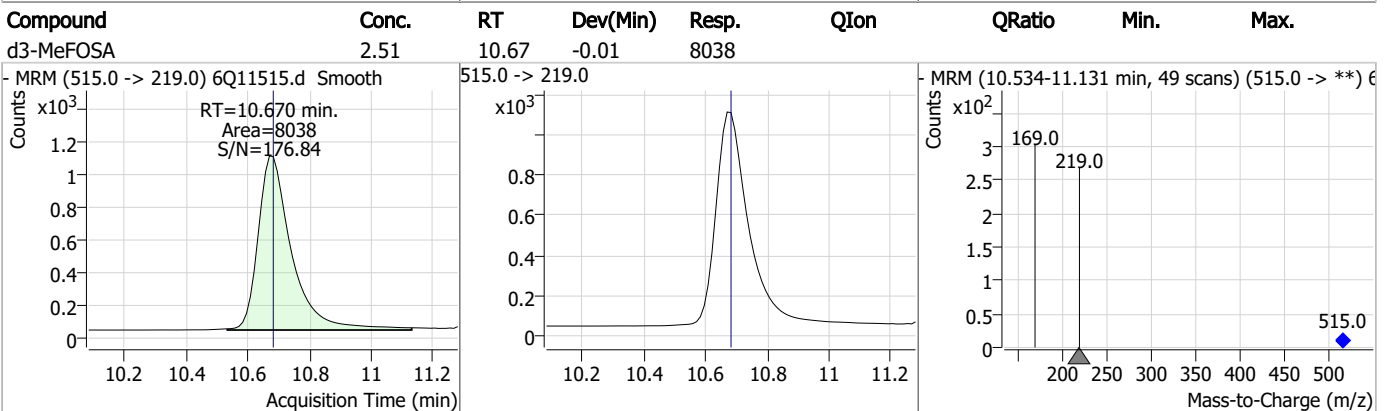
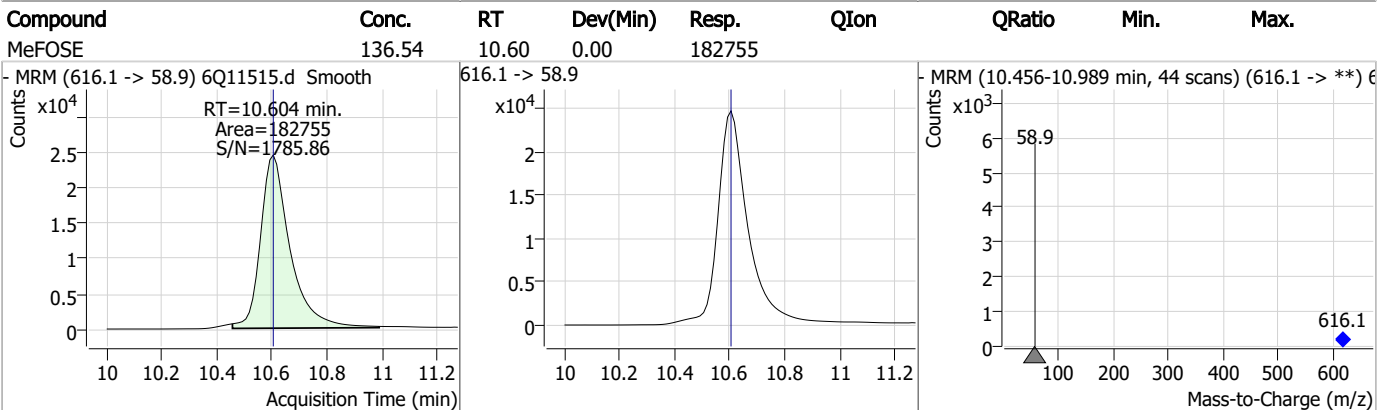
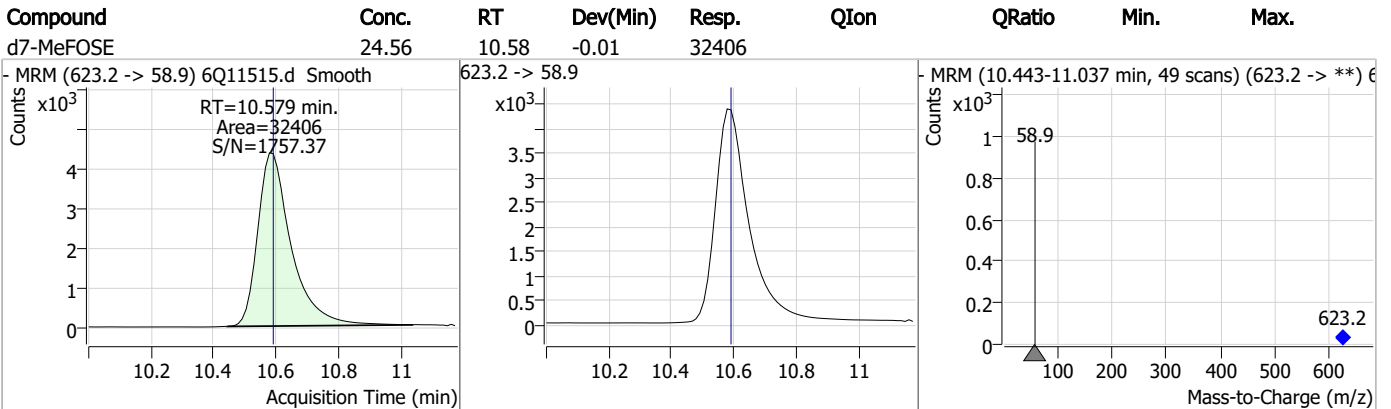
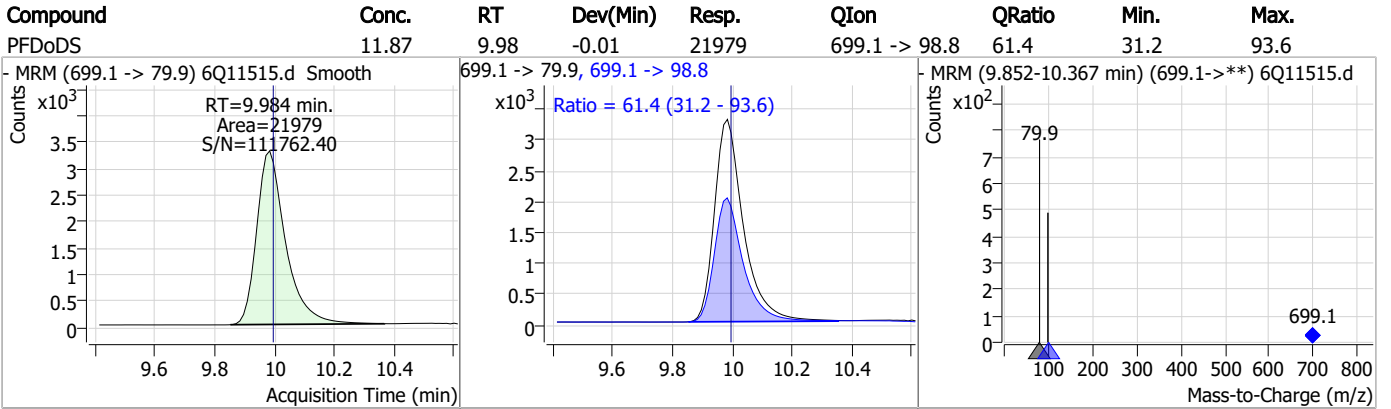
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.17	9.84	-0.01	15095				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	12.02	9.84	-0.01	216346	713.1 -> 168.9	6.6	3.2	9.6

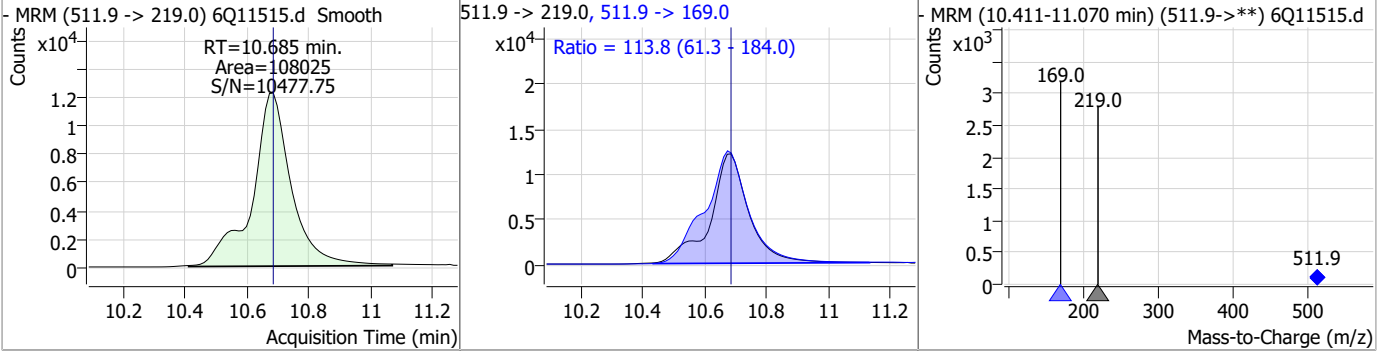


Perfluorinated Compounds by LC/MS/MS

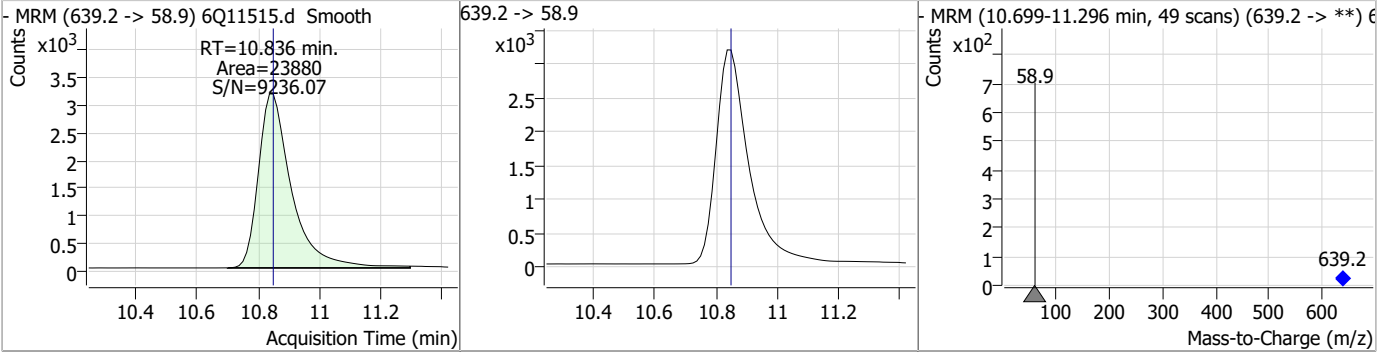


Perfluorinated Compounds by LC/MS/MS

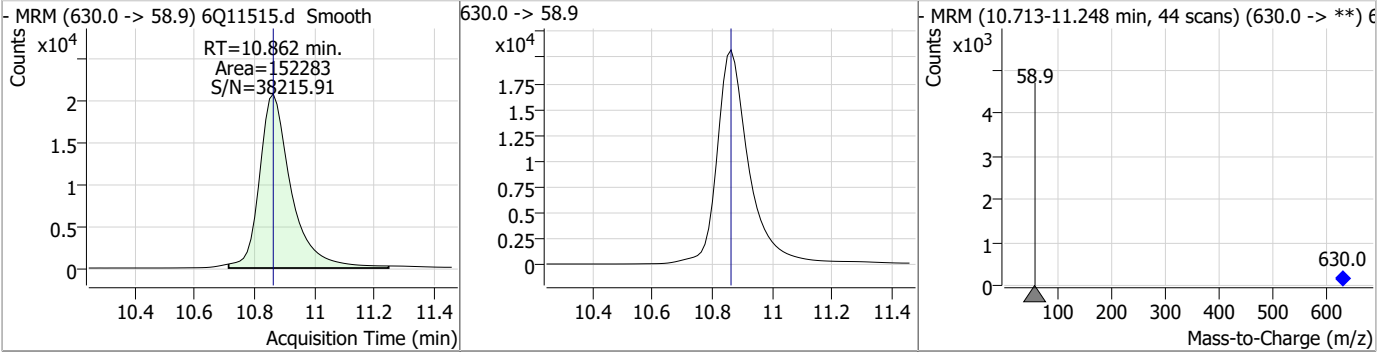
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	30.42	10.68	0.00	108025	511.9 -> 169.0	113.8	61.3	184.0



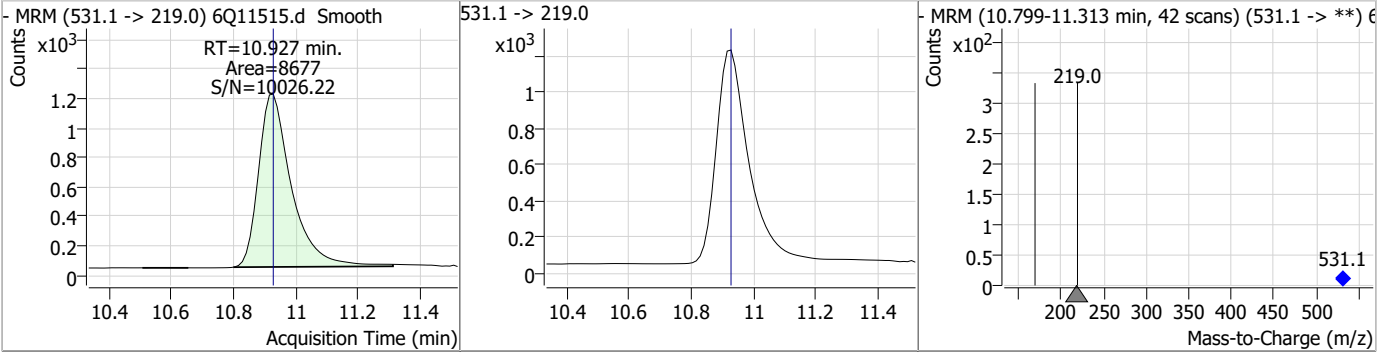
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.66	10.84	-0.01	23880				



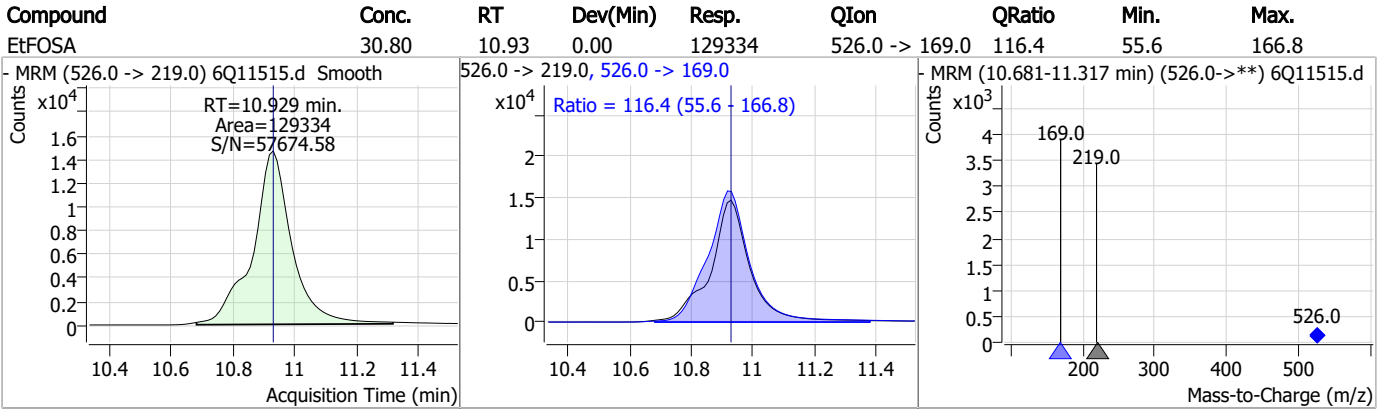
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	144.55	10.86	0.00	152283				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.42	10.93	0.00	8677				



Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Manual Integration Approval Summary

Sample Number: S6Q180-RT Method: EPA DRAFT 1633
Lab FileID: 6Q11515.D Analyst approved: 01/18/23 15:20 Martha Valls
Injection Time: 01/17/23 21:38 Supervisor approved: 01/18/23 19:08 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.16	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorononanoic acid	375-95-1		7.57	Split peak
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.6.4.1

7

QQQ Check Tune Report



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 09 January 2023 13:43:14
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.tune.xml
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.81E+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



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	0.76	0.06	Pass	129412
302.00	301.96	-0.04	Pass	0.70	0.82	0.12	Pass	764588
601.98	601.92	-0.06	Pass	0.70	0.72	0.02	Pass	2698867
1033.99	1033.92	-0.07	Pass	0.70	0.79	0.09	Pass	623573
1633.95	1633.92	-0.03	Pass	0.70	0.81	0.11	Pass	435855
2233.91	2233.91	0.00	Pass	0.70	0.74	0.04	Pass	126955

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.00	0.00	Pass	0.70	0.63	-0.07	Pass	75547
112.99	112.98	-0.01	Pass	0.70	0.71	0.01	Pass	159011
302.00	301.99	-0.01	Pass	0.70	0.69	-0.01	Pass	629078
601.98	601.94	-0.04	Pass	0.70	0.76	0.06	Pass	2463289
1033.99	1033.96	-0.03	Pass	0.70	0.71	0.01	Pass	1175105
1633.95	1633.92	-0.03	Pass	0.70	0.70	0.00	Pass	992188
2233.91	2233.82	-0.09	Pass	0.70	0.76	0.06	Pass	265829

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.97	-0.02	Pass	1.20	1.51	0.31	Pass	164722
302.00	301.97	-0.03	Pass	1.20	1.57	0.37	Pass	1078422
601.98	601.86	-0.12	Pass	1.20	1.51	0.31	Pass	3857041
1033.99	1033.82	-0.17	Pass	1.20	1.50	0.30	Pass	1067574
1633.95	1633.81	-0.14	Pass	1.20	1.32	0.12	Pass	827303
2233.91	2233.84	-0.07	Pass	1.20	1.25	0.05	Pass	247249

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.00	0.00	Pass	1.20	1.13	-0.07	Pass	108161
112.99	112.96	-0.03	Pass	1.20	1.21	0.01	Pass	235819
302.00	302.01	0.01	Pass	1.20	1.26	0.06	Pass	904063
601.98	601.99	0.01	Pass	1.20	1.40	0.20	Pass	4559235
1033.99	1034.01	0.02	Pass	1.20	1.33	0.13	Pass	2608690
1633.95	1633.86	-0.09	Pass	1.20	1.42	0.22	Pass	2396061
2233.91	2233.86	-0.05	Pass	1.20	1.40	0.20	Pass	802767

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.93	-0.06	Pass	2.50	2.68	0.18	Pass	184379
302.00	301.84	-0.16	Pass	2.50	2.85	0.35	Pass	1269794
601.98	601.70	-0.28	Pass	2.50	2.84	0.34	Pass	4636577
1033.99	1033.77	-0.22	Pass	2.50	2.82	0.32	Pass	1875665
1633.95	1633.78	-0.17	Pass	2.50	2.42	-0.08	Pass	1774762
2233.91	2233.58	-0.33	Pass	2.50	2.39	-0.11	Pass	719306

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.03	0.03	Pass	2.50	2.52	0.02	Pass	143856
112.99	112.96	-0.03	Pass	2.50	2.62	0.12	Pass	330897
302.00	301.97	-0.03	Pass	2.50	2.59	0.09	Pass	1323975
601.98	601.98	0.00	Pass	2.50	2.86	0.36	Pass	6535398
1033.99	1033.96	-0.03	Pass	2.50	2.50	0.00	Pass	4552139
1633.95	1633.96	0.01	Pass	2.50	2.83	0.33	Pass	4508660
2233.91	2233.74	-0.17	Pass	2.50	2.53	0.03	Pass	2140540

7.7.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q10949.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/11/2023 11:50:22 AM
 Sample Name : ic174-1
 Vial : P1-A2
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : S6Q174.batch.bin
 Sample Information : OP94795,S6Q174,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	103231	10.00 µg/L	0.000
M5-PFPeA	4.384	268.3 -> 223.0	49333	5.00 µg/L	-0.014
M5-PFHxA	5.588	318.0 -> 273.0	44817	2.50 µg/L	0.000
M4-PFHpA	6.542	367.1 -> 322.0	44665	2.50 µg/L	0.000
M8-PFOA	7.197	421.1 -> 376.0	74058	2.50 µg/L	0.000
M9-PFNA	7.740	472.1 -> 427.0	36635	1.25 µg/L	0.000
M6-PFDA	8.245	519.1 -> 474.1	22903	1.25 µg/L	0.000
M7-PFUnDA	8.724	570.0 -> 525.1	29444	1.25 µg/L	0.012
M2-PFDoDA	9.166	615.1 -> 570.0	31289	1.25 µg/L	0.012
M2-PFTeDA	9.893	715.2 -> 670.0	18808	1.25 µg/L	0.000
M8-FOSA	9.568	506.1 -> 77.8	20958	2.50 µg/L	0.000
M3-PFBS	5.544	302.1 -> 79.9	15890	2.50 µg/L	-0.012
M3-PFHxS	7.325	402.1 -> 79.9	10304	2.50 µg/L	-0.012
M8-PFOS	8.420	507.1 -> 79.9	9754	2.50 µg/L	0.000
M2-4:2FTS	5.253	329.1 -> 80.9	2131	5.00 µg/L	0.000
M2-6:2FTS	6.946	429.1 -> 80.9	2995	5.00 µg/L	-0.012
M2-8:2FTS	8.019	529.1 -> 80.9	2905	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	30559	5.00 µg/L	0.000
M3-HFPO-DA	5.965	286.9 -> 168.9	18271	10.00 µg/L	-0.012
M5-EtFOSAA	8.485	589.2 -> 419.0	27529	5.00 µg/L	0.000
M7-MeFOSE	10.591	623.2 -> 58.9	41121	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	30240	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	10377	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	9014	2.50 µg/L	0.000
13C4-PFOS	8.421	502.8 -> 79.9	13051	2.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	45024	5.00 µg/L	-0.012
18O2-PFHxS	7.324	403.0 -> 83.9	7385	2.50 µg/L	-0.012
13C4-PFOA	7.198	417.1 -> 372.0	95459	2.50 µg/L	0.000
13C2-PFDA	8.245	515.1 -> 470.1	30576	1.25 µg/L	0.000
13C5-PFNA	7.740	468.0 -> 423.0	41308	1.25 µg/L	0.000
13C2-PFHxA	5.589	315.1 -> 270.0	43063	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.253	329.1 -> 80.9	2131	5.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.6%		
13C2-6:2FTS	6.946	429.1 -> 80.9	2995	5.68 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.5%		
13C2-8:2FTS	8.019	529.1 -> 80.9	2905	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-PFDoDA	9.166	615.1 -> 570.0	31289	1.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C2-PFTeDA	9.893	715.2 -> 670.0	18808	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C3-PFBS	5.544	302.1 -> 79.9	15890	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C3-PFHxS	7.325	402.1 -> 79.9	10304	2.57 µg/L	-0.012

7.7.2
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C4-PFBA	3.000	216.8 -> 171.9	103231	10.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C4-PFHpA	6.542	367.1 -> 322.0	44665	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C5-PFHxA	5.588	318.0 -> 273.0	44817	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C5-PFPeA	4.384	268.3 -> 223.0	49333	5.14 µg/L	-0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C6-PFDA	8.245	519.1 -> 474.1	22903	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C7-PFUnDA	8.724	570.0 -> 525.1	29444	1.39 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.9%	
13C8-FOSA	9.568	506.1 -> 77.8	20958	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C8-PFOA	7.197	421.1 -> 376.0	74058	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.6%	
13C8-PFOS	8.420	507.1 -> 79.9	9754	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C9-PFNA	7.740	472.1 -> 427.0	36635	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.8%	
d3-MeFOSAA	8.277	573.2 -> 419.0	30559	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C3-HFPO-DA	5.965	286.9 -> 168.9	18271	10.29 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
d3-MeFOSA	10.683	515.0 -> 219.0	9014	2.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.3%	
d5-EtFOSAA	8.485	589.2 -> 419.0	27529	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
d7-MeFOSE	10.591	623.2 -> 58.9	41121	24.75 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d9-EtFOSE	10.849	639.2 -> 58.9	30240	23.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
d5-EtFOSA	10.927	531.1 -> 219.0	10377	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.8%	
Target Compounds					QValue
4:2FTS	5.241	327.1 -> 307.0	4355	0.86 µg/L	90
		327.1 -> 80.9	1117		
6:2FTS	6.946	427.1 -> 407.0	3922	0.84 µg/L	98
		427.1 -> 80.9	805		
8:2FTS	8.020	527.1 -> 507.0	2393	0.99 µg/L	m 94
		527.1 -> 80.8	512		
EtFOSAA	8.499	584.2 -> 419.1	895	0.20 µg/L	m 84
		584.2 -> 526.0	522		
FOSA	9.571	498.1 -> 77.9	1733	0.20 µg/L	99
		498.1 -> 478.0	73		
MeFOSAA	8.290	570.1 -> 419.0	1525	0.24 µg/L	m 87
		570.1 -> 483.0	321		
PFBA	2.994	212.8 -> 168.9	2317	0.87 µg/L	100
PFBS	5.544	298.7 -> 79.9	1309	0.20 µg/L	96
		298.7 -> 98.8	592		
PFDA	8.246	512.9 -> 469.0	5882	0.21 µg/L	93
		512.9 -> 219.0	930		
PFDODA	9.166	613.1 -> 569.0	5269	0.21 µg/L	94
		613.1 -> 319.0	707		
PFDS	9.344	599.0 -> 79.9	668	0.20 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	380			
PFHpA	6.542	363.1 -> 319.0	5772	0.21	µg/L	96
		363.1 -> 169.0	839			
PFHpS	7.905	449.0 -> 79.9	929	0.21	µg/L	94
		449.0 -> 98.9	531			
PFHxA	5.591	313.0 -> 269.0	4278	0.24	µg/L	98
		313.0 -> 118.9	149			
PFHxS	7.326	398.7 -> 79.9	1069	0.22	µg/L	m 88
		398.7 -> 98.9	539			
PFNA	7.740	463.0 -> 419.0	4975	0.20	µg/L	91
		463.0 -> 219.0	1120			
PFNS	8.911	548.8 -> 79.9	1069	0.23	µg/L	87
		548.8 -> 98.9	530			
PFOA	7.199	413.0 -> 369.0	7998	0.24	µg/L	98
		413.0 -> 169.0	1072			
PFOS	8.421	498.9 -> 79.9	1010	0.21	µg/L	m 91
		498.9 -> 98.8	649			
PFPeA	4.386	263.0 -> 219.0	4878	0.45	µg/L	100
PFPeS	6.619	349.1 -> 79.9	1294	0.22	µg/L	95
		349.1 -> 98.9	635			
PFTeDA	9.894	713.1 -> 669.0	5148	0.23	µg/L	100
		713.1 -> 168.9	332			
PFTrDA	9.550	663.0 -> 619.0	5382	0.23	µg/L	99
		663.0 -> 168.9	490			
PFUnDA	8.725	563.1 -> 519.0	4746	0.19	µg/L	92
		563.1 -> 269.1	859			
11CI-PF3OUdS	9.614	630.9 -> 450.9	11318	0.82	µg/L	95
		632.9 -> 452.9	3842			
9CI-PF3ONS	8.776	530.8 -> 351.0	18047	0.80	µg/L	98
		532.8 -> 353.0	5625			
ADONA	6.792	376.9 -> 250.9	32133	0.79	µg/L	95
		376.9 -> 84.8	7328			
HFPO-DA	5.966	284.9 -> 168.9	1669	0.90	µg/L	94
		284.9 -> 184.9	242			
3:3FTCA	3.839	241.0 -> 177.0	646	1.12	µg/L	100
		241.0 -> 117.0	79			
5:3FTCA	6.207	341.0 -> 237.1	20784	5.52	µg/L	97
		341.0 -> 217.0	17091			
7:3FTCA	7.643	441.0 -> 316.9	13655	5.38	µg/L	95
		441.0 -> 336.9	29035			
EtFOSA	10.929	526.0 -> 219.0	1196	0.24	µg/L	96
		526.0 -> 169.0	1132			
EtFOSE	10.862	630.0 -> 58.9	2809	2.11	µg/L	100
MeFOSA	10.685	511.9 -> 219.0	950	0.24	µg/L	98
		511.9 -> 169.0	952			
MeFOSE	10.604	616.1 -> 58.9	3455	2.03	µg/L	100
PFDoDS	10.033	699.1 -> 79.9	466	0.22	µg/L	85
		699.1 -> 98.8	337			
NFDHA	5.471	295.0 -> 201.0	521	0.44	µg/L	97
		295.0 -> 84.9	218			
PFMBA	4.801	279.0 -> 85.1	1493	0.44	µg/L	100
PFMPA	3.550	229.0 -> 84.9	1307	0.44	µg/L	100
PFEESA	6.097	314.8 -> 134.9	9351	0.37	µg/L	100
		314.8 -> 82.9	238			

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

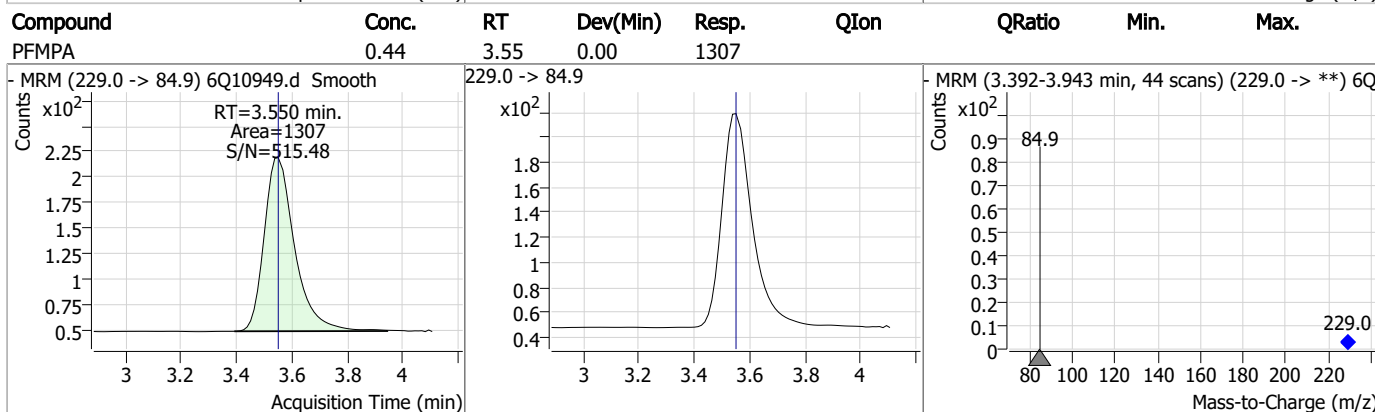
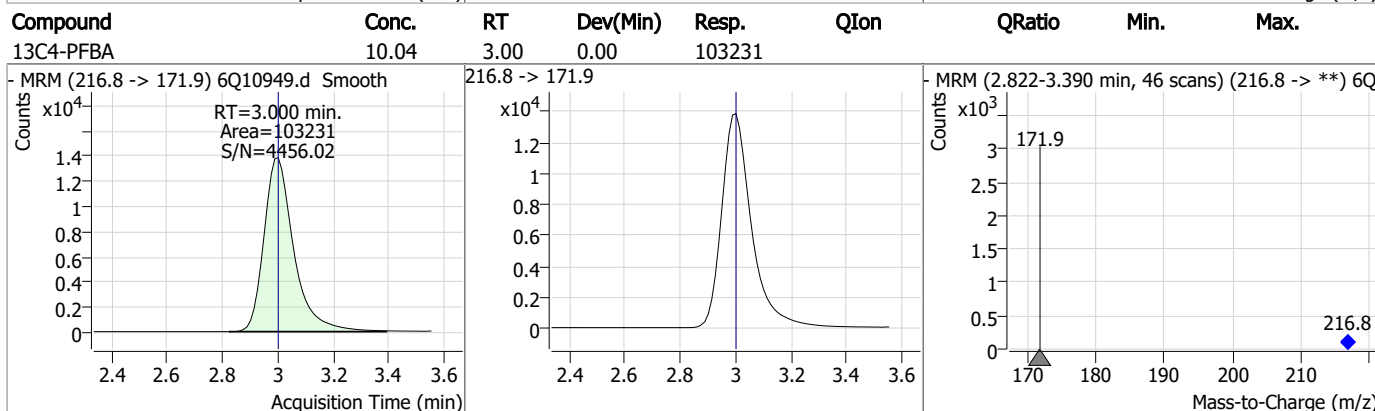
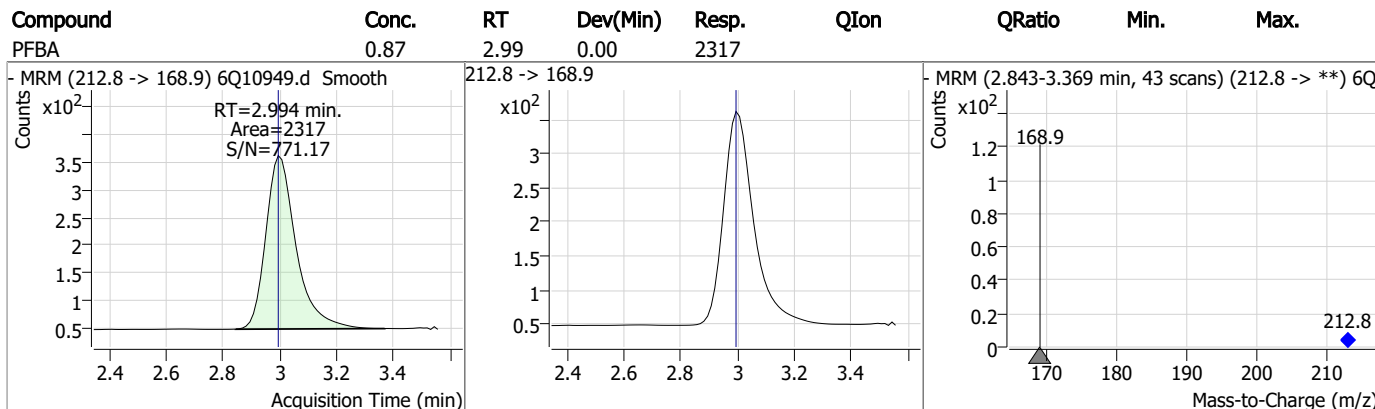
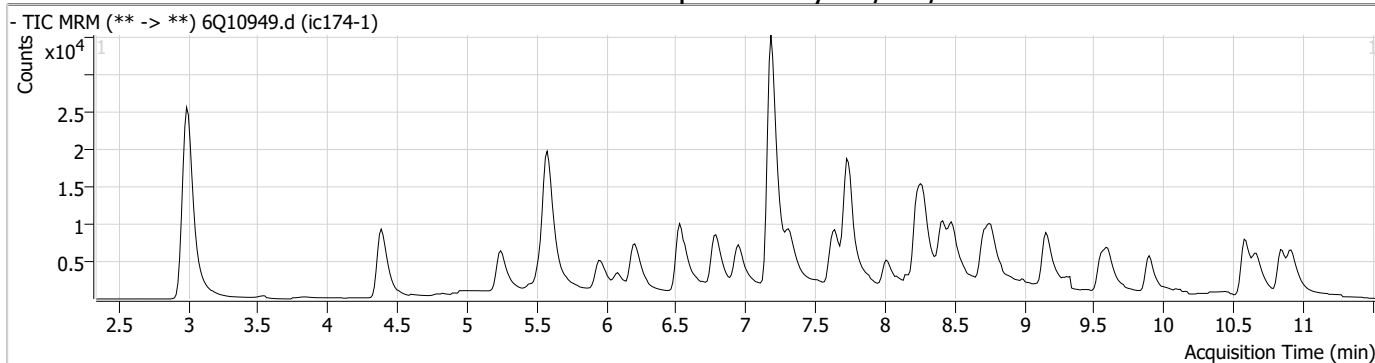
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.2
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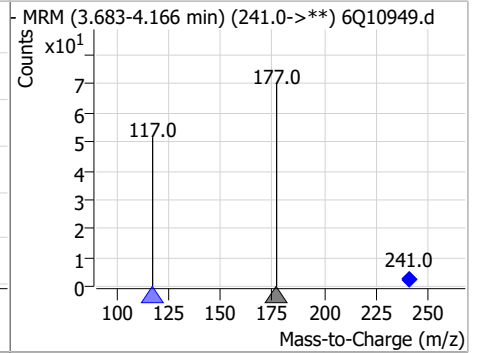
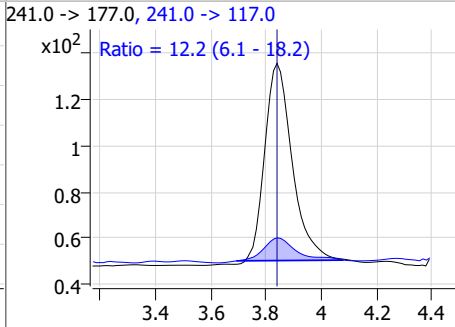
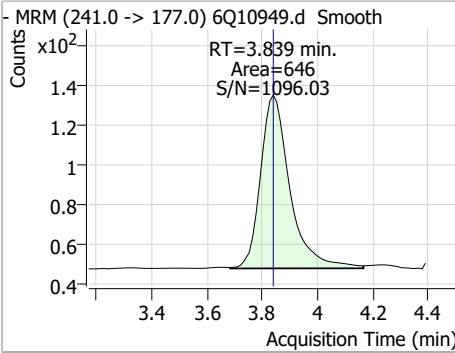


Perfluorinated Compounds by LC/MS/MS

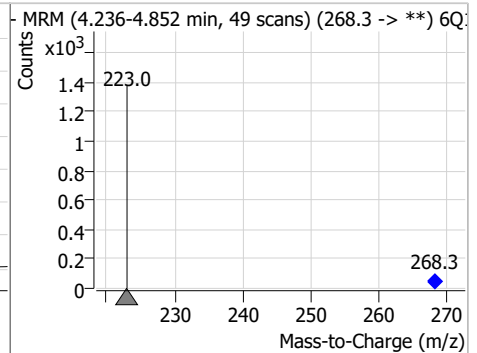
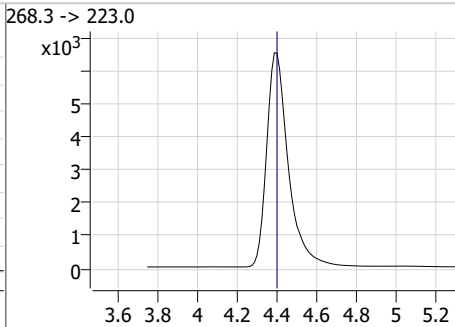
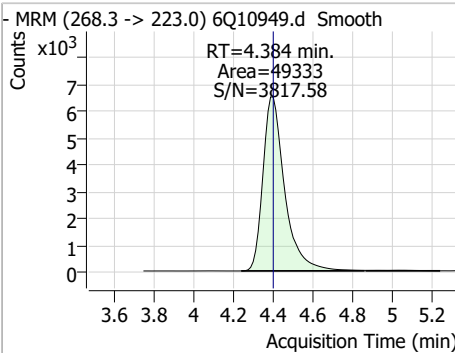


Perfluorinated Compounds by LC/MS/MS

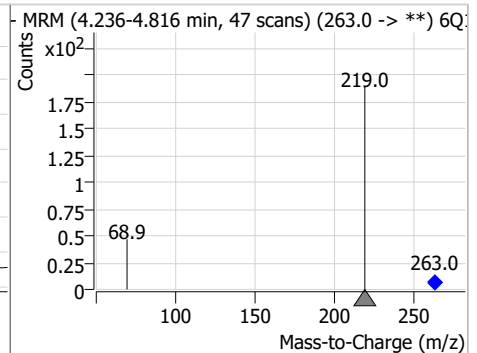
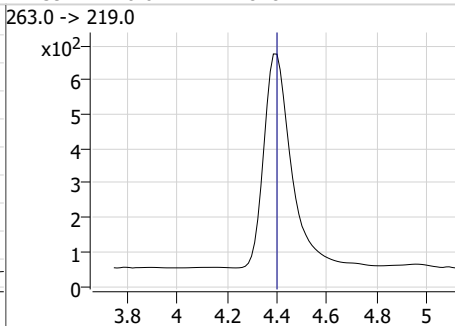
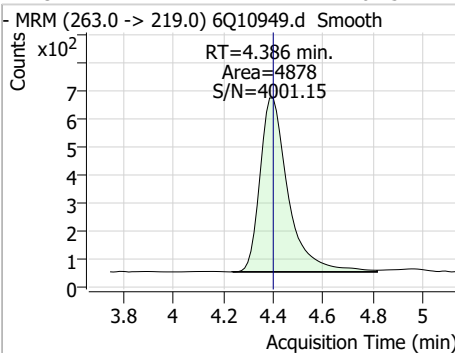
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	1.12	3.84	0.00	646	241.0 -> 117.0	12.2	6.1	18.2



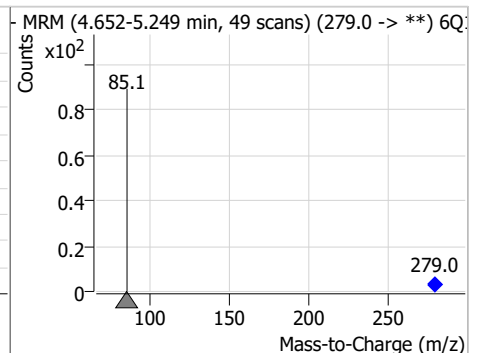
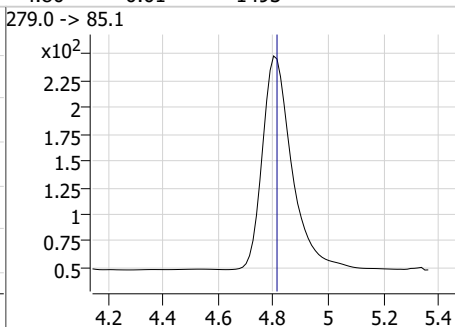
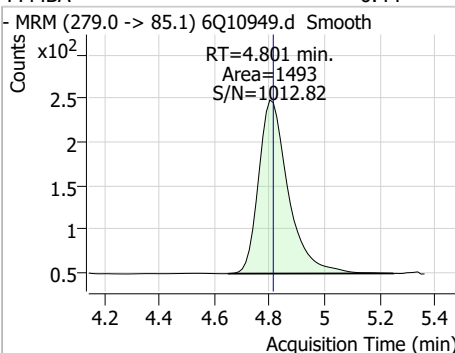
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13C5-PFPeA	5.14	4.38	-0.01	49333				



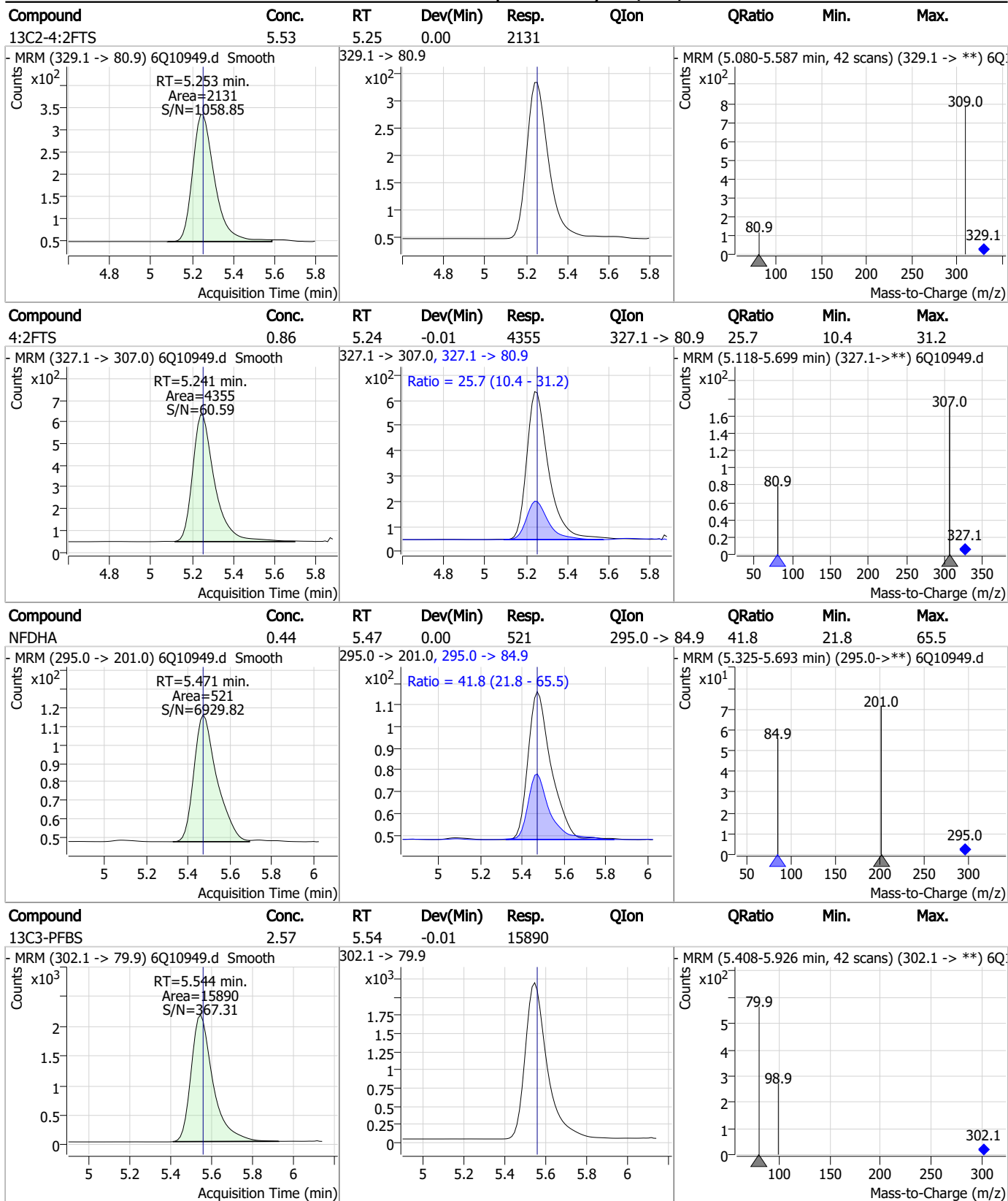
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.45	4.39	-0.01	4878				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.44	4.80	-0.01	1493				



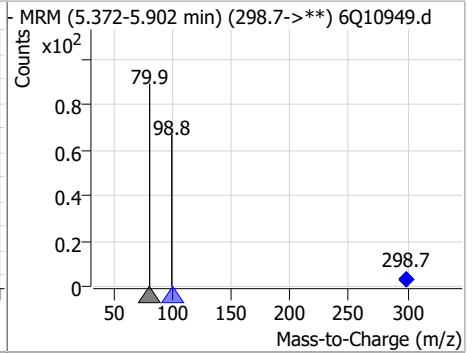
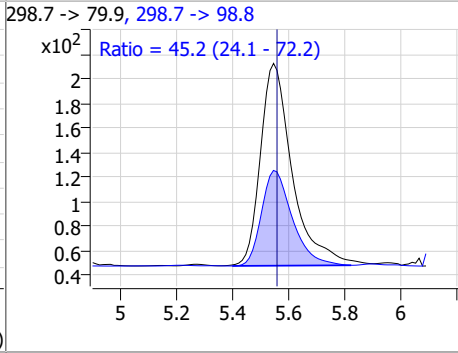
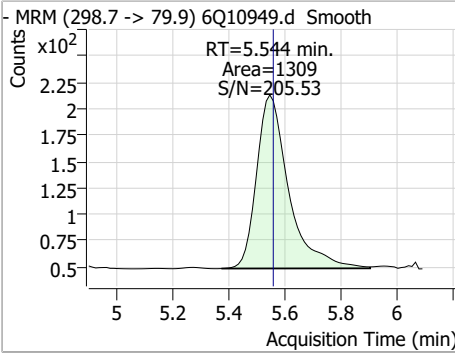
Perfluorinated Compounds by LC/MS/MS



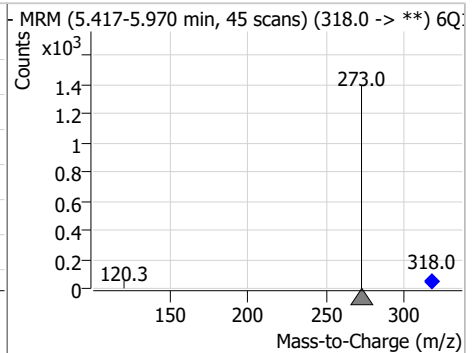
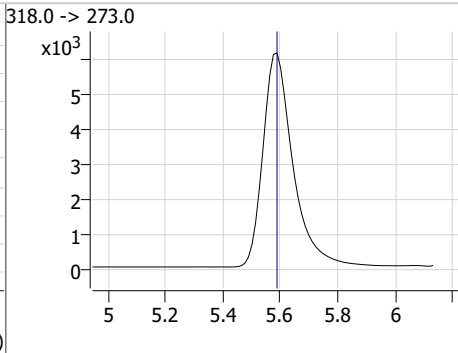
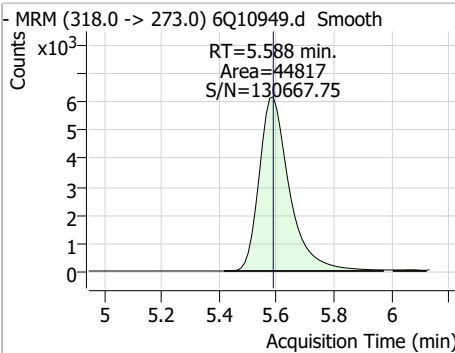
7.7.2
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Perfluorinated Compounds by LC/MS/MS

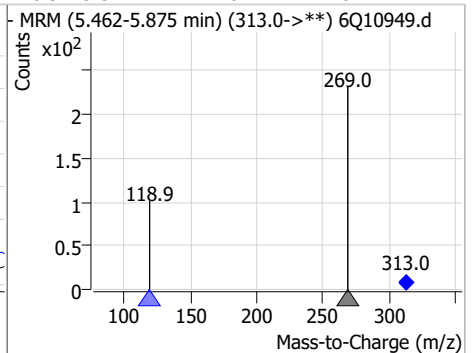
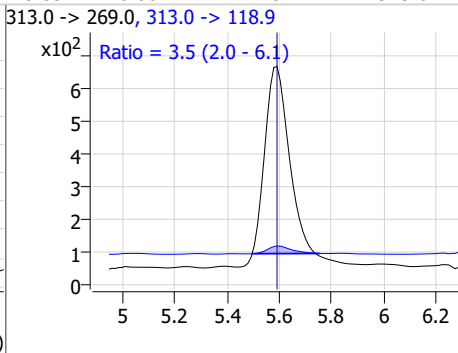
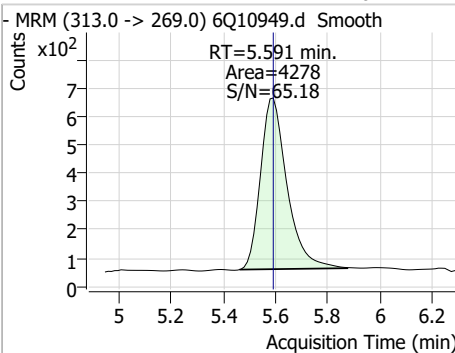
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.20	5.54	-0.01	1309	298.7 -> 98.8	45.2	24.1	72.2



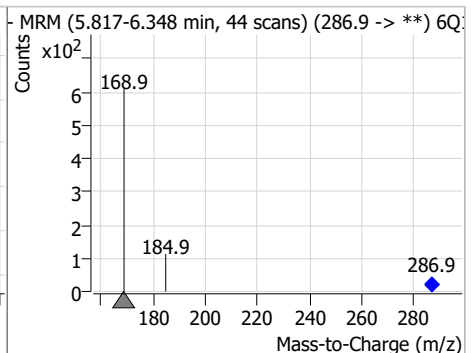
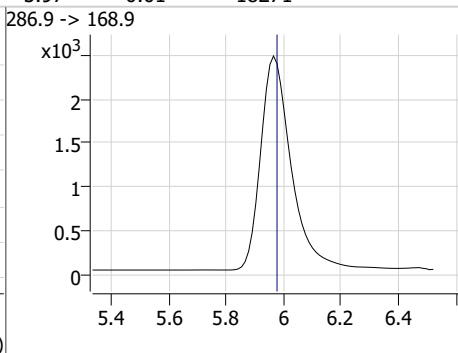
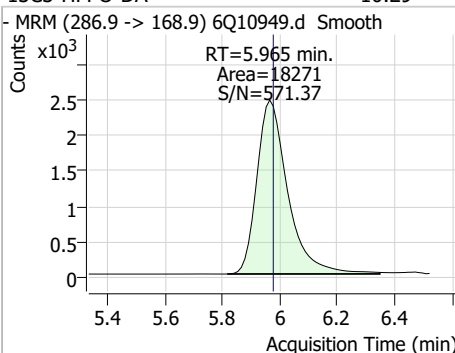
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.59	5.59	0.00	44817				



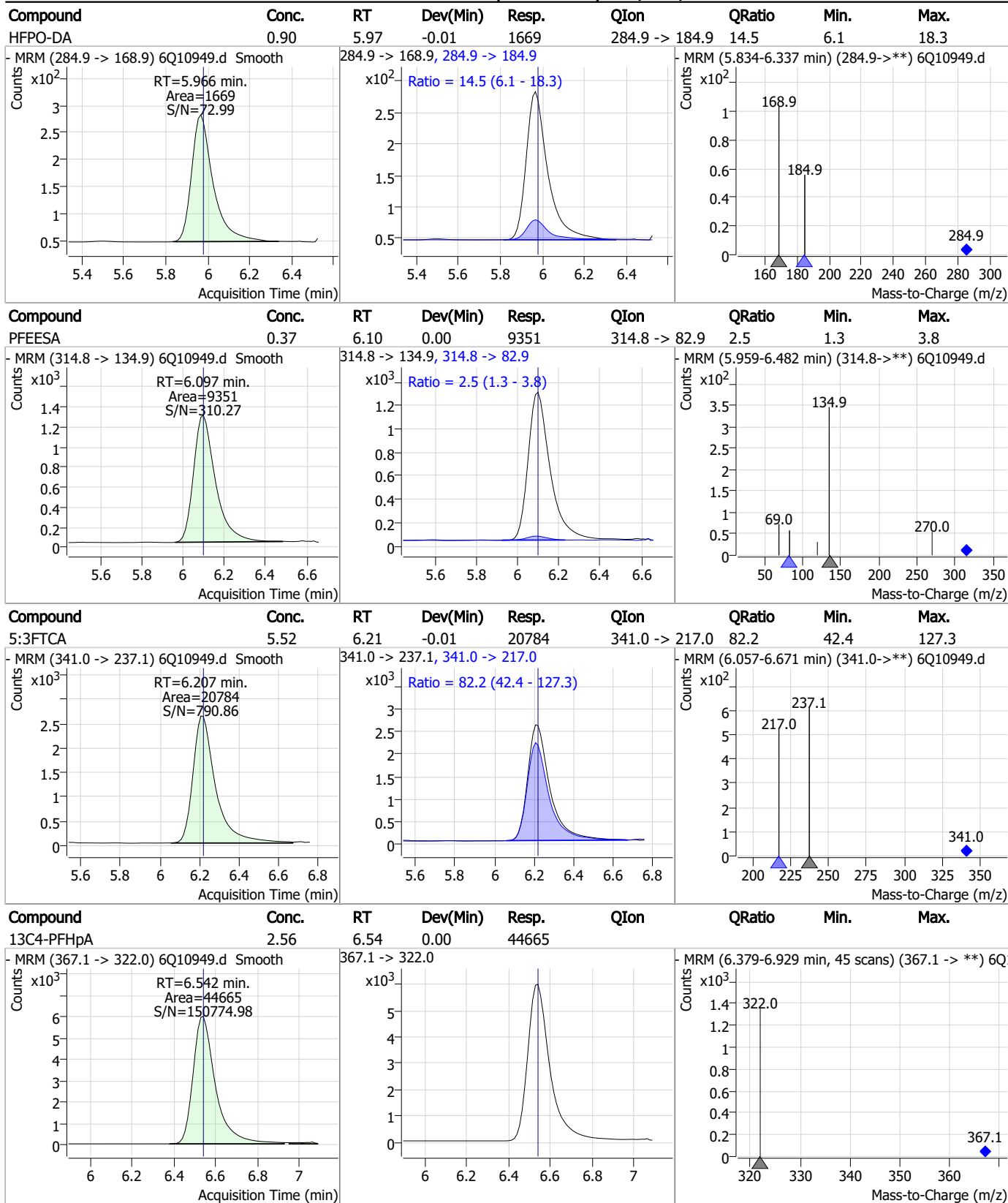
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.24	5.59	0.00	4278	313.0 -> 118.9	3.5	2.0	6.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.29	5.97	-0.01	18271				



Perfluorinated Compounds by LC/MS/MS

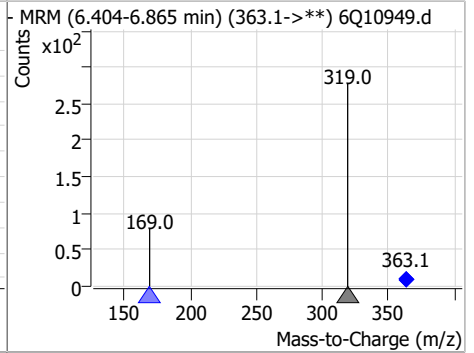
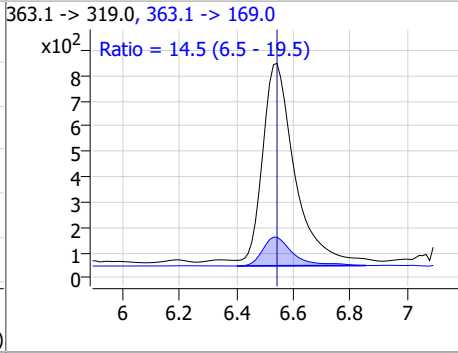
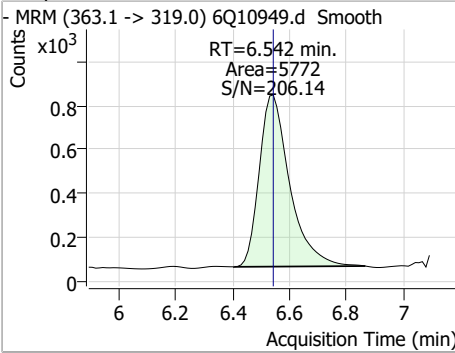


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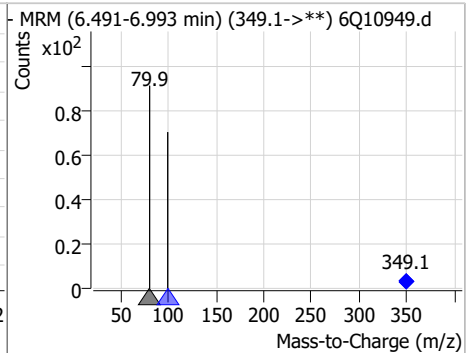
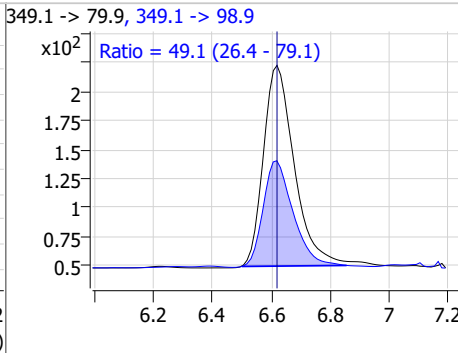
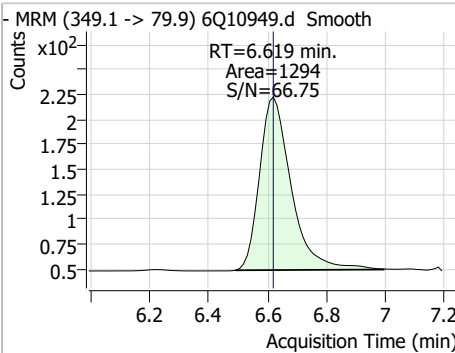


Perfluorinated Compounds by LC/MS/MS

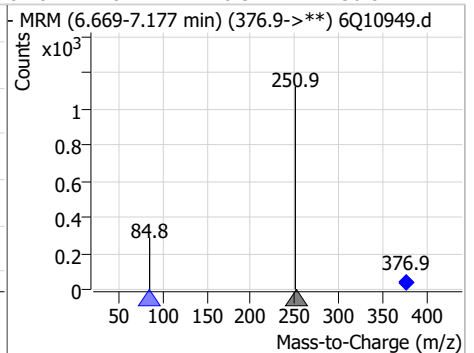
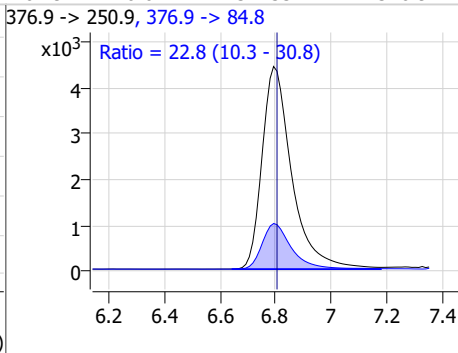
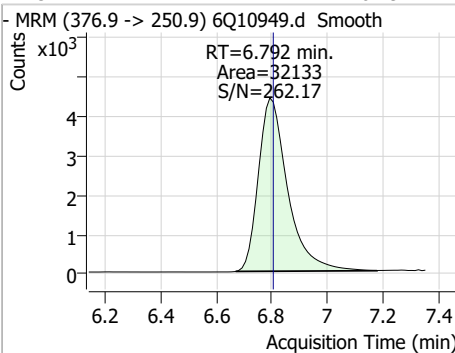
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.21	6.54	0.00	5772	363.1 -> 169.0	14.5	6.5	19.5



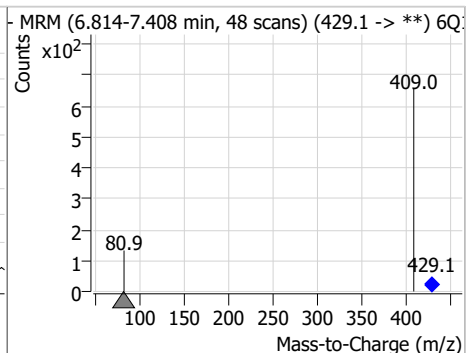
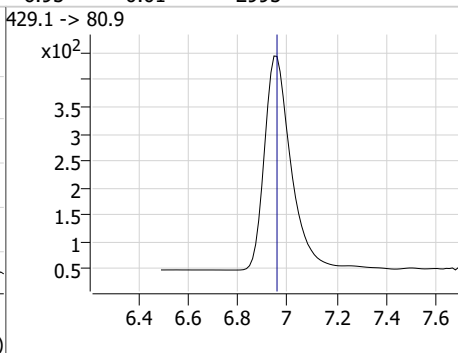
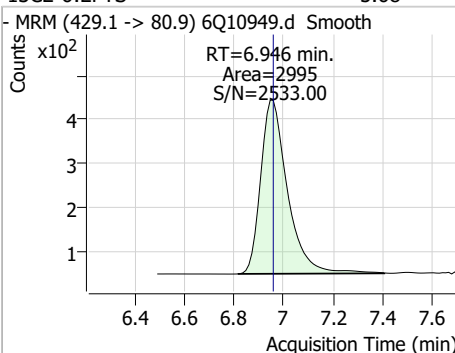
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.22	6.62	0.00	1294	349.1 -> 98.9	49.1	26.4	79.1



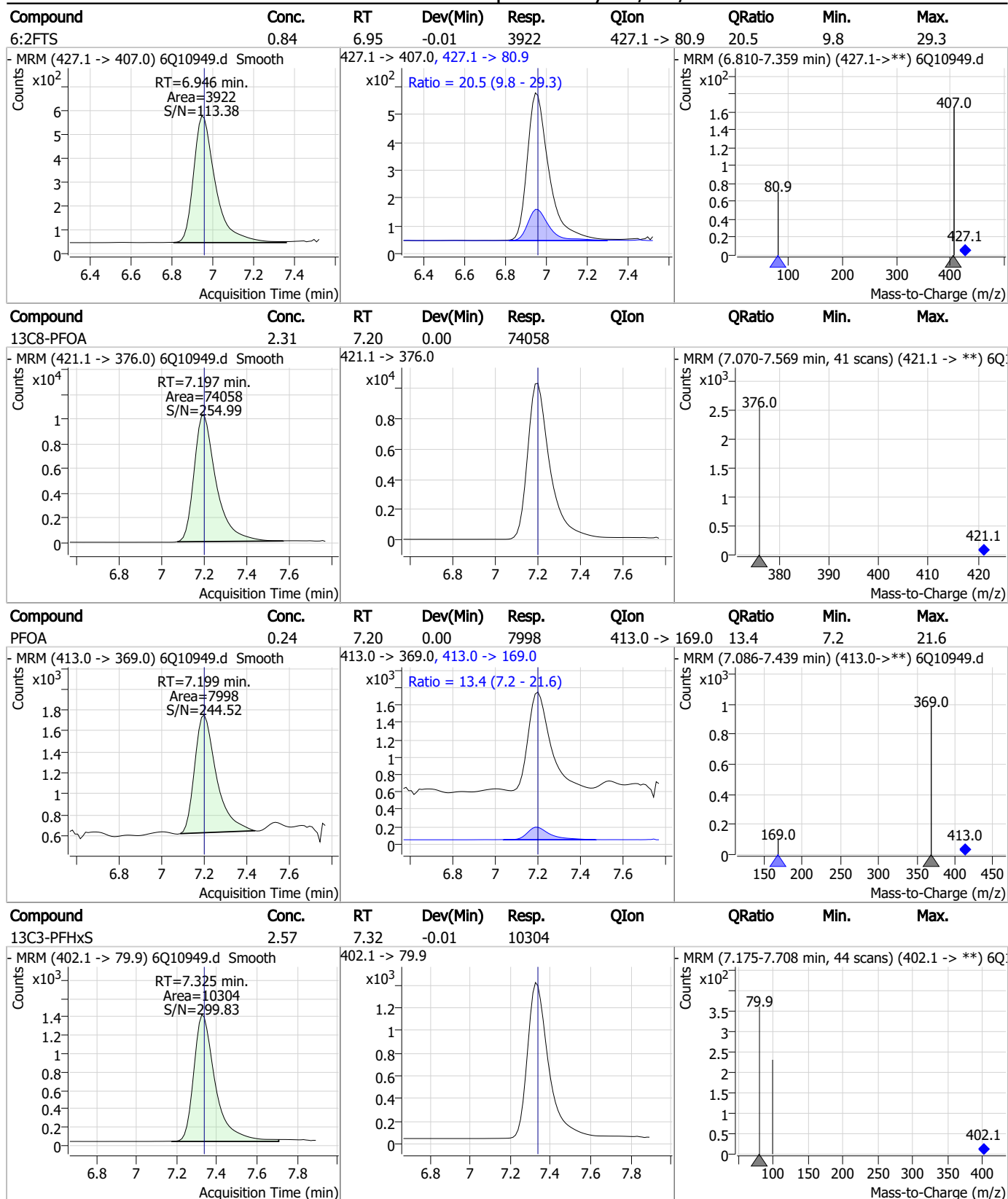
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.79	6.79	-0.01	32133	376.9 -> 84.8	22.8	10.3	30.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.68	6.95	-0.01	2995	429.1 -> 80.9			



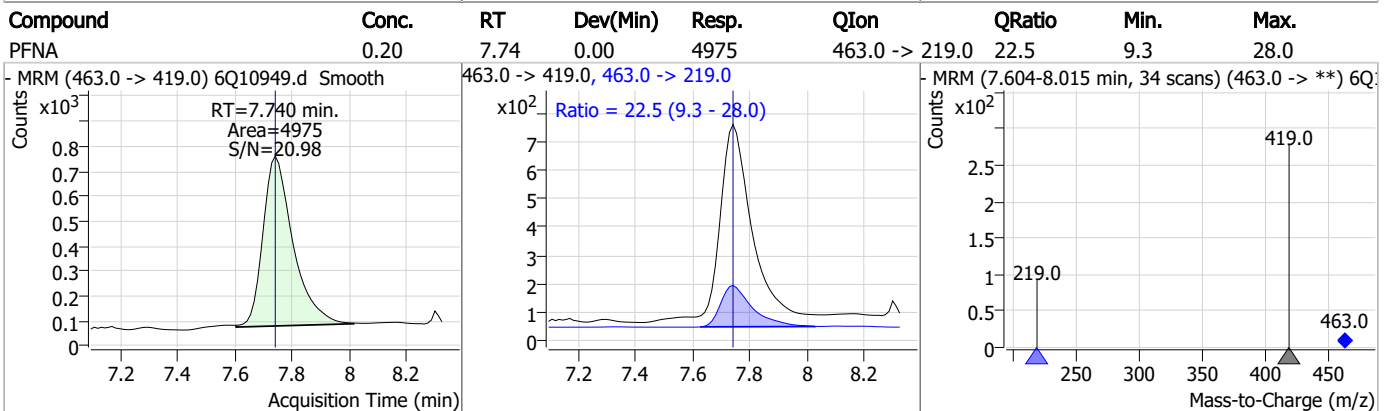
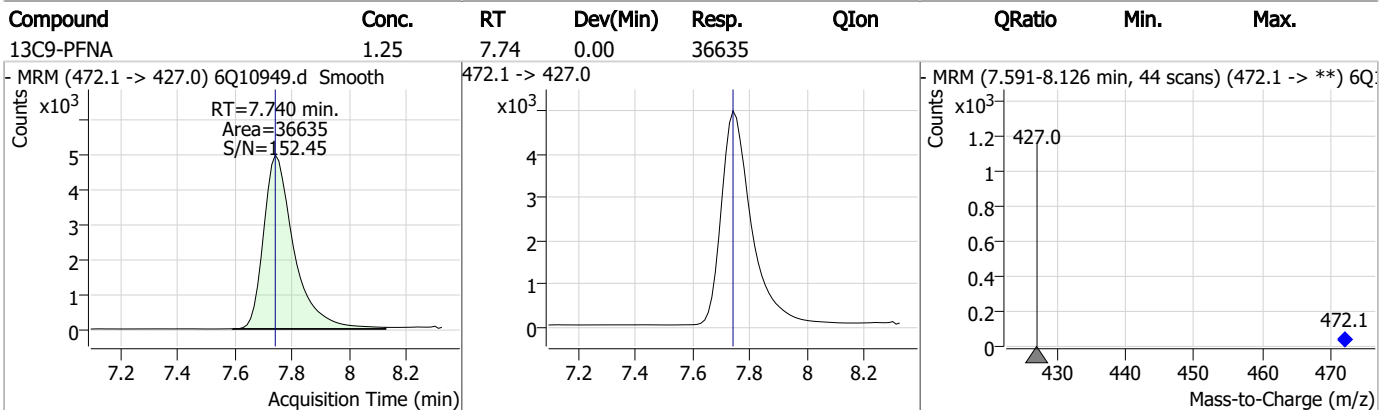
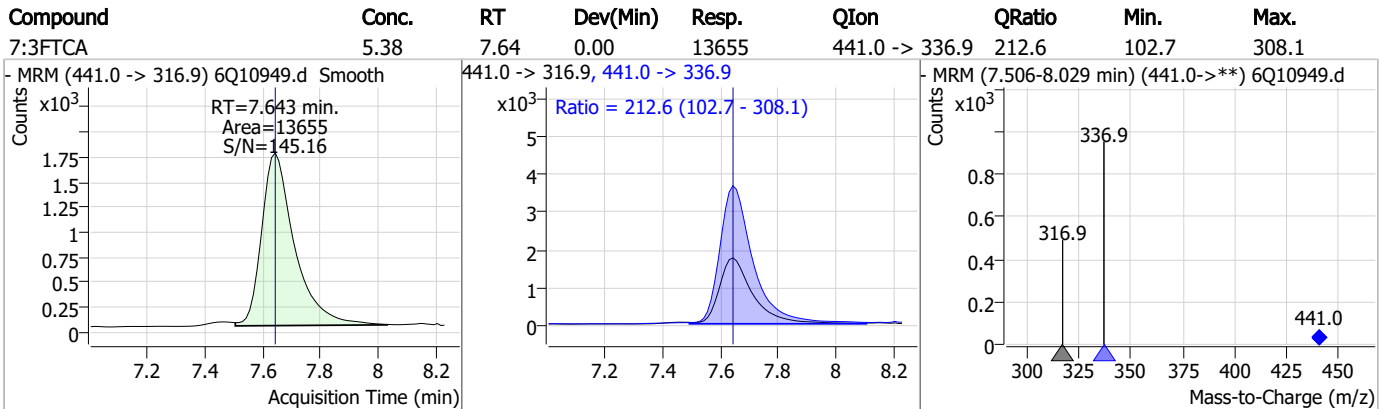
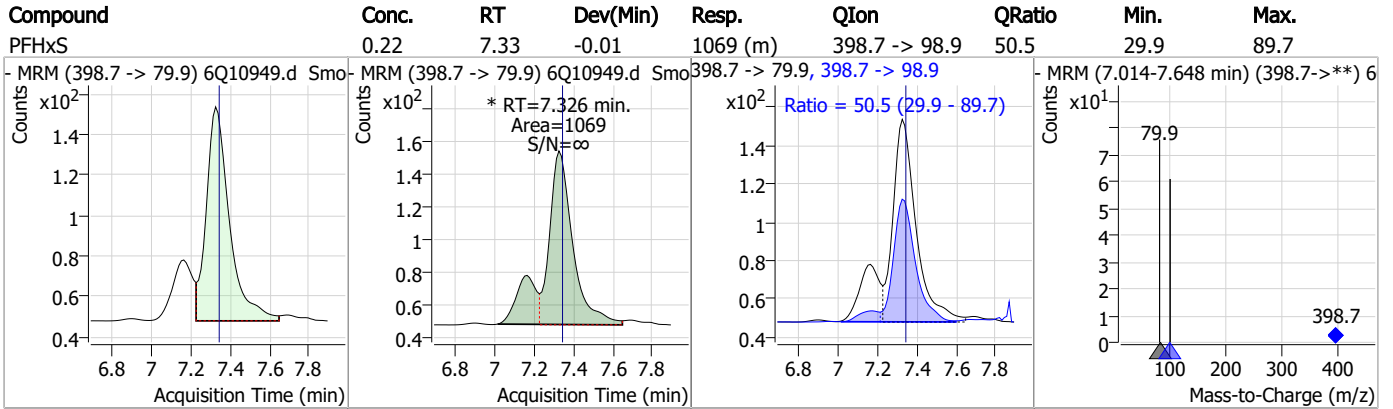
Perfluorinated Compounds by LC/MS/MS



7.7.2
7



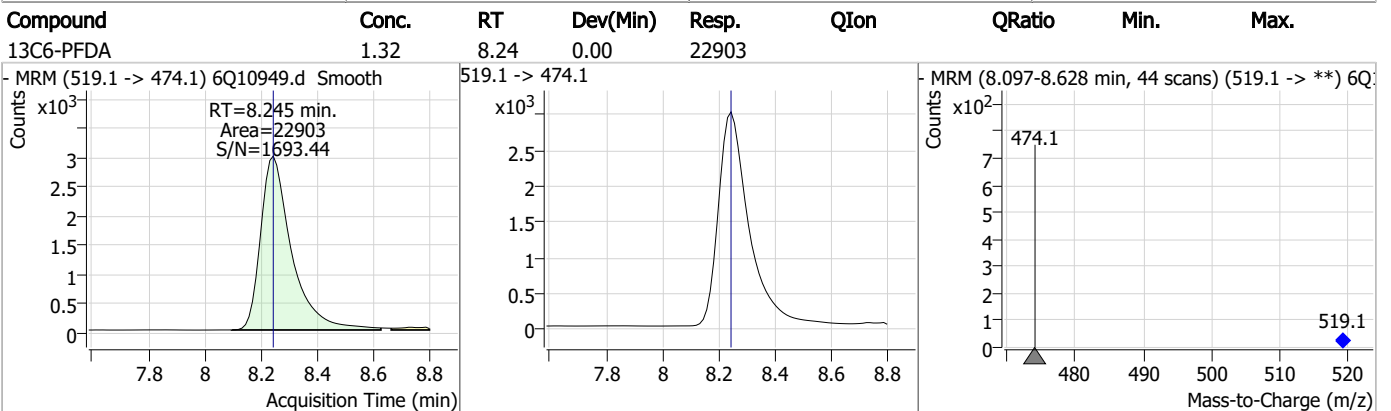
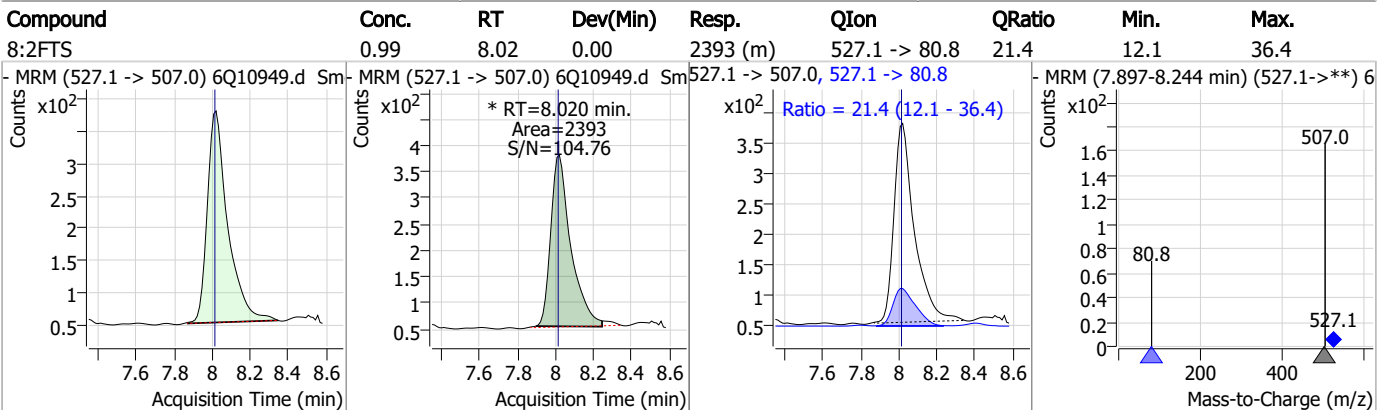
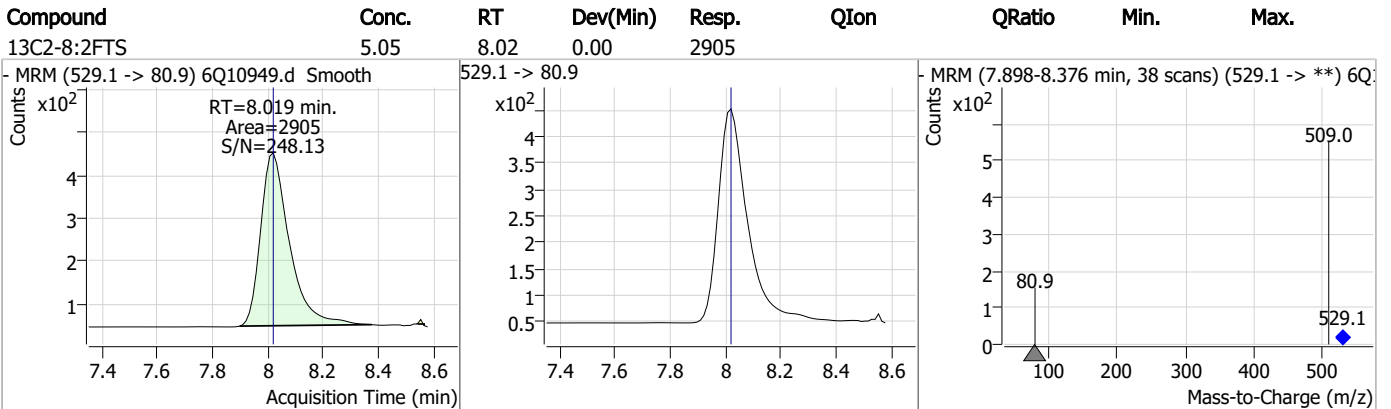
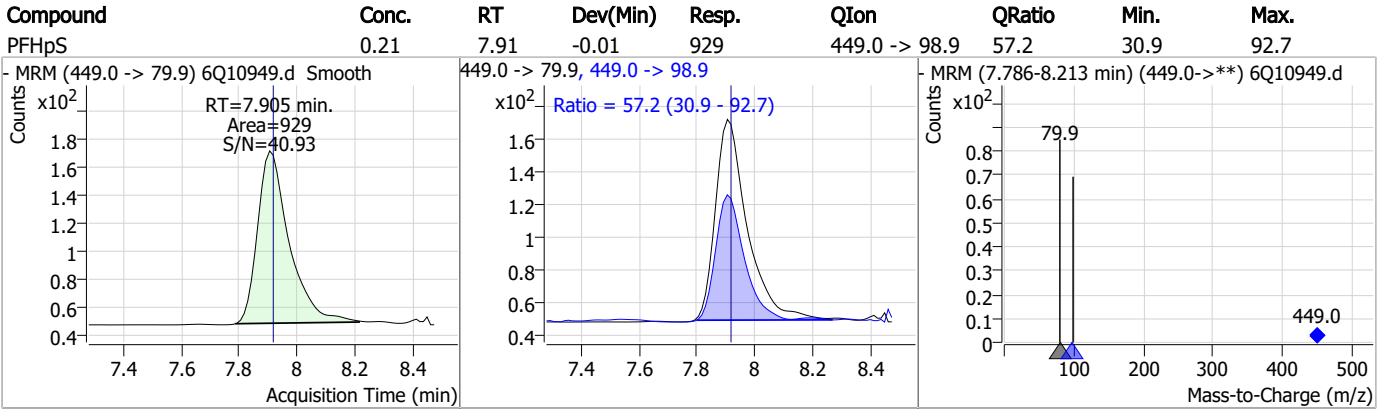
Perfluorinated Compounds by LC/MS/MS



7.7.2

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Perfluorinated Compounds by LC/MS/MS

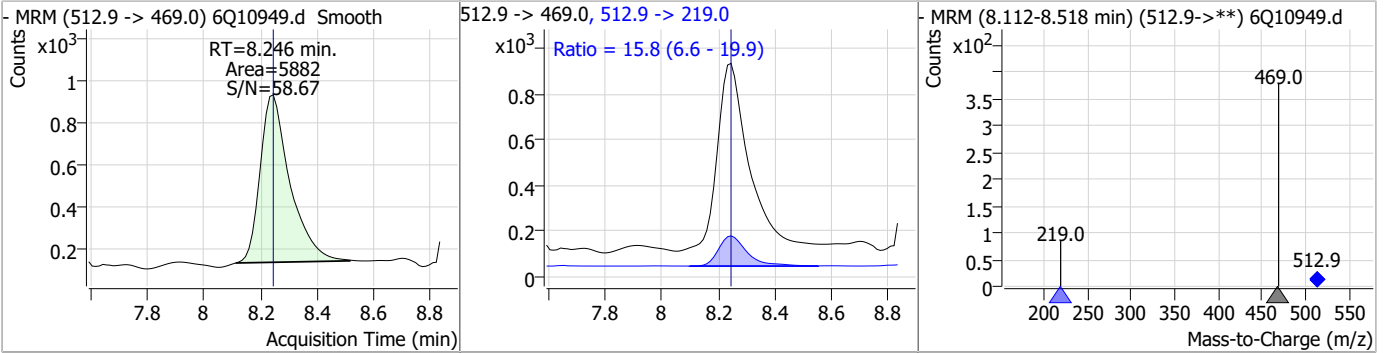


7.7.2

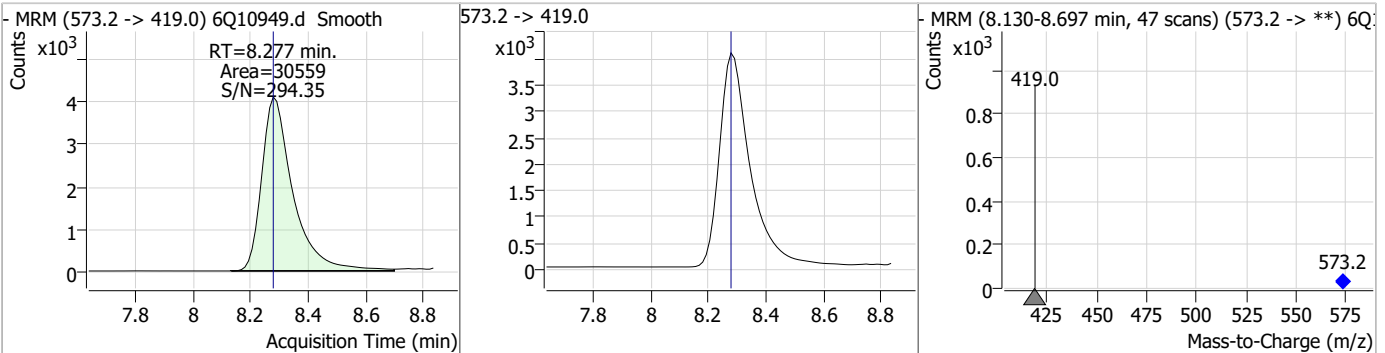
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Perfluorinated Compounds by LC/MS/MS

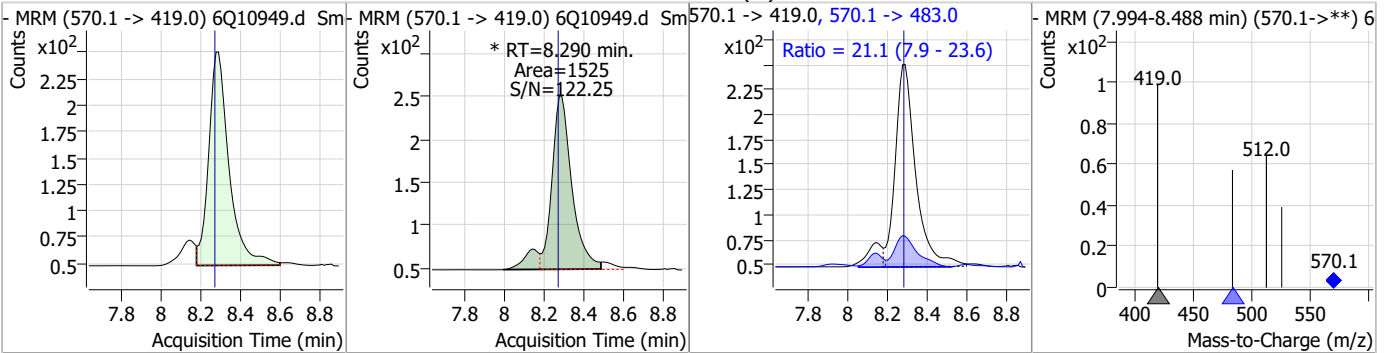
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.21	8.25	0.00	5882	512.9 -> 219.0	15.8	6.6	19.9



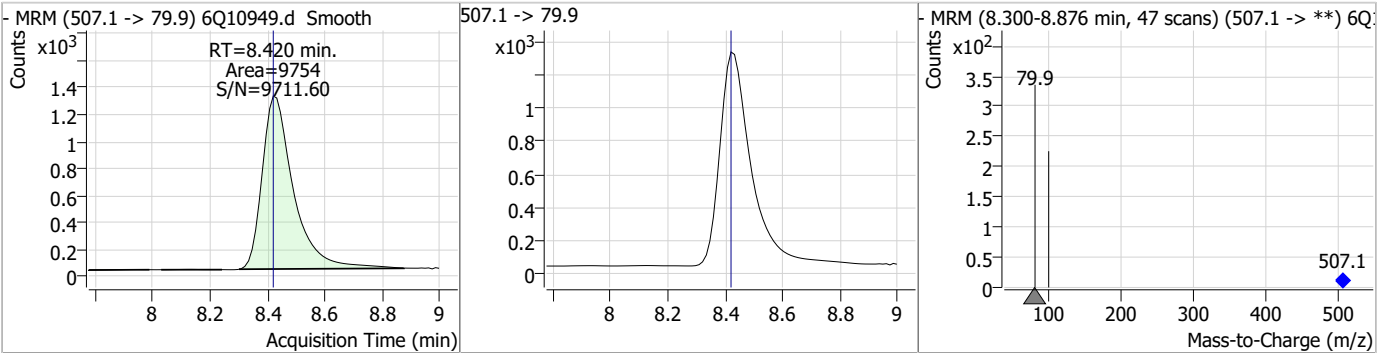
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.86	8.28	0.00	30559				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.24	8.29	0.01	1525 (m)	570.1 -> 483.0	21.1	7.9	23.6

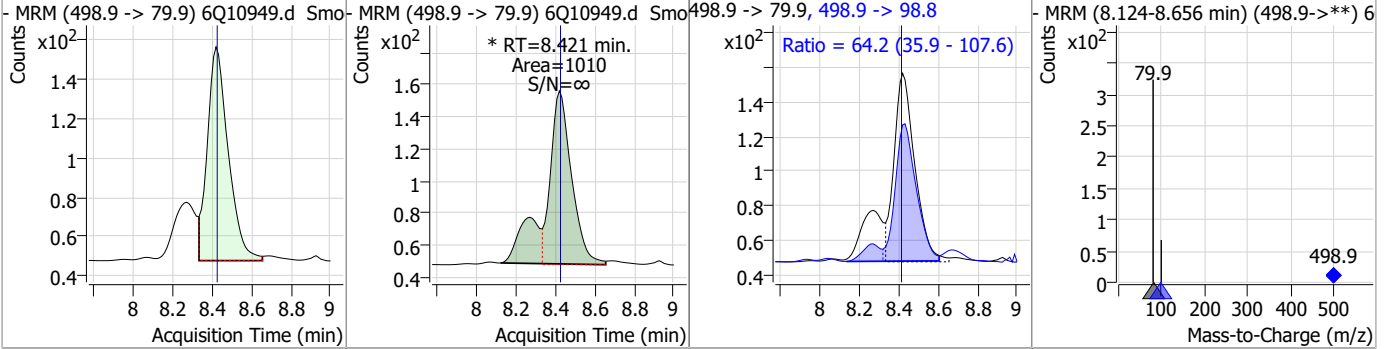


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.34	8.42	0.00	9754				

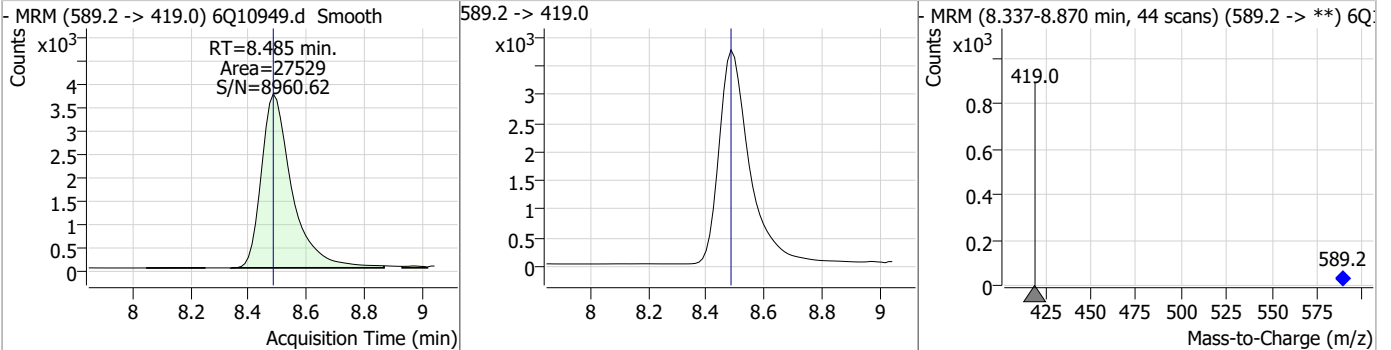


Perfluorinated Compounds by LC/MS/MS

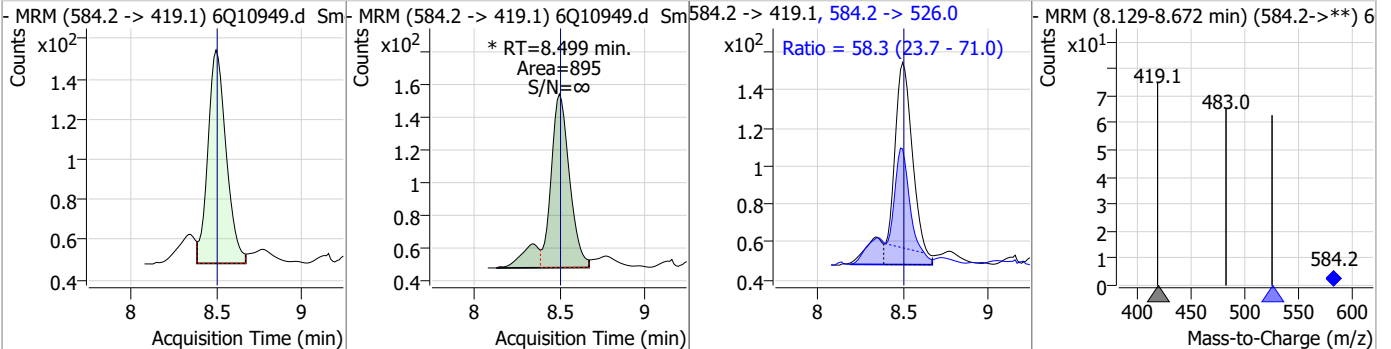
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.21	8.42	0.00	1010 (m)	498.9 -> 98.8	64.2	35.9	107.6



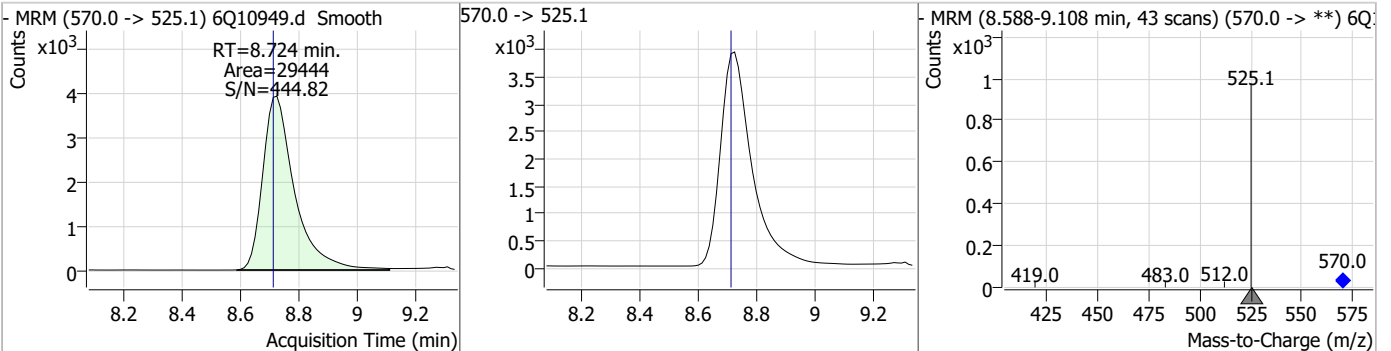
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.99	8.49	0.00	27529				



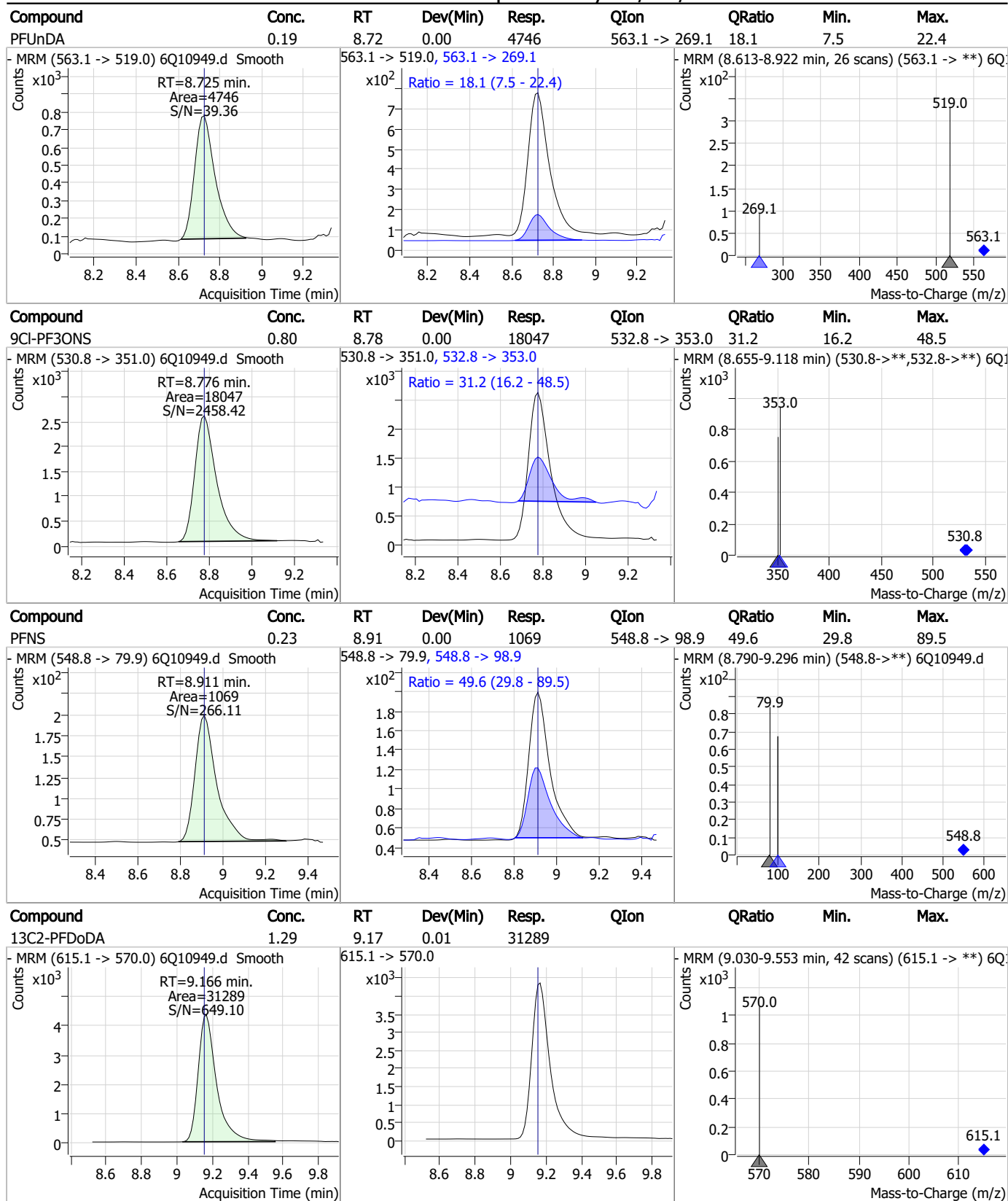
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.20	8.50	0.00	895 (m)	584.2 -> 526.0	58.3	23.7	71.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.39	8.72	0.01	29444				

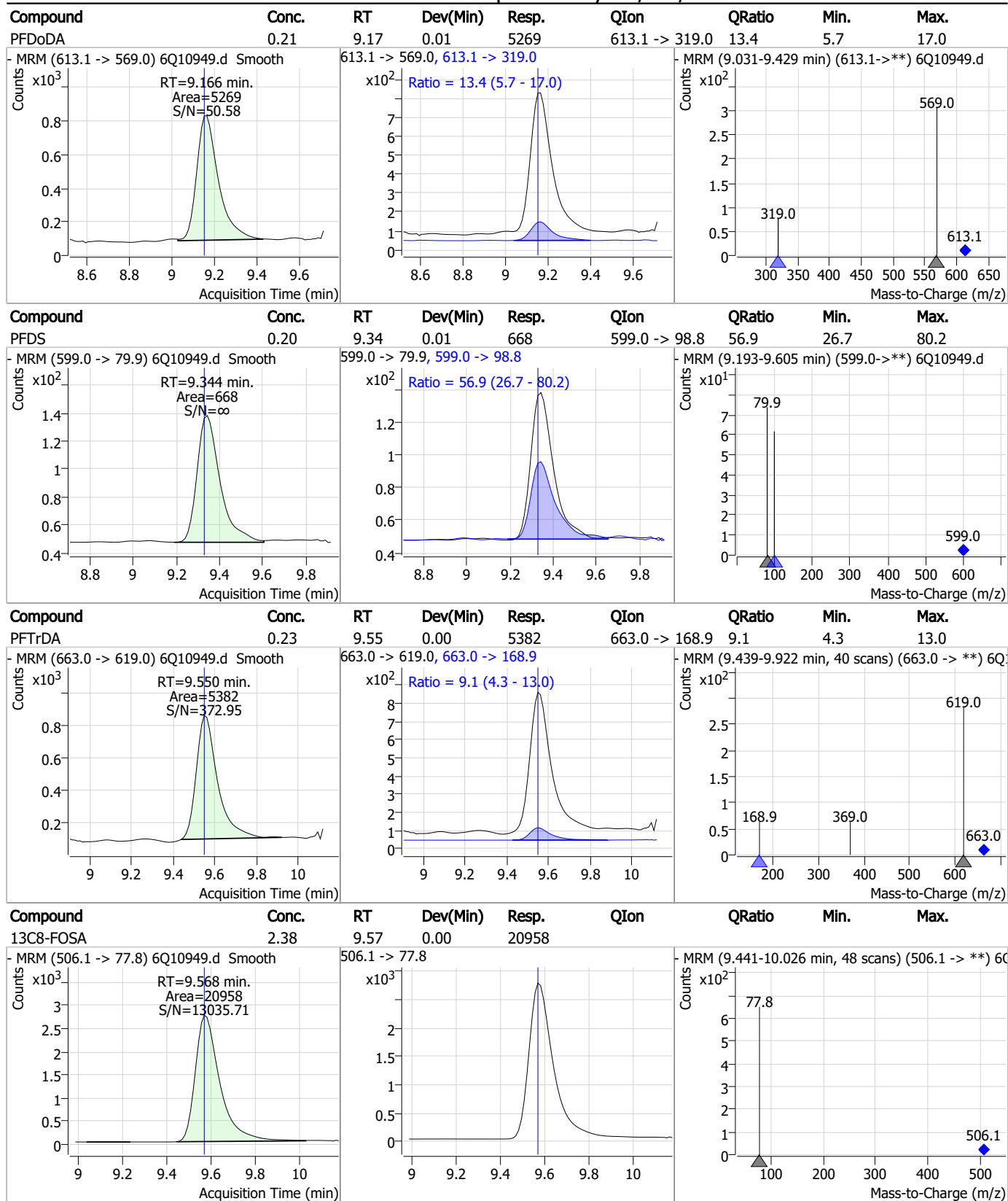


Perfluorinated Compounds by LC/MS/MS



7.7.2
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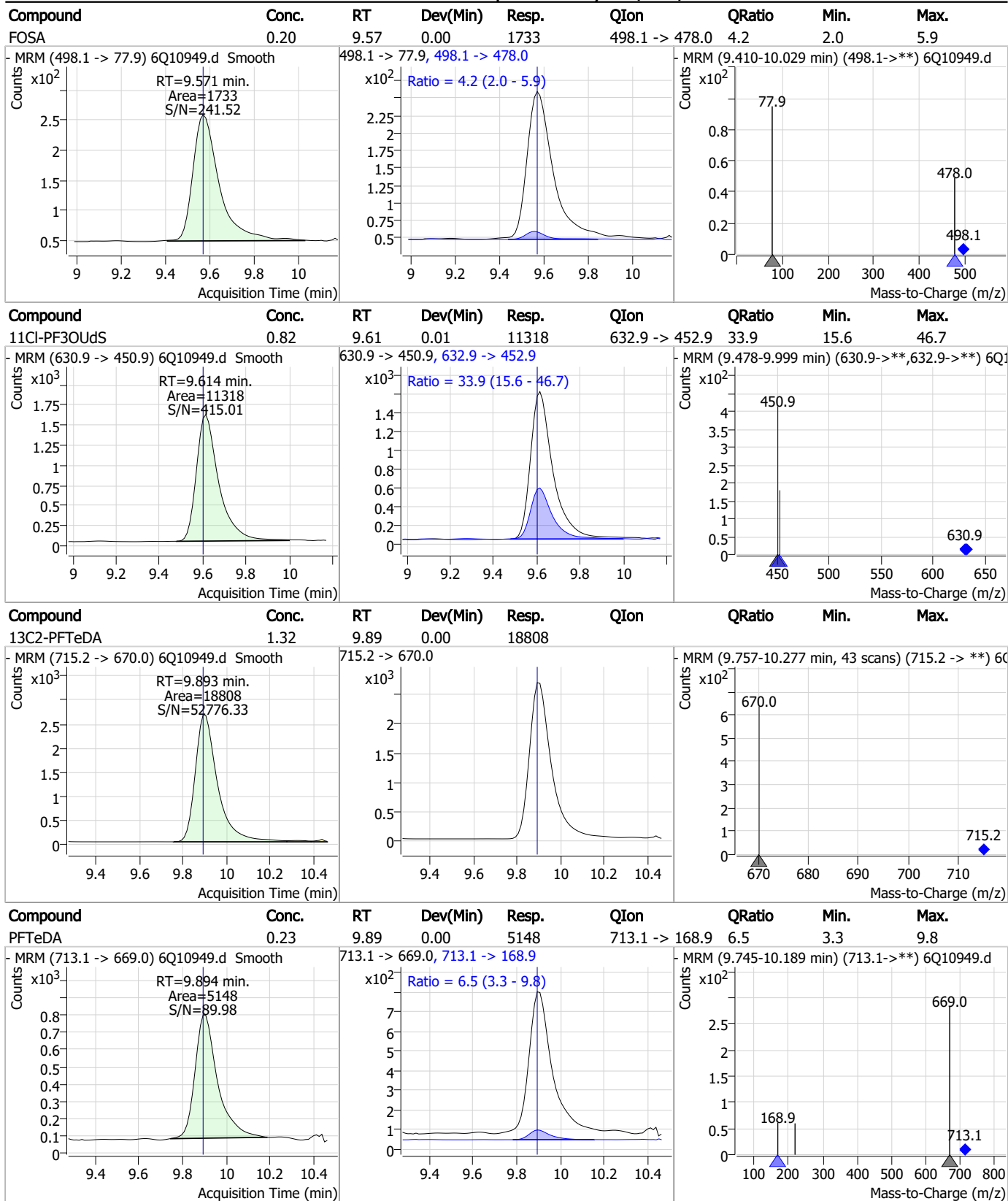
Perfluorinated Compounds by LC/MS/MS



7.7.2
7

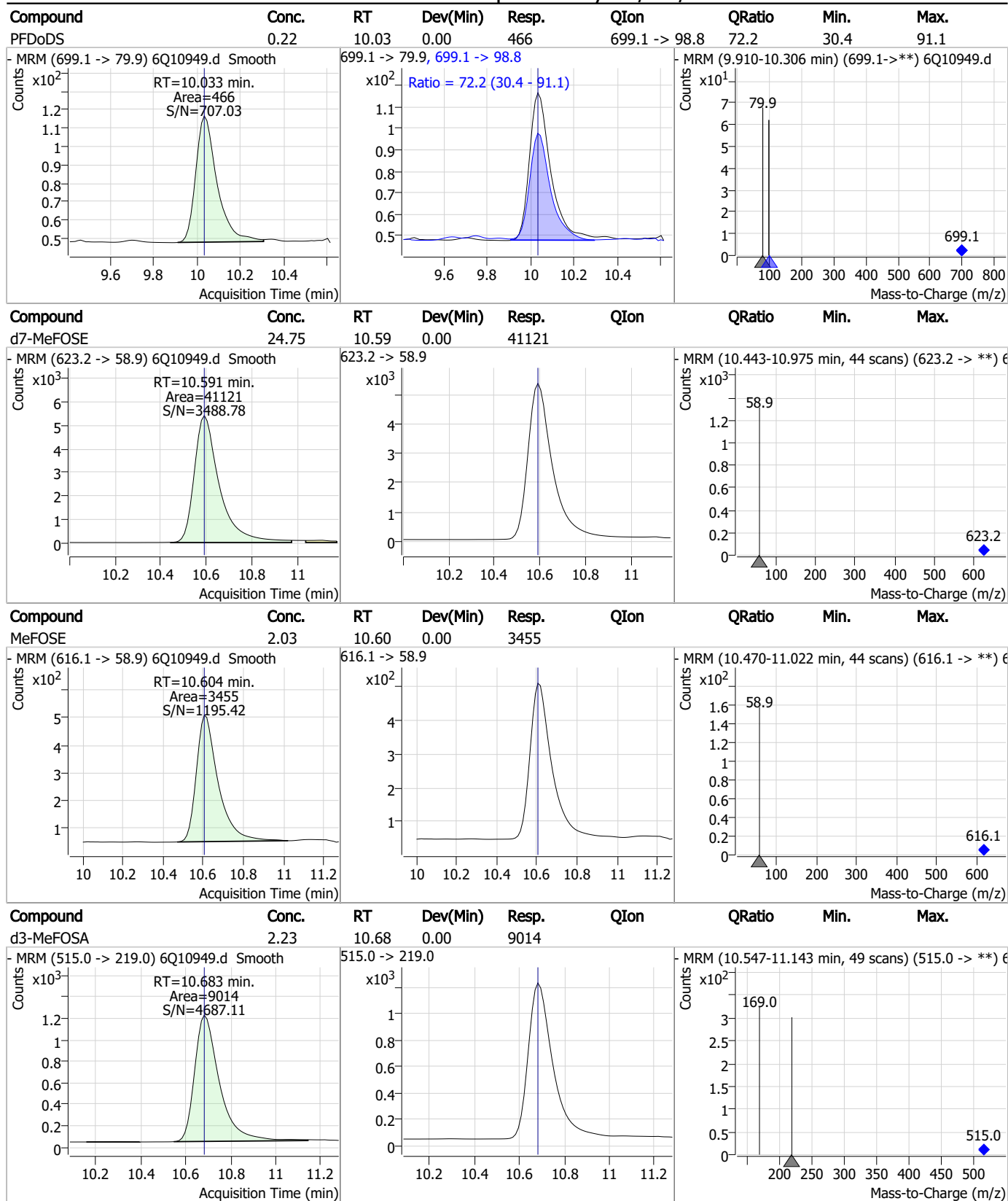


Perfluorinated Compounds by LC/MS/MS



7.7.2
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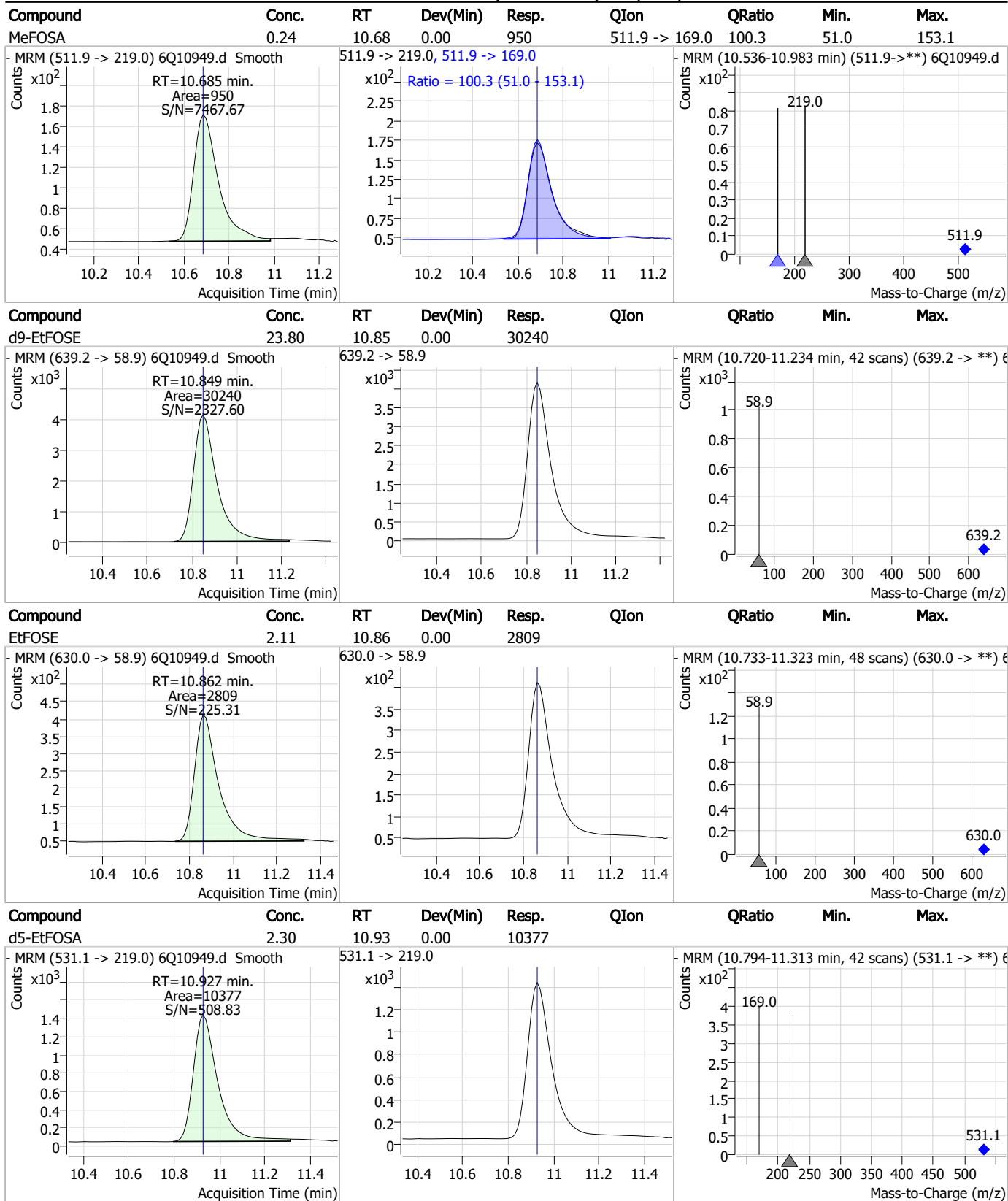
Perfluorinated Compounds by LC/MS/MS



7.7.2

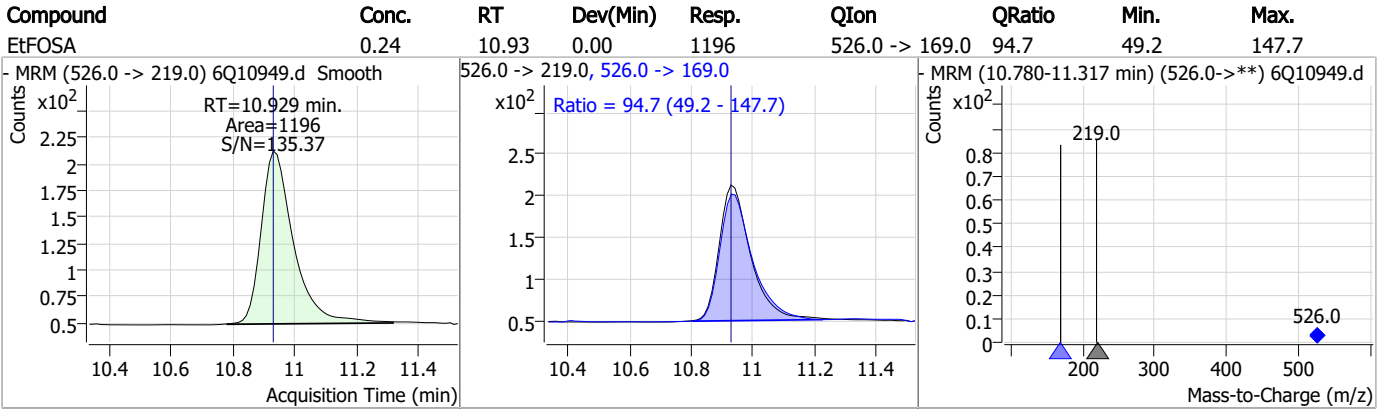
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Perfluorinated Compounds by LC/MS/MS



7.7.2
7

Perfluorinated Compounds by LC/MS/MS



7.7.2

7

Manual Integration Approval Summary

Sample Number: S6Q174-IC174 Method: EPA DRAFT 1633
Lab FileID: 6Q10949.D Analyst approved: 01/12/23 11:46 Martha Valls
Injection Time: 01/11/23 11:50 Supervisor approved: 01/12/23 15:42 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
8:2 Fluorotelomer sulfonate	39108-34-4		8.02	Split peak
MeFOSAA	2355-31-9		8.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.42	Split peak
EtFOSAA	2991-50-6		8.50	Split peak

7.7.2.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q10950.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/11/2023 12:04:23 PM
 Sample Name : ic174-2
 Vial : P1-A3
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : S6Q174.batch.bin
 Sample Information : OP94795,S6Q174,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	96471	10.00 µg/L	0.000
M5-PFPeA	4.397	268.3 -> 223.0	45556	5.00 µg/L	0.000
M5-PFHxA	5.588	318.0 -> 273.0	41606	2.50 µg/L	0.000
M4-PFHpA	6.542	367.1 -> 322.0	42417	2.50 µg/L	0.000
M8-PFOA	7.185	421.1 -> 376.0	70596	2.50 µg/L	-0.013
M9-PFNA	7.740	472.1 -> 427.0	33207	1.25 µg/L	0.000
M6-PFDA	8.245	519.1 -> 474.1	23482	1.25 µg/L	0.000
M7-PFUnDA	8.712	570.0 -> 525.1	26775	1.25 µg/L	0.000
M2-PFDoDA	9.154	615.1 -> 570.0	29295	1.25 µg/L	0.000
M2-PFTeDA	9.893	715.2 -> 670.0	18145	1.25 µg/L	0.000
M8-FOSA	9.568	506.1 -> 77.8	20223	2.50 µg/L	0.000
M3-PFBS	5.544	302.1 -> 79.9	14663	2.50 µg/L	-0.012
M3-PFHxS	7.325	402.1 -> 79.9	9171	2.50 µg/L	-0.012
M8-PFOS	8.420	507.1 -> 79.9	9854	2.50 µg/L	0.000
M2-4:2FTS	5.253	329.1 -> 80.9	2021	5.00 µg/L	0.000
M2-6:2FTS	6.946	429.1 -> 80.9	2833	5.00 µg/L	-0.012
M2-8:2FTS	8.019	529.1 -> 80.9	2843	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	30082	5.00 µg/L	0.000
M3-HFPO-DA	5.965	286.9 -> 168.9	16696	10.00 µg/L	-0.012
M5-EtFOSAA	8.485	589.2 -> 419.0	23900	5.00 µg/L	0.000
M7-MeFOSE	10.591	623.2 -> 58.9	36939	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	29016	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	10178	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	9116	2.50 µg/L	0.000
13C4-PFOS	8.421	502.8 -> 79.9	11165	2.50 µg/L	0.000
13C3-PFBA	3.004	216.0 -> 172.0	42355	5.00 µg/L	0.000
18O2-PFHxS	7.324	403.0 -> 83.9	7223	2.50 µg/L	-0.012
13C4-PFOA	7.185	417.1 -> 372.0	83876	2.50 µg/L	-0.013
13C2-PFDA	8.233	515.1 -> 470.1	29888	1.25 µg/L	-0.012
13C5-PFNA	7.740	468.0 -> 423.0	36626	1.25 µg/L	0.000
13C2-PFHxA	5.589	315.1 -> 270.0	42110	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.253	329.1 -> 80.9	2021	5.36 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.3%		
13C2-6:2FTS	6.946	429.1 -> 80.9	2833	5.49 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.8%		
13C2-8:2FTS	8.019	529.1 -> 80.9	2843	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C2-PFDoDA	9.154	615.1 -> 570.0	29295	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C2-PFTeDA	9.893	715.2 -> 670.0	18145	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C3-PFBS	5.544	302.1 -> 79.9	14663	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C3-PFHxS	7.325	402.1 -> 79.9	9171	2.34 µg/L	-0.012

7.7.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C4-PFBA	3.000	216.8 -> 171.9	96471	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.542	367.1 -> 322.0	42417	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C5-PFHxA	5.588	318.0 -> 273.0	41606	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C5-PFPeA	4.397	268.3 -> 223.0	45556	4.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C6-PFDA	8.245	519.1 -> 474.1	23482	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.4%	
13C7-PFUnDA	8.712	570.0 -> 525.1	26775	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C8-FOSA	9.568	506.1 -> 77.8	20223	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.3%	
13C8-PFOA	7.185	421.1 -> 376.0	70596	2.51 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C8-PFOS	8.420	507.1 -> 79.9	9854	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.5%	
13C9-PFNA	7.740	472.1 -> 427.0	33207	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.1%	
d3-MeFOSAA	8.277	573.2 -> 419.0	30082	5.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.9%	
13C3-HFPO-DA	5.965	286.9 -> 168.9	16696	9.61 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
d3-MeFOSA	10.683	515.0 -> 219.0	9116	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%	
d5-EtFOSAA	8.485	589.2 -> 419.0	23900	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
d7-MeFOSE	10.591	623.2 -> 58.9	36939	25.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
d9-EtFOSE	10.849	639.2 -> 58.9	29016	26.70 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.8%	
d5-EtFOSA	10.927	531.1 -> 219.0	10178	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.3%	
Target Compounds					QValue
4:2FTS	5.254	327.1 -> 307.0	8069	1.68 µg/L	97
		327.1 -> 80.9	1802		
6:2FTS	6.946	427.1 -> 407.0	7000	1.59 µg/L	96
		427.1 -> 80.9	1499		
8:2FTS	8.020	527.1 -> 507.0	4258	1.80 µg/L	99
		527.1 -> 80.8	1056		
EtFOSAA	8.486	584.2 -> 419.1	1634	0.43 µg/L	m 90
		584.2 -> 526.0	878		
FOSA	9.571	498.1 -> 77.9	3862	0.47 µg/L	99
		498.1 -> 478.0	137		
MeFOSAA	8.278	570.1 -> 419.0	2473	0.40 µg/L	m 85
		570.1 -> 483.0	547		
PFBA	2.994	212.8 -> 168.9	4463	1.80 µg/L	100
PFBS	5.544	298.7 -> 79.9	2414	0.41 µg/L	97
		298.7 -> 98.8	1214		
PFDA	8.246	512.9 -> 469.0	12094	0.43 µg/L	98
		512.9 -> 219.0	1676		
PFDODA	9.154	613.1 -> 569.0	10142	0.44 µg/L	99
		613.1 -> 319.0	1204		
PFDS	9.329	599.0 -> 79.9	1457	0.43 µg/L	98

7.7.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	796			
PFHpA	6.542	363.1 -> 319.0	11616	0.45	µg/L	95
		363.1 -> 169.0	1722			
PFHpS	7.905	449.0 -> 79.9	2021	0.45	µg/L	86
		449.0 -> 98.9	1032			
PFHxA	5.591	313.0 -> 269.0	7750	0.46	µg/L	100
		313.0 -> 118.9	328			
PFHxS	7.326	398.7 -> 79.9	2007	0.46	µg/L	m 88
		398.7 -> 98.9	1023			
PFNA	7.740	463.0 -> 419.0	10207	0.44	µg/L	98
		463.0 -> 219.0	1797			
PFNS	8.899	548.8 -> 79.9	1917	0.40	µg/L	93
		548.8 -> 98.9	1241			
PFOA	7.186	413.0 -> 369.0	14117	0.45	µg/L	97
		413.0 -> 169.0	1861			
PFOS	8.421	498.9 -> 79.9	1775	0.37	µg/L	m 94
		498.9 -> 98.8	1177			
PFPeA	4.401	263.0 -> 219.0	9136	0.91	µg/L	100
PFPeS	6.619	349.1 -> 79.9	2273	0.44	µg/L	95
		349.1 -> 98.9	1275			
PFTeDA	9.894	713.1 -> 669.0	9569	0.44	µg/L	99
		713.1 -> 168.9	591			
PFTrDA	9.550	663.0 -> 619.0	10505	0.48	µg/L	96
		663.0 -> 168.9	759			
PFUnDA	8.712	563.1 -> 519.0	9731	0.43	µg/L	94
		563.1 -> 269.1	1685			
11Cl-PF3OUdS	9.614	630.9 -> 450.9	22312	1.76	µg/L	99
		632.9 -> 452.9	7117			
9Cl-PF3ONS	8.776	530.8 -> 351.0	35459	1.72	µg/L	98
		532.8 -> 353.0	11001			
ADONA	6.792	376.9 -> 250.9	64651	1.74	µg/L	97
		376.9 -> 84.8	14226			
HFPO-DA	5.966	284.9 -> 168.9	2974	1.76	µg/L	95
		284.9 -> 184.9	417			
3:3FTCA	3.839	241.0 -> 177.0	1206	2.26	µg/L	91
		241.0 -> 117.0	191			
5:3FTCA	6.219	341.0 -> 237.1	38836	11.11	µg/L	100
		341.0 -> 217.0	32766			
7:3FTCA	7.643	441.0 -> 316.9	26131	11.09	µg/L	97
		441.0 -> 336.9	54925			
EtFOSA	10.929	526.0 -> 219.0	2232	0.45	µg/L	96
		526.0 -> 169.0	2286			
EtFOSE	10.862	630.0 -> 58.9	5668	4.43	µg/L	100
MeFOSA	10.685	511.9 -> 219.0	1800	0.45	µg/L	99
		511.9 -> 169.0	1822			
MeFOSE	10.604	616.1 -> 58.9	7101	4.65	µg/L	100
PFDoDS	10.033	699.1 -> 79.9	949	0.45	µg/L	99
		699.1 -> 98.8	586			
NFDHA	5.483	295.0 -> 201.0	888	0.81	µg/L	87
		295.0 -> 84.9	462			
PFMBA	4.801	279.0 -> 85.1	2738	0.88	µg/L	100
PFMPA	3.550	229.0 -> 84.9	2563	0.93	µg/L	100
PFEESA	6.097	314.8 -> 134.9	18596	0.79	µg/L	99
		314.8 -> 82.9	530			

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

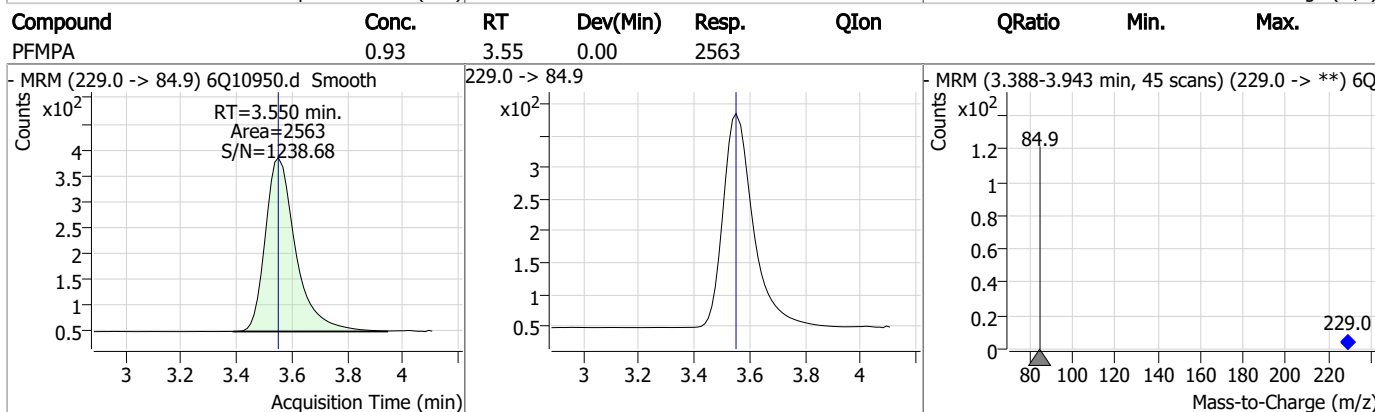
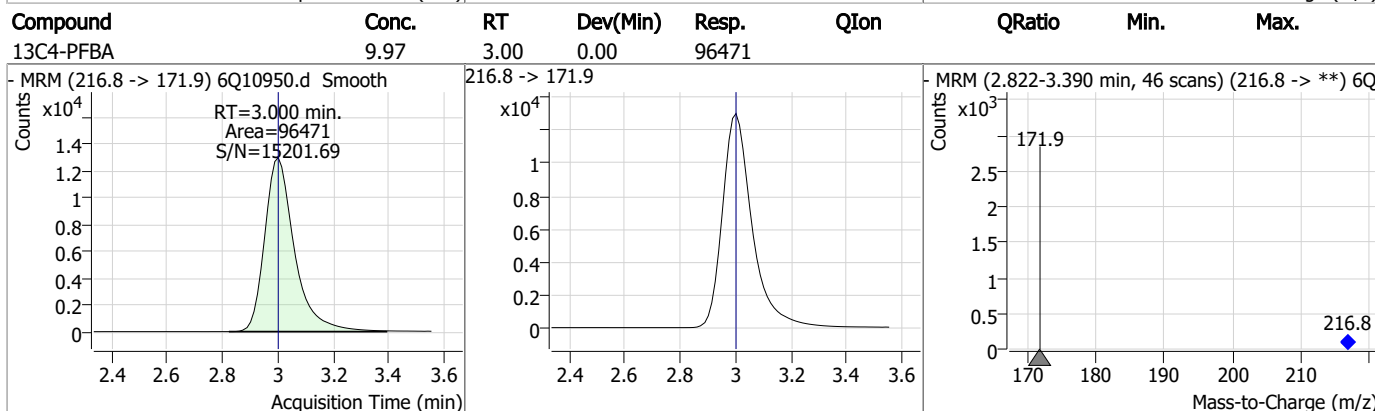
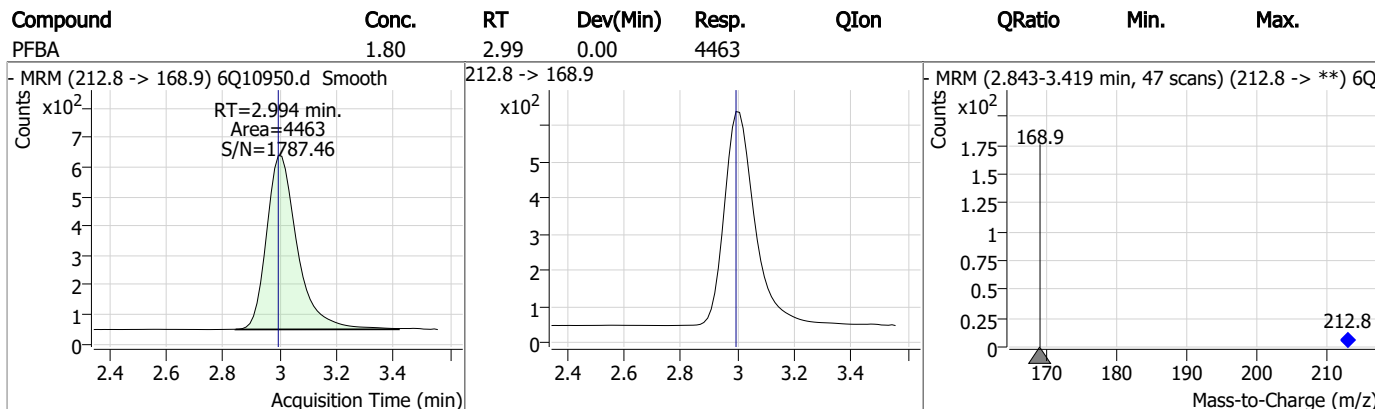
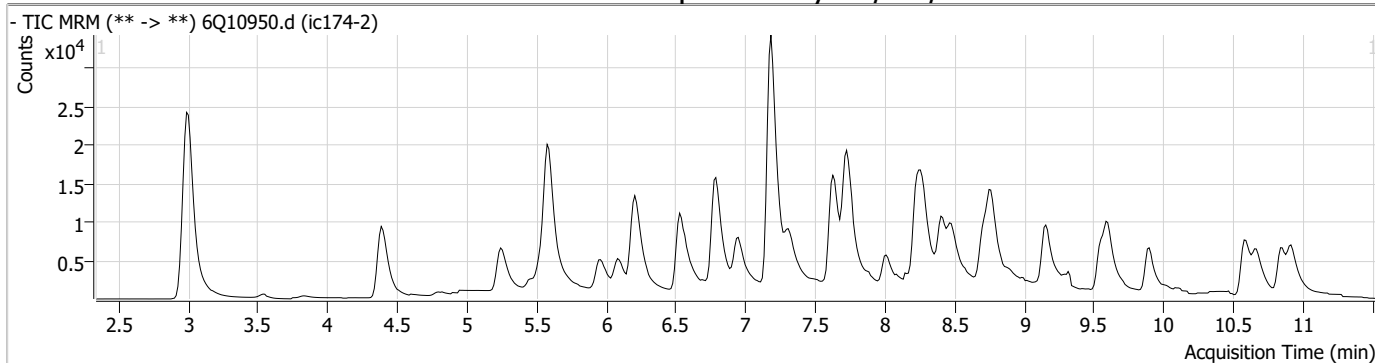
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.3

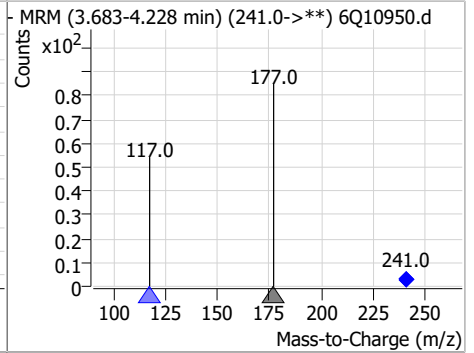
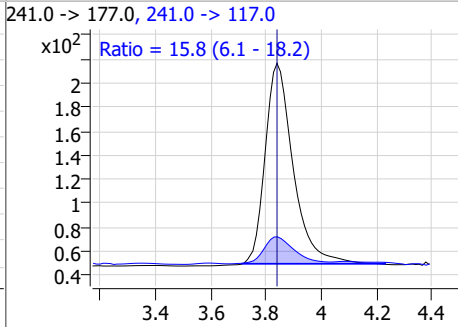
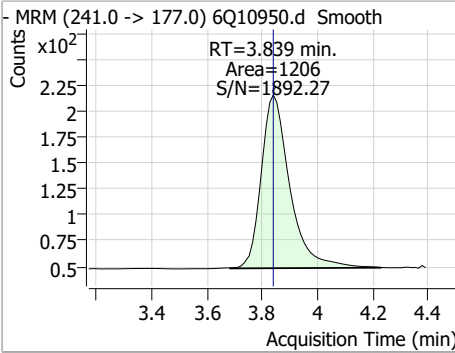
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Perfluorinated Compounds by LC/MS/MS

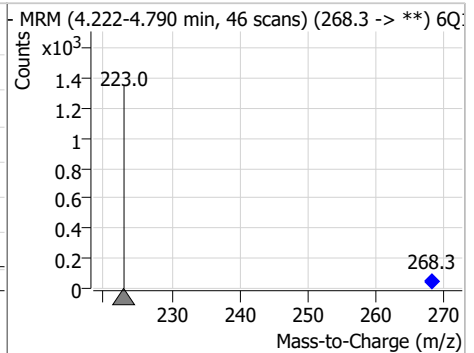
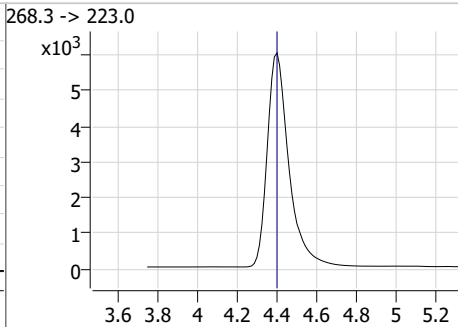
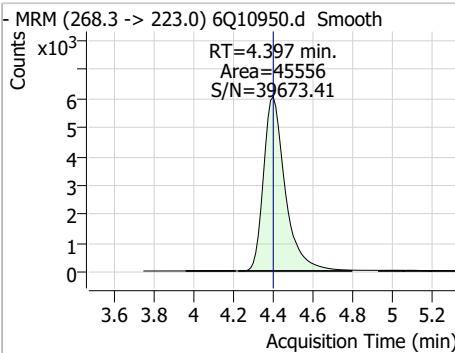


Perfluorinated Compounds by LC/MS/MS

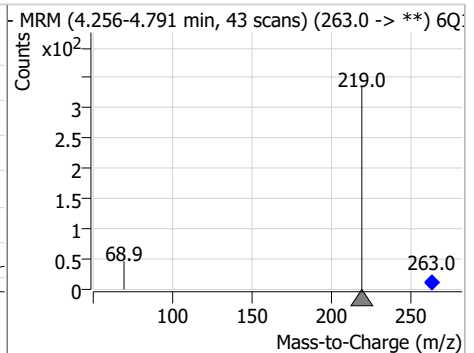
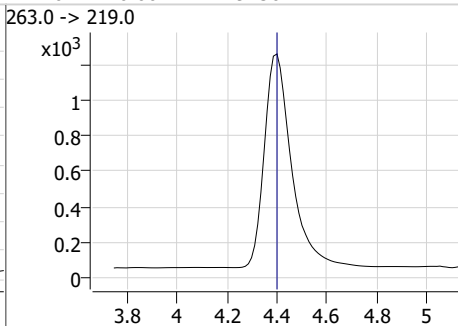
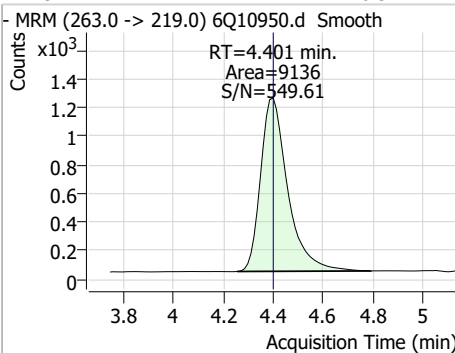
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	2.26	3.84	0.00	1206	241.0 -> 117.0	15.8	6.1	18.2



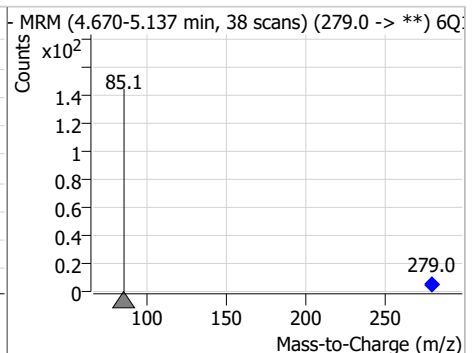
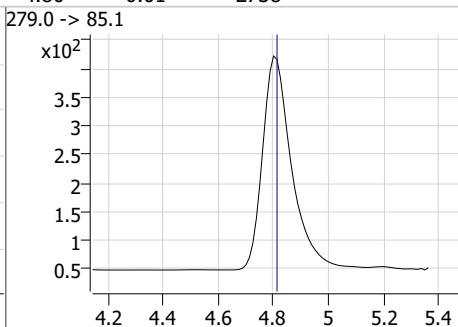
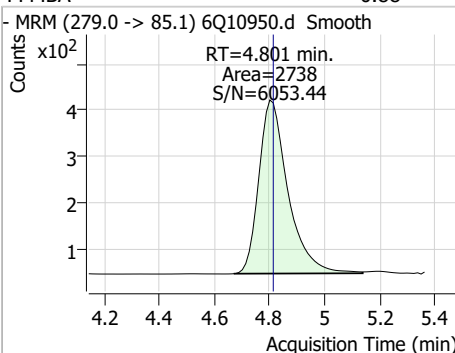
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.85	4.40	0.00	45556				



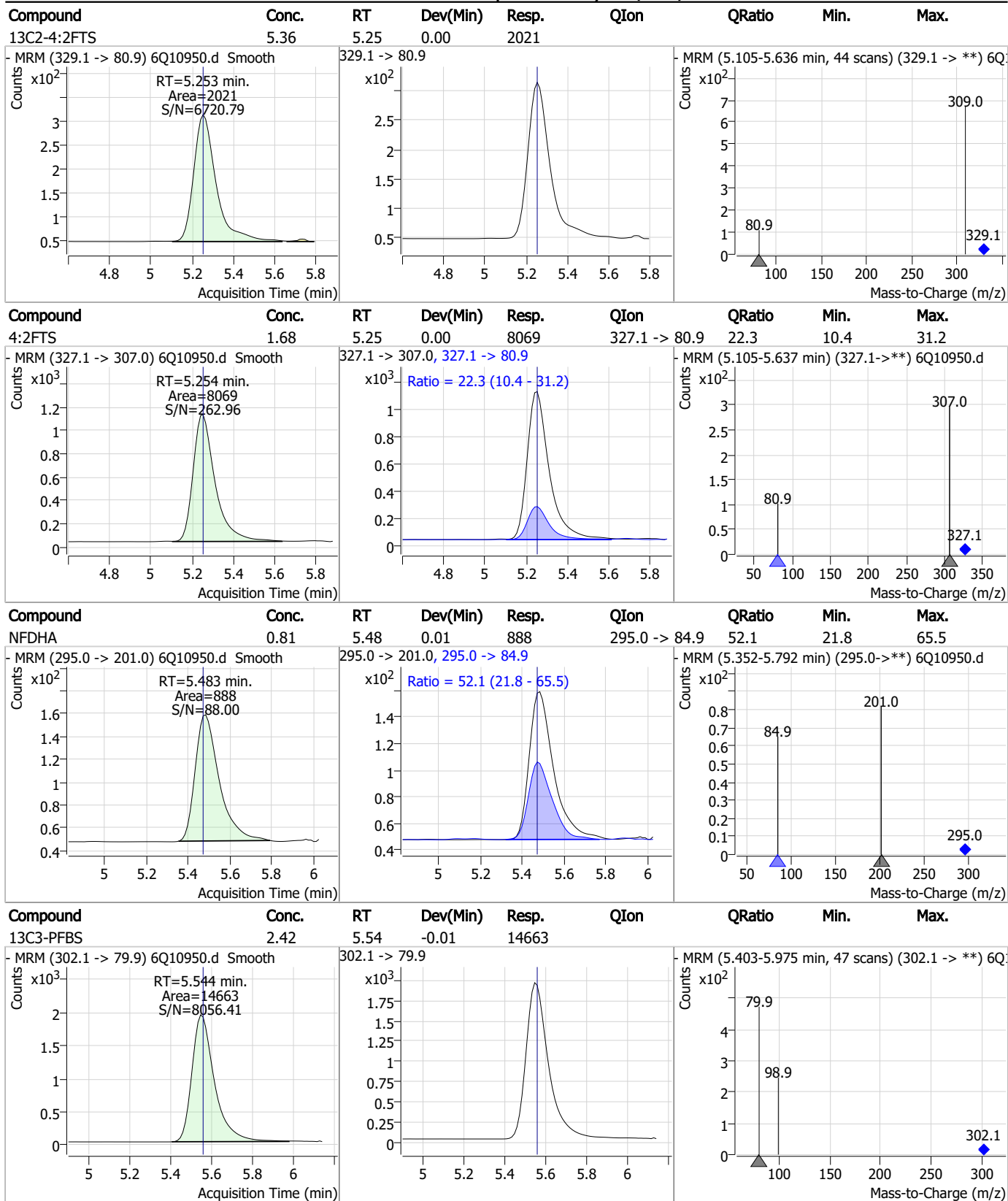
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.91	4.40	0.00	9136				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.88	4.80	-0.01	2738				

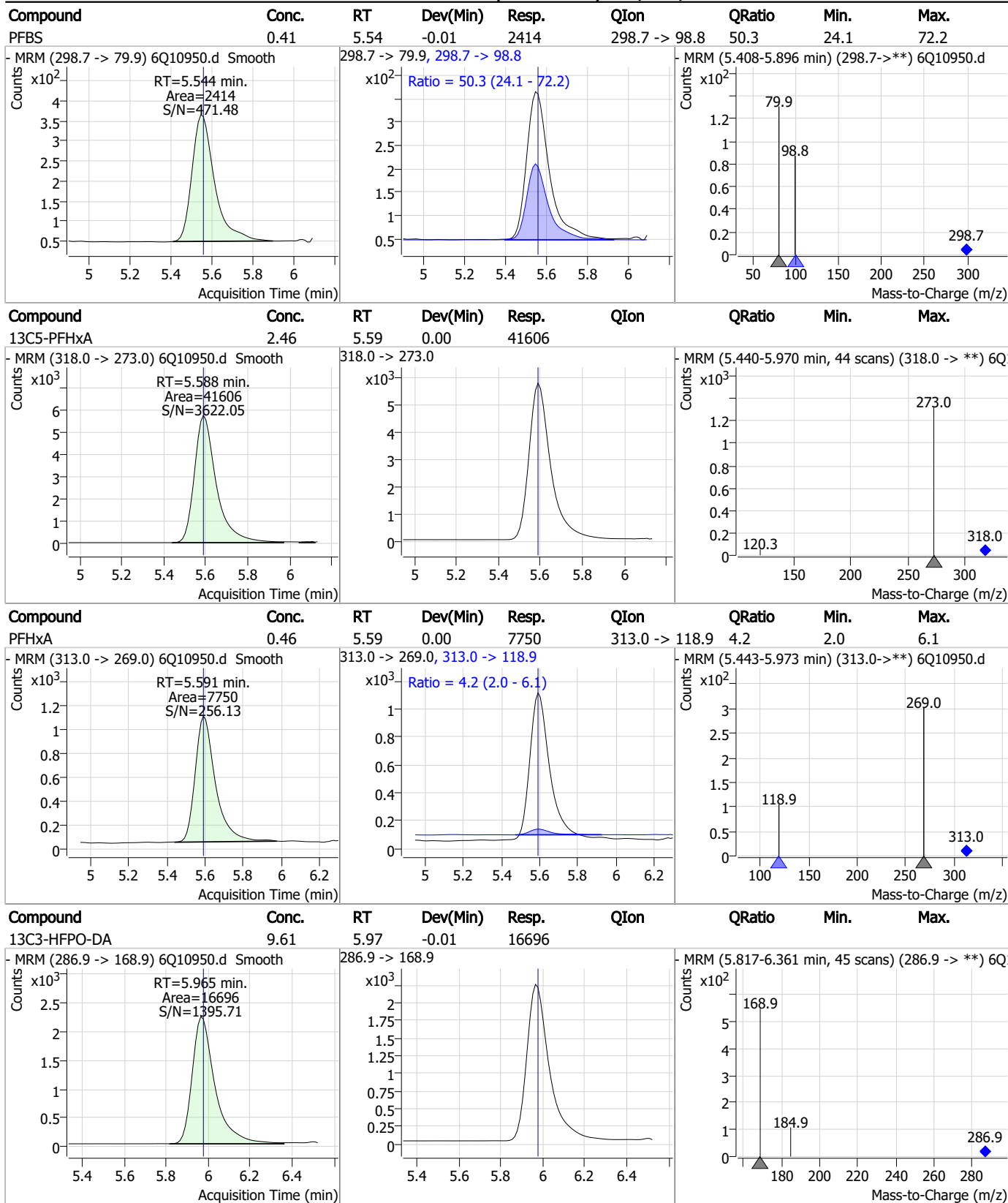


Perfluorinated Compounds by LC/MS/MS



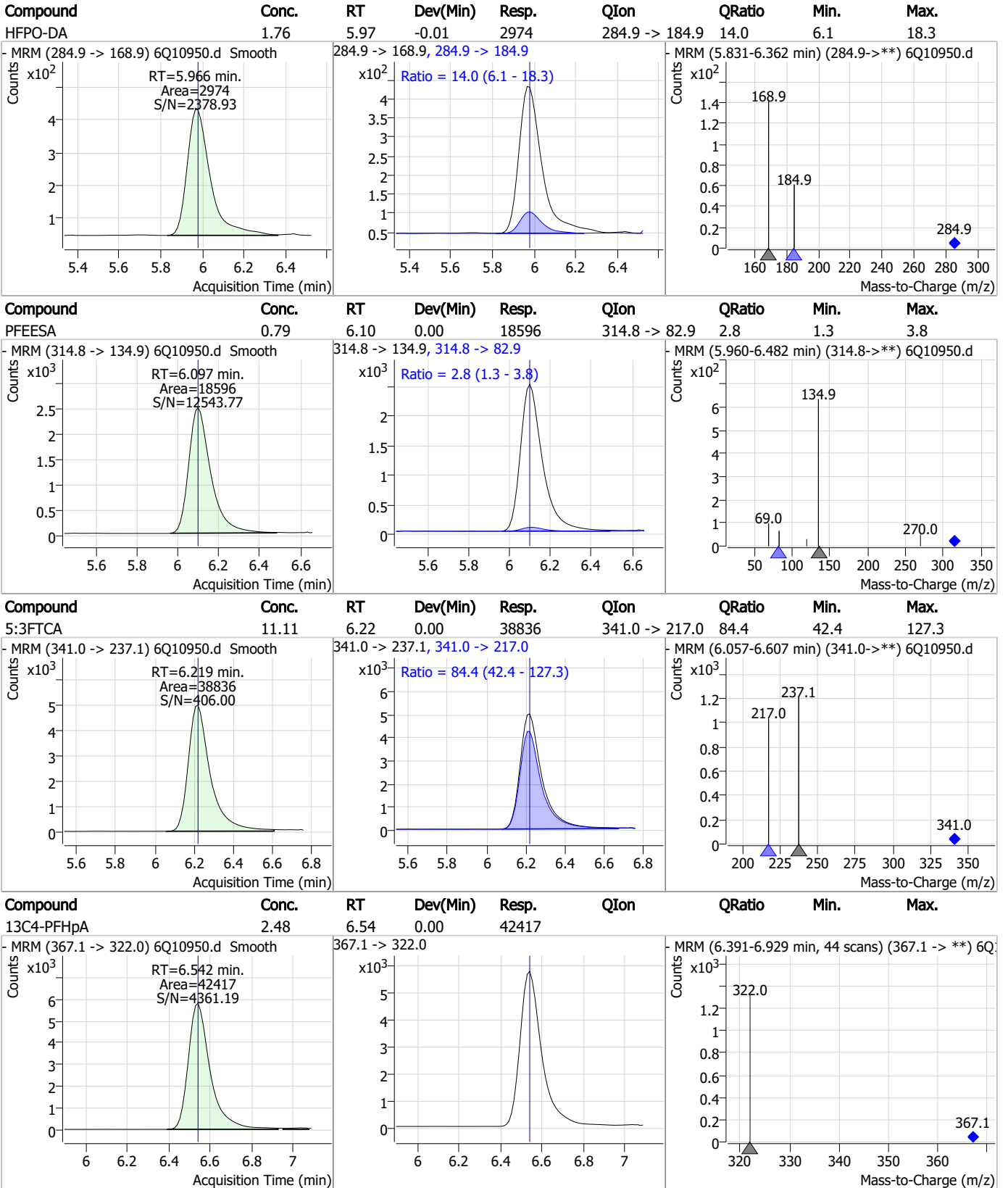
7.7.3
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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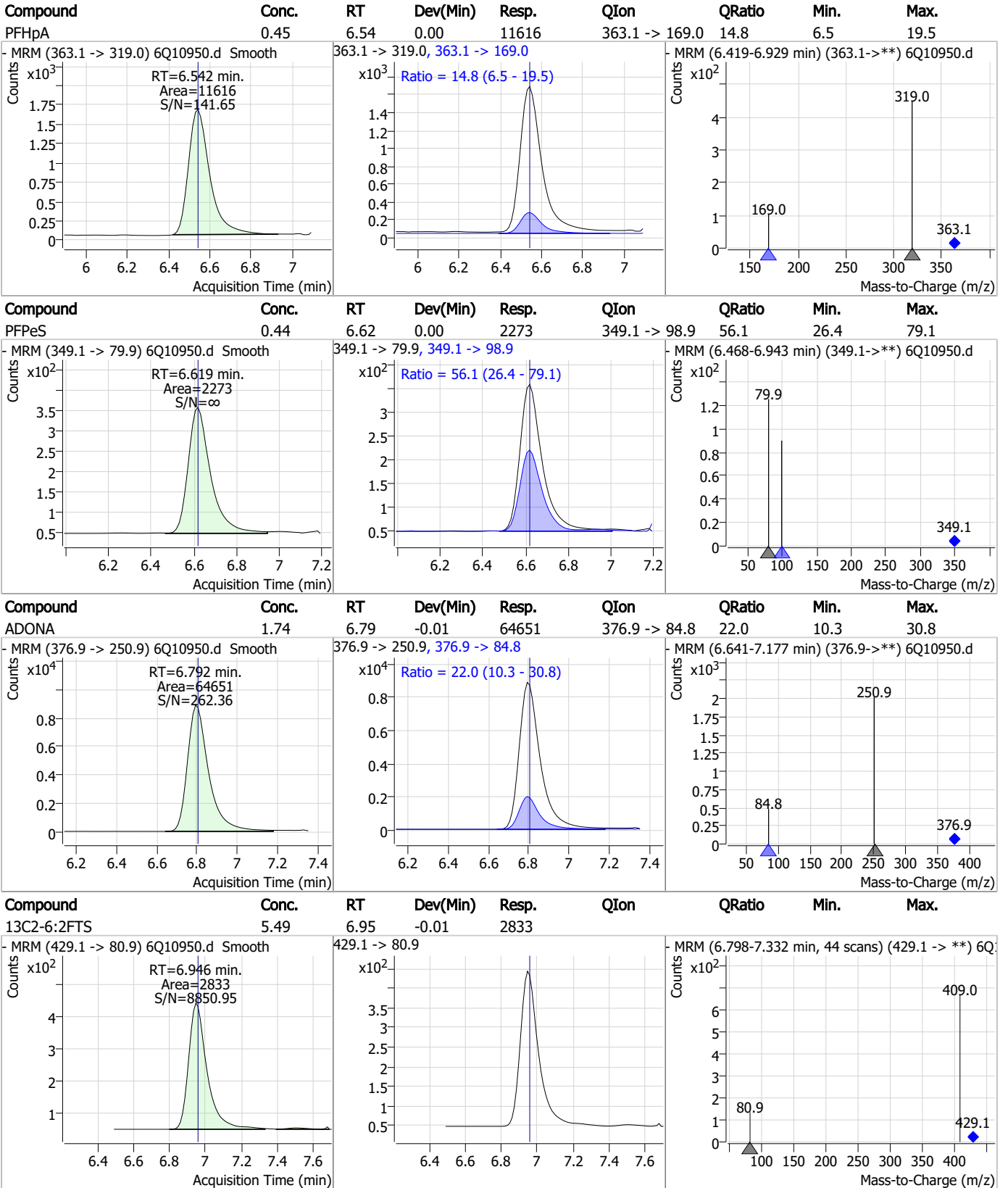
Perfluorinated Compounds by LC/MS/MS



7.7.3

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Perfluorinated Compounds by LC/MS/MS

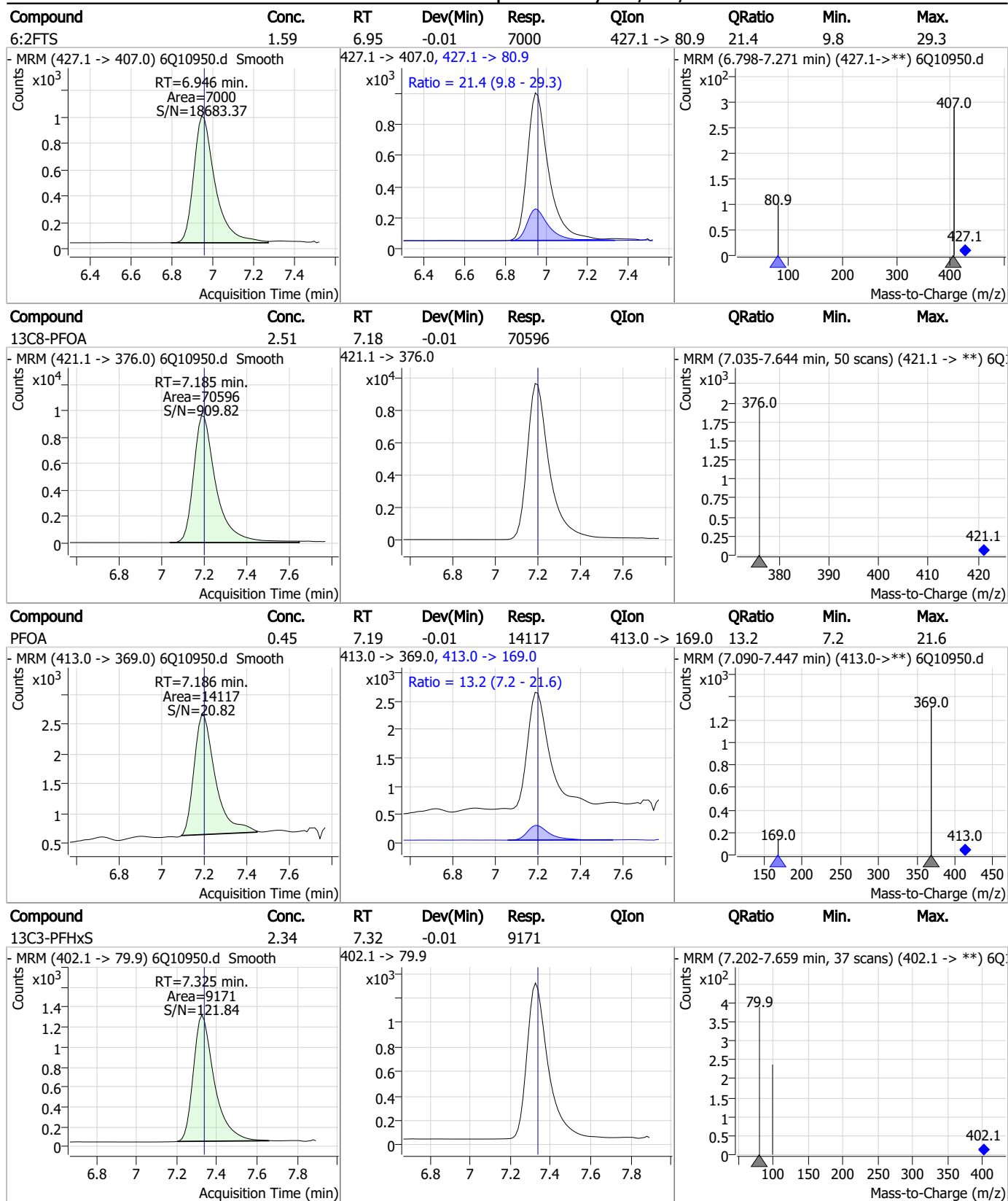


7.7.3

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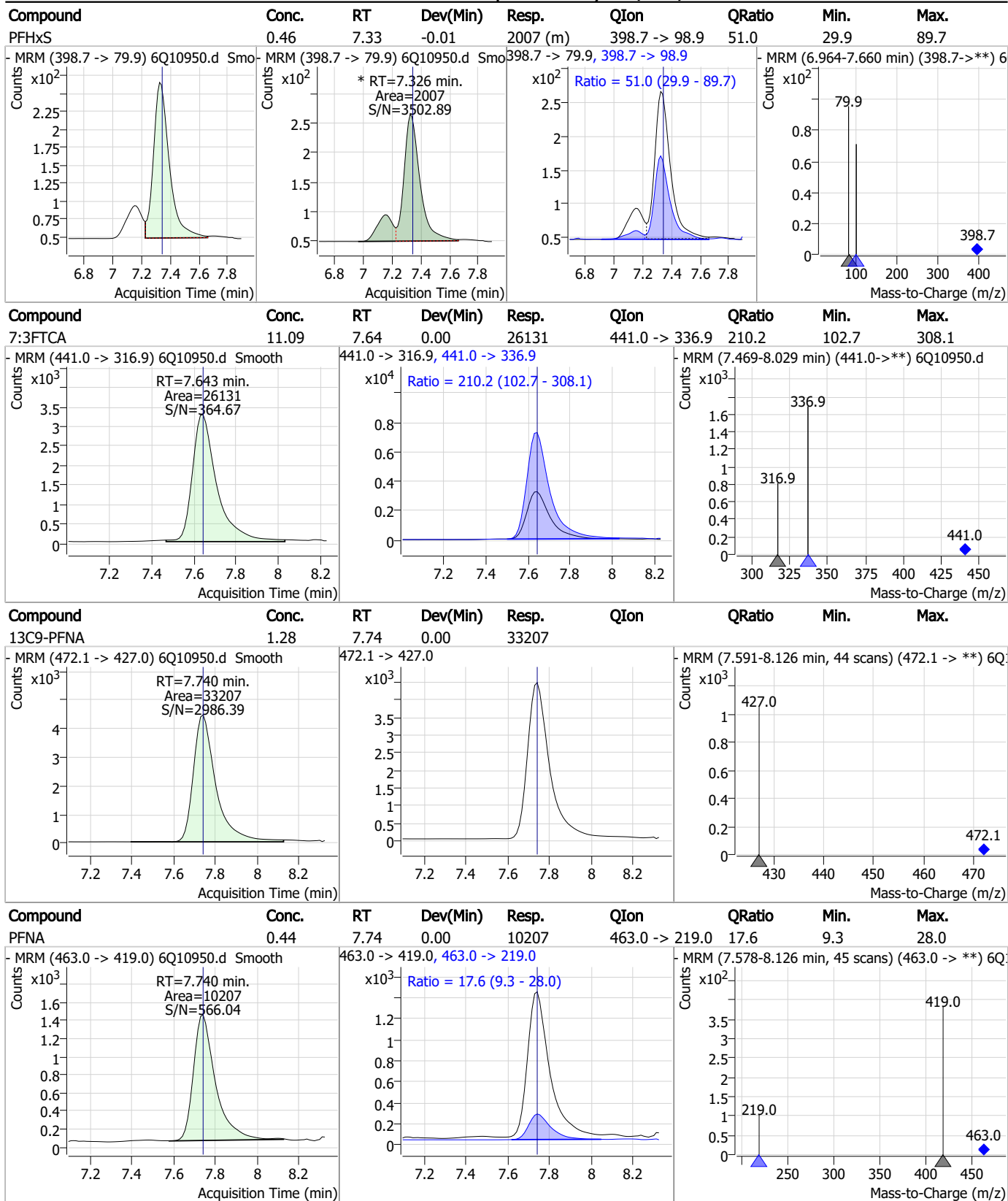
Perfluorinated Compounds by LC/MS/MS



7.7.3

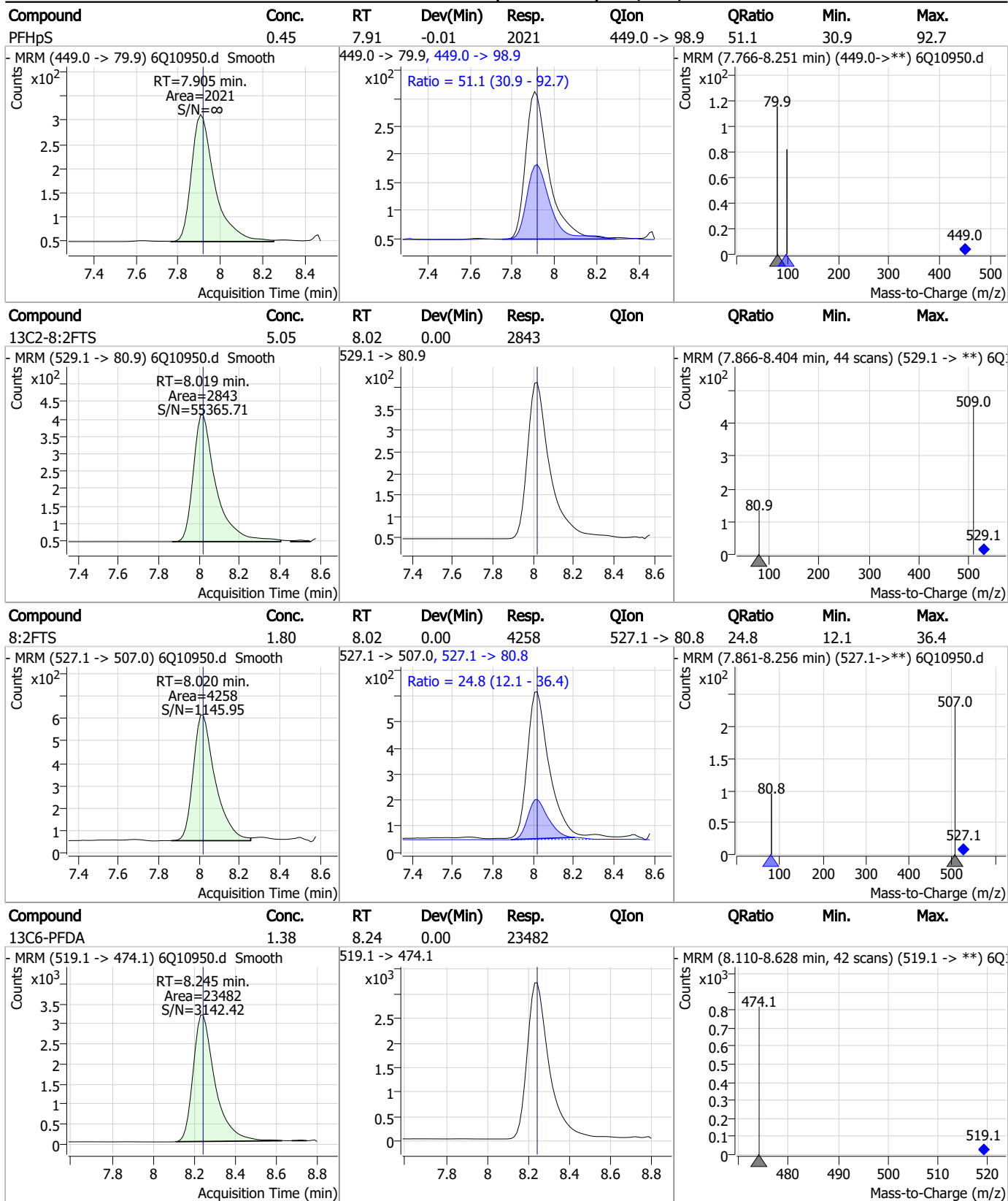
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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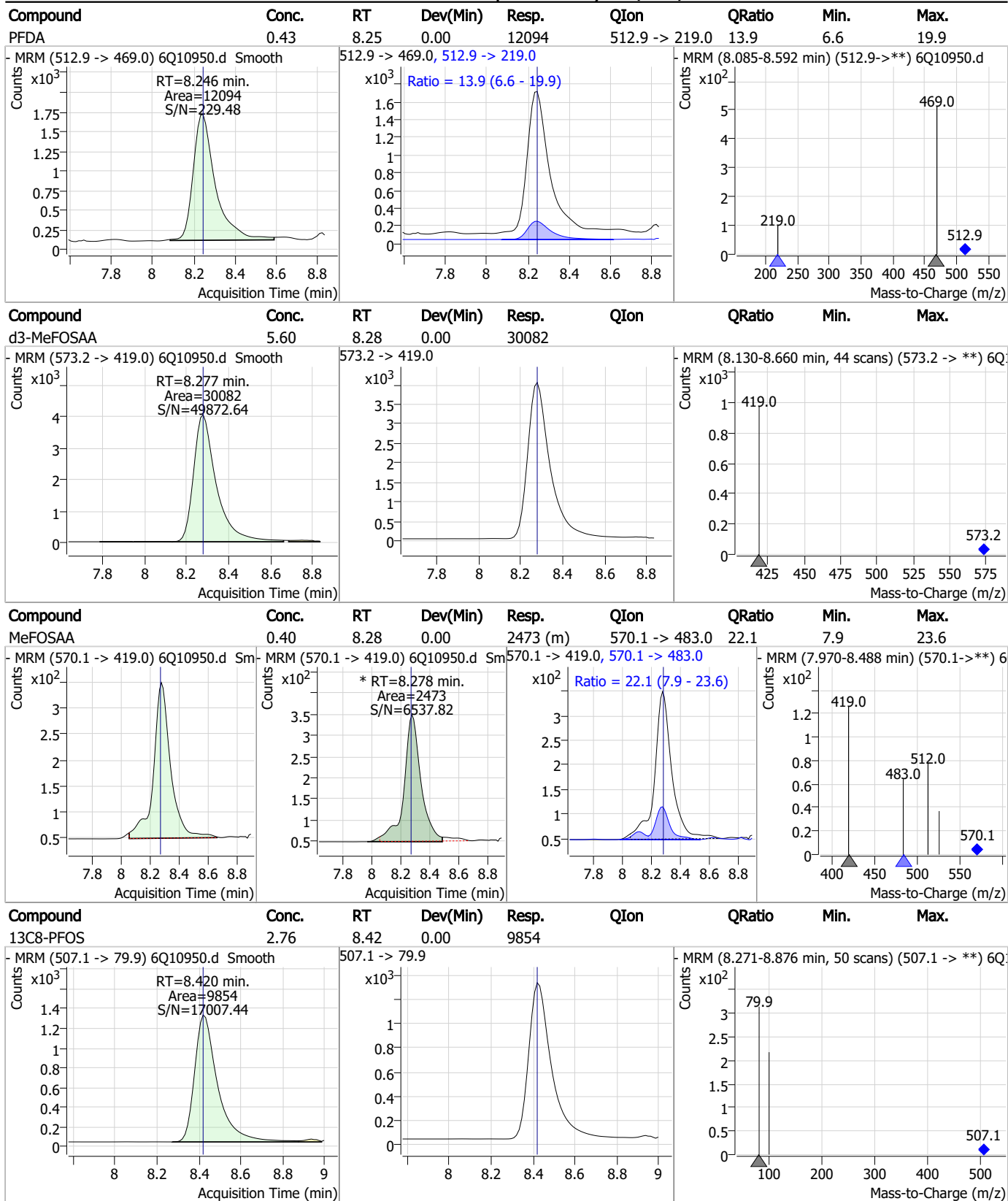
Perfluorinated Compounds by LC/MS/MS



7.7.3

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Perfluorinated Compounds by LC/MS/MS

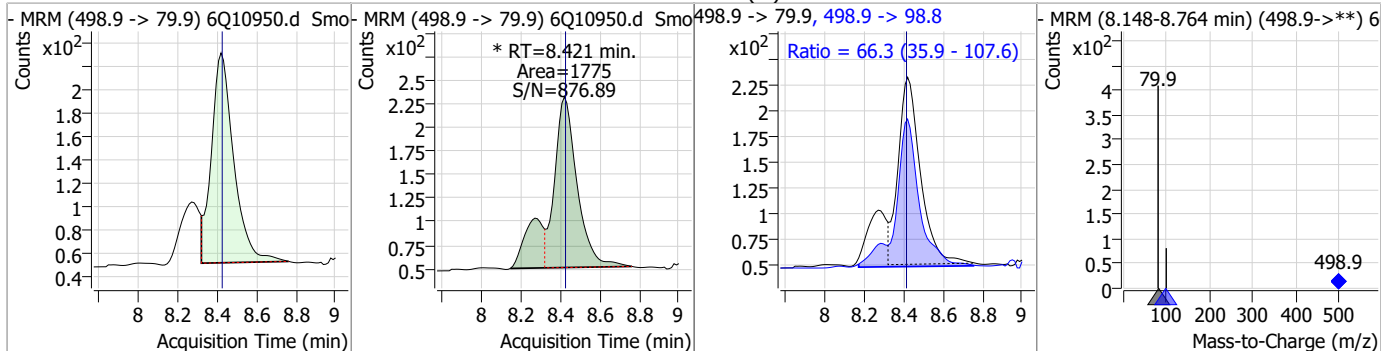


7.7.3

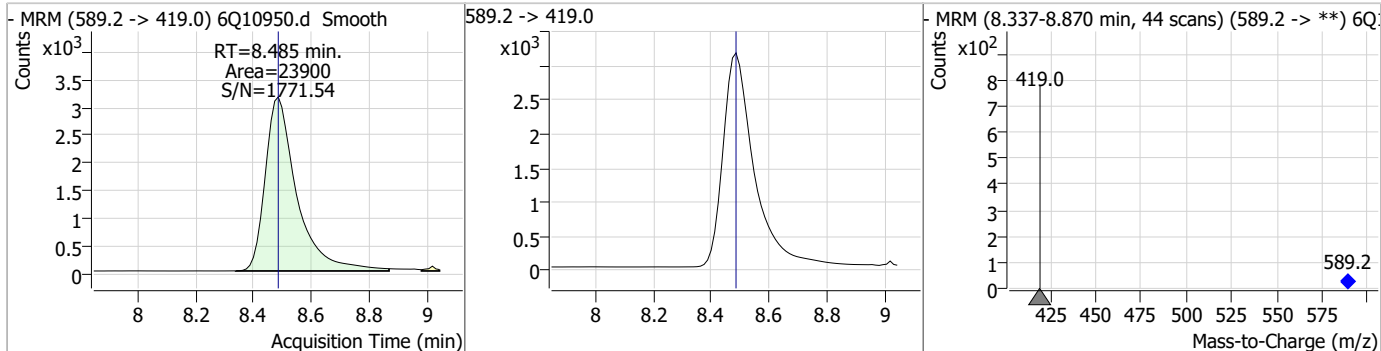
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Perfluorinated Compounds by LC/MS/MS

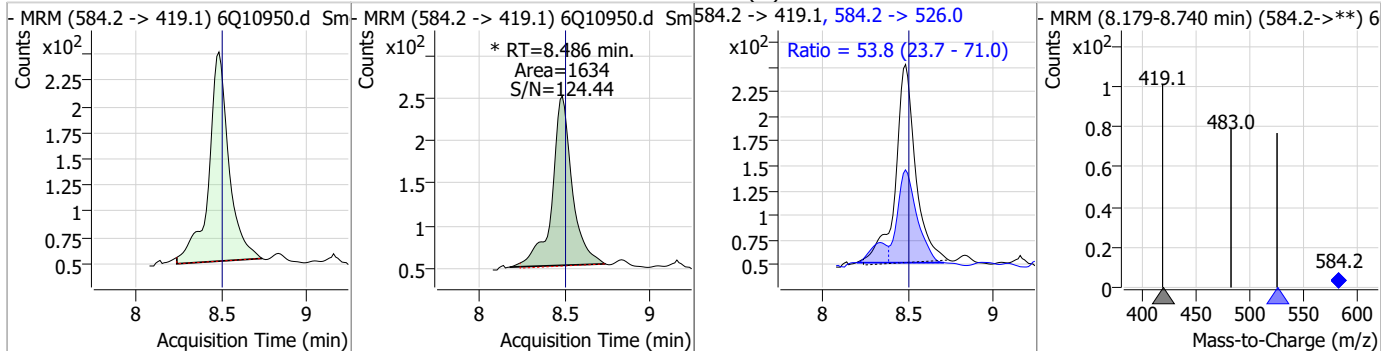
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.37	8.42	0.00	1775 (m)	498.9 -> 98.8	66.3	35.9	107.6



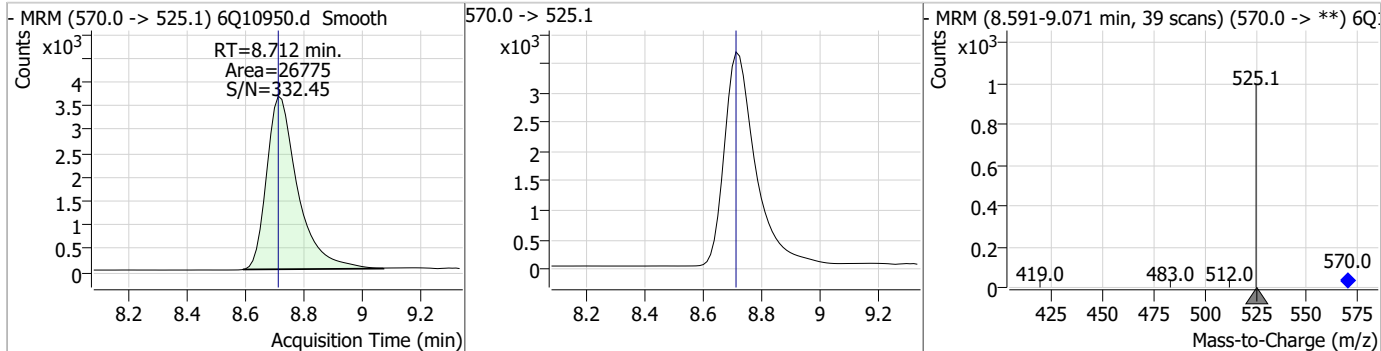
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.07	8.49	0.00	23900				



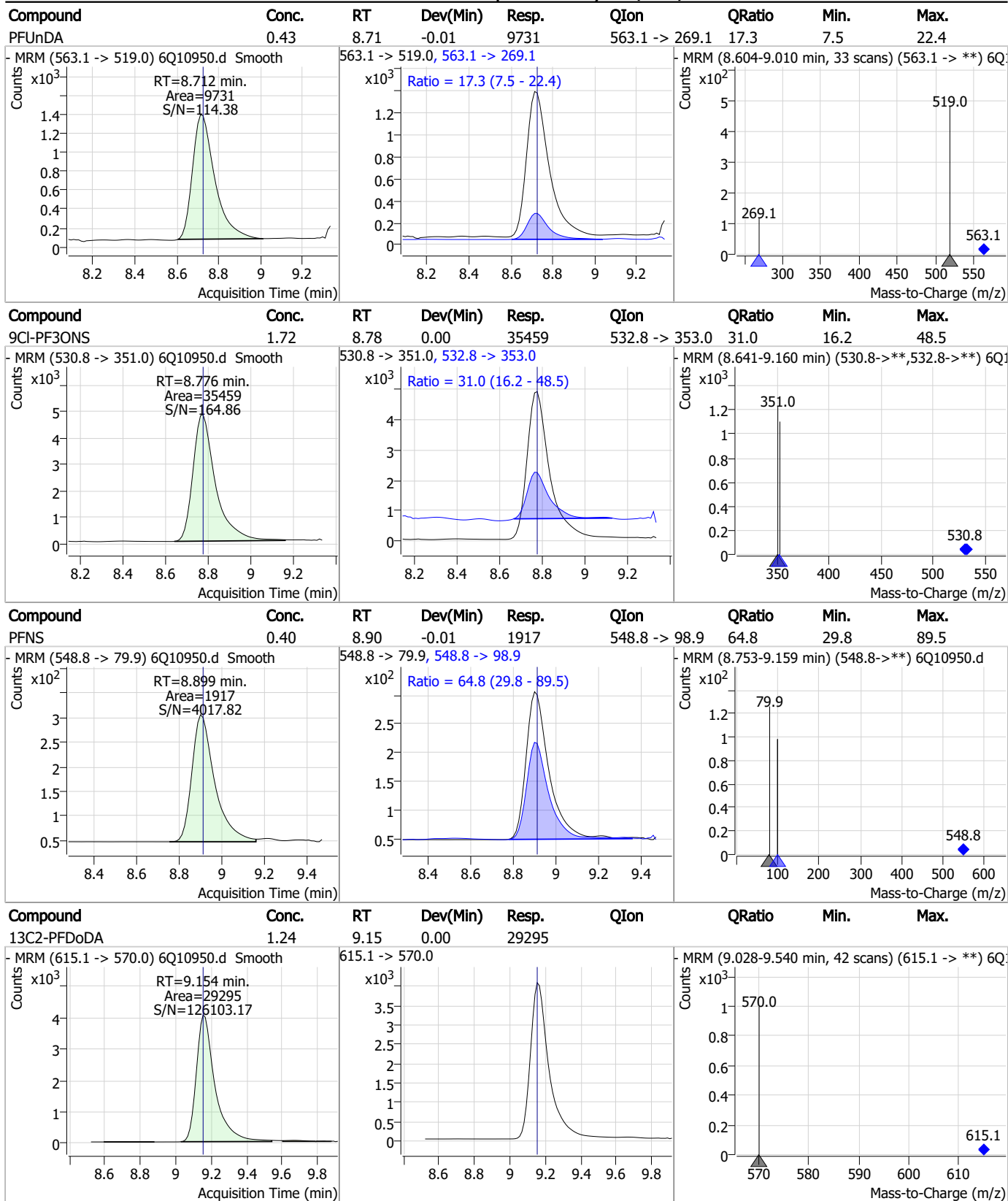
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.43	8.49	-0.01	1634 (m)	584.2 -> 526.0	53.8	23.7	71.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.29	8.71	0.00	26775				

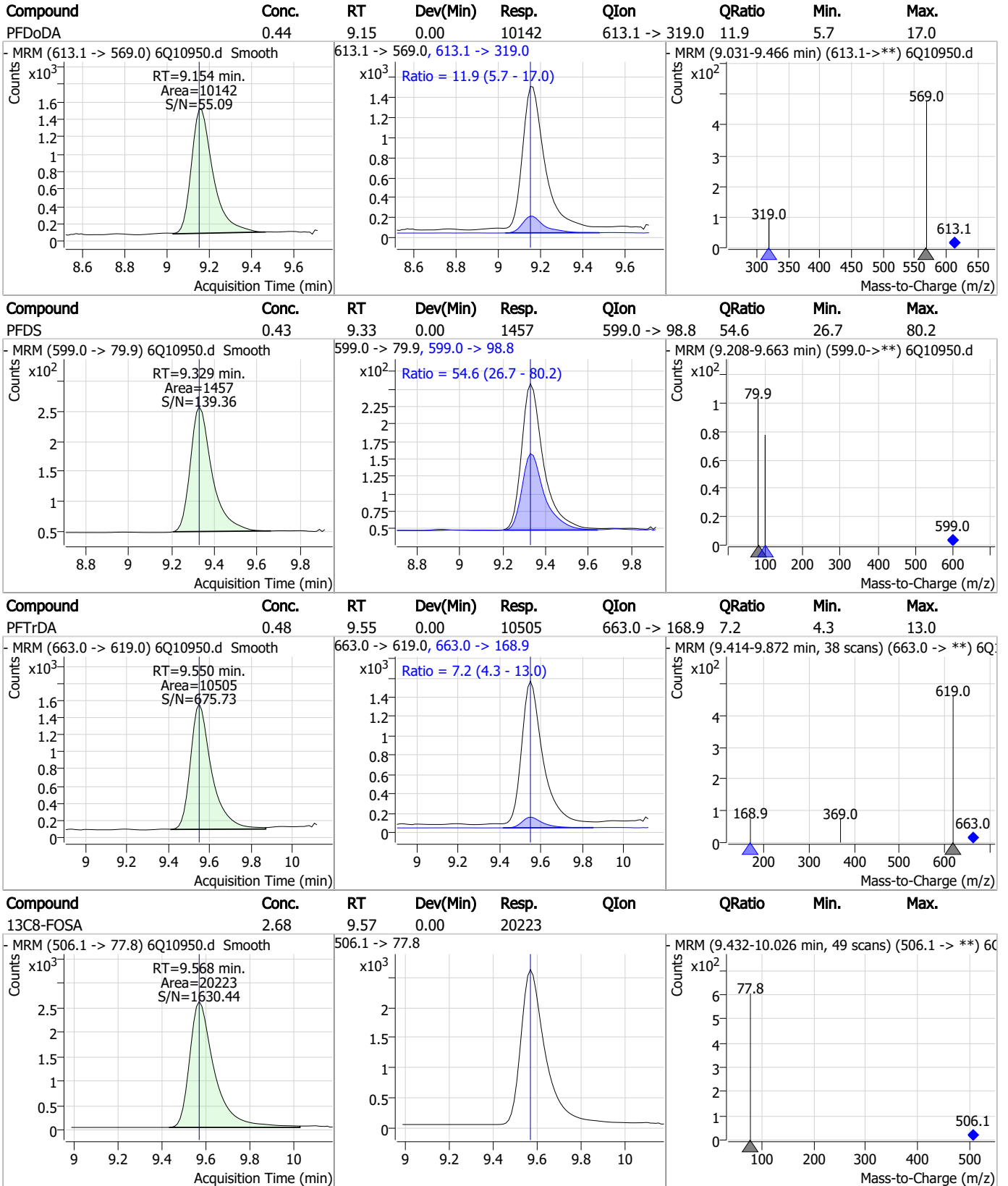


Perfluorinated Compounds by LC/MS/MS



7.7.3
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Perfluorinated Compounds by LC/MS/MS



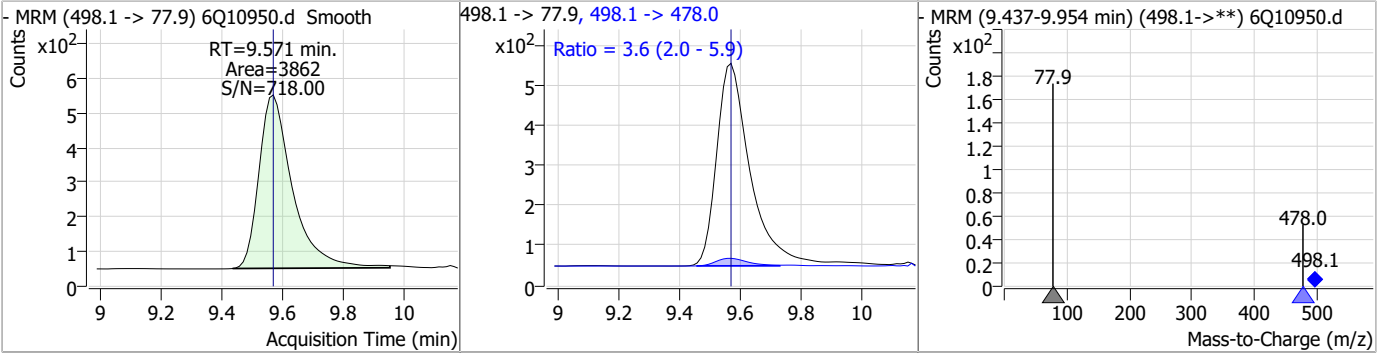
7.7.3

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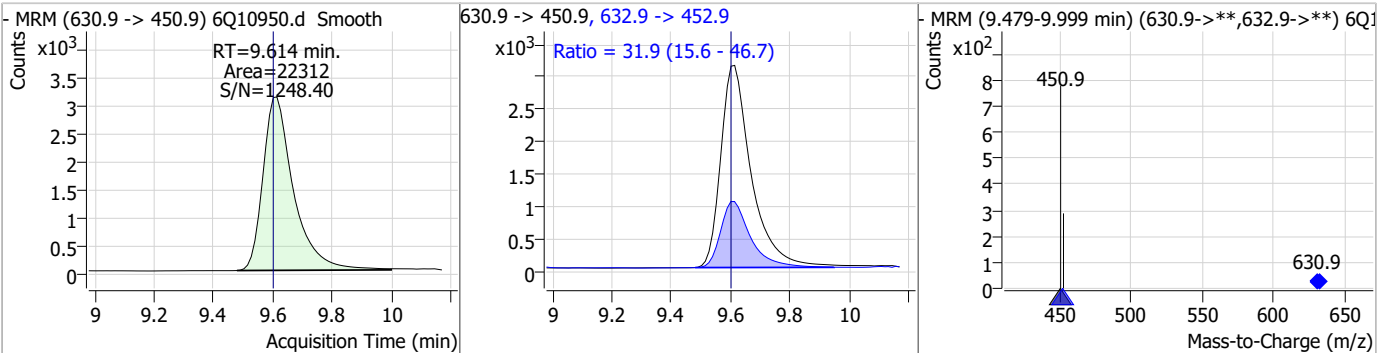


Perfluorinated Compounds by LC/MS/MS

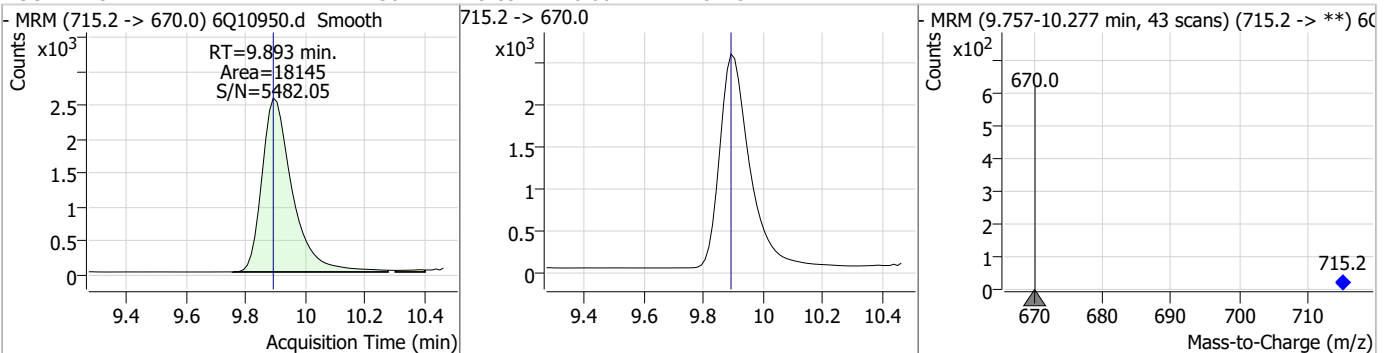
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.47	9.57	0.00	3862	498.1 -> 478.0	3.6	2.0	5.9



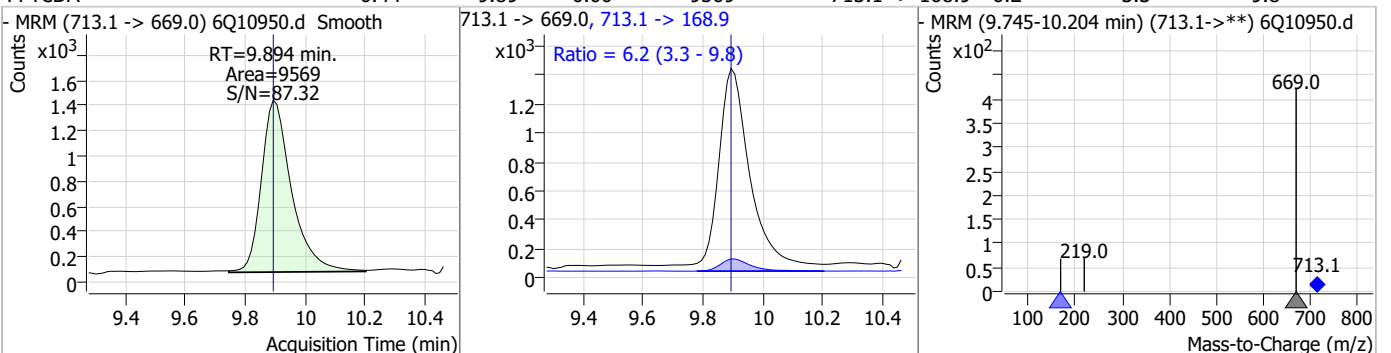
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	1.76	9.61	0.01	22312	632.9 -> 452.9	31.9	15.6	46.7



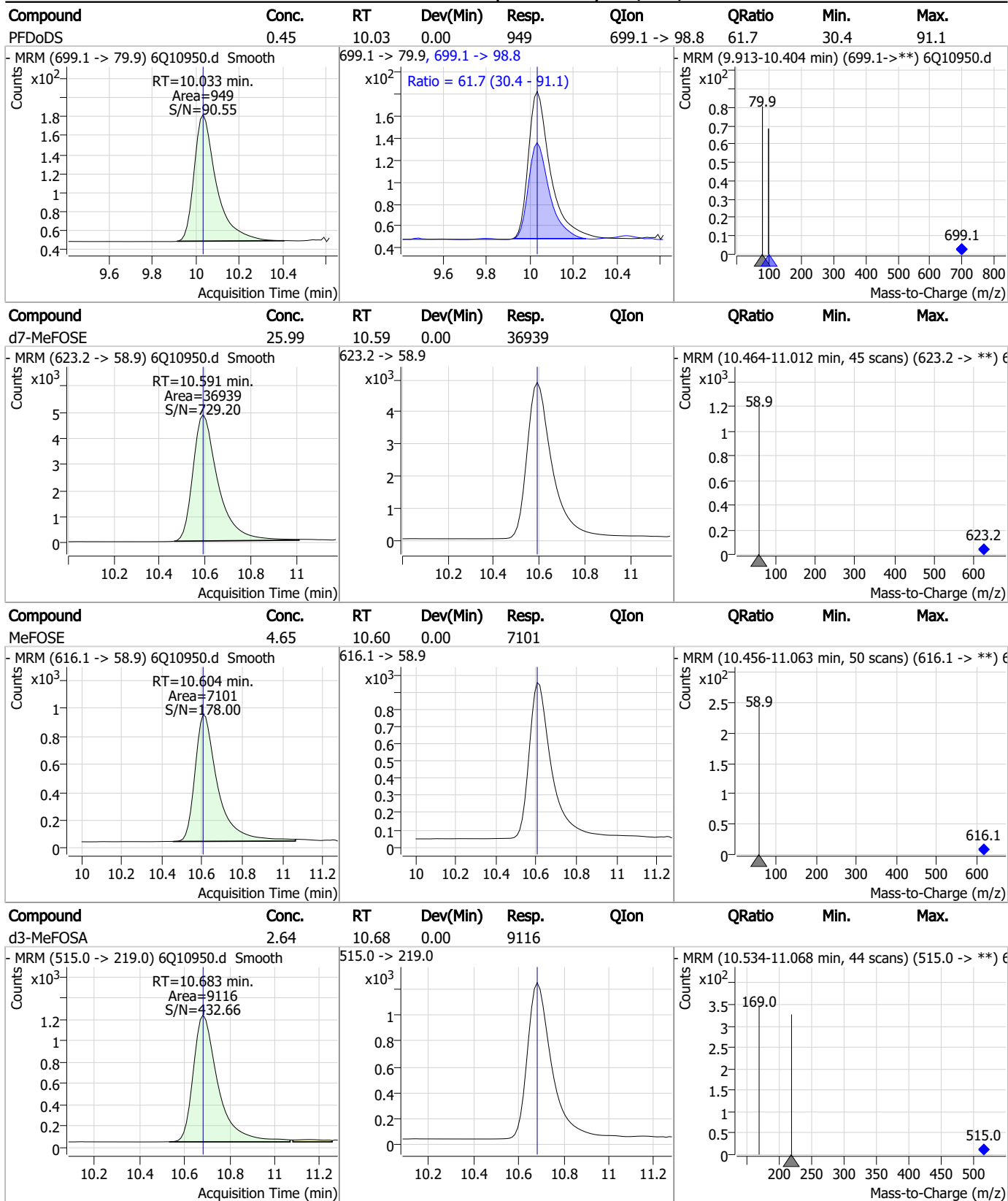
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.30	9.89	0.00	18145	715.2 -> 670.0	6.2	3.3	9.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.44	9.89	0.00	9569	713.1 -> 168.9	6.2	3.3	9.8



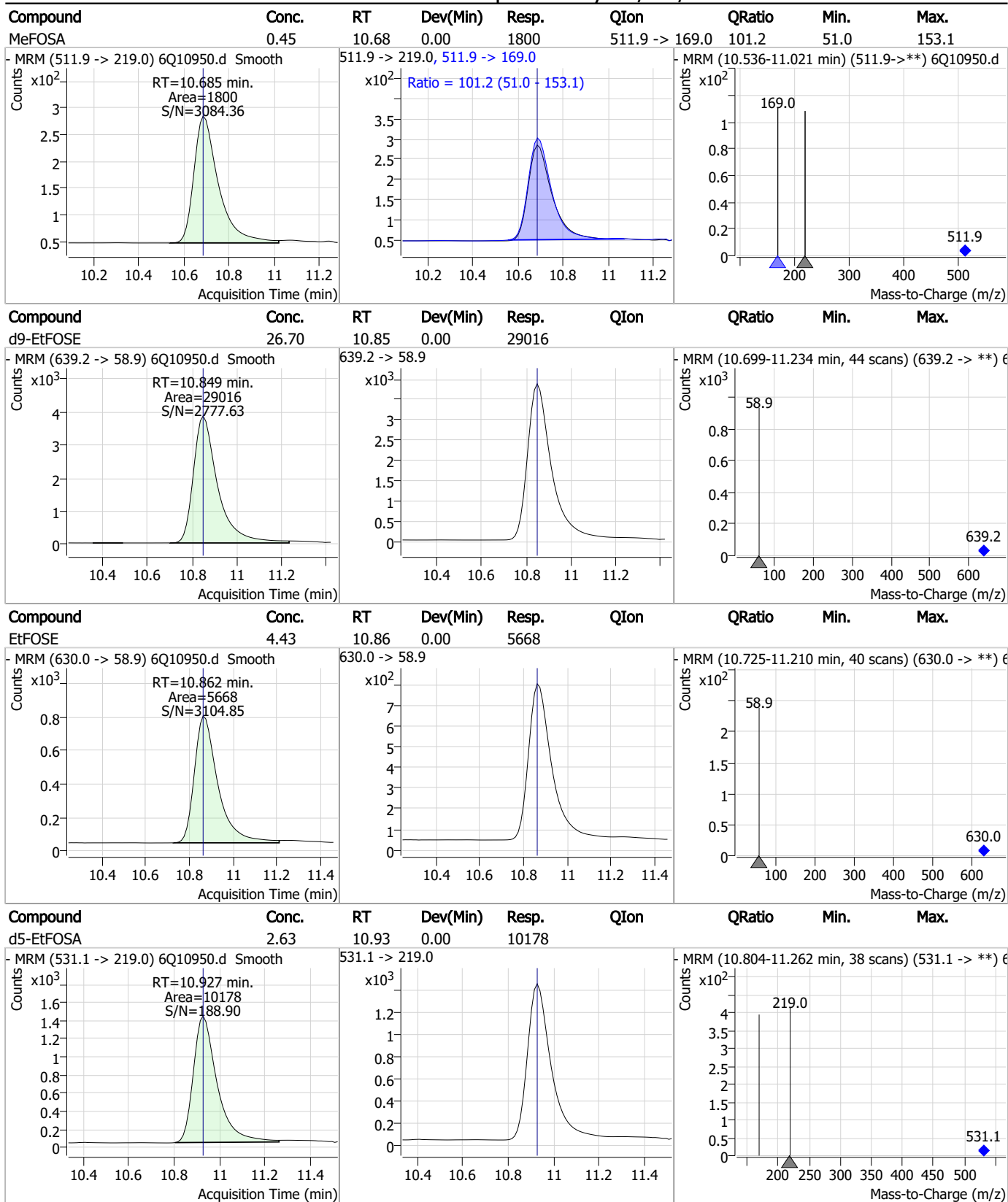
Perfluorinated Compounds by LC/MS/MS



7.7.3

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Perfluorinated Compounds by LC/MS/MS

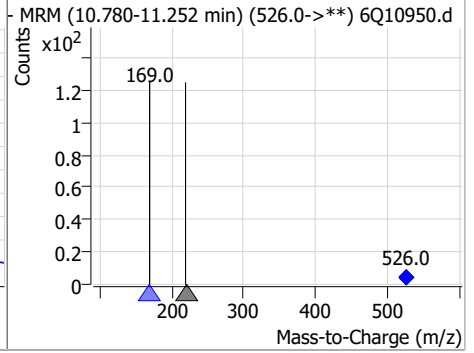
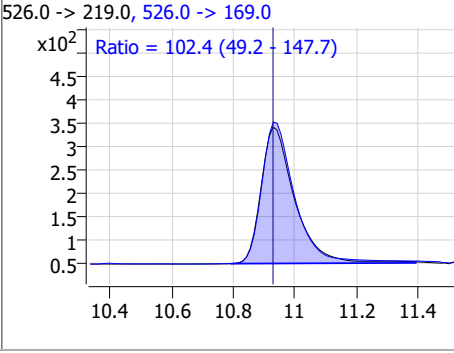
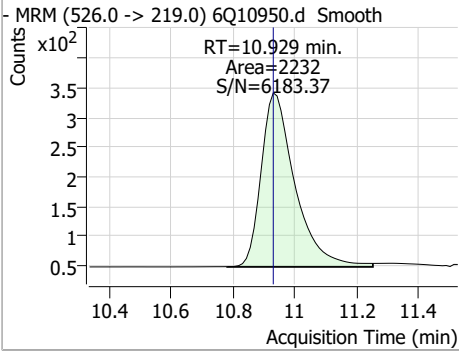


7.7.3

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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	0.45	10.93	0.00	2232	526.0 -> 169.0	102.4	49.2	147.7



7.7.3

7

Manual Integration Approval Summary

Sample Number: S6Q174-IC174 Method: EPA DRAFT 1633
Lab FileID: 6Q10950.D Analyst approved: 01/12/23 11:46 Martha Valls
Injection Time: 01/11/23 12:04 Supervisor approved: 01/12/23 15:42 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
MeFOSAA	2355-31-9		8.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.42	Split peak
EtFOSAA	2991-50-6		8.49	Split peak

7.7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q10951.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/11/2023 12:18:22 PM
 Sample Name : ic174-3
 Vial : P1-A4
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : S6Q174.batch.bin
 Sample Information : OP94795,S6Q174,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	100241	10.00 µg/L	0.000
M5-PFPeA	4.397	268.3 -> 223.0	48491	5.00 µg/L	0.000
M5-PFHxA	5.588	318.0 -> 273.0	43095	2.50 µg/L	0.000
M4-PFHpA	6.542	367.1 -> 322.0	43270	2.50 µg/L	0.000
M8-PFOA	7.197	421.1 -> 376.0	76635	2.50 µg/L	0.000
M9-PFNA	7.740	472.1 -> 427.0	35269	1.25 µg/L	0.000
M6-PFDA	8.245	519.1 -> 474.1	21346	1.25 µg/L	0.000
M7-PFUnDA	8.712	570.0 -> 525.1	27549	1.25 µg/L	0.000
M2-PFDoDA	9.154	615.1 -> 570.0	30915	1.25 µg/L	0.000
M2-PFTeDA	9.893	715.2 -> 670.0	17960	1.25 µg/L	0.000
M8-FOSA	9.568	506.1 -> 77.8	21275	2.50 µg/L	0.000
M3-PFBS	5.556	302.1 -> 79.9	15463	2.50 µg/L	0.000
M3-PFHxS	7.325	402.1 -> 79.9	10731	2.50 µg/L	-0.012
M8-PFOS	8.420	507.1 -> 79.9	10015	2.50 µg/L	0.000
M2-4:2FTS	5.253	329.1 -> 80.9	2117	5.00 µg/L	0.000
M2-6:2FTS	6.958	429.1 -> 80.9	2770	5.00 µg/L	0.000
M2-8:2FTS	8.019	529.1 -> 80.9	3179	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	30284	5.00 µg/L	0.000
M3-HFPO-DA	5.978	286.9 -> 168.9	17723	10.00 µg/L	0.000
M5-EtFOSAA	8.485	589.2 -> 419.0	25964	5.00 µg/L	0.000
M7-MeFOSE	10.591	623.2 -> 58.9	39443	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	30424	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	10518	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	9514	2.50 µg/L	0.000
13C4-PFOS	8.421	502.8 -> 79.9	12622	2.50 µg/L	0.000
13C3-PFBA	3.004	216.0 -> 172.0	44171	5.00 µg/L	0.000
18O2-PFHxS	7.336	403.0 -> 83.9	7650	2.50 µg/L	0.000
13C4-PFOA	7.198	417.1 -> 372.0	88076	2.50 µg/L	0.000
13C2-PFDA	8.233	515.1 -> 470.1	30571	1.25 µg/L	-0.012
13C5-PFNA	7.740	468.0 -> 423.0	40171	1.25 µg/L	0.000
13C2-PFHxA	5.589	315.1 -> 270.0	42539	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.253	329.1 -> 80.9	2117	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C2-6:2FTS	6.958	429.1 -> 80.9	2770	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C2-8:2FTS	8.019	529.1 -> 80.9	3179	5.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C2-PFDoDA	9.154	615.1 -> 570.0	30915	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-PFTeDA	9.893	715.2 -> 670.0	17960	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C3-PFBS	5.556	302.1 -> 79.9	15463	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C3-PFHxS	7.325	402.1 -> 79.9	10731	2.58 µg/L	-0.012

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C4-PFBA	3.000	216.8 -> 171.9	100241	9.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C4-PFHpA	6.542	367.1 -> 322.0	43270	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFHxA	5.588	318.0 -> 273.0	43095	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C5-PFPeA	4.397	268.3 -> 223.0	48491	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C6-PFDA	8.245	519.1 -> 474.1	21346	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C7-PFUnDA	8.712	570.0 -> 525.1	27549	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C8-FOSA	9.568	506.1 -> 77.8	21275	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C8-PFOA	7.197	421.1 -> 376.0	76635	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C8-PFOS	8.420	507.1 -> 79.9	10015	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C9-PFNA	7.740	472.1 -> 427.0	35269	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.8%	
d3-MeFOSAA	8.277	573.2 -> 419.0	30284	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C3-HFPO-DA	5.978	286.9 -> 168.9	17723	10.10 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d3-MeFOSA	10.683	515.0 -> 219.0	9514	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
d5-EtFOSAA	8.485	589.2 -> 419.0	25964	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.4%	
d7-MeFOSE	10.591	623.2 -> 58.9	39443	24.55 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d9-EtFOSE	10.849	639.2 -> 58.9	30424	24.76 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d5-EtFOSA	10.927	531.1 -> 219.0	10518	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
Target Compounds					QValue
4:2FTS	5.254	327.1 -> 307.0	21266	4.22 µg/L	93
		327.1 -> 80.9	5125		
6:2FTS	6.959	427.1 -> 407.0	19575	4.54 µg/L	96
		427.1 -> 80.9	4230		
8:2FTS	8.008	527.1 -> 507.0	11677	4.40 µg/L	96
		527.1 -> 80.8	3063		
EtFOSAA	8.486	584.2 -> 419.1	5305	1.28 µg/L	m 89
		584.2 -> 526.0	2917		
FOSA	9.571	498.1 -> 77.9	10088	1.17 µg/L	99
		498.1 -> 478.0	416		
MeFOSAA	8.278	570.1 -> 419.0	6632	1.06 µg/L	m 85
		570.1 -> 483.0	1448		
PFBA	3.007	212.8 -> 168.9	12048	4.68 µg/L	100
PFBS	5.557	298.7 -> 79.9	6745	1.08 µg/L	100
		298.7 -> 98.8	3264		
PFDA	8.246	512.9 -> 469.0	32125	1.25 µg/L	97
		512.9 -> 219.0	4621		
PFDODA	9.154	613.1 -> 569.0	30883	1.27 µg/L	100
		613.1 -> 319.0	3503		
PFDS	9.329	599.0 -> 79.9	3823	1.11 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2059			
PFHpA	6.542	363.1 -> 319.0	31839	1.22	µg/L	99
		363.1 -> 169.0	4327			
PFHpS	7.905	449.0 -> 79.9	5444	1.19	µg/L	93
		449.0 -> 98.9	3092			
PFHxA	5.591	313.0 -> 269.0	19431	1.12	µg/L	100
		313.0 -> 118.9	781			
PFHxS	7.326	398.7 -> 79.9	5424	1.06	µg/L	m 94
		398.7 -> 98.9	3008			
PFNA	7.740	463.0 -> 419.0	27955	1.15	µg/L	97
		463.0 -> 219.0	5569			
PFNS	8.899	548.8 -> 79.9	5596	1.16	µg/L	97
		548.8 -> 98.9	3208			
PFOA	7.199	413.0 -> 369.0	40454	1.18	µg/L	96
		413.0 -> 169.0	5201			
PFOS	8.421	498.9 -> 79.9	5655	1.17	µg/L	m 81
		498.9 -> 98.8	3168			
PFPeA	4.401	263.0 -> 219.0	24891	2.34	µg/L	100
PFPeS	6.619	349.1 -> 79.9	6582	1.09	µg/L	97
		349.1 -> 98.9	3331			
PFTeDA	9.894	713.1 -> 669.0	25271	1.18	µg/L	99
		713.1 -> 168.9	1786			
PFTrDA	9.550	663.0 -> 619.0	27704	1.19	µg/L	100
		663.0 -> 168.9	2418			
PFUnDA	8.712	563.1 -> 519.0	26956	1.17	µg/L	97
		563.1 -> 269.1	4325			
11CI-PF3OUdS	9.602	630.9 -> 450.9	60453	4.50	µg/L	99
		632.9 -> 452.9	19126			
9CI-PF3ONS	8.763	530.8 -> 351.0	102217	4.68	µg/L	92
		532.8 -> 353.0	28438			
ADONA	6.804	376.9 -> 250.9	189813	4.82	µg/L	99
		376.9 -> 84.8	37841			
HFPO-DA	5.978	284.9 -> 168.9	8595	4.80	µg/L	99
		284.9 -> 184.9	1009			
3:3FTCA	3.839	241.0 -> 177.0	3289	5.80	µg/L	100
		241.0 -> 117.0	402			
5:3FTCA	6.219	341.0 -> 237.1	107263	29.62	µg/L	97
		341.0 -> 217.0	93853			
7:3FTCA	7.643	441.0 -> 316.9	72555	29.72	µg/L	94
		441.0 -> 336.9	156156			
EtFOSA	10.929	526.0 -> 219.0	5832	1.15	µg/L	96
		526.0 -> 169.0	5996			
EtFOSE	10.862	630.0 -> 58.9	15271	11.38	µg/L	100
MeFOSA	10.685	511.9 -> 219.0	4984	1.19	µg/L	98
		511.9 -> 169.0	5166			
MeFOSE	10.604	616.1 -> 58.9	19405	11.91	µg/L	100
PFDoDS	10.033	699.1 -> 79.9	2470	1.15	µg/L	95
		699.1 -> 98.8	1584			
NFDHA	5.471	295.0 -> 201.0	2963	2.62	µg/L	97
		295.0 -> 84.9	1241			
PFMBA	4.813	279.0 -> 85.1	7935	2.39	µg/L	100
PFMPA	3.550	229.0 -> 84.9	6857	2.33	µg/L	100
PFEESA	6.097	314.8 -> 134.9	52360	2.16	µg/L	100
		314.8 -> 82.9	1254			

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

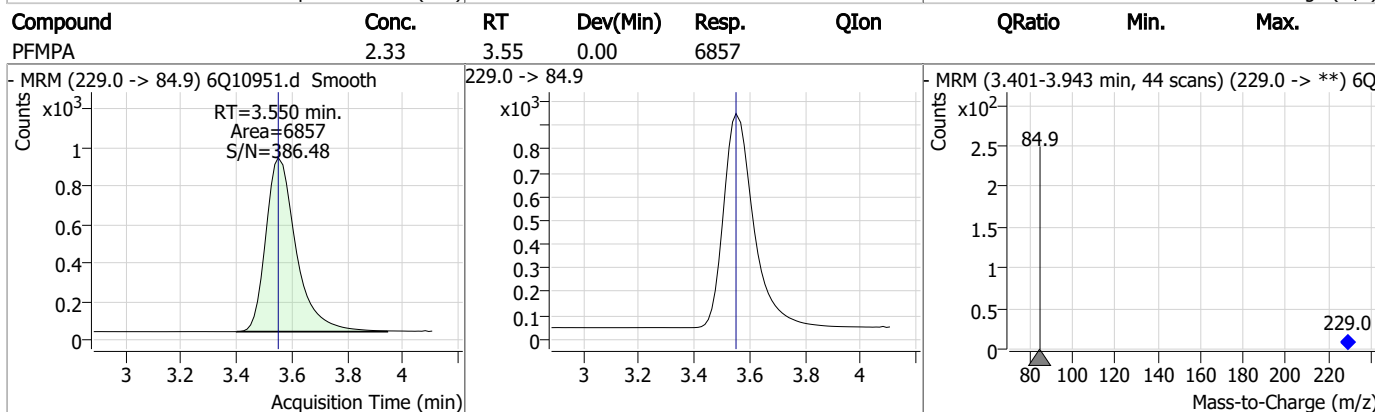
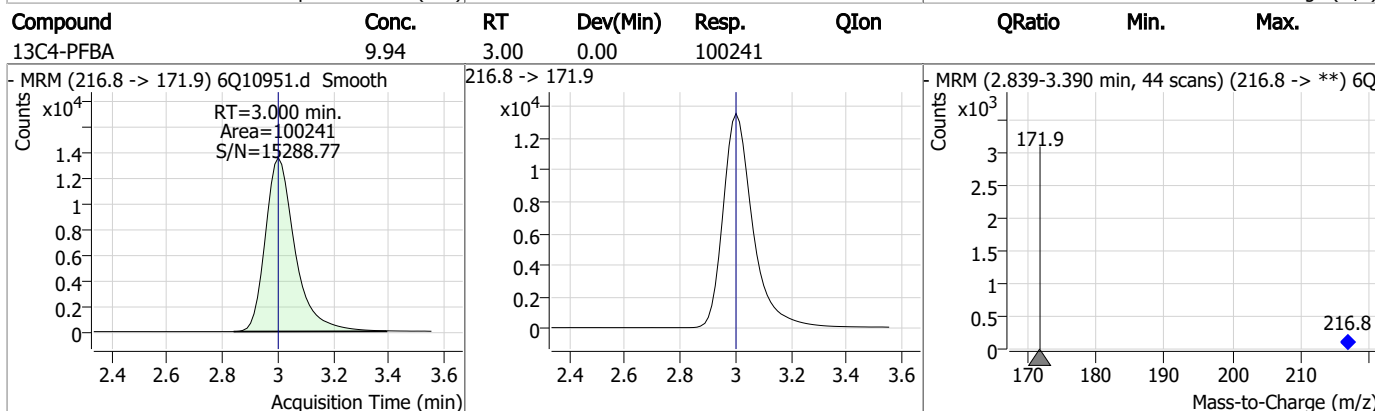
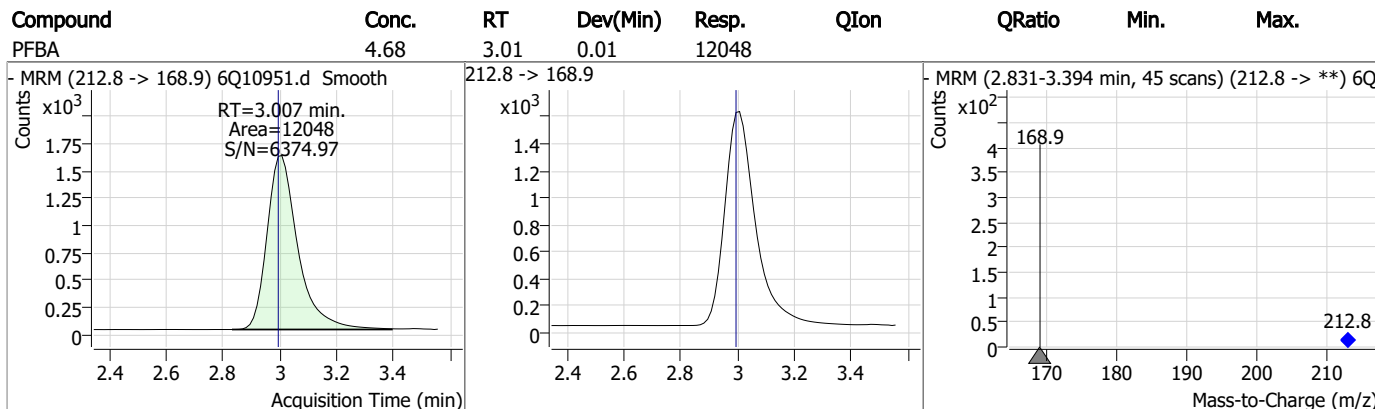
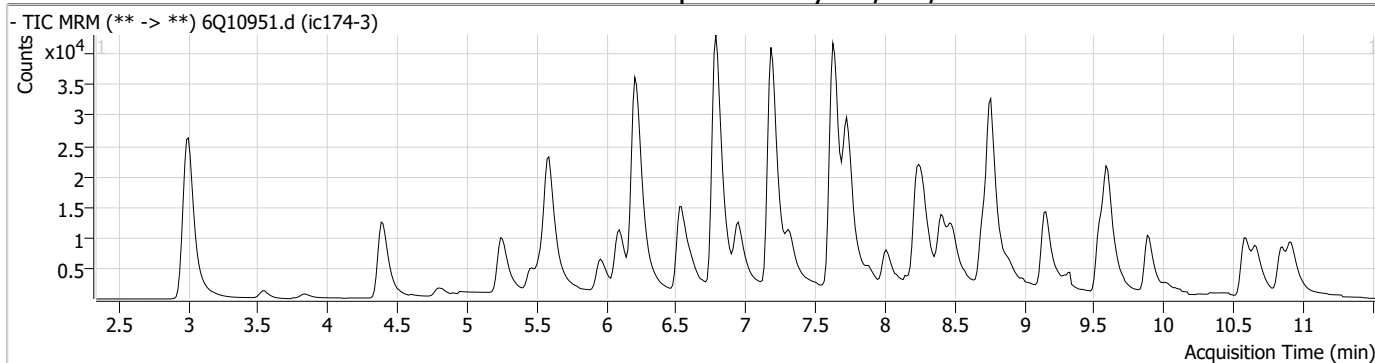
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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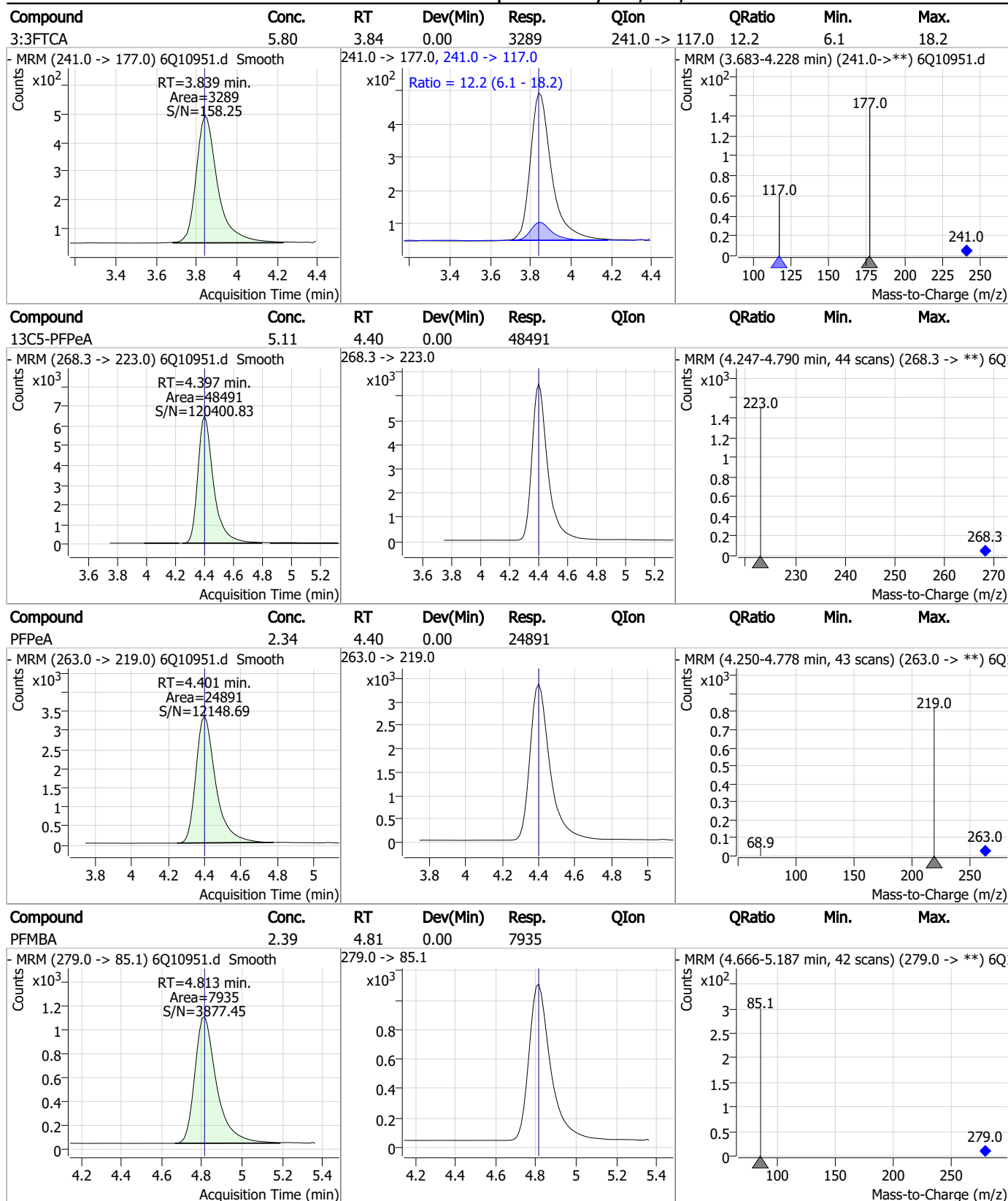
7.7.4

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Perfluorinated Compounds by LC/MS/MS



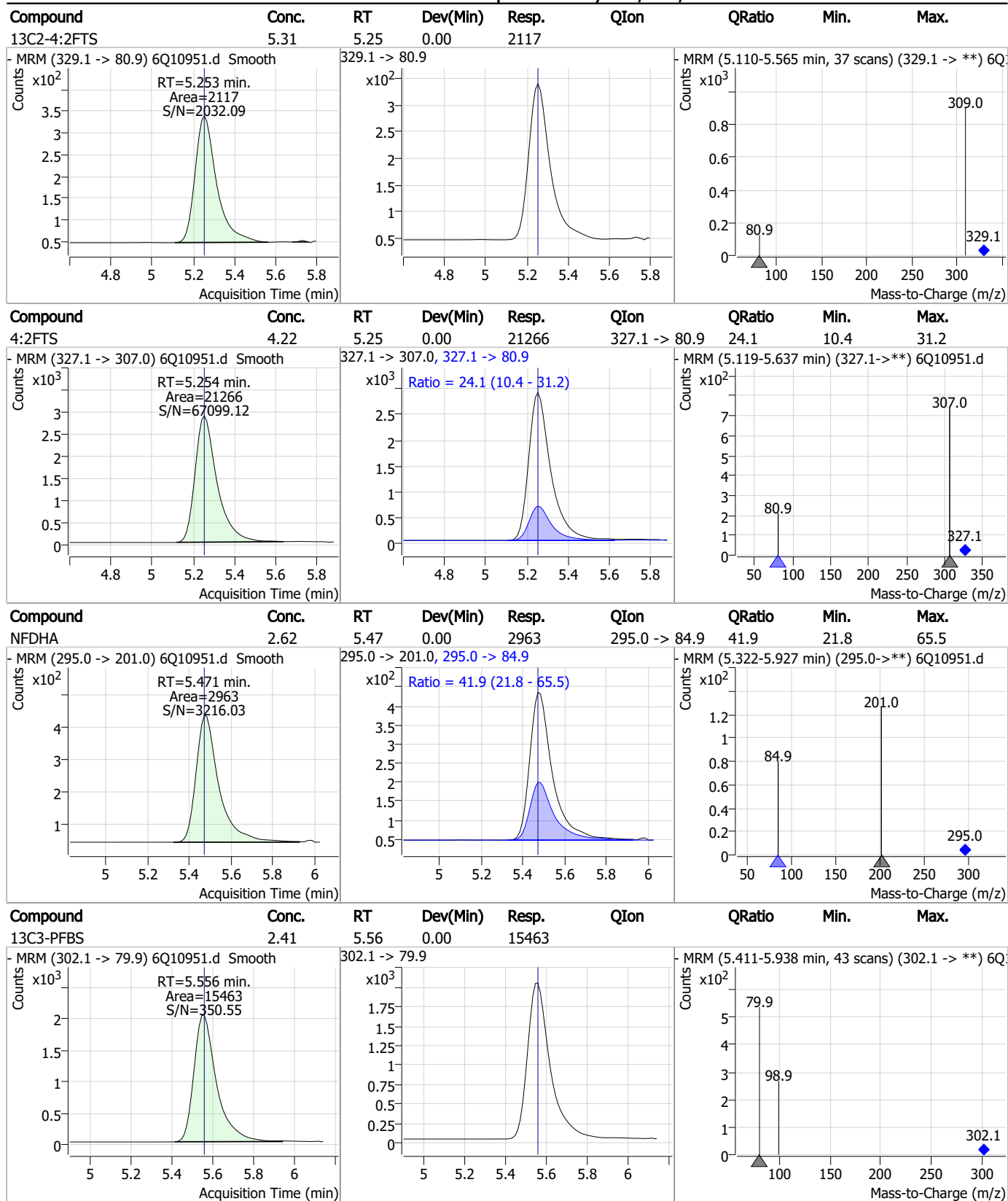
Perfluorinated Compounds by LC/MS/MS



7.7.4

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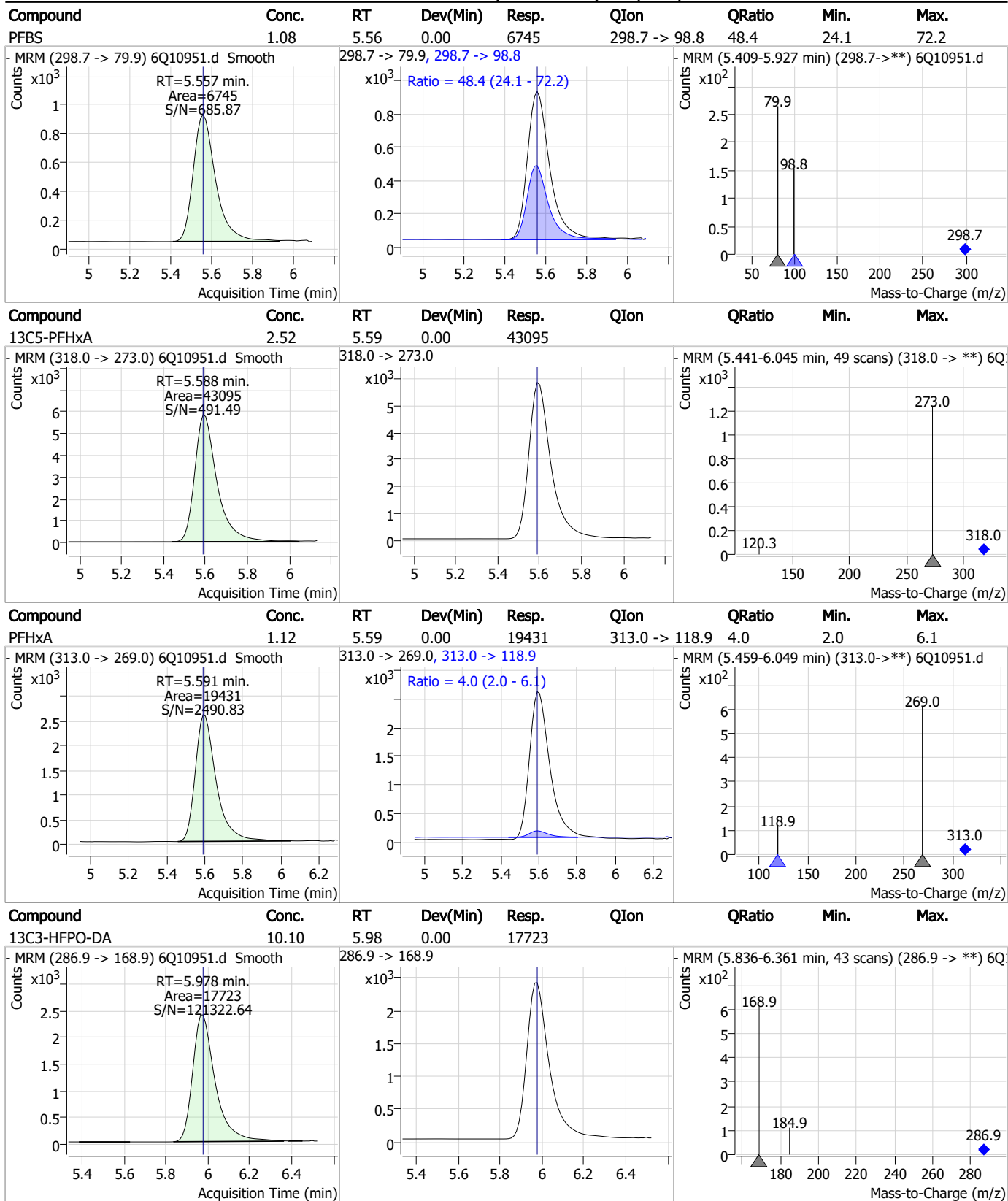
Perfluorinated Compounds by LC/MS/MS



7.7.4

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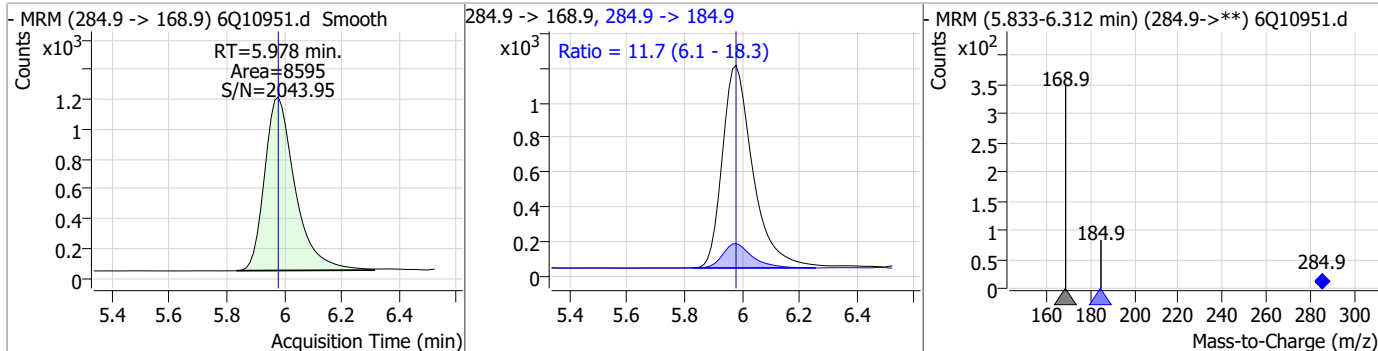
Perfluorinated Compounds by LC/MS/MS



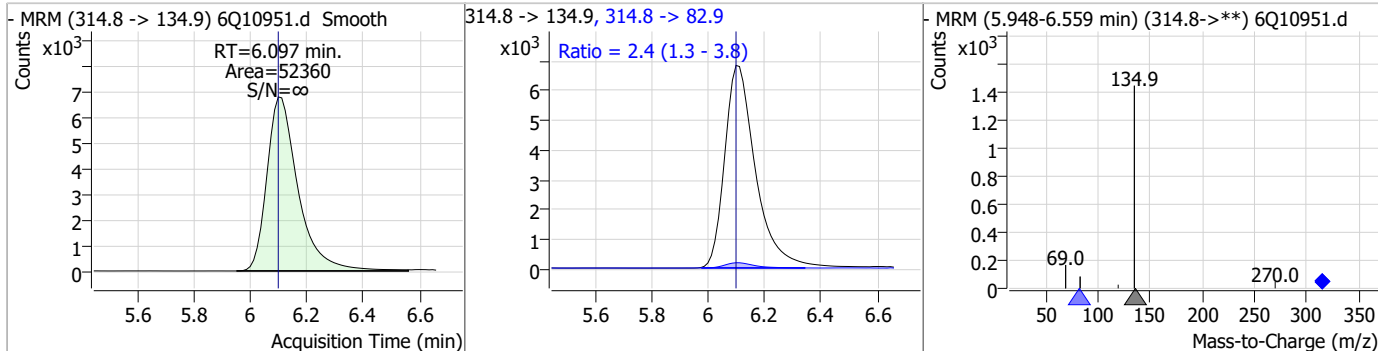
7.7.4
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Perfluorinated Compounds by LC/MS/MS

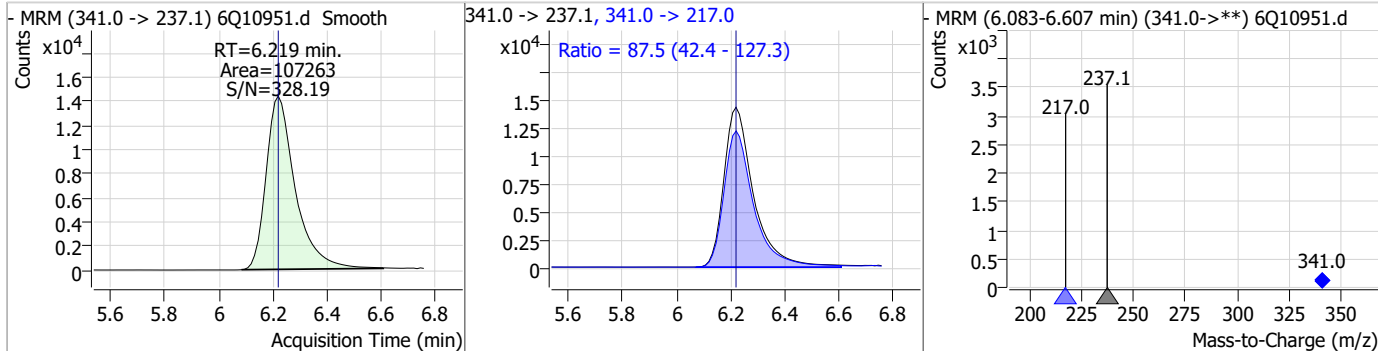
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.80	5.98	0.00	8595	284.9 -> 184.9	11.7	6.1	18.3



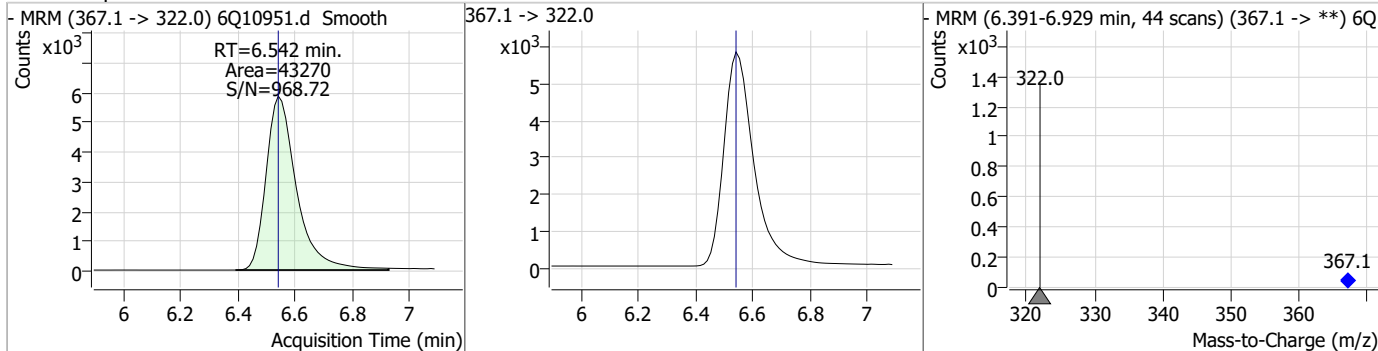
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	2.16	6.10	0.00	52360	314.8 -> 82.9	2.4	1.3	3.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	29.62	6.22	0.00	107263	341.0 -> 217.0	87.5	42.4	127.3

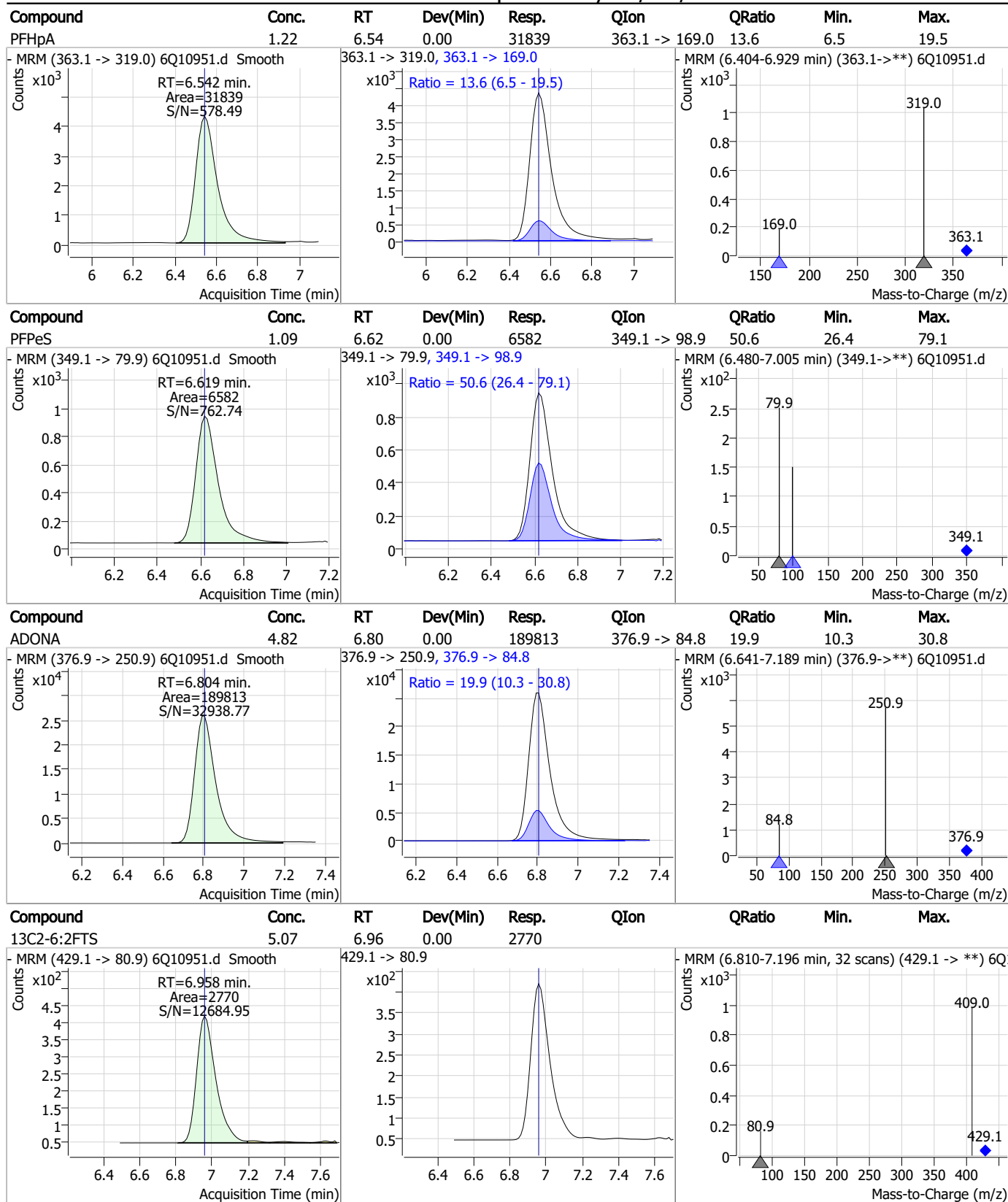


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.51	6.54	0.00	43270	367.1 -> 322.0			



7.7.4
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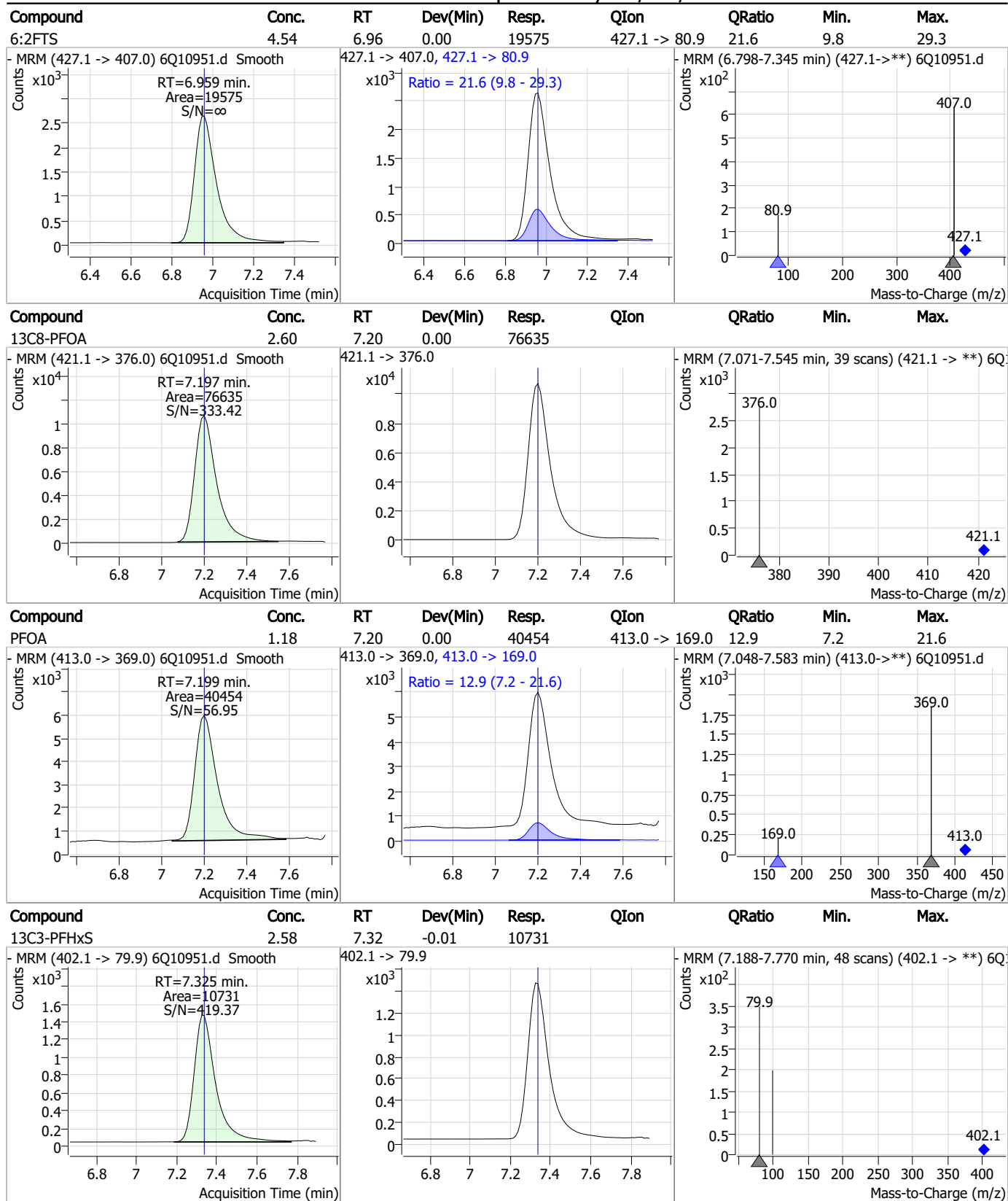
Perfluorinated Compounds by LC/MS/MS



7.7.4

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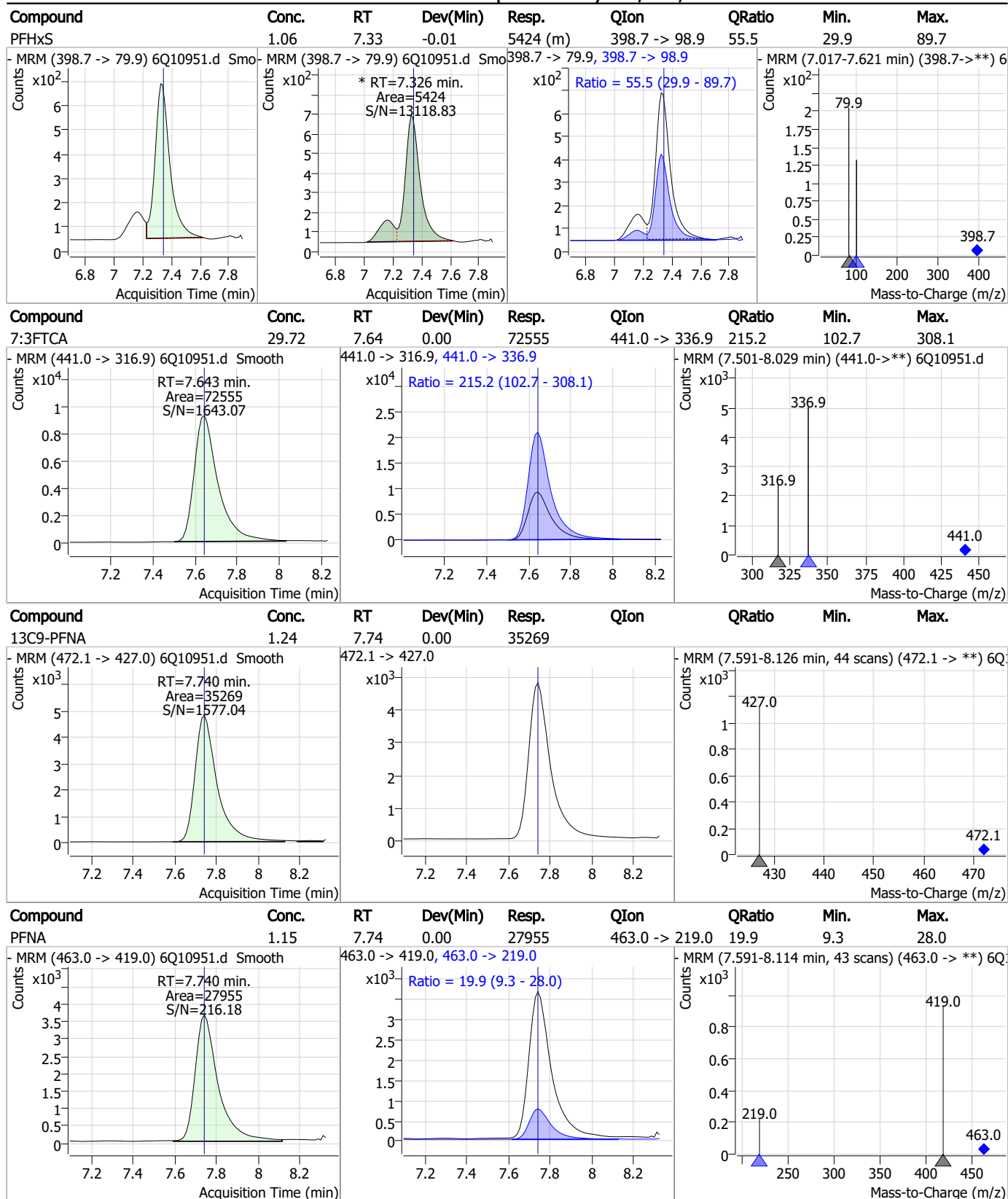
Perfluorinated Compounds by LC/MS/MS



7.7.4

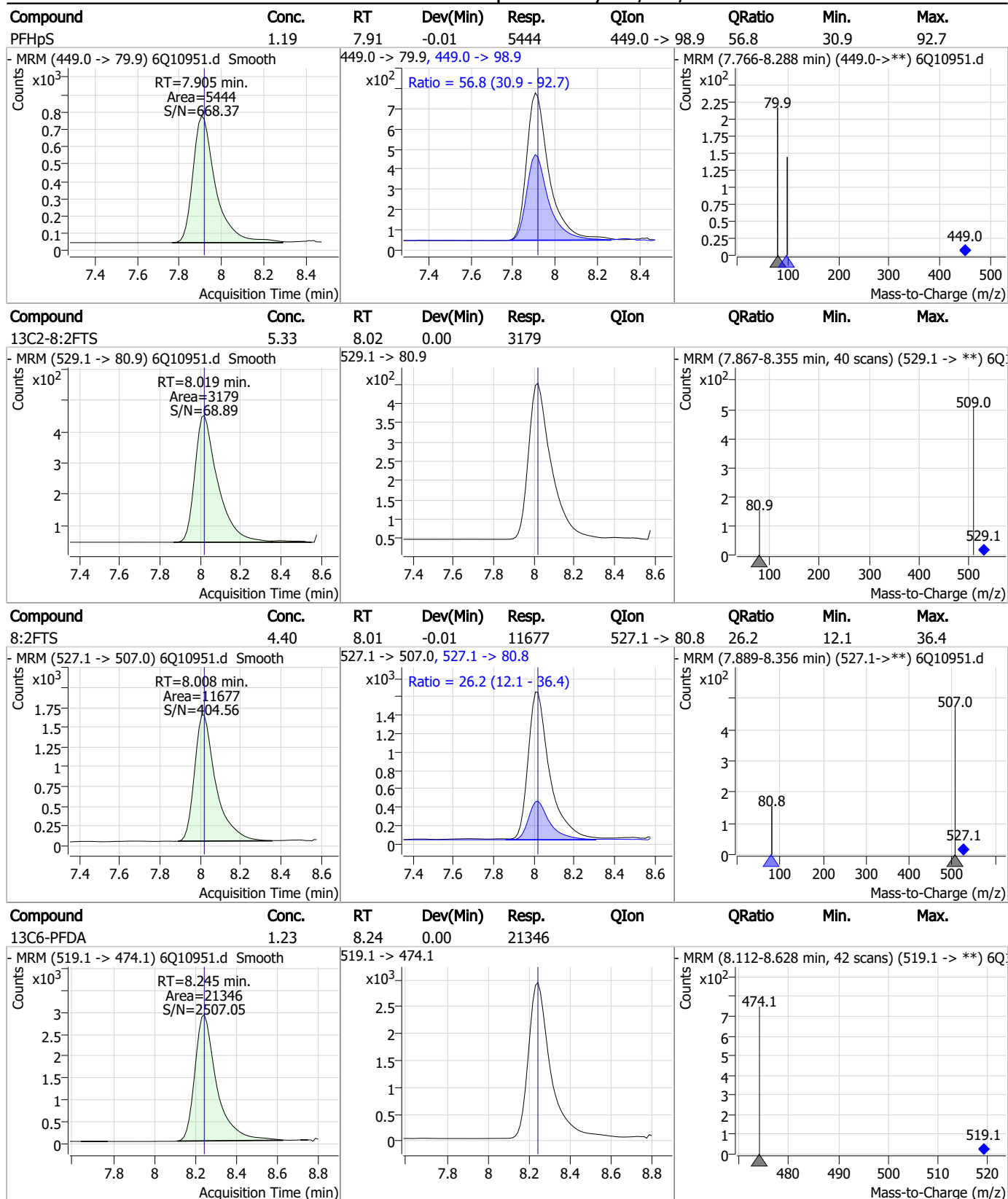
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Perfluorinated Compounds by LC/MS/MS



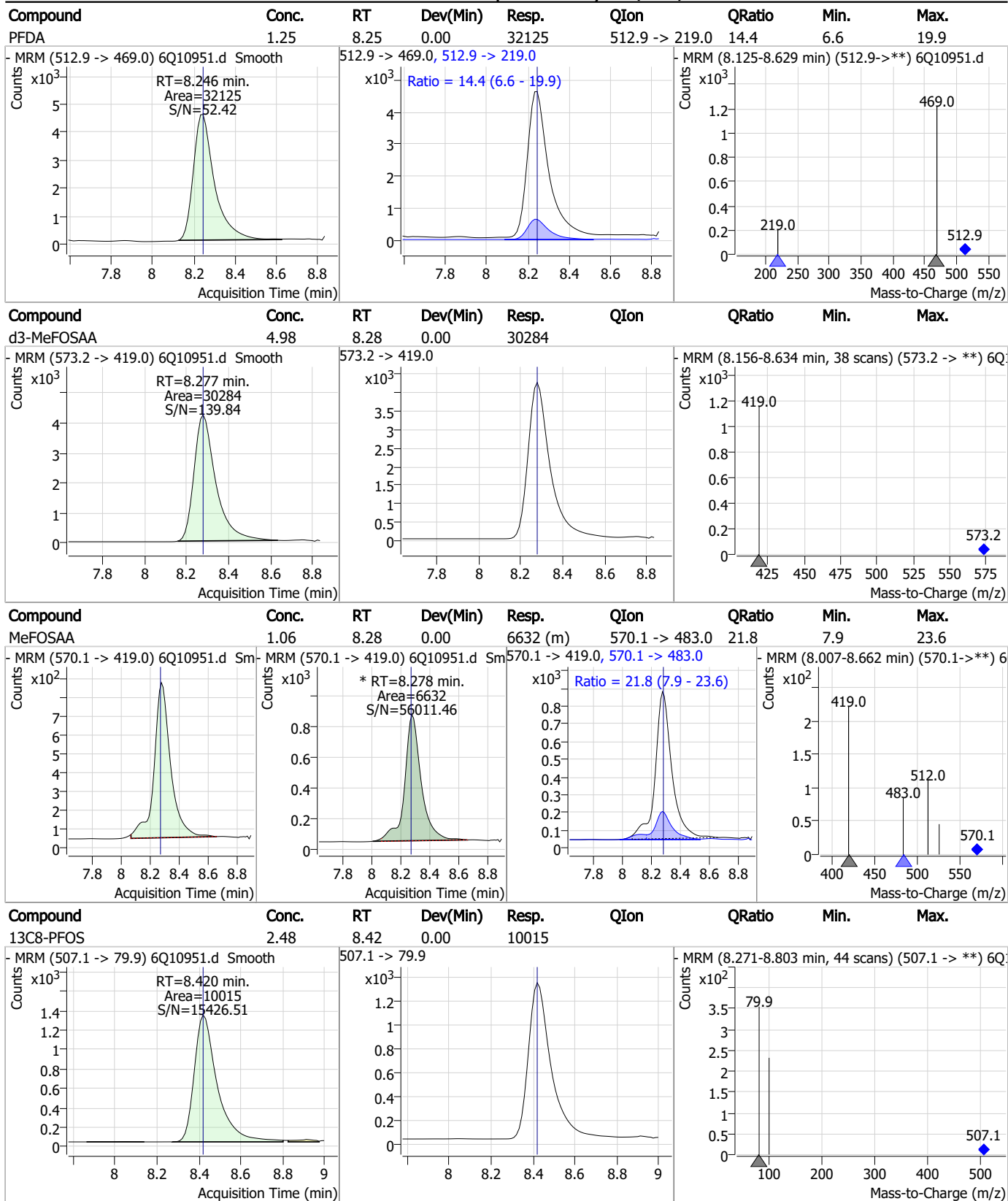
7.7.4
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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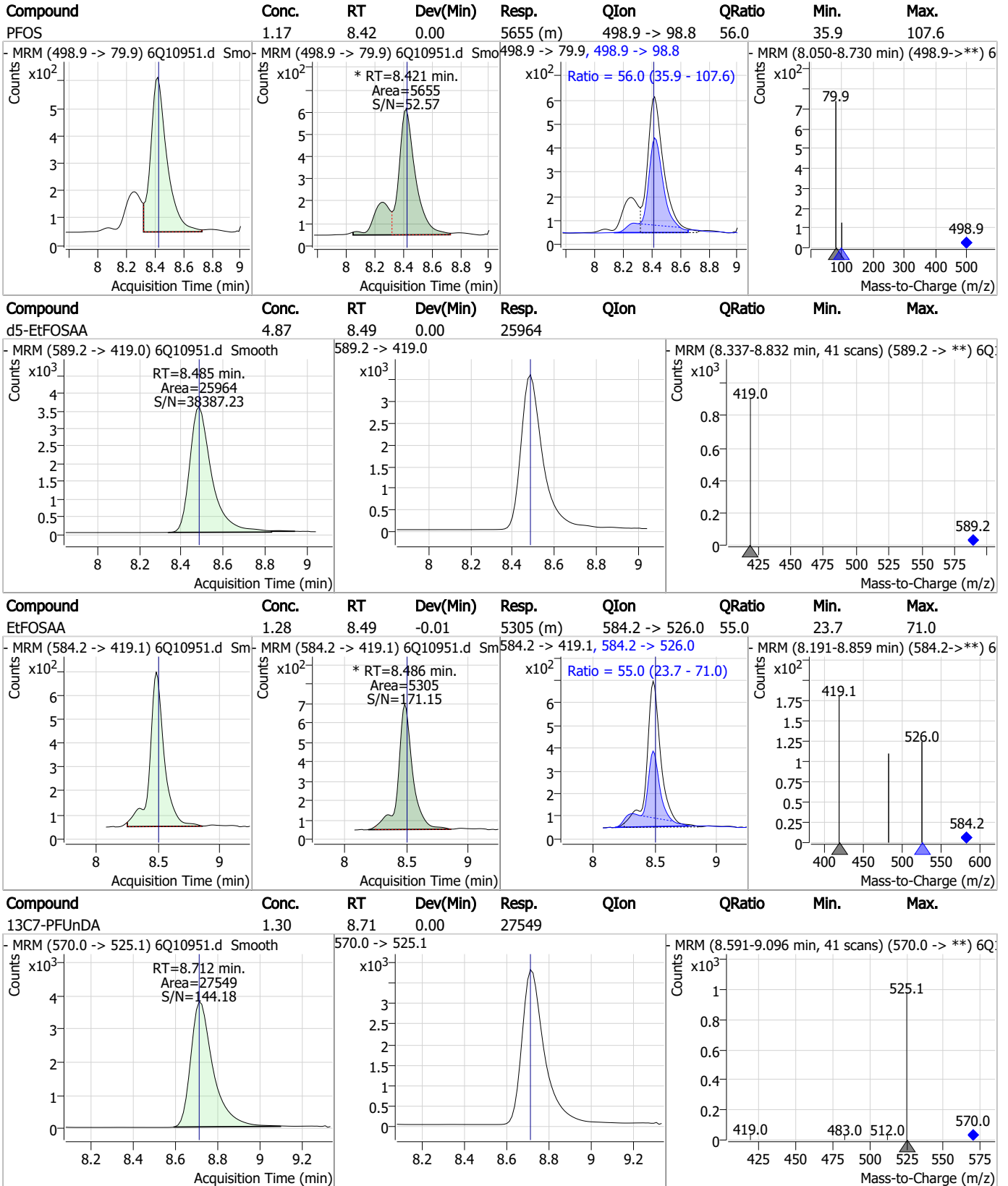
Perfluorinated Compounds by LC/MS/MS



7.7.4

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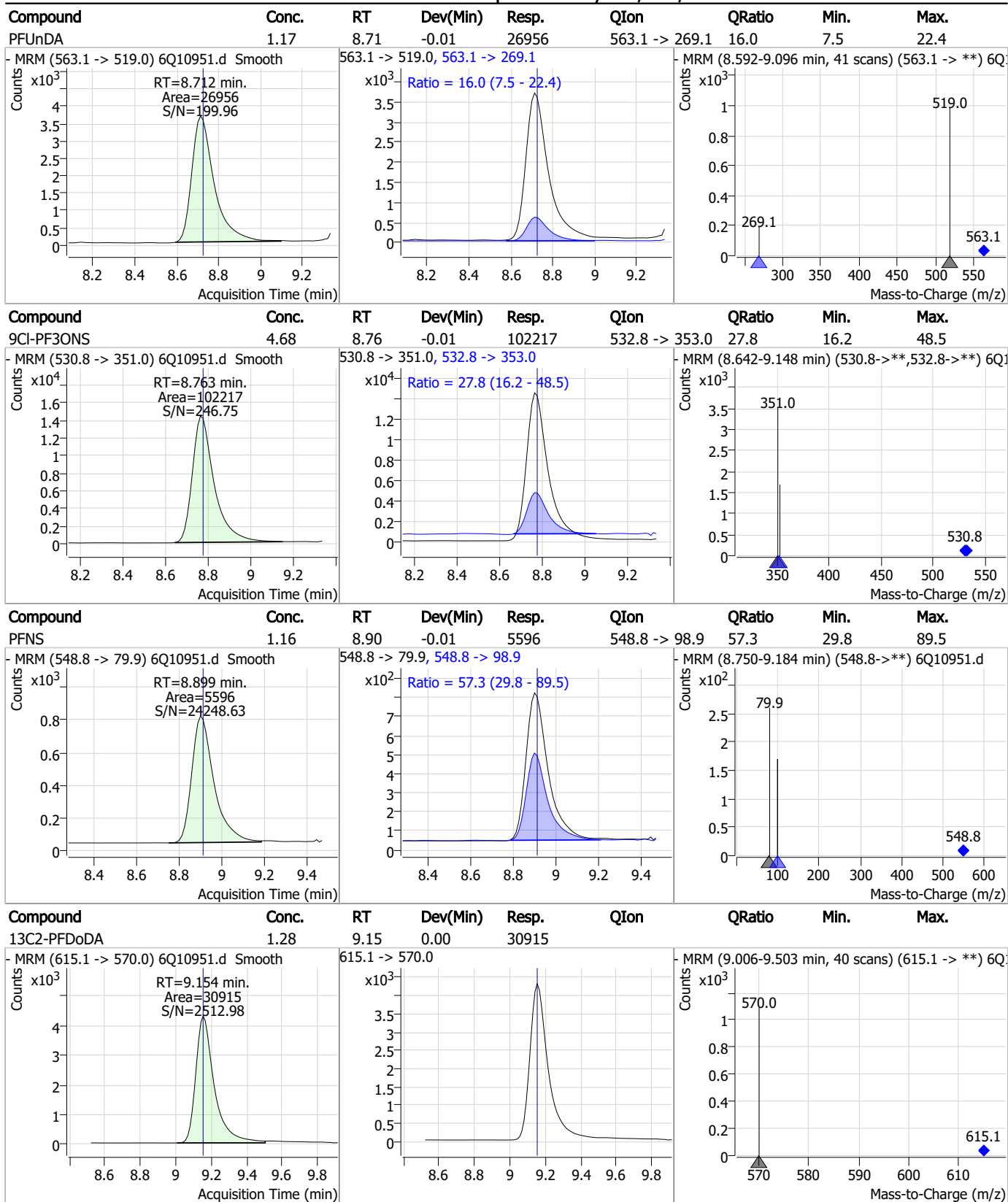
Perfluorinated Compounds by LC/MS/MS



7.7.4

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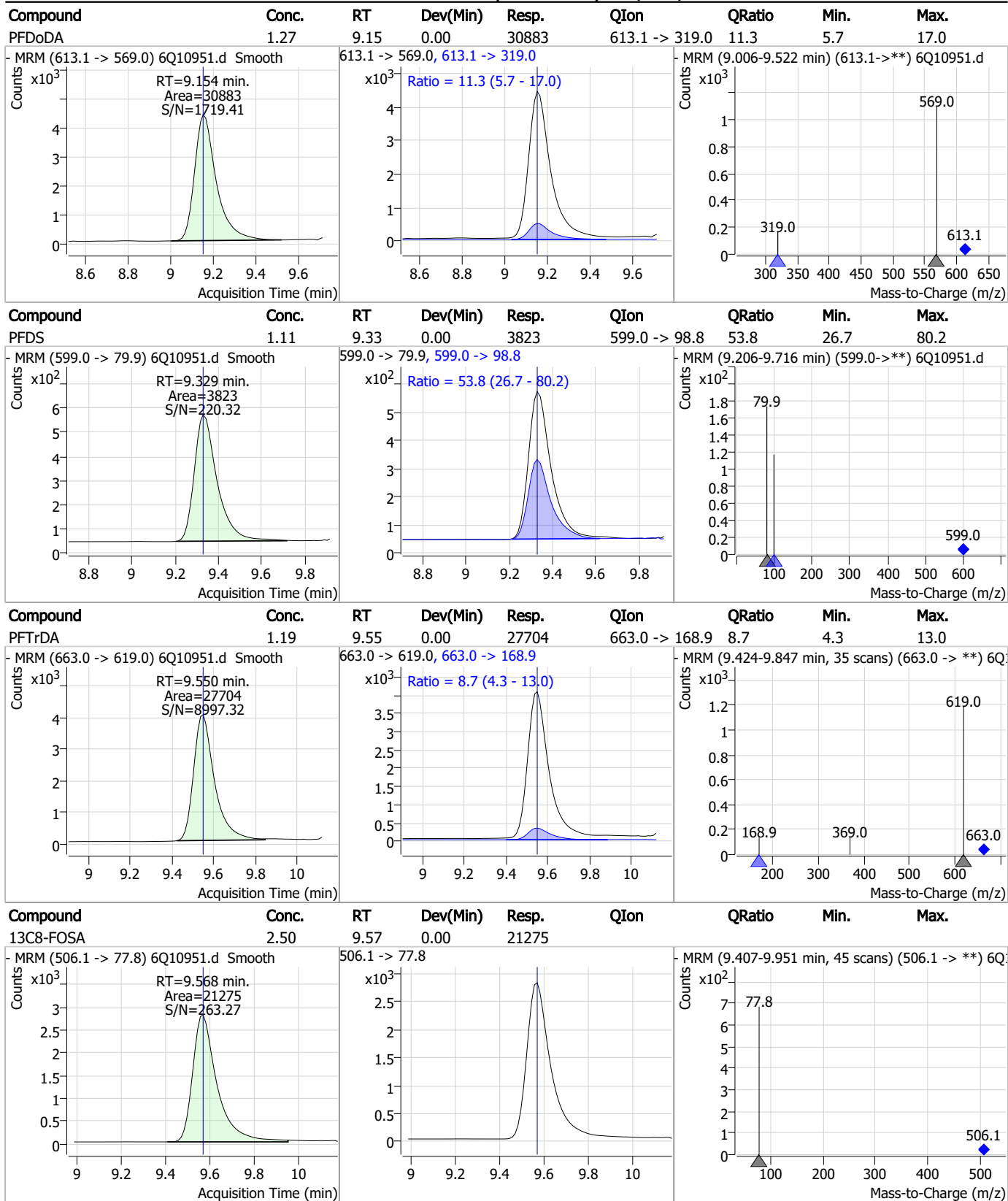
Perfluorinated Compounds by LC/MS/MS



7.7.4

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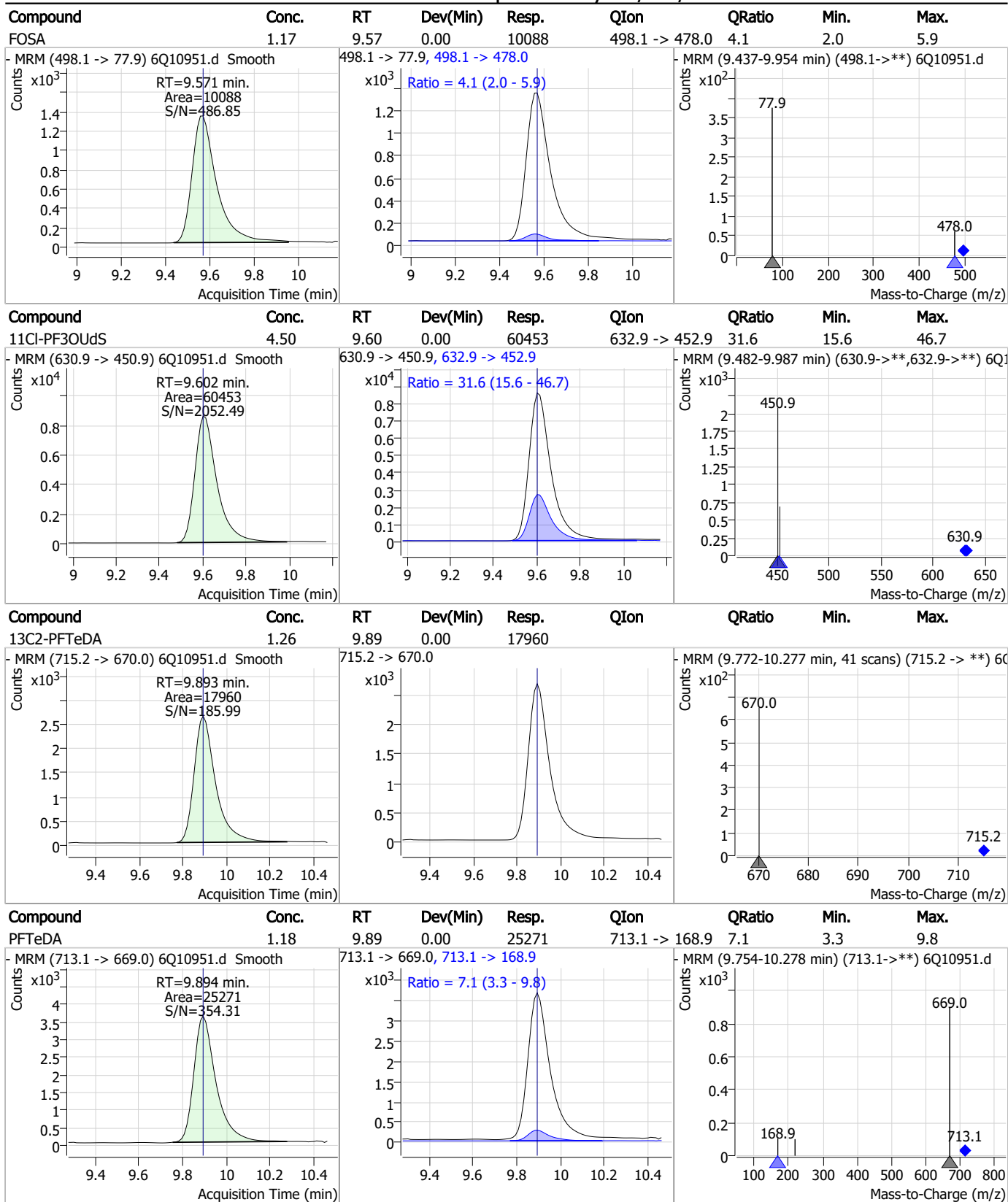
Perfluorinated Compounds by LC/MS/MS



7.7.4
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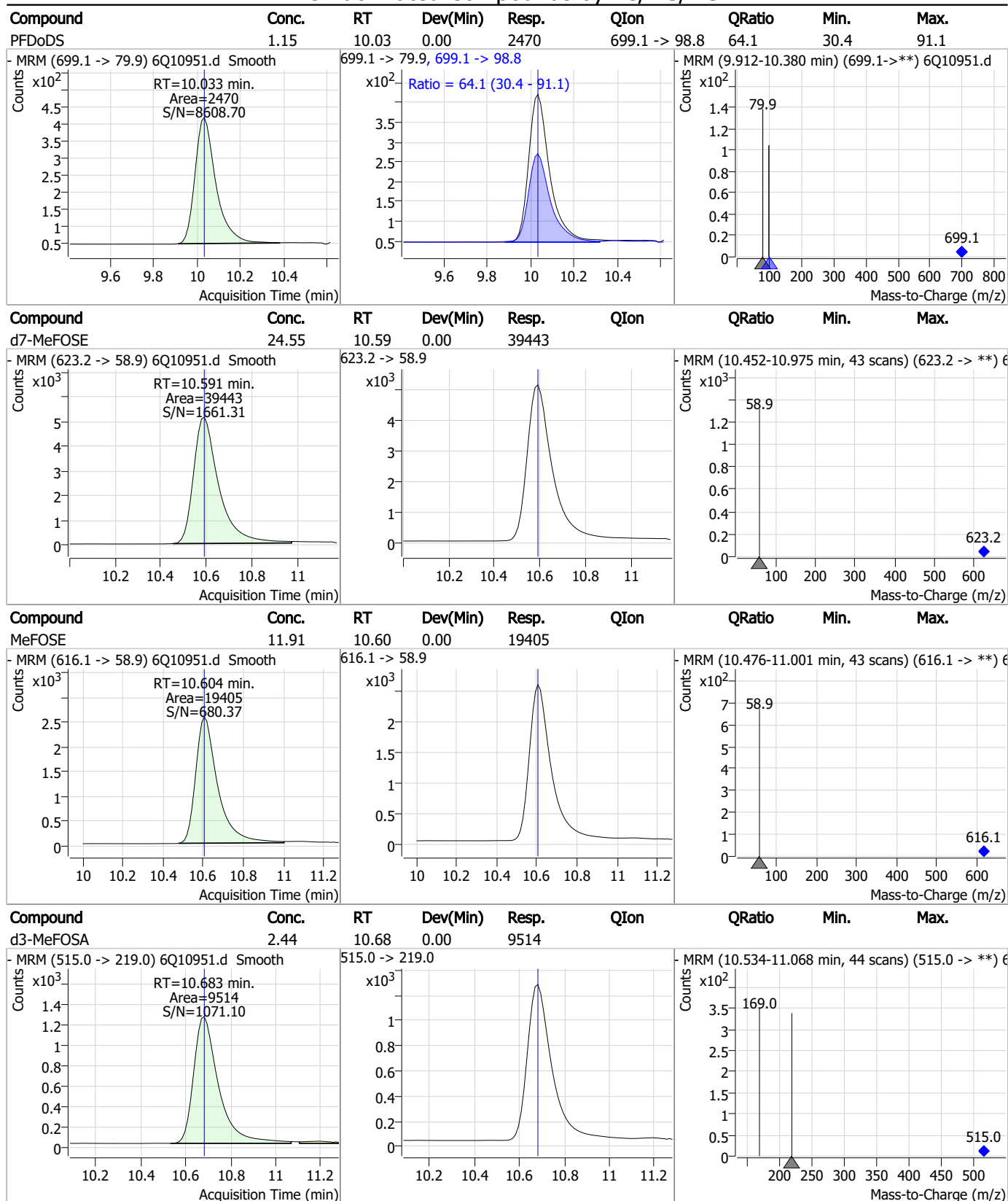


Perfluorinated Compounds by LC/MS/MS



7.7.4
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Perfluorinated Compounds by LC/MS/MS

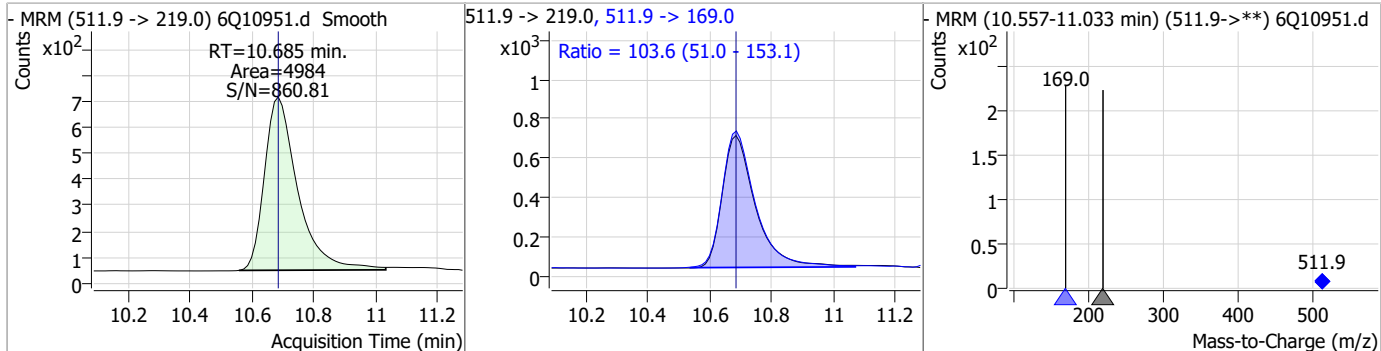


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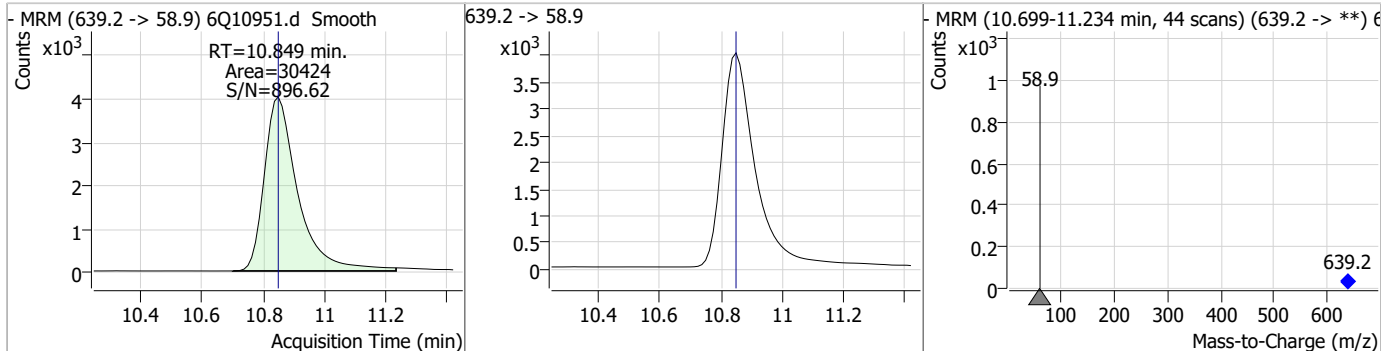
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Perfluorinated Compounds by LC/MS/MS

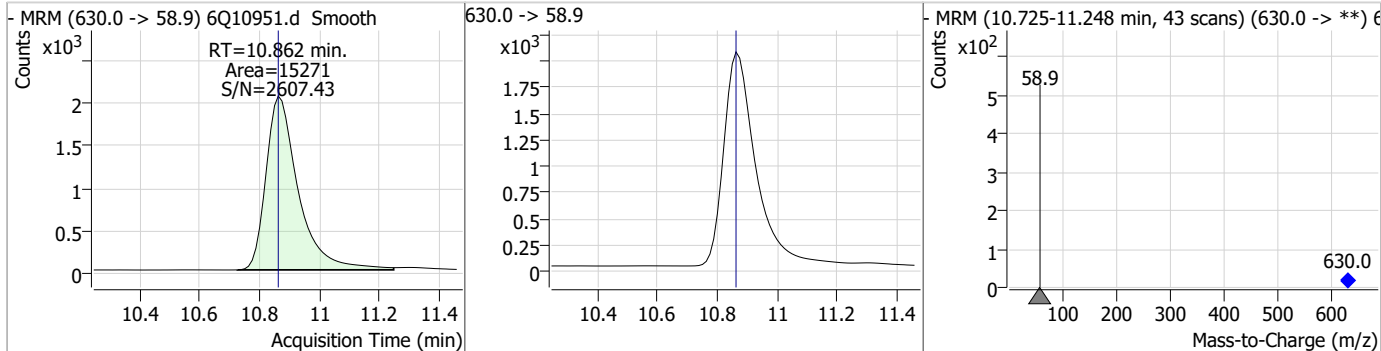
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	1.19	10.68	0.00	4984	511.9 -> 169.0	103.6	51.0	153.1



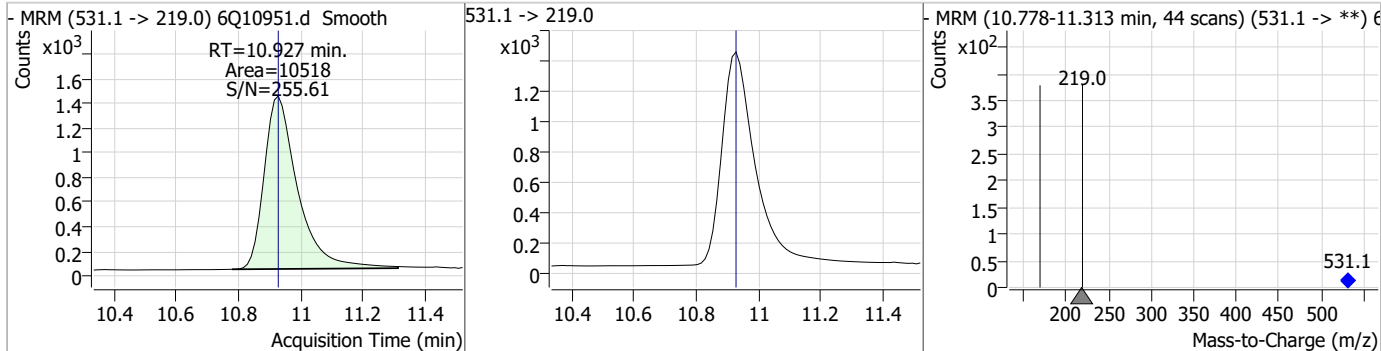
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.76	10.85	0.00	30424				



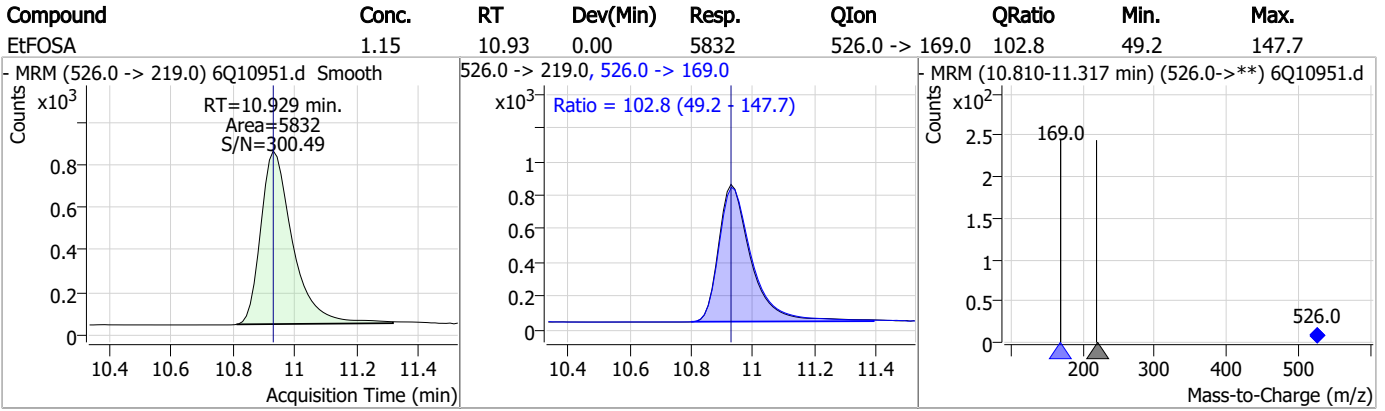
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.38	10.86	0.00	15271				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.41	10.93	0.00	10518				



Perfluorinated Compounds by LC/MS/MS



7.7.4

7

Manual Integration Approval Summary

Sample Number: S6Q174-IC174 Method: EPA DRAFT 1633
Lab FileID: 6Q10951.D Analyst approved: 01/12/23 11:46 Martha Valls
Injection Time: 01/11/23 12:18 Supervisor approved: 01/12/23 15:42 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
MeFOSAA	2355-31-9		8.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.42	Split peak
EtFOSAA	2991-50-6		8.49	Split peak

7.7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q10952.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/11/2023 12:32:22 PM
 Sample Name : icc174-4
 Vial : P1-A5
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : S6Q174.batch.bin
 Sample Information : OP94795,S6Q174,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	89550	10.00 µg/L	0.000
M5-PFPeA	4.397	268.3 -> 223.0	43155	5.00 µg/L	0.000
M5-PFHxA	5.588	318.0 -> 273.0	38470	2.50 µg/L	0.000
M4-PFHpA	6.542	367.1 -> 322.0	39879	2.50 µg/L	0.000
M8-PFOA	7.197	421.1 -> 376.0	68898	2.50 µg/L	0.000
M9-PFNA	7.740	472.1 -> 427.0	30139	1.25 µg/L	0.000
M6-PFDA	8.245	519.1 -> 474.1	18487	1.25 µg/L	0.000
M7-PFUnDA	8.712	570.0 -> 525.1	23972	1.25 µg/L	0.000
M2-PFDoDA	9.154	615.1 -> 570.0	27086	1.25 µg/L	0.000
M2-PFTeDA	9.893	715.2 -> 670.0	15302	1.25 µg/L	0.000
M8-FOSA	9.568	506.1 -> 77.8	18299	2.50 µg/L	0.000
M3-PFBS	5.556	302.1 -> 79.9	13640	2.50 µg/L	0.000
M3-PFHxS	7.337	402.1 -> 79.9	9088	2.50 µg/L	0.000
M8-PFOS	8.420	507.1 -> 79.9	8687	2.50 µg/L	0.000
M2-4:2FTS	5.253	329.1 -> 80.9	1697	5.00 µg/L	0.000
M2-6:2FTS	6.958	429.1 -> 80.9	2461	5.00 µg/L	0.000
M2-8:2FTS	8.019	529.1 -> 80.9	2567	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	24418	5.00 µg/L	0.000
M3-HFPO-DA	5.978	286.9 -> 168.9	15461	10.00 µg/L	0.000
M5-EtFOSAA	8.485	589.2 -> 419.0	22734	5.00 µg/L	0.000
M7-MeFOSE	10.591	623.2 -> 58.9	35331	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	26979	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	9293	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	8277	2.50 µg/L	0.000
13C4-PFOS	8.421	502.8 -> 79.9	11479	2.50 µg/L	0.000
13C3-PFBA	3.004	216.0 -> 172.0	38798	5.00 µg/L	0.000
18O2-PFHxS	7.336	403.0 -> 83.9	6688	2.50 µg/L	0.000
13C4-PFOA	7.198	417.1 -> 372.0	80305	2.50 µg/L	0.000
13C2-PFDA	8.245	515.1 -> 470.1	28047	1.25 µg/L	0.000
13C5-PFNA	7.740	468.0 -> 423.0	32723	1.25 µg/L	0.000
13C2-PFHxA	5.589	315.1 -> 270.0	37117	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.253	329.1 -> 80.9	1697	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C2-6:2FTS	6.958	429.1 -> 80.9	2461	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C2-8:2FTS	8.019	529.1 -> 80.9	2567	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C2-PFDoDA	9.154	615.1 -> 570.0	27086	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C2-PFTeDA	9.893	715.2 -> 670.0	15302	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.7%		
13C3-PFBS	5.556	302.1 -> 79.9	13640	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C3-PFHxS	7.337	402.1 -> 79.9	9088	2.50 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 = 100.1%	
13C4-PFBA	3.000	216.8 -> 171.9	89550	10.11 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C4-PFHpA	6.542	367.1 -> 322.0	39879	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C5-PFHxA	5.588	318.0 -> 273.0	38470	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C5-PFPeA	4.397	268.3 -> 223.0	43155	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C6-PFDA	8.245	519.1 -> 474.1	18487	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.6%	
13C7-PFUnDA	8.712	570.0 -> 525.1	23972	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C8-FOSA	9.568	506.1 -> 77.8	18299	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%	
13C8-PFOA	7.197	421.1 -> 376.0	68898	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C8-PFOS	8.420	507.1 -> 79.9	8687	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C9-PFNA	7.740	472.1 -> 427.0	30139	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.7%	
d3-MeFOSAA	8.277	573.2 -> 419.0	24418	4.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.4%	
13C3-HFPO-DA	5.978	286.9 -> 168.9	15461	10.10 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d3-MeFOSA	10.683	515.0 -> 219.0	8277	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.3%	
d5-EtFOSAA	8.485	589.2 -> 419.0	22734	4.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
d7-MeFOSE	10.591	623.2 -> 58.9	35331	24.18 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
d9-EtFOSE	10.849	639.2 -> 58.9	26979	24.14 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
d5-EtFOSA	10.927	531.1 -> 219.0	9293	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
Target Compounds					QValue
4:2FTS	5.254	327.1 -> 307.0	42347	10.49 µg/L	100
		327.1 -> 80.9	8813		
6:2FTS	6.959	427.1 -> 407.0	38033	9.93 µg/L	100
		427.1 -> 80.9	7438		
8:2FTS	8.020	527.1 -> 507.0	21677	10.12 µg/L	m 100
		527.1 -> 80.8	5292		
EtFOSAA	8.499	584.2 -> 419.1	9741	2.68 µg/L	m 89
		584.2 -> 526.0	5340		
FOSA	9.571	498.1 -> 77.9	19028	2.57 µg/L	100
		498.1 -> 478.0	746		
MeFOSAA	8.278	570.1 -> 419.0	13309	2.64 µg/L	m 92
		570.1 -> 483.0	2511		
PFBA	2.994	212.8 -> 168.9	22649	9.86 µg/L	100
PFBS	5.557	298.7 -> 79.9	12077	2.19 µg/L	100
		298.7 -> 98.8	5816		
PFDA	8.246	512.9 -> 469.0	58217	2.62 µg/L	100
		512.9 -> 219.0	7709		
PFDODA	9.154	613.1 -> 569.0	55821	2.62 µg/L	100
		613.1 -> 319.0	6322		
PFDS	9.329	599.0 -> 79.9	7256	2.42 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3879			
PFHpA	6.542	363.1 -> 319.0	59297	2.47	µg/L	100
		363.1 -> 169.0	7712			
PFHpS	7.917	449.0 -> 79.9	8850	2.23	µg/L	100
		449.0 -> 98.9	5471			
PFHxA	5.591	313.0 -> 269.0	37734	2.43	µg/L	100
		313.0 -> 118.9	1533			
PFHxS	7.338	398.7 -> 79.9	9590	2.22	µg/L	m 96
		398.7 -> 98.9	5429			
PFNA	7.740	463.0 -> 419.0	52923	2.54	µg/L	100
		463.0 -> 219.0	9872			
PFNS	8.911	548.8 -> 79.9	9834	2.34	µg/L	100
		548.8 -> 98.9	5870			
PFOA	7.199	413.0 -> 369.0	71417	2.32	µg/L	100
		413.0 -> 169.0	10280			
PFOS	8.421	498.9 -> 79.9	9598	2.28	µg/L	m 84
		498.9 -> 98.8	5634			
PFPeA	4.401	263.0 -> 219.0	46747	4.93	µg/L	100
PFPeS	6.619	349.1 -> 79.9	12161	2.37	µg/L	100
		349.1 -> 98.9	6412			
PFTeDA	9.894	713.1 -> 669.0	49630	2.72	µg/L	100
		713.1 -> 168.9	3259			
PFTrDA	9.550	663.0 -> 619.0	50838	2.50	µg/L	100
		663.0 -> 168.9	4418			
PFUnDA	8.725	563.1 -> 519.0	53925	2.69	µg/L	100
		563.1 -> 269.1	8058			
11Cl-PF3OUdS	9.602	630.9 -> 450.9	116456	9.93	µg/L	100
		632.9 -> 452.9	36248			
9Cl-PF3ONS	8.776	530.8 -> 351.0	182947	9.60	µg/L	100
		532.8 -> 353.0	59168			
ADONA	6.804	376.9 -> 250.9	332881	9.68	µg/L	100
		376.9 -> 84.8	68431			
HFPO-DA	5.978	284.9 -> 168.9	16085	10.29	µg/L	100
		284.9 -> 184.9	1967			
3:3FTCA	3.839	241.0 -> 177.0	6130	12.14	µg/L	100
		241.0 -> 117.0	746			
5:3FTCA	6.219	341.0 -> 237.1	206514	63.88	µg/L	100
		341.0 -> 217.0	175201			
7:3FTCA	7.643	441.0 -> 316.9	140550	64.50	µg/L	100
		441.0 -> 336.9	288653			
EtFOSA	10.929	526.0 -> 219.0	11233	2.50	µg/L	100
		526.0 -> 169.0	11061			
EtFOSE	10.862	630.0 -> 58.9	29388	24.69	µg/L	100
MeFOSA	10.685	511.9 -> 219.0	8942	2.45	µg/L	100
		511.9 -> 169.0	9128			
MeFOSE	10.604	616.1 -> 58.9	34300	23.50	µg/L	100
PFDoDS	10.033	699.1 -> 79.9	4489	2.40	µg/L	100
		699.1 -> 98.8	2725			
NFDHA	5.471	295.0 -> 201.0	5198	5.16	µg/L	100
		295.0 -> 84.9	2271			
PFMBA	4.813	279.0 -> 85.1	14522	4.91	µg/L	100
PFMPA	3.550	229.0 -> 84.9	12905	4.92	µg/L	100
PFEESA	6.097	314.8 -> 134.9	99576	4.60	µg/L	100
		314.8 -> 82.9	2496			

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

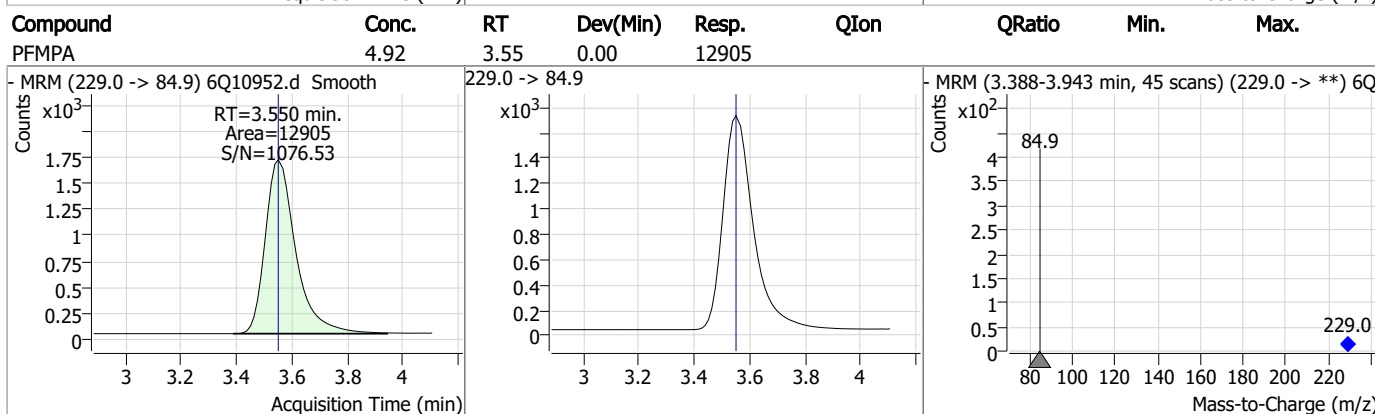
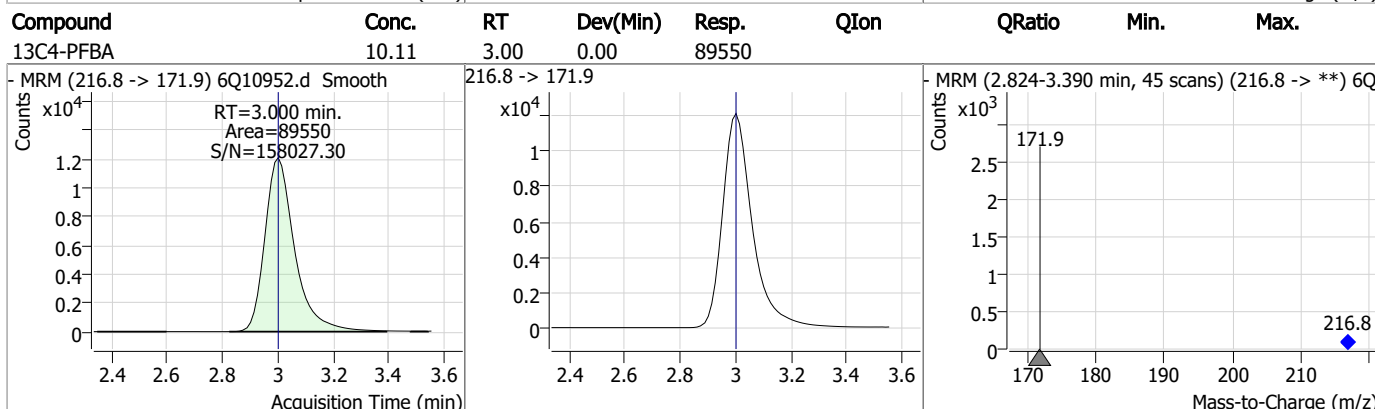
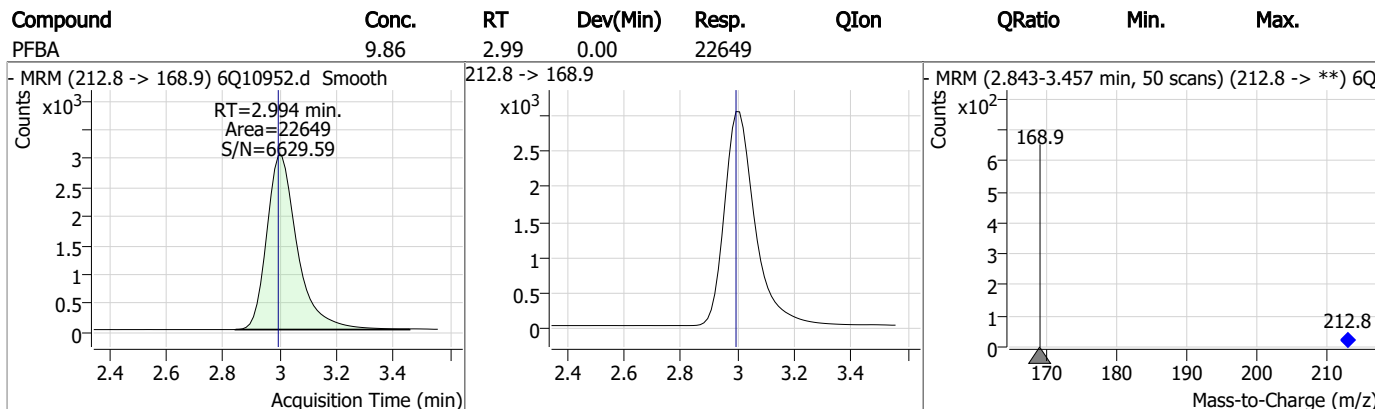
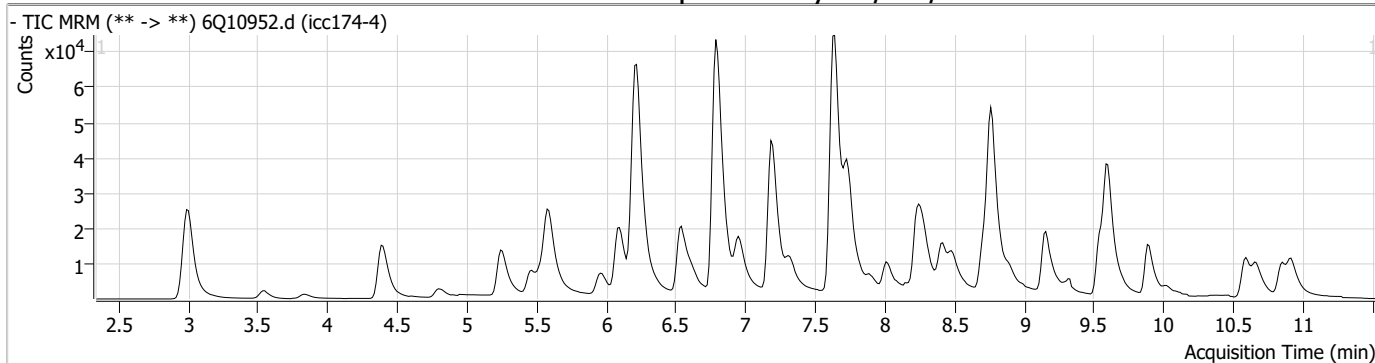
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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7.7.5
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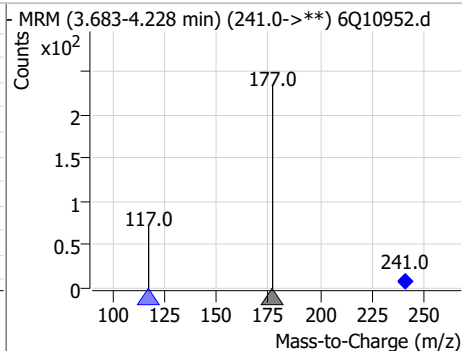
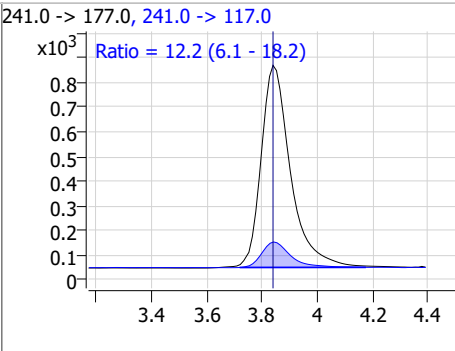
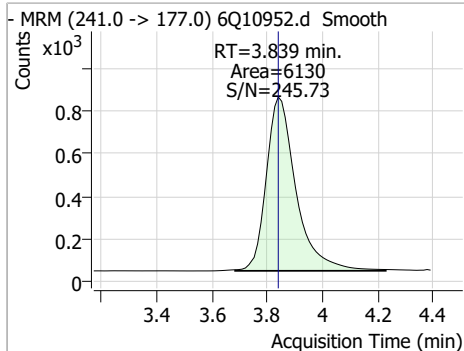


Perfluorinated Compounds by LC/MS/MS

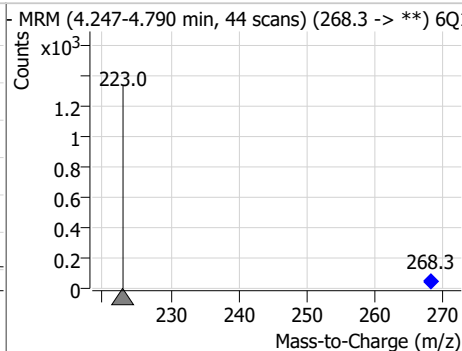
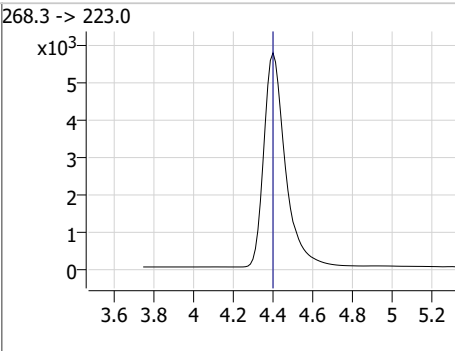
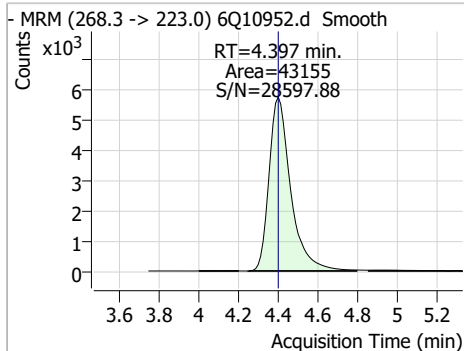


Perfluorinated Compounds by LC/MS/MS

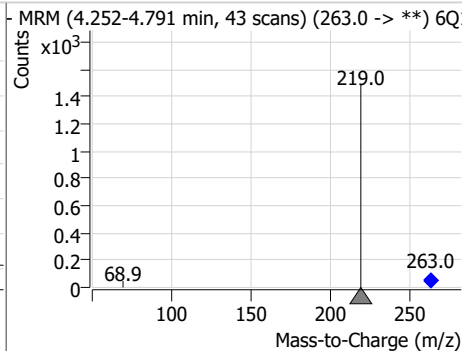
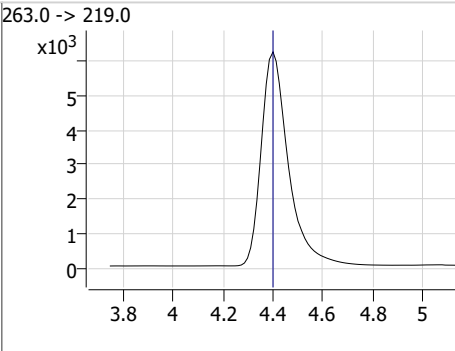
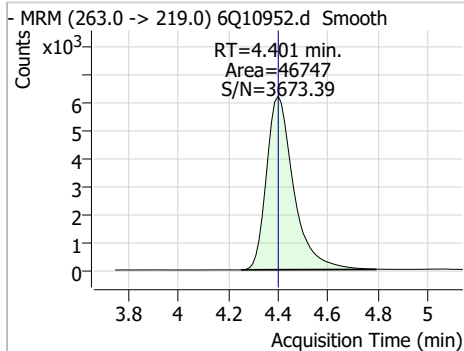
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.14	3.84	0.00	6130	241.0 -> 117.0	12.2	6.1	18.2



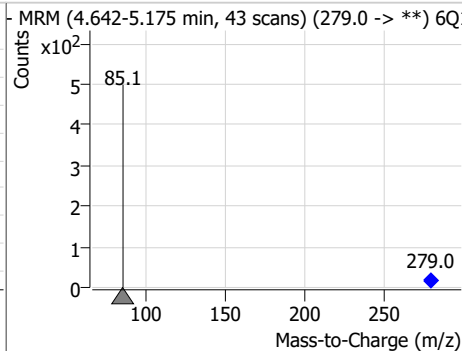
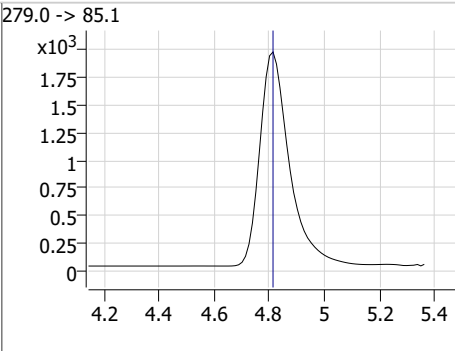
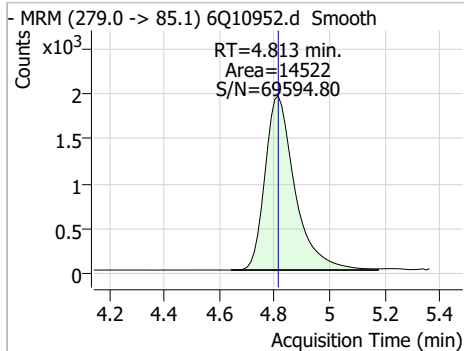
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.21	4.40	0.00	43155				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.93	4.40	0.00	46747				

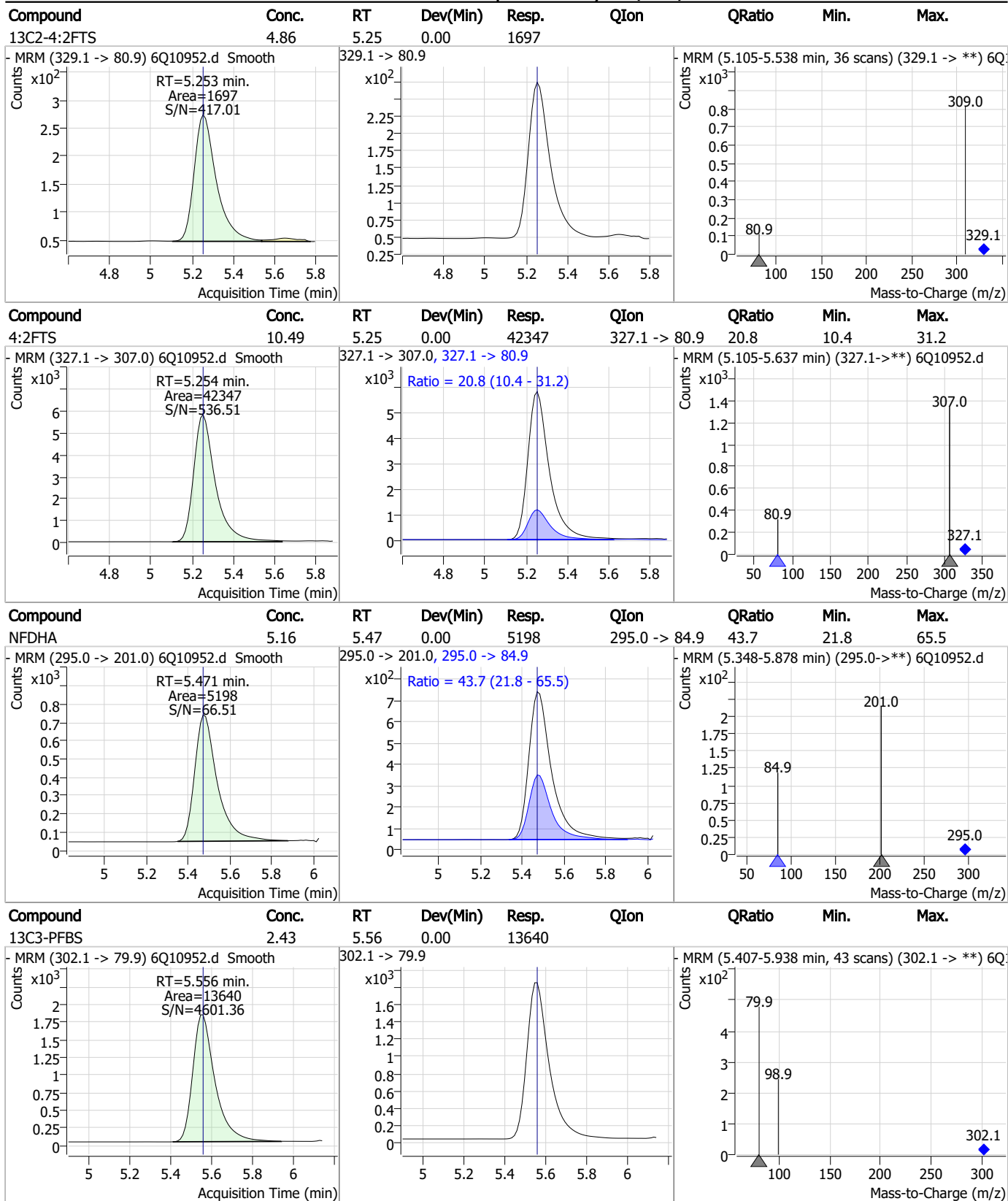


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.91	4.81	0.00	14522				



7.7.5
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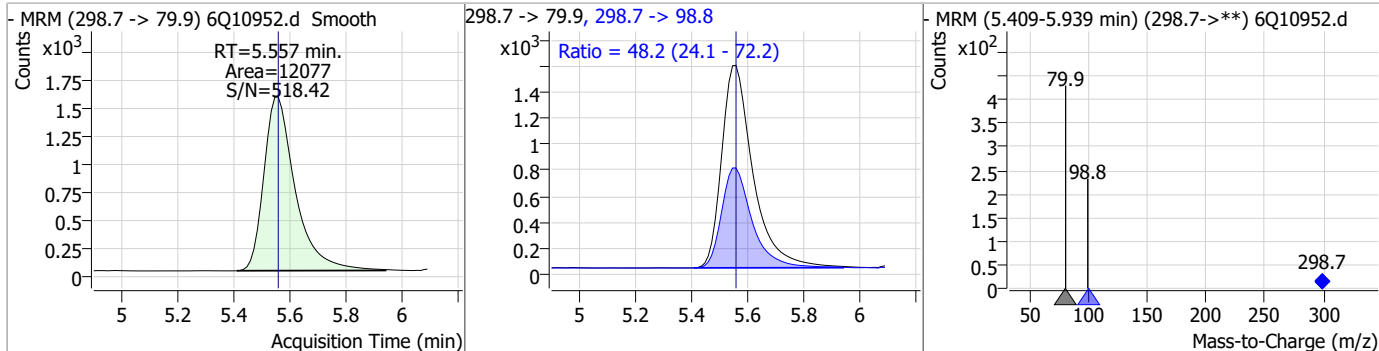
Perfluorinated Compounds by LC/MS/MS



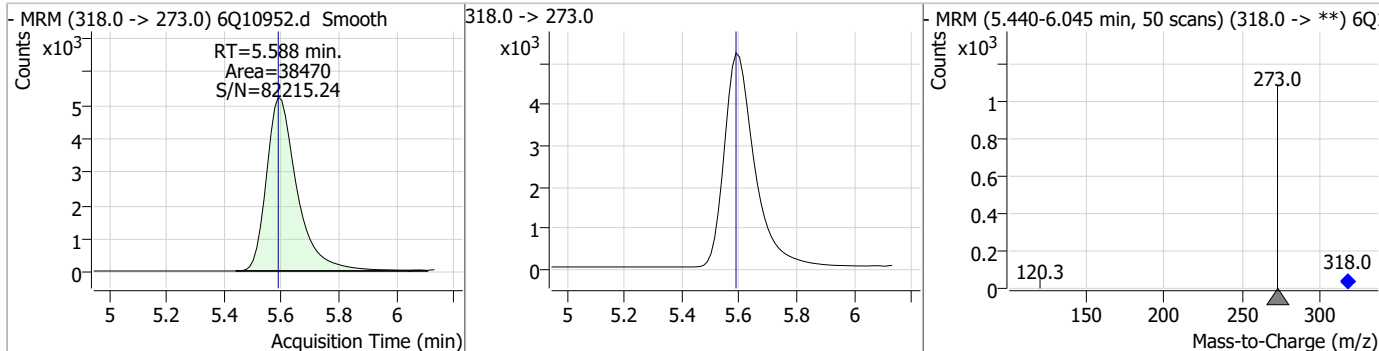
7.7.5
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Perfluorinated Compounds by LC/MS/MS

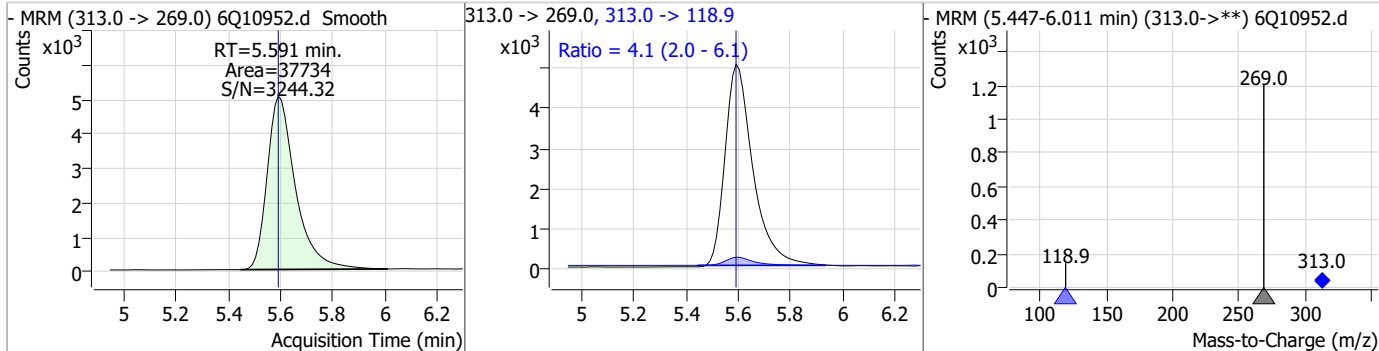
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.19	5.56	0.00	12077	298.7 -> 98.8	48.2	24.1	72.2



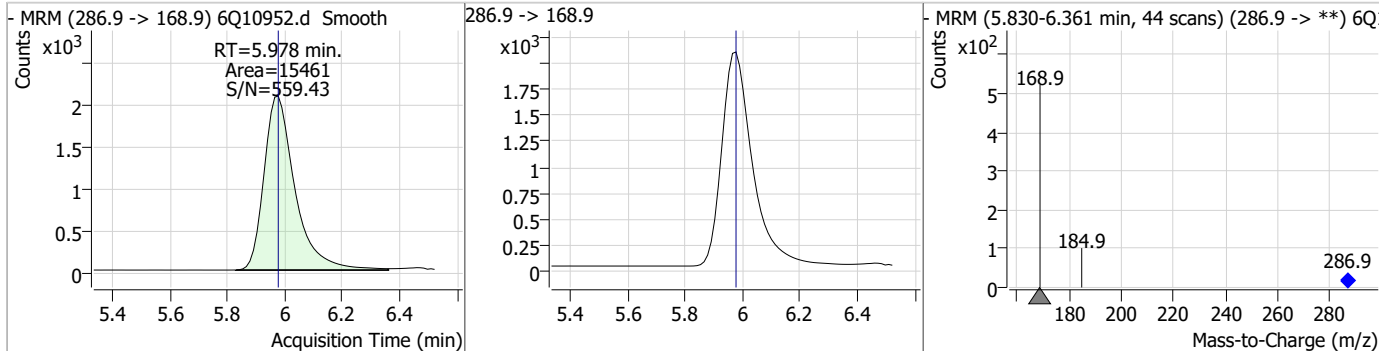
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.58	5.59	0.00	38470				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.43	5.59	0.00	37734	313.0 -> 118.9	4.1	2.0	6.1

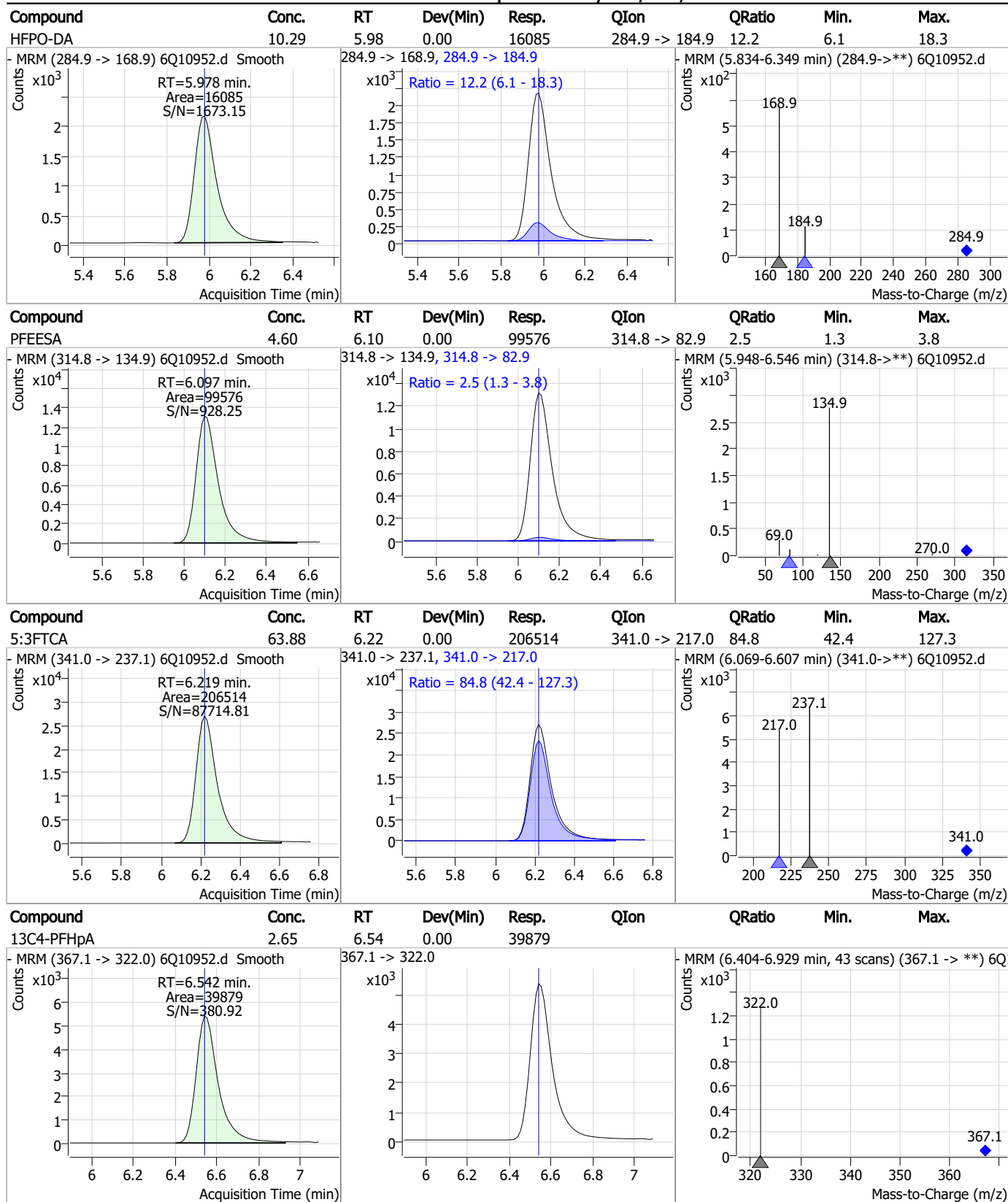


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.10	5.98	0.00	15461				



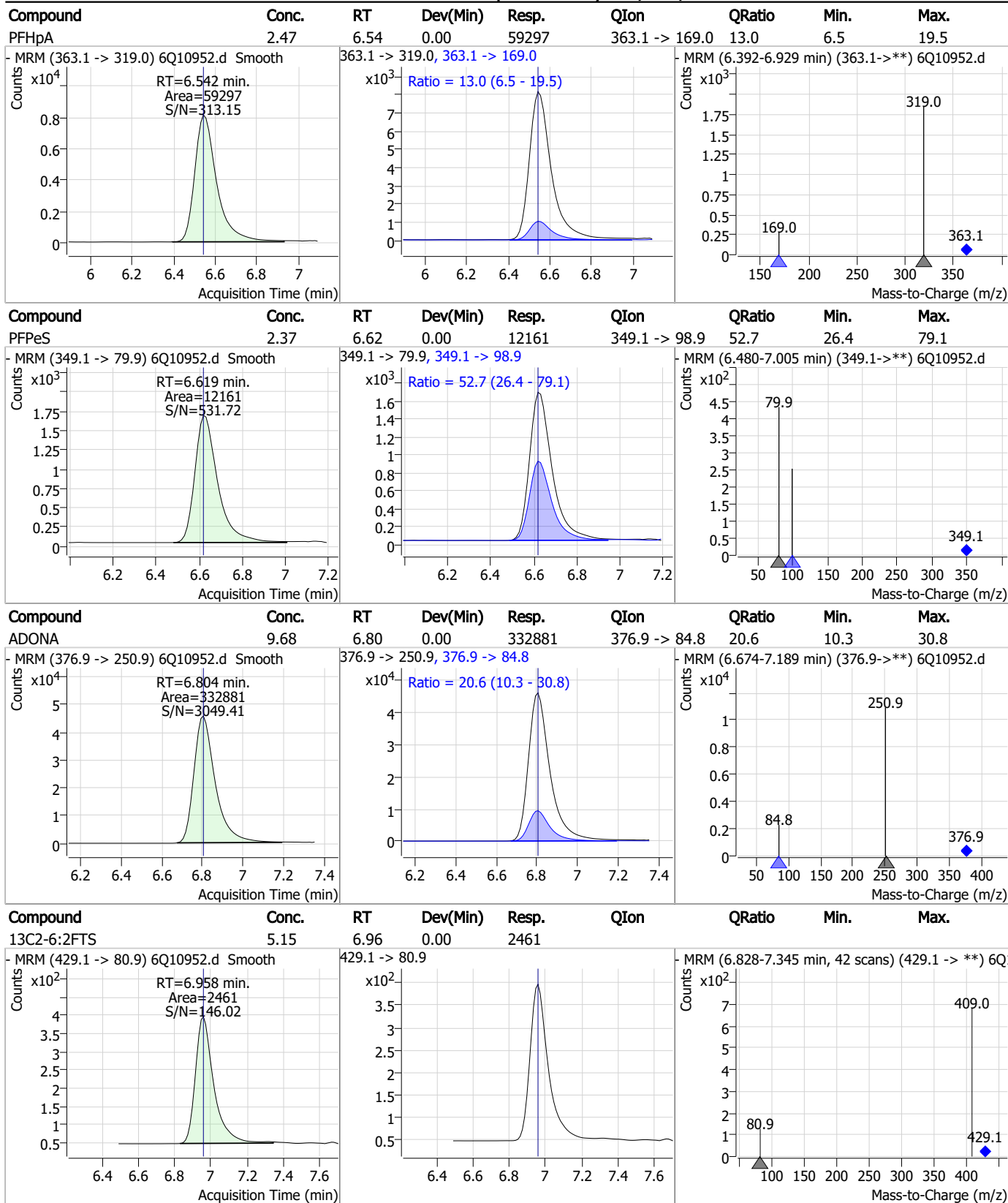
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Perfluorinated Compounds by LC/MS/MS



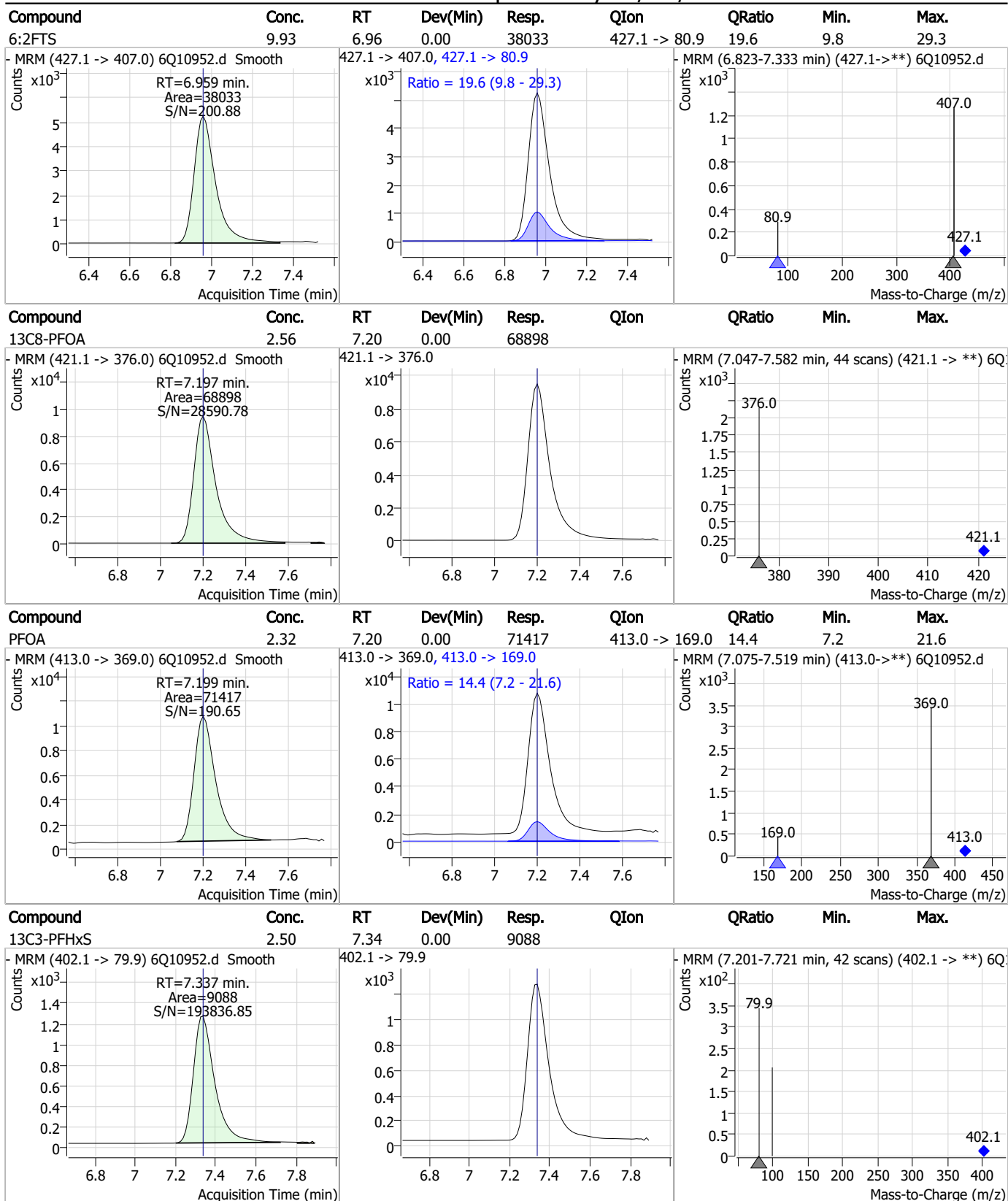
7.7.5
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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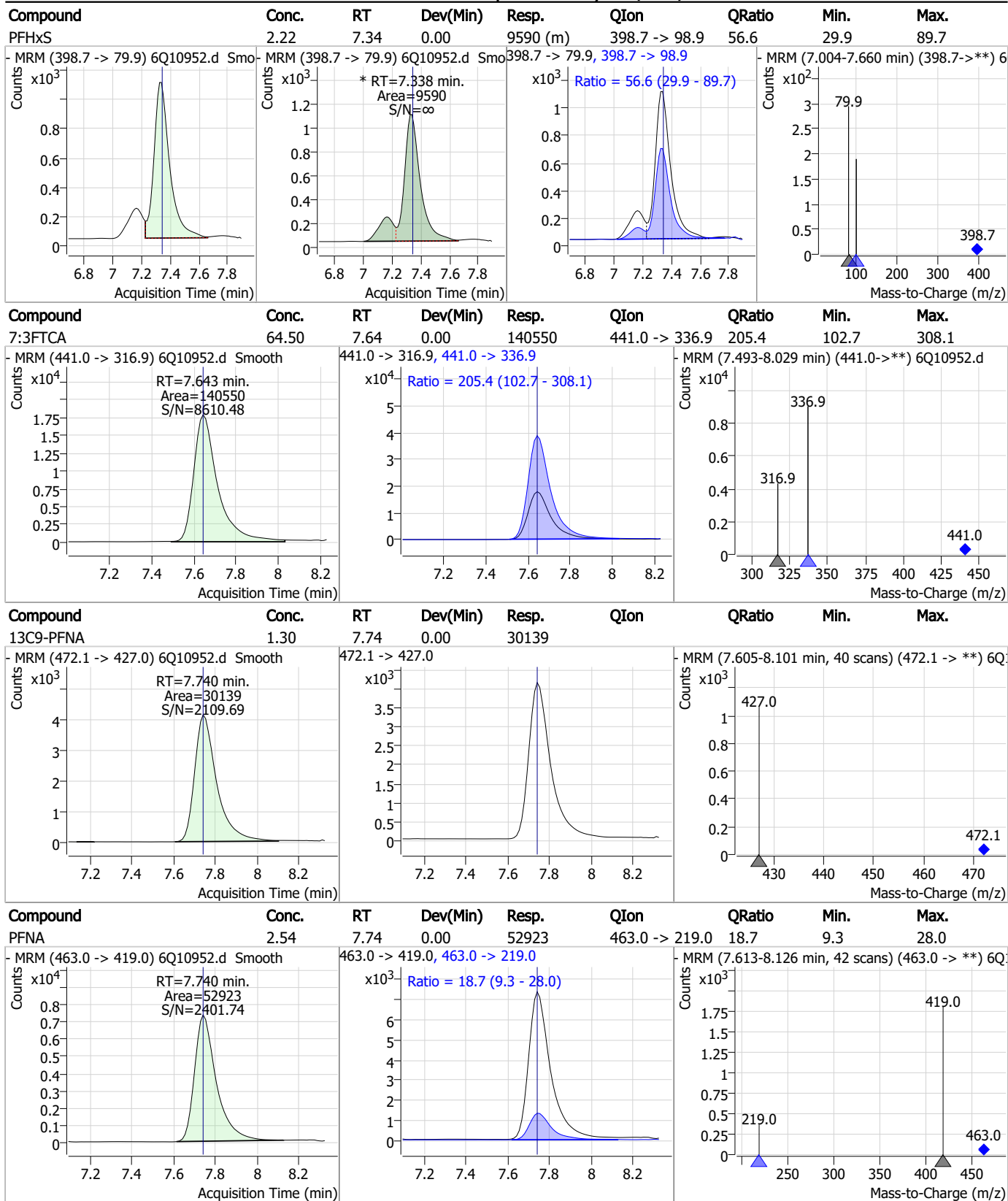
Perfluorinated Compounds by LC/MS/MS



7.7.5

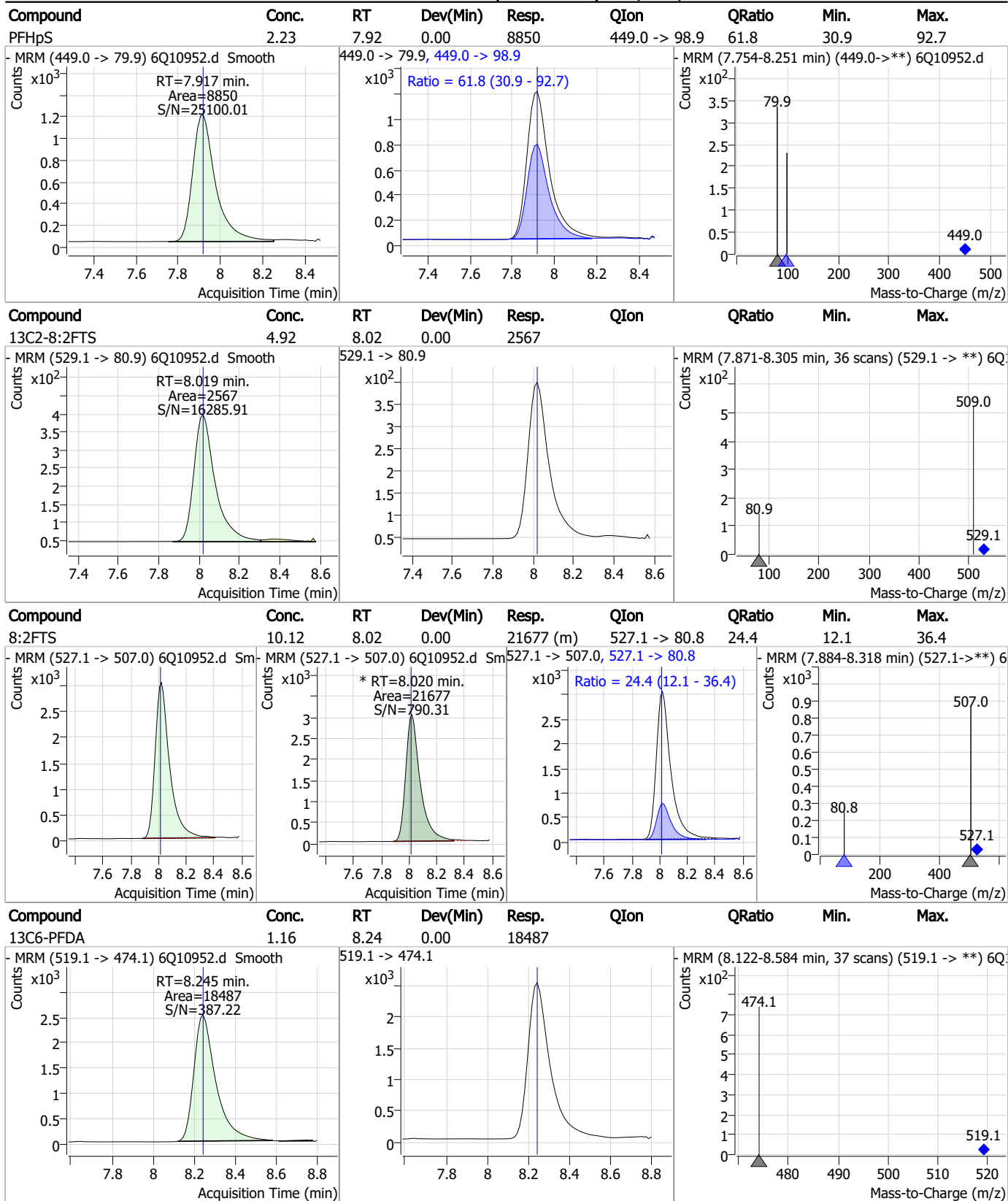
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Perfluorinated Compounds by LC/MS/MS



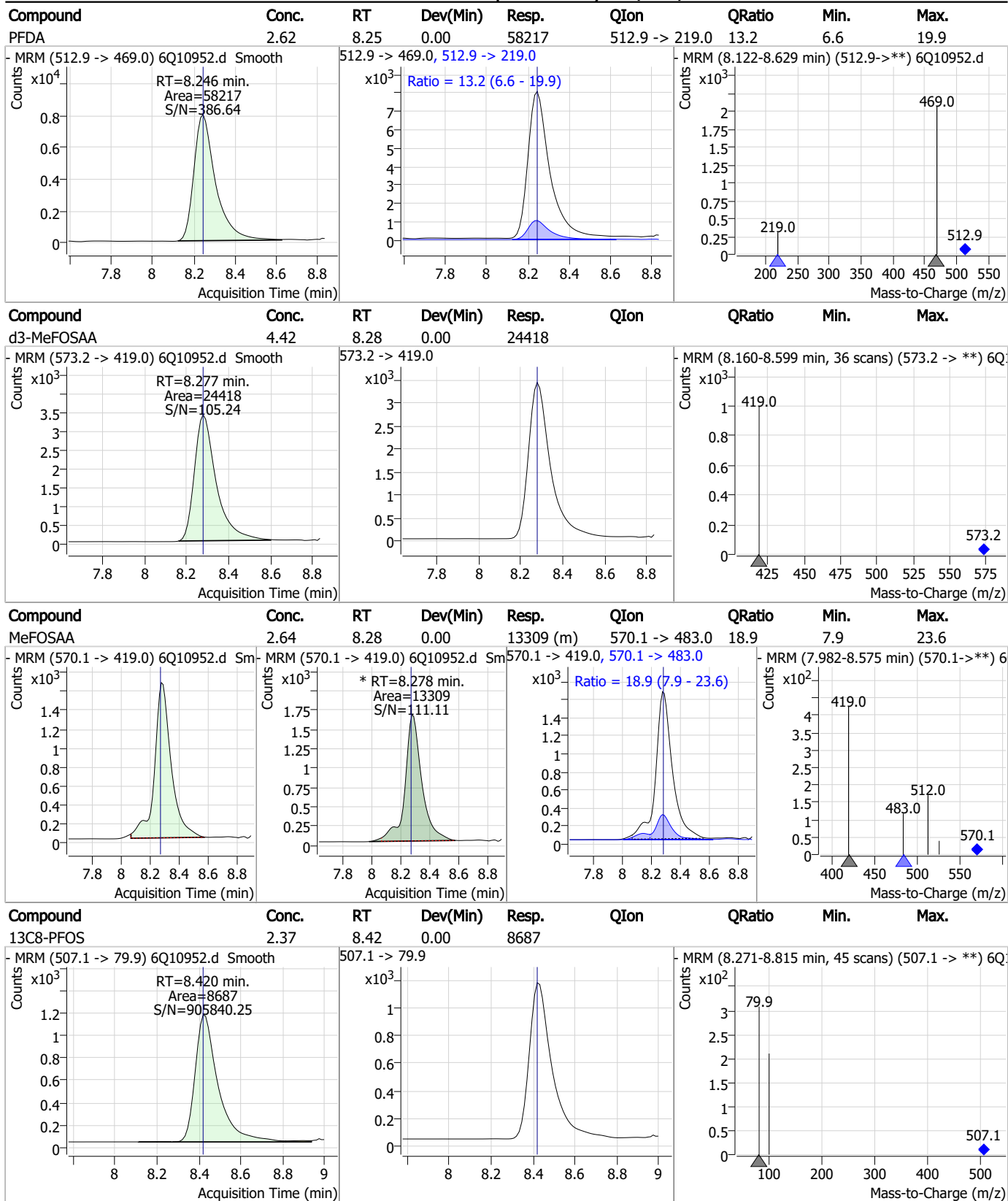
7.7.5
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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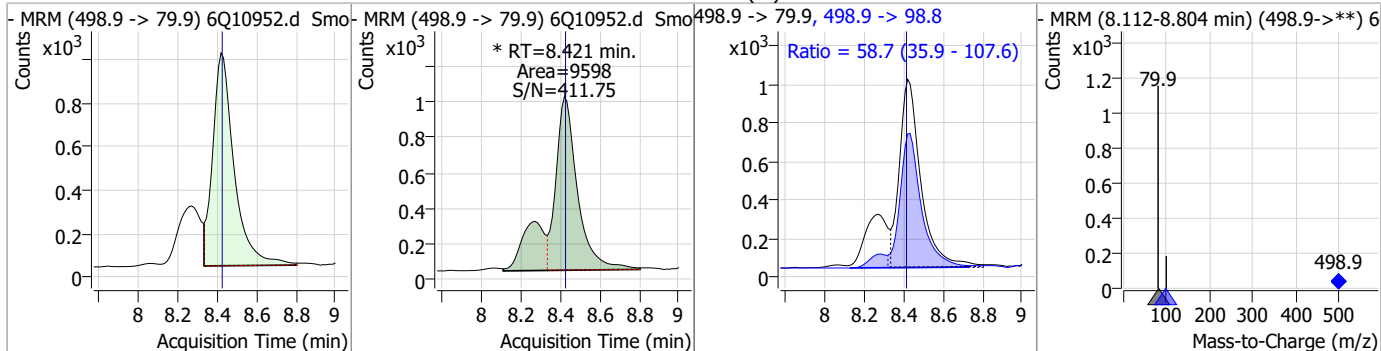
Perfluorinated Compounds by LC/MS/MS



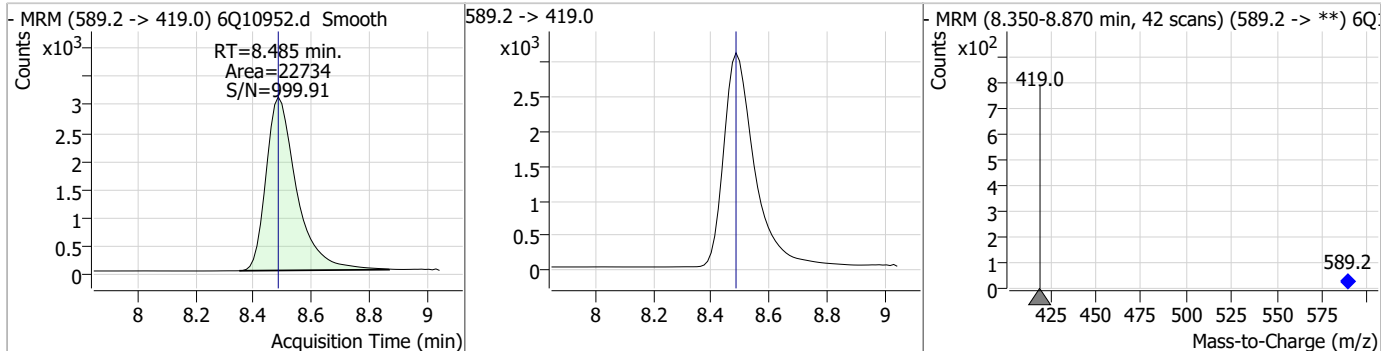
7.7.5
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Perfluorinated Compounds by LC/MS/MS

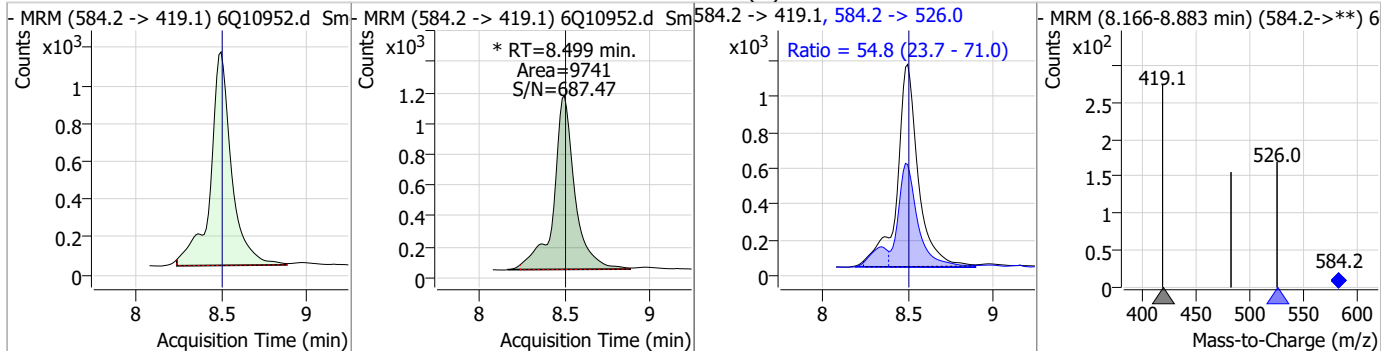
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.28	8.42	0.00	9598 (m)	498.9 -> 98.8	58.7	35.9	107.6



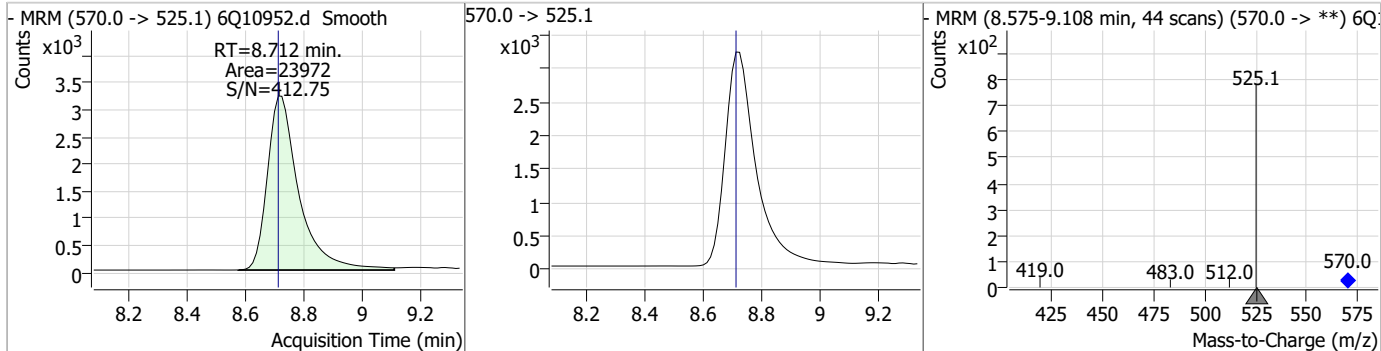
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.69	8.49	0.00	22734				



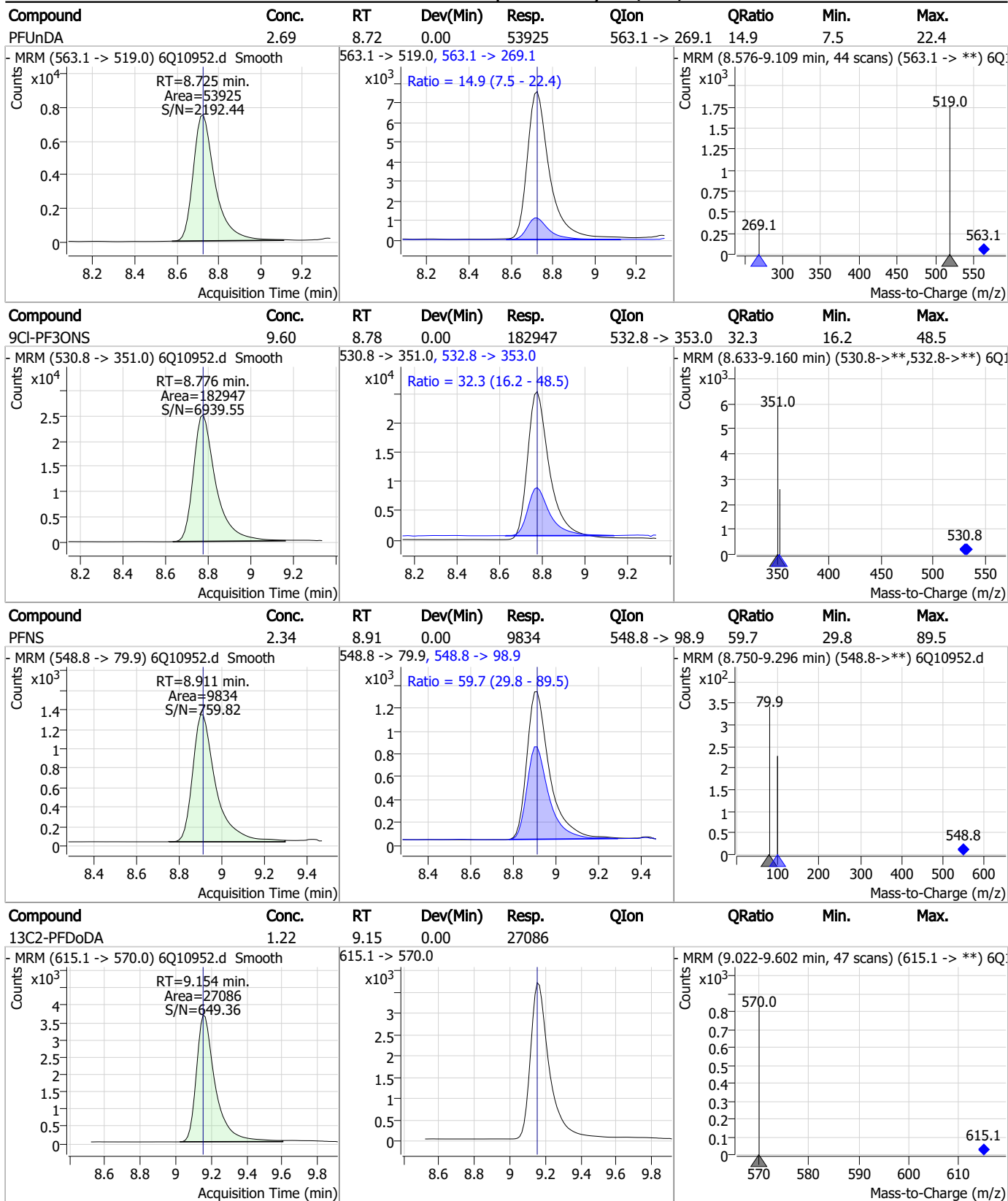
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.68	8.50	0.00	9741 (m)	584.2 -> 526.0	54.8	23.7	71.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.23	8.71	0.00	23972				

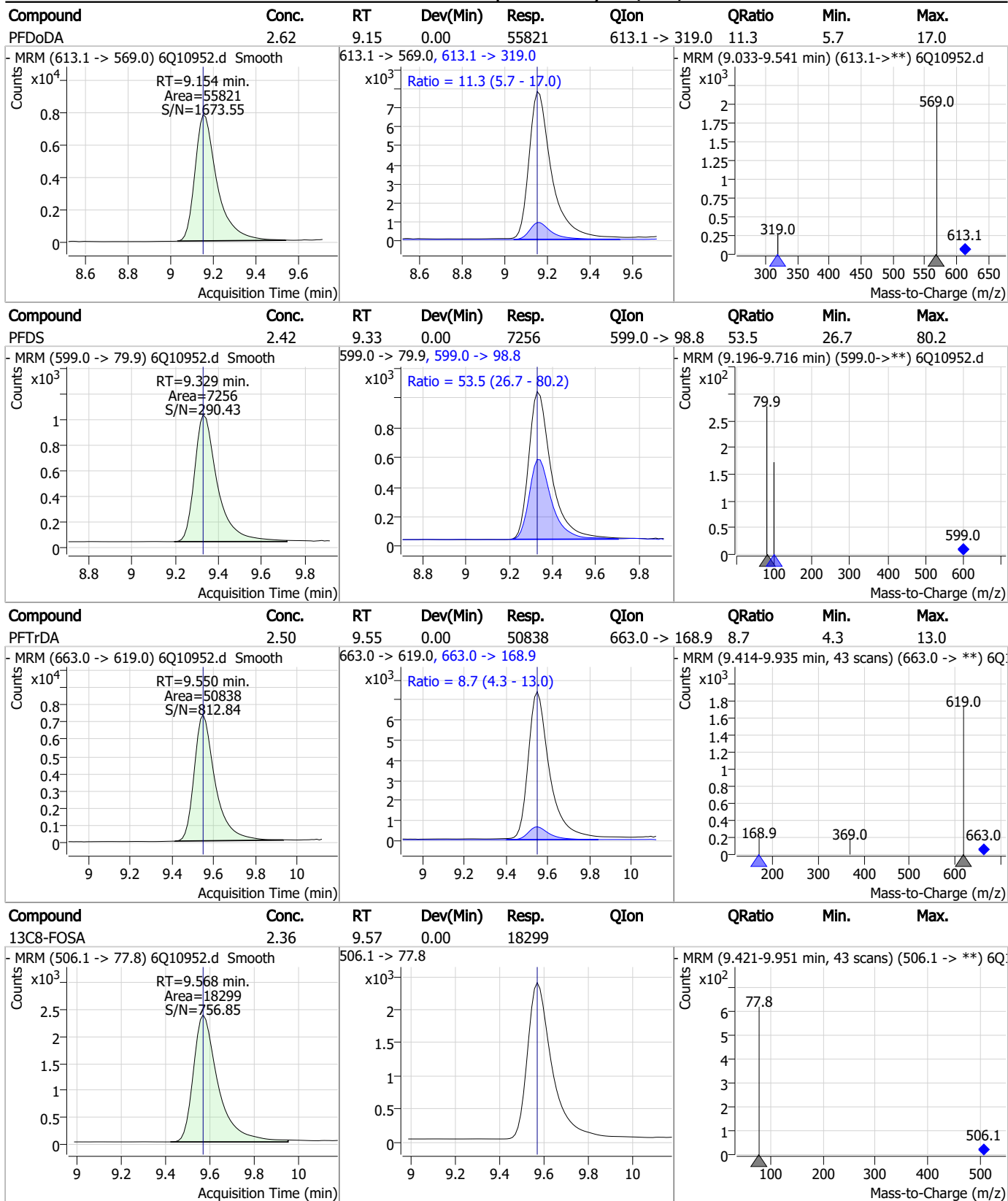


Perfluorinated Compounds by LC/MS/MS



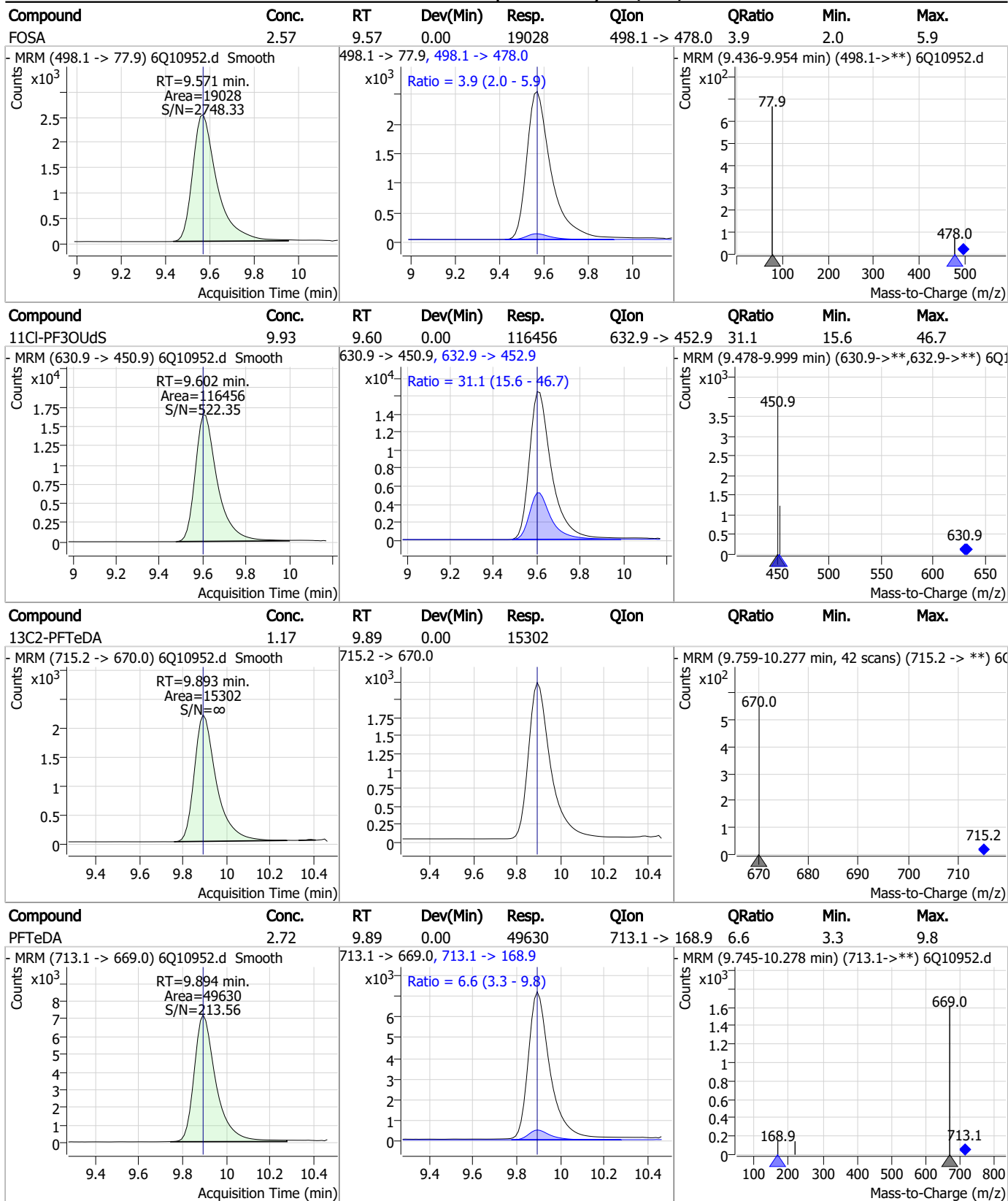
7.7.5
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Perfluorinated Compounds by LC/MS/MS



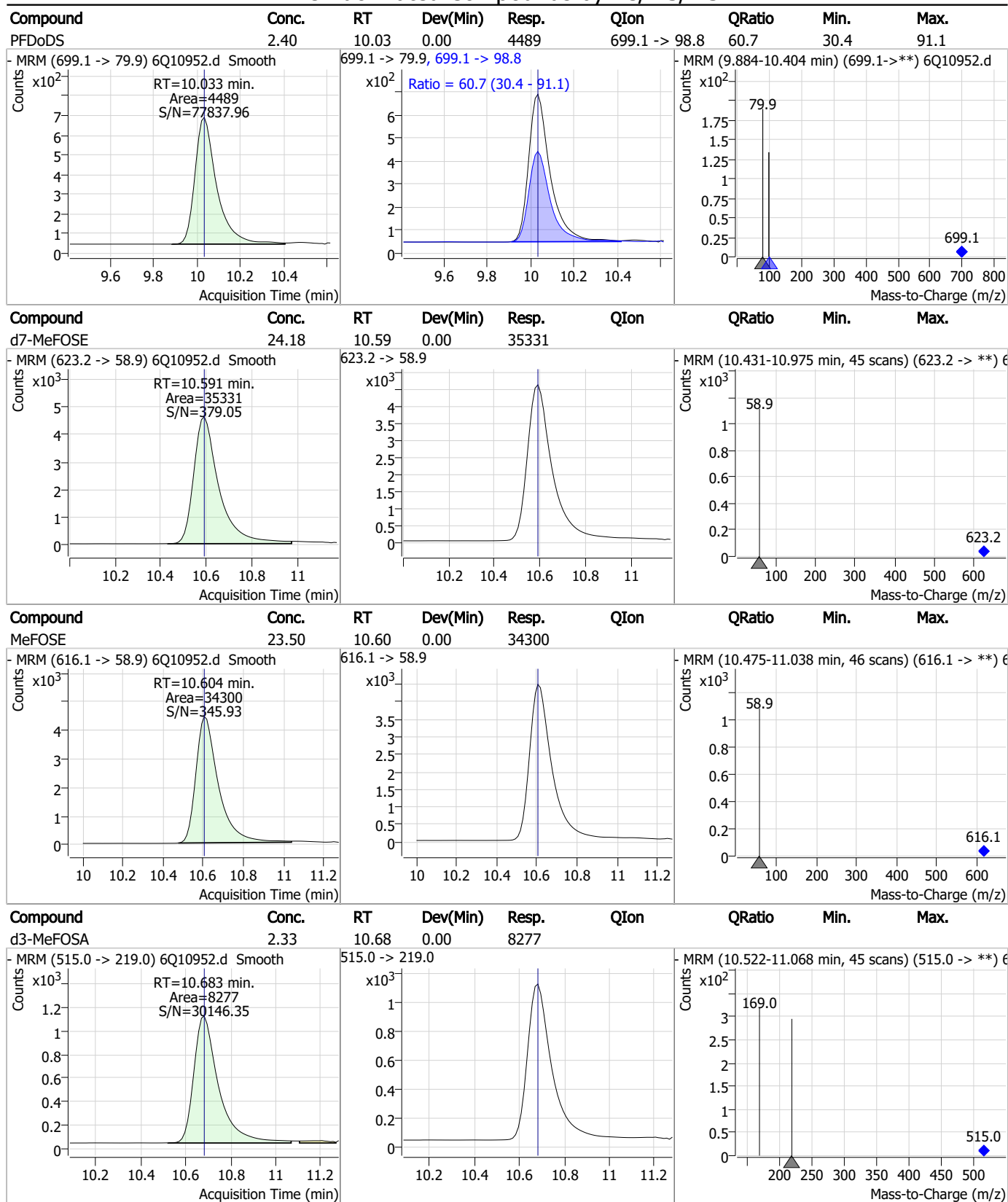
7.7.5
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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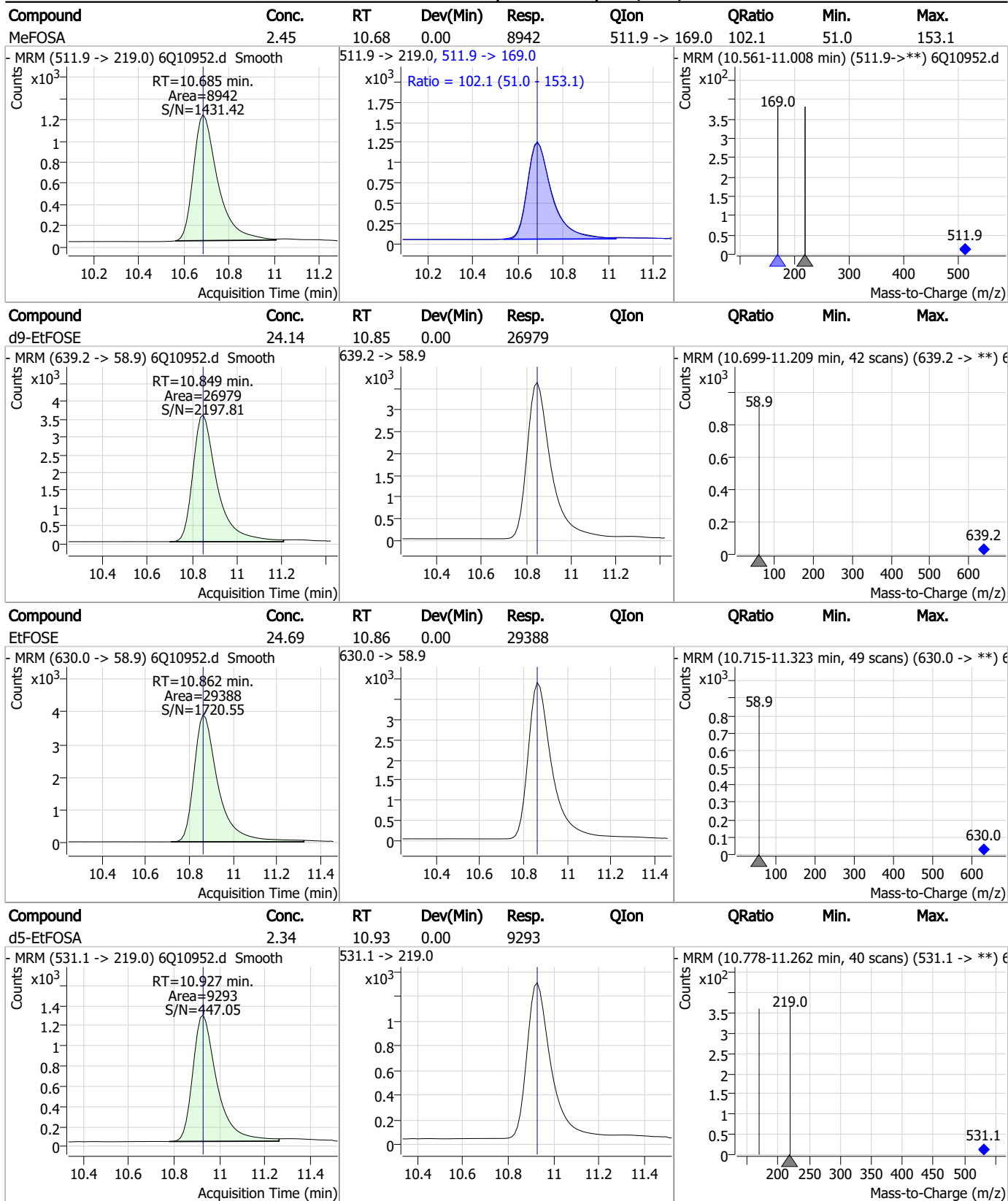
Perfluorinated Compounds by LC/MS/MS



7.7.5
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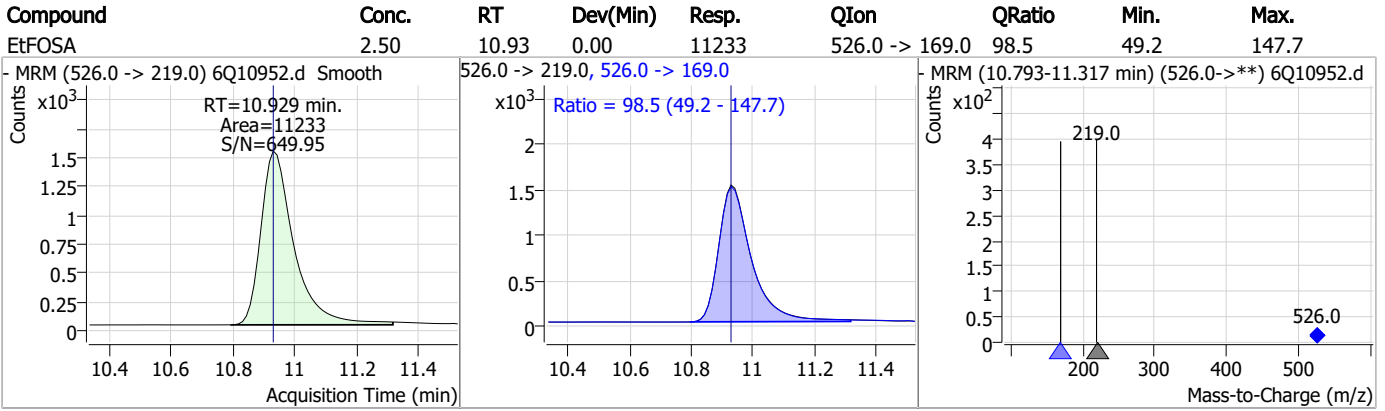


Perfluorinated Compounds by LC/MS/MS



7.7.5
7

Perfluorinated Compounds by LC/MS/MS



7.7.5

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Manual Integration Approval Summary

Sample Number: S6Q174-ICC174 Method: EPA DRAFT 1633
Lab FileID: 6Q10952.D Analyst approved: 01/12/23 11:46 Martha Valls
Injection Time: 01/11/23 12:32 Supervisor approved: 01/12/23 15:42 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.34	Split peak
8:2 Fluorotelomer sulfonate	39108-34-4		8.02	Split peak
MeFOSAA	2355-31-9		8.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.42	Split peak
EtFOSAA	2991-50-6		8.50	Split peak

7.7.5.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q10953.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/11/2023 12:46:21 PM
 Sample Name : ic174-5
 Vial : P1-A6
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : S6Q174.batch.bin
 Sample Information : OP94795,S6Q174,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	94150	10.00 µg/L	0.000
M5-PFPeA	4.397	268.3 -> 223.0	45048	5.00 µg/L	0.000
M5-PFHxA	5.588	318.0 -> 273.0	39977	2.50 µg/L	0.000
M4-PFHpA	6.542	367.1 -> 322.0	41152	2.50 µg/L	0.000
M8-PFOA	7.197	421.1 -> 376.0	69424	2.50 µg/L	0.000
M9-PFNA	7.740	472.1 -> 427.0	29894	1.25 µg/L	0.000
M6-PFDA	8.245	519.1 -> 474.1	19962	1.25 µg/L	0.000
M7-PFUnDA	8.724	570.0 -> 525.1	26040	1.25 µg/L	0.012
M2-PFDoDA	9.166	615.1 -> 570.0	28150	1.25 µg/L	0.012
M2-PFTeDA	9.893	715.2 -> 670.0	16692	1.25 µg/L	0.000
M8-FOSA	9.568	506.1 -> 77.8	20003	2.50 µg/L	0.000
M3-PFBS	5.544	302.1 -> 79.9	14919	2.50 µg/L	-0.012
M3-PFHxS	7.337	402.1 -> 79.9	10110	2.50 µg/L	0.000
M8-PFOS	8.420	507.1 -> 79.9	9393	2.50 µg/L	0.000
M2-4:2FTS	5.253	329.1 -> 80.9	1970	5.00 µg/L	0.000
M2-6:2FTS	6.958	429.1 -> 80.9	2535	5.00 µg/L	0.000
M2-8:2FTS	8.019	529.1 -> 80.9	2748	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	27474	5.00 µg/L	0.000
M3-HFPO-DA	5.978	286.9 -> 168.9	16179	10.00 µg/L	0.000
M5-EtFOSAA	8.485	589.2 -> 419.0	24744	5.00 µg/L	0.000
M7-MeFOSE	10.591	623.2 -> 58.9	34960	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	27281	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	10233	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	8716	2.50 µg/L	0.000
13C4-PFOS	8.421	502.8 -> 79.9	11377	2.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	41316	5.00 µg/L	-0.012
18O2-PFHxS	7.336	403.0 -> 83.9	7205	2.50 µg/L	0.000
13C4-PFOA	7.198	417.1 -> 372.0	83477	2.50 µg/L	0.000
13C2-PFDA	8.245	515.1 -> 470.1	33376	1.25 µg/L	0.000
13C5-PFNA	7.740	468.0 -> 423.0	36374	1.25 µg/L	0.000
13C2-PFHxA	5.589	315.1 -> 270.0	38127	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.253	329.1 -> 80.9	1970	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C2-6:2FTS	6.958	429.1 -> 80.9	2535	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C2-8:2FTS	8.019	529.1 -> 80.9	2748	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C2-PFDoDA	9.166	615.1 -> 570.0	28150	1.06 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 85.1%		
13C2-PFTeDA	9.893	715.2 -> 670.0	16692	1.07 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 85.9%		
13C3-PFBS	5.544	302.1 -> 79.9	14919	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C3-PFHxS	7.337	402.1 -> 79.9	10110	2.58 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 = 103.4%		
13C4-PFBA	3.000	216.8 -> 171.9	94150	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C4-PFHpA	6.542	367.1 -> 322.0	41152	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.5%		
13C5-PFHxA	5.588	318.0 -> 273.0	39977	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C5-PFPeA	4.397	268.3 -> 223.0	45048	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C6-PFDA	8.245	519.1 -> 474.1	19962	1.05 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 84.0%		
13C7-PFUnDA	8.724	570.0 -> 525.1	26040	1.12 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.8%		
13C8-FOSA	9.568	506.1 -> 77.8	20003	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C8-PFOA	7.197	421.1 -> 376.0	69424	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C8-PFOS	8.420	507.1 -> 79.9	9393	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C9-PFNA	7.740	472.1 -> 427.0	29894	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.5%		
d3-MeFOSAA	8.277	573.2 -> 419.0	27474	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C3-HFPO-DA	5.978	286.9 -> 168.9	16179	10.29 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.9%		
d3-MeFOSA	10.683	515.0 -> 219.0	8716	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.1%		
d5-EtFOSAA	8.485	589.2 -> 419.0	24744	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
d7-MeFOSE	10.591	623.2 -> 58.9	34960	24.14 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
d9-EtFOSE	10.849	639.2 -> 58.9	27281	24.63 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
d5-EtFOSA	10.927	531.1 -> 219.0	10233	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.9%		
Target Compounds					QValue
4:2FTS	5.254	327.1 -> 307.0	82074	17.52 µg/L	94
		327.1 -> 80.9	19218		
6:2FTS	6.959	427.1 -> 407.0	78105	19.80 µg/L	100
		427.1 -> 80.9	15219		
8:2FTS	8.020	527.1 -> 507.0	44933	19.60 µg/L	100
		527.1 -> 80.8	10977		
EtFOSAA	8.499	584.2 -> 419.1	18803	4.76 µg/L	m 89
		584.2 -> 526.0	10246		
FOSA	9.571	498.1 -> 77.9	39389	4.87 µg/L	100
		498.1 -> 478.0	1521		
MeFOSAA	8.278	570.1 -> 419.0	27530	4.86 µg/L	m 91
		570.1 -> 483.0	5396		
PFBA	2.994	212.8 -> 168.9	46897	19.42 µg/L	100
PFBS	5.557	298.7 -> 79.9	25909	4.29 µg/L	95
		298.7 -> 98.8	11639		
PFDA	8.246	512.9 -> 469.0	117743	4.91 µg/L	98
		512.9 -> 219.0	16304		
PFDoDA	9.166	613.1 -> 569.0	114786	5.18 µg/L	100
		613.1 -> 319.0	12770		
PFDS	9.329	599.0 -> 79.9	14697	4.53 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	7896			
PFHpA	6.542	363.1 -> 319.0	123008	4.96	µg/L	98
		363.1 -> 169.0	17035			
PFHpS	7.905	449.0 -> 79.9	20211	4.70	µg/L	93
		449.0 -> 98.9	11344			
PFHxA	5.591	313.0 -> 269.0	77280	4.78	µg/L	99
		313.0 -> 118.9	2855			
PFHxS	7.338	398.7 -> 79.9	19825	4.12	µg/L	m 95
		398.7 -> 98.9	11095			
PFNA	7.740	463.0 -> 419.0	114716	5.55	µg/L	98
		463.0 -> 219.0	20540			
PFNS	8.911	548.8 -> 79.9	20466	4.51	µg/L	96
		548.8 -> 98.9	11640			
PFOA	7.199	413.0 -> 369.0	150226	4.84	µg/L	99
		413.0 -> 169.0	20789			
PFOS	8.421	498.9 -> 79.9	19890	4.37	µg/L	m 88
		498.9 -> 98.8	12261			
PFPeA	4.401	263.0 -> 219.0	97371	9.84	µg/L	100
PFPeS	6.619	349.1 -> 79.9	24385	4.28	µg/L	95
		349.1 -> 98.9	13640			
PFTeDA	9.894	713.1 -> 669.0	97104	4.88	µg/L	100
		713.1 -> 168.9	6268			
PFTrDA	9.550	663.0 -> 619.0	108770	5.15	µg/L	98
		663.0 -> 168.9	8646			
PFUnDA	8.725	563.1 -> 519.0	106630	4.90	µg/L	100
		563.1 -> 269.1	16033			
11CI-PF3OUdS	9.614	630.9 -> 450.9	245103	19.98	µg/L	97
		632.9 -> 452.9	71805			
9CI-PF3ONS	8.776	530.8 -> 351.0	374484	18.79	µg/L	97
		532.8 -> 353.0	115620			
ADONA	6.804	376.9 -> 250.9	710208	19.74	µg/L	99
		376.9 -> 84.8	141390			
HFPO-DA	5.978	284.9 -> 168.9	32539	19.89	µg/L	100
		284.9 -> 184.9	3971			
3:3FTCA	3.839	241.0 -> 177.0	12645	23.99	µg/L	99
		241.0 -> 117.0	1593			
5:3FTCA	6.219	341.0 -> 237.1	402418	119.79	µg/L	97
		341.0 -> 217.0	350627			
7:3FTCA	7.643	441.0 -> 316.9	288019	127.20	µg/L	99
		441.0 -> 336.9	585941			
EtFOSA	10.929	526.0 -> 219.0	23533	4.75	µg/L	97
		526.0 -> 169.0	22580			
EtFOSE	10.862	630.0 -> 58.9	60268	50.08	µg/L	100
MeFOSA	10.685	511.9 -> 219.0	18903	4.91	µg/L	99
		511.9 -> 169.0	19105			
MeFOSE	10.604	616.1 -> 58.9	75505	52.29	µg/L	100
PFDoDS	10.033	699.1 -> 79.9	9005	4.45	µg/L	92
		699.1 -> 98.8	6016			
NFDHA	5.483	295.0 -> 201.0	10350	9.88	µg/L	97
		295.0 -> 84.9	4312			
PFMBA	4.813	279.0 -> 85.1	29815	9.66	µg/L	100
PFMPA	3.550	229.0 -> 84.9	26558	9.70	µg/L	100
PFEESA	6.097	314.8 -> 134.9	208362	9.26	µg/L	100
		314.8 -> 82.9	5069			

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

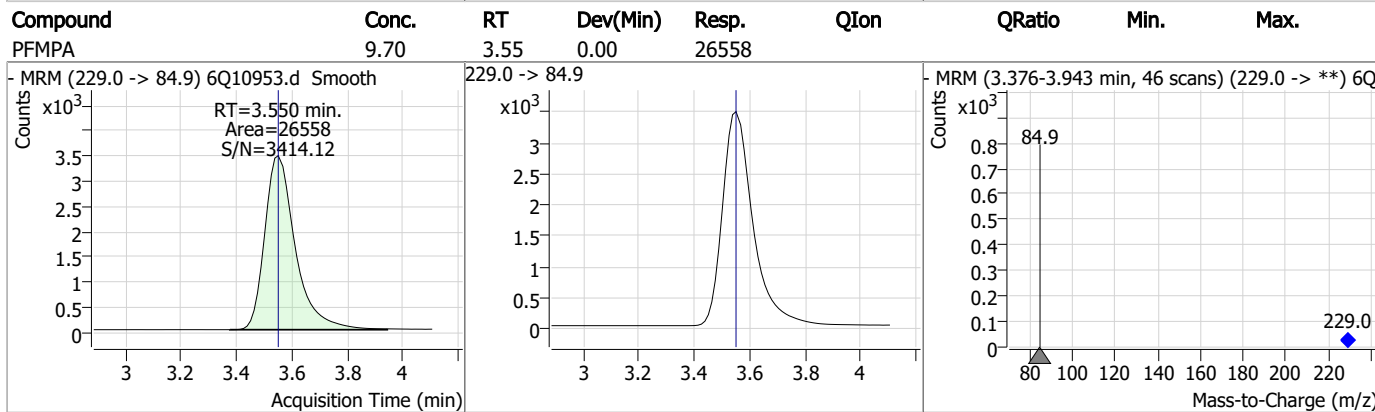
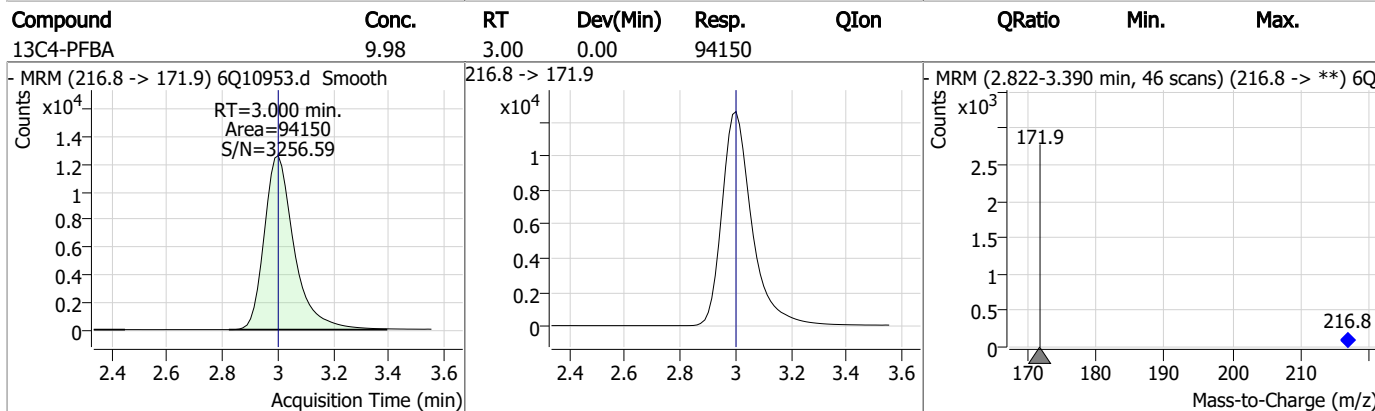
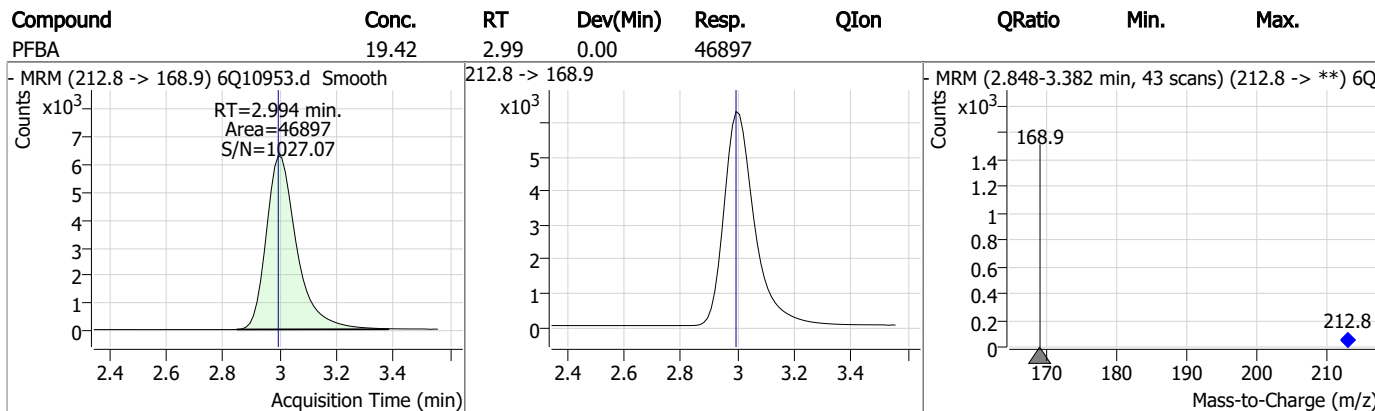
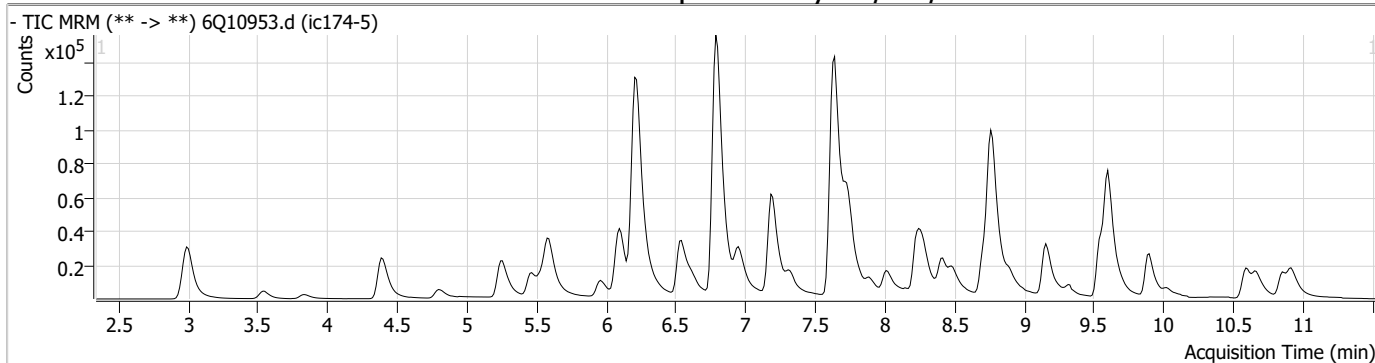
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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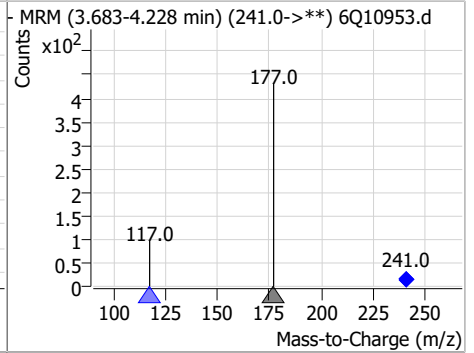
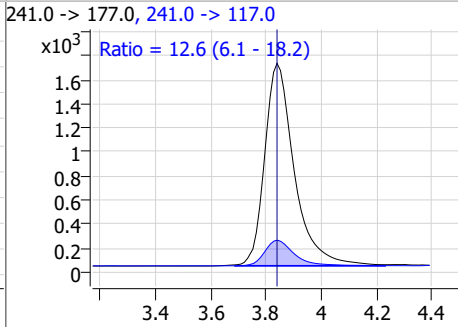
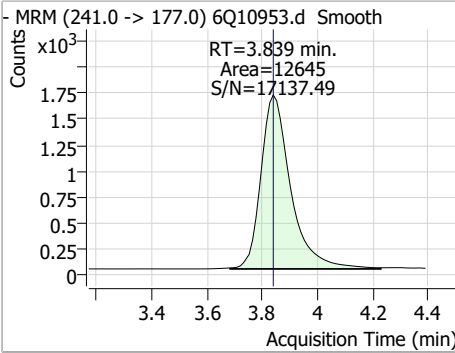
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Perfluorinated Compounds by LC/MS/MS

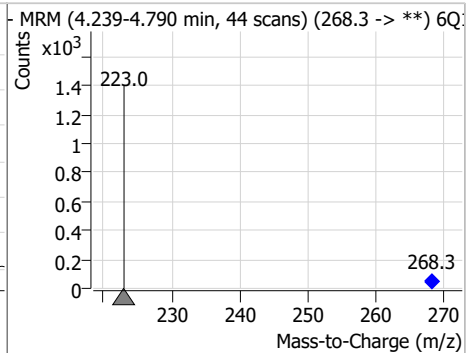
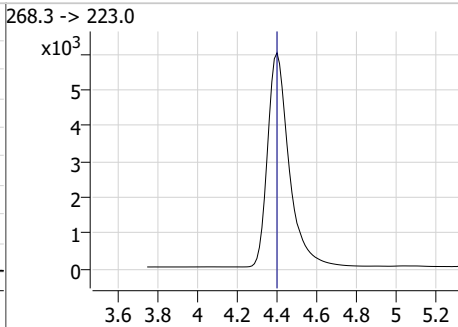
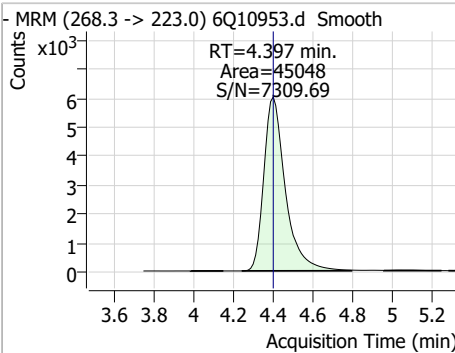


Perfluorinated Compounds by LC/MS/MS

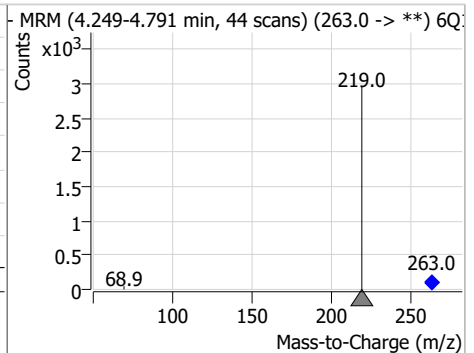
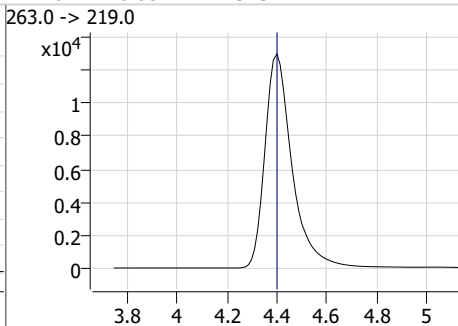
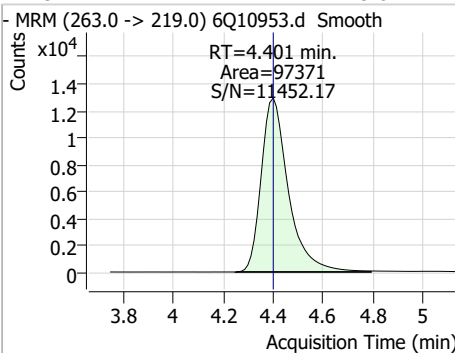
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	23.99	3.84	0.00	12645	241.0 -> 117.0	12.6	6.1	18.2



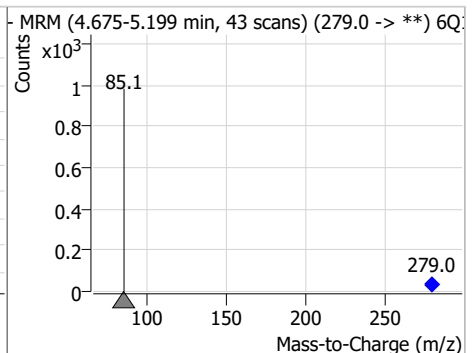
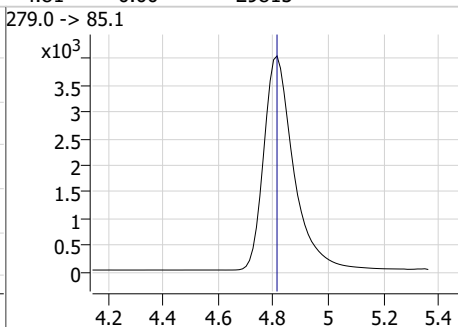
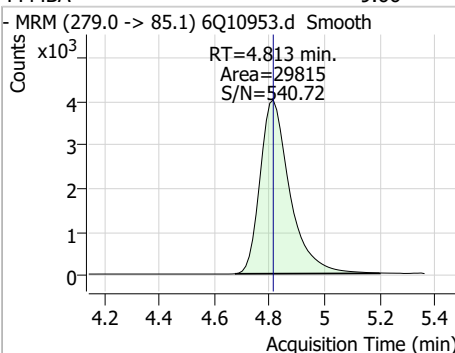
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.30	4.40	0.00	45048				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	9.84	4.40	0.00	97371				



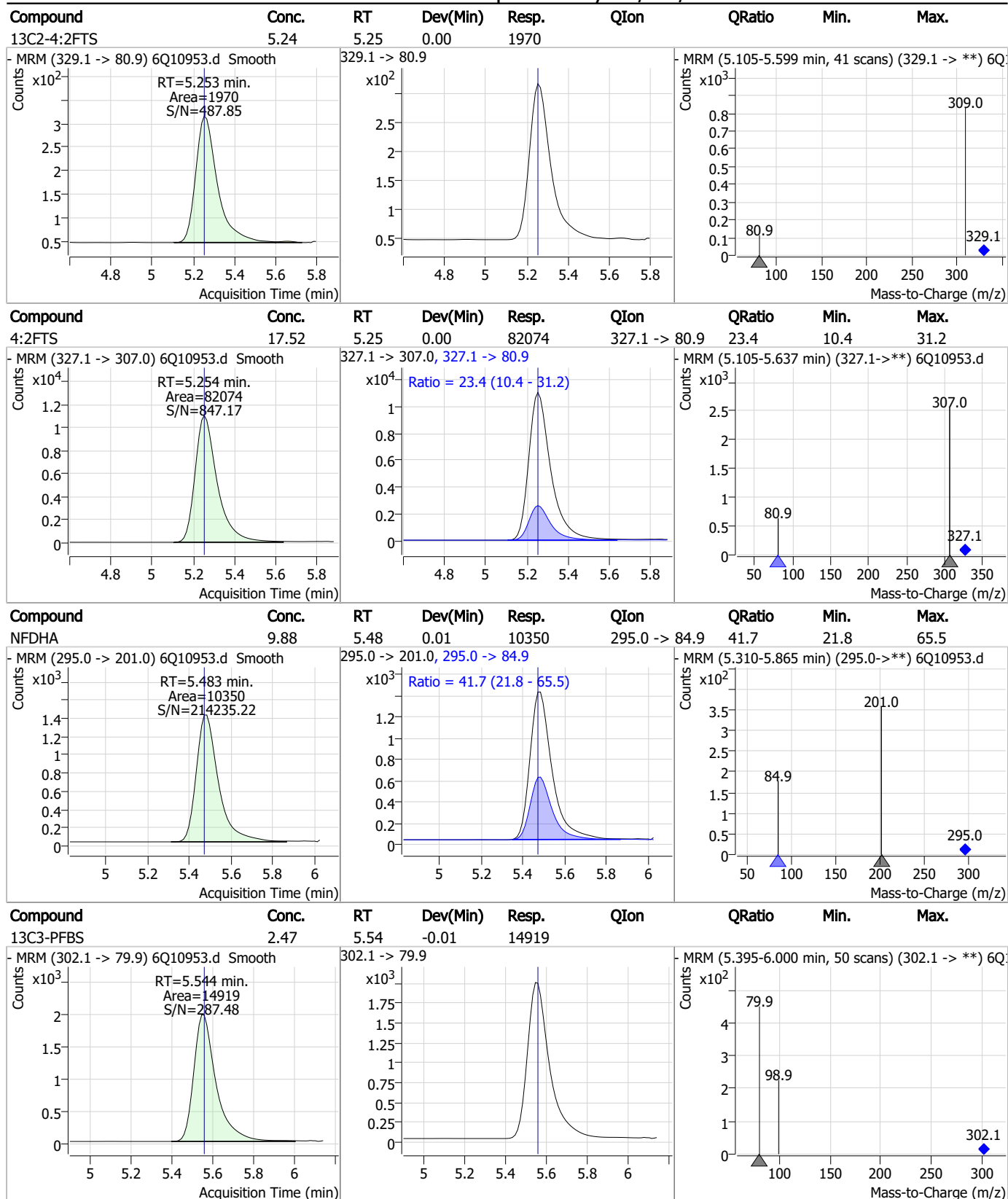
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	9.66	4.81	0.00	29815				



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Perfluorinated Compounds by LC/MS/MS

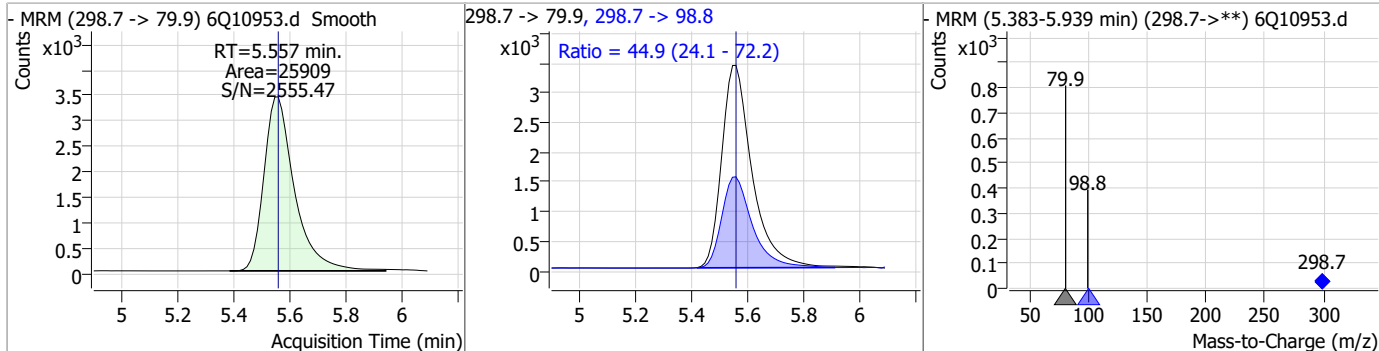


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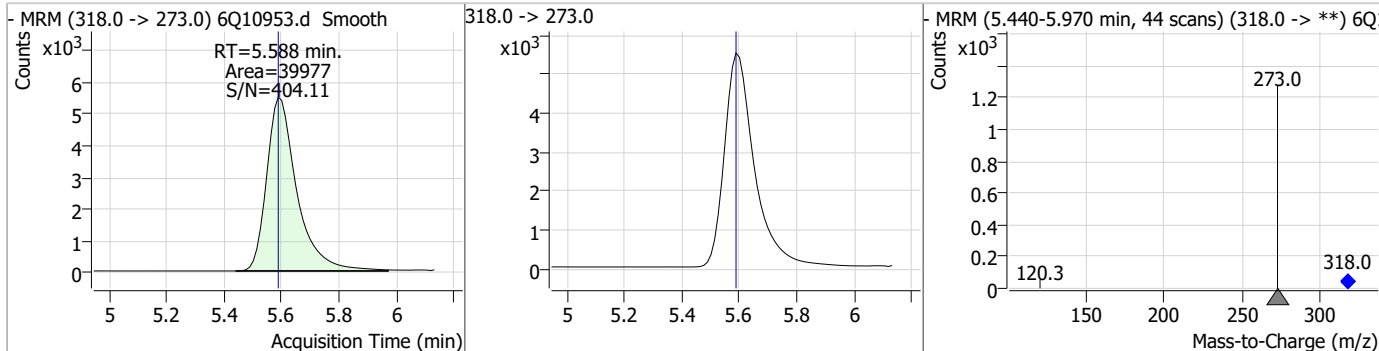


Perfluorinated Compounds by LC/MS/MS

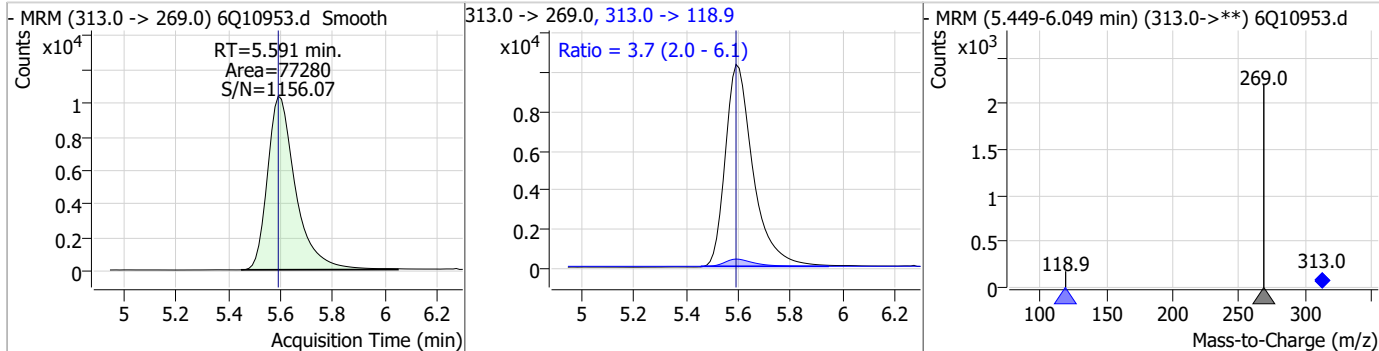
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.29	5.56	0.00	25909	298.7 -> 98.8	44.9	24.1	72.2



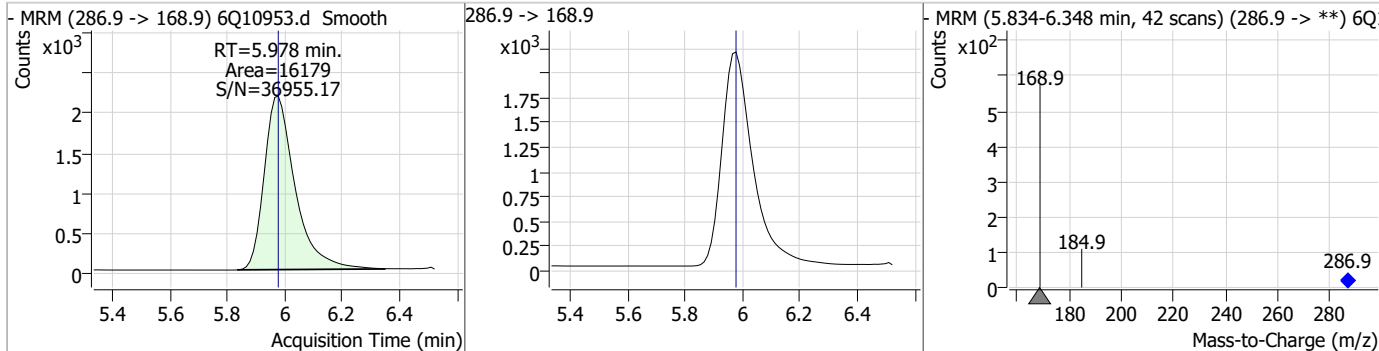
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.61	5.59	0.00	39977				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.78	5.59	0.00	77280	313.0 -> 118.9	3.7	2.0	6.1

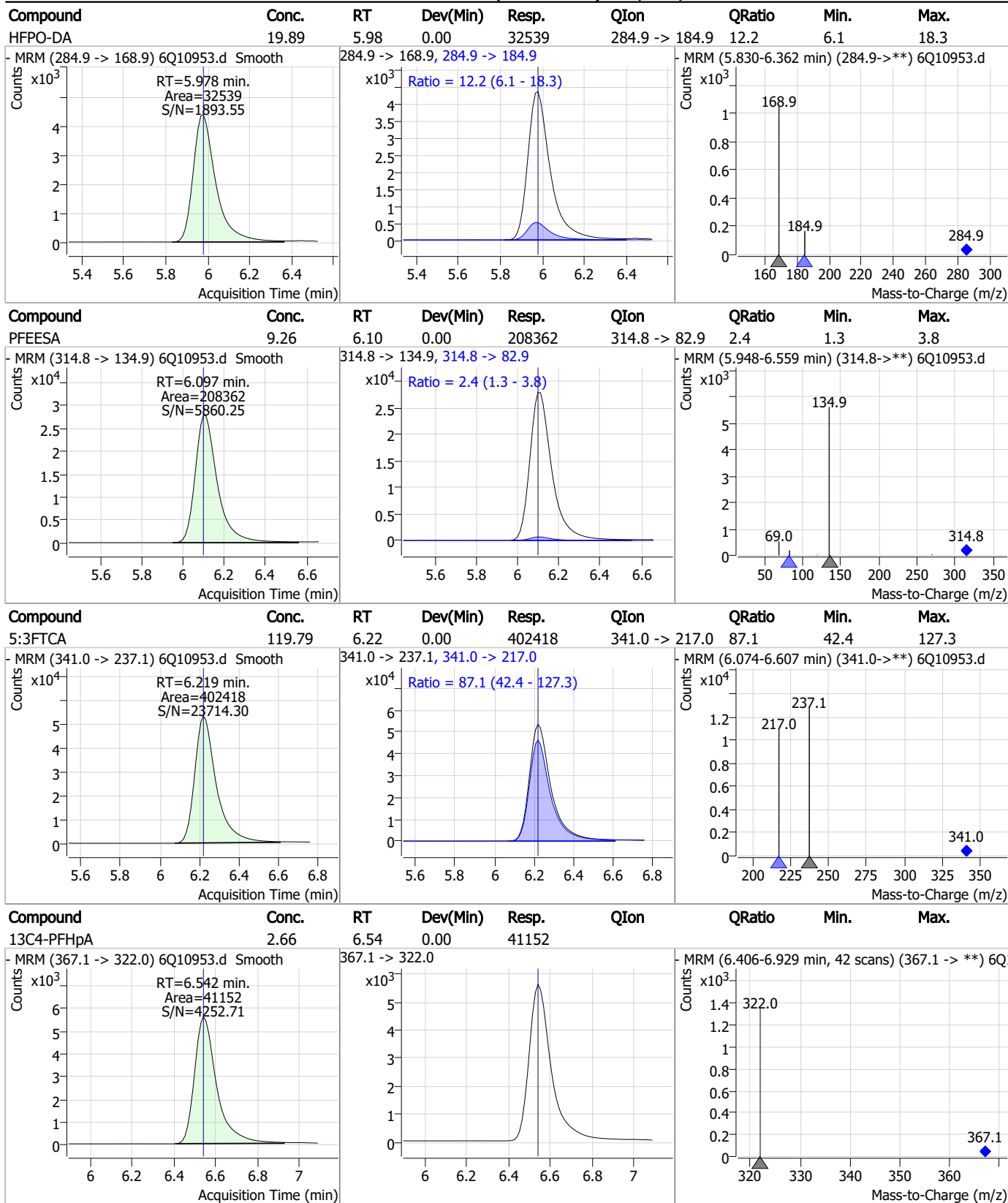


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.29	5.98	0.00	16179				



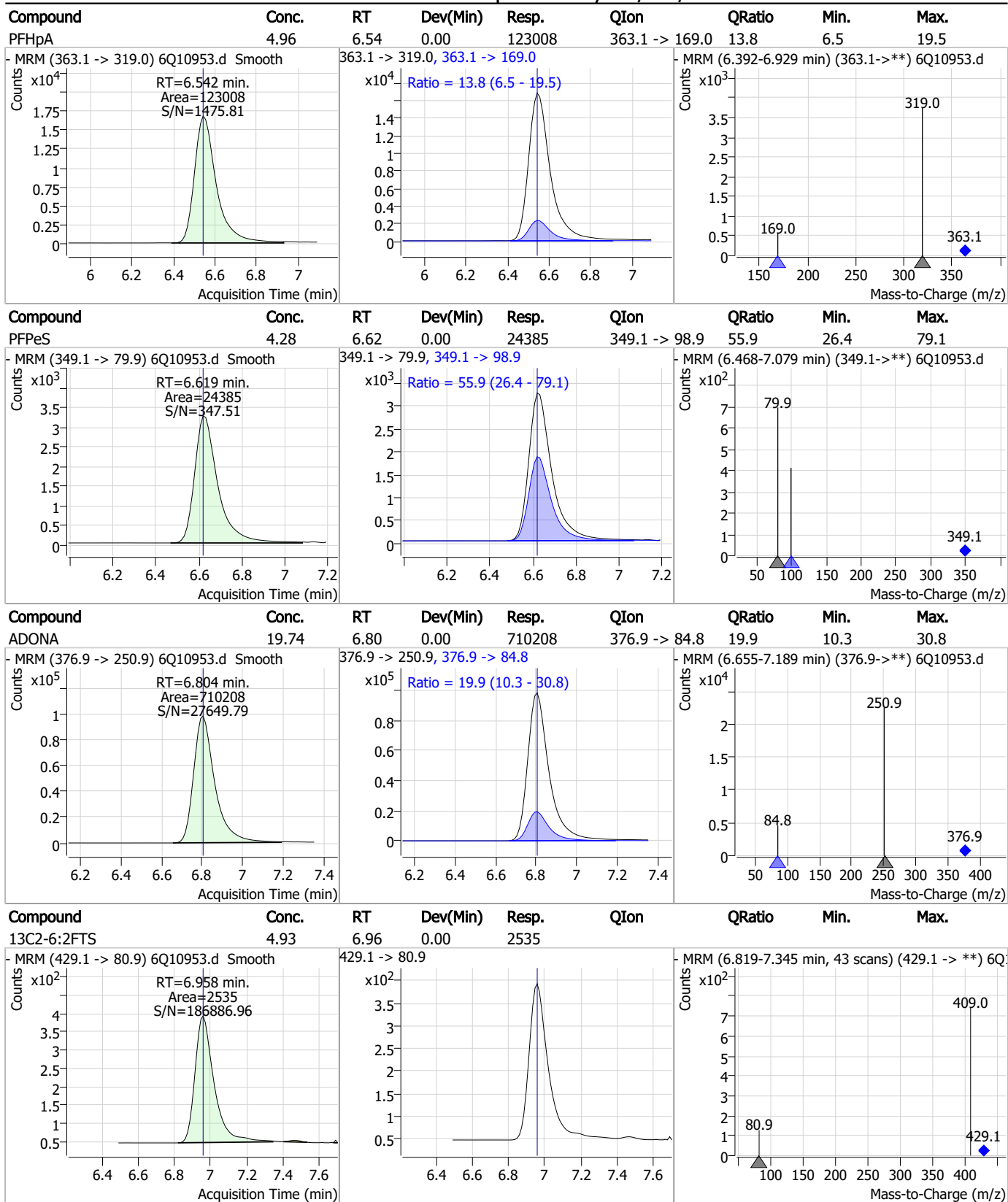
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Perfluorinated Compounds by LC/MS/MS



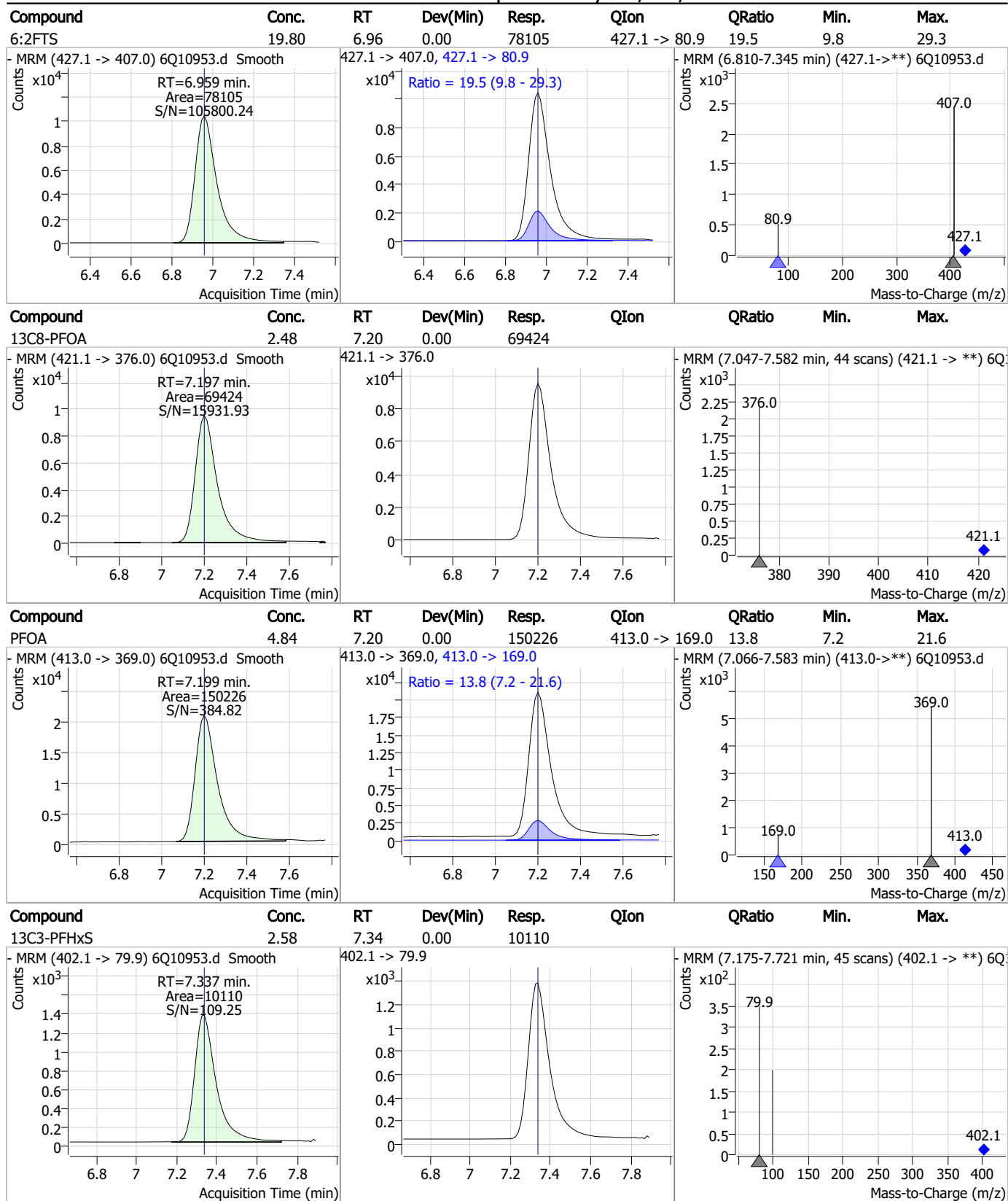
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Perfluorinated Compounds by LC/MS/MS



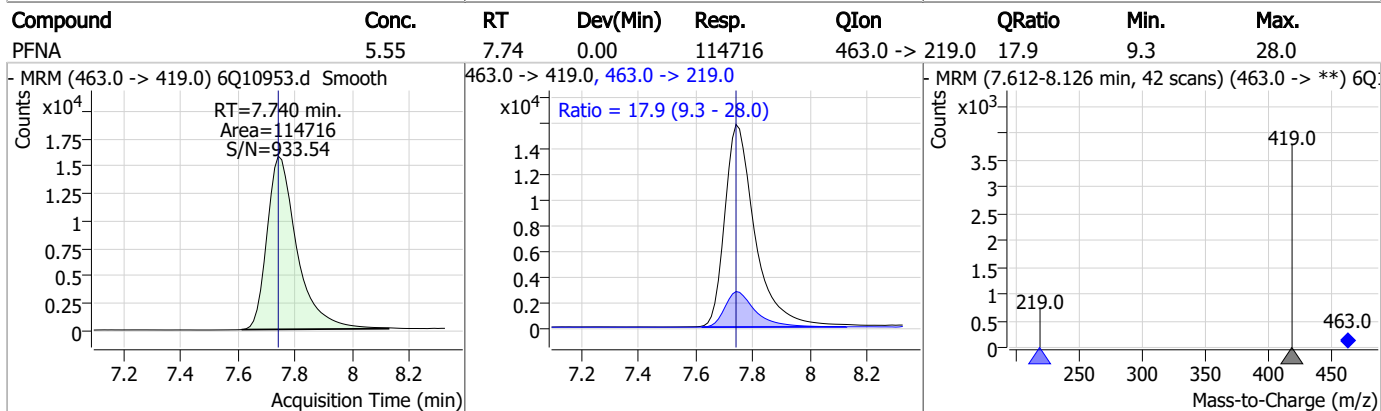
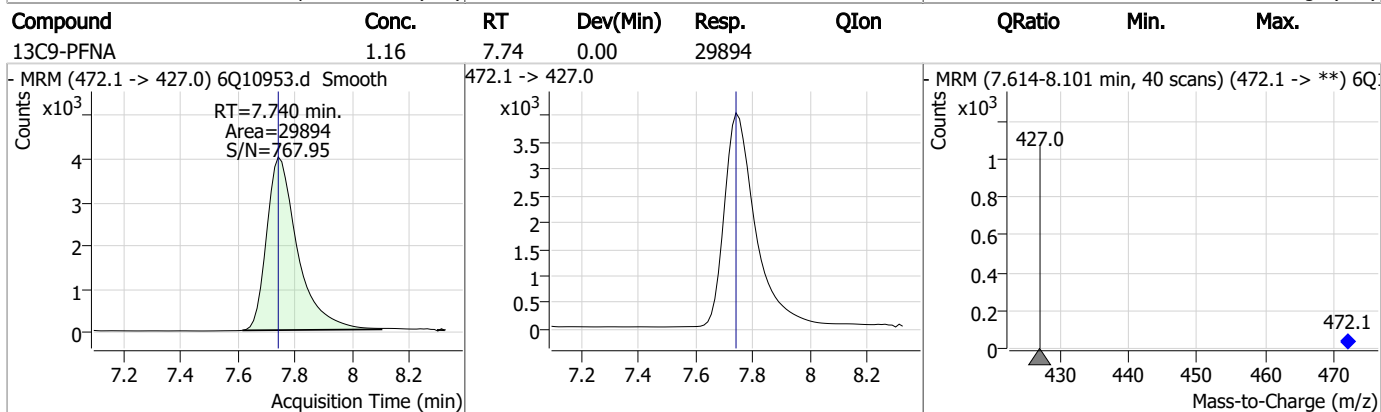
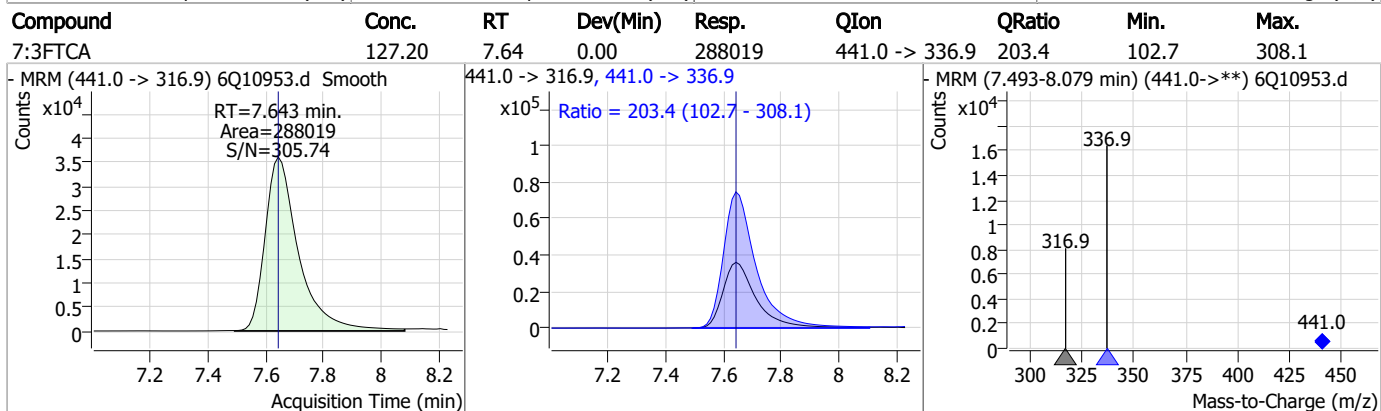
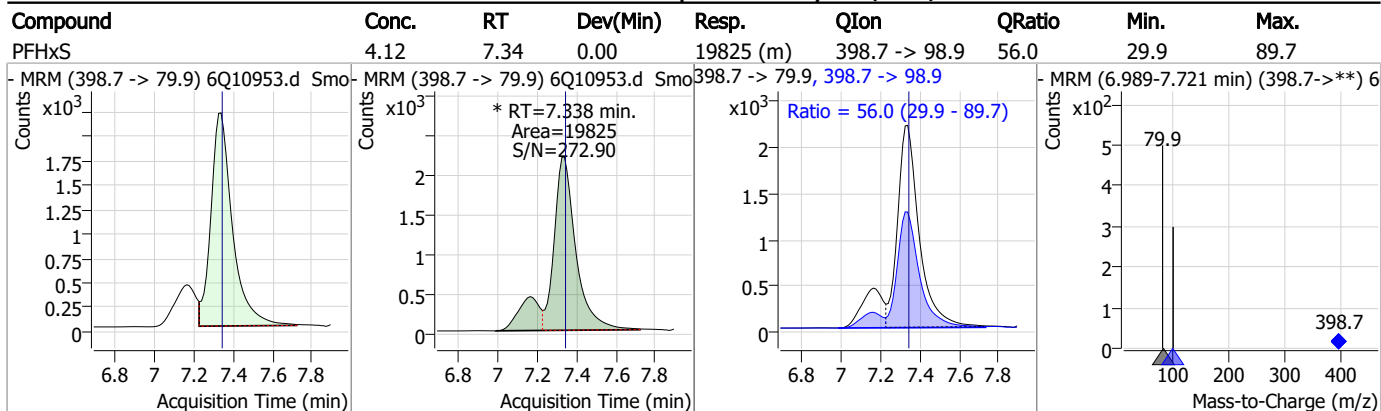
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Perfluorinated Compounds by LC/MS/MS



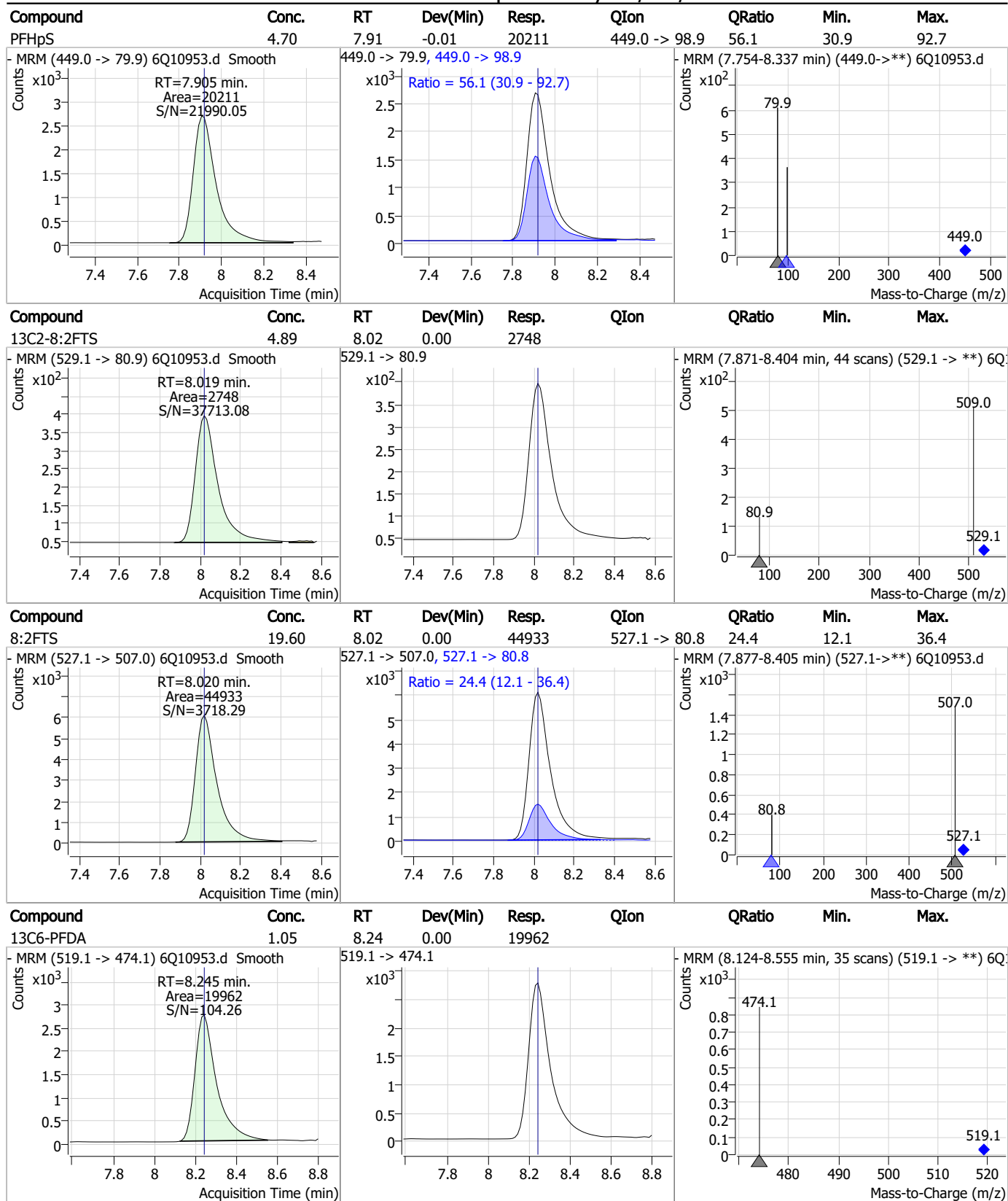
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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Perfluorinated Compounds by LC/MS/MS

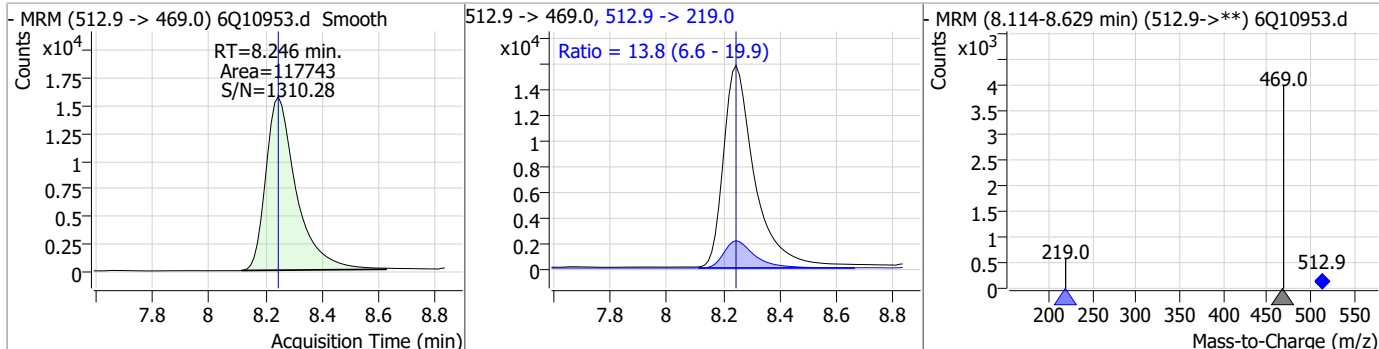


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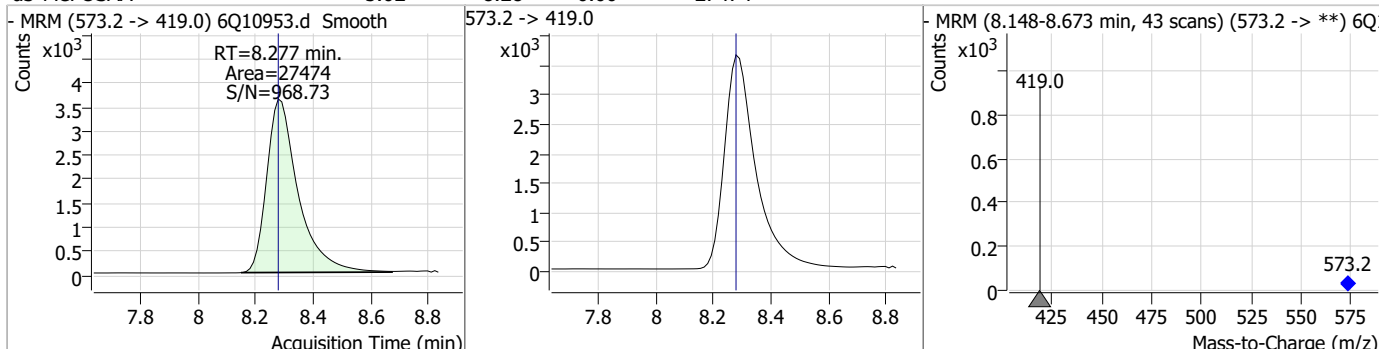


Perfluorinated Compounds by LC/MS/MS

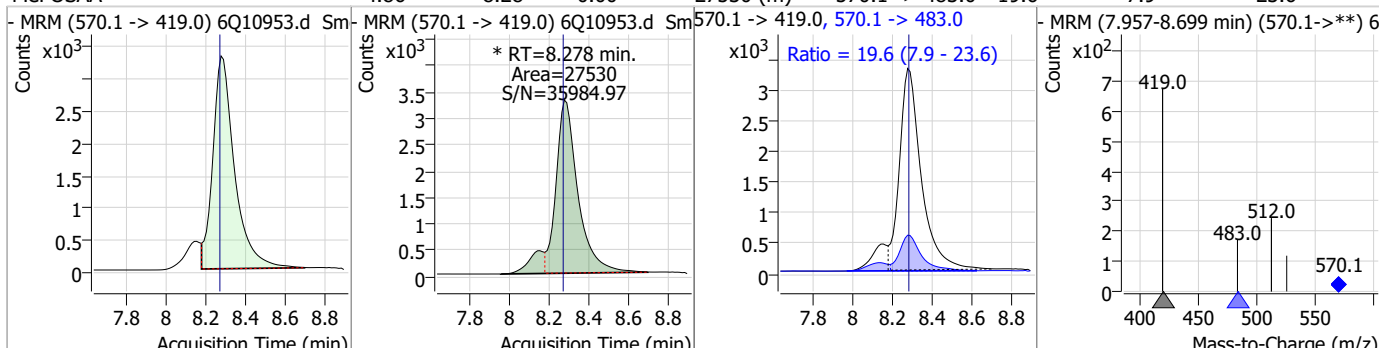
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	4.91	8.25	0.00	117743	512.9 -> 219.0	13.8	6.6	19.9



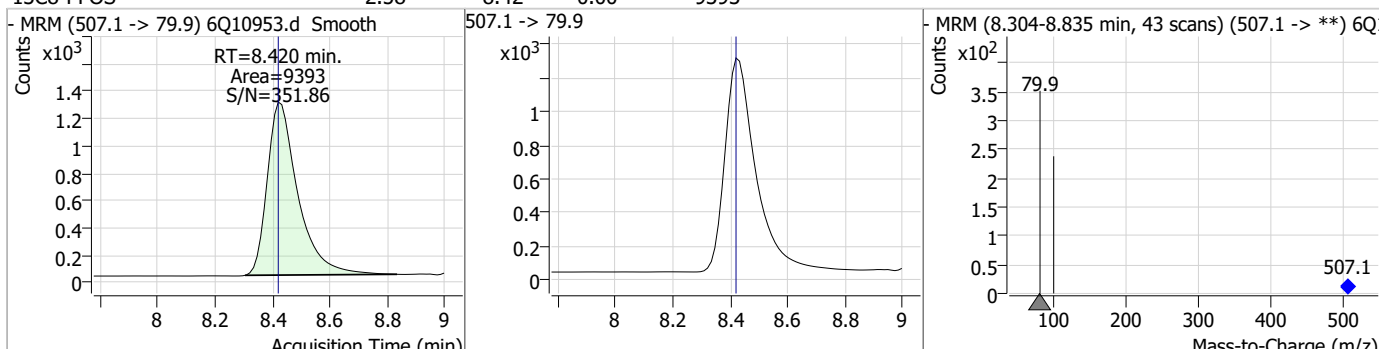
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.02	8.28	0.00	27474				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	4.86	8.28	0.00	27530 (m)	570.1 -> 483.0	19.6	7.9	23.6

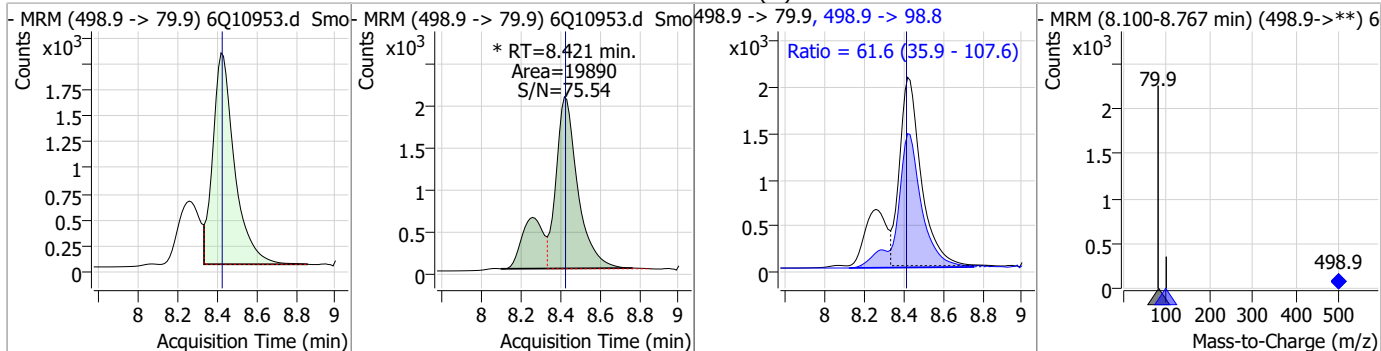


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.58	8.42	0.00	9393				

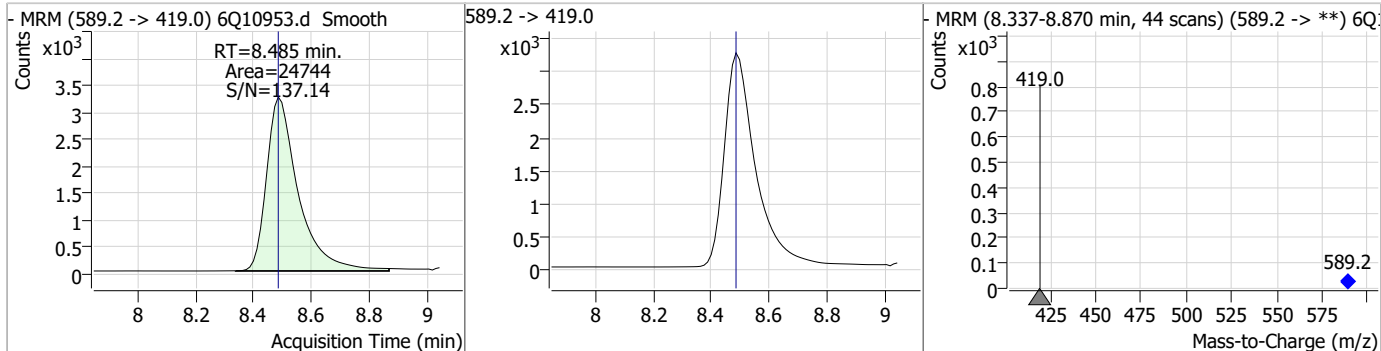


Perfluorinated Compounds by LC/MS/MS

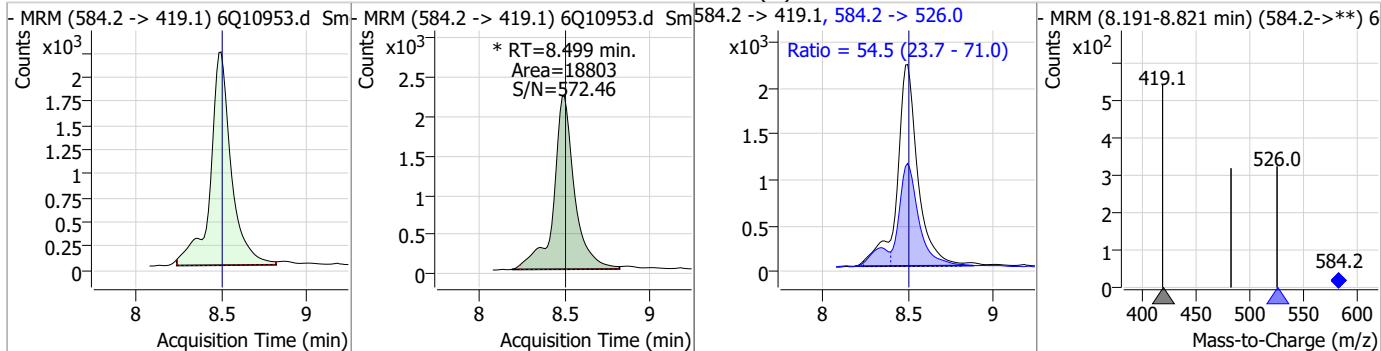
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.37	8.42	0.00	19890 (m)	498.9 -> 98.8	61.6	35.9	107.6



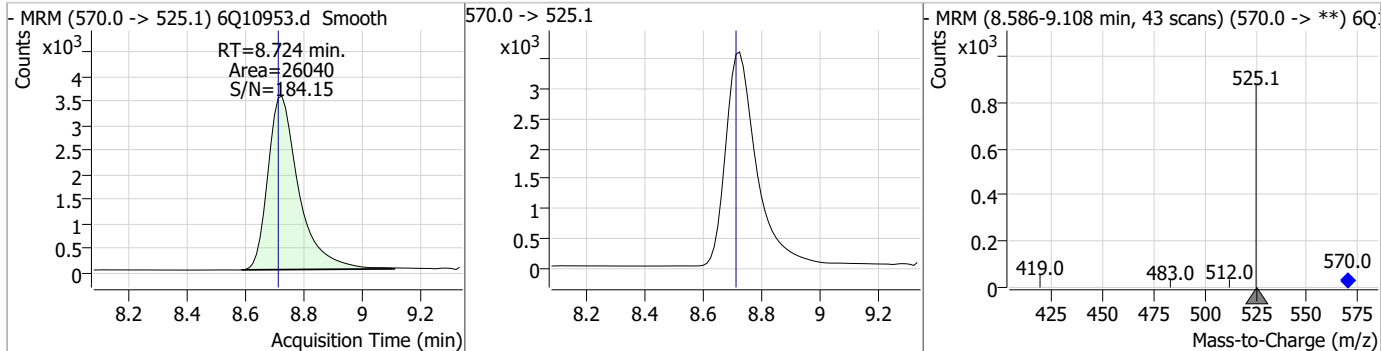
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.15	8.49	0.00	24744				



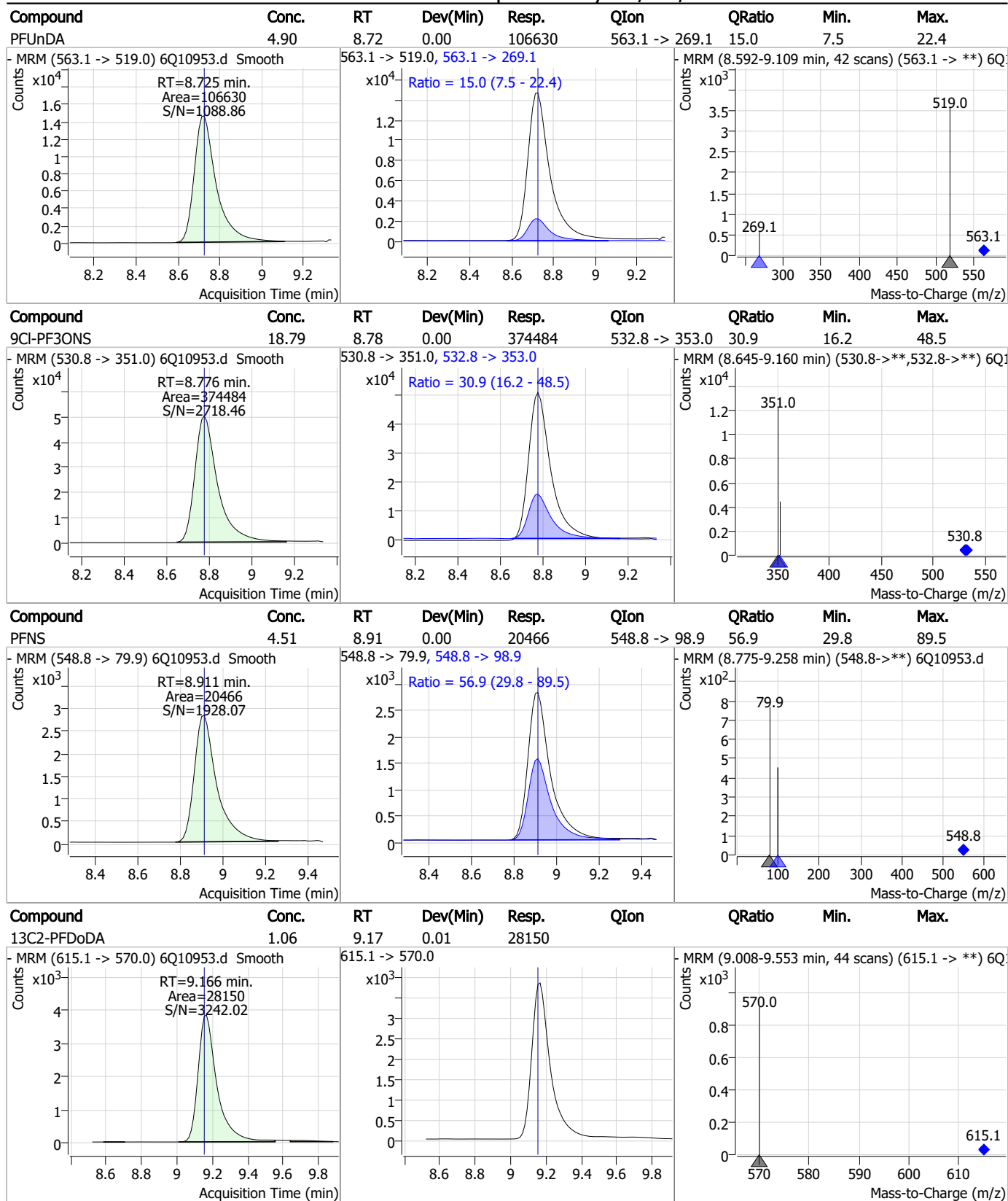
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	4.76	8.50	0.00	18803 (m)	584.2 -> 526.0	54.5	23.7	71.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.12	8.72	0.01	26040				

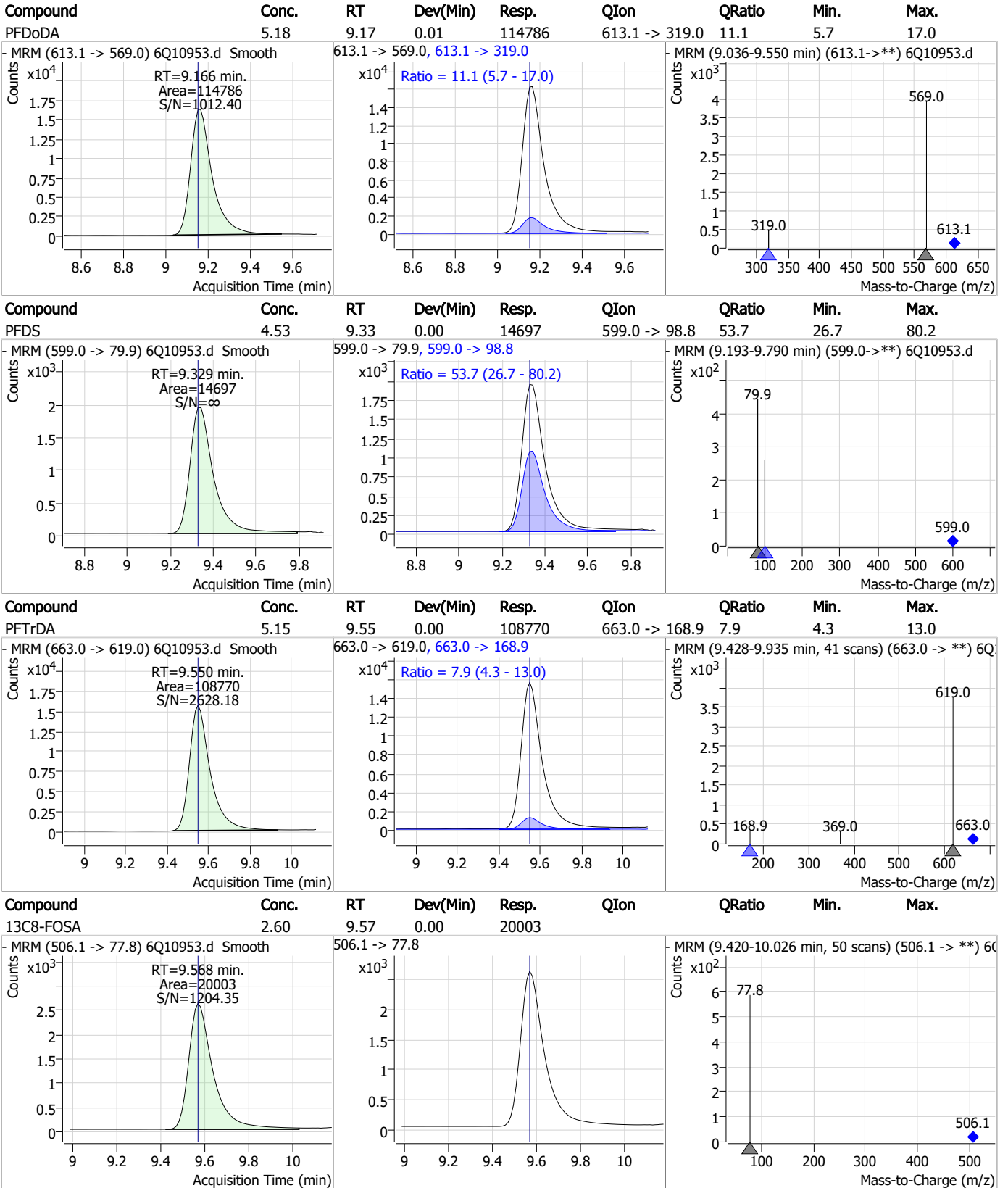


Perfluorinated Compounds by LC/MS/MS



7.7.6
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Perfluorinated Compounds by LC/MS/MS

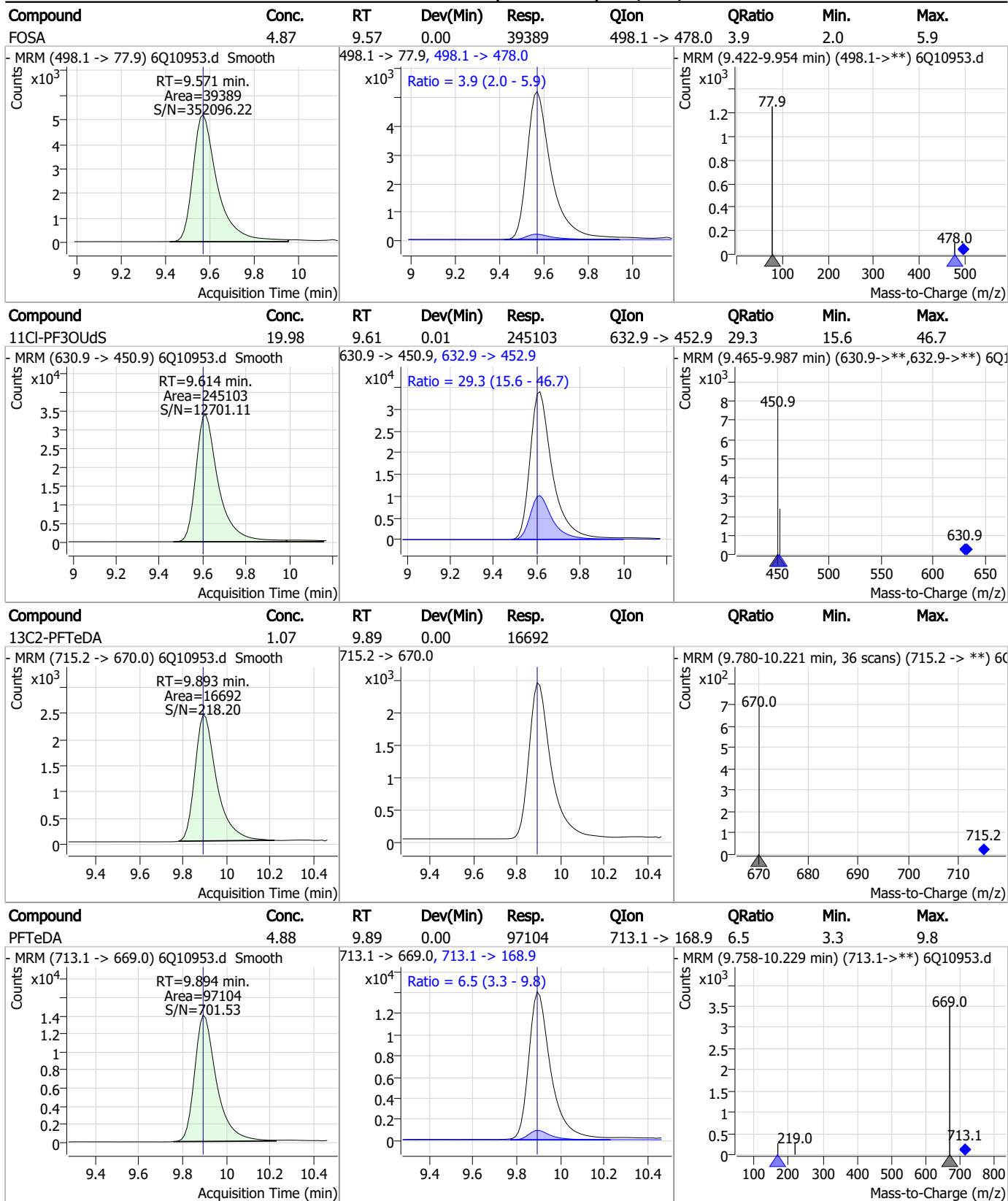


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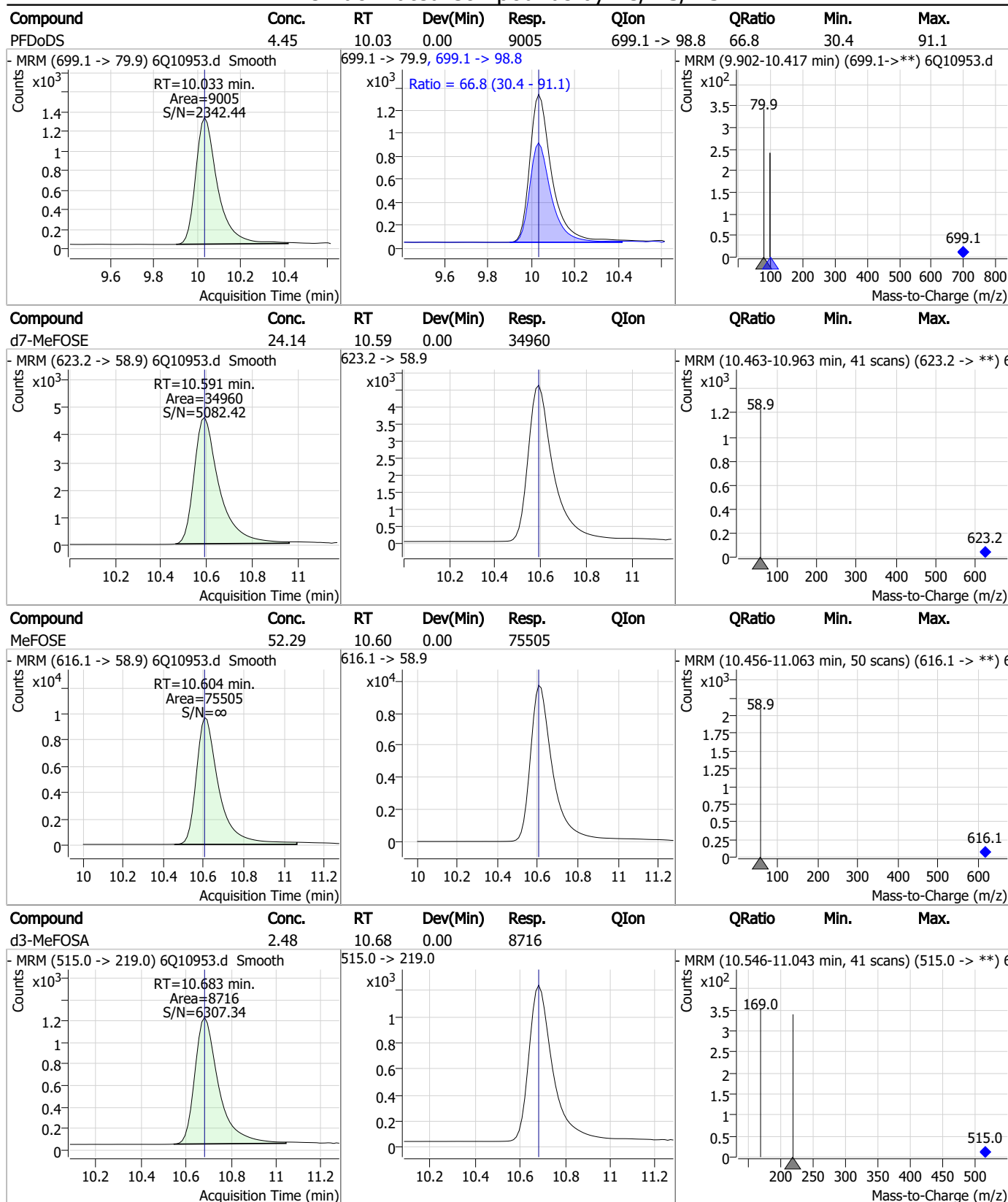


Perfluorinated Compounds by LC/MS/MS



7.7.6
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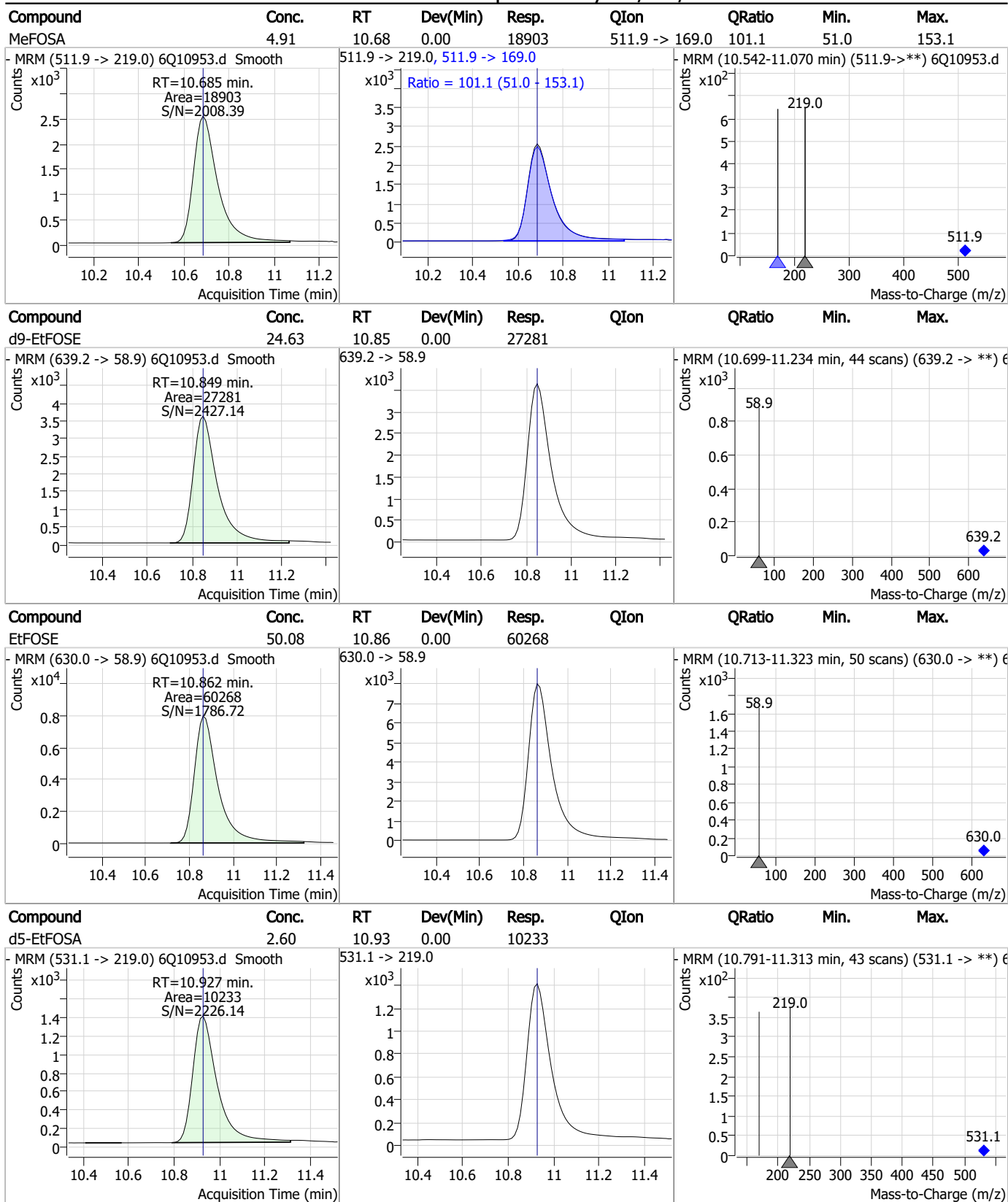
Perfluorinated Compounds by LC/MS/MS



7.7.6

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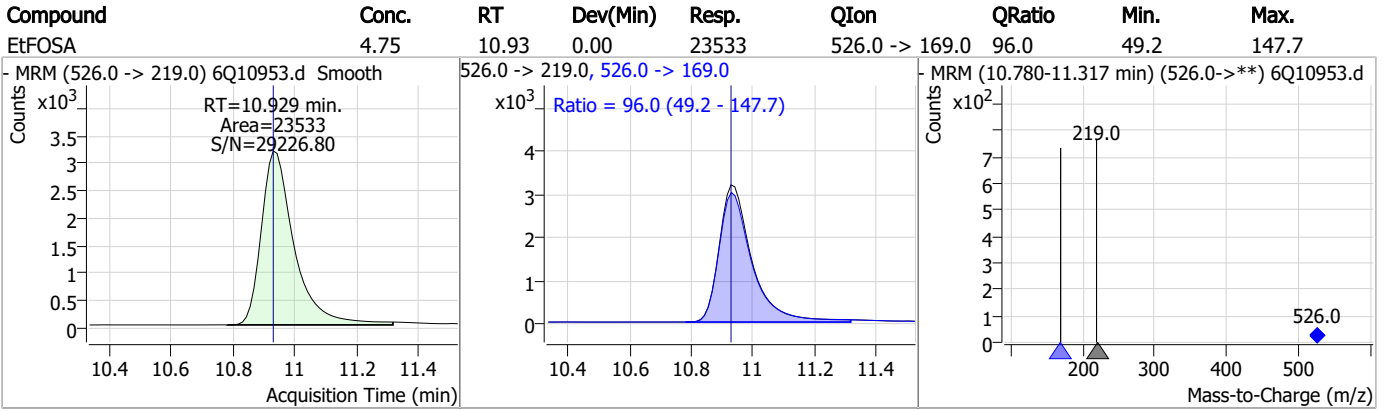
Perfluorinated Compounds by LC/MS/MS



7.7.6

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Perfluorinated Compounds by LC/MS/MS



7.7.6

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Manual Integration Approval Summary

Sample Number: S6Q174-IC174 Method: EPA DRAFT 1633
Lab FileID: 6Q10953.D Analyst approved: 01/12/23 11:46 Martha Valls
Injection Time: 01/11/23 12:46 Supervisor approved: 01/12/23 15:42 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.34	Split peak
MeFOSAA	2355-31-9		8.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.42	Split peak
EtFOSAA	2991-50-6		8.50	Split peak

7.7.6.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q10954.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/11/2023 1:00:22 PM
 Sample Name : ic174-6
 Vial : P1-A7
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : S6Q174.batch.bin
 Sample Information : OP94795,S6Q174,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	92217	10.00 µg/L	0.000
M5-PFPeA	4.384	268.3 -> 223.0	44297	5.00 µg/L	-0.014
M5-PFHxA	5.588	318.0 -> 273.0	41367	2.50 µg/L	0.000
M4-PFHpA	6.529	367.1 -> 322.0	39252	2.50 µg/L	-0.012
M8-PFOA	7.197	421.1 -> 376.0	67489	2.50 µg/L	0.000
M9-PFNA	7.740	472.1 -> 427.0	31077	1.25 µg/L	0.000
M6-PFDA	8.245	519.1 -> 474.1	20814	1.25 µg/L	0.000
M7-PFUnDA	8.712	570.0 -> 525.1	25464	1.25 µg/L	0.000
M2-PFDoDA	9.166	615.1 -> 570.0	27510	1.25 µg/L	0.012
M2-PFTeDA	9.893	715.2 -> 670.0	16926	1.25 µg/L	0.000
M8-FOSA	9.568	506.1 -> 77.8	18883	2.50 µg/L	0.000
M3-PFBS	5.544	302.1 -> 79.9	14948	2.50 µg/L	-0.012
M3-PFHxS	7.325	402.1 -> 79.9	9476	2.50 µg/L	-0.012
M8-PFOS	8.420	507.1 -> 79.9	8861	2.50 µg/L	0.000
M2-4:2FTS	5.253	329.1 -> 80.9	1727	5.00 µg/L	0.000
M2-6:2FTS	6.946	429.1 -> 80.9	2249	5.00 µg/L	-0.012
M2-8:2FTS	8.019	529.1 -> 80.9	2867	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	27941	5.00 µg/L	0.000
M3-HFPO-DA	5.965	286.9 -> 168.9	16175	10.00 µg/L	-0.012
M5-EtFOSAA	8.485	589.2 -> 419.0	24353	5.00 µg/L	0.000
M7-MeFOSE	10.591	623.2 -> 58.9	35108	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	28117	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	9627	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	8755	2.50 µg/L	0.000
13C4-PFOS	8.421	502.8 -> 79.9	10671	2.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	40040	5.00 µg/L	-0.012
18O2-PFHxS	7.324	403.0 -> 83.9	6610	2.50 µg/L	-0.012
13C4-PFOA	7.198	417.1 -> 372.0	81796	2.50 µg/L	0.000
13C2-PFDA	8.233	515.1 -> 470.1	28205	1.25 µg/L	-0.012
13C5-PFNA	7.740	468.0 -> 423.0	33812	1.25 µg/L	0.000
13C2-PFHxA	5.589	315.1 -> 270.0	38839	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.253	329.1 -> 80.9	1727	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C2-6:2FTS	6.946	429.1 -> 80.9	2249	4.76 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C2-8:2FTS	8.019	529.1 -> 80.9	2867	5.56 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.3%		
13C2-PFDoDA	9.166	615.1 -> 570.0	27510	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C2-PFTeDA	9.893	715.2 -> 670.0	16926	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C3-PFBS	5.544	302.1 -> 79.9	14948	2.70 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.8%		
13C3-PFHxS	7.325	402.1 -> 79.9	9476	2.64 µg/L	-0.012

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C4-PFBA	3.000	216.8 -> 171.9	92217	10.08 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C4-PFHpA	6.529	367.1 -> 322.0	39252	2.49 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C5-PFHxA	5.588	318.0 -> 273.0	41367	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C5-PFPeA	4.384	268.3 -> 223.0	44297	5.11 µg/L	-0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C6-PFDA	8.245	519.1 -> 474.1	20814	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C7-PFUnDA	8.712	570.0 -> 525.1	25464	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C8-FOSA	9.568	506.1 -> 77.8	18883	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C8-PFOA	7.197	421.1 -> 376.0	67489	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C8-PFOS	8.420	507.1 -> 79.9	8861	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C9-PFNA	7.740	472.1 -> 427.0	31077	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.5%		
d3-MeFOSAA	8.277	573.2 -> 419.0	27941	5.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C3-HFPO-DA	5.965	286.9 -> 168.9	16175	10.10 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
d3-MeFOSA	10.683	515.0 -> 219.0	8755	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.1%		
d5-EtFOSAA	8.485	589.2 -> 419.0	24353	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.0%		
d7-MeFOSE	10.591	623.2 -> 58.9	35108	25.85 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.4%		
d9-EtFOSE	10.849	639.2 -> 58.9	28117	27.07 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 108.3%		
d5-EtFOSA	10.927	531.1 -> 219.0	9627	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.2%		
Target Compounds					QValue
4:2FTS	5.254	327.1 -> 307.0	201122	48.98 µg/L	99
		327.1 -> 80.9	42615		
6:2FTS	6.946	427.1 -> 407.0	187405	53.56 µg/L	97
		427.1 -> 80.9	33915		
8:2FTS	8.020	527.1 -> 507.0	104670	43.76 µg/L	99
		527.1 -> 80.8	25097		
EtFOSAA	8.486	584.2 -> 419.1	49024	12.61 µg/L	m 91
		584.2 -> 526.0	26211		
FOSA	9.571	498.1 -> 77.9	97242	12.75 µg/L	100
		498.1 -> 478.0	3637		
MeFOSAA	8.278	570.1 -> 419.0	70786	12.29 µg/L	m 97
		570.1 -> 483.0	12037		
PFBA	2.994	212.8 -> 168.9	120133	50.78 µg/L	100
PFBS	5.544	298.7 -> 79.9	64129	10.60 µg/L	98
		298.7 -> 98.8	30047		
PFDA	8.246	512.9 -> 469.0	315749	12.62 µg/L	99
		512.9 -> 219.0	41045		
PFDoDA	9.166	613.1 -> 569.0	296002	13.68 µg/L	100
		613.1 -> 319.0	33299		
PFDS	9.344	599.0 -> 79.9	38201	12.49 µg/L	97

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	19702			
PFHpA	6.542	363.1 -> 319.0	292591	12.36	µg/L	97
		363.1 -> 169.0	41425			
PFHpS	7.905	449.0 -> 79.9	47584	11.74	µg/L	96
		449.0 -> 98.9	28122			
PFHxA	5.591	313.0 -> 269.0	202700	12.13	µg/L	98
		313.0 -> 118.9	6940			
PFHxS	7.326	398.7 -> 79.9	49483	10.97	µg/L	m 97
		398.7 -> 98.9	28545			
PFNA	7.740	463.0 -> 419.0	271895	12.64	µg/L	97
		463.0 -> 219.0	54185			
PFNS	8.911	548.8 -> 79.9	53146	12.42	µg/L	95
		548.8 -> 98.9	29586			
PFOA	7.199	413.0 -> 369.0	402245	13.32	µg/L	97
		413.0 -> 169.0	52784			
PFOS	8.421	498.9 -> 79.9	49171	11.46	µg/L	m 92
		498.9 -> 98.8	31986			
PFPeA	4.386	263.0 -> 219.0	245454	25.23	µg/L	100
PFPeS	6.619	349.1 -> 79.9	63352	11.86	µg/L	96
		349.1 -> 98.9	31811			
PFTeDA	9.894	713.1 -> 669.0	247494	12.27	µg/L	100
		713.1 -> 168.9	16342			
PFTrDA	9.550	663.0 -> 619.0	264779	12.82	µg/L	98
		663.0 -> 168.9	20772			
PFUnDA	8.725	563.1 -> 519.0	260777	12.24	µg/L	98
		563.1 -> 269.1	40882			
11Cl-PF3OUdS	9.614	630.9 -> 450.9	590408	48.14	µg/L	99
		632.9 -> 452.9	186466			
9Cl-PF3ONS	8.776	530.8 -> 351.0	993809	49.87	µg/L	93
		532.8 -> 353.0	283609			
ADONA	6.792	376.9 -> 250.9	1730332	48.11	µg/L	100
		376.9 -> 84.8	358331			
HFPO-DA	5.966	284.9 -> 168.9	85963	52.55	µg/L	97
		284.9 -> 184.9	9345			
3:3FTCA	3.839	241.0 -> 177.0	31953	61.66	µg/L	99
		241.0 -> 117.0	4061			
5:3FTCA	6.207	341.0 -> 237.1	1031457	296.72	µg/L	98
		341.0 -> 217.0	896985			
7:3FTCA	7.643	441.0 -> 316.9	681231	290.74	µg/L	99
		441.0 -> 336.9	1412114			
EtFOSA	10.929	526.0 -> 219.0	59947	12.87	µg/L	97
		526.0 -> 169.0	57485			
EtFOSE	10.862	630.0 -> 58.9	154172	124.29	µg/L	100
MeFOSA	10.685	511.9 -> 219.0	47568	12.30	µg/L	98
		511.9 -> 169.0	49654			
MeFOSE	10.604	616.1 -> 58.9	191364	131.97	µg/L	100
PFDoDS	10.033	699.1 -> 79.9	22793	11.95	µg/L	96
		699.1 -> 98.8	14489			
NFDHA	5.471	295.0 -> 201.0	25964	23.95	µg/L	98
		295.0 -> 84.9	11616			
PFMBA	4.801	279.0 -> 85.1	77596	25.57	µg/L	100
PFMPA	3.550	229.0 -> 84.9	67432	25.05	µg/L	100
PFEESA	6.097	314.8 -> 134.9	489320	21.03	µg/L	100
		314.8 -> 82.9	12850			

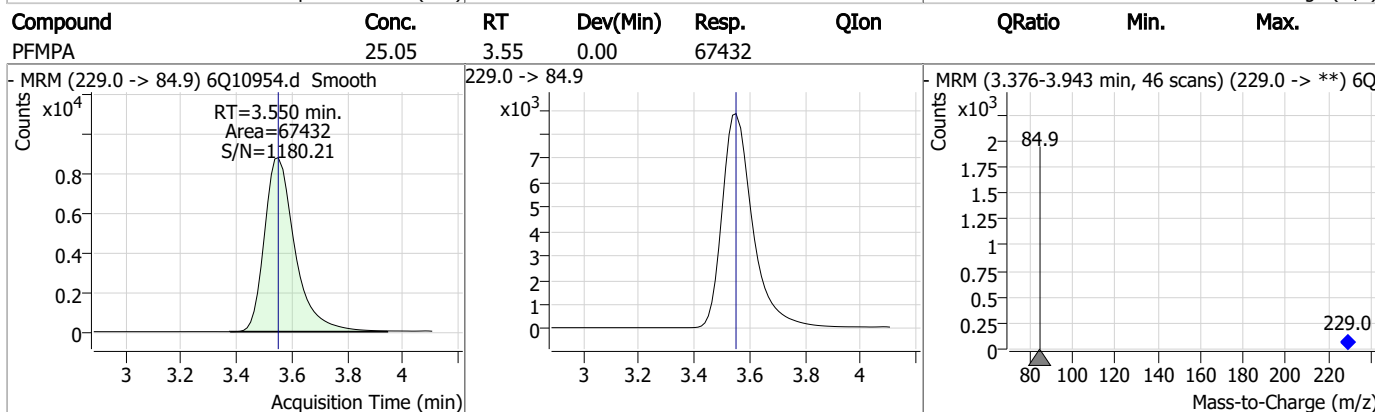
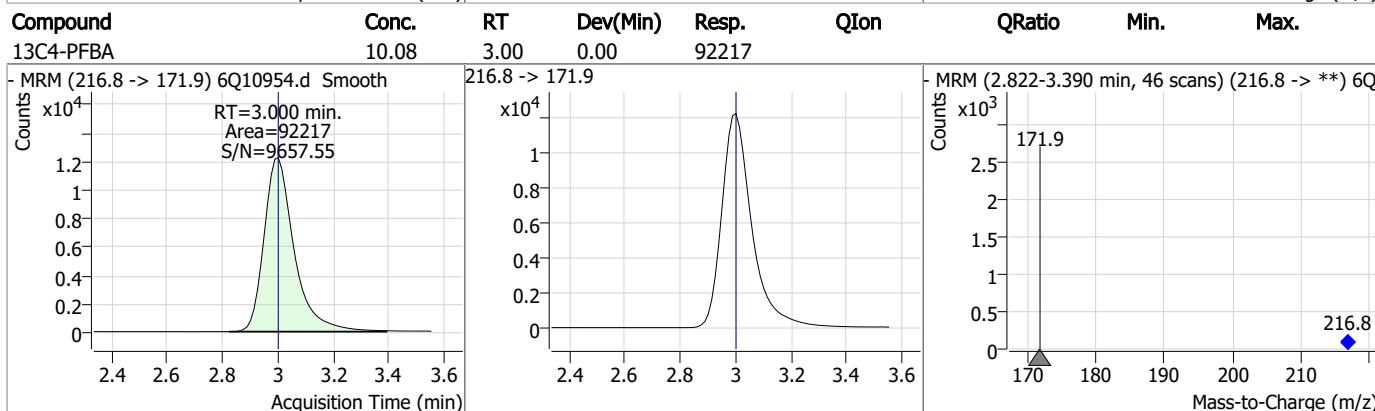
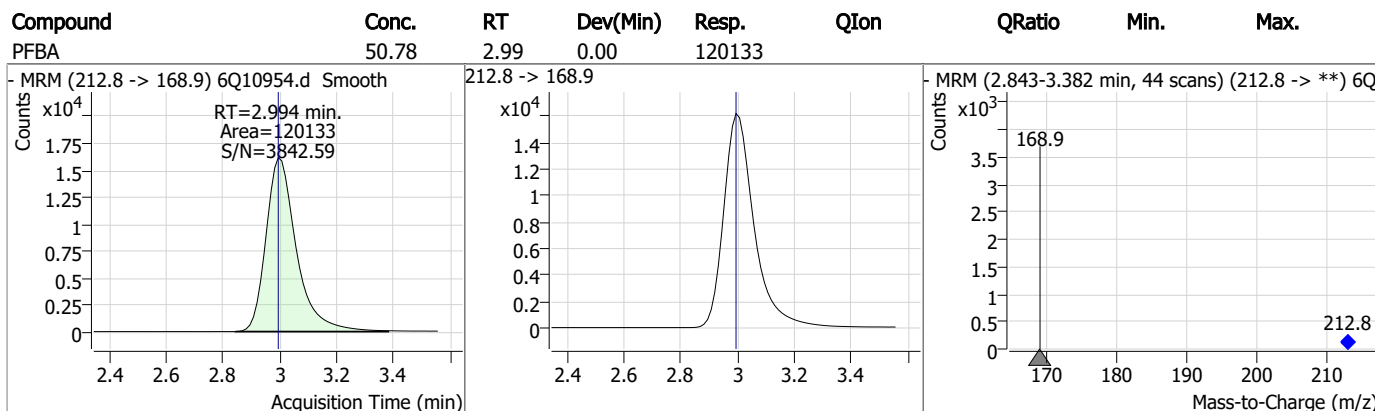
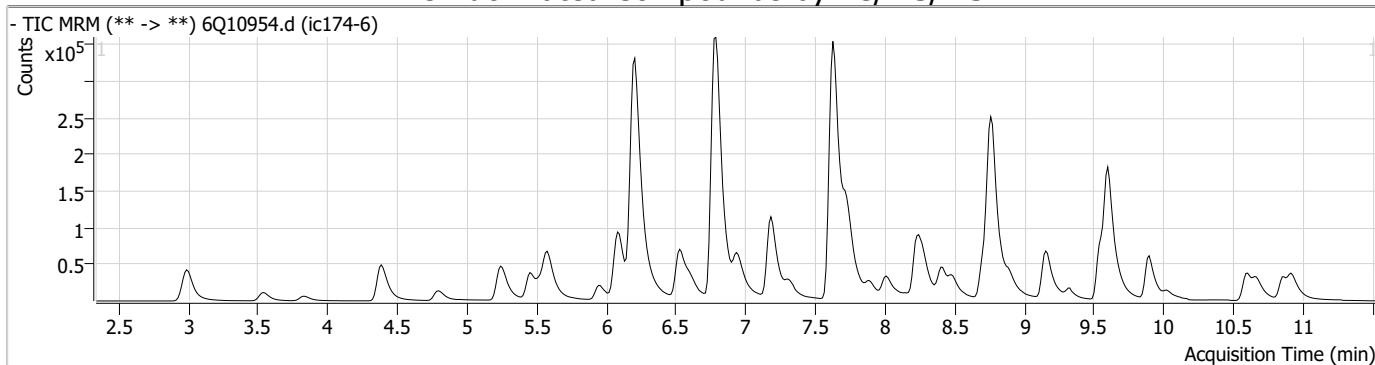
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.7
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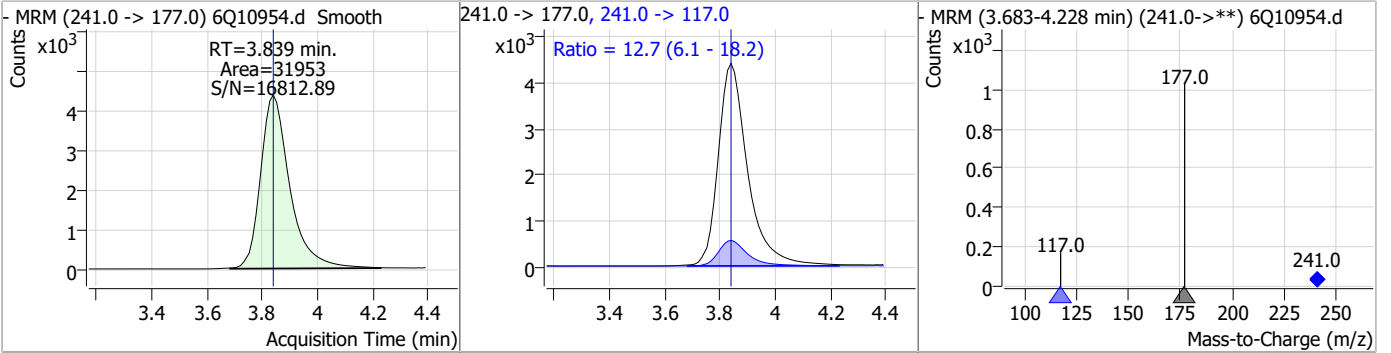
Perfluorinated Compounds by LC/MS/MS



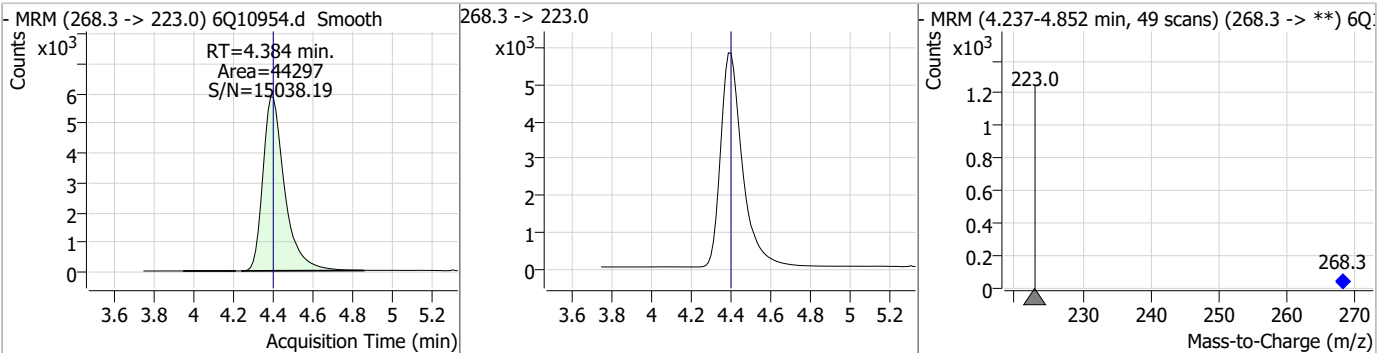
7.7.7
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Perfluorinated Compounds by LC/MS/MS

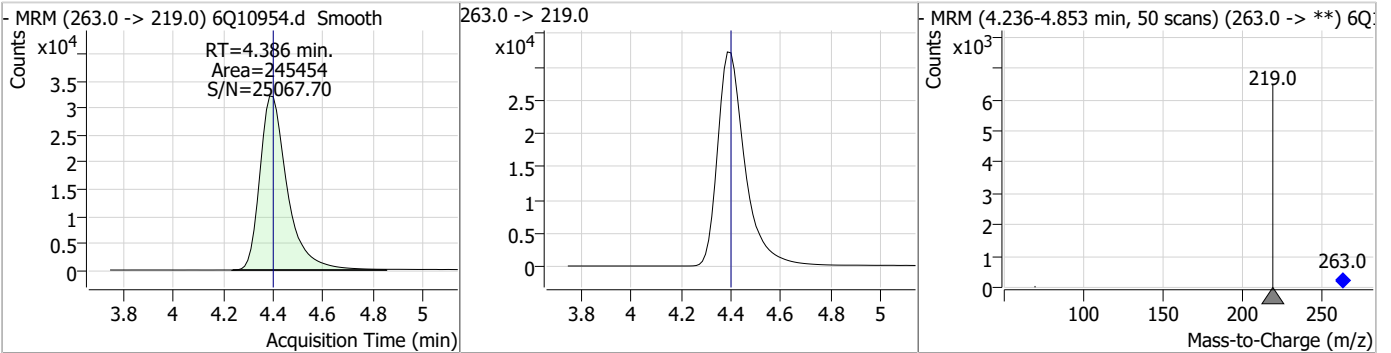
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	61.66	3.84	0.00	31953	241.0 -> 117.0	12.7	6.1	18.2



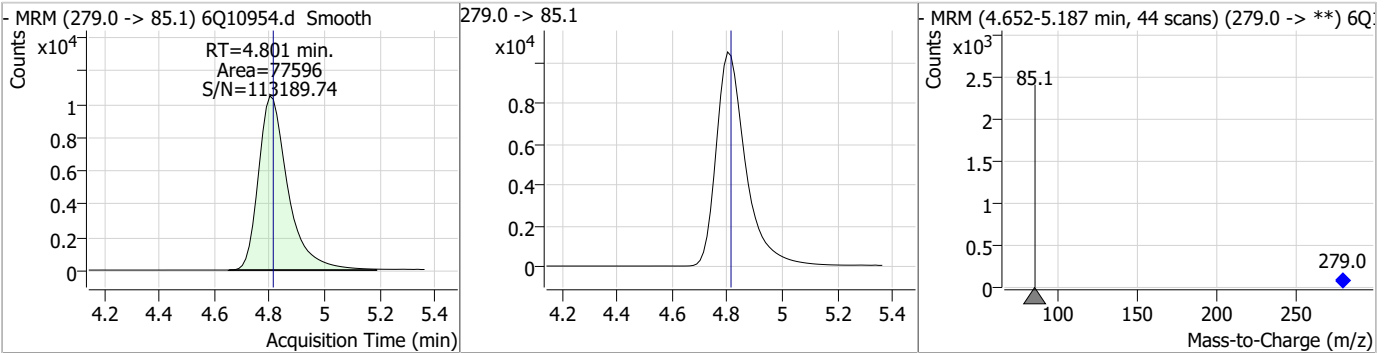
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13C5-PFPeA	5.11	4.38	-0.01	44297				



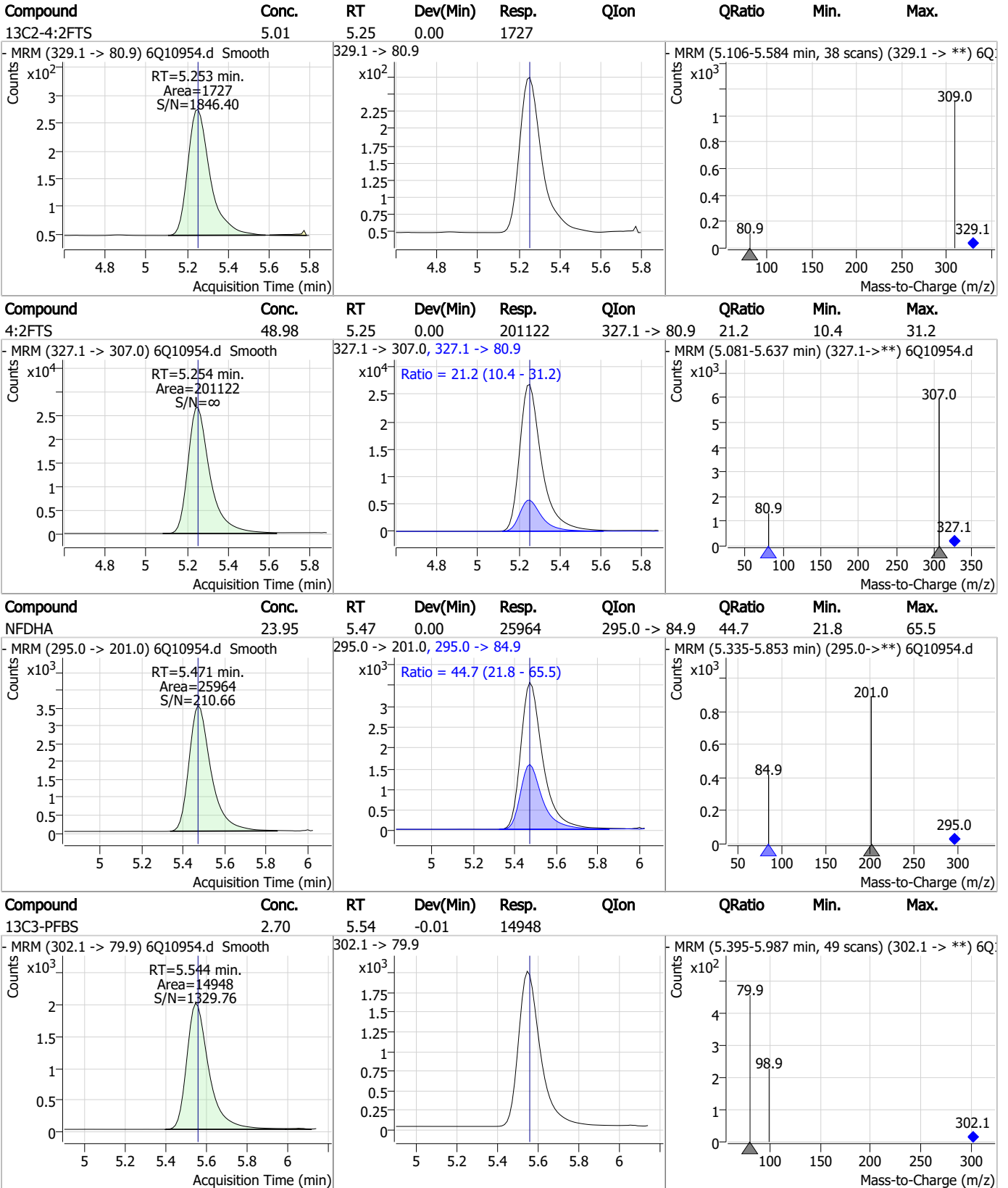
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	25.23	4.39	-0.01	245454				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	25.57	4.80	-0.01	77596				



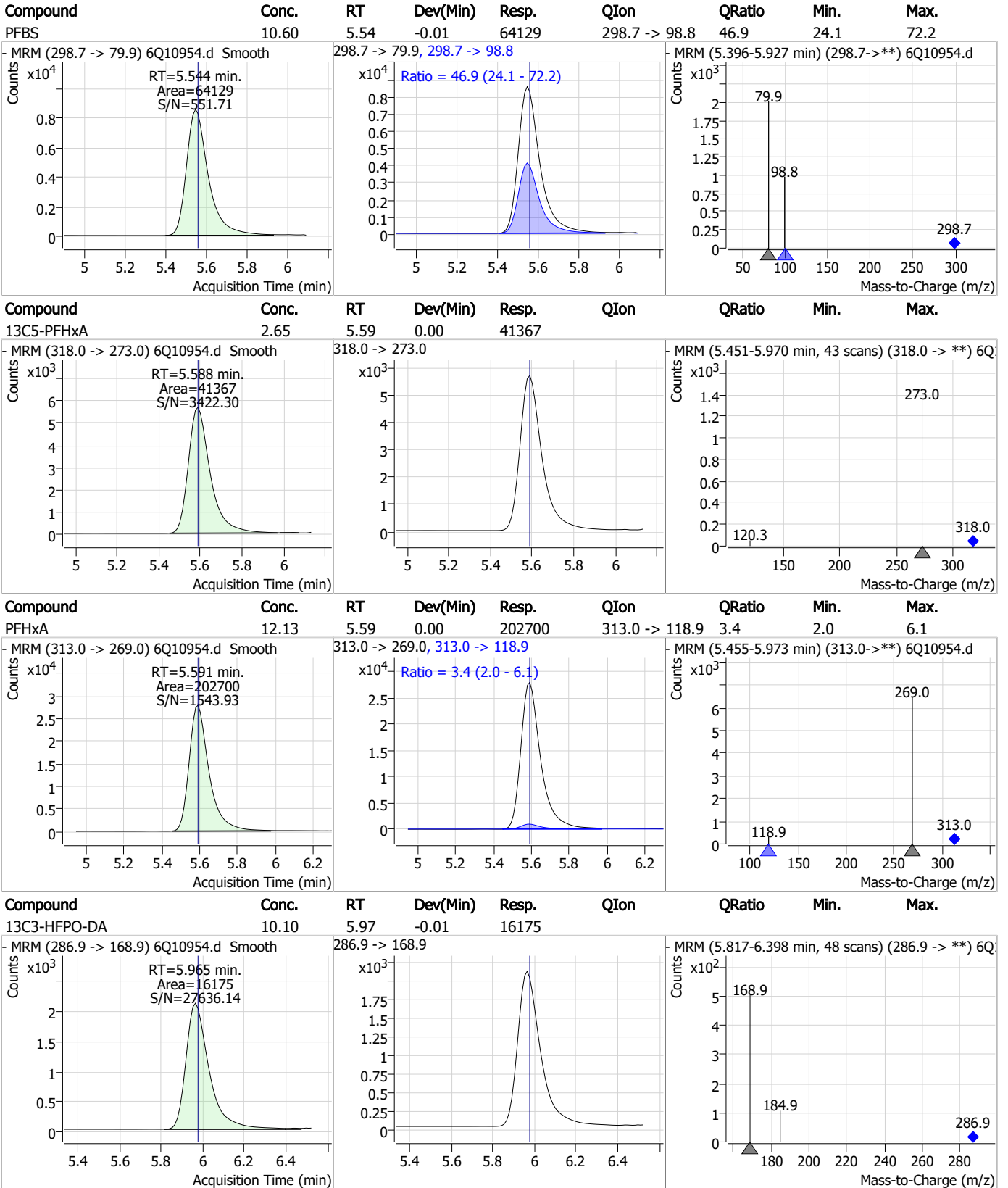
Perfluorinated Compounds by LC/MS/MS



7.7.7

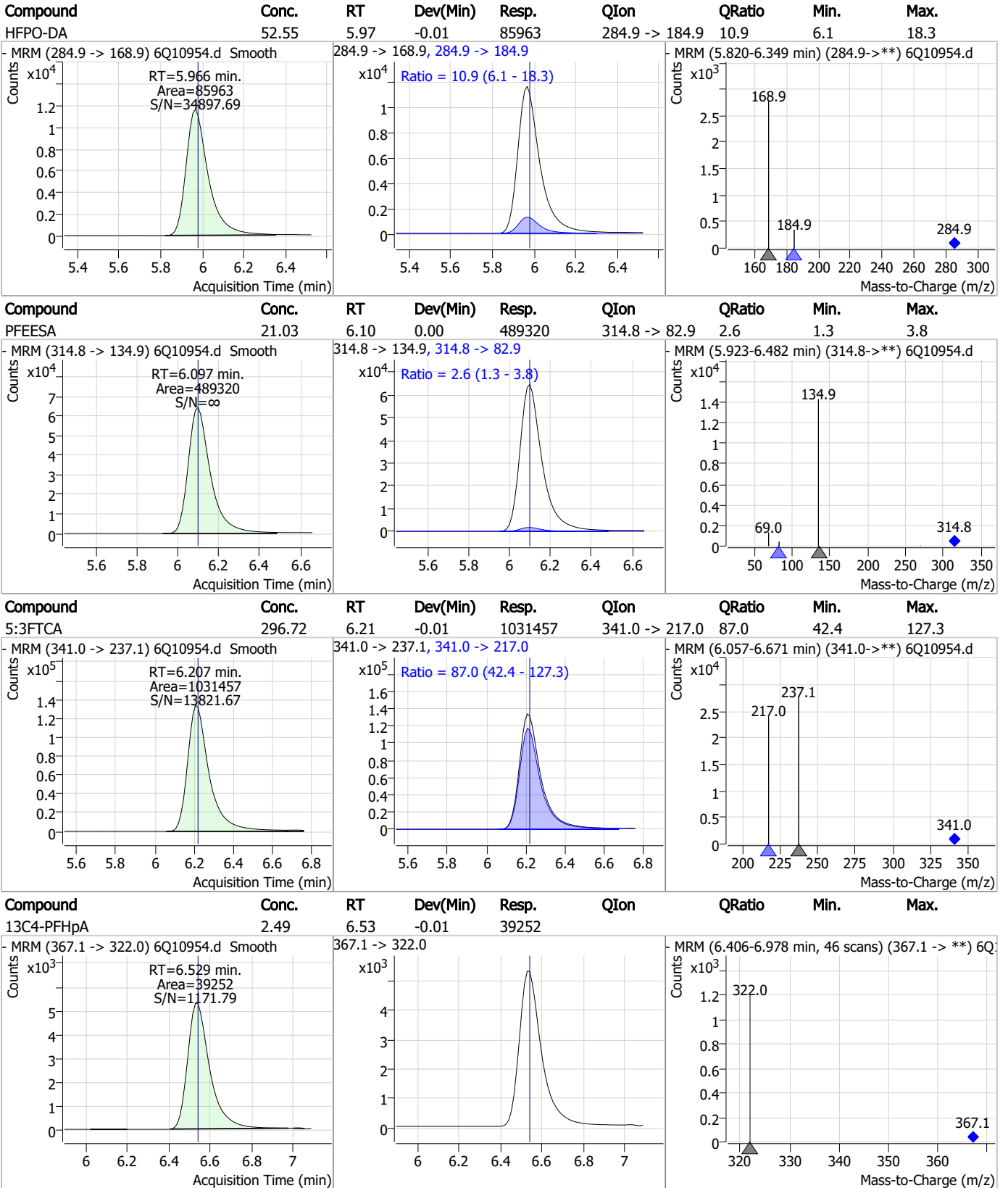
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Perfluorinated Compounds by LC/MS/MS



7.7.7
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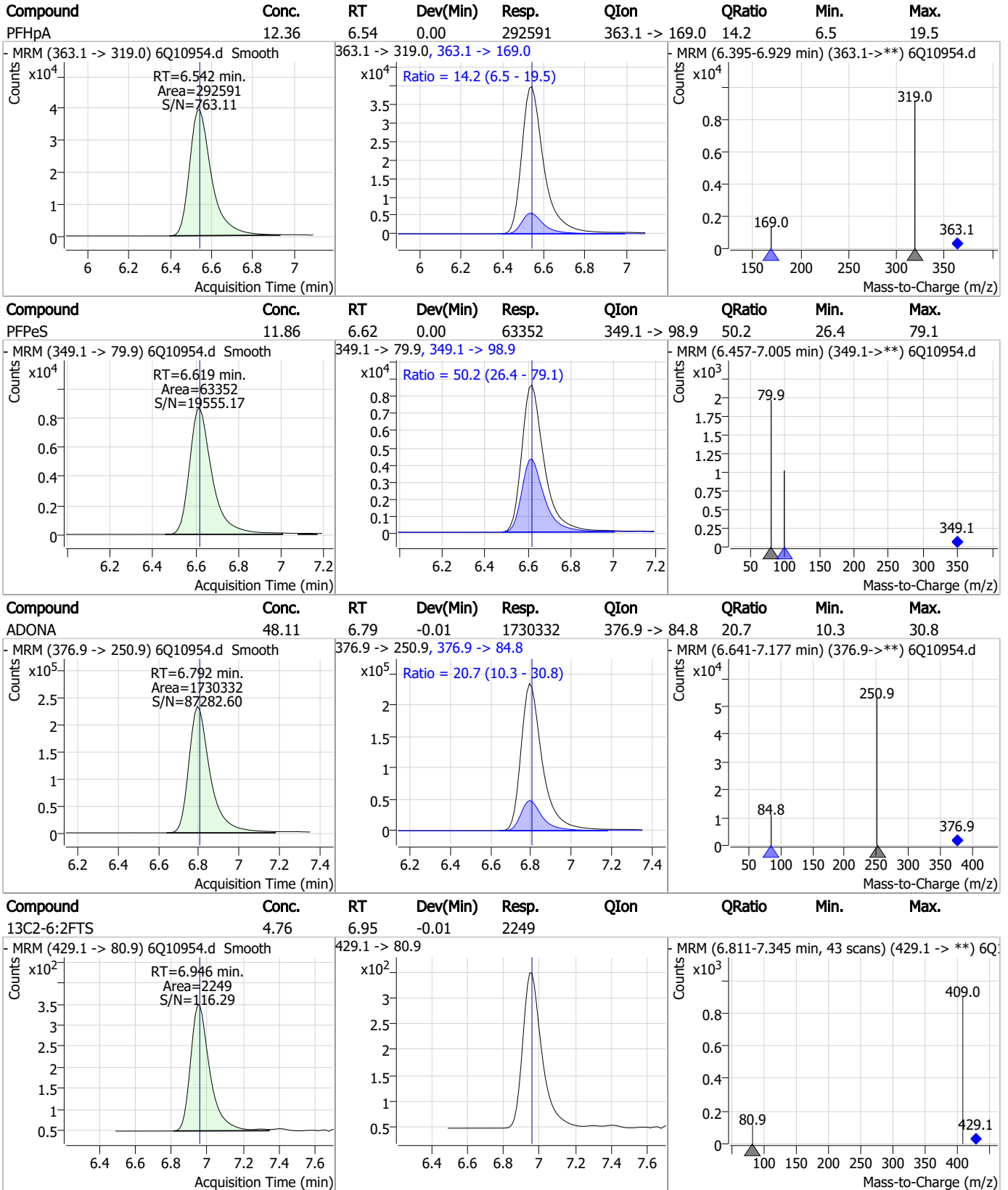
Perfluorinated Compounds by LC/MS/MS



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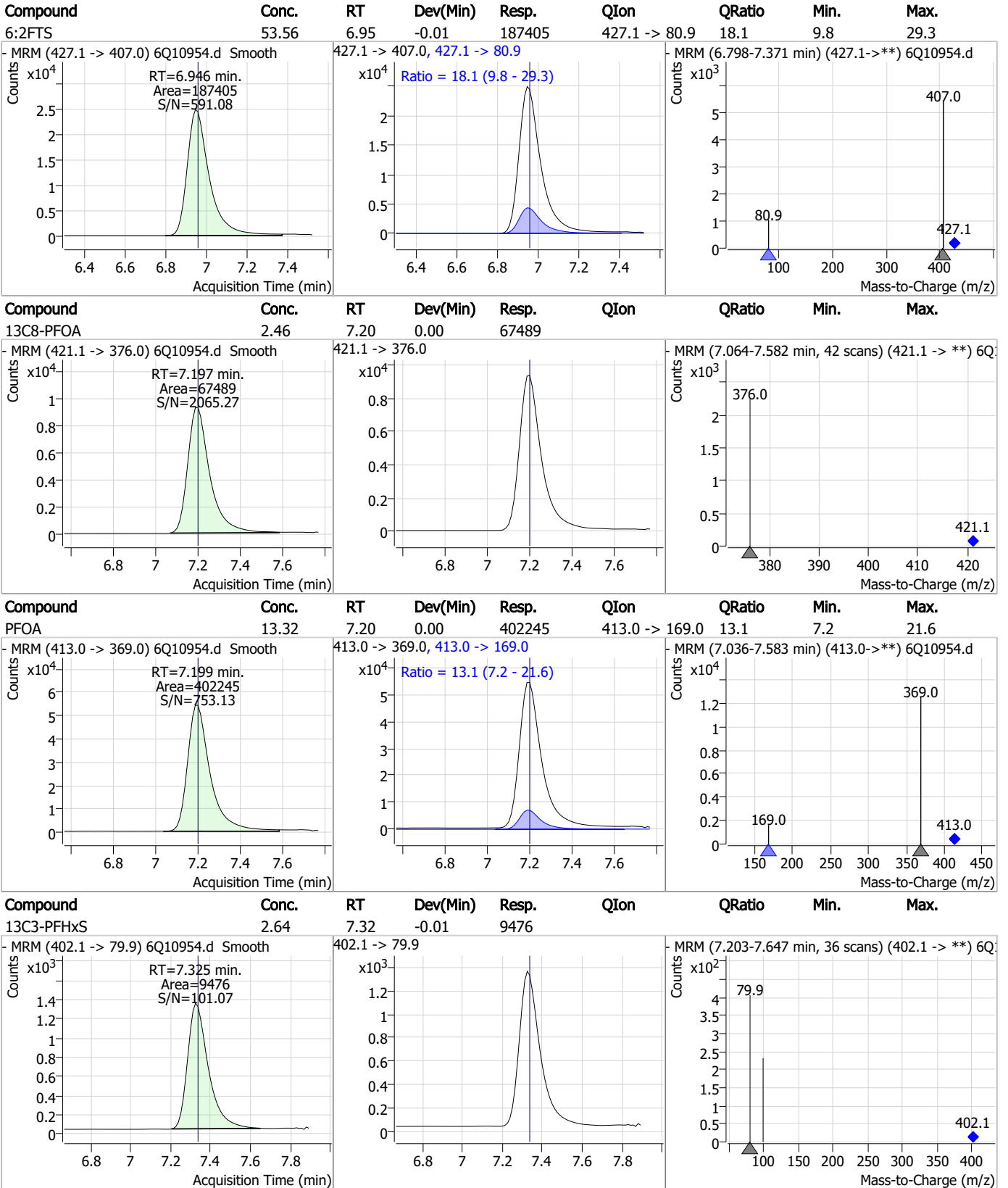
Perfluorinated Compounds by LC/MS/MS



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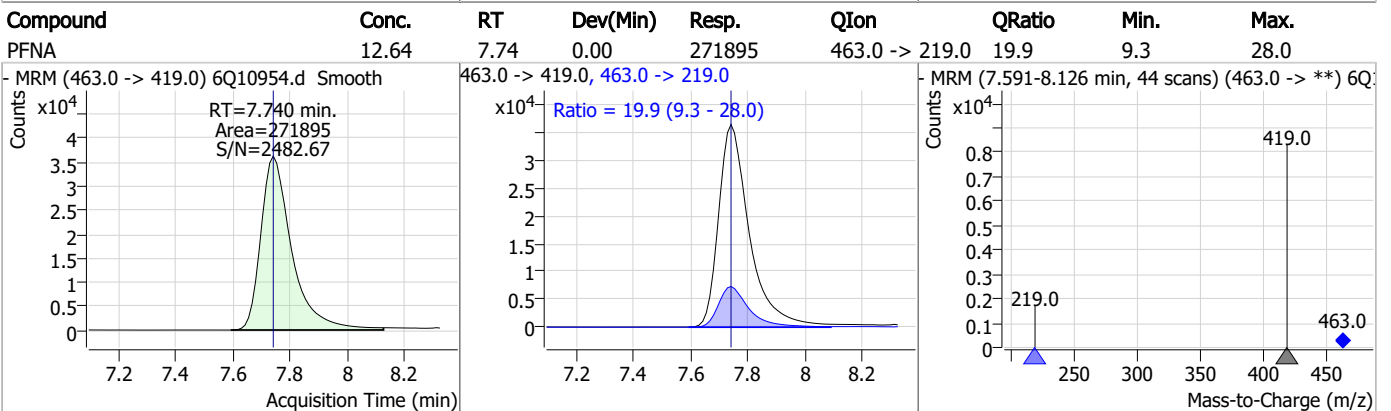
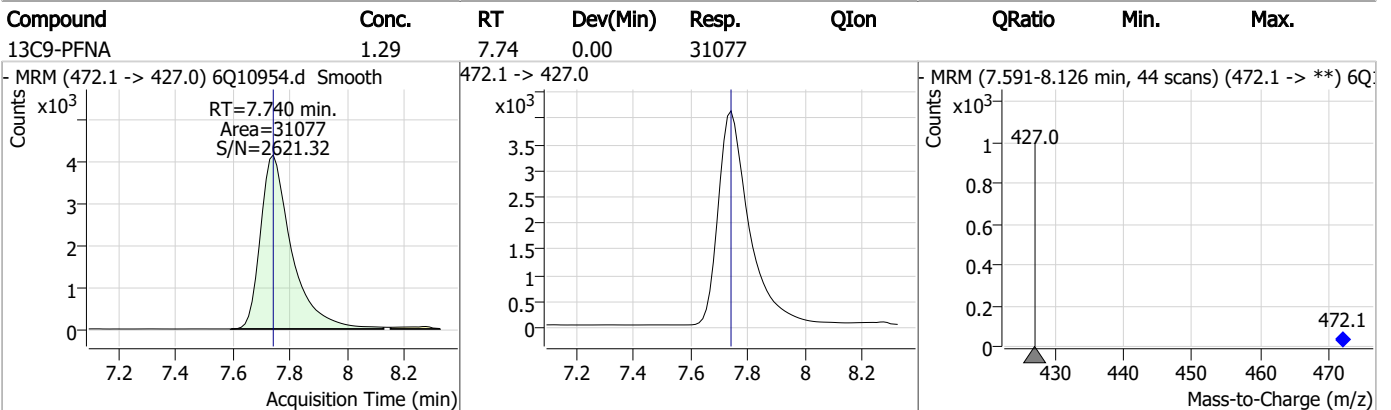
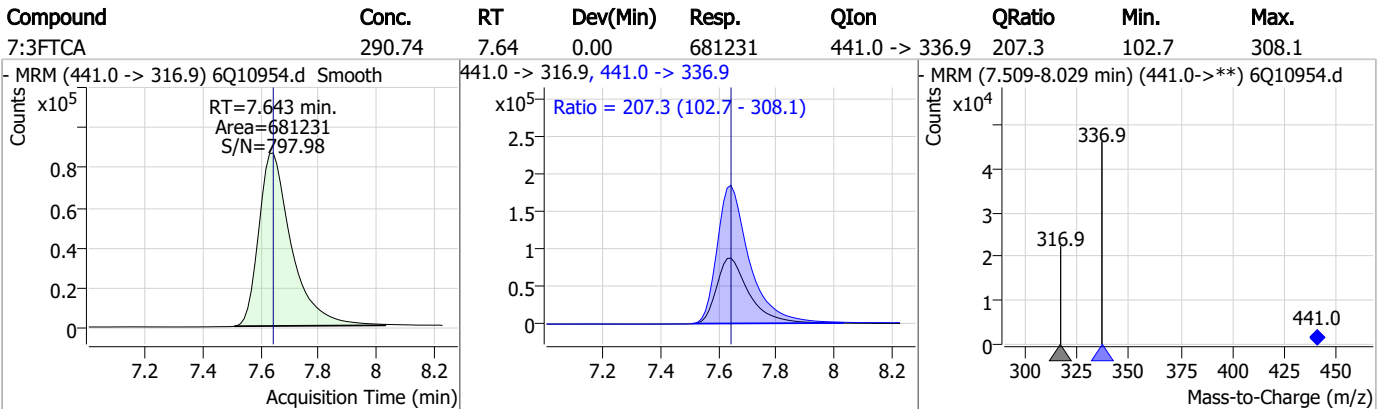
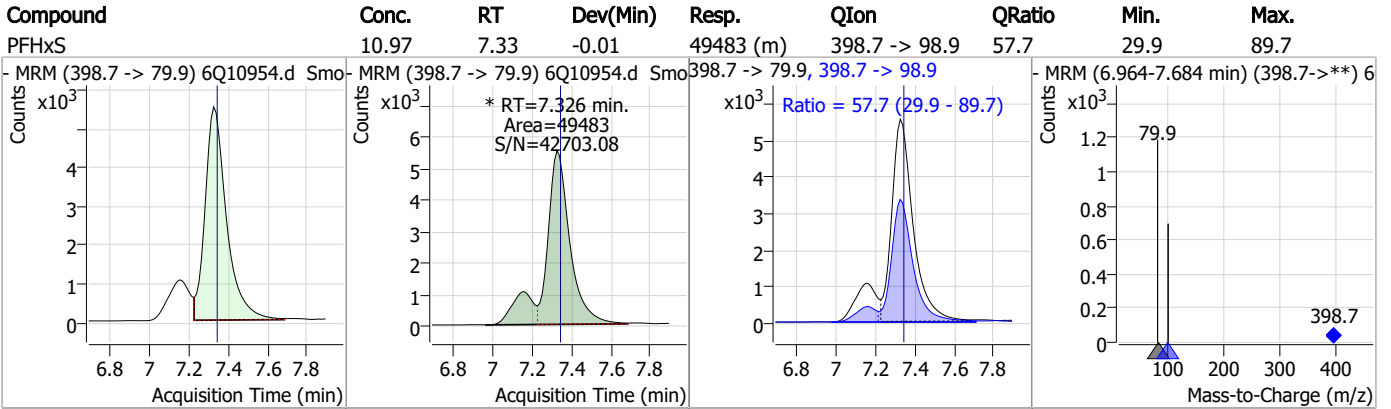
Perfluorinated Compounds by LC/MS/MS



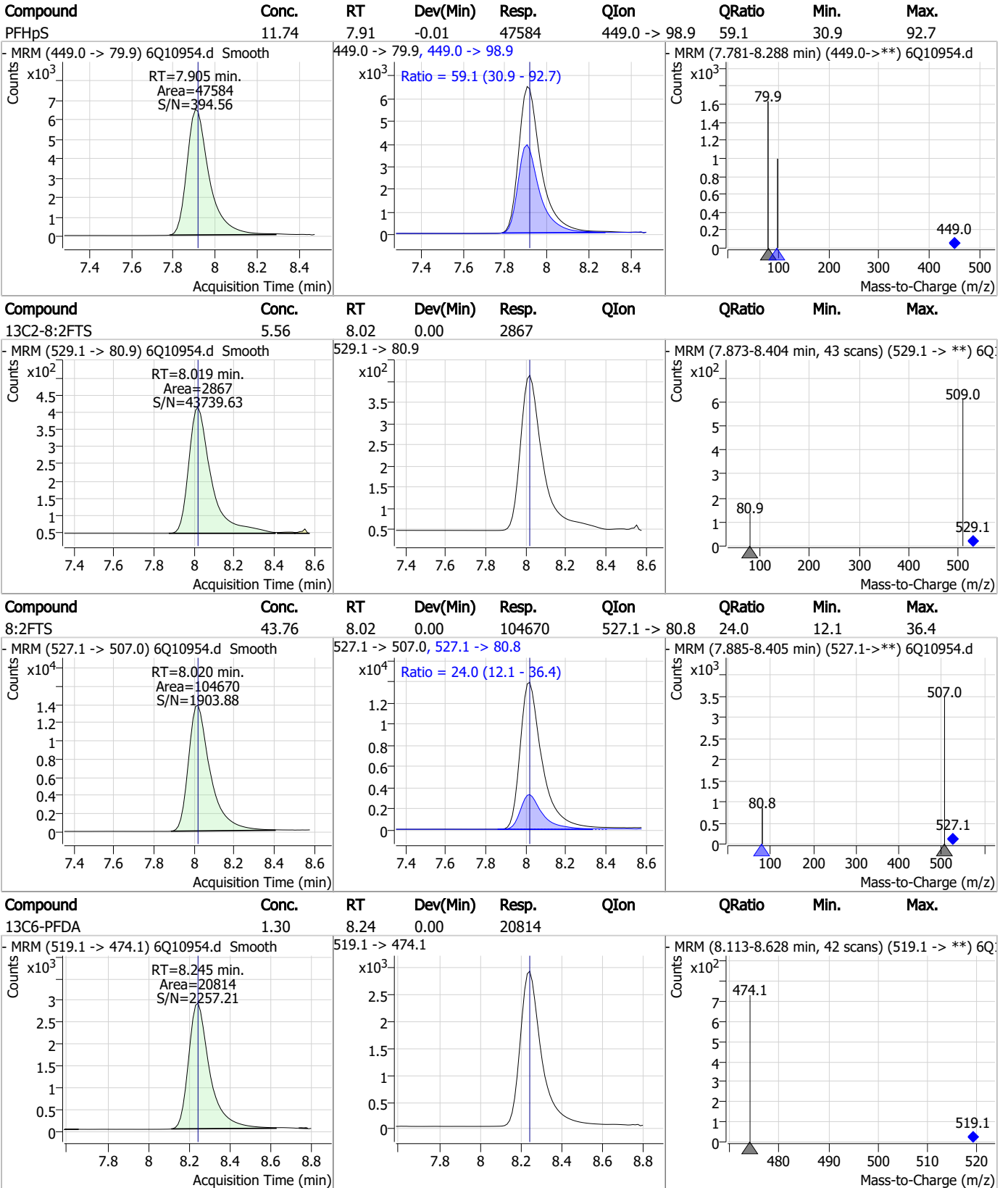
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Perfluorinated Compounds by LC/MS/MS

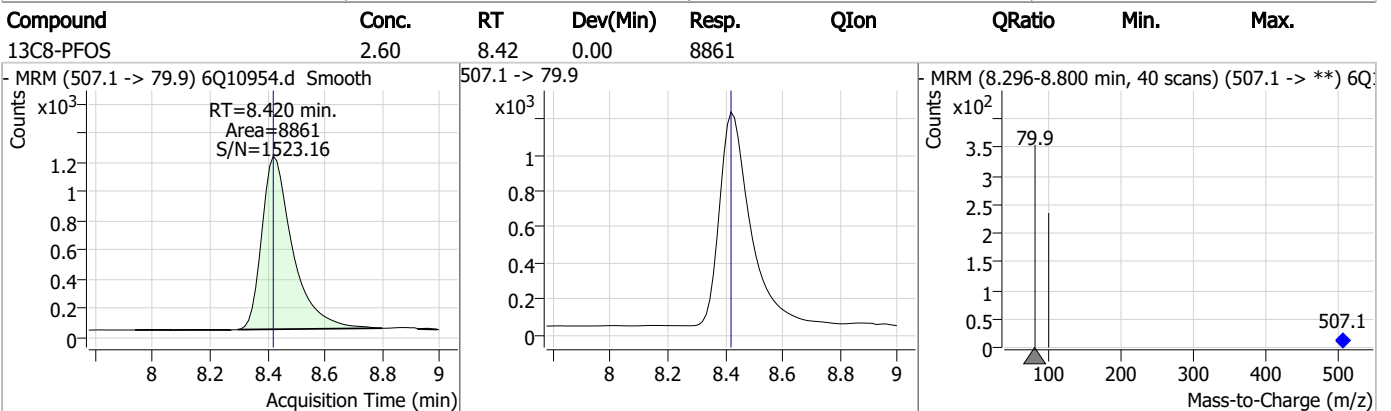
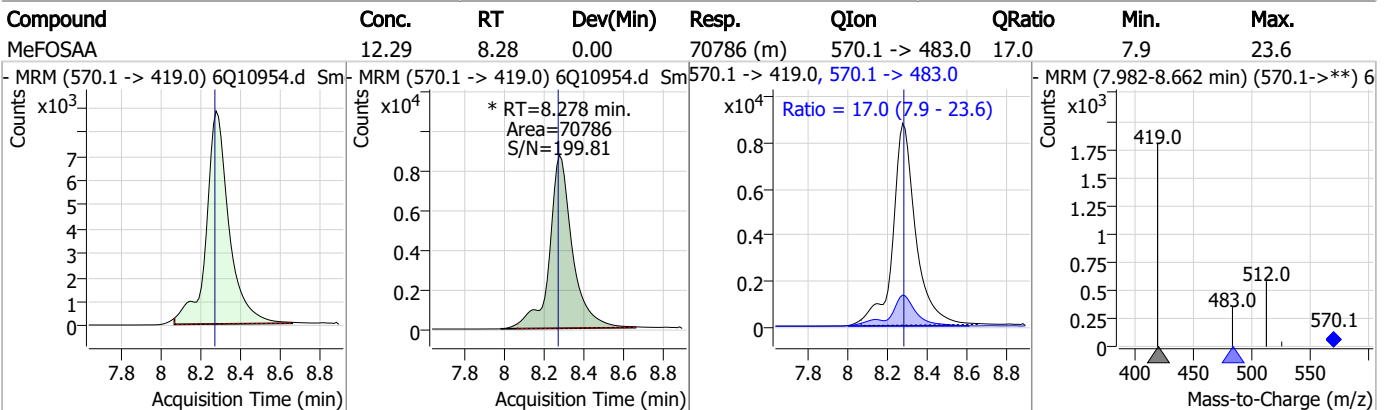
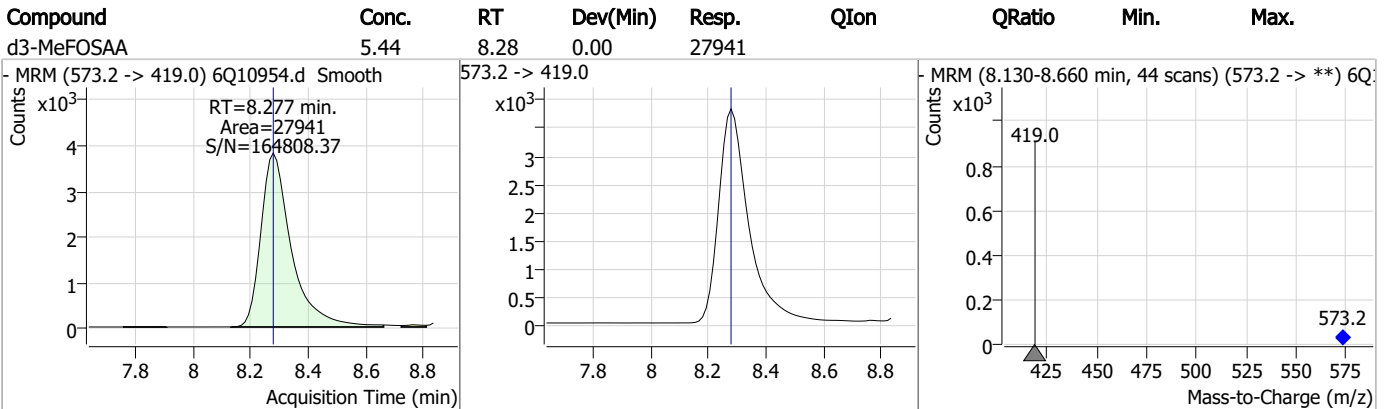
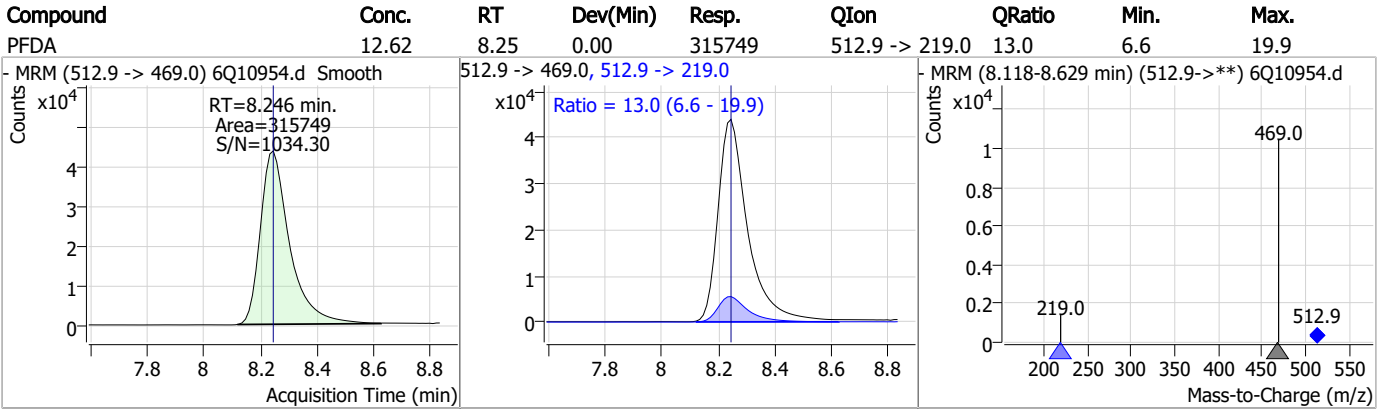


Perfluorinated Compounds by LC/MS/MS



7.7.7

Perfluorinated Compounds by LC/MS/MS



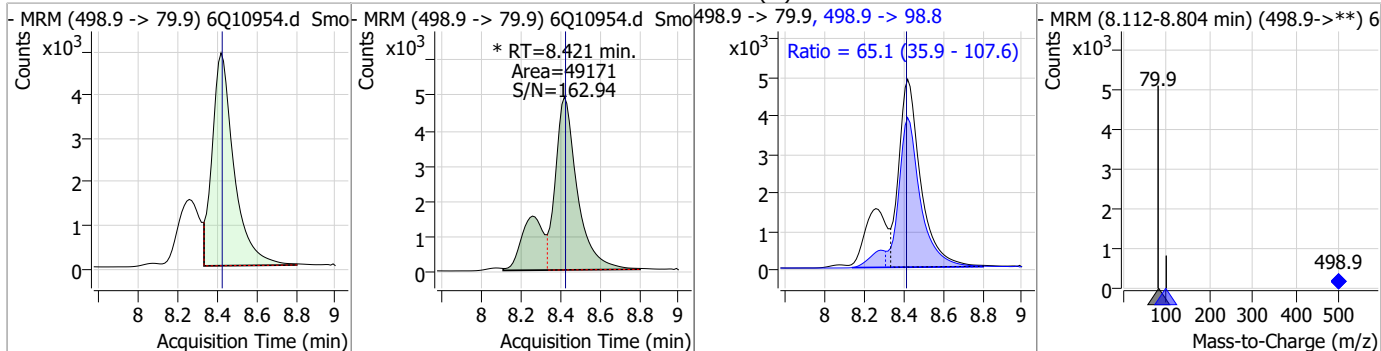
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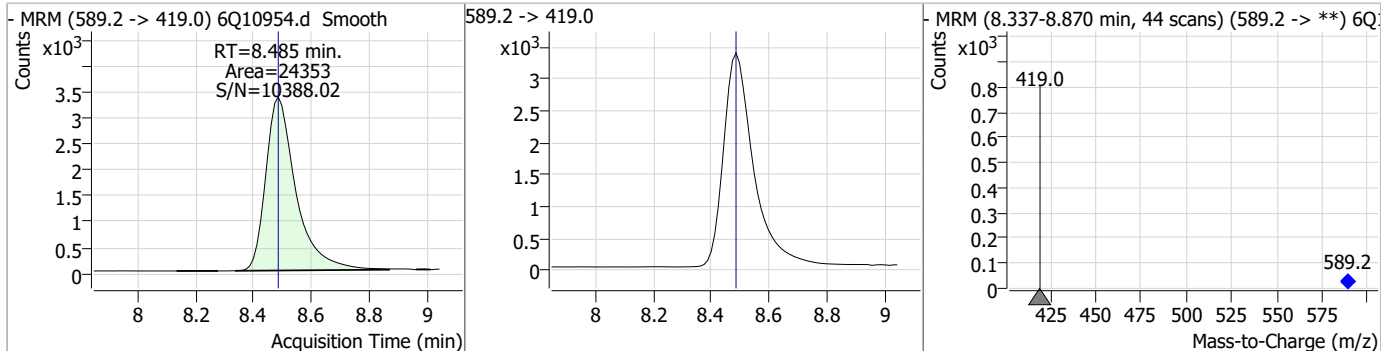


Perfluorinated Compounds by LC/MS/MS

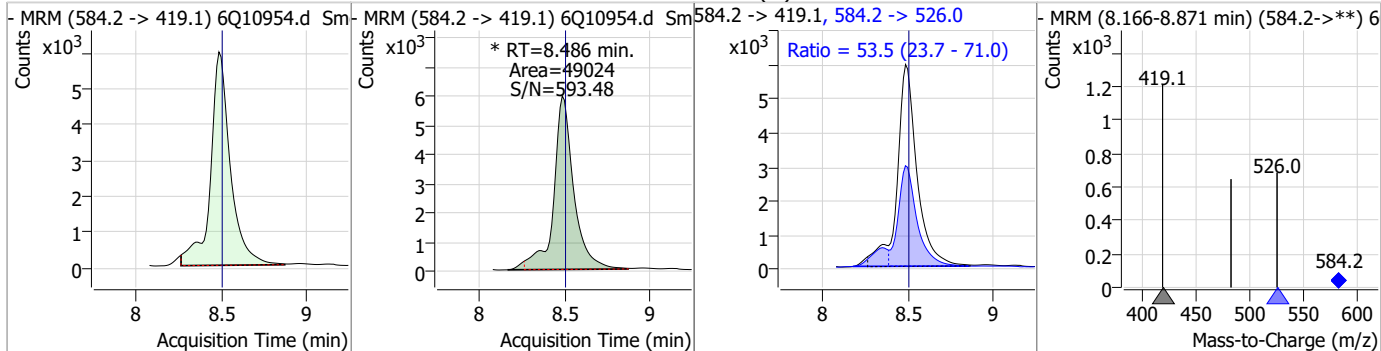
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	11.46	8.42	0.00	49171 (m)	498.9 -> 98.8	65.1	35.9	107.6



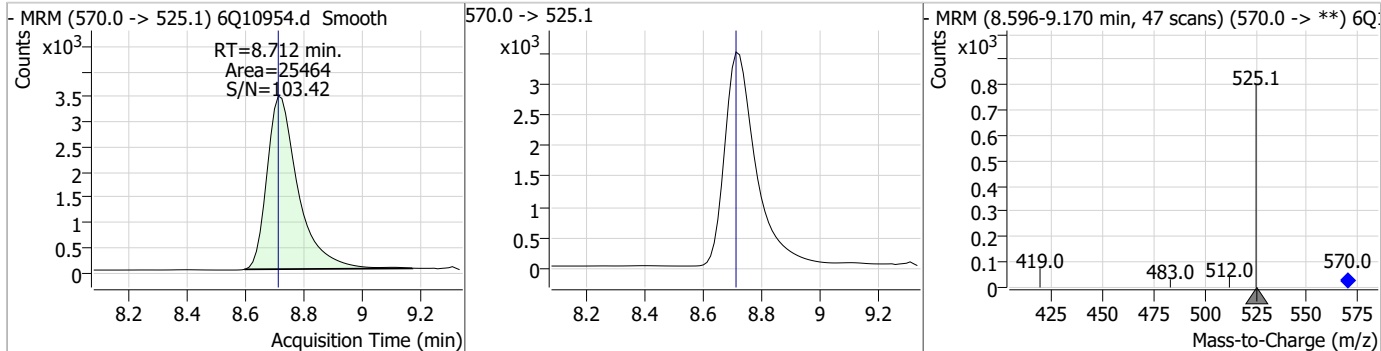
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.40	8.49	0.00	24353				



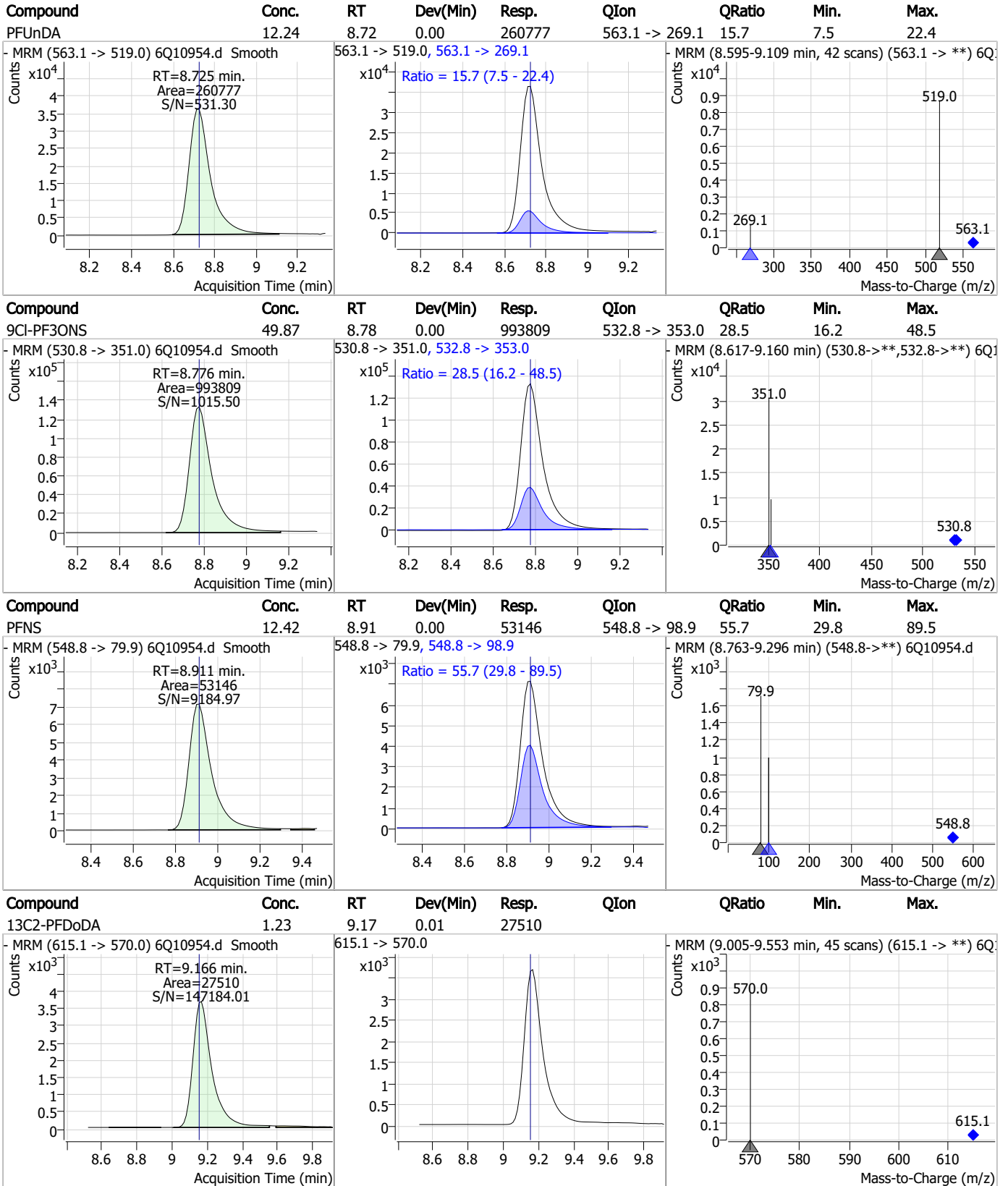
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	12.61	8.49	-0.01	49024 (m)	584.2 -> 526.0	53.5	23.7	71.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.30	8.71	0.00	25464				



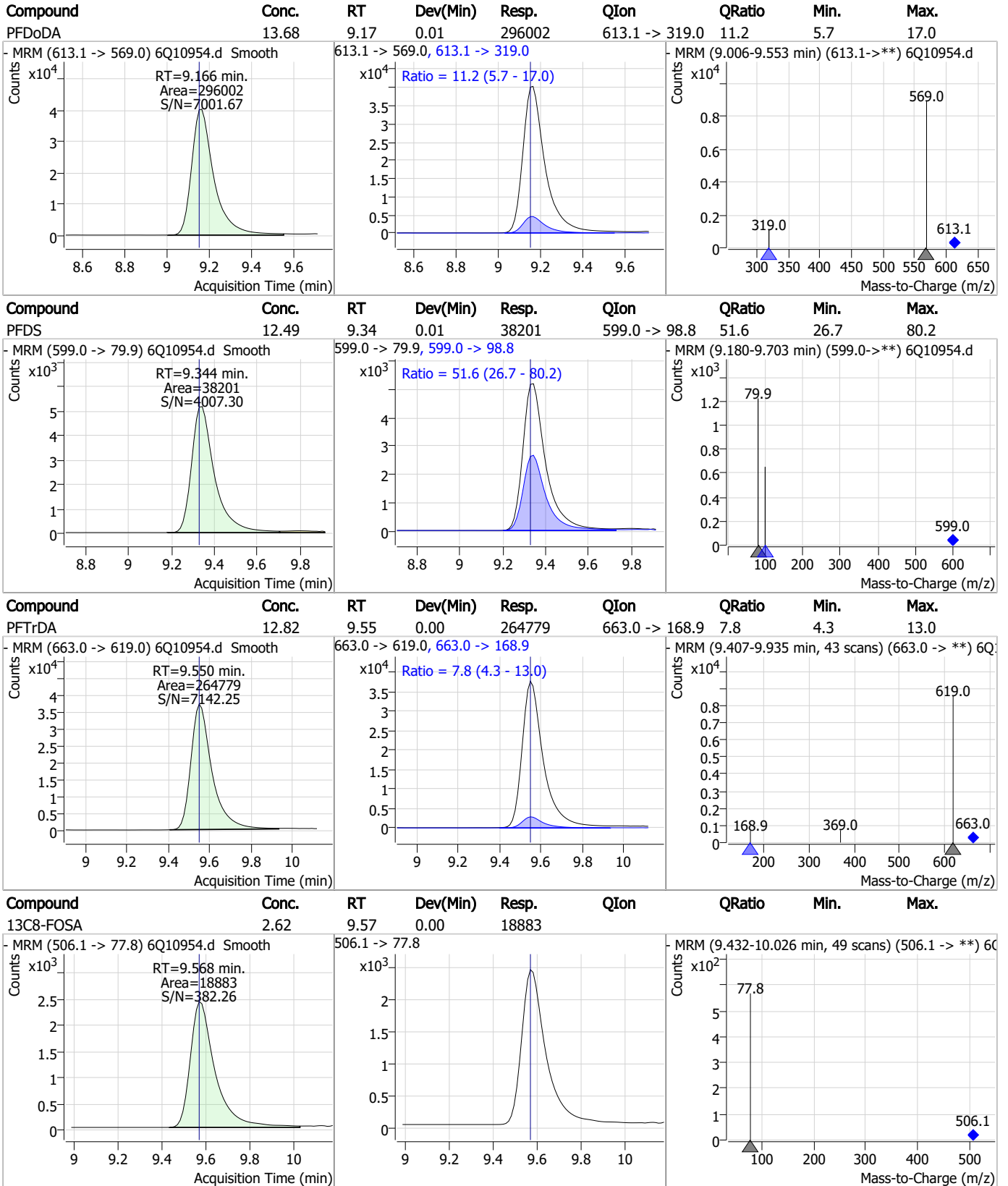
Perfluorinated Compounds by LC/MS/MS



7.7.7

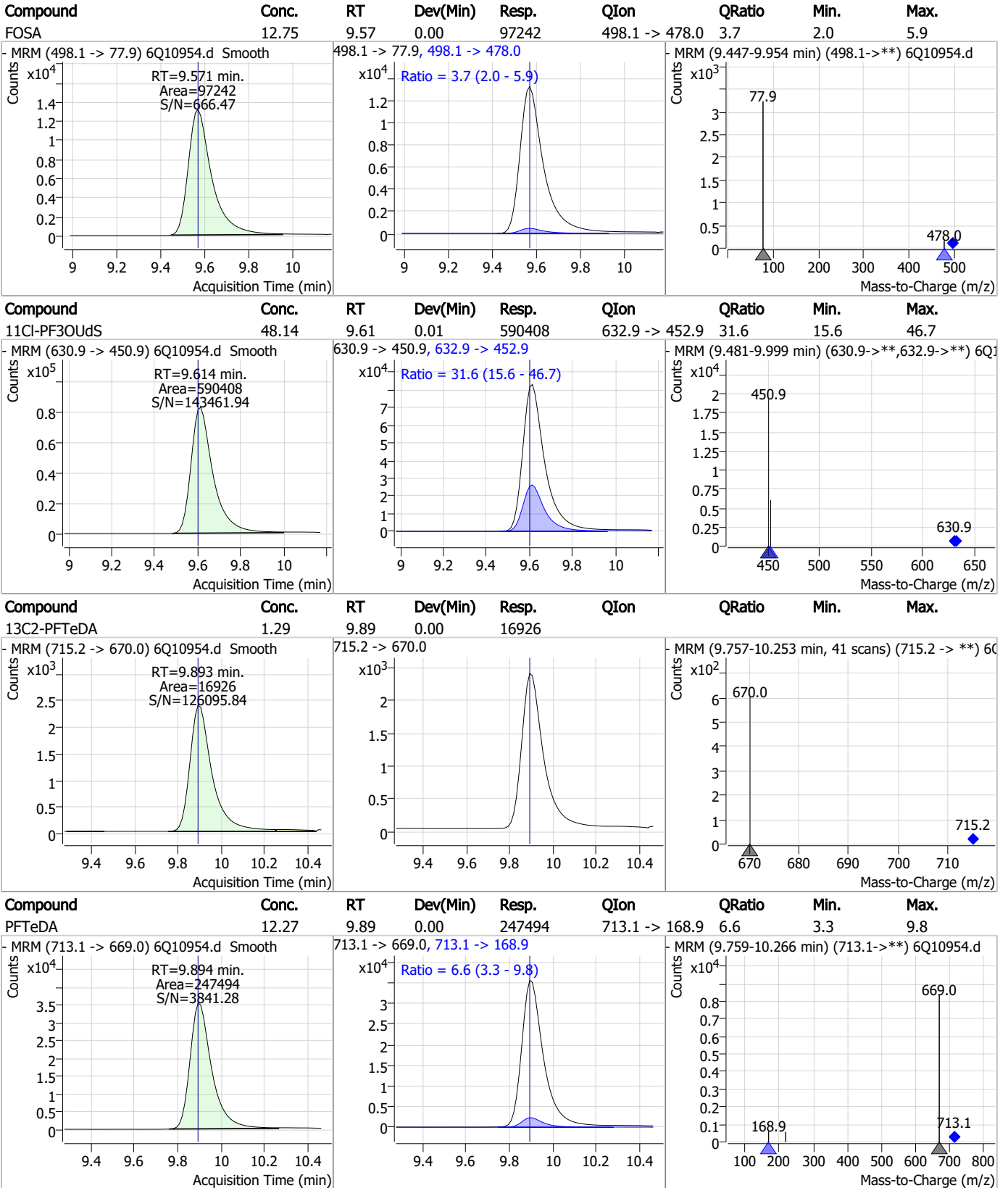
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Perfluorinated Compounds by LC/MS/MS



7.7.7
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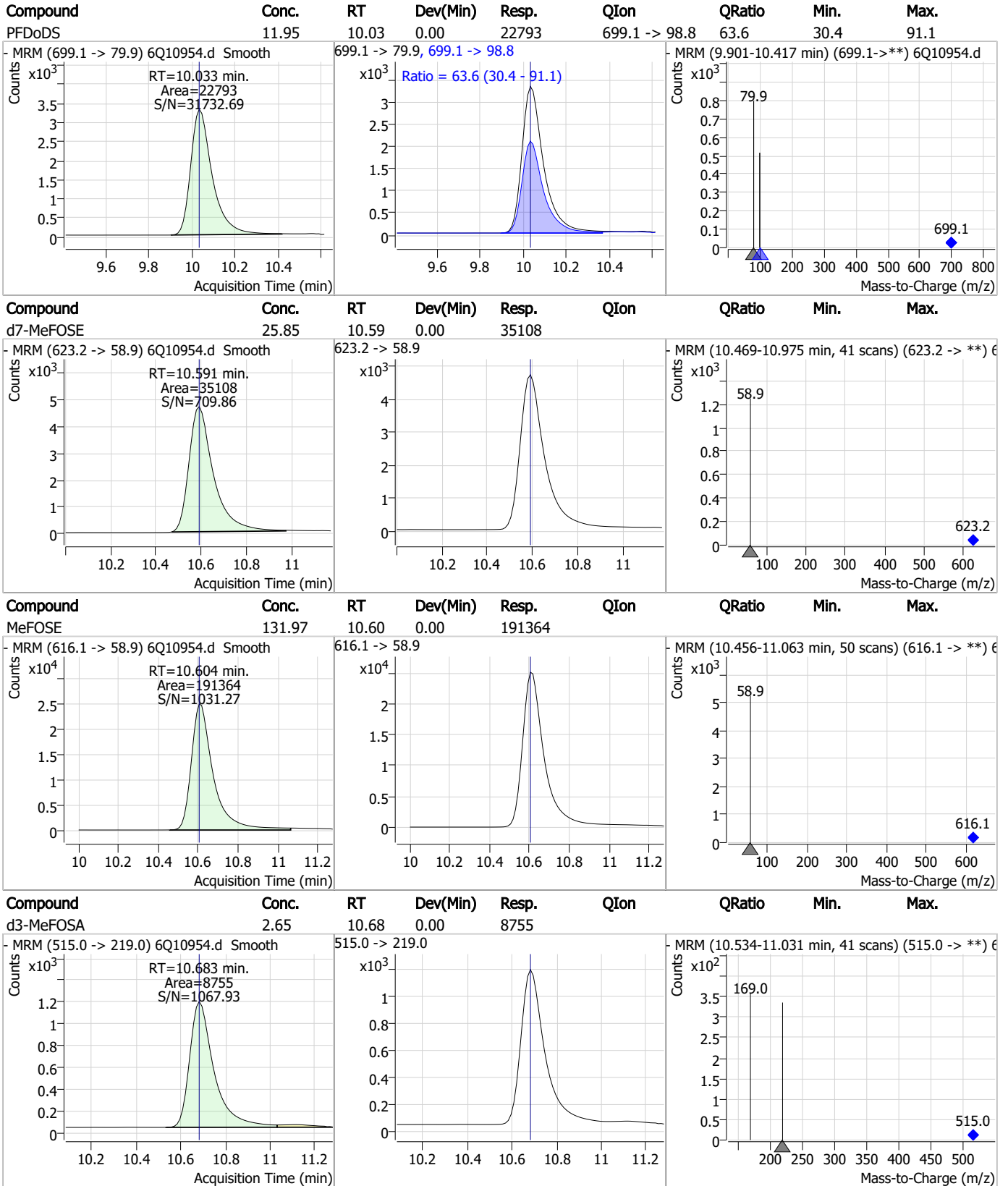
Perfluorinated Compounds by LC/MS/MS



7.7.7
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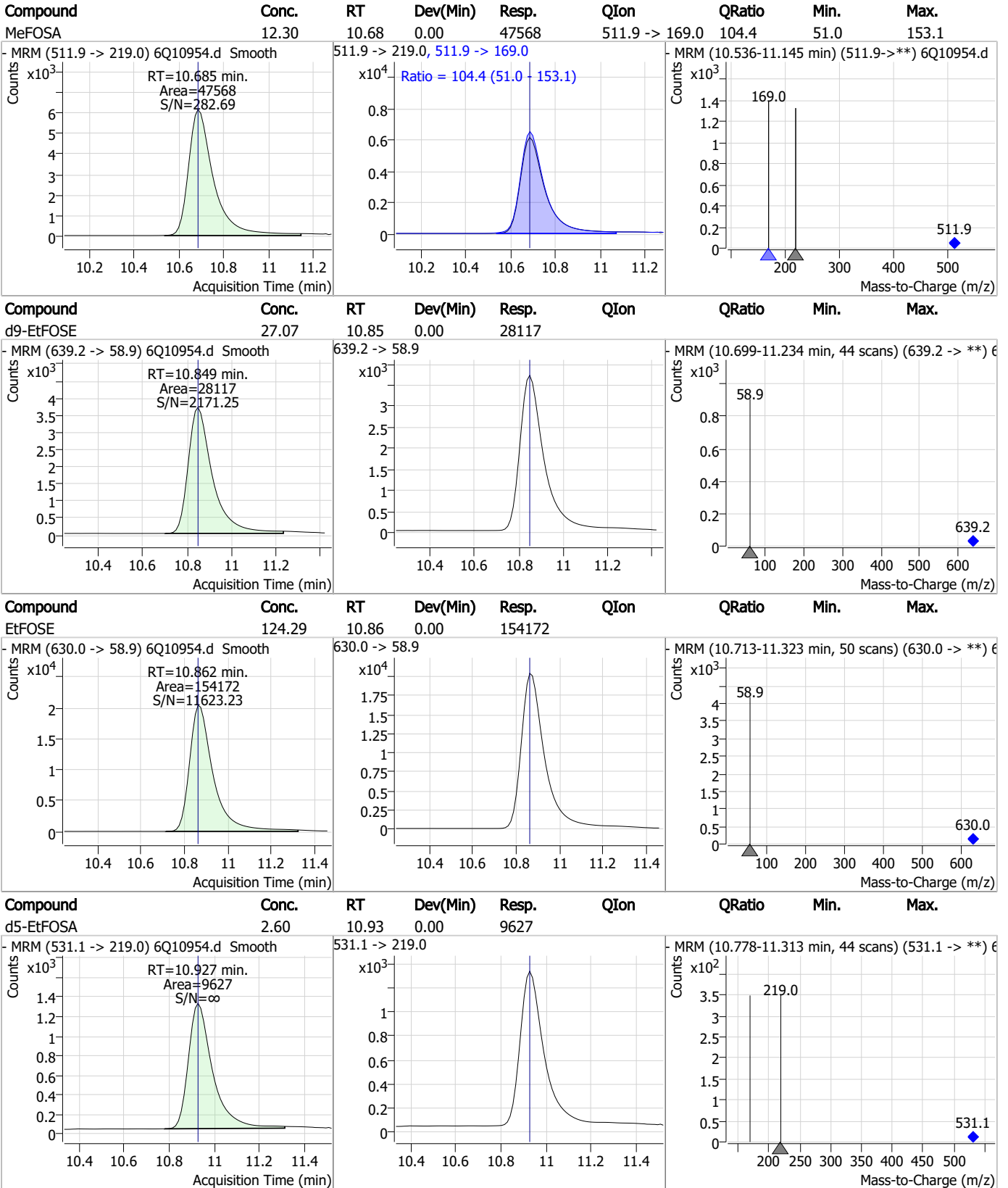
Perfluorinated Compounds by LC/MS/MS



7.7.7

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Perfluorinated Compounds by LC/MS/MS

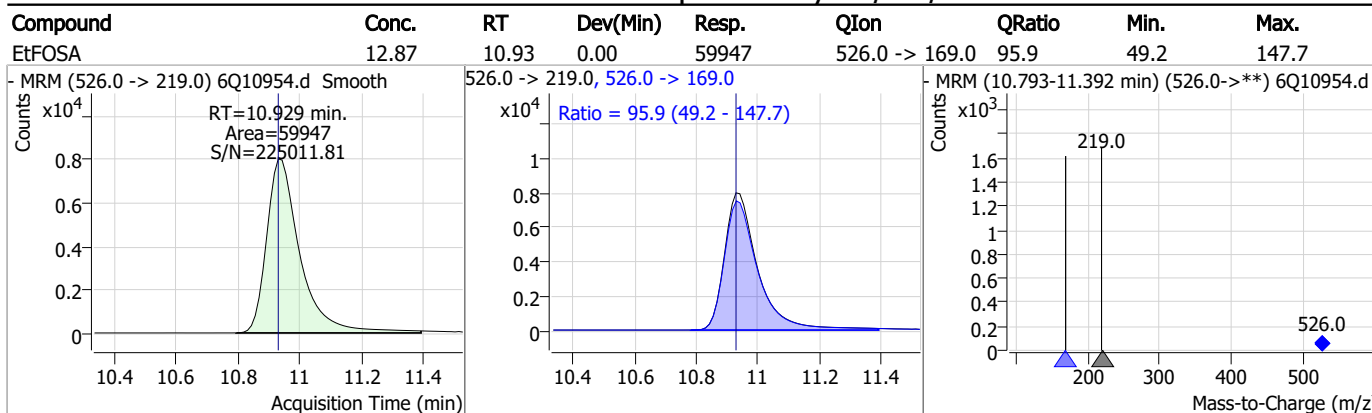


7.7.7

7



Perfluorinated Compounds by LC/MS/MS



7.7.7
7

Manual Integration Approval Summary

Sample Number: S6Q174-IC174 Method: EPA DRAFT 1633
Lab FileID: 6Q10954.D Analyst approved: 01/12/23 11:46 Martha Valls
Injection Time: 01/11/23 13:00 Supervisor approved: 01/12/23 15:42 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
MeFOSAA	2355-31-9		8.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.42	Split peak
EtFOSAA	2991-50-6		8.49	Split peak

7.7.7.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtie
 01/12/23 15:42

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q10955.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/11/2023 1:14:21 PM
 Sample Name : ic174-7
 Vial : P1-A8
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : S6Q174.batch.bin
 Sample Information : OP94795,S6Q174,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.013	216.8 -> 171.9	94242	10.00 µg/L	0.012
M5-PFPeA	4.397	268.3 -> 223.0	46850	5.00 µg/L	0.000
M5-PFHxA	5.588	318.0 -> 273.0	41197	2.50 µg/L	0.000
M4-PFHpA	6.529	367.1 -> 322.0	42348	2.50 µg/L	-0.012
M8-PFOA	7.185	421.1 -> 376.0	73364	2.50 µg/L	-0.013
M9-PFNA	7.740	472.1 -> 427.0	32774	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	22359	1.25 µg/L	-0.012
M7-PFUnDA	8.712	570.0 -> 525.1	24695	1.25 µg/L	0.000
M2-PFDoDA	9.154	615.1 -> 570.0	31086	1.25 µg/L	0.000
M2-PFTeDA	9.893	715.2 -> 670.0	18500	1.25 µg/L	0.000
M8-FOSA	9.568	506.1 -> 77.8	19338	2.50 µg/L	0.000
M3-PFBS	5.544	302.1 -> 79.9	16092	2.50 µg/L	-0.012
M3-PFHxS	7.325	402.1 -> 79.9	9782	2.50 µg/L	-0.012
M8-PFOS	8.420	507.1 -> 79.9	8758	2.50 µg/L	0.000
M2-4:2FTS	5.253	329.1 -> 80.9	1740	5.00 µg/L	0.000
M2-6:2FTS	6.946	429.1 -> 80.9	2442	5.00 µg/L	-0.012
M2-8:2FTS	8.019	529.1 -> 80.9	2561	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	26481	5.00 µg/L	0.000
M3-HFPO-DA	5.965	286.9 -> 168.9	17609	10.00 µg/L	-0.012
M5-EtFOSAA	8.485	589.2 -> 419.0	24975	5.00 µg/L	0.000
M7-MeFOSE	10.591	623.2 -> 58.9	37644	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	28788	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	10119	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	9034	2.50 µg/L	0.000
13C4-PFOS	8.421	502.8 -> 79.9	11918	2.50 µg/L	0.000
13C3-PFBA	3.004	216.0 -> 172.0	41829	5.00 µg/L	0.000
18O2-PFHxS	7.324	403.0 -> 83.9	7802	2.50 µg/L	-0.012
13C4-PFOA	7.185	417.1 -> 372.0	84877	2.50 µg/L	-0.013
13C2-PFDA	8.245	515.1 -> 470.1	29037	1.25 µg/L	0.000
13C5-PFNA	7.740	468.0 -> 423.0	36106	1.25 µg/L	0.000
13C2-PFHxA	5.589	315.1 -> 270.0	44255	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.253	329.1 -> 80.9	1740	4.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.5%		
13C2-6:2FTS	6.946	429.1 -> 80.9	2442	4.38 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.6%		
13C2-8:2FTS	8.019	529.1 -> 80.9	2561	4.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 84.2%		
13C2-PFDoDA	9.154	615.1 -> 570.0	31086	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C2-PFTeDA	9.893	715.2 -> 670.0	18500	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.4%		
13C3-PFBS	5.544	302.1 -> 79.9	16092	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C3-PFHxS	7.325	402.1 -> 79.9	9782	2.31 µg/L	-0.012

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.4%		
13C4-PFBA	3.013	216.8 -> 171.9	94242	9.86 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C4-PFHpA	6.529	367.1 -> 322.0	42348	2.36 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.4%		
13C5-PFHxA	5.588	318.0 -> 273.0	41197	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.7%		
13C5-PFPeA	4.397	268.3 -> 223.0	46850	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.9%		
13C6-PFDA	8.233	519.1 -> 474.1	22359	1.35 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C7-PFUnDA	8.712	570.0 -> 525.1	24695	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C8-FOSA	9.568	506.1 -> 77.8	19338	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C8-PFOA	7.185	421.1 -> 376.0	73364	2.58 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C8-PFOS	8.420	507.1 -> 79.9	8758	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C9-PFNA	7.740	472.1 -> 427.0	32774	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.2%		
d3-MeFOSAA	8.277	573.2 -> 419.0	26481	4.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C3-HFPO-DA	5.965	286.9 -> 168.9	17609	9.65 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 96.5%		
d3-MeFOSA	10.683	515.0 -> 219.0	9034	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.0%		
d5-EtFOSAA	8.485	589.2 -> 419.0	24975	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.2%		
d7-MeFOSE	10.591	623.2 -> 58.9	37644	24.81 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
d9-EtFOSE	10.849	639.2 -> 58.9	28788	24.81 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
d5-EtFOSA	10.927	531.1 -> 219.0	10119	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.0%		
Target Compounds					QValue
4:2FTS	5.254	327.1 -> 307.0	395478	95.58 µg/L	96
		327.1 -> 80.9	89202		
6:2FTS	6.946	427.1 -> 407.0	365857	96.30 µg/L	100
		427.1 -> 80.9	71919		
8:2FTS	8.008	527.1 -> 507.0	222499	104.16 µg/L	m 98
		527.1 -> 80.8	51918		
EtFOSAA	8.486	584.2 -> 419.1	101013	25.34 µg/L	m 81
		584.2 -> 526.0	60476		
FOSA	9.571	498.1 -> 77.9	204174	26.14 µg/L	100
		498.1 -> 478.0	7845		
MeFOSAA	8.278	570.1 -> 419.0	156526	28.67 µg/L	m 95
		570.1 -> 483.0	28087		
PFBA	3.007	212.8 -> 168.9	259456	107.31 µg/L	100
PFBS	5.544	298.7 -> 79.9	148823	22.85 µg/L	95
		298.7 -> 98.8	66441		
PFDA	8.233	512.9 -> 469.0	703054	26.16 µg/L	99
		512.9 -> 219.0	94923		
PFDoDA	9.166	613.1 -> 569.0	594934	24.33 µg/L	99
		613.1 -> 319.0	69794		
PFDS	9.329	599.0 -> 79.9	87972	29.10 µg/L	91

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	41419			
PFHpA	6.530	363.1 -> 319.0	672878	26.35	µg/L	97
		363.1 -> 169.0	94787			
PFHpS	7.905	449.0 -> 79.9	102383	25.55	µg/L	98
		449.0 -> 98.9	61572			
PFHxA	5.591	313.0 -> 269.0	459703	27.62	µg/L	98
		313.0 -> 118.9	15796			
PFHxS	7.326	398.7 -> 79.9	106513	22.87	µg/L	m 98
		398.7 -> 98.9	62438			
PFNA	7.740	463.0 -> 419.0	610217	26.91	µg/L	100
		463.0 -> 219.0	114469			
PFNS	8.899	548.8 -> 79.9	112476	26.59	µg/L	98
		548.8 -> 98.9	68719			
PFOA	7.186	413.0 -> 369.0	832284	25.35	µg/L	98
		413.0 -> 169.0	111893			
PFOS	8.421	498.9 -> 79.9	109938	25.92	µg/L	m 88
		498.9 -> 98.8	67410			
PFPeA	4.401	263.0 -> 219.0	534954	52.00	µg/L	100
PFPeS	6.607	349.1 -> 79.9	134131	24.33	µg/L	98
		349.1 -> 98.9	72240			
PFTeDA	9.894	713.1 -> 669.0	538783	24.43	µg/L	99
		713.1 -> 168.9	36658			
PFTrDA	9.550	663.0 -> 619.0	594224	25.45	µg/L	96
		663.0 -> 168.9	44192			
PFUnDA	8.712	563.1 -> 519.0	575926	27.89	µg/L	99
		563.1 -> 269.1	82714			
11Cl-PF3OUdS	9.614	630.9 -> 450.9	1304343	97.69	µg/L	97
		632.9 -> 452.9	381122			
9Cl-PF3ONS	8.763	530.8 -> 351.0	2056594	94.80	µg/L	97
		532.8 -> 353.0	634385			
ADONA	6.792	376.9 -> 250.9	3655446	93.36	µg/L	99
		376.9 -> 84.8	767389			
HFPO-DA	5.966	284.9 -> 168.9	185000	103.89	µg/L	98
		284.9 -> 184.9	21042			
3:3FTCA	3.852	241.0 -> 177.0	72631	132.51	µg/L	100
		241.0 -> 117.0	8963			
5:3FTCA	6.207	341.0 -> 237.1	2352215	679.47	µg/L	95
		341.0 -> 217.0	1885412			
7:3FTCA	7.630	441.0 -> 316.9	1508764	646.59	µg/L	96
		441.0 -> 336.9	3192430			
EtFOSA	10.929	526.0 -> 219.0	129043	26.35	µg/L	99
		526.0 -> 169.0	127823			
EtFOSE	10.862	630.0 -> 58.9	335570	264.23	µg/L	100
MeFOSA	10.685	511.9 -> 219.0	106013	26.56	µg/L	98
		511.9 -> 169.0	105873			
MeFOSE	10.604	616.1 -> 58.9	406063	261.16	µg/L	100
PFDoDS	10.033	699.1 -> 79.9	50431	26.75	µg/L	99
		699.1 -> 98.8	31186			
NFDHA	5.471	295.0 -> 201.0	57674	53.42	µg/L	97
		295.0 -> 84.9	24070			
PFMBA	4.801	279.0 -> 85.1	168789	52.60	µg/L	100
PFMPA	3.550	229.0 -> 84.9	150387	52.81	µg/L	100
PFEESA	6.097	314.8 -> 134.9	1070136	46.18	µg/L	100
		314.8 -> 82.9	27484			

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

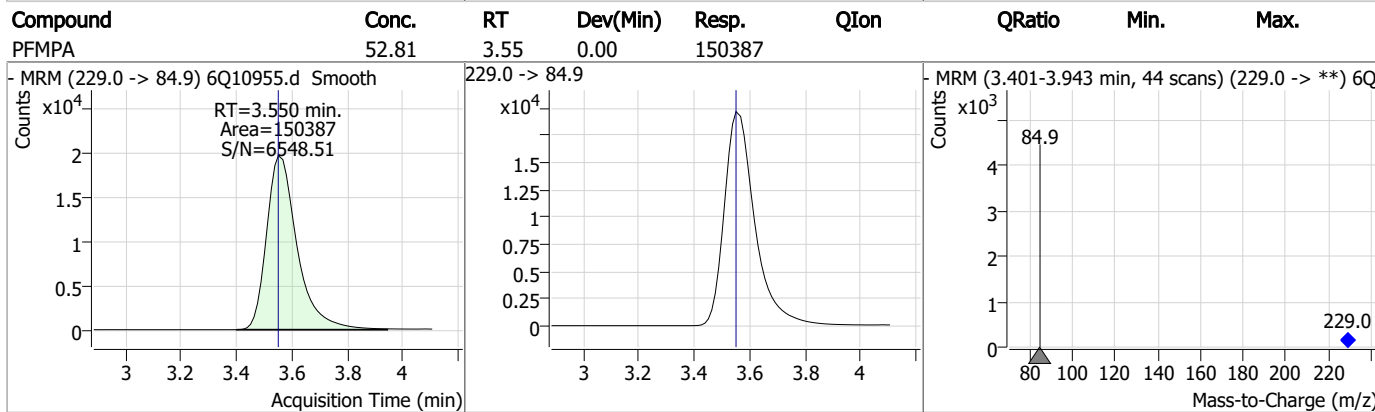
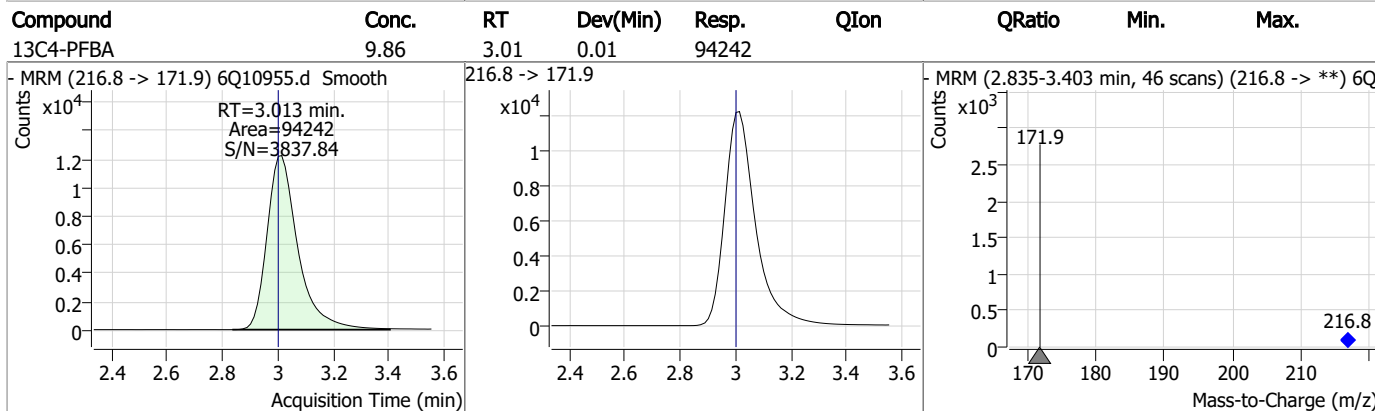
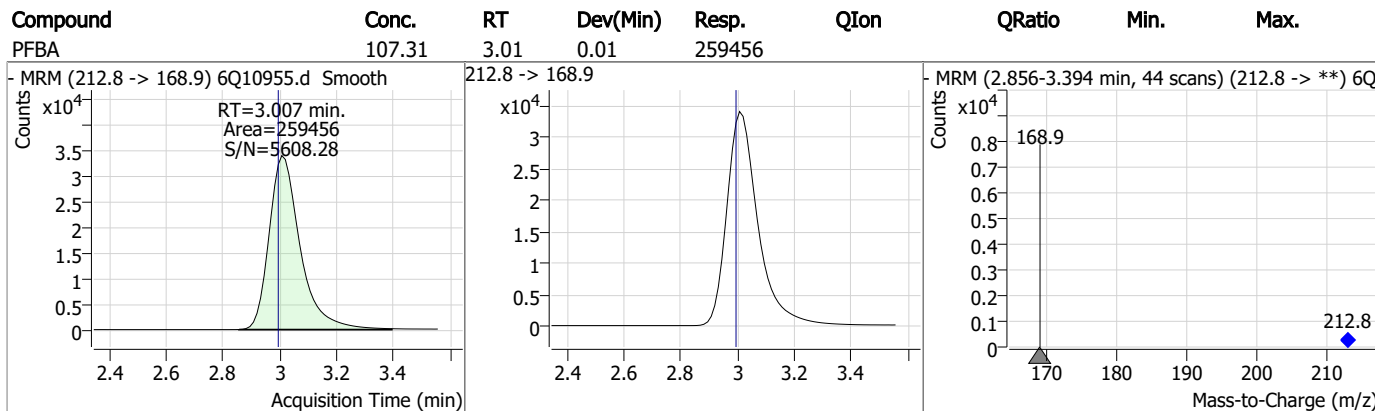
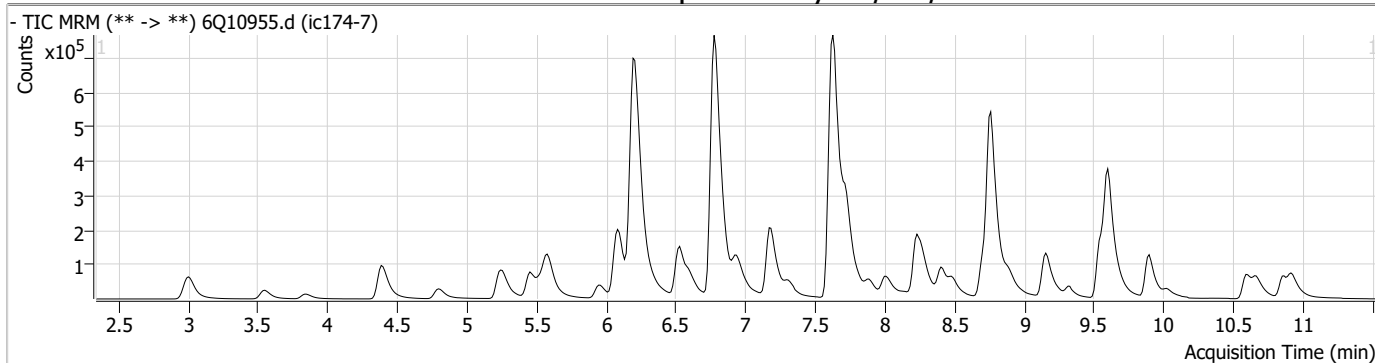
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.8

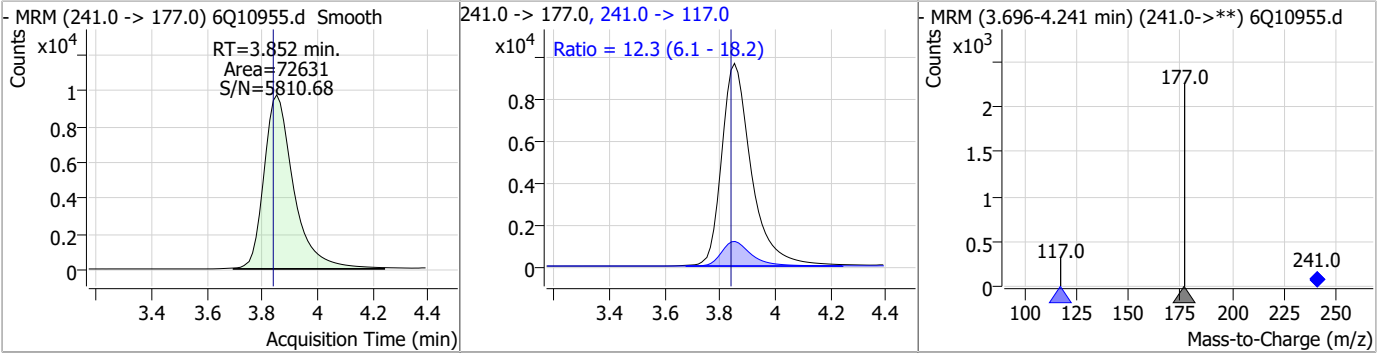
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Perfluorinated Compounds by LC/MS/MS

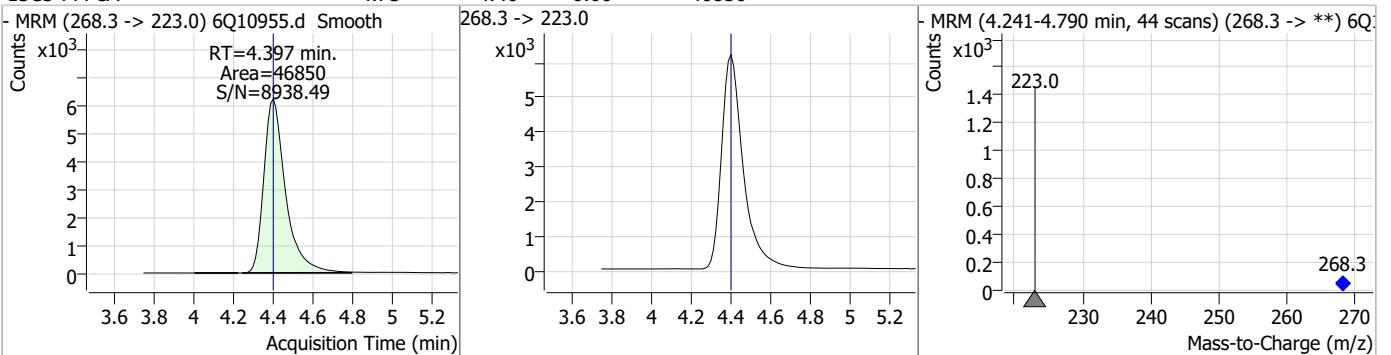


Perfluorinated Compounds by LC/MS/MS

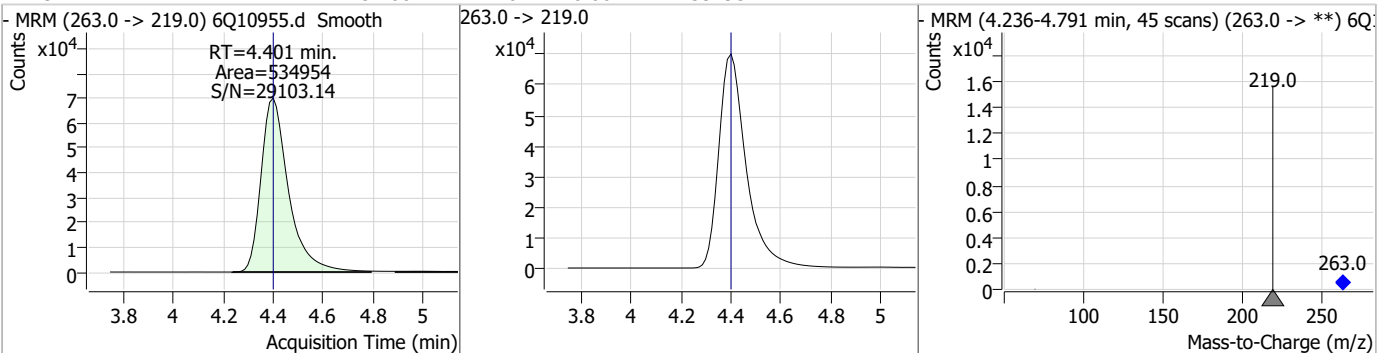
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	132.51	3.85	0.01	72631	241.0 -> 117.0	12.3	6.1	18.2



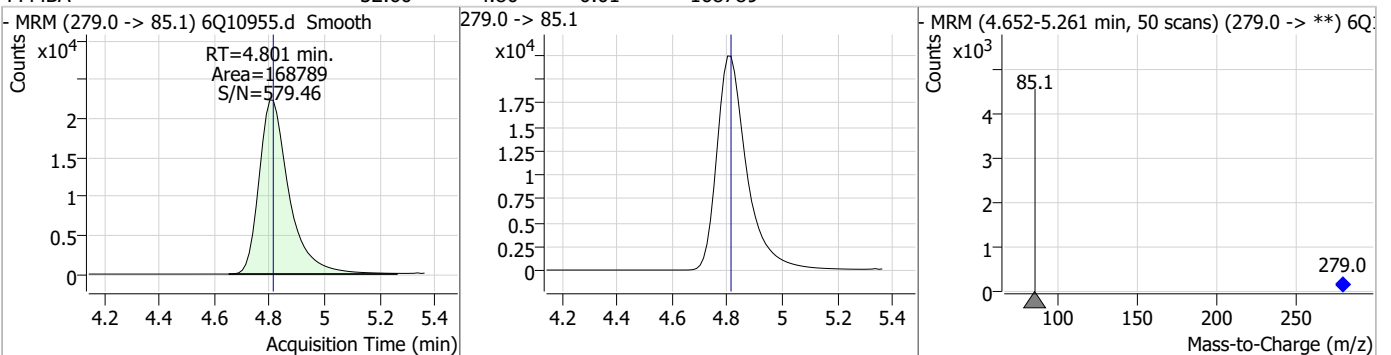
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.75	4.40	0.00	46850				



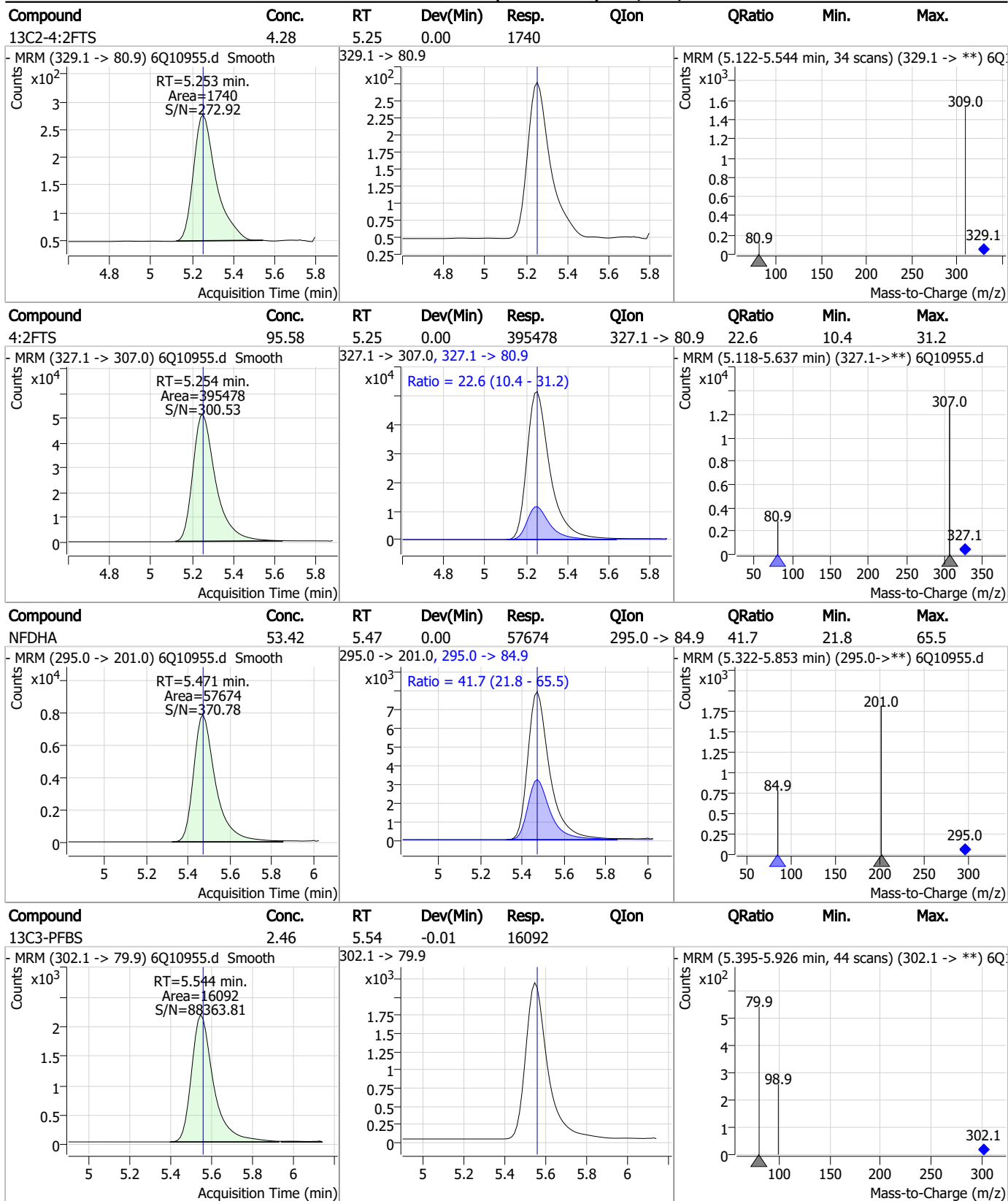
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	52.00	4.40	0.00	534954				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	52.60	4.80	-0.01	168789				



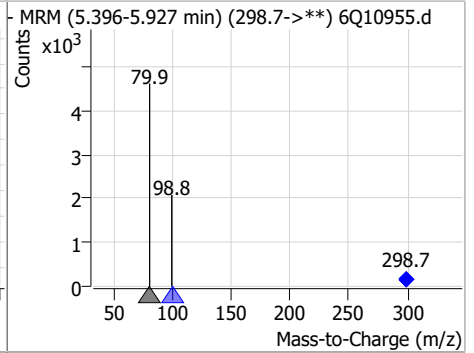
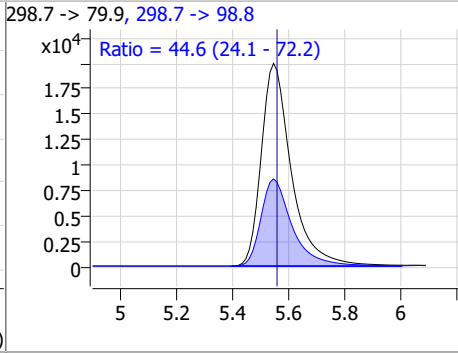
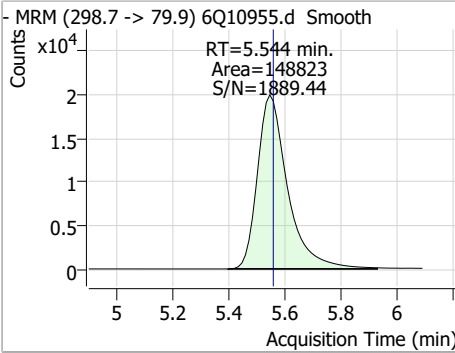
Perfluorinated Compounds by LC/MS/MS



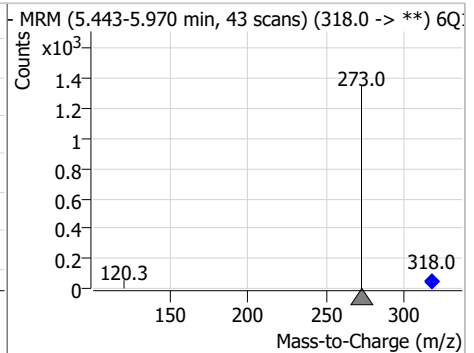
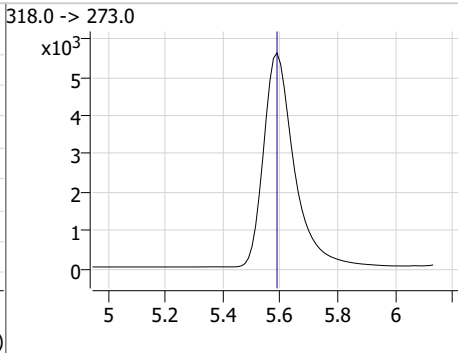
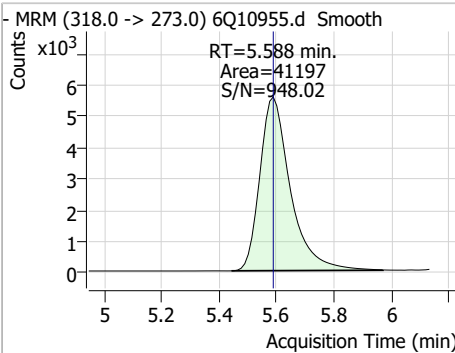
7.7.8
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Perfluorinated Compounds by LC/MS/MS

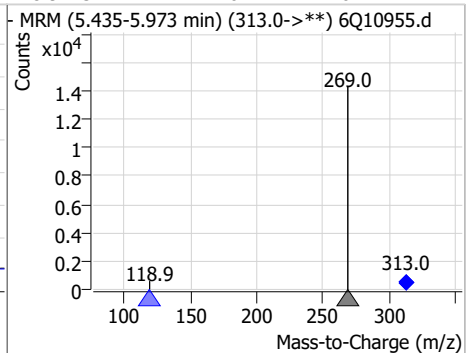
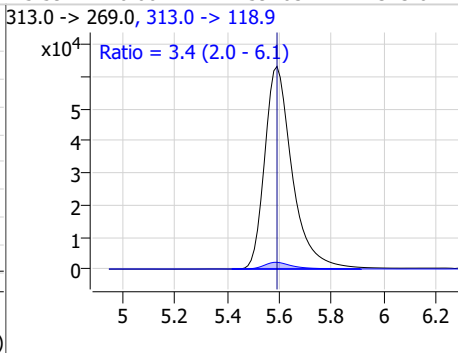
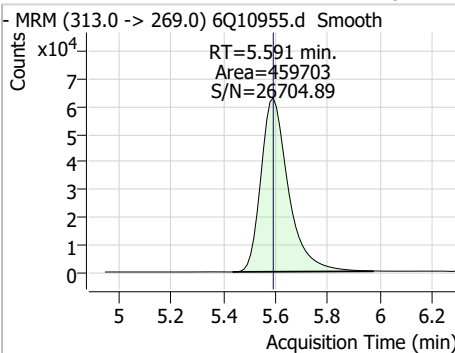
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	22.85	5.54	-0.01	148823	298.7 -> 98.8	44.6	24.1	72.2



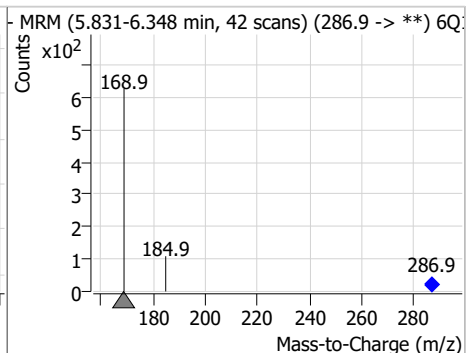
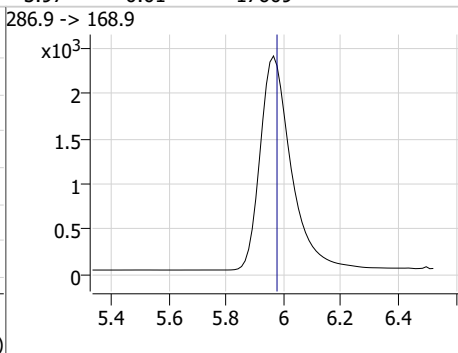
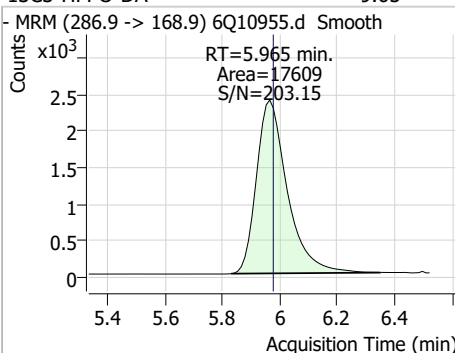
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.32	5.59	0.00	41197				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	27.62	5.59	0.00	459703	313.0 -> 118.9	3.4	2.0	6.1

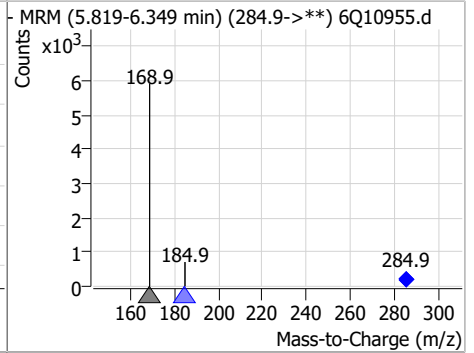
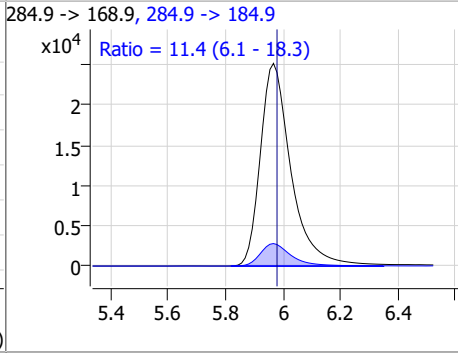
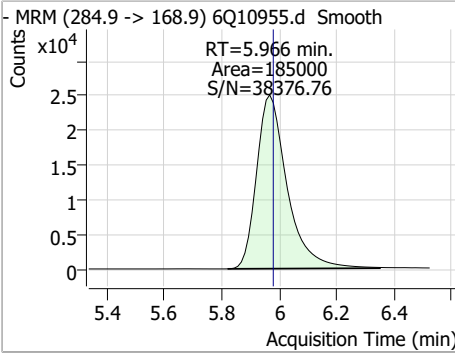


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.65	5.97	-0.01	17609				

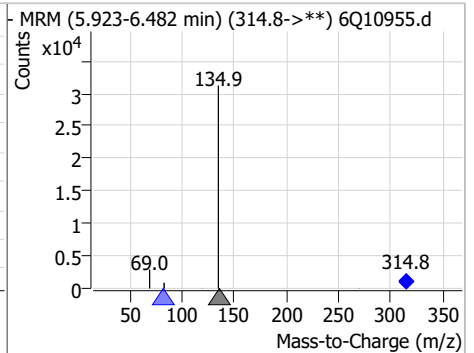
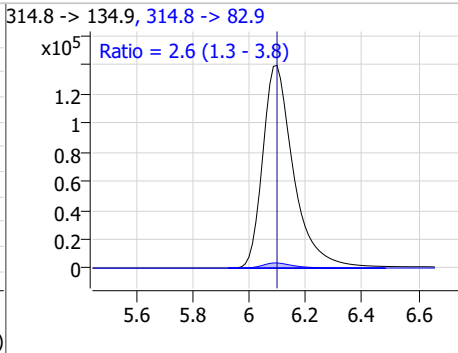
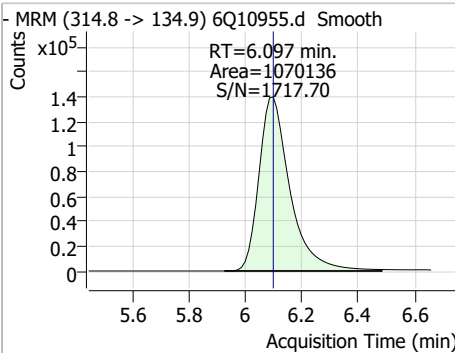


Perfluorinated Compounds by LC/MS/MS

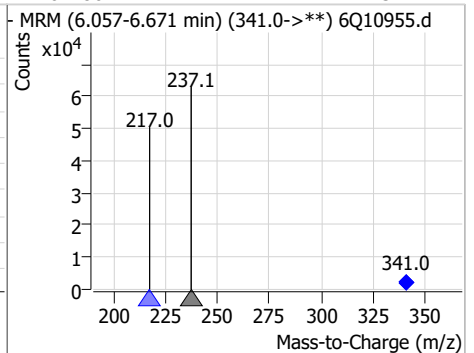
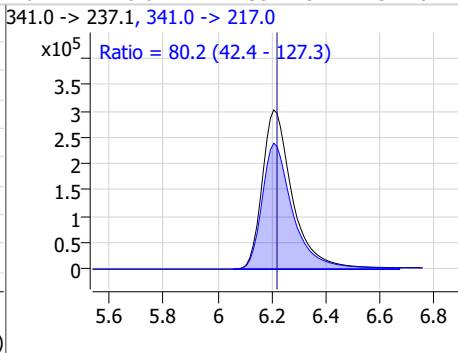
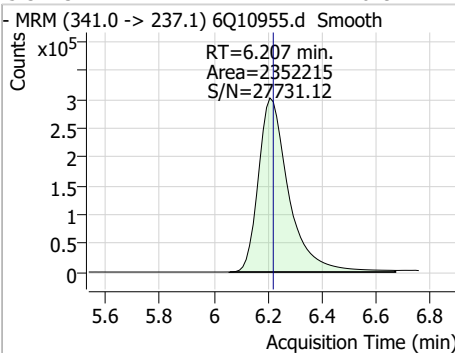
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	103.89	5.97	-0.01	185000	284.9 -> 184.9	11.4	6.1	18.3



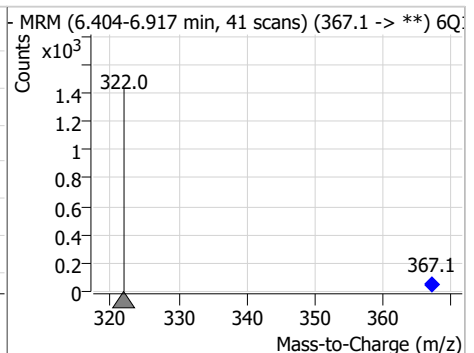
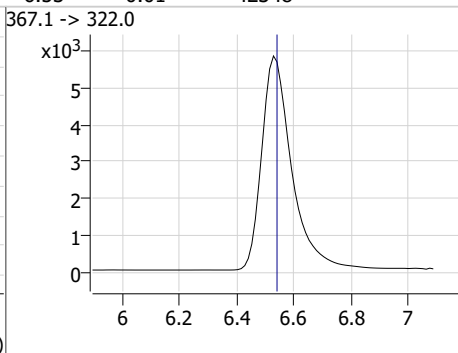
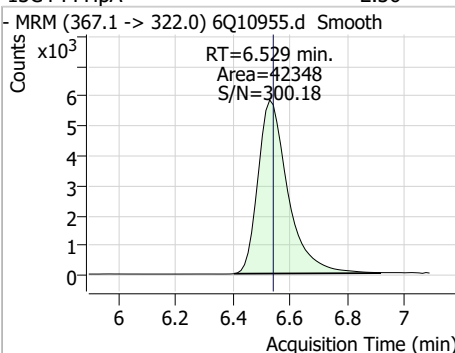
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	46.18	6.10	0.00	1070136	314.8 -> 82.9	2.6	1.3	3.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	679.47	6.21	-0.01	2352215	341.0 -> 217.0	80.2	42.4	127.3



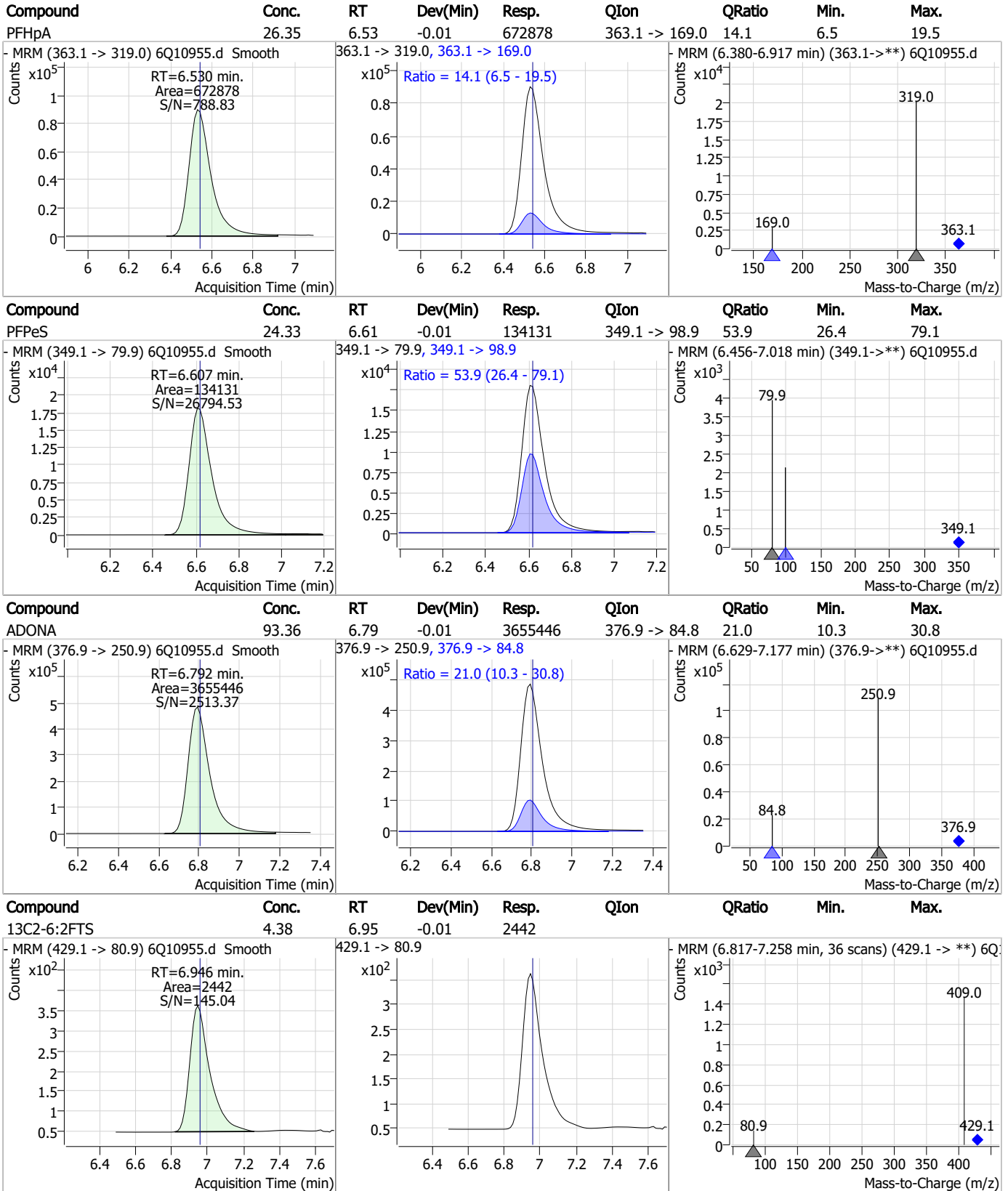
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.36	6.53	-0.01	42348	367.1 -> 322.0			



7.7.8

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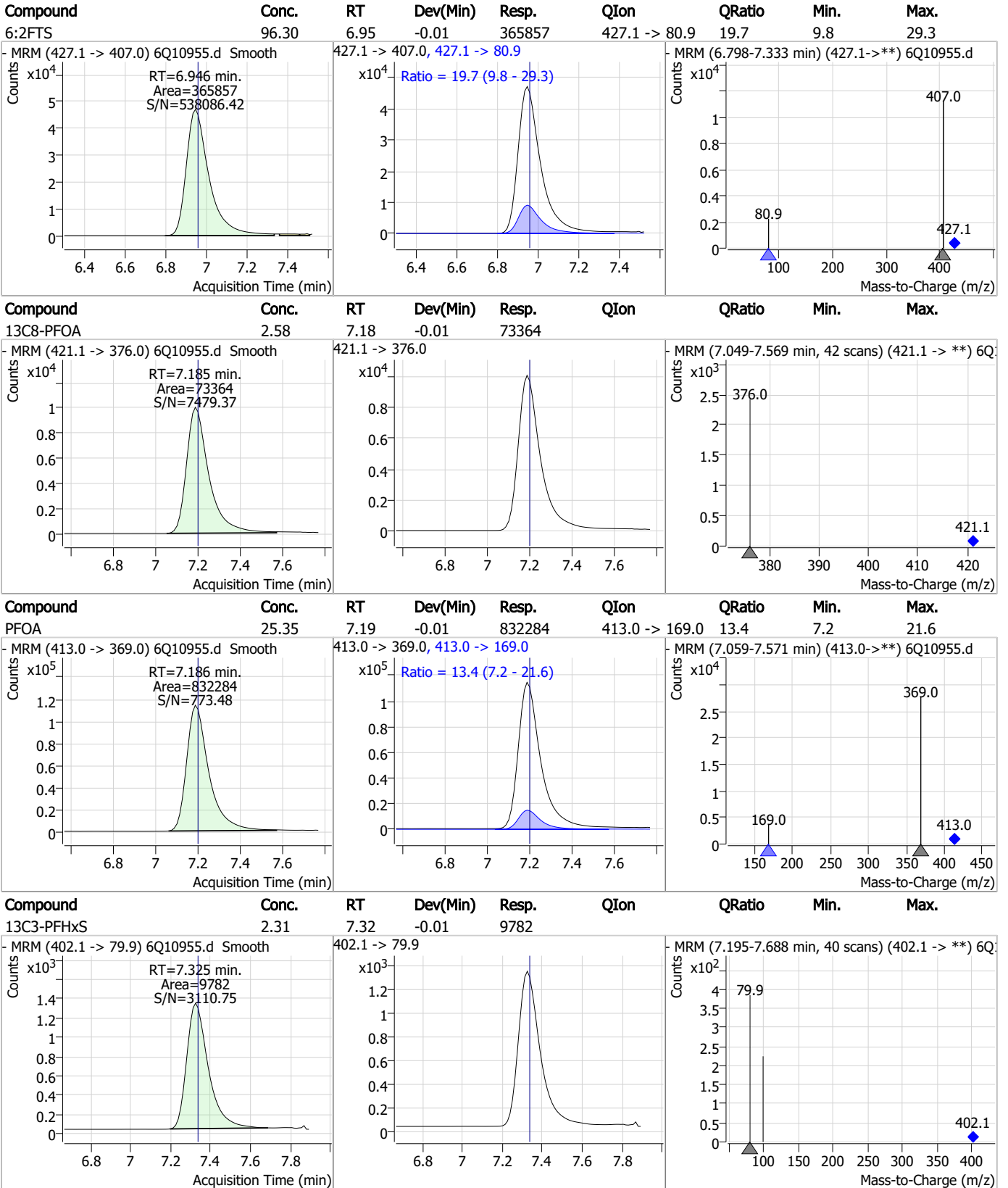
Perfluorinated Compounds by LC/MS/MS



7.7.8

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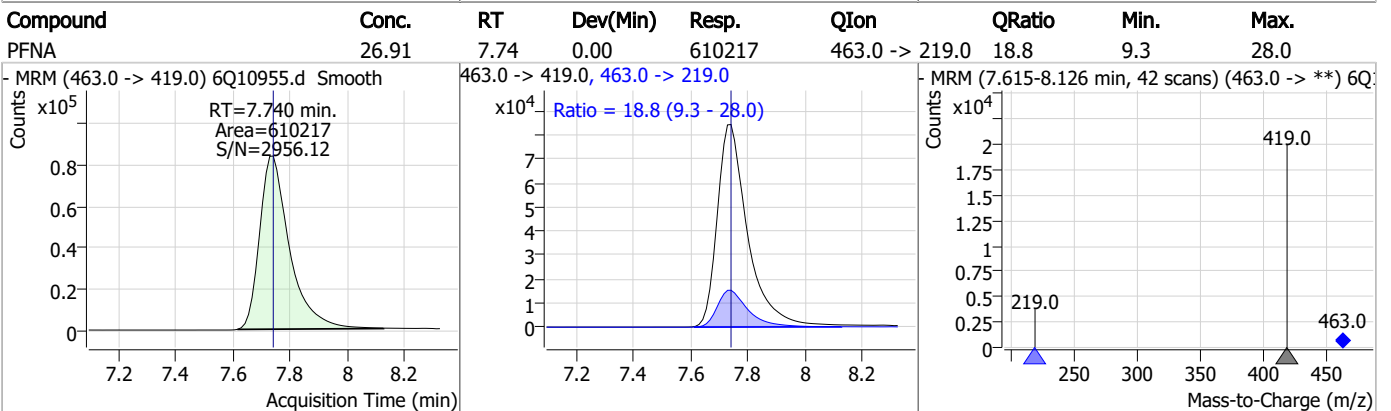
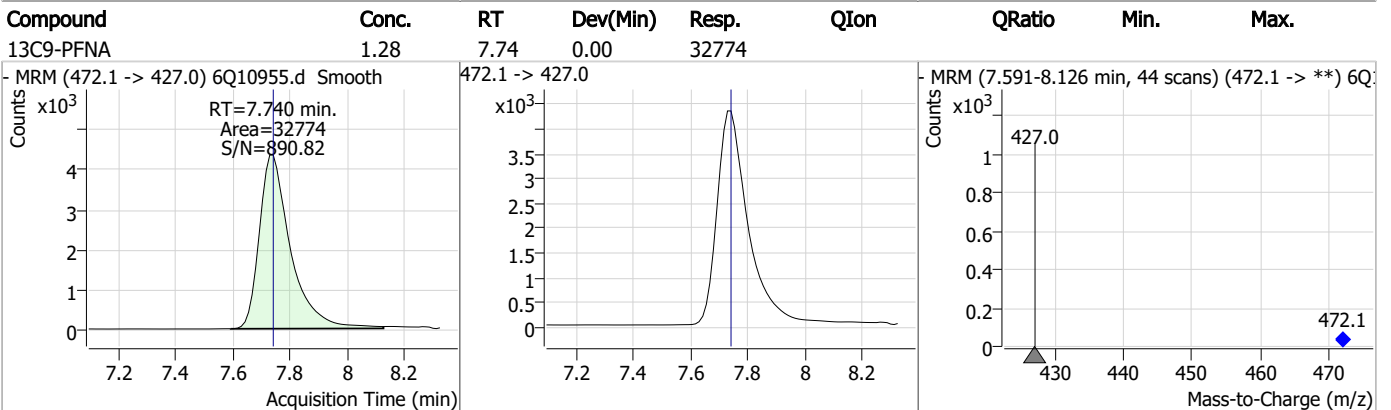
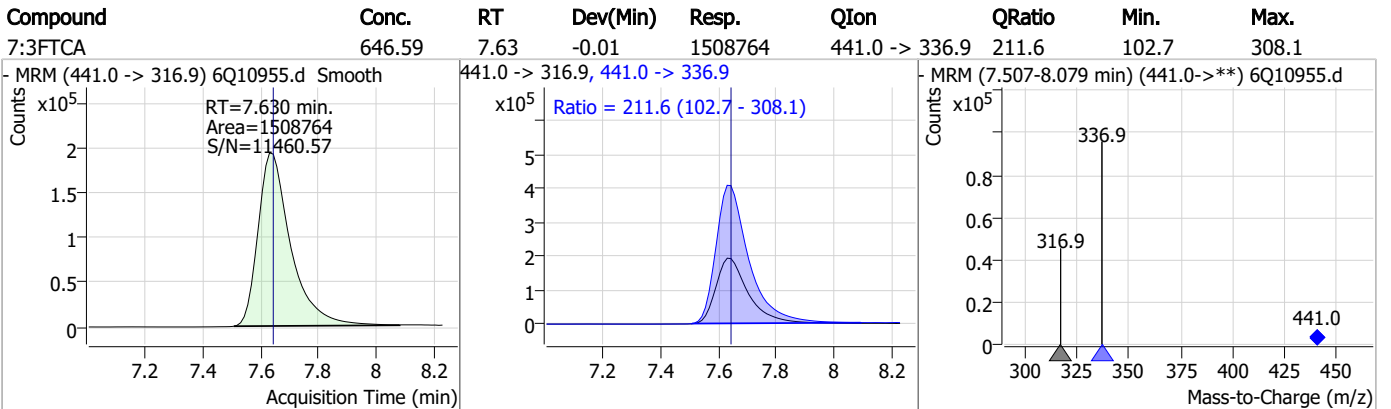
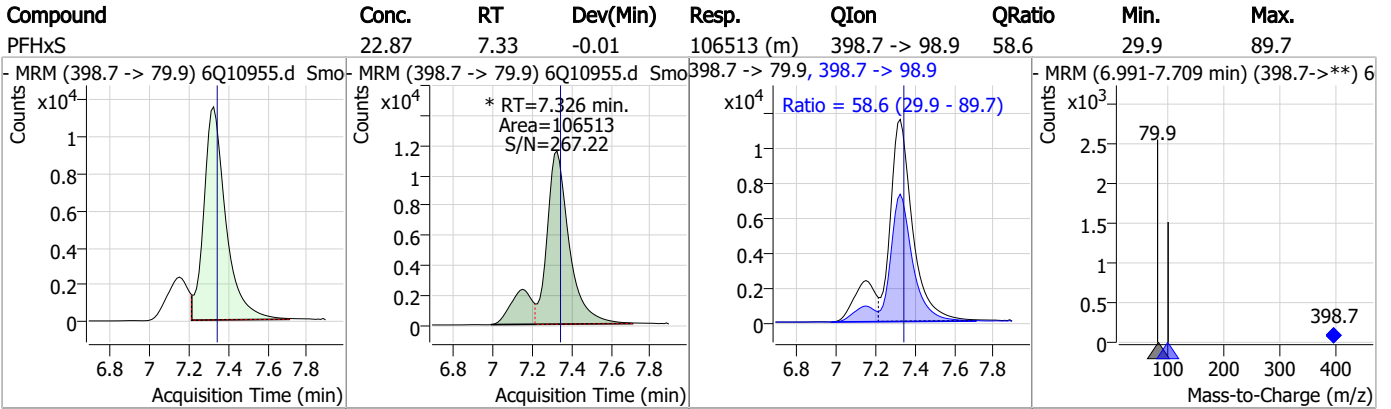
Perfluorinated Compounds by LC/MS/MS



7.7.8

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Perfluorinated Compounds by LC/MS/MS

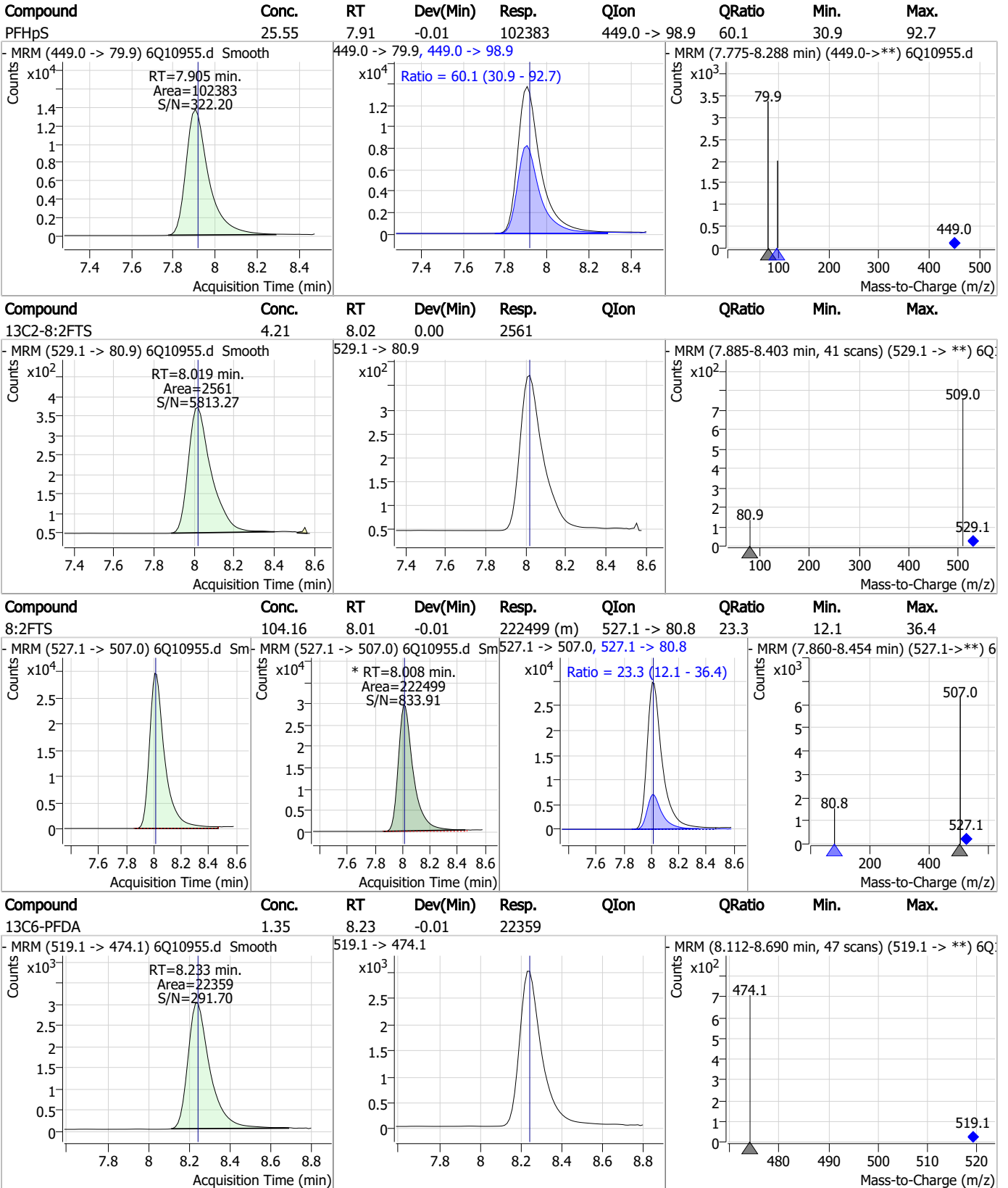


7.7.8

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Perfluorinated Compounds by LC/MS/MS

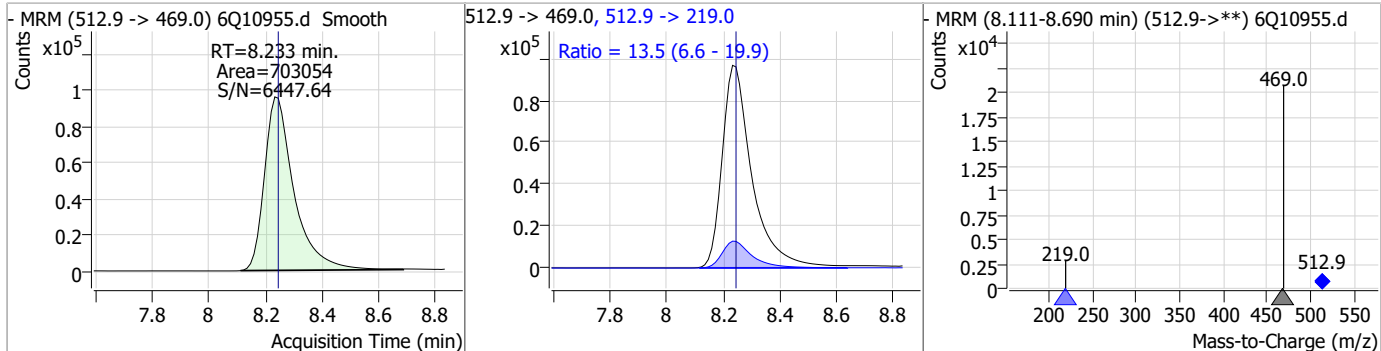


7.7.8

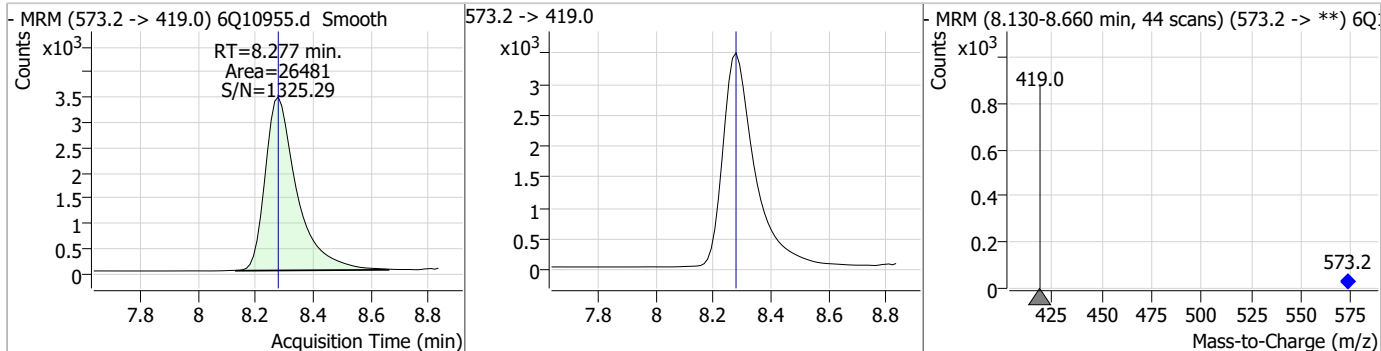
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Perfluorinated Compounds by LC/MS/MS

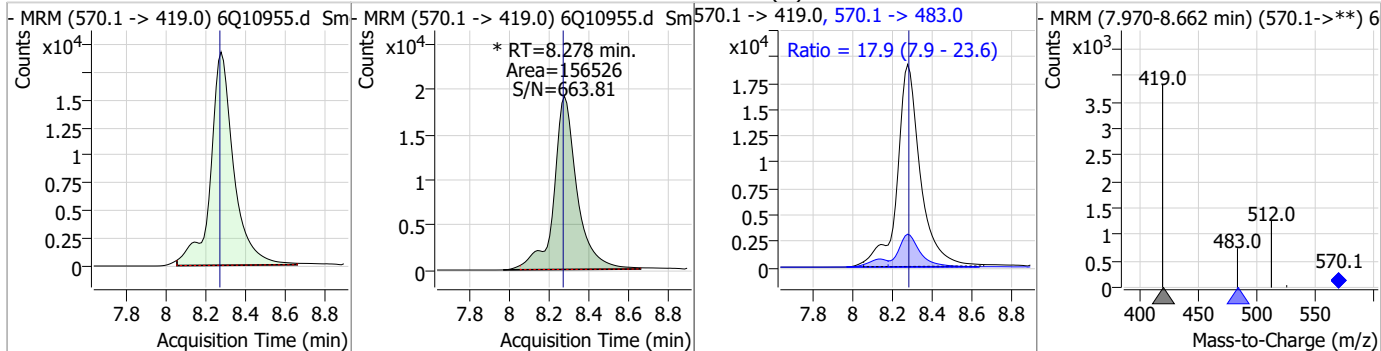
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	26.16	8.23	-0.01	703054	512.9 -> 219.0	13.5	6.6	19.9



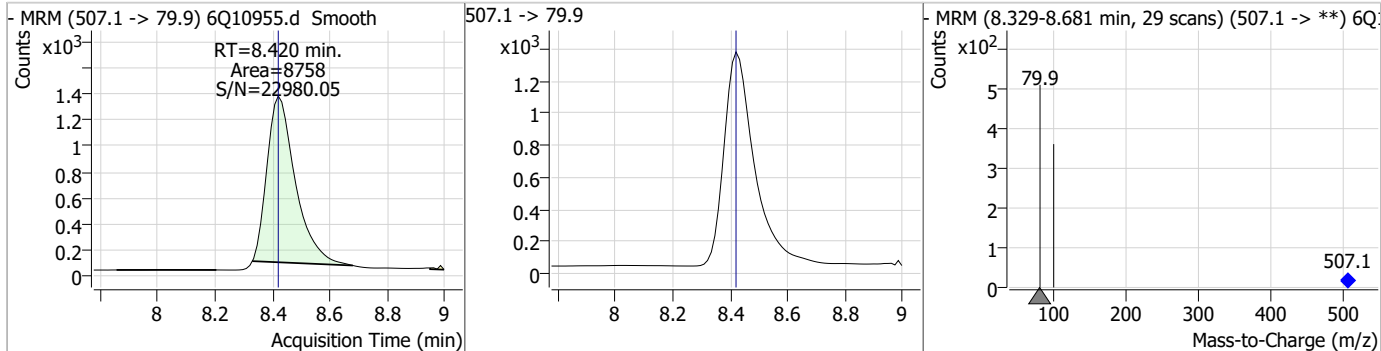
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.61	8.28	0.00	26481				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	28.67	8.28	0.00	156526 (m)	570.1 -> 483.0	17.9	7.9	23.6



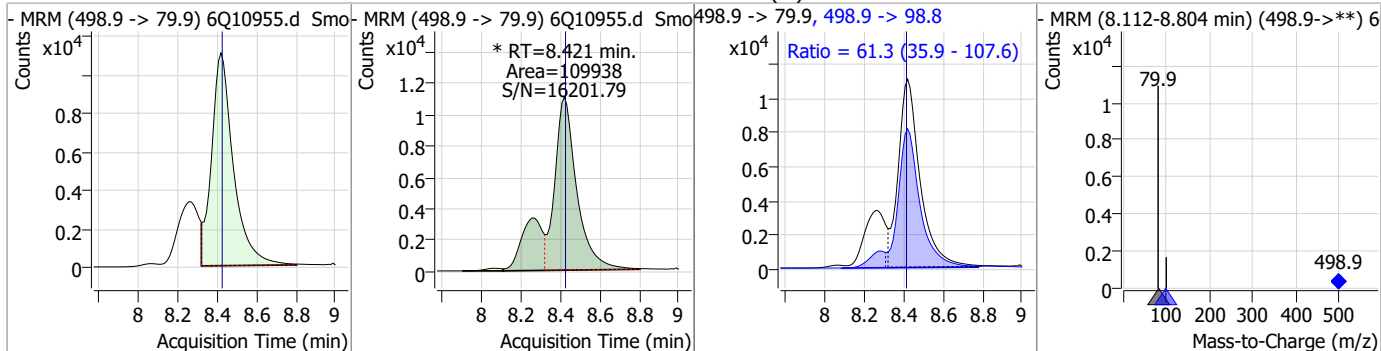
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.30	8.42	0.00	8758				



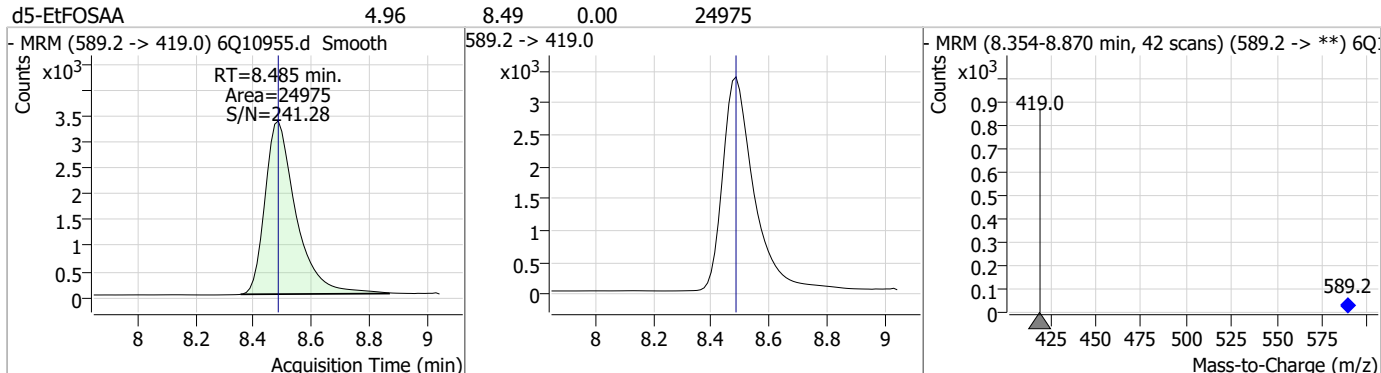
7.7.8
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Perfluorinated Compounds by LC/MS/MS

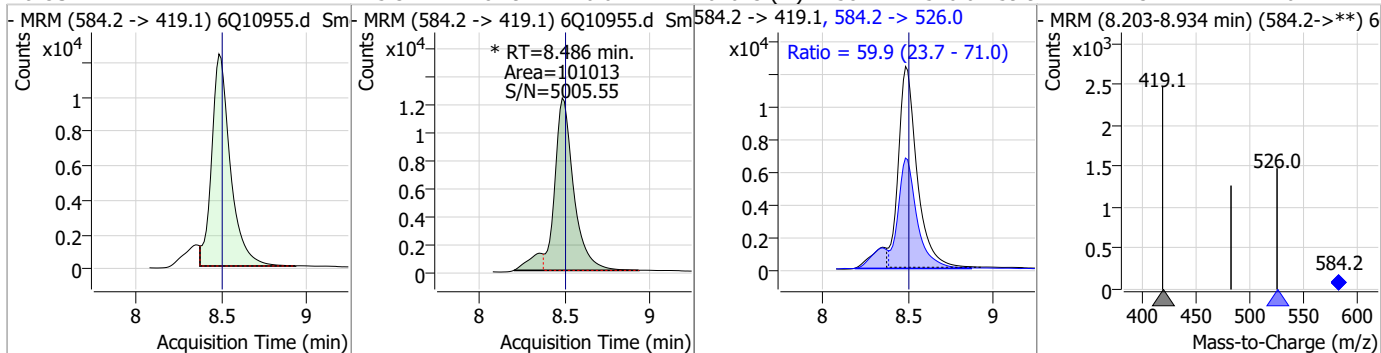
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	25.92	8.42	0.00	109938 (m)	498.9 -> 98.8	61.3	35.9	107.6



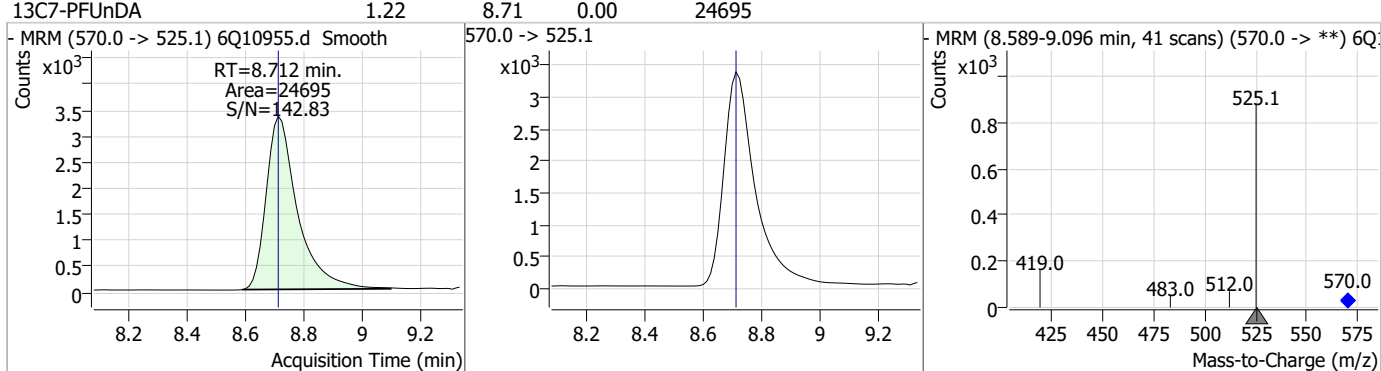
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.96	8.49	0.00	24975				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	25.34	8.49	-0.01	101013 (m)	584.2 -> 526.0	59.9	23.7	71.0

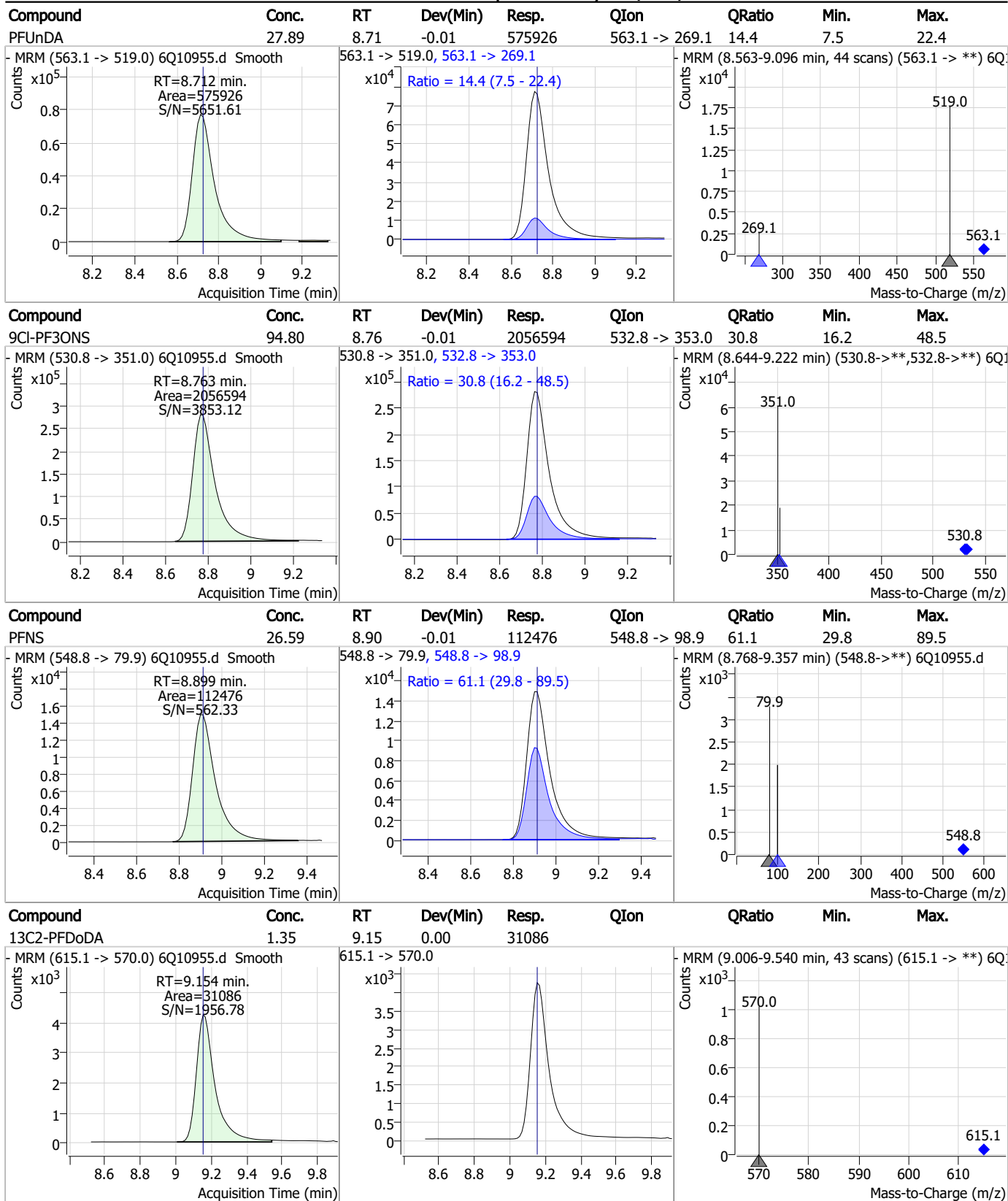


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.22	8.71	0.00	24695				



7.7.8
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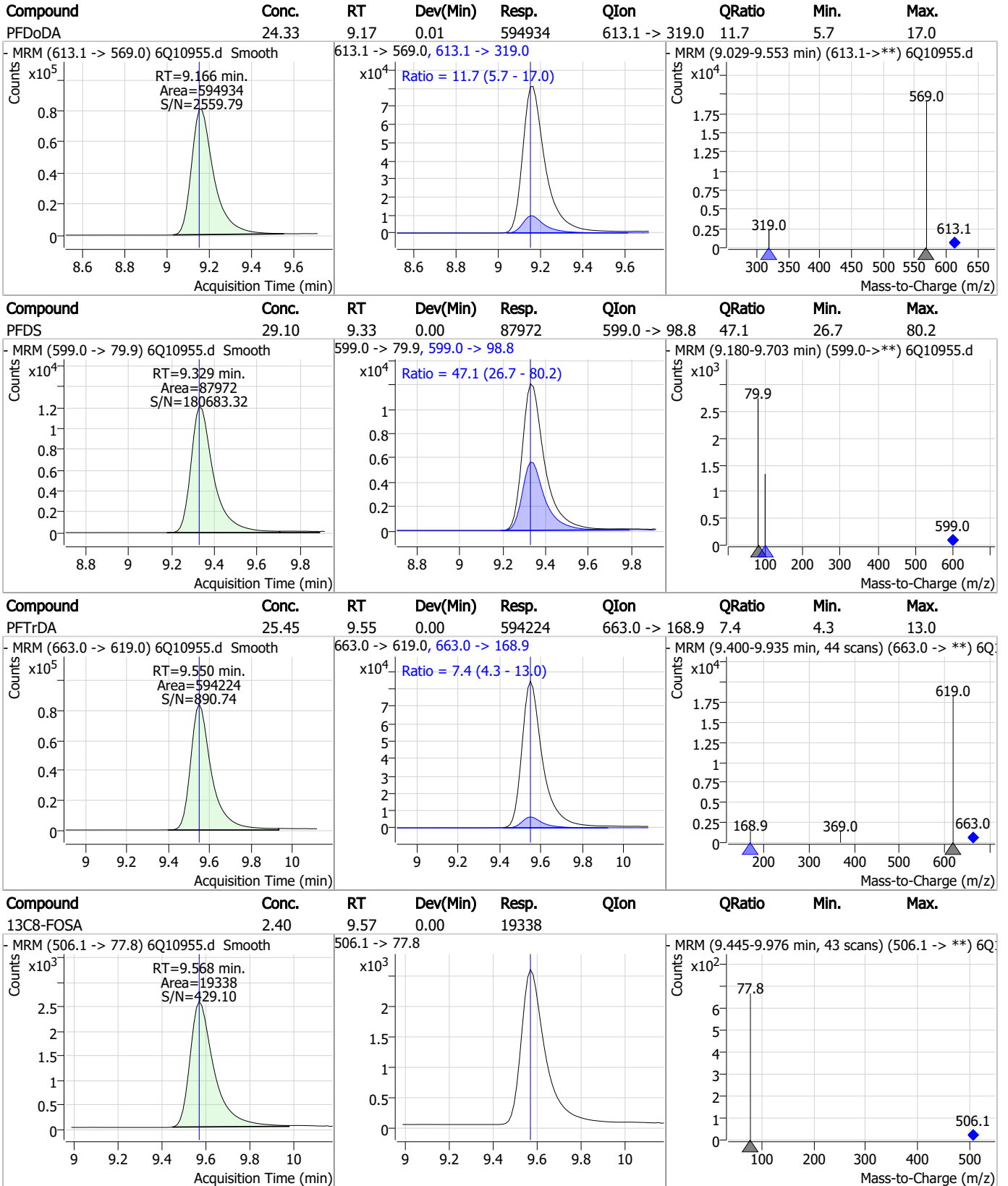
Perfluorinated Compounds by LC/MS/MS



7.7.8
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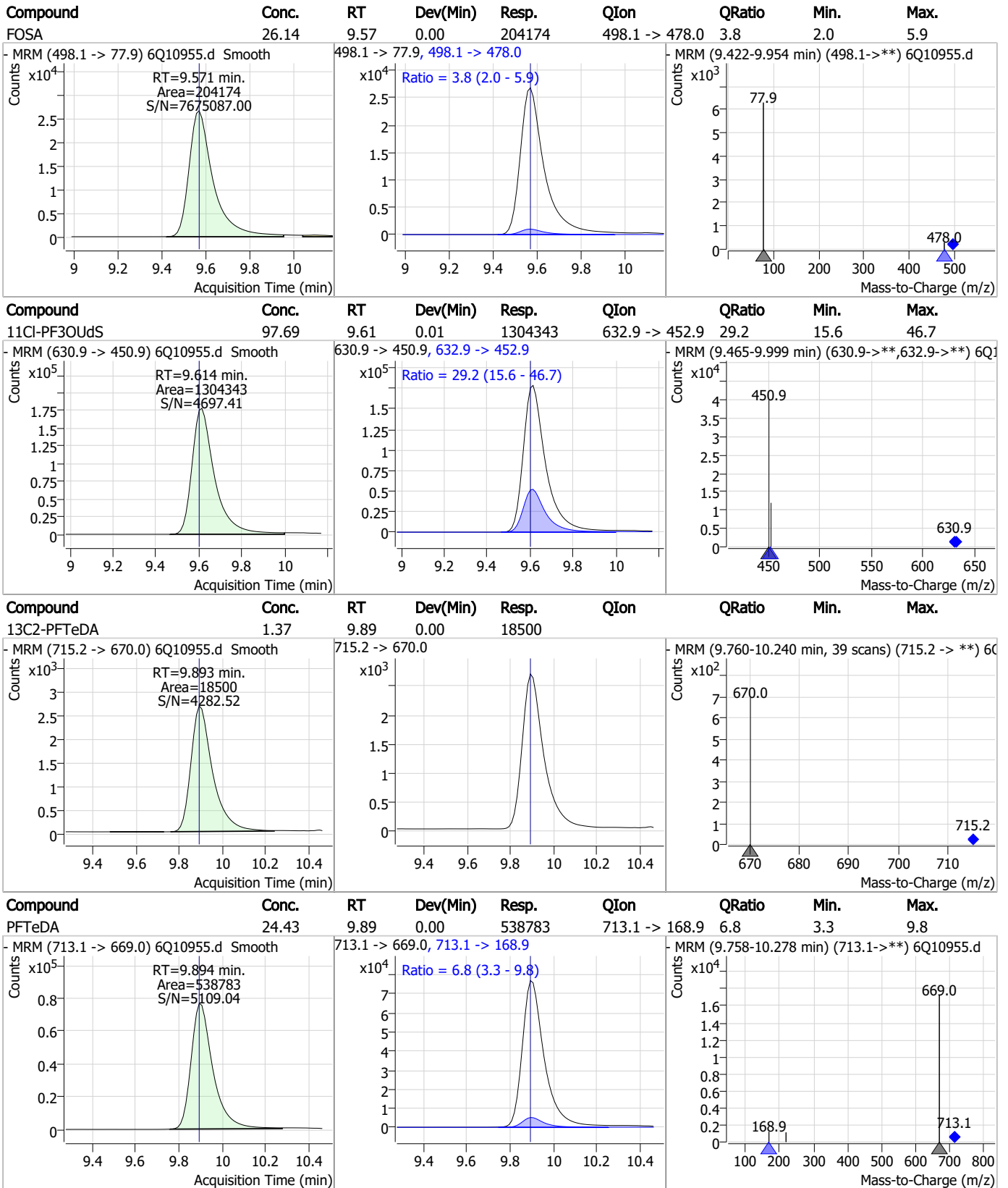


Perfluorinated Compounds by LC/MS/MS



7.7.8
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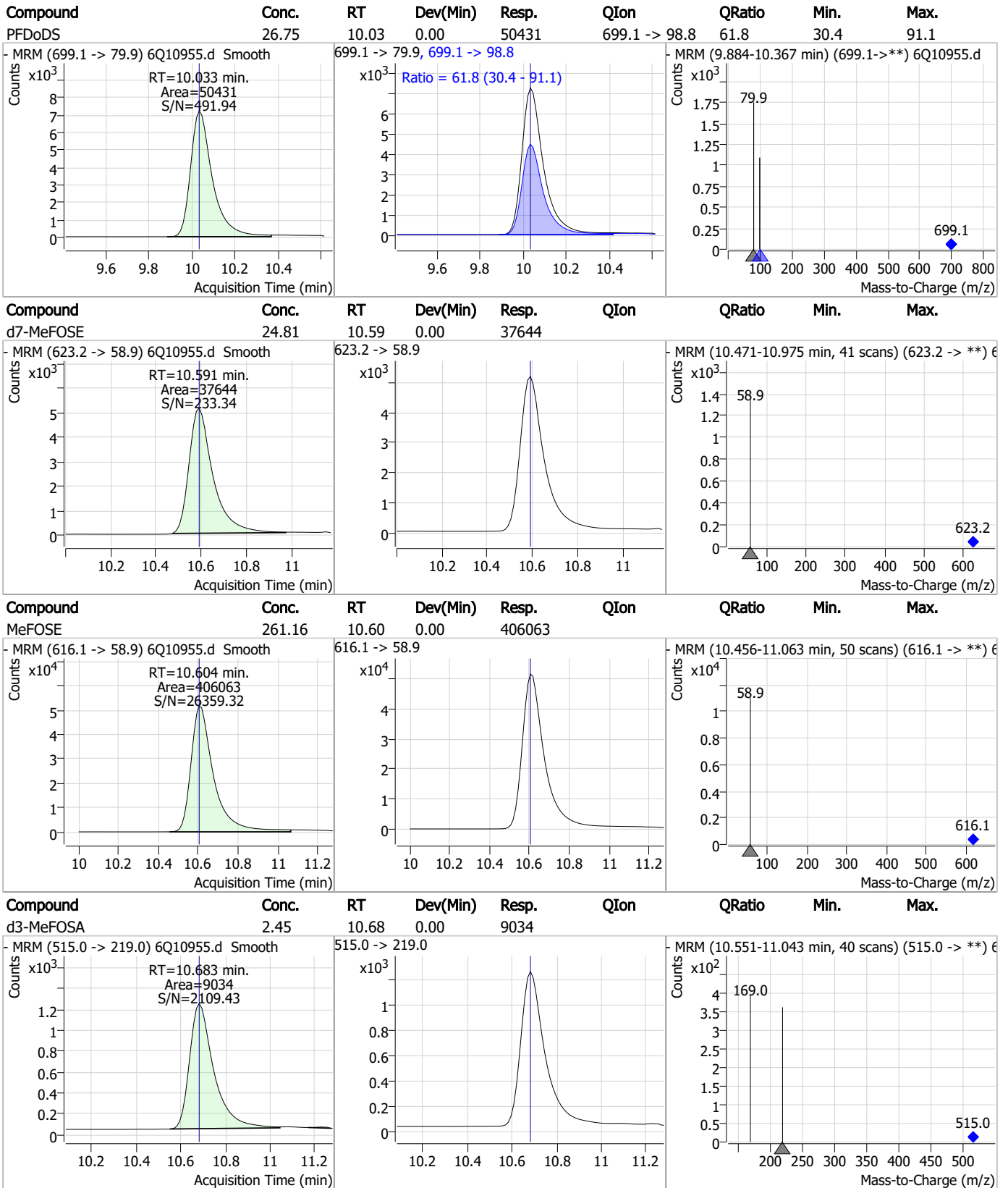
Perfluorinated Compounds by LC/MS/MS



7.7.8

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Perfluorinated Compounds by LC/MS/MS

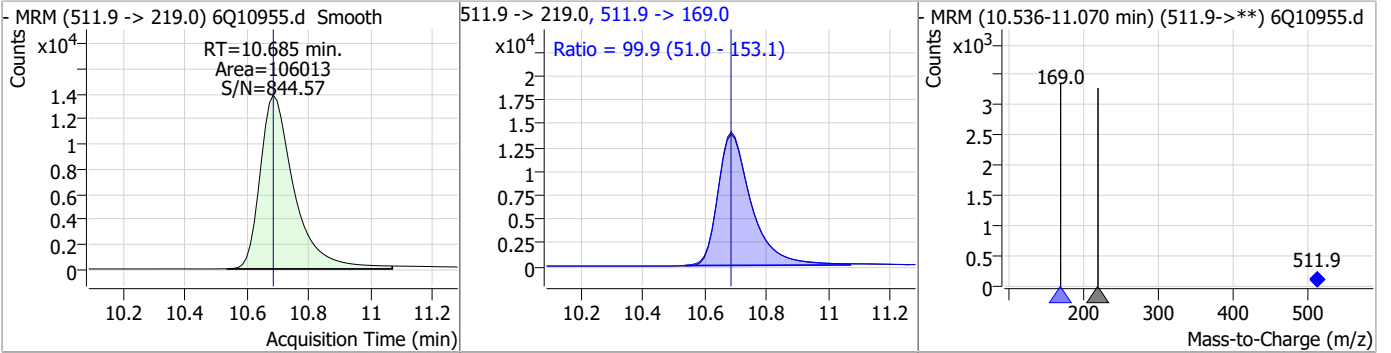


7.7.8

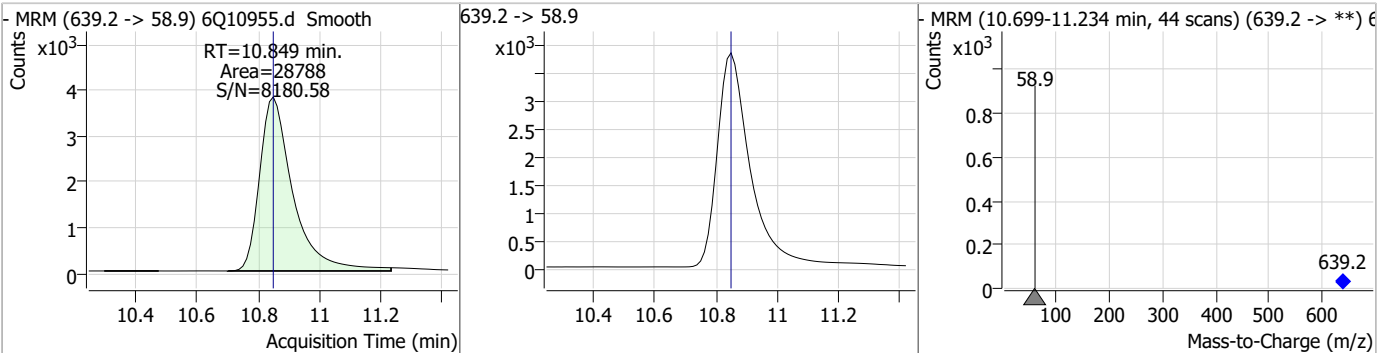
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Perfluorinated Compounds by LC/MS/MS

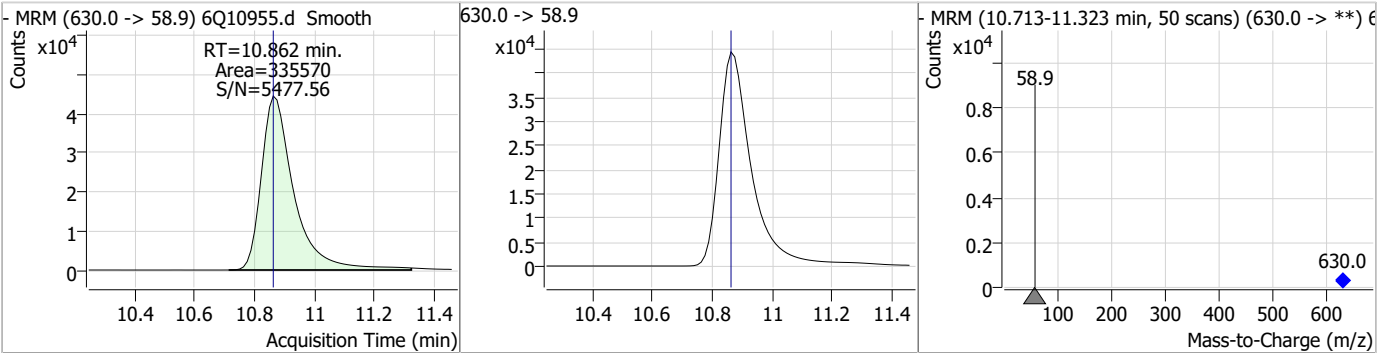
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	26.56	10.68	0.00	106013	511.9 -> 169.0	99.9	51.0	153.1



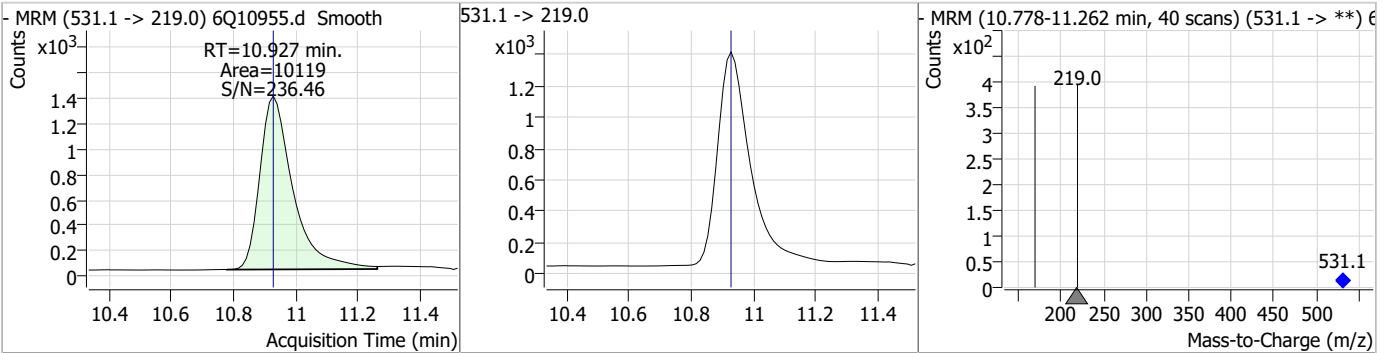
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.81	10.85	0.00	28788				



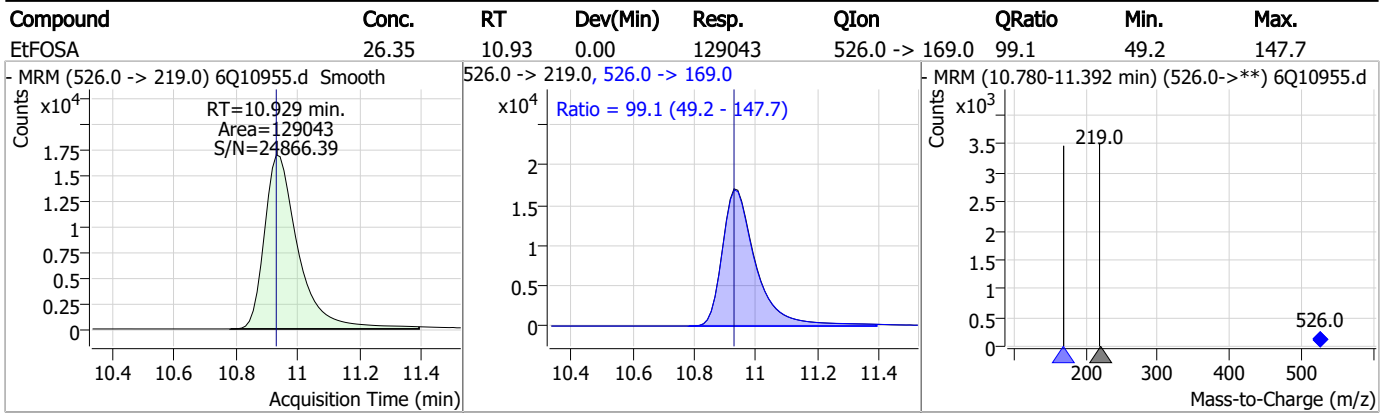
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	264.23	10.86	0.00	335570				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.45	10.93	0.00	10119				



Perfluorinated Compounds by LC/MS/MS



7.7.8

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Manual Integration Approval Summary

Sample Number: S6Q174-IC174 Method: EPA DRAFT 1633
Lab FileID: 6Q10955.D Analyst approved: 01/12/23 11:46 Martha Valls
Injection Time: 01/11/23 13:14 Supervisor approved: 01/12/23 15:42 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
8:2 Fluorotelomer sulfonate	39108-34-4		8.01	Split peak
MeFOSAA	2355-31-9		8.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.42	Split peak
EtFOSAA	2991-50-6		8.49	Split peak

7.7.8.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q10956.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/11/2023 1:28:22 PM
 Sample Name : ic174-8
 Vial : P1-A9
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : S6Q174.batch.bin
 Sample Information : OP94795,S6Q174,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	79370	10.00 µg/L	0.000
M5-PFPeA	4.397	268.3 -> 223.0	40898	5.00 µg/L	0.000
M5-PFHxA	5.588	318.0 -> 273.0	36614	2.50 µg/L	0.000
M4-PFHpA	6.529	367.1 -> 322.0	37385	2.50 µg/L	-0.012
M8-PFOA	7.185	421.1 -> 376.0	66306	2.50 µg/L	-0.013
M9-PFNA	7.727	472.1 -> 427.0	28759	1.25 µg/L	-0.012
M6-PFDA	8.233	519.1 -> 474.1	19824	1.25 µg/L	-0.012
M7-PFUnDA	8.712	570.0 -> 525.1	22798	1.25 µg/L	0.000
M2-PFDoDA	9.154	615.1 -> 570.0	30157	1.25 µg/L	0.000
M2-PFTeDA	9.893	715.2 -> 670.0	16117	1.25 µg/L	0.000
M8-FOSA	9.568	506.1 -> 77.8	16947	2.50 µg/L	0.000
M3-PFBS	5.544	302.1 -> 79.9	13690	2.50 µg/L	-0.012
M3-PFHxS	7.325	402.1 -> 79.9	8593	2.50 µg/L	-0.012
M8-PFOS	8.420	507.1 -> 79.9	8360	2.50 µg/L	0.000
M2-4:2FTS	5.253	329.1 -> 80.9	1473	5.00 µg/L	0.000
M2-6:2FTS	6.946	429.1 -> 80.9	2076	5.00 µg/L	-0.012
M2-8:2FTS	8.007	529.1 -> 80.9	2491	5.00 µg/L	-0.012
M3-MeFOSAA	8.277	573.2 -> 419.0	24911	5.00 µg/L	0.000
M3-HFPO-DA	5.965	286.9 -> 168.9	16431	10.00 µg/L	-0.012
M5-EtFOSAA	8.473	589.2 -> 419.0	20989	5.00 µg/L	-0.012
M7-MeFOSE	10.591	623.2 -> 58.9	33387	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	23901	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	9460	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	8755	2.50 µg/L	0.000
13C4-PFOS	8.421	502.8 -> 79.9	10197	2.50 µg/L	0.000
13C3-PFBA	3.004	216.0 -> 172.0	34682	5.00 µg/L	0.000
18O2-PFHxS	7.324	403.0 -> 83.9	6407	2.50 µg/L	-0.012
13C4-PFOA	7.185	417.1 -> 372.0	79245	2.50 µg/L	-0.013
13C2-PFDA	8.233	515.1 -> 470.1	28496	1.25 µg/L	-0.012
13C5-PFNA	7.728	468.0 -> 423.0	33247	1.25 µg/L	-0.012
13C2-PFHxA	5.589	315.1 -> 270.0	40373	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.253	329.1 -> 80.9	1473	4.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.2%		
13C2-6:2FTS	6.946	429.1 -> 80.9	2076	4.54 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.7%		
13C2-8:2FTS	8.007	529.1 -> 80.9	2491	4.99 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-PFDoDA	9.154	615.1 -> 570.0	30157	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C2-PFTeDA	9.893	715.2 -> 670.0	16117	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C3-PFBS	5.544	302.1 -> 79.9	13690	2.55 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C3-PFHxS	7.325	402.1 -> 79.9	8593	2.47 µg/L	-0.012

7.7.9
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C4-PFBA	3.000	216.8 -> 171.9	79370	10.02 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFHpA	6.529	367.1 -> 322.0	37385	2.28 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.4%	
13C5-PFHxA	5.588	318.0 -> 273.0	36614	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.4%	
13C5-PFPeA	4.397	268.3 -> 223.0	40898	4.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.8%	
13C6-PFDA	8.233	519.1 -> 474.1	19824	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C7-PFUnDA	8.712	570.0 -> 525.1	22798	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.1%	
13C8-FOSA	9.568	506.1 -> 77.8	16947	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C8-PFOA	7.185	421.1 -> 376.0	66306	2.50 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C8-PFOS	8.420	507.1 -> 79.9	8360	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C9-PFNA	7.727	472.1 -> 427.0	28759	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.4%	
d3-MeFOSAA	8.277	573.2 -> 419.0	24911	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C3-HFPO-DA	5.965	286.9 -> 168.9	16431	9.87 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
d3-MeFOSA	10.683	515.0 -> 219.0	8755	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.1%	
d5-EtFOSAA	8.473	589.2 -> 419.0	20989	4.87 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.4%	
d7-MeFOSE	10.591	623.2 -> 58.9	33387	25.72 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
d9-EtFOSE	10.849	639.2 -> 58.9	23901	24.08 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d5-EtFOSA	10.927	531.1 -> 219.0	9460	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%	
Target Compounds					QValue
4:2FTS	5.254	327.1 -> 307.0	771556	220.19 µg/L	97
		327.1 -> 80.9	170201		
6:2FTS	6.946	427.1 -> 407.0	667918	206.83 µg/L	98
		427.1 -> 80.9	124662		
8:2FTS	8.008	527.1 -> 507.0	394006	189.61 µg/L	100
		527.1 -> 80.8	96542		
EtFOSAA	8.486	584.2 -> 419.1	220634	65.85 µg/L	m 89
		584.2 -> 526.0	120684		
FOSA	9.558	498.1 -> 77.9	437314	63.88 µg/L	100
		498.1 -> 478.0	16631		
MeFOSAA	8.278	570.1 -> 419.0	315357	61.41 µg/L	m 94
		570.1 -> 483.0	57455		
PFBA	3.007	212.8 -> 168.9	520559	255.65 µg/L	100
PFBS	5.544	298.7 -> 79.9	313537	56.59 µg/L	92
		298.7 -> 98.8	134972		
PFDA	8.233	512.9 -> 469.0	1471830	61.76 µg/L	98
		512.9 -> 219.0	205480		
PFDoDA	9.154	613.1 -> 569.0	1307115	55.10 µg/L	99
		613.1 -> 319.0	153346		
PFDS	9.329	599.0 -> 79.9	171070	59.29 µg/L	98

7.7.9
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	94189			
PFHpA	6.530	363.1 -> 319.0	1443289	64.02	µg/L	98
		363.1 -> 169.0	200325			
PFHpS	7.905	449.0 -> 79.9	226296	59.17	µg/L	92
		449.0 -> 98.9	125090			
PFHxA	5.591	313.0 -> 269.0	926227	62.60	µg/L	99
		313.0 -> 118.9	34054			
PFHxS	7.326	398.7 -> 79.9	243616	59.55	µg/L	m 92
		398.7 -> 98.9	130869			
PFNA	7.728	463.0 -> 419.0	1245836	62.61	µg/L	97
		463.0 -> 219.0	252280			
PFNS	8.899	548.8 -> 79.9	234927	58.19	µg/L	93
		548.8 -> 98.9	127874			
PFOA	7.186	413.0 -> 369.0	1820649	61.37	µg/L	98
		413.0 -> 169.0	249157			
PFOS	8.422	498.9 -> 79.9	237773	58.73	µg/L	m 88
		498.9 -> 98.8	146545			
PFPeA	4.401	263.0 -> 219.0	1129397	125.75	µg/L	100
PFPeS	6.619	349.1 -> 79.9	282998	58.44	µg/L	98
		349.1 -> 98.9	153216			
PFTeDA	9.894	713.1 -> 669.0	1199680	62.45	µg/L	100
		713.1 -> 168.9	77274			
PFTrDA	9.550	663.0 -> 619.0	1235480	54.55	µg/L	97
		663.0 -> 168.9	93968			
PFUnDA	8.712	563.1 -> 519.0	1288624	67.58	µg/L	98
		563.1 -> 269.1	180179			
11Cl-PF3OUdS	9.602	630.9 -> 450.9	2573208	206.53	µg/L	96
		632.9 -> 452.9	855312			
9Cl-PF3ONS	8.763	530.8 -> 351.0	4223511	208.63	µg/L	95
		532.8 -> 353.0	1255312			
ADONA	6.792	376.9 -> 250.9	8090011	221.44	µg/L	98
		376.9 -> 84.8	1580012			
HFPO-DA	5.966	284.9 -> 168.9	381104	229.36	µg/L	99
		284.9 -> 184.9	44444			
3:3FTCA	3.852	241.0 -> 177.0	158055	330.34	µg/L	99
		241.0 -> 117.0	19807			
5:3FTCA	6.207	341.0 -> 237.1	4951121	1609.21	µg/L	97
		341.0 -> 217.0	4069459			
7:3FTCA	7.630	441.0 -> 316.9	3430083	1653.98	µg/L	96
		441.0 -> 336.9	6823309			
EtFOSA	10.929	526.0 -> 219.0	272688	59.57	µg/L	95
		526.0 -> 169.0	280949			
EtFOSE	10.862	630.0 -> 58.9	732117	694.36	µg/L	100
MeFOSA	10.685	511.9 -> 219.0	231799	59.92	µg/L	100
		511.9 -> 169.0	235937			
MeFOSE	10.604	616.1 -> 58.9	873056	633.09	µg/L	100
PFDoS	10.033	699.1 -> 79.9	108114	60.09	µg/L	99
		699.1 -> 98.8	66417			
NFDHA	5.471	295.0 -> 201.0	117715	122.69	µg/L	99
		295.0 -> 84.9	52002			
PFMBA	4.813	279.0 -> 85.1	363709	129.84	µg/L	100
PFMPA	3.550	229.0 -> 84.9	323758	130.24	µg/L	100
PFEESA	6.097	314.8 -> 134.9	2376224	115.37	µg/L	100
		314.8 -> 82.9	57001			

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

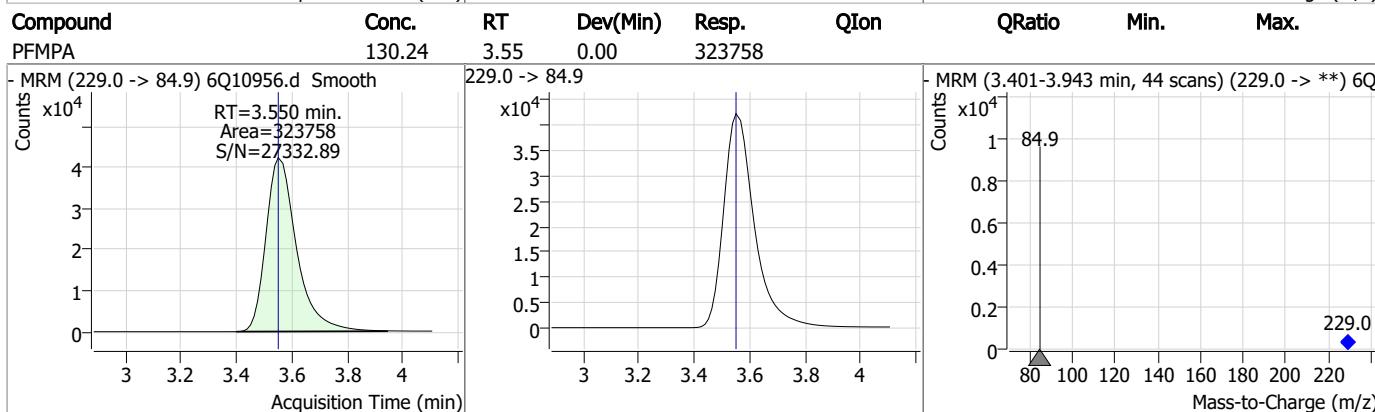
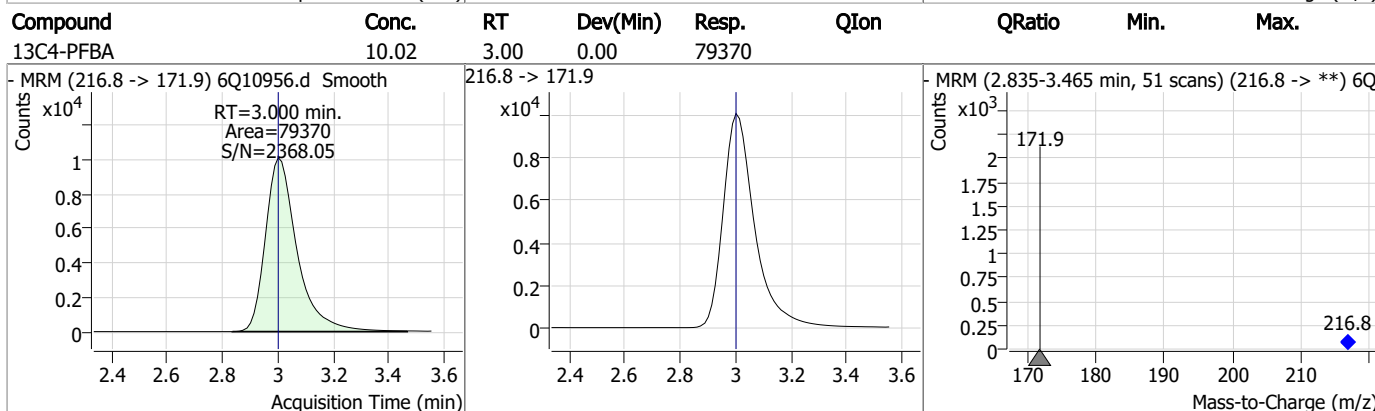
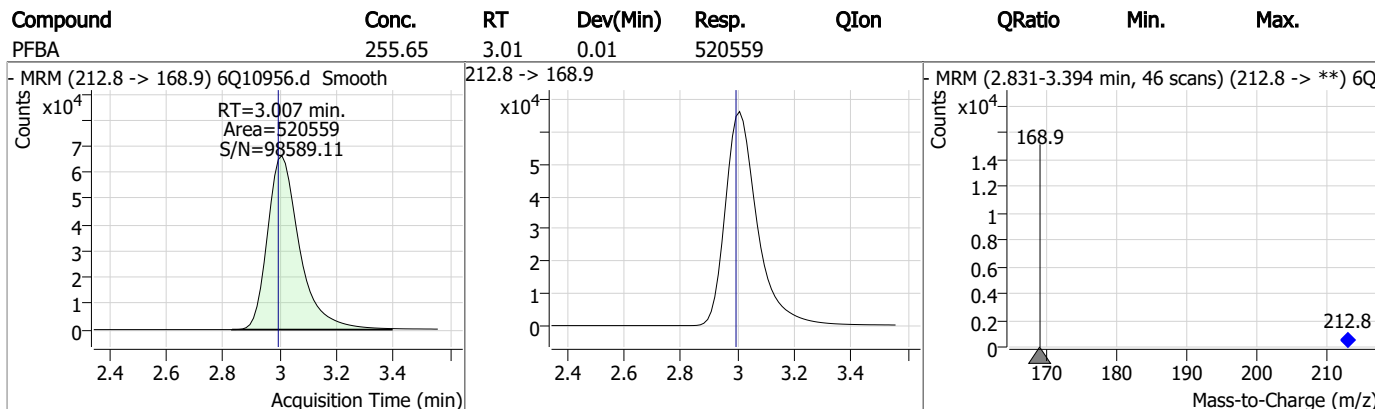
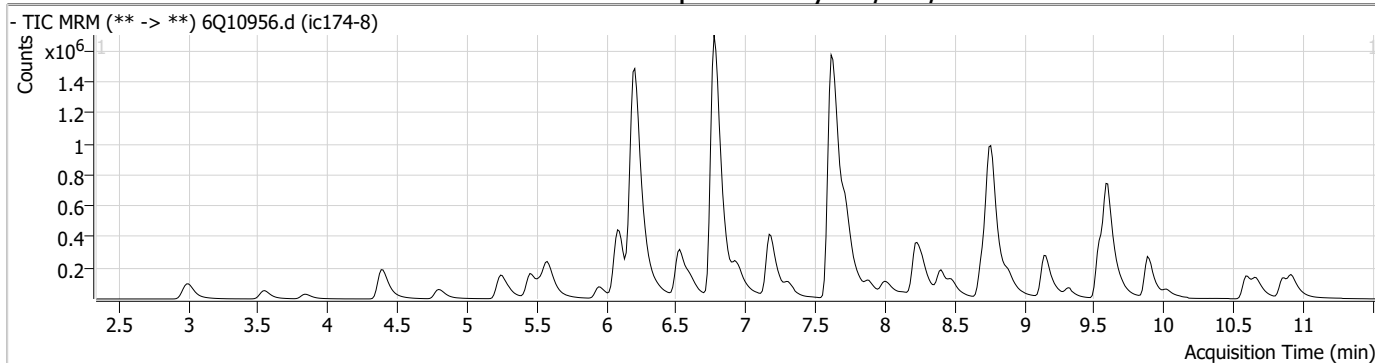
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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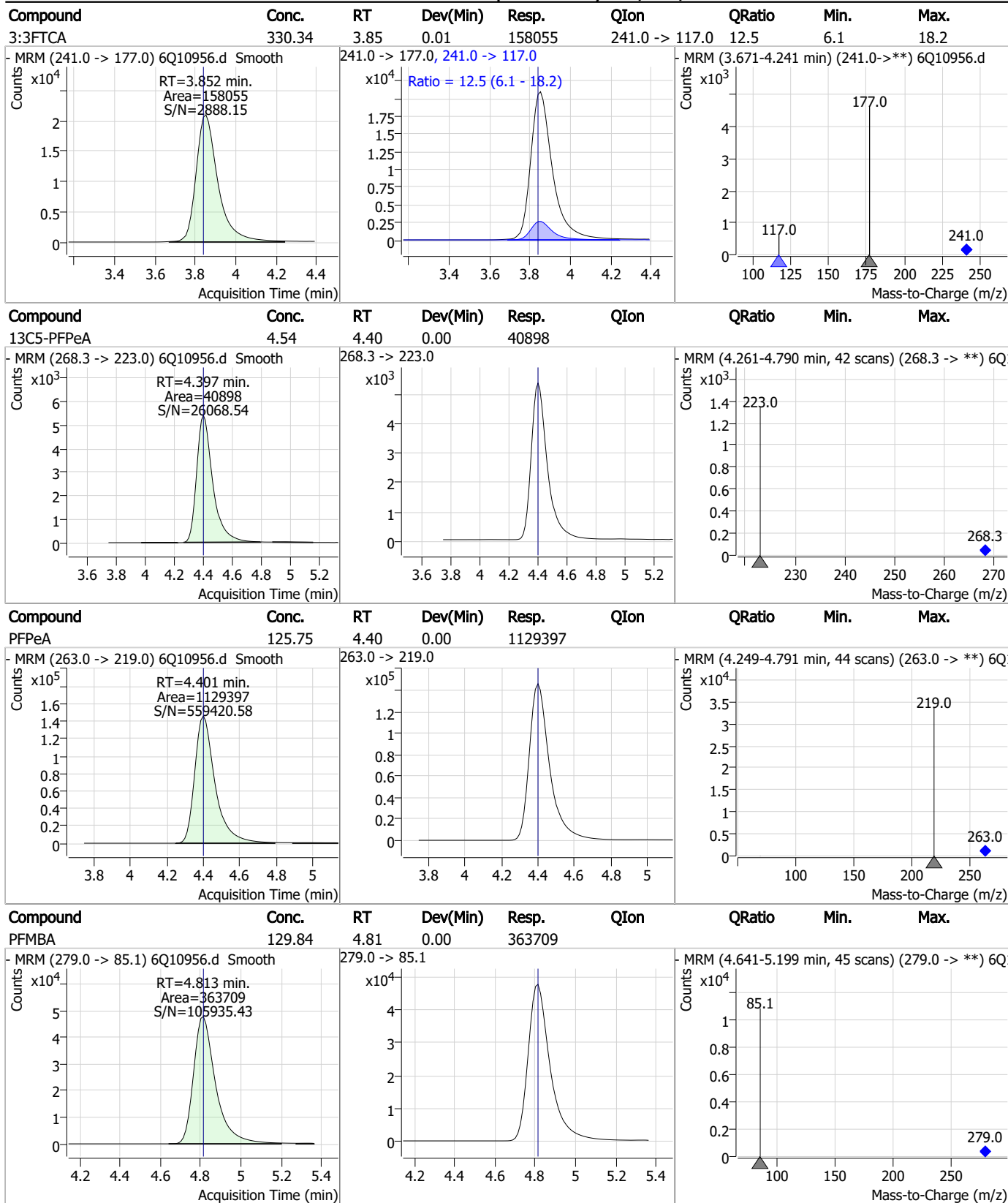
7.7.9

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Perfluorinated Compounds by LC/MS/MS

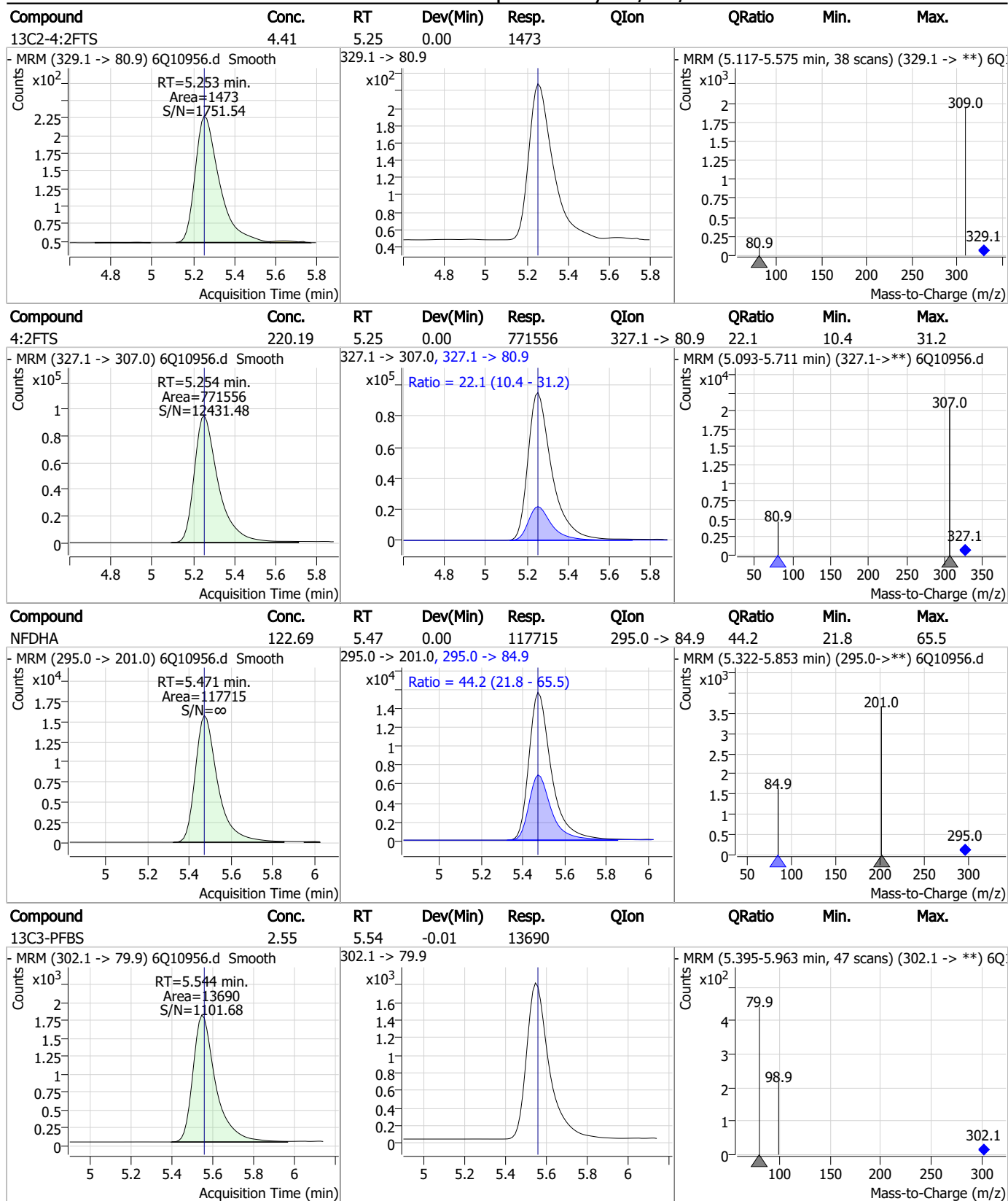


Perfluorinated Compounds by LC/MS/MS



7.7.9
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Perfluorinated Compounds by LC/MS/MS

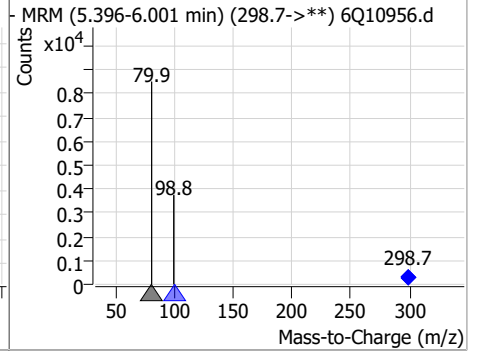
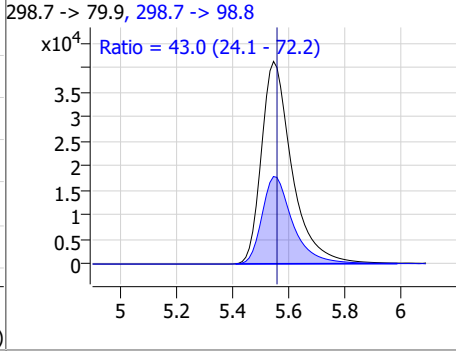
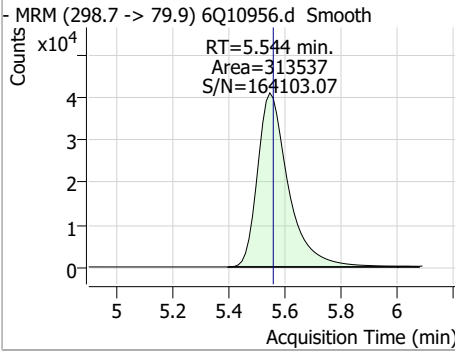


7.7.9
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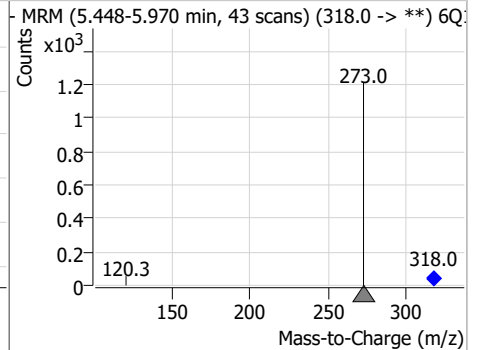
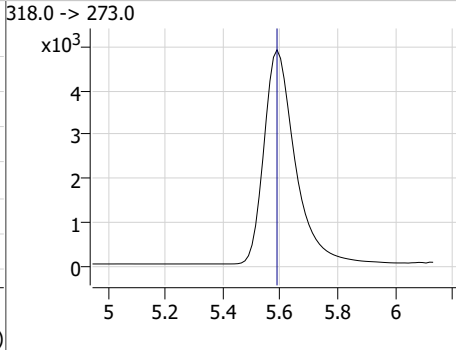
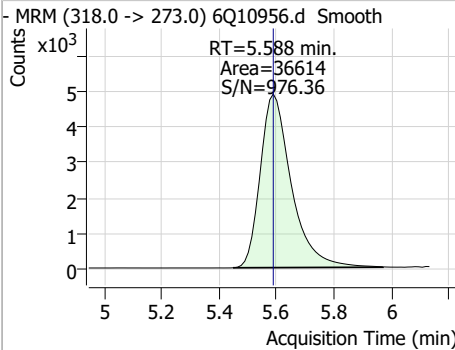


Perfluorinated Compounds by LC/MS/MS

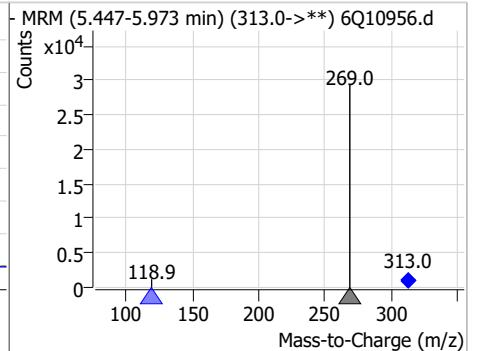
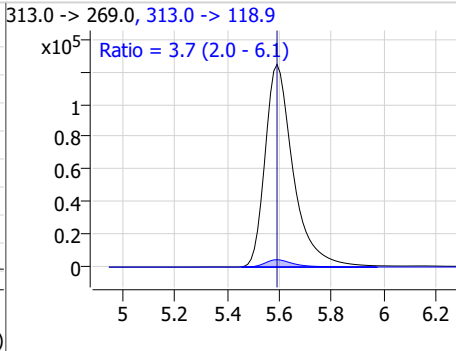
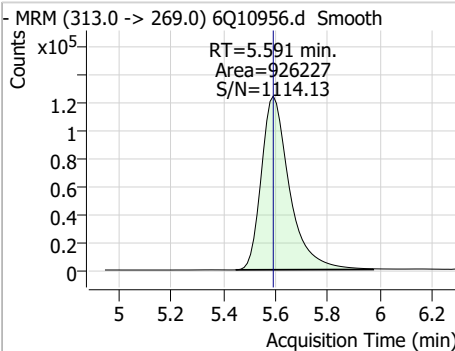
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	56.59	5.54	-0.01	313537	298.7 -> 98.8	43.0	24.1	72.2



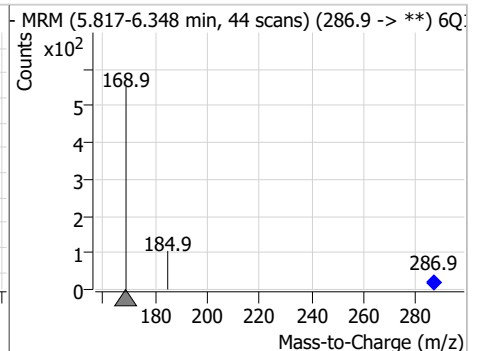
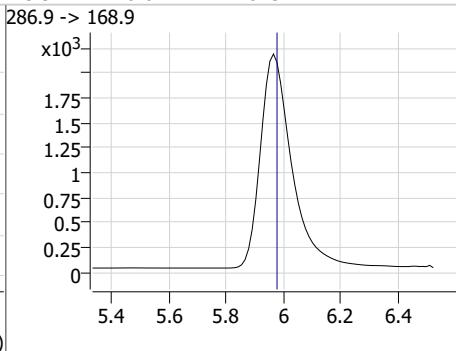
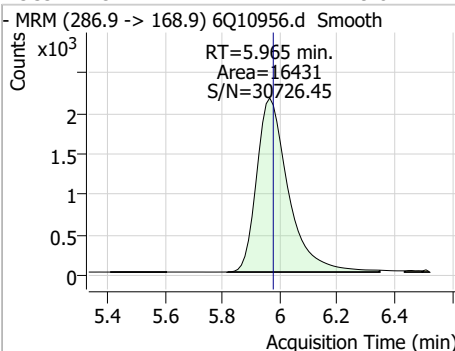
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.26	5.59	0.00	36614				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	62.60	5.59	0.00	926227	313.0 -> 118.9	3.7	2.0	6.1

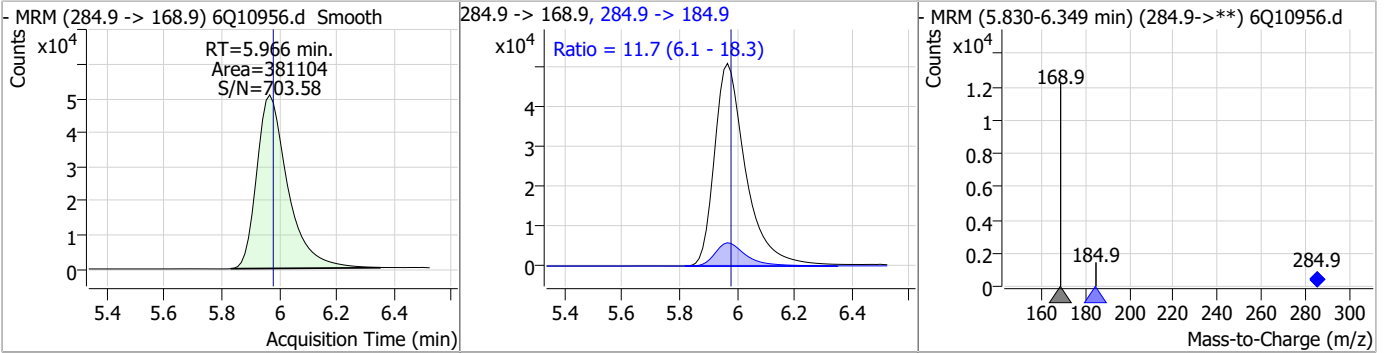


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.87	5.97	-0.01	16431				

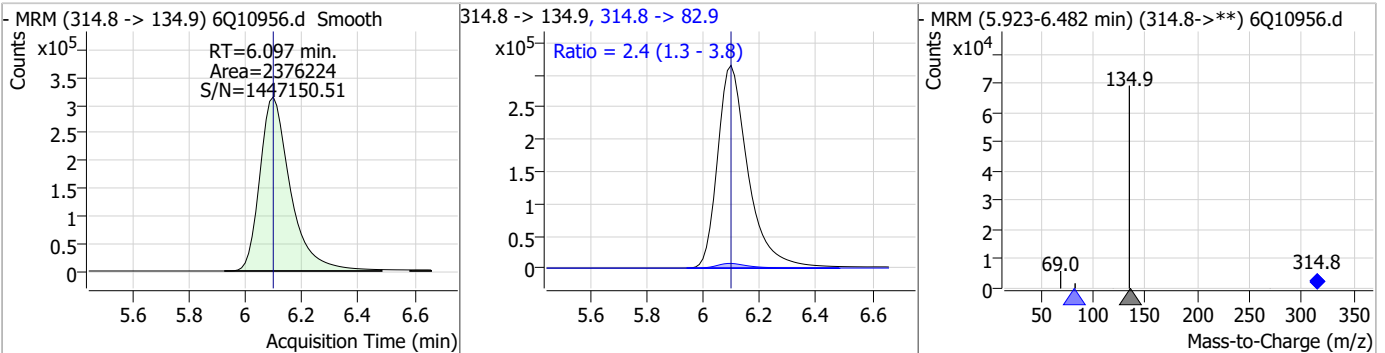


Perfluorinated Compounds by LC/MS/MS

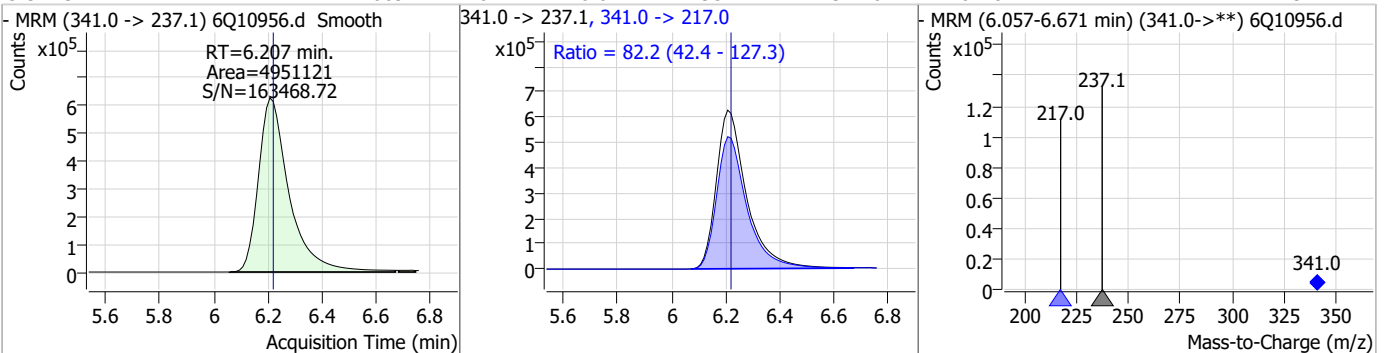
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	229.36	5.97	-0.01	381104	284.9 -> 184.9	11.7	6.1	18.3



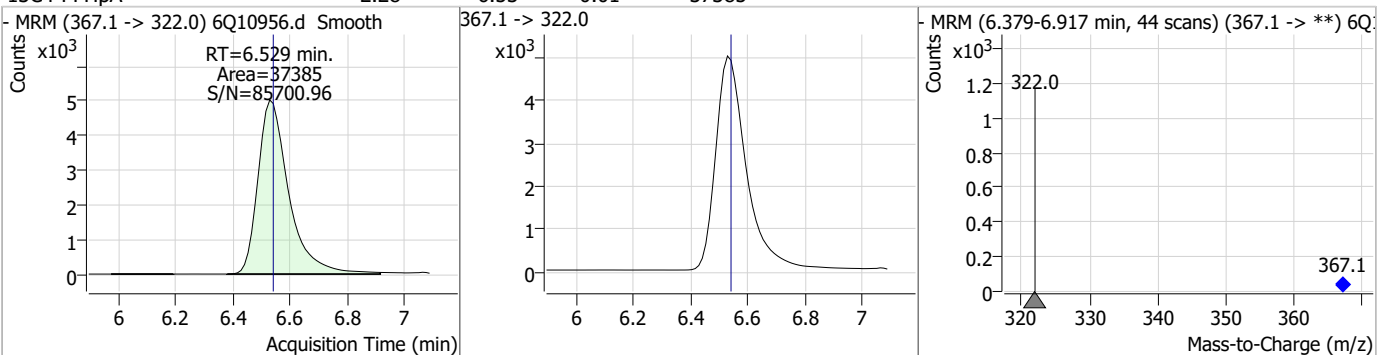
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	115.37	6.10	0.00	2376224	314.8 -> 82.9	2.4	1.3	3.8



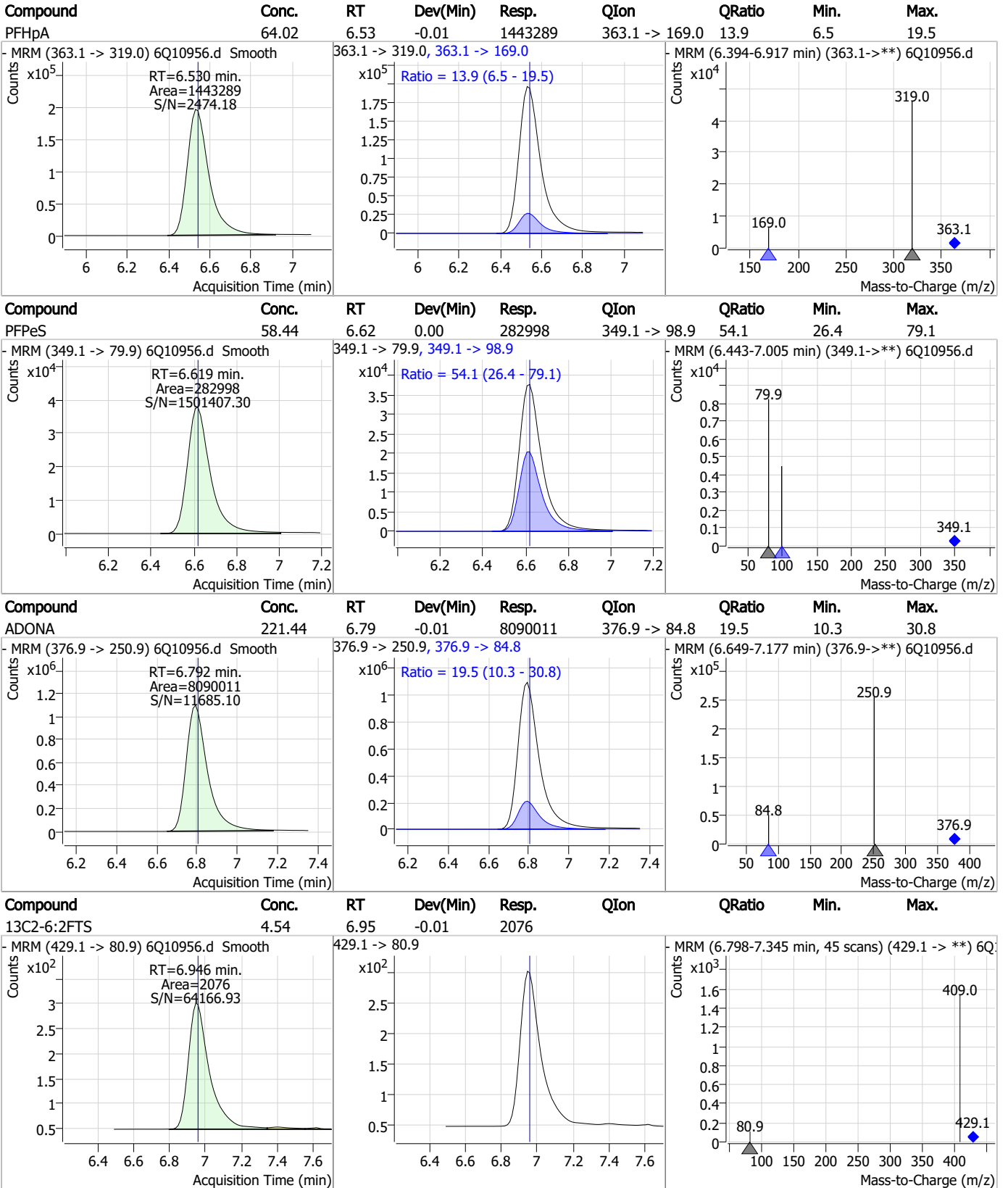
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1609.21	6.21	-0.01	4951121	341.0 -> 217.0	82.2	42.4	127.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.28	6.53	-0.01	37385	367.1 -> 322.0	-	-	-



Perfluorinated Compounds by LC/MS/MS

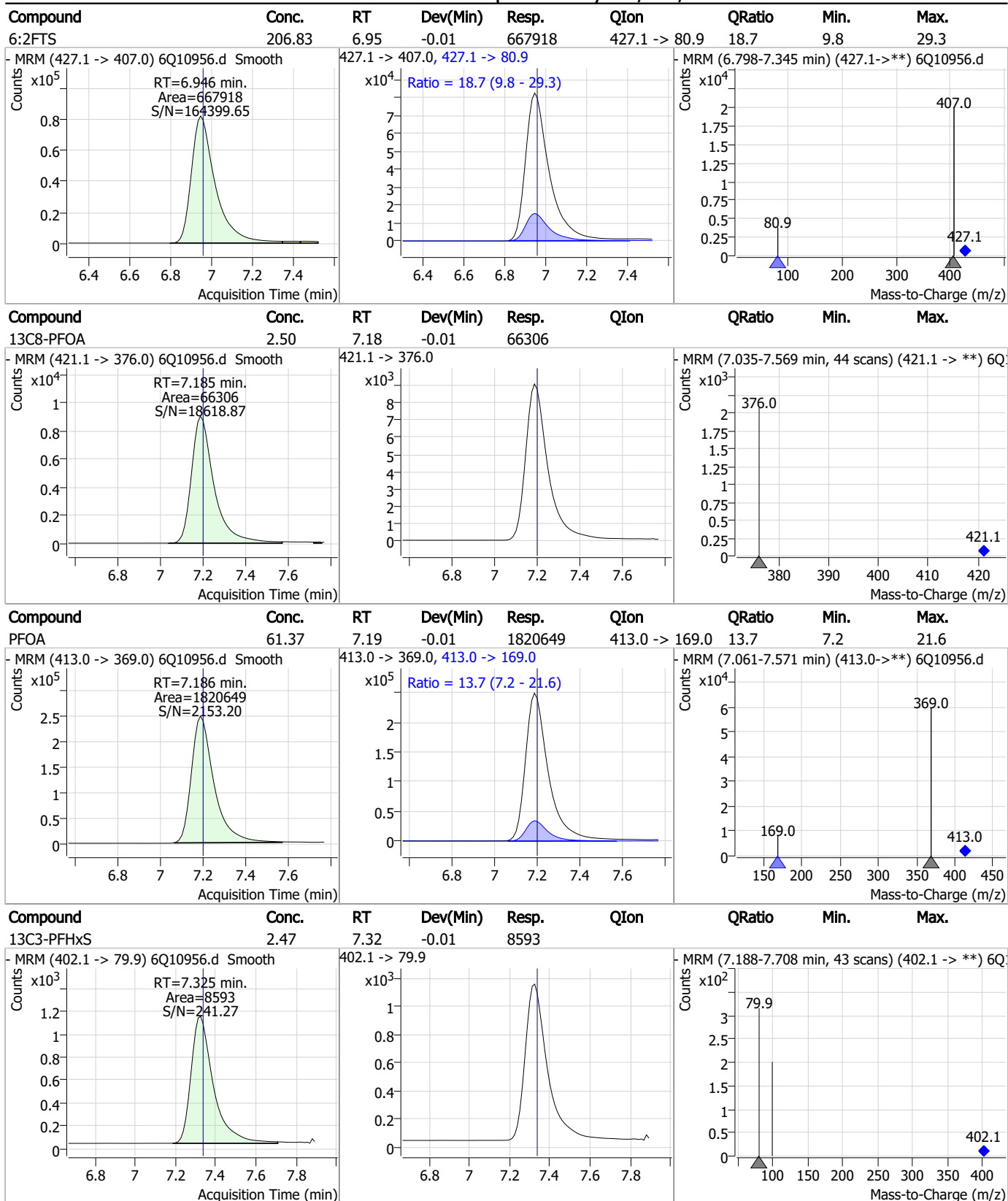


7.7.9

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Perfluorinated Compounds by LC/MS/MS

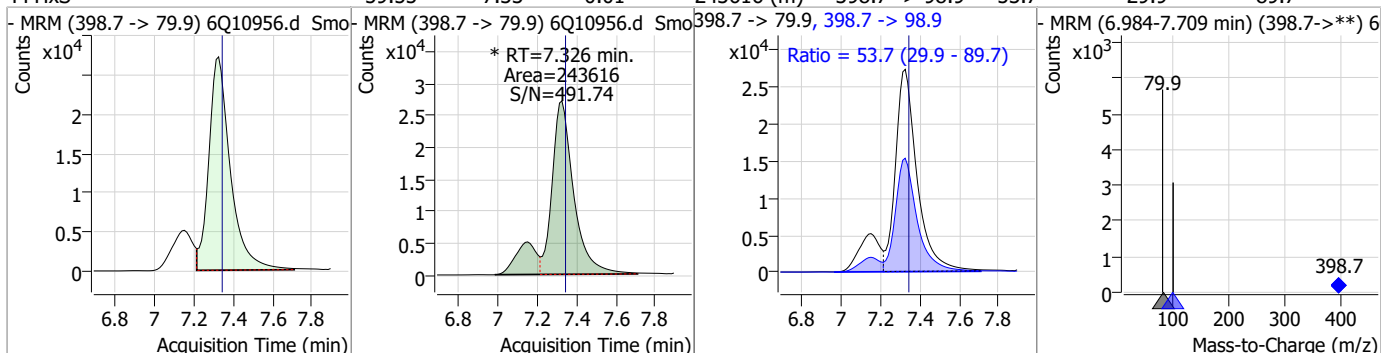


7.7.9

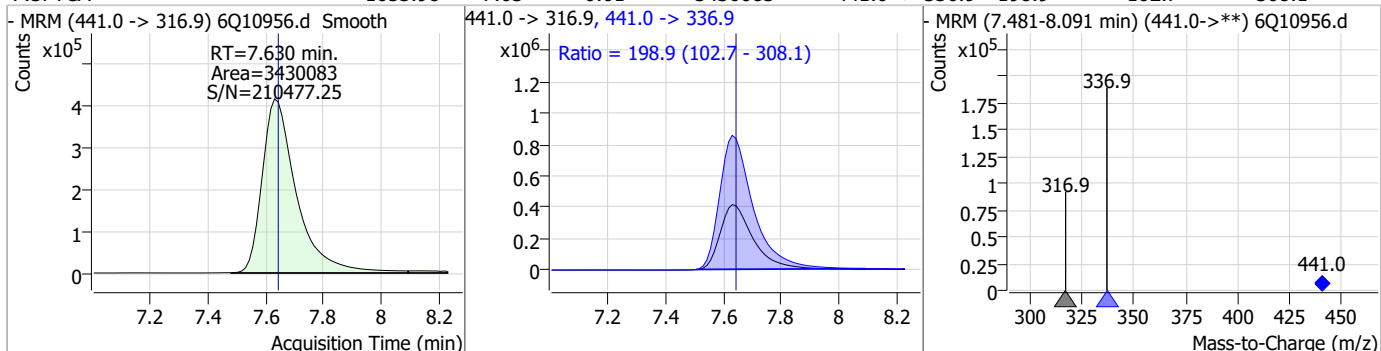
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Perfluorinated Compounds by LC/MS/MS

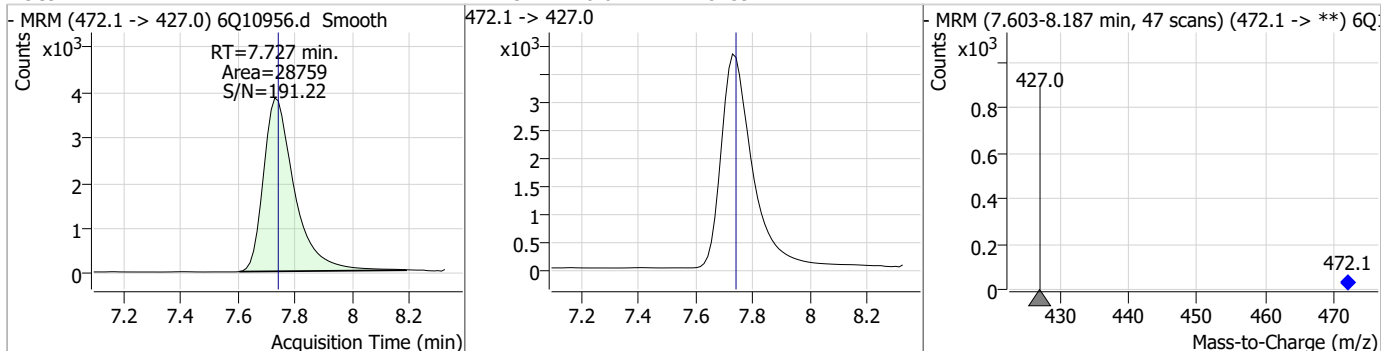
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	59.55	7.33	-0.01	243616 (m)	398.7 -> 98.9	53.7	29.9	89.7



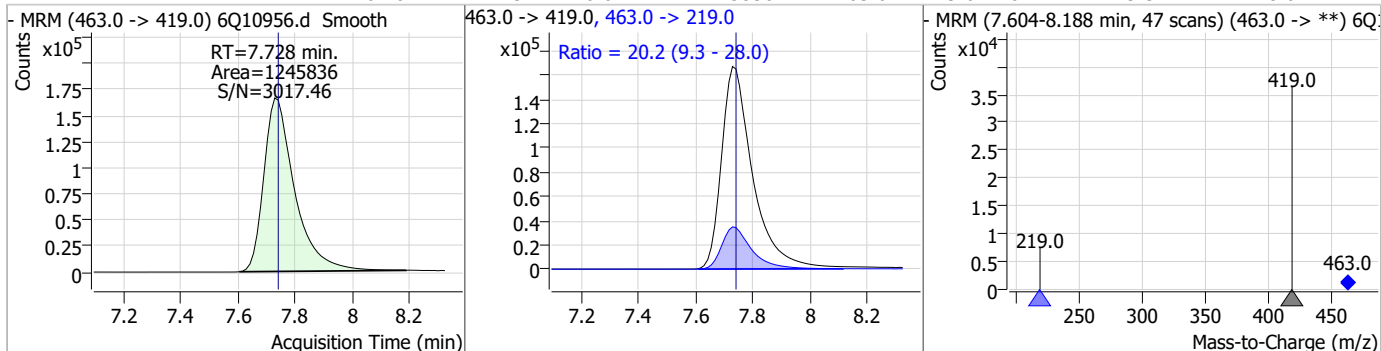
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	1653.98	7.63	-0.01	3430083	441.0 -> 336.9	198.9	102.7	308.1



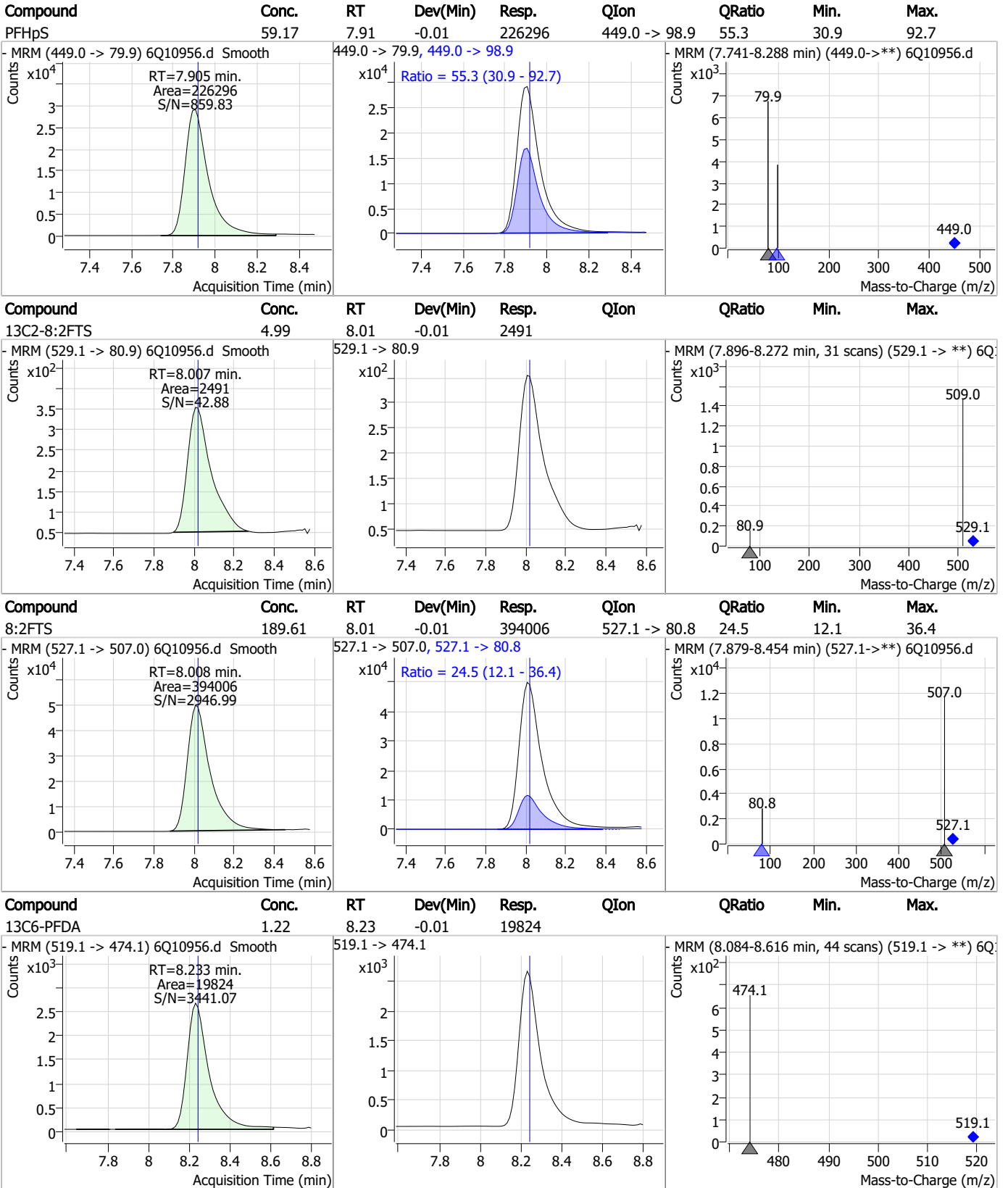
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.22	7.73	-0.01	28759	472.1 -> 427.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	62.61	7.73	-0.01	1245836	463.0 -> 219.0	20.2	9.3	28.0



Perfluorinated Compounds by LC/MS/MS

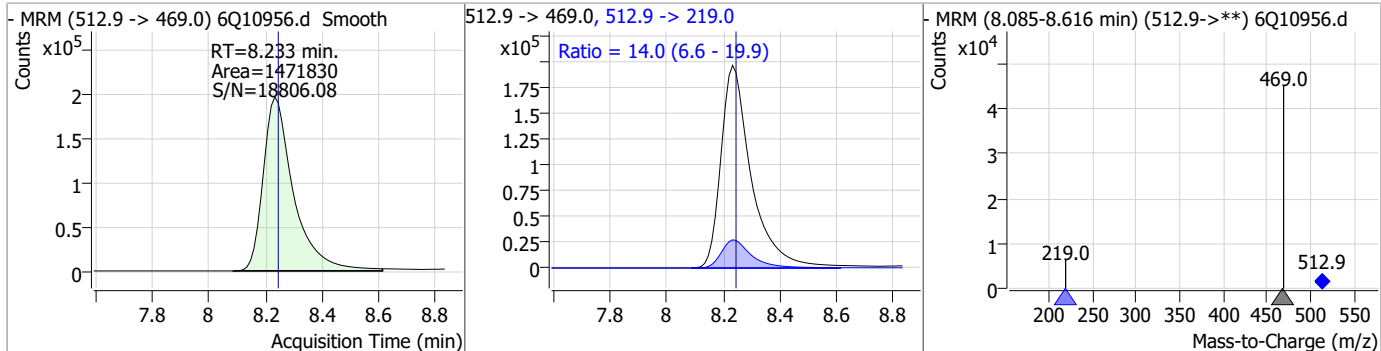


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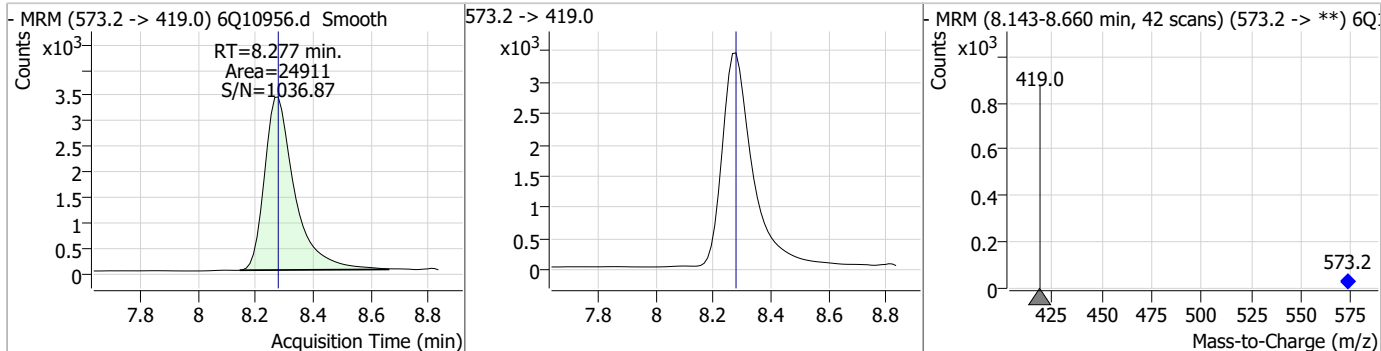
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Perfluorinated Compounds by LC/MS/MS

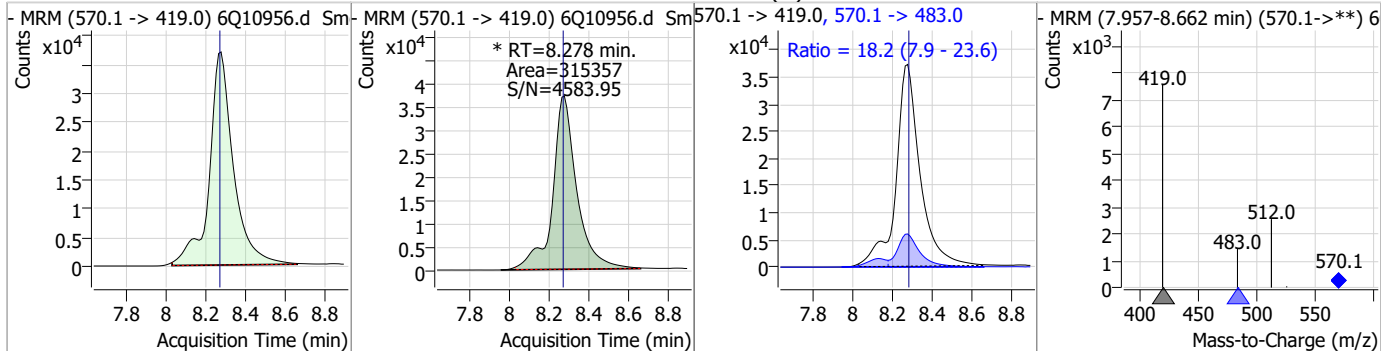
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	61.76	8.23	-0.01	1471830	512.9 -> 219.0	14.0	6.6	19.9



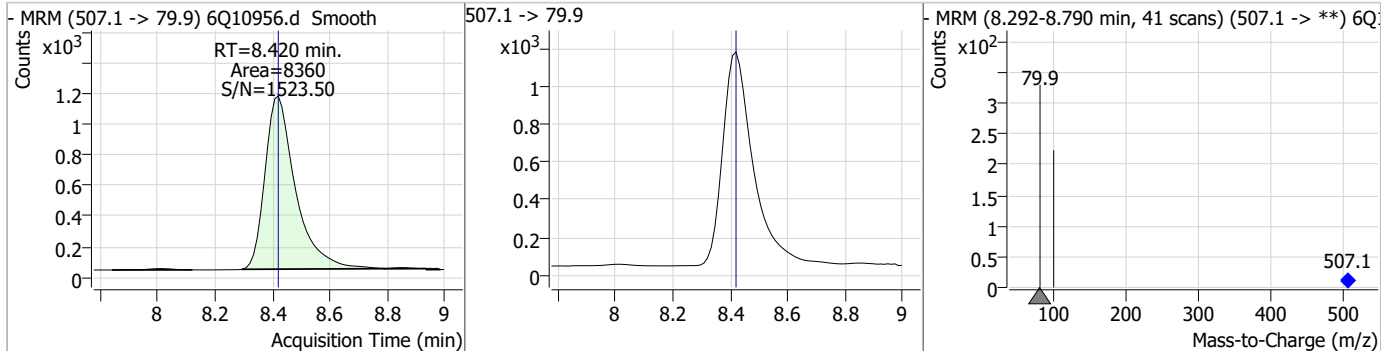
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.07	8.28	0.00	24911				



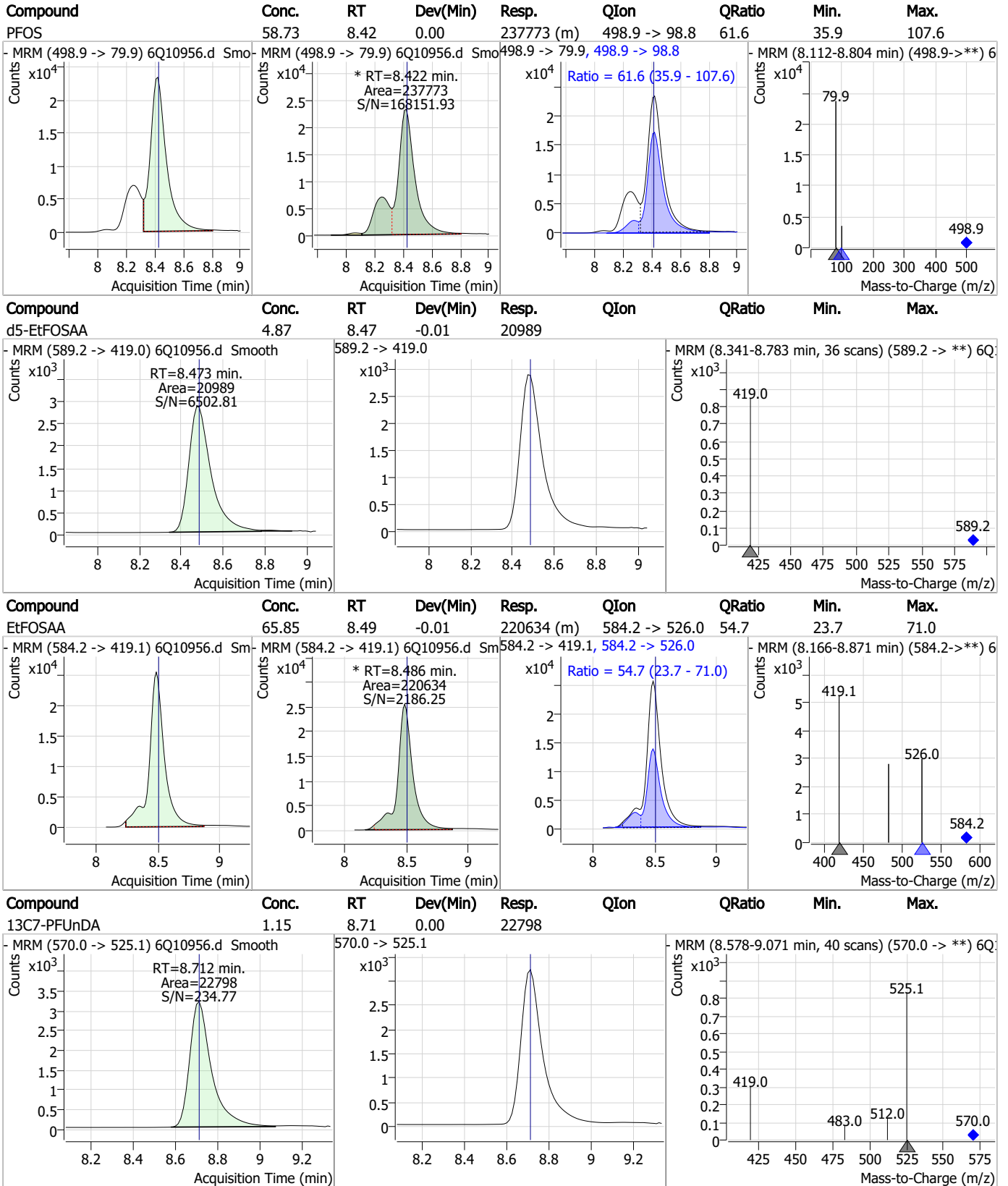
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	61.41	8.28	0.00	315357 (m)	570.1 -> 483.0	18.2	7.9	23.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.57	8.42	0.00	8360				



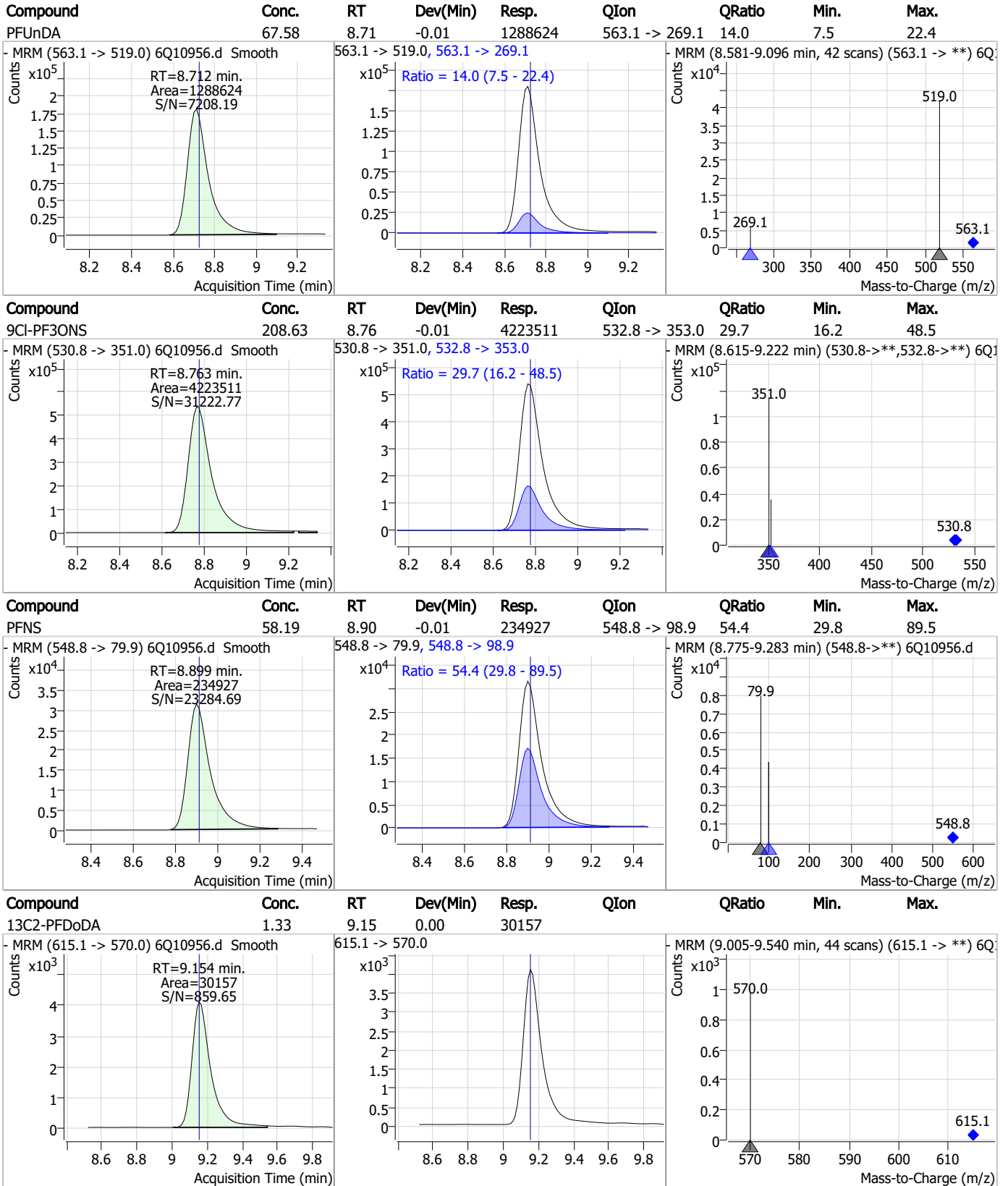
Perfluorinated Compounds by LC/MS/MS



7.7.9

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Perfluorinated Compounds by LC/MS/MS

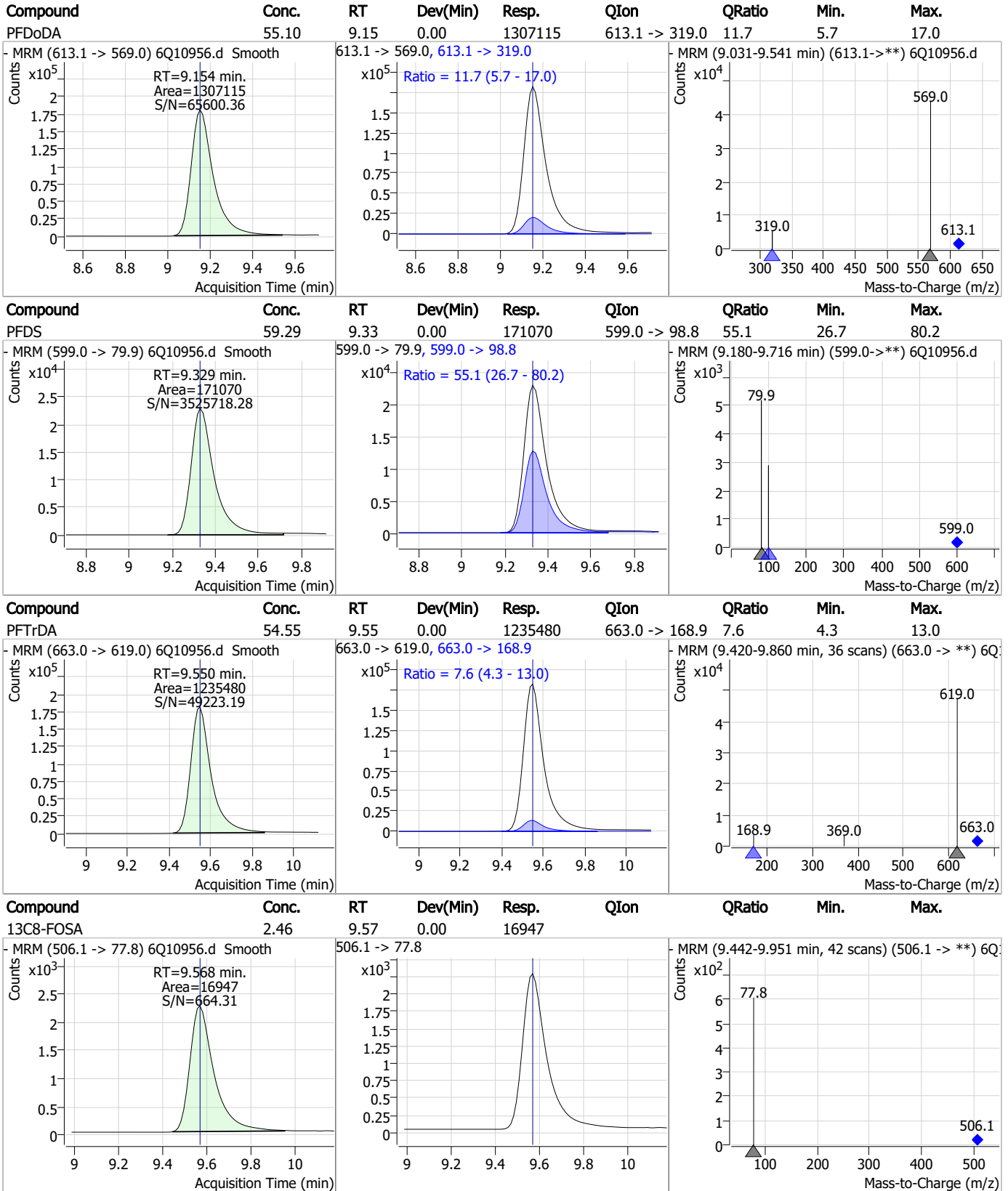


7.7.9

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Perfluorinated Compounds by LC/MS/MS

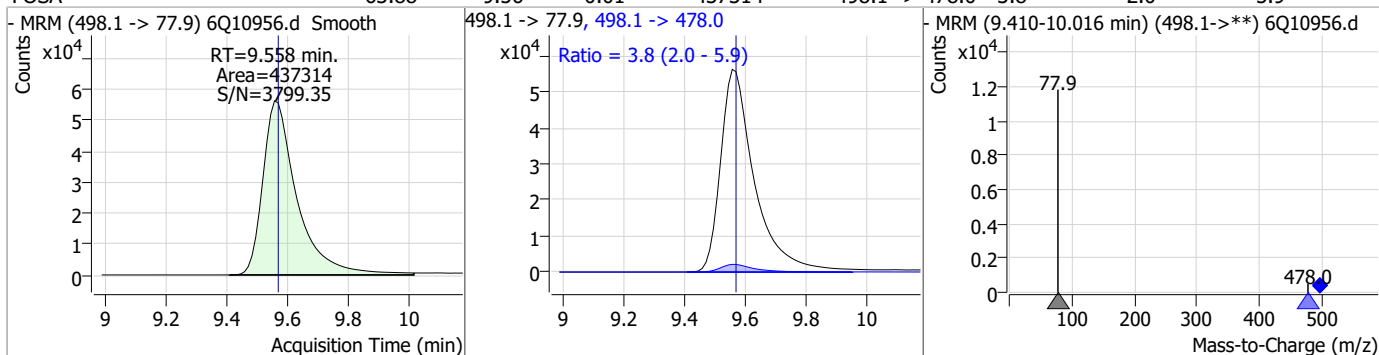


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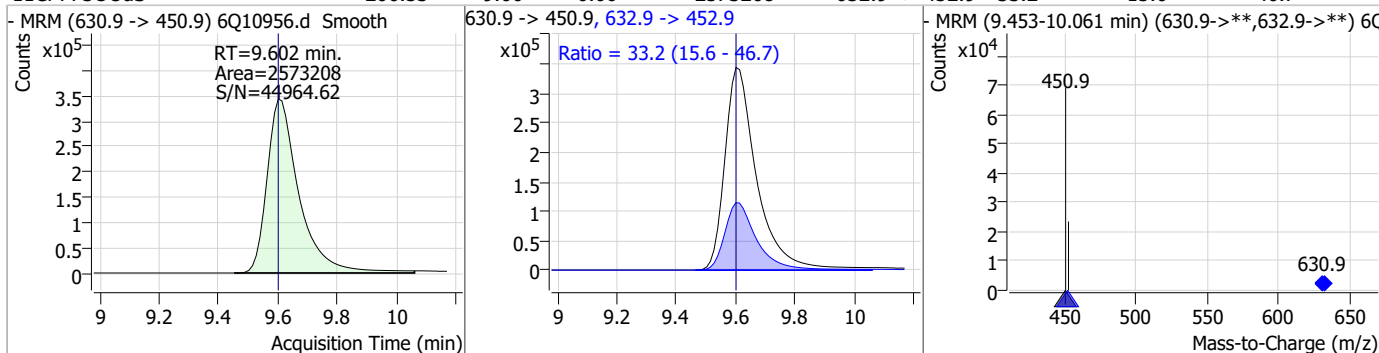
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Perfluorinated Compounds by LC/MS/MS

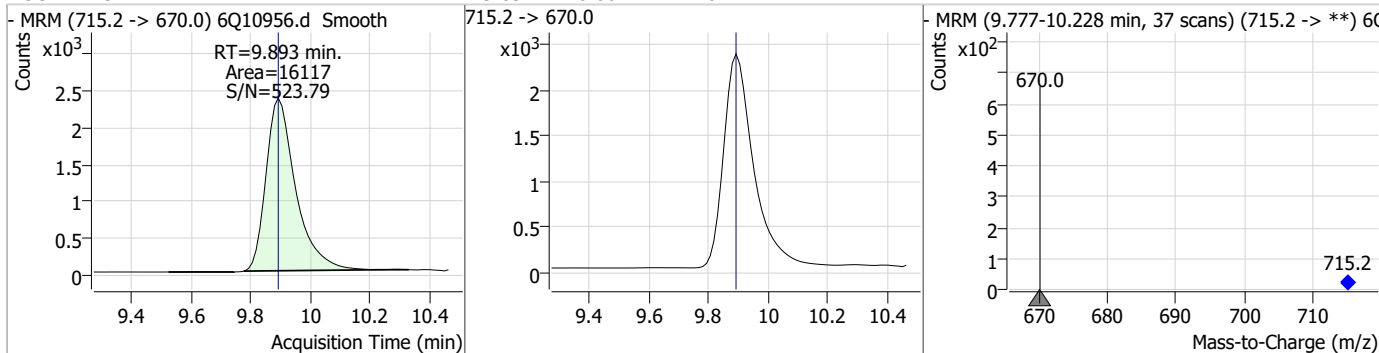
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	63.88	9.56	-0.01	437314	498.1 -> 478.0	3.8	2.0	5.9



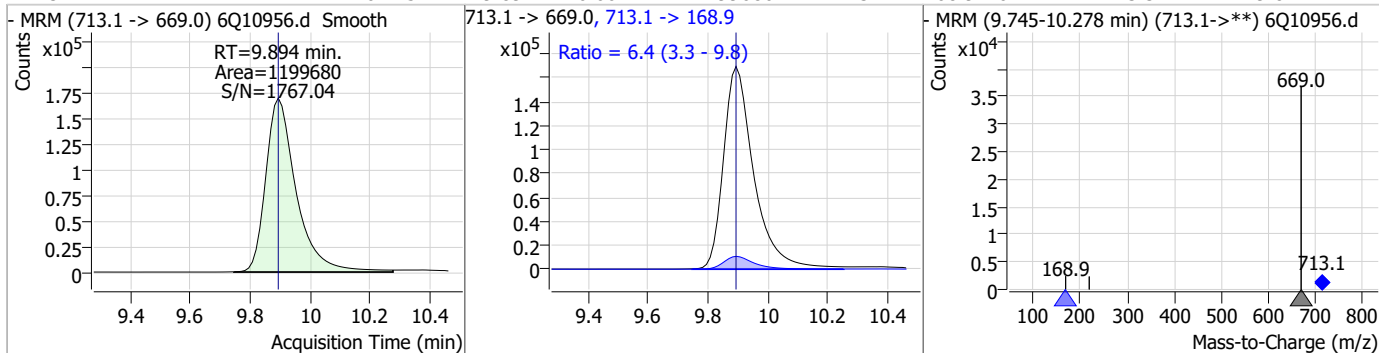
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	206.53	9.60	0.00	2573208	632.9 -> 452.9	33.2	15.6	46.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	9.89	0.00	16117	715.2 -> 670.0	6.4	3.3	9.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	62.45	9.89	0.00	1199680	713.1 -> 168.9	6.4	3.3	9.8



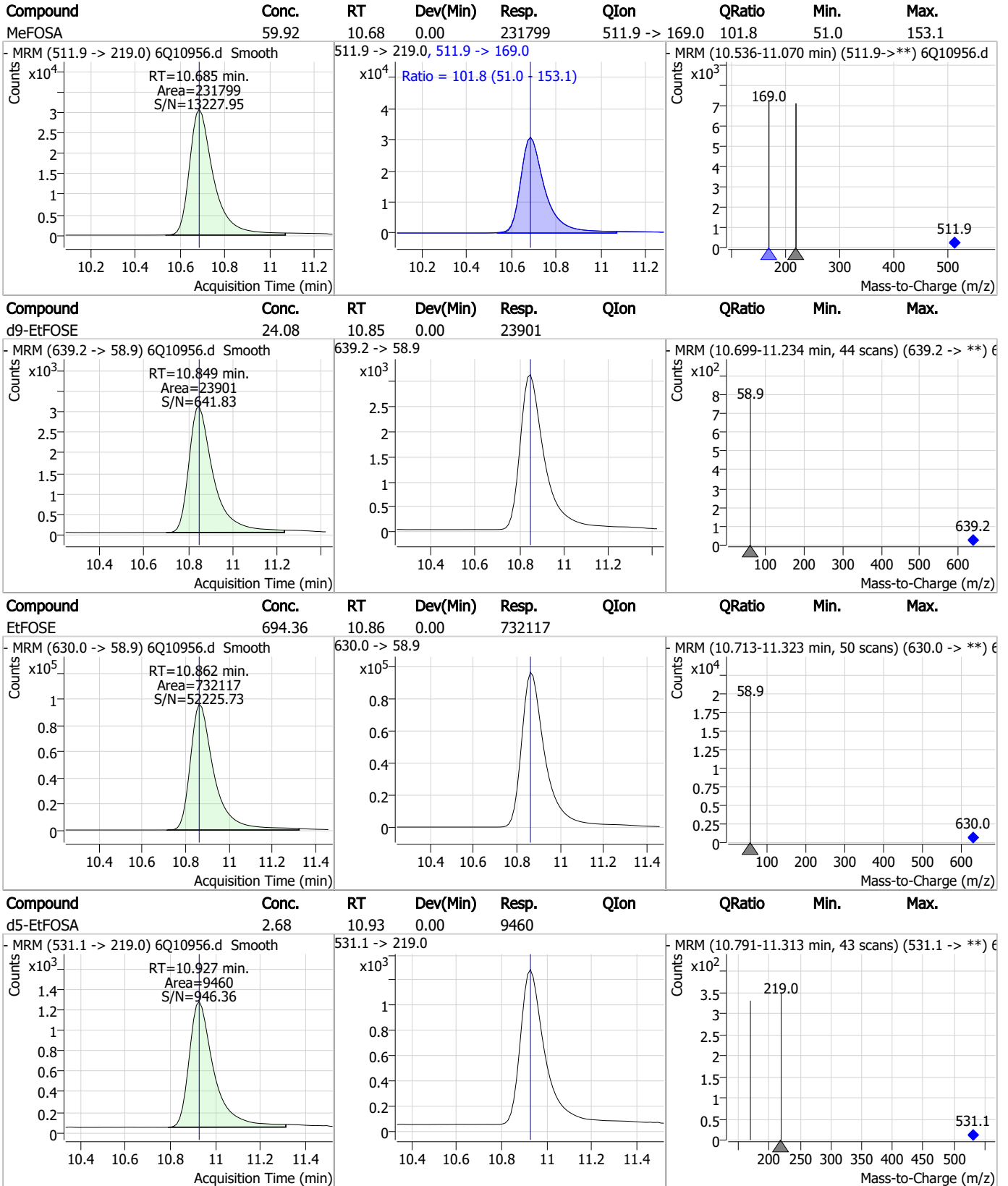
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	60.09	10.03	0.00	108114	699.1 -> 98.8	61.4	30.4	91.1
d7-MeFOSE	25.72	10.59	0.00	33387	623.2 -> 58.9	61.4	30.4	91.1
MeFOSE	633.09	10.60	0.00	873056	616.1 -> 58.9	61.4	30.4	91.1
d3-MeFOSA	2.78	10.68	0.00	8755	515.0 -> 219.0	61.4	30.4	91.1

7.7.9

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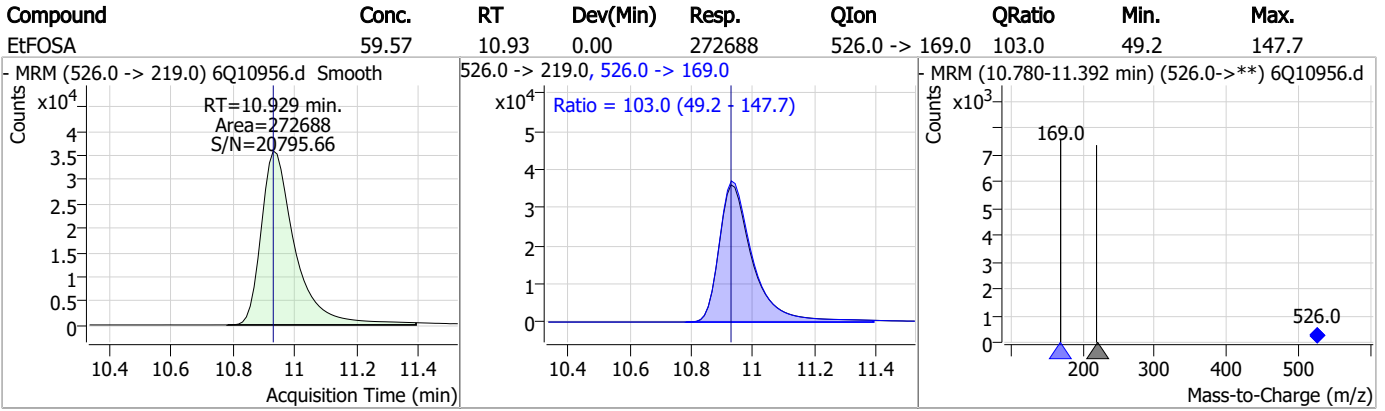
Perfluorinated Compounds by LC/MS/MS



7.7.9

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Perfluorinated Compounds by LC/MS/MS



7.7.9

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Manual Integration Approval Summary

Sample Number: S6Q174-IC174 Method: EPA DRAFT 1633
Lab FileID: 6Q10956.D Analyst approved: 01/12/23 11:46 Martha Valls
Injection Time: 01/11/23 13:28 Supervisor approved: 01/12/23 15:42 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
MeFOSAA	2355-31-9		8.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.42	Split peak
EtFOSAA	2991-50-6		8.49	Split peak

7.7.9.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q10958.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/11/2023 1:56:24 PM
 Sample Name : icv174-4
 Vial : P1-B1
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : S6Q174.batch.bin
 Sample Information : OP94795,S6Q174,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	94901	10.00 µg/L	0.000
M5-PFPeA	4.397	268.3 -> 223.0	45906	5.00 µg/L	0.000
M5-PFHxA	5.588	318.0 -> 273.0	41172	2.50 µg/L	0.000
M4-PFHpA	6.542	367.1 -> 322.0	40700	2.50 µg/L	0.000
M8-PFOA	7.197	421.1 -> 376.0	70499	2.50 µg/L	0.000
M9-PFNA	7.740	472.1 -> 427.0	30901	1.25 µg/L	0.000
M6-PFDA	8.245	519.1 -> 474.1	21296	1.25 µg/L	0.000
M7-PFUnDA	8.712	570.0 -> 525.1	27415	1.25 µg/L	0.000
M2-PFDoDA	9.154	615.1 -> 570.0	28264	1.25 µg/L	0.000
M2-PFTeDA	9.893	715.2 -> 670.0	16598	1.25 µg/L	0.000
M8-FOSA	9.568	506.1 -> 77.8	18964	2.50 µg/L	0.000
M3-PFBS	5.544	302.1 -> 79.9	15173	2.50 µg/L	-0.012
M3-PFHxS	7.325	402.1 -> 79.9	9307	2.50 µg/L	-0.012
M8-PFOS	8.420	507.1 -> 79.9	9236	2.50 µg/L	0.000
M2-4:2FTS	5.253	329.1 -> 80.9	1827	5.00 µg/L	0.000
M2-6:2FTS	6.958	429.1 -> 80.9	2774	5.00 µg/L	0.000
M2-8:2FTS	8.019	529.1 -> 80.9	2776	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	29279	5.00 µg/L	0.000
M3-HFPO-DA	5.978	286.9 -> 168.9	16000	10.00 µg/L	0.000
M5-EtFOSAA	8.485	589.2 -> 419.0	23370	5.00 µg/L	0.000
M7-MeFOSE	10.591	623.2 -> 58.9	36838	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	28219	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	9434	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	8402	2.50 µg/L	0.000
13C4-PFOS	8.421	502.8 -> 79.9	10657	2.50 µg/L	0.000
13C3-PFBA	3.004	216.0 -> 172.0	41345	5.00 µg/L	0.000
18O2-PFHxS	7.336	403.0 -> 83.9	7425	2.50 µg/L	0.000
13C4-PFOA	7.198	417.1 -> 372.0	87458	2.50 µg/L	0.000
13C2-PFDA	8.245	515.1 -> 470.1	31152	1.25 µg/L	0.000
13C5-PFNA	7.740	468.0 -> 423.0	34546	1.25 µg/L	0.000
13C2-PFHxA	5.589	315.1 -> 270.0	40456	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.253	329.1 -> 80.9	1827	4.72 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.3%		
13C2-6:2FTS	6.958	429.1 -> 80.9	2774	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C2-8:2FTS	8.019	529.1 -> 80.9	2776	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C2-PFDoDA	9.154	615.1 -> 570.0	28264	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.6%		
13C2-PFTeDA	9.893	715.2 -> 670.0	16598	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.5%		
13C3-PFBS	5.544	302.1 -> 79.9	15173	2.44 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C3-PFHxS	7.325	402.1 -> 79.9	9307	2.31 µg/L	-0.012

7.7.10
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.4%		
13C4-PFBA	3.000	216.8 -> 171.9	94901	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C4-PFHpA	6.542	367.1 -> 322.0	40700	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C5-PFHxA	5.588	318.0 -> 273.0	41172	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C5-PFPeA	4.397	268.3 -> 223.0	45906	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C6-PFDA	8.245	519.1 -> 474.1	21296	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C7-PFUnDA	8.712	570.0 -> 525.1	27415	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C8-FOSA	9.568	506.1 -> 77.8	18964	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C8-PFOA	7.197	421.1 -> 376.0	70499	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C8-PFOS	8.420	507.1 -> 79.9	9236	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C9-PFNA	7.740	472.1 -> 427.0	30901	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.7%		
d3-MeFOSAA	8.277	573.2 -> 419.0	29279	5.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.1%		
13C3-HFPO-DA	5.978	286.9 -> 168.9	16000	9.59 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 95.9%		
d3-MeFOSA	10.683	515.0 -> 219.0	8402	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.0%		
d5-EtFOSAA	8.485	589.2 -> 419.0	23370	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.8%		
d7-MeFOSE	10.591	623.2 -> 58.9	36838	27.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 108.6%		
d9-EtFOSE	10.849	639.2 -> 58.9	28219	27.20 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
d5-EtFOSA	10.927	531.1 -> 219.0	9434	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.2%		
Target Compounds					QValue
4:2FTS	5.254	327.1 -> 307.0	38960	8.97 µg/L	93
		327.1 -> 80.9	9301		
6:2FTS	6.959	427.1 -> 407.0	34981	8.11 µg/L	97
		427.1 -> 80.9	7344		
8:2FTS	8.020	527.1 -> 507.0	21129	9.12 µg/L	100
		527.1 -> 80.8	5163		
EtFOSAA	8.486	584.2 -> 419.1	8911	2.39 µg/L	m 88
		584.2 -> 526.0	4960		
FOSA	9.558	498.1 -> 77.9	18859	2.46 µg/L	100
		498.1 -> 478.0	720		
MeFOSAA	8.278	570.1 -> 419.0	13283	2.20 µg/L	m 91
		570.1 -> 483.0	2570		
PFBA	2.994	212.8 -> 168.9	21730	8.93 µg/L	100
PFBS	5.544	298.7 -> 79.9	11648	1.90 µg/L	98
		298.7 -> 98.8	5761		
PFDA	8.246	512.9 -> 469.0	60898	2.38 µg/L	99
		512.9 -> 219.0	8188		
PFDODA	9.154	613.1 -> 569.0	51541	2.32 µg/L	97
		613.1 -> 319.0	6493		
PFDS	9.329	599.0 -> 79.9	6999	2.20 µg/L	98

7.7.10
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.542	599.0 -> 98.8	3634	2.29	µg/L	98
		363.1 -> 319.0	56266			
PFHpS	7.905	363.1 -> 169.0	7758	2.11	µg/L	97
		449.0 -> 79.9	8924			
PFHxA	5.591	449.0 -> 98.9	5295	2.25	µg/L	100
		313.0 -> 269.0	37373			
PFHxS	7.326	313.0 -> 118.9	1483	2.15	µg/L	100
		398.7 -> 79.9	9541			
PFNA	7.740	398.7 -> 98.9	5712	2.37	µg/L	97
		463.0 -> 419.0	50686			
PFNS	8.899	463.0 -> 219.0	10057	2.39	µg/L	86
		548.8 -> 79.9	10674			
PFOA	7.199	548.8 -> 98.9	5249	2.20	µg/L	98
		413.0 -> 369.0	69296			
PFOS	8.421	413.0 -> 169.0	9368	2.06	µg/L	87
		498.9 -> 79.9	9234			
PFPeA	4.401	498.9 -> 98.8	5626	4.44	µg/L	100
		263.0 -> 219.0	44785			
PFPeS	6.619	349.1 -> 79.9	11794	2.25	µg/L	100
		349.1 -> 98.9	6245			
PFTeDA	9.894	713.1 -> 669.0	46250	2.34	µg/L	99
		713.1 -> 168.9	2903			
PFTrDA	9.550	663.0 -> 619.0	50432	2.38	µg/L	97
		663.0 -> 168.9	3908			
PFUnDA	8.712	563.1 -> 519.0	49469	2.16	µg/L	99
		563.1 -> 269.1	7562			
11CI-PF3OUdS	9.602	630.9 -> 450.9	111938	9.23	µg/L	99
		632.9 -> 452.9	35128			
9CI-PF3ONS	8.776	530.8 -> 351.0	181557	9.21	µg/L	94
		532.8 -> 353.0	52579			
ADONA	6.804	376.9 -> 250.9	325010	9.14	µg/L	98
		376.9 -> 84.8	69526			
HFPO-DA	5.966	284.9 -> 168.9	15023	9.28	µg/L	100
		284.9 -> 184.9	1850			
3:3FTCA	3.839	241.0 -> 177.0	5908	11.00	µg/L	97
		241.0 -> 117.0	800			
5:3FTCA	6.219	341.0 -> 237.1	191517	55.35	µg/L	98
		341.0 -> 217.0	166382			
7:3FTCA	7.643	441.0 -> 316.9	134591	57.71	µg/L	97
		441.0 -> 336.9	281724			
EtFOSA	10.929	526.0 -> 219.0	11152	2.44	µg/L	100
		526.0 -> 169.0	11032			
EtFOSE	10.862	630.0 -> 58.9	27851	22.37	µg/L	100
		511.9 -> 219.0	9129			
MeFOSA	10.685	511.9 -> 169.0	9299	2.46	µg/L	100
		616.1 -> 58.9	35106			
MeFOSE	10.604	699.1 -> 79.9	4453	23.07	µg/L	100
		699.1 -> 98.8	2647			
PFDoDS	10.033	295.0 -> 201.0	5050	2.24	µg/L	98
		295.0 -> 84.9	2258			
NFDHA	5.471	279.0 -> 85.1	14355	4.68	µg/L	98
		229.0 -> 84.9	12536			
PFMBA	4.813	314.8 -> 134.9	95264	4.57	µg/L	100
		314.8 -> 82.9	2381			
PFMPA	3.550			4.49	µg/L	100
PFEESA	6.097			4.11	µg/L	100

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



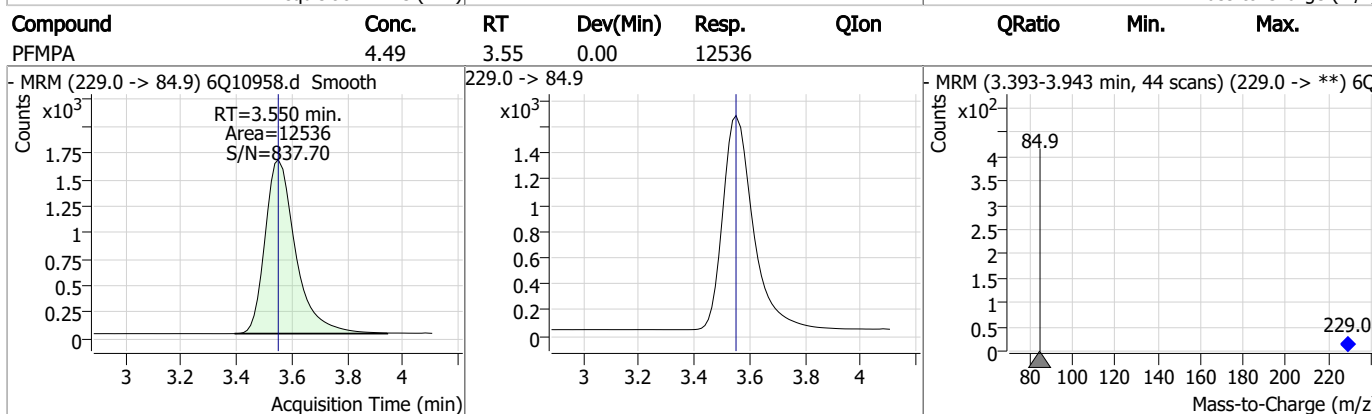
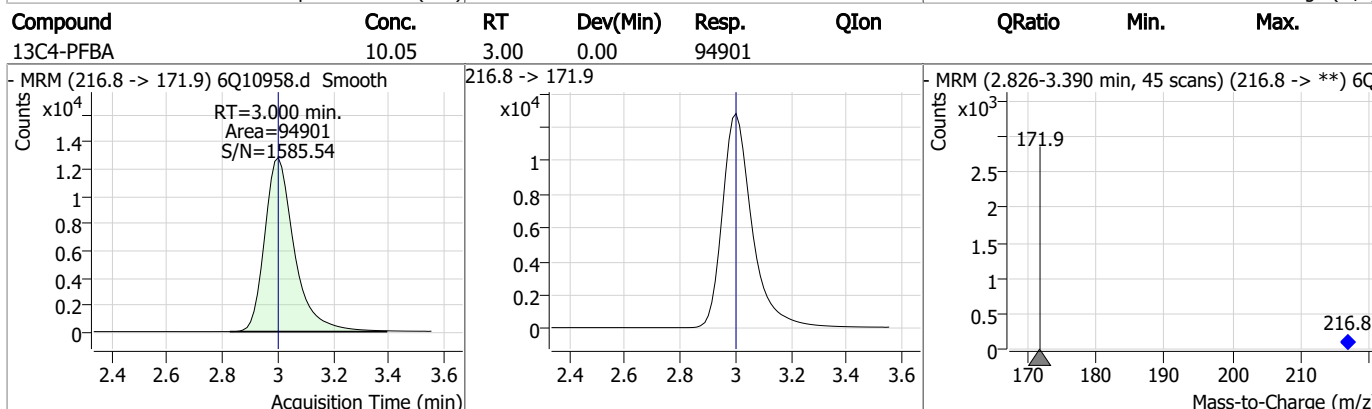
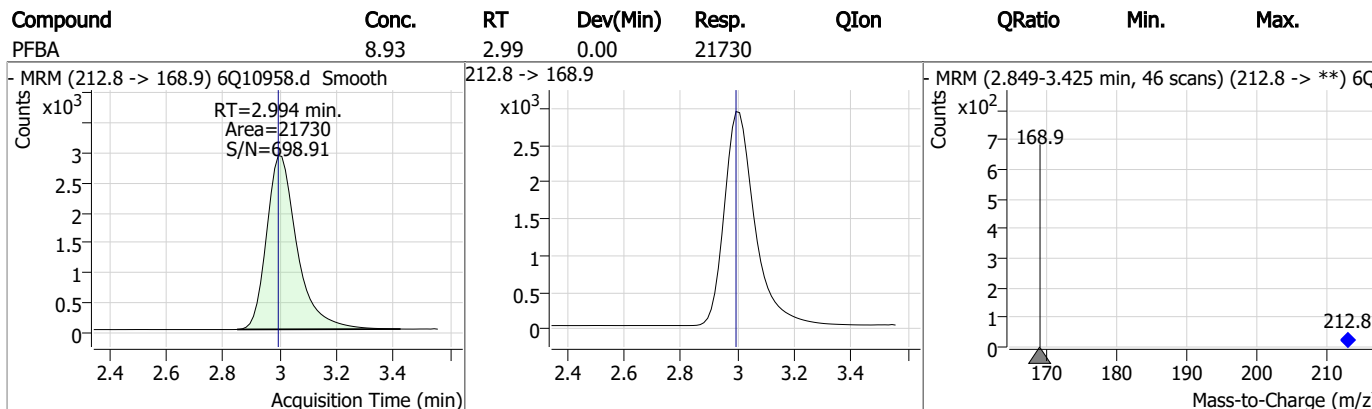
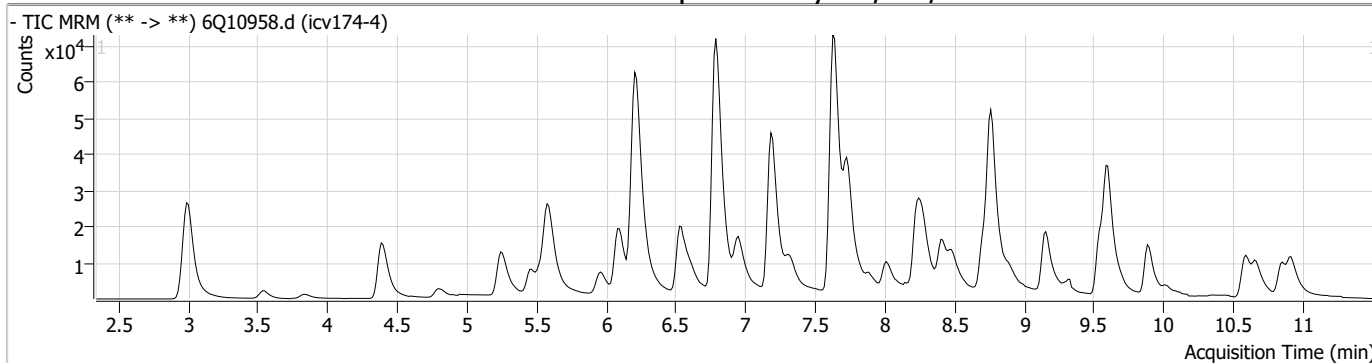
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.10

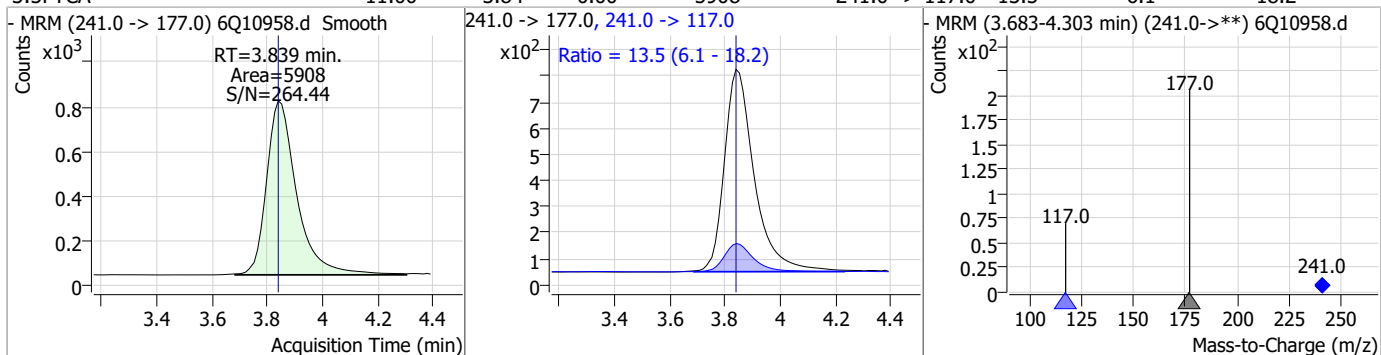
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Perfluorinated Compounds by LC/MS/MS

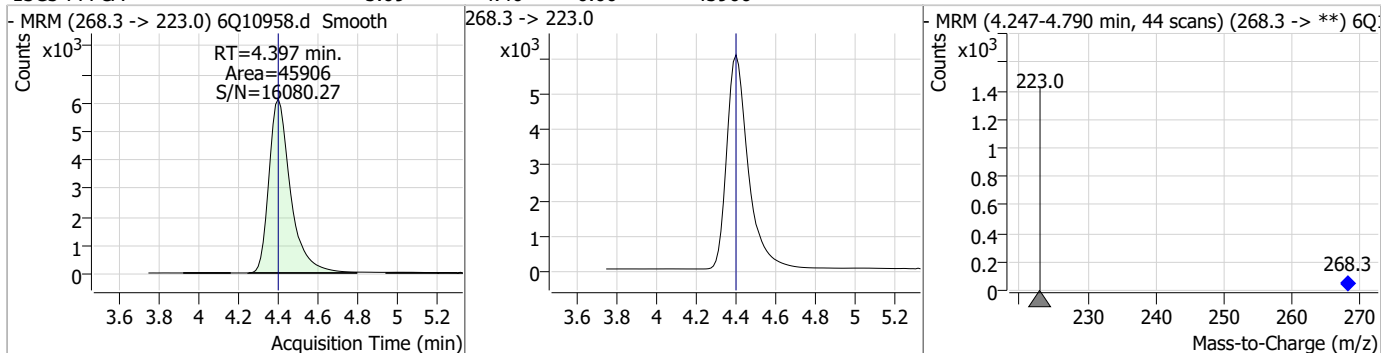


Perfluorinated Compounds by LC/MS/MS

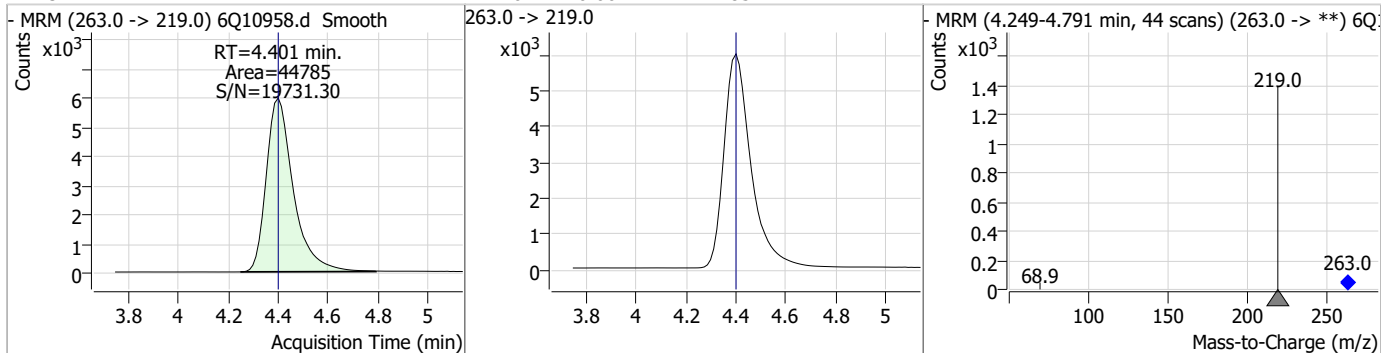
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.00	3.84	0.00	5908	241.0 -> 117.0	13.5	6.1	18.2



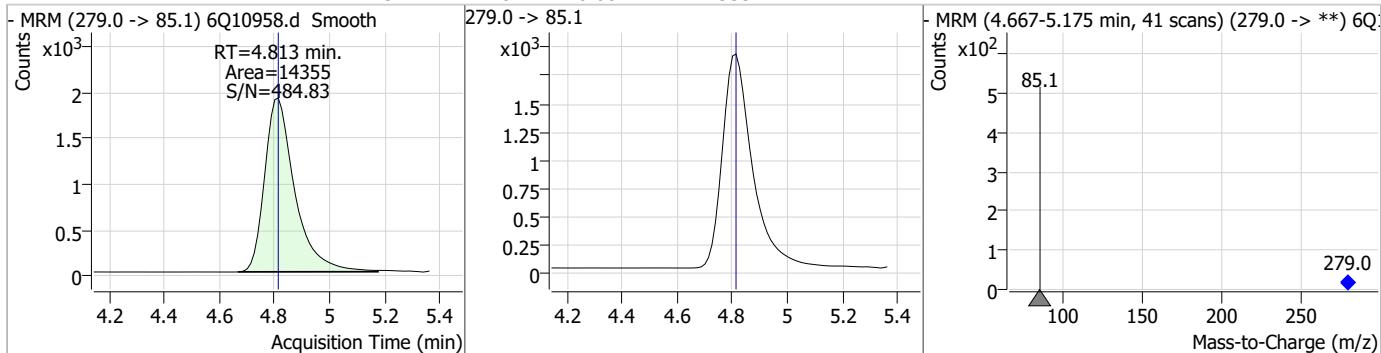
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.09	4.40	0.00	45906				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.44	4.40	0.00	44785				

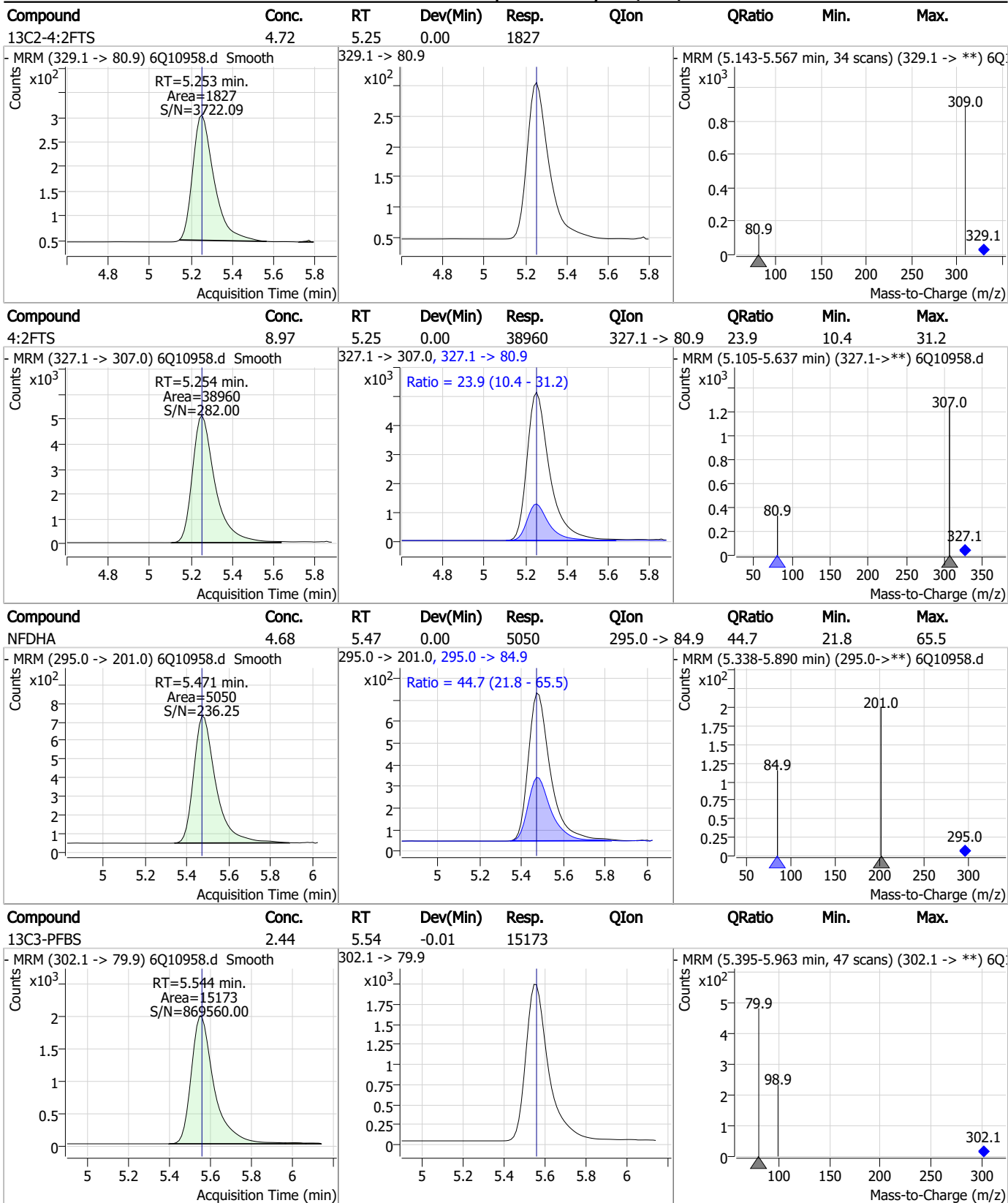


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.57	4.81	0.00	14355				



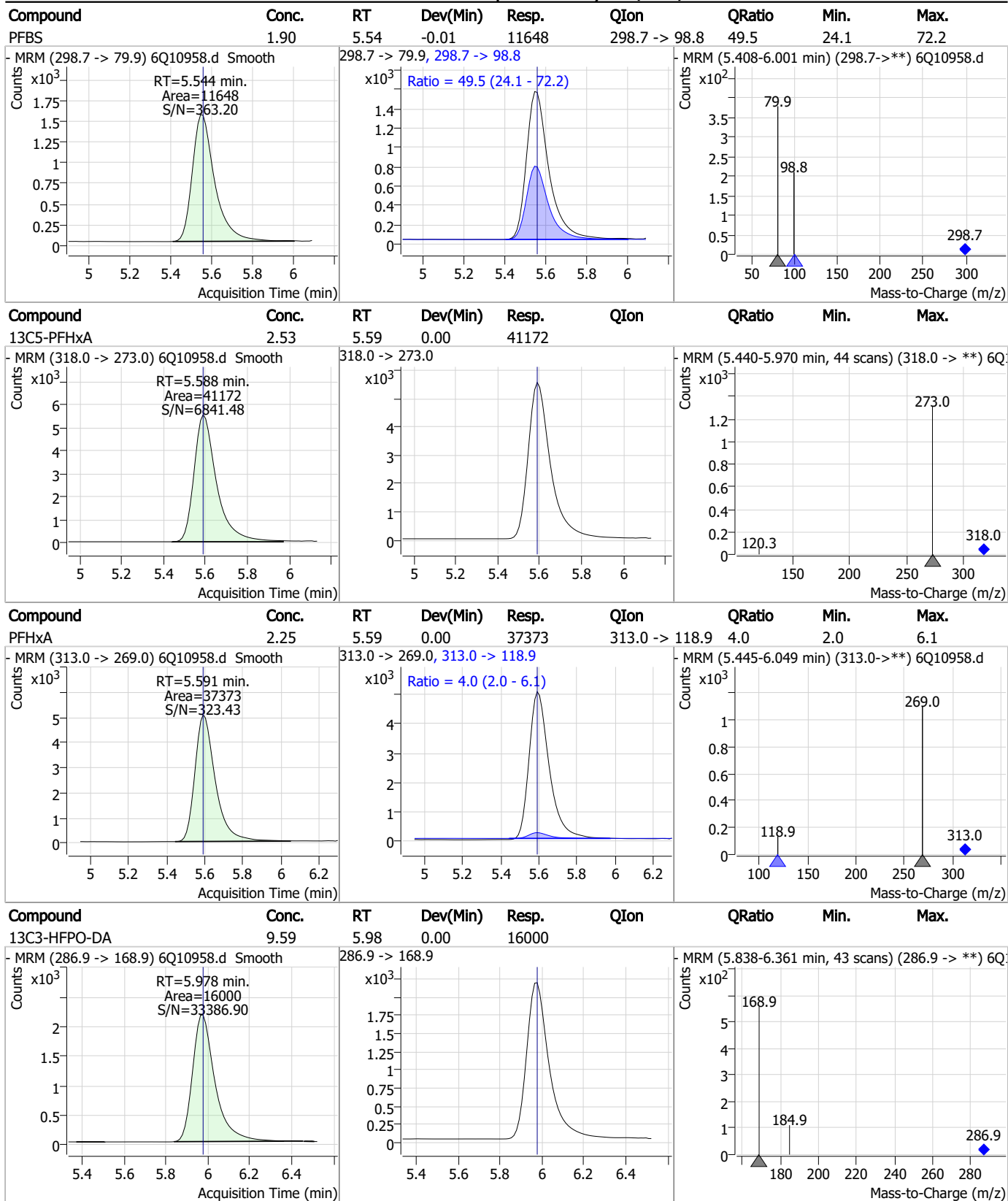
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Perfluorinated Compounds by LC/MS/MS



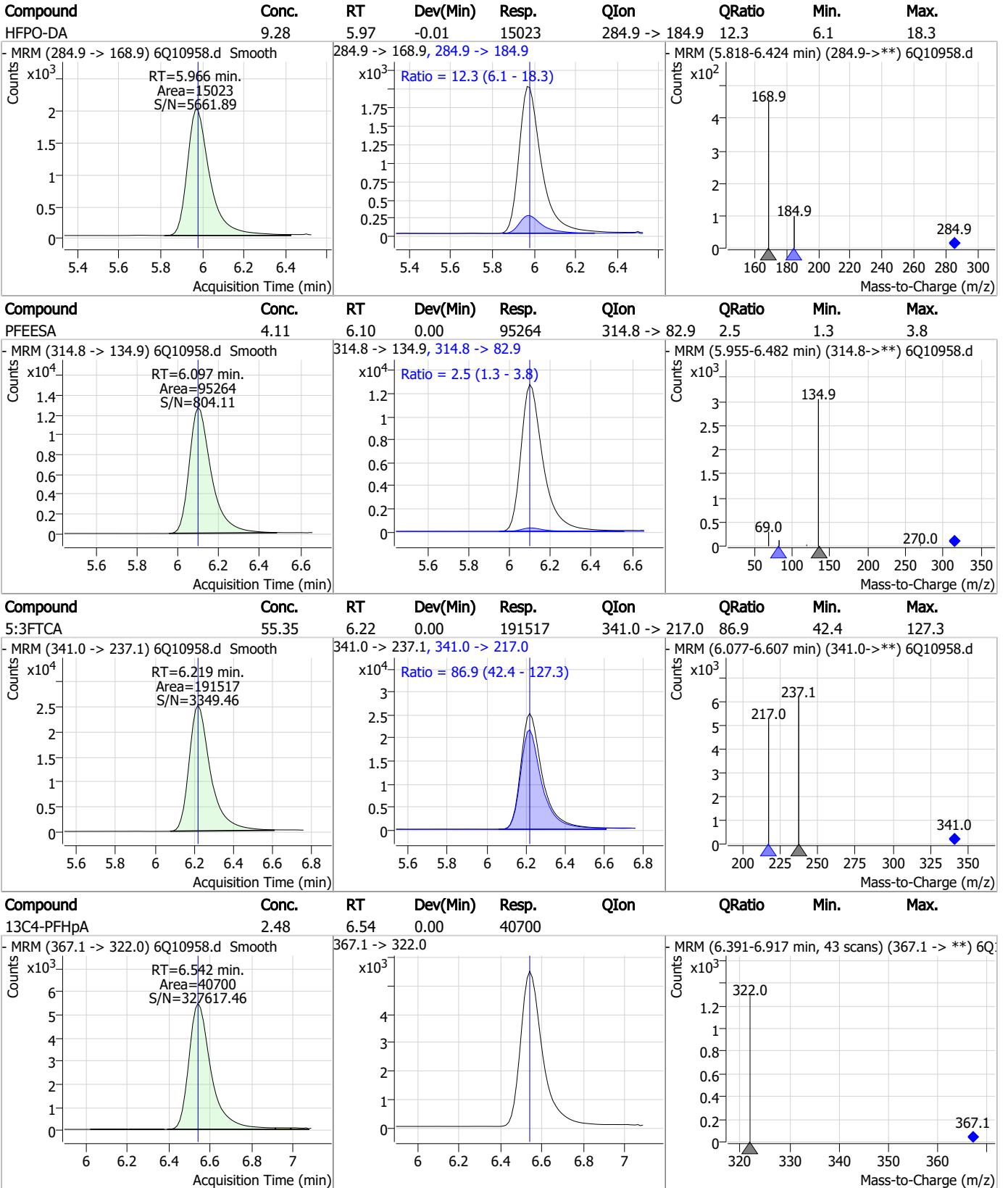
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Perfluorinated Compounds by LC/MS/MS



7.7.10
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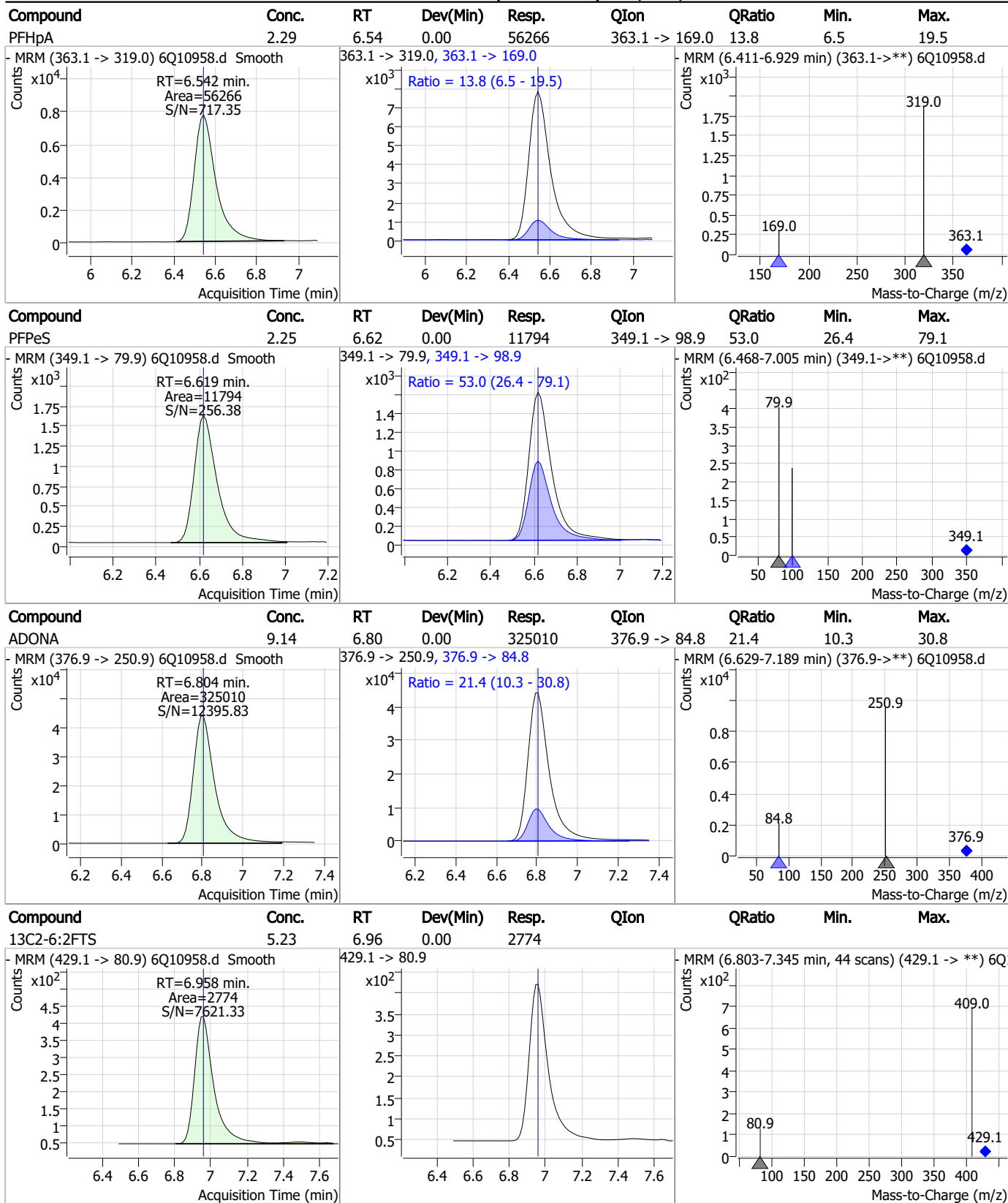
Perfluorinated Compounds by LC/MS/MS



7.7.10 7



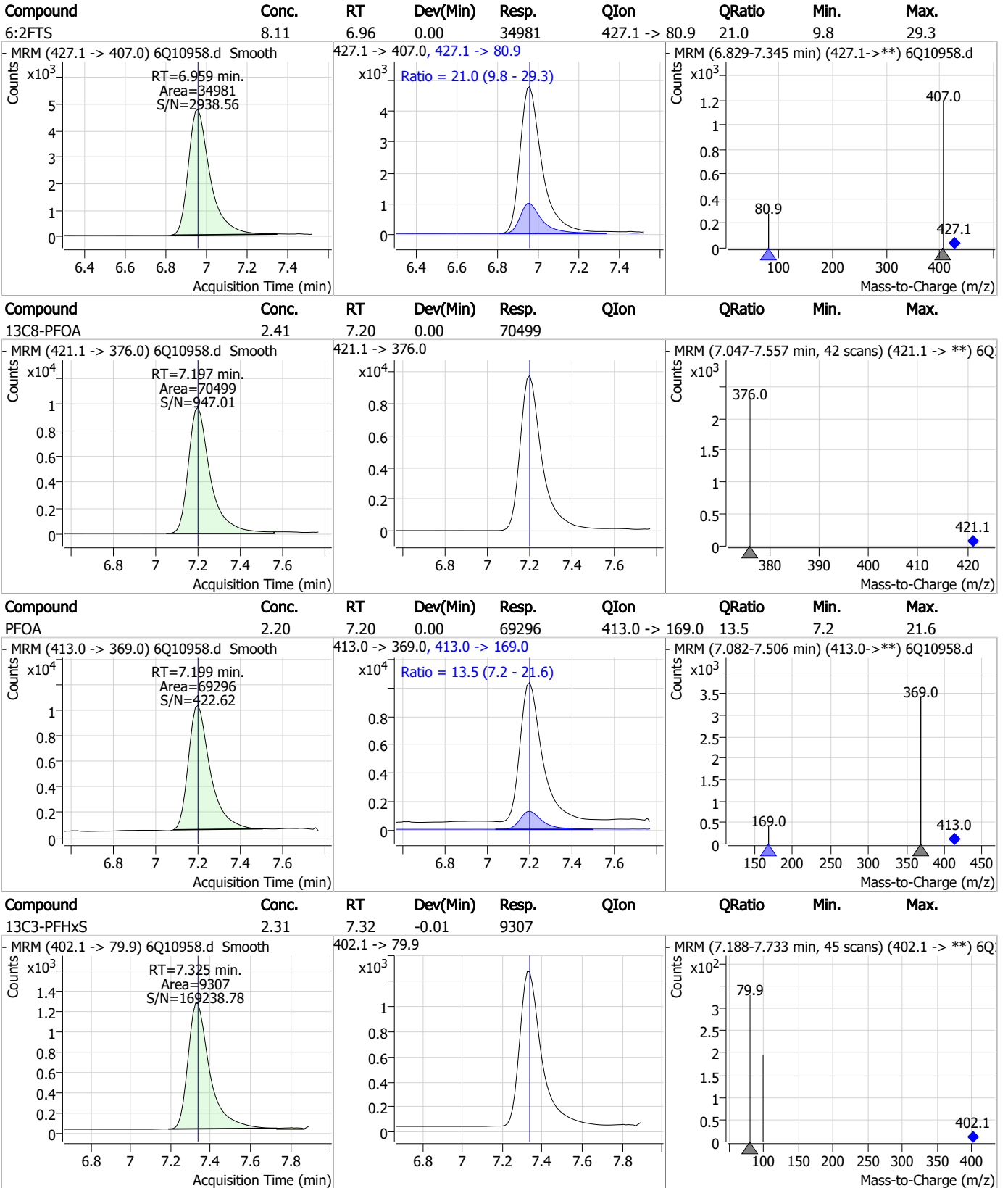
Perfluorinated Compounds by LC/MS/MS



7.7.10 7



Perfluorinated Compounds by LC/MS/MS

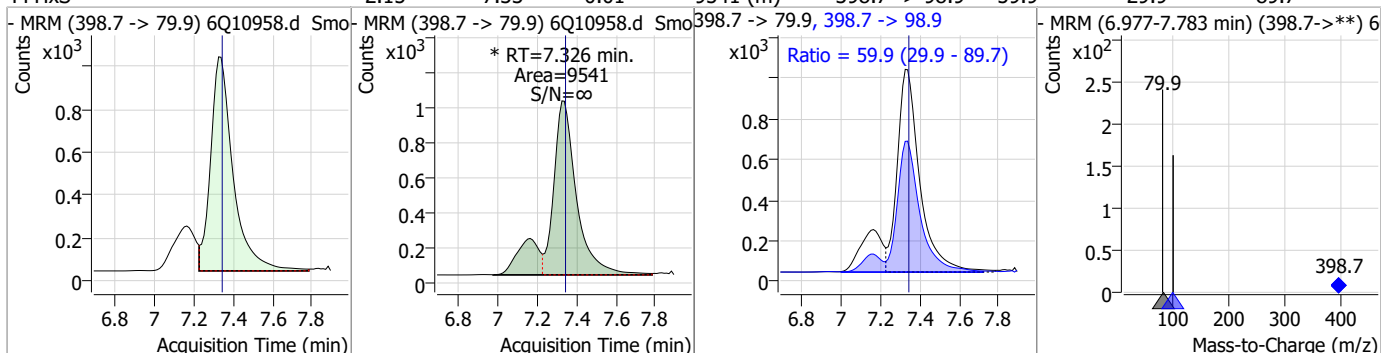


7.7.10 7

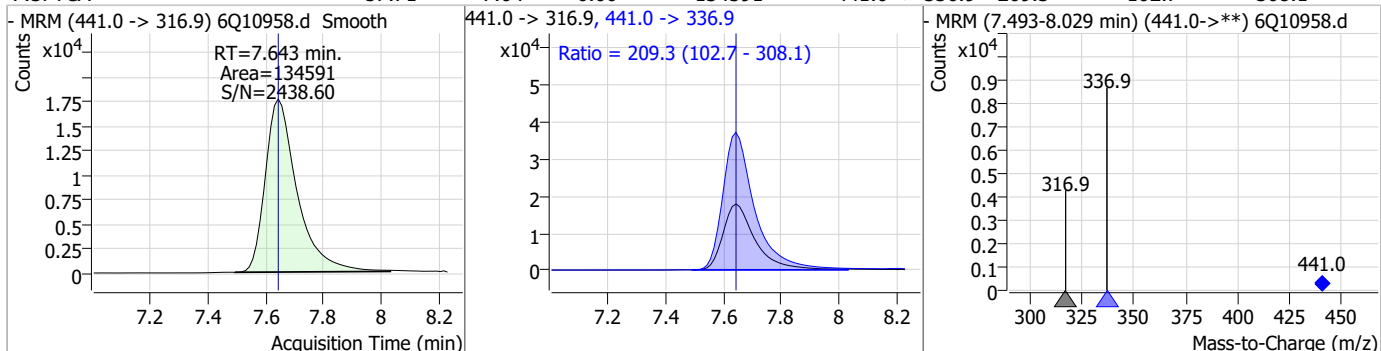


Perfluorinated Compounds by LC/MS/MS

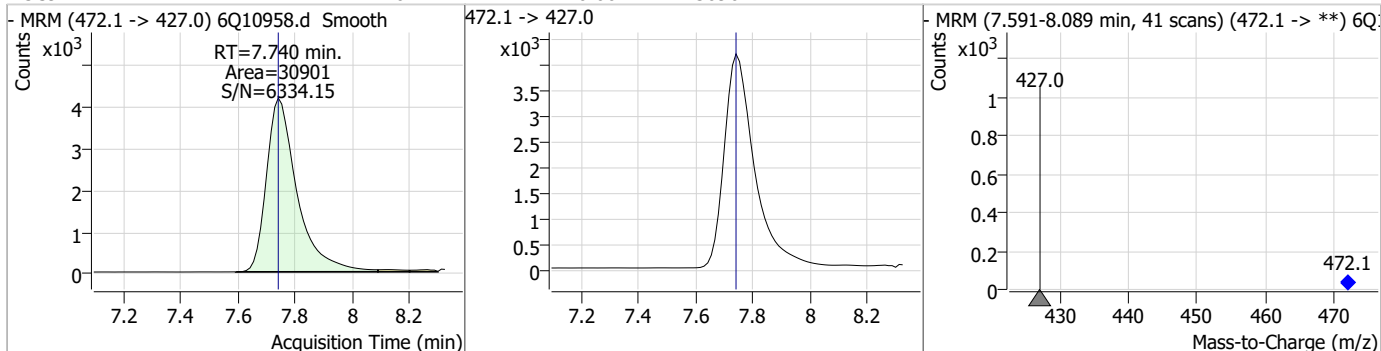
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.15	7.33	-0.01	9541 (m)	398.7 -> 98.9	59.9	29.9	89.7



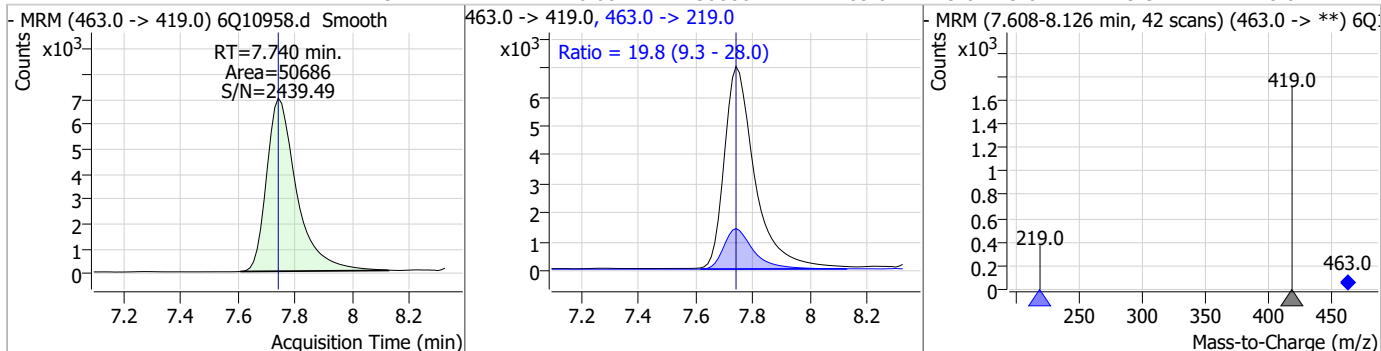
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	57.71	7.64	0.00	134591	441.0 -> 336.9	209.3	102.7	308.1



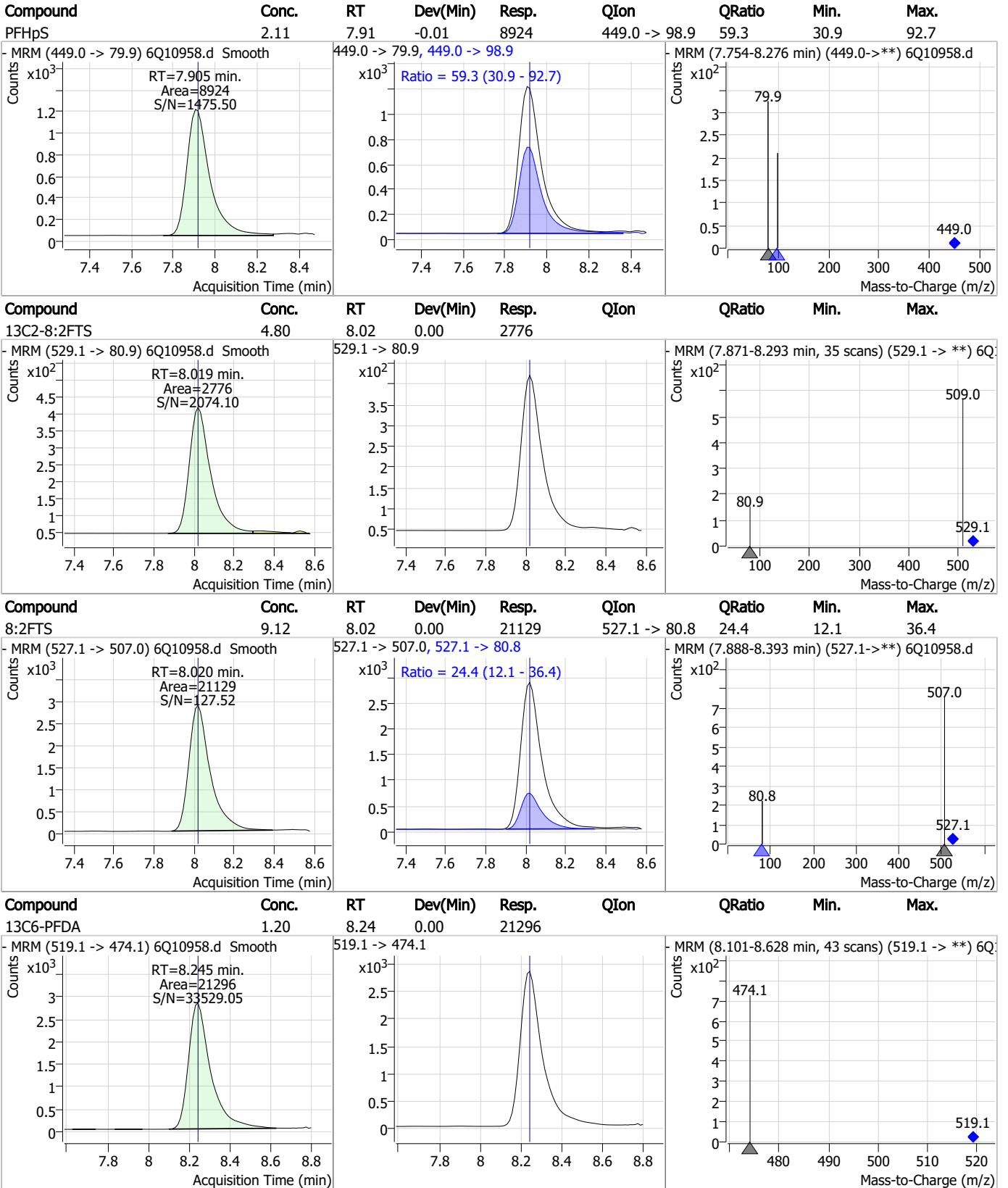
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.26	7.74	0.00	30901				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.37	7.74	0.00	50686	463.0 -> 219.0	19.8	9.3	28.0



Perfluorinated Compounds by LC/MS/MS

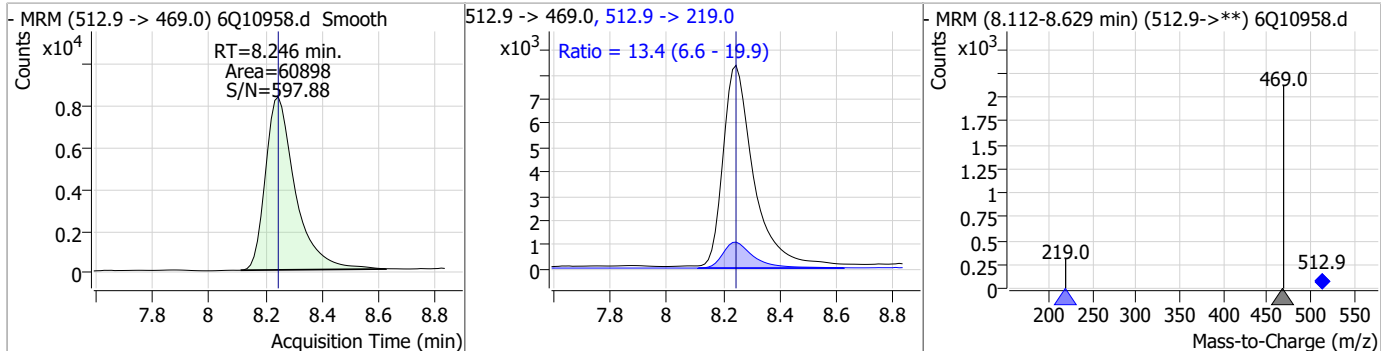


7.7.10 7

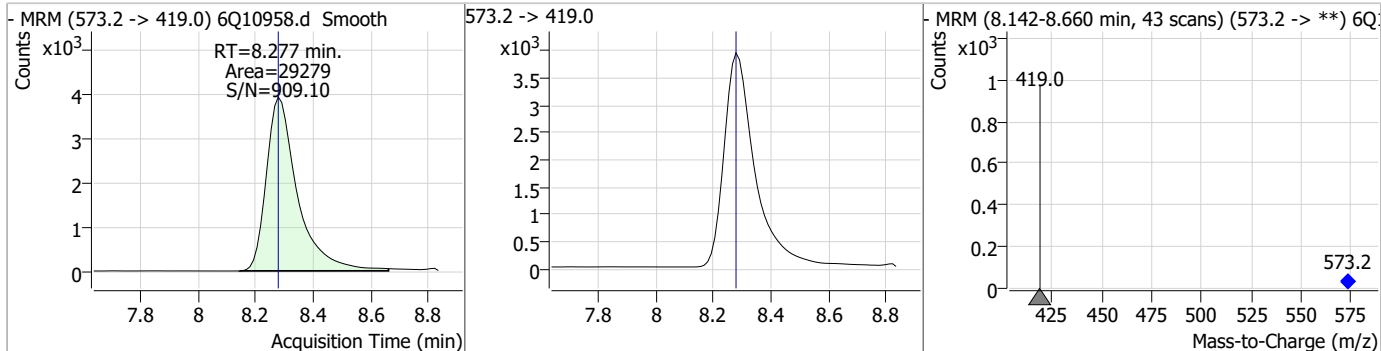


Perfluorinated Compounds by LC/MS/MS

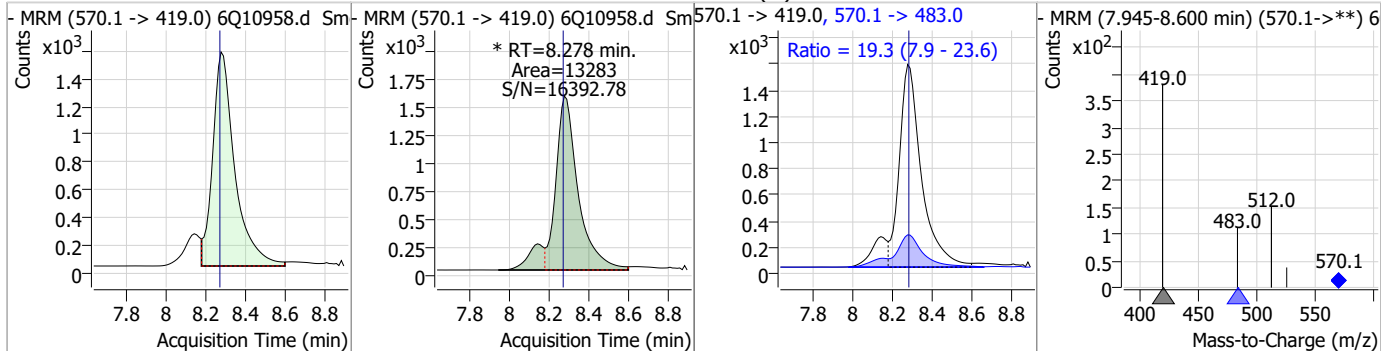
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.38	8.25	0.00	60898	512.9 -> 219.0	13.4	6.6	19.9



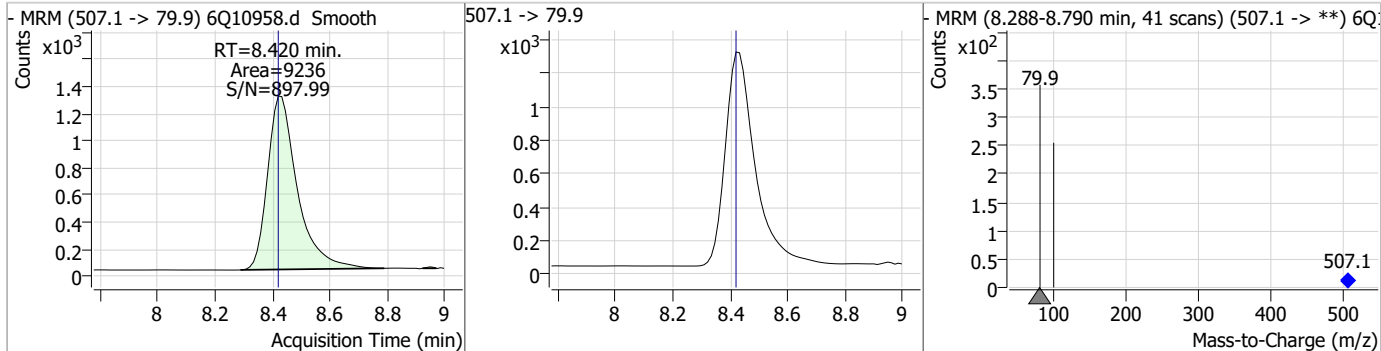
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.71	8.28	0.00	29279				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.20	8.28	0.00	13283 (m)	570.1 -> 483.0	19.3	7.9	23.6



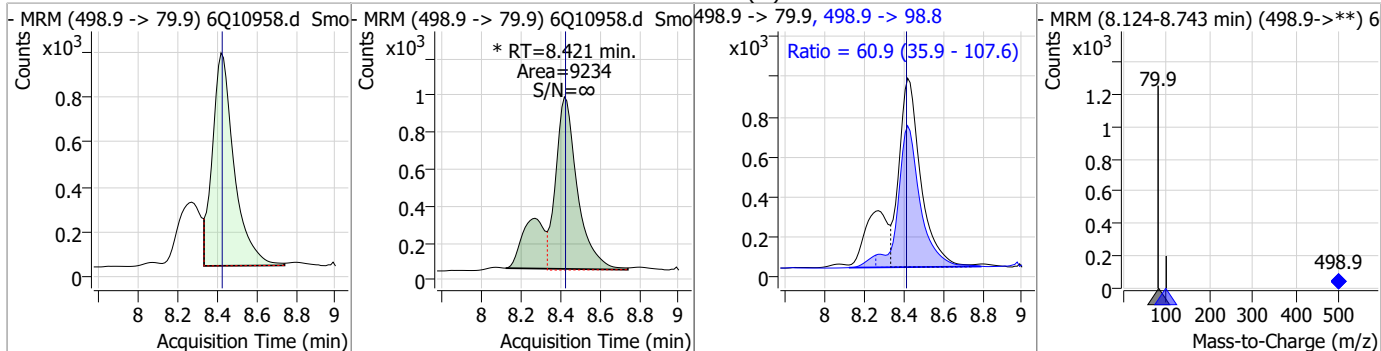
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.71	8.42	0.00	9236				



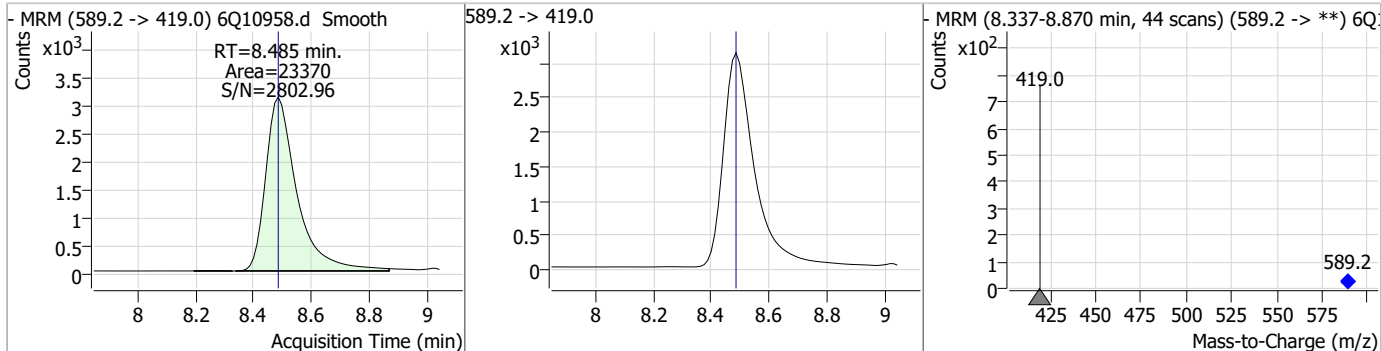
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Perfluorinated Compounds by LC/MS/MS

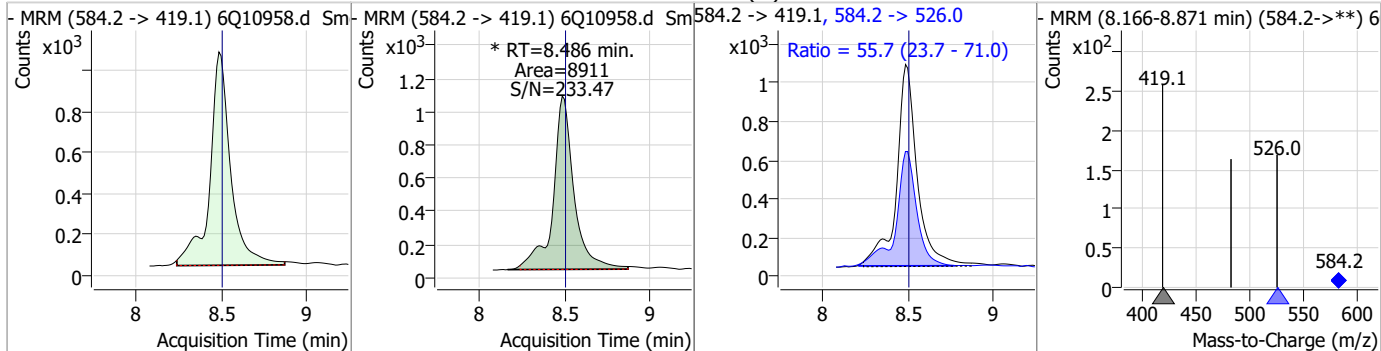
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.06	8.42	0.00	9234 (m)	498.9 -> 98.8	60.9	35.9	107.6



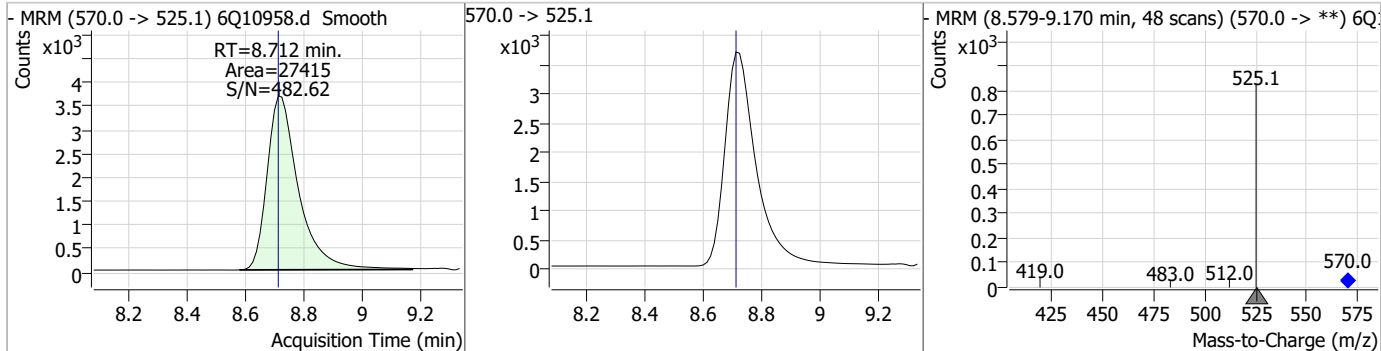
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.19	8.49	0.00	23370				



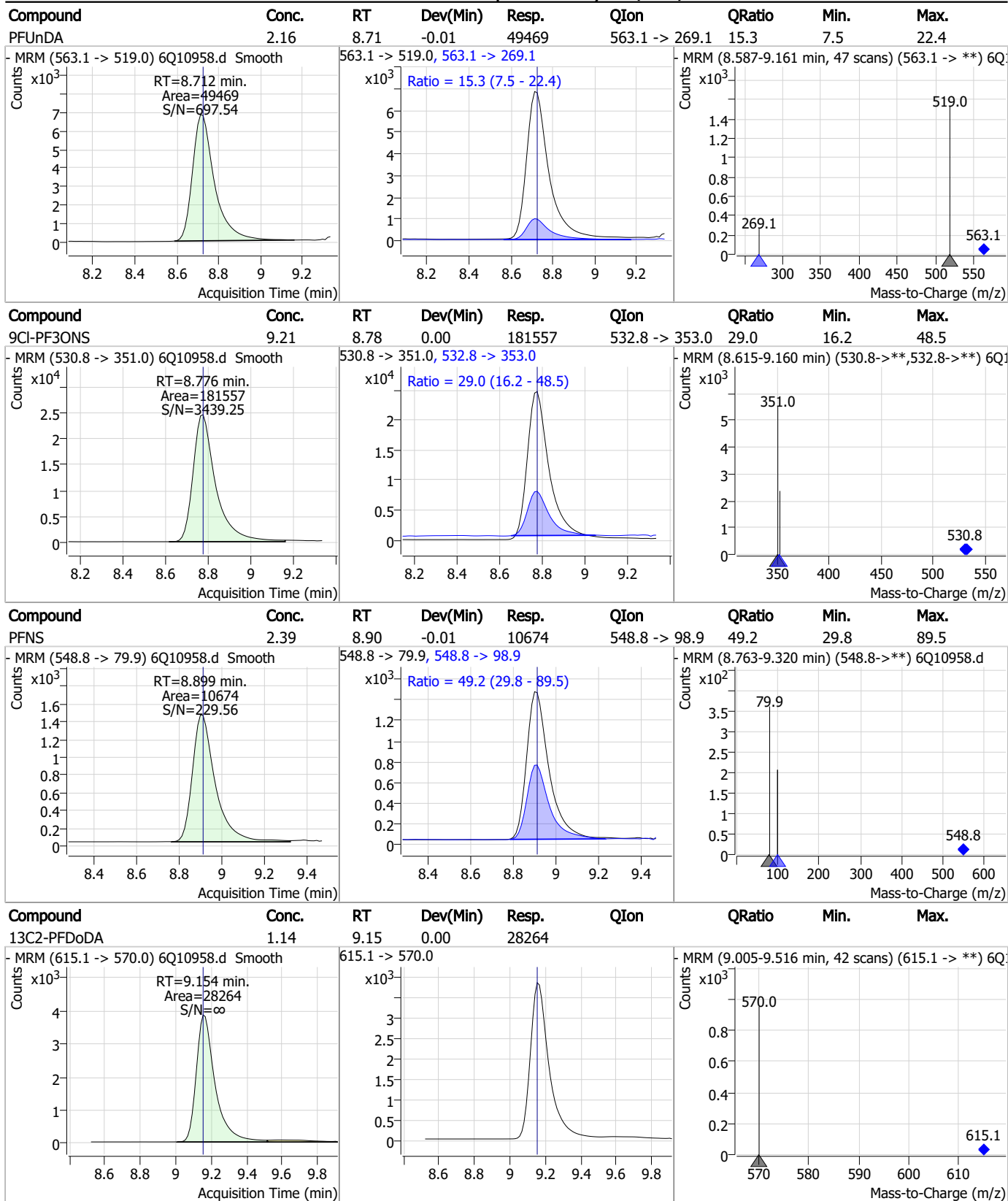
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.39	8.49	-0.01	8911 (m)	584.2 -> 526.0	55.7	23.7	71.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.27	8.71	0.00	27415				

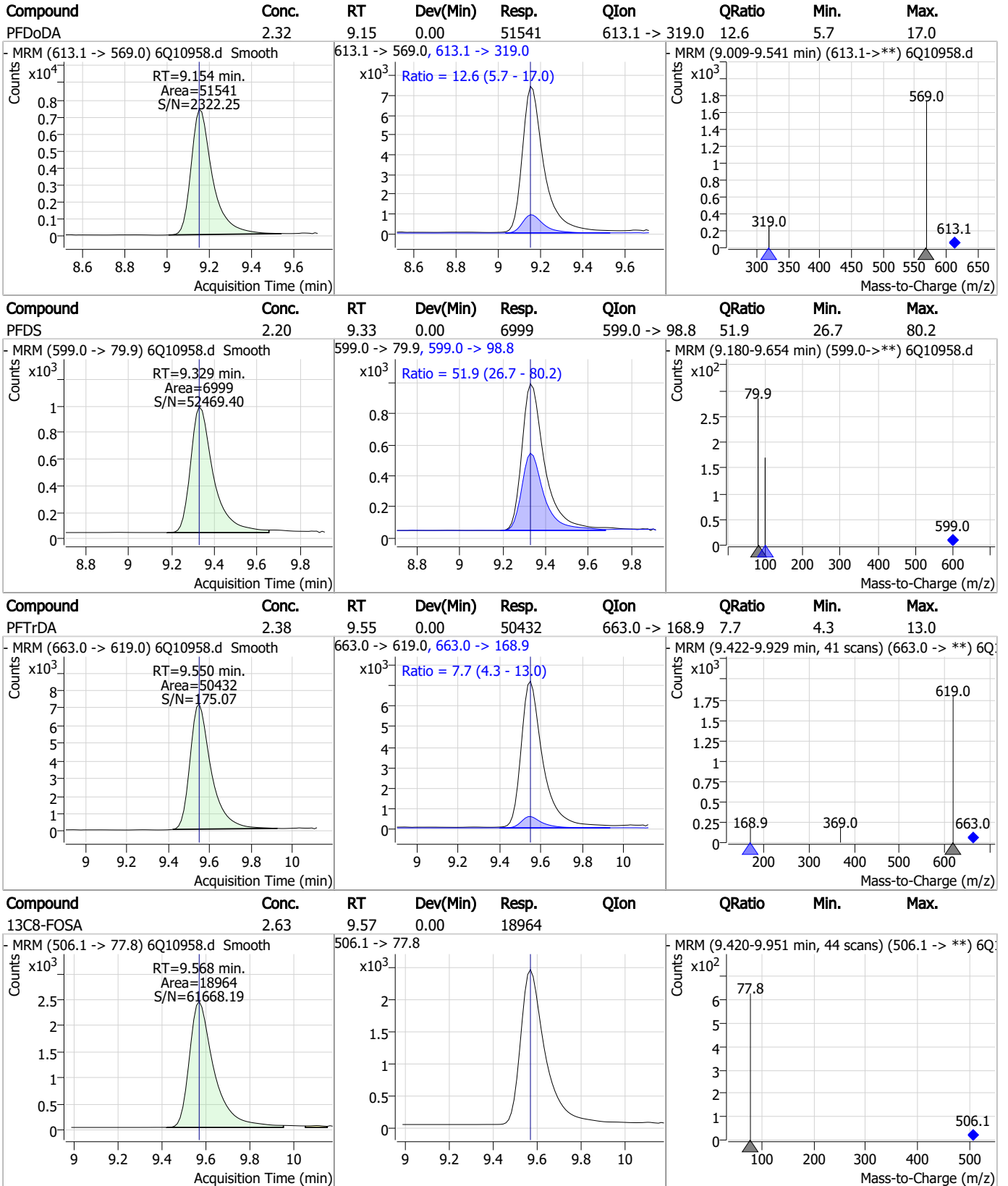


Perfluorinated Compounds by LC/MS/MS



7.7.10 7

Perfluorinated Compounds by LC/MS/MS

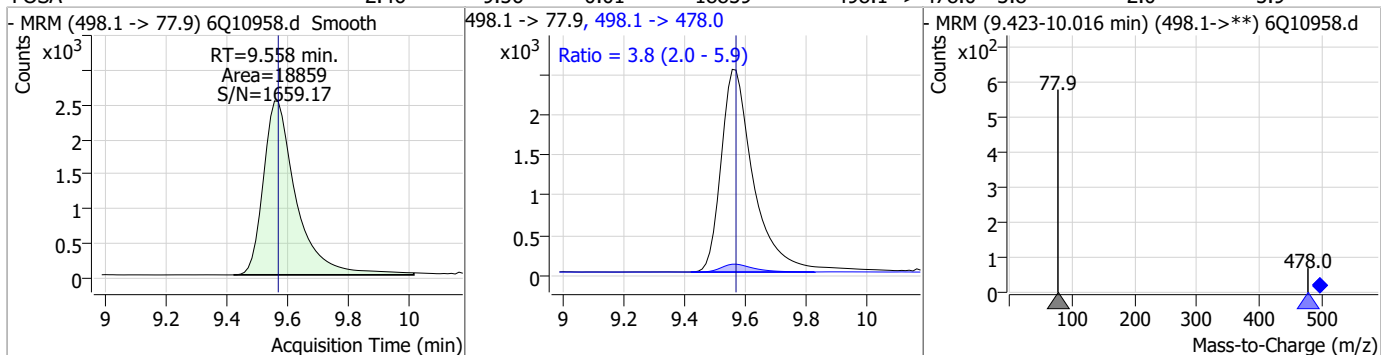


7.7.10 7

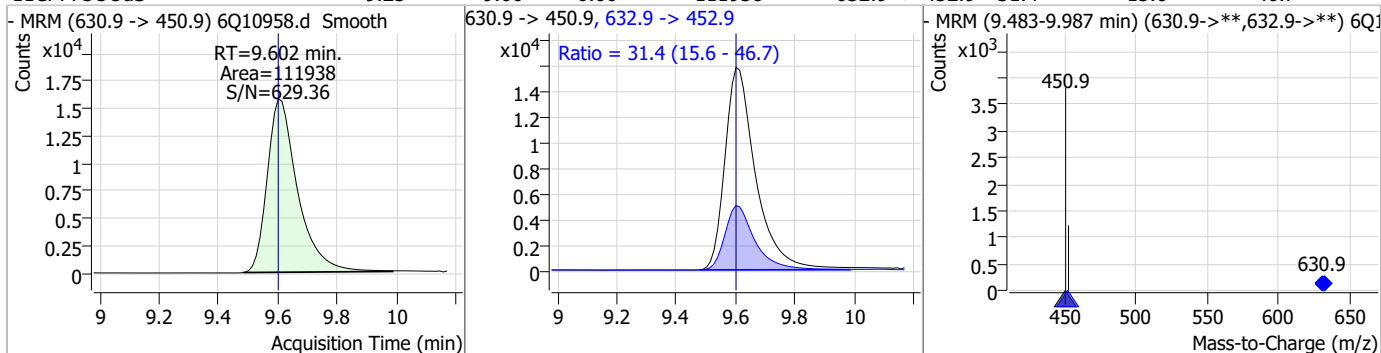


Perfluorinated Compounds by LC/MS/MS

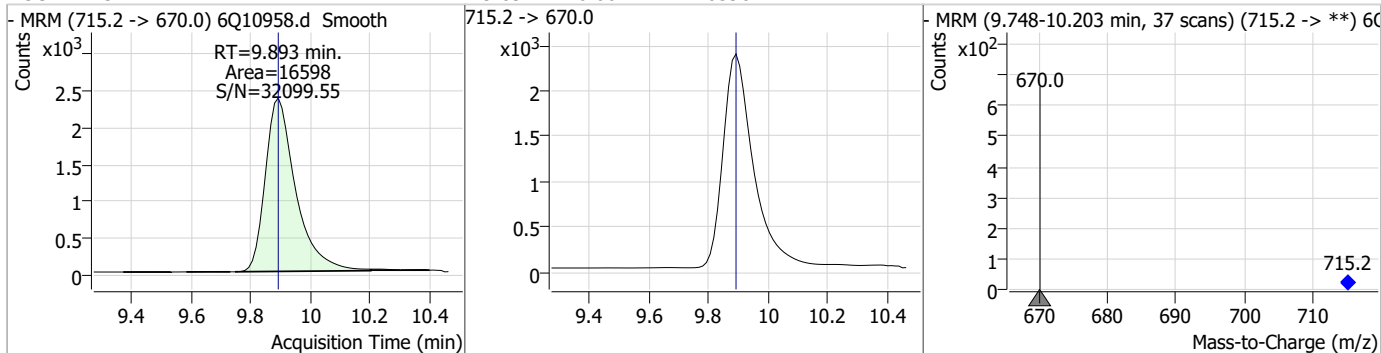
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.46	9.56	-0.01	18859	498.1 -> 478.0	3.8	2.0	5.9



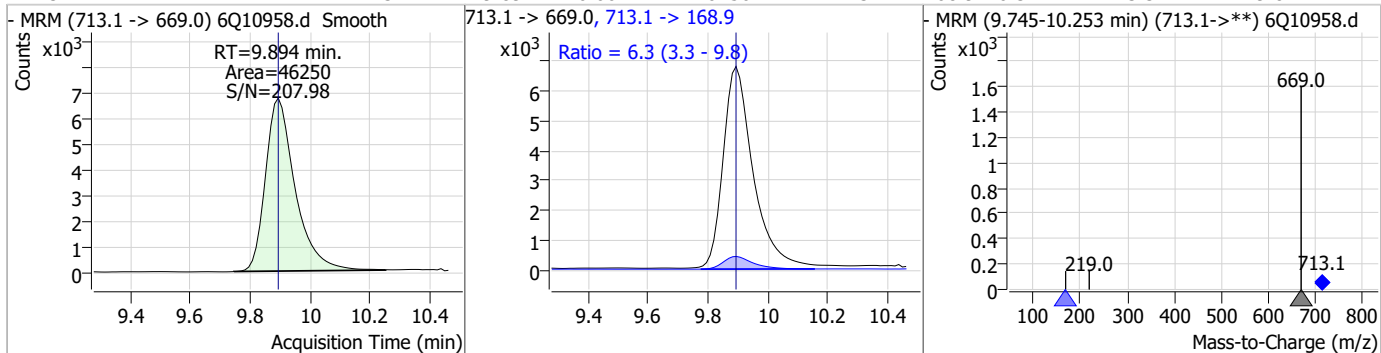
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	9.23	9.60	0.00	111938	632.9 -> 452.9	31.4	15.6	46.7



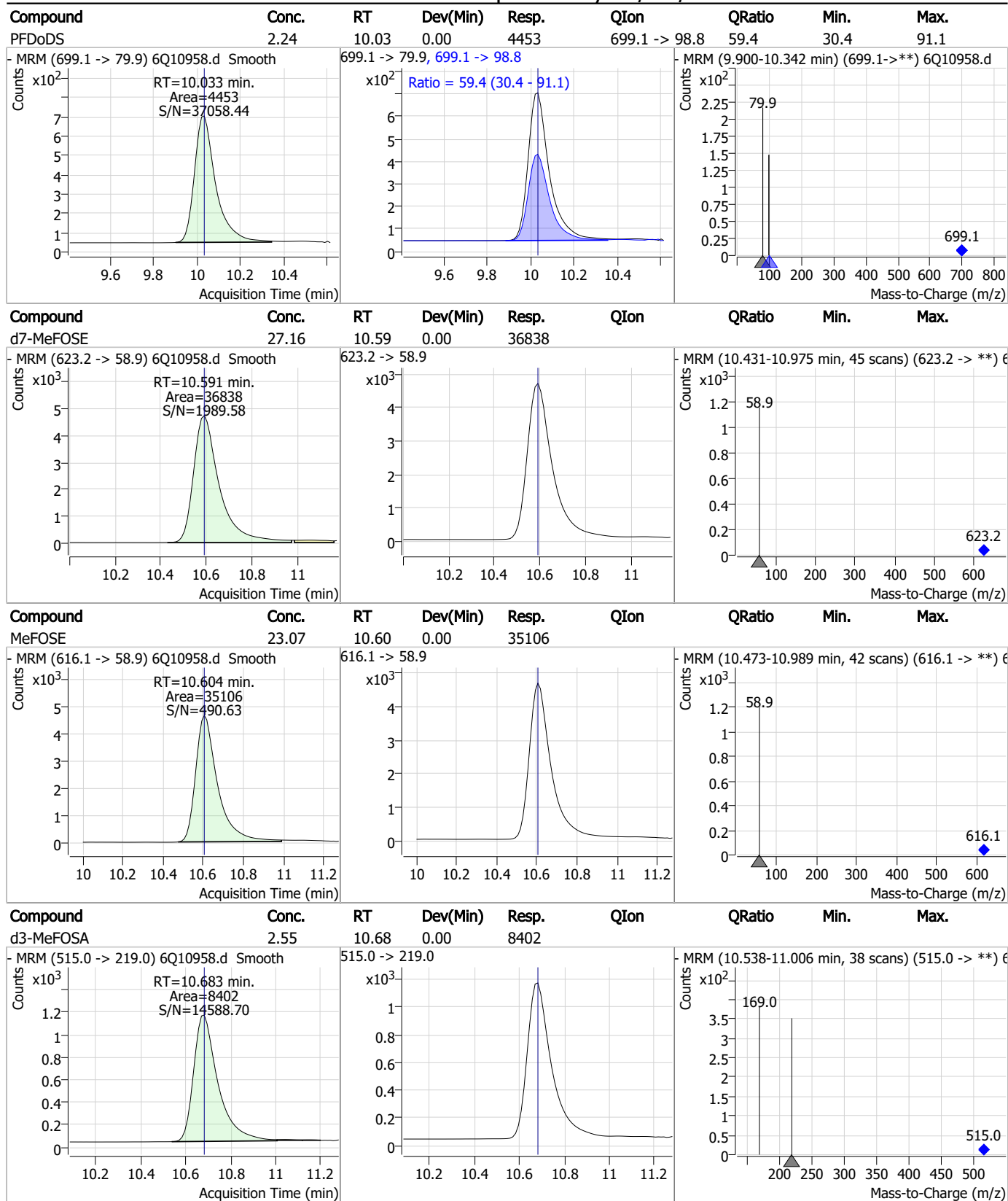
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.14	9.89	0.00	16598	715.2 -> 670.0	6.3	3.3	9.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.34	9.89	0.00	46250	713.1 -> 168.9	6.3	3.3	9.8



Perfluorinated Compounds by LC/MS/MS

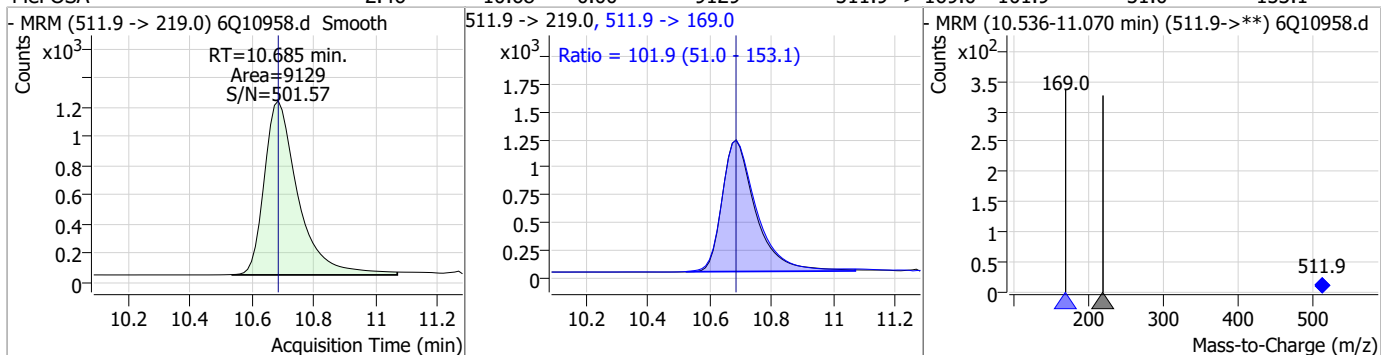


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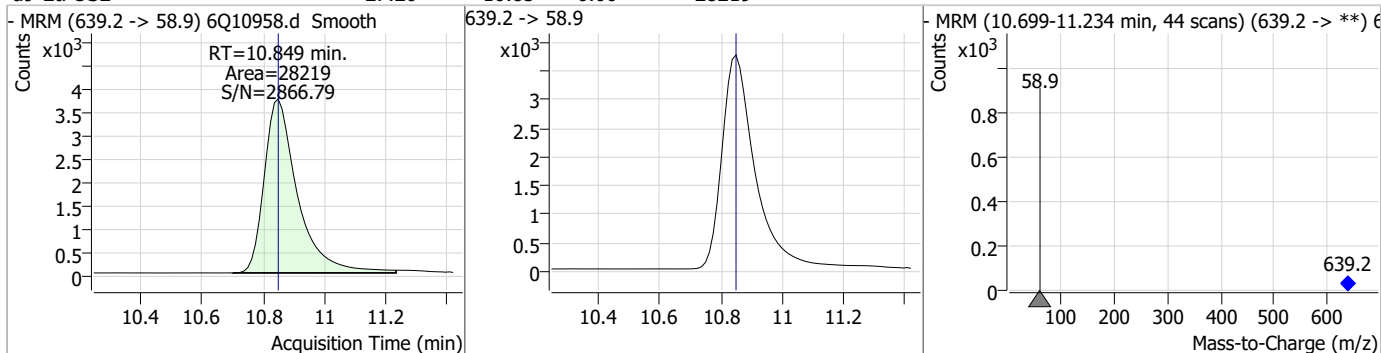


Perfluorinated Compounds by LC/MS/MS

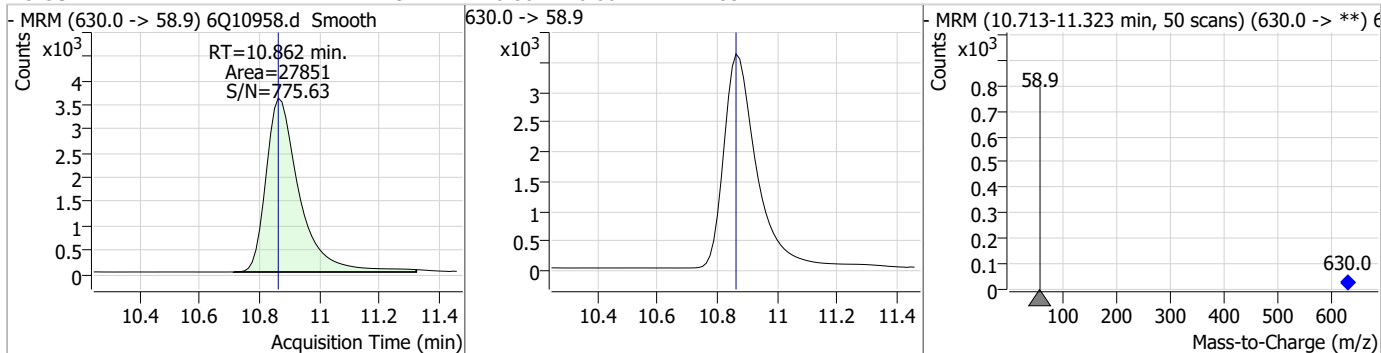
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.46	10.68	0.00	9129	511.9 -> 169.0	101.9	51.0	153.1



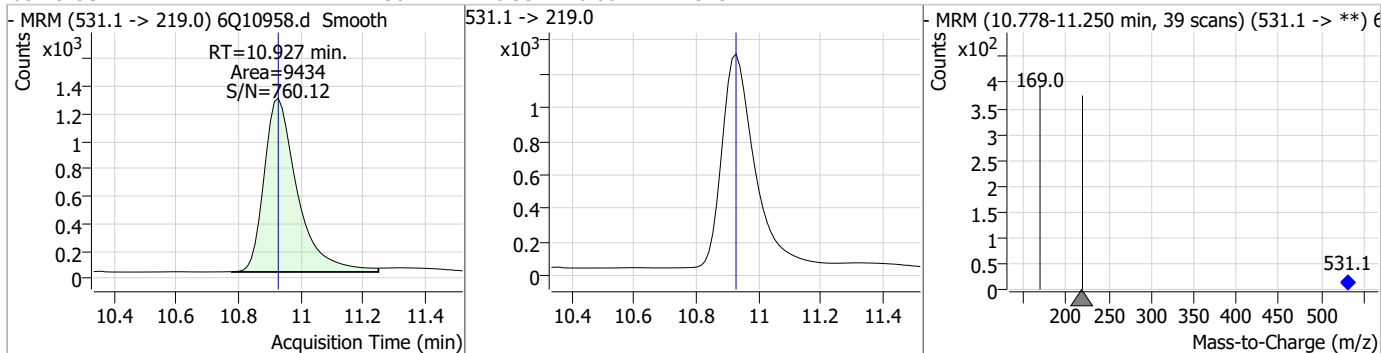
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	27.20	10.85	0.00	28219				



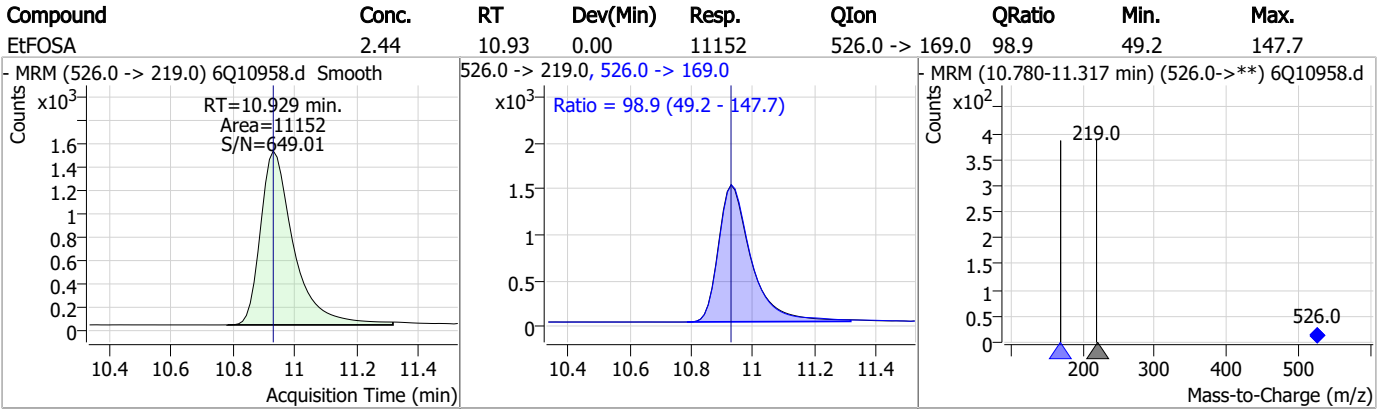
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	22.37	10.86	0.00	27851				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.56	10.93	0.00	9434				



Perfluorinated Compounds by LC/MS/MS



7.7.10

7

Manual Integration Approval Summary

Sample Number: S6Q174-ICV174 Method: EPA DRAFT 1633
Lab FileID: 6Q10958.D Analyst approved: 01/12/23 11:46 Martha Valls
Injection Time: 01/11/23 13:56 Supervisor approved: 01/12/23 15:42 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
MeFOSAA	2355-31-9		8.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.42	Split peak
EtFOSAA	2991-50-6		8.49	Split peak

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7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q10959.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/11/2023 2:10:24 PM
 Sample Name : icv174-4
 Vial : P1-B2
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : S6Q174.batch.bin
 Sample Information : OP94795,S6Q174,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	100978	10.00 µg/L	0.000
M5-PFPeA	4.397	268.3 -> 223.0	48730	5.00 µg/L	0.000
M5-PFHxA	5.588	318.0 -> 273.0	42839	2.50 µg/L	0.000
M4-PFHpA	6.542	367.1 -> 322.0	41473	2.50 µg/L	0.000
M8-PFOA	7.185	421.1 -> 376.0	73461	2.50 µg/L	-0.013
M9-PFNA	7.740	472.1 -> 427.0	32525	1.25 µg/L	0.000
M6-PFDA	8.245	519.1 -> 474.1	21969	1.25 µg/L	0.000
M7-PFUnDA	8.712	570.0 -> 525.1	28181	1.25 µg/L	0.000
M2-PFDoDA	9.154	615.1 -> 570.0	30557	1.25 µg/L	0.000
M2-PFTeDA	9.893	715.2 -> 670.0	17690	1.25 µg/L	0.000
M8-FOSA	9.568	506.1 -> 77.8	20784	2.50 µg/L	0.000
M3-PFBS	5.544	302.1 -> 79.9	15185	2.50 µg/L	-0.012
M3-PFHxS	7.325	402.1 -> 79.9	9836	2.50 µg/L	-0.012
M8-PFOS	8.420	507.1 -> 79.9	10009	2.50 µg/L	0.000
M2-4:2FTS	5.253	329.1 -> 80.9	2033	5.00 µg/L	0.000
M2-6:2FTS	6.946	429.1 -> 80.9	2668	5.00 µg/L	-0.012
M2-8:2FTS	8.007	529.1 -> 80.9	3042	5.00 µg/L	-0.012
M3-MeFOSAA	8.277	573.2 -> 419.0	29025	5.00 µg/L	0.000
M3-HFPO-DA	5.965	286.9 -> 168.9	18143	10.00 µg/L	-0.012
M5-EtFOSAA	8.485	589.2 -> 419.0	25415	5.00 µg/L	0.000
M7-MeFOSE	10.591	623.2 -> 58.9	38926	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	29222	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	10420	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	9460	2.50 µg/L	0.000
13C4-PFOS	8.421	502.8 -> 79.9	11604	2.50 µg/L	0.000
13C3-PFBA	3.004	216.0 -> 172.0	44216	5.00 µg/L	0.000
18O2-PFHxS	7.324	403.0 -> 83.9	7564	2.50 µg/L	-0.012
13C4-PFOA	7.185	417.1 -> 372.0	86264	2.50 µg/L	-0.013
13C2-PFDA	8.233	515.1 -> 470.1	30790	1.25 µg/L	-0.012
13C5-PFNA	7.740	468.0 -> 423.0	34672	1.25 µg/L	0.000
13C2-PFHxA	5.589	315.1 -> 270.0	43052	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.253	329.1 -> 80.9	2033	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C2-6:2FTS	6.946	429.1 -> 80.9	2668	4.94 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C2-8:2FTS	8.007	529.1 -> 80.9	3042	5.16 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C2-PFDoDA	9.154	615.1 -> 570.0	30557	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFTeDA	9.893	715.2 -> 670.0	17690	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C3-PFBS	5.544	302.1 -> 79.9	15185	2.39 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C3-PFHxS	7.325	402.1 -> 79.9	9836	2.40 µg/L	-0.012

7.7.11
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C4-PFBA	3.000	216.8 -> 171.9	100978	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.542	367.1 -> 322.0	41473	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C5-PFHxA	5.588	318.0 -> 273.0	42839	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C5-PFPeA	4.397	268.3 -> 223.0	48730	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C6-PFDA	8.245	519.1 -> 474.1	21969	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C7-PFUnDA	8.712	570.0 -> 525.1	28181	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C8-FOSA	9.568	506.1 -> 77.8	20784	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C8-PFOA	7.185	421.1 -> 376.0	73461	2.54 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C8-PFOS	8.420	507.1 -> 79.9	10009	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C9-PFNA	7.740	472.1 -> 427.0	32525	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.6%	
d3-MeFOSAA	8.277	573.2 -> 419.0	29025	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C3-HFPO-DA	5.965	286.9 -> 168.9	18143	10.22 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
d3-MeFOSA	10.683	515.0 -> 219.0	9460	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
d5-EtFOSAA	8.485	589.2 -> 419.0	25415	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
d7-MeFOSE	10.591	623.2 -> 58.9	38926	26.35 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
d9-EtFOSE	10.849	639.2 -> 58.9	29222	25.87 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
d5-EtFOSA	10.927	531.1 -> 219.0	10420	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
Target Compounds					QValue
4:2FTS	5.254	327.1 -> 307.0	94854	19.62 µg/L	98
		327.1 -> 80.9	20755		
6:2FTS	6.946	427.1 -> 407.0	89332	21.52 µg/L	99
		427.1 -> 80.9	17765		
8:2FTS	8.020	527.1 -> 507.0	50172	19.77 µg/L	99
		527.1 -> 80.8	12416		
EtFOSAA	8.486	584.2 -> 419.1	89466	22.05 µg/L	m 95
		584.2 -> 526.0	45022		
FOSA	9.571	498.1 -> 77.9	176999	21.08 µg/L	99
		498.1 -> 478.0	6328		
MeFOSAA	8.278	570.1 -> 419.0	122275	20.44 µg/L	m 97
		570.1 -> 483.0	20722		
PFBA	3.007	212.8 -> 168.9	52772	20.37 µg/L	100
PFBS	5.544	298.7 -> 79.9	142452	23.18 µg/L	94
		298.7 -> 98.8	62958		
PFDA	8.246	512.9 -> 469.0	585468	22.17 µg/L	97
		512.9 -> 219.0	71290		
PFDoDA	9.166	613.1 -> 569.0	467387	19.44 µg/L	99
		613.1 -> 319.0	54487		
PFDS	9.329	599.0 -> 79.9	70517	20.41 µg/L	99

7.7.11
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.542	599.0 -> 98.8	37133	21.57	µg/L	100
		363.1 -> 319.0	539475			
PFHpS	7.905	363.1 -> 169.0	71161	20.23	µg/L	93
		449.0 -> 79.9	92621			
PFHxA	5.591	449.0 -> 98.9	52135	20.74	µg/L	99
		313.0 -> 269.0	359052			
PFHxS	7.326	313.0 -> 118.9	13229	22.38	µg/L	96
		398.7 -> 79.9	104821			
PFNA	7.740	398.7 -> 98.9	59440	22.55	µg/L	99
		463.0 -> 419.0	507555			
PFNS	8.899	463.0 -> 219.0	92020	20.07	µg/L	94
		548.8 -> 79.9	97016			
PFOA	7.199	548.8 -> 98.9	53572	20.36	µg/L	97
		413.0 -> 369.0	669338			
PFOS	8.421	413.0 -> 169.0	89217	17.62	µg/L	84
		498.9 -> 79.9	85416			
PFPeA	4.401	498.9 -> 98.8	49863	20.53	µg/L	100
		263.0 -> 219.0	219736			
PFPeS	6.619	349.1 -> 79.9	117334	21.17	µg/L	99
		349.1 -> 98.9	63077			
PFTeDA	9.894	713.1 -> 669.0	443517	21.03	µg/L	100
		713.1 -> 168.9	29251			
PFTrDA	9.550	663.0 -> 619.0	443820	19.34	µg/L	95
		663.0 -> 168.9	30944			
PFUnDA	8.712	563.1 -> 519.0	470288	19.95	µg/L	99
		563.1 -> 269.1	68651			
11Cl-PF3OUdS	9.614	630.9 -> 450.9	303444	22.06	µg/L	98
		632.9 -> 452.9	90396			
9Cl-PF3ONS	8.776	530.8 -> 351.0	433853	19.41	µg/L	98
		532.8 -> 353.0	136476			
ADONA	6.792	376.9 -> 250.9	823930	20.42	µg/L	98
		376.9 -> 84.8	176101			
HFPO-DA	5.966	284.9 -> 168.9	35374	19.28	µg/L	99
		284.9 -> 184.9	4203			
3:3FTCA	3.852	241.0 -> 177.0	11283	19.79	µg/L	99
		241.0 -> 117.0	1423			
5:3FTCA	6.219	341.0 -> 237.1	75530	20.98	µg/L	94
		341.0 -> 217.0	60034			
7:3FTCA	7.643	441.0 -> 316.9	50973	21.01	µg/L	99
		441.0 -> 336.9	104055			
EtFOSA	10.929	526.0 -> 219.0	102522	20.33	µg/L	97
		526.0 -> 169.0	97484			
EtFOSE	10.862	630.0 -> 58.9	127043	98.55	µg/L	100
		511.9 -> 219.0	83626			
MeFOSA	10.685	511.9 -> 169.0	86170	20.01	µg/L	99
		616.1 -> 58.9	150257			
MeFOSE	10.604	699.1 -> 79.9	41926	93.45	µg/L	100
		699.1 -> 98.8	25388			
PFDoDS	10.033	295.0 -> 201.0	21661	19.46	µg/L	100
		295.0 -> 84.9	9720			
NFDHA	5.471	279.0 -> 85.1	65102	19.30	µg/L	98
		229.0 -> 84.9	58639			
PFMBA	4.813	314.8 -> 134.9	419223	17.40	µg/L	100
		314.8 -> 82.9	10463			

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



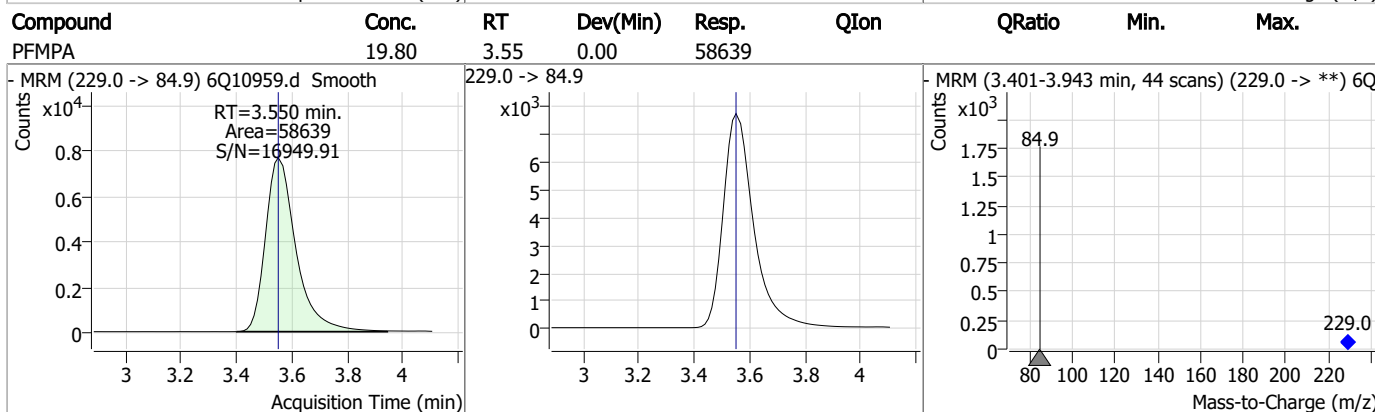
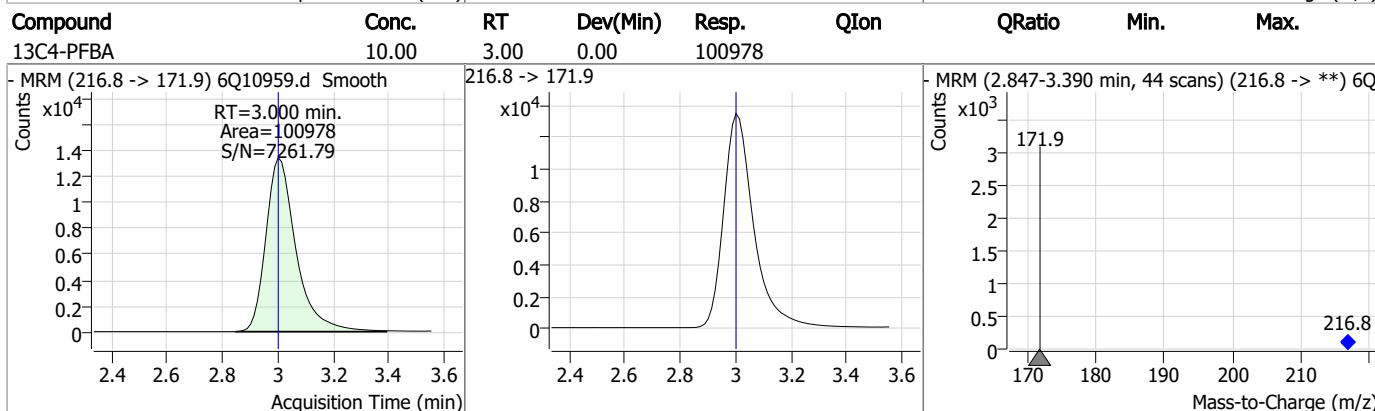
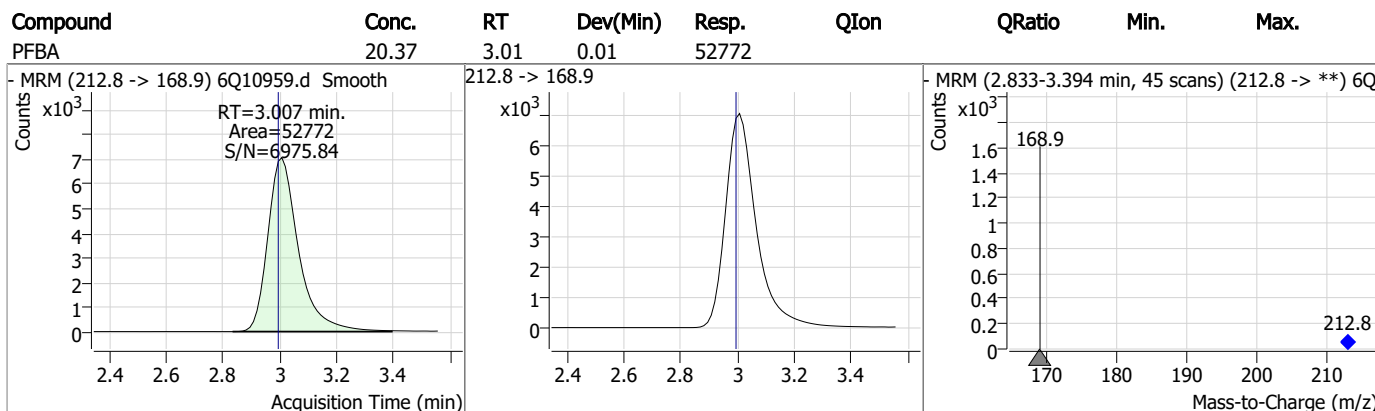
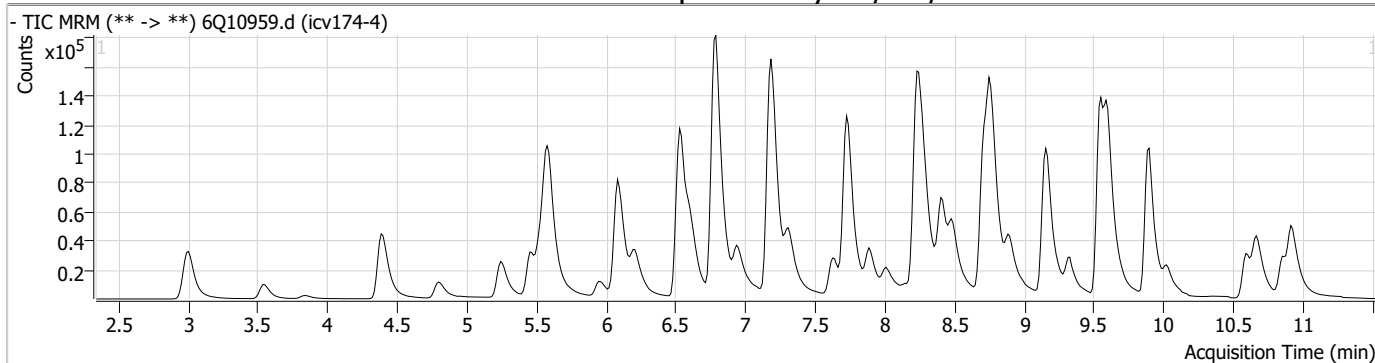
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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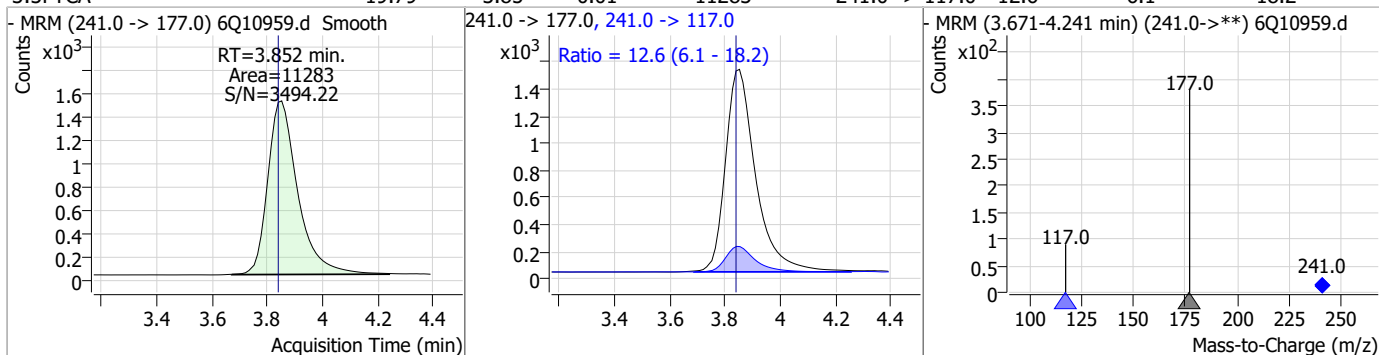
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Perfluorinated Compounds by LC/MS/MS

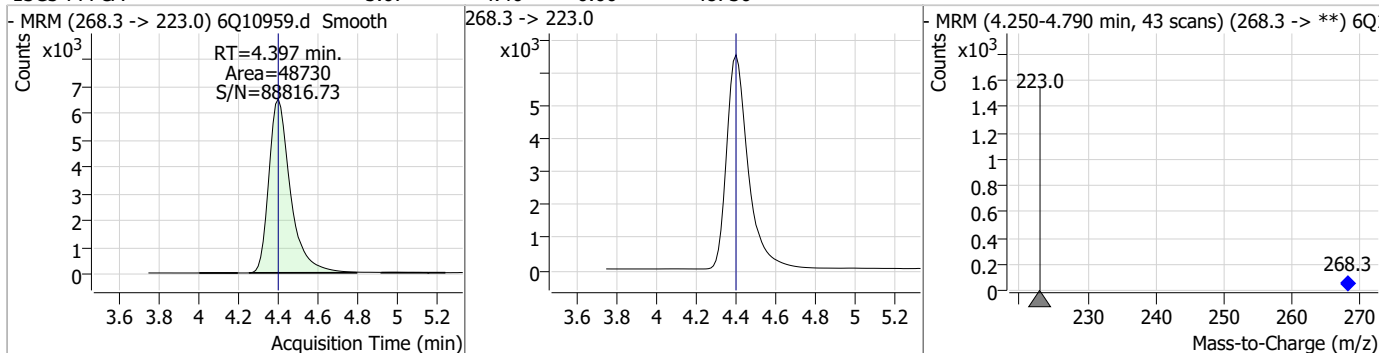


Perfluorinated Compounds by LC/MS/MS

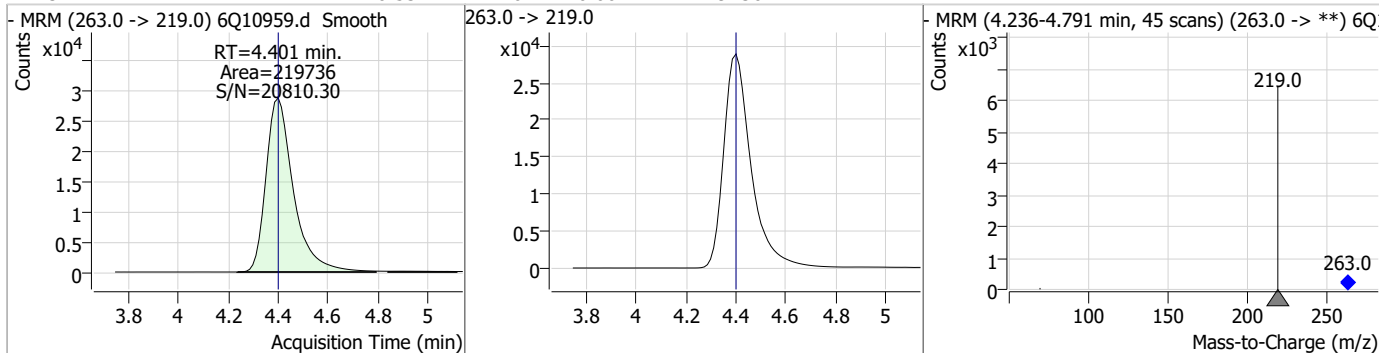
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	19.79	3.85	0.01	11283	241.0 -> 117.0	12.6	6.1	18.2



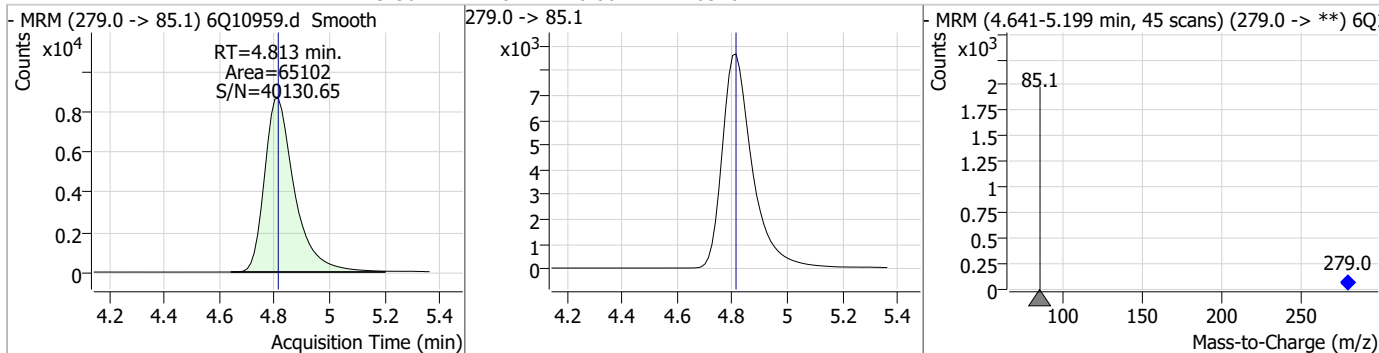
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.07	4.40	0.00	48730				



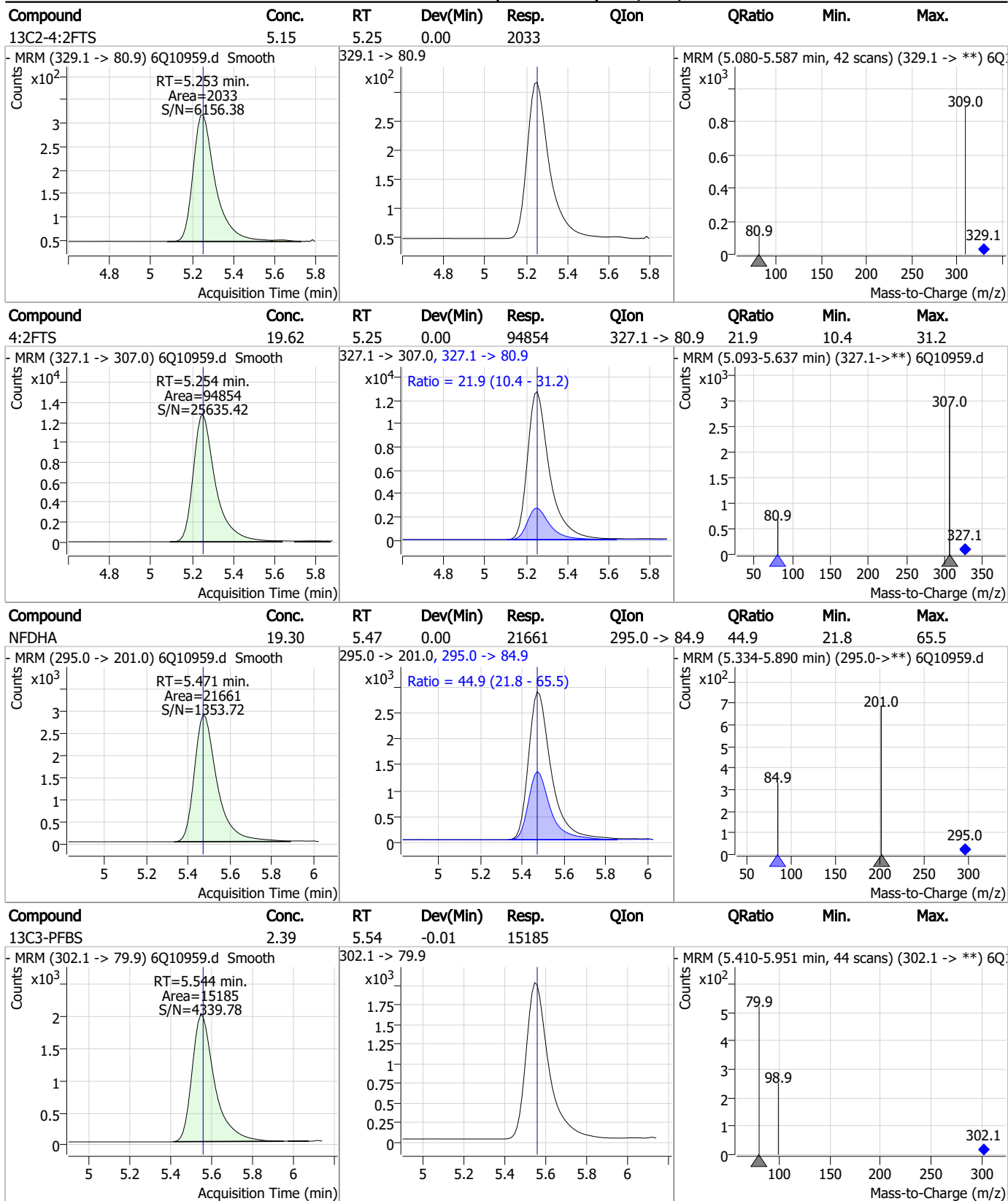
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.53	4.40	0.00	219736				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	19.50	4.81	0.00	65102				



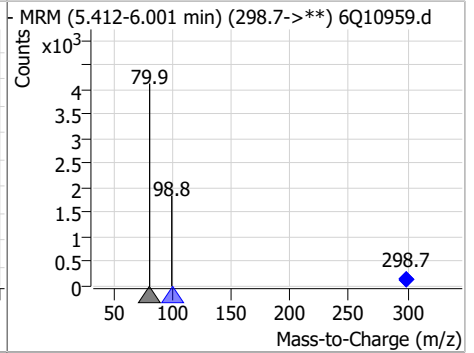
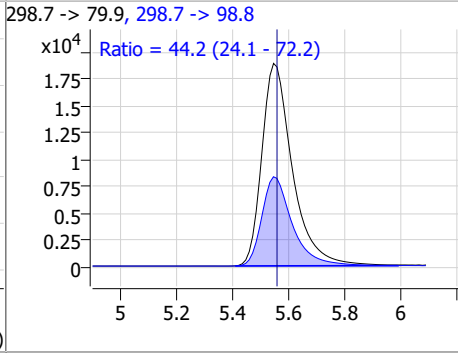
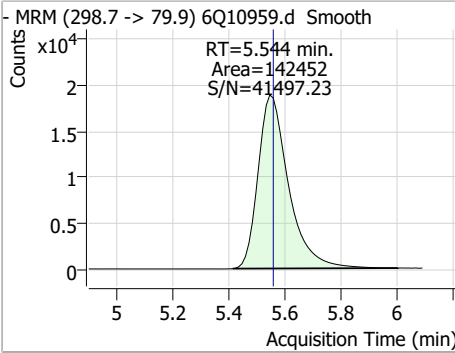
Perfluorinated Compounds by LC/MS/MS



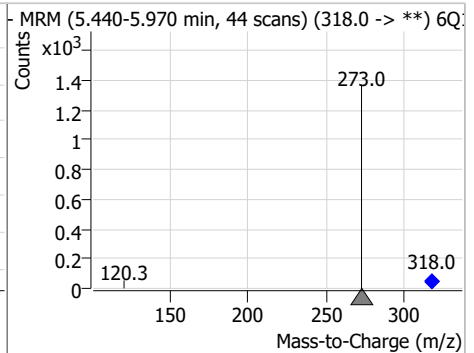
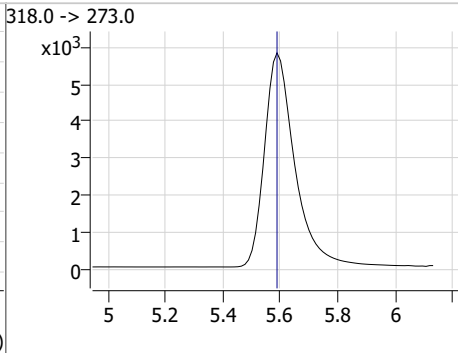
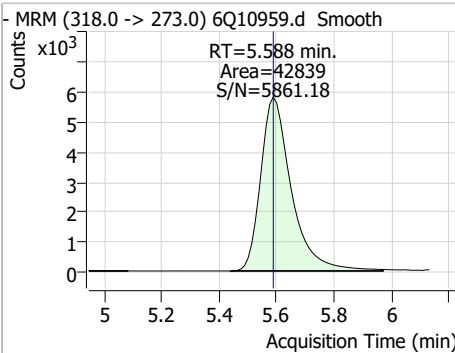
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Perfluorinated Compounds by LC/MS/MS

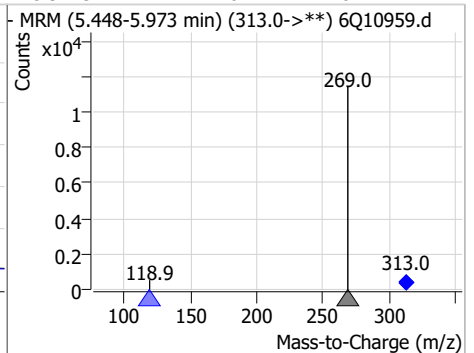
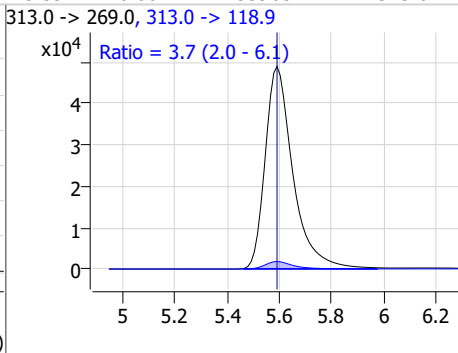
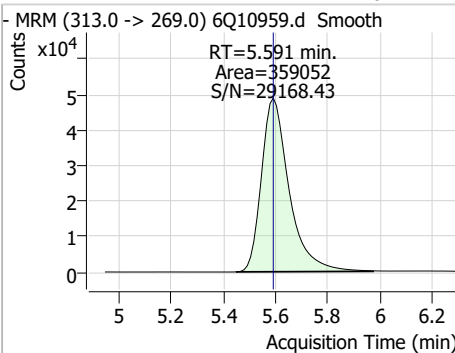
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	23.18	5.54	-0.01	142452	298.7 -> 98.8	44.2	24.1	72.2



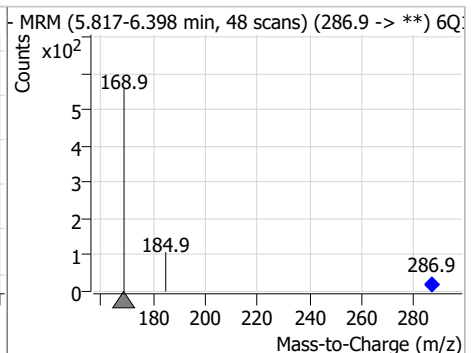
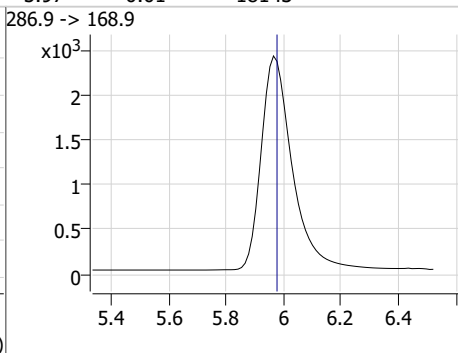
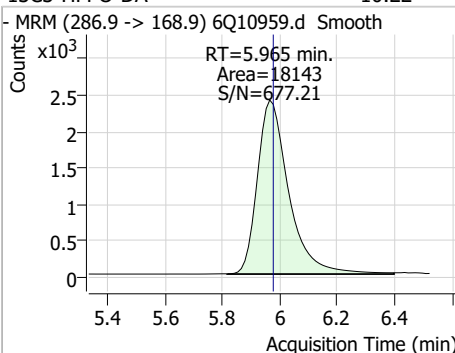
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.48	5.59	0.00	42839				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	20.74	5.59	0.00	359052	313.0 -> 118.9	3.7	2.0	6.1

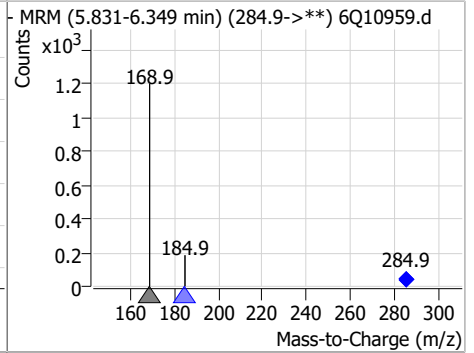
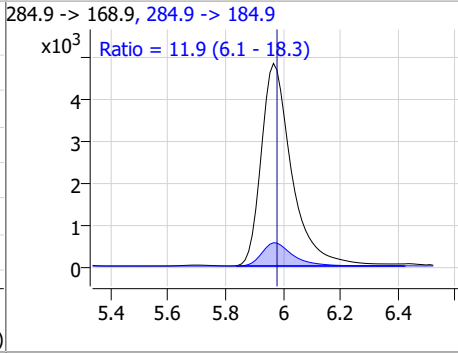
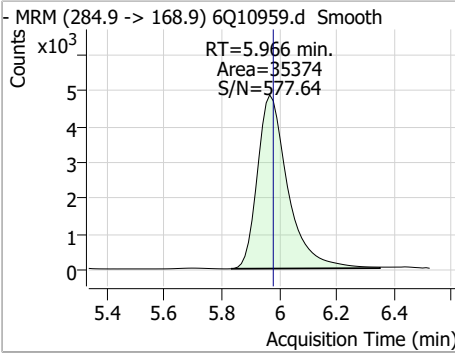


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.22	5.97	-0.01	18143				

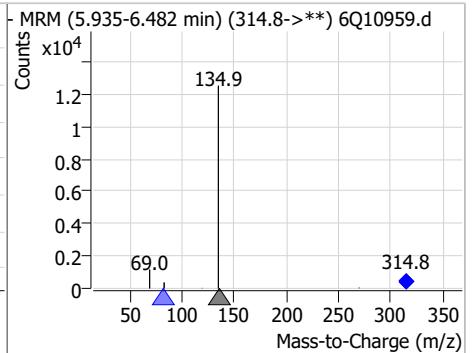
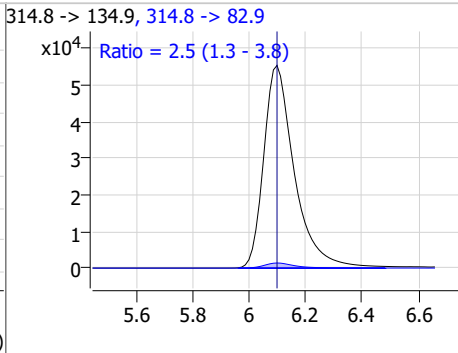
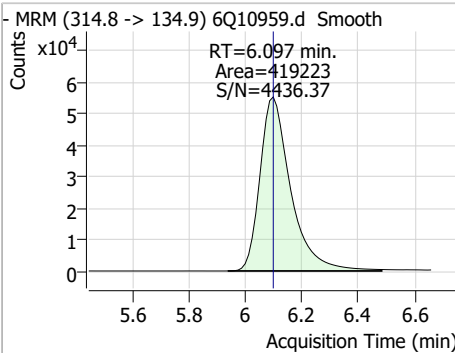


Perfluorinated Compounds by LC/MS/MS

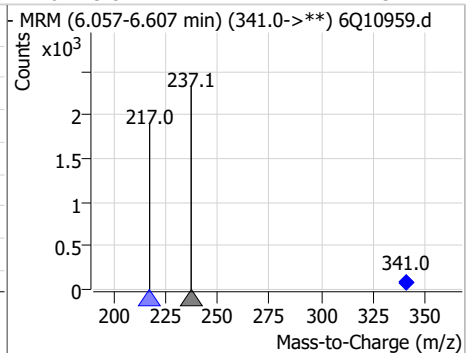
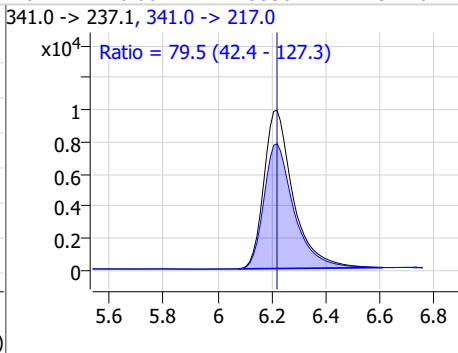
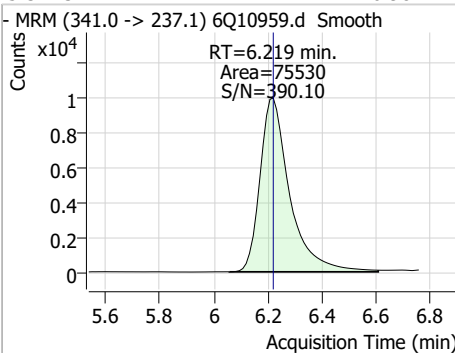
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.28	5.97	-0.01	35374	284.9 -> 184.9	11.9	6.1	18.3



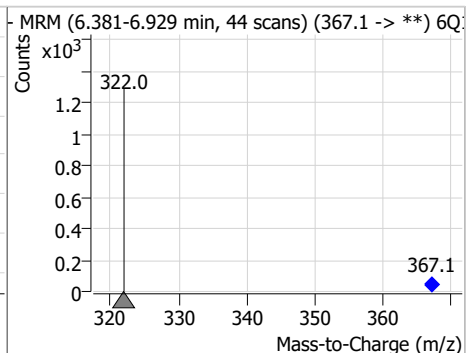
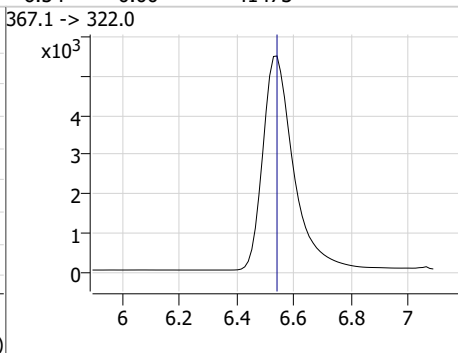
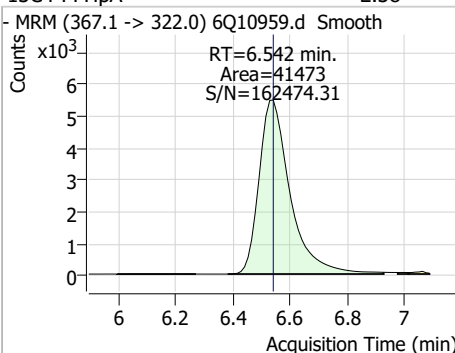
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	17.40	6.10	0.00	419223	314.8 -> 82.9	2.5	1.3	3.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	20.98	6.22	0.00	75530	341.0 -> 217.0	79.5	42.4	127.3



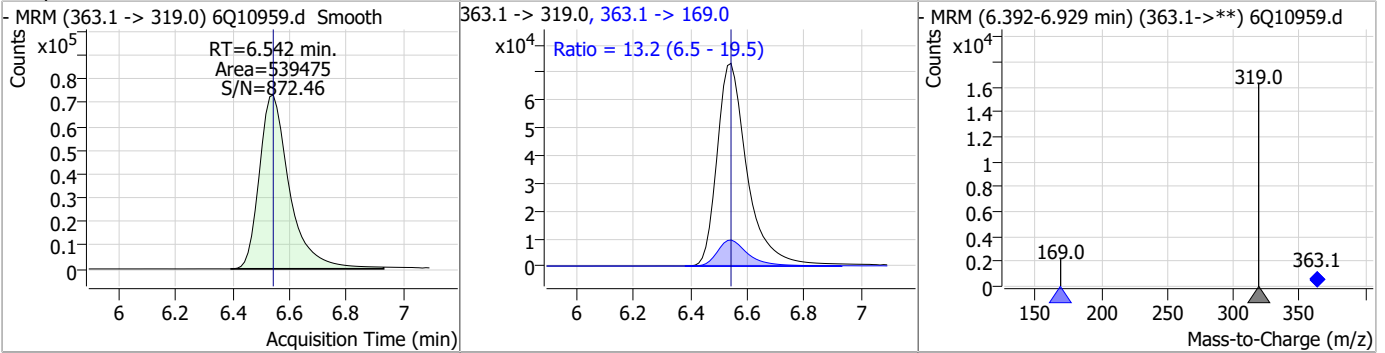
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.38	6.54	0.00	41473	367.1 -> 322.0			



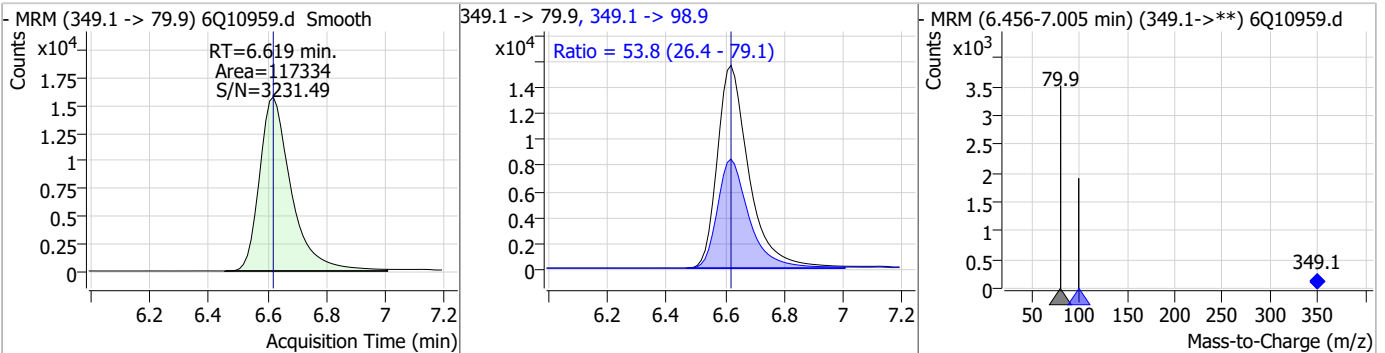
7.7.11
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Perfluorinated Compounds by LC/MS/MS

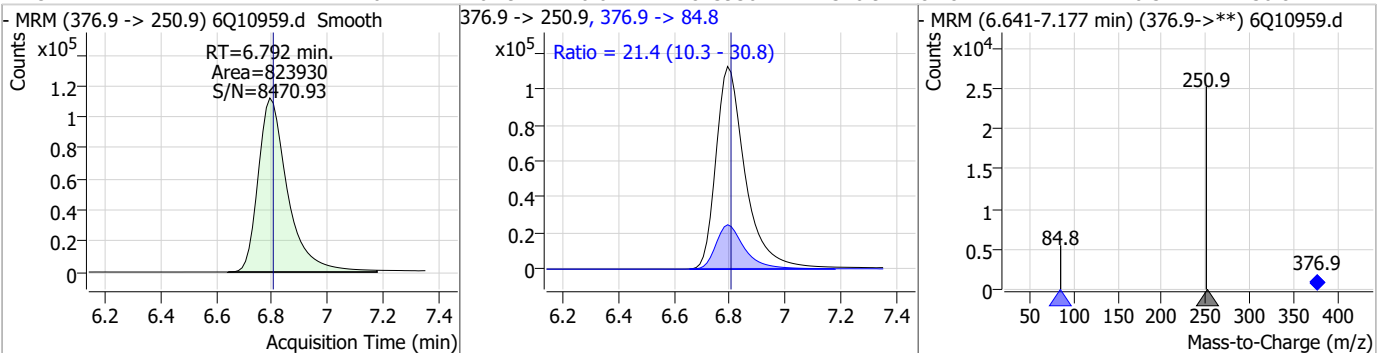
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	21.57	6.54	0.00	539475	363.1 -> 169.0	13.2	6.5	19.5



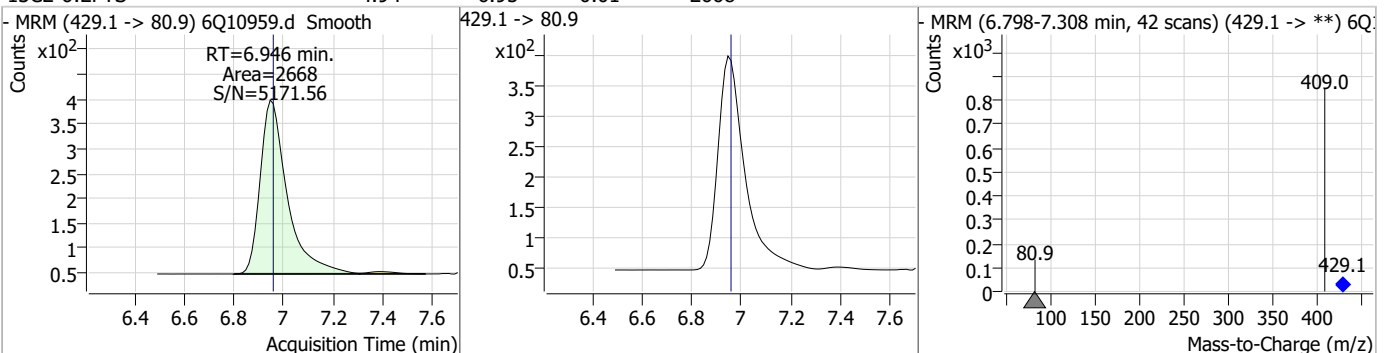
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	21.17	6.62	0.00	117334	349.1 -> 98.9	53.8	26.4	79.1



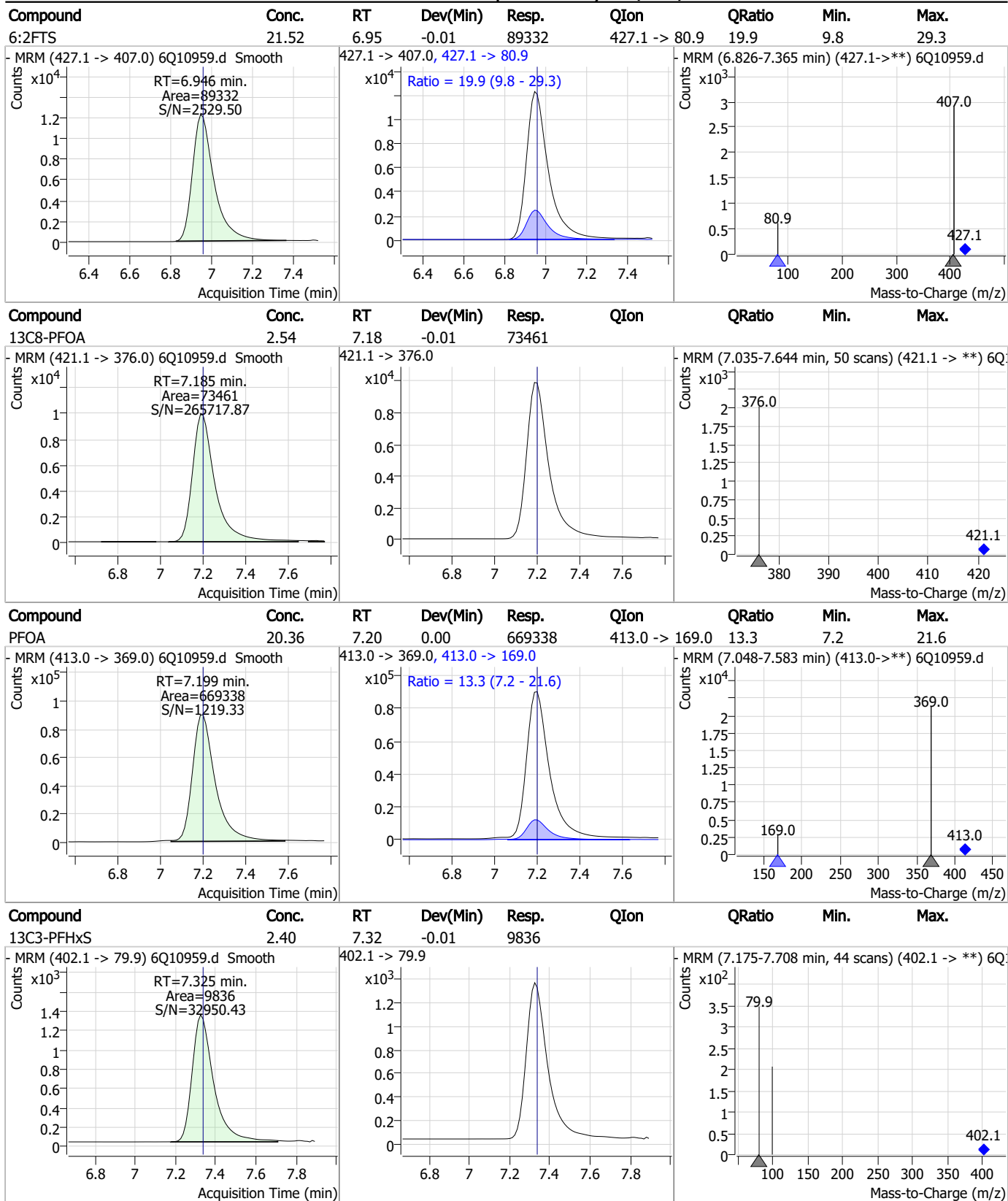
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.42	6.79	-0.01	823930	376.9 -> 84.8	21.4	10.3	30.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6-2FTS	4.94	6.95	-0.01	2668	429.1 -> 80.9			



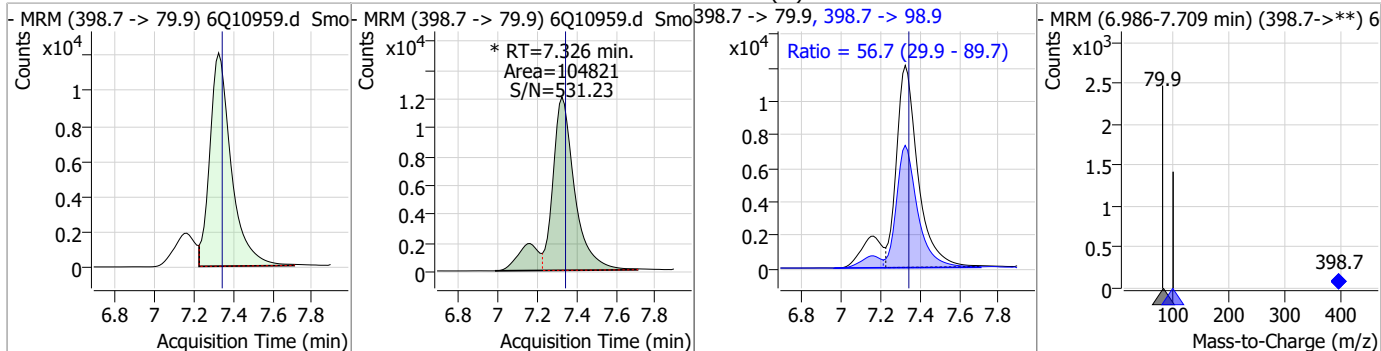
Perfluorinated Compounds by LC/MS/MS



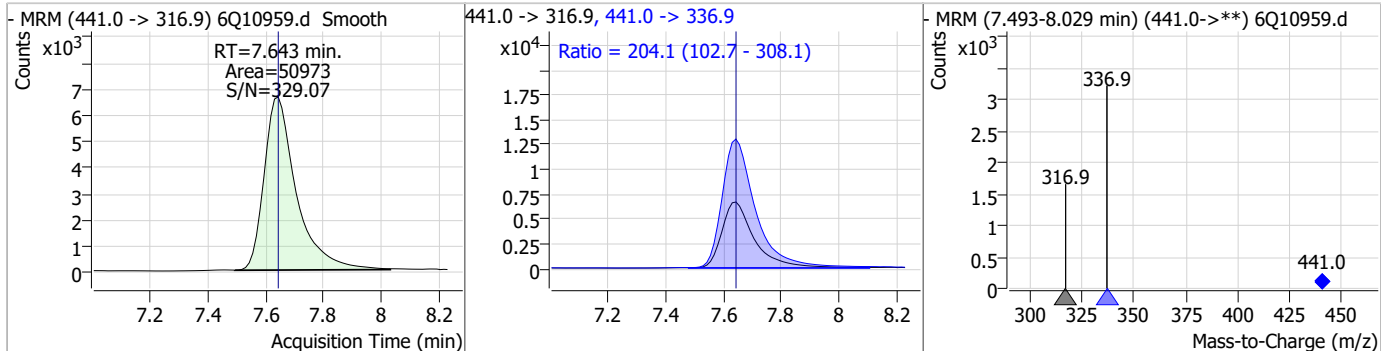
7.7.11
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Perfluorinated Compounds by LC/MS/MS

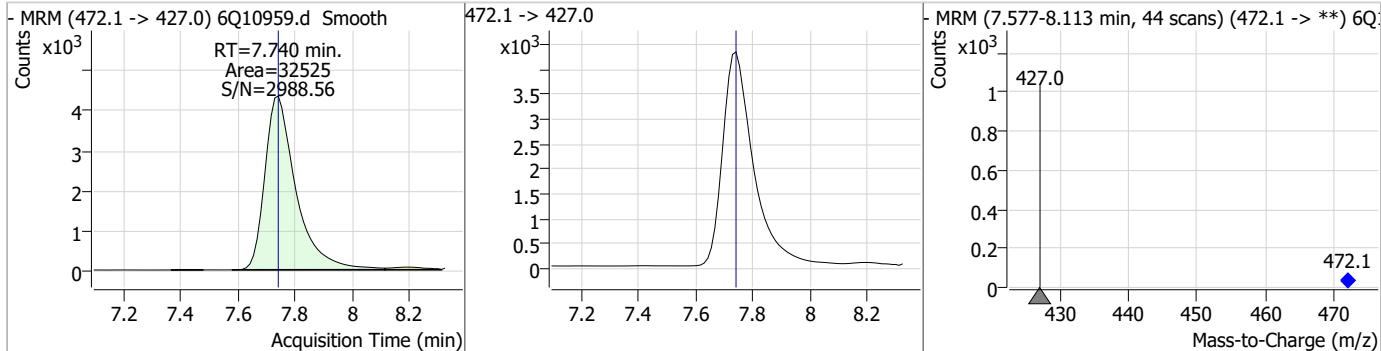
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	22.38	7.33	-0.01	104821 (m)	398.7 -> 98.9	56.7	29.9	89.7



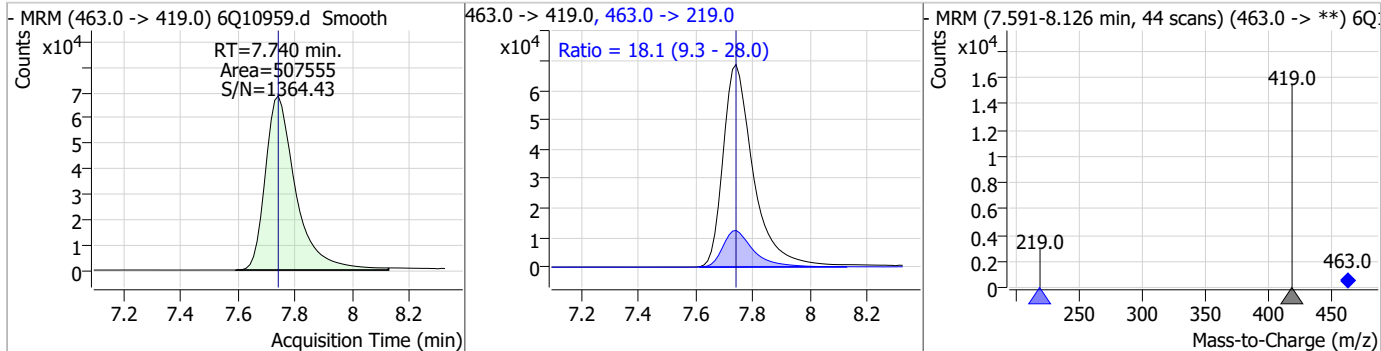
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	21.01	7.64	0.00	50973	441.0 -> 336.9	204.1	102.7	308.1



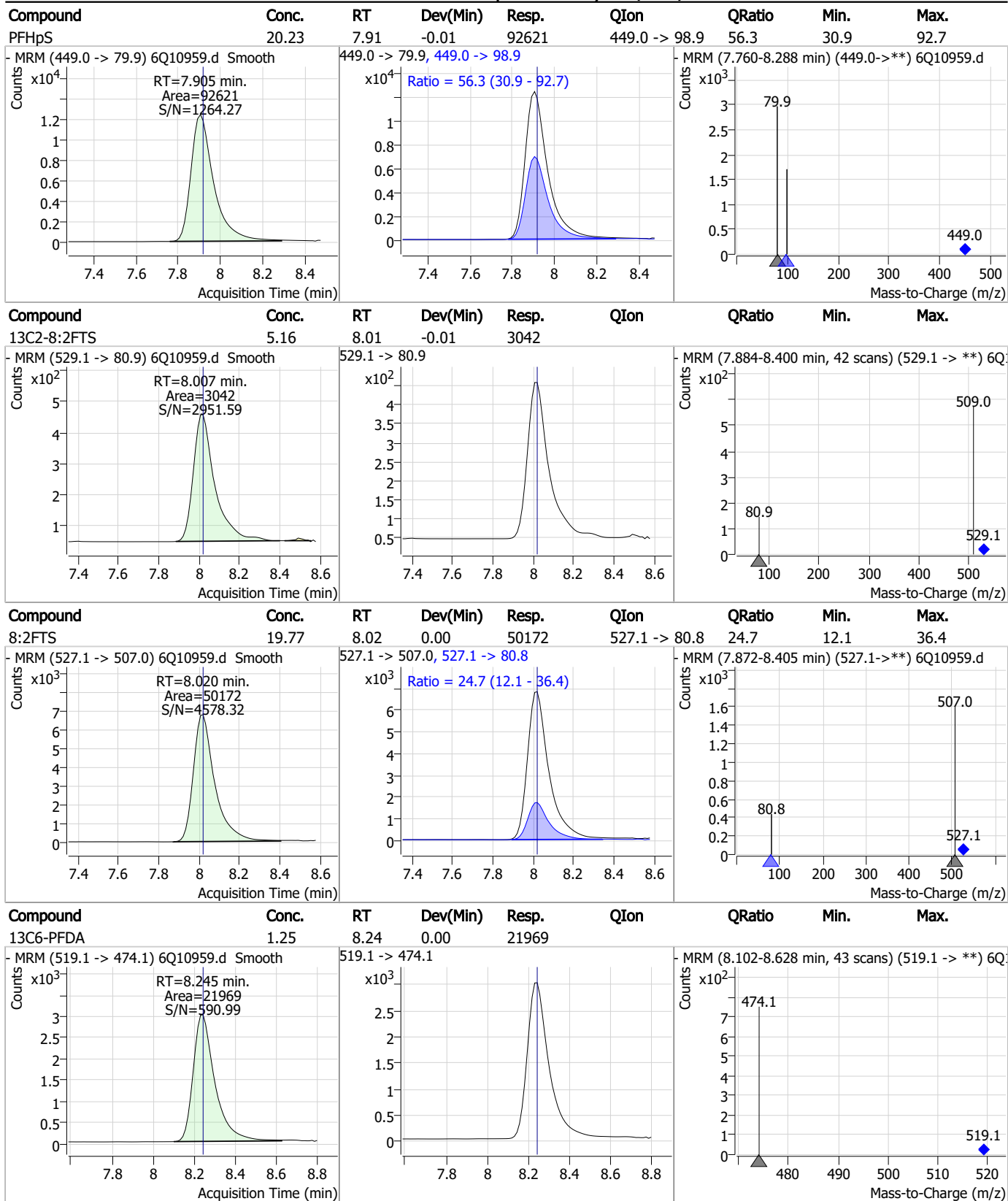
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.32	7.74	0.00	32525	472.1 -> 427.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	22.55	7.74	0.00	507555	463.0 -> 219.0	18.1	9.3	28.0



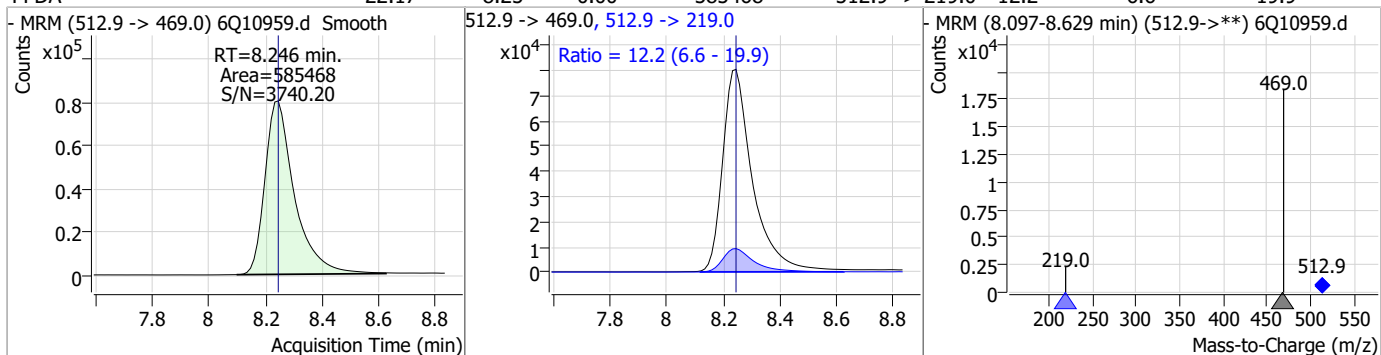
Perfluorinated Compounds by LC/MS/MS



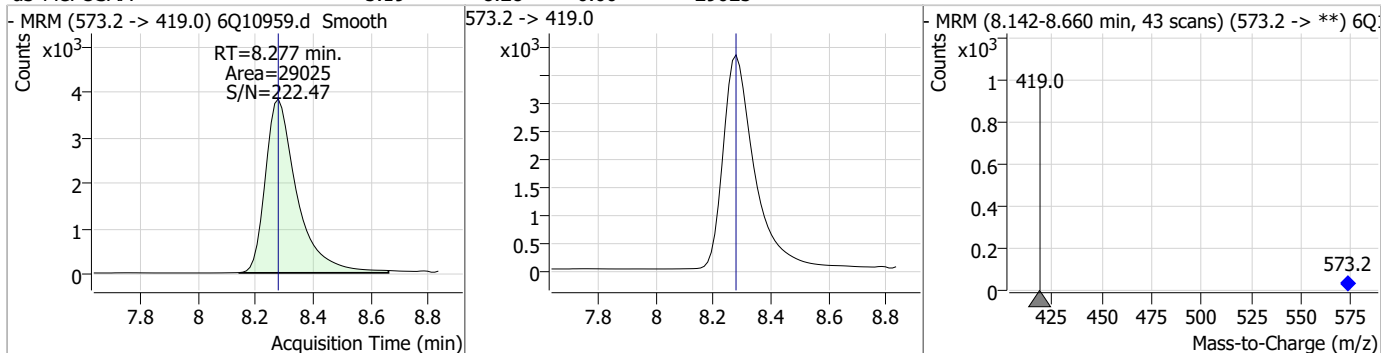
7.7.11
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Perfluorinated Compounds by LC/MS/MS

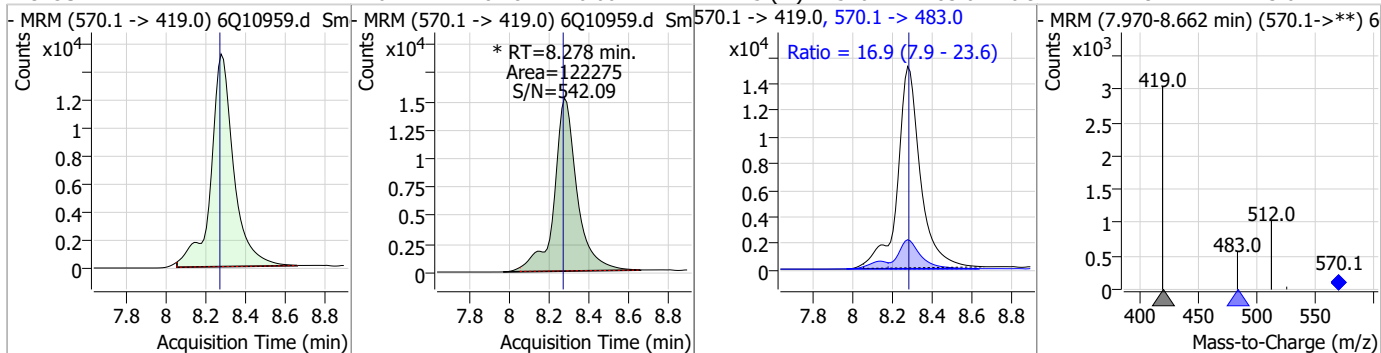
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	22.17	8.25	0.00	585468	512.9 -> 219.0	12.2	6.6	19.9



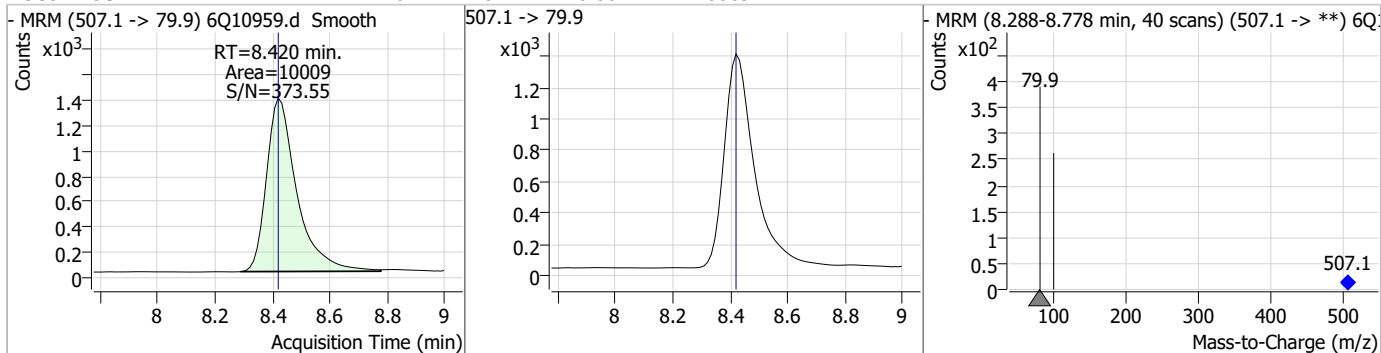
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.19	8.28	0.00	29025				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	20.44	8.28	0.00	122275 (m)	570.1 -> 483.0	16.9	7.9	23.6

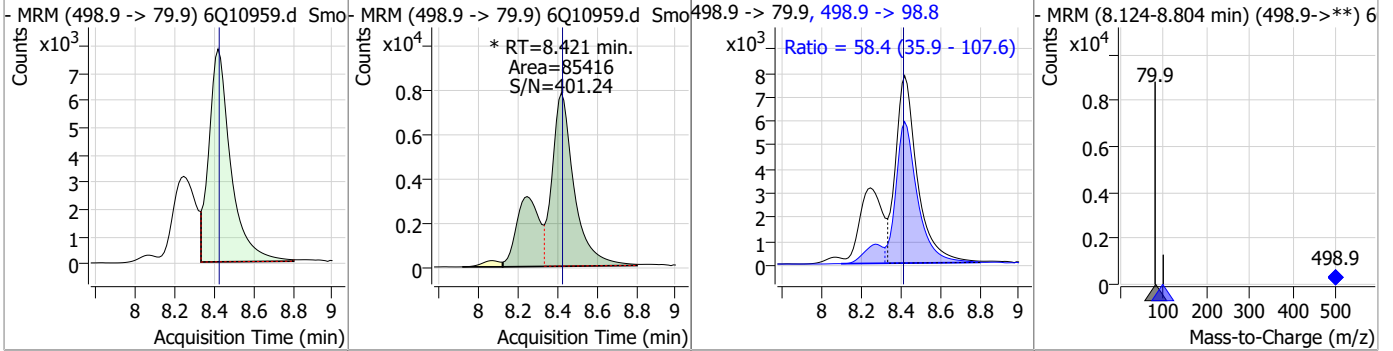


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.70	8.42	0.00	10009				

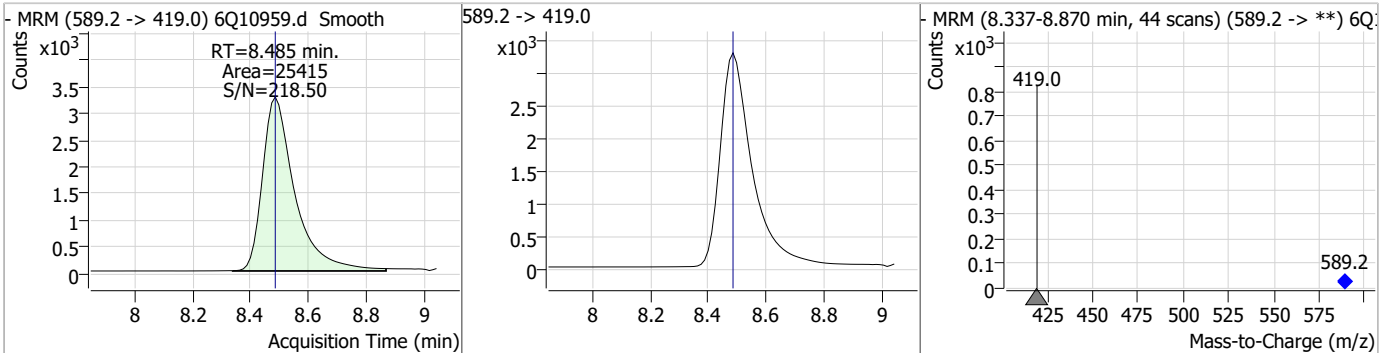


Perfluorinated Compounds by LC/MS/MS

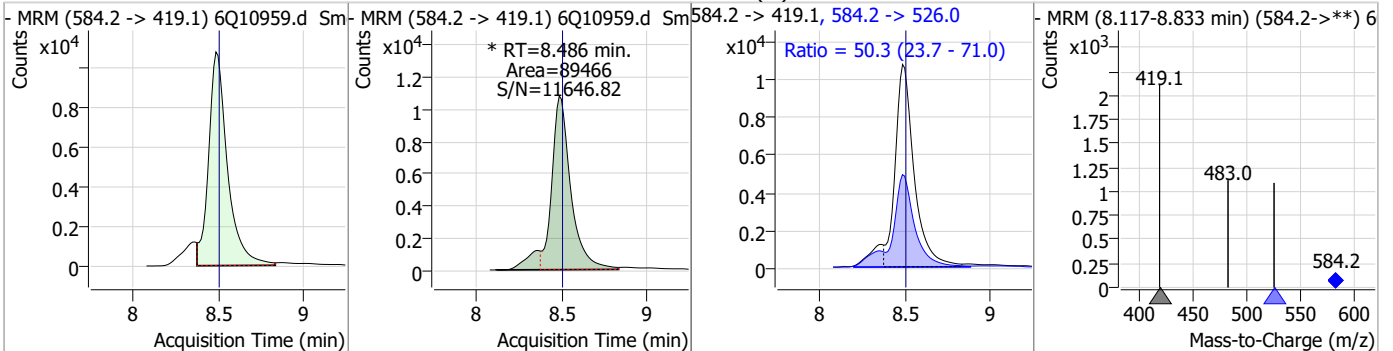
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	17.62	8.42	0.00	85416 (m)	498.9 -> 98.8	58.4	35.9	107.6



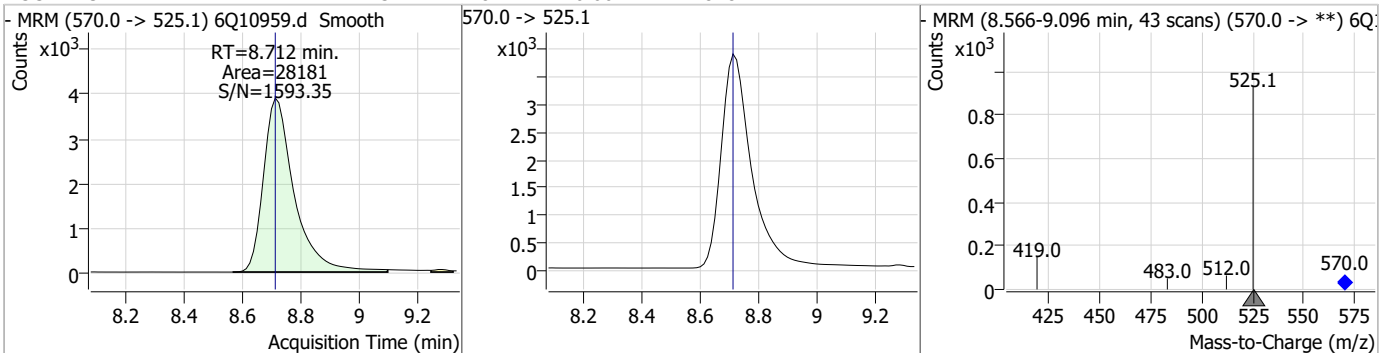
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.18	8.49	0.00	25415				



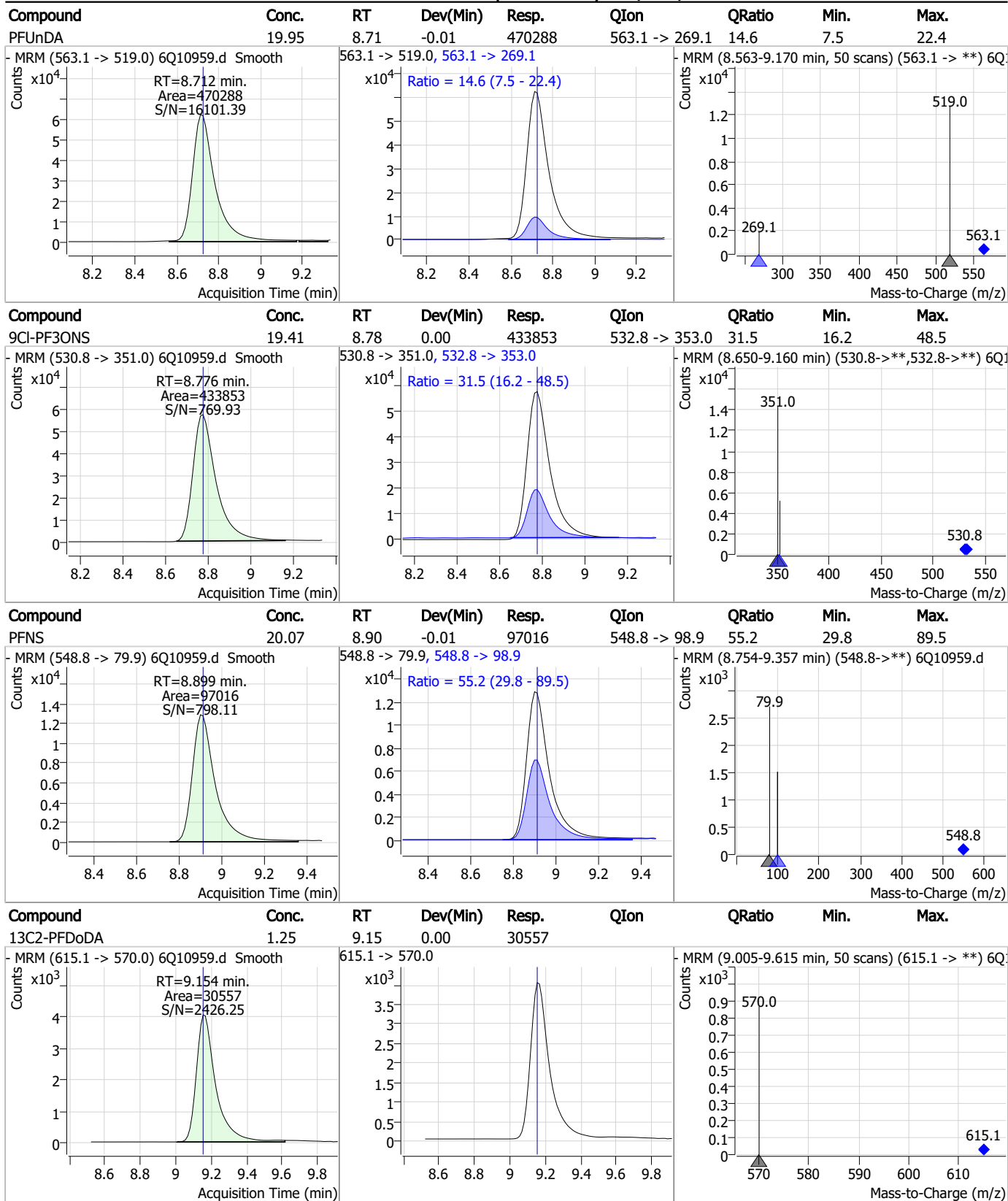
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	22.05	8.49	-0.01	89466 (m)	584.2 -> 526.0	50.3	23.7	71.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.32	8.71	0.00	28181				

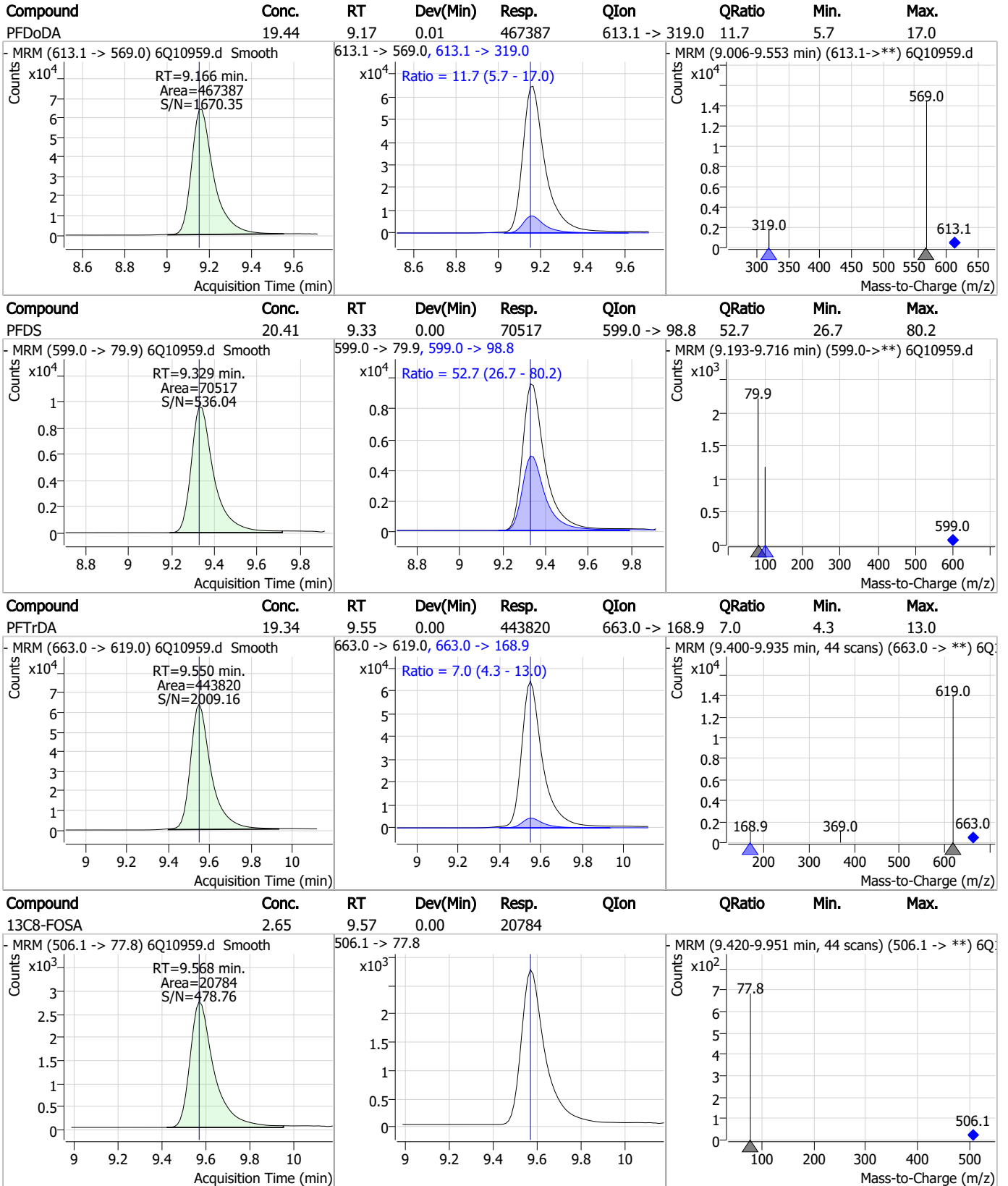


Perfluorinated Compounds by LC/MS/MS



7.7.11
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Perfluorinated Compounds by LC/MS/MS

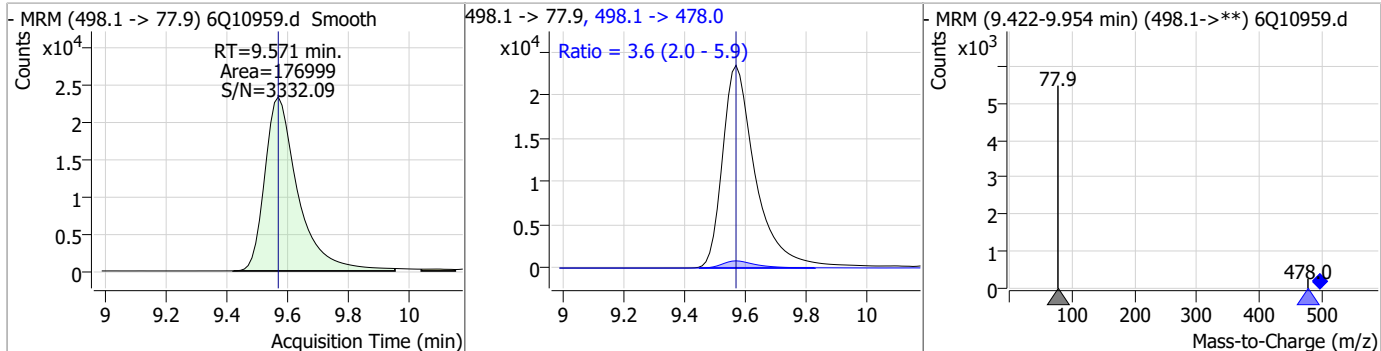


7.7.11

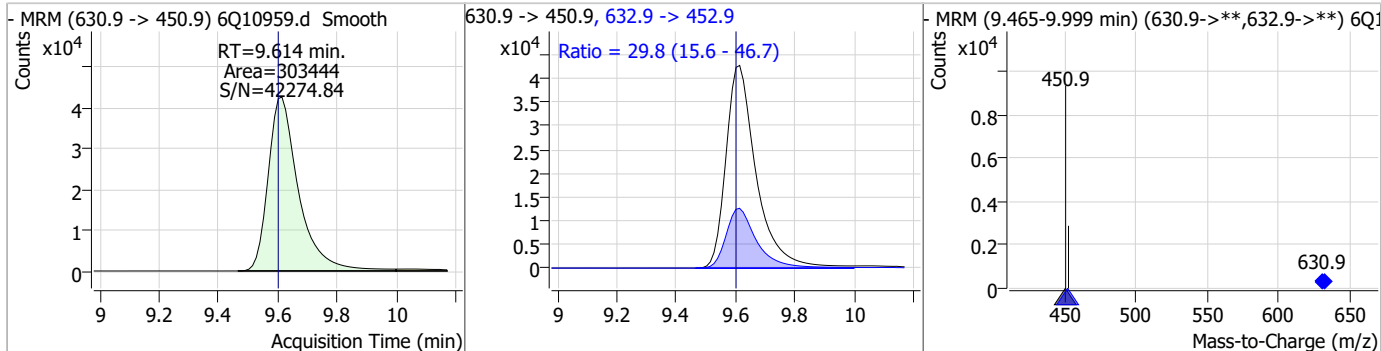
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Perfluorinated Compounds by LC/MS/MS

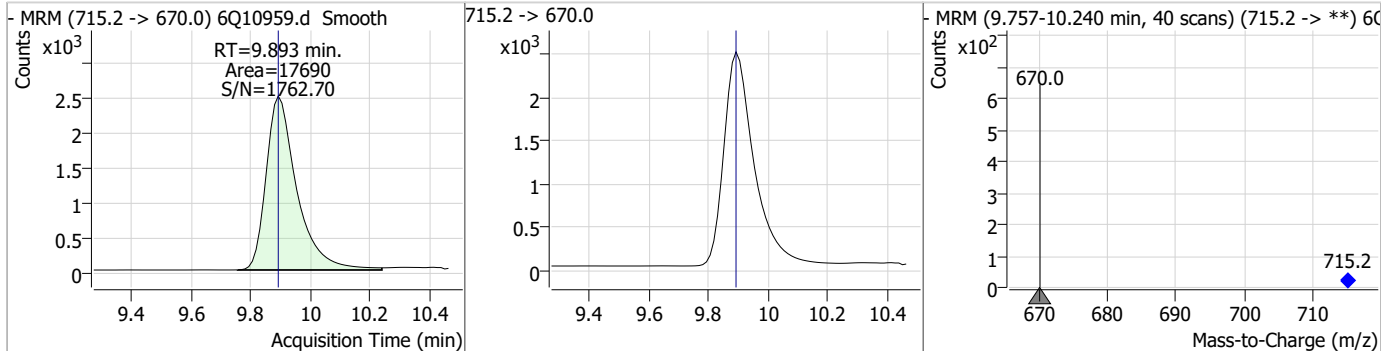
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	21.08	9.57	0.00	176999	498.1 -> 478.0	3.6	2.0	5.9



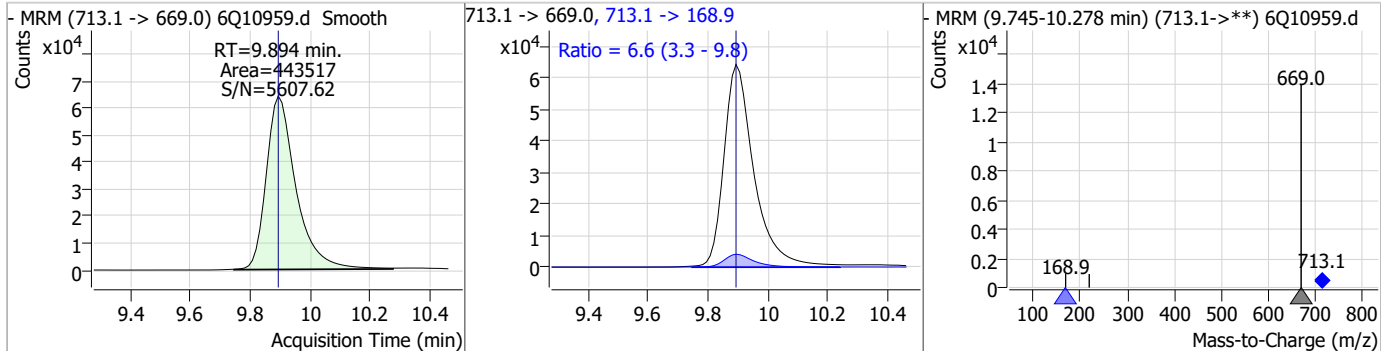
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	22.06	9.61	0.01	303444	632.9 -> 452.9	29.8	15.6	46.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.23	9.89	0.00	17690	715.2 -> 670.0	6.6	3.3	9.8



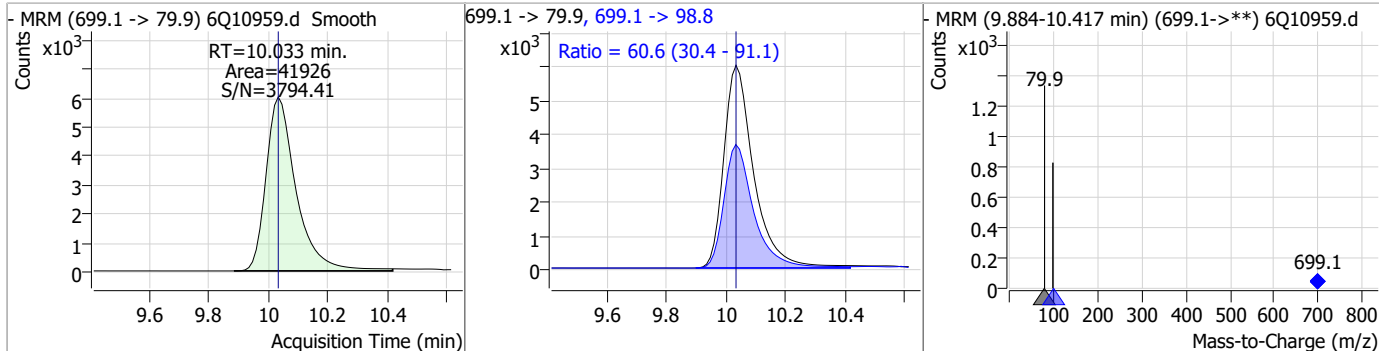
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	21.03	9.89	0.00	443517	713.1 -> 168.9	6.6	3.3	9.8



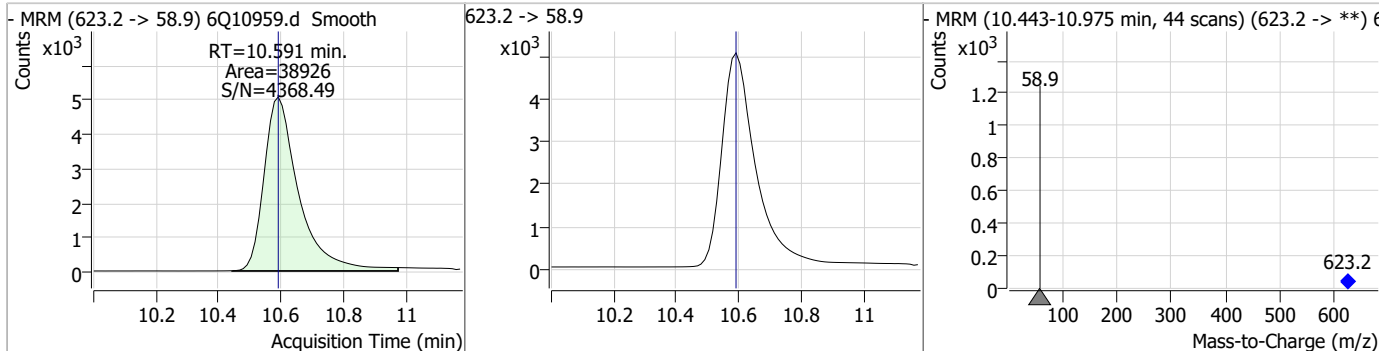
7.7.11
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Perfluorinated Compounds by LC/MS/MS

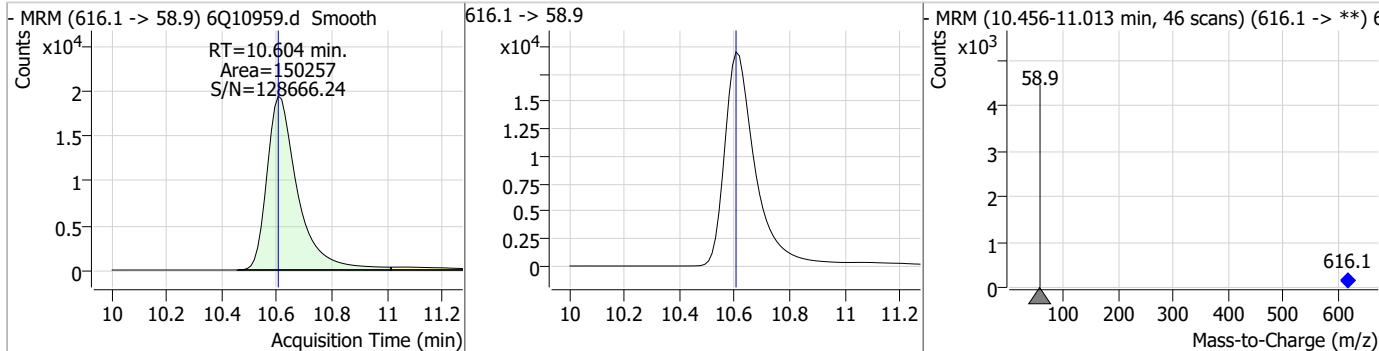
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	19.46	10.03	0.00	41926	699.1 -> 98.8	60.6	30.4	91.1



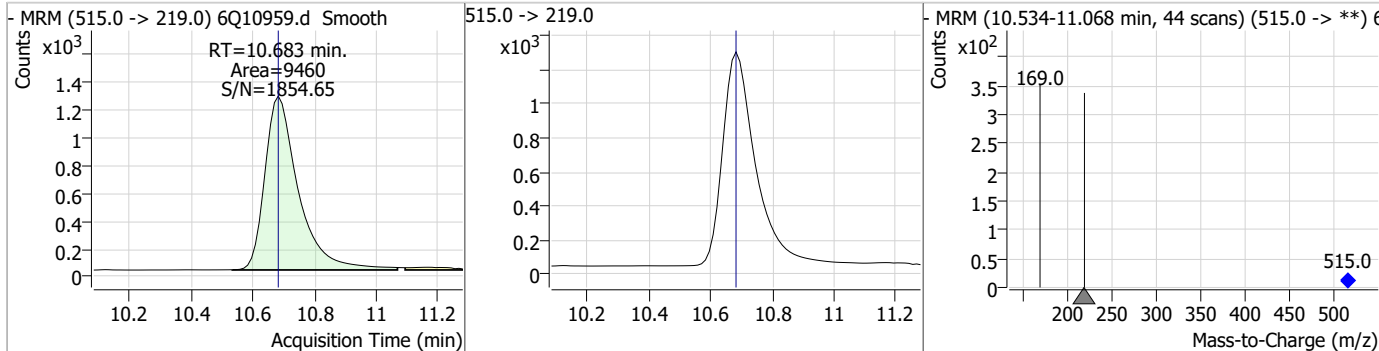
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.35	10.59	0.00	38926				



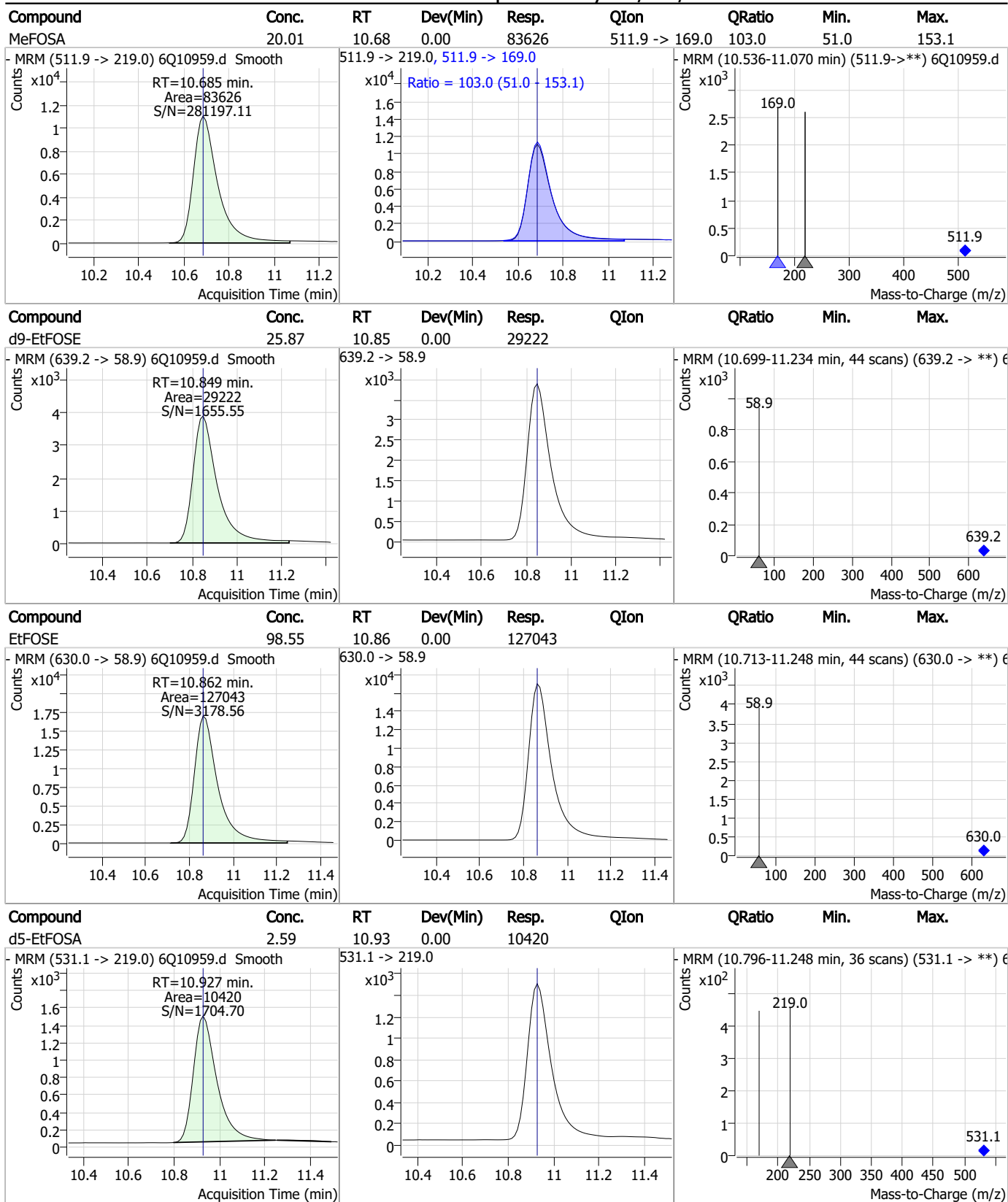
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	93.45	10.60	0.00	150257				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.64	10.68	0.00	9460				



Perfluorinated Compounds by LC/MS/MS

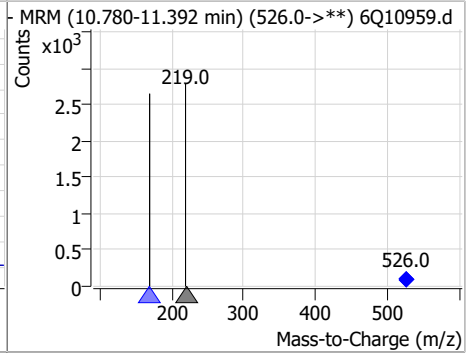
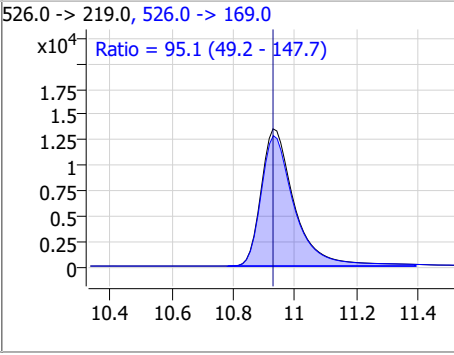
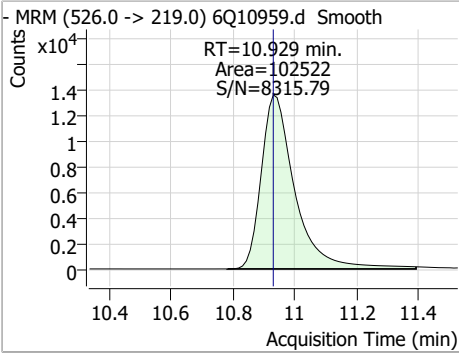


7.7.11

7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	20.33	10.93	0.00	102522	526.0 -> 169.0	95.1	49.2	147.7



7.7.11

7

Manual Integration Approval Summary

Sample Number: S6Q174-ICV174 Method: EPA DRAFT 1633
Lab FileID: 6Q10959.D Analyst approved: 01/12/23 11:46 Martha Valls
Injection Time: 01/11/23 14:10 Supervisor approved: 01/12/23 15:42 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
MeFOSAA	2355-31-9		8.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.42	Split peak
EtFOSAA	2991-50-6		8.49	Split peak

7.7.11.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11518.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/17/2023 10:20:27 PM
 Sample Name : cc174-4
 Vial : P1-C3
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.988	216.8 -> 171.9	90783	10.00 µg/L	-0.012
M5-PFPeA	4.371	268.3 -> 223.0	43624	5.00 µg/L	-0.012
M5-PFHxA	5.564	318.0 -> 273.0	38293	2.50 µg/L	0.000
M4-PFHpA	6.503	367.1 -> 322.0	38984	2.50 µg/L	-0.012
M8-PFOA	7.160	421.1 -> 376.0	69669	2.50 µg/L	0.000
M9-PFNA	7.702	472.1 -> 427.0	30557	1.25 µg/L	-0.013
M6-PFDA	8.195	519.1 -> 474.1	20505	1.25 µg/L	-0.012
M7-PFUnDA	8.674	570.0 -> 525.1	26472	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	26581	1.25 µg/L	0.000
M2-PFTeDA	9.844	715.2 -> 670.0	16323	1.25 µg/L	-0.012
M8-FOSA	9.568	506.1 -> 77.8	19222	2.50 µg/L	0.000
M3-PFBS	5.506	302.1 -> 79.9	14749	2.50 µg/L	-0.025
M3-PFHxS	7.288	402.1 -> 79.9	9632	2.50 µg/L	-0.012
M8-PFOS	8.371	507.1 -> 79.9	9858	2.50 µg/L	-0.012
M2-4:2FTS	5.216	329.1 -> 80.9	1942	5.00 µg/L	-0.012
M2-6:2FTS	6.921	429.1 -> 80.9	2695	5.00 µg/L	-0.012
M2-8:2FTS	7.982	529.1 -> 80.9	3043	5.00 µg/L	0.000
M3-MeFOSAA	8.240	573.2 -> 419.0	25936	5.00 µg/L	0.000
M3-HFPO-DA	5.928	286.9 -> 168.9	16286	10.00 µg/L	-0.012
M5-EtFOSAA	8.448	589.2 -> 419.0	25383	5.00 µg/L	0.000
M7-MeFOSE	10.591	623.2 -> 58.9	33347	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	25711	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	9020	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	8204	2.50 µg/L	0.000
13C4-PFOS	8.384	502.8 -> 79.9	11164	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	40023	5.00 µg/L	-0.025
18O2-PFHxS	7.299	403.0 -> 83.9	7372	2.50 µg/L	0.000
13C4-PFOA	7.160	417.1 -> 372.0	85987	2.50 µg/L	-0.012
13C2-PFDA	8.196	515.1 -> 470.1	28684	1.25 µg/L	-0.012
13C5-PFNA	7.703	468.0 -> 423.0	34849	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	38829	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.216	329.1 -> 80.9	1942	5.05 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C2-6:2FTS	6.921	429.1 -> 80.9	2695	5.12 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-8:2FTS	7.982	529.1 -> 80.9	3043	5.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C2-PFDoDA	9.117	615.1 -> 570.0	26581	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.5%		
13C2-PFTeDA	9.844	715.2 -> 670.0	16323	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-PFBS	5.506	302.1 -> 79.9	14749	2.39 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C3-PFHxS	7.288	402.1 -> 79.9	9632	2.41 µg/L	-0.012

7.7.12
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C4-PFBA	2.988	216.8 -> 171.9	90783	9.93 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C4-PFHpA	6.503	367.1 -> 322.0	38984	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C5-PFHxA	5.564	318.0 -> 273.0	38293	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C5-PFPeA	4.371	268.3 -> 223.0	43624	5.04 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C6-PFDA	8.195	519.1 -> 474.1	20505	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C7-PFUnDA	8.674	570.0 -> 525.1	26472	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C8-FOSA	9.568	506.1 -> 77.8	19222	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C8-PFOA	7.160	421.1 -> 376.0	69669	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C8-PFOS	8.371	507.1 -> 79.9	9858	2.76 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.5%		
13C9-PFNA	7.702	472.1 -> 427.0	30557	1.23 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.7%		
d3-MeFOSAA	8.240	573.2 -> 419.0	25936	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C3-HFPO-DA	5.928	286.9 -> 168.9	16286	10.17 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
d3-MeFOSA	10.683	515.0 -> 219.0	8204	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.1%		
d5-EtFOSAA	8.448	589.2 -> 419.0	25383	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.6%		
d7-MeFOSE	10.591	623.2 -> 58.9	33347	23.47 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 93.9%		
d9-EtFOSE	10.849	639.2 -> 58.9	25711	23.66 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 94.6%		
d5-EtFOSA	10.927	531.1 -> 219.0	9020	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.3%		
Target Compounds					QValue
4:2FTS	5.216	327.1 -> 307.0	39440	8.54 µg/L	95
		327.1 -> 80.9	10227		
6:2FTS	6.922	427.1 -> 407.0	35822	8.54 µg/L	96
		427.1 -> 80.9	8225		
8:2FTS	7.983	527.1 -> 507.0	21624	8.52 µg/L	95
		527.1 -> 80.8	5810		
EtFOSAA	8.449	584.2 -> 419.1	9150	2.26 µg/L	m 95
		584.2 -> 526.0	4969		
FOSA	9.571	498.1 -> 77.9	18447	2.38 µg/L	98
		498.1 -> 478.0	627		
MeFOSAA	8.241	570.1 -> 419.0	13126	2.45 µg/L	m 96
		570.1 -> 483.0	2410		
PFBA	2.982	212.8 -> 168.9	21220	9.11 µg/L	100
PFBS	5.507	298.7 -> 79.9	12030	2.02 µg/L	97
		298.7 -> 98.8	5712		
PFDA	8.196	512.9 -> 469.0	56267	2.28 µg/L	97
		512.9 -> 219.0	8216		
PFDoDA	9.117	613.1 -> 569.0	49783	2.38 µg/L	99
		613.1 -> 319.0	6447		
PFDS	9.293	599.0 -> 79.9	7201	2.12 µg/L	98

7.7.12
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3732			
PFHpA	6.516	363.1 -> 319.0	54075	2.30	µg/L	96
		363.1 -> 169.0	7943			
PFHpS	7.867	449.0 -> 79.9	8597	1.91	µg/L	94
		449.0 -> 98.9	5299			
PFHxA	5.554	313.0 -> 269.0	34775	2.25	µg/L	99
		313.0 -> 118.9	1379			
PFHxS	7.301	398.7 -> 79.9	9099	1.98	µg/L	m 95
		398.7 -> 98.9	5204			
PFNA	7.703	463.0 -> 419.0	49600	2.35	µg/L	99
		463.0 -> 219.0	9593			
PFNS	8.862	548.8 -> 79.9	10137	2.13	µg/L	95
		548.8 -> 98.9	5979			
PFOA	7.161	413.0 -> 369.0	72476	2.32	µg/L	98
		413.0 -> 169.0	9726			
PFOS	8.372	498.9 -> 79.9	9265	1.94	µg/L	m 89
		498.9 -> 98.8	6256			
PFPeA	4.374	263.0 -> 219.0	44186	4.61	µg/L	100
PFPeS	6.582	349.1 -> 79.9	11615	2.14	µg/L	98
		349.1 -> 98.9	6009			
PFTeDA	9.844	713.1 -> 669.0	44199	2.27	µg/L	100
		713.1 -> 168.9	2869			
PFTrDA	9.501	663.0 -> 619.0	50210	2.52	µg/L	100
		663.0 -> 168.9	4175			
PFUnDA	8.675	563.1 -> 519.0	48560	2.19	µg/L	100
		563.1 -> 269.1	6984			
11CI-PF3OUdS	9.565	630.9 -> 450.9	112183	9.08	µg/L	99
		632.9 -> 452.9	35458			
9CI-PF3ONS	8.727	530.8 -> 351.0	169048	8.43	µg/L	100
		532.8 -> 353.0	57061			
ADONA	6.767	376.9 -> 250.9	308390	8.52	µg/L	99
		376.9 -> 84.8	65118			
HFPO-DA	5.942	284.9 -> 168.9	14569	8.85	µg/L	99
		284.9 -> 184.9	1854			
3:3FTCA	3.827	241.0 -> 177.0	5686	11.14	µg/L	96
		241.0 -> 117.0	765			
5:3FTCA	6.194	341.0 -> 237.1	185495	57.65	µg/L	98
		341.0 -> 217.0	154549			
7:3FTCA	7.618	441.0 -> 316.9	135650	62.54	µg/L	93
		441.0 -> 336.9	252310			
EtFOSA	10.929	526.0 -> 219.0	10074	2.31	µg/L	91
		526.0 -> 169.0	10226			
EtFOSE	10.862	630.0 -> 58.9	25972	22.90	µg/L	100
MeFOSA	10.685	511.9 -> 219.0	8645	2.39	µg/L	83
		511.9 -> 169.0	8945			
MeFOSE	10.604	616.1 -> 58.9	32846	23.85	µg/L	100
PFDoDS	9.984	699.1 -> 79.9	4477	2.11	µg/L	96
		699.1 -> 98.8	2672			
NFDHA	5.433	295.0 -> 201.0	4635	4.62	µg/L	99
		295.0 -> 84.9	1927			
PFMBA	4.776	279.0 -> 85.1	13441	4.50	µg/L	100
PFMPA	3.525	229.0 -> 84.9	11949	4.51	µg/L	100
PFEESA	6.060	314.8 -> 134.9	91032	4.23	µg/L	100
		314.8 -> 82.9	2312			

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



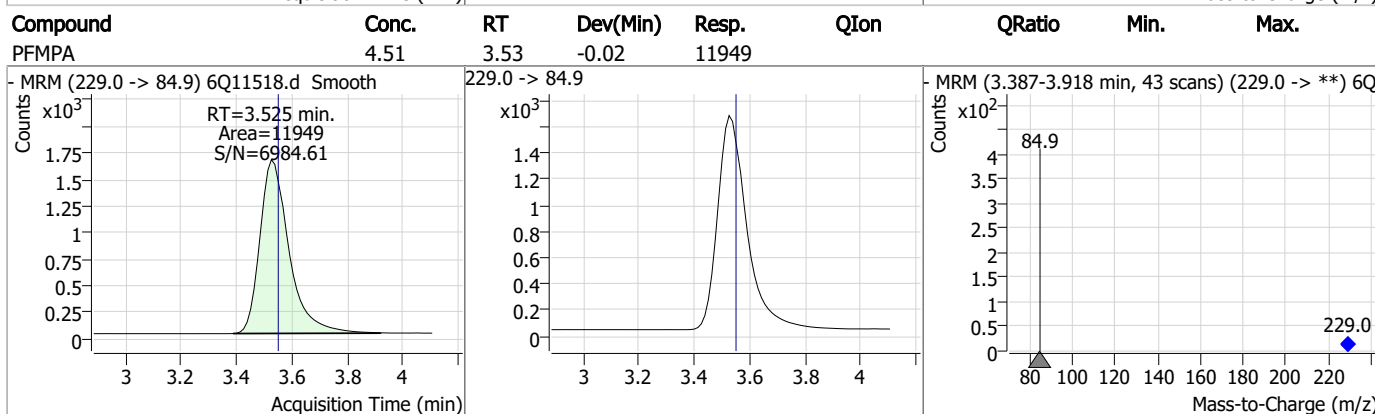
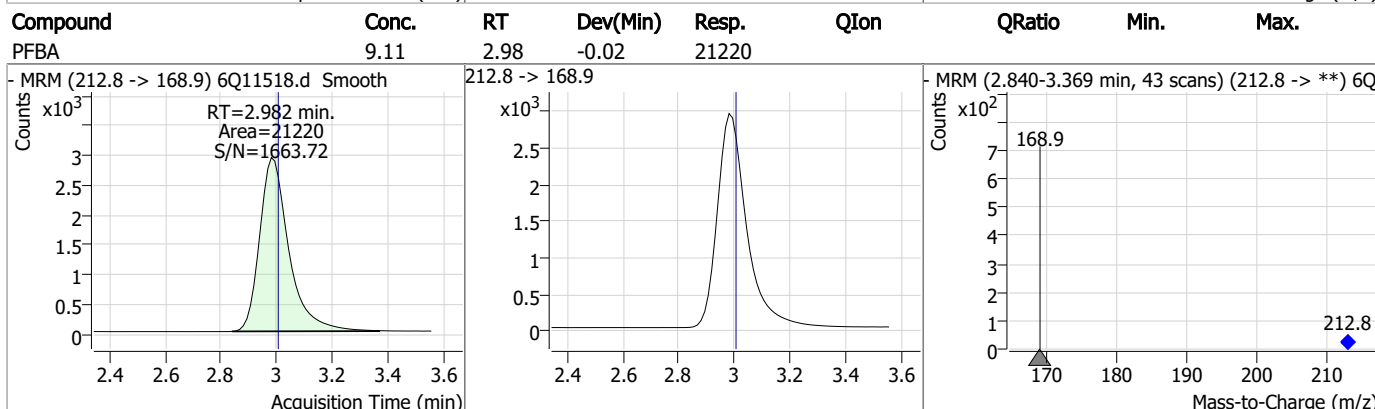
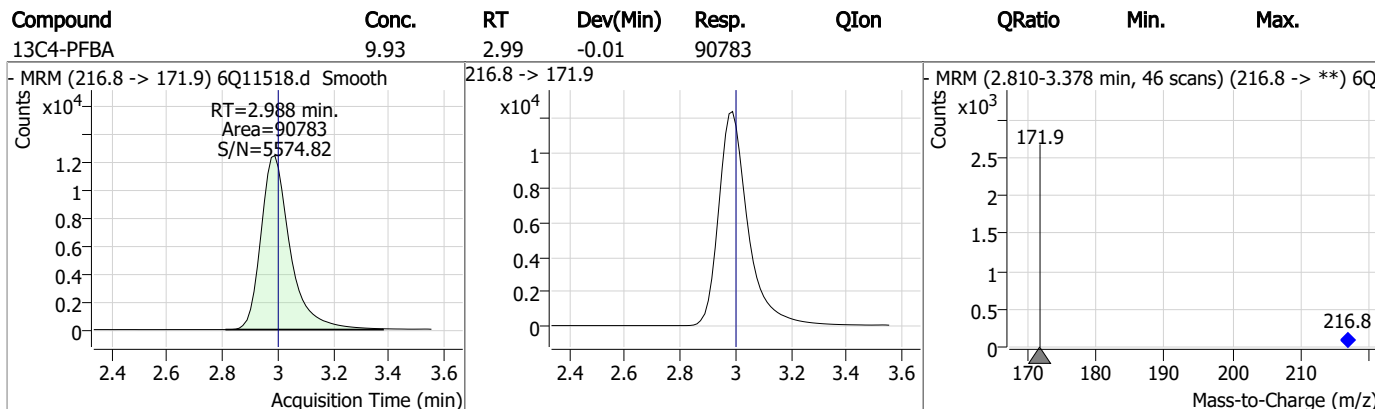
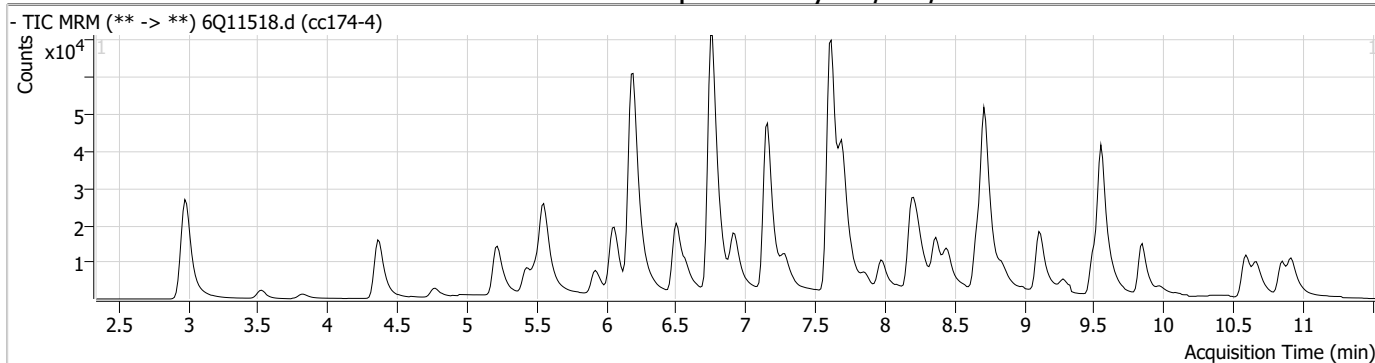
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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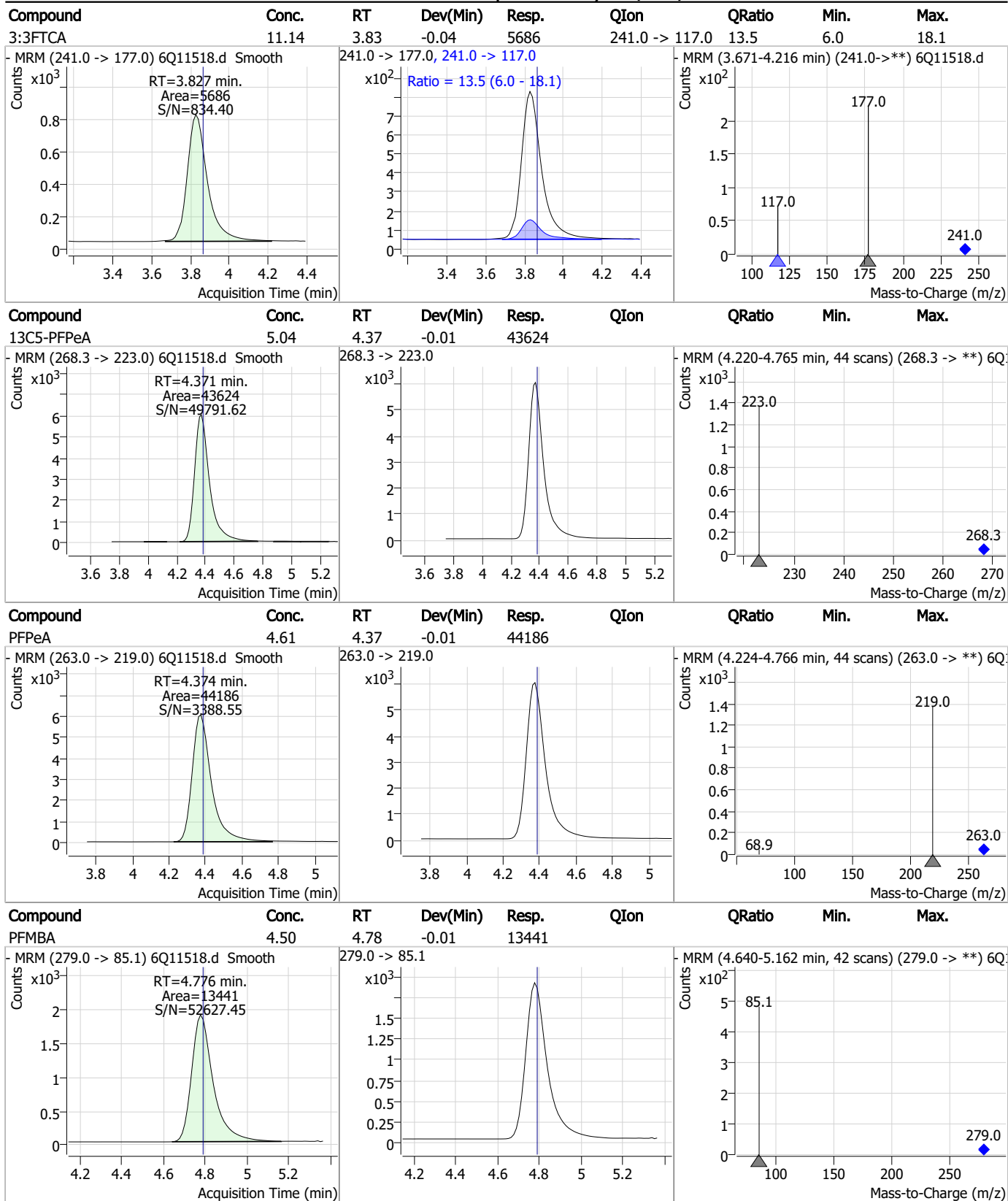
7.7.12

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Perfluorinated Compounds by LC/MS/MS

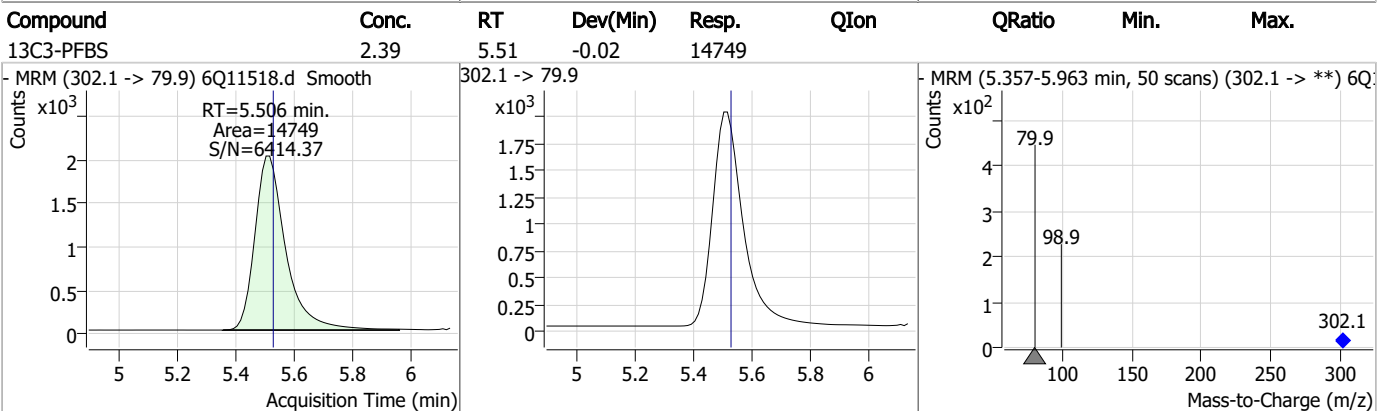
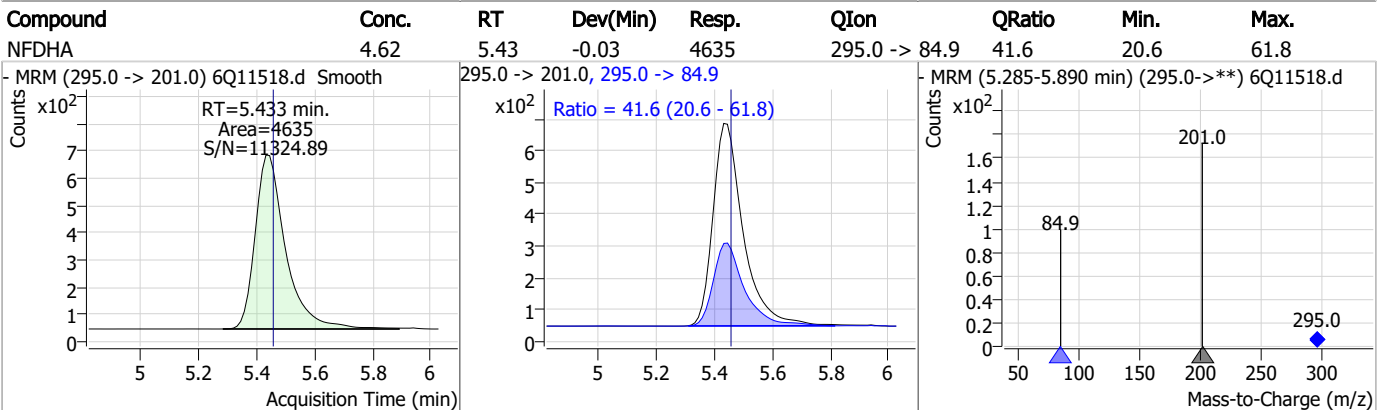
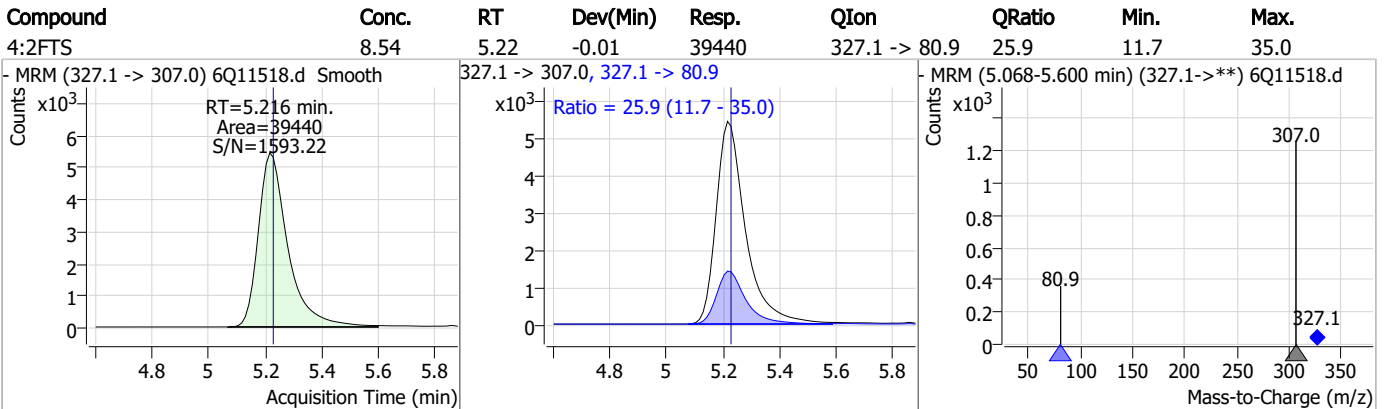
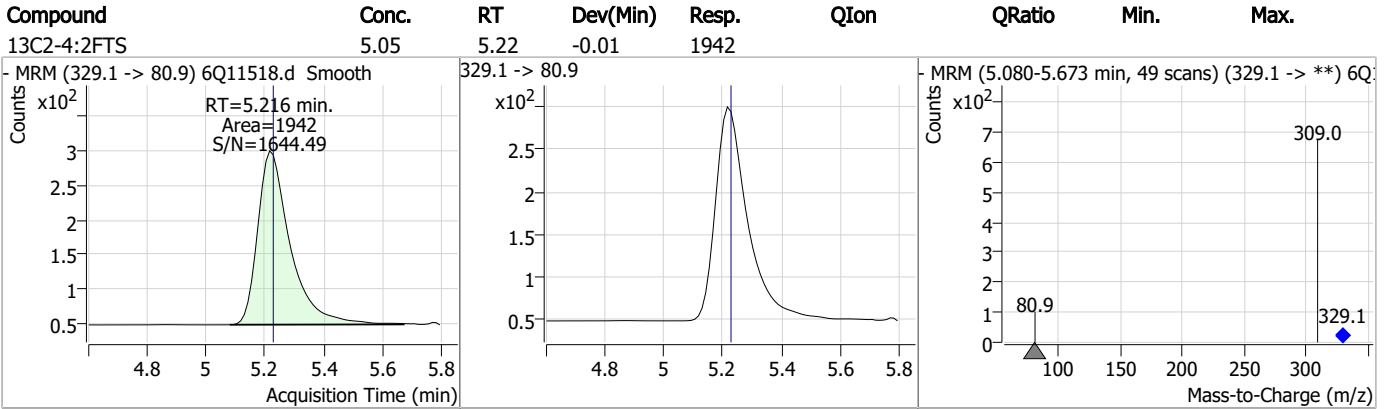


Perfluorinated Compounds by LC/MS/MS



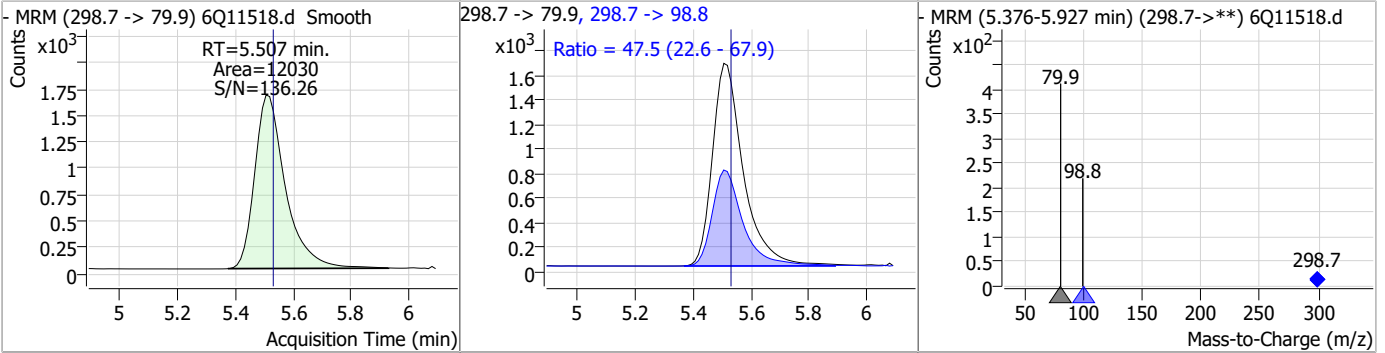
7.7.12
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Perfluorinated Compounds by LC/MS/MS

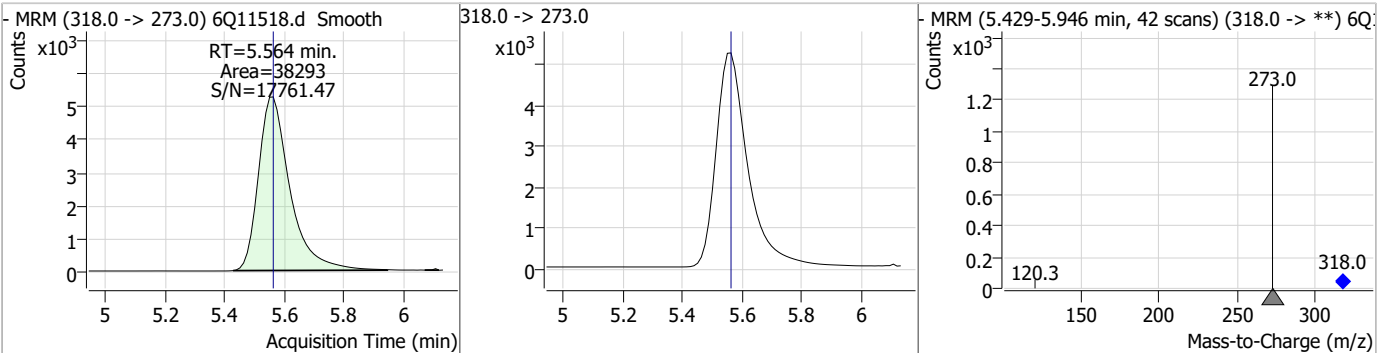


Perfluorinated Compounds by LC/MS/MS

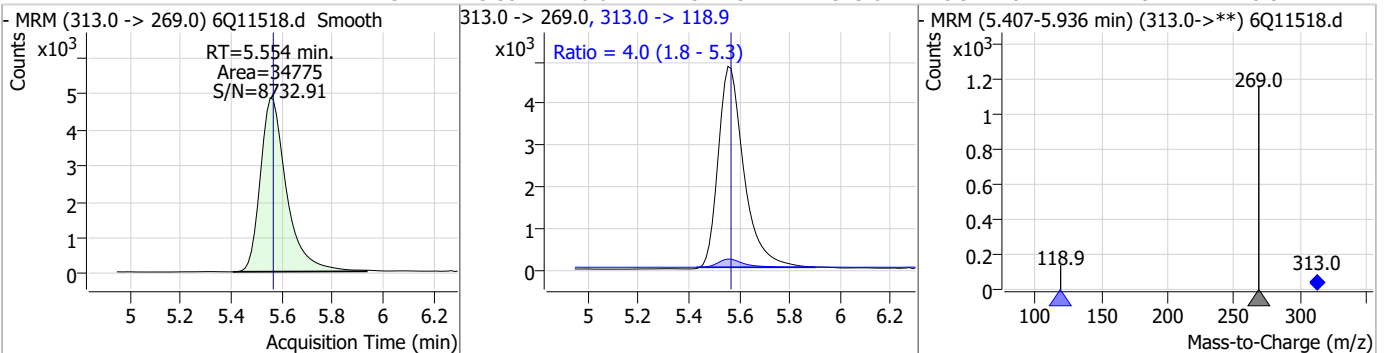
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.02	5.51	-0.02	12030	298.7 -> 98.8	47.5	22.6	67.9



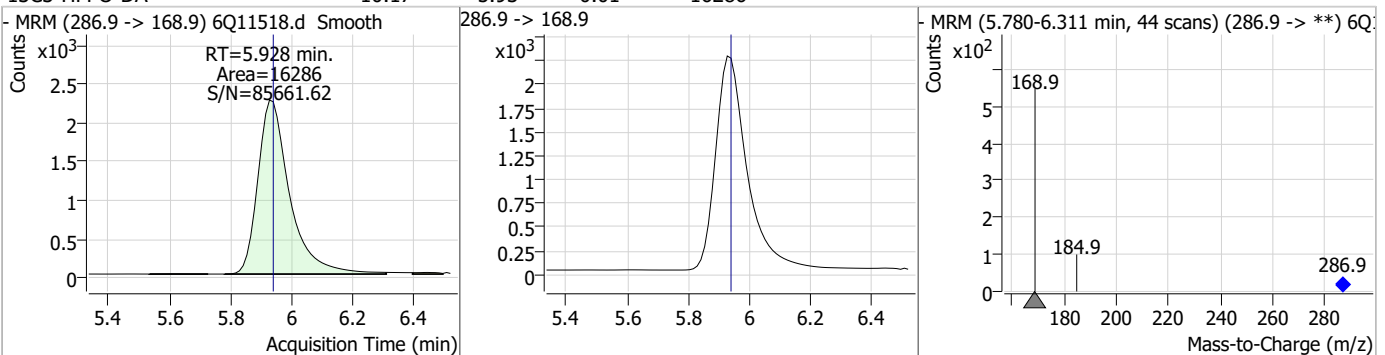
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.56	0.00	38293				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.25	5.55	-0.01	34775	313.0 -> 118.9	4.0	1.8	5.3

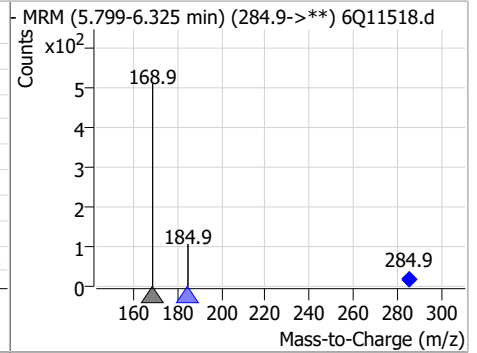
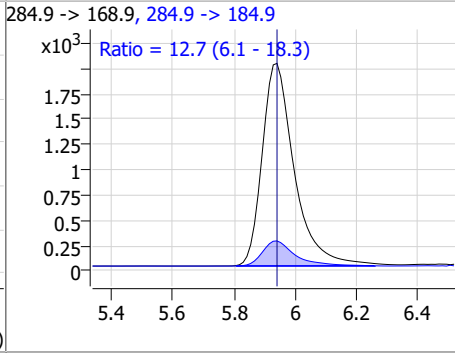
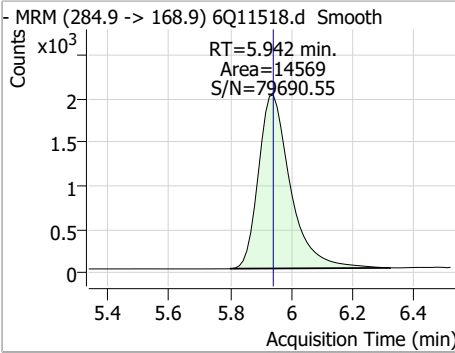


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.17	5.93	-0.01	16286				

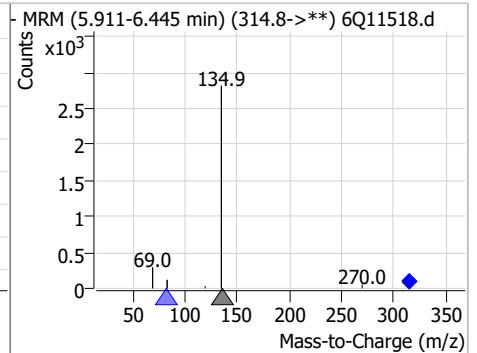
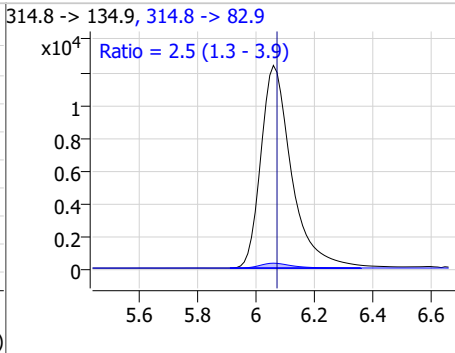
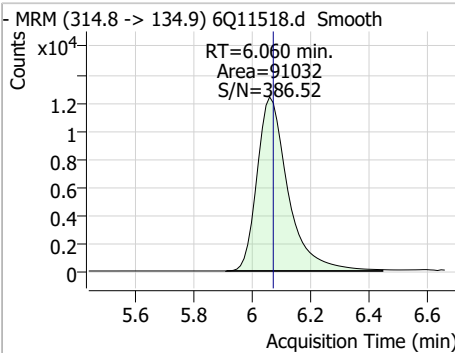


Perfluorinated Compounds by LC/MS/MS

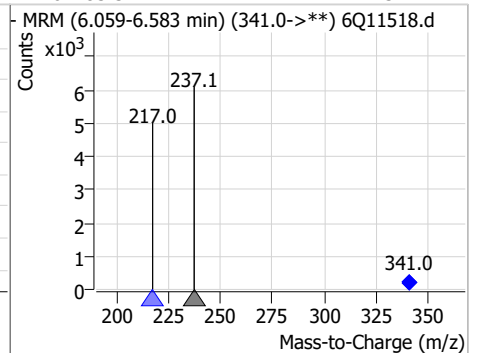
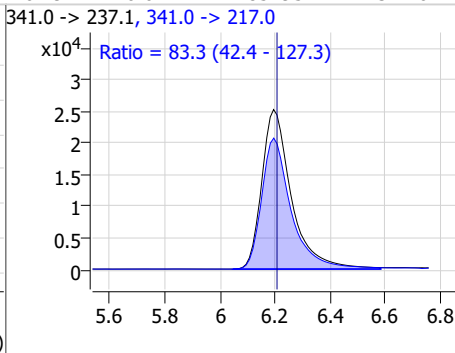
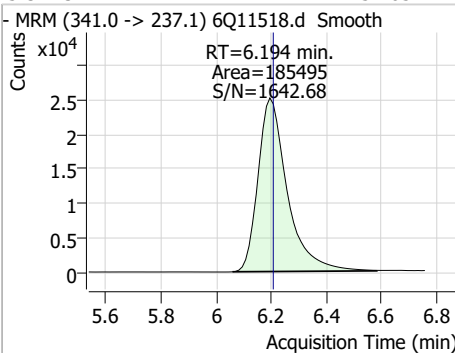
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	8.85	5.94	0.00	14569	284.9 -> 184.9	12.7	6.1	18.3



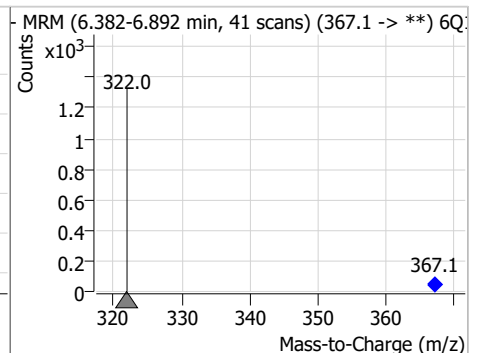
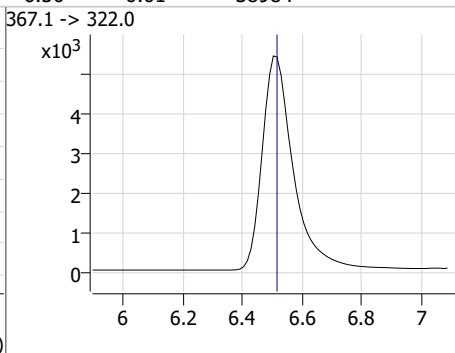
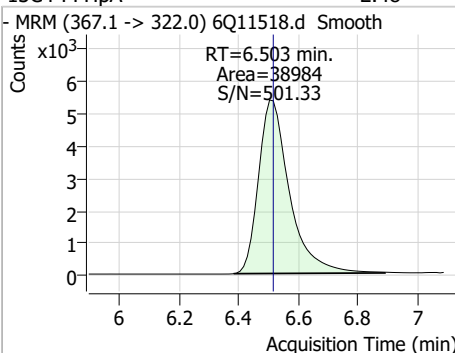
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.23	6.06	-0.01	91032	314.8 -> 82.9	2.5	1.3	3.9



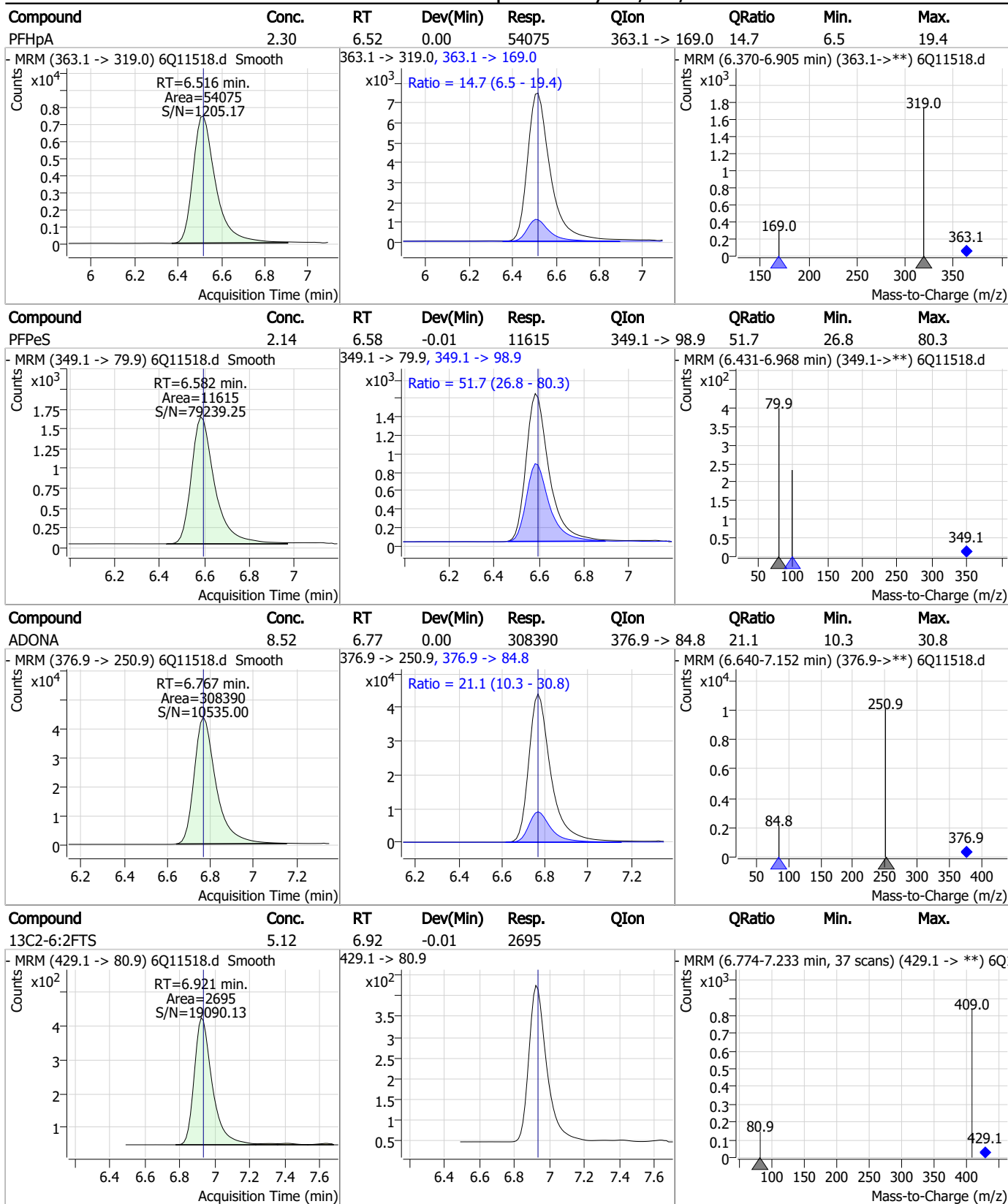
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	57.65	6.19	-0.01	185495	341.0 -> 217.0	83.3	42.4	127.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.48	6.50	-0.01	38984	367.1 -> 322.0			

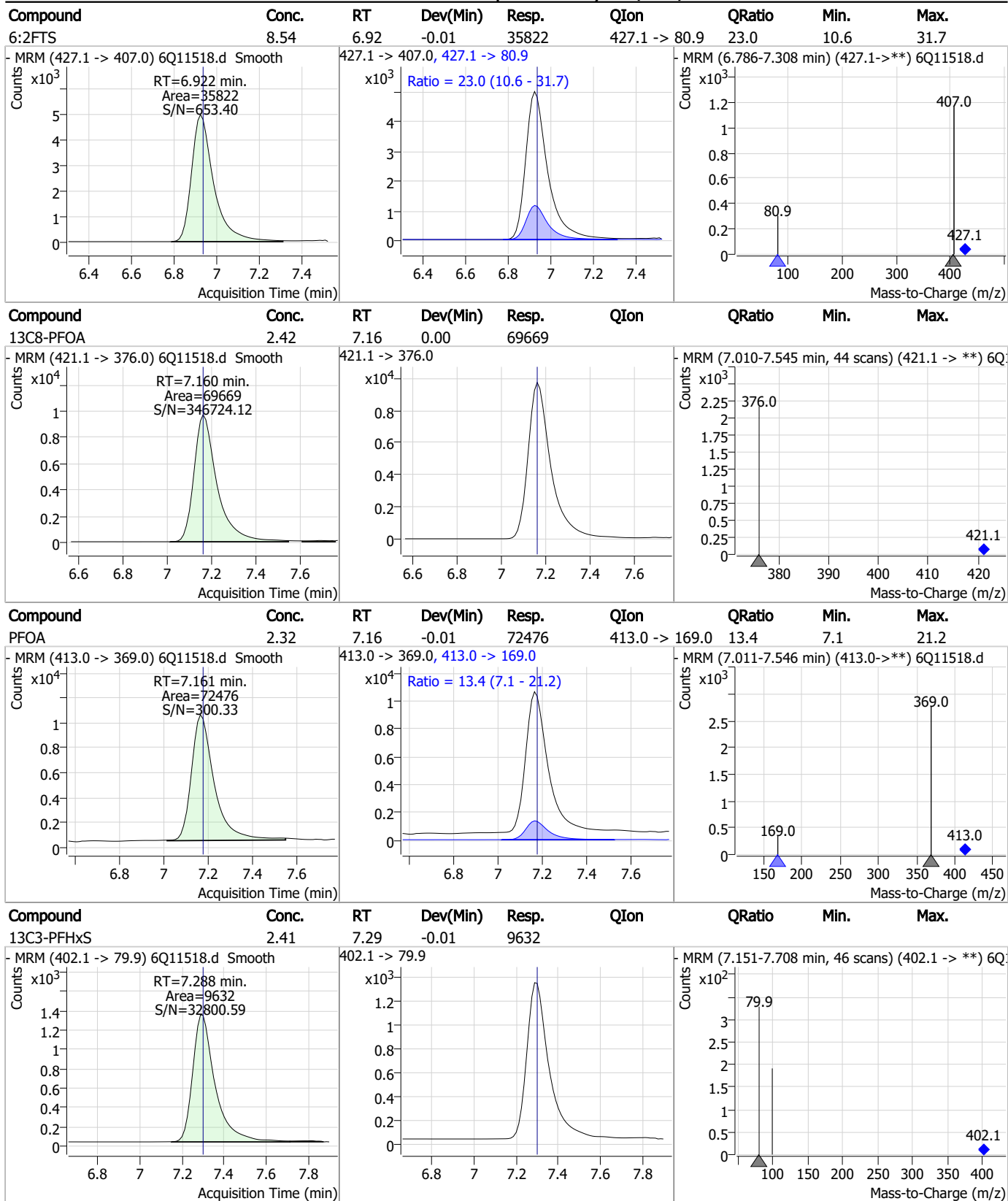


Perfluorinated Compounds by LC/MS/MS



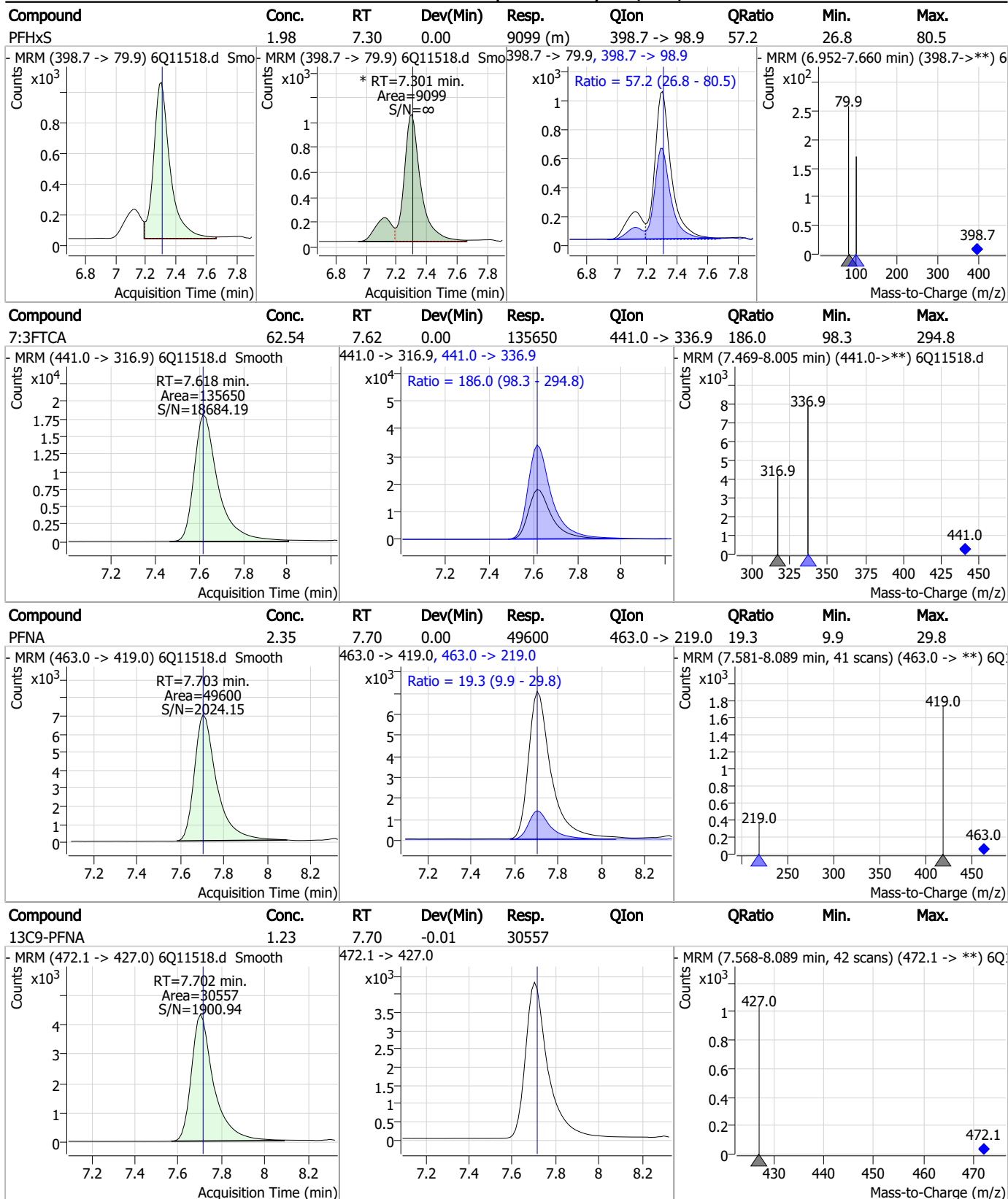
7.7.12
7

Perfluorinated Compounds by LC/MS/MS



7.7.12

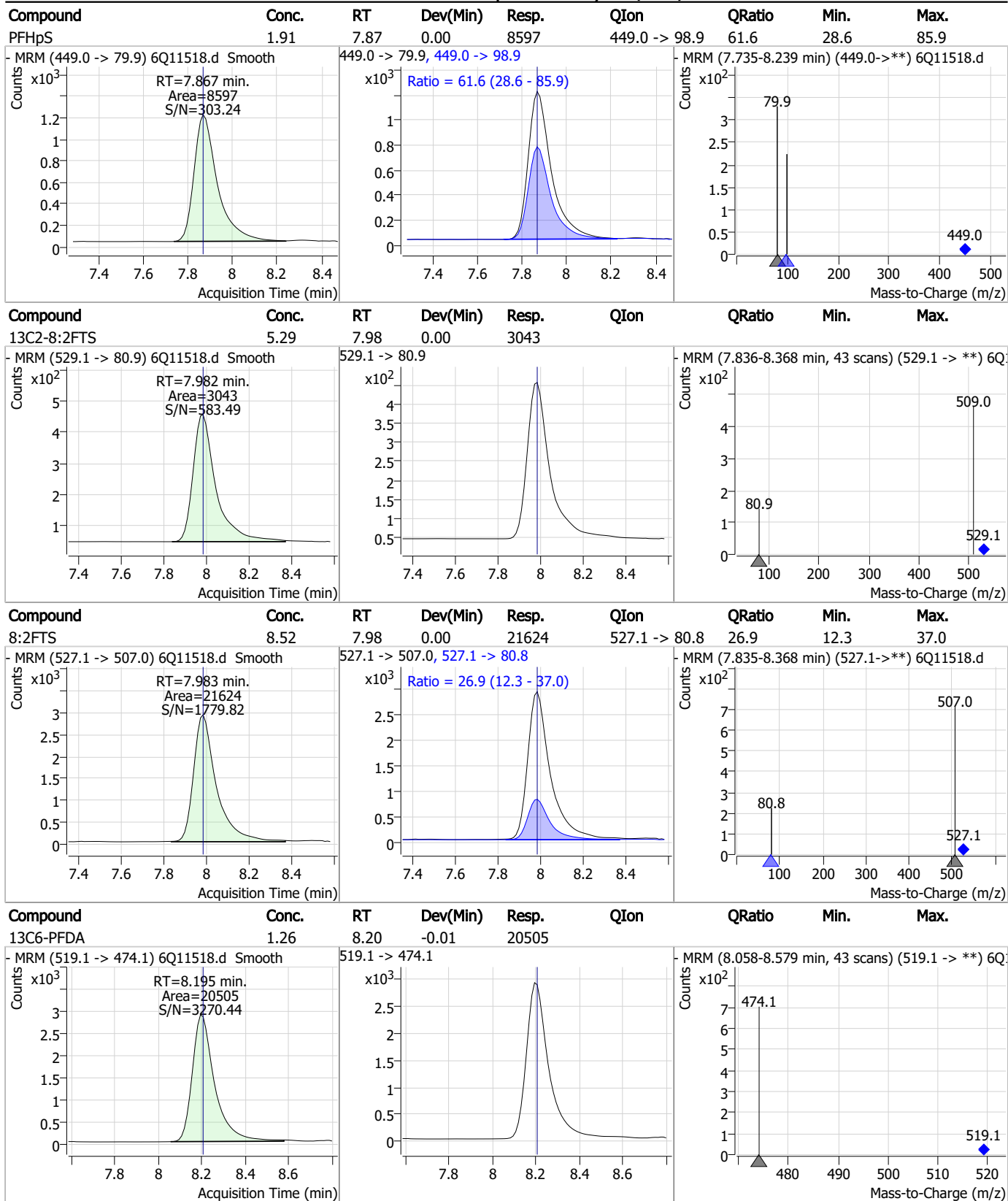
Perfluorinated Compounds by LC/MS/MS



7.7.12
7



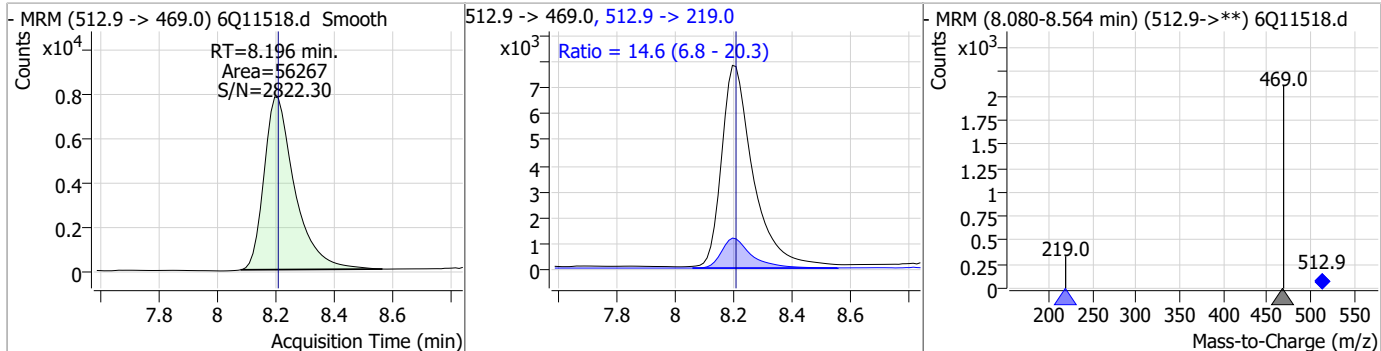
Perfluorinated Compounds by LC/MS/MS



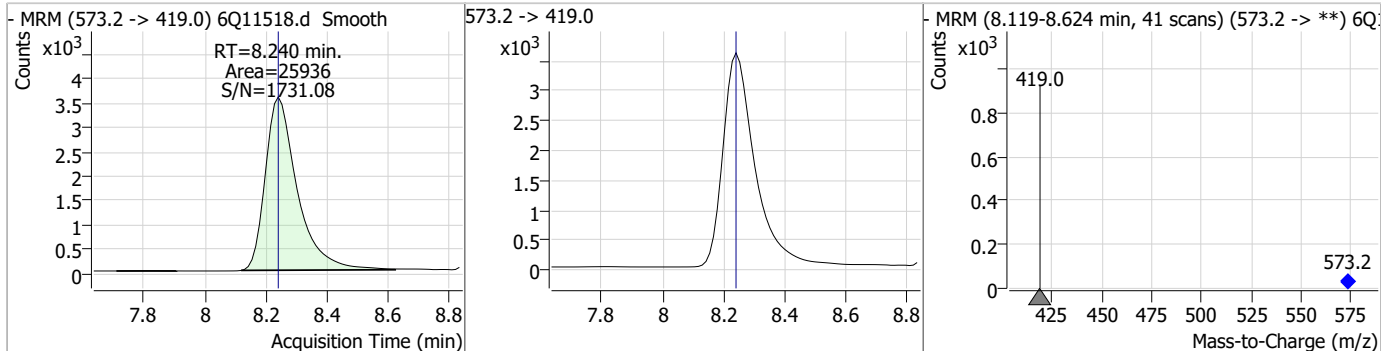
7.7.12

Perfluorinated Compounds by LC/MS/MS

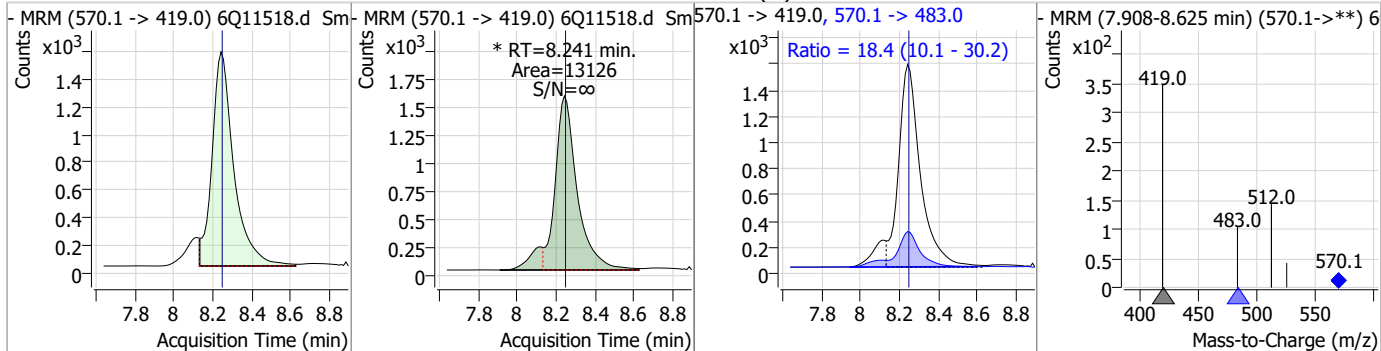
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.28	8.20	-0.01	56267	512.9 -> 219.0	14.6	6.8	20.3



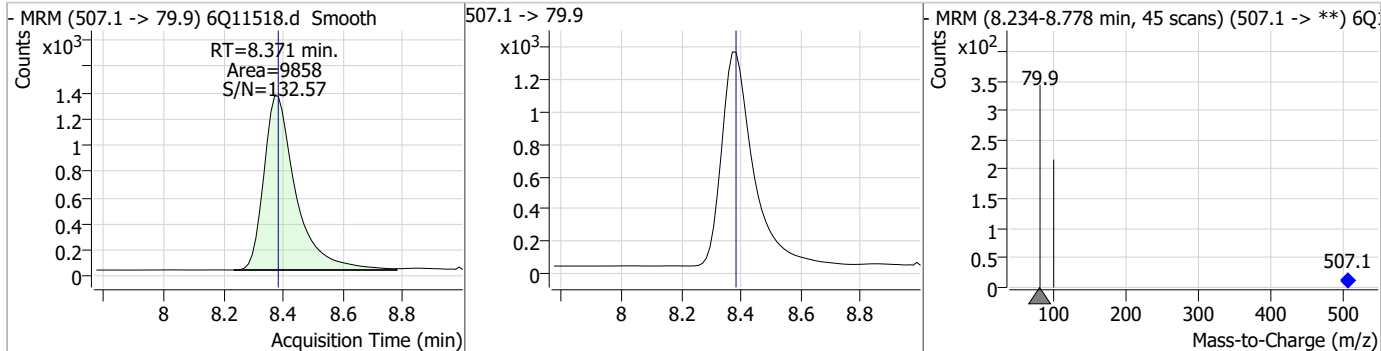
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.82	8.24	0.00	25936				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.45	8.24	0.00	13126 (m)	570.1 -> 483.0	18.4	10.1	30.2



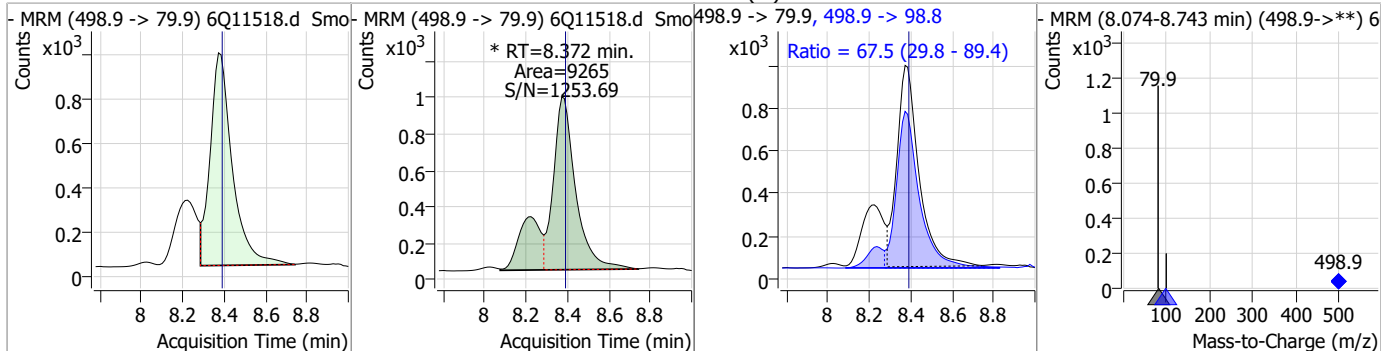
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.76	8.37	-0.01	9858				



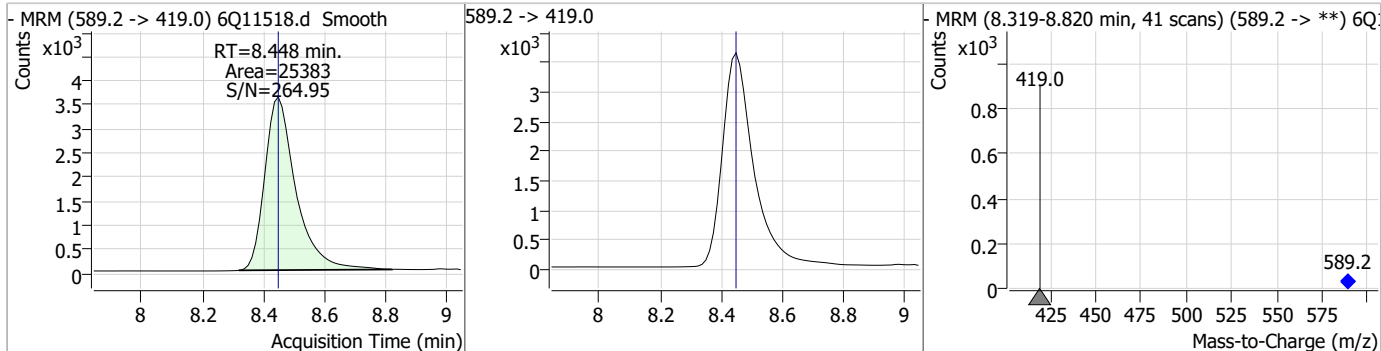
7.7.12
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Perfluorinated Compounds by LC/MS/MS

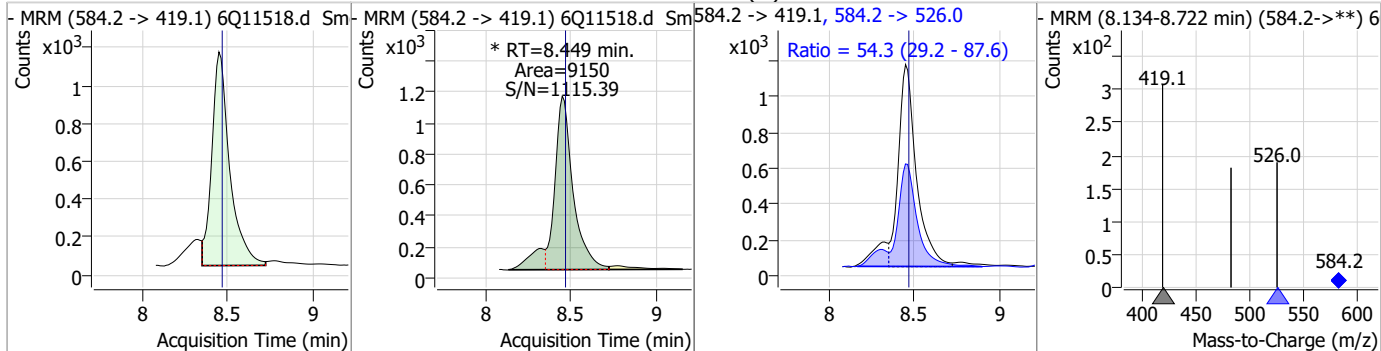
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.94	8.37	-0.01	9265 (m)	498.9 -> 98.8	67.5	29.8	89.4



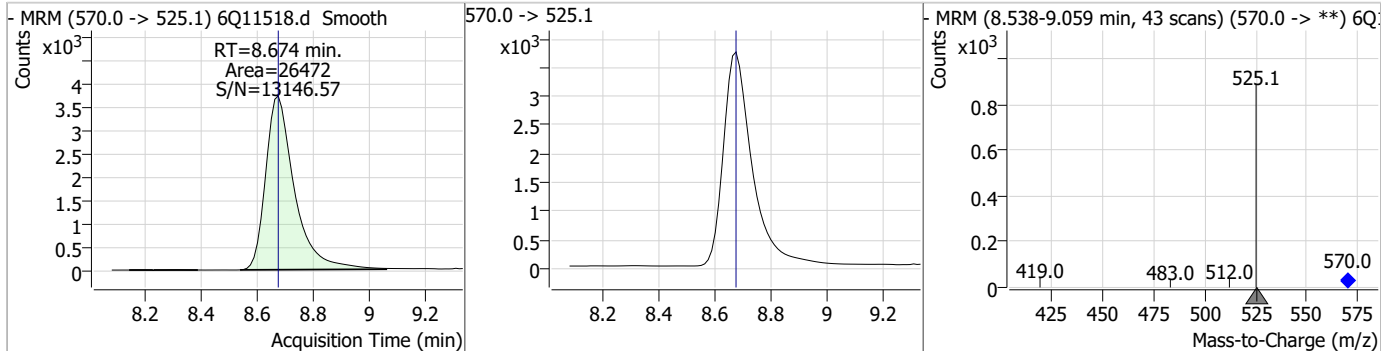
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.38	8.45	0.00	25383				



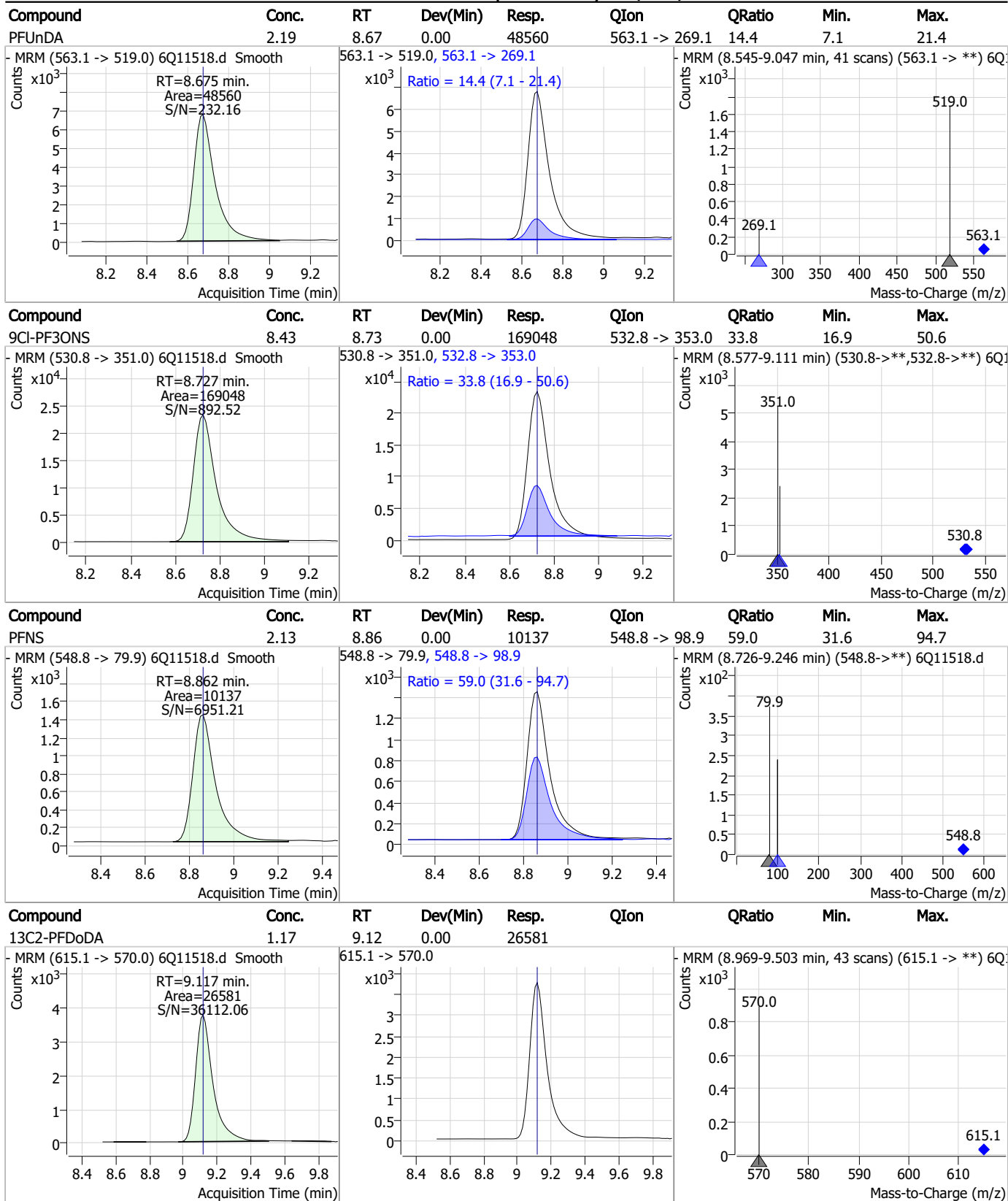
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.26	8.45	-0.01	9150 (m)	584.2 -> 526.0	54.3	29.2	87.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.33	8.67	0.00	26472				



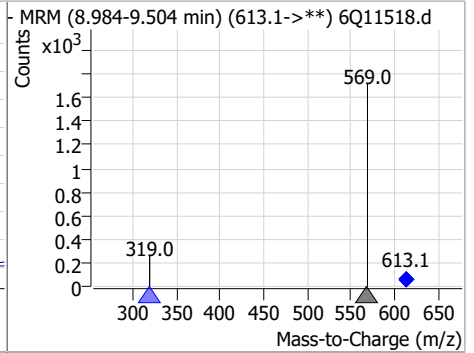
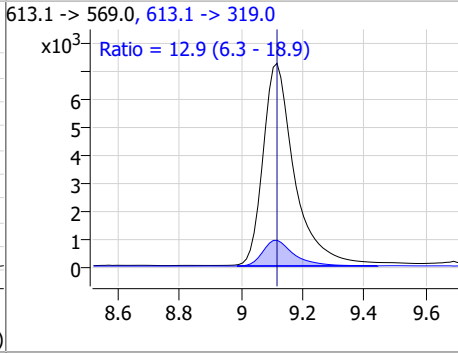
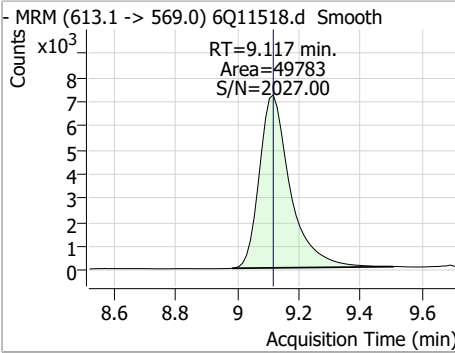
Perfluorinated Compounds by LC/MS/MS



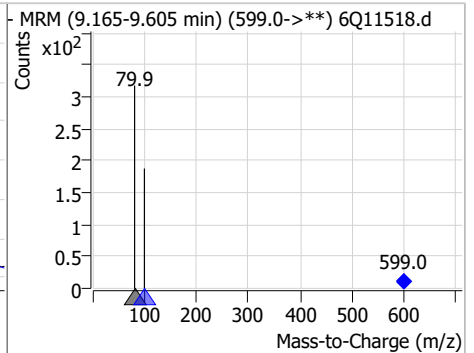
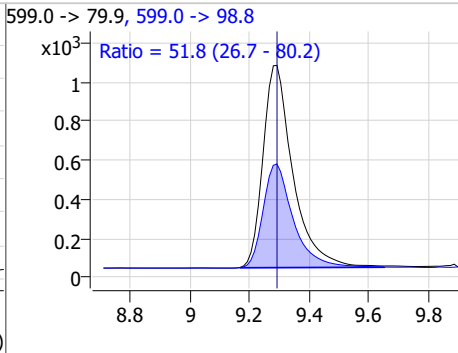
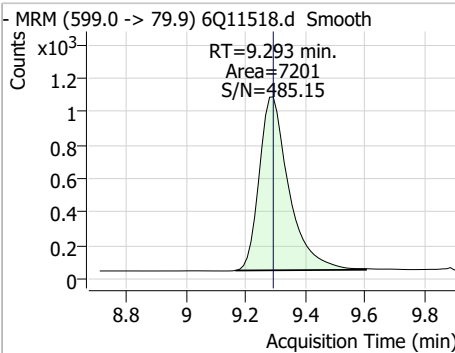
7.7.12
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Perfluorinated Compounds by LC/MS/MS

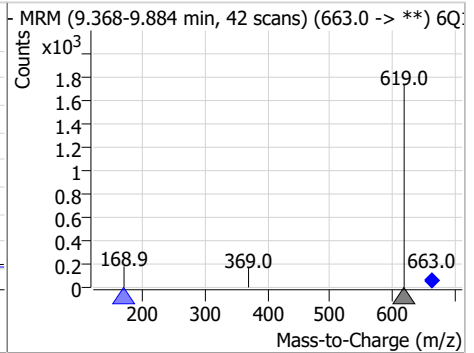
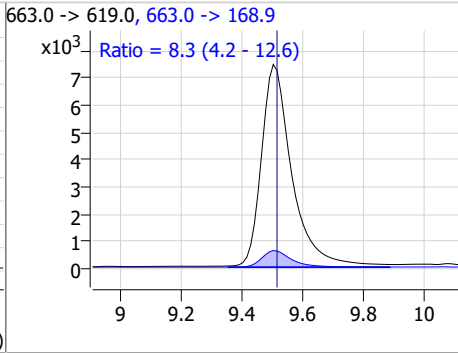
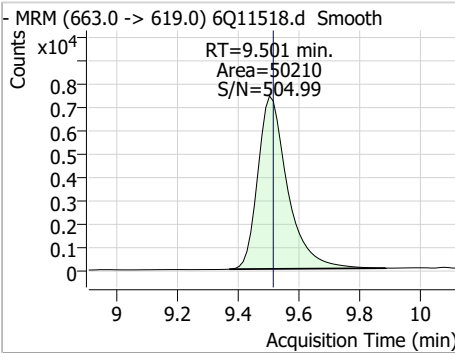
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DA	2.38	9.12	0.00	49783	613.1 -> 319.0	12.9	6.3	18.9



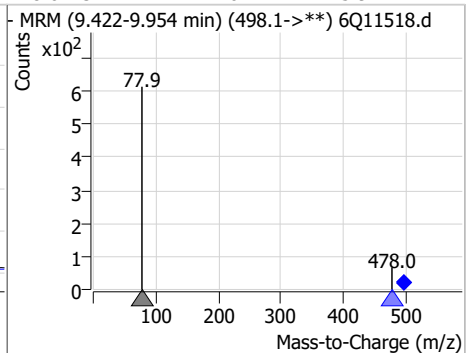
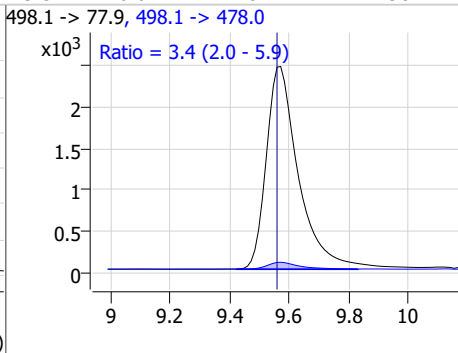
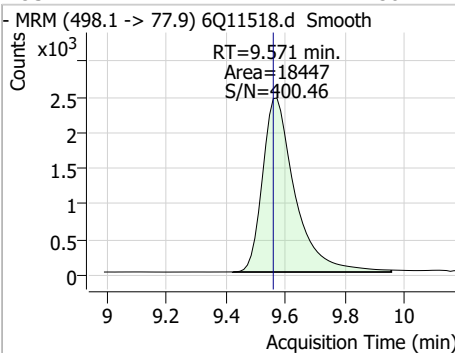
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	2.12	9.29	0.00	7201	599.0 -> 98.8	51.8	26.7	80.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFT _r DA	2.52	9.50	-0.01	50210	663.0 -> 168.9	8.3	4.2	12.6

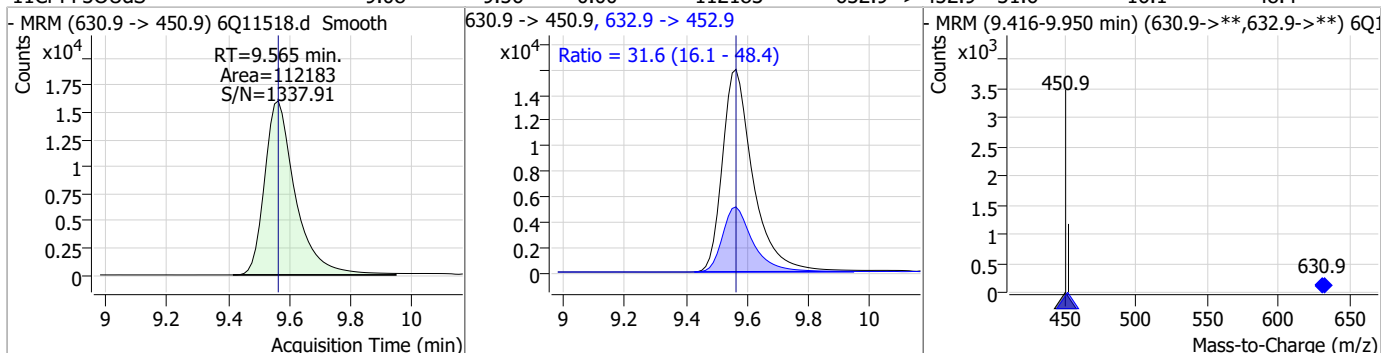


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.38	9.57	0.01	18447	498.1 -> 478.0	3.4	2.0	5.9

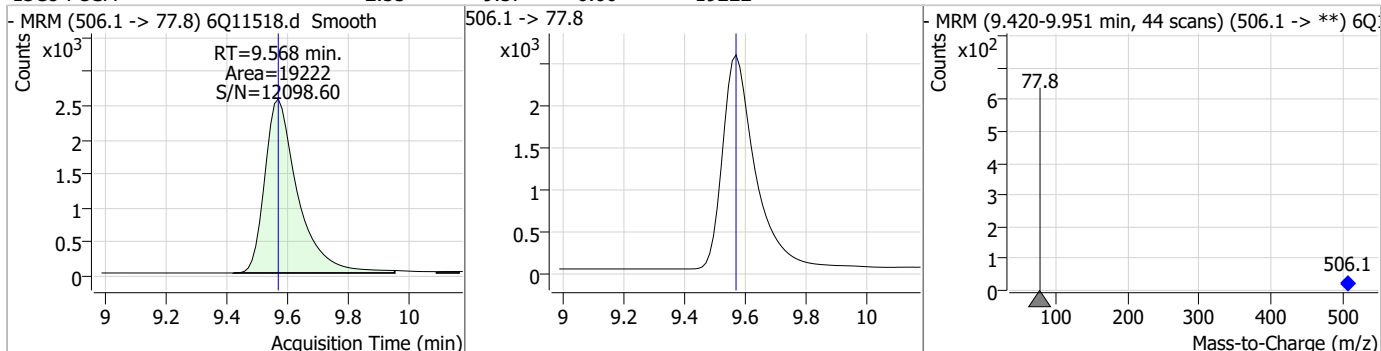


Perfluorinated Compounds by LC/MS/MS

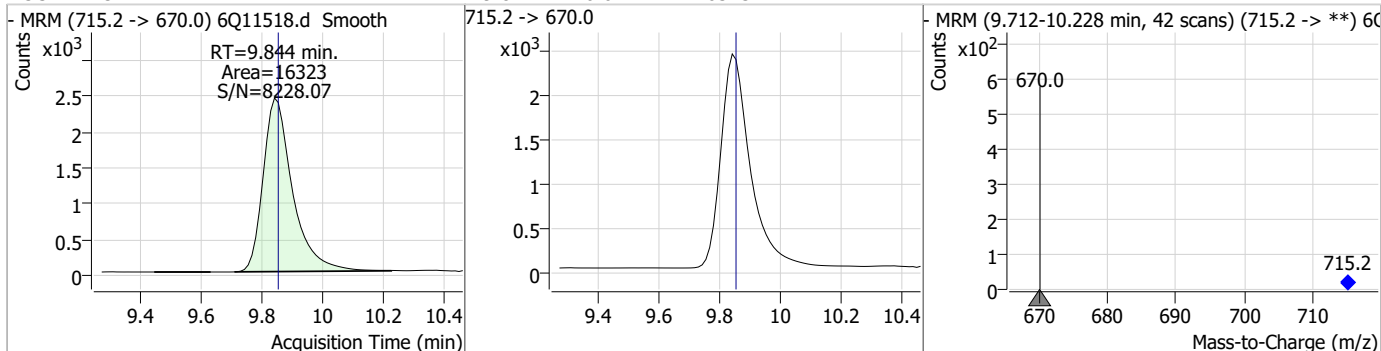
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	9.08	9.56	0.00	112183	632.9 -> 452.9	31.6	16.1	48.4



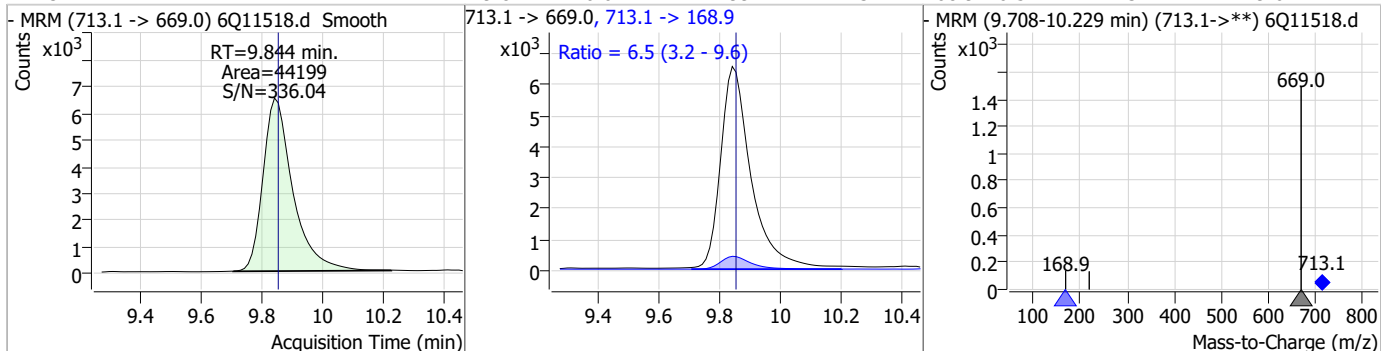
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.55	9.57	0.00	19222				



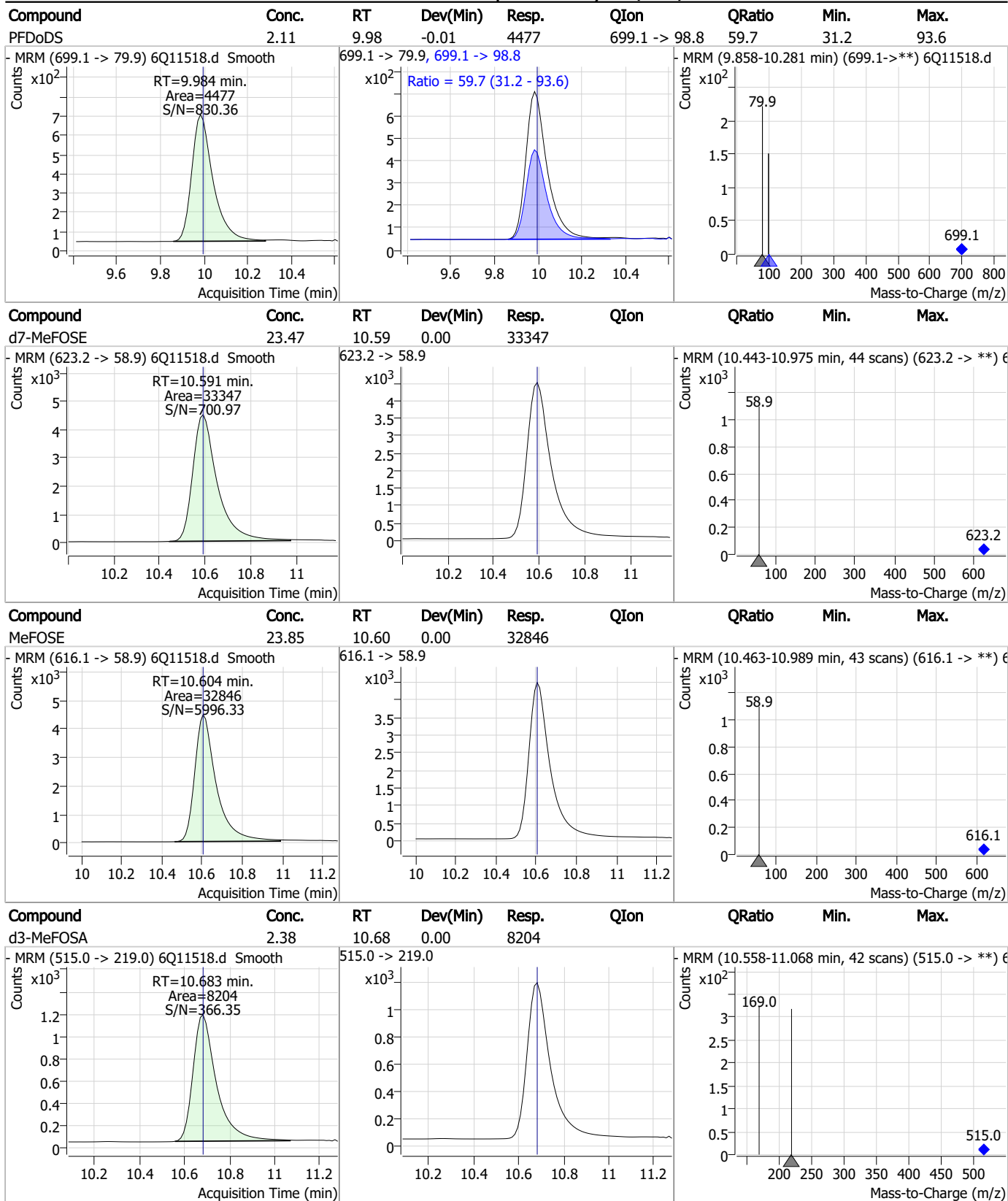
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	9.84	-0.01	16323				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.27	9.84	-0.01	44199	713.1 -> 168.9	6.5	3.2	9.6

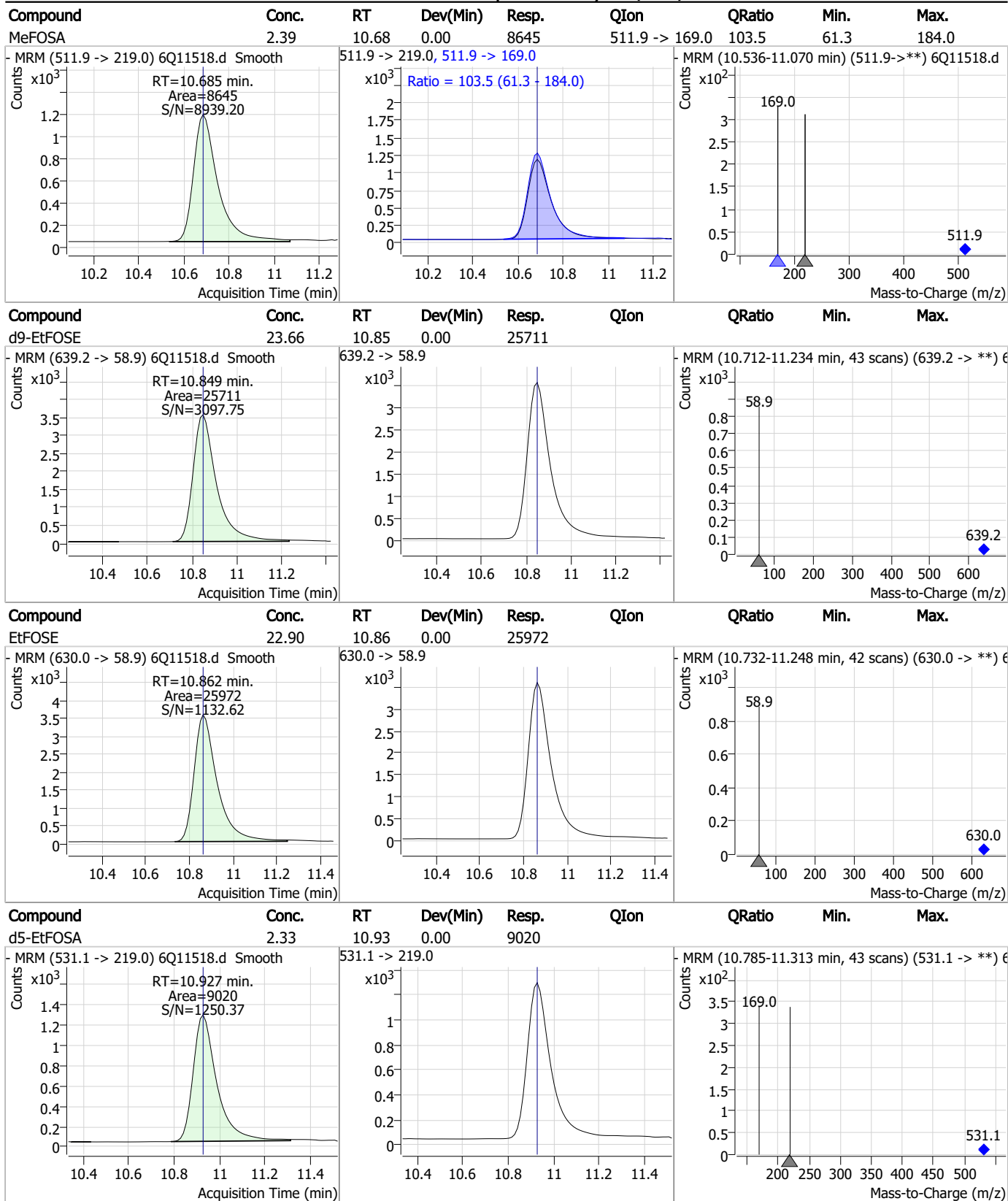


Perfluorinated Compounds by LC/MS/MS



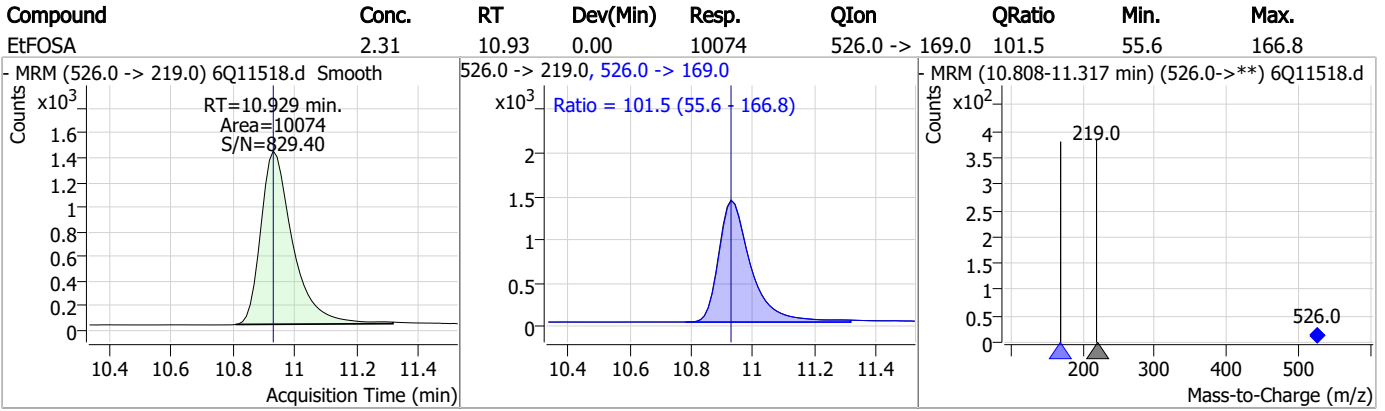
7.7.12
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Perfluorinated Compounds by LC/MS/MS



7.7.12
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Perfluorinated Compounds by LC/MS/MS



7.7.12
7



Manual Integration Approval Summary

Sample Number: S6Q180-CC174 Method: EPA DRAFT 1633
Lab FileID: 6Q11518.D Analyst approved: 01/18/23 15:20 Martha Valls
Injection Time: 01/17/23 22:20 Supervisor approved: 01/18/23 19:08 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.12.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11519.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/17/2023 10:34:26 PM
 Sample Name : cc174-1.0LL
 Vial : P1-C2
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	86733	10.00 µg/L	-0.025
M5-PFPeA	4.371	268.3 -> 223.0	41327	5.00 µg/L	-0.012
M5-PFHxA	5.551	318.0 -> 273.0	36844	2.50 µg/L	-0.012
M4-PFHpA	6.503	367.1 -> 322.0	38288	2.50 µg/L	-0.012
M8-PFOA	7.160	421.1 -> 376.0	66929	2.50 µg/L	0.000
M9-PFNA	7.702	472.1 -> 427.0	30002	1.25 µg/L	-0.013
M6-PFDA	8.195	519.1 -> 474.1	19480	1.25 µg/L	-0.012
M7-PFUnDA	8.674	570.0 -> 525.1	23612	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	27739	1.25 µg/L	0.000
M2-PFTeDA	9.844	715.2 -> 670.0	15727	1.25 µg/L	-0.012
M8-FOSA	9.568	506.1 -> 77.8	18478	2.50 µg/L	0.000
M3-PFBS	5.506	302.1 -> 79.9	13744	2.50 µg/L	-0.025
M3-PFHxS	7.288	402.1 -> 79.9	9321	2.50 µg/L	-0.012
M8-PFOS	8.371	507.1 -> 79.9	9355	2.50 µg/L	-0.012
M2-4:2FTS	5.216	329.1 -> 80.9	1980	5.00 µg/L	-0.012
M2-6:2FTS	6.921	429.1 -> 80.9	2798	5.00 µg/L	-0.012
M2-8:2FTS	7.970	529.1 -> 80.9	2797	5.00 µg/L	-0.012
M3-MeFOSAA	8.240	573.2 -> 419.0	28229	5.00 µg/L	0.000
M3-HFPO-DA	5.928	286.9 -> 168.9	16135	10.00 µg/L	-0.012
M5-EtFOSAA	8.448	589.2 -> 419.0	23080	5.00 µg/L	0.000
M7-MeFOSE	10.591	623.2 -> 58.9	31791	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	25147	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	8773	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	7530	2.50 µg/L	0.000
13C4-PFOS	8.372	502.8 -> 79.9	10821	2.50 µg/L	-0.012
13C3-PFBA	2.979	216.0 -> 172.0	37905	5.00 µg/L	-0.025
18O2-PFHxS	7.287	403.0 -> 83.9	6861	2.50 µg/L	-0.012
13C4-PFOA	7.160	417.1 -> 372.0	77402	2.50 µg/L	-0.012
13C2-PFDA	8.196	515.1 -> 470.1	27483	1.25 µg/L	-0.012
13C5-PFNA	7.703	468.0 -> 423.0	29749	1.25 µg/L	0.000
13C2-PFHxA	5.552	315.1 -> 270.0	38823	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.216	329.1 -> 80.9	1980	5.53 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.7%		
13C2-6:2FTS	6.921	429.1 -> 80.9	2798	5.71 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.2%		
13C2-8:2FTS	7.970	529.1 -> 80.9	2797	5.23 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C2-PFDoDA	9.117	615.1 -> 570.0	27739	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C2-PFTeDA	9.844	715.2 -> 670.0	15727	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C3-PFBS	5.506	302.1 -> 79.9	13744	2.39 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C3-PFHxS	7.288	402.1 -> 79.9	9321	2.50 µg/L	-0.012

7.7.13
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFBA	2.975	216.8 -> 171.9	86733	10.02 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFHpA	6.503	367.1 -> 322.0	38288	2.43 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C5-PFHxA	5.551	318.0 -> 273.0	36844	2.36 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C5-PFPeA	4.371	268.3 -> 223.0	41327	4.77 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C6-PFDA	8.195	519.1 -> 474.1	19480	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C7-PFUnDA	8.674	570.0 -> 525.1	23612	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C8-FOSA	9.568	506.1 -> 77.8	18478	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-PFOA	7.160	421.1 -> 376.0	66929	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C8-PFOS	8.371	507.1 -> 79.9	9355	2.71 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C9-PFNA	7.702	472.1 -> 427.0	30002	1.42 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.5%	
d3-MeFOSAA	8.240	573.2 -> 419.0	28229	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C3-HFPO-DA	5.928	286.9 -> 168.9	16135	10.08 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
d3-MeFOSA	10.683	515.0 -> 219.0	7530	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.0%	
d5-EtFOSAA	8.448	589.2 -> 419.0	23080	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d7-MeFOSE	10.591	623.2 -> 58.9	31791	23.08 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.3%	
d9-EtFOSE	10.849	639.2 -> 58.9	25147	23.87 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
d5-EtFOSA	10.927	531.1 -> 219.0	8773	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.6%	
Target Compounds					QValue
4:2FTS	5.216	327.1 -> 307.0	2987	0.63 µg/L	98
		327.1 -> 80.9	734		
6:2FTS	6.922	427.1 -> 407.0	2971	0.68 µg/L	96
		427.1 -> 80.9	682		
8:2FTS	7.983	527.1 -> 507.0	1583	0.68 µg/L	93
		527.1 -> 80.8	447		
EtFOSAA	8.449	584.2 -> 419.1	748	0.20 µg/L	m 85
		584.2 -> 526.0	353		
FOSA	9.558	498.1 -> 77.9	1464	0.20 µg/L	# 94
		498.1 -> 478.0	89		
MeFOSAA	8.241	570.1 -> 419.0	1102	0.19 µg/L	m 88
		570.1 -> 483.0	163		
PFBA	2.982	212.8 -> 168.9	1573	0.71 µg/L	100
PFBS	5.507	298.7 -> 79.9	925	0.17 µg/L	97
		298.7 -> 98.8	402		
PFDA	8.196	512.9 -> 469.0	4213	0.18 µg/L	98
		512.9 -> 219.0	535		
PFDODA	9.117	613.1 -> 569.0	4036	0.18 µg/L	96
		613.1 -> 319.0	567		
PFDS	9.280	599.0 -> 79.9	536	0.17 µg/L	98

7.7.13
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.504	599.0 -> 98.8	278	0.18	µg/L	99
		363.1 -> 319.0	4224			
PFHpS	7.867	363.1 -> 169.0	530	0.14	µg/L	95
		449.0 -> 79.9	608			
PFHxA	5.554	449.0 -> 98.9	370	0.18	µg/L	99
		313.0 -> 269.0	2748			
PFHxS	7.289	313.0 -> 118.9	86	0.17	µg/L	m
		398.7 -> 79.9	768			
PFNA	7.703	398.7 -> 98.9	480	0.18	µg/L	99
		463.0 -> 419.0	3805			
PFNS	8.862	463.0 -> 219.0	747	0.16	µg/L	85
		548.8 -> 79.9	733			
PFOA	7.161	548.8 -> 98.9	378	0.20	µg/L	97
		413.0 -> 369.0	6002			
PFOS	8.372	413.0 -> 169.0	767	0.16	µg/L	m
		498.9 -> 79.9	735			
PFPeA	4.374	498.9 -> 98.8	496	0.38	µg/L	100
		263.0 -> 219.0	3436			
PFPeS	6.582	349.1 -> 79.9	862	0.16	µg/L	82
		349.1 -> 98.9	572			
PFTeDA	9.844	713.1 -> 669.0	3579	0.19	µg/L	95
		713.1 -> 168.9	292			
PFTrDA	9.501	663.0 -> 619.0	3644	0.17	µg/L	97
		663.0 -> 168.9	339			
PFUnDA	8.662	563.1 -> 519.0	3784	0.19	µg/L	99
		563.1 -> 269.1	523			
11Cl-PF3OUdS	9.565	630.9 -> 450.9	7874	0.64	µg/L	100
		632.9 -> 452.9	2548			
9Cl-PF3ONS	8.727	530.8 -> 351.0	13010	0.65	µg/L	90
		532.8 -> 353.0	3670			
ADONA	6.767	376.9 -> 250.9	23211	0.65	µg/L	96
		376.9 -> 84.8	5188			
HFPO-DA	5.929	284.9 -> 168.9	1197	0.73	µg/L	96
		284.9 -> 184.9	129			
3:3FTCA	3.827	241.0 -> 177.0	412	0.85	µg/L	98
		241.0 -> 117.0	52			
5:3FTCA	6.182	341.0 -> 237.1	13782	4.45	µg/L	99
		341.0 -> 217.0	11803			
7:3FTCA	7.618	441.0 -> 316.9	9422	4.51	µg/L	87
		441.0 -> 336.9	20419			
EtFOSA	10.929	526.0 -> 219.0	795	0.19	µg/L	89
		526.0 -> 169.0	790			
EtFOSE	10.862	630.0 -> 58.9	1994	1.80	µg/L	100
		511.9 -> 219.0	657			
MeFOSA	10.685	511.9 -> 169.0	655	0.20	µg/L	80
		616.1 -> 58.9	2515			
MeFOSE	10.604	699.1 -> 79.9	332	1.92	µg/L	100
		699.1 -> 98.8	228			
PFDoDS	9.984	295.0 -> 201.0	385	0.16	µg/L	92
		295.0 -> 84.9	175			
NFDHA	5.433	279.0 -> 85.1	1080	0.40	µg/L	93
		229.0 -> 84.9	972			
PFMBA	4.776	314.8 -> 134.9	6840	0.33	µg/L	#
PFMPA	3.525	314.8 -> 82.9	63			
PFEESA	6.047					

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

7.7.13
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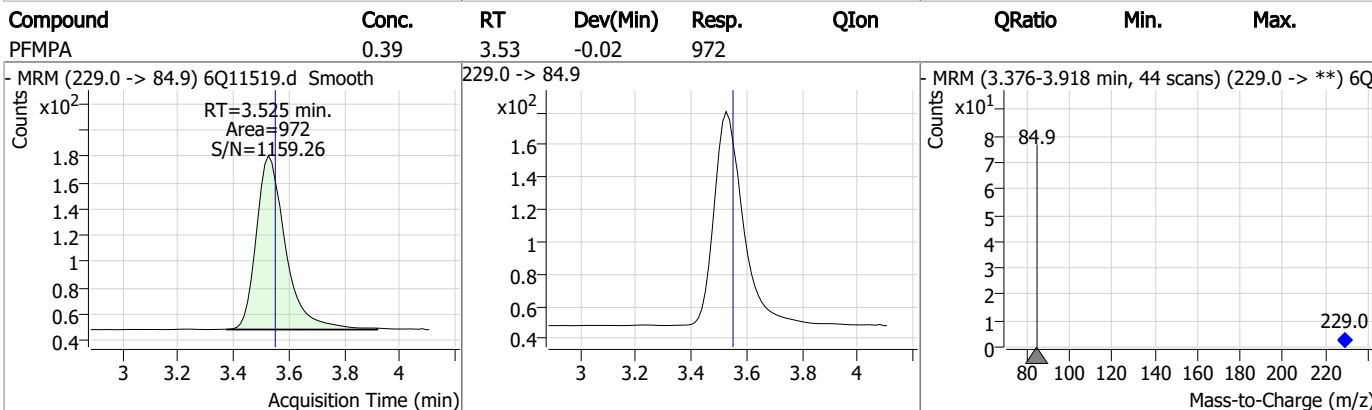
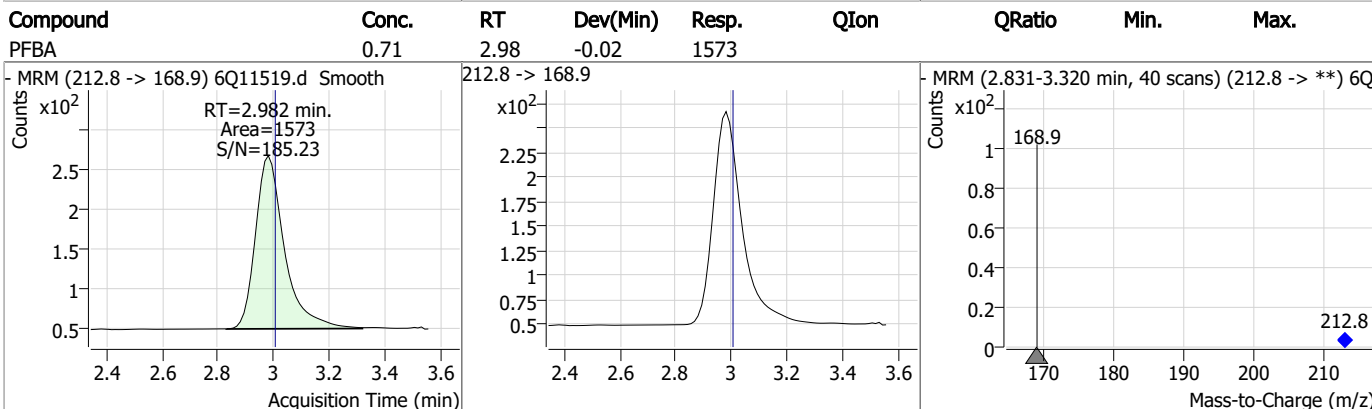
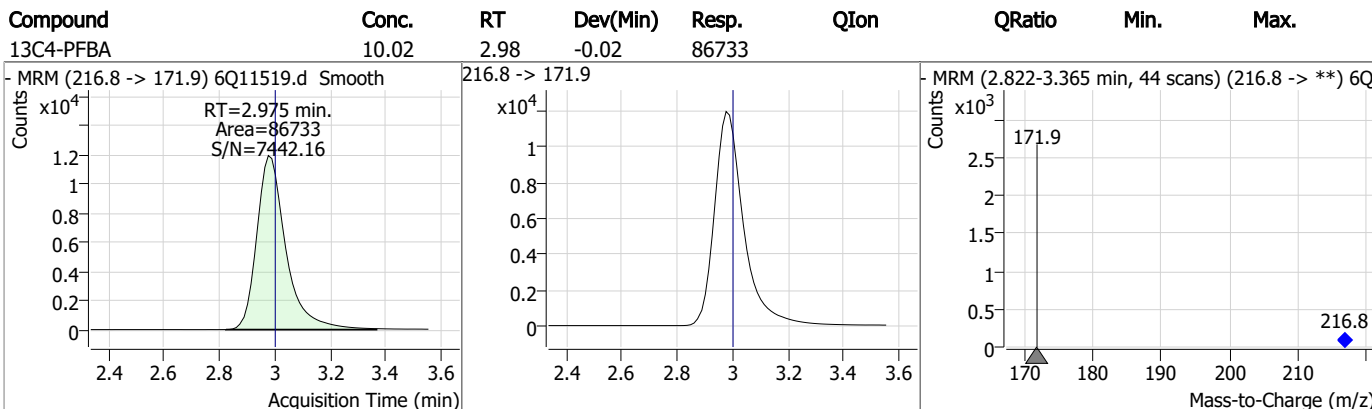
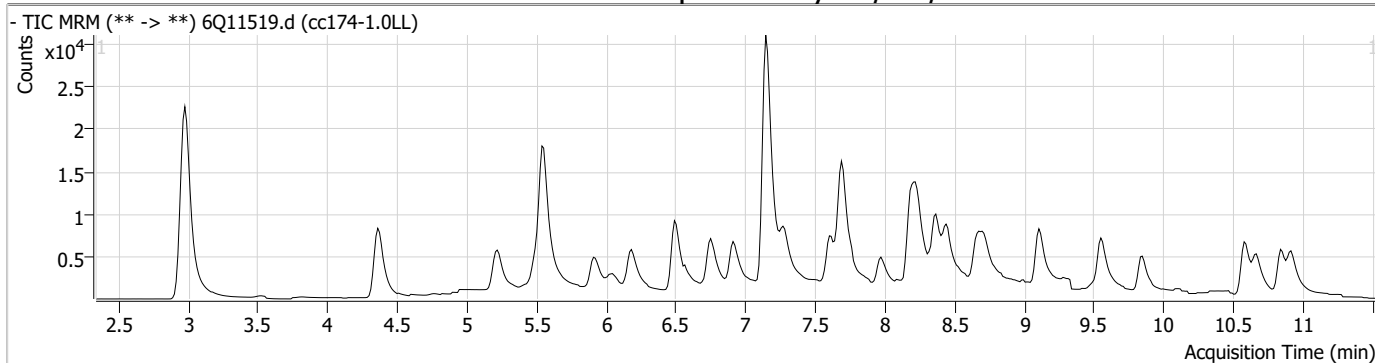
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.13

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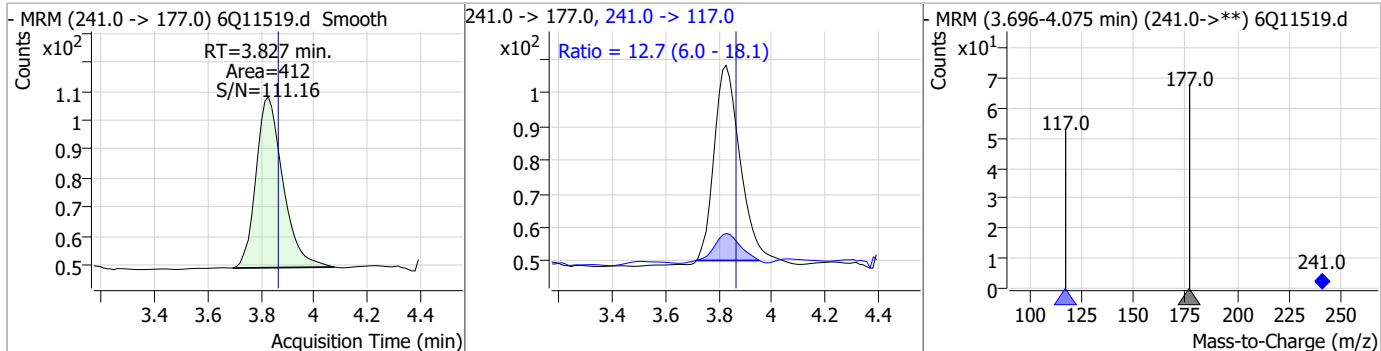
Perfluorinated Compounds by LC/MS/MS



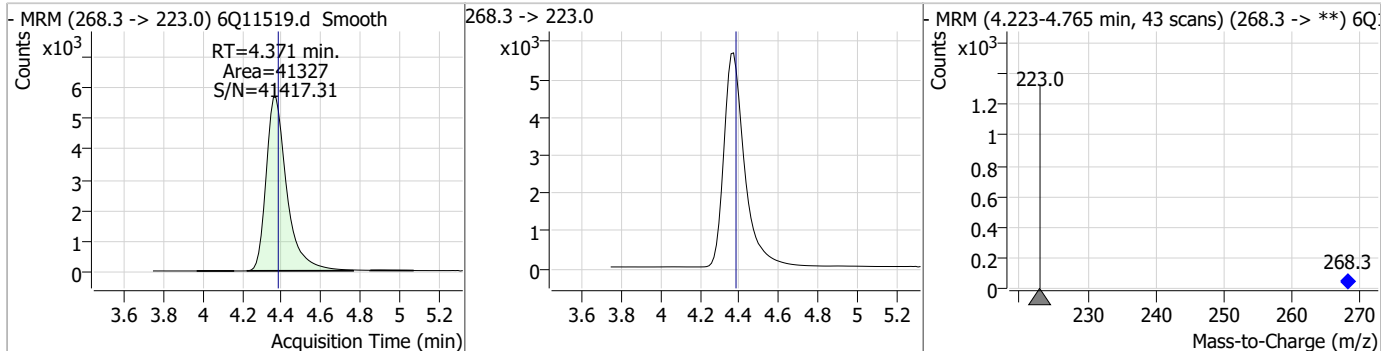
7.7.13
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Perfluorinated Compounds by LC/MS/MS

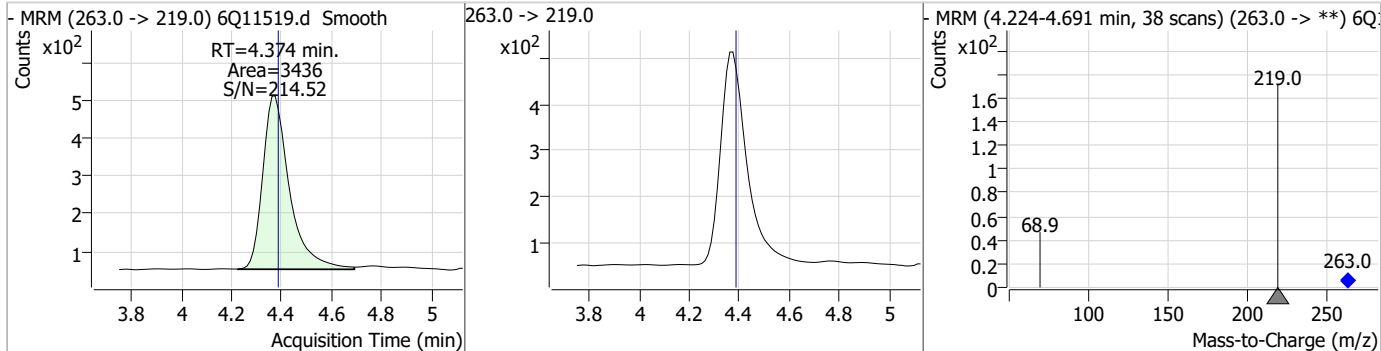
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	0.85	3.83	-0.04	412	241.0 -> 117.0	12.7	6.0	18.1



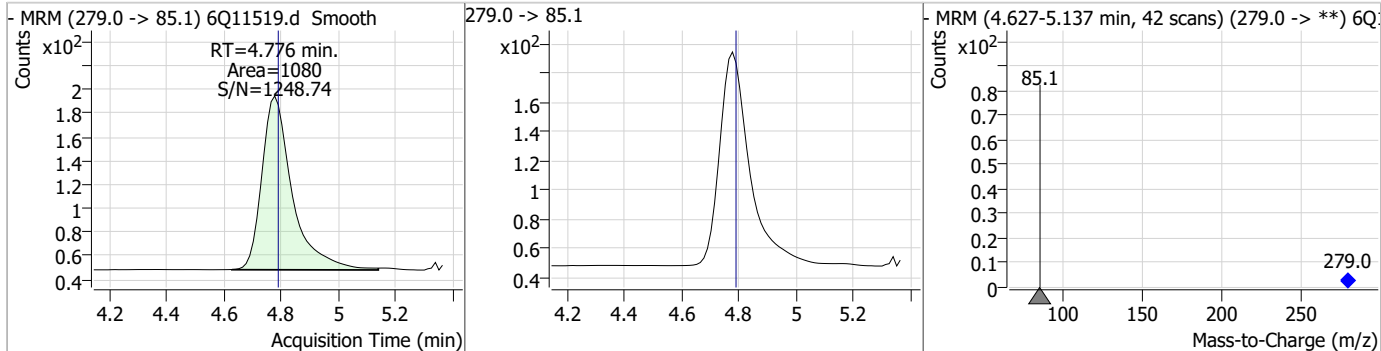
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.77	4.37	-0.01	41327				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.38	4.37	-0.01	3436				

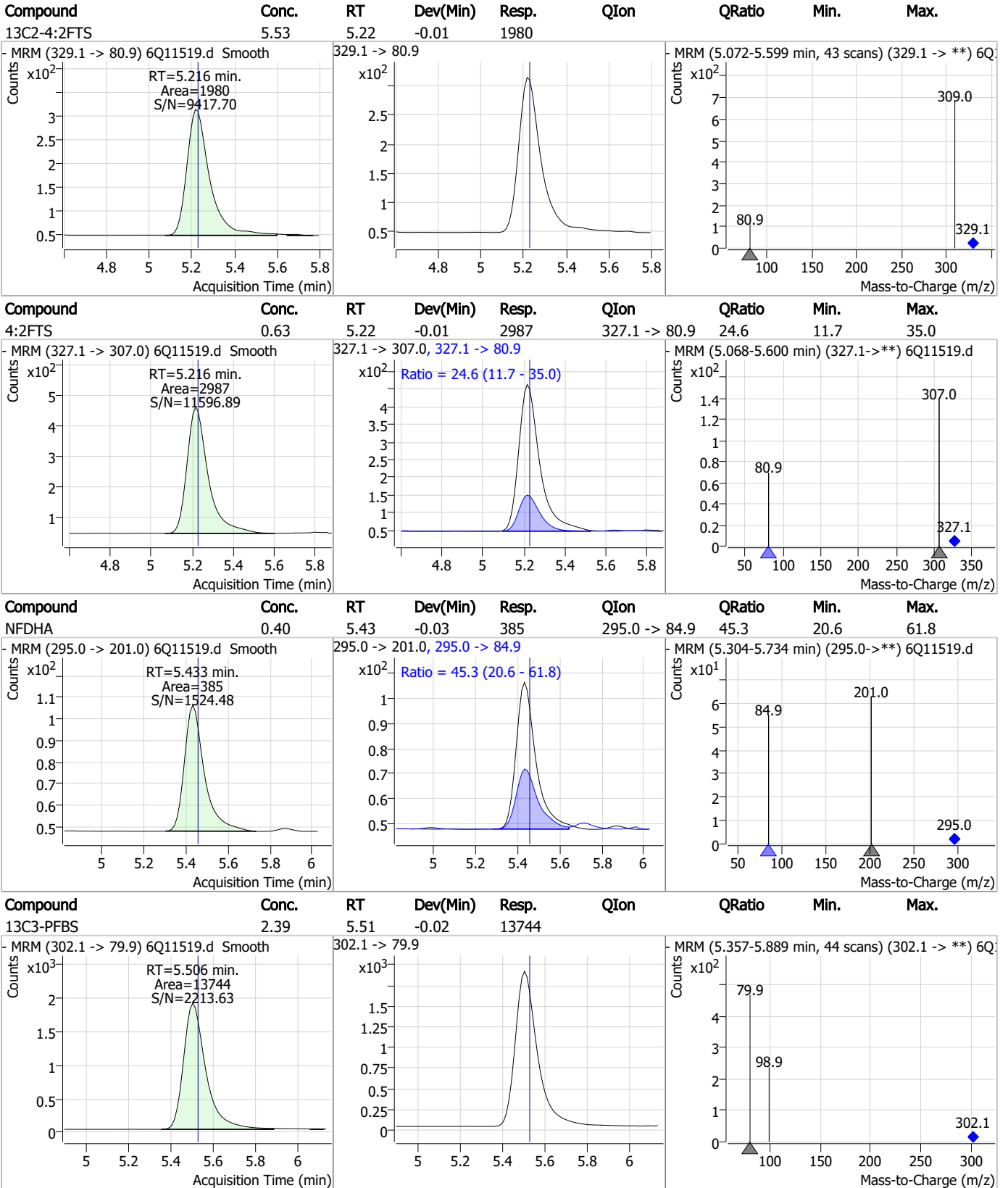


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.38	4.78	-0.01	1080				



7.7.13
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Perfluorinated Compounds by LC/MS/MS

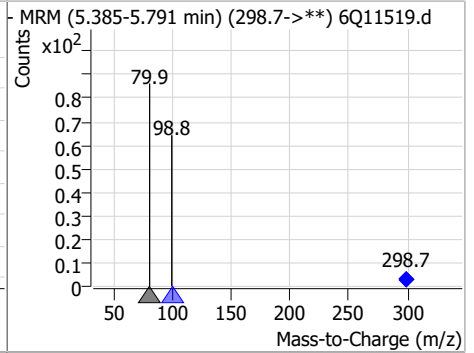
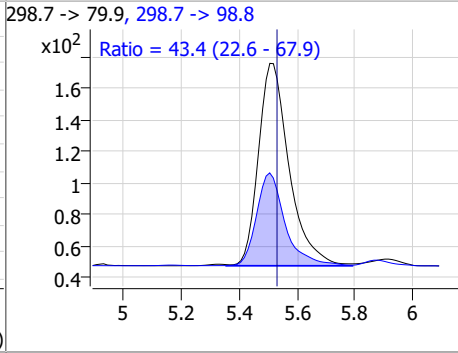
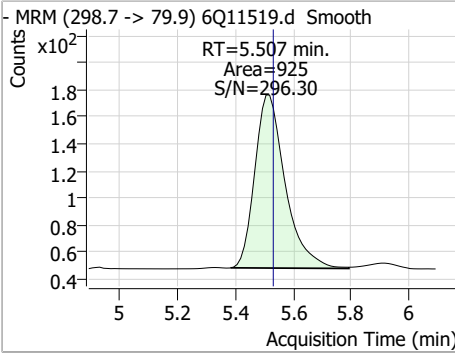


7.7.13 7

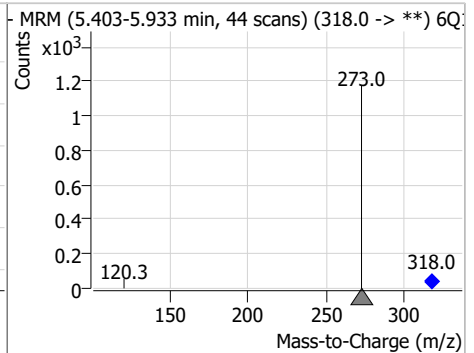
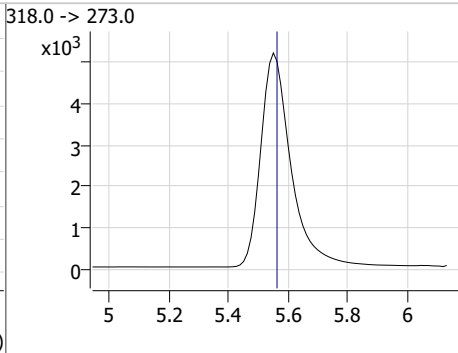
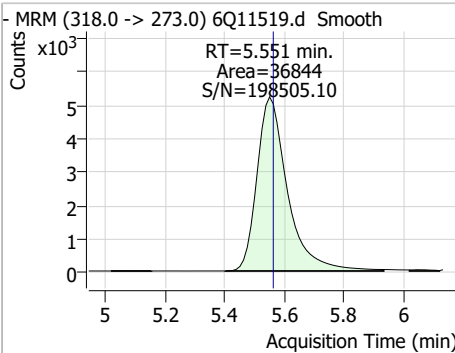


Perfluorinated Compounds by LC/MS/MS

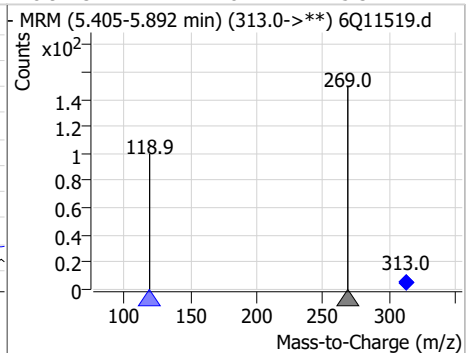
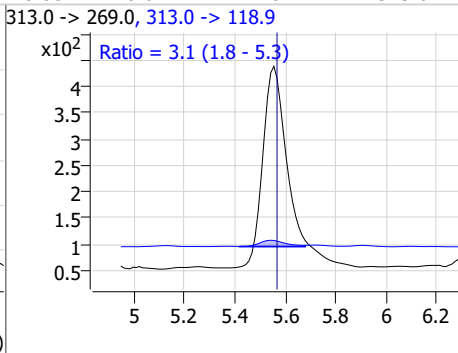
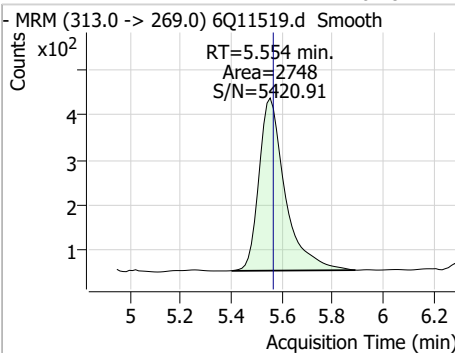
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.17	5.51	-0.02	925	298.7 -> 98.8	43.4	22.6	67.9



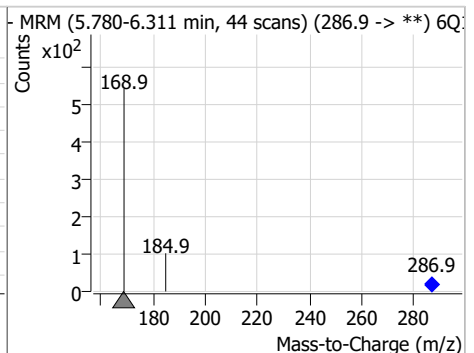
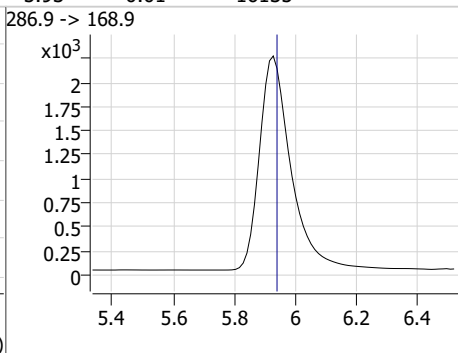
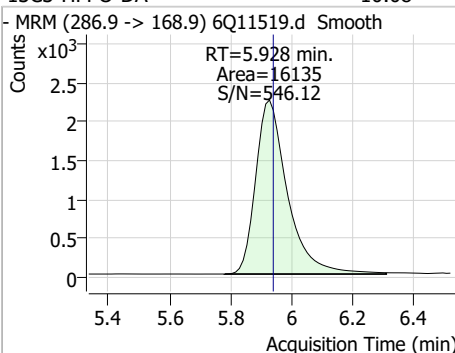
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.36	5.55	-0.01	36844				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.18	5.55	-0.01	2748	313.0 -> 118.9	3.1	1.8	5.3

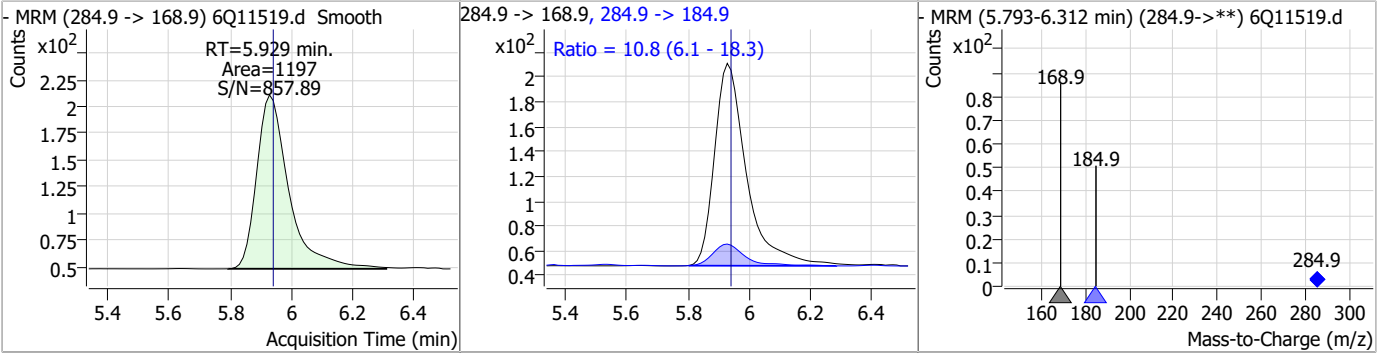


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.08	5.93	-0.01	16135				

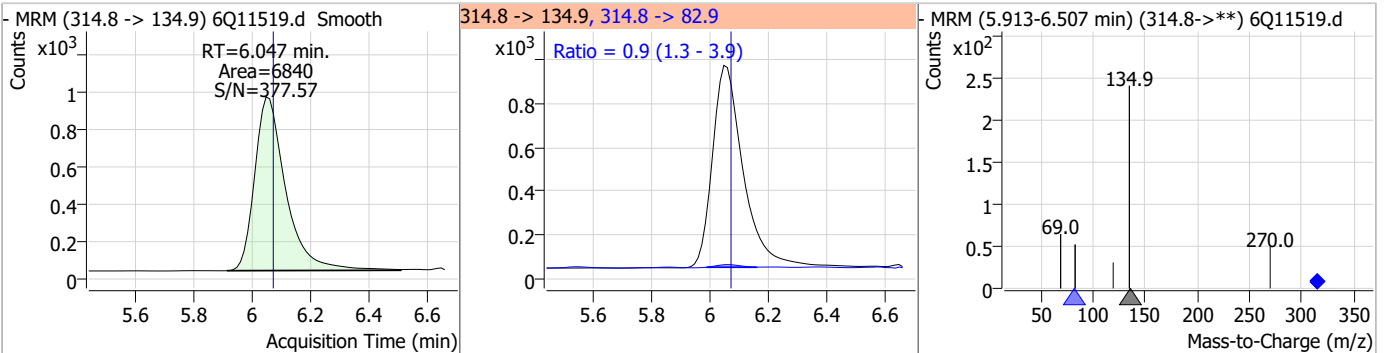


Perfluorinated Compounds by LC/MS/MS

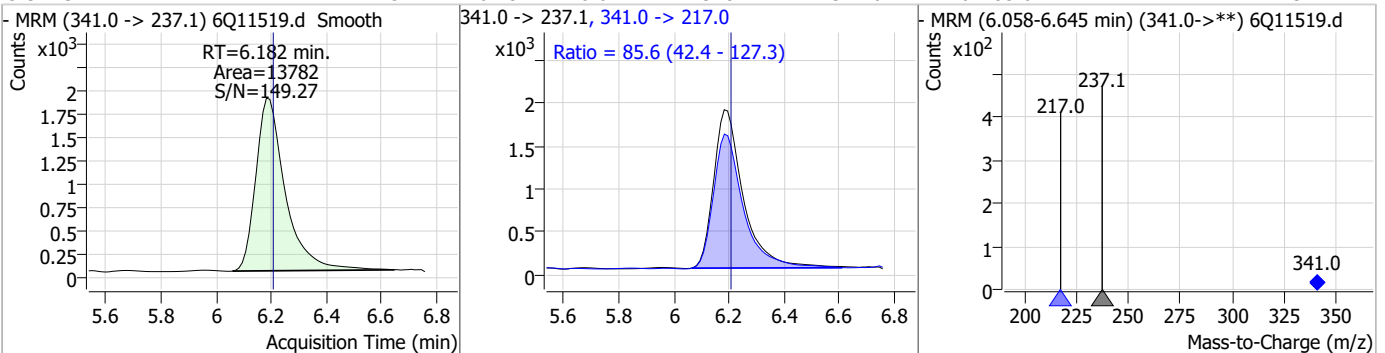
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.73	5.93	-0.01	1197	284.9 -> 184.9	10.8	6.1	18.3



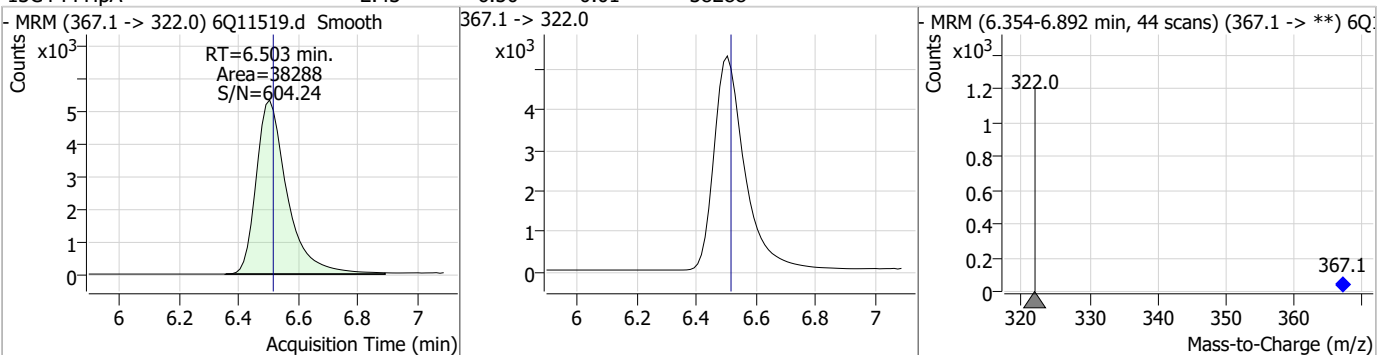
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.33	6.05	-0.02	6840	314.8 -> 82.9	0.9	1.3	3.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.45	6.18	-0.02	13782	341.0 -> 217.0	85.6	42.4	127.3

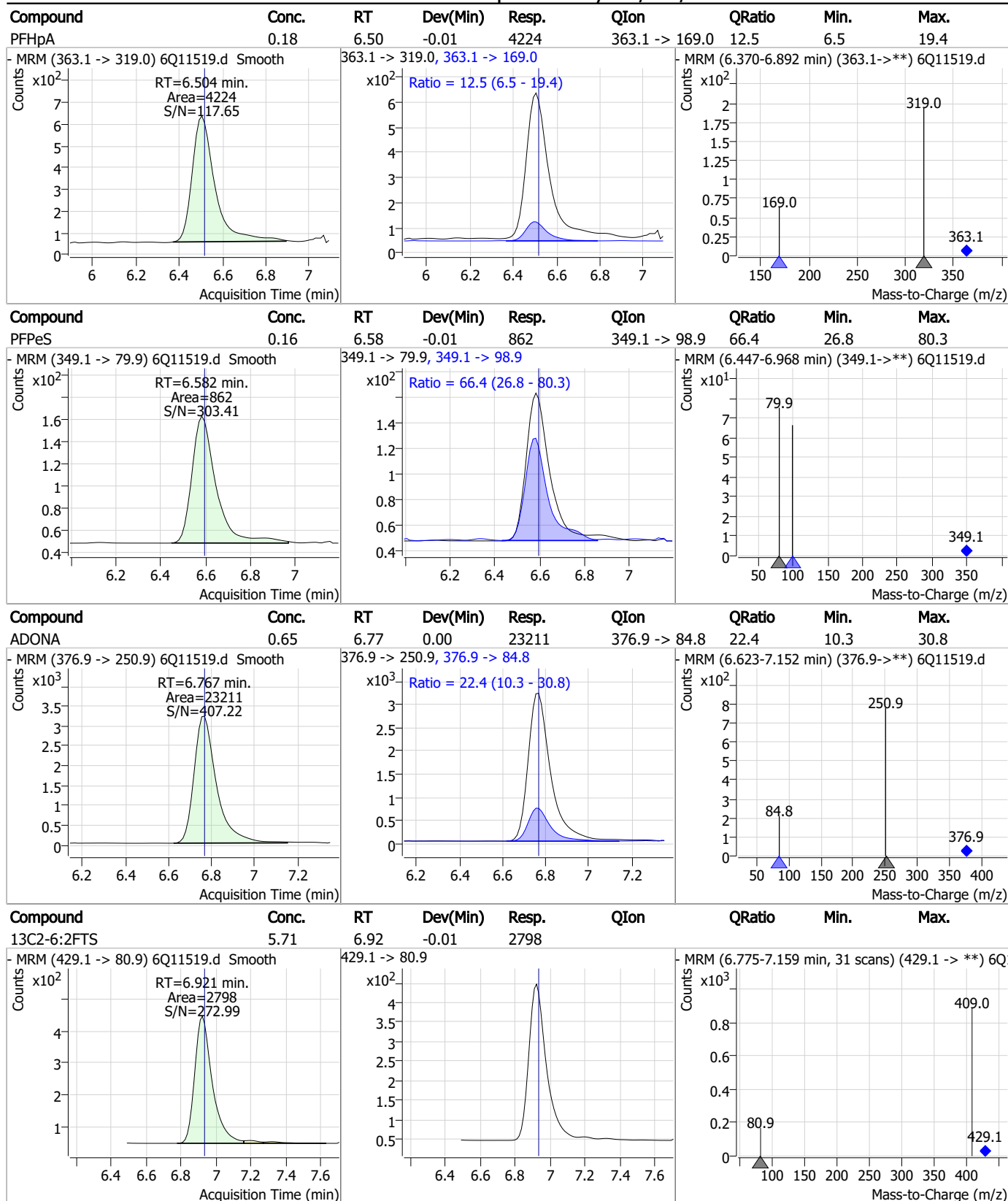


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.43	6.50	-0.01	38288	367.1 -> 322.0			



7.7.13
7

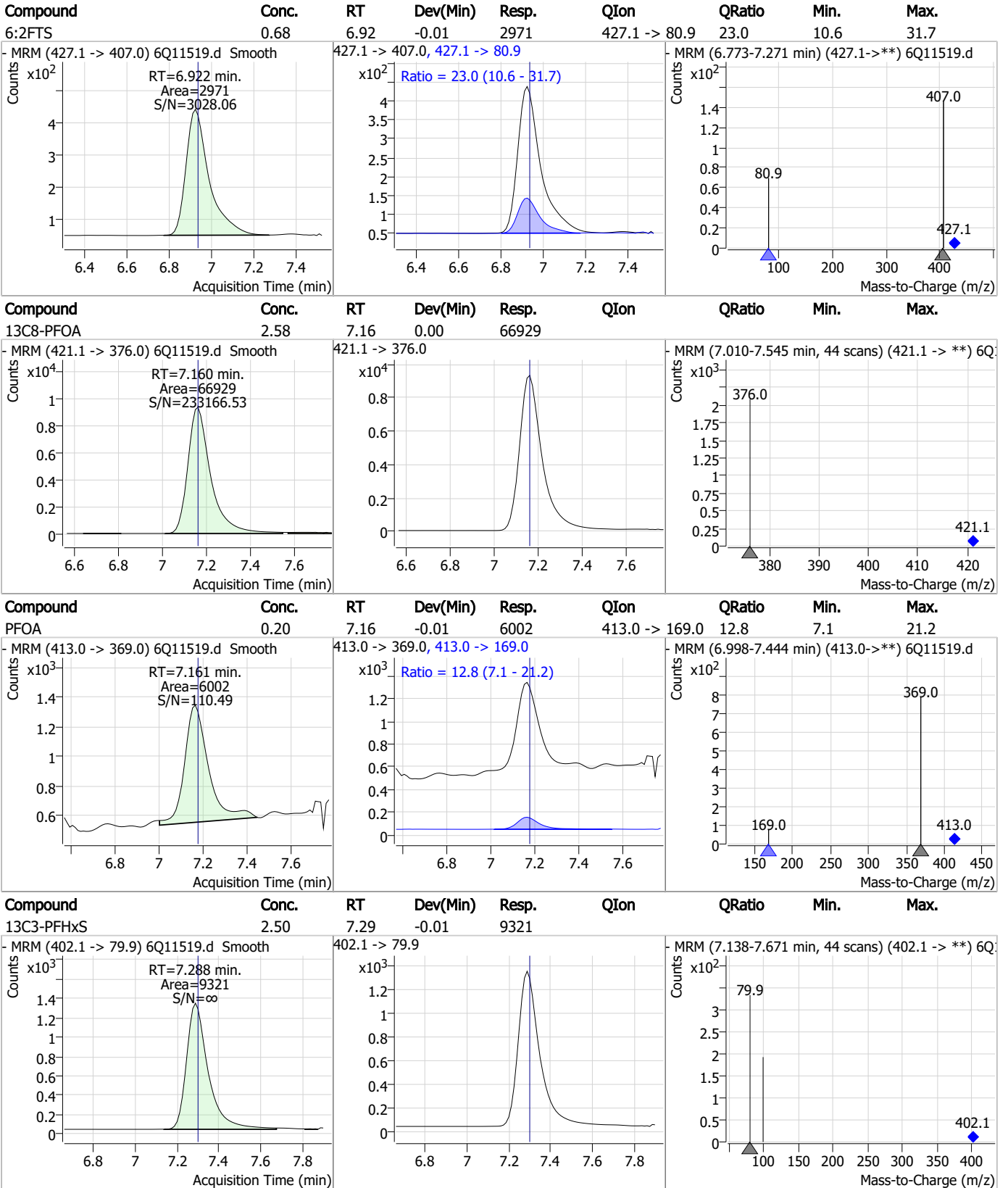
Perfluorinated Compounds by LC/MS/MS



7.7.13

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Perfluorinated Compounds by LC/MS/MS

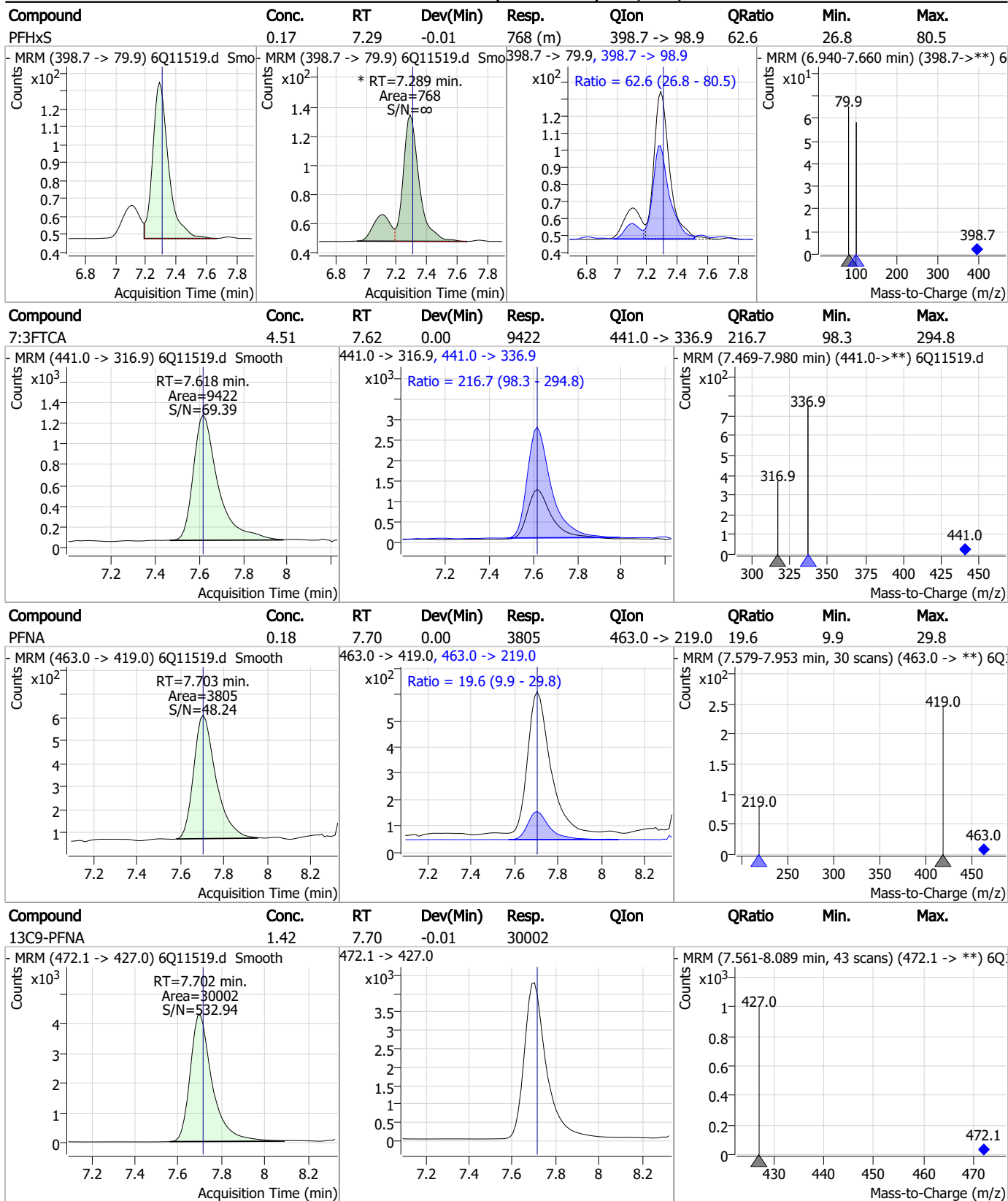


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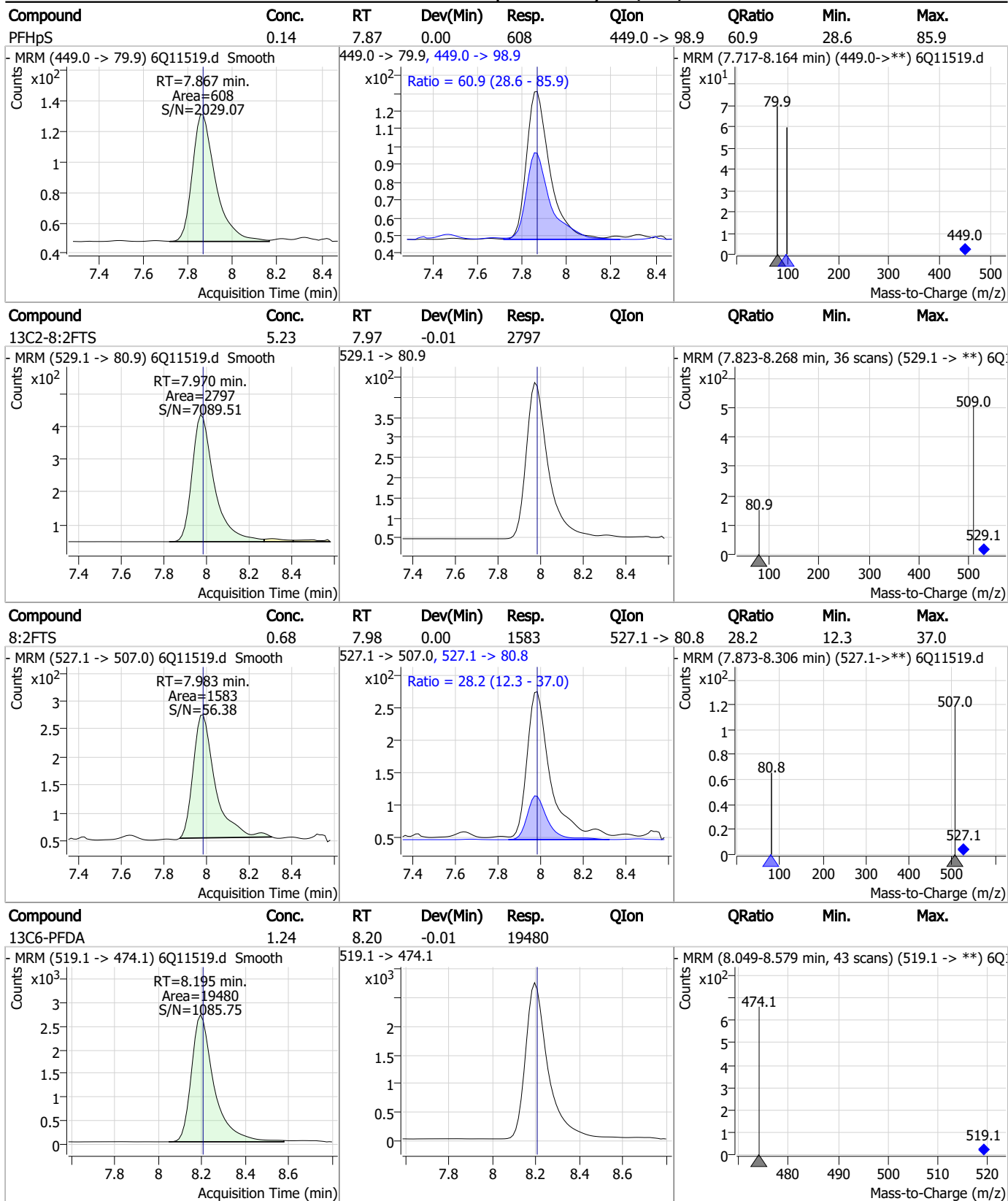


Perfluorinated Compounds by LC/MS/MS



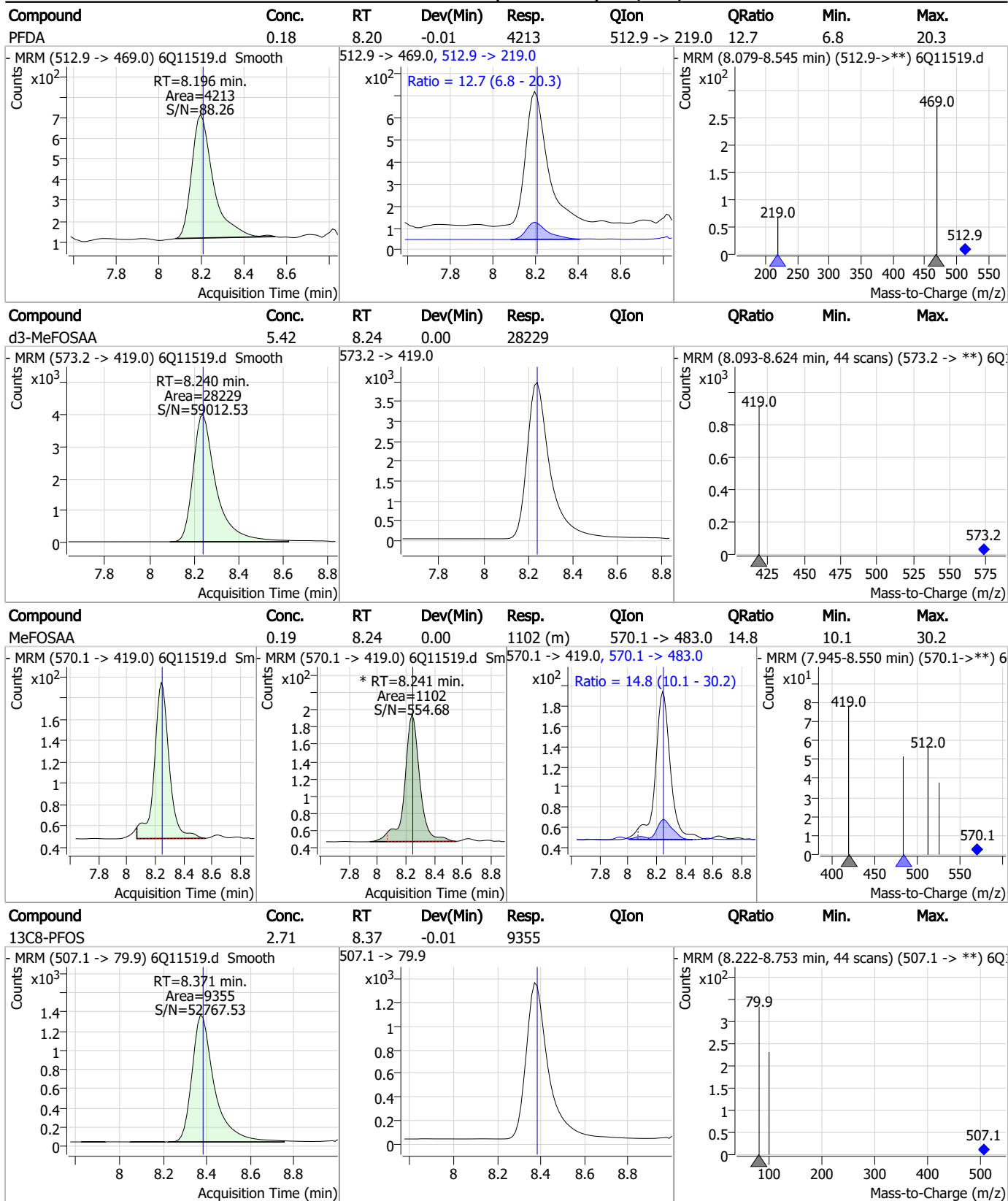
7.7.13
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Perfluorinated Compounds by LC/MS/MS



7.7.13 7

Perfluorinated Compounds by LC/MS/MS

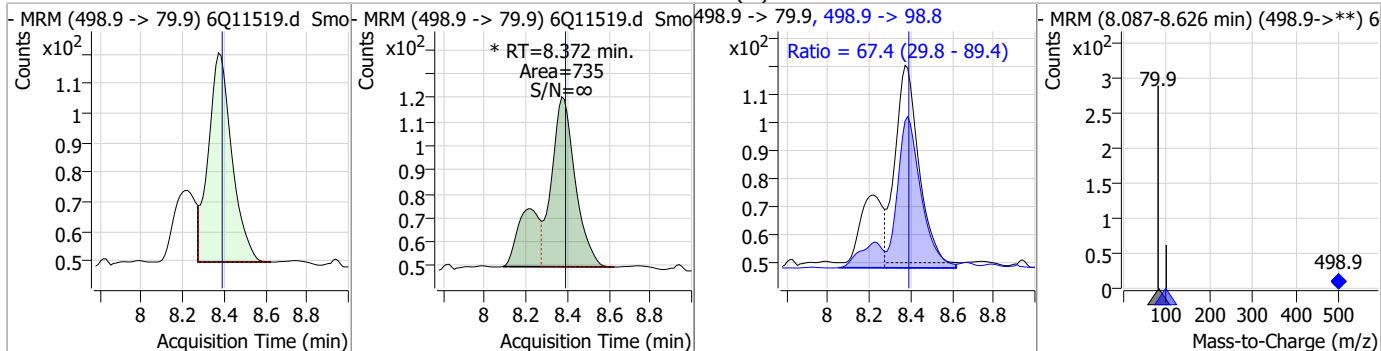


7.7.13

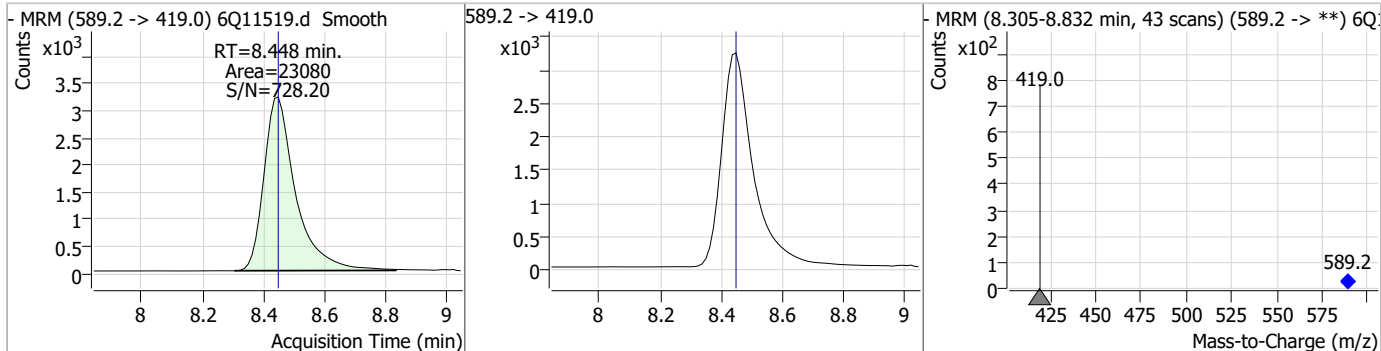
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Perfluorinated Compounds by LC/MS/MS

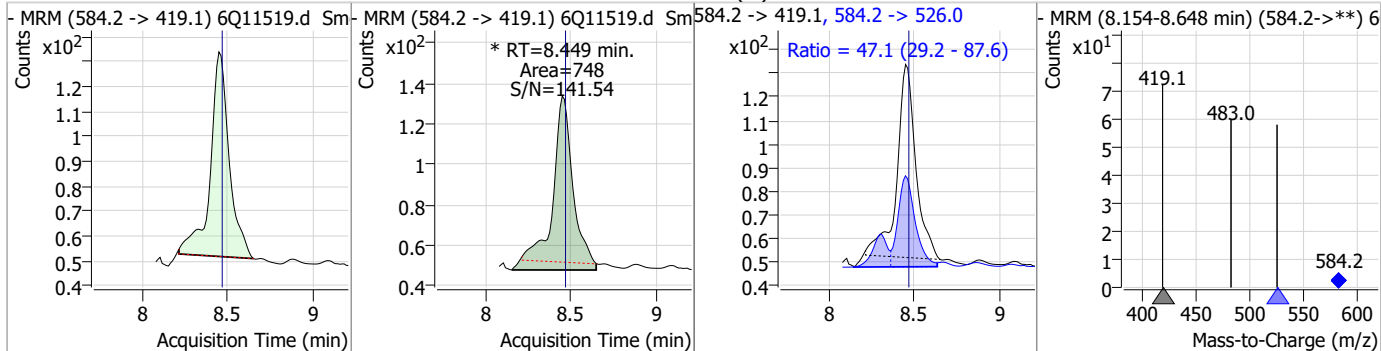
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.16	8.37	-0.01	735 (m)	498.9 -> 98.8	67.4	29.8	89.4



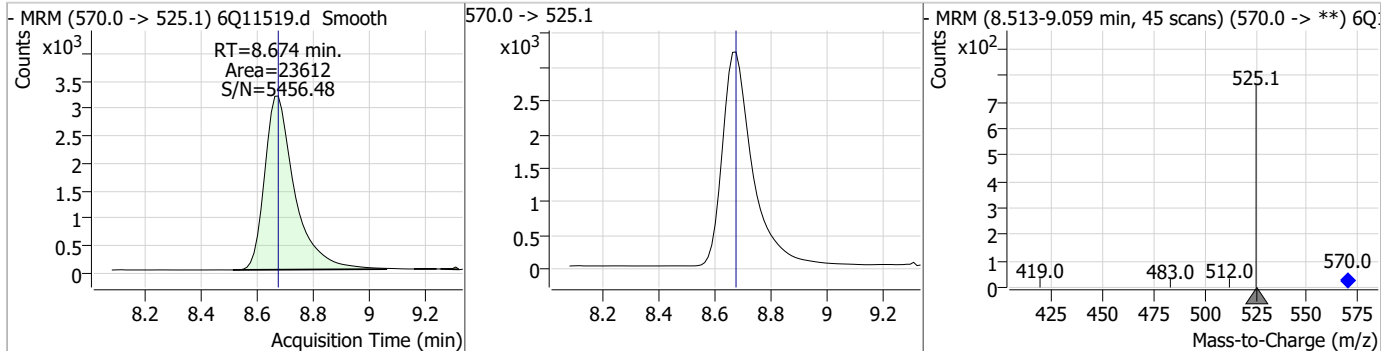
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.05	8.45	0.00	23080				



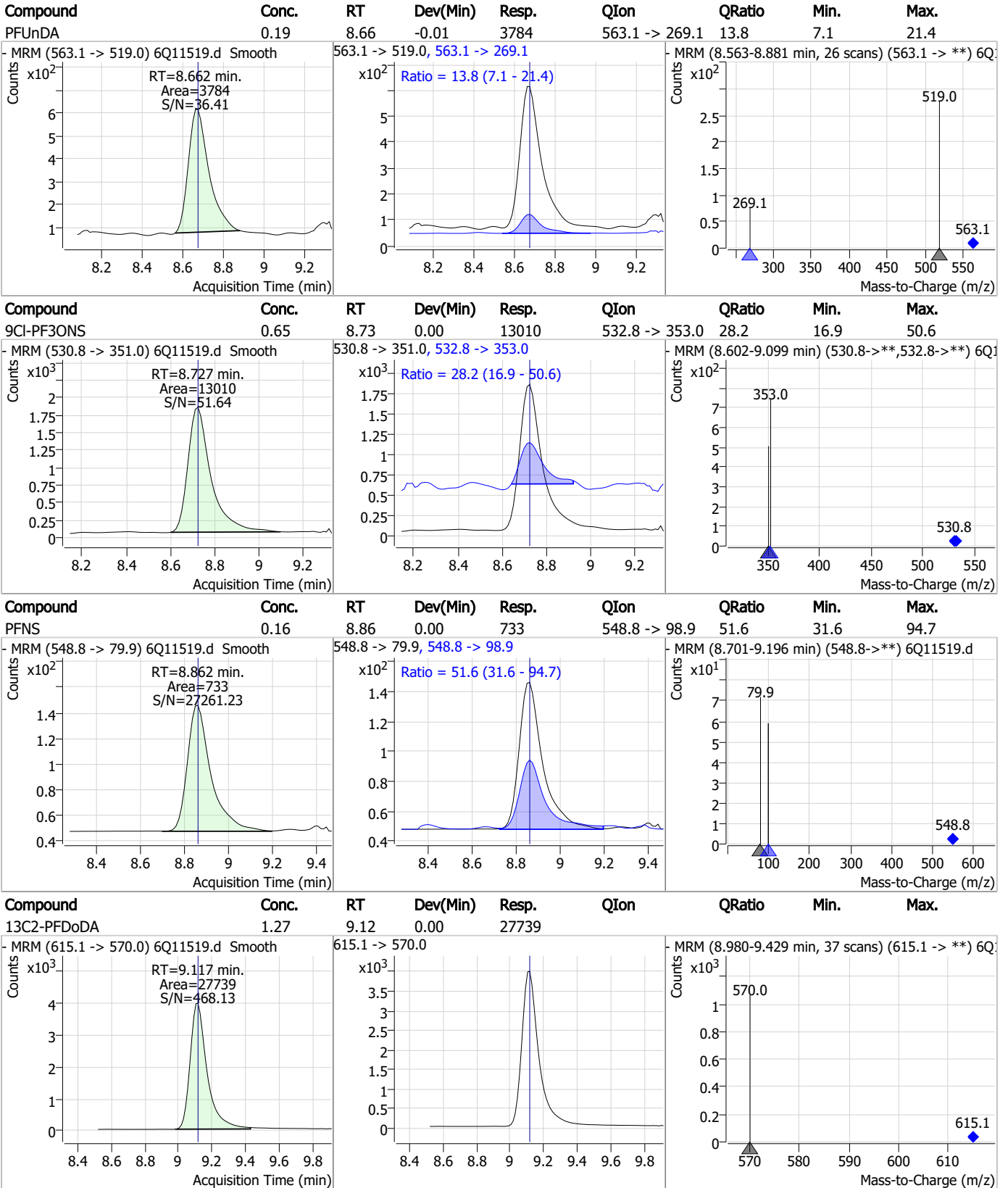
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.20	8.45	-0.01	748 (m)	584.2 -> 526.0	47.1	29.2	87.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.24	8.67	0.00	23612				



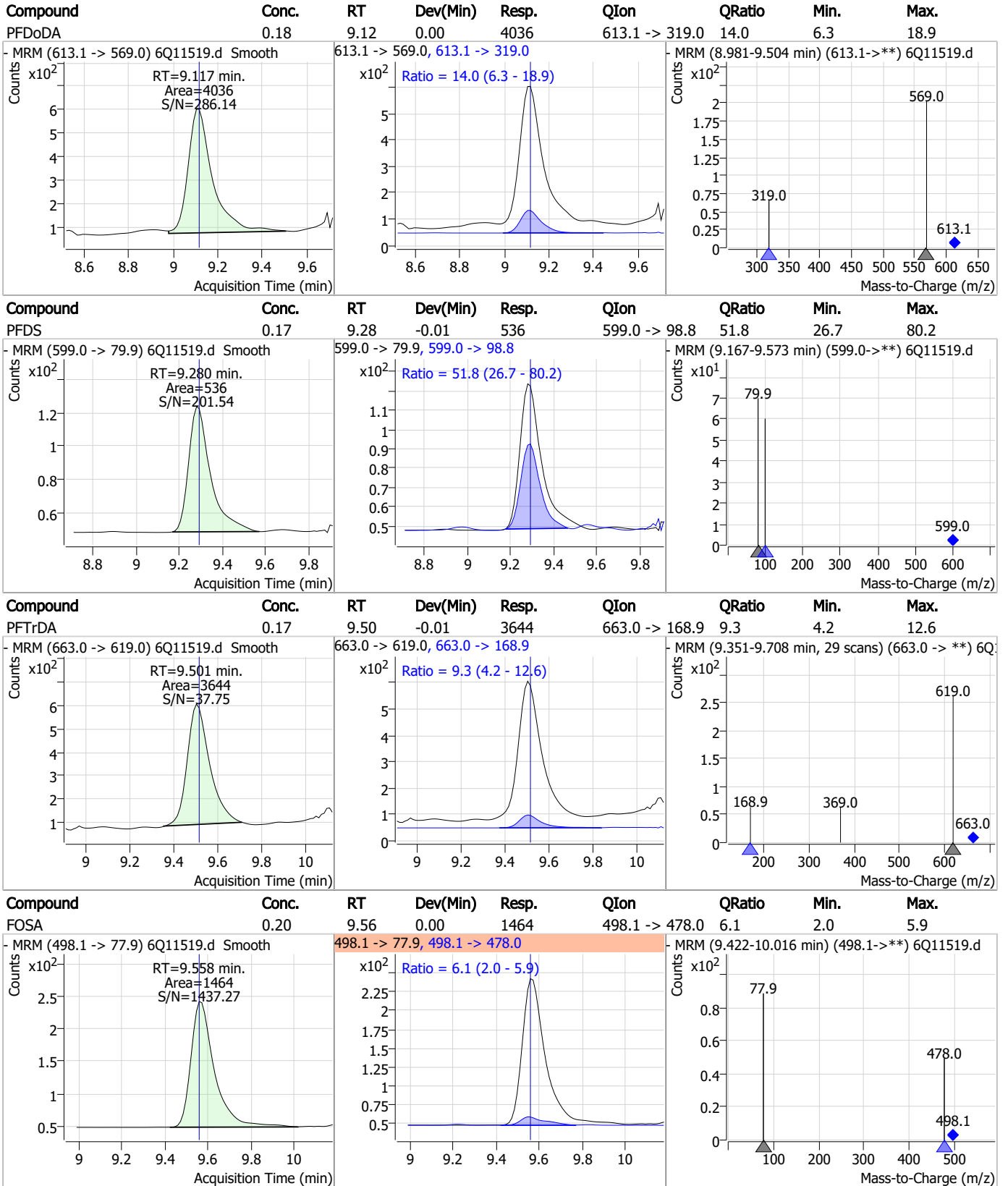
Perfluorinated Compounds by LC/MS/MS



7.7.13 7



Perfluorinated Compounds by LC/MS/MS

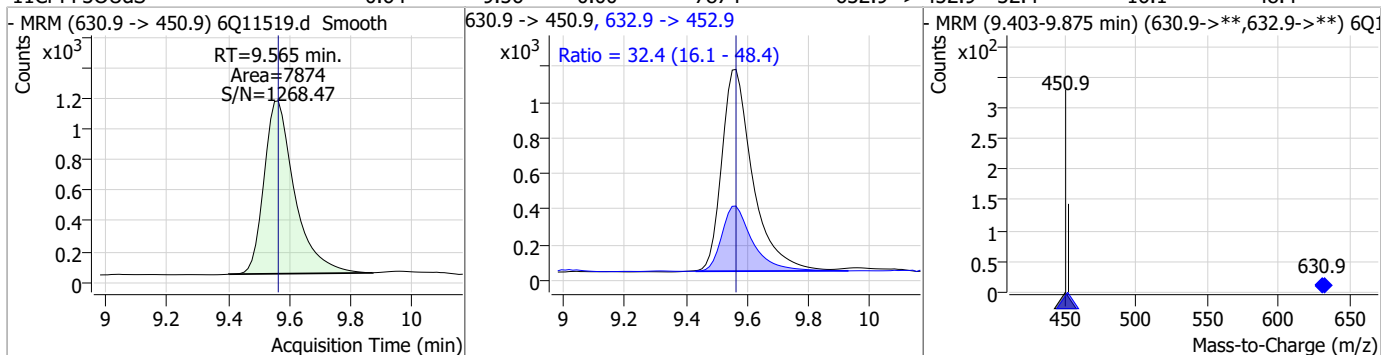


7.7.13 7

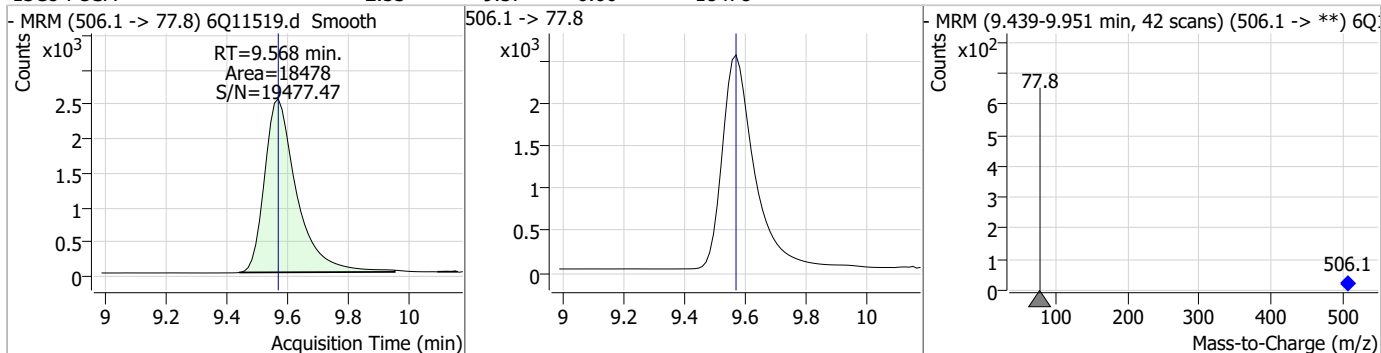


Perfluorinated Compounds by LC/MS/MS

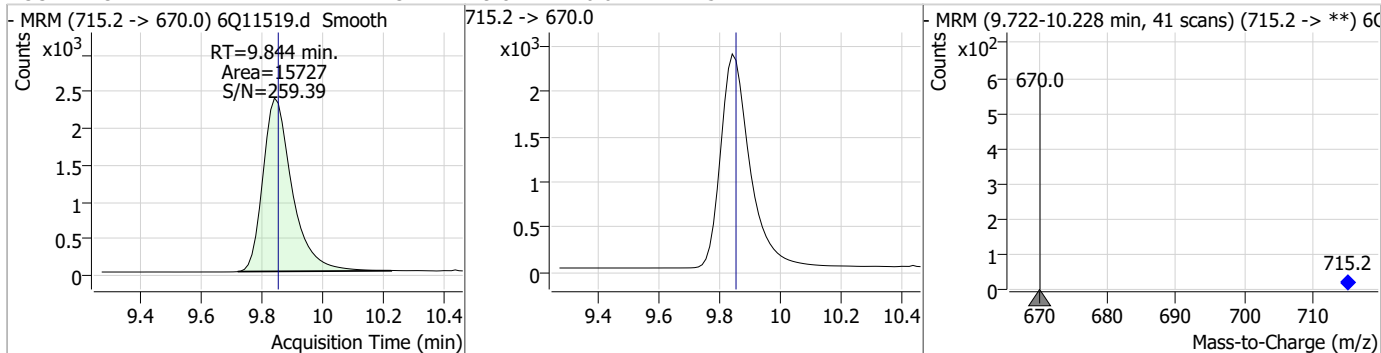
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.64	9.56	0.00	7874	632.9 -> 452.9	32.4	16.1	48.4



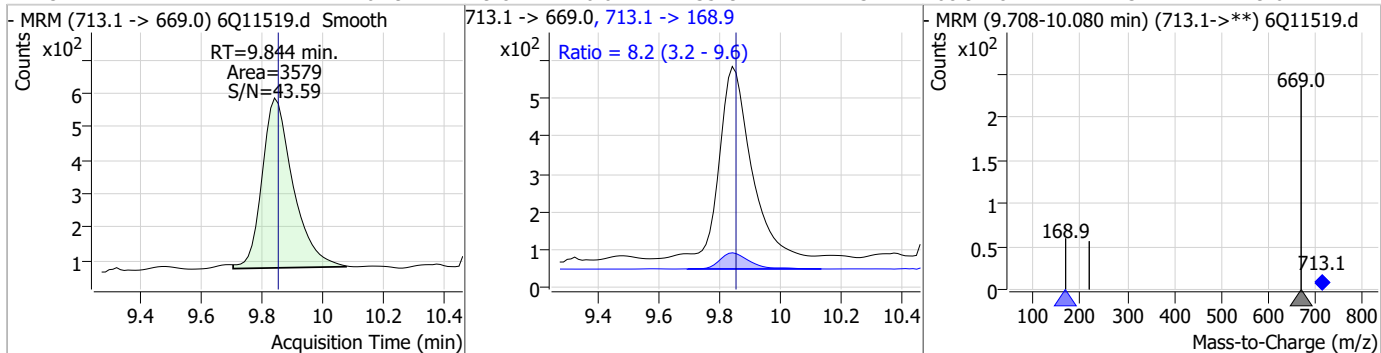
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.53	9.57	0.00	18478				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.23	9.84	-0.01	15727				

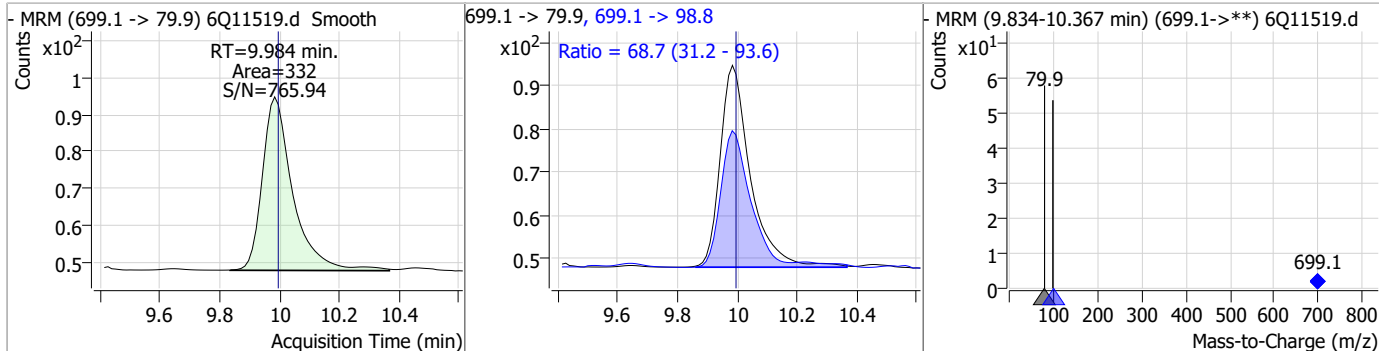


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.19	9.84	-0.01	3579	713.1 -> 168.9	8.2	3.2	9.6

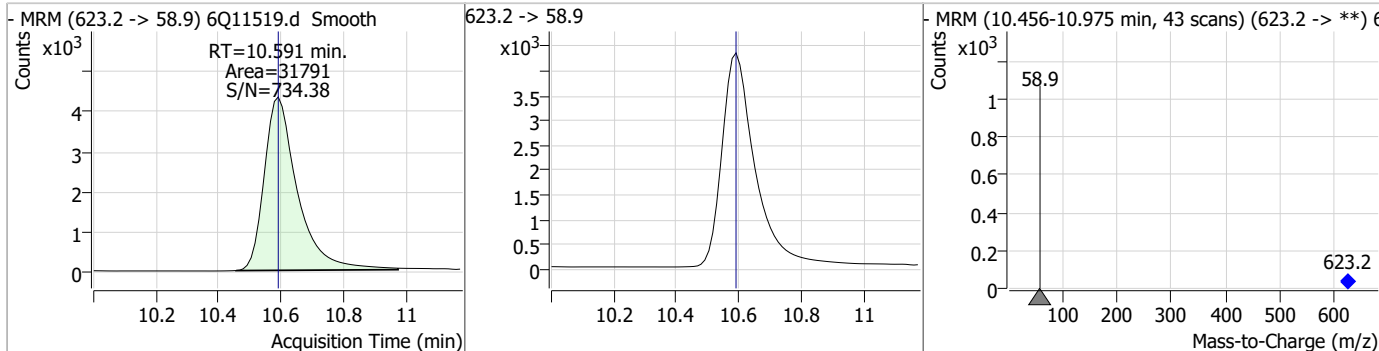


Perfluorinated Compounds by LC/MS/MS

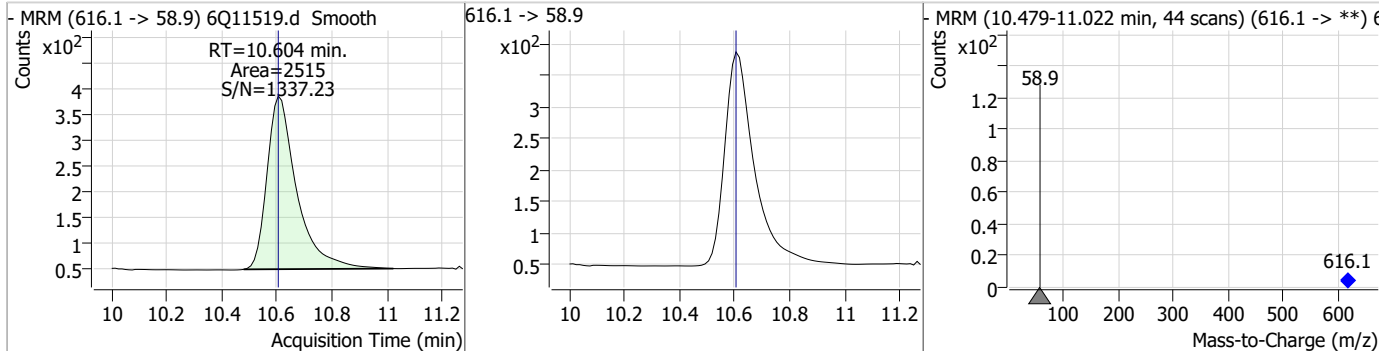
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.16	9.98	-0.01	332	699.1 -> 98.8	68.7	31.2	93.6



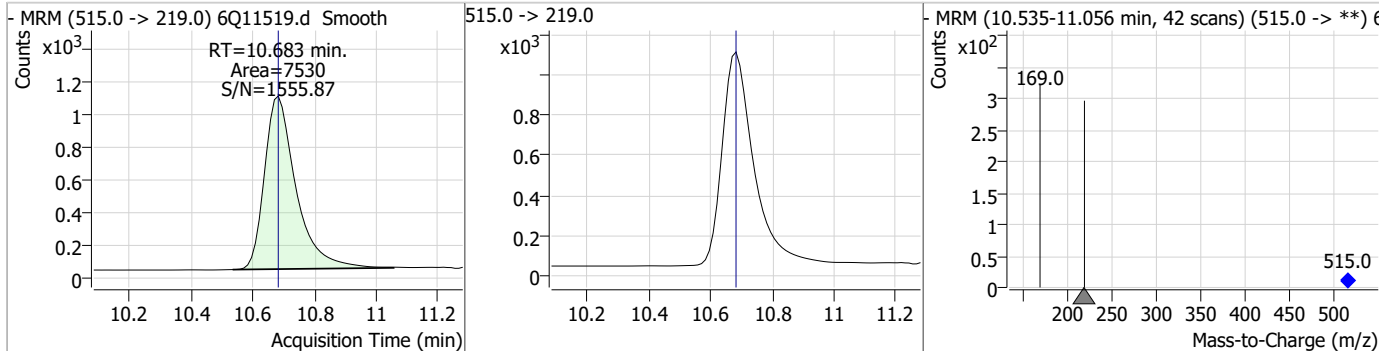
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.08	10.59	0.00	31791				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.92	10.60	0.00	2515				

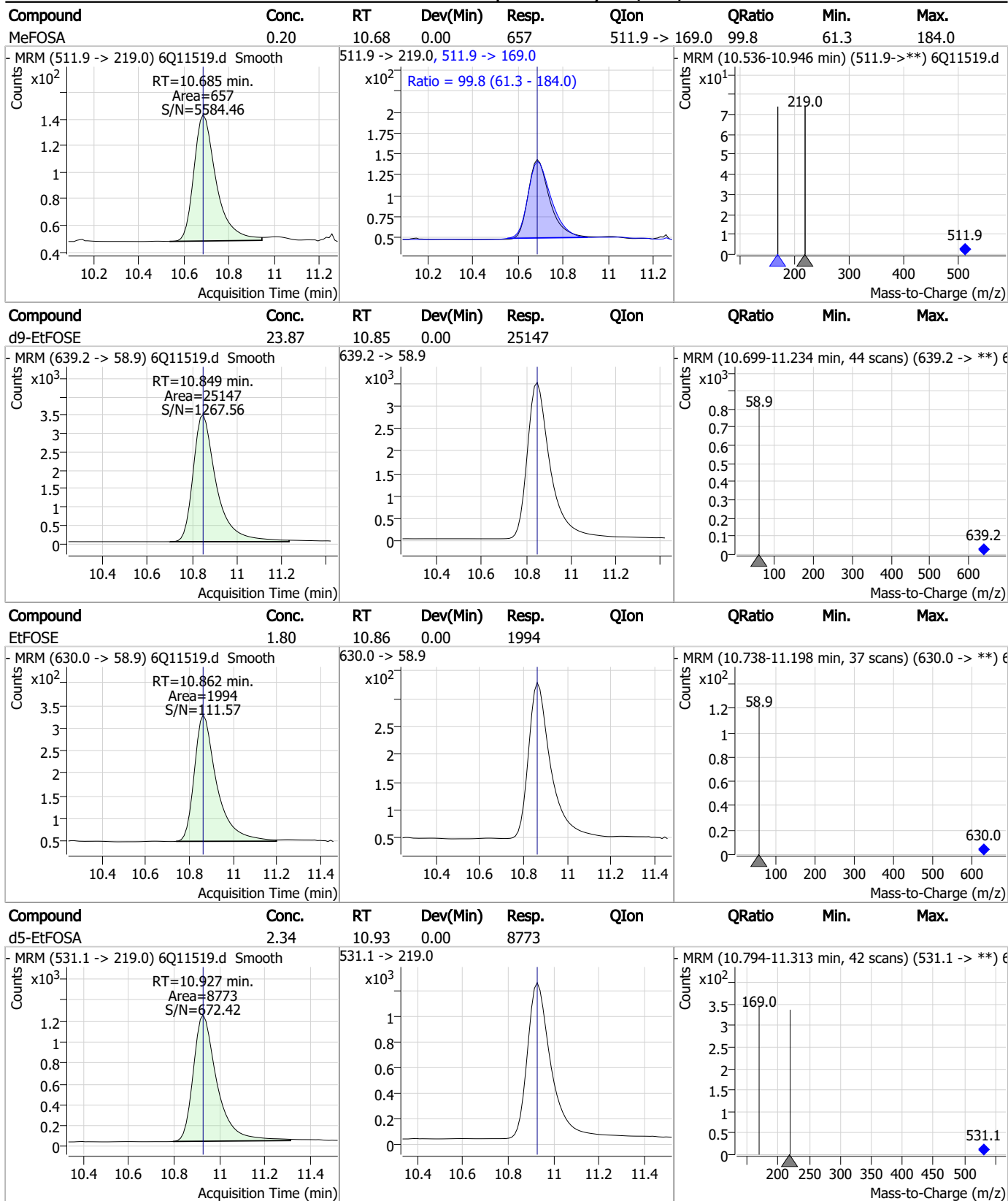


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.25	10.68	0.00	7530				



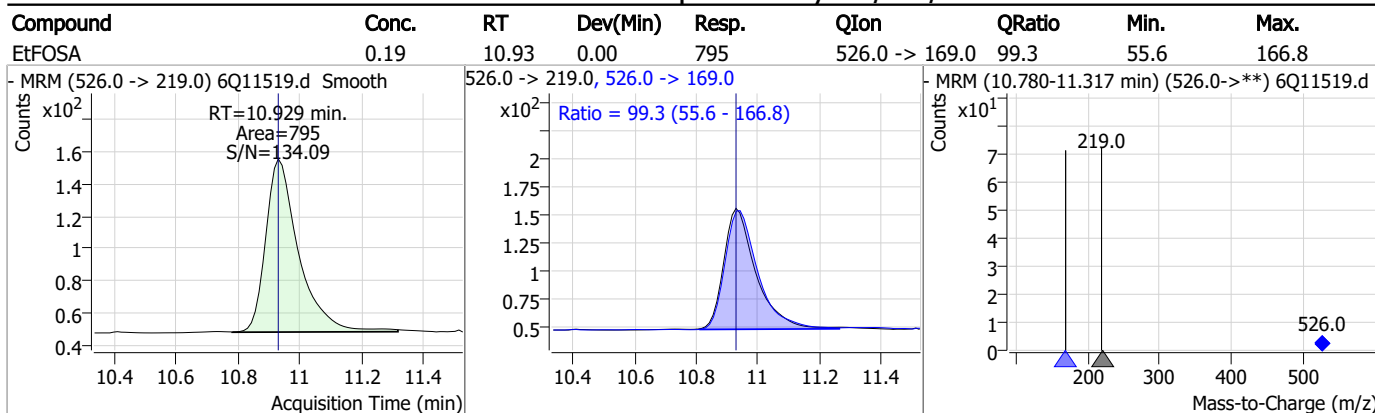
7.7.13
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Perfluorinated Compounds by LC/MS/MS



7.7.13
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Perfluorinated Compounds by LC/MS/MS



7.7.13

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Manual Integration Approval Summary

Sample Number: S6Q180-CC174 Method: EPA DRAFT 1633
Lab FileID: 6Q11519.D Analyst approved: 01/18/23 15:20 Martha Valls
Injection Time: 01/17/23 22:34 Supervisor approved: 01/18/23 19:08 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.13.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11530.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/18/2023 1:08:16 AM
 Sample Name : cc174-4
 Vial : P1-C3
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.988	216.8 -> 171.9	90770	10.00 µg/L	-0.012
M5-PFPeA	4.371	268.3 -> 223.0	43805	5.00 µg/L	-0.012
M5-PFHxA	5.564	318.0 -> 273.0	37664	2.50 µg/L	0.000
M4-PFHpA	6.503	367.1 -> 322.0	40406	2.50 µg/L	-0.012
M8-PFOA	7.160	421.1 -> 376.0	69103	2.50 µg/L	0.000
M9-PFNA	7.702	472.1 -> 427.0	30439	1.25 µg/L	-0.013
M6-PFDA	8.195	519.1 -> 474.1	21393	1.25 µg/L	-0.012
M7-PFUnDA	8.662	570.0 -> 525.1	24729	1.25 µg/L	-0.012
M2-PFDoDA	9.104	615.1 -> 570.0	28789	1.25 µg/L	-0.012
M2-PFTeDA	9.844	715.2 -> 670.0	15566	1.25 µg/L	-0.012
M8-FOSA	9.568	506.1 -> 77.8	19846	2.50 µg/L	0.000
M3-PFBS	5.506	302.1 -> 79.9	14798	2.50 µg/L	-0.025
M3-PFHxS	7.288	402.1 -> 79.9	9921	2.50 µg/L	-0.012
M8-PFOS	8.371	507.1 -> 79.9	9300	2.50 µg/L	-0.012
M2-4:2FTS	5.228	329.1 -> 80.9	2107	5.00 µg/L	0.000
M2-6:2FTS	6.921	429.1 -> 80.9	2722	5.00 µg/L	-0.012
M2-8:2FTS	7.970	529.1 -> 80.9	3045	5.00 µg/L	-0.012
M3-MeFOSAA	8.240	573.2 -> 419.0	28427	5.00 µg/L	0.000
M3-HFPO-DA	5.941	286.9 -> 168.9	16239	10.00 µg/L	0.000
M5-EtFOSAA	8.448	589.2 -> 419.0	24309	5.00 µg/L	0.000
M7-MeFOSE	10.591	623.2 -> 58.9	34508	25.00 µg/L	0.000
M9-EtFOSE	10.849	639.2 -> 58.9	26920	25.00 µg/L	0.000
M5-EtFOSA	10.927	531.1 -> 219.0	9025	2.50 µg/L	0.000
M3-MeFOSA	10.683	515.0 -> 219.0	8186	2.50 µg/L	0.000
13C4-PFOS	8.384	502.8 -> 79.9	12026	2.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	40145	5.00 µg/L	-0.012
18O2-PFHxS	7.287	403.0 -> 83.9	7058	2.50 µg/L	-0.012
13C4-PFOA	7.160	417.1 -> 372.0	80027	2.50 µg/L	-0.012
13C2-PFDA	8.196	515.1 -> 470.1	28588	1.25 µg/L	-0.012
13C5-PFNA	7.703	468.0 -> 423.0	35681	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	38852	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.228	329.1 -> 80.9	2107	5.72 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.4%		
13C2-6:2FTS	6.921	429.1 -> 80.9	2722	5.40 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C2-8:2FTS	7.970	529.1 -> 80.9	3045	5.53 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.7%		
13C2-PFDoDA	9.104	615.1 -> 570.0	28789	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-PFTeDA	9.844	715.2 -> 670.0	15566	1.17 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.5%		
13C3-PFBS	5.506	302.1 -> 79.9	14798	2.50 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C3-PFHxS	7.288	402.1 -> 79.9	9921	2.59 µg/L	-0.012

7.7.14
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C4-PFBA	2.988	216.8 -> 171.9	90770	9.90 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C4-PFHpA	6.503	367.1 -> 322.0	40406	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C5-PFHxA	5.564	318.0 -> 273.0	37664	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C5-PFPeA	4.371	268.3 -> 223.0	43805	5.05 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C6-PFDA	8.195	519.1 -> 474.1	21393	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C7-PFUnDA	8.662	570.0 -> 525.1	24729	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C8-FOSA	9.568	506.1 -> 77.8	19846	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C8-PFOA	7.160	421.1 -> 376.0	69103	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C8-PFOS	8.371	507.1 -> 79.9	9300	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C9-PFNA	7.702	472.1 -> 427.0	30439	1.20 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.0%		
d3-MeFOSAA	8.240	573.2 -> 419.0	28427	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C3-HFPO-DA	5.941	286.9 -> 168.9	16239	10.13 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
d3-MeFOSA	10.683	515.0 -> 219.0	8186	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 88.0%		
d5-EtFOSAA	8.448	589.2 -> 419.0	24309	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.7%		
d7-MeFOSE	10.591	623.2 -> 58.9	34508	22.54 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 90.2%		
d9-EtFOSE	10.849	639.2 -> 58.9	26920	22.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 92.0%		
d5-EtFOSA	10.927	531.1 -> 219.0	9025	2.17 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 86.7%		
Target Compounds					QValue
4:2FTS	5.229	327.1 -> 307.0	38781	7.74 µg/L	98
		327.1 -> 80.9	9395		
6:2FTS	6.922	427.1 -> 407.0	36226	8.55 µg/L	99
		427.1 -> 80.9	7751		
8:2FTS	7.971	527.1 -> 507.0	21959	8.64 µg/L	96
		527.1 -> 80.8	5848		
EtFOSAA	8.449	584.2 -> 419.1	9225	2.38 µg/L	m 94
		584.2 -> 526.0	4988		
FOSA	9.558	498.1 -> 77.9	19072	2.38 µg/L	99
		498.1 -> 478.0	820		
MeFOSAA	8.241	570.1 -> 419.0	13355	2.28 µg/L	m 95
		570.1 -> 483.0	2367		
PFBA	2.982	212.8 -> 168.9	21529	9.25 µg/L	100
PFBS	5.507	298.7 -> 79.9	12118	2.02 µg/L	99
		298.7 -> 98.8	5538		
PFDA	8.196	512.9 -> 469.0	59329	2.31 µg/L	100
		512.9 -> 219.0	8087		
PFDODA	9.105	613.1 -> 569.0	49539	2.19 µg/L	99
		613.1 -> 319.0	6010		
PFDS	9.280	599.0 -> 79.9	7253	2.26 µg/L	95

7.7.14
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.504	599.0 -> 98.8	3623	2.29	µg/L	99
		363.1 -> 319.0	55794			
PFHpS	7.867	363.1 -> 169.0	7558	2.20	µg/L	98
		449.0 -> 79.9	9368			
PFHxA	5.554	449.0 -> 98.9	5485	2.29	µg/L	99
		313.0 -> 269.0	34868			
PFHxS	7.289	313.0 -> 118.9	1360	2.01	µg/L	95
		398.7 -> 79.9	9476			
PFNA	7.703	398.7 -> 98.9	5455	2.59	µg/L	93
		463.0 -> 419.0	54601			
PFNS	8.850	463.0 -> 219.0	9107	2.26	µg/L	90
		548.8 -> 79.9	10156			
PFOA	7.161	548.8 -> 98.9	5620	2.34	µg/L	97
		413.0 -> 369.0	72258			
PFOS	8.372	413.0 -> 169.0	9216	2.08	µg/L	90
		498.9 -> 79.9	9378			
PFPeA	4.374	498.9 -> 98.8	6331	4.65	µg/L	100
		263.0 -> 219.0	44760			
PFPeS	6.582	349.1 -> 79.9	11381	2.04	µg/L	96
		349.1 -> 98.9	6422			
PFTeDA	9.844	713.1 -> 669.0	43369	2.34	µg/L	100
		713.1 -> 168.9	2837			
PFTrDA	9.501	663.0 -> 619.0	53217	2.46	µg/L	97
		663.0 -> 168.9	3889			
PFUnDA	8.662	563.1 -> 519.0	49939	2.41	µg/L	99
		563.1 -> 269.1	6974			
11CI-PF3OUdS	9.552	630.9 -> 450.9	114741	9.32	µg/L	94
		632.9 -> 452.9	32974			
9CI-PF3ONS	8.727	530.8 -> 351.0	168476	8.42	µg/L	99
		532.8 -> 353.0	55898			
ADONA	6.767	376.9 -> 250.9	321264	8.90	µg/L	97
		376.9 -> 84.8	69758			
HFPO-DA	5.942	284.9 -> 168.9	15506	9.44	µg/L	98
		284.9 -> 184.9	1763			
3:3FTCA	3.839	241.0 -> 177.0	5718	11.16	µg/L	98
		241.0 -> 117.0	726			
5:3FTCA	6.194	341.0 -> 237.1	186162	58.82	µg/L	98
		341.0 -> 217.0	161243			
7:3FTCA	7.618	441.0 -> 316.9	128313	60.15	µg/L	97
		441.0 -> 336.9	258843			
EtFOSA	10.929	526.0 -> 219.0	10390	2.38	µg/L	88
		526.0 -> 169.0	10273			
EtFOSE	10.862	630.0 -> 58.9	26206	22.07	µg/L	100
		511.9 -> 219.0	8739			
MeFOSA	10.685	511.9 -> 169.0	8923	2.42	µg/L	82
		616.1 -> 58.9	33511			
MeFOSE	10.604	699.1 -> 79.9	4749	23.51	µg/L	100
		699.1 -> 98.8	2679			
PFDoDS	9.984	295.0 -> 201.0	4909	2.37	µg/L	92
		295.0 -> 84.9	2166			
NFDHA	5.446	279.0 -> 85.1	13584	4.97	µg/L	95
		229.0 -> 84.9	12414			
PFMBA	4.776	314.8 -> 134.9	89238	4.53	µg/L	100
PFMPA	3.525	314.8 -> 82.9	2217	4.66	µg/L	100
PFEESA	6.060			4.21	µg/L	100

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

7.7.14
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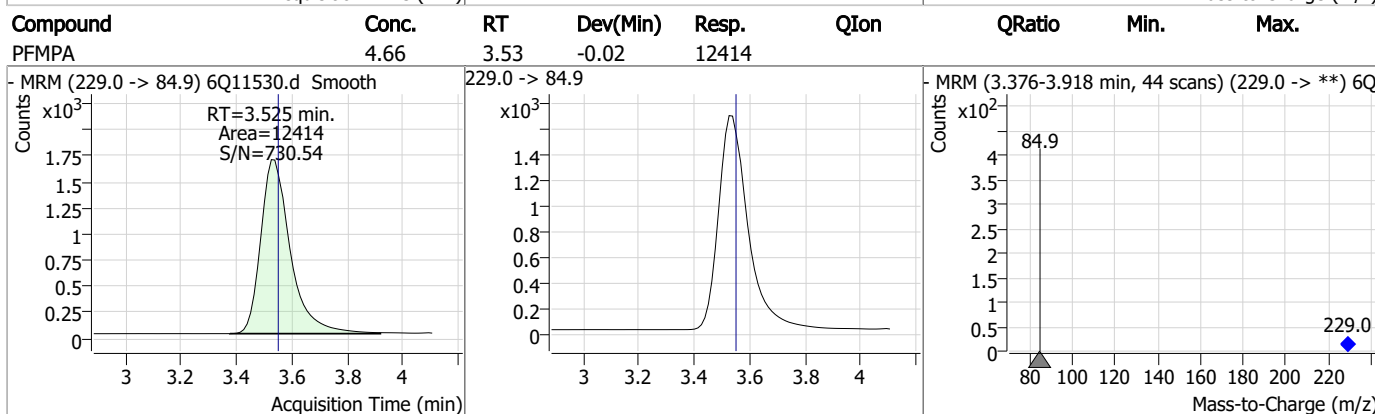
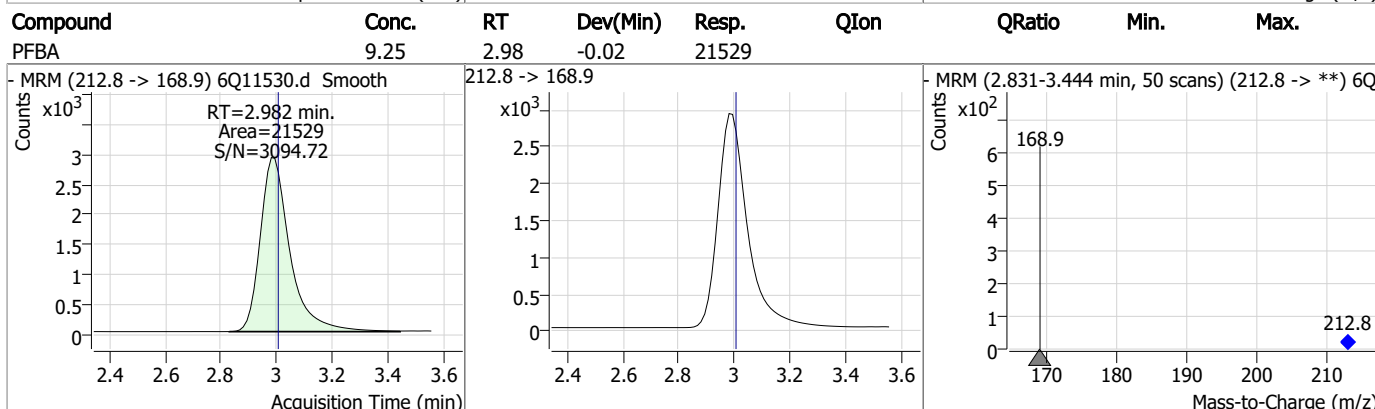
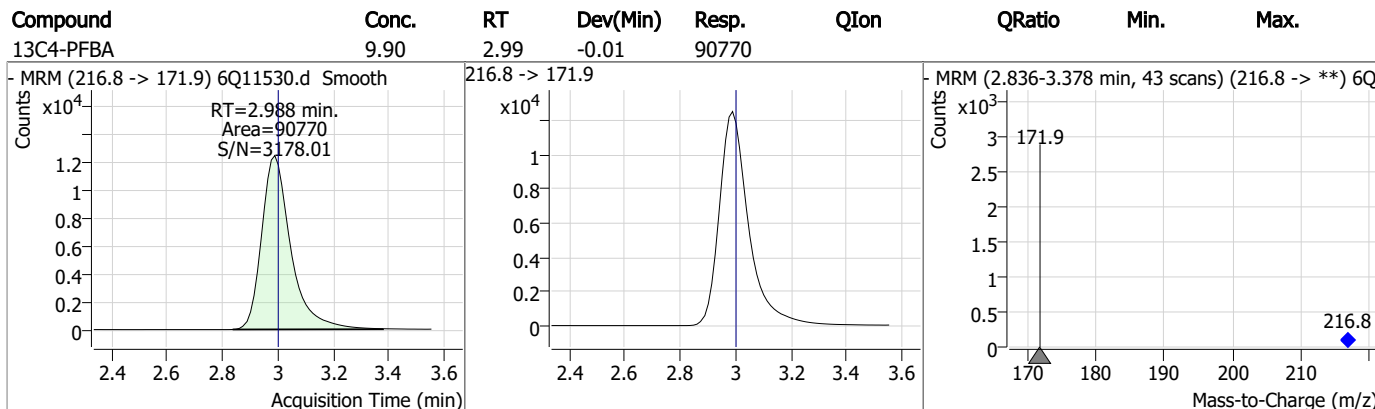
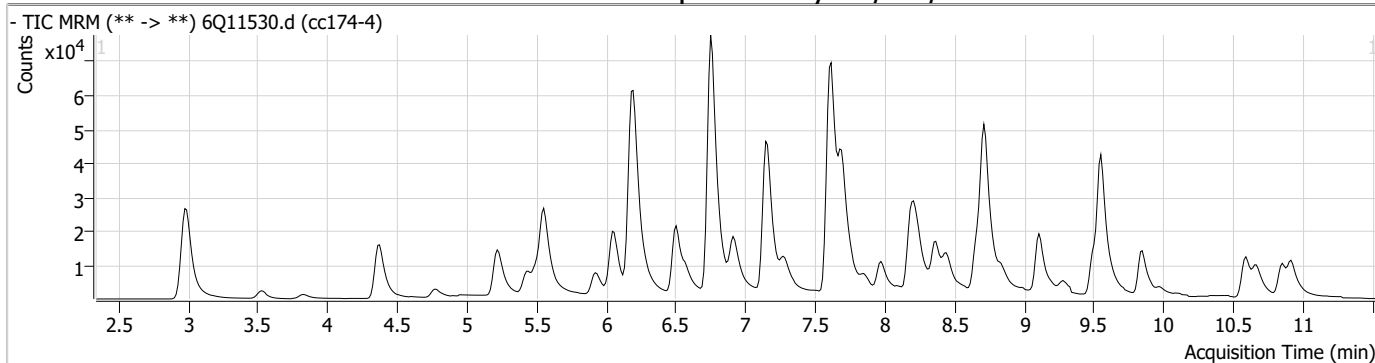
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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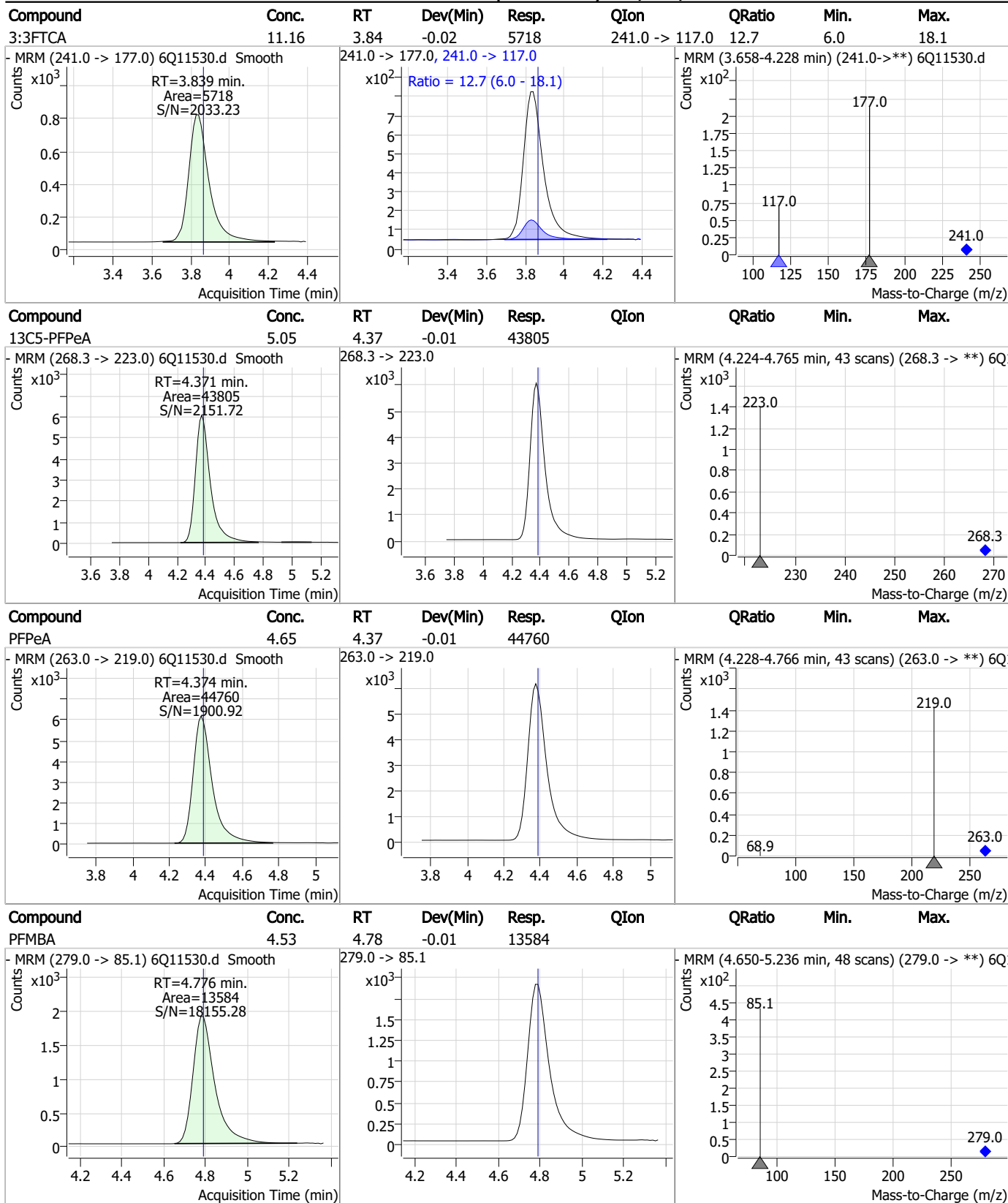
7.7.14

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Perfluorinated Compounds by LC/MS/MS



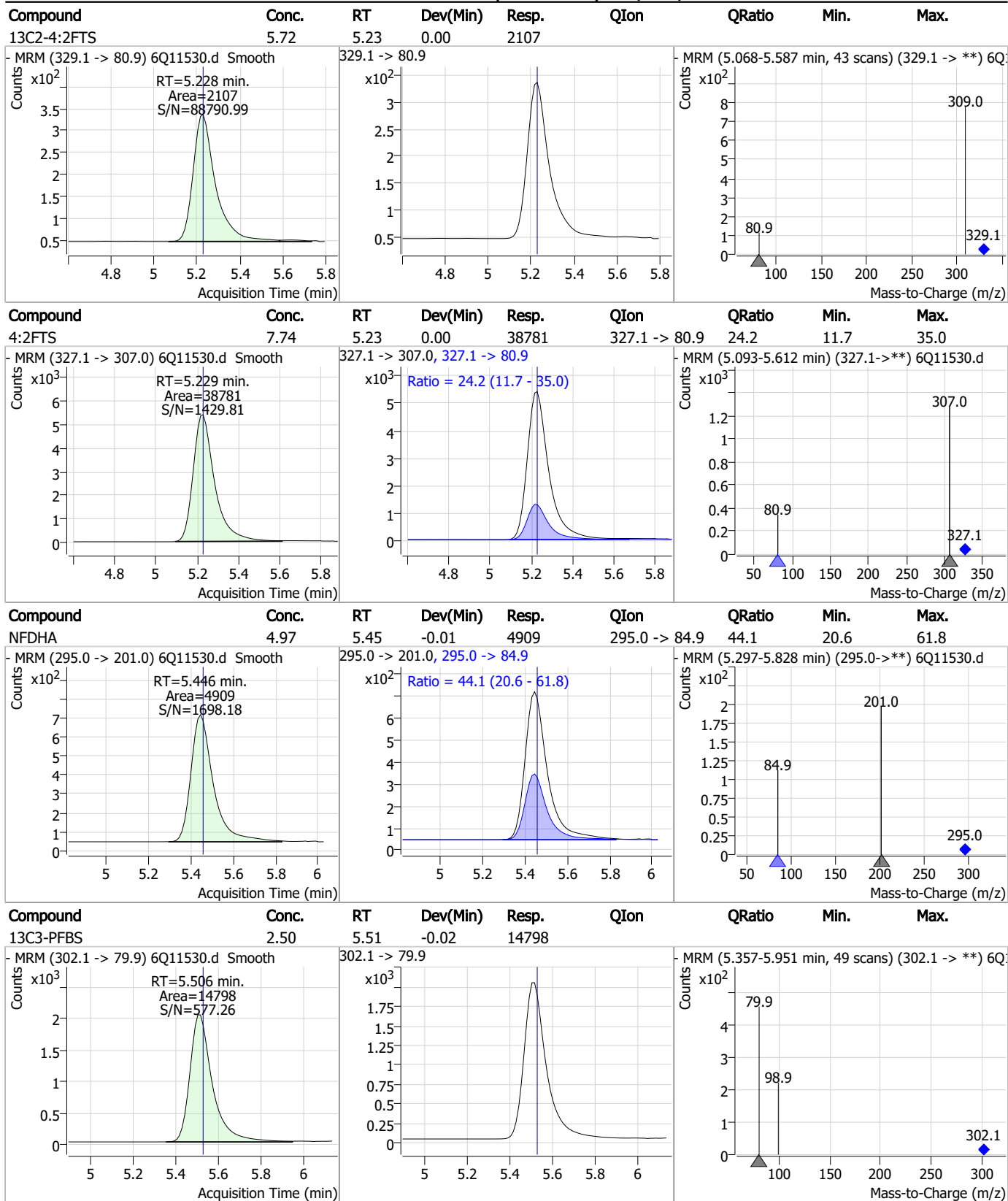
Perfluorinated Compounds by LC/MS/MS



7.7.14

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Perfluorinated Compounds by LC/MS/MS

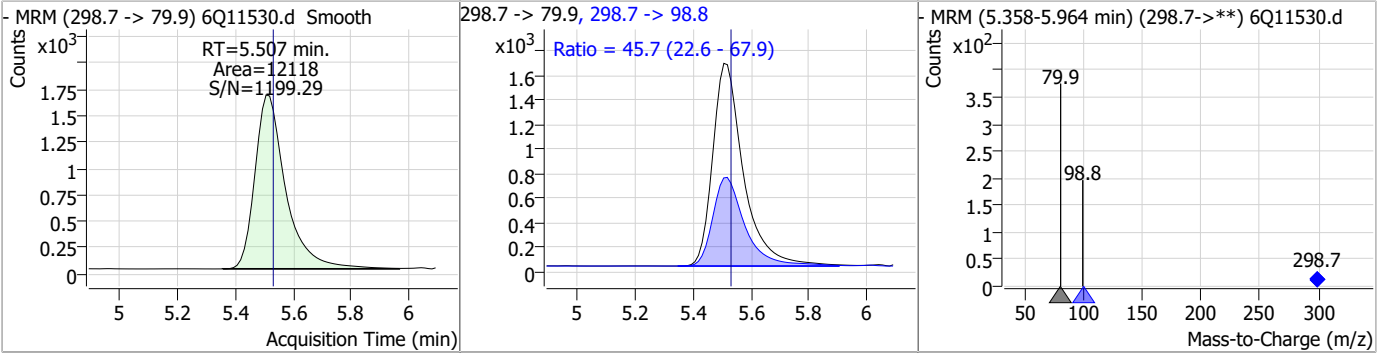


7.7.14

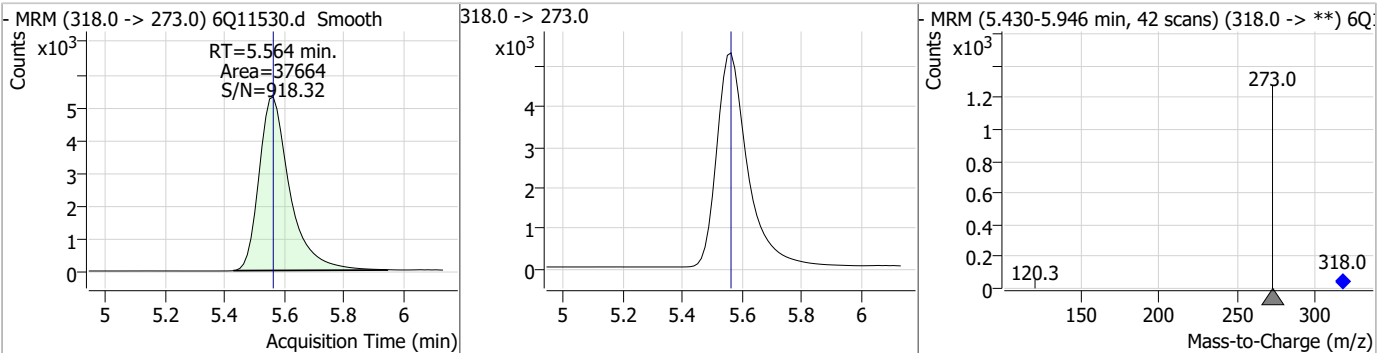


Perfluorinated Compounds by LC/MS/MS

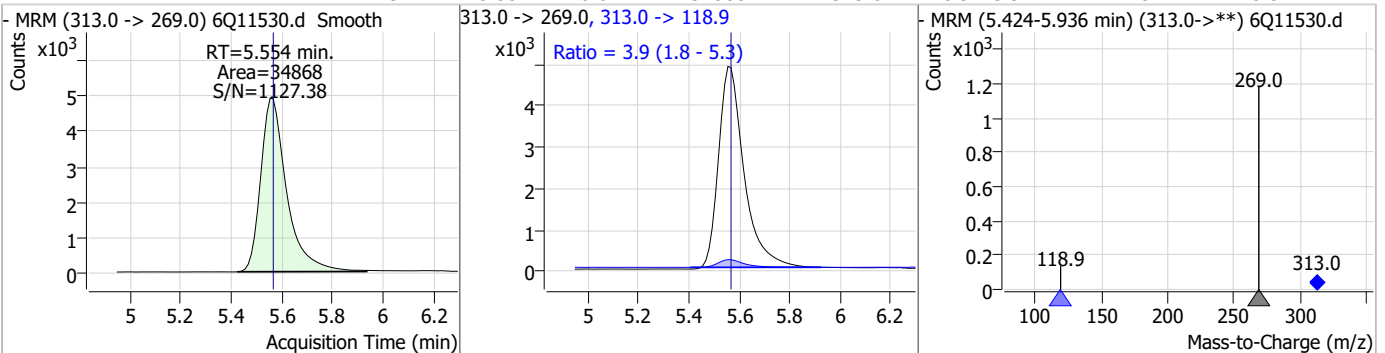
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.02	5.51	-0.02	12118	298.7 -> 98.8	45.7	22.6	67.9



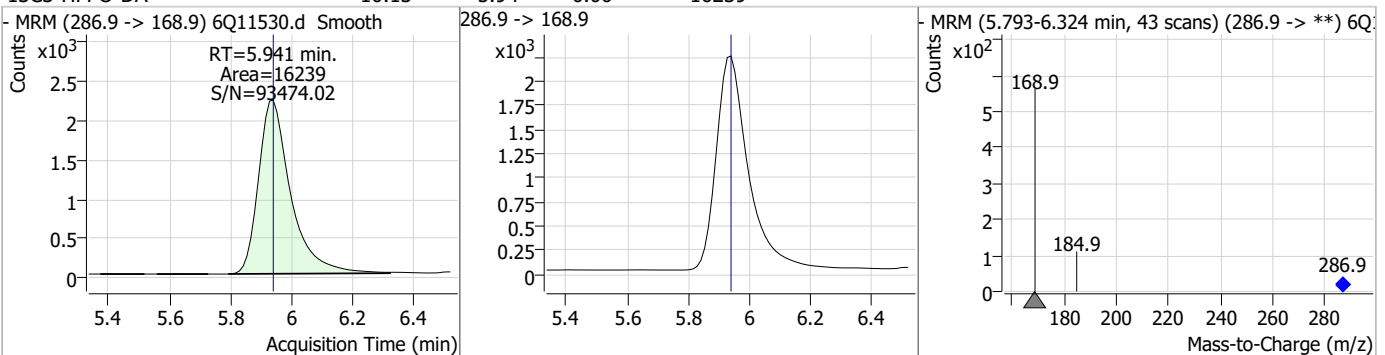
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.41	5.56	0.00	37664				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.29	5.55	-0.01	34868	313.0 -> 118.9	3.9	1.8	5.3

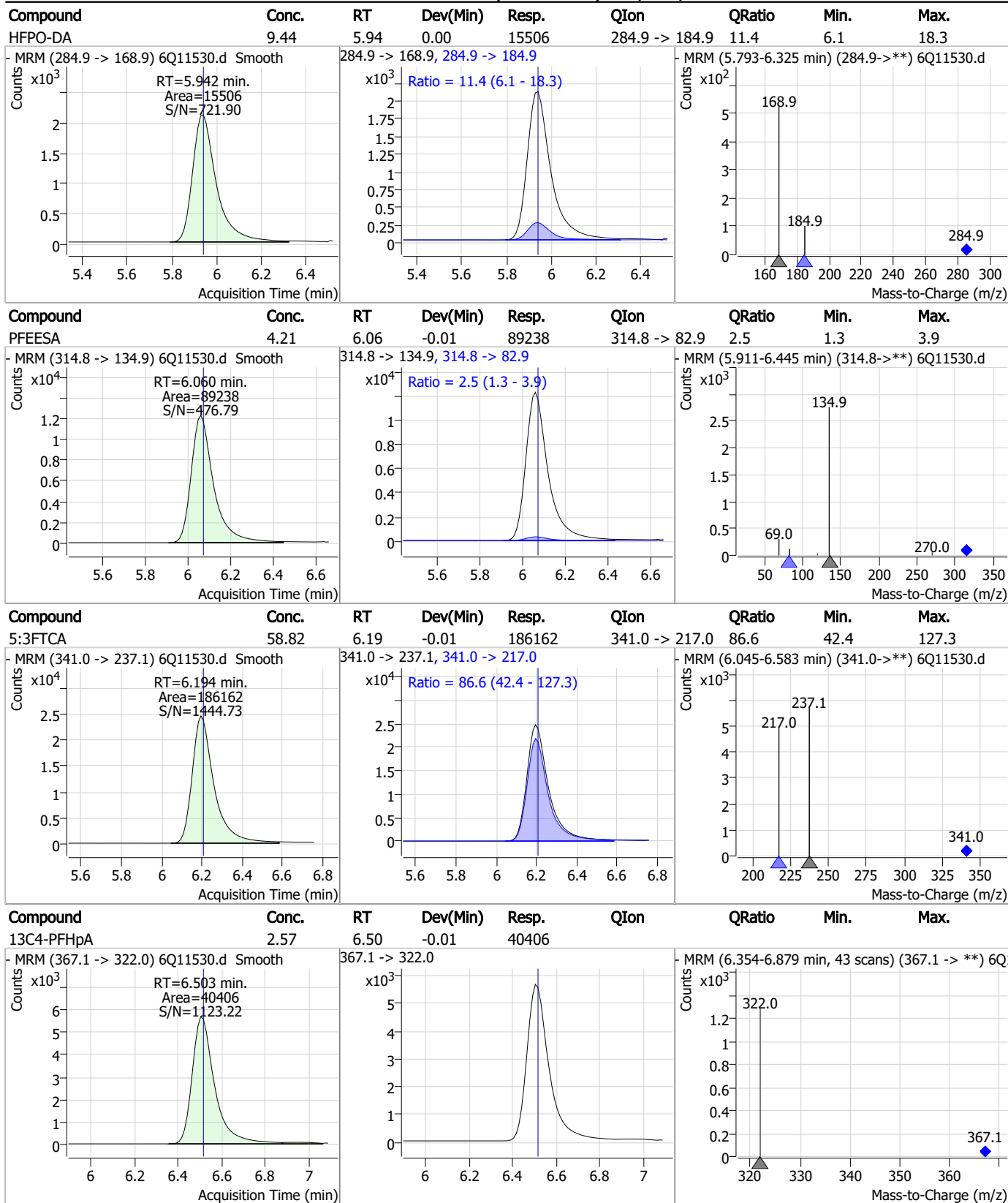


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.13	5.94	0.00	16239				



7.7.14
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Perfluorinated Compounds by LC/MS/MS

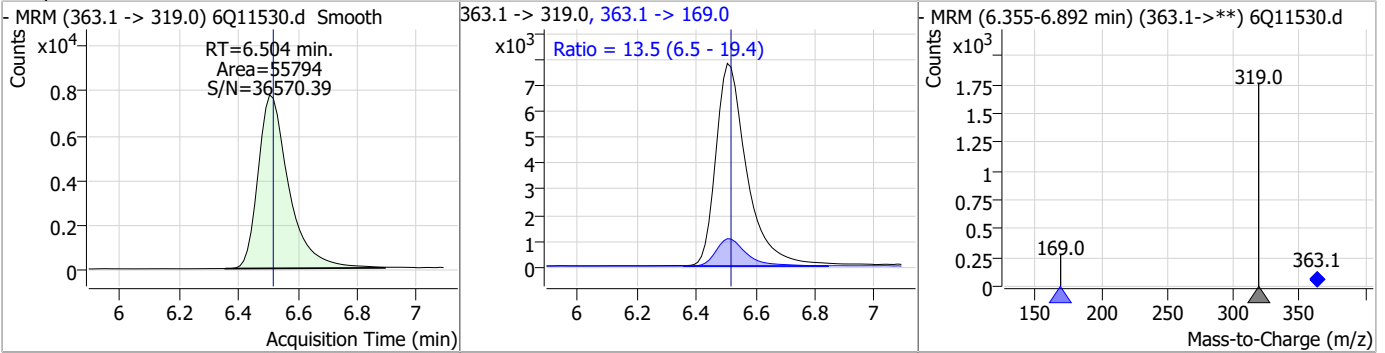


7.7.14
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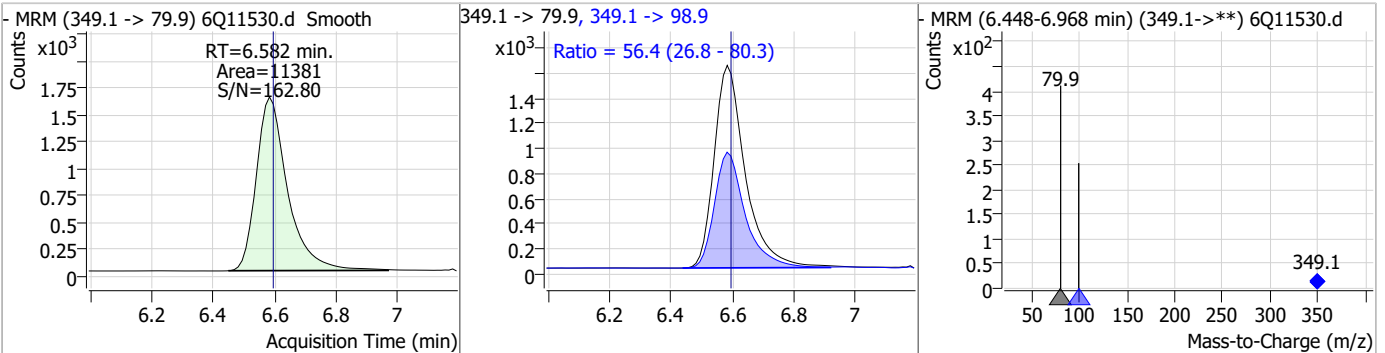


Perfluorinated Compounds by LC/MS/MS

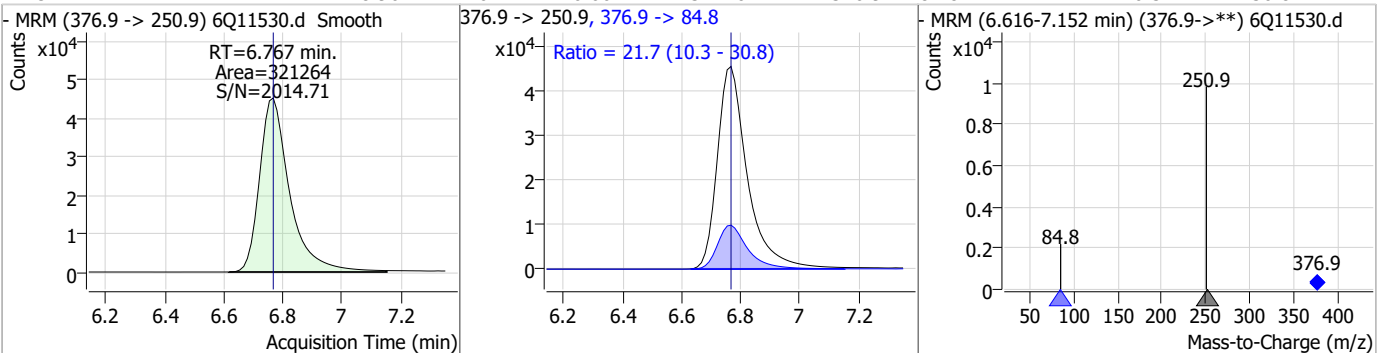
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.29	6.50	-0.01	55794	363.1 -> 169.0	13.5	6.5	19.4



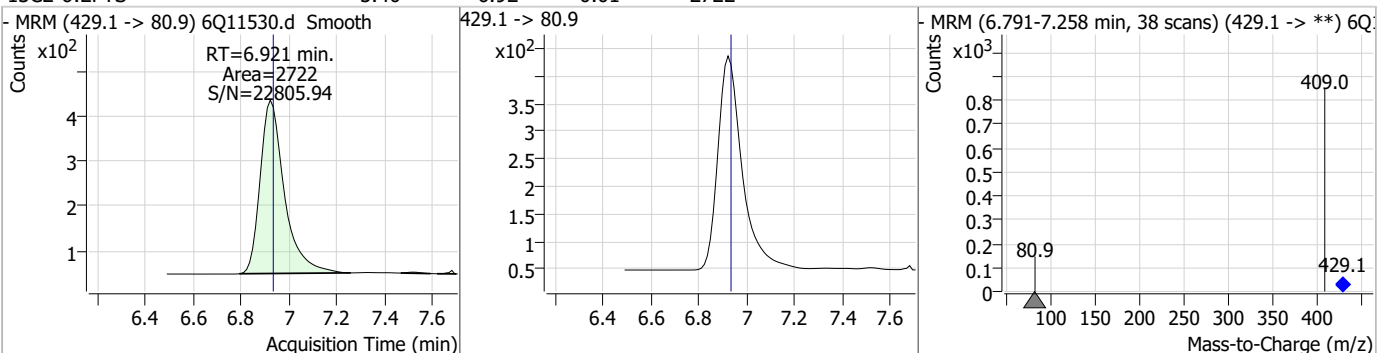
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.04	6.58	-0.01	11381	349.1 -> 98.9	56.4	26.8	80.3



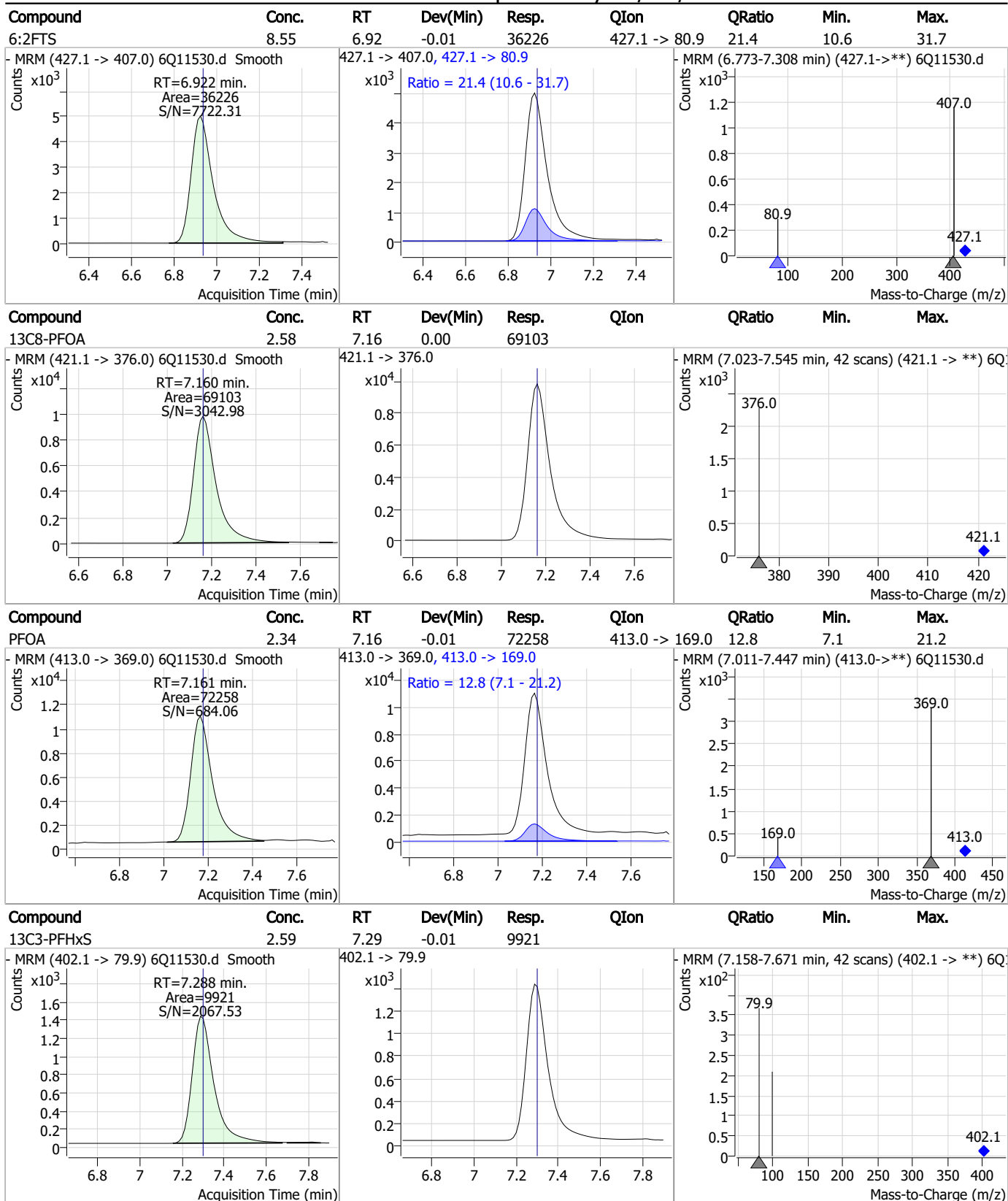
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	8.90	6.77	0.00	321264	376.9 -> 84.8	21.7	10.3	30.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6-2FTS	5.40	6.92	-0.01	2722	429.1 -> 80.9			

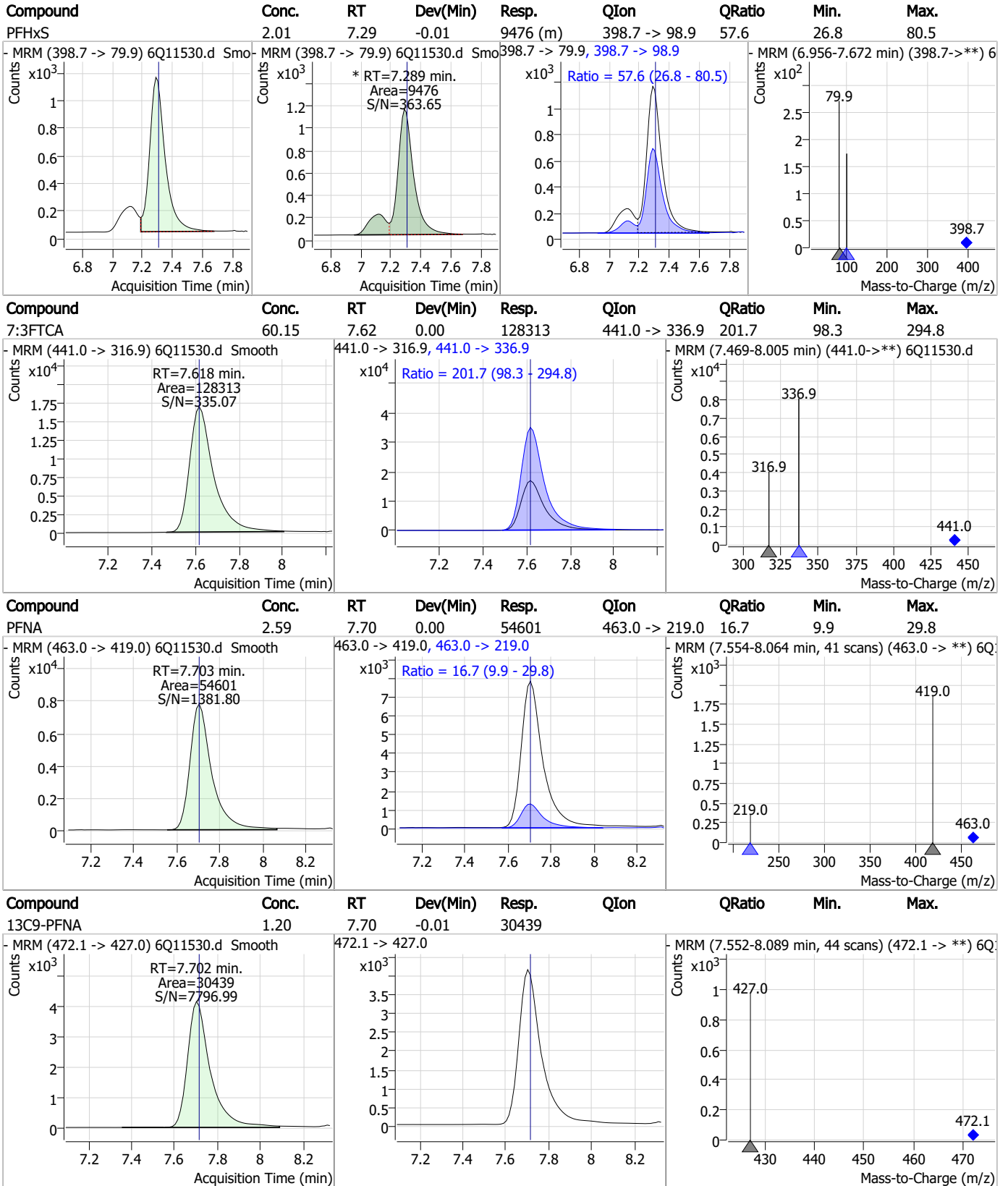


Perfluorinated Compounds by LC/MS/MS



7.7.14

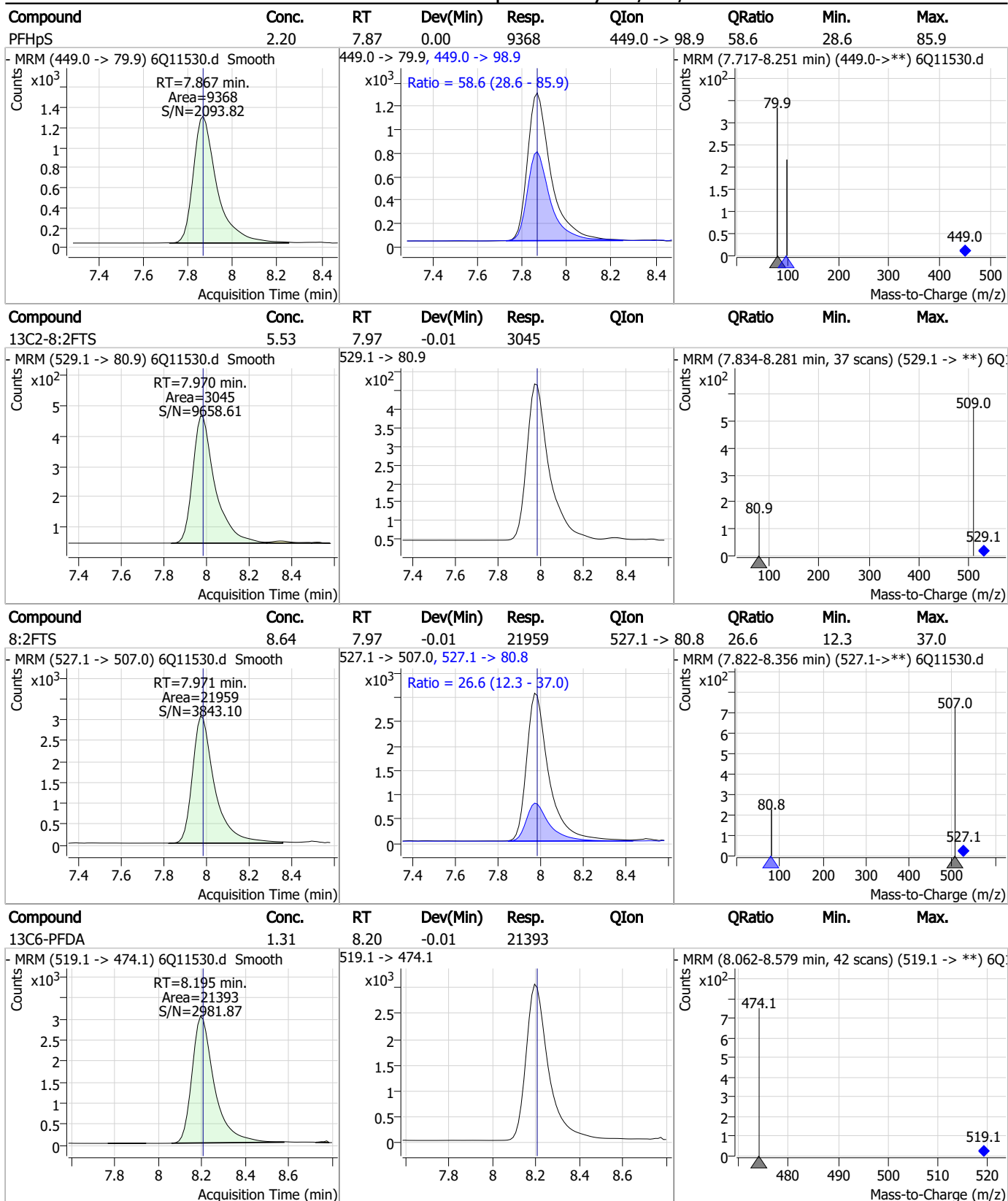
Perfluorinated Compounds by LC/MS/MS



7.7.14
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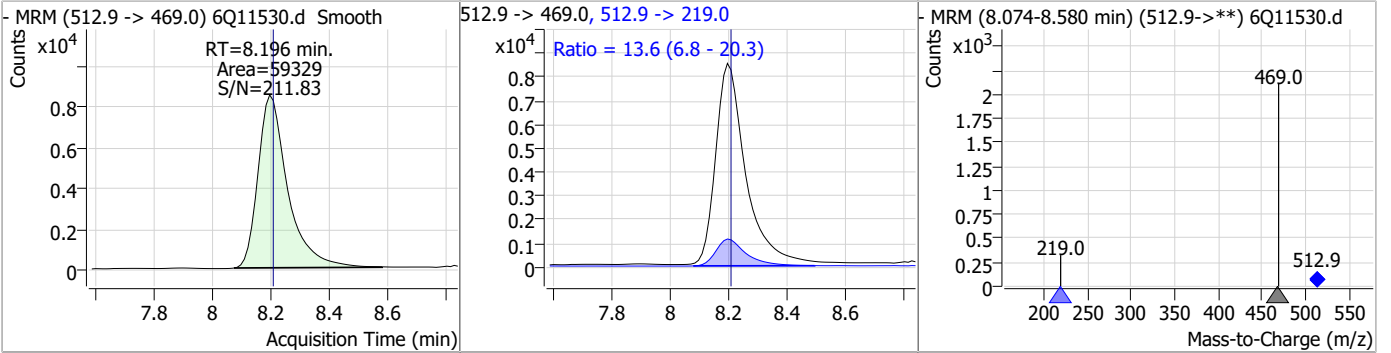
Perfluorinated Compounds by LC/MS/MS



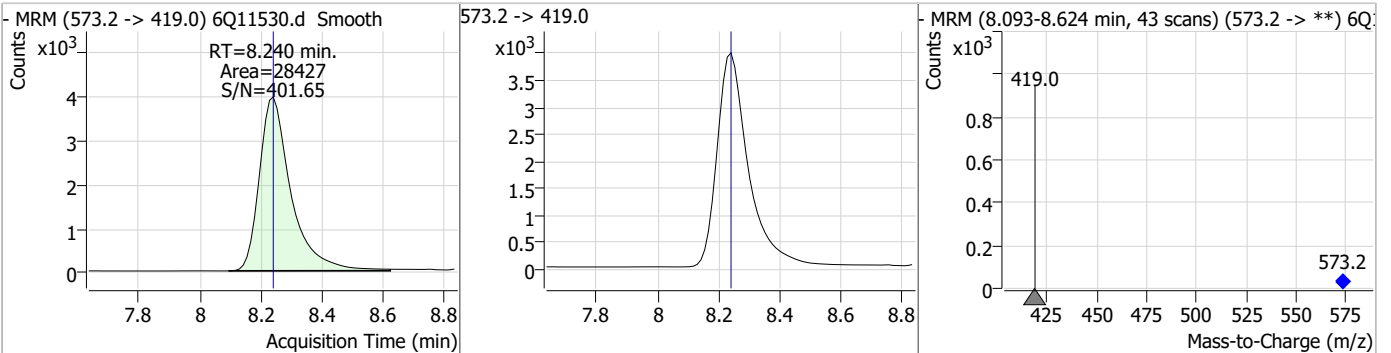
7.7.14

Perfluorinated Compounds by LC/MS/MS

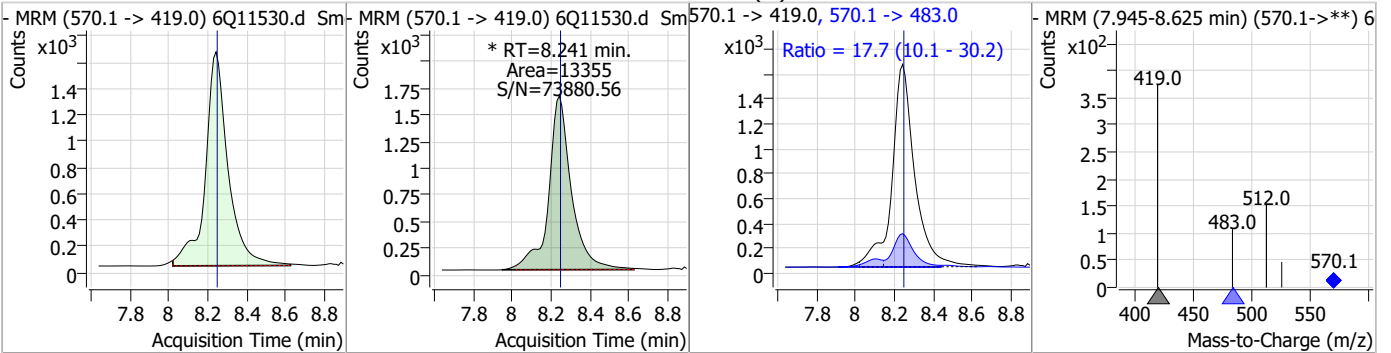
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.31	8.20	-0.01	59329	512.9 -> 219.0	13.6	6.8	20.3



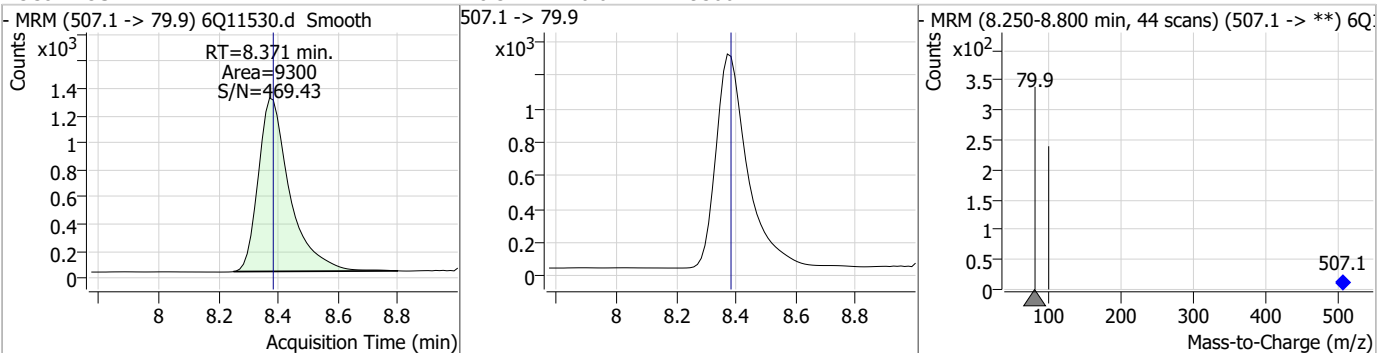
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.91	8.24	0.00	28427				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.28	8.24	0.00	13355 (m)	570.1 -> 483.0	17.7	10.1	30.2

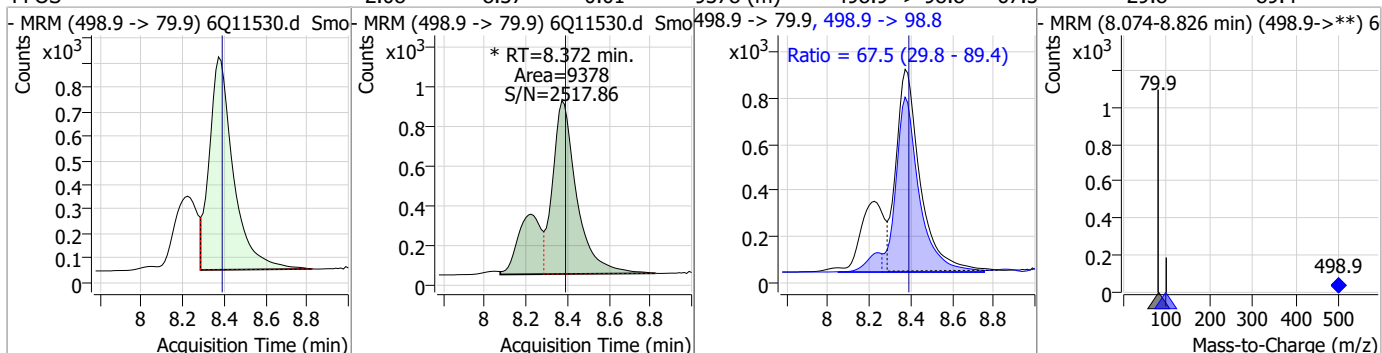


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.42	8.37	-0.01	9300				

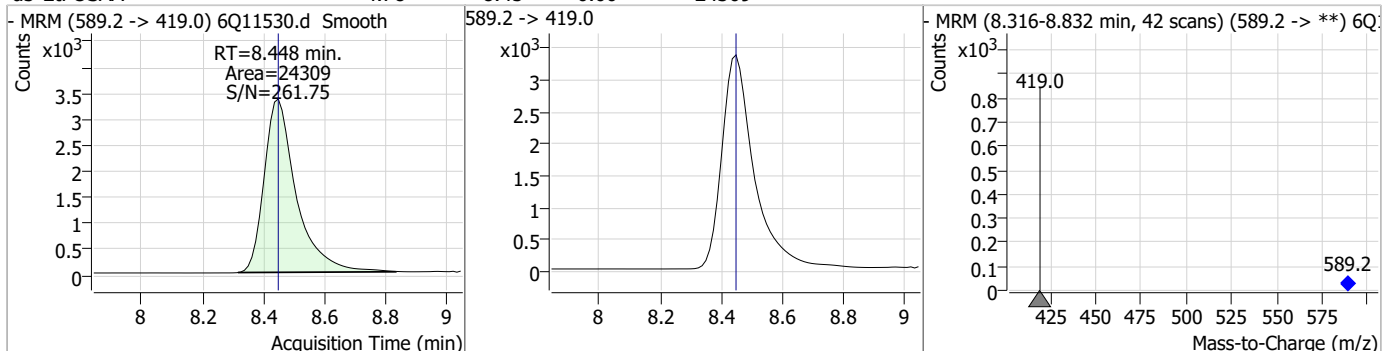


Perfluorinated Compounds by LC/MS/MS

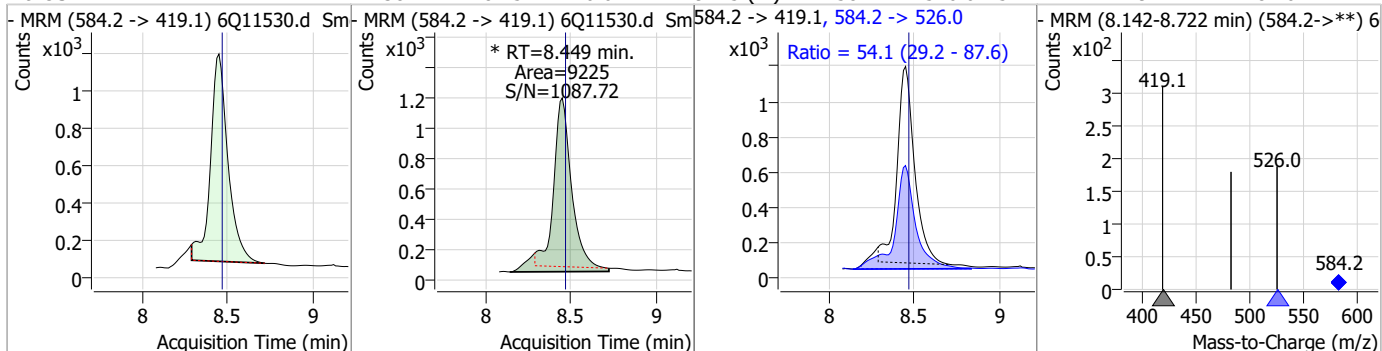
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.08	8.37	-0.01	9378 (m)	498.9 -> 98.8	67.5	29.8	89.4



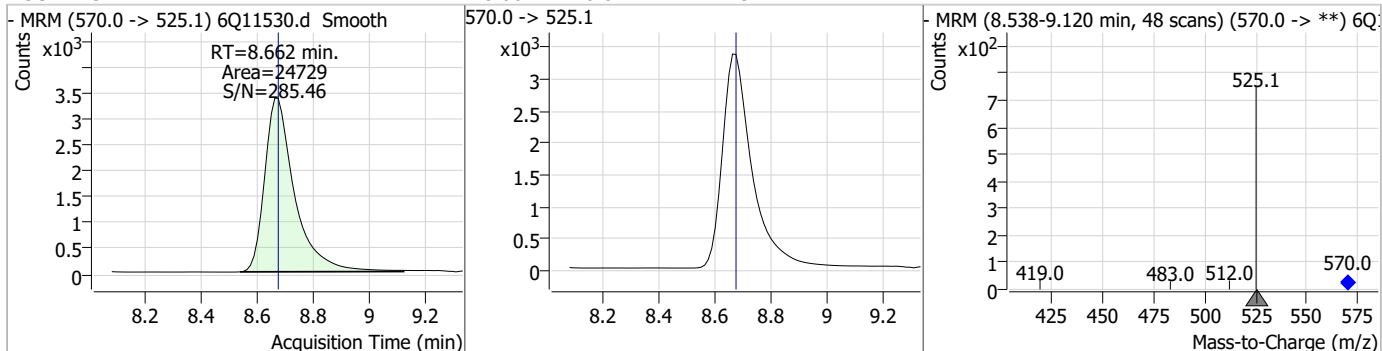
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.78	8.45	0.00	24309				



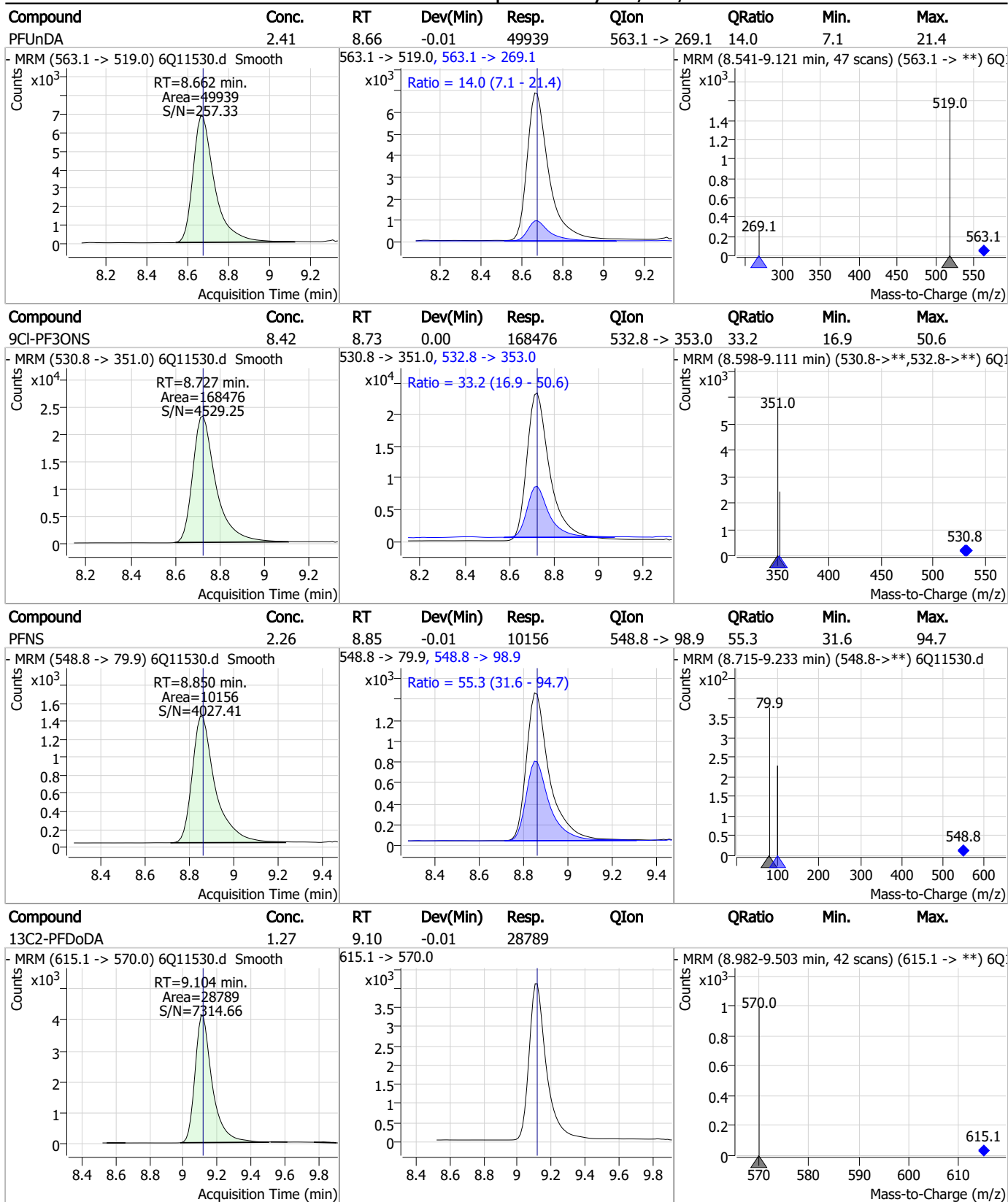
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.38	8.45	-0.01	9225 (m)	584.2 -> 526.0	54.1	29.2	87.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.24	8.66	-0.01	24729				

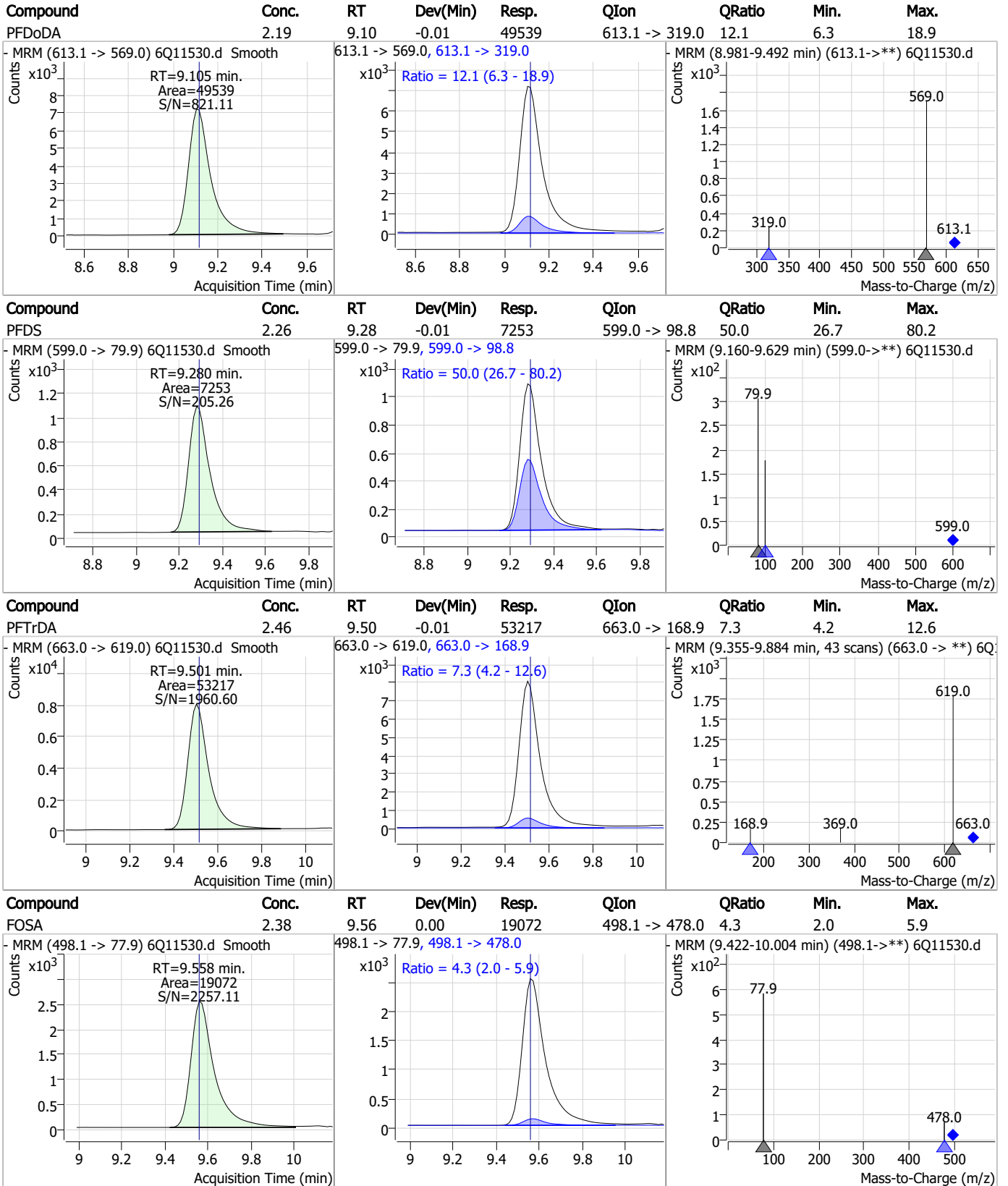


Perfluorinated Compounds by LC/MS/MS



7.7.14
7

Perfluorinated Compounds by LC/MS/MS



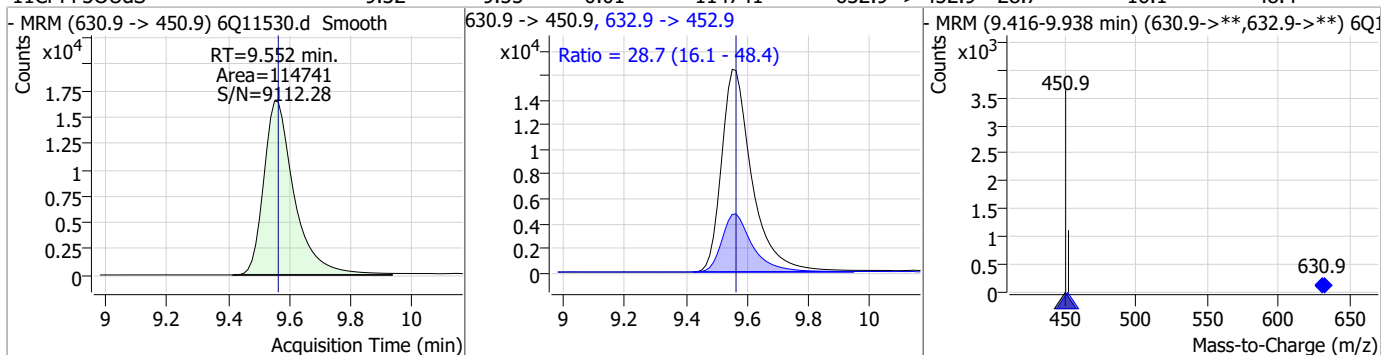
7.7.14

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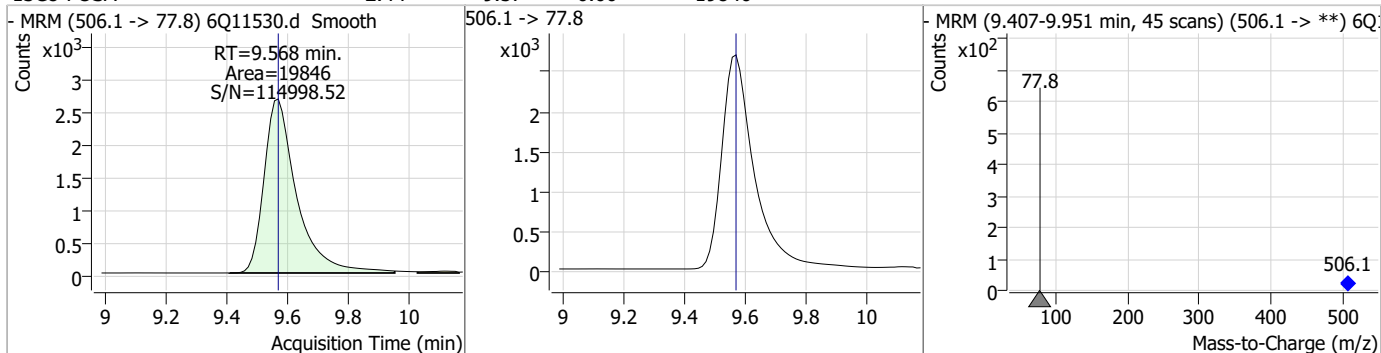


Perfluorinated Compounds by LC/MS/MS

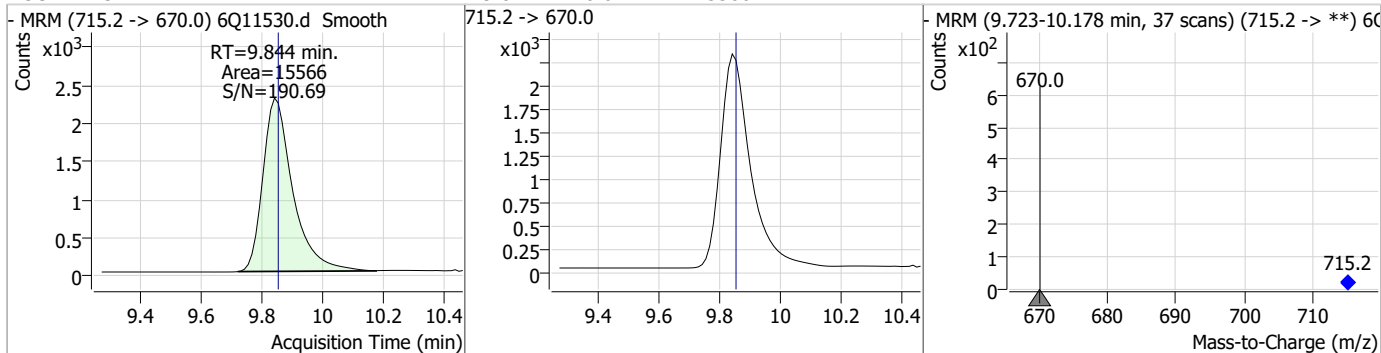
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	9.32	9.55	-0.01	114741	632.9 -> 452.9	28.7	16.1	48.4



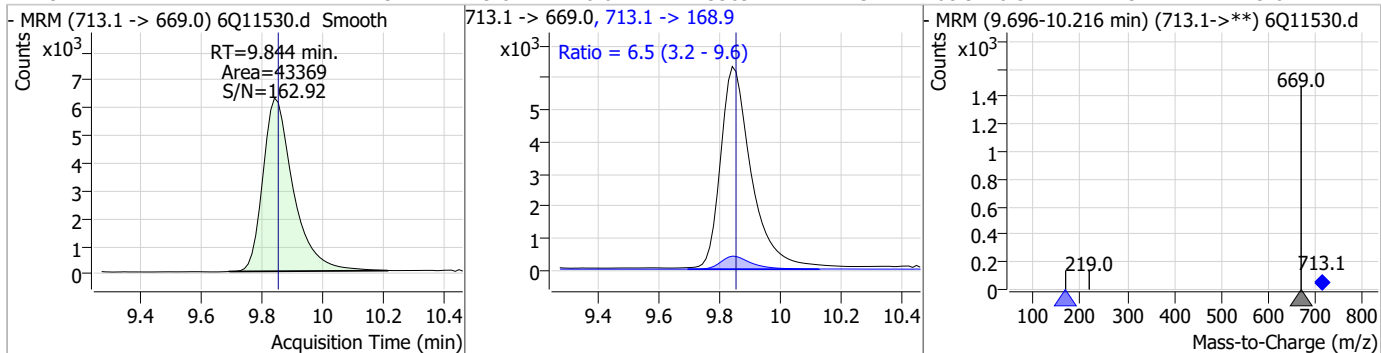
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.44	9.57	0.00	19846				



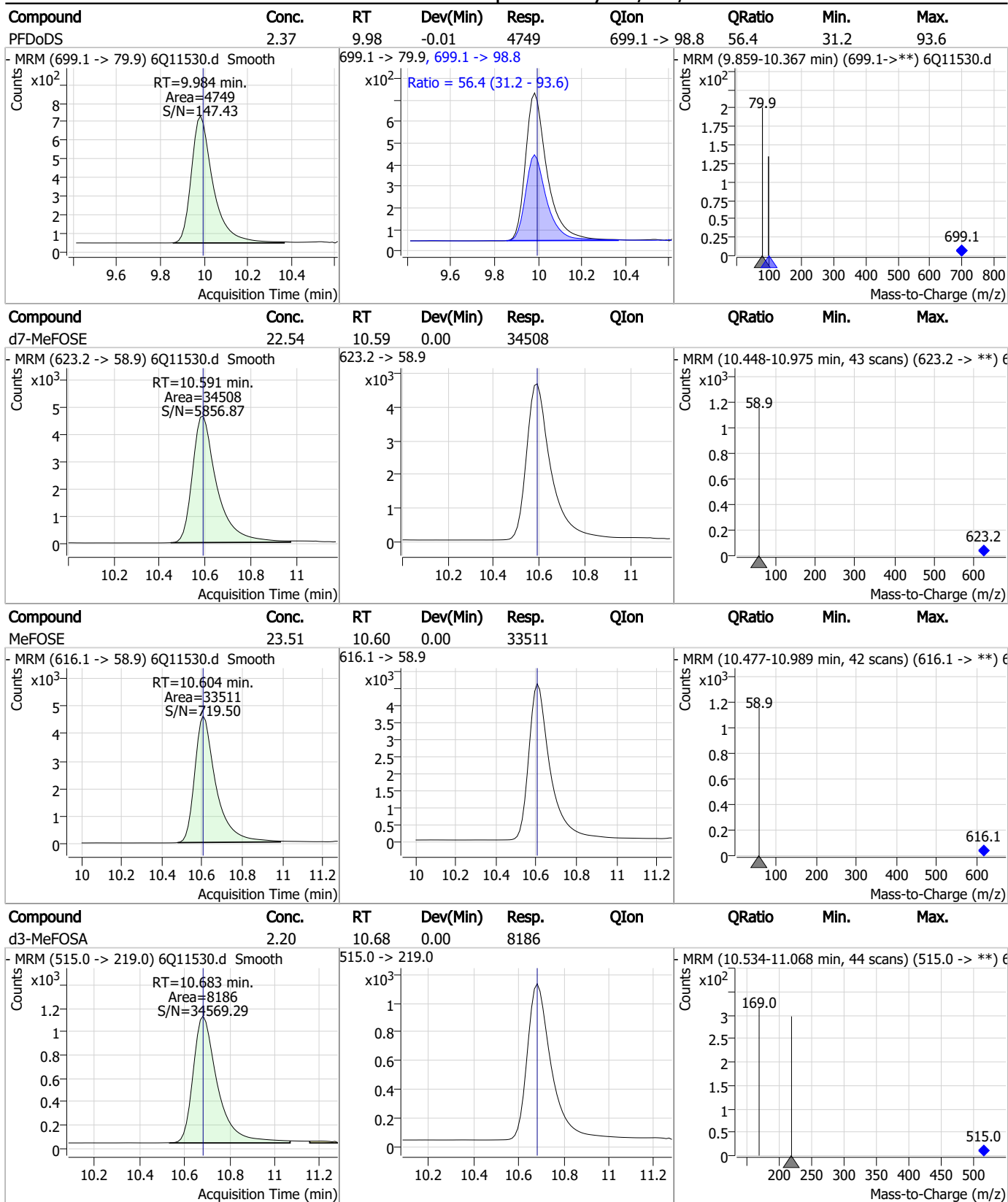
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.17	9.84	-0.01	15566				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.34	9.84	-0.01	43369	713.1 -> 168.9	6.5	3.2	9.6



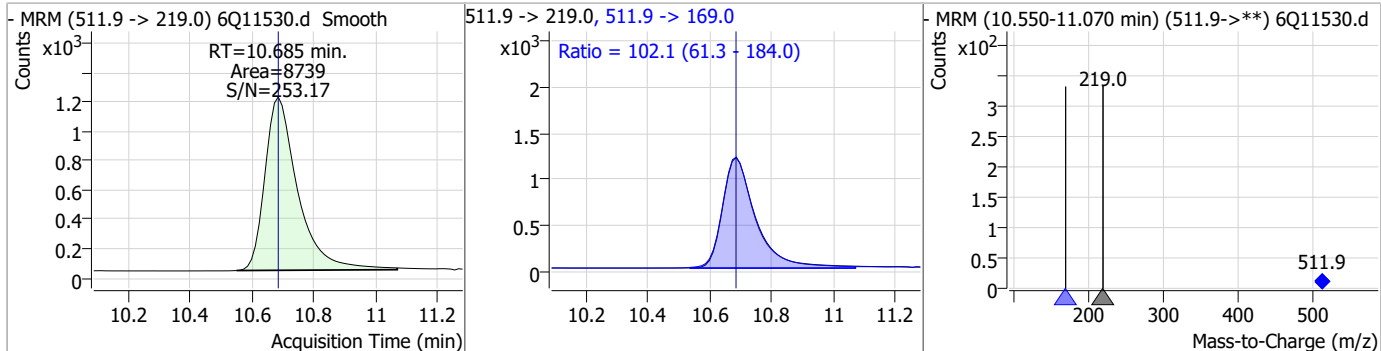
Perfluorinated Compounds by LC/MS/MS



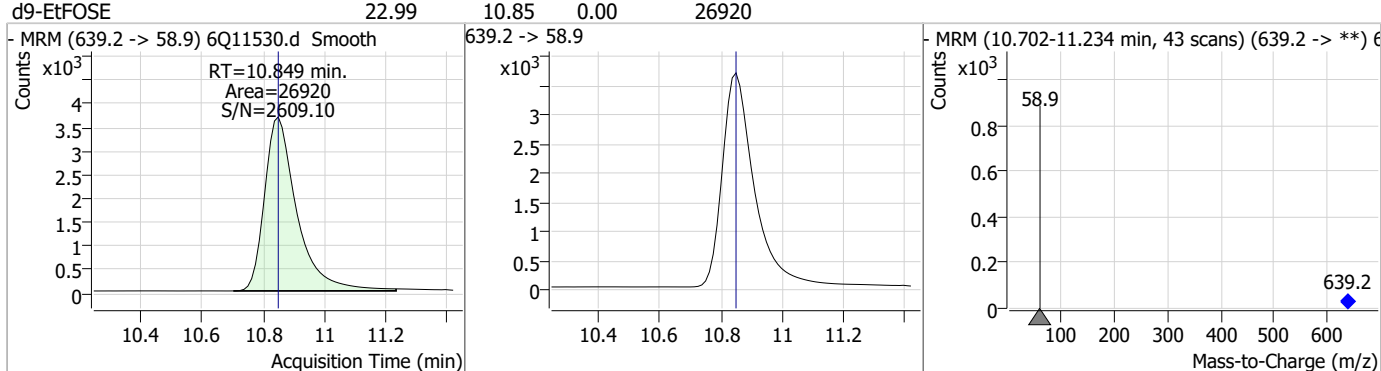
7.7.14
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Perfluorinated Compounds by LC/MS/MS

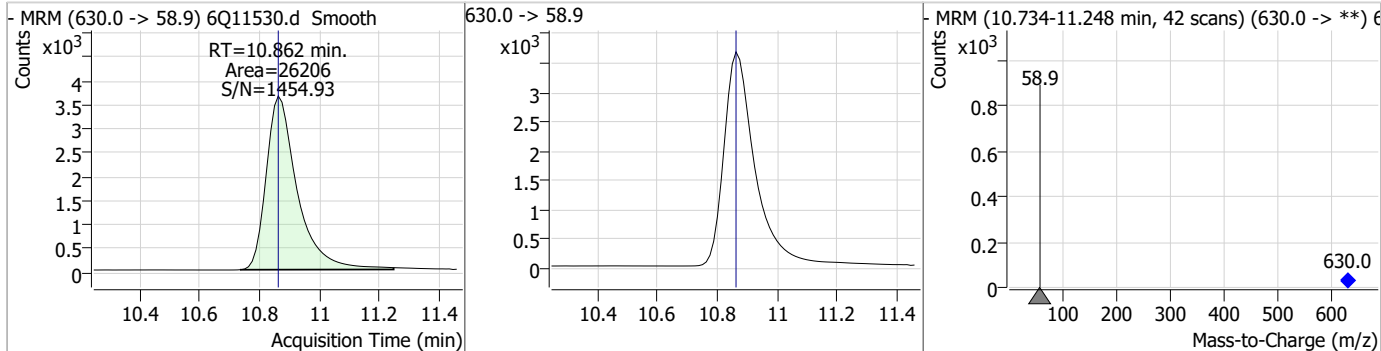
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.42	10.68	0.00	8739	511.9 -> 169.0	102.1	61.3	184.0



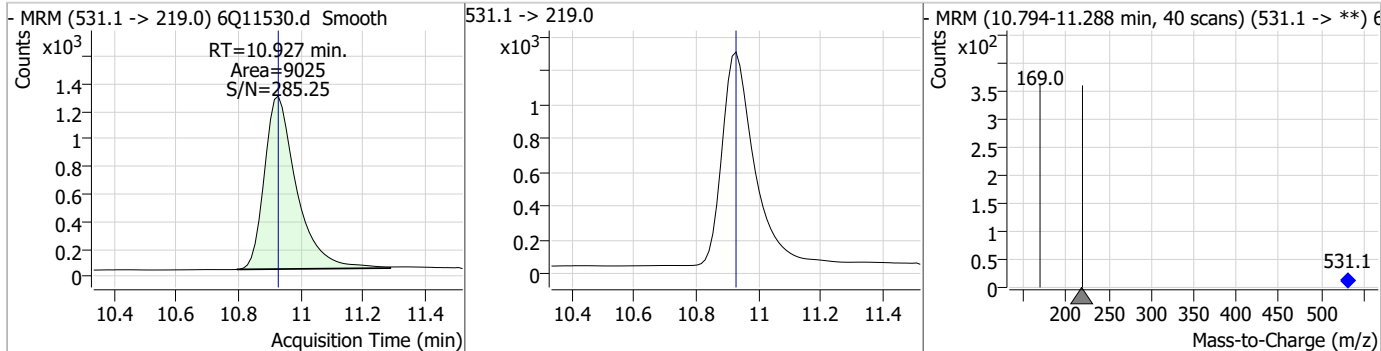
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	22.99	10.85	0.00	26920				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	22.07	10.86	0.00	26206				

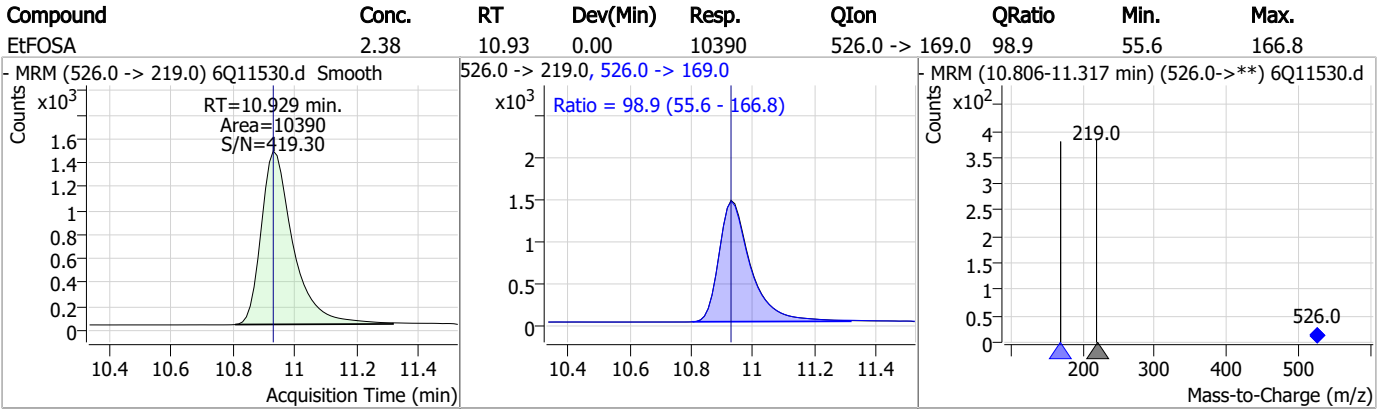


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.17	10.93	0.00	9025				



7.7.14
7

Perfluorinated Compounds by LC/MS/MS



7.7.14
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Manual Integration Approval Summary

Sample Number: S6Q180-CC174 Method: EPA DRAFT 1633
Lab FileID: 6Q11530.D Analyst approved: 01/18/23 15:20 Martha Valls
Injection Time: 01/18/23 01:08 Supervisor approved: 01/18/23 19:08 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.14.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q11540.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 1/18/2023 3:28:11 AM
 Sample Name : cc174-4
 Vial : P1-C3
 DA Method File : 1633_011123_S6Q174.quantmethod.xml
 Batch Name : s6q180.batch.bin
 Sample Information : OP94995,S6Q180,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.988	216.8 -> 171.9	94436	10.00 µg/L	-0.012
M5-PFPeA	4.371	268.3 -> 223.0	43815	5.00 µg/L	-0.012
M5-PFHxA	5.564	318.0 -> 273.0	38771	2.50 µg/L	0.000
M4-PFHpA	6.516	367.1 -> 322.0	41478	2.50 µg/L	0.000
M8-PFOA	7.160	421.1 -> 376.0	72749	2.50 µg/L	0.000
M9-PFNA	7.702	472.1 -> 427.0	31784	1.25 µg/L	-0.013
M6-PFDA	8.195	519.1 -> 474.1	21773	1.25 µg/L	-0.012
M7-PFUnDA	8.662	570.0 -> 525.1	25402	1.25 µg/L	-0.012
M2-PFDoDA	9.104	615.1 -> 570.0	29474	1.25 µg/L	-0.012
M2-PFTeDA	9.844	715.2 -> 670.0	17376	1.25 µg/L	-0.012
M8-FOSA	9.568	506.1 -> 77.8	20040	2.50 µg/L	0.000
M3-PFBS	5.519	302.1 -> 79.9	14265	2.50 µg/L	-0.012
M3-PFHxS	7.288	402.1 -> 79.9	9923	2.50 µg/L	-0.012
M8-PFOS	8.371	507.1 -> 79.9	10533	2.50 µg/L	-0.012
M2-4:2FTS	5.228	329.1 -> 80.9	2006	5.00 µg/L	0.000
M2-6:2FTS	6.921	429.1 -> 80.9	2733	5.00 µg/L	-0.012
M2-8:2FTS	7.970	529.1 -> 80.9	3030	5.00 µg/L	-0.012
M3-MeFOSAA	8.240	573.2 -> 419.0	29583	5.00 µg/L	0.000
M3-HFPO-DA	5.941	286.9 -> 168.9	16477	10.00 µg/L	0.000
M5-EtFOSAA	8.436	589.2 -> 419.0	26701	5.00 µg/L	-0.012
M7-MeFOSE	10.579	623.2 -> 58.9	37434	25.00 µg/L	-0.012
M9-EtFOSE	10.836	639.2 -> 58.9	27301	25.00 µg/L	-0.012
M5-EtFOSA	10.927	531.1 -> 219.0	9254	2.50 µg/L	0.000
M3-MeFOSA	10.670	515.0 -> 219.0	8288	2.50 µg/L	-0.012
13C4-PFOS	8.372	502.8 -> 79.9	11586	2.50 µg/L	-0.012
13C3-PFBA	2.991	216.0 -> 172.0	40949	5.00 µg/L	-0.012
18O2-PFHxS	7.299	403.0 -> 83.9	7283	2.50 µg/L	0.000
13C4-PFOA	7.160	417.1 -> 372.0	83585	2.50 µg/L	-0.012
13C2-PFDA	8.196	515.1 -> 470.1	27045	1.25 µg/L	-0.012
13C5-PFNA	7.703	468.0 -> 423.0	39506	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	39732	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.228	329.1 -> 80.9	2006	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C2-6:2FTS	6.921	429.1 -> 80.9	2733	5.25 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C2-8:2FTS	7.970	529.1 -> 80.9	3030	5.34 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C2-PFDoDA	9.104	615.1 -> 570.0	29474	1.37 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C2-PFTeDA	9.844	715.2 -> 670.0	17376	1.38 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.3%		
13C3-PFBS	5.519	302.1 -> 79.9	14265	2.34 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.4%		
13C3-PFHxS	7.288	402.1 -> 79.9	9923	2.51 µg/L	-0.012

7.7.15
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C4-PFBA	2.988	216.8 -> 171.9	94436	10.10 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C4-PFHpA	6.516	367.1 -> 322.0	41478	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C5-PFHxA	5.564	318.0 -> 273.0	38771	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C5-PFPeA	4.371	268.3 -> 223.0	43815	4.94 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C6-PFDA	8.195	519.1 -> 474.1	21773	1.41 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C7-PFUnDA	8.662	570.0 -> 525.1	25402	1.35 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C8-FOSA	9.568	506.1 -> 77.8	20040	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C8-PFOA	7.160	421.1 -> 376.0	72749	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C8-PFOS	8.371	507.1 -> 79.9	10533	2.85 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.8%		
13C9-PFNA	7.702	472.1 -> 427.0	31784	1.13 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.6%		
d3-MeFOSAA	8.240	573.2 -> 419.0	29583	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C3-HFPO-DA	5.941	286.9 -> 168.9	16477	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
d3-MeFOSA	10.670	515.0 -> 219.0	8288	2.31 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.5%		
d5-EtFOSAA	8.436	589.2 -> 419.0	26701	5.46 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.1%		
d7-MeFOSE	10.579	623.2 -> 58.9	37434	25.38 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
d9-EtFOSE	10.836	639.2 -> 58.9	27301	24.21 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 96.8%		
d5-EtFOSA	10.927	531.1 -> 219.0	9254	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.2%		
Target Compounds					QValue
4:2FTS	5.229	327.1 -> 307.0	41443	8.69 µg/L	98
		327.1 -> 80.9	9353		
6:2FTS	6.922	427.1 -> 407.0	37712	8.87 µg/L	99
		427.1 -> 80.9	7851		
8:2FTS	7.971	527.1 -> 507.0	22064	8.73 µg/L	96
		527.1 -> 80.8	5891		
EtFOSAA	8.449	584.2 -> 419.1	9656	2.27 µg/L	m 94
		584.2 -> 526.0	5174		
FOSA	9.558	498.1 -> 77.9	18713	2.31 µg/L	100
		498.1 -> 478.0	757		
MeFOSAA	8.241	570.1 -> 419.0	13502	2.21 µg/L	99
		570.1 -> 483.0	2781		
PFBA	2.994	212.8 -> 168.9	21691	8.95 µg/L	100
PFBS	5.520	298.7 -> 79.9	12374	2.14 µg/L	99
		298.7 -> 98.8	5678		
PFDA	8.196	512.9 -> 469.0	61053	2.33 µg/L	99
		512.9 -> 219.0	8068		
PFDODA	9.105	613.1 -> 569.0	53982	2.33 µg/L	100
		613.1 -> 319.0	6718		
PFDS	9.280	599.0 -> 79.9	7541	2.07 µg/L	99

7.7.15
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.516	599.0 -> 98.8	3972	2.28	µg/L	98
		363.1 -> 319.0	57037			
PFHpS	7.867	363.1 -> 169.0	7807	1.84	µg/L	95
		449.0 -> 79.9	8866			
PFHxA	5.567	449.0 -> 98.9	5377	2.36	µg/L	100
		313.0 -> 269.0	36986			
PFHxS	7.289	313.0 -> 118.9	1349	2.12	µg/L	98
		398.7 -> 79.9	10037			
PFNA	7.703	398.7 -> 98.9	5510	2.39	µg/L	96
		463.0 -> 419.0	52642			
PFNS	8.850	463.0 -> 219.0	9511	2.01	µg/L	94
		548.8 -> 79.9	10200			
PFOA	7.161	548.8 -> 98.9	5975	2.29	µg/L	98
		413.0 -> 369.0	74595			
PFOS	8.372	413.0 -> 169.0	9783	1.94	µg/L	99
		498.9 -> 79.9	9910			
PFPeA	4.374	498.9 -> 98.8	6012	4.65	µg/L	100
		263.0 -> 219.0	44754			
PFPeS	6.595	349.1 -> 79.9	11666	2.09	µg/L	98
		349.1 -> 98.9	6062			
PFTeDA	9.844	713.1 -> 669.0	44391	2.14	µg/L	98
		713.1 -> 168.9	3109			
PFTrDA	9.501	663.0 -> 619.0	50218	2.27	µg/L	99
		663.0 -> 168.9	3978			
PFUnDA	8.662	563.1 -> 519.0	48629	2.29	µg/L	97
		563.1 -> 269.1	7568			
11CI-PF3OUdS	9.552	630.9 -> 450.9	104272	8.35	µg/L	97
		632.9 -> 452.9	35589			
9CI-PF3ONS	8.714	530.8 -> 351.0	180602	8.90	µg/L	95
		532.8 -> 353.0	56045			
ADONA	6.767	376.9 -> 250.9	337043	9.20	µg/L	100
		376.9 -> 84.8	68497			
HFPO-DA	5.942	284.9 -> 168.9	15290	9.18	µg/L	96
		284.9 -> 184.9	2113			
3:3FTCA	3.839	241.0 -> 177.0	5664	11.05	µg/L	100
		241.0 -> 117.0	682			
5:3FTCA	6.194	341.0 -> 237.1	192938	59.22	µg/L	96
		341.0 -> 217.0	156343			
7:3FTCA	7.618	441.0 -> 316.9	128601	58.56	µg/L	95
		441.0 -> 336.9	261875			
EtFOSA	10.929	526.0 -> 219.0	10502	2.35	µg/L	88
		526.0 -> 169.0	10392			
EtFOSE	10.862	630.0 -> 58.9	28041	23.28	µg/L	100
		511.9 -> 219.0	9143			
MeFOSA	10.685	511.9 -> 169.0	8807	2.50	µg/L	77
		616.1 -> 58.9	34546			
MeFOSE	10.604	699.1 -> 79.9	4539	22.34	µg/L	100
		699.1 -> 98.8	2909			
PFDoDS	9.984	295.0 -> 201.0	4713	4.64	µg/L	96
		295.0 -> 84.9	2065			
NFDHA	5.446	279.0 -> 85.1	14057	4.68	µg/L	100
		229.0 -> 84.9	12618			
PFMBA	3.538	314.8 -> 134.9	92752	4.74	µg/L	100
		314.8 -> 82.9	2129			
PFEESA	6.060			4.25	µg/L	99

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

7.7.15
7

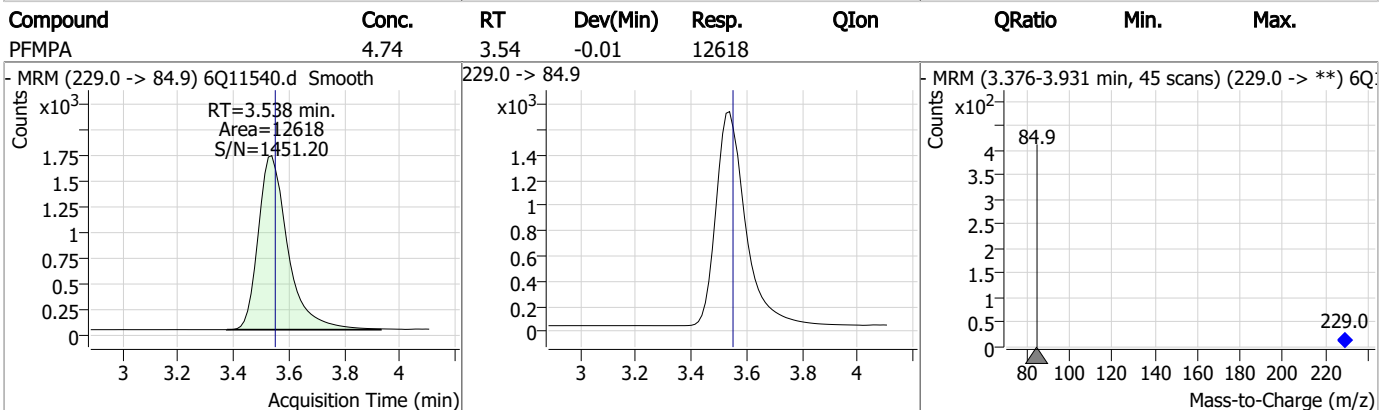
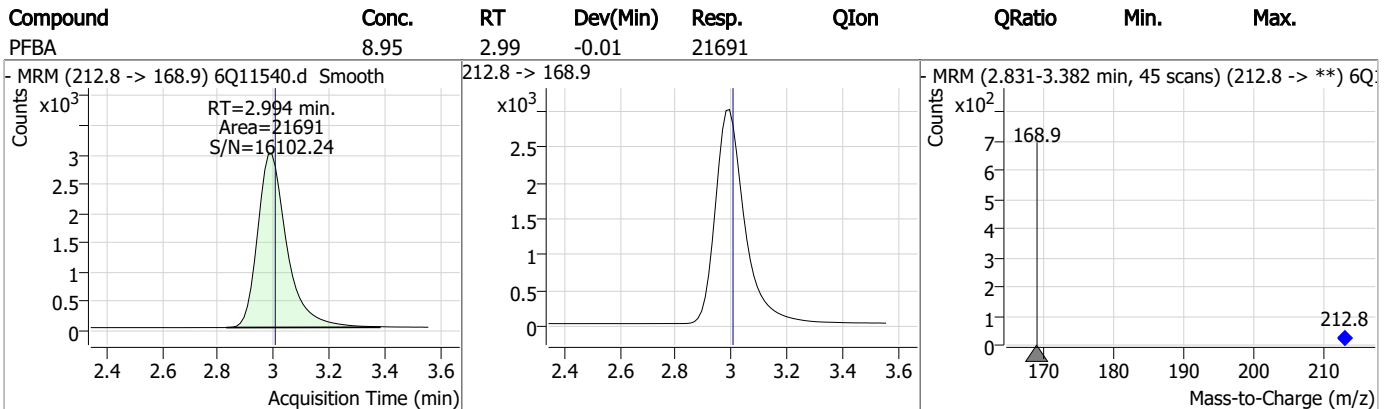
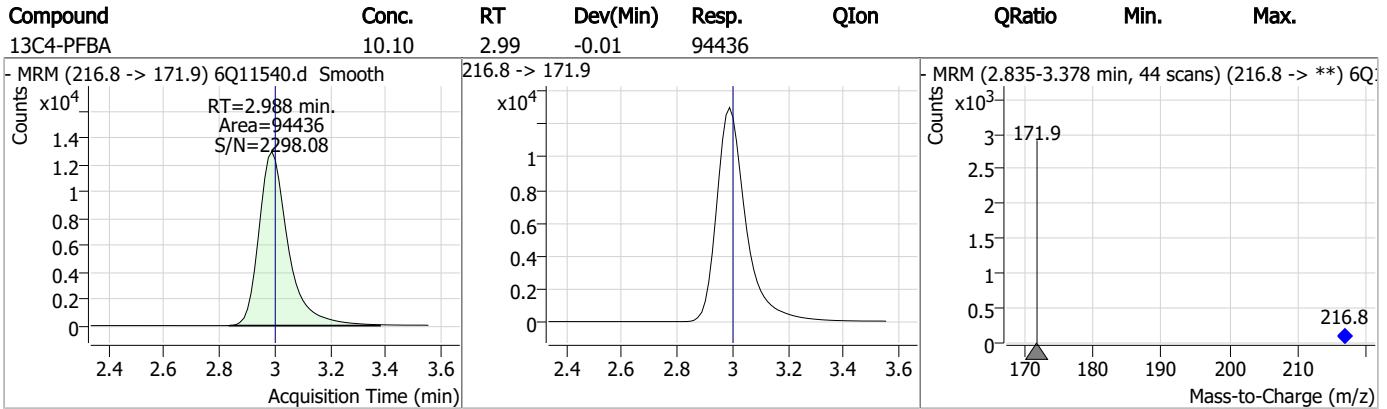
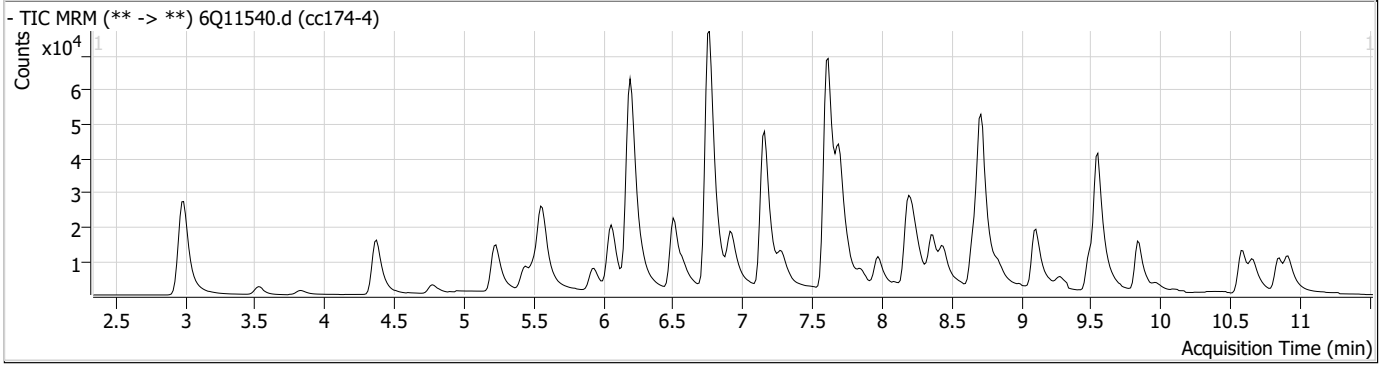
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.15

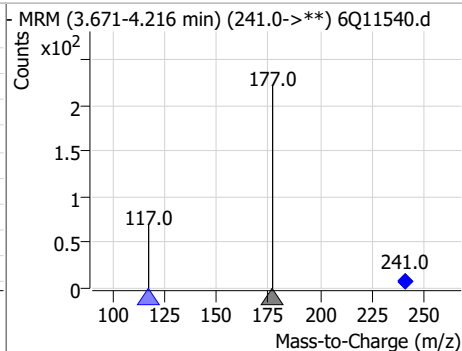
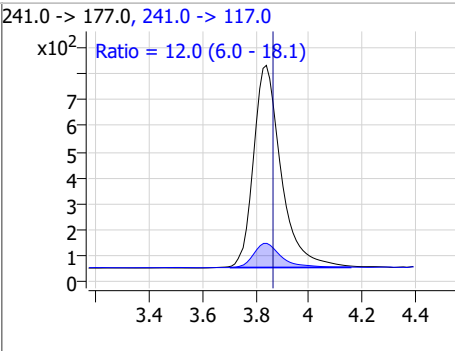
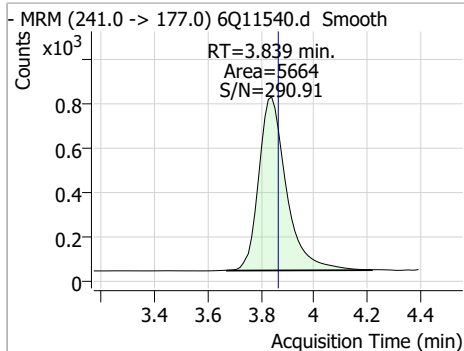
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Perfluorinated Compounds by LC/MS/MS

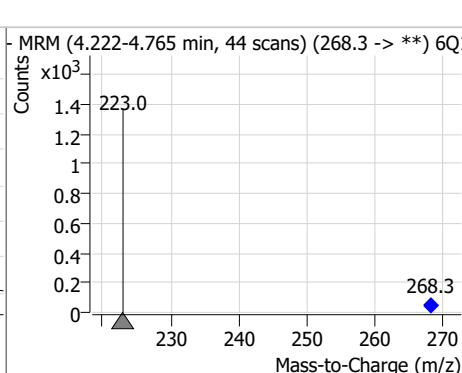
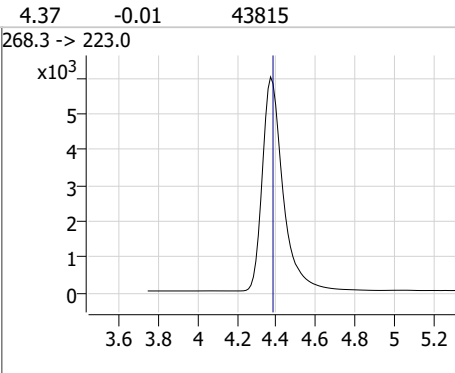
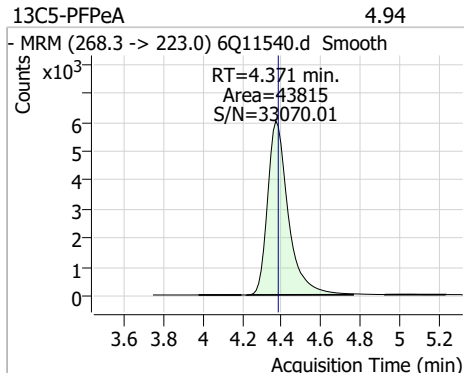


Perfluorinated Compounds by LC/MS/MS

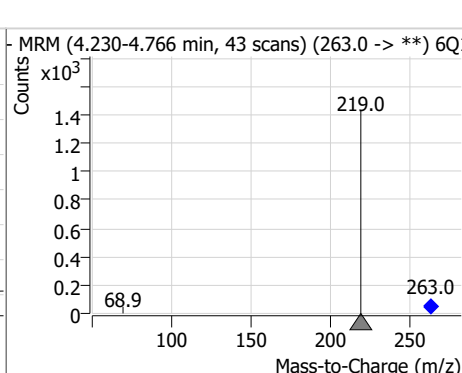
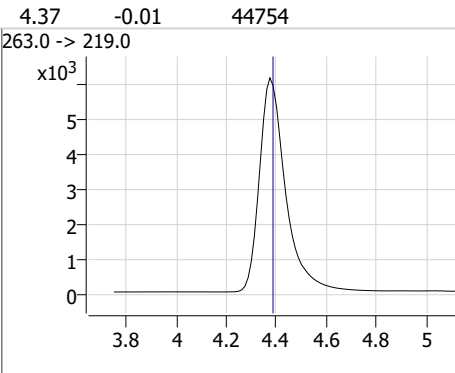
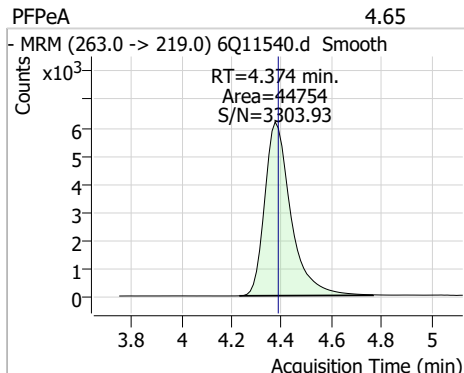
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.05	3.84	-0.02	5664	241.0 -> 117.0	12.0	6.0	18.1



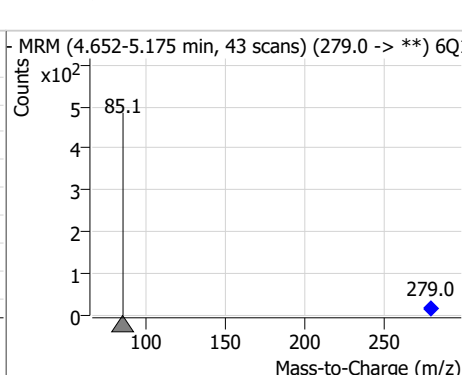
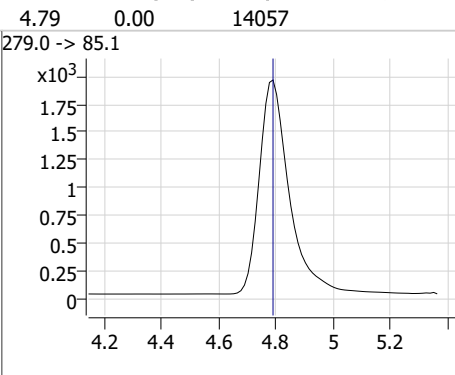
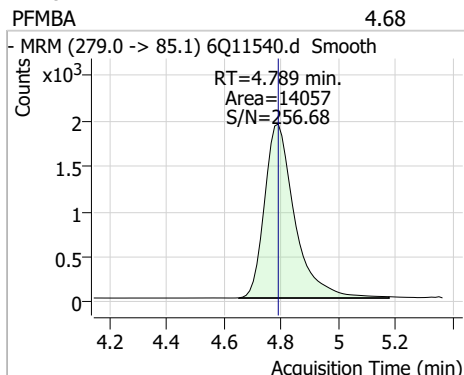
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.94	4.37	-0.01	43815				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.65	4.37	-0.01	44754				

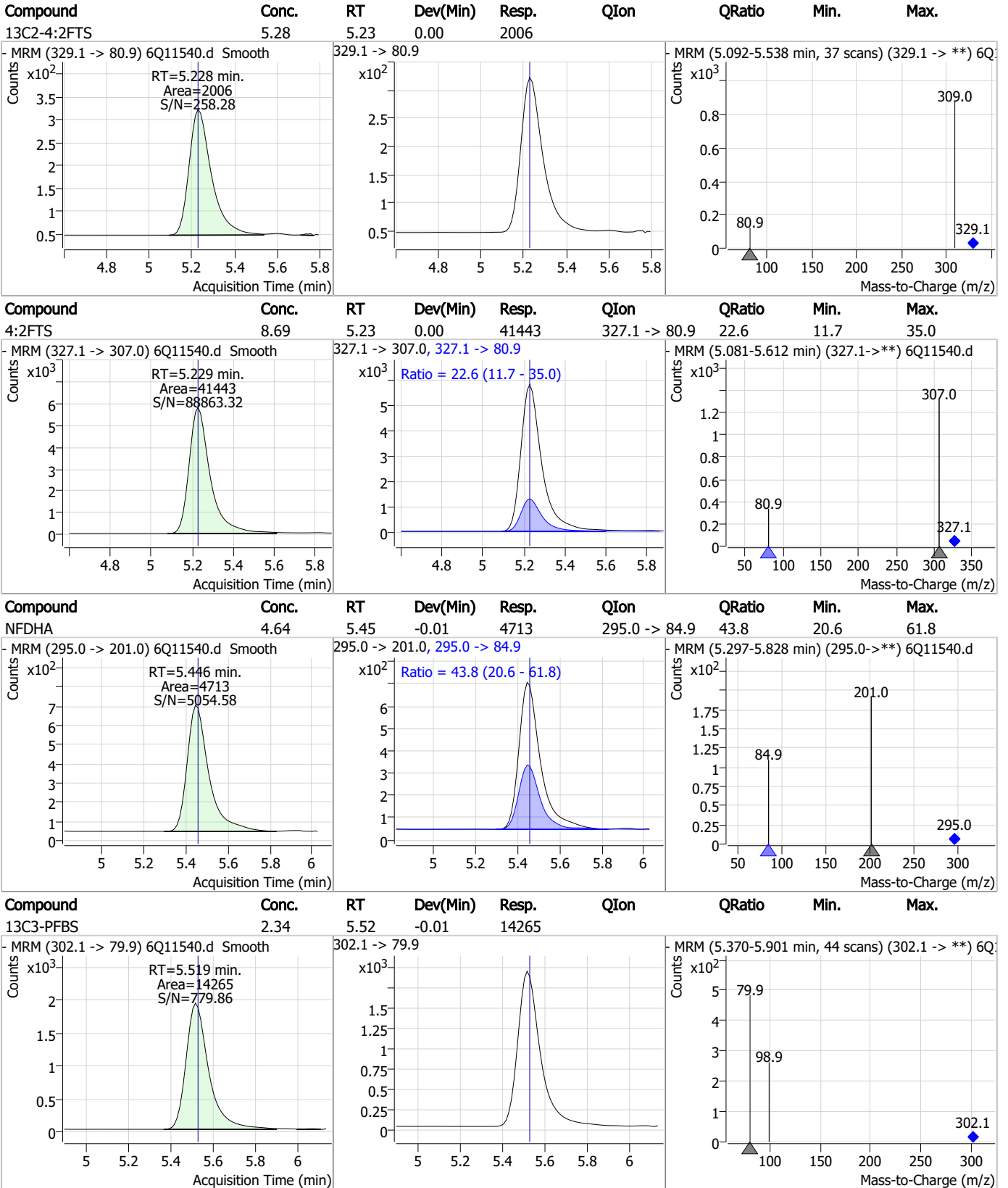


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.68	4.79	0.00	14057				



7.7.15
7

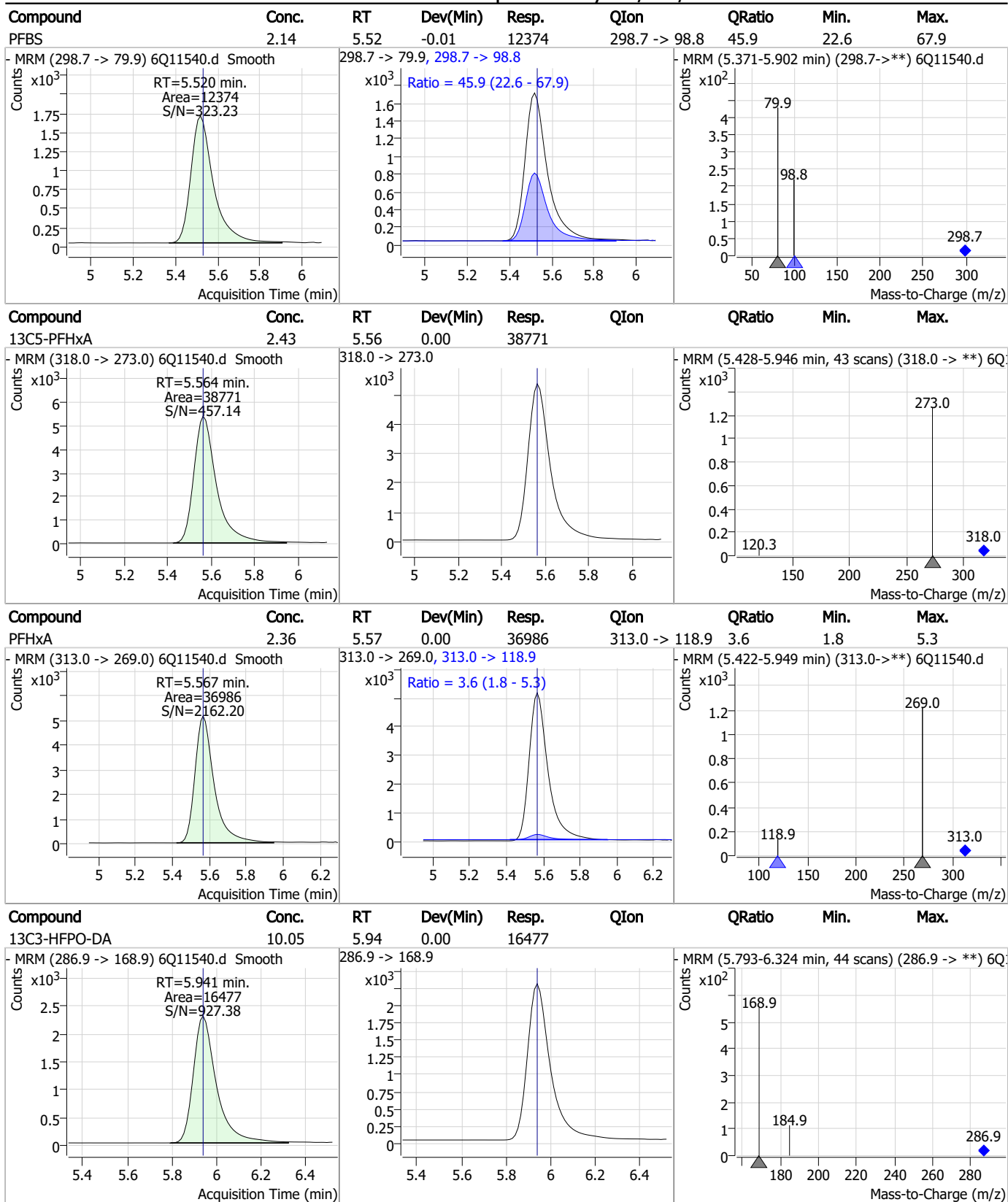
Perfluorinated Compounds by LC/MS/MS



7.7.15 7



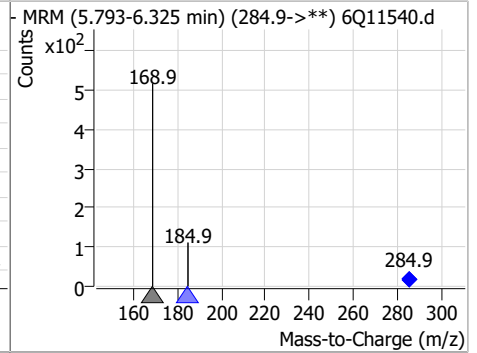
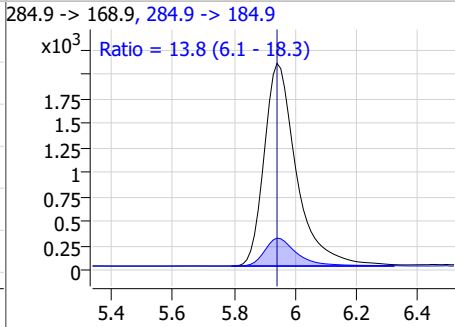
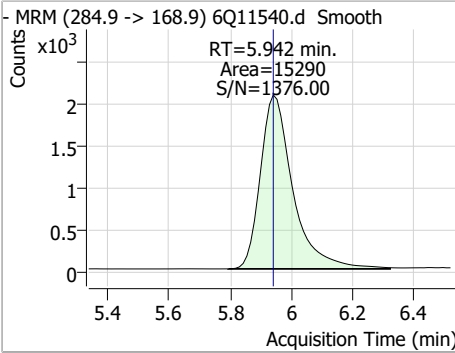
Perfluorinated Compounds by LC/MS/MS



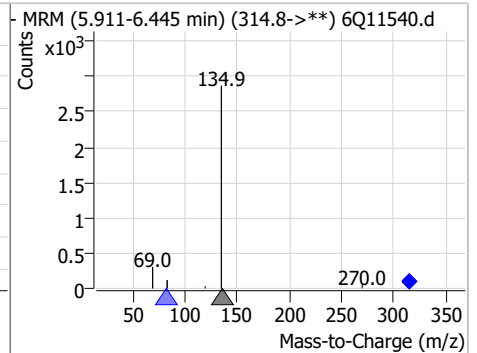
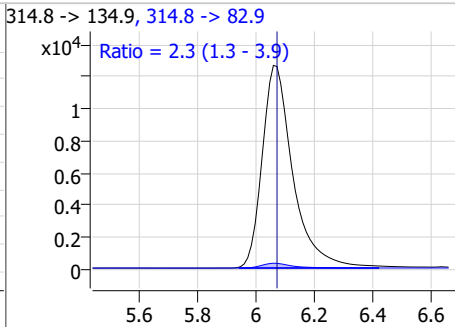
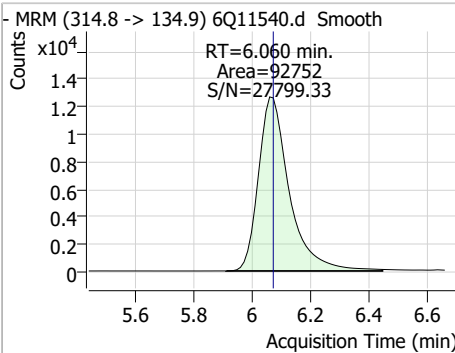
7.7.15 7

Perfluorinated Compounds by LC/MS/MS

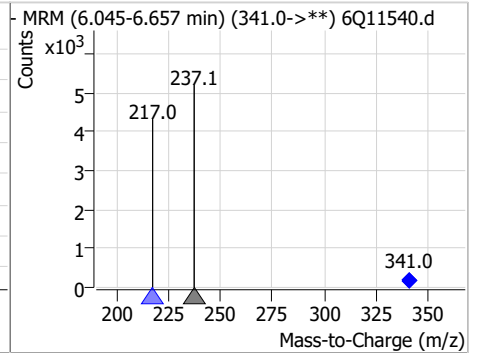
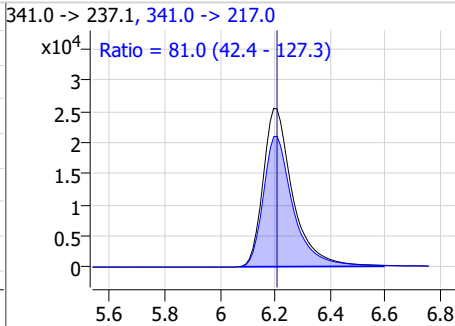
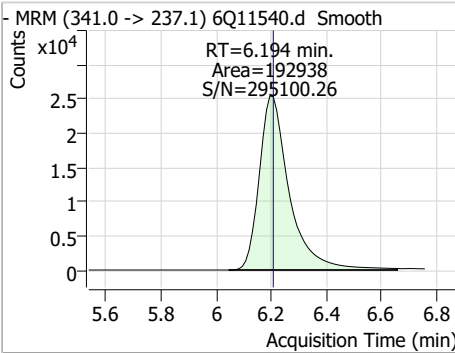
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.18	5.94	0.00	15290	284.9 -> 184.9	13.8	6.1	18.3



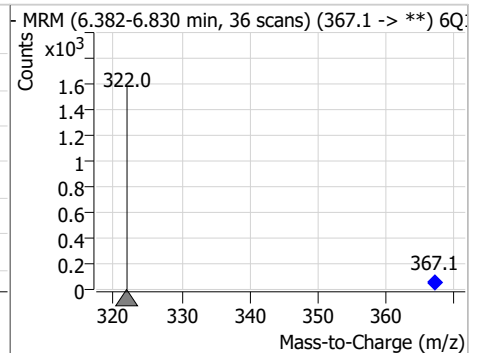
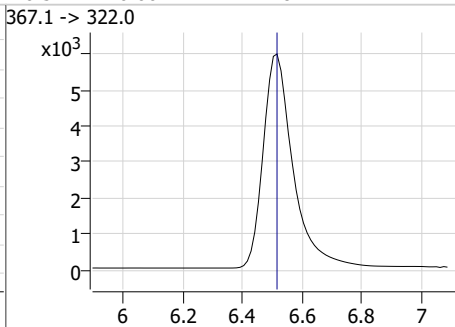
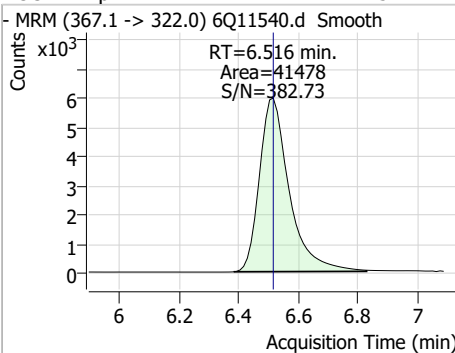
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.25	6.06	-0.01	92752	314.8 -> 82.9	2.3	1.3	3.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	59.22	6.19	-0.01	192938	341.0 -> 217.0	81.0	42.4	127.3

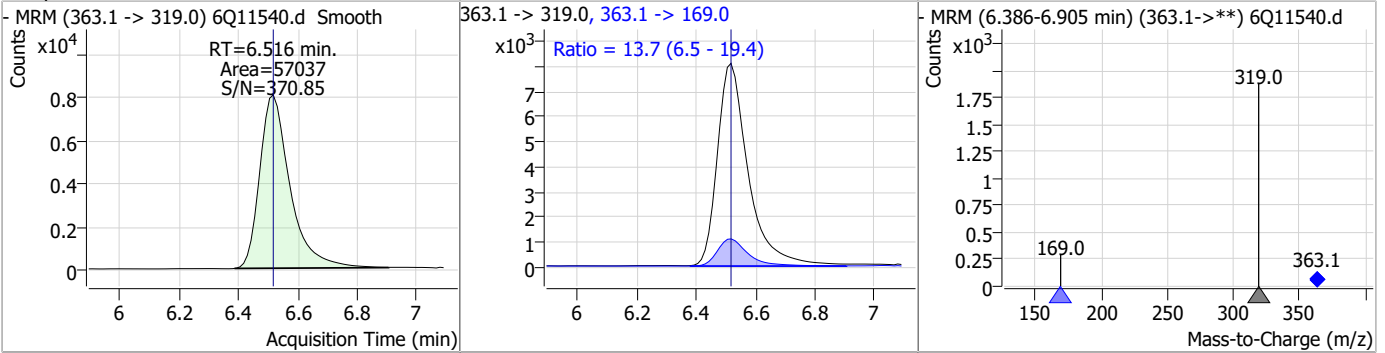


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.57	6.52	0.00	41478	367.1 -> 322.0			

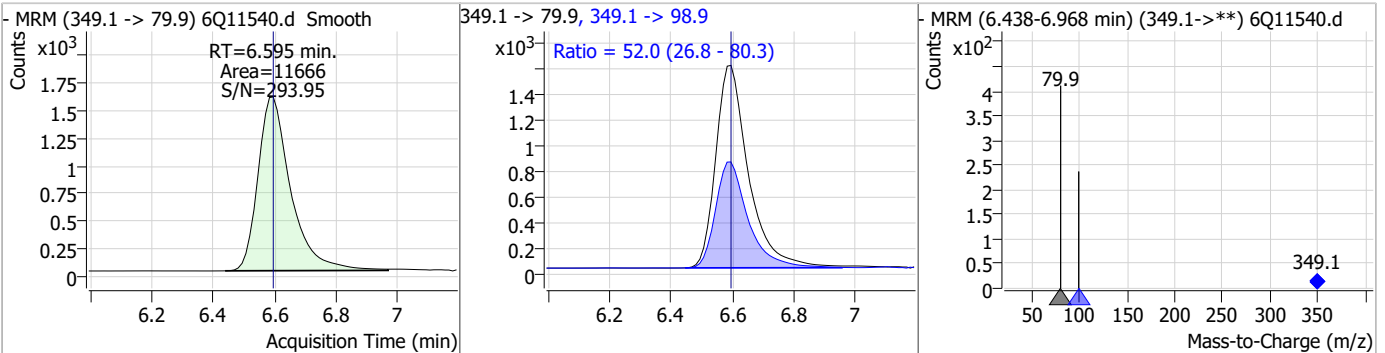


Perfluorinated Compounds by LC/MS/MS

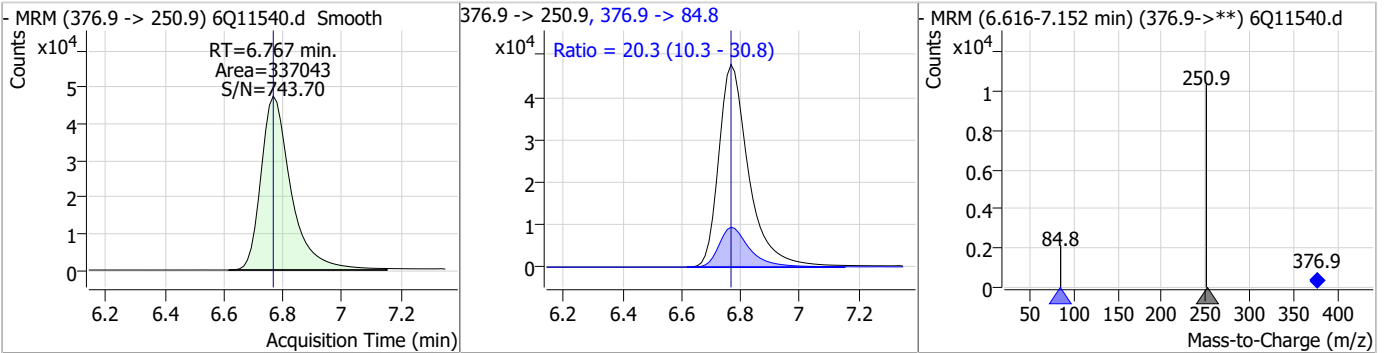
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.28	6.52	0.00	57037	363.1 -> 169.0	13.7	6.5	19.4



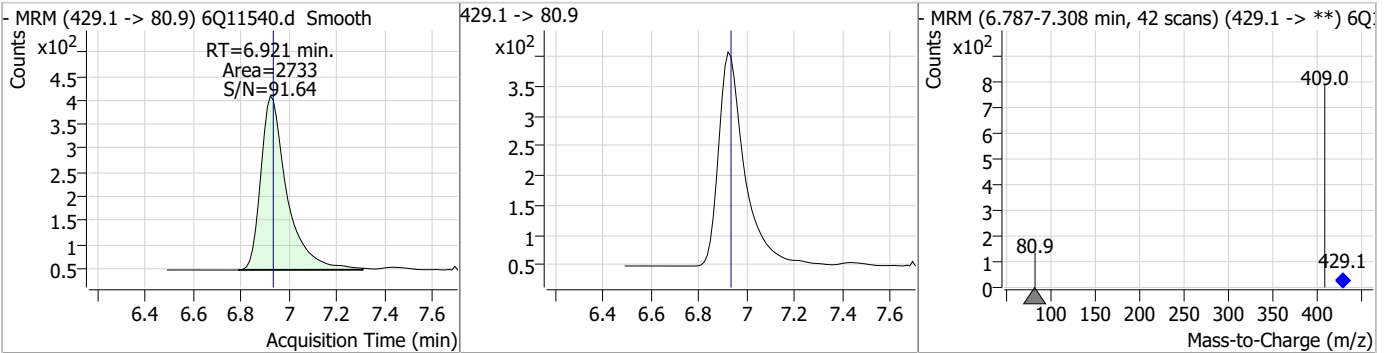
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.09	6.59	0.00	11666	349.1 -> 98.9	52.0	26.8	80.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	9.20	6.77	0.00	337043	376.9 -> 84.8	20.3	10.3	30.8

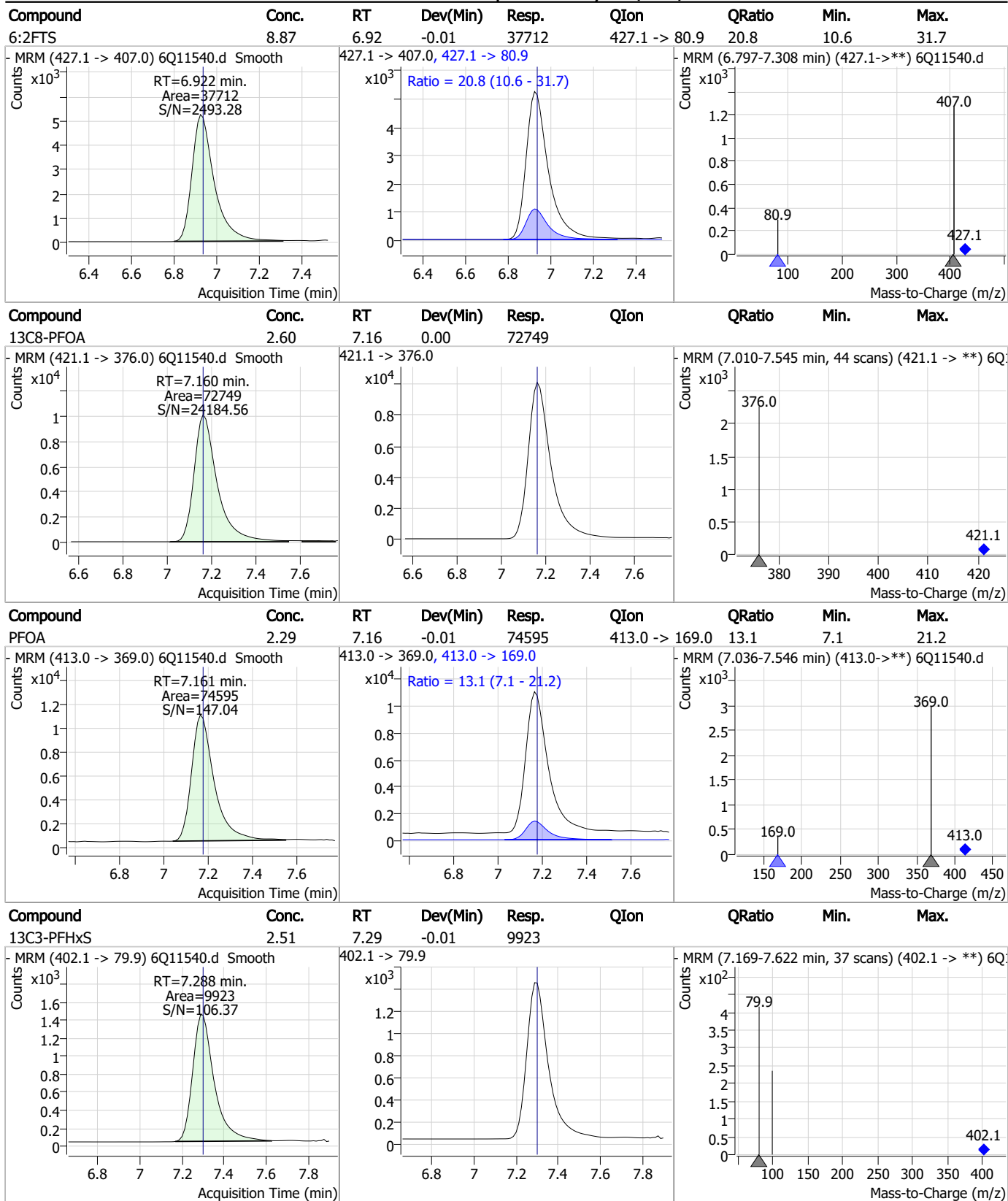


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2F7S	5.25	6.92	-0.01	2733	429.1 -> 80.9			



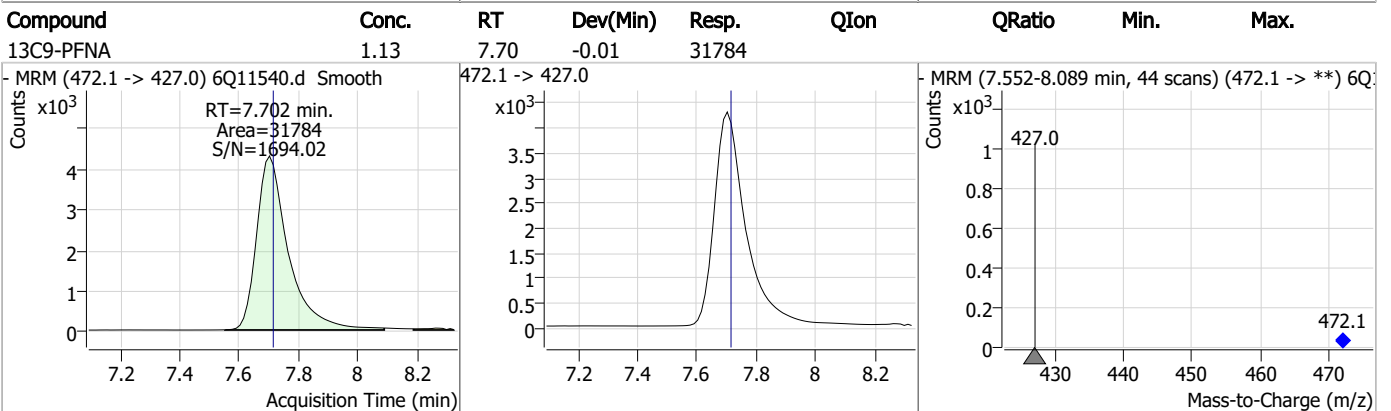
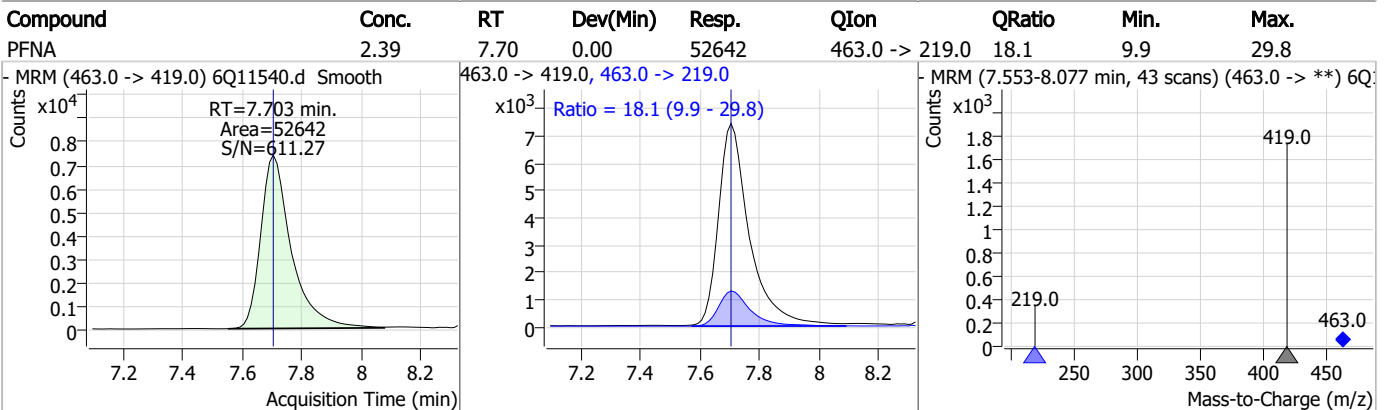
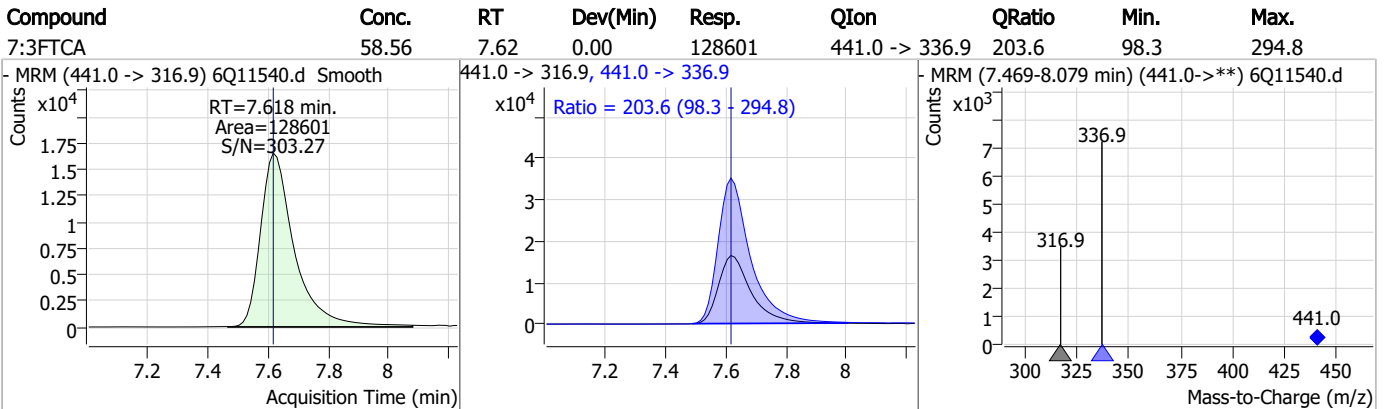
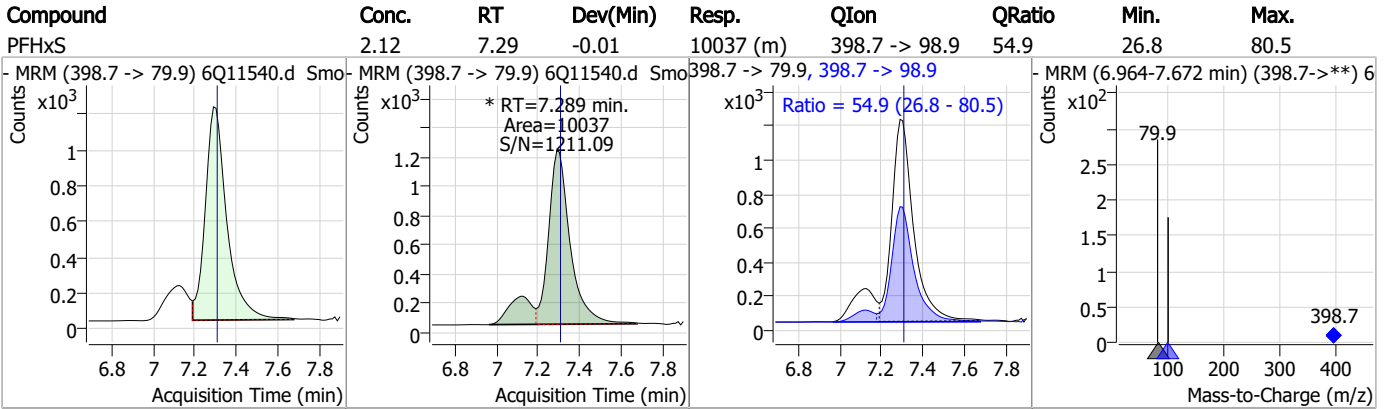
7.7.15 7

Perfluorinated Compounds by LC/MS/MS

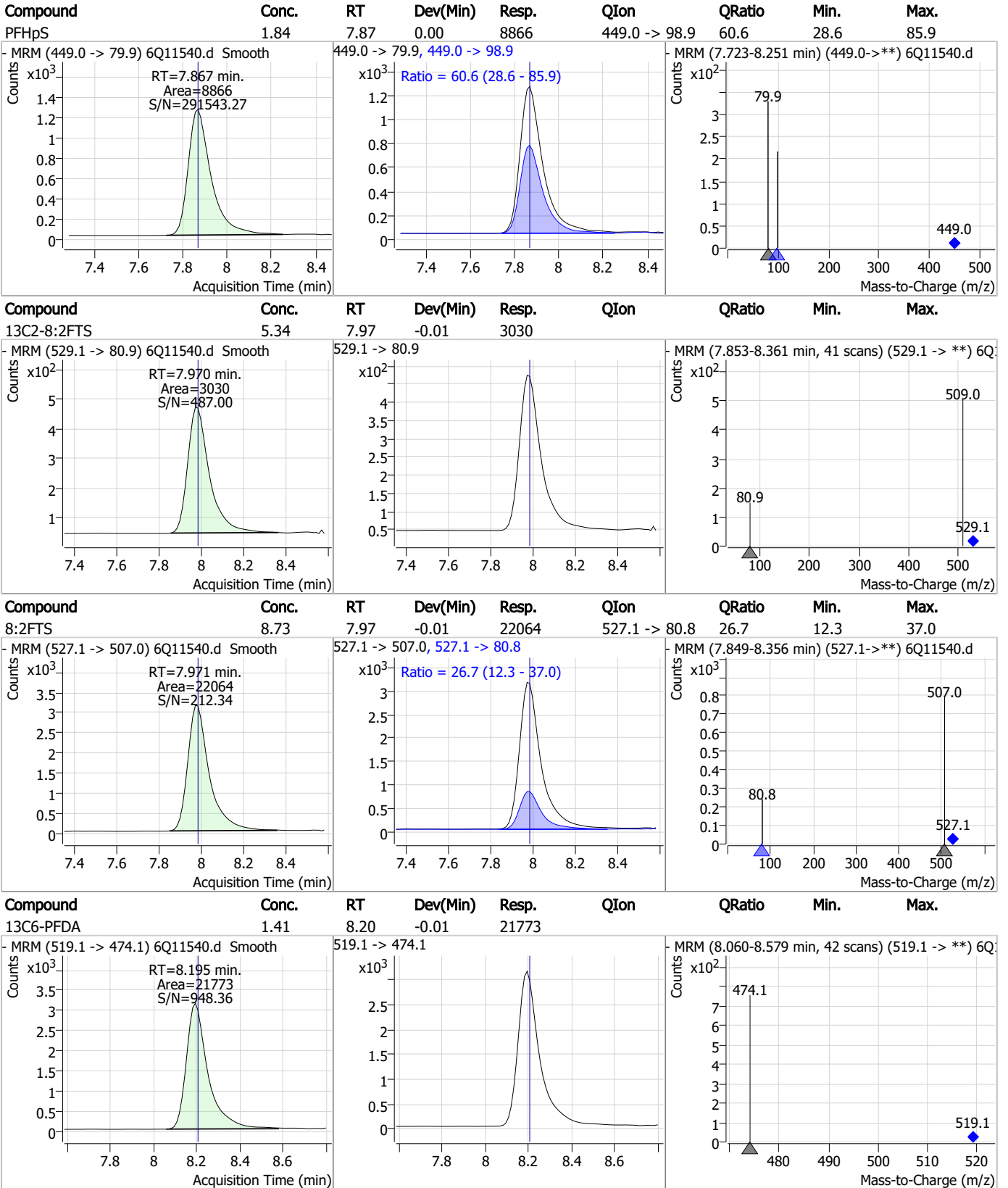


7.7.15
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Perfluorinated Compounds by LC/MS/MS



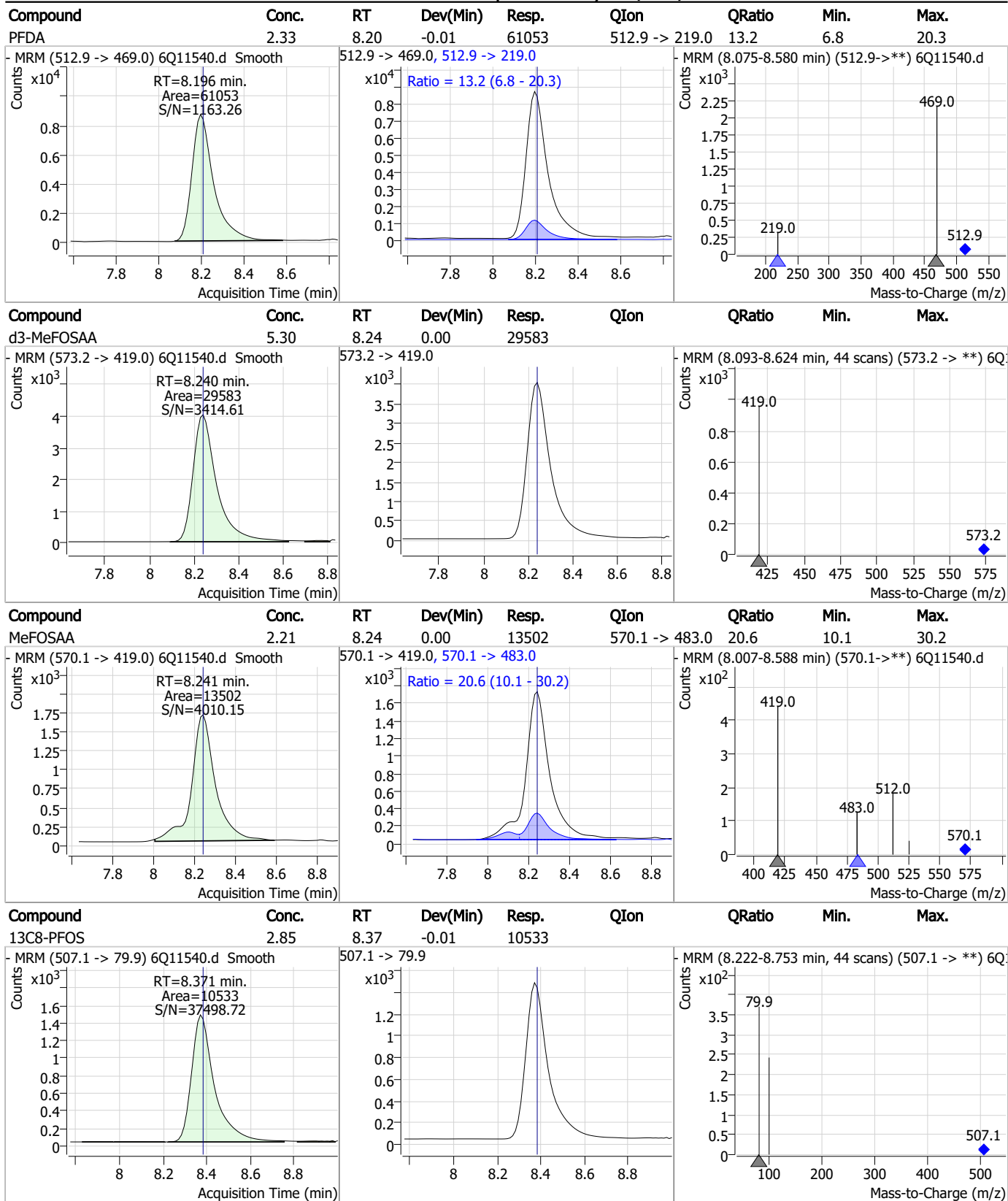
Perfluorinated Compounds by LC/MS/MS



7.7.15 7



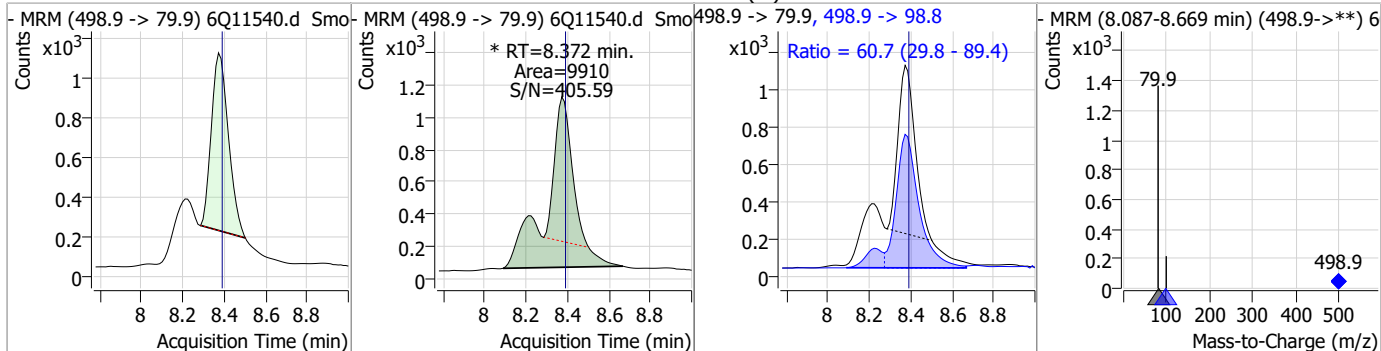
Perfluorinated Compounds by LC/MS/MS



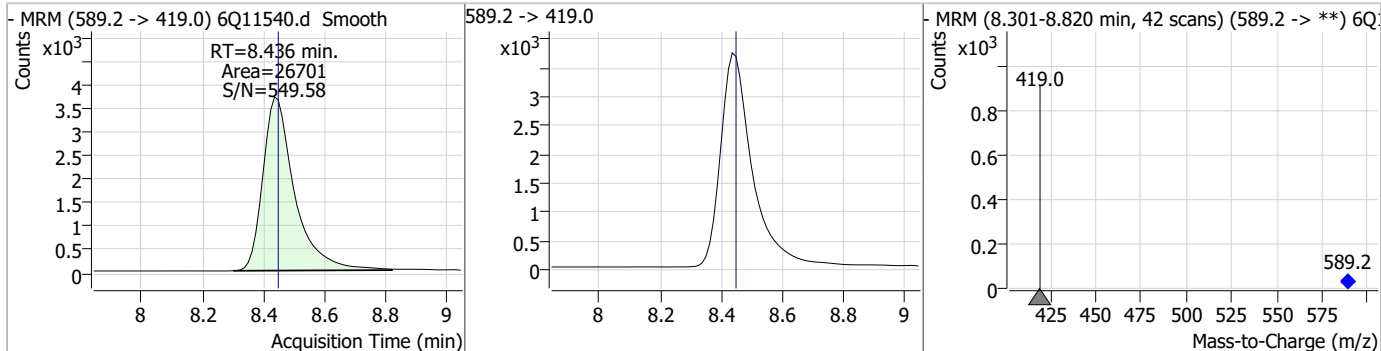
7.7.15
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Perfluorinated Compounds by LC/MS/MS

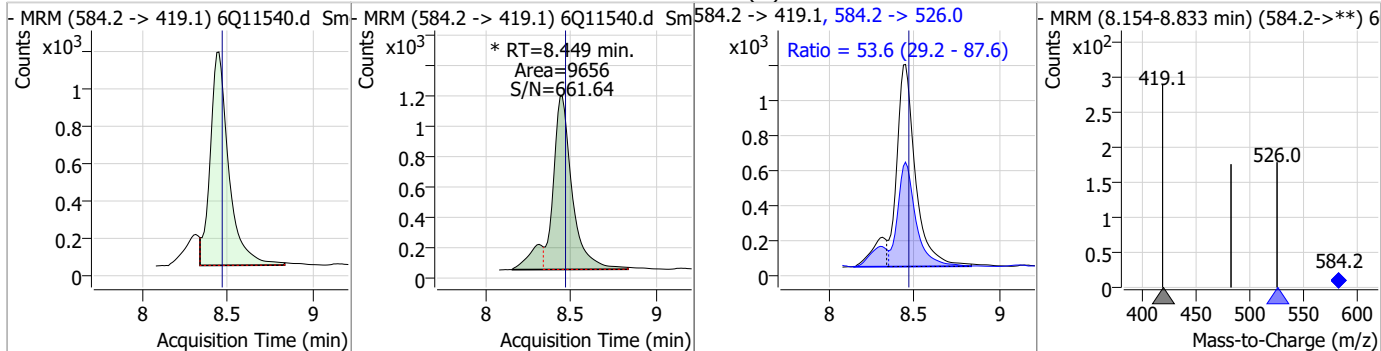
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.94	8.37	-0.01	9910 (m)	498.9 -> 98.8	60.7	29.8	89.4



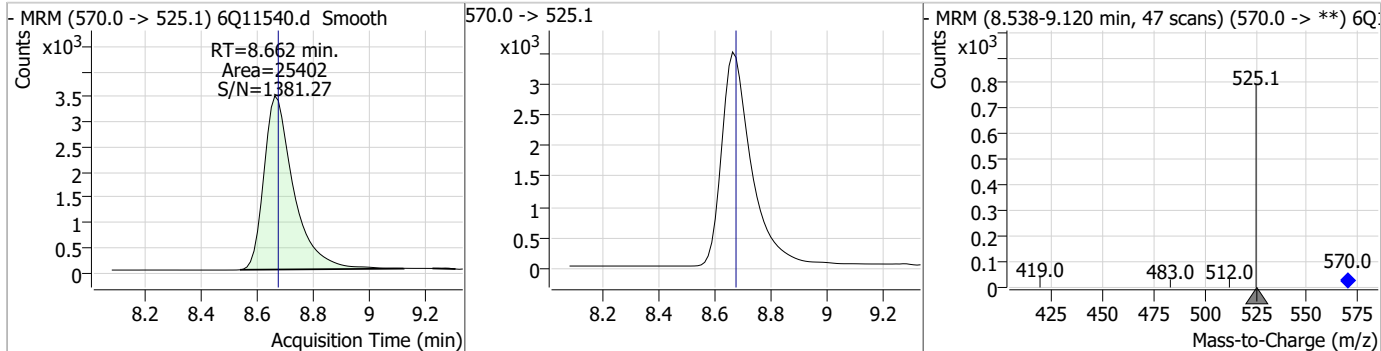
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.46	8.44	-0.01	26701				



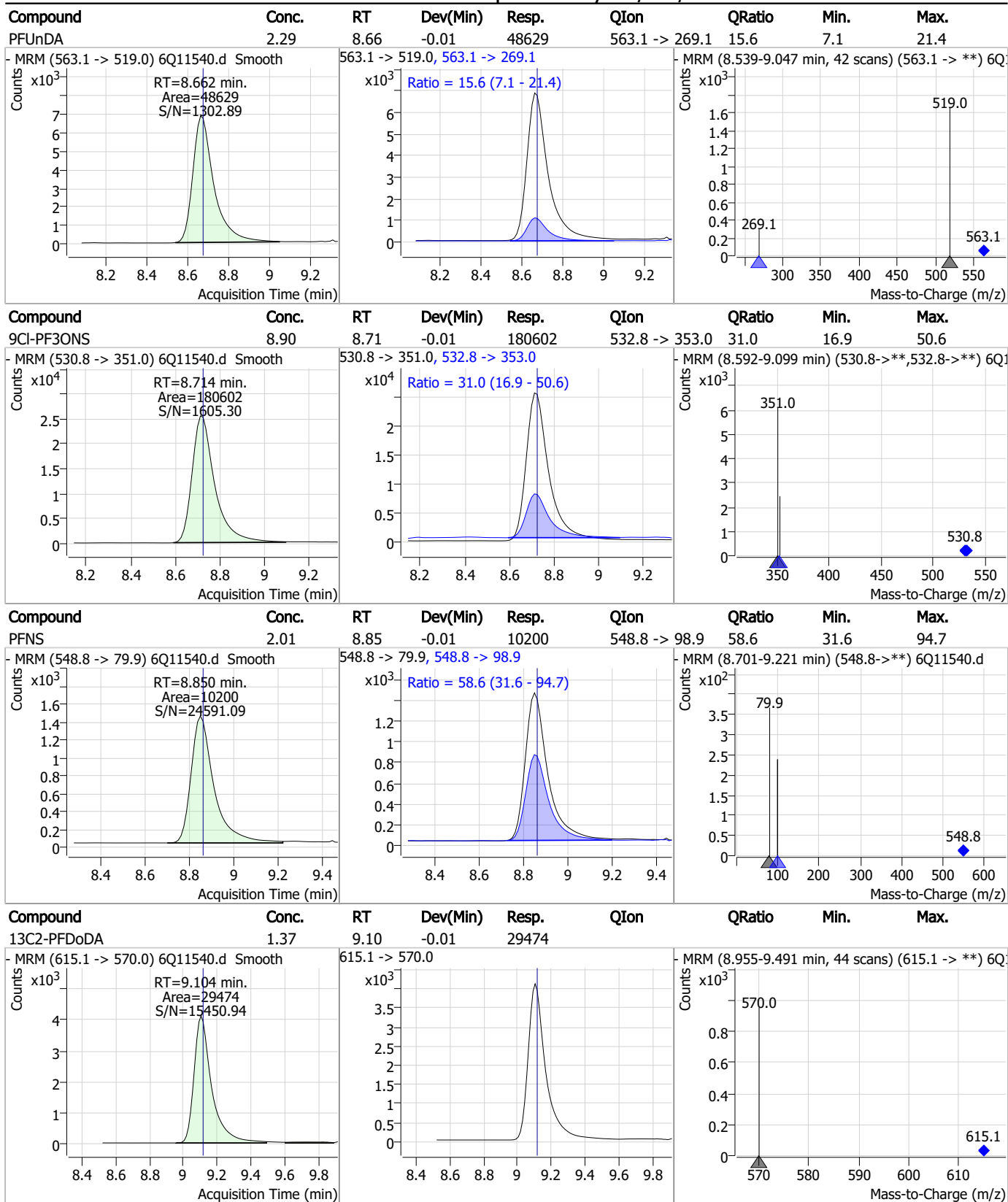
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.27	8.45	-0.01	9656 (m)	584.2 -> 526.0	53.6	29.2	87.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.35	8.66	-0.01	25402				



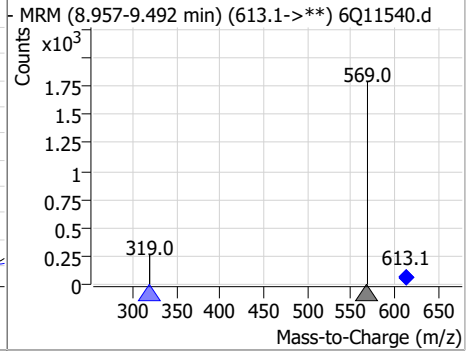
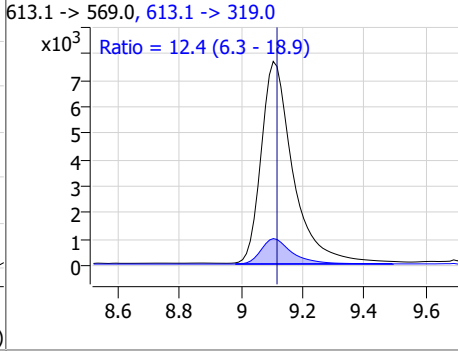
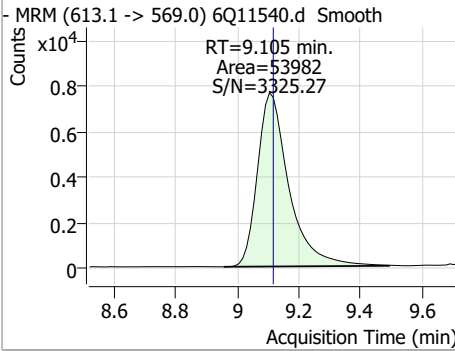
Perfluorinated Compounds by LC/MS/MS



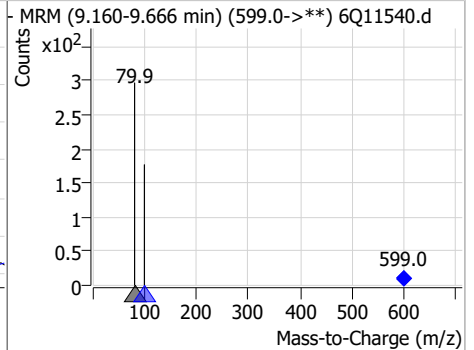
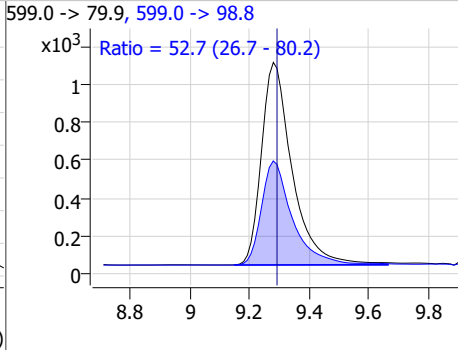
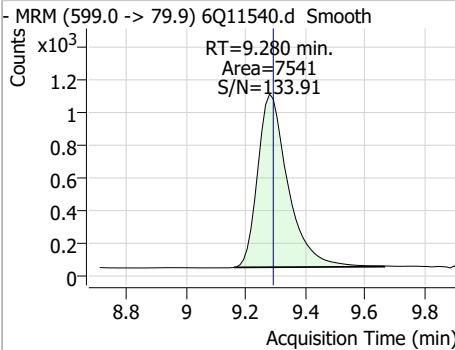
7.7.15
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Perfluorinated Compounds by LC/MS/MS

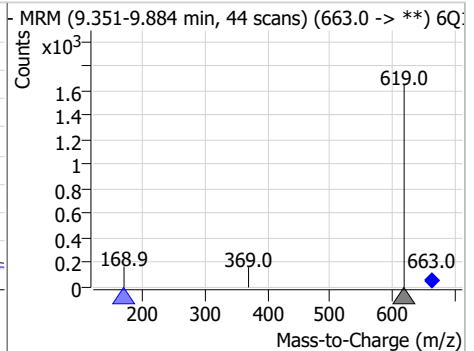
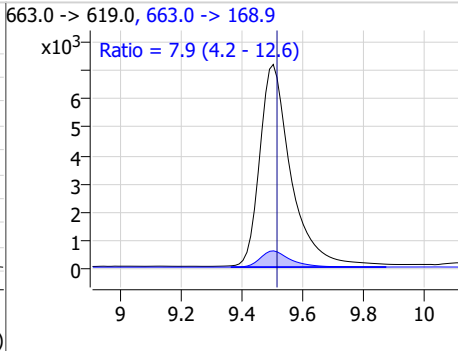
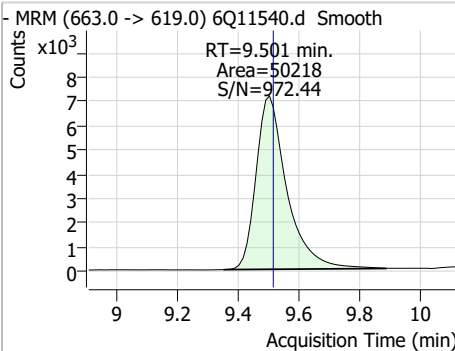
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DA	2.33	9.10	-0.01	53982	613.1 -> 319.0	12.4	6.3	18.9



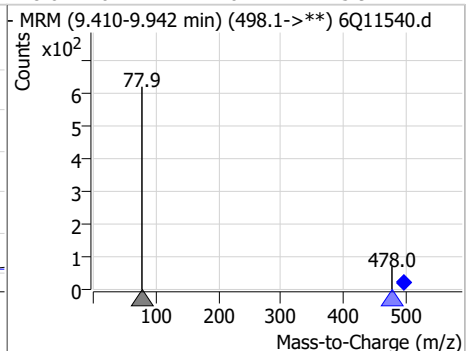
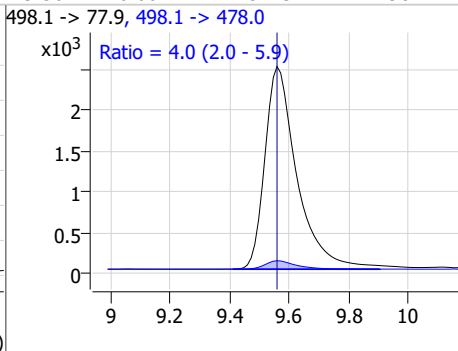
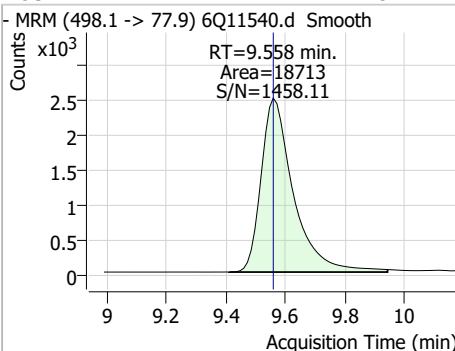
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	2.07	9.28	-0.01	7541	599.0 -> 98.8	52.7	26.7	80.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFT _r DA	2.27	9.50	-0.01	50218	663.0 -> 168.9	7.9	4.2	12.6

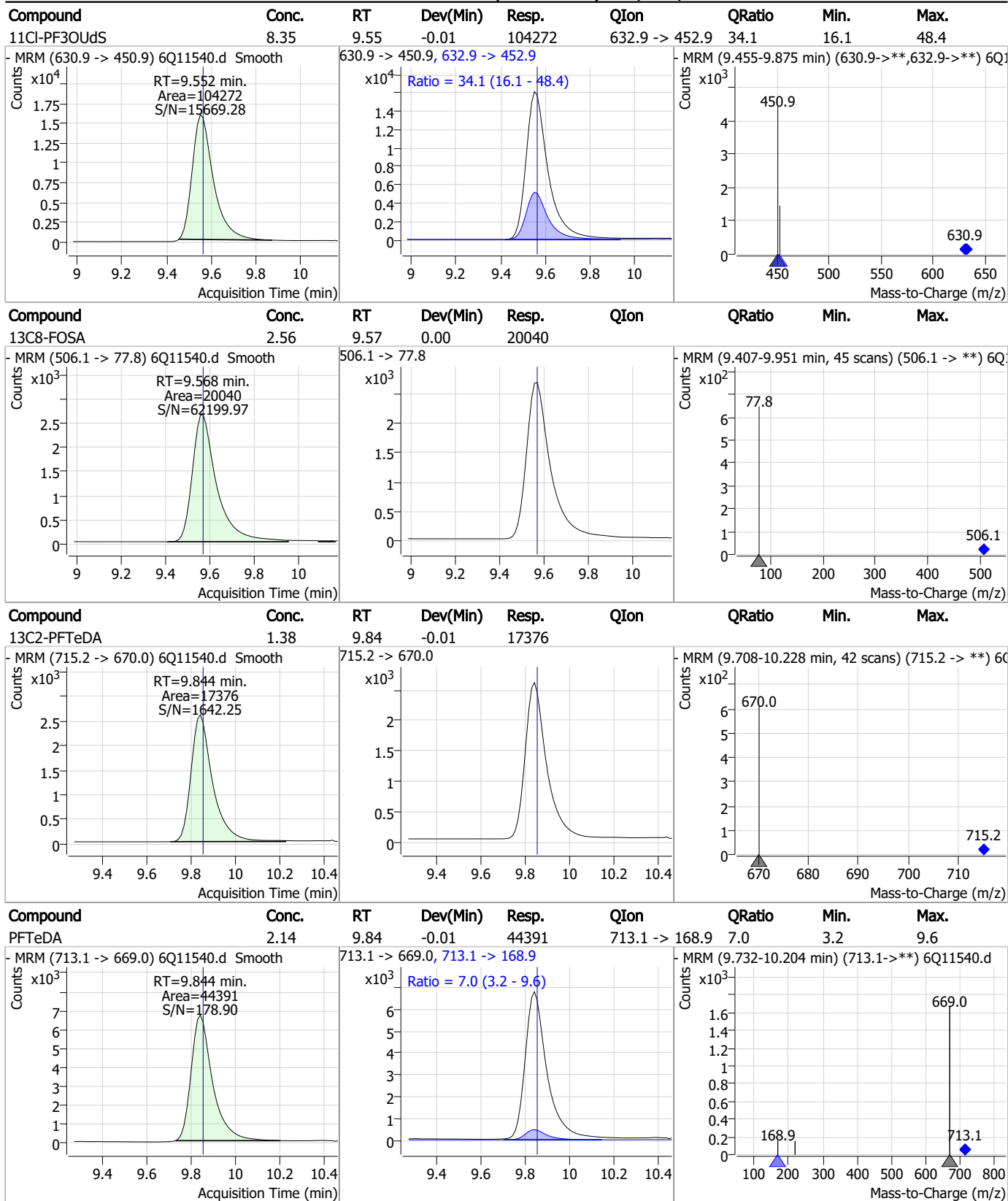


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.31	9.56	0.00	18713	498.1 -> 478.0	4.0	2.0	5.9



7.7.15
7

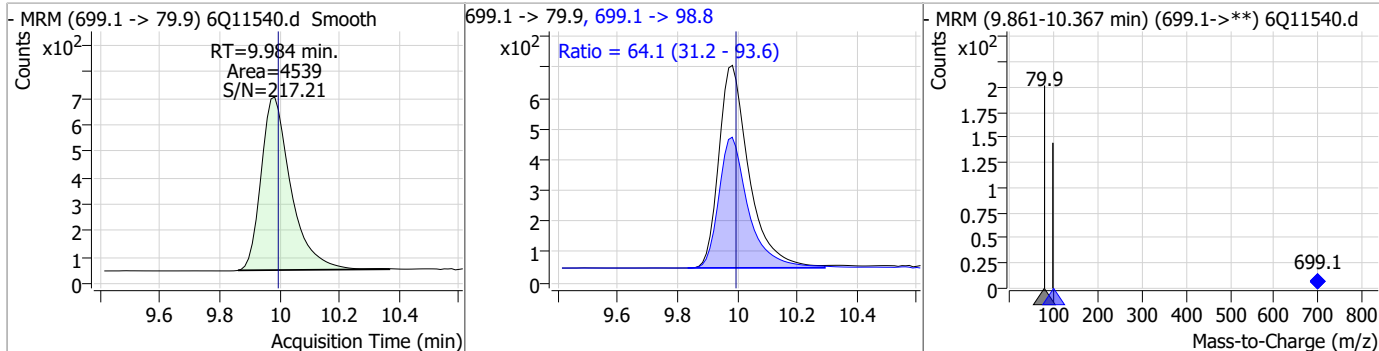
Perfluorinated Compounds by LC/MS/MS



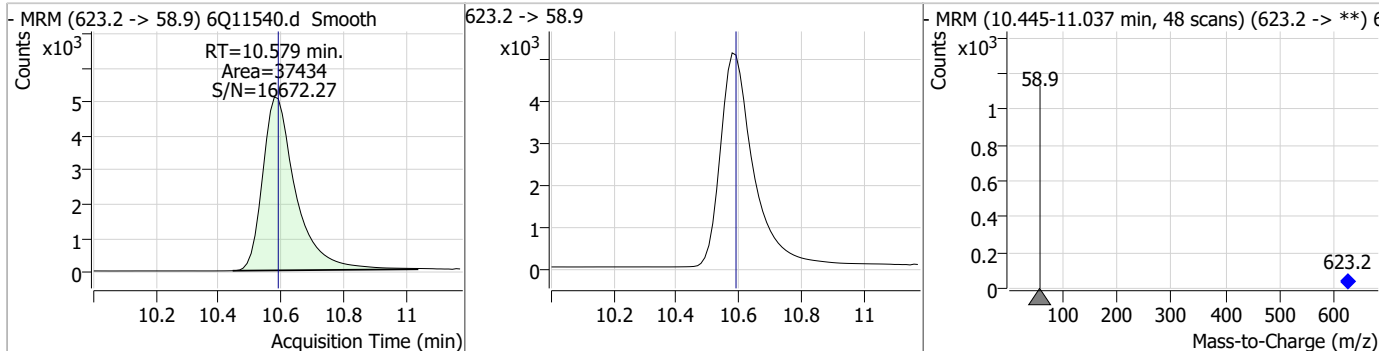
7.7.15
7

Perfluorinated Compounds by LC/MS/MS

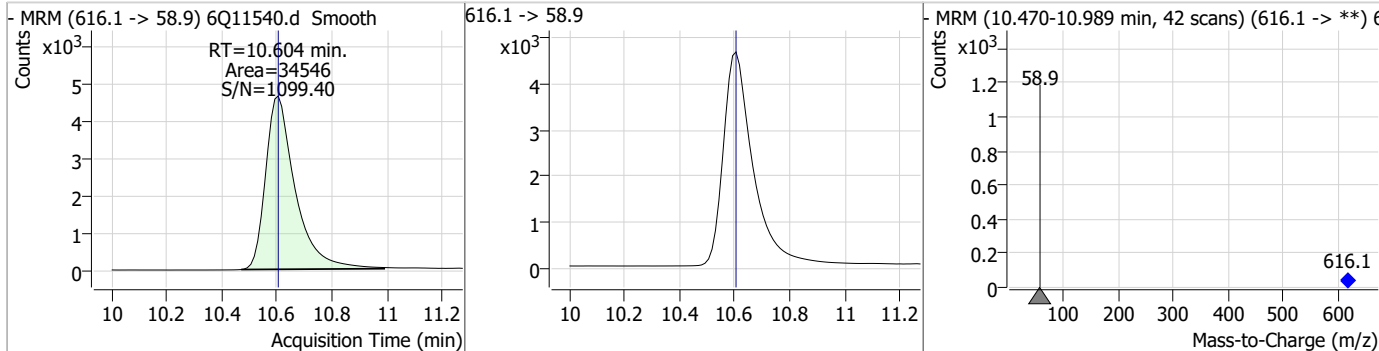
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.00	9.98	-0.01	4539	699.1 -> 98.8	64.1	31.2	93.6



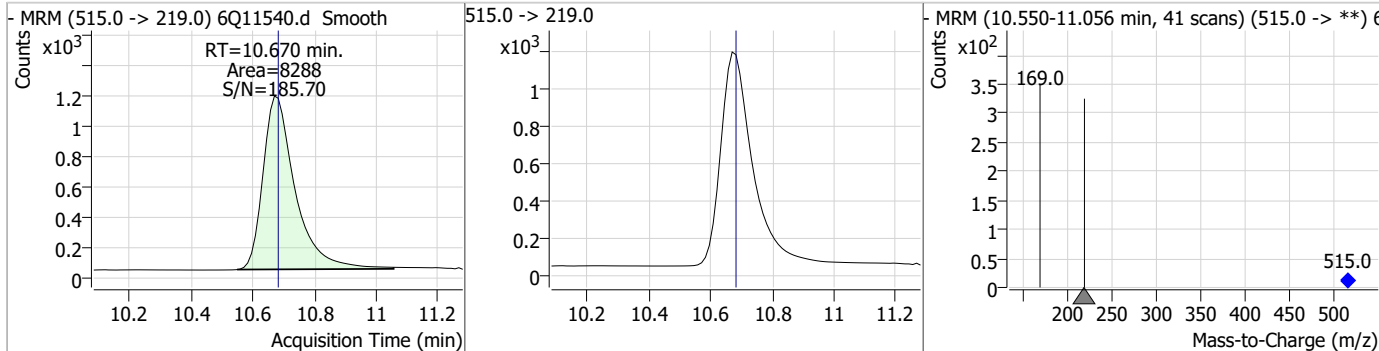
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.38	10.58	-0.01	37434				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	22.34	10.60	0.00	34546				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.31	10.67	-0.01	8288				



7.7.15
7

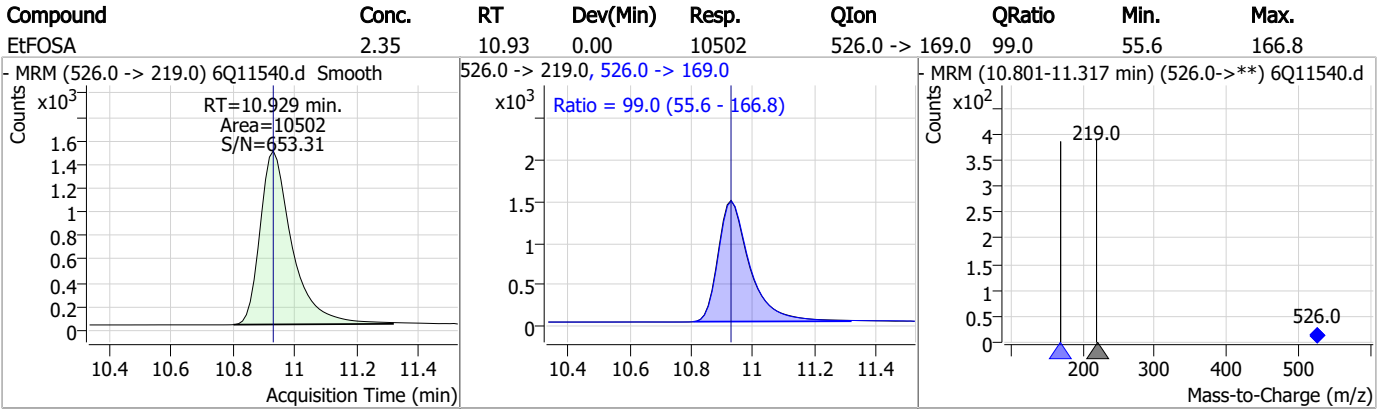
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOsa	2.50	10.68	0.00	9143	511.9 -> 169.0	96.3	61.3	184.0
d9-EtFOSE	24.21	10.84	-0.01	27301				
EtFOSE	23.28	10.86	0.00	28041				
d5-EtFOsa	2.31	10.93	0.00	9254				

7.7.15

7

Perfluorinated Compounds by LC/MS/MS



7.7.15
7

Manual Integration Approval Summary

Sample Number: S6Q180-CC174 Method: EPA DRAFT 1633
Lab FileID: 6Q11540.D Analyst approved: 01/18/23 15:20 Martha Valls
Injection Time: 01/18/23 03:28 Supervisor approved: 01/18/23 19:08 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.15.1

7

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DATE:	01/11/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_011123_S6Q174
CAL DATE:	01/11/23
ANALYST:	M.Valls
RUN BATCH:	S6Q174

ELUENT A LOT #:	ACN 220213
ELUENT B LOT #:	224657.W5%.CAN.220213.2mM AMAC. 11387
IC/CC STD LOT #:	LCMS 2041A
ICV STD LOT #:	LCMS 2041A, LCMS 2026
ISTD/ID STD LOT #:	11384/11383

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q10944.d	P1-A1	ccb	1633full.m	Sample		OP94795,S6Q174,500,,5.0,1,water	✓
2	6Q10945.d	P1-A1	ccb	1633full.m	Sample		OP94795,S6Q174,500,,5.0,1,water	✓
3	6Q10946.d	P1-B3	RT TDCA	1633full.m	Sample		OP94795,S6Q174,500,,5.0,1,water	✓
4	6Q10947.d	P1-B4	RT br-In	1633full.m	Sample		OP94795,S6Q174,500,,5.0,1,water	✓
5	6Q10948.d	P1-A1	ic174-0	1633full.m	Sample		OP94795,S6Q174,500,,5.0,1,water	✓
6	6Q10949.d	P1-A2	ic174-1	1633full.m	Calibration	1.6/500	OP94795,S6Q174,500,,5.0,1,water	✓
7	6Q10950.d	P1-A3	ic174-2	1633full.m	Calibration	4/500	OP94795,S6Q174,500,,5.0,1,water	✓
8	6Q10951.d	P1-A4	ic174-3	1633full.m	Calibration	10/500	OP94795,S6Q174,500,,5.0,1,water	✓
9	6Q10952.d	P1-A5	icc174-4	1633full.m	Calibration	20/500	OP94795,S6Q174,500,,5.0,1,water	✓
10	6Q10953.d	P1-A6	ic174-5	1633full.m	Calibration	40/500	OP94795,S6Q174,500,,5.0,1,water	✓
11	6Q10954.d	P1-A7	ic174-6	1633full.m	Calibration	100/500	OP94795,S6Q174,500,,5.0,1,water	✓
12	6Q10955.d	P1-A8	ic174-7	1633full.m	Calibration	200/500	OP94795,S6Q174,500,,5.0,1,water	✓
13	6Q10956.d	P1-A9	ic174-8	1633full.m	Calibration	1x	OP94795,S6Q174,500,,5.0,1,water	✓
14	6Q10957.d	P1-A1	iblk	1633full.m	Sample		OP94795,S6Q174,500,,5.0,1,water	✓
15	6Q10958.d	P1-B1	icv174-4	1633full.m	QC	20/500	OP94795,S6Q174,500,,5.0,1,water	✓
16	6Q10959.d	P1-B2	icv174-4	1633full.m	QC	100/500	OP94795,S6Q174,500,,5.0,1,water	✓
17	6Q10960.d	P1-A5	cc174-4	1633full.m	QC	20/500	OP94795,S6Q174,500,,5.0,1,water	✓
18	6Q10961.d	P1-A2	cc174-1,0LL	1633full.m	QC	1.6/500	OP94795,S6Q174,500,,5.0,1,water	✓
19	6Q10962.d	P3-B5	op94887-bs	1633full.m	Sample		OP94887,S6Q174,250,,5.0,1,water	✓
20	6Q10963.d	P3-B6	op94887-llbs:2	1633full.m	Sample		OP94887,S6Q174,250,,5.0,1,water	✓
21	6Q10964.d	P3-B7	op94887-mb	1633full.m	Sample		OP94887,S6Q174,250,,5.0,1,water	✓
22	6Q10965.d	P3-B8	JD57438-8	1633full.m	Sample		OP94887,S6Q174,10,,5.0,1,water	✓
23	6Q10966.d	P3-B9	JD57438-8	1633full.m	Sample		OP94887,S6Q174,25,,5.0,1,water	✓
24	6Q10967.d	P3-B8	JD57523-4A	1633full.m	Sample	50/500	OP94668,S6Q174,4.99,,5.0,10,water	Reported file 6q11002
25	6Q10968.d	P2-A1	JD57438-13	1633full.m	Sample	100/500	OP94675,S6Q174,270,,5.0,5,water	✓
26	6Q10969.d	P2-A2	JD57438-14	1633full.m	Sample		OP94675,S6Q174,270,,5.0,1,water	fosa qual out
27	6Q10970.d	P2-A3	JD57412-5A	1633full.m	Sample	50/500	OP94667,S6Q174,5.00,,5.0,10,SOIL	✓
28	6Q10971.d	P1-A5	cc174-4	1633full.m	QC	20/500	OP94795,S6Q174,500,,5.0,1,water	✓
29	6Q10972.d	P1-A1	iccb	1633full.m	Sample		OP94795,S6Q174,500,,5.0,1,water	✓
30	6Q10973.d	P3-B4	JD56436-1	1633full.m	Sample		OP94599,S6Q174,500,,5.0,5,water	✓
31	6Q10974.d	P2-A4	JD56436-2	1633full.m	Sample	50/500	OP94599,S6Q174,520,,5.0,10,water	✓
32	6Q10975.d	P2-A5	JD56436-4	1633full.m	Sample	50/500	OP94599,S6Q174,520,,5.0,10,water	✓
33	6Q10976.d	P2-A6	JD56436-6	1633full.m	Sample	50/500	OP94599,S6Q174,520,,5.0,10,water	✓
34	6Q10977.d	P2-A7	JD56436-7	1633full.m	Sample	50/500	OP94599,S6Q174,520,,5.0,10,water	✓
35	6Q10978.d	P2-A8	JD56436-8	1633full.m	Sample	50/500	OP94599,S6Q174,520,,5.0,10,water	✓

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LCMS6-6Q ANALYSIS LOG

36	6Q10979.d	P2-A9	JD56436-9	1633full.m	Sample	50/500	OP94599,S6Q174,530,,5.0,10,water	✓
37	6Q10980.d	P2-B1	JD56436-10	1633full.m	Sample	50/500	OP94599,S6Q174,530,,5.0,10,water	✓
38	6Q10981.d	P2-B2	JD56436-11	1633full.m	Sample	50/500	OP94599,S6Q174,500,,5.0,10,water	✓
39	6Q10982.d	P2-B3	JD56436-13	1633full.m	Sample	50/500	OP94599,S6Q174,520,,5.0,10,water	✓
40	6Q10983.d	P1-A5	cc174-4	1633full.m	QC	20/500	OP94795,S6Q174,500,,5.0,1,water	✓
41	6Q10984.d	P1-A1	iccb	1633full.m	Sample	50/500	OP94795,S6Q174,500,,5.0,1,water	✓
42	6Q10985.d	P2-B4	JD56436-14	1633full.m	Sample	50/500	OP94599,S6Q174,520,,5.0,10,water	✓
43	6Q10986.d	P2-B5	JD56436-15	1633full.m	Sample	50/500	OP94599,S6Q174,500,,5.0,10,water	✓
44	6Q10987.d	P2-B6	JD56436-16	1633full.m	Sample	50/500	OP94599,S6Q174,500,,5.0,10,water	✓
45	6Q10988.d	P2-B7	JD56436-18	1633full.m	Sample	50/500	OP94599,S6Q174,530,,5.0,10,water	✓
46	6Q10989.d	P2-B8	JD56436-19	1633full.m	Sample	50/500	OP94599,S6Q174,500,,5.0,10,water	✓
47	6Q10990.d	P2-B9	JD56436-3	1633full.m	Sample	50/500	OP94600,S6Q174,520,,5.0,10,water	✓
48	6Q10991.d	P2-C1	JD56436-21	1633full.m	Sample	50/500	OP94600,S6Q174,500,,5.0,10,water	✓
49	6Q10992.d	P2-C2	JD56436-22	1633full.m	Sample	50/500	OP94600,S6Q174,530,,5.0,10,water	✓
50	6Q10993.d	P2-C3	JD56436-23	1633full.m	Sample	50/500	OP94600,S6Q174,530,,5.0,10,water	✓
51	6Q10994.d	P2-C4	JD56436-24	1633full.m	Sample	50/500	OP94600,S6Q174,500,,5.0,10,water	✓
52	6Q10995.d	P1-A5	cc174-4	1633full.m	QC	20/500	OP94795,S6Q174,500,,5.0,1,water	✓
53	6Q10996.d	P1-A1	iccb	1633full.m	Sample	50/500	OP94795,S6Q174,500,,5.0,1,water	✓
54	6Q10997.d	P2-C5	JD56436-25	1633full.m	Sample	50/500	OP94600,S6Q174,520,,5.0,10,water	✓
55	6Q10998.d	P2-C6	JD56436-26	1633full.m	Sample	50/500	OP94600,S6Q174,500,,5.0,10,water	✓
56	6Q10999.d	P2-C7	JD56436-27	1633full.m	Sample	50/500	OP94600,S6Q174,520,,5.0,10,water	✓
57	6Q11000.d	P2-C8	JD56436-28	1633full.m	Sample	50/500	OP94600,S6Q174,500,,5.0,10,water	✓
58	6Q11001.d	P3-C9	JD56436-29	1633full.m	Sample	50/500	OP94600,S6Q174,530,,5.0,10,water	✓
59	6Q11002.d	P3-B3	JD56523-4A	1633full.m	Sample	50/500	OP94668,S6Q174,4.99,,5.0,10,water	not use.
60	6Q11003.d	P1-A5	cc174-4	1633full.m	QC	20/500	OP94795,S6Q174,500,,5.0,1,water	✓
61	6Q11004.d	P1-A1	iccb	1633full.m	Sample	50/500	OP94795,S6Q174,500,,5.0,1,water	✓
62	6Q11005.d	P5-A1	op94694-bs	1633full.m	Sample	50/500	OP94694,S6Q174,500,,5.0,1,water	✓
63	6Q11006.d	P5-A2	op94694-llbs:3	1633full.m	Sample	50/500	OP94694,S6Q174,500,,5.0,1,water	✓
64	6Q11007.d	P5-A3	op94694-mb	1633full.m	Sample	50/500	OP94694,S6Q174,500,,5.0,1,water	✓
65	6Q11008.d	P5-A4	FC1246-1	1633full.m	Sample	50/500	OP94694,S6Q174,565,,5.0,1,water	✓
66	6Q11009.d	P5-A5	FC1246-2	1633full.m	Sample	50/500	OP94694,S6Q174,565,,5.0,1,water	✓
67	6Q11010.d	P5-A6	FC1246-3	1633full.m	Sample	50/500	OP94694,S6Q174,565,,5.0,1,water	✓
68	6Q11011.d	P5-A7	op94694-ms	1633full.m	Sample	50/500	OP94694,S6Q174,565,,5.0,1,water	✓
69	6Q11012.d	P5-A8	op94694-msd	1633full.m	Sample	50/500	OP94694,S6Q174,565,,5.0,1,water	✓
70	6Q11013.d	P5-A9	FC1246-4	1633full.m	Sample	50/500	OP94694,S6Q174,565,,5.0,1,water	✓
71	6Q11014.d	P5-B1	FC1246-5	1633full.m	Sample	50/500	OP94694,S6Q174,565,,5.0,1,water	✓
72	6Q11015.d	P1-A5	cc174-4	1633full.m	QC	20/500	OP94795,S6Q174,500,,5.0,1,water	✓
73	6Q11016.d	P1-A1	iccb	1633full.m	Sample	50/500	OP94795,S6Q174,500,,5.0,1,water	✓
74	6Q11017.d	P5-B2	FC1246-6	1633full.m	Sample	50/500	OP94694,S6Q174,565,,5.0,1,water	✓
75	6Q11018.d	P5-B3	FC1246-7	1633full.m	Sample	50/500	OP94694,S6Q174,565,,5.0,1,water	✓
76	6Q11019.d	P5-B4	FC1246-8	1633full.m	Sample	50/500	OP94694,S6Q174,565,,5.0,1,water	✓
77	6Q11020.d	P5-B5	FC1246-9	1633full.m	Sample	50/500	OP94694,S6Q174,565,,5.0,1,water	✓
78	6Q11021.d	P5-B6	FC1246-10	1633full.m	Sample	50/500	OP94694,S6Q174,565,,5.0,1,water	✓

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LCMS6-6Q ANALYSIS LOG

79	6Q11022.d	P5-B7	FC1246-11	1633full.m	Sample		OP94694,S6Q174,565,,5.0,1,water	✓
80	6Q11023.d	P5-B8	FC1308-1	1633full.m	Sample		OP94694,S6Q174,565,,5.0,1,water	✓
81	6Q11024.d	P3-C1	FC1308-1	1633full.m	Sample	50/500	OP94694,S6Q174,565,,5.0,10,water	✓
82	6Q11025.d	P5-B9	FC1308-2	1633full.m	Sample		OP94694,S6Q174,565,,5.0,1,water	✓
83	6Q11026.d	P5-C1	FC1308-3	1633full.m	Sample		OP94694,S6Q174,565,,5.0,1,water	XH
84	6Q11027.d	P1-A5	cc174-4	1633full.m	QC	20/500	OP94795,S6Q174,500,,5.0,1,water	✓
85	6Q11028.d	P1-A1	iccb	1633full.m	Sample		OP94795,S6Q174,500,,5.0,1,water	✓
86	6Q11029.d	P5-C2	FC1308-4	1633full.m	Sample		OP94694,S6Q174,405,,5.0,1,water	✓
87	6Q11030.d	P3-C2	FC1308-4	1633full.m	Sample	50/500	OP94694,S6Q174,405,,5.0,10,water	✓
88	6Q11031.d	P5-C3	FC1308-5	1633full.m	Sample		OP94694,S6Q174,430,,5.0,1,water	rr10x high surr
89	6Q11032.d	P3-C3	FC1308-5	1633full.m	Sample	50/500	OP94694,S6Q174,430,,5.0,10,water	Re-elute for teda low
90	6Q11033.d	P5-C4	FC1308-7	1633full.m	Sample		OP94694,S6Q174,520,,5.0,1,water	✓
91	6Q11034.d	P3-C4	FC1308-7	1633full.m	Sample	50/500	OP94694,S6Q174,520,,5.0,10,water	✓
92	6Q11035.d	P5-C5	FC1308-8	1633full.m	Sample		OP94694,S6Q174,565,,5.0,1,water	Redo at 60ml
93	6Q11036.d	P3-C5	FC1308-8	1633full.m	Sample	50/500	OP94694,S6Q174,565,,5.0,10,water	Redo at 60ml
94	6Q11037.d	P5-C6	FC1308-9	1633full.m	Sample		OP94694,S6Q174,60,,5.0,1,water	✓
95	6Q11038.d	P3-C6	FC1308-9	1633full.m	Sample	100/500	OP94694,S6Q174,60,,5.0,5,water	✓
96	6Q11039.d	P1-A5	ecc174-4	1633full.m	QC	20/500	OP94795,S6Q174,500,,5.0,1,water	✓
97	6Q11040.d	P1-A1	iccb	1633full.m	Sample		OP94795,S6Q174,500,,5.0,1,water	✓

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DATE:	01/17/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_011123_S6Q174
CAL DATE:	01/11/23
ANALYST:	M.Valls
RUN BATCH:	S6Q180

ELUENT A LOT #:	ACN 220213
ELUENT B LOT #:	22457_W5%_CAN_220213_2mM AMAC_11387
IC/CC STD LOT #:	LCMS 2041A
ICV STD LOT #:	LCMS 2041A
ISTD/ID STD LOT #:	11384/11383

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
134	6Q11513.d	P1-C1	CCB	1633full.m	Sample		OP94995,S6Q180,500,,,5.0,1,water	✓
135	6Q11514.d	P1-B3	RT TDCA	1633full.m	Sample		OP94995,S6Q180,500,,,5.0,1,water	✓
136	6Q11515.d	P1-B4	RT br-In	1633full.m	Sample		OP94995,S6Q180,500,,,5.0,1,water	✓
137	6Q11516.d	P1-A9	Hlgh Std	1633full.m	Sample		OP94995,S6Q180,500,,,5.0,1,water	✓
138	6Q11517.d	P1-C1	IBLK	1633full.m	Sample		OP94995,S6Q180,500,,,5.0,1,water	✓
139	6Q11518.d	P1-C3	cc174-4	1633full.m	QC	20/500	OP94995,S6Q180,500,,,5.0,1,water	✓
140	6Q11519.d	P1-C2	cc174-1.0LL	1633full.m	QC	1.6/500	OP94995,S6Q180,500,,,5.0,1,water	✓
141	6Q11520.d	P4-A1	op94995-bs	1633full.m	Sample		OP94995,S6Q180,500,,,5.0,1,water	✓
142	6Q11521.d	P4-A2	op94995-llbs:3	1633full.m	Sample		OP94995,S6Q180,500,,,5.0,1,water	✓
143	6Q11522.d	P4-A3	op94995-mb	1633full.m	Sample		OP94995,S6Q180,500,,,5.0,1,water	✓
144	6Q11523.d	P4-A4	FC1745-1	1633full.m	Sample		OP94995,S6Q180,500,,,5.0,1,water	✓
145	6Q11524.d	P4-A5	FC1745-2	1633full.m	Sample		OP94995,S6Q180,570,,,5.0,1,water	✓
146	6Q11525.d	P4-A6	op94995-ms	1633full.m	Sample		OP94995,S6Q180,570,,,5.0,1,water	✓
147	6Q11526.d	P4-A7	FC1745-3	1633full.m	Sample		OP94995,S6Q180,570,,,5.0,1,water	✓
148	6Q11527.d	P4-A8	op94995-dup	1633full.m	Sample		OP94995,S6Q180,570,,,5.0,1,water	✓
149	6Q11528.d	P4-A9	FC1745-4	1633full.m	Sample		OP94995,S6Q180,570,,,5.0,1,water	✓
150	6Q11529.d	P4-B1	FC1797-1	1633full.m	Sample		OP94995,S6Q180,500,,,5.0,1,water	no EIS, add and irr1x
151	6Q11530.d	P1-C3	cc174-4	1633full.m	QC	20/500	OP94995,S6Q180,500,,,5.0,1,water	✓
152	6Q11531.d	P1-C1	iccb	1633full.m	Sample		OP94995,S6Q180,500,,,5.0,1,water	✓
153	6Q11532.d	P4-B2	FC1867-1	1633full.m	Sample		OP94995,S6Q180,530,,,5.0,1,water	✓
154	6Q11533.d	P4-B3	FC1867-2	1633full.m	Sample		OP94995,S6Q180,560,,,5.0,1,water	✓
155	6Q11534.d	P4-B4	FC1867-3	1633full.m	Sample		OP94995,S6Q180,530,,,5.0,1,water	✓
156	6Q11535.d	P4-B5	FC1867-4	1633full.m	Sample		OP94995,S6Q180,520,,,5.0,1,water	✓
157	6Q11536.d	P4-B6	FC1867-5	1633full.m	Sample		OP94995,S6Q180,570,,,5.0,1,water	✓
158	6Q11537.d	P4-B7	FC1867-6	1633full.m	Sample		OP94995,S6Q180,530,,,5.0,1,water	✓
159	6Q11538.d	P4-B8	FC1895-1	1633full.m	Sample		OP94995,S6Q180,530,,,5.0,1,water	✓
160	6Q11539.d	P4-B9	FC1895-2	1633full.m	Sample		OP94995,S6Q180,510,,,5.0,1,water	✓
161	6Q11540.d	P1-C3	cc174-4	1633full.m	QC	20/500	OP94995,S6Q180,500,,,5.0,1,water	✓
162	6Q11541.d	P1-C1	iccb	1633full.m	Sample		OP94995,S6Q180,500,,,5.0,1,water	✓
163	6Q11542.d	P4-C1	op94976-bs	1633full.m	Sample		OP94976,S6Q180,500,,,5.0,1,water	✓
164	6Q11543.d	P4-C2	op94976-llbs:3	1633full.m	Sample		OP94976,S6Q180,500,,,5.0,1,water	✓
165	6Q11544.d	P4-C3	op94976-mb	1633full.m	Sample		OP94976,S6Q180,500,,,5.0,1,water	✓
166	6Q11545.d	P4-C4	FC1726-6	1633full.m	Sample		OP94976,S6Q180,550,,,5.0,1,water	✓
167	6Q11546.d	P4-C5	FC1726-15	1633full.m	Sample		OP94976,S6Q180,540,,,5.0,1,water	✓
168	6Q11547.d	P4-C6	FC1703-1	1633full.m	Sample		OP94976,S6Q180,565,,,5.0,1,water	✓

LCMS6-6Q ANALYSIS LOG

SGS ORLANDO

169	6Q11548.d	P4-C7	op94976.ms	1633full.m	Sample	OP94976,S6Q180,565,,5.0,1,water	✓
170	6Q11549.d	P4-C8	FC1703-2	1633full.m	Sample	OP94976,S6Q180,565,,5.0,1,water	✓
171	6Q11550.d	P4-C9	op94976-dup	1633full.m	Sample	OP94976,S6Q180,565,,5.0,1,water	✓
172	6Q11551.d	P4-D1	FC1703-3	1633full.m	Sample	OP94976,S6Q180,565,,5.0,1,water	✓
173	6Q11552.d	P1-C3	cc174-4	1633full.m	QC	20/500	✓
174	6Q11553.d	P1-C1	iccb	1633full.m	Sample	OP94995,S6Q180,500,,5.0,1,water	✓
175	6Q11554.d	P4-D2	FC1703-4	1633full.m	Sample	OP94976,S6Q180,565,,5.0,1,water	✓
176	6Q11555.d	P4-D3	FC1703-5	1633full.m	Sample	OP94976,S6Q180,565,,5.0,1,water	✓
177	6Q11556.d	P4-D4	FC1703-6	1633full.m	Sample	OP94976,S6Q180,565,,5.0,1,water	✓
178	6Q11557.d	P4-D5	FC1703-7	1633full.m	Sample	OP94976,S6Q180,565,,5.0,1,water	✓
179	6Q11558.d	P4-D6	FC1703-8	1633full.m	Sample	OP94976,S6Q180,565,,5.0,1,water	✓
180	6Q11559.d	P4-D7	FC1703-9	1633full.m	Sample	OP94976,S6Q180,565,,5.0,1,water	✓
181	6Q11560.d	P4-D8	FC1703-10	1633full.m	Sample	OP94976,S6Q180,565,,5.0,1,water	✓
182	6Q11561.d	P4-D9	FC1703-11	1633full.m	Sample	OP94976,S6Q180,565,,5.0,1,water	✓
183	6Q11562.d	P4-E1	FC1703-12	1633full.m	Sample	OP94976,S6Q180,550,,5.0,1,water	✓
184	6Q11563.d	P4-E2	FC1703-13	1633full.m	Sample	OP94976,S6Q180,565,,5.0,1,water	✓
185	6Q11564.d	P1-C3	cc174-4	1633full.m	QC	20/500	✓
186	6Q11565.d	P1-C1	iccb	1633full.m	Sample	OP94995,S6Q180,500,,5.0,1,water	✓
187	6Q11566.d	P4-E3	FC1703-14	1633full.m	Sample	OP94976,S6Q180,565,,5.0,1,water	✓
188	6Q11567.d	P4-E4	FC1703-15	1633full.m	Sample	OP94976,S6Q180,565,,5.0,1,water	✓
189	6Q11568.d	P4-E5	FC1703-16	1633full.m	Sample	OP94976,S6Q180,565,,5.0,1,water	✓
190	6Q11569.d	P4-E6	FC1703-17	1633full.m	Sample	OP94976,S6Q180,565,,5.0,1,water	✓
191	6Q11570.d	P1-C3	cc174-4	1633full.m	QC	20/500	✓
192	6Q11571.d	P1-C1	iccb	1633full.m	Sample	OP94995,S6Q180,500,,5.0,1,water	✓
193	6Q11572.d	P1-C2	cc174-1,0LL	1633full.m	QC	1.6/500	✓
194	6Q11573.d	P2-D9	op94824-bs	1633full.m	Sample	OP94824,S6Q180,5.00,,5.0,1,soil	✓
195	6Q11574.d	P2-E1	op94824-llbs:2	1633full.m	Sample	OP94824,S6Q180,5.00,,5.0,1,soil	✓
196	6Q11575.d	P2-E2	op94824-mb	1633full.m	Sample	OP94824,S6Q180,5.00,,5.0,1,soil	✓
197	6Q11576.d	P2-E3	FC1536-48	1633full.m	Sample	OP94824,S6Q180,4.99,,5.0,1,soil	✓
198	6Q11577.d	P2-E4	op94824-ms	1633full.m	Sample	OP94824,S6Q180,5.01,,5.0,1,soil	✓
199	6Q11578.d	P2-E5	op94824-msd	1633full.m	Sample	OP94824,S6Q180,4.99,,5.0,1,soil	✓
200	6Q11579.d	P2-E6	FC1536-49	1633full.m	Sample	OP94824,S6Q180,5.00,,5.0,1,soil	✓
201	6Q11580.d	P2-E7	FC1536-50	1633full.m	Sample	OP94824,S6Q180,5.02,,5.0,1,soil	✓
202	6Q11581.d	P2-E8	FC1536-51	1633full.m	Sample	OP94824,S6Q180,5.00,,5.0,1,soil	✓
203	6Q11582.d	P1-C9	FC1308-5	1633full.m	Sample	50/500	✓
204	6Q11583.d	P1-C3	cc174-4	1633full.m	QC	20/500	✓
205	6Q11584.d	P1-C1	iccb	1633full.m	Sample	OP94995,S6Q180,500,,5.0,1,water	✓
206	6Q11585.d	P2-E9	FC1536-52	1633full.m	Sample	OP94824,S6Q180,4.95,,5.0,1,soil	✓
207	6Q11586.d	P2-F1	FC1536-53	1633full.m	Sample	OP94824,S6Q180,5.00,,5.0,1,soil	✓
208	6Q11587.d	P2-F2	FC1536-54	1633full.m	Sample	OP94824,S6Q180,4.96,,5.0,1,soil	✓
209	6Q11588.d	P2-F3	FC1536-55	1633full.m	Sample	OP94824,S6Q180,5.05,,5.0,1,soil	✓
210	6Q11589.d	P2-F4	FC1536-56	1633full.m	Sample	OP94824,S6Q180,4.95,,5.0,1,soil	✓
211	6Q11590.d	P2-F5	FC1536-57	1633full.m	Sample	OP94824,S6Q180,5.01,,5.0,1,soil	✓

LCMS6-6Q ANALYSIS LOG

SGS ORLANDO

212	6Q11591.d	P2-F6	FC1536-58	1633full.m	Sample	OP94824,S6Q180,5.00,,5.0,1,soil	✓
213	6Q11592.d	P2-F7	FC1536-59	1633full.m	Sample	OP94824,S6Q180,5.05,,5.0,1,soil	✓
214	6Q11593.d	P2-F8	FC1536-60	1633full.m	Sample	OP94824,S6Q180,5.05,,5.0,1,soil	✓
215	6Q11594.d	P2-F9	FC1536-61	1633full.m	Sample	OP94824,S6Q180,5.02,,5.0,1,soil	✓
216	6Q11595.d	P1-C3	cc174-4	1633full.m	QC	20/500	✓
217	6Q11596.d	P1-C1	iccb	1633full.m	Sample	OP94824,S6Q180,5.00,,5.0,1,water	✓
218	6Q11597.d	P1-C4	FC1536-62	1633full.m	Sample	OP94824,S6Q180,4.99,,5.0,1,soil	✓
219	6Q11598.d	P1-C5	FC1536-63	1633full.m	Sample	OP94824,S6Q180,4.97,,5.0,1,soil	✓
220	6Q11599.d	P1-C6	FC1536-64	1633full.m	Sample	OP94824,S6Q180,4.98,,5.0,1,soil	✓
221	6Q11600.d	P1-C7	FC1536-65	1633full.m	Sample	OP94824,S6Q180,4.95,,5.0,1,soil	✓
222	6Q11601.d	P1-C8	FC1536-66	1633full.m	Sample	OP94824,S6Q180,5.02,,5.0,1,soil	✓
223	6Q11602.d	P1-B5	Test LCMS2050-A	1633full.m	Sample	OP94824,S6Q180,5.02,,5.0,1,soil	Pass
224	6Q11603.d	P1-B6	Test LCMS2050-B	1633full.m	Sample	OP94824,S6Q180,5.02,,5.0,1,soil	Pass
225	6Q11604.d	P1-B7	Test LCMS2050-C	1633full.m	Sample	OP94824,S6Q180,5.02,,5.0,1,soil	Pass
226	6Q11605.d	P1-C3	ecc174-4	1633full.m	QC	20/500	✓
227	6Q11606.d	P1-C1	iccb	1633full.m	Sample	OP94824,S6Q180,5.00,,5.0,1,soil	✓

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	1633 Cal std.	10855H	PFAC-MxH	Wellington	9/14/26	12/28/23	1-4 ppm	250uL	4mL	62.5 125 250ppb	1633 MIX	1/4/23	7/4/23	MU
		10853H	PFAC-MxI		9/14/26	12/28/23	1-10 ppm	250uL		62.5 125 250ppb				
		11512B	PFAC-Mx F		01/11/25	12/28/23	2 ppm	500uL		250ppb				
		10854H	PFAC-Mx G		3/4/25	12/30/23	2 ppm	250uL		125ppb				
		10857J	PFAC-Mx J		9/14/26	10/12/23	4-20 ppm	3-12uL		312/1160 ppb				
LCMS 2042	(spike) Full list std.	11524	PFAC-Mx J	Wellington	11/9/24	11/3/24	1-10 ppm	400uL	4-0 mL	100ppb	95% meth 5% H2O	15/23	5/11/23	MU
		LCMS 1987	40 list ADD#1			3/21/23	1-10 ppm	400uL		100ppb				
		LCMS 1986	40 list ADD#2			4/18/23	1-10 ppm	400uL		100ppb				
		LCMS 2012	Fose std.			5/11/23	50 ppm	40uL		520ppb				
LCMS 2043	List 40 (Surr) ADD-ON Isotope mix	11333	d7-N-mefose	Wellington	01/27/27	10/12/23	50 ppm	(400uL) 200uL	(4.0mL) 2-0mL	1/5 ppm	95% meth 5% H2O	1/9/23	7/9/23	MU * did 4mL
		11400	D9-N Etfose		01/27/27	12/1/23		(400uL) 200uL						
		11115	M2- PFAFDA		11/23/28	8/23/23		(50uL) 40uL						
		10836	D-N Etfosa		12/30/25	8/23/23		(50uL) 40uL						
LCMS 2044	1633 Solvent B	11387	Ammonium Acetate	Big maad clinic		9/19/23	0.151 M	0.151 M	2 mL 4 L	2 mM Ammonium Acetate		11/6/23	3/6/23	MU
		224856	Water	Fisher			3.800 mL 1-800 mL	200 mL 100 mL		95:5 w/w Acetone				
			Acetone				200 mL 100 mL							

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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 2025	List 40 (Surr) ADD-ON Isotope Mix	11333	d7-N-MeFosc	Wilmington Lakes	01/27/27	10/12/23	50ppm	200uL	2.0 mL	1/5 ppm	95% MeOH 5% H2O	12/17/22	01/17/23	MU
		11460	D9-N-EtFosc		01/27/27	12/07/23		200uL						
		11339	EtFosc		01/27/27	10/12/23		40uL						
		11115	H2- PFHxDA		11/23/28	08/23/23		40uL						
		10836	D-N-EtFosa		12/30/25	08/23/23		40uL						
LCMS 2026	(Spike) FULL List std.	11447	PROA-molax	Absolute	06/15/27	11/29/23	1.0ppm	400uL	4.0mL	100ppb	95% MeOH 5% H2O	12/08/22	01/12/23	NG
		1987	HOLST ADDON#1			02/21/23	1.0ppm	400uL		100ppb				NG
		1986	HOLST ADDON#2			04/18/23	1.0ppm	400uL		100ppb				NG
		2012	FOSC Std.			05/11/23	5.0ppm	400uL		500ppb				NG
LCMS 2027	(Spike) 1633 CAL std.	10855F	PFAC-MXH	Wilmington Lakes	09/14/26	11/04/23	1-4 ppm	250uL	4mL	625/105/250 ppb	1633 Mix	12/12/22	05/01/23	NG
		10853F	PFAC-MXI		09/14/26	11/22/23	1-10 ppm	250uL		625/105 ppb				NG
		11402A	PFAC-MXF		05/06/23	11/29/23	2 ppm	500uL		250ppb				NG
		10854F	PFAC-MXG		03/04/25	11/22/23	2 ppm	250uL		125ppb				NG
		10857E	PFAC-MXJ		10/12/23	11/22/23	4-20 ppm	312uL		212-1160 ppb				NG
LCMS 2028	537.1 DW Std.	11447	PROA-DOP Carbons	Absolute	06/15/27	11/29/23	1.0ppm	400uL	4mL	100ppb	95% MeOH 4% H2O	12/15/22	02/01/23	NG
		1950	537.1 DW Surr			02/01/23	10/20 ppm	400uL		100ppb				NG

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MA Cn firm next page 12/13/22



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 PF5	Wallington Labs	03/03/26	03/31/23	50ppm	80uL	4.0mL	1ppm	051NEOH S147D	10/18/22	03/21/23	NG
		10840	PFDoS		07/01/26	10/18/23								
		10829	N-HETSA		08/03/26	05/12/23								
		10837	N-ETOSA		08/03/26	05/12/23								
		10842	PFHDA	NS 09/18/26	09/18/26	10/18/23								
		10841	PFODA		05/07/26	10/18/23								
		10681A	3:3FICA		11/12/25	03/21/23								
		10685A	PFPPA		11/11/25	08/12/23								
		10683A	7:3FICA		11/12/25	05/12/23								
		11117	PFECNS		10/14/26	06/12/23								
		10762B	PFESA		05/12/25	10/18/23								
		10763B	PFMBA		03/31/25	10/18/23								
		10764A	PFMPA		03/31/25	03/12/23								
		10768B	PFHDA 3:6 OFF-HPA		03/31/25	10/18/23								
						10/18/22								

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ORLD-GAC-0017-6-03-FORM-icms std prep log.xls 030819



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	11333	D7-N- METOSE	Wellington Labs	01/27/27	10/12/23	50ppm	200uL	2.0mL	15 ppm	95% MeOH 5% H2O	10/18/22	01/18/23	NS
		11339	D9-N- ERFOSA		01/27/27	10/12/23		200uL						NS
		11115	D2- PETHDA		11/29/28	08/23/23		40uL						NS
		10836	D-N- ERFOSA		12/30/25	08/23/23		40uL						NS
LCMS 1986	40 List Std. ADD-ON #2	11224	FBSA-1	Wellington Labs	11/10/26	06/12/22	50ppm	80uL	4.0mL	1ppm	95% MeOH 5% H2O	10/18/22	01/18/23	NS
		11225	FHASA-1		12/28/26	06/12/22	50ppm	80uL						NS
		11140	L-PPTS		07/26/26	05/26/23	50ppm	80uL						NS
NS 10/18/22														

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 A 2009 B	PFC SPIKE	11483	PFOSA-D0 (280000) Labs	Wellington Labs	08/05/17	11/08/13	1.0 ppm	2 mL	5 mL	400 ppb	95/1000H S1.1420	11/08/12	05/10/12	NS
		10839	N-HE-FOXA-M		08/12/16	09/12/13	50 ppm	40 uL						NS
		11294	FOXA-M		11/10/16	06/12/13								NS
		11249	FOXA-1		12/29/16	11/03/13								NS
		11332	PFECMS		03/08/17	10/18/13								NS
LCMS A-B 2010	(SPIKE) 1623 CAL. STD.	1085F	PFAC-NXH	Wellington Labs	09/11/16	11/04/13	1-4 ppm	250 uL	4 mL	12.5 ug/L as 1623 ppb	1623 1623 Mix	11/01/12	05/10/12	NS
		1085E	PFAC-NXI		09/11/16	11/04/13	1-10 ppm	250 uL		12.5 ug/L as 1623 ppb				NS
		1085G	PFAC-NXI		05/10/13	05/10/13	2 ppm	500 uL		250 ppb				NS
		1085H	PFAC-NXI		03/04/15	11/04/13	2 ppm	250 uL		125 ppb				NS
		1085I	PFAC-NXI		10/12/13	11/02/13	4-20 ppm	312 uL		212.160 ppb				NS
LCMS 2011	(SPIKE) FULL LIST STD.	11440	PFAC-NXI	Absolute	08/05/17	10/12/13	1.0 ppm	400 uL	4.0 mL	100 ppb	95/1000H S1.1420	11/11/12	07/21/12	NS
		LCMS 1987	HOLIST			03/12/13	1.0 ppm	400 uL		100 ppb				NS
		LCMS 1986	HOLIST			01/18/13	1.0 ppm	400 uL		100 ppb				NS
		LCMS 2012	FOSE STD.			05/11/13	50 ppm	400 uL		500 ppb				NS
LCMS 2012	FOSE STD.	11336	N-ET-FOSE	Wellington Labs	05/13/17	09/19/12	50 ppm	200 uL	2.0 mL	5 ppm	95/1000H S1.1420	11/11/12	05/11/12	NS
		11336	N-HE-FOSE		05/10/17	10/19/12	50 ppm	200 uL						NS

* based on date opened as specified in each SGS - Orlando SOP.

ORLD-GAC-0017-6-03-FORM-icms std prep log.xls 030819

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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.

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Form#: 13, Issued 2004-11-10
Revision#: 3, Revised 2020-12-23

PFACMXI0921 (1 of 5)
rev0

7.9.1
7

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: 
 B.G. Chittim, General Manager

Date: 09/23/2021
(mm/dd/yyyy)

Form#: 13, Issued 2004-11-10
 Revision#: 9, Revised 2020-12-23

PFACMXI0921 (3 of 5)
 rev0

7.9.1
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**CERTIFICATE OF ANALYSIS
DOCUMENTATION**

PFAC-MXG

**Native Perfluoroalkyl Ether Carboxylic
Acids and Sulfonate Solution/Mixture**

<u>PRODUCT CODE:</u>	PFAC-MXG
<u>LOT NUMBER:</u>	PFACMXG1219
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	12/03/2019
<u>LAST TESTED:</u> (mm/dd/yyyy)	05/04/2020
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	05/04/2025
<u>RECOMMENDED STORAGE:</u>	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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PFACMXG1219 (1 of 5)
rev2


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Table A: PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxahexanoic 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.

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 B.G. Chittim, General Manager

Date: 07/30/2021
(mm/dd/yyyy)

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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 (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₅, C₇, C₉, C₁₀ and C₁₂ linear; C₈ and C₈ 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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PFACMXH0921 (1 of 11)
rev0

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Table A: PFAC-MXH; Components and Concentrations
($\mu\text{g/mL}$, $\pm 5\%$ in methanol / isopropanol (2%) / water (<1%))

Compound	Acronym	Concentration* ($\mu\text{g/mL}$)		Peak Assignment in Figure 1
		as the salt	as the acid	
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: Σ branched isomers	0.240		17
N-ethylperfluorooctanesulfonamidoacetic acid ^b	N-EtFOSAA: linear isomer	0.775		22
	N-EtFOSAA: Σ branched isomers	0.225		21
Compound	Acronym	Concentration* ($\mu\text{g/mL}$)		Peak Assignment in Figure 1
Potassium perfluoro-1-butanefulfonate	L-PFBS	1.00	0.887	
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1.00	0.941	6
Potassium perfluorohexanesulfonate ^c	PFHxSK: linear isomer	0.811	0.741	9
	PFHxSK: Σ 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: Σ 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: 
 B.G. Chittim, General Manager

Date: 09/23/2021
(mm/dd/yyyy)

10857



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**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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Revision#:9, Revised 2020-12-23

PFACMXJ0921 (1 of 5)
rev0

7.9.1

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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: 
 B.G. Chittim, General Manager

Date: 09/23/2021
(mm/dd/yyyy)

Form#:13, Issued 2004-11-10
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PFACMXJ0921 (3 of 5)
 rev0

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rec'd 11/11/22



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXF
<u>LOT NUMBER:</u>	PFACMXF0122
<u>SOLVENT(S):</u>	Methanol / Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	01/10/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	01/11/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	01/11/2025
<u>RECOMMENDED STORAGE:</u>	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 (9CI-PF3ONS and 11CI-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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PFACMXF0122 (1 of 5)
rev0

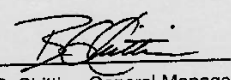
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Table A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
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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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

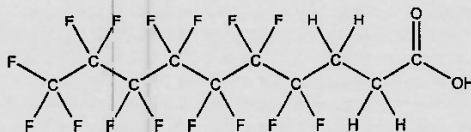
COMPOUND:

3-Perfluoroheptyl propanoic acid

STRUCTURE:

CAS #:

812-70-4



MOLECULAR FORMULA:

$C_{10}H_5F_{15}O_2$

MOLECULAR WEIGHT:

442.12

CONCENTRATION:

$50.0 \pm 2.5 \mu\text{g/mL}$

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.

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Certified By:

B.G. Chittim, General Manager

Date:

11/27/2020
(mm/dd/yyyy)

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PRODUCT CODE:

FPrPA

LOT NUMBER:

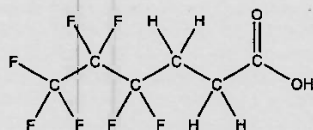
FPrPA1020

COMPOUND:

3-Perfluoropropyl propanoic acid

STRUCTURE:**CAS #:**

356-02-5

**MOLECULAR FORMULA:** $C_6H_5F_7O_2$ **MOLECULAR WEIGHT:**

242.09

CONCENTRATION: $50.0 \pm 2.5 \mu\text{g/mL}$ **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 ($C_8H_5F_7O_2$) as an impurity determined by ^{19}F NMR.

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B.G. Chittim, General Manager

Date: 11/27/2020

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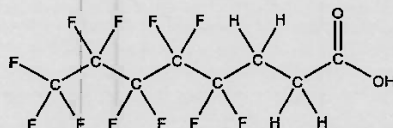
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PRODUCT CODE: FPePA
COMPOUND: 3-Perfluoropentyl propanoic acid

LOT NUMBER: FPePA1120

STRUCTURE:

CAS #: 914637-49-3



MOLECULAR FORMULA: C₈H₅F₁₁O₂
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/11/2020
EXPIRY DATE: (mm/dd/yyyy) 11/11/2025
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 342.11
SOLVENT(S): Methanol

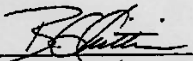
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 5:3 telomer acid (C₈H₃F₁₁O₂) as an impurity determined by ¹⁹F NMR.

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B.G. Chittim, General Manager
Date: 11/27/2020
(mm/dd/yyyy)

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Form#:27, Issued 2004-11-10
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FPePA1120 (1 of 4)
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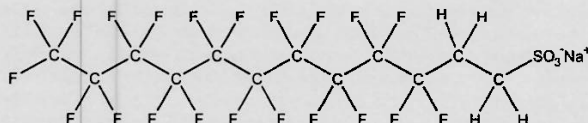
CERTIFICATE OF ANALYSIS DOCUMENTATION

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PRODUCT CODE: 10:2FTS **LOT NUMBER:** 102FTS0221

COMPOUND: Sodium 1H,1H,2H,2H-perfluorododecanesulfonate

STRUCTURE: **CAS #:** 108026-35-3



MOLECULAR FORMULA: C₁₂H₄F₂₁SO₃Na **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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102FTS0221 (1 of 4)
rev0

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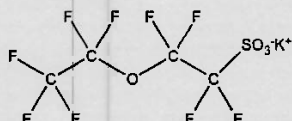
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PRODUCT CODE: PFEESA *rec'd
8/20/21
WPH* **LOT NUMBER:** PFEESA0520

COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate

STRUCTURE: **CAS #:** 117205-07-9



MOLECULAR FORMULA: C₄F₈SO₄K **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:

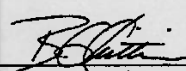
Figure 1: LC/MS Data (TIC and Mass Spectrum)

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).

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Certified By:  **Date:** 05/29/2020
(mm/dd/yyyy)
 B.G. Chittim, General Manager

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Form#:27, Issued 2004-11-10
 Revision#:7, Revised 2020-01-09

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10763 A-B



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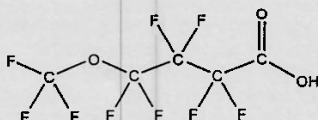
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF5OHxA *res'd with 8/20/21* **LOT NUMBER:** PF5OHxA0320

COMPOUND: Perfluoro-5-oxahexanoic acid

SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)

STRUCTURE: **CAS #:** 863090-89-5



MOLECULAR FORMULA: C₅HF₉O₃ **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

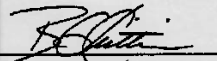
DOCUMENTATION/ DATA ATTACHED:

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 12/21/2020
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

PF5OHxA0320 (1 of 4)
rev1

7.9.1
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10764A-B



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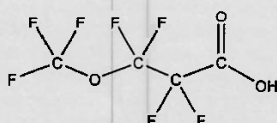
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF4OPeA *rec'd
WPH
8/20/21* **LOT NUMBER:** PF4OPeA0320

COMPOUND: Perfluoro-4-oxapentanoic acid

SYNONYM: Perfluoro-3-methoxypropanoic acid (PFMPA)

STRUCTURE: **CAS #:** 377-73-1



MOLECULAR FORMULA: C₄HF₇O₃ **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

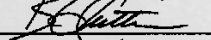
DOCUMENTATION/ DATA ATTACHED:

- 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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 12/21/2020
(mm/dd/yyyy)

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10765 A-13



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

*rec'd
WPH
8/20/21*

LOT NUMBER:

36OPFHpA0320

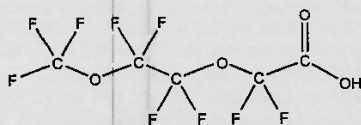
COMPOUND:

Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₉O₄

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 05/27/2020
(mm/dd/yyyy)

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10829



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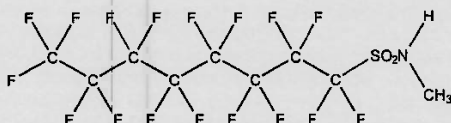
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

LOT NUMBER: NMeFOSA0721M

STRUCTURE:

CAS #: 31506-32-8



rec'd
WPA
10/5/21

MOLECULAR FORMULA: C₉H₄F₁₇NO₂S
CONCENTRATION: 50.0 ± 2.5 µg/mL
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

MOLECULAR WEIGHT: 513.17
SOLVENT(S): Methanol

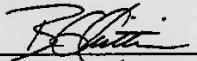
DOCUMENTATION/ DATA ATTACHED:

- 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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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

NMeFOSA0721M (1 of 4)
rev0

7.9.1

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

10837

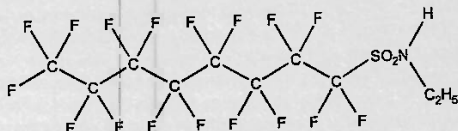
LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA:

C₁₀H₉F₁₇NO₂S

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)

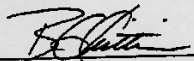
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

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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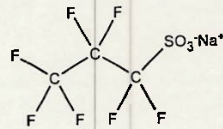
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFPrS
COMPOUND: Sodium perfluoro-1-propanesulfonate

LOT NUMBER: LPFPrS0721

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: C₃F₇SO₃Na
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

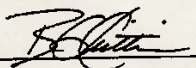
DOCUMENTATION/ DATA ATTACHED:

- 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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Form#:27, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

LPFPrS0721 (1 of 4)
rev0

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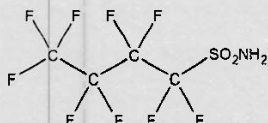
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FBSA-I
COMPOUND: Perfluoro-1-butanesulfonamide

LOT NUMBER: FBSA11211

STRUCTURE:

CAS #: 30334-69-1



MOLECULAR FORMULA: C₄H₂F₉NO₂S
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/10/2021
EXPIRY DATE: (mm/dd/yyyy) 11/10/2026
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 299.11
SOLVENT(S): Isopropanol

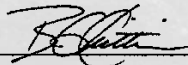
DOCUMENTATION/ DATA ATTACHED:

- 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: 11/10/2021
(mm/dd/yyyy)

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FBSA11211 (1 of 4)
rev0

7.9.1

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

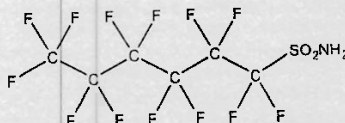
LOT NUMBER: FHxSA12211

COMPOUND:

Perfluoro-1-hexanesulfonamide

CAS #: 41997-13-1

STRUCTURE:



MOLECULAR FORMULA: C₆H₂F₁₃NO₂S

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 01/10/2022
(mm/dd/yyyy)

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11338



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

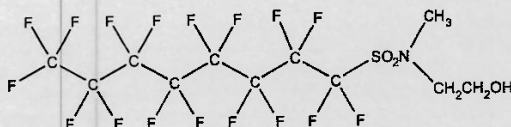
NMeFOSE0522M

COMPOUND:

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

STRUCTURE:**CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C₁₁H₈F₁₇NO₃S**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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager
Date: 06/14/2022
(mm/dd/yyyy)

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11384 A-J



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

Mass-Labelled Perfluoroalkyl Substance
Injection Standard Solution/Mixture

<u>PRODUCT CODE:</u>	MPFAC-HIF-IS
<u>LOT NUMBER:</u>	MPFACHIFIS0921
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/07/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/07/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/07/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄, C₆, C₈-C₁₀) and two mass-labelled (¹⁸O and ¹³C) perfluoroalkanesulfonates (C₆ and C₈). 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 ¹³C or >94% per ¹⁸O.

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

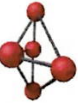
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Form#: 13, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

MPFACHIFIS0921 (1 of 5)
rev1

7.9.1

7



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT

Part Number: 080522
Lot Number: 046722
Description: 28 components
Expiry Date: 08/327
Recommened Storage: Freezer (0 °C)
Nominal Concentration (µg/mL): 1.0
NIST Test ID: BUTS

Solvent(s): Methanol (1 mL) and 2-Propanol (80%)
Lot: 046722 (80%)
23214 (8%)

Formulated By: [Signature]
Reviewed By: [Signature]
Date: 08/05/22

Volume(s) shown below were combined and diluted to (mL).
Note: All assigned values are solution concentrations.

Component	Part Number	Lot Number	Dilution Factor	Initial Conc. (µg/mL)	Uncertainty (µg/mL)	Final Conc. (µg/mL)	Final Uncertainty (µg/mL)	Expanded Uncertainty (µg/mL)	SOCS Information (Solvent Safety Info. On Attached pg.)
1. Perfluoro-n-butanoic acid (PFBA)	99542	021022	0.02	2.00	0.017	50.1	0.02	375-25-4	NA
2. Perfluoro-pentanoic acid (PFPA)	99543	050222	0.02	2.00	0.017	50.3	0.02	2706-90-3	NA
3. Perfluorohexanoic acid (PFHxA)	99189	071122	0.02	2.00	0.017	50.2	0.02	307-24-4	NA
4. Perfluorooctanoic acid (PFHxA)	99197	040522	0.02	2.00	0.017	50.1	0.02	374-85-9	NA
5. Perfluorodecanoic acid (PFDA)	99202	040522	0.02	2.00	0.017	50.2	0.02	335-87-1 (L)	NA
6. Perfluorododecanoic acid (PFDDA)	99200	050222	0.02	2.00	0.017	50.1	0.02	375-85-1	NA
7. Perfluorotetradecanoic acid (PFTDA)	99185	041822	0.02	2.00	0.017	50.0	0.02	335-76-2	NA
8. Perfluorohexadecanoic acid (PFHDA)	99205	071822	0.02	2.00	0.017	50.2	0.02	2059-44-6	NA
9. Perfluorooctadecanoic acid (PFODA)	99186	021822	0.02	2.00	0.017	50.1	0.02	307-54-6	NA
10. Perfluorotriacontanoic acid (PFTA)	99204	021822	0.02	2.00	0.017	50.1	0.02	730-58-4	NA
11. Perfluorooctadecanoic acid (PFODA)	3677	F03A0322	0.02	2.00	0.017	50.1	0.02	374-85-7	NA
12. Methylperfluorooctadecanoic acid (PFOMA)	4162	PMMeF03A0821	0.02	2.00	0.017	50.0	0.02	754-91-6	NA
13. Methylperfluorotriacontanoic acid (PFMTA)	4163	PMMeF03A1121	0.02	2.00	0.017	50.0	0.02	2385-31-9 (L)	NA
14. Methylperfluorooctadecanoic acid (PFOMA)	99184	060522	0.02	2.00	0.017	50.2	0.02	2991-95-6 (L)	NA
15. Perfluorobutanesulfonic acid (PFBS)	99184	060522	0.02	2.00	0.017	50.2	0.02	372-29-5	NA
16. Perfluorohexanesulfonic acid (PFHS)	99544	032422	0.02	2.00	0.017	50.1	0.02	355-46-4	NA
17. Perfluorooctanesulfonic acid (PFOS)	99188	071822	0.02	2.00	0.017	47.2	0.01	355-46-4	NA
18. Perfluorodecane sulfonic acid (PFDS)	3672	LPFH030122	0.02	2.00	0.017	50.1	0.02	375-85-5	NA
19. Perfluorododecane sulfonic acid (PFDS)	99201	030222	0.02	2.00	0.017	50.1	0.02	1783-29-1 (L)	NA
20. Perfluorotetradecane sulfonic acid (PFDS)	3657	LPFNS0422	0.02	2.00	0.017	48.9	0.01	6859-12-1	NA
21. Perfluorohexadecane sulfonic acid (PFDS)	3671	LPFDS0222	0.02	2.00	0.017	46.2	0.01	335-77-3	NA
22. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (PFOS)	6571	060522	0.02	2.00	0.017	50.2	0.02	757184-72-4	NA
23. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (PFDS)	6572	071822	0.02	2.00	0.017	47.9	0.01	27019-97-2	NA
24. 1H,1H,2H,2H-Perfluorododecane sulfonic acid (PFDS)	3652	69F150122	0.02	2.00	0.017	47.9	0.01	39108-34-4	NA
25. 2H,2H,4H,4H-Perfluorododecane sulfonic acid (PFDA)	99566	060522	0.02	2.00	0.017	50.1	0.02	12585-13-6	NA
26. 1H,1H,2H,2H-Perfluorotetradecane sulfonic acid (PFDA)	4165	1CPF03A0822	0.02	2.00	0.017	47.1	0.01	76301-92-9	NA
27. 2H,2H,4H,4H-Perfluorododecane sulfonic acid (PFDA)	4166	2CF03A0822	0.02	2.00	0.017	46.8	0.01	75648-95-1	NA
28. Dodecafluoro-2H-1H-perfluorooctanoic acid (ADONA)	4163	MDONA0422	0.02	2.00	0.017	47.1	0.02	976005-14-4	NA

Perfluorooctanoic acid (linear)*	99202	060522	0.02	2.00	0.004	48.6	0.99	0.010	335-87-1 (L)	NA	0.018 mg/kg
Perfluorodecanoic acid (branched isomer)*	99202	060522	0.02	2.00	0.004	0.8	0.01	0.001	335-87-1 (L)	NA	0.018 mg/kg
Perfluorohexanesulfonic acid (linear)*	99188	071822	0.02	2.00	0.017	44.2	0.86	0.02	355-46-4 (L)	NA	NA
Perfluorooctanesulfonic acid (branched isomer)*	99188	071822	0.02	2.00	0.017	8.0	0.12	0.0021	355-46-4 (L)	NA	NA
Heptafluorooctanesulfonic acid (linear)*	99201	030222	0.02	2.00	0.017	38.1	0.76	0.02	1783-29-1 (L)	NA	NA
Heptafluorodecane sulfonic acid (branched isomer)*	99201	030222	0.02	2.00	0.017	7.5	0.15	0.003	1783-29-1 (L)	NA	NA
Heptafluorododecane sulfonic acid (branched isomer)*	99201	030222	0.02	2.00	0.017	4.0	0.08	0.002	1783-29-1 (L)	NA	NA
Heptafluorotetradecane sulfonic acid (branched isomer)*	99201	030222	0.02	2.00	0.017	0.5	0.010	0.0002	1783-29-1 (L)	NA	NA
Methylperfluoro-1-octanesulfonamide acid (linear)*	4162	PMMeF03A0821	0.02	2.00	0.017	36.0	0.72	0.04	2355-31-9 (L)	NA	NA
Methylperfluoro-1-tetradecanesulfonamide acid (branched)*	4162	PMMeF03A0821	0.02	2.00	0.017	6.5	0.13	0.011	2355-31-9 (L)	NA	NA
Methylperfluoro-1-octanesulfonamide acid (branched)*	4162	PMMeF03A0821	0.02	2.00	0.017	5.0	0.10	0.005	2355-31-9 (L)	NA	NA
Methylperfluoro-1-tetradecanesulfonamide acid (branched)*	4162	PMMeF03A0821	0.02	2.00	0.017	2.5	0.05	0.0009	2355-31-9 (L)	NA	NA
Methylperfluoro-1-octanesulfonamide acid (linear)*	4163	PMMeF03A1121	0.02	2.00	0.017	36.6	0.73	0.04	2991-90-6 (L)	NA	NA
Methylperfluoro-1-tetradecanesulfonamide acid (branched)*	4163	PMMeF03A1121	0.02	2.00	0.017	7.7	0.15	0.009	2991-90-6 (L)	NA	NA
Methylperfluoro-1-octanesulfonamide acid (branched)*	4163	PMMeF03A1121	0.02	2.00	0.017	5.3	0.11	0.005	2991-90-6 (L)	NA	NA
Methylperfluoro-1-tetradecanesulfonamide acid (branched)*	4163	PMMeF03A1121	0.02	2.00	0.017	0.4	0.007	0.0006	2991-90-6 (L)	NA	NA

A qualitative standard (Sect. 3.13) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.1

*The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
 *Standard values are certified for the concentration of the standard solution as shown. Values are certified for 100% of the standard solution.
 *All Standards, after opening sample, should be stored with caps tight and under appropriate laboratory conditions.
 *University Reference: Palmer, E.N. and Kiser, C.L., "Guidelines for Evaluating and Expanding the Uncertainty of NIST Measurement Results," NIST Monograph 170, Gaithersburg, MD, 1999.

*Concentrations for branched and linear isomers are based on LC/MS chromatographic analysis only.



10



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CERTIFICATE OF ANALYSIS DOCUMENTATION

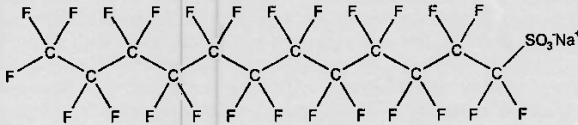
10840

PRODUCT CODE: L-PFDoS
COMPOUND: Sodium perfluoro-1-dodecanesulfonate

LOT NUMBER: LPFDoS0721

STRUCTURE:

CAS #: 1260224-54-1



MOLECULAR FORMULA: C₁₂F₂₅SO₃Na
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)
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

MOLECULAR WEIGHT: 722.14
SOLVENT(S): Methanol


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: 
B.G. Chittim, General Manager
Date: 07/16/2021
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

LPFDoS0721 (1 of 4)
rev0

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFODA

10847 NS 01/18/23

LOT NUMBER:

PFODA0821

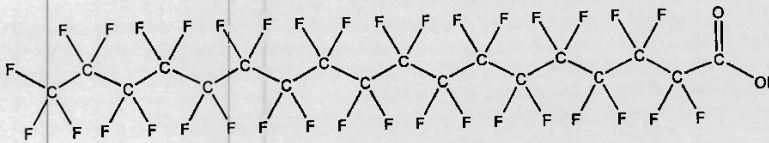
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

$C_{18}HF_{35}O_2$

MOLECULAR WEIGHT:

914.14

CONCENTRATION:

$50.0 \pm 2.5 \mu\text{g/mL}$

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 ampoules 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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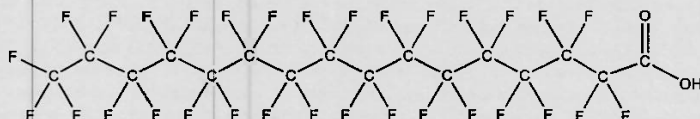
CERTIFICATE OF ANALYSIS DOCUMENTATION

10842 * NG 01/18/23

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0421

COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆HF₃₁O₂ **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

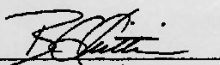
DOCUMENTATION/ DATA ATTACHED:

- 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.

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Certified By:  **Date:** 05/25/2021
 B.G. Chittim, General Manager (mm/dd/yyyy)

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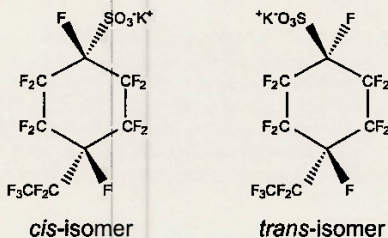


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFECHS **LOT NUMBER:** PFECHS1021
COMPOUND: Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

STRUCTURE: **CAS #:** 335-24-0



MOLECULAR FORMULA: C₈F₁₆SO₃K **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

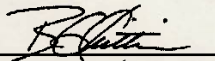
DOCUMENTATION/ DATA ATTACHED:

- 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*).

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Certified By: 
 B.G. Chittim, General Manager **Date:** 10/15/2021
(mm/dd/yyyy)

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Form#:27, Issued 2004-11-10
 Revision#:9, Revised 2020-12-23

PFECHS1021 (1 of 4)
 rev0

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CERTIFICATE OF ANALYSIS
DOCUMENTATION

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 (¹³C) perfluoroalkylcarboxylic acids (C₄-C₁₂, C₁₄), three mass-labelled (¹³C) perfluoroalkanesulfonates (C₄, C₆, and C₈), three mass-labelled (one ¹³C and two ²H) perfluoro-1-octanesulfonamides, three mass-labelled (¹³C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (²H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (²H) perfluorooctanesulfonamidoethanols, and mass-labelled (¹³C) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ¹³C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual ²H-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
		as the salt	as the acid	
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 ₆)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 ₁₀)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₁₁)undecanoic acid	M7PFUdA	250		17
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- ¹³ C ₁₄)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 ₃ -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₅ -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: 
B.G. Chittim, General Manager

Date: 08/02/2022
(mm/dd/yyyy)

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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

Mass-Labelled Perfluoroalkyl Substance
Injection Standard Solution/Mixture

<u>PRODUCT CODE:</u>	MPFAC-HIF-IS
<u>LOT NUMBER:</u>	MPFACHIFIS0921
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/07/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/07/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/07/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄, C₆, C₈-C₁₀) and two mass-labelled (¹⁸O and ¹³C) perfluoroalkanesulfonates (C₈ and C₉). 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 ¹³C or >94% per ¹⁸O.

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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Form#: 13, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

MPFACHIFIS0921 (1 of 5)
rev 1

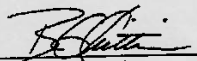
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Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, ± 5% in methanol/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
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)

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 01/16/23 09:00
Started (mm/dd/yy 24.00)

Method: EPA 1633 Draft (QSM)

Date/Time: 1/17/23 11:00
Finished (mm/dd/yy 24.00)

Balance ID: _____

Batch#: OP94995 Ext. By: GH

Conc. By: _____ Viald 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 94995 MB	/	500	7	N/A	25		5	A4	
OP 94995 BS	/	500				200			
OP 94995 LLBS	/	500				80			
FC1745-1	1	570							
	2	570							
	3	570							
	4	570							
FC1797-1	1	500		N/A					
FC1807-1	2	520530							
	2	560						A4	
	3	540530						A6	
	4	520							
	5	570							
	6	530							
FC1895-1	2	530							
	2	510	7	N/A	25		5	A6	
OPFC1745-QMS	2	570	7	N/A	25	200	5	A4	
OP MSD									
OPFC1745-3DUP	2	570	7	N/A	25		5	A4	

GH
1/16/23

Comments:

EIS (SURRE) ID: 11597 Conc: 250-5000 ng/ml Exp. Date: 1/11/24 Inj. By: GH Ver. By: AG
 SPIKE.1 ID: LMS2048A Conc: VARIED Exp. Date: 01/11/23 Inj. By: GH Ver. By: AG
 SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 1145C6 Conc: 250-10000 ng/ml Exp. Date: 01/11/24 Inj. By: NG Ver. By: MV

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot # 223213 1% NH4OH MeOH PF231 SPE Lot # 0699150-02
 Water Lot# OP94771 0.3M Formic Acid PF226 Syringe filter Lot #
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 215322
 0.1M Formic PF227 5% Formic Acid _____ Carbon Lot# 160898

Relinquished By: Malvally Vadant
 Accepted By: M. Valls

Date: 01/16/23
 Date: 1/17/23



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