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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC6651

Sampling Dates: 06/01/23 - 06/02/23

Report to:

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Total number of pages in report: 672



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.

A handwritten signature in black ink that reads "Norm Farmer".

Norm Farmer
Technical Director

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Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001)
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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: FC6651-1: AF-RHMW17S-WGN01LF-2305W5	7
4.2: FC6651-2: AF-RHMW17S-WQEB01-2305W5	10
4.3: FC6651-3: AF-RHMW02-WGN01LF-2305W5	13
4.4: FC6651-4: AF-RHMW17-WGN01LF-2305W5	16
4.5: FC6651-5: AF-RHMW03-WGN01LF-2305W5	19
Section 5: Misc. Forms	22
5.1: Chain of Custody	23
5.2: QC Evaluation: DOD QSM5.x Limits	28
Section 6: MS Semi-volatiles - QC Data Summaries	29
6.1: Method Blank Summary	30
6.2: Blank Spike Summary	38
6.3: Matrix Spike Summary	42
6.4: Duplicate Summary	44
6.5: Injection Standard Area Summaries	46
6.6: TDCA Retention Time Checks	50
6.7: Ion Ratio Summaries	52
6.8: Isotope Dilution Standard Recovery Summaries	54
6.9: Initial and Continuing Calibration Summaries	57
6.10: Run Sequence Reports	75
Section 7: MS Semi-volatiles - Raw Data	77
7.1: Samples	78
7.2: Method Blanks	144
7.3: Blank Spikes	189
7.4: Matrix Spikes	233
7.5: Duplicates	255
7.6: Retention Time Markers	267
7.7: Initial and Continuing Calibrations	293
7.8: Instrument Run Logs	625
7.9: Standard Prep Logs	627
7.10: Sample Prep Logs	672



Sample Summary

AECOM, INC.

Job No: FC6651

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC6651-1	06/02/23	09:20	AYAL	06/06/23	AQ Ground Water	AF-RHMW17S-WGN01LF-2305W5
FC6651-2	06/02/23	10:00	AYAL	06/06/23	AQ Equipment Blank	AF-RHMW17S-WQEB01-2305W5
FC6651-3	06/01/23	10:20	AYMY	06/06/23	AQ Ground Water	AF-RHMW02-WGN01LF-2305W5
FC6651-4	06/02/23	12:40	BS	06/06/23	AQ Ground Water	AF-RHMW17-WGN01LF-2305W5
FC6651-5	06/01/23	12:50	AYMY	06/06/23	AQ Ground Water	AF-RHMW03-WGN01LF-2305W5

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC6651

Site: N6274223F0104 RH Fire Suppression System

Report Date: 6/13/2023 3:33:48 PM

On 06/06/2023, 5 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 4.6 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC6651 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: OP97275

Sample(s) FC6649-1MS, FC6649-4DUP were used as the QC samples indicated.

Blank Spike Recovery(s) for 3:3 Fluorotelomer carboxylate are outside control limits.

Matrix Spike Recovery(s) for 3:3 Fluorotelomer carboxylate, PFMPA are outside control limits. Probable cause is due to matrix interference.

RPD(s) for Duplicate for 6:2 Fluorotelomer sulfonate are outside control limits for sample OP97275-DUP. Probable cause is due to sample non-homogeneity.

FC6651-1 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits.

FC6651-1 for MeFOSAA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6651-1 for Perfluorodecanesulfonic acid: Associated Low Level CCV outside of control limits high, sample was ND.

FC6651-1 for PFEESA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6651-2 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits.

FC6651-2 for MeFOSAA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6651-2 for Perfluorodecanesulfonic acid: Associated Low Level CCV outside of control limits high, sample was ND.

FC6651-2 for PFEESA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6651-3 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits.

FC6651-3 for MeFOSAA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6651-3 for Perfluorodecanesulfonic acid: Associated Low Level CCV outside of control limits high, sample was ND.

FC6651-3 for PFEESA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6651-4 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits.

FC6651-4 for MeFOSAA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6651-4 for Perfluorodecanesulfonic acid: Associated Low Level CCV outside of control limits high, sample was ND.

FC6651-4 for PFEESA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6651-5 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits.

FC6651-5 for MeFOSAA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6651-5 for Perfluorodecanesulfonic acid: Associated Low Level CCV outside of control limits high, sample was ND.

FC6651-5 for PFEESA: Associated Low Level CCV outside of control limits high, sample was ND.

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: FC6651
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 06/01/23 thru 06/02/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC6651-1 AF-RHMW17S-WGN01LF-2305W5

Perfluoropentanoic acid	13.3	7.1	1.8	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.9 J	3.6	1.8	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	0.78 J	3.6	1.8	ng/l	EPA DRAFT 1633
Perfluorooctanoic acid	1.4 J	3.6	0.89	ng/l	EPA DRAFT 1633
Perfluorobutanesulfonic acid	0.56 J	3.6	1.8	ng/l	EPA DRAFT 1633
Perfluorooctanesulfonic acid	1.0 J	3.6	1.8	ng/l	EPA DRAFT 1633
6:2 Fluorotelomer sulfonate	3.2 J	18	7.1	ng/l	EPA DRAFT 1633

FC6651-2 AF-RHMW17S-WQEB01-2305W5

No hits reported in this sample.

FC6651-3 AF-RHMW02-WGN01LF-2305W5

Perfluorobutanoic acid	66.5	14	3.6	ng/l	EPA DRAFT 1633
Perfluoropentanoic acid	51.5	7.1	1.8	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.2 J	3.6	1.8	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	0.64 J	3.6	1.8	ng/l	EPA DRAFT 1633

FC6651-4 AF-RHMW17-WGN01LF-2305W5

Perfluoropentanoic acid	2.6 J	7.0	1.8	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.7 J	3.5	1.8	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	0.57 J	3.5	1.8	ng/l	EPA DRAFT 1633
Perfluorooctanoic acid	0.83 J	3.5	0.88	ng/l	EPA DRAFT 1633
6:2 Fluorotelomer sulfonate	13.0 J	18	7.0	ng/l	EPA DRAFT 1633

FC6651-5 AF-RHMW03-WGN01LF-2305W5

Perfluoropentanoic acid	5.2 J	7.5	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	2.0 J	3.8	1.9	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	1.5 J	3.8	1.9	ng/l	EPA DRAFT 1633
6:2 Fluorotelomer sulfonate	8.7 J	19	7.5	ng/l	EPA DRAFT 1633

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW17S-WGN01LF-2305W5		
Lab Sample ID:	FC6651-1	Date Sampled:	06/02/23
Matrix:	AQ - Ground Water	Date Received:	06/06/23
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	6Q19278.D	1	06/13/23 00:39	MV	06/09/23 11:30	OP97275	S6Q287
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	14	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	13.3	7.1	1.8	0.84	ng/l	
307-24-4	Perfluorohexanoic acid	1.9	3.6	1.8	0.45	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.78	3.6	1.8	0.45	ng/l	J
335-67-1	Perfluorooctanoic acid	1.4	3.6	0.89	0.45	ng/l	J
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.6	1.8	0.54	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.54	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.75	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.56	3.6	1.8	0.45	ng/l	J
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.6	1.8	0.62	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.0	3.6	1.8	0.48	ng/l	J
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.51	ng/l	
335-77-3	Perfluorodecanesulfonic acid ^a	1.8 U	3.6	1.8	0.57	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.1 U	18	7.1	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	3.2	18	7.1	3.1	ng/l	J
39108-34-4	8:2 Fluorotelomer sulfonate	7.1 U	18	7.1	3.7	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.6	1.8	0.60	ng/l	
31506-32-8	MeFOSA	3.6 U	7.1	3.6	0.89	ng/l	
4151-50-2	EtFOSA	3.6 U	7.1	3.6	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-RHMW17S-WGN01LF-2305W5		
Lab Sample ID:	FC6651-1	Date Sampled:	06/02/23
Matrix:	AQ - Ground Water	Date Received:	06/06/23
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 ^a	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	18 U	36	18	3.9	ng/l	
1691-99-2	EtFOSE	18 U	36	18	6.6	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.8 U	3.6	1.8	0.89	ng/l	
919005-14-4	ADONA	3.6 U	7.1	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	7.1	1.8	0.89	ng/l	
863090-89-5	PFMBA	3.6 U	7.1	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	7.1	3.6	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	7.1	3.6	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	7.1	3.6	1.6	ng/l	
113507-82-7	PFEESA ^a	1.8 U	7.1	1.8	0.70	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylat ^b	8.9 U	18	8.9	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	89	18	7.8	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	89	18	7.0	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	65%		20-150%
	13C5-PFPeA	111%		20-150%
	13C5-PFHxA	121%		20-150%
	13C4-PFHpA	118%		20-150%
	13C8-PFOA	115%		20-150%
	13C9-PFNA	128%		20-150%
	13C6-PFDA	113%		20-150%
	13C7-PFUnDA	102%		20-150%
	13C2-PFDoDA	94%		20-150%
	13C2-PFTeDA	73%		20-150%
	13C3-PFBS	109%		20-150%
	13C3-PFHxS	119%		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-RHMW17S-WGN01LF-2305W5	
Lab Sample ID:	FC6651-1	Date Sampled: 06/02/23
Matrix:	AQ - Ground Water	Date Received: 06/06/23
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	107%		20-150%
	13C8-FOSA	105%		20-150%
	d3-MeFOSA	86%		20-150%
	d5-EtFOSA	87%		20-150%
	d3-MeFOSAA	110%		20-150%
	d5-EtFOSAA	107%		20-150%
	d7-MeFOSE	75%		20-150%
	d9-EtFOSE	71%		20-150%
	13C2-4:2FTS	99%		20-180%
	13C2-6:2FTS	94%		20-180%
	13C2-8:2FTS	95%		20-180%
	13C3-HFPO-DA	110%		20-150%

- (a) Associated Low Level CCV outside of control limits high, sample was ND.
- (b) Associated BS recovery outside control limits.

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-RHMW17S-WQEB01-2305W5		
Lab Sample ID:	FC6651-2	Date Sampled:	06/02/23
Matrix:	AQ - Equipment Blank	Date Received:	06/06/23
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	6Q19279.D	1	06/13/23 00:53	MV	06/09/23 11:30	OP97275	S6Q287
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	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.7	1.9	0.90	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
335-67-1	Perfluorooctanoic acid	0.96 U	3.8	0.96	0.48	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.59	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.81	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.8	1.9	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	3.8	1.9	0.67	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.48	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.8	1.9	0.52	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.55	ng/l	
335-77-3	Perfluorodecanesulfonic acid ^a	1.9 U	3.8	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	3.8	1.9	0.64	ng/l	
31506-32-8	MeFOSA	3.8 U	7.7	3.8	0.96	ng/l	
4151-50-2	EtFOSA	3.8 U	7.7	3.8	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-RHMW17S-WQEB01-2305W5		Date Sampled:	06/02/23
Lab Sample ID:	FC6651-2	Date Received:	06/06/23	
Matrix:	AQ - Equipment Blank	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 ^a	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	19 U	38	19	4.2	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.1	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.96	ng/l	
919005-14-4	ADONA	3.8 U	7.7	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.7	1.9	0.96	ng/l	
863090-89-5	PFMBA	3.8 U	7.7	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.7	3.8	1.2	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.7	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.7	3.8	1.7	ng/l	
113507-82-7	PFEESA ^a	1.9 U	7.7	1.9	0.75	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylat ^b	9.6 U	19	9.6	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	96	19	8.4	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	96	19	7.5	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	117%		20-150%
	13C5-PFPeA	120%		20-150%
	13C5-PFHxA	122%		20-150%
	13C4-PFHpA	116%		20-150%
	13C8-PFOA	110%		20-150%
	13C9-PFNA	118%		20-150%
	13C6-PFDA	122%		20-150%
	13C7-PFUnDA	105%		20-150%
	13C2-PFDoDA	101%		20-150%
	13C2-PFTeDA	96%		20-150%
	13C3-PFBS	111%		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-RHMW17S-WQEB01-2305W5		Date Sampled:	06/02/23
Lab Sample ID:	FC6651-2		Date Received:	06/06/23
Matrix:	AQ - Equipment Blank		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	95%		20-150%
	d3-MeFOSA	91%		20-150%
	d5-EtFOSA	93%		20-150%
	d3-MeFOSAA	102%		20-150%
	d5-EtFOSAA	96%		20-150%
	d7-MeFOSE	75%		20-150%
	d9-EtFOSE	80%		20-150%
	13C2-4:2FTS	135%		20-180%
	13C2-6:2FTS	129%		20-180%
	13C2-8:2FTS	107%		20-180%
	13C3-HFPO-DA	113%		20-150%

- (a) Associated Low Level CCV outside of control limits high, sample was ND.
- (b) Associated BS recovery outside control limits.

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-RHMW02-WGN01LF-2305W5		
Lab Sample ID:	FC6651-3	Date Sampled:	06/01/23
Matrix:	AQ - Ground Water	Date Received:	06/06/23
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	6Q19280.D	1	06/13/23 01:07	MV	06/09/23 11:30	OP97275	S6Q287
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	66.5	14	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	51.5	7.1	1.8	0.84	ng/l	
307-24-4	Perfluorohexanoic acid	1.2	3.6	1.8	0.45	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.64	3.6	1.8	0.45	ng/l	J
335-67-1	Perfluorooctanoic acid	0.89 U	3.6	0.89	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.6	1.8	0.54	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.54	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.75	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.6	1.8	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	3.6	1.8	0.62	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.6	1.8	0.48	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.51	ng/l	
335-77-3	Perfluorodecanesulfonic acid ^a	1.8 U	3.6	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	3.6	1.8	0.60	ng/l	
31506-32-8	MeFOSA	3.6 U	7.1	3.6	0.89	ng/l	
4151-50-2	EtFOSA	3.6 U	7.1	3.6	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-RHMW02-WGN01LF-2305W5		Date Sampled:	06/01/23
Lab Sample ID:	FC6651-3	Date Received:	06/06/23	
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 ^a	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	18 U	36	18	3.9	ng/l	
1691-99-2	EtFOSE	18 U	36	18	6.6	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.8 U	3.6	1.8	0.89	ng/l	
919005-14-4	ADONA	3.6 U	7.1	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	7.1	1.8	0.89	ng/l	
863090-89-5	PFMBA	3.6 U	7.1	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	7.1	3.6	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	7.1	3.6	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	7.1	3.6	1.6	ng/l	
113507-82-7	PFEESA ^a	1.8 U	7.1	1.8	0.70	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylat ^b	8.9 U	18	8.9	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	89	18	7.8	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	89	18	7.0	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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13C4-PFBA	76%		20-150%
13C5-PFPeA	89%		20-150%
13C5-PFHxA	102%		20-150%
13C4-PFHpA	107%		20-150%
13C8-PFOA	100%		20-150%
13C9-PFNA	104%		20-150%
13C6-PFDA	107%		20-150%
13C7-PFUnDA	104%		20-150%
13C2-PFDoDA	93%		20-150%
13C2-PFTeDA	67%		20-150%
13C3-PFBS	107%		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-RHMW02-WGN01LF-2305W5	
Lab Sample ID:	FC6651-3	Date Sampled: 06/01/23
Matrix:	AQ - Ground Water	Date Received: 06/06/23
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	101%		20-150%
	13C8-FOSA	103%		20-150%
	d3-MeFOSA	77%		20-150%
	d5-EtFOSA	82%		20-150%
	d3-MeFOSAA	104%		20-150%
	d5-EtFOSAA	107%		20-150%
	d7-MeFOSE	70%		20-150%
	d9-EtFOSE	70%		20-150%
	13C2-4:2FTS	108%		20-180%
	13C2-6:2FTS	98%		20-180%
	13C2-8:2FTS	97%		20-180%
	13C3-HFPO-DA	78%		20-150%

- (a) Associated Low Level CCV outside of control limits high, sample was ND.
- (b) Associated BS recovery outside control limits.

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-RHMW17-WGN01LF-2305W5		
Lab Sample ID:	FC6651-4	Date Sampled:	06/02/23
Matrix:	AQ - Ground Water	Date Received:	06/06/23
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	6Q19281.D	1	06/13/23 01:21	MV	06/09/23 11:30	OP97275	S6Q287
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	14	3.5	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	2.6	7.0	1.8	0.82	ng/l	J
307-24-4	Perfluorohexanoic acid	1.7	3.5	1.8	0.44	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.57	3.5	1.8	0.44	ng/l	J
335-67-1	Perfluorooctanoic acid	0.83	3.5	0.88	0.44	ng/l	J
375-95-1	Perfluorononanoic acid	1.8 U	3.5	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.5	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.5	1.8	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	3.5	1.8	0.61	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.5	1.8	0.47	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.5	1.8	0.50	ng/l	
335-77-3	Perfluorodecanesulfonic acid ^a	1.8 U	3.5	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	13.0	18	7.0	3.0	ng/l	J
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	3.5	1.8	0.59	ng/l	
31506-32-8	MeFOSA	3.5 U	7.0	3.5	0.88	ng/l	
4151-50-2	EtFOSA	3.5 U	7.0	3.5	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-RHMW17-WGN01LF-2305W5		Date Sampled:	06/02/23
Lab Sample ID:	FC6651-4	Date Received:	06/06/23	
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 ^a	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	18 U	35	18	3.8	ng/l	
1691-99-2	EtFOSE	18 U	35	18	6.5	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.8 U	3.5	1.8	0.88	ng/l	
919005-14-4	ADONA	3.5 U	7.0	3.5	1.6	ng/l	
377-73-1	PFMPA	1.8 U	7.0	1.8	0.88	ng/l	
863090-89-5	PFMBA	3.5 U	7.0	3.5	1.0	ng/l	
151772-58-6	NFDHA	3.5 U	7.0	3.5	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.5 U	7.0	3.5	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.5 U	7.0	3.5	1.5	ng/l	
113507-82-7	PFEESA ^a	1.8 U	7.0	1.8	0.68	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylat ^b	8.8 U	18	8.8	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	88	18	7.7	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	88	18	6.9	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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13C4-PFBA		104%		20-150%
13C5-PFPeA		114%		20-150%
13C5-PFHxA		110%		20-150%
13C4-PFHpA		112%		20-150%
13C8-PFOA		110%		20-150%
13C9-PFNA		127%		20-150%
13C6-PFDA		114%		20-150%
13C7-PFUnDA		100%		20-150%
13C2-PFDoDA		85%		20-150%
13C2-PFTeDA		57%		20-150%
13C3-PFBS		110%		20-150%
13C3-PFHxS		115%		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-RHMW17-WGN01LF-2305W5	
Lab Sample ID:	FC6651-4	Date Sampled: 06/02/23
Matrix:	AQ - Ground Water	Date Received: 06/06/23
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	111%		20-150%
	d3-MeFOSA	87%		20-150%
	d5-EtFOSA	89%		20-150%
	d3-MeFOSAA	132%		20-150%
	d5-EtFOSAA	126%		20-150%
	d7-MeFOSE	76%		20-150%
	d9-EtFOSE	83%		20-150%
	13C2-4:2FTS	141%		20-180%
	13C2-6:2FTS	131%		20-180%
	13C2-8:2FTS	106%		20-180%
	13C3-HFPO-DA	104%		20-150%

- (a) Associated Low Level CCV outside of control limits high, sample was ND.
- (b) Associated BS recovery outside control limits.

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-RHMW03-WGN01LF-2305W5		
Lab Sample ID:	FC6651-5	Date Sampled:	06/01/23
Matrix:	AQ - Ground Water	Date Received:	06/06/23
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	6Q19282.D	1	06/13/23 01:35	MV	06/09/23 11:30	OP97275	S6Q287
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	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	5.2	7.5	1.9	0.89	ng/l	J
307-24-4	Perfluorohexanoic acid	2.0	3.8	1.9	0.47	ng/l	J
375-85-9	Perfluoroheptanoic acid	1.5	3.8	1.9	0.47	ng/l	J
335-67-1	Perfluorooctanoic acid	0.94 U	3.8	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.8	1.9	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	3.8	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.8	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid ^a	1.9 U	3.8	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	8.7	19	7.5	3.3	ng/l	J
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	3.8	1.9	0.63	ng/l	
31506-32-8	MeFOSA	3.8 U	7.5	3.8	0.94	ng/l	
4151-50-2	EtFOSA	3.8 U	7.5	3.8	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-RHMW03-WGN01LF-2305W5		
Lab Sample ID:	FC6651-5	Date Sampled:	06/01/23
Matrix:	AQ - Ground Water	Date Received:	06/06/23
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 ^a	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	19 U	38	19	4.1	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.0	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.94	ng/l	
919005-14-4	ADONA	3.8 U	7.5	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.5	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	7.5	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.5	3.8	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.5	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.5	3.8	1.7	ng/l	
113507-82-7	PFEESA ^a	1.9 U	7.5	1.9	0.74	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylat ^b	9.4 U	19	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	94	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	94	19	7.4	ng/l	

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

	13C4-PFBA	101%		20-150%
	13C5-PFPeA	111%		20-150%
	13C5-PFHxA	104%		20-150%
	13C4-PFHpA	111%		20-150%
	13C8-PFOA	113%		20-150%
	13C9-PFNA	138%		20-150%
	13C6-PFDA	108%		20-150%
	13C7-PFUnDA	94%		20-150%
	13C2-PFDoDA	89%		20-150%
	13C2-PFTeDA	67%		20-150%
	13C3-PFBS	118%		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

4.5
4

Report of Analysis

Client Sample ID:	AF-RHMW03-WGN01LF-2305W5		Date Sampled:	06/01/23
Lab Sample ID:	FC6651-5		Date Received:	06/06/23
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	113%		20-150%
	13C8-FOSA	109%		20-150%
	d3-MeFOSA	89%		20-150%
	d5-EtFOSA	94%		20-150%
	d3-MeFOSAA	114%		20-150%
	d5-EtFOSAA	119%		20-150%
	d7-MeFOSE	80%		20-150%
	d9-EtFOSE	89%		20-150%
	13C2-4:2FTS	115%		20-180%
	13C2-6:2FTS	119%		20-180%
	13C2-8:2FTS	119%		20-180%
	13C3-HFPO-DA	109%		20-150%

- (a) Associated Low Level CCV outside of control limits high, sample was ND.
- (b) Associated BS recovery outside control limits.

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



SGS North America Inc - Orlando
Chain of Custody

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

COC #: 2305W5AFSG12

SGS - ORLANDO JOB # :

PAGE 1 OF 1

FC6651

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;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">PFAS EPA Draft 1633</div> <div style="font-size: 2em; font-weight: bold;">BS</div> <div style="font-size: 1.5em;">6/2/23</div> </div>												DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe	
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)		Client Purchase Order #															
Sampler 1:																	
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	ACID	PC	NaOH	Na2S	Na2CO3	NaOH+ZnAc	DI WATER	MICH		
1	AF-RHMMW17S-WGN01LF-2305W5	6/6/23	0920	AYALAS	GW	3		X								X	
2	AF-RHMMW17S-WQEB01-2305W5	6/2/23	1000		GW	3		X								X	
				<div style="display: flex; justify-content: space-around;"> BS 6/2/23 </div>													
				INITIAL ASSESSMENT <u>SP</u>													
				LABEL VERIFICATION <u>SP</u>													
				H.G. 1/2/23													
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: AFFX Assessment Sampling GW United AWB 016 15277183									
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		Date Time:		Relinquished By/Affiliation		Date Time:		Received By/Affiliation					
1 Ben Saide AECOM		6/1/23 1100		2 Sam Kelley AECOM		6/5/23 1520		3 Sam Kelley AECOM		6/5/23 1520		4 United Cargo					
5 United Cargo				6 [Signature] 06/06/23 1730				7				8					
Lab Use Only: Cooler Temperature (s) Celsius (corrected):												http://www.sgs.com/en/terms-and-conditions					

PFAS_COCs_ALL.xls Rev 031318

FC6651: Chain of Custody

Page 1 of 5



5.1
5



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PAGE 1 OF 1

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SGS - ORLANDO Quote #

SKIFF #

FC6651

Client / Reporting Information			Project Information			Analytical Information										Matrix Codes			
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System			<div style="border: 1px solid black; padding: 5px; width: fit-content;"> EM 6/11/23 </div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe			
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 Phone #: 303-796-4624 / 808-954-4512			Project # 60697810 Fax #																
Sampler(s) Name(s) (Printed) Sampler 1: <i>Eli Martin</i> Sampler 2: <i>Andy Young</i>			Client Purchase Order #			PFAS EPA Draft 1633										LAB USE ONLY			
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION														
		DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	PC	NaOH	NaCl	NaOH/NaCl	DI WATER	MISC					
3	AF-RHMMW02-WGN01LF-2305W5	06/01/23	1020	ARMYEN	GW	3		X											
						<div style="border: 1px solid black; padding: 5px; width: fit-content;"> EM 06/01/23 </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 _____			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 Universal AWB 016-15277183								
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		Date Time:		Relinquished By/Affiliation		Date Time:		Received By/Affiliation							
1 <i>Eli Martin / AECOM</i>		06/01/23		2 <i>IC</i>		06/01/23		3 <i>IC</i>		06/01/23		4 <i>United Cargo</i>							
5 <i>United Cargo</i>				6 <i>IC</i>		06/06/23		7				8							
Lab Use Only: Cooler Temperature (s) Celsius (corrected):												http://www.sgs.com/en/terms-and-conditions							

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FC6651: Chain of Custody

Page 2 of 5





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PAGE 1 OF 1

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FC6651

Form containing Client/Reporting Information, Project Information, Analytical Information, Matrix Codes, and Chain of Custody table with columns for Relinquished/Received By, Date, and Affiliation.

5.1 5

PFAS_COCS_ALL.xls Rev 031318

FC6651: Chain of Custody

Page 3 of 5





SGS North America Inc - Orlando

Chain of Custody

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

COC #: 2305W5AFSG02

SGS - ORLANDO JOB # :

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SGS - ORLANDO Quote #

SKIFF #

FC6651

Client / Reporting Information			Project Information			Analytical Information										Matrix Codes						
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System													DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe						
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 / 800-954-4512			Email: katie.abbott@aecom.com Email: watson.tanji@aecom.com														Project # 60697810			Fax #		
Sampler 1: <i>Elie Martin</i>			Sampler 2: <i>Andy Young</i>														Client Purchase Order #					
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	PC1	NIOSH	NIH23	RESC4	NACH-NAC2	D WATER	MECH	PFAS EPA Draft 1633	LAB USE ONLY					
5	AF-RHMW03-WGN01LF-2305W5	06/01/23	1250	ATMYEN	GW	3		X								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			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 Ave 016-15277183										
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		Date Time:		Relinquished By/Affiliation		Date Time:		Received By/Affiliation		Date Time:		Received By/Affiliation						
1 <i>Elie Martin/AECOM</i>		06/01/23		2 <i>IC</i>		06/01/23		3 <i>IC</i>		6/5/23		4 <i>United Carco</i>		6/5/23		8						
5 <i>United Carco</i>				6 <i>IC</i>		06/04/23		7														
Lab Use Only: Cooler Temperature (s) Celsius (corrected):																						

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FC6651: Chain of Custody

Page 4 of 5



5.1
5

SGS Sample Receipt Summary

Job Number: FC6651

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 6/6/2023 5:30:00 PM

Delivery Method: United Cargo/Airspace

Airbill #s: United Cargo AWB #: 016-15277183

Therm ID: IR 1;

Therm CF: -0.1;

of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (4.7);

Cooler Temps (Corrected) °C: Cooler 1: (4.6);

Cooler Information

Y or N

- | | | |
|-----------------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Temp criteria achieved | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Cooler temp verification | IR Gun | |
| 5. Cooler media | Ice (Bag) | |

Trip Blank Information

Y or N

N/A

- | | | | |
|--------------------------------|--------------------------|--------------------------|-------------------------------------|
| 1. Trip Blank present / cooler | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Trip Blank listed on COC | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | <u>W or S</u> | | <u>N/A</u> |
| 3. Type Of TB Received | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Sample Information

Y or N

N/A

- | | | | |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Sample labels present on bottles | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2. Samples preserved properly | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3. Sufficient volume/containers recvd for analysis: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. Condition of sample | Intact | | |
| 5. Sample recvd within HT | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6. Dates/Times/IDs on COC match Sample Label | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 7. VOCs have headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8. Bottles received for unspecified tests | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 9. Compositing instructions clear | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10. Voa Soil Kits/Jars received past 48hrs? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11. % Solids Jar received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12. Residual Chlorine Present? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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 _____ 230320 _____ pH 10-12 _____ Other: (Specify) pH 1.0 - 12.0 _____ 222221 _____
 Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: SHAYLAP

Date: 6/6/2023 5:30:00 PM

Reviewer: SP

Date: 6/7/2023

FC6651: Chain of Custody

Page 5 of 5

QC Evaluation: DOD QSM5.x Limits

Job Number: FC6651
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 06/01/23 thru 06/02/23

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

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

* Sample used for QC is not from job FC6651

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: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q287-IBLK	6Q19248.D	1	06/12/23	MV	n/a	n/a	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6651-1, FC6651-2, FC6651-3, FC6651-4, FC6651-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	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	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	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	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Instrument Blank

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q287-IBLK	6Q19248.D	1	06/12/23	MV	n/a	n/a	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6651-1, FC6651-2, FC6651-3, FC6651-4, FC6651-5

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	97% 20-150%
	13C5-PFHxA	99% 20-150%
	13C4-PFHpA	100% 20-150%
	13C8-PFOA	97% 20-150%
	13C9-PFNA	100% 20-150%
	13C6-PFDA	100% 20-150%
	13C7-PFUnDA	89% 20-150%
	13C2-PFDoDA	93% 20-150%
	13C2-PFTeDA	91% 20-150%
	13C3-PFBS	103% 20-150%
	13C3-PFHxS	101% 20-150%
	13C8-PFOS	102% 20-150%
	13C8-FOSA	101% 20-150%
	d3-MeFOSA	103% 20-150%
	d5-EtFOSA	107% 20-150%
	d3-MeFOSAA	99% 20-150%
	d5-EtFOSAA	109% 20-150%
	d7-MeFOSE	100% 20-150%
	d9-EtFOSE	95% 20-150%
	13C2-4:2FTS	121% 20-180%
	13C2-6:2FTS	122% 20-180%
	13C2-8:2FTS	118% 20-180%
	13C3-HFPO-DA	93% 20-150%

Continuing Calibration Blank

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q287-ICCB	6Q19273.D	1	06/12/23	MV	n/a	n/a	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6651-1, FC6651-2, FC6651-3, FC6651-4, FC6651-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	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	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	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	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q287-ICCB	6Q19273.D	1	06/12/23	MV	n/a	n/a	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6651-1, FC6651-2, FC6651-3, FC6651-4, FC6651-5

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	96% 20-150%
	13C5-PFHxA	92% 20-150%
	13C4-PFHpA	100% 20-150%
	13C8-PFOA	100% 20-150%
	13C9-PFNA	96% 20-150%
	13C6-PFDA	100% 20-150%
	13C7-PFUnDA	101% 20-150%
	13C2-PFDoDA	98% 20-150%
	13C2-PFTeDA	88% 20-150%
	13C3-PFBS	101% 20-150%
	13C3-PFHxS	102% 20-150%
	13C8-PFOS	97% 20-150%
	13C8-FOSA	100% 20-150%
	d3-MeFOSA	91% 20-150%
	d5-EtFOSA	97% 20-150%
	d3-MeFOSAA	102% 20-150%
	d5-EtFOSAA	94% 20-150%
	d7-MeFOSE	86% 20-150%
	d9-EtFOSE	82% 20-150%
	13C2-4:2FTS	113% 20-180%
	13C2-6:2FTS	123% 20-180%
	13C2-8:2FTS	108% 20-180%
	13C3-HFPO-DA	90% 20-150%

Method Blank Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP97275-MB	6Q19265.D	1	06/12/23	MV	06/09/23	OP97275	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6651-1, FC6651-2, FC6651-3, FC6651-4, FC6651-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	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	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	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	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Method Blank Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP97275-MB	6Q19265.D	1	06/12/23	MV	06/09/23	OP97275	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6651-1, FC6651-2, FC6651-3, FC6651-4, FC6651-5

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	105% 20-150%
	13C5-PFPeA	101% 20-150%
	13C5-PFHxA	99% 20-150%
	13C4-PFHpA	98% 20-150%
	13C8-PFOA	103% 20-150%
	13C9-PFNA	116% 20-150%
	13C6-PFDA	107% 20-150%
	13C7-PFUnDA	101% 20-150%
	13C2-PFDoDA	99% 20-150%
	13C2-PFTeDA	86% 20-150%
	13C3-PFBS	97% 20-150%
	13C3-PFHxS	97% 20-150%
	13C8-PFOS	101% 20-150%
	13C8-FOSA	76% 20-150%
	d3-MeFOSA	72% 20-150%
	d5-EtFOSA	81% 20-150%
	d3-MeFOSAA	104% 20-150%
	d5-EtFOSAA	92% 20-150%
	d7-MeFOSE	58% 20-150%
	d9-EtFOSE	68% 20-150%
	13C2-4:2FTS	119% 20-180%
	13C2-6:2FTS	119% 20-180%
	13C2-8:2FTS	99% 20-180%
	13C3-HFPO-DA	95% 20-150%

Continuing Calibration Blank

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q287-ICCB	6Q19262.D	1	06/12/23	MV	n/a	n/a	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP97275-BS, OP97275-LLBS, OP97275-MB, OP97275-MS

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	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	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	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	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q287-ICCB	6Q19262.D	1	06/12/23	MV	n/a	n/a	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP97275-BS, OP97275-LLBS, OP97275-MB, OP97275-MS

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	103% 20-150%
	13C5-PFHxA	98% 20-150%
	13C4-PFHpA	104% 20-150%
	13C8-PFOA	96% 20-150%
	13C9-PFNA	109% 20-150%
	13C6-PFDA	101% 20-150%
	13C7-PFUnDA	100% 20-150%
	13C2-PFDoDA	96% 20-150%
	13C2-PFTeDA	96% 20-150%
	13C3-PFBS	109% 20-150%
	13C3-PFHxS	108% 20-150%
	13C8-PFOS	104% 20-150%
	13C8-FOSA	100% 20-150%
	d3-MeFOSA	96% 20-150%
	d5-EtFOSA	99% 20-150%
	d3-MeFOSAA	105% 20-150%
	d5-EtFOSAA	101% 20-150%
	d7-MeFOSE	100% 20-150%
	d9-EtFOSE	86% 20-150%
	13C2-4:2FTS	128% 20-180%
	13C2-6:2FTS	124% 20-180%
	13C2-8:2FTS	112% 20-180%
	13C3-HFPO-DA	96% 20-150%

Blank Spike Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP97275-LLBS	6Q19264.D	1	06/12/23	MV	06/09/23	OP97275	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6651-1, FC6651-2, FC6651-3, FC6651-4, FC6651-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0264	88	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0129	86	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0068	91	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0060	80	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0083	111	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0061	81	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0059	79	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0071	95	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0063	84	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0063	84	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0062	83	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0053	80	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0062	88	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0056	82	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0060	84	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0060	86	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0059	82	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0057	79	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0056	77	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0242	86	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0263	92	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0235	82	40-150
754-91-6	PFOSA	0.0075	0.0063	84	40-150
31506-32-8	MeFOSA	0.015	0.0134	89	40-150
4151-50-2	EtFOSA	0.015	0.0131	87	40-150
2355-31-9	MeFOSAA	0.0075	0.0067	89	40-150
2991-50-6	EtFOSAA	0.0075	0.0065	87	40-150
24448-09-7	MeFOSE	0.0375	0.0329	88	40-150
1691-99-2	EtFOSE	0.0375	0.0315	84	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0120	80	40-150
919005-14-4	ADONA	0.0142	0.0119	84	40-150
377-73-1	PFMPA	0.015	0.0127	85	40-150
863090-89-5	PFMBA	0.015	0.0126	84	40-150
151772-58-6	NFDHA	0.015	0.0134	89	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0111	79	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0115	81	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP97275-LLBS	6Q19264.D	1	06/12/23	MV	06/09/23	OP97275	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6651-1, FC6651-2, FC6651-3, FC6651-4, FC6651-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0131	98	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0246	66	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.171	91	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.170	91	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	115%	20-150%
	13C5-PFPeA	113%	20-150%
	13C5-PFHxA	107%	20-150%
	13C4-PFHpA	114%	20-150%
	13C8-PFOA	122%	20-150%
	13C9-PFNA	116%	20-150%
	13C6-PFDA	130%	20-150%
	13C7-PFUnDA	114%	20-150%
	13C2-PFDoDA	115%	20-150%
	13C2-PFTeDA	106%	20-150%
	13C3-PFBS	113%	20-150%
	13C3-PFHxS	109%	20-150%
	13C8-PFOS	120%	20-150%
	13C8-FOSA	92%	20-150%
	d3-MeFOSA	81%	20-150%
	d5-EtFOSA	87%	20-150%
	d3-MeFOSAA	114%	20-150%
	d5-EtFOSAA	117%	20-150%
	d7-MeFOSE	68%	20-150%
	d9-EtFOSE	78%	20-150%
	13C2-4:2FTS	131%	20-180%
	13C2-6:2FTS	125%	20-180%
	13C2-8:2FTS	114%	20-180%
	13C3-HFPO-DA	116%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP97275-BS	6Q19263.D	1	06/12/23	MV	06/09/23	OP97275	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6651-1, FC6651-2, FC6651-3, FC6651-4, FC6651-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0892	89	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0448	90	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0239	96	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0212	85	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0256	102	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0214	86	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0188	75	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0216	86	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0243	97	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0222	89	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0226	90	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0204	92	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0209	89	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0192	84	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0205	86	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0209	90	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0211	88	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0226	94	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0193	80	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0859	92	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0985	104	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0865	90	40-150
754-91-6	PFOSA	0.025	0.0216	86	40-150
31506-32-8	MeFOSA	0.05	0.0459	92	40-150
4151-50-2	EtFOSA	0.05	0.0462	92	40-150
2355-31-9	MeFOSAA	0.025	0.0241	96	40-150
2991-50-6	EtFOSAA	0.025	0.0218	87	40-150
24448-09-7	MeFOSE	0.125	0.108	86	40-150
1691-99-2	EtFOSE	0.125	0.103	82	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0418	84	40-150
919005-14-4	ADONA	0.0473	0.0411	87	40-150
377-73-1	PFMPA	0.05	0.0243	49	40-150
863090-89-5	PFMBA	0.05	0.0463	93	40-150
151772-58-6	NFDHA	0.05	0.0437	87	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0400	86	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0387	82	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP97275-BS	6Q19263.D	1	06/12/23	MV	06/09/23	OP97275	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6651-1, FC6651-2, FC6651-3, FC6651-4, FC6651-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0450	101	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0476	38*	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.595	95	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.562	90	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	30%	20-150%
	13C5-PFPeA	102%	20-150%
	13C5-PFHxA	99%	20-150%
	13C4-PFHpA	108%	20-150%
	13C8-PFOA	97%	20-150%
	13C9-PFNA	106%	20-150%
	13C6-PFDA	127%	20-150%
	13C7-PFUnDA	112%	20-150%
	13C2-PFDoDA	106%	20-150%
	13C2-PFTeDA	98%	20-150%
	13C3-PFBS	116%	20-150%
	13C3-PFHxS	117%	20-150%
	13C8-PFOS	108%	20-150%
	13C8-FOSA	86%	20-150%
	d3-MeFOSA	82%	20-150%
	d5-EtFOSA	81%	20-150%
	d3-MeFOSAA	109%	20-150%
	d5-EtFOSAA	105%	20-150%
	d7-MeFOSE	64%	20-150%
	d9-EtFOSE	73%	20-150%
	13C2-4:2FTS	135%	20-180%
	13C2-6:2FTS	119%	20-180%
	13C2-8:2FTS	120%	20-180%
	13C3-HFPO-DA	108%	20-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP97275-MS	6Q19269.D	1	06/12/23	MV	06/09/23	OP97275	S6Q287
FC6649-1	6Q19268.D	1	06/12/23	MV	06/09/23	OP97275	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6651-1, FC6651-2, FC6651-3, FC6651-4, FC6651-5

CAS No.	Compound	FC6649-1 ug/l	Spike Q	MS ug/l	MS %	Limits	
375-22-4	Perfluorobutanoic acid	0.015 U		0.0909	0.0740	81	40-150
2706-90-3	Perfluoropentanoic acid	0.0074 U		0.0455	0.0392	86	40-150
307-24-4	Perfluorohexanoic acid	0.0037 U		0.0227	0.0190	84	40-150
375-85-9	Perfluoroheptanoic acid	0.0037 U		0.0227	0.0195	86	40-150
335-67-1	Perfluorooctanoic acid	0.0037 U		0.0227	0.0212	93	40-150
375-95-1	Perfluorononanoic acid	0.0037 U		0.0227	0.0188	83	40-150
335-76-2	Perfluorodecanoic acid	0.0037 U		0.0227	0.0184	81	40-150
2058-94-8	Perfluoroundecanoic acid	0.0037 U		0.0227	0.0215	95	40-150
307-55-1	Perfluorododecanoic acid	0.0037 U		0.0227	0.0198	87	40-150
72629-94-8	Perfluorotridecanoic acid	0.0037 U		0.0227	0.0181	80	40-150
376-06-7	Perfluorotetradecanoic acid	0.0037 U		0.0227	0.0200	88	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0037 U		0.0202	0.0173	86	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0046 U		0.0214	0.0196	92	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0037 U		0.0208	0.0188	91	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0037 U		0.0217	0.0191	88	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0037 U		0.0211	0.0191	91	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0037 U		0.0219	0.0193	88	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0037 U		0.0219	0.0167	76	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0046 U		0.022	0.0104	47	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.019 U		0.0852	0.0702	82	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0038 J		0.0864	0.0856	95	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U		0.0873	0.0697	80	40-150
754-91-6	PFOSA	0.0037 U		0.0227	0.0202	89	40-150
31506-32-8	MeFOSA	0.0074 U		0.0455	0.0391	86	40-150
4151-50-2	EtFOSA	0.0074 U		0.0455	0.0395	87	40-150
2355-31-9	MeFOSAA	0.0046 U		0.0227	0.0223	98	40-150
2991-50-6	EtFOSAA	0.0046 U		0.0227	0.0197	87	40-150
24448-09-7	MeFOSE	0.037 U		0.114	0.103	91	40-150
1691-99-2	EtFOSE	0.037 U		0.114	0.101	89	40-150
13252-13-6	HFPO-DA (GenX)	0.0037 U		0.0455	0.0367	81	40-150
919005-14-4	ADONA	0.0074 U		0.043	0.0446	104	40-150
377-73-1	PFMPA	0.0074 U		0.0455	0.0106	23*	40-150
863090-89-5	PFMBA	0.0074 U		0.0455	0.0645	142	40-150
151772-58-6	NFDHA	0.0074 U		0.0455	0.0342	75	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0074 U		0.0425	0.0448	105	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0074 U		0.043	0.0363	85	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP97275-MS	6Q19269.D	1	06/12/23	MV	06/09/23	OP97275	S6Q287
FC6649-1	6Q19268.D	1	06/12/23	MV	06/09/23	OP97275	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6651-1, FC6651-2, FC6651-3, FC6651-4, FC6651-5

CAS No.	Compound	FC6649-1 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0074 U	0.0405	0.0396	98	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.019 U	0.114	0.0230	20*	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.093 U	0.568	0.513	90	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.093 U	0.568	0.655	115	40-150

CAS No.	ID Standard Recoveries	MS	FC6649-1	Limits
	13C4-PFBA	4%* a	4%* a	20-150%
	13C5-PFPeA	26%	25%	20-150%
	13C5-PFHxA	98%	95%	20-150%
	13C4-PFHpA	107%	105%	20-150%
	13C8-PFOA	117%	115%	20-150%
	13C9-PFNA	105%	113%	20-150%
	13C6-PFDA	109%	107%	20-150%
	13C7-PFUnDA	97%	99%	20-150%
	13C2-PFDoDA	96%	102%	20-150%
	13C2-PFTeDA	70%	74%	20-150%
	13C3-PFBS	109%	105%	20-150%
	13C3-PFHxS	110%	109%	20-150%
	13C8-PFOS	100%	102%	20-150%
	13C8-FOSA	84%	91%	20-150%
	d3-MeFOSA	85%	87%	20-150%
	d5-EtFOSA	87%	98%	20-150%
	d3-MeFOSAA	114%	125%	20-150%
	d5-EtFOSAA	116%	126%	20-150%
	d7-MeFOSE	63%	69%	20-150%
	d9-EtFOSE	68%	73%	20-150%
	13C2-4:2FTS	149%	141%	20-180%
	13C2-6:2FTS	102%	97%	20-180%
	13C2-8:2FTS	114%	113%	20-180%
	13C3-HFPO-DA	90%	83%	20-150%

(a) Outside control limits.

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP97275-DUP	6Q19275.D	1	06/12/23	MV	06/09/23	OP97275	S6Q287
FC6649-4	6Q19274.D	1	06/12/23	MV	06/09/23	OP97275	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6651-1, FC6651-2, FC6651-3, FC6651-4, FC6651-5

CAS No.	Compound	FC6649-4 ug/l	DUP Q	ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.015 U	ND			nc	30
2706-90-3	Perfluoropentanoic acid	0.0075 U	ND			nc	30
307-24-4	Perfluorohexanoic acid	0.0038 U	ND			nc	30
375-85-9	Perfluoroheptanoic acid	0.0038 U	ND			nc	30
335-67-1	Perfluorooctanoic acid	0.0038 U	ND			nc	30
375-95-1	Perfluorononanoic acid	0.0038 U	ND			nc	30
335-76-2	Perfluorodecanoic acid	0.0038 U	ND			nc	30
2058-94-8	Perfluoroundecanoic acid	0.0038 U	ND			nc	30
307-55-1	Perfluorododecanoic acid	0.0038 U	ND			nc	30
72629-94-8	Perfluorotridecanoic acid	0.0038 U	ND			nc	30
376-06-7	Perfluorotetradecanoic acid	0.0038 U	ND			nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0038 U	ND			nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0047 U	ND			nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0038 U	ND			nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0038 U	ND			nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0038 U	ND			nc	30
68259-12-1	Perfluorononanesulfonic acid	0.0038 U	ND			nc	30
335-77-3	Perfluorodecanesulfonic acid	0.0038 U	ND			nc	30
79780-39-5	Perfluorododecanesulfonic aci	0.0047 U	ND			nc	30
757124-72-44:2	Fluorotelomer sulfonate	0.019 U	ND			nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0085 U	J	0.0055 U	J	43*	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U	ND			nc	30
754-91-6	PFOSA	0.0038 U	ND			nc	30
31506-32-8	MeFOSA	0.0075 U	ND			nc	30
4151-50-2	EtFOSA	0.0075 U	ND			nc	30
2355-31-9	MeFOSAA	0.0047 U	ND			nc	30
2991-50-6	EtFOSAA	0.0047 U	ND			nc	30
24448-09-7	MeFOSE	0.038 U	ND			nc	30
1691-99-2	EtFOSE	0.038 U	ND			nc	30
13252-13-6	HFPO-DA (GenX)	0.0038 U	ND			nc	30
919005-14-4	ADONA	0.0075 U	ND			nc	30
377-73-1	PFMPA	0.0075 U	ND			nc	30
863090-89-5	PFMBA	0.0075 U	ND			nc	30
151772-58-6	NFDHA	0.0075 U	ND			nc	30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0075 U	ND			nc	30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0075 U	ND			nc	30

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP97275-DUP	6Q19275.D	1	06/12/23	MV	06/09/23	OP97275	S6Q287
FC6649-4	6Q19274.D	1	06/12/23	MV	06/09/23	OP97275	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6651-1, FC6651-2, FC6651-3, FC6651-4, FC6651-5

CAS No.	Compound	FC6649-4 ug/l	DUP Q ug/l	Q	RPD	Limits
113507-82-7	PFEESA	0.0075 U	ND		nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.019 U	ND		nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.094 U	ND		nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.094 U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC6649-4	Limits
	13C4-PFBA	114%	107%	20-150%
	13C5-PFPeA	116%	113%	20-150%
	13C5-PFHxA	113%	117%	20-150%
	13C4-PFHpA	115%	110%	20-150%
	13C8-PFOA	110%	116%	20-150%
	13C9-PFNA	127%	107%	20-150%
	13C6-PFDA	123%	101%	20-150%
	13C7-PFUnDA	94%	95%	20-150%
	13C2-PFDoDA	94%	88%	20-150%
	13C2-PFTeDA	89%	84%	20-150%
	13C3-PFBS	119%	118%	20-150%
	13C3-PFHxS	109%	114%	20-150%
	13C8-PFOS	106%	105%	20-150%
	13C8-FOSA	94%	92%	20-150%
	d3-MeFOSA	86%	79%	20-150%
	d5-EtFOSA	97%	80%	20-150%
	d3-MeFOSAA	107%	102%	20-150%
	d5-EtFOSAA	110%	97%	20-150%
	d7-MeFOSE	71%	67%	20-150%
	d9-EtFOSE	84%	69%	20-150%
	13C2-4:2FTS	134%	135%	20-180%
	13C2-6:2FTS	130%	127%	20-180%
	13C2-8:2FTS	114%	109%	20-180%
	13C3-HFPO-DA	105%	102%	20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q287-CC287	Injection Date:	06/12/23
Lab File ID:	6Q19261.D	Injection Time:	20:42
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	56985	3.09	46125	5.79	78650	7.34	43214	7.88	28356	8.39
Check Std ^c	60775	3.09	48200	5.79	83698	7.35	45724	7.89	31467	8.39
Upper Limit ^d	113970	3.49	92250	6.19	157300	7.75	86428	8.29	56712	8.79
Lower Limit ^e	17096	2.69	13838	5.39	23595	6.95	12964	7.49	8507	7.99

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
S6Q287-ICCB	64089	3.09	50198	5.79	90846	7.35	46265	7.89	31314	8.39	1
S6Q287-ICCB	64089	3.09	50198	5.79	90846	7.35	46265	7.89	31314	8.39	1
OP97275-BS	59615	3.10	46772	5.79	81494	7.35	45973	7.89	26613	8.39	1
OP97275-LLBS	56789	3.10	45791	5.79	72380	7.35	44401	7.89	26372	8.39	1
OP97275-MB	57001	3.10	47645	5.79	76706	7.35	40607	7.89	28010	8.39	1
ZZZZZZ	58857	3.10	47232	5.79	78154	7.35	43105	7.89	27350	8.39	1
ZZZZZZ	58894	3.10	49747	5.79	73271	7.35	40681	7.89	28269	8.39	1
FC6649-1	60621	3.10	49547	5.79	78348	7.35	43631	7.88	29192	8.39	1
OP97275-MS	60540	3.10	46959	5.79	74385	7.35	46890	7.88	29907	8.39	1
ZZZZZZ	59358	3.10	49442	5.80	76564	7.35	43109	7.89	28079	8.39	1
ZZZZZZ	56674	3.10	46298	5.79	72995	7.35	44227	7.89	26049	8.39	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: S6Q287-ICC287 6Q19243.D 06/12/23 16:30. 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.

6.5.1
6

Injection Standard Area Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q287-CC287	Injection Date:	06/12/23
Lab File ID:	6Q19261.D	Injection Time:	20:42
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	8622	7.48	14418	8.56
Check Std ^c	8932	7.48	15582	8.56
Upper Limit ^d	17244	7.88	28836	8.96
Lower Limit ^e	2587	7.08	4325	8.16

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q287-ICCB	8900	7.48	15747	8.56	1
S6Q287-ICCB	8900	7.48	15747	8.56	1
OP97275-BS	7754	7.48	14343	8.56	1
OP97275-LLBS	8546	7.48	13632	8.56	1
OP97275-MB	8888	7.48	14645	8.56	1
ZZZZZZ	7640	7.48	15834	8.55	1
ZZZZZZ	8565	7.49	17699	8.58	1
FC6649-1	8863	7.48	15570	8.55	1
OP97275-MS	8151	7.48	16170	8.55	1
ZZZZZZ	8402	7.49	14384	8.58	1
ZZZZZZ	7989	7.48	14076	8.58	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q287-ICC287 6Q19243.D 06/12/23 16:30. 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: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q287-CC287	Injection Date:	06/12/23
Lab File ID:	6Q19272.D	Injection Time:	23:15
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	56985	3.09	46125	5.79	78650	7.34	43214	7.88	28356	8.39
Check Std ^c	61662	3.09	50016	5.79	83204	7.35	46757	7.89	31042	8.39
Upper Limit ^d	113970	3.49	92250	6.19	157300	7.75	86428	8.29	56712	8.79
Lower Limit ^e	17096	2.69	13838	5.39	23595	6.95	12964	7.49	8507	7.99

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
S6Q287-ICCB	64953	3.09	53563	5.79	85286	7.35	50193	7.89	31424	8.39	1
FC6649-4	58568	3.10	46367	5.79	77542	7.35	42250	7.89	26672	8.39	1
OP97275-DUP	60101	3.10	48351	5.80	80015	7.35	43269	7.89	29208	8.39	1
ZZZZZZ	61800	3.10	48754	5.80	81859	7.35	48410	7.89	32446	8.40	1
ZZZZZZ	56464	3.10	45605	5.80	72120	7.35	40697	7.89	27764	8.39	1
FC6651-1	49189	3.10	44087	5.79	77344	7.34	38719	7.89	26988	8.39	1
FC6651-2	57651	3.10	44683	5.80	78578	7.35	41826	7.89	27161	8.39	1
FC6651-3	45502	3.09	51475	5.78	87318	7.35	50390	7.89	30634	8.39	1
FC6651-4	57602	3.10	47341	5.79	80713	7.35	44569	7.89	26517	8.39	1
FC6651-5	59083	3.10	48829	5.79	83833	7.35	41265	7.89	31033	8.39	1
ZZZZZZ	58699	3.10	48321	5.80	77974	7.35	43601	7.89	28360	8.39	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: S6Q287-ICCB 6Q19243.D 06/12/23 16:30. 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

Injection Standard Area Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q287-CC287	Injection Date:	06/12/23
Lab File ID:	6Q19272.D	Injection Time:	23:15
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	8622	7.48	14418	8.56
Check Std ^c	9625	7.48	15470	8.56
Upper Limit ^d	17244	7.88	28836	8.96
Lower Limit ^e	2587	7.08	4325	8.16

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q287-ICCB	9356	7.48	16410	8.56	1
FC6649-4	8045	7.48	14653	8.58	1
OP97275-DUP	9141	7.49	14400	8.56	1
ZZZZZZ	8802	7.49	14595	8.58	1
ZZZZZZ	8240	7.49	13950	8.58	1
FC6651-1	8407	7.48	13470	8.56	1
FC6651-2	8482	7.48	14373	8.58	1
FC6651-3	8594	7.48	14310	8.58	1
FC6651-4	8612	7.48	13258	8.58	1
FC6651-5	8194	7.48	13740	8.58	1
ZZZZZZ	8784	7.49	14821	8.58	1

IS 6 = 1802-PFHXS
 IS 7 = 13C4-PFOS

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q287-ICCB 6Q19243.D 06/12/23 16:30. 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: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q287-RT	Injection Date:	06/12/23
Lab File ID:	6Q19237.D	Injection Time:	15:06
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.564	--	--
TDCA	7.025	1.539	1.000
TCDCA	6.863	1.701	1.000
TUDCA	6.048	2.516	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
S6Q287-IC287	6Q19239.D	06/12/23	15:34	00:28	Mass Calibration Verification
S6Q287-IC287	6Q19240.D	06/12/23	15:48	00:42	Initial cal 1
S6Q287-IC287	6Q19241.D	06/12/23	16:02	00:56	Initial cal 2
S6Q287-IC287	6Q19242.D	06/12/23	16:16	01:10	Initial cal 3
S6Q287-ICC287	6Q19243.D	06/12/23	16:30	01:24	Initial cal 4
S6Q287-IC287	6Q19244.D	06/12/23	16:44	01:38	Initial cal 5
S6Q287-IC287	6Q19245.D	06/12/23	16:58	01:52	Initial cal 6
S6Q287-IC287	6Q19246.D	06/12/23	17:12	02:06	Initial cal 7
S6Q287-IC287	6Q19247.D	06/12/23	17:26	02:20	Initial cal 8
S6Q287-IBLK	6Q19248.D	06/12/23	17:40	02:34	Instrument Blank
S6Q287-IBLK	6Q19248.D	06/12/23	17:40	02:34	Instrument Blank
S6Q287-ICV287	6Q19249.D	06/12/23	17:54	02:48	Initial cal verification 4
S6Q287-ICV287	6Q19250.D	06/12/23	18:08	03:02	Initial cal verification 20
S6Q287-CC287	6Q19251.D	06/12/23	18:22	03:16	Continuing cal 4
S6Q287-CC287	6Q19252.D	06/12/23	18:36	03:30	Continuing cal 1.0LL
ZZZZZZ	6Q19253.D	06/12/23	18:50	03:44	(unrelated sample)
FC6342-11	6Q19254.D	06/12/23	19:04	03:58	(used for QC only; not part of job FC6651)
OP97215-DUP	6Q19255.D	06/12/23	19:18	04:12	Duplicate
ZZZZZZ	6Q19256.D	06/12/23	19:32	04:26	(unrelated sample)
JD66240-1	6Q19257.D	06/12/23	19:46	04:40	(used for QC only; not part of job FC6651)
ZZZZZZ	6Q19258.D	06/12/23	20:00	04:54	(unrelated sample)
FC6342-10	6Q19259.D	06/12/23	20:14	05:08	(used for QC only; not part of job FC6651)
OP97215-MS	6Q19260.D	06/12/23	20:28	05:22	Matrix Spike
S6Q287-CC287	6Q19261.D	06/12/23	20:42	05:36	Continuing cal 4
S6Q287-ICCB	6Q19262.D	06/12/23	20:56	05:50	Continuing Calibration Blank
S6Q287-ICCB	6Q19262.D	06/12/23	20:56	05:50	Continuing Calibration Blank
OP97275-BS	6Q19263.D	06/12/23	21:10	06:04	Blank Spike
OP97275-LLBS	6Q19264.D	06/12/23	21:24	06:18	Blank Spike
OP97275-MB	6Q19265.D	06/12/23	21:37	06:31	Method Blank
ZZZZZZ	6Q19266.D	06/12/23	21:51	06:45	(unrelated sample)
ZZZZZZ	6Q19267.D	06/12/23	22:05	06:59	(unrelated sample)
FC6649-1	6Q19268.D	06/12/23	22:19	07:13	(used for QC only; not part of job FC6651)
OP97275-MS	6Q19269.D	06/12/23	22:33	07:27	Matrix Spike
ZZZZZZ	6Q19270.D	06/12/23	22:47	07:41	(unrelated sample)

TDCA Retention Time Check

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q287-RT	Injection Date:	06/12/23
Lab File ID:	6Q19237.D	Injection Time:	15:06
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q19271.D	06/12/23	23:01	07:55	(unrelated sample)
S6Q287-CC287	6Q19272.D	06/12/23	23:15	08:09	Continuing cal 4
S6Q287-ICCB	6Q19273.D	06/12/23	23:29	08:23	Continuing Calibration Blank
FC6649-4	6Q19274.D	06/12/23	23:43	08:37	(used for QC only; not part of job FC6651)
OP97275-DUP	6Q19275.D	06/12/23	23:57	08:51	Duplicate
ZZZZZZ	6Q19276.D	06/13/23	00:11	09:05	(unrelated sample)
ZZZZZZ	6Q19277.D	06/13/23	00:25	09:19	(unrelated sample)
FC6651-1	6Q19278.D	06/13/23	00:39	09:33	AF-RHMW17S-WGN01LF-2305W5
FC6651-2	6Q19279.D	06/13/23	00:53	09:47	AF-RHMW17S-WQEB01-2305W5
FC6651-3	6Q19280.D	06/13/23	01:07	10:01	AF-RHMW02-WGN01LF-2305W5
FC6651-4	6Q19281.D	06/13/23	01:21	10:15	AF-RHMW17-WGN01LF-2305W5
FC6651-5	6Q19282.D	06/13/23	01:35	10:29	AF-RHMW03-WGN01LF-2305W5
ZZZZZZ	6Q19283.D	06/13/23	01:49	10:43	(unrelated sample)
S6Q287-CC287	6Q19284.D	06/13/23	02:03	10:57	Continuing cal 4
S6Q287-ICCB	6Q19285.D	06/13/23	02:17	11:11	Continuing Calibration Blank
ZZZZZZ	6Q19286.D	06/13/23	02:31	11:25	(unrelated sample)
ZZZZZZ	6Q19287.D	06/13/23	02:45	11:39	(unrelated sample)
S6Q287-ECC287	6Q19288.D	06/13/23	02:59	11:53	Ending cal 4
S6Q287-ICCB	6Q19289.D	06/13/23	03:13	12:07	Continuing Calibration Blank

6.6.1
6

Ion Ratio Summary

Job Number: FC6651
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q287	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios (Set 1)		PFHxA	PFHpA	PFOA	PFBS	PFOS
		PFBA	PFPeA					
S6Q287-ICC287	6Q19243.D	0	0	5.4	16	17.6	34.6	52.1
FC6651-1	6Q19278.D		0	5.6	16.8	15.5	35.5	47.5
FC6651-2	6Q19279.D							
FC6651-3	6Q19280.D	0	0	2.7	11.4			
FC6651-4	6Q19281.D		0	5.9	17.1	6.7		
FC6651-5	6Q19282.D		0	4	18.1			

6.7.1

6

Ion Ratio Summary

Job Number: FC6651
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q287	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios (Set 2) 6:2FTS
S6Q287-ICC287	6Q19243.D	36.4
FC6651-1	6Q19278.D	36
FC6651-2	6Q19279.D	
FC6651-3	6Q19280.D	
FC6651-4	6Q19281.D	33
FC6651-5	6Q19282.D	34.6

Isotope Dilution Standard Recovery Summary

Job Number: FC6651
 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
FC6651-1	6Q19278.D	65	111	121	118	115	128	113	102
FC6651-2	6Q19279.D	117	120	122	116	110	118	122	105
FC6651-3	6Q19280.D	76	89	102	107	100	104	107	104
FC6651-4	6Q19281.D	104	114	110	112	110	127	114	100
FC6651-5	6Q19282.D	101	111	104	111	113	138	108	94
OP97275-BS	6Q19263.D	30	102	99	108	97	106	127	112
OP97275-DUP	6Q19275.D	114	116	113	115	110	127	123	94
OP97275-LLBS	6Q19264.D	115	113	107	114	122	116	130	114
OP97275-MB	6Q19265.D	105	101	99	98	103	116	107	101
OP97275-MS	6Q19269.D	4* a	26	98	107	117	105	109	97
S6Q287-IBLK	6Q19248.D	100	97	99	100	97	100	100	89
S6Q287-ICCB	6Q19273.D	100	96	92	100	100	96	100	101
S6Q287-ICCB	6Q19262.D	100	103	98	104	96	109	101	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%

(a) Outside control limits.

6.8.1
6

Isotope Dilution Standard Recovery Summary

Job Number: FC6651
 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
FC6651-1	6Q19278.D	94	73	109	119	107	105	86	87
FC6651-2	6Q19279.D	101	96	111	111	108	95	91	93
FC6651-3	6Q19280.D	93	67	107	104	101	103	77	82
FC6651-4	6Q19281.D	85	57	110	115	111	111	87	89
FC6651-5	6Q19282.D	89	67	118	116	113	109	89	94
OP97275-BS	6Q19263.D	106	98	116	117	108	86	82	81
OP97275-DUP	6Q19275.D	94	89	119	109	106	94	86	97
OP97275-LLBS	6Q19264.D	115	106	113	109	120	92	81	87
OP97275-MB	6Q19265.D	99	86	97	97	101	76	72	81
OP97275-MS	6Q19269.D	96	70	109	110	100	84	85	87
S6Q287-IBLK	6Q19248.D	93	91	103	101	102	101	103	107
S6Q287-ICCB	6Q19273.D	98	88	101	102	97	100	91	97
S6Q287-ICCB	6Q19262.D	96	96	109	108	104	100	96	99

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: FC6651
 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
FC6651-1	6Q19278.D	110	107	75	71	99	94	95	110
FC6651-2	6Q19279.D	102	96	75	80	135	129	107	113
FC6651-3	6Q19280.D	104	107	70	70	108	98	97	78
FC6651-4	6Q19281.D	132	126	76	83	141	131	106	104
FC6651-5	6Q19282.D	114	119	80	89	115	119	119	109
OP97275-BS	6Q19263.D	109	105	64	73	135	119	120	108
OP97275-DUP	6Q19275.D	107	110	71	84	134	130	114	105
OP97275-LLBS	6Q19264.D	114	117	68	78	131	125	114	116
OP97275-MB	6Q19265.D	104	92	58	68	119	119	99	95
OP97275-MS	6Q19269.D	114	116	63	68	149	102	114	90
S6Q287-IBLK	6Q19248.D	99	109	100	95	121	122	118	93
S6Q287-ICCB	6Q19273.D	102	94	86	82	113	123	108	90
S6Q287-ICCB	6Q19262.D	105	101	100	86	128	124	112	96

Isotope Dilution Standards

Recovery Limits

S17 = d3-MeFOSAA	20-150%
S18 = d5-EtFOSAA	20-150%
S19 = d7-MeFOSE	20-150%
S20 = d9-EtFOSE	20-150%
S21 = 13C2-4:2FTS	20-180%
S22 = 13C2-6:2FTS	20-180%
S23 = 13C2-8:2FTS	20-180%
S24 = 13C3-HFPO-DA	20-150%

6.8.1

6

Initial Calibration Summary

Job Number: FC6651
 Account: AECOM/CD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-ICC287
 Lab FileID: 6Q19243.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	Level Last Update Time
D:\MassHunter\Methods	1633_061223_S6Q287_quantmethod.xml	D:\MassHunter\Data\061223_1633_S6Q287	6/13/2023 10:11:35 AM	D:\MassHunter\Data\061223_1633_S6Q287\6Q19240.d	Avg RF	0.4590	0.4046	0.3848	0.3812	0.3816	0.3921	0.3949	0.3917	0.3987	6.405	6/12/2023 3:48:29 PM
D:\MassHunter\Data\061223_1633_S6Q287\6Q19241.d				D:\MassHunter\Data\061223_1633_S6Q287\6Q19242.d	Avg RF	0.9509	0.8227	0.7905	0.7836	0.7724	0.8155	0.8116	0.8135	0.8201	6.795	6/13/2023 10:11:35 AM
D:\MassHunter\Data\061223_1633_S6Q287\6Q19243.d				D:\MassHunter\Data\061223_1633_S6Q287\6Q19244.d	Avg RF	1.1141	1.0115	0.9956	0.9944	0.9935	0.9996	1.0094	1.0156	1.0066	6.737	6/13/2023 10:11:35 AM
D:\MassHunter\Data\061223_1633_S6Q287\6Q19245.d				D:\MassHunter\Data\061223_1633_S6Q287\6Q19246.d	Avg RF	1.7355	1.5292	1.4214	1.3898	1.3814	1.4490	1.4293	1.4352	1.4713	7.873	6/13/2023 10:11:35 AM
D:\MassHunter\Data\061223_1633_S6Q287\6Q19247.d					Avg RF	1.2304	1.0650	1.0216	0.9890	0.9850	1.0548	1.0376	1.0603	1.0555	7.302	6/13/2023 10:11:35 AM
Compound																
I M4-PFBA																
T PFBA																
I M5-PFPeA																
T PFMPA																
T 3:3FTCA																
T PFPeA																
T PFMBa																
I M5-PFHxA																
T NFDHA																
T PFHxA																
T PFEEA																
T 5:3FTCA																
T 7:3FTCA																
I M4-PFHpA																
T PFHpA																
I M8-PFOA																
T PFOA																
I M9-PFNA																
T PFNA																
I M6-PFDA																
T PFDA																
I M7-PFUnDA																
T PFUnDA																
I M2-PFDODA																

Generated at 10:12 AM on 6/13/2023

Page 1 of 4



Initial Calibration Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-ICC287
 Lab FileID: 6Q19243.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	1.3026	1.1308	1.0072	0.9782	0.9674	0.9212	0.9734	0.9311	1.0265	12.558
T PFTfDA	Quadratic	1.3071	1.1393	1.0779	1.0648	0.9886	0.9962	0.9541	0.8448	1.0466	13.168
I M2-PFTeDA	Avg RF	1.7855	1.5964	1.4155	1.4618	1.4554	1.5360	1.3641	1.3420	1.4946	9.658
T PFTeDA	Avg RF	1.2407	1.1052	0.9675	0.9790	0.9739	1.0009	0.9922	0.9488	1.0260	9.637
I M8-FOSA	Avg RF	1.1895	1.1814	1.0524	1.0963	1.0352	1.0868	1.0481	1.0832	1.0966	5.359
T FOSA	Avg RF	1.6461	1.5434	1.3050	1.3136	1.2937	1.2930	1.3657	1.2978	1.3823	9.839
I M3-PFBS	Avg RF	1.9328	1.6004	1.4178	1.4131	1.4108	1.4047	1.4363	1.4112	1.5034	12.332
T PFBS	Avg RF	1.7484	1.5271	1.5079	1.3424	1.5151	1.4486	1.4273	1.5256	1.5053	7.776
I M3-PFHxS	Avg RF	1.7054	1.5902	1.4838	1.3254	1.3874	1.4472	1.3346	1.5085	1.4728	8.818
T PFHs	Avg RF	1.5128	1.4598	1.2519	1.2500	1.2830	1.2610	1.2347	1.3242	1.3222	8.003
I M8-PFOS	Avg RF	0.8436	0.8371	0.7132	0.7123	0.7177	0.7519	0.7198	0.7409	0.7546	7.260
T PFOS	Avg RF	0.4389	0.3979	0.3794	0.3403	0.3725	0.3734	0.3465	0.3557	0.3756	8.438
I M2-4:2FTS	Avg RF	9.1908	9.1239	8.5368	8.4898	8.9447	8.2400	8.4278	8.3557	8.6637	4.241
T 4:2FTS	Avg RF	7.2557	6.3372	6.2653	5.8572	5.7237	5.6834	5.9810	5.2251	6.0411	9.981
I M2-6:2FTS	Avg RF	3.7714	3.8969	3.5524	3.3156	3.2356	3.3268	2.9315	2.5736	3.3255	12.987
T 6:2FTS	Avg RF	1.4039	1.3539	1.2468	1.1347	1.1180	1.1390	1.2069	1.1228	1.2158	9.126
I M2-8:2FTS	Avg RF	1.4984	1.0715	1.1025	1.0851	0.9461	1.0793	1.0558	0.9410	1.0975	15.821
T 8:2FTS	Avg RF	21.88	17.57	17.65	16.33	14.98	16.34	16.10	14.48	16.92	13.530
I M3-MeFOSAA	Avg RF	9.5842	8.6208	7.8415	7.9940	6.8609	7.5779	7.5287	6.9744	7.8728	11.300
T MeFOSAA	Avg RF	5.4742	5.1069	5.1195	5.0130	4.0543	4.8342	4.3351	3.7701	4.7134	12.603
I M3-HFO-DA	Avg RF	1.0244	0.8056	0.8881	0.7409	0.7564	0.8068	0.7725	0.8472	0.8302	11.081
T HFO-DA	Avg RF	1.2717	1.0756	1.0960	1.0255	1.0814	1.0750	1.0339	1.0947	1.0942	6.971
I M7-MeFOSE	Avg RF	1.5082	1.3296	1.3771	1.2898	1.2505	1.2655	1.2575	1.2817	1.3200	6.584
T MeFOSE	Avg RF										

Generated at 10:12 AM on 6/13/2023

Page 2 of 4

Initial Calibration Summary

Job Number: FC6651
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-ICC287
 Lab FileID: 6Q19243.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA											
T EtFOSA	Avg RF	1.4942	1.3646	1.3843	1.3082	1.2310	1.3344	1.2820	1.3131	1.3390	5.878
I M3-MeFOSA											
T MeFOSA	Avg RF	1.2347	1.1516	1.1269	1.0768	1.1111	1.0780	0.9997	0.9882	1.0959	7.325
I 13C4-PFOS											
S d3-MeFOSAA	Linear	0.8814	0.9491	0.9565	1.0225	0.9946	0.9907	0.8779	0.8305	0.9379	7.204
S 13C8-PFOS	Linear	0.7257	0.7204	0.7237	0.7727	0.7516	0.7272	0.7428	0.6943	0.7323	3.202
S d5-EFOSAA	Linear	0.7393	0.8512	0.7545	0.8515	0.8359	0.7815	0.7851	0.7303	0.7912	6.250
S 13C8-FOSA	Linear	1.8040	1.8999	1.9569	1.8932	1.8707	1.8337	1.7784	1.7804	1.8522	3.447
S d7-MeFOSE	Linear	0.9807	1.0145	0.9242	0.9816	0.9232	0.9013	0.8615	0.7533	0.9175	9.021
S d3-MeFOSA	Linear	0.7684	0.8500	0.7995	0.8219	0.8366	0.8305	0.8763	0.8649	0.8310	4.214
S d9-EFOSE	Linear	1.1707	1.3120	1.2023	1.2217	1.2013	1.1598	0.9891	0.9116	1.1461	11.420
S d5-EFOSA	Linear	0.7604	0.8636	0.7879	0.8153	0.8472	0.7899	0.7981	0.7797	0.8053	4.331
I 13C3-PFBA											
S 13C4-PFBA	Linear	1.1812	1.1818	1.1803	1.1772	1.1630	1.1720	1.1614	1.1747	1.1740	0.682
I 1802-PFHxS											
S 13C2-4:2FTS	Linear	0.1841	0.1848	0.1640	0.1789	0.1541	0.1400	0.1227	0.1028	0.1539	19.584
S 13C3-PFBS	Linear	2.1967	2.1724	2.0304	2.2085	2.1873	1.9702	2.1407	1.9966	2.1128	4.621
S 13C2-6:2FTS	Linear	0.2539	0.2796	0.2412	0.2553	0.2576	0.2142	0.1841	0.1651	0.2314	17.223
S 13C3-PFHxS	Linear	1.2695	1.3466	1.2756	1.4239	1.3847	1.2840	1.3305	1.3044	1.3274	4.167
S 13C2-8:2FTS	Linear	0.2445	0.2478	0.2252	0.2529	0.2276	0.1958	0.2060	0.1736	0.2217	12.579
I 13C4-PFOA											
S 13C8-PFOA	Linear	0.8909	0.9112	0.9470	0.9689	0.9522	0.8836	0.9599	0.9483	0.9328	3.508
I 13C2-PFDA											
S 13C6-PFDA	Linear	0.6324	0.6992	0.7199	0.7387	0.7517	0.6716	0.6846	0.6209	0.6899	6.846
S 13C7-PFUDA	Linear	0.8946	1.0131	0.9728	1.0310	1.0314	0.9818	0.9906	0.8636	0.9724	6.372
S 13C2-PFDODA	Linear	0.7567	0.8170	0.8410	0.8366	0.9052	0.8700	0.8013	0.8554	0.8354	5.391
S 13C2-PFTeDA	Linear	0.4562	0.4826	0.5150	0.4937	0.5062	0.4685	0.4700	0.4883	0.4851	4.097
I 13C5-PFNA											
S 13C9-PFNA	Linear	0.7141	0.7321	0.7951	0.7534	0.7264	0.8255	0.8013	0.7543	0.7628	5.255
I 13C2-PFHxA											
S 13C5-PPeA	Linear	0.4784	0.5178	0.4749	0.4916	0.4998	0.4815	0.4496	0.4707	0.4830	4.235
S 13C5-PFHxA	Linear	1.0732	1.1606	1.0096	1.0619	1.1068	1.1179	0.9983	1.1191	1.0809	5.208
S 13C3-HPO-D-A	Linear	0.1603	0.1764	0.1578	0.1642	0.1859	0.1718	0.1646	0.1899	0.1713	6.927
S 13C4-PFHpA	Linear	0.9703	1.0303	0.9983	0.9817	1.0537	0.9795	0.9840	1.0393	1.0046	3.165

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

Initial Calibration Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-ICC287
 Lab FileID: 6Q19243.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PFBA	Linear	$y = 1.173977 * x$	
S 13C5-PFPeA	Linear	$y = 0.483025 * x$	
S 13C2-4:2FTS	Linear	$y = 0.153940 * x$	
S 13C3-PFBS	Linear	$y = 2.112842 * x$	
S 13C5-PFHxA	Linear	$y = 1.080912 * x$	
S 13C3-HFPO-DA	Linear	$y = 0.171344 * x$	
T HFPO-DA	Quadratic	$y = -0.011728 * x^2 + 1.091190 * x$	17.7055
T PFEEsA	Linear	$y = 1.232515 * x$	13.0665
S 13C4-PFHpA	Linear	$y = 1.004638 * x$	
S 13C2-6:2FTS	Linear	$y = 0.231354 * x$	
S 13C8-PFOA	Linear	$y = 0.932753 * x$	
S 13C3-PFHxS	Linear	$y = 1.327395 * x$	
S 13C9-PFNA	Linear	$y = 0.762780 * x$	
S 13C2-8:2FTS	Linear	$y = 0.221672 * x$	
S 13C6-PEDA	Linear	$y = 0.689882 * x$	
S d3-MeFOSAA	Linear	$y = 0.937883 * x$	
S 13C8-PFOS	Linear	$y = 0.732287 * x$	
S d5-EFOSAA	Linear	$y = 0.791173 * x$	
S 13C7-PFUnDA	Linear	$y = 0.972357 * x$	
S 13C2-PFDODA	Linear	$y = 0.835400 * x$	
T PFTfDA	Quadratic	$y = -0.003674 * x^2 + 1.028478 * x$	13.4936
S 13C8-FOSA	Linear	$y = 1.852154 * x$	
S 13C2-PFTeDA	Linear	$y = 0.485067 * x$	
S d7-MeFOSE	Linear	$y = 0.917537 * x$	
S d3-MeFOSA	Linear	$y = 0.831033 * x$	
S d9-EFOSE	Linear	$y = 1.146056 * x$	
S d5-EFOSA	Linear	$y = 0.805268 * x$	

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

Initial Calibration Verification

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-ICV287
 Lab FileID: 6Q19249.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\061223_1633_S6Q287\s6q287.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\061223_1633_S6Q287\6Q19240.d
 2:D:\MassHunter\Data\061223_1633_S6Q287\6Q19241.d
 3:D:\MassHunter\Data\061223_1633_S6Q287\6Q19242.d
 4:D:\MassHunter\Data\061223_1633_S6Q287\6Q19243.d
 5:D:\MassHunter\Data\061223_1633_S6Q287\6Q19244.d
 6:D:\MassHunter\Data\061223_1633_S6Q287\6Q19245.d
 7:D:\MassHunter\Data\061223_1633_S6Q287\6Q19246.d
 8:D:\MassHunter\Data\061223_1633_S6Q287\6Q19247.d

Data File: 6Q19249
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.115	2.3	102.3
13C2-6:2FTS	5.000	5.319	6.4	106.4
13C2-8:2FTS	5.000	4.832	-3.4	96.6
13C2-PFDoDA	1.250	1.300	4.0	104.0
13C2-PFTeDA	1.250	1.182	-5.4	94.6
13C3-PFBS	2.500	2.313	-7.5	92.5
13C3-PFHxS	2.500	2.334	-6.6	93.4
13C4-PFBA	10.000	10.010	0.1	100.1
13C4-PFHpA	2.500	2.605	4.2	104.2
13C5-PFHxA	2.500	2.385	-4.6	95.4
13C5-PFPeA	5.000	5.038	0.8	100.8
13C6-PFDA	1.250	1.340	7.2	107.2
13C7-PFUnDA	1.250	1.270	1.6	101.6
13C8-FOSA	2.500	2.671	6.9	106.9
13C8-PFOA	2.500	2.445	-2.2	97.8
13C8-PFOS	2.500	2.660	6.4	106.4
13C9-PFNA	1.250	1.345	7.6	107.6
4:2FTS	9.375	9.716	3.6	103.6
6:2FTS	9.500	8.749	-7.9	92.1
8:2FTS	9.600	10.343	7.7	107.7
d3-MeFOSAA	5.000	5.204	4.1	104.1
EtFOSAA	2.500	2.673	6.9	106.9
FOSA	2.500	2.345	-6.2	93.8
MeFOSAA	2.500	2.592	3.7	103.7
PFBA	10.000	9.995	0.0	100.0
PFBS	2.218	2.250	1.5	101.5
PFDA	2.500	2.383	-4.7	95.3
PFDoDA	2.500	2.529	1.2	101.2
PFDS	2.413	2.478	2.7	102.7
PFHpA	2.500	2.304	-7.8	92.2
PFHpS	2.383	2.314	-2.9	97.1
PFHxA	2.500	2.685	7.4	107.4
PFHxS	2.285	2.251	-1.5	98.5
PFNA	2.500	2.196	-12.2	87.8
PFNS	2.405	2.392	-0.5	99.5
PFOA	2.500	2.501	0.0	100.0
PFOS	2.320	2.176	-6.2	93.8

Initial Calibration Verification

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-ICV287
 Lab FileID: 6Q19249.D

PFPeA	5.000	4.960	-0.8	99.2
PFPeS	2.353	2.387	1.4	101.4
PFTeDA	2.500	2.542	1.7	101.7
PFTTrDA	2.500	2.386	-4.6	95.4
PFUnDA	2.500	2.515	0.6	100.6
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	4.725	4.609	-2.5	97.5
13C3-HFPO-DA	10.000	10.104	1.0	101.0
9C1-PF3ONS	4.675	4.765	1.9	101.9
ADONA	4.725	4.579	-3.1	96.9
HFPO-DA	5.000	4.862	-2.8	97.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.098	-3.1	96.9
5:3FTCA	62.400	65.442	4.9	104.9
7:3FTCA	62.400	66.793	7.0	107.0
d3-MeFOSA	2.500	2.622	4.9	104.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.740	-5.2	94.8
EtFOSE	12.500	12.686	1.5	101.5
MeFOSA	5.000	4.927	-1.5	98.5
MeFOSE	12.500	12.192	-2.5	97.5
PFDoDS	2.425	2.478	2.2	102.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.298	6.0	106.0
d7-MeFOSE	25.000	25.262	1.0	101.0
d9-EtFOSE	25.000	22.972	-8.1	91.9
d5-EtFOSA	2.500	2.702	8.1	108.1
NFDHA	5.000	5.224	4.5	104.5
PFMBA	5.000	4.953	-0.9	99.1
PFMPA	5.000	4.928	-1.4	98.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	5.277	18.6	118.6

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-ICV287
 Lab FileID: 6Q19250.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\061223_1633_S6Q287\s6q287.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\061223_1633_S6Q287\6Q19240.d
 2:D:\MassHunter\Data\061223_1633_S6Q287\6Q19241.d
 3:D:\MassHunter\Data\061223_1633_S6Q287\6Q19242.d
 4:D:\MassHunter\Data\061223_1633_S6Q287\6Q19243.d
 5:D:\MassHunter\Data\061223_1633_S6Q287\6Q19244.d
 6:D:\MassHunter\Data\061223_1633_S6Q287\6Q19245.d
 7:D:\MassHunter\Data\061223_1633_S6Q287\6Q19246.d
 8:D:\MassHunter\Data\061223_1633_S6Q287\6Q19247.d

Data File: 6Q19250
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.693	13.9	113.9
13C2-6:2FTS	5.000	5.724	14.5	114.5
13C2-8:2FTS	5.000	5.277	5.5	105.5
13C2-PFDoDA	1.250	1.300	4.0	104.0
13C2-PFTeDA	1.250	1.284	2.7	102.7
13C3-PFBS	2.500	2.738	9.5	109.5
13C3-PFHxS	2.500	2.663	6.5	106.5
13C4-PFBA	10.000	10.147	1.5	101.5
13C4-PFHpA	2.500	2.568	2.7	102.7
13C5-PFHxA	2.500	2.470	-1.2	98.8
13C5-PFPeA	5.000	5.159	3.2	103.2
13C6-PFDA	1.250	1.344	7.5	107.5
13C7-PFUnDA	1.250	1.348	7.8	107.8
13C8-FOSA	2.500	2.473	-1.1	98.9
13C8-PFOA	2.500	2.589	3.6	103.6
13C8-PFOS	2.500	2.548	1.9	101.9
13C9-PFNA	1.250	1.291	3.3	103.3
4:2FTS	20.000	15.955	-20.2	79.8
6:2FTS	20.000	15.212	-23.9	76.1
8:2FTS	20.000	16.170	-19.2	80.8
d3-MeFOSAA	5.000	5.037	0.7	100.7
EtFOSAA	20.000	14.310	-28.5	71.5
FOSA	20.000	15.764	-21.2	78.8
MeFOSAA	20.000	15.800	-21.0	79.0
PFBA	20.000	15.644	-21.8	78.2
PFBS	20.000	16.577	-17.1	82.9
PFDA	20.000	16.017	-19.9	80.1
PFDoDA	20.000	14.565	-27.2	72.8
PFDS	20.000	17.419	-12.9	87.1
PFHpA	20.000	15.331	-23.3	76.7
PFHpS	20.000	15.899	-20.5	79.5
PFHxA	20.000	16.131	-19.3	80.7
PFHxS	20.000	16.837	-15.8	84.2
PFNA	20.000	15.878	-20.6	79.4
PFNS	20.000	15.220	-23.9	76.1
PFOA	20.000	15.250	-23.7	76.3
PFOS	20.000	14.846	-25.8	74.2

Initial Calibration Verification

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-ICV287
 Lab FileID: 6Q19250.D

PFPeA	20.000	16.062	-19.7	80.3
PFPeS	20.000	16.792	-16.0	84.0
PFTeDA	20.000	15.373	-23.1	76.9
PFTTrDA	20.000	14.674	-26.6	73.4
PFUnDA	20.000	14.770	-26.1	73.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	15.052	-24.7	75.3
13C3-HFPO-DA	10.000	10.293	2.9	102.9
9C1-PF3ONS	20.000	15.367	-23.2	76.8
ADONA	20.000	14.304	-28.5	71.5
HFPO-DA	20.000	14.253	-28.7	71.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	15.125	-24.4	75.6
5:3FTCA	20.000	16.887	-15.6	84.4
7:3FTCA	20.000	16.670	-16.7	83.3
d3-MeFOSA	2.500	2.277	-8.9	91.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	15.493	-22.5	77.5
EtFOSE	100.000	86.650	-13.3	86.7
MeFOSA	20.000	16.339	-18.3	81.7
MeFOSE	100.000	84.896	-15.1	84.9
PFDoDS	20.000	14.699	-26.5	73.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.431	8.6	108.6
d7-MeFOSE	25.000	21.049	-15.8	84.2
d9-EtFOSE	25.000	18.968	-24.1	75.9
d5-EtFOSA	2.500	2.418	-3.3	96.7
NFDHA	20.000	15.863	-20.7	79.3
PFMBA	20.000	15.730	-21.3	78.7
PFMPA	20.000	15.772	-21.1	78.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	14.961	-25.2	74.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-CC287
 Lab FileID: 6Q19251.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\061223_1633_S6Q287\s6q287.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\061223_1633_S6Q287\6Q19240.d
 2:D:\MassHunter\Data\061223_1633_S6Q287\6Q19241.d
 3:D:\MassHunter\Data\061223_1633_S6Q287\6Q19242.d
 4:D:\MassHunter\Data\061223_1633_S6Q287\6Q19243.d
 5:D:\MassHunter\Data\061223_1633_S6Q287\6Q19244.d
 6:D:\MassHunter\Data\061223_1633_S6Q287\6Q19245.d
 7:D:\MassHunter\Data\061223_1633_S6Q287\6Q19246.d
 8:D:\MassHunter\Data\061223_1633_S6Q287\6Q19247.d

Data File: 6Q19251
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.840	16.8	116.8
13C2-6:2FTS	5.000	5.782	15.6	115.6
13C2-8:2FTS	5.000	5.890	17.8	117.8
13C2-PFDoDA	1.250	1.251	0.1	100.1
13C2-PFTeDA	1.250	1.208	-3.4	96.6
13C3-PFBS	2.500	2.631	5.3	105.3
13C3-PFHxS	2.500	2.536	1.4	101.4
13C4-PFBA	10.000	10.022	0.2	100.2
13C4-PFHpA	2.500	2.453	-1.9	98.1
13C5-PFHxA	2.500	2.378	-4.9	95.1
13C5-PFPeA	5.000	4.920	-1.6	98.4
13C6-PFDA	1.250	1.222	-2.3	97.7
13C7-PFUnDA	1.250	1.324	5.9	105.9
13C8-FOSA	2.500	2.394	-4.2	95.8
13C8-PFOA	2.500	2.590	3.6	103.6
13C8-PFOS	2.500	2.204	-11.8	88.2
13C9-PFNA	1.250	1.342	7.3	107.3
4:2FTS	9.375	9.157	-2.3	97.7
6:2FTS	9.500	9.915	4.4	104.4
8:2FTS	9.600	8.506	-11.4	88.6
d3-MeFOSAA	5.000	4.516	-9.7	90.3
EtFOSAA	2.500	2.484	-0.6	99.4
FOSA	2.500	2.281	-8.8	91.2
MeFOSAA	2.500	2.564	2.6	102.6
PFBA	10.000	9.663	-3.4	96.6
PFBS	2.218	2.086	-5.9	94.1
PFDA	2.500	2.319	-7.2	92.8
PFDoDA	2.500	2.361	-5.6	94.4
PFDS	2.413	2.430	0.7	100.7
PFHpA	2.500	2.229	-10.8	89.2
PFHpS	2.383	2.528	6.1	106.1
PFHxA	2.500	2.434	-2.6	97.4
PFHxS	2.285	2.130	-6.8	93.2
PFNA	2.500	2.366	-5.3	94.7
PFNS	2.405	2.426	0.9	100.9
PFOA	2.500	2.404	-3.9	96.1
PFOS	2.320	2.235	-3.6	96.4

Continuing Calibration Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-CC287
 Lab FileID: 6Q19251.D

PFPeA	5.000	4.740	-5.2	94.8
PFPeS	2.353	2.336	-0.7	99.3
PFTeDA	2.500	2.417	-3.3	96.7
PFTTrDA	2.500	2.417	-3.3	96.7
PFUnDA	2.500	2.282	-8.7	91.3
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--		
11Cl-PF3OUdS	4.725	4.659	-1.4	98.6
13C3-HFPO-DA	10.000	9.943	-0.6	99.4
9C1-PF3ONS	4.675	4.504	-3.7	96.3
ADONA	4.725	4.155	-12.1	87.9
HFPO-DA	5.000	4.456	-10.9	89.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.617	-6.9	93.1
5:3FTCA	62.400	62.903	0.8	100.8
7:3FTCA	62.400	61.077	-2.1	97.9
d3-MeFOSA	2.500	2.084	-16.6	83.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.653	-6.9	93.1
EtFOSE	12.500	11.311	-9.5	90.5
MeFOSA	5.000	5.120	2.4	102.4
MeFOSE	12.500	12.158	-2.7	97.3
PFDoDS	2.425	2.300	-5.2	94.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.479	-10.4	89.6
d7-MeFOSE	25.000	21.074	-15.7	84.3
d9-EtFOSE	25.000	20.721	-17.1	82.9
d5-EtFOSA	2.500	2.285	-8.6	91.4
NFDHA	5.000	4.814	-3.7	96.3
PFMBA	5.000	4.717	-5.7	94.3
PFMPA	5.000	4.747	-5.1	94.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.788	7.6	107.6

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-CC287
 Lab FileID: 6Q19252.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\061223_1633_S6Q287\s6q287.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\061223_1633_S6Q287\6Q19240.d
 2:D:\MassHunter\Data\061223_1633_S6Q287\6Q19241.d
 3:D:\MassHunter\Data\061223_1633_S6Q287\6Q19242.d
 4:D:\MassHunter\Data\061223_1633_S6Q287\6Q19243.d
 5:D:\MassHunter\Data\061223_1633_S6Q287\6Q19244.d
 6:D:\MassHunter\Data\061223_1633_S6Q287\6Q19245.d
 7:D:\MassHunter\Data\061223_1633_S6Q287\6Q19246.d
 8:D:\MassHunter\Data\061223_1633_S6Q287\6Q19247.d

Data File: 6Q19252
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.675	13.5	113.5
13C2-6:2FTS	5.000	6.172	23.4	123.4
13C2-8:2FTS	5.000	5.547	10.9	110.9
13C2-PFDoDA	1.250	1.374	9.9	109.9
13C2-PFTeDA	1.250	1.327	6.1	106.1
13C3-PFBS	2.500	2.379	-4.8	95.2
13C3-PFHxS	2.500	2.508	0.3	100.3
13C4-PFBA	10.000	10.027	0.3	100.3
13C4-PFHpA	2.500	2.588	3.5	103.5
13C5-PFHxA	2.500	2.538	1.5	101.5
13C5-PFPeA	5.000	5.271	5.4	105.4
13C6-PFDA	1.250	1.475	18.0	118.0
13C7-PFUnDA	1.250	1.383	10.6	110.6
13C8-FOSA	2.500	2.557	2.3	102.3
13C8-PFOA	2.500	2.606	4.3	104.3
13C8-PFOS	2.500	2.450	-2.0	98.0
13C9-PFNA	1.250	1.281	2.5	102.5
4:2FTS	0.750	0.928	23.7	123.7
6:2FTS	0.760	0.751	-1.1	98.9
8:2FTS	0.768	0.959	24.9	124.9
d3-MeFOSAA	5.000	4.953	-0.9	99.1
EtFOSAA	0.200	0.239	19.6	119.6
FOSA	0.200	0.234	17.1	117.1
MeFOSAA	0.200	0.278	# 39.0	139.0
PFBA	0.800	0.935	16.9	116.9
PFBS	0.177	0.216	22.2	122.2
PFDA	0.200	0.224	11.9	111.9
PFDoDA	0.200	0.247	23.3	123.3
PFDS	0.193	0.281	# 45.5	145.5
PFHpA	0.200	0.233	16.7	116.7
PFHpS	0.191	0.244	27.9	127.9
PFHxA	0.200	0.234	16.8	116.8
PFHxS	0.183	0.194	5.8	105.8
PFNA	0.200	0.220	10.2	110.2
PFNS	0.192	0.238	23.8	123.8
PFOA	0.200	0.244	21.9	121.9
PFOS	0.186	0.227	22.3	122.3

Continuing Calibration Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-CC287
 Lab FileID: 6Q19252.D

PFPeA	0.400	0.472	17.9	117.9
PFPeS	0.188	0.223	18.7	118.7
PFTeDA	0.200	0.245	22.3	122.3
PFTTrDA	0.200	0.250	24.8	124.8
PFUnDA	0.200	0.239	19.7	119.7
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	0.378	0.437	15.7	115.7
13C3-HFPO-DA	10.000	10.216	2.2	102.2
9C1-PF3ONS	0.367	0.445	21.1	121.1
ADONA	0.378	0.449	18.7	118.7
HFPO-DA	0.400	0.465	16.1	116.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.131	13.3	113.3
5:3FTCA	4.992	6.257	25.3	125.3
7:3FTCA	4.992	6.062	21.4	121.4
d3-MeFOSA	2.500	2.465	-1.4	98.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.420	5.0	105.0
EtFOSE	1.000	1.126	12.6	112.6
MeFOSA	0.400	0.481	20.2	120.2
MeFOSE	1.000	1.062	6.2	106.2
PFDoDS	0.194	0.246	26.7	126.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.010	0.2	100.2
d7-MeFOSE	25.000	25.538	2.2	102.2
d9-EtFOSE	25.000	22.627	-9.5	90.5
d5-EtFOSA	2.500	2.616	4.6	104.6
NFDHA	0.400	0.459	14.8	114.8
PFMBA	0.400	0.470	17.5	117.5
PFMPA	0.400	0.460	15.0	115.0
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.485	# 36.3	136.3

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-CC287
 Lab FileID: 6Q19261.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\061223_1633_S6Q287\s6q287.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\061223_1633_S6Q287\6Q19240.d
 2:D:\MassHunter\Data\061223_1633_S6Q287\6Q19241.d
 3:D:\MassHunter\Data\061223_1633_S6Q287\6Q19242.d
 4:D:\MassHunter\Data\061223_1633_S6Q287\6Q19243.d
 5:D:\MassHunter\Data\061223_1633_S6Q287\6Q19244.d
 6:D:\MassHunter\Data\061223_1633_S6Q287\6Q19245.d
 7:D:\MassHunter\Data\061223_1633_S6Q287\6Q19246.d
 8:D:\MassHunter\Data\061223_1633_S6Q287\6Q19247.d

Data File: 6Q19261
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.459	9.2	109.2
13C2-6:2FTS	5.000	5.454	9.1	109.1
13C2-8:2FTS	5.000	4.863	-2.7	97.3
13C2-PFDoDA	1.250	1.149	-8.1	91.9
13C2-PFTeDA	1.250	1.058	-15.4	84.6
13C3-PFBS	2.500	2.502	0.1	100.1
13C3-PFHxS	2.500	2.407	-3.7	96.3
13C4-PFBA	10.000	10.049	0.5	100.5
13C4-PFHpA	2.500	2.626	5.0	105.0
13C5-PFHxA	2.500	2.372	-5.1	94.9
13C5-PFPeA	5.000	4.986	-0.3	99.7
13C6-PFDA	1.250	1.284	2.7	102.7
13C7-PFUnDA	1.250	1.174	-6.1	93.9
13C8-FOSA	2.500	2.299	-8.1	91.9
13C8-PFOA	2.500	2.339	-6.5	93.5
13C8-PFOS	2.500	2.375	-5.0	95.0
13C9-PFNA	1.250	1.226	-1.9	98.1
4:2FTS	9.375	9.422	0.5	100.5
6:2FTS	9.500	9.090	-4.3	95.7
8:2FTS	9.600	9.930	3.4	103.4
d3-MeFOSAA	5.000	5.026	0.5	100.5
EtFOSAA	2.500	2.476	-1.0	99.0
FOSA	2.500	2.365	-5.4	94.6
MeFOSAA	2.500	2.587	3.5	103.5
PFBA	10.000	9.616	-3.8	96.2
PFBS	2.218	2.115	-4.7	95.3
PFDA	2.500	2.121	-15.2	84.8
PFDoDA	2.500	2.394	-4.3	95.7
PFDS	2.413	2.402	-0.5	99.5
PFHpA	2.500	2.204	-11.8	88.2
PFHpS	2.383	2.142	-10.1	89.9
PFHxA	2.500	2.579	3.1	103.1
PFHxS	2.285	2.206	-3.5	96.5
PFNA	2.500	2.352	-5.9	94.1
PFNS	2.405	2.401	-0.2	99.8
PFOA	2.500	2.657	6.3	106.3
PFOS	2.320	2.114	-8.9	91.1

Continuing Calibration Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-CC287
 Lab FileID: 6Q19261.D

PFPeA	5.000	4.771	-4.6	95.4
PFPeS	2.353	2.282	-3.0	97.0
PFTeDA	2.500	2.520	0.8	100.8
PFTrDA	2.500	2.386	-4.6	95.4
PFUnDA	2.500	2.411	-3.5	96.5
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	4.725	4.519	-4.4	95.6
13C3-HFPO-DA	10.000	9.604	-4.0	96.0
9C1-PF3ONS	4.675	4.479	-4.2	95.8
ADONA	4.725	4.709	-0.3	99.7
HFPO-DA	5.000	4.905	-1.9	98.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.946	-4.3	95.7
5:3FTCA	62.400	66.281	6.2	106.2
7:3FTCA	62.400	59.833	-4.1	95.9
d3-MeFOSA	2.500	2.367	-5.3	94.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.807	-3.9	96.1
EtFOSE	12.500	12.316	-1.5	98.5
MeFOSA	5.000	4.706	-5.9	94.1
MeFOSE	12.500	11.779	-5.8	94.2
PFDoDS	2.425	2.306	-4.9	95.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.498	-10.0	90.0
d7-MeFOSE	25.000	21.868	-12.5	87.5
d9-EtFOSE	25.000	19.778	-20.9	79.1
d5-EtFOSA	2.500	2.329	-6.9	93.1
NFDHA	5.000	4.704	-5.9	94.1
PFMBA	5.000	4.875	-2.5	97.5
PFMPA	5.000	4.814	-3.7	96.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	5.052	13.5	113.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-CC287
 Lab FileID: 6Q19272.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\061223_1633_S6Q287\s6q287.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\061223_1633_S6Q287\6Q19240.d
 2:D:\MassHunter\Data\061223_1633_S6Q287\6Q19241.d
 3:D:\MassHunter\Data\061223_1633_S6Q287\6Q19242.d
 4:D:\MassHunter\Data\061223_1633_S6Q287\6Q19243.d
 5:D:\MassHunter\Data\061223_1633_S6Q287\6Q19244.d
 6:D:\MassHunter\Data\061223_1633_S6Q287\6Q19245.d
 7:D:\MassHunter\Data\061223_1633_S6Q287\6Q19246.d
 8:D:\MassHunter\Data\061223_1633_S6Q287\6Q19247.d

Data File: 6Q19272
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.758	-4.8	95.2
13C2-6:2FTS	5.000	5.045	0.9	100.9
13C2-8:2FTS	5.000	5.023	0.5	100.5
13C2-PFDoDA	1.250	1.214	-2.9	97.1
13C2-PFTeDA	1.250	1.136	-9.1	90.9
13C3-PFBS	2.500	2.291	-8.4	91.6
13C3-PFHxS	2.500	2.281	-8.8	91.2
13C4-PFBA	10.000	10.020	0.2	100.2
13C4-PFHpA	2.500	2.375	-5.0	95.0
13C5-PFHxA	2.500	2.457	-1.7	98.3
13C5-PFPeA	5.000	4.901	-2.0	98.0
13C6-PFDA	1.250	1.180	-5.6	94.4
13C7-PFUnDA	1.250	1.166	-6.7	93.3
13C8-FOSA	2.500	2.417	-3.3	96.7
13C8-PFOA	2.500	2.553	2.1	102.1
13C8-PFOS	2.500	2.488	-0.5	99.5
13C9-PFNA	1.250	1.308	4.7	104.7
4:2FTS	9.375	10.033	7.0	107.0
6:2FTS	9.500	8.914	-6.2	93.8
8:2FTS	9.600	9.093	-5.3	94.7
d3-MeFOSAA	5.000	4.980	-0.4	99.6
EtFOSAA	2.500	2.405	-3.8	96.2
FOSA	2.500	2.403	-3.9	96.1
MeFOSAA	2.500	2.501	0.0	100.0
PFBA	10.000	9.637	-3.6	96.4
PFBS	2.218	2.064	-7.0	93.0
PFDA	2.500	2.384	-4.6	95.4
PFDoDA	2.500	2.339	-6.5	93.5
PFDS	2.413	2.324	-3.7	96.3
PFHpA	2.500	2.326	-7.0	93.0
PFHpS	2.383	2.191	-8.1	91.9
PFHxA	2.500	2.358	-5.7	94.3
PFHxS	2.285	2.078	-9.0	91.0
PFNA	2.500	2.210	-11.6	88.4
PFNS	2.405	2.303	-4.3	95.7
PFOA	2.500	2.416	-3.4	96.6
PFOS	2.320	2.086	-10.1	89.9

Continuing Calibration Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-CC287
 Lab FileID: 6Q19272.D

PFPeA	5.000	4.765	-4.7	95.3
PFPeS	2.353	2.312	-1.7	98.3
PFTeDA	2.500	2.407	-3.7	96.3
PFTTrDA	2.500	2.368	-5.3	94.7
PFUnDA	2.500	2.655	6.2	106.2
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	4.725	4.623	-2.2	97.8
13C3-HFPO-DA	10.000	9.735	-2.7	97.3
9C1-PF3ONS	4.675	4.352	-6.9	93.1
ADONA	4.725	4.541	-3.9	96.1
HFPO-DA	5.000	4.341	-13.2	86.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.623	-6.9	93.1
5:3FTCA	62.400	59.558	-4.6	95.4
7:3FTCA	62.400	58.160	-6.8	93.2
d3-MeFOSA	2.500	2.314	-7.4	92.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.764	-4.7	95.3
EtFOSE	12.500	12.259	-1.9	98.1
MeFOSA	5.000	4.940	-1.2	98.8
MeFOSE	12.500	12.065	-3.5	96.5
PFDODS	2.425	2.258	-6.9	93.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.938	-1.2	98.8
d7-MeFOSE	25.000	21.846	-12.6	87.4
d9-EtFOSE	25.000	19.894	-20.4	79.6
d5-EtFOSA	2.500	2.353	-5.9	94.1
NFDHA	5.000	4.750	-5.0	95.0
PFMBA	5.000	4.719	-5.6	94.4
PFMPA	5.000	4.838	-3.2	96.8
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.491	0.9	100.9

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-CC287
 Lab FileID: 6Q19284.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\061223_1633_S6Q287\s6q287.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\061223_1633_S6Q287\6Q19240.d
 2:D:\MassHunter\Data\061223_1633_S6Q287\6Q19241.d
 3:D:\MassHunter\Data\061223_1633_S6Q287\6Q19242.d
 4:D:\MassHunter\Data\061223_1633_S6Q287\6Q19243.d
 5:D:\MassHunter\Data\061223_1633_S6Q287\6Q19244.d
 6:D:\MassHunter\Data\061223_1633_S6Q287\6Q19245.d
 7:D:\MassHunter\Data\061223_1633_S6Q287\6Q19246.d
 8:D:\MassHunter\Data\061223_1633_S6Q287\6Q19247.d

Data File: 6Q19284
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.995	-0.1	99.9
13C2-6:2FTS	5.000	5.481	9.6	109.6
13C2-8:2FTS	5.000	4.609	-7.8	92.2
13C2-PFDoDA	1.250	1.245	-0.4	99.6
13C2-PFTeDA	1.250	1.209	-3.3	96.7
13C3-PFBS	2.500	2.552	2.1	102.1
13C3-PFHxS	2.500	2.327	-6.9	93.1
13C4-PFBA	10.000	9.935	-0.6	99.4
13C4-PFHpA	2.500	2.450	-2.0	98.0
13C5-PFHxA	2.500	2.723	8.9	108.9
13C5-PFPeA	5.000	5.105	2.1	102.1
13C6-PFDA	1.250	1.429	14.3	114.3
13C7-PFUnDA	1.250	1.310	4.8	104.8
13C8-FOSA	2.500	2.405	-3.8	96.2
13C8-PFOA	2.500	2.668	6.7	106.7
13C8-PFOS	2.500	2.436	-2.6	97.4
13C9-PFNA	1.250	1.272	1.8	101.8
4:2FTS	9.375	9.691	3.4	103.4
6:2FTS	9.500	8.780	-7.6	92.4
8:2FTS	9.600	10.633	10.8	110.8
d3-MeFOSAA	5.000	4.675	-6.5	93.5
EtFOSAA	2.500	2.527	1.1	101.1
FOSA	2.500	2.166	-13.4	86.6
MeFOSAA	2.500	2.758	10.3	110.3
PFBA	10.000	9.675	-3.3	96.7
PFBS	2.218	2.114	-4.7	95.3
PFDA	2.500	2.141	-14.3	85.7
PFDoDA	2.500	2.548	1.9	101.9
PFDS	2.413	2.429	0.7	100.7
PFHpA	2.500	2.500	0.0	100.0
PFHpS	2.383	2.190	-8.1	91.9
PFHxA	2.500	2.111	-15.6	84.4
PFHxS	2.285	2.226	-2.6	97.4
PFNA	2.500	2.425	-3.0	97.0
PFNS	2.405	2.169	-9.8	90.2
PFOA	2.500	2.303	-7.9	92.1
PFOS	2.320	2.117	-8.7	91.3

Continuing Calibration Summary

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-CC287
 Lab FileID: 6Q19284.D

PFPeA	5.000	4.706	-5.9	94.1
PFPeS	2.353	2.458	4.5	104.5
PFTeDA	2.500	2.618	4.7	104.7
PFTrDA	2.500	2.511	0.4	100.4
PFUnDA	2.500	2.656	6.2	106.2
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	4.725	4.331	-8.3	91.7
13C3-HFPO-DA	10.000	10.069	0.7	100.7
9C1-PF3ONS	4.675	4.340	-7.2	92.8
ADONA	4.725	4.215	-10.8	89.2
HFPO-DA	5.000	4.819	-3.6	96.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.535	-7.6	92.4
5:3FTCA	62.400	55.033	-11.8	88.2
7:3FTCA	62.400	53.786	-13.8	86.2
d3-MeFOSA	2.500	2.196	-12.1	87.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.598	-8.0	92.0
EtFOSE	12.500	11.172	-10.6	89.4
MeFOSA	5.000	5.076	1.5	101.5
MeFOSE	12.500	11.367	-9.1	90.9
PFDoDS	2.425	2.260	-6.8	93.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.836	-3.3	96.7
d7-MeFOSE	25.000	21.925	-12.3	87.7
d9-EtFOSE	25.000	20.345	-18.6	81.4
d5-EtFOSA	2.500	2.440	-2.4	97.6
NFDHA	5.000	4.115	-17.7	82.3
PFMBA	5.000	4.647	-7.1	92.9
PFMPA	5.000	4.715	-5.7	94.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.254	-4.4	95.6

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC6651
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q287	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q287-RT	6Q19237.D	06/12/23 15:06	n/a	Retention Time Marker
S6Q287-RT	6Q19238.D	06/12/23 15:20	n/a	Retention Time Marker
S6Q287-IC287	6Q19239.D	06/12/23 15:34	n/a	Mass Calibration Verification
S6Q287-IC287	6Q19240.D	06/12/23 15:48	n/a	Initial cal 1
S6Q287-IC287	6Q19241.D	06/12/23 16:02	n/a	Initial cal 2
S6Q287-IC287	6Q19242.D	06/12/23 16:16	n/a	Initial cal 3
S6Q287-ICC287	6Q19243.D	06/12/23 16:30	n/a	Initial cal 4
S6Q287-IC287	6Q19244.D	06/12/23 16:44	n/a	Initial cal 5
S6Q287-IC287	6Q19245.D	06/12/23 16:58	n/a	Initial cal 6
S6Q287-IC287	6Q19246.D	06/12/23 17:12	n/a	Initial cal 7
S6Q287-IC287	6Q19247.D	06/12/23 17:26	n/a	Initial cal 8
S6Q287-IBLK	6Q19248.D	06/12/23 17:40	n/a	Instrument Blank
S6Q287-IBLK	6Q19248.D	06/12/23 17:40	n/a	Instrument Blank
S6Q287-ICV287	6Q19249.D	06/12/23 17:54	n/a	Initial cal verification 4
S6Q287-ICV287	6Q19250.D	06/12/23 18:08	n/a	Initial cal verification 20
S6Q287-CC287	6Q19251.D	06/12/23 18:22	n/a	Continuing cal 4
S6Q287-CC287	6Q19252.D	06/12/23 18:36	n/a	Continuing cal 1.0LL
ZZZZZZ	6Q19253.D	06/12/23 18:50	OP97120	(unrelated sample)
FC6342-11	6Q19254.D	06/12/23 19:04	OP97215	(used for QC only; not part of job FC6651)
OP97215-DUP	6Q19255.D	06/12/23 19:18	OP97215	Duplicate
ZZZZZZ	6Q19256.D	06/12/23 19:32	OP97160	(unrelated sample)
JD66240-1	6Q19257.D	06/12/23 19:46	OP97160	(used for QC only; not part of job FC6651)
ZZZZZZ	6Q19258.D	06/12/23 20:00	OP97160	(unrelated sample)
FC6342-10	6Q19259.D	06/12/23 20:14	OP97215	(used for QC only; not part of job FC6651)
OP97215-MS	6Q19260.D	06/12/23 20:28	OP97215	Matrix Spike
S6Q287-CC287	6Q19261.D	06/12/23 20:42	n/a	Continuing cal 4
S6Q287-ICCB	6Q19262.D	06/12/23 20:56	n/a	Continuing Calibration Blank
S6Q287-ICCB	6Q19262.D	06/12/23 20:56	n/a	Continuing Calibration Blank
OP97275-BS	6Q19263.D	06/12/23 21:10	OP97275	Blank Spike
OP97275-LLBS	6Q19264.D	06/12/23 21:24	OP97275	Blank Spike
OP97275-MB	6Q19265.D	06/12/23 21:37	OP97275	Method Blank
ZZZZZZ	6Q19266.D	06/12/23 21:51	OP97275	(unrelated sample)
ZZZZZZ	6Q19267.D	06/12/23 22:05	OP97275	(unrelated sample)
FC6649-1	6Q19268.D	06/12/23 22:19	OP97275	(used for QC only; not part of job FC6651)
OP97275-MS	6Q19269.D	06/12/23 22:33	OP97275	Matrix Spike
ZZZZZZ	6Q19270.D	06/12/23 22:47	OP97275	(unrelated sample)
ZZZZZZ	6Q19271.D	06/12/23 23:01	OP97275	(unrelated sample)
S6Q287-CC287	6Q19272.D	06/12/23 23:15	n/a	Continuing cal 4
S6Q287-ICCB	6Q19273.D	06/12/23 23:29	n/a	Continuing Calibration Blank
FC6649-4	6Q19274.D	06/12/23 23:43	OP97275	(used for QC only; not part of job FC6651)
OP97275-DUP	6Q19275.D	06/12/23 23:57	OP97275	Duplicate
ZZZZZZ	6Q19276.D	06/13/23 00:11	OP97275	(unrelated sample)
ZZZZZZ	6Q19277.D	06/13/23 00:25	OP97275	(unrelated sample)
FC6651-1	6Q19278.D	06/13/23 00:39	OP97275	AF-RHMW17S-WGN01LF-2305W5
FC6651-2	6Q19279.D	06/13/23 00:53	OP97275	AF-RHMW17S-WQEB01-2305W5
FC6651-3	6Q19280.D	06/13/23 01:07	OP97275	AF-RHMW02-WGN01LF-2305W5

Run Sequence Report

Job Number: FC6651
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q287	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
FC6651-4	6Q19281.D	06/13/23 01:21	OP97275	AF-RHMW17-WGN01LF-2305W5
FC6651-5	6Q19282.D	06/13/23 01:35	OP97275	AF-RHMW03-WGN01LF-2305W5
ZZZZZZ	6Q19283.D	06/13/23 01:49	OP97275	(unrelated sample)
S6Q287-CC287	6Q19284.D	06/13/23 02:03	n/a	Continuing cal 4
S6Q287-ICCB	6Q19285.D	06/13/23 02:17	n/a	Continuing Calibration Blank
ZZZZZZ	6Q19286.D	06/13/23 02:31	OP97275	(unrelated sample)
ZZZZZZ	6Q19287.D	06/13/23 02:45	OP97275	(unrelated sample)
S6Q287-ECC287	6Q19288.D	06/13/23 02:59	n/a	Ending cal 4
S6Q287-ICCB	6Q19289.D	06/13/23 03:13	n/a	Continuing Calibration Blank

6.10.1

6

MS Semi-volatiles

Raw Data

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Natasha Gumtie
 06/13/23 13:43

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19278.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/13/2023 12:39:45 AM
 Sample Name : FC6651-1
 Vial : P2-C5
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97275,S6Q287,560,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	75522	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	47315	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	57679	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	52215	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	83196	2.50 µg/L	0.012
M9-PFNA	7.882	472.1 -> 427.0	37792	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	21007	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	26662	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	21273	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	9526	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	26271	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	19422	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	13271	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	10589	2.50 µg/L	0.012
M2-4:2FTS	5.442	329.1 -> 80.9	2555	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	3668	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	3549	5.00 µg/L	0.000
M3-MeFOSAA	8.420	573.2 -> 419.0	27776	5.00 µg/L	0.012
M3-HFPO-DA	6.169	286.9 -> 168.9	33382	10.00 µg/L	0.000
M5-EtFOSAA	8.628	589.2 -> 419.0	22704	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	92510	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	110231	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	9386	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	9587	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	13470	2.50 µg/L	0.000
13C3-PFBA	3.101	216.0 -> 172.0	49189	5.00 µg/L	0.012
18O2-PFHxS	7.477	403.0 -> 83.9	8407	2.50 µg/L	0.000
13C4-PFOA	7.340	417.1 -> 372.0	77344	2.50 µg/L	0.000
13C2-PFDA	8.388	515.1 -> 470.1	26988	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	38719	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	44087	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	2555	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C2-6:2FTS	7.113	429.1 -> 80.9	3668	4.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.3%		
13C2-8:2FTS	8.163	529.1 -> 80.9	3549	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.2%		
13C2-PFDoDA	9.297	615.1 -> 570.0	21273	1.18 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.4%		
13C2-PFTeDA	10.012	715.2 -> 670.0	9526	0.91 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 72.8%		
13C3-PFBS	5.746	302.1 -> 79.9	19422	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.3%		
13C3-PFHxS	7.478	402.1 -> 79.9	13271	2.97 µg/L	0.000

7.1.1
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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 = 118.9%		
13C4-PFBA	3.097	216.8 -> 171.9	75522	6.54 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 65.4%		
13C4-PFHpA	6.707	367.1 -> 322.0	52215	2.95 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 117.9%		
13C5-PFHxA	5.792	318.0 -> 273.0	57679	3.03 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 121.0%		
13C5-PFPeA	4.560	268.3 -> 223.0	47315	5.55 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.1%		
13C6-PFDA	8.387	519.1 -> 474.1	21007	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 112.8%		
13C7-PFUnDA	8.866	570.0 -> 525.1	26662	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C8-FOSA	9.674	506.1 -> 77.8	26271	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C8-PFOA	7.352	421.1 -> 376.0	83196	2.88 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 115.3%		
13C8-PFOS	8.575	507.1 -> 79.9	10589	2.68 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.4%		
13C9-PFNA	7.882	472.1 -> 427.0	37792	1.60 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 128.0%		
d3-MeFOSAA	8.420	573.2 -> 419.0	27776	5.50 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.9%		
13C3-HFPO-DA	6.169	286.9 -> 168.9	33382	11.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 110.5%		
d3-MeFOSA	10.775	515.0 -> 219.0	9587	2.14 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 85.6%		
d5-EtFOSAA	8.628	589.2 -> 419.0	22704	5.33 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.5%		
d7-MeFOSE	10.685	623.2 -> 58.9	92510	18.71 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 74.9%		
d9-EtFOSE	10.930	639.2 -> 58.9	110231	17.85 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 71.4%		
d5-EtFOSA	10.996	531.1 -> 219.0	9386	2.16 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 86.5%		

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	7.113	427.1 -> 407.0 427.1 -> 80.9	1578 568	0.36 µg/L	99
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	2.993	212.8 -> 168.9	0	µg/L m	1
PFBS	5.747	298.7 -> 79.9 298.7 -> 98.8	538 191	0.06 µg/L	98
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	9.261	613.1 -> 569.0 613.1 -> 319.0	0 0	µg/L m	1
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.708	599.0 -> 98.8				
		363.1 -> 319.0	2435	0.09	µg/L	98
PFHpS	-	363.1 -> 169.0	410			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.795	449.0 -> 98.9				
		313.0 -> 269.0	4790	0.21	µg/L	99
PFHxS	7.479	313.0 -> 118.9	267			
		398.7 -> 79.9	374	0.05	µg/L	m
PFNA	8.368	398.7 -> 98.9	151			
		463.0 -> 419.0	0		µg/L	m
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	7.353	548.8 -> 98.9				
		413.0 -> 369.0	6573	0.15	µg/L	m
PFOS	8.564	413.0 -> 169.0	1021			
		498.9 -> 79.9	727	0.12	µg/L	m
PFPeA	4.601	498.9 -> 98.8	345			
		263.0 -> 219.0	20785	1.49	µg/L	100
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		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				

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

7.1.1
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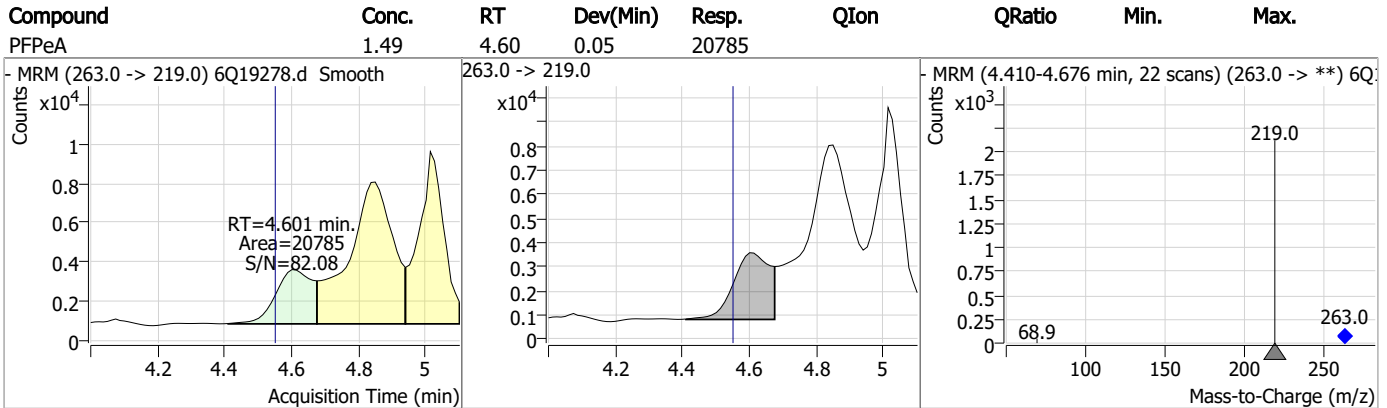
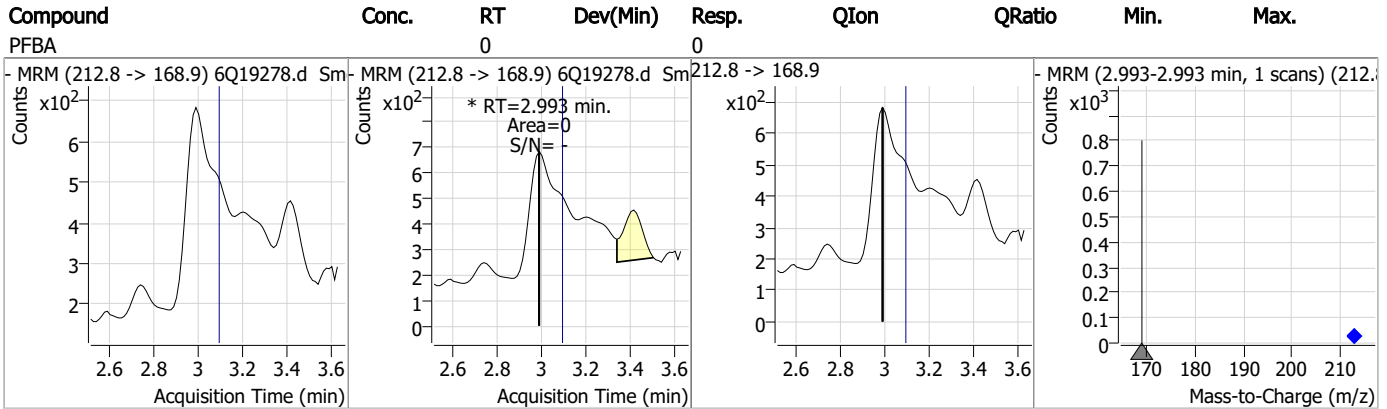
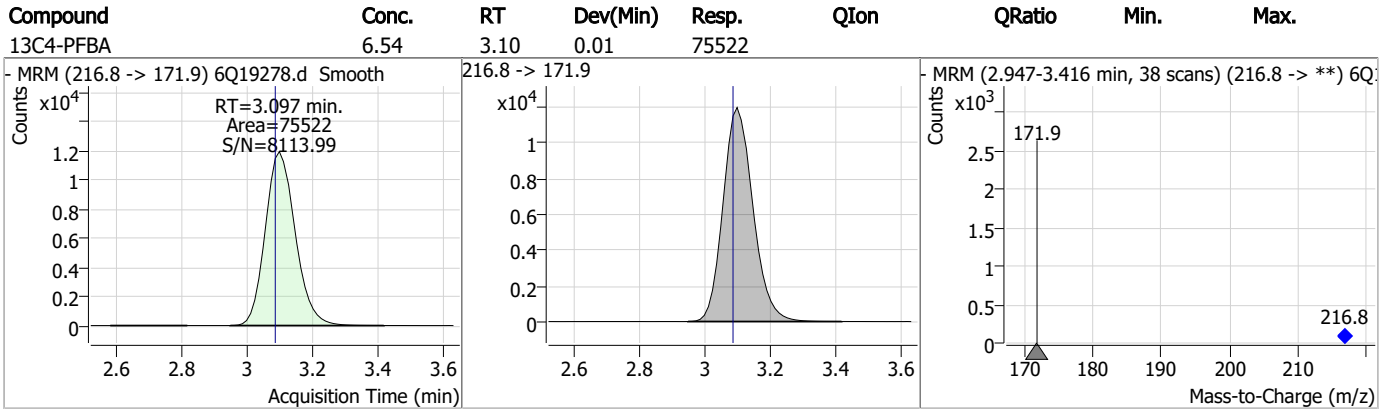
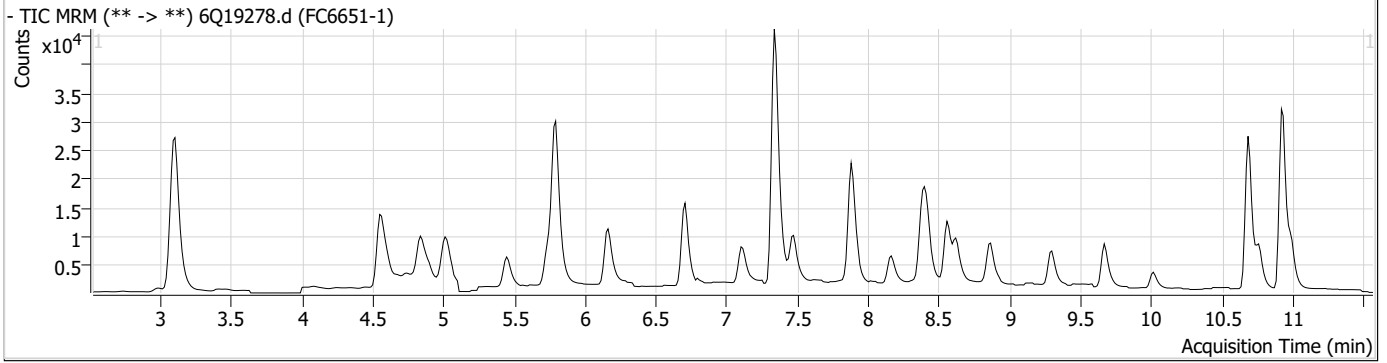
Perfluorinated Compounds by LC/MS/MS

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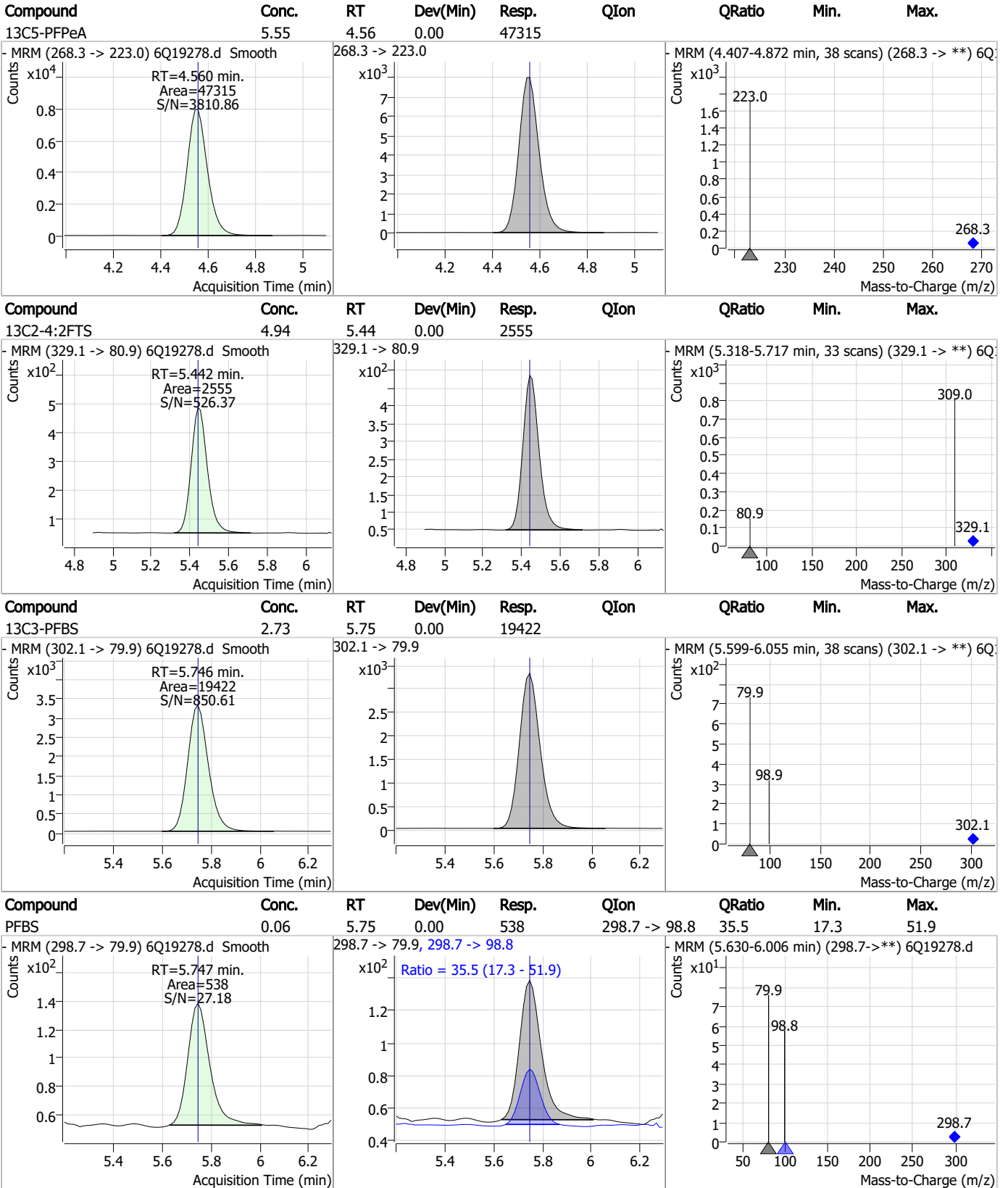
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Perfluorinated Compounds by LC/MS/MS



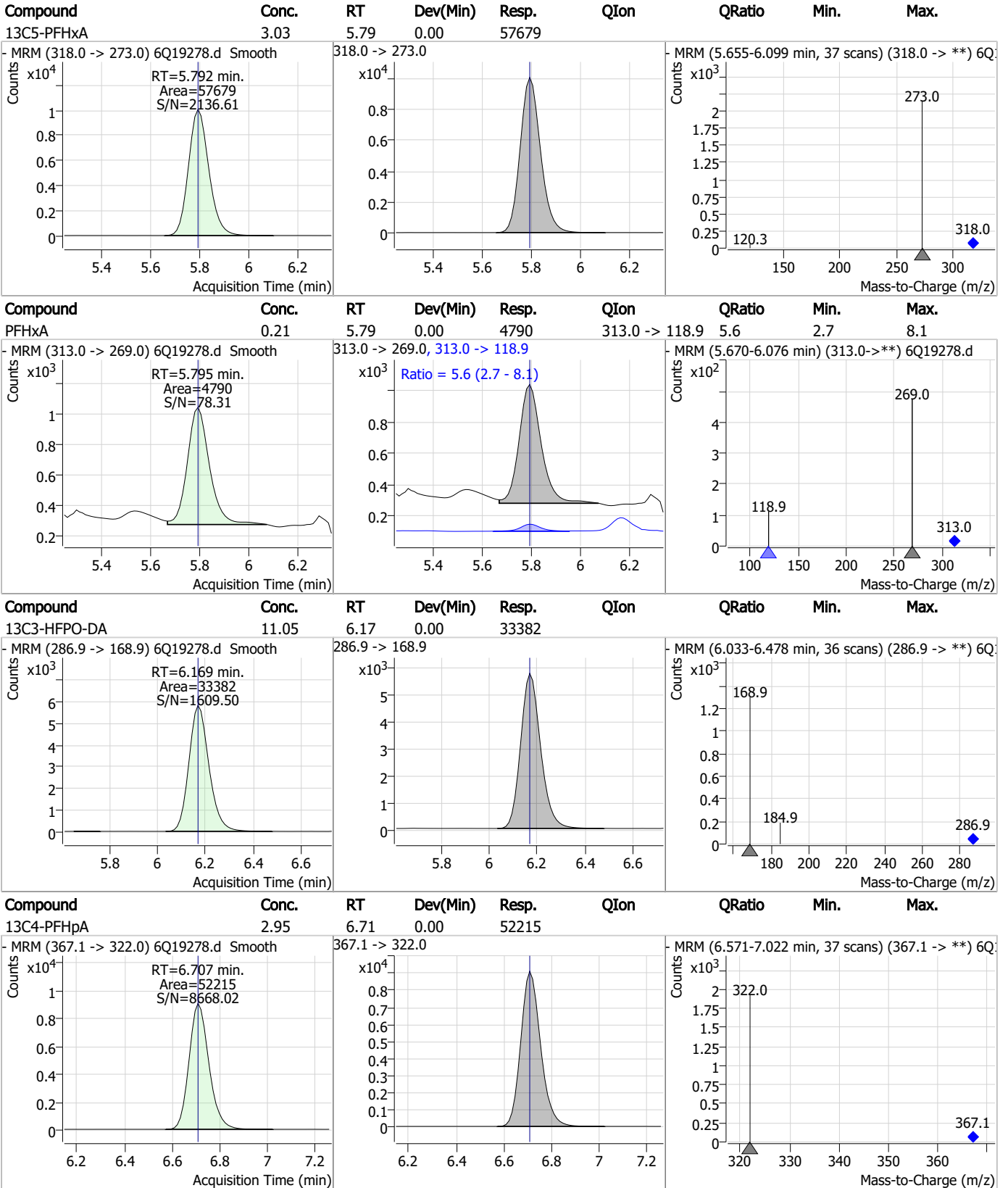
Perfluorinated Compounds by LC/MS/MS



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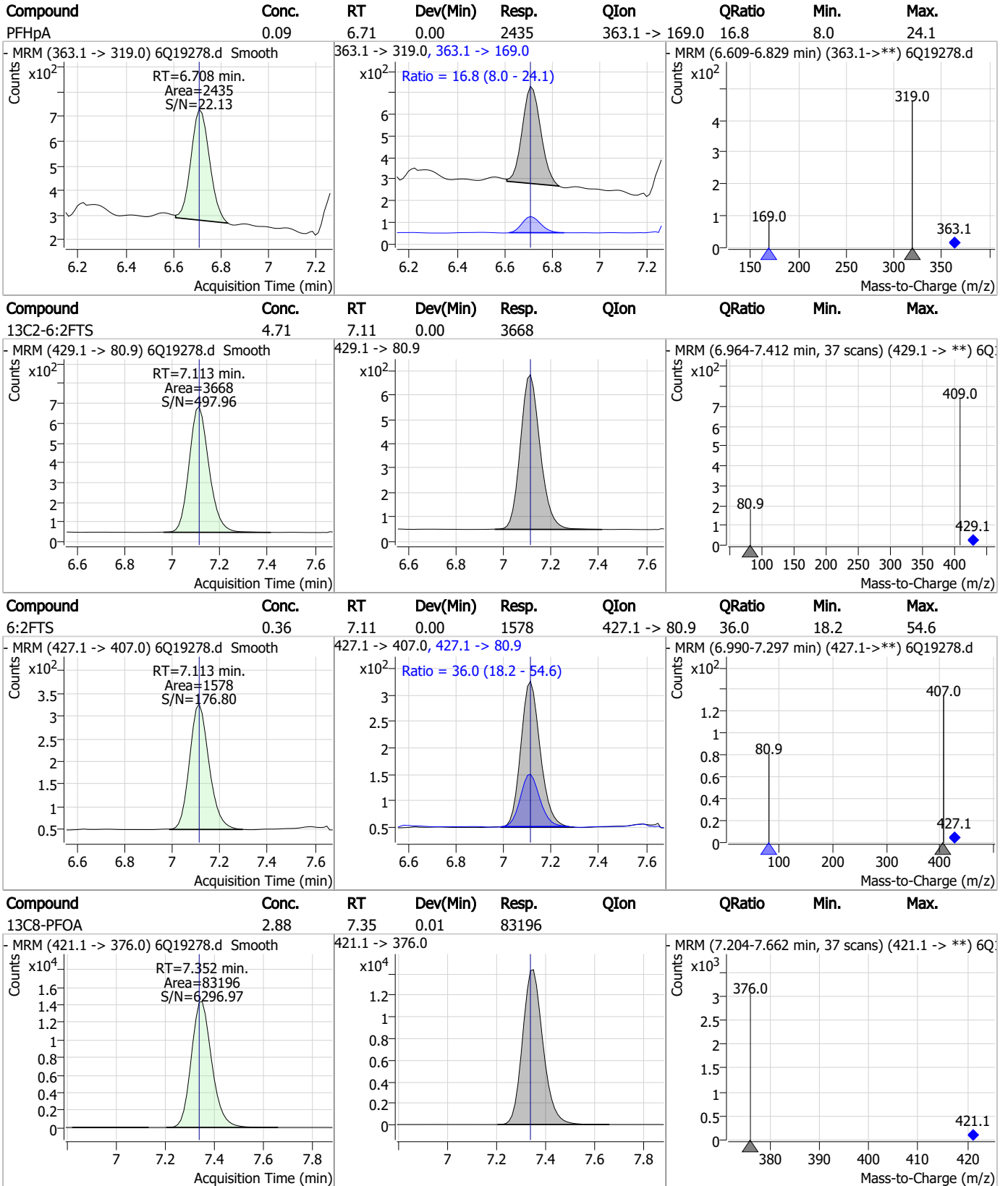


Perfluorinated Compounds by LC/MS/MS



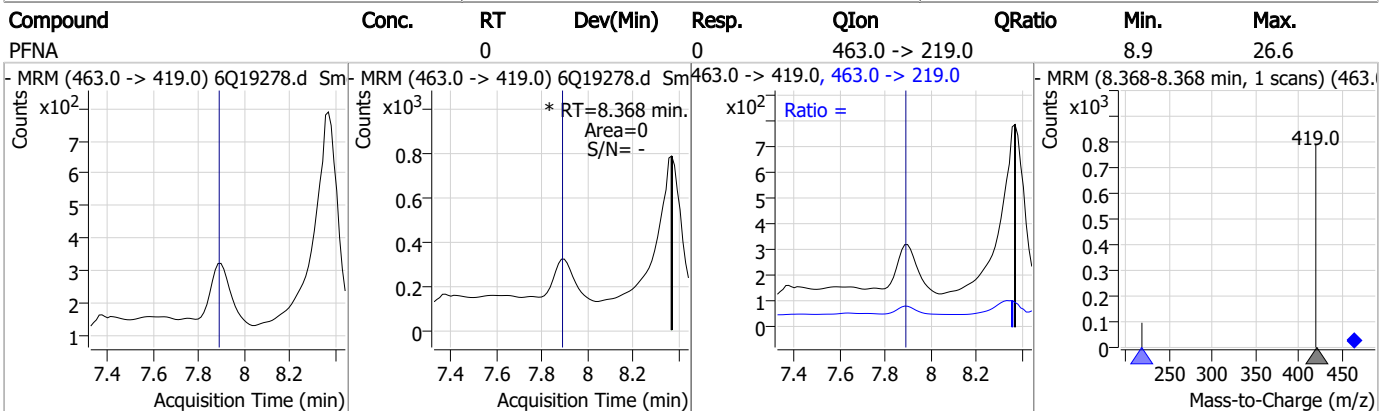
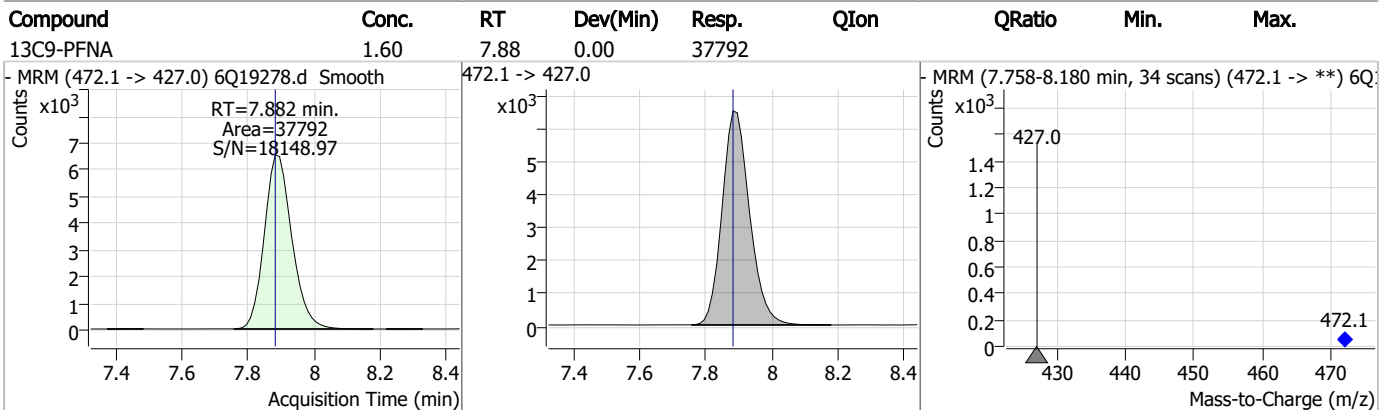
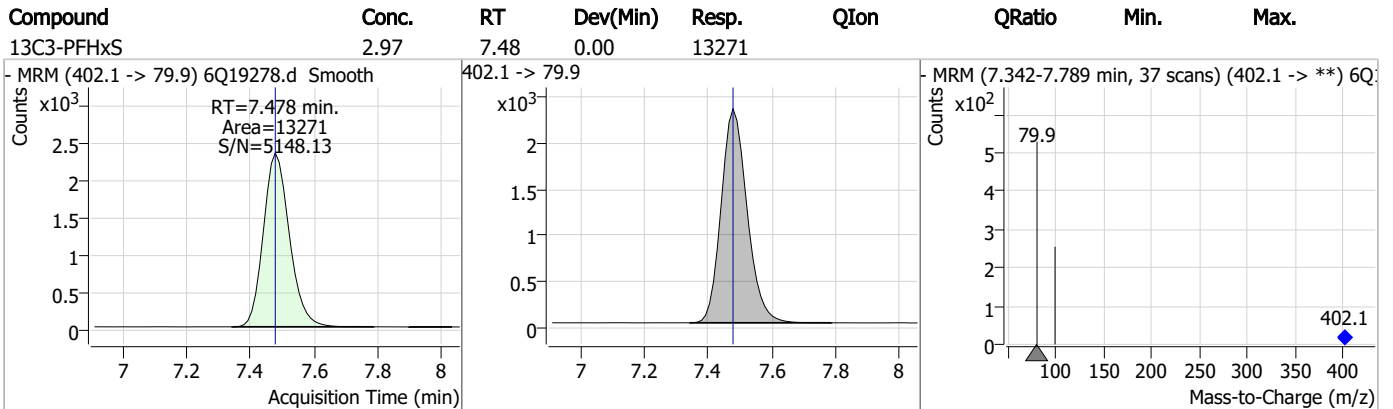
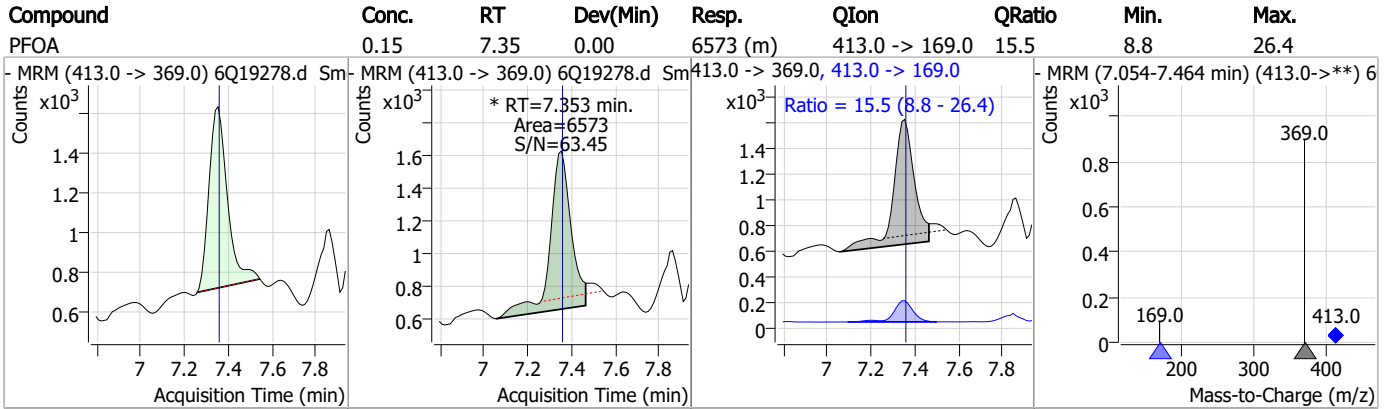
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Perfluorinated Compounds by LC/MS/MS

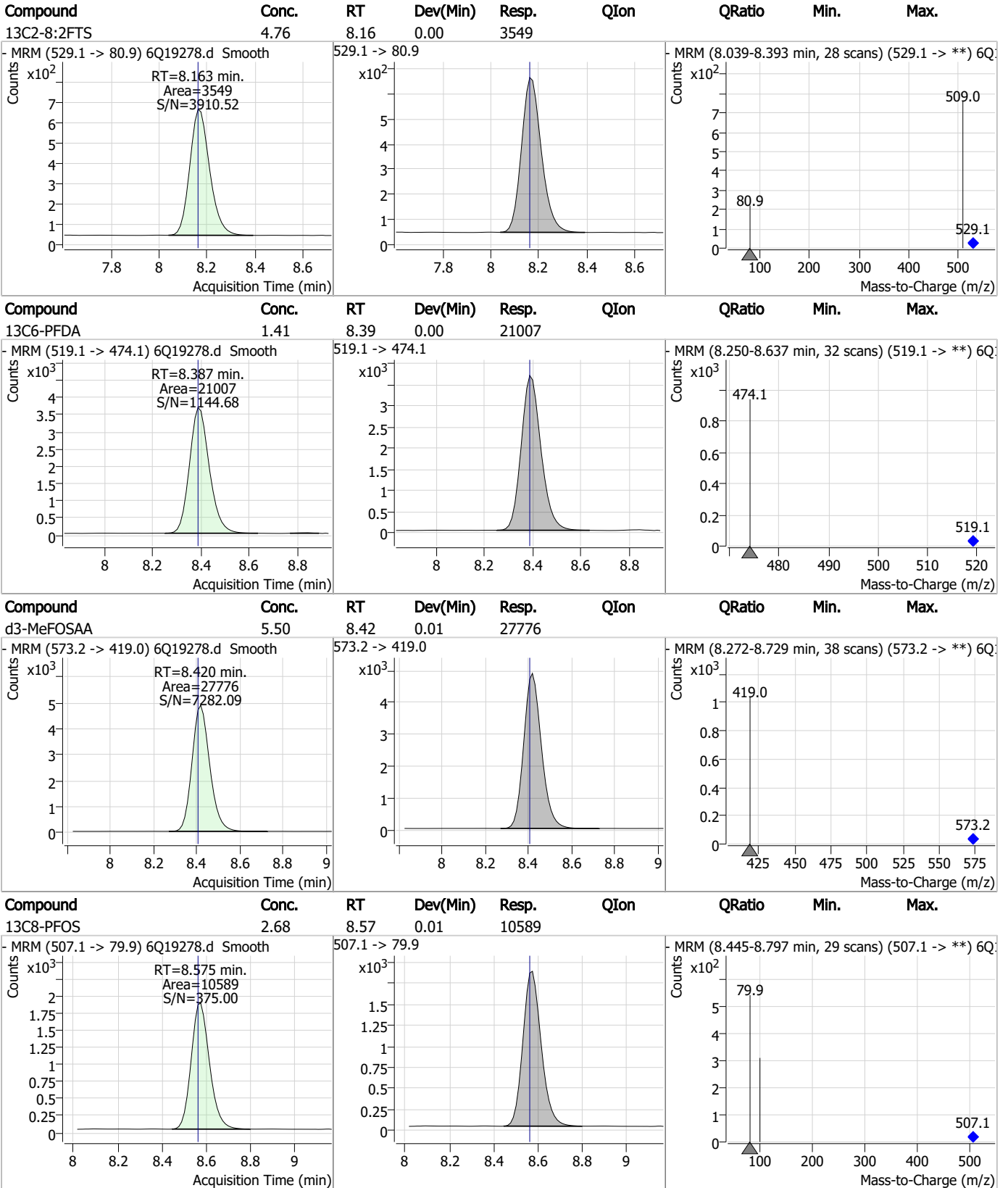


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Perfluorinated Compounds by LC/MS/MS

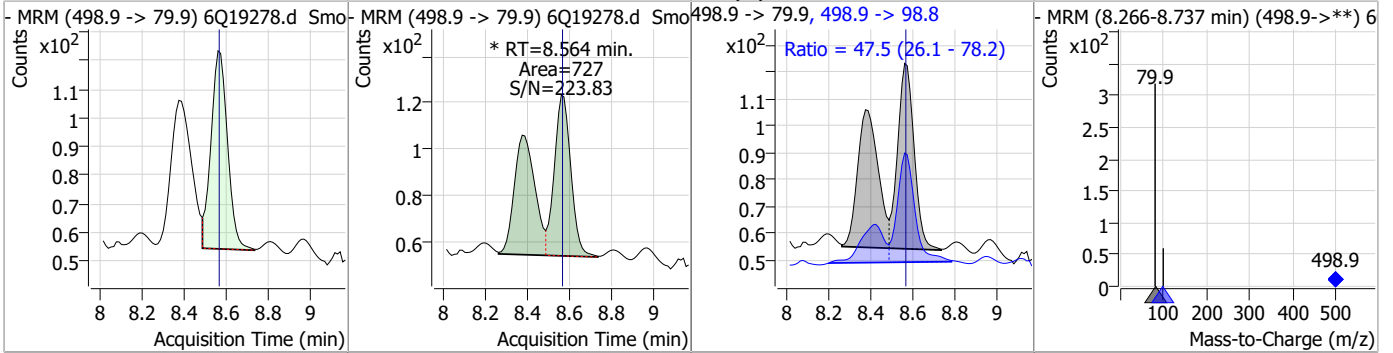


Perfluorinated Compounds by LC/MS/MS

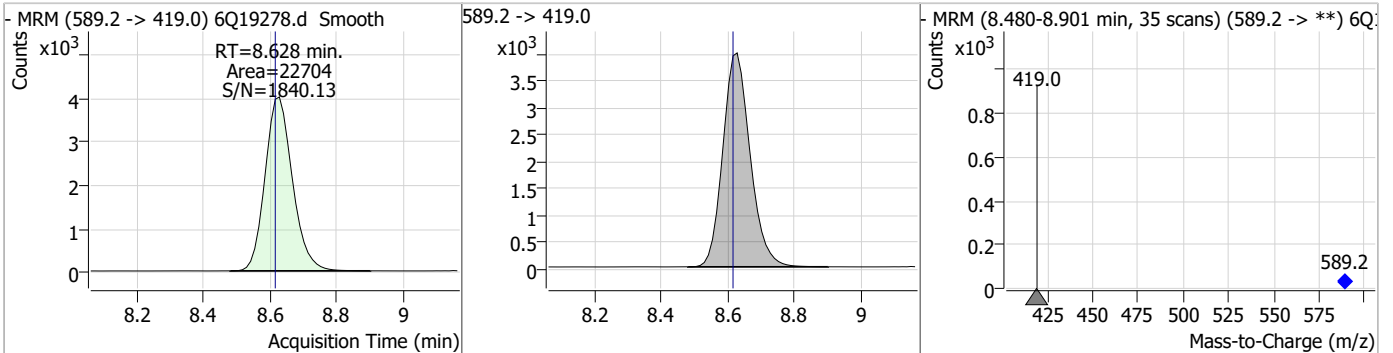


Perfluorinated Compounds by LC/MS/MS

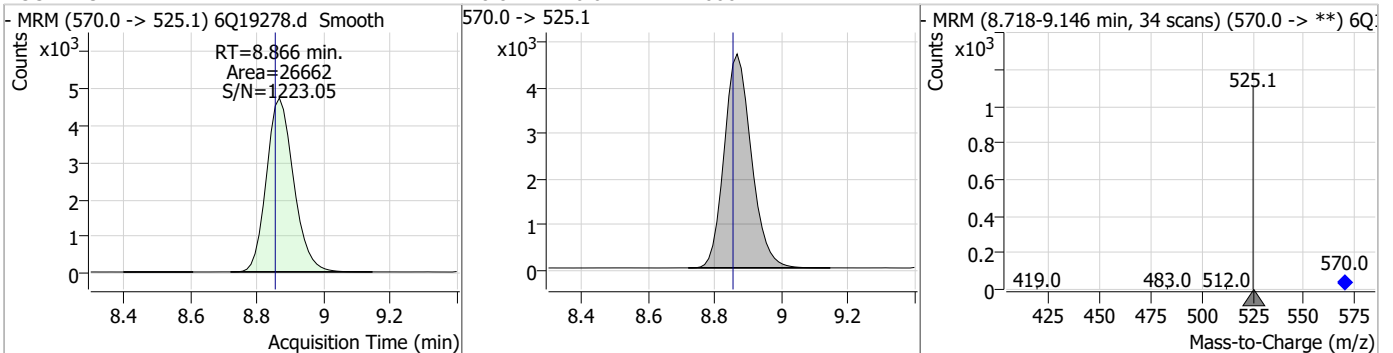
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.12	8.56	0.00	727 (m)	498.9 -> 98.8	47.5	26.1	78.2



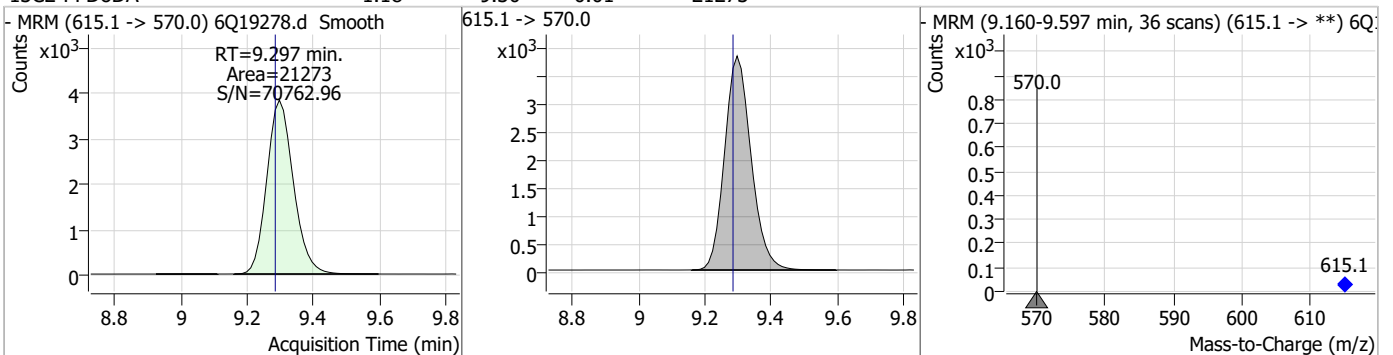
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.33	8.63	0.01	22704				



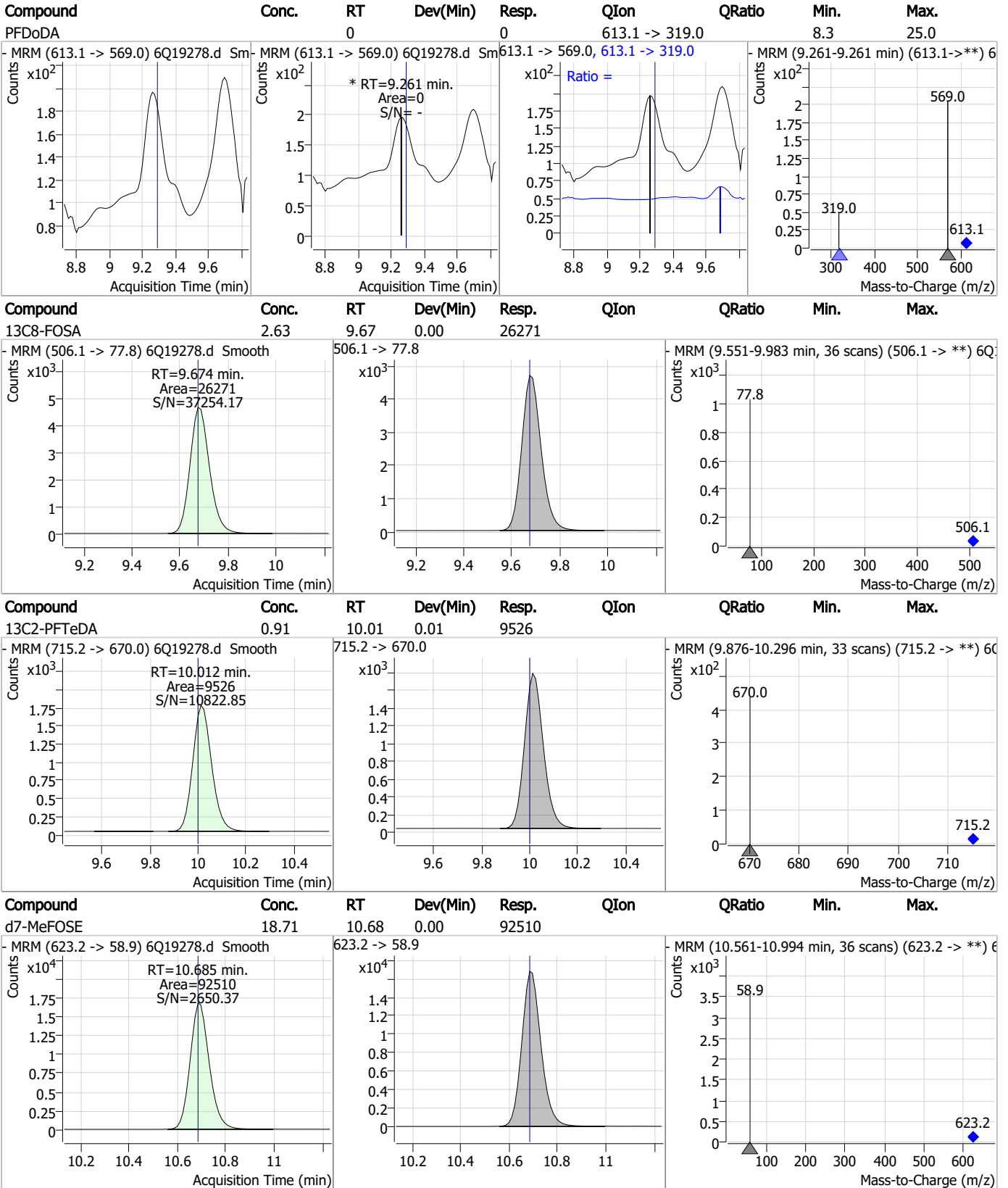
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.27	8.87	0.01	26662				



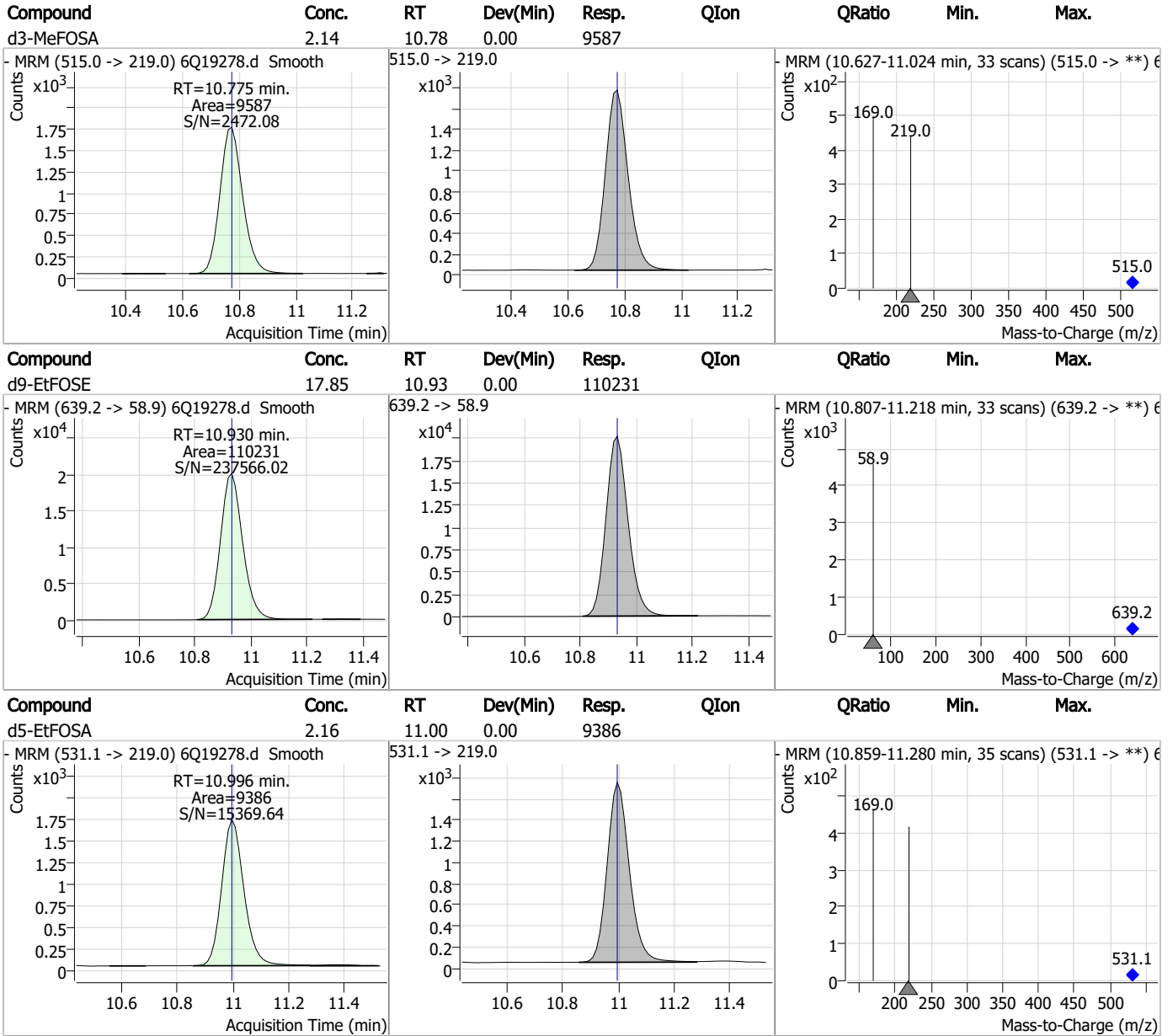
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.18	9.30	0.01	21273				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.1

7

Manual Integration Approval Summary

Sample Number: FC6651-1 Method: EPA DRAFT 1633
Lab FileID: 6Q19278.D Analyst approved: 06/13/23 11:44 Martha Valls
Injection Time: 06/13/23 00:39 Supervisor approved: 06/13/23 13:43 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.35	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak

7.1.1.1

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Perfluorinated Compounds by LC/MS/MS

```

Data File       : 6Q19279.d
Operator        : marthav
Acq. Method     : 1633full.m
Acq. Date-Time  : 6/13/2023 12:53:44 AM
Sample Name     : FC6651-2
Vial            : P2-C6
DA Method File  : 1633_061223_S6Q287.quantmethod.xml
Batch Name      : s6q287.batch.bin
Sample Information : OP97275,S6Q287,520,,,,5.0,1,water
    
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Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	158167	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	51592	5.00 µg/L	0.000
M5-PFHxA	5.804	318.0 -> 273.0	58838	2.50 µg/L	0.012
M4-PFHpA	6.707	367.1 -> 322.0	52157	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	80845	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	37673	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	22911	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	27636	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	22905	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	12631	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	25385	2.50 µg/L	0.000
M3-PFBS	5.759	302.1 -> 79.9	19894	2.50 µg/L	0.012
M3-PFHxS	7.478	402.1 -> 79.9	12452	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	11340	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	3520	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	5072	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4016	5.00 µg/L	0.000
M3-MeFOSAA	8.420	573.2 -> 419.0	27475	5.00 µg/L	0.012
M3-HFPO-DA	6.181	286.9 -> 168.9	34731	10.00 µg/L	0.012
M5-EtFOSAA	8.628	589.2 -> 419.0	21901	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	99266	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	132365	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	10727	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	10817	2.50 µg/L	0.000
13C4-PFOS	8.576	502.8 -> 79.9	14373	2.50 µg/L	0.012
13C3-PFBA	3.101	216.0 -> 172.0	57651	5.00 µg/L	0.012
18O2-PFHxS	7.477	403.0 -> 83.9	8482	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	78578	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	27161	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	41826	1.25 µg/L	0.013
13C2-PFHxA	5.805	315.1 -> 270.0	44683	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3520	6.74 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 134.8%		
13C2-6:2FTS	7.113	429.1 -> 80.9	5072	6.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.2%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4016	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C2-PFDoDA	9.297	615.1 -> 570.0	22905	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-PFTeDA	10.012	715.2 -> 670.0	12631	1.20 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C3-PFBS	5.759	302.1 -> 79.9	19894	2.78 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.0%		
13C3-PFHxS	7.478	402.1 -> 79.9	12452	2.77 µg/L	0.000

7.12
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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 = 110.6%	
13C4-PFBA	3.097	216.8 -> 171.9	158167	11.68 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 116.8%	
13C4-PFHpA	6.707	367.1 -> 322.0	52157	2.90 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.2%	
13C5-PFHxA	5.804	318.0 -> 273.0	58838	3.05 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 121.8%	
13C5-PFPeA	4.560	268.3 -> 223.0	51592	5.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 119.5%	
13C6-PFDA	8.387	519.1 -> 474.1	22911	1.53 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 122.3%	
13C7-PFUnDA	8.866	570.0 -> 525.1	27636	1.31 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C8-FOSA	9.674	506.1 -> 77.8	25385	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C8-PFOA	7.352	421.1 -> 376.0	80845	2.76 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.3%	
13C8-PFOS	8.575	507.1 -> 79.9	11340	2.69 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C9-PFNA	7.895	472.1 -> 427.0	37673	1.48 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 118.1%	
d3-MeFOSAA	8.420	573.2 -> 419.0	27475	5.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C3-HFPO-DA	6.181	286.9 -> 168.9	34731	11.34 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.4%	
d3-MeFOSA	10.775	515.0 -> 219.0	10817	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.6%	
d5-EtFOSAA	8.628	589.2 -> 419.0	21901	4.82 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d7-MeFOSE	10.685	623.2 -> 58.9	99266	18.82 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.3%	
d9-EtFOSE	10.930	639.2 -> 58.9	132365	20.09 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.4%	
d5-EtFOSA	10.996	531.1 -> 219.0	10727	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.7%	

7.12
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	9.697	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	-	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	7.849	548.8 -> 98.9	0	µg/L	m	1
		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

7.12
7



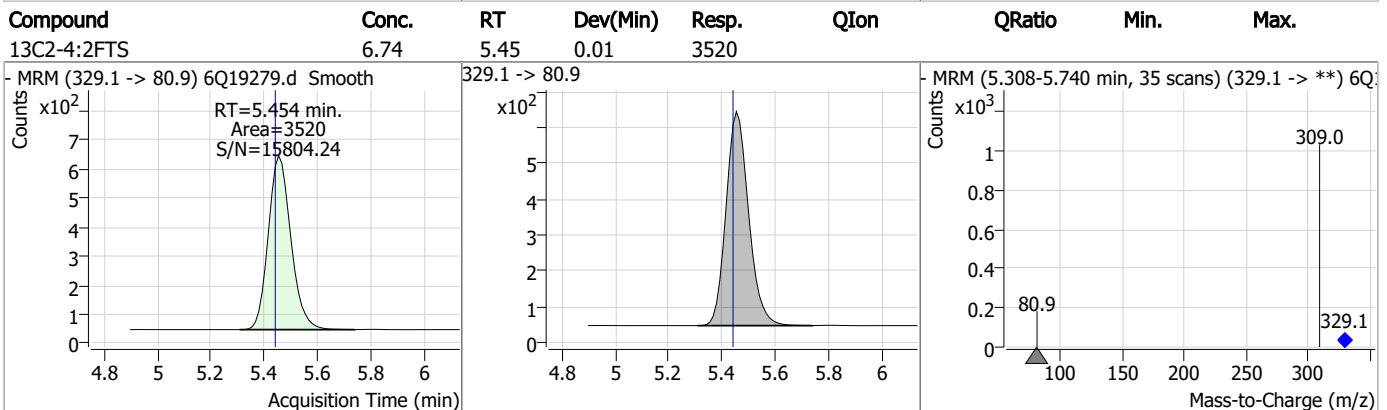
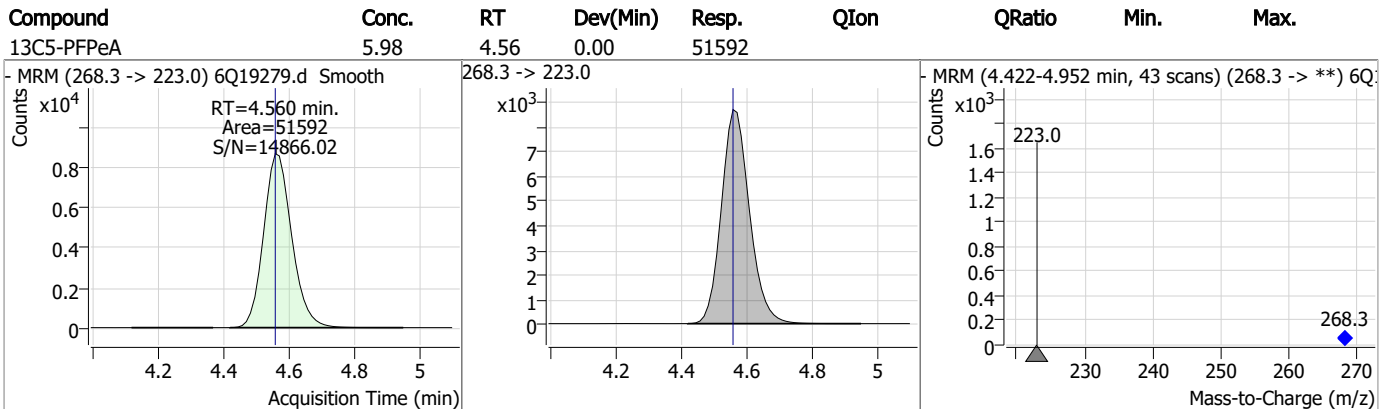
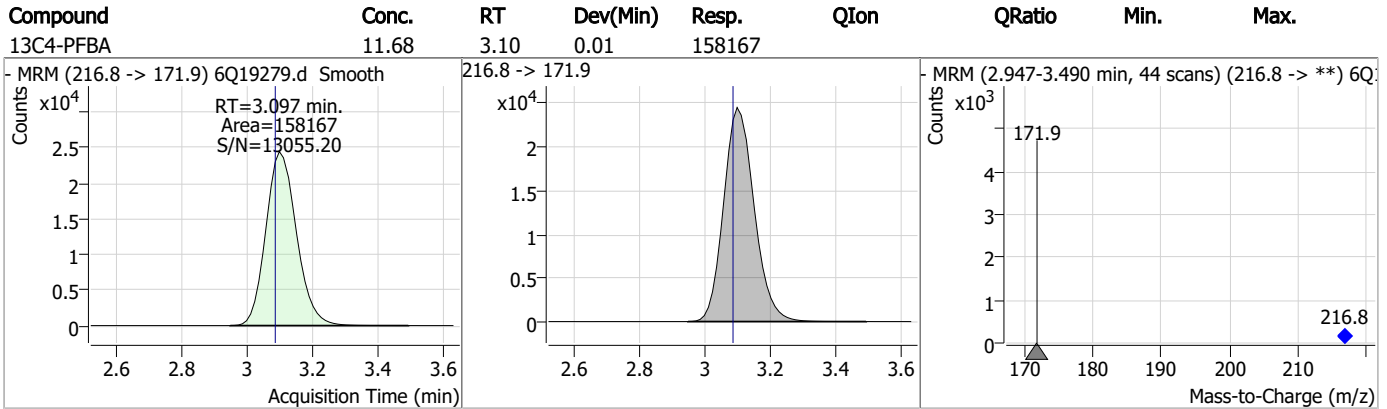
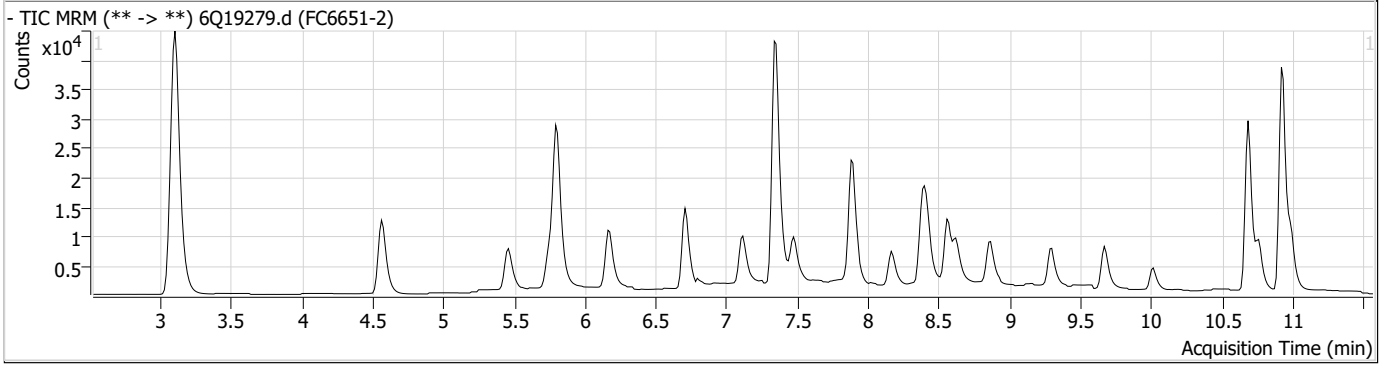
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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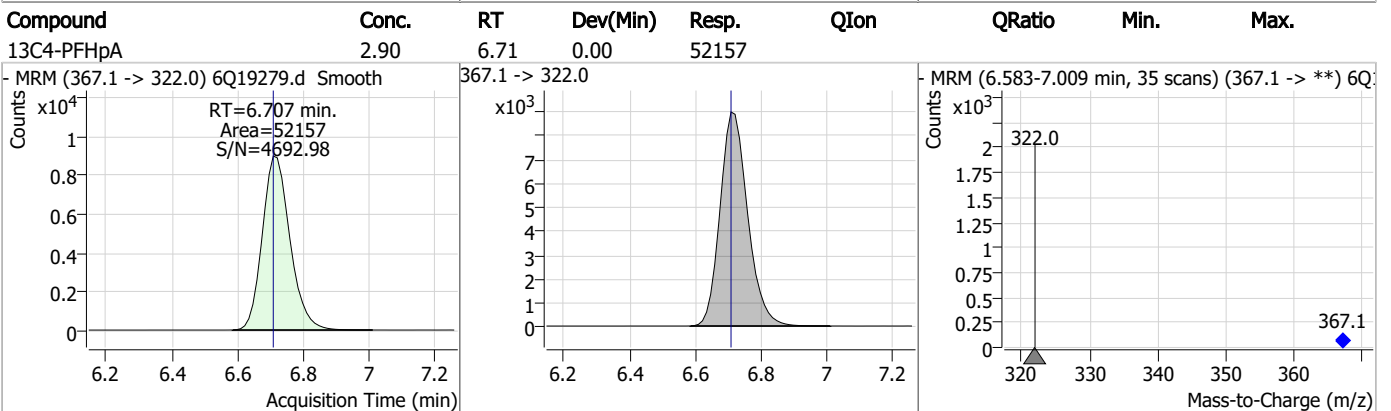
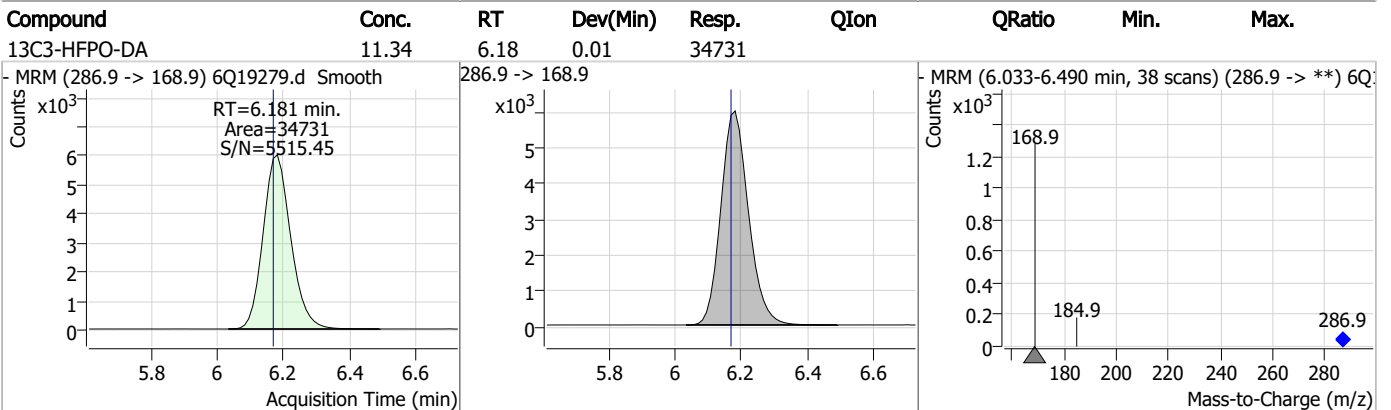
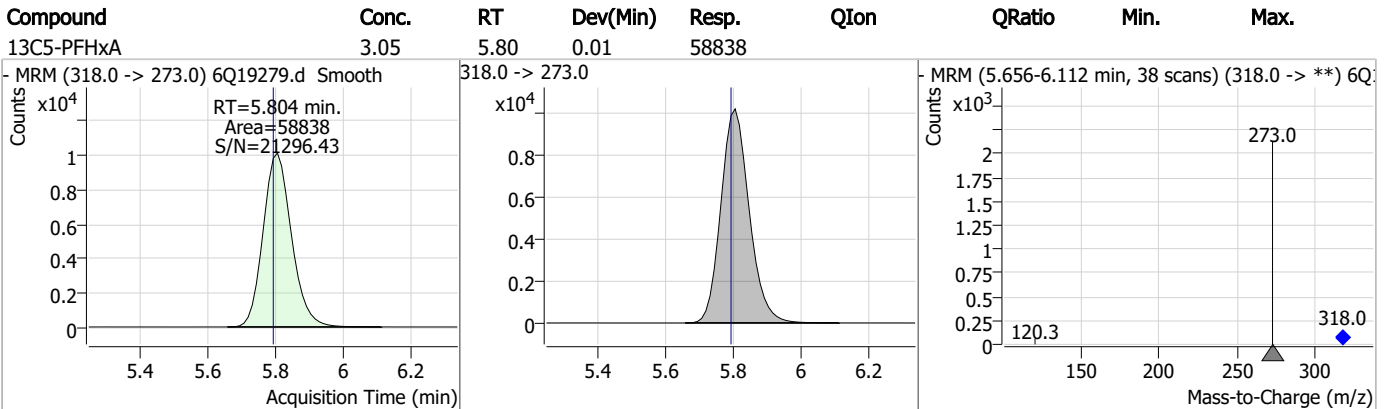
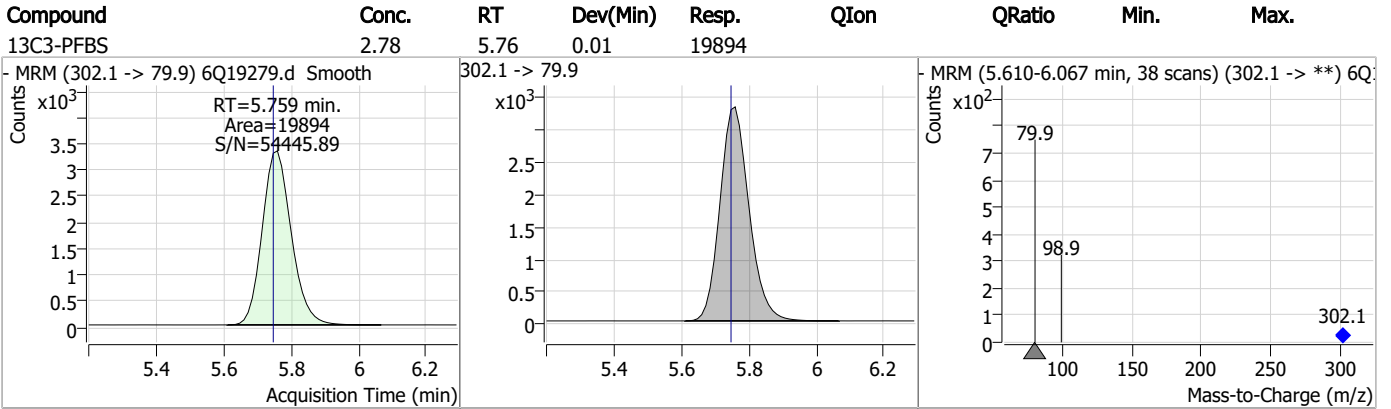
7.12
7



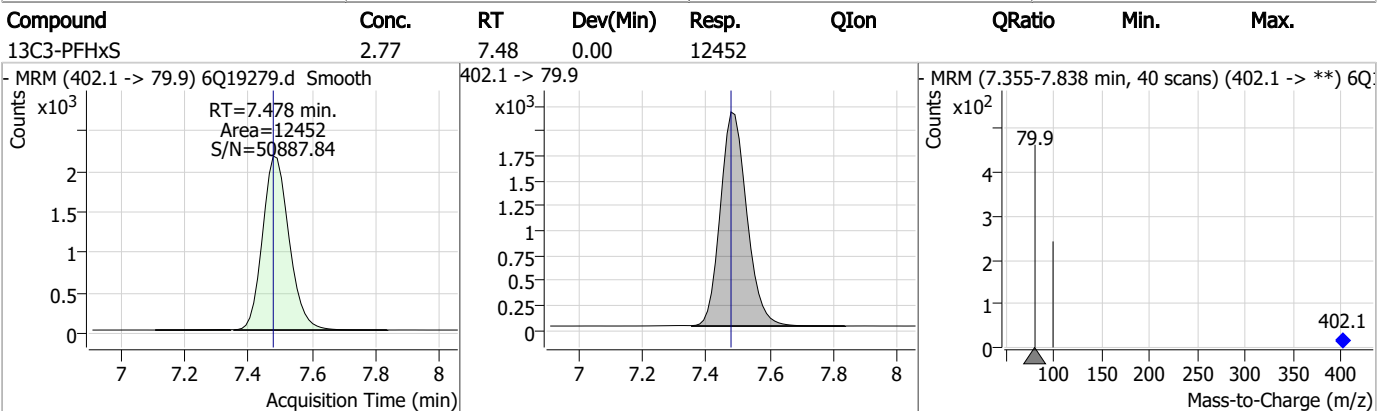
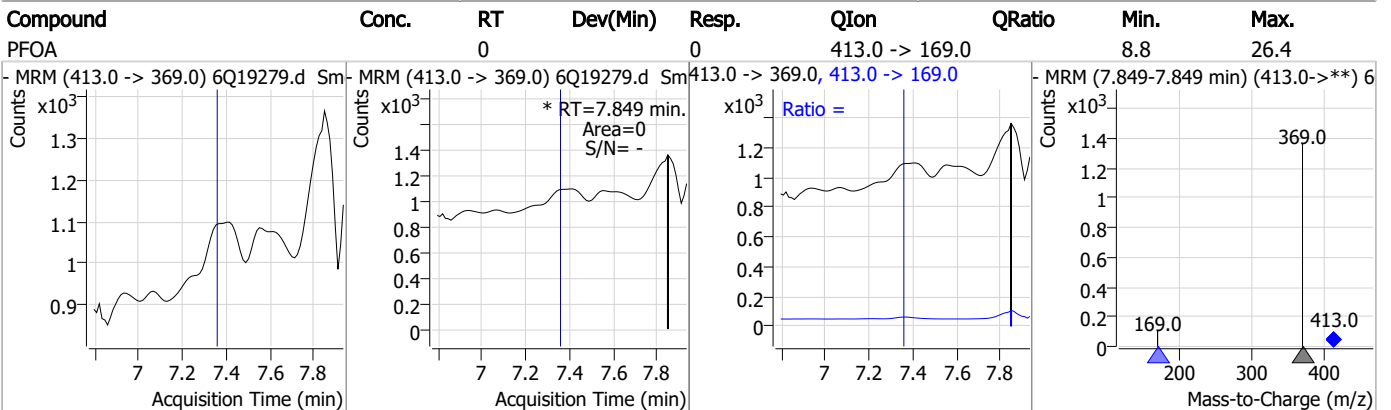
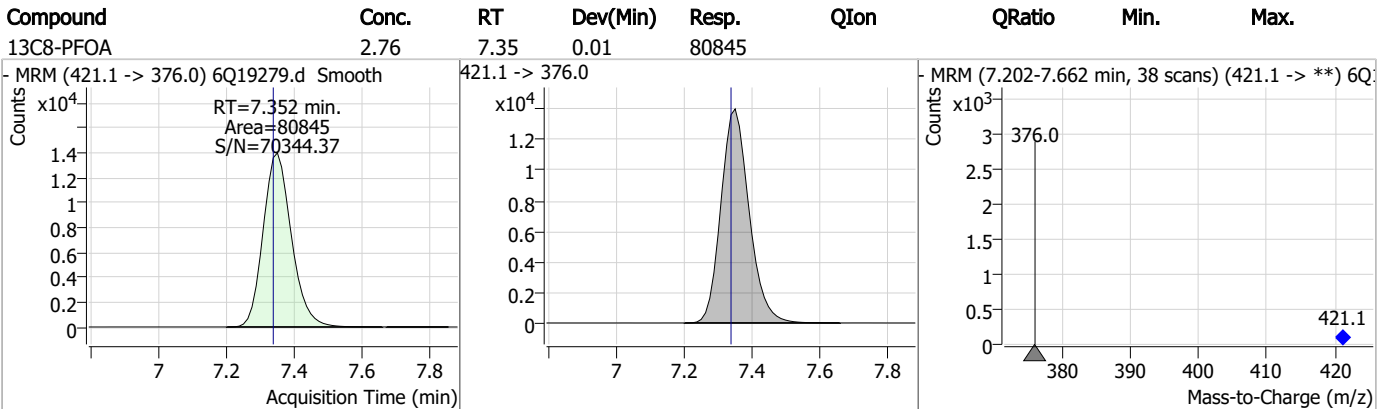
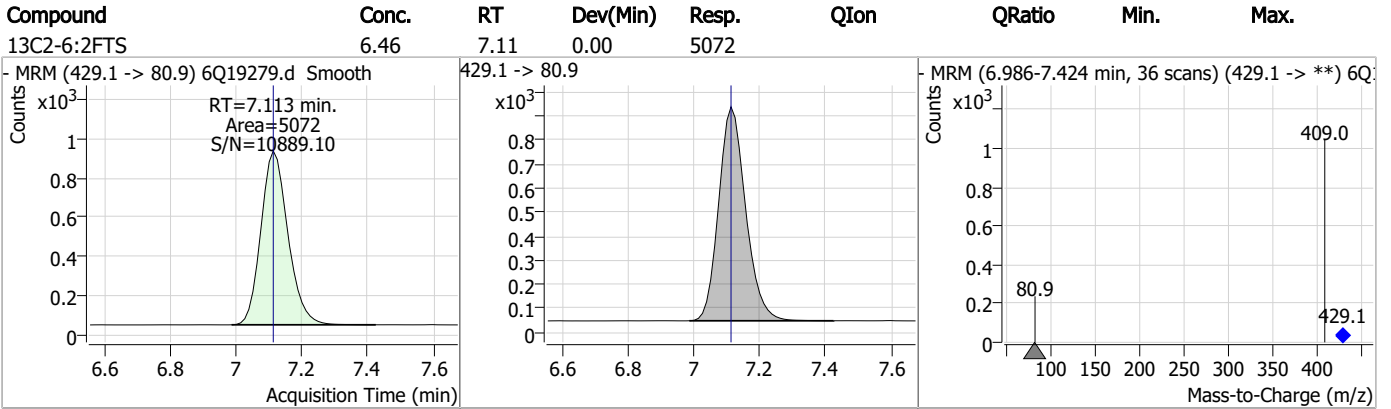
Perfluorinated Compounds by LC/MS/MS



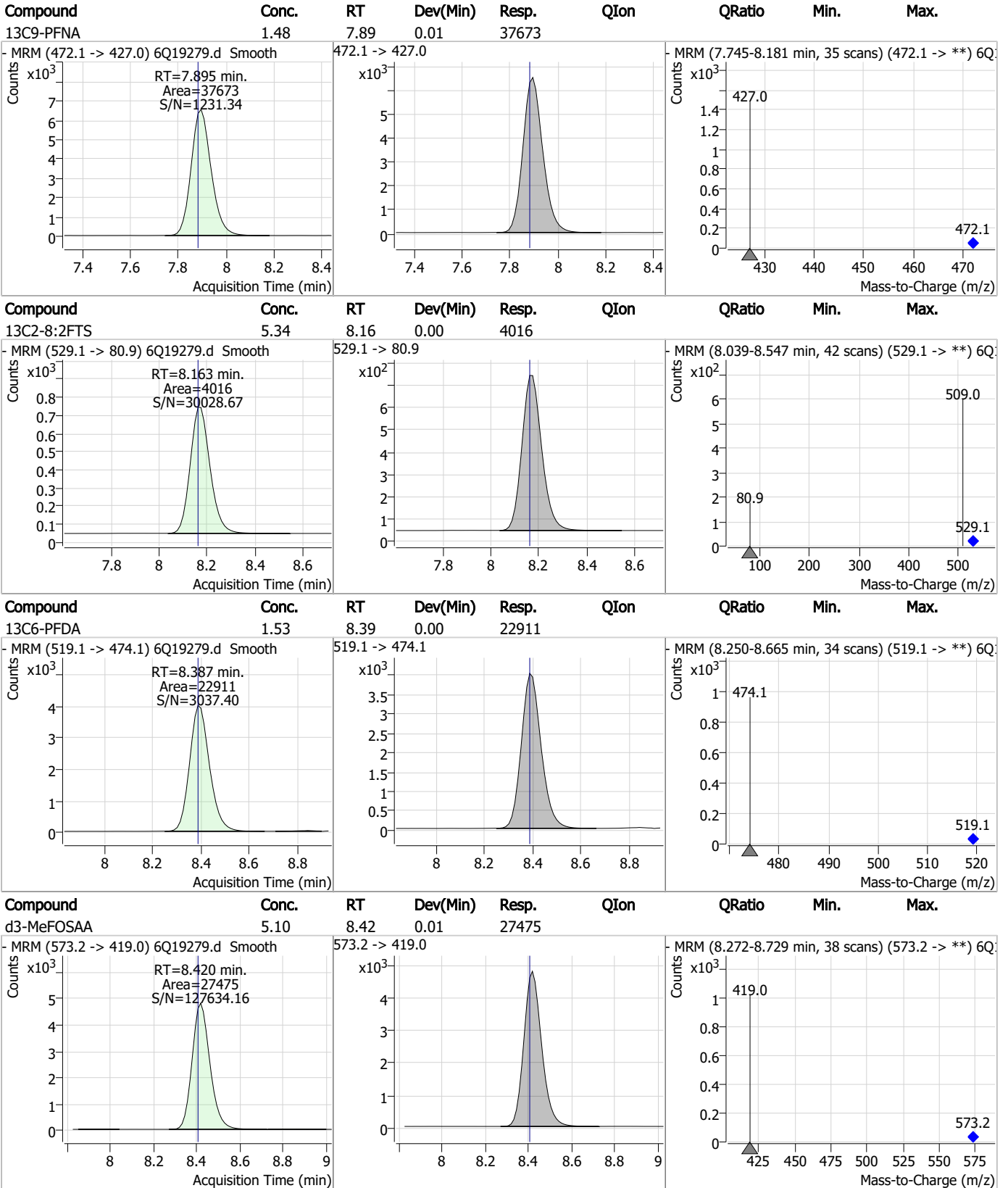
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.2

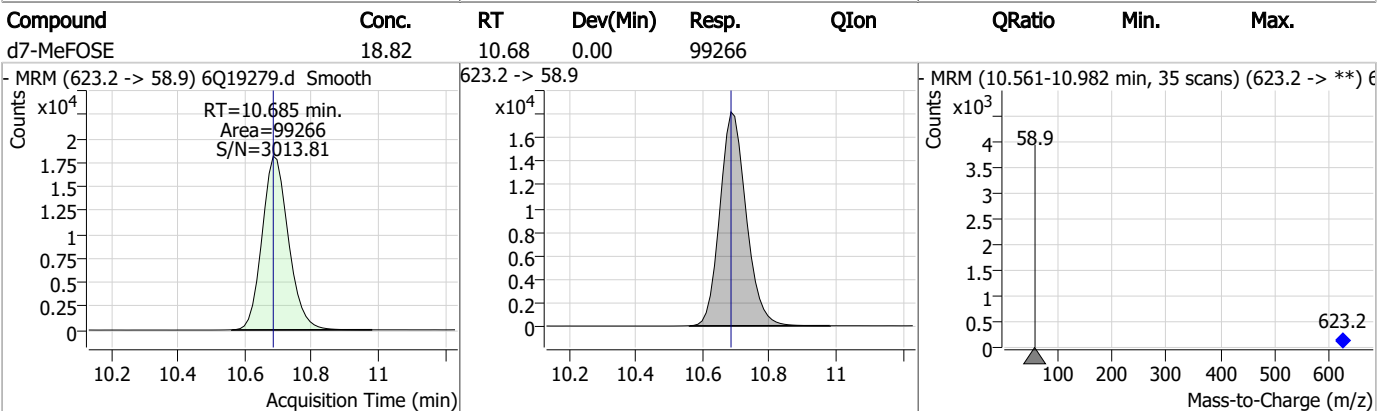
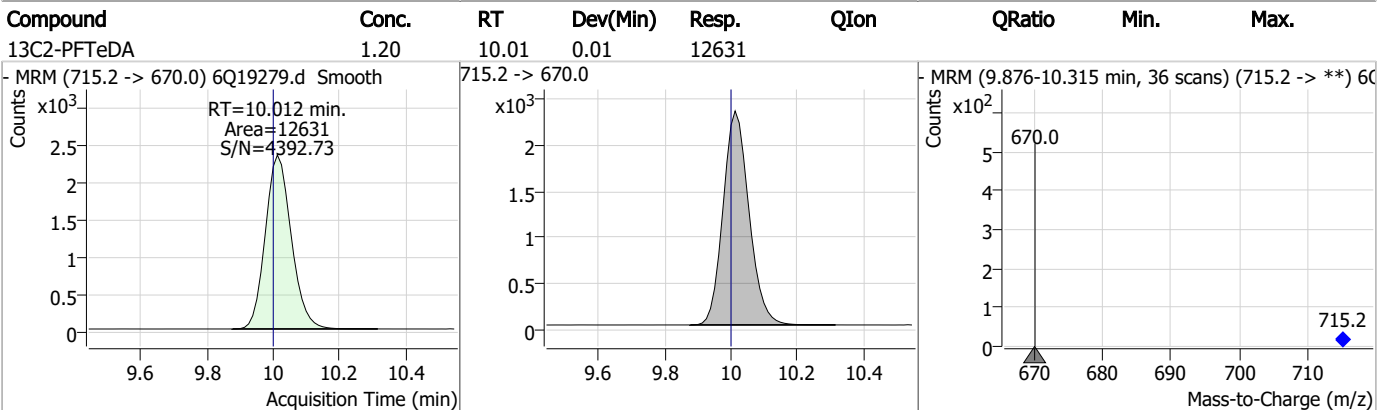
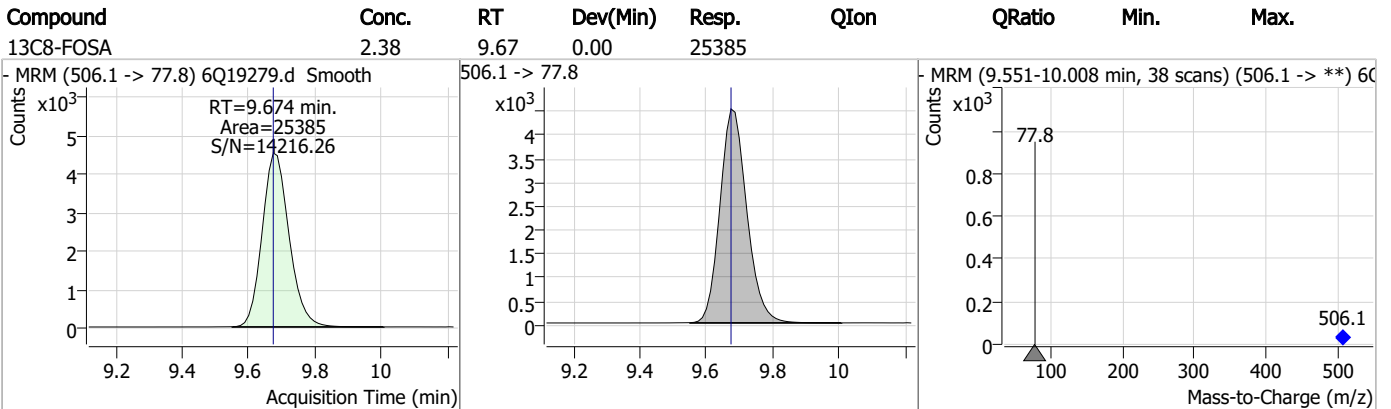
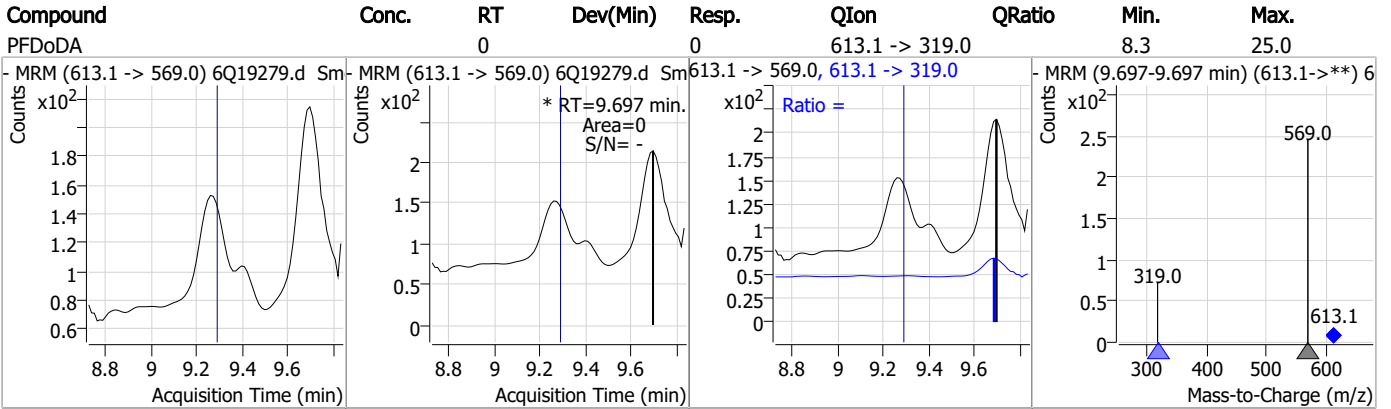
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.69	8.57	0.01	11340				
d5-EtFOSAA	4.82	8.63	0.01	21901				
13C7-PFUnDA	1.31	8.87	0.01	27636				
13C2-PFDoDA	1.26	9.30	0.01	22905				

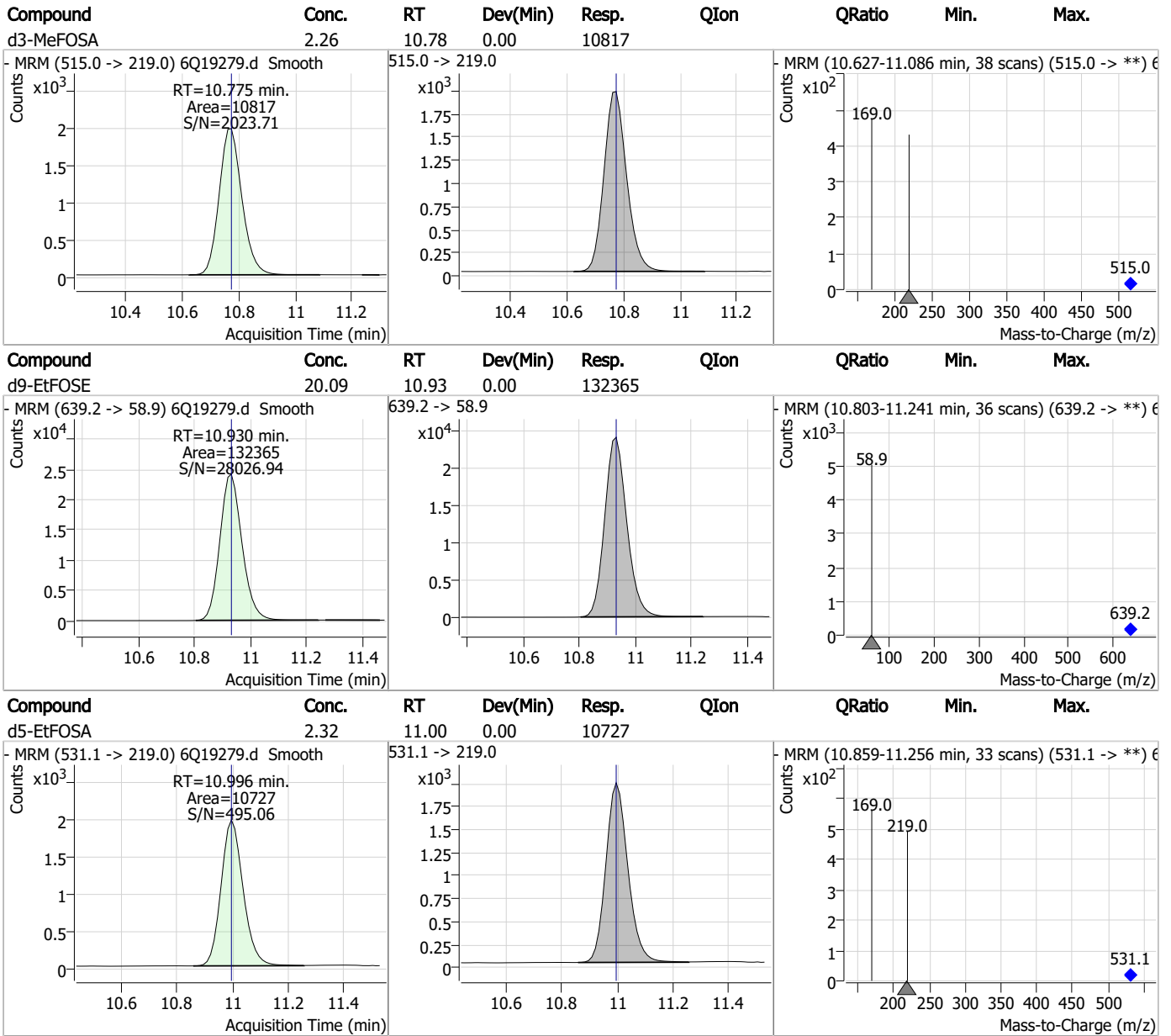
Perfluorinated Compounds by LC/MS/MS



7.1.2

7

Perfluorinated Compounds by LC/MS/MS



7.1.2

7

Perfluorinated Compounds by LC/MS/MS

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 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/13/2023 1:07:42 AM
 Sample Name : FC6651-3
 Vial : P2-C7
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97275,S6Q287,560,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	81239	10.00 µg/L	0.000
M5-PFPeA	4.535	268.3 -> 223.0	44321	5.00 µg/L	-0.025
M5-PFHxA	5.779	318.0 -> 273.0	56650	2.50 µg/L	-0.013
M4-PFHpA	6.707	367.1 -> 322.0	55189	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	81335	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	39855	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	22718	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	31037	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	23907	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	10005	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	27259	2.50 µg/L	0.000
M3-PFBS	5.733	302.1 -> 79.9	19385	2.50 µg/L	-0.013
M3-PFHxS	7.478	402.1 -> 79.9	11884	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	10550	2.50 µg/L	0.012
M2-4:2FTS	5.442	329.1 -> 80.9	2871	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	3880	5.00 µg/L	0.000
M2-8:2FTS	8.175	529.1 -> 80.9	3710	5.00 µg/L	0.012
M3-MeFOSAA	8.420	573.2 -> 419.0	27924	5.00 µg/L	0.012
M3-HFPO-DA	6.169	286.9 -> 168.9	27364	10.00 µg/L	0.000
M5-EtFOSAA	8.628	589.2 -> 419.0	24175	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	91903	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	114306	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	9494	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	9127	2.50 µg/L	0.000
13C4-PFOS	8.576	502.8 -> 79.9	14310	2.50 µg/L	0.012
13C3-PFBA	3.089	216.0 -> 172.0	45502	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	8594	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	87318	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	30634	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	50390	1.25 µg/L	0.013
13C2-PFHxA	5.779	315.1 -> 270.0	51475	2.50 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	2871	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C2-6:2FTS	7.113	429.1 -> 80.9	3880	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C2-8:2FTS	8.175	529.1 -> 80.9	3710	4.87 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C2-PFDoDA	9.297	615.1 -> 570.0	23907	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.4%		
13C2-PFTeDA	10.012	715.2 -> 670.0	10005	0.84 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 67.3%		
13C3-PFBS	5.733	302.1 -> 79.9	19385	2.67 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C3-PFHxS	7.478	402.1 -> 79.9	11884	2.60 µg/L	0.000

7.1.3
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 = 104.2%		
13C4-PFBA	3.085	216.8 -> 171.9	81239	7.60 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 76.0%		
13C4-PFHpA	6.707	367.1 -> 322.0	55189	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C5-PFHxA	5.779	318.0 -> 273.0	56650	2.55 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C5-PFPeA	4.535	268.3 -> 223.0	44321	4.46 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.1%		
13C6-PFDA	8.387	519.1 -> 474.1	22718	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.5%		
13C7-PFUnDA	8.866	570.0 -> 525.1	31037	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C8-FOSA	9.674	506.1 -> 77.8	27259	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C8-PFOA	7.352	421.1 -> 376.0	81335	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C8-PFOS	8.575	507.1 -> 79.9	10550	2.52 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C9-PFNA	7.895	472.1 -> 427.0	39855	1.30 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.7%		
d3-MeFOSAA	8.420	573.2 -> 419.0	27924	5.20 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C3-HFPO-DA	6.169	286.9 -> 168.9	27364	7.76 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 77.6%		
d3-MeFOSA	10.775	515.0 -> 219.0	9127	1.92 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 76.8%		
d5-EtFOSAA	8.628	589.2 -> 419.0	24175	5.34 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.8%		
d7-MeFOSE	10.685	623.2 -> 58.9	91903	17.50 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 70.0%		
d9-EtFOSE	10.930	639.2 -> 58.9	114306	17.42 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 69.7%		
d5-EtFOSA	10.996	531.1 -> 219.0	9494	2.06 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 82.4%		

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	7.113	427.1 -> 407.0 427.1 -> 80.9	1398 520	0.30 µg/L	99
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	3.018	212.8 -> 168.9	24115	7.44 µg/L	100
PFBS	5.463	298.7 -> 79.9 298.7 -> 98.8	0 0	µg/L m	1
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	9.285	613.1 -> 569.0 613.1 -> 319.0	0 0	µg/L m	1
PFDS	-	599.0 -> 79.9	-	N.D.	



7.13
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.708	599.0 -> 98.8				
		363.1 -> 319.0	2112	0.07 µg/L	m	89
PFHpS	-	363.1 -> 169.0	241			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.795	449.0 -> 98.9				
		313.0 -> 269.0	2995	0.13 µg/L	m	92
PFHxS	-	313.0 -> 118.9	81			
		398.7 -> 79.9	-	N.D.		
PFNA	8.368	398.7 -> 98.9				
		463.0 -> 419.0	0	µg/L	m	1
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	4.551	498.9 -> 98.8				
		263.0 -> 219.0	75174	5.76 µg/L		100
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	3.696	241.0 -> 177.0	0	µg/L	m	1
		241.0 -> 117.0	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				

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

7.1.3
7



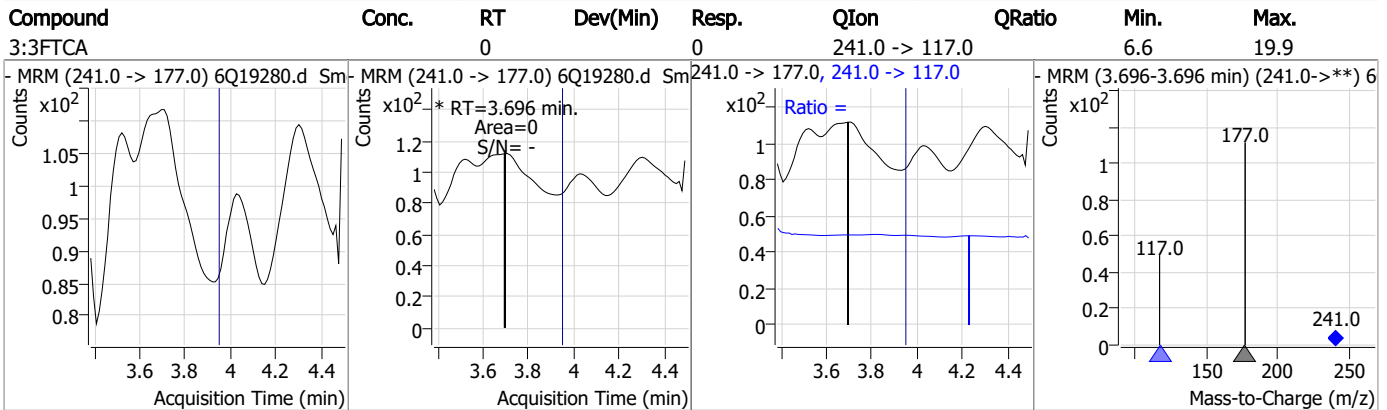
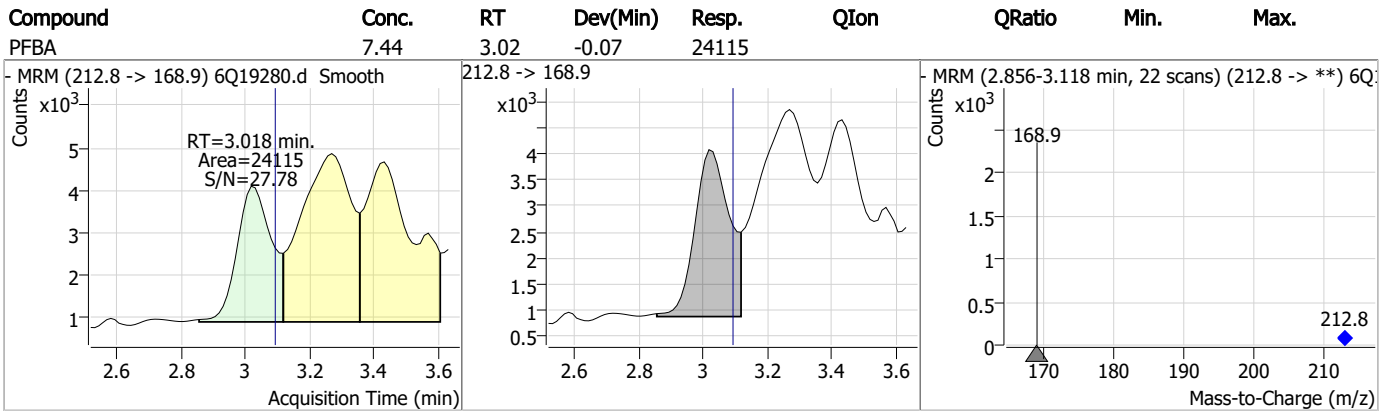
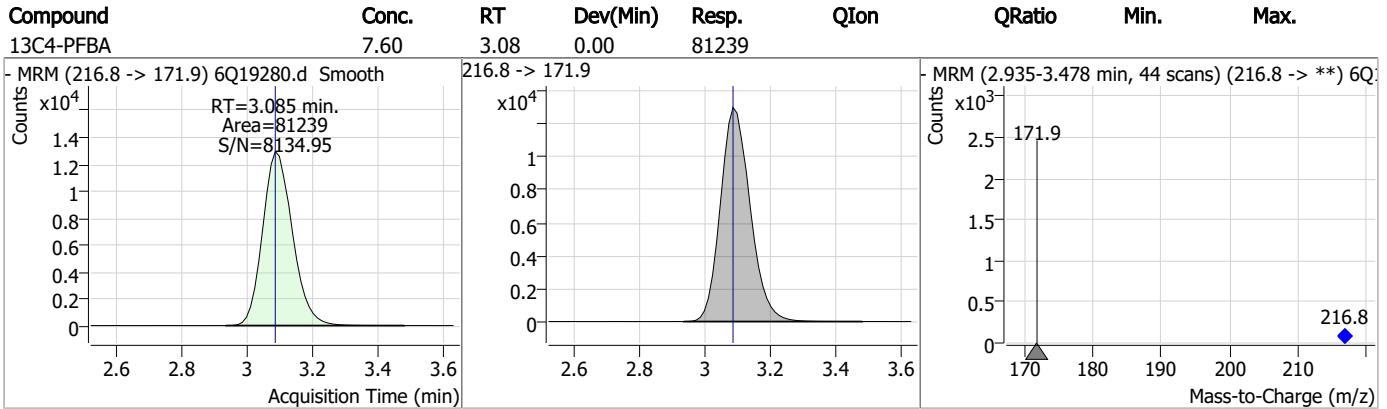
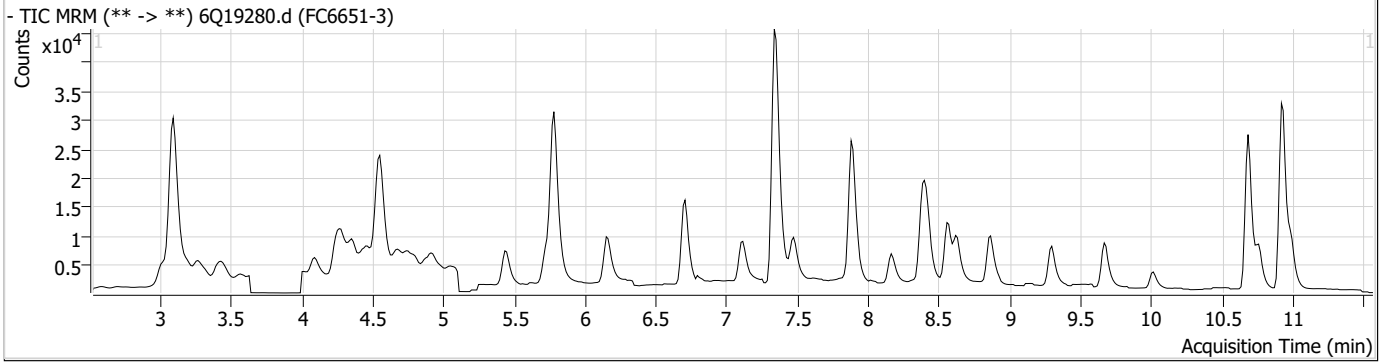
Perfluorinated Compounds by LC/MS/MS

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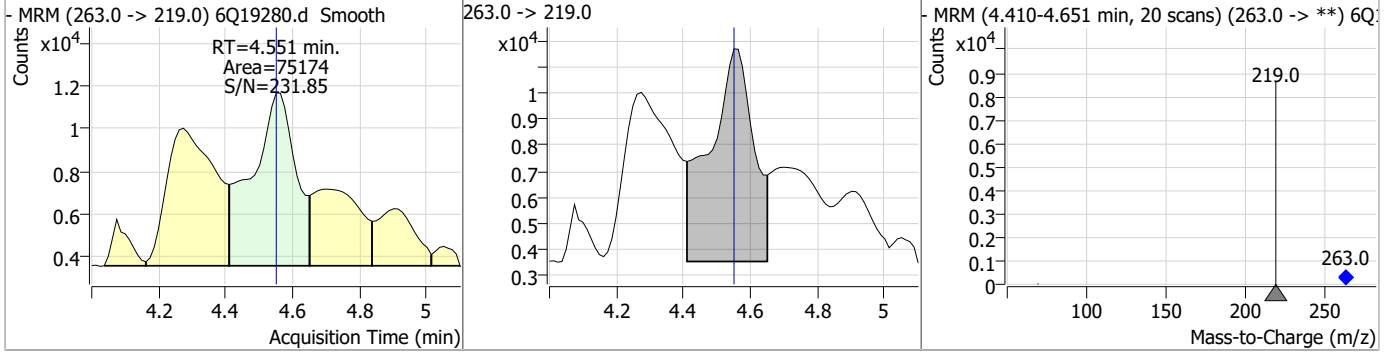


Perfluorinated Compounds by LC/MS/MS

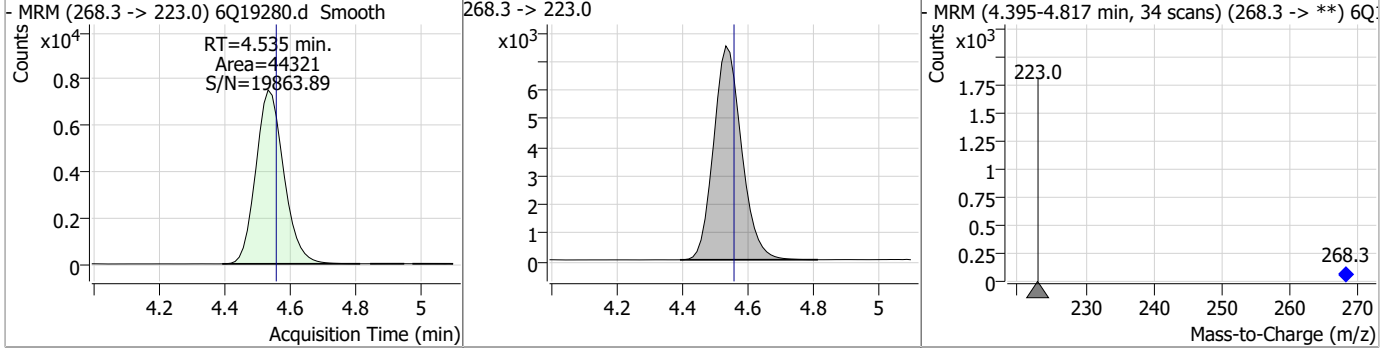


Perfluorinated Compounds by LC/MS/MS

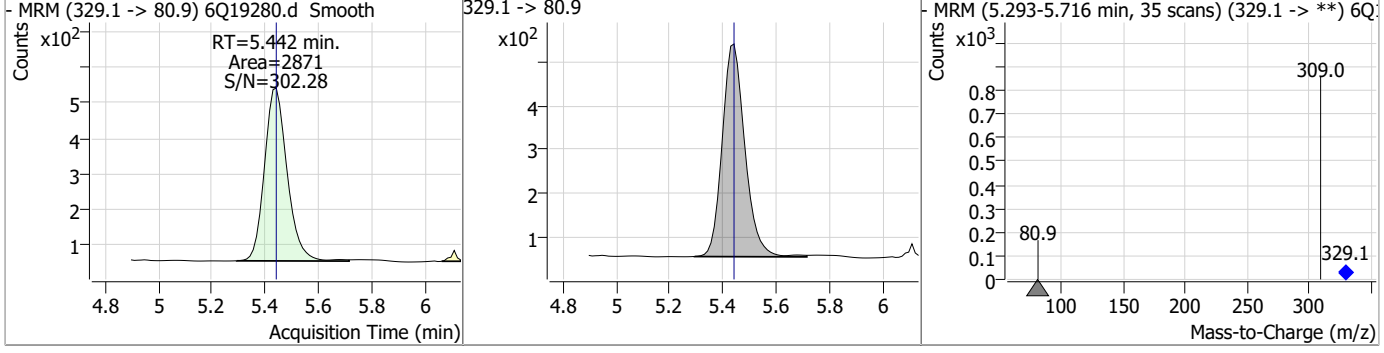
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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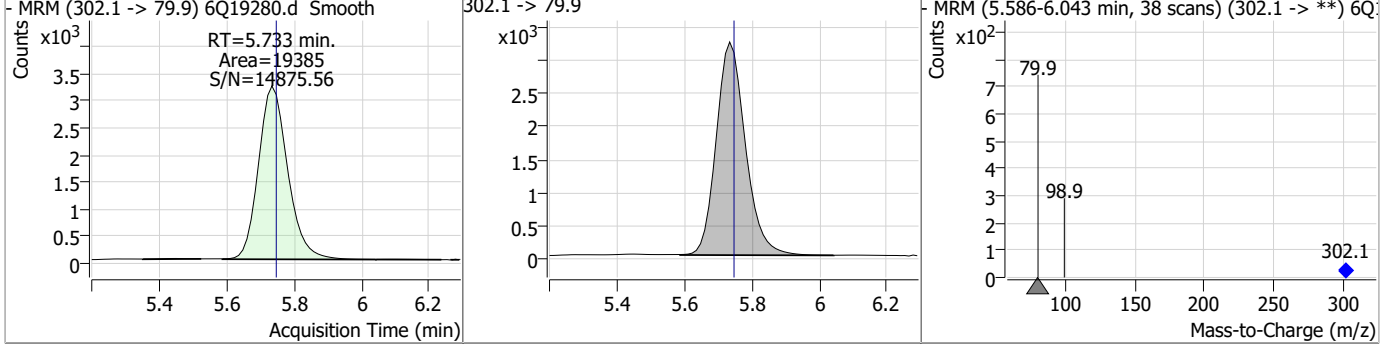
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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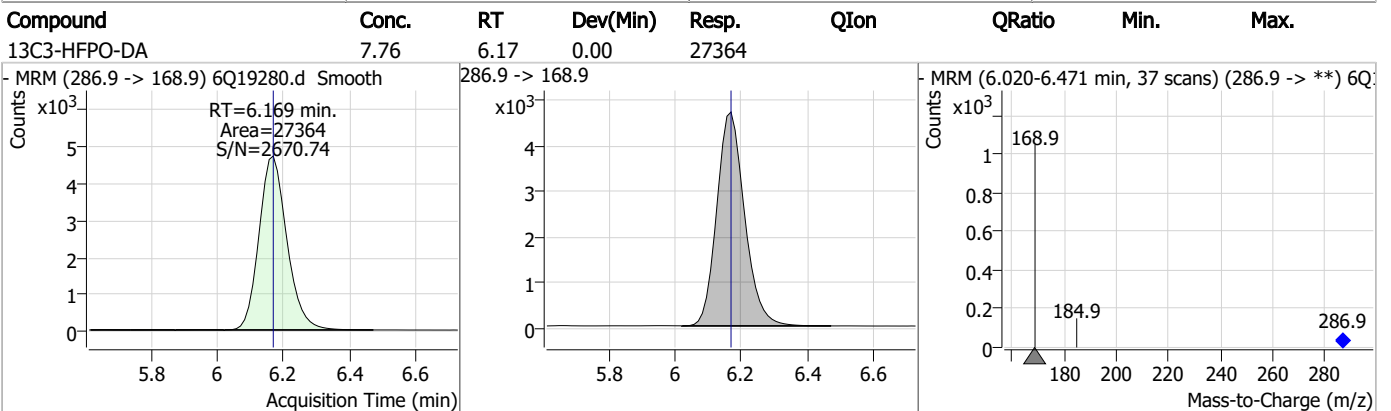
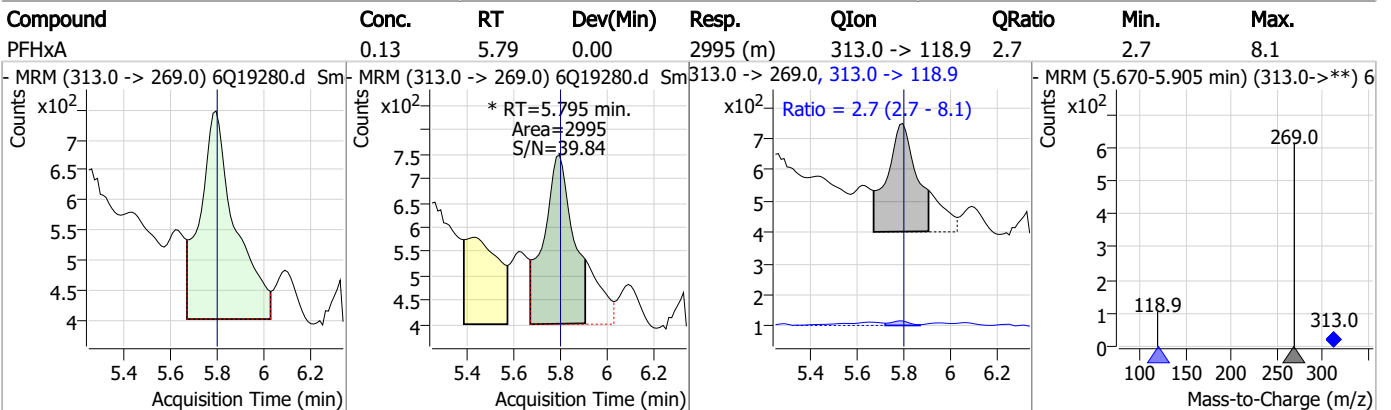
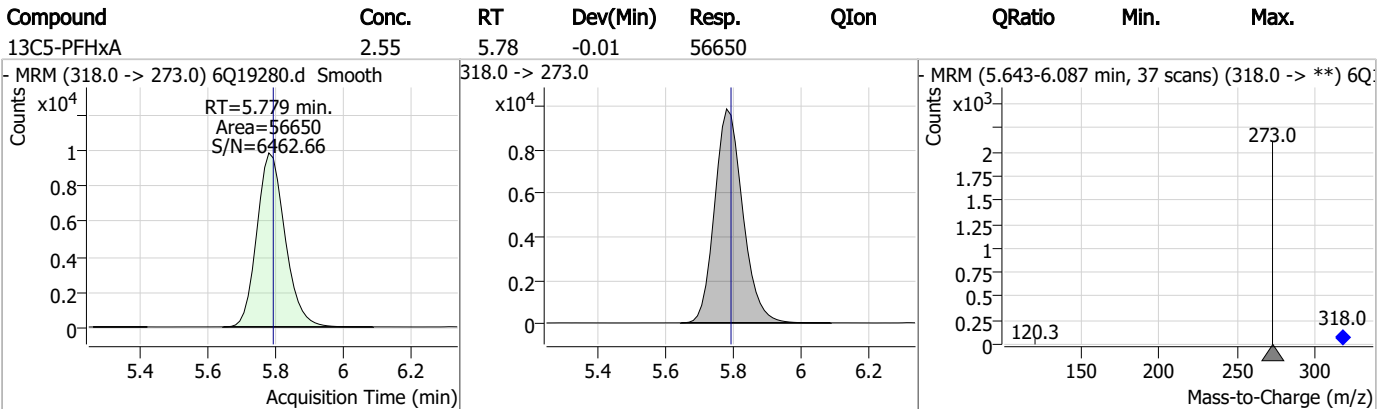
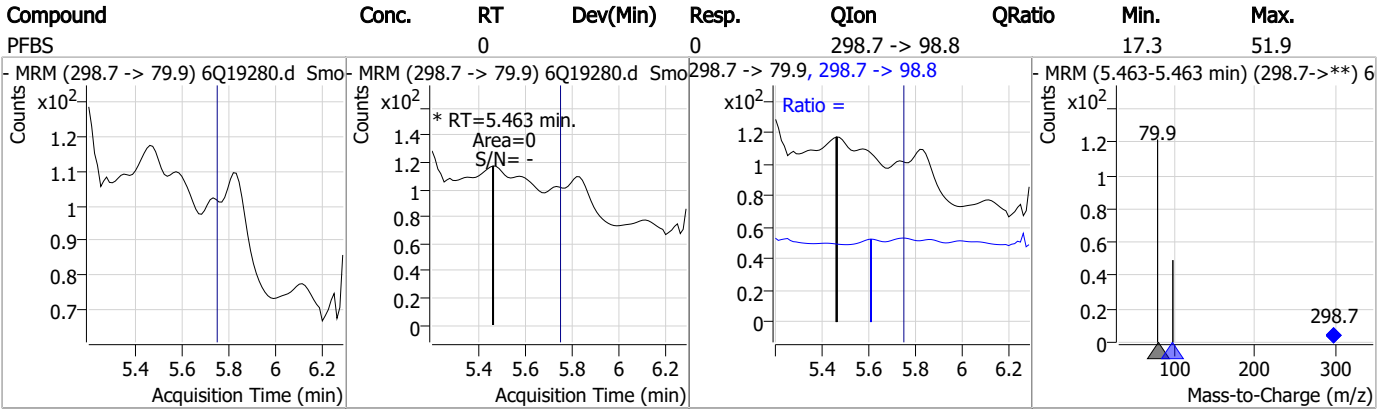


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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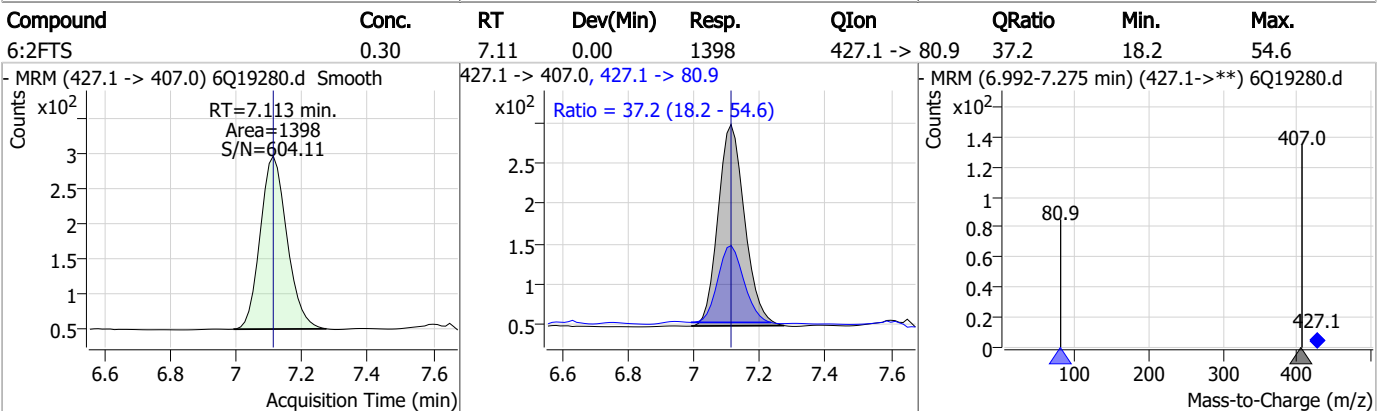
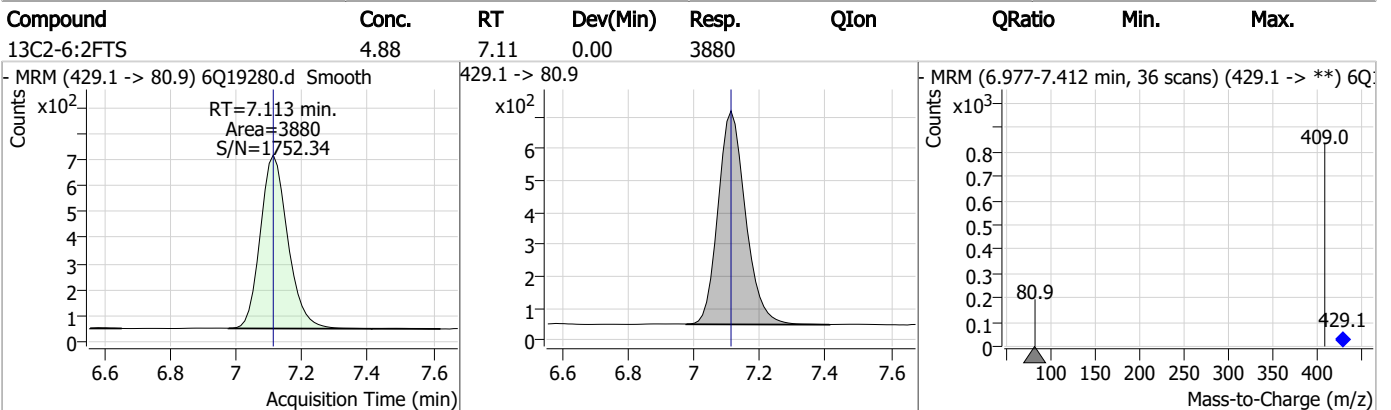
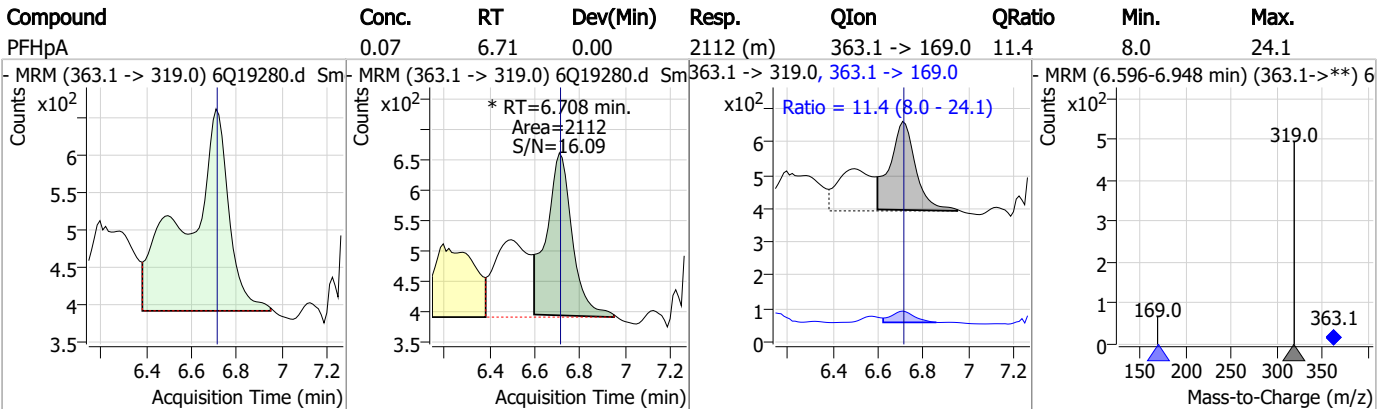
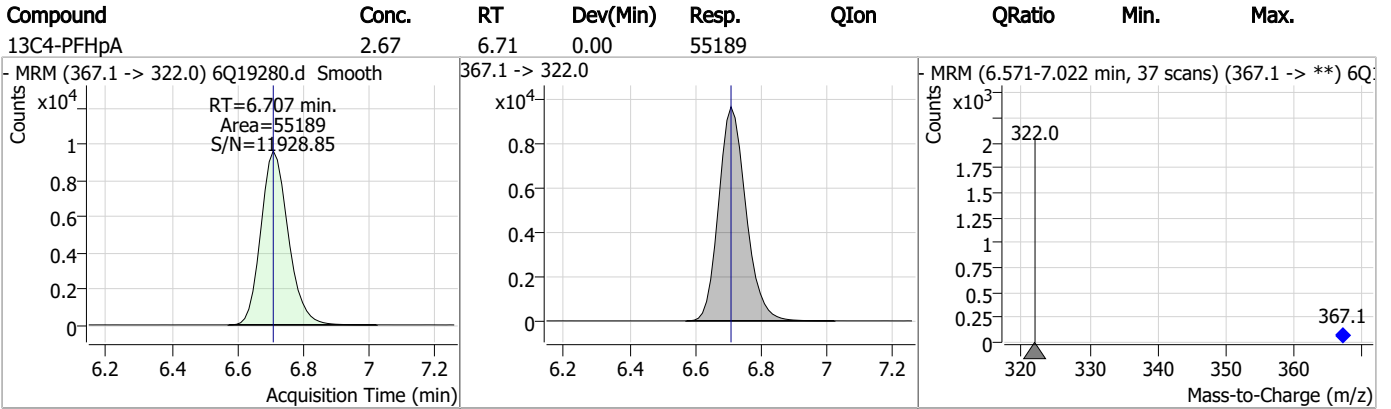


7.1.3
7

Perfluorinated Compounds by LC/MS/MS



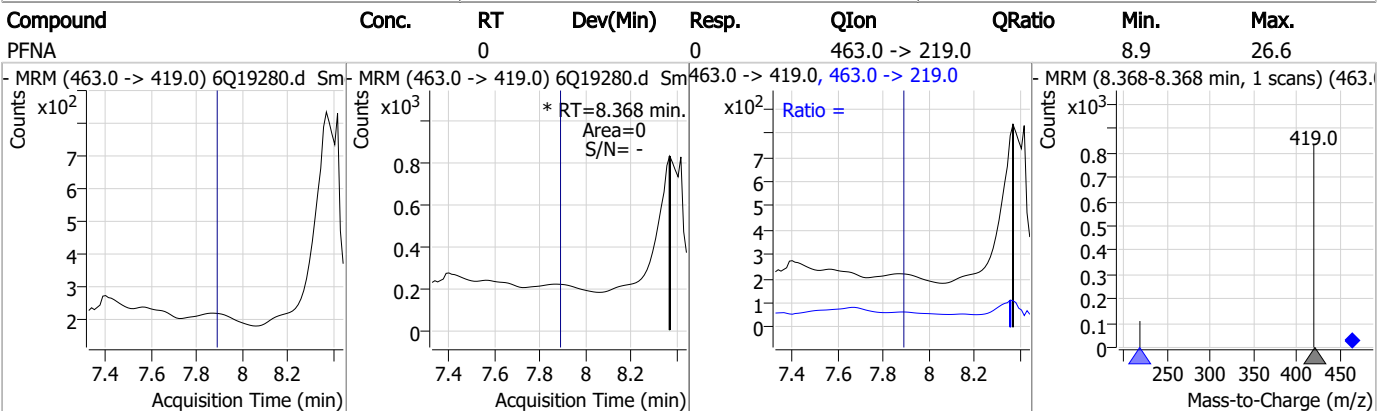
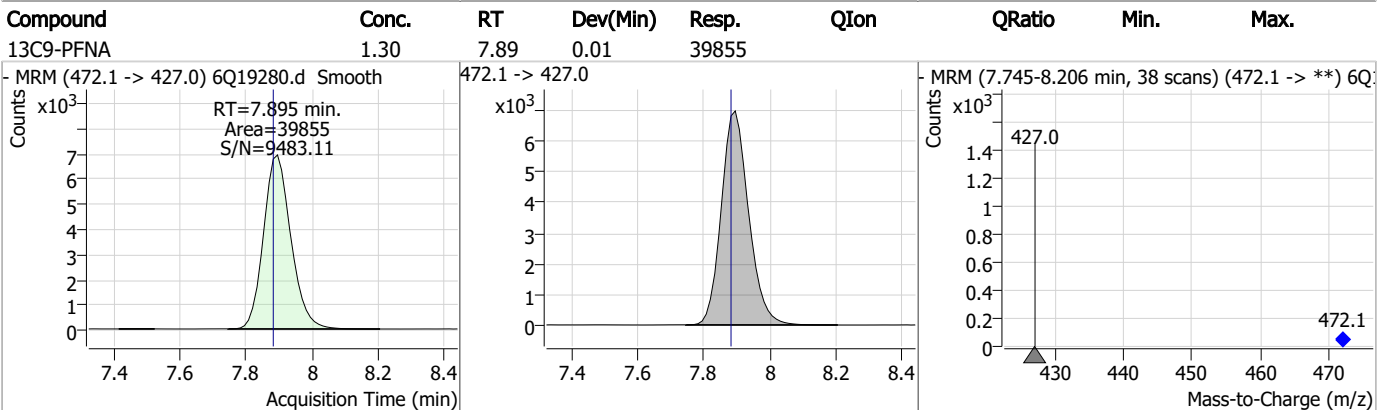
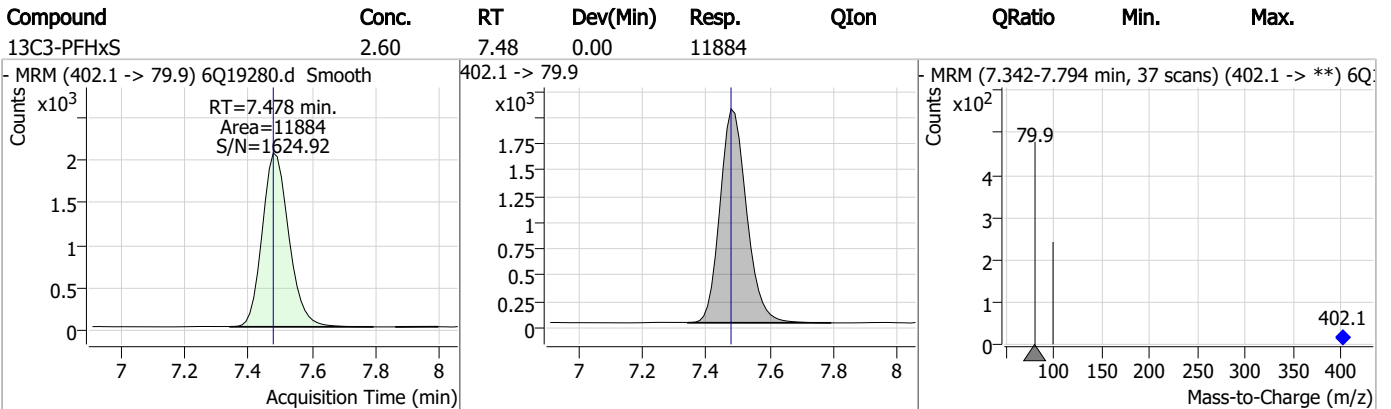
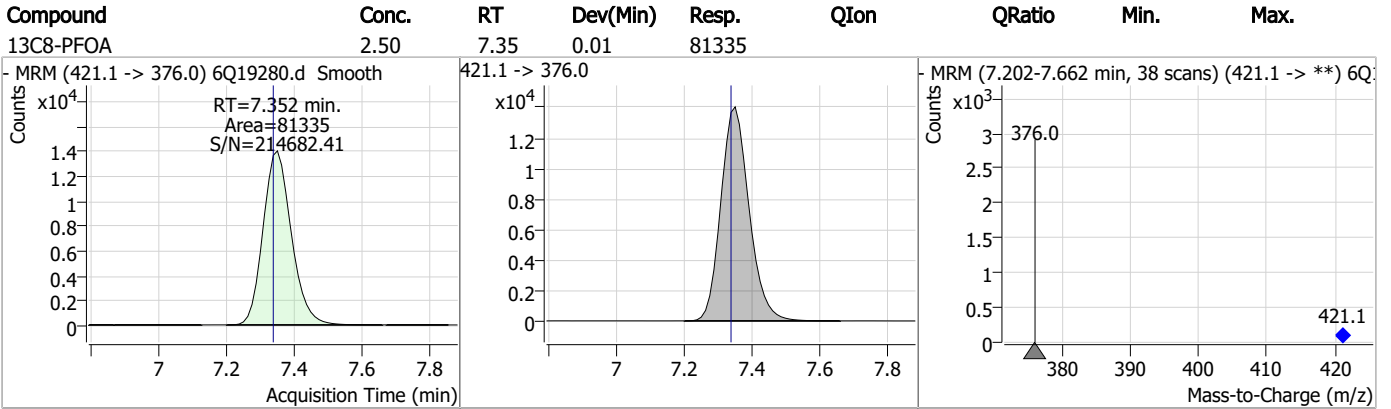
Perfluorinated Compounds by LC/MS/MS



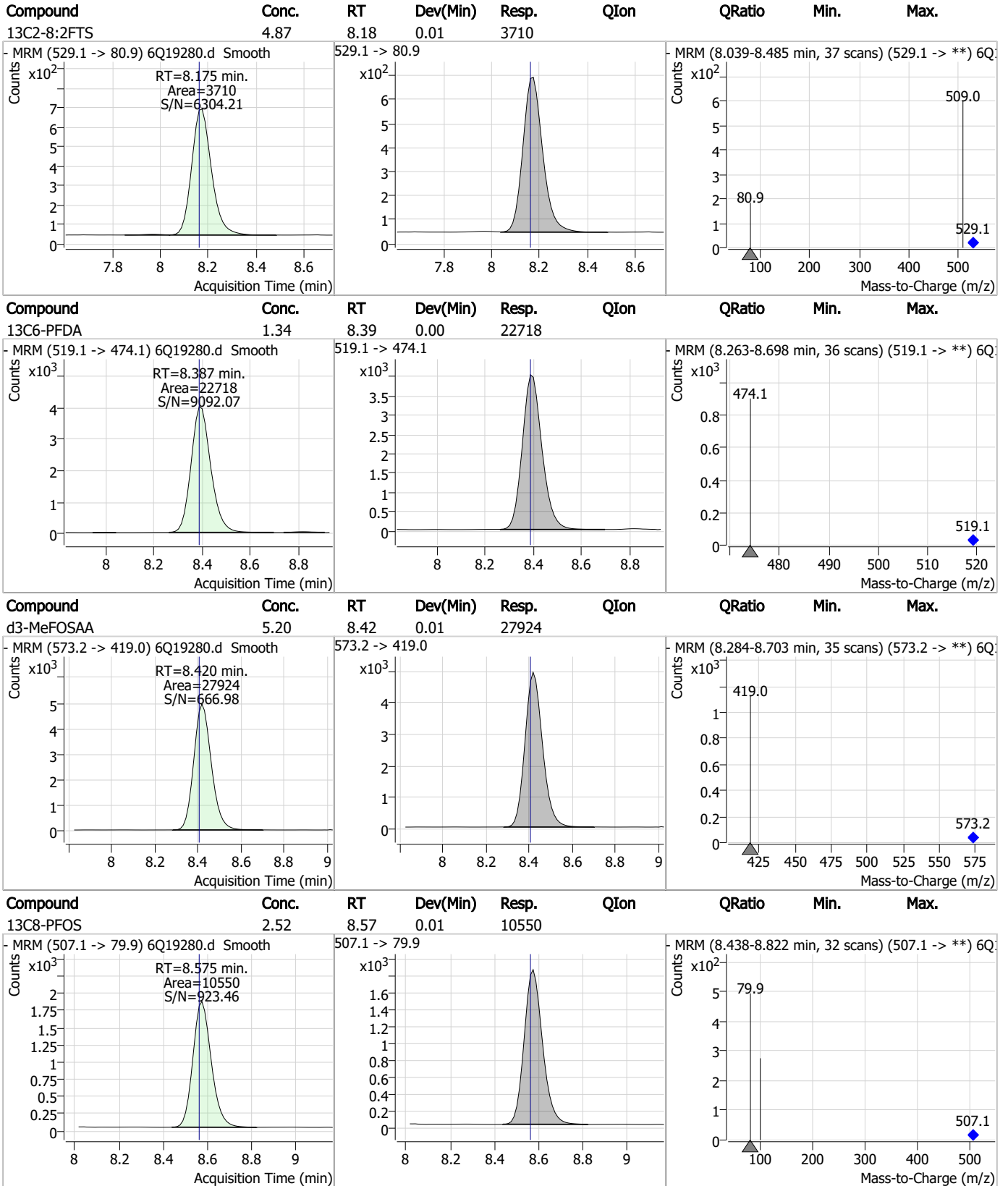
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

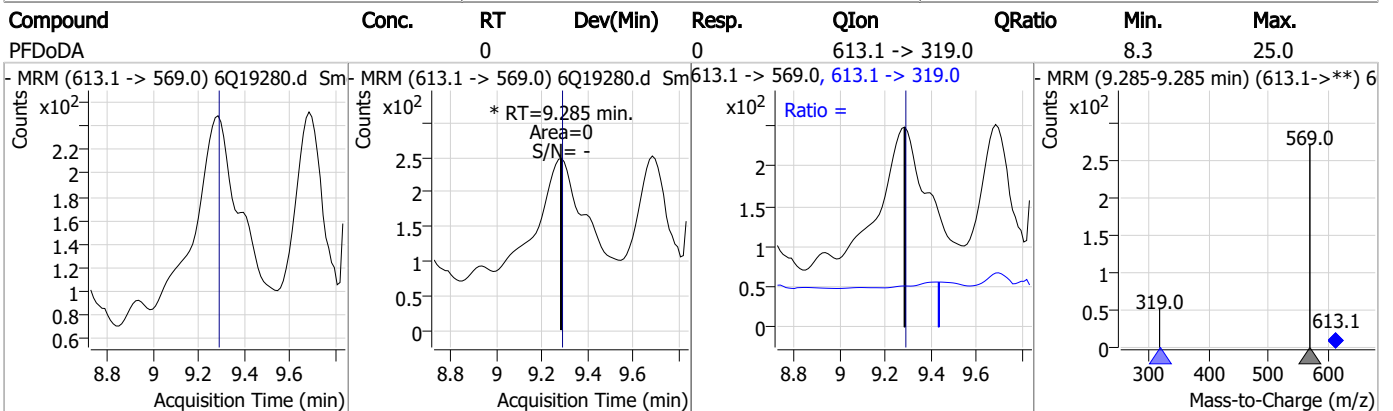
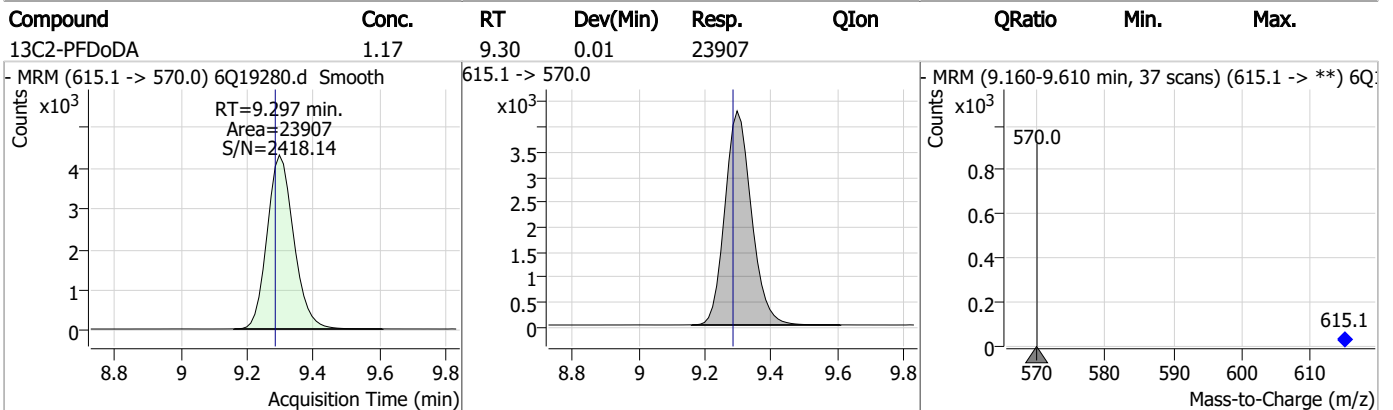
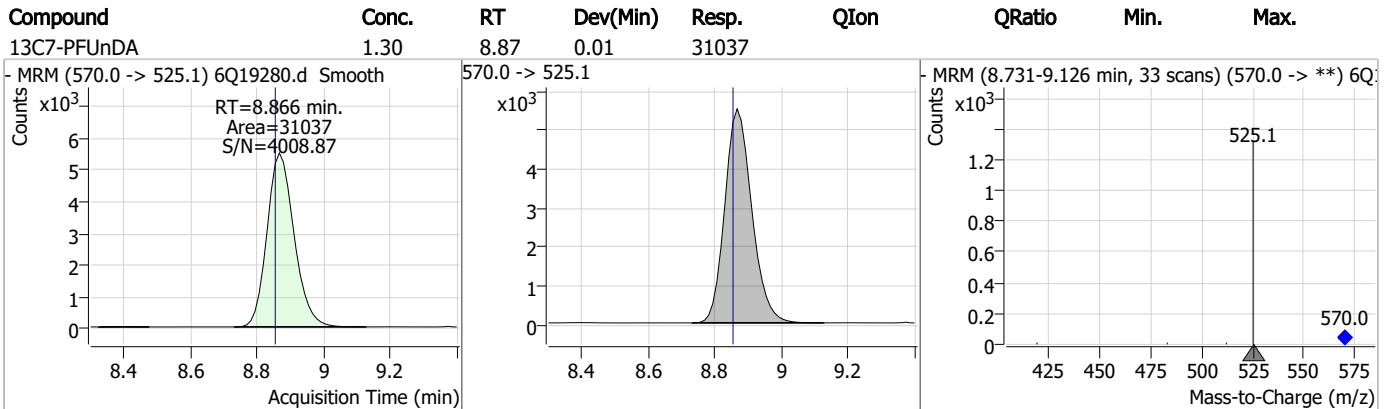
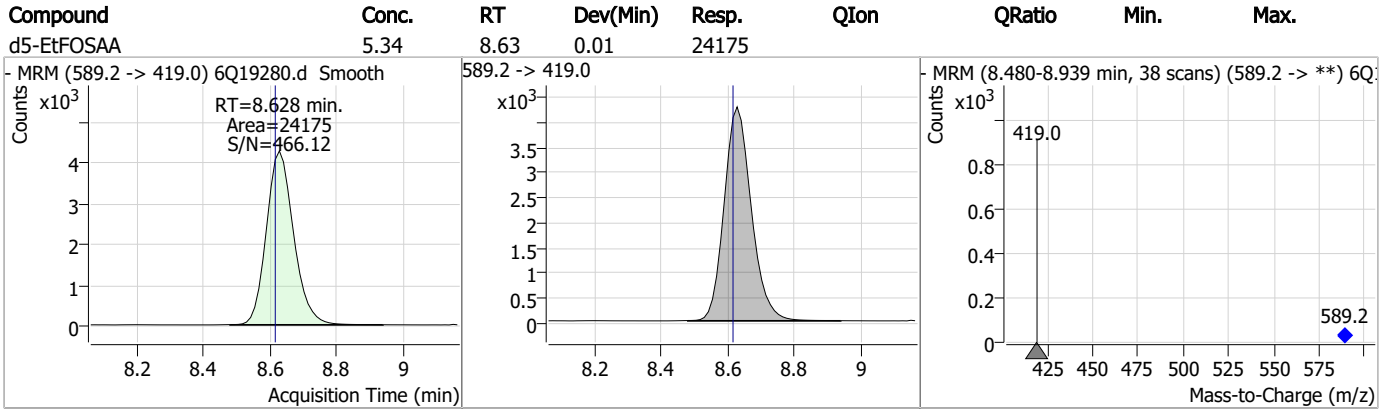


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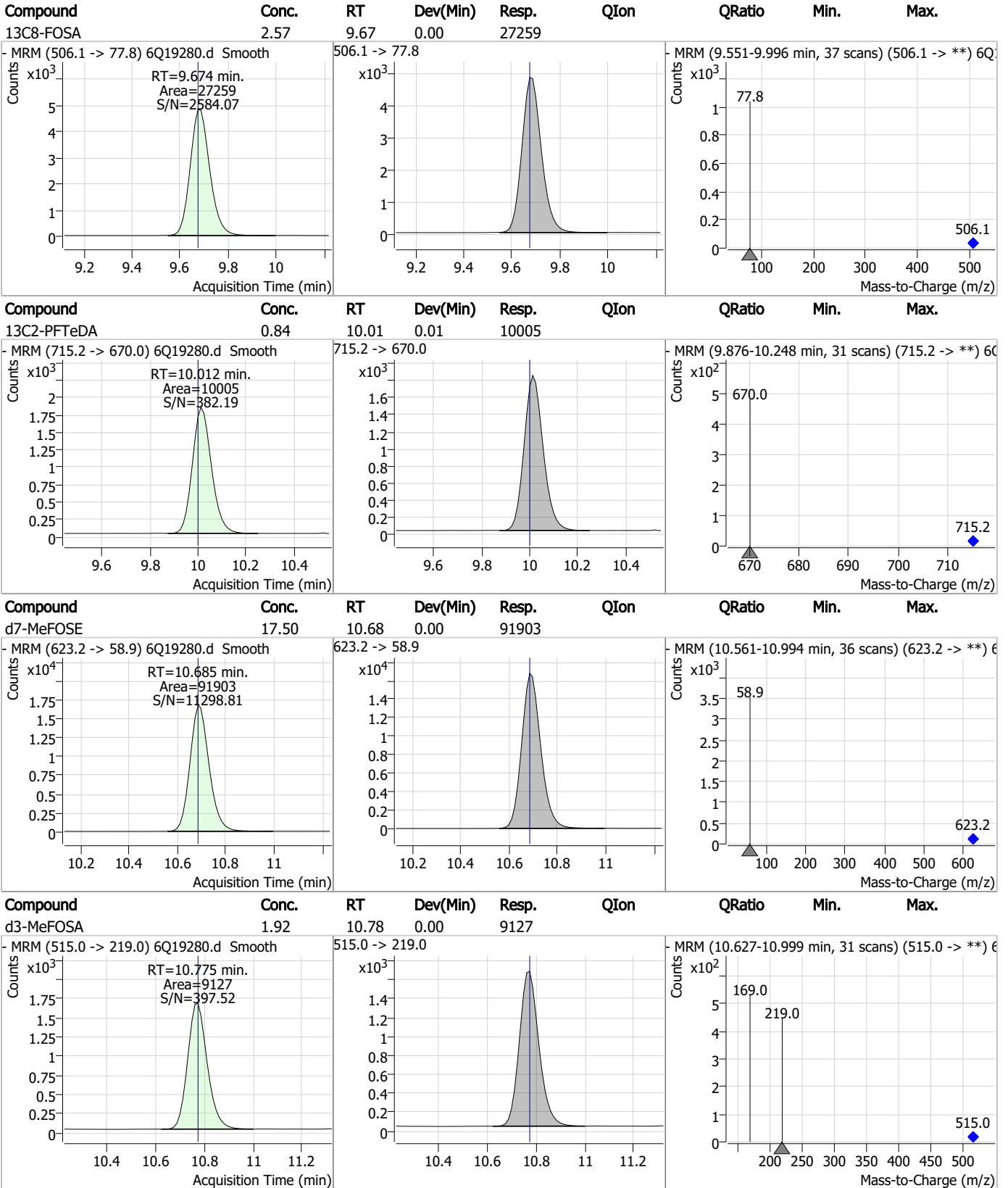
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

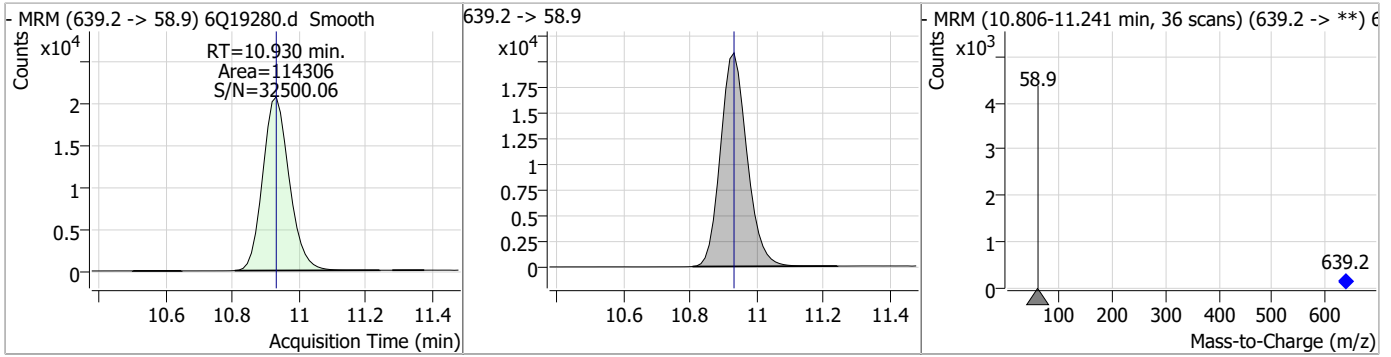


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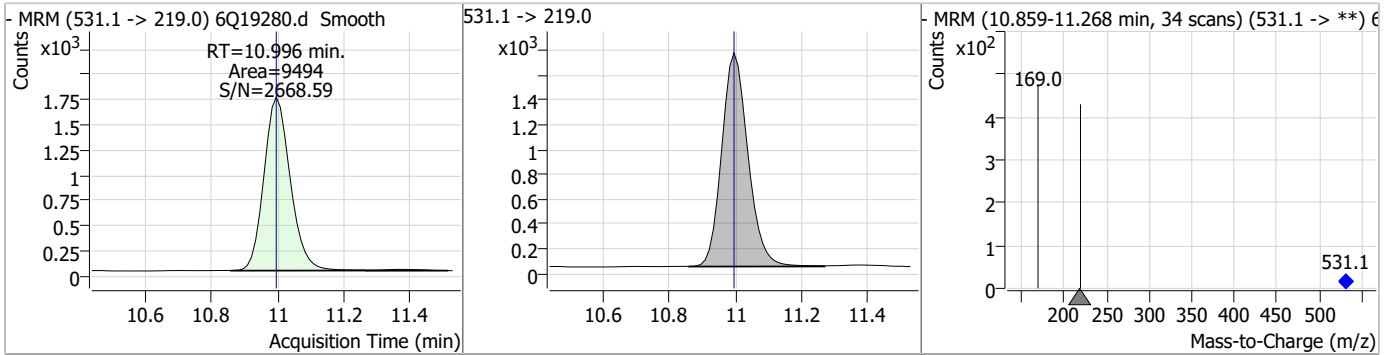
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	17.42	10.93	0.00	114306				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.06	11.00	0.00	9494				



7.1.3
7



Manual Integration Approval Summary

Sample Number: FC6651-3 Method: EPA DRAFT 1633
Lab FileID: 6Q19280.D Analyst approved: 06/13/23 11:44 Martha Valls
Injection Time: 06/13/23 01:07 Supervisor approved: 06/13/23 13:43 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanoic acid	307-24-4		5.79	Poor instrument integration
Perfluoroheptanoic acid	375-85-9		6.71	Split peak

7.1.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19281.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/13/2023 1:21:41 AM
 Sample Name : FC6651-4
 Vial : P2-C8
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97275,S6Q287,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	140958	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	52178	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	56320	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	53093	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	82949	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	43099	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	20888	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	25902	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	18903	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	7379	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	27199	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	20025	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	13160	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	10794	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	3743	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	5219	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4056	5.00 µg/L	0.000
M3-MeFOSAA	8.420	573.2 -> 419.0	32911	5.00 µg/L	0.012
M3-HFPO-DA	6.169	286.9 -> 168.9	33672	10.00 µg/L	0.000
M5-EtFOSAA	8.628	589.2 -> 419.0	26486	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	92251	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	125401	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	9466	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	9531	2.50 µg/L	0.000
13C4-PFOS	8.576	502.8 -> 79.9	13258	2.50 µg/L	0.012
13C3-PFBA	3.101	216.0 -> 172.0	57602	5.00 µg/L	0.012
18O2-PFHxS	7.477	403.0 -> 83.9	8612	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	80713	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	26517	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	44569	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	47341	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3743	7.06 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 141.2%		
13C2-6:2FTS	7.113	429.1 -> 80.9	5219	6.55 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 131.0%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4056	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-PFDoDA	9.297	615.1 -> 570.0	18903	1.07 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 85.3%		
13C2-PFTeDA	10.012	715.2 -> 670.0	7379	0.72 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 57.4%		
13C3-PFBS	5.746	302.1 -> 79.9	20025	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C3-PFHxS	7.478	402.1 -> 79.9	13160	2.88 µg/L	0.000

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 = 115.1%	
13C4-PFBA	3.097	216.8 -> 171.9	140958	10.42 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C4-PFHpA	6.707	367.1 -> 322.0	53093	2.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.6%	
13C5-PFHxA	5.792	318.0 -> 273.0	56320	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C5-PFPeA	4.560	268.3 -> 223.0	52178	5.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.1%	
13C6-PFDA	8.387	519.1 -> 474.1	20888	1.43 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.2%	
13C7-PFUnDA	8.866	570.0 -> 525.1	25902	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-FOSA	9.674	506.1 -> 77.8	27199	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.8%	
13C8-PFOA	7.352	421.1 -> 376.0	82949	2.75 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.2%	
13C8-PFOS	8.575	507.1 -> 79.9	10794	2.78 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C9-PFNA	7.895	472.1 -> 427.0	43099	1.58 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 126.8%	
d3-MeFOSAA	8.420	573.2 -> 419.0	32911	6.62 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 132.3%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	33672	10.38 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
d3-MeFOSA	10.775	515.0 -> 219.0	9531	2.16 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.5%	
d5-EtFOSAA	8.628	589.2 -> 419.0	26486	6.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 126.3%	
d7-MeFOSE	10.685	623.2 -> 58.9	92251	18.96 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.8%	
d9-EtFOSE	10.930	639.2 -> 58.9	125401	20.63 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 82.5%	
d5-EtFOSA	10.996	531.1 -> 219.0	9466	2.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.7%	

7.14
7

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	7.113	427.1 -> 407.0 427.1 -> 80.9	9316 3072	1.48 µg/L	94
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.	
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	9.697	613.1 -> 569.0 613.1 -> 319.0	0 0	µg/L m	1
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.708	599.0 -> 98.8				
		363.1 -> 319.0	1836	0.06	µg/L	97
PFHpS	-	363.1 -> 169.0	313			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.795	449.0 -> 98.9				
		313.0 -> 269.0	4364	0.19	µg/L	99
PFHxS	-	313.0 -> 118.9	256			
		398.7 -> 79.9	-	N.D.		
PFNA	8.355	398.7 -> 98.9				
		463.0 -> 419.0	0		µg/L	m
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	7.365	548.8 -> 98.9				
		413.0 -> 369.0	4013	0.09	µg/L	#m
PFOS	-	413.0 -> 169.0	268			
		498.9 -> 79.9	-	N.D.		
PFPeA	4.563	498.9 -> 98.8				
		263.0 -> 219.0	4475	0.29	µg/L	100
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	9.288	563.1 -> 519.0	0		µg/L	m
		563.1 -> 269.1	0			
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				

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

7.1.4

7



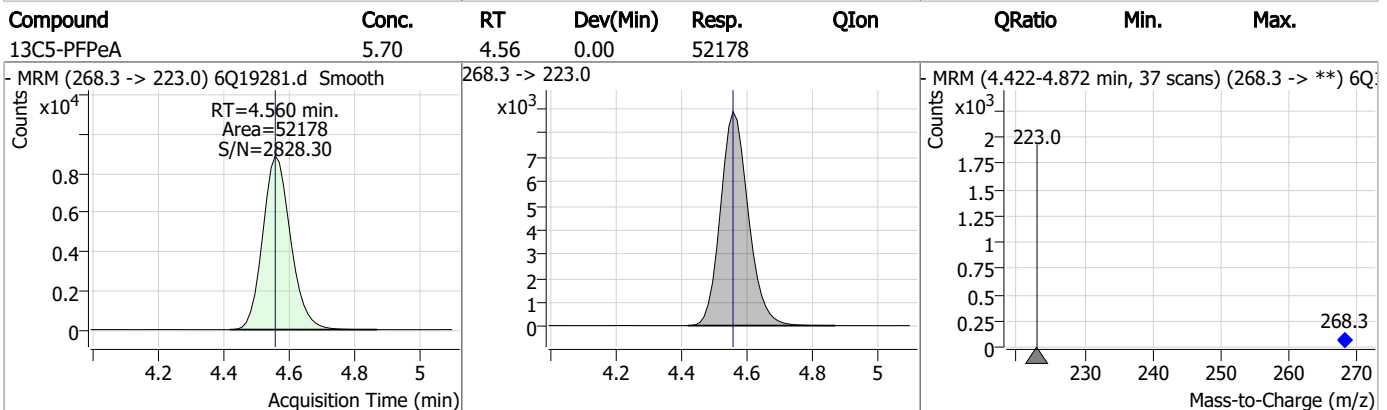
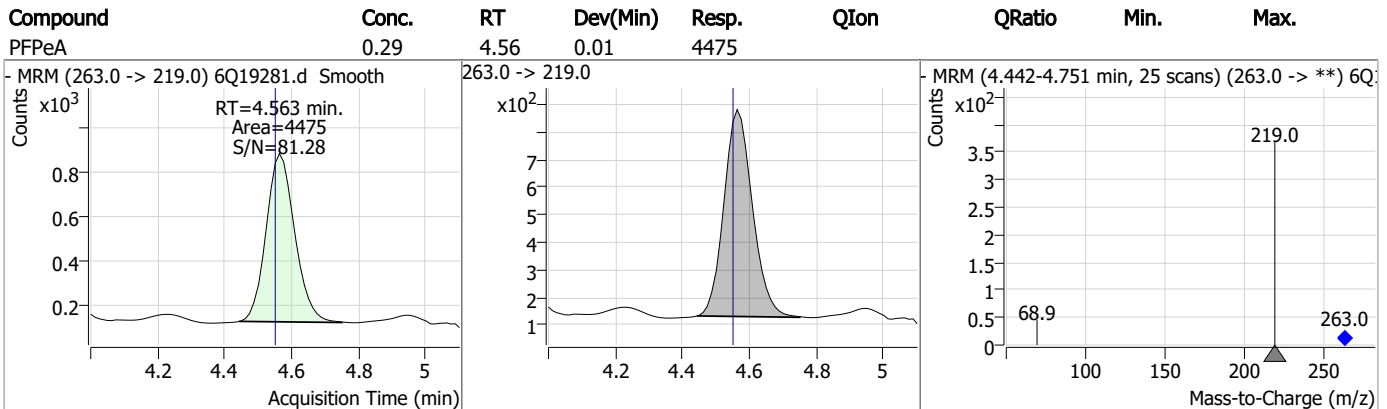
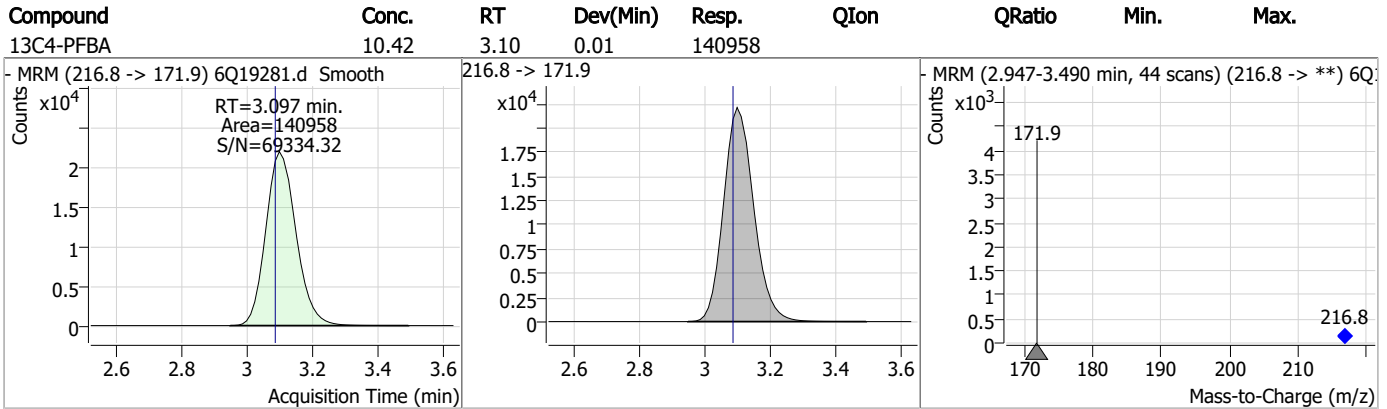
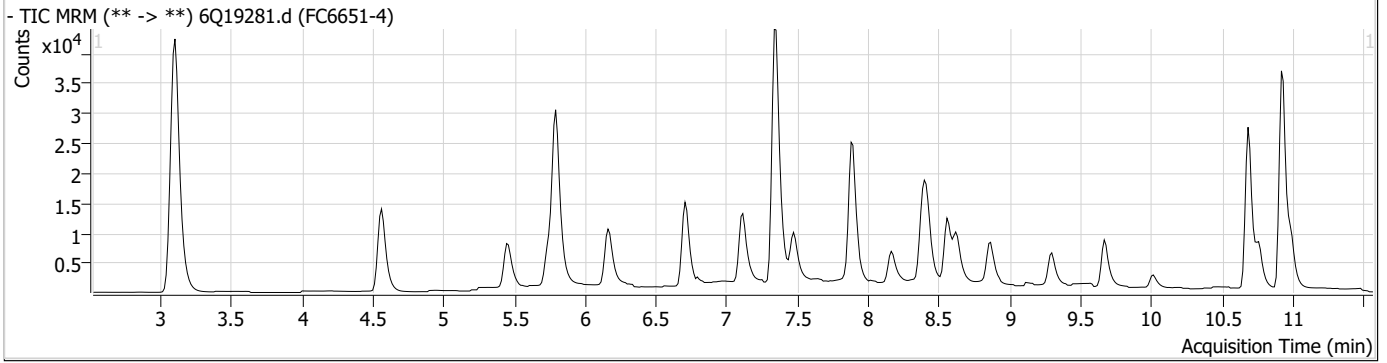
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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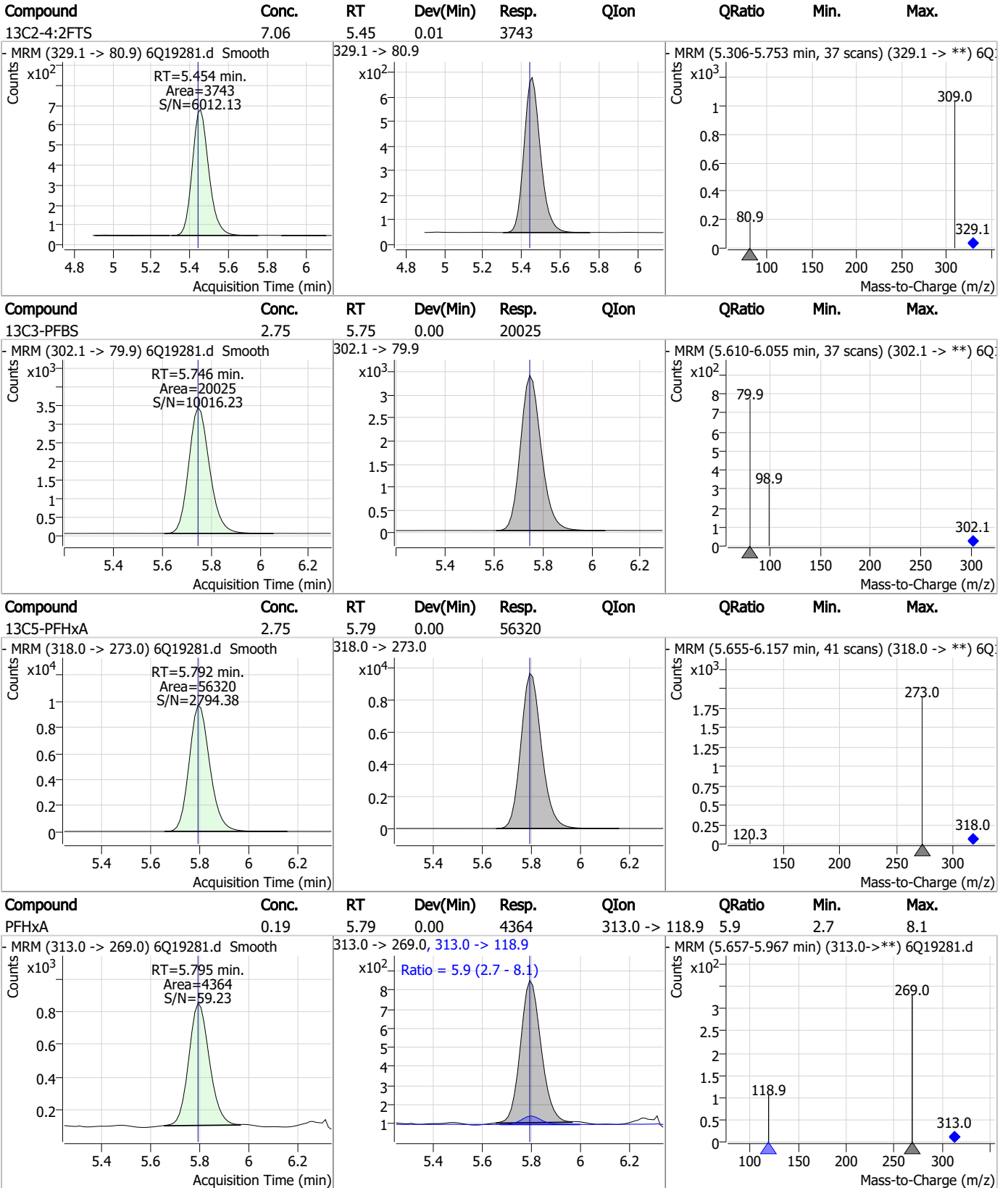
7.1.4
7



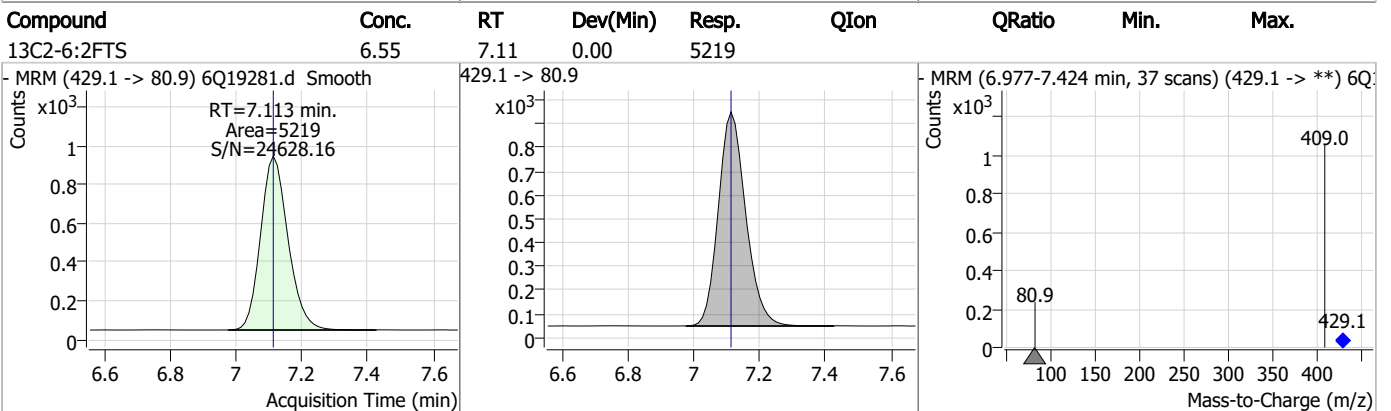
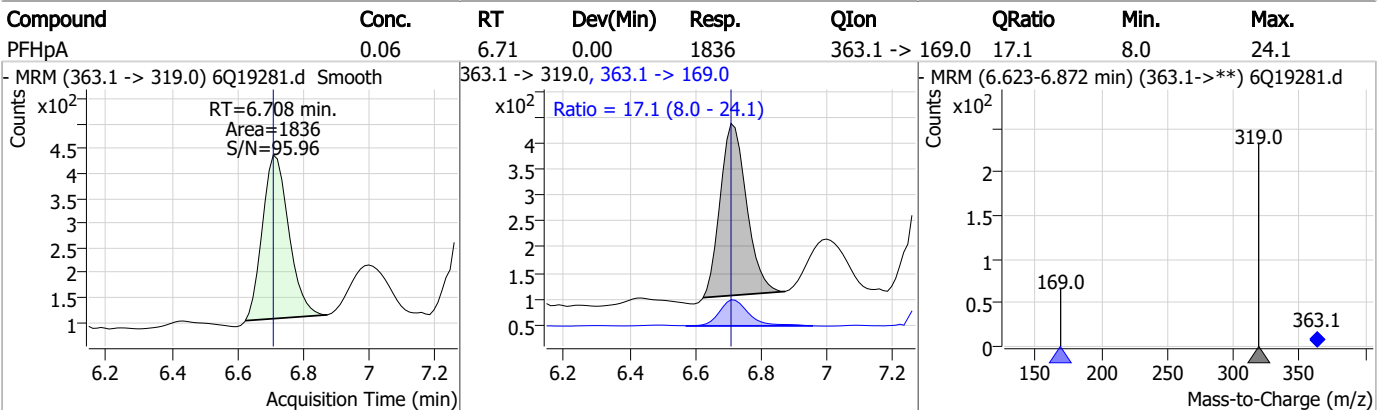
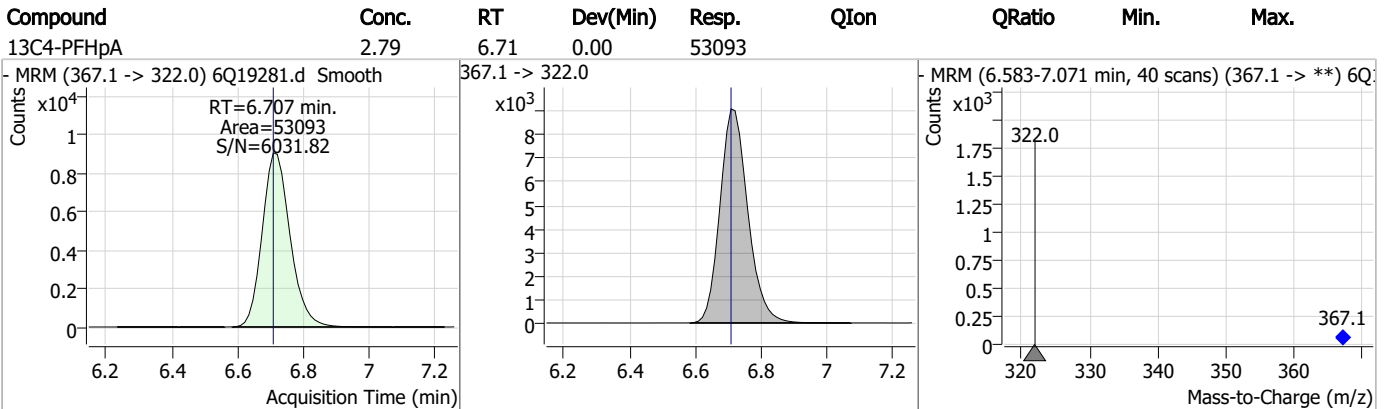
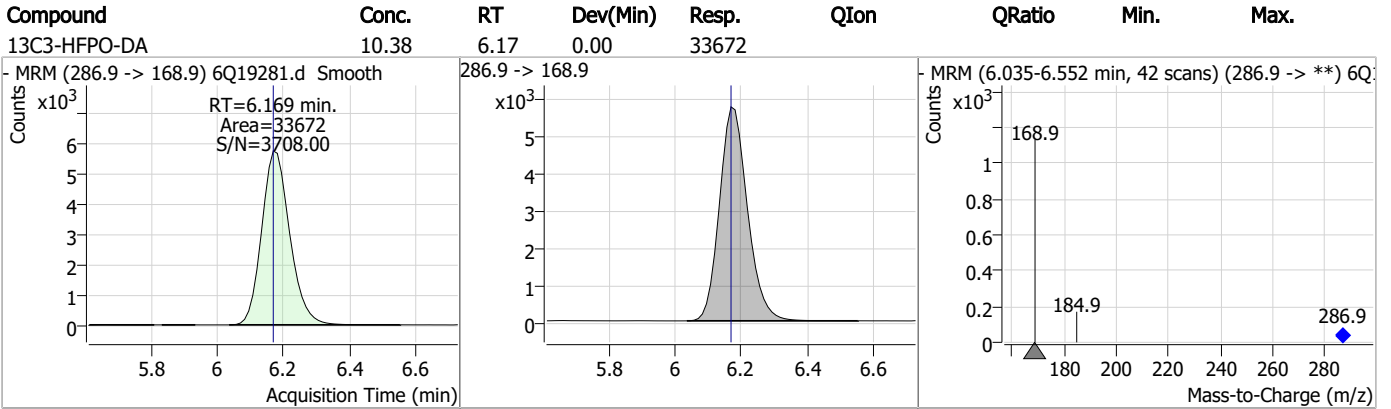
Perfluorinated Compounds by LC/MS/MS



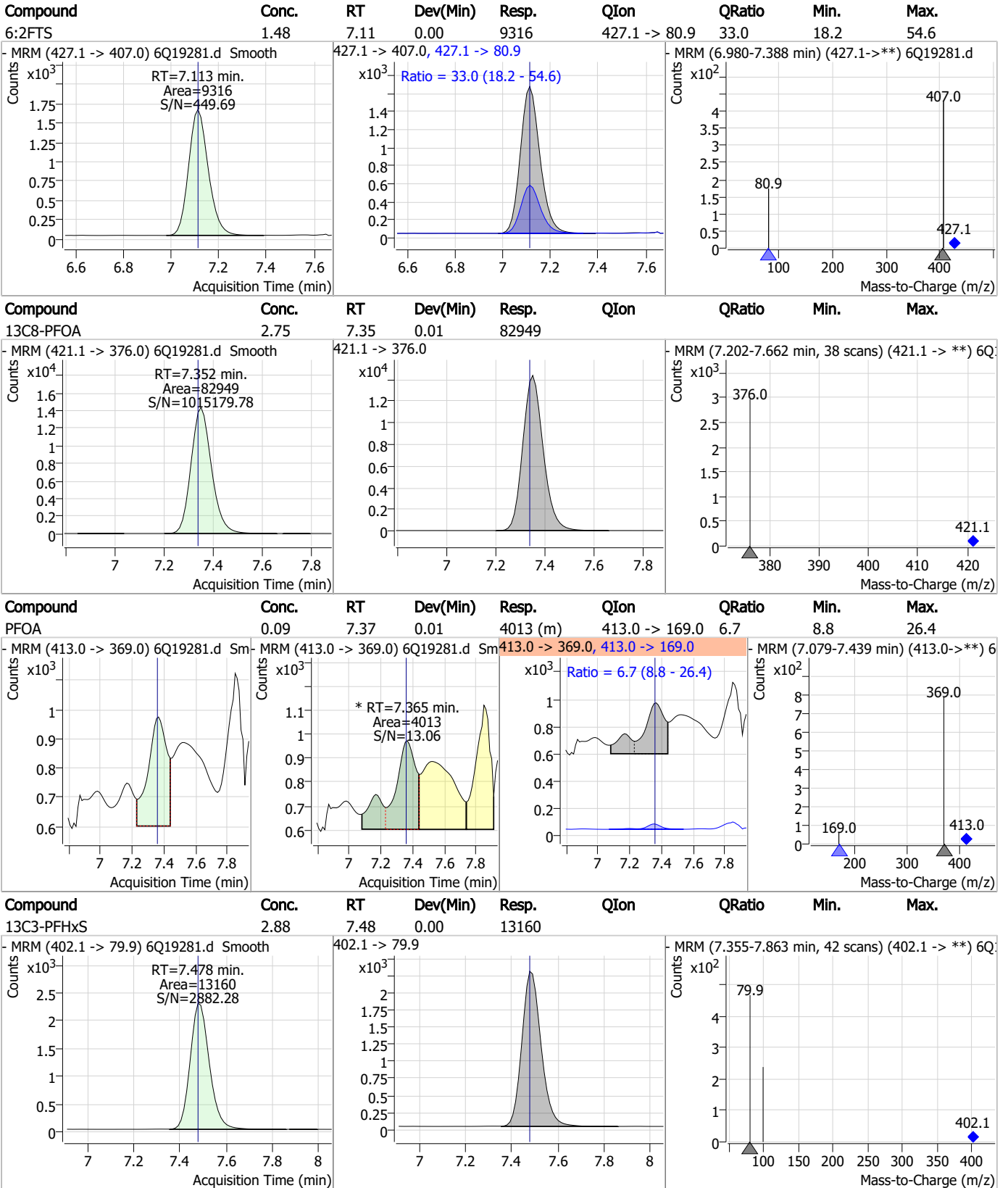
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

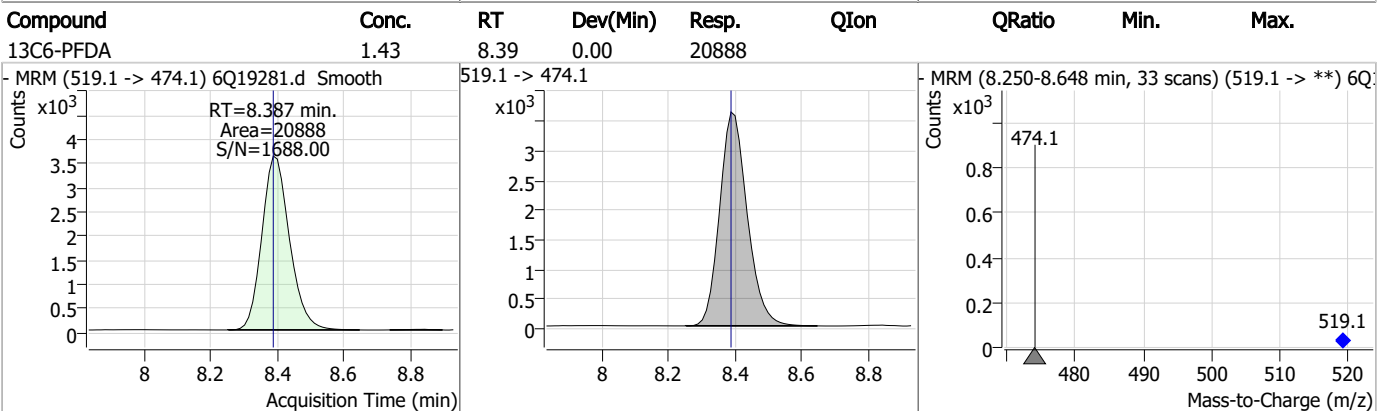
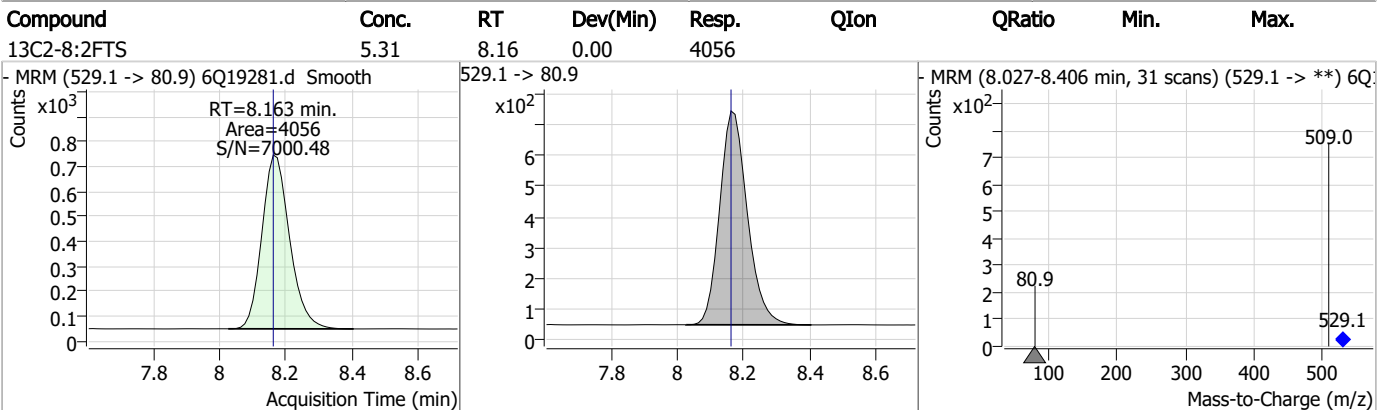
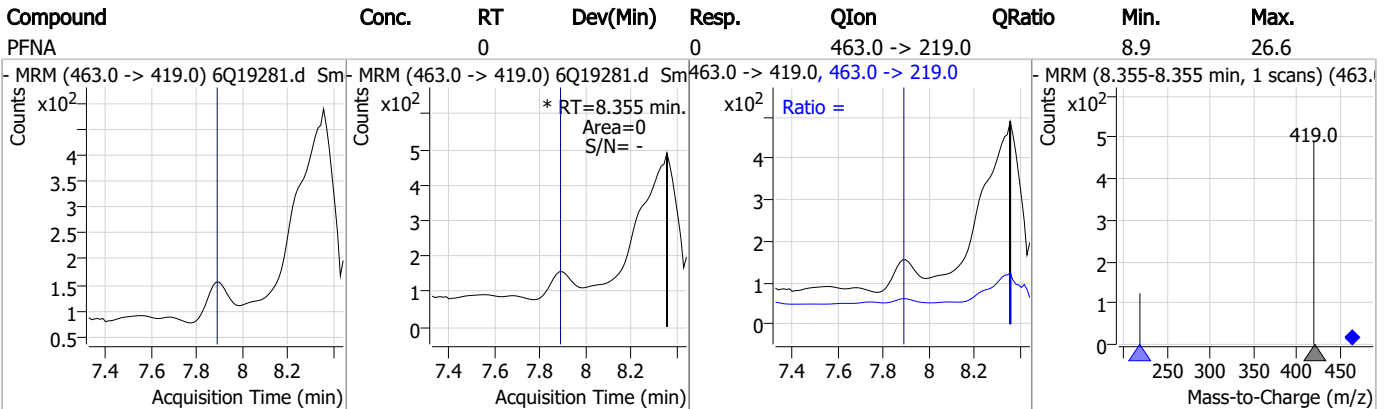
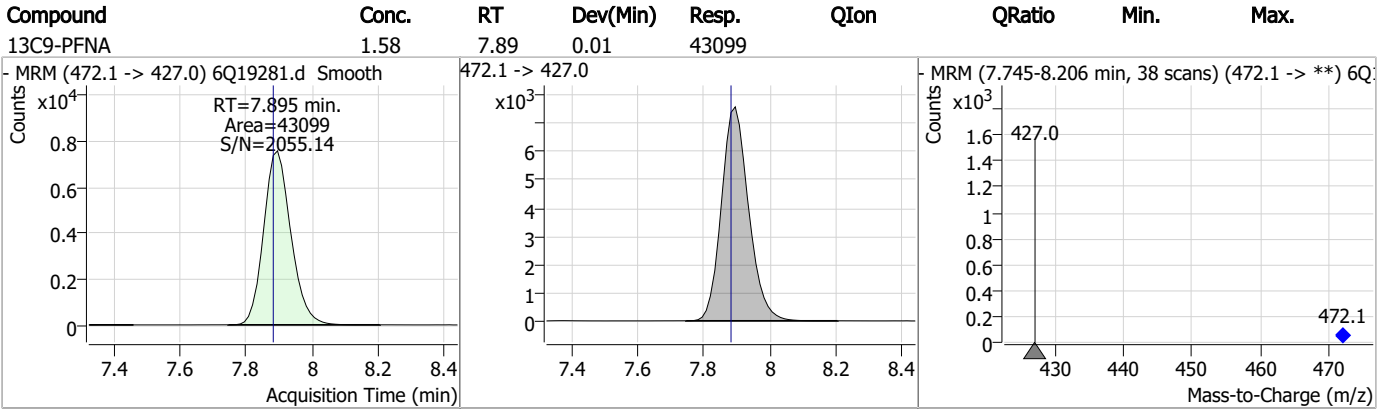


7.1.4

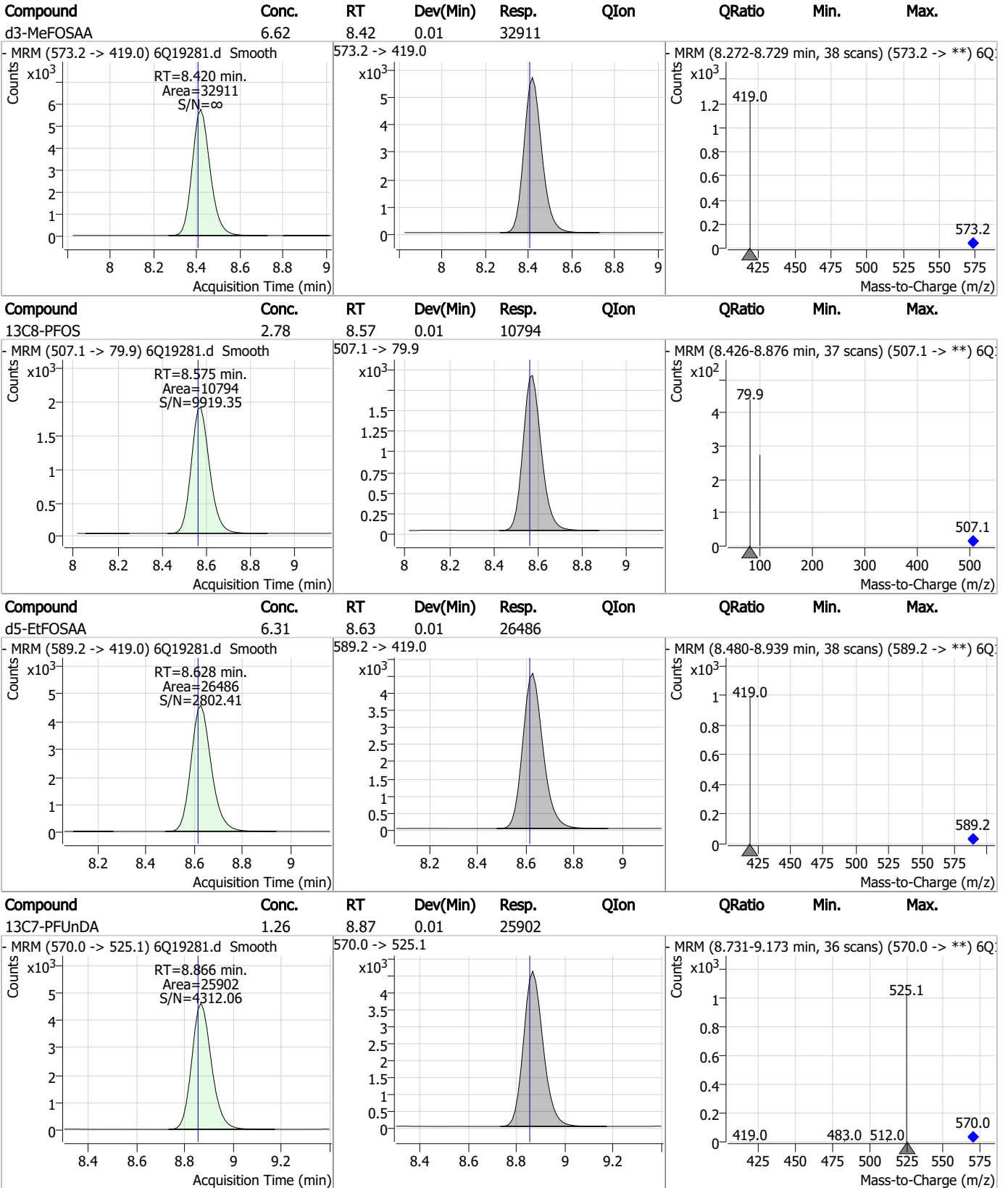
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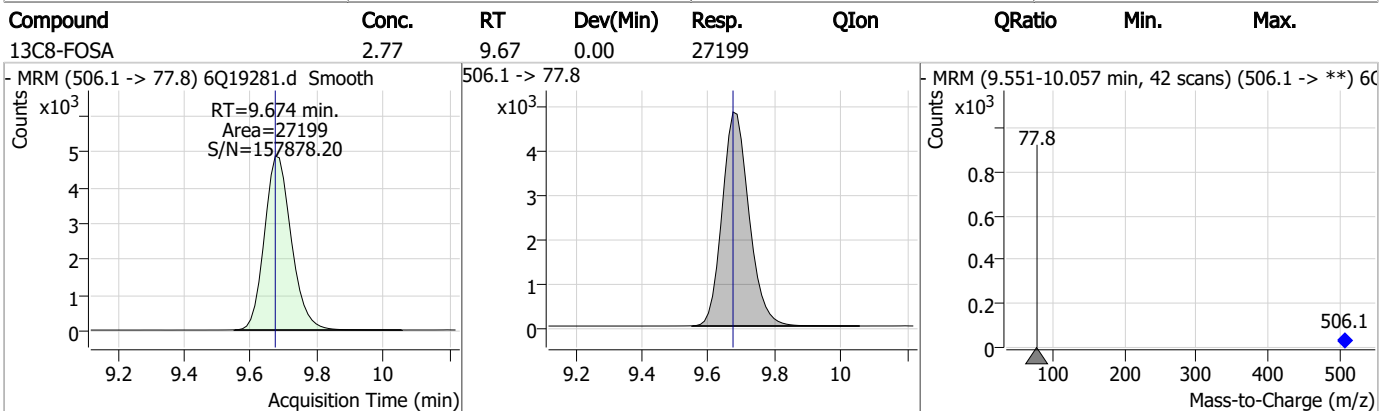
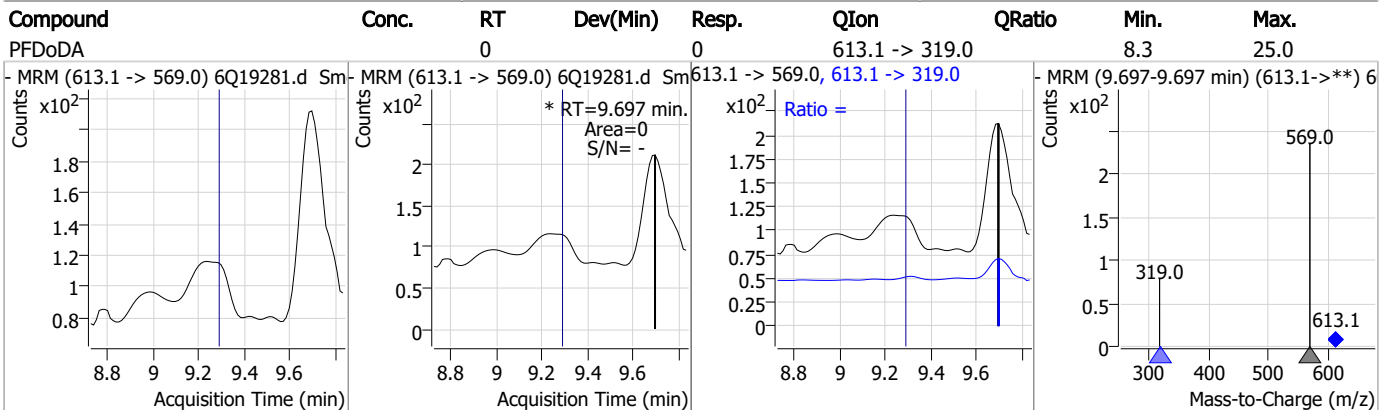
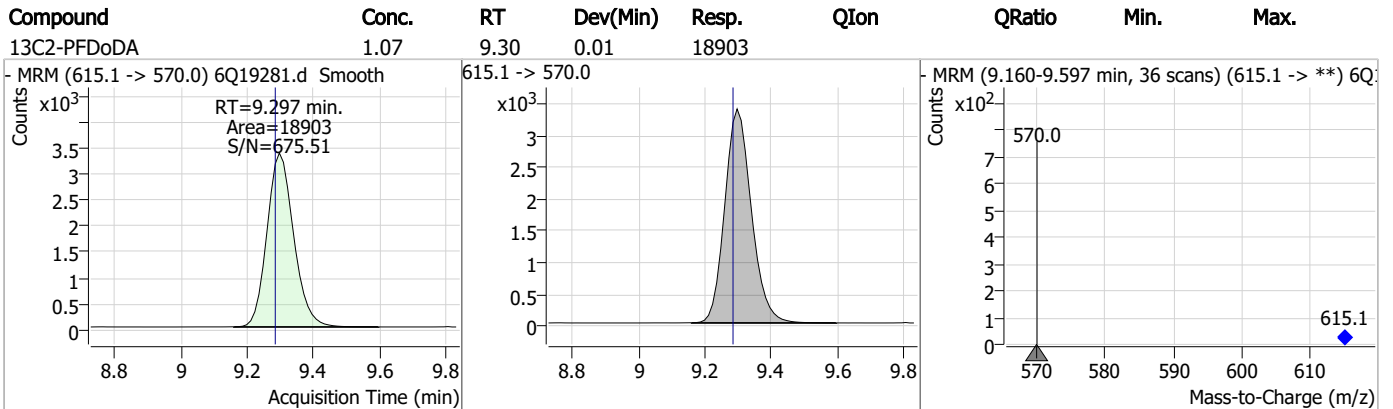
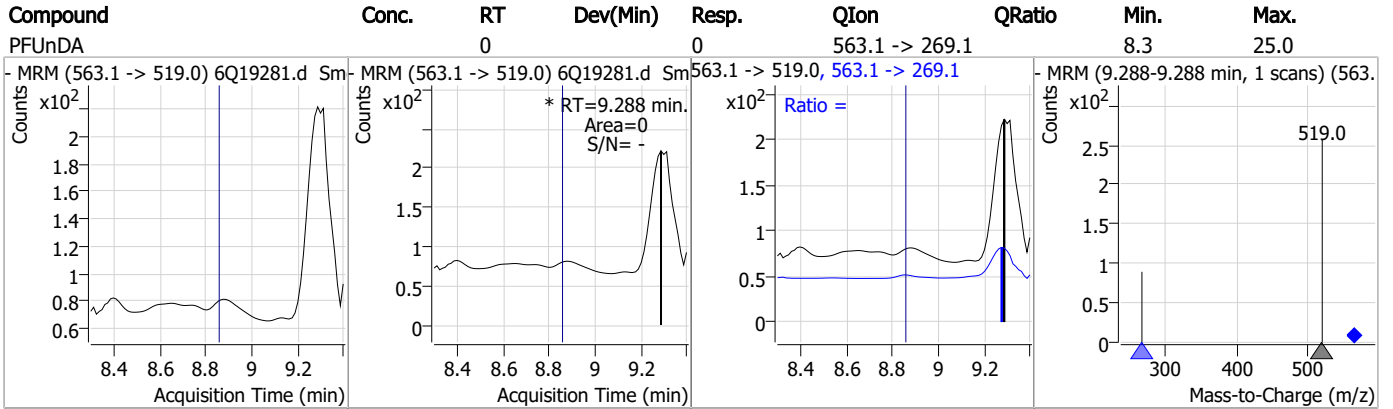
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



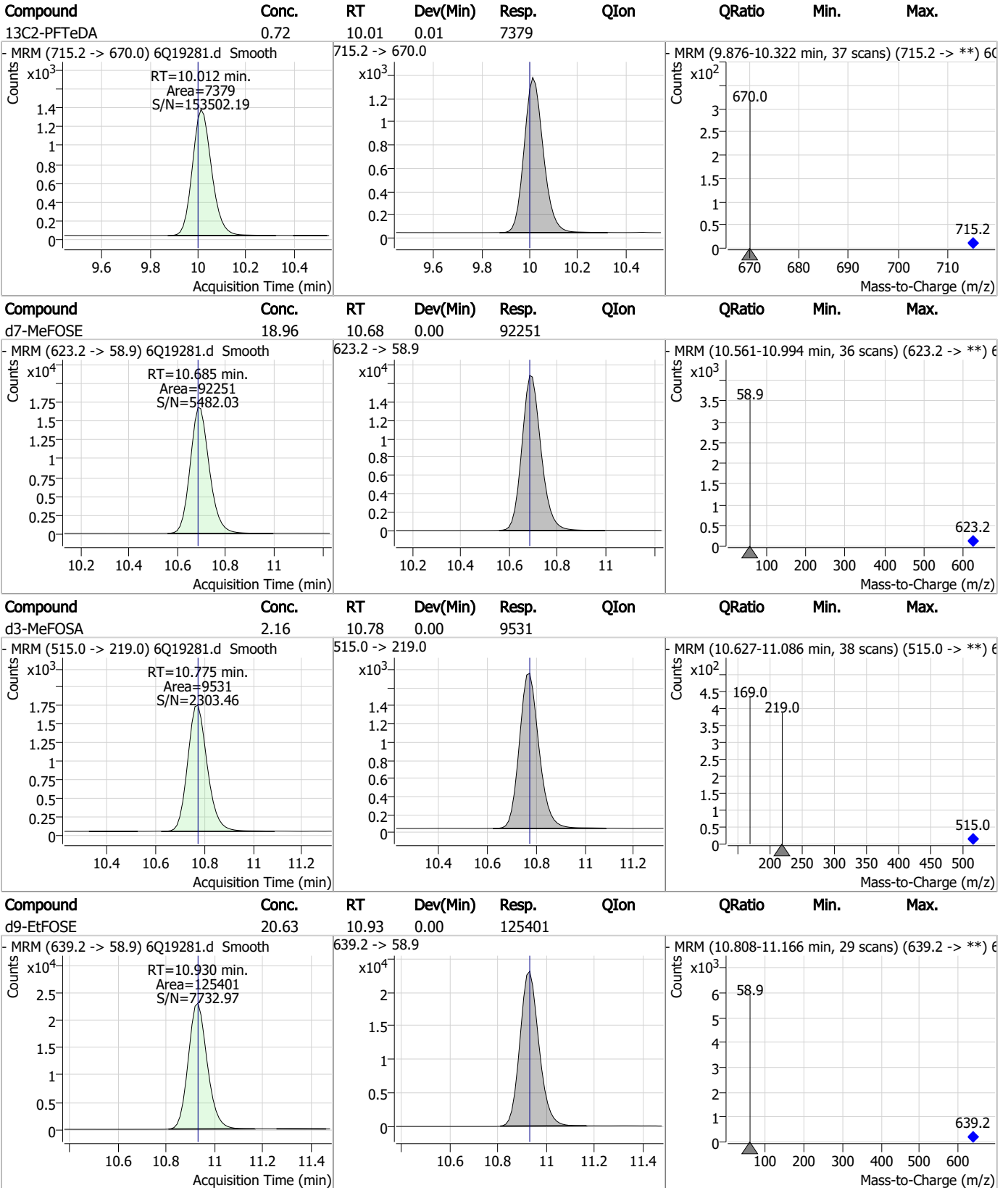
Perfluorinated Compounds by LC/MS/MS



7.1.4

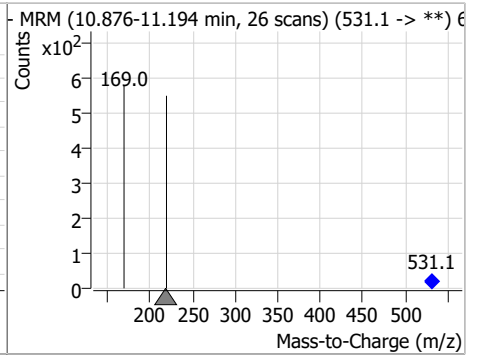
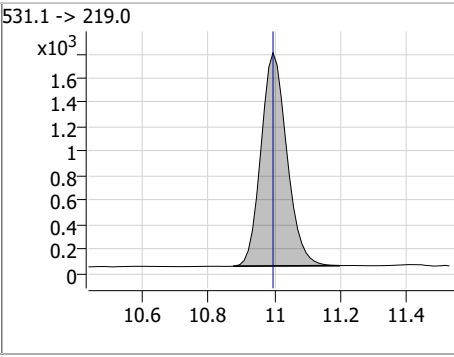
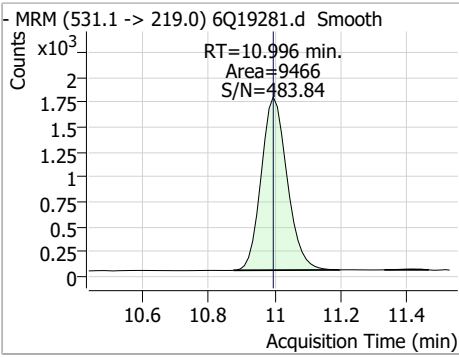
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.22	11.00	0.00	9466				



7.1.4
7

Manual Integration Approval Summary

Sample Number: FC6651-4 Method: EPA DRAFT 1633
Lab FileID: 6Q19281.D Analyst approved: 06/13/23 11:44 Martha Valls
Injection Time: 06/13/23 01:21 Supervisor approved: 06/13/23 13:43 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.37	Split peak

7.1.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19282.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/13/2023 1:35:40 AM
 Sample Name : FC6651-5
 Vial : P2-C9
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97275,S6Q287,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	140071	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	52361	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	55035	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	54408	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	88009	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	43497	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	23021	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	28241	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	23000	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	10062	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	27770	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	20426	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	12611	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	11324	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	2909	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	4494	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4305	5.00 µg/L	0.000
M3-MeFOSAA	8.420	573.2 -> 419.0	29396	5.00 µg/L	0.012
M3-HFPO-DA	6.169	286.9 -> 168.9	36565	10.00 µg/L	0.000
M5-EtFOSAA	8.628	589.2 -> 419.0	25866	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	101372	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	139397	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	10441	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	10215	2.50 µg/L	0.000
13C4-PFOS	8.576	502.8 -> 79.9	13740	2.50 µg/L	0.012
13C3-PFBA	3.101	216.0 -> 172.0	59083	5.00 µg/L	0.012
18O2-PFHxS	7.477	403.0 -> 83.9	8194	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	83833	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	31033	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	41265	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	48829	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	2909	5.77 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.3%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4494	5.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.5%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4305	5.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.5%		
13C2-PFDoDA	9.297	615.1 -> 570.0	23000	1.11 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.7%		
13C2-PFTeDA	10.012	715.2 -> 670.0	10062	0.84 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 66.8%		
13C3-PFBS	5.746	302.1 -> 79.9	20426	2.95 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 118.0%		
13C3-PFHxS	7.478	402.1 -> 79.9	12611	2.90 µg/L	0.000

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 = 115.9%		
13C4-PFBA	3.097	216.8 -> 171.9	140071	10.10 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C4-PFHpA	6.707	367.1 -> 322.0	54408	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.9%		
13C5-PFHxA	5.792	318.0 -> 273.0	55035	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C5-PFPeA	4.560	268.3 -> 223.0	52361	5.55 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.0%		
13C6-PFDA	8.387	519.1 -> 474.1	23021	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.5%		
13C7-PFUnDA	8.866	570.0 -> 525.1	28241	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C8-FOSA	9.674	506.1 -> 77.8	27770	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.1%		
13C8-PFOA	7.352	421.1 -> 376.0	88009	2.81 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.6%		
13C8-PFOS	8.575	507.1 -> 79.9	11324	2.81 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.6%		
13C9-PFNA	7.895	472.1 -> 427.0	43497	1.73 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 138.2%		
d3-MeFOSAA	8.420	573.2 -> 419.0	29396	5.70 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.1%		
13C3-HFPO-DA	6.169	286.9 -> 168.9	36565	10.93 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 109.3%		
d3-MeFOSA	10.775	515.0 -> 219.0	10215	2.24 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 89.5%		
d5-EtFOSAA	8.628	589.2 -> 419.0	25866	5.95 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.0%		
d7-MeFOSE	10.685	623.2 -> 58.9	101372	20.10 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 80.4%		
d9-EtFOSE	10.930	639.2 -> 58.9	139397	22.13 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 88.5%		
d5-EtFOSA	10.996	531.1 -> 219.0	10441	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.4%		

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	7.113	427.1 -> 407.0	5032	0.93 µg/L	97
		427.1 -> 80.9	1744		
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	5.450	298.7 -> 79.9	0	µg/L m	1
		298.7 -> 98.8	0		
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	9.697	613.1 -> 569.0	0	µg/L m	1
		613.1 -> 319.0	0		
PFDS	-	599.0 -> 79.9	-	N.D.	



7.15

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8				
PFHpA	6.708	363.1 -> 319.0	4546	0.16	µg/L	95
		363.1 -> 169.0	823			
PFHpS	-	449.0 -> 79.9	-	N.D.		
		449.0 -> 98.9				
PFHxA	5.795	313.0 -> 269.0	4783	0.22	µg/L	96
		313.0 -> 118.9	192			
PFHxS	-	398.7 -> 79.9	-	N.D.		
		398.7 -> 98.9				
PFNA	8.368	463.0 -> 419.0	0	µg/L	m	1
		463.0 -> 219.0	0			
PFNS	-	548.8 -> 79.9	-	N.D.		
		548.8 -> 98.9				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	498.9 -> 79.9	-	N.D.		
		498.9 -> 98.8				
PFPeA	4.551	263.0 -> 219.0	8519	0.55	µg/L	100
PFPeS	6.823	349.1 -> 79.9	0	µg/L	m	1
		349.1 -> 98.9	0			
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.1.5
7



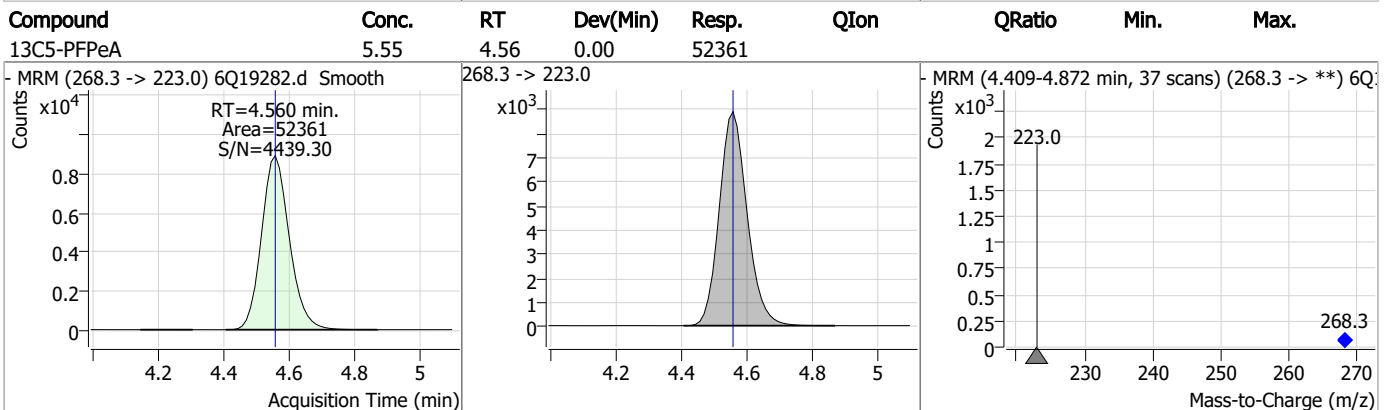
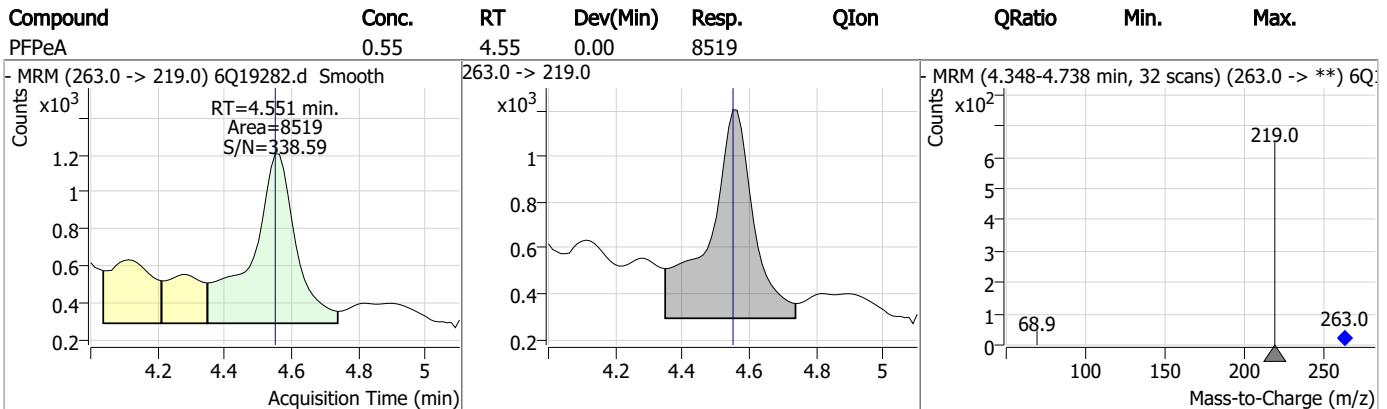
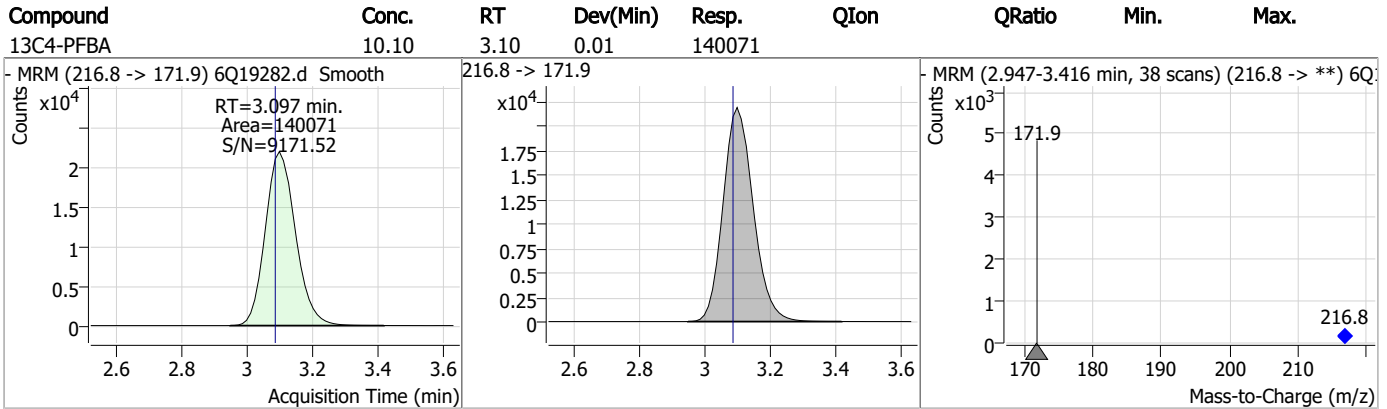
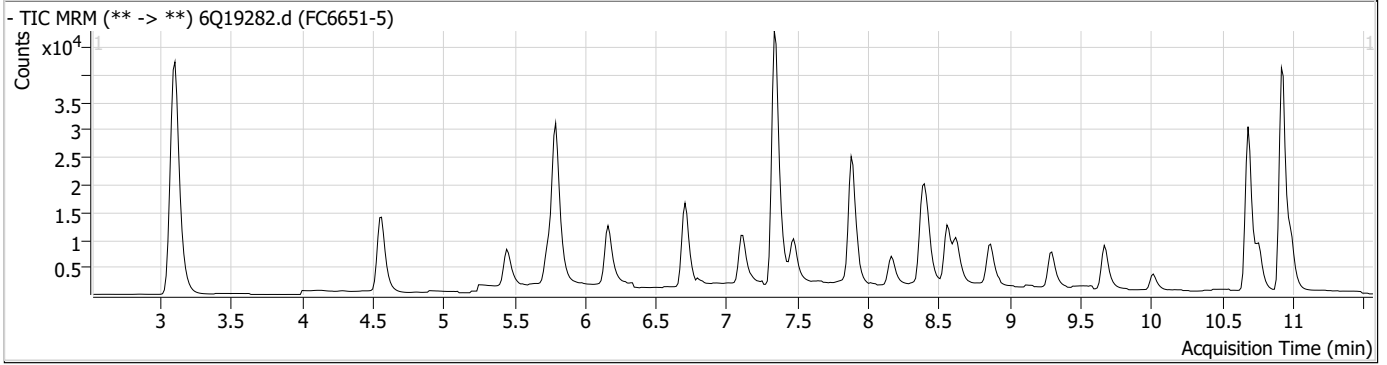
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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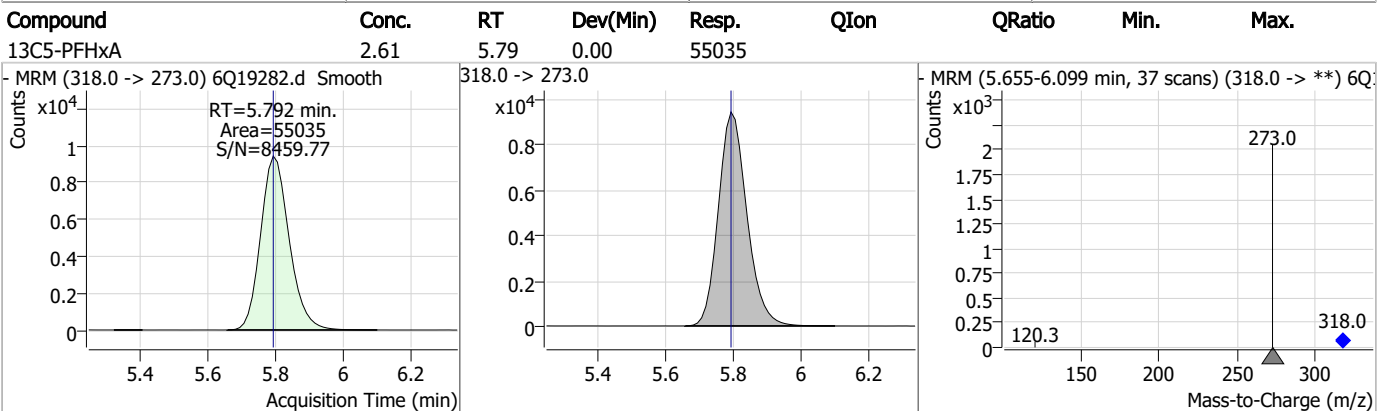
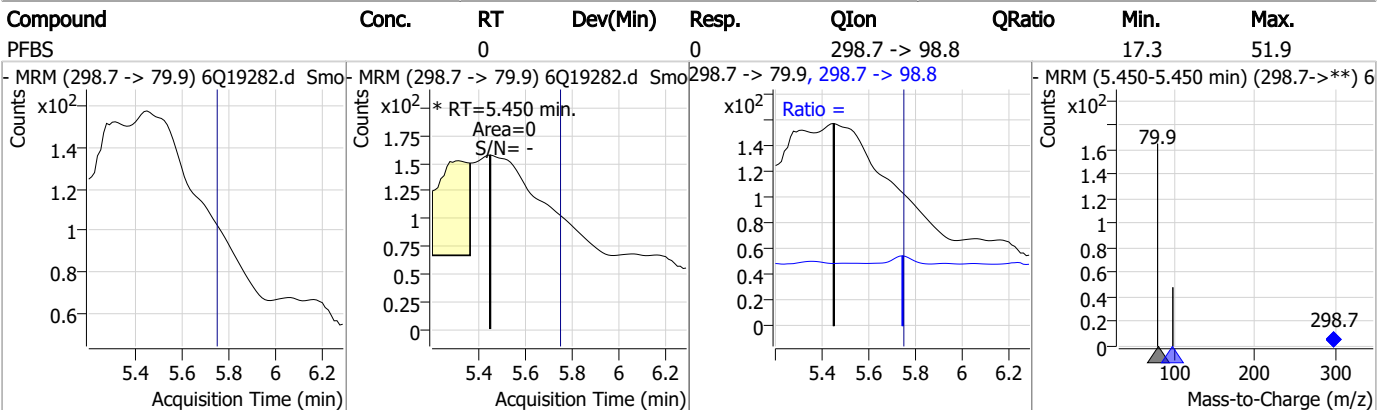
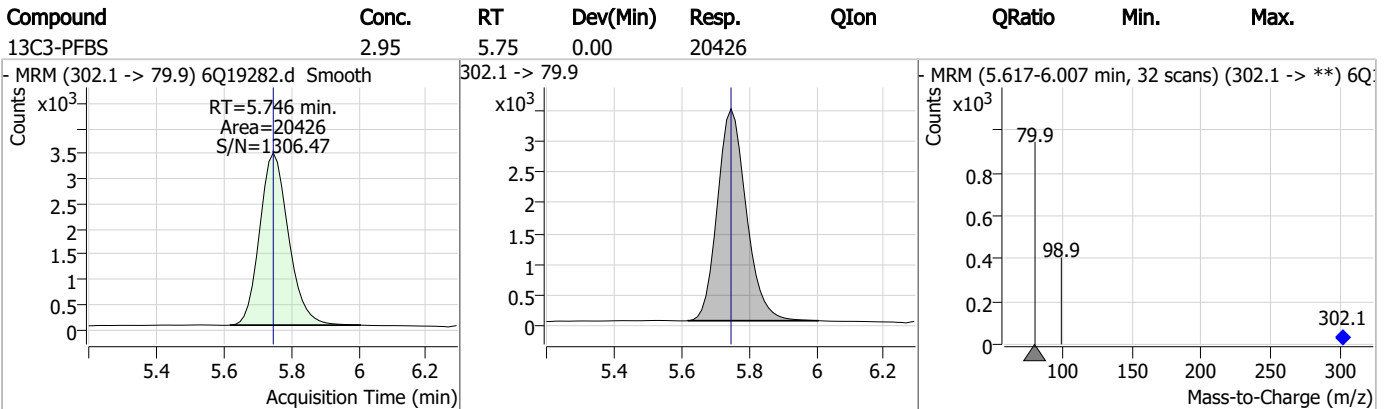
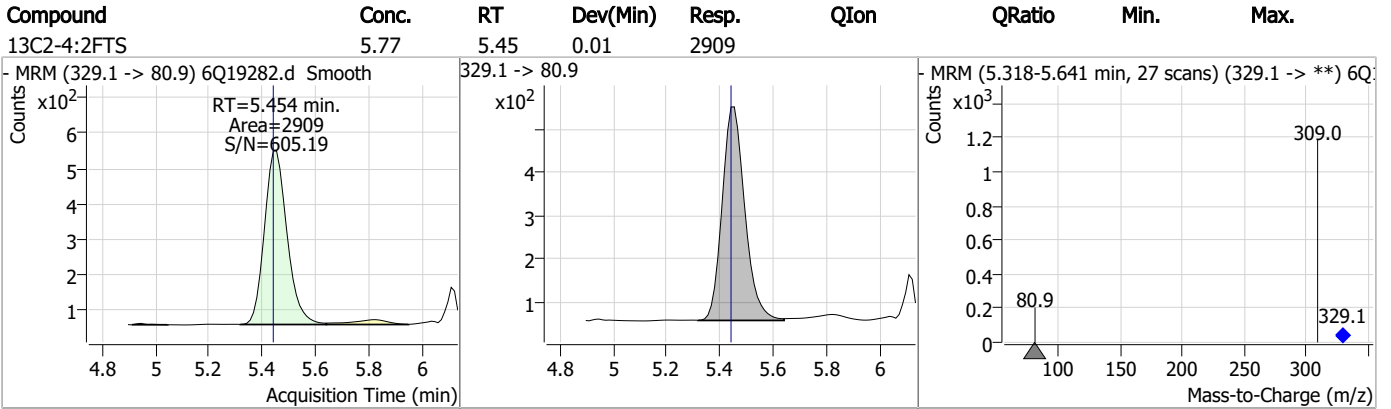
7.1.5
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

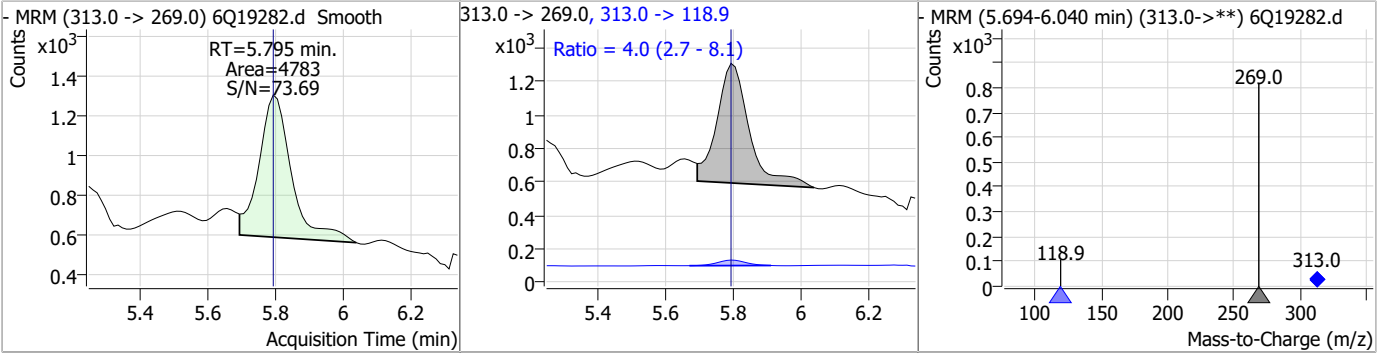


7.15

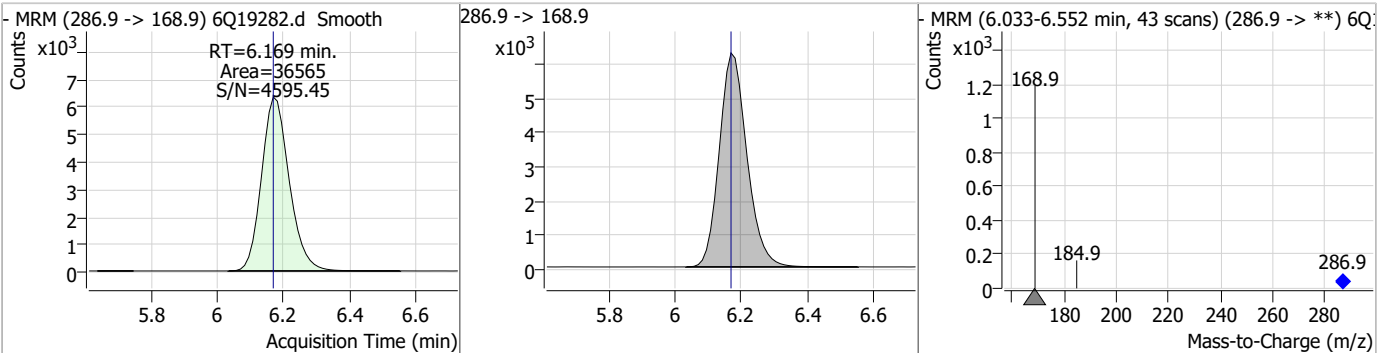
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Perfluorinated Compounds by LC/MS/MS

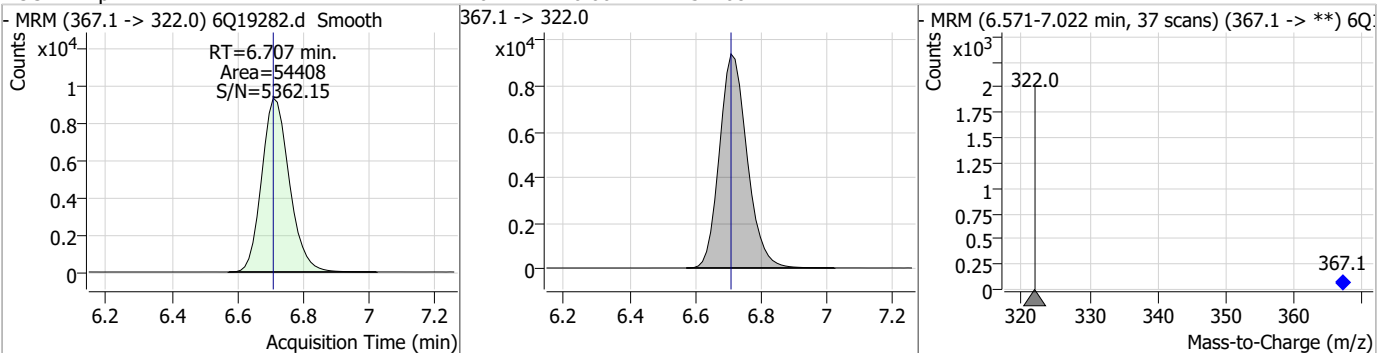
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.22	5.79	0.00	4783	313.0 -> 118.9	4.0	2.7	8.1



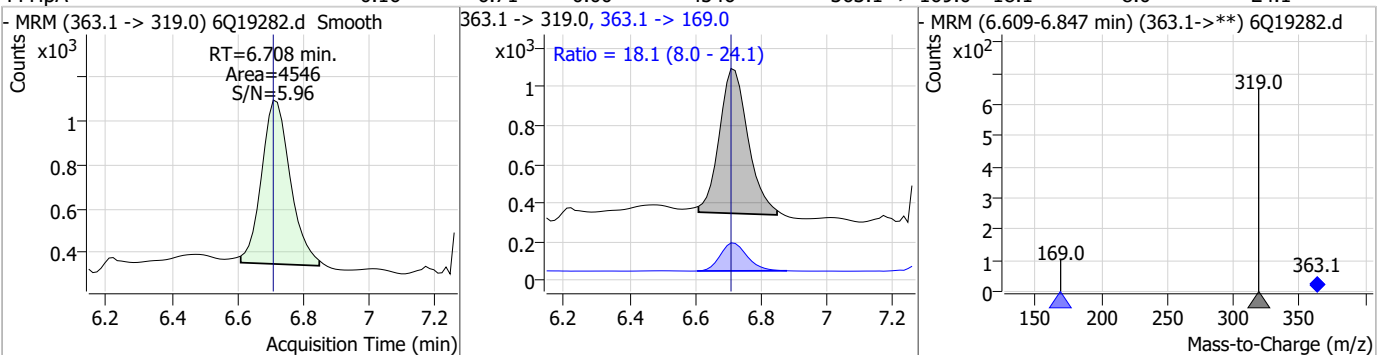
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.93	6.17	0.00	36565				



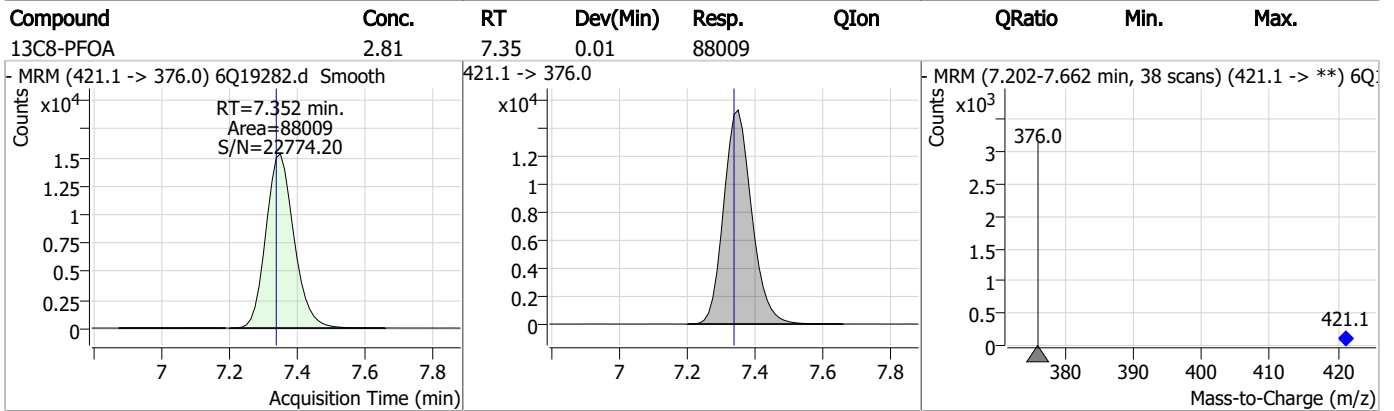
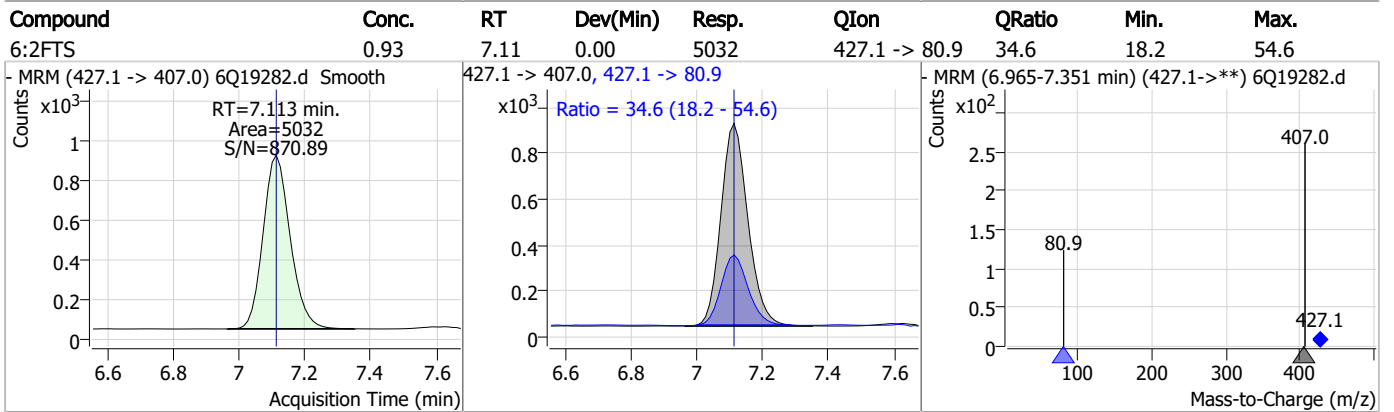
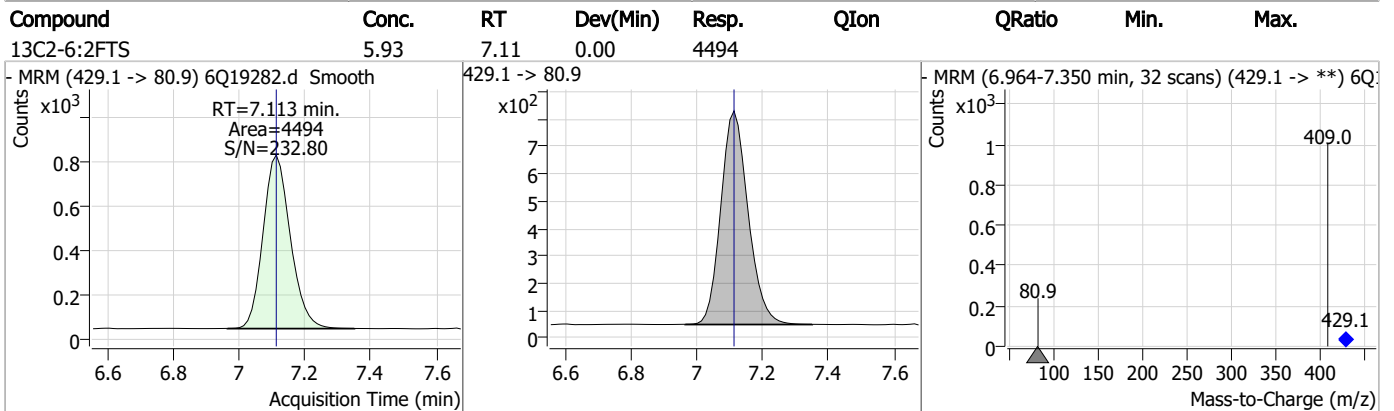
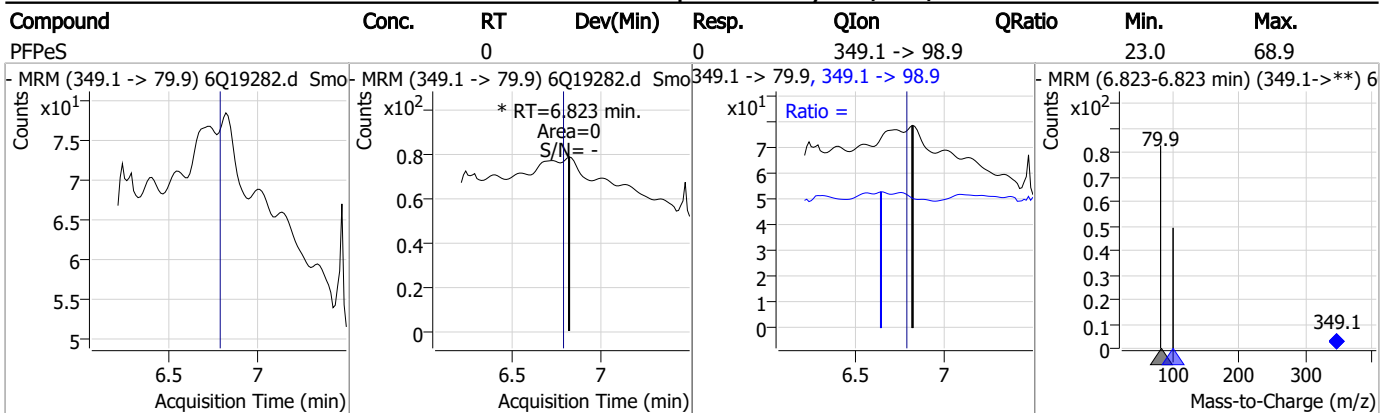
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.77	6.71	0.00	54408				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.16	6.71	0.00	4546	363.1 -> 169.0	18.1	8.0	24.1

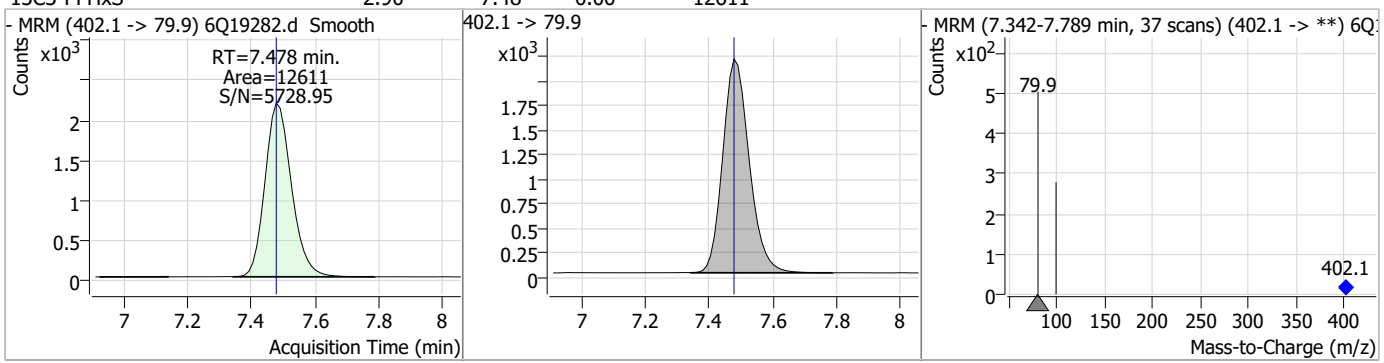


Perfluorinated Compounds by LC/MS/MS

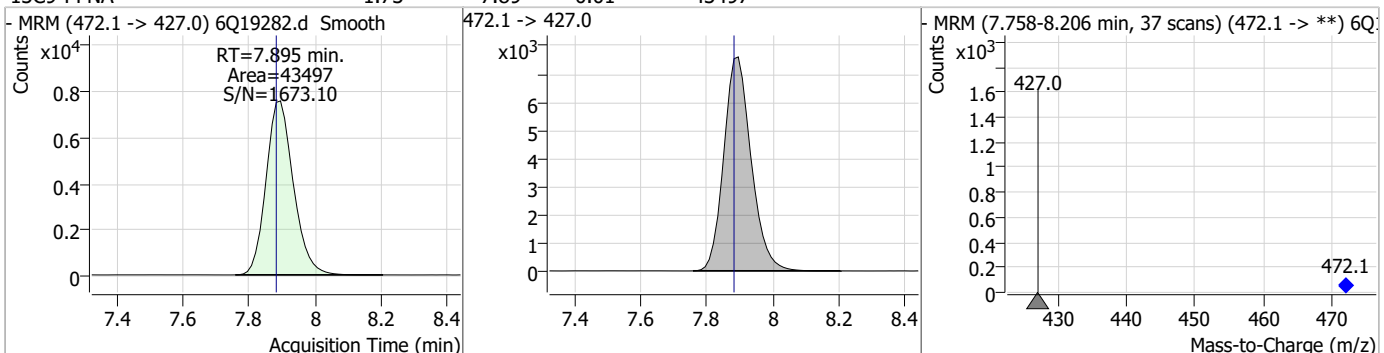


Perfluorinated Compounds by LC/MS/MS

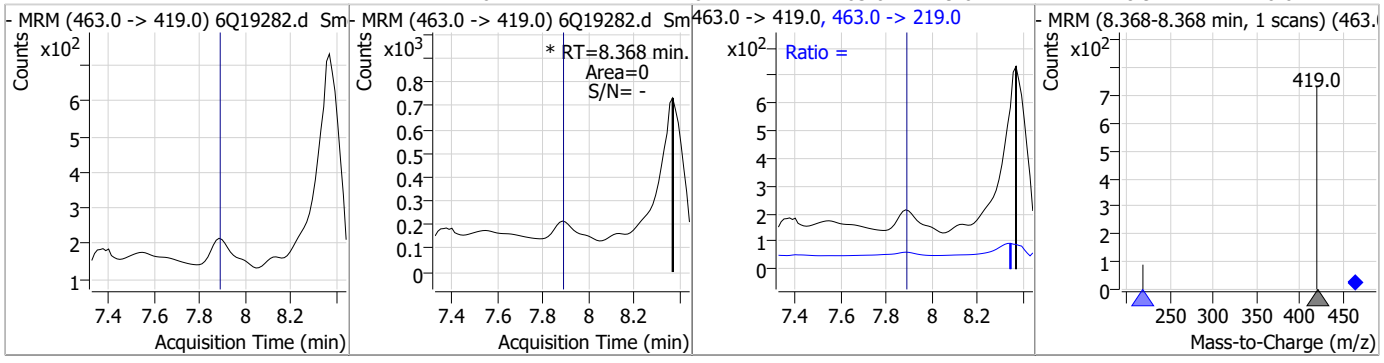
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.90	7.48	0.00	12611				



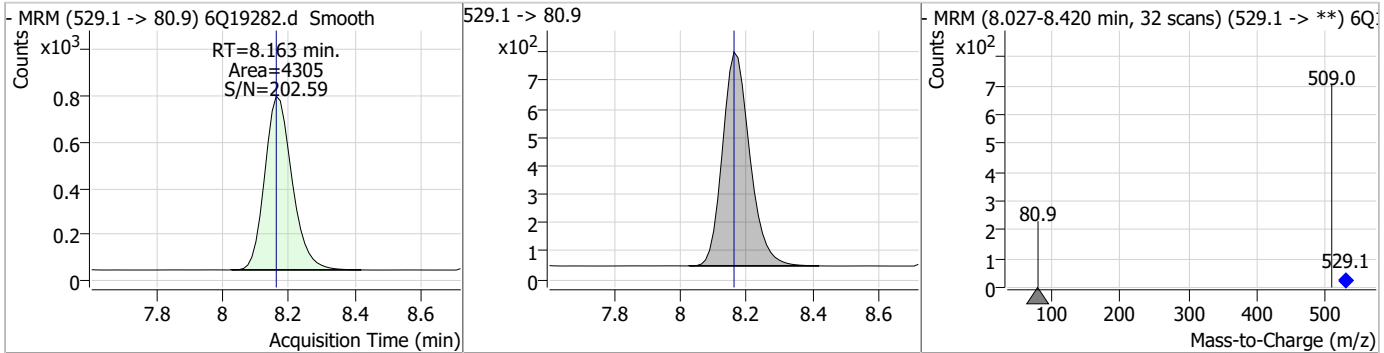
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.73	7.89	0.01	43497				



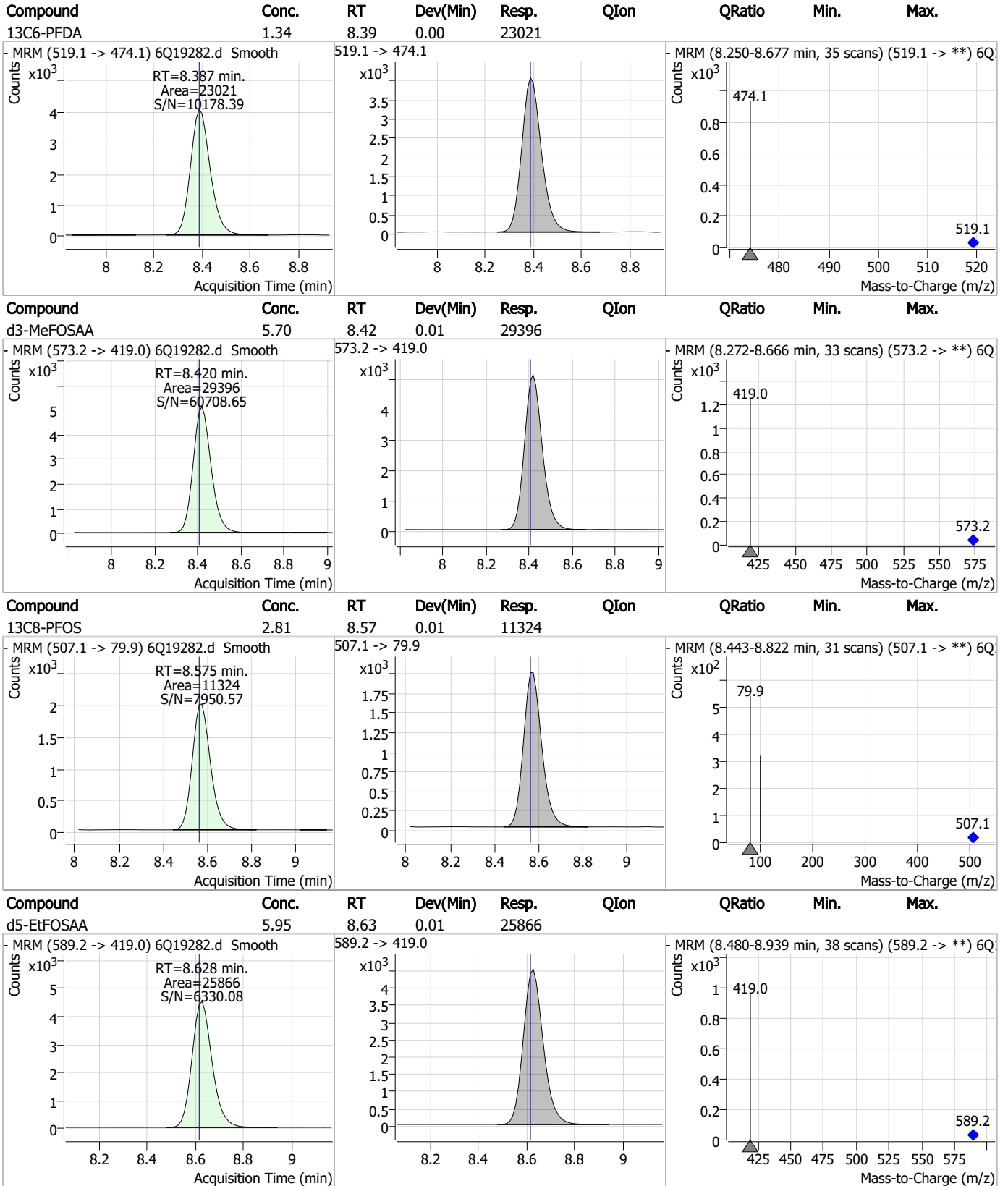
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0	0		0	463.0 -> 219.0		8.9	26.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.93	8.16	0.00	4305				



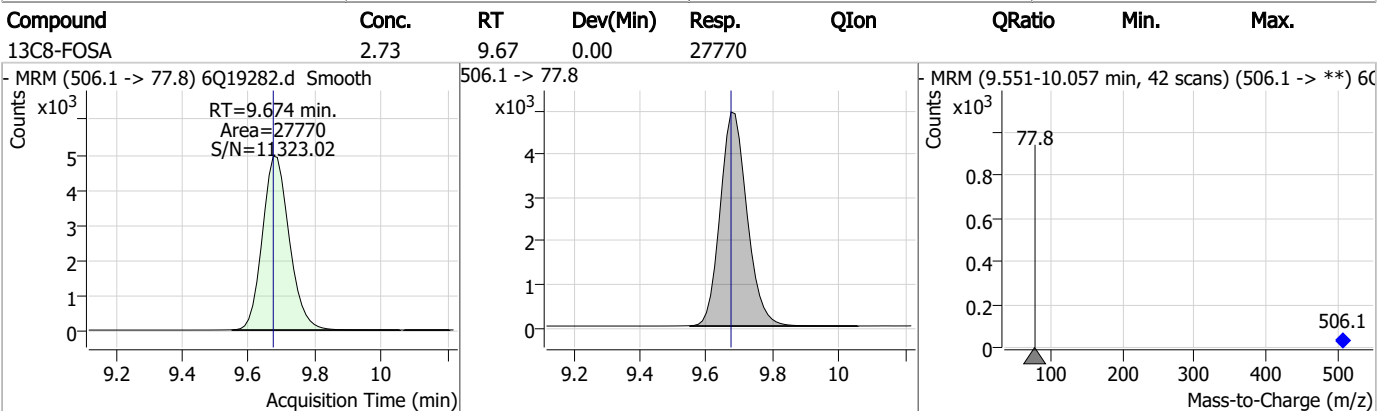
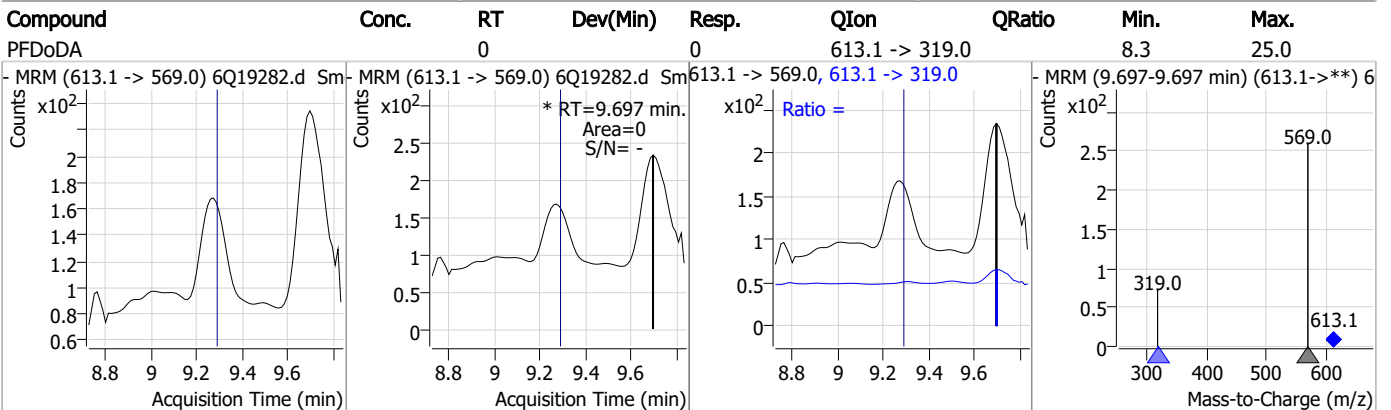
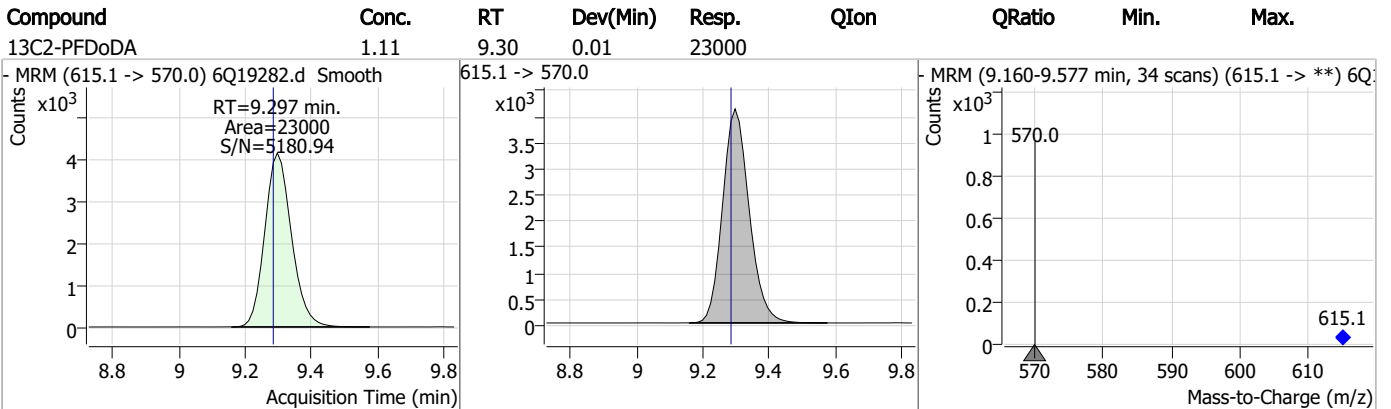
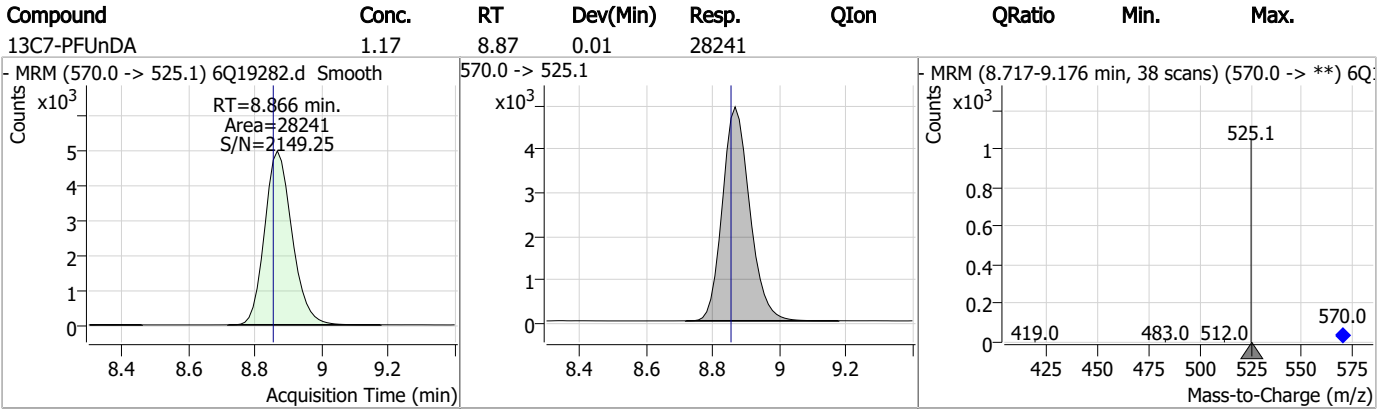
Perfluorinated Compounds by LC/MS/MS



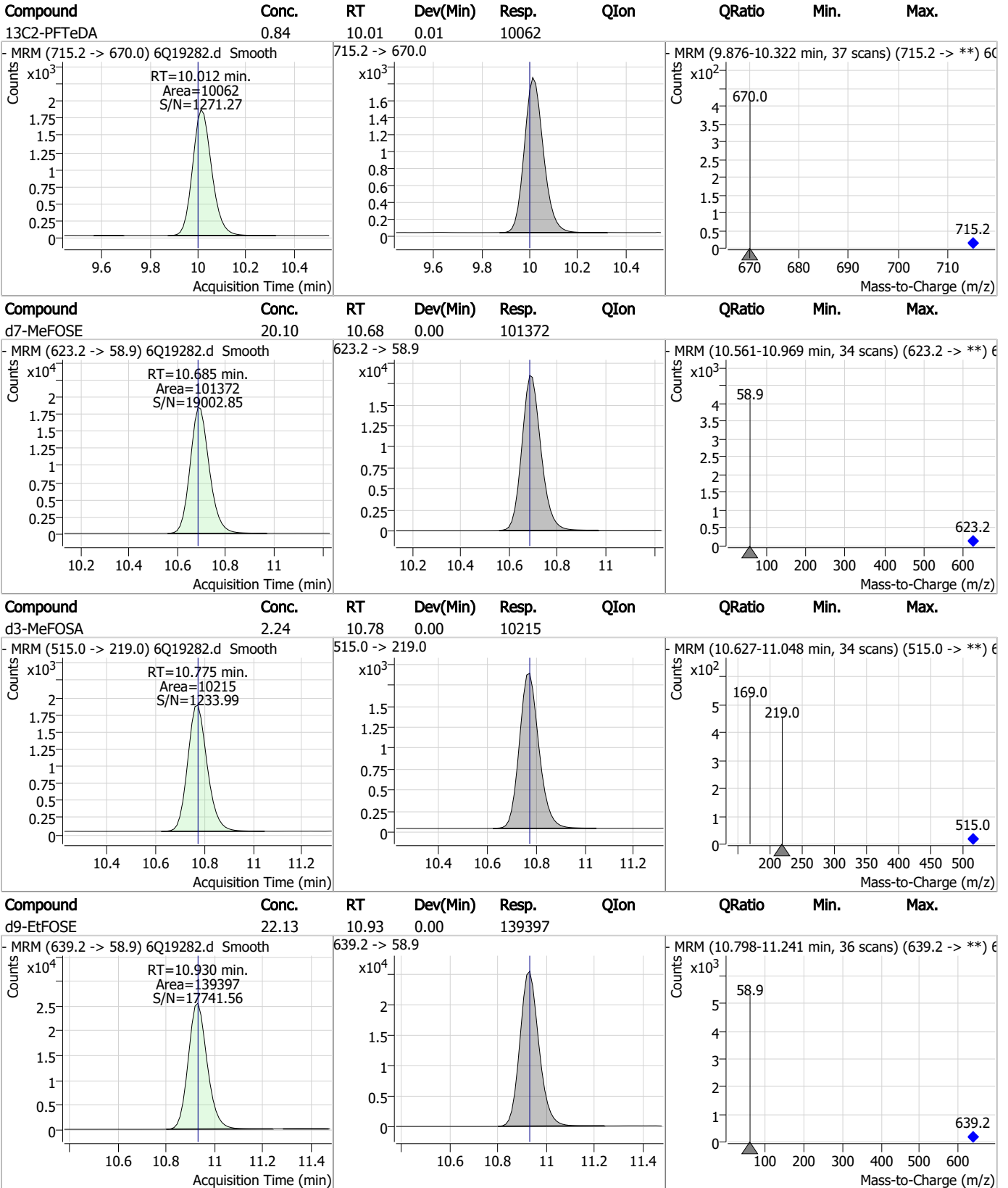
7.1.5

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

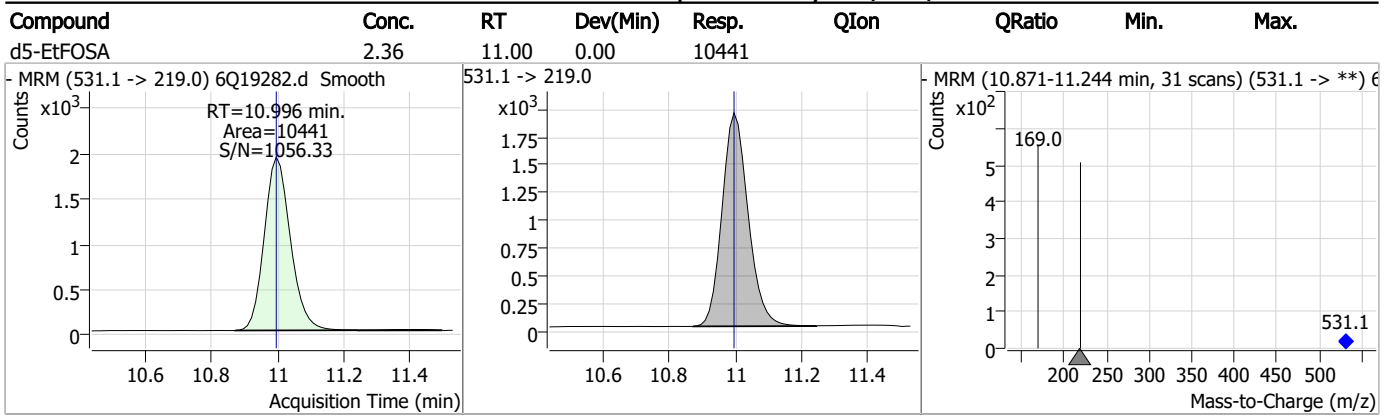


7.1.5

7



Perfluorinated Compounds by LC/MS/MS



7.1.5
7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19265.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 9:37:59 PM
 Sample Name : op97275-mb
 Vial : P2-B3
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97275,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	141084	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	46295	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	51160	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	46726	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	73643	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	35825	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	20607	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	27404	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	23249	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	11688	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	20581	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	18173	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	11471	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	10849	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	3249	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	4903	5.00 µg/L	0.000
M2-8:2FTS	8.175	529.1 -> 80.9	3905	5.00 µg/L	0.012
M3-MeFOSAA	8.420	573.2 -> 419.0	28443	5.00 µg/L	0.012
M3-HFPO-DA	6.169	286.9 -> 168.9	31001	10.00 µg/L	0.000
M5-EtFOSAA	8.628	589.2 -> 419.0	21430	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	78190	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	114946	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	9586	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	8821	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	14645	2.50 µg/L	0.000
13C3-PFBA	3.101	216.0 -> 172.0	57001	5.00 µg/L	0.012
18O2-PFHxS	7.477	403.0 -> 83.9	8888	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	76706	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	28010	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	40607	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	47645	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3249	5.94 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.7%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4903	5.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.2%		
13C2-8:2FTS	8.175	529.1 -> 80.9	3905	4.95 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-PFDoDA	9.297	615.1 -> 570.0	23249	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C2-PFTeDA	10.012	715.2 -> 670.0	11688	1.08 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.0%		
13C3-PFBS	5.746	302.1 -> 79.9	18173	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C3-PFHxS	7.478	402.1 -> 79.9	11471	2.43 µg/L	0.000

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 = 97.2%	
13C4-PFBA	3.097	216.8 -> 171.9	141084	10.54 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C4-PFHpA	6.707	367.1 -> 322.0	46726	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C5-PFHxA	5.792	318.0 -> 273.0	51160	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFPeA	4.560	268.3 -> 223.0	46295	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C6-PFDA	8.387	519.1 -> 474.1	20607	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C7-PFUnDA	8.866	570.0 -> 525.1	27404	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C8-FOSA	9.674	506.1 -> 77.8	20581	1.90 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.9%	
13C8-PFOA	7.352	421.1 -> 376.0	73643	2.57 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C8-PFOS	8.575	507.1 -> 79.9	10849	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C9-PFNA	7.895	472.1 -> 427.0	35825	1.45 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.7%	
d3-MeFOSAA	8.420	573.2 -> 419.0	28443	5.18 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	31001	9.49 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.9%	
d3-MeFOSA	10.775	515.0 -> 219.0	8821	1.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 72.5%	
d5-EtFOSAA	8.628	589.2 -> 419.0	21430	4.62 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.5%	
d7-MeFOSE	10.685	623.2 -> 58.9	78190	14.55 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 58.2%	
d9-EtFOSE	10.930	639.2 -> 58.9	114946	17.12 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 68.5%	
d5-EtFOSA	10.996	531.1 -> 219.0	9586	2.03 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.3%	

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	9.697	613.1 -> 569.0	0	µg/L m	1
		613.1 -> 319.0	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	7.787	548.8 -> 98.9	0	µg/L	m	1
		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

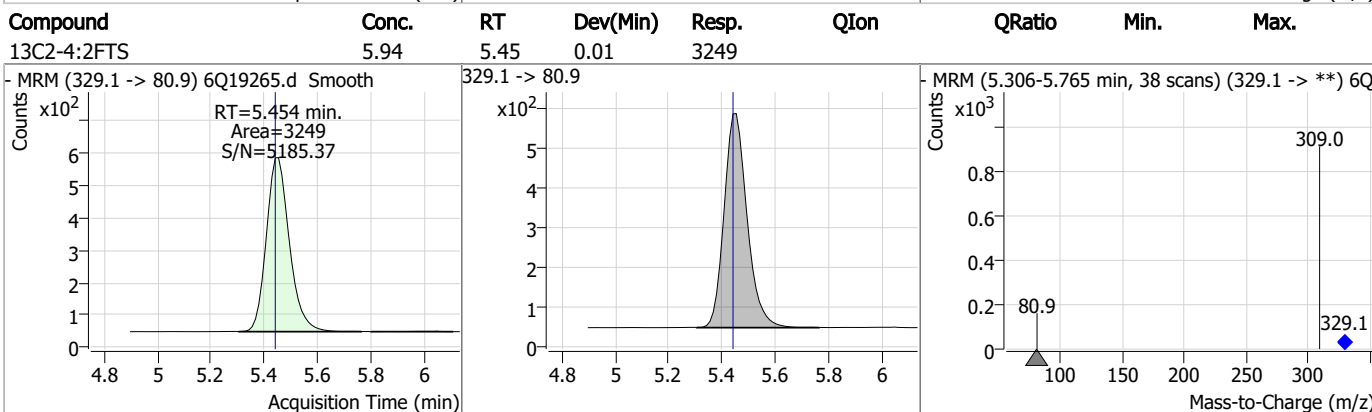
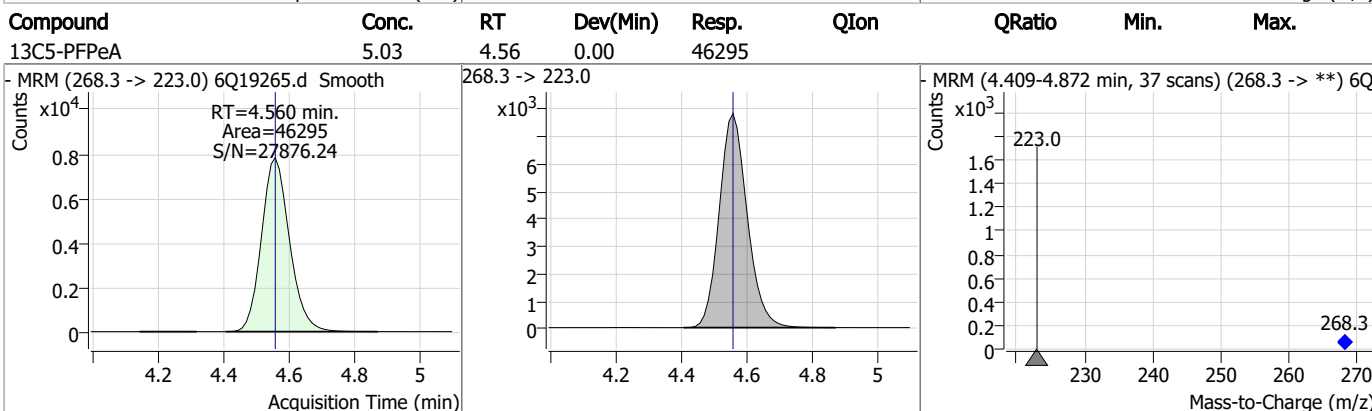
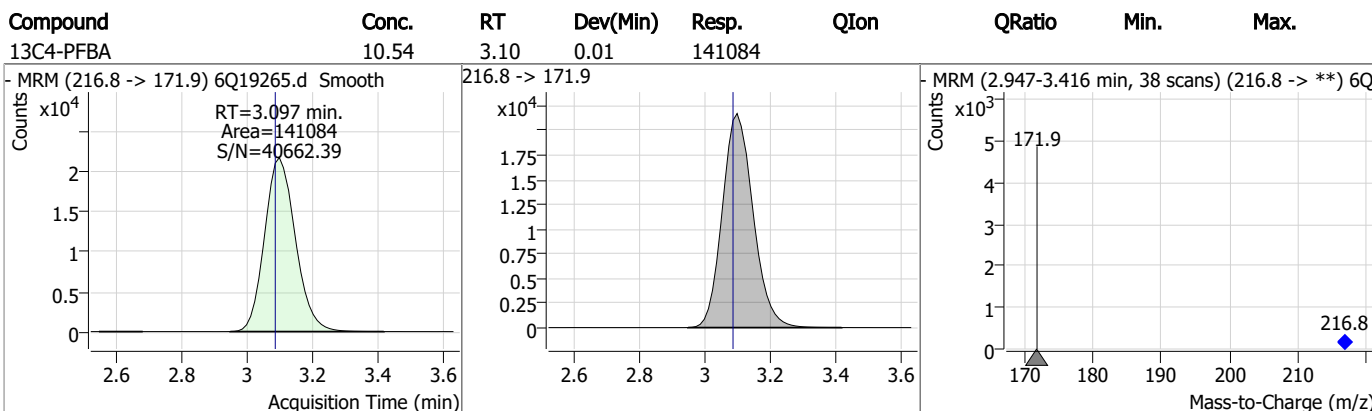
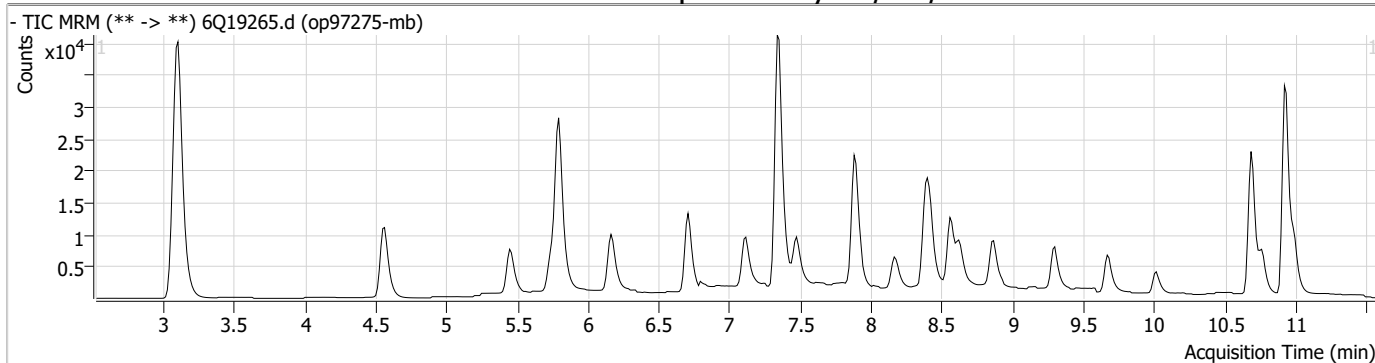
Perfluorinated Compounds by LC/MS/MS

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

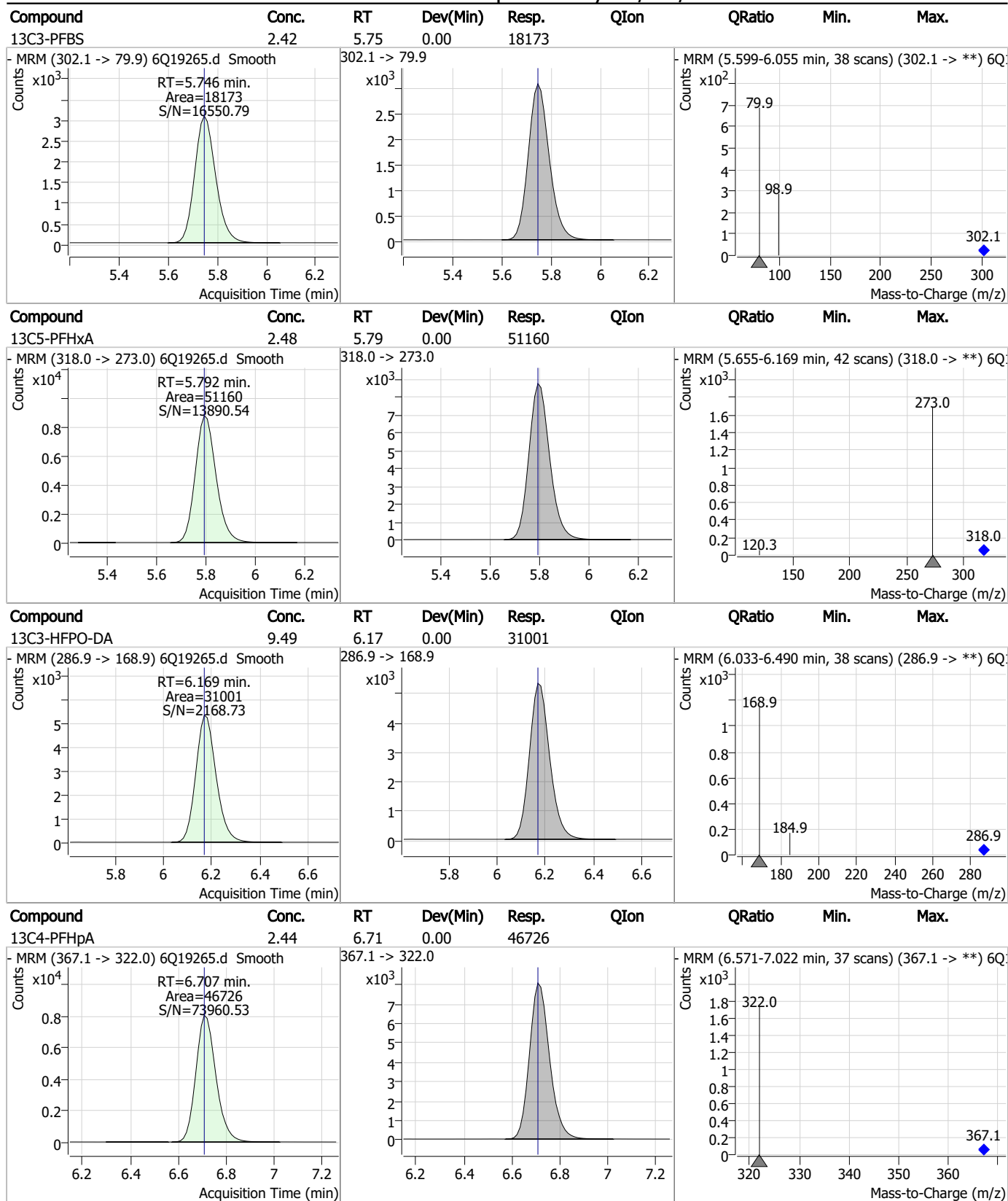
7

Perfluorinated Compounds by LC/MS/MS



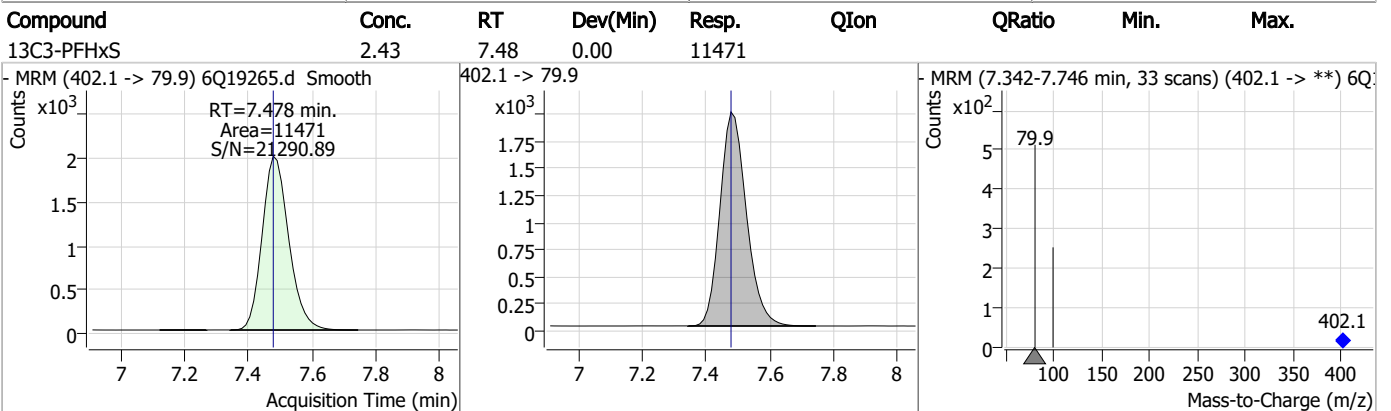
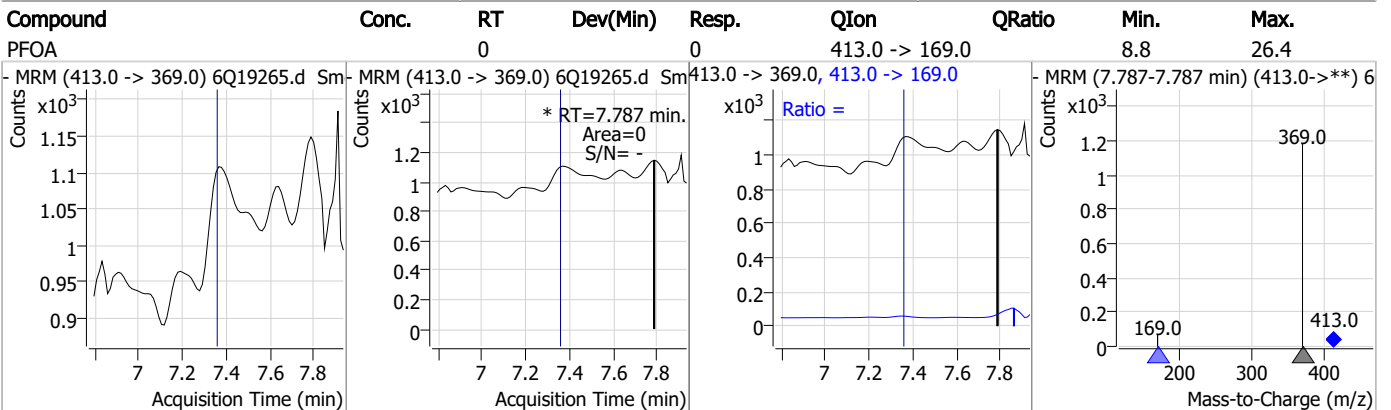
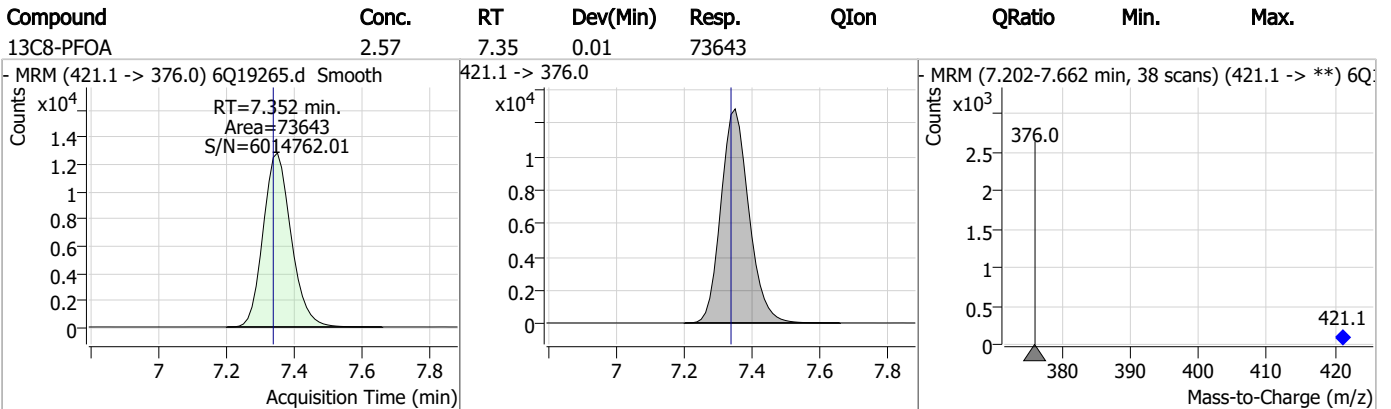
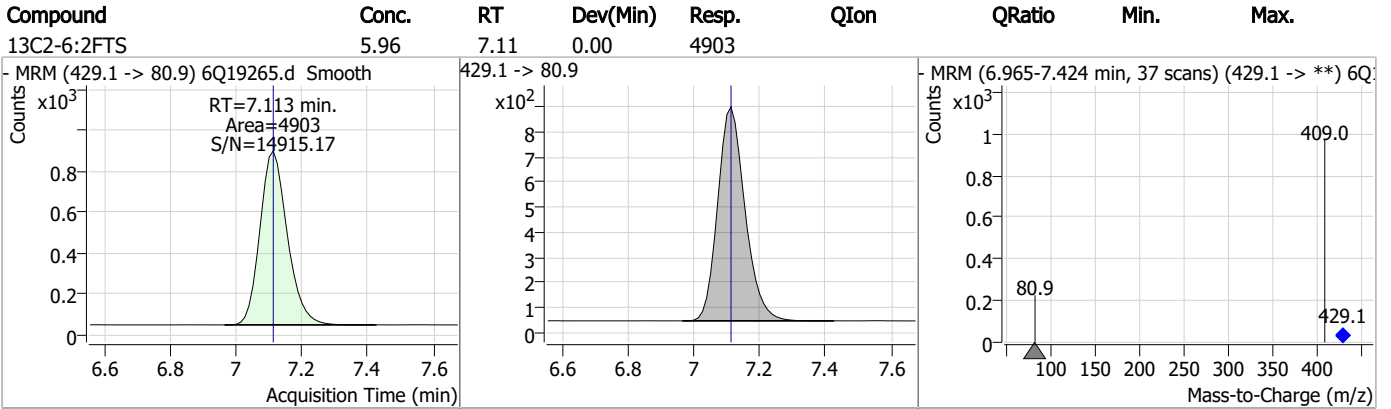
7.2.1
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Perfluorinated Compounds by LC/MS/MS

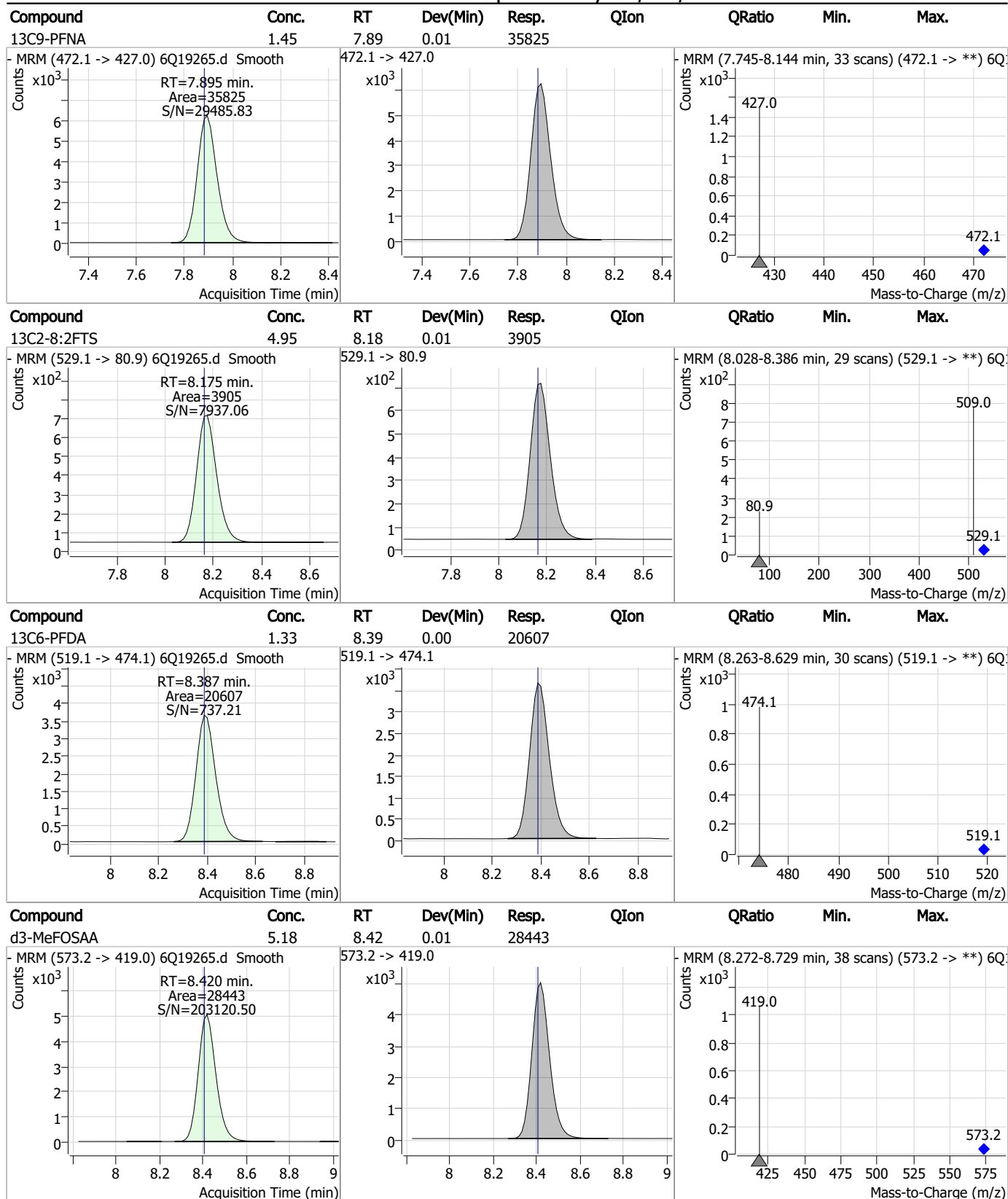


7.2.1
7

Perfluorinated Compounds by LC/MS/MS

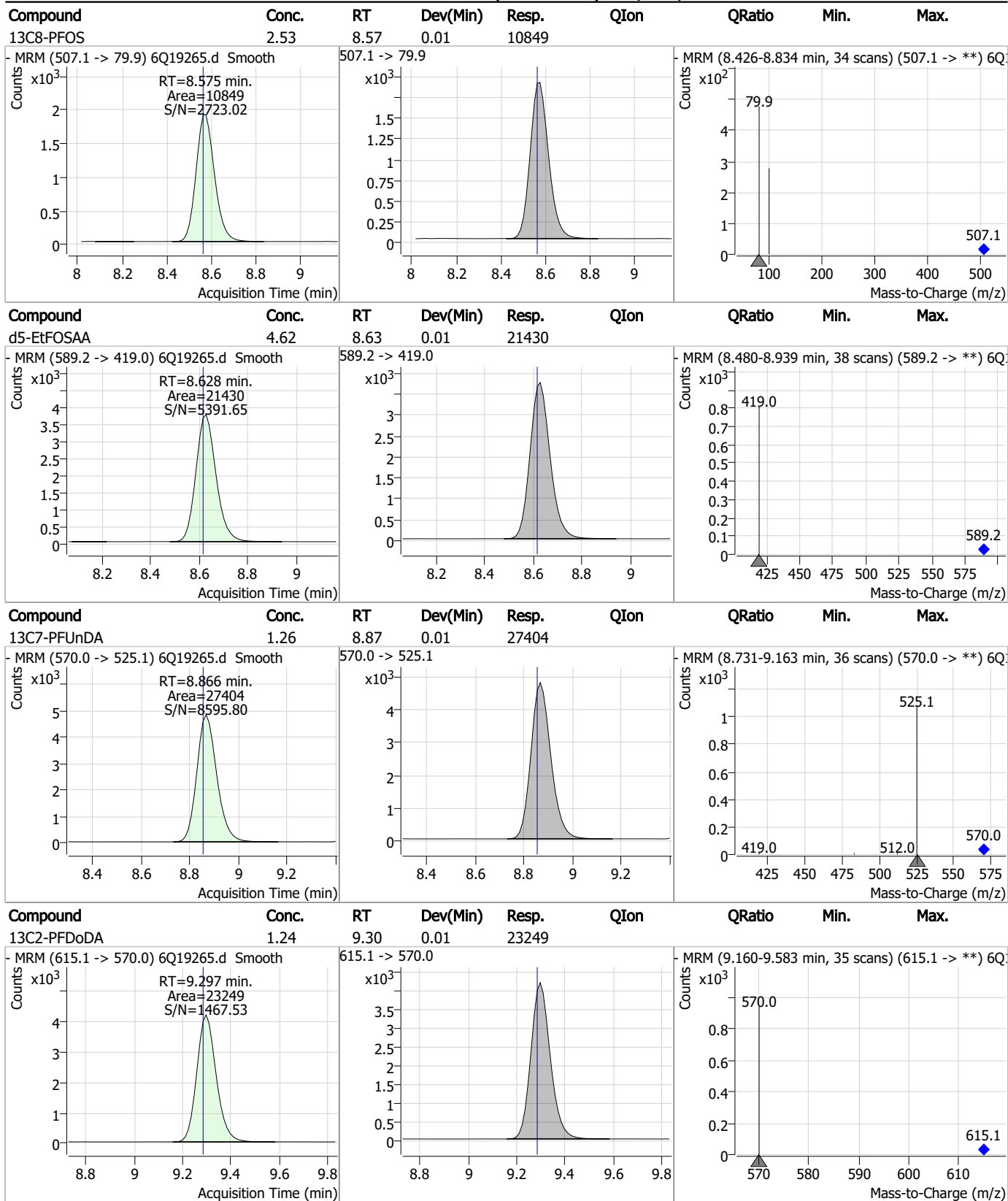


Perfluorinated Compounds by LC/MS/MS



7.2.1
7

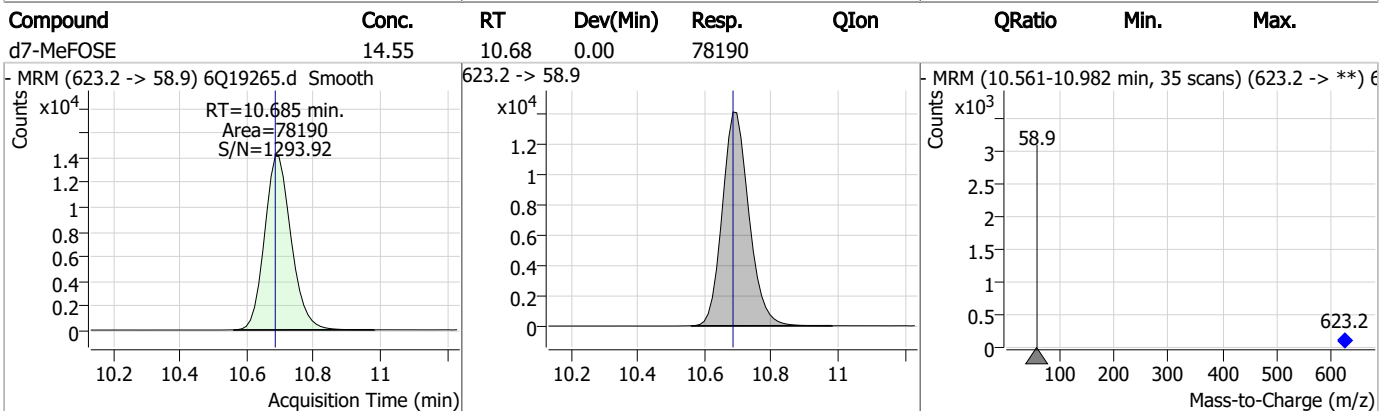
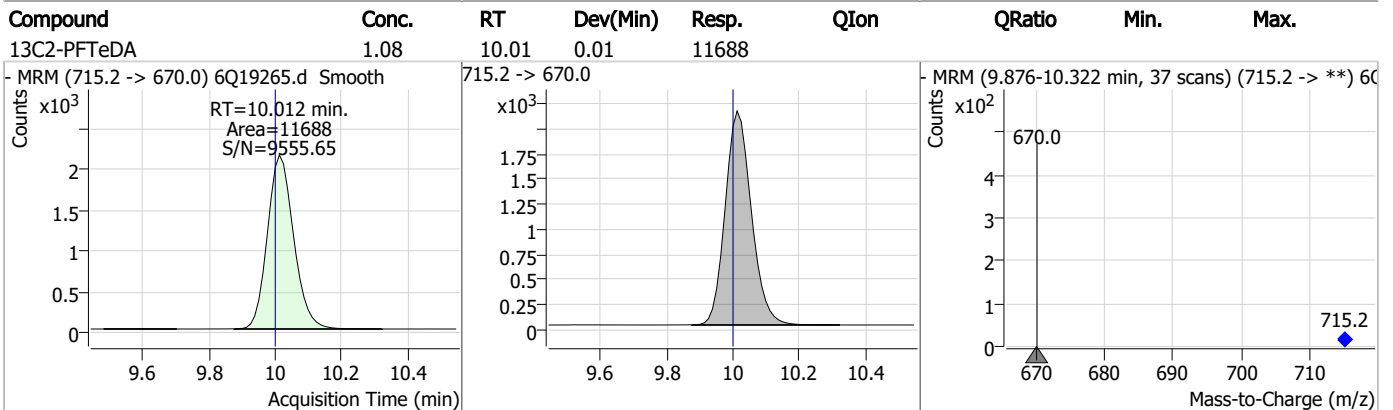
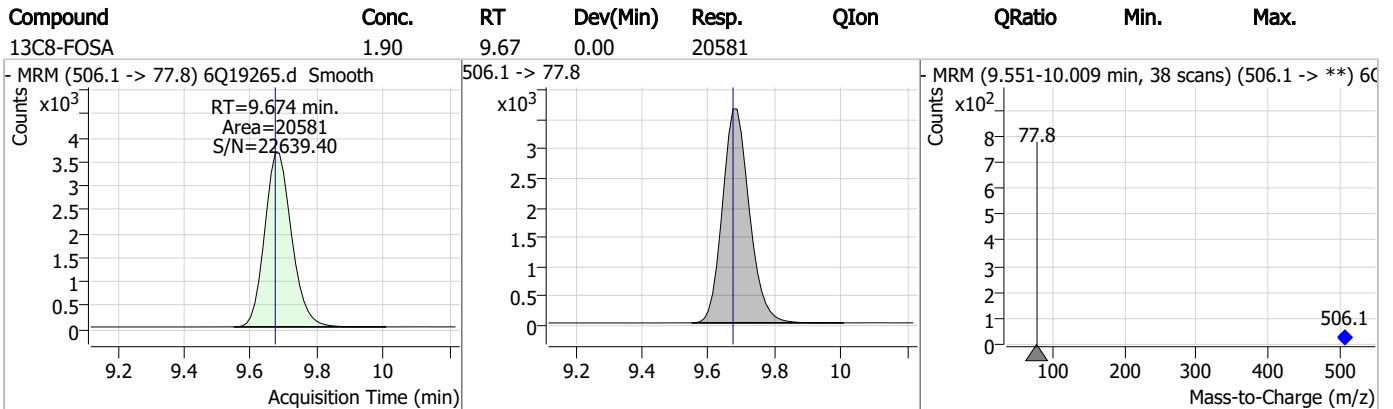
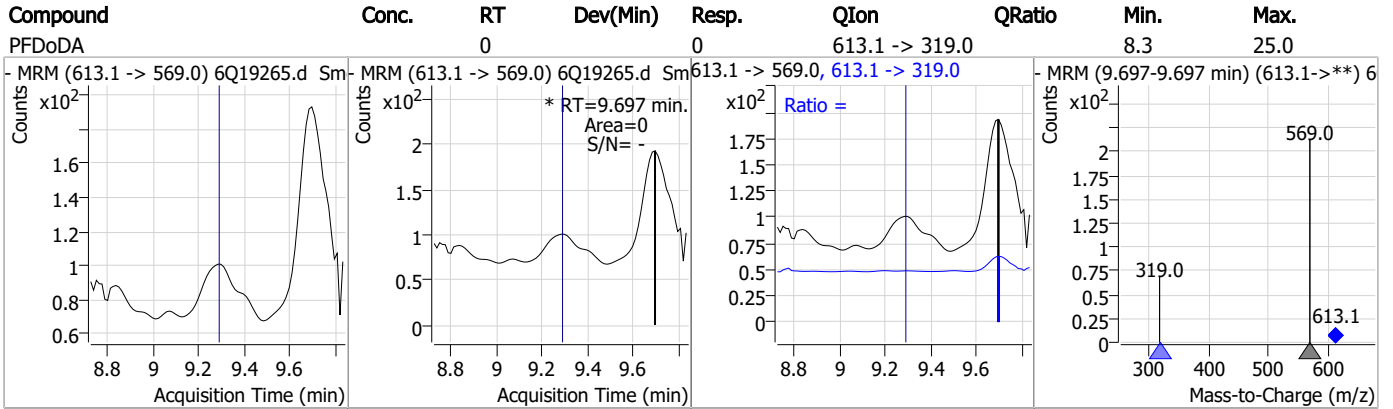
Perfluorinated Compounds by LC/MS/MS



7.2.1

7

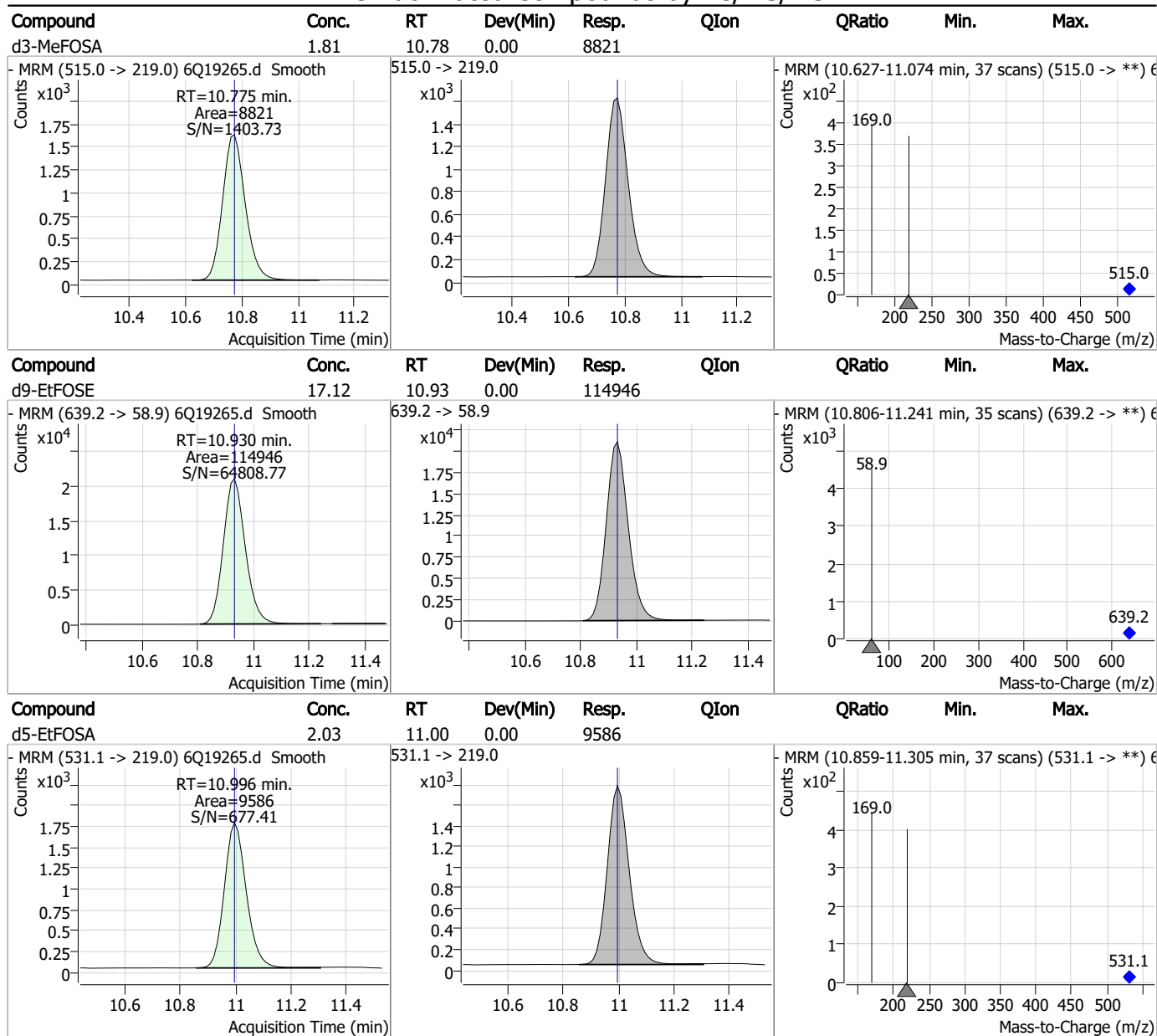
Perfluorinated Compounds by LC/MS/MS



7.2.1

7

Perfluorinated Compounds by LC/MS/MS



7.2.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19248.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 5:40:24 PM
 Sample Name : iblk
 Vial : P1-A1
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	146414	10.00 µg/L	0.000
M5-PFPeA	4.548	268.3 -> 223.0	48099	5.00 µg/L	-0.012
M5-PFHxA	5.792	318.0 -> 273.0	55118	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	51829	2.50 µg/L	0.000
M8-PFOA	7.339	421.1 -> 376.0	76391	2.50 µg/L	0.000
M9-PFNA	7.882	472.1 -> 427.0	36444	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	21610	1.25 µg/L	0.000
M7-PFUnDA	8.853	570.0 -> 525.1	27250	1.25 µg/L	0.000
M2-PFDoDA	9.285	615.1 -> 570.0	24417	1.25 µg/L	0.000
M2-PFTeDA	10.000	715.2 -> 670.0	13876	1.25 µg/L	0.000
M8-FOSA	9.674	506.1 -> 77.8	27654	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	19382	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	11979	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	11014	2.50 µg/L	0.000
M2-4:2FTS	5.442	329.1 -> 80.9	3330	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	5037	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4667	5.00 µg/L	0.000
M3-MeFOSAA	8.407	573.2 -> 419.0	27361	5.00 µg/L	0.000
M3-HFPO-DA	6.169	286.9 -> 168.9	32687	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	25519	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	135931	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	160183	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	12738	2.50 µg/L	0.000
M3-MeFOSA	10.763	515.0 -> 219.0	12665	2.50 µg/L	-0.012
13C4-PFOS	8.563	502.8 -> 79.9	14764	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	62565	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	8933	2.50 µg/L	0.000
13C4-PFOA	7.340	417.1 -> 372.0	84320	2.50 µg/L	0.000
13C2-PFDA	8.388	515.1 -> 470.1	31366	1.25 µg/L	0.000
13C5-PFNA	7.882	468.0 -> 423.0	47928	1.25 µg/L	0.000
13C2-PFHxA	5.792	315.1 -> 270.0	51476	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	3330	6.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.1%		
13C2-6:2FTS	7.113	429.1 -> 80.9	5037	6.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.9%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4667	5.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.8%		
13C2-PFDoDA	9.285	615.1 -> 570.0	24417	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C2-PFTeDA	10.000	715.2 -> 670.0	13876	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.2%		
13C3-PFBS	5.746	302.1 -> 79.9	19382	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C3-PFHxS	7.478	402.1 -> 79.9	11979	2.53 µg/L	0.000

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 = 101.0%		
13C4-PFBA	3.085	216.8 -> 171.9	146414	9.97	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%		
13C4-PFHpA	6.707	367.1 -> 322.0	51829	2.51	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%		
13C5-PFHxA	5.792	318.0 -> 273.0	55118	2.48	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%		
13C5-PFPeA	4.548	268.3 -> 223.0	48099	4.84	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.7%		
13C6-PFDA	8.387	519.1 -> 474.1	21610	1.25	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C7-PFUnDA	8.853	570.0 -> 525.1	27250	1.12	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.3%		
13C8-FOSA	9.674	506.1 -> 77.8	27654	2.53	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%		
13C8-PFOA	7.339	421.1 -> 376.0	76391	2.43	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%		
13C8-PFOS	8.563	507.1 -> 79.9	11014	2.55	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C9-PFNA	7.882	472.1 -> 427.0	36444	1.25	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.7%		
d3-MeFOSAA	8.407	573.2 -> 419.0	27361	4.94	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%		
13C3-HFPO-DA	6.169	286.9 -> 168.9	32687	9.27	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.7%		
d3-MeFOSA	10.763	515.0 -> 219.0	12665	2.58	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%		
d5-EtFOSAA	8.615	589.2 -> 419.0	25519	5.46	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.2%		
d7-MeFOSE	10.685	623.2 -> 58.9	135931	25.09	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.3%		
d9-EtFOSE	10.930	639.2 -> 58.9	160183	23.67	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.7%		
d5-EtFOSA	10.996	531.1 -> 219.0	12738	2.68	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%		

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	-	298.7 -> 79.9	-	N.D.		
		298.7 -> 98.8				
PFDA	8.845	512.9 -> 469.0	0	µg/L	m	1
		512.9 -> 219.0	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	7.849	548.8 -> 98.9	0	µg/L	m	1
		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	9.276	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11CI-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9CI-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

7.22
7

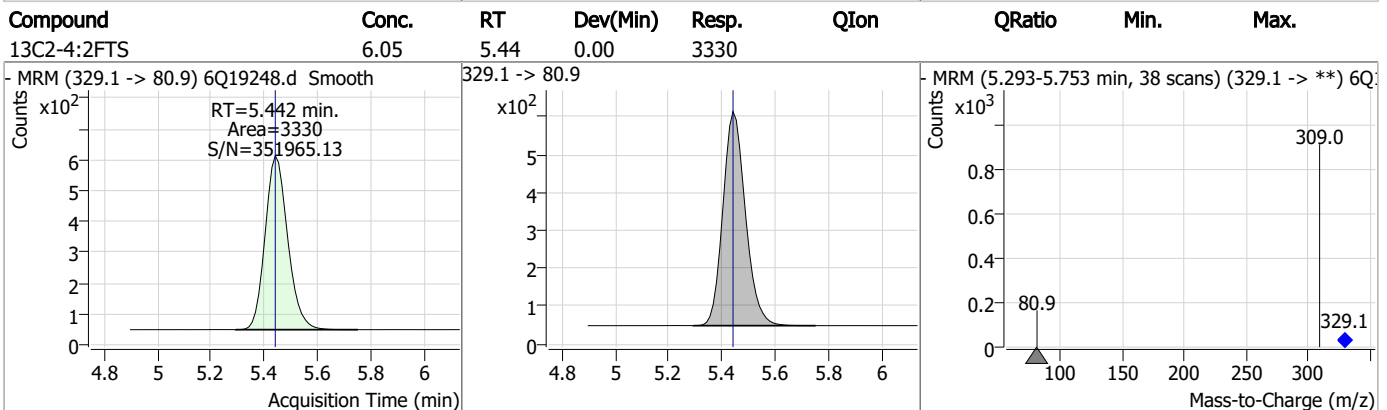
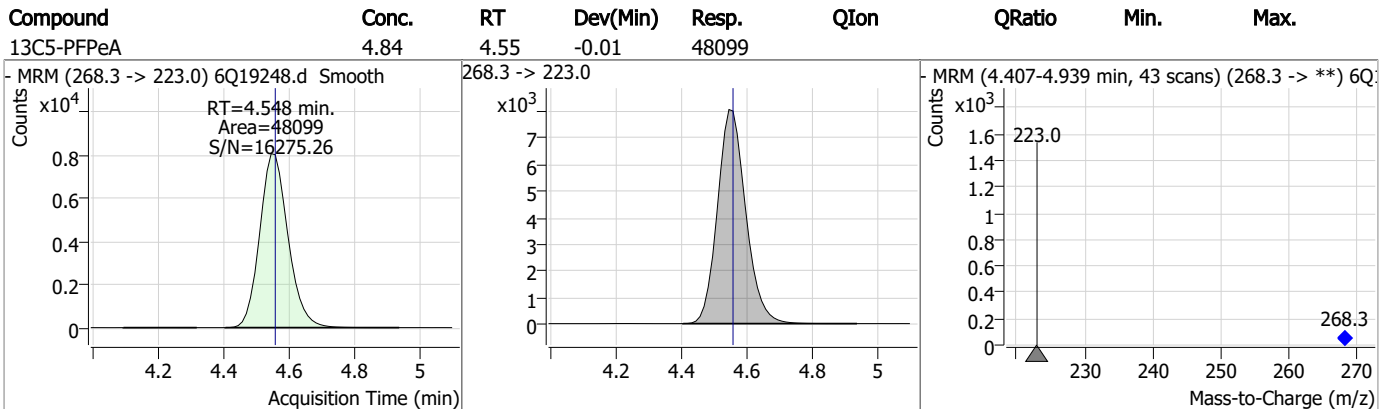
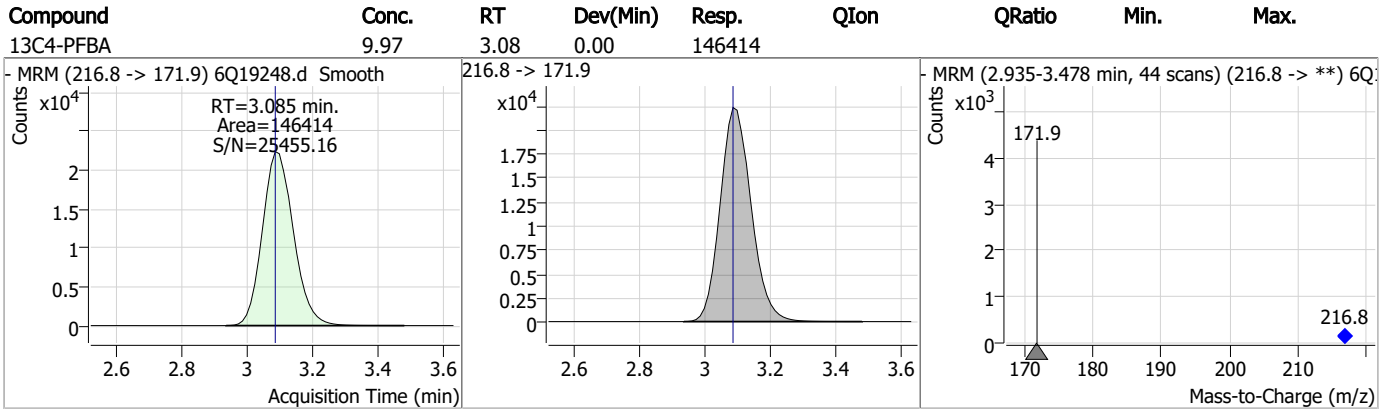
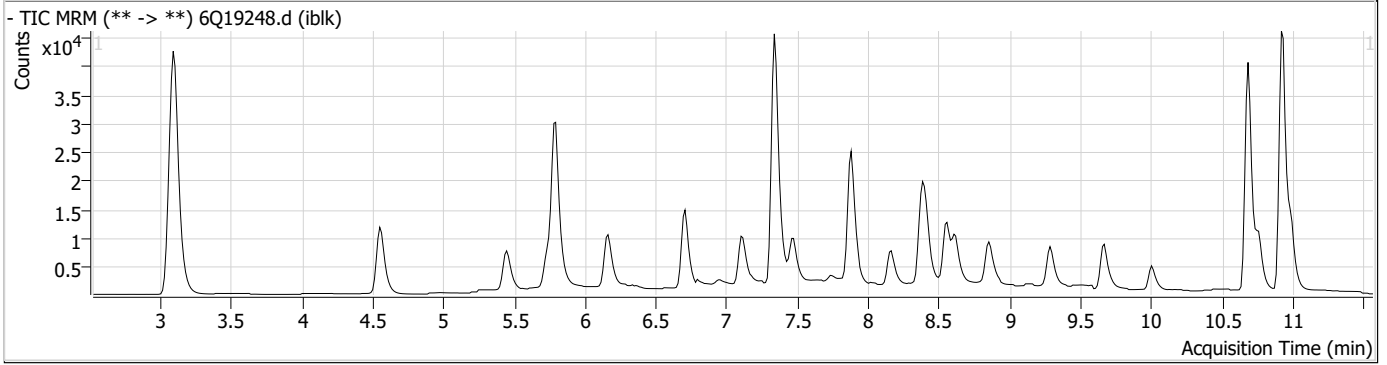
Perfluorinated Compounds by LC/MS/MS

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



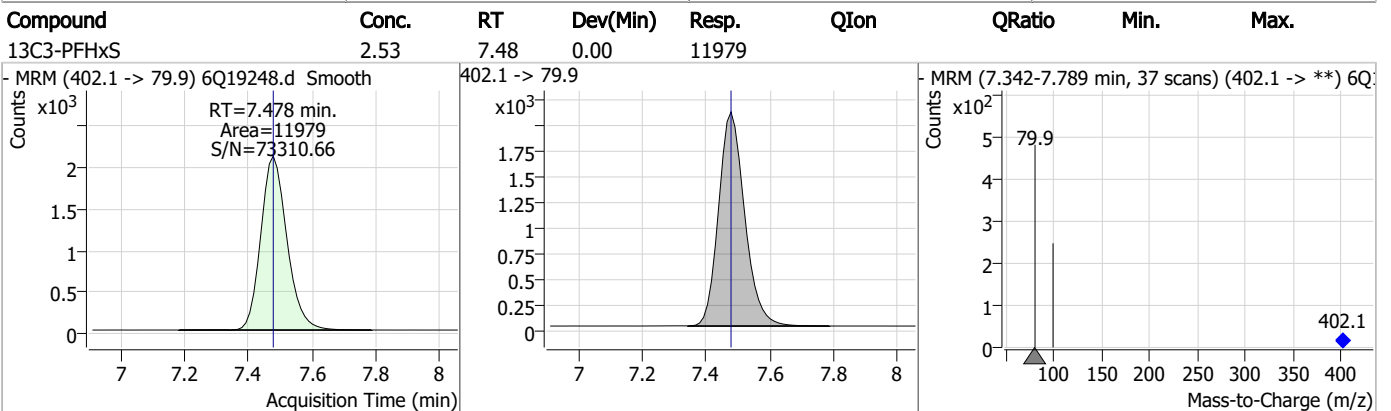
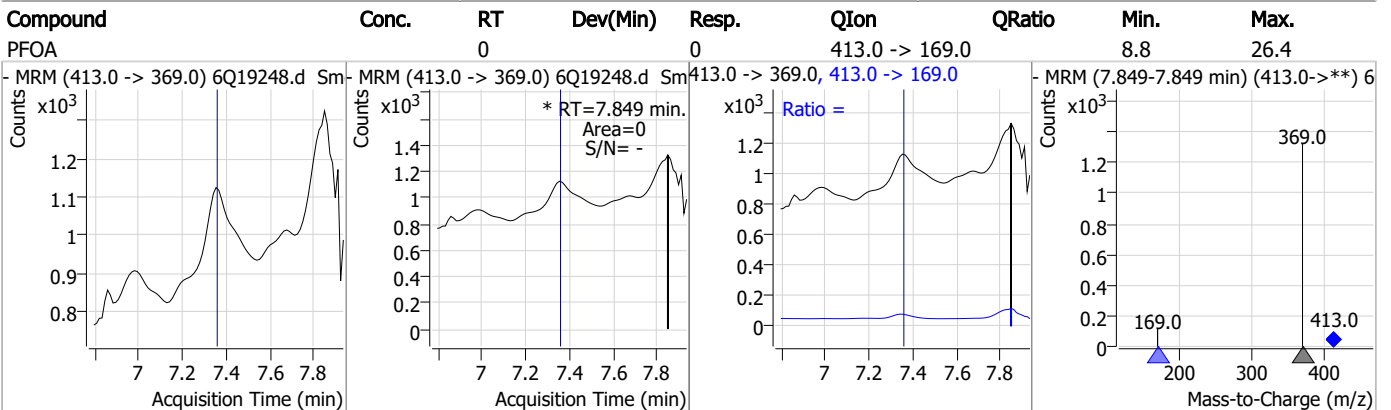
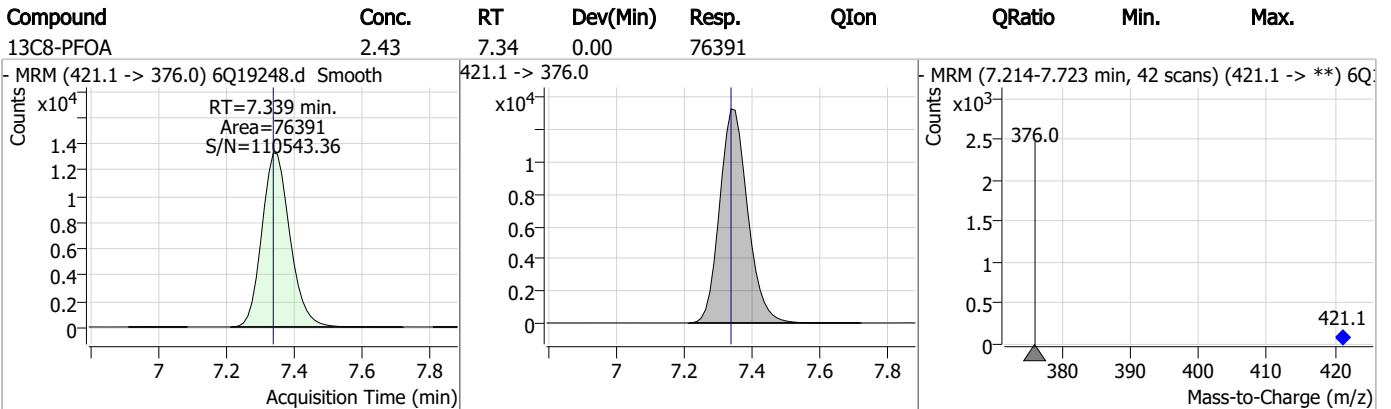
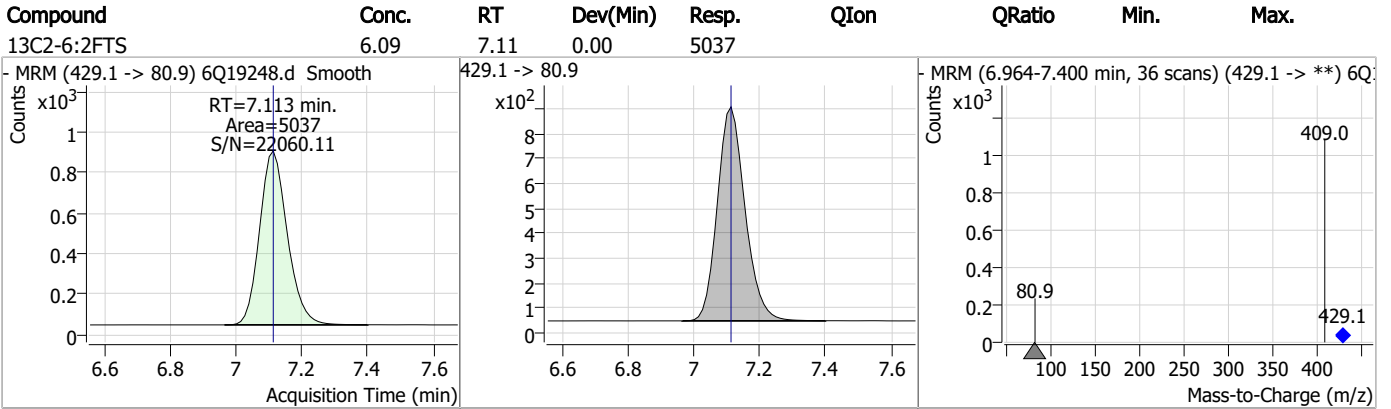
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.57	5.75	0.00	19382				
13C5-PFHxA	2.48	5.79	0.00	55118				
13C3-HFPO-DA	9.27	6.17	0.00	32687				
13C4-PFHpA	2.51	6.71	0.00	51829				

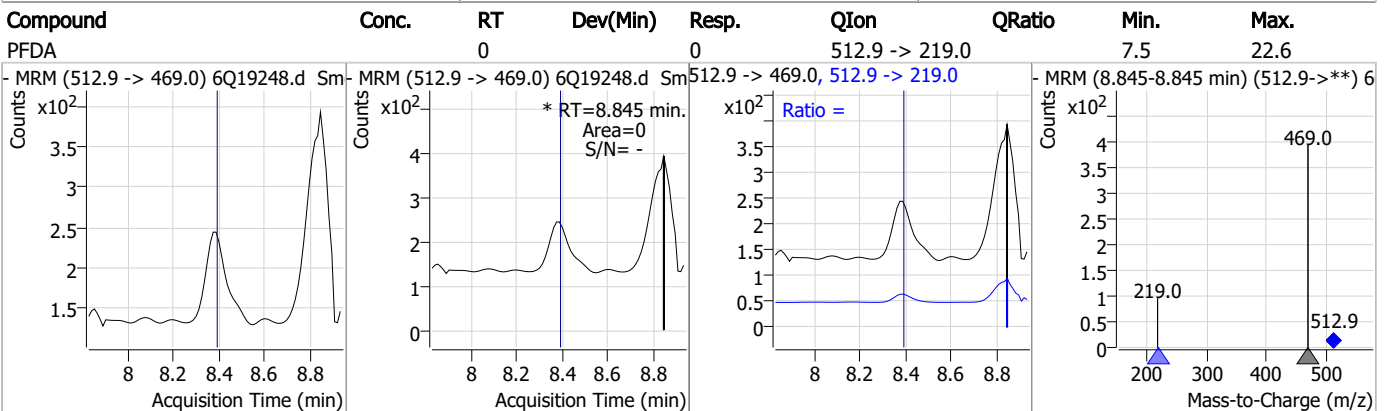
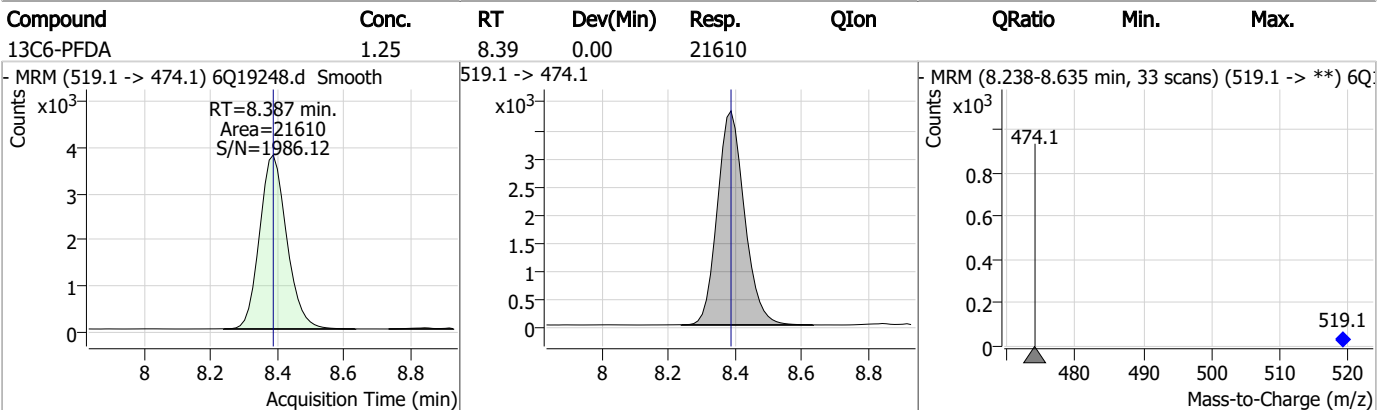
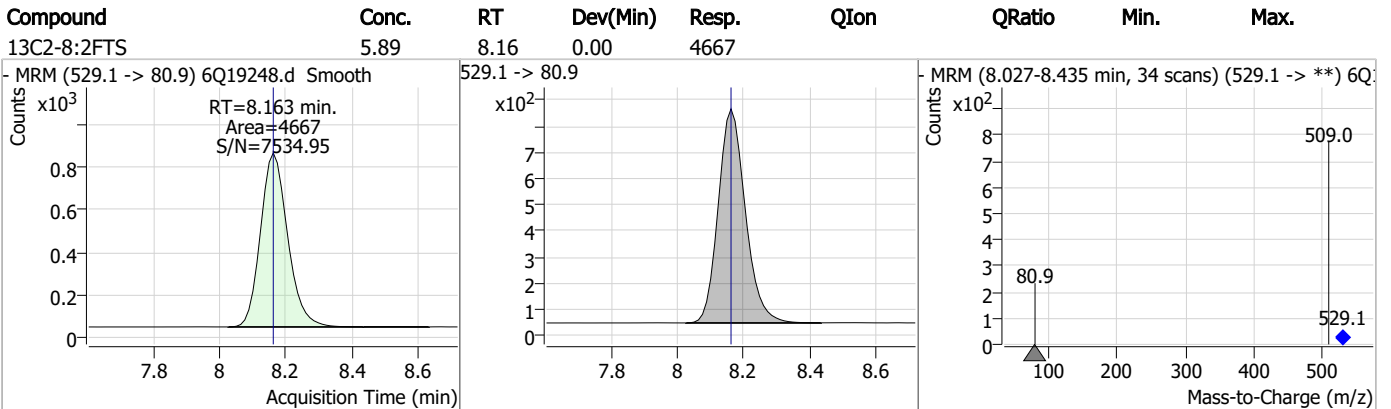
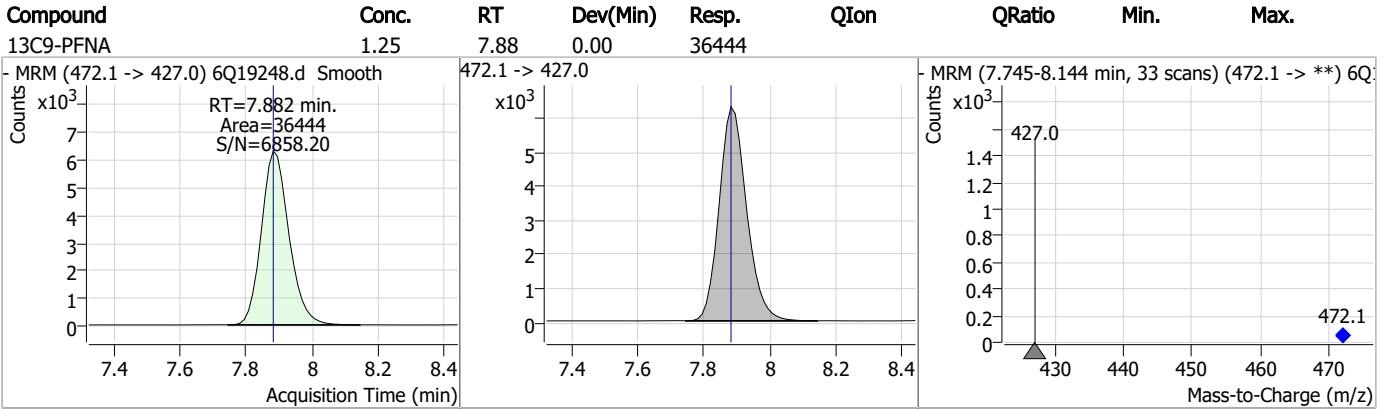
7.2.2

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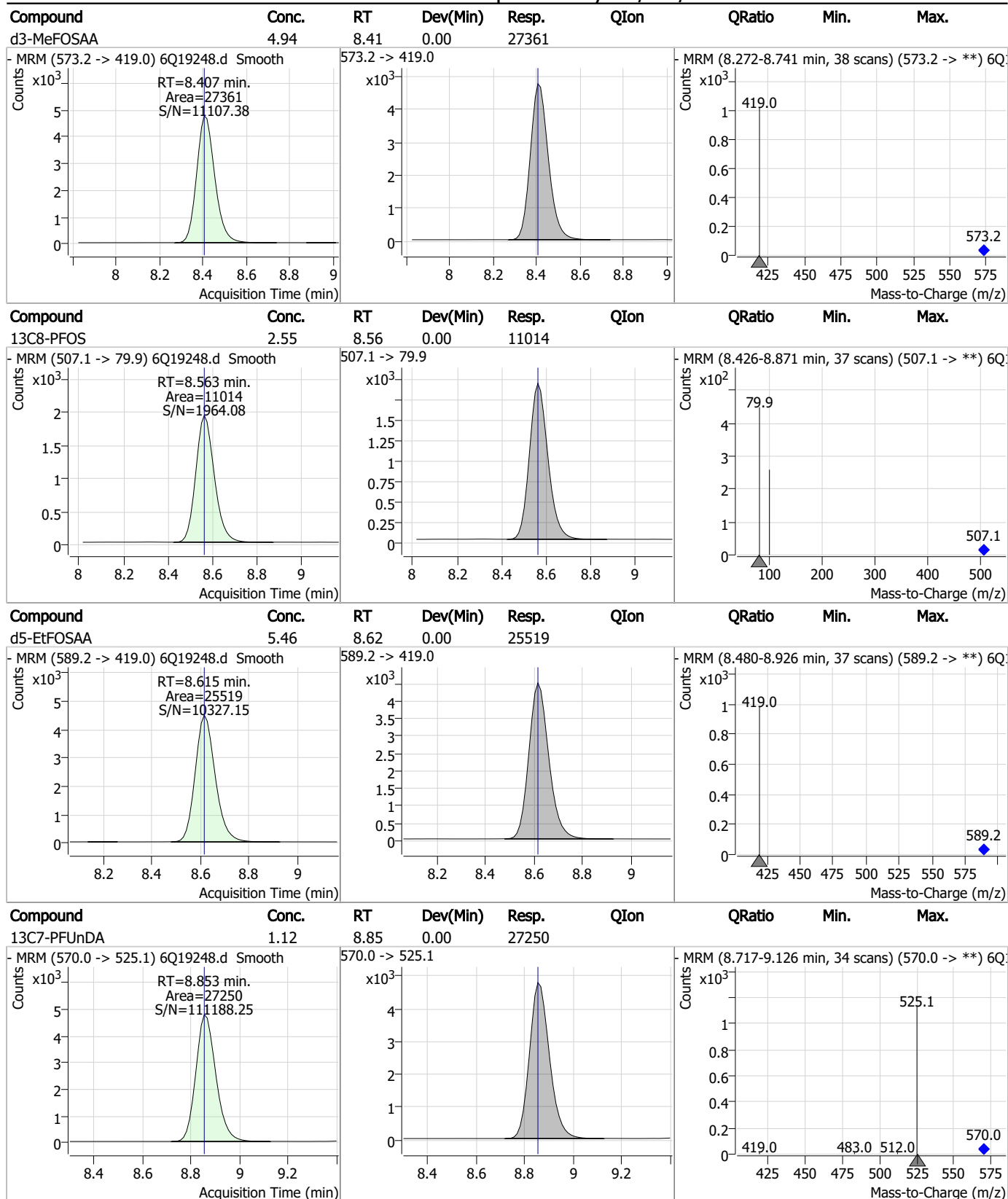
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

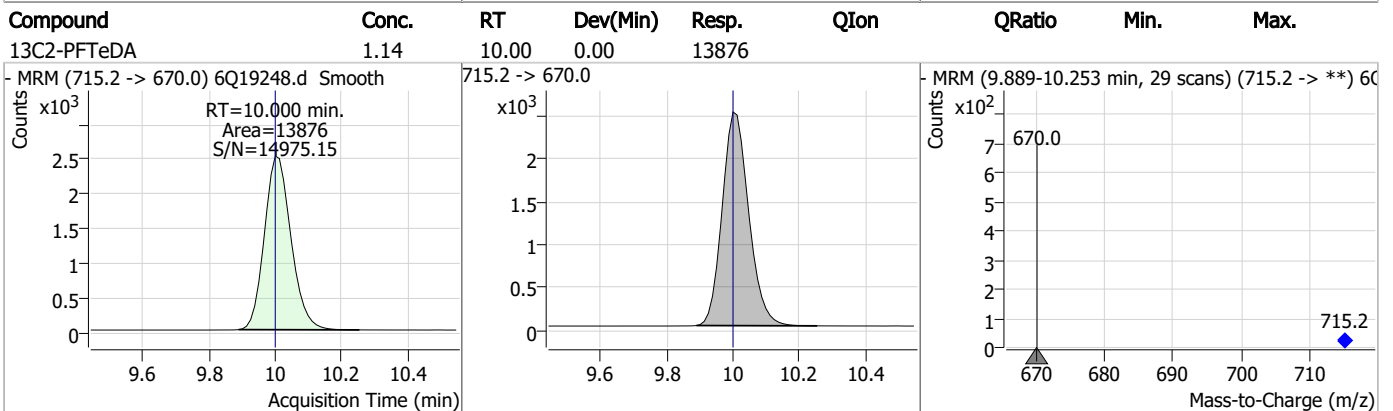
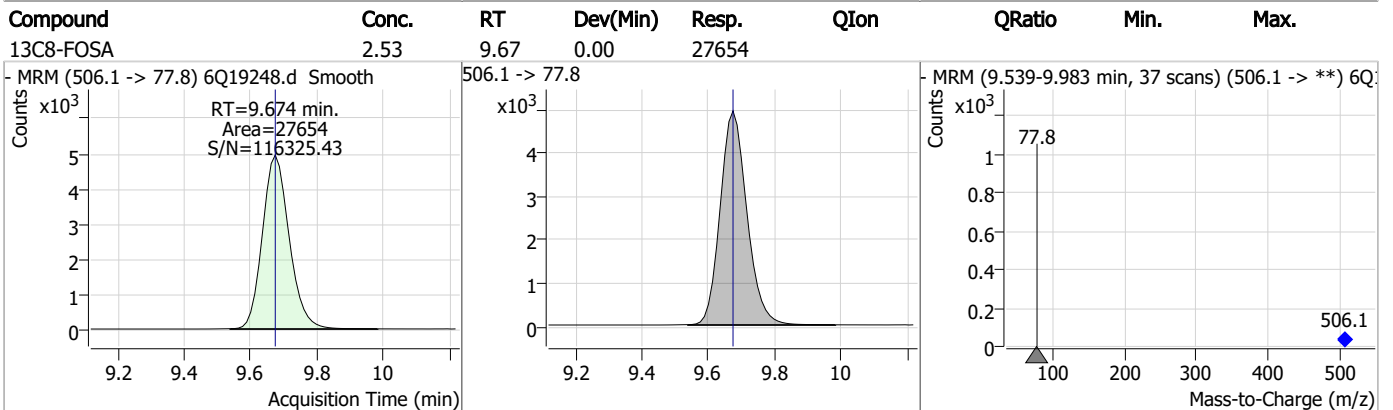
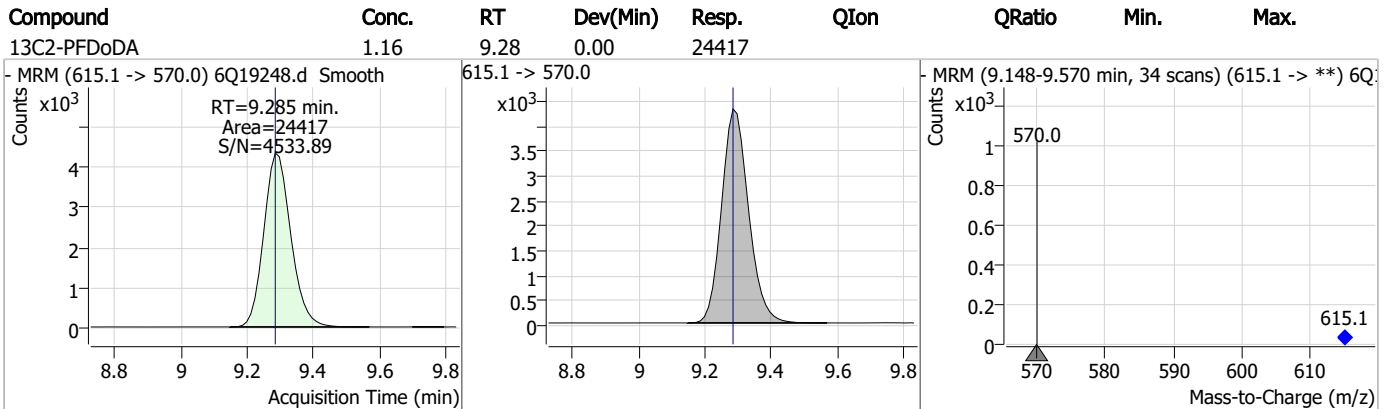
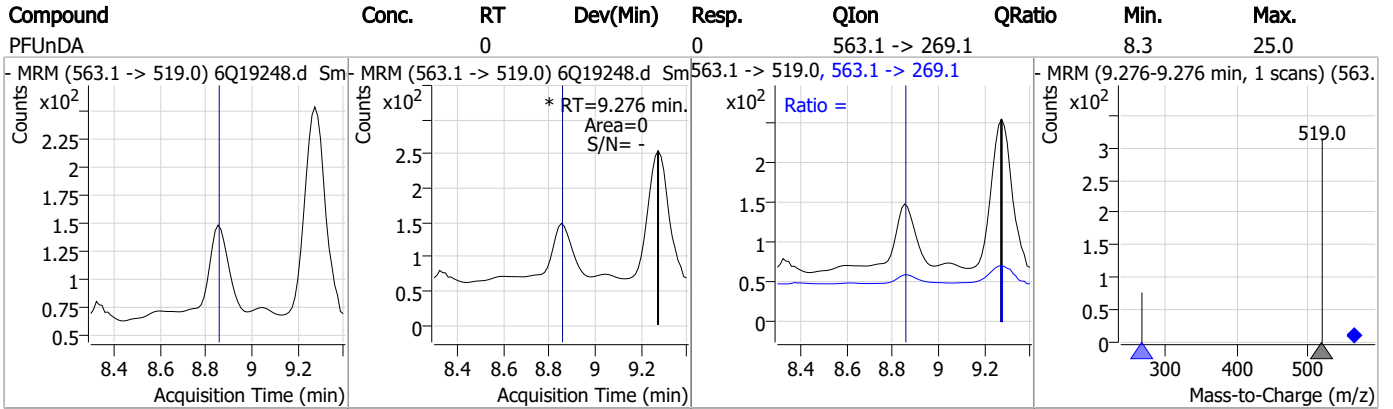


Perfluorinated Compounds by LC/MS/MS



7.2.2
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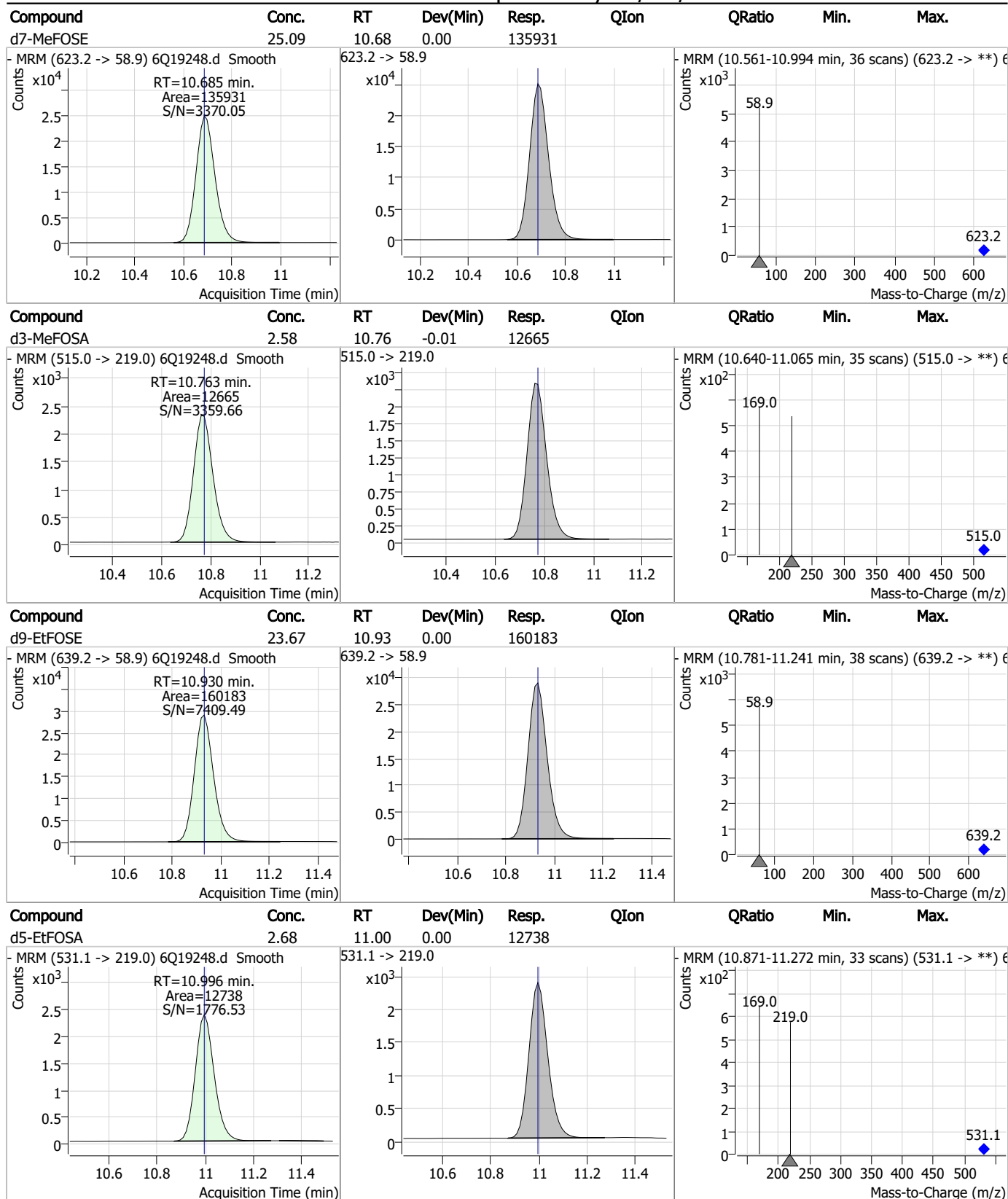
Perfluorinated Compounds by LC/MS/MS



7.2.2

7

Perfluorinated Compounds by LC/MS/MS



7.2.2
7

Perfluorinated Compounds by LC/MS/MS

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 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 11:29:51 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	152282	10.00 µg/L	0.000
M5-PFPeA	4.560	268.3 -> 223.0	49696	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	53251	2.50 µg/L	0.000
M4-PFHpA	6.719	367.1 -> 322.0	53875	2.50 µg/L	0.012
M8-PFOA	7.352	421.1 -> 376.0	79709	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	36737	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	21611	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	30854	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	25603	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	13488	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	30471	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	20057	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	12690	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	11621	2.50 µg/L	0.000
M2-4:2FTS	5.454	329.1 -> 80.9	3244	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	5344	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4476	5.00 µg/L	0.000
M3-MeFOSAA	8.420	573.2 -> 419.0	31334	5.00 µg/L	0.012
M3-HFPO-DA	6.181	286.9 -> 168.9	33214	10.00 µg/L	0.012
M5-EtFOSAA	8.628	589.2 -> 419.0	24411	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	129154	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	153505	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	12766	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	12365	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	16410	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	64953	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	9356	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	85286	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	31424	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	50193	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	53563	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3244	5.63 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.6%		
13C2-6:2FTS	7.113	429.1 -> 80.9	5344	6.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.4%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4476	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.9%		
13C2-PFDoDA	9.297	615.1 -> 570.0	25603	1.22 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C2-PFTeDA	10.012	715.2 -> 670.0	13488	1.11 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.5%		
13C3-PFBS	5.746	302.1 -> 79.9	20057	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C3-PFHxS	7.478	402.1 -> 79.9	12690	2.55 µg/L	0.000

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 = 102.2%	
13C4-PFBA	3.085	216.8 -> 171.9	152282	9.99 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.719	367.1 -> 322.0	53875	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C5-PFHxA	5.792	318.0 -> 273.0	53251	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.0%	
13C5-PFPeA	4.560	268.3 -> 223.0	49696	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C6-PFDA	8.387	519.1 -> 474.1	21611	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C7-PFUnDA	8.866	570.0 -> 525.1	30854	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-FOSA	9.674	506.1 -> 77.8	30471	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C8-PFOA	7.352	421.1 -> 376.0	79709	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C8-PFOS	8.563	507.1 -> 79.9	11621	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C9-PFNA	7.895	472.1 -> 427.0	36737	1.20 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.0%	
d3-MeFOSAA	8.420	573.2 -> 419.0	31334	5.09 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C3-HFPO-DA	6.181	286.9 -> 168.9	33214	9.05 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.5%	
d3-MeFOSA	10.775	515.0 -> 219.0	12365	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.7%	
d5-EtFOSAA	8.628	589.2 -> 419.0	24411	4.70 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.0%	
d7-MeFOSE	10.685	623.2 -> 58.9	129154	21.44 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 85.8%	
d9-EtFOSE	10.930	639.2 -> 58.9	153505	20.41 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.6%	
d5-EtFOSA	10.996	531.1 -> 219.0	12766	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	

Target Compounds

QValue

4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	-	427.1 -> 407.0 427.1 -> 80.9	-	N.D.	
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.	
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	-	613.1 -> 569.0 613.1 -> 319.0	-	N.D.	
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	9.288	563.1 -> 519.0	0		µg/L	m
		563.1 -> 269.1	0			
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

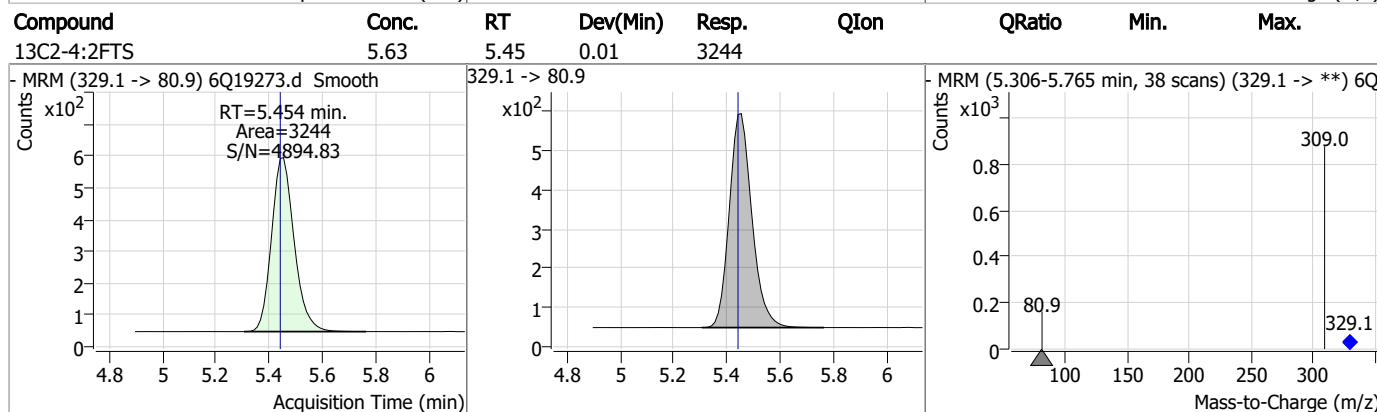
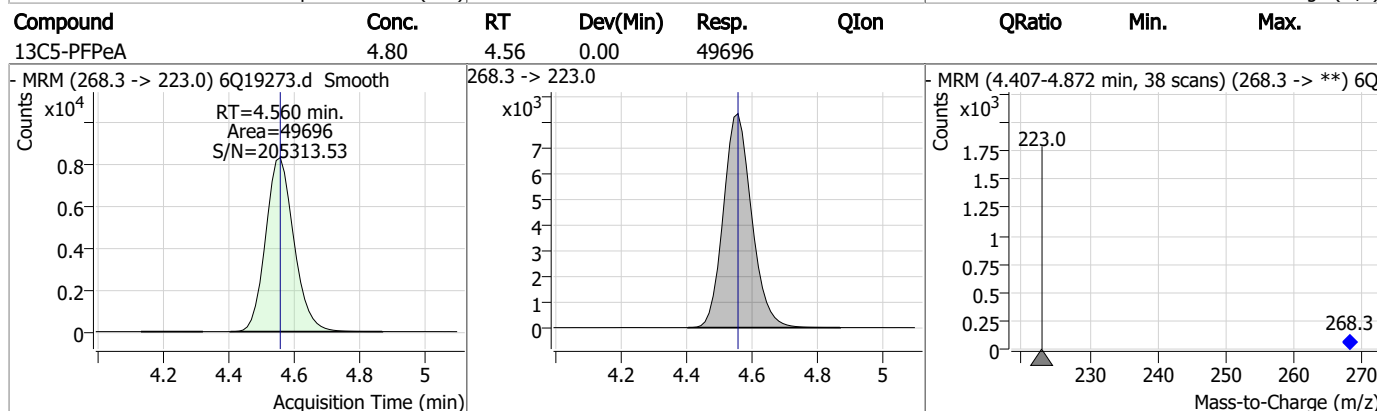
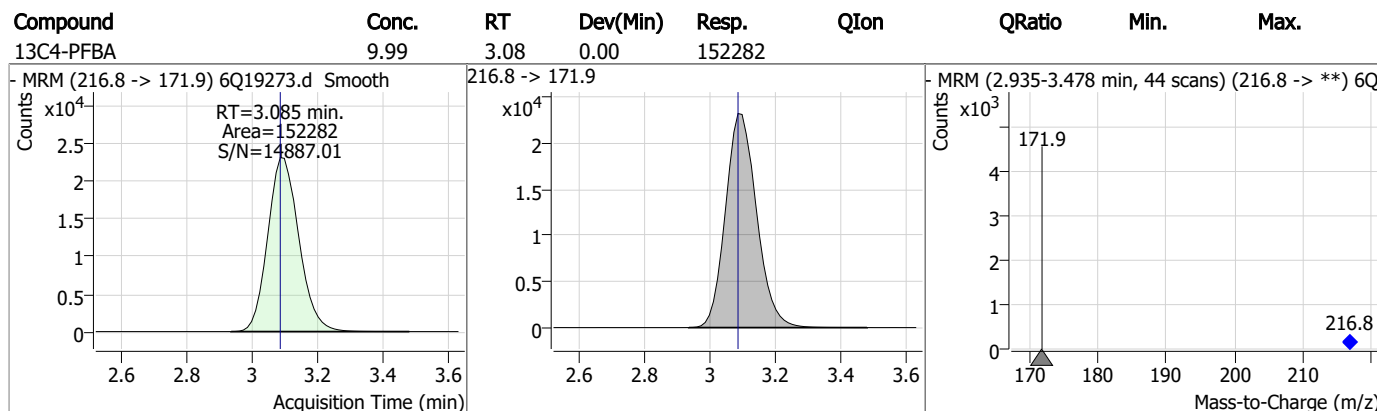
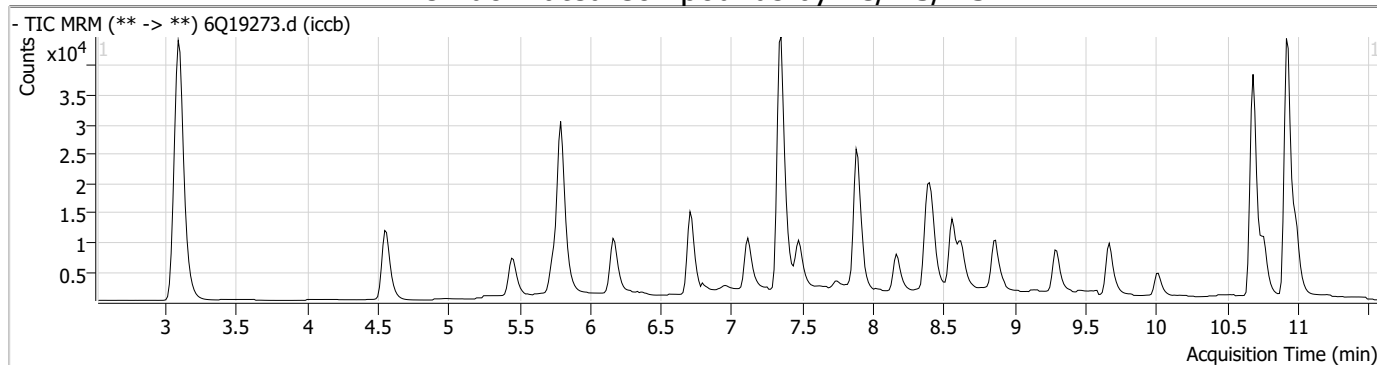
Perfluorinated Compounds by LC/MS/MS

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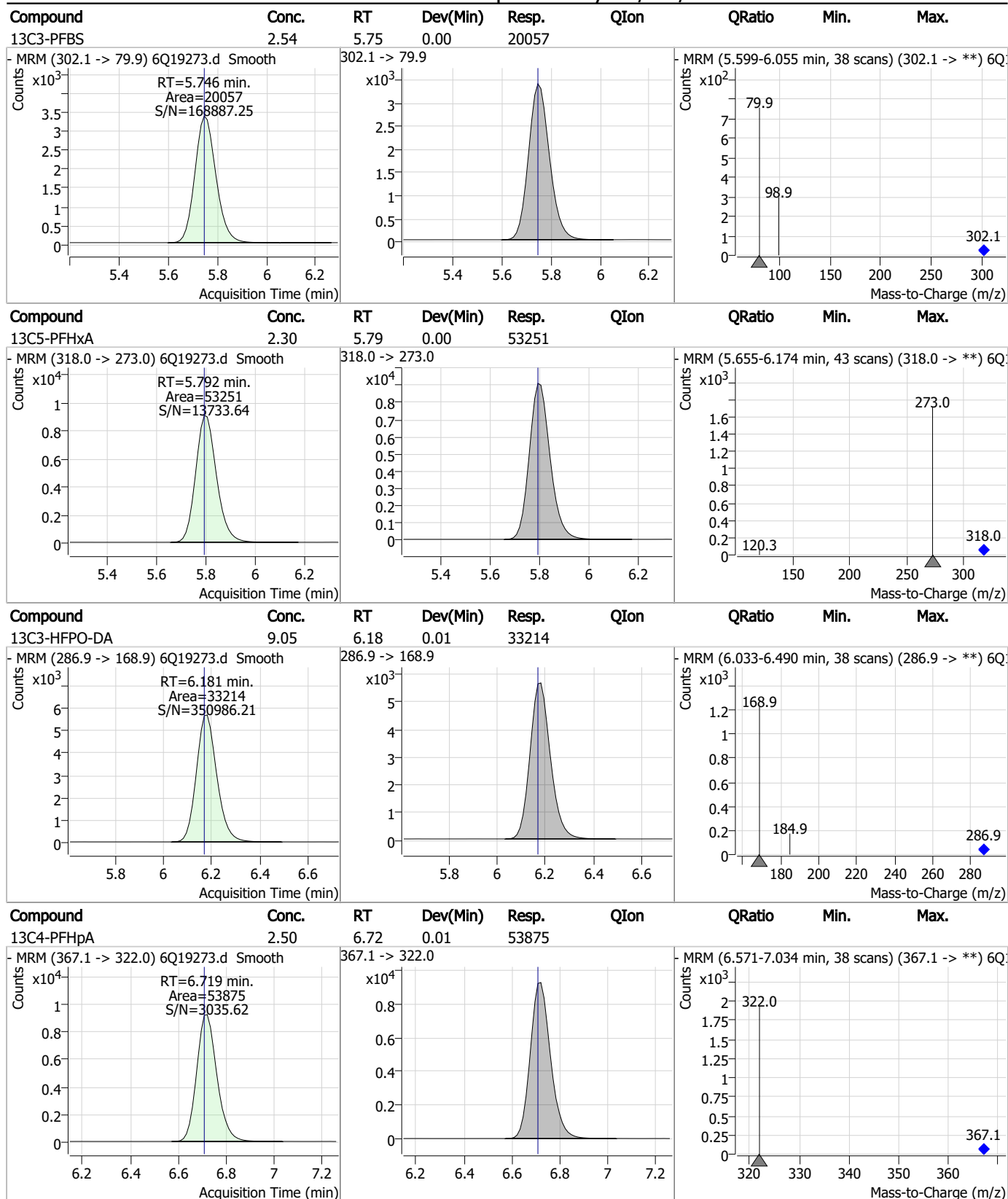
7.2.3

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Perfluorinated Compounds by LC/MS/MS

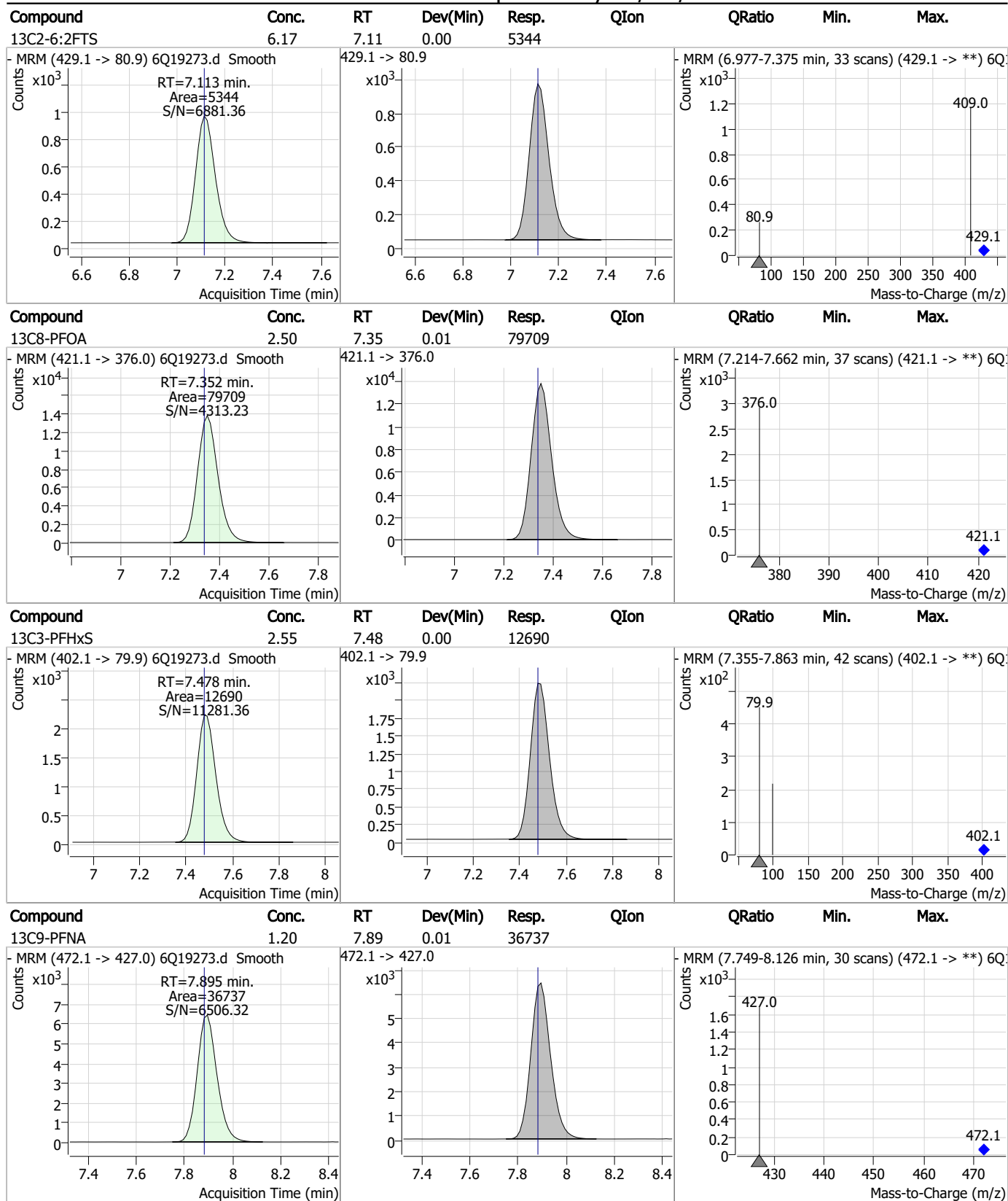


Perfluorinated Compounds by LC/MS/MS



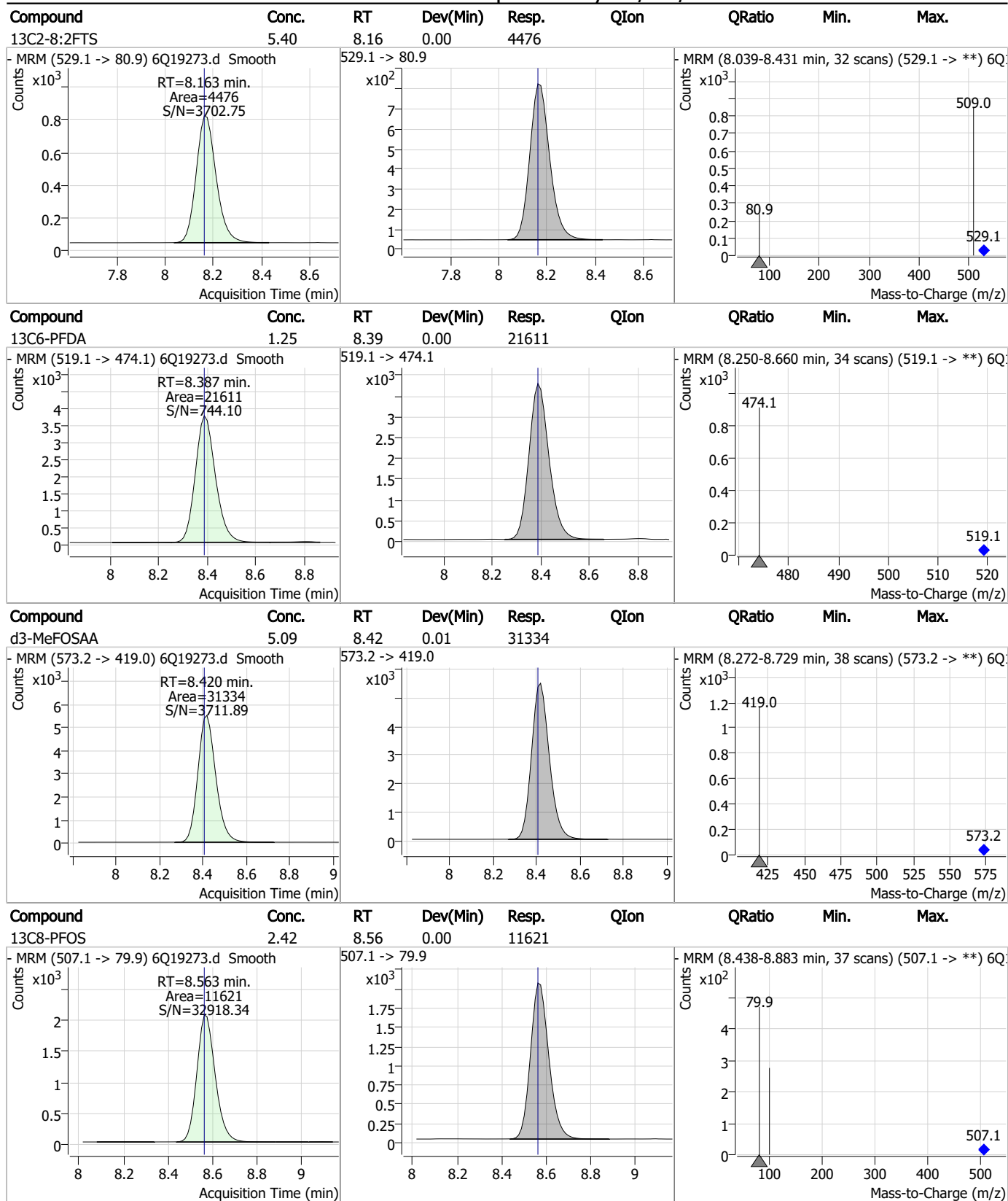
7.2.3
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Perfluorinated Compounds by LC/MS/MS



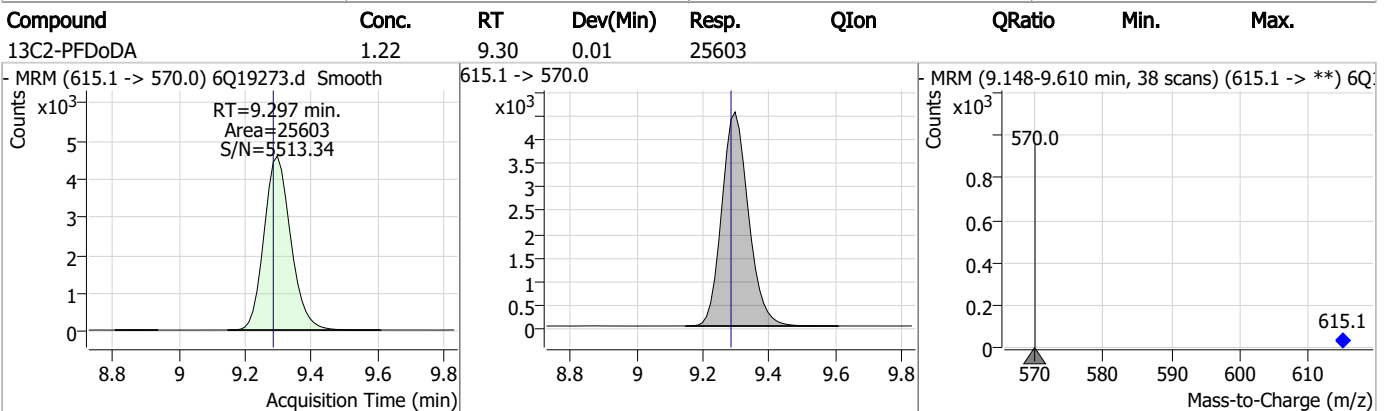
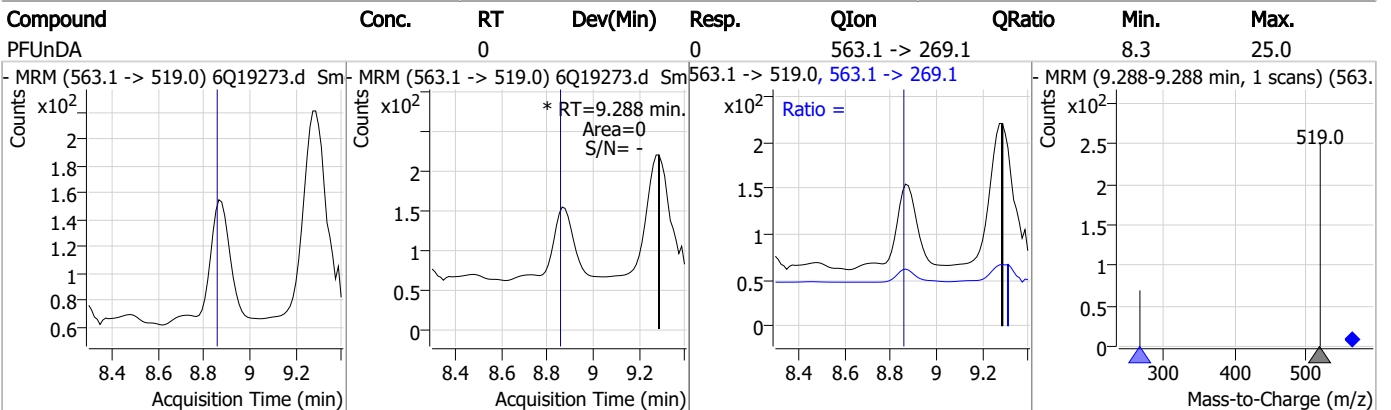
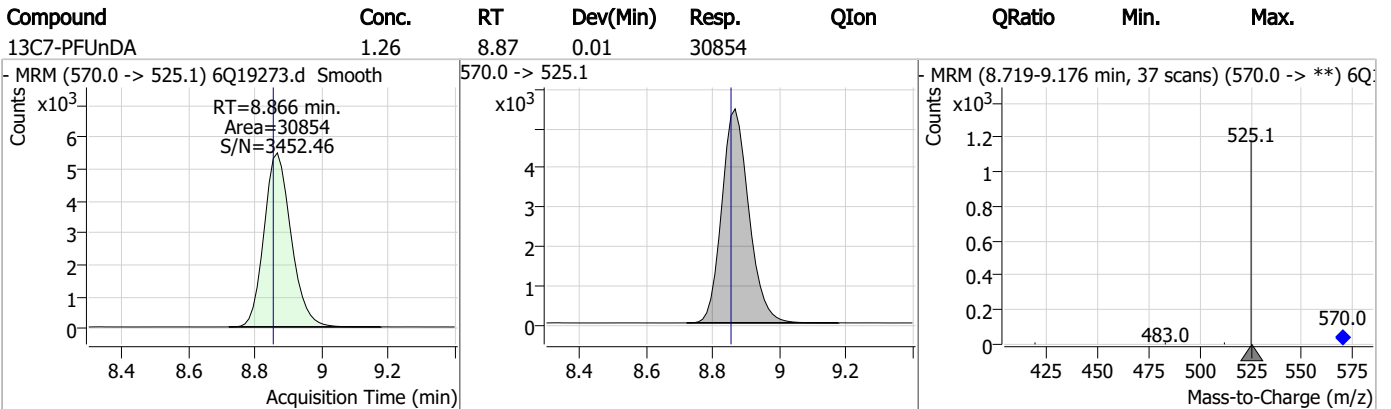
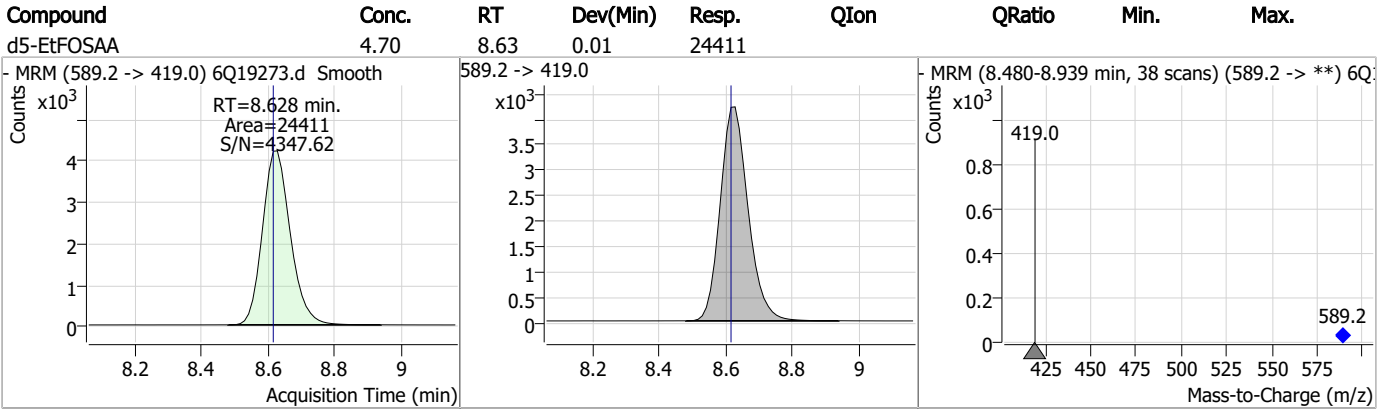
7.2.3
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Perfluorinated Compounds by LC/MS/MS



7.2.3
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Perfluorinated Compounds by LC/MS/MS



7.2.3

7

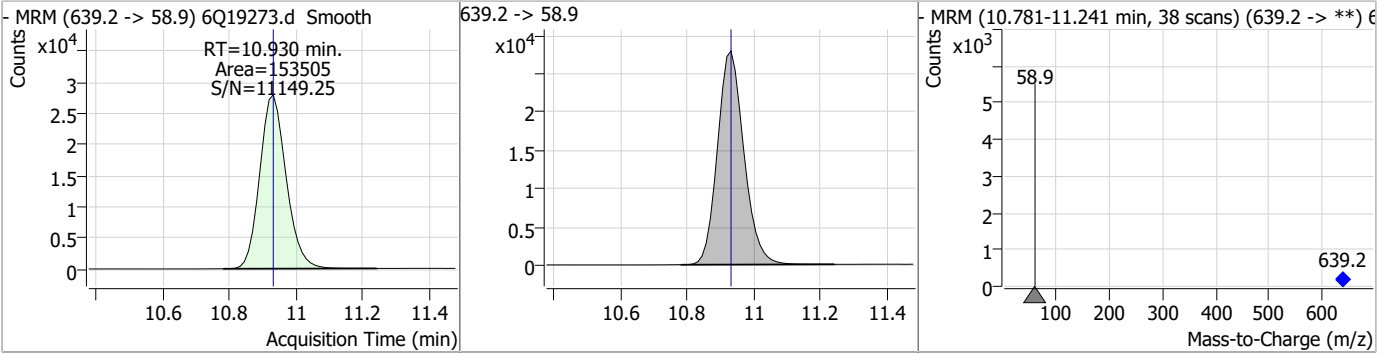
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.51	9.67	0.00	30471				
13C2-PFTeDA	1.11	10.01	0.01	13488				
d7-MeFOSE	21.44	10.68	0.00	129154				
d3-MeFOSA	2.27	10.78	0.00	12365				

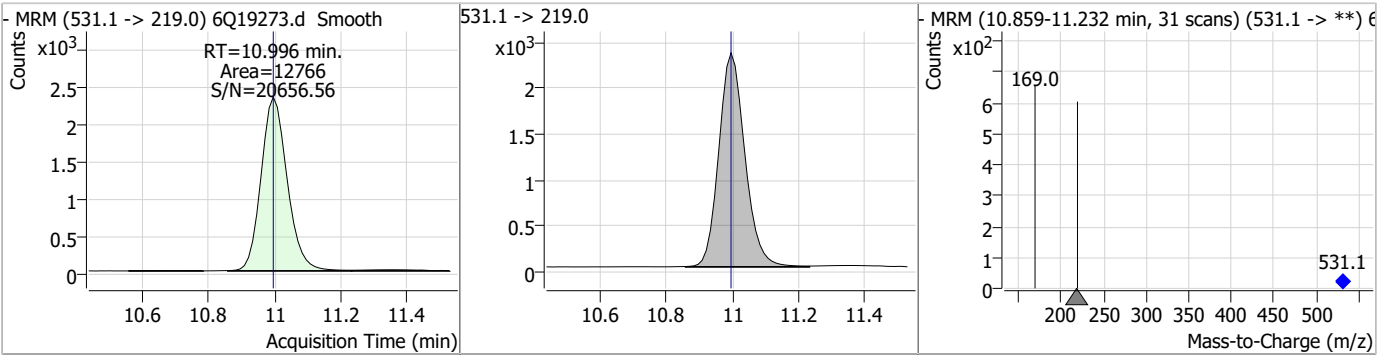
7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.41	10.93	0.00	153505				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.42	11.00	0.00	12766				



7.2.3

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19262.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 8:56:04 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	151177	10.00 µg/L	0.000
M5-PFPeA	4.560	268.3 -> 223.0	49841	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	52954	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	52394	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	80957	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	38597	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	21842	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	30408	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	25090	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	14631	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	29167	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	20410	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	12800	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	12029	2.50 µg/L	0.000
M2-4:2FTS	5.442	329.1 -> 80.9	3513	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	5091	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4413	5.00 µg/L	0.000
M3-MeFOSAA	8.420	573.2 -> 419.0	31039	5.00 µg/L	0.012
M3-HFPO-DA	6.169	286.9 -> 168.9	33106	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	25249	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	144785	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	155458	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	12491	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	12535	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	15747	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	64089	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	8900	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	90846	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	31314	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	46265	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	50198	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	3513	6.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.2%		
13C2-6:2FTS	7.113	429.1 -> 80.9	5091	6.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.6%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4413	5.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.9%		
13C2-PFDoDA	9.297	615.1 -> 570.0	25090	1.20 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C2-PFTeDA	10.012	715.2 -> 670.0	14631	1.20 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFBS	5.746	302.1 -> 79.9	20410	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C3-PFHxS	7.478	402.1 -> 79.9	12800	2.71 µg/L	0.000

7.2.4
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 = 108.3%	
13C4-PFBA	3.085	216.8 -> 171.9	151177	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFHpA	6.707	367.1 -> 322.0	52394	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C5-PFHxA	5.792	318.0 -> 273.0	52954	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C5-PFPeA	4.560	268.3 -> 223.0	49841	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C6-PFDA	8.387	519.1 -> 474.1	21842	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C7-PFUnDA	8.866	570.0 -> 525.1	30408	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C8-FOSA	9.674	506.1 -> 77.8	29167	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-PFOA	7.352	421.1 -> 376.0	80957	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C8-PFOS	8.563	507.1 -> 79.9	12029	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C9-PFNA	7.895	472.1 -> 427.0	38597	1.37 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.4%	
d3-MeFOSAA	8.420	573.2 -> 419.0	31039	5.25 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	33106	9.62 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
d3-MeFOSA	10.775	515.0 -> 219.0	12535	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
d5-EtFOSAA	8.615	589.2 -> 419.0	25249	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
d7-MeFOSE	10.685	623.2 -> 58.9	144785	25.05 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d9-EtFOSE	10.930	639.2 -> 58.9	155458	21.54 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.1%	
d5-EtFOSA	10.996	531.1 -> 219.0	12491	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	

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	8.845	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	9.685	613.1 -> 569.0	0	µg/L m	1
		613.1 -> 319.0	0		
PFDS	-	599.0 -> 79.9	-	N.D.	

7.2.4
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	7.849	548.8 -> 98.9	0	µg/L	m	1
		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	9.288	563.1 -> 519.0	0	µg/L	m	1
		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

7.2.4
7

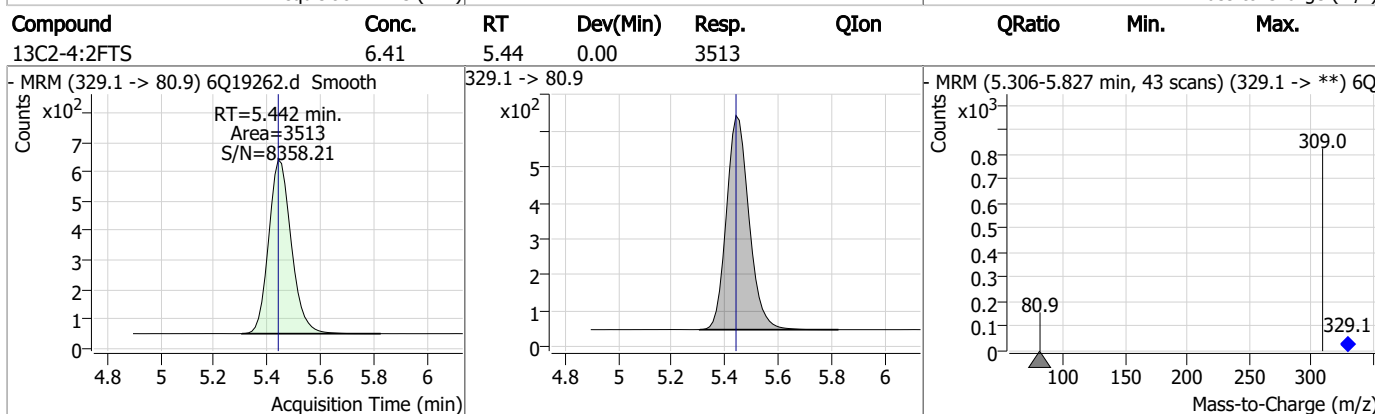
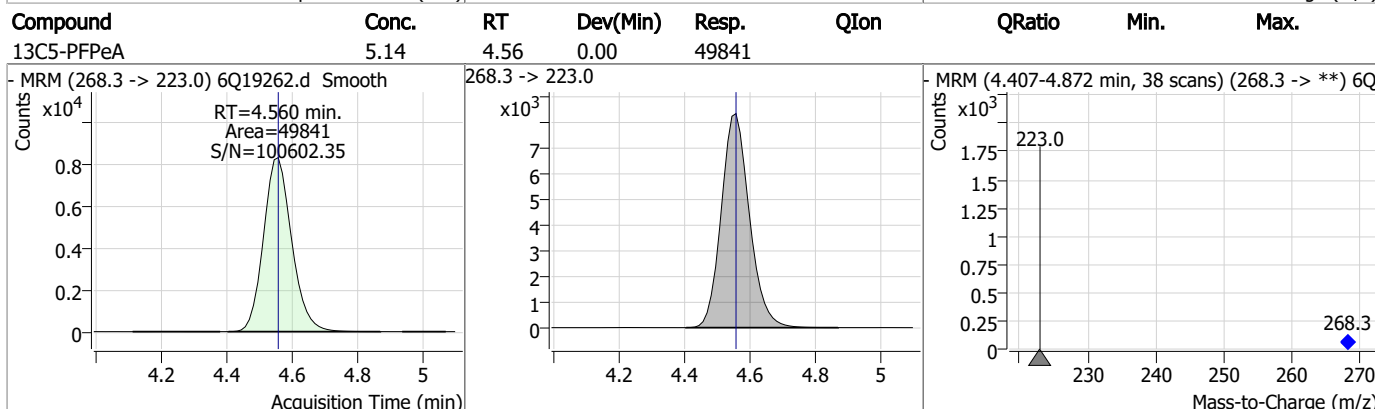
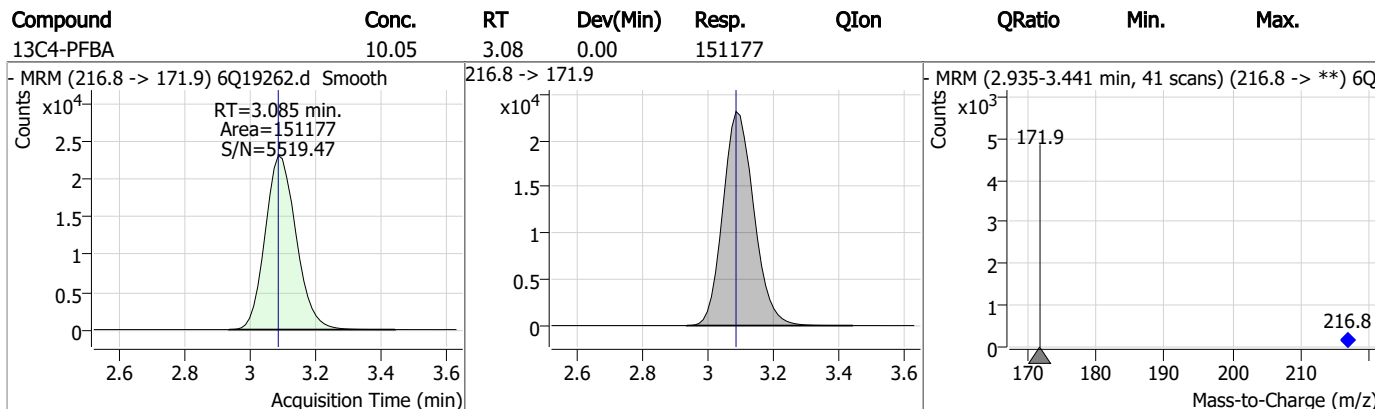
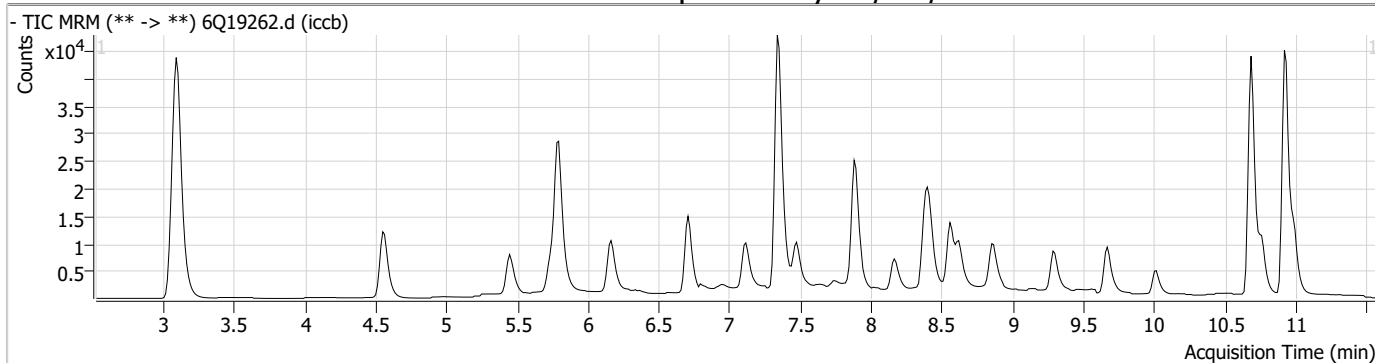
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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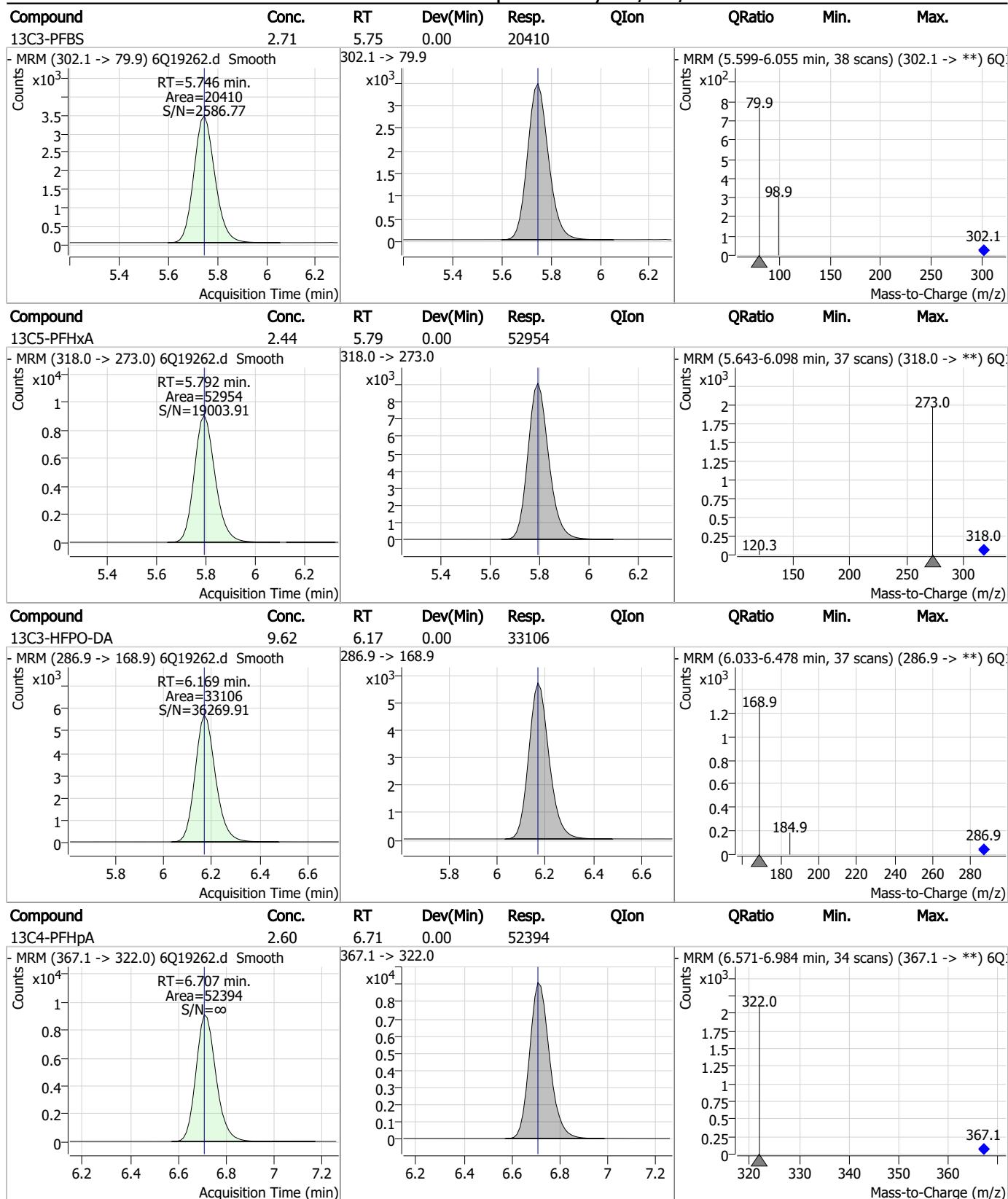
7.2.4

7

Perfluorinated Compounds by LC/MS/MS

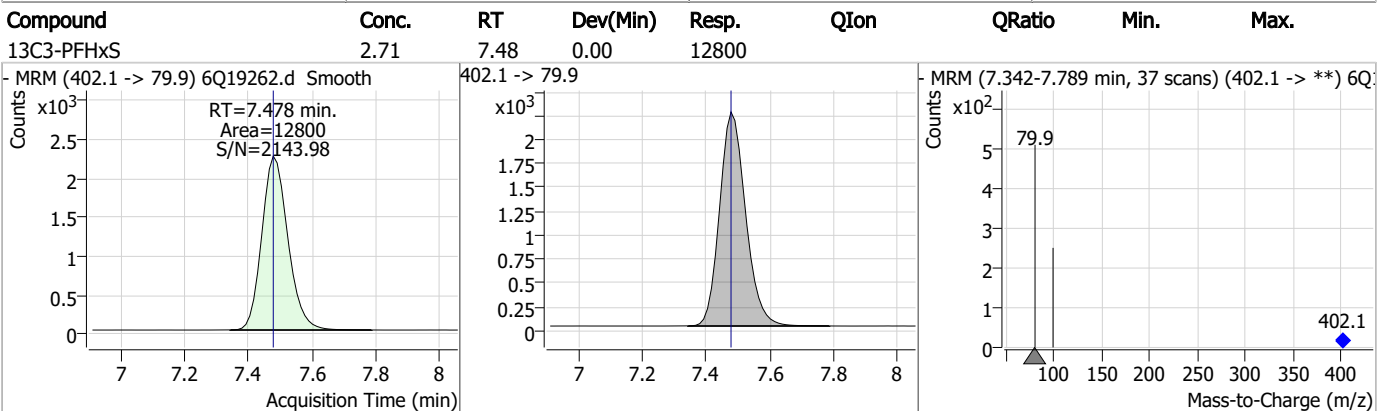
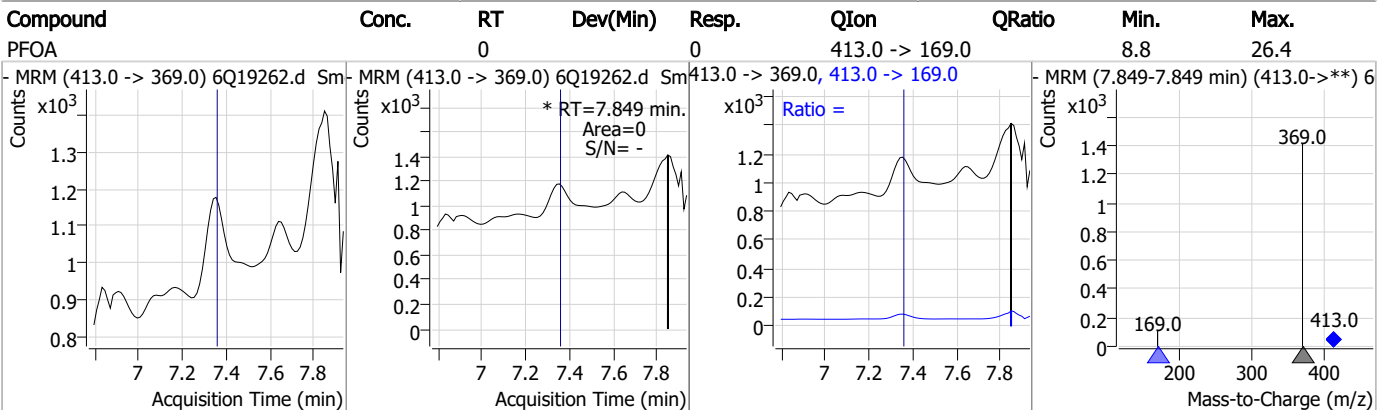
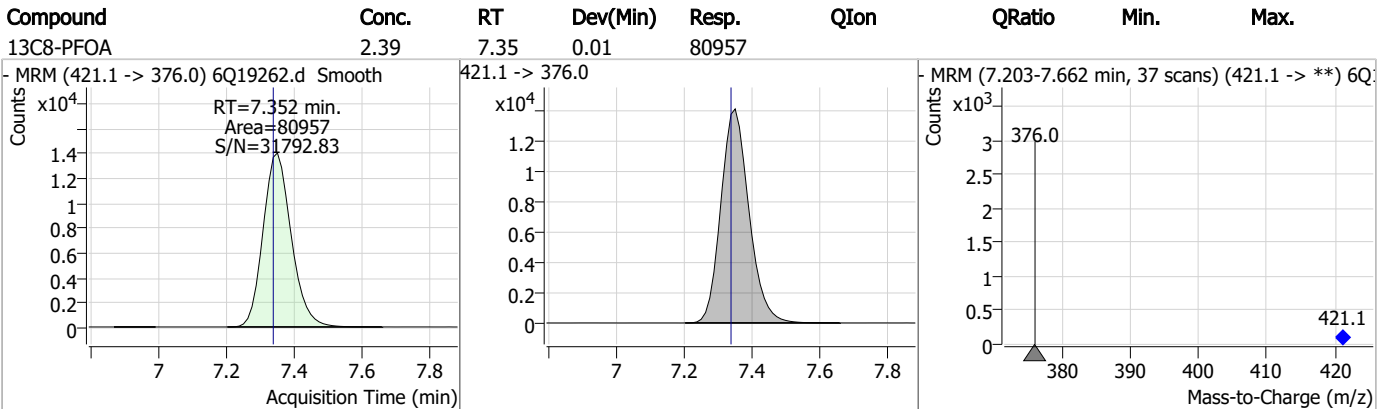
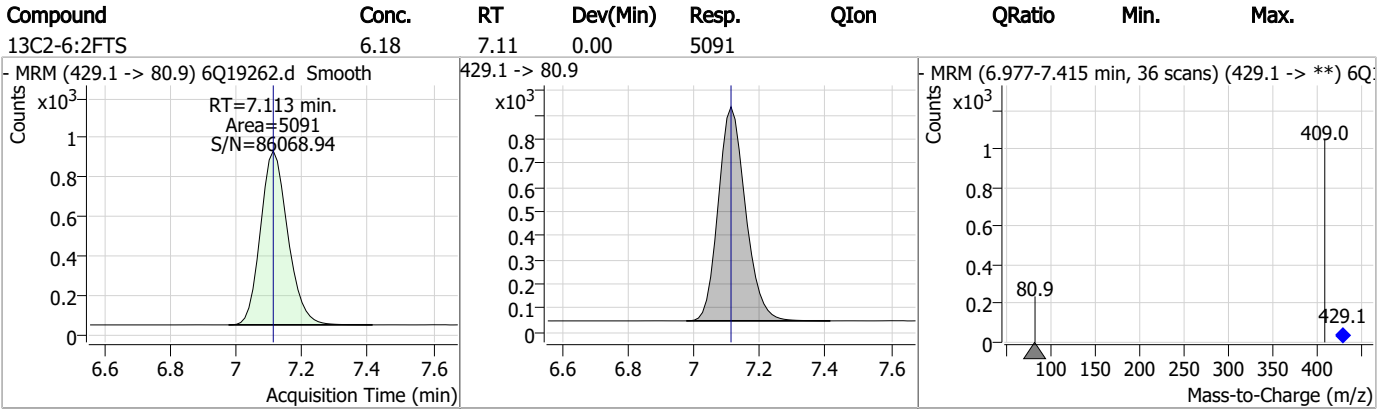


Perfluorinated Compounds by LC/MS/MS



7.2.4
7

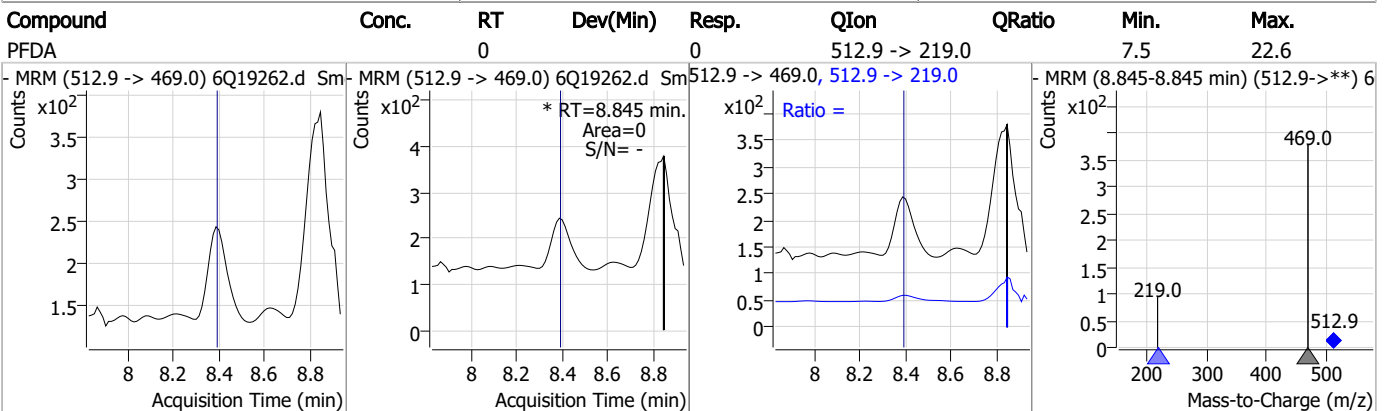
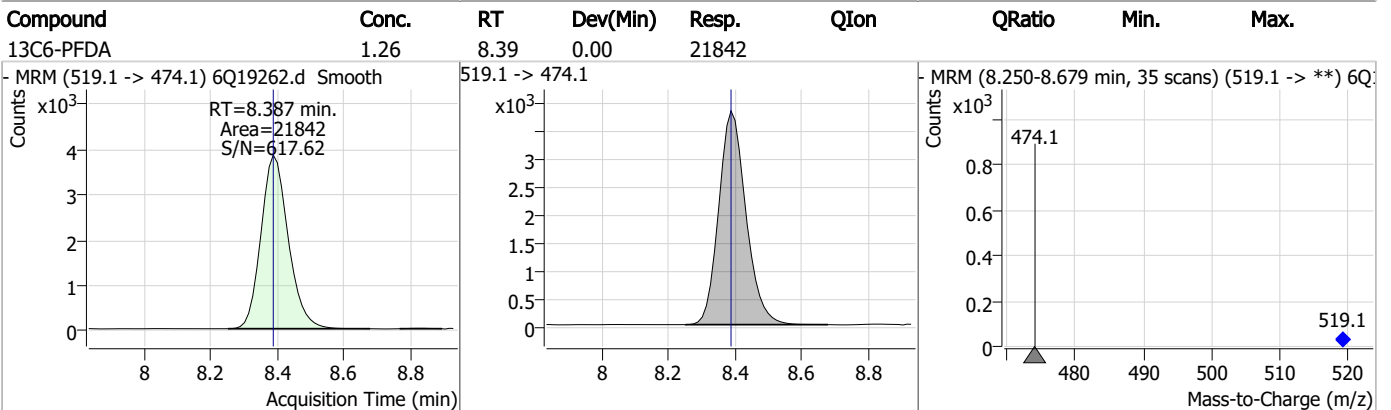
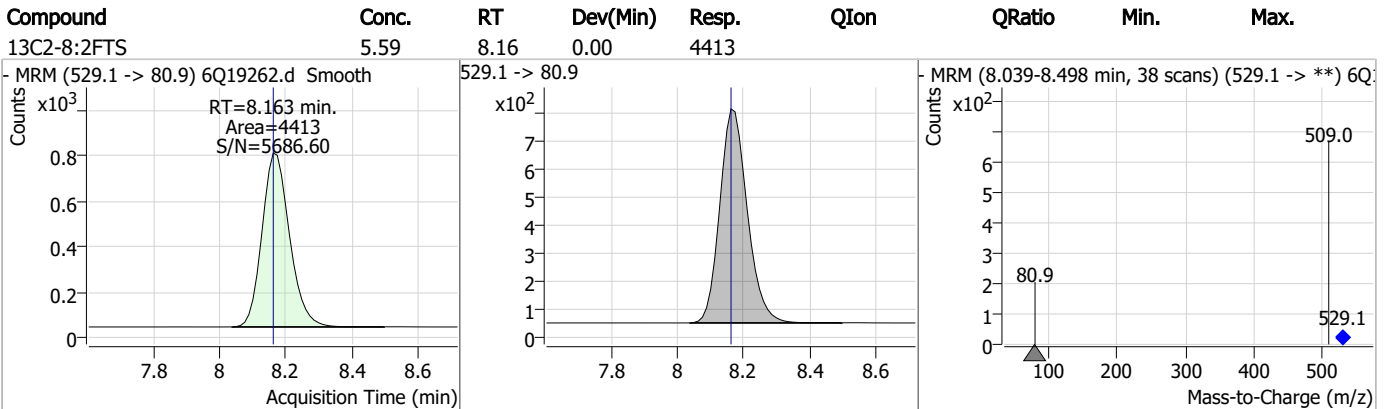
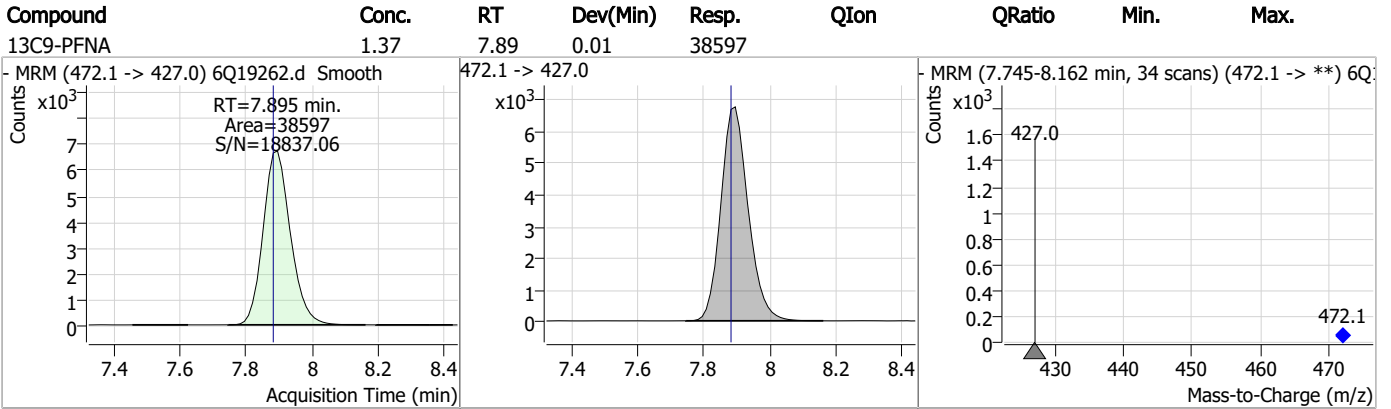
Perfluorinated Compounds by LC/MS/MS



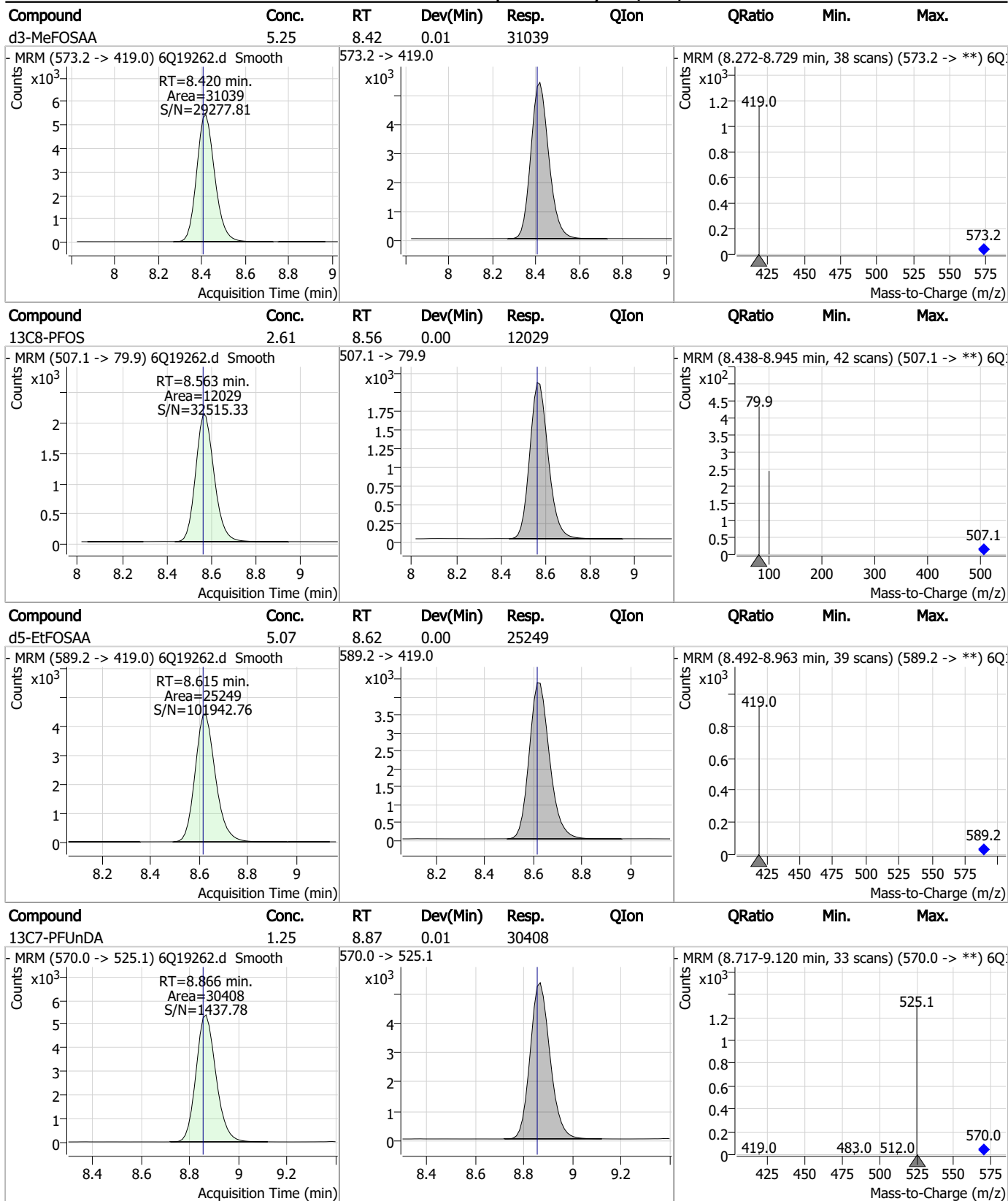
7.2.4

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Perfluorinated Compounds by LC/MS/MS

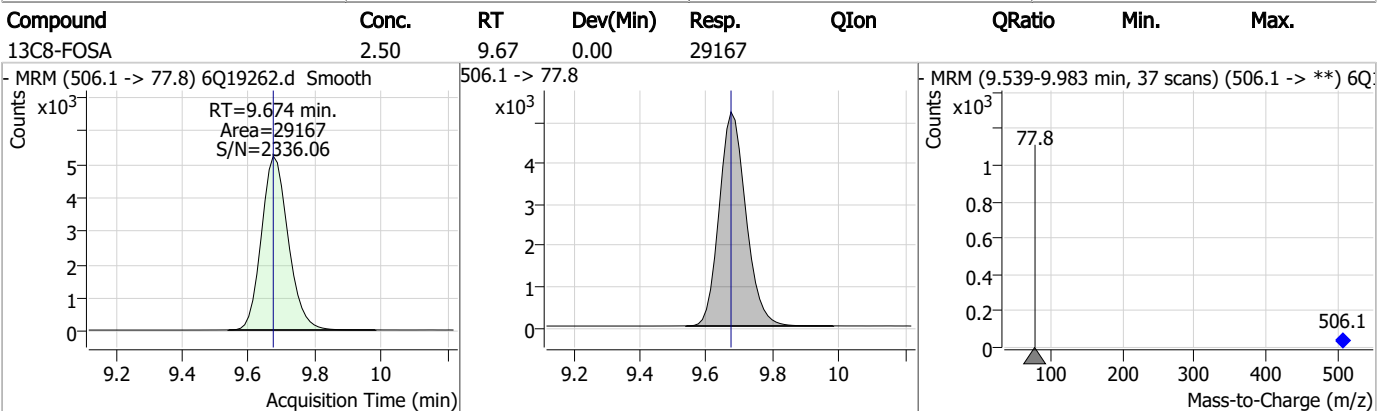
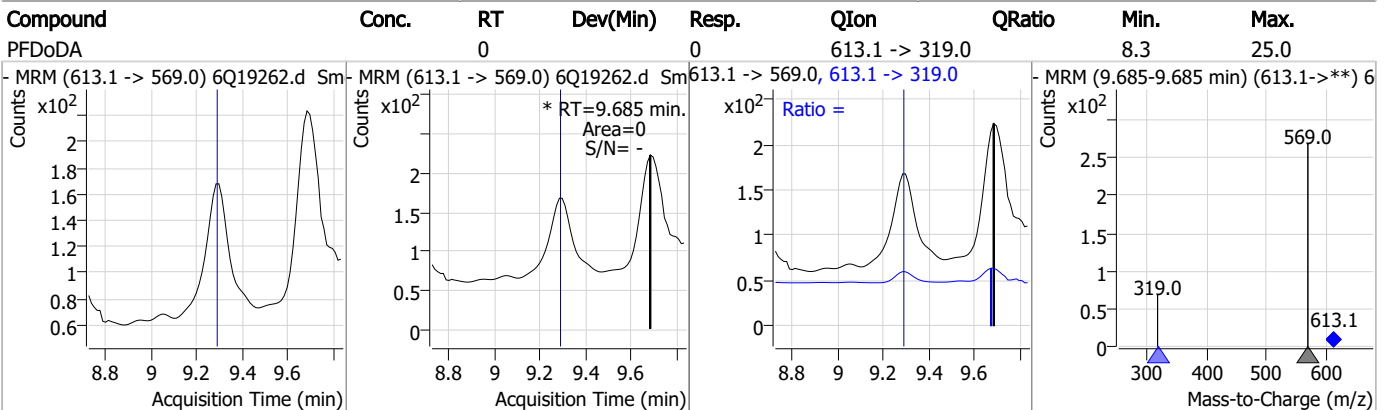
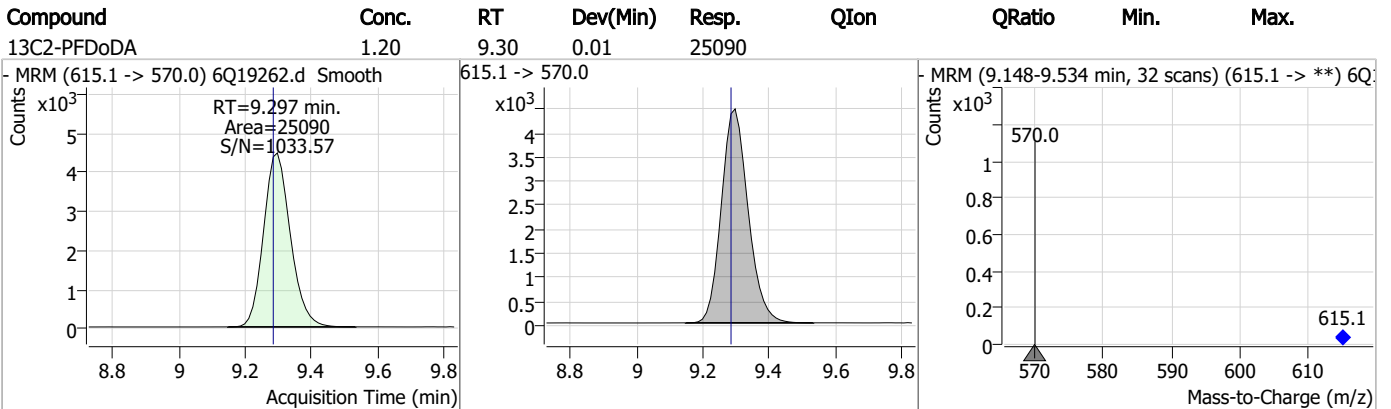
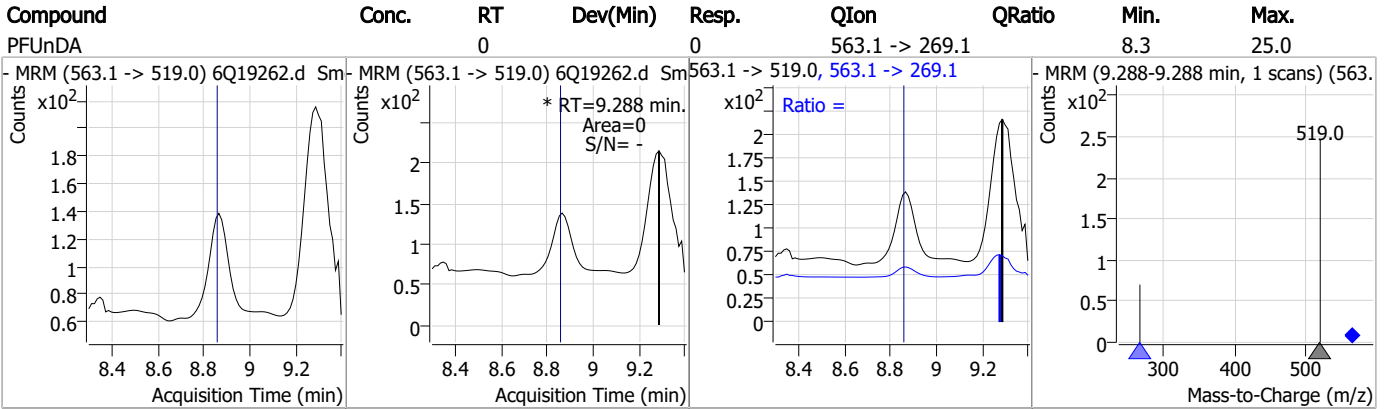


Perfluorinated Compounds by LC/MS/MS



7.2.4
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Perfluorinated Compounds by LC/MS/MS



7.2.4

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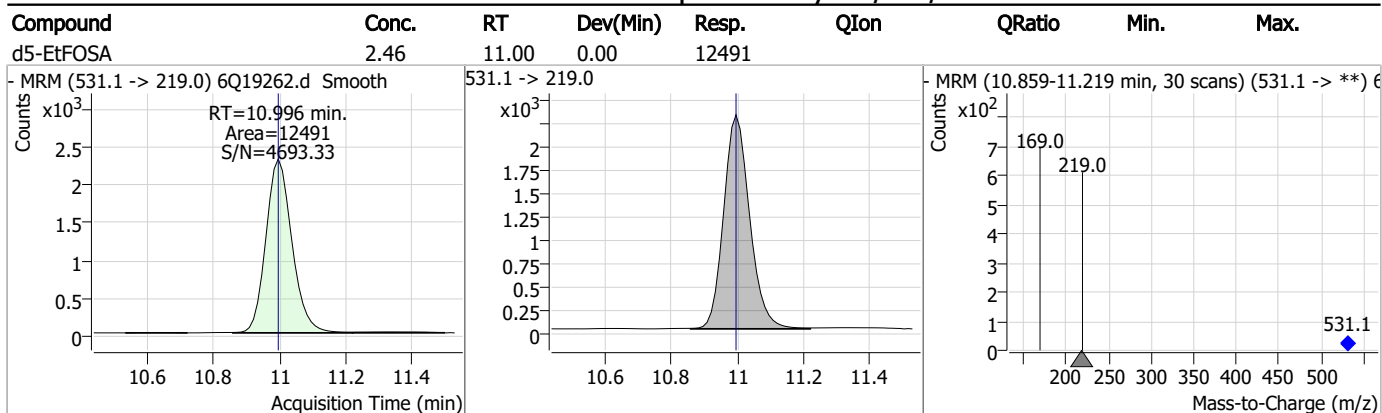
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.20	10.01	0.01	14631				
d7-MeFOSE	25.05	10.68	0.00	144785				
d3-MeFOSA	2.39	10.78	0.00	12535				
d9-EtFOSE	21.54	10.93	0.00	155458				

7.2.4

7

Perfluorinated Compounds by LC/MS/MS



7.2.4
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19263.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 9:10:02 PM
 Sample Name : op97275-bs
 Vial : P2-B1
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97275,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	41867	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	46136	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	49927	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	50552	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	73385	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	37150	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	23337	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	29018	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	23673	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	12683	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	22926	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	19018	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	12015	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	11320	2.50 µg/L	0.000
M2-4:2FTS	5.454	329.1 -> 80.9	3220	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	4270	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4138	5.00 µg/L	0.000
M3-MeFOSAA	8.420	573.2 -> 419.0	29396	5.00 µg/L	0.012
M3-HFPO-DA	6.181	286.9 -> 168.9	34593	10.00 µg/L	0.012
M5-EtFOSAA	8.615	589.2 -> 419.0	23799	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	84049	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	120271	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	9398	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	9771	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	14343	2.50 µg/L	0.000
13C3-PFBA	3.101	216.0 -> 172.0	59615	5.00 µg/L	0.012
18O2-PFHxS	7.477	403.0 -> 83.9	7754	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	81494	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	26613	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	45973	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	46772	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3220	6.75 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 134.9%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4270	5.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.0%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4138	6.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.4%		
13C2-PFDoDA	9.297	615.1 -> 570.0	23673	1.33 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.5%		
13C2-PFTeDA	10.012	715.2 -> 670.0	12683	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C3-PFBS	5.746	302.1 -> 79.9	19018	2.90 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 116.1%		
13C3-PFHxS	7.478	402.1 -> 79.9	12015	2.92 µg/L	0.000

7.3.1
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 = 116.7%	
13C4-PFBA	3.097	216.8 -> 171.9	41867	2.99 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 29.9%	
13C4-PFHpA	6.707	367.1 -> 322.0	50552	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C5-PFHxA	5.792	318.0 -> 273.0	49927	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C5-PFPeA	4.560	268.3 -> 223.0	46136	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C6-PFDA	8.387	519.1 -> 474.1	23337	1.59 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 127.1%	
13C7-PFUnDA	8.866	570.0 -> 525.1	29018	1.40 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.1%	
13C8-FOSA	9.674	506.1 -> 77.8	22926	2.16 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.3%	
13C8-PFOA	7.352	421.1 -> 376.0	73385	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C8-PFOS	8.563	507.1 -> 79.9	11320	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.8%	
13C9-PFNA	7.895	472.1 -> 427.0	37150	1.32 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.9%	
d3-MeFOSAA	8.420	573.2 -> 419.0	29396	5.46 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.3%	
13C3-HFPO-DA	6.181	286.9 -> 168.9	34593	10.79 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.9%	
d3-MeFOSA	10.775	515.0 -> 219.0	9771	2.05 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.0%	
d5-EtFOSAA	8.615	589.2 -> 419.0	23799	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
d7-MeFOSE	10.685	623.2 -> 58.9	84049	15.97 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 63.9%	
d9-EtFOSE	10.930	639.2 -> 58.9	120271	18.29 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.2%	
d5-EtFOSA	10.996	531.1 -> 219.0	9398	2.03 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.4%	
Target Compounds					QValue
4:2FTS	5.455	327.1 -> 307.0	47958	8.59 µg/L	100
		327.1 -> 80.9	17916		
6:2FTS	7.113	427.1 -> 407.0	50810	9.85 µg/L	91
		427.1 -> 80.9	15735		
8:2FTS	8.164	527.1 -> 507.0	23816	8.65 µg/L	98
		527.1 -> 80.8	9675		
EtFOSAA	8.629	584.2 -> 419.1	8620	2.18 µg/L	m 96
		584.2 -> 526.0	4546		
FOSA	9.677	498.1 -> 77.9	20317	2.16 µg/L	98
		498.1 -> 478.0	727		
MeFOSAA	8.421	570.1 -> 419.0	17219	2.41 µg/L	m 98
		570.1 -> 483.0	3217		
PFBA	3.093	212.8 -> 168.9	14887	8.92 µg/L	100
PFBS	5.747	298.7 -> 79.9	17037	2.04 µg/L	93
		298.7 -> 98.8	6586		
PFDA	8.388	512.9 -> 469.0	65618	1.88 µg/L	97
		512.9 -> 219.0	10638		
PFDODA	9.298	613.1 -> 569.0	47282	2.43 µg/L	95
		613.1 -> 319.0	6966		
PFDS	9.462	599.0 -> 79.9	7706	2.26 µg/L	99

7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3420			
PFHpA	6.720	363.1 -> 319.0	57414	2.12	µg/L	99
		363.1 -> 169.0	9343			
PFHpS	8.059	449.0 -> 79.9	13943	2.05	µg/L	97
		449.0 -> 98.9	7160			
PFHxA	5.795	313.0 -> 269.0	47859	2.39	µg/L	100
		313.0 -> 118.9	2544			
PFHxS	7.479	398.7 -> 79.9	13855	1.92	µg/L	m 91
		398.7 -> 98.9	7225			
PFNA	7.896	463.0 -> 419.0	72937	2.14	µg/L	99
		463.0 -> 219.0	13109			
PFNS	9.041	548.8 -> 79.9	12649	2.11	µg/L	98
		548.8 -> 98.9	6319			
PFOA	7.353	413.0 -> 369.0	96523	2.56	µg/L	97
		413.0 -> 169.0	15566			
PFOS	8.564	498.9 -> 79.9	13917	2.09	µg/L	m 92
		498.9 -> 98.8	6489			
PFPeA	4.563	263.0 -> 219.0	60758	4.48	µg/L	100
PFPeS	6.798	349.1 -> 79.9	13898	2.09	µg/L	97
		349.1 -> 98.9	6109			
PFTeDA	10.013	713.1 -> 669.0	34339	2.26	µg/L	100
		713.1 -> 168.9	3116			
PFTrDA	9.669	663.0 -> 619.0	42962	2.22	µg/L	98
		663.0 -> 168.9	4682			
PFUnDA	8.866	563.1 -> 519.0	45949	2.16	µg/L	97
		563.1 -> 269.1	8170			
11CI-PF3OUdS	9.721	630.9 -> 450.9	63024	3.87	µg/L	94
		632.9 -> 452.9	20946			
9CI-PF3ONS	8.918	530.8 -> 351.0	108959	4.00	µg/L	100
		532.8 -> 353.0	32543			
ADONA	6.959	376.9 -> 250.9	240266	4.11	µg/L	97
		376.9 -> 84.8	63281			
HFPO-DA	6.182	284.9 -> 168.9	15719	4.18	µg/L	98
		284.9 -> 184.9	1848			
3:3FTCA	3.971	241.0 -> 177.0	4420	4.76	µg/L	99
		241.0 -> 117.0	601			
5:3FTCA	6.374	341.0 -> 237.1	230685	59.47	µg/L	96
		341.0 -> 217.0	163623			
7:3FTCA	7.748	441.0 -> 316.9	156102	56.23	µg/L	97
		441.0 -> 336.9	368434			
EtFOSA	10.997	526.0 -> 219.0	23268	4.62	µg/L	96
		526.0 -> 169.0	30812			
EtFOSE	10.943	630.0 -> 58.9	65229	10.27	µg/L	100
MeFOSA	10.777	511.9 -> 219.0	19643	4.59	µg/L	m 96
		511.9 -> 169.0	26283			
MeFOSE	10.709	616.1 -> 58.9	39850	10.83	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	3283	1.93	µg/L	98
		699.1 -> 98.8	1856			
NFDHA	5.673	295.0 -> 201.0	11063	4.37	µg/L	95
		295.0 -> 84.9	2879			
PFMBA	4.988	279.0 -> 85.1	45105	4.63	µg/L	100
PFMPA	3.680	229.0 -> 84.9	18411	2.43	µg/L	100
PFEESA	6.301	314.8 -> 134.9	110779	4.50	µg/L	99
		314.8 -> 82.9	3976			

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

7.3.1
7

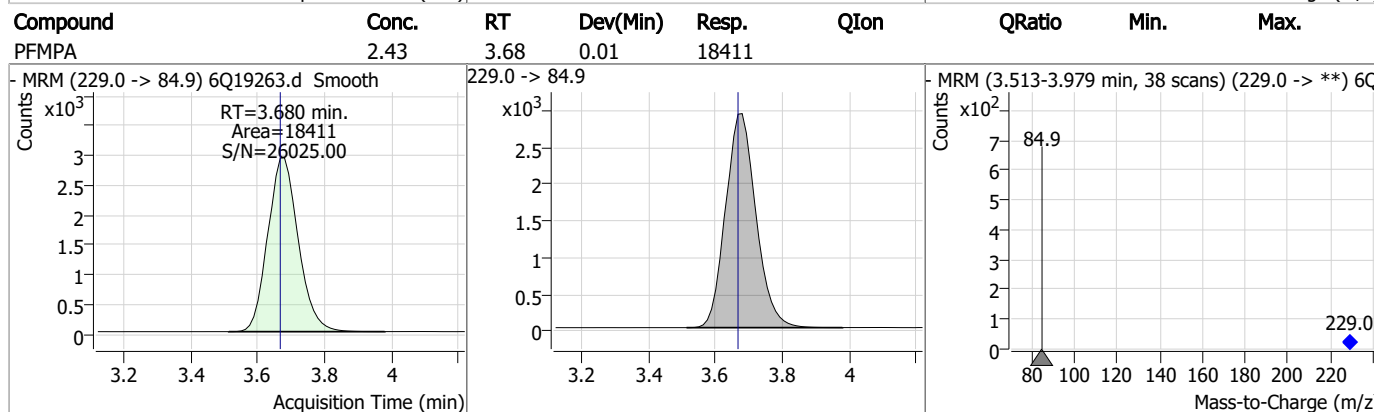
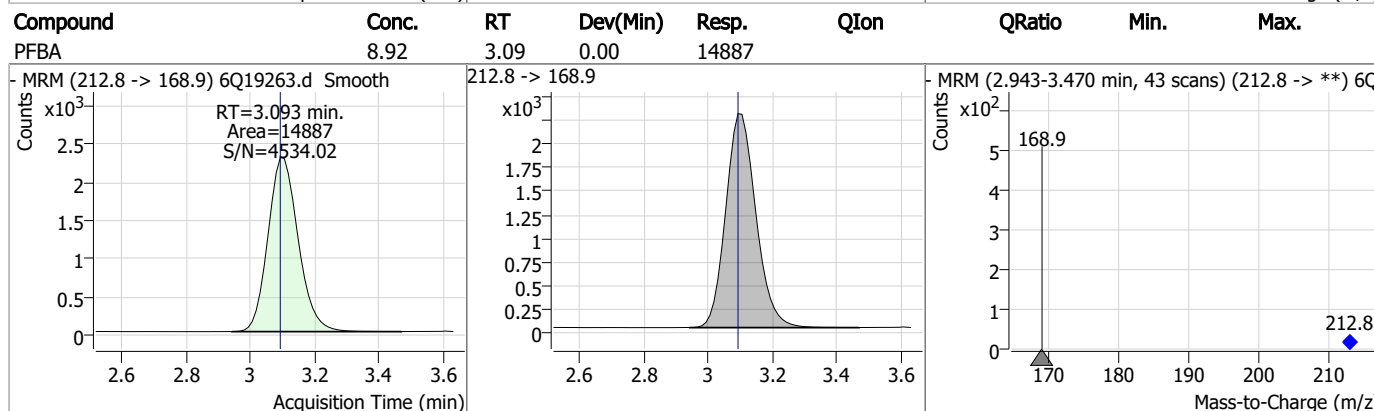
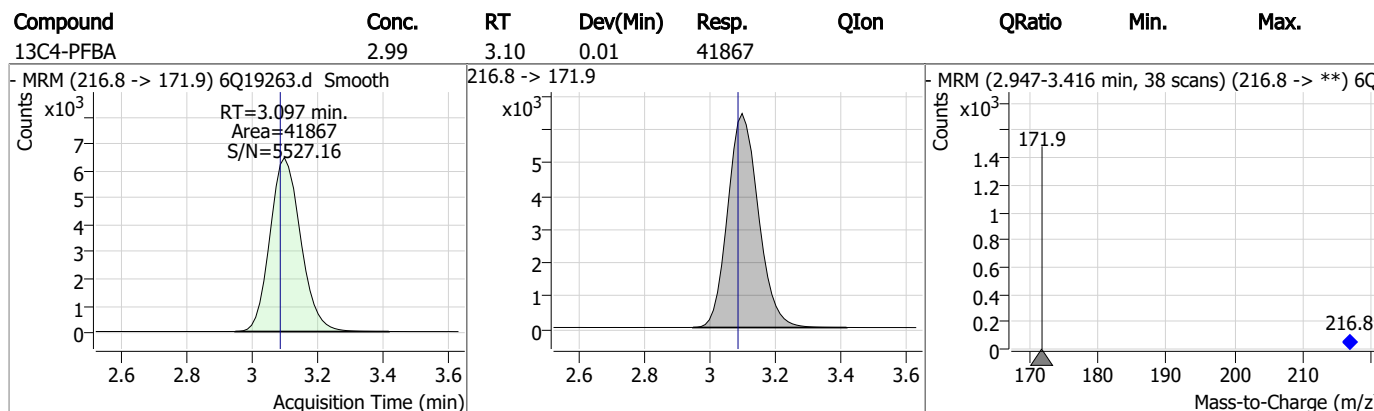
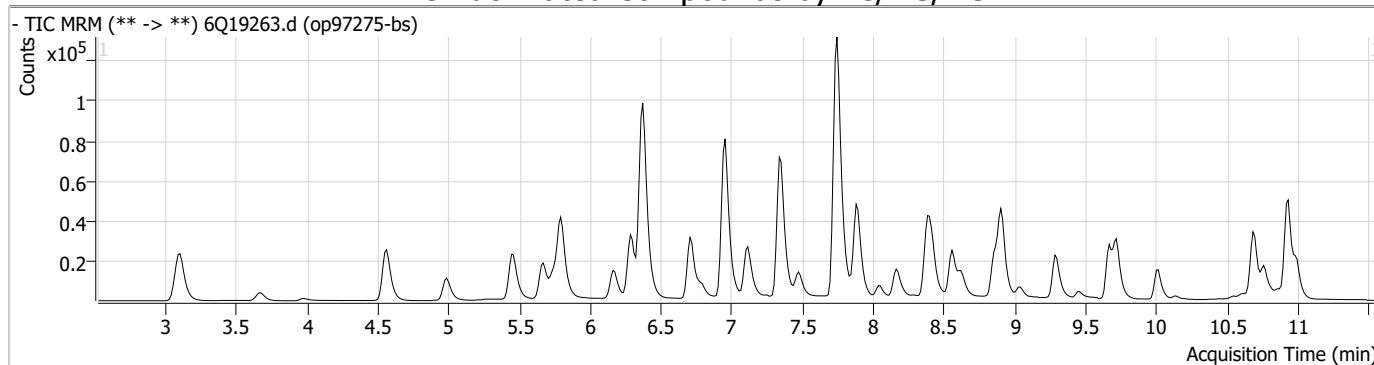
Perfluorinated Compounds by LC/MS/MS

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

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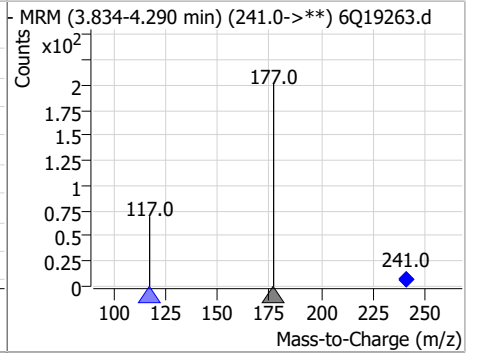
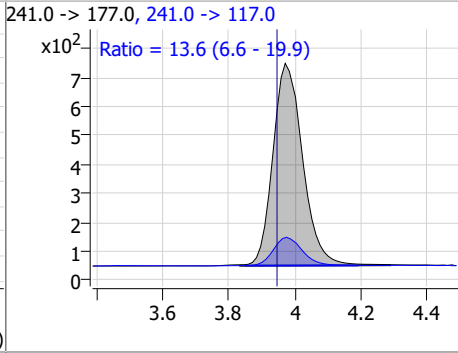
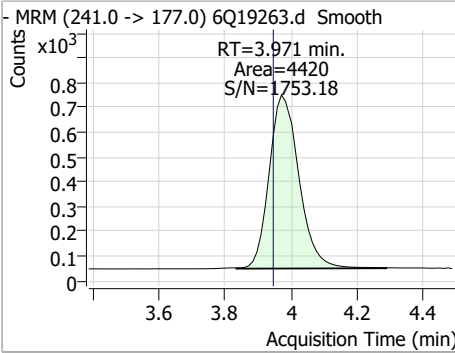
Perfluorinated Compounds by LC/MS/MS



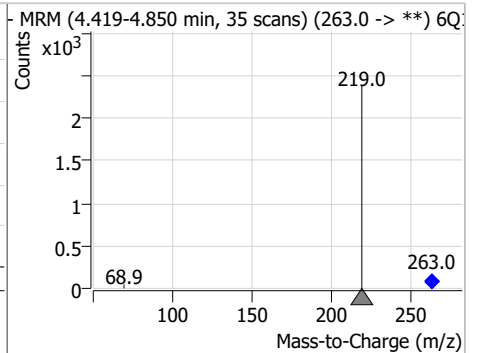
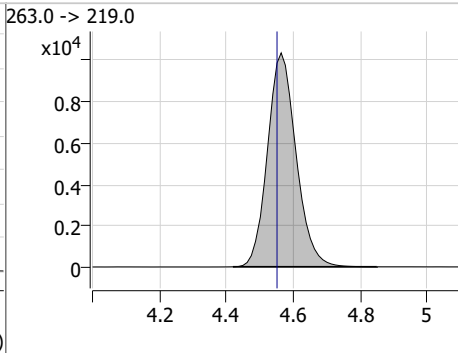
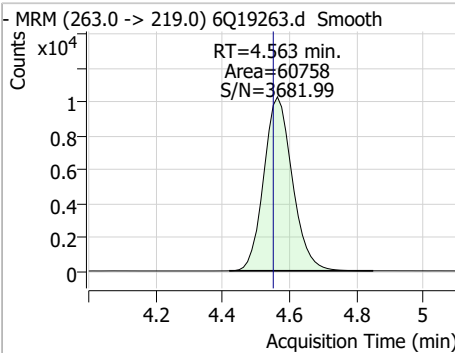
7.3.1
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Perfluorinated Compounds by LC/MS/MS

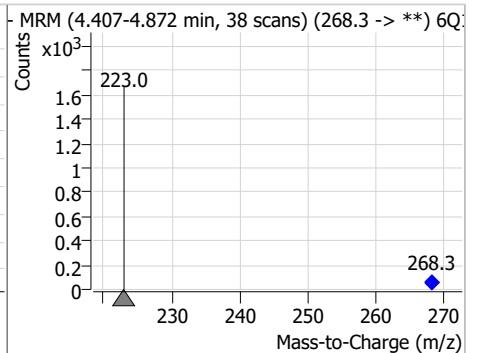
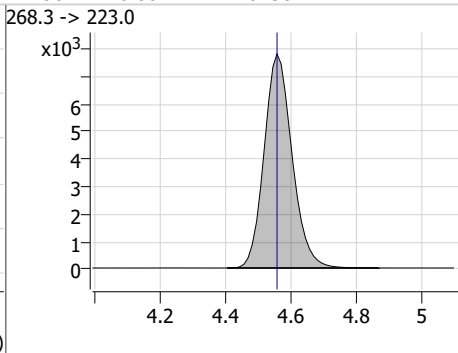
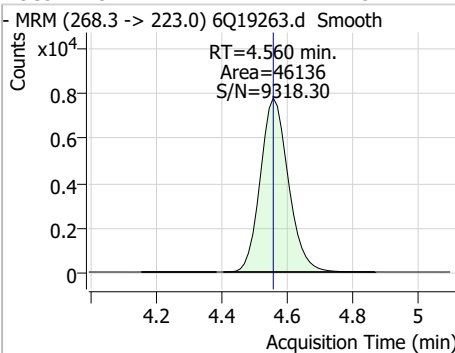
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	4.76	3.97	0.02	4420	241.0 -> 117.0	13.6	6.6	19.9



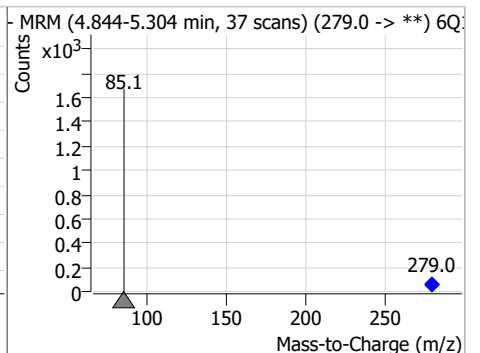
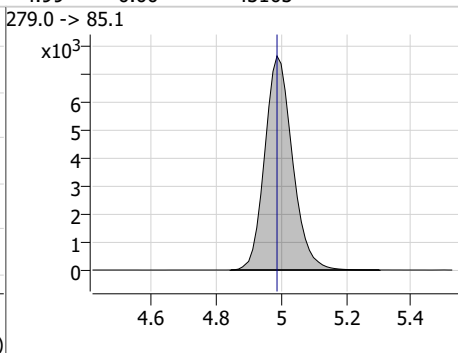
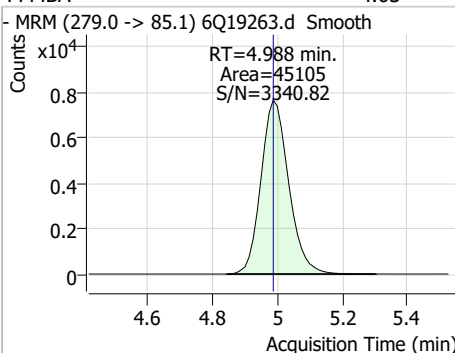
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.48	4.56	0.01	60758				



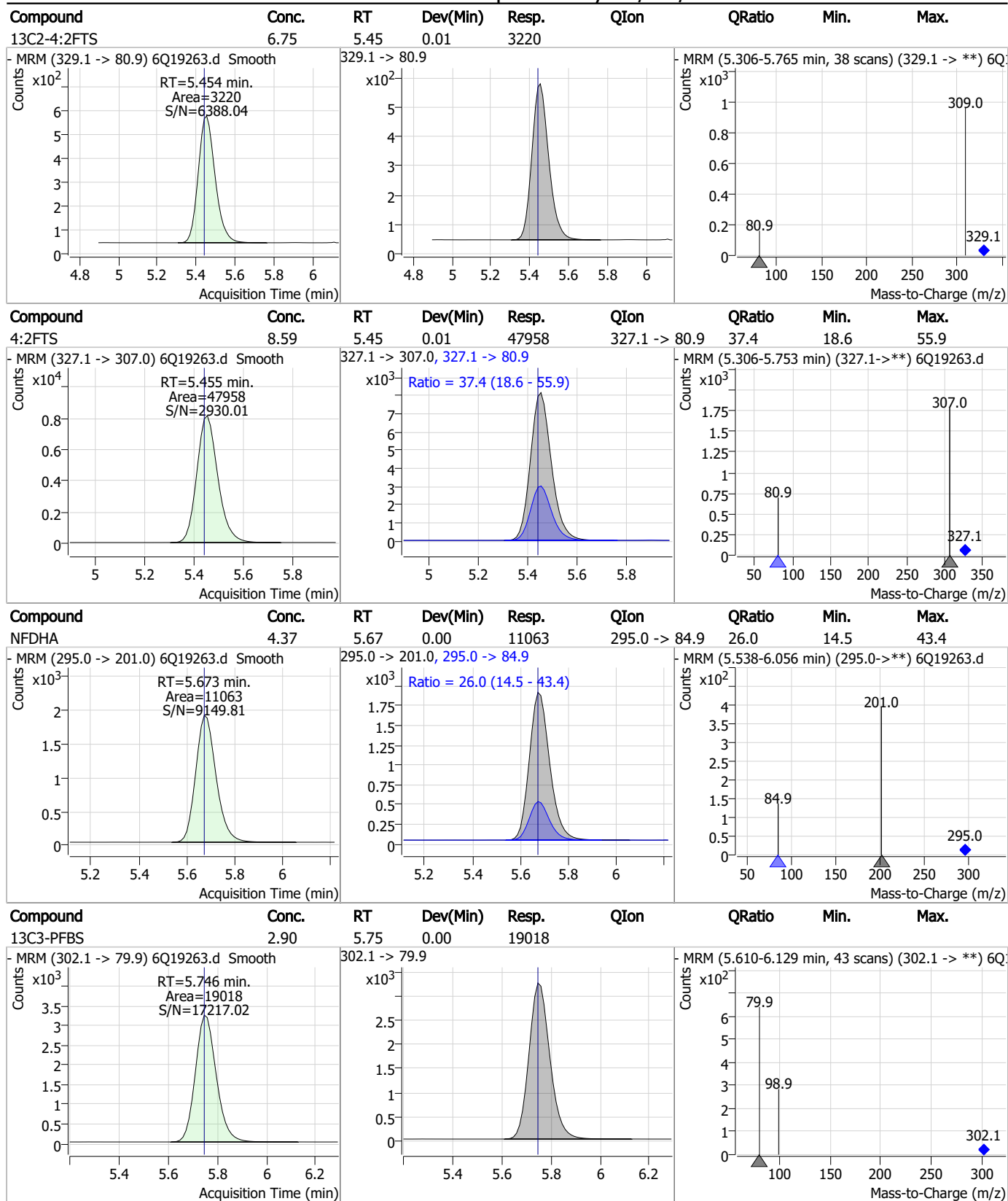
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.11	4.56	0.00	46136				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.63	4.99	0.00	45105				



Perfluorinated Compounds by LC/MS/MS

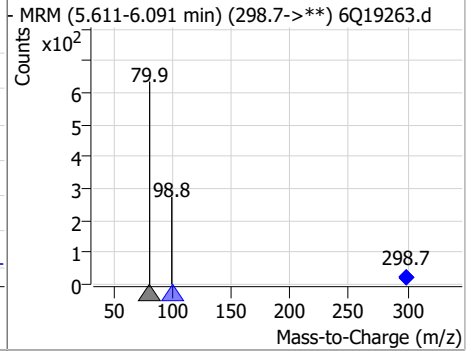
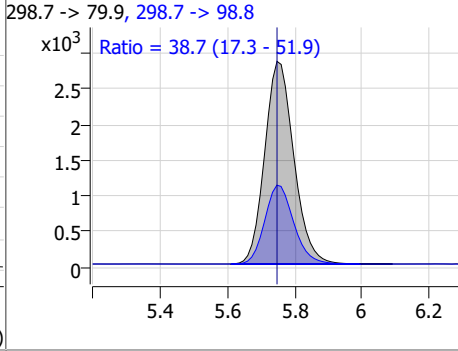
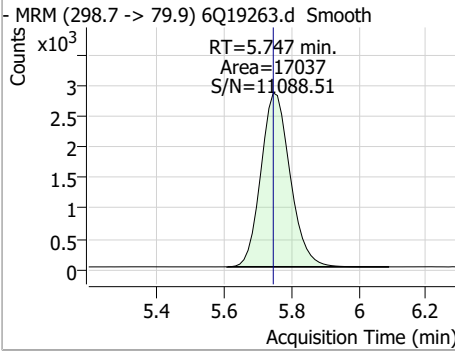


7.3.1
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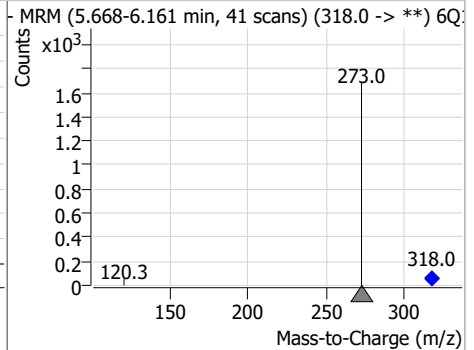
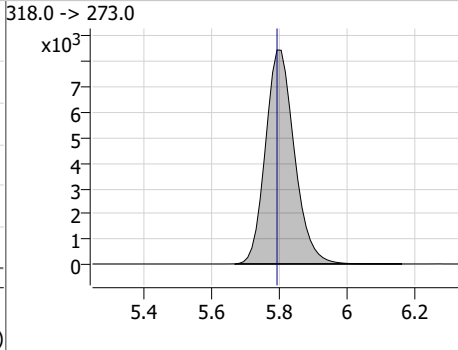
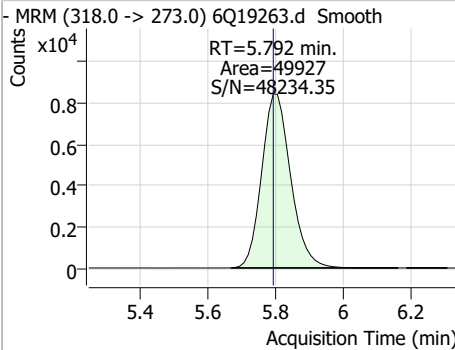


Perfluorinated Compounds by LC/MS/MS

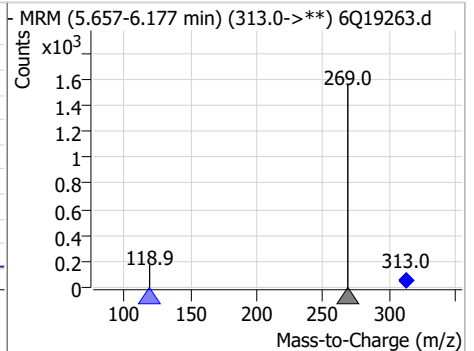
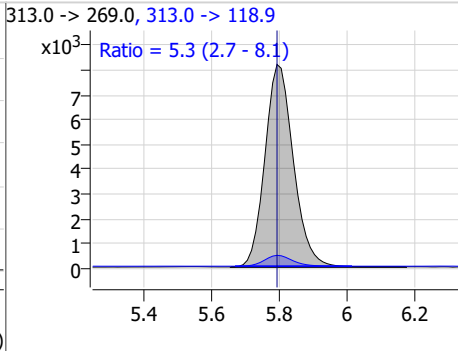
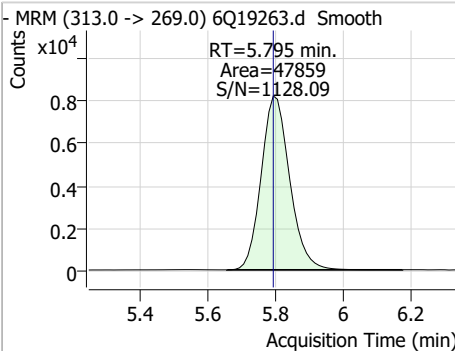
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.04	5.75	0.00	17037	298.7 -> 98.8	38.7	17.3	51.9



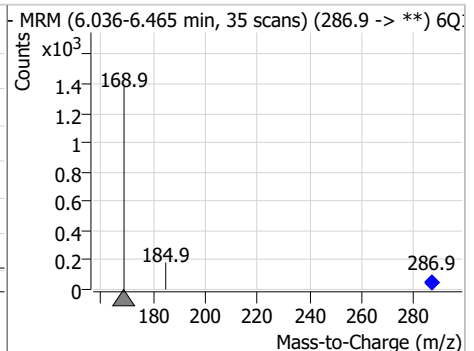
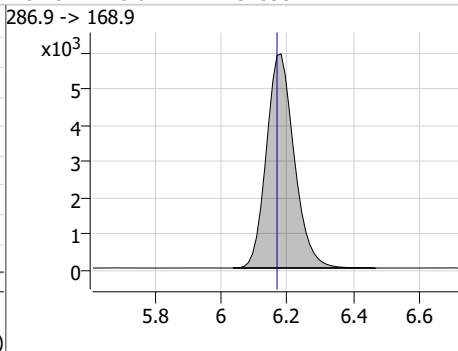
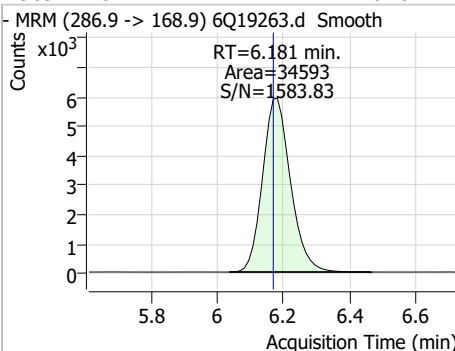
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.47	5.79	0.00	49927	318.0 -> 273.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.39	5.79	0.00	47859	313.0 -> 118.9	5.3	2.7	8.1

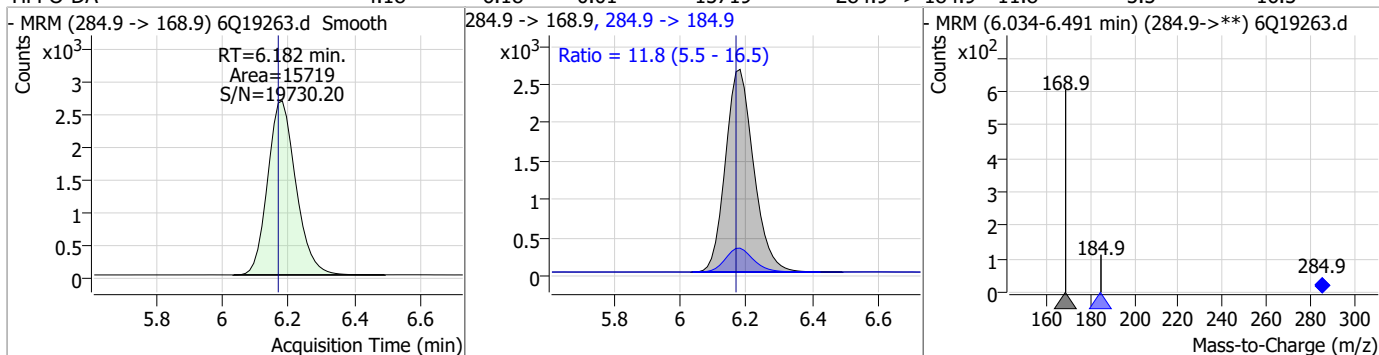


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.79	6.18	0.01	34593	286.9 -> 168.9			

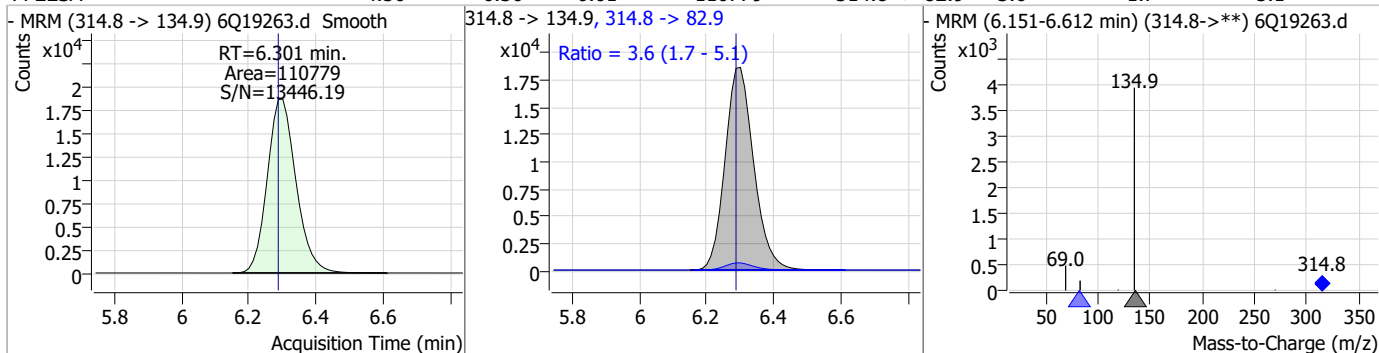


Perfluorinated Compounds by LC/MS/MS

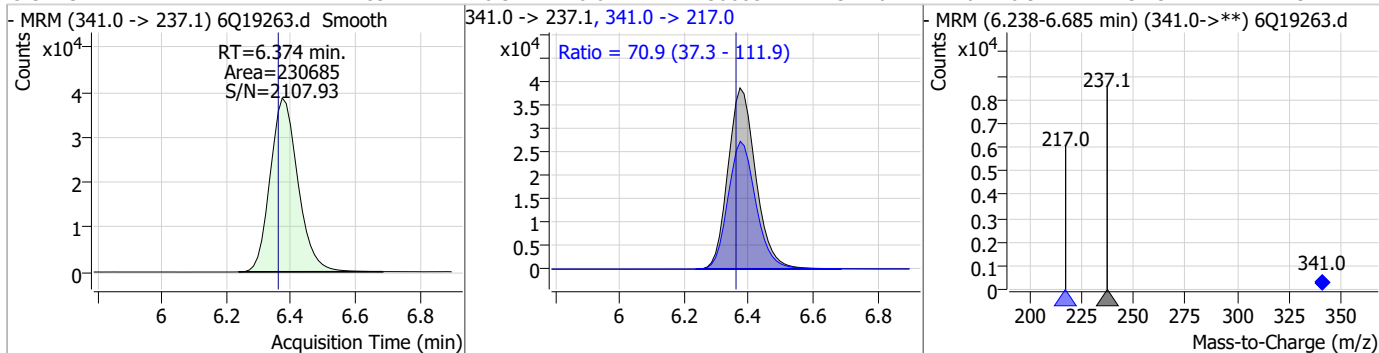
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.18	6.18	0.01	15719	284.9 -> 184.9	11.8	5.5	16.5



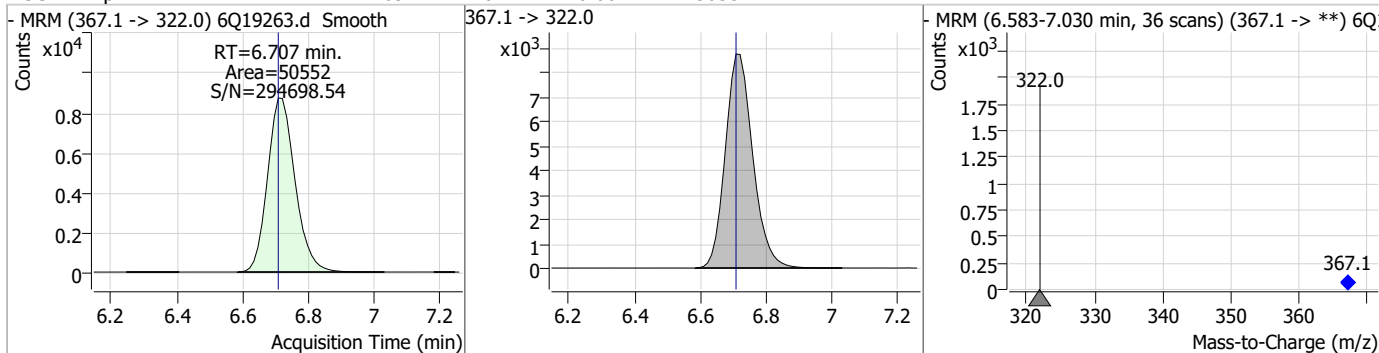
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.50	6.30	0.01	110779	314.8 -> 82.9	3.6	1.7	5.1



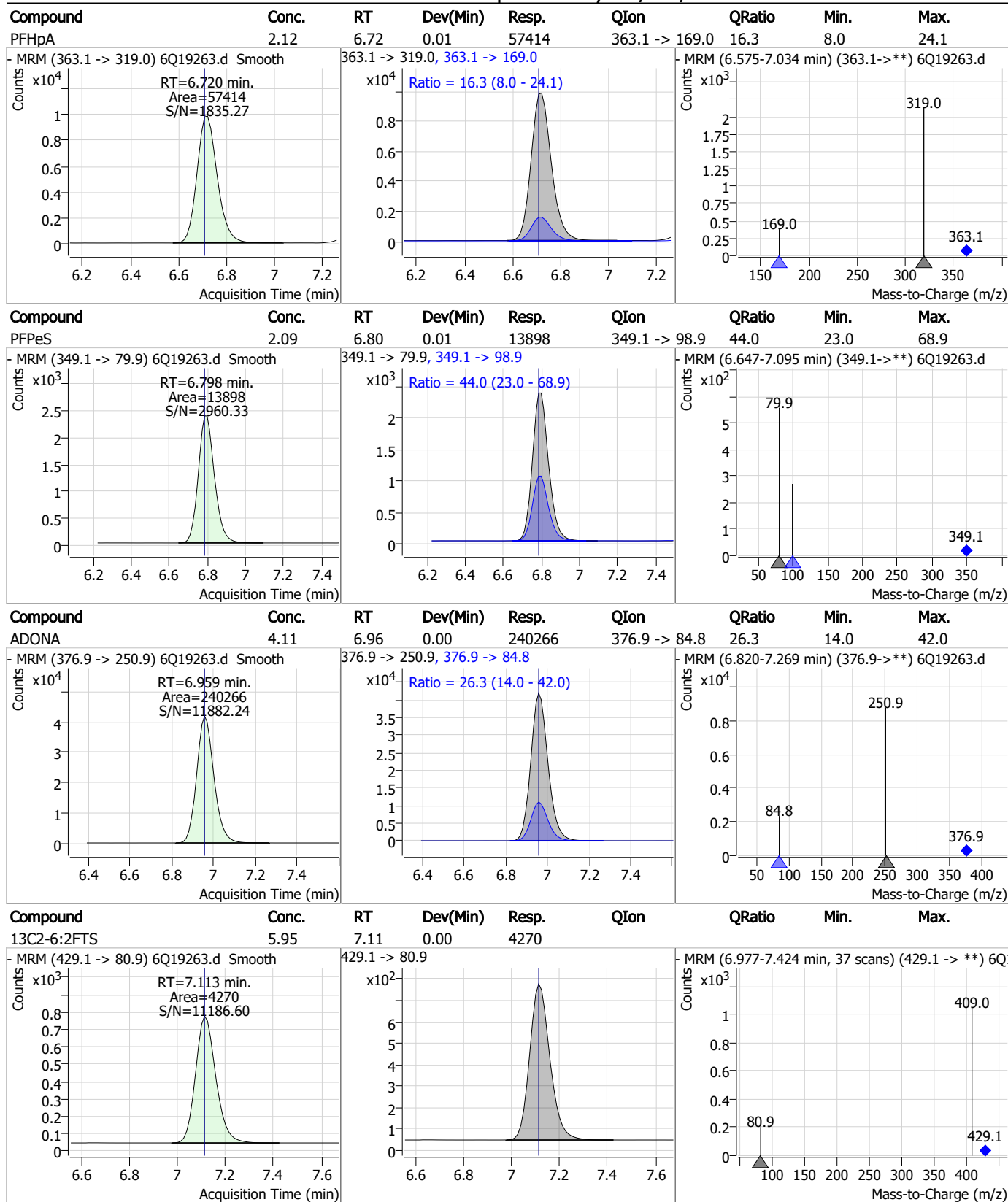
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	59.47	6.37	0.01	230685	341.0 -> 217.0	70.9	37.3	111.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.69	6.71	0.00	50552	367.1 -> 322.0			

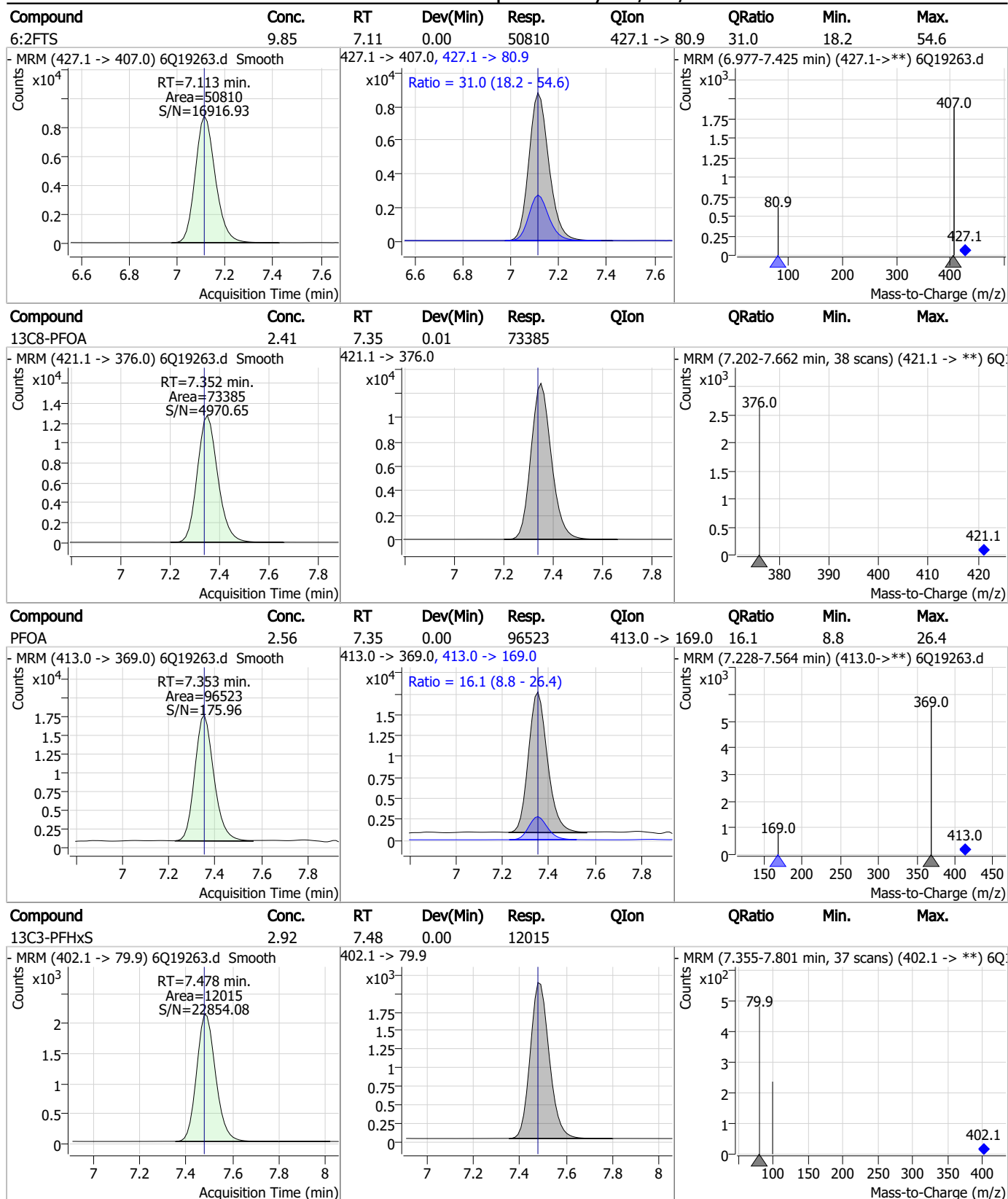


Perfluorinated Compounds by LC/MS/MS



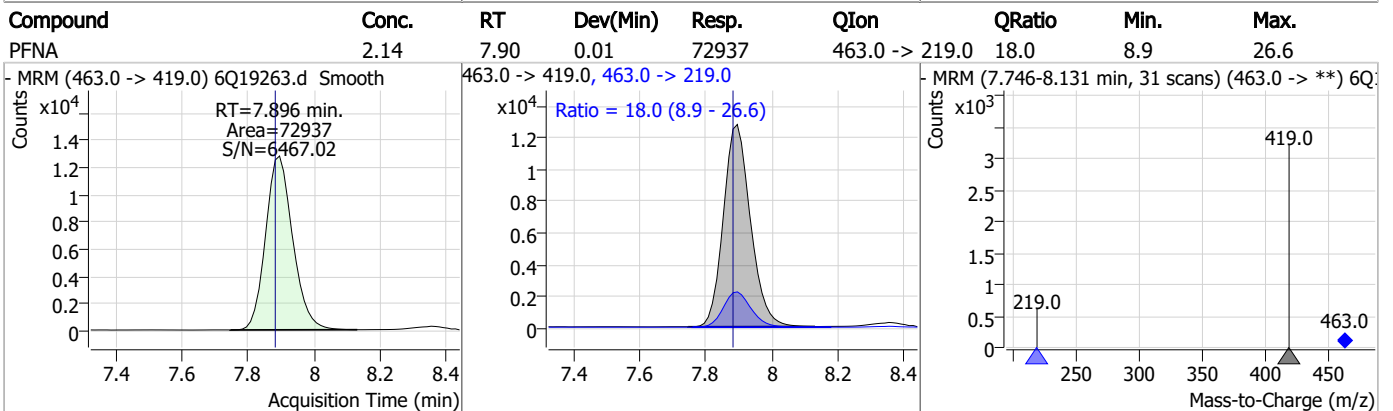
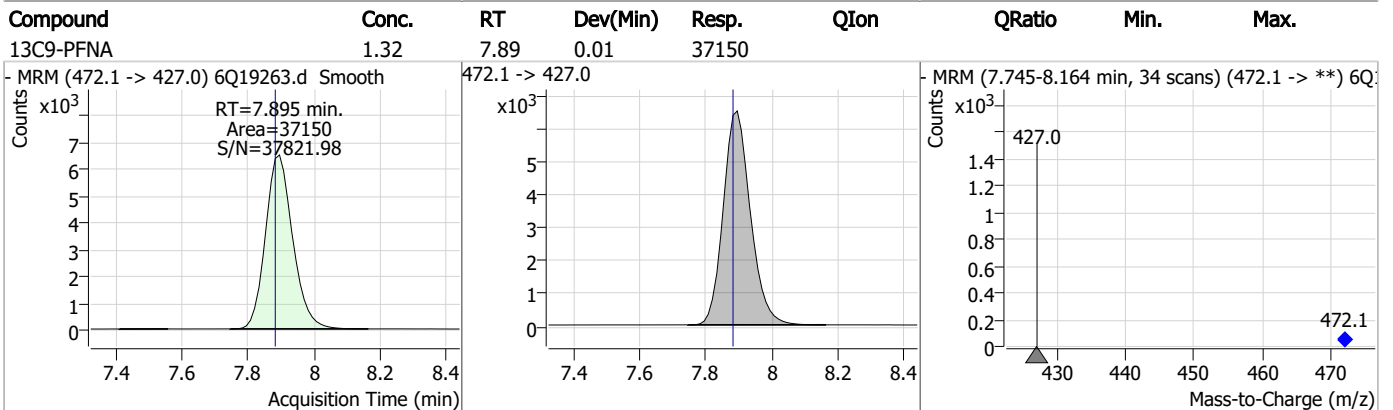
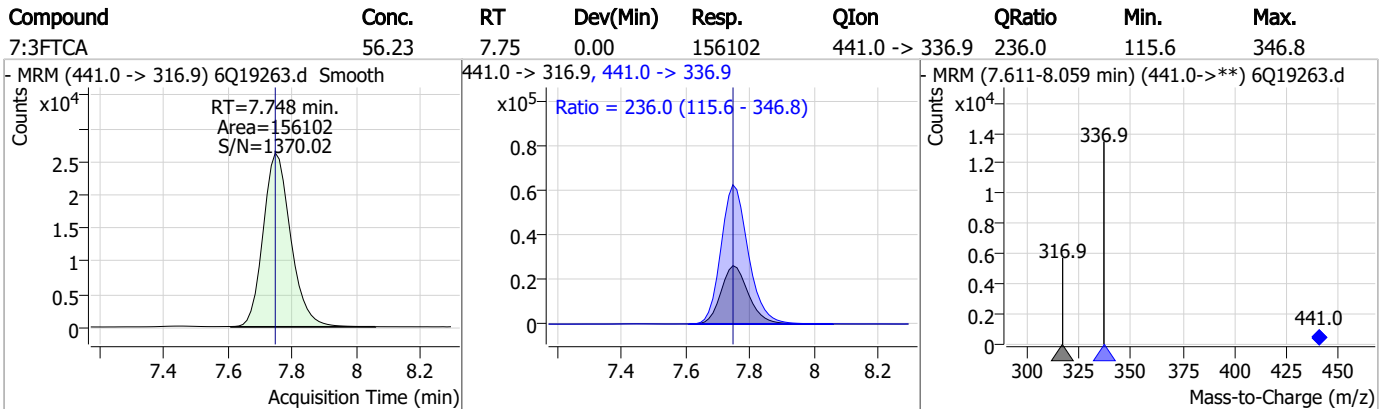
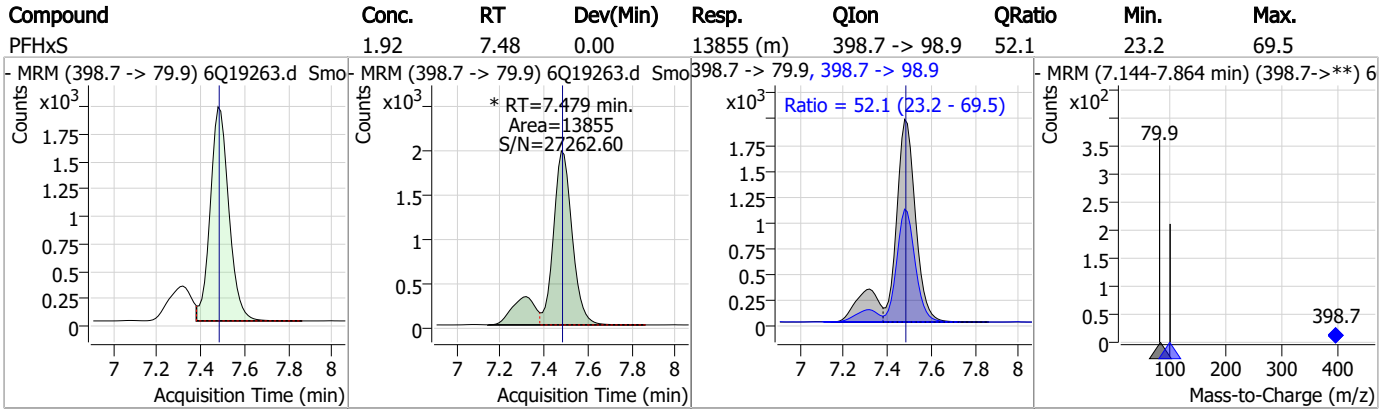
7.3.1

Perfluorinated Compounds by LC/MS/MS

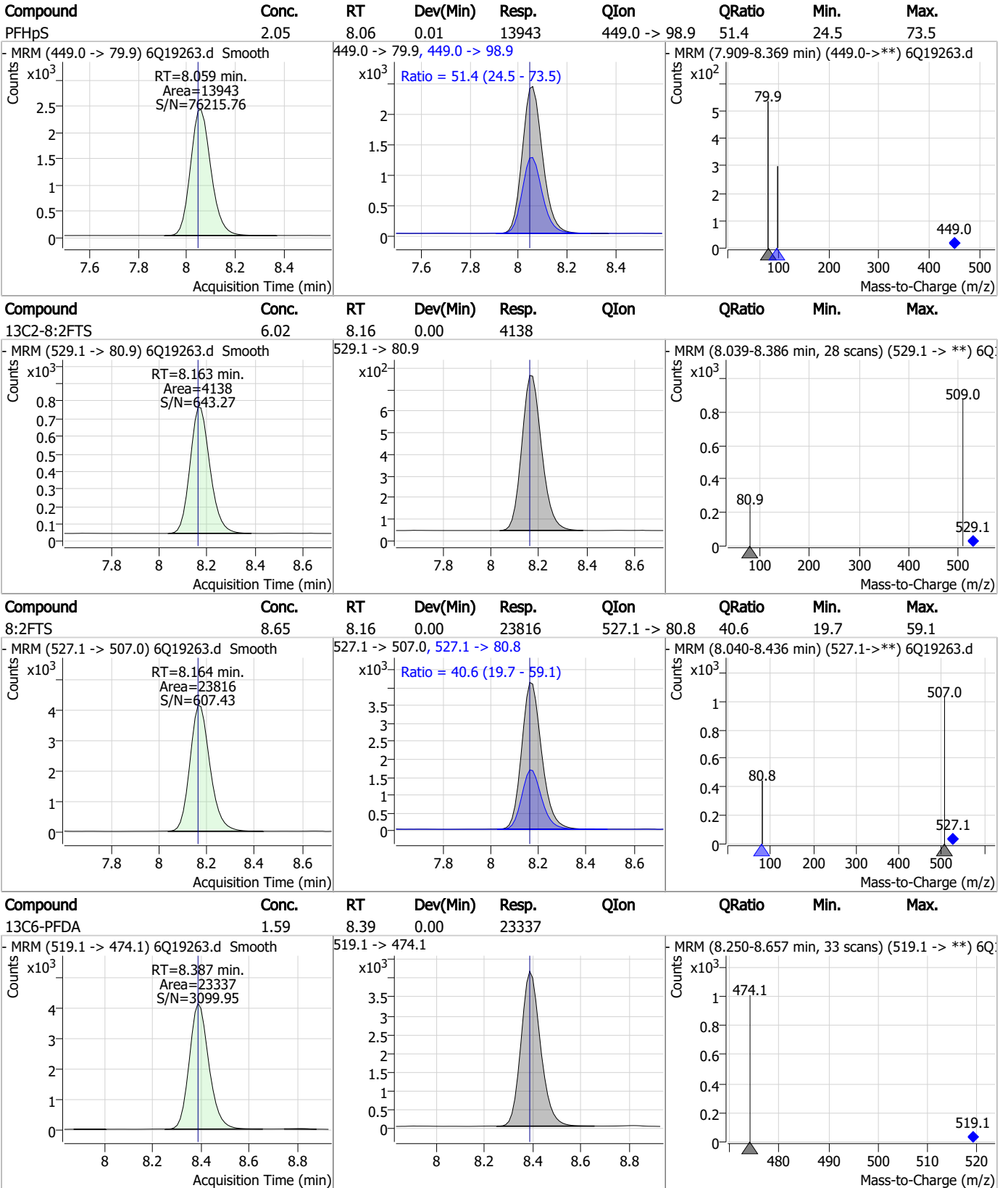


7.3.1
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Perfluorinated Compounds by LC/MS/MS



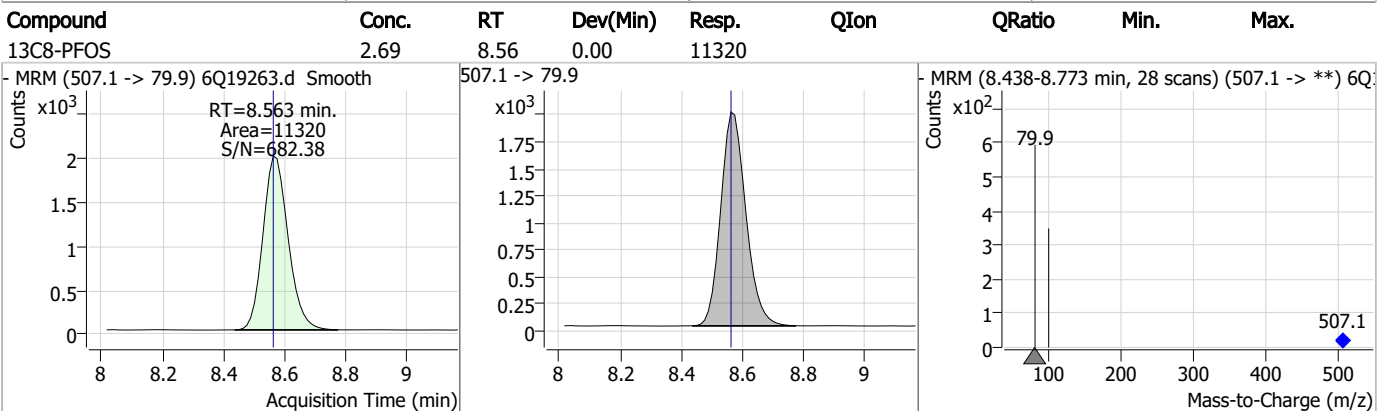
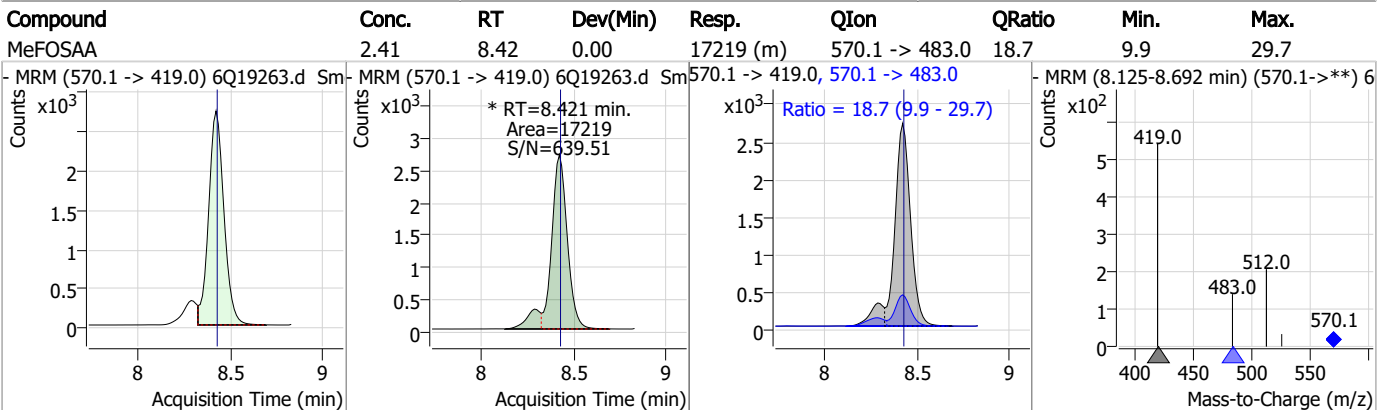
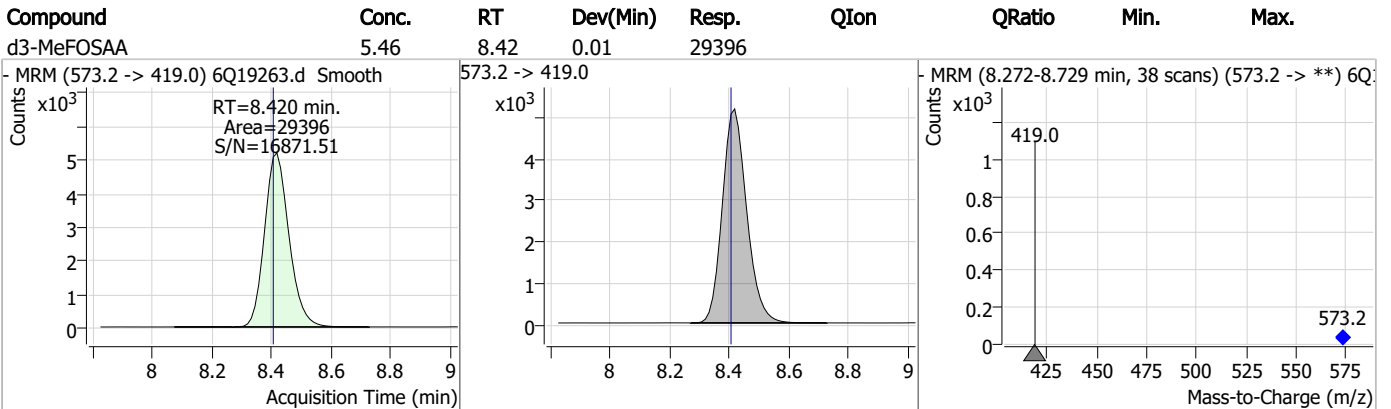
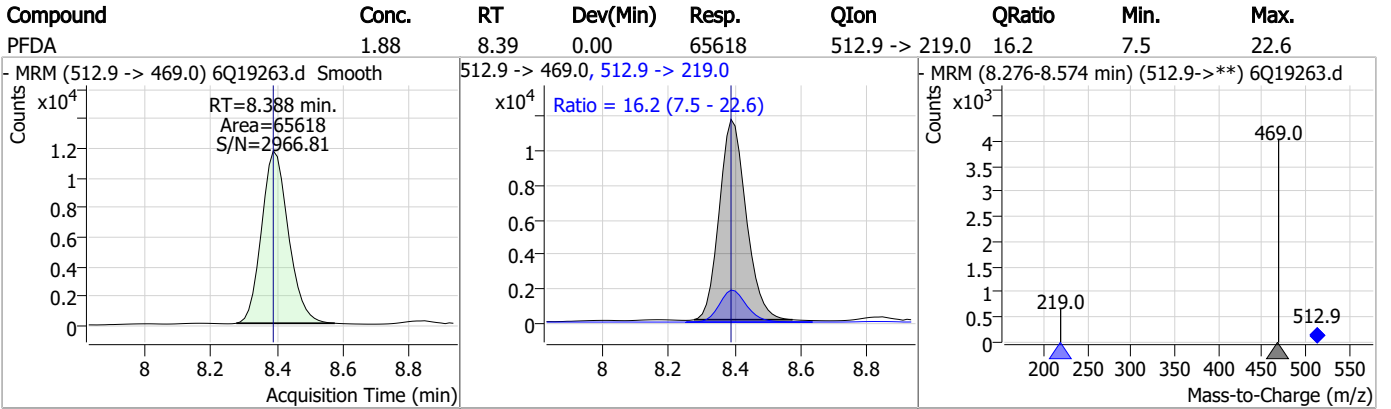
Perfluorinated Compounds by LC/MS/MS



7.3.1

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Perfluorinated Compounds by LC/MS/MS



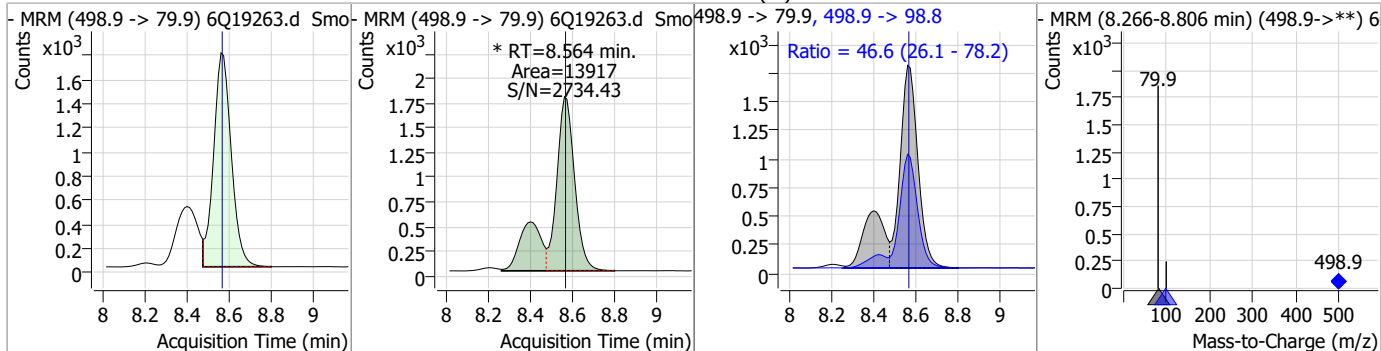
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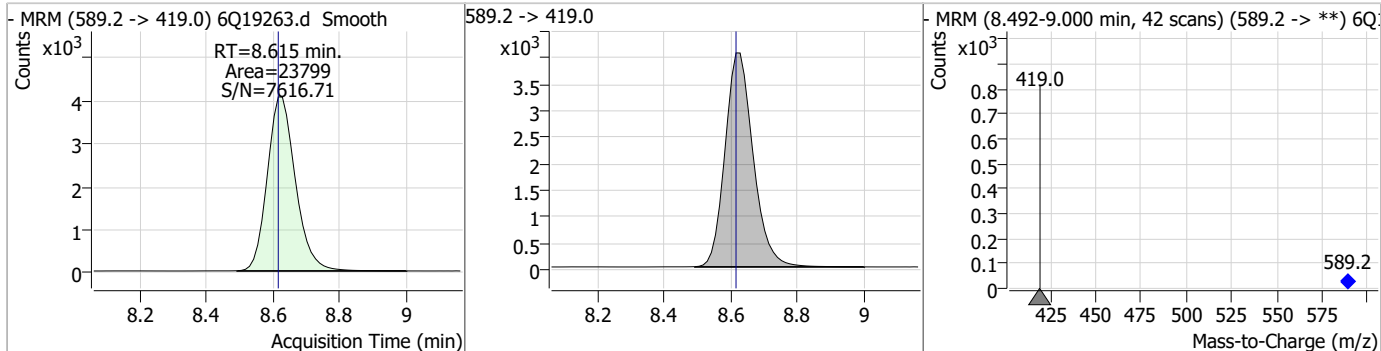


Perfluorinated Compounds by LC/MS/MS

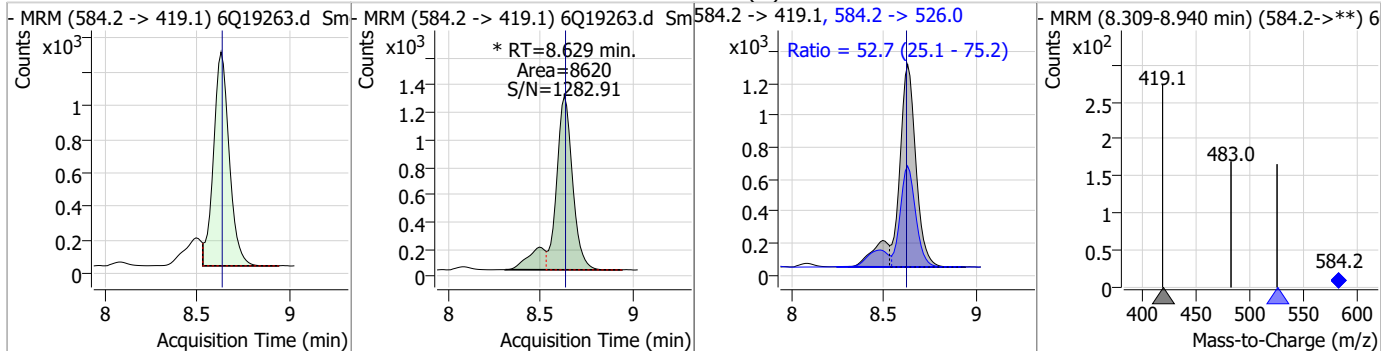
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.09	8.56	0.00	13917 (m)	498.9 -> 98.8	46.6	26.1	78.2



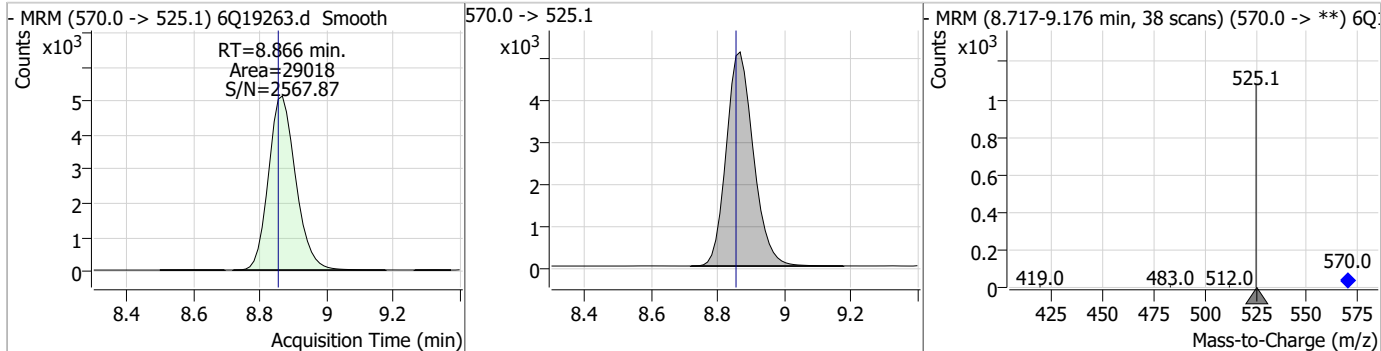
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.24	8.62	0.00	23799				



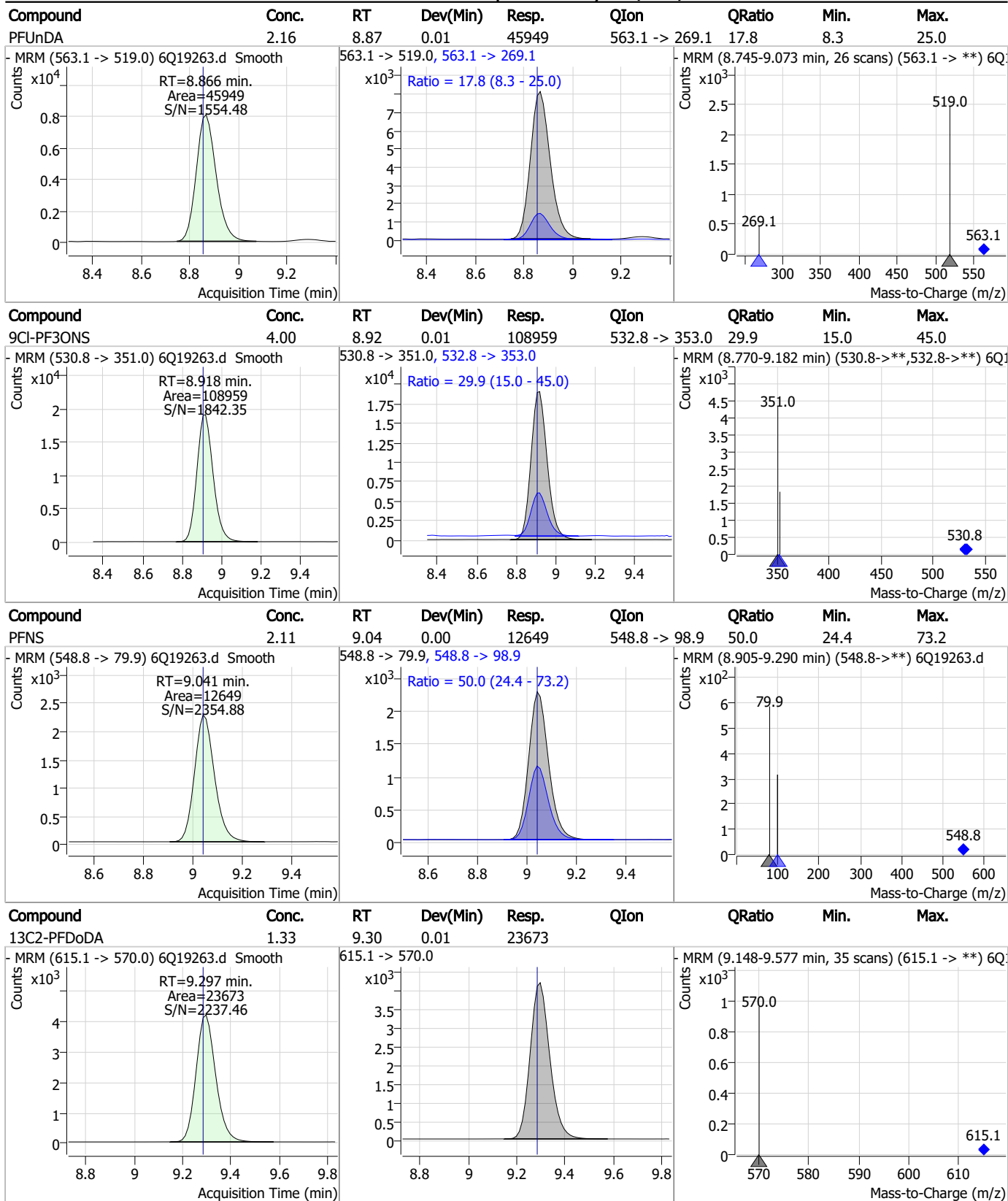
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.18	8.63	0.00	8620 (m)	584.2 -> 526.0	52.7	25.1	75.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.40	8.87	0.01	29018				

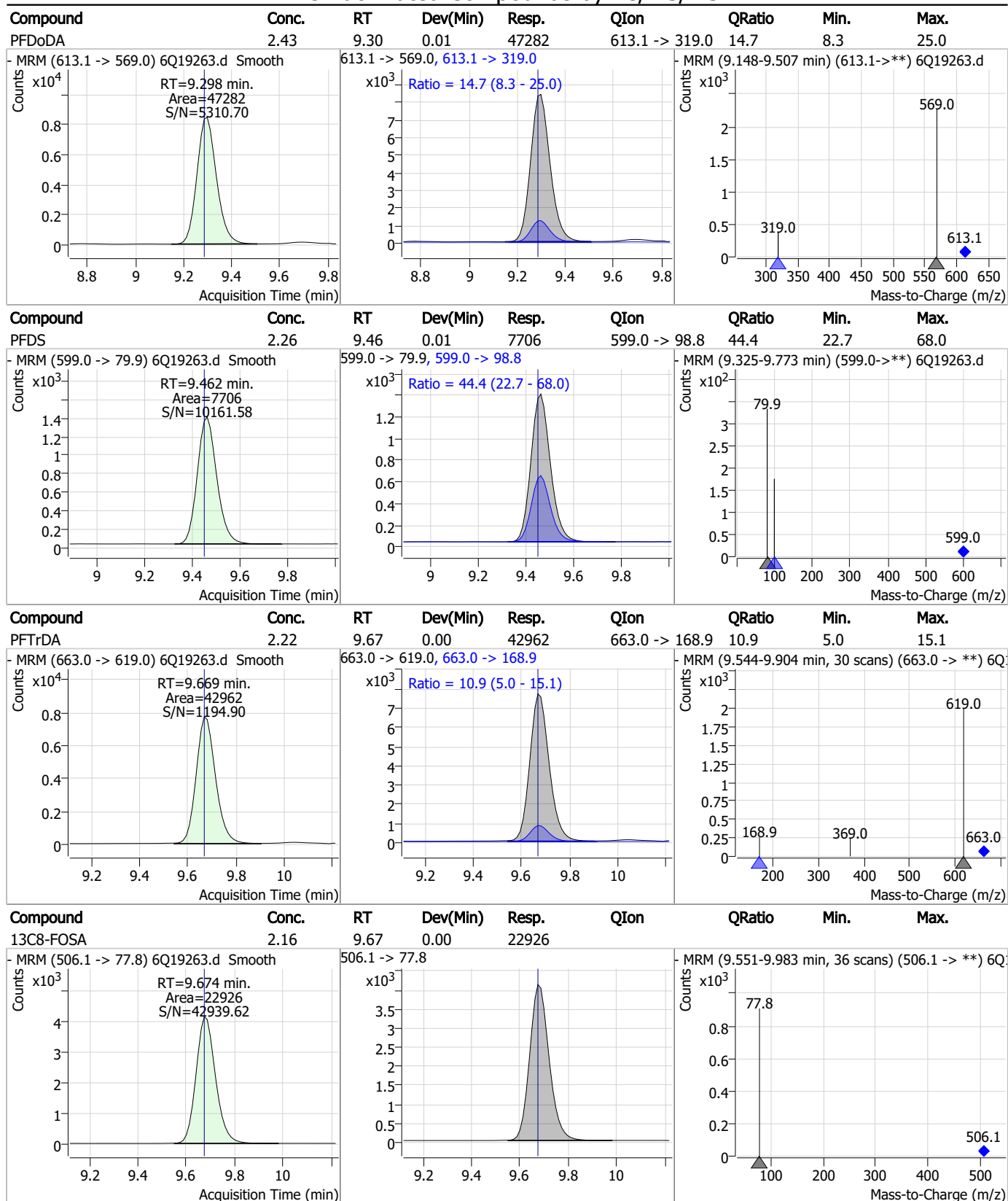


Perfluorinated Compounds by LC/MS/MS



7.3.1
7

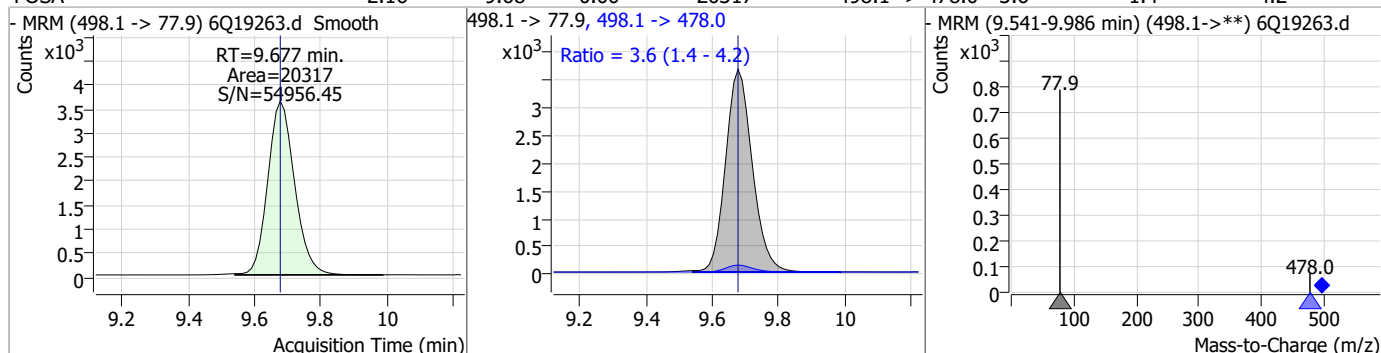
Perfluorinated Compounds by LC/MS/MS



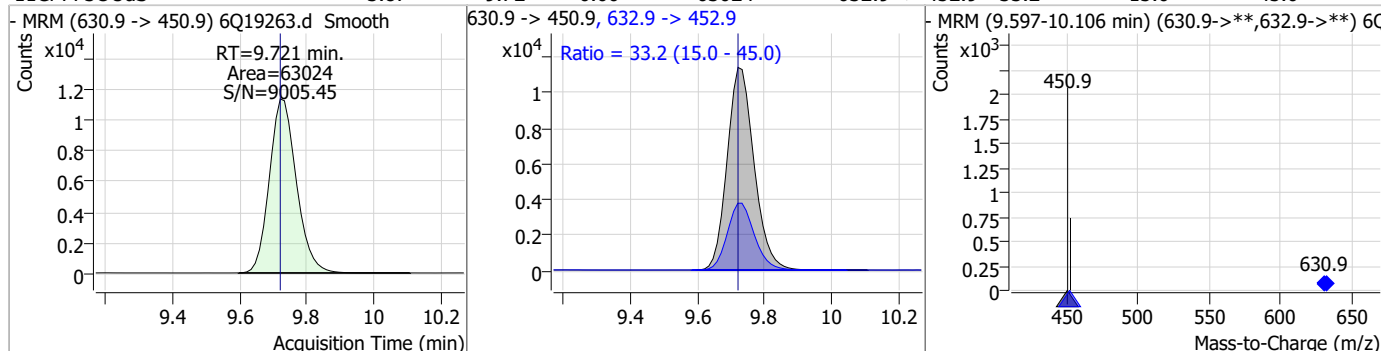
7.3.1
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Perfluorinated Compounds by LC/MS/MS

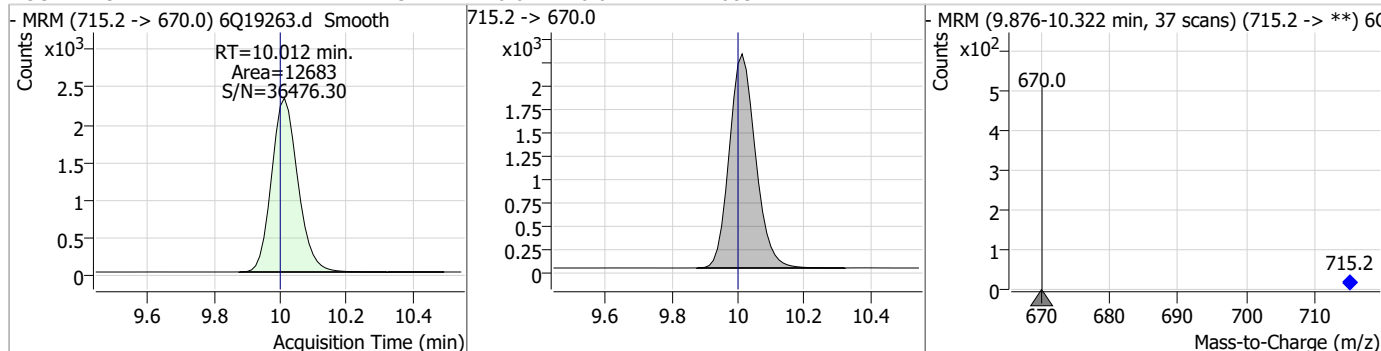
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.16	9.68	0.00	20317	498.1 -> 478.0	3.6	1.4	4.2



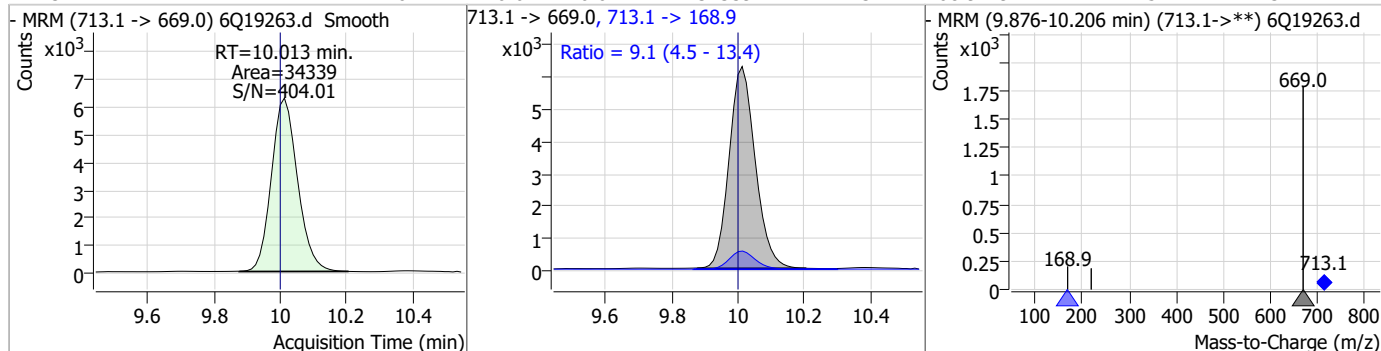
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	3.87	9.72	0.00	63024	630.9 -> 452.9	33.2	15.0	45.0



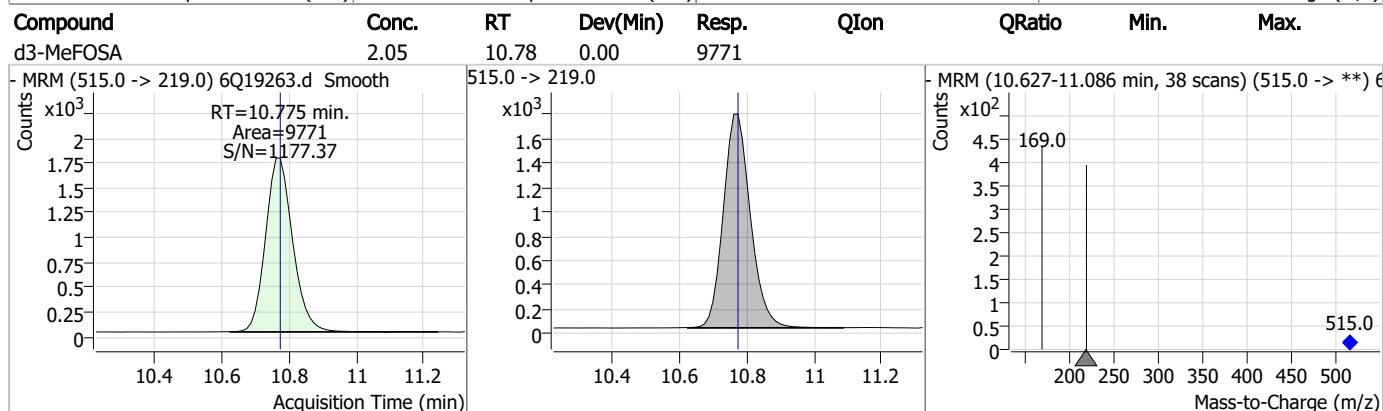
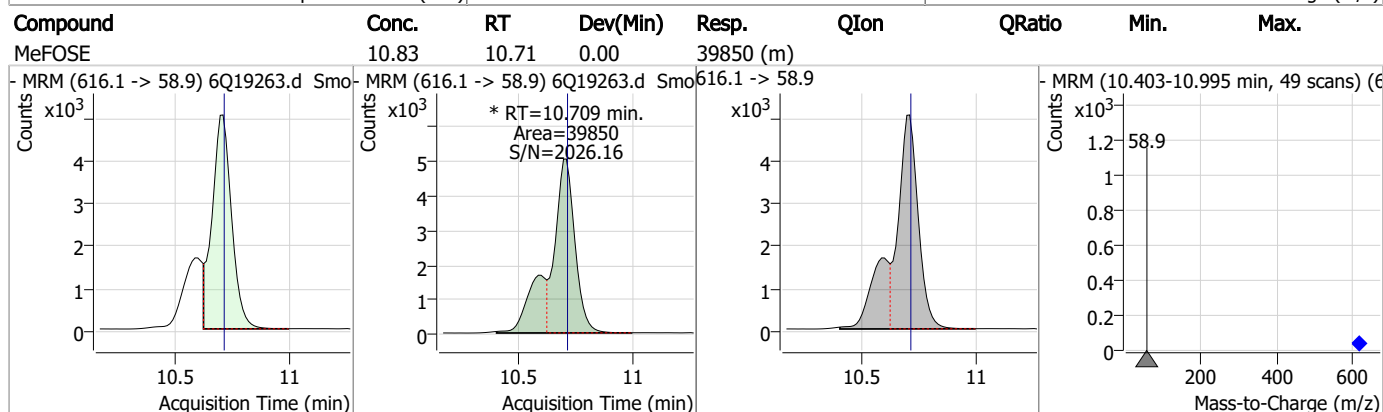
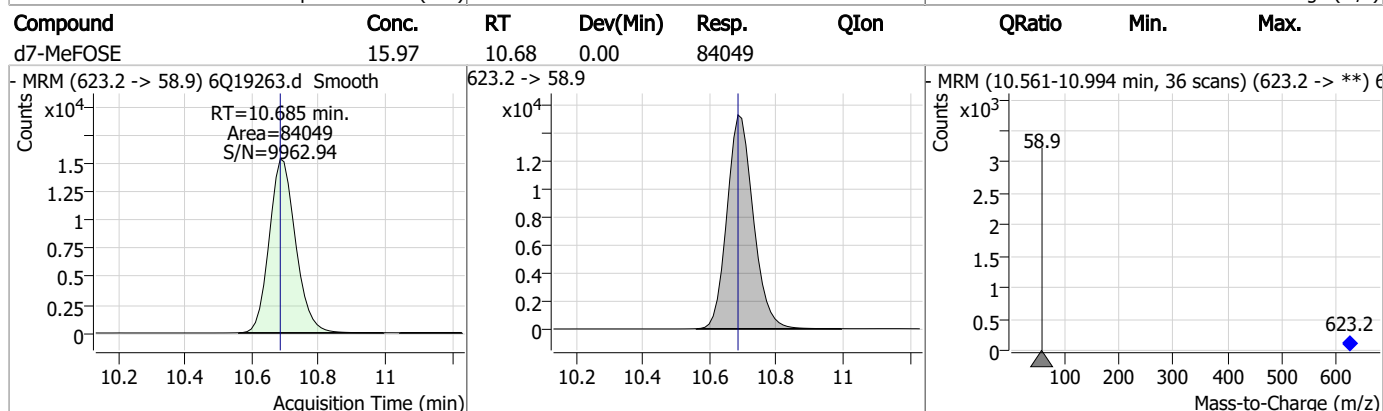
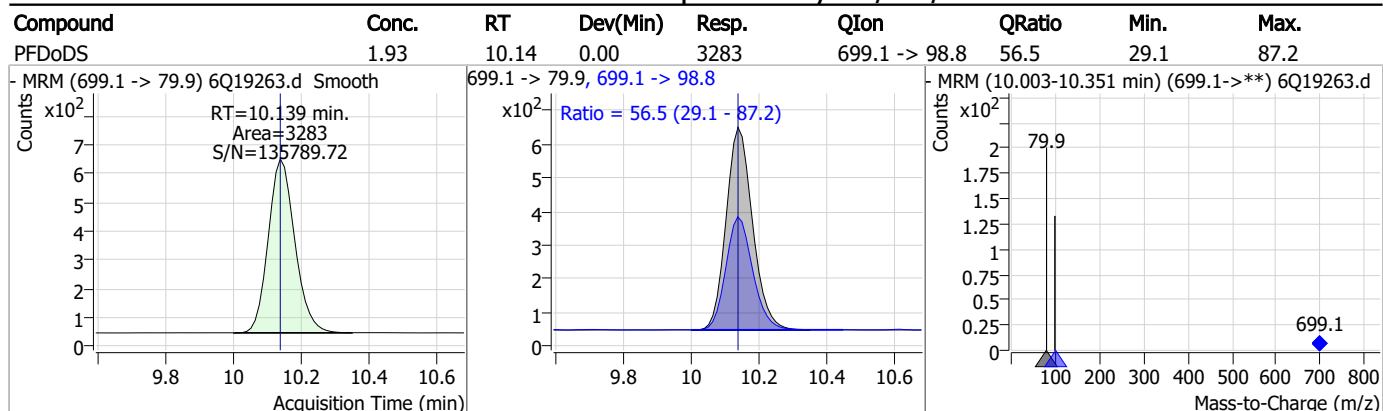
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.23	10.01	0.01	12683	715.2 -> 670.0	9.1	4.5	13.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.26	10.01	0.01	34339	713.1 -> 168.9	9.1	4.5	13.4

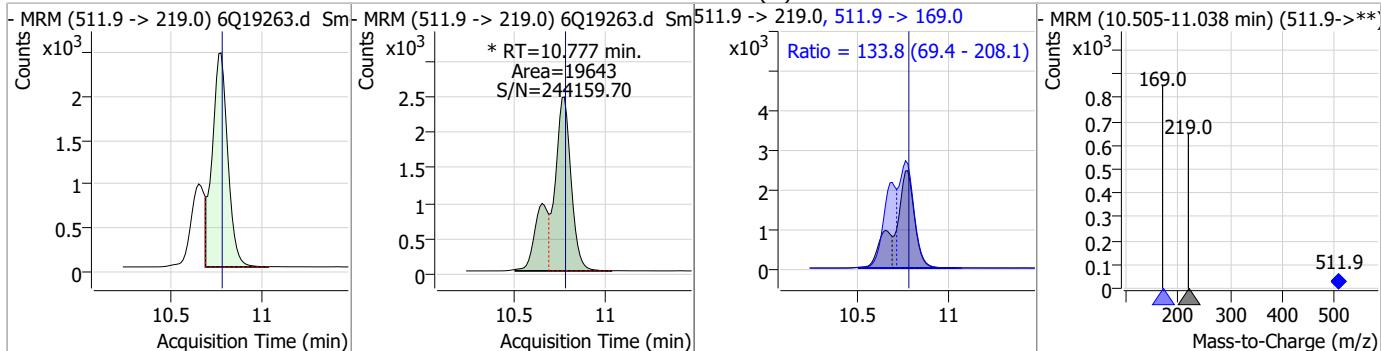


Perfluorinated Compounds by LC/MS/MS

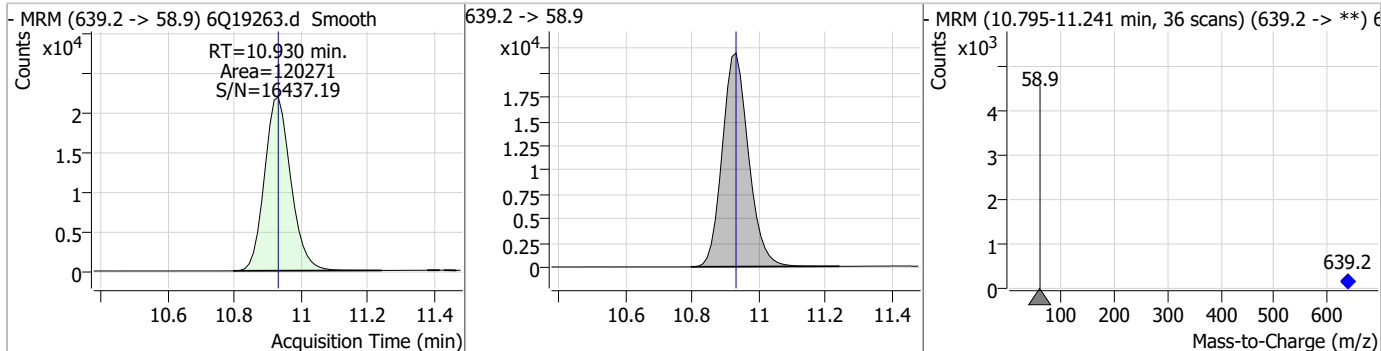


Perfluorinated Compounds by LC/MS/MS

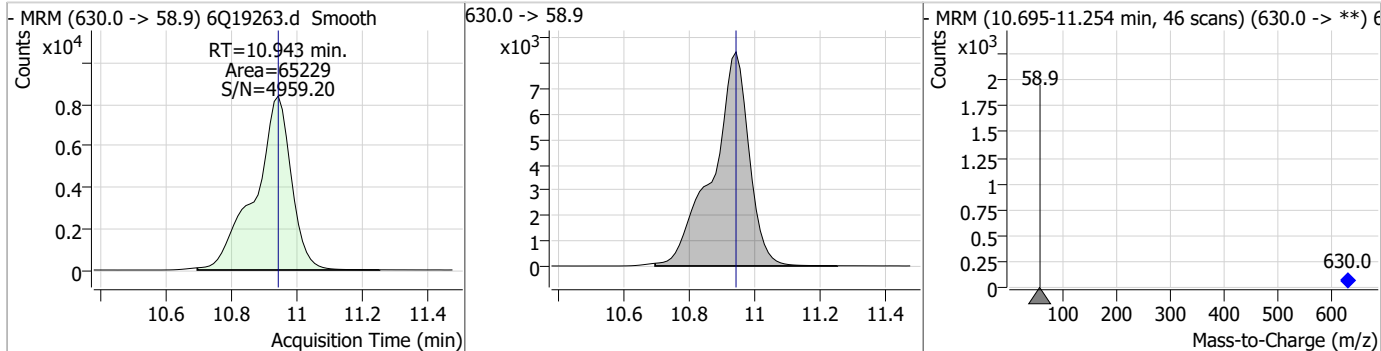
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	4.59	10.78	0.00	19643 (m)	511.9 -> 169.0	133.8	69.4	208.1



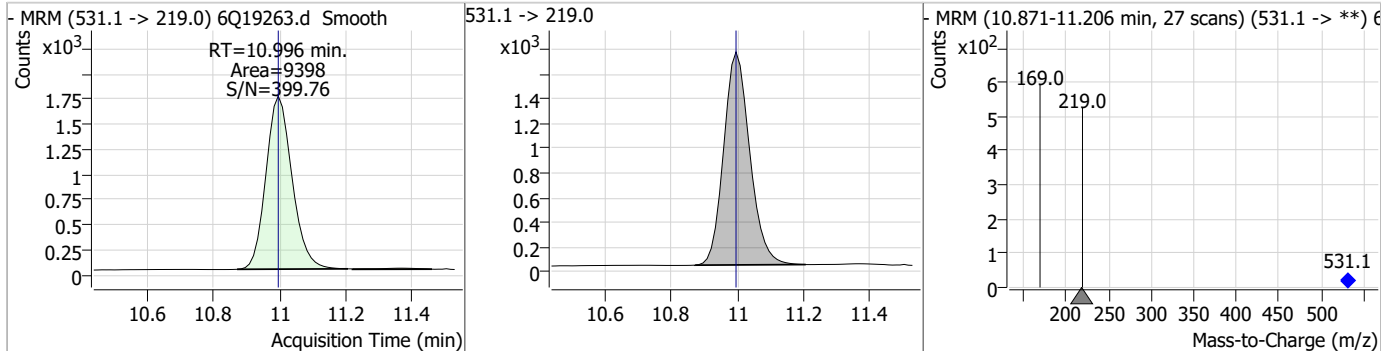
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	18.29	10.93	0.00	120271				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	10.27	10.94	0.00	65229				

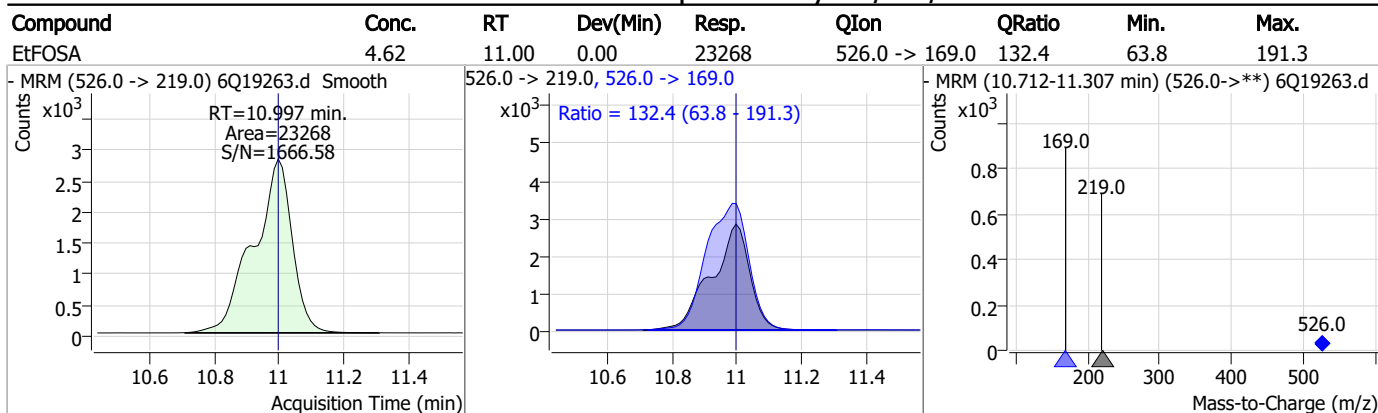


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.03	11.00	0.00	9398				



7.3.1
7

Perfluorinated Compounds by LC/MS/MS



7.3.1
7

Manual Integration Approval Summary

Sample Number: OP97275-BS Method: EPA DRAFT 1633
Lab FileID: 6Q19263.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 21:10 Supervisor approved: 06/13/23 13:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.63	Split peak
MeFOSE	24448-09-7		10.71	Split peak
MeFOSA	31506-32-8		10.78	Split peak

7.3.1.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19264.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 9:24:00 PM
 Sample Name : op97275-llbs:3
 Vial : P2-B2
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97275,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	153583	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	50083	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	53134	2.50 µg/L	0.000
M4-PFHpA	6.719	367.1 -> 322.0	52443	2.50 µg/L	0.012
M8-PFOA	7.352	421.1 -> 376.0	82612	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	39303	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	23578	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	29155	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	25269	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	13560	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	23248	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	20421	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	12402	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	12003	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	3456	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	4947	5.00 µg/L	0.000
M2-8:2FTS	8.175	529.1 -> 80.9	4307	5.00 µg/L	0.012
M3-MeFOSAA	8.420	573.2 -> 419.0	29237	5.00 µg/L	0.012
M3-HFPO-DA	6.169	286.9 -> 168.9	36379	10.00 µg/L	0.000
M5-EtFOSAA	8.628	589.2 -> 419.0	25177	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	85650	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	121182	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	9506	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	9172	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	13632	2.50 µg/L	0.000
13C3-PFBA	3.101	216.0 -> 172.0	56789	5.00 µg/L	0.012
18O2-PFHxS	7.477	403.0 -> 83.9	8546	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	72380	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	26372	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	44401	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	45791	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3456	6.57 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 131.4%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4947	6.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 125.1%		
13C2-8:2FTS	8.175	529.1 -> 80.9	4307	5.68 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.7%		
13C2-PFDoDA	9.297	615.1 -> 570.0	25269	1.43 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 114.7%		
13C2-PFTeDA	10.012	715.2 -> 670.0	13560	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C3-PFBS	5.746	302.1 -> 79.9	20421	2.83 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C3-PFHxS	7.478	402.1 -> 79.9	12402	2.73 µg/L	0.000

7.32
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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 = 109.3%	
13C4-PFBA	3.097	216.8 -> 171.9	153583	11.52 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.2%	
13C4-PFHpA	6.719	367.1 -> 322.0	52443	2.85 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.0%	
13C5-PFHxA	5.792	318.0 -> 273.0	53134	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C5-PFPeA	4.560	268.3 -> 223.0	50083	5.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.2%	
13C6-PFDA	8.387	519.1 -> 474.1	23578	1.62 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 129.6%	
13C7-PFUnDA	8.866	570.0 -> 525.1	29155	1.42 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.7%	
13C8-FOSA	9.674	506.1 -> 77.8	23248	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.1%	
13C8-PFOA	7.352	421.1 -> 376.0	82612	3.06 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 122.4%	
13C8-PFOS	8.575	507.1 -> 79.9	12003	3.01 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 120.2%	
13C9-PFNA	7.895	472.1 -> 427.0	39303	1.45 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 116.0%	
d3-MeFOSAA	8.420	573.2 -> 419.0	29237	5.72 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.3%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	36379	11.59 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.9%	
d3-MeFOSA	10.775	515.0 -> 219.0	9172	2.02 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.0%	
d5-EtFOSAA	8.628	589.2 -> 419.0	25177	5.84 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.7%	
d7-MeFOSE	10.685	623.2 -> 58.9	85650	17.12 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 68.5%	
d9-EtFOSE	10.930	639.2 -> 58.9	121182	19.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.6%	
d5-EtFOSA	10.996	531.1 -> 219.0	9506	2.16 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.6%	
Target Compounds					QValue
4:2FTS	5.455	327.1 -> 307.0	14470	2.42 µg/L	99
		327.1 -> 80.9	5509		
6:2FTS	7.113	427.1 -> 407.0	15699	2.63 µg/L	90
		427.1 -> 80.9	4799		
8:2FTS	8.176	527.1 -> 507.0	6729	2.35 µg/L	92
		527.1 -> 80.8	2993		
EtFOSAA	8.629	584.2 -> 419.1	2733	0.65 µg/L	m 98
		584.2 -> 526.0	1325		
FOSA	9.677	498.1 -> 77.9	6022	0.63 µg/L	97
		498.1 -> 478.0	228		
MeFOSAA	8.421	570.1 -> 419.0	4791	0.67 µg/L	m 97
		570.1 -> 483.0	1020		
PFBA	3.093	212.8 -> 168.9	16165	2.64 µg/L	100
PFBS	5.747	298.7 -> 79.9	4743	0.53 µg/L	89
		298.7 -> 98.8	1935		
PFDA	8.388	512.9 -> 469.0	20933	0.59 µg/L	98
		512.9 -> 219.0	2987		
PFDODA	9.298	613.1 -> 569.0	13038	0.63 µg/L	99
		613.1 -> 319.0	2243		
PFDS	9.462	599.0 -> 79.9	2060	0.57 µg/L	95

7.3.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1006			
PFHpA	6.720	363.1 -> 319.0	16785	0.60	µg/L	99
		363.1 -> 169.0	2771			
PFHpS	8.059	449.0 -> 79.9	4358	0.60	µg/L	96
		449.0 -> 98.9	2261			
PFHxA	5.795	313.0 -> 269.0	14562	0.68	µg/L	99
		313.0 -> 118.9	754			
PFHxS	7.479	398.7 -> 79.9	4151	0.56	µg/L	m 91
		398.7 -> 98.9	2160			
PFNA	7.896	463.0 -> 419.0	22036	0.61	µg/L	97
		463.0 -> 219.0	4159			
PFNS	9.041	548.8 -> 79.9	3770	0.59	µg/L	100
		548.8 -> 98.9	1839			
PFOA	7.353	413.0 -> 369.0	35157	0.83	µg/L	90
		413.0 -> 169.0	4618			
PFOS	8.564	498.9 -> 79.9	4237	0.60	µg/L	m 98
		498.9 -> 98.8	2142			
PFPeA	4.563	263.0 -> 219.0	18969	1.29	µg/L	100
PFPeS	6.785	349.1 -> 79.9	4265	0.62	µg/L	98
		349.1 -> 98.9	1907			
PFTeDA	10.013	713.1 -> 669.0	10131	0.62	µg/L	98
		713.1 -> 168.9	845			
PFTrDA	9.681	663.0 -> 619.0	13084	0.63	µg/L	97
		663.0 -> 168.9	1471			
PFUnDA	8.866	563.1 -> 519.0	15111	0.71	µg/L	95
		563.1 -> 269.1	2167			
11CI-PF3OUdS	9.733	630.9 -> 450.9	19637	1.15	µg/L	97
		632.9 -> 452.9	5583			
9CI-PF3ONS	8.918	530.8 -> 351.0	31696	1.11	µg/L	99
		532.8 -> 353.0	9746			
ADONA	6.959	376.9 -> 250.9	73432	1.19	µg/L	96
		376.9 -> 84.8	19160			
HFPO-DA	6.169	284.9 -> 168.9	4777	1.20	µg/L	98
		284.9 -> 184.9	557			
3:3FTCA	3.971	241.0 -> 177.0	2480	2.46	µg/L	98
		241.0 -> 117.0	353			
5:3FTCA	6.374	341.0 -> 237.1	70741	17.14	µg/L	92
		341.0 -> 217.0	48043			
7:3FTCA	7.748	441.0 -> 316.9	50366	17.05	µg/L	94
		441.0 -> 336.9	111749			
EtFOSA	10.997	526.0 -> 219.0	6659	1.31	µg/L	96
		526.0 -> 169.0	8794			
EtFOSE	10.943	630.0 -> 58.9	20138	3.15	µg/L	100
MeFOSA	10.777	511.9 -> 219.0	5391	1.34	µg/L	m 99
		511.9 -> 169.0	7411			
MeFOSE	10.709	616.1 -> 58.9	12326	3.29	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	1006	0.56	µg/L	92
		699.1 -> 98.8	522			
NFDHA	5.673	295.0 -> 201.0	3611	1.34	µg/L	94
		295.0 -> 84.9	924			
PFMBA	4.988	279.0 -> 85.1	13319	1.26	µg/L	100
PFMPA	3.667	229.0 -> 84.9	10468	1.27	µg/L	100
PFEESA	6.288	314.8 -> 134.9	34207	1.31	µg/L	99
		314.8 -> 82.9	1273			

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

7.3.2
7

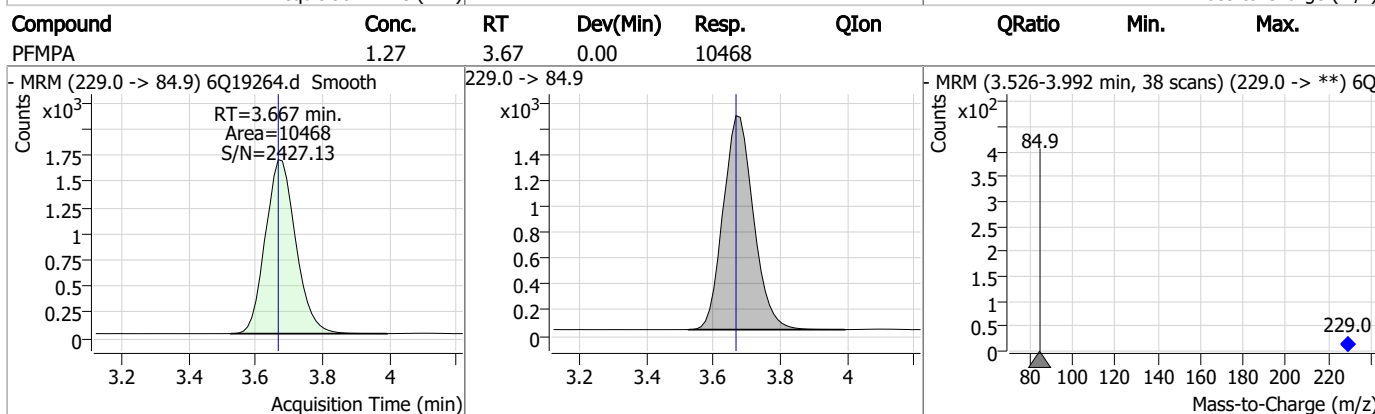
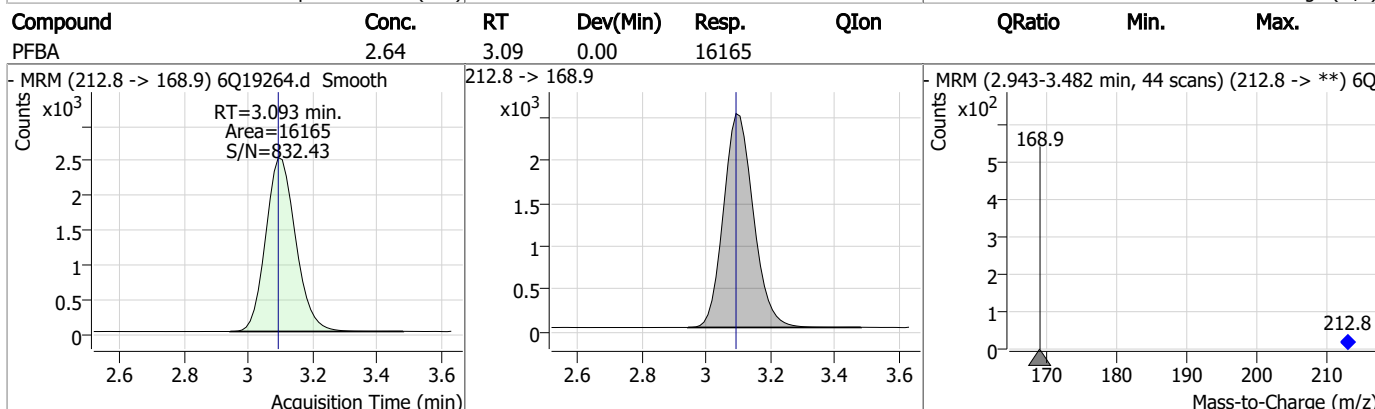
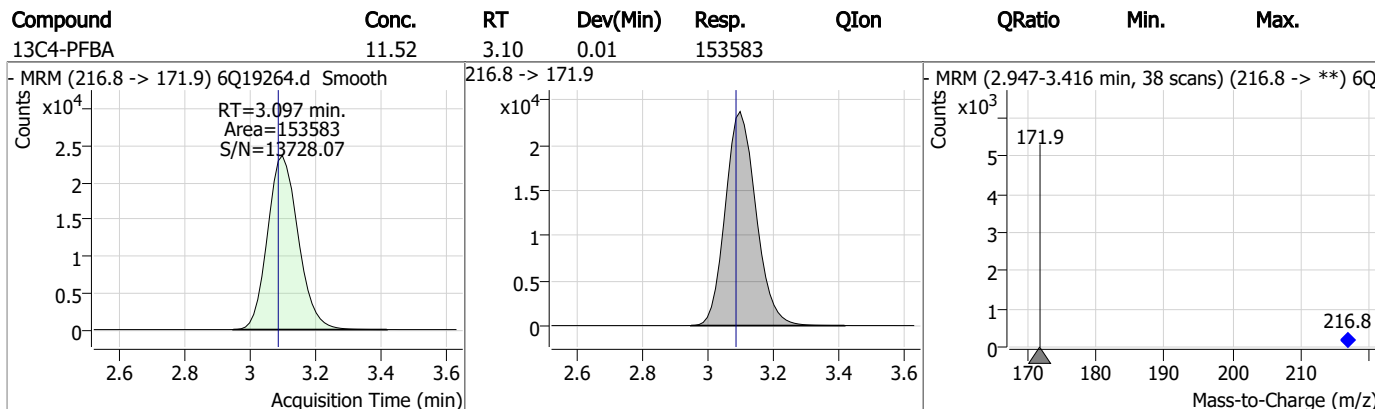
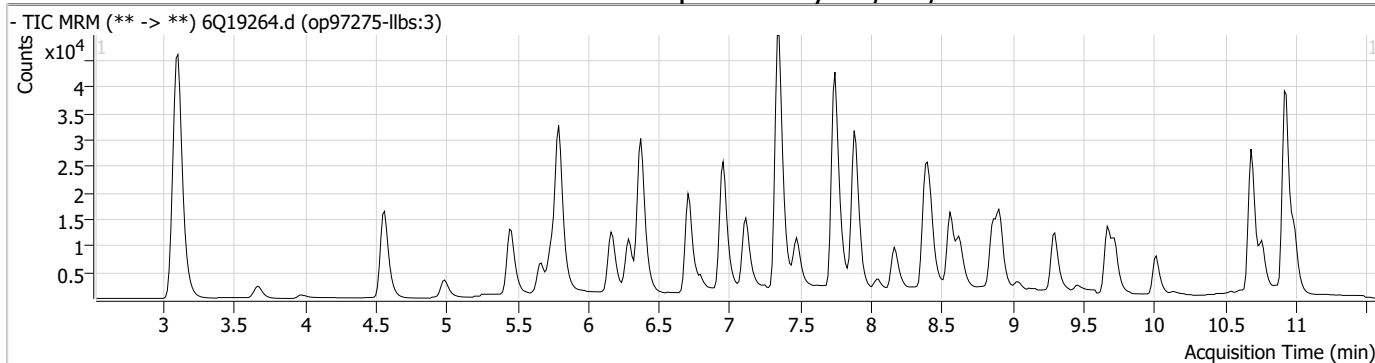
Perfluorinated Compounds by LC/MS/MS

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

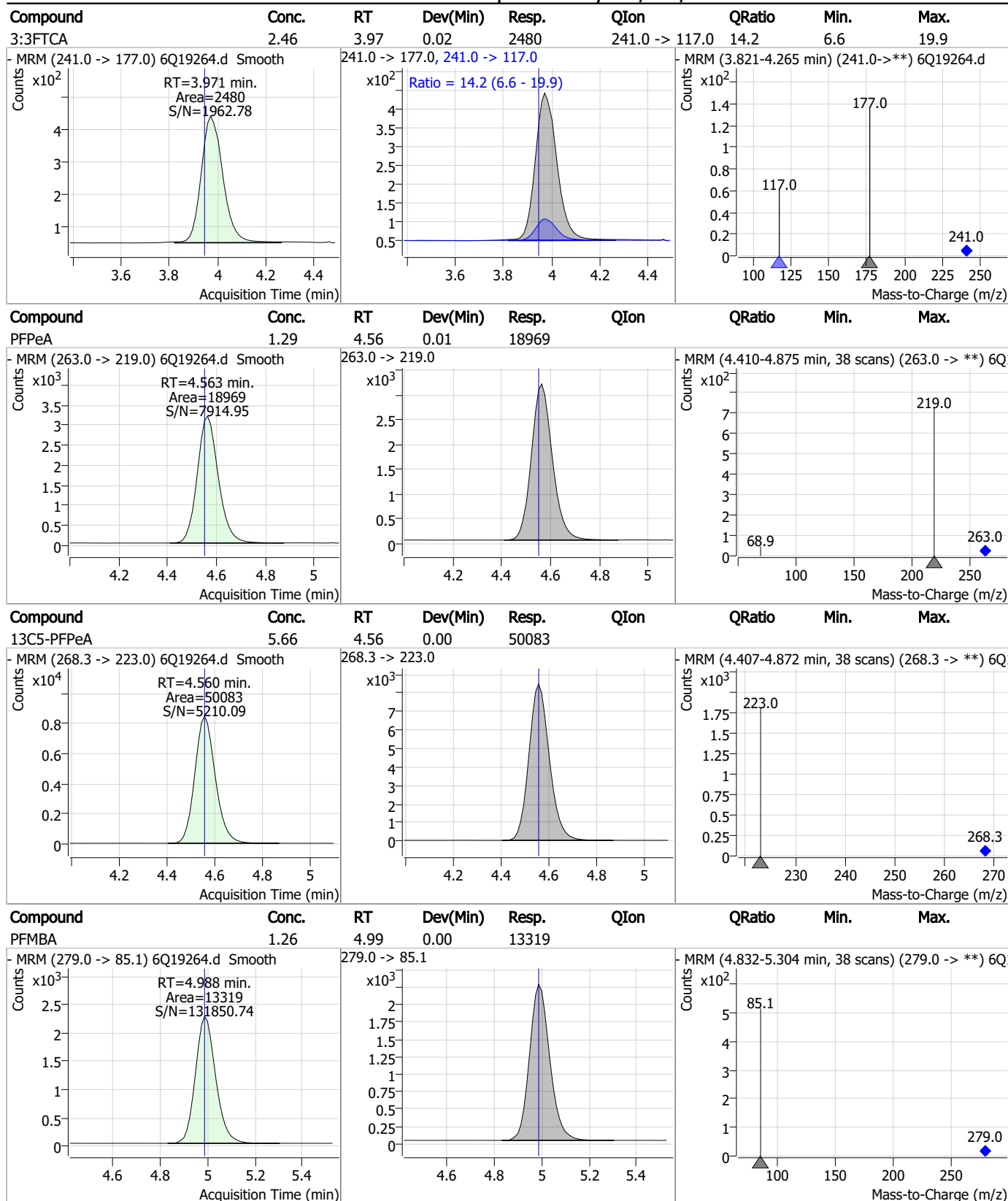
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Perfluorinated Compounds by LC/MS/MS



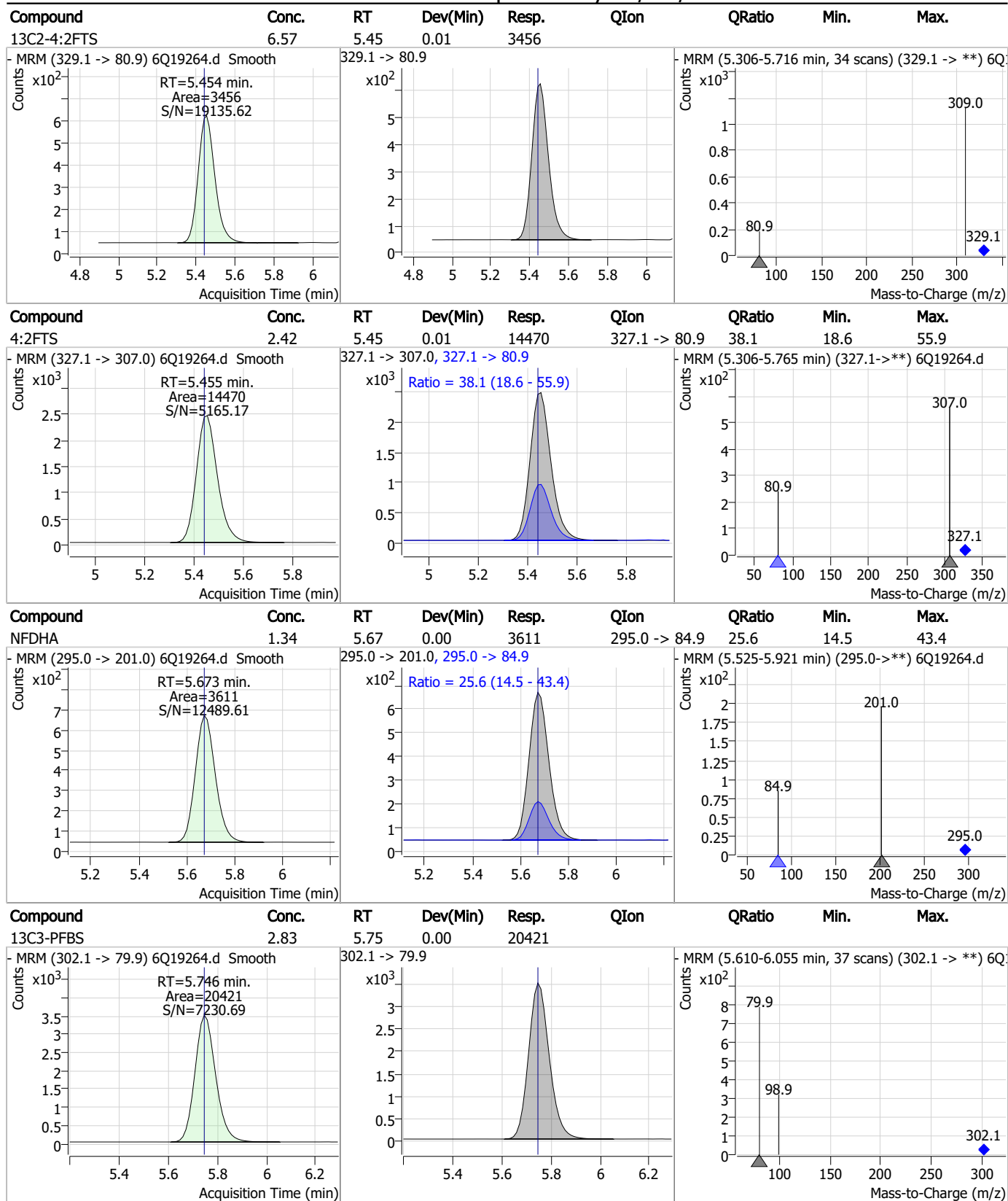
7.3.2
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Perfluorinated Compounds by LC/MS/MS



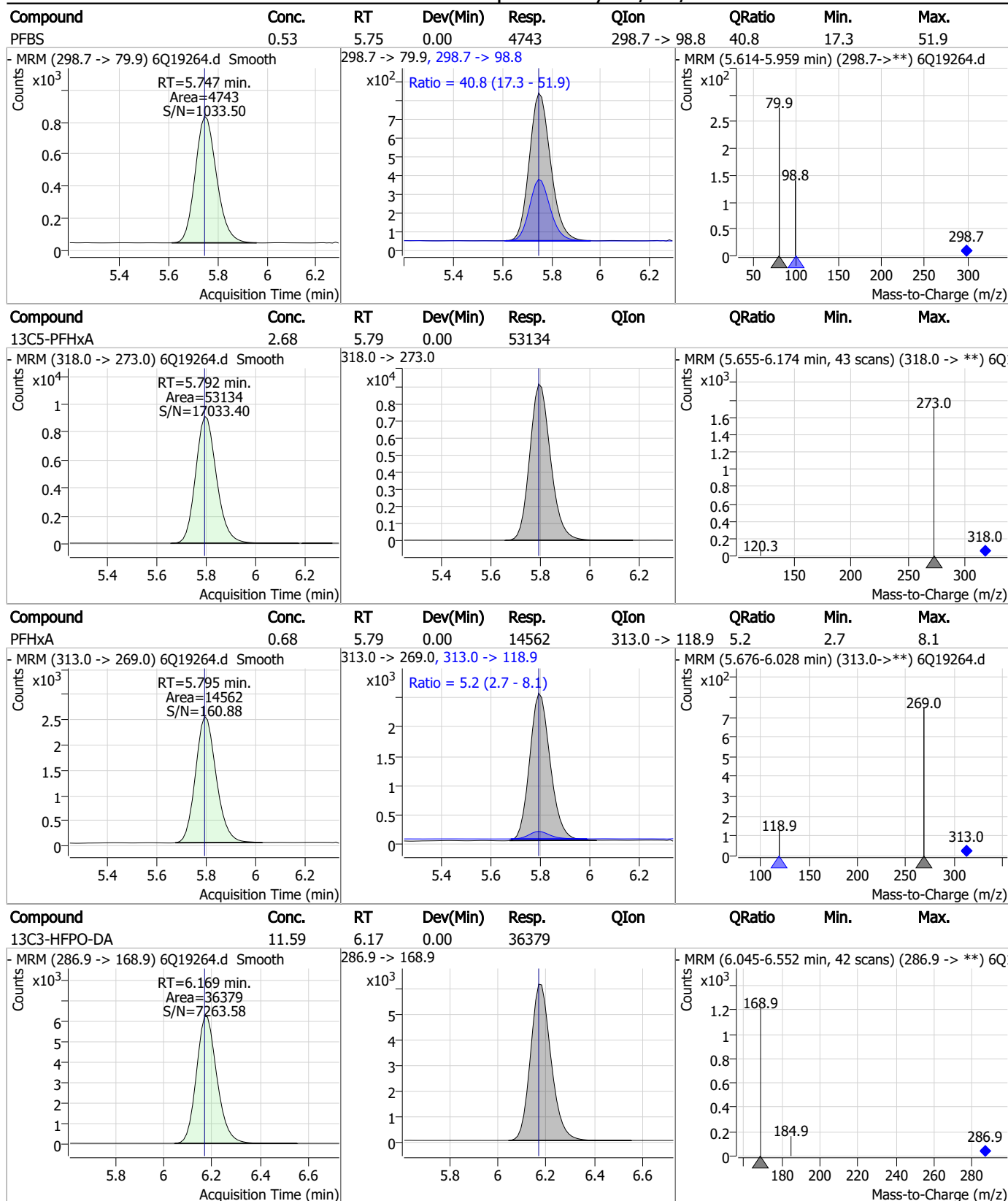
7.3.2
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Perfluorinated Compounds by LC/MS/MS



7.3.2
7

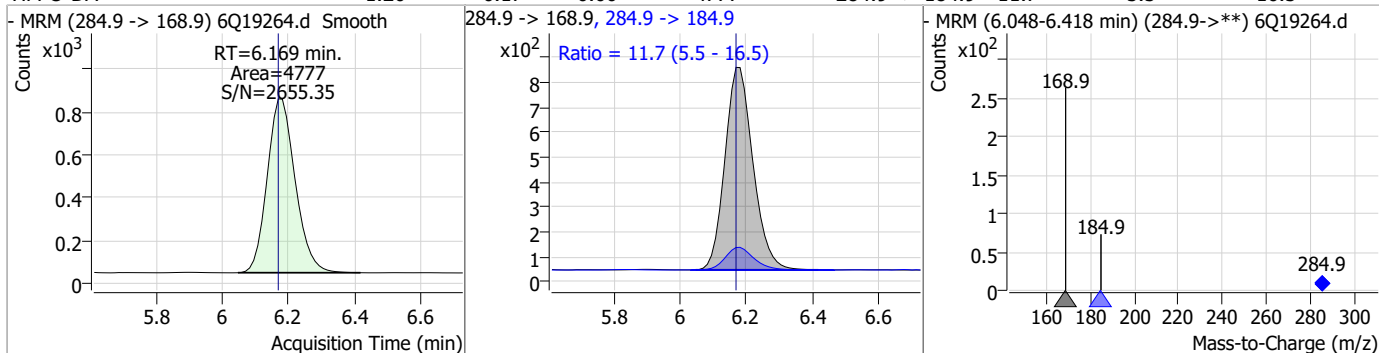
Perfluorinated Compounds by LC/MS/MS



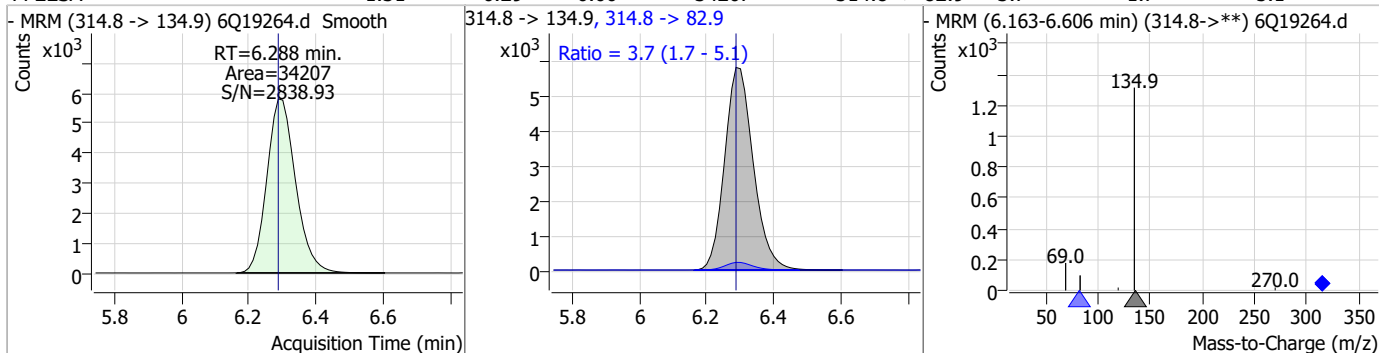
7.3.2
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Perfluorinated Compounds by LC/MS/MS

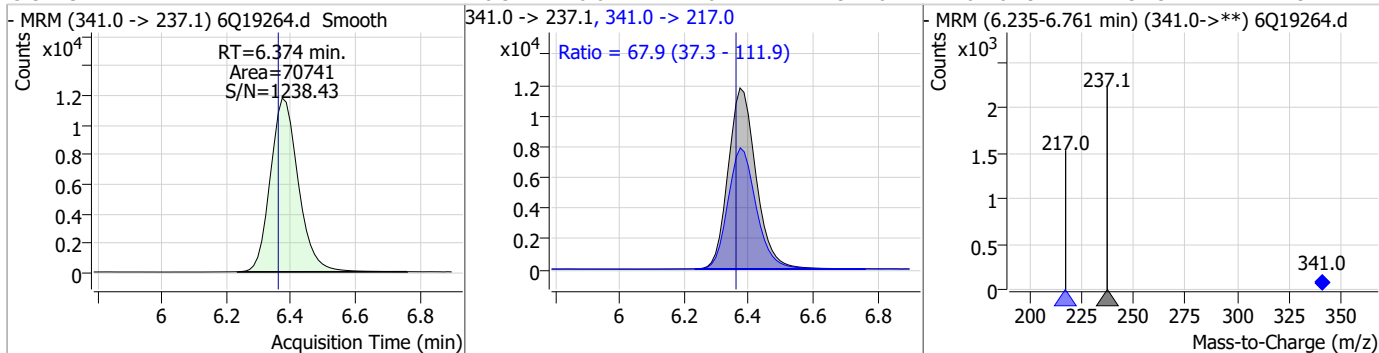
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.20	6.17	0.00	4777	284.9 -> 184.9	11.7	5.5	16.5



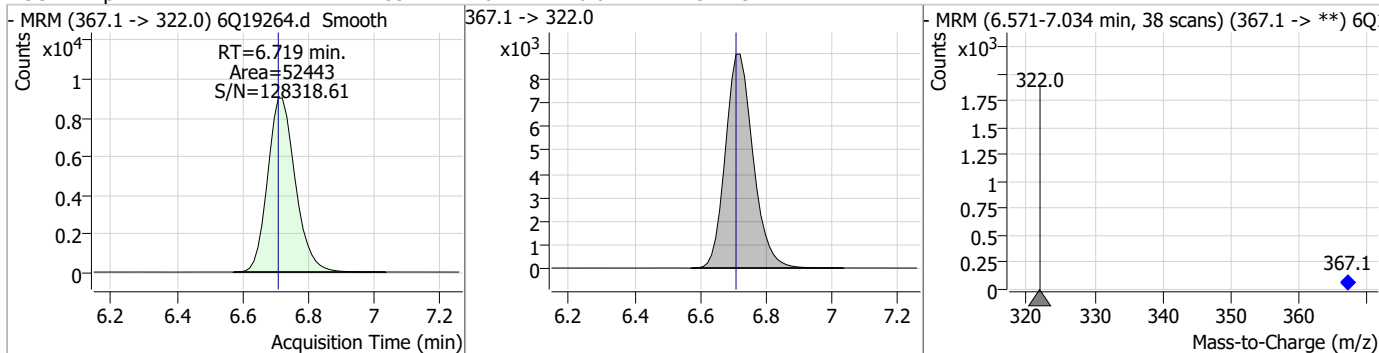
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	1.31	6.29	0.00	34207	314.8 -> 82.9	3.7	1.7	5.1



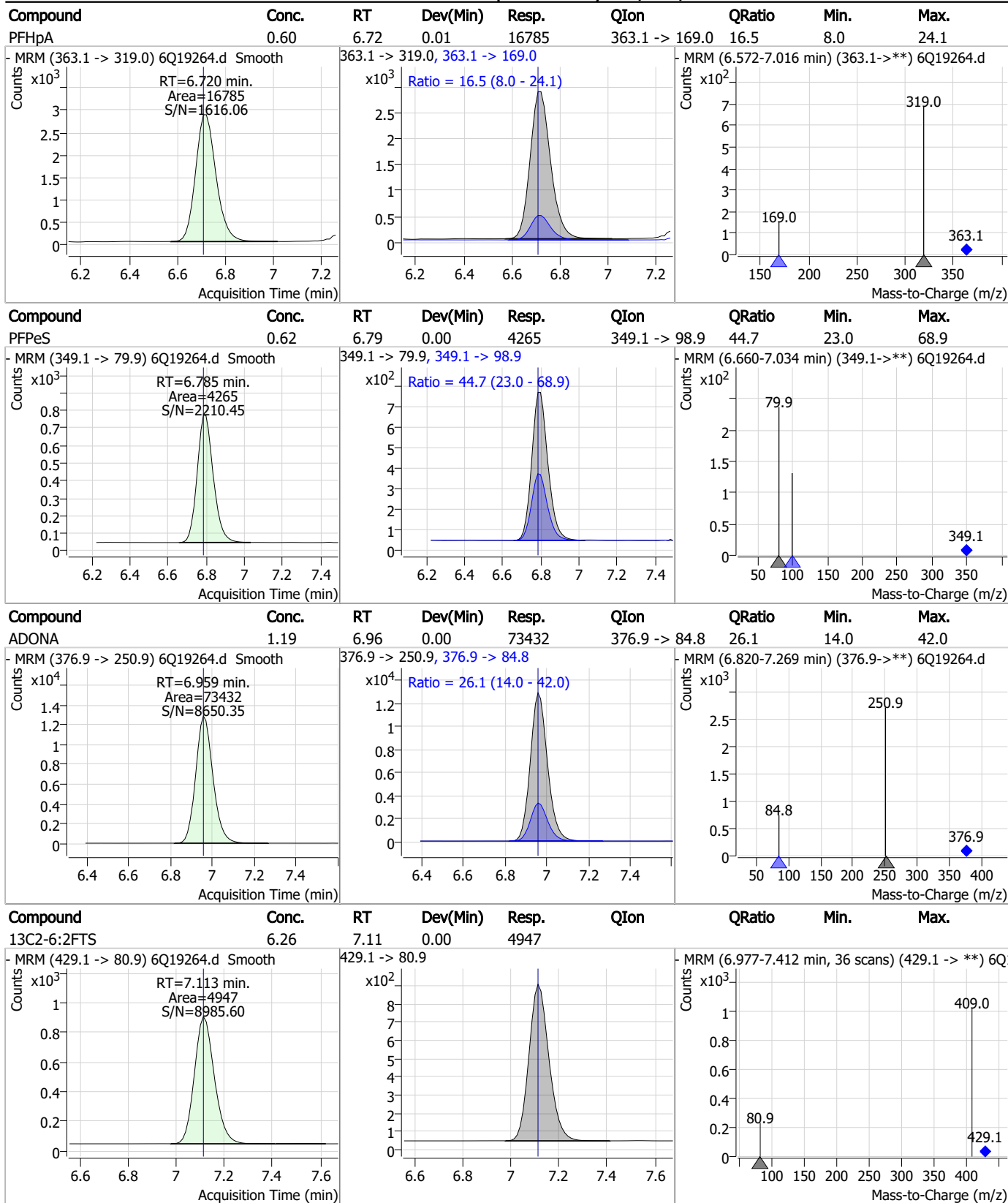
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	17.14	6.37	0.01	70741	341.0 -> 217.0	67.9	37.3	111.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.85	6.72	0.01	52443	367.1 -> 322.0			

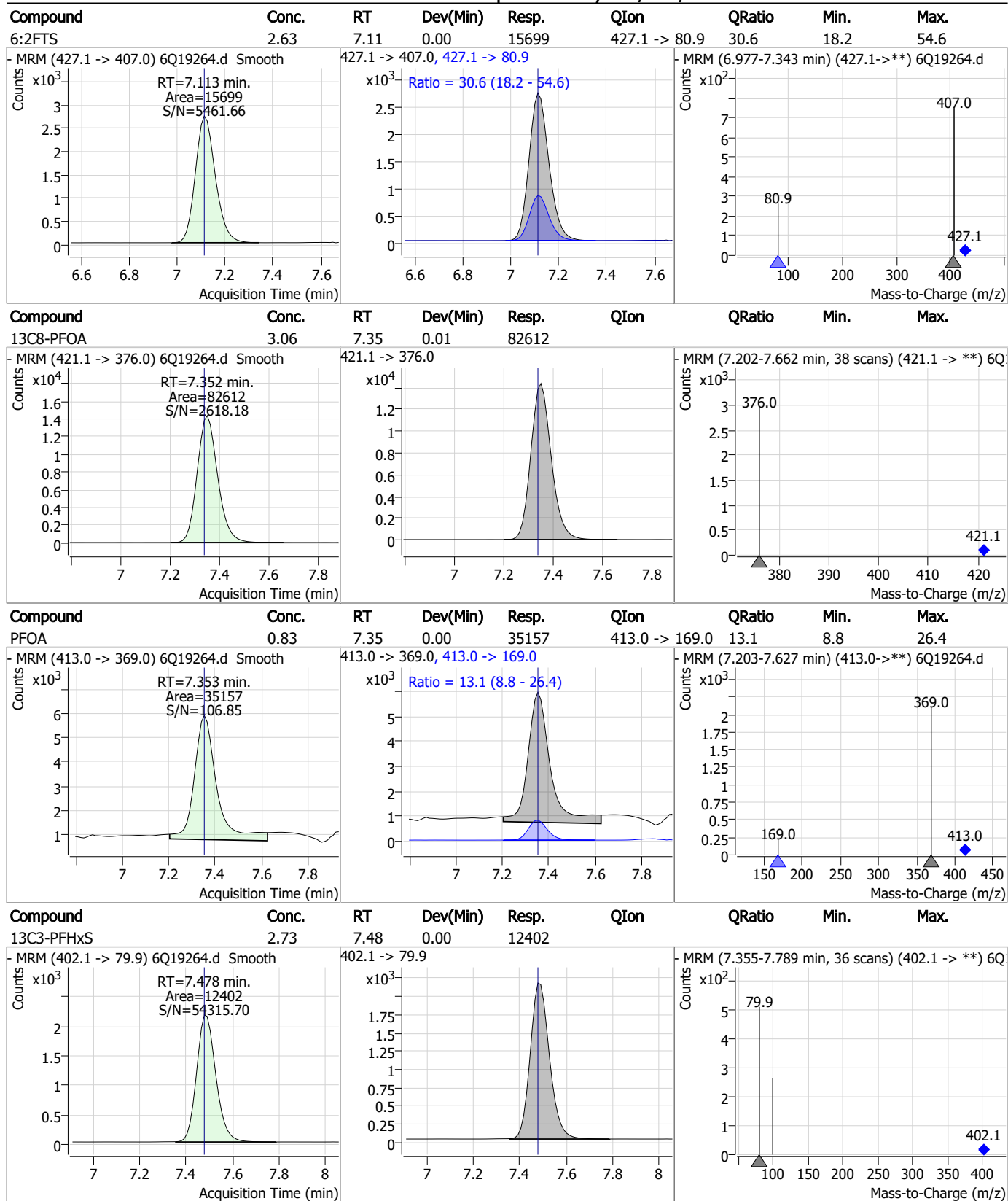


Perfluorinated Compounds by LC/MS/MS



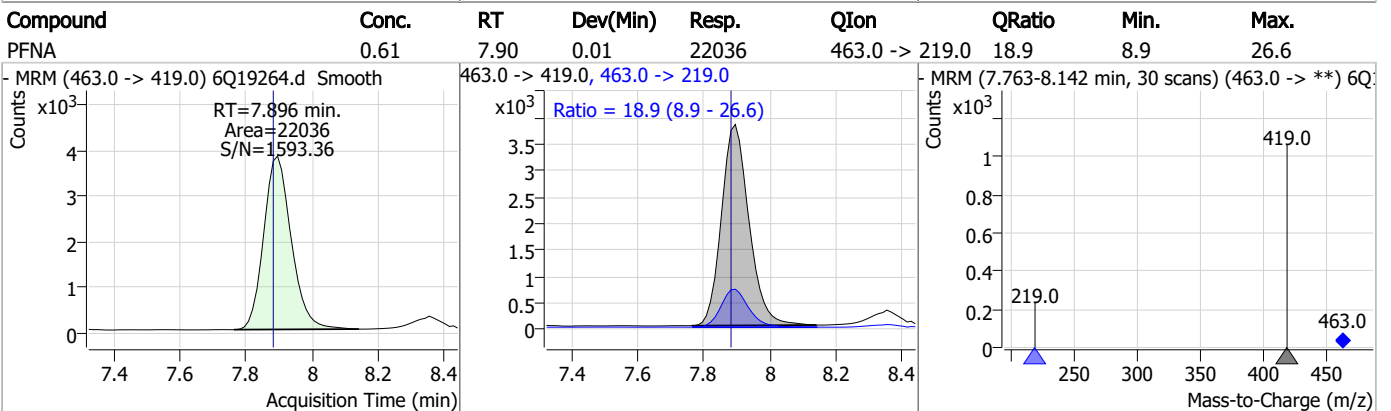
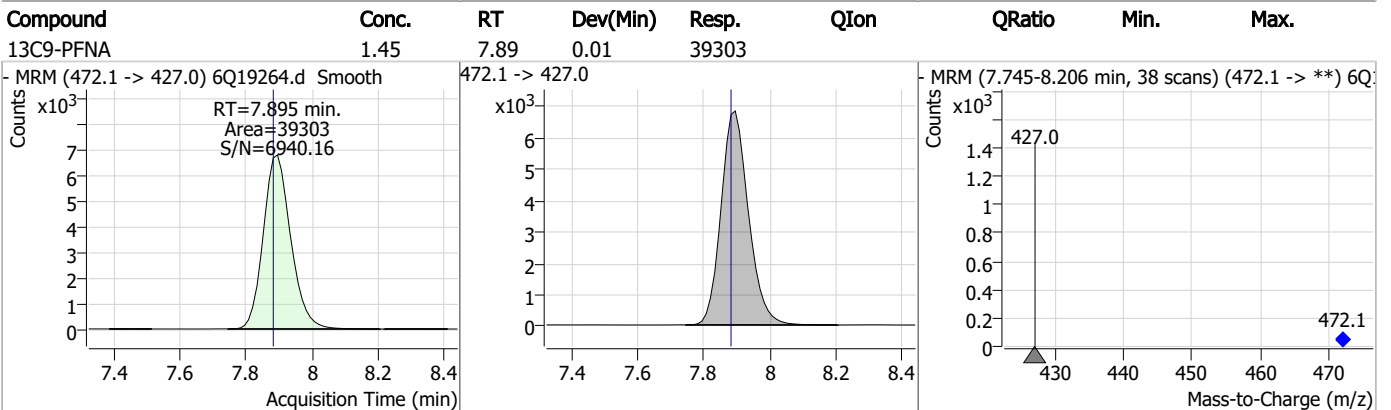
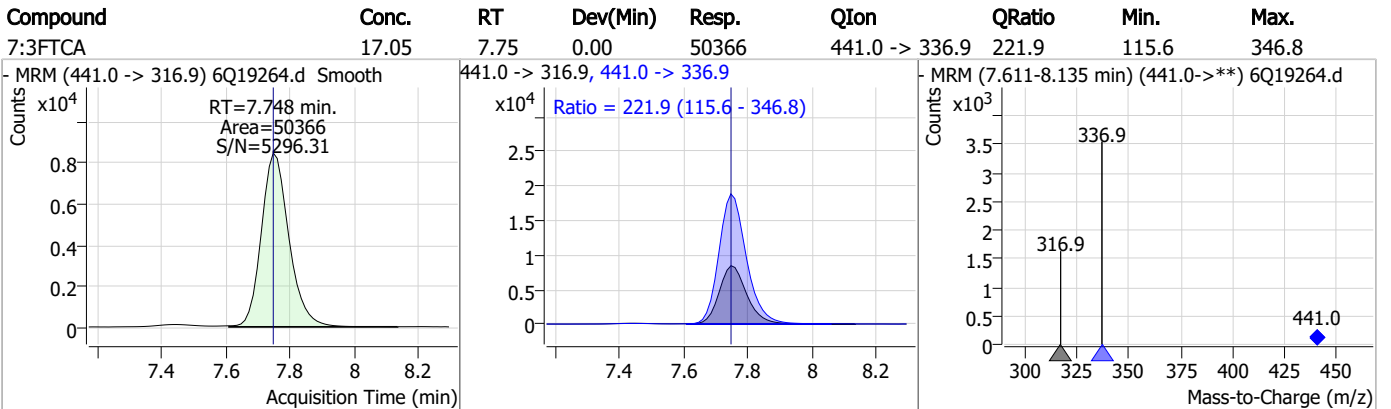
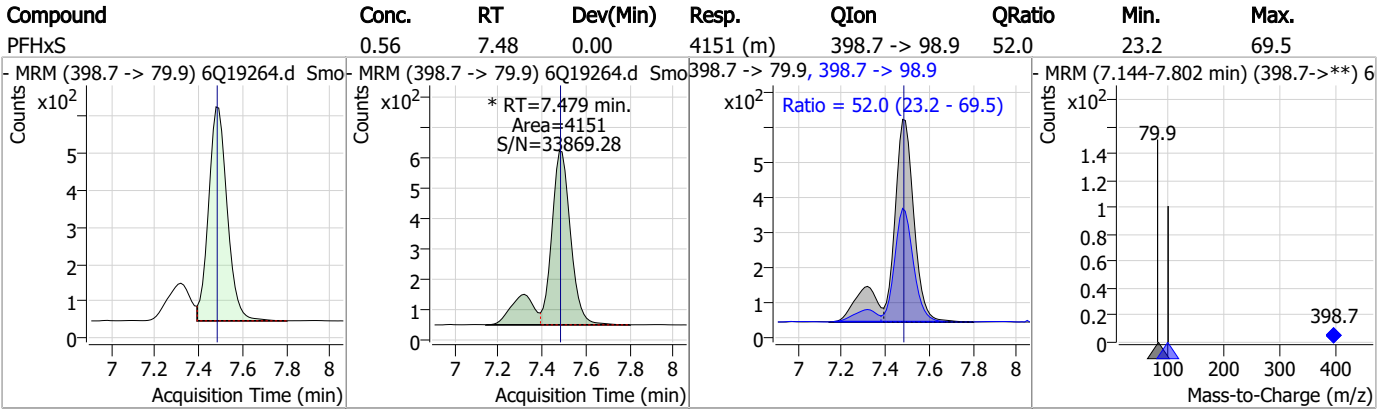
7.3.2
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Perfluorinated Compounds by LC/MS/MS

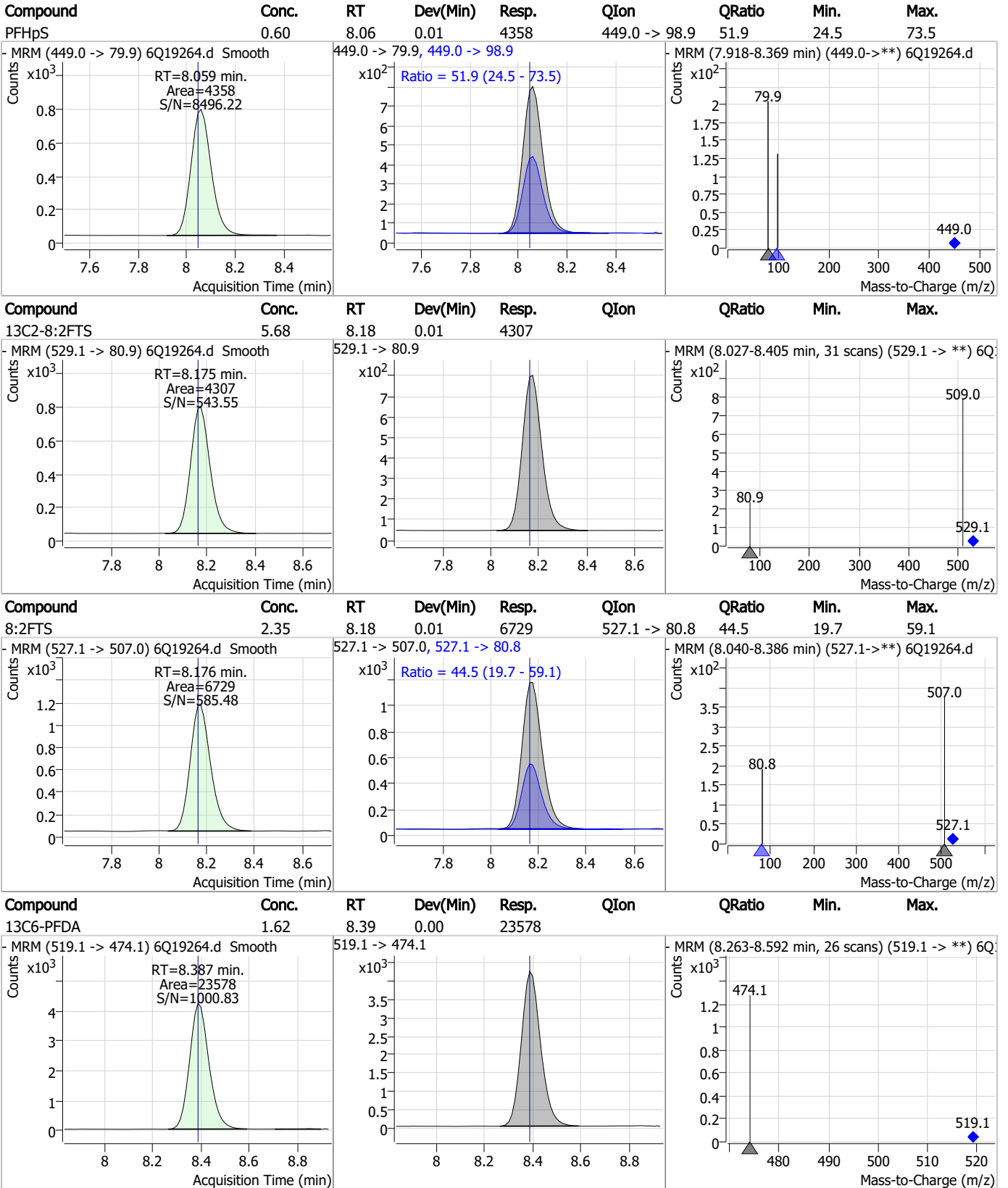


7.3.2

Perfluorinated Compounds by LC/MS/MS



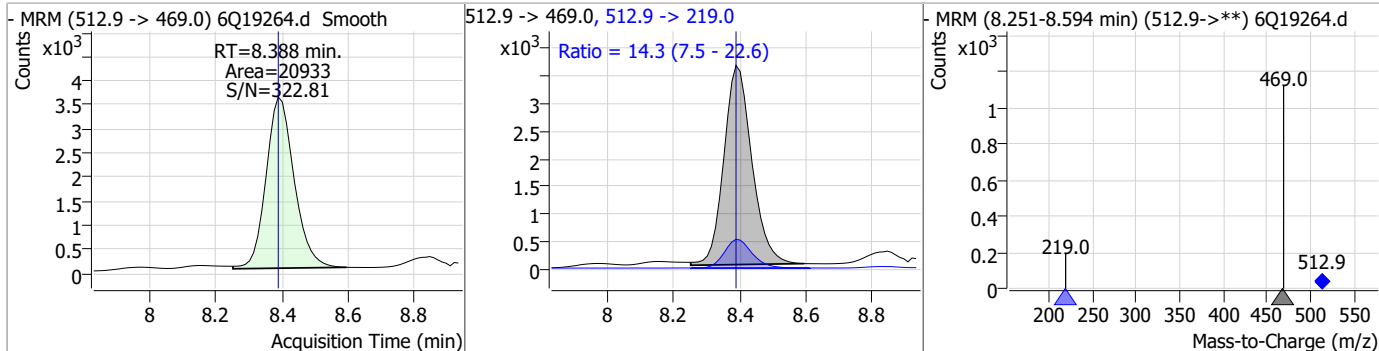
Perfluorinated Compounds by LC/MS/MS



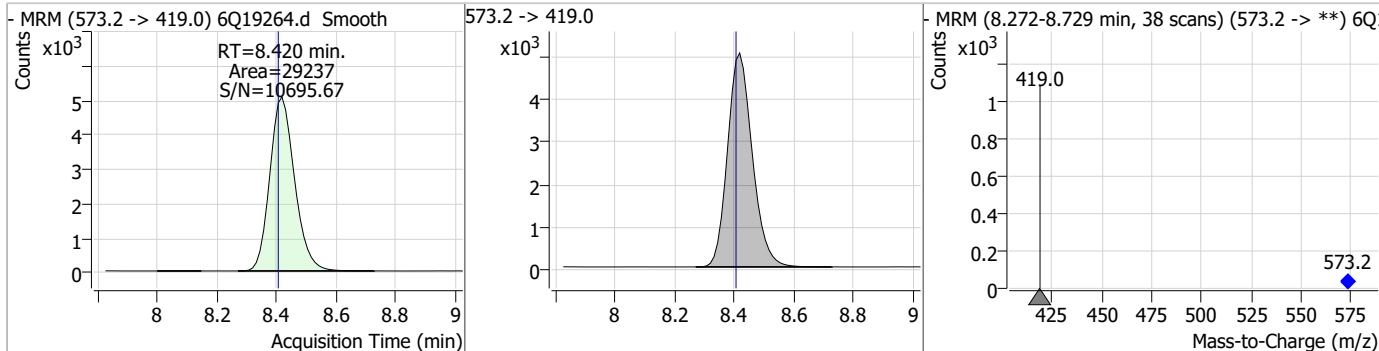
7.3.2
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Perfluorinated Compounds by LC/MS/MS

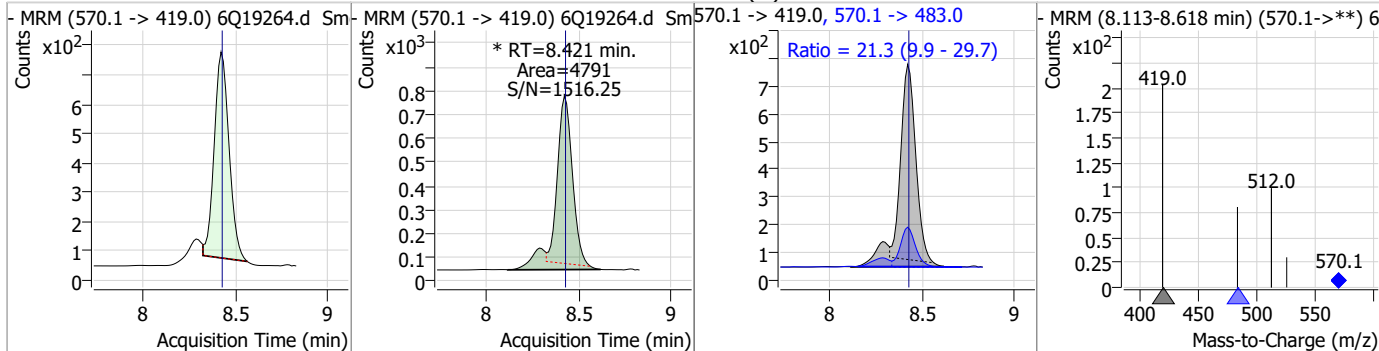
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.59	8.39	0.00	20933	512.9 -> 219.0	14.3	7.5	22.6



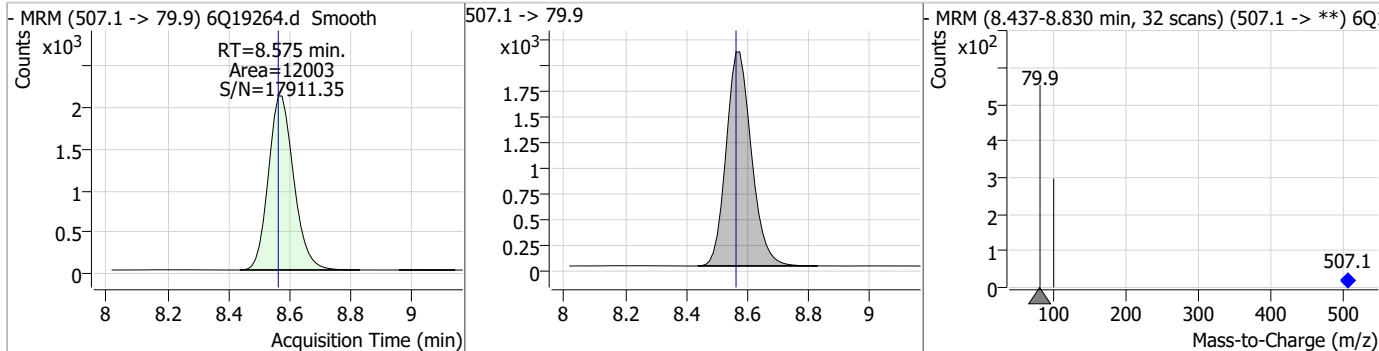
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.72	8.42	0.01	29237				



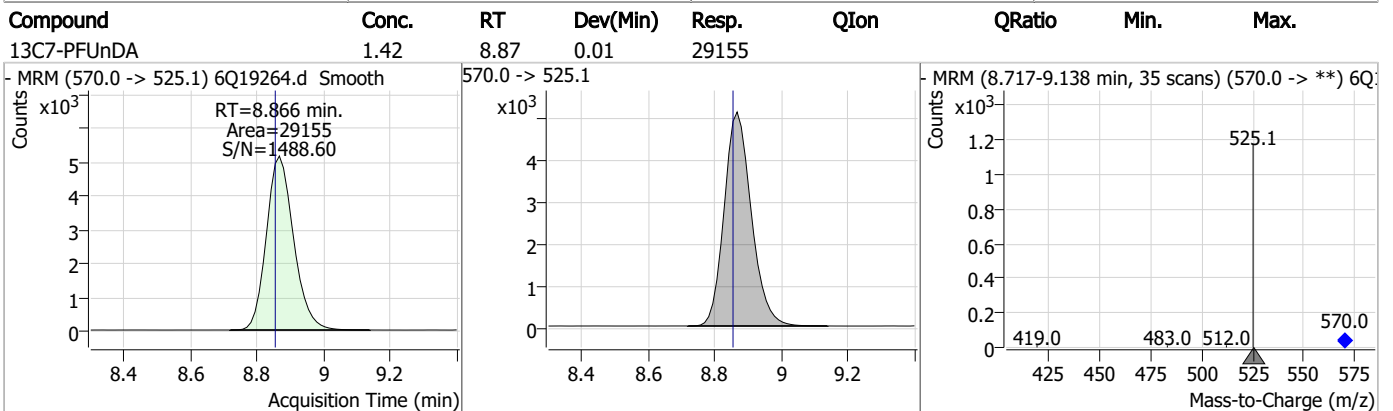
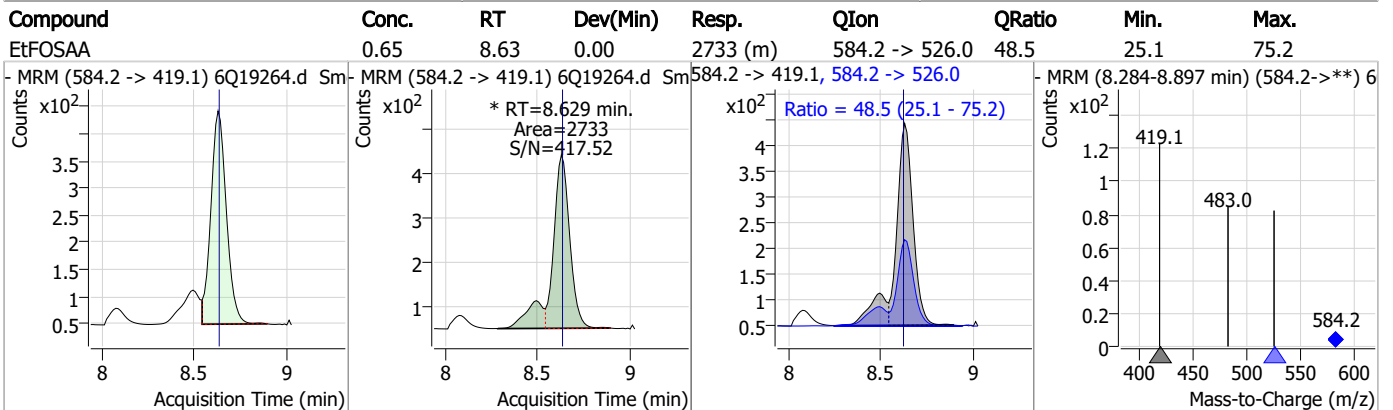
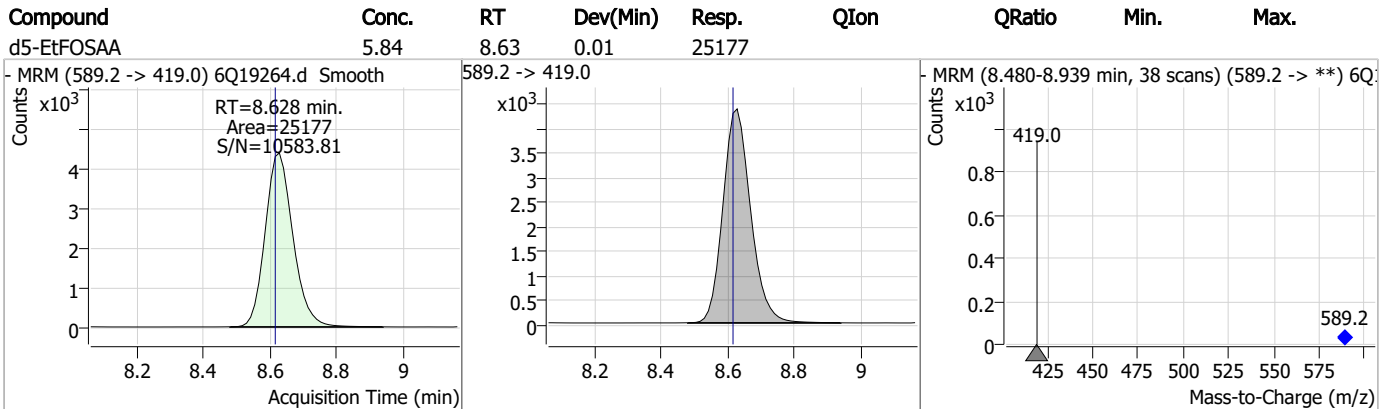
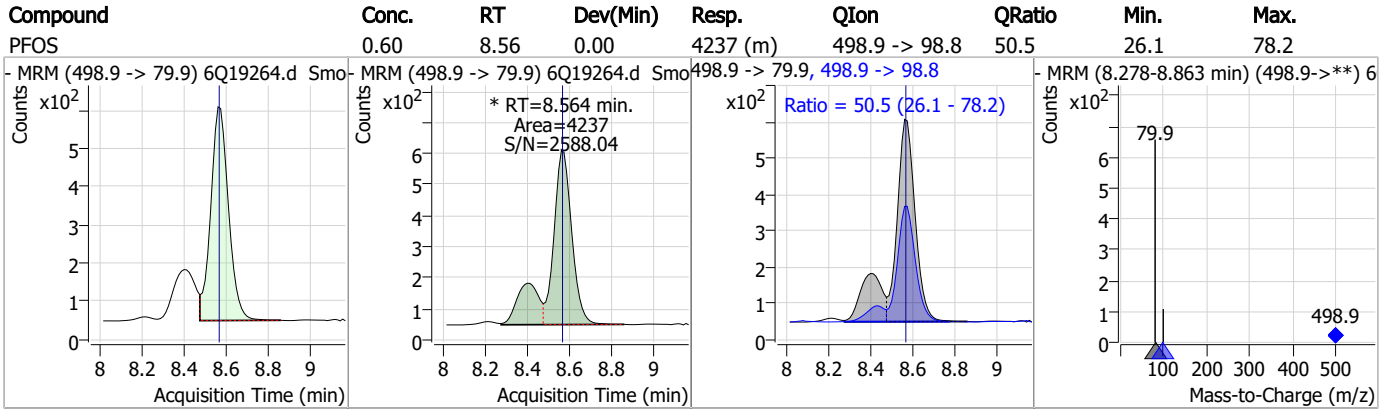
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.67	8.42	0.00	4791 (m)	570.1 -> 483.0	21.3	9.9	29.7



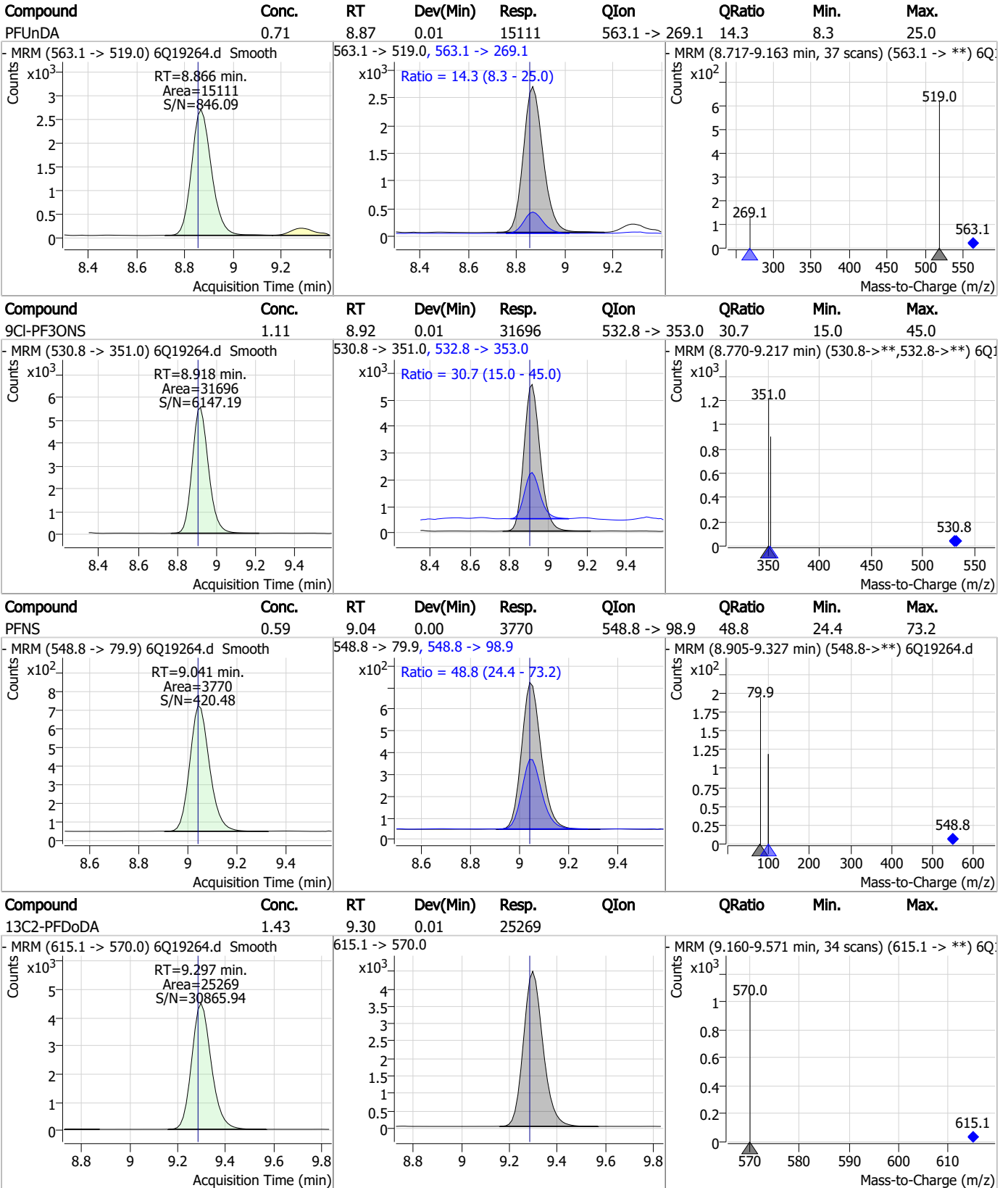
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	3.01	8.57	0.01	12003				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.3.2

7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.63	9.30	0.01	13038	613.1 -> 319.0	17.2	8.3	25.0
PFDs	0.57	9.46	0.01	2060	599.0 -> 98.8	48.8	22.7	68.0
PFTrDA	0.63	9.68	0.01	13084	663.0 -> 168.9	11.2	5.0	15.1
13C8-FOSA	2.30	9.67	0.00	23248	506.1 -> 77.8			

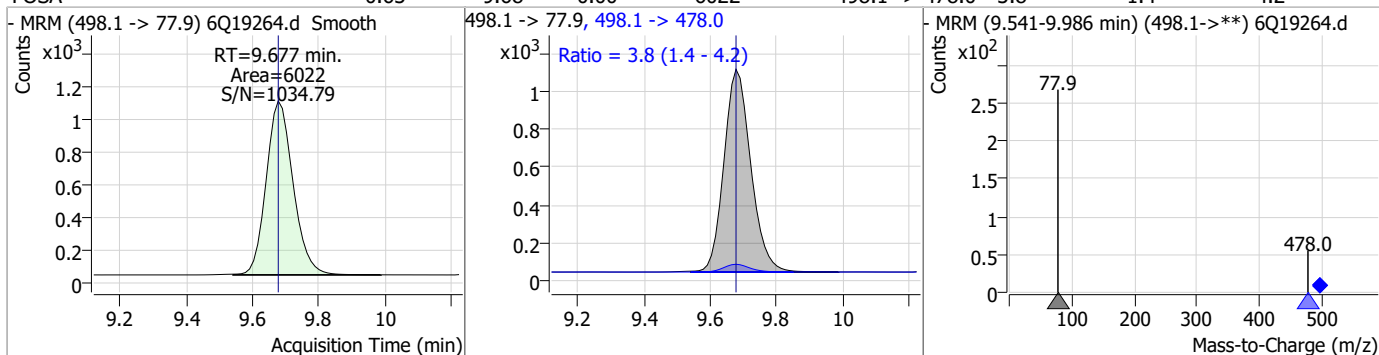
7.3.2

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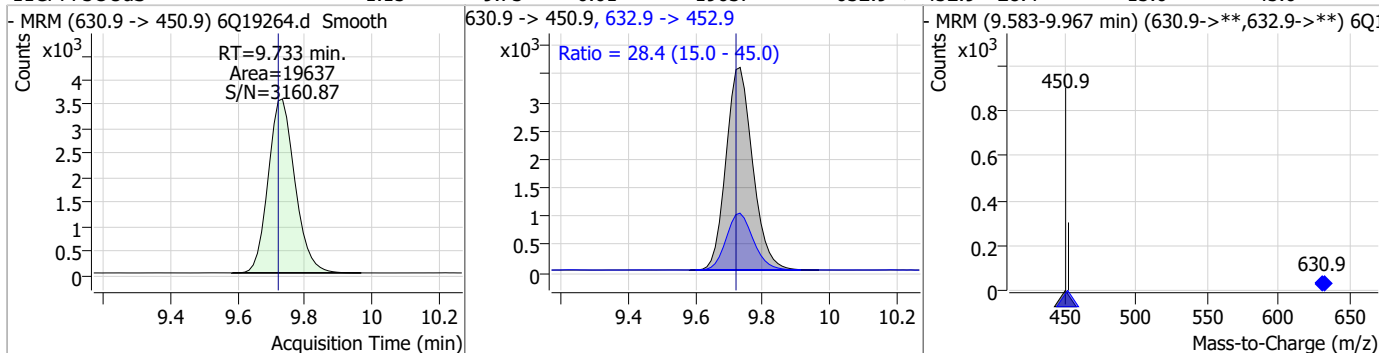


Perfluorinated Compounds by LC/MS/MS

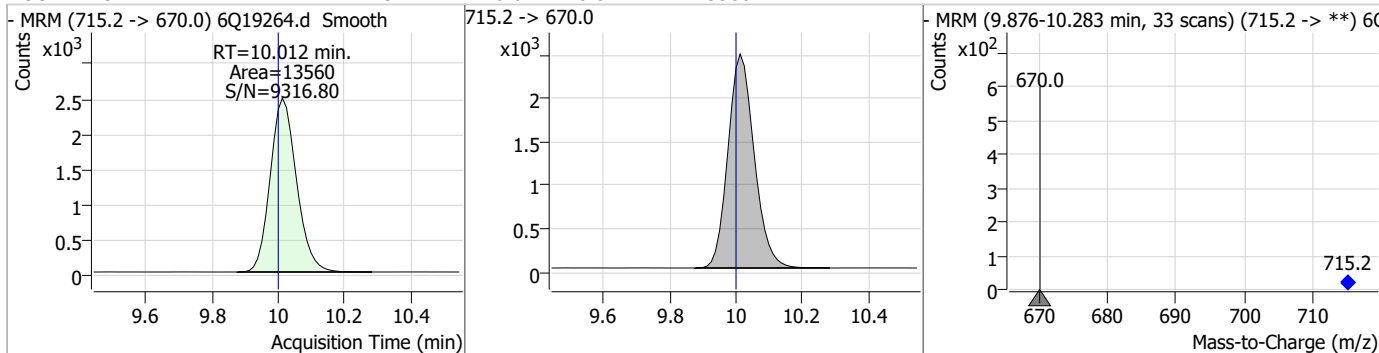
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.63	9.68	0.00	6022	498.1 -> 478.0	3.8	1.4	4.2



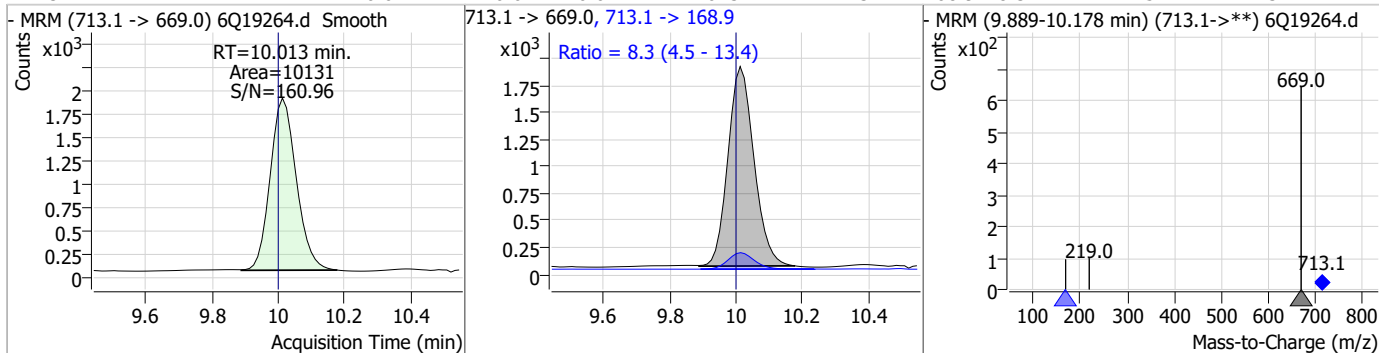
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	1.15	9.73	0.01	19637	630.9 -> 452.9	28.4	15.0	45.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.32	10.01	0.01	13560	715.2 -> 670.0			

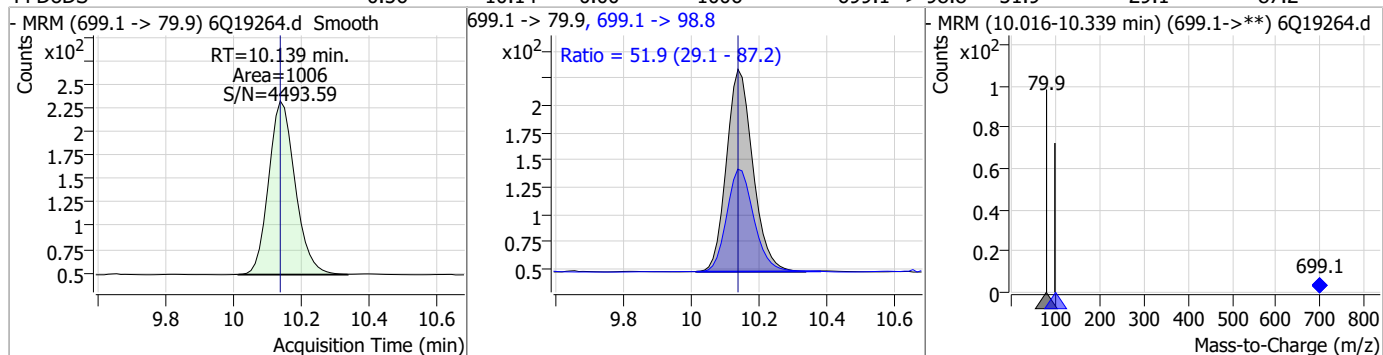


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.62	10.01	0.01	10131	713.1 -> 168.9	8.3	4.5	13.4

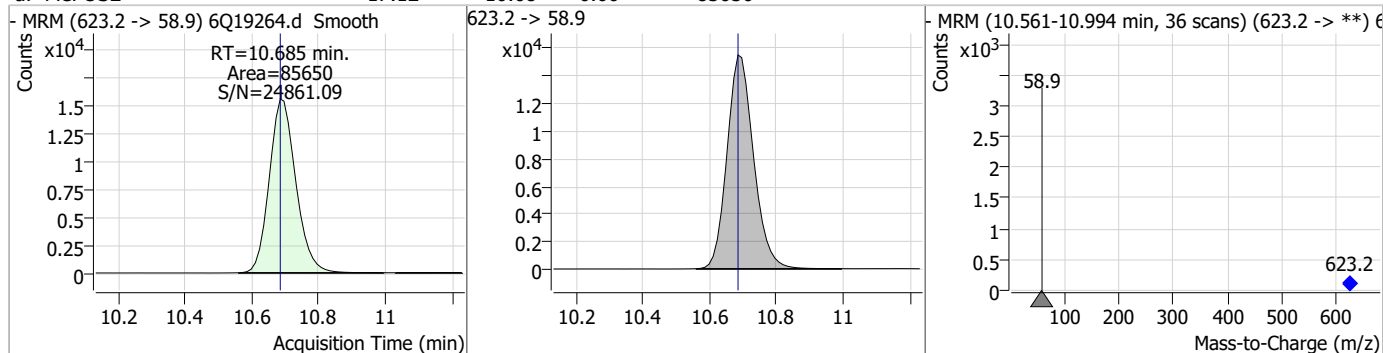


Perfluorinated Compounds by LC/MS/MS

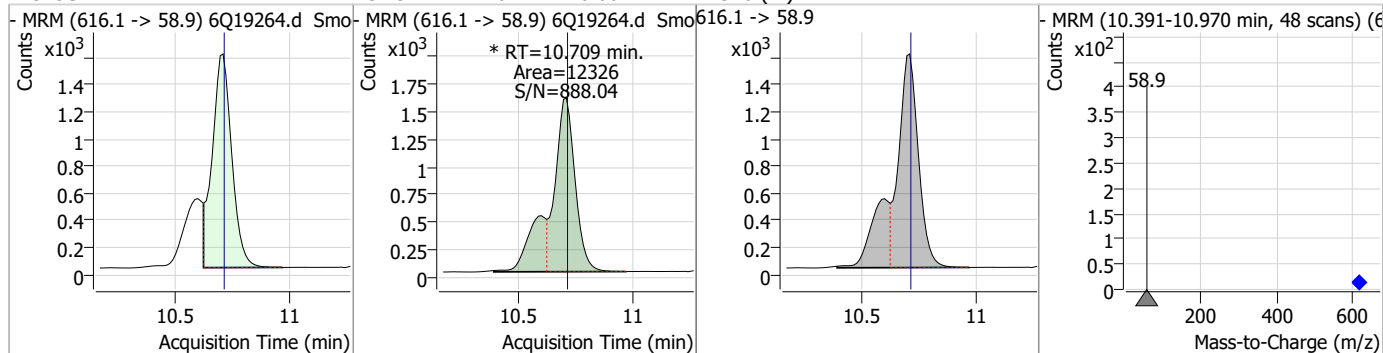
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.56	10.14	0.00	1006	699.1 -> 98.8	51.9	29.1	87.2



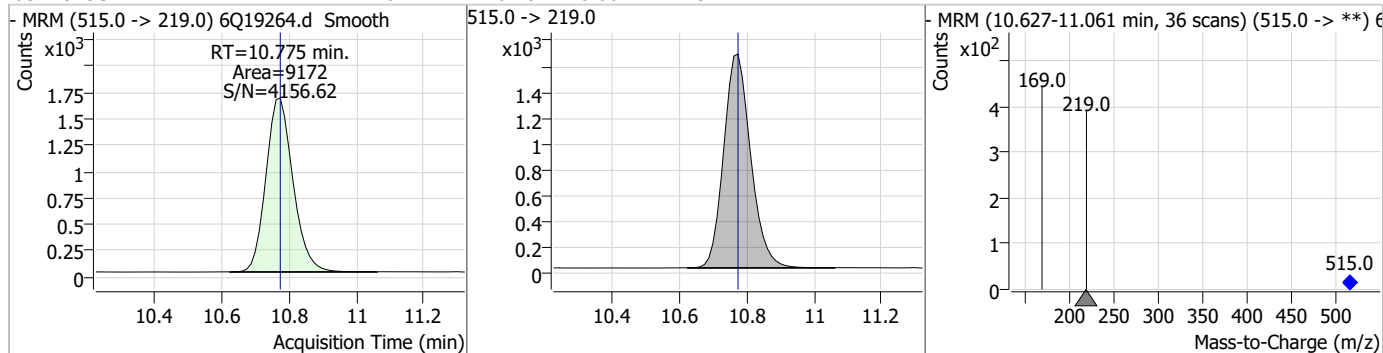
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	17.12	10.68	0.00	85650				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	3.29	10.71	0.00	12326 (m)				

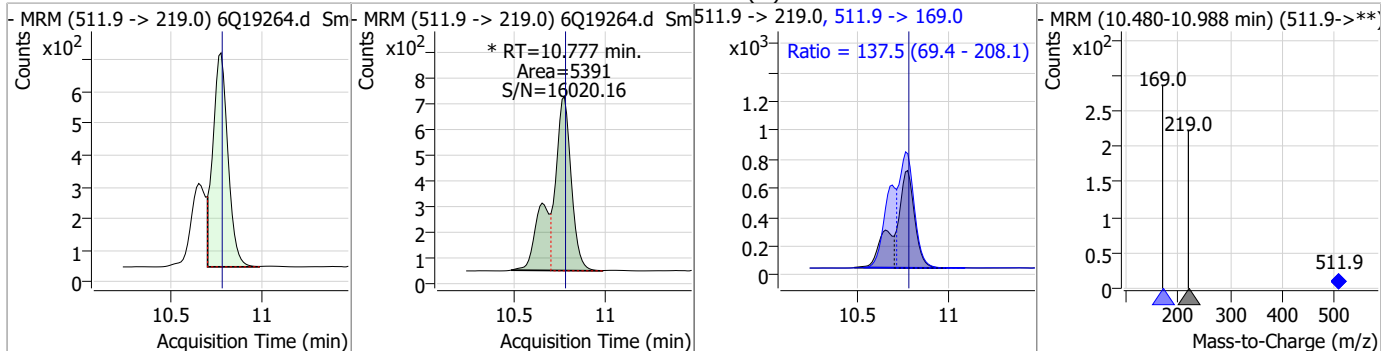


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.02	10.78	0.00	9172				

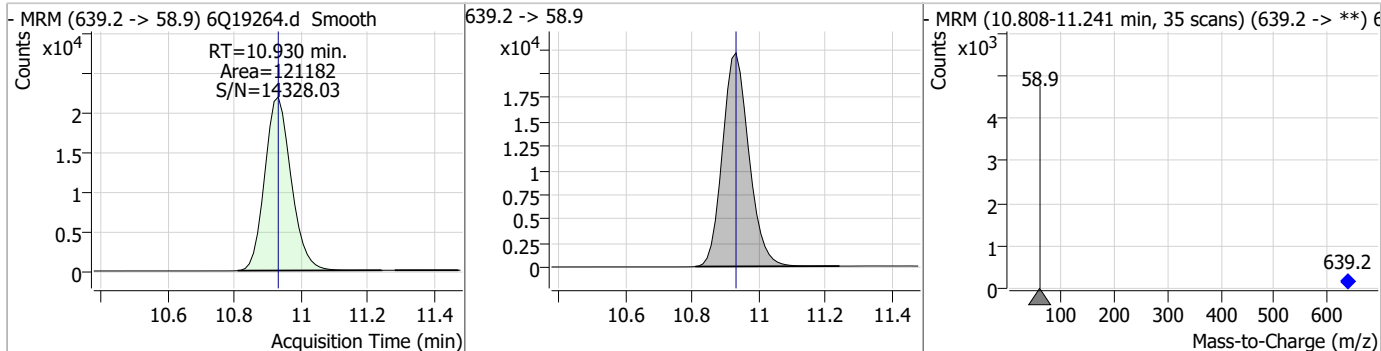


Perfluorinated Compounds by LC/MS/MS

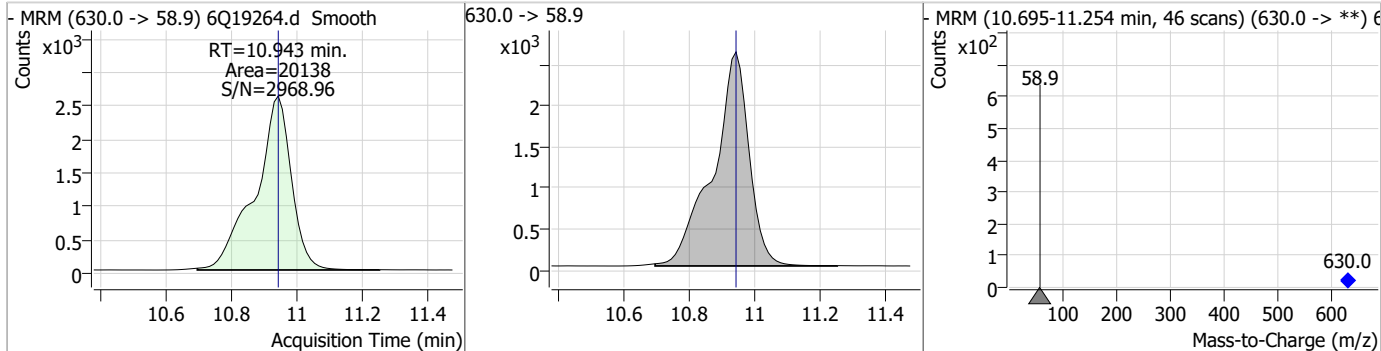
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	1.34	10.78	0.00	5391 (m)	511.9 -> 169.0	137.5	69.4	208.1



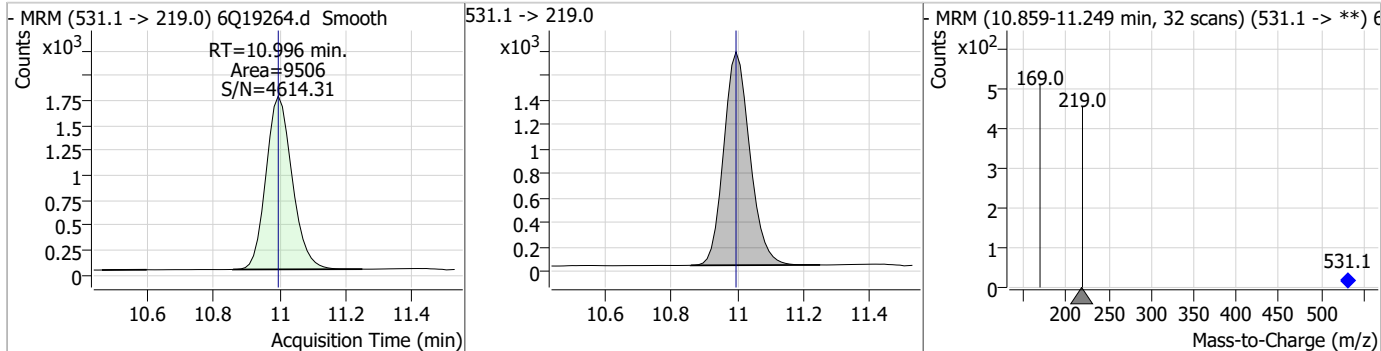
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.39	10.93	0.00	121182				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	3.15	10.94	0.00	20138				

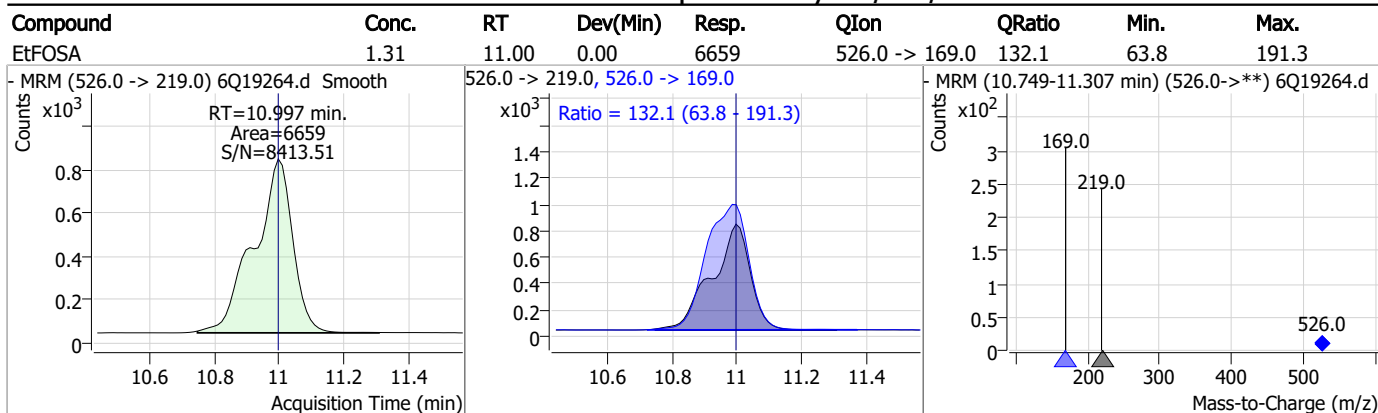


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.16	11.00	0.00	9506				



7.3.2
7

Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Manual Integration Approval Summary

Sample Number: OP97275-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q19264.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 21:24 Supervisor approved: 06/13/23 13:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.63	Split peak
MeFOSE	24448-09-7		10.71	Split peak
MeFOSA	31506-32-8		10.78	Split peak

7.3.2.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19269.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 10:33:56 PM
 Sample Name : op97275-ms
 Vial : P2-B7
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97275,S6Q287,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	5452	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	12007	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	49550	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	50535	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	81282	2.50 µg/L	0.012
M9-PFNA	7.882	472.1 -> 427.0	37521	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	22472	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	28264	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	24055	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	10219	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	25303	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	18749	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	11954	2.50 µg/L	0.000
M8-PFOS	8.550	507.1 -> 79.9	11842	2.50 µg/L	-0.012
M2-4:2FTS	5.454	329.1 -> 80.9	3741	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	3854	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4137	5.00 µg/L	0.000
M3-MeFOSAA	8.407	573.2 -> 419.0	34513	5.00 µg/L	0.000
M3-HFPO-DA	6.169	286.9 -> 168.9	28922	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	29588	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	92769	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	125878	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	11297	2.50 µg/L	0.000
M3-MeFOSA	10.763	515.0 -> 219.0	11432	2.50 µg/L	-0.012
13C4-PFOS	8.551	502.8 -> 79.9	16170	2.50 µg/L	-0.012
13C3-PFBA	3.101	216.0 -> 172.0	60540	5.00 µg/L	0.012
18O2-PFHxS	7.477	403.0 -> 83.9	8151	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	74385	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	29907	1.25 µg/L	0.000
13C5-PFNA	7.882	468.0 -> 423.0	46890	1.25 µg/L	0.000
13C2-PFHxA	5.792	315.1 -> 270.0	46959	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3741	7.45 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 149.1%		
13C2-6:2FTS	7.113	429.1 -> 80.9	3854	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4137	5.72 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.5%		
13C2-PFDoDA	9.297	615.1 -> 570.0	24055	1.20 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C2-PFTeDA	10.012	715.2 -> 670.0	10219	0.88 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 70.4%		
13C3-PFBS	5.746	302.1 -> 79.9	18749	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C3-PFHxS	7.478	402.1 -> 79.9	11954	2.76 µg/L	0.000

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 = 110.5%		
13C4-PFBA	3.097	216.8 -> 171.9	5452	0.38 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 3.8%		
13C4-PFHpA	6.707	367.1 -> 322.0	50535	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.1%		
13C5-PFHxA	5.792	318.0 -> 273.0	49550	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C5-PFPeA	4.560	268.3 -> 223.0	12007	1.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 26.5%		
13C6-PFDA	8.387	519.1 -> 474.1	22472	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C7-PFUnDA	8.866	570.0 -> 525.1	28264	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C8-FOSA	9.674	506.1 -> 77.8	25303	2.11 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 84.5%		
13C8-PFOA	7.352	421.1 -> 376.0	81282	2.93 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 117.1%		
13C8-PFOS	8.550	507.1 -> 79.9	11842	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C9-PFNA	7.882	472.1 -> 427.0	37521	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.9%		
d3-MeFOSAA	8.407	573.2 -> 419.0	34513	5.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.8%		
13C3-HFPO-DA	6.169	286.9 -> 168.9	28922	8.99 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 89.9%		
d3-MeFOSA	10.763	515.0 -> 219.0	11432	2.13 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 85.1%		
d5-EtFOSAA	8.615	589.2 -> 419.0	29588	5.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.6%		
d7-MeFOSE	10.685	623.2 -> 58.9	92769	15.63 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 62.5%		
d9-EtFOSE	10.930	639.2 -> 58.9	125878	16.98 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 67.9%		
d5-EtFOSA	10.996	531.1 -> 219.0	11297	2.17 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 86.8%		
Target Compounds					QValue
4:2FTS	5.455	327.1 -> 307.0	50039	7.72 µg/L	97
		327.1 -> 80.9	19468		
6:2FTS	7.113	427.1 -> 407.0	43832	9.41 µg/L	88
		427.1 -> 80.9	12868		
8:2FTS	8.164	527.1 -> 507.0	21089	7.66 µg/L	94
		527.1 -> 80.8	9084		
EtFOSAA	8.617	584.2 -> 419.1	10630	2.16 µg/L	m 94
		584.2 -> 526.0	5758		
FOSA	9.677	498.1 -> 77.9	23108	2.23 µg/L	99
		498.1 -> 478.0	708		
MeFOSAA	8.408	570.1 -> 419.0	20594	2.45 µg/L	m 100
		570.1 -> 483.0	4067		
PFBA	3.106	212.8 -> 168.9	1771	8.14 µg/L	100
PFBS	5.747	298.7 -> 79.9	15608	1.90 µg/L	91
		298.7 -> 98.8	6212		
PFDA	8.388	512.9 -> 469.0	68093	2.03 µg/L	98
		512.9 -> 219.0	10905		
PFDoDA	9.298	613.1 -> 569.0	43121	2.18 µg/L	97
		613.1 -> 319.0	6707		
PFDS	9.462	599.0 -> 79.9	6554	1.83 µg/L	96

7.4.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2792			
PFHpA	6.708	363.1 -> 319.0	57971	2.14	µg/L	100
		363.1 -> 169.0	9222			
PFHpS	8.046	449.0 -> 79.9	14955	2.10	µg/L	97
		449.0 -> 98.9	7619			
PFHxA	5.795	313.0 -> 269.0	41491	2.09	µg/L	99
		313.0 -> 118.9	2151			
PFHxS	7.479	398.7 -> 79.9	14884	2.07	µg/L	m 99
		398.7 -> 98.9	6826			
PFNA	7.896	463.0 -> 419.0	71055	2.06	µg/L	97
		463.0 -> 219.0	13581			
PFNS	9.041	548.8 -> 79.9	13305	2.12	µg/L	92
		548.8 -> 98.9	5810			
PFOA	7.353	413.0 -> 369.0	97411	2.34	µg/L	98
		413.0 -> 169.0	16330			
PFOS	8.552	498.9 -> 79.9	14671	2.10	µg/L	m 87
		498.9 -> 98.8	6278			
PFPeA	4.563	263.0 -> 219.0	15246	4.31	µg/L	100
PFPeS	6.785	349.1 -> 79.9	14277	2.16	µg/L	96
		349.1 -> 98.9	6156			
PFTeDA	10.013	713.1 -> 669.0	26904	2.20	µg/L	100
		713.1 -> 168.9	2352			
PFTrDA	9.681	663.0 -> 619.0	39088	1.99	µg/L	97
		663.0 -> 168.9	4355			
PFUnDA	8.866	563.1 -> 519.0	48946	2.36	µg/L	100
		563.1 -> 269.1	8031			
11CI-PF3OUdS	9.733	630.9 -> 450.9	54502	4.00	µg/L	99
		632.9 -> 452.9	16040			
9CI-PF3ONS	8.906	530.8 -> 351.0	112254	4.93	µg/L	92
		532.8 -> 353.0	38625			
ADONA	6.959	376.9 -> 250.9	240281	4.91	µg/L	98
		376.9 -> 84.8	64638			
HFPO-DA	6.169	284.9 -> 168.9	12700	4.04	µg/L	96
		284.9 -> 184.9	1568			
3:3FTCA	3.971	241.0 -> 177.0	610	2.53	µg/L	m 97
		241.0 -> 117.0	73			
5:3FTCA	6.374	341.0 -> 237.1	217385	56.47	µg/L	97
		341.0 -> 217.0	167537			
7:3FTCA	7.748	441.0 -> 316.9	198404	72.01	µg/L	92
		441.0 -> 336.9	432306			
EtFOSA	10.997	526.0 -> 219.0	26291	4.35	µg/L	m 98
		526.0 -> 169.0	33986			
EtFOSE	10.943	630.0 -> 58.9	73823	11.11	µg/L	100
MeFOSA	10.777	511.9 -> 219.0	21576	4.31	µg/L	m 95
		511.9 -> 169.0	31233			
MeFOSE	10.697	616.1 -> 58.9	45968	11.32	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	2032	1.14	µg/L	98
		699.1 -> 98.8	1208			
NFDHA	5.673	295.0 -> 201.0	9458	3.76	µg/L	95
		295.0 -> 84.9	2491			
PFMBA	4.988	279.0 -> 85.1	17988	7.10	µg/L	100
PFMPA	3.680	229.0 -> 84.9	2291	1.16	µg/L	100
PFEESA	6.288	314.8 -> 134.9	106300	4.35	µg/L	99
		314.8 -> 82.9	3933			

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

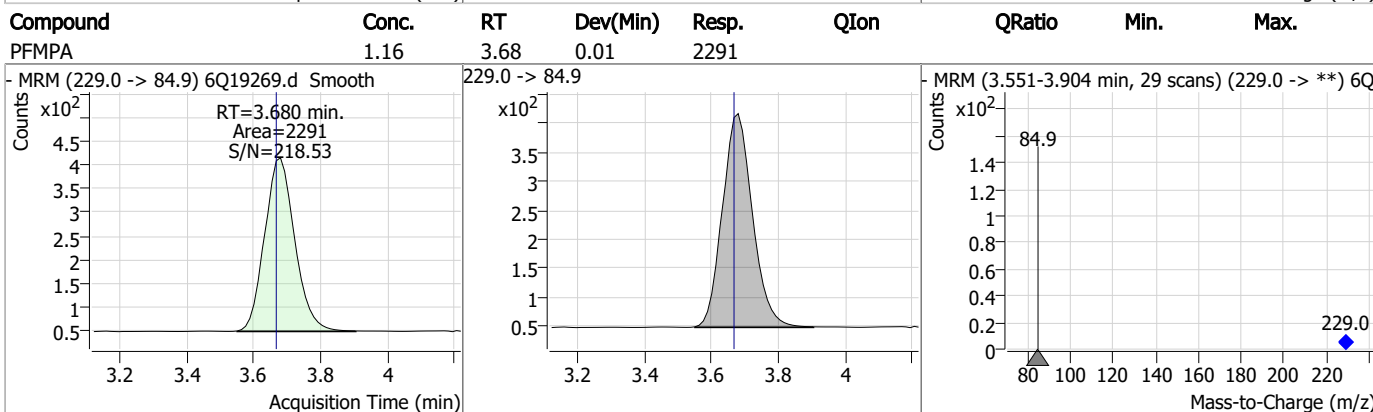
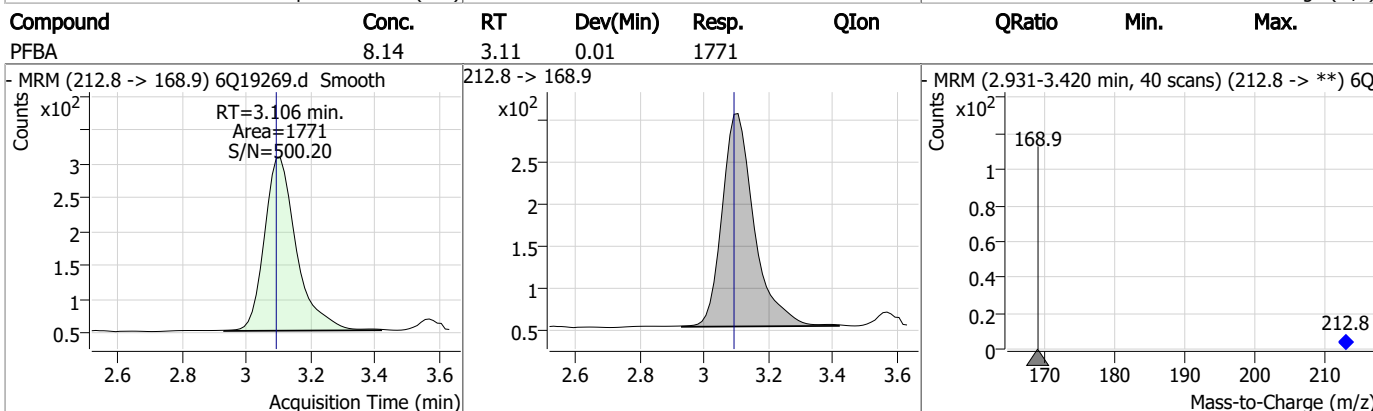
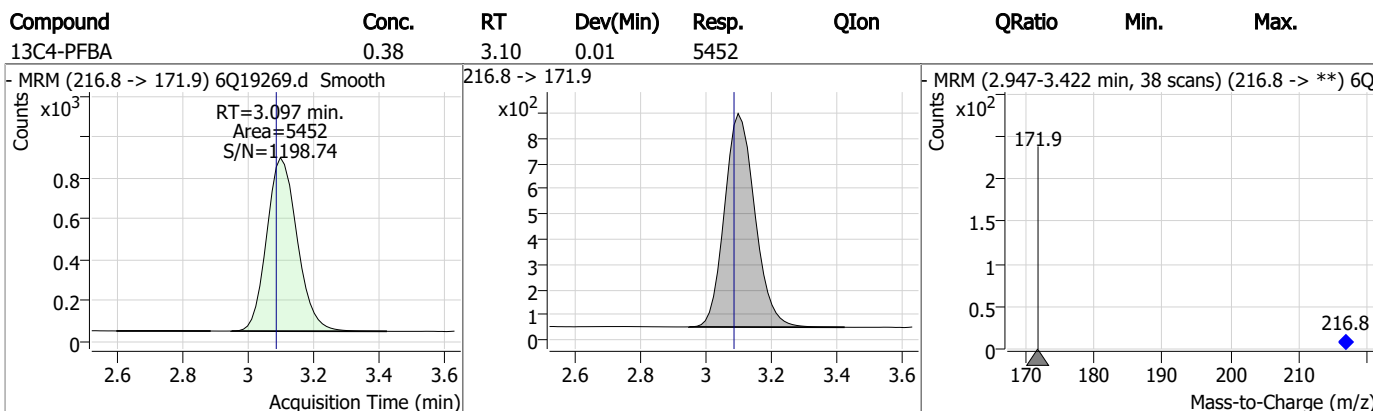
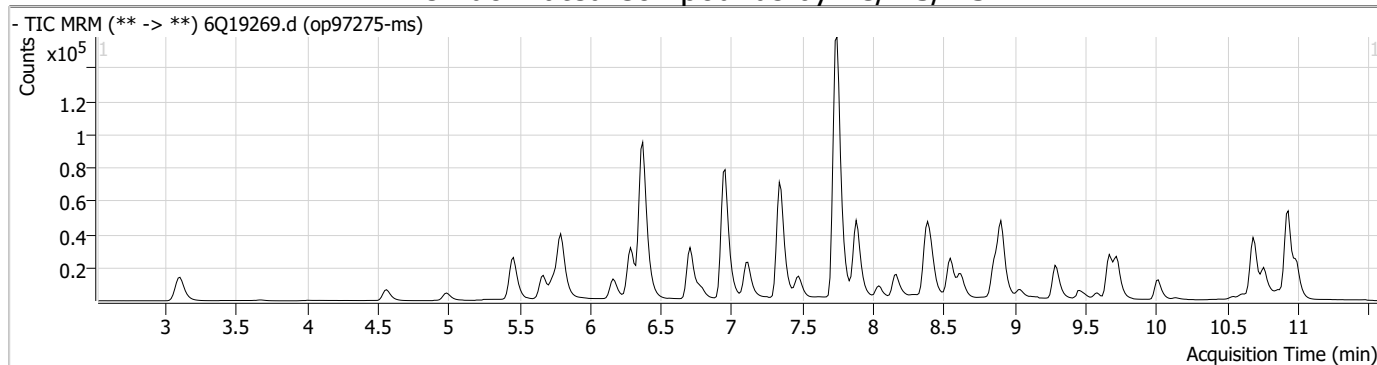
Perfluorinated Compounds by LC/MS/MS

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

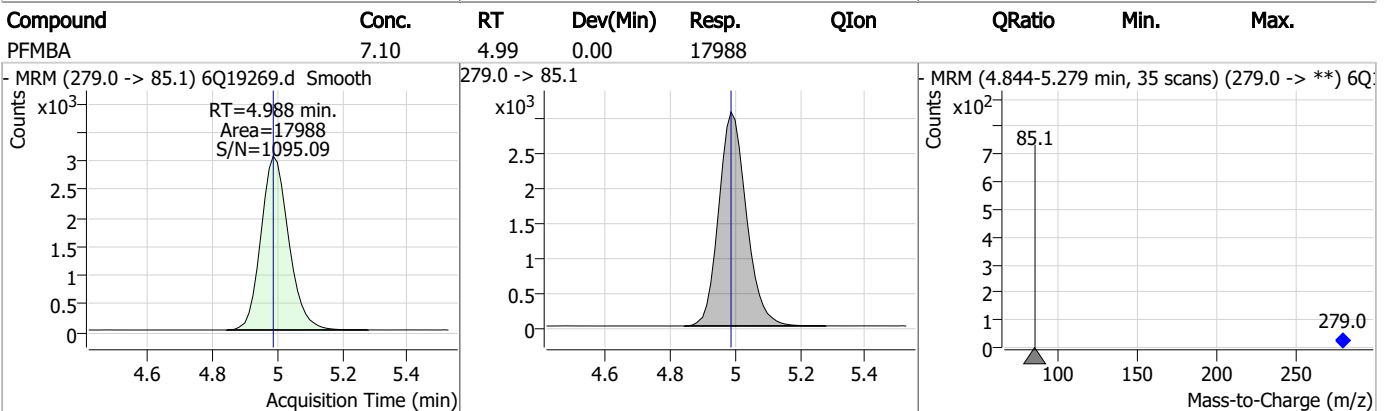
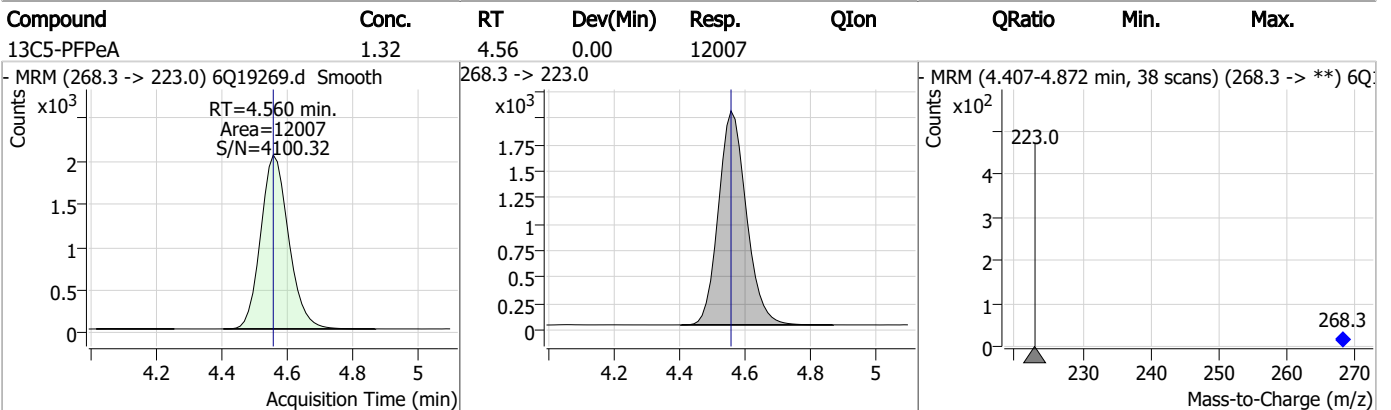
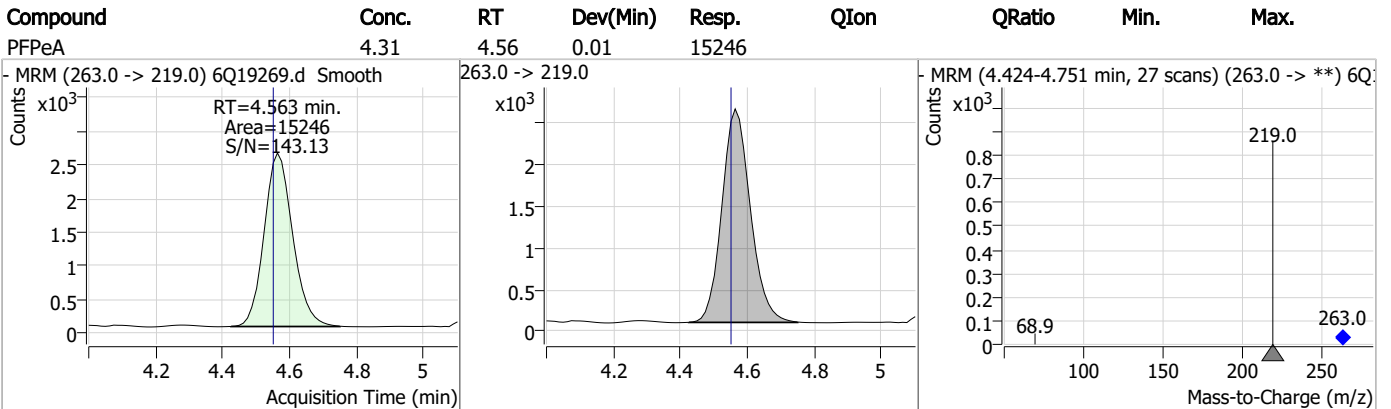
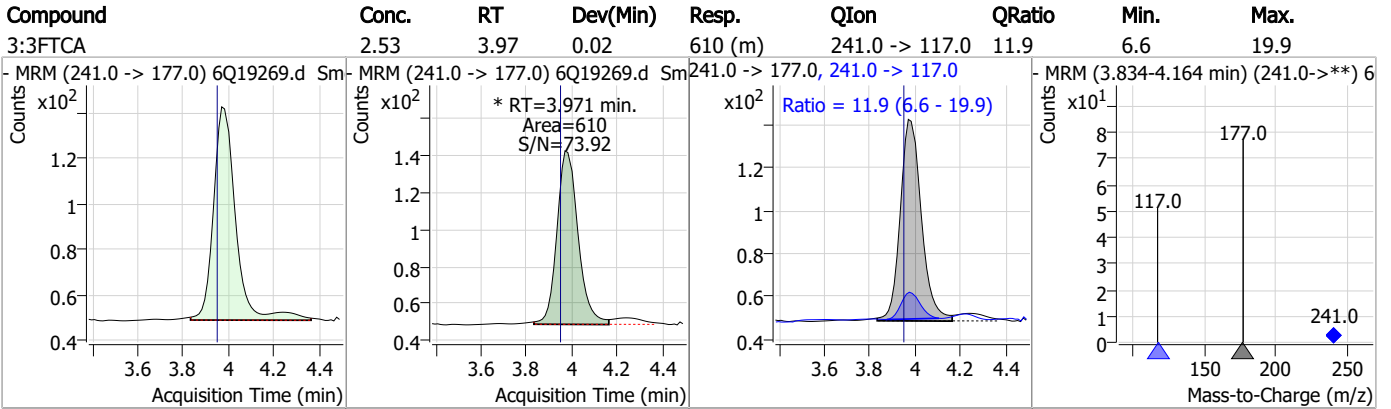
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Perfluorinated Compounds by LC/MS/MS

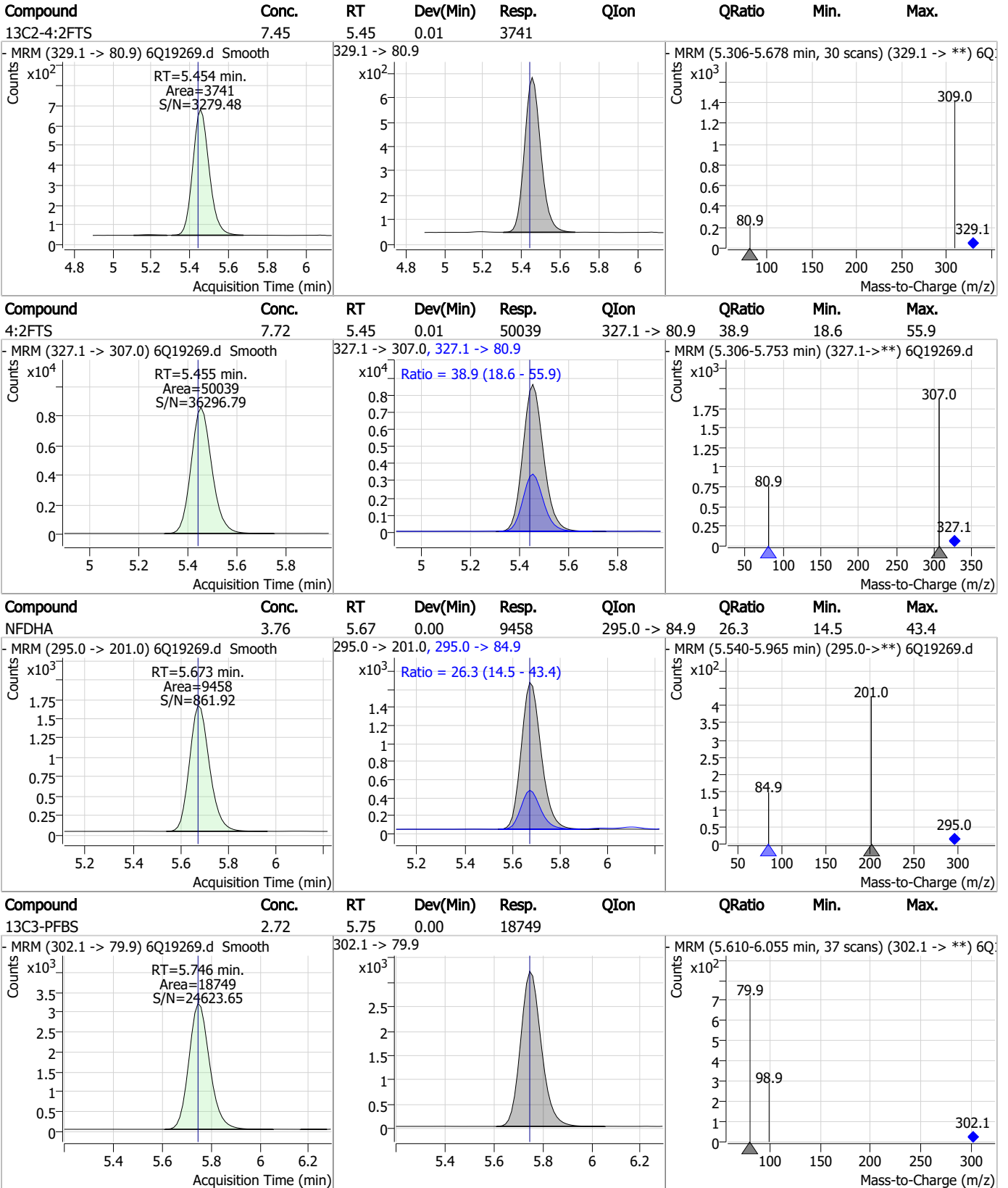


7.4.1
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Perfluorinated Compounds by LC/MS/MS



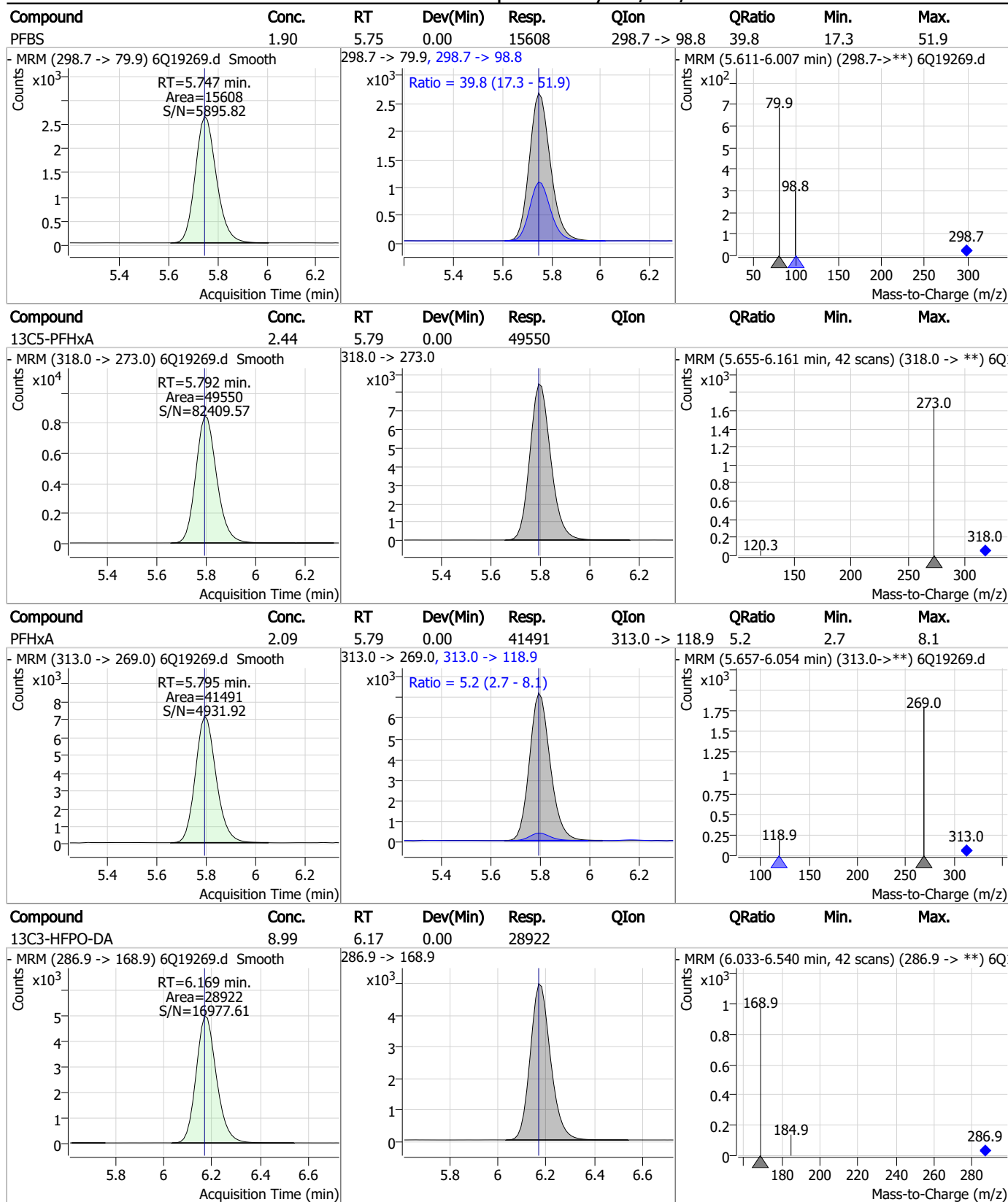
Perfluorinated Compounds by LC/MS/MS



7.4.1

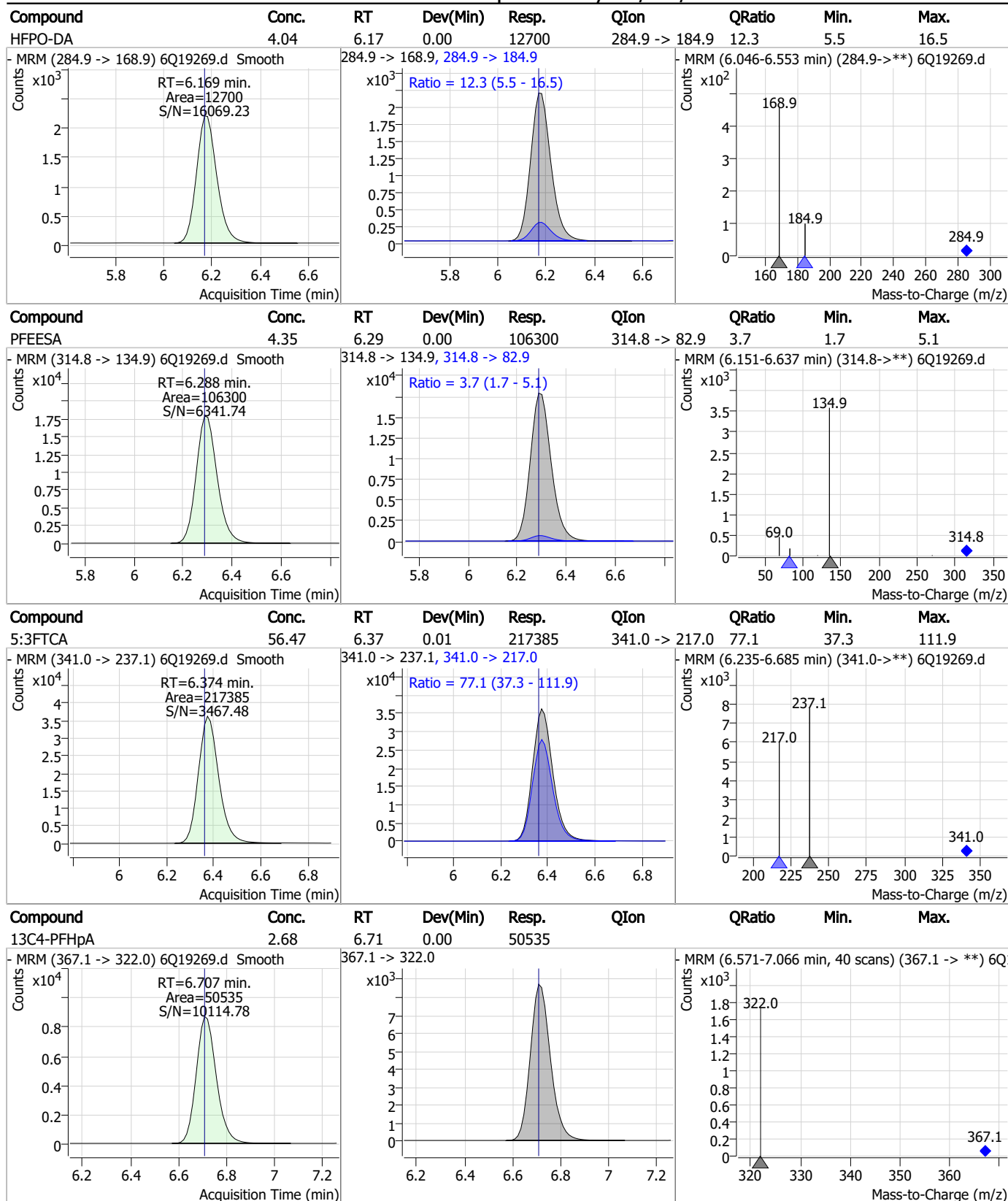
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Perfluorinated Compounds by LC/MS/MS



7.4.1
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Perfluorinated Compounds by LC/MS/MS

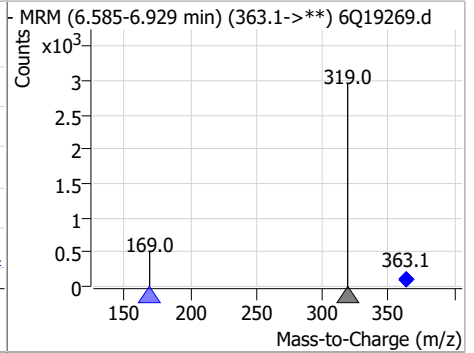
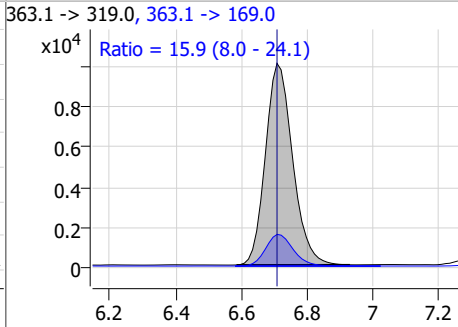
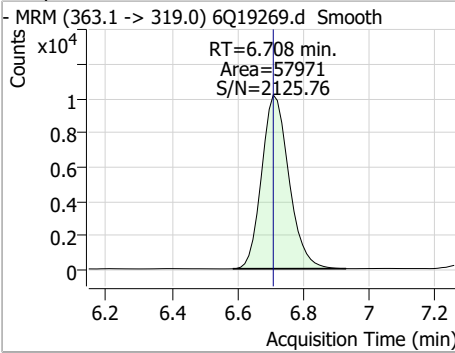


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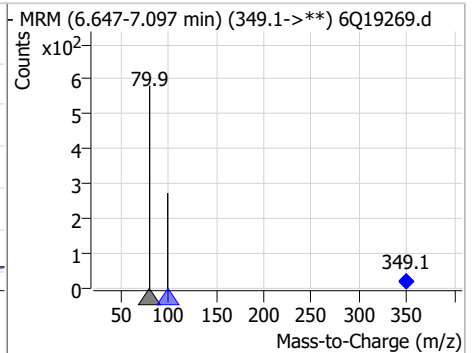
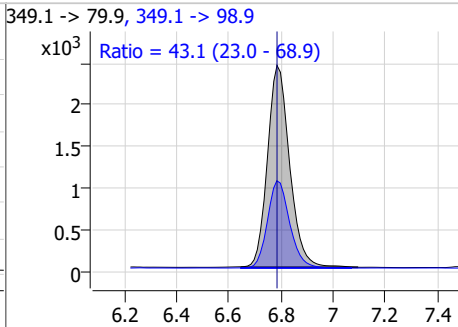
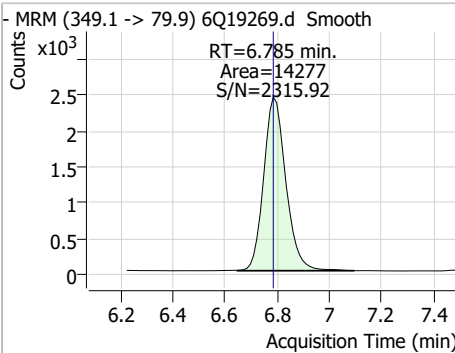
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Perfluorinated Compounds by LC/MS/MS

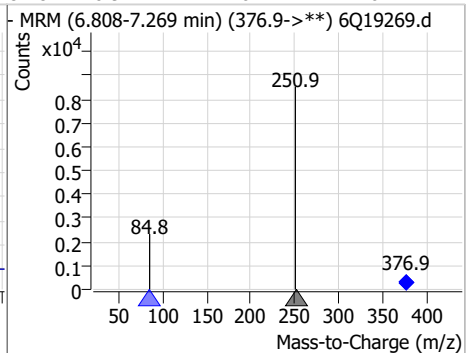
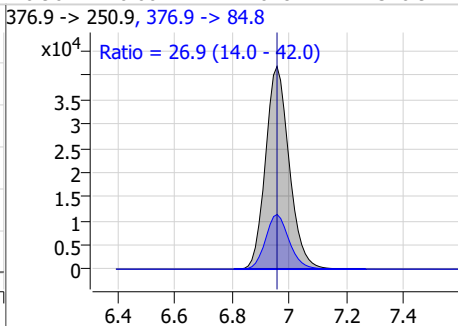
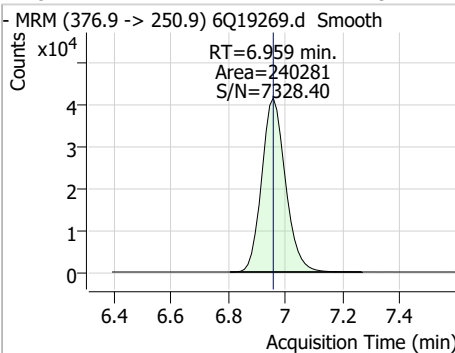
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.14	6.71	0.00	57971	363.1 -> 169.0	15.9	8.0	24.1



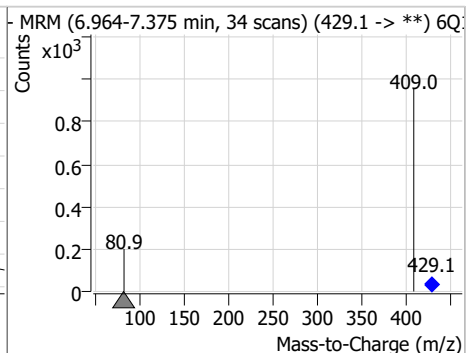
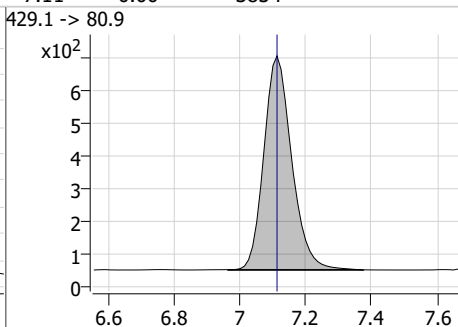
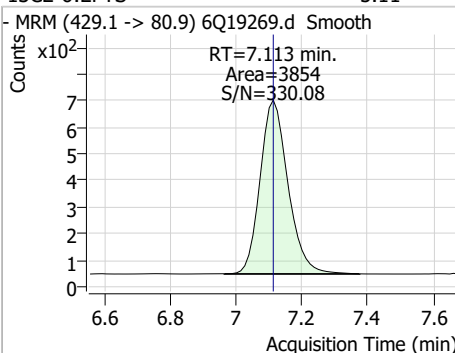
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.16	6.79	0.00	14277	349.1 -> 98.9	43.1	23.0	68.9



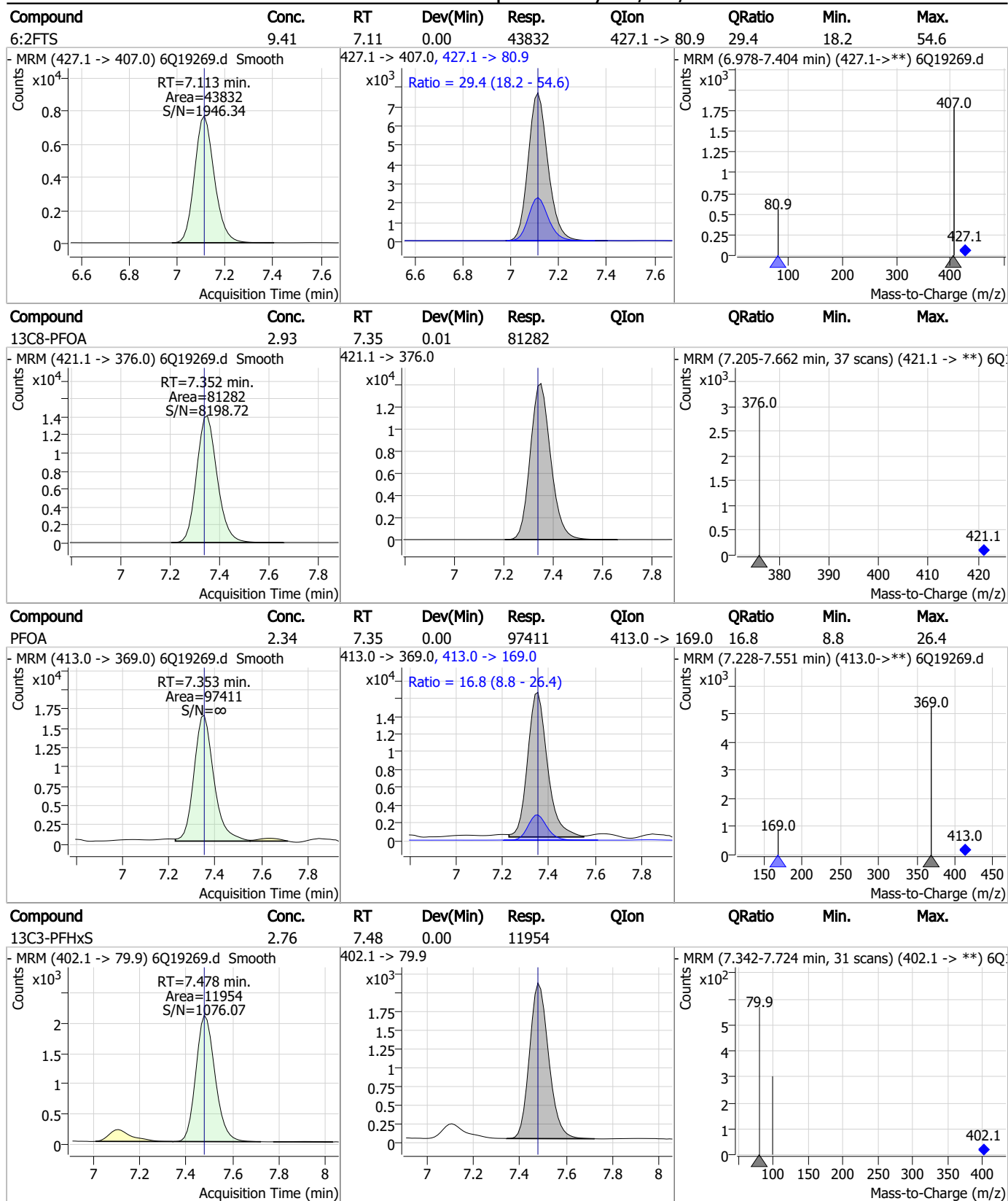
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.91	6.96	0.00	240281	376.9 -> 84.8	26.9	14.0	42.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.11	7.11	0.00	3854	429.1 -> 80.9			

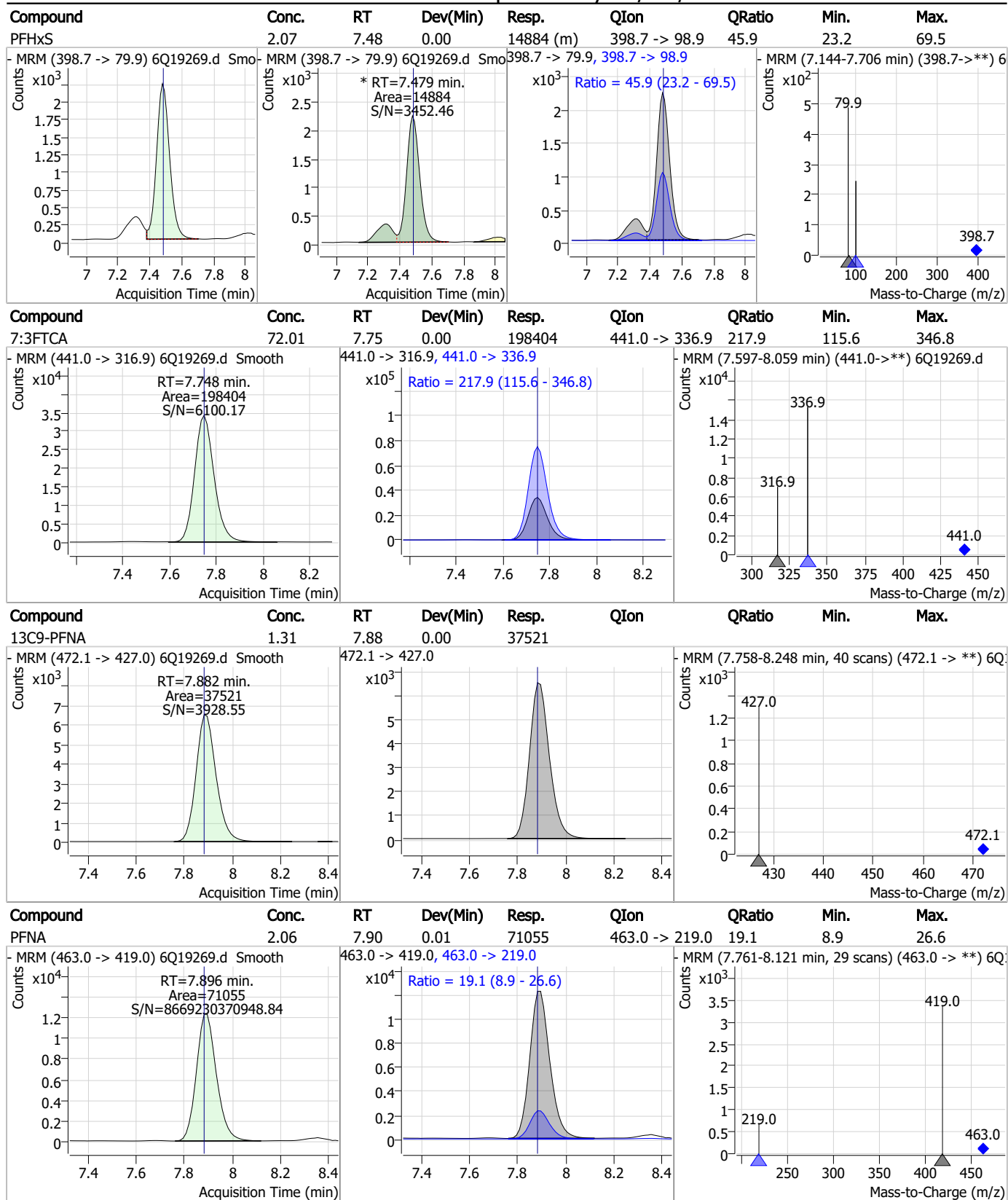


Perfluorinated Compounds by LC/MS/MS



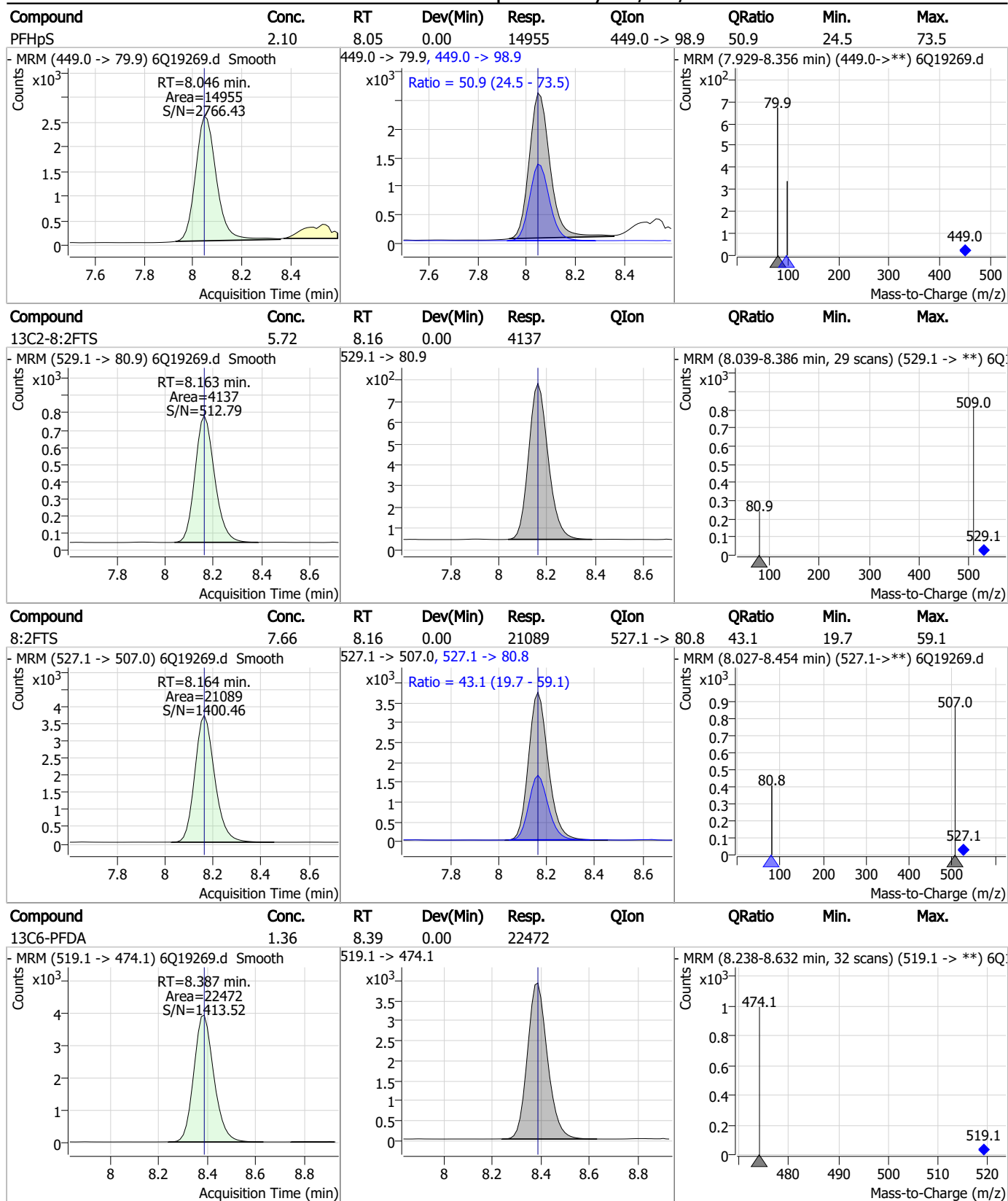
7.4.1
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Perfluorinated Compounds by LC/MS/MS



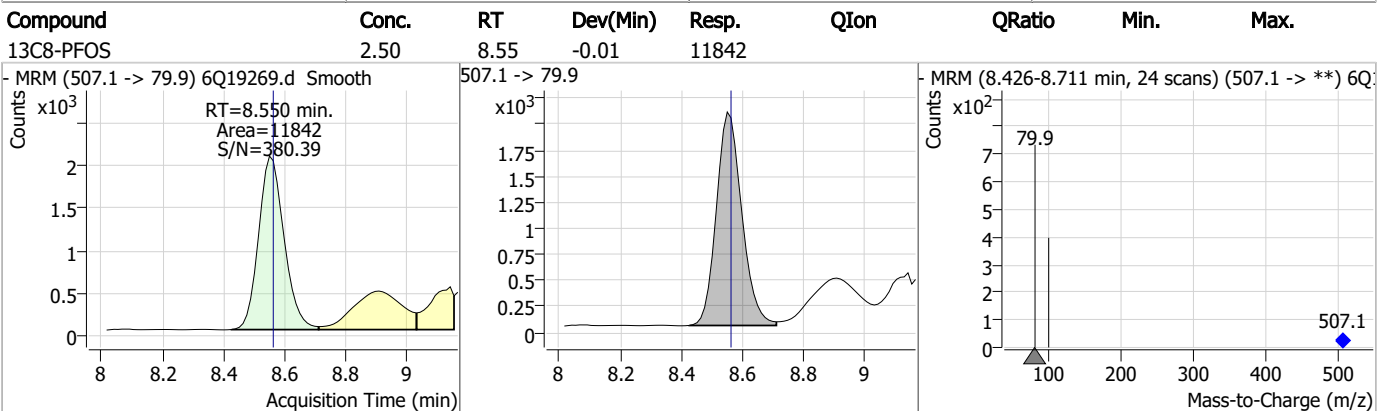
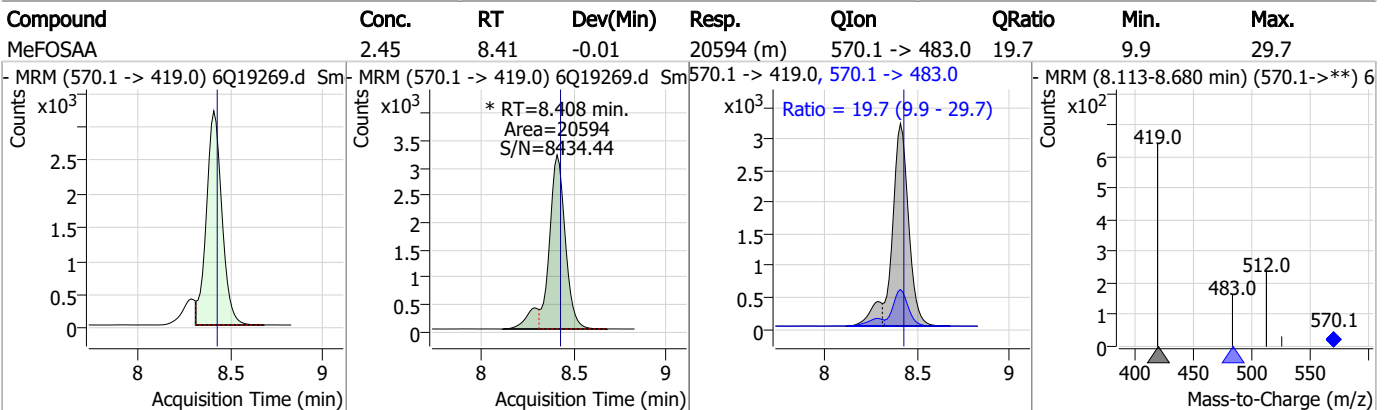
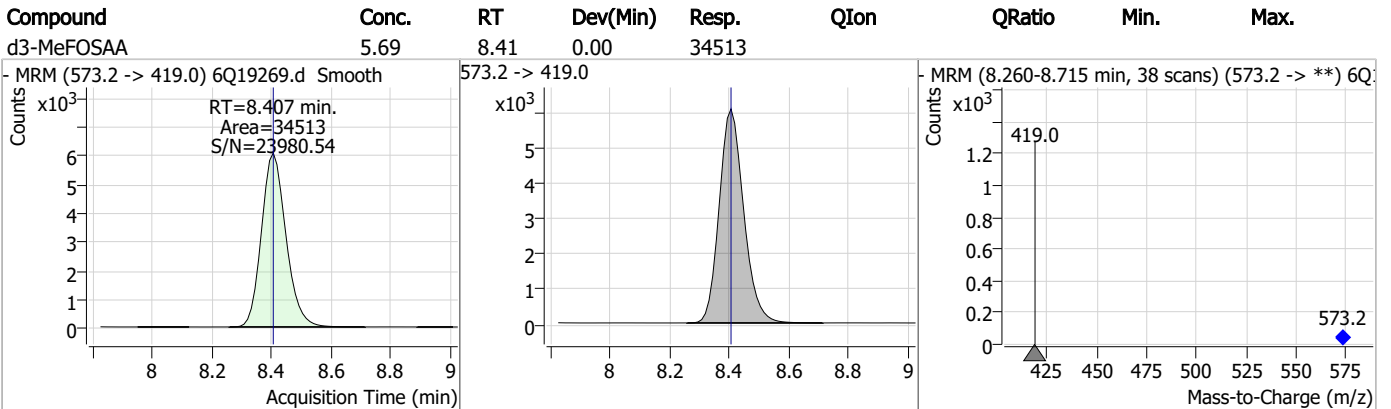
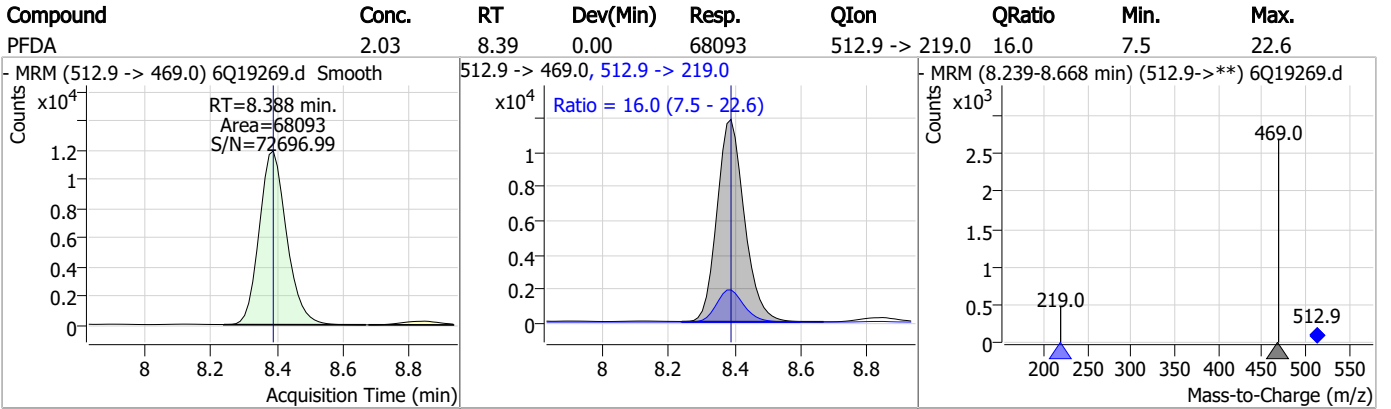
7.4.1
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Perfluorinated Compounds by LC/MS/MS



7.4.1
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Perfluorinated Compounds by LC/MS/MS

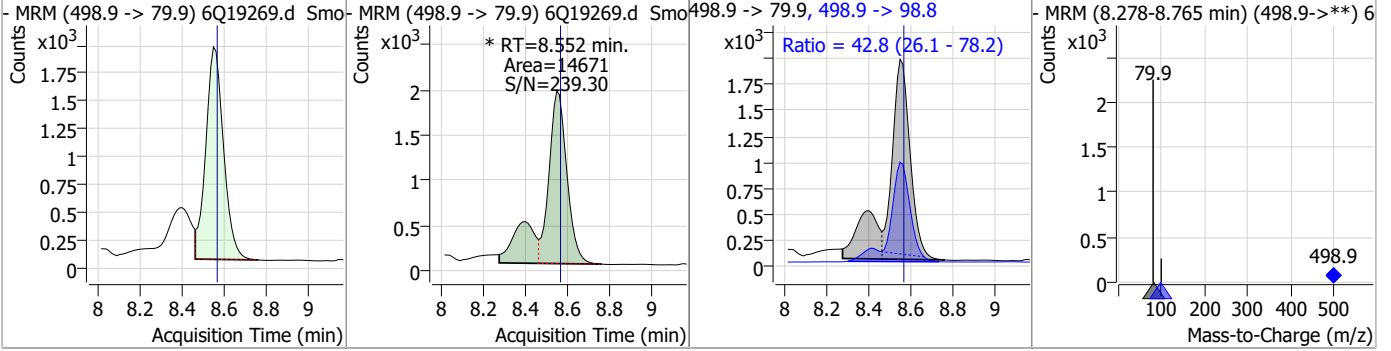


7.4.1

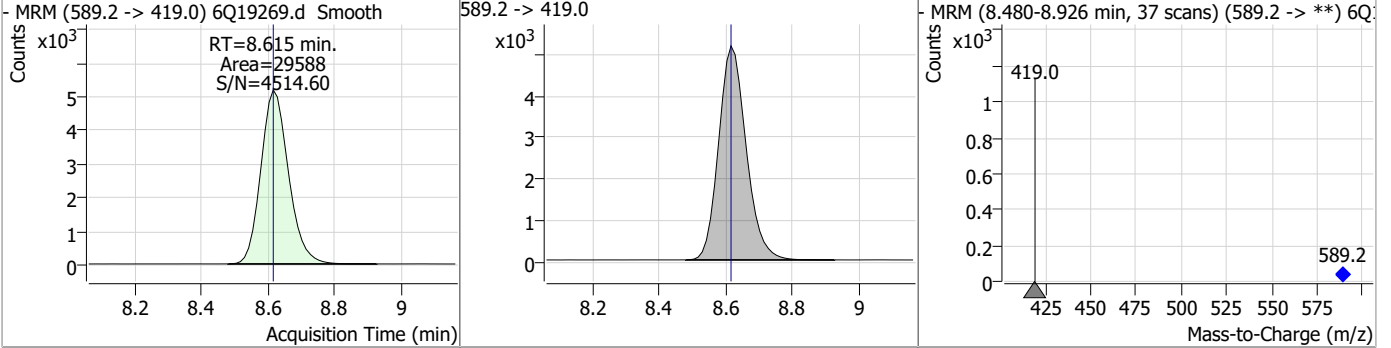
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Perfluorinated Compounds by LC/MS/MS

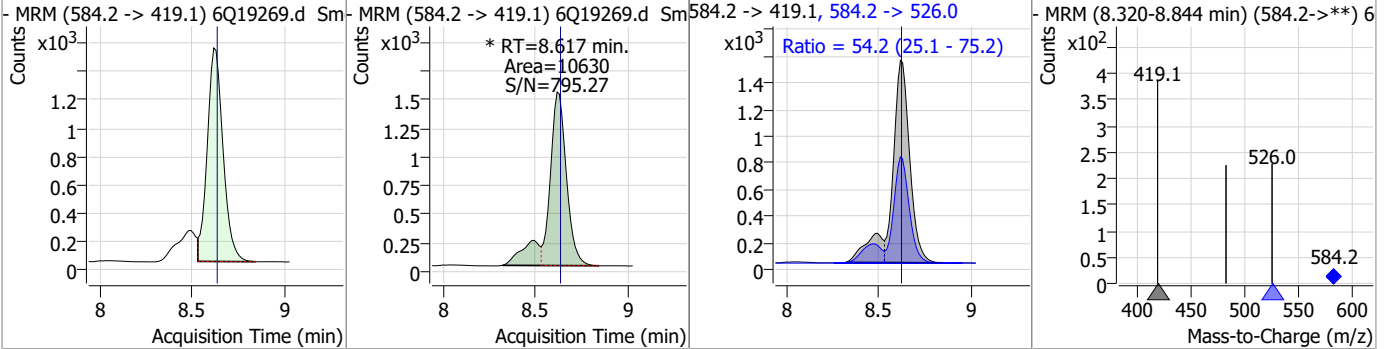
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.10	8.55	-0.01	14671 (m)	498.9 -> 98.8	42.8	26.1	78.2



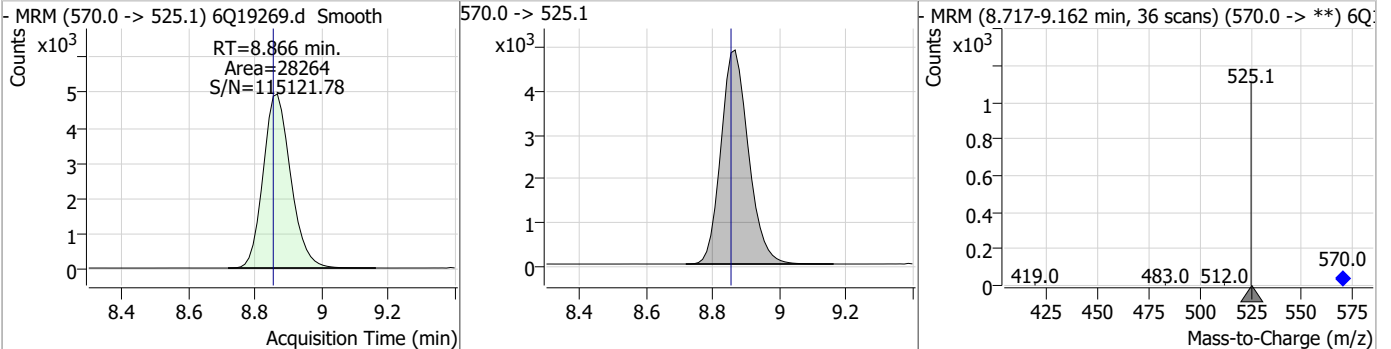
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.78	8.62	0.00	29588				



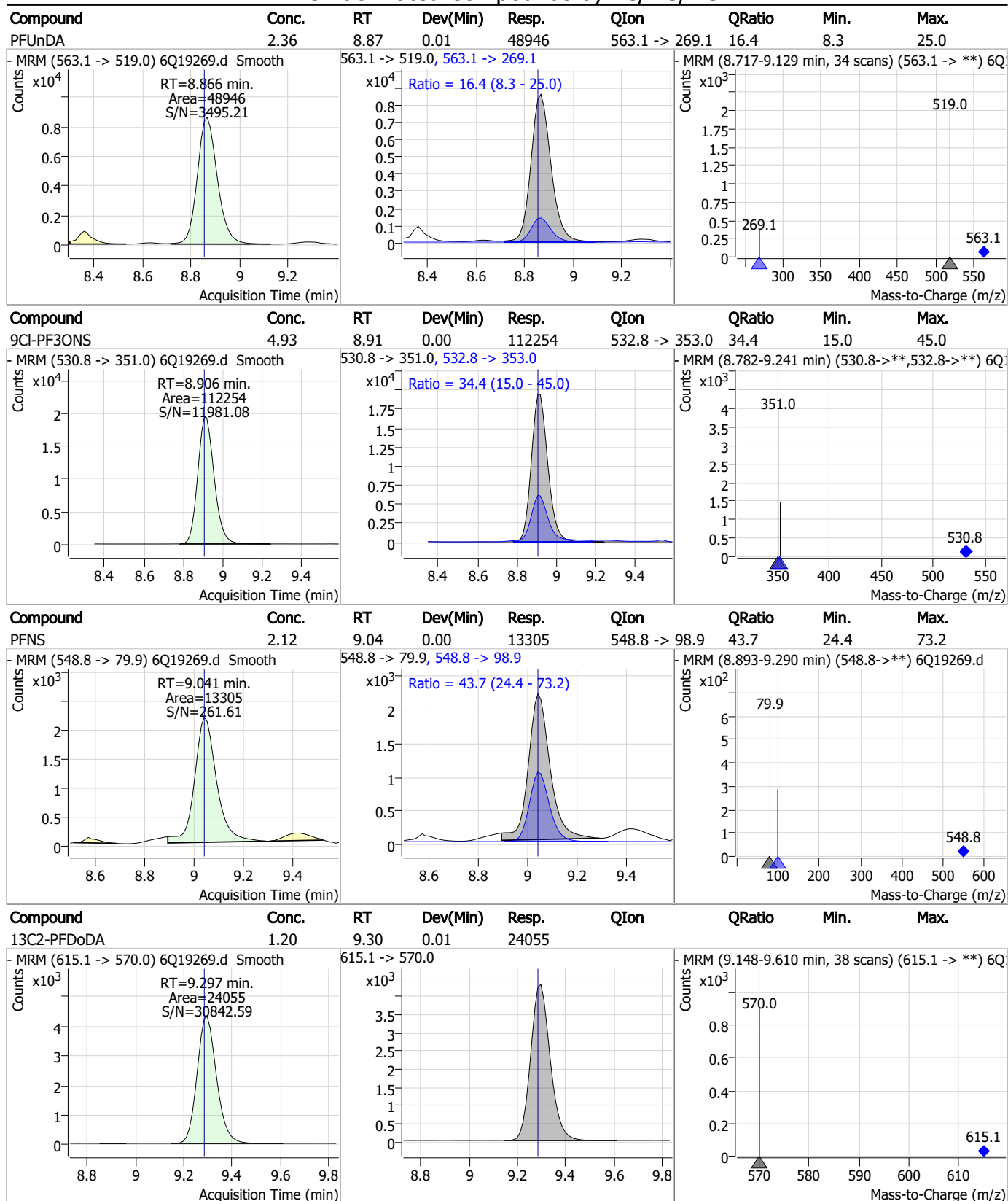
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.16	8.62	-0.01	10630 (m)	584.2 -> 526.0	54.2	25.1	75.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.21	8.87	0.01	28264				

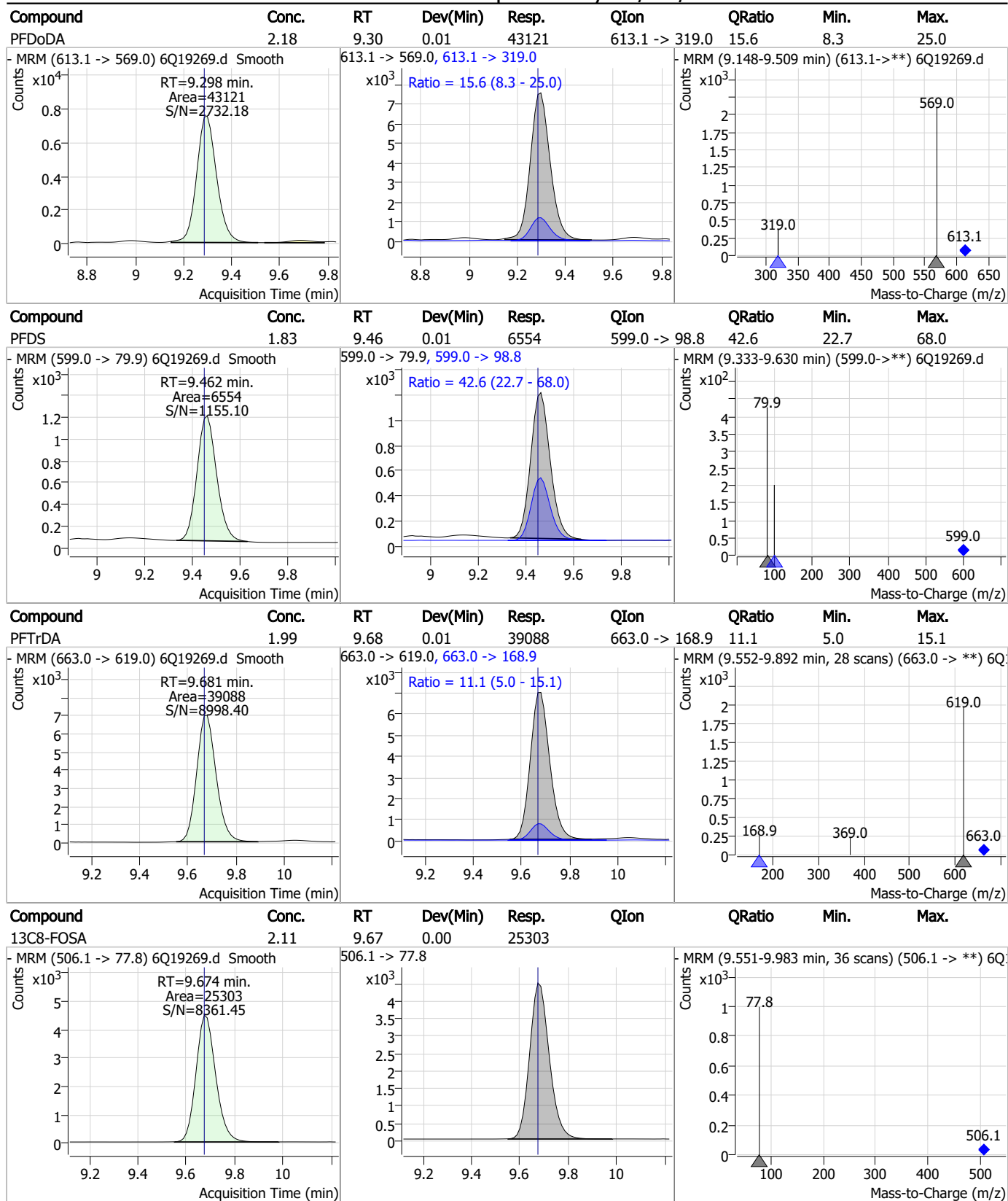


Perfluorinated Compounds by LC/MS/MS



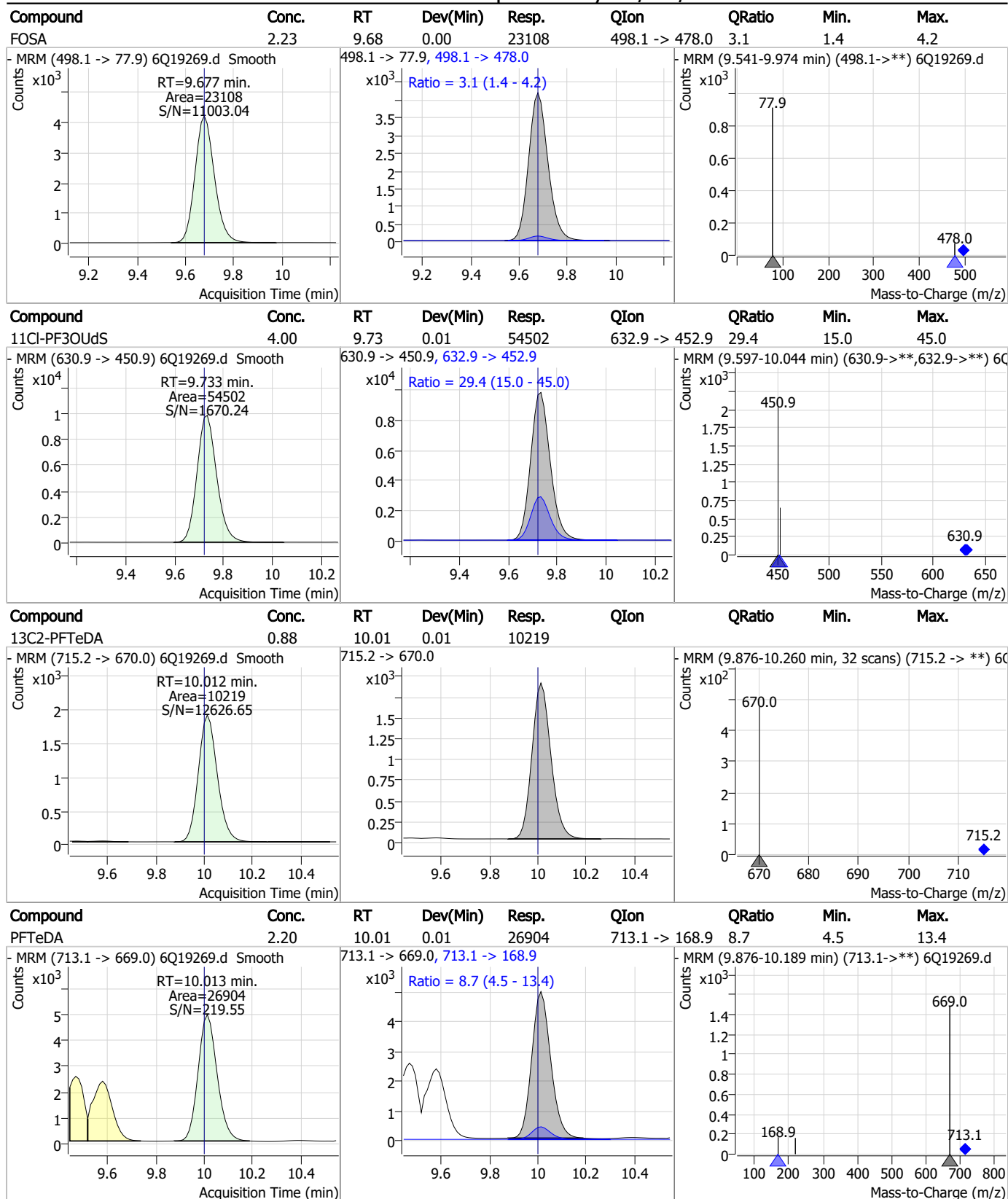
7.4.1
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Perfluorinated Compounds by LC/MS/MS



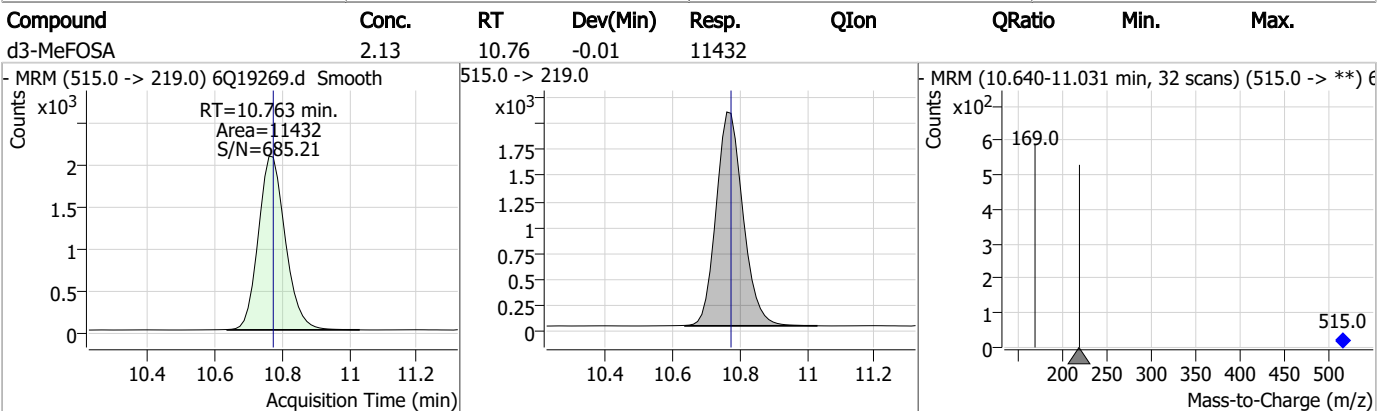
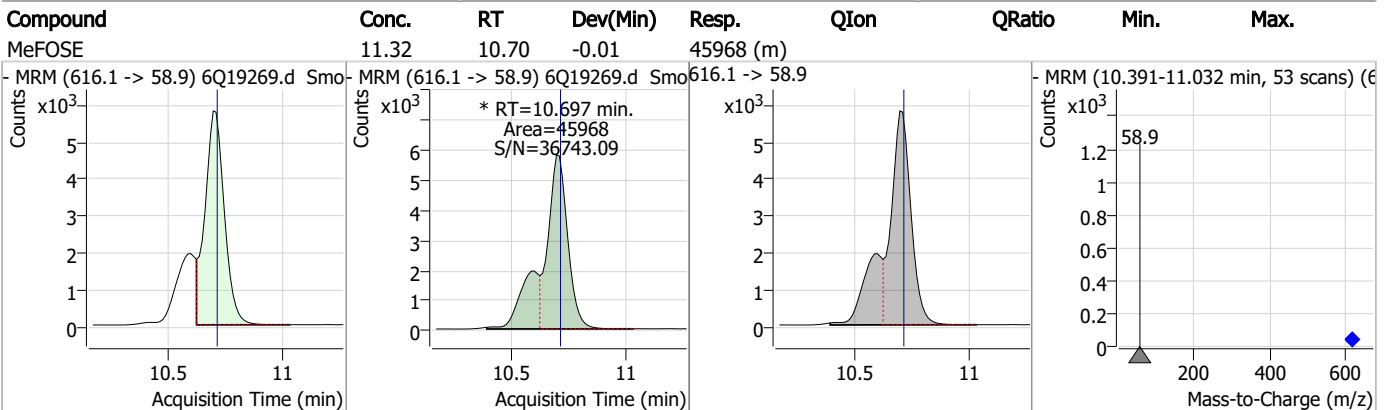
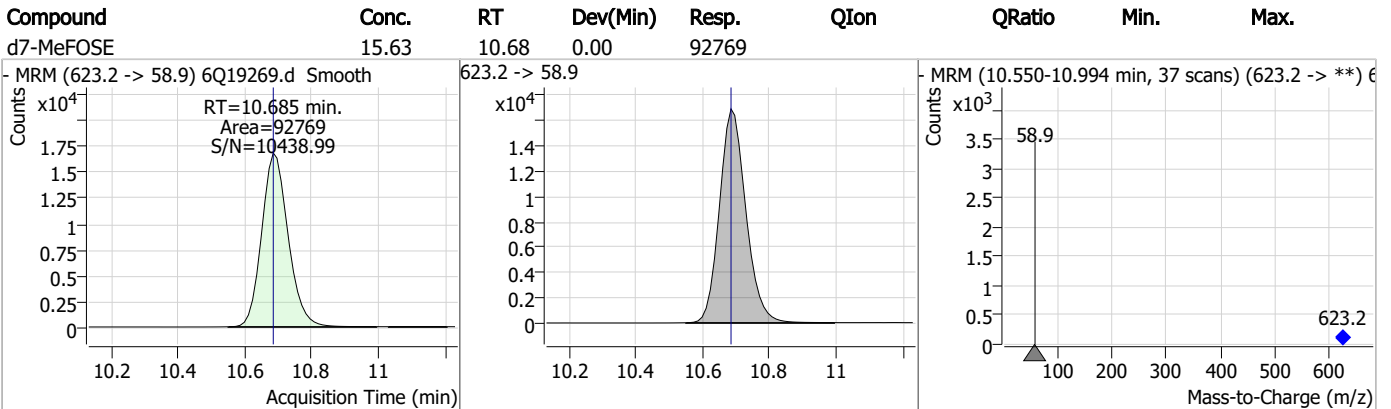
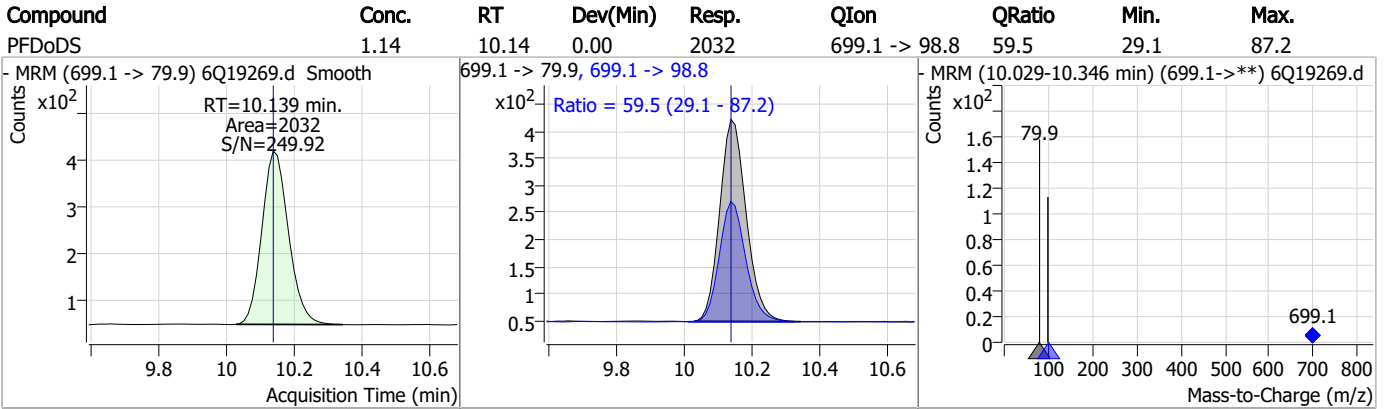
7.4.1
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Perfluorinated Compounds by LC/MS/MS

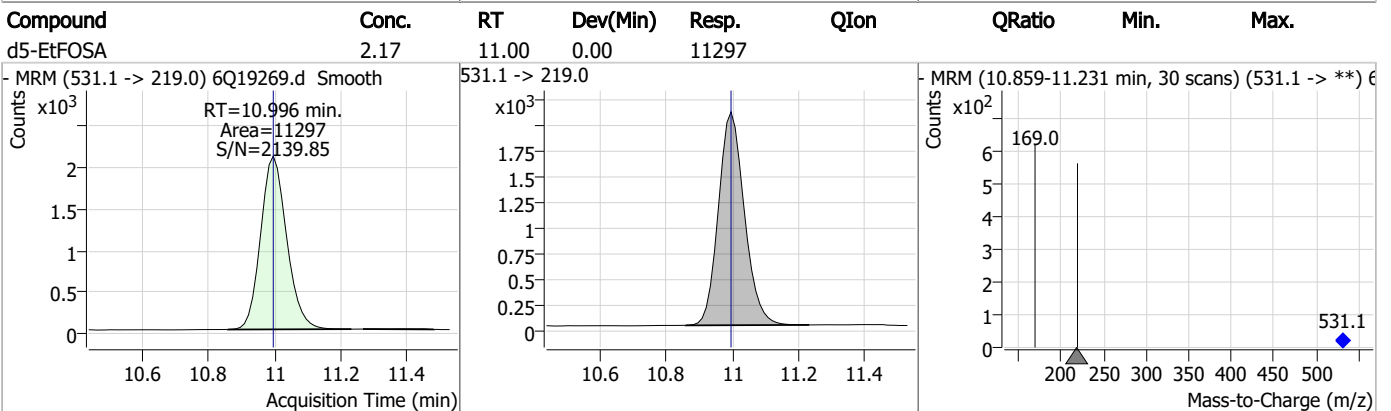
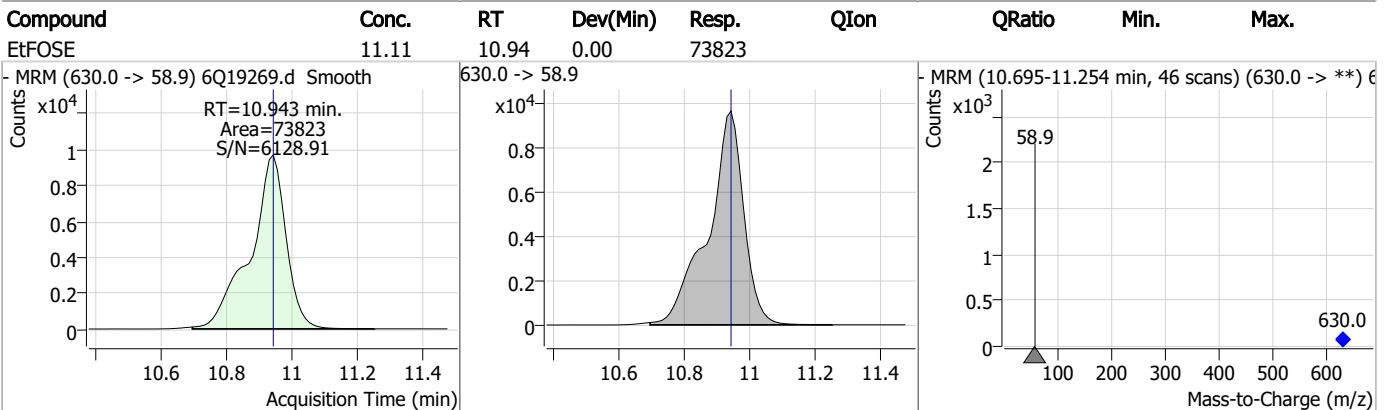
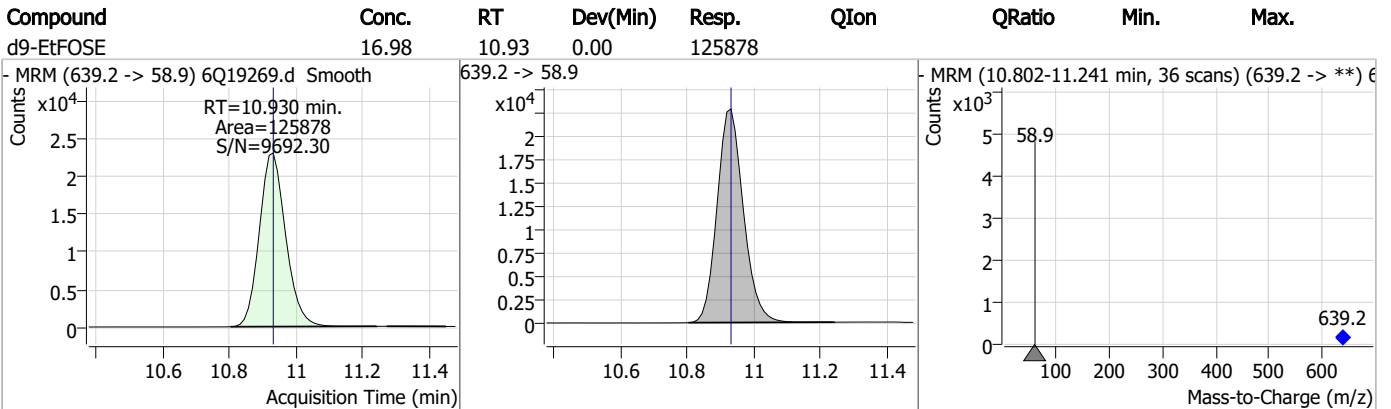
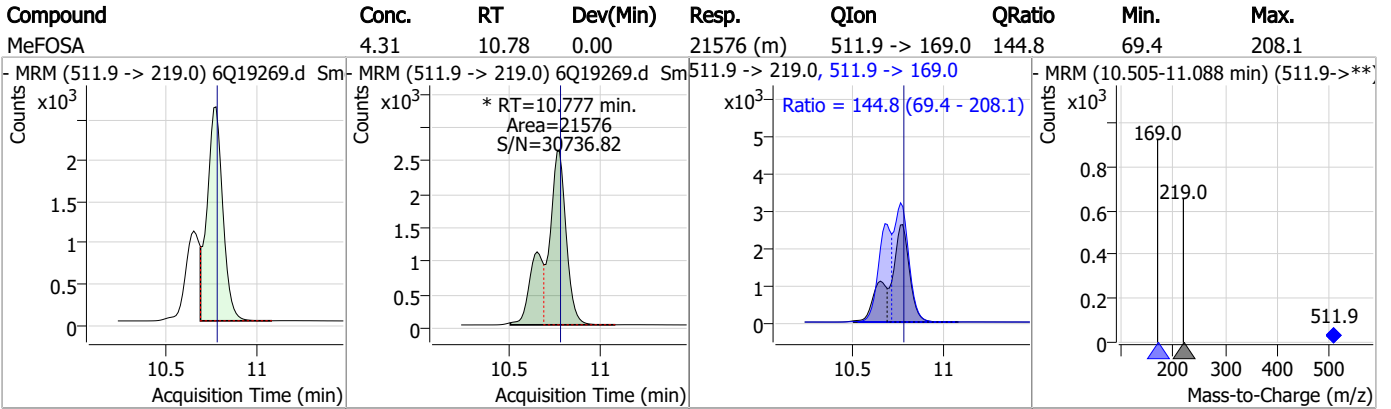


7.4.1
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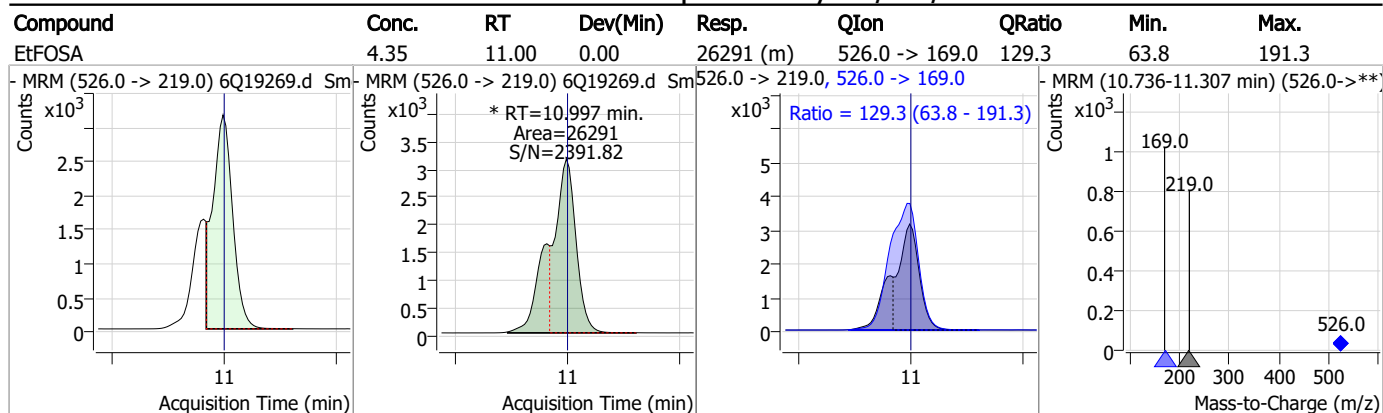
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Manual Integration Approval Summary

Sample Number: OP97275-MS **Method:** EPA DRAFT 1633
Lab FileID: 6Q19269.D **Analyst approved:** 06/13/23 13:40 Natasha Gumtie
Injection Time: 06/12/23 22:33 **Supervisor approved:** 06/13/23 13:43 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
3:3 Fluorotelomer carboxylate	356-02-5		3.97	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.41	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.55	Split peak
EtFOSAA	2991-50-6		8.62	Split peak
MeFOSE	24448-09-7		10.70	Split peak
MeFOSA	31506-32-8		10.78	Split peak
EtFOSA	4151-50-2		11.00	Split peak

7.4.1.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19275.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 11:57:47 PM
 Sample Name : op97275-dup
 Vial : P2-C2
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97275,S6Q287,570,,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	160655	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	54297	5.00 µg/L	0.000
M5-PFHxA	5.804	318.0 -> 273.0	58999	2.50 µg/L	0.012
M4-PFHpA	6.719	367.1 -> 322.0	55766	2.50 µg/L	0.012
M8-PFOA	7.352	421.1 -> 376.0	82399	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	41971	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	24815	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	26763	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	22941	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	12656	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	25097	2.50 µg/L	0.000
M3-PFBS	5.759	302.1 -> 79.9	23054	2.50 µg/L	0.012
M3-PFHxS	7.478	402.1 -> 79.9	13254	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	11143	2.50 µg/L	0.000
M2-4:2FTS	5.454	329.1 -> 80.9	3769	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	5497	5.00 µg/L	0.000
M2-8:2FTS	8.175	529.1 -> 80.9	4607	5.00 µg/L	0.012
M3-MeFOSAA	8.420	573.2 -> 419.0	28941	5.00 µg/L	0.012
M3-HFPO-DA	6.181	286.9 -> 168.9	34946	10.00 µg/L	0.012
M5-EtFOSAA	8.628	589.2 -> 419.0	25029	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	94393	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	138478	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	11282	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	10246	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	14400	2.50 µg/L	0.000
13C3-PFBA	3.101	216.0 -> 172.0	60101	5.00 µg/L	0.012
18O2-PFHxS	7.490	403.0 -> 83.9	9141	2.50 µg/L	0.012
13C4-PFOA	7.352	417.1 -> 372.0	80015	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	29208	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	43269	1.25 µg/L	0.013
13C2-PFHxA	5.805	315.1 -> 270.0	48351	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3769	6.70 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 133.9%		
13C2-6:2FTS	7.113	429.1 -> 80.9	5497	6.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 130.0%		
13C2-8:2FTS	8.175	529.1 -> 80.9	4607	5.68 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.7%		
13C2-PFDoDA	9.297	615.1 -> 570.0	22941	1.18 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C2-PFTeDA	10.012	715.2 -> 670.0	12656	1.12 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.3%		
13C3-PFBS	5.759	302.1 -> 79.9	23054	2.98 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 119.4%		
13C3-PFHxS	7.478	402.1 -> 79.9	13254	2.73 µg/L	0.000

7.5.1
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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 = 109.2%	
13C4-PFBA	3.097	216.8 -> 171.9	160655	11.38 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.8%	
13C4-PFHpA	6.719	367.1 -> 322.0	55766	2.87 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.8%	
13C5-PFHxA	5.804	318.0 -> 273.0	58999	2.82 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.9%	
13C5-PFPeA	4.560	268.3 -> 223.0	54297	5.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.2%	
13C6-PFDA	8.387	519.1 -> 474.1	24815	1.54 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 123.2%	
13C7-PFUnDA	8.866	570.0 -> 525.1	26763	1.18 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C8-FOSA	9.674	506.1 -> 77.8	25097	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.1%	
13C8-PFOA	7.352	421.1 -> 376.0	82399	2.76 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.4%	
13C8-PFOS	8.563	507.1 -> 79.9	11143	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C9-PFNA	7.895	472.1 -> 427.0	41971	1.59 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 127.2%	
d3-MeFOSAA	8.420	573.2 -> 419.0	28941	5.36 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C3-HFPO-DA	6.181	286.9 -> 168.9	34946	10.55 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
d3-MeFOSA	10.775	515.0 -> 219.0	10246	2.14 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.6%	
d5-EtFOSAA	8.628	589.2 -> 419.0	25029	5.49 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.8%	
d7-MeFOSE	10.685	623.2 -> 58.9	94393	17.86 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 71.4%	
d9-EtFOSE	10.930	639.2 -> 58.9	138478	20.98 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.9%	
d5-EtFOSA	10.996	531.1 -> 219.0	11282	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
Target Compounds					QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	7.113	427.1 -> 407.0 427.1 -> 80.9	4142 1316	0.62 µg/L	92
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.	
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	9.685	613.1 -> 569.0 613.1 -> 319.0	0 0	µg/L	m 1
PFDS	-	599.0 -> 79.9	-	N.D.	

7.5.1
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	8.355	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	0	N.D.		
		548.8 -> 79.9				
PFOA	7.898	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	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
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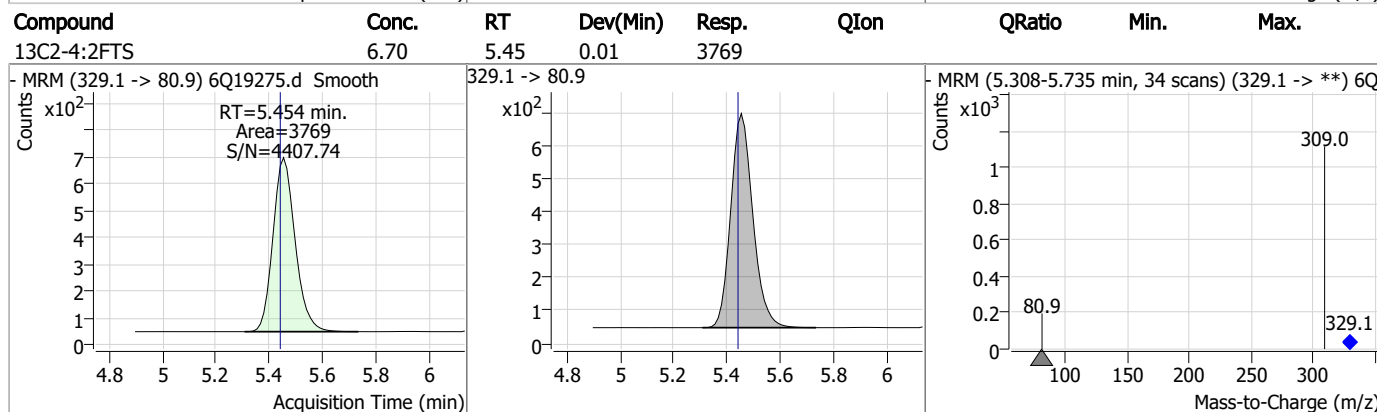
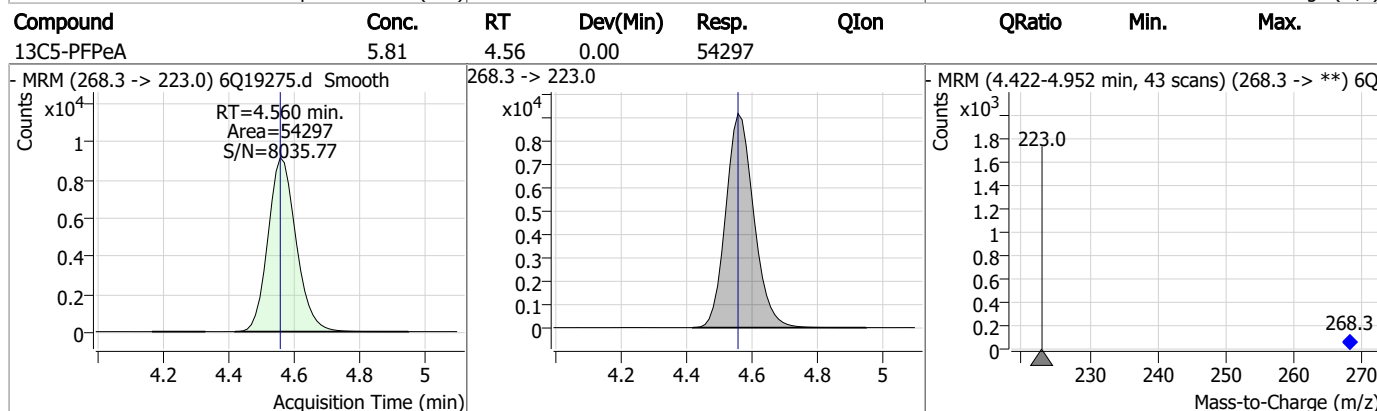
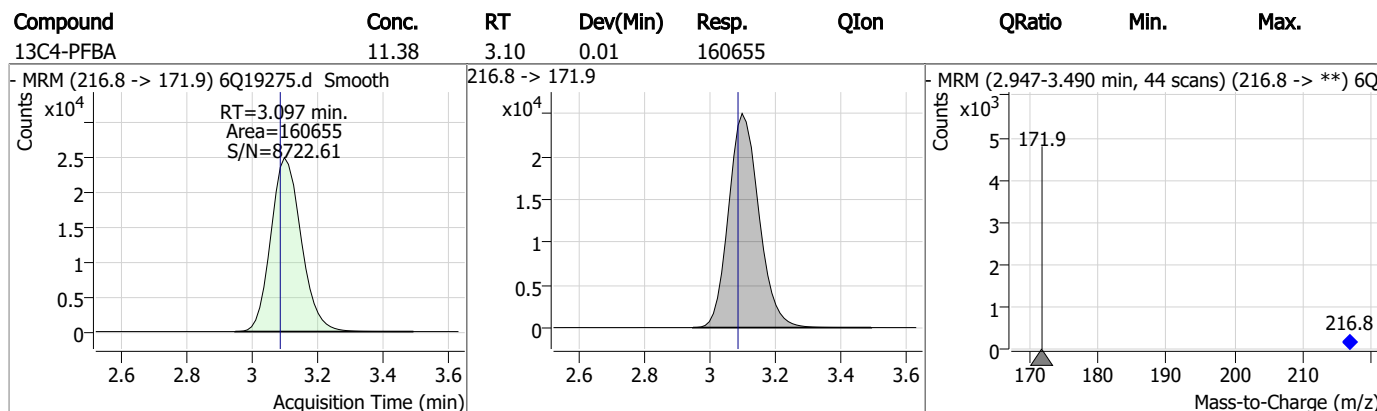
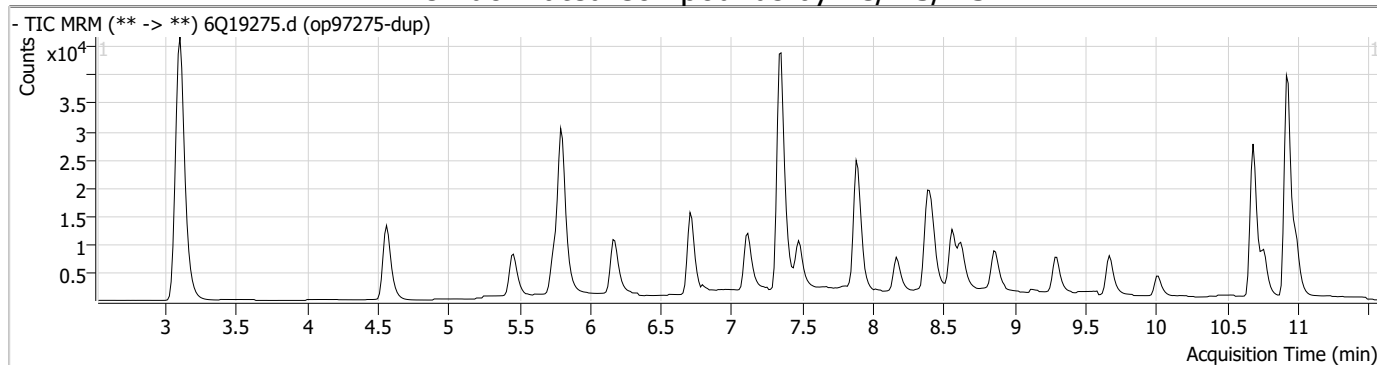
Perfluorinated Compounds by LC/MS/MS

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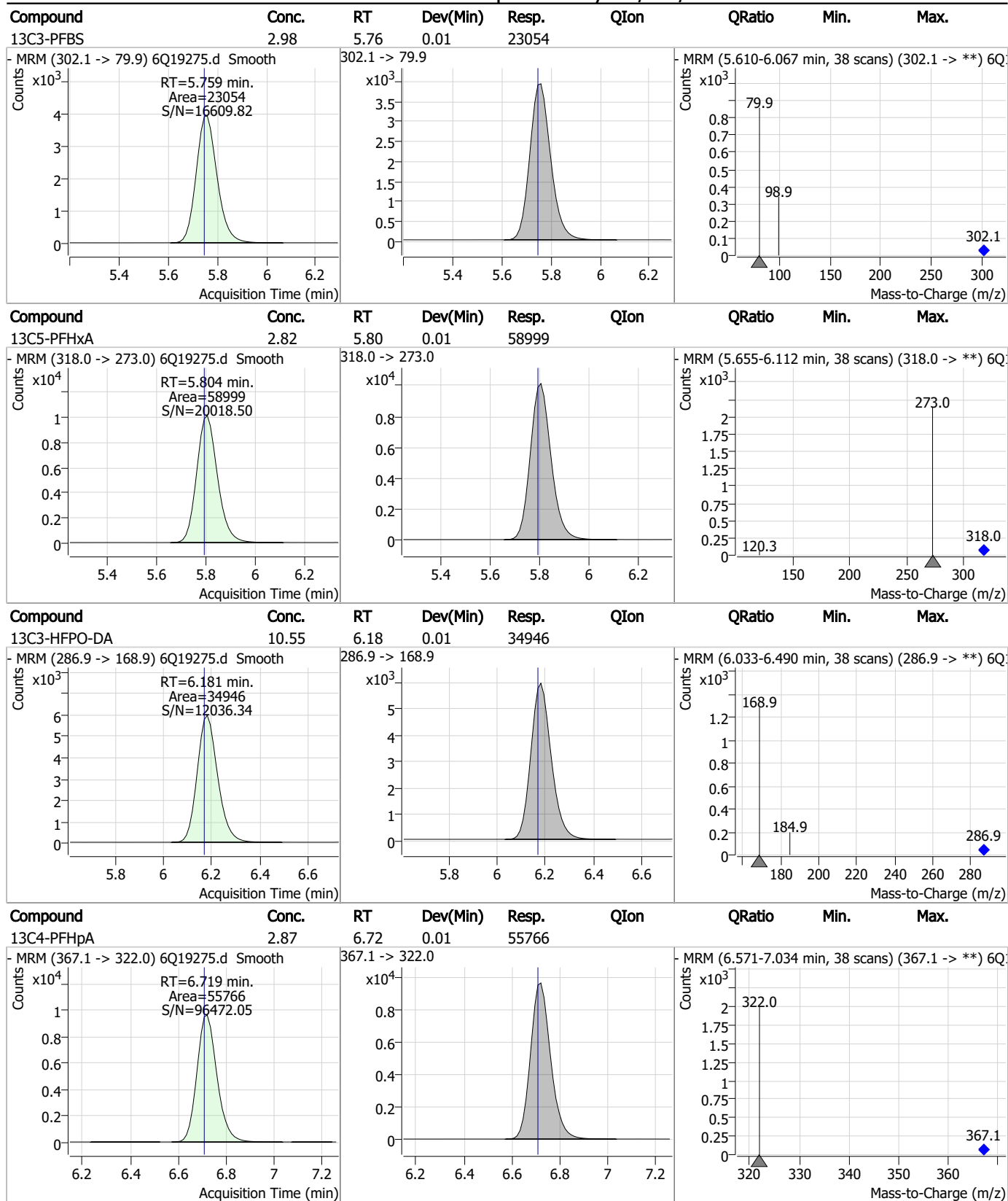
7.5.1

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Perfluorinated Compounds by LC/MS/MS

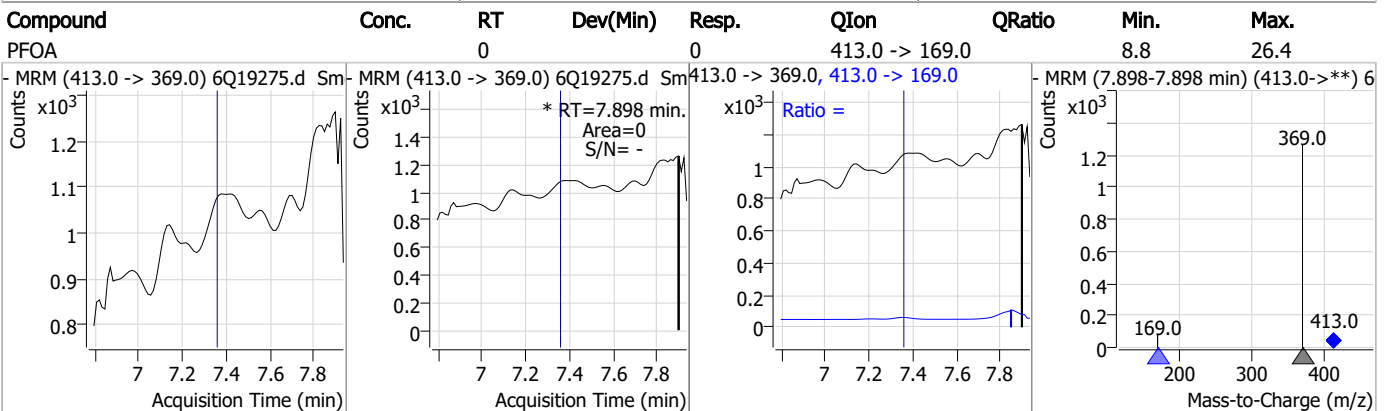
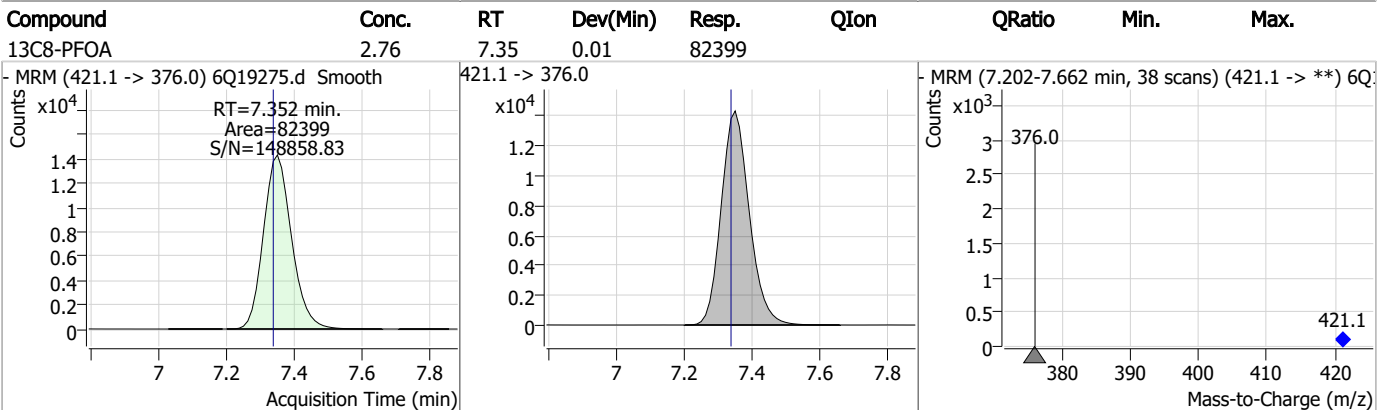
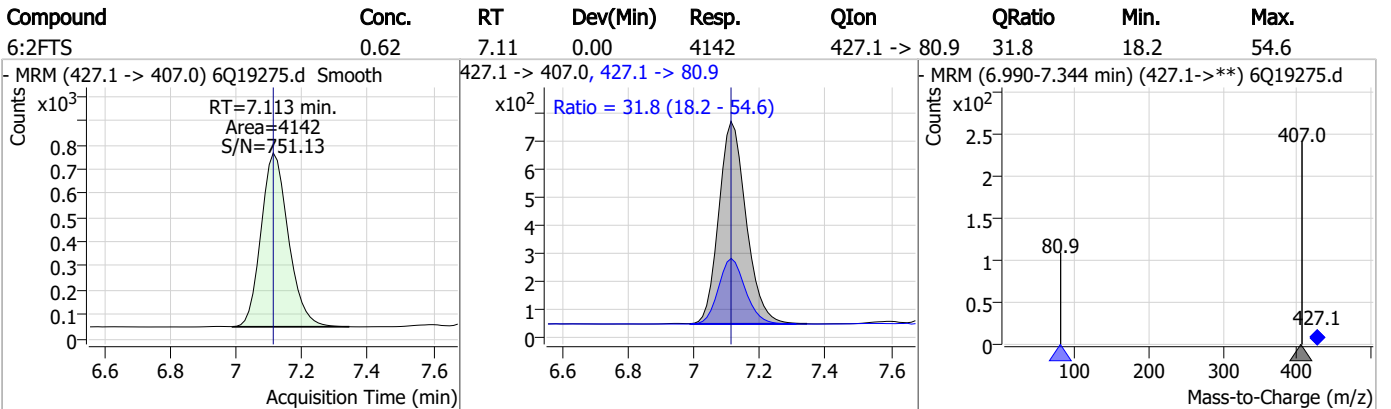
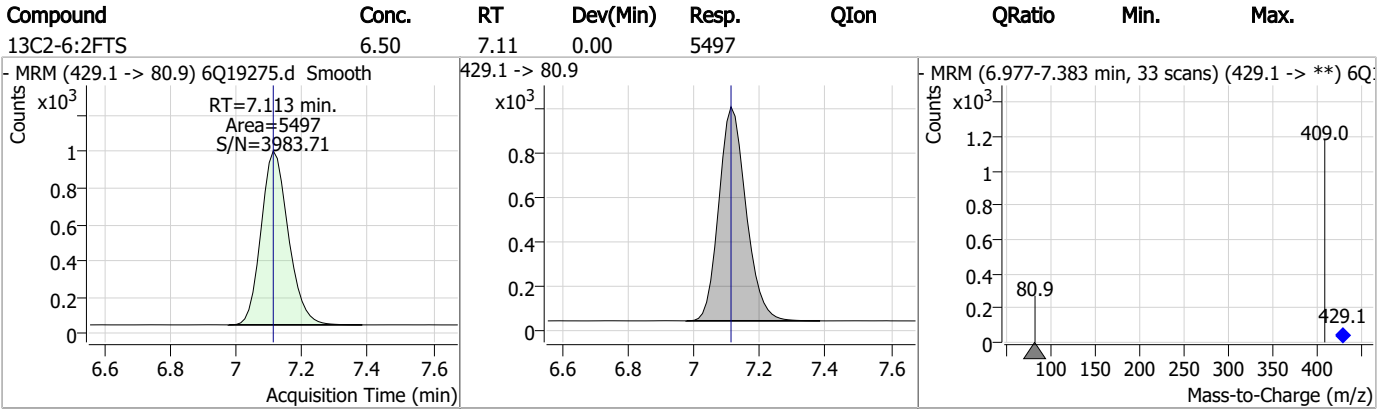


Perfluorinated Compounds by LC/MS/MS

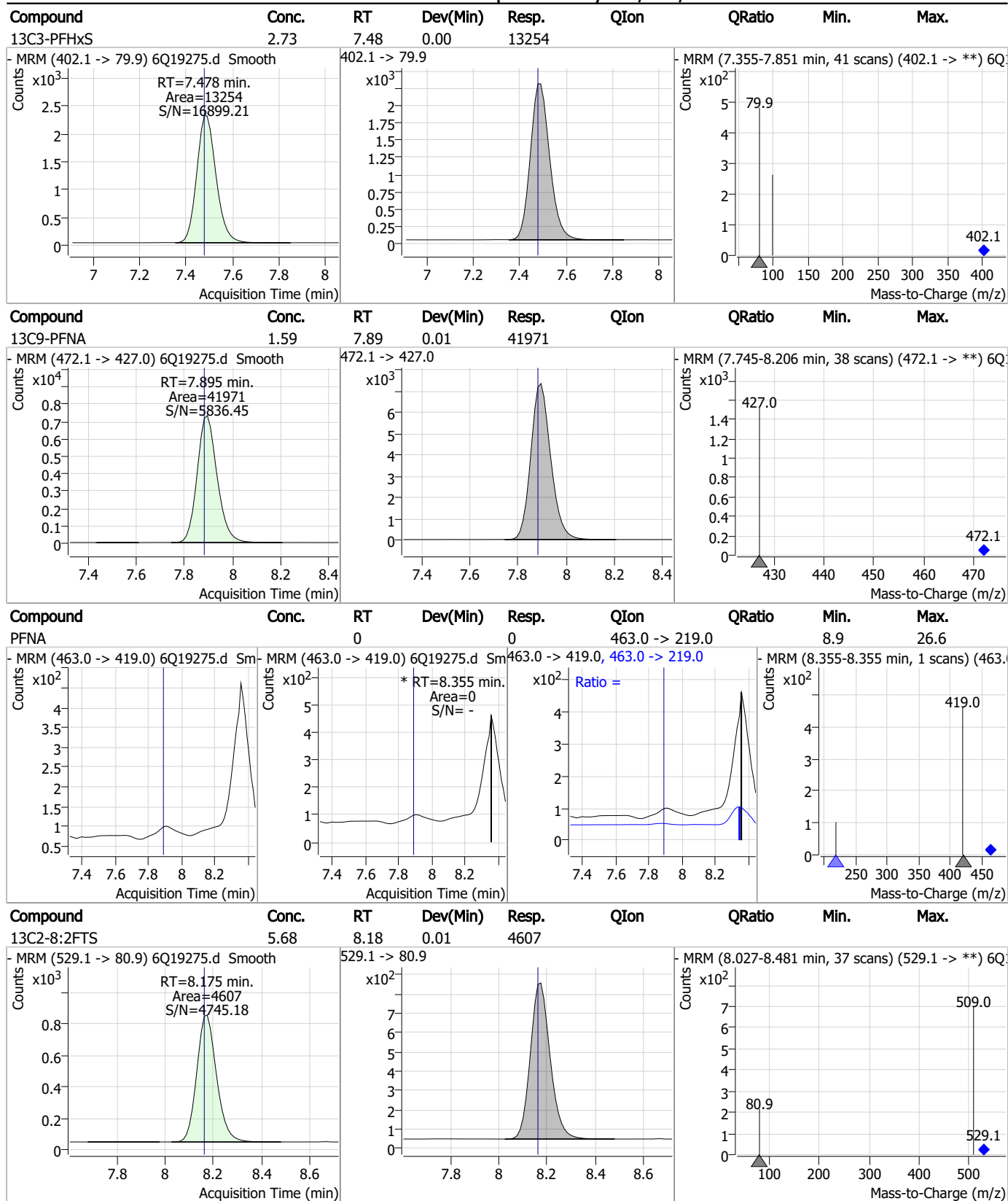


7.5.1
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.5.1
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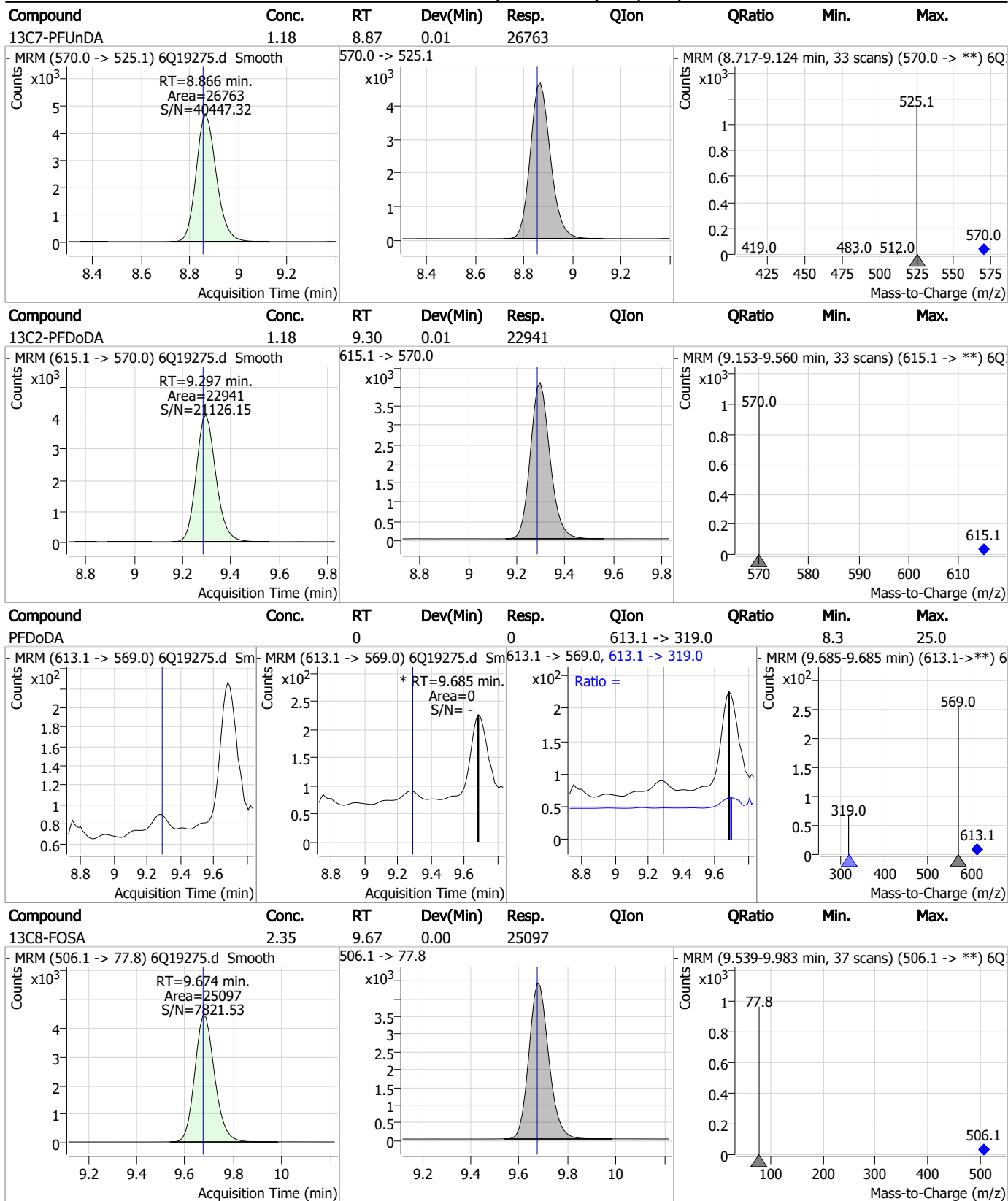
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.54	8.39	0.00	24815				
<p>MRM (519.1 -> 474.1) 6Q19275.d Smooth RT=8.387 min. Area=24815 S/N=5836.75</p>			<p>519.1 -> 474.1</p>			<p>MRM (8.250-8.697 min, 37 scans) (519.1 -> **) 6Q19275.d Smooth</p>		
d3-MeFOSAA	5.36	8.42	0.01	28941				
<p>MRM (573.2 -> 419.0) 6Q19275.d Smooth RT=8.420 min. Area=28941 S/N=5871.17</p>			<p>573.2 -> 419.0</p>			<p>MRM (8.272-8.729 min, 38 scans) (573.2 -> **) 6Q19275.d Smooth</p>		
13C8-PFOS	2.64	8.56	0.00	11143				
<p>MRM (507.1 -> 79.9) 6Q19275.d Smooth RT=8.563 min. Area=11143 S/N=1871.18</p>			<p>507.1 -> 79.9</p>			<p>MRM (8.438-8.883 min, 37 scans) (507.1 -> **) 6Q19275.d Smooth</p>		
d5-EtFOSAA	5.49	8.63	0.01	25029				
<p>MRM (589.2 -> 419.0) 6Q19275.d Smooth RT=8.628 min. Area=25029 S/N=76427.57</p>			<p>589.2 -> 419.0</p>			<p>MRM (8.480-8.939 min, 38 scans) (589.2 -> **) 6Q19275.d Smooth</p>		

7.5.1
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Perfluorinated Compounds by LC/MS/MS



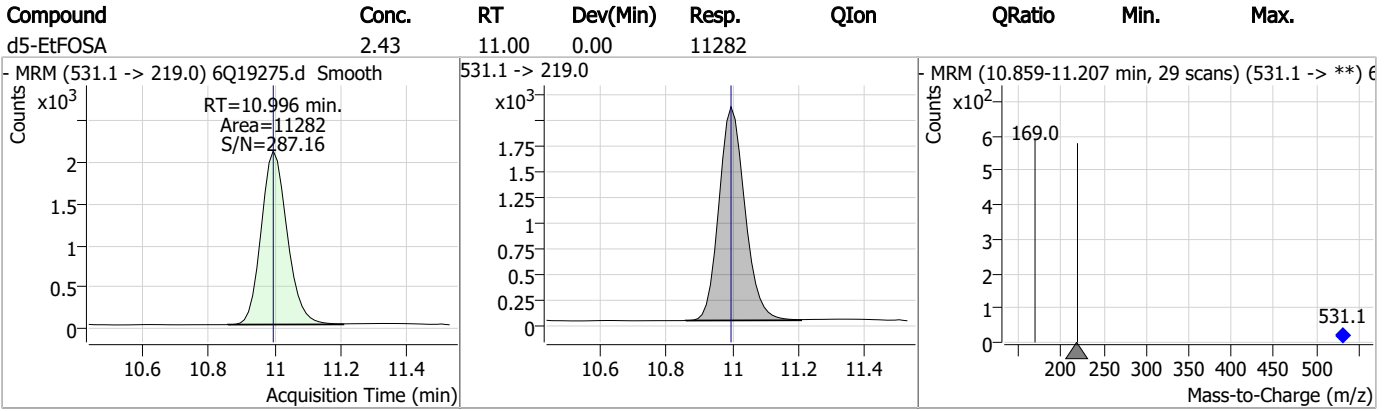
7.5.1
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.12	10.01	0.01	12656				
d7-MeFOSE	17.86	10.68	0.00	94393				
d3-MeFOSA	2.14	10.78	0.00	10246				
d9-EtFOSE	20.98	10.93	0.00	138478				

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

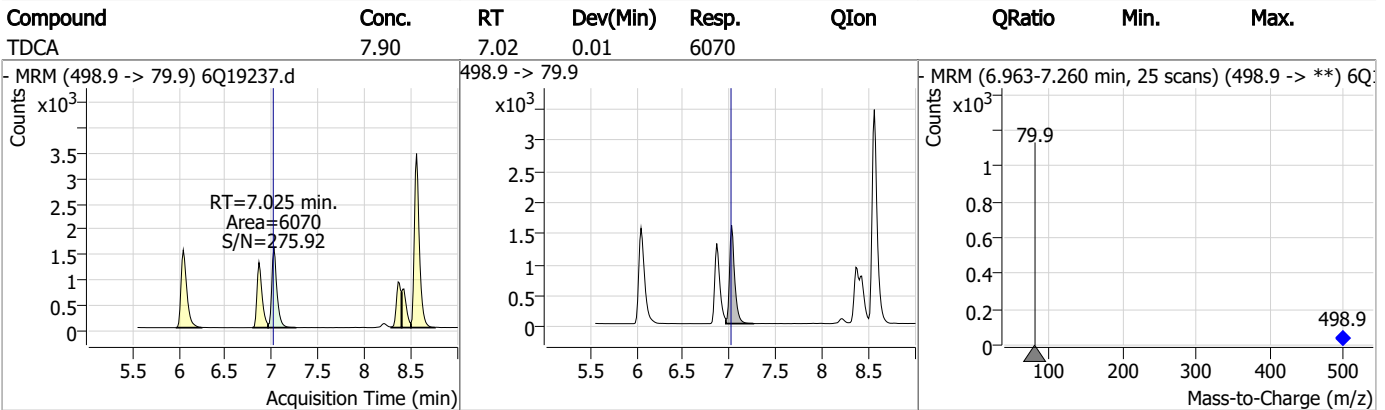
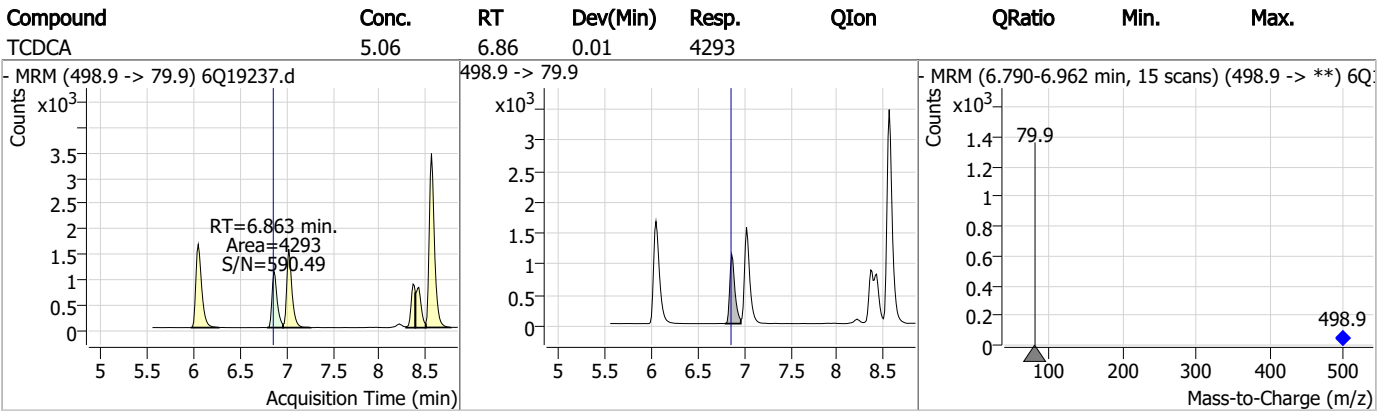
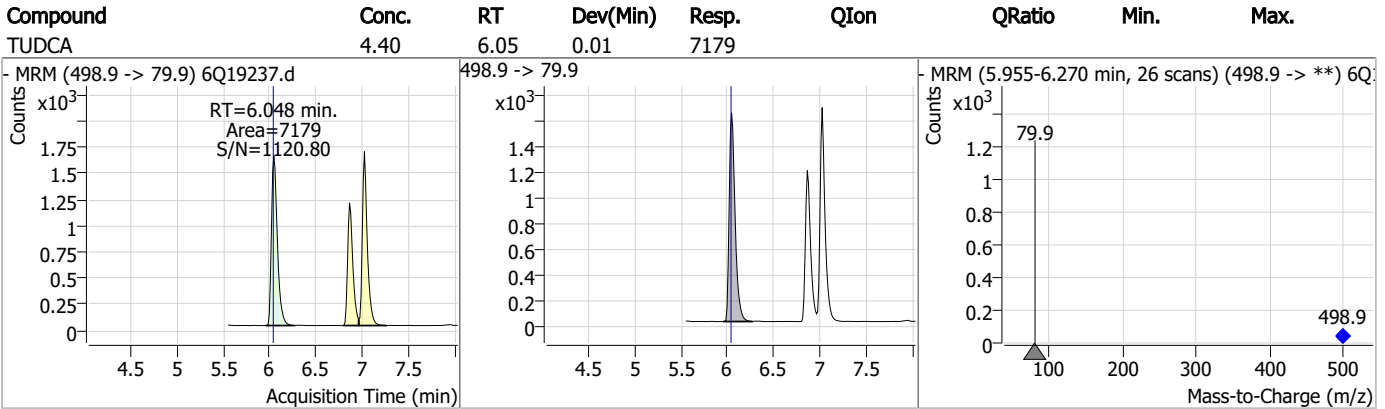
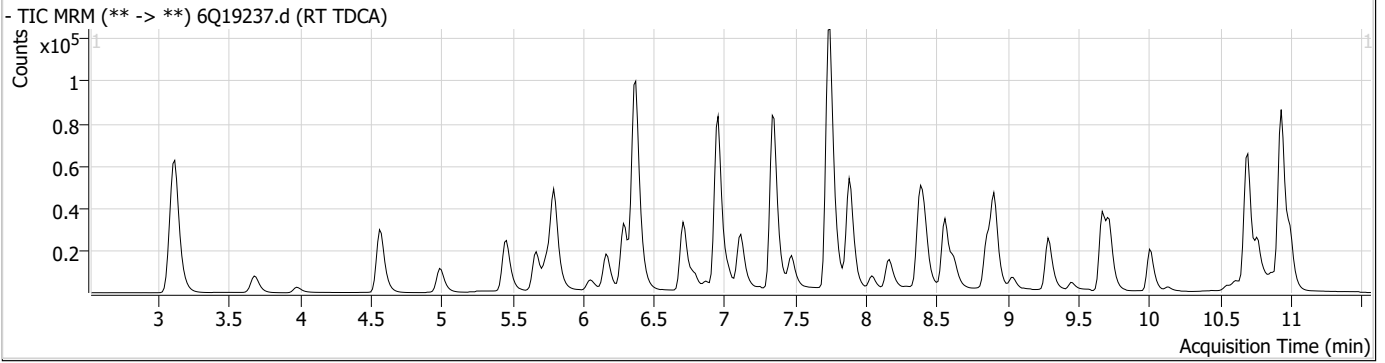
Data File : 6Q19237.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 3:06:30 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q287 TDCA.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.563	507.1 -> 79.9	18396	2.50	µg/L	-0.008	
13C4-PFOS	8.563	502.8 -> 79.9	21725	2.50	µg/L	-0.008	
System Monitoring Compounds							
13C8-PFOS	8.563	507.1 -> 79.9	18396	2.15	µg/L	-0.008	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 85.9%				
Target Compounds							
PFOS	8.564	498.9 -> 79.9 498.9 -> 98.8	18527 8860	2.95	µg/L	m	91
TCDCa	6.863	498.9 -> 79.9	4293	5.06	ng/ml		100
TDCA	7.025	498.9 -> 79.9	6070	7.90	ng/ml		100
TUDCA	6.048	498.9 -> 79.9	7179	4.40	ng/ml		100

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

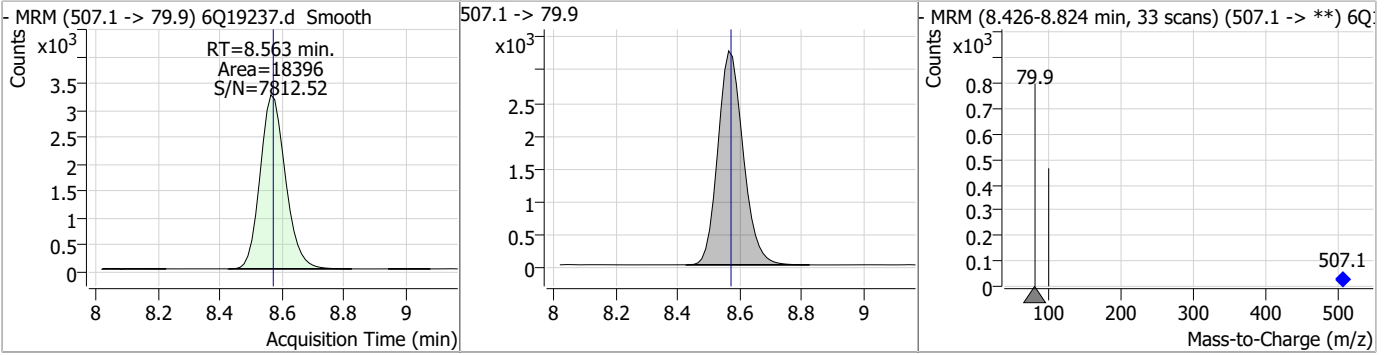
7.6.1
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Perfluorinated Compounds by LC/MS/MS

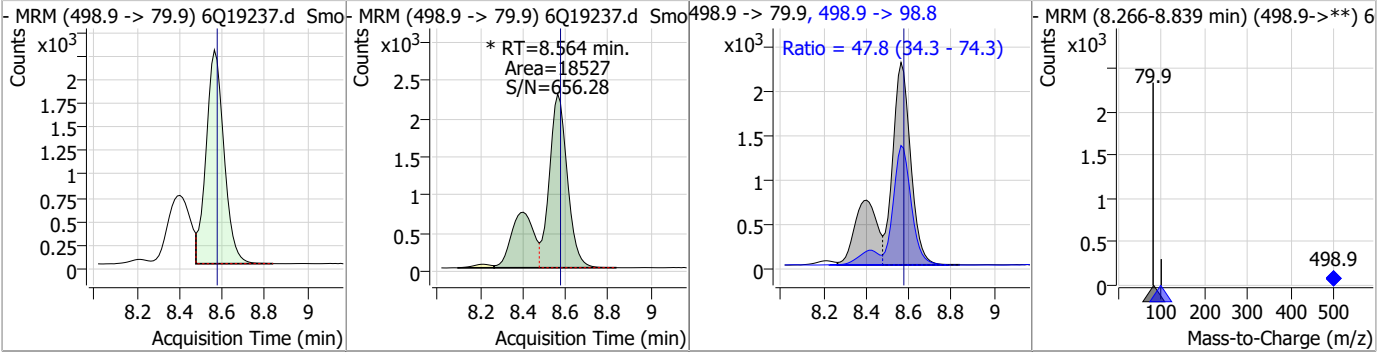


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.15	8.56	-0.01	18396				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.95	8.56	-0.01	18527 (m)	498.9 -> 98.8	47.8	34.3	74.3



7.6.1

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Manual Integration Approval Summary

Sample Number: S6Q287-RT Method: EPA DRAFT 1633
Lab FileID: 6Q19237.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 15:06 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19238.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 3:20:32 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	173502	10.00 µg/L	0.012
M5-PFPeA	4.573	268.3 -> 223.0	58399	5.00 µg/L	0.012
M5-PFHxA	5.804	318.0 -> 273.0	64389	2.50 µg/L	0.012
M4-PFHpA	6.719	367.1 -> 322.0	58907	2.50 µg/L	0.012
M8-PFOA	7.352	421.1 -> 376.0	94648	2.50 µg/L	0.012
M9-PFNA	7.882	472.1 -> 427.0	43435	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	28274	1.25 µg/L	0.000
M7-PFUnDA	8.853	570.0 -> 525.1	36802	1.25 µg/L	0.000
M2-PFDoDA	9.285	615.1 -> 570.0	32345	1.25 µg/L	0.000
M2-PFTeDA	10.012	715.2 -> 670.0	18717	1.25 µg/L	0.012
M8-FOSA	9.687	506.1 -> 77.8	33070	2.50 µg/L	0.012
M3-PFBS	5.771	302.1 -> 79.9	23859	2.50 µg/L	0.025
M3-PFHxS	7.478	402.1 -> 79.9	14887	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	14717	2.50 µg/L	0.000
M2-4:2FTS	5.454	329.1 -> 80.9	3237	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	4723	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4668	5.00 µg/L	0.000
M3-MeFOSAA	8.407	573.2 -> 419.0	33909	5.00 µg/L	0.000
M3-HFPO-DA	6.181	286.9 -> 168.9	41422	10.00 µg/L	0.012
M5-EtFOSAA	8.615	589.2 -> 419.0	30490	5.00 µg/L	0.000
M7-MeFOSE	10.696	623.2 -> 58.9	159432	25.00 µg/L	0.011
M9-EtFOSE	10.930	639.2 -> 58.9	204912	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	13479	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	14229	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	18304	2.50 µg/L	0.000
13C3-PFBA	3.101	216.0 -> 172.0	72393	5.00 µg/L	0.012
18O2-PFHxS	7.490	403.0 -> 83.9	10881	2.50 µg/L	0.012
13C4-PFOA	7.352	417.1 -> 372.0	99779	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	34220	1.25 µg/L	0.000
13C5-PFNA	7.882	468.0 -> 423.0	56442	1.25 µg/L	0.000
13C2-PFHxA	5.805	315.1 -> 270.0	60834	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3237	4.83 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4723	4.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4668	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C2-PFDoDA	9.285	615.1 -> 570.0	32345	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C2-PFTeDA	10.012	715.2 -> 670.0	18717	1.41 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 112.8%		
13C3-PFBS	5.771	302.1 -> 79.9	23859	2.59 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C3-PFHxS	7.478	402.1 -> 79.9	14887	2.58 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 = 103.1%	
13C4-PFBA	3.097	216.8 -> 171.9	173502	10.21 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C4-PFHpA	6.719	367.1 -> 322.0	58907	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C5-PFHxA	5.804	318.0 -> 273.0	64389	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C5-PFPeA	4.573	268.3 -> 223.0	58399	4.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C6-PFDA	8.387	519.1 -> 474.1	28274	1.50 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 119.8%	
13C7-PFUnDA	8.853	570.0 -> 525.1	36802	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.6%	
13C8-FOSA	9.687	506.1 -> 77.8	33070	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C8-PFOA	7.352	421.1 -> 376.0	94648	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C8-PFOS	8.563	507.1 -> 79.9	14717	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C9-PFNA	7.882	472.1 -> 427.0	43435	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.9%	
d3-MeFOSAA	8.407	573.2 -> 419.0	33909	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C3-HFPO-DA	6.181	286.9 -> 168.9	41422	9.93 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
d3-MeFOSA	10.775	515.0 -> 219.0	14229	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
d5-EtFOSAA	8.615	589.2 -> 419.0	30490	5.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
d7-MeFOSE	10.696	623.2 -> 58.9	159432	23.73 µg/L	0.011
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.9%	
d9-EtFOSE	10.930	639.2 -> 58.9	204912	24.42 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d5-EtFOSA	10.996	531.1 -> 219.0	13479	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.4%	
Target Compounds					QValue
4:2FTS	5.455	327.1 -> 307.0	200424	35.74 µg/L	100
		327.1 -> 80.9	74272		
6:2FTS	7.113	427.1 -> 407.0	206575	36.20 µg/L	94
		427.1 -> 80.9	67661		
8:2FTS	8.164	527.1 -> 507.0	114917	37.02 µg/L	98
		527.1 -> 80.8	43707		
EtFOSAA	8.617	584.2 -> 419.1	47559	9.39 µg/L	m 95
		584.2 -> 526.0	25511		
FOSA	9.677	498.1 -> 77.9	326935	24.09 µg/L	m 99
		498.1 -> 478.0	10156		
MeFOSAA	8.421	570.1 -> 419.0	86013	10.43 µg/L	m 99
		570.1 -> 483.0	17235		
PFBA	3.106	212.8 -> 168.9	264536	38.24 µg/L	100
PFBS	5.772	298.7 -> 79.9	90349	8.63 µg/L	97
		298.7 -> 98.8	32966		
PFDA	8.388	512.9 -> 469.0	399881	9.46 µg/L	98
		512.9 -> 219.0	55834		
PFDoDA	9.298	613.1 -> 569.0	253782	9.55 µg/L	96
		613.1 -> 319.0	37531		
PFDS	9.462	599.0 -> 79.9	33820	7.61 µg/L	85

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	18719			
PFHpA	6.720	363.1 -> 319.0	305757	9.69	µg/L	98
		363.1 -> 169.0	51263			
PFHpS	8.059	449.0 -> 79.9	78314	8.84	µg/L	92
		449.0 -> 98.9	34179			
PFHxA	5.807	313.0 -> 269.0	242020	9.38	µg/L	99
		313.0 -> 118.9	12447			
PFHxS	7.479	398.7 -> 79.9	72509	8.10	µg/L	m 97
		398.7 -> 98.9	35172			
PFNA	7.883	463.0 -> 419.0	766460	19.23	µg/L	m 93
		463.0 -> 219.0	158139			
PFNS	9.041	548.8 -> 79.9	67405	8.66	µg/L	99
		548.8 -> 98.9	33222			
PFOA	7.353	413.0 -> 369.0	991379	20.42	µg/L	m 96
		413.0 -> 169.0	190070			
PFOS	8.564	498.9 -> 79.9	67730	7.81	µg/L	m 100
		498.9 -> 98.8	35329			
PFPeA	4.576	263.0 -> 219.0	319731	18.61	µg/L	100
PFPeS	6.798	349.1 -> 79.9	74221	9.02	µg/L	99
		349.1 -> 98.9	33411			
PFTeDA	10.013	713.1 -> 669.0	222518	9.94	µg/L	98
		713.1 -> 168.9	18309			
PFTrDA	9.669	663.0 -> 619.0	241848	9.34	µg/L	97
		663.0 -> 168.9	26623			
PFUnDA	8.854	563.1 -> 519.0	277909	10.29	µg/L	97
		563.1 -> 269.1	42250			
11CI-PF3OUdS	9.721	630.9 -> 450.9	362129	18.55	µg/L	99
		632.9 -> 452.9	109872			
9CI-PF3ONS	8.918	530.8 -> 351.0	546221	16.75	µg/L	93
		532.8 -> 353.0	185484			
ADONA	6.959	376.9 -> 250.9	1230700	17.56	µg/L	100
		376.9 -> 84.8	344861			
HFPO-DA	6.182	284.9 -> 168.9	80171	18.09	µg/L	96
		284.9 -> 184.9	9997			
3:3FTCA	3.958	241.0 -> 177.0	54264	46.18	µg/L	100
		241.0 -> 117.0	7244			
5:3FTCA	6.374	341.0 -> 237.1	1212372	242.35	µg/L	94
		341.0 -> 217.0	846175			
7:3FTCA	7.736	441.0 -> 316.9	812285	226.88	µg/L	93
		441.0 -> 336.9	1966703			
EtFOSA	11.010	526.0 -> 219.0	264084	36.58	µg/L	m 98
		526.0 -> 169.0	342354			
EtFOSE	10.943	630.0 -> 58.9	691533	63.92	µg/L	100
MeFOSA	10.777	511.9 -> 219.0	222991	35.75	µg/L	m 100
		511.9 -> 169.0	310572			
MeFOSE	10.709	616.1 -> 58.9	462834	66.33	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	20059	9.07	µg/L	95
		699.1 -> 98.8	10882			
NFDHA	5.686	295.0 -> 201.0	64166	19.65	µg/L	90
		295.0 -> 84.9	15277			
PFMBA	5.000	279.0 -> 85.1	232920	18.89	µg/L	100
PFMPA	3.680	229.0 -> 84.9	184031	19.21	µg/L	100
PFEESA	6.301	314.8 -> 134.9	600322	18.91	µg/L	100
		314.8 -> 82.9	19863			

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

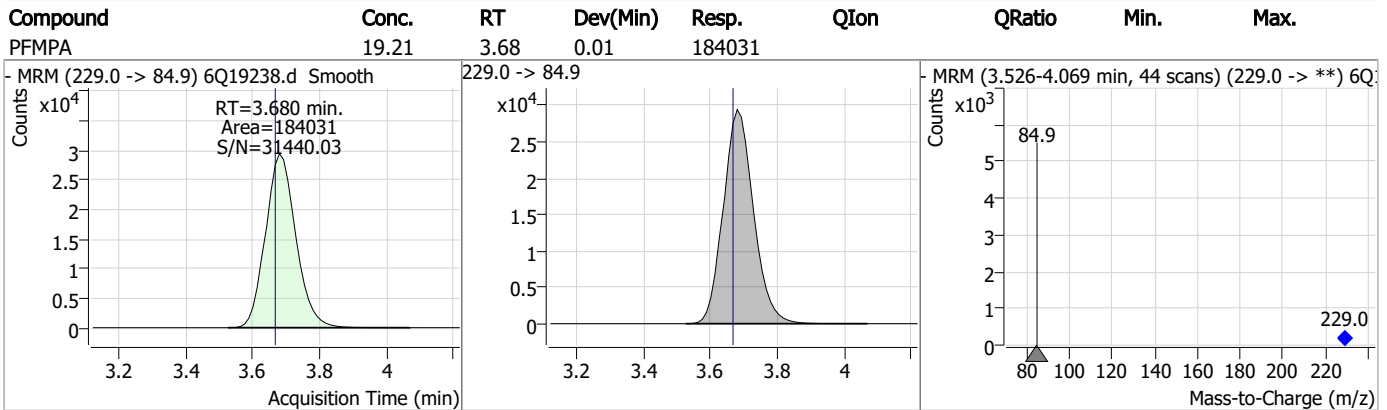
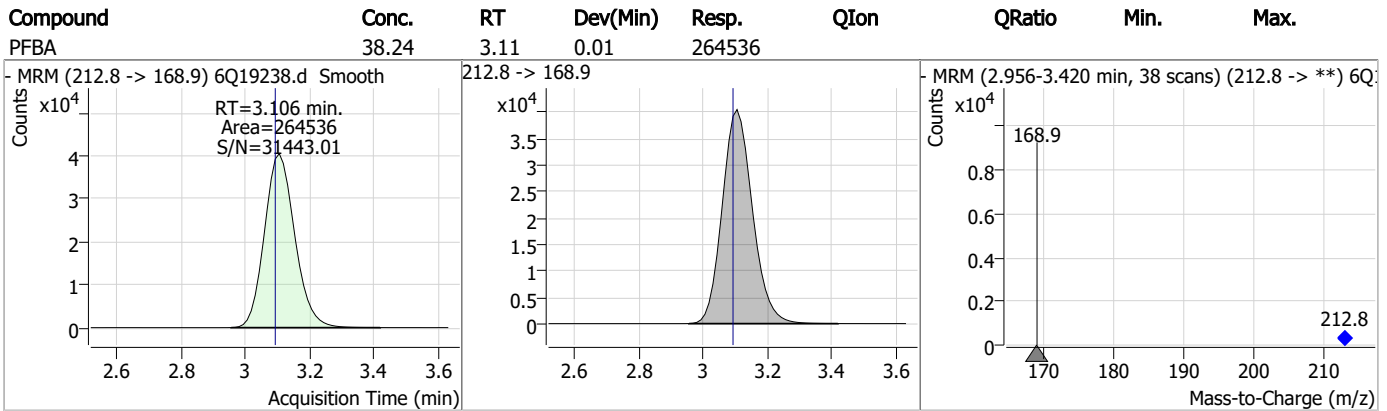
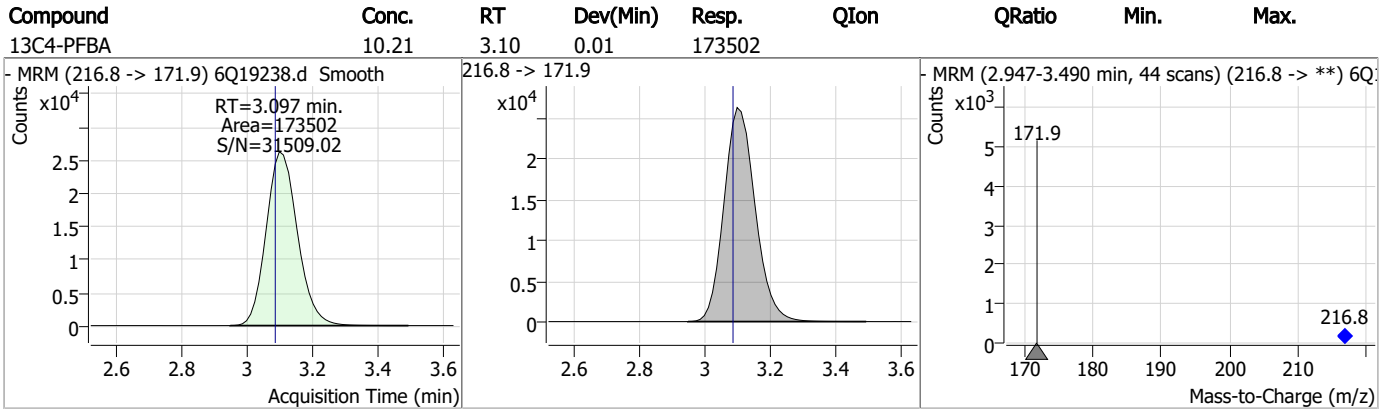
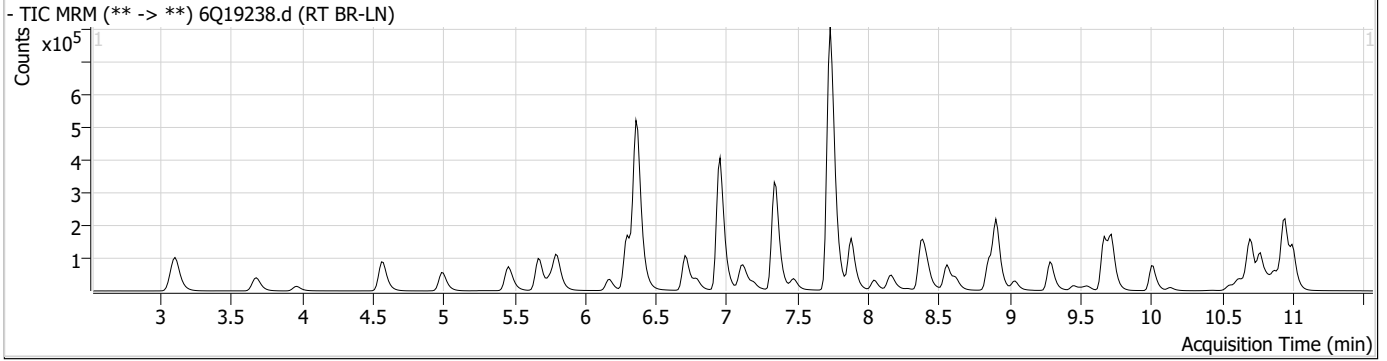
Perfluorinated Compounds by LC/MS/MS

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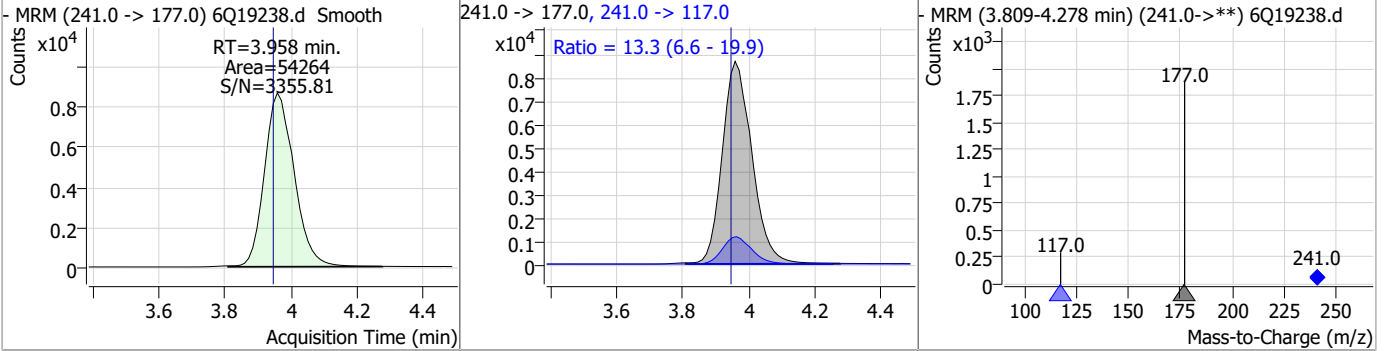
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Perfluorinated Compounds by LC/MS/MS

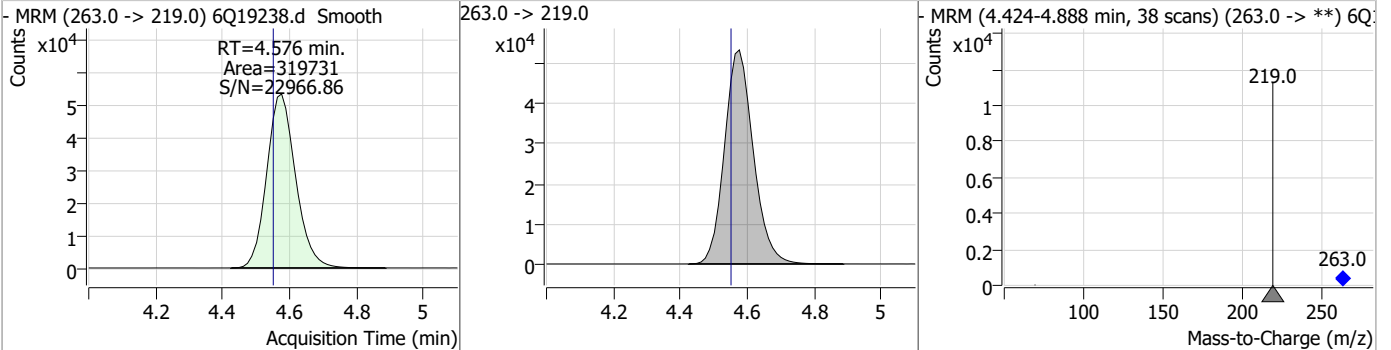


Perfluorinated Compounds by LC/MS/MS

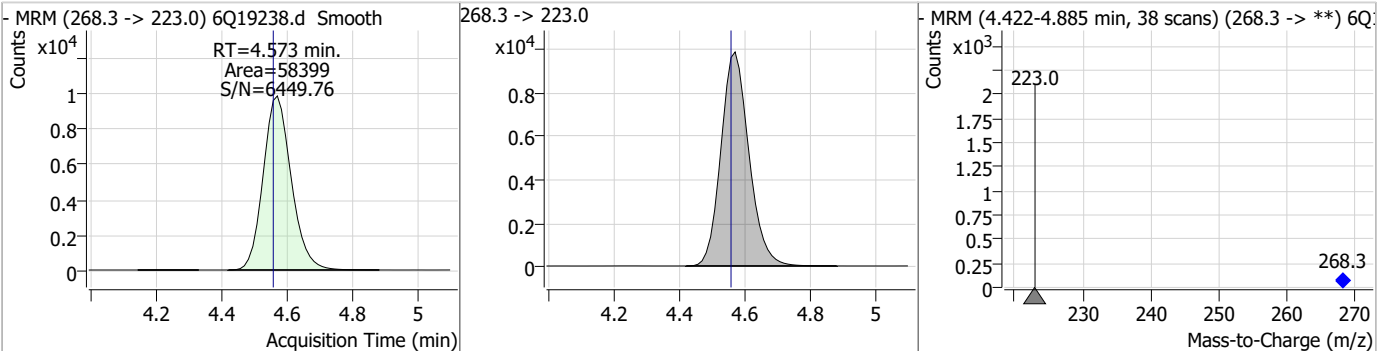
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	46.18	3.96	0.01	54264	241.0 -> 117.0	13.3	6.6	19.9



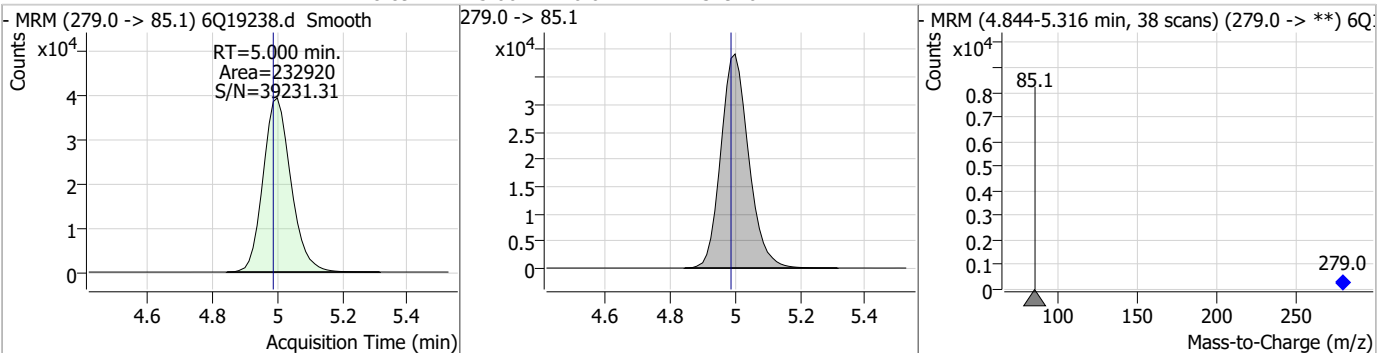
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	18.61	4.58	0.02	319731				



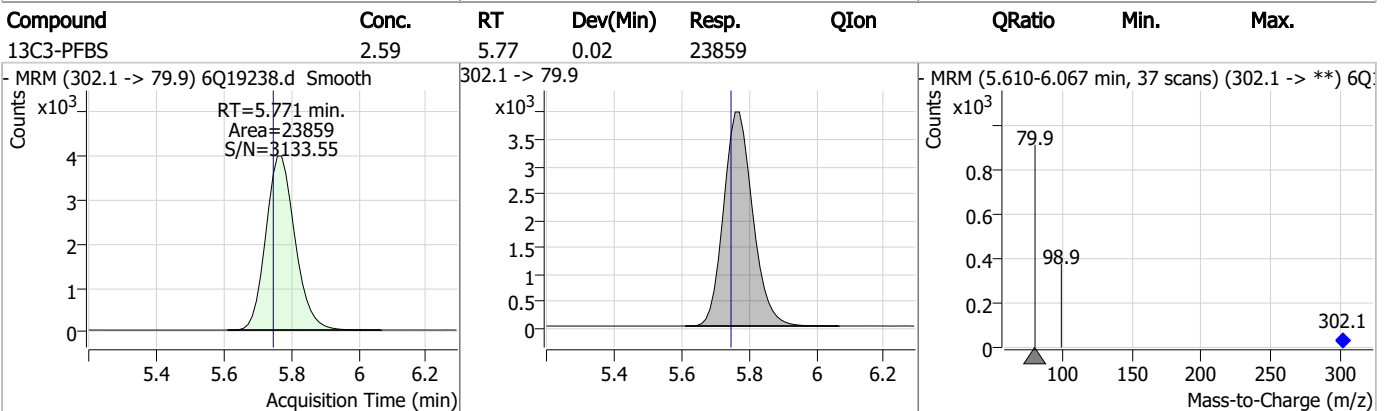
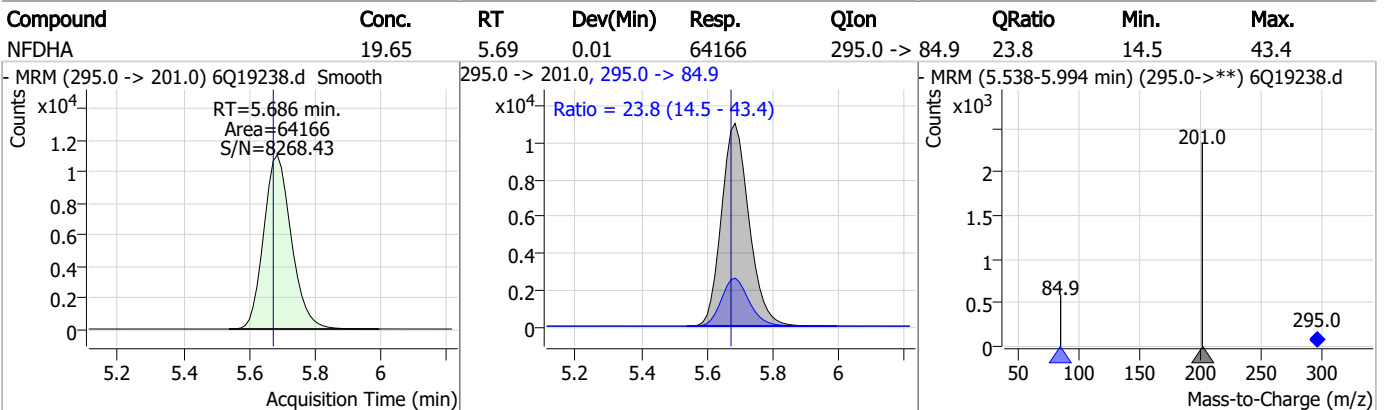
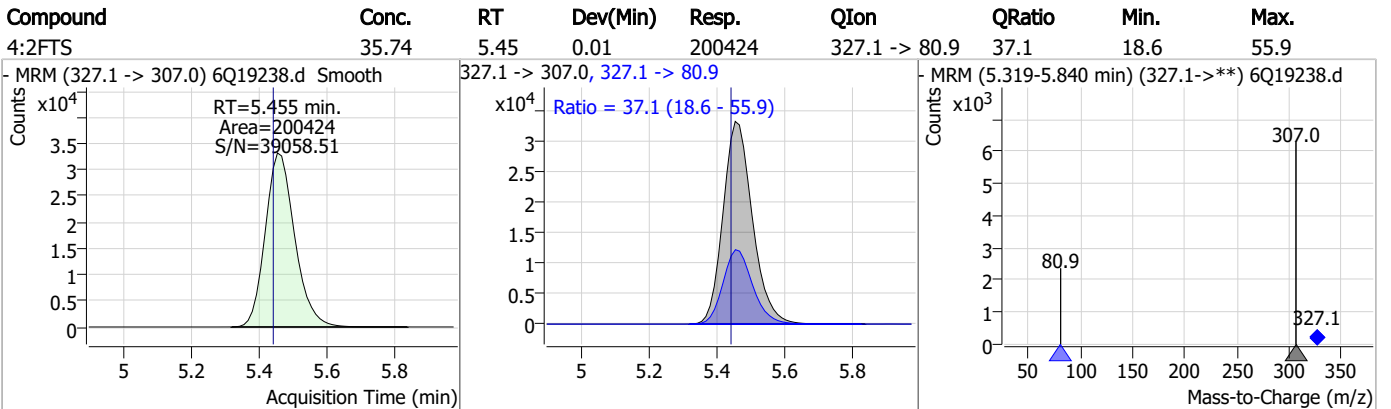
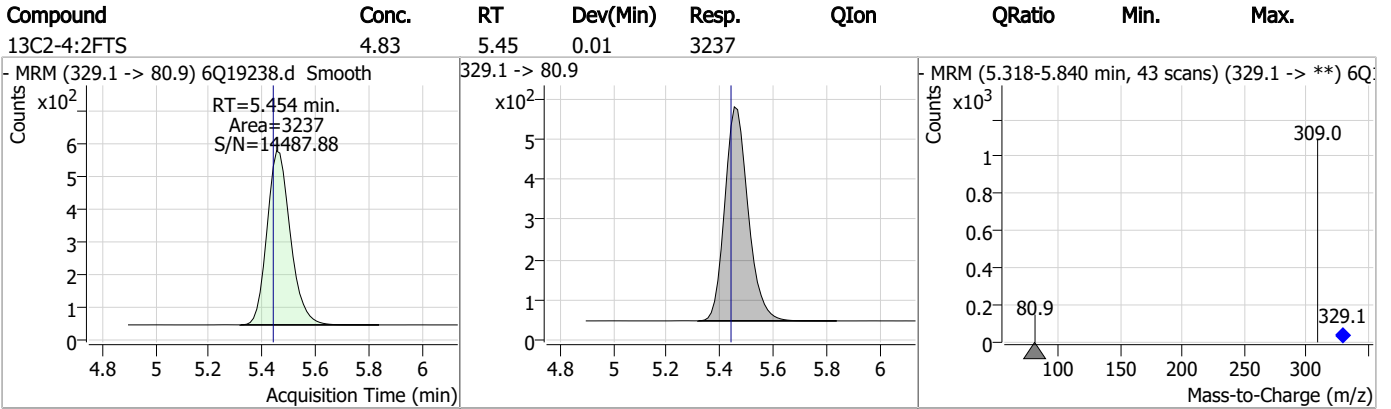
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.97	4.57	0.01	58399				



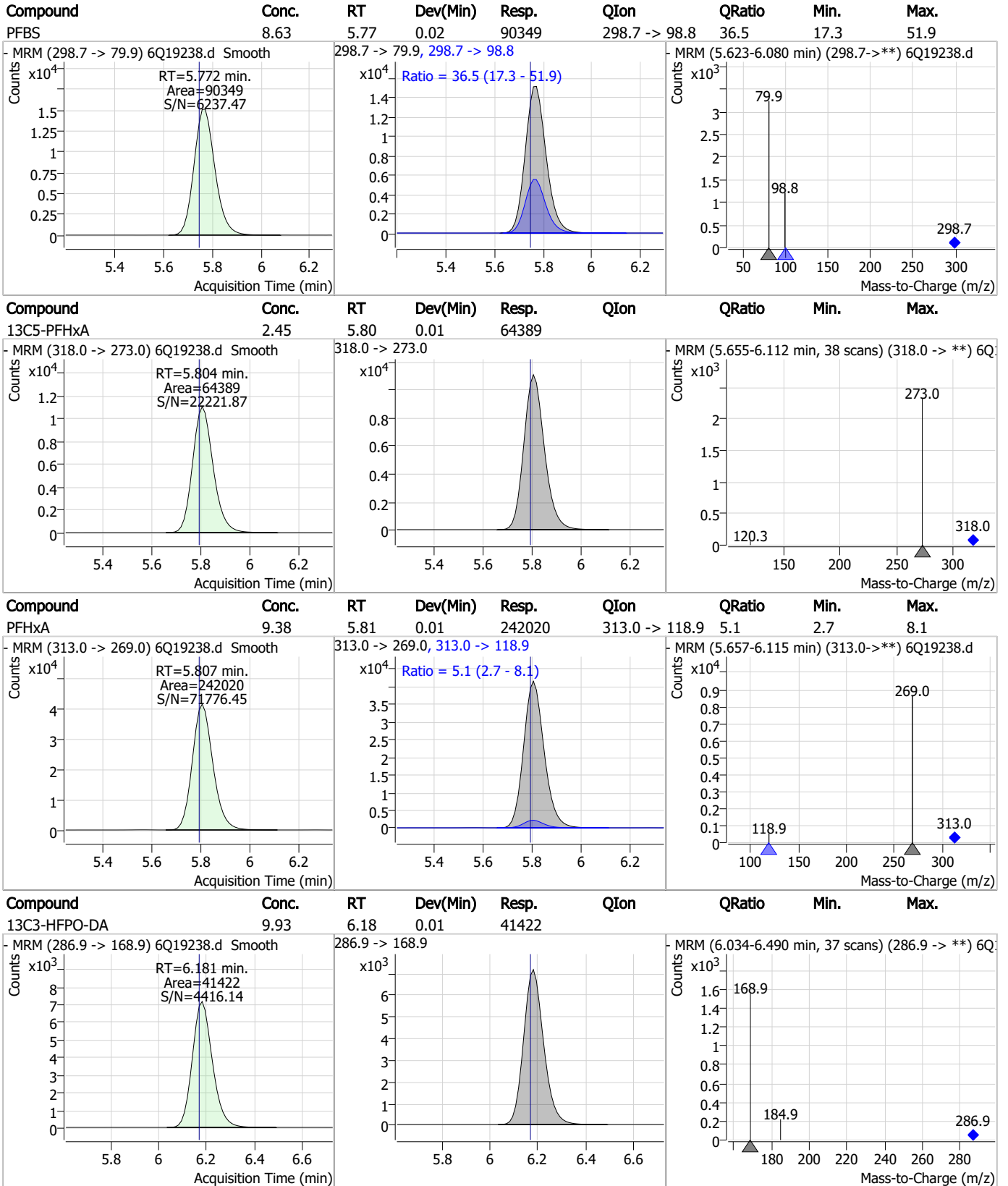
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	18.89	5.00	0.01	232920				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

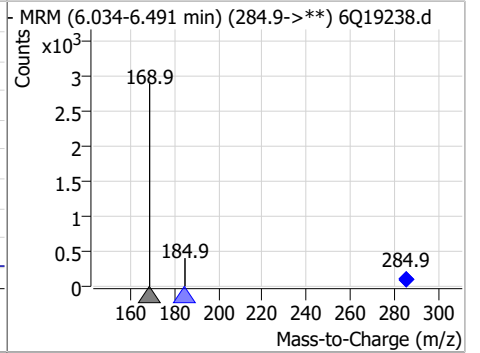
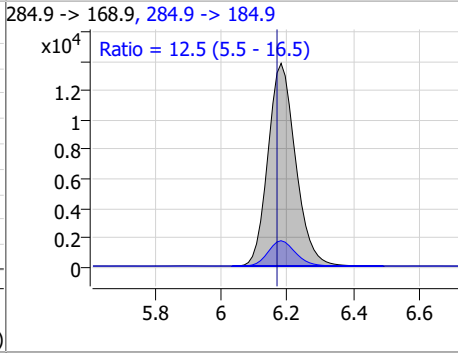
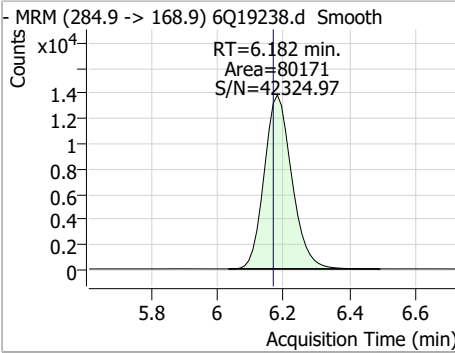


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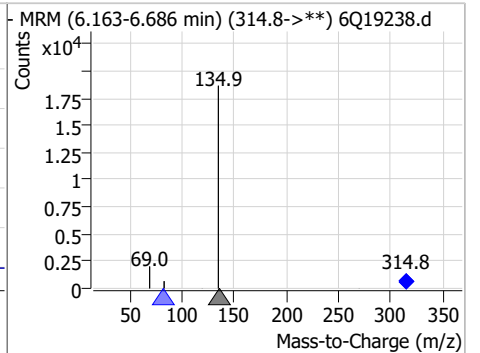
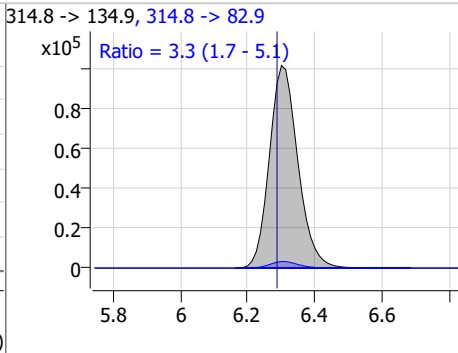
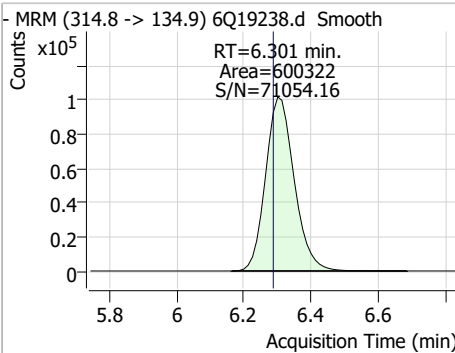
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Perfluorinated Compounds by LC/MS/MS

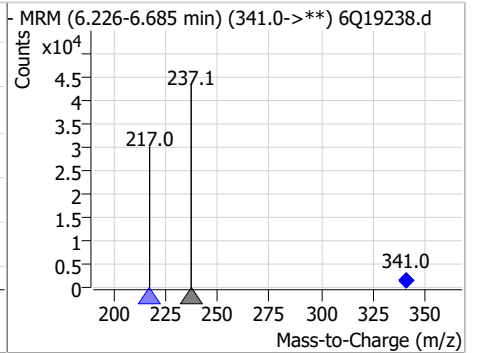
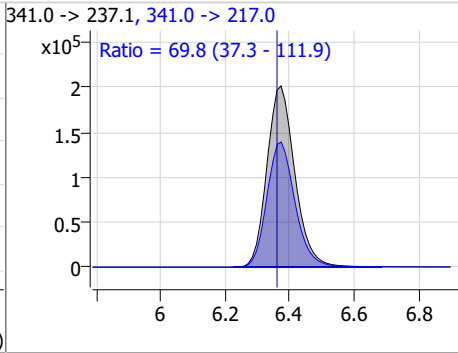
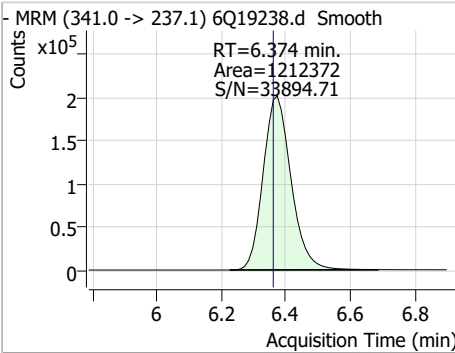
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	18.09	6.18	0.01	80171	284.9 -> 184.9	12.5	5.5	16.5



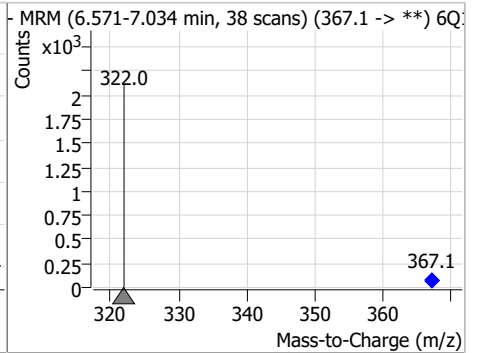
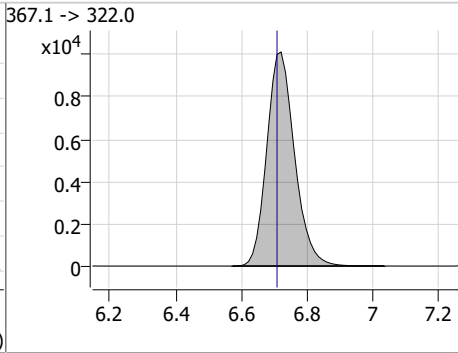
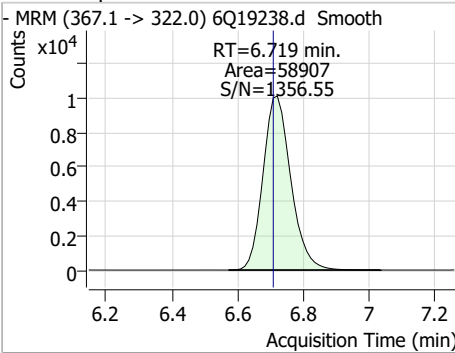
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	18.91	6.30	0.01	600322	314.8 -> 82.9	3.3	1.7	5.1



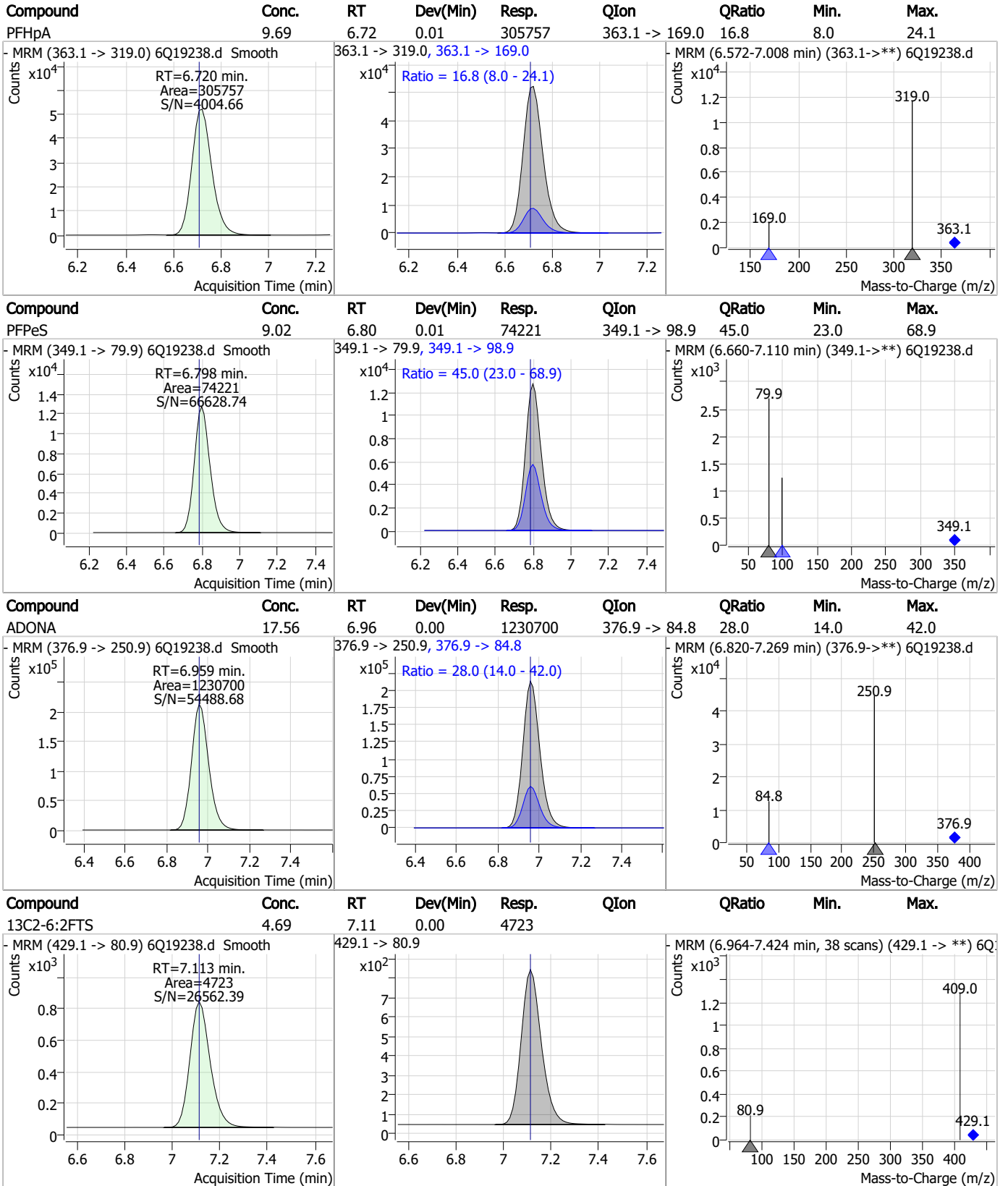
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	242.35	6.37	0.01	1212372	341.0 -> 217.0	69.8	37.3	111.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.41	6.72	0.01	58907	367.1 -> 322.0			



Perfluorinated Compounds by LC/MS/MS

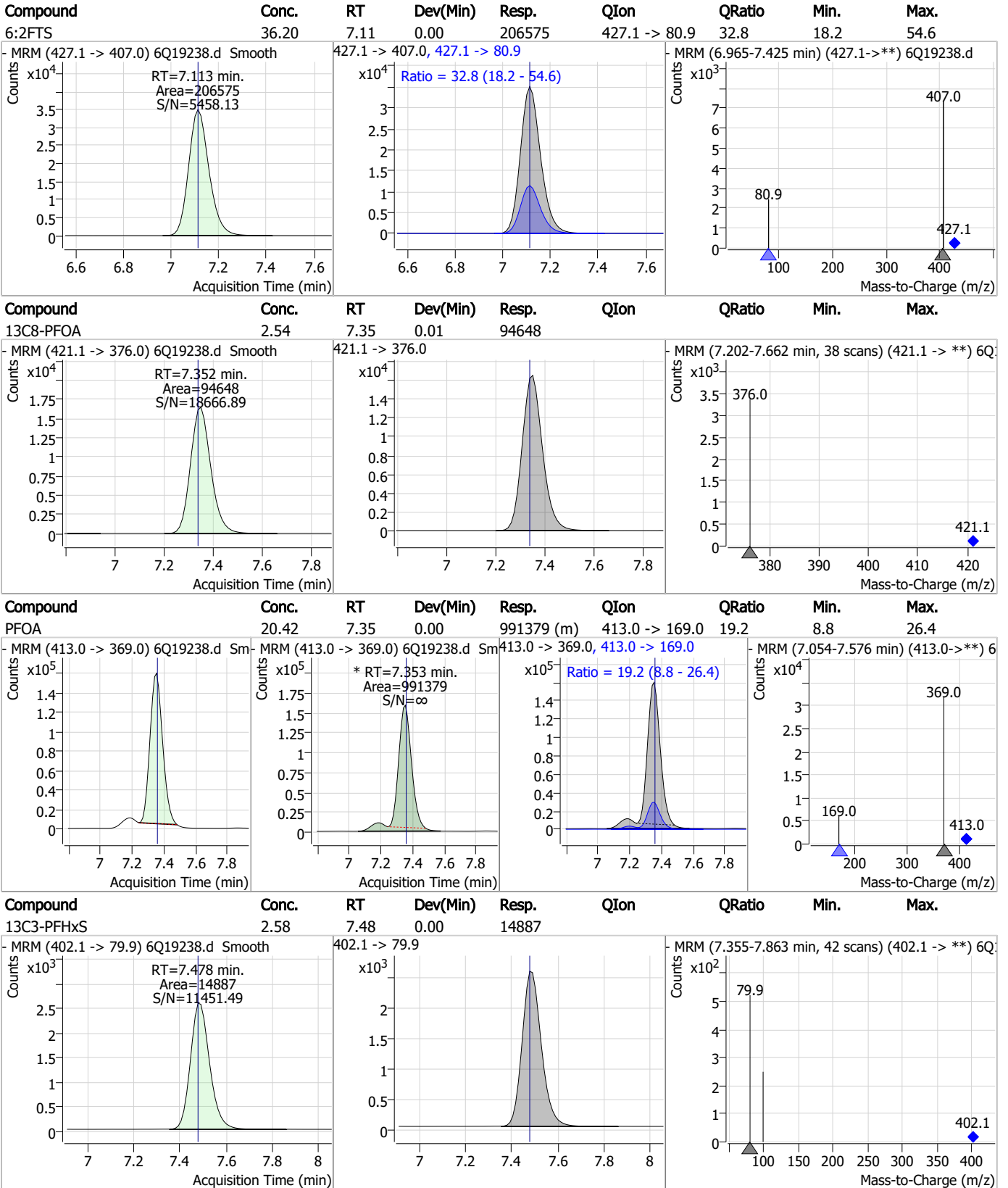


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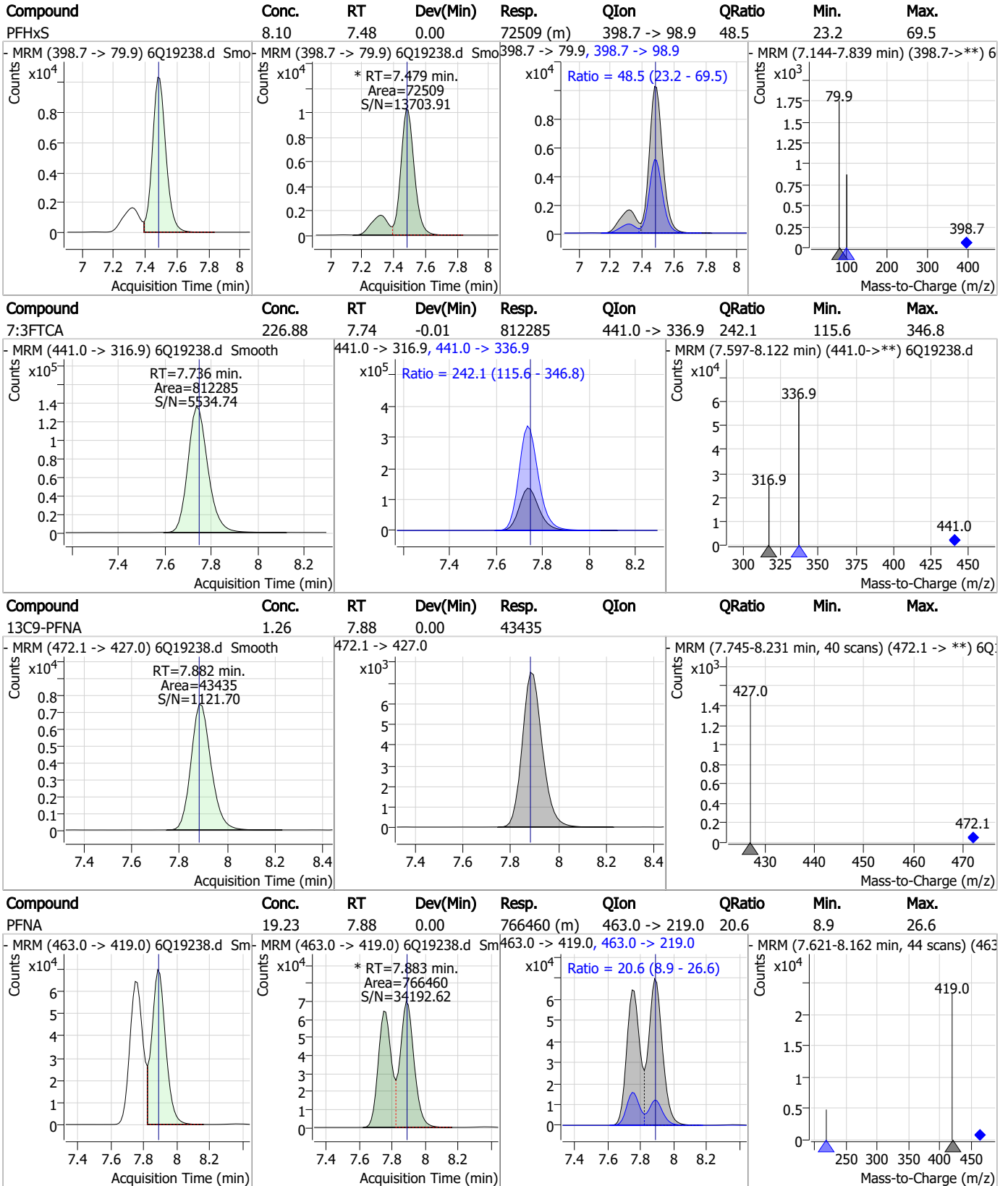
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

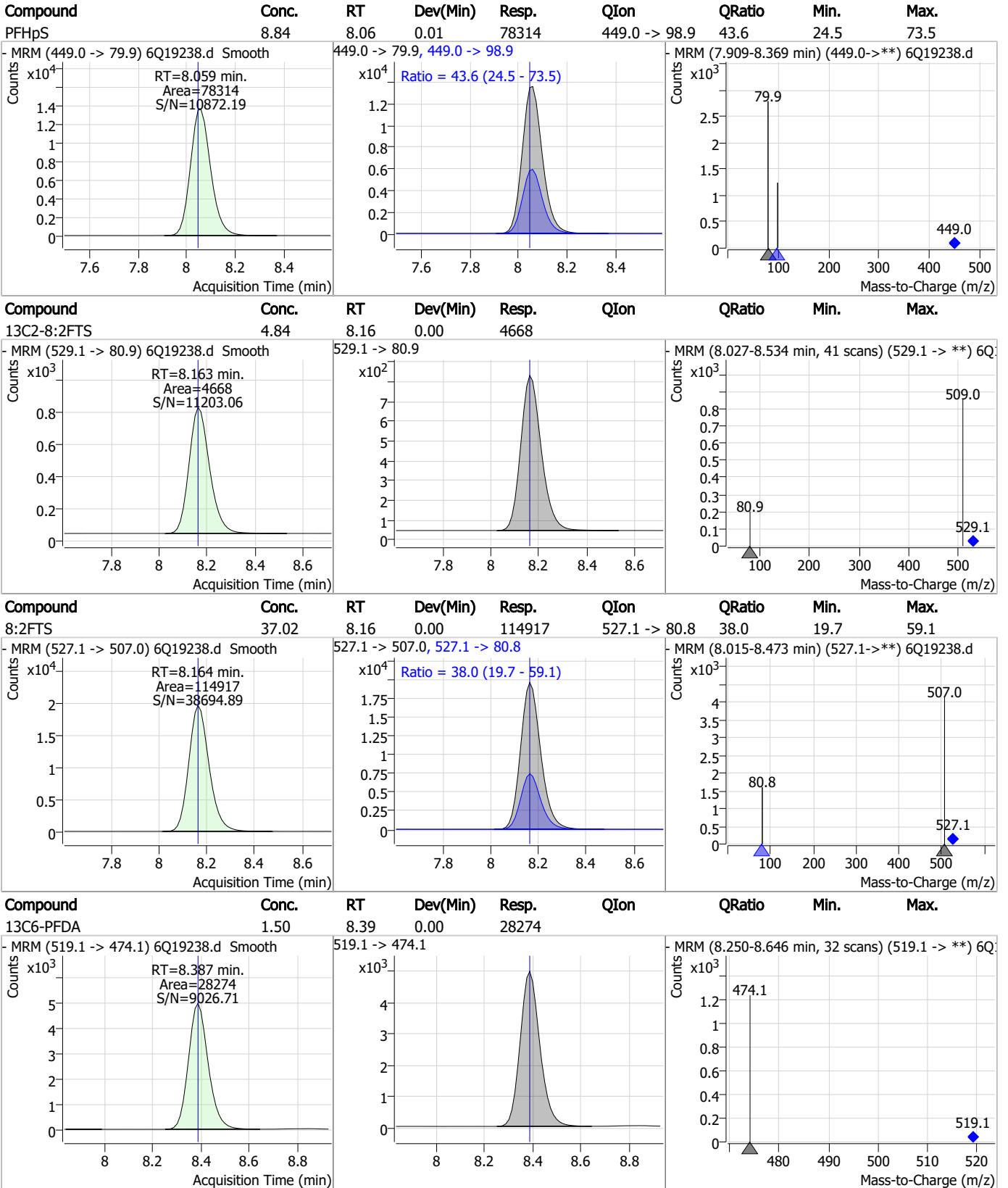


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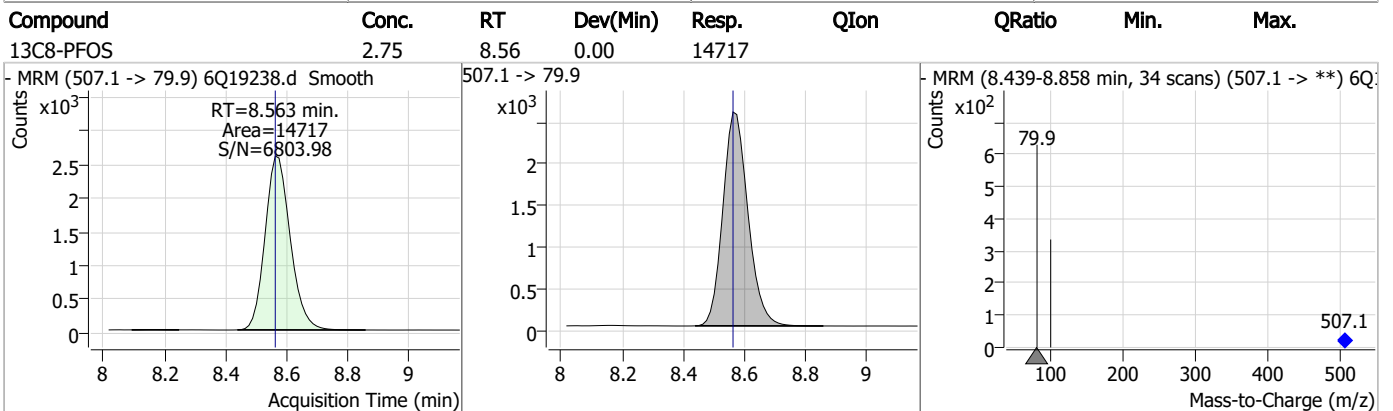
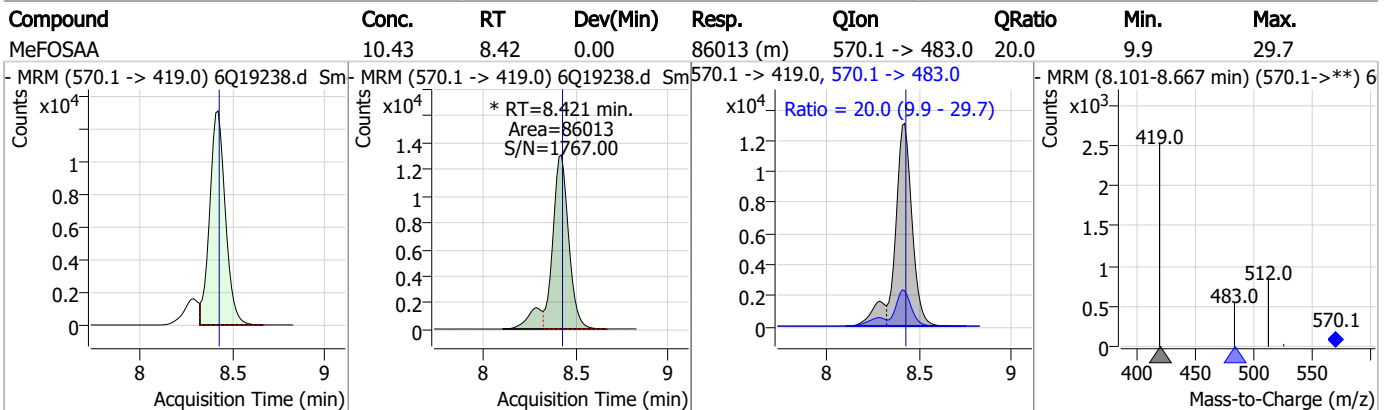
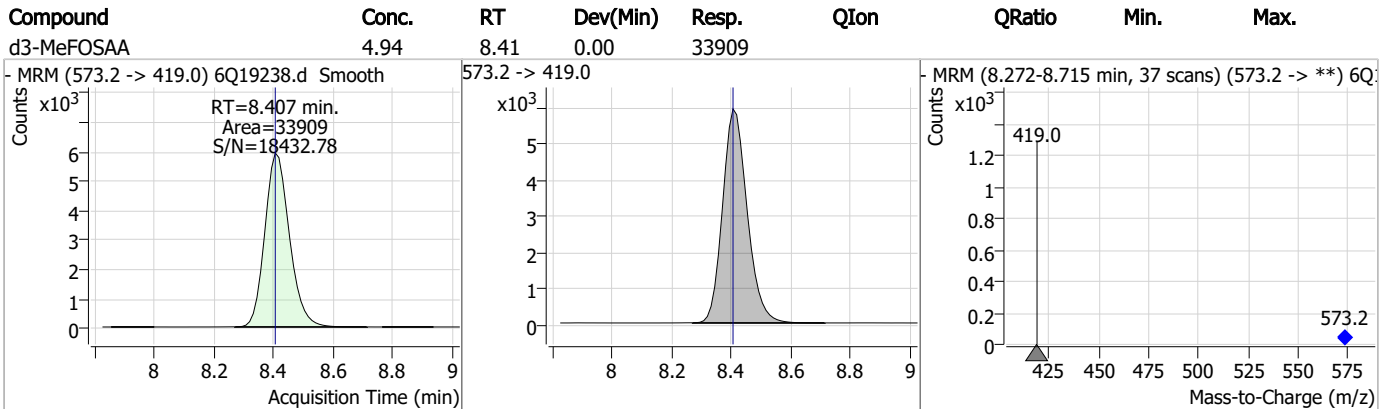
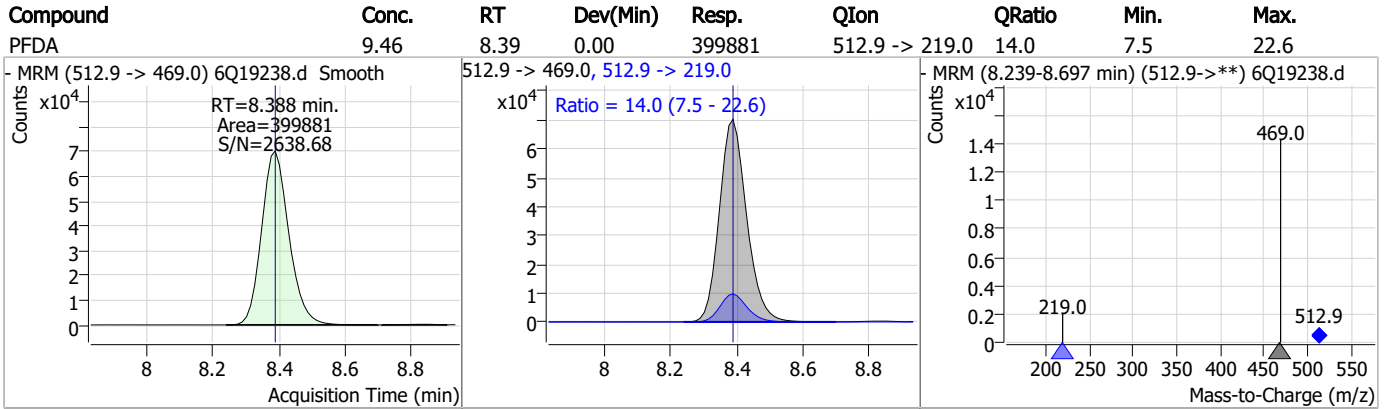
Perfluorinated Compounds by LC/MS/MS



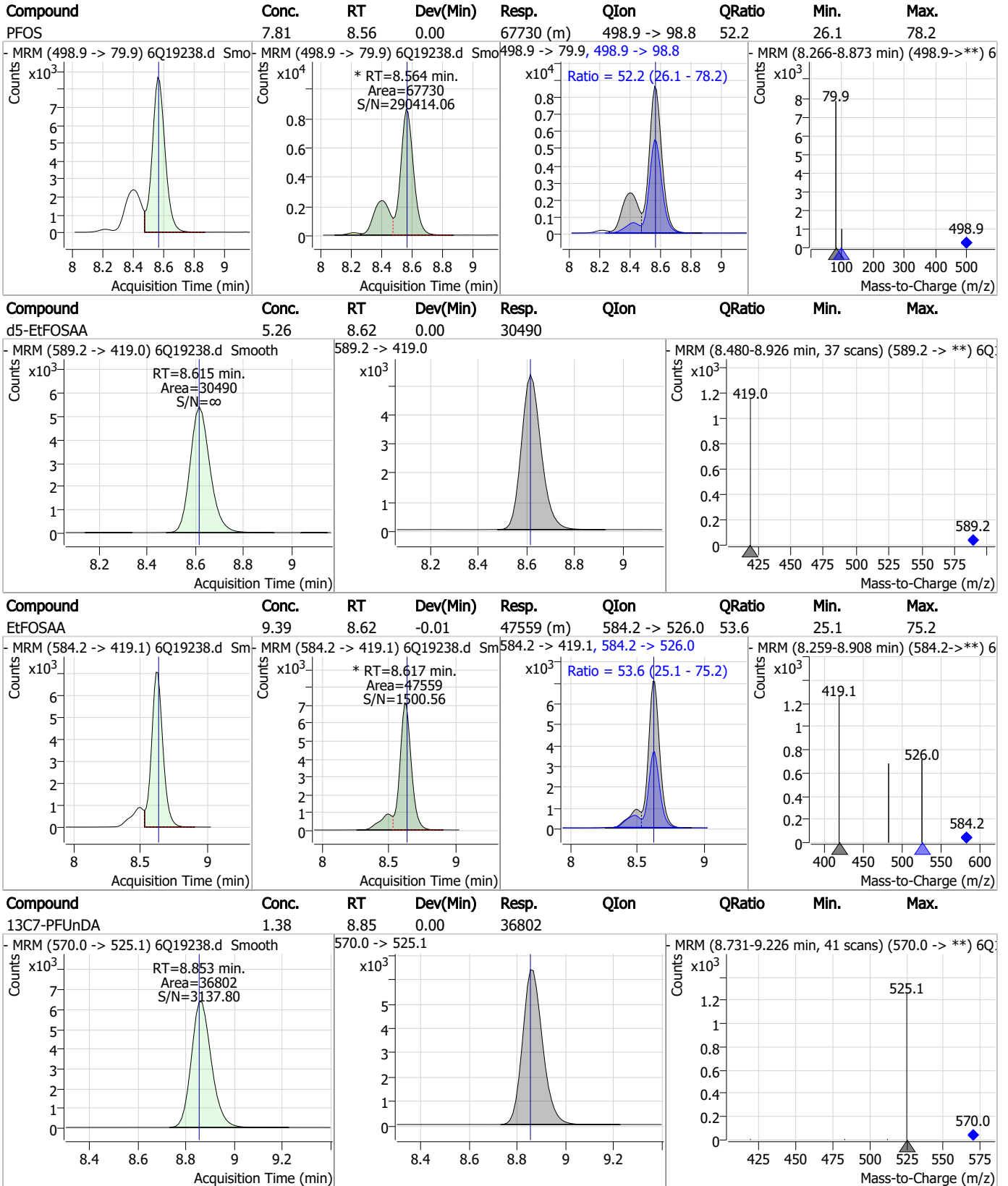
7.6.2

7

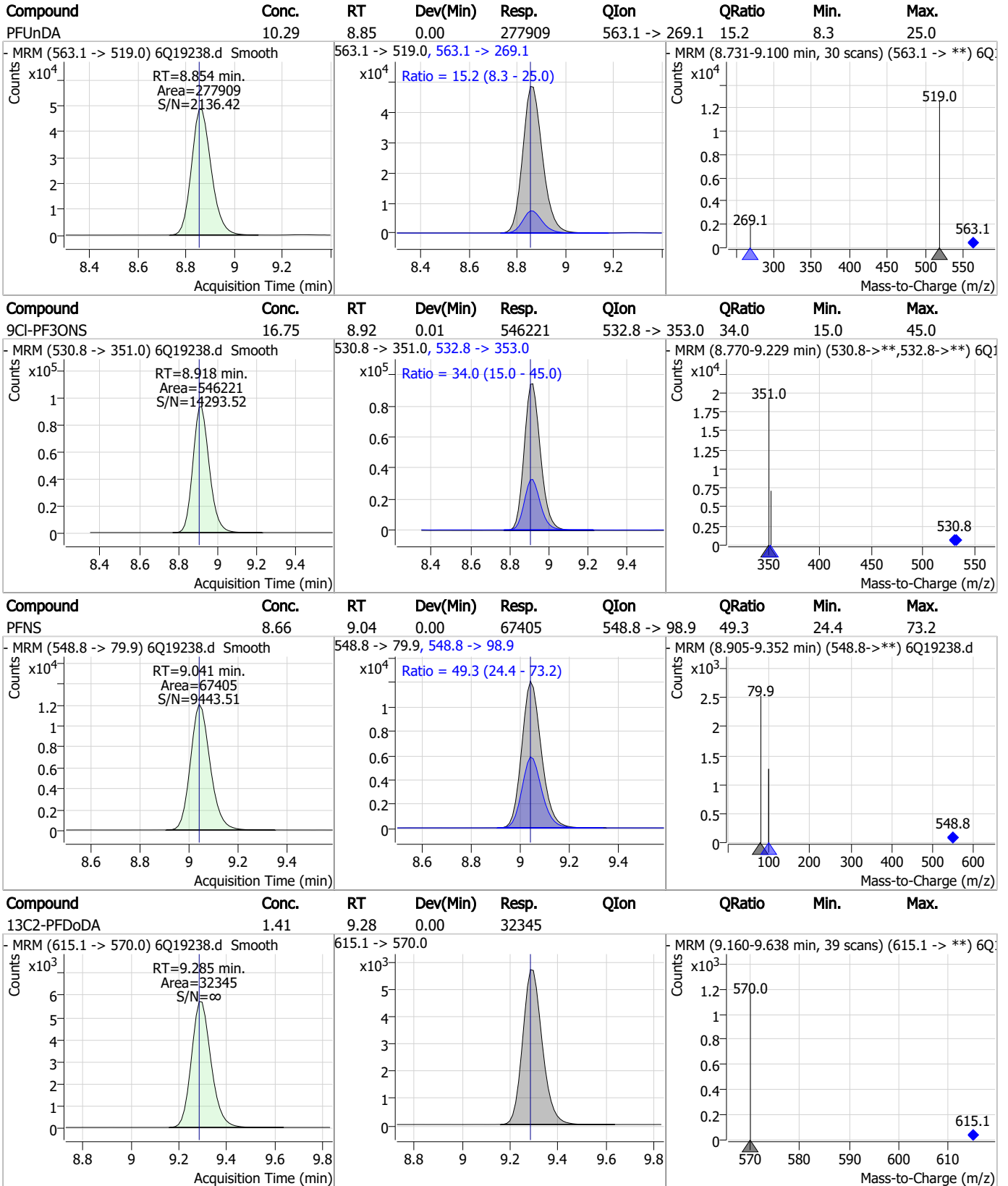
Perfluorinated Compounds by LC/MS/MS



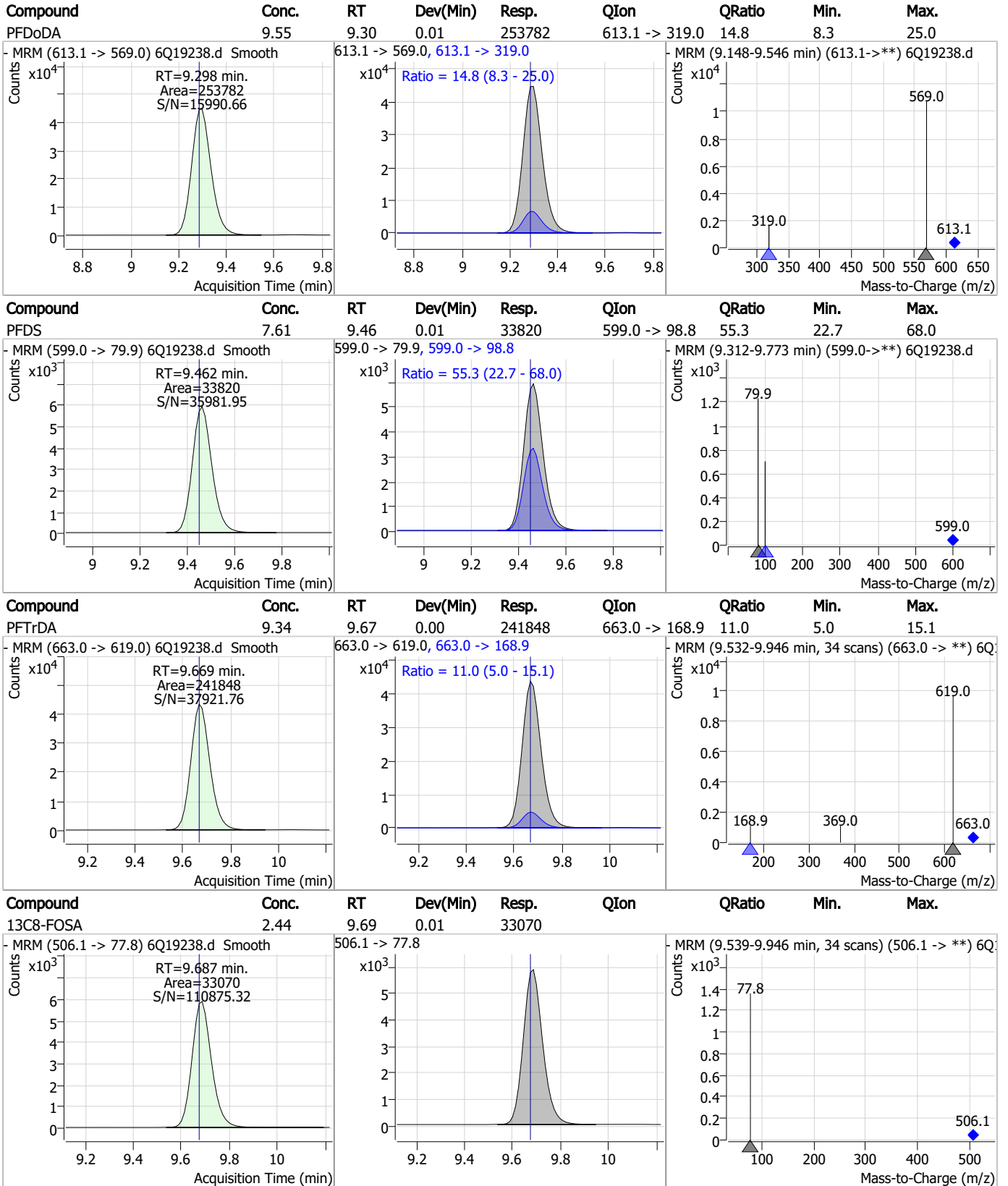
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

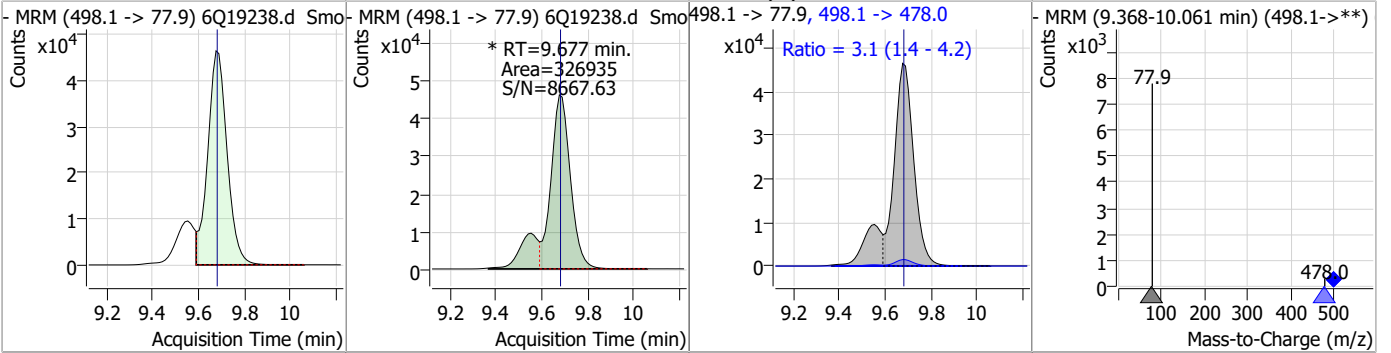


7.6.2

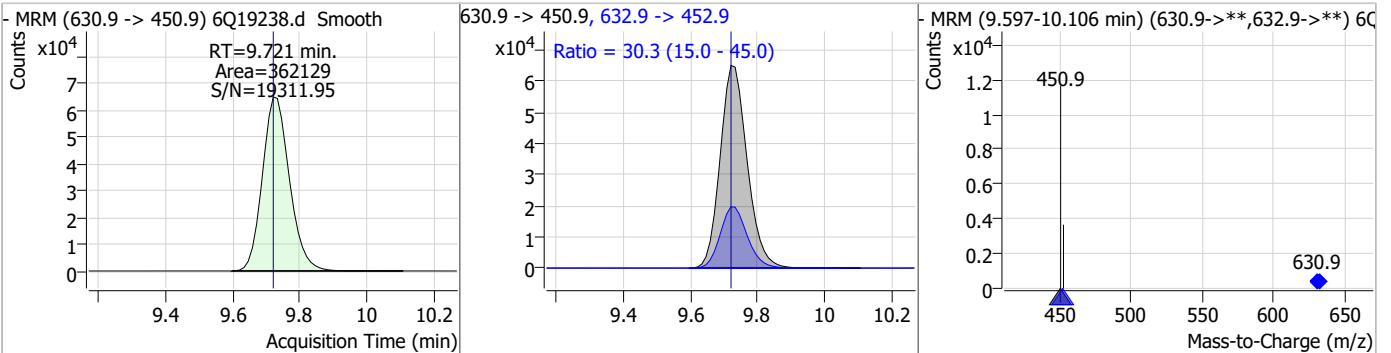
7

Perfluorinated Compounds by LC/MS/MS

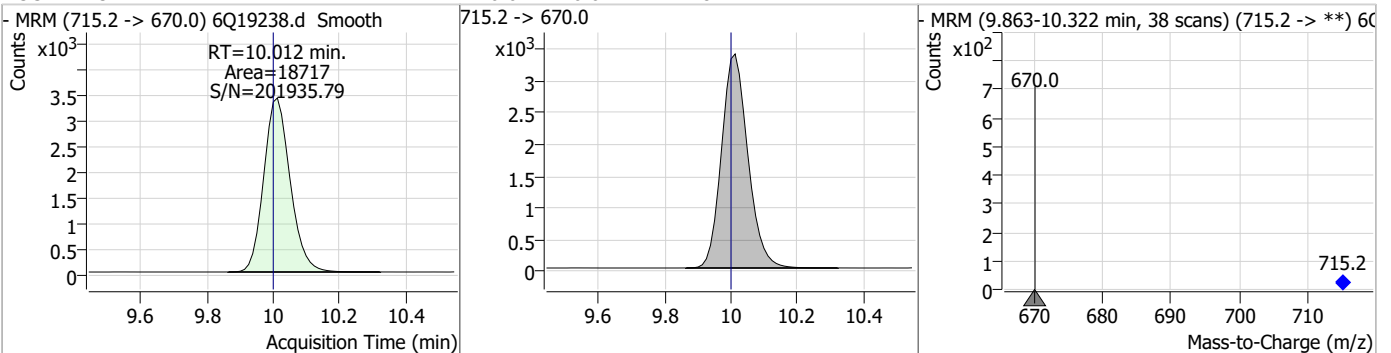
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	24.09	9.68	0.00	326935 (m)	498.1 -> 478.0	3.1	1.4	4.2



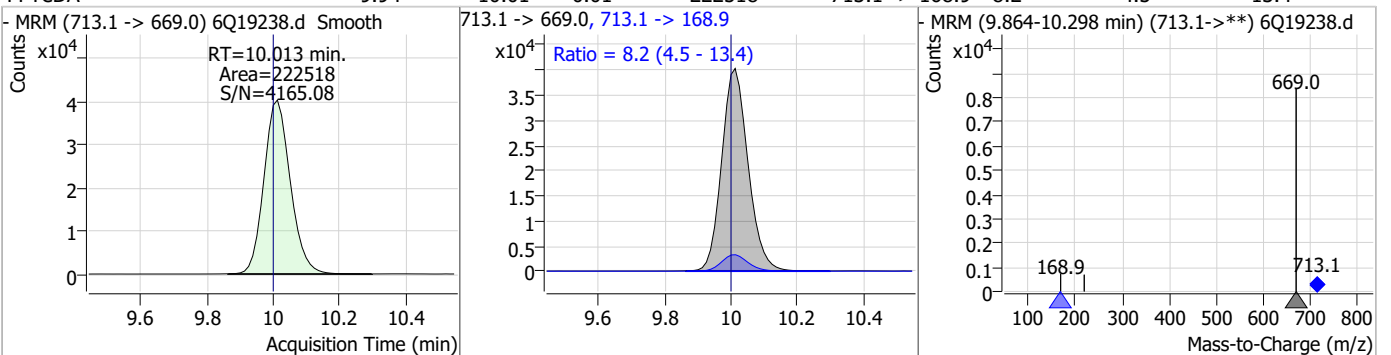
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	18.55	9.72	0.00	362129	632.9 -> 452.9	30.3	15.0	45.0



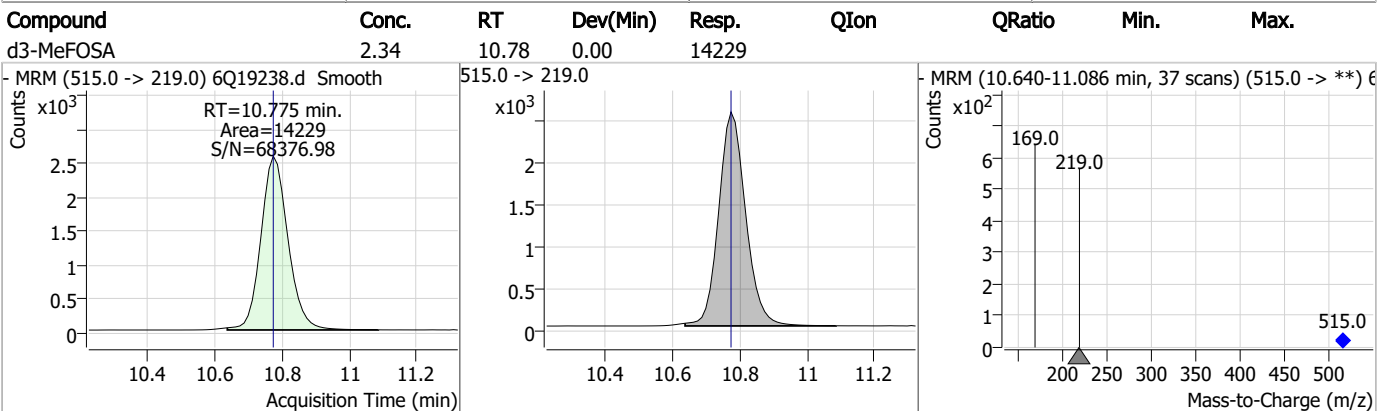
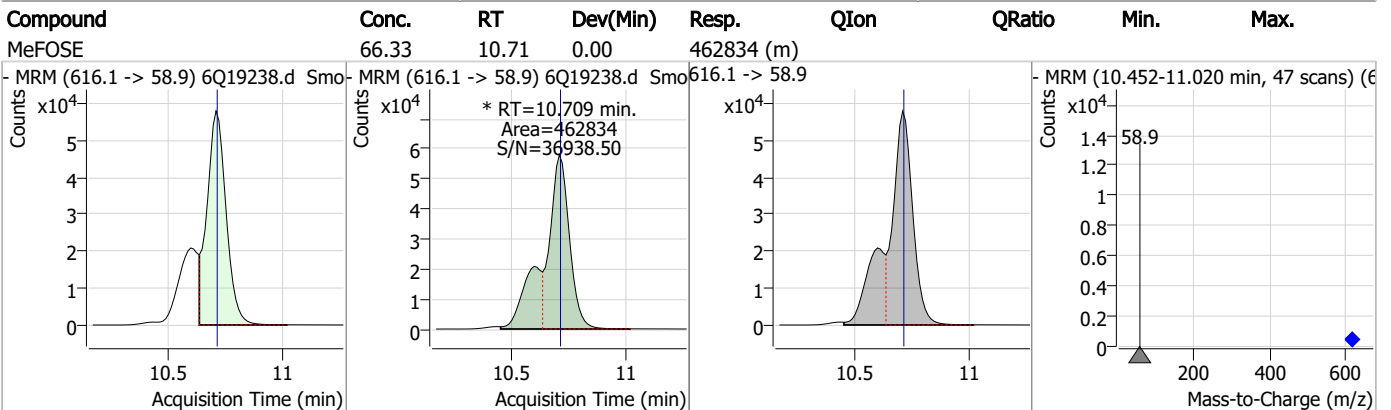
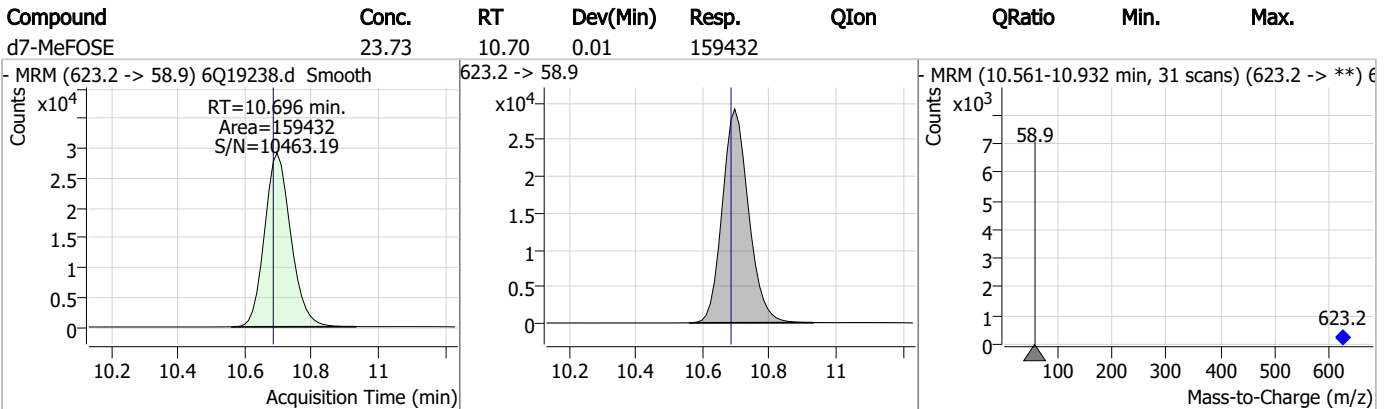
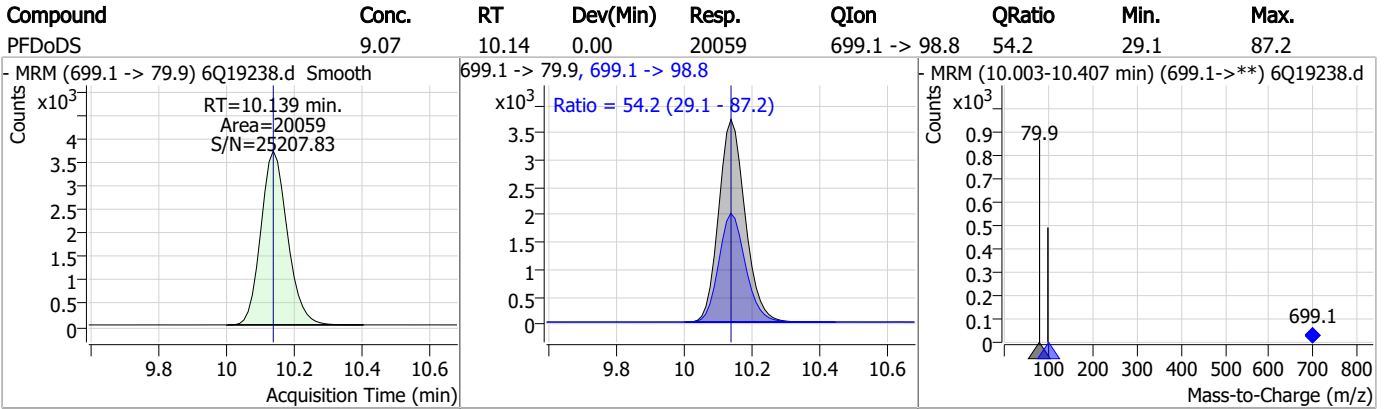
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.41	10.01	0.01	18717	715.2 -> 670.0	8.2	4.5	13.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	9.94	10.01	0.01	222518	713.1 -> 168.9	8.2	4.5	13.4

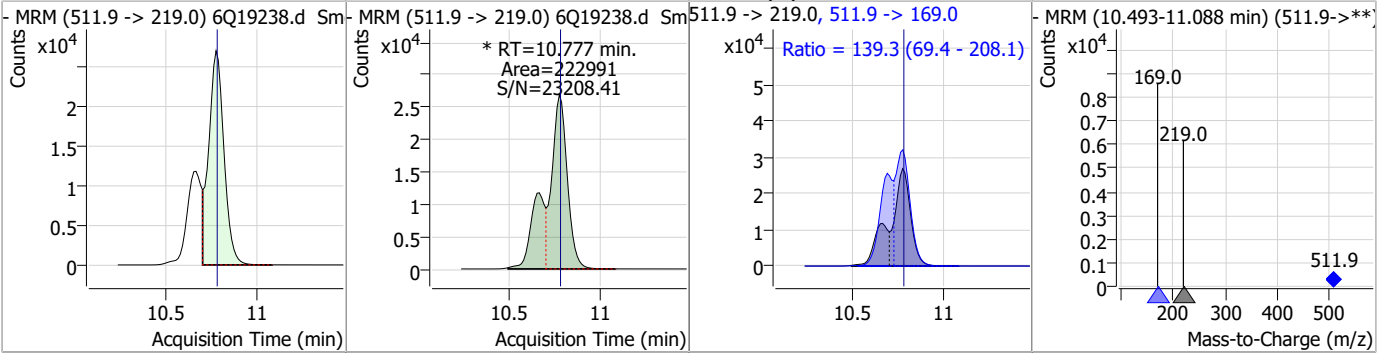


Perfluorinated Compounds by LC/MS/MS

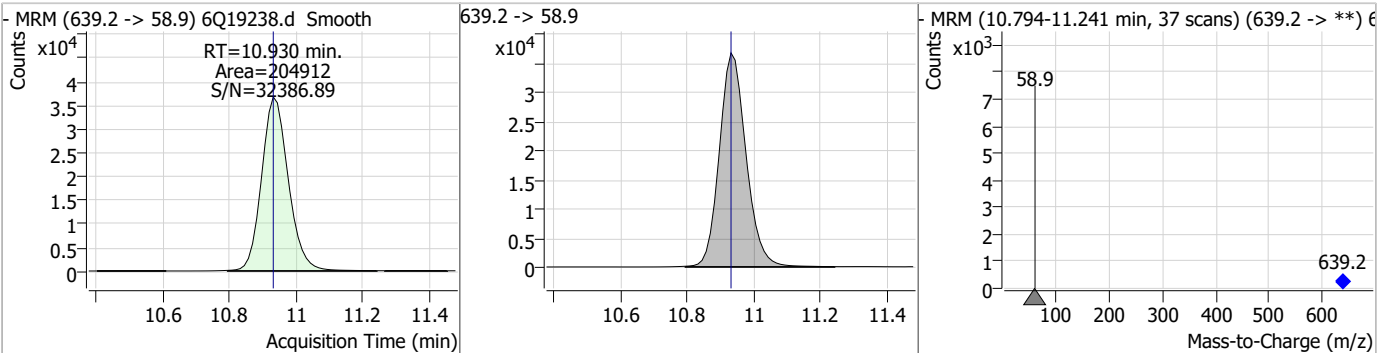


Perfluorinated Compounds by LC/MS/MS

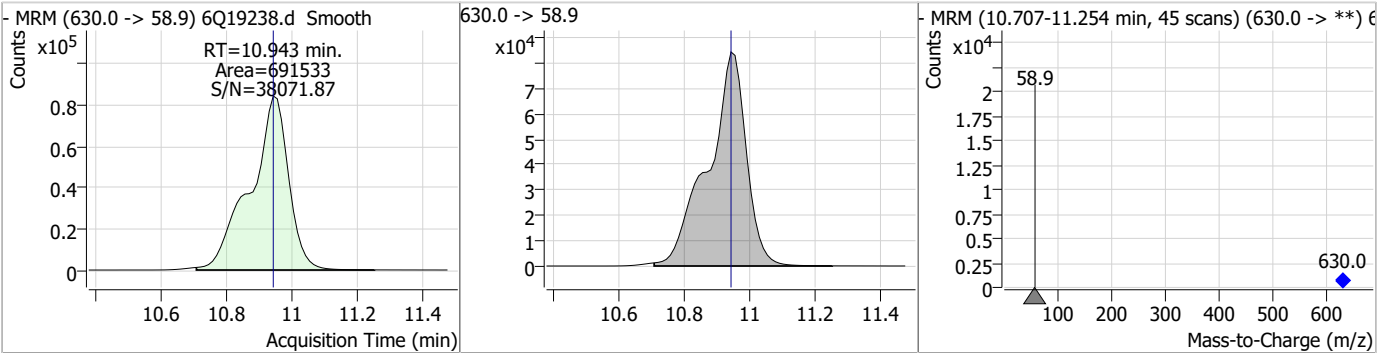
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSEA	35.75	10.78	0.00	222991 (m)	511.9 -> 169.0	139.3	69.4	208.1



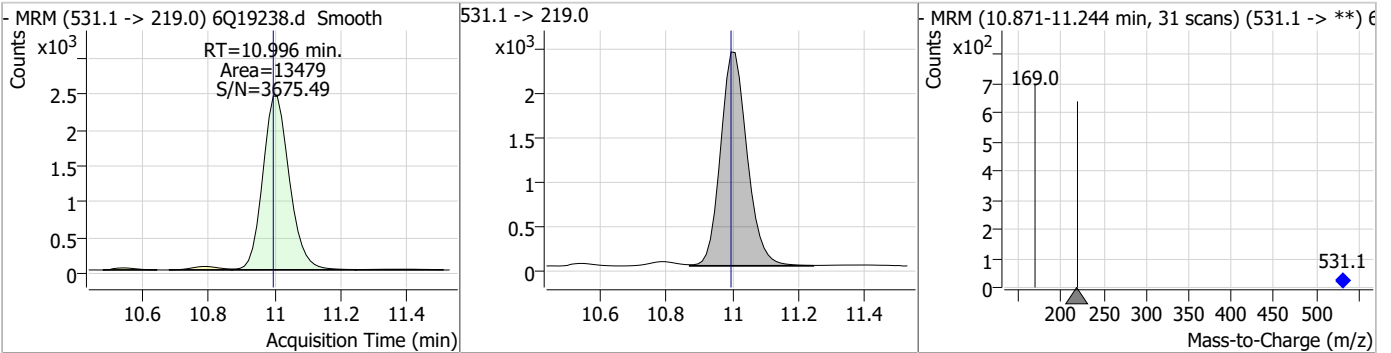
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.42	10.93	0.00	204912				



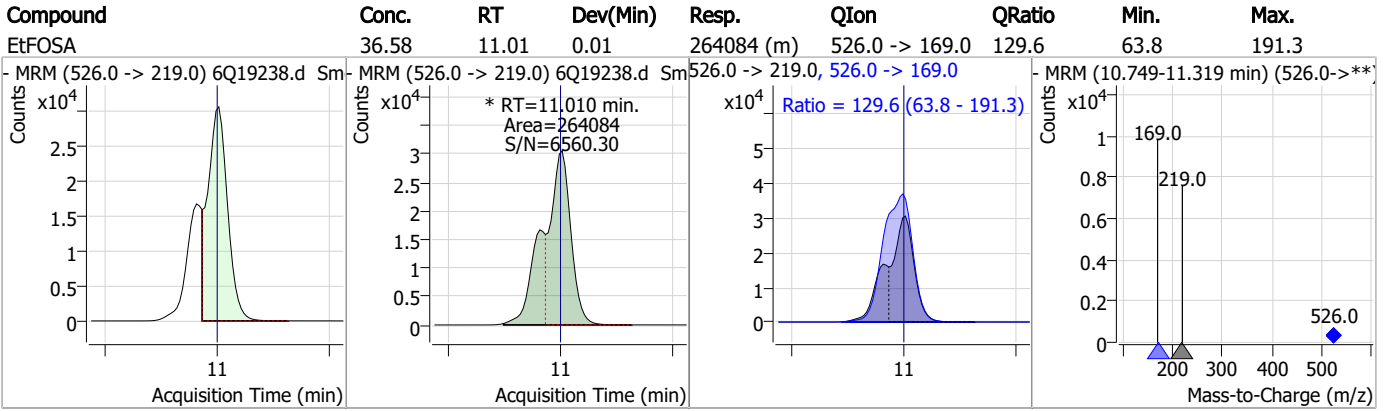
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	63.92	10.94	0.00	691533				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSEA	2.29	11.00	0.00	13479				



Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S6Q287-RT Method: EPA DRAFT 1633
Lab FileID: 6Q19238.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 15:20 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.35	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
Perfluorononanoic acid	375-95-1		7.88	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.62	Split peak
PFOSA	754-91-6		9.68	Split peak
MeFOSE	24448-09-7		10.71	Split peak
MeFOSA	31506-32-8		10.78	Split peak
EtFOSA	4151-50-2		11.01	Split peak

7.6.2.1
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 12 June 2023 11:10:10
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.75E+0 [R] (Torr); 2.91E-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

7.7.1

7

QQQ Check Tune Report



Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
112.99	112.94	-0.05	Pass	0.70	0.68	-0.02	Pass	505636
302.00	302.00	0.00	Pass	0.70	0.62	-0.08	Pass	1713538
601.98	601.91	-0.07	Pass	0.70	0.63	-0.07	Pass	2651543
1033.99	1033.84	-0.15	Pass	0.70	0.62	-0.08	Pass	1652200
1633.95	1633.75	-0.20	Pass	0.70	0.65	-0.05	Pass	1203916
2233.91	2233.49	-0.42	Adjust	0.70	0.72	0.02	Pass	450099

Analyzer: MS2 Polarity: Negative Width: Unit

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
69.00	69.02	0.02	Pass	0.70	0.71	0.01	Pass	136298
112.99	112.97	-0.02	Pass	0.70	0.75	0.05	Pass	568475
302.00	301.95	-0.05	Pass	0.70	0.68	-0.02	Pass	1432404
601.98	601.92	-0.06	Pass	0.70	0.68	-0.02	Pass	1573782
1033.99	1033.86	-0.13	Pass	0.70	0.80	0.10	Pass	668021
1633.95	1633.75	-0.20	Pass	0.70	0.72	0.02	Pass	626213
2233.91	2233.65	-0.26	Pass	0.70	0.73	0.03	Pass	238662

Analyzer: MS1 Polarity: Negative Width: Wide

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
112.99	112.93	-0.06	Pass	1.20	1.24	0.04	Pass	551558
302.00	301.92	-0.08	Pass	1.20	1.36	0.16	Pass	1926886
601.98	601.92	-0.06	Pass	1.20	1.47	0.27	Pass	3639494
1033.99	1033.80	-0.19	Pass	1.20	1.42	0.22	Pass	2675380
1633.95	1633.67	-0.28	Pass	1.20	1.43	0.23	Pass	1854895
2233.91	2233.61	-0.30	Pass	1.20	1.44	0.24	Pass	889574

Analyzer: MS2 Polarity: Negative Width: Wide

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
69.00	69.00	0.00	Pass	1.20	1.06	-0.14	Pass	187295
112.99	112.95	-0.04	Pass	1.20	1.17	-0.03	Pass	689310
302.00	301.93	-0.07	Pass	1.20	1.10	-0.10	Pass	1593512
601.98	601.87	-0.11	Pass	1.20	1.35	0.15	Pass	2900281
1033.99	1033.80	-0.19	Pass	1.20	1.34	0.14	Pass	1283499
1633.95	1633.70	-0.25	Pass	1.20	1.34	0.14	Pass	1424585
2233.91	2233.57	-0.34	Pass	1.20	1.24	0.04	Pass	536341

Analyzer: MS1 Polarity: Negative Width: Widest

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
112.99	112.89	-0.10	Pass	2.50	2.43	-0.07	Pass	635982
302.00	301.79	-0.21	Pass	2.50	2.58	0.08	Pass	2260761
601.98	601.84	-0.14	Pass	2.50	2.68	0.18	Pass	4333703
1033.99	1033.78	-0.21	Pass	2.50	2.53	0.03	Pass	3946646
1633.95	1633.60	-0.35	Pass	2.50	2.40	-0.10	Pass	3760339
2233.91	2233.47	-0.44	Pass	2.50	2.39	-0.11	Pass	2129248

Analyzer: MS2 Polarity: Negative Width: Widest

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
69.00	68.94	-0.06	Pass	2.50	2.52	0.02	Pass	211683
112.99	112.90	-0.09	Pass	2.50	2.58	0.08	Pass	913590
302.00	301.94	-0.06	Pass	2.50	2.42	-0.08	Pass	3054825
601.98	601.90	-0.08	Pass	2.50	2.65	0.15	Pass	3596588
1033.99	1033.90	-0.09	Pass	2.50	2.77	0.27	Pass	2872723
1633.95	1633.61	-0.34	Pass	2.50	2.44	-0.06	Pass	3054172
2233.91	2233.67	-0.24	Pass	2.50	2.44	-0.06	Pass	1493945

7.7.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19240.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 3:48:29 PM
 Sample Name : ic287-1
 Vial : P1-A2
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	141802	10.00 µg/L	0.000
M5-PFPeA	4.548	268.3 -> 223.0	46457	5.00 µg/L	-0.012
M5-PFHxA	5.792	318.0 -> 273.0	52106	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	47109	2.50 µg/L	0.000
M8-PFOA	7.339	421.1 -> 376.0	76517	2.50 µg/L	0.000
M9-PFNA	7.882	472.1 -> 427.0	31530	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	20007	1.25 µg/L	0.000
M7-PFUnDA	8.853	570.0 -> 525.1	28301	1.25 µg/L	0.000
M2-PFDoDA	9.285	615.1 -> 570.0	23939	1.25 µg/L	0.000
M2-PFTeDA	10.012	715.2 -> 670.0	14434	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	28411	2.50 µg/L	0.000
M3-PFBS	5.733	302.1 -> 79.9	20100	2.50 µg/L	-0.013
M3-PFHxS	7.478	402.1 -> 79.9	11616	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	11429	2.50 µg/L	0.000
M2-4:2FTS	5.442	329.1 -> 80.9	3369	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	4646	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4474	5.00 µg/L	0.000
M3-MeFOSAA	8.420	573.2 -> 419.0	27762	5.00 µg/L	0.012
M3-HFPO-DA	6.169	286.9 -> 168.9	31125	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	23287	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	154459	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	184380	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	11976	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	12102	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	15749	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	60023	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	9150	2.50 µg/L	0.000
13C4-PFOA	7.340	417.1 -> 372.0	85888	2.50 µg/L	0.000
13C2-PFDA	8.388	515.1 -> 470.1	31636	1.25 µg/L	0.000
13C5-PFNA	7.882	468.0 -> 423.0	44152	1.25 µg/L	0.000
13C2-PFHxA	5.792	315.1 -> 270.0	48552	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	3369	5.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.6%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4646	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4474	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.3%		
13C2-PFDoDA	9.285	615.1 -> 570.0	23939	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.6%		
13C2-PFTeDA	10.012	715.2 -> 670.0	14434	1.18 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.1%		
13C3-PFBS	5.733	302.1 -> 79.9	20100	2.60 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C3-PFHxS	7.478	402.1 -> 79.9	11616	2.39 µg/L	0.000

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 = 95.6%	
13C4-PFBA	3.085	216.8 -> 171.9	141802	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.707	367.1 -> 322.0	47109	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C5-PFHxA	5.792	318.0 -> 273.0	52106	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFPeA	4.548	268.3 -> 223.0	46457	4.95 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C6-PFDA	8.387	519.1 -> 474.1	20007	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.7%	
13C7-PFUnDA	8.853	570.0 -> 525.1	28301	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.0%	
13C8-FOSA	9.674	506.1 -> 77.8	28411	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C8-PFOA	7.339	421.1 -> 376.0	76517	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C8-PFOS	8.563	507.1 -> 79.9	11429	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C9-PFNA	7.882	472.1 -> 427.0	31530	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.6%	
d3-MeFOSAA	8.420	573.2 -> 419.0	27762	4.70 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	31125	9.35 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
d3-MeFOSA	10.775	515.0 -> 219.0	12102	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.5%	
d5-EtFOSAA	8.615	589.2 -> 419.0	23287	4.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.4%	
d7-MeFOSE	10.685	623.2 -> 58.9	154459	26.72 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.9%	
d9-EtFOSE	10.930	639.2 -> 58.9	184380	25.54 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
d5-EtFOSA	10.996	531.1 -> 219.0	11976	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%	
Target Compounds					QValue
4:2FTS	5.443	327.1 -> 307.0	4645	0.80 µg/L	96
		327.1 -> 80.9	1830		
6:2FTS	7.113	427.1 -> 407.0	5124	0.91 µg/L	95
		427.1 -> 80.9	1715		
8:2FTS	8.164	527.1 -> 507.0	2592	0.87 µg/L	97
		527.1 -> 80.8	1075		
EtFOSAA	8.617	584.2 -> 419.1	954	0.25 µg/L	m 88
		584.2 -> 526.0	561		
FOSA	9.677	498.1 -> 77.9	2820	0.24 µg/L	100
		498.1 -> 478.0	81		
MeFOSAA	8.421	570.1 -> 419.0	1559	0.23 µg/L	m 94
		570.1 -> 483.0	352		
PFBA	3.093	212.8 -> 168.9	5207	0.92 µg/L	100
PFBS	5.734	298.7 -> 79.9	1693	0.19 µg/L	100
		298.7 -> 98.8	587		
PFDA	8.388	512.9 -> 469.0	6756	0.23 µg/L	95
		512.9 -> 219.0	1152		
PFDODA	9.285	613.1 -> 569.0	4989	0.25 µg/L	98
		613.1 -> 319.0	780		
PFDS	9.462	599.0 -> 79.9	744	0.22 µg/L	97

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	354			
PFHpA	6.708	363.1 -> 319.0	6190	0.25	µg/L	98
		363.1 -> 169.0	1050			
PFHpS	8.046	449.0 -> 79.9	1527	0.22	µg/L	97
		449.0 -> 98.9	719			
PFHxA	5.795	313.0 -> 269.0	4612	0.22	µg/L	97
		313.0 -> 118.9	292			
PFHxS	7.479	398.7 -> 79.9	1643	0.24	µg/L	m 94
		398.7 -> 98.9	700			
PFNA	7.883	463.0 -> 419.0	7142	0.25	µg/L	92
		463.0 -> 219.0	1516			
PFNS	9.041	548.8 -> 79.9	1328	0.22	µg/L	93
		548.8 -> 98.9	709			
PFOA	7.341	413.0 -> 369.0	9117	0.23	µg/L	99
		413.0 -> 169.0	1563			
PFOS	8.564	498.9 -> 79.9	1450	0.22	µg/L	m 91
		498.9 -> 98.8	661			
PFPeA	4.551	263.0 -> 219.0	6450	0.47	µg/L	100
PFPeS	6.785	349.1 -> 79.9	1438	0.22	µg/L	91
		349.1 -> 98.9	747			
PFTeDA	10.000	713.1 -> 669.0	4123	0.24	µg/L	100
		713.1 -> 168.9	360			
PFTrDA	9.669	663.0 -> 619.0	5007	0.25	µg/L	95
		663.0 -> 168.9	587			
PFUnDA	8.854	563.1 -> 519.0	4762	0.23	µg/L	94
		563.1 -> 269.1	904			
11CI-PF3OUdS	9.721	630.9 -> 450.9	6441	0.44	µg/L	93
		632.9 -> 452.9	2189			
9CI-PF3ONS	8.906	530.8 -> 351.0	10960	0.45	µg/L	99
		532.8 -> 353.0	3245			
ADONA	6.959	376.9 -> 250.9	25746	0.49	µg/L	99
		376.9 -> 84.8	7087			
HFPO-DA	6.169	284.9 -> 168.9	1865	0.55	µg/L	96
		284.9 -> 184.9	179			
3:3FTCA	3.946	241.0 -> 177.0	1058	1.13	µg/L	99
		241.0 -> 117.0	138			
5:3FTCA	6.361	341.0 -> 237.1	24429	6.03	µg/L	98
		341.0 -> 217.0	17805			
7:3FTCA	7.736	441.0 -> 316.9	17169	5.93	µg/L	88
		441.0 -> 336.9	36207			
EtFOSA	10.997	526.0 -> 219.0	2863	0.45	µg/L	93
		526.0 -> 169.0	3880			
EtFOSE	10.943	630.0 -> 58.9	11124	1.14	µg/L	100
MeFOSA	10.777	511.9 -> 219.0	2391	0.45	µg/L	m 86
		511.9 -> 169.0	3734			
MeFOSE	10.709	616.1 -> 58.9	7857	1.16	µg/L	100
PFDoDS	10.139	699.1 -> 79.9	389	0.23	µg/L	95
		699.1 -> 98.8	242			
NFDHA	5.661	295.0 -> 201.0	1316	0.50	µg/L	90
		295.0 -> 84.9	310			
PFMBA	4.975	279.0 -> 85.1	4573	0.47	µg/L	100
PFMPA	3.667	229.0 -> 84.9	3534	0.46	µg/L	100
PFEESA	6.288	314.8 -> 134.9	11574	0.45	µg/L	99
		314.8 -> 82.9	352			

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

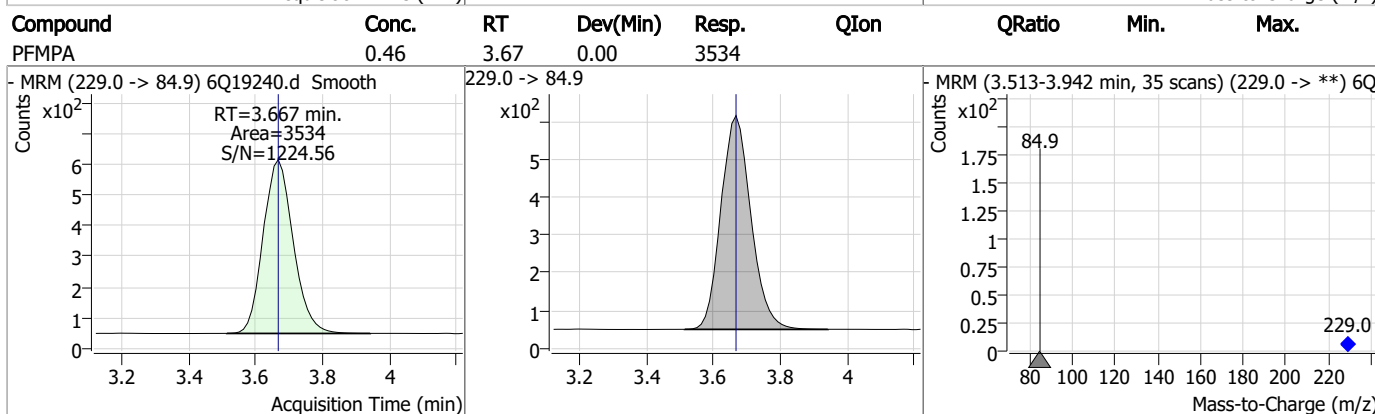
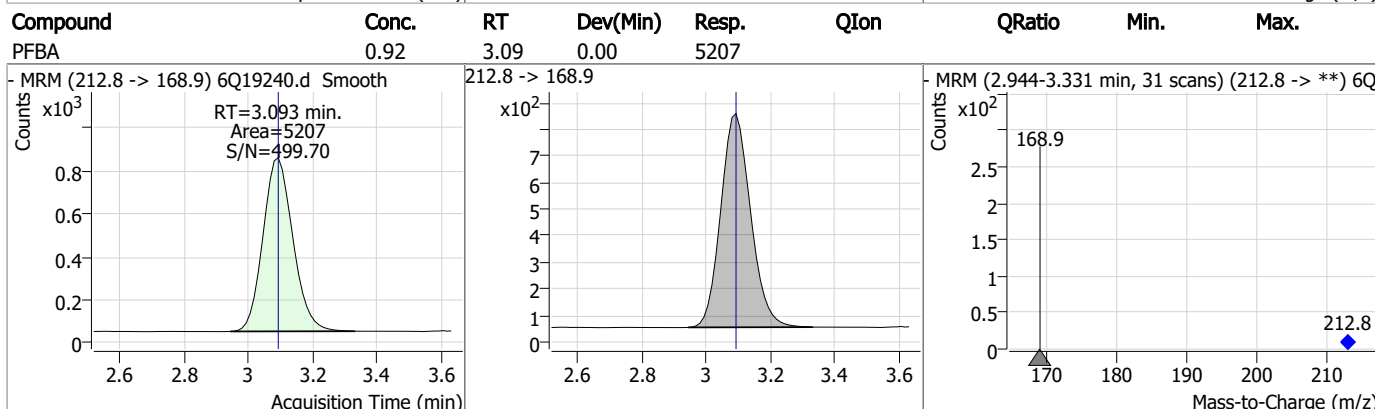
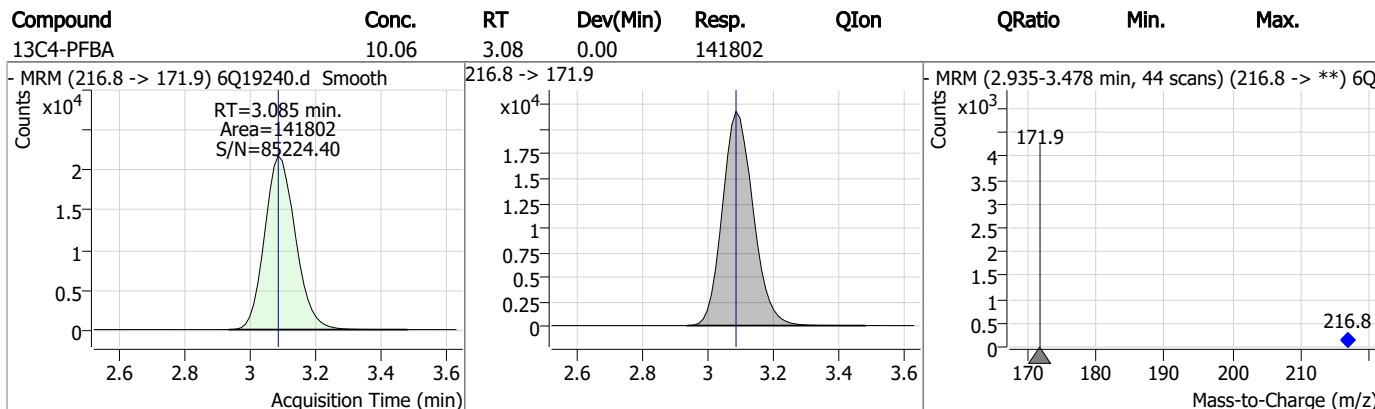
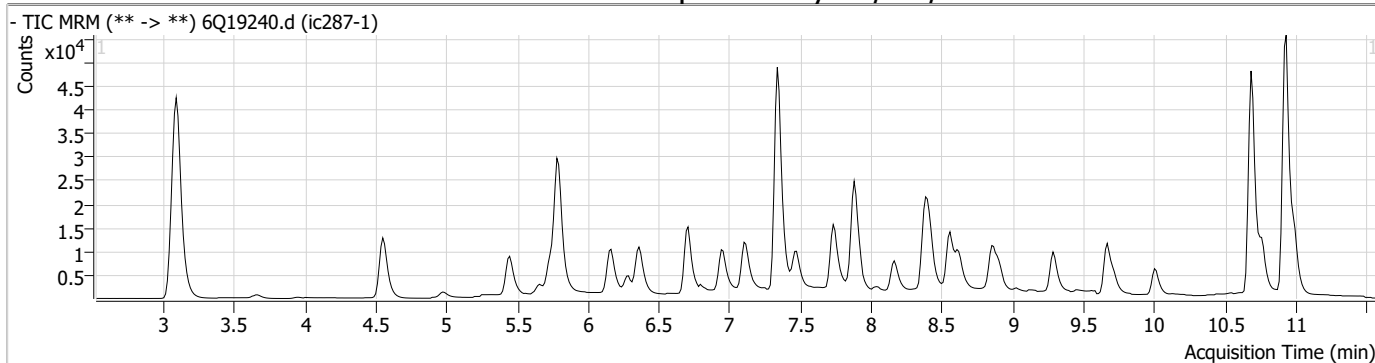
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.2
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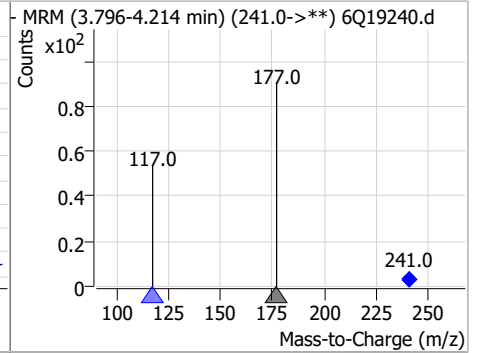
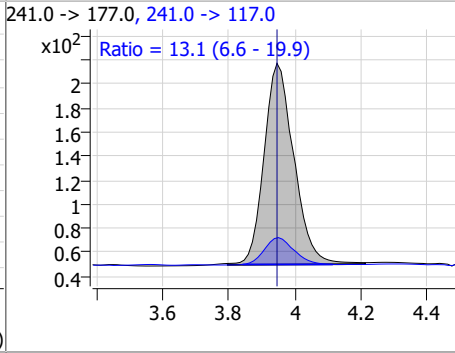
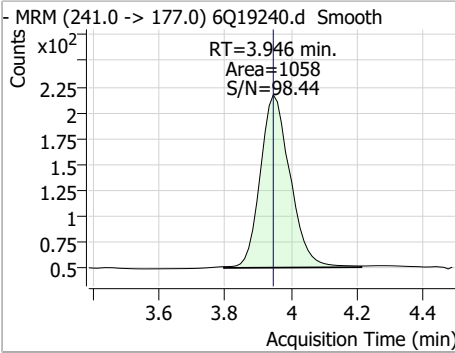
Perfluorinated Compounds by LC/MS/MS



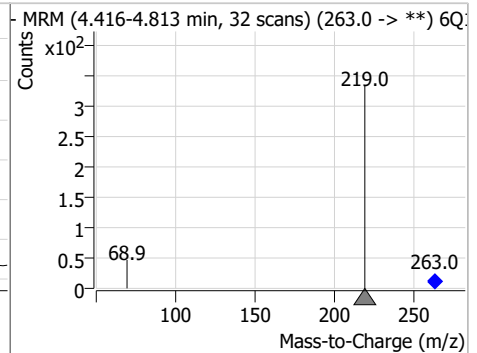
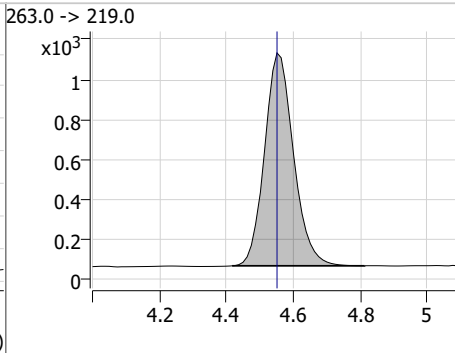
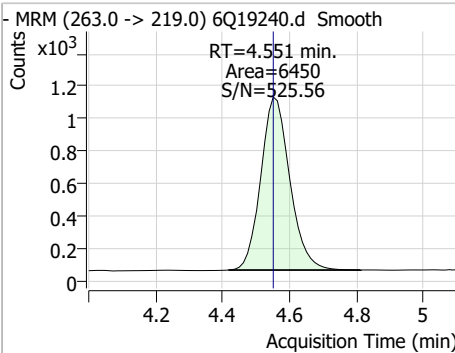
7.7.2
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Perfluorinated Compounds by LC/MS/MS

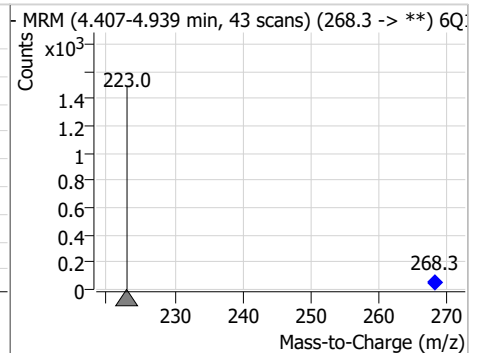
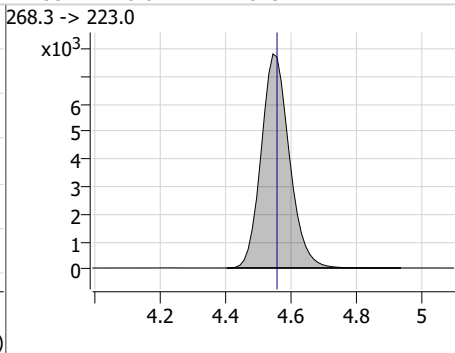
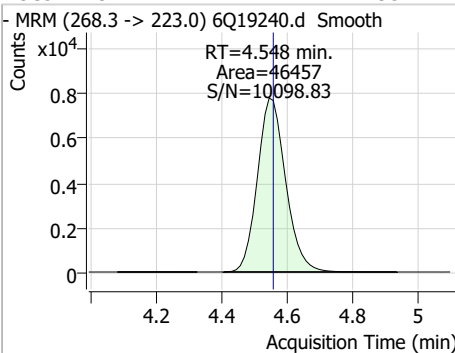
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	1.13	3.95	0.00	1058	241.0 -> 117.0	13.1	6.6	19.9



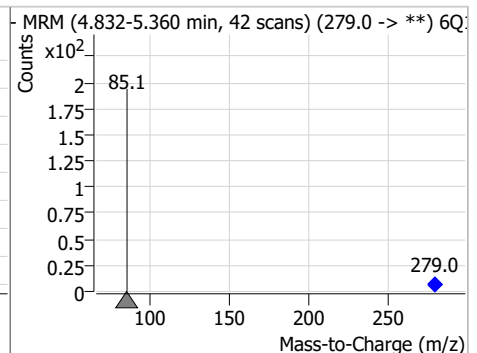
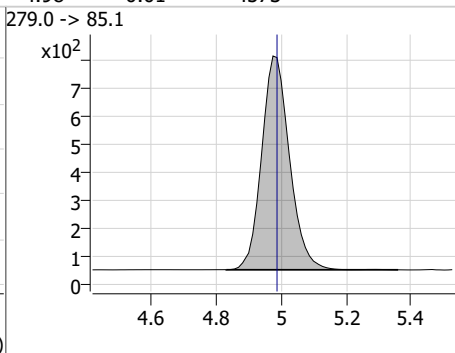
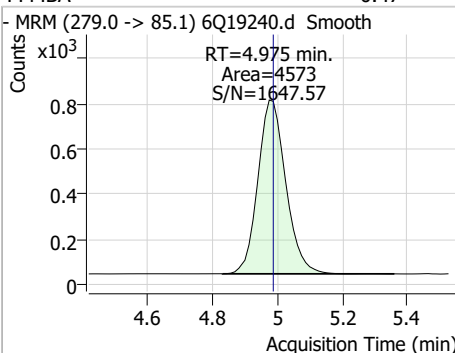
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.47	4.55	0.00	6450				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.95	4.55	-0.01	46457				



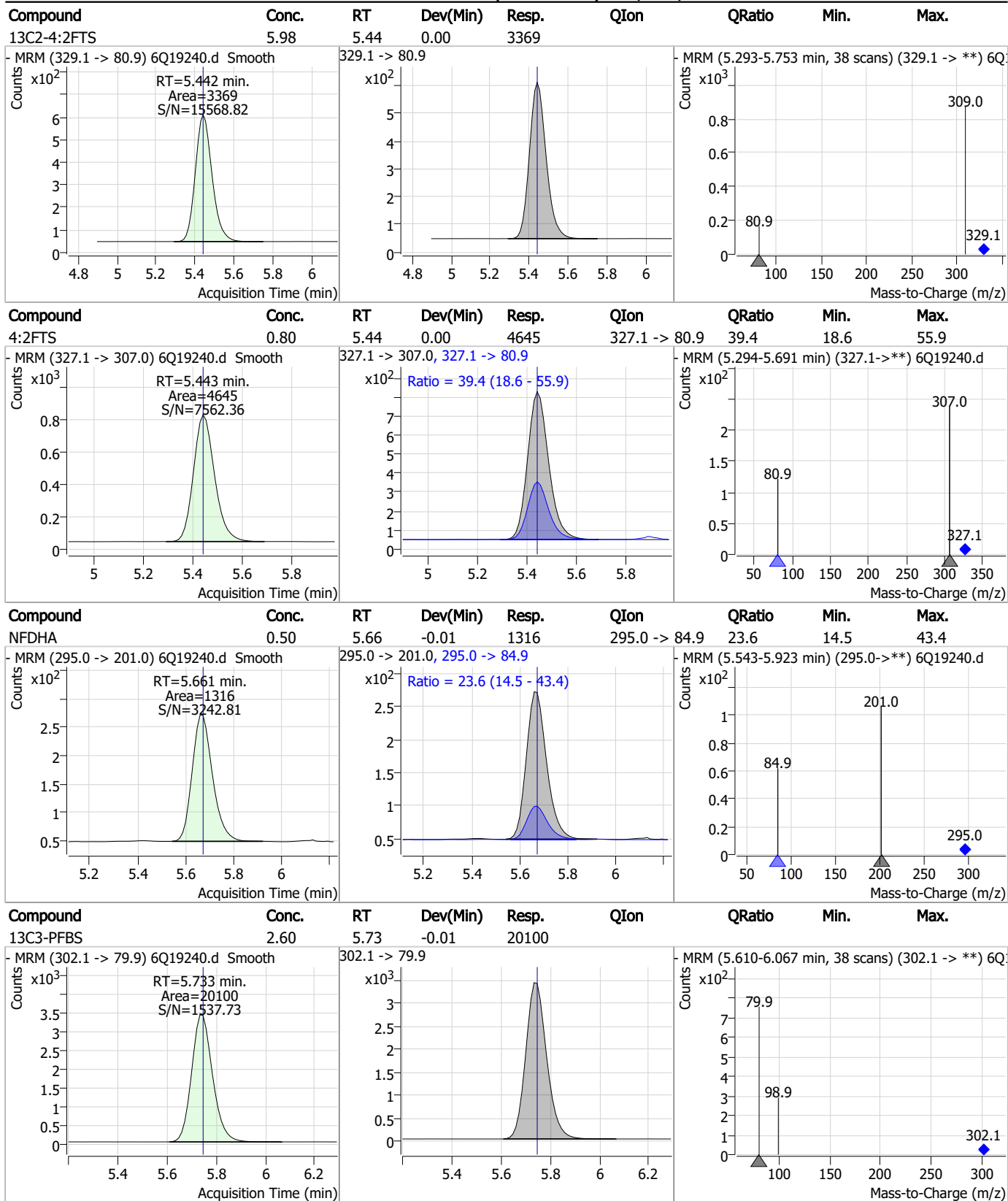
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PFMBA	0.47	4.98	-0.01	4573				



7.7.2

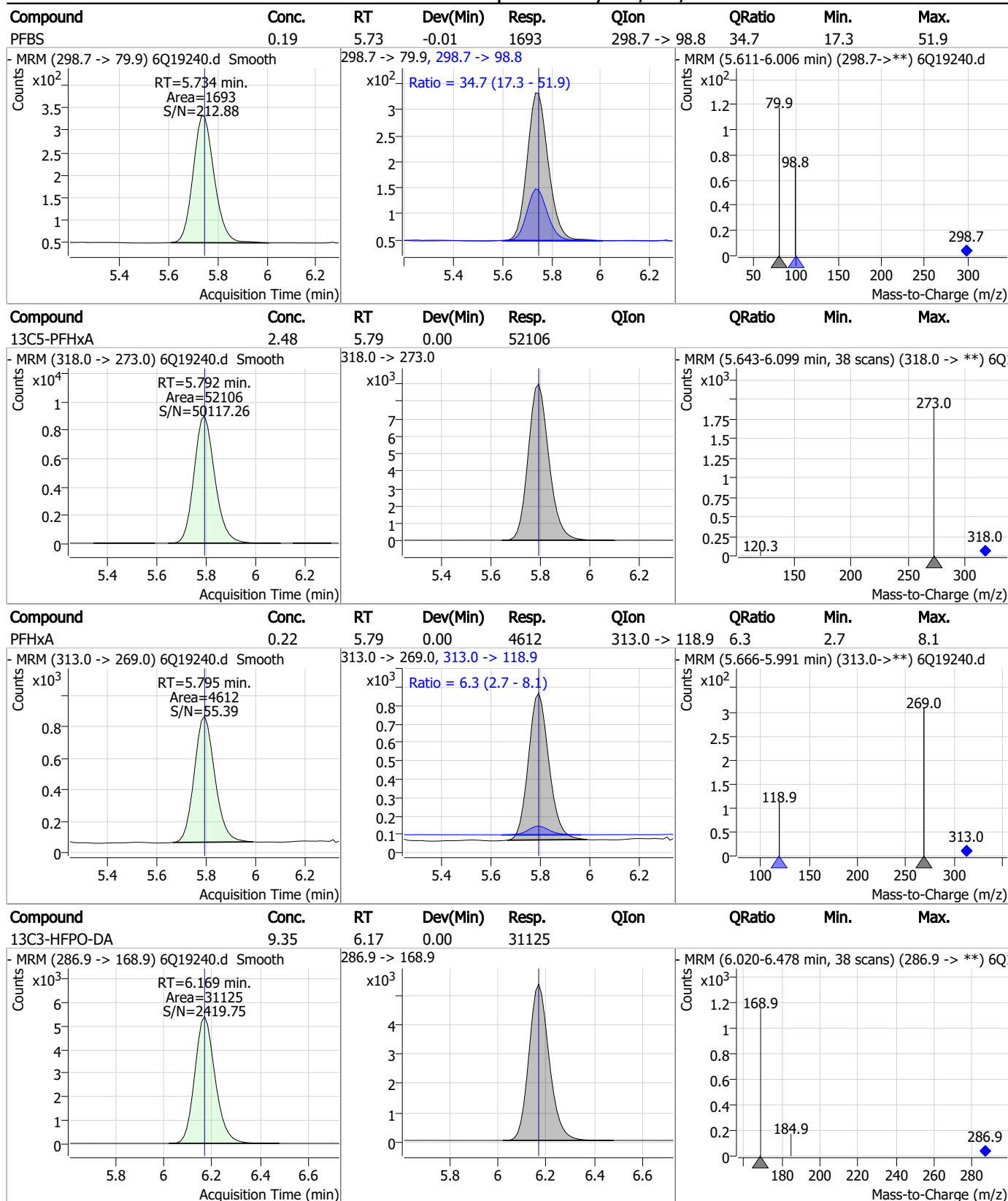
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Perfluorinated Compounds by LC/MS/MS



7.7.2
7

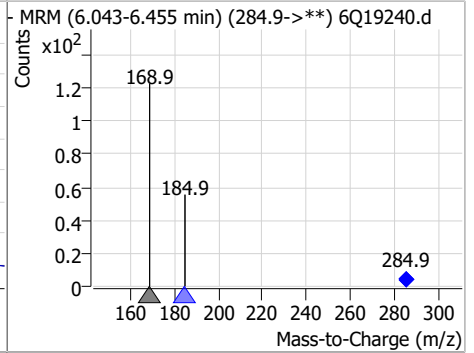
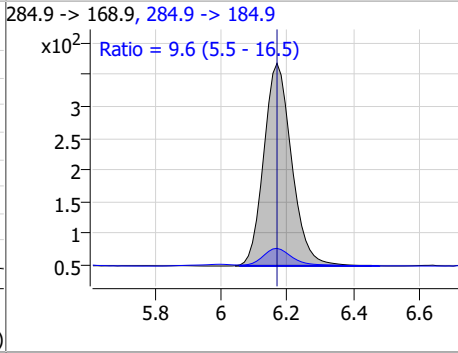
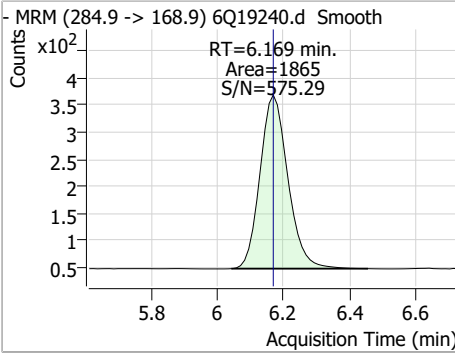
Perfluorinated Compounds by LC/MS/MS



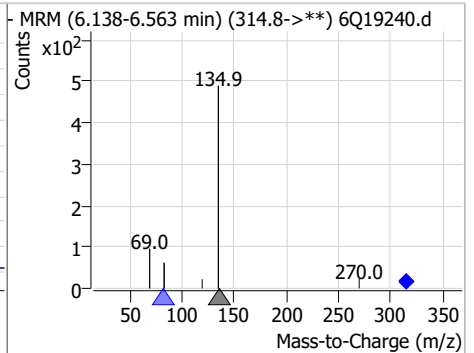
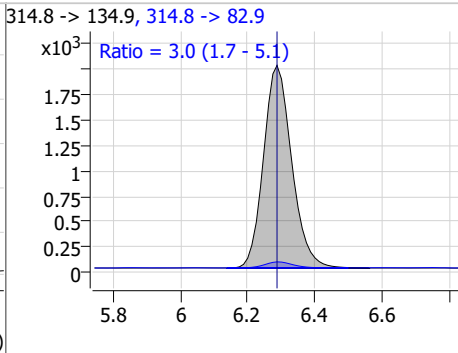
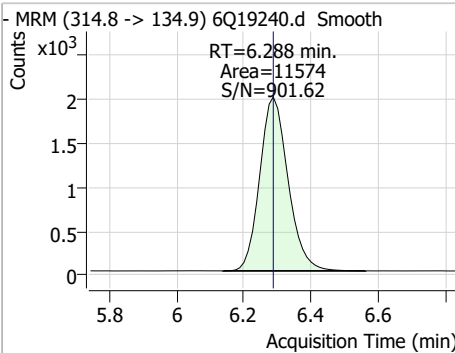
7.7.2
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Perfluorinated Compounds by LC/MS/MS

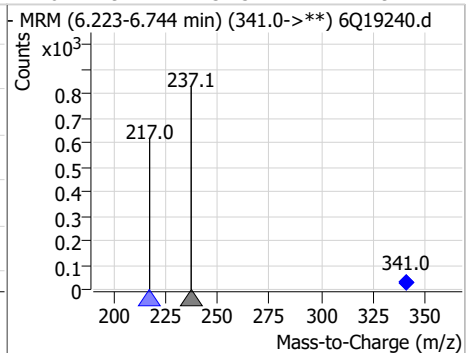
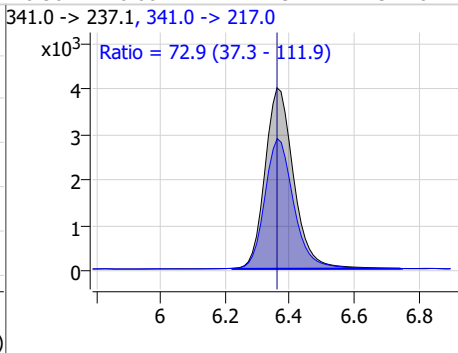
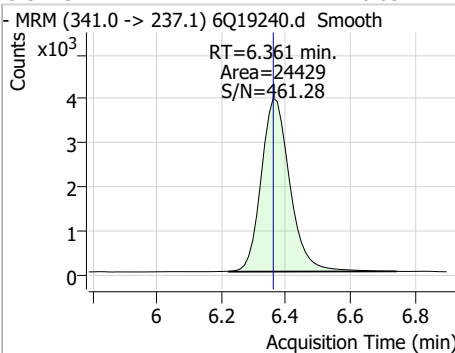
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.55	6.17	0.00	1865	284.9 -> 184.9	9.6	5.5	16.5



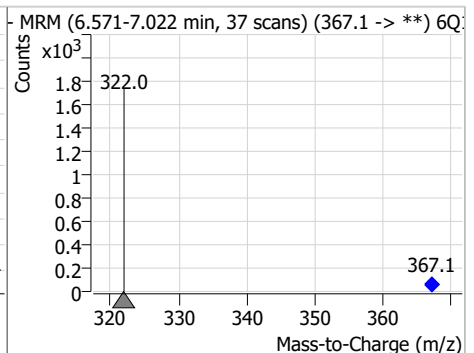
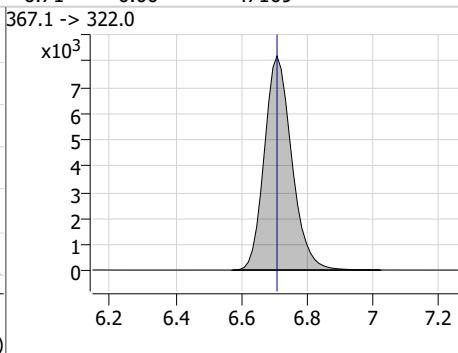
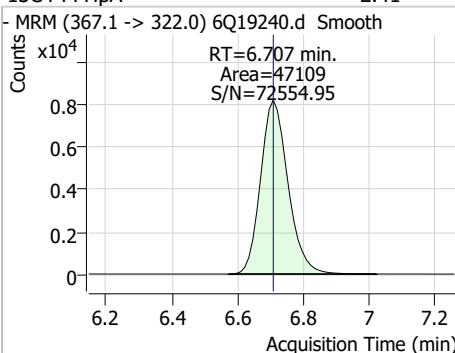
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.45	6.29	0.00	11574	314.8 -> 82.9	3.0	1.7	5.1



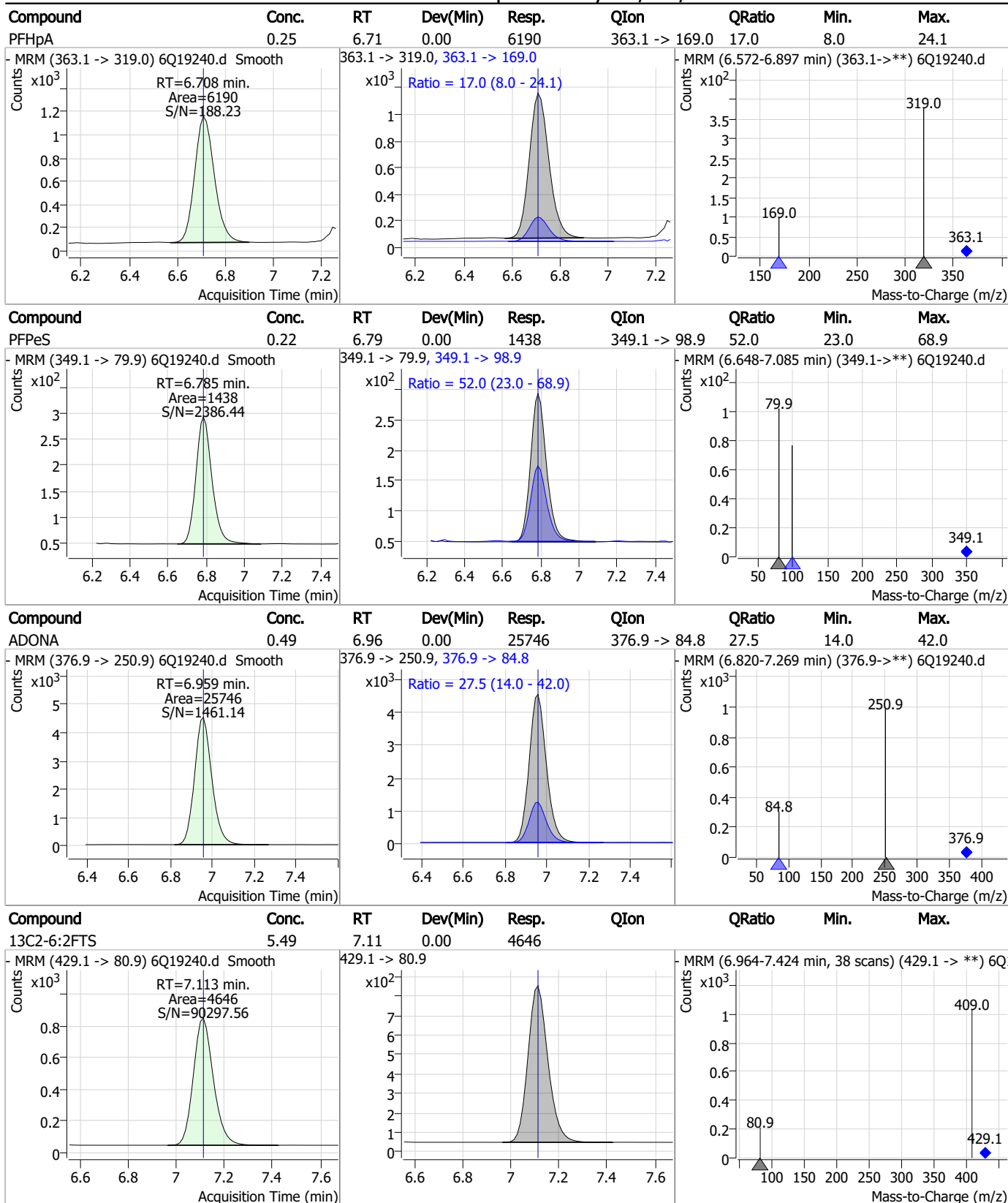
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	6.03	6.36	0.00	24429	341.0 -> 217.0	72.9	37.3	111.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.41	6.71	0.00	47109	367.1 -> 322.0			

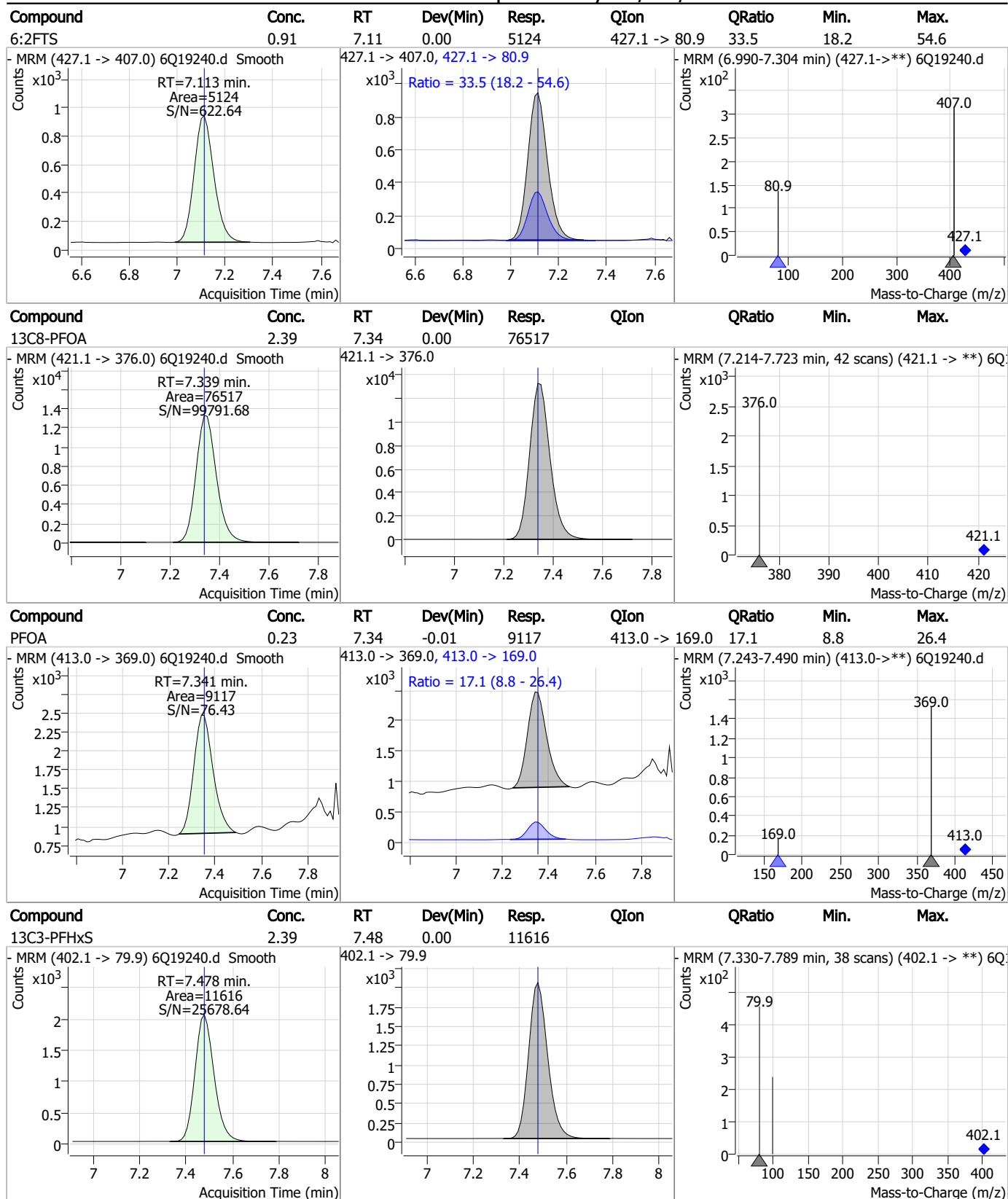


Perfluorinated Compounds by LC/MS/MS



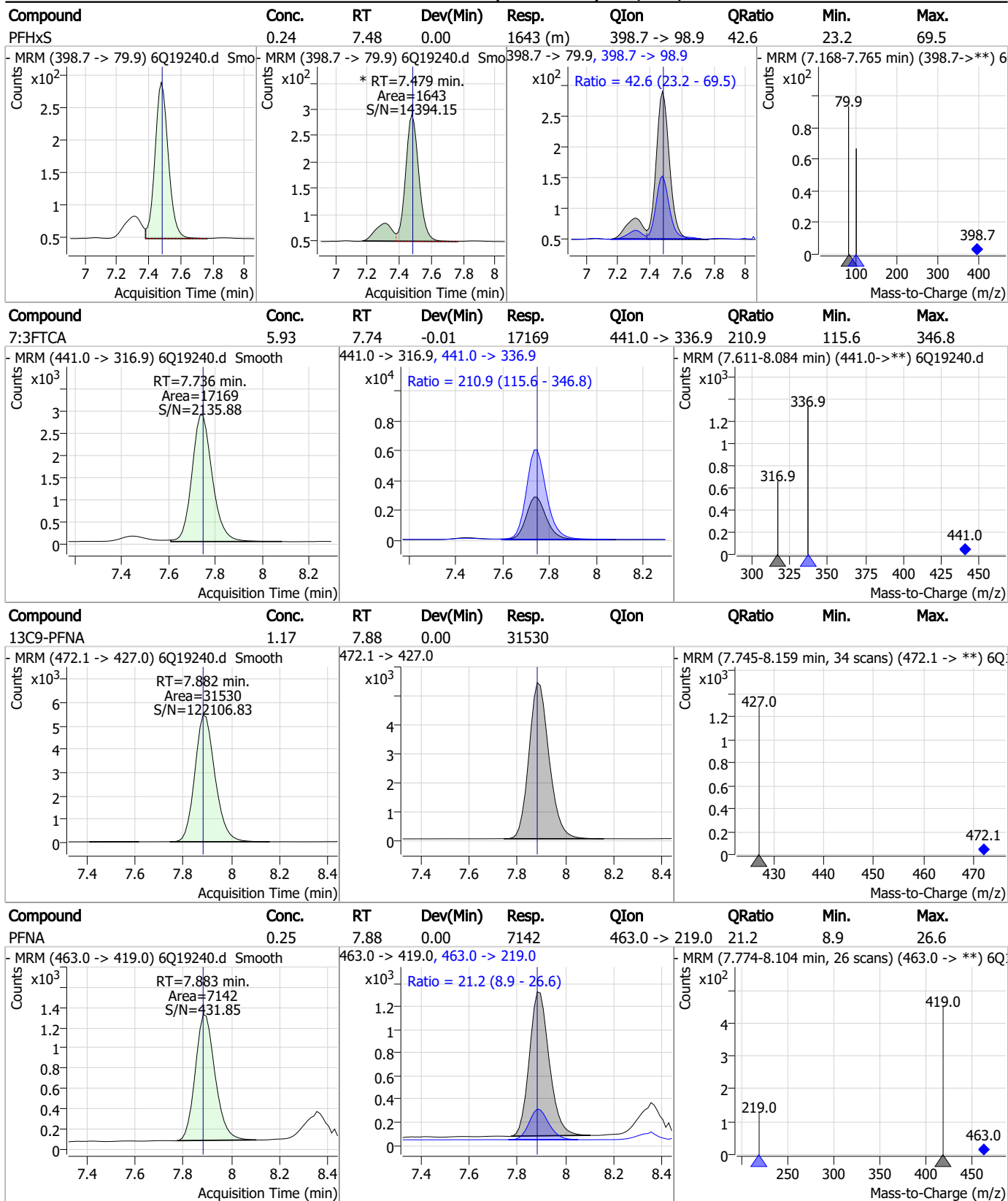
7.7.2
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Perfluorinated Compounds by LC/MS/MS



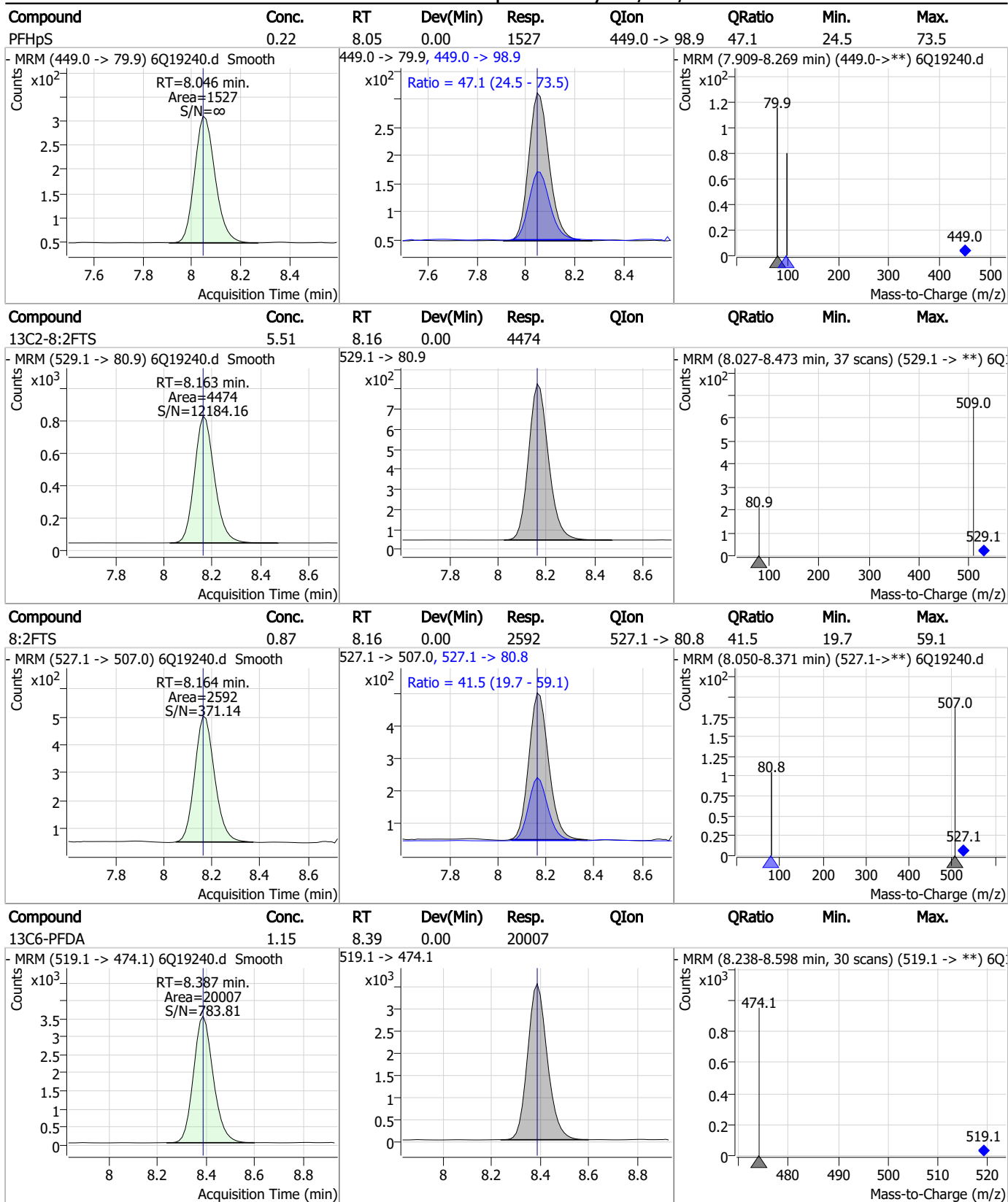
7.7.2
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Perfluorinated Compounds by LC/MS/MS



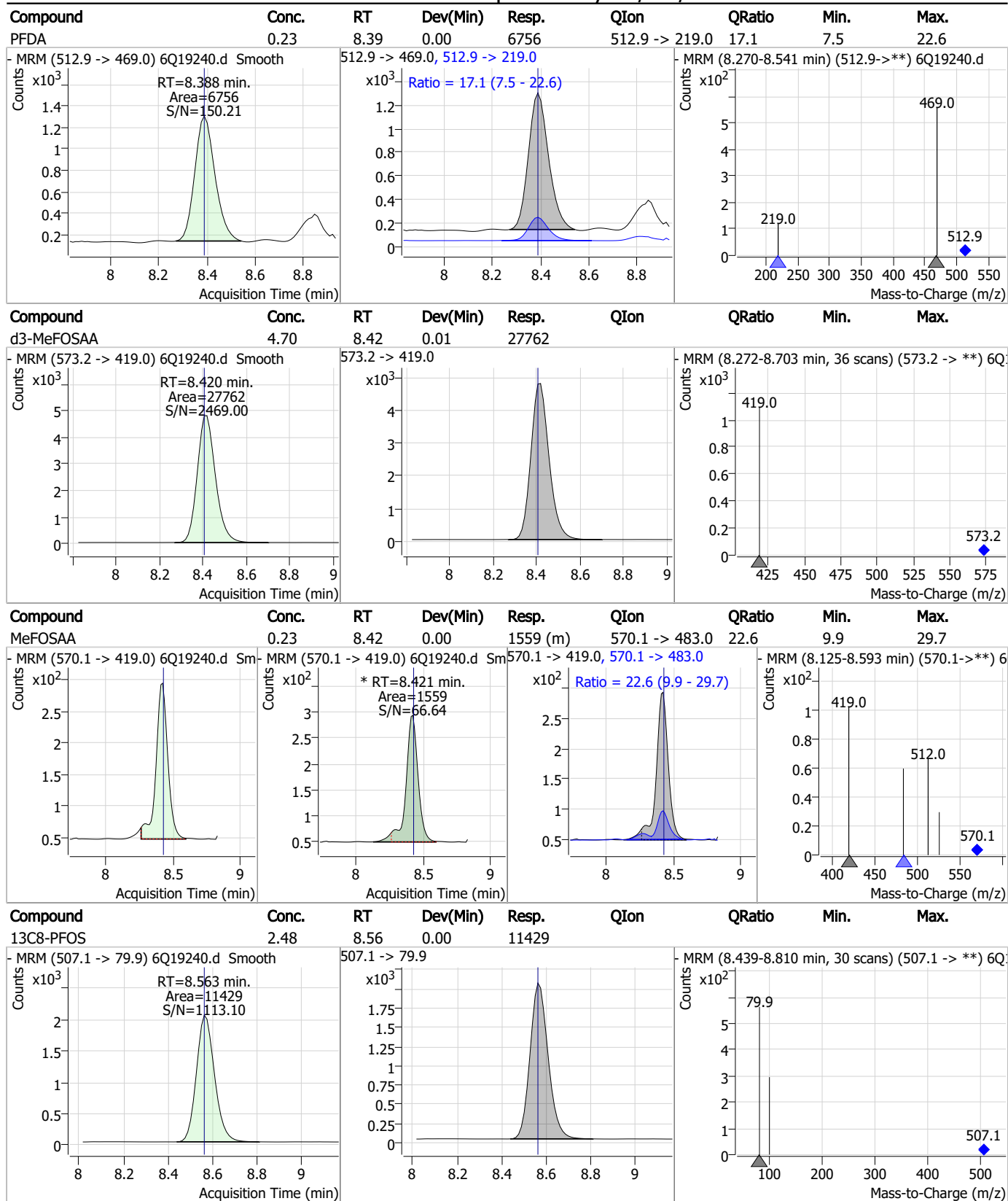
7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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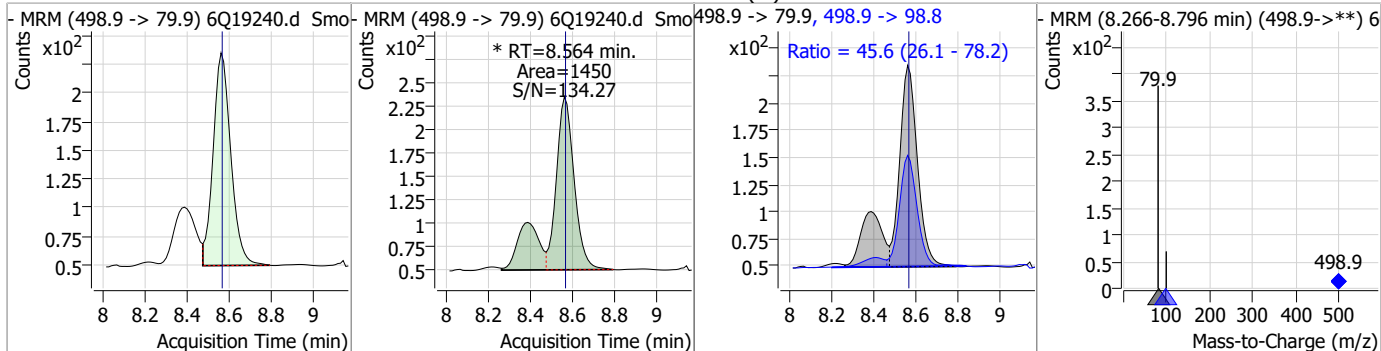
Perfluorinated Compounds by LC/MS/MS



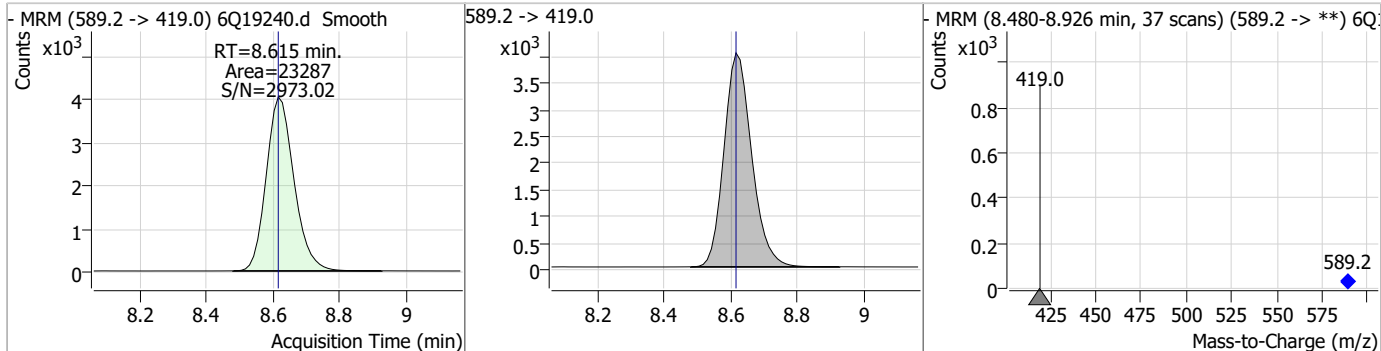
7.7.2
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Perfluorinated Compounds by LC/MS/MS

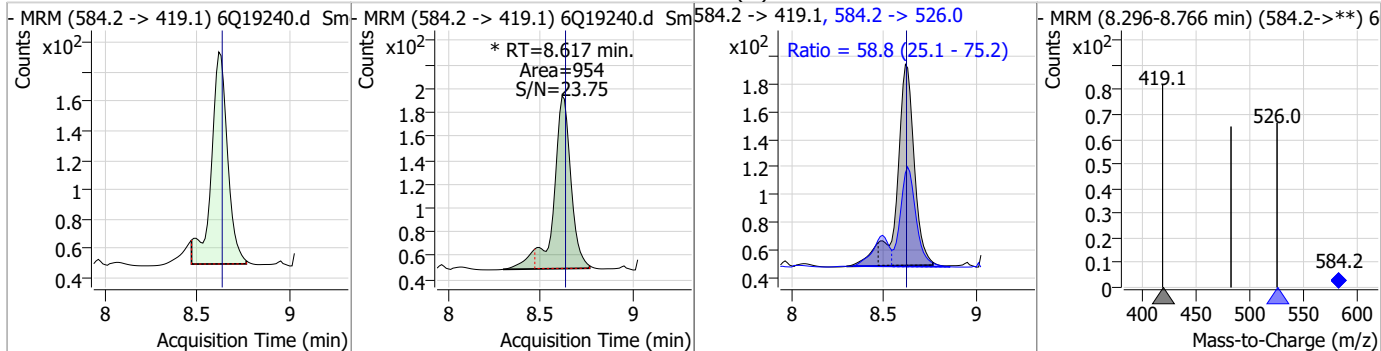
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.22	8.56	0.00	1450 (m)	498.9 -> 98.8	45.6	26.1	78.2



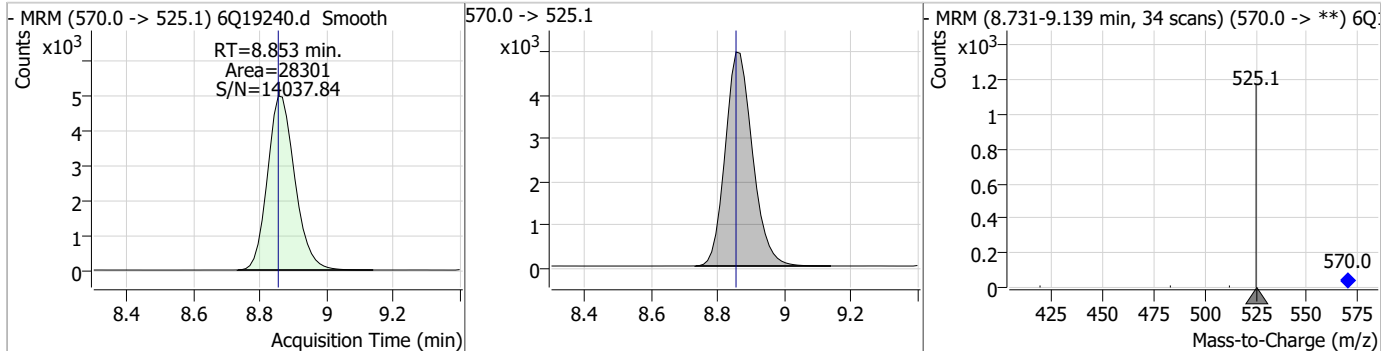
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.67	8.62	0.00	23287				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.25	8.62	-0.01	954 (m)	584.2 -> 526.0	58.8	25.1	75.2

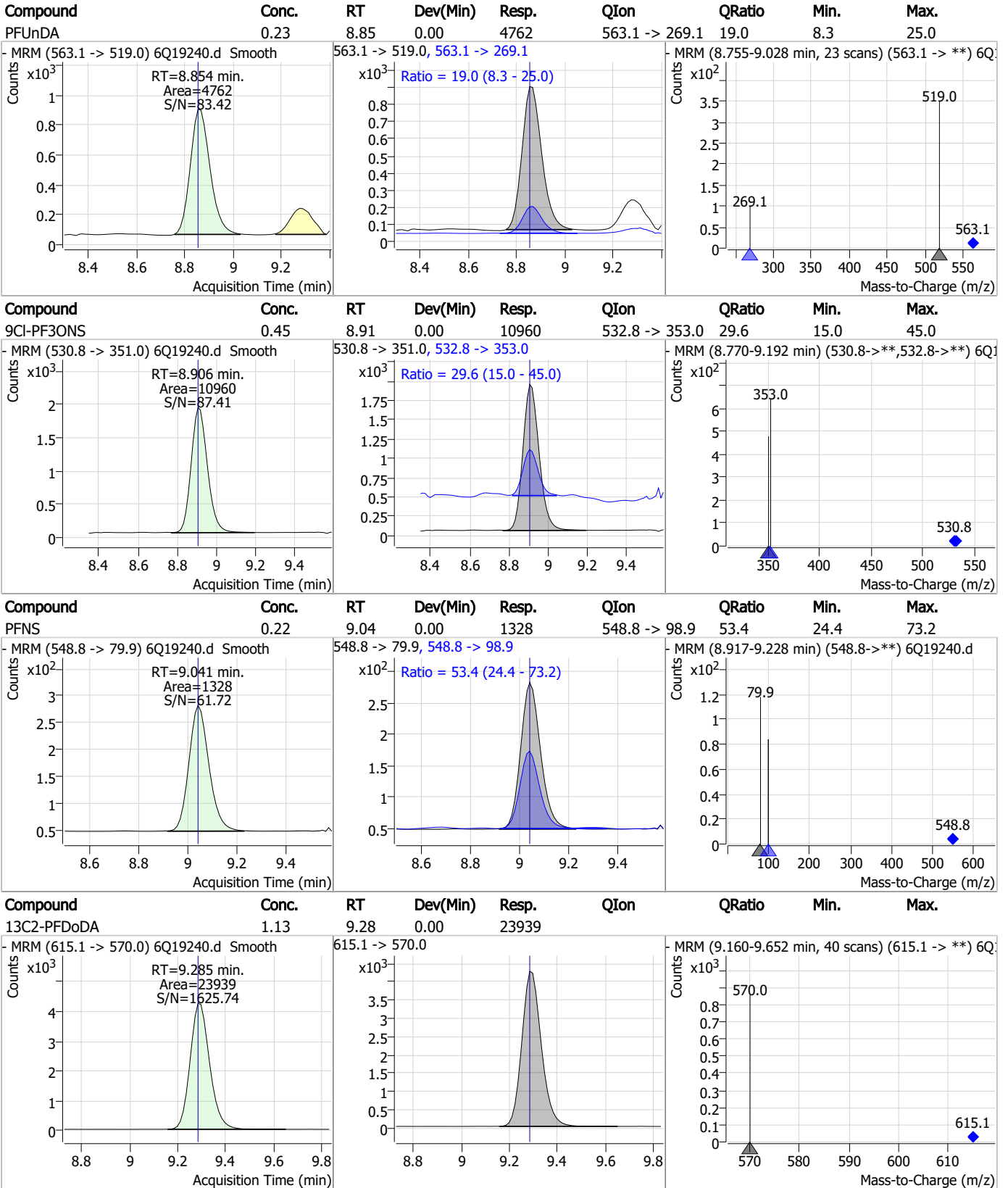


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.15	8.85	0.00	28301				



7.7.2
7

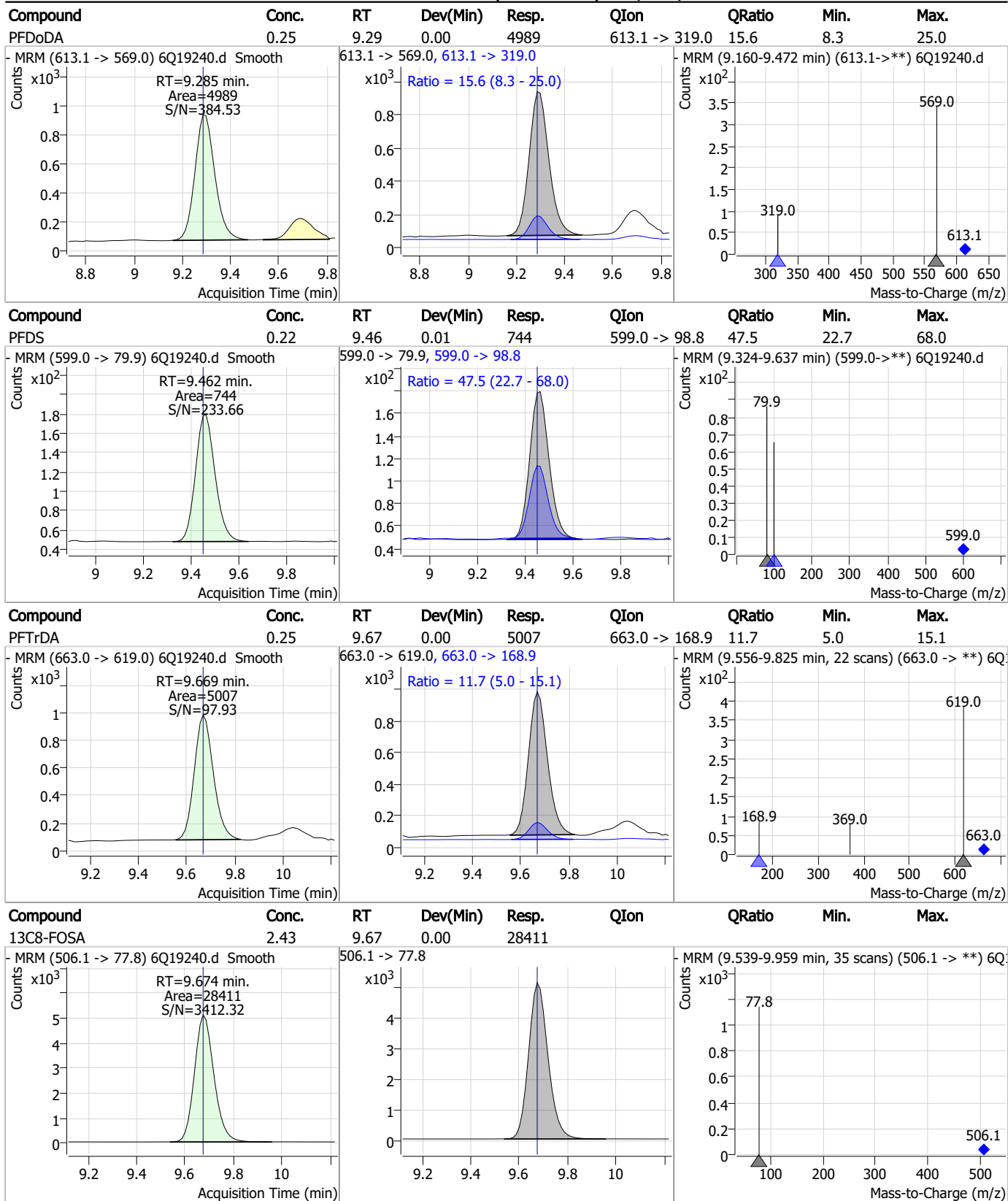
Perfluorinated Compounds by LC/MS/MS



7.7.2

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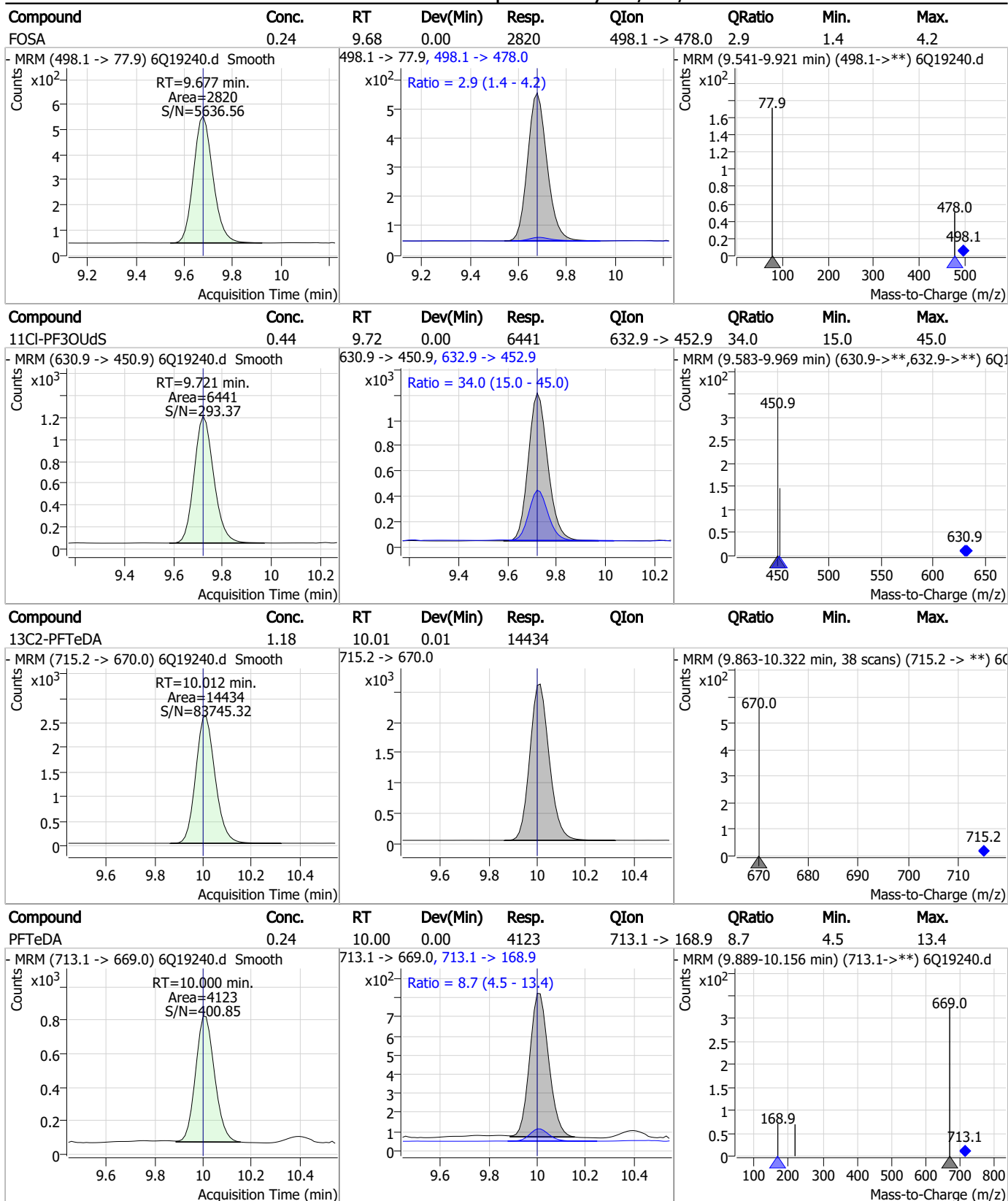
Perfluorinated Compounds by LC/MS/MS



7.7.2
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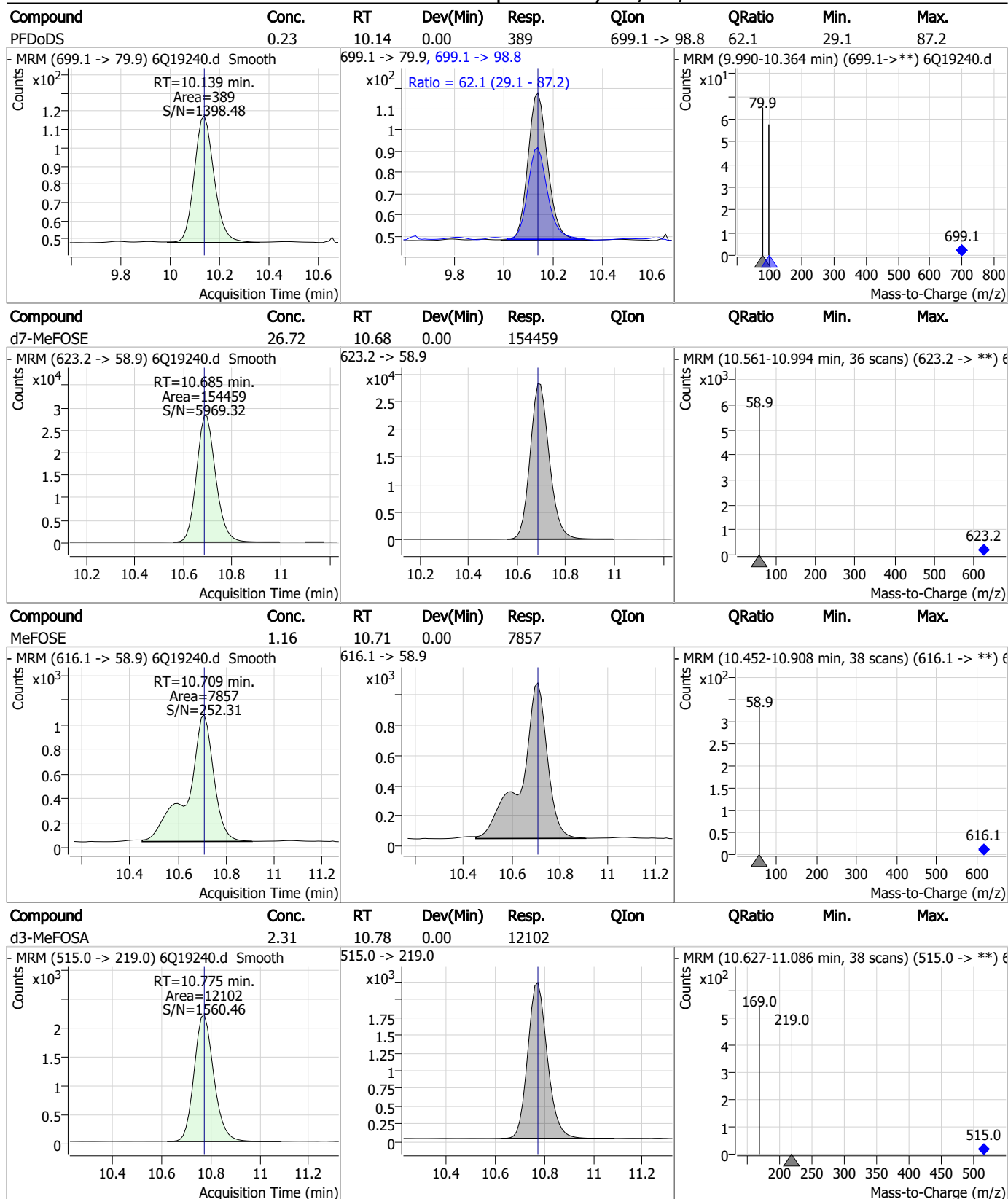


Perfluorinated Compounds by LC/MS/MS



7.7.2
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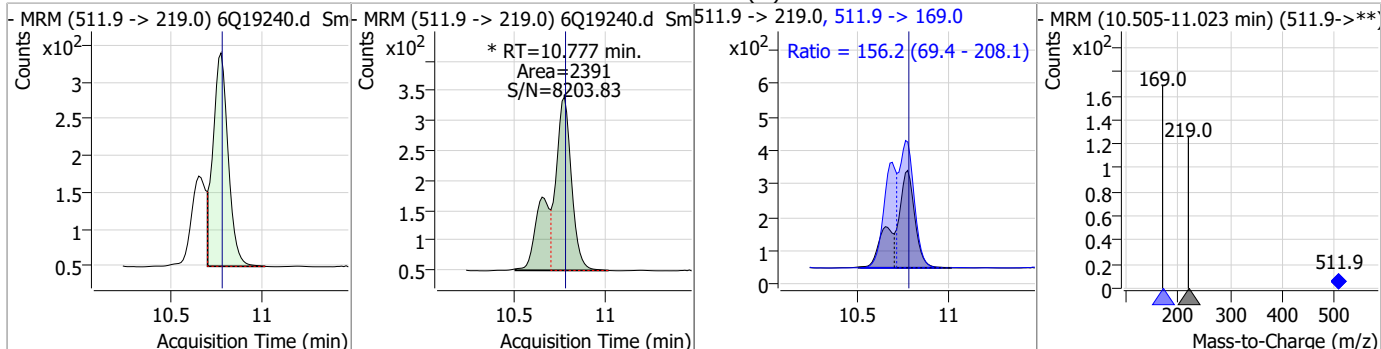
Perfluorinated Compounds by LC/MS/MS



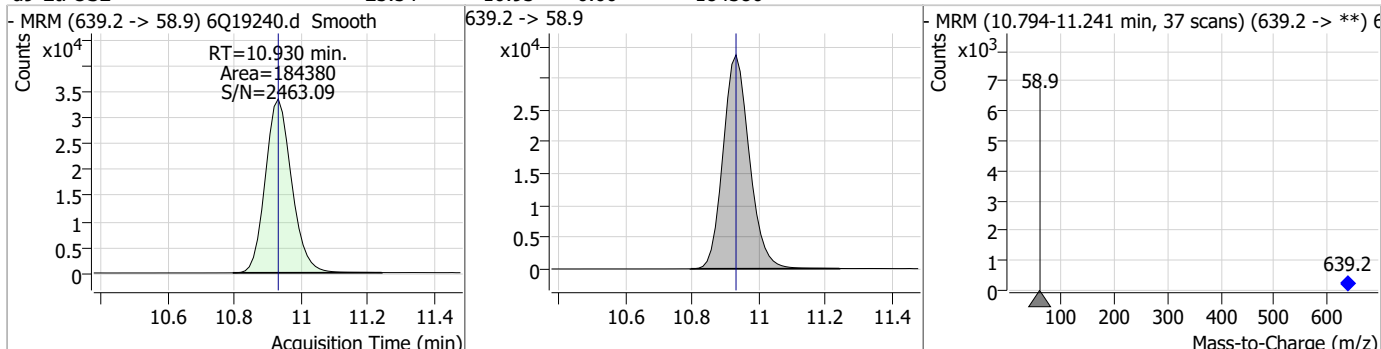
7.7.2
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Perfluorinated Compounds by LC/MS/MS

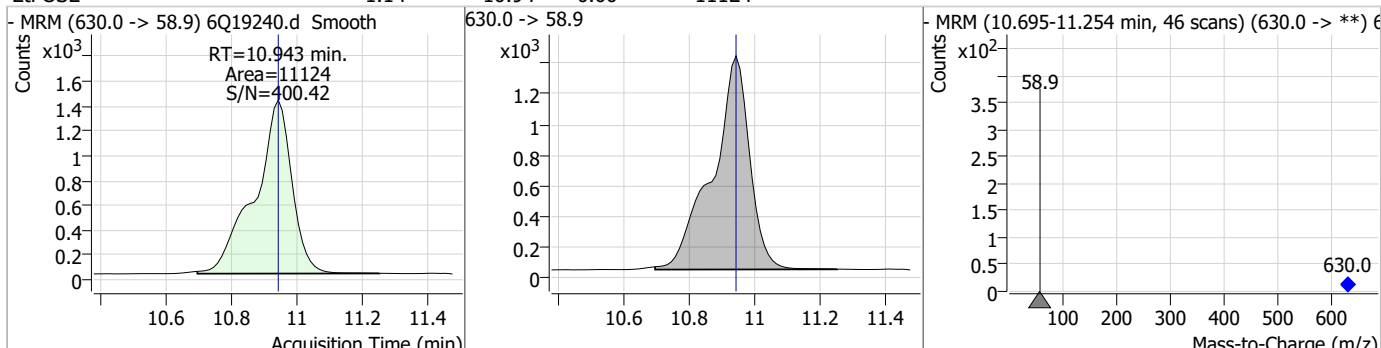
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.45	10.78	0.00	2391 (m)	511.9 -> 169.0	156.2	69.4	208.1



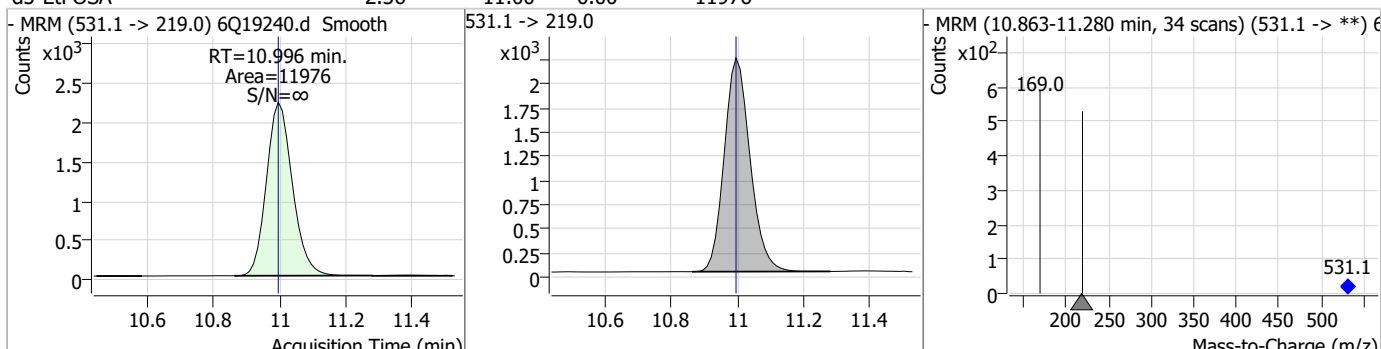
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.54	10.93	0.00	184380				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	1.14	10.94	0.00	11124				

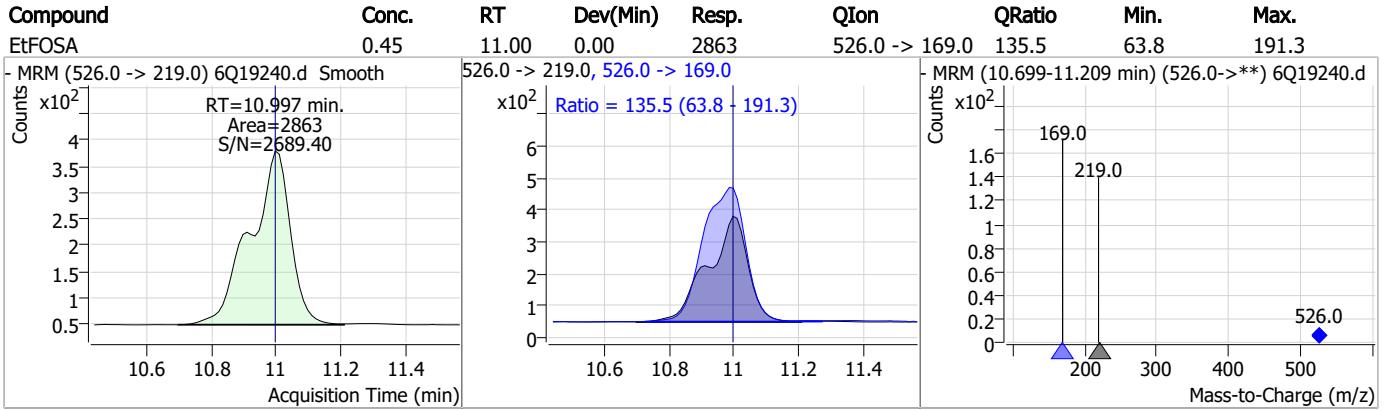


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.36	11.00	0.00	11976				



7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2

7

Manual Integration Approval Summary

Sample Number: S6Q287-IC287 Method: EPA DRAFT 1633
Lab FileID: 6Q19240.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 15:48 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.62	Split peak
MeFOSA	31506-32-8		10.78	Split peak

7.7.2.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19241.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 4:02:28 PM
 Sample Name : ic287-2
 Vial : P1-A3
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	141637	10.00 µg/L	0.000
M5-PFPeA	4.548	268.3 -> 223.0	46702	5.00 µg/L	-0.012
M5-PFHxA	5.792	318.0 -> 273.0	52337	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	46461	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	72753	2.50 µg/L	0.012
M9-PFNA	7.882	472.1 -> 427.0	32924	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	20732	1.25 µg/L	0.000
M7-PFUnDA	8.853	570.0 -> 525.1	30042	1.25 µg/L	0.000
M2-PFDoDA	9.285	615.1 -> 570.0	24226	1.25 µg/L	0.000
M2-PFTeDA	10.012	715.2 -> 670.0	14311	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	27114	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	18551	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	11498	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	10281	2.50 µg/L	0.000
M2-4:2FTS	5.442	329.1 -> 80.9	3155	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	4774	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4231	5.00 µg/L	0.000
M3-MeFOSAA	8.420	573.2 -> 419.0	27089	5.00 µg/L	0.012
M3-HFPO-DA	6.169	286.9 -> 168.9	31821	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	24295	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	144782	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	187235	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	12325	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	12131	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	14271	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	59922	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	8539	2.50 µg/L	0.000
13C4-PFOA	7.340	417.1 -> 372.0	79841	2.50 µg/L	0.000
13C2-PFDA	8.388	515.1 -> 470.1	29653	1.25 µg/L	0.000
13C5-PFNA	7.882	468.0 -> 423.0	44971	1.25 µg/L	0.000
13C2-PFHxA	5.792	315.1 -> 270.0	45094	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	3155	6.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.0%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4774	6.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.8%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4231	5.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C2-PFDoDA	9.285	615.1 -> 570.0	24226	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C2-PFTeDA	10.012	715.2 -> 670.0	14311	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C3-PFBS	5.746	302.1 -> 79.9	18551	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C3-PFHxS	7.478	402.1 -> 79.9	11498	2.54 µg/L	0.000

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 = 101.4%	
13C4-PFBA	3.085	216.8 -> 171.9	141637	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.707	367.1 -> 322.0	46461	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C5-PFHxA	5.792	318.0 -> 273.0	52337	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C5-PFPeA	4.548	268.3 -> 223.0	46702	5.36 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C6-PFDA	8.387	519.1 -> 474.1	20732	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C7-PFUnDA	8.853	570.0 -> 525.1	30042	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C8-FOSA	9.674	506.1 -> 77.8	27114	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C8-PFOA	7.352	421.1 -> 376.0	72753	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C8-PFOS	8.563	507.1 -> 79.9	10281	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C9-PFNA	7.882	472.1 -> 427.0	32924	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.0%	
d3-MeFOSAA	8.420	573.2 -> 419.0	27089	5.06 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	31821	10.30 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
d3-MeFOSA	10.775	515.0 -> 219.0	12131	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
d5-EtFOSAA	8.615	589.2 -> 419.0	24295	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.6%	
d7-MeFOSE	10.685	623.2 -> 58.9	144782	27.64 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 110.6%	
d9-EtFOSE	10.930	639.2 -> 58.9	187235	28.62 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 114.5%	
d5-EtFOSA	10.996	531.1 -> 219.0	12325	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.2%	
Target Compounds					QValue
4:2FTS	5.443	327.1 -> 307.0	8637	1.58 µg/L	96
		327.1 -> 80.9	3424		
6:2FTS	7.113	427.1 -> 407.0	9198	1.59 µg/L	95
		427.1 -> 80.9	3057		
8:2FTS	8.164	527.1 -> 507.0	5065	1.80 µg/L	95
		527.1 -> 80.8	1856		
EtFOSAA	8.629	584.2 -> 419.1	1566	0.39 µg/L	m 98
		584.2 -> 526.0	767		
FOSA	9.677	498.1 -> 77.9	4795	0.43 µg/L	99
		498.1 -> 478.0	155		
MeFOSAA	8.421	570.1 -> 419.0	2934	0.45 µg/L	m 96
		570.1 -> 483.0	638		
PFBA	3.093	212.8 -> 168.9	9170	1.62 µg/L	100
PFBS	5.747	298.7 -> 79.9	3112	0.38 µg/L	95
		298.7 -> 98.8	1167		
PFDA	8.388	512.9 -> 469.0	12250	0.40 µg/L	97
		512.9 -> 219.0	2015		
PFDODA	9.285	613.1 -> 569.0	8766	0.44 µg/L	98
		613.1 -> 319.0	1372		
PFDS	9.450	599.0 -> 79.9	1329	0.43 µg/L	85

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	734			
PFHpA	6.708	363.1 -> 319.0	10471	0.42	µg/L	100
		363.1 -> 169.0	1679			
PFHpS	8.046	449.0 -> 79.9	2393	0.39	µg/L	91
		449.0 -> 98.9	1323			
PFHxA	5.795	313.0 -> 269.0	8571	0.41	µg/L	99
		313.0 -> 118.9	423			
PFHxS	7.479	398.7 -> 79.9	2694	0.39	µg/L	m 96
		398.7 -> 98.9	1326			
PFNA	7.883	463.0 -> 419.0	12433	0.41	µg/L	94
		463.0 -> 219.0	2533			
PFNS	9.041	548.8 -> 79.9	2311	0.43	µg/L	91
		548.8 -> 98.9	1267			
PFOA	7.353	413.0 -> 369.0	15981	0.43	µg/L	98
		413.0 -> 169.0	2969			
PFOS	8.564	498.9 -> 79.9	2426	0.40	µg/L	m 92
		498.9 -> 98.8	1130			
PFPeA	4.551	263.0 -> 219.0	11427	0.83	µg/L	100
PFPeS	6.785	349.1 -> 79.9	2669	0.42	µg/L	91
		349.1 -> 98.9	1072			
PFTeDA	10.000	713.1 -> 669.0	7311	0.43	µg/L	97
		713.1 -> 168.9	572			
PFTrDA	9.669	663.0 -> 619.0	8832	0.44	µg/L	98
		663.0 -> 168.9	954			
PFUnDA	8.866	563.1 -> 519.0	8571	0.39	µg/L	97
		563.1 -> 269.1	1535			
11CI-PF3OUdS	9.721	630.9 -> 450.9	12285	0.82	µg/L	99
		632.9 -> 452.9	3725			
9CI-PF3ONS	8.906	530.8 -> 351.0	20519	0.82	µg/L	92
		532.8 -> 353.0	5213			
ADONA	6.959	376.9 -> 250.9	42272	0.79	µg/L	98
		376.9 -> 84.8	11368			
HFPO-DA	6.169	284.9 -> 168.9	2728	0.79	µg/L	94
		284.9 -> 184.9	363			
3:3FTCA	3.946	241.0 -> 177.0	1893	2.01	µg/L	97
		241.0 -> 117.0	274			
5:3FTCA	6.361	341.0 -> 237.1	41391	10.18	µg/L	98
		341.0 -> 217.0	31474			
7:3FTCA	7.748	441.0 -> 316.9	30546	10.50	µg/L	81
		441.0 -> 336.9	61132			
EtFOSA	10.997	526.0 -> 219.0	5382	0.82	µg/L	98
		526.0 -> 169.0	6987			
EtFOSE	10.943	630.0 -> 58.9	19916	2.01	µg/L	100
MeFOSA	10.777	511.9 -> 219.0	4470	0.84	µg/L	m 96
		511.9 -> 169.0	6394			
MeFOSE	10.709	616.1 -> 58.9	12458	1.97	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	635	0.41	µg/L	93
		699.1 -> 98.8	338			
NFDHA	5.673	295.0 -> 201.0	2117	0.80	µg/L	100
		295.0 -> 84.9	612			
PFMBA	4.988	279.0 -> 85.1	7958	0.81	µg/L	100
PFMPA	3.667	229.0 -> 84.9	6148	0.80	µg/L	100
PFEESA	6.288	314.8 -> 134.9	19459	0.75	µg/L	98
		314.8 -> 82.9	808			

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

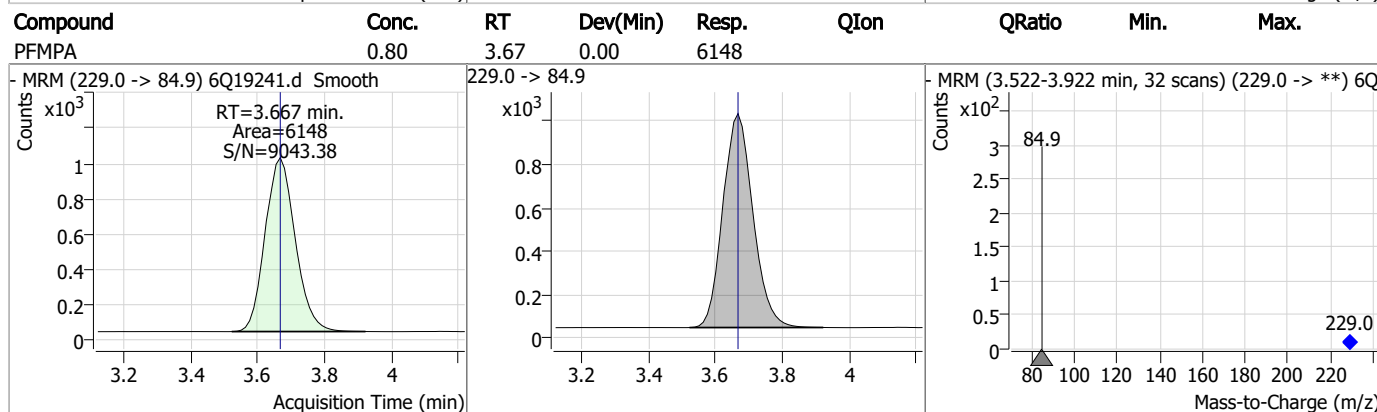
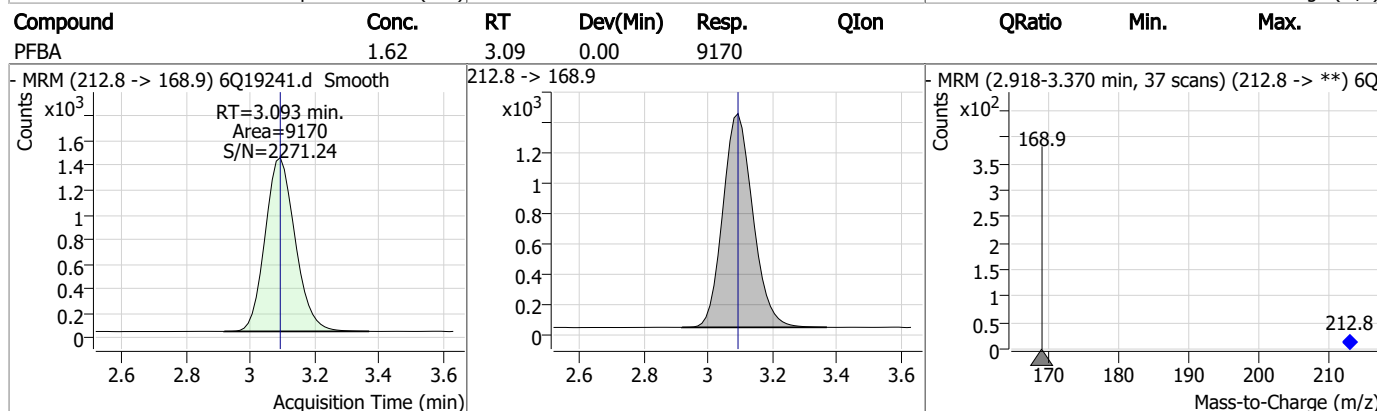
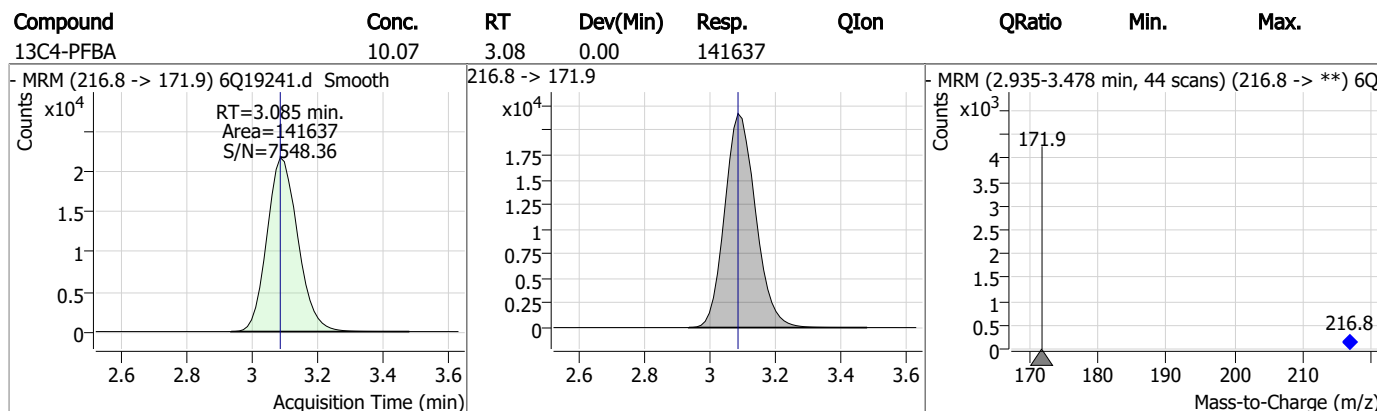
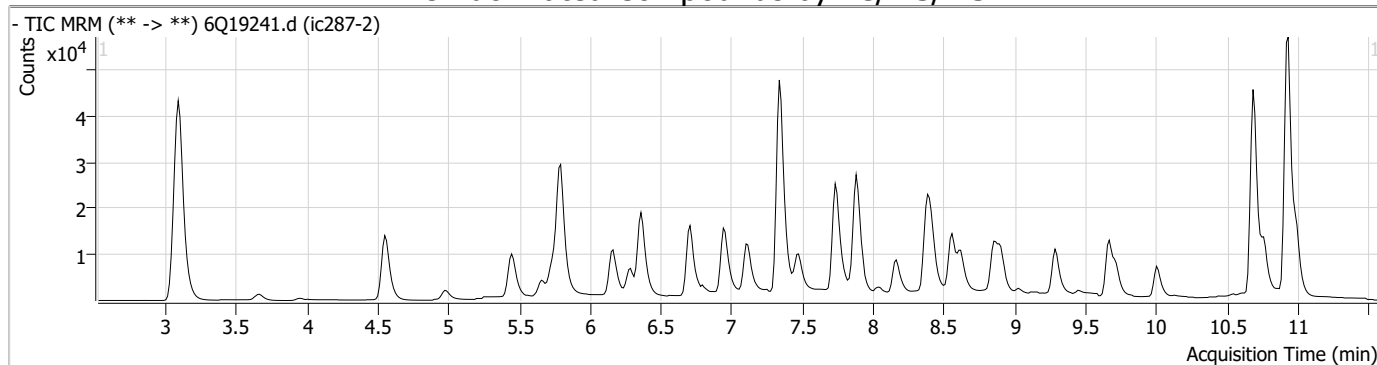
Perfluorinated Compounds by LC/MS/MS

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

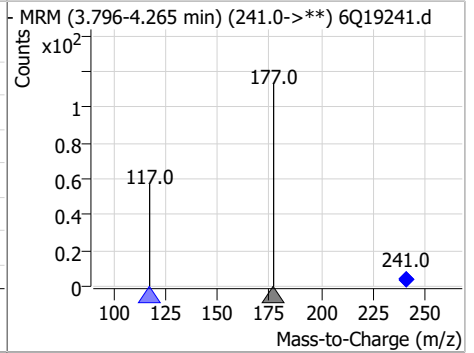
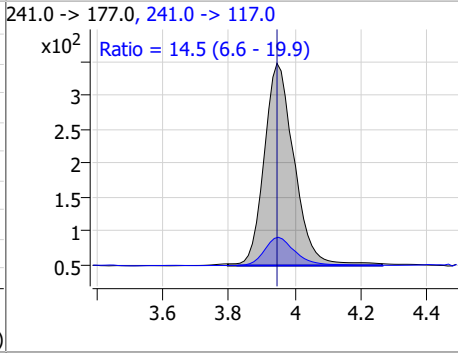
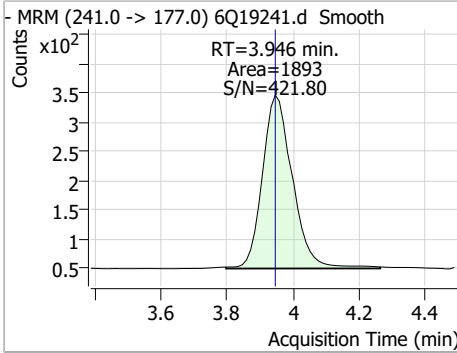
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Perfluorinated Compounds by LC/MS/MS

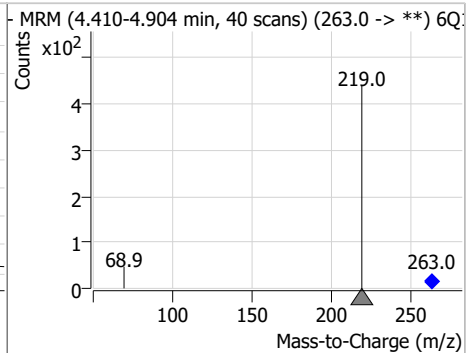
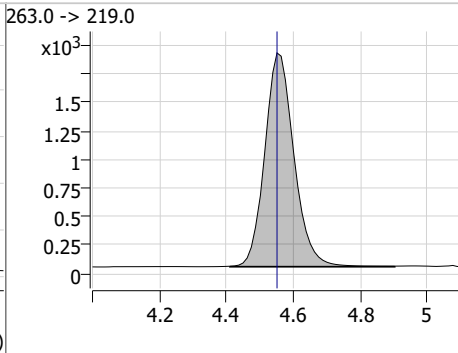
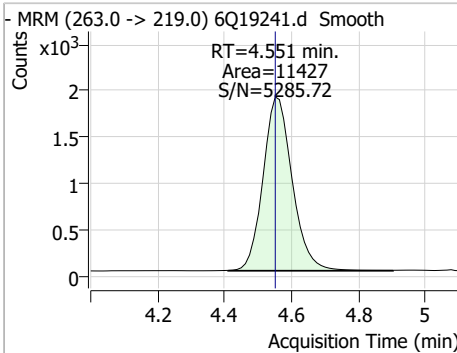


Perfluorinated Compounds by LC/MS/MS

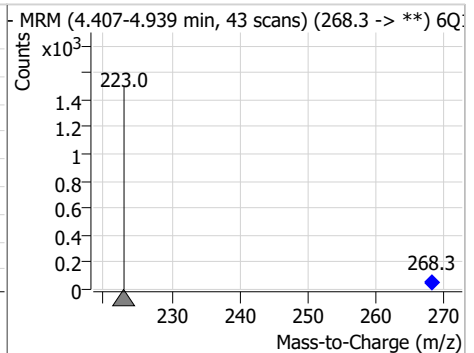
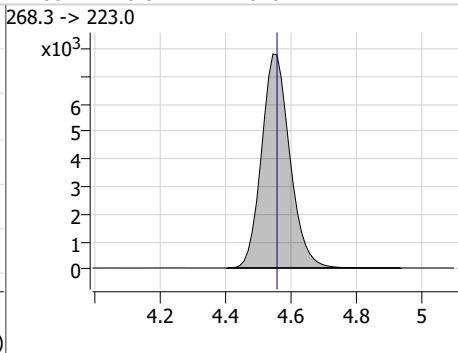
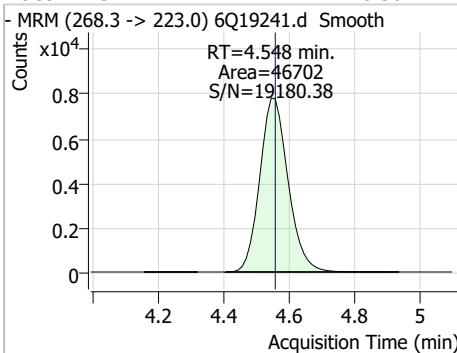
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	2.01	3.95	0.00	1893	241.0 -> 117.0	14.5	6.6	19.9



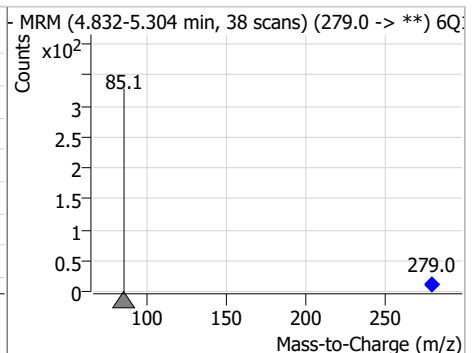
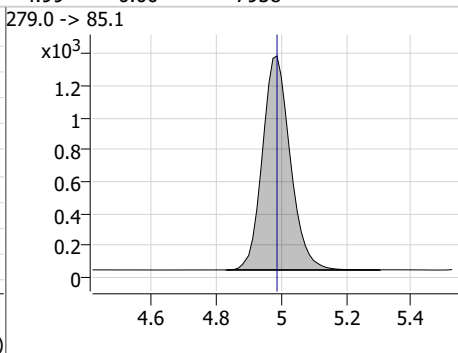
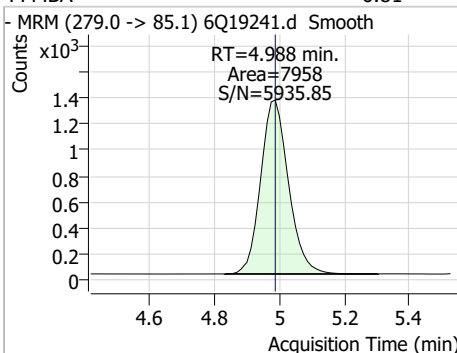
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.83	4.55	0.00	11427				



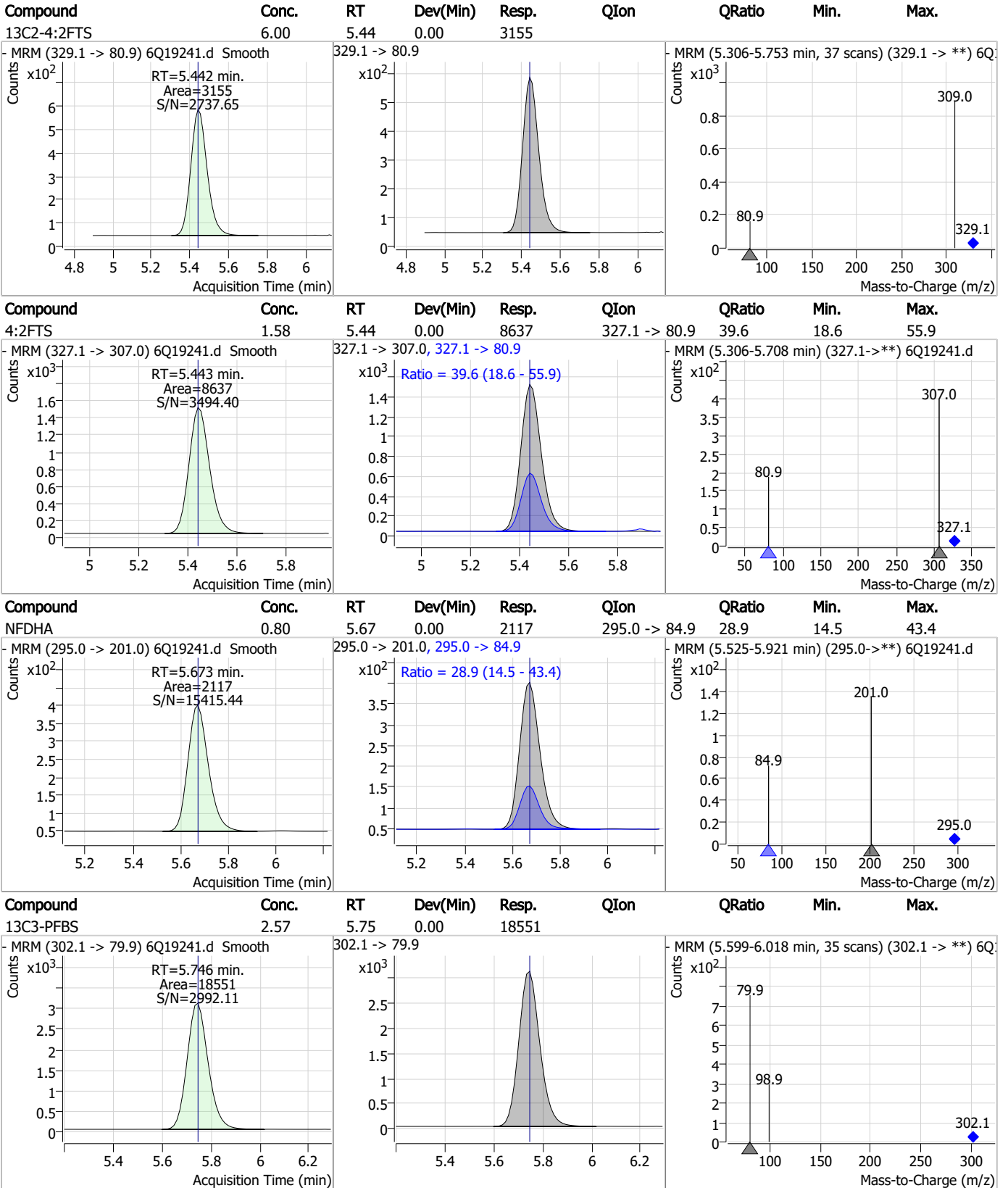
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.36	4.55	-0.01	46702				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.81	4.99	0.00	7958				



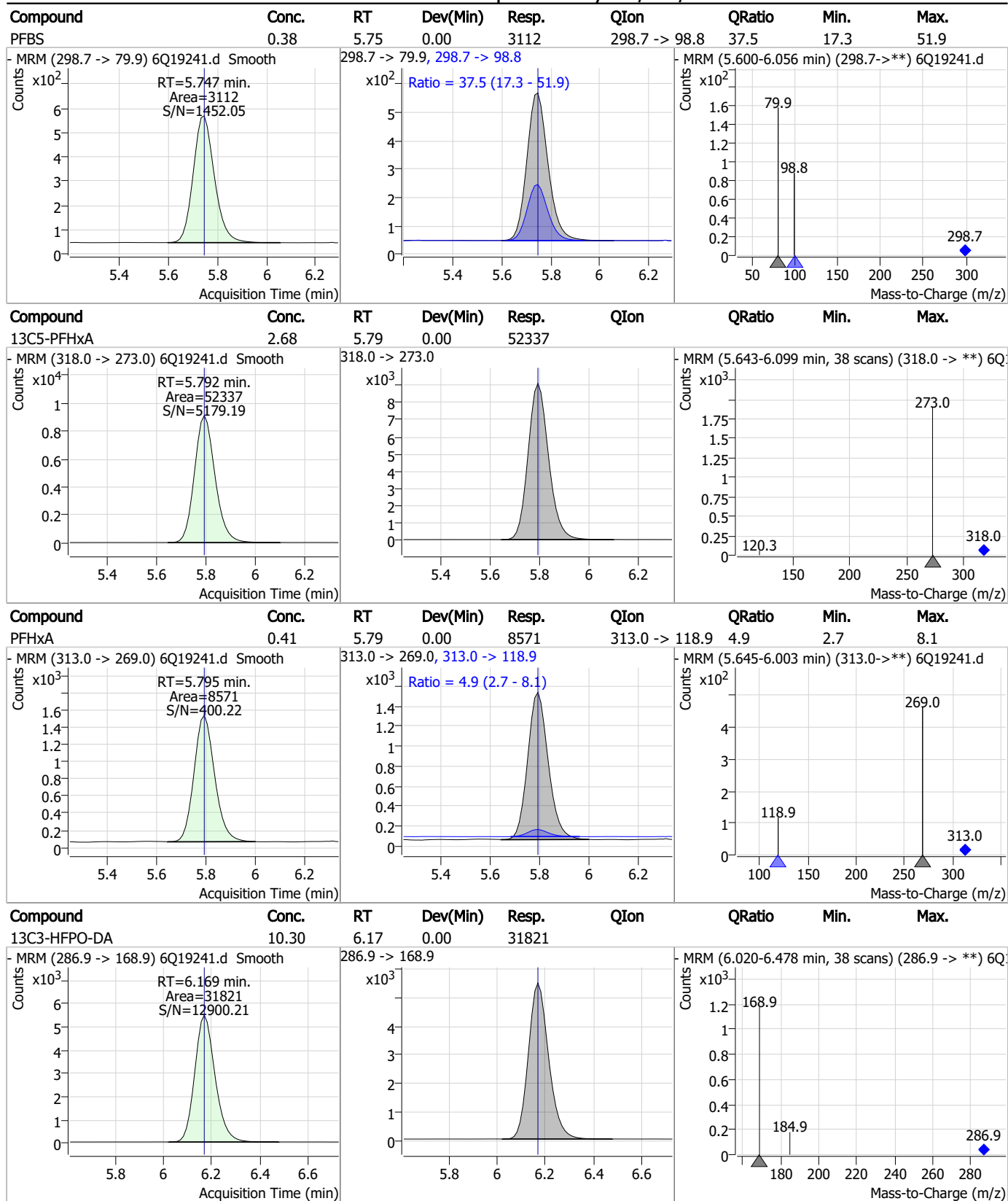
Perfluorinated Compounds by LC/MS/MS



7.7.3

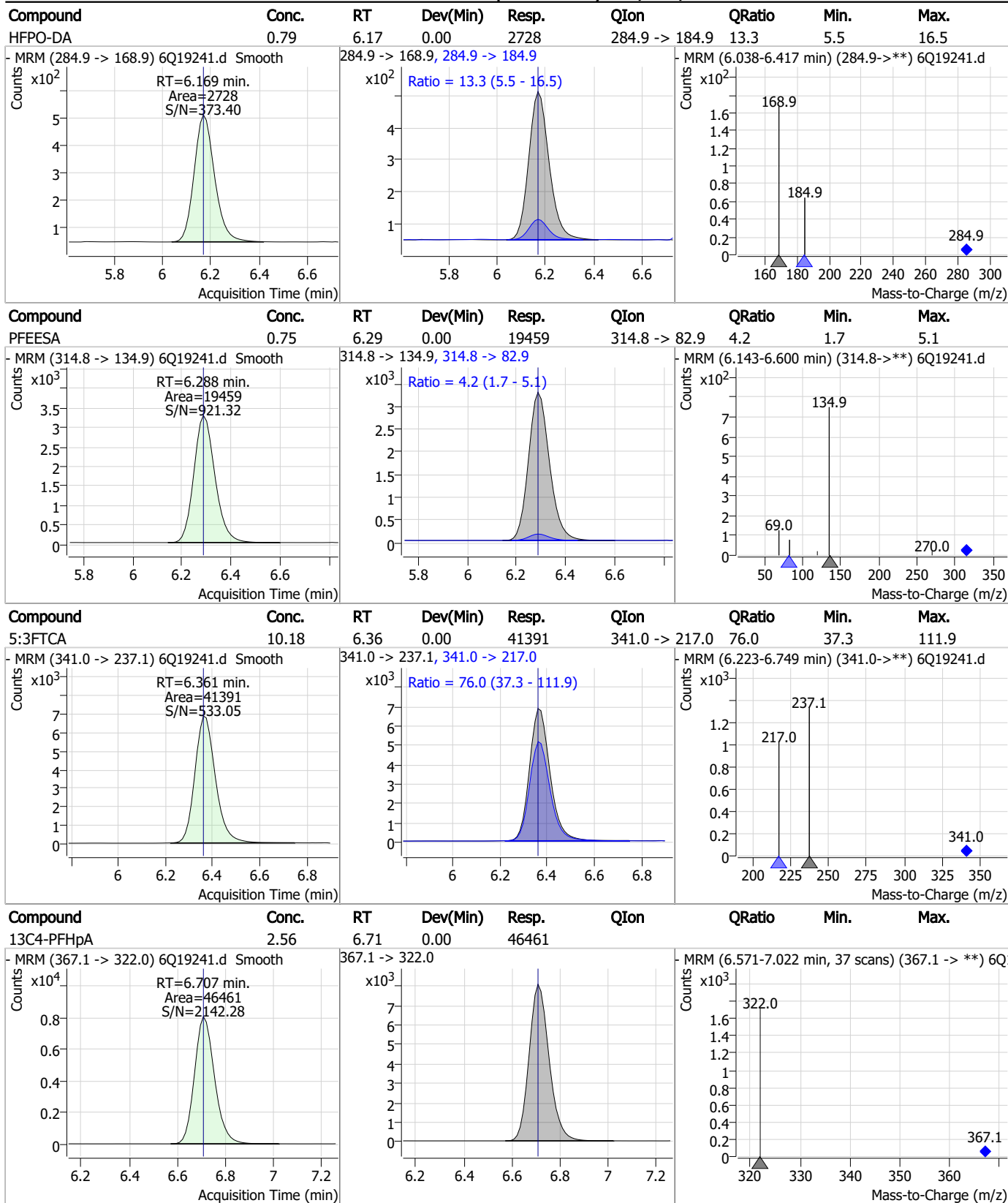
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Perfluorinated Compounds by LC/MS/MS



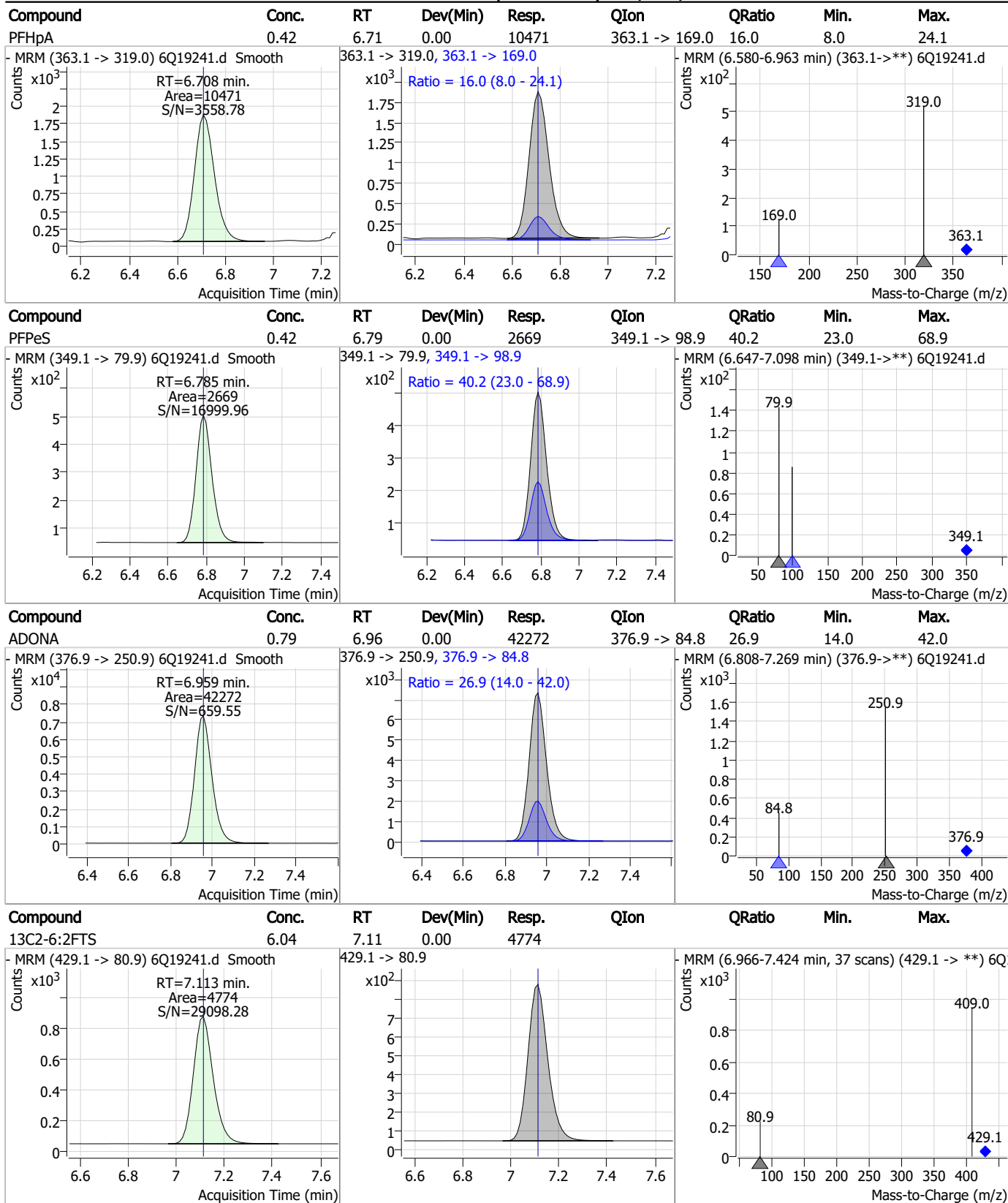
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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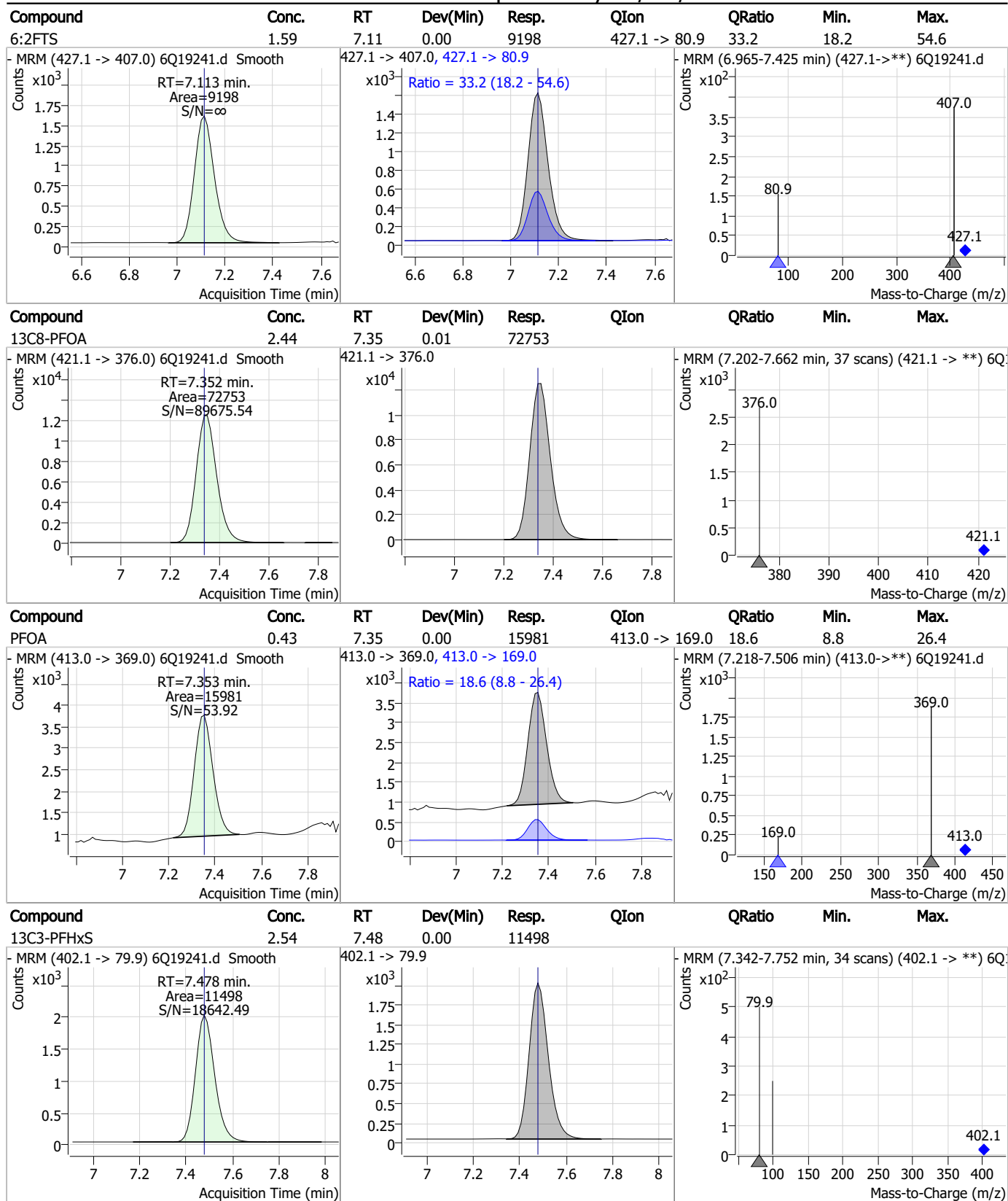
Perfluorinated Compounds by LC/MS/MS



7.7.3

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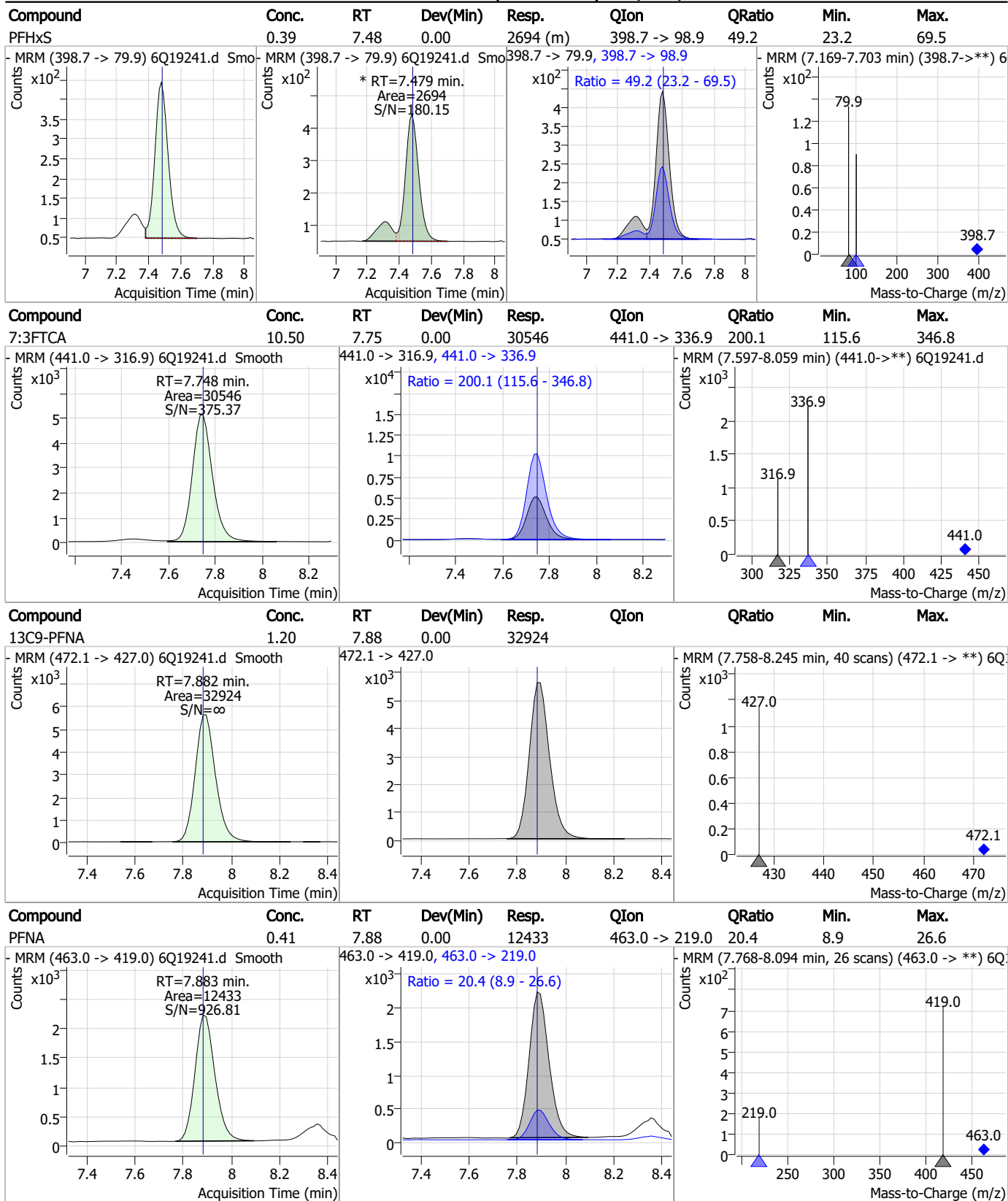
Perfluorinated Compounds by LC/MS/MS



7.7.3

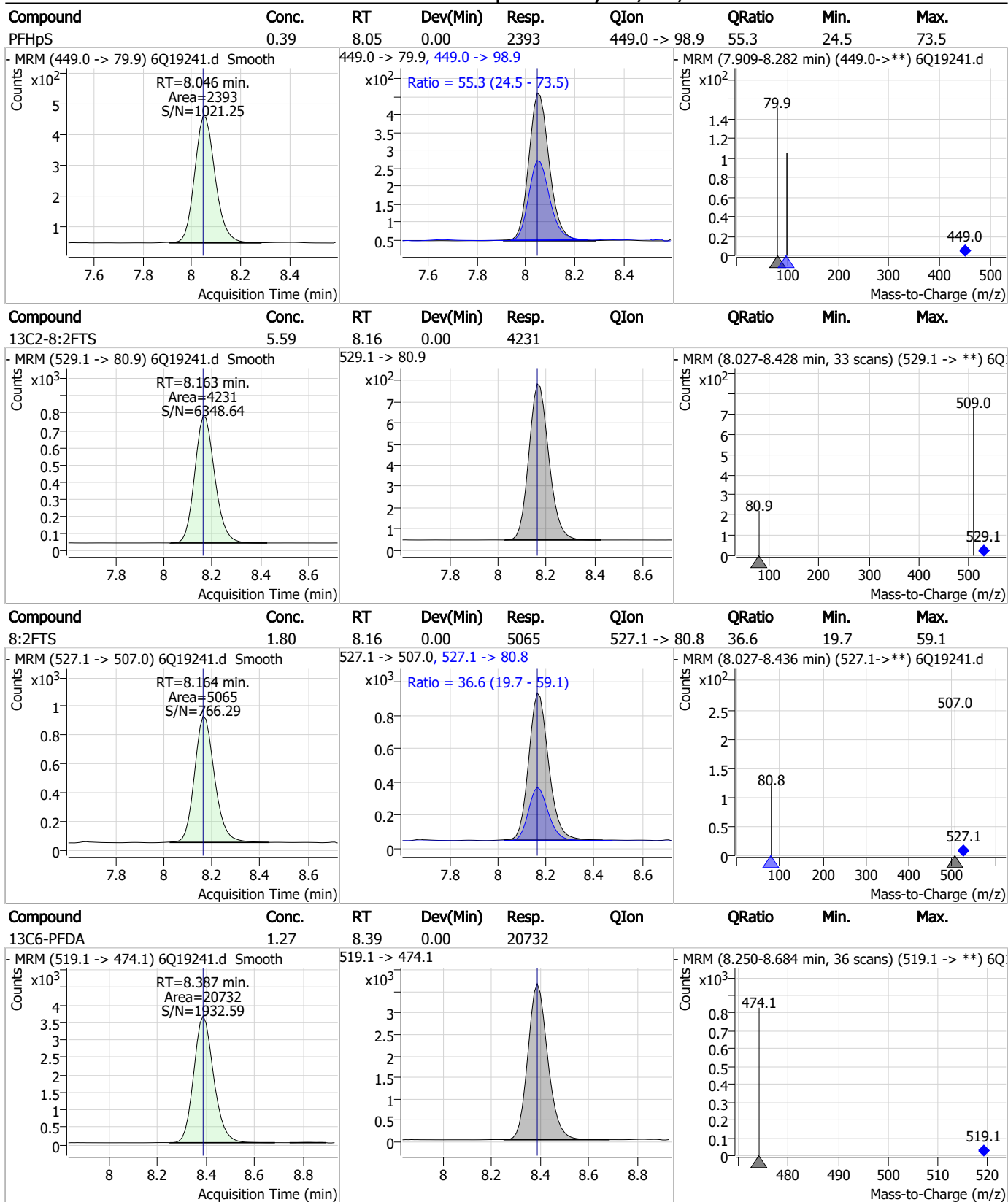
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Perfluorinated Compounds by LC/MS/MS



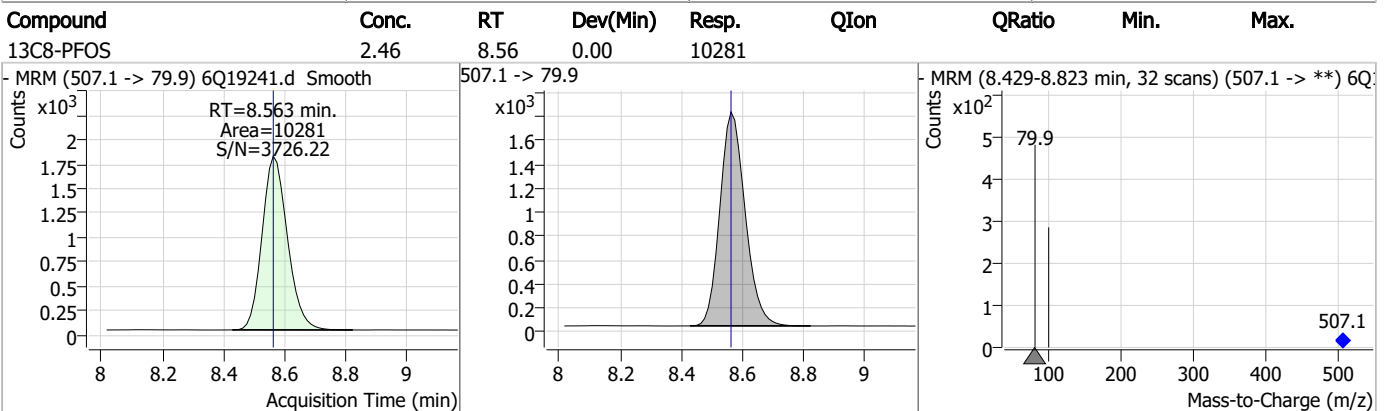
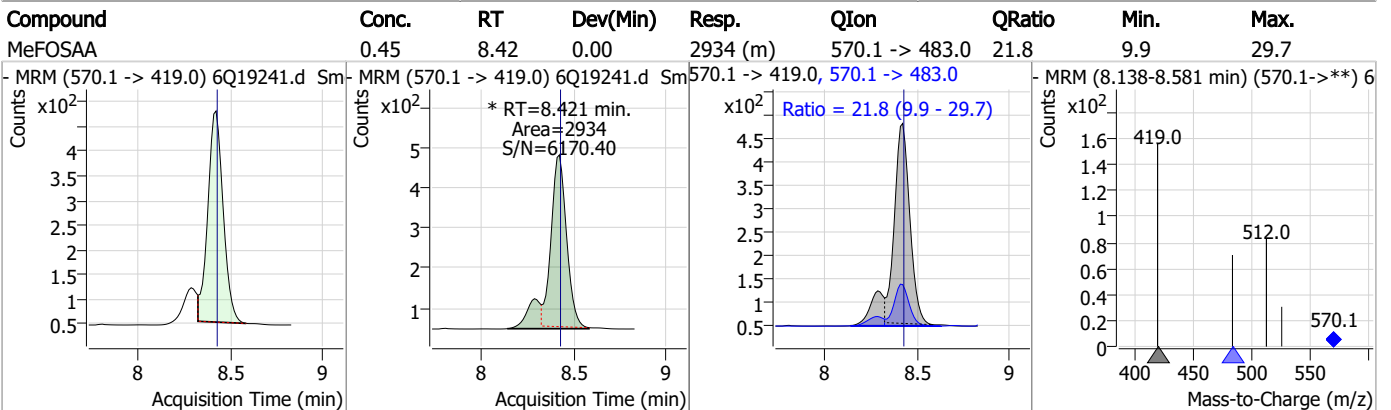
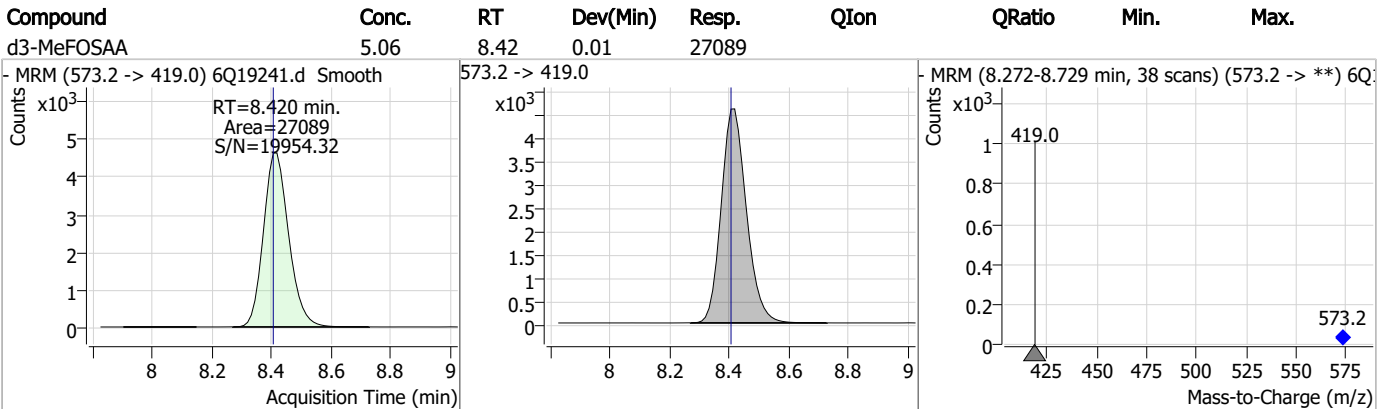
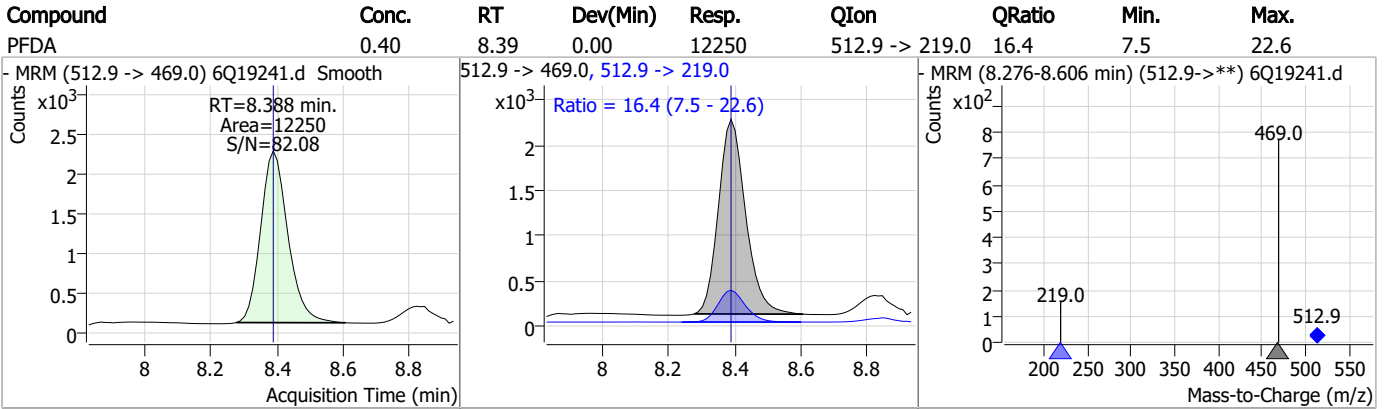
7.7.3
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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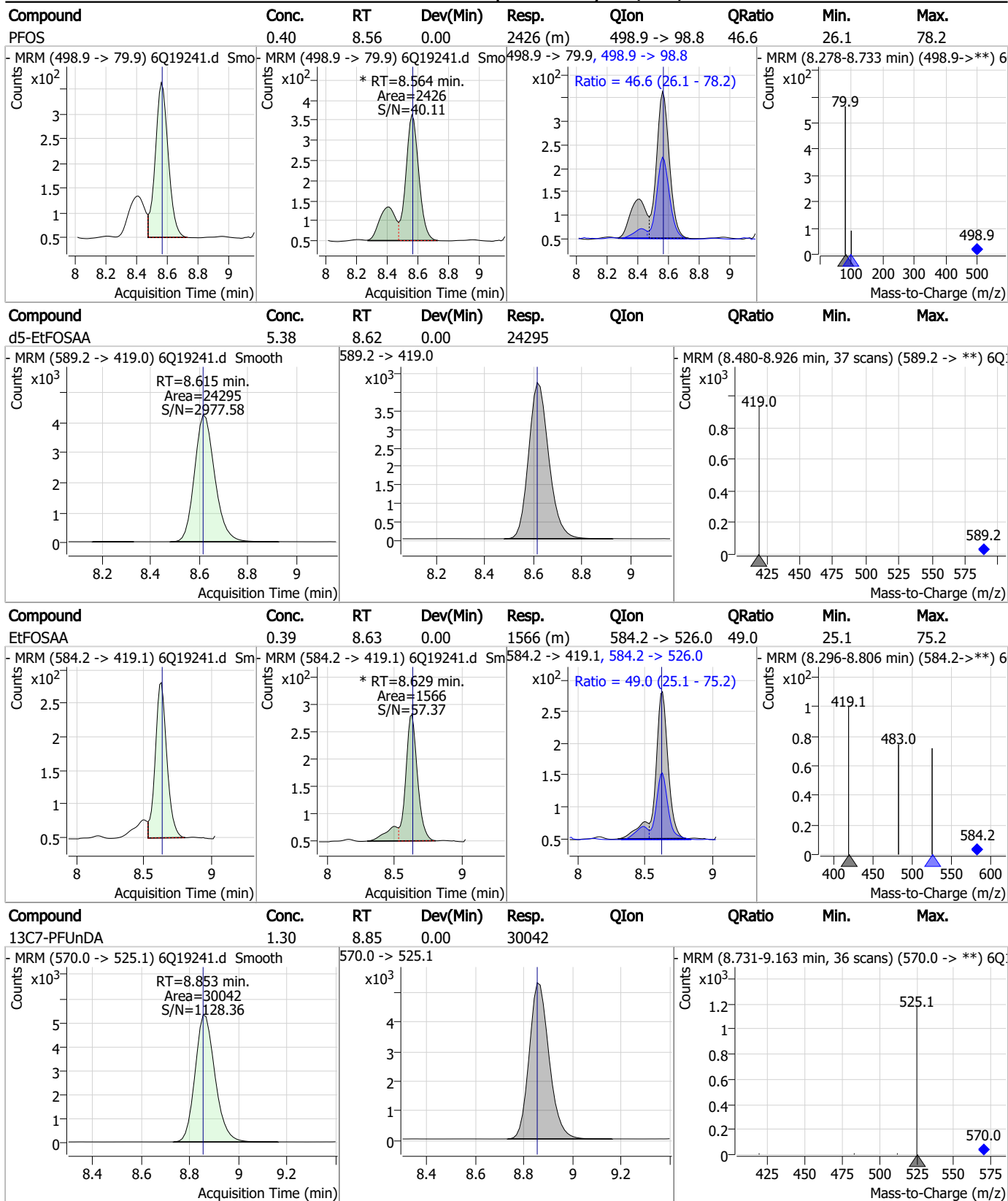
Perfluorinated Compounds by LC/MS/MS



7.7.3

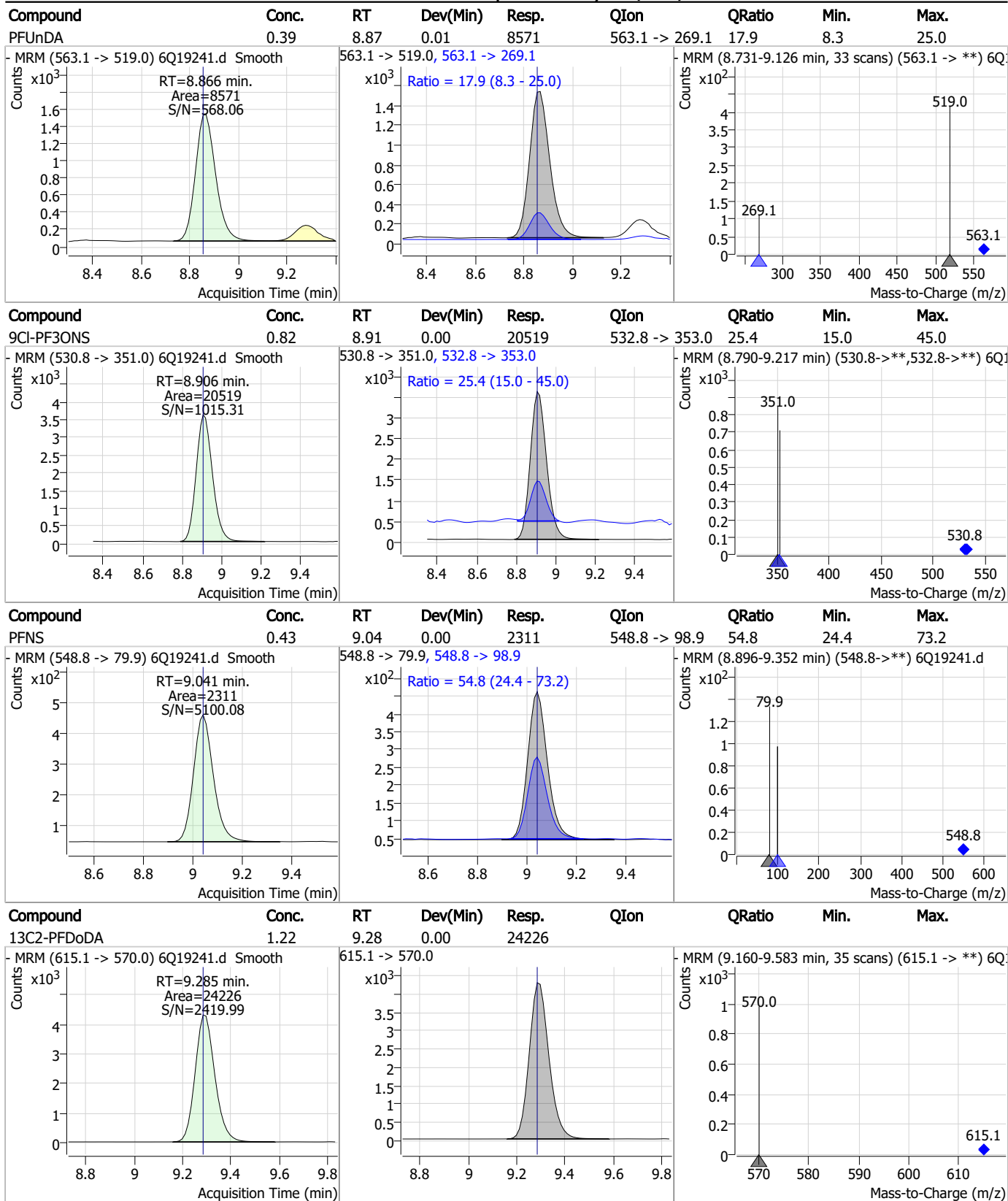
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Perfluorinated Compounds by LC/MS/MS



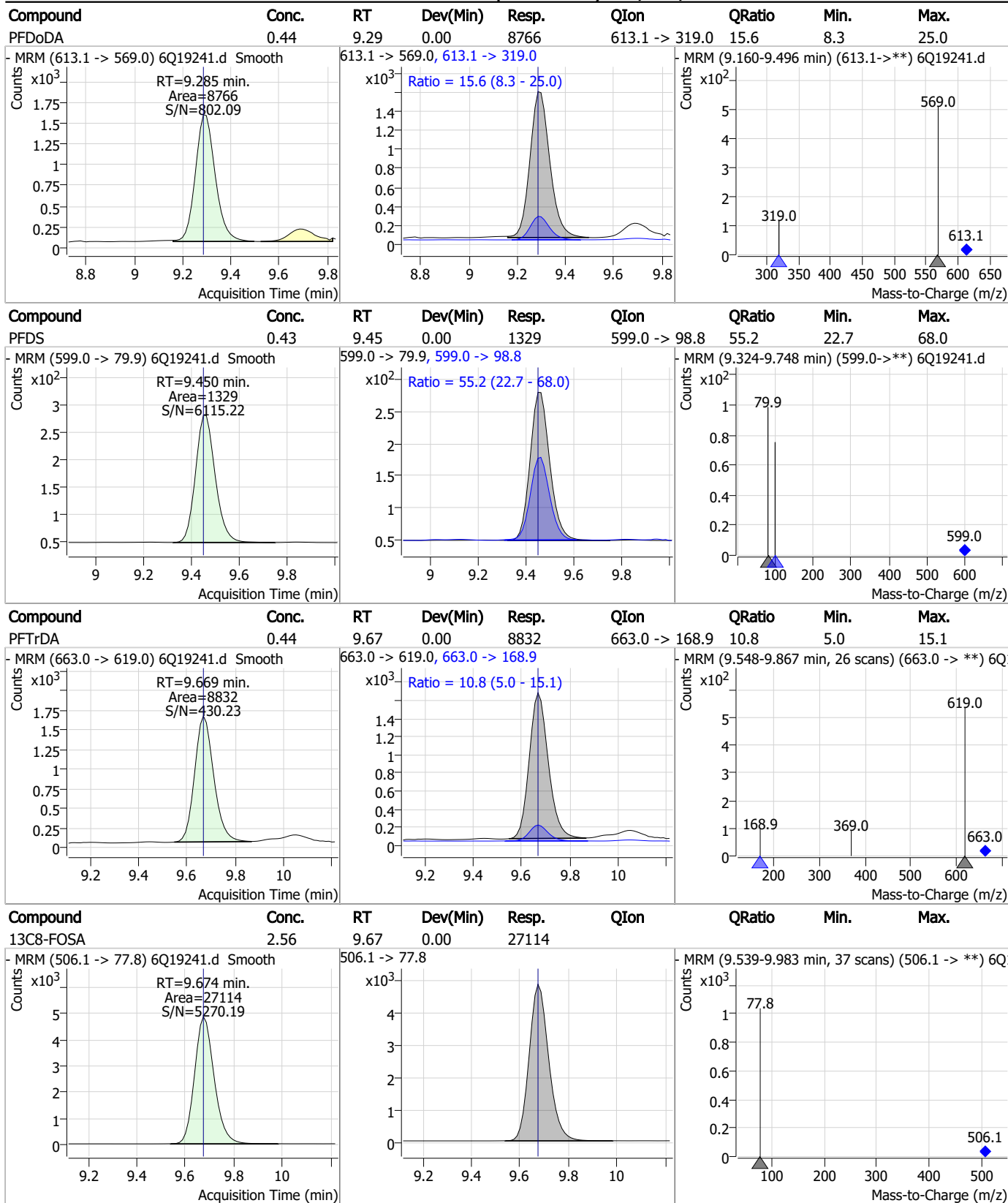
7.7.3
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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Perfluorinated Compounds by LC/MS/MS

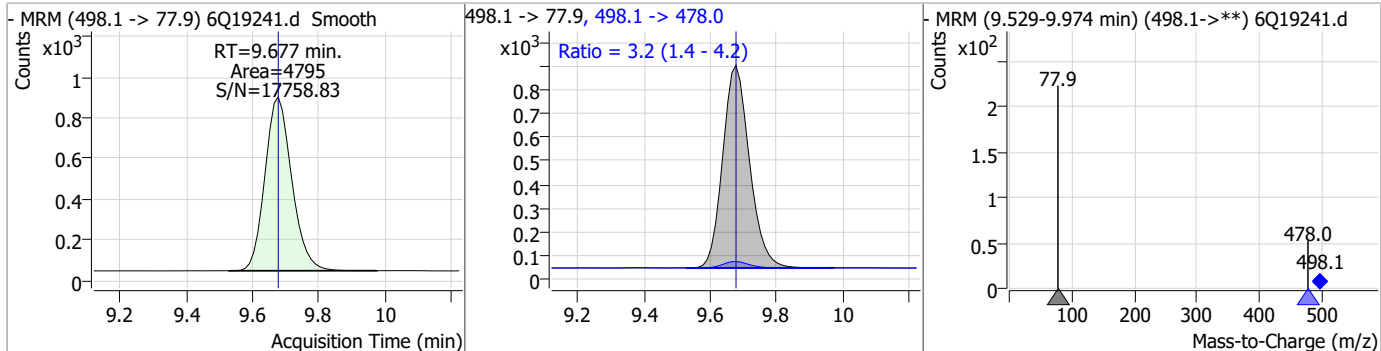


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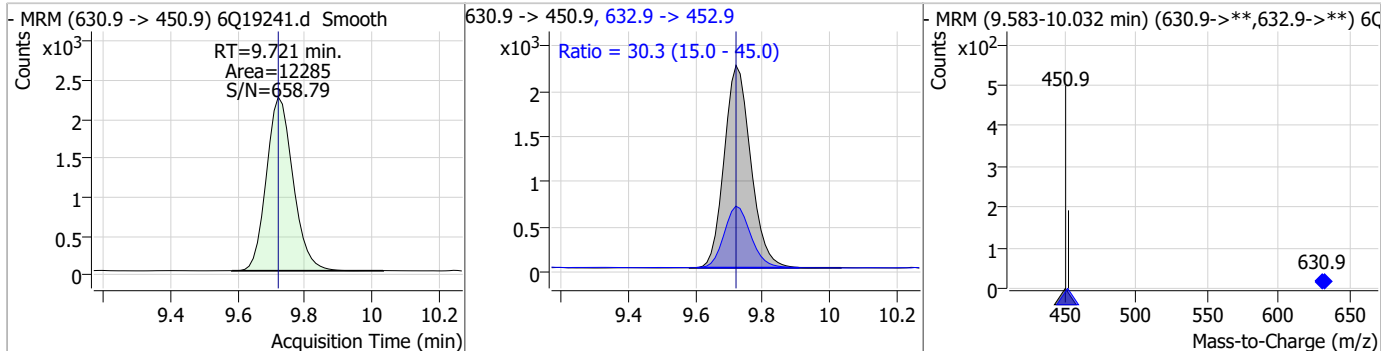
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Perfluorinated Compounds by LC/MS/MS

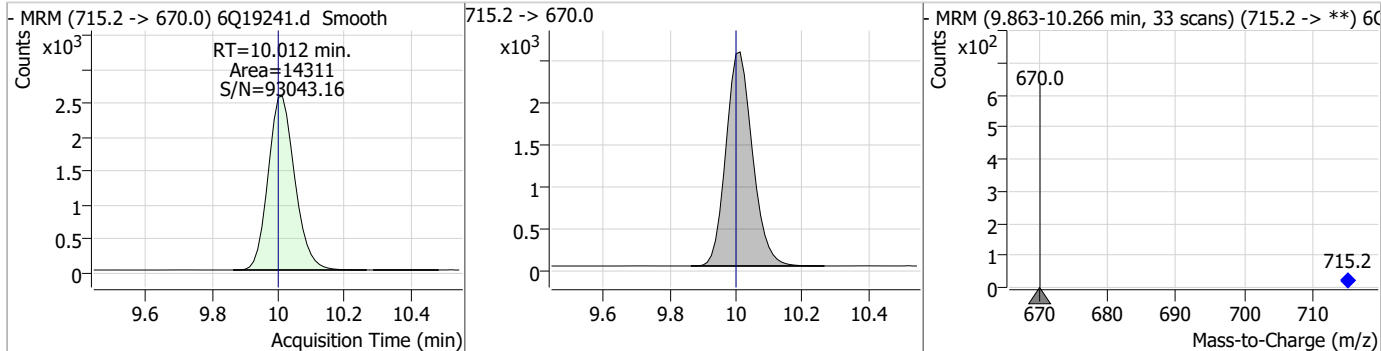
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.43	9.68	0.00	4795	498.1 -> 478.0	3.2	1.4	4.2



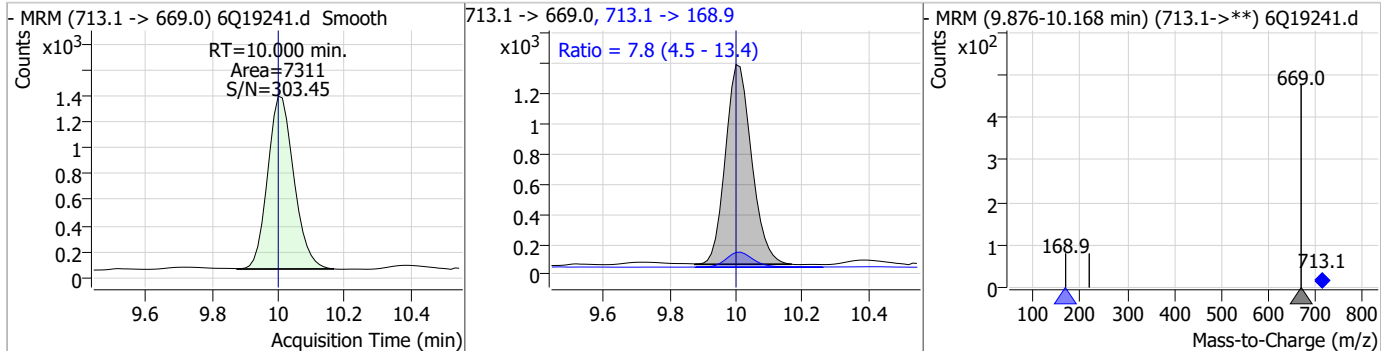
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	0.82	9.72	0.00	12285	632.9 -> 452.9	30.3	15.0	45.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.24	10.01	0.01	14311				



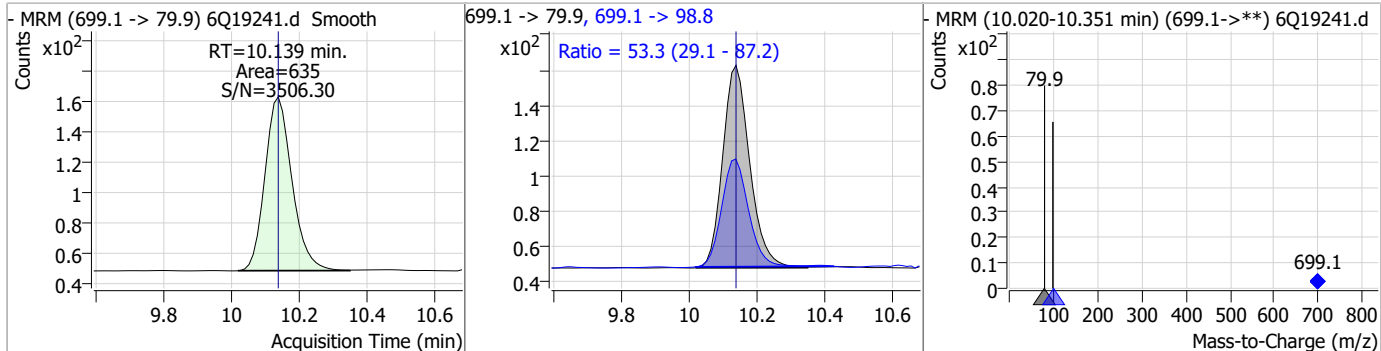
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.43	10.00	0.00	7311	713.1 -> 168.9	7.8	4.5	13.4



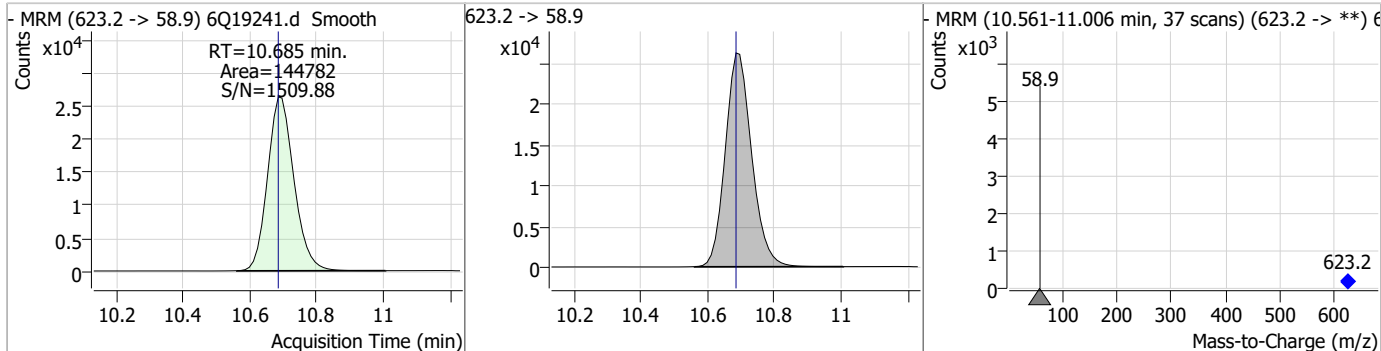
7.7.3
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Perfluorinated Compounds by LC/MS/MS

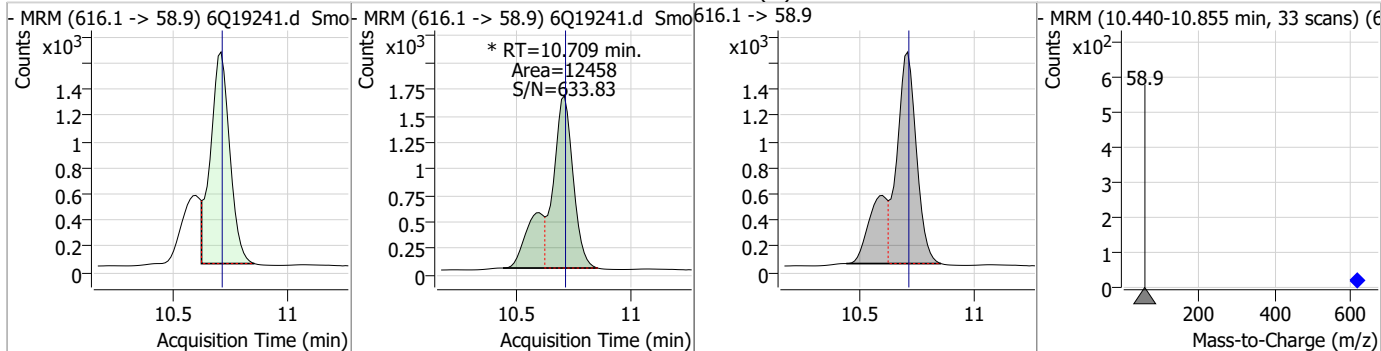
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.41	10.14	0.00	635	699.1 -> 98.8	53.3	29.1	87.2



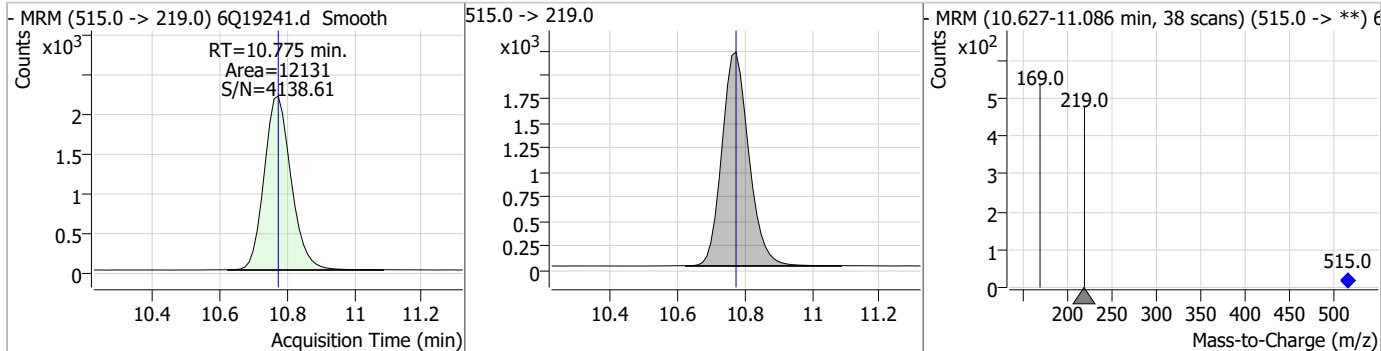
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.64	10.68	0.00	144782				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.97	10.71	0.00	12458 (m)				

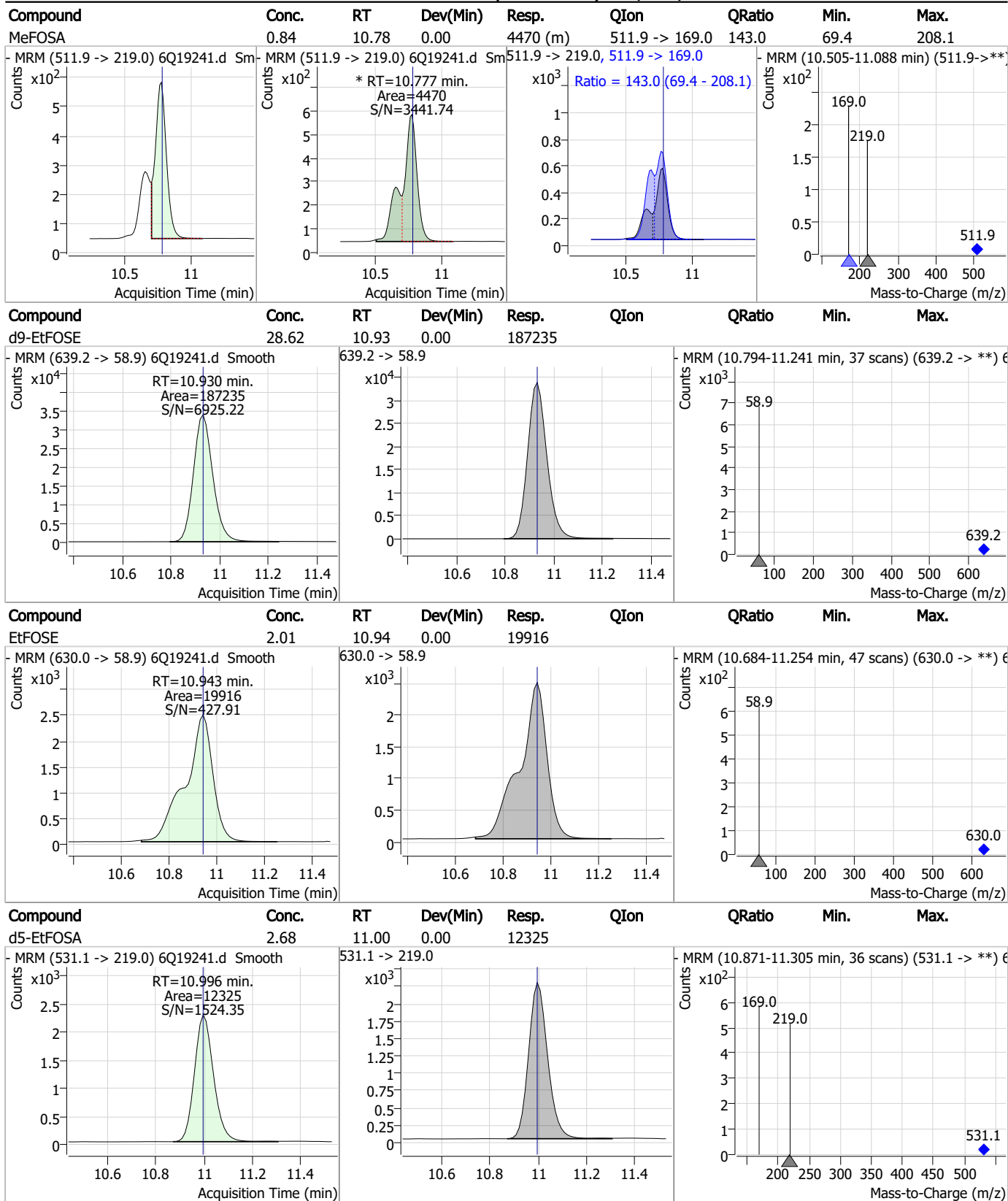


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.56	10.78	0.00	12131				



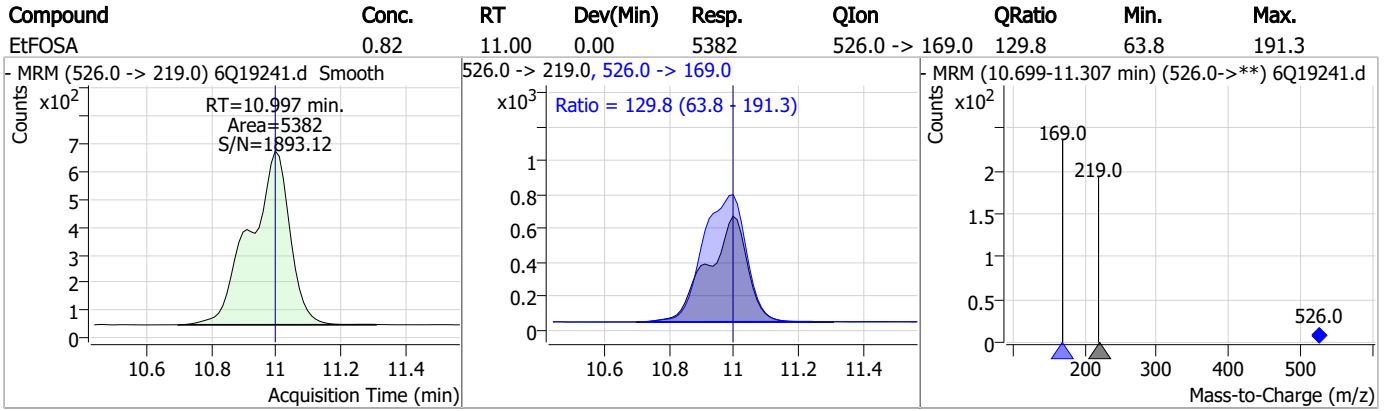
7.7.3
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Perfluorinated Compounds by LC/MS/MS



7.7.3
7

Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Manual Integration Approval Summary

Sample Number: S6Q287-IC287 Method: EPA DRAFT 1633
Lab FileID: 6Q19241.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 16:02 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.63	Split peak
MeFOSE	24448-09-7		10.71	Split peak
MeFOSA	31506-32-8		10.78	Split peak

7.7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19242.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 4:16:26 PM
 Sample Name : ic287-3
 Vial : P1-A4
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	143061	10.00 µg/L	0.000
M5-PFPeA	4.548	268.3 -> 223.0	46649	5.00 µg/L	-0.012
M5-PFHxA	5.792	318.0 -> 273.0	49589	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	49032	2.50 µg/L	0.000
M8-PFOA	7.339	421.1 -> 376.0	75639	2.50 µg/L	0.000
M9-PFNA	7.882	472.1 -> 427.0	35354	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	20900	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	28241	1.25 µg/L	0.012
M2-PFDoDA	9.285	615.1 -> 570.0	24416	1.25 µg/L	0.000
M2-PFTeDA	10.000	715.2 -> 670.0	14951	1.25 µg/L	0.000
M8-FOSA	9.674	506.1 -> 77.8	29269	2.50 µg/L	0.000
M3-PFBS	5.733	302.1 -> 79.9	18902	2.50 µg/L	-0.013
M3-PFHxS	7.478	402.1 -> 79.9	11876	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	10824	2.50 µg/L	0.000
M2-4:2FTS	5.442	329.1 -> 80.9	3053	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	4491	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4193	5.00 µg/L	0.000
M3-MeFOSAA	8.407	573.2 -> 419.0	28612	5.00 µg/L	0.000
M3-HFPO-DA	6.169	286.9 -> 168.9	30998	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	22570	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	138232	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	179833	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	11785	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	11959	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	14957	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	60602	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	9310	2.50 µg/L	0.000
13C4-PFOA	7.340	417.1 -> 372.0	79875	2.50 µg/L	0.000
13C2-PFDA	8.388	515.1 -> 470.1	29031	1.25 µg/L	0.000
13C5-PFNA	7.882	468.0 -> 423.0	44466	1.25 µg/L	0.000
13C2-PFHxA	5.792	315.1 -> 270.0	49118	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	3053	5.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.5%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4491	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4193	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-PFDoDA	9.285	615.1 -> 570.0	24416	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-PFTeDA	10.000	715.2 -> 670.0	14951	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C3-PFBS	5.733	302.1 -> 79.9	18902	2.40 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C3-PFHxS	7.478	402.1 -> 79.9	11876	2.40 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C4-PFBA	3.085	216.8 -> 171.9	143061	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFHpA	6.707	367.1 -> 322.0	49032	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C5-PFHxA	5.792	318.0 -> 273.0	49589	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.4%	
13C5-PFPeA	4.548	268.3 -> 223.0	46649	4.92 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C6-PFDA	8.387	519.1 -> 474.1	20900	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C7-PFUnDA	8.866	570.0 -> 525.1	28241	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-FOSA	9.674	506.1 -> 77.8	29269	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C8-PFOA	7.339	421.1 -> 376.0	75639	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C8-PFOS	8.563	507.1 -> 79.9	10824	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C9-PFNA	7.882	472.1 -> 427.0	35354	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.2%	
d3-MeFOSAA	8.407	573.2 -> 419.0	28612	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	30998	9.21 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.1%	
d3-MeFOSA	10.775	515.0 -> 219.0	11959	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
d5-EtFOSAA	8.615	589.2 -> 419.0	22570	4.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.4%	
d7-MeFOSE	10.685	623.2 -> 58.9	138232	25.18 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
d9-EtFOSE	10.930	639.2 -> 58.9	179833	26.23 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
d5-EtFOSA	10.996	531.1 -> 219.0	11785	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
Target Compounds					QValue
4:2FTS	5.443	327.1 -> 307.0	24436	4.62 µg/L	97
		327.1 -> 80.9	9488		
6:2FTS	7.113	427.1 -> 407.0	26731	4.93 µg/L	91
		427.1 -> 80.9	8380		
8:2FTS	8.164	527.1 -> 507.0	14300	5.13 µg/L	93
		527.1 -> 80.8	5011		
EtFOSAA	8.629	584.2 -> 419.1	5011	1.34 µg/L	m 99
		584.2 -> 526.0	2498		
FOSA	9.677	498.1 -> 77.9	14159	1.18 µg/L	99
		498.1 -> 478.0	457		
MeFOSAA	8.421	570.1 -> 419.0	8918	1.28 µg/L	m 98
		570.1 -> 483.0	1684		
PFBA	3.093	212.8 -> 168.9	27526	4.83 µg/L	100
PFBS	5.734	298.7 -> 79.9	8825	1.06 µg/L	95
		298.7 -> 98.8	3294		
PFDA	8.388	512.9 -> 469.0	37273	1.19 µg/L	99
		512.9 -> 219.0	5748		
PFDODA	9.285	613.1 -> 569.0	24592	1.23 µg/L	98
		613.1 -> 319.0	3932		
PFDS	9.450	599.0 -> 79.9	3724	1.14 µg/L	89

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1952			
PFHpA	6.708	363.1 -> 319.0	30488	1.16	µg/L	99
		363.1 -> 169.0	5013			
PFHpS	8.046	449.0 -> 79.9	7775	1.19	µg/L	99
		449.0 -> 98.9	3750			
PFHxA	5.795	313.0 -> 269.0	24765	1.25	µg/L	98
		313.0 -> 118.9	1137			
PFHxS	7.479	398.7 -> 79.9	7698	1.08	µg/L	m 97
		398.7 -> 98.9	3722			
PFNA	7.883	463.0 -> 419.0	37813	1.17	µg/L	97
		463.0 -> 219.0	7188			
PFNS	9.041	548.8 -> 79.9	6520	1.14	µg/L	90
		548.8 -> 98.9	3610			
PFOA	7.353	413.0 -> 369.0	47258	1.22	µg/L	99
		413.0 -> 169.0	8600			
PFOS	8.564	498.9 -> 79.9	7452	1.17	µg/L	m 93
		498.9 -> 98.8	3523			
PFPeA	4.551	263.0 -> 219.0	33153	2.42	µg/L	100
PFPeS	6.785	349.1 -> 79.9	7290	1.11	µg/L	97
		349.1 -> 98.9	3479			
PFTeDA	10.013	713.1 -> 669.0	21164	1.18	µg/L	100
		713.1 -> 168.9	1870			
PFTrDA	9.669	663.0 -> 619.0	26317	1.31	µg/L	95
		663.0 -> 168.9	3071			
PFUnDA	8.866	563.1 -> 519.0	26598	1.28	µg/L	98
		563.1 -> 269.1	4187			
11CI-PF3OUdS	9.721	630.9 -> 450.9	37492	2.57	µg/L	98
		632.9 -> 452.9	10830			
9CI-PF3ONS	8.906	530.8 -> 351.0	56818	2.33	µg/L	100
		532.8 -> 353.0	16950			
ADONA	6.959	376.9 -> 250.9	129243	2.46	µg/L	98
		376.9 -> 84.8	34622			
HFPO-DA	6.169	284.9 -> 168.9	8543	2.53	µg/L	98
		284.9 -> 184.9	886			
3:3FTCA	3.946	241.0 -> 177.0	5568	5.93	µg/L	100
		241.0 -> 117.0	751			
5:3FTCA	6.361	341.0 -> 237.1	122167	31.71	µg/L	97
		341.0 -> 217.0	93759			
7:3FTCA	7.736	441.0 -> 316.9	89234	32.36	µg/L	85
		441.0 -> 336.9	184412			
EtFOSA	10.997	526.0 -> 219.0	16314	2.58	µg/L	97
		526.0 -> 169.0	20306			
EtFOSE	10.943	630.0 -> 58.9	61914	6.52	µg/L	100
MeFOSA	10.777	511.9 -> 219.0	13476	2.57	µg/L	m 100
		511.9 -> 169.0	18735			
MeFOSE	10.709	616.1 -> 58.9	37877	6.26	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	1992	1.23	µg/L	97
		699.1 -> 98.8	1118			
NFDHA	5.673	295.0 -> 201.0	6328	2.52	µg/L	96
		295.0 -> 84.9	1679			
PFMBA	4.975	279.0 -> 85.1	23828	2.42	µg/L	100
PFMPA	3.667	229.0 -> 84.9	18437	2.41	µg/L	100
PFEESA	6.288	314.8 -> 134.9	60754	2.49	µg/L	99
		314.8 -> 82.9	2203			

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

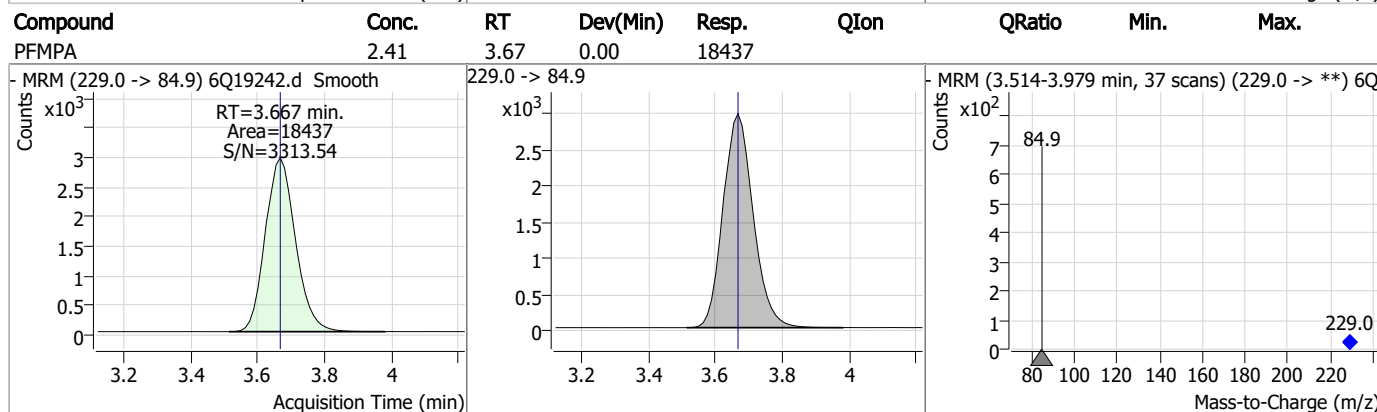
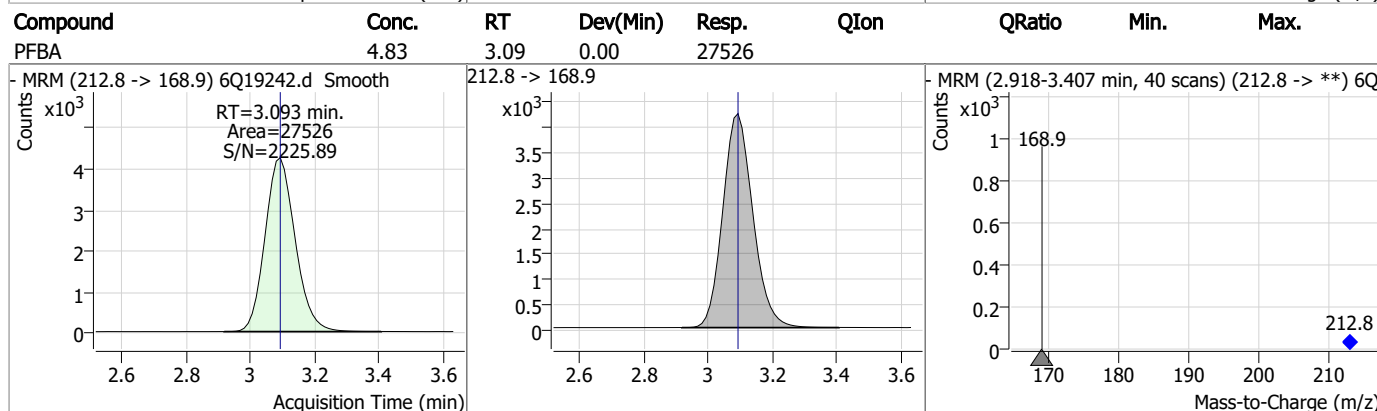
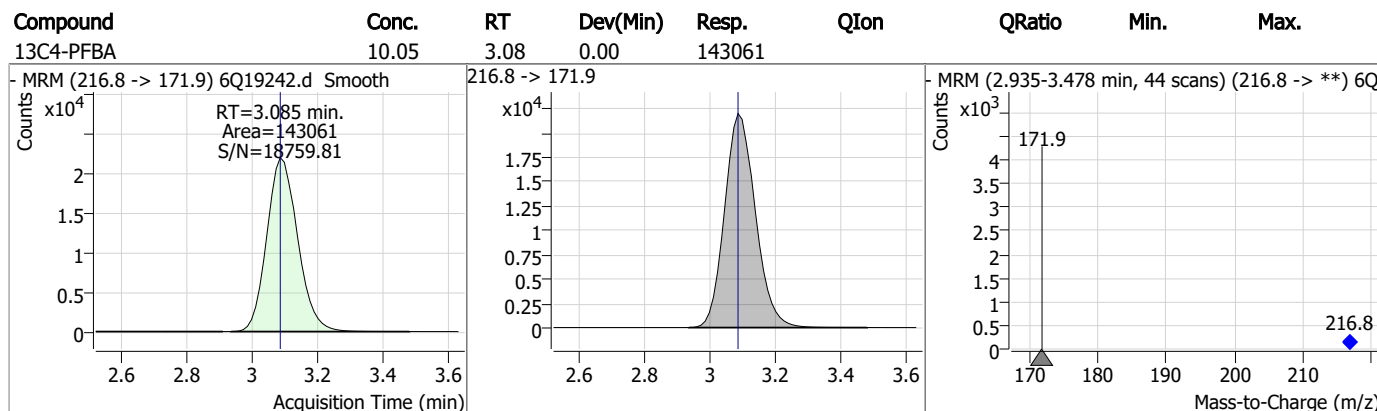
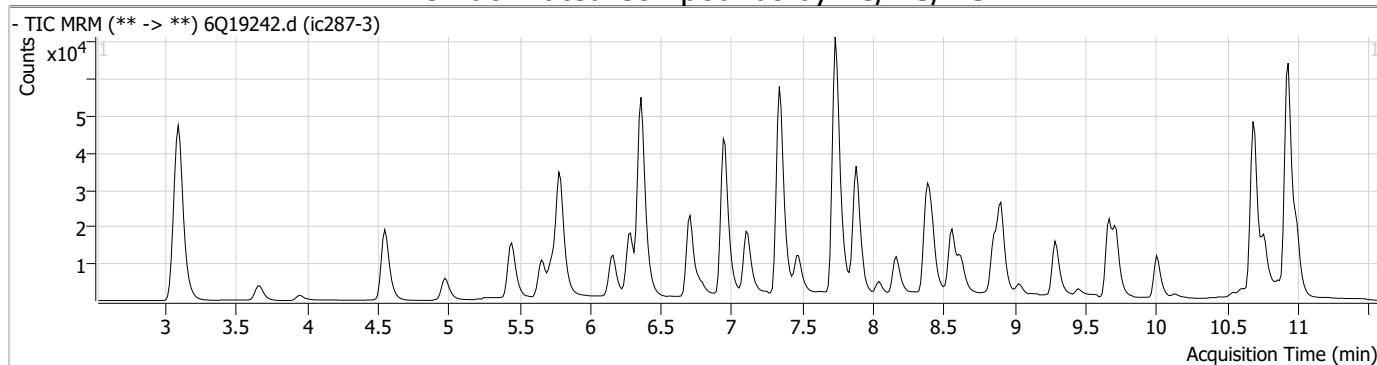
Perfluorinated Compounds by LC/MS/MS

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

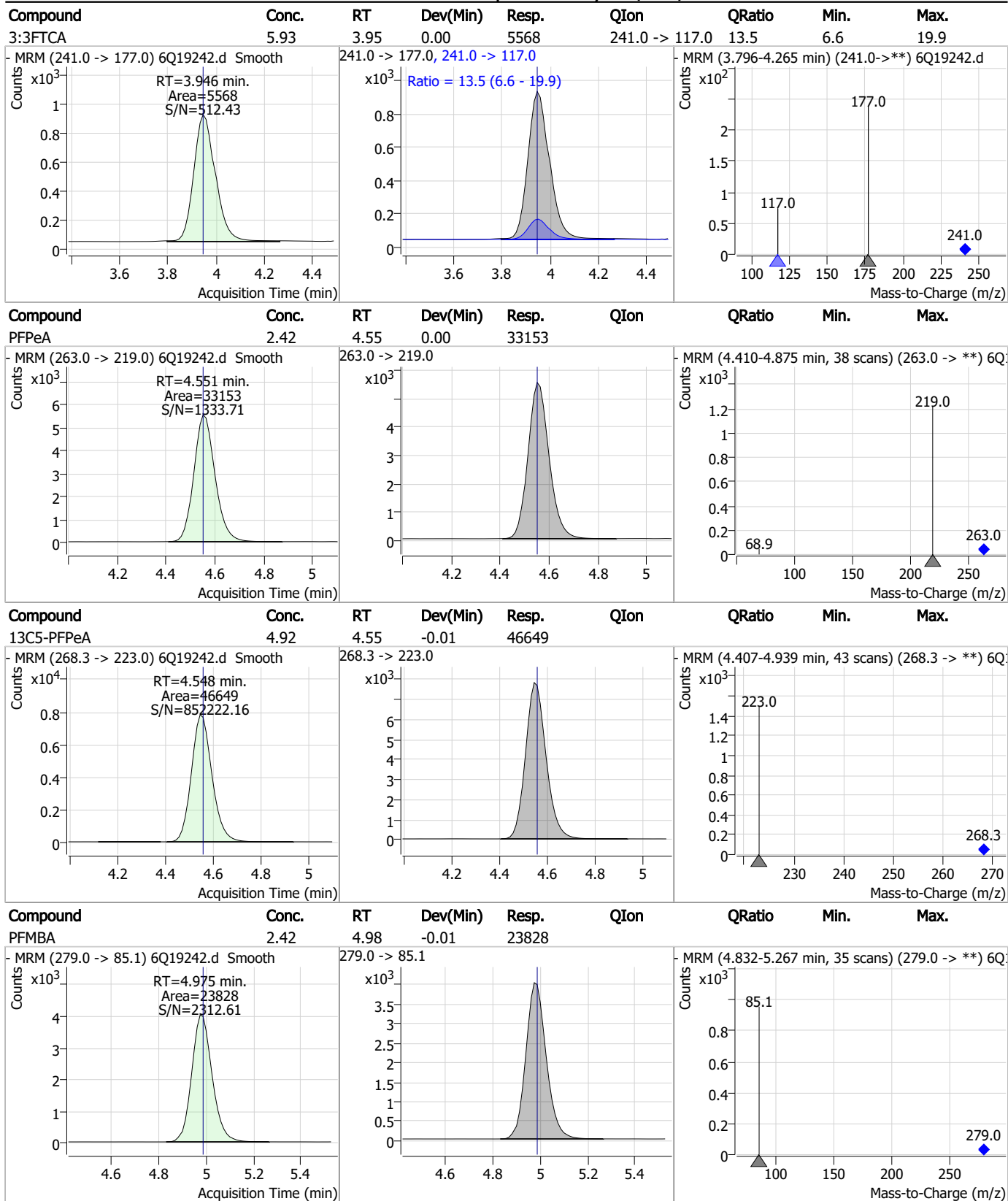
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Perfluorinated Compounds by LC/MS/MS



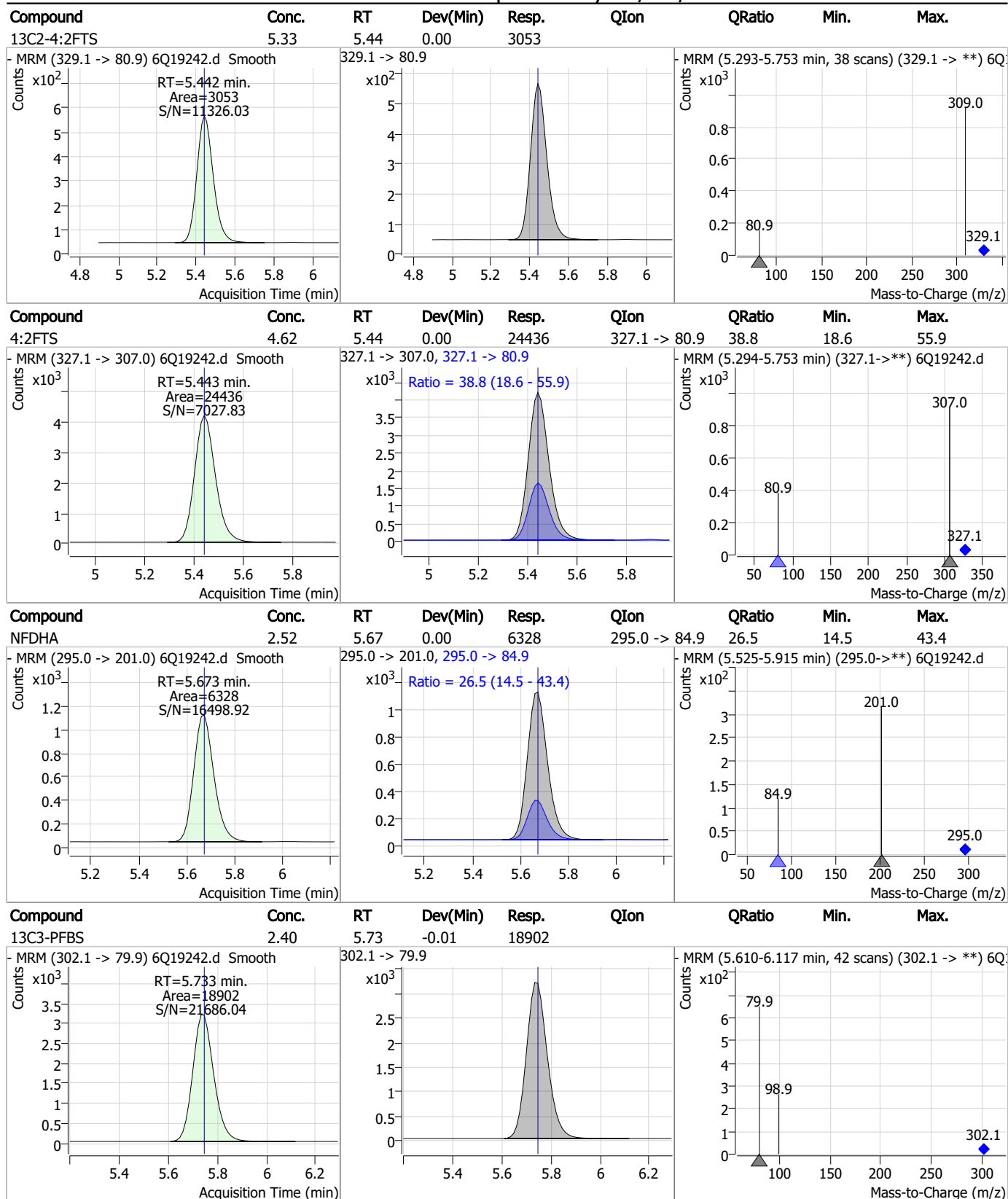
7.7.4
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Perfluorinated Compounds by LC/MS/MS



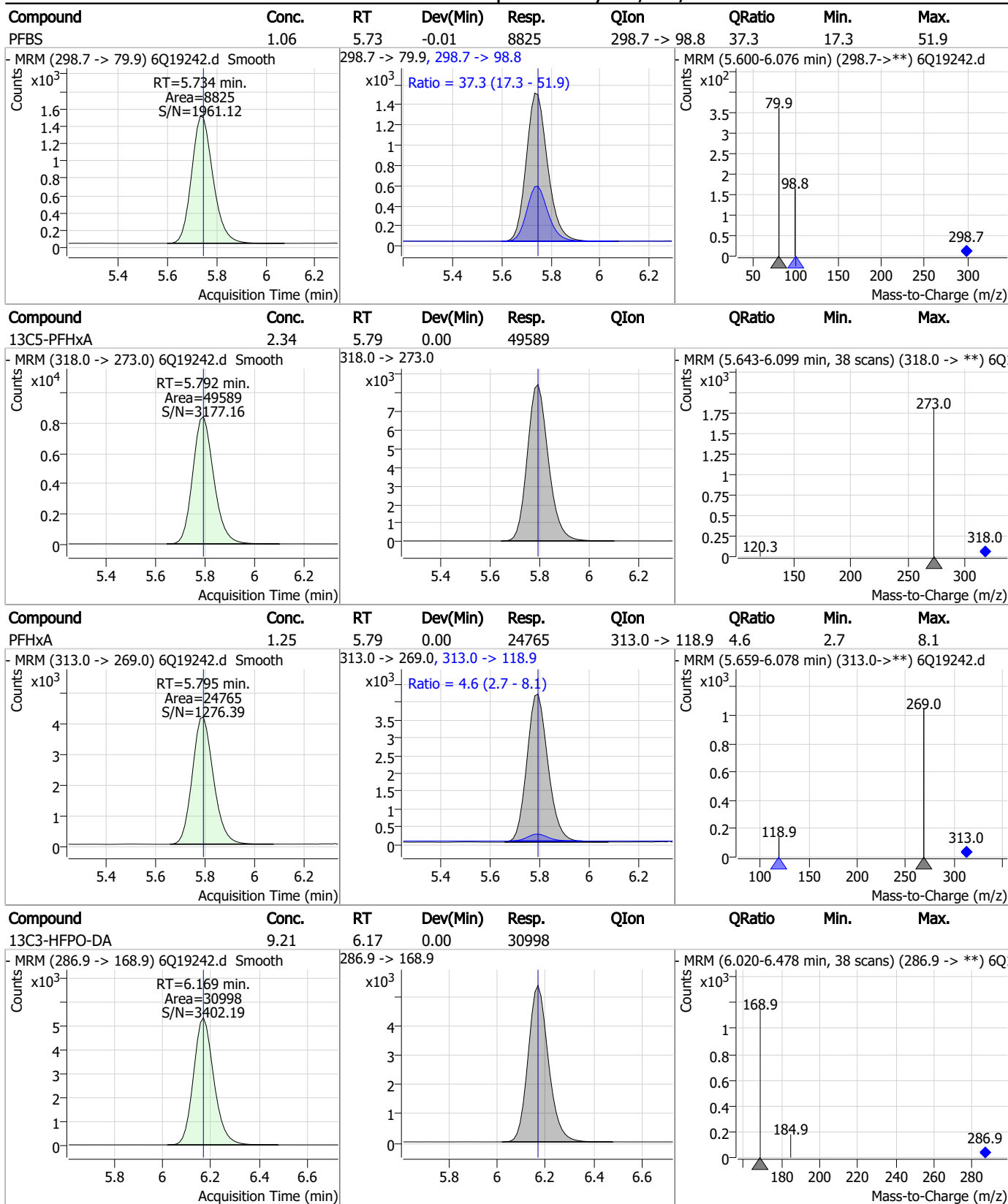
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Perfluorinated Compounds by LC/MS/MS



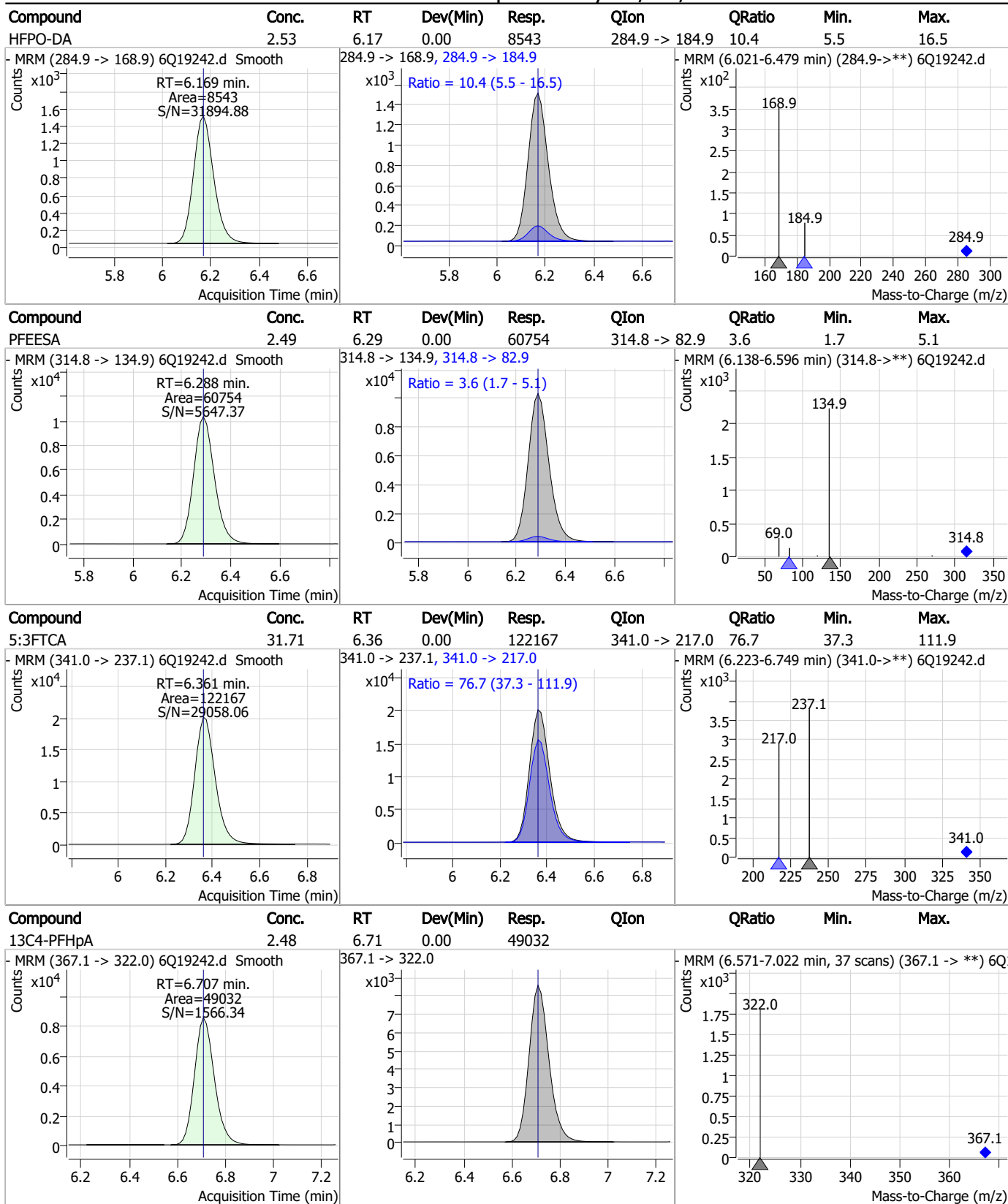
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Perfluorinated Compounds by LC/MS/MS



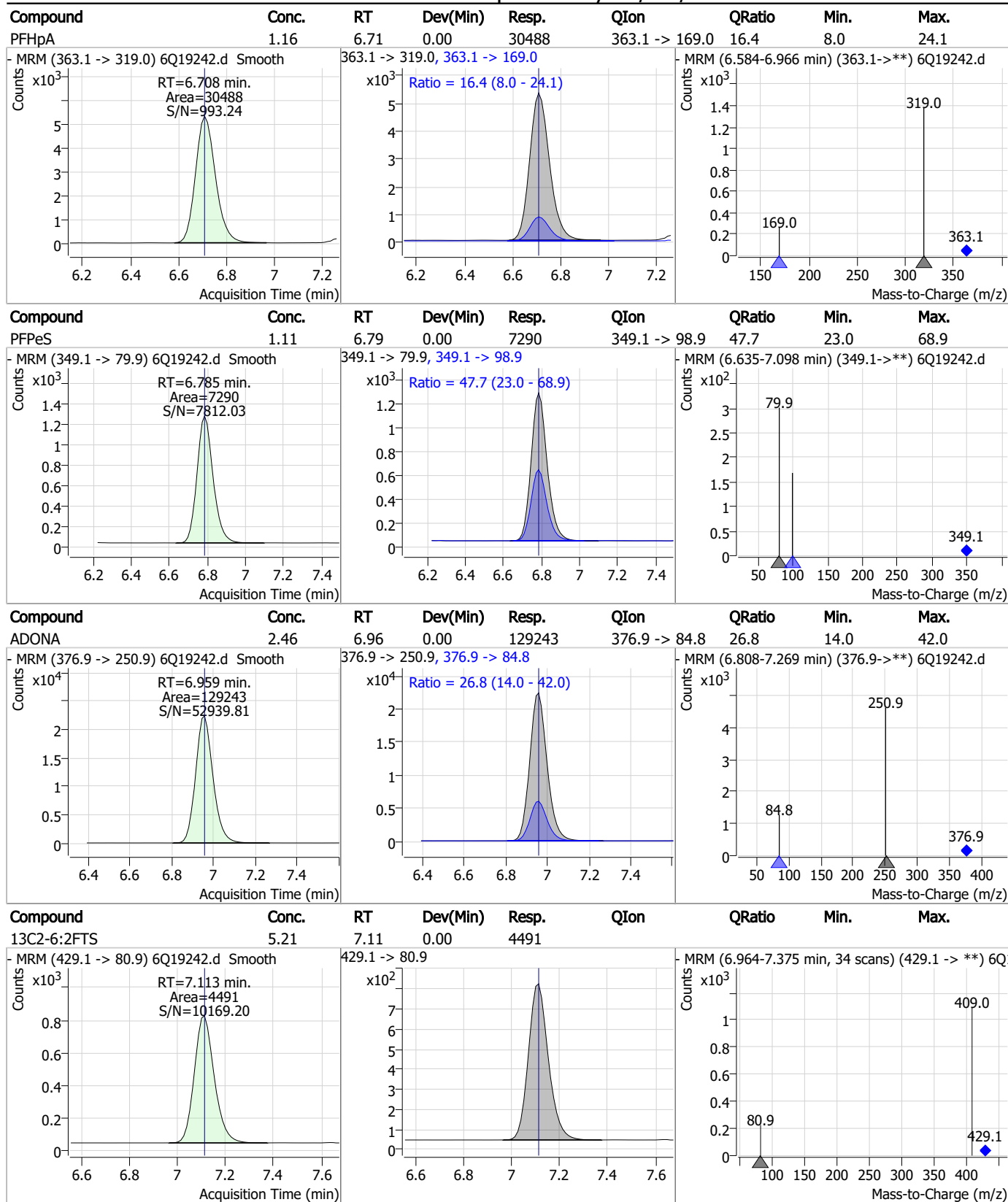
7.7.4
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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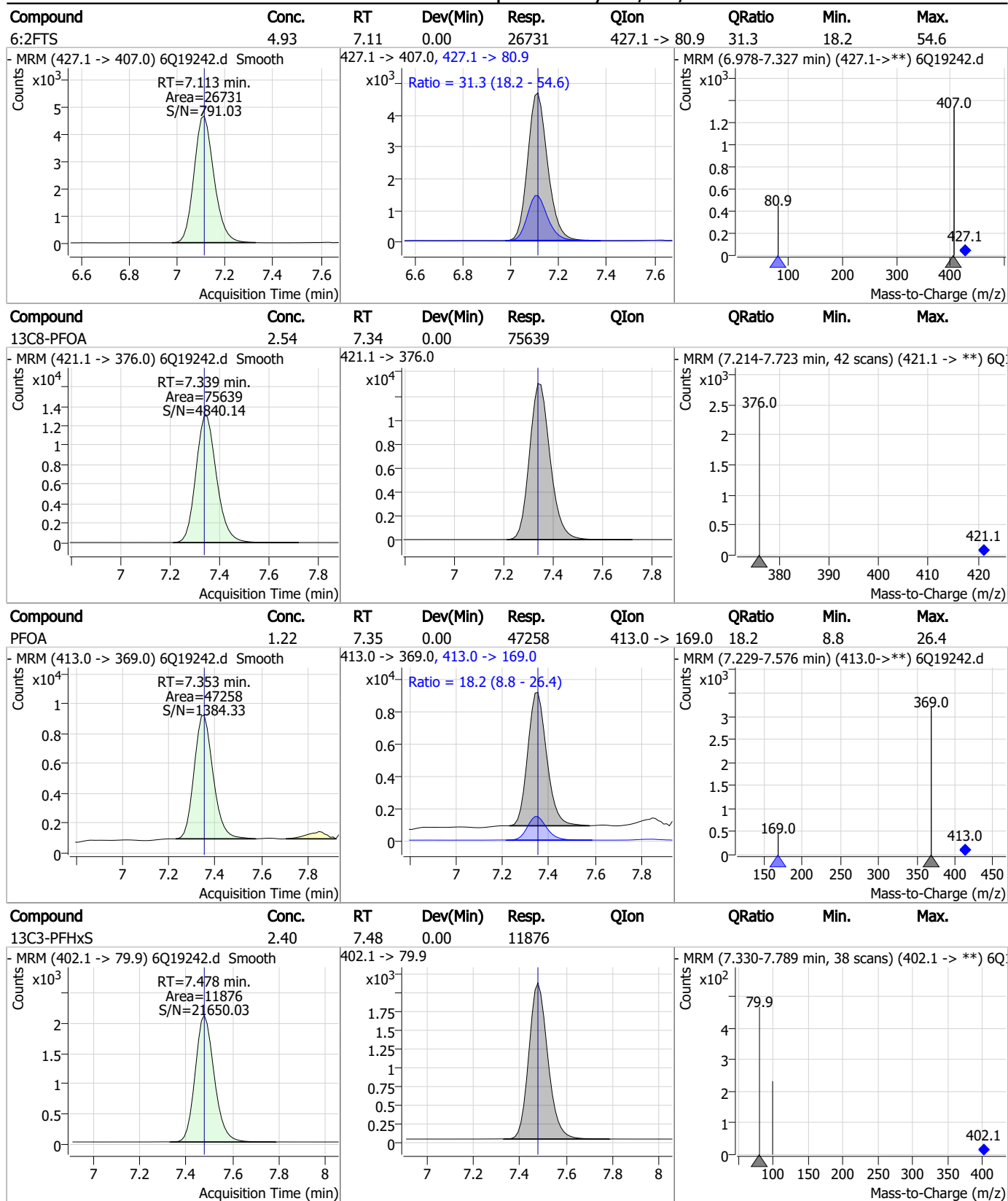
Perfluorinated Compounds by LC/MS/MS



7.7.4

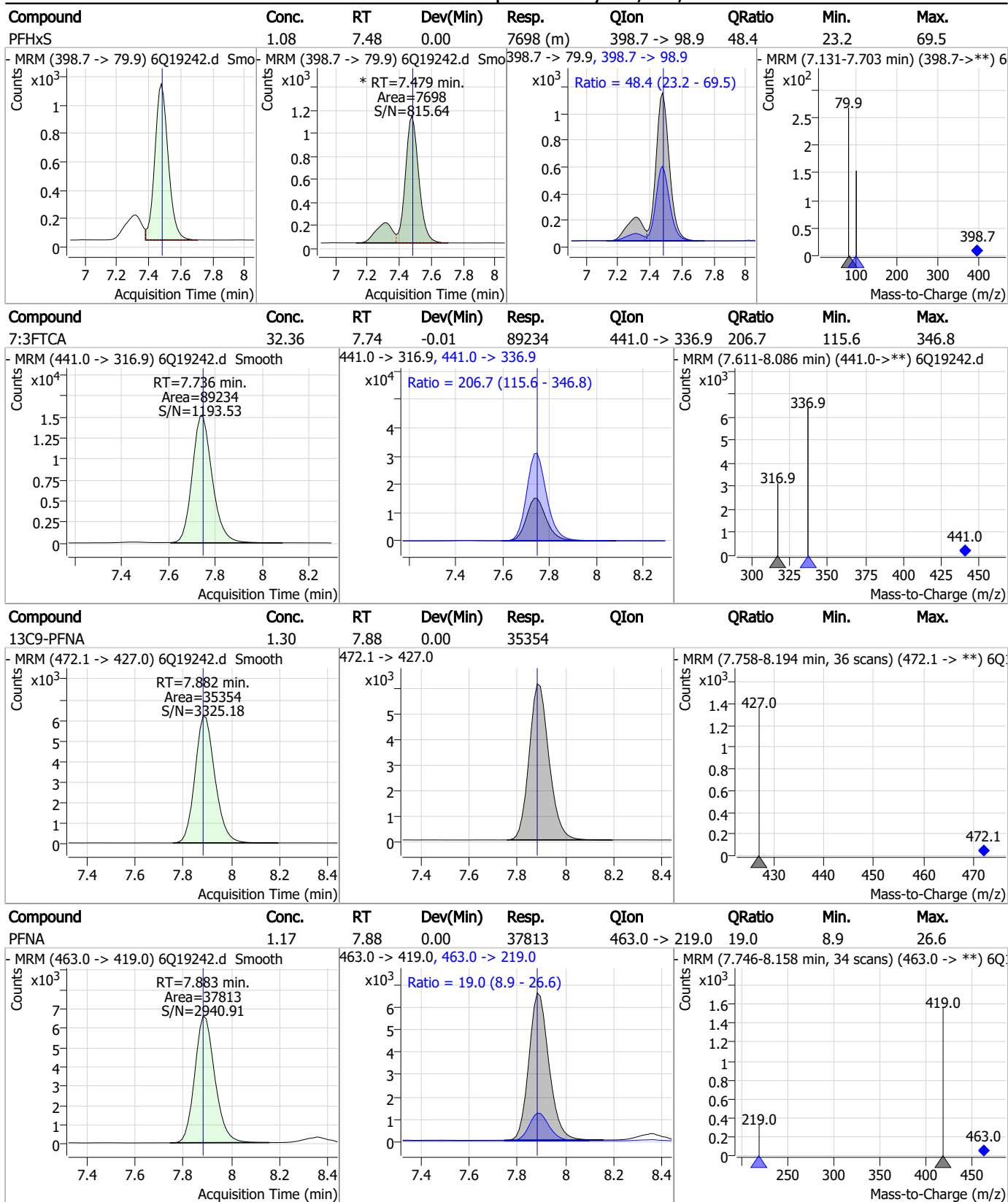
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Perfluorinated Compounds by LC/MS/MS



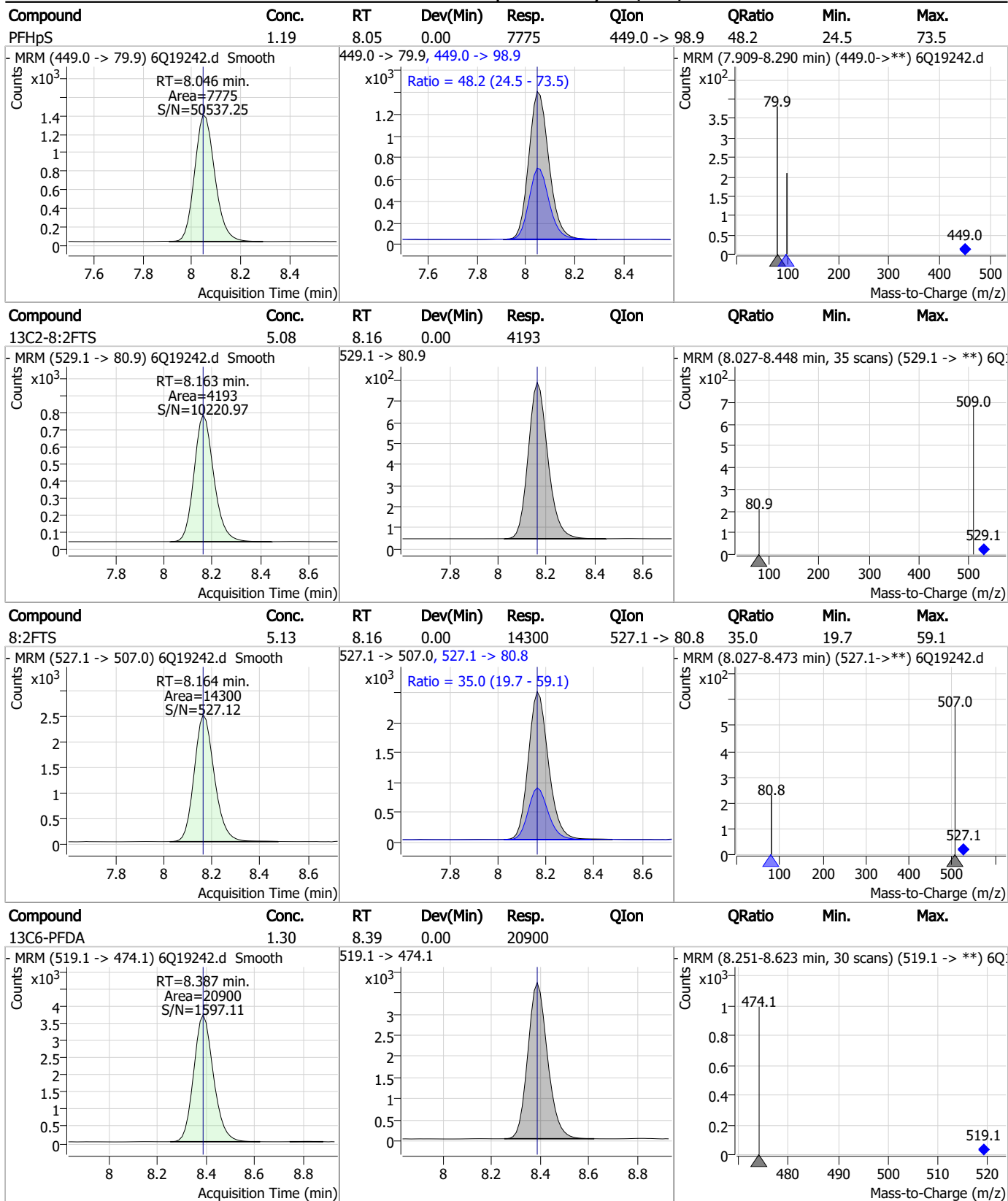
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Perfluorinated Compounds by LC/MS/MS



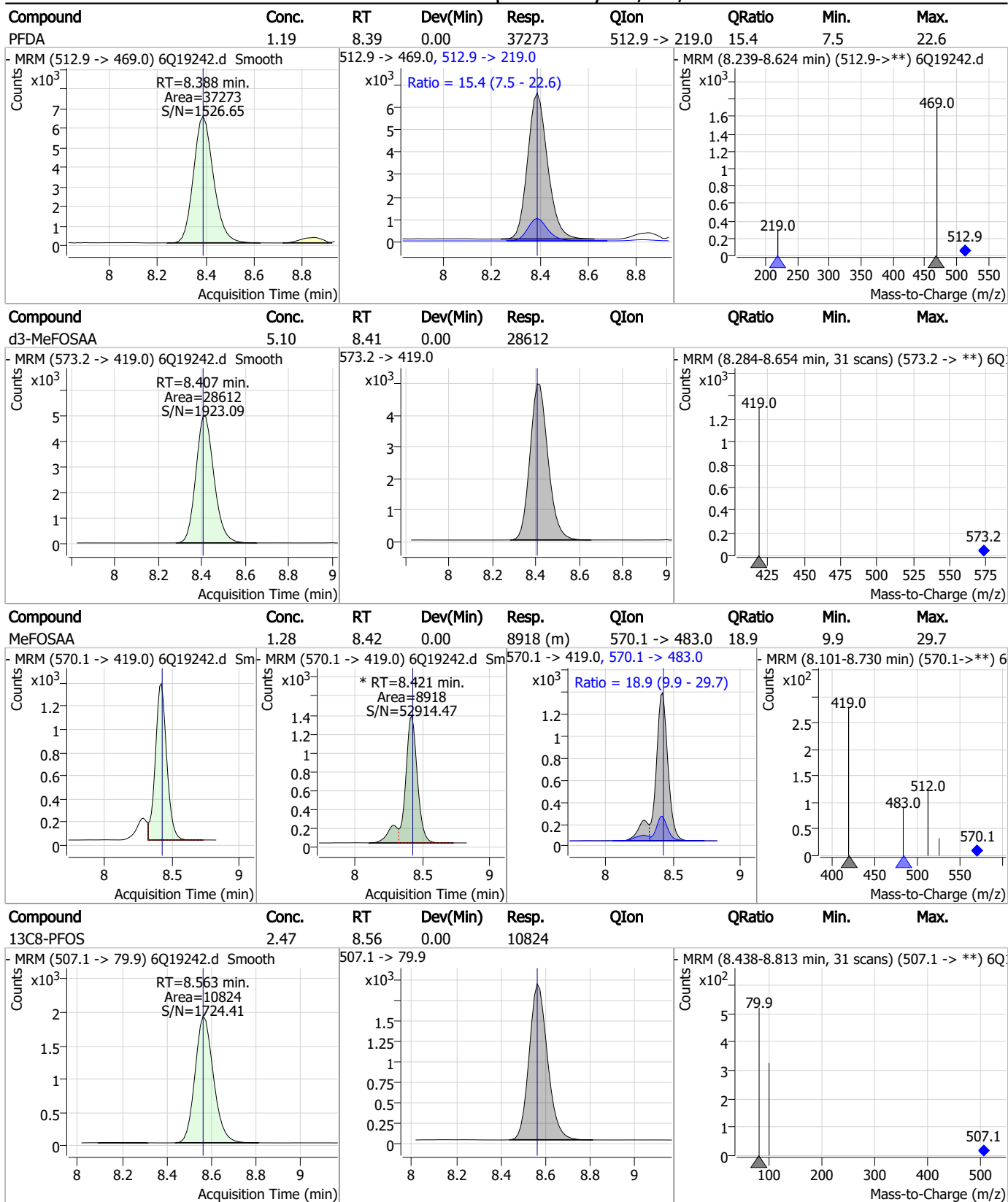
7.7.4
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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Perfluorinated Compounds by LC/MS/MS

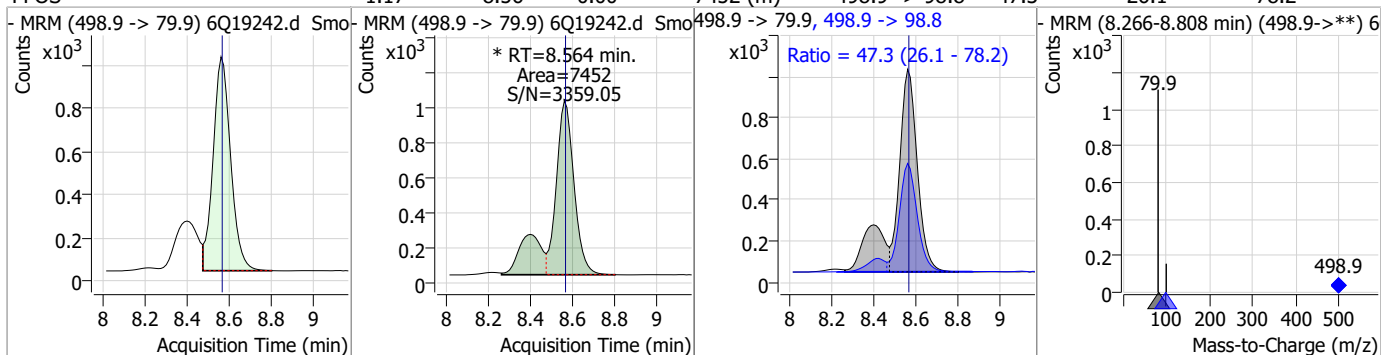


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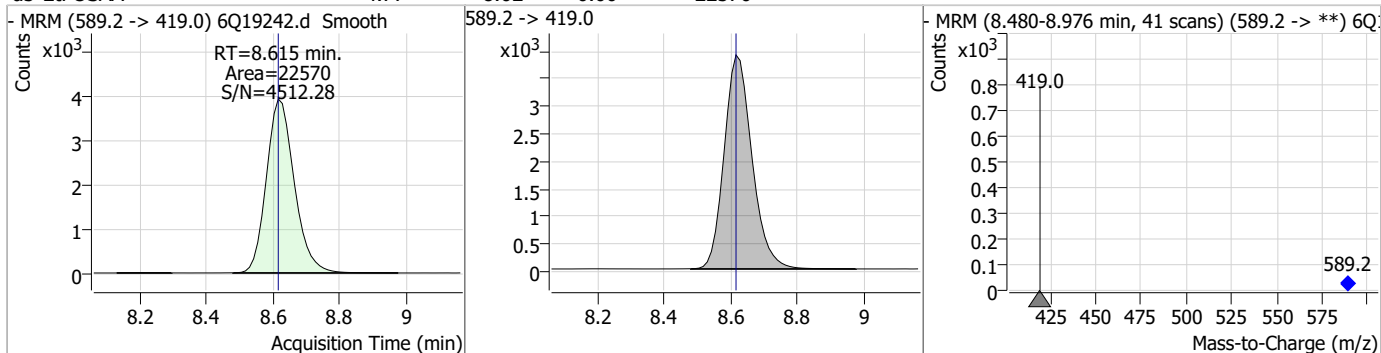
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Perfluorinated Compounds by LC/MS/MS

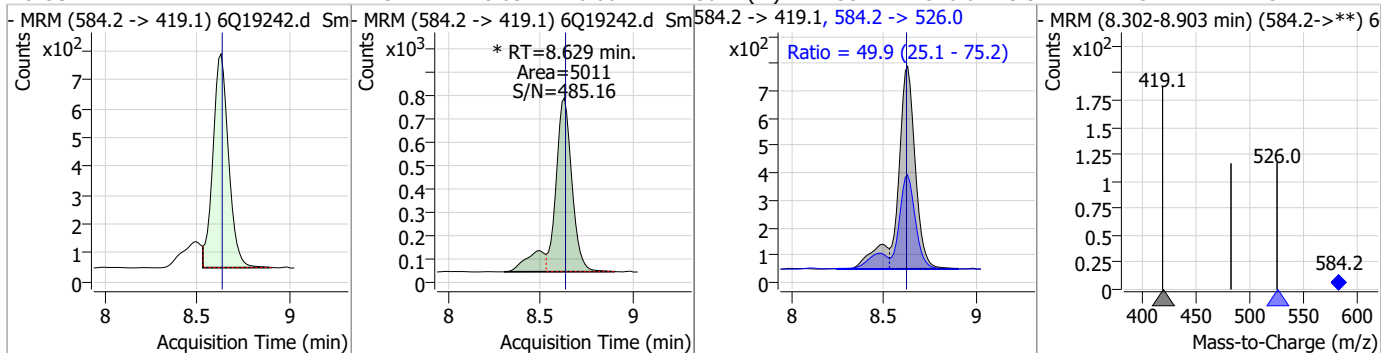
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.17	8.56	0.00	7452 (m)	498.9 -> 98.8	47.3	26.1	78.2



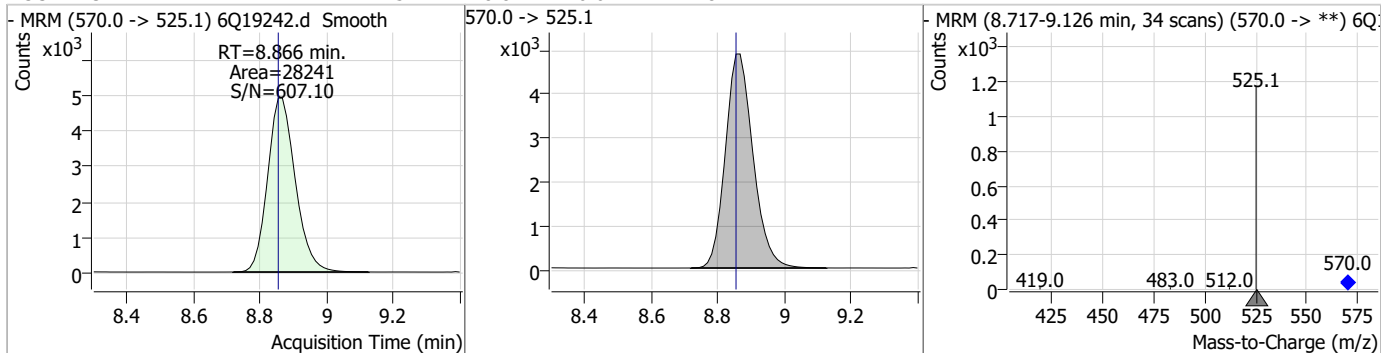
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.77	8.62	0.00	22570				



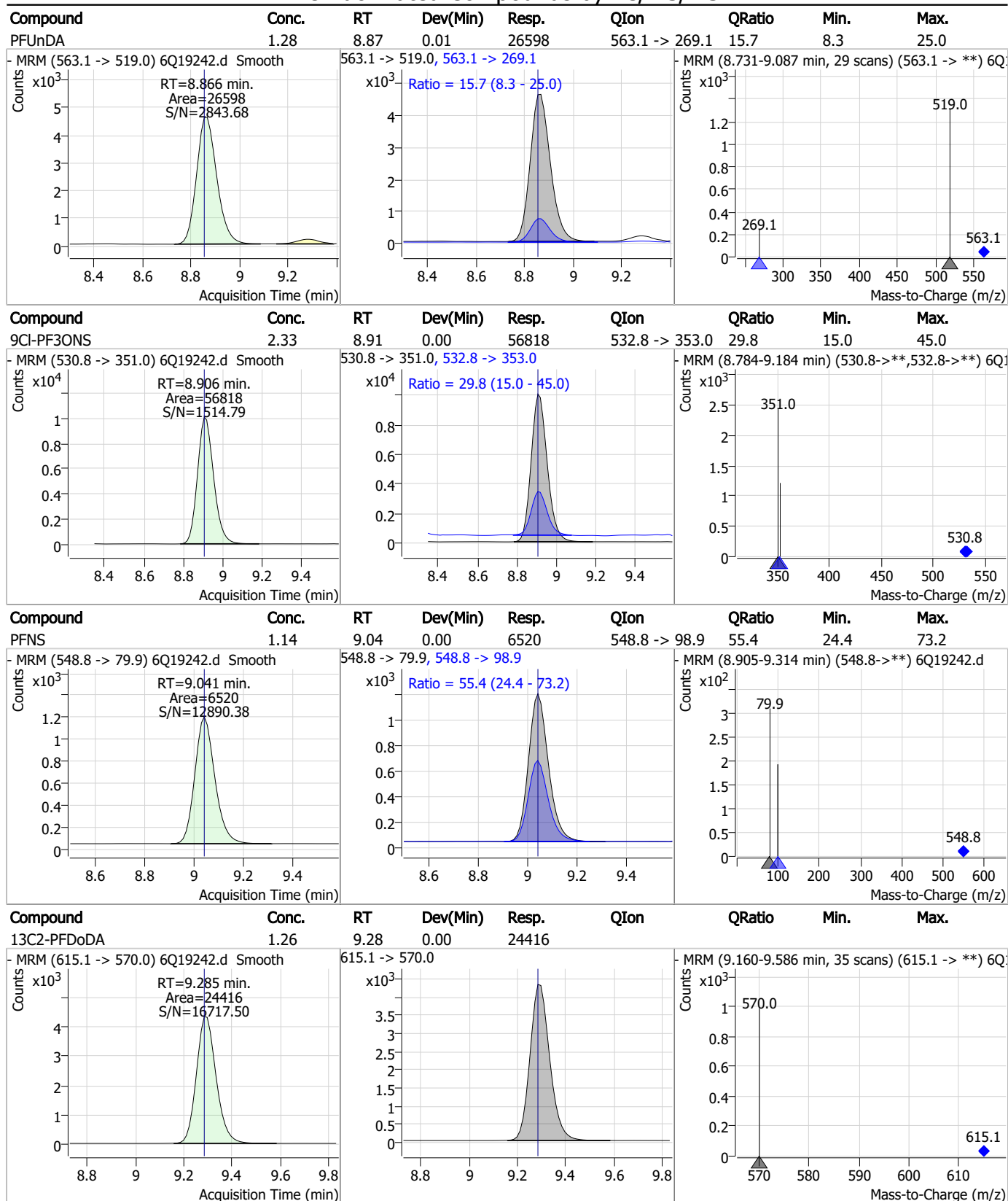
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.34	8.63	0.00	5011 (m)	584.2 -> 526.0	49.9	25.1	75.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.25	8.87	0.01	28241				



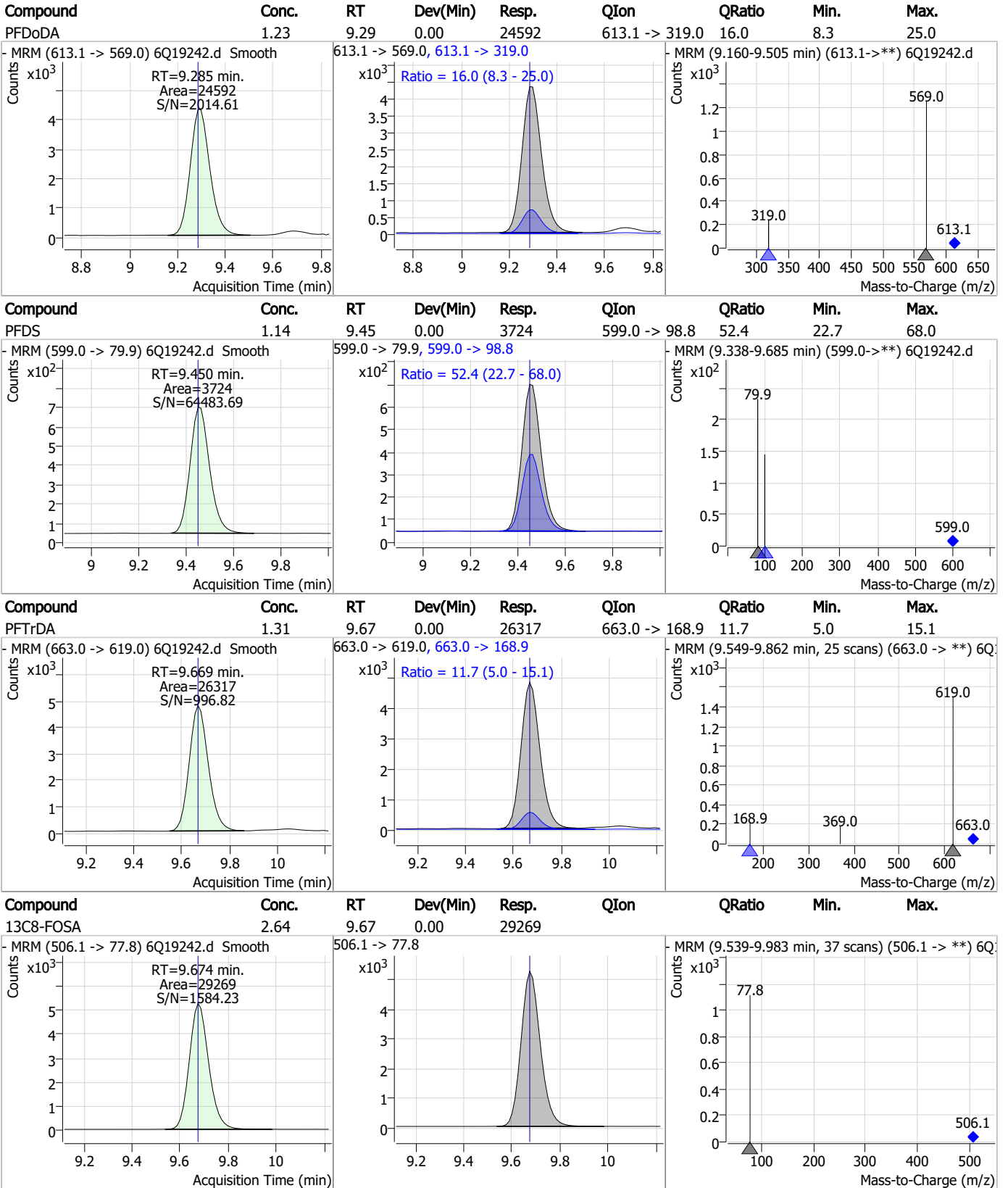
Perfluorinated Compounds by LC/MS/MS



7.7.4

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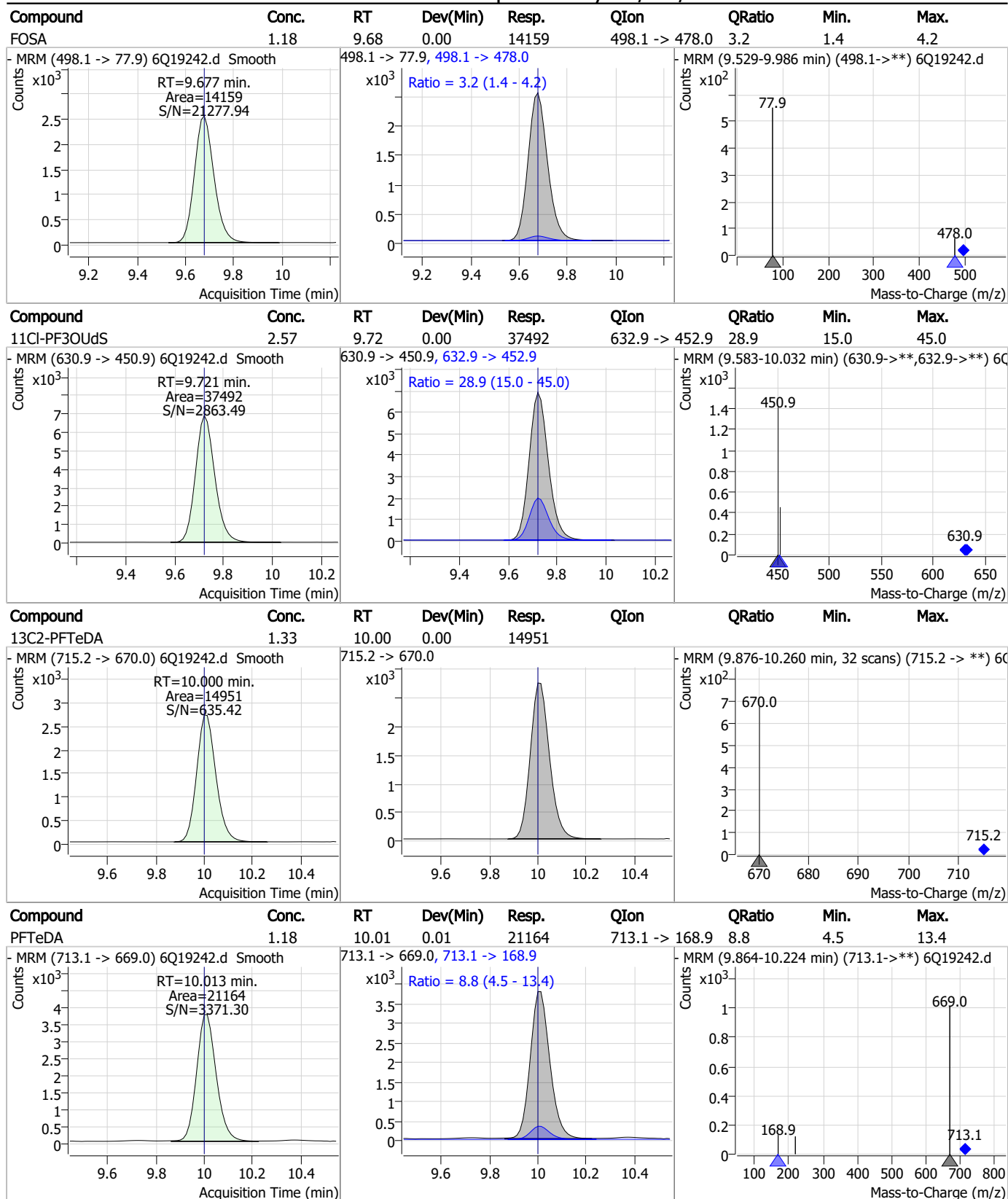
Perfluorinated Compounds by LC/MS/MS



7.7.4

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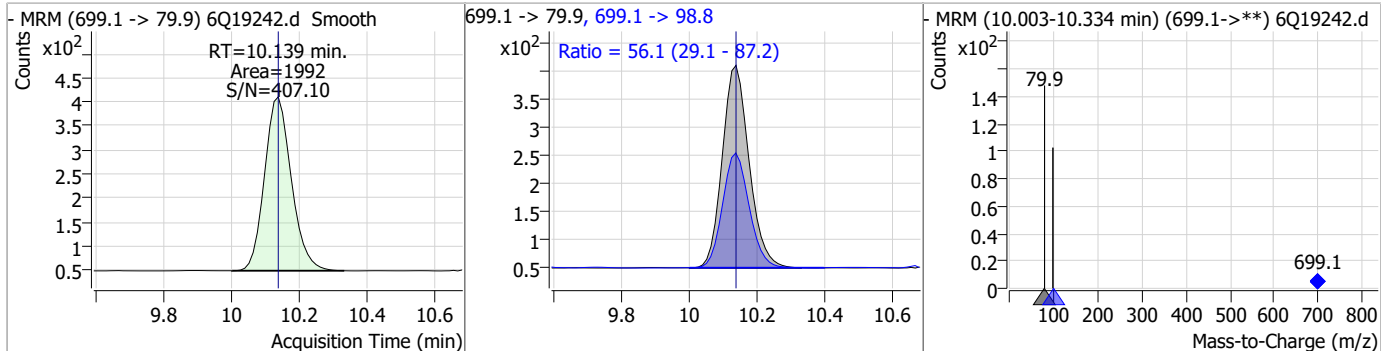
Perfluorinated Compounds by LC/MS/MS



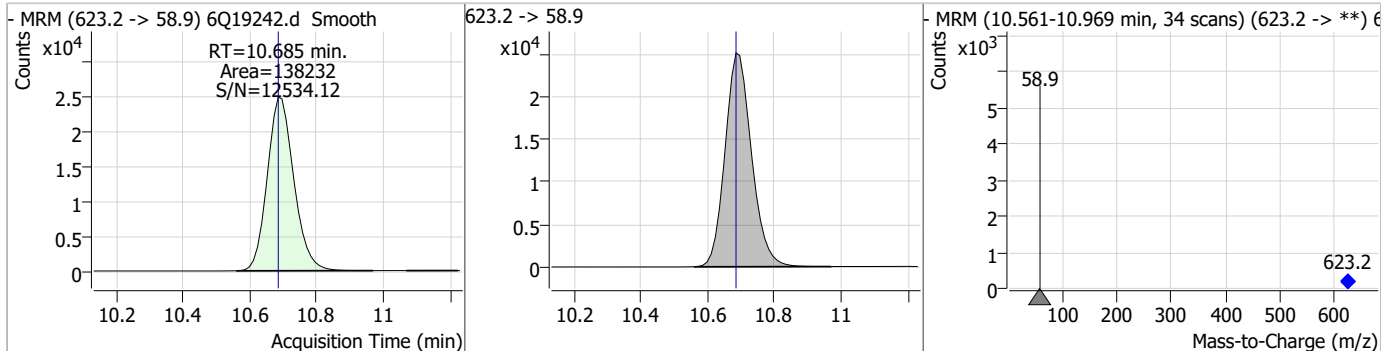
7.7.4
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Perfluorinated Compounds by LC/MS/MS

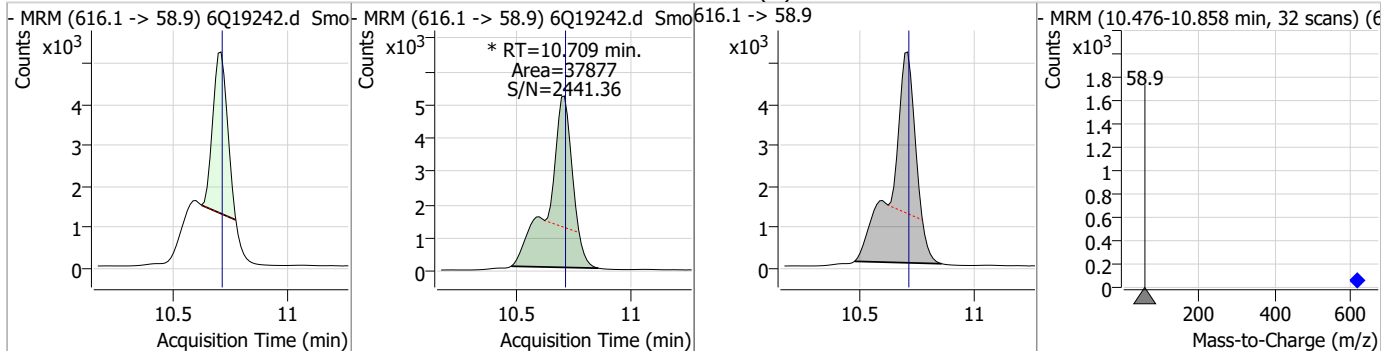
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.23	10.14	0.00	1992	699.1 -> 98.8	56.1	29.1	87.2



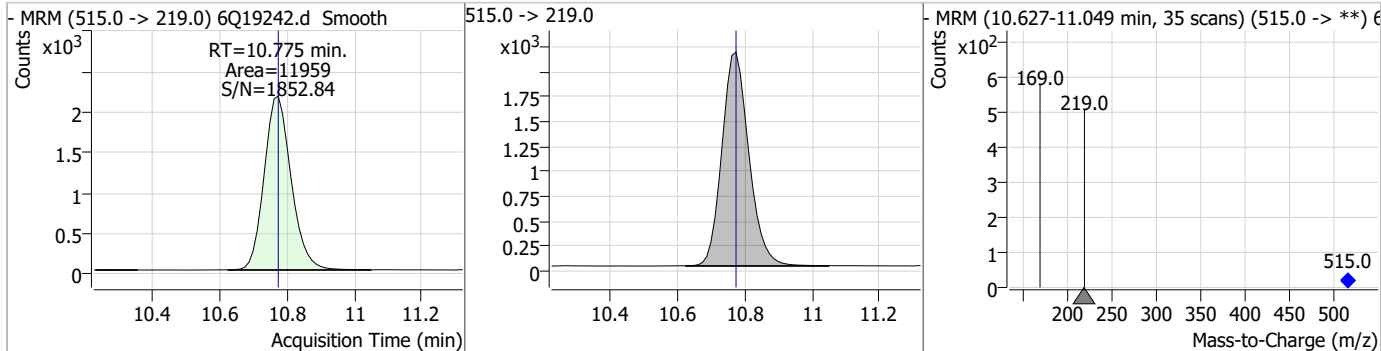
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.18	10.68	0.00	138232				



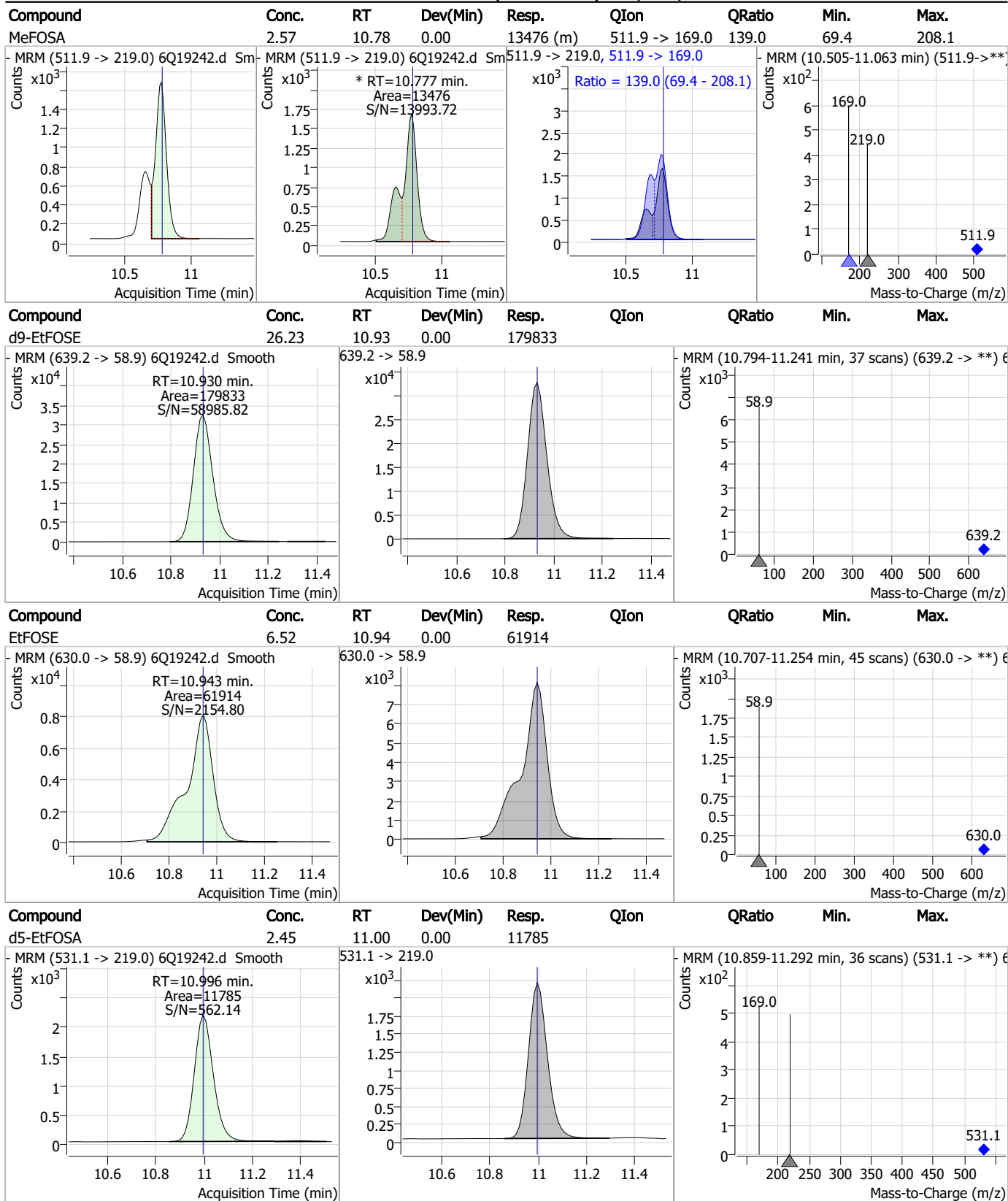
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	6.26	10.71	0.00	37877 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.41	10.78	0.00	11959				

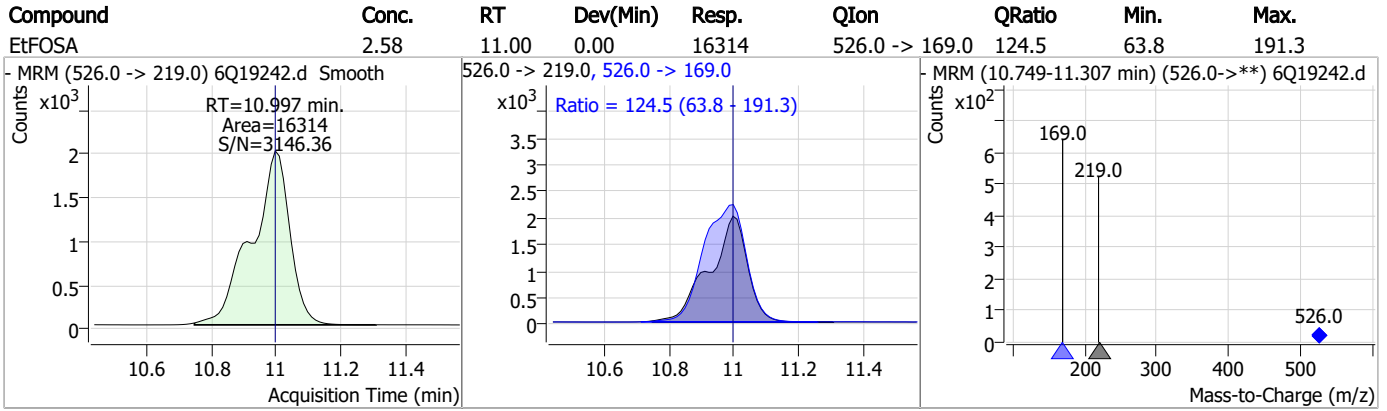


Perfluorinated Compounds by LC/MS/MS



7.7.4
7

Perfluorinated Compounds by LC/MS/MS



7.7.4

7

Manual Integration Approval Summary

Sample Number: S6Q287-IC287 Method: EPA DRAFT 1633
Lab FileID: 6Q19242.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 16:16 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.63	Split peak
MeFOSE	24448-09-7		10.71	Split peak
MeFOSA	31506-32-8		10.78	Split peak

7.7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19243.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 4:30:26 PM
 Sample Name : icc287-4
 Vial : P1-A5
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	140568	10.00 µg/L	0.000
M5-PFPeA	4.560	268.3 -> 223.0	46426	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	50144	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	46358	2.50 µg/L	0.000
M8-PFOA	7.339	421.1 -> 376.0	77838	2.50 µg/L	0.000
M9-PFNA	7.882	472.1 -> 427.0	33668	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	20761	1.25 µg/L	0.000
M7-PFUnDA	8.853	570.0 -> 525.1	28975	1.25 µg/L	0.000
M2-PFDoDA	9.285	615.1 -> 570.0	23513	1.25 µg/L	0.000
M2-PFTeDA	10.000	715.2 -> 670.0	13874	1.25 µg/L	0.000
M8-FOSA	9.674	506.1 -> 77.8	27697	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	18313	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	11807	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	11305	2.50 µg/L	0.000
M2-4:2FTS	5.442	329.1 -> 80.9	2968	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	4234	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4193	5.00 µg/L	0.000
M3-MeFOSAA	8.407	573.2 -> 419.0	29917	5.00 µg/L	0.000
M3-HFPO-DA	6.169	286.9 -> 168.9	31005	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	24915	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	143603	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	178733	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	11928	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	12025	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	14630	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	59704	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	8292	2.50 µg/L	0.000
13C4-PFOA	7.340	417.1 -> 372.0	80335	2.50 µg/L	0.000
13C2-PFDA	8.388	515.1 -> 470.1	28105	1.25 µg/L	0.000
13C5-PFNA	7.882	468.0 -> 423.0	44687	1.25 µg/L	0.000
13C2-PFHxA	5.792	315.1 -> 270.0	47220	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	2968	5.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.2%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4234	5.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.3%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4193	5.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.1%		
13C2-PFDoDA	9.285	615.1 -> 570.0	23513	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFTeDA	10.000	715.2 -> 670.0	13874	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C3-PFBS	5.746	302.1 -> 79.9	18313	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C3-PFHxS	7.478	402.1 -> 79.9	11807	2.68 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 = 107.3%	
13C4-PFBA	3.085	216.8 -> 171.9	140568	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C4-PFHpA	6.707	367.1 -> 322.0	46358	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C5-PFHxA	5.792	318.0 -> 273.0	50144	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C5-PFPeA	4.560	268.3 -> 223.0	46426	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C6-PFDA	8.387	519.1 -> 474.1	20761	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C7-PFUnDA	8.853	570.0 -> 525.1	28975	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C8-FOSA	9.674	506.1 -> 77.8	27697	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C8-PFOA	7.339	421.1 -> 376.0	77838	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C8-PFOS	8.563	507.1 -> 79.9	11305	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C9-PFNA	7.882	472.1 -> 427.0	33668	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.8%	
d3-MeFOSAA	8.407	573.2 -> 419.0	29917	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	31005	9.58 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.8%	
d3-MeFOSA	10.775	515.0 -> 219.0	12025	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
d5-EtFOSAA	8.615	589.2 -> 419.0	24915	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.6%	
d7-MeFOSE	10.685	623.2 -> 58.9	143603	26.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
d9-EtFOSE	10.930	639.2 -> 58.9	178733	26.65 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.6%	
d5-EtFOSA	10.996	531.1 -> 219.0	11928	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
Target Compounds					QValue
4:2FTS	5.443	327.1 -> 307.0	47239	9.19 µg/L	100
		327.1 -> 80.9	17595		
6:2FTS	7.113	427.1 -> 407.0	47115	9.21 µg/L	100
		427.1 -> 80.9	17157		
8:2FTS	8.164	527.1 -> 507.0	26695	9.57 µg/L	100
		527.1 -> 80.8	10523		
EtFOSAA	8.629	584.2 -> 419.1	9230	2.23 µg/L	m 100
		584.2 -> 526.0	4629		
FOSA	9.677	498.1 -> 77.9	27116	2.39 µg/L	100
		498.1 -> 478.0	754		
MeFOSAA	8.421	570.1 -> 419.0	16974	2.33 µg/L	m 100
		570.1 -> 483.0	3358		
PFBA	3.093	212.8 -> 168.9	53583	9.56 µg/L	100
PFBS	5.747	298.7 -> 79.9	17811	2.22 µg/L	100
		298.7 -> 98.8	6160		
PFDA	8.388	512.9 -> 469.0	70834	2.28 µg/L	100
		512.9 -> 219.0	10658		
PFDODA	9.285	613.1 -> 569.0	46000	2.38 µg/L	100
		613.1 -> 319.0	7676		
PFDS	9.450	599.0 -> 79.9	7772	2.28 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3522			
PFHpA	6.708	363.1 -> 319.0	61235	2.47	µg/L	100
		363.1 -> 169.0	9828			
PFHpS	8.046	449.0 -> 79.9	14466	2.13	µg/L	100
		449.0 -> 98.9	7089			
PFHxA	5.795	313.0 -> 269.0	47031	2.34	µg/L	100
		313.0 -> 118.9	2536			
PFHxS	7.479	398.7 -> 79.9	15250	2.15	µg/L	m 100
		398.7 -> 98.9	7061			
PFNA	7.883	463.0 -> 419.0	78087	2.53	µg/L	100
		463.0 -> 219.0	13826			
PFNS	9.041	548.8 -> 79.9	13594	2.27	µg/L	100
		548.8 -> 98.9	6636			
PFOA	7.353	413.0 -> 369.0	94981	2.38	µg/L	100
		413.0 -> 169.0	16702			
PFOS	8.564	498.9 -> 79.9	13905	2.09	µg/L	m 100
		498.9 -> 98.8	7249			
PFPeA	4.551	263.0 -> 219.0	64525	4.72	µg/L	100
PFPeS	6.785	349.1 -> 79.9	14597	2.24	µg/L	100
		349.1 -> 98.9	6705			
PFTeDA	10.000	713.1 -> 669.0	40562	2.45	µg/L	100
		713.1 -> 168.9	3612			
PFTrDA	9.669	663.0 -> 619.0	50072	2.61	µg/L	100
		663.0 -> 168.9	5028			
PFUnDA	8.854	563.1 -> 519.0	52562	2.47	µg/L	100
		563.1 -> 269.1	8750			
11CI-PF3OUdS	9.721	630.9 -> 450.9	73440	5.03	µg/L	100
		632.9 -> 452.9	22023			
9CI-PF3ONS	8.906	530.8 -> 351.0	115870	4.75	µg/L	100
		532.8 -> 353.0	34769			
ADONA	6.959	376.9 -> 250.9	239236	4.56	µg/L	100
		376.9 -> 84.8	66960			
HFPO-DA	6.169	284.9 -> 168.9	16822	5.00	µg/L	100
		284.9 -> 184.9	1847			
3:3FTCA	3.946	241.0 -> 177.0	10943	11.71	µg/L	100
		241.0 -> 117.0	1453			
5:3FTCA	6.361	341.0 -> 237.1	238074	61.11	µg/L	100
		341.0 -> 217.0	177547			
7:3FTCA	7.748	441.0 -> 316.9	166781	59.82	µg/L	100
		441.0 -> 336.9	385570			
EtFOSA	10.997	526.0 -> 219.0	31209	4.89	µg/L	100
		526.0 -> 169.0	39793			
EtFOSE	10.943	630.0 -> 58.9	115263	12.21	µg/L	100
MeFOSA	10.777	511.9 -> 219.0	25896	4.91	µg/L	m 100
		511.9 -> 169.0	35919			
MeFOSE	10.709	616.1 -> 58.9	73632	11.71	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	3732	2.20	µg/L	100
		699.1 -> 98.8	2168			
NFDHA	5.673	295.0 -> 201.0	11826	4.65	µg/L	100
		295.0 -> 84.9	3420			
PFMBA	4.988	279.0 -> 85.1	45915	4.69	µg/L	100
PFMPA	3.667	229.0 -> 84.9	36379	4.78	µg/L	100
PFEESA	6.288	314.8 -> 134.9	116442	4.71	µg/L	100
		314.8 -> 82.9	3989			

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

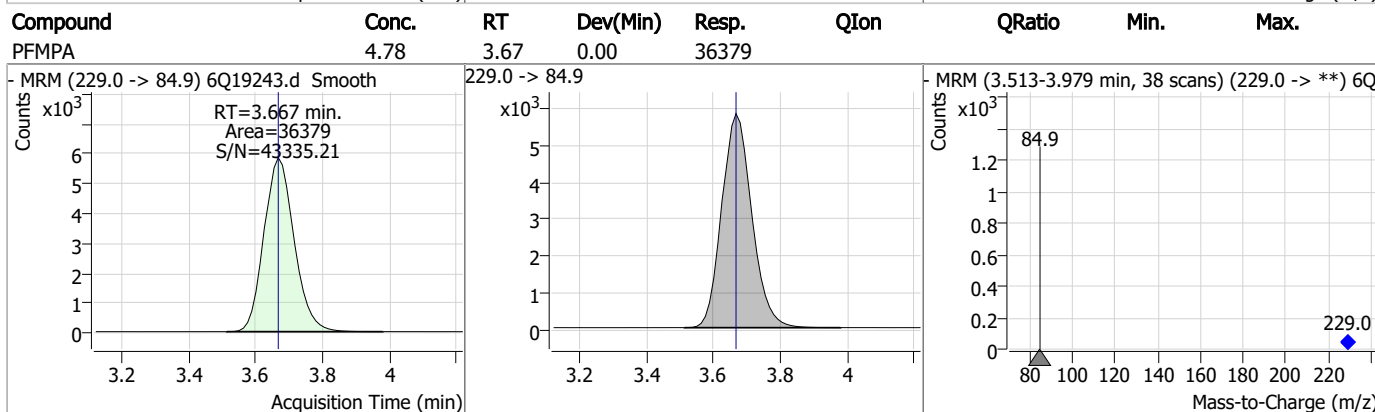
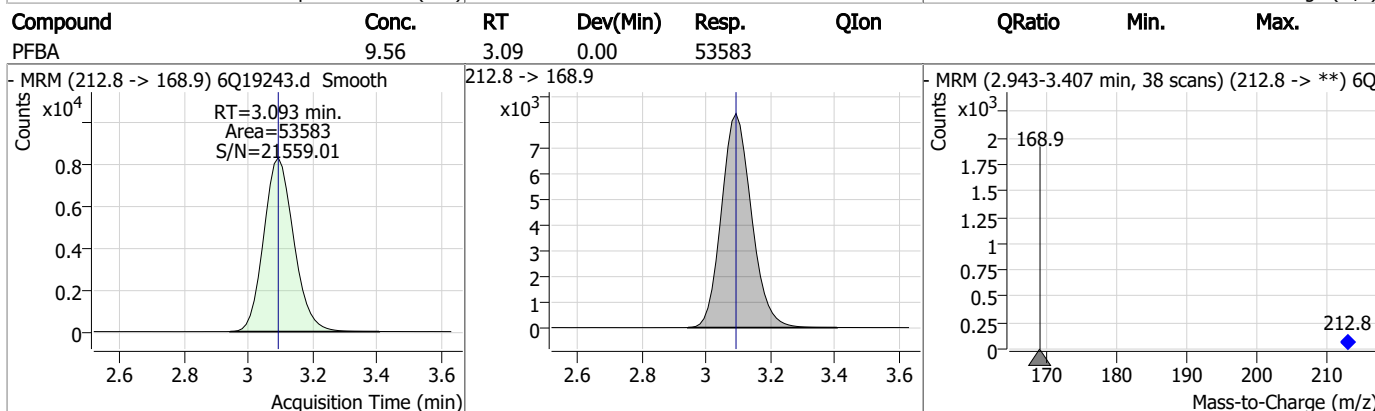
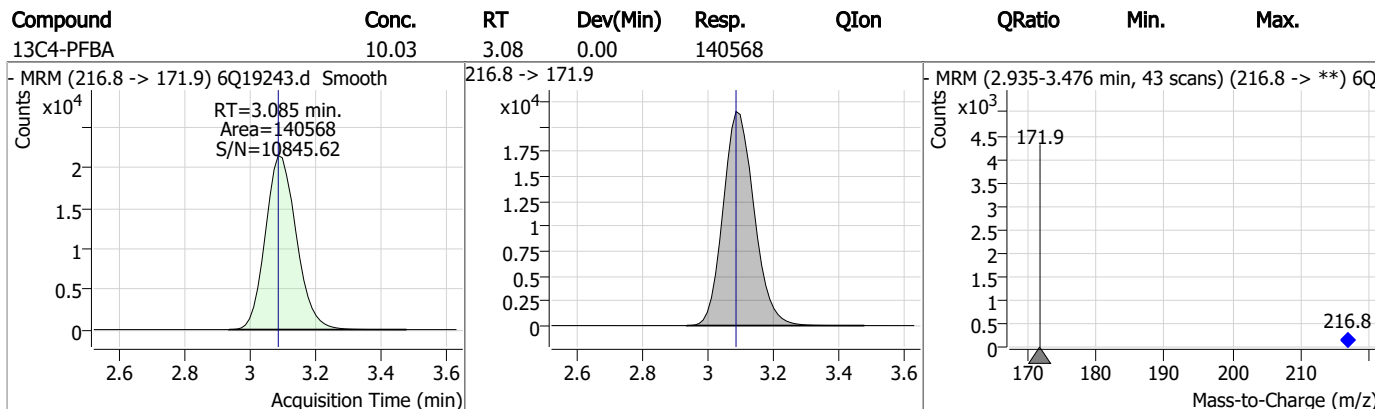
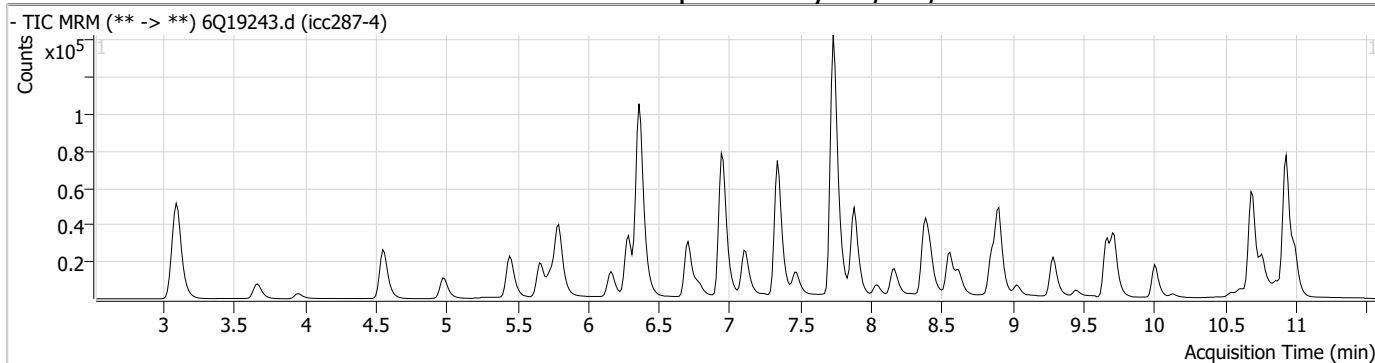
Perfluorinated Compounds by LC/MS/MS

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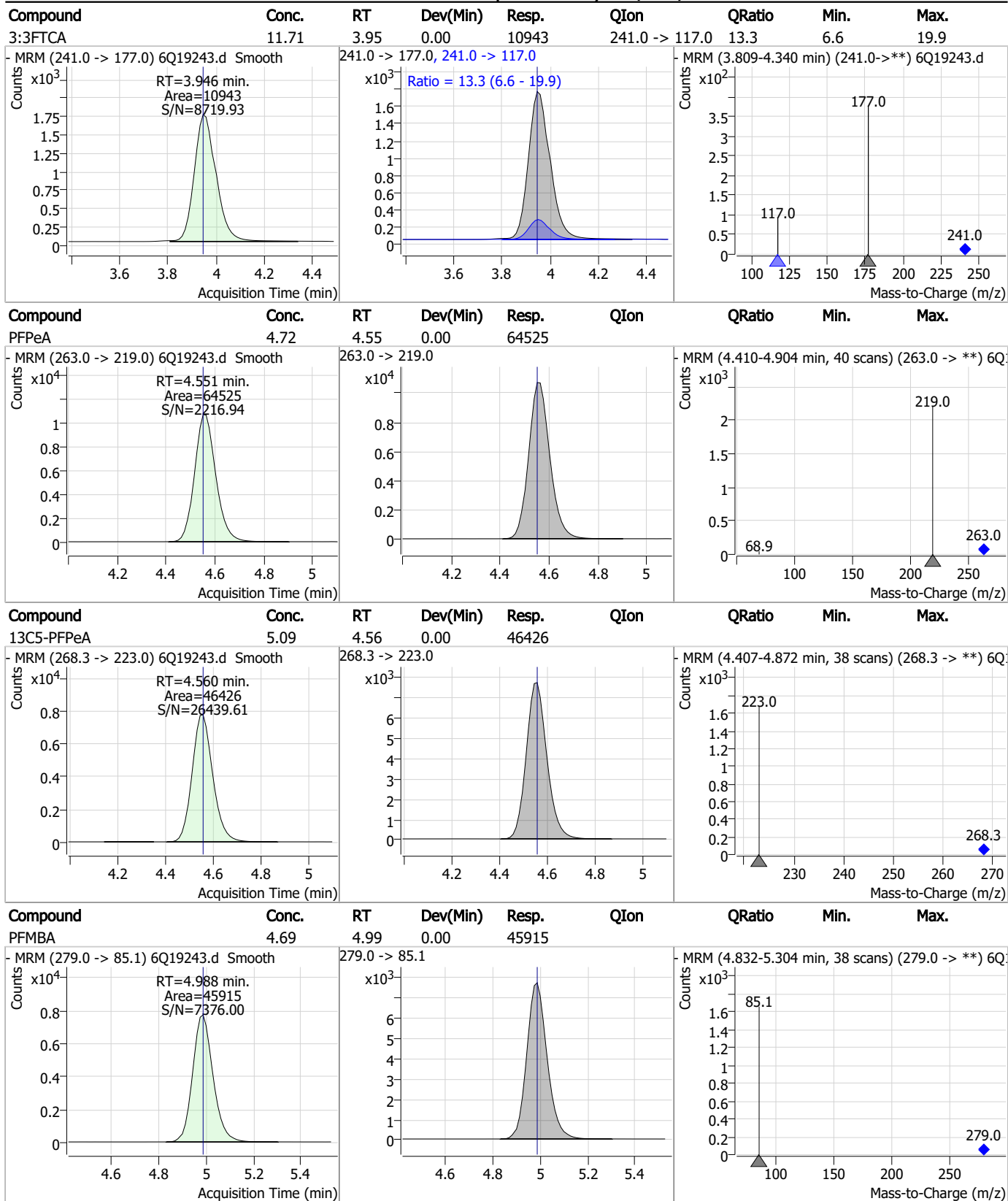
7.7.5

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Perfluorinated Compounds by LC/MS/MS

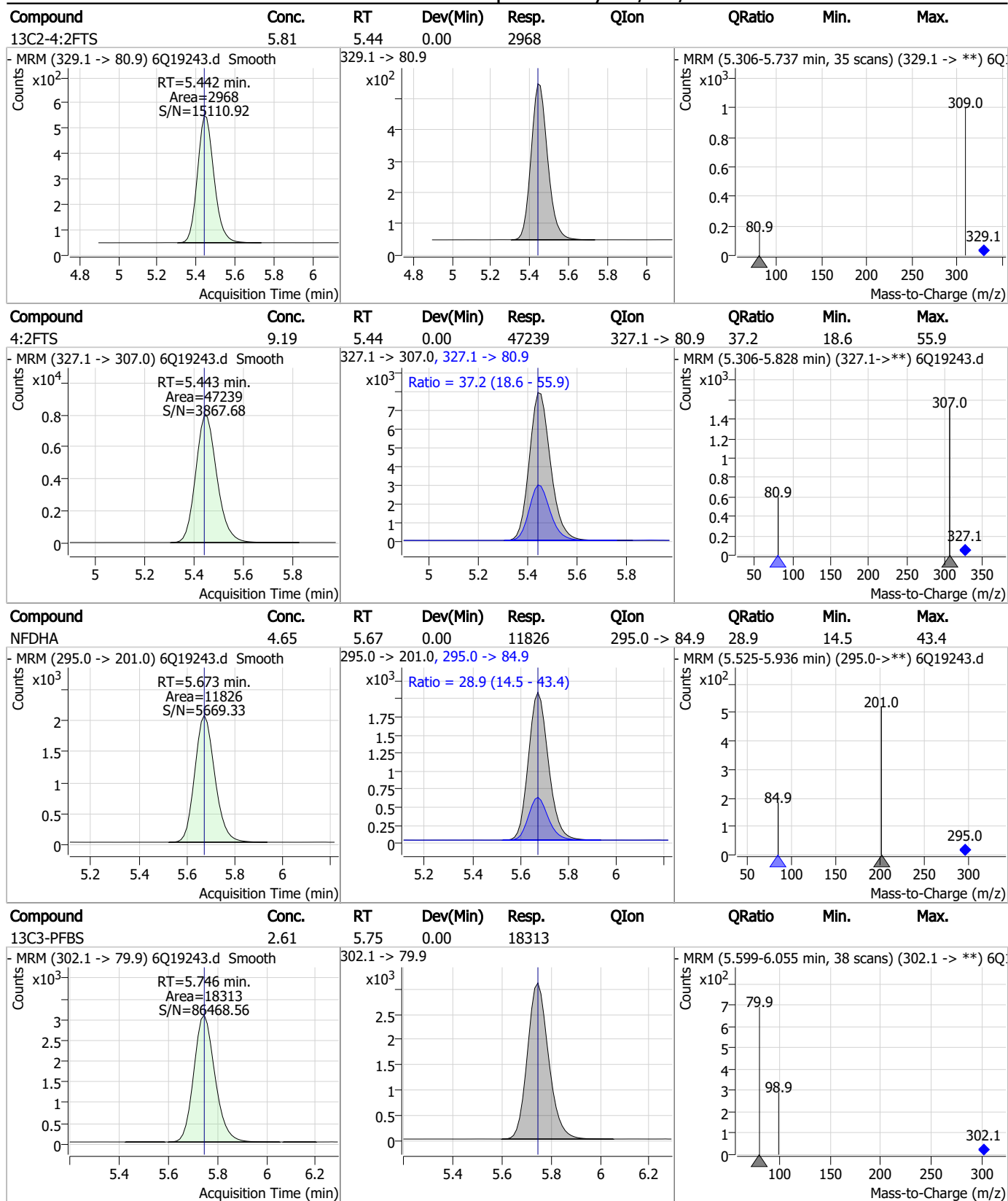


Perfluorinated Compounds by LC/MS/MS



7.7.5
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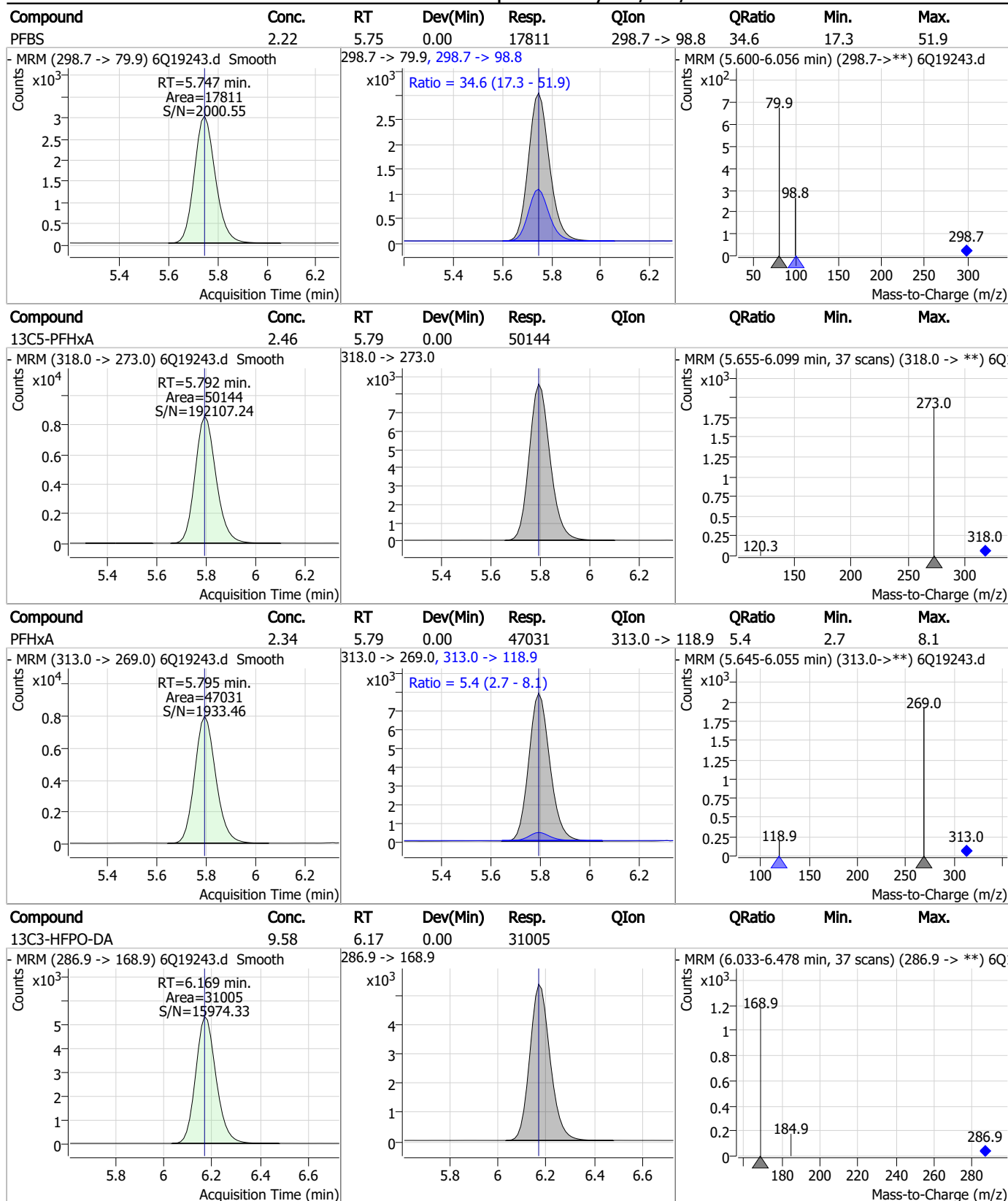
Perfluorinated Compounds by LC/MS/MS



7.7.5

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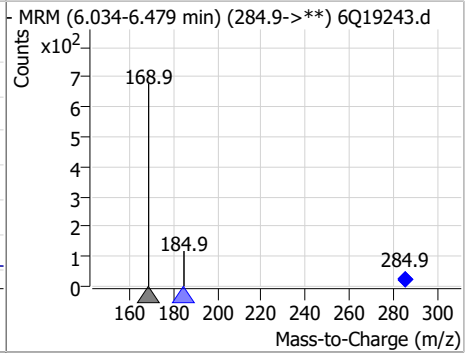
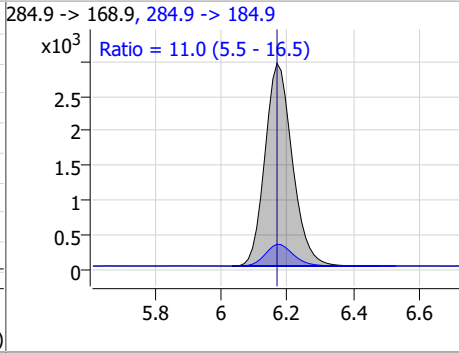
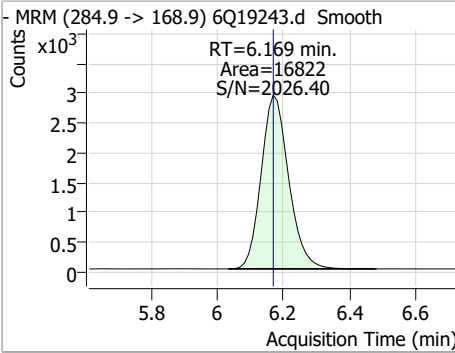
Perfluorinated Compounds by LC/MS/MS



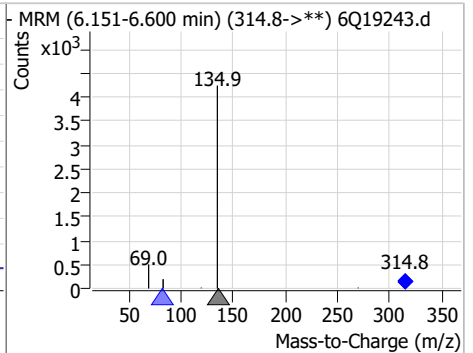
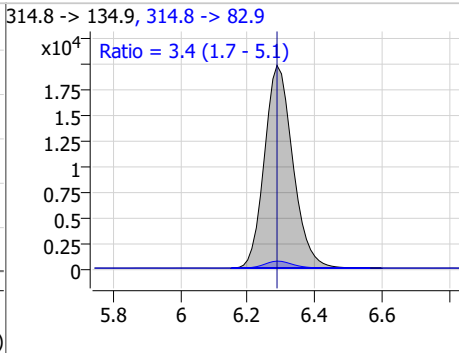
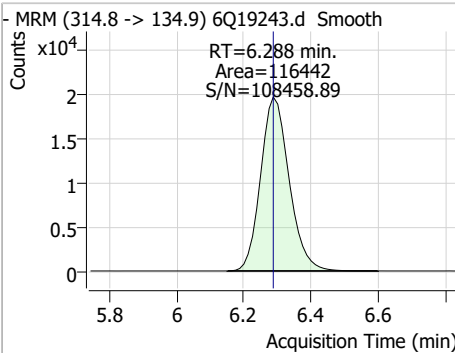
7.7.5
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Perfluorinated Compounds by LC/MS/MS

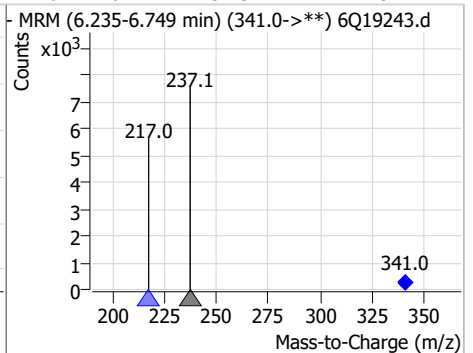
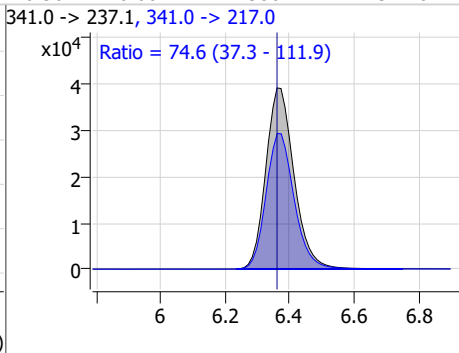
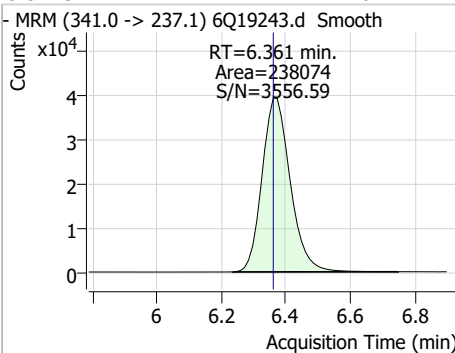
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.00	6.17	0.00	16822	284.9 -> 184.9	11.0	5.5	16.5



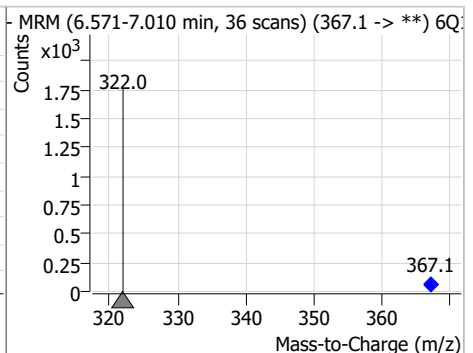
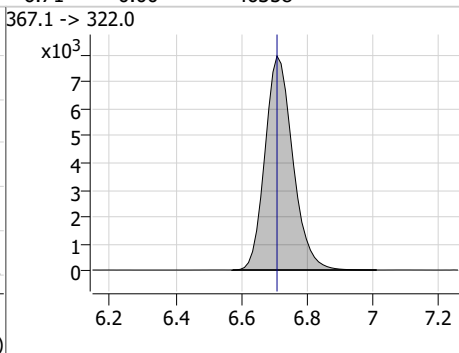
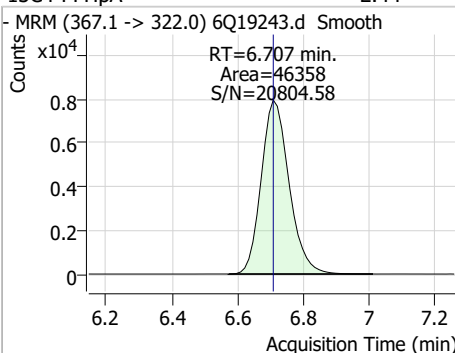
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.71	6.29	0.00	116442	314.8 -> 82.9	3.4	1.7	5.1



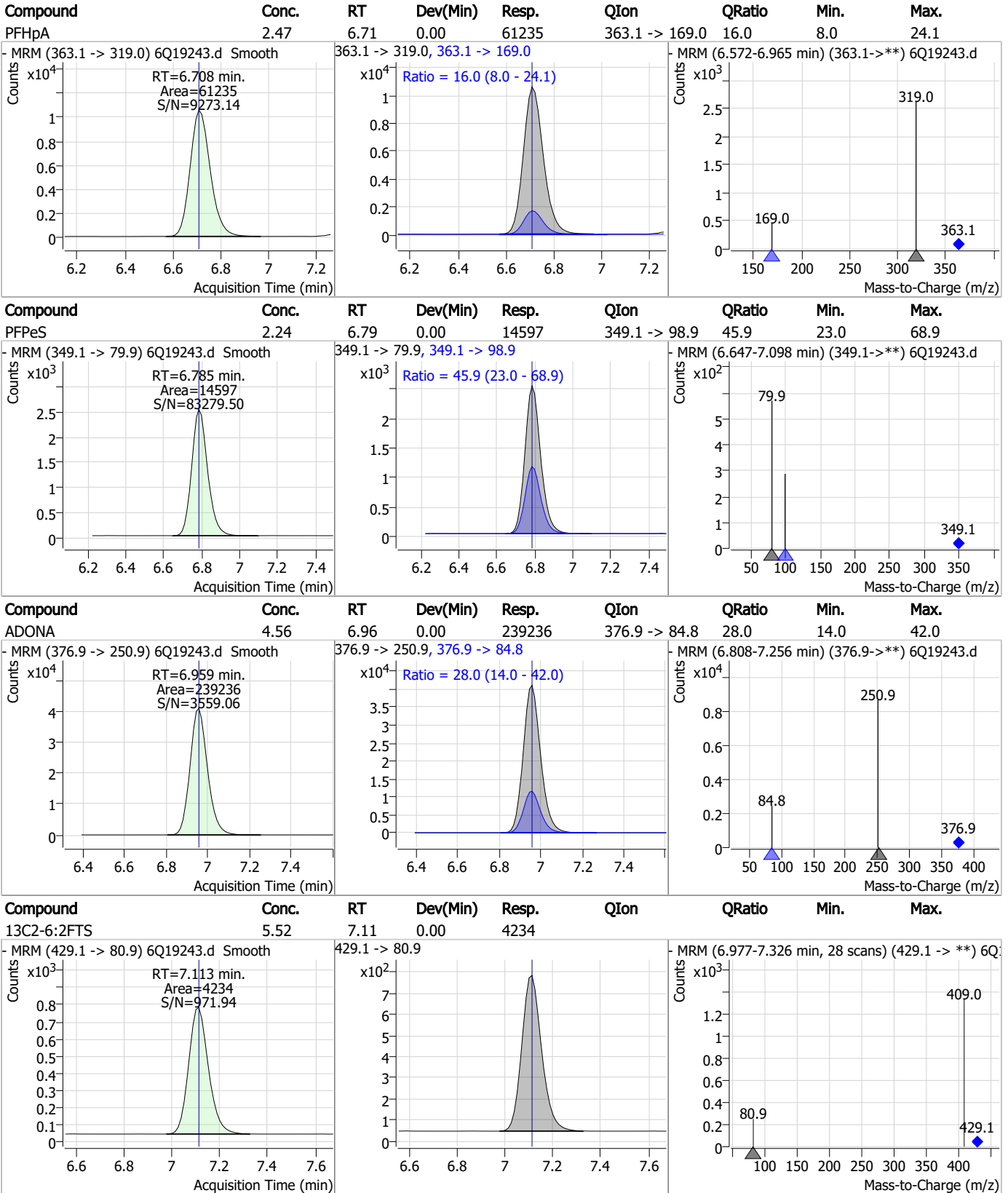
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	61.11	6.36	0.00	238074	341.0 -> 217.0	74.6	37.3	111.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.44	6.71	0.00	46358	367.1 -> 322.0			



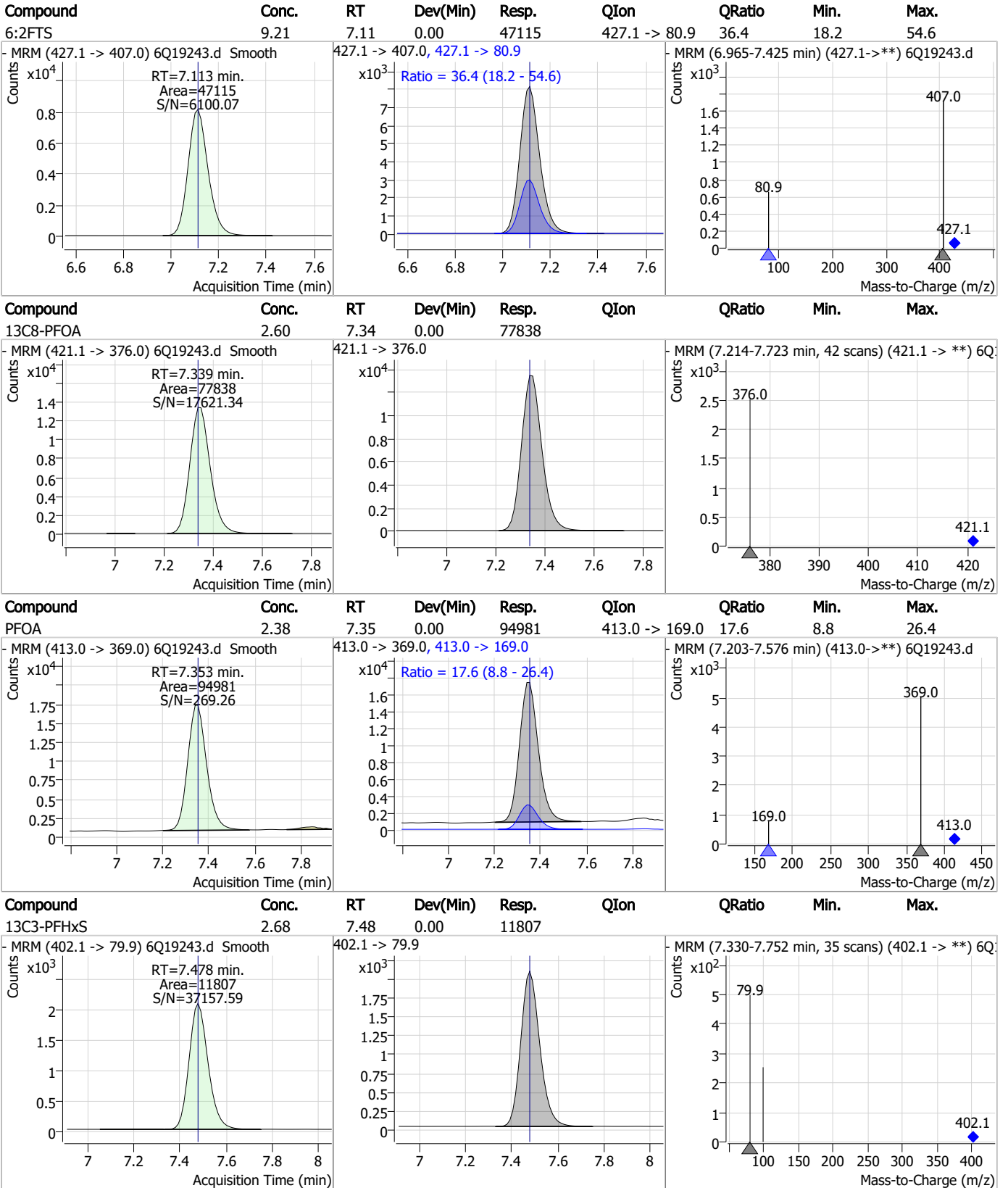
Perfluorinated Compounds by LC/MS/MS



7.7.5

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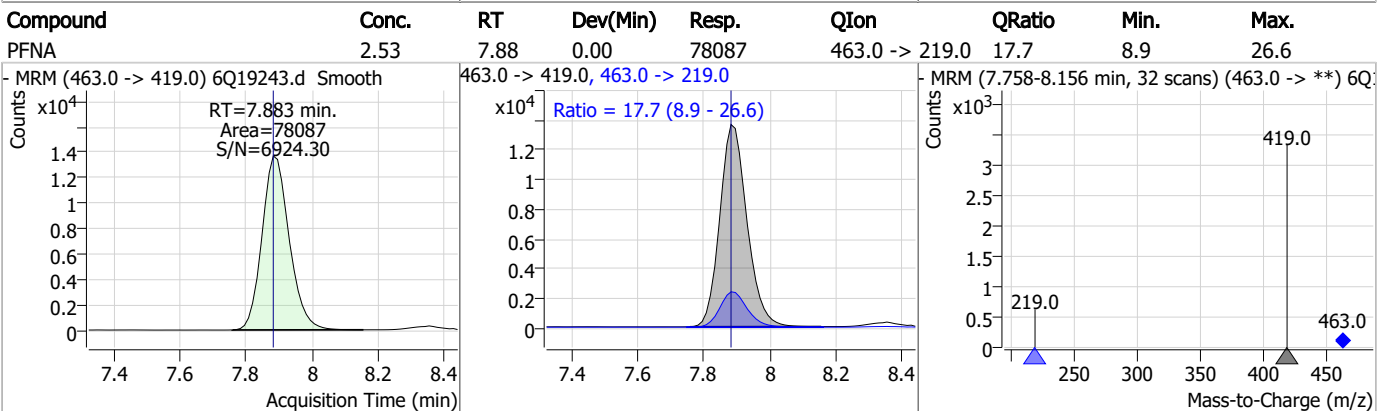
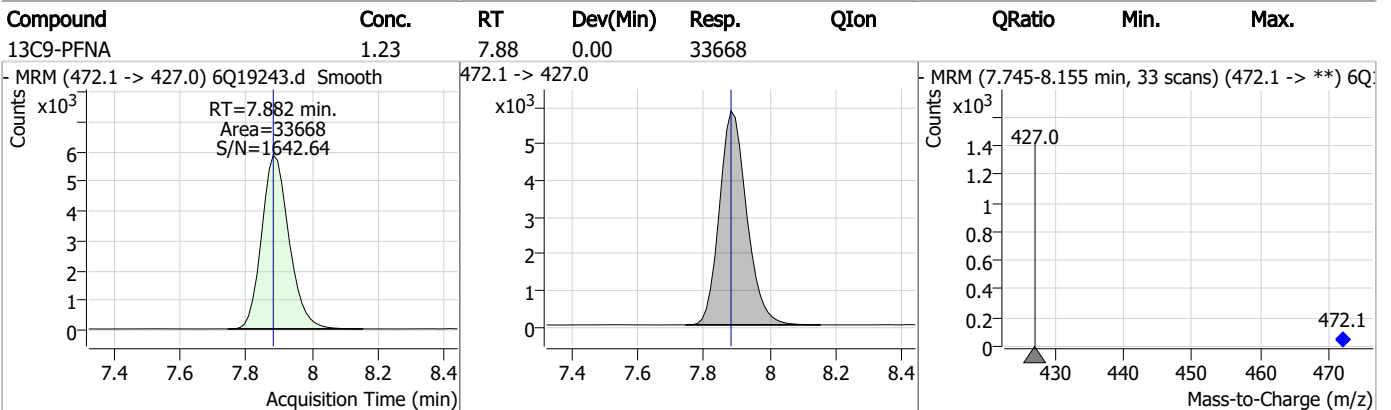
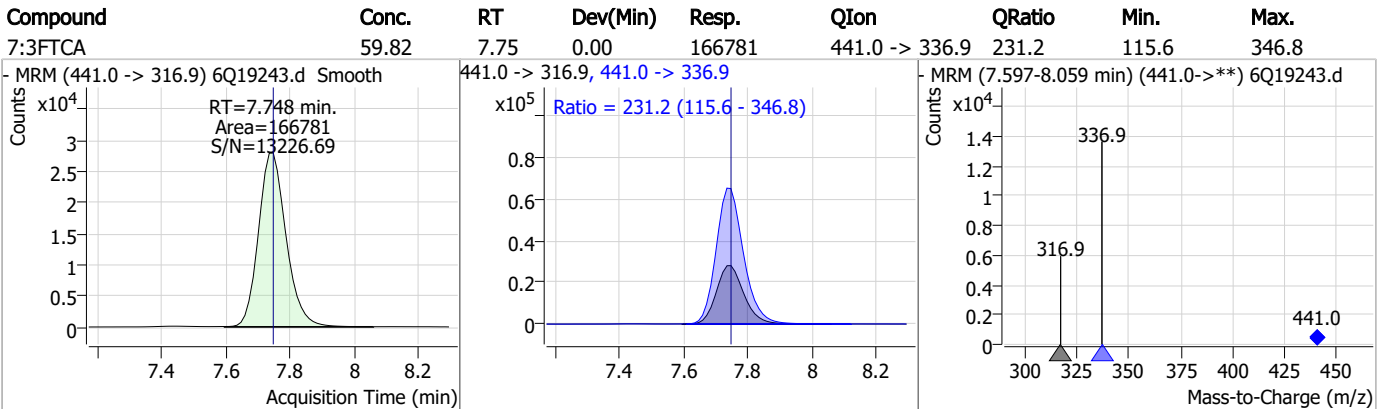
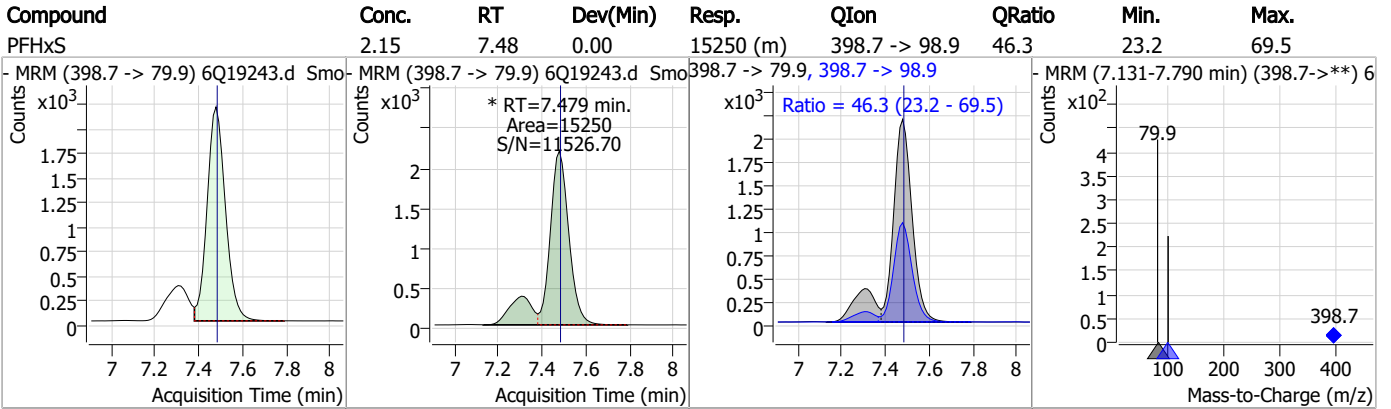
Perfluorinated Compounds by LC/MS/MS



7.7.5

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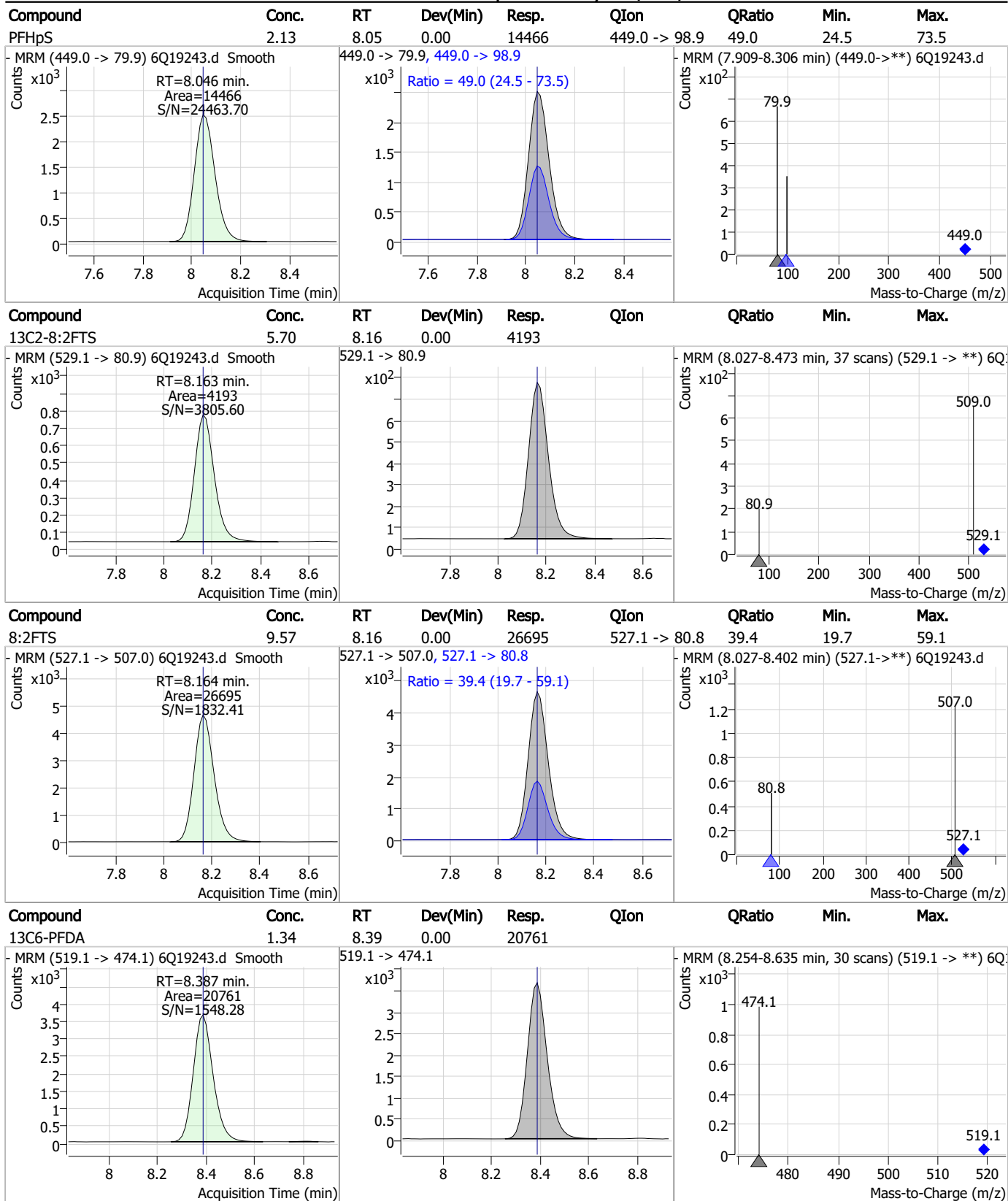
Perfluorinated Compounds by LC/MS/MS



7.7.5

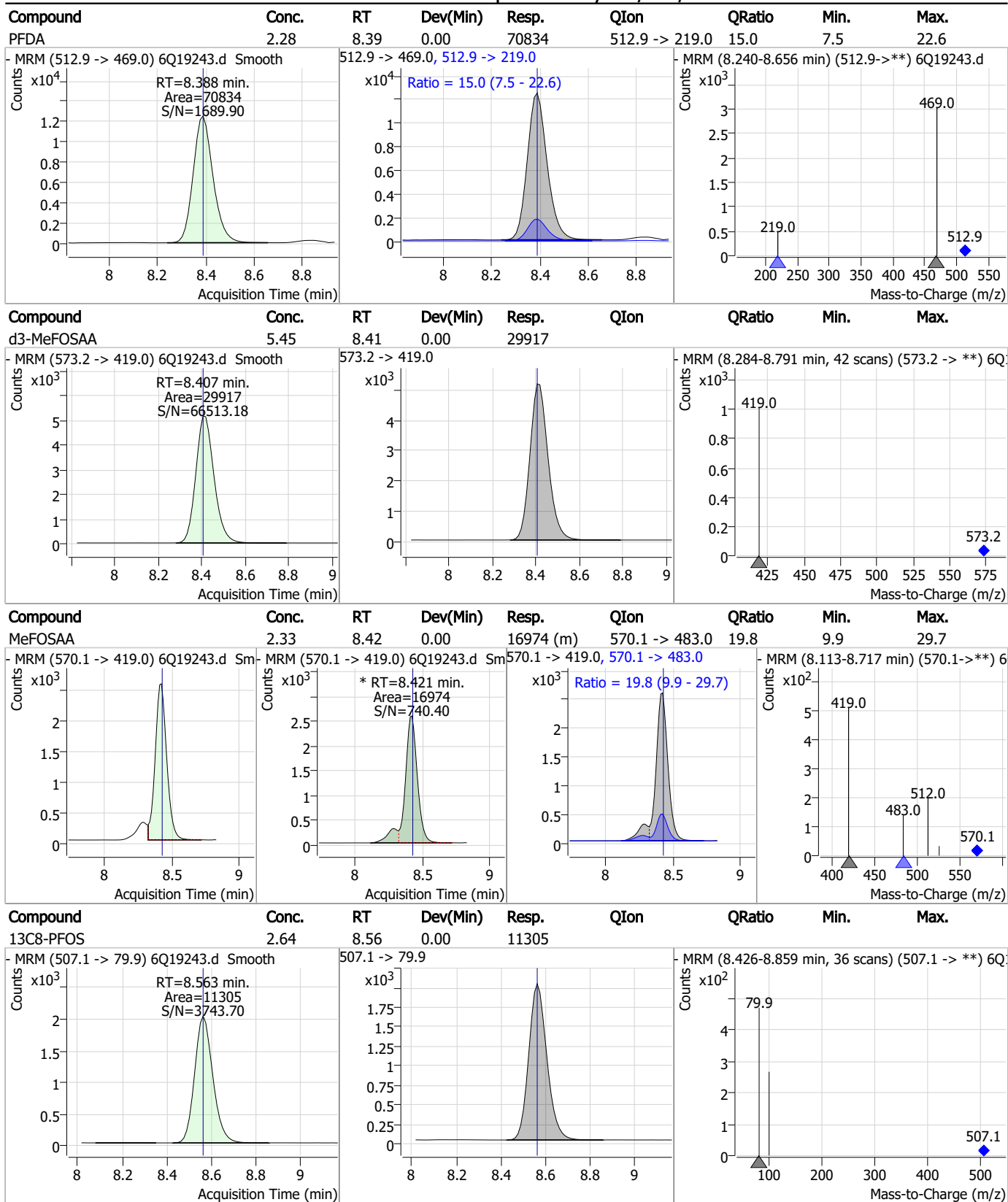
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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Perfluorinated Compounds by LC/MS/MS

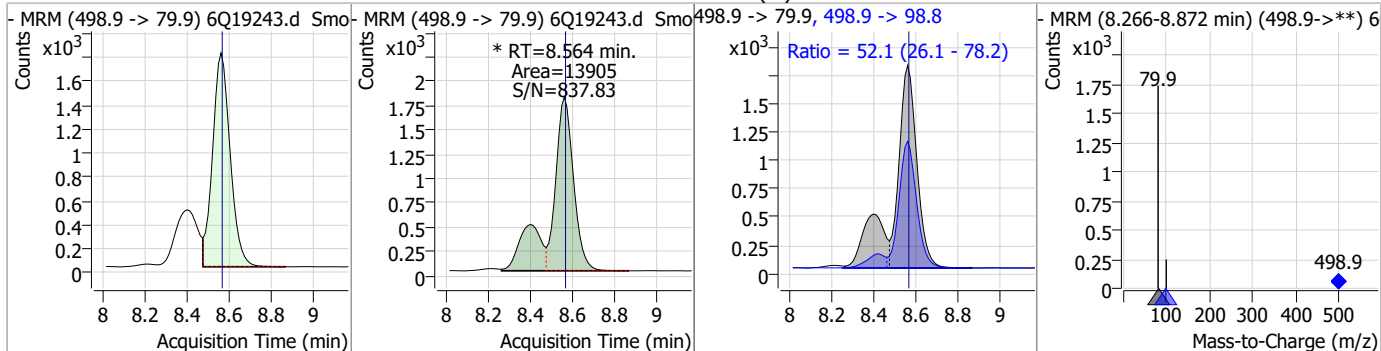


7.7.5
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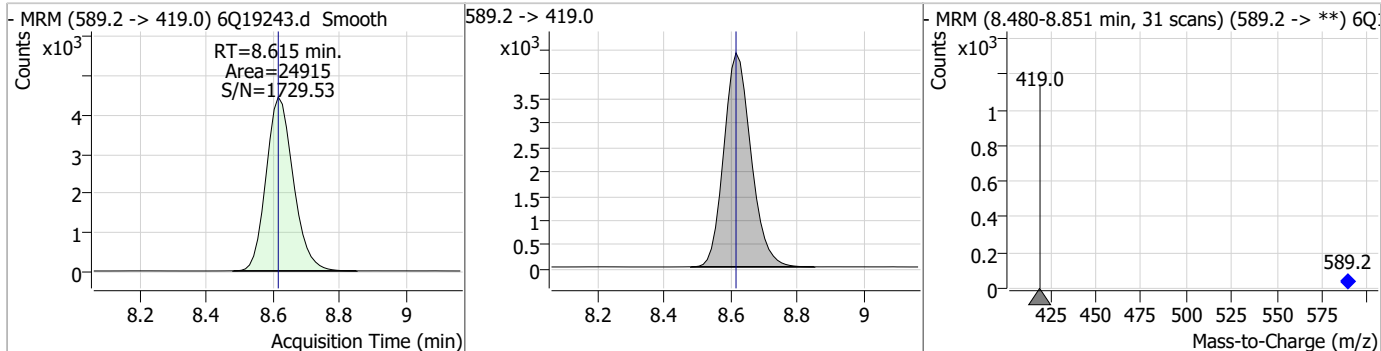


Perfluorinated Compounds by LC/MS/MS

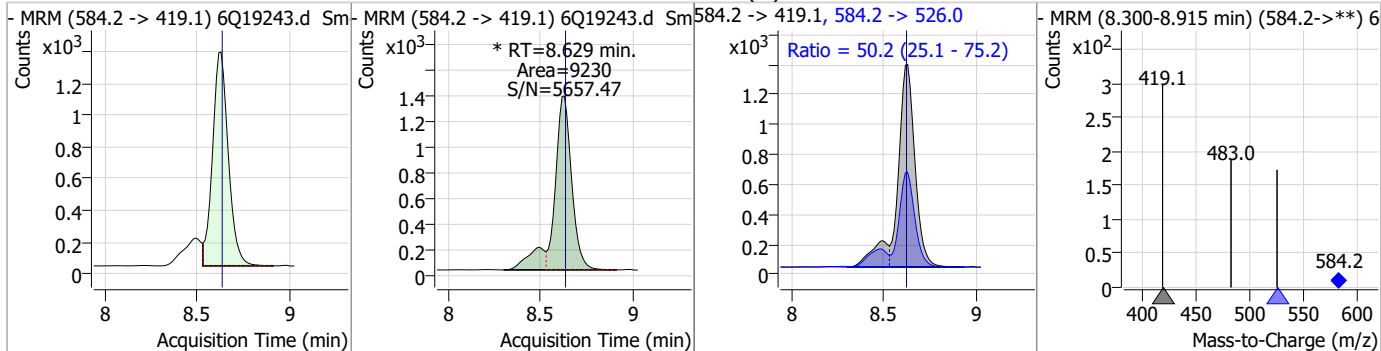
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.09	8.56	0.00	13905 (m)	498.9 -> 98.8	52.1	26.1	78.2



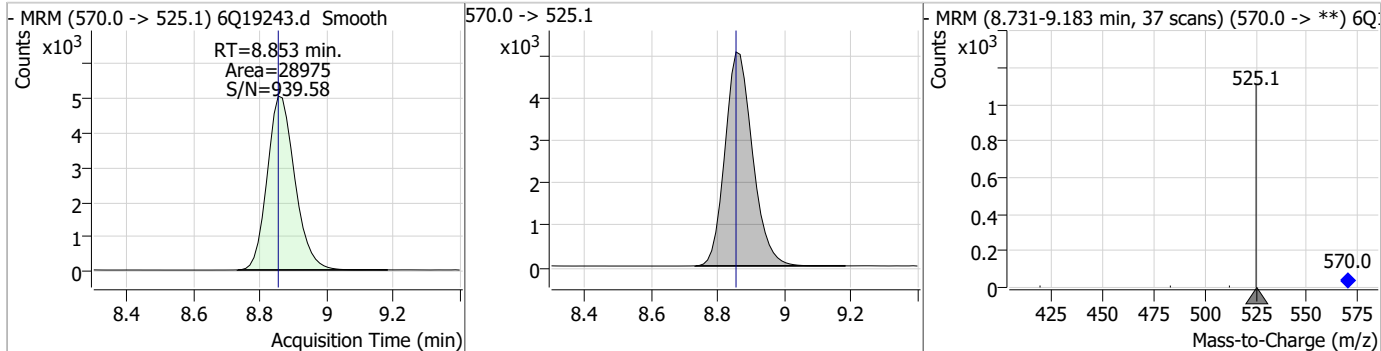
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.38	8.62	0.00	24915				



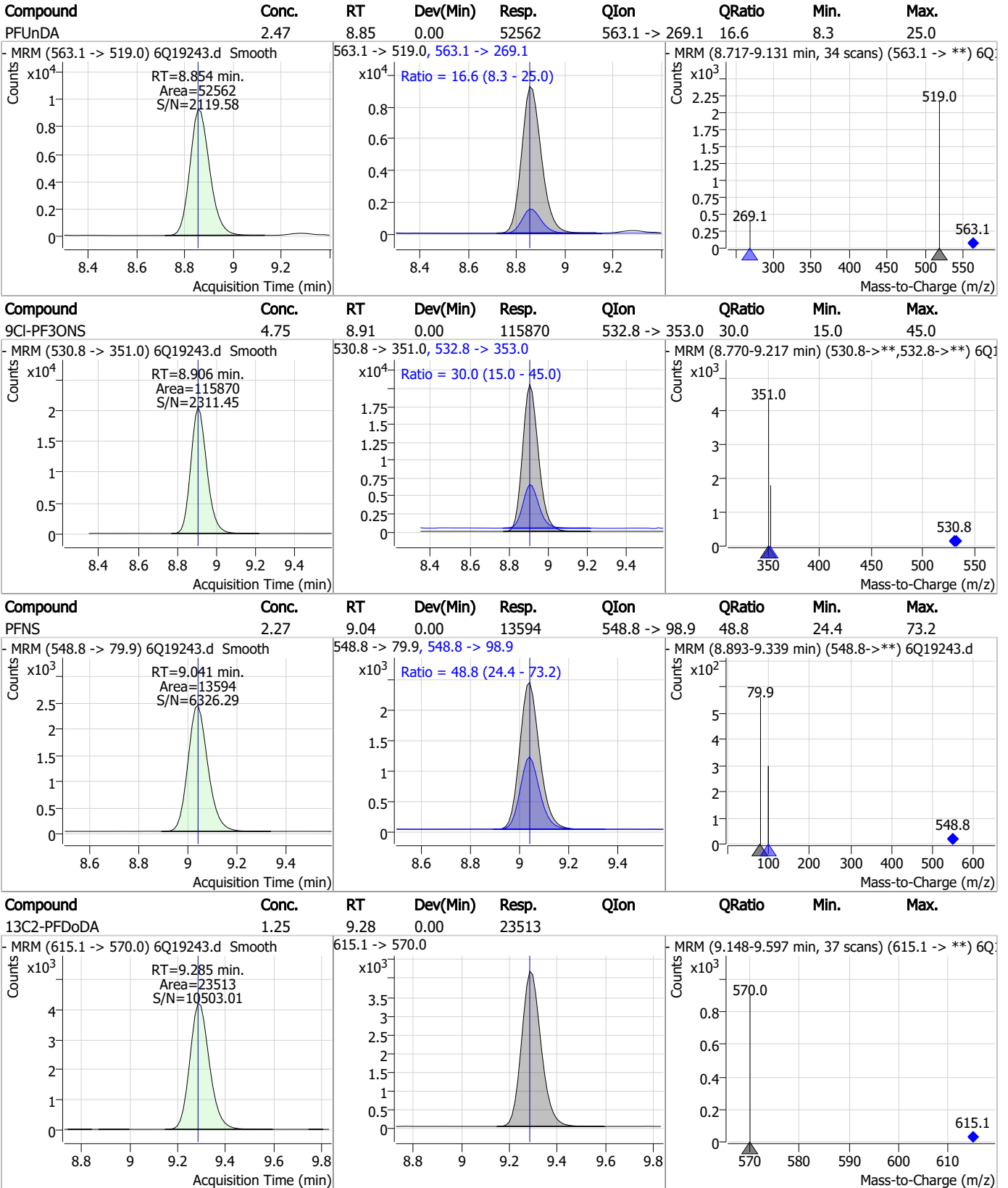
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.23	8.63	0.00	9230 (m)	584.2 -> 526.0	50.2	25.1	75.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.33	8.85	0.00	28975				



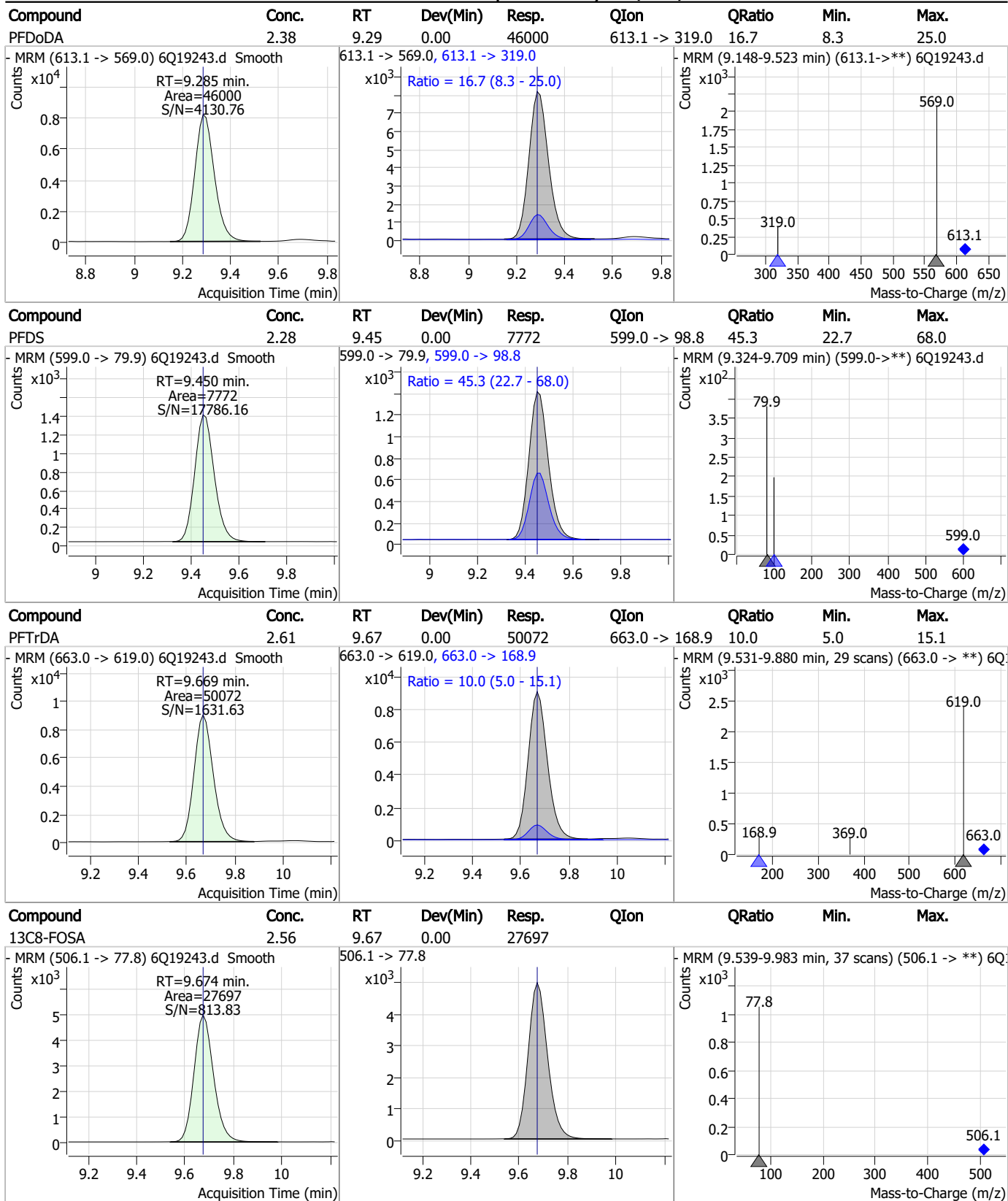
Perfluorinated Compounds by LC/MS/MS



7.7.5

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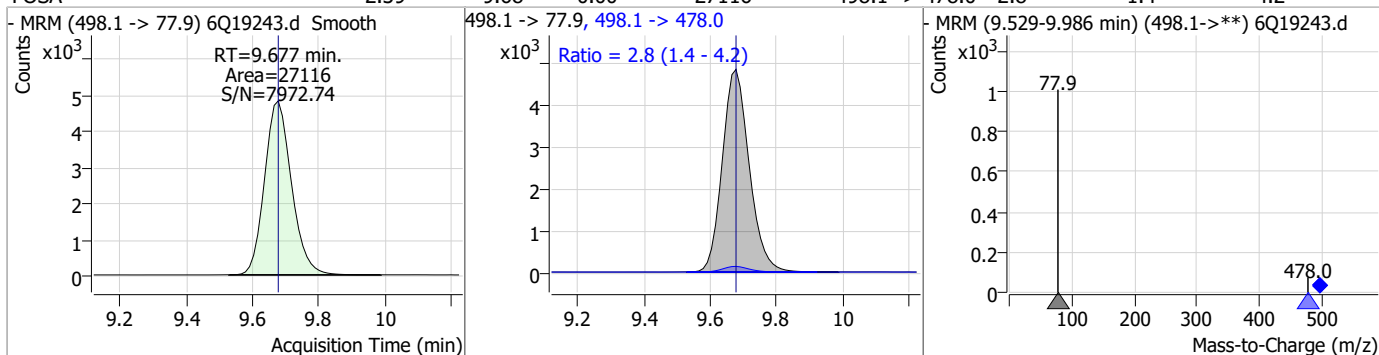
Perfluorinated Compounds by LC/MS/MS



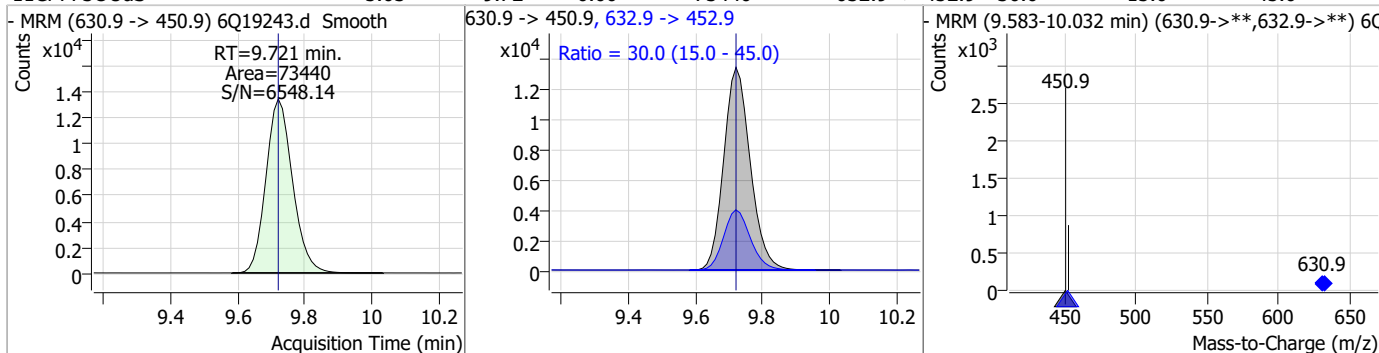
7.7.5
7

Perfluorinated Compounds by LC/MS/MS

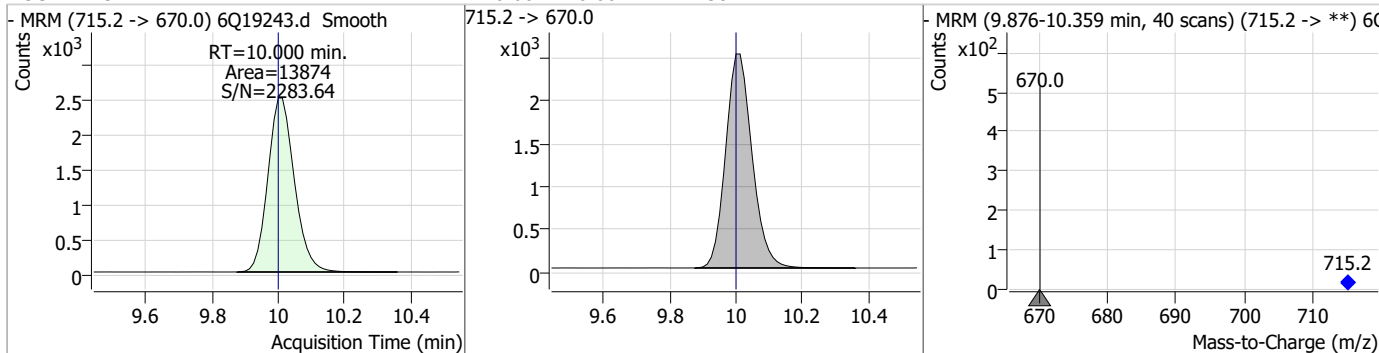
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.39	9.68	0.00	27116	498.1 -> 478.0	2.8	1.4	4.2



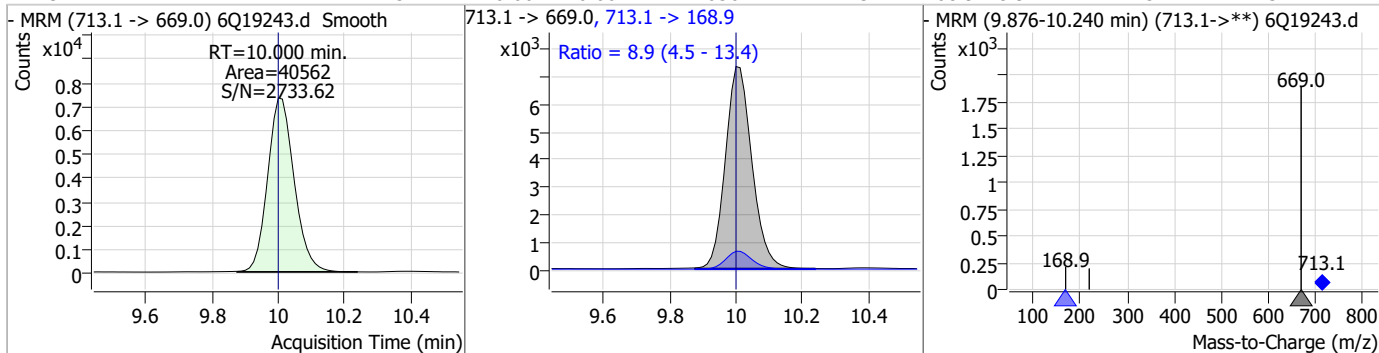
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	5.03	9.72	0.00	73440	632.9 -> 452.9	30.0	15.0	45.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.27	10.00	0.00	13874	715.2 -> 670.0	8.9	4.5	13.4



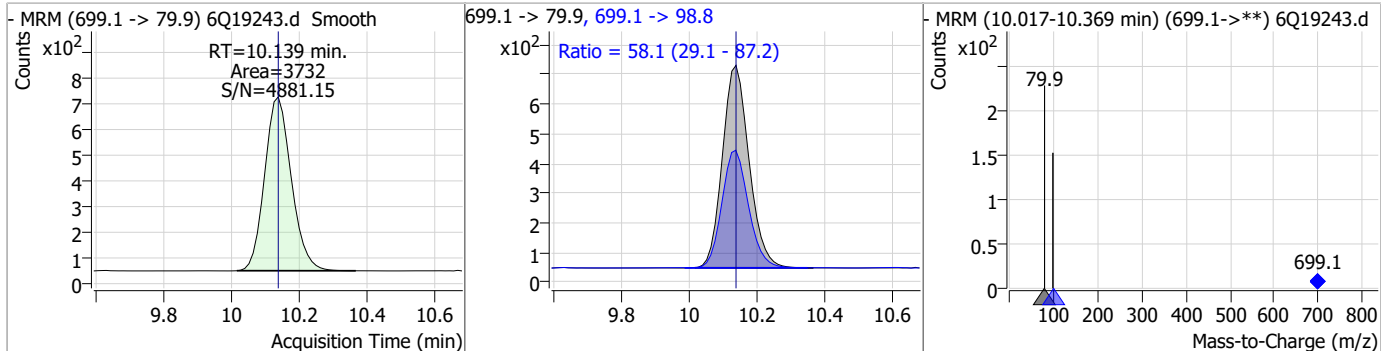
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.45	10.00	0.00	40562	713.1 -> 168.9	8.9	4.5	13.4



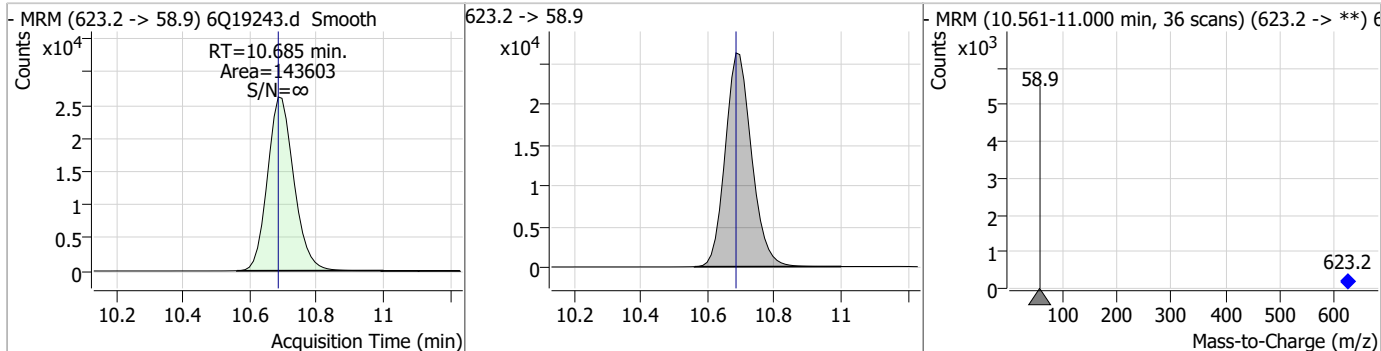
7.7.5
7

Perfluorinated Compounds by LC/MS/MS

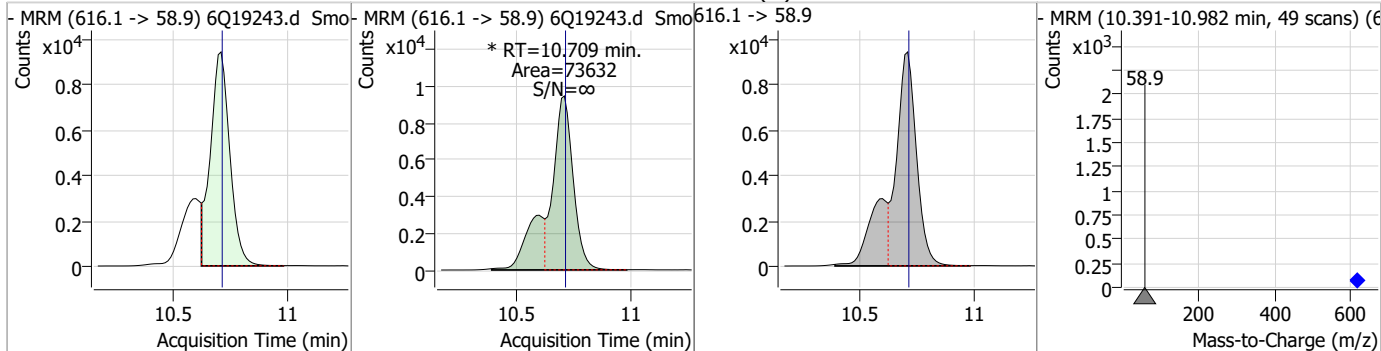
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.20	10.14	0.00	3732	699.1 -> 98.8	58.1	29.1	87.2



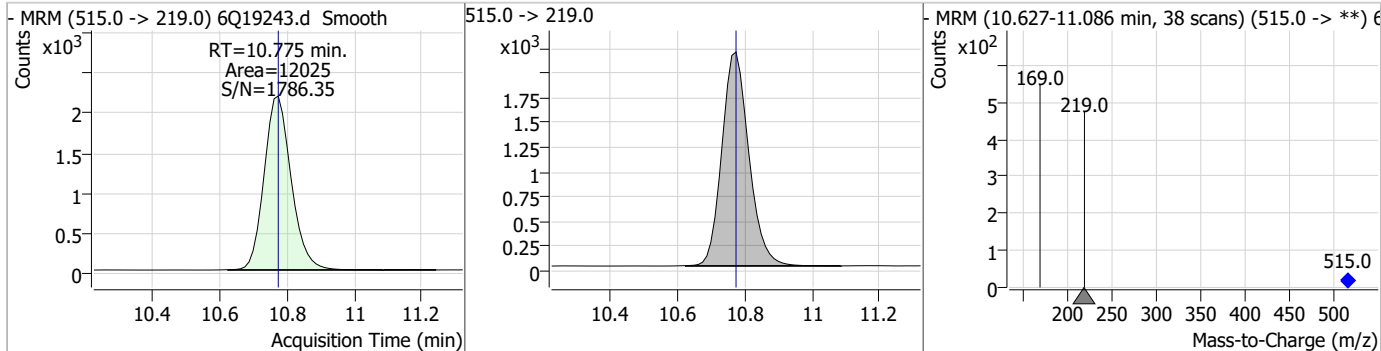
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.74	10.68	0.00	143603				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.71	10.71	0.00	73632 (m)				



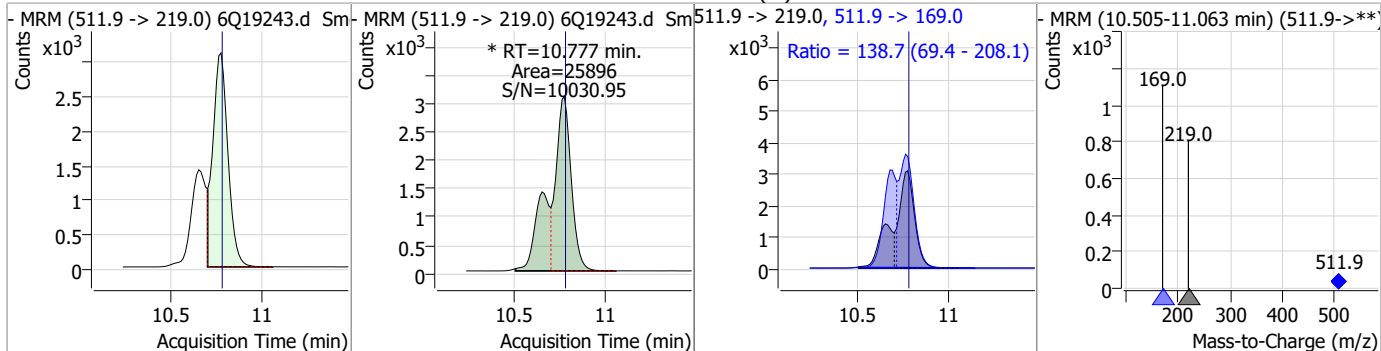
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.47	10.78	0.00	12025				



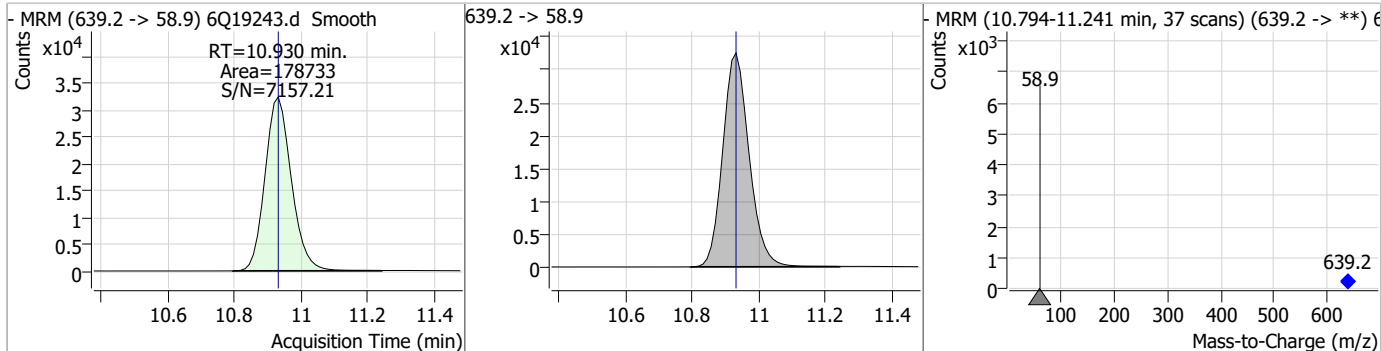
7.7.5
7

Perfluorinated Compounds by LC/MS/MS

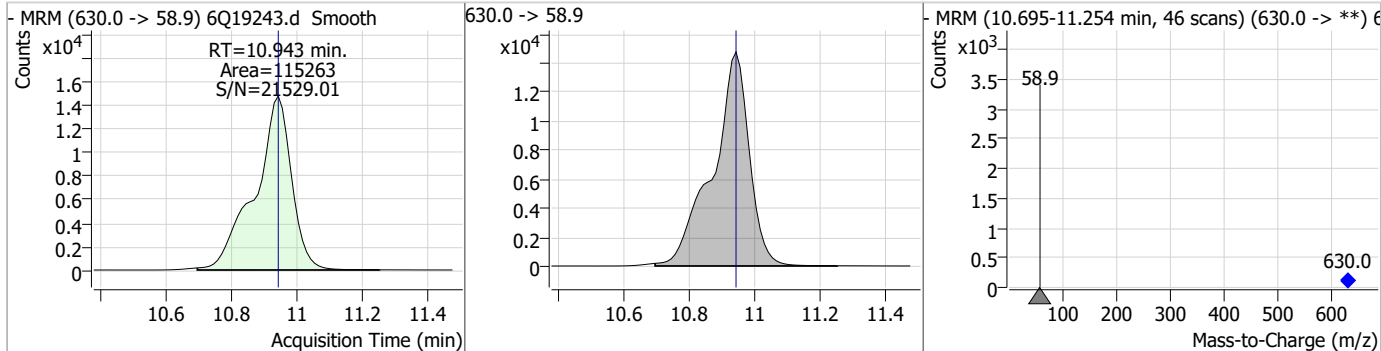
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.91	10.78	0.00	25896 (m)	511.9 -> 169.0	138.7	69.4	208.1



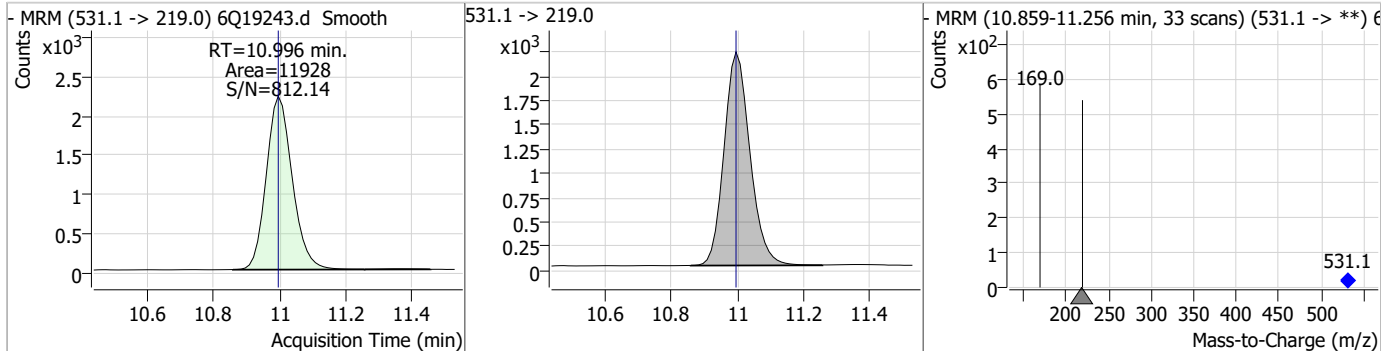
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.65	10.93	0.00	178733				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.21	10.94	0.00	115263				

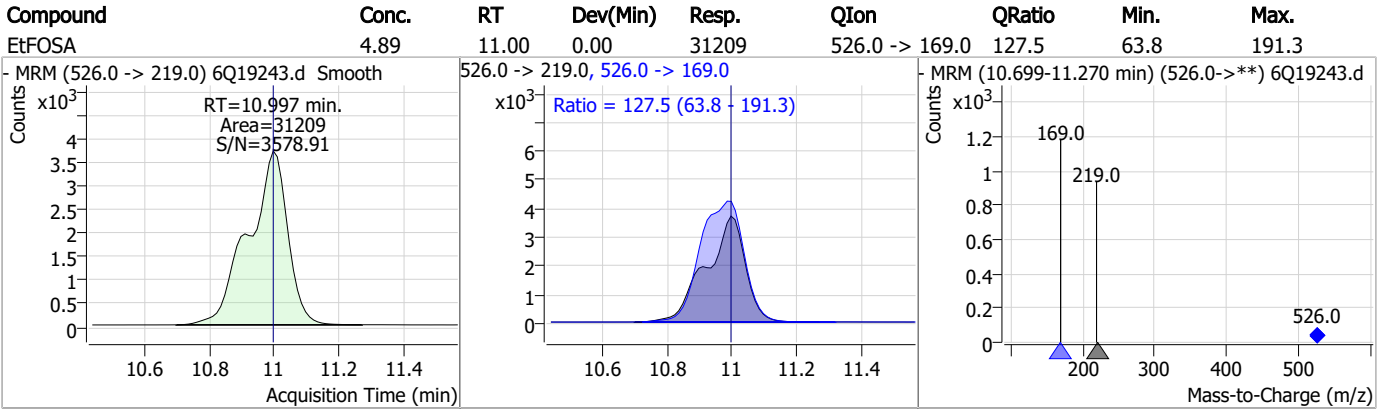


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.53	11.00	0.00	11928				



7.7.5
7

Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Manual Integration Approval Summary

Sample Number: S6Q287-ICC287 Method: EPA DRAFT 1633
Lab FileID: 6Q19243.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 16:30 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.63	Split peak
MeFOSE	24448-09-7		10.71	Split peak
MeFOSA	31506-32-8		10.78	Split peak

7.7.5.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 06/13/23 13:30

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19244.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 4:44:24 PM
 Sample Name : ic287-5
 Vial : P1-A6
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	137979	10.00 µg/L	0.000
M5-PFPeA	4.548	268.3 -> 223.0	46117	5.00 µg/L	-0.012
M5-PFHxA	5.792	318.0 -> 273.0	51063	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	48617	2.50 µg/L	0.000
M8-PFOA	7.339	421.1 -> 376.0	74791	2.50 µg/L	0.000
M9-PFNA	7.882	472.1 -> 427.0	33143	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	19932	1.25 µg/L	0.000
M7-PFUnDA	8.853	570.0 -> 525.1	27348	1.25 µg/L	0.000
M2-PFDoDA	9.285	615.1 -> 570.0	24002	1.25 µg/L	0.000
M2-PFTeDA	10.012	715.2 -> 670.0	13422	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	26700	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	18768	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	11881	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	10727	2.50 µg/L	0.000
M2-4:2FTS	5.442	329.1 -> 80.9	2645	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	4421	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	3907	5.00 µg/L	0.000
M3-MeFOSAA	8.407	573.2 -> 419.0	28391	5.00 µg/L	0.000
M3-HFPO-DA	6.169	286.9 -> 168.9	34308	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	23861	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	131760	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	171457	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	12091	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	11941	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	14272	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	59320	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	8581	2.50 µg/L	0.000
13C4-PFOA	7.340	417.1 -> 372.0	78548	2.50 µg/L	0.000
13C2-PFDA	8.388	515.1 -> 470.1	26515	1.25 µg/L	0.000
13C5-PFNA	7.882	468.0 -> 423.0	45624	1.25 µg/L	0.000
13C2-PFHxA	5.792	315.1 -> 270.0	46137	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	2645	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4421	5.57 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.3%		
13C2-8:2FTS	8.163	529.1 -> 80.9	3907	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C2-PFDoDA	9.285	615.1 -> 570.0	24002	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C2-PFTeDA	10.012	715.2 -> 670.0	13422	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C3-PFBS	5.746	302.1 -> 79.9	18768	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C3-PFHxS	7.478	402.1 -> 79.9	11881	2.61 µg/L	0.000

7.7.6
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 = 104.3%	
13C4-PFBA	3.085	216.8 -> 171.9	137979	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFHpA	6.707	367.1 -> 322.0	48617	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C5-PFHxA	5.792	318.0 -> 273.0	51063	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFPeA	4.548	268.3 -> 223.0	46117	5.17 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C6-PFDA	8.387	519.1 -> 474.1	19932	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.0%	
13C7-PFUnDA	8.853	570.0 -> 525.1	27348	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C8-FOSA	9.674	506.1 -> 77.8	26700	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-PFOA	7.339	421.1 -> 376.0	74791	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C8-PFOS	8.563	507.1 -> 79.9	10727	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C9-PFNA	7.882	472.1 -> 427.0	33143	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.2%	
d3-MeFOSAA	8.407	573.2 -> 419.0	28391	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	34308	10.85 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.5%	
d3-MeFOSA	10.775	515.0 -> 219.0	11941	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
d5-EtFOSAA	8.615	589.2 -> 419.0	23861	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.7%	
d7-MeFOSE	10.685	623.2 -> 58.9	131760	25.15 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
d9-EtFOSE	10.930	639.2 -> 58.9	171457	26.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
d5-EtFOSA	10.996	531.1 -> 219.0	12091	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
Target Compounds					QValue
4:2FTS	5.443	327.1 -> 307.0	88718	19.36 µg/L	99
		327.1 -> 80.9	33509		
6:2FTS	7.113	427.1 -> 407.0	96150	18.00 µg/L	94
		427.1 -> 80.9	31617		
8:2FTS	8.164	527.1 -> 507.0	48540	18.68 µg/L	99
		527.1 -> 80.8	18890		
EtFOSAA	8.629	584.2 -> 419.1	18048	4.56 µg/L	m 94
		584.2 -> 526.0	9853		
FOSA	9.677	498.1 -> 77.9	52005	4.75 µg/L	99
		498.1 -> 478.0	1683		
MeFOSAA	8.421	570.1 -> 419.0	31743	4.60 µg/L	m 99
		570.1 -> 483.0	6390		
PFBA	3.093	212.8 -> 168.9	105316	19.14 µg/L	100
PFBS	5.747	298.7 -> 79.9	34466	4.19 µg/L	97
		298.7 -> 98.8	12545		
PFDA	8.388	512.9 -> 469.0	145247	4.87 µg/L	98
		512.9 -> 219.0	22767		
PFDODA	9.285	613.1 -> 569.0	92882	4.71 µg/L	98
		613.1 -> 319.0	14748		
PFDS	9.450	599.0 -> 79.9	14859	4.59 µg/L	99

7.7.6
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	6861			
PFHpA	6.708	363.1 -> 319.0	117809	4.53	µg/L	100
		363.1 -> 169.0	18963			
PFHpS	8.046	449.0 -> 79.9	30976	4.80	µg/L	92
		449.0 -> 98.9	13426			
PFHxA	5.795	313.0 -> 269.0	94930	4.64	µg/L	99
		313.0 -> 118.9	4958			
PFHxS	7.479	398.7 -> 79.9	30641	4.29	µg/L	100
		398.7 -> 98.9	14167		m	
PFNA	7.883	463.0 -> 419.0	148242	4.87	µg/L	95
		463.0 -> 219.0	29179			
PFNS	9.041	548.8 -> 79.9	26480	4.67	µg/L	95
		548.8 -> 98.9	13894			
PFOA	7.341	413.0 -> 369.0	169565	4.42	µg/L	97
		413.0 -> 169.0	32001			
PFOS	8.564	498.9 -> 79.9	27623	4.37	µg/L	95
		498.9 -> 98.8	13380		m	
PFPeA	4.551	263.0 -> 219.0	127412	9.39	µg/L	100
PFPeS	6.785	349.1 -> 79.9	28928	4.40	µg/L	98
		349.1 -> 98.9	12985			
PFTeDA	10.013	713.1 -> 669.0	78139	4.87	µg/L	99
		713.1 -> 168.9	6583			
PFTrDA	9.669	663.0 -> 619.0	94911	4.87	µg/L	96
		663.0 -> 168.9	10903			
PFUnDA	8.866	563.1 -> 519.0	99256	4.95	µg/L	99
		563.1 -> 269.1	16899			
11Cl-PF3OUdS	9.721	630.9 -> 450.9	131445	8.13	µg/L	93
		632.9 -> 452.9	44569			
9Cl-PF3ONS	8.906	530.8 -> 351.0	220086	8.15	µg/L	96
		532.8 -> 353.0	70259			
ADONA	6.959	376.9 -> 250.9	485634	8.37	µg/L	99
		376.9 -> 84.8	137949			
HFPO-DA	6.169	284.9 -> 168.9	32460	8.75	µg/L	99
		284.9 -> 184.9	3688			
3:3FTCA	3.946	241.0 -> 177.0	21533	23.20	µg/L	99
		241.0 -> 117.0	2794			
5:3FTCA	6.361	341.0 -> 237.1	468114	117.99	µg/L	98
		341.0 -> 217.0	341709			
7:3FTCA	7.736	441.0 -> 316.9	316852	111.60	µg/L	99
		441.0 -> 336.9	738549			
EtFOSA	10.997	526.0 -> 219.0	59535	9.19	µg/L	94
		526.0 -> 169.0	80283			
EtFOSE	10.943	630.0 -> 58.9	214413	23.68	µg/L	100
MeFOSA	10.777	511.9 -> 219.0	53068	10.14	µg/L	97
		511.9 -> 169.0	71971		m	
MeFOSE	10.709	616.1 -> 58.9	142488	24.71	µg/L	100
PFDoDS	10.139	699.1 -> 79.9	7752	4.81	µg/L	92
		699.1 -> 98.8	4036			
NFDHA	5.673	295.0 -> 201.0	24703	9.54	µg/L	94
		295.0 -> 84.9	6316			
PFMBA	4.975	279.0 -> 85.1	90850	9.33	µg/L	100
PFMPA	3.667	229.0 -> 84.9	71241	9.42	µg/L	100
PFEESA	6.288	314.8 -> 134.9	217581	8.64	µg/L	99
		314.8 -> 82.9	7999			

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

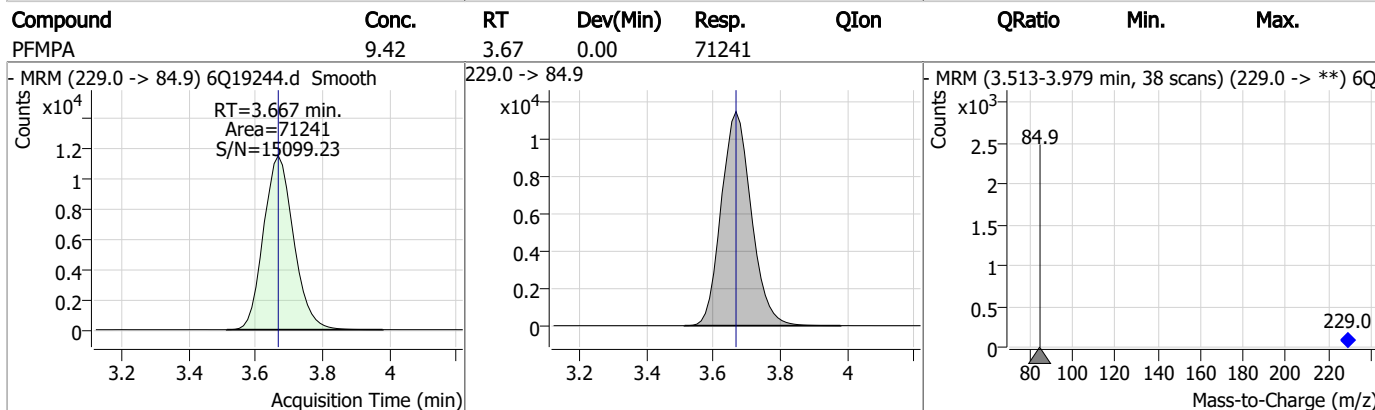
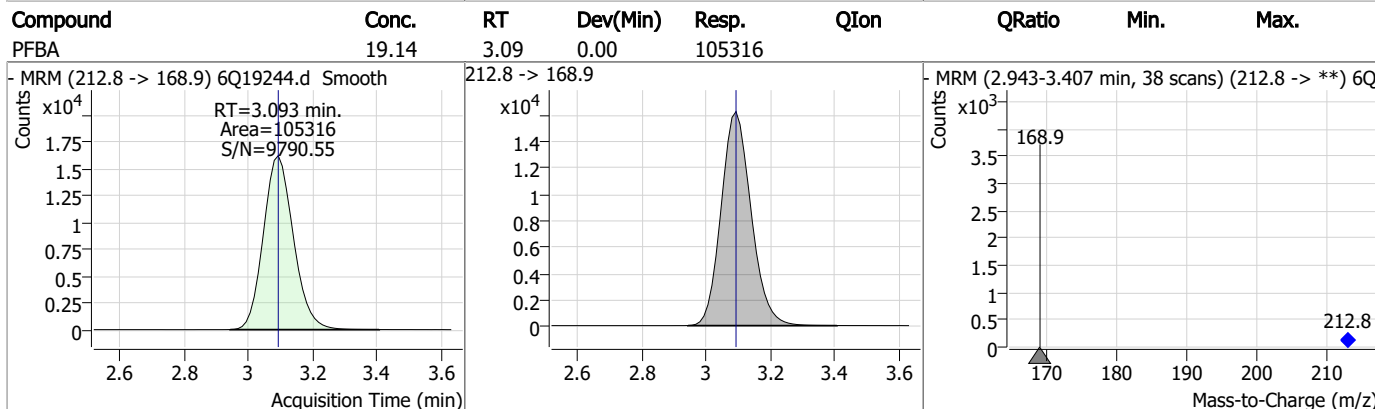
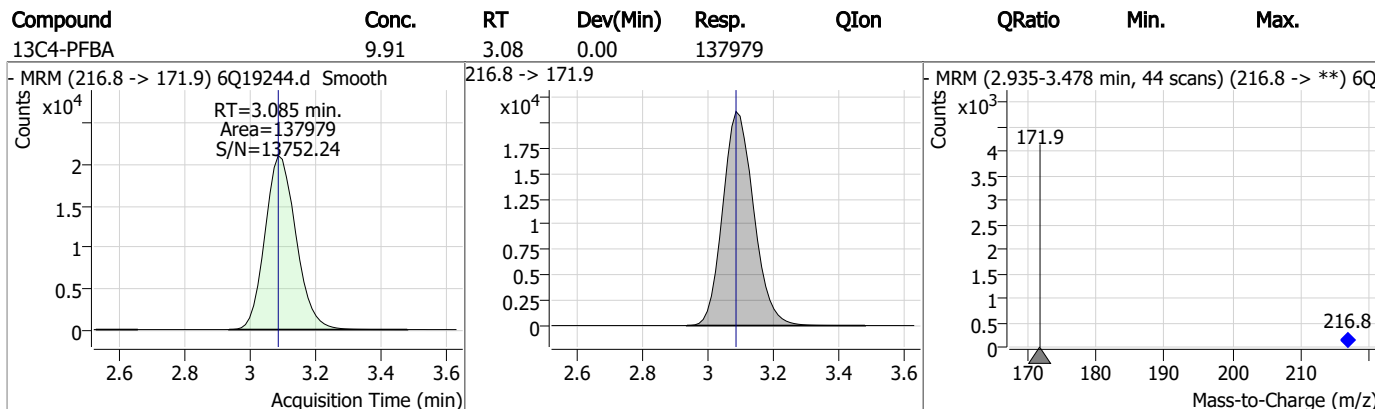
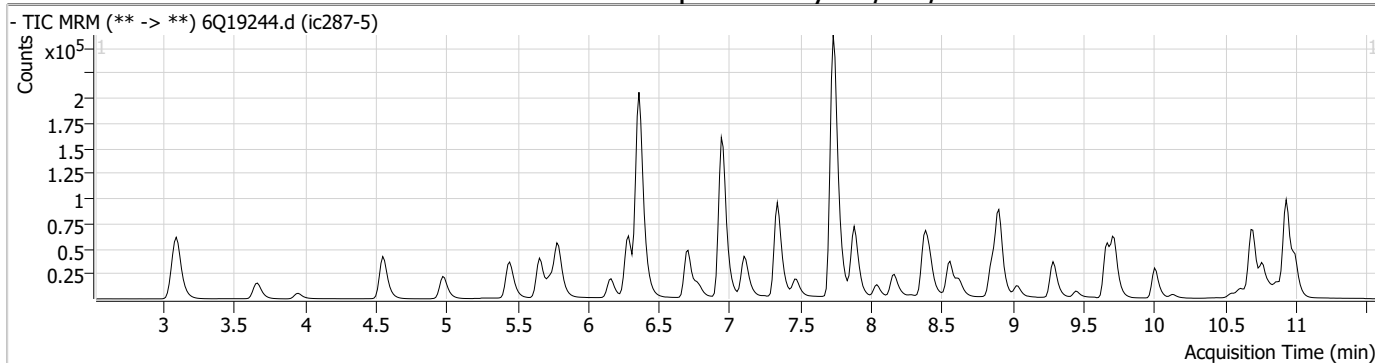
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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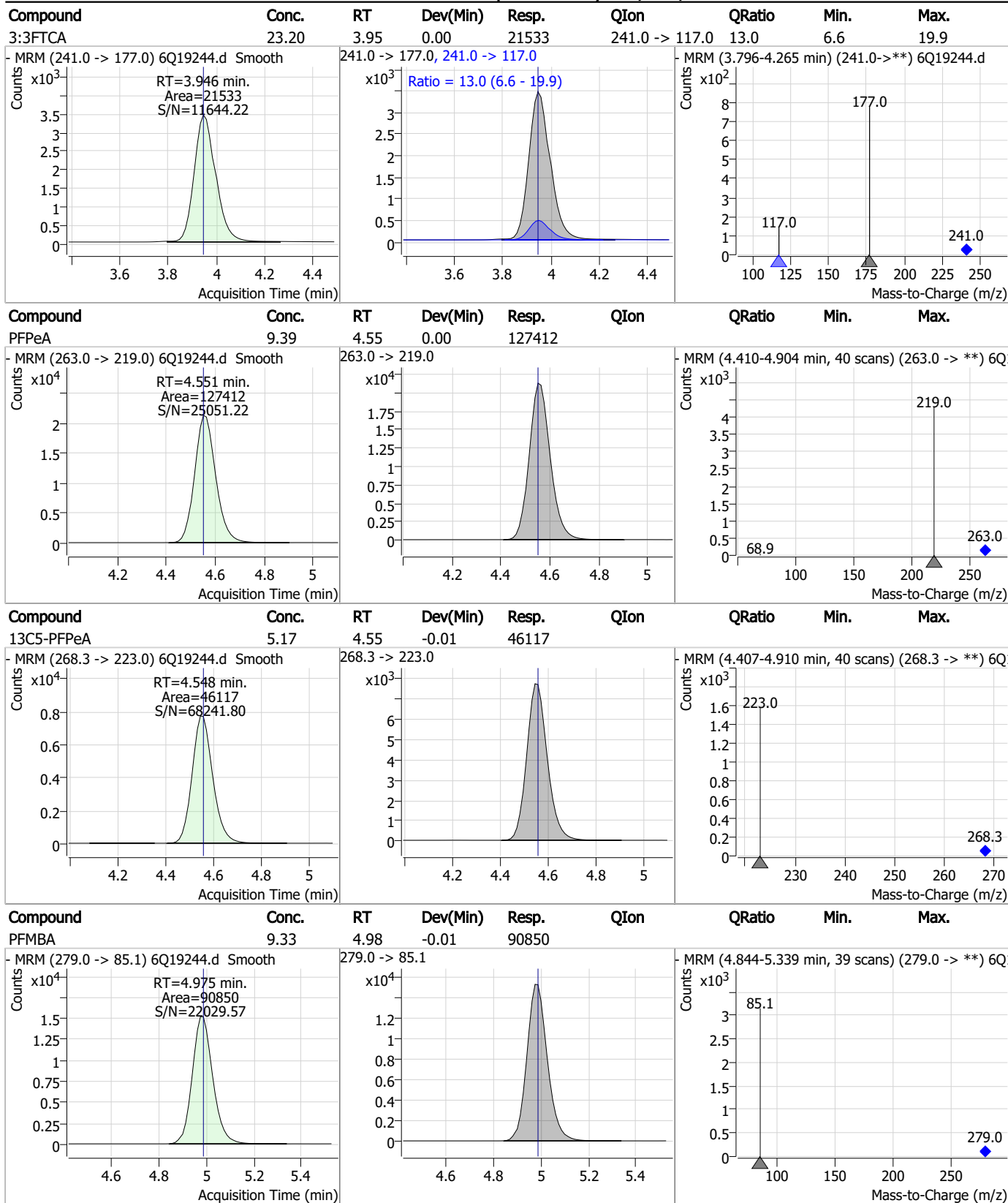
7.7.6

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Perfluorinated Compounds by LC/MS/MS

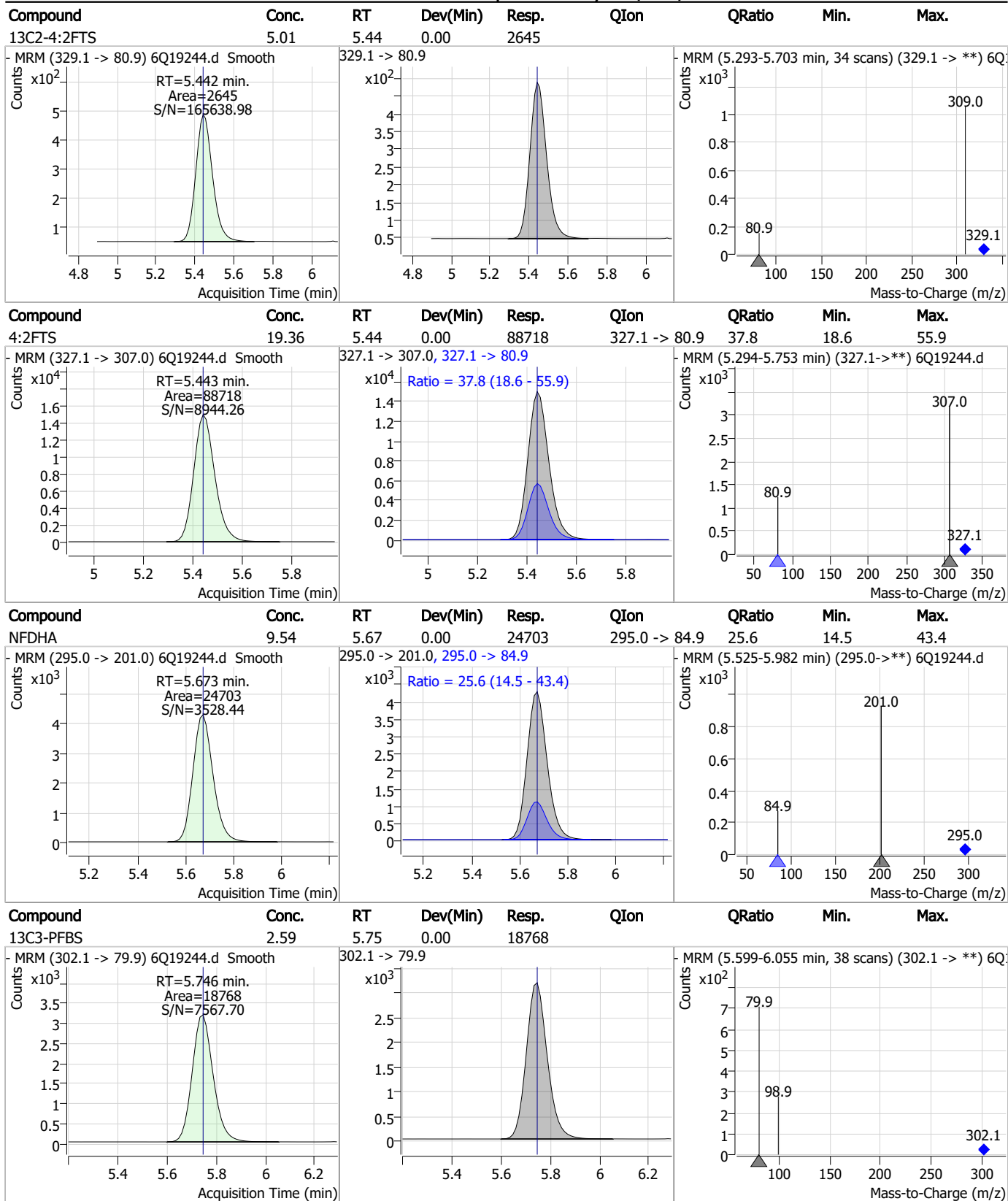


Perfluorinated Compounds by LC/MS/MS



7.7.6
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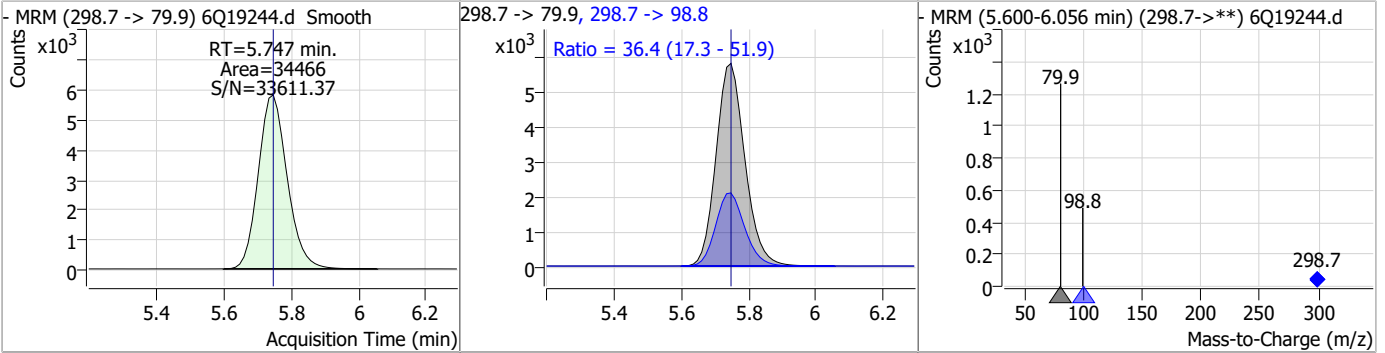
Perfluorinated Compounds by LC/MS/MS



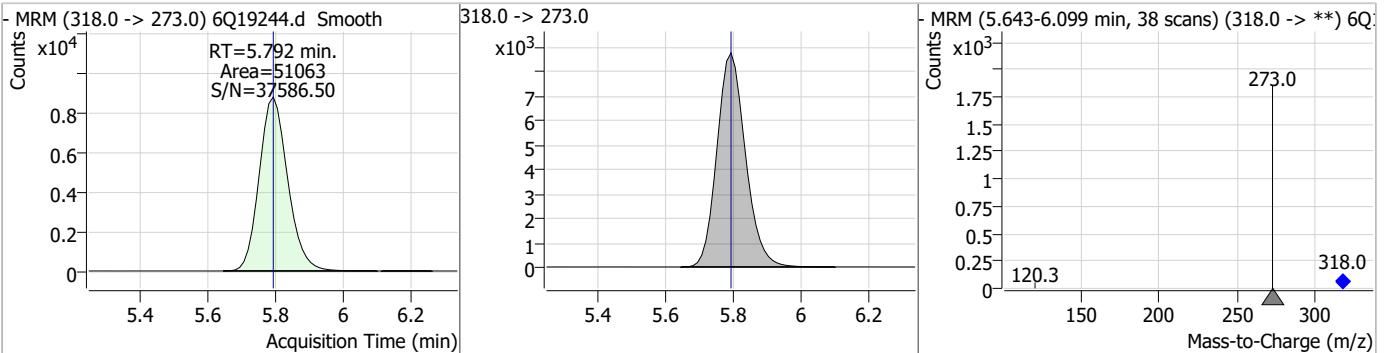
7.7.6
7

Perfluorinated Compounds by LC/MS/MS

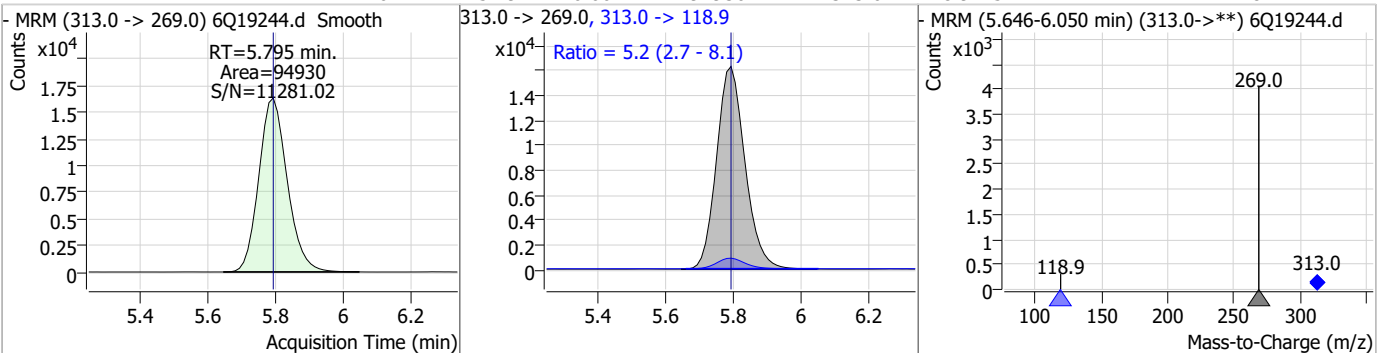
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.19	5.75	0.00	34466	298.7 -> 98.8	36.4	17.3	51.9



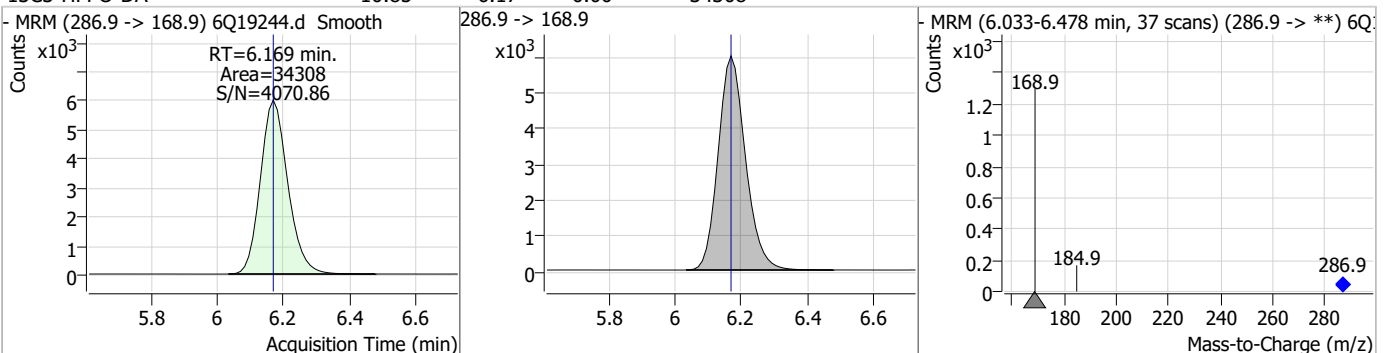
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.56	5.79	0.00	51063				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.64	5.79	0.00	94930	313.0 -> 118.9	5.2	2.7	8.1

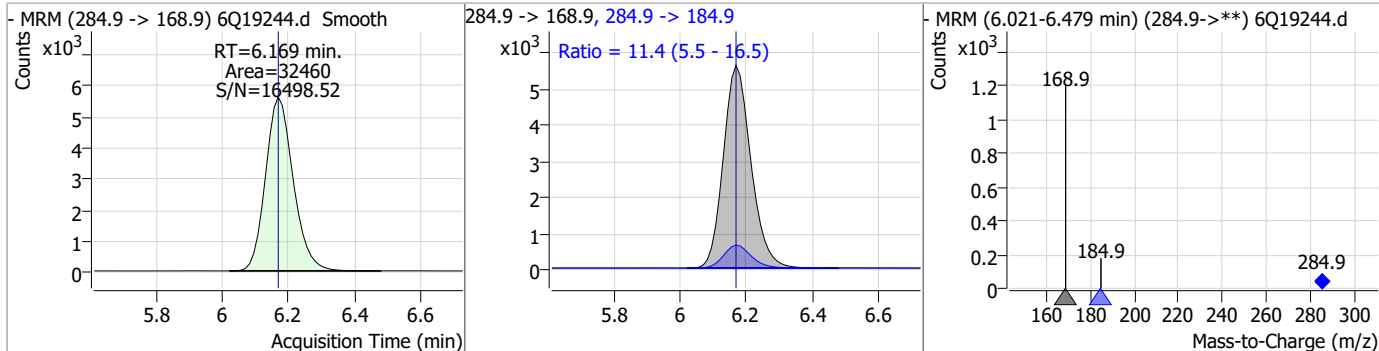


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.85	6.17	0.00	34308				

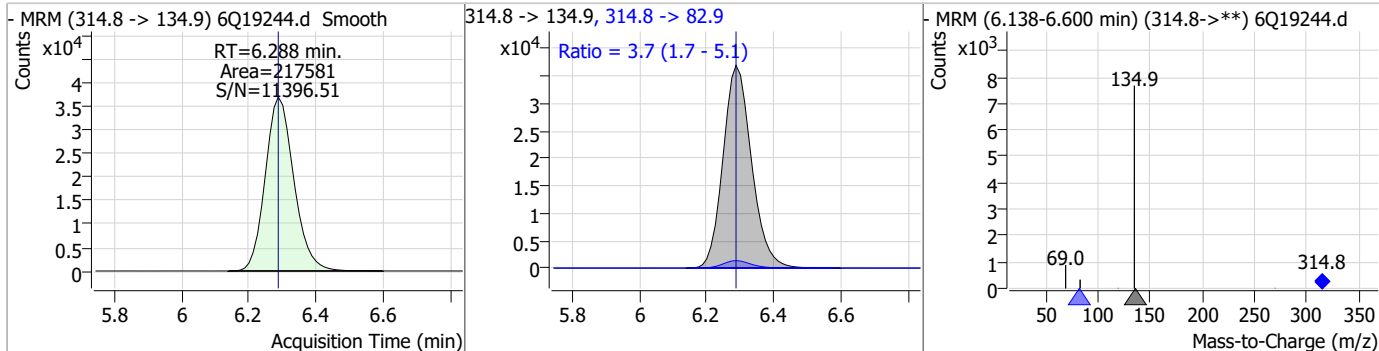


Perfluorinated Compounds by LC/MS/MS

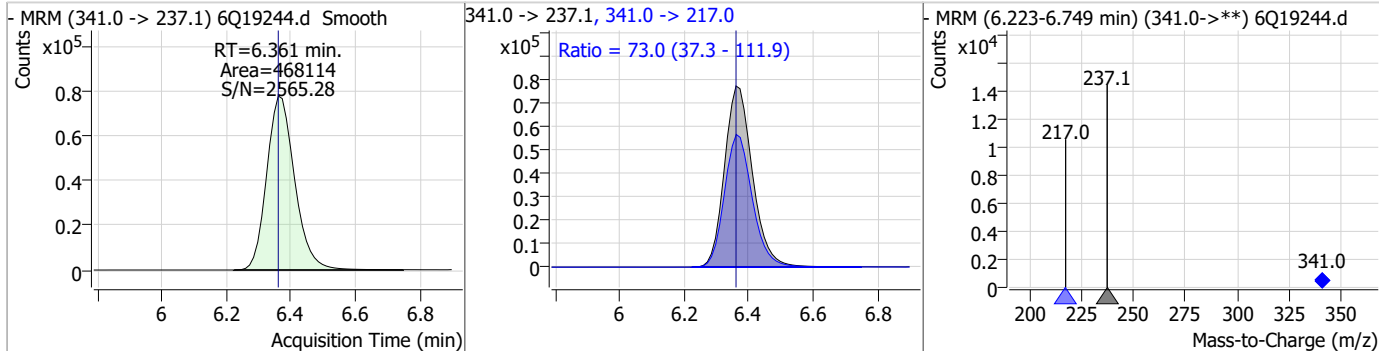
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	8.75	6.17	0.00	32460	284.9 -> 184.9	11.4	5.5	16.5



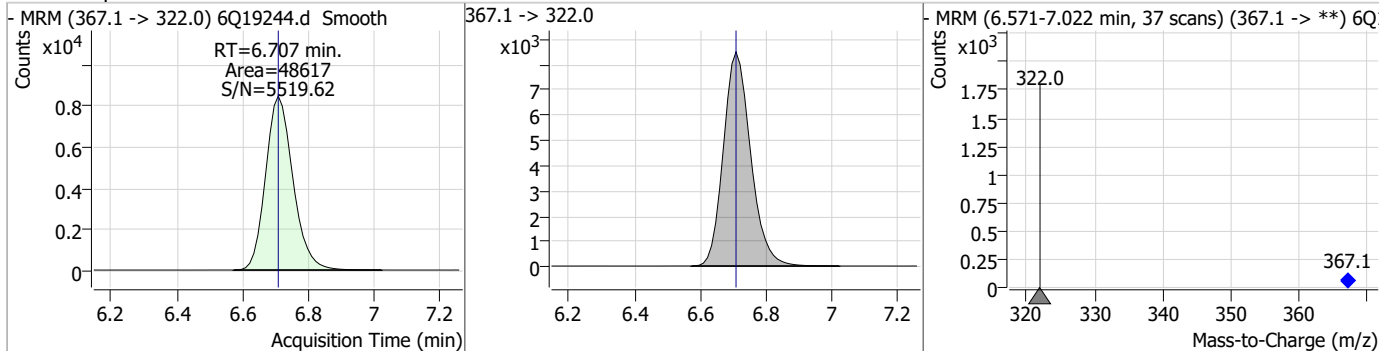
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	8.64	6.29	0.00	217581	314.8 -> 82.9	3.7	1.7	5.1



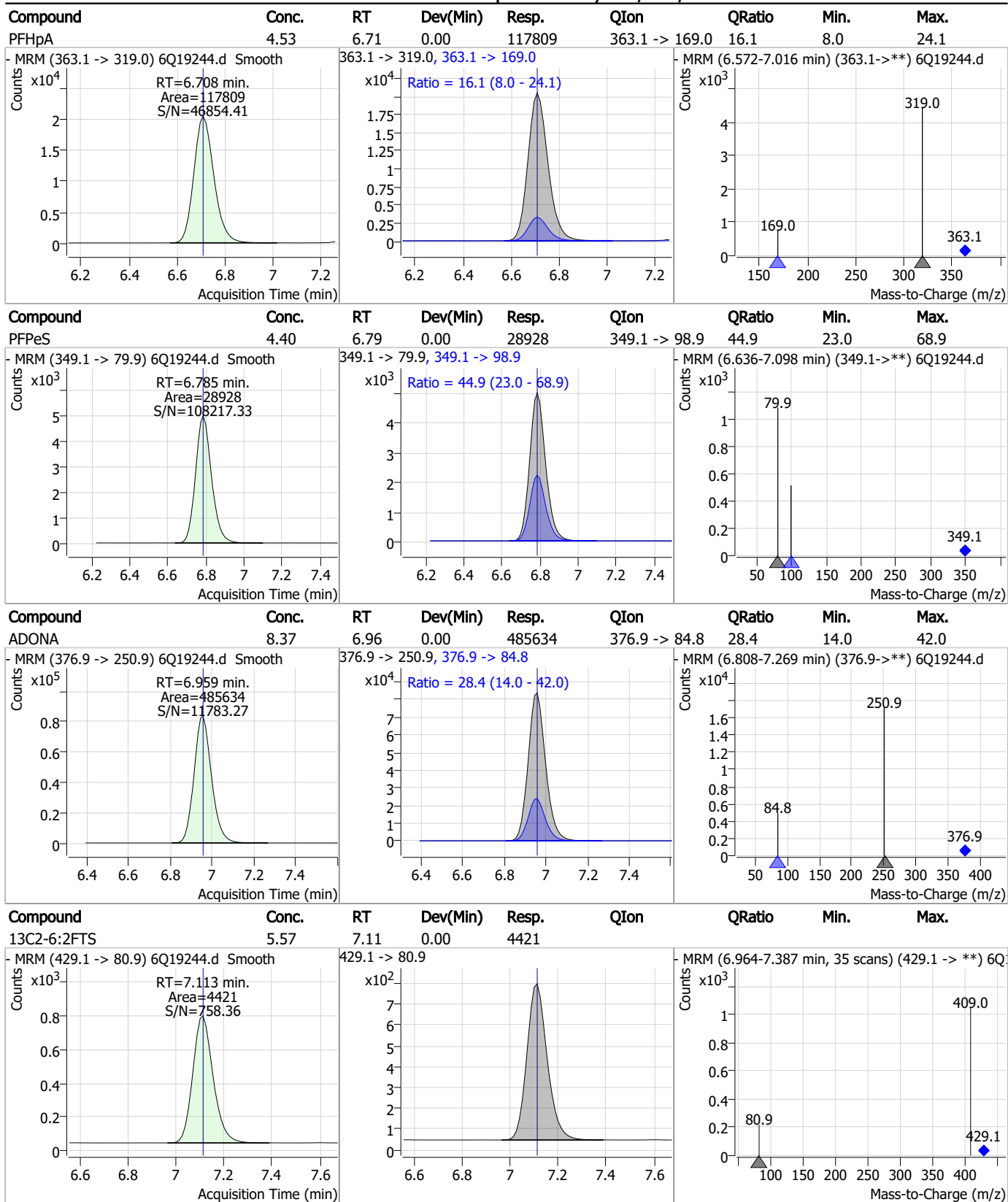
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	117.99	6.36	0.00	468114	341.0 -> 217.0	73.0	37.3	111.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.62	6.71	0.00	48617	367.1 -> 322.0			

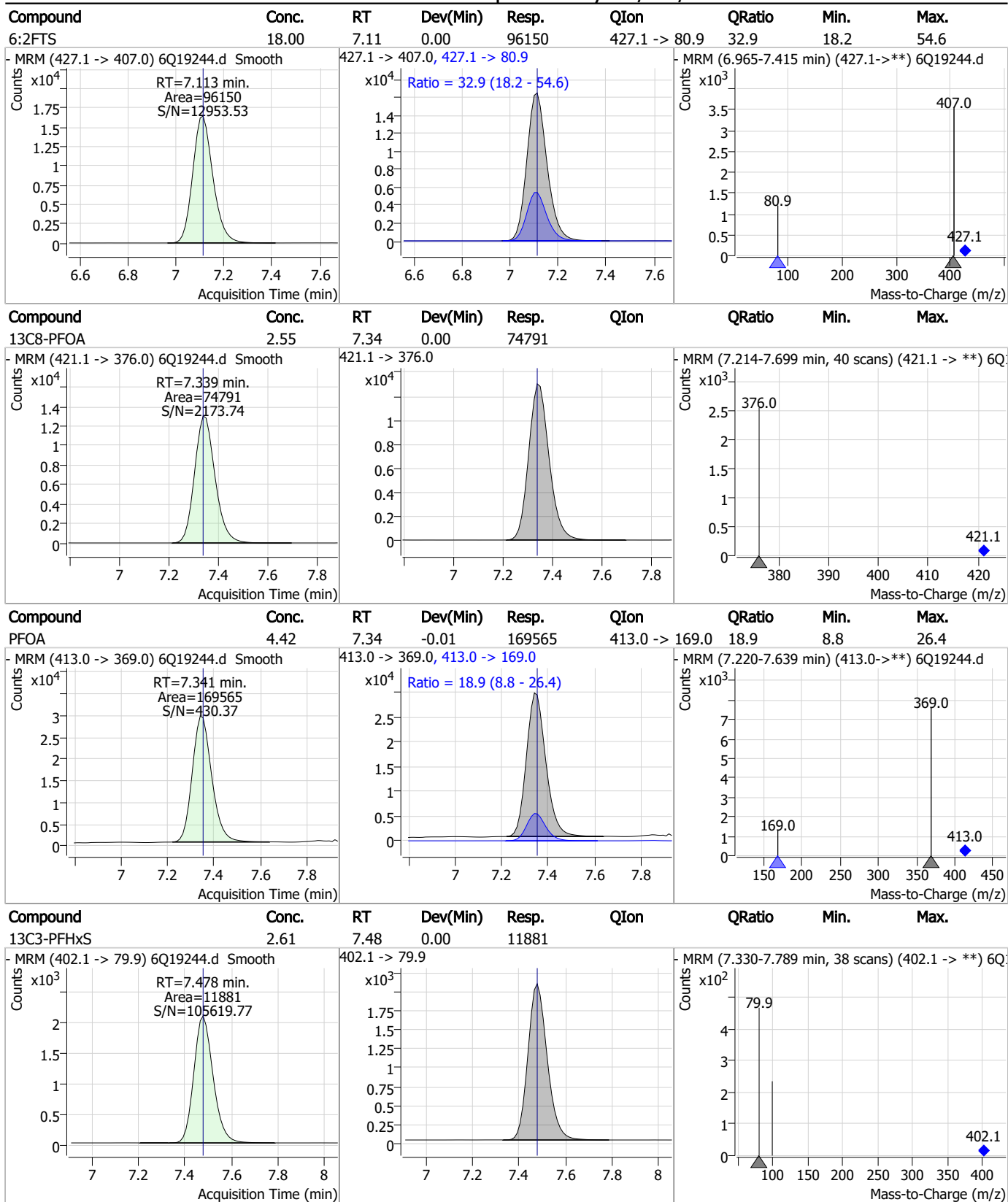


Perfluorinated Compounds by LC/MS/MS



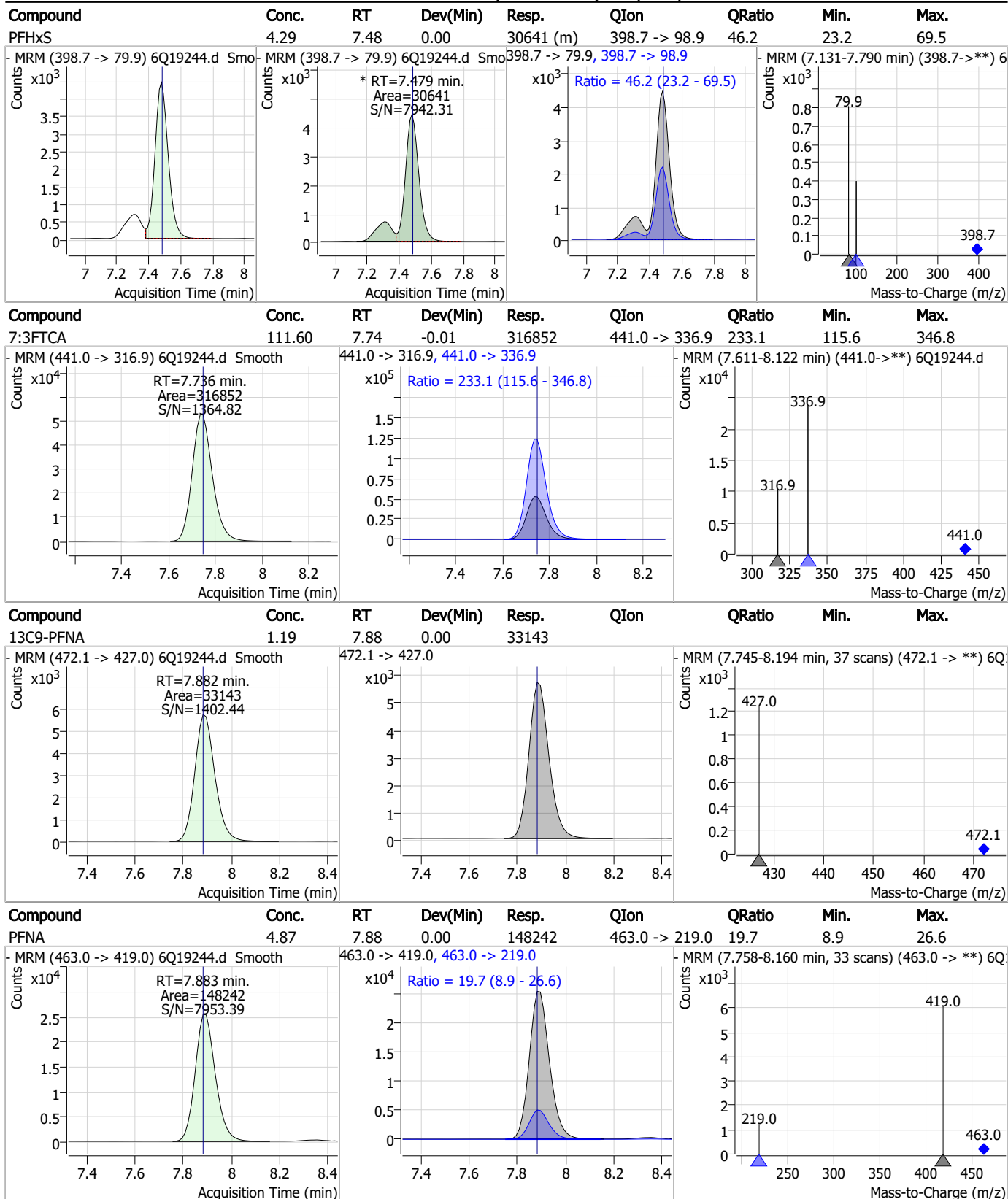
7.7.6
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Perfluorinated Compounds by LC/MS/MS



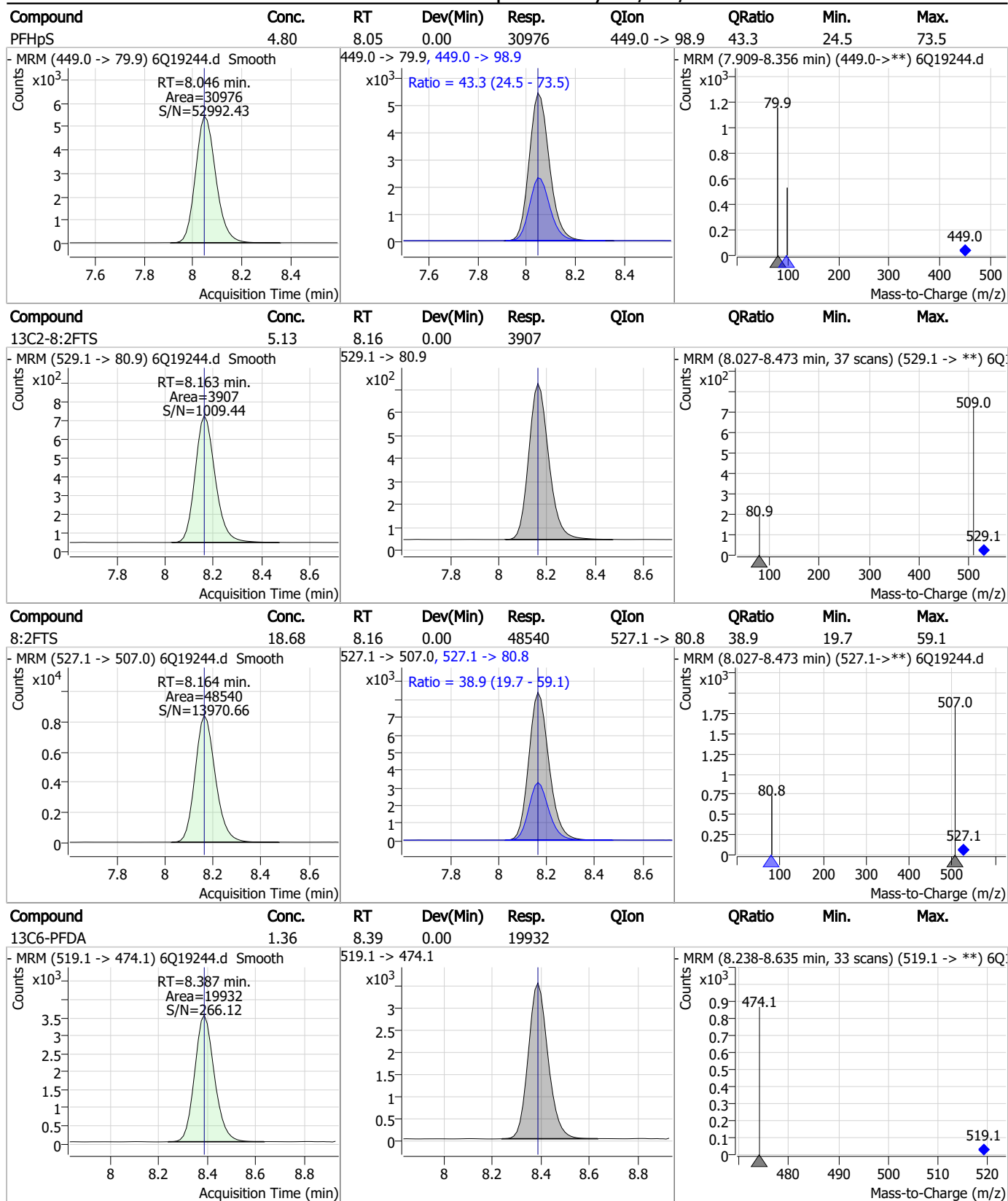
7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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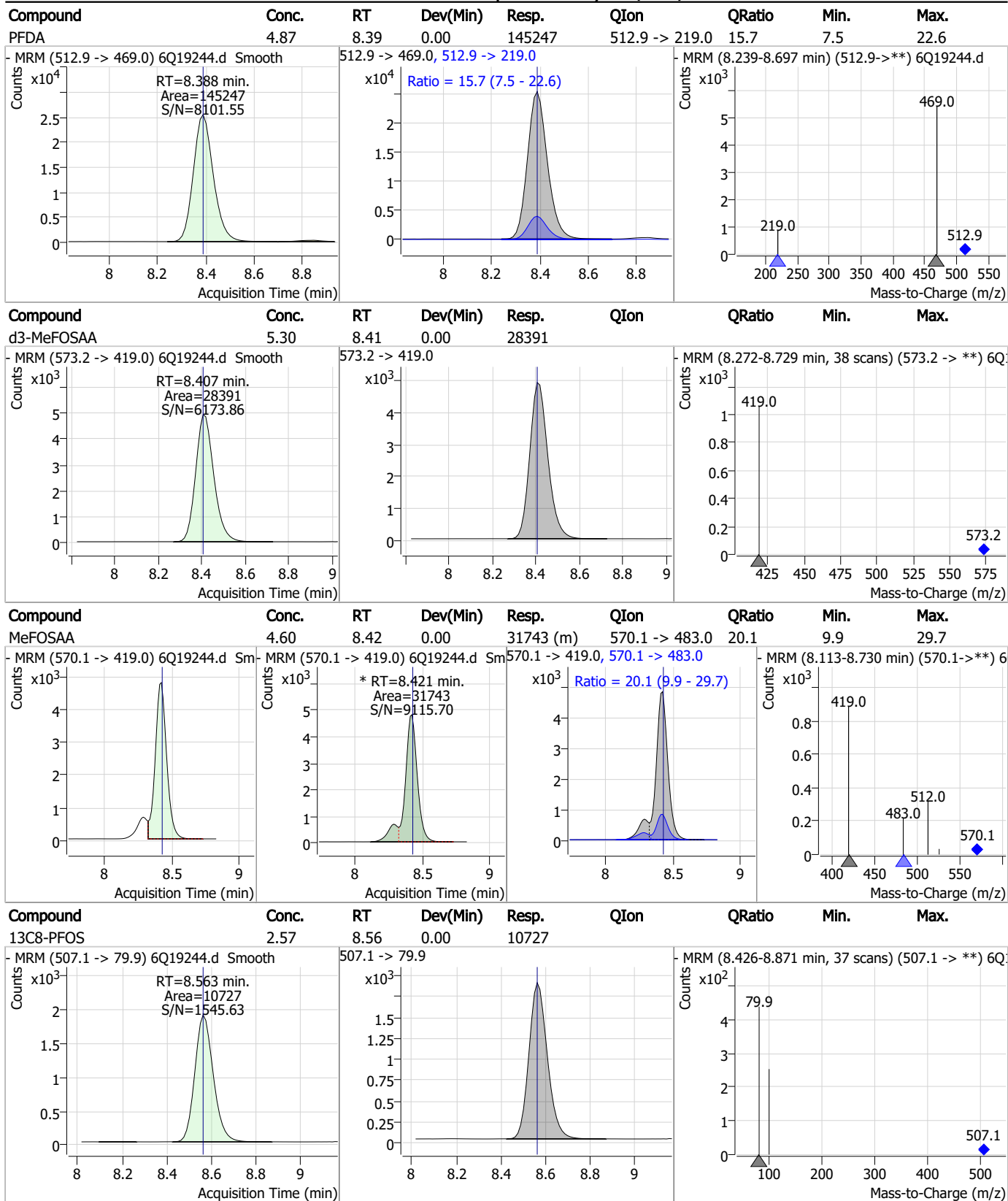
Perfluorinated Compounds by LC/MS/MS



7.7.6

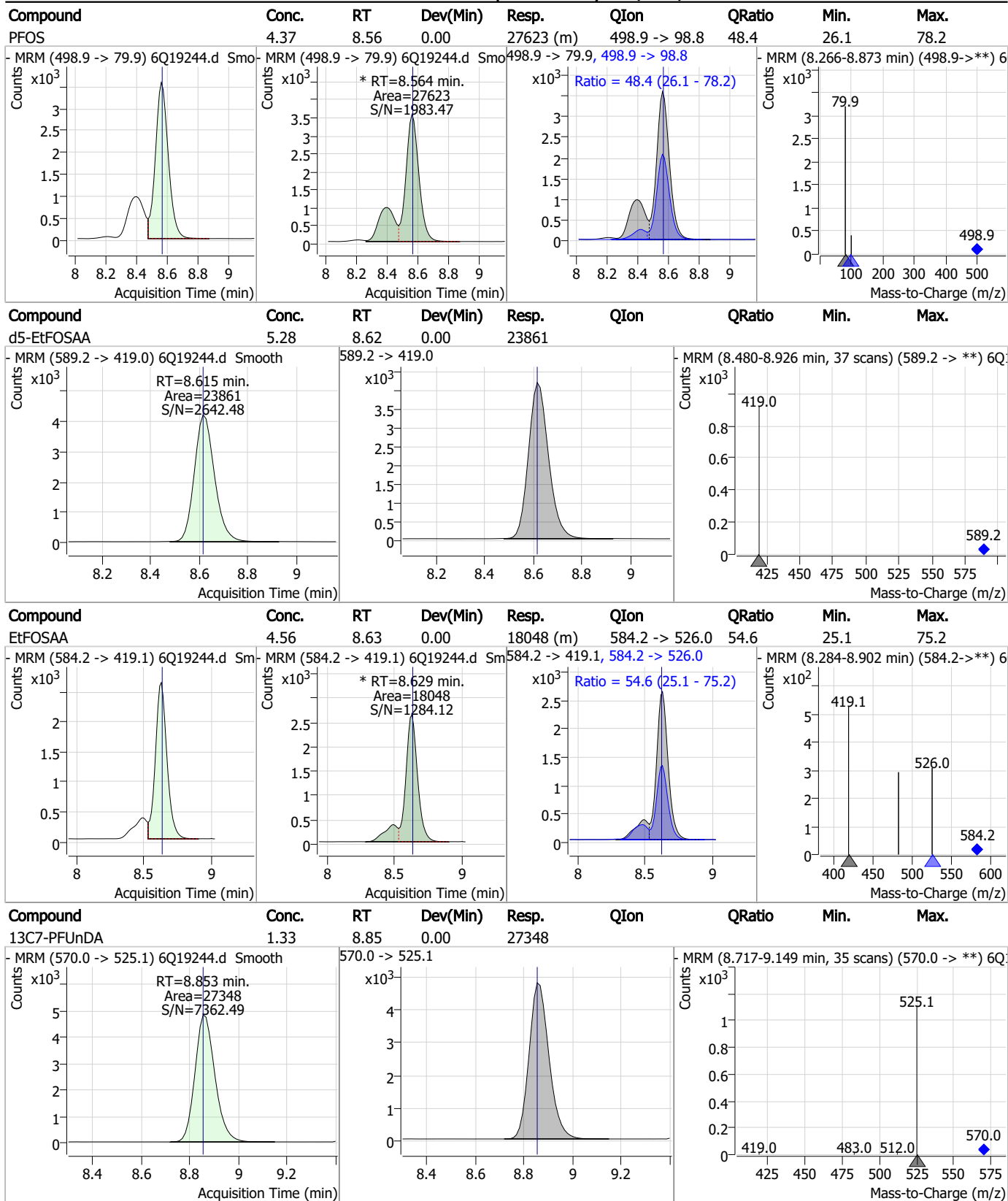
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Perfluorinated Compounds by LC/MS/MS



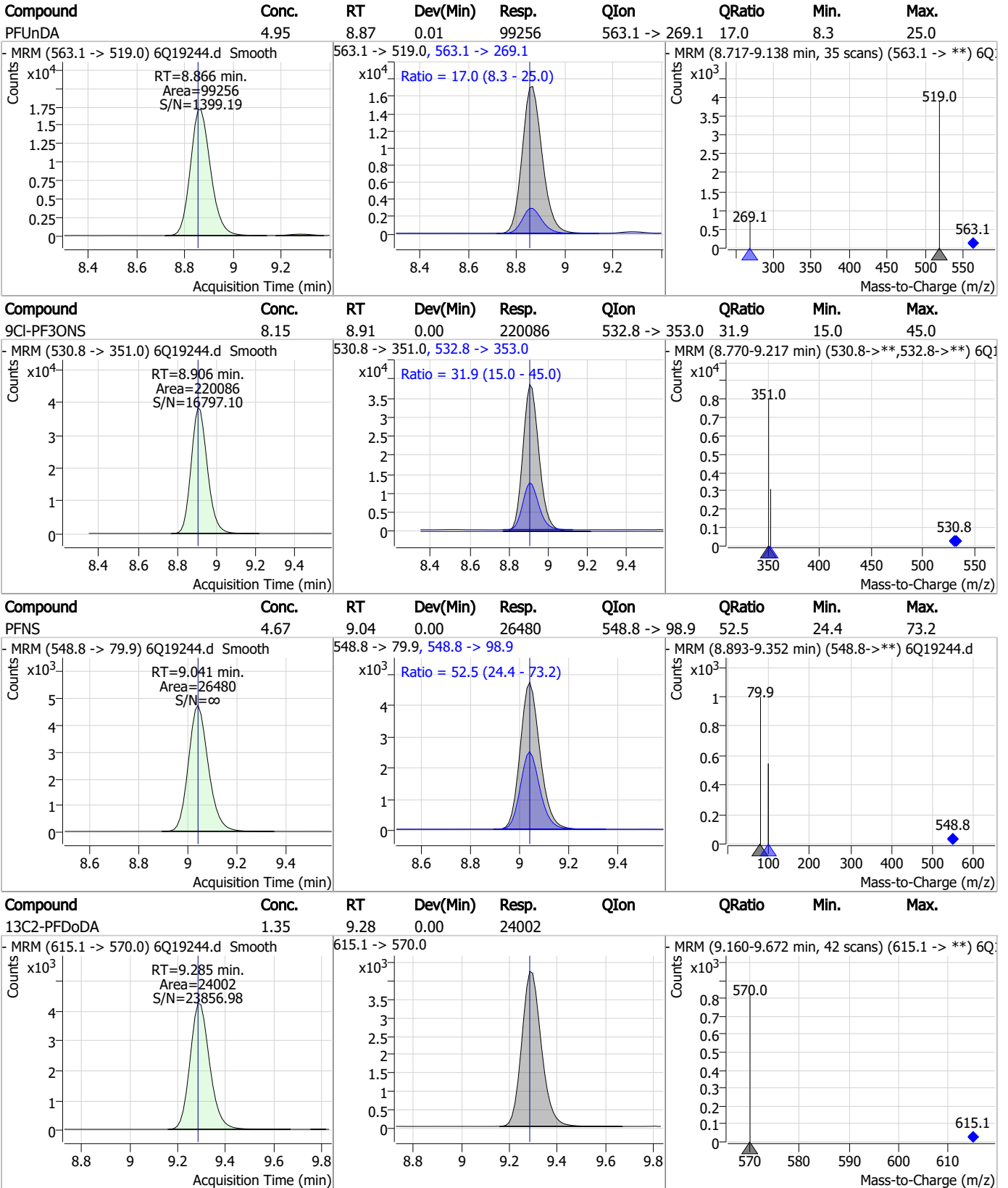
7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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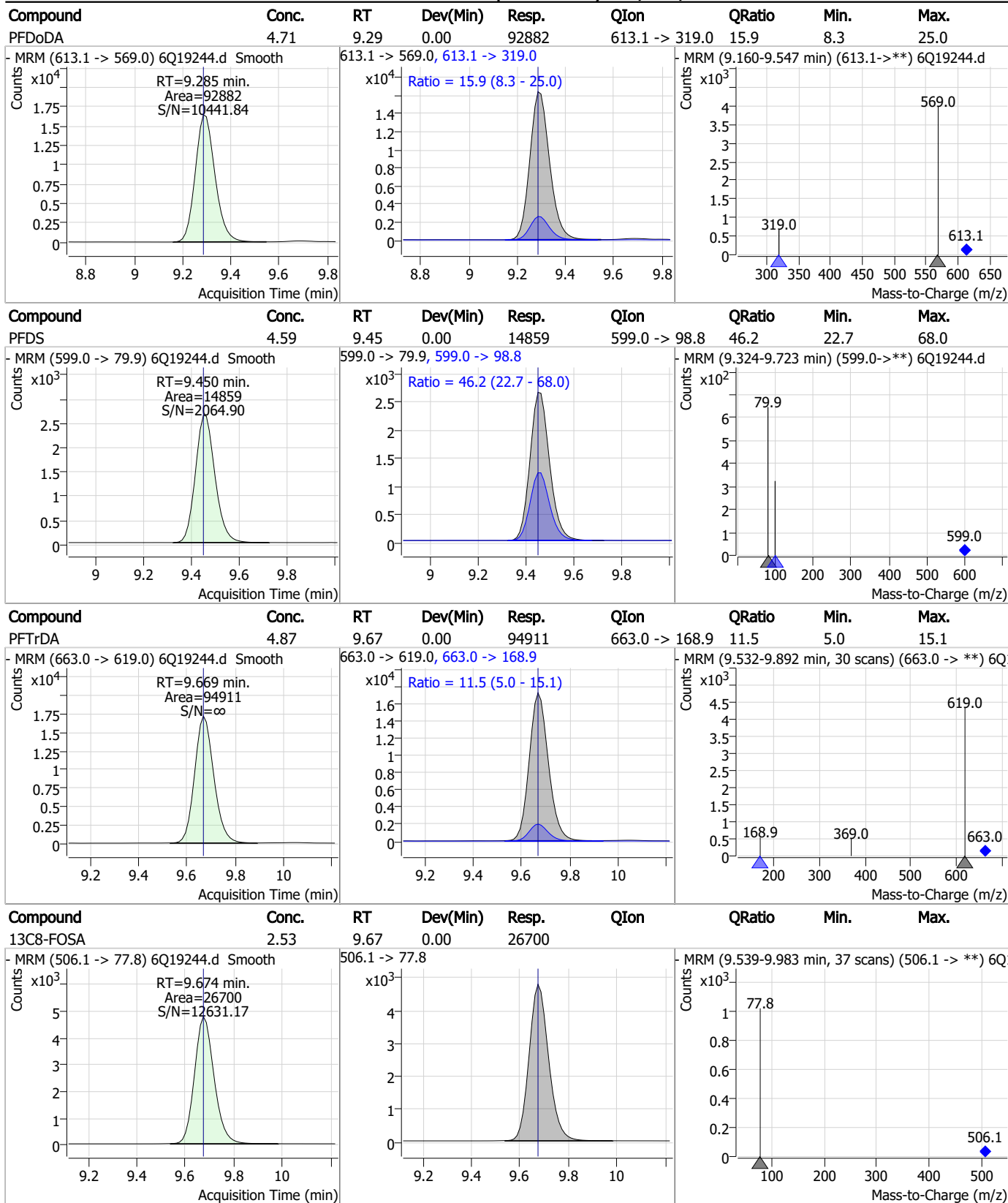
Perfluorinated Compounds by LC/MS/MS



7.7.6

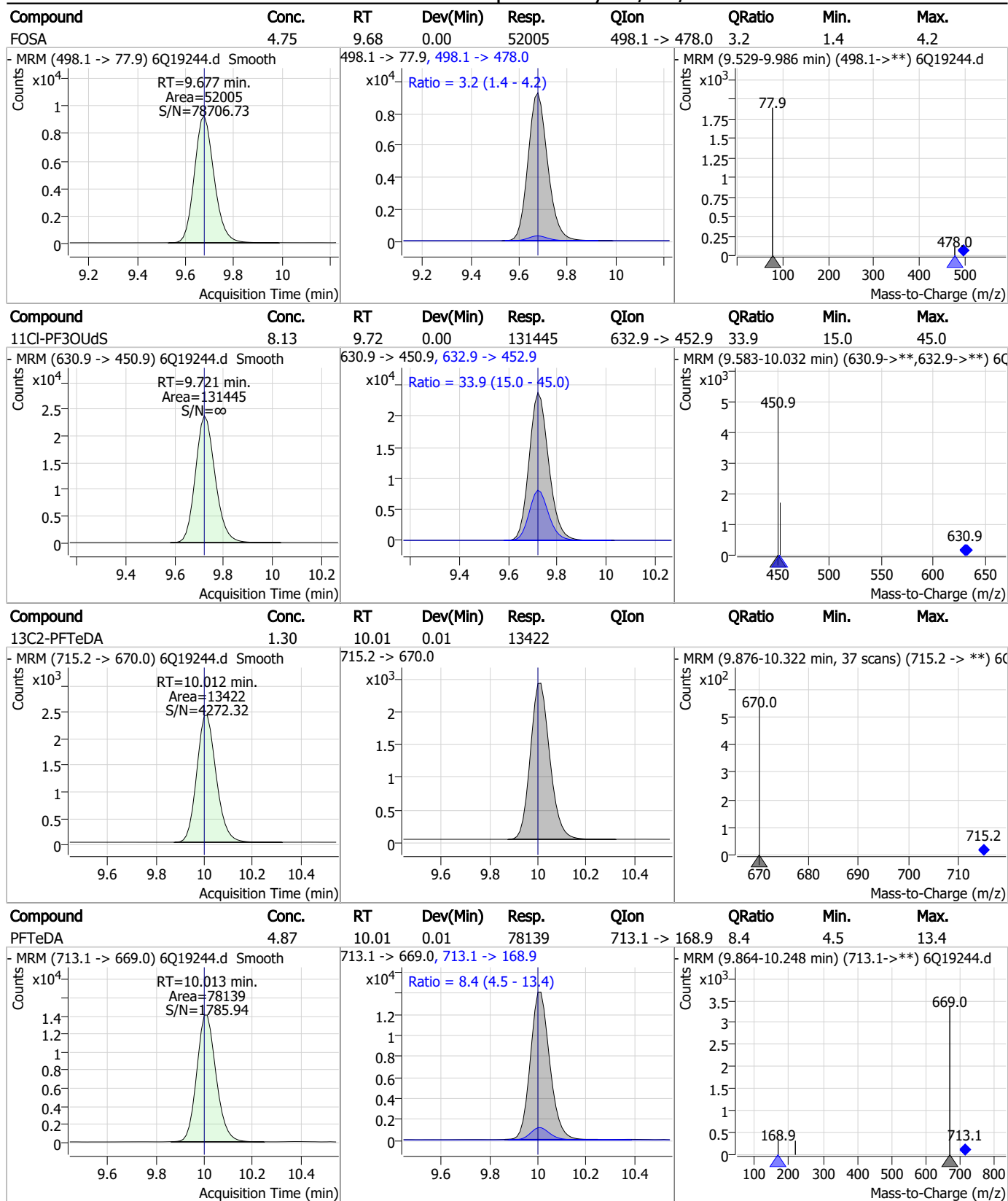
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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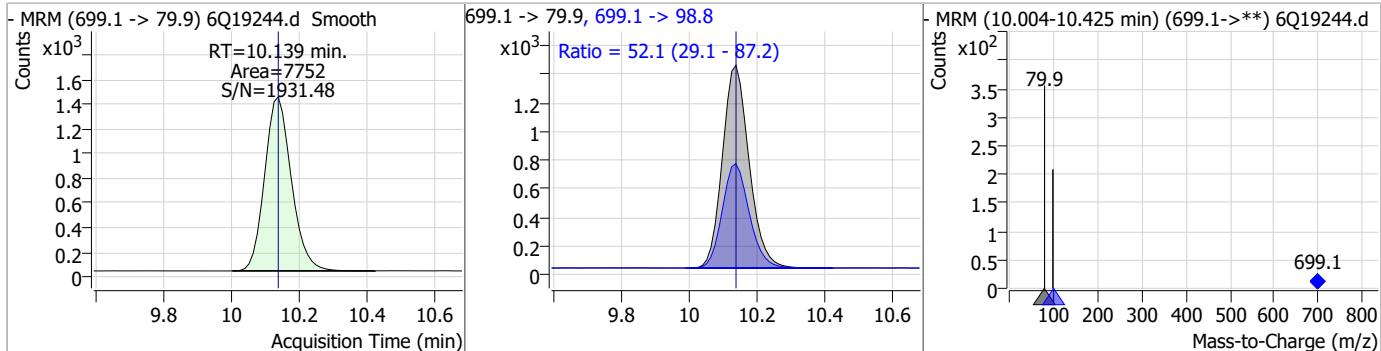
Perfluorinated Compounds by LC/MS/MS



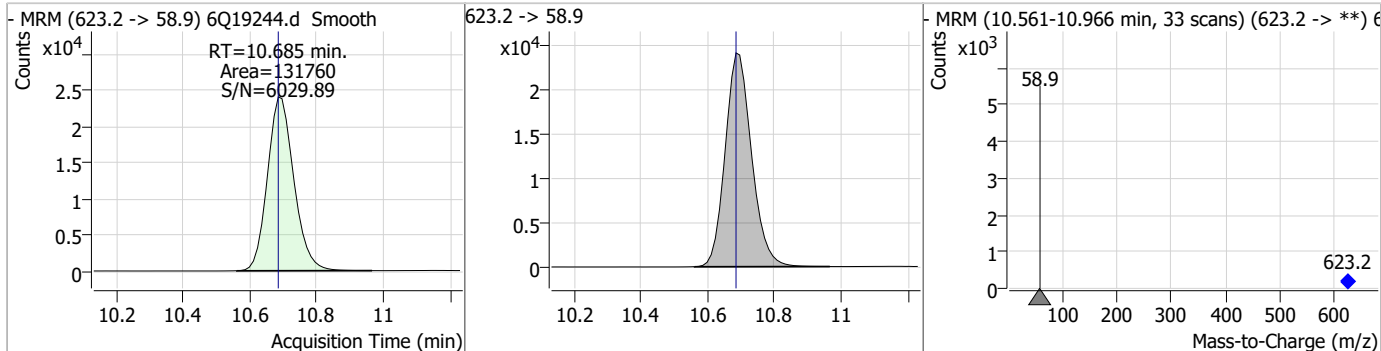
7.7.6
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Perfluorinated Compounds by LC/MS/MS

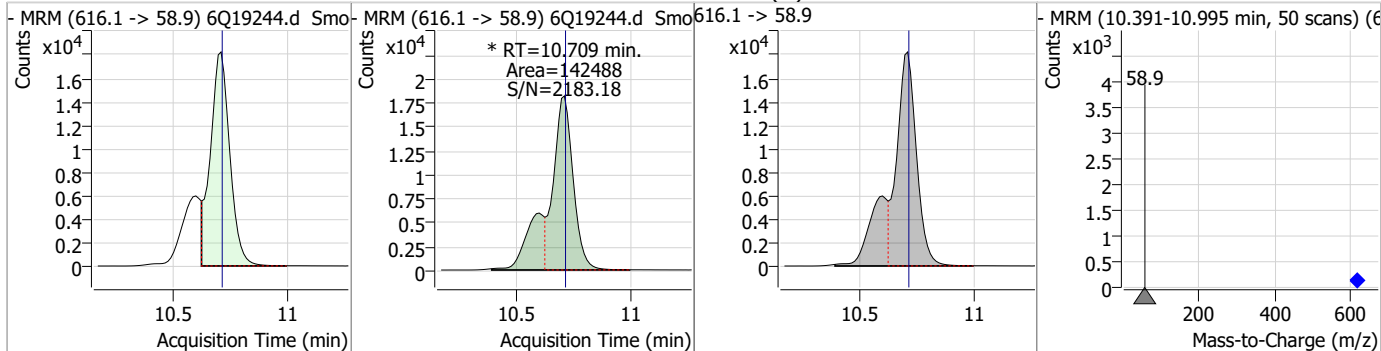
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	4.81	10.14	0.00	7752	699.1 -> 98.8	52.1	29.1	87.2



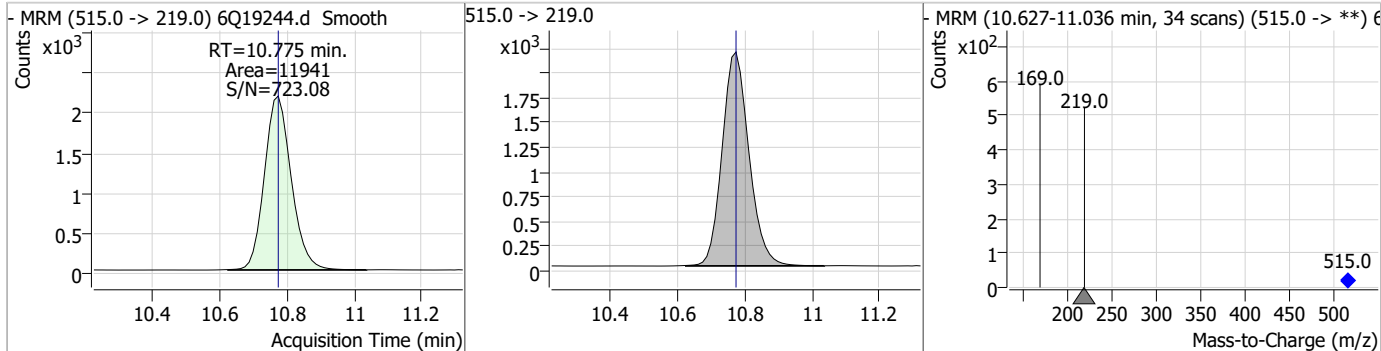
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.15	10.68	0.00	131760				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	24.71	10.71	0.00	142488 (m)				

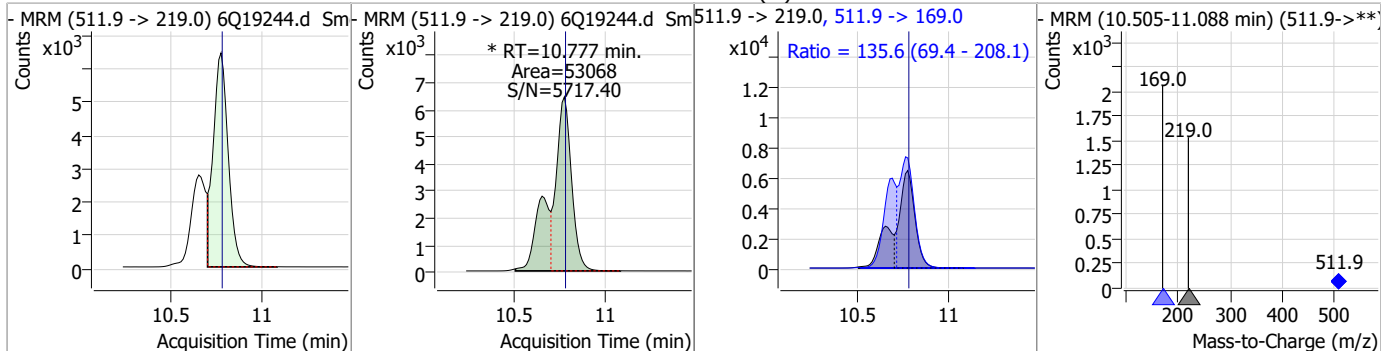


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.52	10.78	0.00	11941				

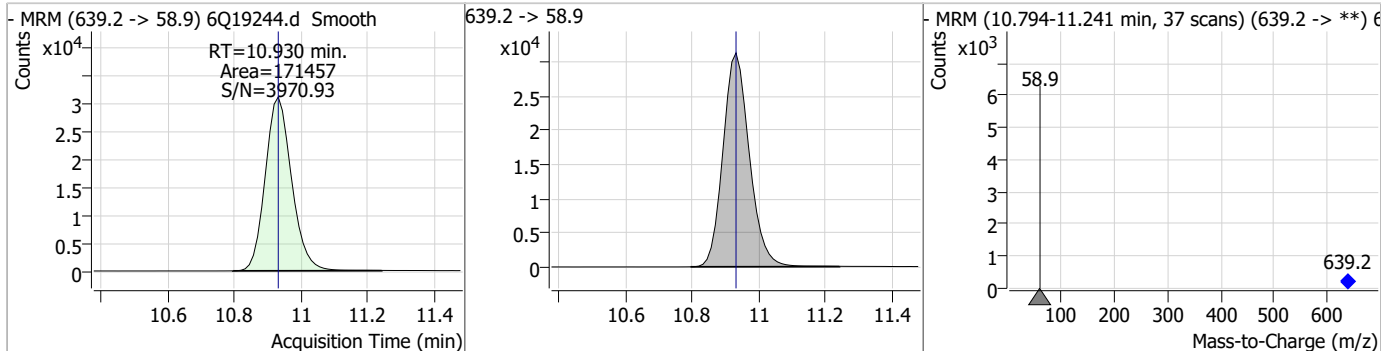


Perfluorinated Compounds by LC/MS/MS

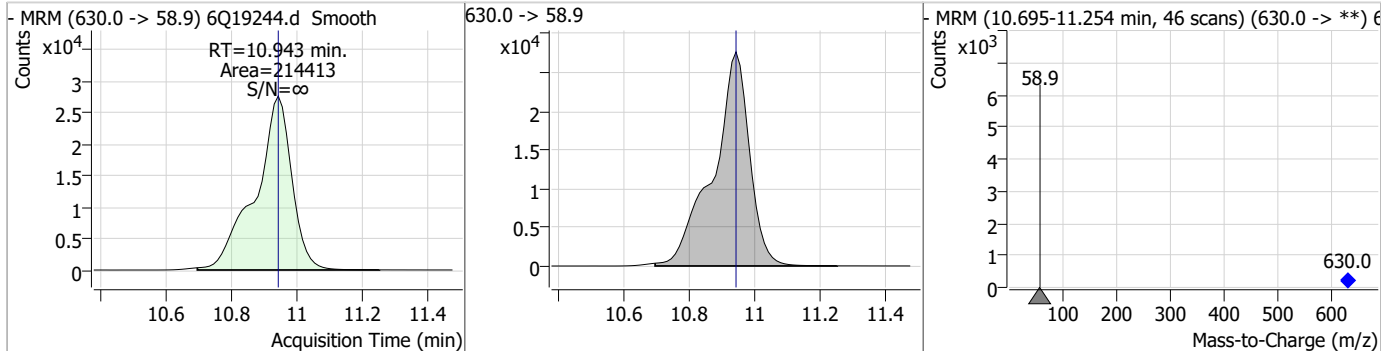
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	10.14	10.78	0.00	53068 (m)	511.9 -> 169.0	135.6	69.4	208.1



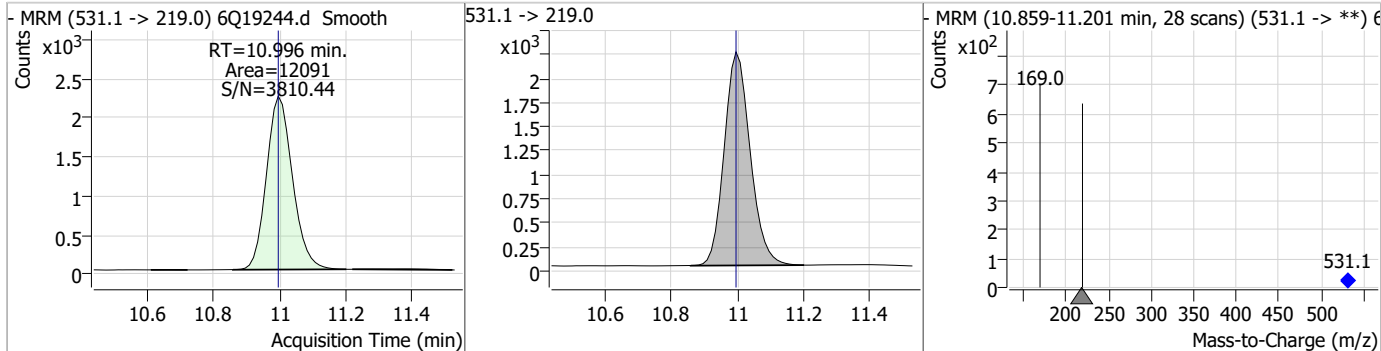
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.21	10.93	0.00	171457				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	23.68	10.94	0.00	214413				

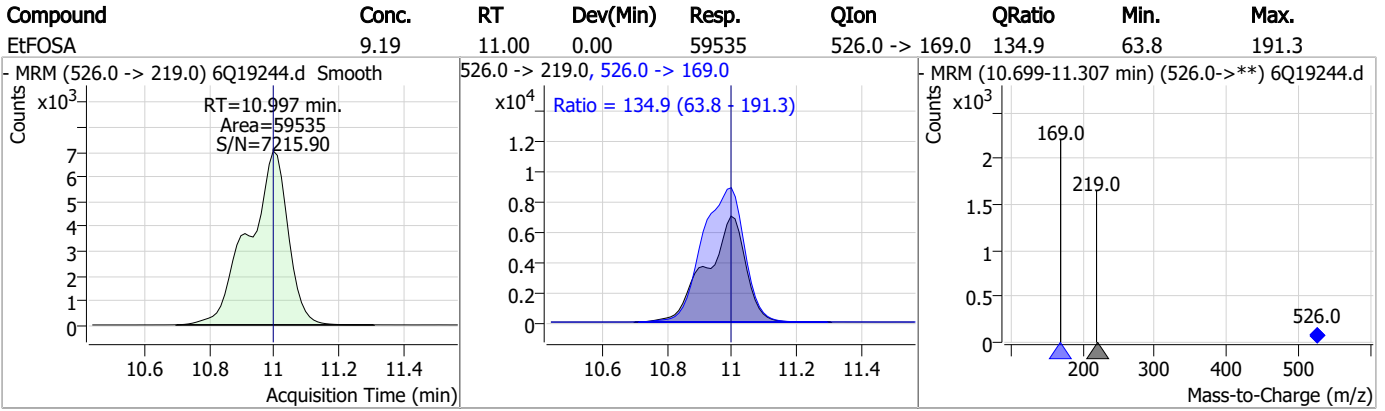


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.63	11.00	0.00	12091				



7.7.6
7

Perfluorinated Compounds by LC/MS/MS



7.7.6

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Manual Integration Approval Summary

Sample Number: S6Q287-IC287 Method: EPA DRAFT 1633
Lab FileID: 6Q19244.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 16:44 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.63	Split peak
MeFOSE	24448-09-7		10.71	Split peak
MeFOSA	31506-32-8		10.78	Split peak

7.7.6.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 06/13/23 13:30

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19245.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 4:58:24 PM
 Sample Name : ic287-6
 Vial : P1-A7
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	132203	10.00 µg/L	0.000
M5-PFPeA	4.560	268.3 -> 223.0	43186	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	50132	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	43925	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	70482	2.50 µg/L	0.012
M9-PFNA	7.882	472.1 -> 427.0	32482	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	18605	1.25 µg/L	0.000
M7-PFUnDA	8.853	570.0 -> 525.1	27197	1.25 µg/L	0.000
M2-PFDoDA	9.285	615.1 -> 570.0	24101	1.25 µg/L	0.000
M2-PFTeDA	10.012	715.2 -> 670.0	12979	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	26036	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	17423	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	11355	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	10325	2.50 µg/L	0.000
M2-4:2FTS	5.442	329.1 -> 80.9	2477	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	3788	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	3463	5.00 µg/L	0.000
M3-MeFOSAA	8.407	573.2 -> 419.0	28133	5.00 µg/L	0.000
M3-HFPO-DA	6.169	286.9 -> 168.9	30820	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	22192	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	127973	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	164671	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	11215	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	11793	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	14199	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	56399	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	8843	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	79764	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	27702	1.25 µg/L	0.000
13C5-PFNA	7.882	468.0 -> 423.0	39348	1.25 µg/L	0.000
13C2-PFHxA	5.792	315.1 -> 270.0	44846	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	2477	4.55 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.0%		
13C2-6:2FTS	7.113	429.1 -> 80.9	3788	4.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.6%		
13C2-8:2FTS	8.163	529.1 -> 80.9	3463	4.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.3%		
13C2-PFDoDA	9.285	615.1 -> 570.0	24101	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C2-PFTeDA	10.012	715.2 -> 670.0	12979	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C3-PFBS	5.746	302.1 -> 79.9	17423	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C3-PFHxS	7.478	402.1 -> 79.9	11355	2.42 µg/L	0.000

7.7.7
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 = 96.7%		
13C4-PFBA	3.085	216.8 -> 171.9	132203	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C4-PFHpA	6.707	367.1 -> 322.0	43925	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C5-PFHxA	5.792	318.0 -> 273.0	50132	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.4%		
13C5-PFPeA	4.560	268.3 -> 223.0	43186	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C6-PFDA	8.387	519.1 -> 474.1	18605	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C7-PFUnDA	8.853	570.0 -> 525.1	27197	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C8-FOSA	9.674	506.1 -> 77.8	26036	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C8-PFOA	7.352	421.1 -> 376.0	70482	2.37 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.7%		
13C8-PFOS	8.563	507.1 -> 79.9	10325	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C9-PFNA	7.882	472.1 -> 427.0	32482	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.2%		
d3-MeFOSAA	8.407	573.2 -> 419.0	28133	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C3-HFPO-DA	6.169	286.9 -> 168.9	30820	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
d3-MeFOSA	10.775	515.0 -> 219.0	11793	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
d5-EtFOSAA	8.615	589.2 -> 419.0	22192	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.8%		
d7-MeFOSE	10.685	623.2 -> 58.9	127973	24.56 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
d9-EtFOSE	10.930	639.2 -> 58.9	164671	25.30 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 101.2%		
d5-EtFOSA	10.996	531.1 -> 219.0	11215	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.1%		
Target Compounds					QValue
4:2FTS	5.443	327.1 -> 307.0	191336	44.58 µg/L	98
		327.1 -> 80.9	73815		
6:2FTS	7.113	427.1 -> 407.0	204501	44.69 µg/L	94
		427.1 -> 80.9	66855		
8:2FTS	8.164	527.1 -> 507.0	110613	48.02 µg/L	97
		527.1 -> 80.8	41869		
EtFOSAA	8.629	584.2 -> 419.1	44763	12.15 µg/L	m 93
		584.2 -> 526.0	24752		
FOSA	9.677	498.1 -> 77.9	130298	12.19 µg/L	100
		498.1 -> 478.0	3847		
MeFOSAA	8.421	570.1 -> 419.0	80109	11.71 µg/L	m 98
		570.1 -> 483.0	16546		
PFBA	3.093	212.8 -> 168.9	259199	49.17 µg/L	100
PFBS	5.747	298.7 -> 79.9	83979	10.99 µg/L	95
		298.7 -> 98.8	31374		
PFDA	8.388	512.9 -> 469.0	354118	12.73 µg/L	97
		512.9 -> 219.0	58196		
PFDoDA	9.285	613.1 -> 569.0	222006	11.22 µg/L	99
		613.1 -> 319.0	36261		
PFDS	9.450	599.0 -> 79.9	37461	12.02 µg/L	94

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	18551			
PFHpA	6.708	363.1 -> 319.0	301021	12.80	µg/L	100
		363.1 -> 169.0	48229			
PFHpS	8.046	449.0 -> 79.9	71271	11.46	µg/L	99
		449.0 -> 98.9	35505			
PFHxA	5.795	313.0 -> 269.0	248240	12.36	µg/L	98
		313.0 -> 118.9	11668			
PFHxS	7.479	398.7 -> 79.9	72892	10.67	µg/L	m 96
		398.7 -> 98.9	35604			
PFNA	7.896	463.0 -> 419.0	355191	11.92	µg/L	97
		463.0 -> 219.0	67621			
PFNS	9.041	548.8 -> 79.9	62624	11.47	µg/L	94
		548.8 -> 98.9	32965			
PFOA	7.353	413.0 -> 369.0	445265	12.32	µg/L	97
		413.0 -> 169.0	83984			
PFOS	8.564	498.9 -> 79.9	69334	11.40	µg/L	m 96
		498.9 -> 98.8	34156			
PFPeA	4.551	263.0 -> 219.0	312877	24.62	µg/L	100
PFPeS	6.785	349.1 -> 79.9	69082	11.00	µg/L	100
		349.1 -> 98.9	31902			
PFTeDA	10.013	713.1 -> 669.0	199361	12.85	µg/L	99
		713.1 -> 168.9	16866			
PFTrDA	9.669	663.0 -> 619.0	240096	12.56	µg/L	98
		663.0 -> 168.9	25443			
PFUnDA	8.866	563.1 -> 519.0	225075	11.28	µg/L	97
		563.1 -> 269.1	40141			
11CI-PF3OUdS	9.721	630.9 -> 450.9	351989	24.23	µg/L	99
		632.9 -> 452.9	103243			
9CI-PF3ONS	8.906	530.8 -> 351.0	545926	22.50	µg/L	98
		532.8 -> 353.0	157482			
ADONA	6.959	376.9 -> 250.9	1189647	22.82	µg/L	99
		376.9 -> 84.8	327742			
HFPO-DA	6.169	284.9 -> 168.9	83161	25.42	µg/L	99
		284.9 -> 184.9	9467			
3:3FTCA	3.946	241.0 -> 177.0	53695	61.79	µg/L	99
		241.0 -> 117.0	6968			
5:3FTCA	6.361	341.0 -> 237.1	1172900	301.14	µg/L	92
		341.0 -> 217.0	791854			
7:3FTCA	7.748	441.0 -> 316.9	765528	274.63	µg/L	99
		441.0 -> 336.9	1778224			
EtFOSA	10.997	526.0 -> 219.0	149648	24.91	µg/L	98
		526.0 -> 169.0	194376			
EtFOSE	10.943	630.0 -> 58.9	520987	59.92	µg/L	100
MeFOSA	10.777	511.9 -> 219.0	127120	24.59	µg/L	m 95
		511.9 -> 169.0	184765			
MeFOSE	10.709	616.1 -> 58.9	343915	61.40	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	18700	12.06	µg/L	95
		699.1 -> 98.8	10122			
NFDHA	5.673	295.0 -> 201.0	62032	24.40	µg/L	95
		295.0 -> 84.9	16273			
PFMBA	4.988	279.0 -> 85.1	227765	24.98	µg/L	100
PFMPA	3.667	229.0 -> 84.9	176088	24.86	µg/L	100
PFEESA	6.288	314.8 -> 134.9	563830	22.81	µg/L	100
		314.8 -> 82.9	19382			

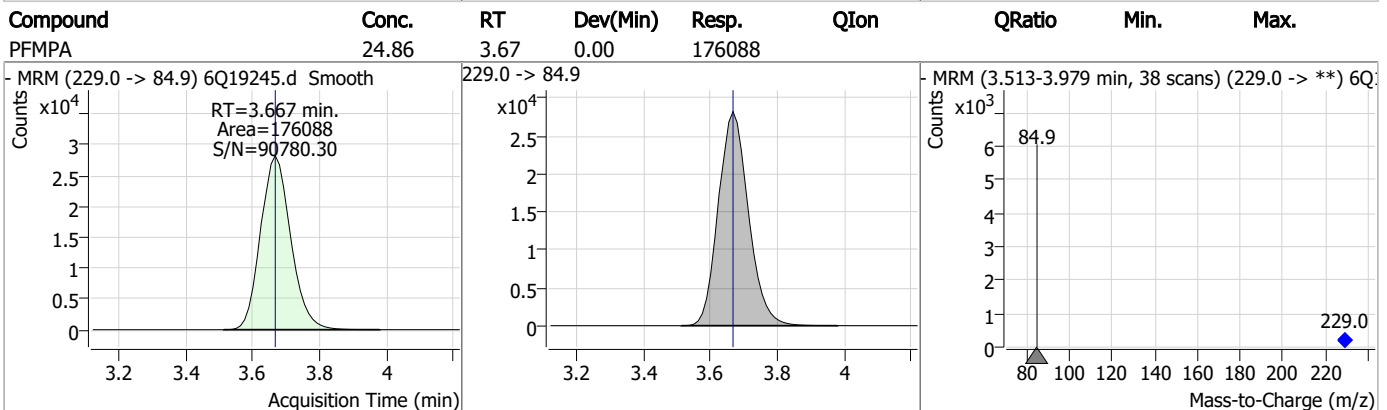
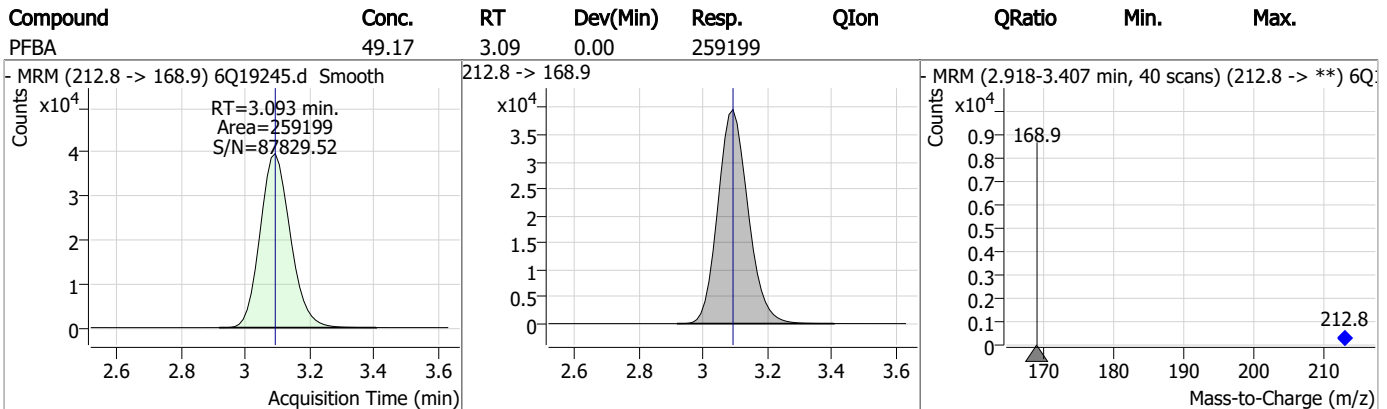
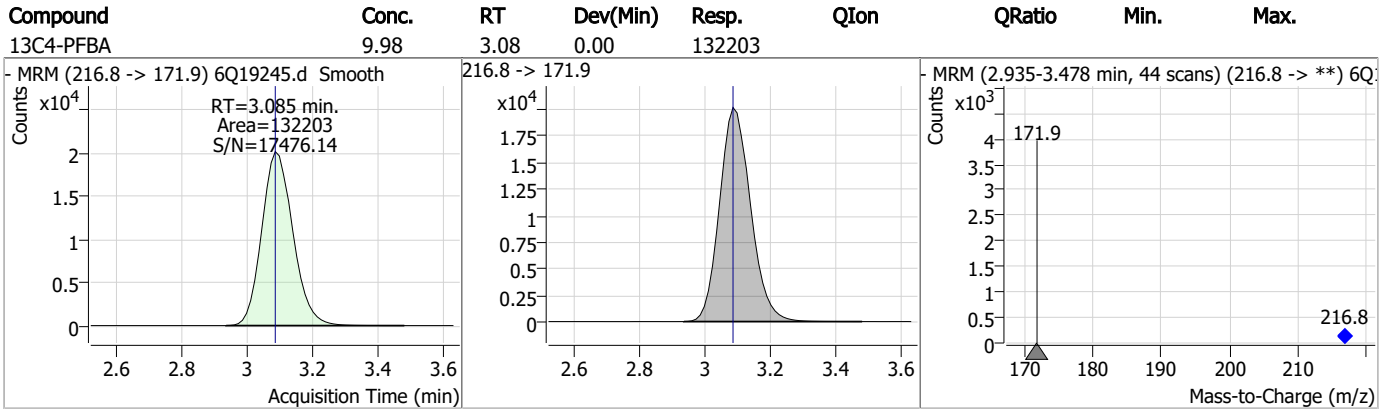
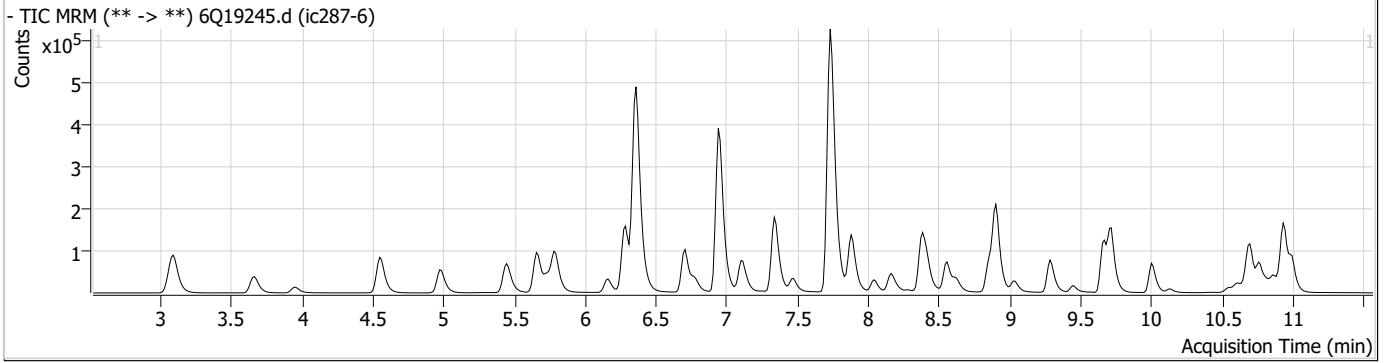
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

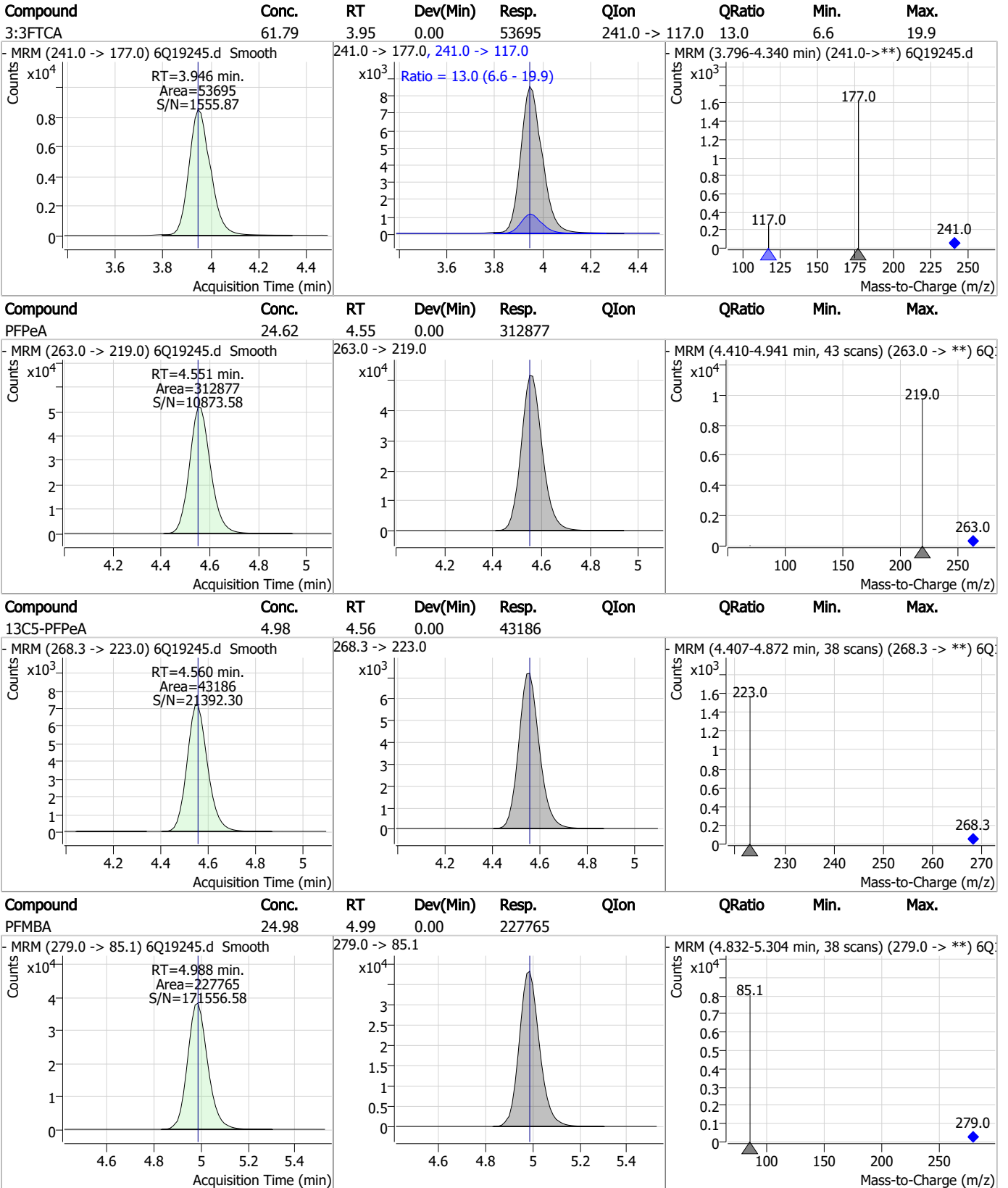
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.7
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Perfluorinated Compounds by LC/MS/MS



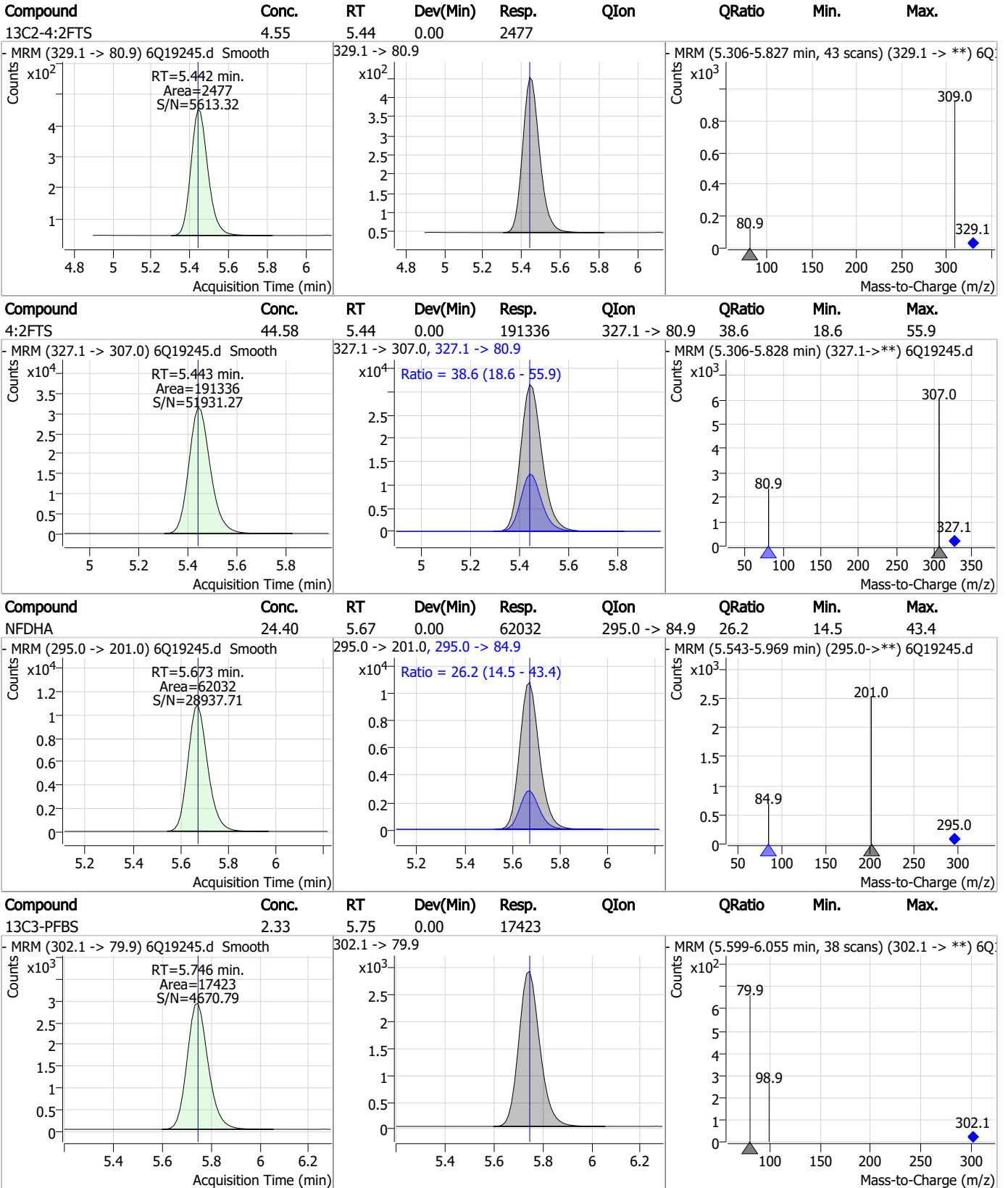
Perfluorinated Compounds by LC/MS/MS



7.7.7



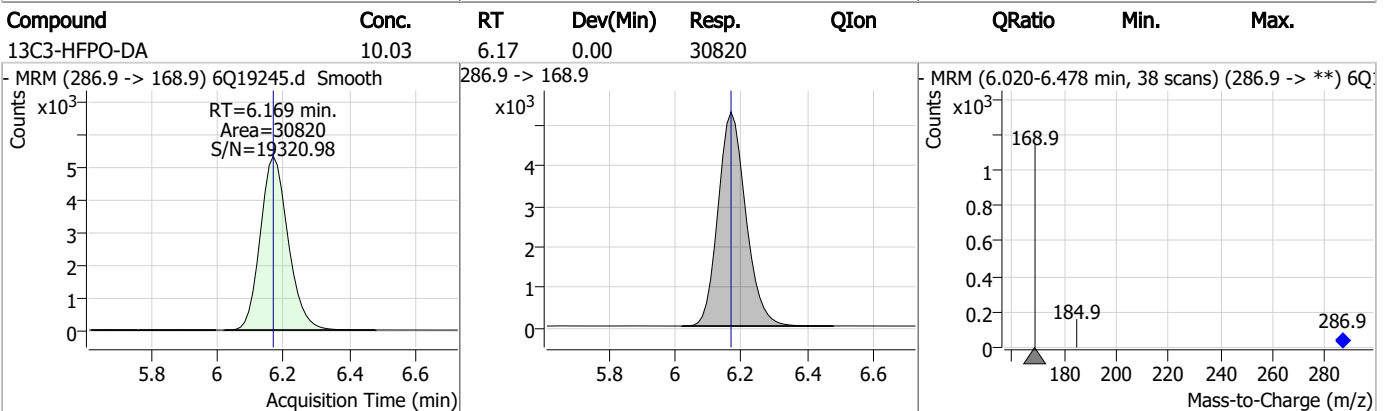
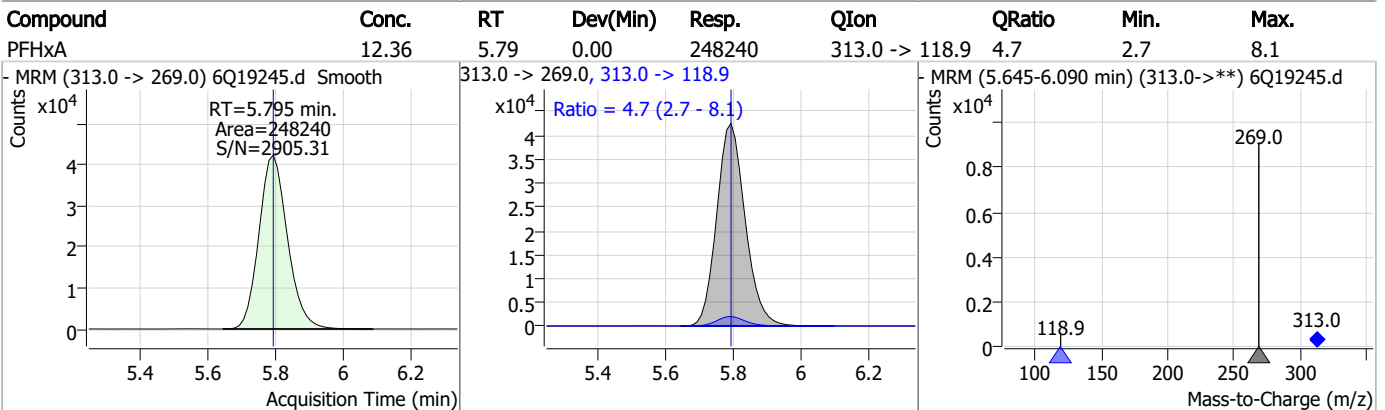
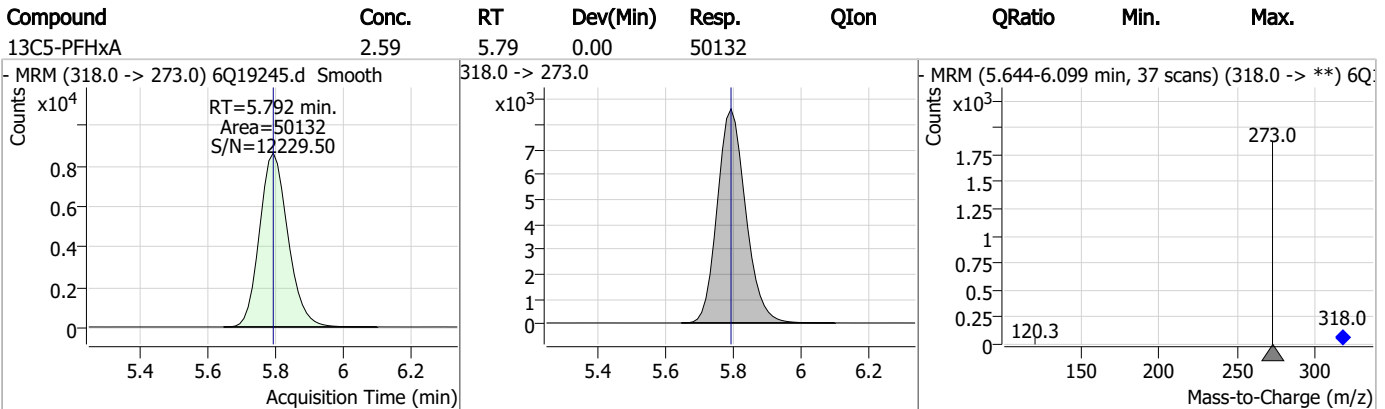
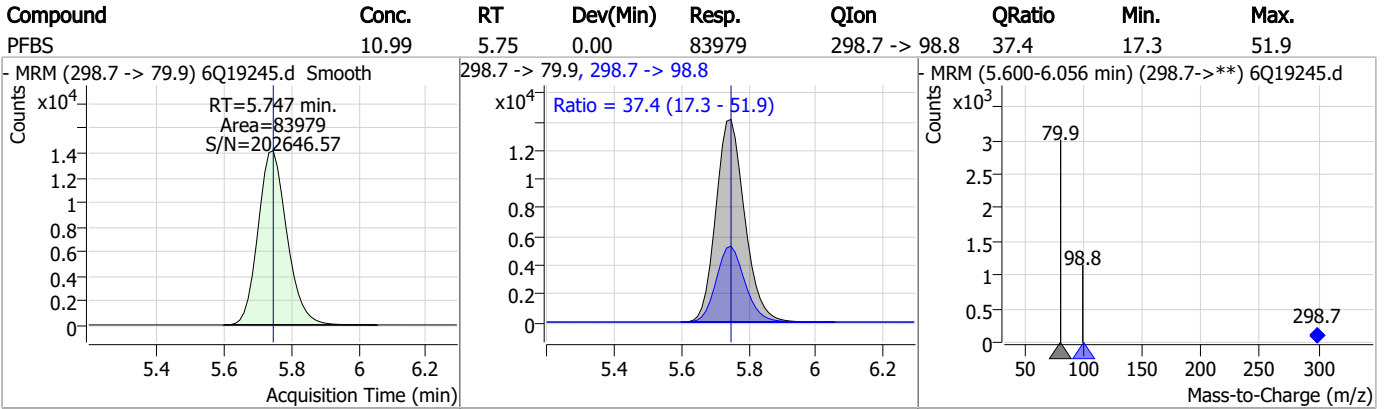
Perfluorinated Compounds by LC/MS/MS



7.7.7

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Perfluorinated Compounds by LC/MS/MS

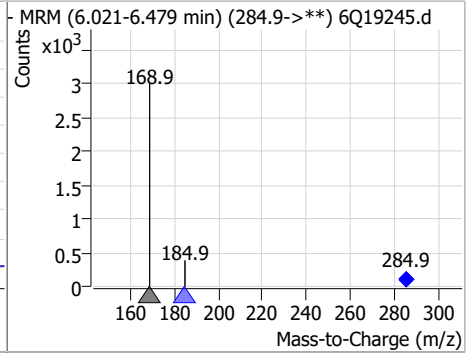
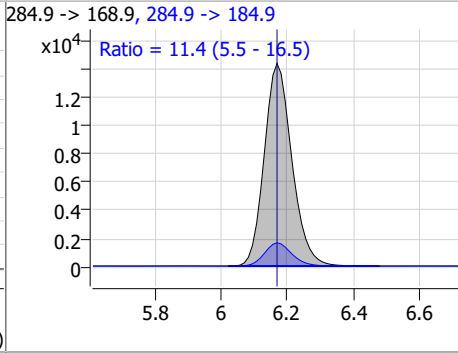
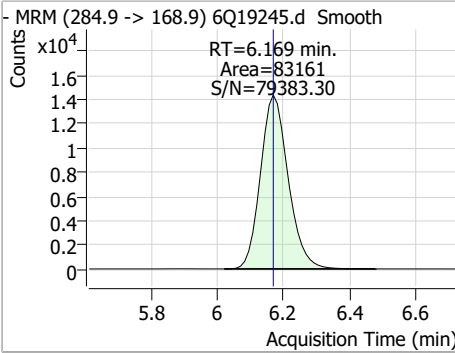


7.7.7

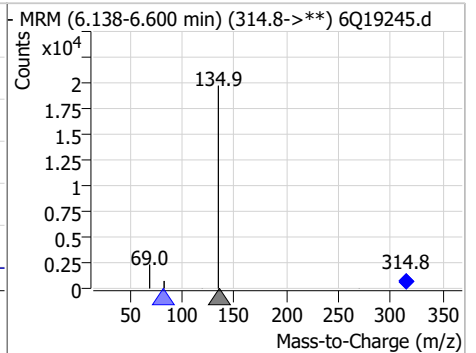
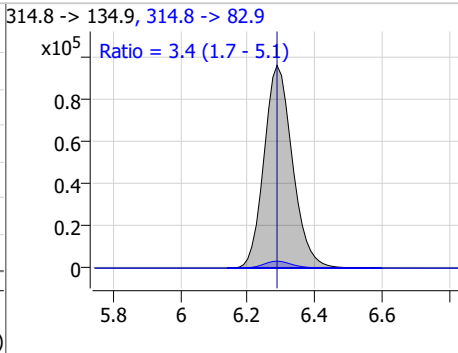
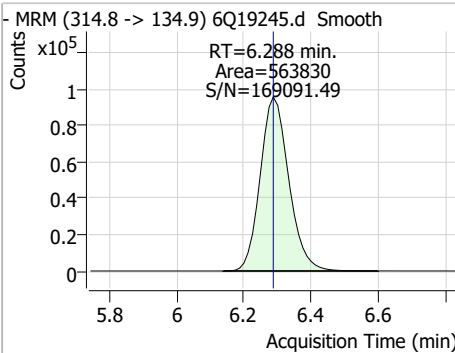
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Perfluorinated Compounds by LC/MS/MS

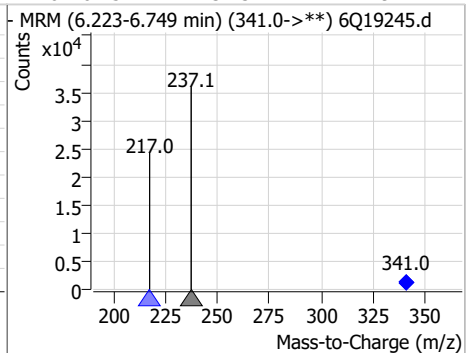
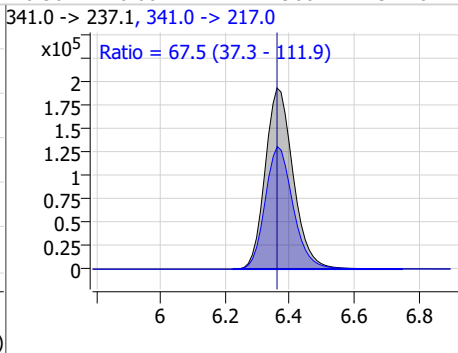
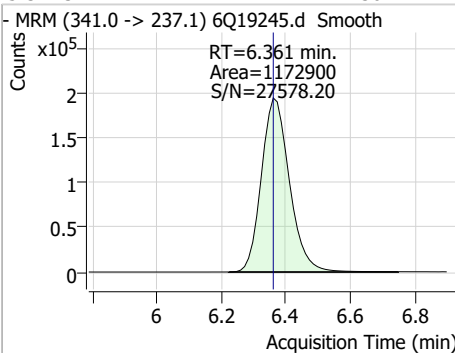
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	25.42	6.17	0.00	83161	284.9 -> 184.9	11.4	5.5	16.5



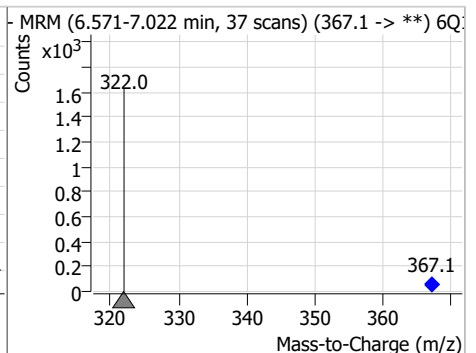
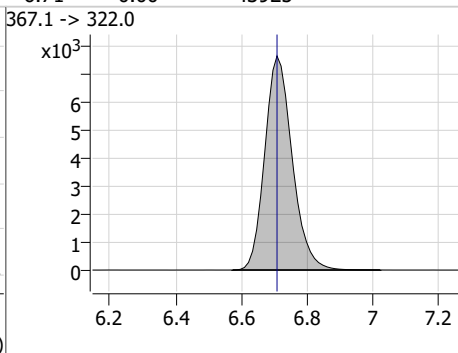
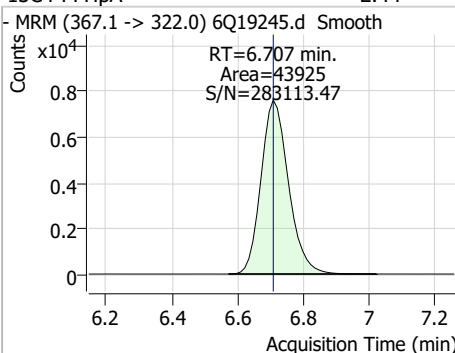
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	22.81	6.29	0.00	563830	314.8 -> 82.9	3.4	1.7	5.1



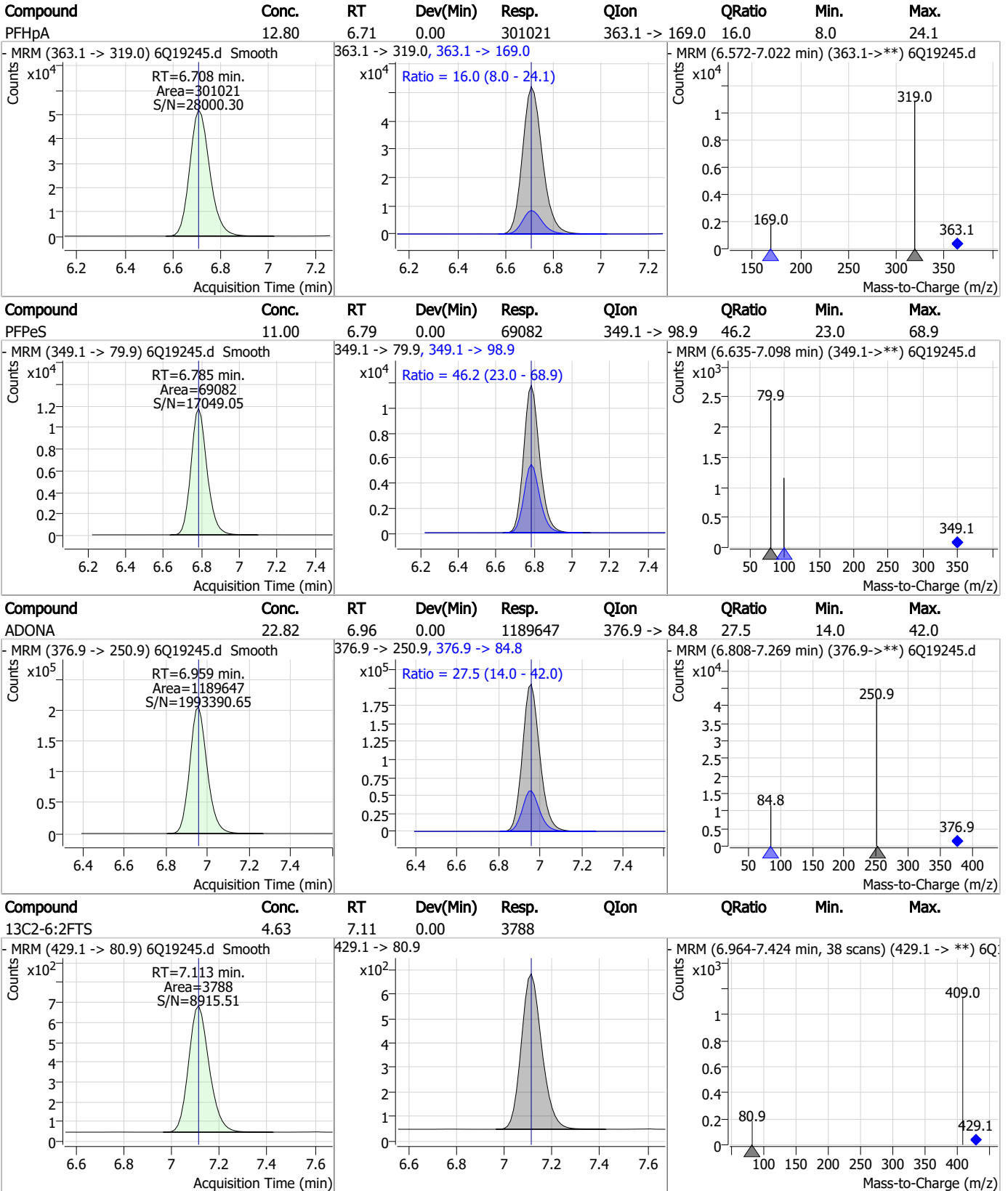
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	301.14	6.36	0.00	1172900	341.0 -> 217.0	67.5	37.3	111.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.44	6.71	0.00	43925	367.1 -> 322.0			



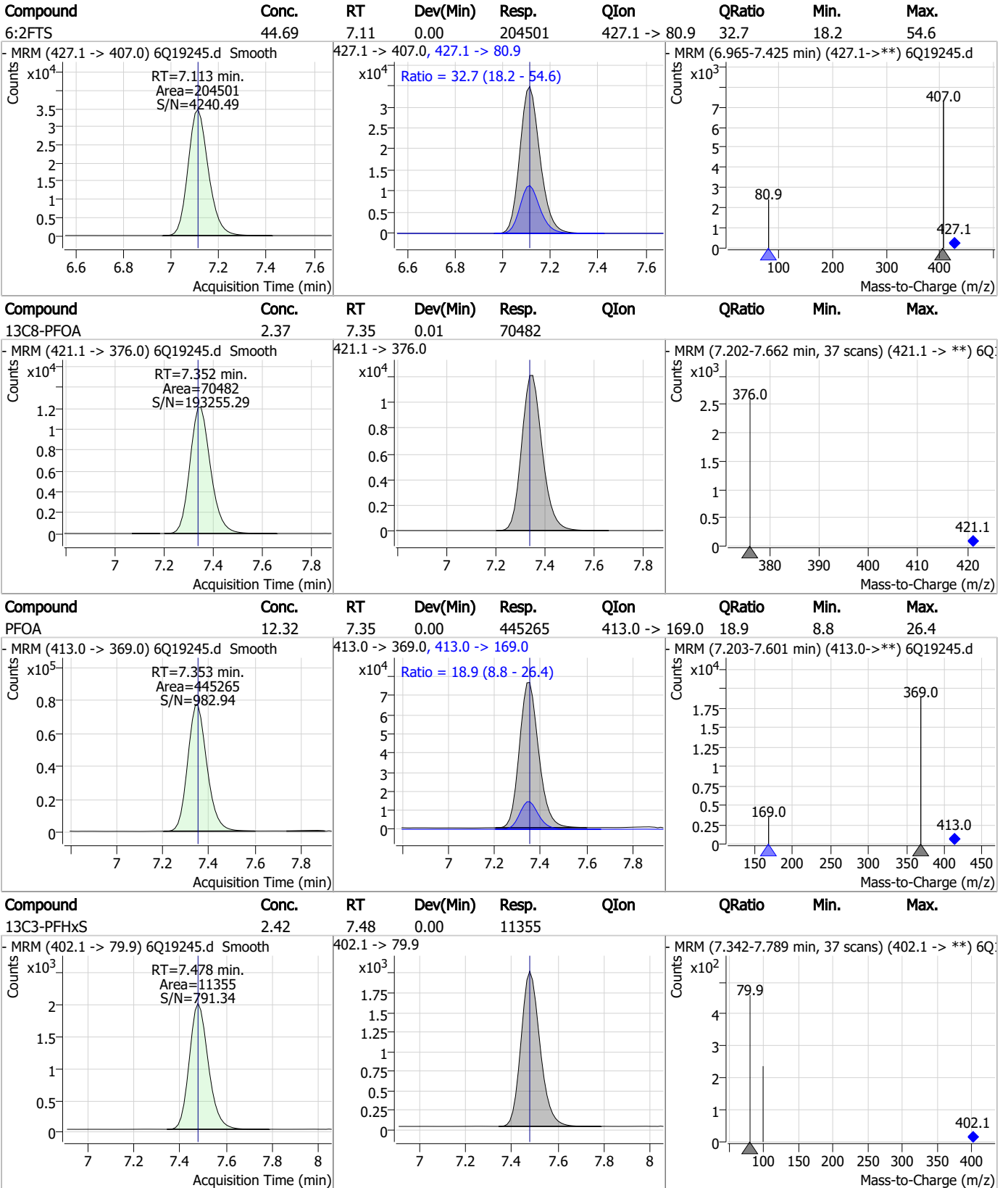
Perfluorinated Compounds by LC/MS/MS



7.7.7

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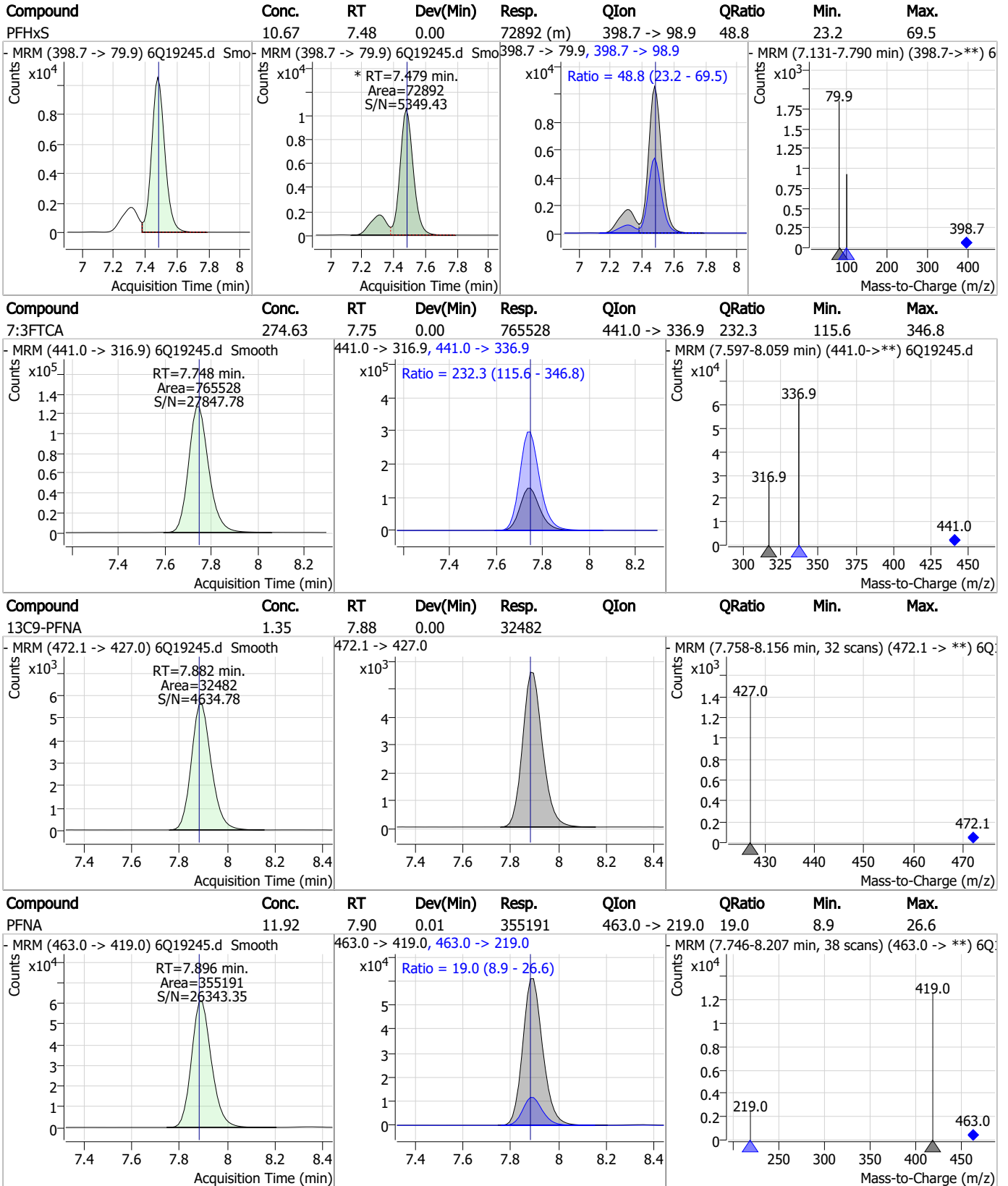
Perfluorinated Compounds by LC/MS/MS



7.7.7

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Perfluorinated Compounds by LC/MS/MS



7.7.7

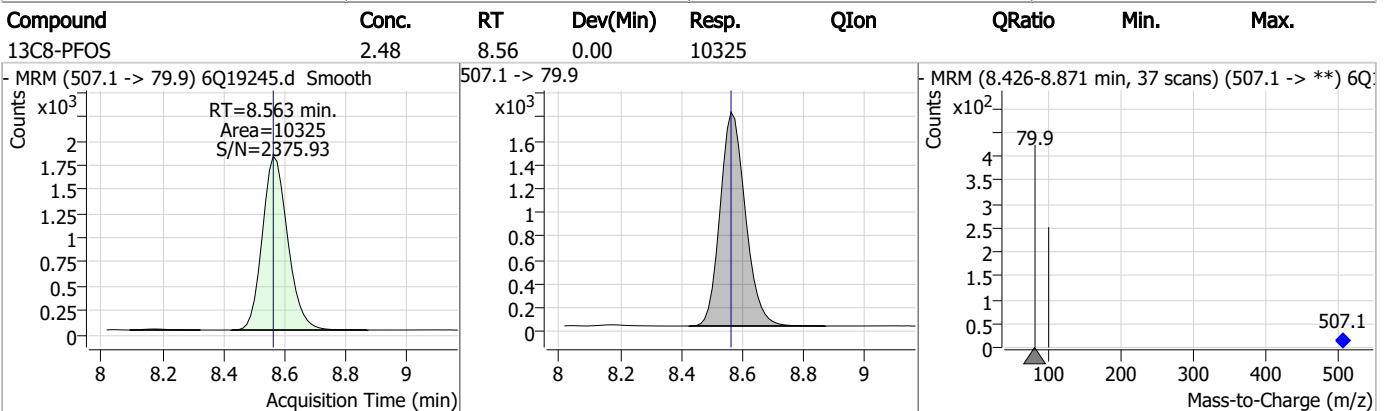
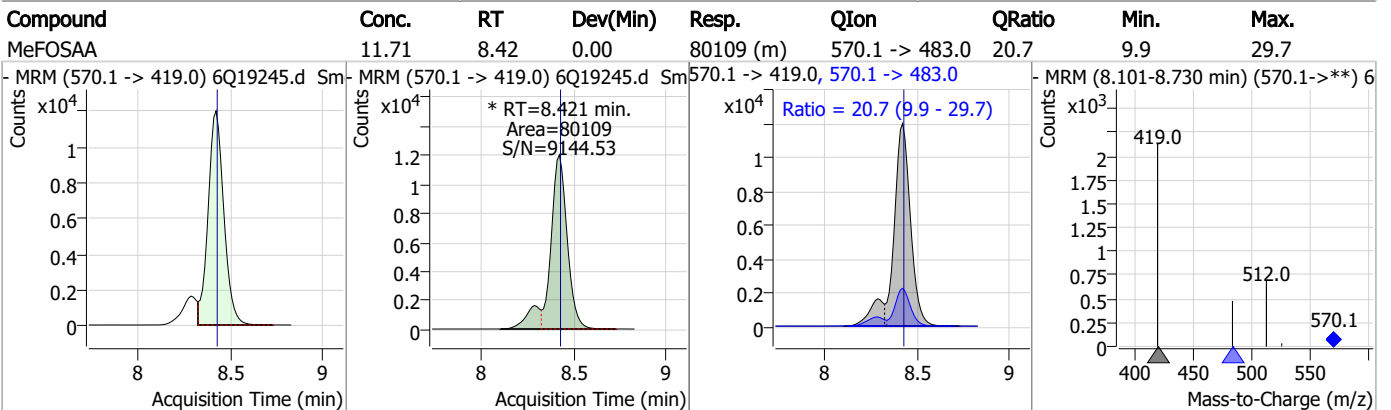
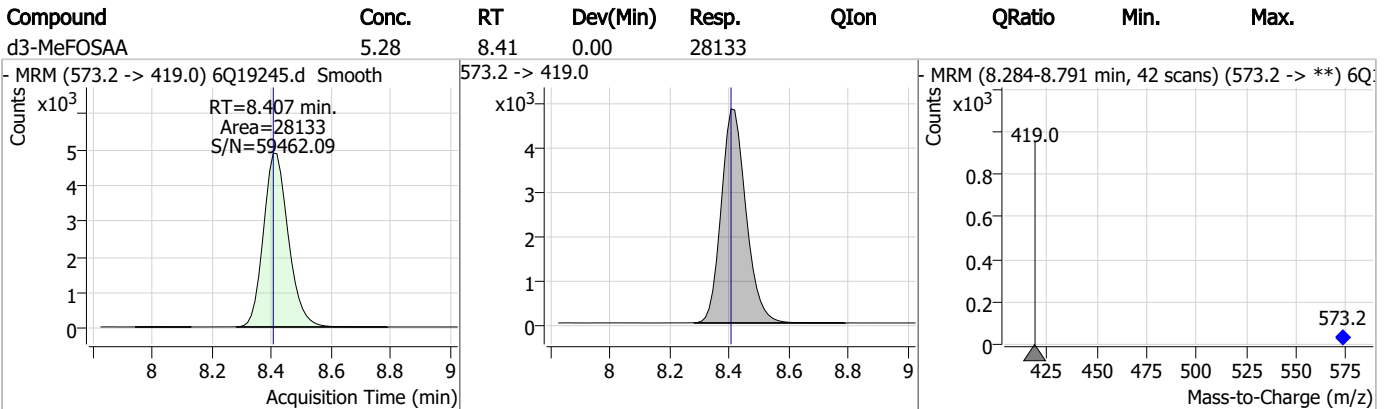
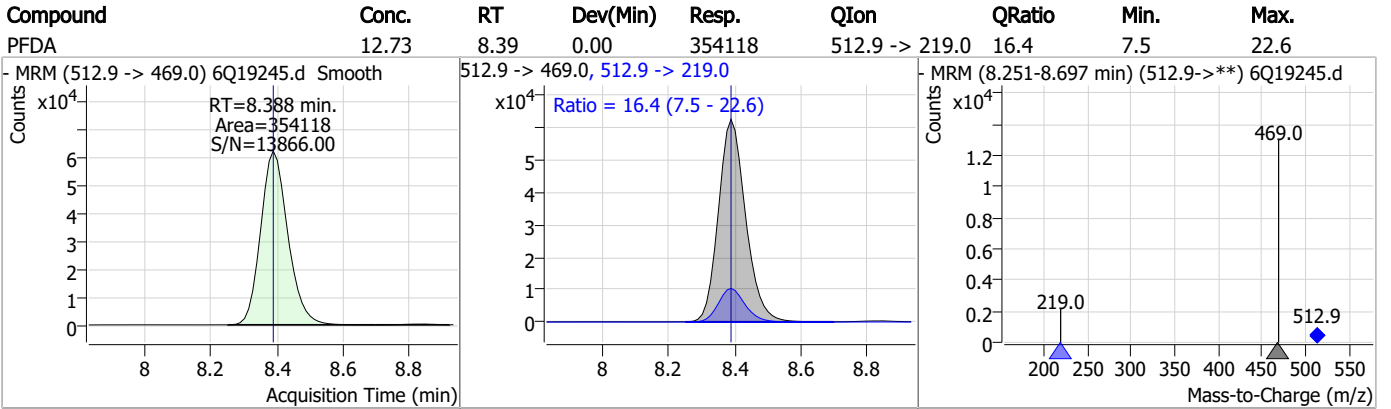
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	11.46	8.05	0.00	71271	449.0 -> 98.9	49.8	24.5	73.5
13C2-8:2FTS	4.42	8.16	0.00	3463				
8:2FTS	48.02	8.16	0.00	110613	527.1 -> 80.8	37.9	19.7	59.1
13C6-PFDA	1.22	8.39	0.00	18605				

7.7.7

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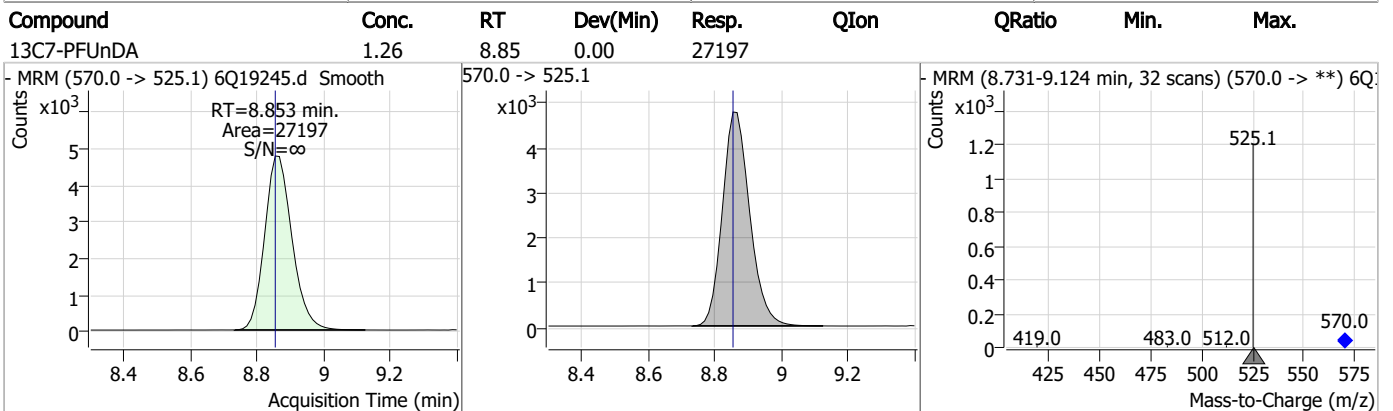
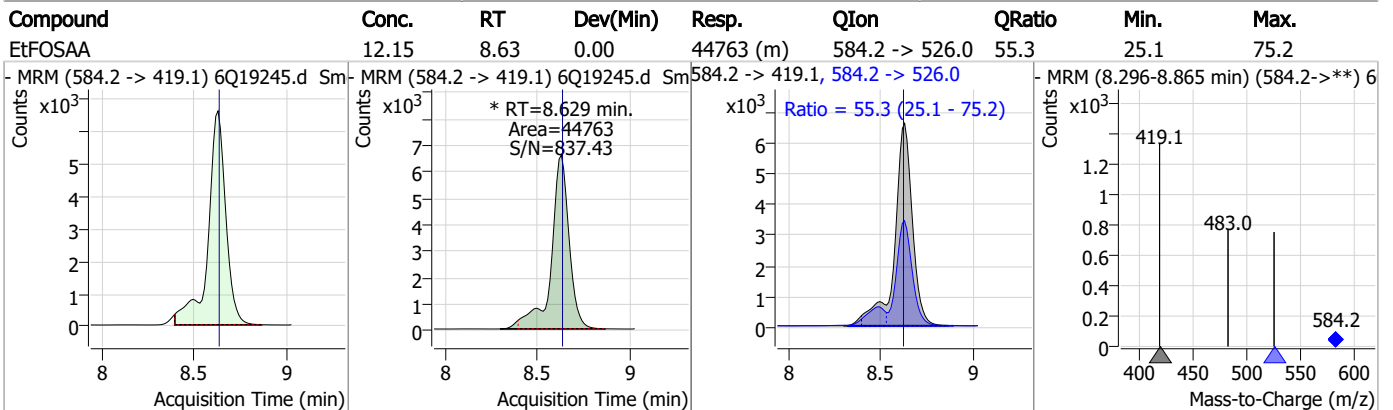
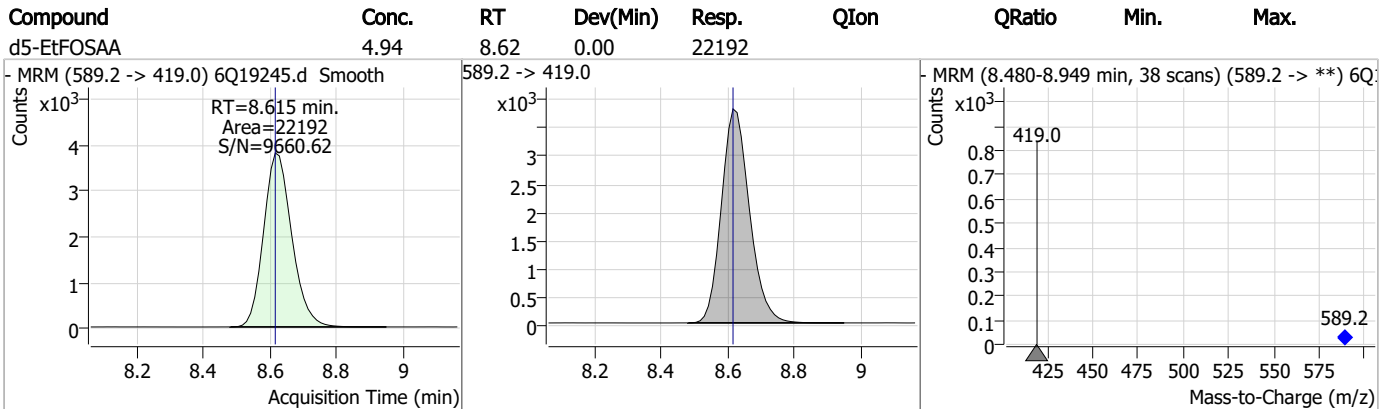
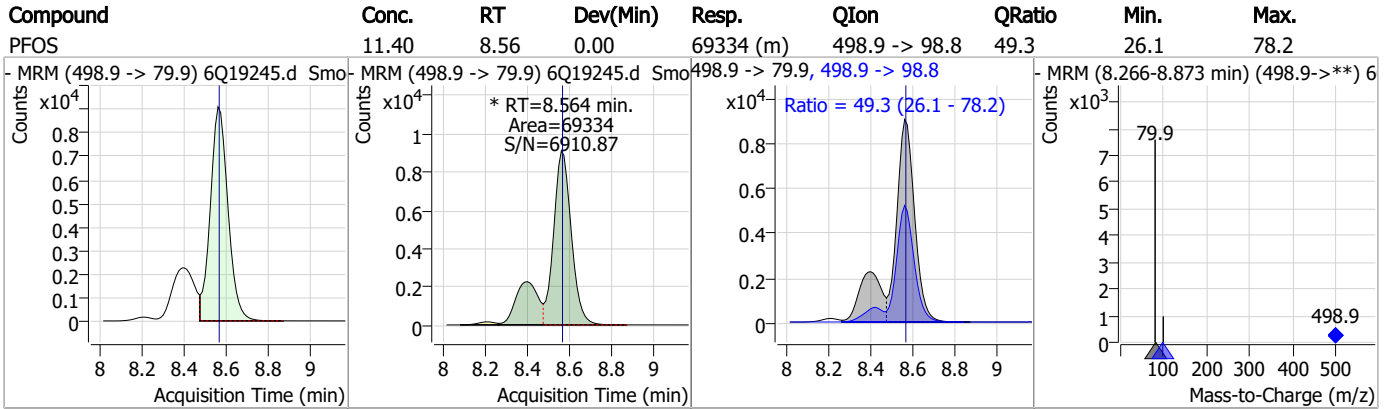
Perfluorinated Compounds by LC/MS/MS



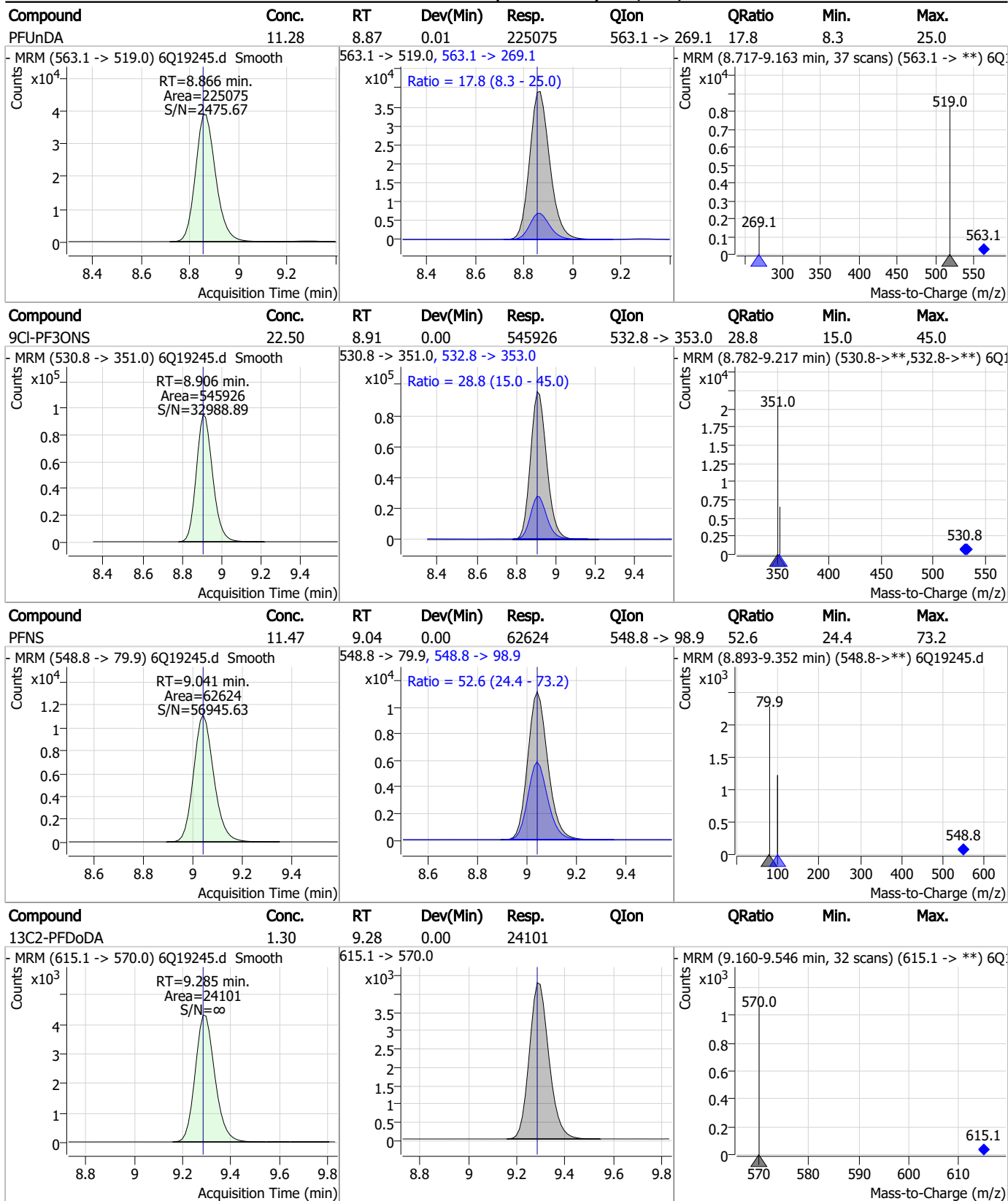
7.7.7

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Perfluorinated Compounds by LC/MS/MS

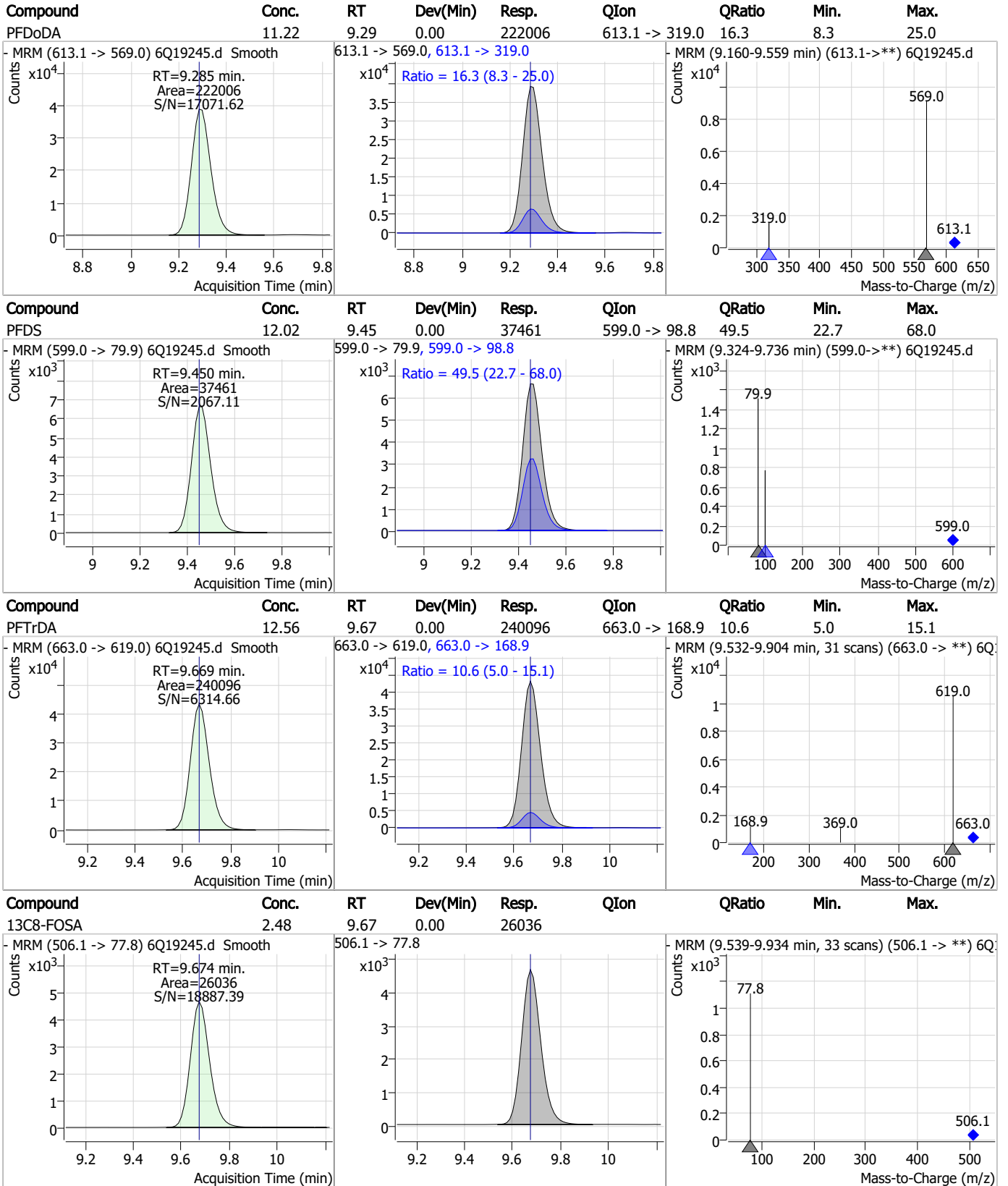


Perfluorinated Compounds by LC/MS/MS



7.7.7
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Perfluorinated Compounds by LC/MS/MS

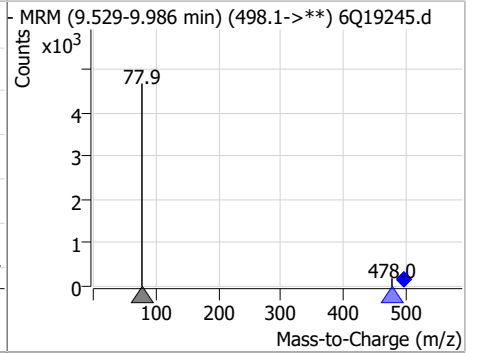
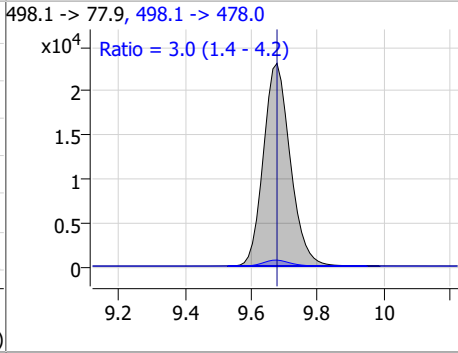
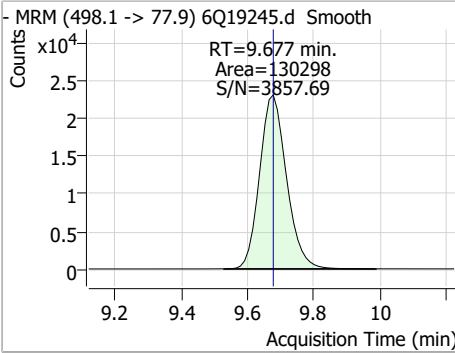


7.7.7

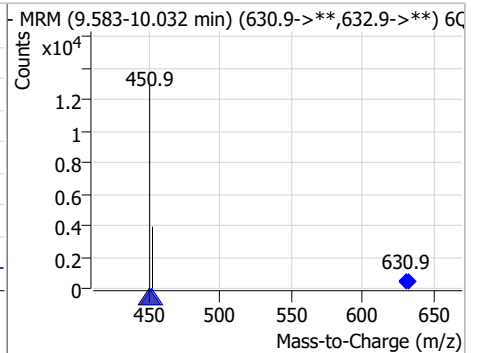
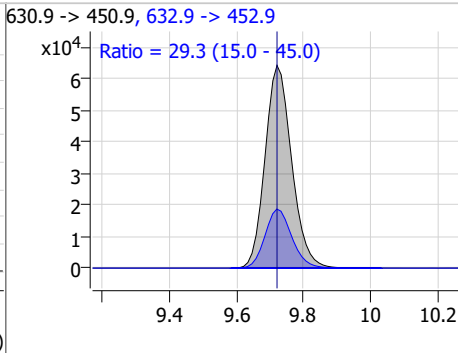
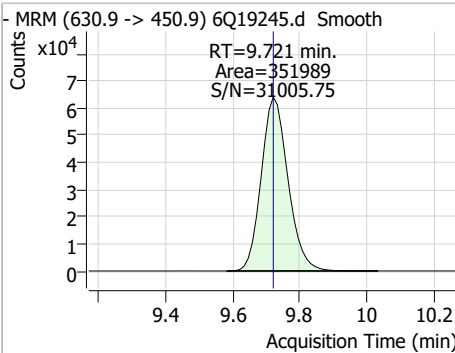
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Perfluorinated Compounds by LC/MS/MS

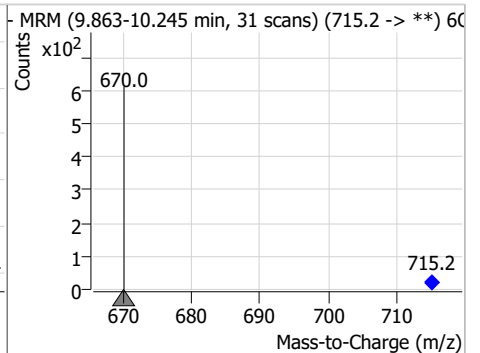
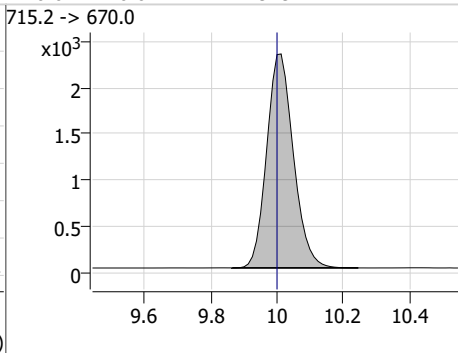
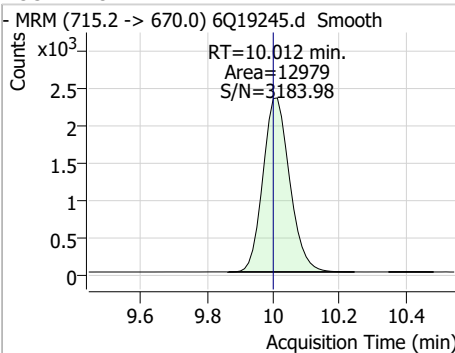
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	12.19	9.68	0.00	130298	498.1 -> 478.0	3.0	1.4	4.2



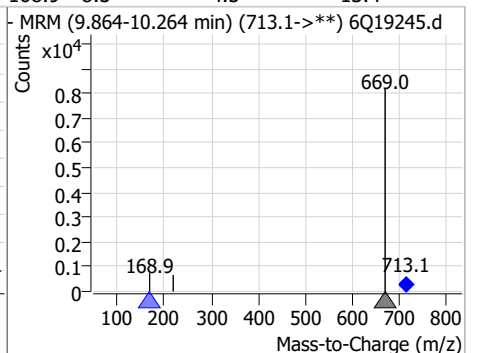
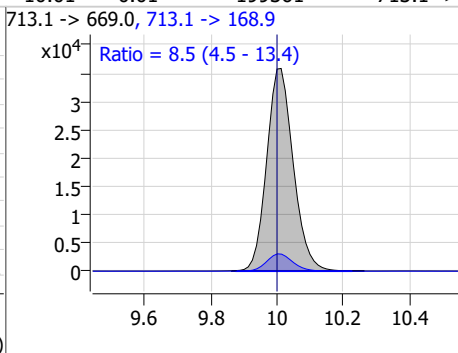
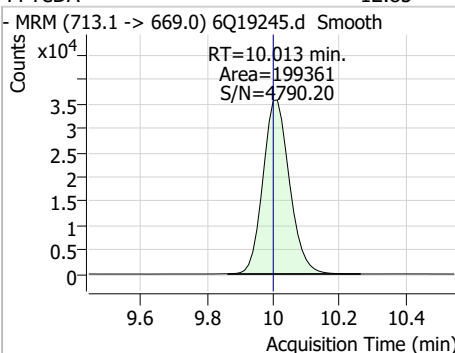
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	24.23	9.72	0.00	351989	632.9 -> 452.9	29.3	15.0	45.0



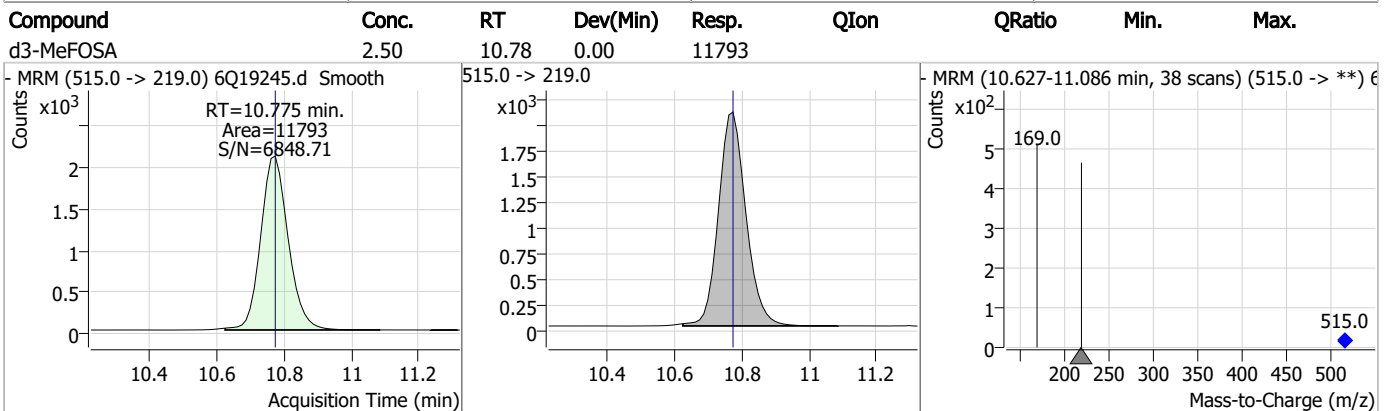
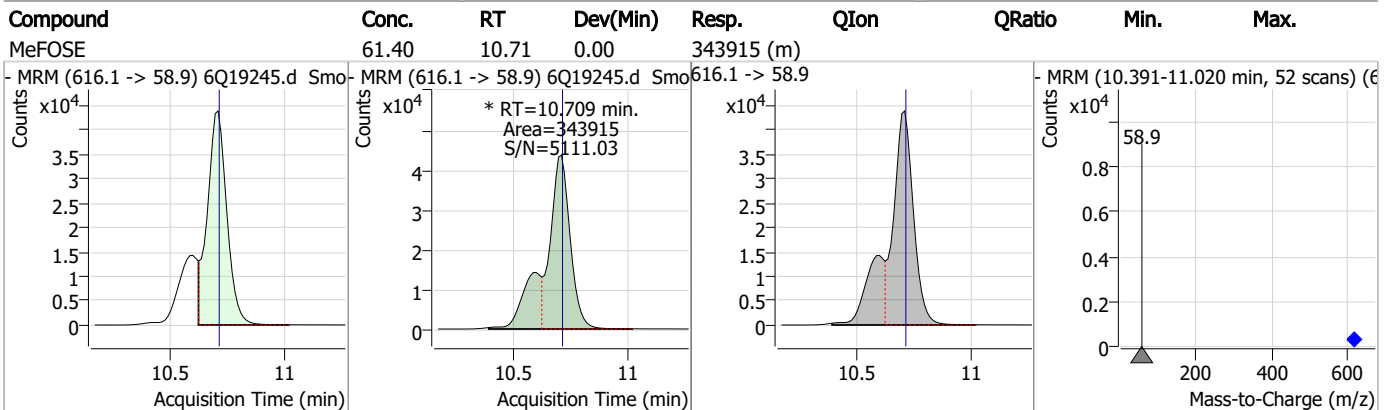
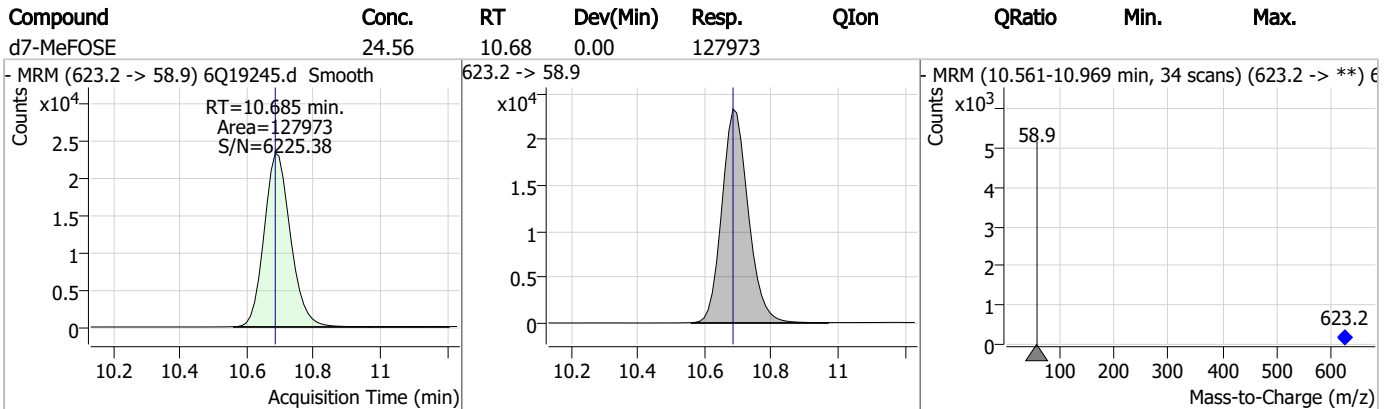
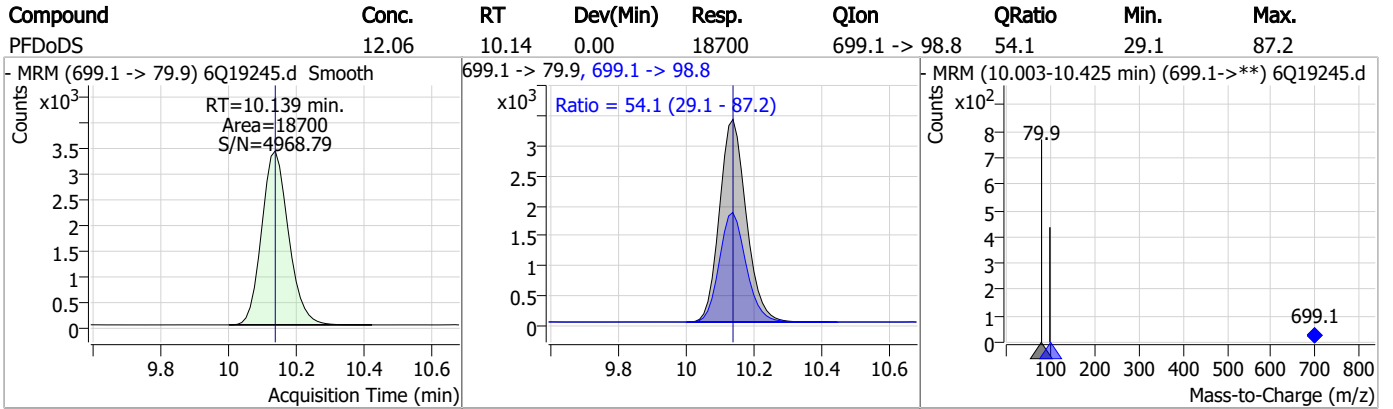
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	10.01	0.01	12979	715.2 -> 670.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	12.85	10.01	0.01	199361	713.1 -> 168.9	8.5	4.5	13.4



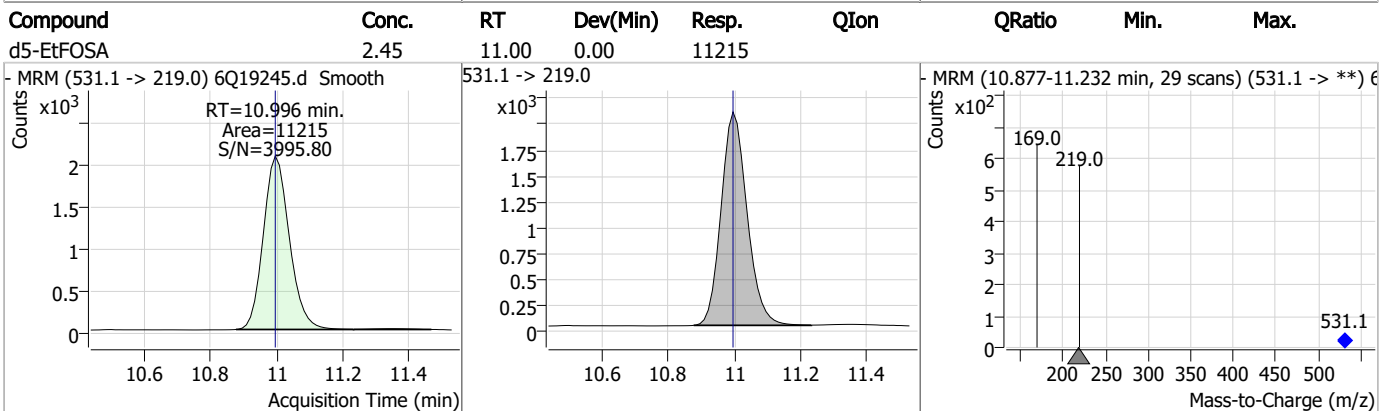
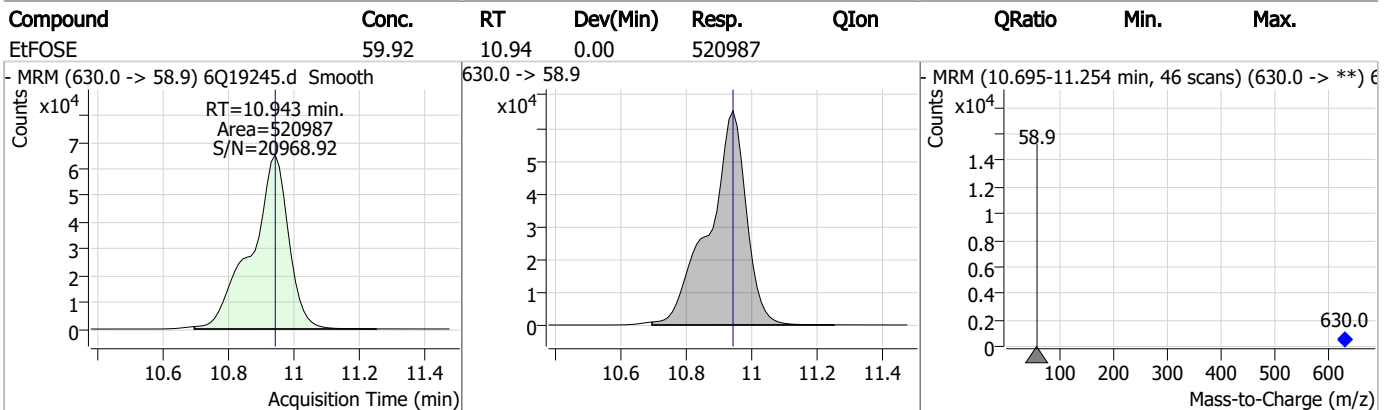
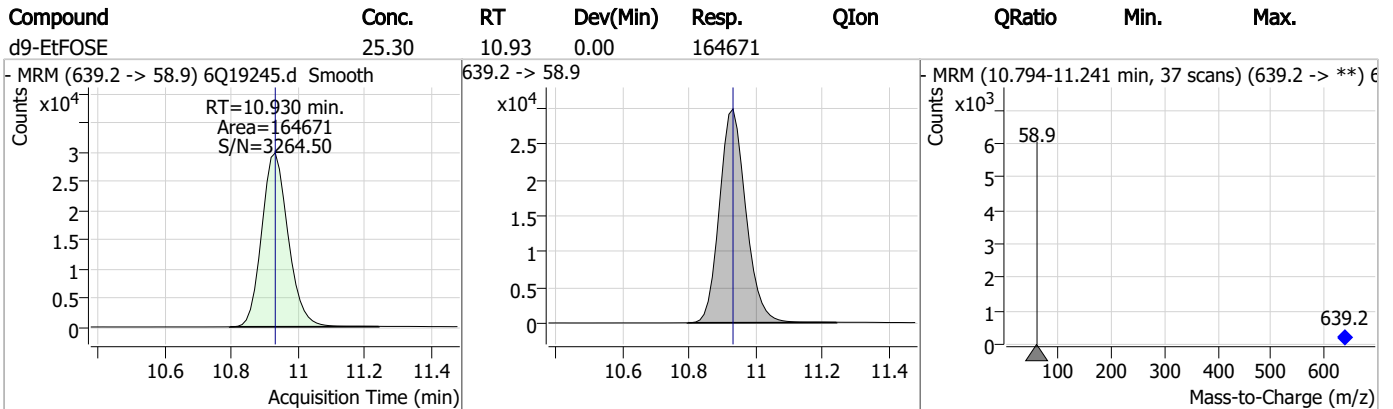
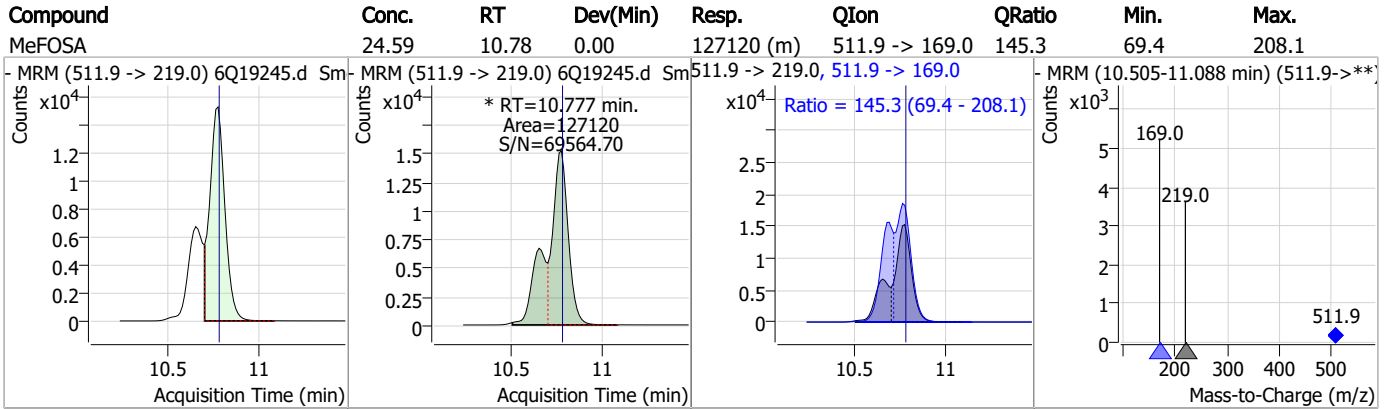
Perfluorinated Compounds by LC/MS/MS



7.7.7

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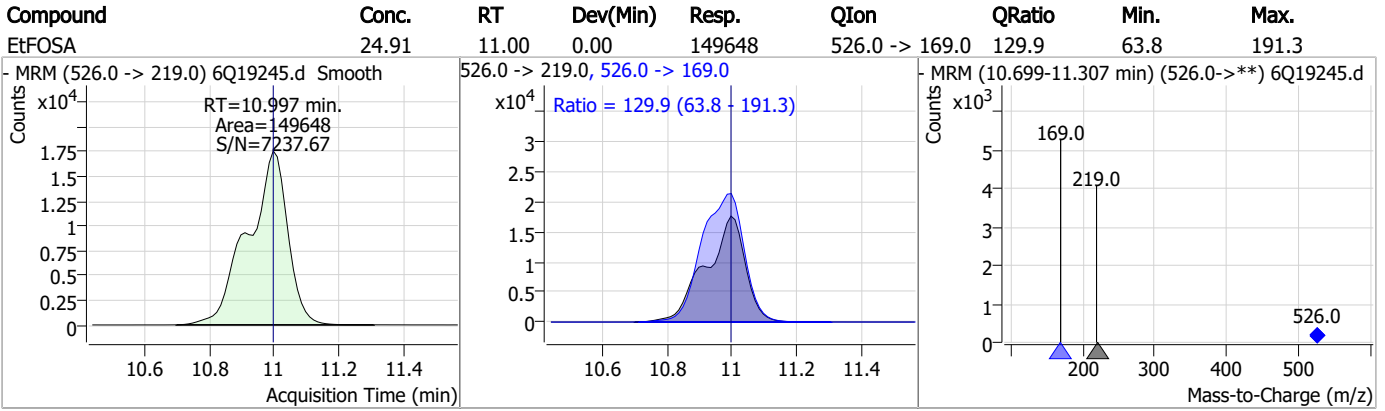
Perfluorinated Compounds by LC/MS/MS



7.7.7

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Perfluorinated Compounds by LC/MS/MS



7.7.7

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Manual Integration Approval Summary

Sample Number: S6Q287-IC287
Lab FileID: 6Q19245.D
Injection Time: 06/12/23 16:58

Method: EPA DRAFT 1633
Analyst approved: 06/13/23 11:17 Martha Valls
Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.63	Split peak
MeFOSE	24448-09-7		10.71	Split peak
MeFOSA	31506-32-8		10.78	Split peak

7.7.7.1

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtie
 06/13/23 13:30

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19246.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 5:12:24 PM
 Sample Name : ic287-7
 Vial : P1-A8
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	125745	10.00 µg/L	0.000
M5-PFPeA	4.548	268.3 -> 223.0	42802	5.00 µg/L	-0.012
M5-PFHxA	5.792	318.0 -> 273.0	47522	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	46843	2.50 µg/L	0.000
M8-PFOA	7.339	421.1 -> 376.0	72285	2.50 µg/L	0.000
M9-PFNA	7.882	472.1 -> 427.0	34107	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	19544	1.25 µg/L	0.000
M7-PFUnDA	8.853	570.0 -> 525.1	28278	1.25 µg/L	0.000
M2-PFDoDA	9.285	615.1 -> 570.0	22875	1.25 µg/L	0.000
M2-PFTeDA	10.012	715.2 -> 670.0	13417	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	25082	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	17616	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	10950	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	10476	2.50 µg/L	0.000
M2-4:2FTS	5.442	329.1 -> 80.9	2020	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	3030	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	3390	5.00 µg/L	0.000
M3-MeFOSAA	8.407	573.2 -> 419.0	24762	5.00 µg/L	0.000
M3-HFPO-DA	6.169	286.9 -> 168.9	31335	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	22145	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	121506	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	139492	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	11255	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	12359	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	14104	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	54135	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	8229	2.50 µg/L	0.000
13C4-PFOA	7.340	417.1 -> 372.0	75304	2.50 µg/L	0.000
13C2-PFDA	8.388	515.1 -> 470.1	28547	1.25 µg/L	0.000
13C5-PFNA	7.882	468.0 -> 423.0	42566	1.25 µg/L	0.000
13C2-PFHxA	5.792	315.1 -> 270.0	47605	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	2020	3.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 79.7%		
13C2-6:2FTS	7.113	429.1 -> 80.9	3030	3.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 79.6%		
13C2-8:2FTS	8.163	529.1 -> 80.9	3390	4.65 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C2-PFDoDA	9.285	615.1 -> 570.0	22875	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C2-PFTeDA	10.012	715.2 -> 670.0	13417	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C3-PFBS	5.746	302.1 -> 79.9	17616	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C3-PFHxS	7.478	402.1 -> 79.9	10950	2.51 µg/L	0.000

7.7.8
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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 = 100.2%	
13C4-PFBA	3.085	216.8 -> 171.9	125745	9.89 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C4-PFHpA	6.707	367.1 -> 322.0	46843	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C5-PFHxA	5.792	318.0 -> 273.0	47522	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C5-PFPeA	4.548	268.3 -> 223.0	42802	4.65 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C6-PFDA	8.387	519.1 -> 474.1	19544	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C7-PFUnDA	8.853	570.0 -> 525.1	28278	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-FOSA	9.674	506.1 -> 77.8	25082	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C8-PFOA	7.339	421.1 -> 376.0	72285	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C8-PFOS	8.563	507.1 -> 79.9	10476	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C9-PFNA	7.882	472.1 -> 427.0	34107	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.0%	
d3-MeFOSAA	8.407	573.2 -> 419.0	24762	4.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	31335	9.60 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
d3-MeFOSA	10.775	515.0 -> 219.0	12359	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
d5-EtFOSAA	8.615	589.2 -> 419.0	22145	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d7-MeFOSE	10.685	623.2 -> 58.9	121506	23.47 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
d9-EtFOSE	10.930	639.2 -> 58.9	139492	21.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.3%	
d5-EtFOSA	10.996	531.1 -> 219.0	11255	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
Target Compounds					QValue
4:2FTS	5.443	327.1 -> 307.0	319247	91.20 µg/L	97
		327.1 -> 80.9	125033		
6:2FTS	7.113	427.1 -> 407.0	344298	94.06 µg/L	93
		427.1 -> 80.9	111367		
8:2FTS	8.164	527.1 -> 507.0	190812	84.63 µg/L	99
		527.1 -> 80.8	73609		
EtFOSAA	8.629	584.2 -> 419.1	85532	23.26 µg/L	m 88
		584.2 -> 526.0	50194		
FOSA	9.677	498.1 -> 77.9	248853	24.18 µg/L	99
		498.1 -> 478.0	7683		
MeFOSAA	8.421	570.1 -> 419.0	149422	24.82 µg/L	m 97
		570.1 -> 483.0	31547		
PFBA	3.093	212.8 -> 168.9	496554	99.03 µg/L	100
PFBS	5.747	298.7 -> 79.9	163771	21.19 µg/L	93
		298.7 -> 98.8	62896		
PFDA	8.388	512.9 -> 469.0	689058	23.58 µg/L	99
		512.9 -> 219.0	105749		
PFDoDA	9.285	613.1 -> 569.0	445344	23.71 µg/L	100
		613.1 -> 319.0	74169		
PFDS	9.450	599.0 -> 79.9	72760	23.01 µg/L	97

7.7.8

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	34355			
PFHpA	6.708	363.1 -> 319.0	566096	22.57	µg/L	100
		363.1 -> 169.0	91539			
PFHpS	8.046	449.0 -> 79.9	142486	22.59	µg/L	99
		449.0 -> 98.9	68425			
PFHxA	5.795	313.0 -> 269.0	493435	25.92	µg/L	98
		313.0 -> 118.9	23571			
PFHxS	7.479	398.7 -> 79.9	143747	21.83	µg/L	m 95
		398.7 -> 98.9	71203			
PFNA	7.883	463.0 -> 419.0	726994	23.23	µg/L	99
		463.0 -> 219.0	131137			
PFNS	9.041	548.8 -> 79.9	124425	22.46	µg/L	96
		548.8 -> 98.9	63757			
PFOA	7.341	413.0 -> 369.0	930123	25.09	µg/L	99
		413.0 -> 169.0	159369			
PFOS	8.564	498.9 -> 79.9	129743	21.02	µg/L	m 97
		498.9 -> 98.8	64476			
PFPeA	4.551	263.0 -> 219.0	611757	48.57	µg/L	100
PFPeS	6.785	349.1 -> 79.9	140718	23.24	µg/L	96
		349.1 -> 98.9	60735			
PFTeDA	10.000	713.1 -> 669.0	366063	22.82	µg/L	98
		713.1 -> 168.9	30538			
PFTrDA	9.669	663.0 -> 619.0	436481	24.97	µg/L	95
		663.0 -> 168.9	51992			
PFUnDA	8.854	563.1 -> 519.0	473466	22.82	µg/L	98
		563.1 -> 269.1	83481			
11CI-PF3OUdS	9.721	630.9 -> 450.9	641838	43.46	µg/L	97
		632.9 -> 452.9	202733			
9CI-PF3ONS	8.906	530.8 -> 351.0	1102872	44.71	µg/L	96
		532.8 -> 353.0	356652			
ADONA	6.959	376.9 -> 250.9	2383560	44.97	µg/L	96
		376.9 -> 84.8	613667			
HFPO-DA	6.169	284.9 -> 168.9	165410	51.19	µg/L	97
		284.9 -> 184.9	19792			
3:3FTCA	3.946	241.0 -> 177.0	107307	124.59	µg/L	99
		241.0 -> 117.0	13858			
5:3FTCA	6.361	341.0 -> 237.1	2202827	596.63	µg/L	95
		341.0 -> 217.0	1552464			
7:3FTCA	7.736	441.0 -> 316.9	1557945	589.60	µg/L	98
		441.0 -> 336.9	3662129			
EtFOSA	10.997	526.0 -> 219.0	288600	47.87	µg/L	m 91
		526.0 -> 169.0	397146			
EtFOSE	10.943	630.0 -> 58.9	877080	119.08	µg/L	100
MeFOSA	10.777	511.9 -> 219.0	247112	45.61	µg/L	m 96
		511.9 -> 169.0	355015			
MeFOSE	10.697	616.1 -> 58.9	628136	118.11	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	35205	22.37	µg/L	99
		699.1 -> 98.8	20107			
NFDHA	5.673	295.0 -> 201.0	119320	49.51	µg/L	93
		295.0 -> 84.9	30005			
PFMBA	4.988	279.0 -> 85.1	444098	49.15	µg/L	100
PFMPA	3.667	229.0 -> 84.9	347368	49.48	µg/L	100
PFEESA	6.288	314.8 -> 134.9	1144537	48.85	µg/L	99
		314.8 -> 82.9	40896			

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

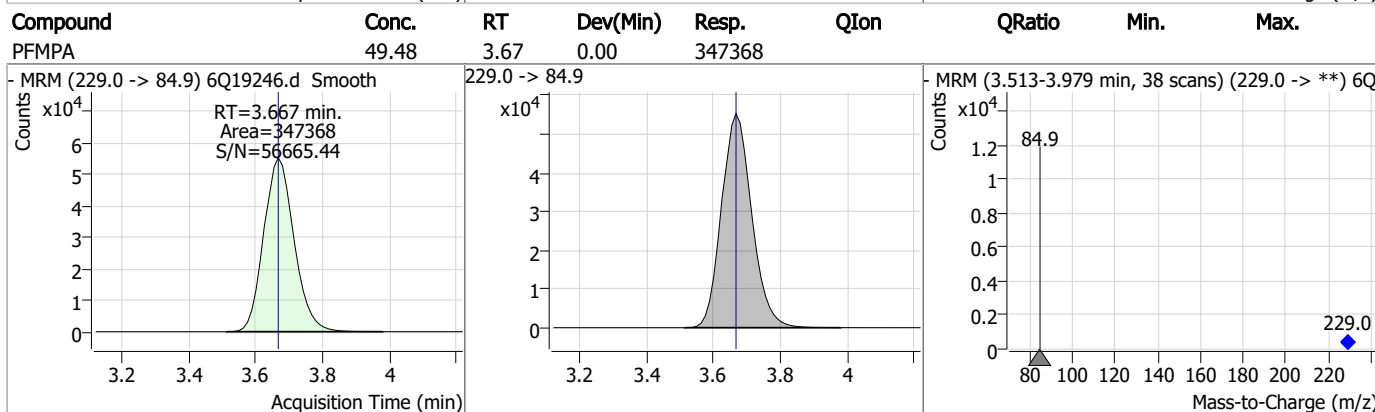
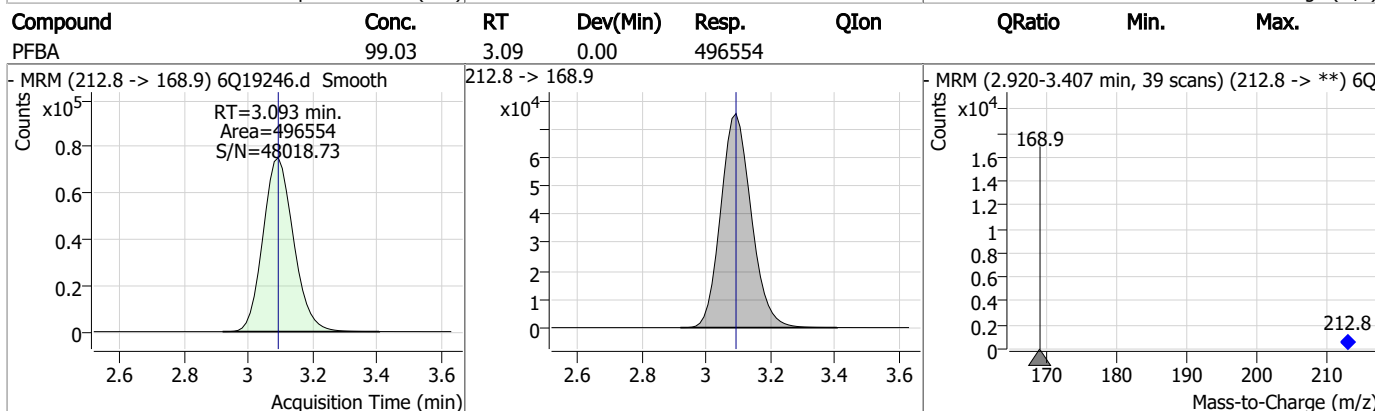
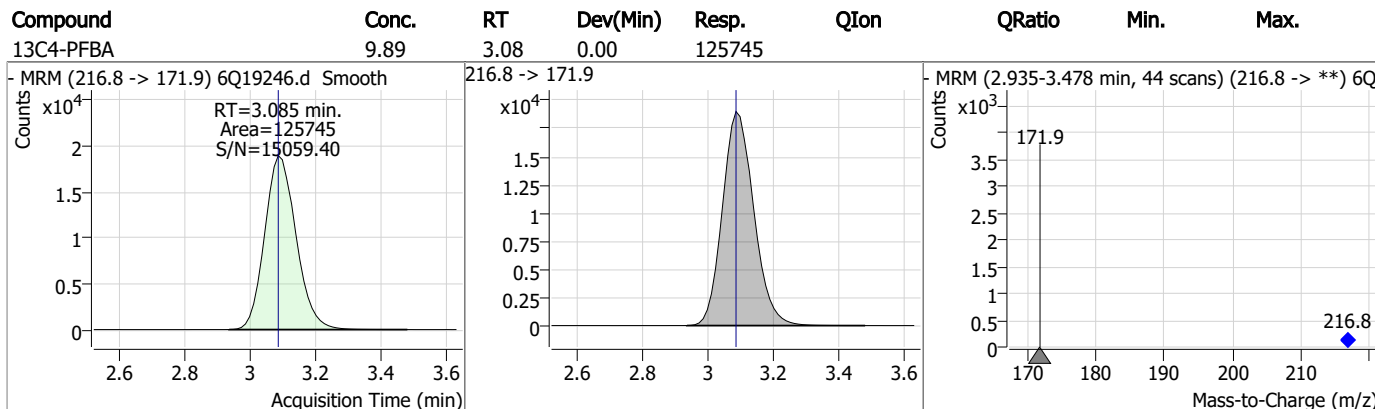
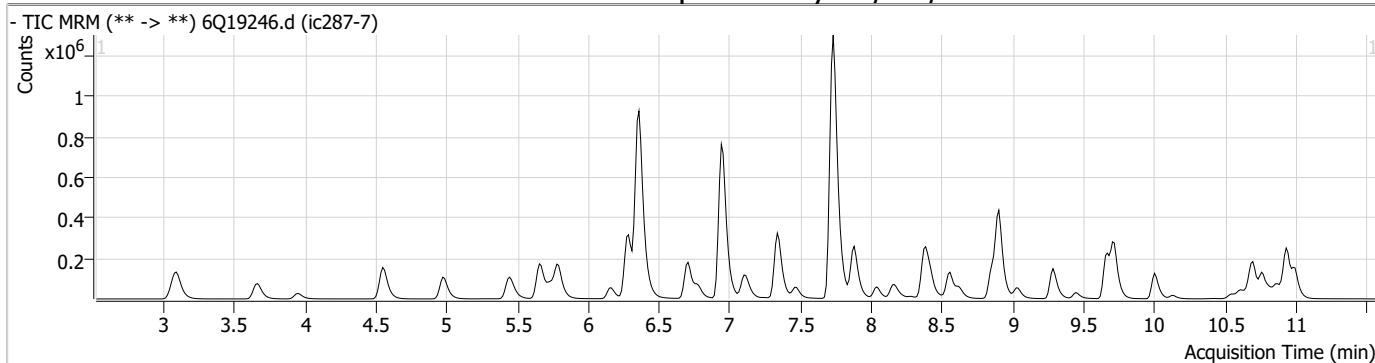
Perfluorinated Compounds by LC/MS/MS

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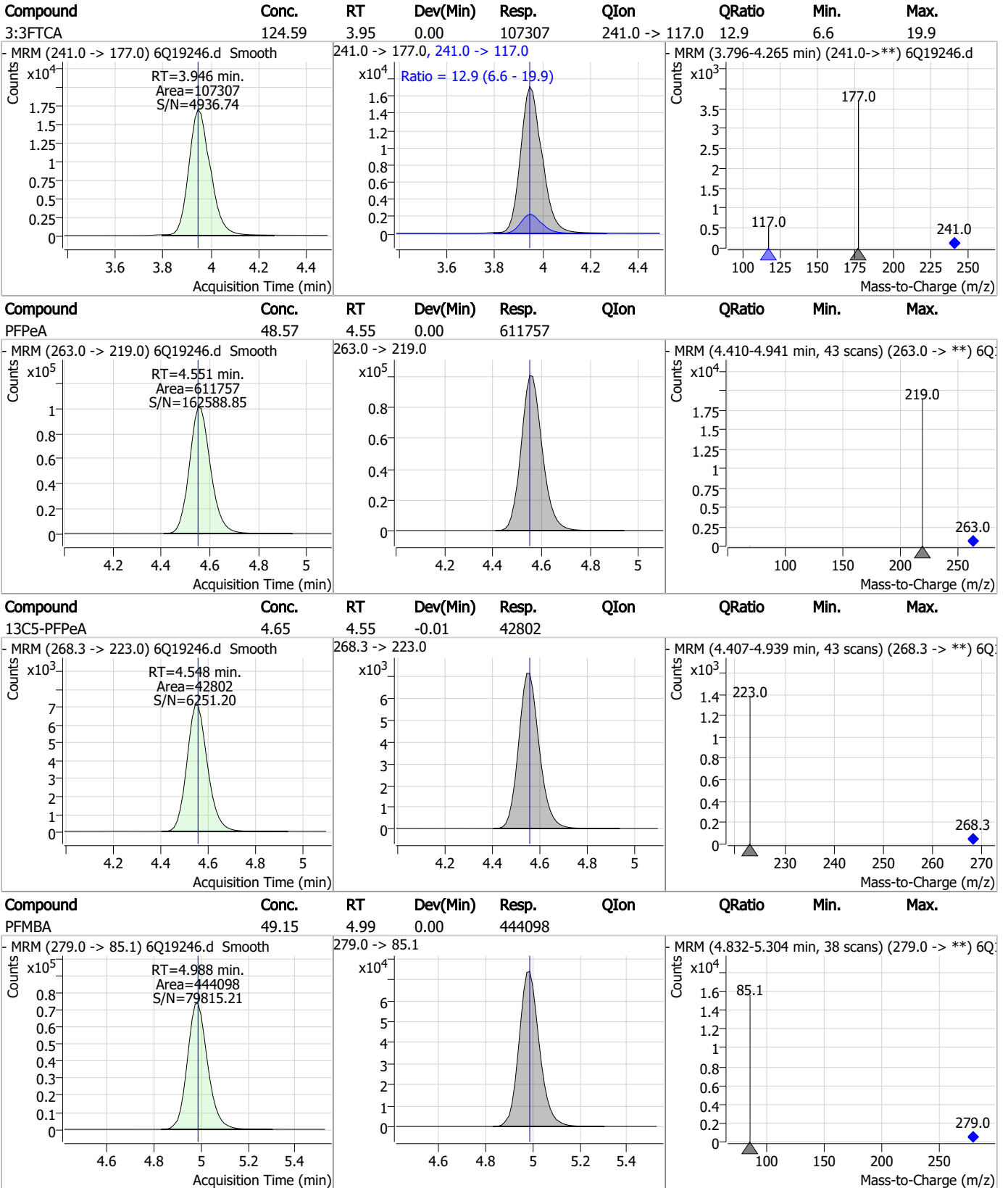


Perfluorinated Compounds by LC/MS/MS



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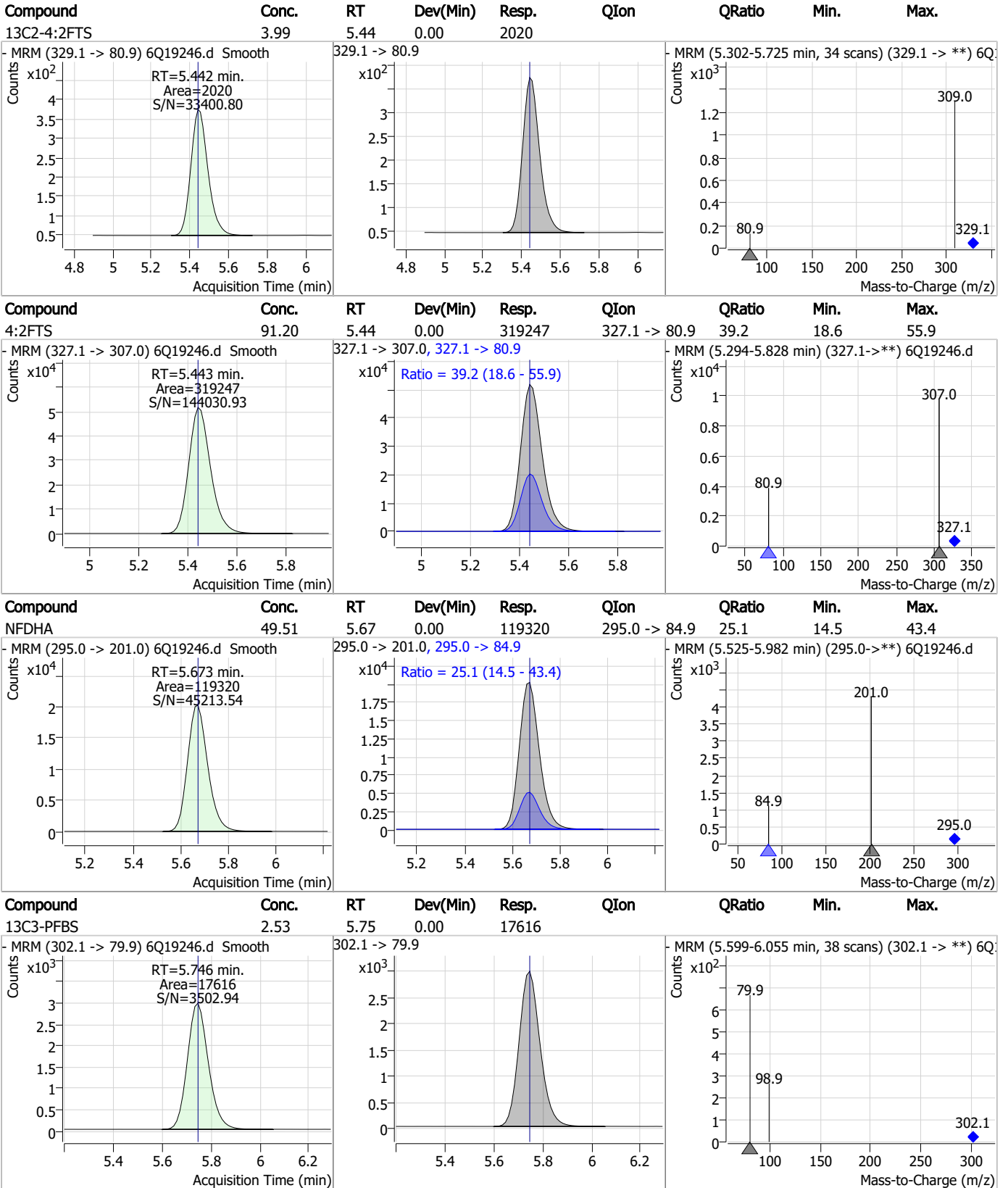
Perfluorinated Compounds by LC/MS/MS



7.7.8

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Perfluorinated Compounds by LC/MS/MS

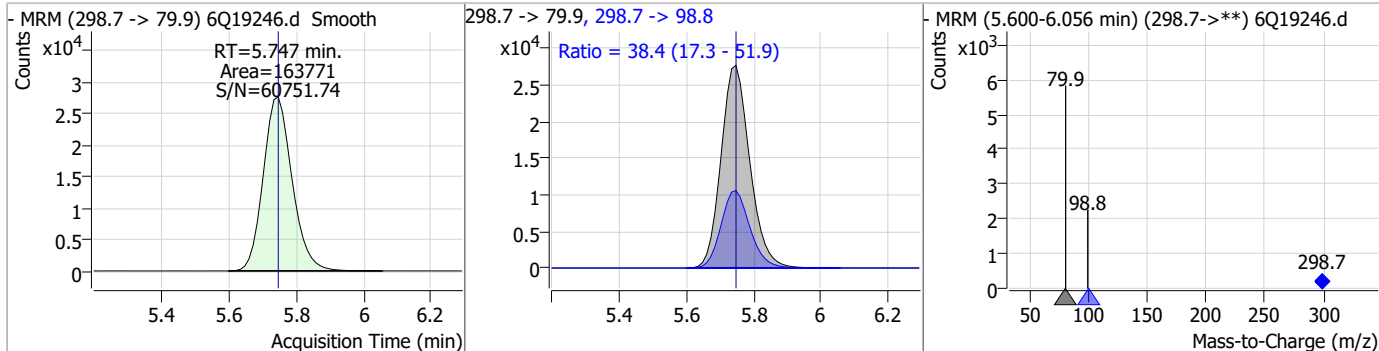


7.7.8

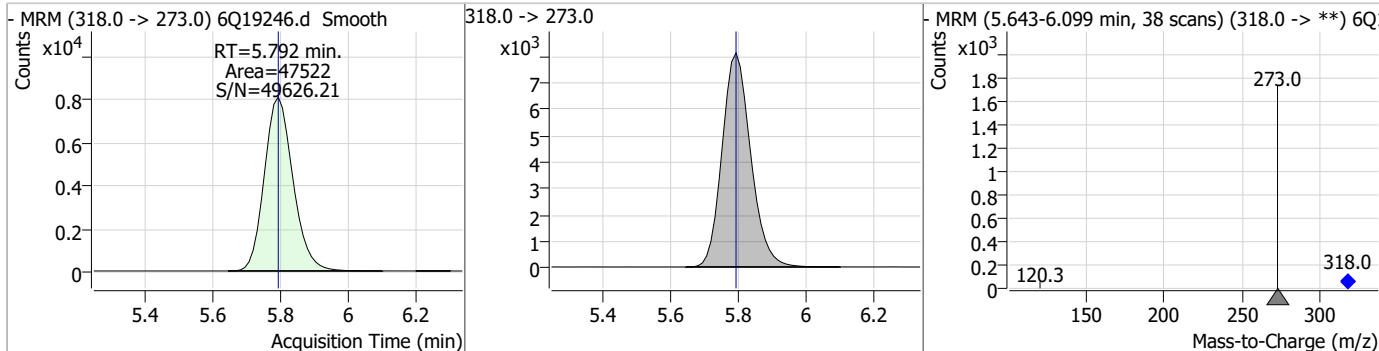
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Perfluorinated Compounds by LC/MS/MS

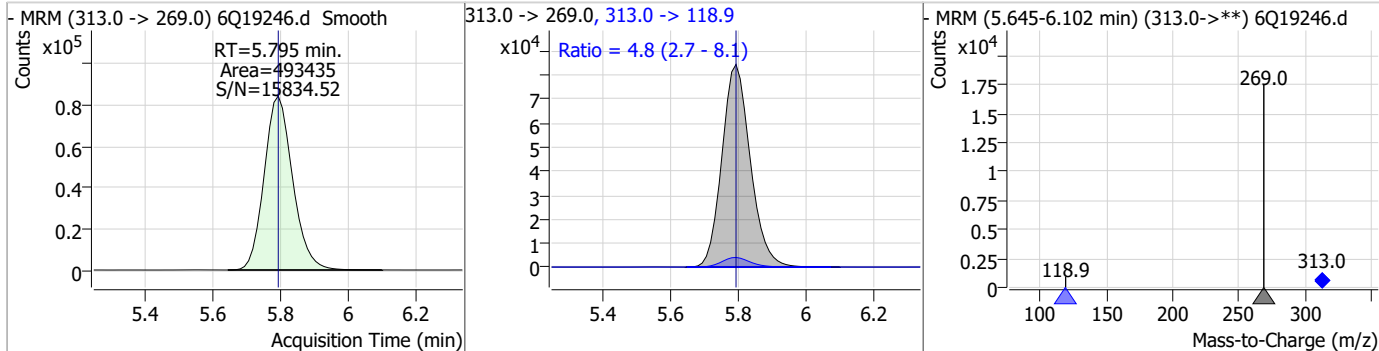
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	21.19	5.75	0.00	163771	298.7 -> 98.8	38.4	17.3	51.9



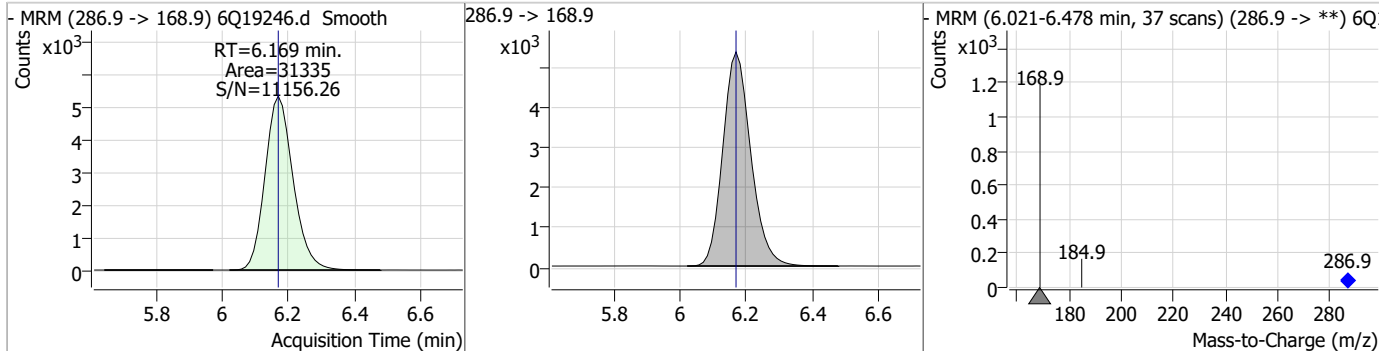
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.31	5.79	0.00	47522				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	25.92	5.79	0.00	493435	313.0 -> 118.9	4.8	2.7	8.1



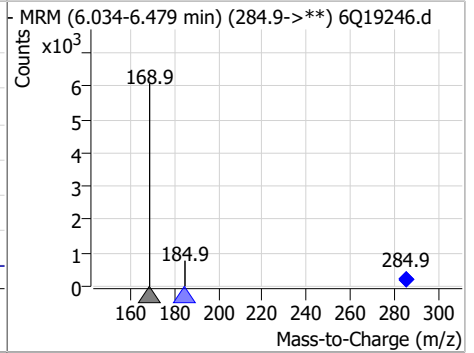
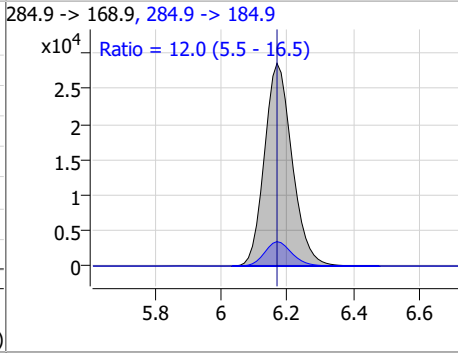
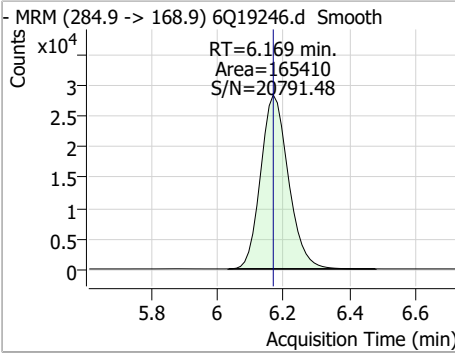
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.60	6.17	0.00	31335				



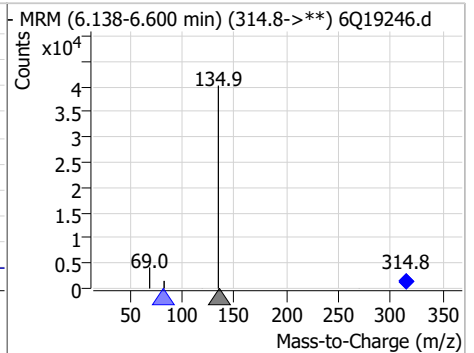
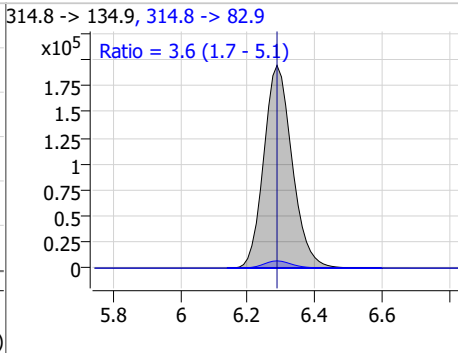
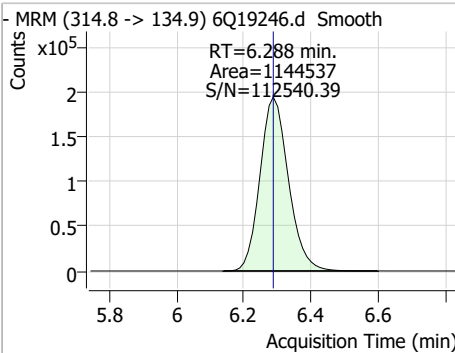
7.7.8
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Perfluorinated Compounds by LC/MS/MS

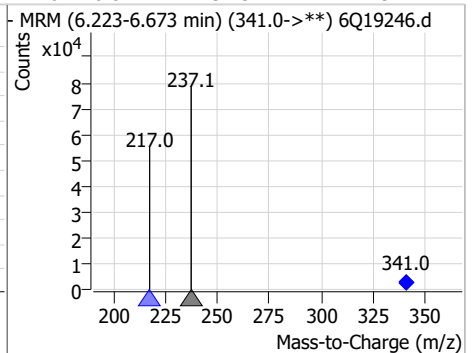
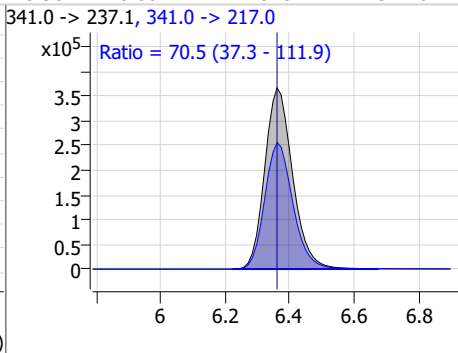
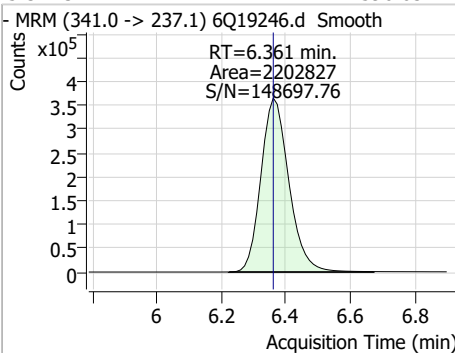
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	51.19	6.17	0.00	165410	284.9 -> 184.9	12.0	5.5	16.5



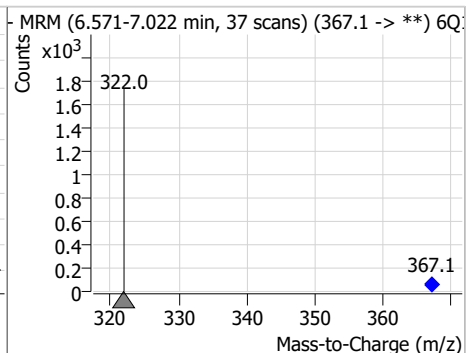
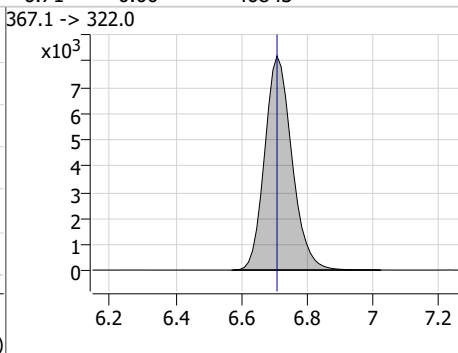
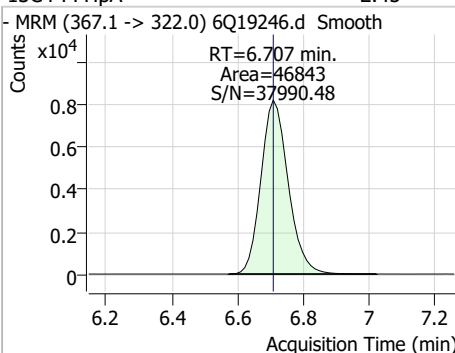
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	48.85	6.29	0.00	1144537	314.8 -> 82.9	3.6	1.7	5.1



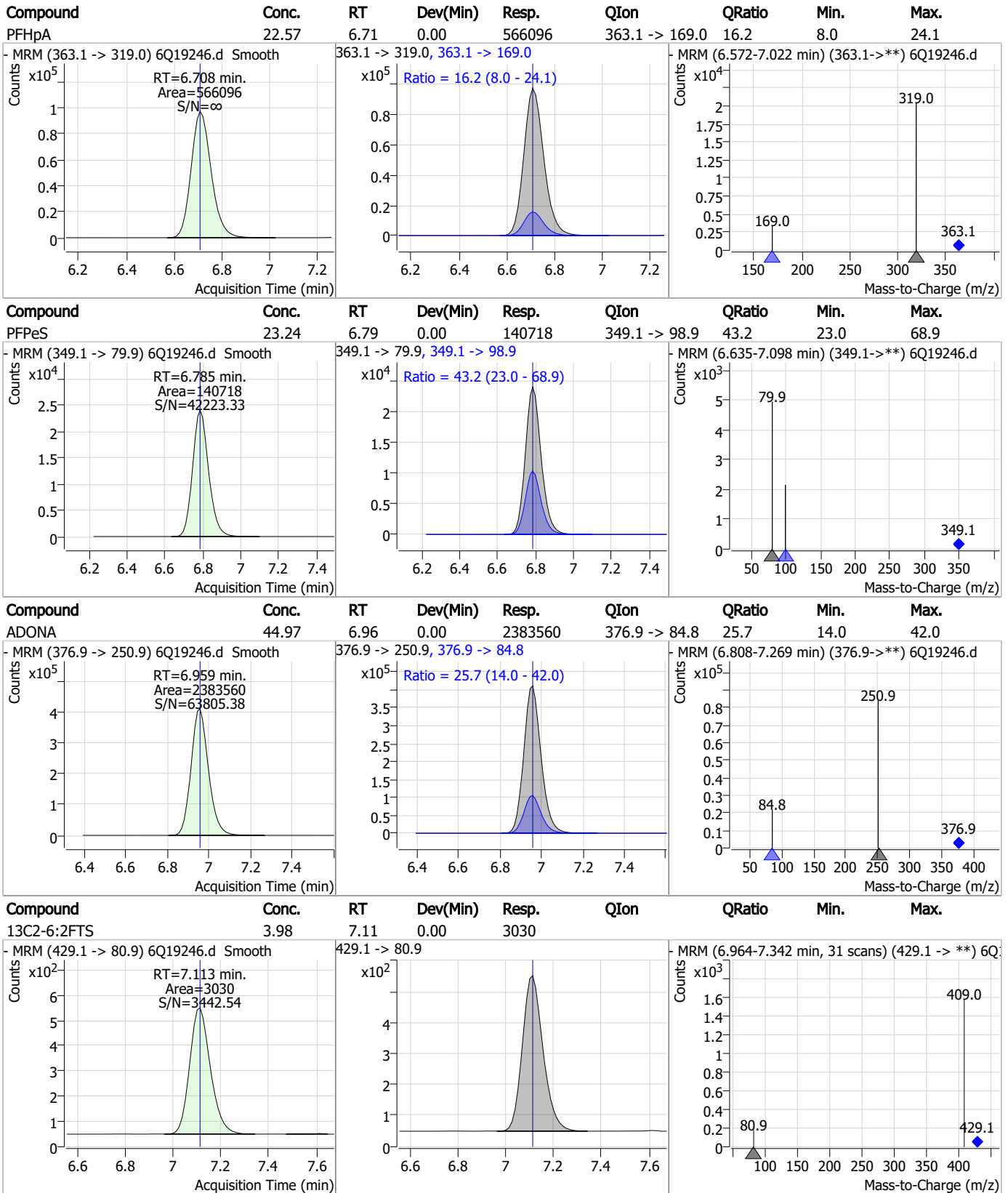
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	596.63	6.36	0.00	2202827	341.0 -> 217.0	70.5	37.3	111.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.45	6.71	0.00	46843	367.1 -> 322.0			



Perfluorinated Compounds by LC/MS/MS

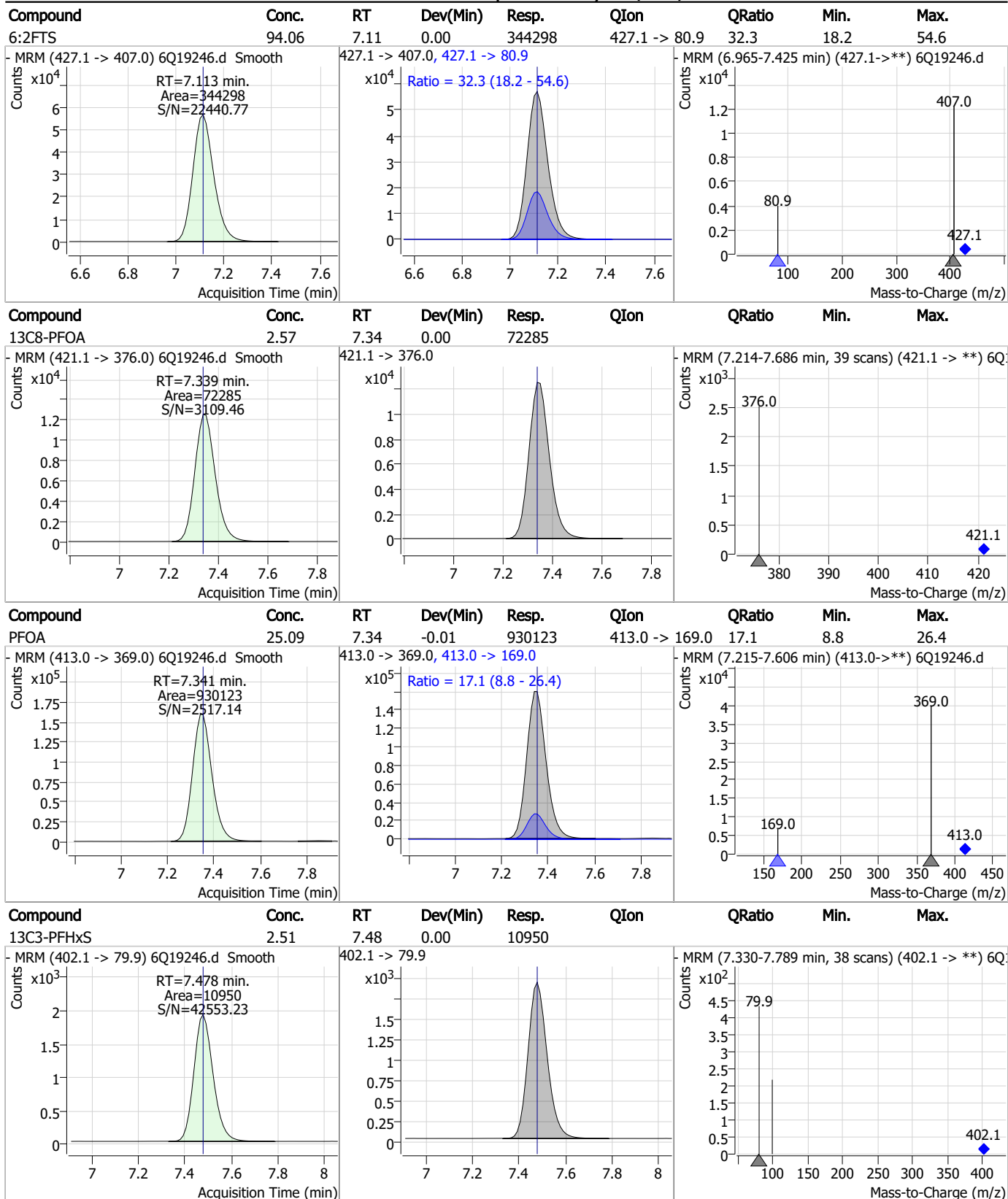


7.7.8

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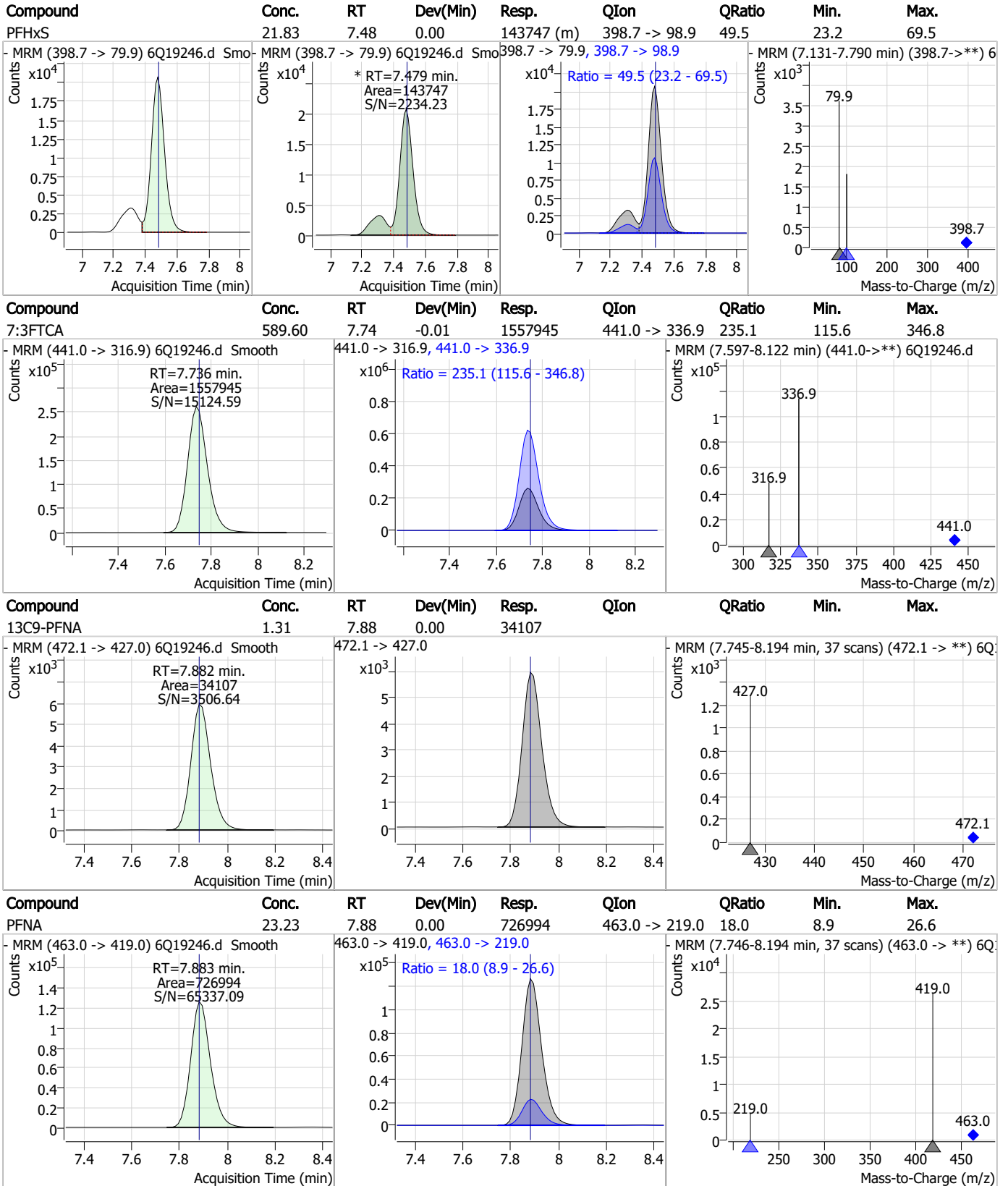
Perfluorinated Compounds by LC/MS/MS



7.7.8
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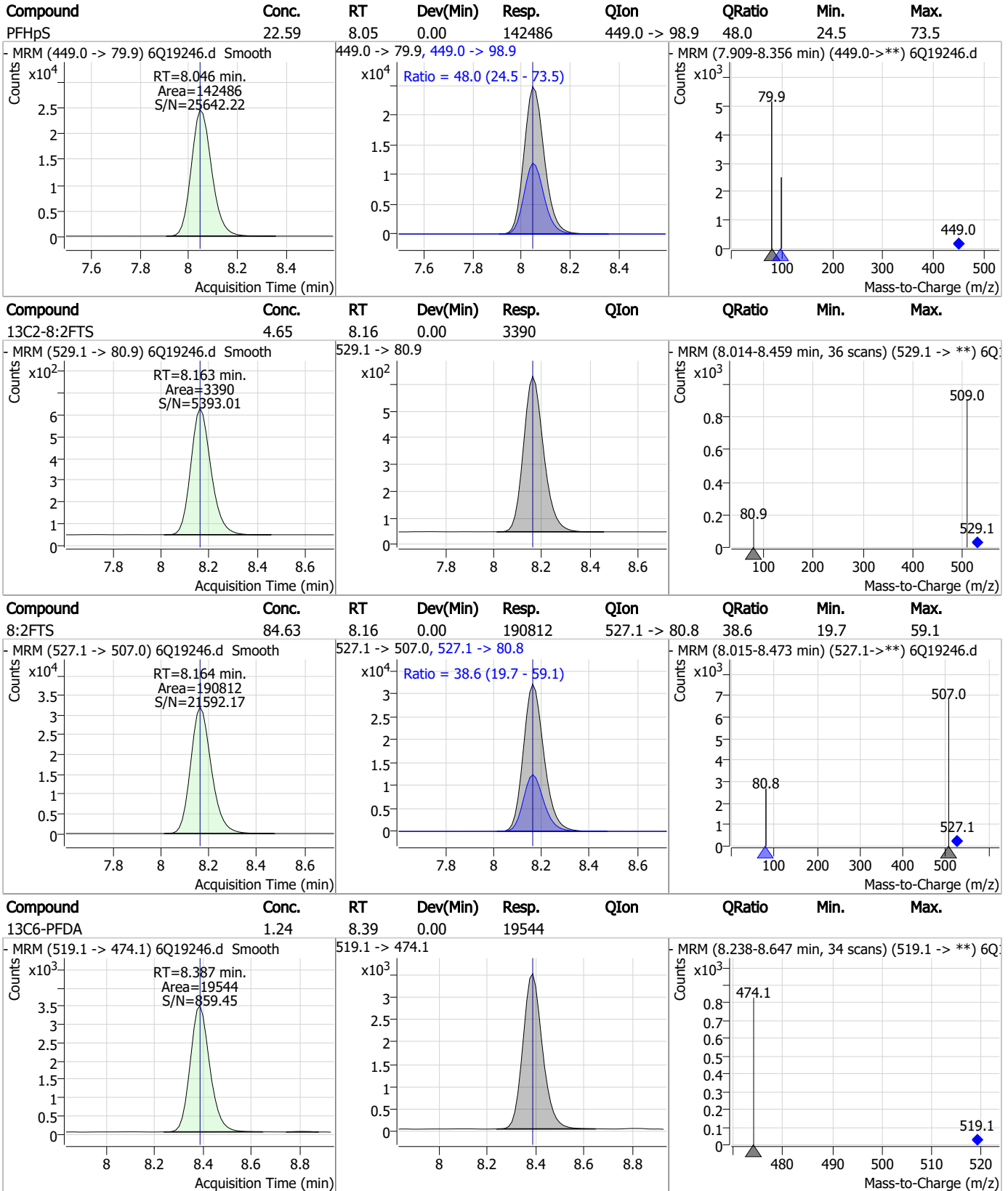
Perfluorinated Compounds by LC/MS/MS



7.7.8

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Perfluorinated Compounds by LC/MS/MS

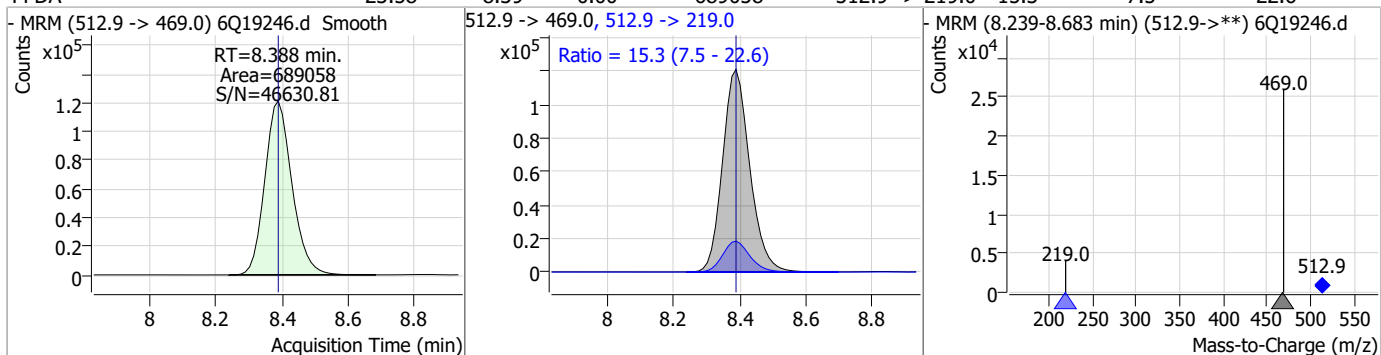


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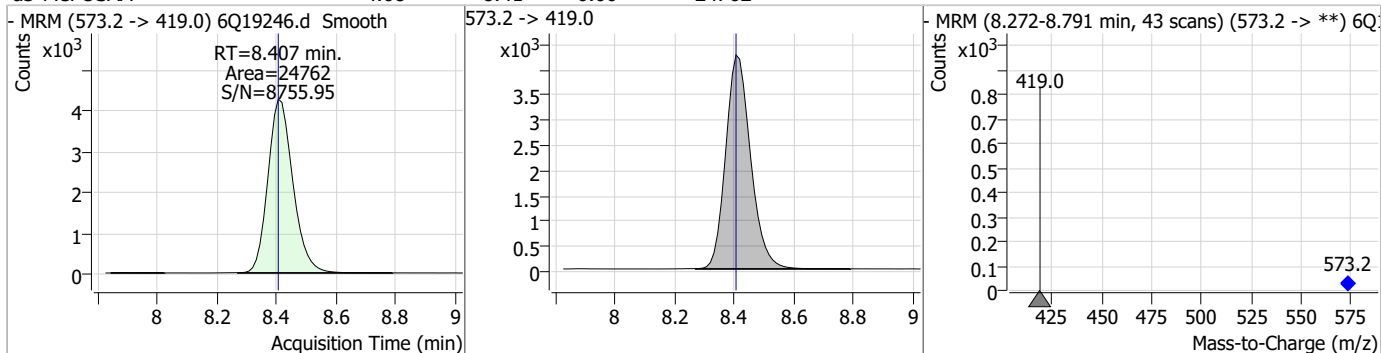
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Perfluorinated Compounds by LC/MS/MS

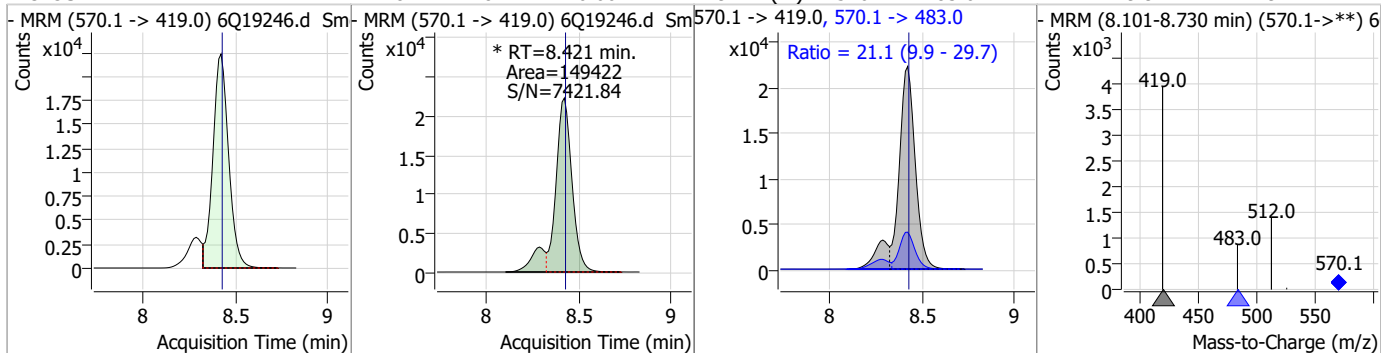
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	23.58	8.39	0.00	689058	512.9 -> 219.0	15.3	7.5	22.6



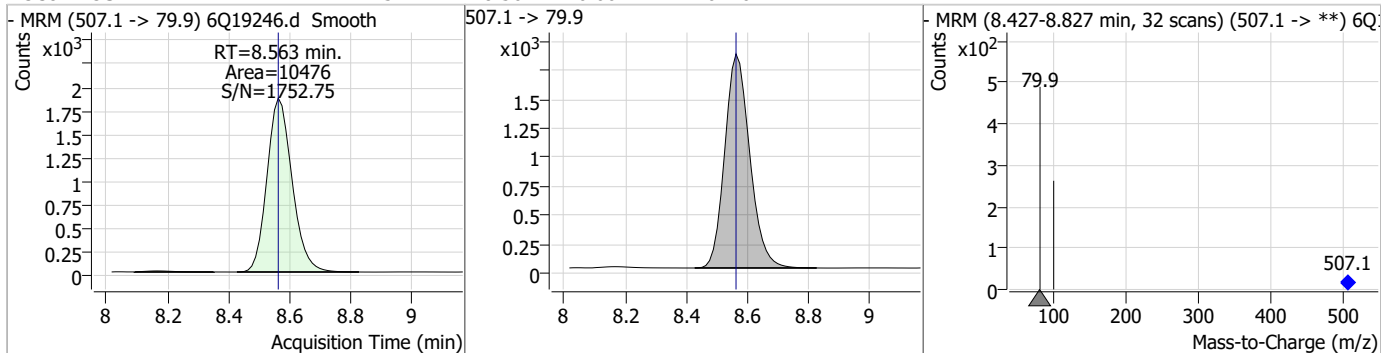
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.68	8.41	0.00	24762				



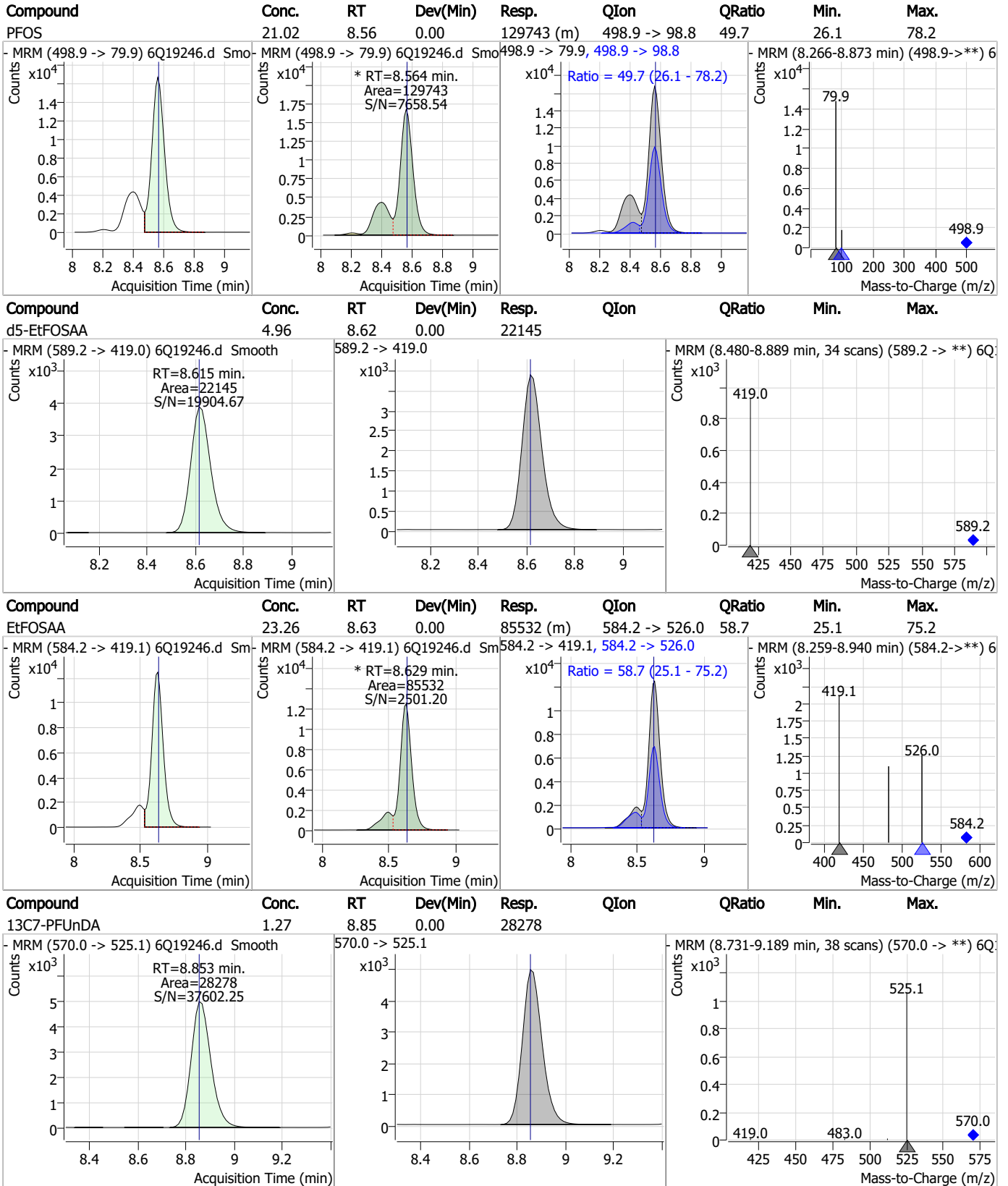
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	24.82	8.42	0.00	149422 (m)	570.1 -> 483.0	21.1	9.9	29.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.54	8.56	0.00	10476				



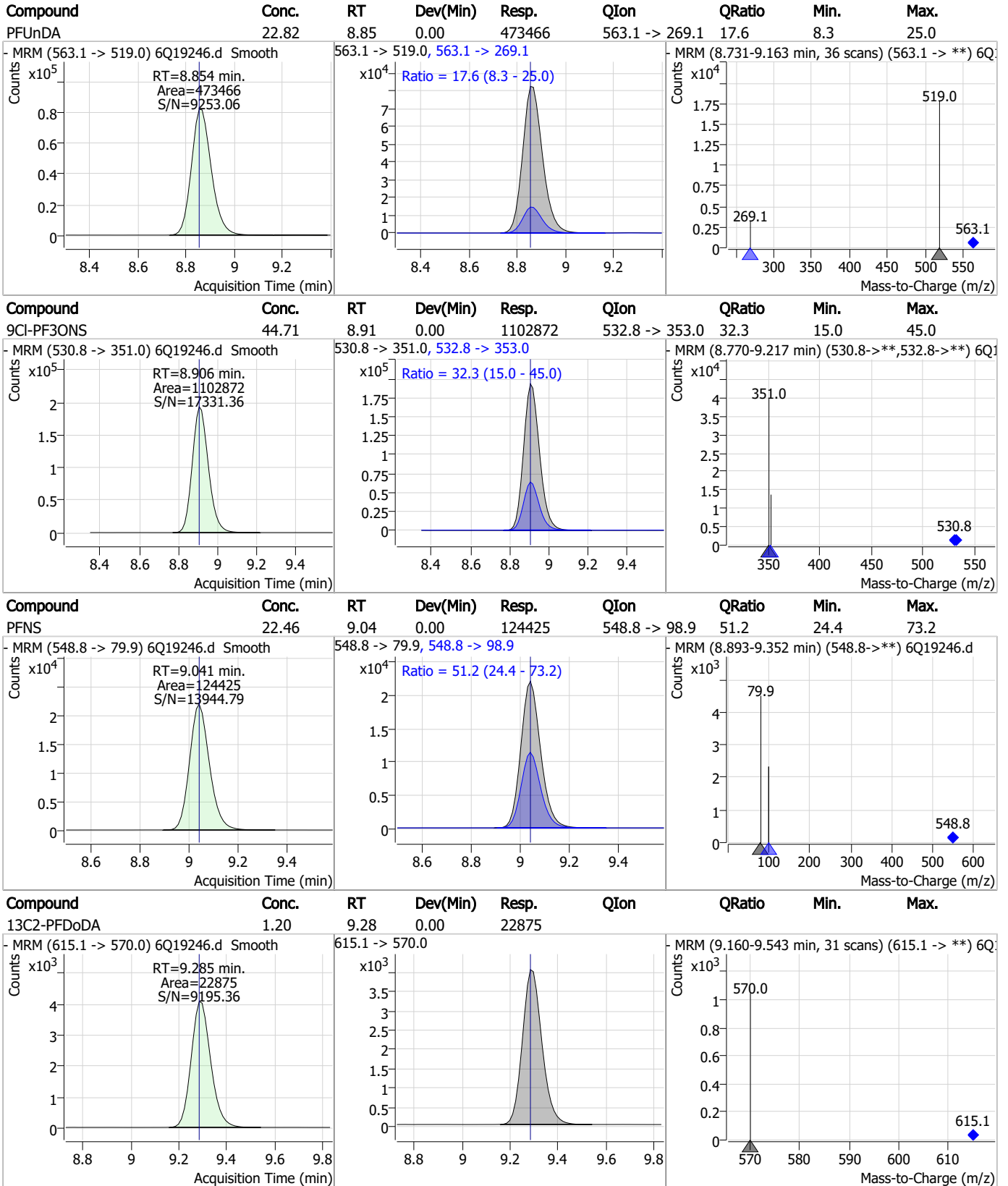
Perfluorinated Compounds by LC/MS/MS



7.7.8

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Perfluorinated Compounds by LC/MS/MS

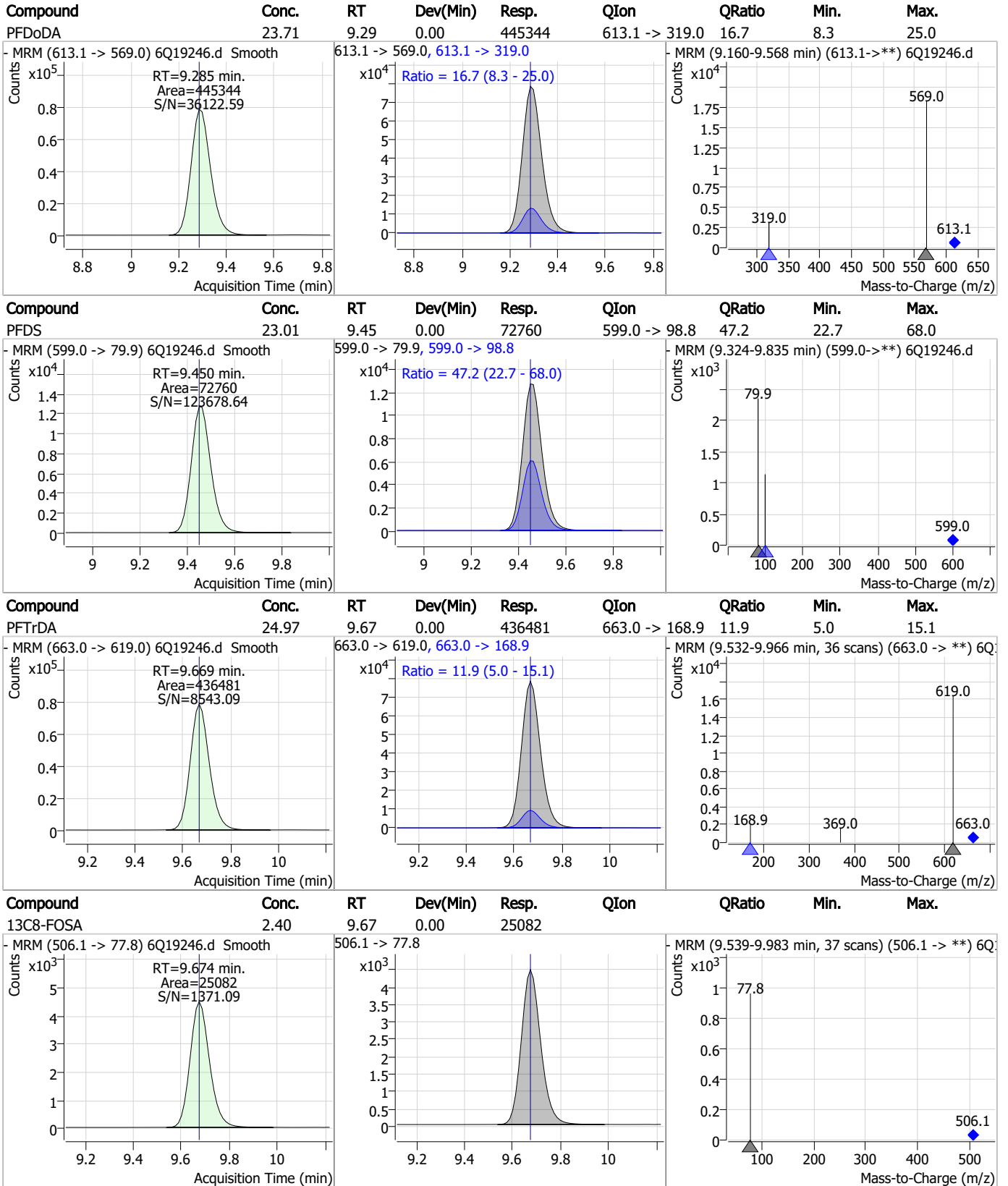


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Perfluorinated Compounds by LC/MS/MS

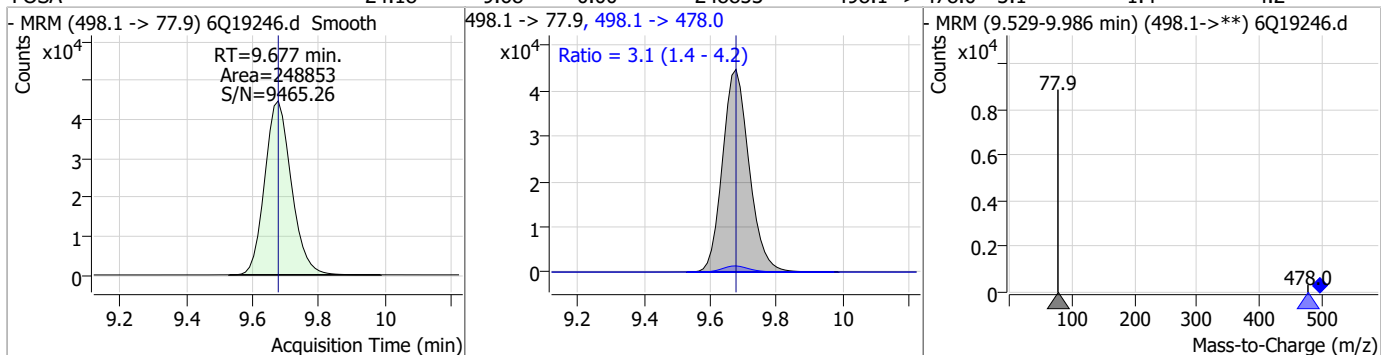


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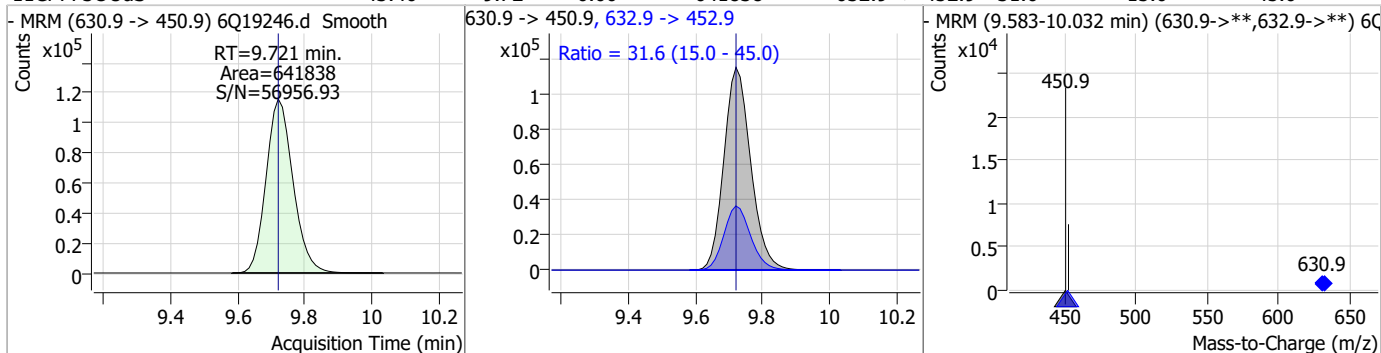
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Perfluorinated Compounds by LC/MS/MS

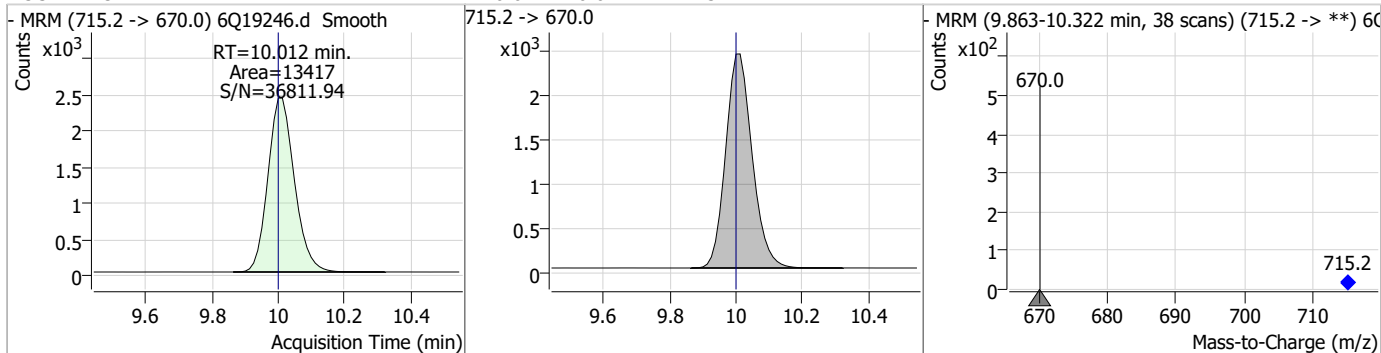
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	24.18	9.68	0.00	248853	498.1 -> 478.0	3.1	1.4	4.2



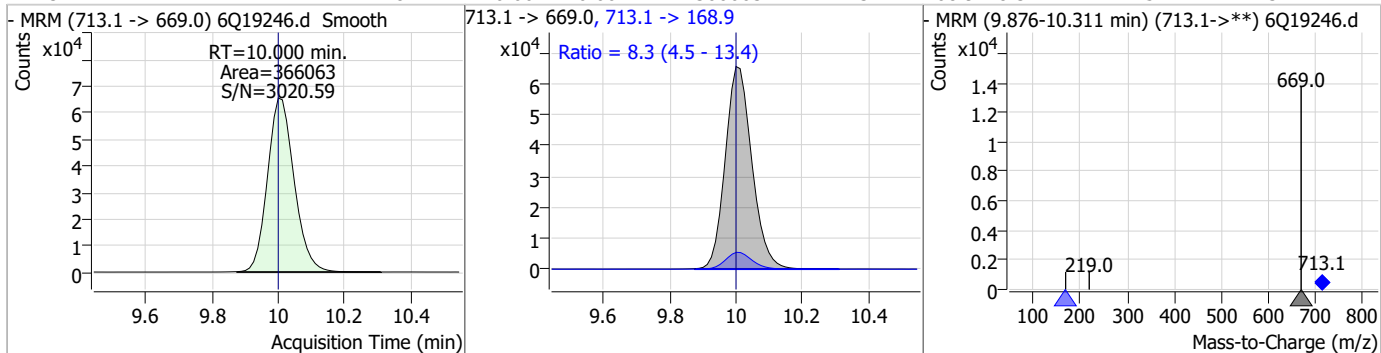
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	43.46	9.72	0.00	641838	632.9 -> 452.9	31.6	15.0	45.0



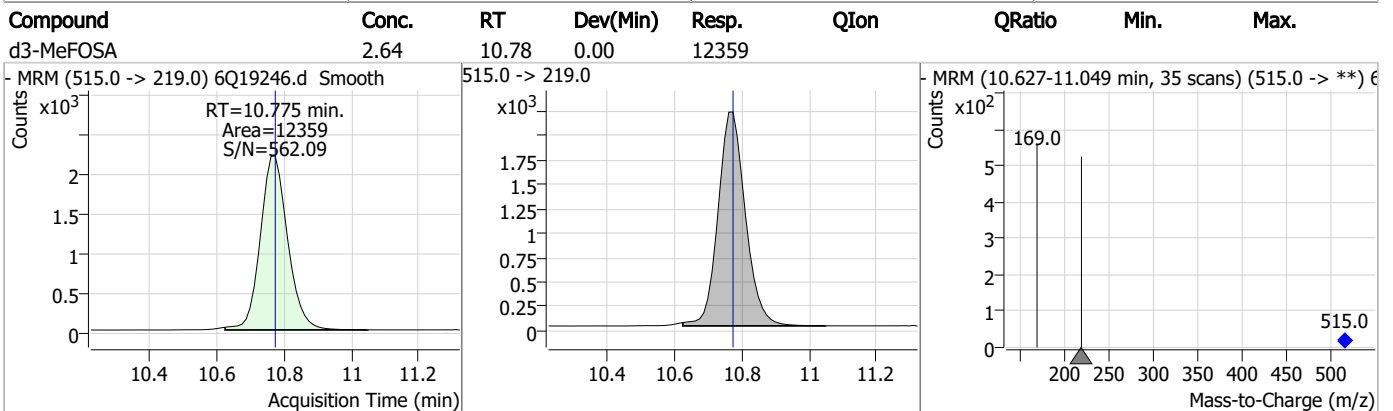
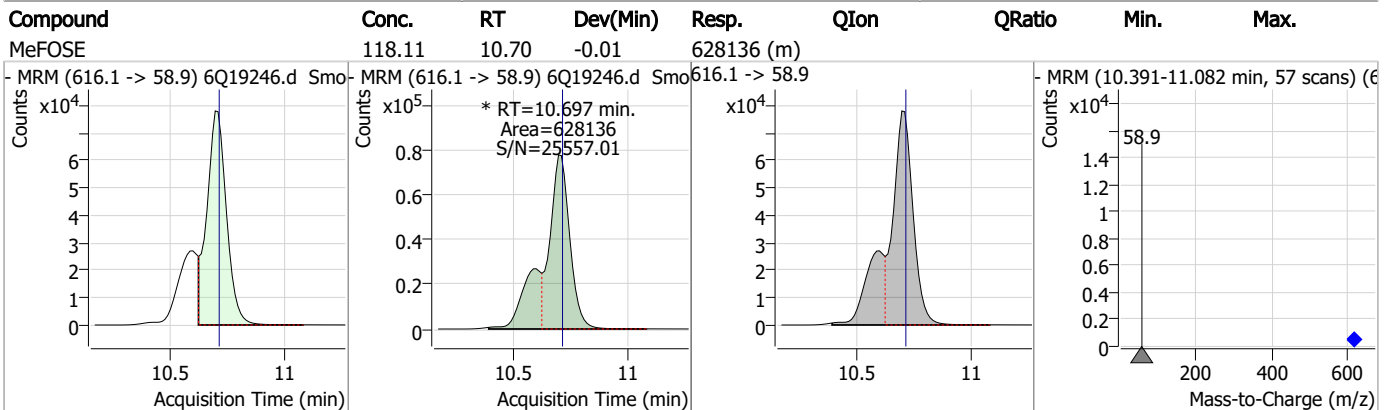
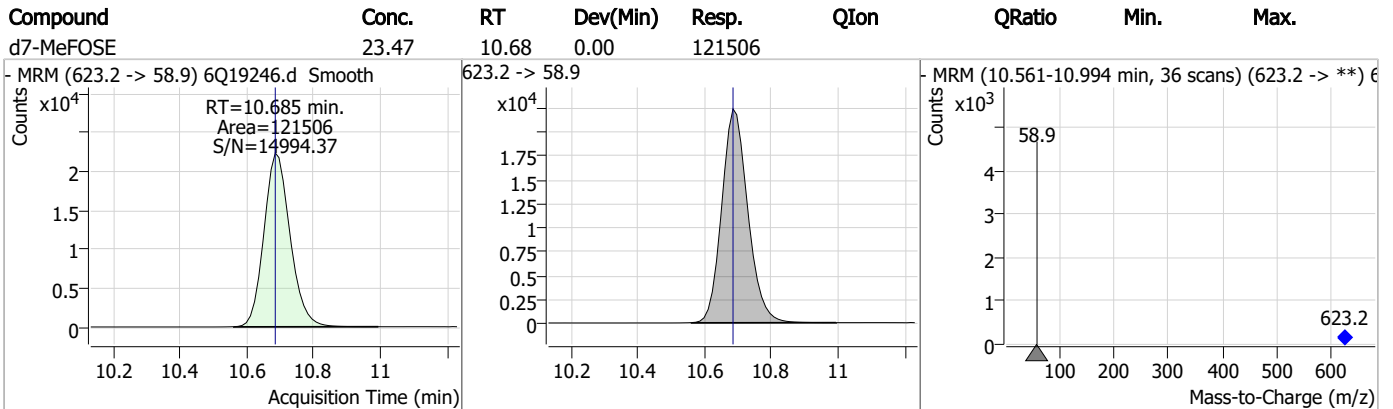
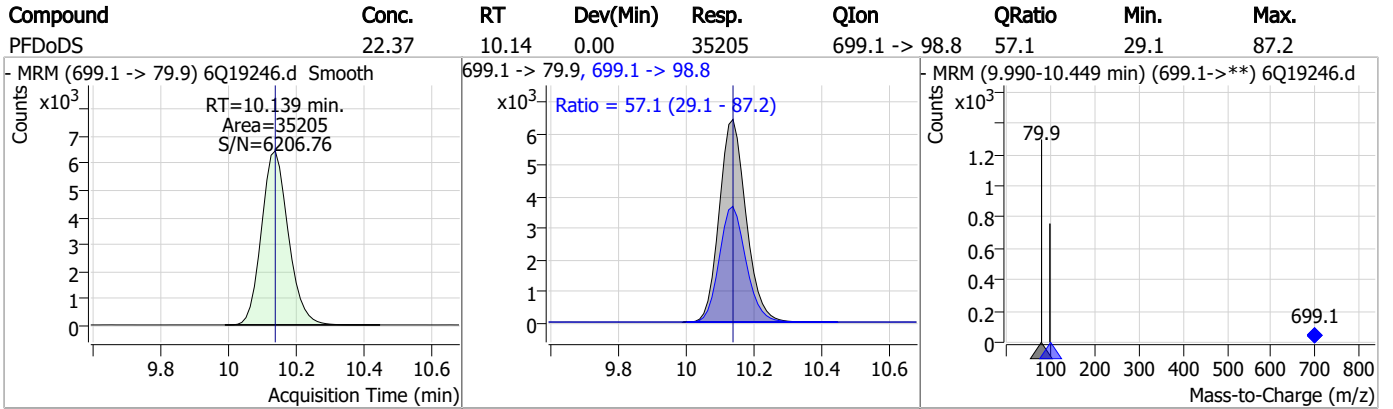
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	10.01	0.01	13417	715.2 -> 670.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	22.82	10.00	0.00	366063	713.1 -> 168.9	8.3	4.5	13.4

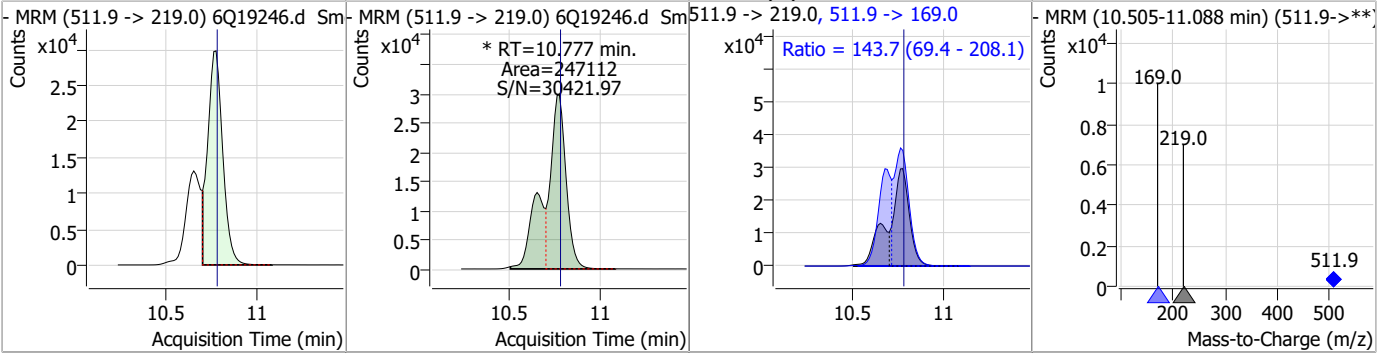


Perfluorinated Compounds by LC/MS/MS

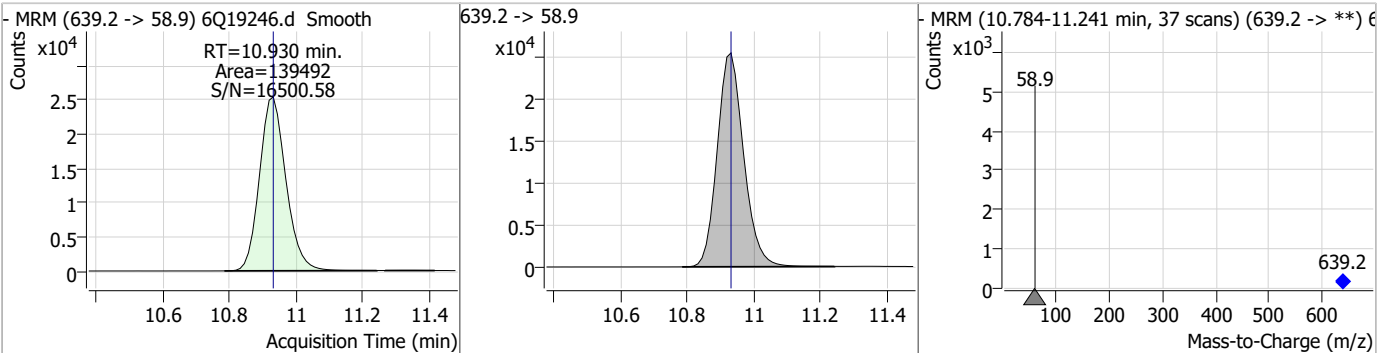


Perfluorinated Compounds by LC/MS/MS

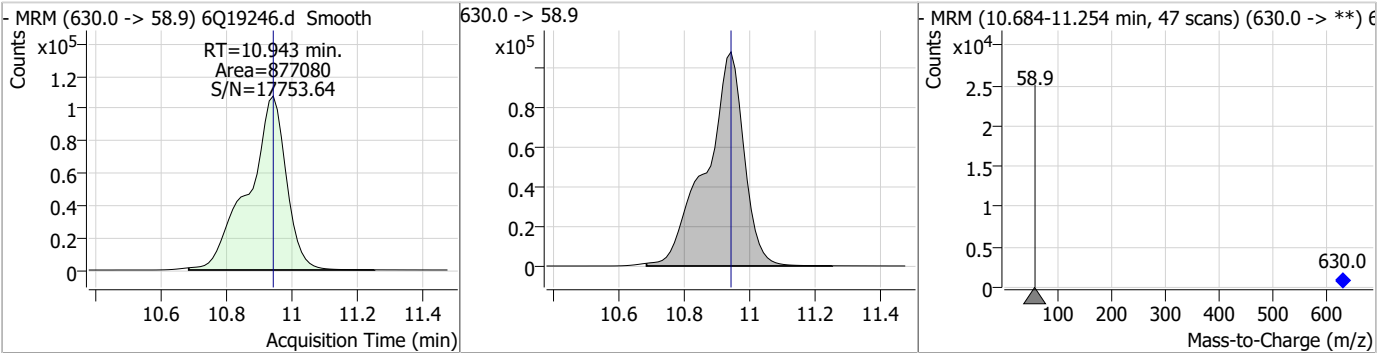
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	45.61	10.78	0.00	247112 (m)	511.9 -> 169.0	143.7	69.4	208.1



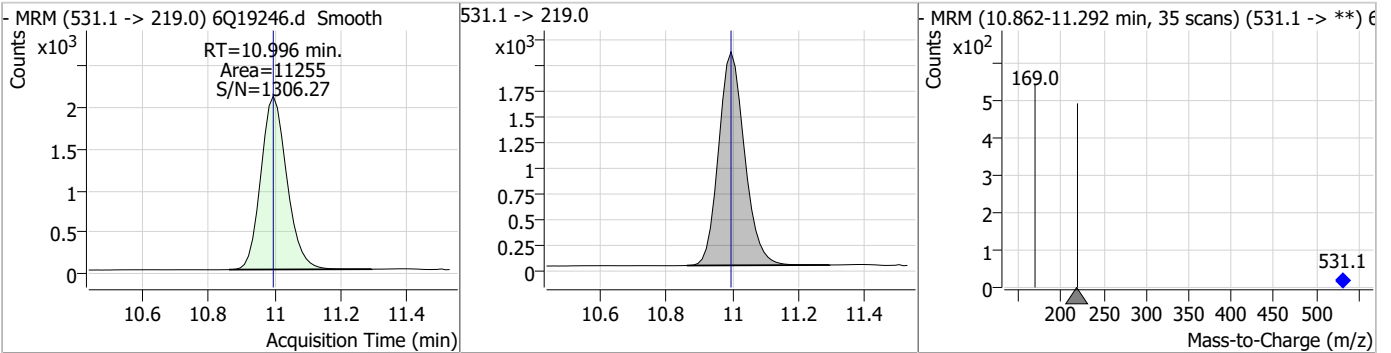
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	21.58	10.93	0.00	139492				



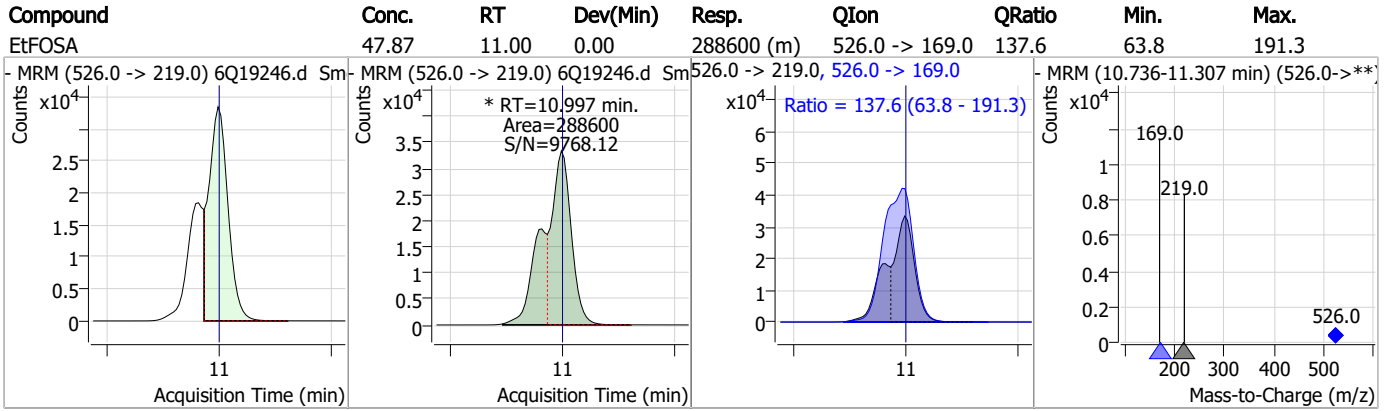
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	119.08	10.94	0.00	877080				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.48	11.00	0.00	11255				



Perfluorinated Compounds by LC/MS/MS



7.7.8

7

Manual Integration Approval Summary

Sample Number: S6Q287-IC287 Method: EPA DRAFT 1633
Lab FileID: 6Q19246.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 17:12 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.63	Split peak
MeFOSE	24448-09-7		10.70	Split peak
MeFOSA	31506-32-8		10.78	Split peak
EtFOSA	4151-50-2		11.00	Split peak

7.7.8.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19247.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 5:26:22 PM
 Sample Name : ic287-8
 Vial : P1-A9
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	107551	10.00 µg/L	0.000
M5-PFPeA	4.548	268.3 -> 223.0	38053	5.00 µg/L	-0.012
M5-PFHxA	5.792	318.0 -> 273.0	45239	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	42014	2.50 µg/L	0.000
M8-PFOA	7.339	421.1 -> 376.0	66044	2.50 µg/L	0.000
M9-PFNA	7.882	472.1 -> 427.0	30093	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	15930	1.25 µg/L	0.000
M7-PFUnDA	8.853	570.0 -> 525.1	22156	1.25 µg/L	0.000
M2-PFDoDA	9.285	615.1 -> 570.0	21945	1.25 µg/L	0.000
M2-PFTeDA	10.012	715.2 -> 670.0	12527	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	23436	2.50 µg/L	0.000
M3-PFBS	5.733	302.1 -> 79.9	16037	2.50 µg/L	-0.013
M3-PFHxS	7.478	402.1 -> 79.9	10477	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	9139	2.50 µg/L	0.000
M2-4:2FTS	5.442	329.1 -> 80.9	1652	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	2652	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	2789	5.00 µg/L	0.000
M3-MeFOSAA	8.407	573.2 -> 419.0	21865	5.00 µg/L	0.000
M3-HFPO-DA	6.169	286.9 -> 168.9	30703	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	19227	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	99154	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	119991	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	10264	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	11385	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	13163	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	45777	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	8032	2.50 µg/L	0.000
13C4-PFOA	7.340	417.1 -> 372.0	69644	2.50 µg/L	0.000
13C2-PFDA	8.388	515.1 -> 470.1	25655	1.25 µg/L	0.000
13C5-PFNA	7.882	468.0 -> 423.0	39897	1.25 µg/L	0.000
13C2-PFHxA	5.792	315.1 -> 270.0	40425	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	1652	3.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 66.8%		
13C2-6:2FTS	7.113	429.1 -> 80.9	2652	3.57 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 71.4%		
13C2-8:2FTS	8.163	529.1 -> 80.9	2789	3.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 78.3%		
13C2-PFDoDA	9.285	615.1 -> 570.0	21945	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-PFTeDA	10.012	715.2 -> 670.0	12527	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C3-PFBS	5.733	302.1 -> 79.9	16037	2.36 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.5%		
13C3-PFHxS	7.478	402.1 -> 79.9	10477	2.46 µg/L	0.000

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 = 98.3%	
13C4-PFBA	3.085	216.8 -> 171.9	107551	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.707	367.1 -> 322.0	42014	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C5-PFHxA	5.792	318.0 -> 273.0	45239	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C5-PFPeA	4.548	268.3 -> 223.0	38053	4.87 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C6-PFDA	8.387	519.1 -> 474.1	15930	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.0%	
13C7-PFUnDA	8.853	570.0 -> 525.1	22156	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 88.8%	
13C8-FOSA	9.674	506.1 -> 77.8	23436	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C8-PFOA	7.339	421.1 -> 376.0	66044	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C8-PFOS	8.563	507.1 -> 79.9	9139	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C9-PFNA	7.882	472.1 -> 427.0	30093	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.9%	
d3-MeFOSAA	8.407	573.2 -> 419.0	21865	4.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.6%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	30703	11.08 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.8%	
d3-MeFOSA	10.775	515.0 -> 219.0	11385	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
d5-EtFOSAA	8.615	589.2 -> 419.0	19227	4.62 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.3%	
d7-MeFOSE	10.685	623.2 -> 58.9	99154	20.52 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 82.1%	
d9-EtFOSE	10.930	639.2 -> 58.9	119991	19.88 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.5%	
d5-EtFOSA	10.996	531.1 -> 219.0	10264	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
Target Compounds					QValue
4:2FTS	5.443	327.1 -> 307.0	647063	226.04 µg/L	98
		327.1 -> 80.9	234404		
6:2FTS	7.101	427.1 -> 407.0	658139	205.42 µg/L	92
		427.1 -> 80.9	209635		
8:2FTS	8.164	527.1 -> 507.0	344571	185.74 µg/L	97
		527.1 -> 80.8	142602		
EtFOSAA	8.629	584.2 -> 419.1	203609	63.78 µg/L	m 96
		584.2 -> 526.0	107554		
FOSA	9.677	498.1 -> 77.9	555895	57.80 µg/L	99
		498.1 -> 478.0	16541		
MeFOSAA	8.421	570.1 -> 419.0	306876	57.72 µg/L	m 92
		570.1 -> 483.0	71429		
PFBA	3.081	212.8 -> 168.9	1053218	245.59 µg/L	100
PFBS	5.734	298.7 -> 79.9	385200	54.76 µg/L	95
		298.7 -> 98.8	145014		
PFDA	8.388	512.9 -> 469.0	1604902	67.39 µg/L	98
		512.9 -> 219.0	251022		
PFDoDA	9.285	613.1 -> 569.0	1021611	56.69 µg/L	98
		613.1 -> 319.0	162771		
PFDS	9.450	599.0 -> 79.9	163362	59.22 µg/L	94

7.7.9
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	80001			
PFHpA	6.708	363.1 -> 319.0	1369330	60.86	µg/L	98
		363.1 -> 169.0	207411			
PFHpS	8.046	449.0 -> 79.9	332175	60.37	µg/L	98
		449.0 -> 98.9	168149			
PFHxA	5.795	313.0 -> 269.0	1117113	61.64	µg/L	99
		313.0 -> 118.9	54869			
PFHxS	7.479	398.7 -> 79.9	337846	53.62	µg/L	m 99
		398.7 -> 98.9	159554			
PFNA	7.883	463.0 -> 419.0	1616379	58.53	µg/L	98
		463.0 -> 219.0	300962			
PFNS	9.041	548.8 -> 79.9	291047	60.22	µg/L	100
		548.8 -> 98.9	142161			
PFOA	7.341	413.0 -> 369.0	2049298	60.50	µg/L	97
		413.0 -> 169.0	386105			
PFOS	8.564	498.9 -> 79.9	319827	59.40	µg/L	m 97
		498.9 -> 98.8	159927			
PFPeA	4.551	263.0 -> 219.0	1365326	121.93	µg/L	100
PFPeS	6.785	349.1 -> 79.9	319874	55.22	µg/L	97
		349.1 -> 98.9	140010			
PFTeDA	10.000	713.1 -> 669.0	840551	56.12	µg/L	100
		713.1 -> 168.9	74647			
PFTrDA	9.669	663.0 -> 619.0	926986	62.50	µg/L	96
		663.0 -> 168.9	105795			
PFUnDA	8.854	563.1 -> 519.0	1078807	66.36	µg/L	99
		563.1 -> 269.1	183876			
11Cl-PF3OUdS	9.721	630.9 -> 450.9	1367365	94.48	µg/L	93
		632.9 -> 452.9	463585			
9Cl-PF3ONS	8.906	530.8 -> 351.0	2502748	103.54	µg/L	98
		532.8 -> 353.0	778317			
ADONA	6.946	376.9 -> 250.9	5251694	101.11	µg/L	97
		376.9 -> 84.8	1386406			
HFPO-DA	6.169	284.9 -> 168.9	361156	124.44	µg/L	97
		284.9 -> 184.9	44156			
3:3FTCA	3.946	241.0 -> 177.0	251182	328.03	µg/L	99
		241.0 -> 117.0	32878			
5:3FTCA	6.361	341.0 -> 237.1	4949359	1408.16	µg/L	98
		341.0 -> 217.0	3615309			
7:3FTCA	7.736	441.0 -> 316.9	4080004	1621.97	µg/L	82
		441.0 -> 336.9	8234193			
EtFOSA	10.997	526.0 -> 219.0	673849	122.58	µg/L	98
		526.0 -> 169.0	840340			
EtFOSE	10.943	630.0 -> 58.9	1922391	303.43	µg/L	100
MeFOSA	10.777	511.9 -> 219.0	562499	112.71	µg/L	m 94
		511.9 -> 169.0	824039			
MeFOSE	10.709	616.1 -> 58.9	1356843	312.64	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	78822	57.41	µg/L	95
		699.1 -> 98.8	42851			
NFDHA	5.673	295.0 -> 201.0	258383	112.63	µg/L	95
		295.0 -> 84.9	68409			
PFMBA	4.975	279.0 -> 85.1	1008690	125.57	µg/L	100
PFMPA	3.667	229.0 -> 84.9	773929	124.00	µg/L	100
PFEESA	6.288	314.8 -> 134.9	2439974	109.40	µg/L	99
		314.8 -> 82.9	90764			

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



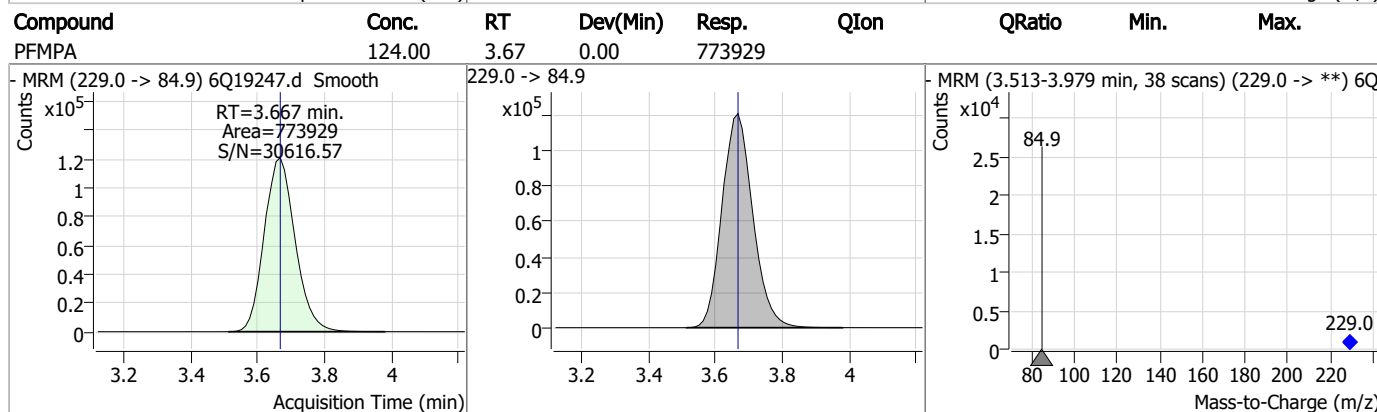
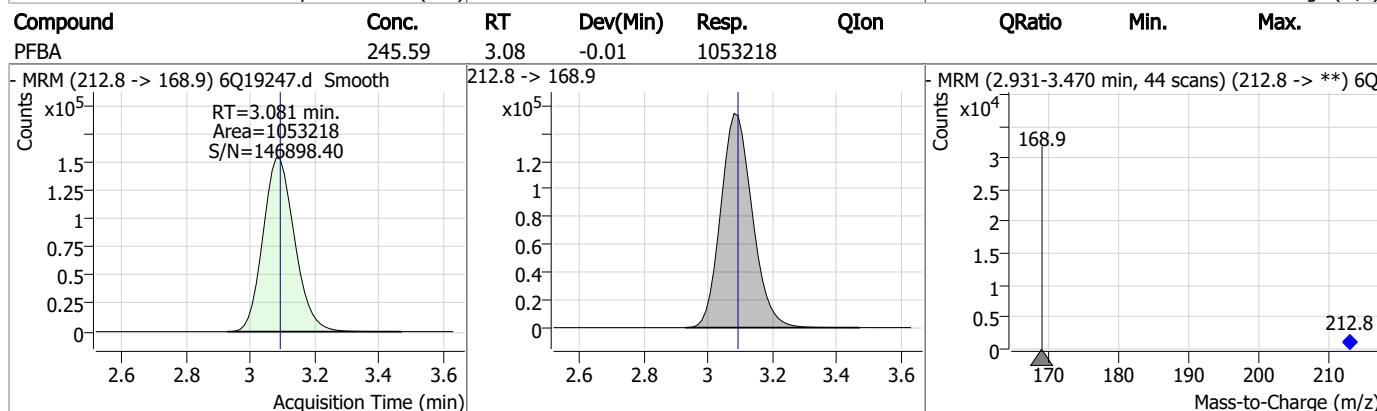
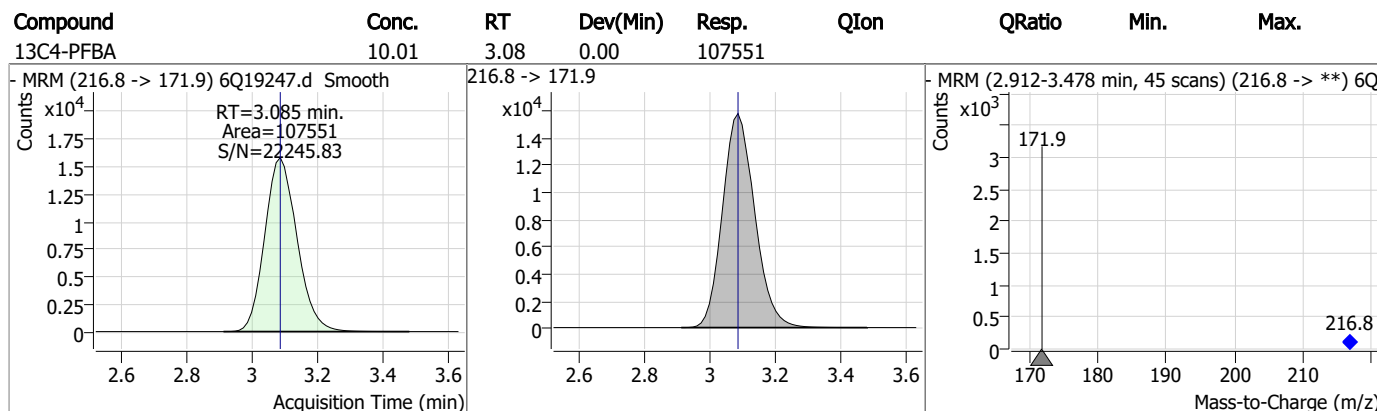
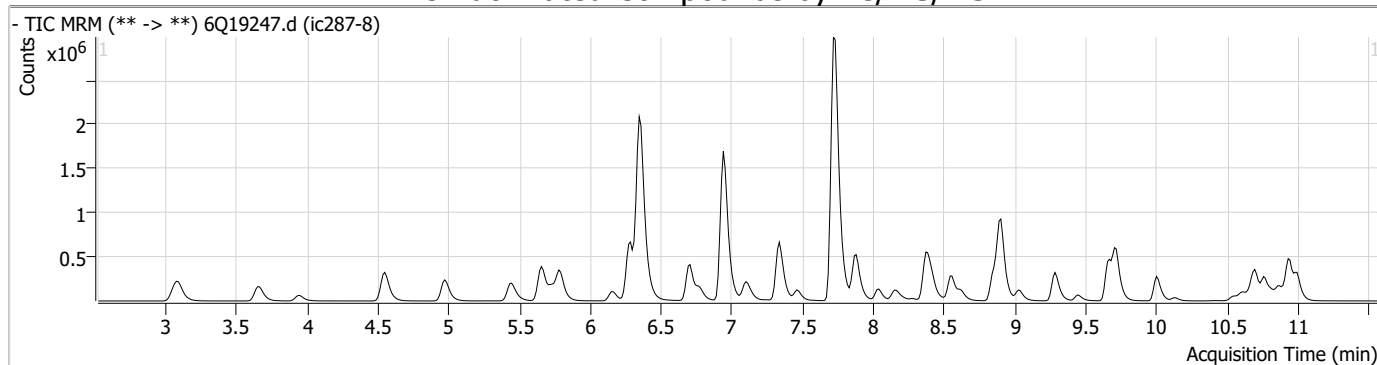
Perfluorinated Compounds by LC/MS/MS

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

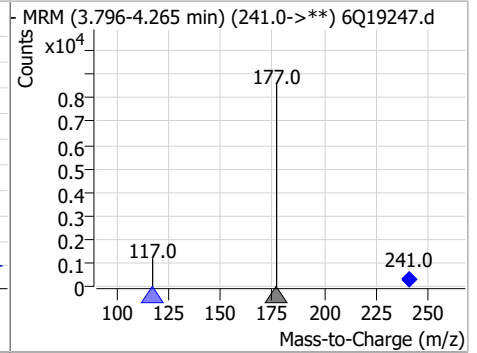
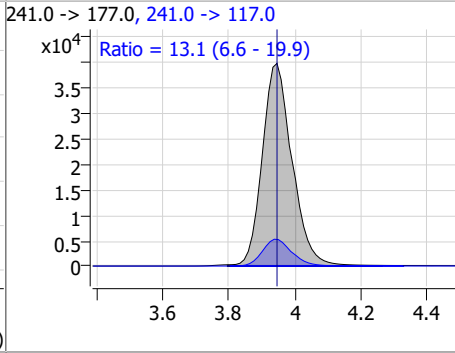
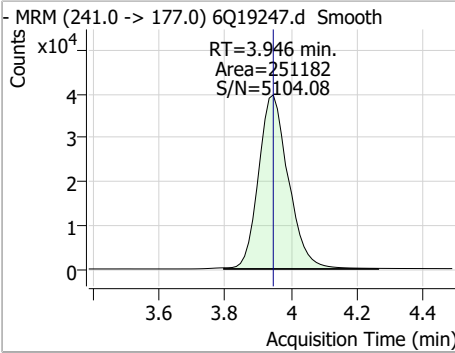
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Perfluorinated Compounds by LC/MS/MS

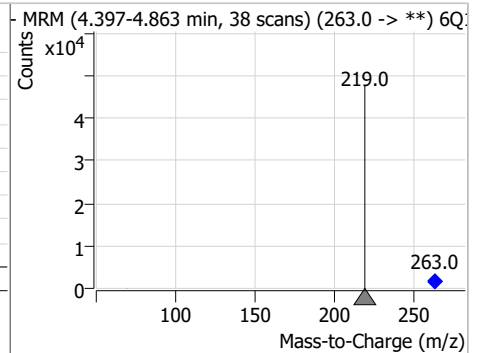
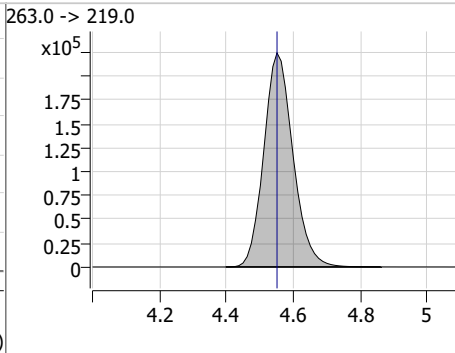
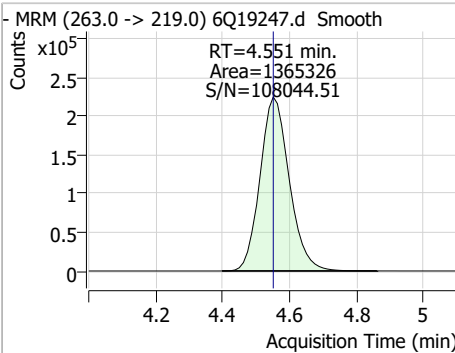


Perfluorinated Compounds by LC/MS/MS

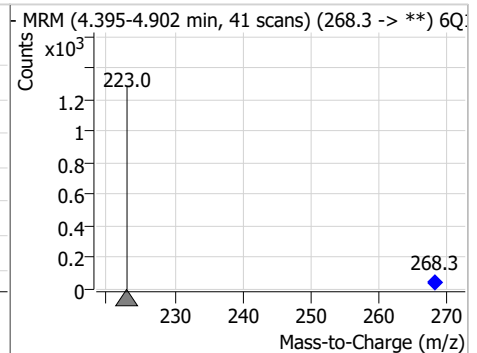
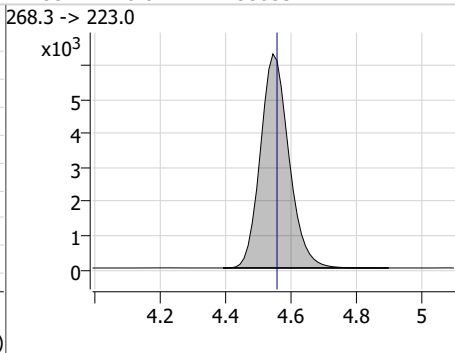
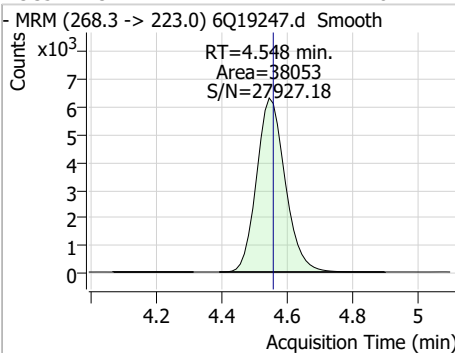
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	328.03	3.95	0.00	251182	241.0 -> 117.0	13.1	6.6	19.9



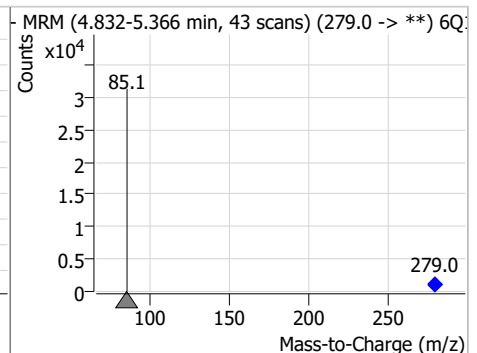
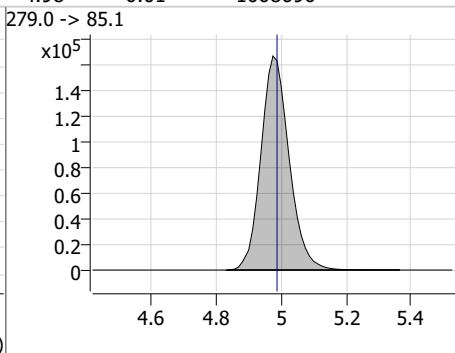
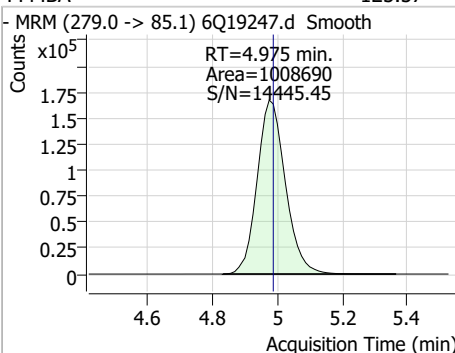
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	121.93	4.55	0.00	1365326				



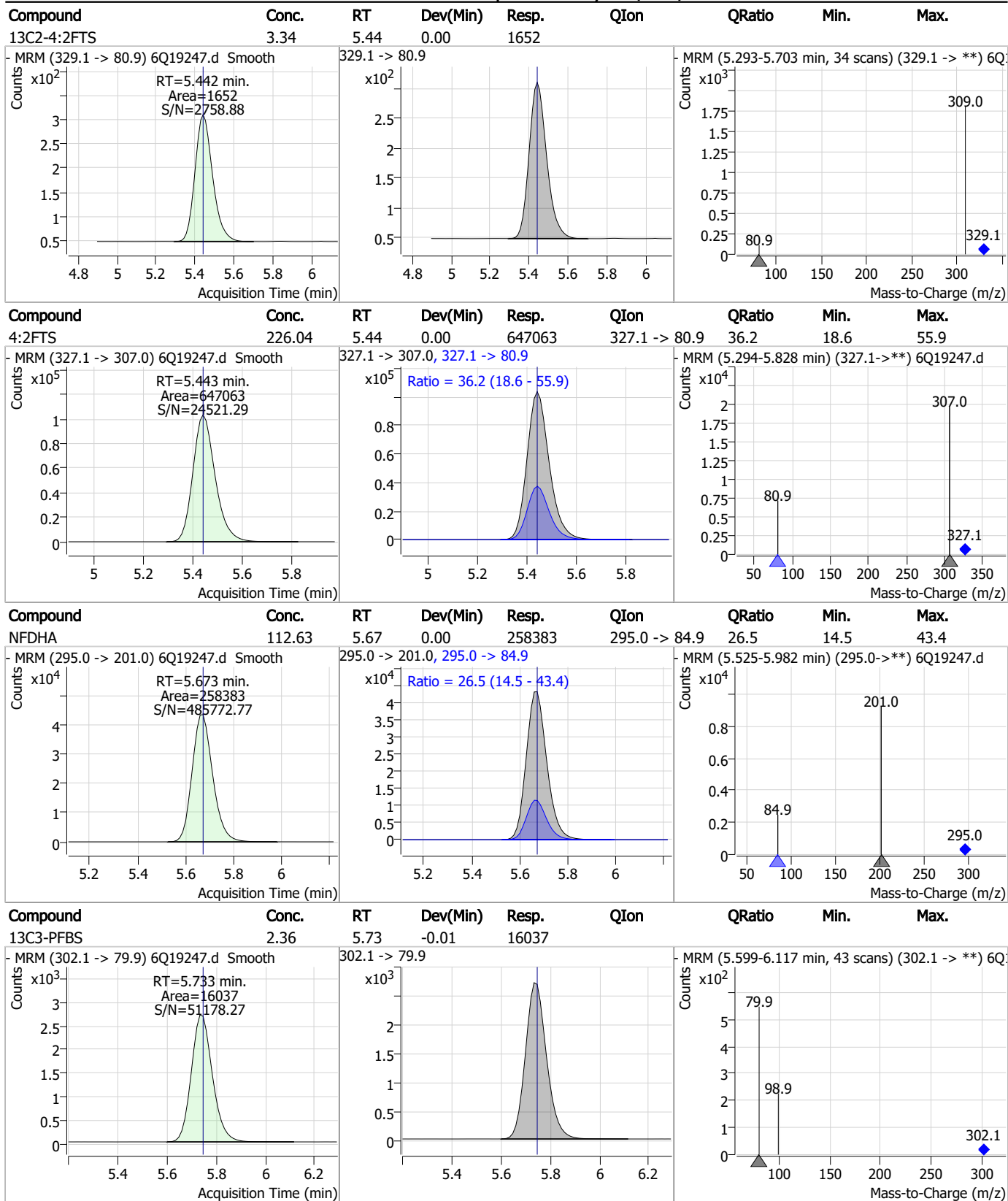
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.87	4.55	-0.01	38053				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	125.57	4.98	-0.01	1008690				



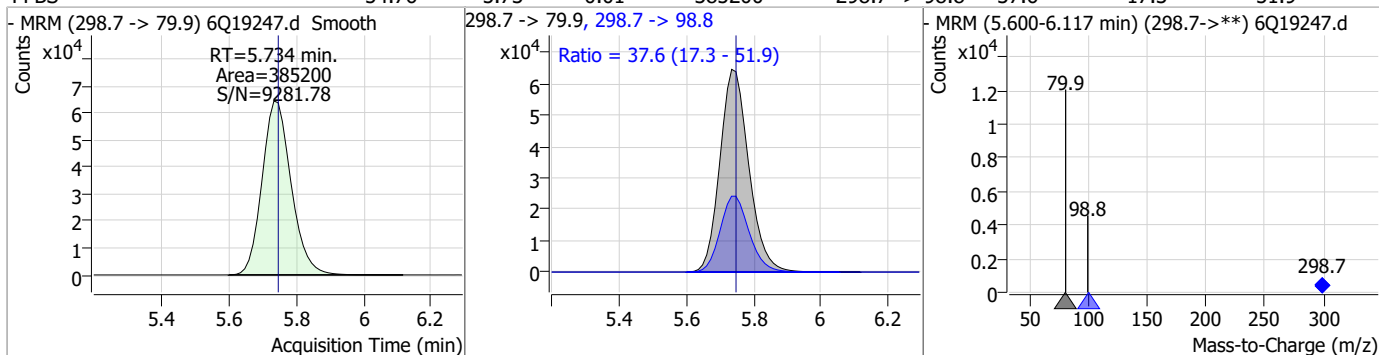
Perfluorinated Compounds by LC/MS/MS



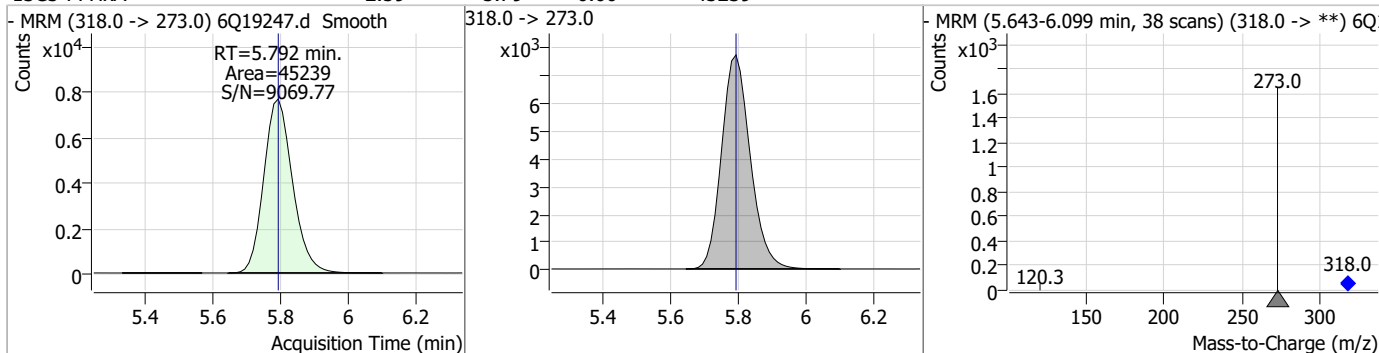
7.7.9
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Perfluorinated Compounds by LC/MS/MS

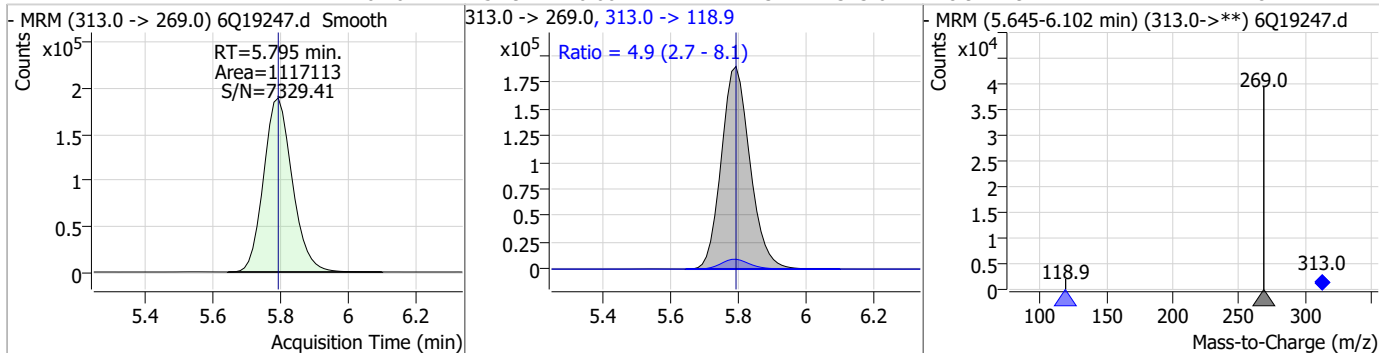
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	54.76	5.73	-0.01	385200	298.7 -> 98.8	37.6	17.3	51.9



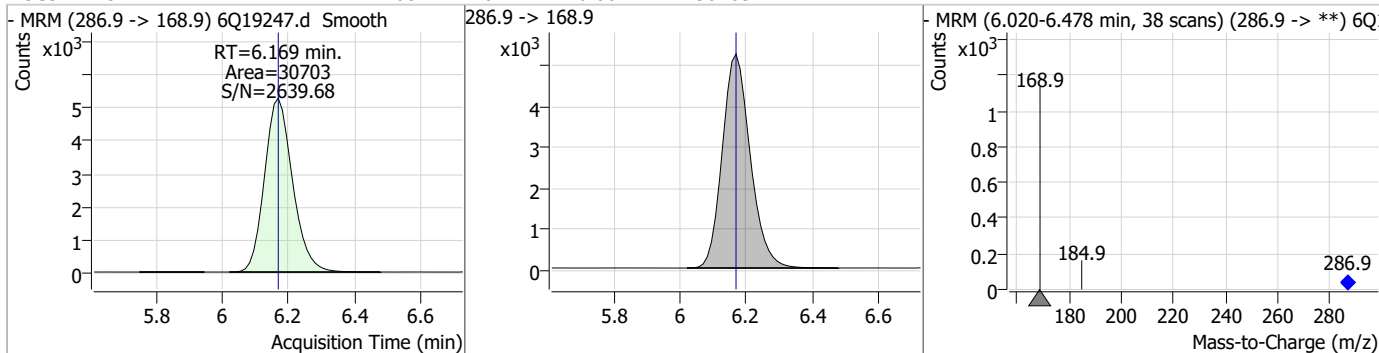
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.59	5.79	0.00	45239				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	61.64	5.79	0.00	1117113	313.0 -> 118.9	4.9	2.7	8.1

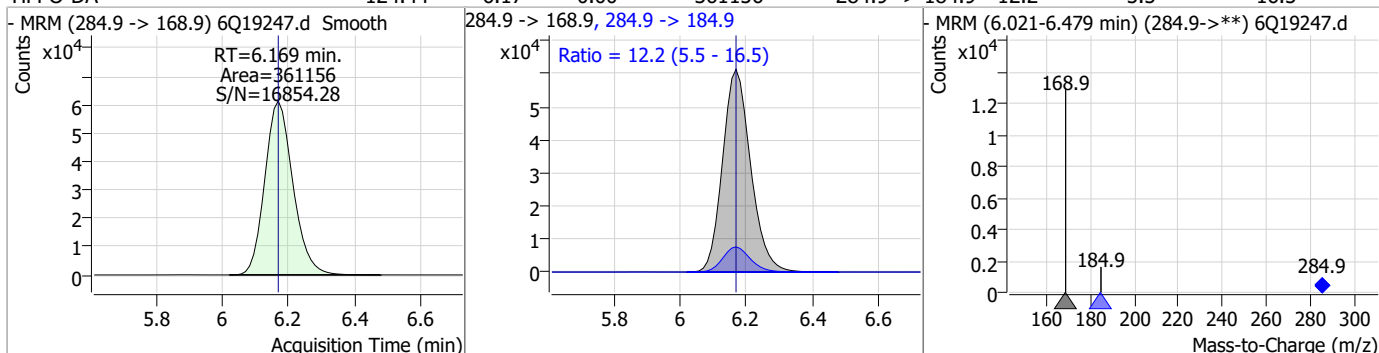


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.08	6.17	0.00	30703				

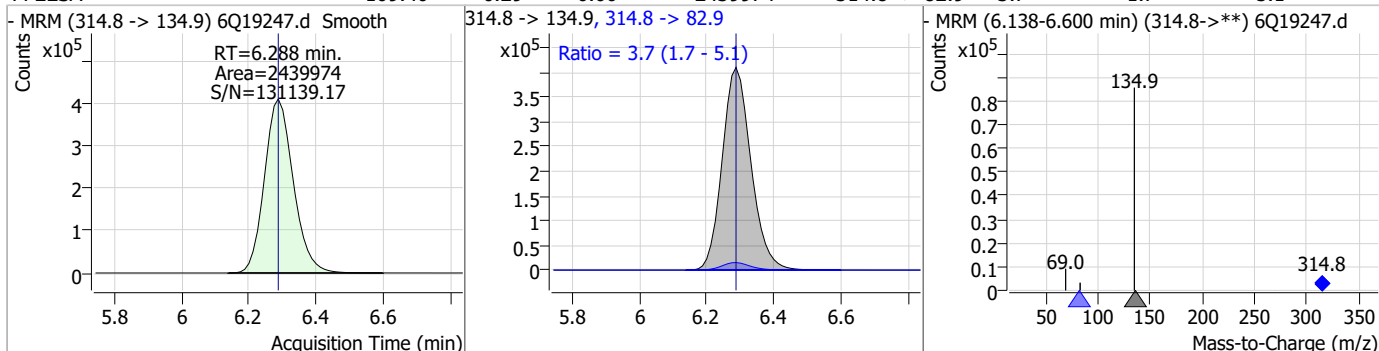


Perfluorinated Compounds by LC/MS/MS

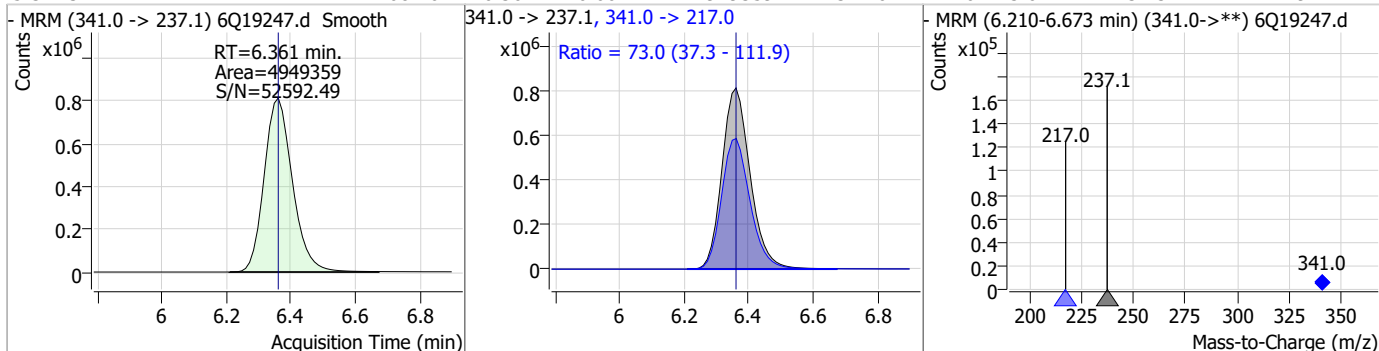
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	124.44	6.17	0.00	361156	284.9 -> 184.9	12.2	5.5	16.5



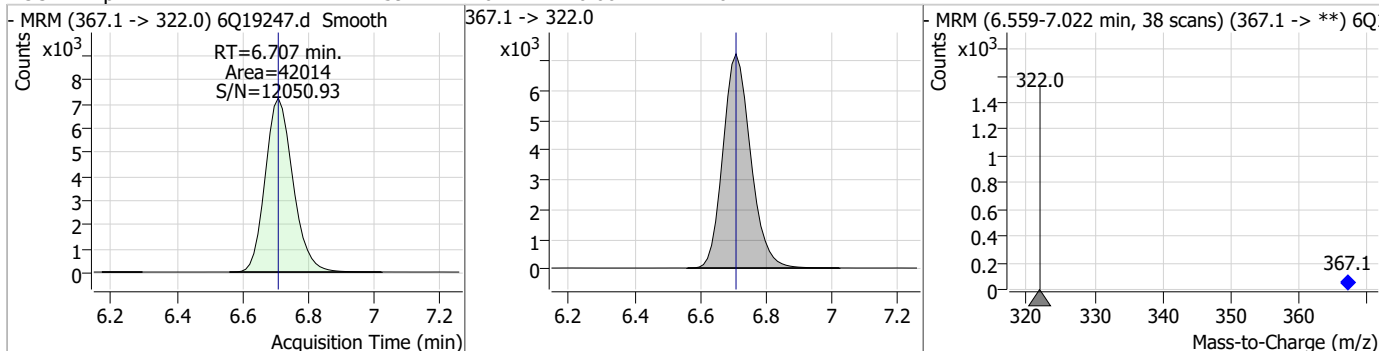
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	109.40	6.29	0.00	2439974	314.8 -> 82.9	3.7	1.7	5.1



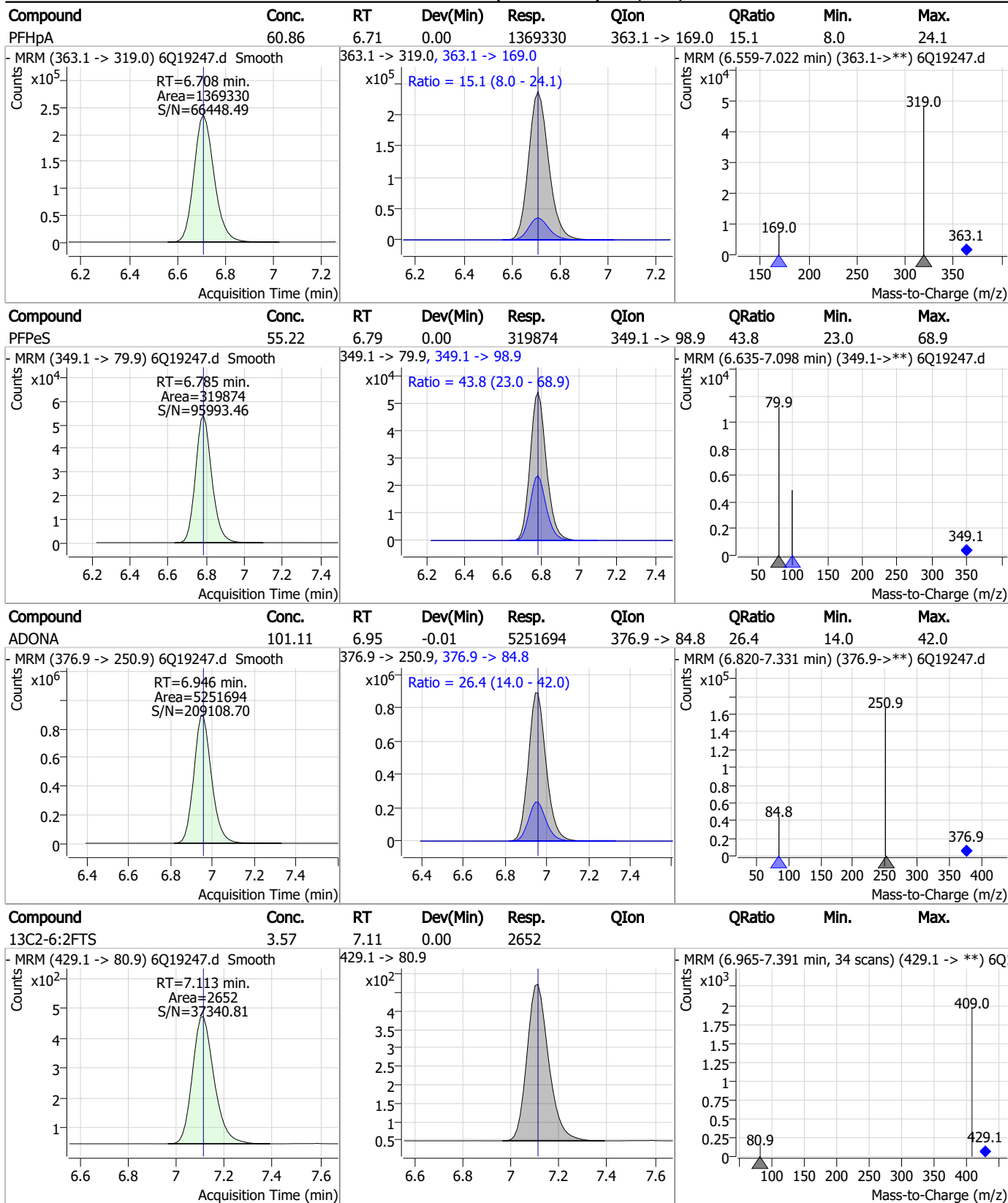
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1408.16	6.36	0.00	4949359	341.0 -> 217.0	73.0	37.3	111.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.59	6.71	0.00	42014	367.1 -> 322.0			

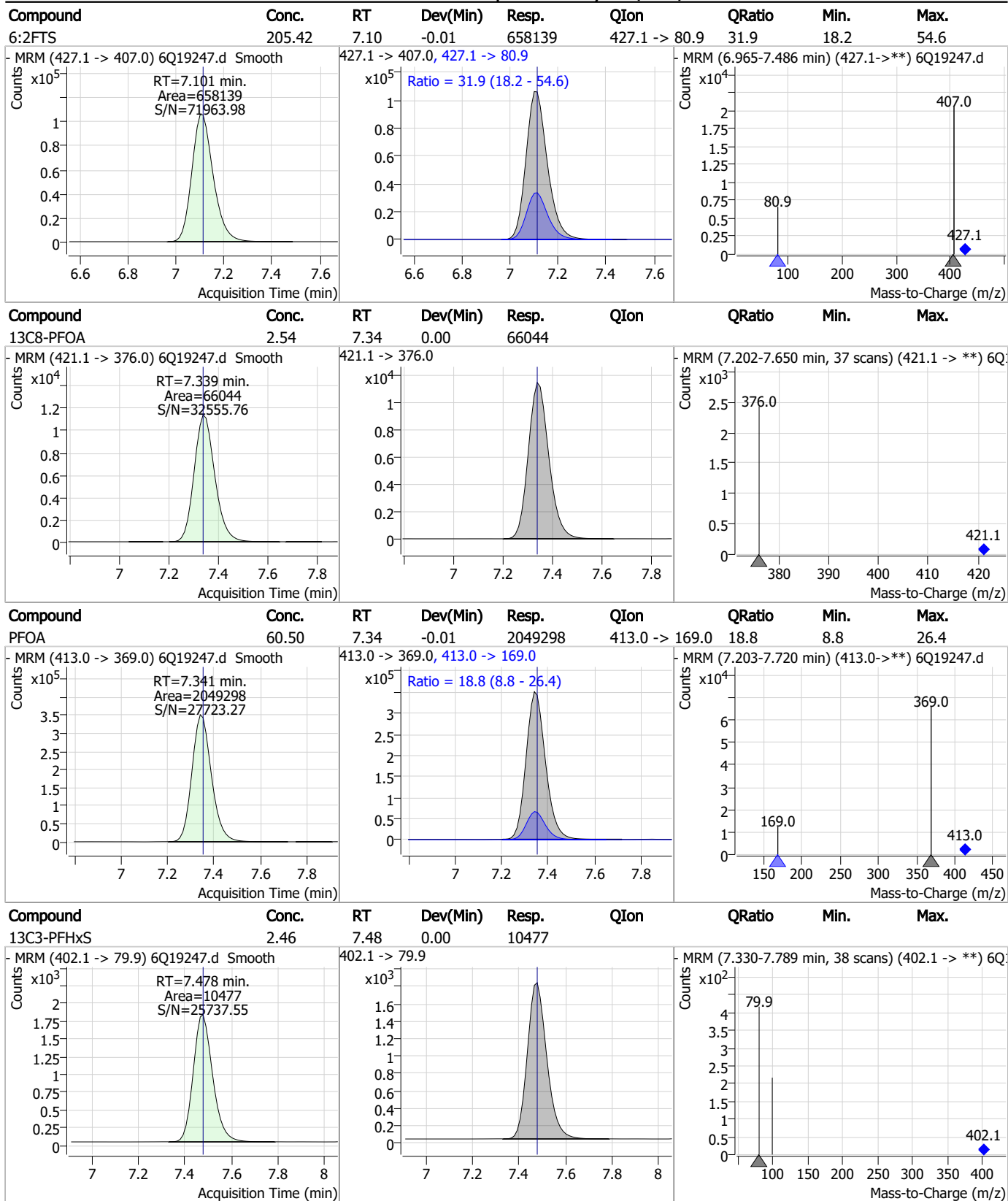


Perfluorinated Compounds by LC/MS/MS



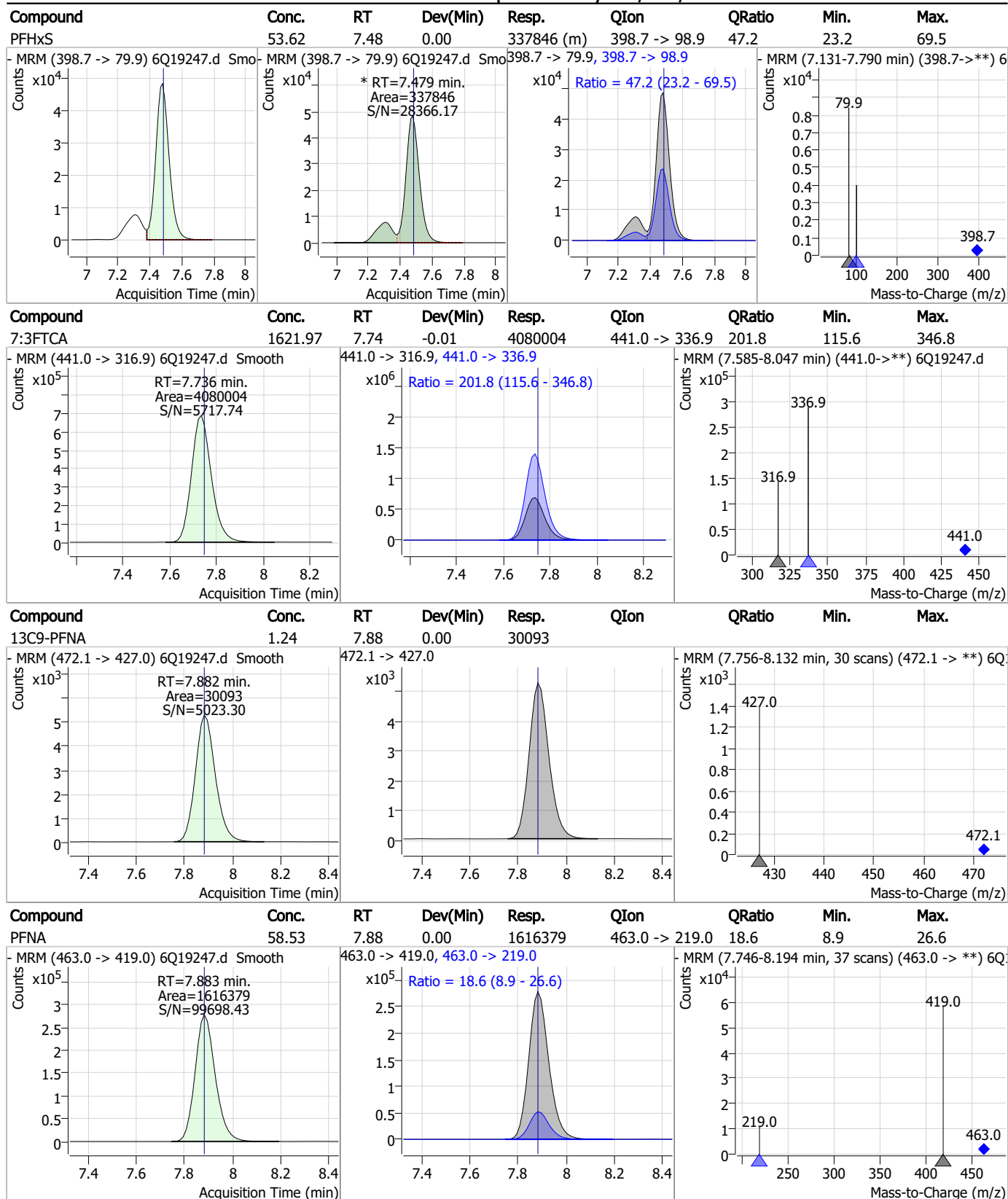
7.7.9
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Perfluorinated Compounds by LC/MS/MS



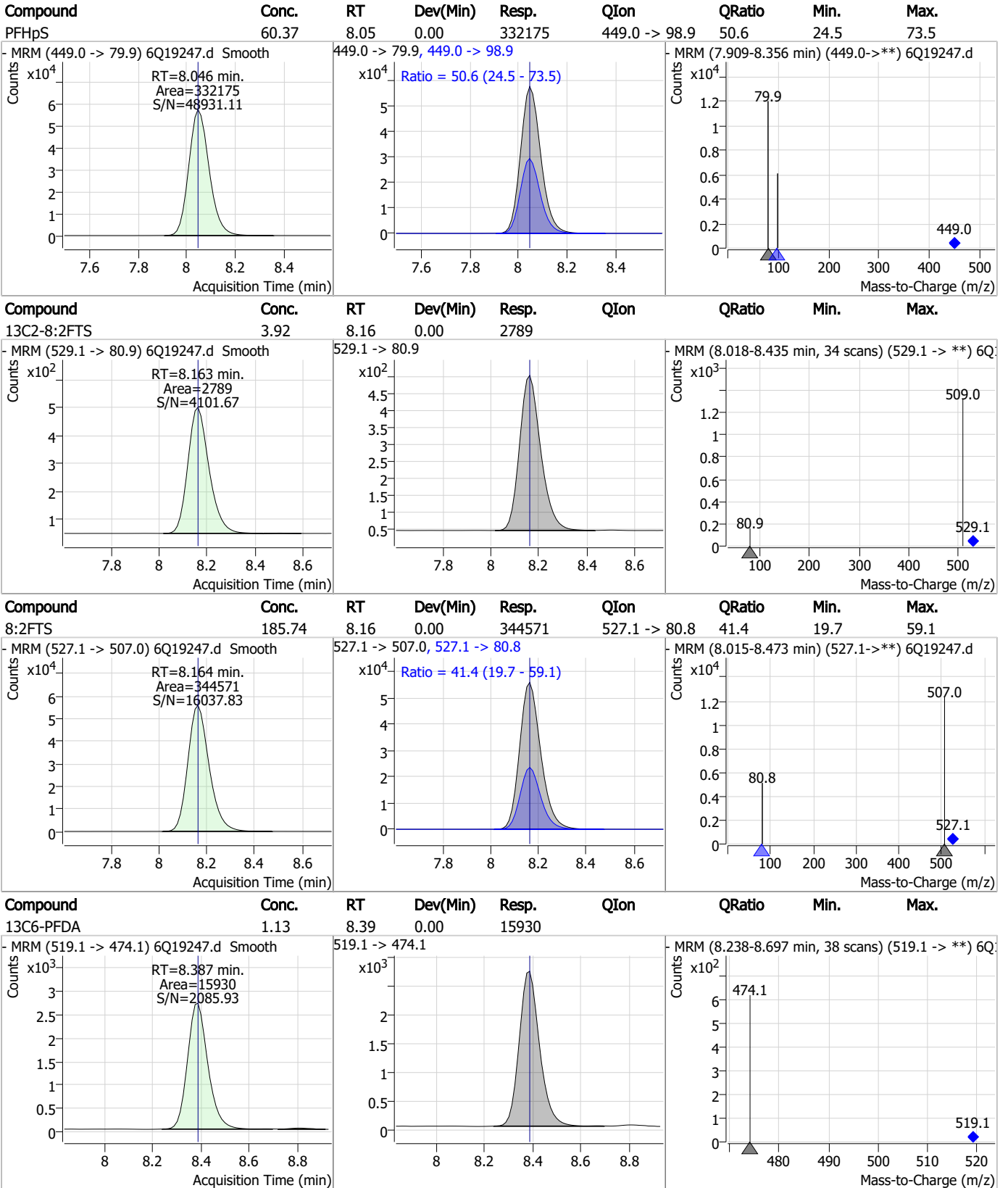
7.7.9
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Perfluorinated Compounds by LC/MS/MS



7.7.9
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Perfluorinated Compounds by LC/MS/MS



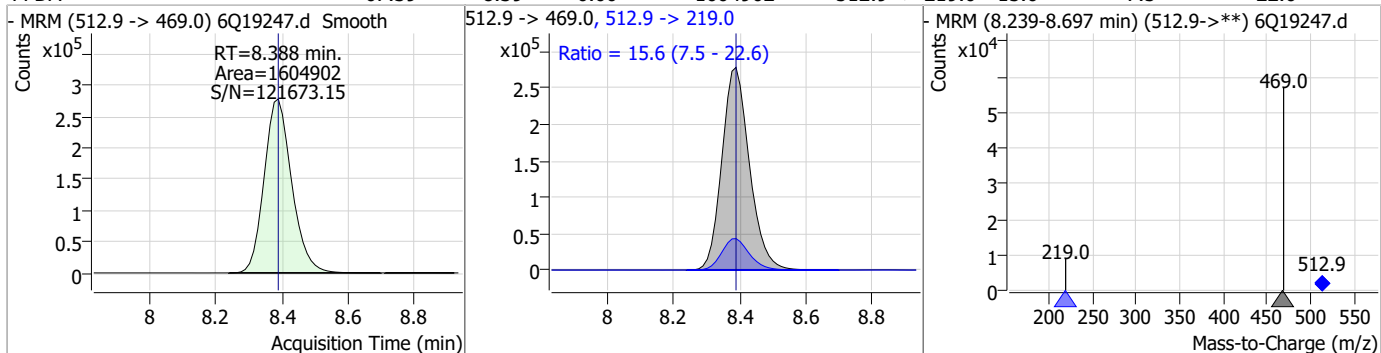
7.7.9

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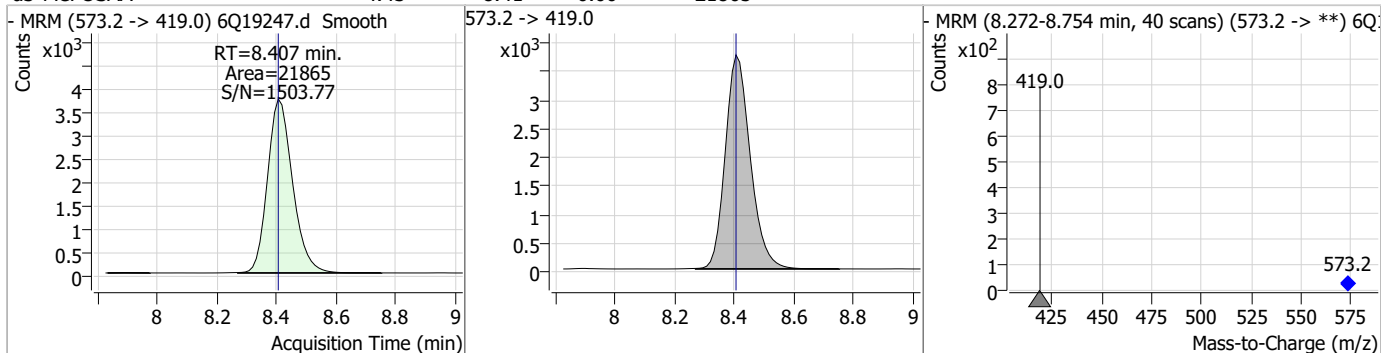


Perfluorinated Compounds by LC/MS/MS

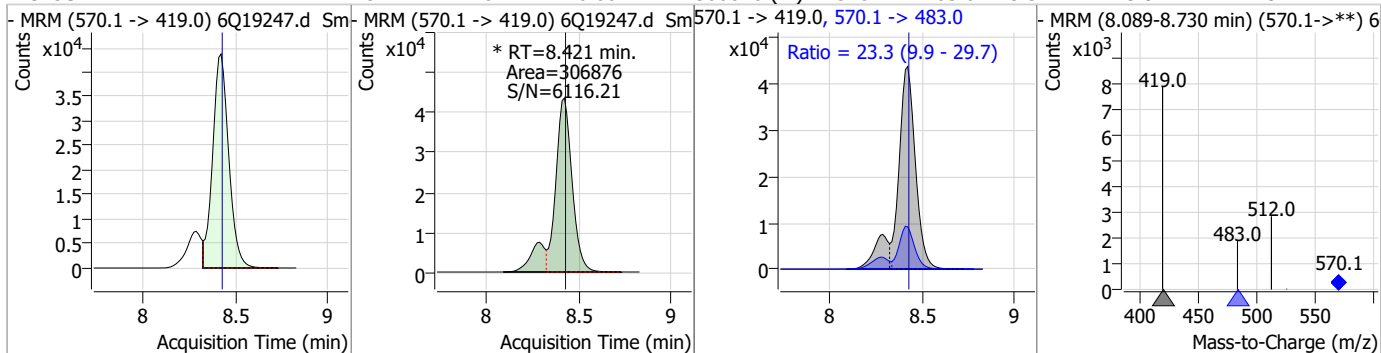
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	67.39	8.39	0.00	1604902	512.9 -> 219.0	15.6	7.5	22.6



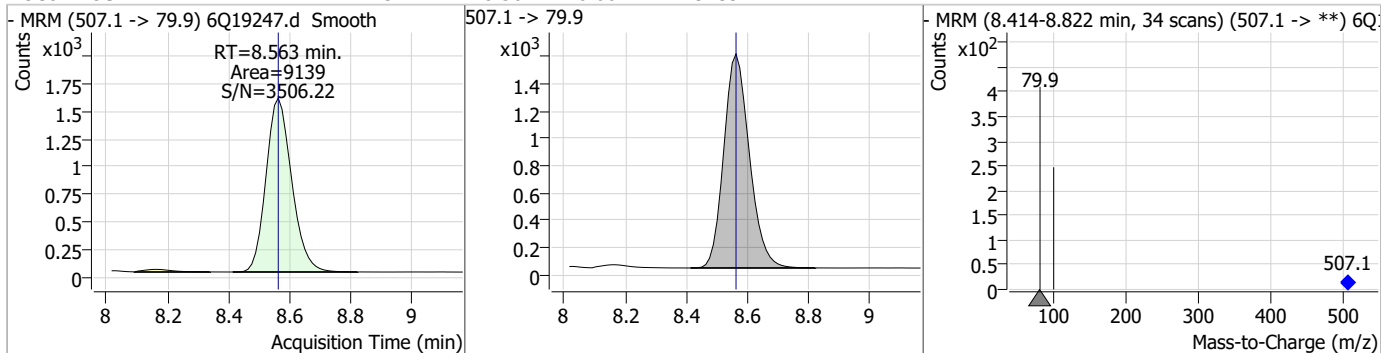
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.43	8.41	0.00	21865				



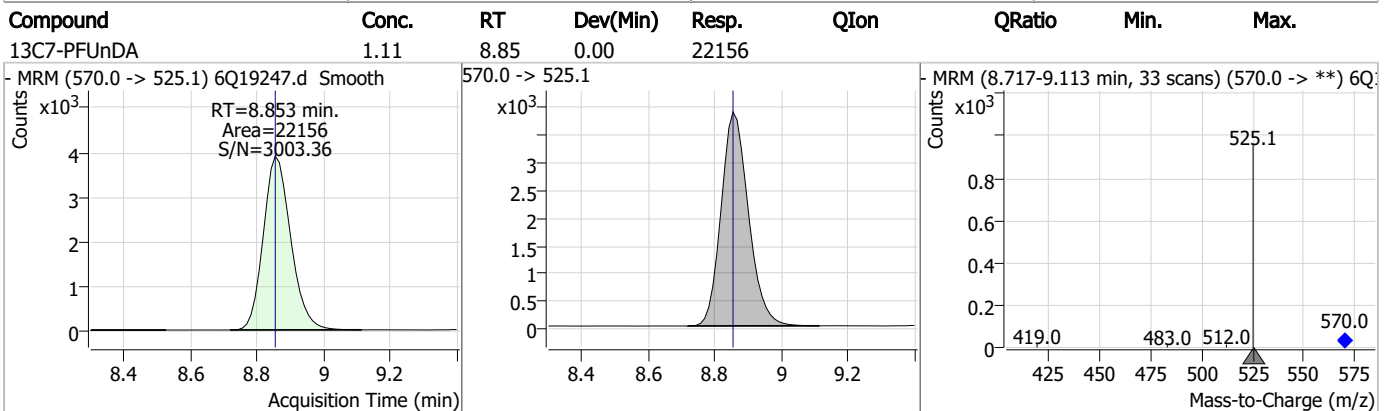
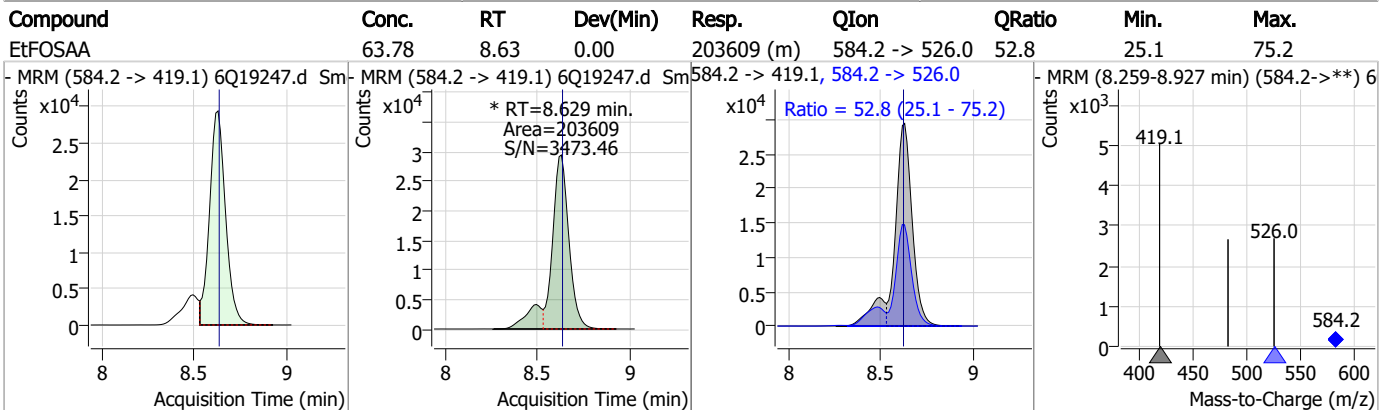
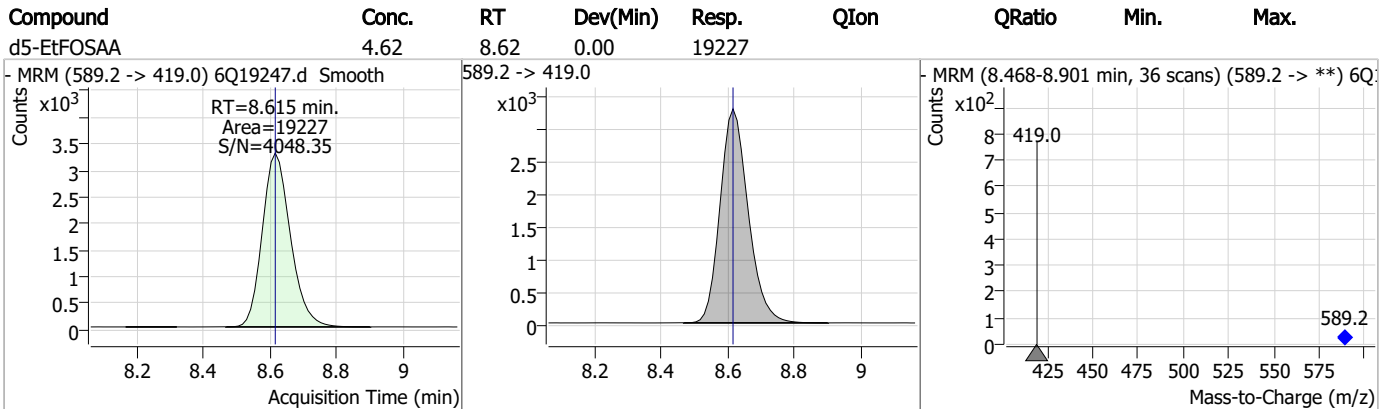
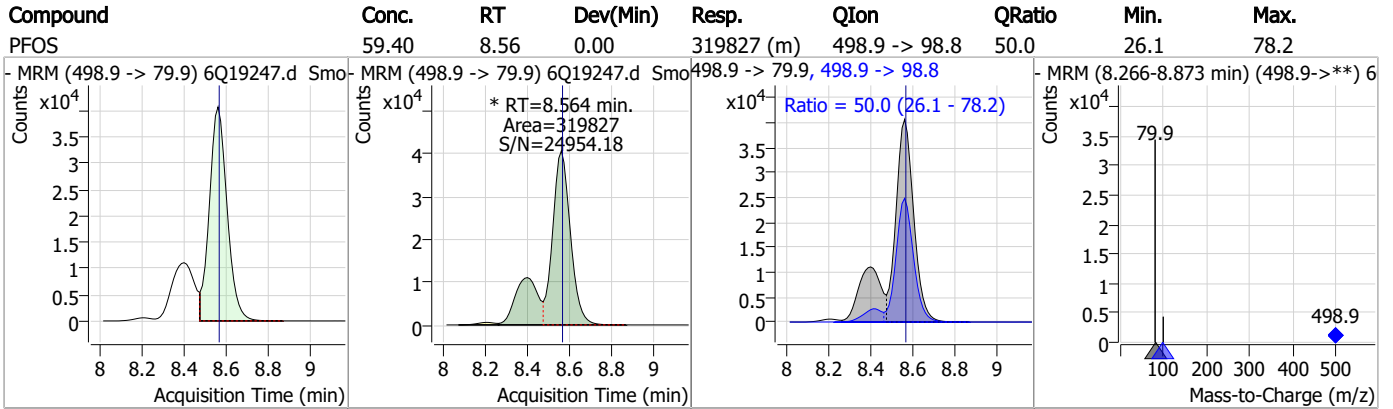
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	57.72	8.42	0.00	306876 (m)	570.1 -> 483.0	23.3	9.9	29.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.37	8.56	0.00	9139				



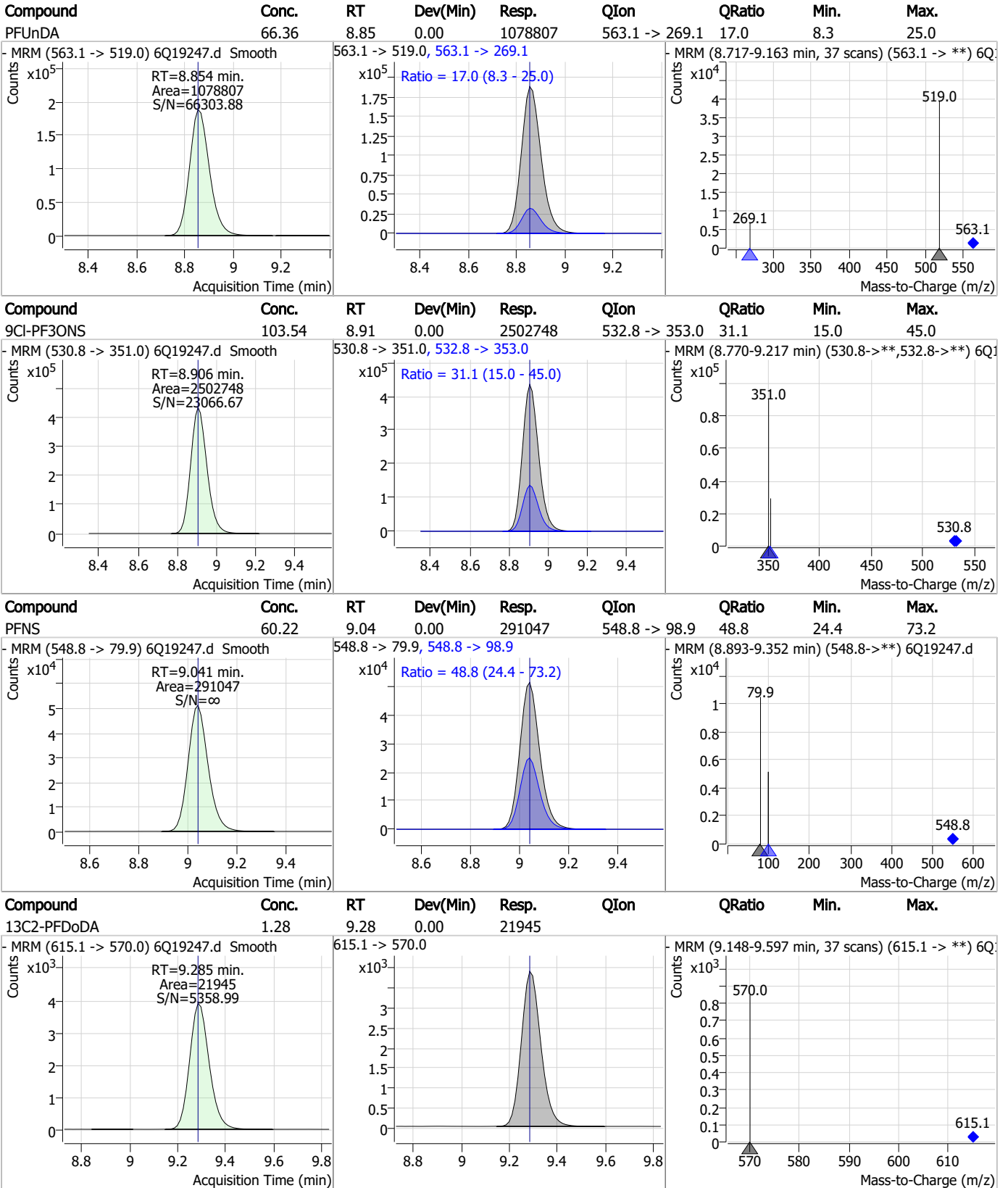
Perfluorinated Compounds by LC/MS/MS



7.7.9

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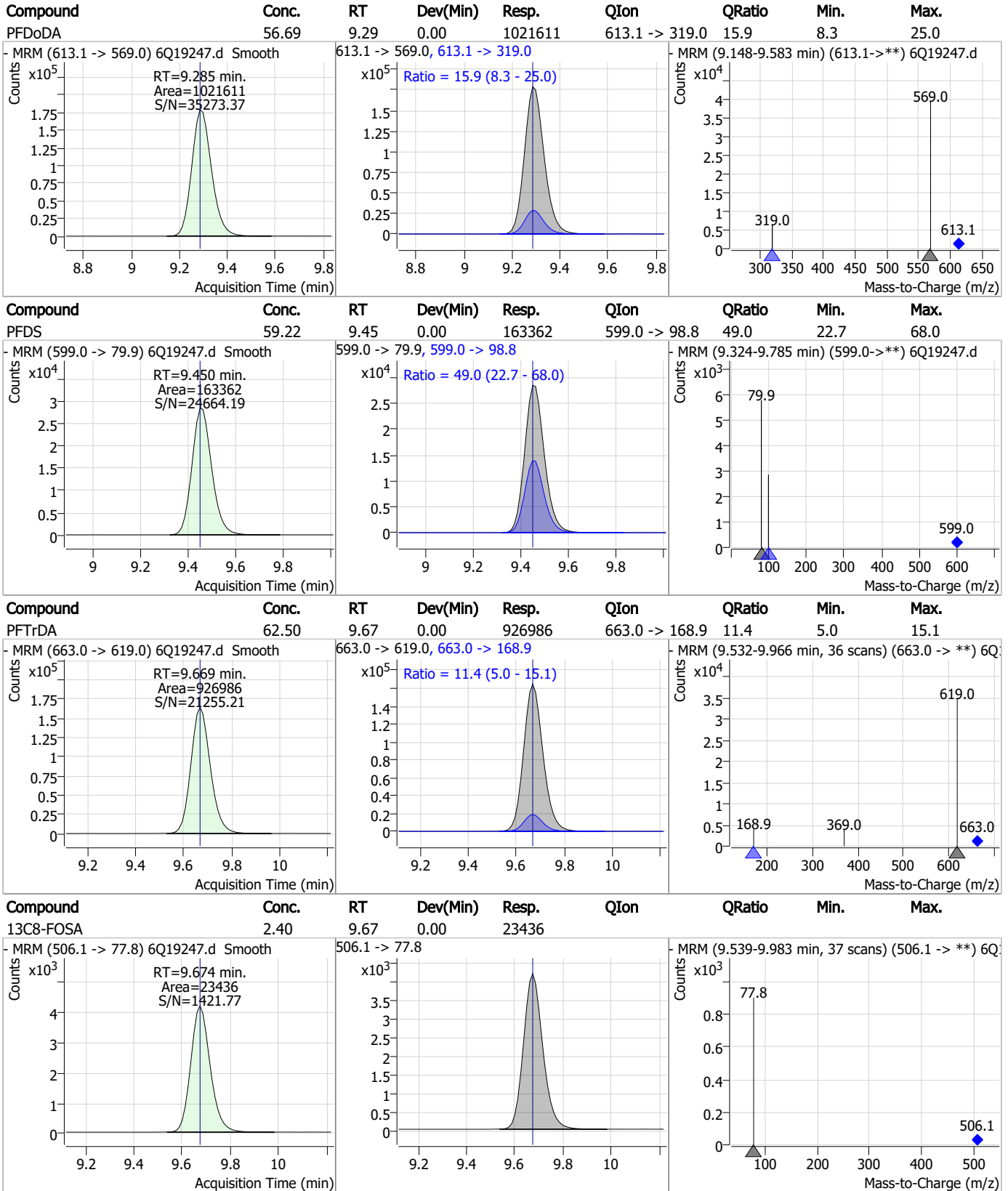
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

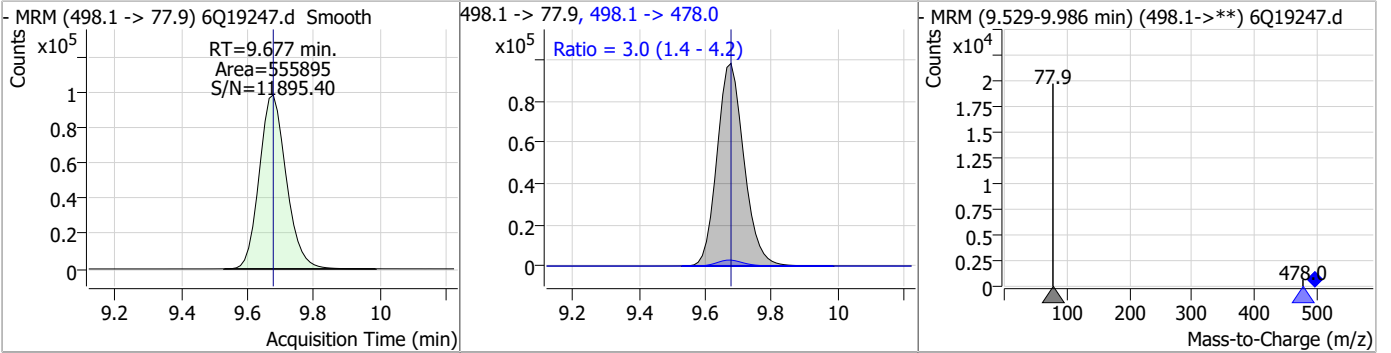


7.7.9

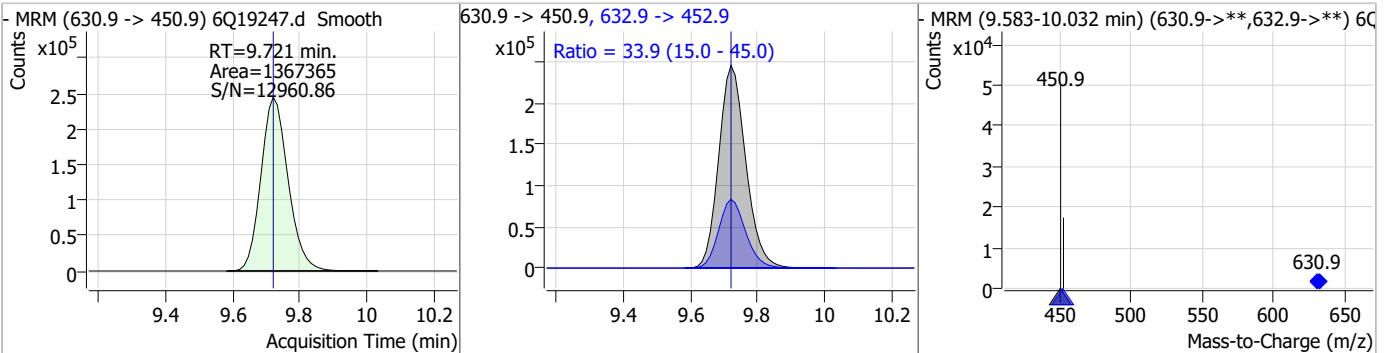
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Perfluorinated Compounds by LC/MS/MS

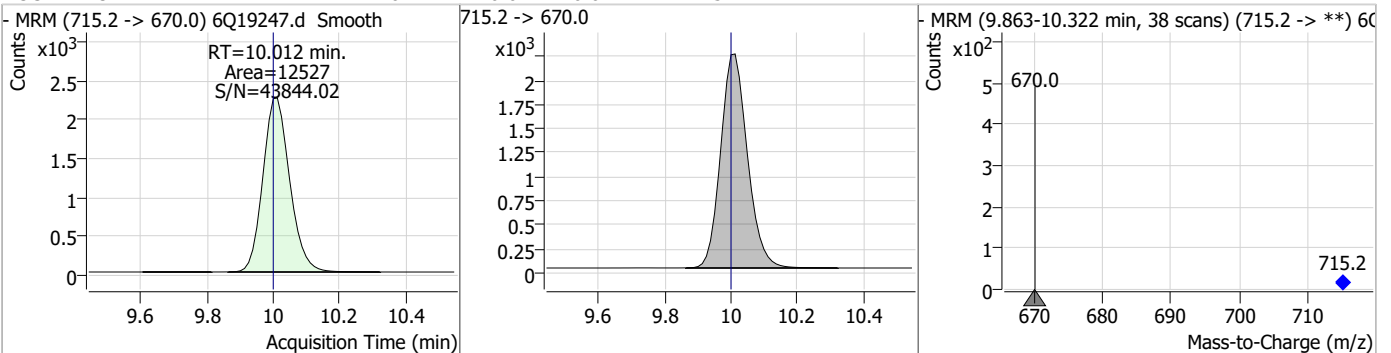
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	57.80	9.68	0.00	555895	498.1 -> 478.0	3.0	1.4	4.2



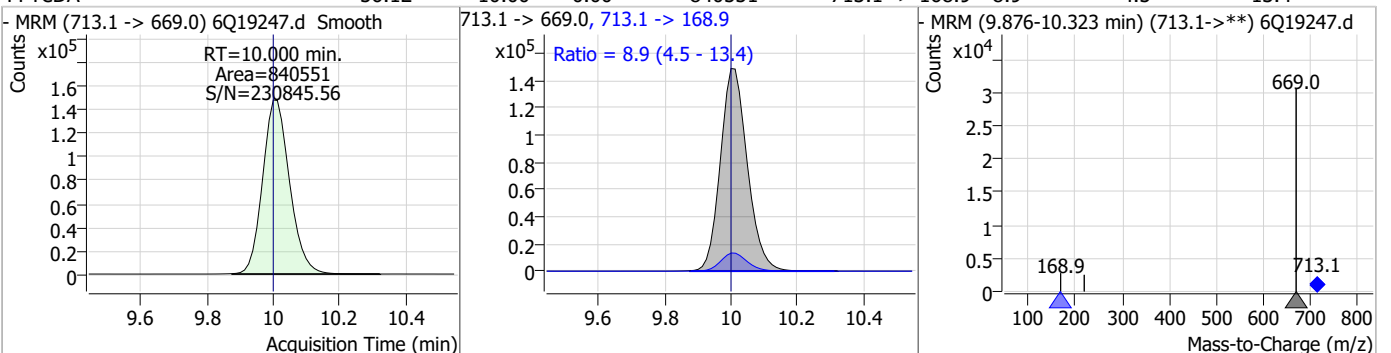
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	94.48	9.72	0.00	1367365	630.9 -> 452.9	33.9	15.0	45.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.26	10.01	0.01	12527	715.2 -> 670.0	-	-	-

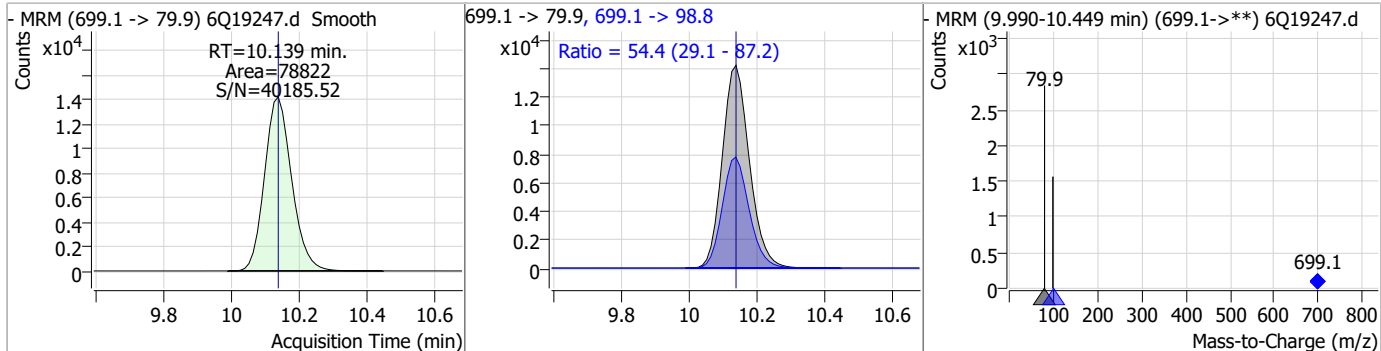


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	56.12	10.00	0.00	840551	713.1 -> 168.9	8.9	4.5	13.4

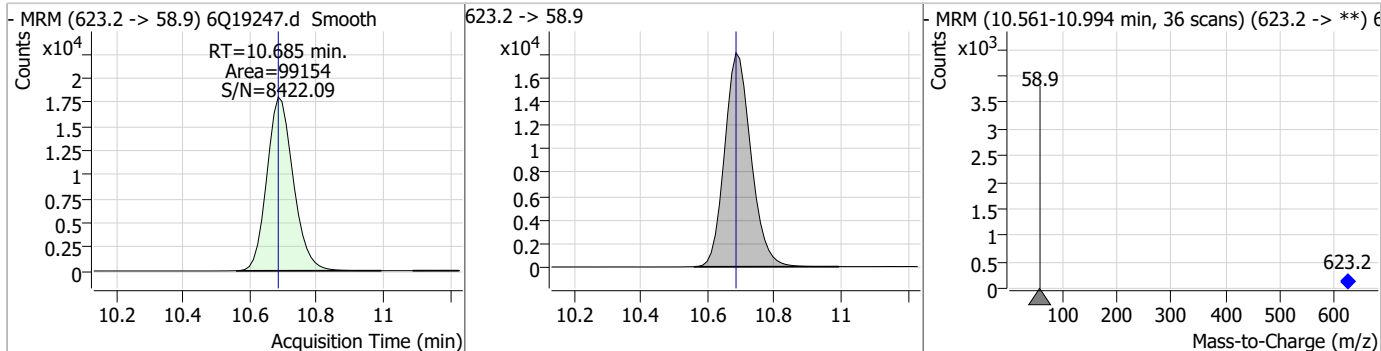


Perfluorinated Compounds by LC/MS/MS

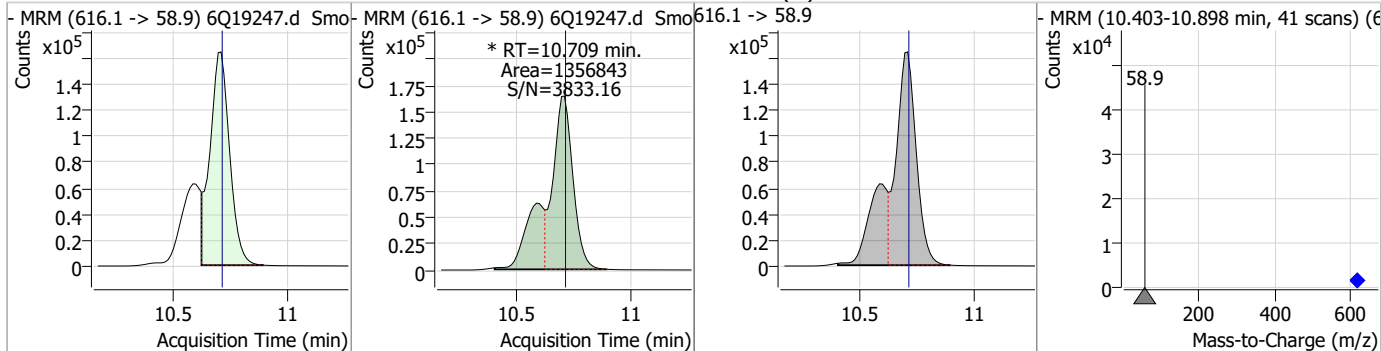
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	57.41	10.14	0.00	78822	699.1 -> 98.8	54.4	29.1	87.2



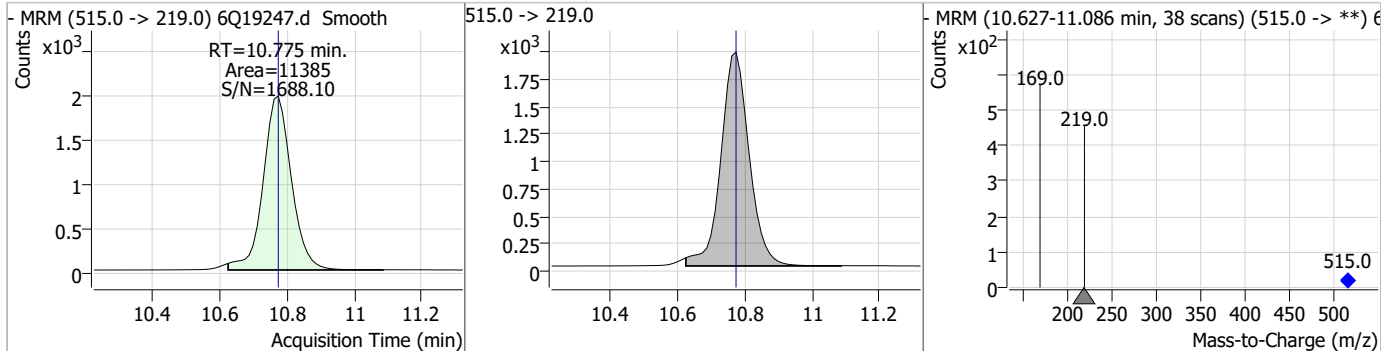
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.52	10.68	0.00	99154				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	312.64	10.71	0.00	1356843 (m)				

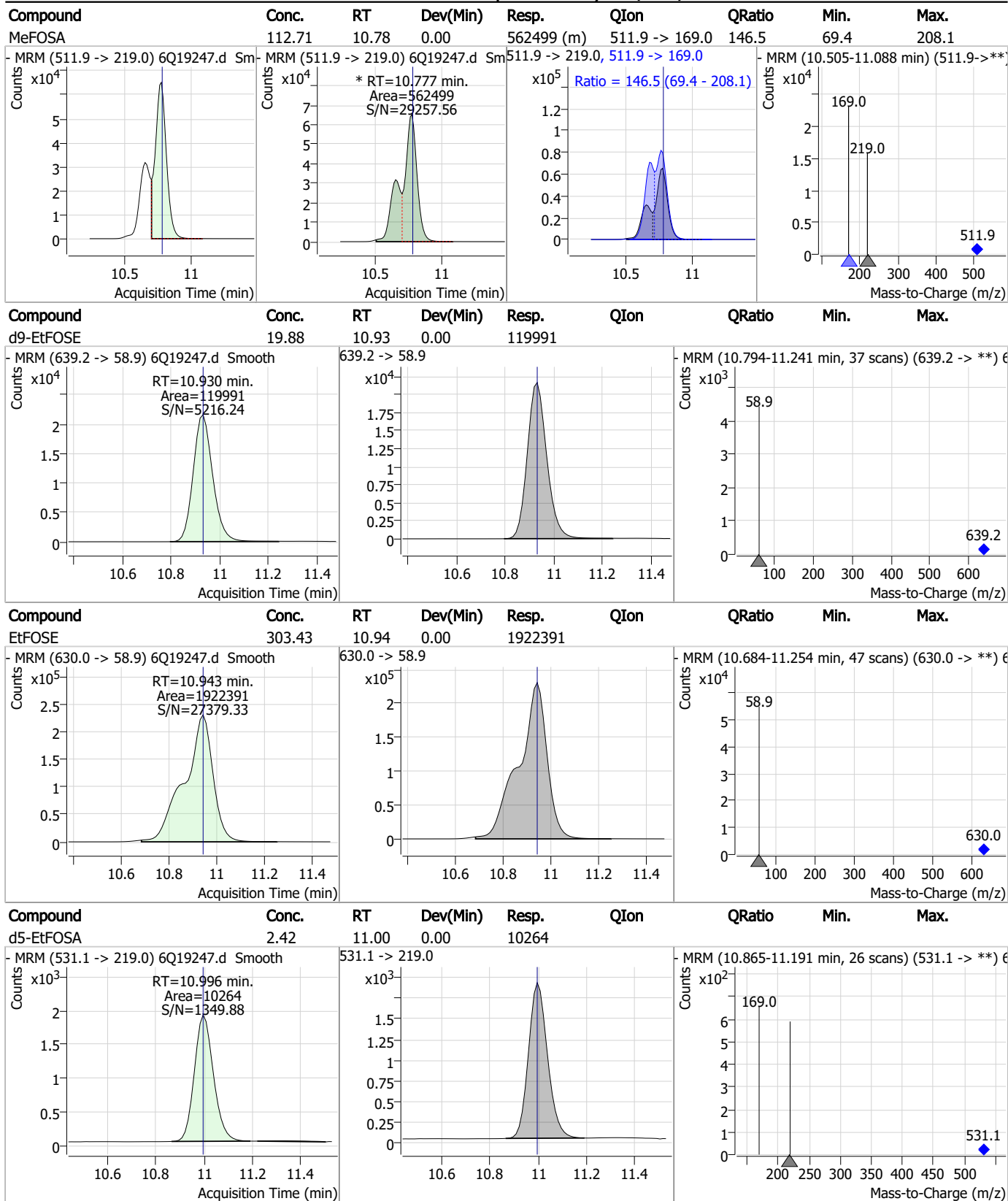


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.60	10.78	0.00	11385				



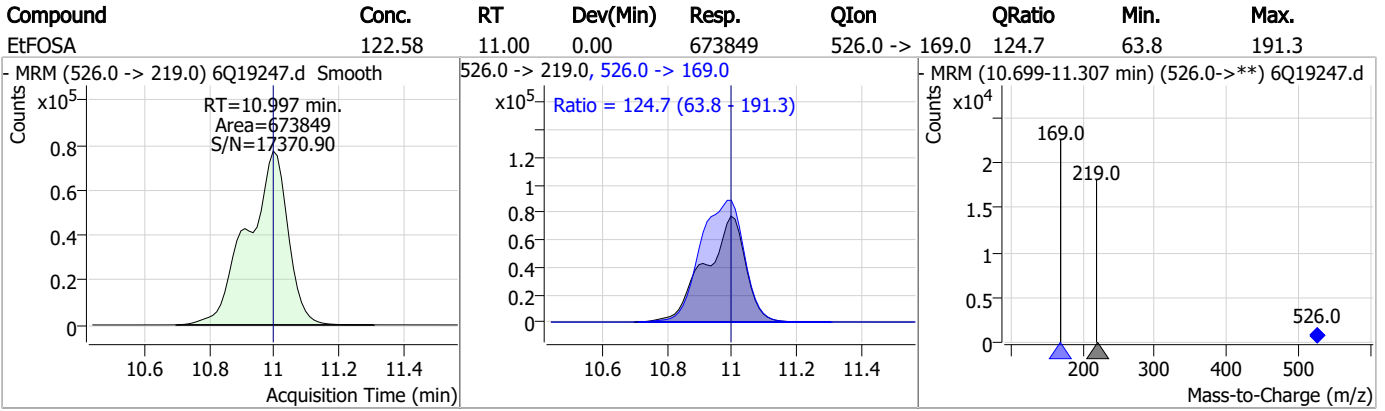
7.7.9
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Perfluorinated Compounds by LC/MS/MS



7.7.9
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Perfluorinated Compounds by LC/MS/MS



7.7.9

7

Manual Integration Approval Summary

Sample Number: S6Q287-IC287
Lab FileID: 6Q19247.D
Injection Time: 06/12/23 17:26

Method: EPA DRAFT 1633
Analyst approved: 06/13/23 11:17 Martha Valls
Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.63	Split peak
MeFOSE	24448-09-7		10.71	Split peak
MeFOSA	31506-32-8		10.78	Split peak

7.7.9.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19249.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 5:54:22 PM
 Sample Name : icv287-4
 Vial : P1-B1
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	138939	10.00 µg/L	0.000
M5-PFPeA	4.548	268.3 -> 223.0	45630	5.00 µg/L	-0.012
M5-PFHxA	5.792	318.0 -> 273.0	48344	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	49072	2.50 µg/L	0.000
M8-PFOA	7.339	421.1 -> 376.0	73137	2.50 µg/L	0.000
M9-PFNA	7.882	472.1 -> 427.0	37163	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	21065	1.25 µg/L	0.000
M7-PFUnDA	8.853	570.0 -> 525.1	28133	1.25 µg/L	0.000
M2-PFDoDA	9.285	615.1 -> 570.0	24745	1.25 µg/L	0.000
M2-PFTeDA	10.000	715.2 -> 670.0	13071	1.25 µg/L	0.000
M8-FOSA	9.674	506.1 -> 77.8	27264	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	17475	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	11079	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	10731	2.50 µg/L	0.000
M2-4:2FTS	5.442	329.1 -> 80.9	2815	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	4400	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	3830	5.00 µg/L	0.000
M3-MeFOSAA	8.407	573.2 -> 419.0	26894	5.00 µg/L	0.000
M3-HFPO-DA	6.169	286.9 -> 168.9	32463	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	23097	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	127718	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	145062	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	11987	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	12004	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	13775	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	59115	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	8940	2.50 µg/L	0.000
13C4-PFOA	7.340	417.1 -> 372.0	80168	2.50 µg/L	0.000
13C2-PFDA	8.388	515.1 -> 470.1	28486	1.25 µg/L	0.000
13C5-PFNA	7.882	468.0 -> 423.0	45264	1.25 µg/L	0.000
13C2-PFHxA	5.792	315.1 -> 270.0	46876	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	2815	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4400	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C2-8:2FTS	8.163	529.1 -> 80.9	3830	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C2-PFDoDA	9.285	615.1 -> 570.0	24745	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C2-PFTeDA	10.000	715.2 -> 670.0	13071	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C3-PFBS	5.746	302.1 -> 79.9	17475	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.5%		
13C3-PFHxS	7.478	402.1 -> 79.9	11079	2.33 µg/L	0.000

7.7.10
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 = 93.4%	
13C4-PFBA	3.085	216.8 -> 171.9	138939	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.707	367.1 -> 322.0	49072	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C5-PFHxA	5.792	318.0 -> 273.0	48344	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C5-PFPeA	4.548	268.3 -> 223.0	45630	5.04 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C6-PFDA	8.387	519.1 -> 474.1	21065	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C7-PFUnDA	8.853	570.0 -> 525.1	28133	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C8-FOSA	9.674	506.1 -> 77.8	27264	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C8-PFOA	7.339	421.1 -> 376.0	73137	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C8-PFOS	8.563	507.1 -> 79.9	10731	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C9-PFNA	7.882	472.1 -> 427.0	37163	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.6%	
d3-MeFOSAA	8.407	573.2 -> 419.0	26894	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	32463	10.10 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d3-MeFOSA	10.775	515.0 -> 219.0	12004	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
d5-EtFOSAA	8.615	589.2 -> 419.0	23097	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
d7-MeFOSE	10.685	623.2 -> 58.9	127718	25.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d9-EtFOSE	10.930	639.2 -> 58.9	145062	22.97 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.9%	
d5-EtFOSA	10.996	531.1 -> 219.0	11987	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.1%	
Target Compounds					QValue
4:2FTS	5.443	327.1 -> 307.0	47396	9.72 µg/L	95
		327.1 -> 80.9	19014		
6:2FTS	7.113	427.1 -> 407.0	46511	8.75 µg/L	98
		427.1 -> 80.9	16457		
8:2FTS	8.164	527.1 -> 507.0	26351	10.34 µg/L	92
		527.1 -> 80.8	9119		
EtFOSAA	8.617	584.2 -> 419.1	10251	2.67 µg/L	m 98
		584.2 -> 526.0	4972		
FOSA	9.677	498.1 -> 77.9	26243	2.35 µg/L	99
		498.1 -> 478.0	867		
MeFOSAA	8.421	570.1 -> 419.0	16950	2.59 µg/L	m 98
		570.1 -> 483.0	3543		
PFBA	3.093	212.8 -> 168.9	55375	10.00 µg/L	100
PFBS	5.747	298.7 -> 79.9	17249	2.25 µg/L	91
		298.7 -> 98.8	6840		
PFDA	8.388	512.9 -> 469.0	75033	2.38 µg/L	100
		512.9 -> 219.0	11341		
PFDoDA	9.285	613.1 -> 569.0	51391	2.53 µg/L	94
		613.1 -> 319.0	7210		
PFDS	9.450	599.0 -> 79.9	8025	2.48 µg/L	98

7.7.10
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3727			
PFHpA	6.708	363.1 -> 319.0	60539	2.30	µg/L	99
		363.1 -> 169.0	9437			
PFHpS	8.046	449.0 -> 79.9	14950	2.31	µg/L	96
		449.0 -> 98.9	7728			
PFHxA	5.795	313.0 -> 269.0	52011	2.69	µg/L	99
		313.0 -> 118.9	2721			
PFHxS	7.479	398.7 -> 79.9	14995	2.25	µg/L	m 95
		398.7 -> 98.9	7449			
PFNA	7.883	463.0 -> 419.0	74877	2.20	µg/L	95
		463.0 -> 219.0	14885			
PFNS	9.041	548.8 -> 79.9	13578	2.39	µg/L	94
		548.8 -> 98.9	7162			
PFOA	7.341	413.0 -> 369.0	93809	2.50	µg/L	99
		413.0 -> 169.0	17077			
PFOS	8.564	498.9 -> 79.9	13759	2.18	µg/L	m 97
		498.9 -> 98.8	7503			
PFPeA	4.551	263.0 -> 219.0	66604	4.96	µg/L	100
PFPeS	6.785	349.1 -> 79.9	14620	2.39	µg/L	100
		349.1 -> 98.9	6711			
PFTeDA	10.000	713.1 -> 669.0	39723	2.54	µg/L	100
		713.1 -> 168.9	3478			
PFTrDA	9.669	663.0 -> 619.0	48247	2.39	µg/L	96
		663.0 -> 168.9	5547			
PFUnDA	8.854	563.1 -> 519.0	51922	2.52	µg/L	99
		563.1 -> 269.1	8745			
11CI-PF3OUdS	9.721	630.9 -> 450.9	70521	4.61	µg/L	98
		632.9 -> 452.9	21984			
9CI-PF3ONS	8.906	530.8 -> 351.0	121769	4.76	µg/L	97
		532.8 -> 353.0	34731			
ADONA	6.959	376.9 -> 250.9	251455	4.58	µg/L	98
		376.9 -> 84.8	67235			
HFPO-DA	6.169	284.9 -> 168.9	17134	4.86	µg/L	98
		284.9 -> 184.9	1985			
3:3FTCA	3.946	241.0 -> 177.0	11109	12.10	µg/L	100
		241.0 -> 117.0	1481			
5:3FTCA	6.361	341.0 -> 237.1	245798	65.44	µg/L	98
		341.0 -> 217.0	178603			
7:3FTCA	7.736	441.0 -> 316.9	179546	66.79	µg/L	85
		441.0 -> 336.9	370625			
EtFOSA	10.997	526.0 -> 219.0	30428	4.74	µg/L	94
		526.0 -> 169.0	40934			
EtFOSE	10.943	630.0 -> 58.9	97165	12.69	µg/L	100
MeFOSA	10.777	511.9 -> 219.0	25928	4.93	µg/L	m 97
		511.9 -> 169.0	37027			
MeFOSE	10.709	616.1 -> 58.9	68156	12.19	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	3994	2.48	µg/L	89
		699.1 -> 98.8	1985			
NFDHA	5.673	295.0 -> 201.0	12807	5.22	µg/L	95
		295.0 -> 84.9	3339			
PFMBA	4.975	279.0 -> 85.1	47705	4.95	µg/L	100
PFMPA	3.667	229.0 -> 84.9	36882	4.93	µg/L	100
PFEESA	6.288	314.8 -> 134.9	125759	5.28	µg/L	100
		314.8 -> 82.9	4385			

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

7.7.10
7

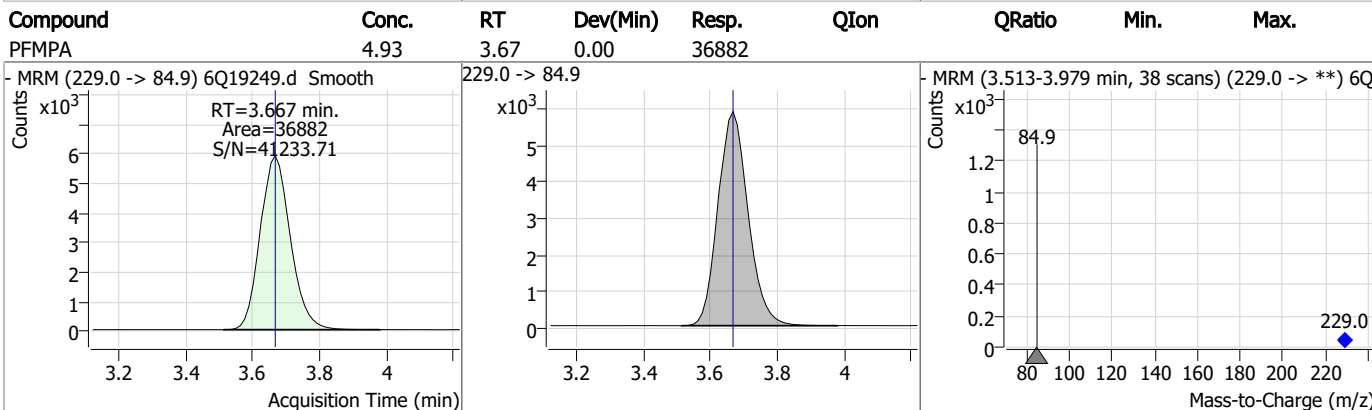
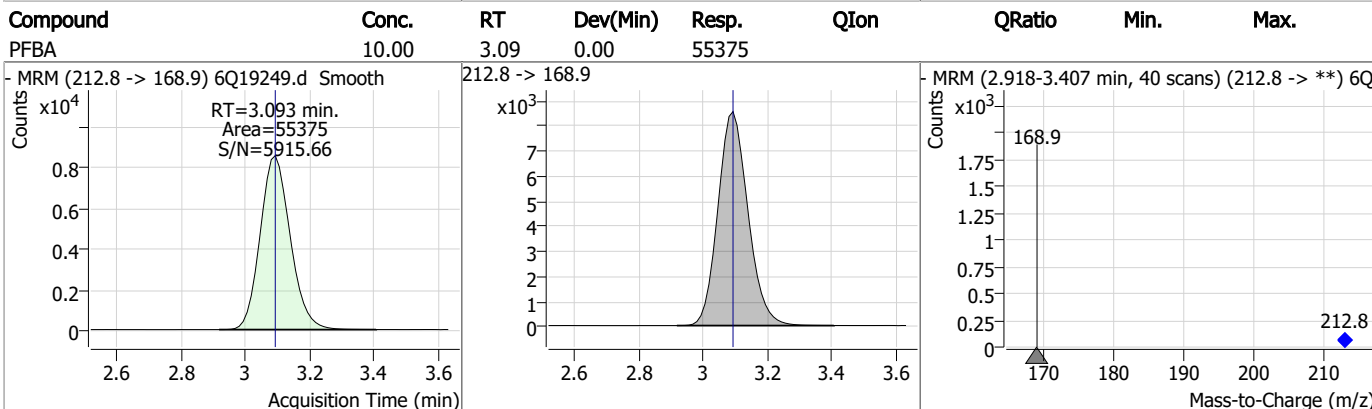
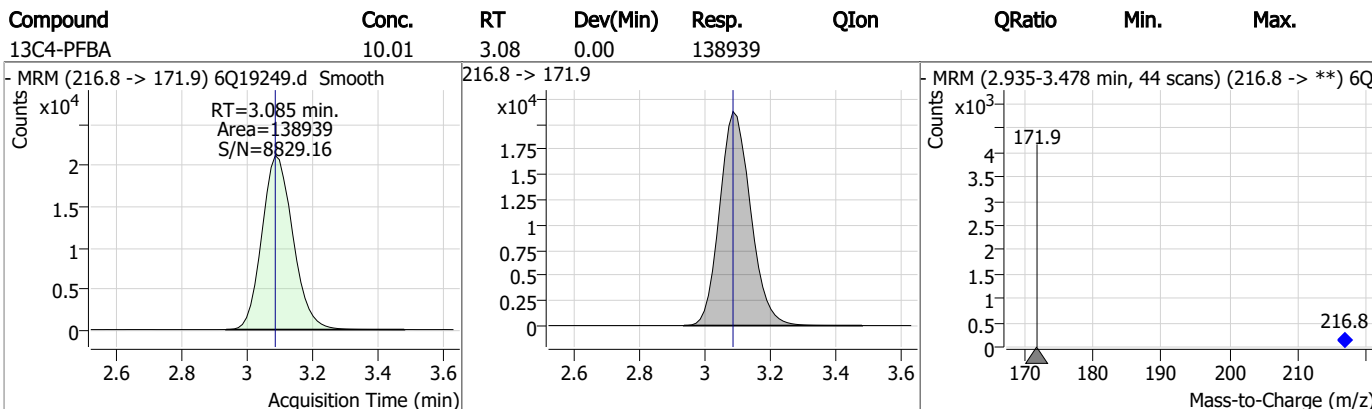
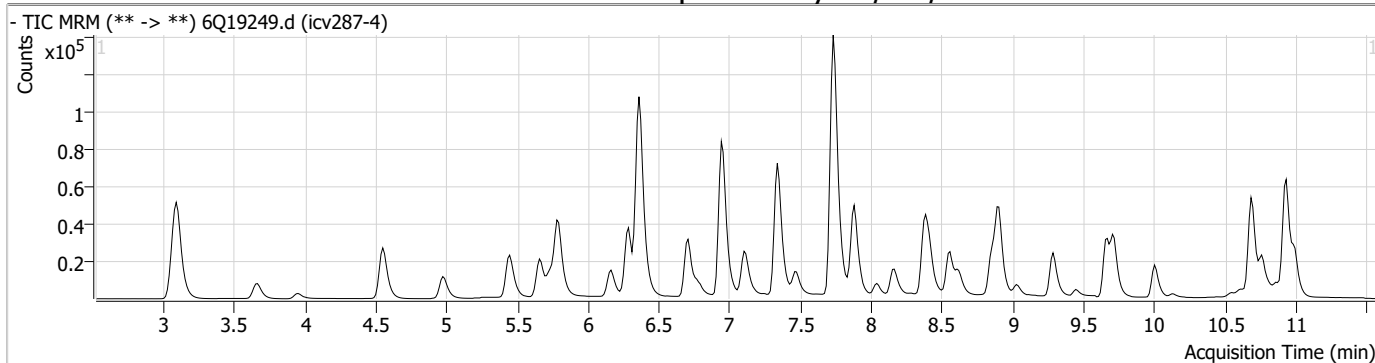
Perfluorinated Compounds by LC/MS/MS

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

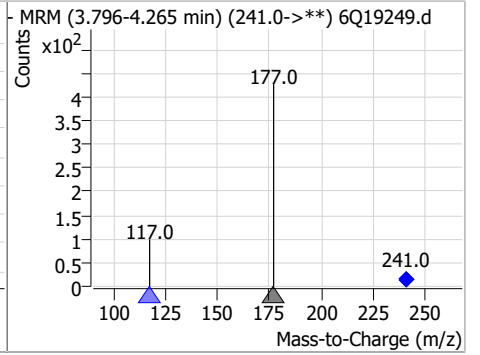
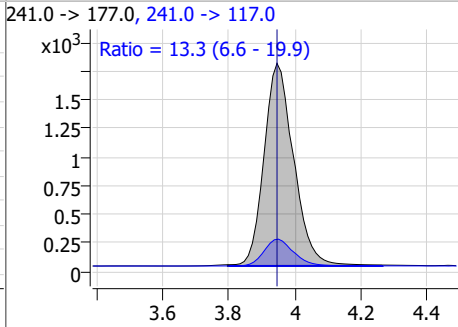
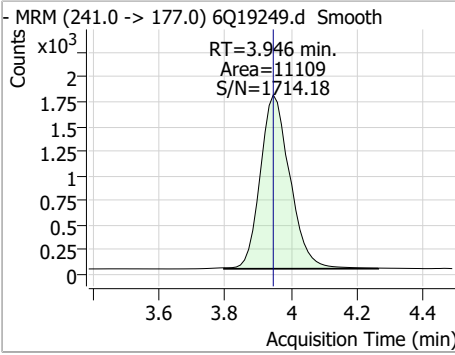
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Perfluorinated Compounds by LC/MS/MS

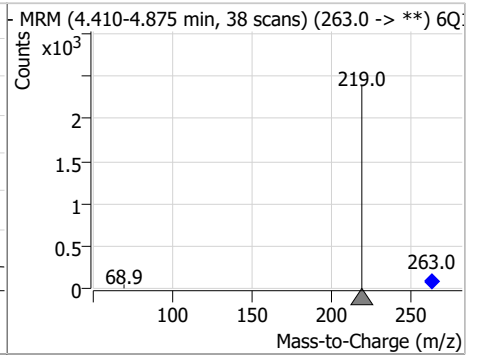
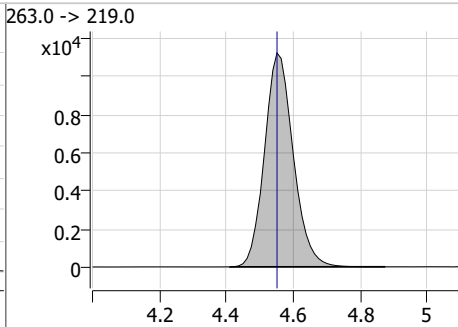
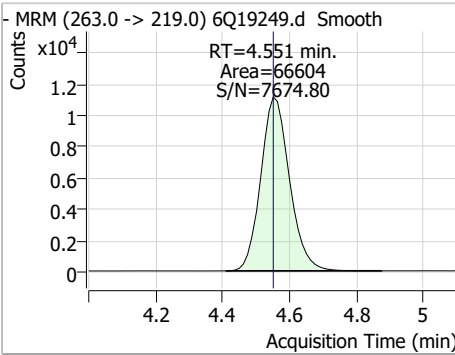


Perfluorinated Compounds by LC/MS/MS

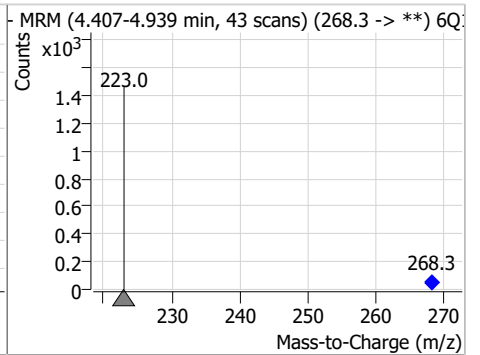
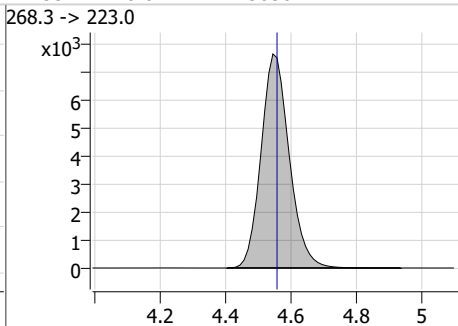
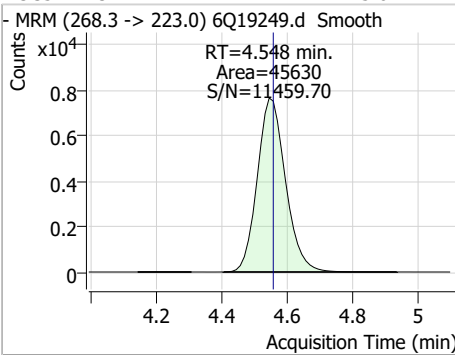
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.10	3.95	0.00	11109	241.0 -> 117.0	13.3	6.6	19.9



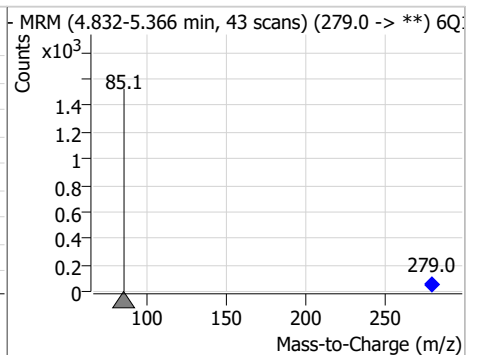
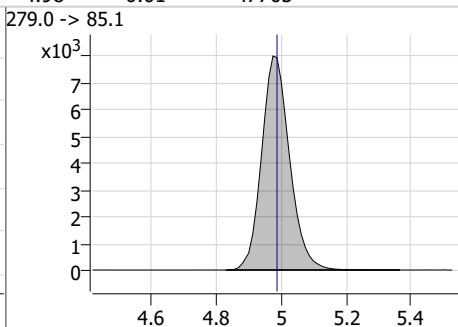
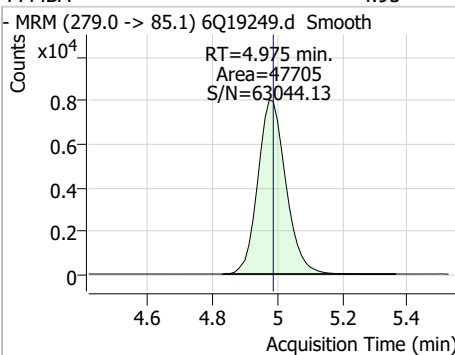
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.96	4.55	0.00	66604	263.0 -> 219.0	13.3	6.6	19.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.04	4.55	-0.01	45630	268.3 -> 223.0	13.3	6.6	19.9

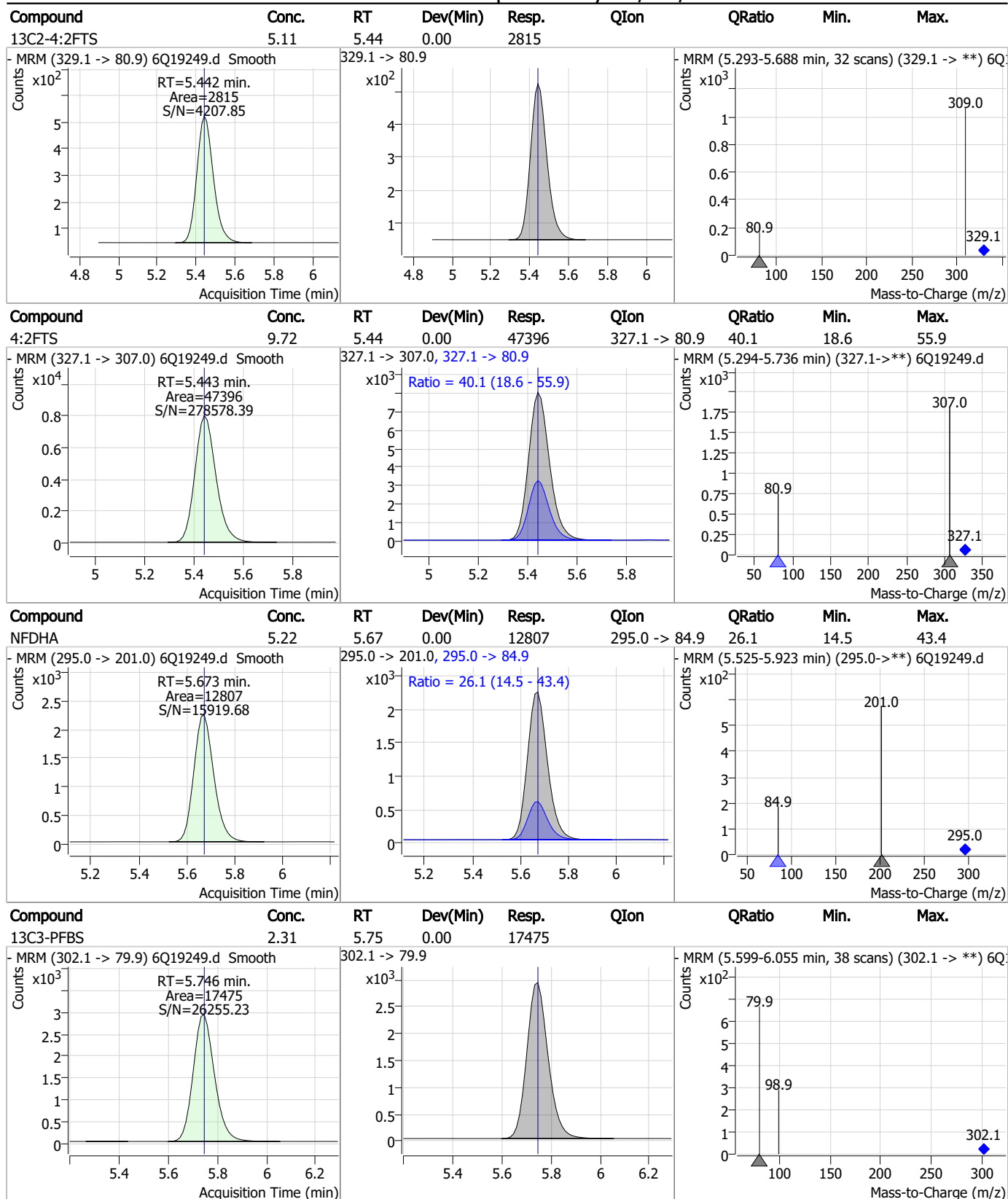


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.95	4.98	-0.01	47705	279.0 -> 85.1	13.3	6.6	19.9



7.7.10 7

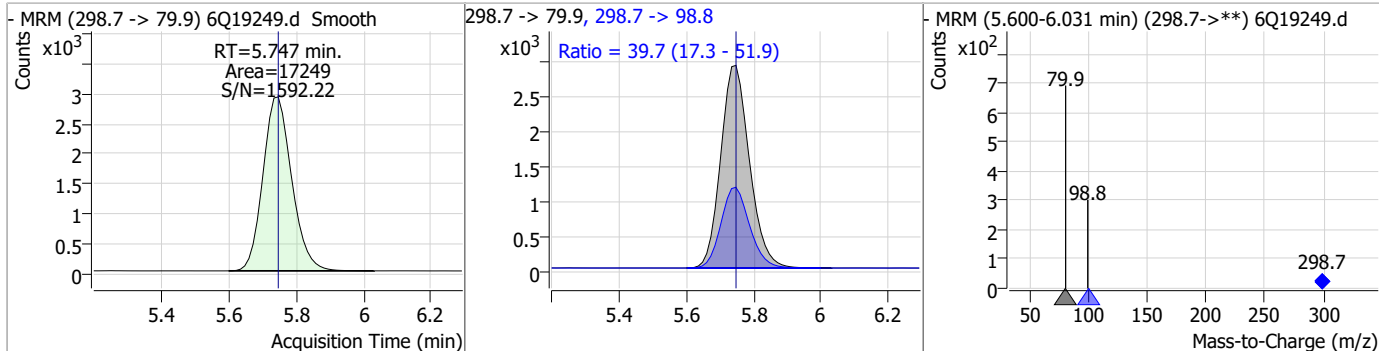
Perfluorinated Compounds by LC/MS/MS



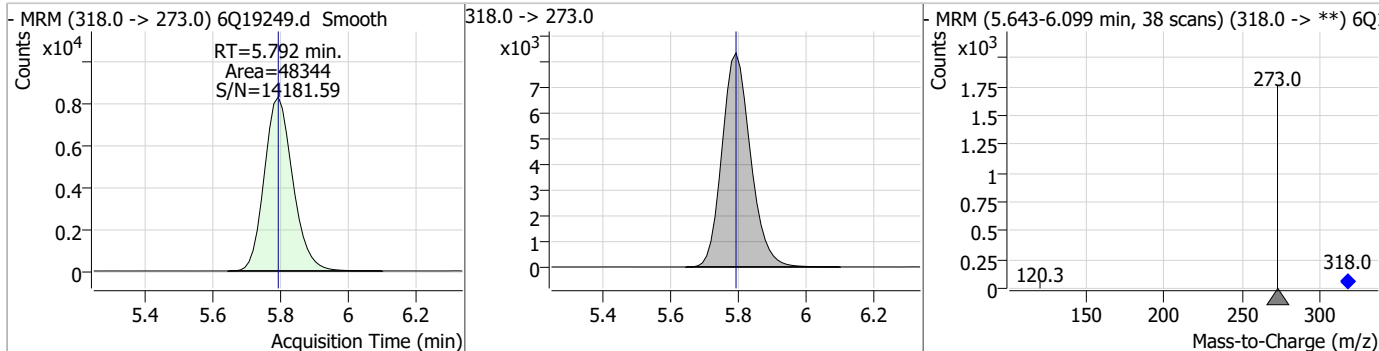
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

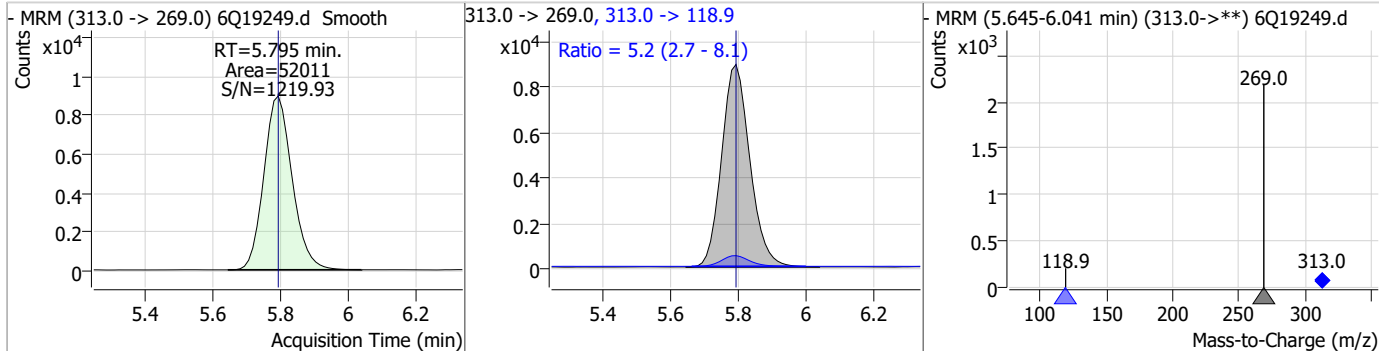
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.25	5.75	0.00	17249	298.7 -> 98.8	39.7	17.3	51.9



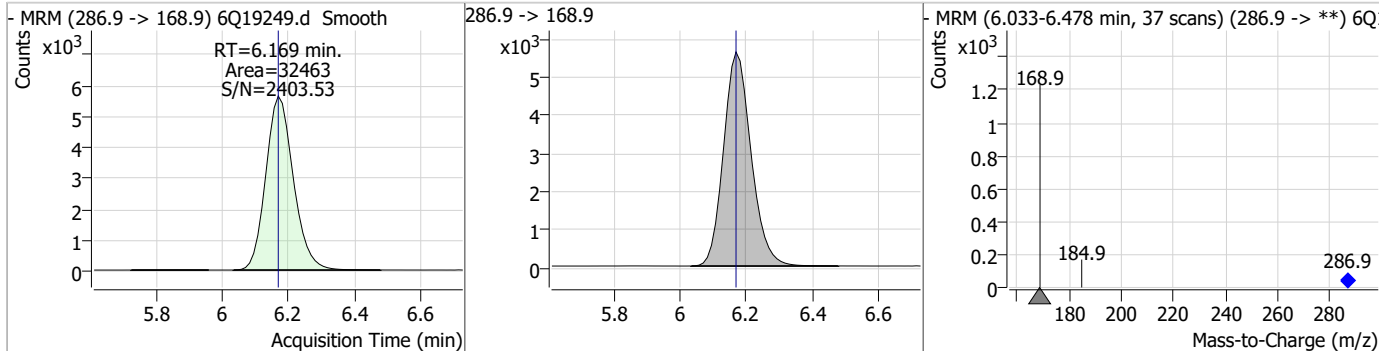
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.39	5.79	0.00	48344				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.69	5.79	0.00	52011	313.0 -> 118.9	5.2	2.7	8.1



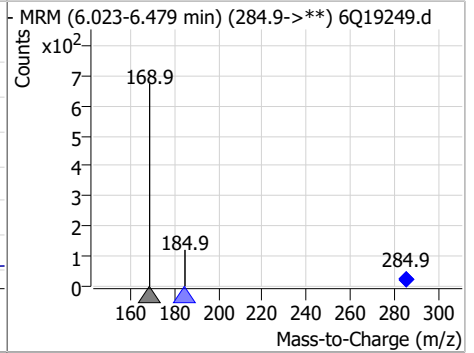
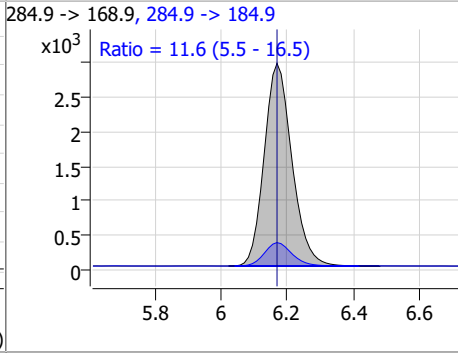
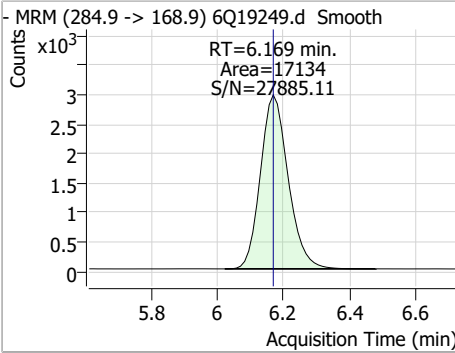
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.10	6.17	0.00	32463				



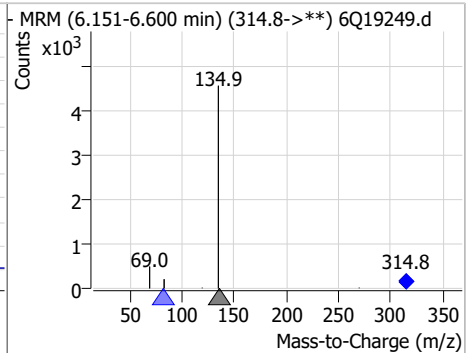
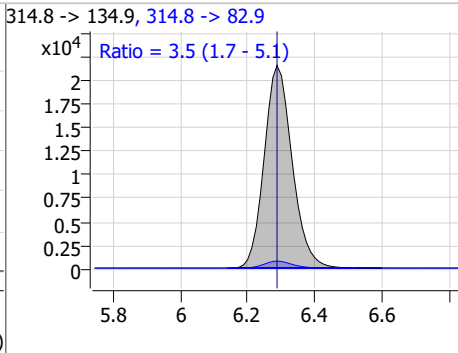
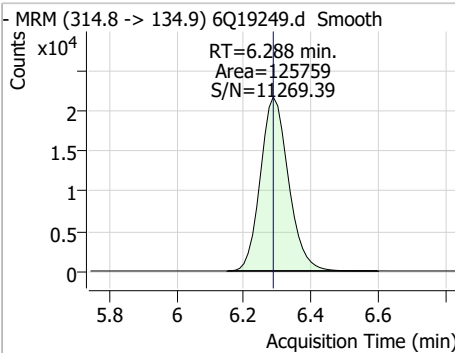
7.7.10
7

Perfluorinated Compounds by LC/MS/MS

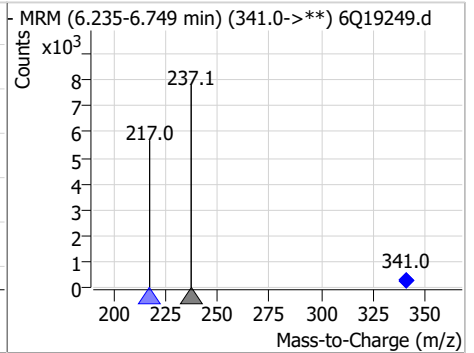
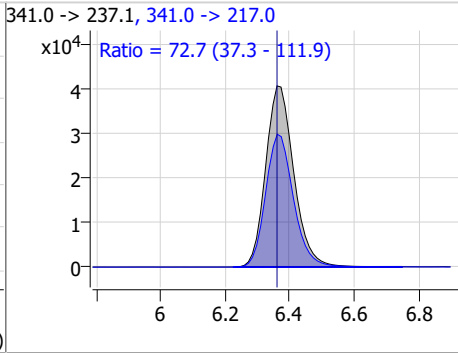
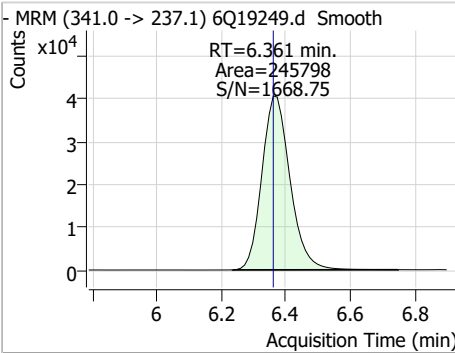
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.86	6.17	0.00	17134	284.9 -> 184.9	11.6	5.5	16.5



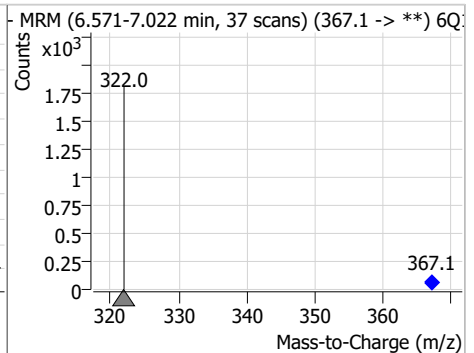
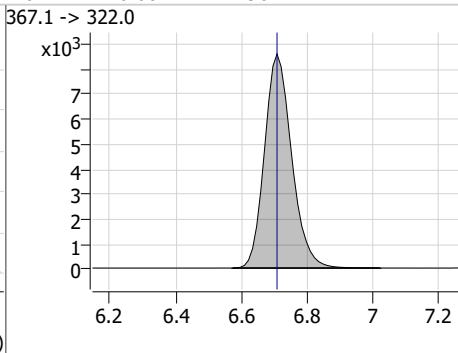
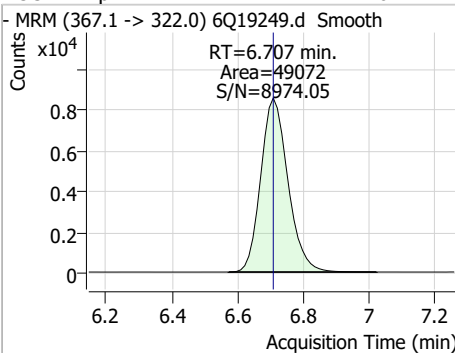
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	5.28	6.29	0.00	125759	314.8 -> 82.9	3.5	1.7	5.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	65.44	6.36	0.00	245798	341.0 -> 217.0	72.7	37.3	111.9

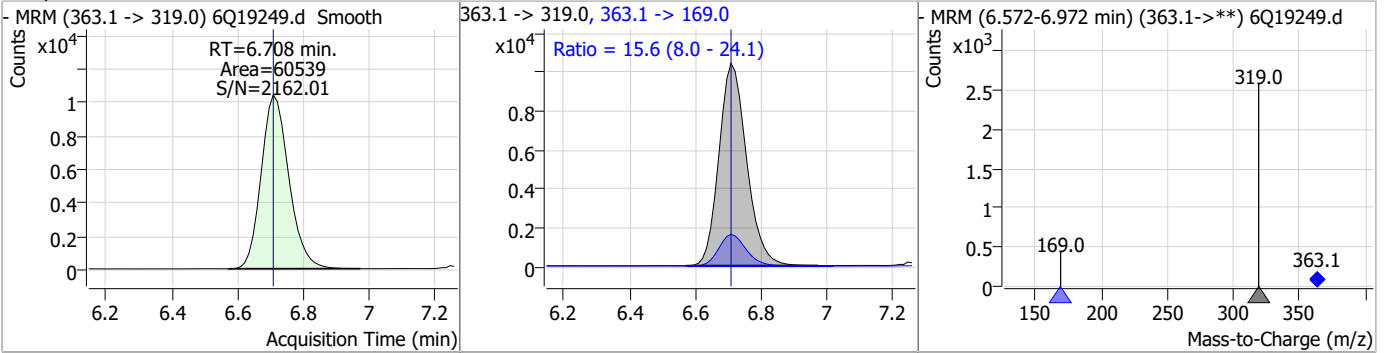


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.61	6.71	0.00	49072	367.1 -> 322.0			

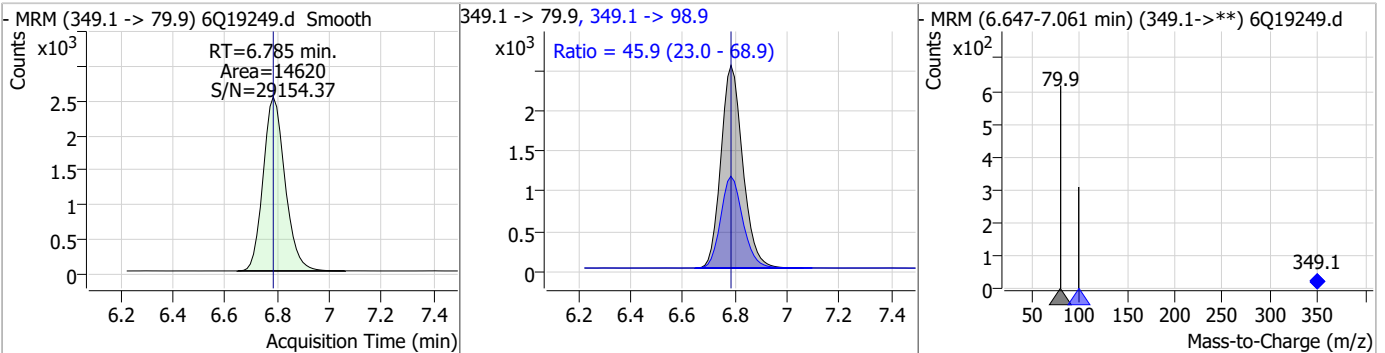


Perfluorinated Compounds by LC/MS/MS

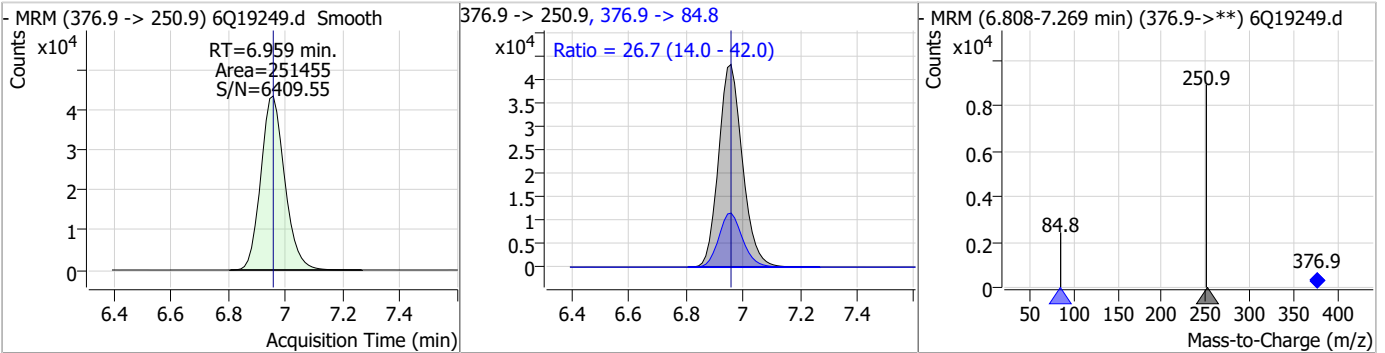
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.30	6.71	0.00	60539	363.1 -> 169.0	15.6	8.0	24.1



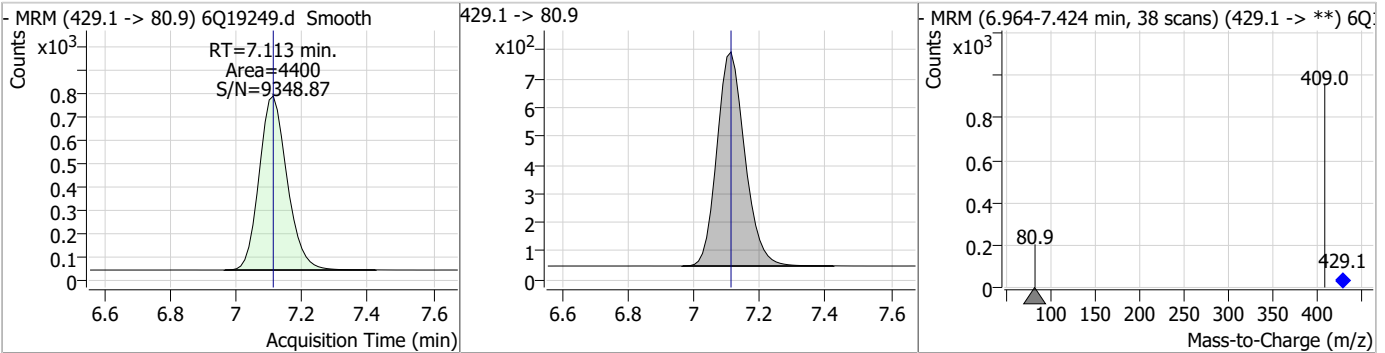
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.39	6.79	0.00	14620	349.1 -> 98.9	45.9	23.0	68.9



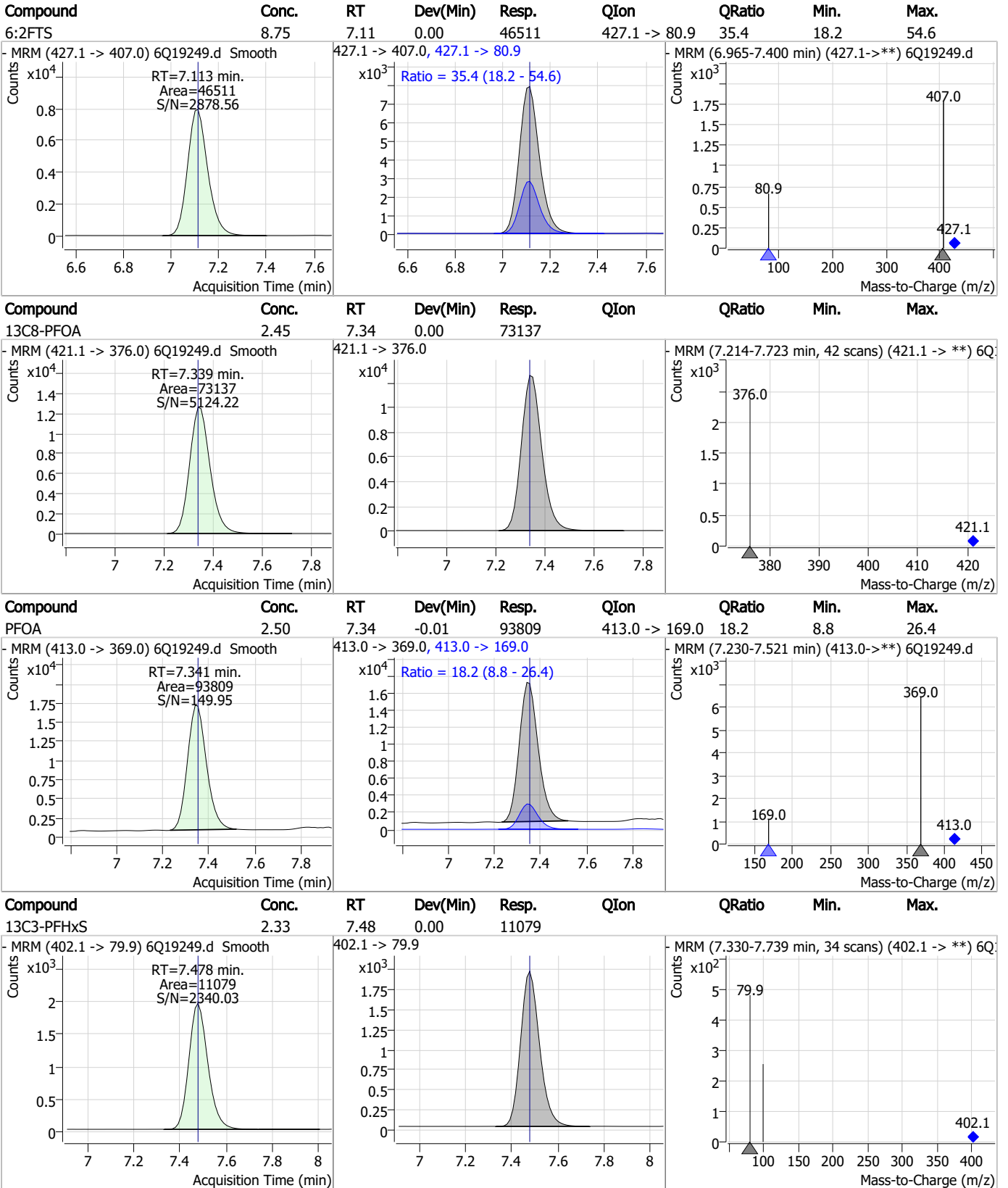
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.58	6.96	0.00	251455	376.9 -> 84.8	26.7	14.0	42.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.32	7.11	0.00	4400	429.1 -> 80.9			

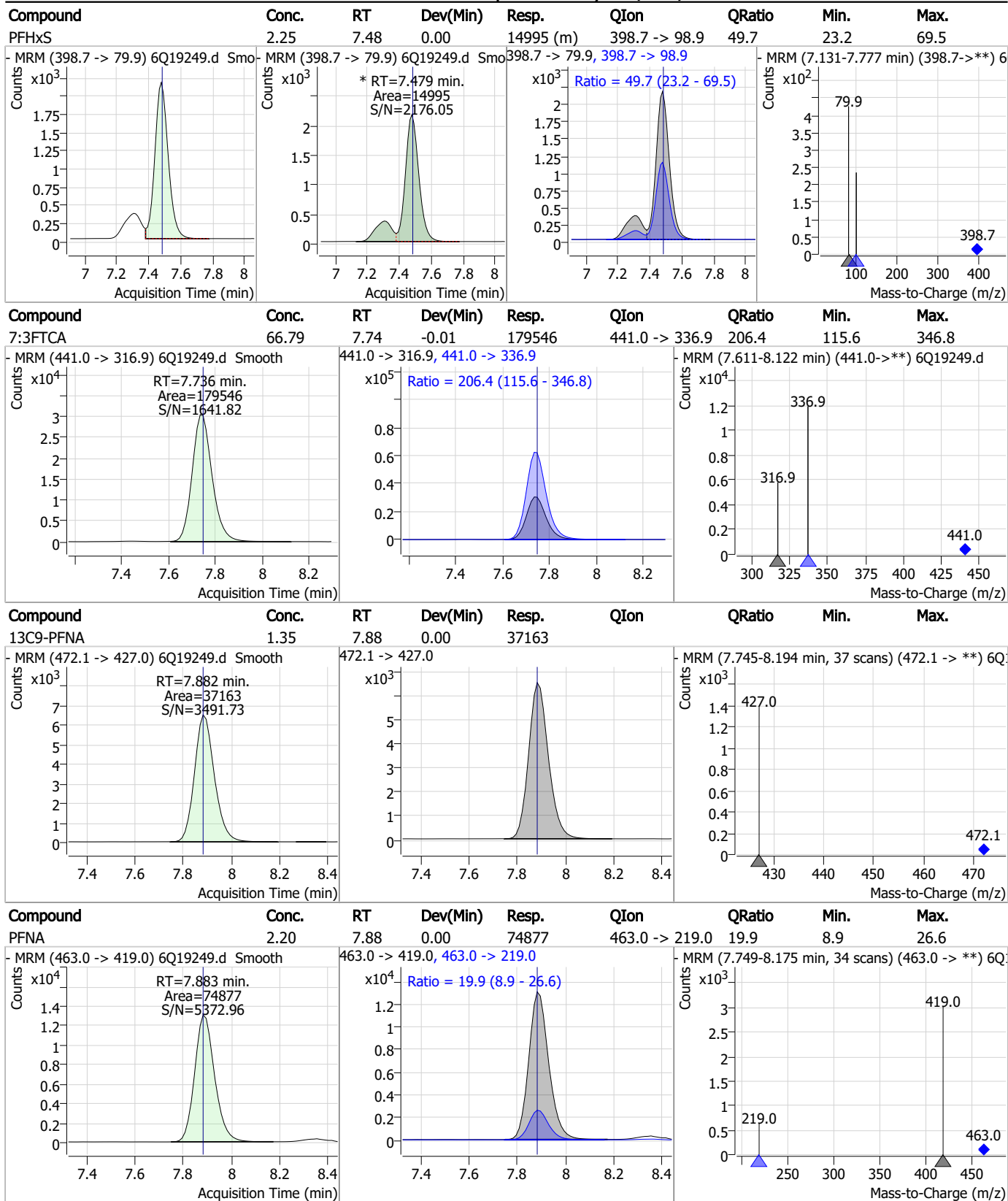


Perfluorinated Compounds by LC/MS/MS



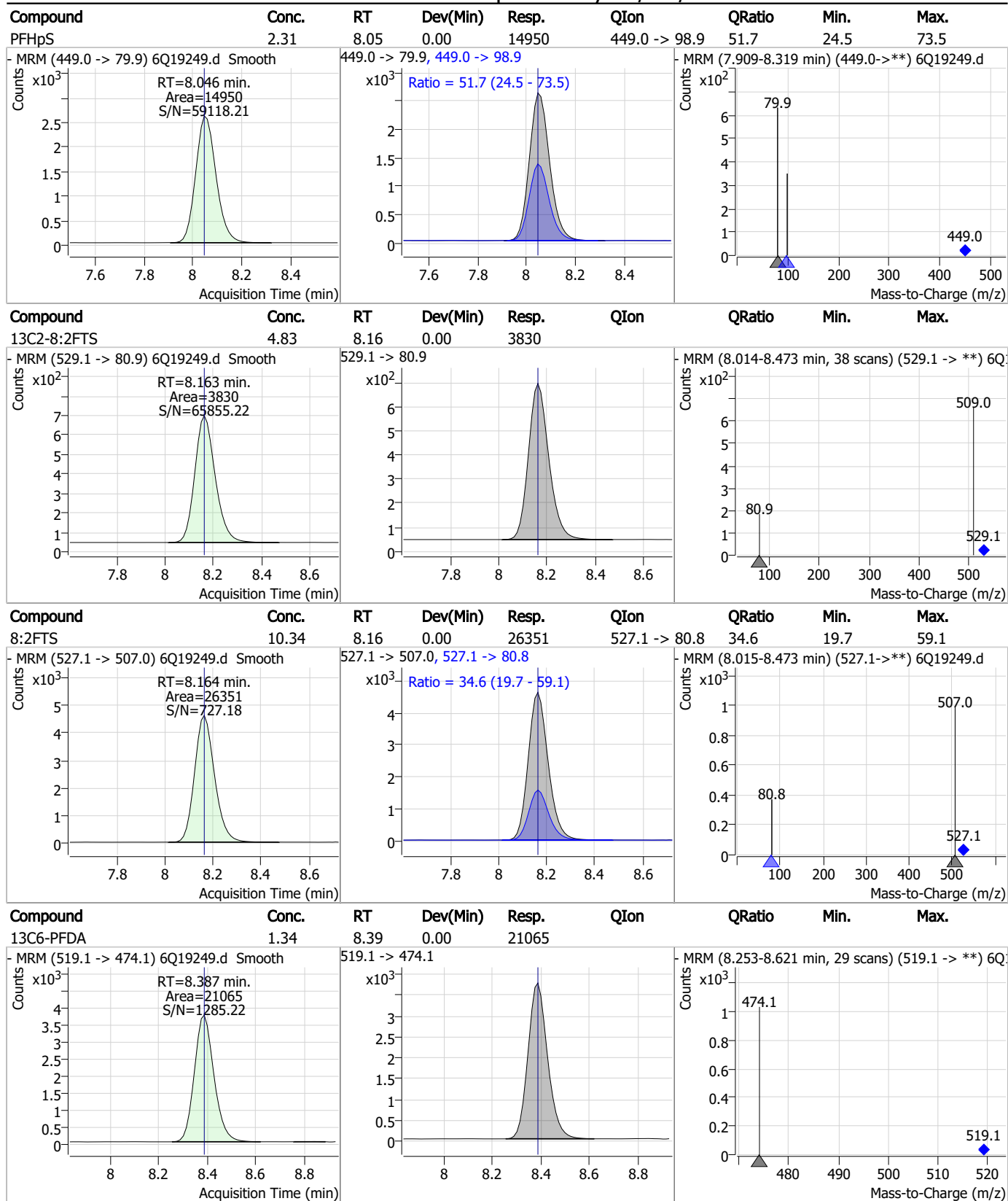
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



7.7.10
7

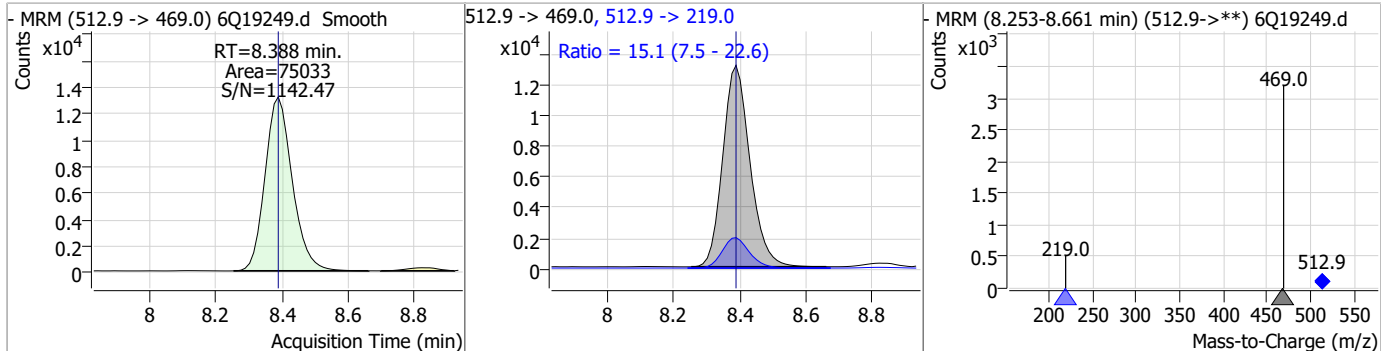
Perfluorinated Compounds by LC/MS/MS



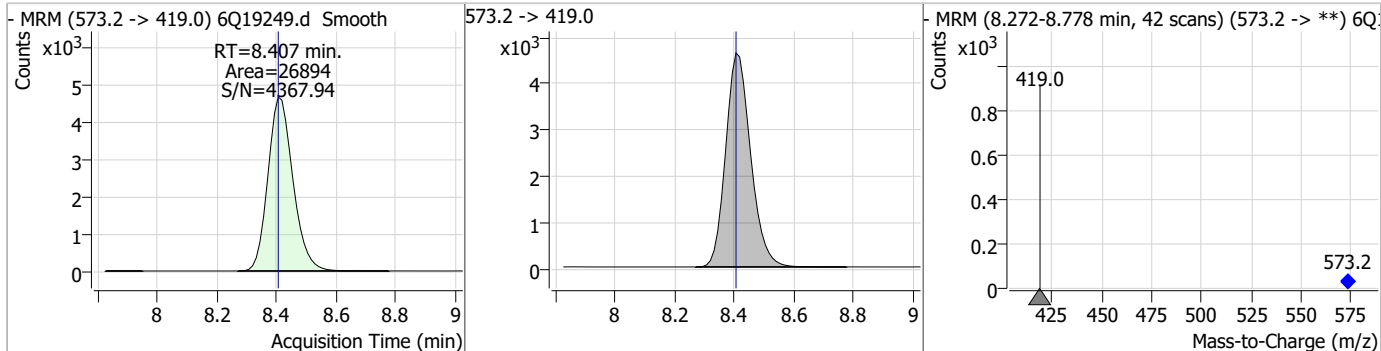
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

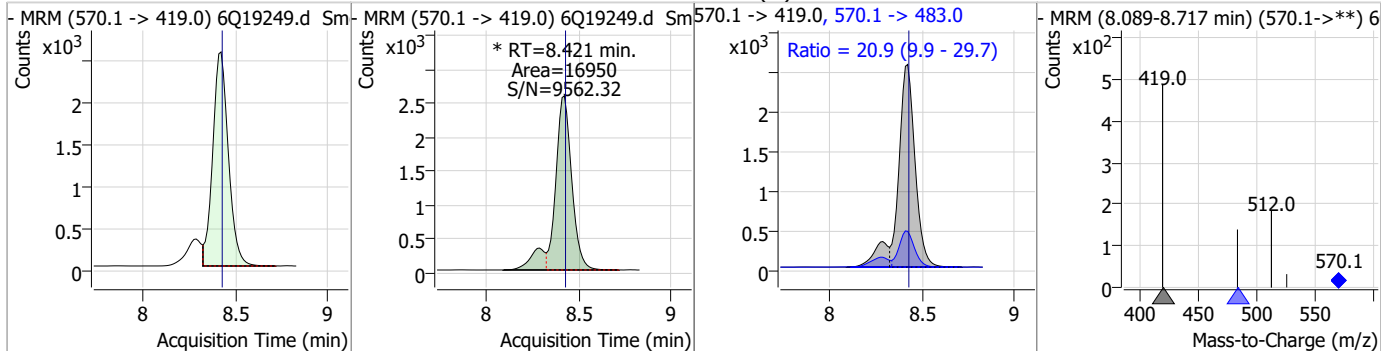
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.38	8.39	0.00	75033	512.9 -> 219.0	15.1	7.5	22.6



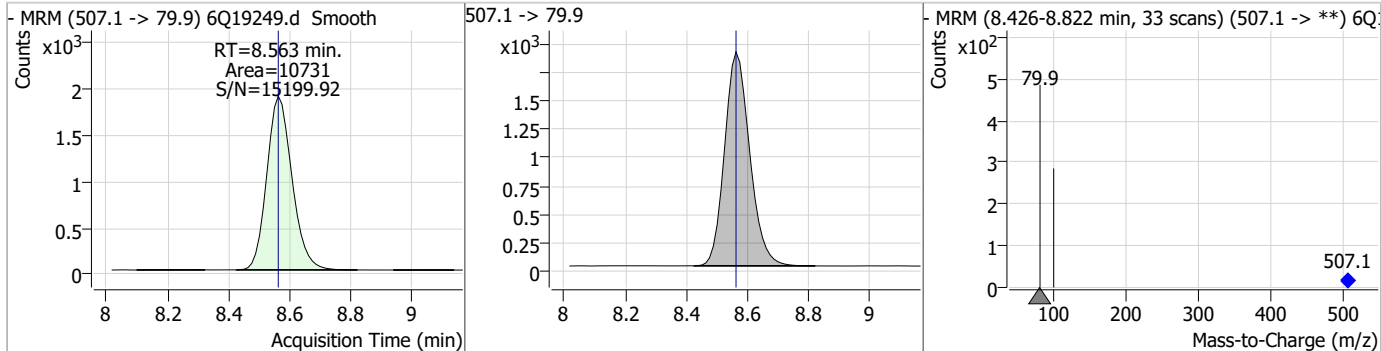
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.20	8.41	0.00	26894				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.59	8.42	0.00	16950 (m)	570.1 -> 483.0	20.9	9.9	29.7



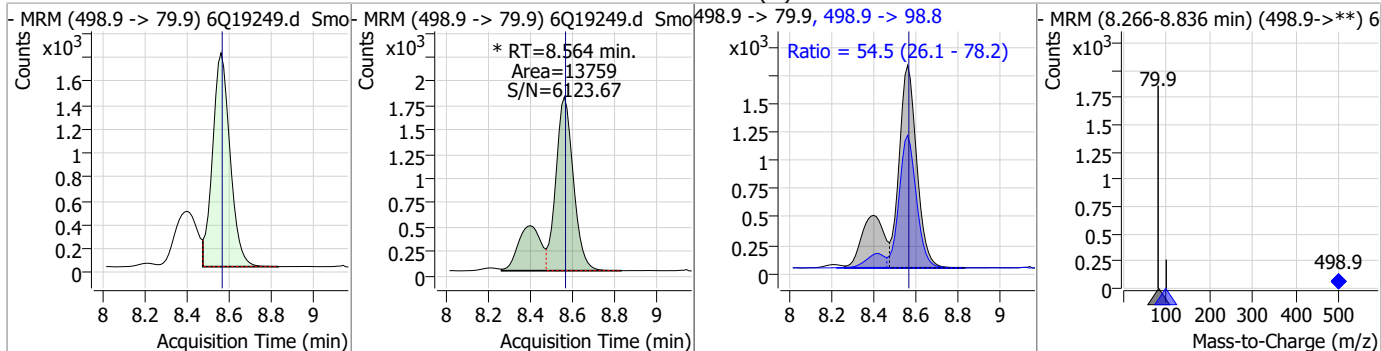
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.66	8.56	0.00	10731				



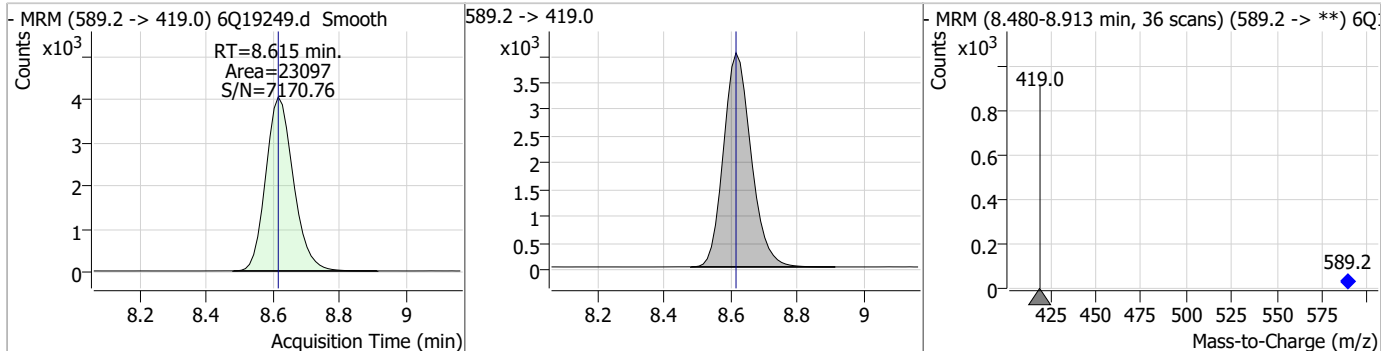
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

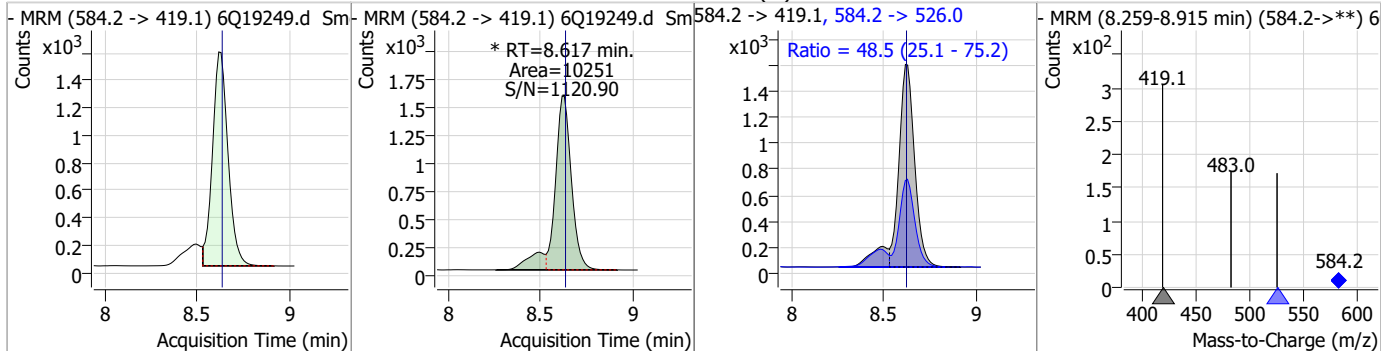
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.18	8.56	0.00	13759 (m)	498.9 -> 98.8	54.5	26.1	78.2



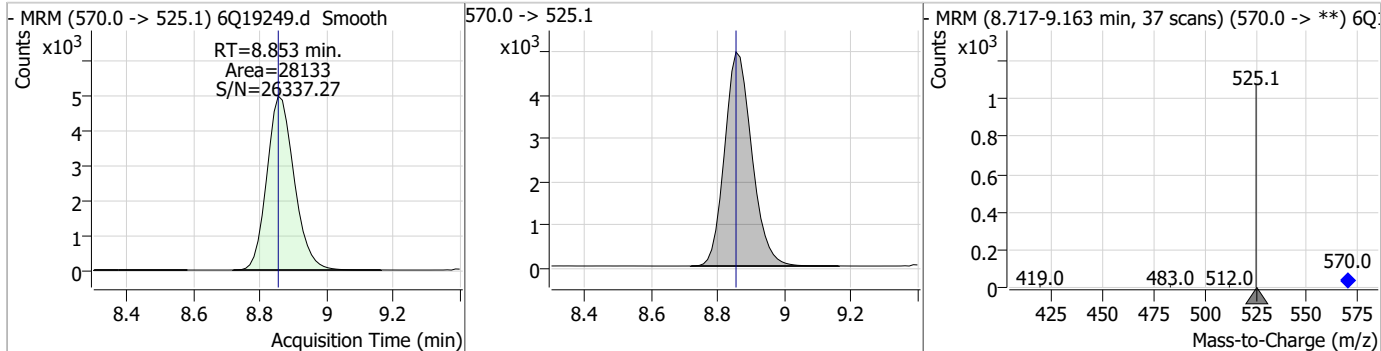
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.30	8.62	0.00	23097				



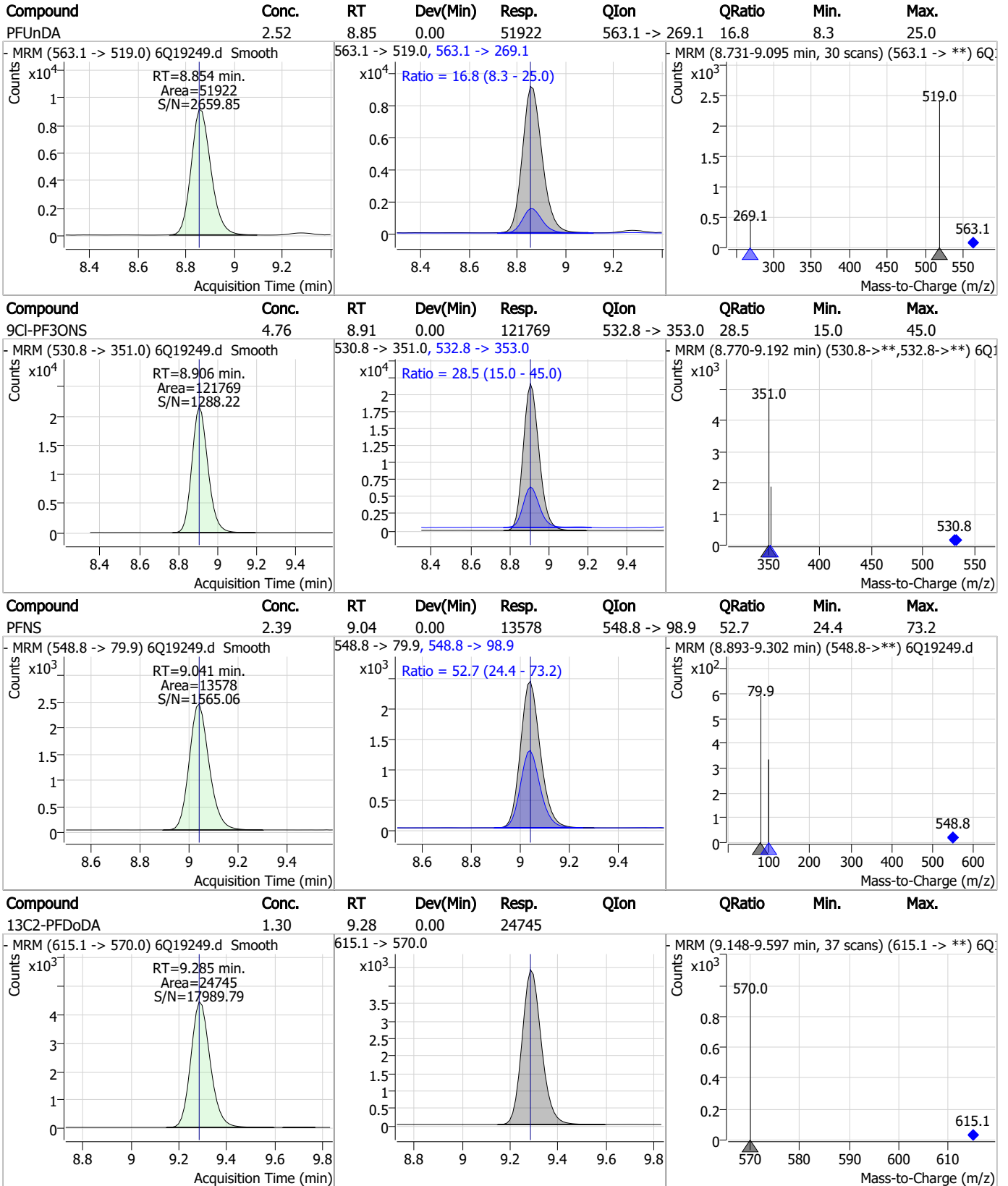
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.67	8.62	-0.01	10251 (m)	584.2 -> 526.0	48.5	25.1	75.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.27	8.85	0.00	28133				



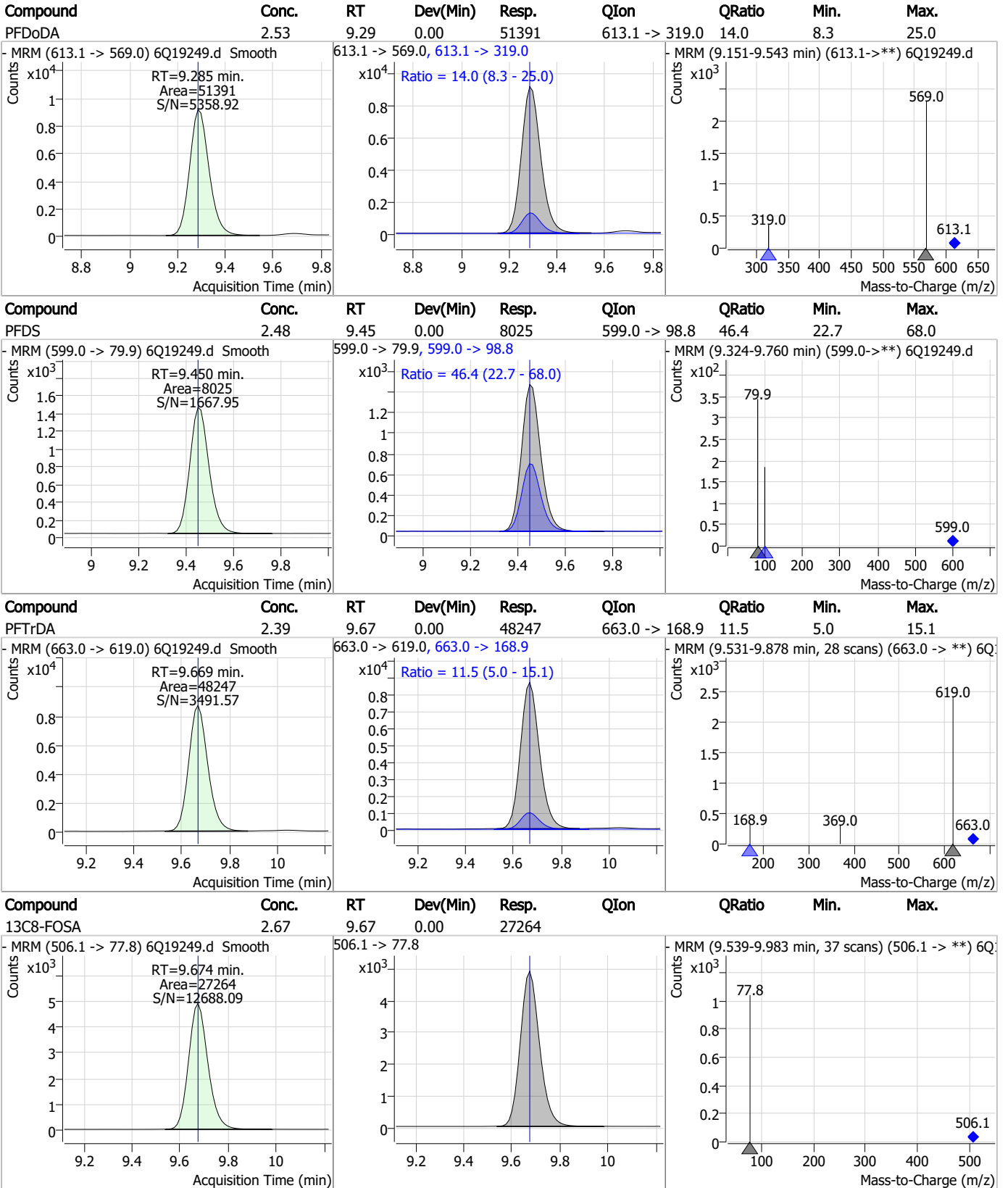
Perfluorinated Compounds by LC/MS/MS



7.7.10 7



Perfluorinated Compounds by LC/MS/MS

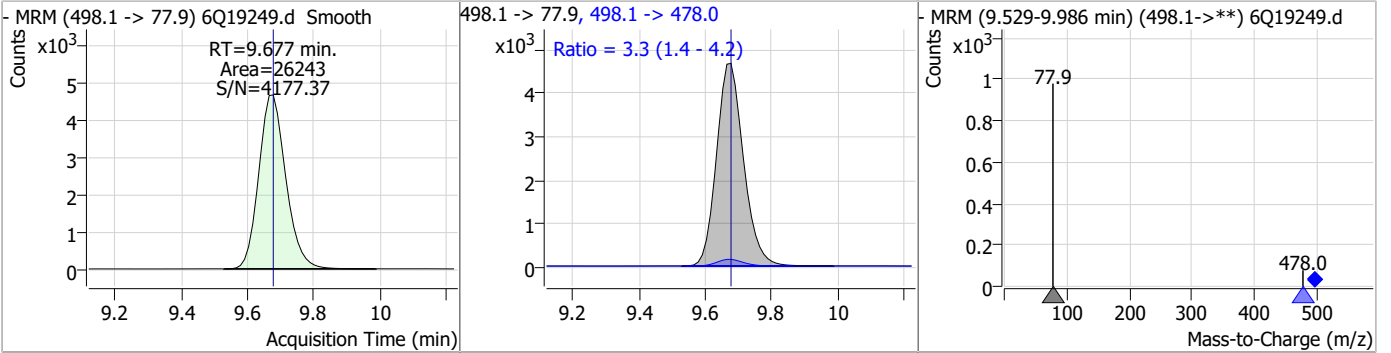


7.7.10 7

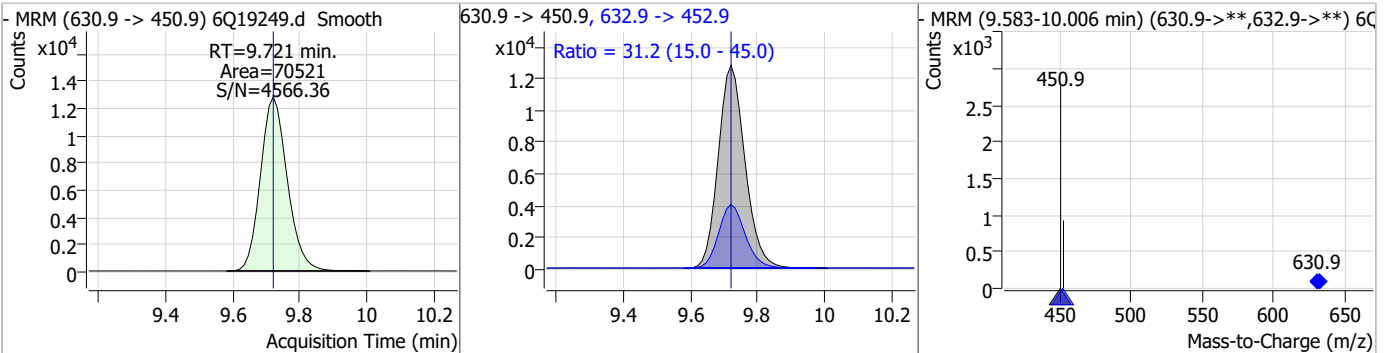


Perfluorinated Compounds by LC/MS/MS

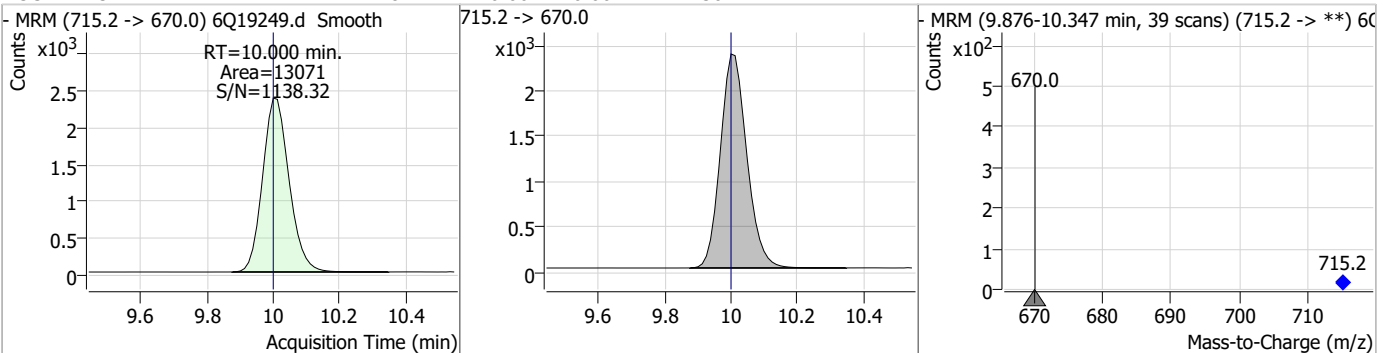
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.35	9.68	0.00	26243	498.1 -> 478.0	3.3	1.4	4.2



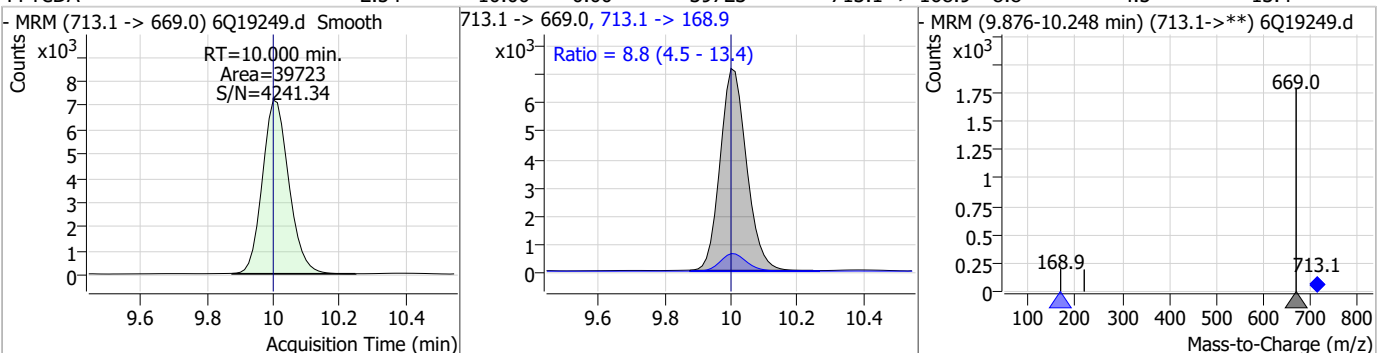
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	4.61	9.72	0.00	70521	632.9 -> 452.9	31.2	15.0	45.0



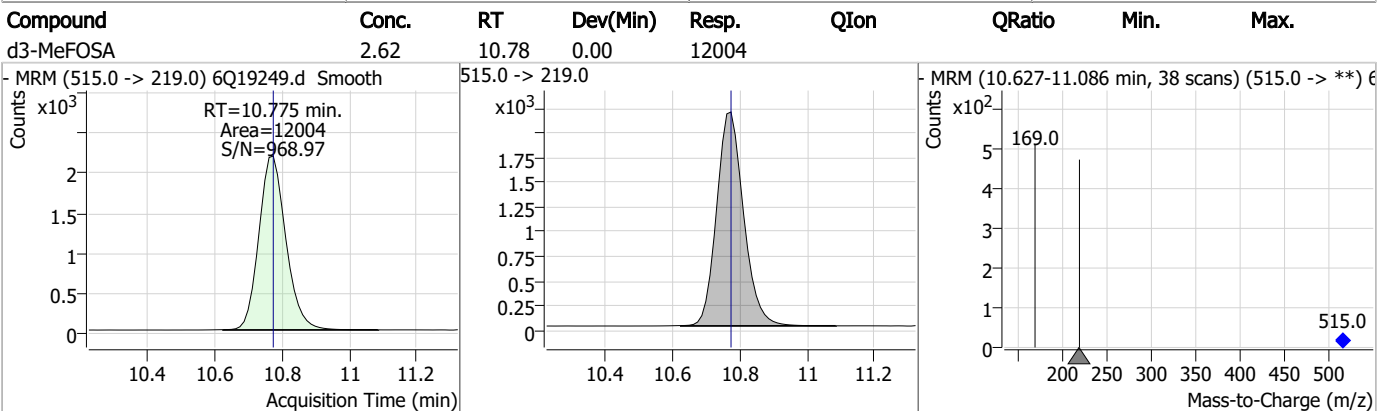
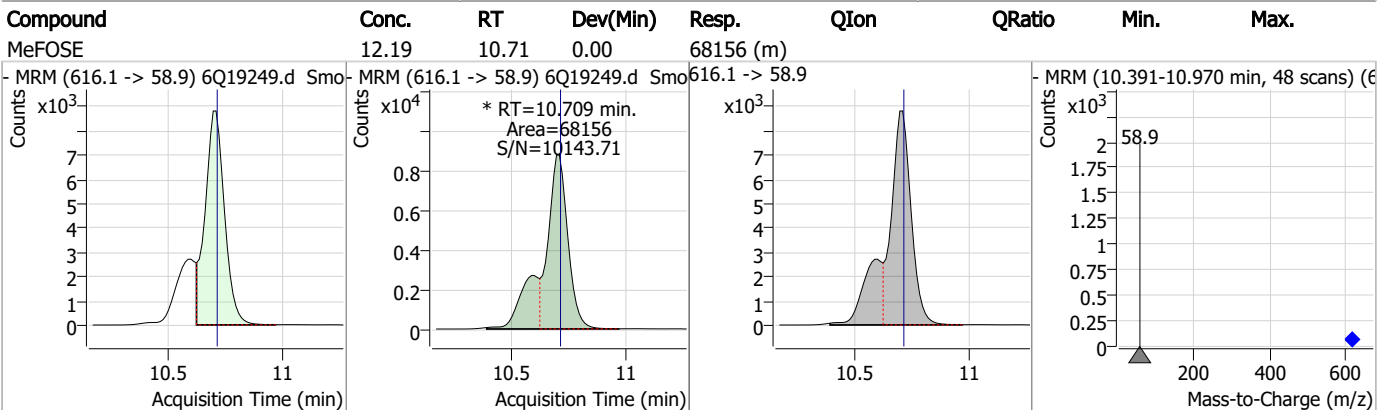
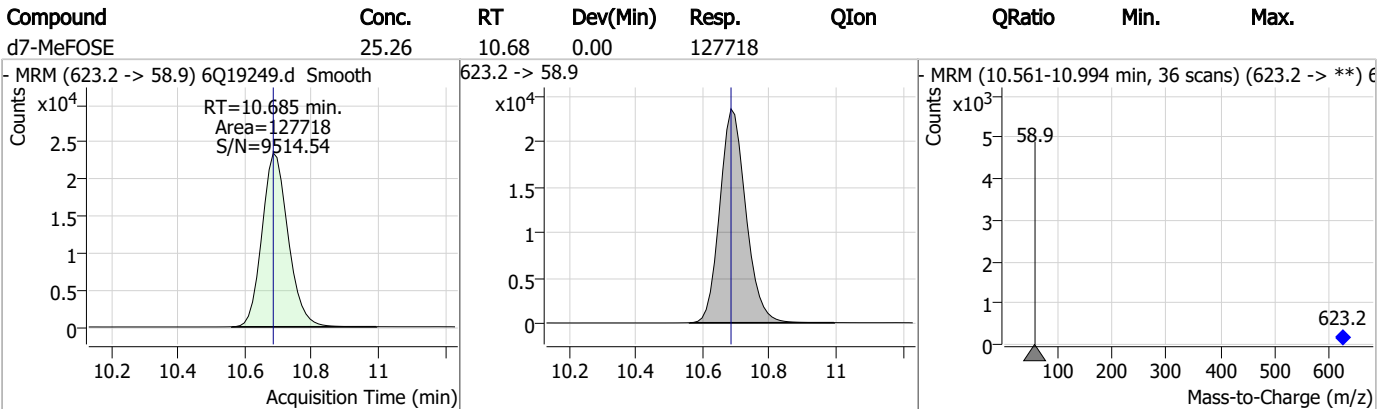
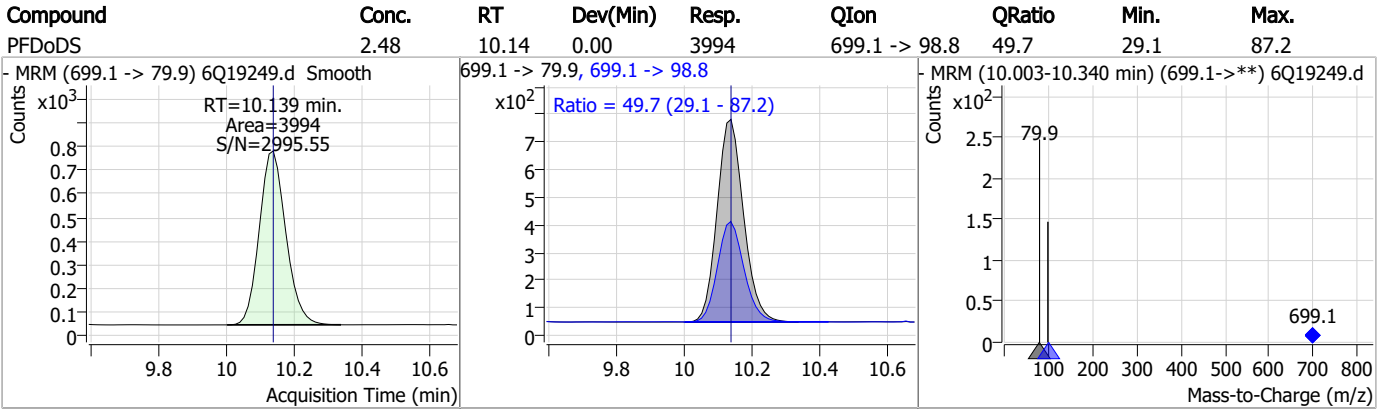
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.18	10.00	0.00	13071	715.2 -> 670.0	8.8	4.5	13.4



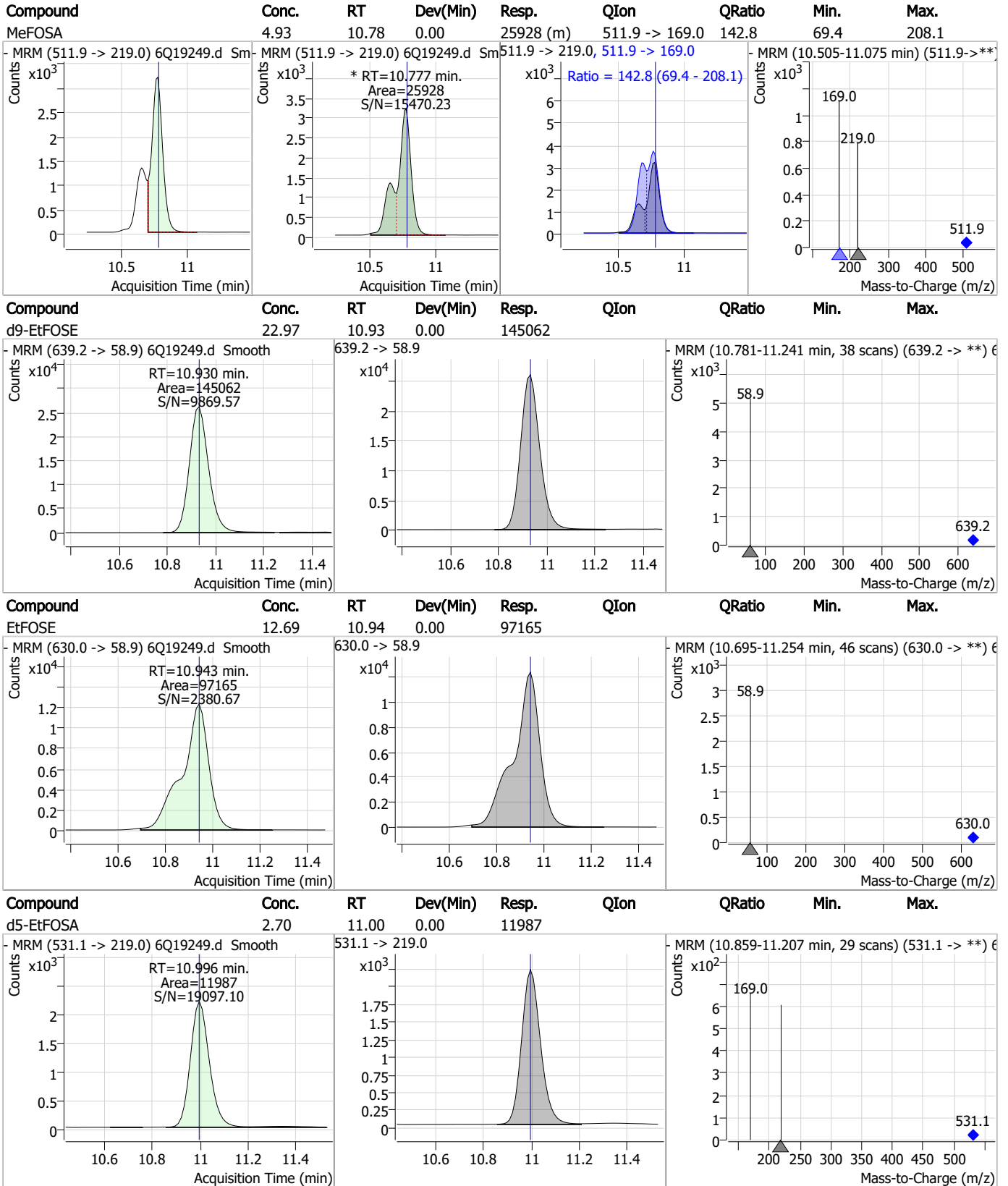
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.54	10.00	0.00	39723	713.1 -> 168.9	8.8	4.5	13.4



Perfluorinated Compounds by LC/MS/MS

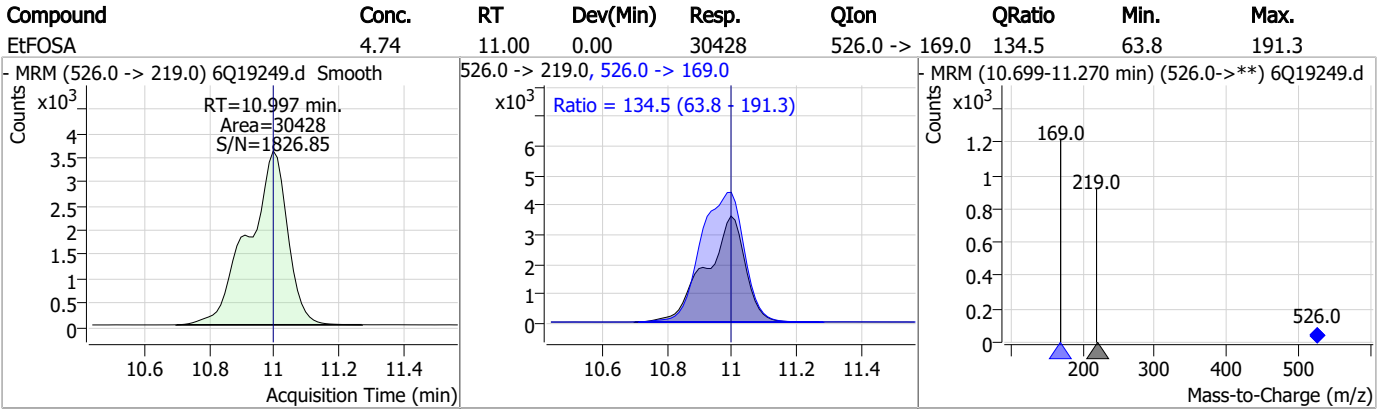


Perfluorinated Compounds by LC/MS/MS



7.7.10 7

Perfluorinated Compounds by LC/MS/MS



7.7.10 7



Manual Integration Approval Summary

Sample Number: S6Q287-ICV287 Method: EPA DRAFT 1633
Lab FileID: 6Q19249.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 17:54 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.62	Split peak
MeFOSE	24448-09-7		10.71	Split peak
MeFOSA	31506-32-8		10.78	Split peak

7.7.10.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19250.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 6:08:20 PM
 Sample Name : icv287-20
 Vial : P1-B2
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	186903	10.00 µg/L	0.000
M5-PFPeA	4.548	268.3 -> 223.0	61219	5.00 µg/L	-0.012
M5-PFHxA	5.792	318.0 -> 273.0	65602	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	63373	2.50 µg/L	0.000
M8-PFOA	7.339	421.1 -> 376.0	101827	2.50 µg/L	0.000
M9-PFNA	7.882	472.1 -> 427.0	46220	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	27311	1.25 µg/L	0.000
M7-PFUnDA	8.853	570.0 -> 525.1	38591	1.25 µg/L	0.000
M2-PFDoDA	9.285	615.1 -> 570.0	31985	1.25 µg/L	0.000
M2-PFTeDA	10.000	715.2 -> 670.0	18345	1.25 µg/L	0.000
M8-FOSA	9.674	506.1 -> 77.8	34417	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	24612	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	15038	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	14017	2.50 µg/L	0.000
M2-4:2FTS	5.442	329.1 -> 80.9	3729	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	5634	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4977	5.00 µg/L	0.000
M3-MeFOSAA	8.407	573.2 -> 419.0	35496	5.00 µg/L	0.000
M3-HFPO-DA	6.169	286.9 -> 168.9	43327	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	32282	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	145105	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	163323	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	14632	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	14215	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	18783	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	78453	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	10637	2.50 µg/L	0.000
13C4-PFOA	7.340	417.1 -> 372.0	105398	2.50 µg/L	0.000
13C2-PFDA	8.388	515.1 -> 470.1	36813	1.25 µg/L	0.000
13C5-PFNA	7.882	468.0 -> 423.0	58683	1.25 µg/L	0.000
13C2-PFHxA	5.792	315.1 -> 270.0	61420	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	3729	5.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.9%		
13C2-6:2FTS	7.113	429.1 -> 80.9	5634	5.72 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.5%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4977	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C2-PFDoDA	9.285	615.1 -> 570.0	31985	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C2-PFTeDA	10.000	715.2 -> 670.0	18345	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C3-PFBS	5.746	302.1 -> 79.9	24612	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.5%		
13C3-PFHxS	7.478	402.1 -> 79.9	15038	2.66 µg/L	0.000

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 = 106.5%	
13C4-PFBA	3.085	216.8 -> 171.9	186903	10.15 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C4-PFHpA	6.707	367.1 -> 322.0	63373	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C5-PFHxA	5.792	318.0 -> 273.0	65602	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C5-PFPeA	4.548	268.3 -> 223.0	61219	5.16 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C6-PFDA	8.387	519.1 -> 474.1	27311	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C7-PFUnDA	8.853	570.0 -> 525.1	38591	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.8%	
13C8-FOSA	9.674	506.1 -> 77.8	34417	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C8-PFOA	7.339	421.1 -> 376.0	101827	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C8-PFOS	8.563	507.1 -> 79.9	14017	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C9-PFNA	7.882	472.1 -> 427.0	46220	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.3%	
d3-MeFOSAA	8.407	573.2 -> 419.0	35496	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	43327	10.29 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
d3-MeFOSA	10.775	515.0 -> 219.0	14215	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.1%	
d5-EtFOSAA	8.615	589.2 -> 419.0	32282	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.6%	
d7-MeFOSE	10.685	623.2 -> 58.9	145105	21.05 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 84.2%	
d9-EtFOSE	10.930	639.2 -> 58.9	163323	18.97 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.9%	
d5-EtFOSA	10.996	531.1 -> 219.0	14632	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
Target Compounds					QValue
4:2FTS	5.443	327.1 -> 307.0	103082	15.95 µg/L	99
		327.1 -> 80.9	39099		
6:2FTS	7.113	427.1 -> 407.0	103556	15.21 µg/L	98
		427.1 -> 80.9	36542		
8:2FTS	8.164	527.1 -> 507.0	53526	16.17 µg/L	100
		527.1 -> 80.8	21146		
EtFOSAA	8.629	584.2 -> 419.1	76704	14.31 µg/L	m 97
		584.2 -> 526.0	40197		
FOSA	9.677	498.1 -> 77.9	222669	15.76 µg/L	100
		498.1 -> 478.0	6283		
MeFOSAA	8.421	570.1 -> 419.0	136370	15.80 µg/L	m 96
		570.1 -> 483.0	29574		
PFBA	3.081	212.8 -> 168.9	116588	15.64 µg/L	100
PFBS	5.747	298.7 -> 79.9	178958	16.58 µg/L	97
		298.7 -> 98.8	65156		
PFDA	8.388	512.9 -> 469.0	653938	16.02 µg/L	99
		512.9 -> 219.0	102008		
PFDoDA	9.285	613.1 -> 569.0	382562	14.57 µg/L	94
		613.1 -> 319.0	54590		
PFDS	9.450	599.0 -> 79.9	73695	17.42 µg/L	96

7.7.11
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.708	599.0 -> 98.8	31510	15.33	µg/L	99
		363.1 -> 319.0	520287			
PFHpS	8.046	363.1 -> 169.0	84421	15.90	µg/L	96
		449.0 -> 79.9	134182			
PFHxA	5.795	449.0 -> 98.9	61804	16.13	µg/L	99
		313.0 -> 269.0	423968			
PFHxS	7.479	313.0 -> 118.9	22017	16.84	µg/L	97
		398.7 -> 79.9	152256			
PFNA	7.883	398.7 -> 98.9	67616	15.88	µg/L	96
		463.0 -> 419.0	673473			
PFNS	9.041	463.0 -> 219.0	129587	15.22	µg/L	84
		548.8 -> 79.9	112824			
PFOA	7.341	548.8 -> 98.9	67239	15.25	µg/L	100
		413.0 -> 369.0	796387			
PFOS	8.564	413.0 -> 169.0	139290	14.85	µg/L	89
		498.9 -> 79.9	122591			
PFPeA	4.551	498.9 -> 98.8	54751	16.06	µg/L	100
		263.0 -> 219.0	289348			
PFPeS	6.785	349.1 -> 79.9	139616	16.79	µg/L	100
		349.1 -> 98.9	64441			
PFTeDA	10.000	713.1 -> 669.0	337213	15.37	µg/L	100
		713.1 -> 168.9	29432			
PFTrDA	9.669	663.0 -> 619.0	369971	14.67	µg/L	100
		663.0 -> 168.9	37611			
PFUnDA	8.854	563.1 -> 519.0	418249	14.77	µg/L	98
		563.1 -> 269.1	72855			
11Cl-PF3OUdS	9.721	630.9 -> 450.9	307399	15.05	µg/L	95
		632.9 -> 452.9	100291			
9Cl-PF3ONS	8.906	530.8 -> 351.0	524183	15.37	µg/L	95
		532.8 -> 353.0	172035			
ADONA	6.959	376.9 -> 250.9	1048412	14.30	µg/L	98
		376.9 -> 84.8	282797			
HFPO-DA	6.169	284.9 -> 168.9	66352	14.25	µg/L	97
		284.9 -> 184.9	8014			
3:3FTCA	3.946	241.0 -> 177.0	18633	15.13	µg/L	100
		241.0 -> 117.0	2462			
5:3FTCA	6.361	341.0 -> 237.1	86072	16.89	µg/L	100
		341.0 -> 217.0	64252			
7:3FTCA	7.748	441.0 -> 316.9	60806	16.67	µg/L	90
		441.0 -> 336.9	130034			
EtFOSA	10.997	526.0 -> 219.0	121412	15.49	µg/L	83
		526.0 -> 169.0	130442			
EtFOSE	10.943	630.0 -> 58.9	747230	86.65	µg/L	100
		511.9 -> 219.0	101806			
MeFOSA	10.777	511.9 -> 169.0	115188	16.34	µg/L	79
		616.1 -> 58.9	539183			
MeFOSE	10.709	699.1 -> 79.9	30951	84.90	µg/L	100
		699.1 -> 98.8	17015			
PFDoDS	10.139	295.0 -> 201.0	52773	14.70	µg/L	96
		295.0 -> 84.9	14563			
NFDHA	5.673	279.0 -> 85.1	203278	15.86	µg/L	98
		229.0 -> 84.9	158370			
PFMBA	4.988	314.8 -> 134.9	483864	15.77	µg/L	100
		314.8 -> 82.9	18753			
PFMPA	3.667			14.96	µg/L	99
PFEESA	6.288					

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



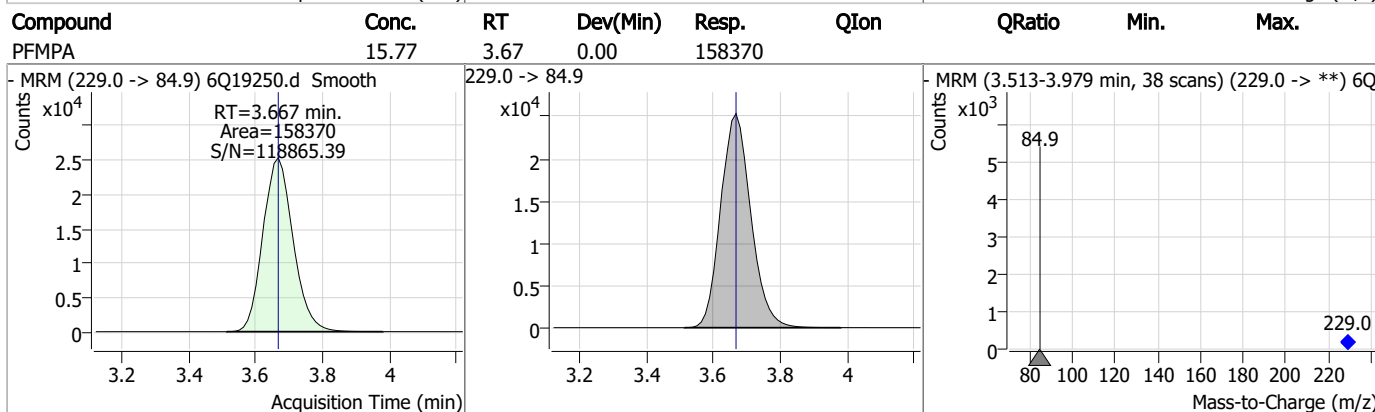
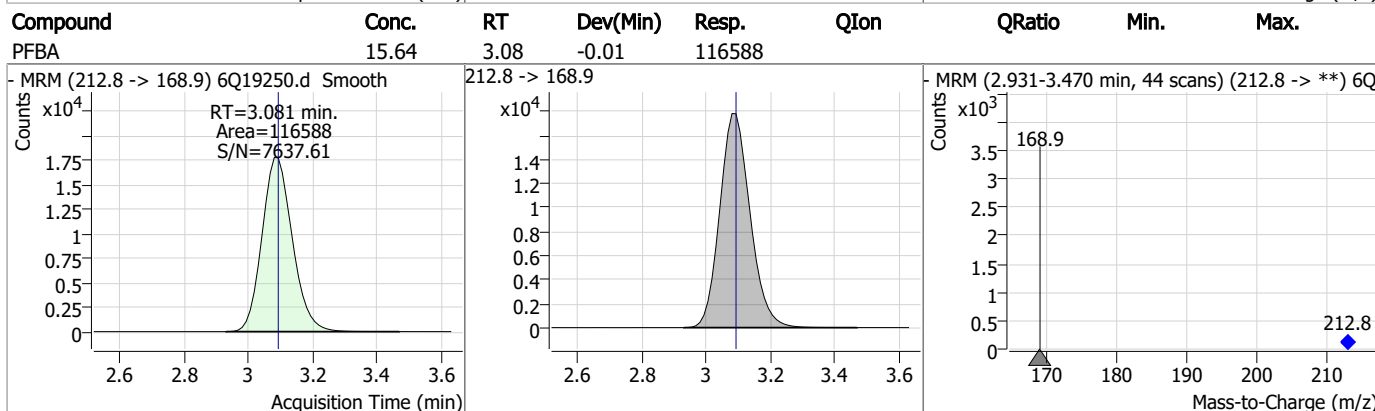
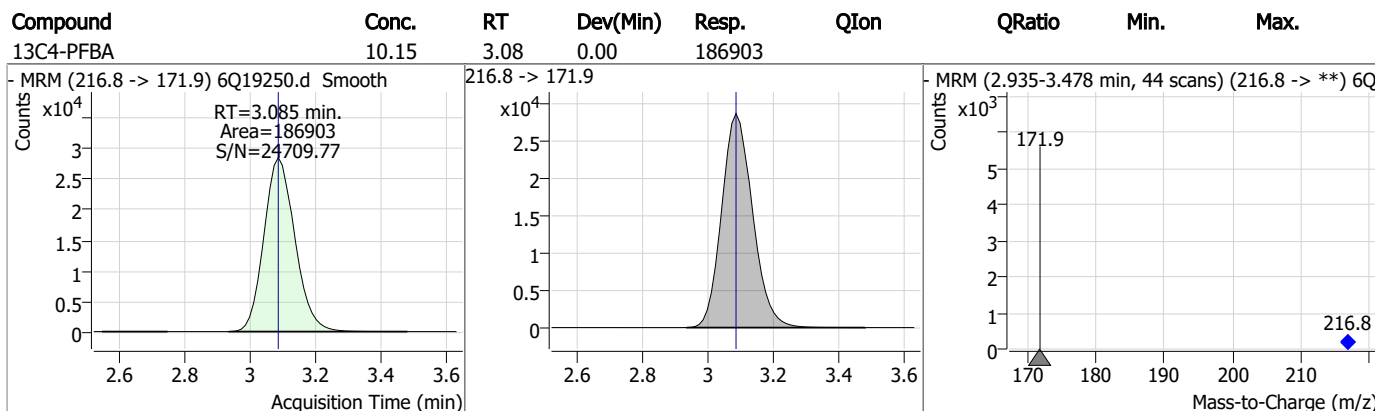
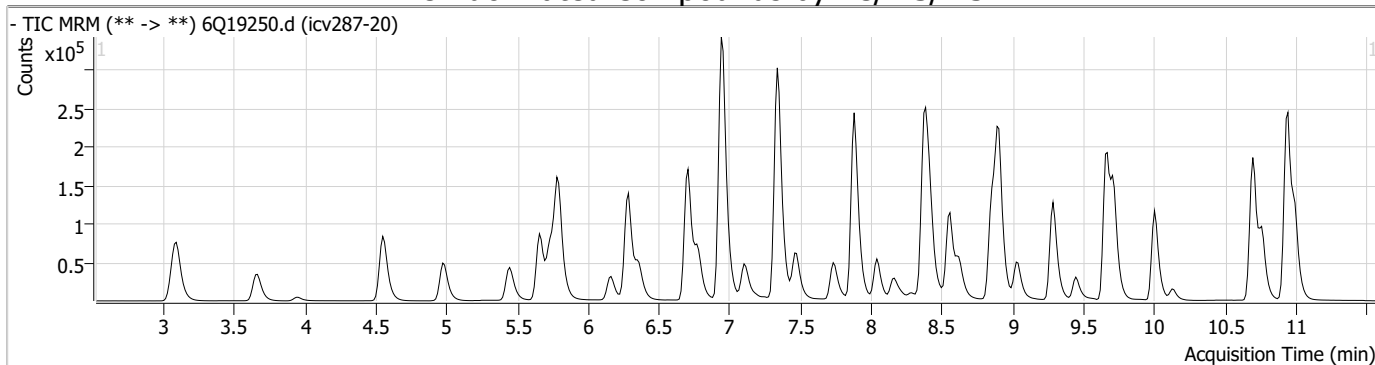
Perfluorinated Compounds by LC/MS/MS

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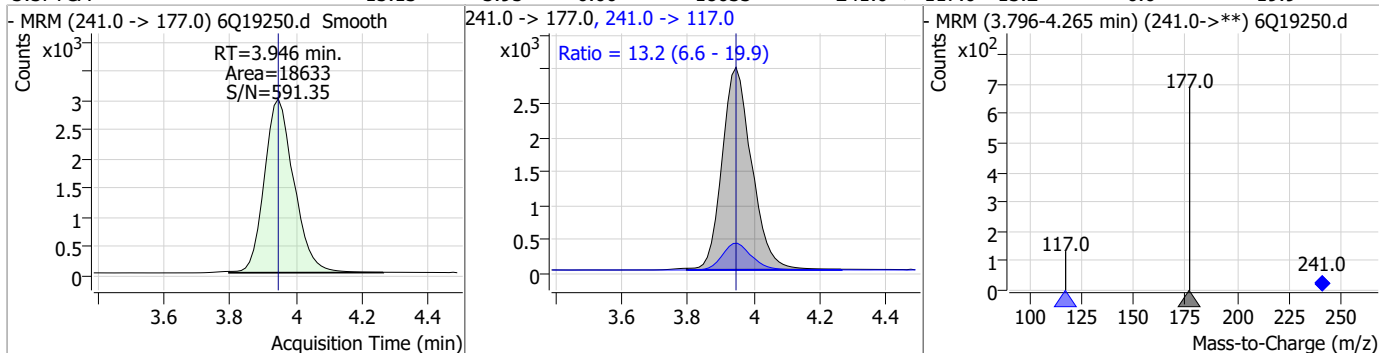
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Perfluorinated Compounds by LC/MS/MS

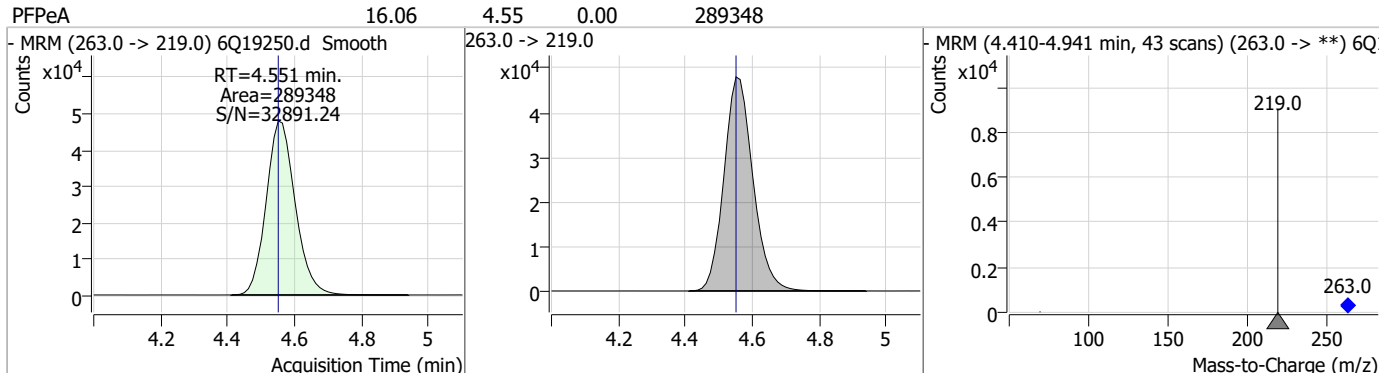


Perfluorinated Compounds by LC/MS/MS

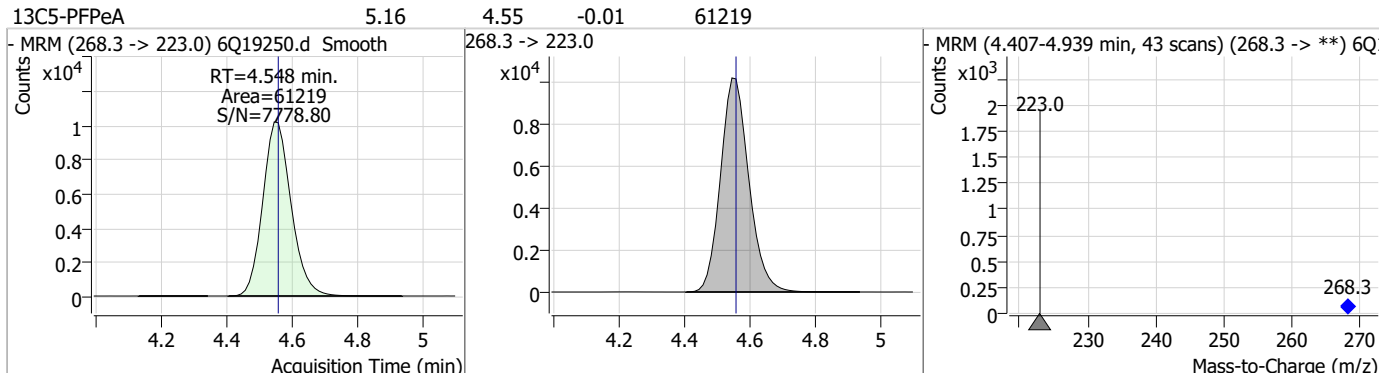
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	15.13	3.95	0.00	18633	241.0 -> 117.0	13.2	6.6	19.9



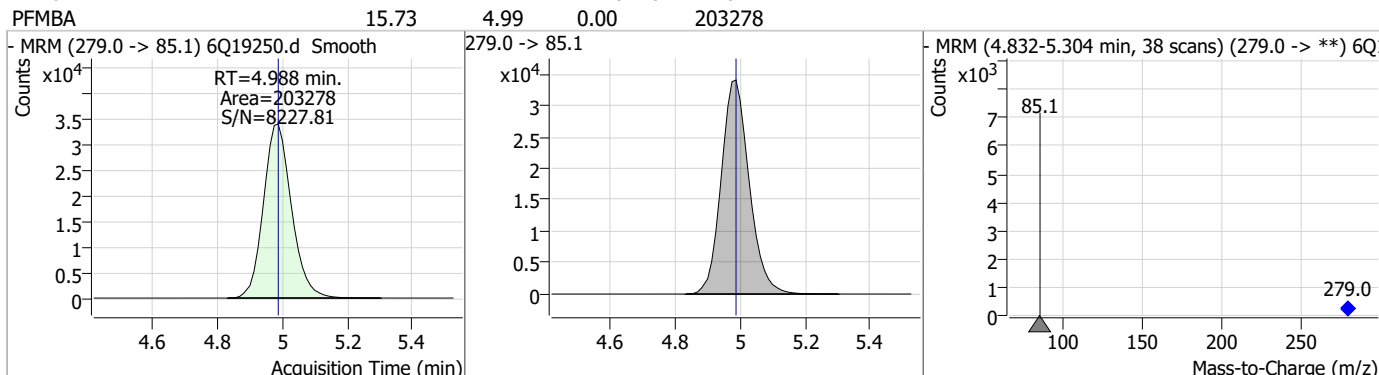
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	16.06	4.55	0.00	289348				



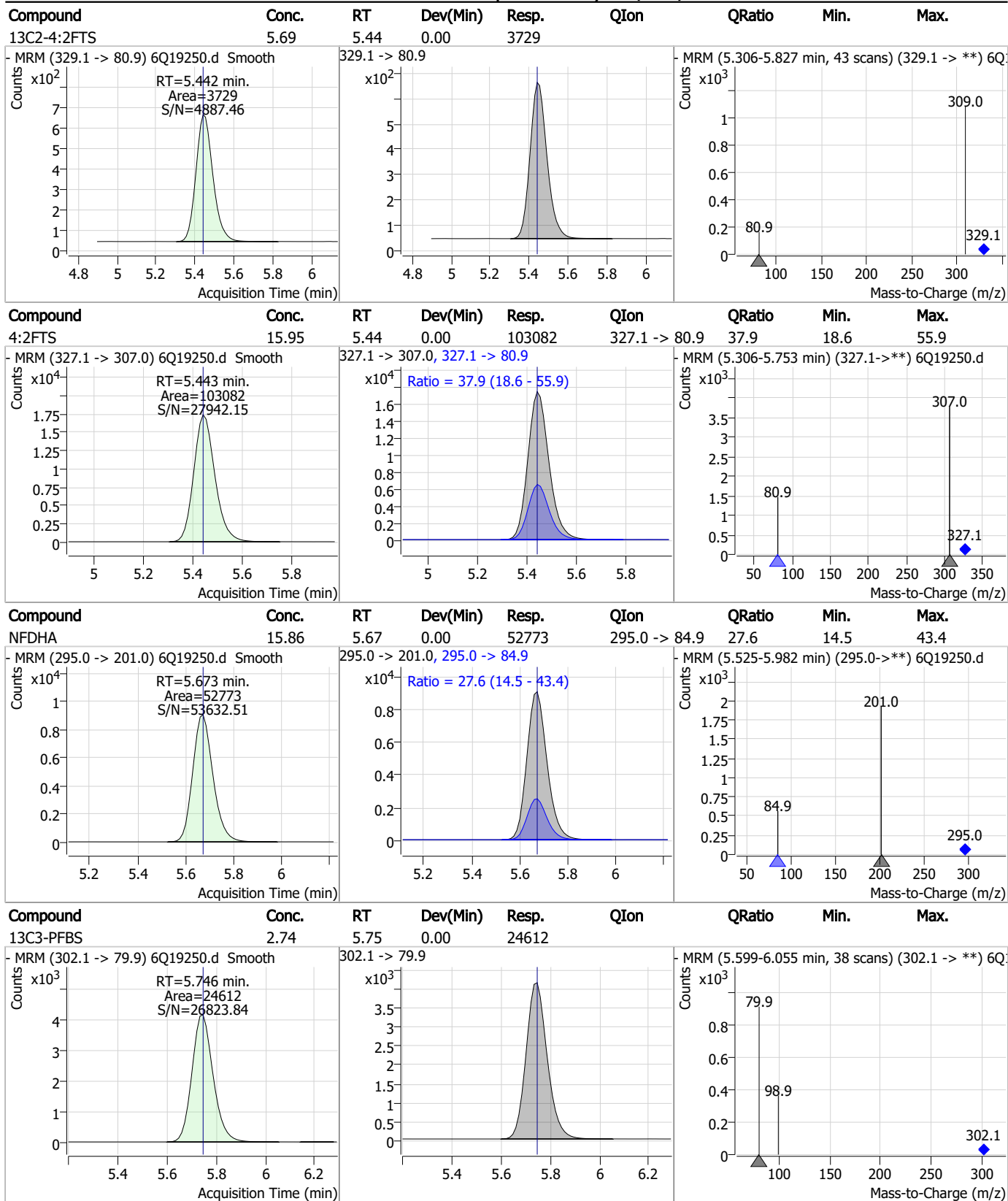
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.16	4.55	-0.01	61219				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	15.73	4.99	0.00	203278				



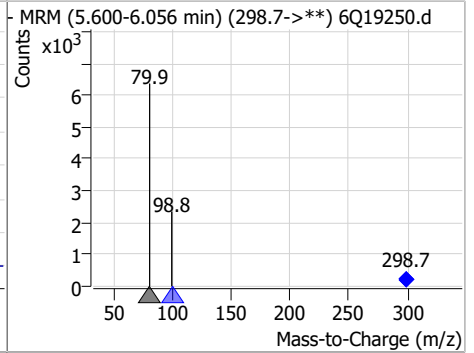
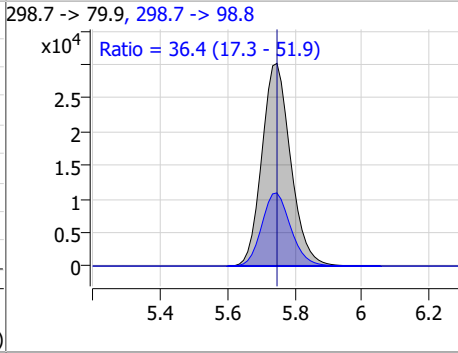
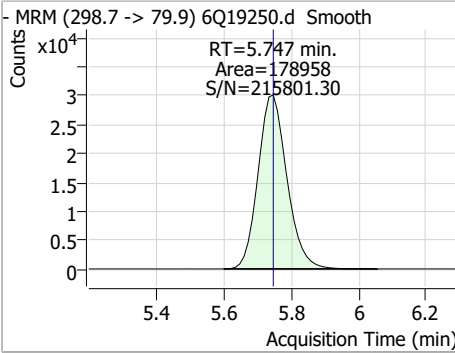
Perfluorinated Compounds by LC/MS/MS



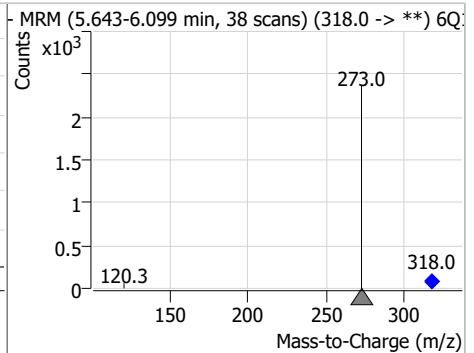
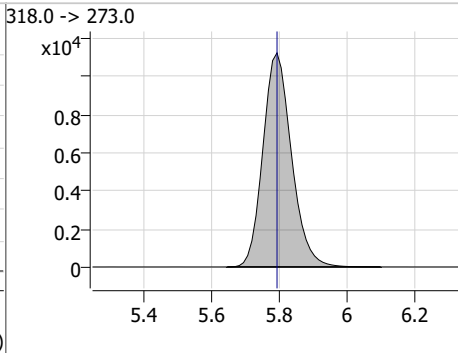
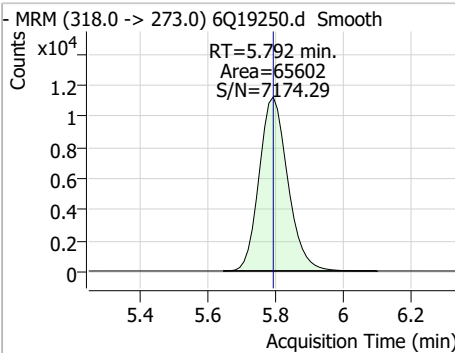
7.7.11
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Perfluorinated Compounds by LC/MS/MS

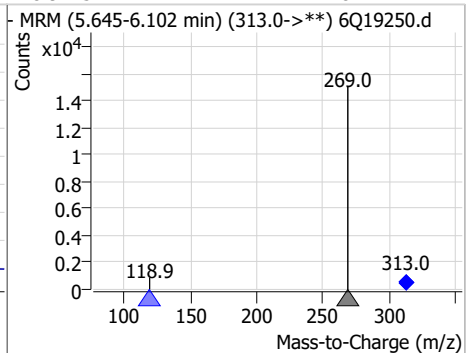
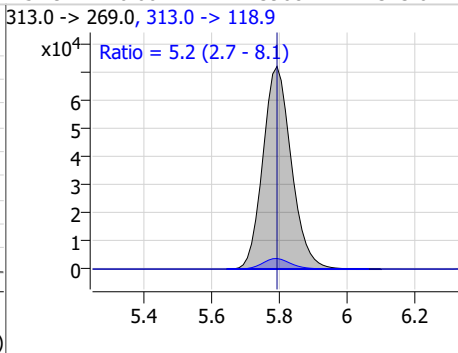
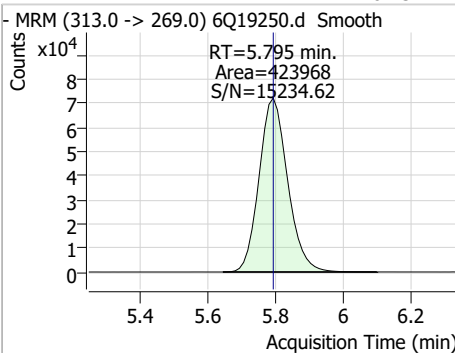
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	16.58	5.75	0.00	178958	298.7 -> 98.8	36.4	17.3	51.9



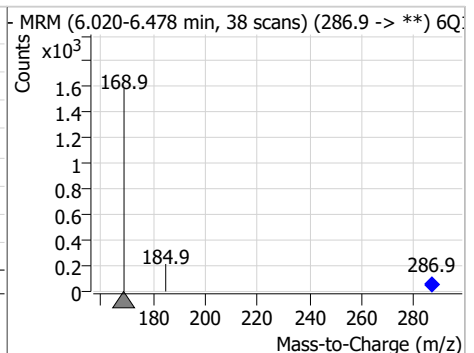
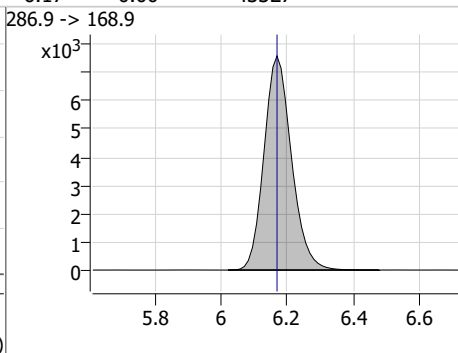
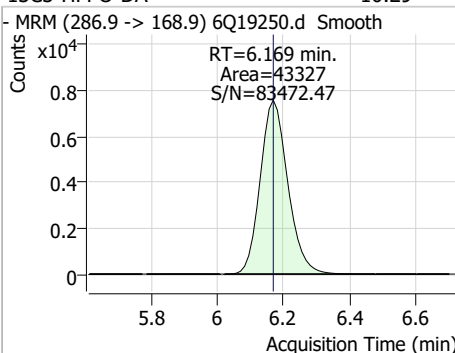
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.47	5.79	0.00	65602				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	16.13	5.79	0.00	423968	313.0 -> 118.9	5.2	2.7	8.1



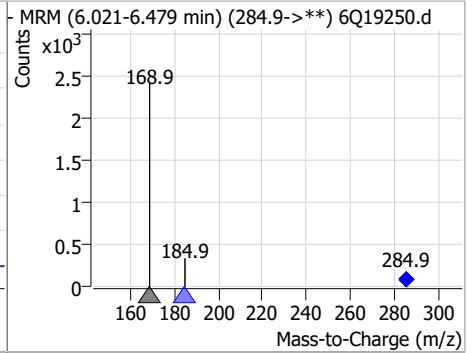
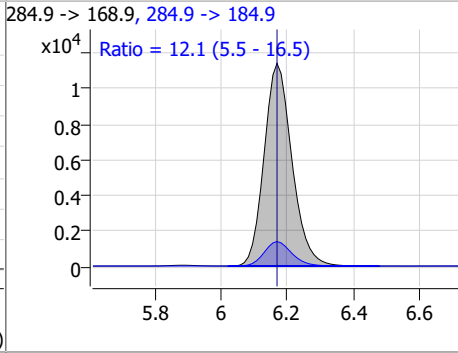
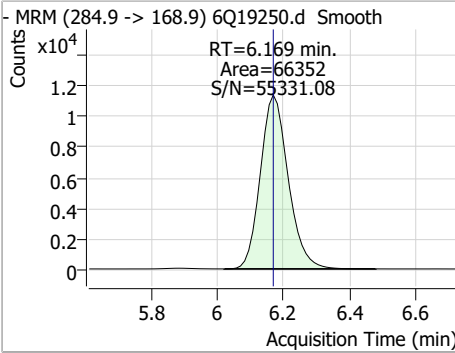
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.29	6.17	0.00	43327				



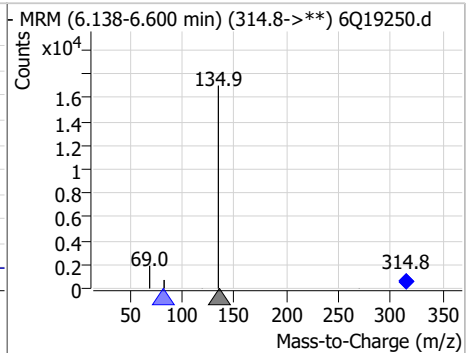
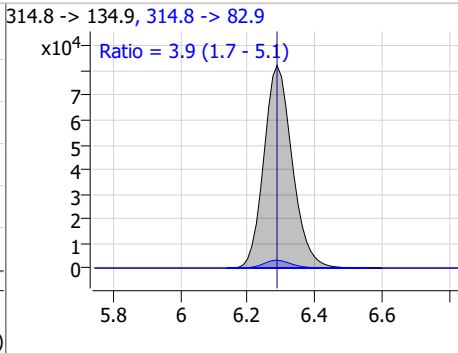
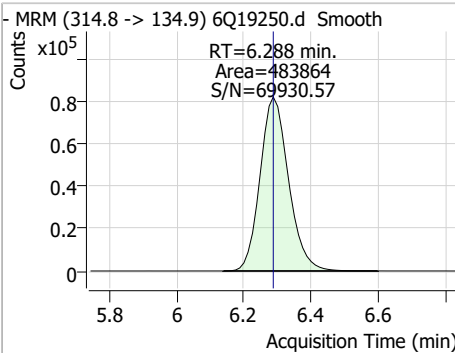
7.7.11
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Perfluorinated Compounds by LC/MS/MS

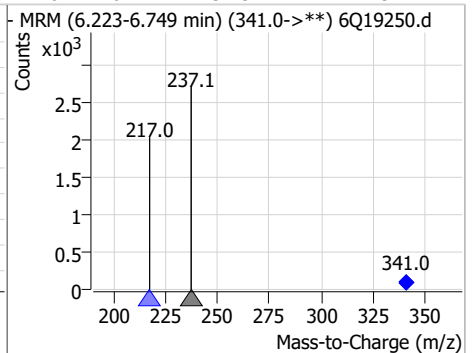
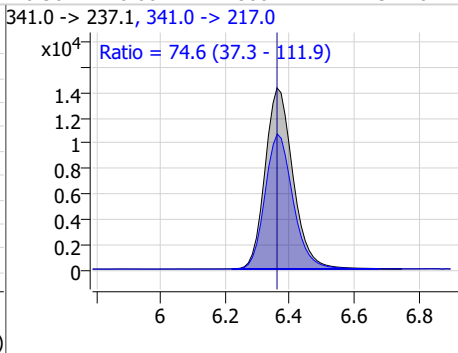
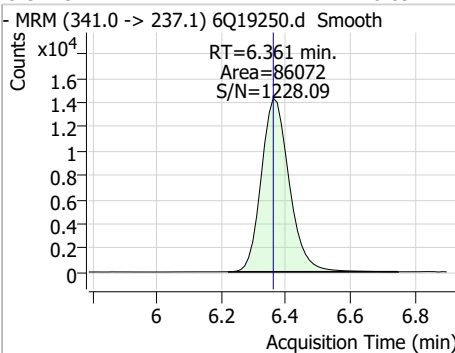
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	14.25	6.17	0.00	66352	284.9 -> 184.9	12.1	5.5	16.5



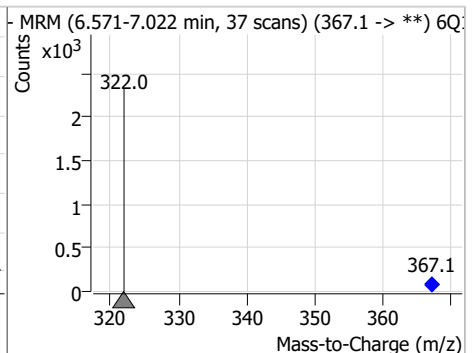
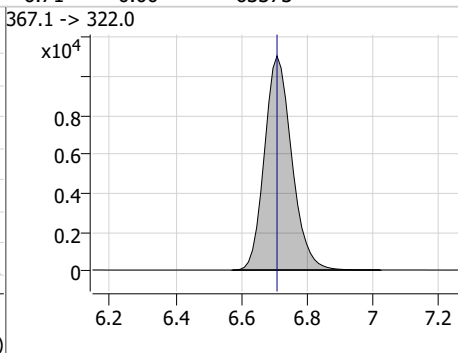
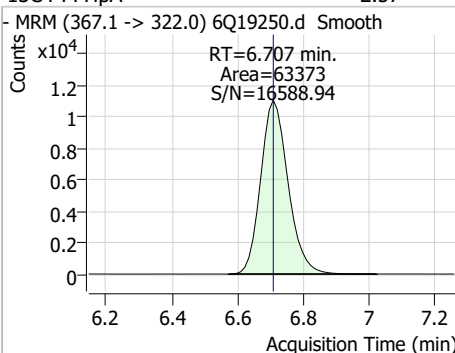
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	14.96	6.29	0.00	483864	314.8 -> 82.9	3.9	1.7	5.1



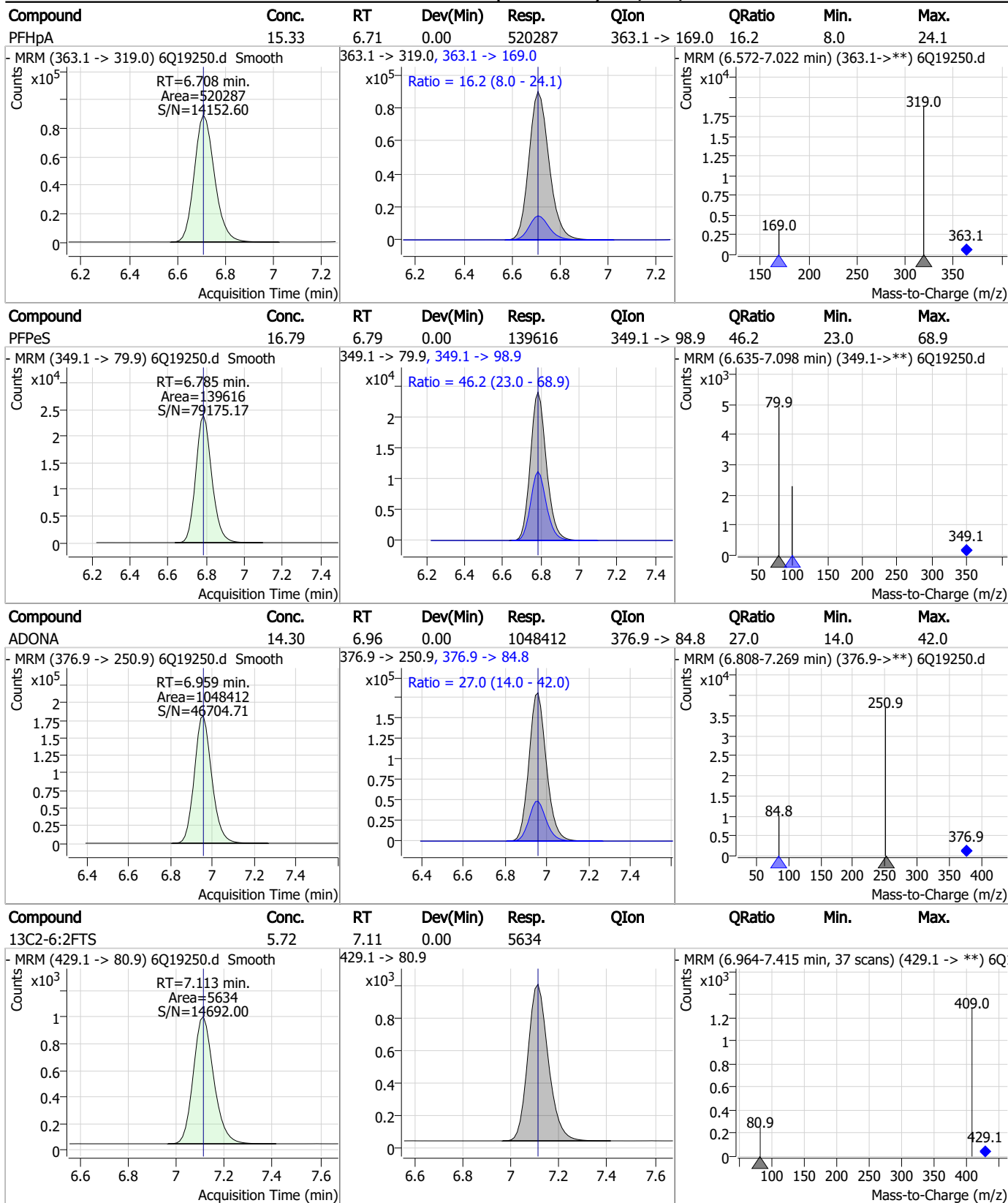
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	16.89	6.36	0.00	86072	341.0 -> 217.0	74.6	37.3	111.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.57	6.71	0.00	63373	367.1 -> 322.0	-	-	-

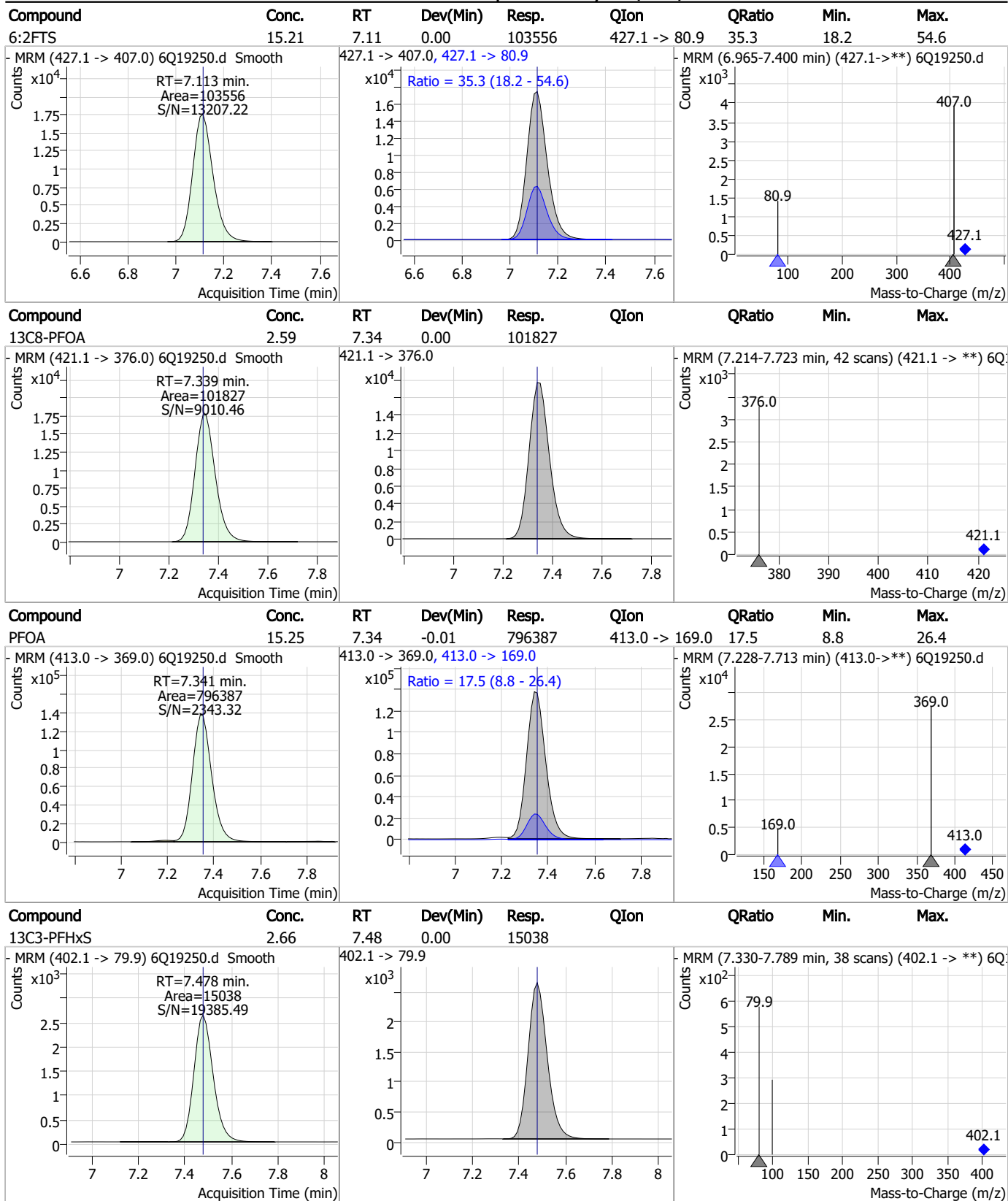


Perfluorinated Compounds by LC/MS/MS



7.7.11
7

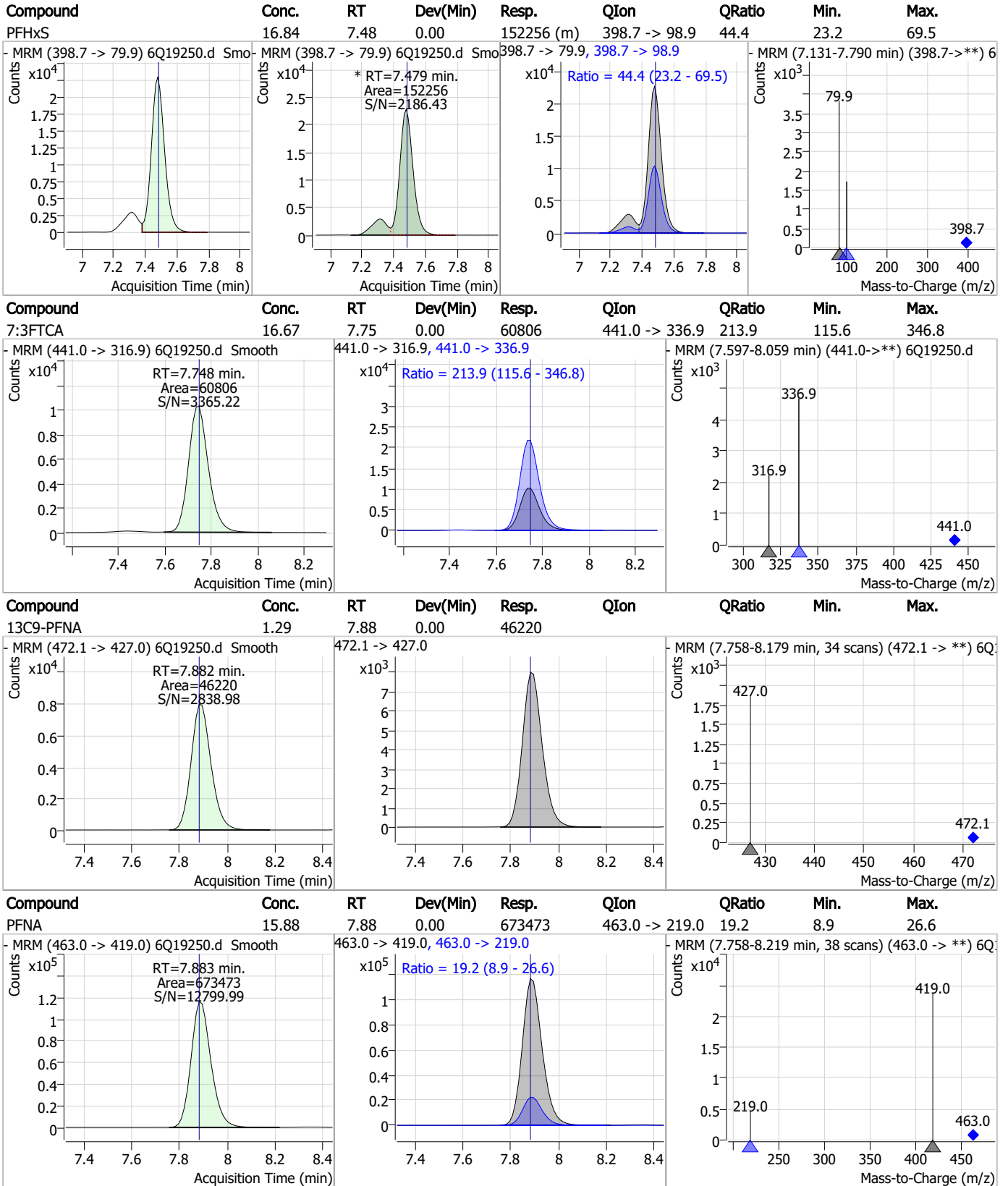
Perfluorinated Compounds by LC/MS/MS



7.7.11
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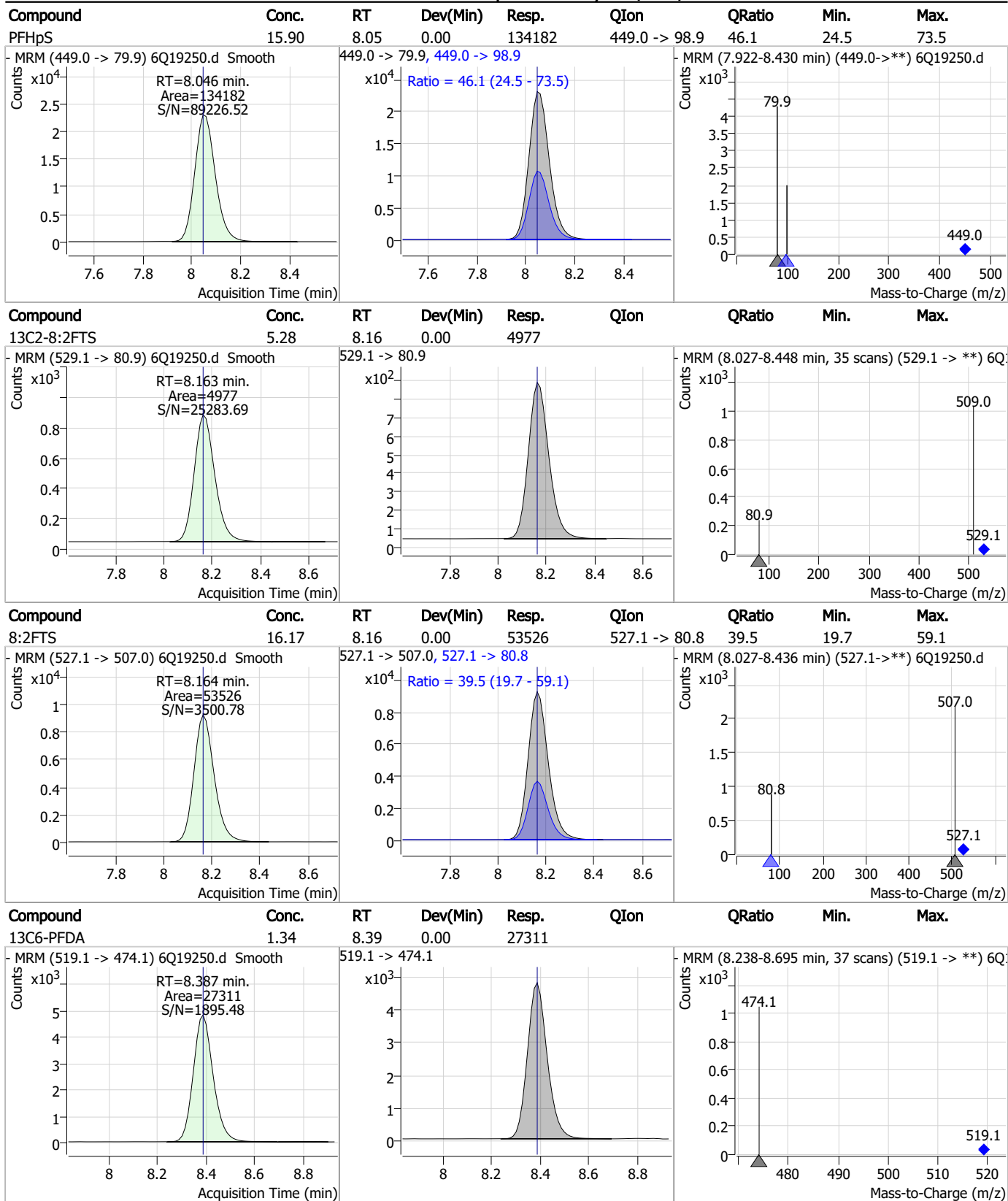
Perfluorinated Compounds by LC/MS/MS



7.7.11
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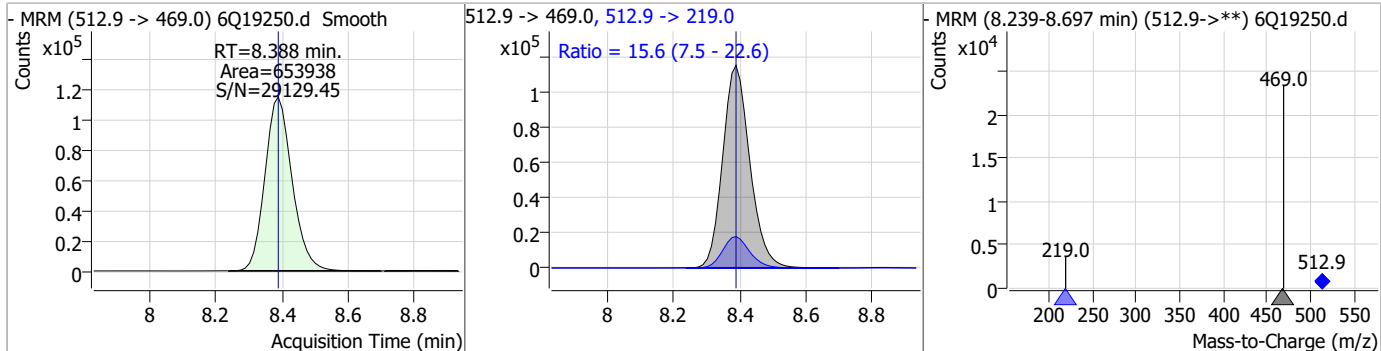
Perfluorinated Compounds by LC/MS/MS



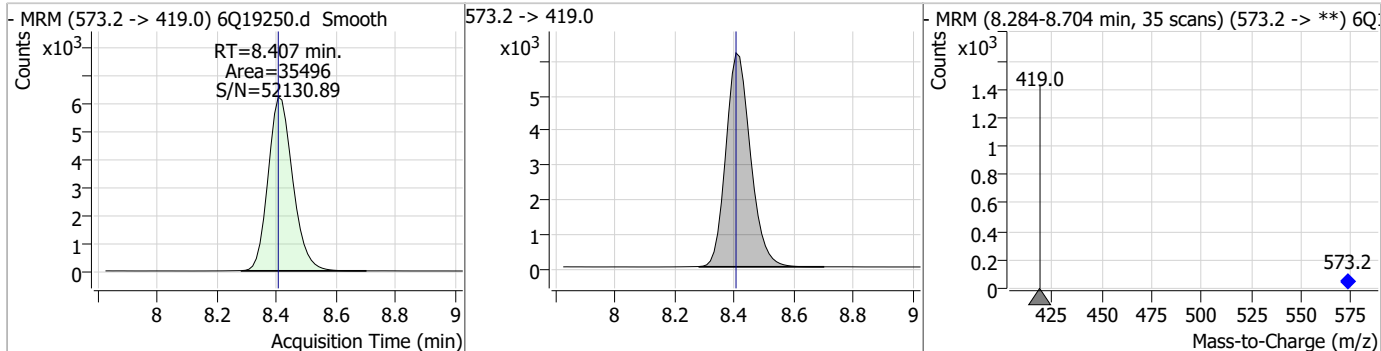
7.7.11

Perfluorinated Compounds by LC/MS/MS

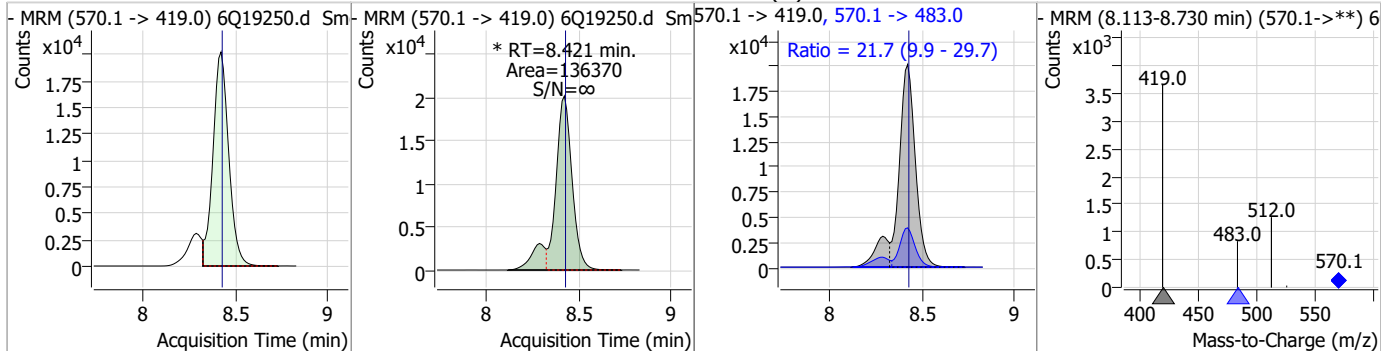
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	16.02	8.39	0.00	653938	512.9 -> 219.0	15.6	7.5	22.6



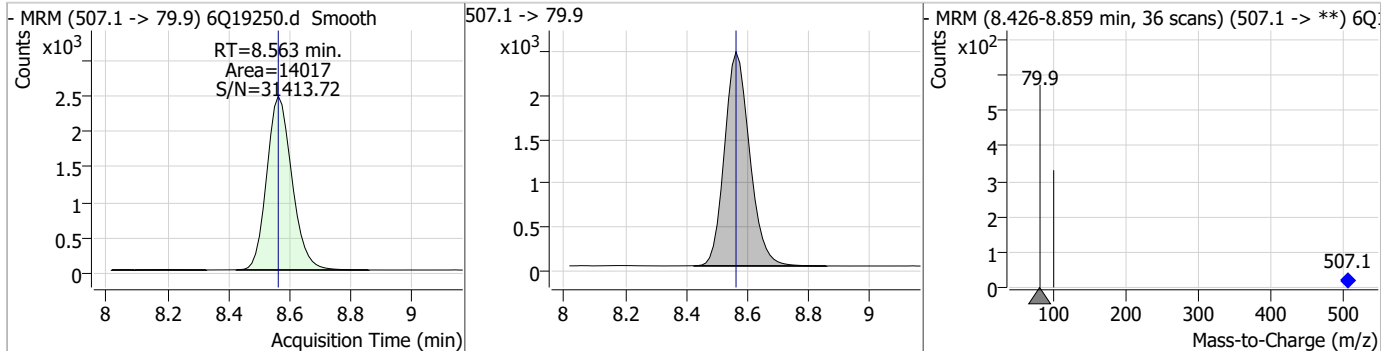
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.04	8.41	0.00	35496				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	15.80	8.42	0.00	136370 (m)	570.1 -> 483.0	21.7	9.9	29.7



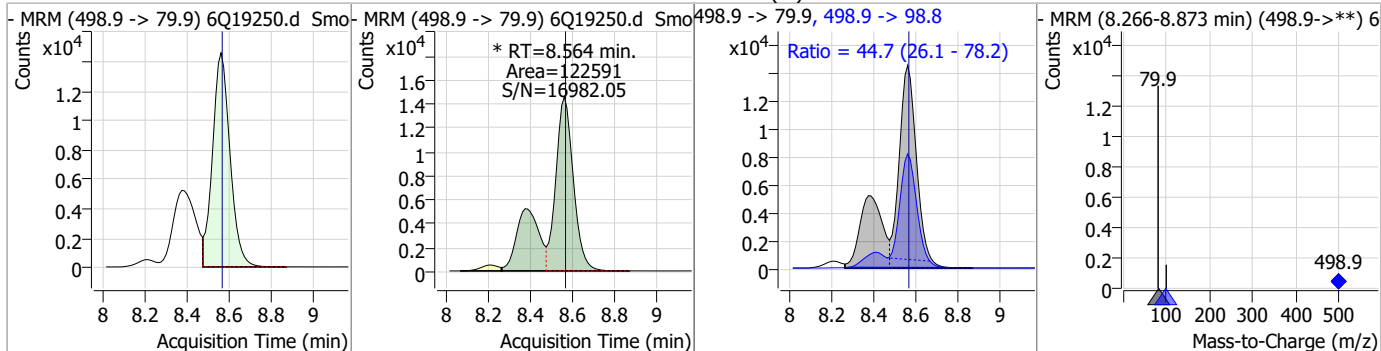
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.55	8.56	0.00	14017				



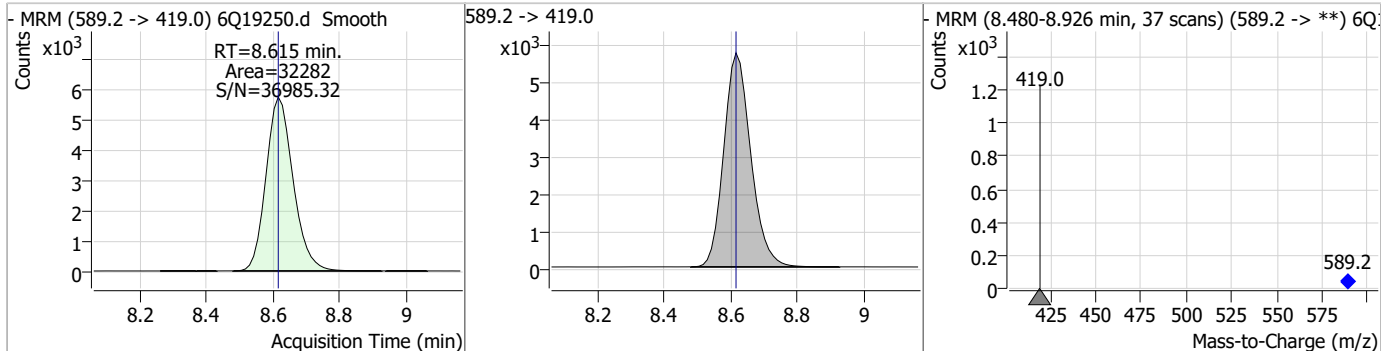
7.7.11
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Perfluorinated Compounds by LC/MS/MS

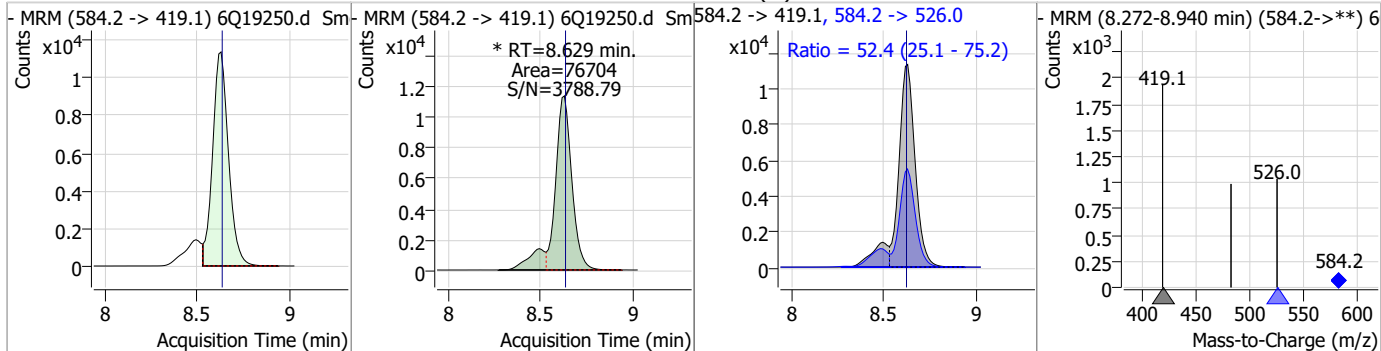
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	14.85	8.56	0.00	122591 (m)	498.9 -> 98.8	44.7	26.1	78.2



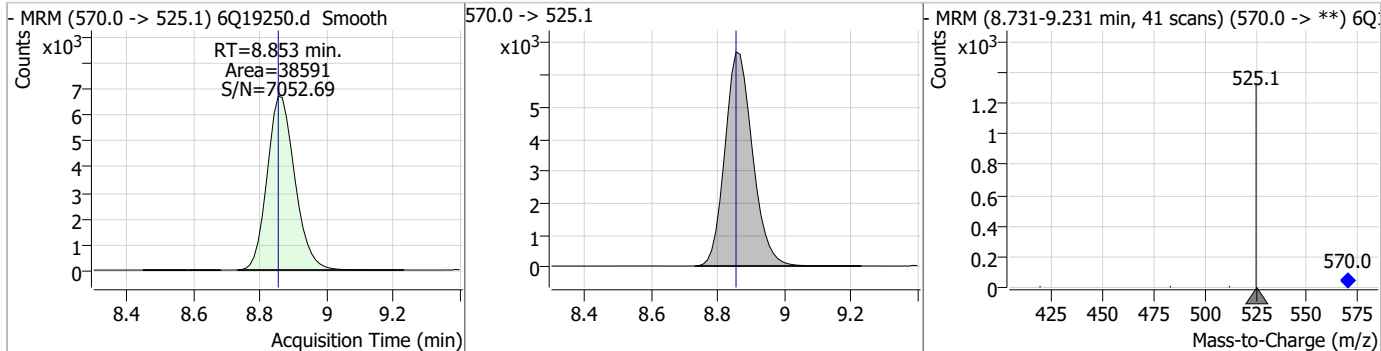
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.43	8.62	0.00	32282				



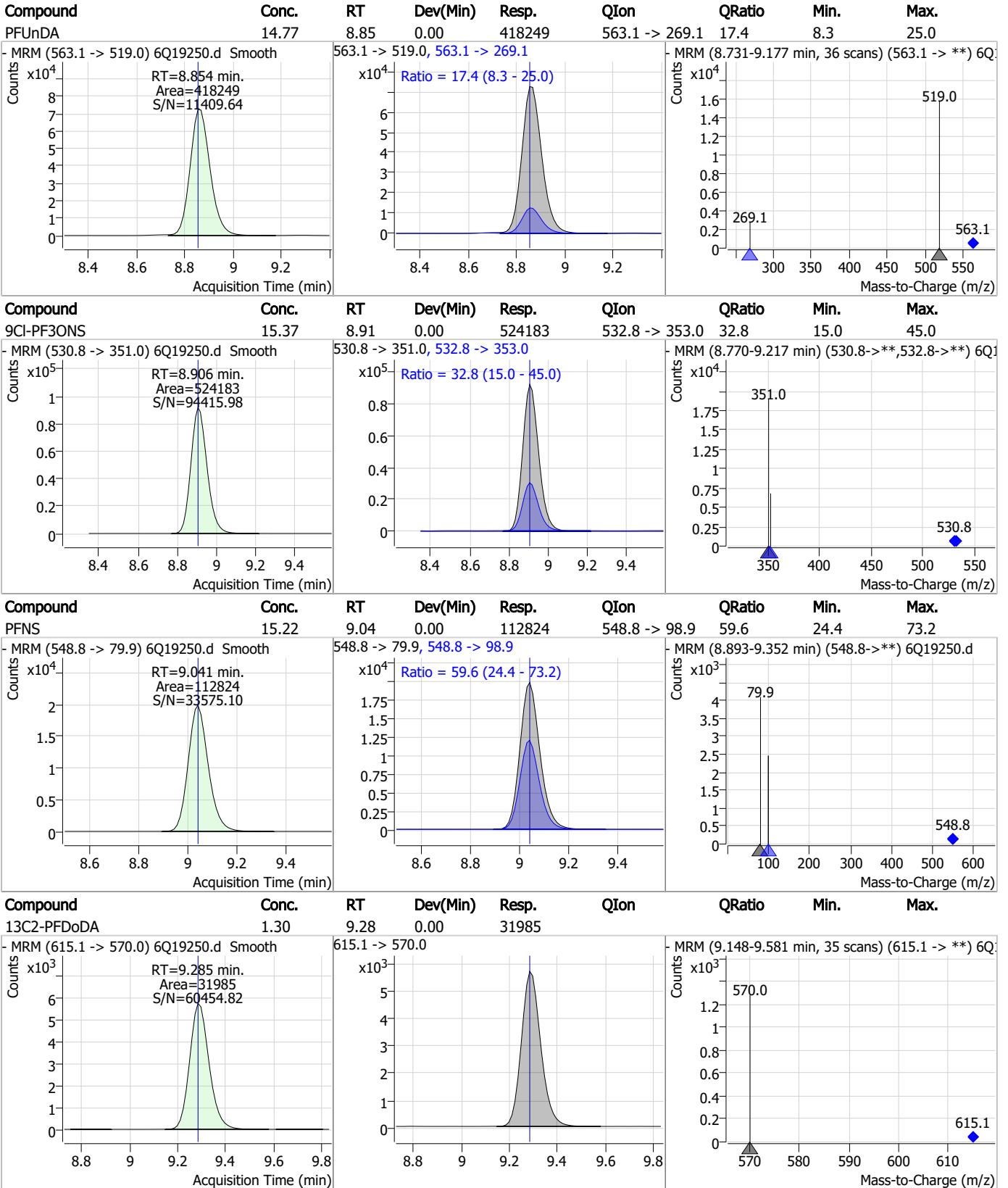
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	14.31	8.63	0.00	76704 (m)	584.2 -> 526.0	52.4	25.1	75.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.35	8.85	0.00	38591				



Perfluorinated Compounds by LC/MS/MS

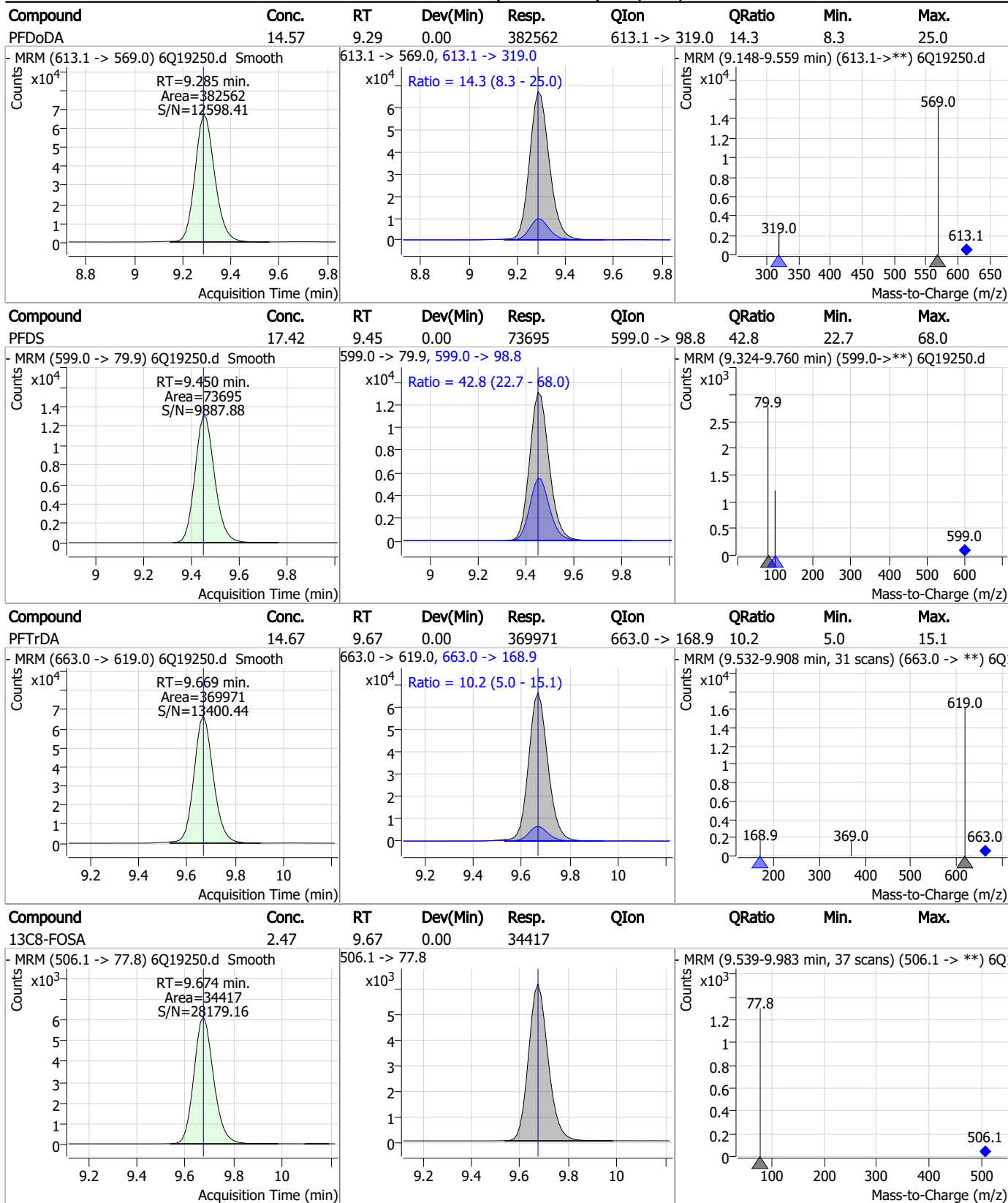


7.7.11

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Perfluorinated Compounds by LC/MS/MS

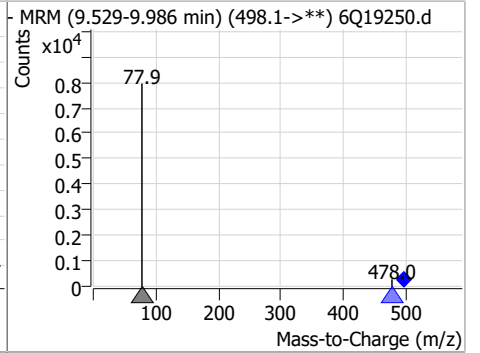
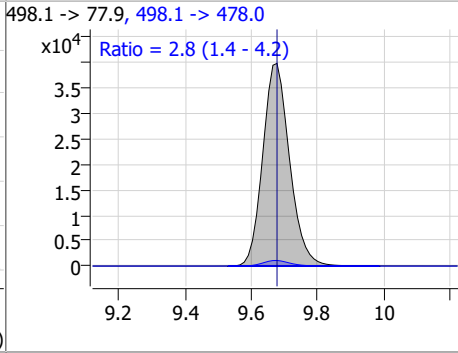
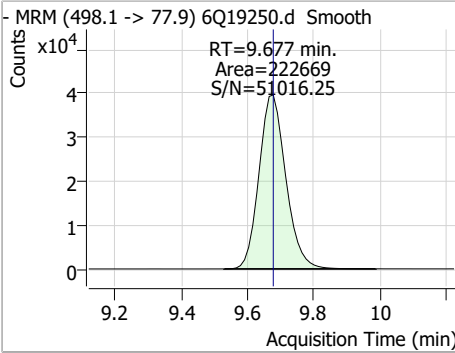


7.7.11
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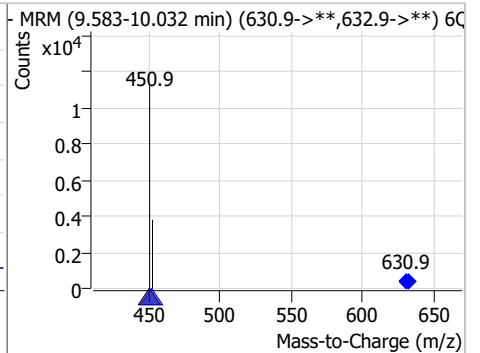
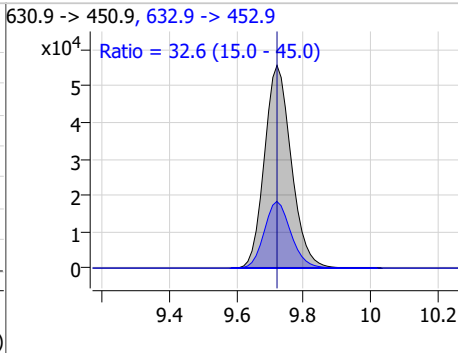
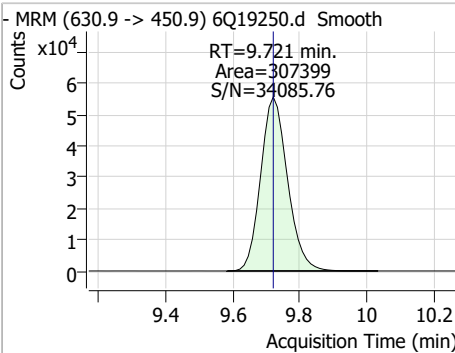


Perfluorinated Compounds by LC/MS/MS

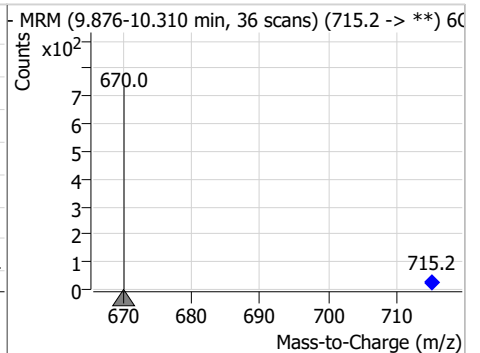
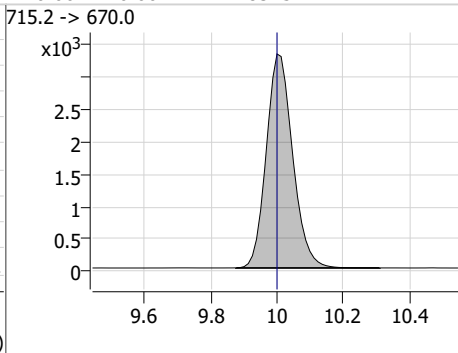
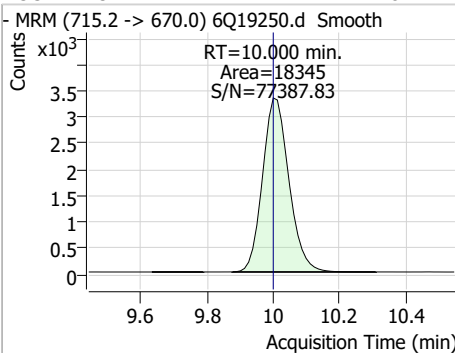
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	15.76	9.68	0.00	222669	498.1 -> 478.0	2.8	1.4	4.2



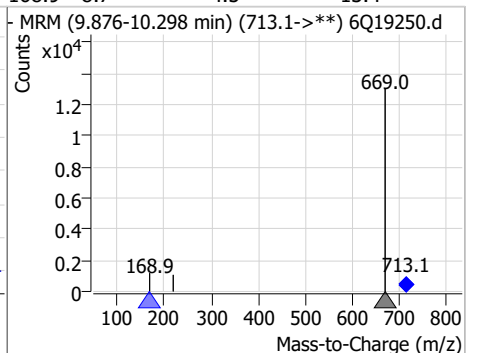
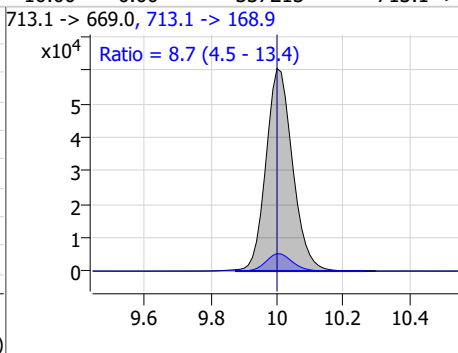
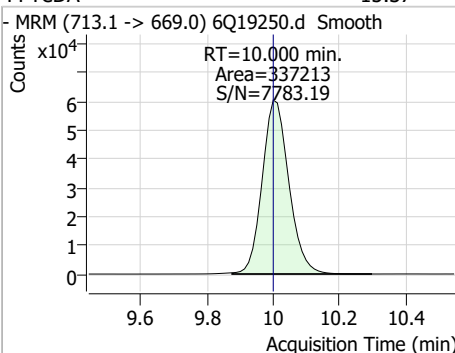
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	15.05	9.72	0.00	307399	630.9 -> 452.9	32.6	15.0	45.0



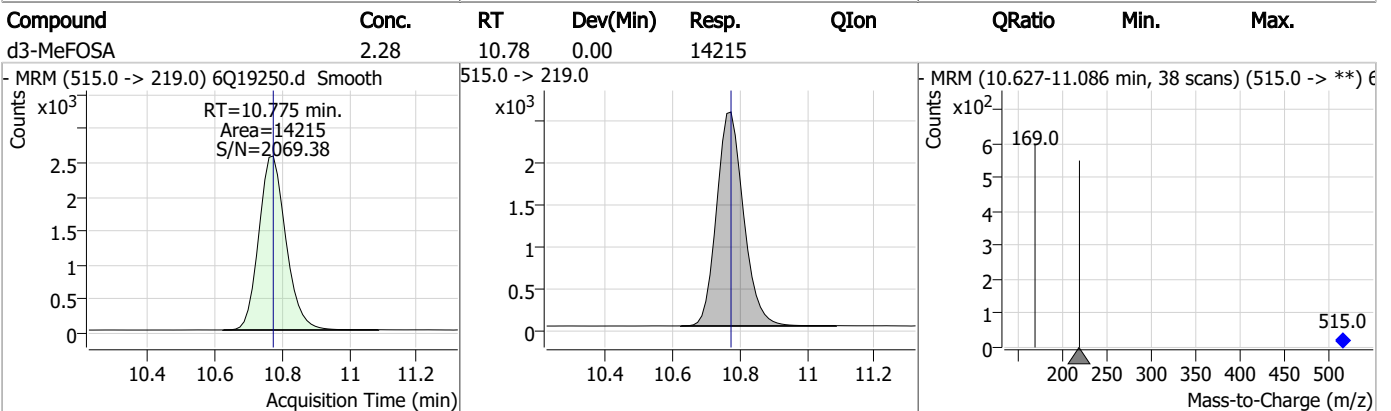
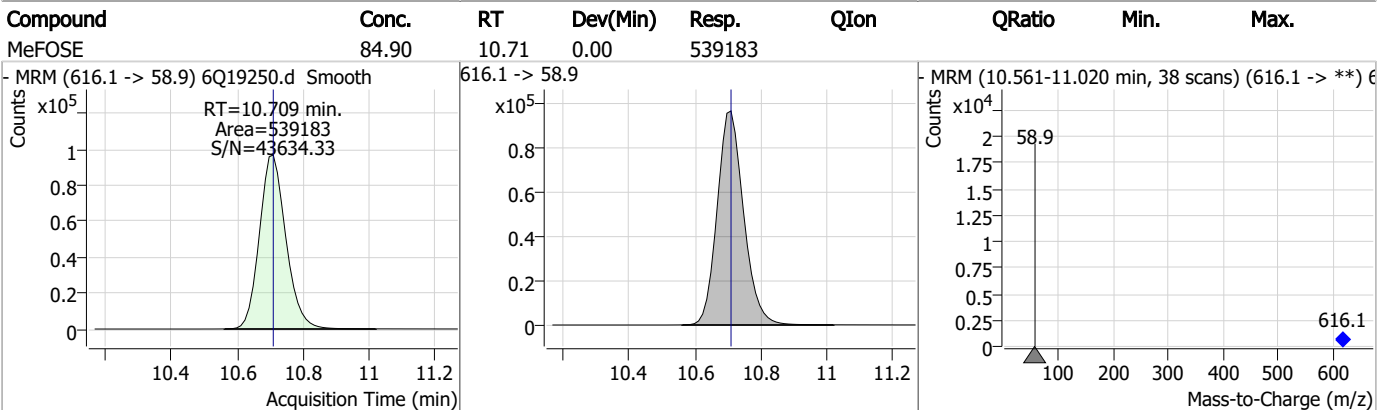
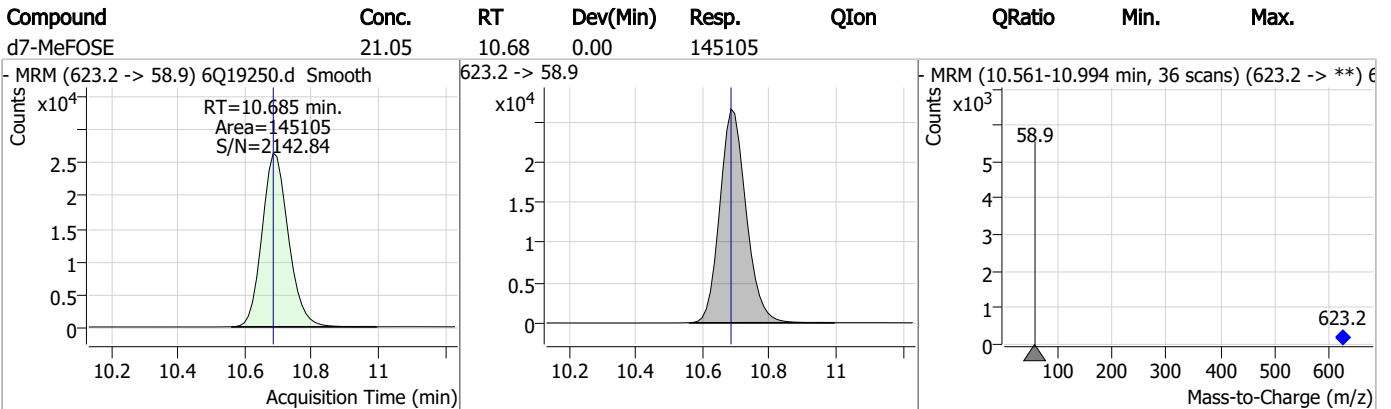
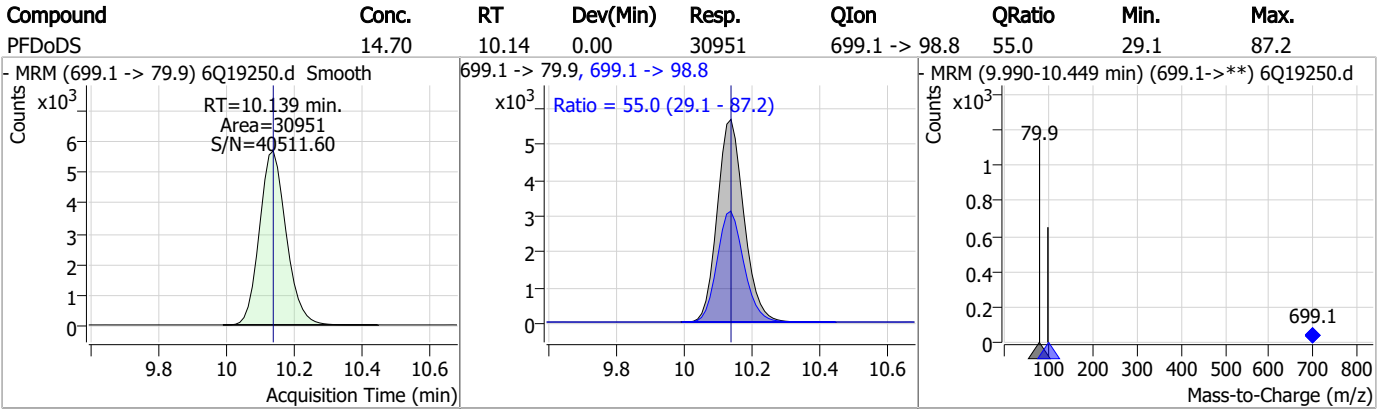
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.28	10.00	0.00	18345	715.2 -> 670.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	15.37	10.00	0.00	337213	713.1 -> 168.9	8.7	4.5	13.4



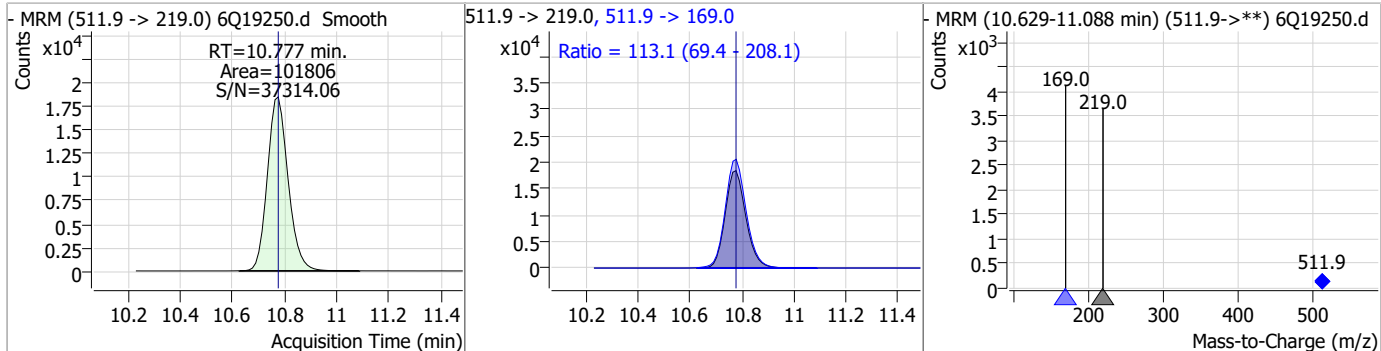
Perfluorinated Compounds by LC/MS/MS



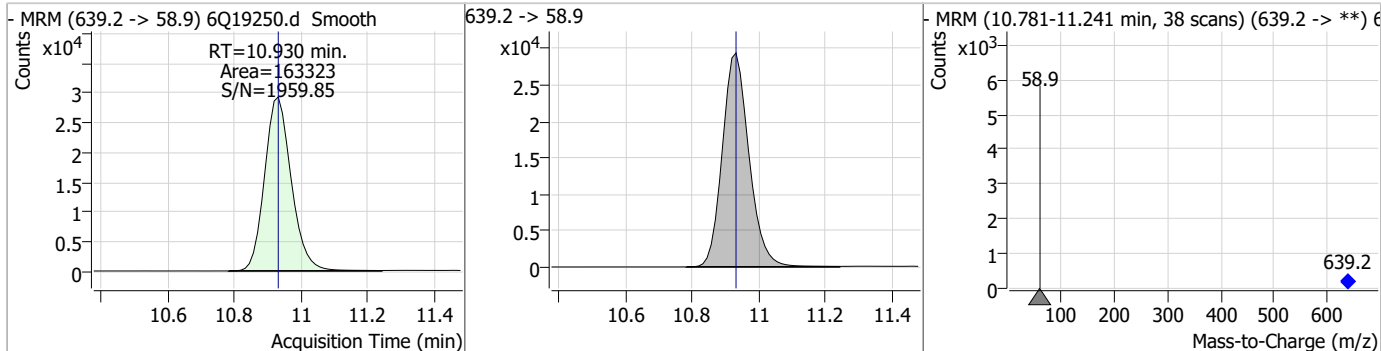
7.7.11
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Perfluorinated Compounds by LC/MS/MS

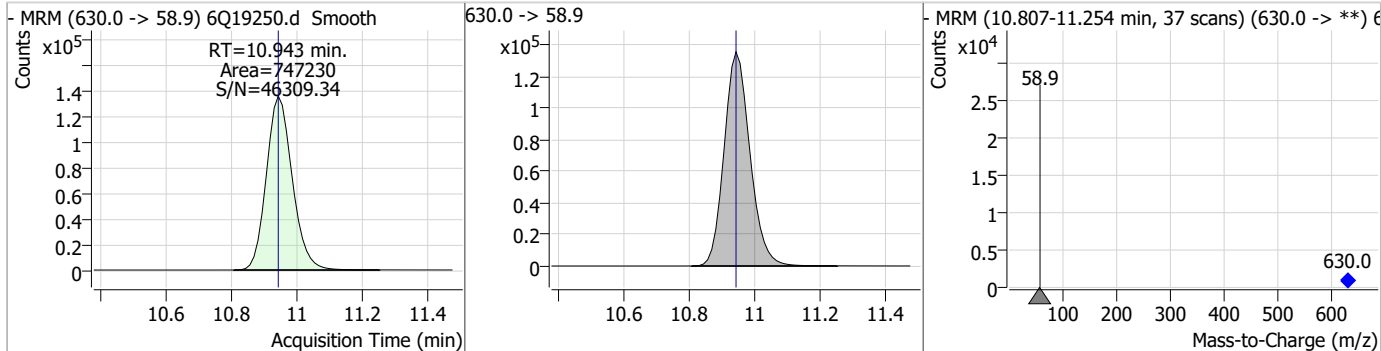
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	16.34	10.78	0.00	101806	511.9 -> 169.0	113.1	69.4	208.1



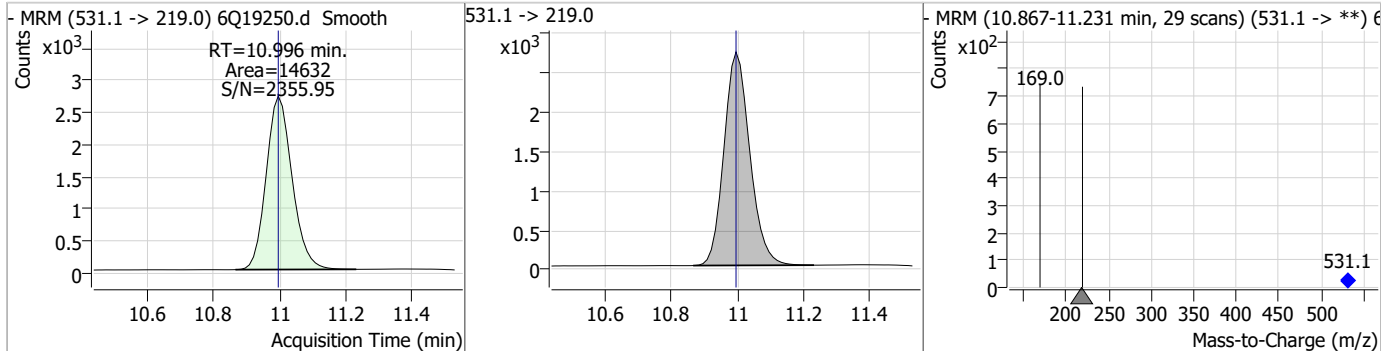
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	18.97	10.93	0.00	163323				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	86.65	10.94	0.00	747230				

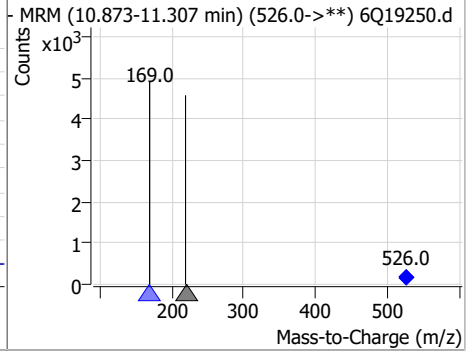
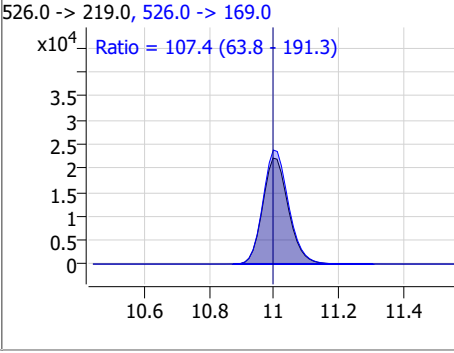
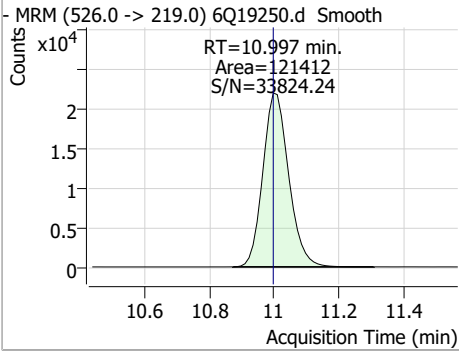


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.42	11.00	0.00	14632				



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	15.49	11.00	0.00	121412	526.0 -> 169.0	107.4	63.8	191.3



7.7.11

7

Manual Integration Approval Summary

Sample Number: S6Q287-ICV287 Method: EPA DRAFT 1633
Lab FileID: 6Q19250.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 18:08 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.63	Split peak

7.7.11.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19251.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 6:22:19 PM
 Sample Name : cc287-4
 Vial : P1-A5
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	140270	10.00 µg/L	0.000
M5-PFPeA	4.560	268.3 -> 223.0	46375	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	50151	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	48099	2.50 µg/L	0.000
M8-PFOA	7.339	421.1 -> 376.0	76437	2.50 µg/L	0.000
M9-PFNA	7.882	472.1 -> 427.0	35340	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	19802	1.25 µg/L	0.000
M7-PFUnDA	8.853	570.0 -> 525.1	30248	1.25 µg/L	0.000
M2-PFDoDA	9.297	615.1 -> 570.0	24556	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	13761	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	28573	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	18541	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	11225	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	10401	2.50 µg/L	0.000
M2-4:2FTS	5.442	329.1 -> 80.9	2998	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	4461	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4354	5.00 µg/L	0.000
M3-MeFOSAA	8.407	573.2 -> 419.0	27294	5.00 µg/L	0.000
M3-HFPO-DA	6.169	286.9 -> 168.9	33246	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	22836	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	124597	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	153027	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	11858	2.50 µg/L	0.000
M3-MeFOSA	10.763	515.0 -> 219.0	11160	2.50 µg/L	-0.012
13C4-PFOS	8.563	502.8 -> 79.9	16110	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	59611	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	8337	2.50 µg/L	0.000
13C4-PFOA	7.340	417.1 -> 372.0	79099	2.50 µg/L	0.000
13C2-PFDA	8.388	515.1 -> 470.1	29366	1.25 µg/L	0.000
13C5-PFNA	7.882	468.0 -> 423.0	43164	1.25 µg/L	0.000
13C2-PFHxA	5.792	315.1 -> 270.0	48787	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	2998	5.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.8%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4461	5.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.6%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4354	5.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.8%		
13C2-PFDoDA	9.297	615.1 -> 570.0	24556	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFTeDA	10.012	715.2 -> 670.0	13761	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C3-PFBS	5.746	302.1 -> 79.9	18541	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C3-PFHxS	7.478	402.1 -> 79.9	11225	2.54 µg/L	0.000

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 = 101.4%	
13C4-PFBA	3.085	216.8 -> 171.9	140270	10.02 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFHpA	6.707	367.1 -> 322.0	48099	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C5-PFHxA	5.792	318.0 -> 273.0	50151	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C5-PFPeA	4.560	268.3 -> 223.0	46375	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C6-PFDA	8.387	519.1 -> 474.1	19802	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C7-PFUnDA	8.853	570.0 -> 525.1	30248	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C8-FOSA	9.674	506.1 -> 77.8	28573	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C8-PFOA	7.339	421.1 -> 376.0	76437	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C8-PFOS	8.563	507.1 -> 79.9	10401	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.2%	
13C9-PFNA	7.882	472.1 -> 427.0	35340	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.3%	
d3-MeFOSAA	8.407	573.2 -> 419.0	27294	4.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.3%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	33246	9.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
d3-MeFOSA	10.763	515.0 -> 219.0	11160	2.08 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.4%	
d5-EtFOSAA	8.615	589.2 -> 419.0	22836	4.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.6%	
d7-MeFOSE	10.685	623.2 -> 58.9	124597	21.07 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 84.3%	
d9-EtFOSE	10.930	639.2 -> 58.9	153027	20.72 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 82.9%	
d5-EtFOSA	10.996	531.1 -> 219.0	11858	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.4%	
Target Compounds					QValue
4:2FTS	5.455	327.1 -> 307.0	47571	9.16 µg/L	98
		327.1 -> 80.9	17215		
6:2FTS	7.113	427.1 -> 407.0	53437	9.92 µg/L	90
		427.1 -> 80.9	16285		
8:2FTS	8.164	527.1 -> 507.0	24635	8.51 µg/L	96
		527.1 -> 80.8	10317		
EtFOSAA	8.629	584.2 -> 419.1	9418	2.48 µg/L	m 98
		584.2 -> 526.0	4886		
FOSA	9.677	498.1 -> 77.9	26749	2.28 µg/L	99
		498.1 -> 478.0	816		
MeFOSAA	8.421	570.1 -> 419.0	17015	2.56 µg/L	m 100
		570.1 -> 483.0	3385		
PFBA	3.093	212.8 -> 168.9	54045	9.66 µg/L	100
PFBS	5.747	298.7 -> 79.9	16967	2.09 µg/L	93
		298.7 -> 98.8	6589		
PFDA	8.388	512.9 -> 469.0	68642	2.32 µg/L	98
		512.9 -> 219.0	10892		
PFDODA	9.298	613.1 -> 569.0	47602	2.36 µg/L	96
		613.1 -> 319.0	7223		
PFDS	9.462	599.0 -> 79.9	7629	2.43 µg/L	93

7.7.12
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.708	599.0 -> 98.8	3798	2.23	µg/L	97
		363.1 -> 319.0	57423			
PFHpS	8.046	363.1 -> 169.0	9923	2.53	µg/L	97
		449.0 -> 79.9	15833			
PFHxA	5.795	449.0 -> 98.9	7486	2.43	µg/L	99
		313.0 -> 269.0	48907			
PFHxS	7.479	313.0 -> 118.9	2436	2.13	µg/L	93
		398.7 -> 79.9	14376			
PFNA	7.883	398.7 -> 98.9	7308	2.37	µg/L	100
		463.0 -> 419.0	76743			
PFNS	9.041	463.0 -> 219.0	13595	2.43	µg/L	99
		548.8 -> 79.9	13347			
PFOA	7.341	548.8 -> 98.9	6570	2.40	µg/L	98
		413.0 -> 369.0	94219			
PFOS	8.564	413.0 -> 169.0	15822	2.24	µg/L	97
		498.9 -> 79.9	13698			
PFPeA	4.563	498.9 -> 98.8	6876	4.74	µg/L	100
		263.0 -> 219.0	64688			
PFPeS	6.785	349.1 -> 79.9	14495	2.34	µg/L	100
		349.1 -> 98.9	6673			
PFTeDA	10.013	713.1 -> 669.0	39768	2.42	µg/L	99
		713.1 -> 168.9	3449			
PFTrDA	9.669	663.0 -> 619.0	48503	2.42	µg/L	98
		663.0 -> 168.9	5254			
PFUnDA	8.866	563.1 -> 519.0	50657	2.28	µg/L	100
		563.1 -> 269.1	8469			
11Cl-PF3OUdS	9.721	630.9 -> 450.9	73003	4.66	µg/L	99
		632.9 -> 452.9	21480			
9Cl-PF3ONS	8.906	530.8 -> 351.0	117897	4.50	µg/L	98
		532.8 -> 353.0	36832			
ADONA	6.959	376.9 -> 250.9	233692	4.16	µg/L	98
		376.9 -> 84.8	68231			
HFPO-DA	6.169	284.9 -> 168.9	16087	4.46	µg/L	99
		284.9 -> 184.9	1836			
3:3FTCA	3.946	241.0 -> 177.0	10841	11.62	µg/L	99
		241.0 -> 117.0	1396			
5:3FTCA	6.374	341.0 -> 237.1	245095	62.90	µg/L	94
		341.0 -> 217.0	171068			
7:3FTCA	7.736	441.0 -> 316.9	170320	61.08	µg/L	93
		441.0 -> 336.9	373646			
EtFOSA	10.997	526.0 -> 219.0	29550	4.65	µg/L	94
		526.0 -> 169.0	39821			
EtFOSE	10.943	630.0 -> 58.9	91388	11.31	µg/L	100
		511.9 -> 219.0	25048			
MeFOSA	10.777	511.9 -> 169.0	35455	5.12	µg/L	98
		616.1 -> 58.9	66303			
MeFOSE	10.697	699.1 -> 79.9	3593	12.16	µg/L	100
		699.1 -> 98.8	2058			
PFDoDS	10.139	295.0 -> 201.0	12242	2.30	µg/L	99
		295.0 -> 84.9	3399			
NFDHA	5.673	279.0 -> 85.1	46173	4.81	µg/L	98
		229.0 -> 84.9	36110			
PFMBA	4.988	279.0 -> 85.1	46173	4.72	µg/L	100
PFMPA	3.667	229.0 -> 84.9	36110	4.75	µg/L	100
PFEESA	6.288	314.8 -> 134.9	118394	4.79	µg/L	100
		314.8 -> 82.9	3918			

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

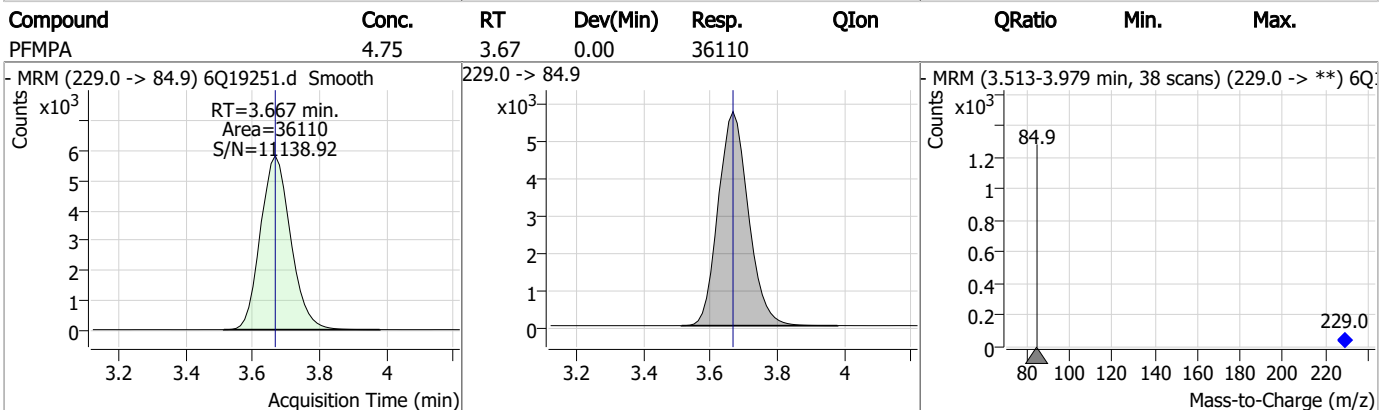
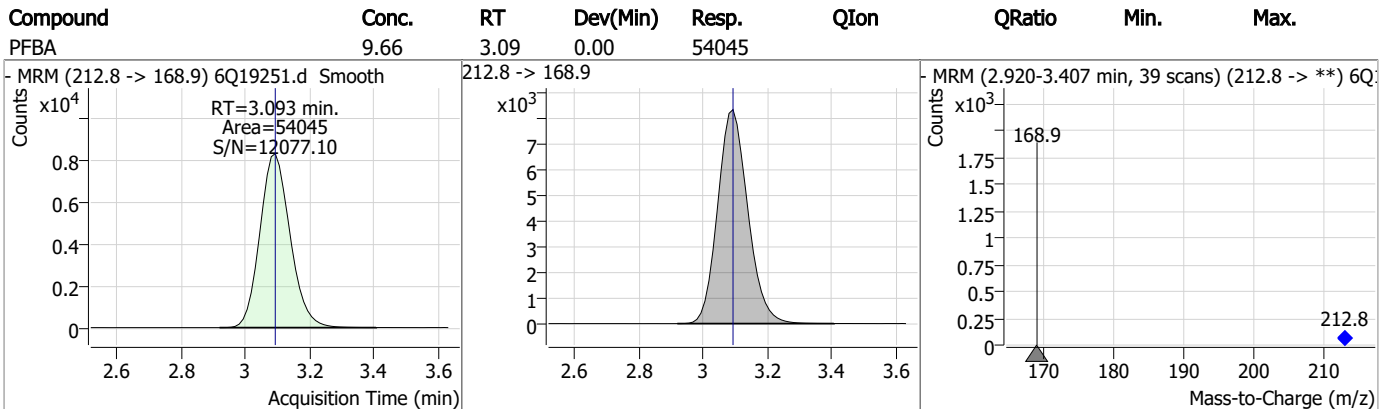
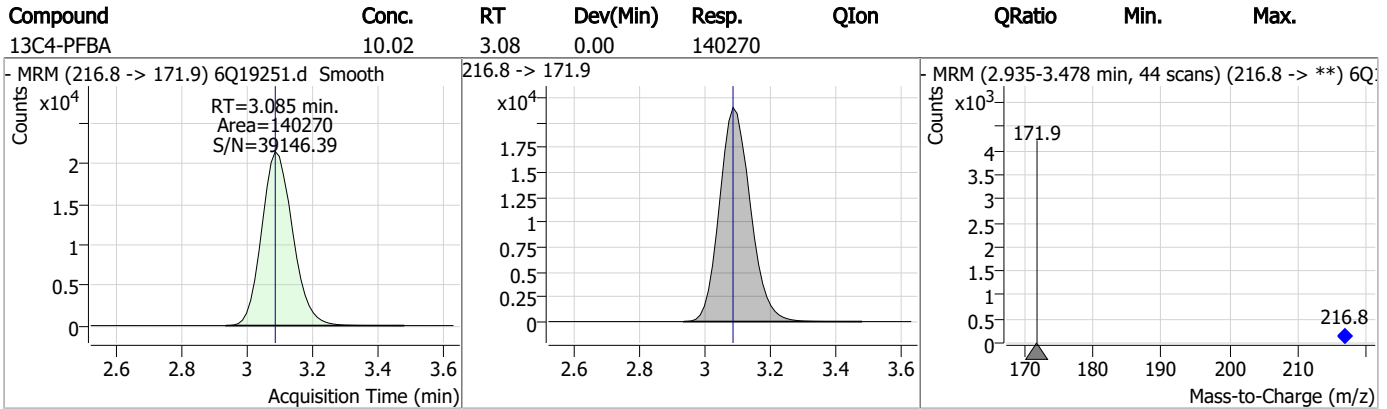
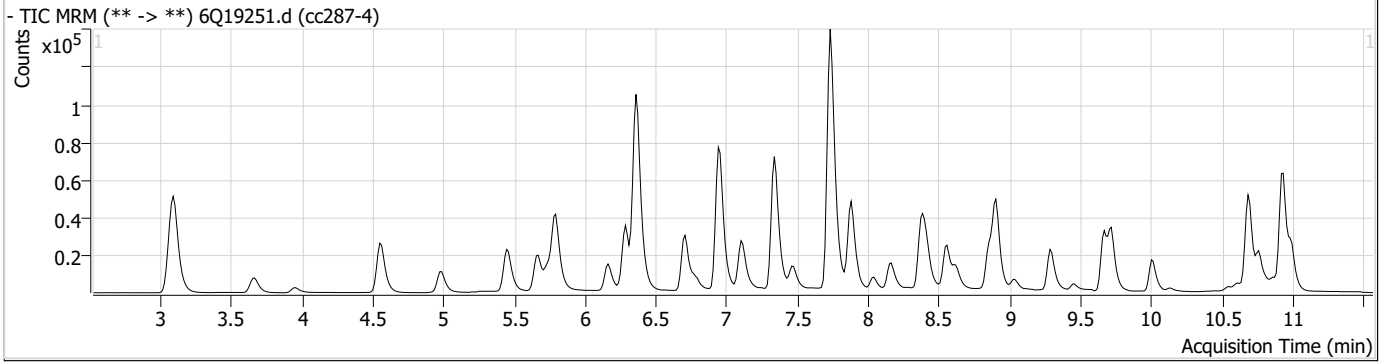
Perfluorinated Compounds by LC/MS/MS

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

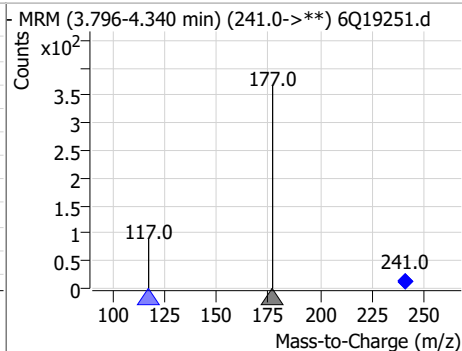
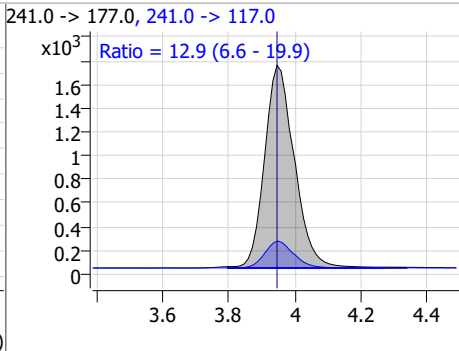
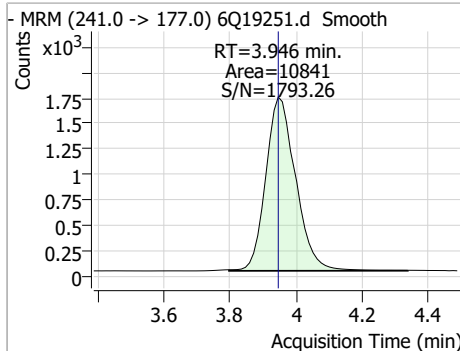
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Perfluorinated Compounds by LC/MS/MS

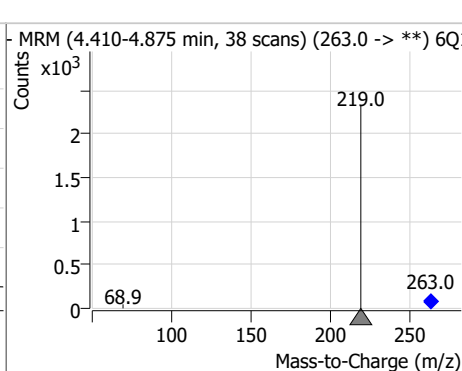
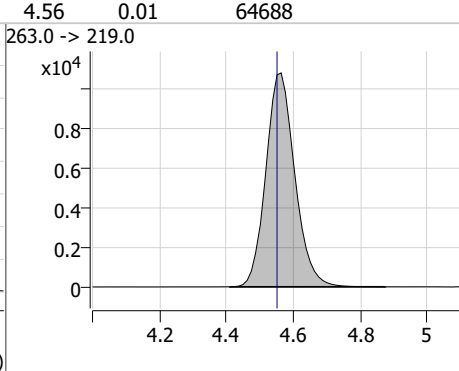
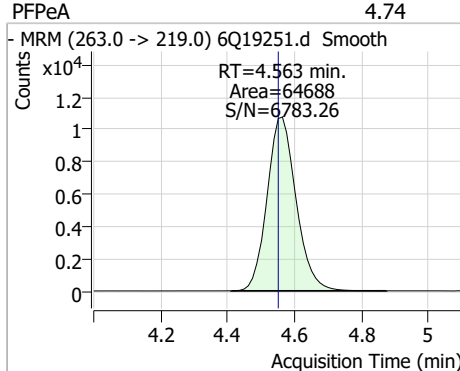


Perfluorinated Compounds by LC/MS/MS

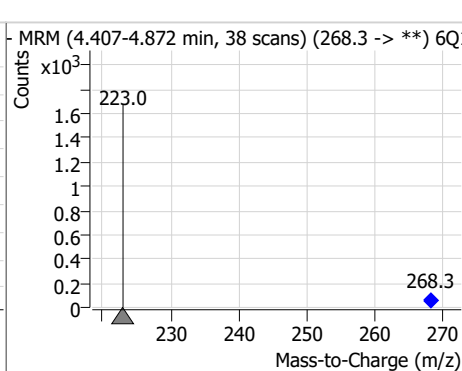
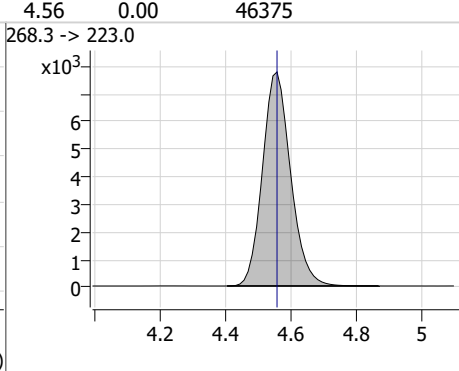
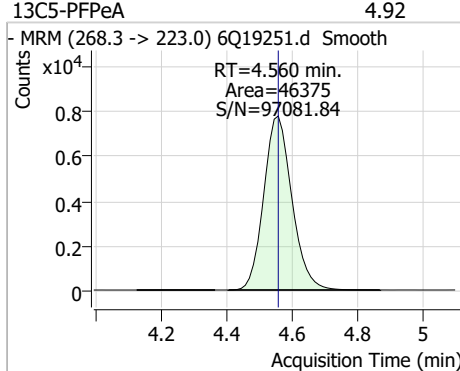
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.62	3.95	0.00	10841	241.0 -> 117.0	12.9	6.6	19.9



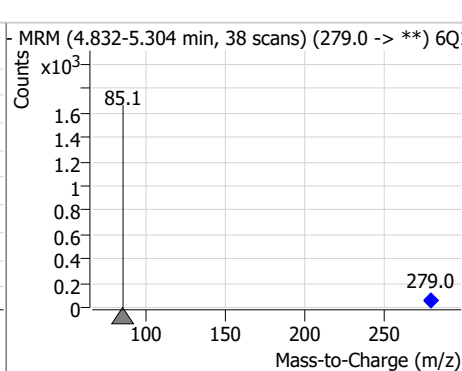
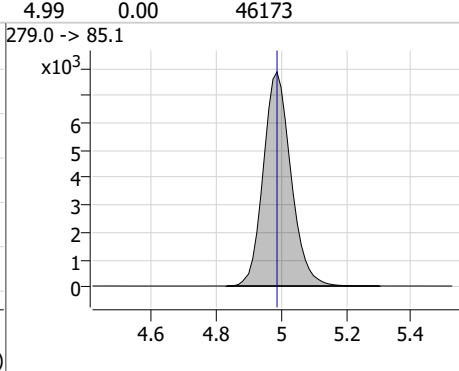
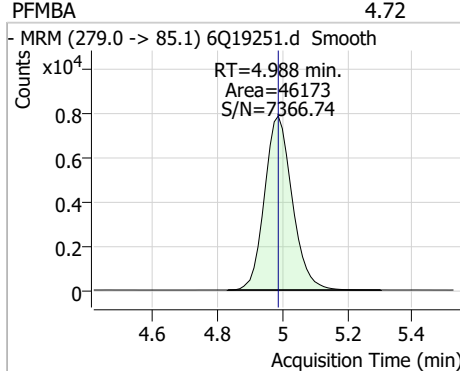
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.74	4.56	0.01	64688				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.92	4.56	0.00	46375				

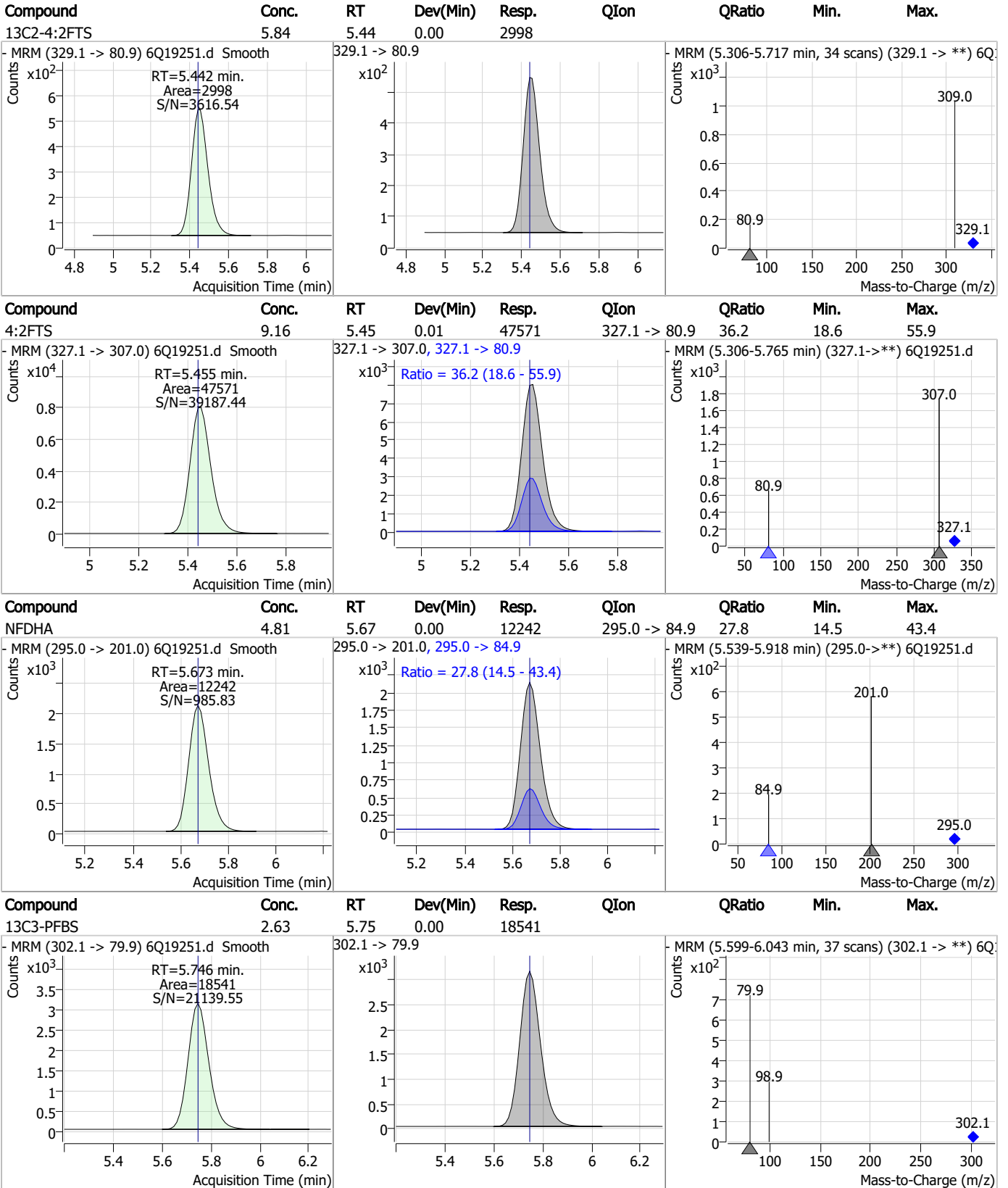


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.72	4.99	0.00	46173				



7.7.12
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Perfluorinated Compounds by LC/MS/MS

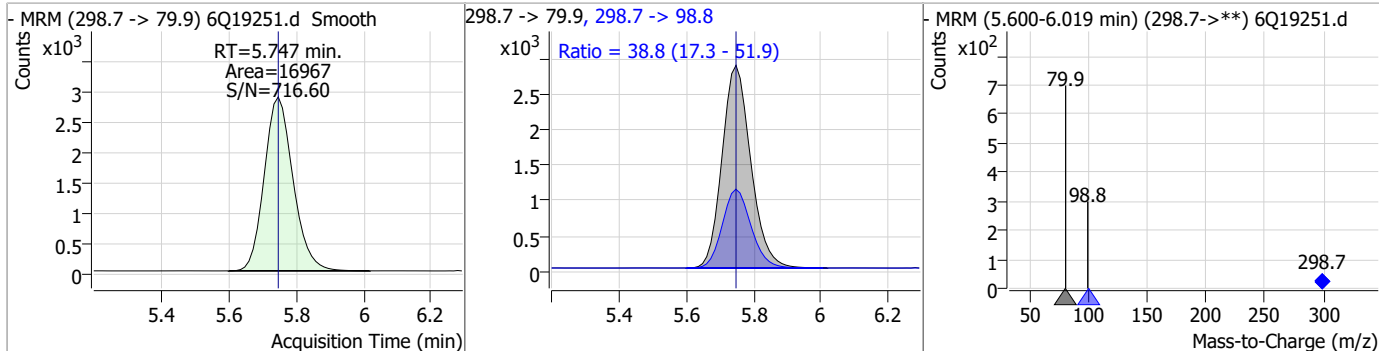


7.7.12 7

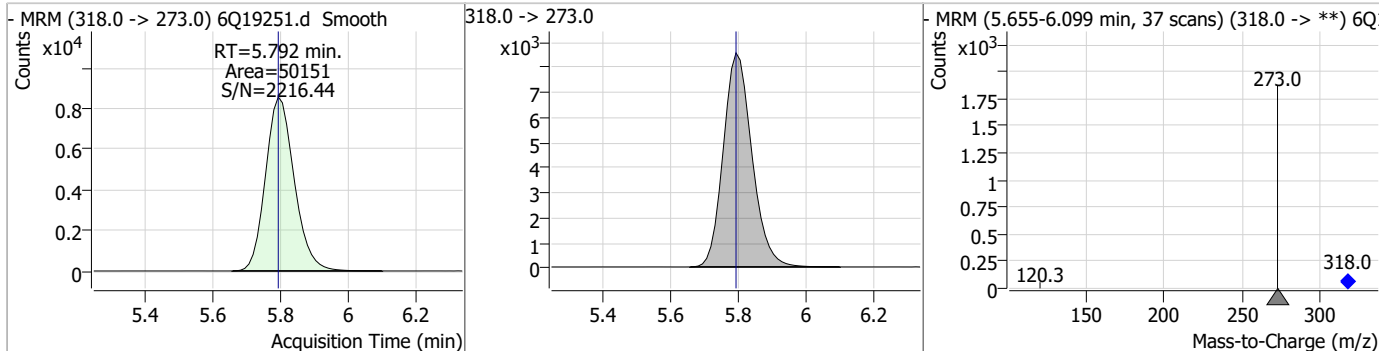


Perfluorinated Compounds by LC/MS/MS

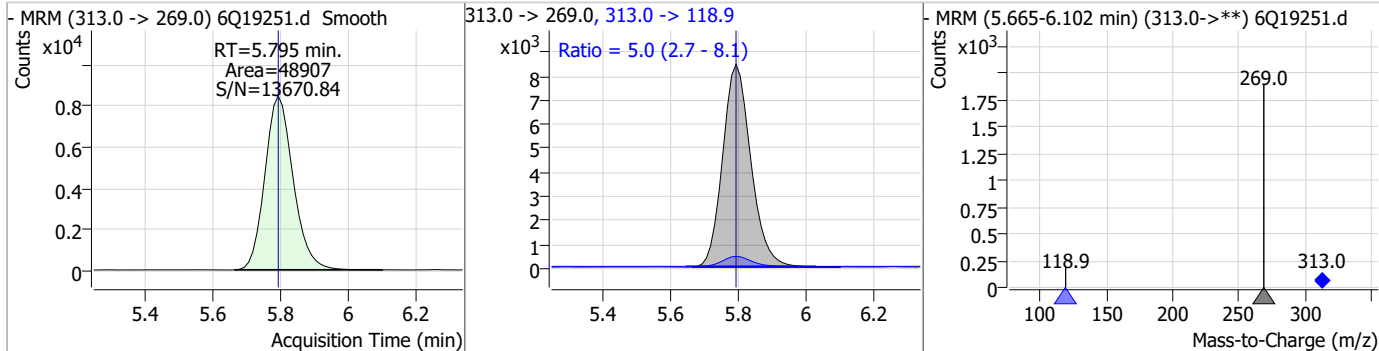
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.09	5.75	0.00	16967	298.7 -> 98.8	38.8	17.3	51.9



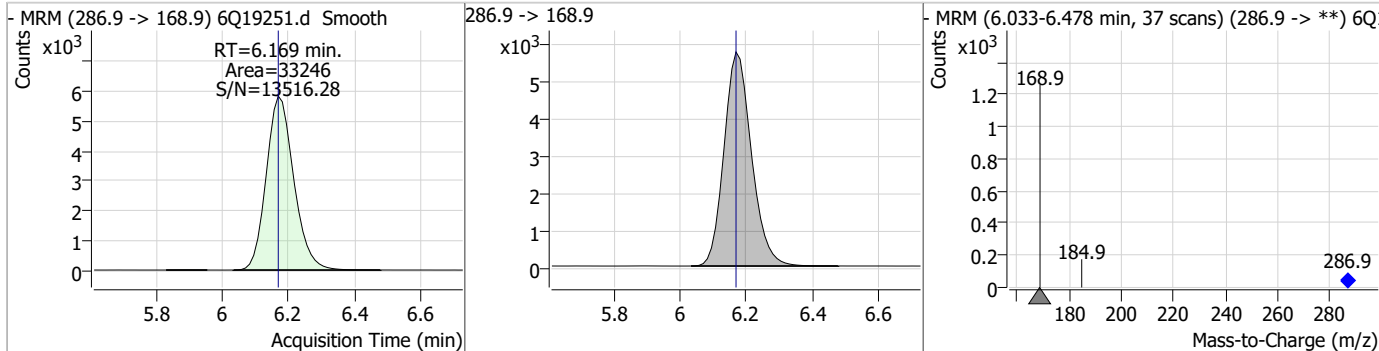
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.38	5.79	0.00	50151				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.43	5.79	0.00	48907	313.0 -> 118.9	5.0	2.7	8.1



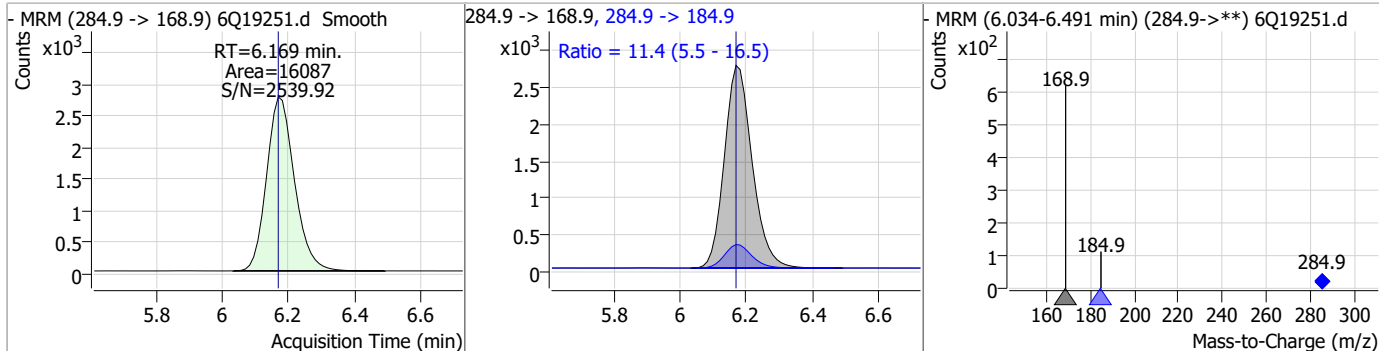
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.94	6.17	0.00	33246				



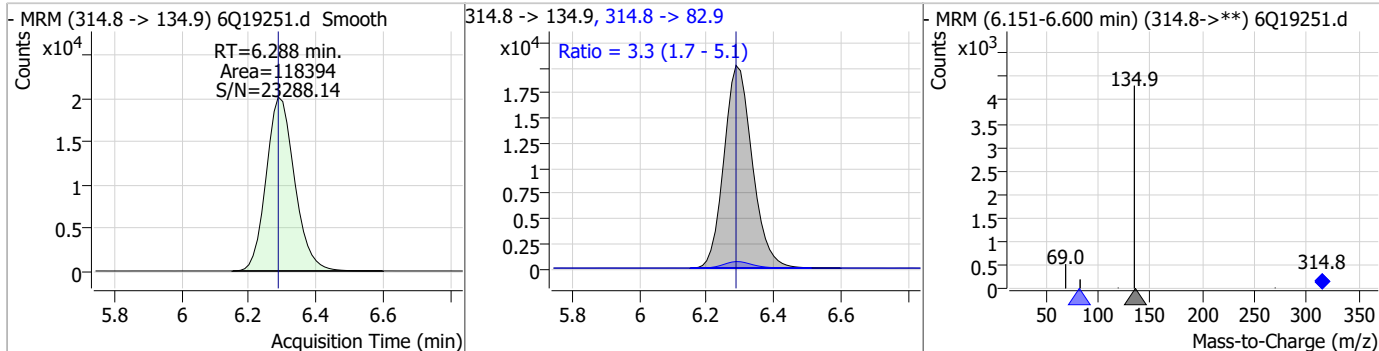
7.7.12
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Perfluorinated Compounds by LC/MS/MS

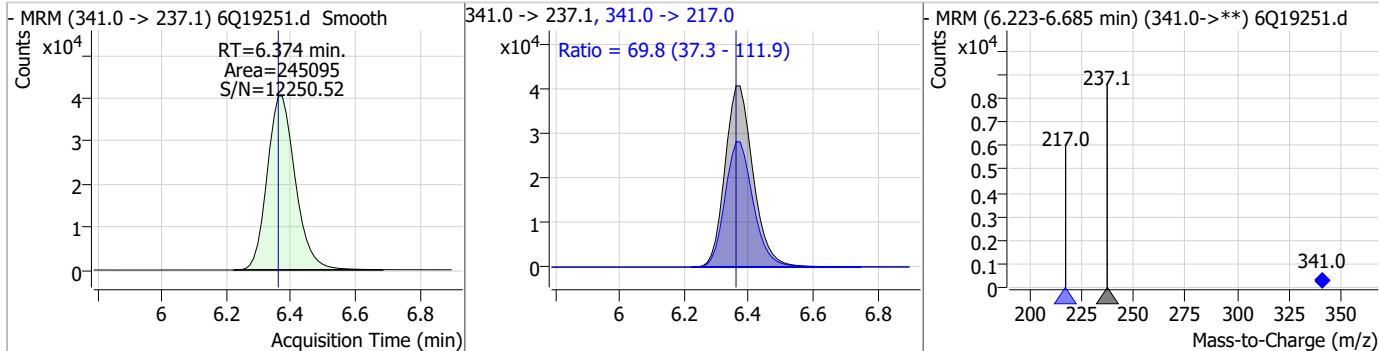
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.46	6.17	0.00	16087	284.9 -> 184.9	11.4	5.5	16.5



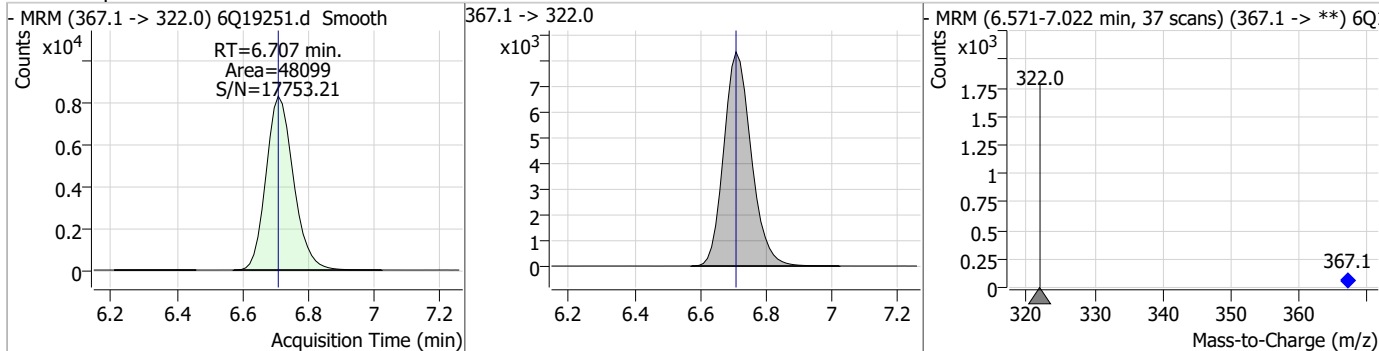
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.79	6.29	0.00	118394	314.8 -> 82.9	3.3	1.7	5.1



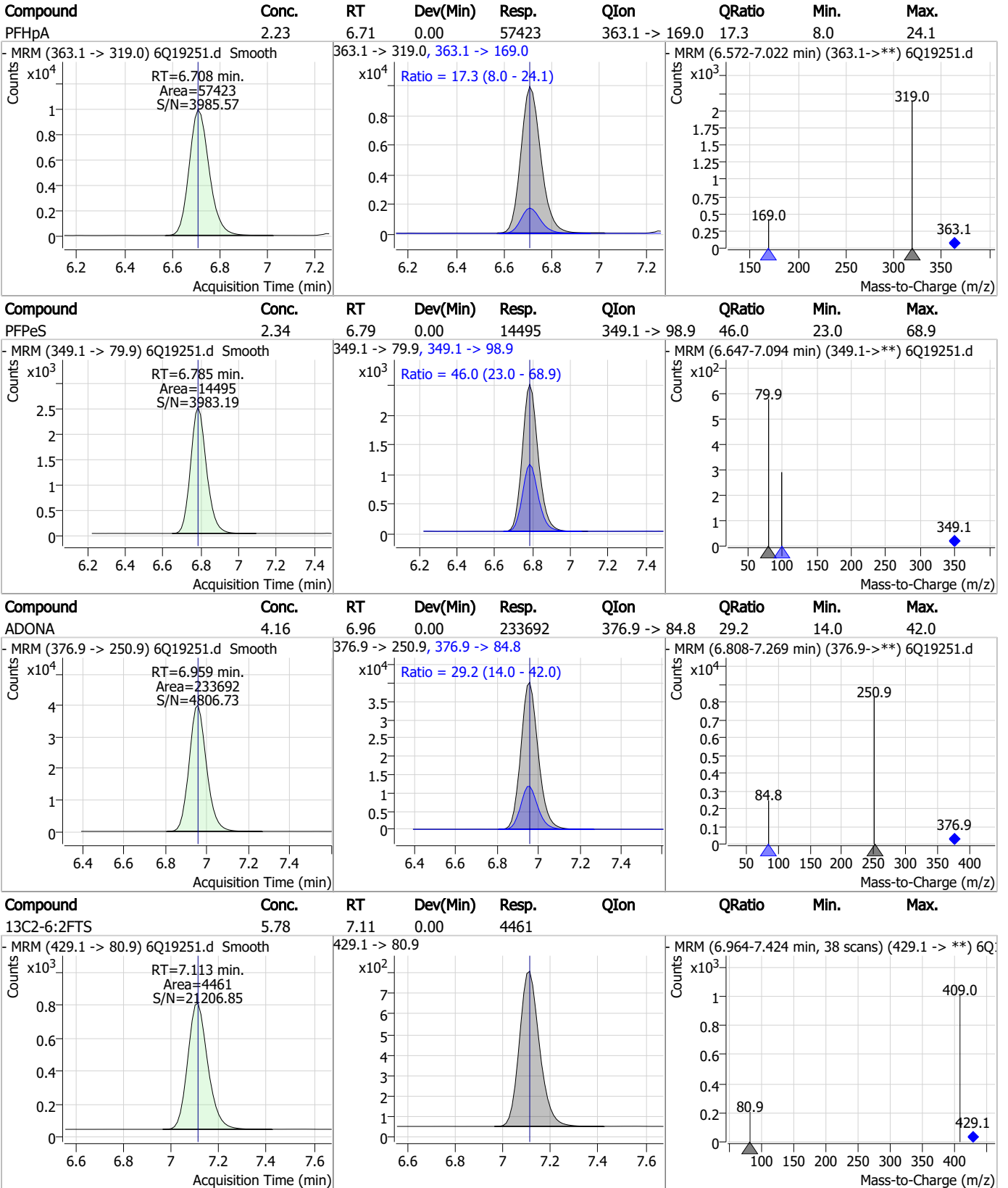
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	62.90	6.37	0.01	245095	341.0 -> 217.0	69.8	37.3	111.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.45	6.71	0.00	48099	367.1 -> 322.0			



Perfluorinated Compounds by LC/MS/MS

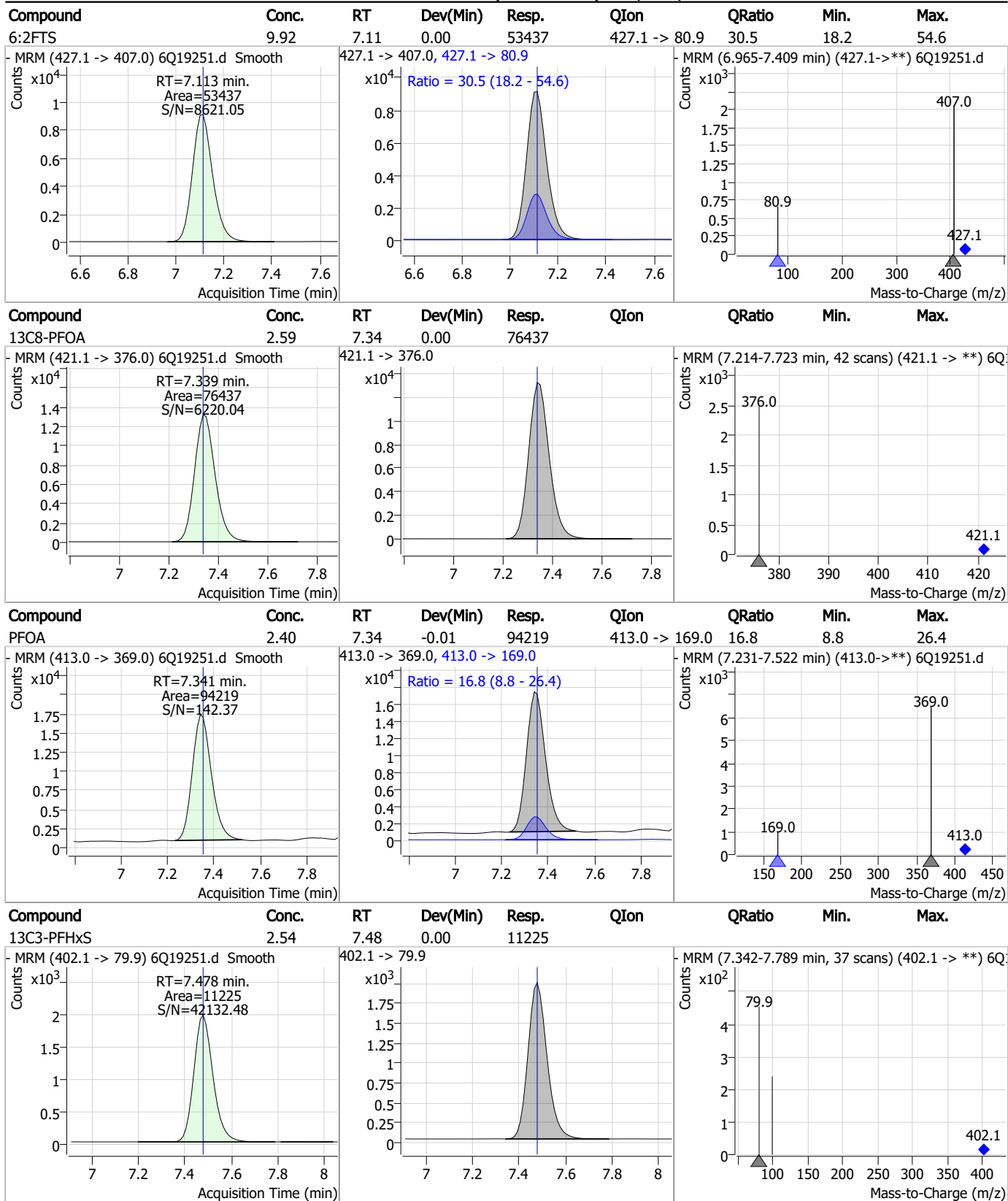


7.7.12

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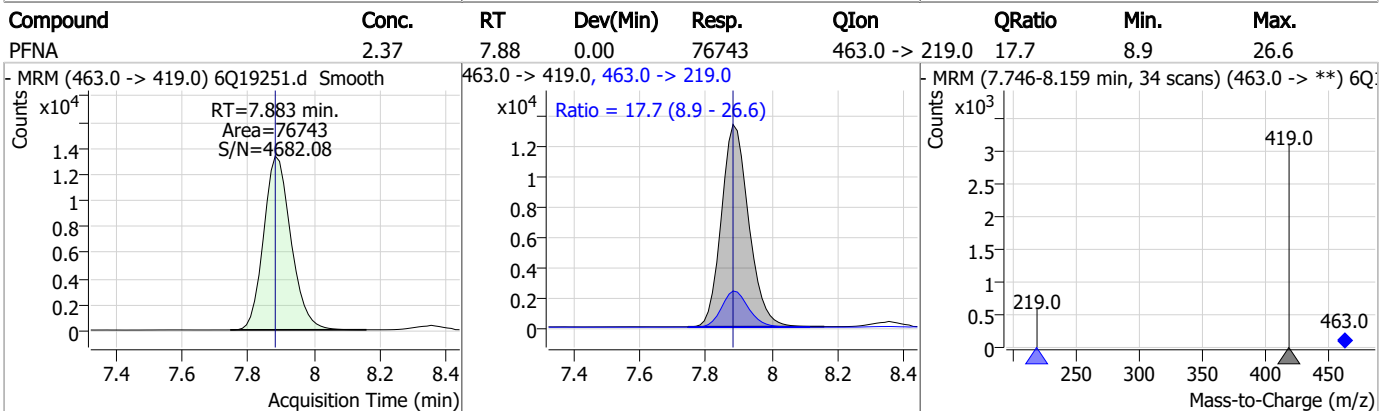
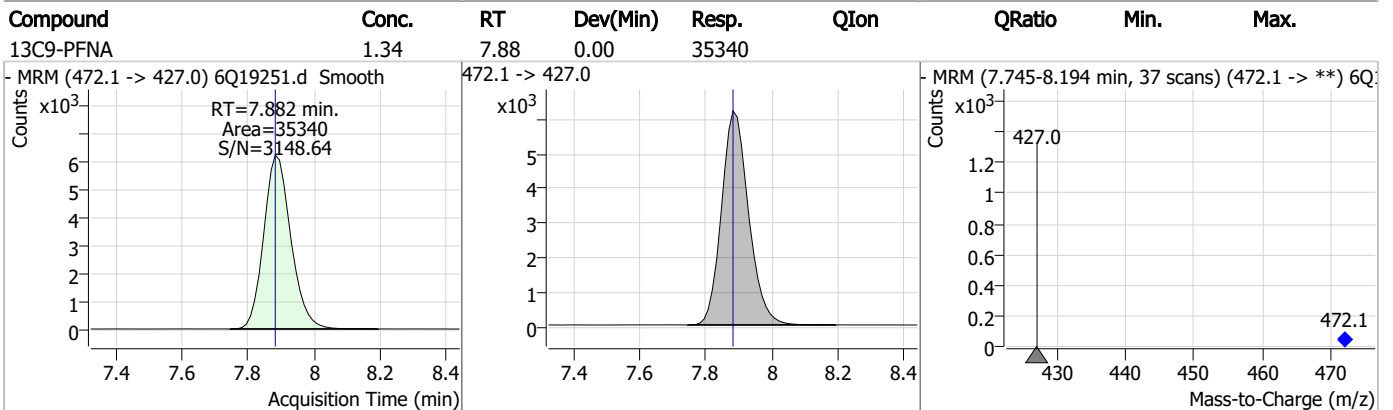
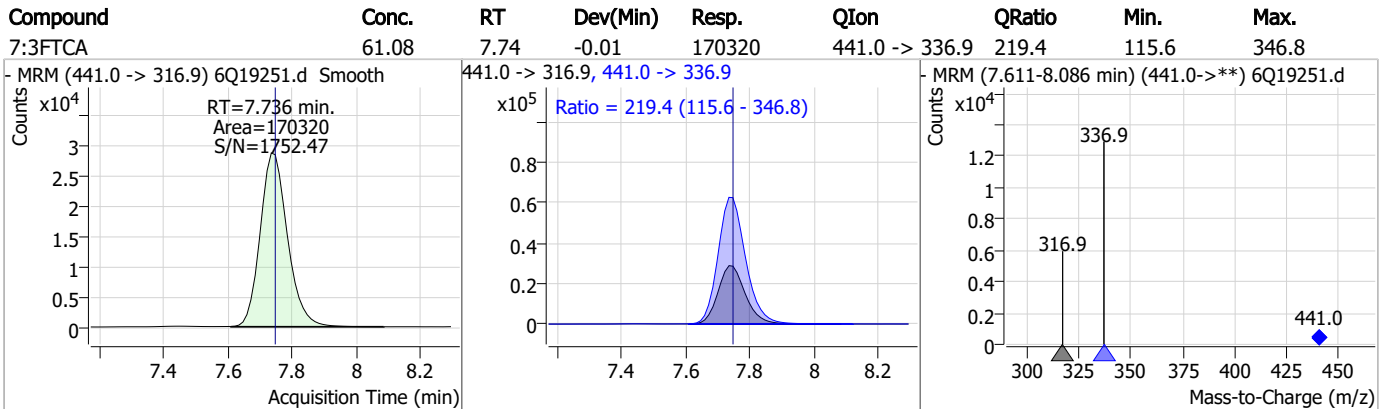
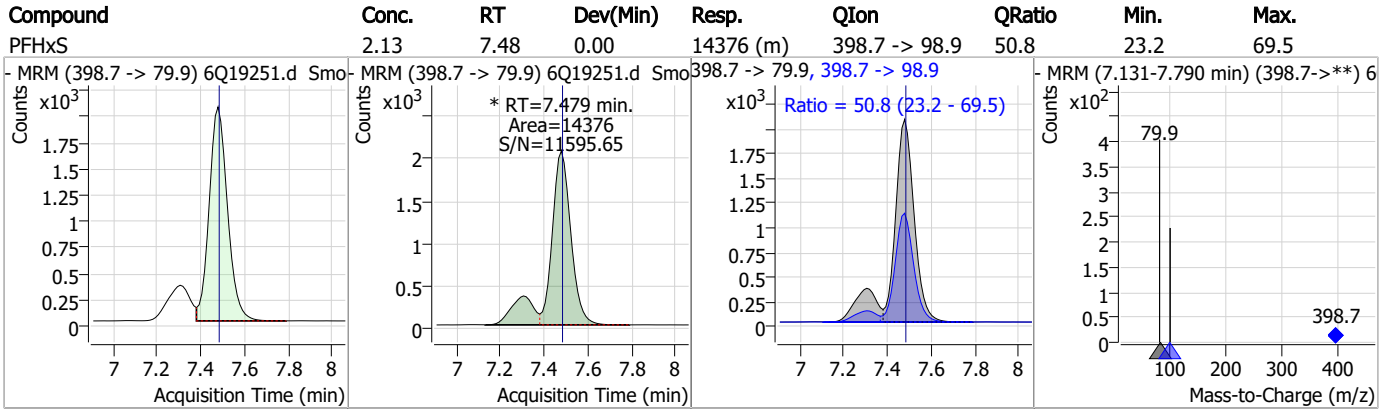


Perfluorinated Compounds by LC/MS/MS



7.7.12
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Perfluorinated Compounds by LC/MS/MS



7.7.12
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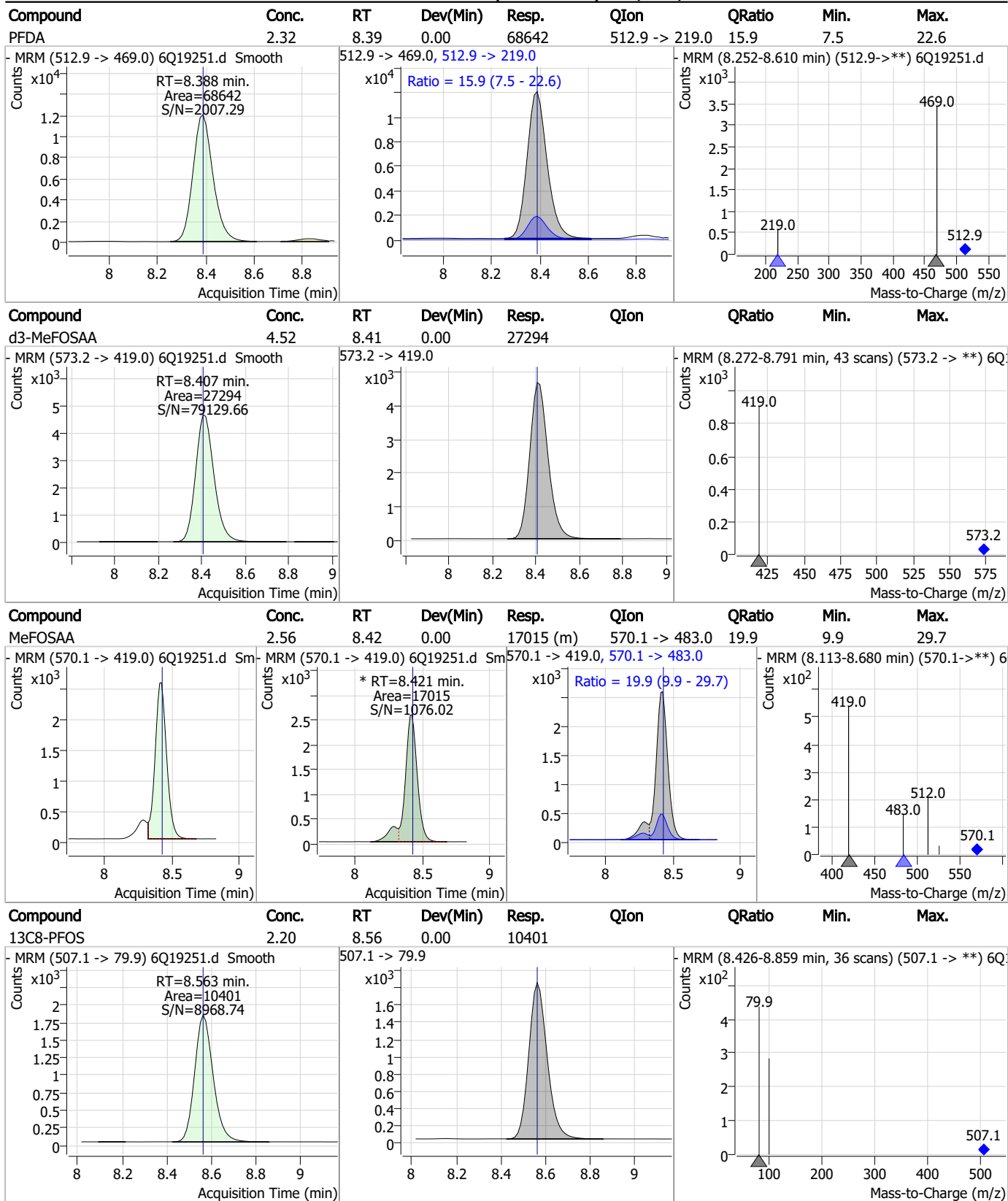
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.53	8.05	0.00	15833	449.0 -> 98.9	47.3	24.5	73.5
13C2-8:2FTS	5.89	8.16	0.00	4354				
8:2FTS	8.51	8.16	0.00	24635	527.1 -> 80.8	41.9	19.7	59.1
13C6-PFDA	1.22	8.39	0.00	19802				

7.7.12 7



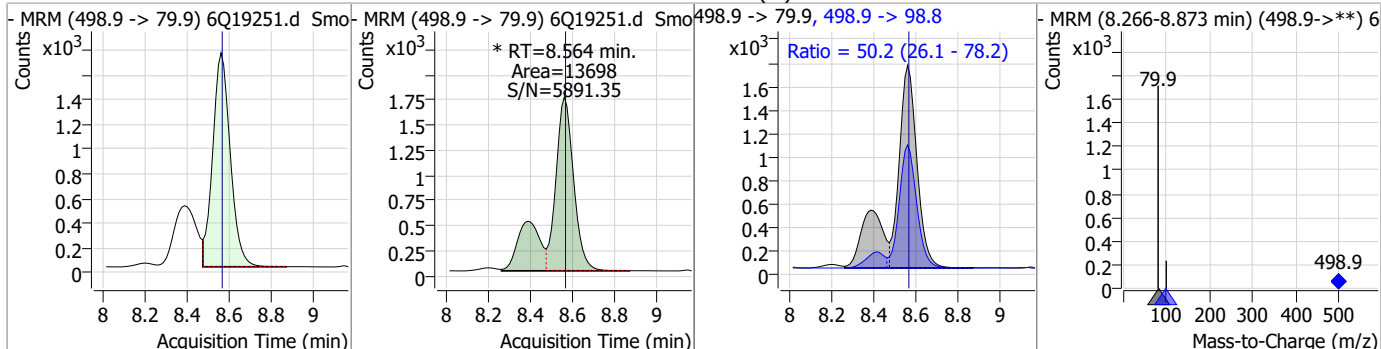
Perfluorinated Compounds by LC/MS/MS



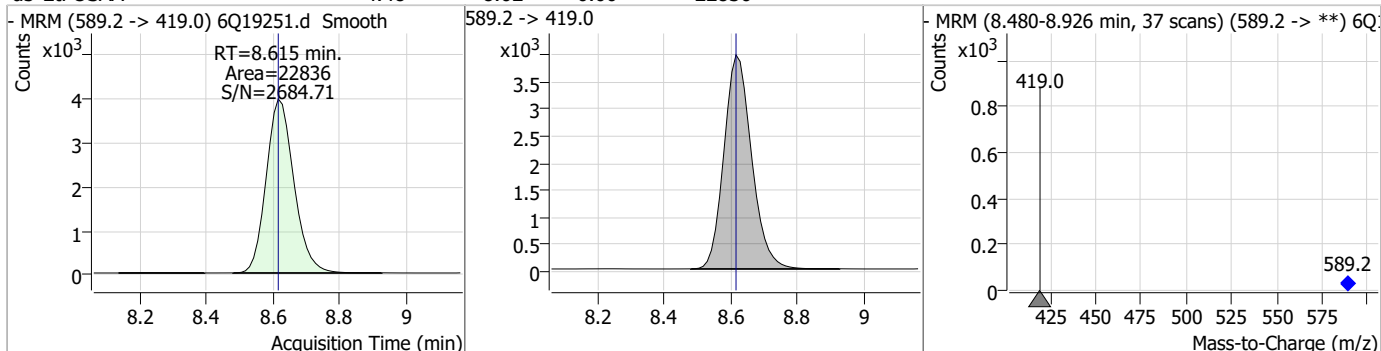
7.7.12
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Perfluorinated Compounds by LC/MS/MS

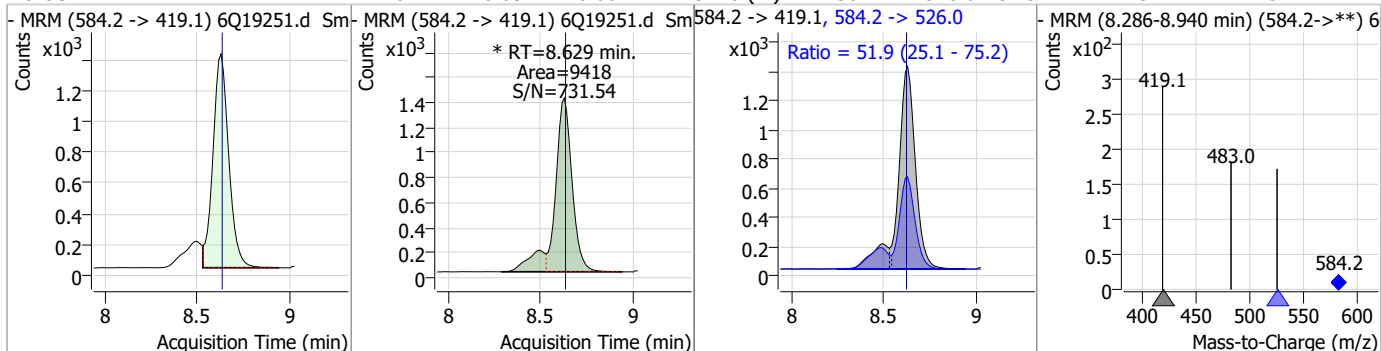
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.24	8.56	0.00	13698 (m)	498.9 -> 98.8	50.2	26.1	78.2



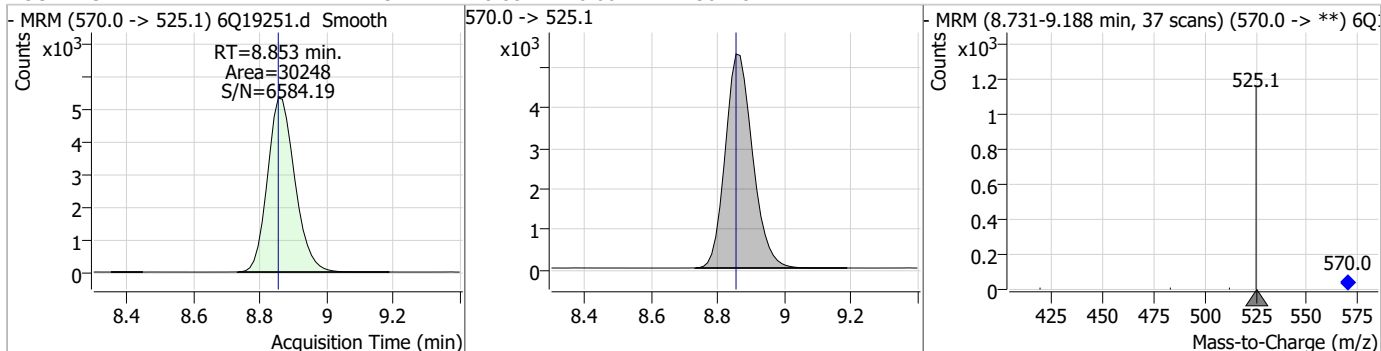
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.48	8.62	0.00	22836				



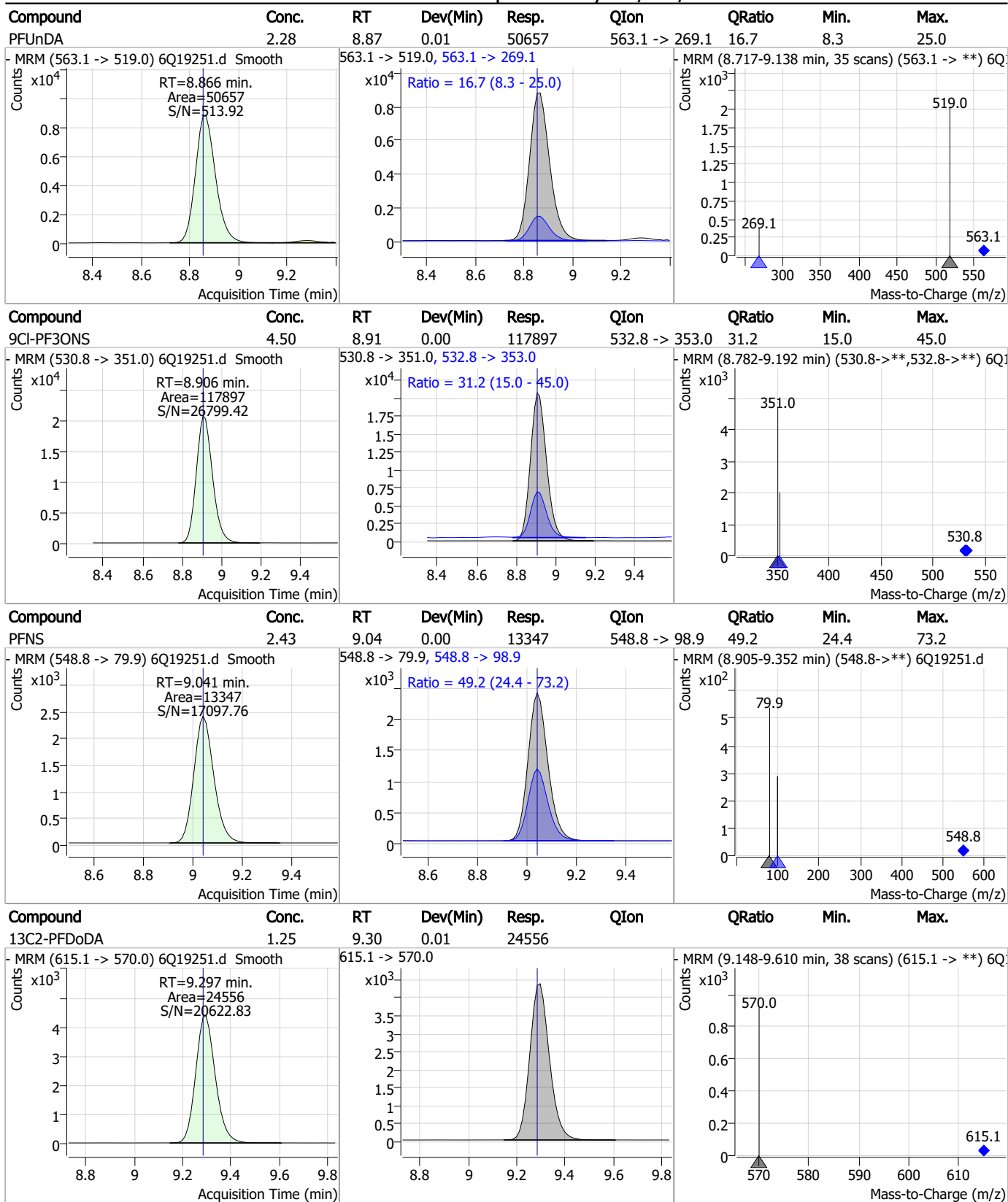
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.48	8.63	0.00	9418 (m)	584.2 -> 526.0	51.9	25.1	75.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.32	8.85	0.00	30248				

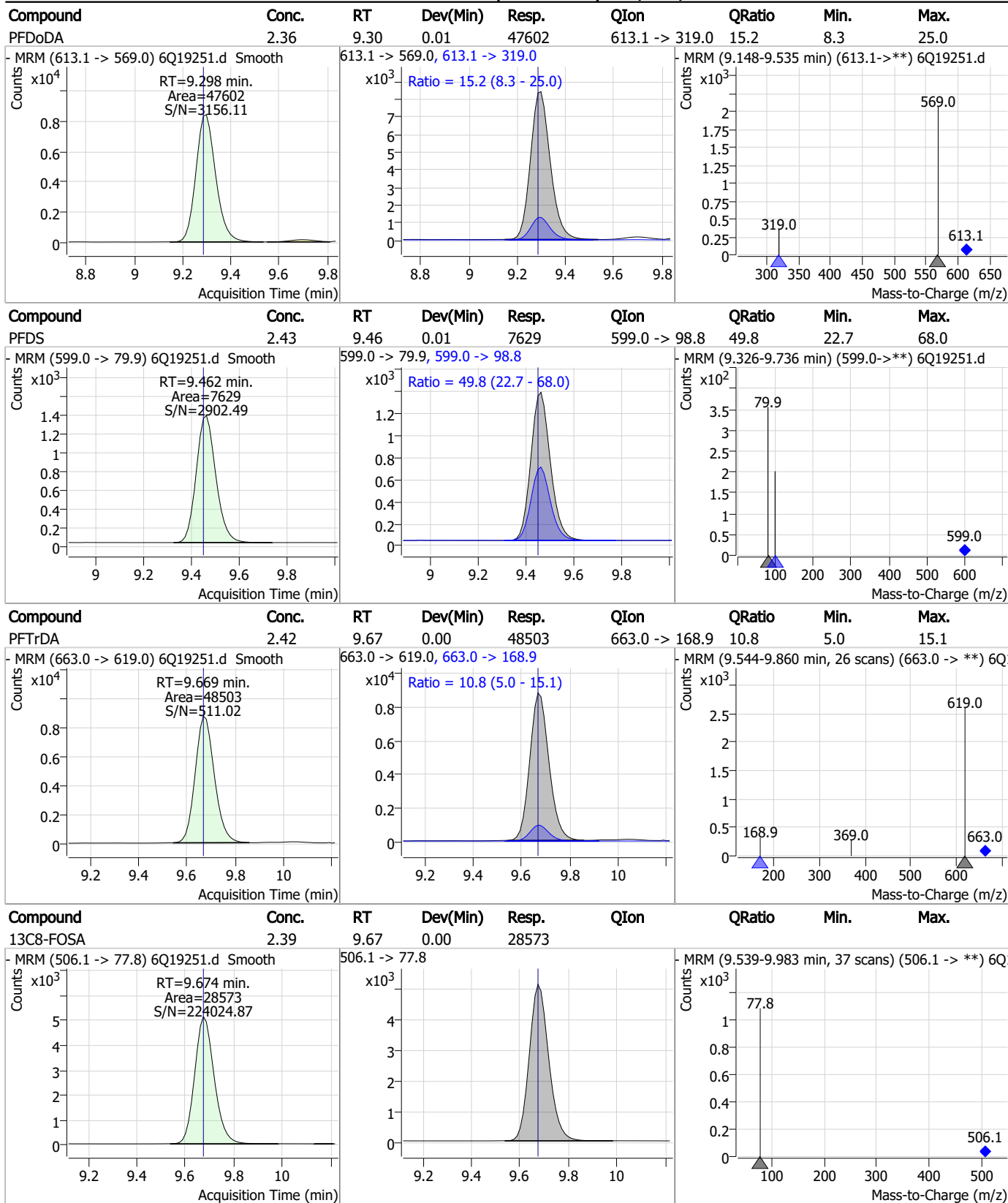


Perfluorinated Compounds by LC/MS/MS



7.7.12 7

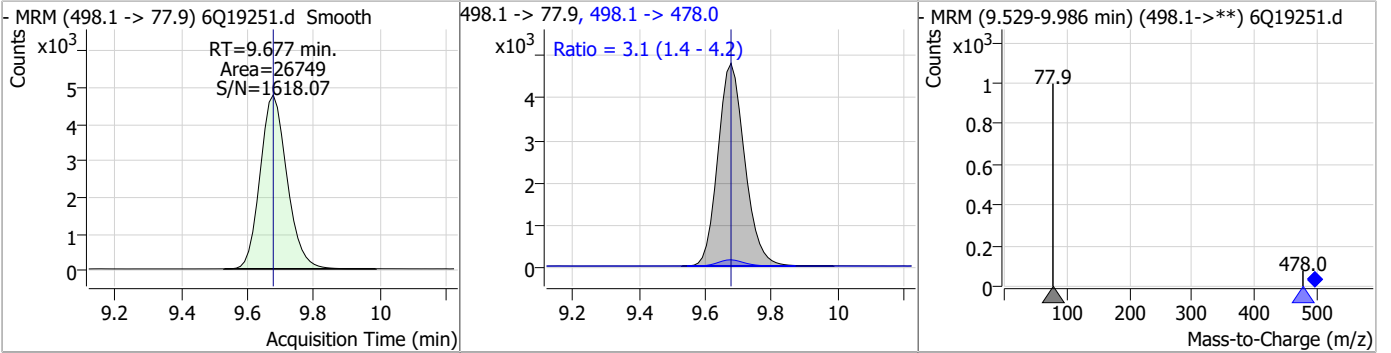
Perfluorinated Compounds by LC/MS/MS



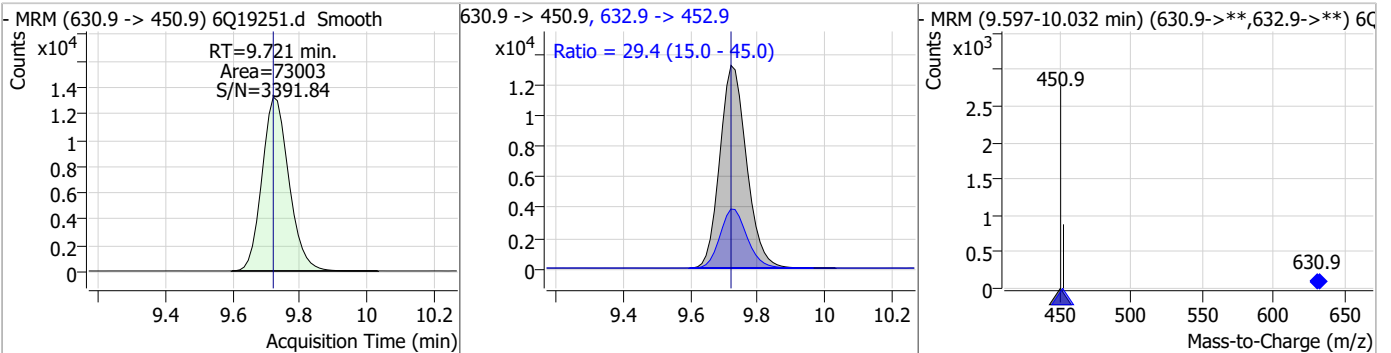
7.7.12 7

Perfluorinated Compounds by LC/MS/MS

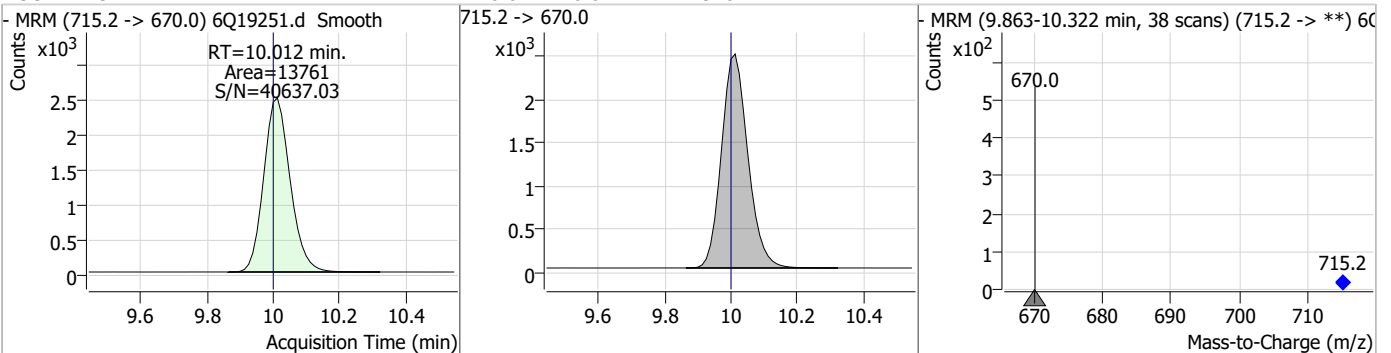
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.28	9.68	0.00	26749	498.1 -> 478.0	3.1	1.4	4.2



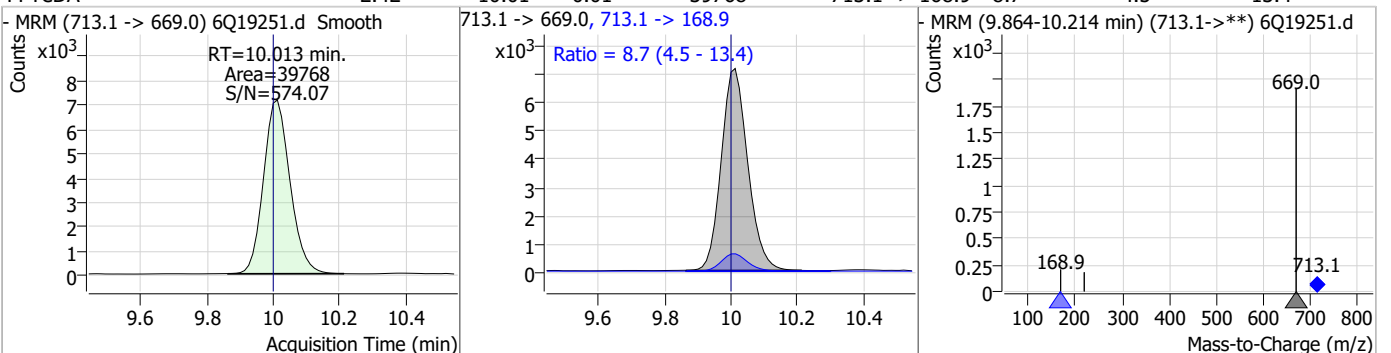
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	4.66	9.72	0.00	73003	632.9 -> 452.9	29.4	15.0	45.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	10.01	0.01	13761	715.2 -> 670.0	8.7	4.5	13.4

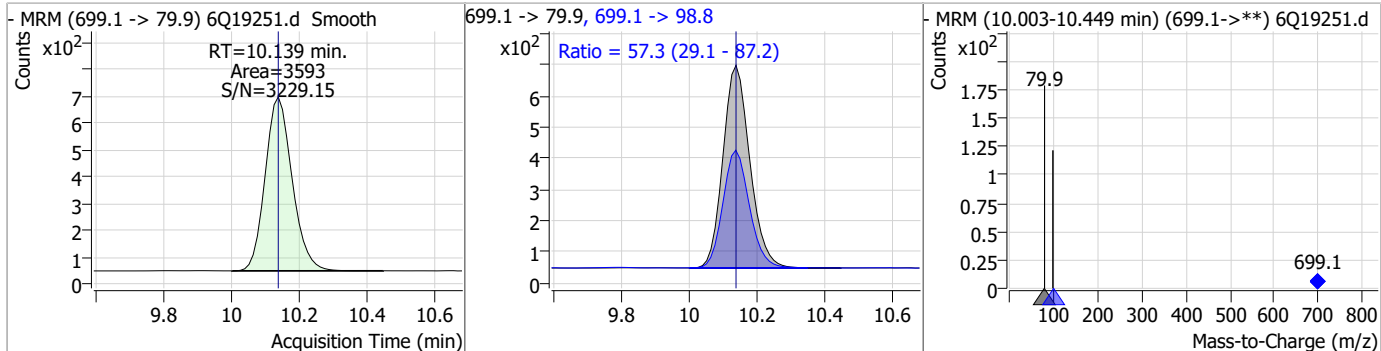


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.42	10.01	0.01	39768	713.1 -> 168.9	8.7	4.5	13.4

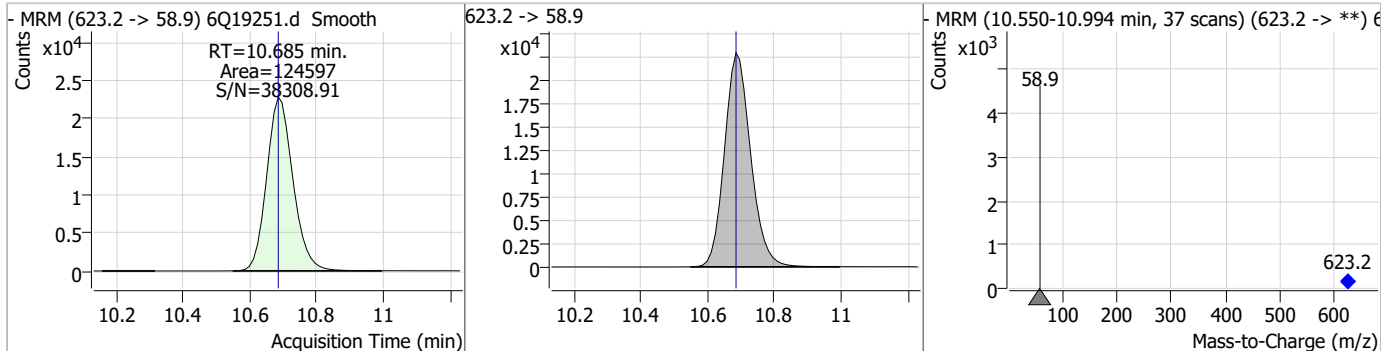


Perfluorinated Compounds by LC/MS/MS

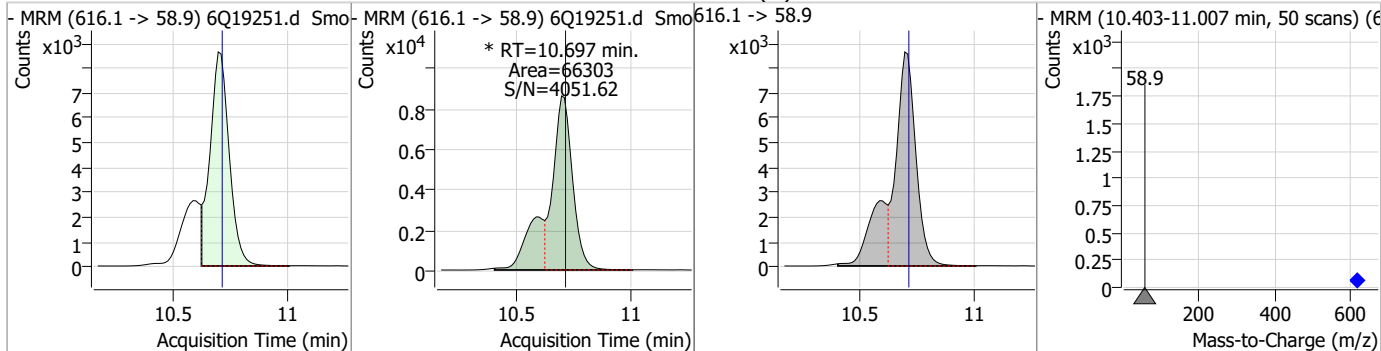
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.30	10.14	0.00	3593	699.1 -> 98.8	57.3	29.1	87.2



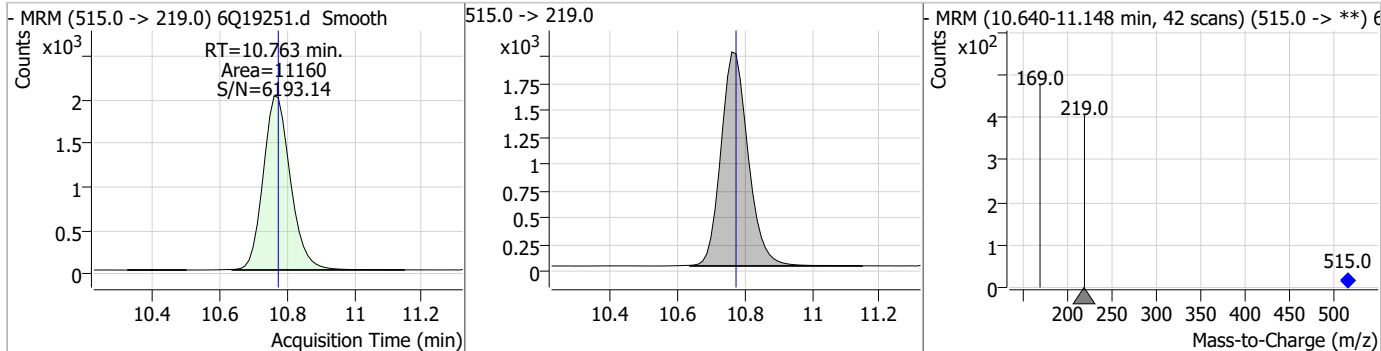
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.07	10.68	0.00	124597				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.16	10.70	-0.01	66303 (m)				

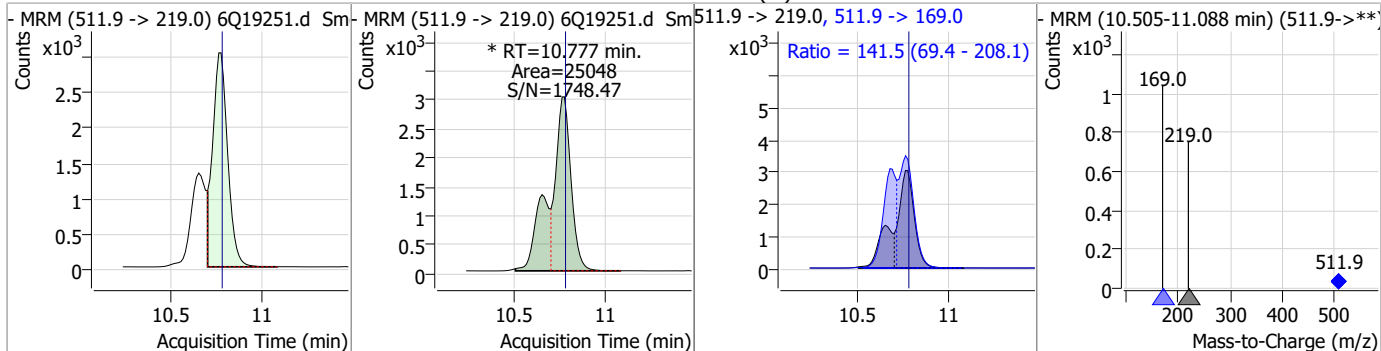


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.08	10.76	-0.01	11160				

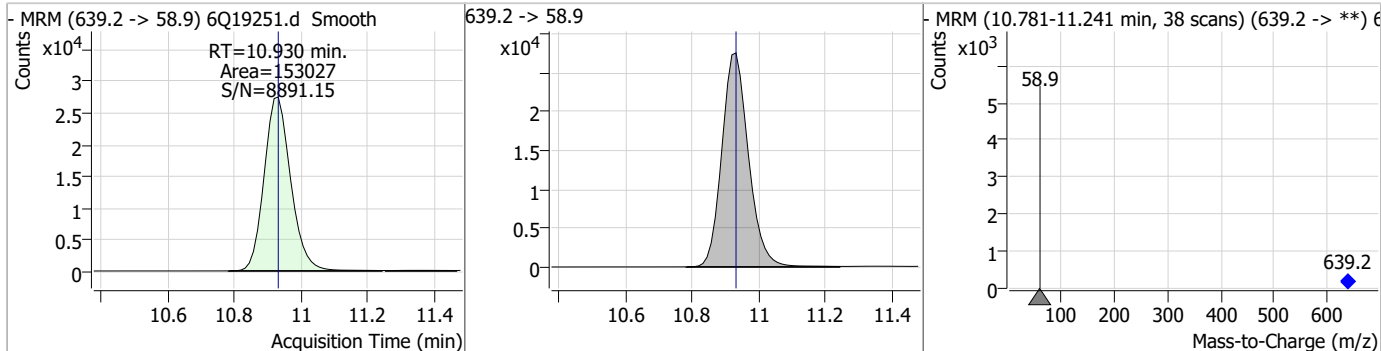


Perfluorinated Compounds by LC/MS/MS

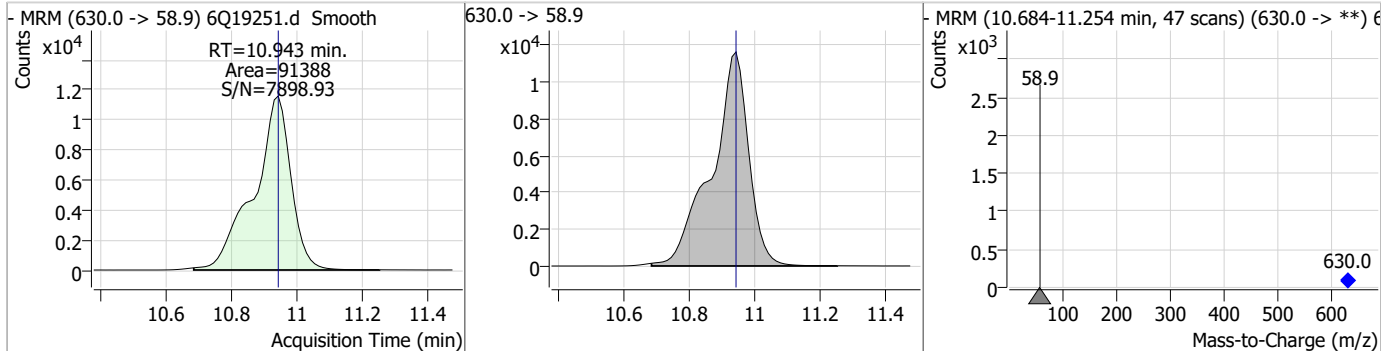
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	5.12	10.78	0.00	25048 (m)	511.9 -> 169.0	141.5	69.4	208.1



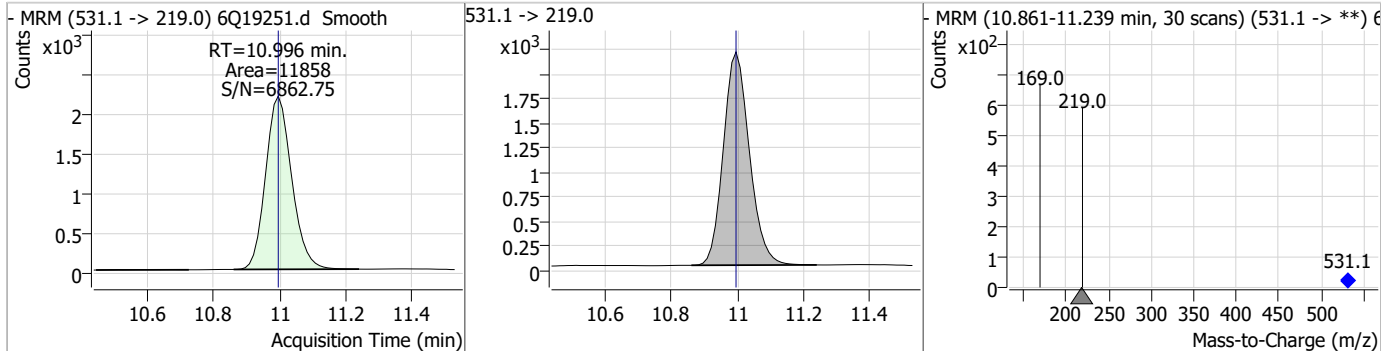
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.72	10.93	0.00	153027				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.31	10.94	0.00	91388				

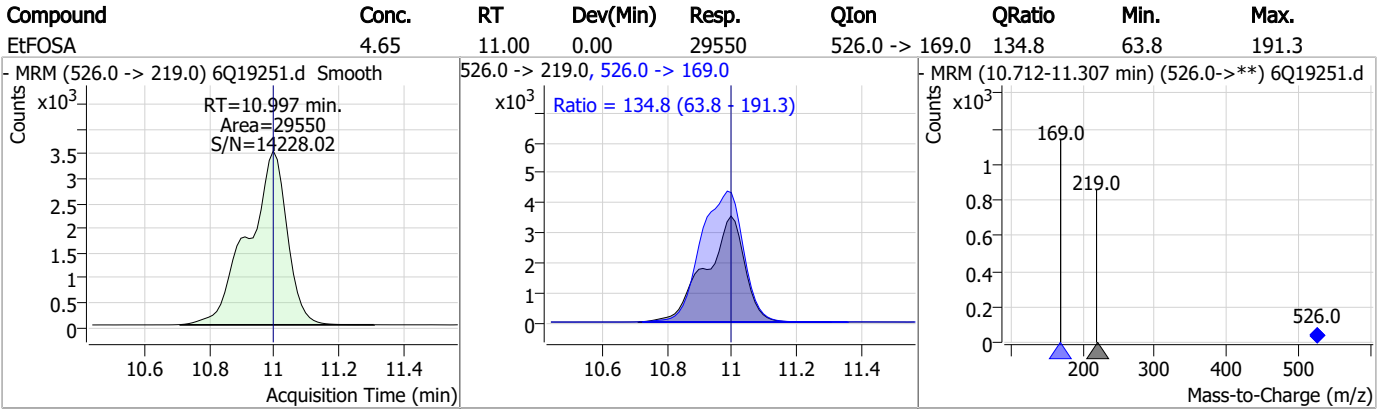


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.29	11.00	0.00	11858				



7.7.12
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Perfluorinated Compounds by LC/MS/MS



7.7.12

7

Manual Integration Approval Summary

Sample Number: S6Q287-CC287 Method: EPA DRAFT 1633
Lab FileID: 6Q19251.D Analyst approved: 06/13/23 14:02 Natasha Gumtie
Injection Time: 06/12/23 18:22 Supervisor approved: 06/13/23 14:13 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.63	Split peak
MeFOSE	24448-09-7		10.70	Split peak
MeFOSA	31506-32-8		10.78	Split peak

7.7.12.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19252.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 6:36:17 PM
 Sample Name : cc287-1.0LL
 Vial : P1-A2
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	142355	10.00 µg/L	0.000
M5-PFPeA	4.548	268.3 -> 223.0	46475	5.00 µg/L	-0.012
M5-PFHxA	5.792	318.0 -> 273.0	50078	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	47459	2.50 µg/L	0.000
M8-PFOA	7.339	421.1 -> 376.0	72537	2.50 µg/L	0.000
M9-PFNA	7.882	472.1 -> 427.0	36103	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	21298	1.25 µg/L	0.000
M7-PFUnDA	8.853	570.0 -> 525.1	28138	1.25 µg/L	0.000
M2-PFDoDA	9.285	615.1 -> 570.0	24027	1.25 µg/L	0.000
M2-PFTeDA	10.012	715.2 -> 670.0	13468	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	27793	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	18331	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	12137	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	10531	2.50 µg/L	0.000
M2-4:2FTS	5.442	329.1 -> 80.9	3186	5.00 µg/L	0.000
M2-6:2FTS	7.100	429.1 -> 80.9	5206	5.00 µg/L	-0.012
M2-8:2FTS	8.163	529.1 -> 80.9	4483	5.00 µg/L	0.000
M3-MeFOSAA	8.407	573.2 -> 419.0	27261	5.00 µg/L	0.000
M3-HFPO-DA	6.169	286.9 -> 168.9	31949	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	23261	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	137507	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	152177	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	12361	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	12023	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	14671	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	60469	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	9116	2.50 µg/L	0.000
13C4-PFOA	7.340	417.1 -> 372.0	74594	2.50 µg/L	0.000
13C2-PFDA	8.388	515.1 -> 470.1	26163	1.25 µg/L	0.000
13C5-PFNA	7.882	468.0 -> 423.0	46193	1.25 µg/L	0.000
13C2-PFHxA	5.792	315.1 -> 270.0	45630	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	3186	5.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.5%		
13C2-6:2FTS	7.100	429.1 -> 80.9	5206	6.17 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.4%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4483	5.55 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.9%		
13C2-PFDoDA	9.285	615.1 -> 570.0	24027	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.9%		
13C2-PFTeDA	10.012	715.2 -> 670.0	13468	1.33 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C3-PFBS	5.746	302.1 -> 79.9	18331	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.2%		
13C3-PFHxS	7.478	402.1 -> 79.9	12137	2.51 µg/L	0.000

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 = 100.3%	
13C4-PFBA	3.085	216.8 -> 171.9	142355	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C4-PFHpA	6.707	367.1 -> 322.0	47459	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C5-PFHxA	5.792	318.0 -> 273.0	50078	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C5-PFPeA	4.548	268.3 -> 223.0	46475	5.27 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C6-PFDA	8.387	519.1 -> 474.1	21298	1.47 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 118.0%	
13C7-PFUnDA	8.853	570.0 -> 525.1	28138	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.6%	
13C8-FOSA	9.674	506.1 -> 77.8	27793	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C8-PFOA	7.339	421.1 -> 376.0	72537	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C8-PFOS	8.563	507.1 -> 79.9	10531	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C9-PFNA	7.882	472.1 -> 427.0	36103	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.5%	
d3-MeFOSAA	8.407	573.2 -> 419.0	27261	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	31949	10.22 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
d3-MeFOSA	10.775	515.0 -> 219.0	12023	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
d5-EtFOSAA	8.615	589.2 -> 419.0	23261	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d7-MeFOSE	10.685	623.2 -> 58.9	137507	25.54 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
d9-EtFOSE	10.930	639.2 -> 58.9	152177	22.63 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.5%	
d5-EtFOSA	10.996	531.1 -> 219.0	12361	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
Target Compounds					QValue
4:2FTS	5.443	327.1 -> 307.0	5120	0.93 µg/L	99
		327.1 -> 80.9	1922		
6:2FTS	7.113	427.1 -> 407.0	4726	0.75 µg/L	95
		427.1 -> 80.9	1572		
8:2FTS	8.164	527.1 -> 507.0	2859	0.96 µg/L	92
		527.1 -> 80.8	981		
EtFOSAA	8.617	584.2 -> 419.1	924	0.24 µg/L	m 81
		584.2 -> 526.0	584		
FOSA	9.677	498.1 -> 77.9	2671	0.23 µg/L	97
		498.1 -> 478.0	102		
MeFOSAA	8.421	570.1 -> 419.0	1842	0.28 µg/L	m 97
		570.1 -> 483.0	343		
PFBA	3.093	212.8 -> 168.9	5307	0.93 µg/L	100
PFBS	5.747	298.7 -> 79.9	1739	0.22 µg/L	94
		298.7 -> 98.8	666		
PFDA	8.388	512.9 -> 469.0	7124	0.22 µg/L	95
		512.9 -> 219.0	1228		
PFDODA	9.285	613.1 -> 569.0	4864	0.25 µg/L	97
		613.1 -> 319.0	751		
PFDS	9.450	599.0 -> 79.9	892	0.28 µg/L	98

7.7.13
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	393			
PFHpA	6.708	363.1 -> 319.0	5930	0.23	µg/L	99
		363.1 -> 169.0	976			
PFHpS	8.046	449.0 -> 79.9	1550	0.24	µg/L	90
		449.0 -> 98.9	654			
PFHxA	5.795	313.0 -> 269.0	4689	0.23	µg/L	98
		313.0 -> 118.9	279			
PFHxS	7.479	398.7 -> 79.9	1413	0.19	µg/L	m 87
		398.7 -> 98.9	781			
PFNA	7.883	463.0 -> 419.0	7304	0.22	µg/L	94
		463.0 -> 219.0	1484			
PFNS	9.041	548.8 -> 79.9	1324	0.24	µg/L	96
		548.8 -> 98.9	679			
PFOA	7.341	413.0 -> 369.0	9068	0.24	µg/L	99
		413.0 -> 169.0	1650			
PFOS	8.564	498.9 -> 79.9	1411	0.23	µg/L	m 96
		498.9 -> 98.8	775			
PFPeA	4.551	263.0 -> 219.0	6452	0.47	µg/L	100
PFPeS	6.785	349.1 -> 79.9	1498	0.22	µg/L	100
		349.1 -> 98.9	684			
PFTeDA	10.013	713.1 -> 669.0	3939	0.24	µg/L	97
		713.1 -> 168.9	314			
PFTrDA	9.669	663.0 -> 619.0	4931	0.25	µg/L	96
		663.0 -> 168.9	567			
PFUnDA	8.854	563.1 -> 519.0	4944	0.24	µg/L	98
		563.1 -> 269.1	859			
11CI-PF3OUdS	9.721	630.9 -> 450.9	6586	0.44	µg/L	99
		632.9 -> 452.9	2000			
9CI-PF3ONS	8.906	530.8 -> 351.0	11187	0.44	µg/L	90
		532.8 -> 353.0	2771			
ADONA	6.946	376.9 -> 250.9	24245	0.45	µg/L	98
		376.9 -> 84.8	6569			
HFPO-DA	6.169	284.9 -> 168.9	1619	0.46	µg/L	97
		284.9 -> 184.9	158			
3:3FTCA	3.946	241.0 -> 177.0	1058	1.13	µg/L	100
		241.0 -> 117.0	140			
5:3FTCA	6.361	341.0 -> 237.1	24344	6.26	µg/L	97
		341.0 -> 217.0	17538			
7:3FTCA	7.736	441.0 -> 316.9	16880	6.06	µg/L	87
		441.0 -> 336.9	35418			
EtFOSA	10.997	526.0 -> 219.0	2780	0.42	µg/L	m 92
		526.0 -> 169.0	3809			
EtFOSE	10.943	630.0 -> 58.9	9044	1.13	µg/L	100
MeFOSA	10.777	511.9 -> 219.0	2535	0.48	µg/L	m 96
		511.9 -> 169.0	3402			
MeFOSE	10.709	616.1 -> 58.9	6391	1.06	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	389	0.25	µg/L	98
		699.1 -> 98.8	221			
NFDHA	5.673	295.0 -> 201.0	1166	0.46	µg/L	100
		295.0 -> 84.9	335			
PFMBA	4.988	279.0 -> 85.1	4609	0.47	µg/L	100
PFMPA	3.667	229.0 -> 84.9	3508	0.46	µg/L	100
PFEESA	6.288	314.8 -> 134.9	11981	0.49	µg/L	100
		314.8 -> 82.9	418			

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



7.7.13
7

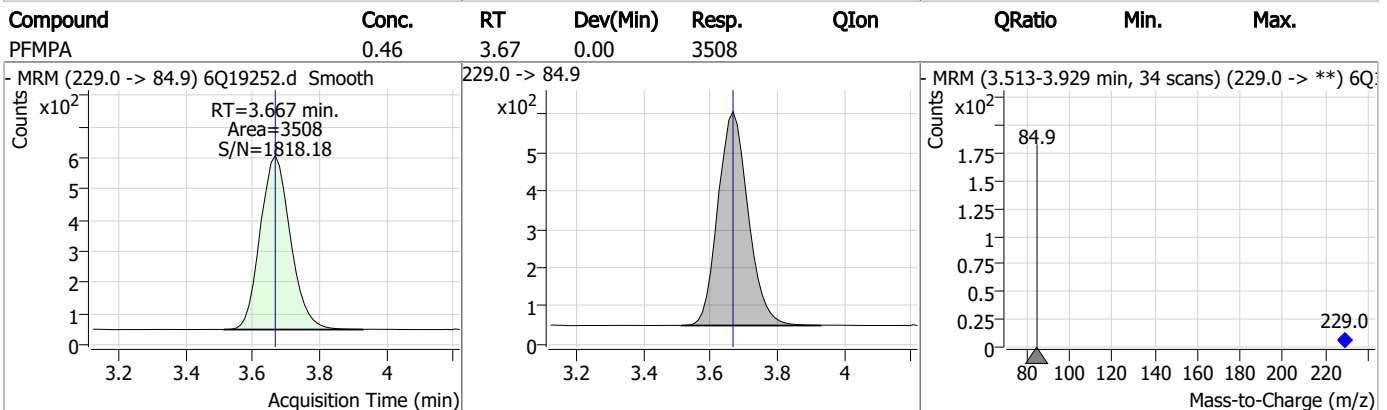
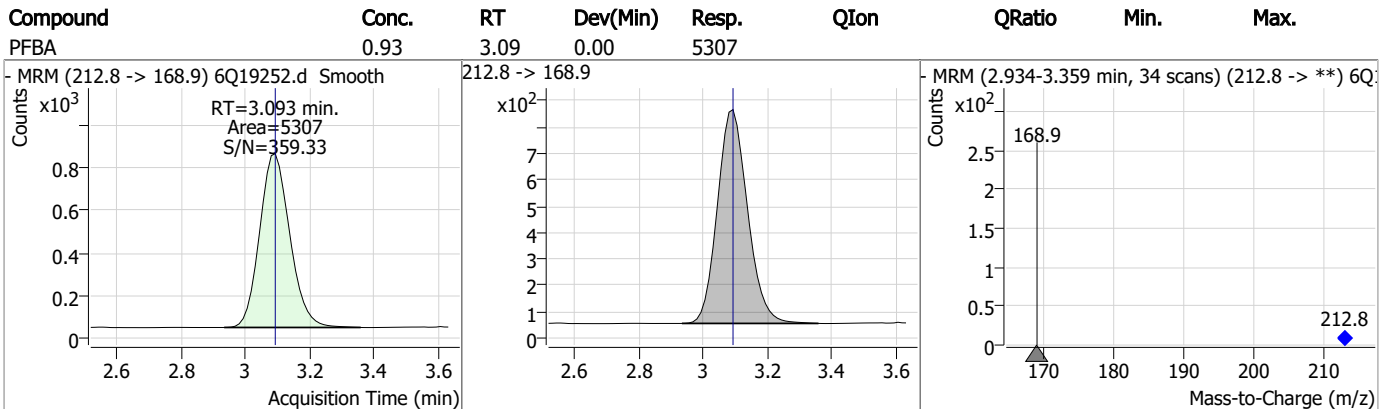
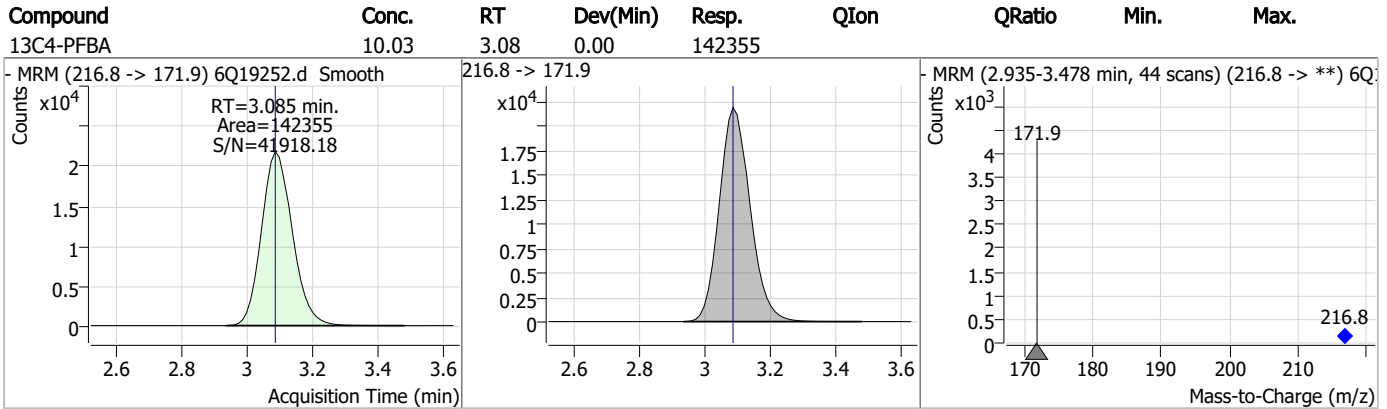
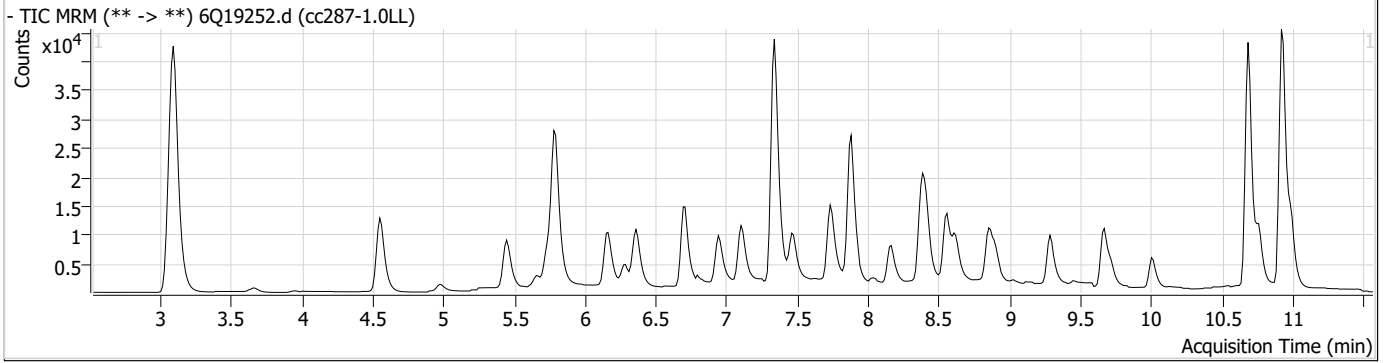
Perfluorinated Compounds by LC/MS/MS

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

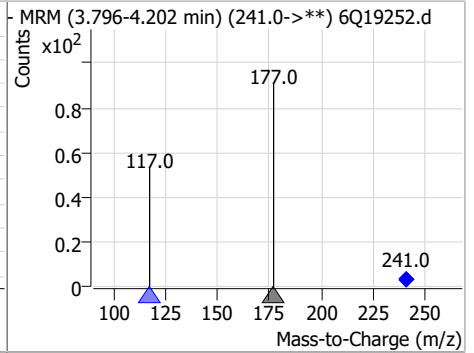
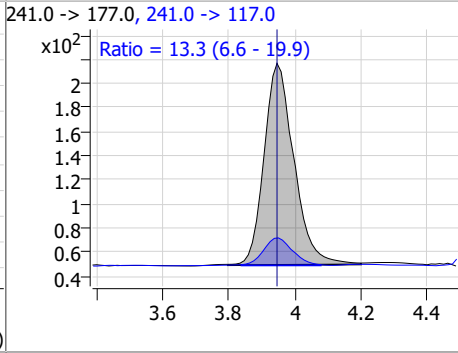
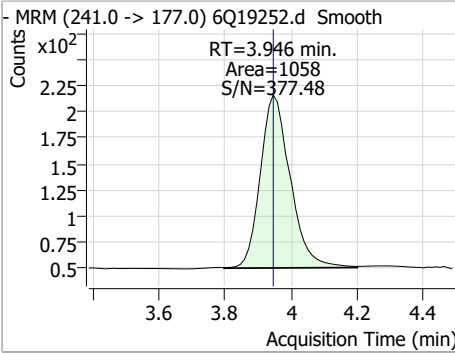


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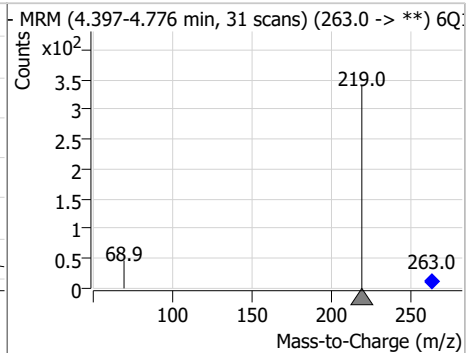
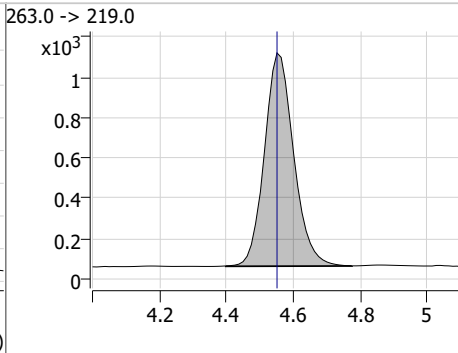
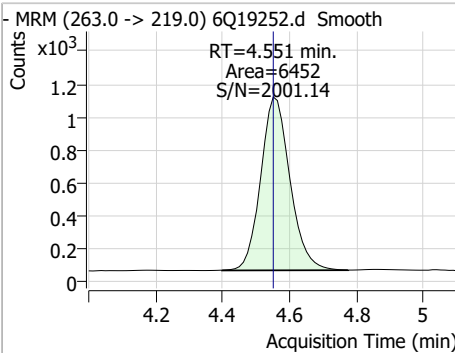
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Perfluorinated Compounds by LC/MS/MS

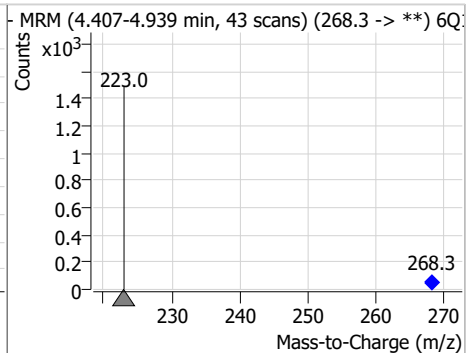
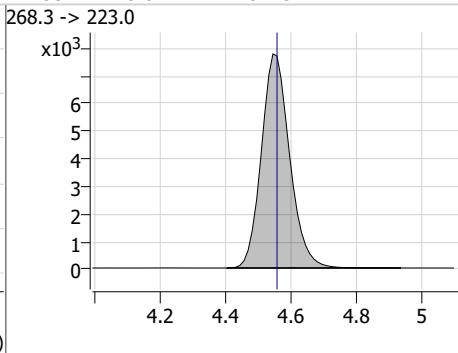
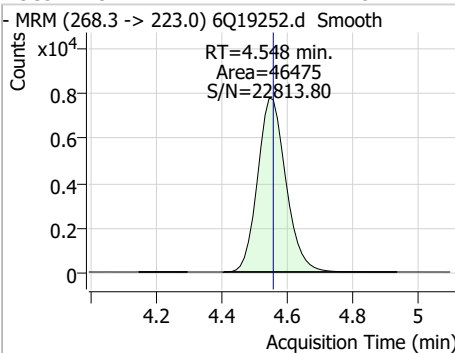
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	1.13	3.95	0.00	1058	241.0 -> 117.0	13.3	6.6	19.9



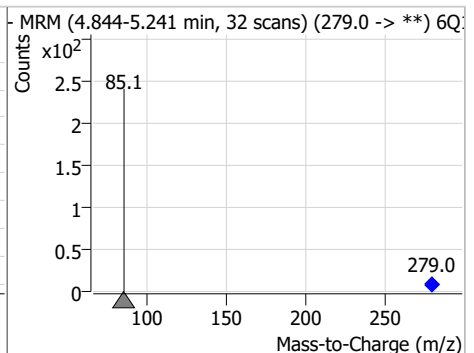
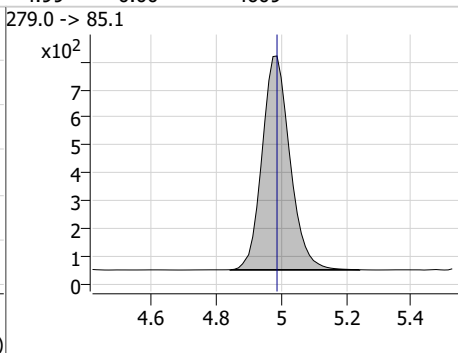
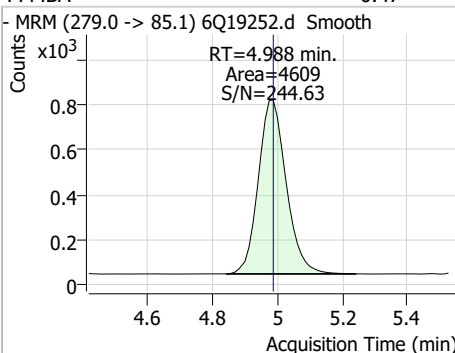
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.47	4.55	0.00	6452				



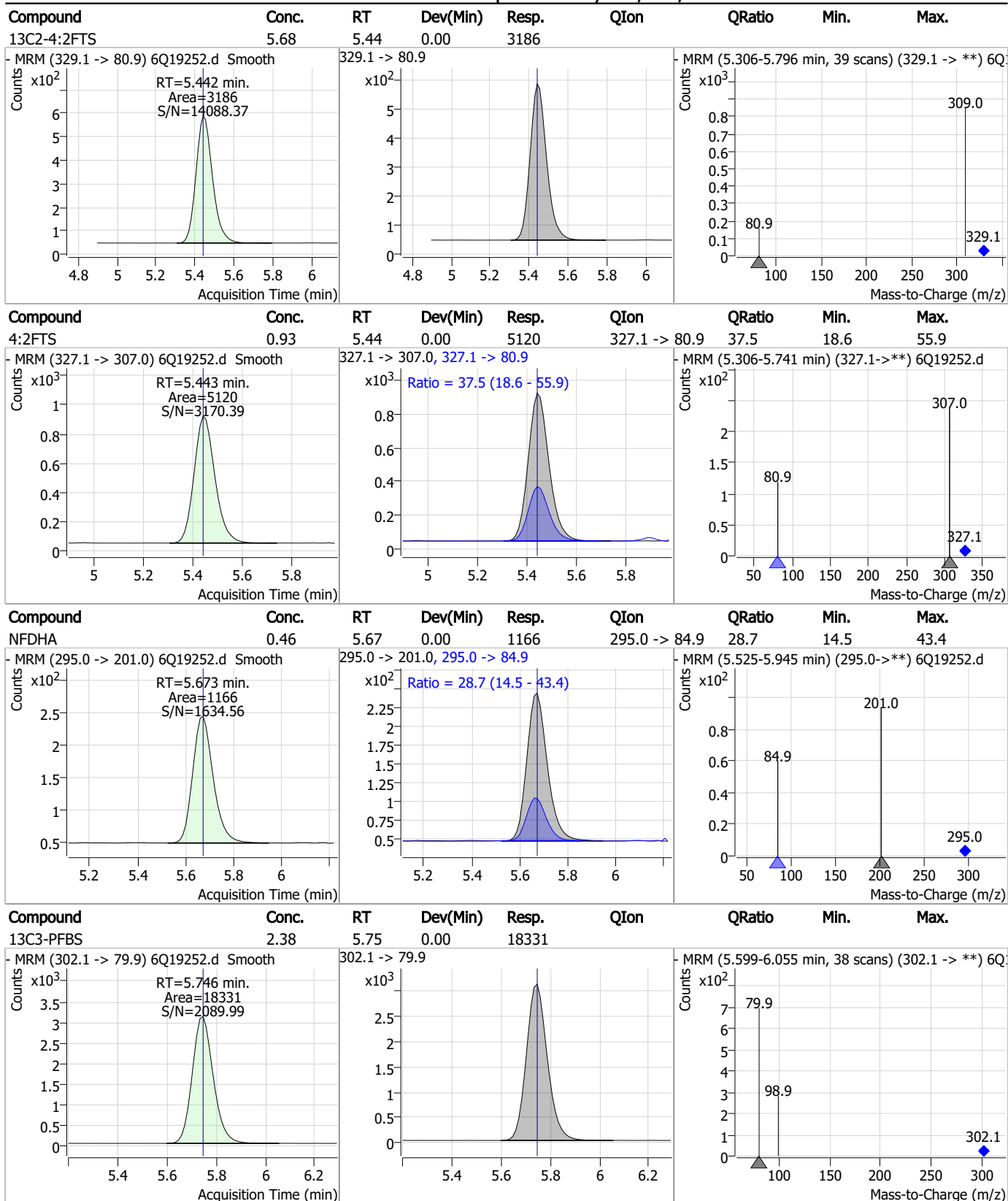
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.27	4.55	-0.01	46475				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.47	4.99	0.00	4609				

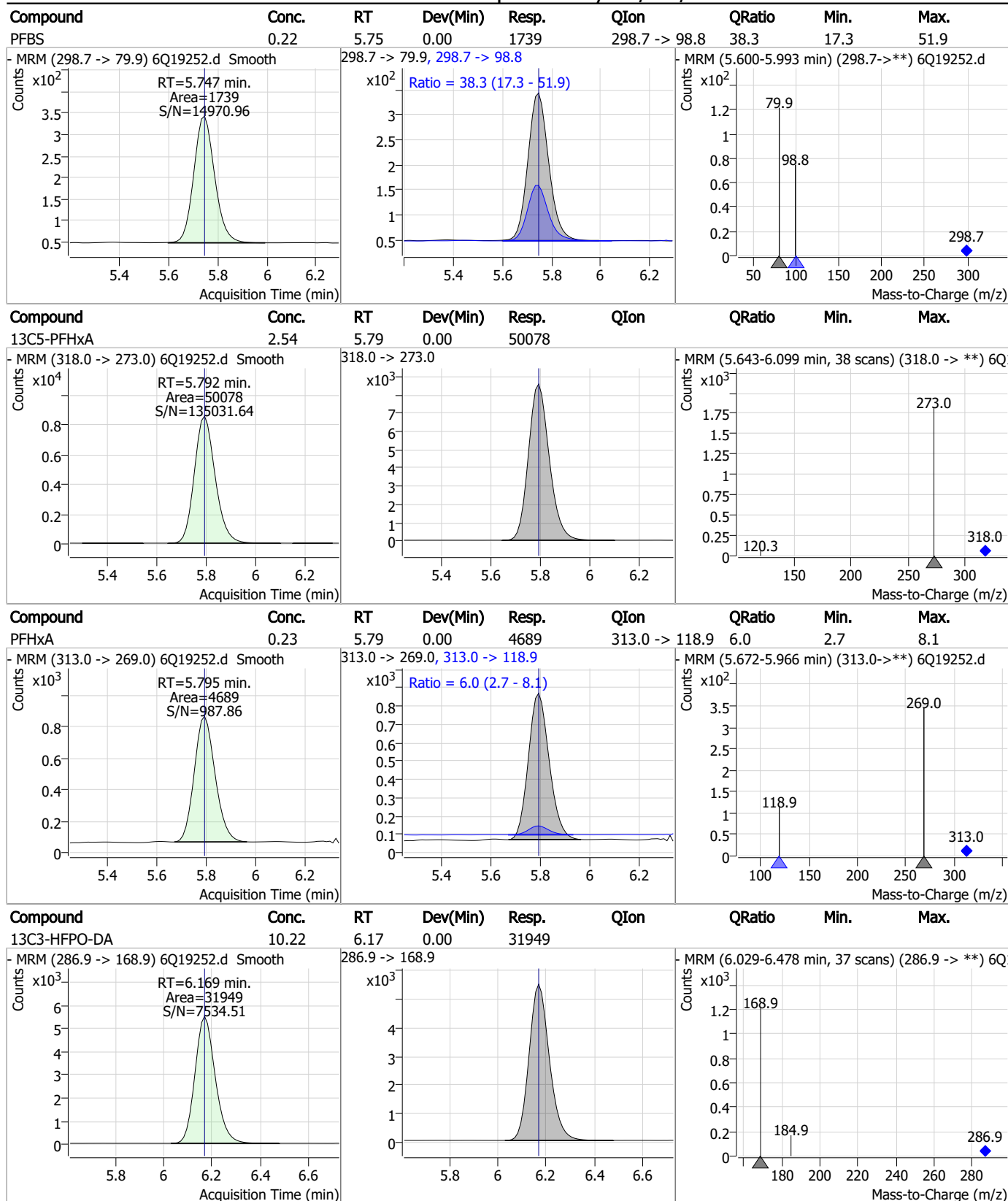


Perfluorinated Compounds by LC/MS/MS



7.7.13
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Perfluorinated Compounds by LC/MS/MS

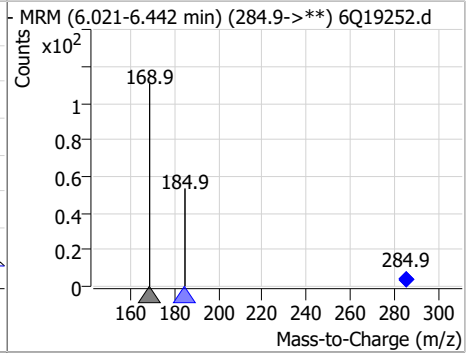
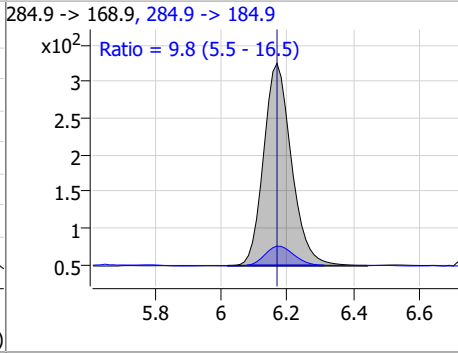
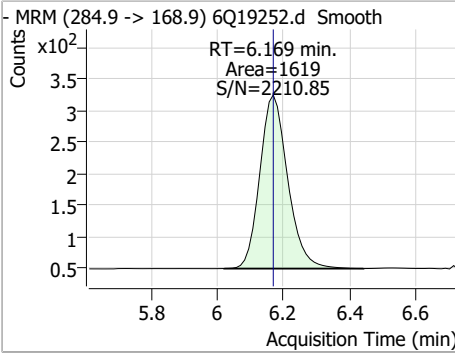


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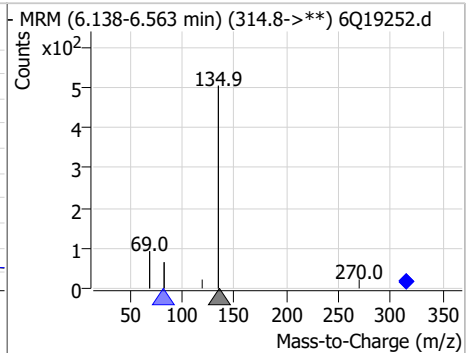
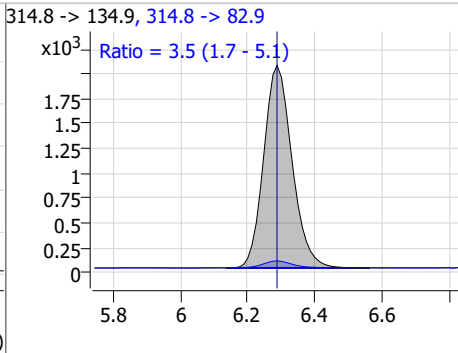
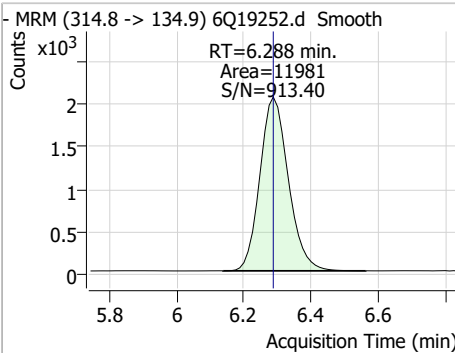
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Perfluorinated Compounds by LC/MS/MS

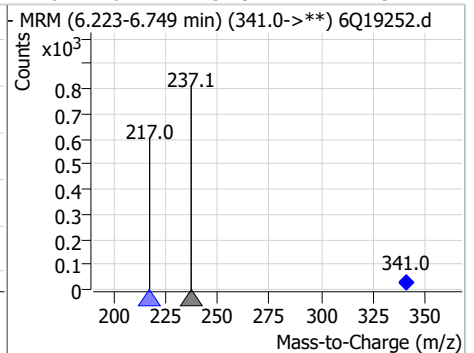
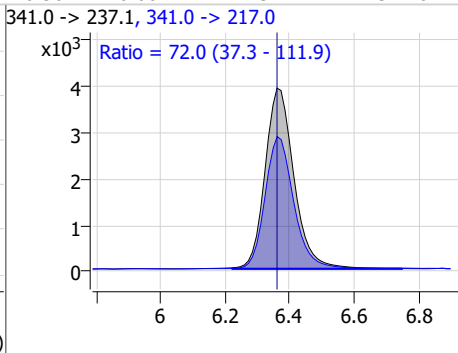
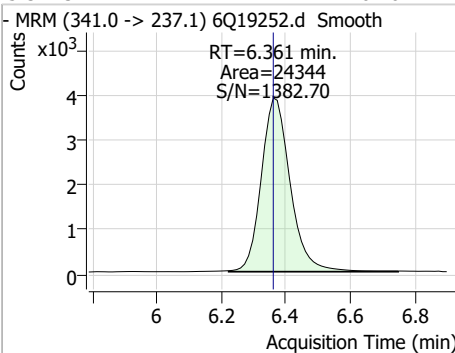
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.46	6.17	0.00	1619	284.9 -> 184.9	9.8	5.5	16.5



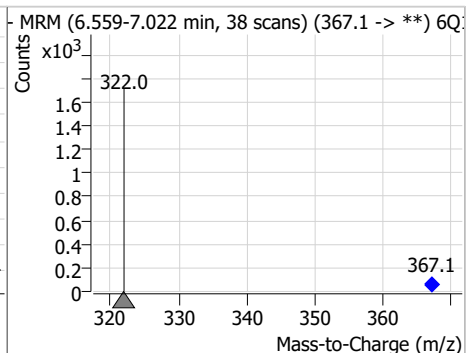
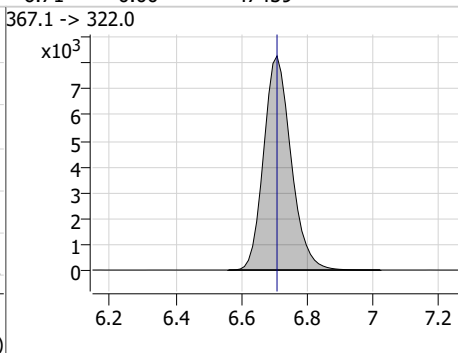
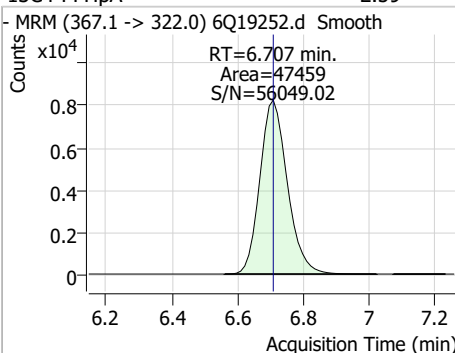
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.49	6.29	0.00	11981	314.8 -> 82.9	3.5	1.7	5.1



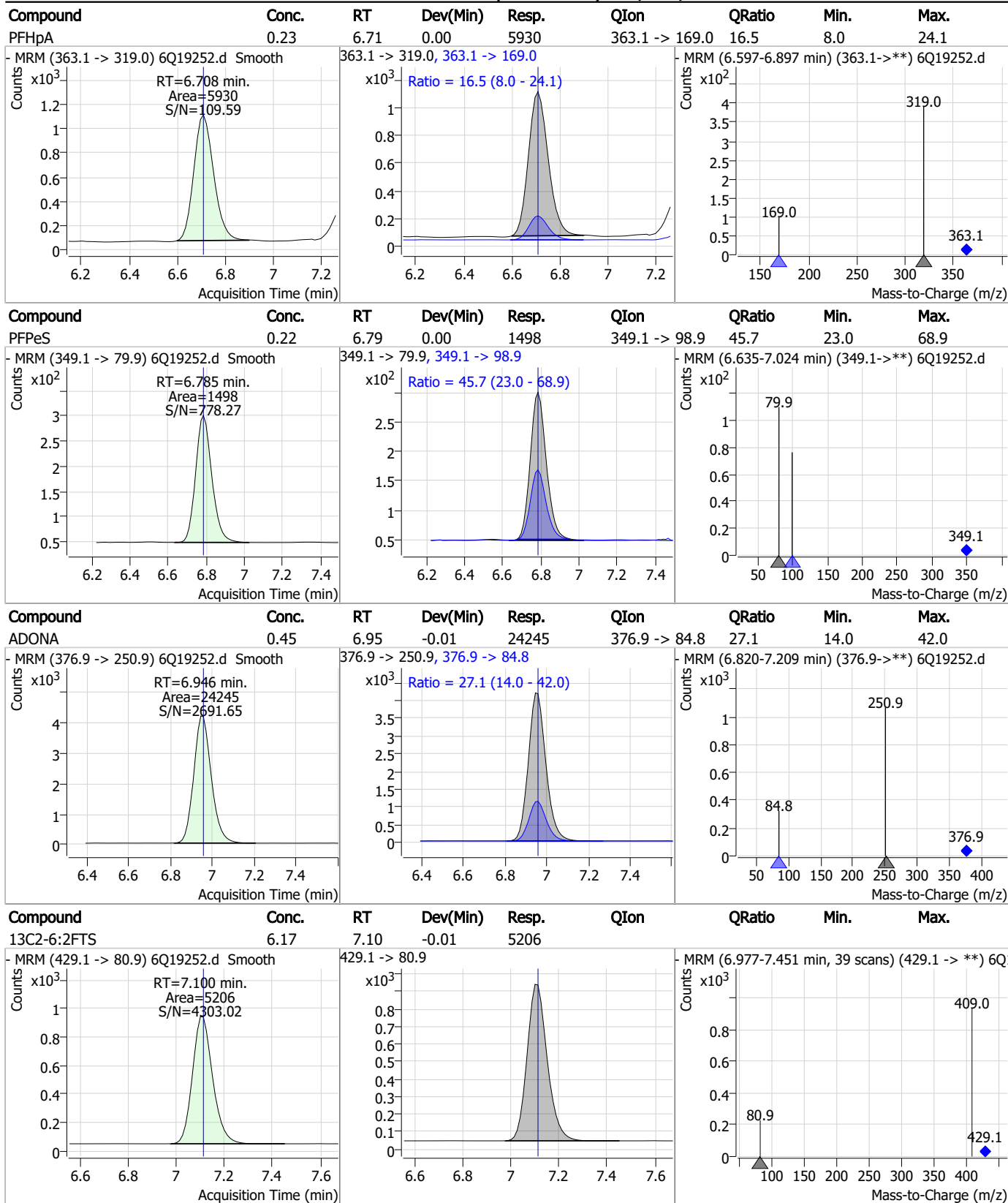
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	6.26	6.36	0.00	24344	341.0 -> 217.0	72.0	37.3	111.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.59	6.71	0.00	47459	367.1 -> 322.0			

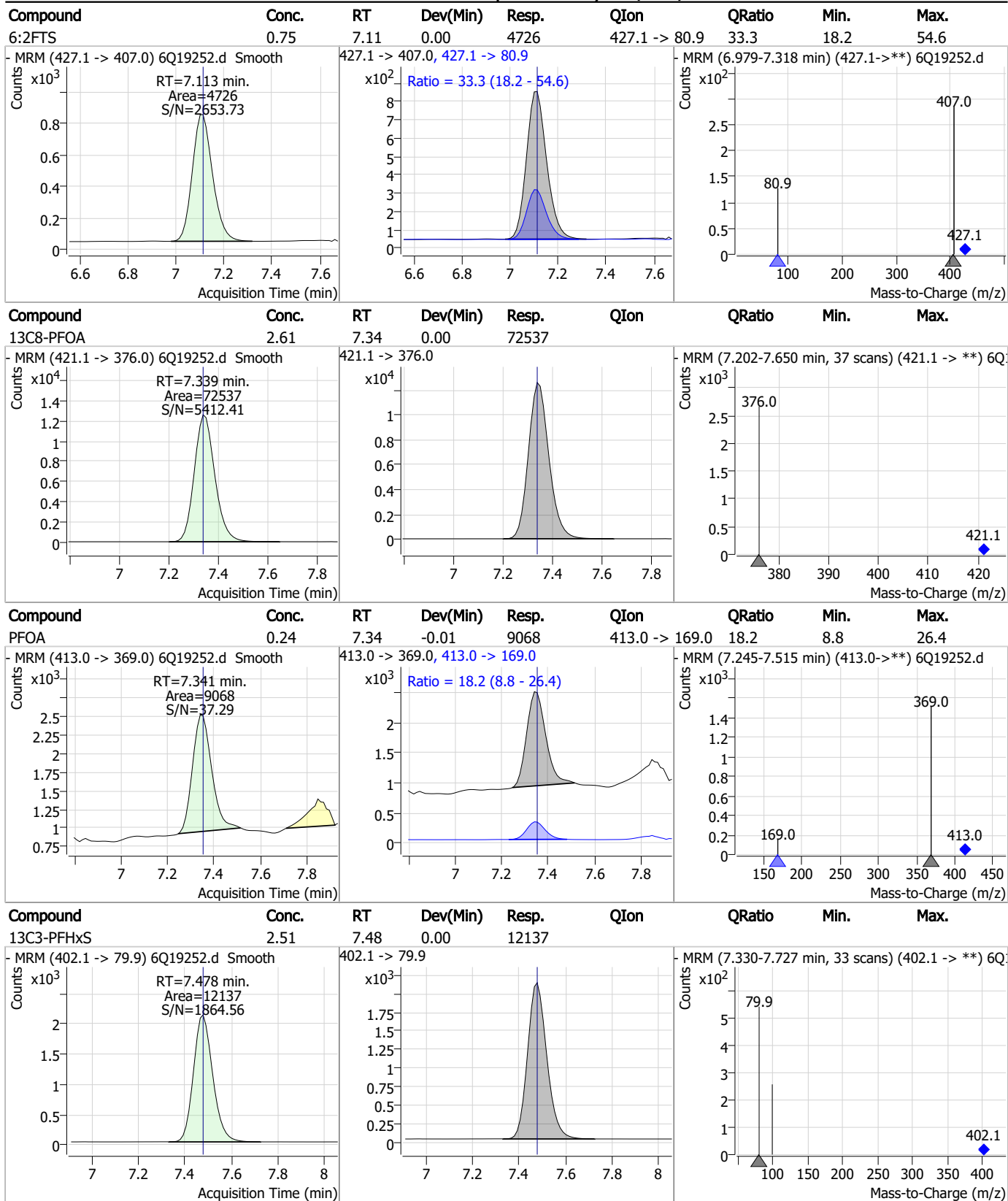


Perfluorinated Compounds by LC/MS/MS



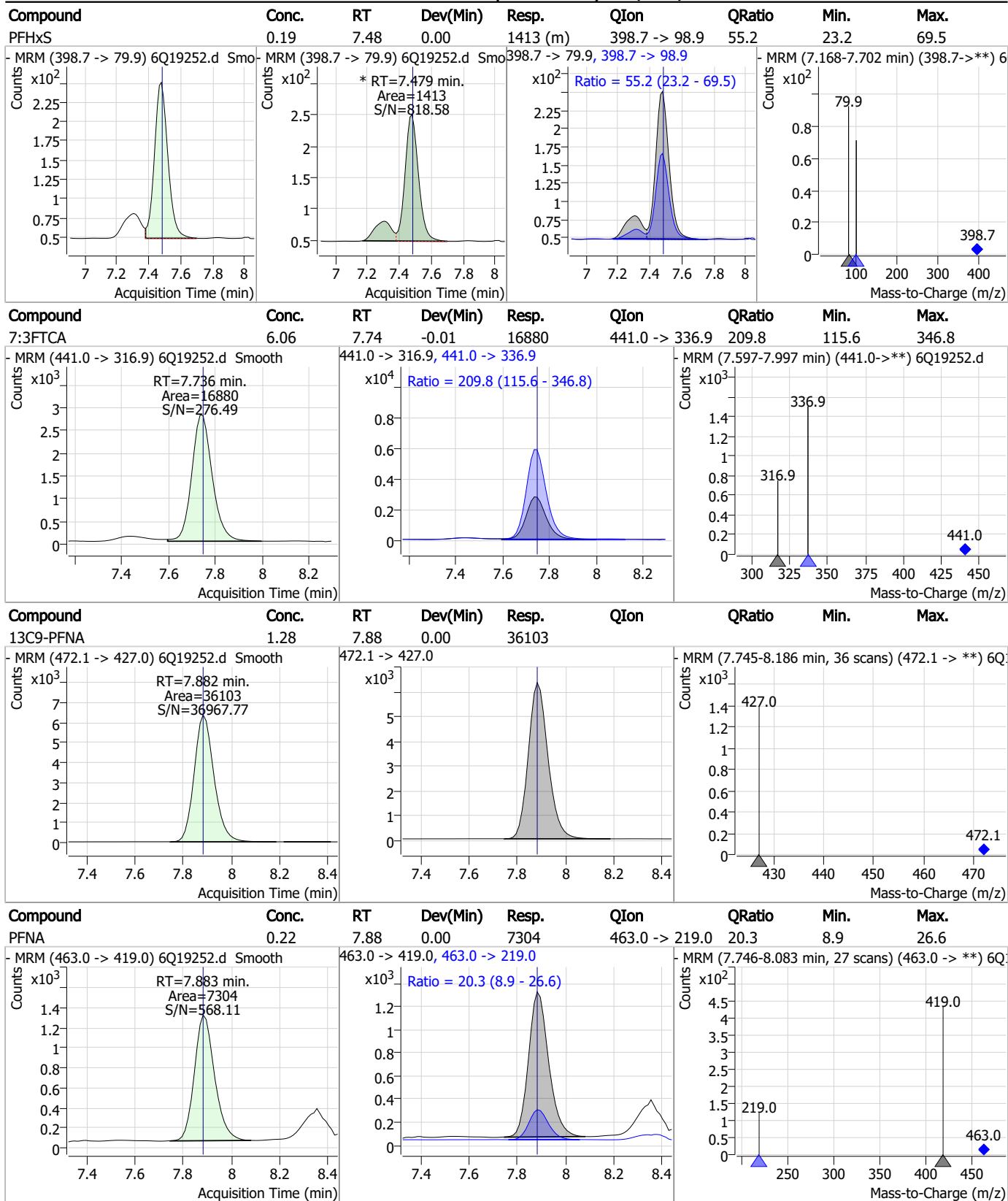
7.7.13
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Perfluorinated Compounds by LC/MS/MS



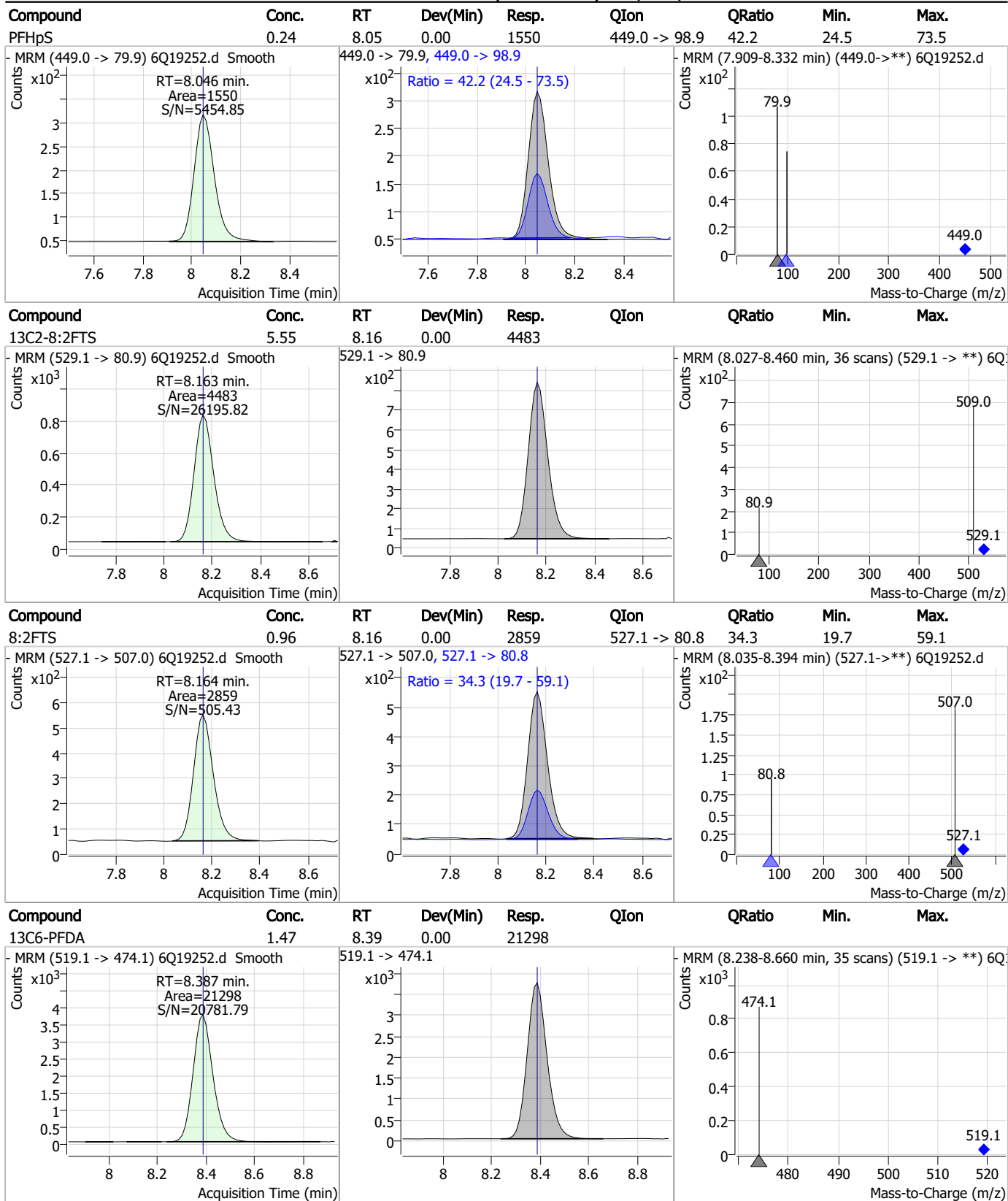
7.7.13
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Perfluorinated Compounds by LC/MS/MS



7.7.13
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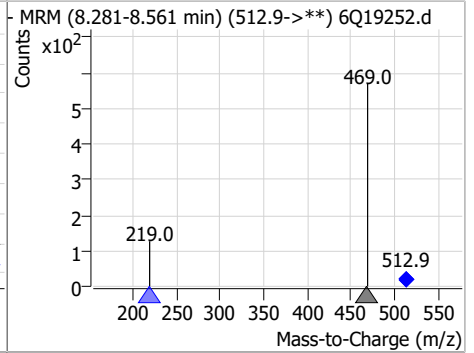
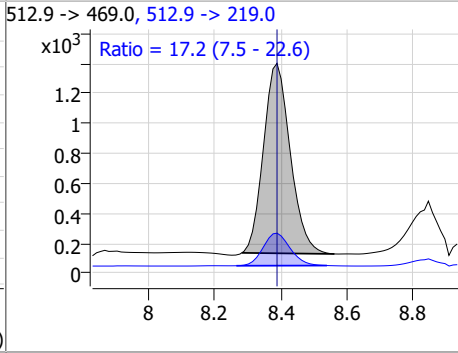
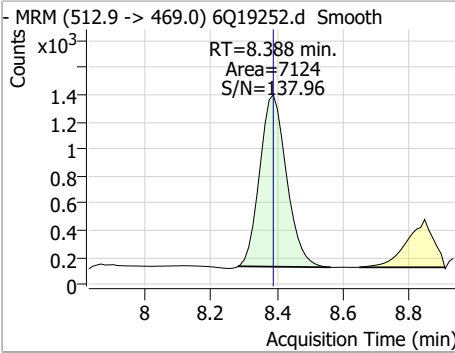
Perfluorinated Compounds by LC/MS/MS



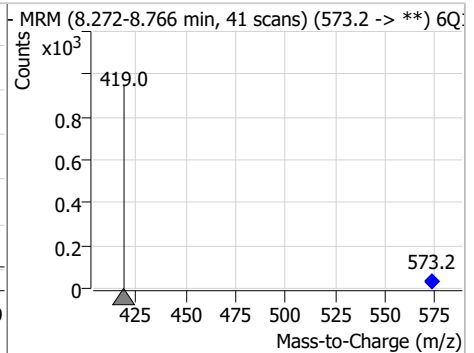
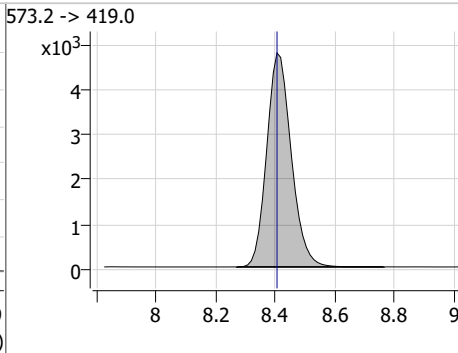
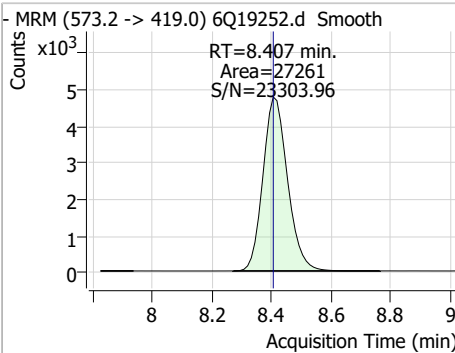
7.7.13
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Perfluorinated Compounds by LC/MS/MS

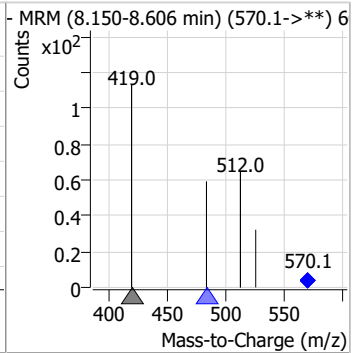
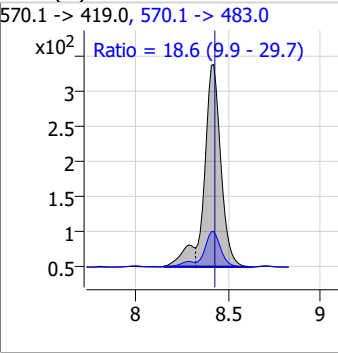
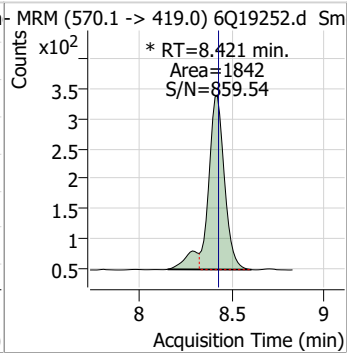
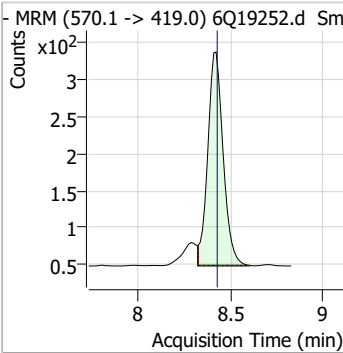
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.22	8.39	0.00	7124	512.9 -> 219.0	17.2	7.5	22.6



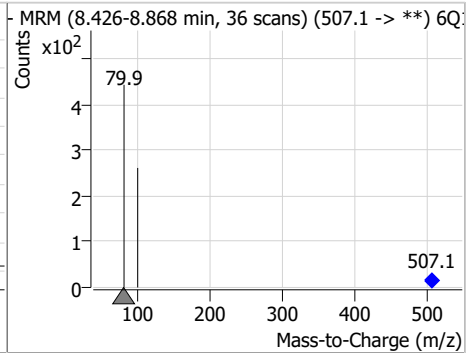
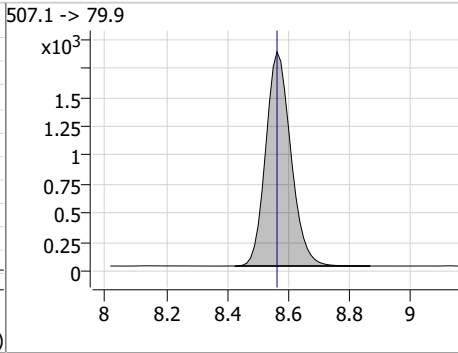
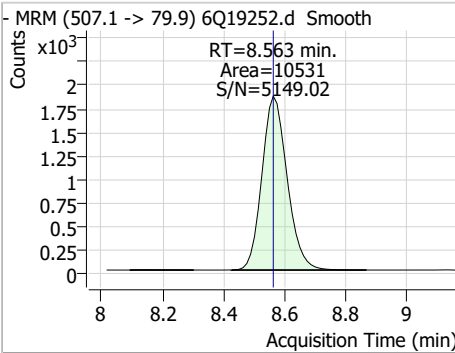
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.95	8.41	0.00	27261				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.28	8.42	0.00	1842 (m)	570.1 -> 483.0	18.6	9.9	29.7

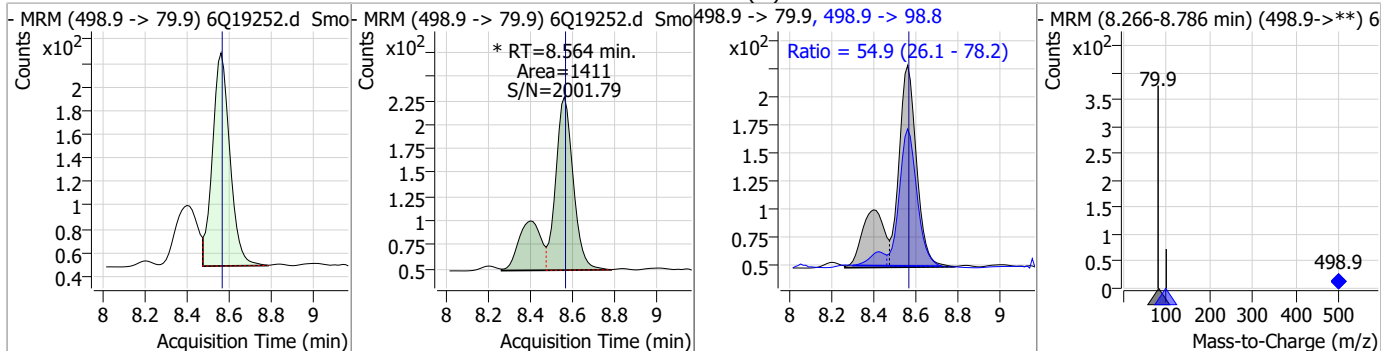


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.45	8.56	0.00	10531				

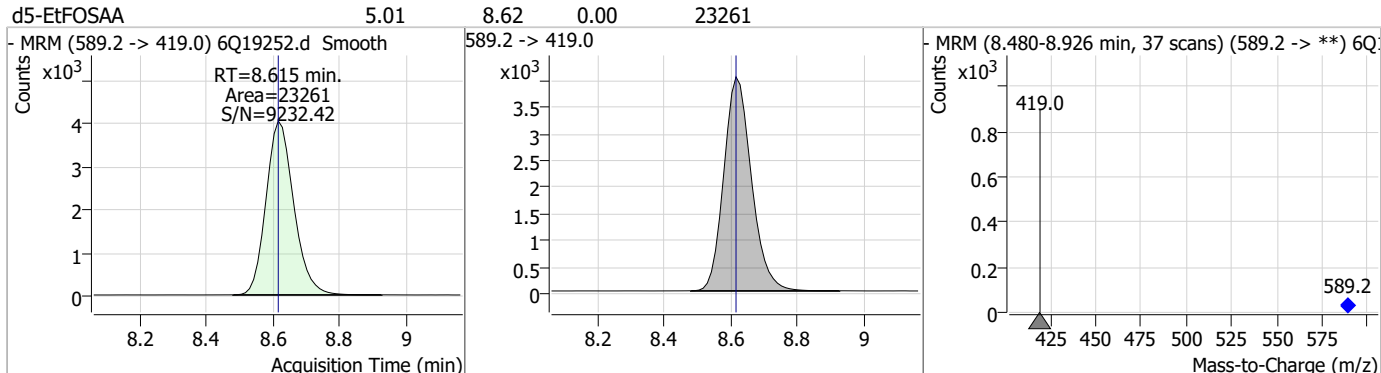


Perfluorinated Compounds by LC/MS/MS

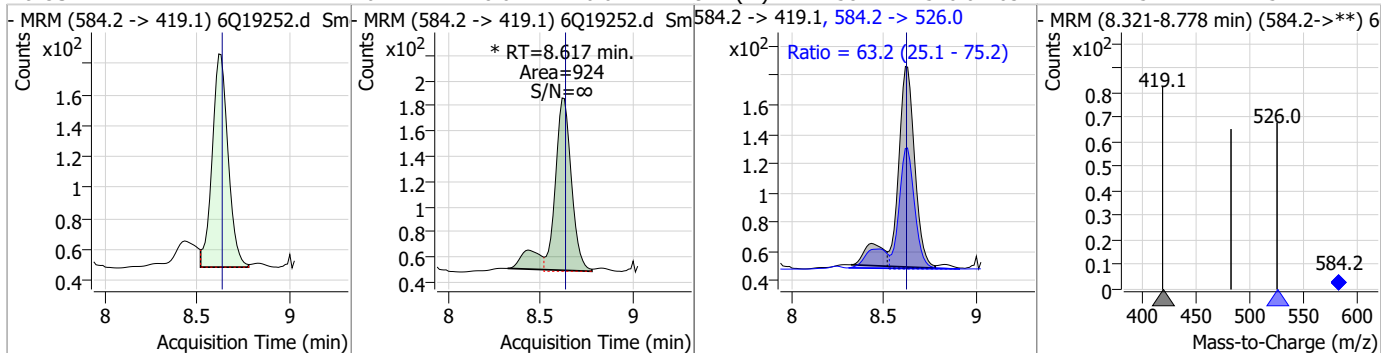
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.23	8.56	0.00	1411 (m)	498.9 -> 98.8	54.9	26.1	78.2



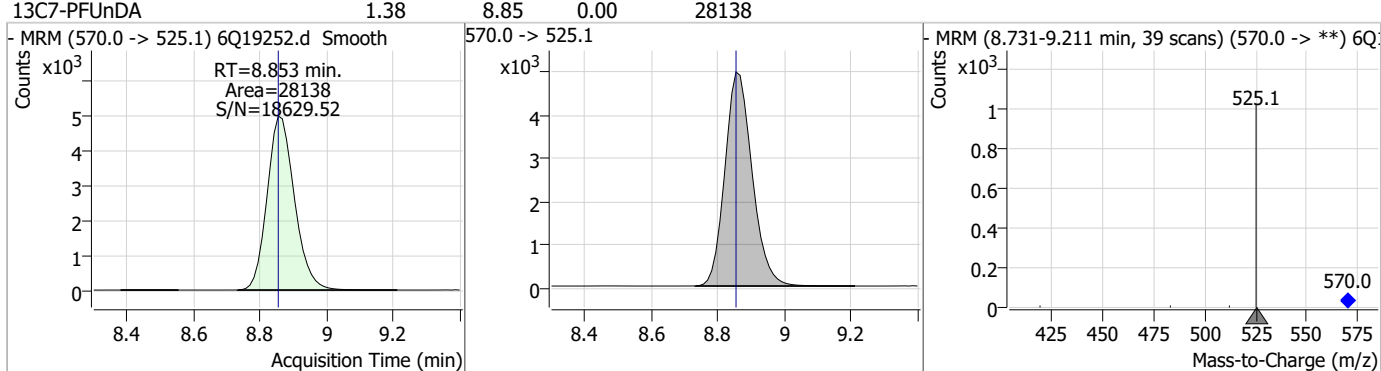
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.01	8.62	0.00	23261				



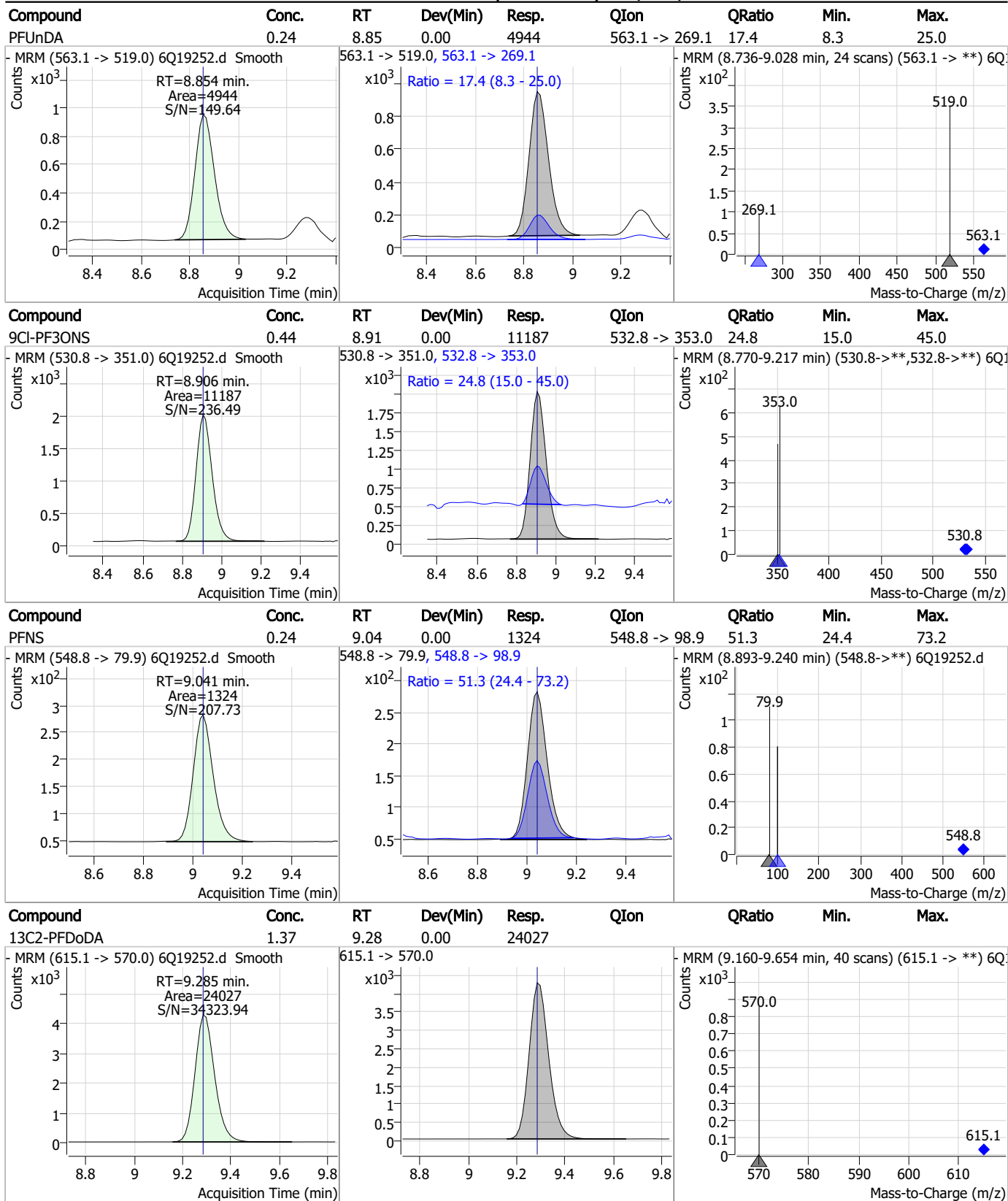
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.24	8.62	-0.01	924 (m)	584.2 -> 526.0	63.2	25.1	75.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.38	8.85	0.00	28138				

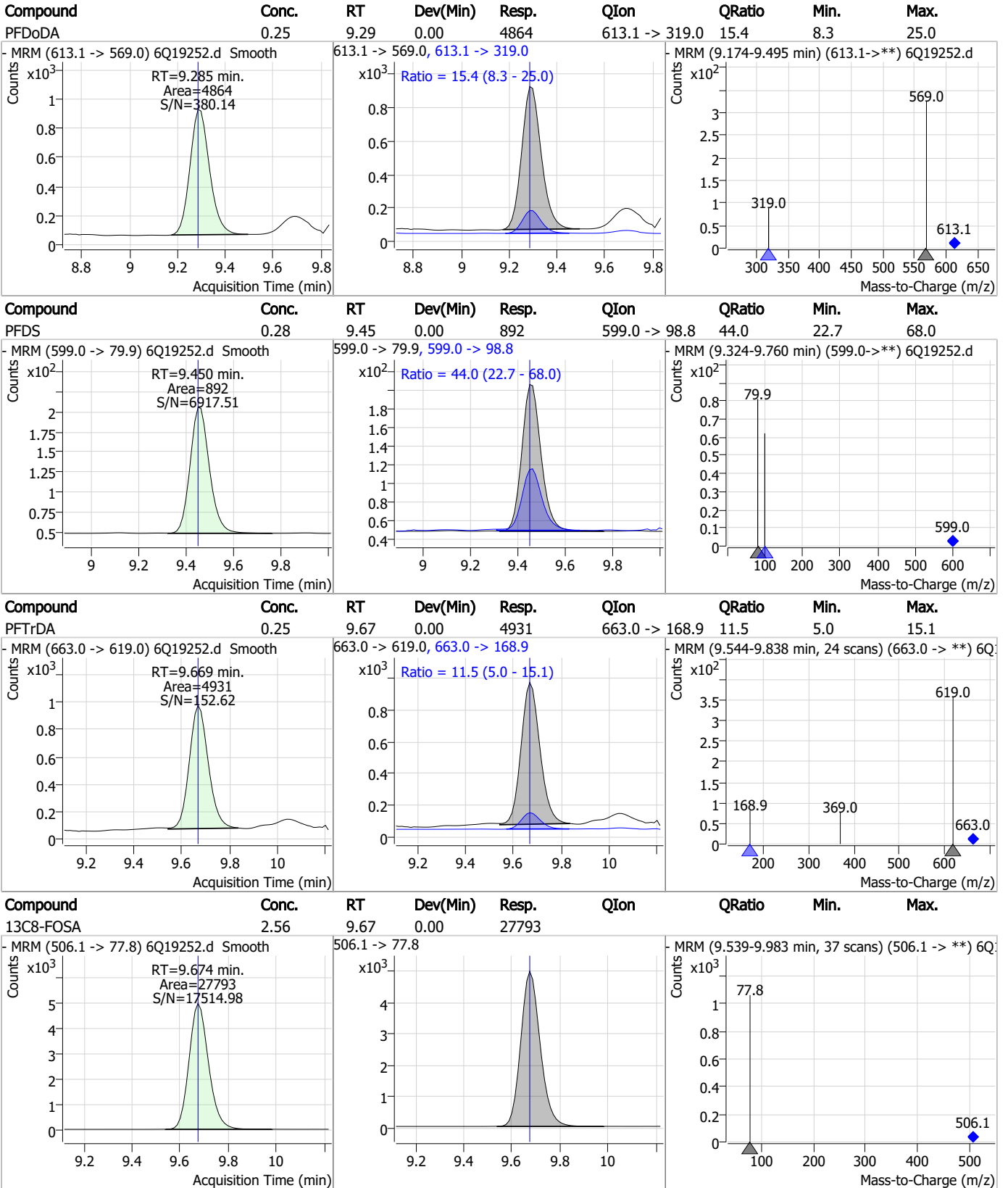


Perfluorinated Compounds by LC/MS/MS



7.7.13
7

Perfluorinated Compounds by LC/MS/MS

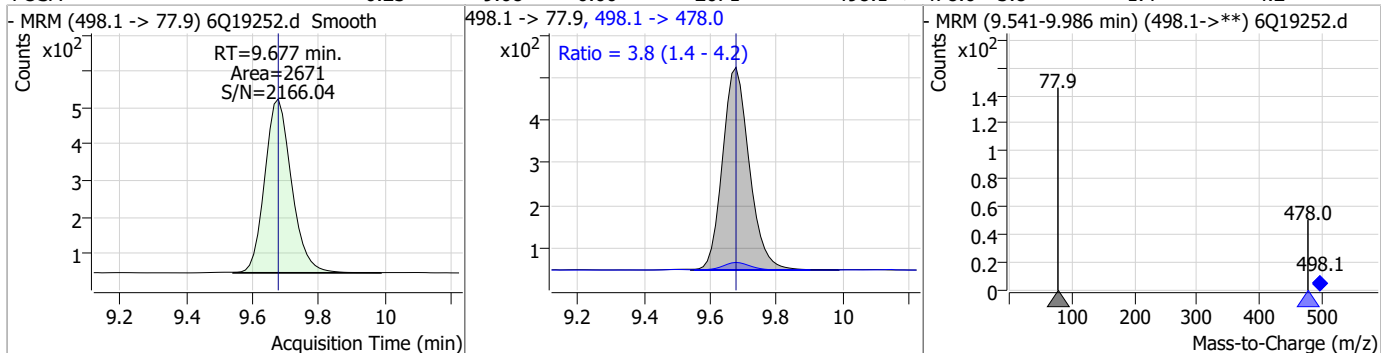


7.7.13 7

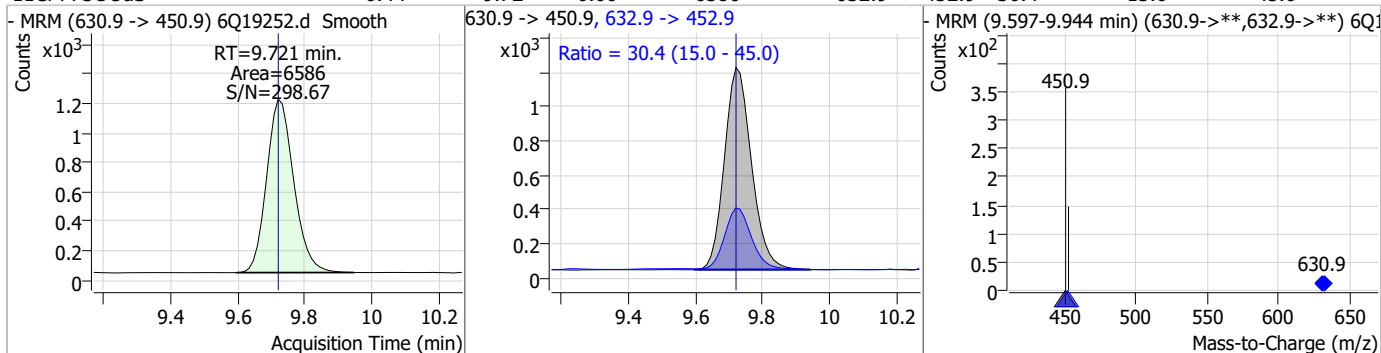


Perfluorinated Compounds by LC/MS/MS

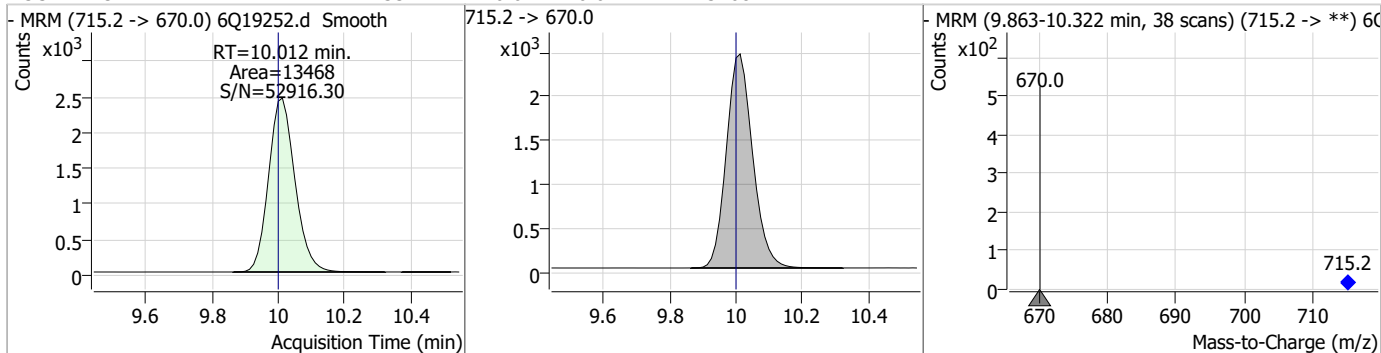
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.23	9.68	0.00	2671	498.1 -> 478.0	3.8	1.4	4.2



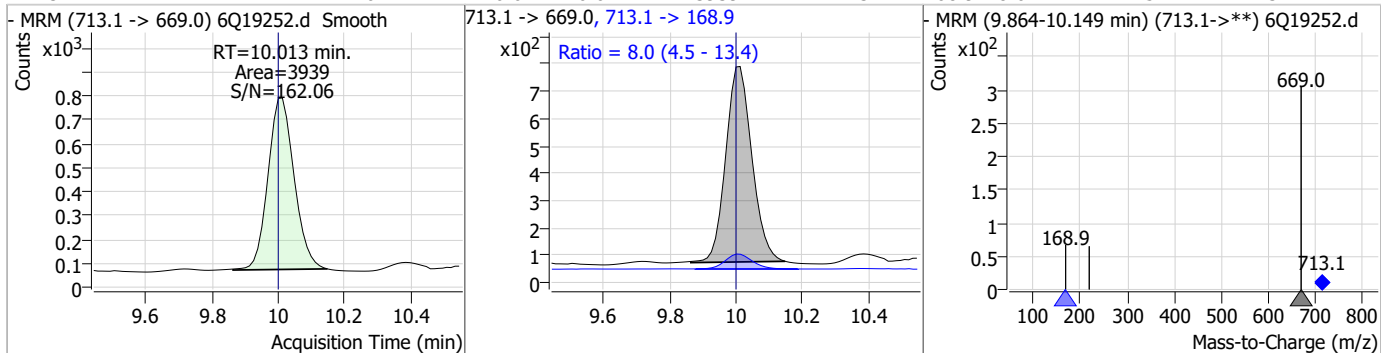
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	0.44	9.72	0.00	6586	632.9 -> 452.9	30.4	15.0	45.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.33	10.01	0.01	13468	715.2 -> 670.0	8.0	4.5	13.4

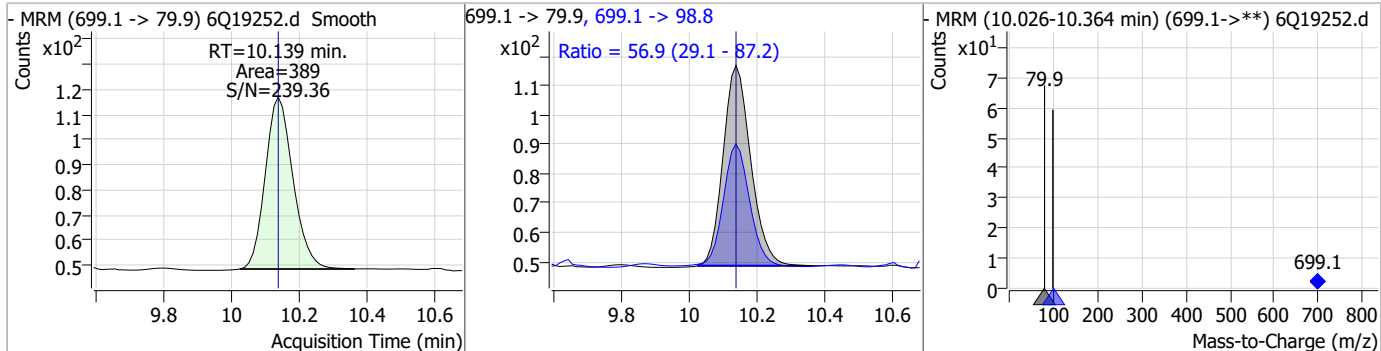


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.24	10.01	0.01	3939	713.1 -> 168.9	8.0	4.5	13.4

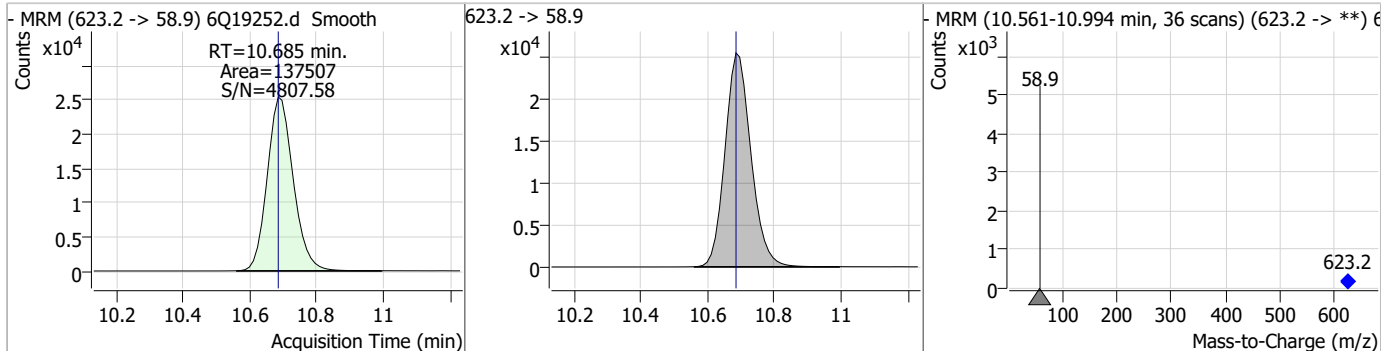


Perfluorinated Compounds by LC/MS/MS

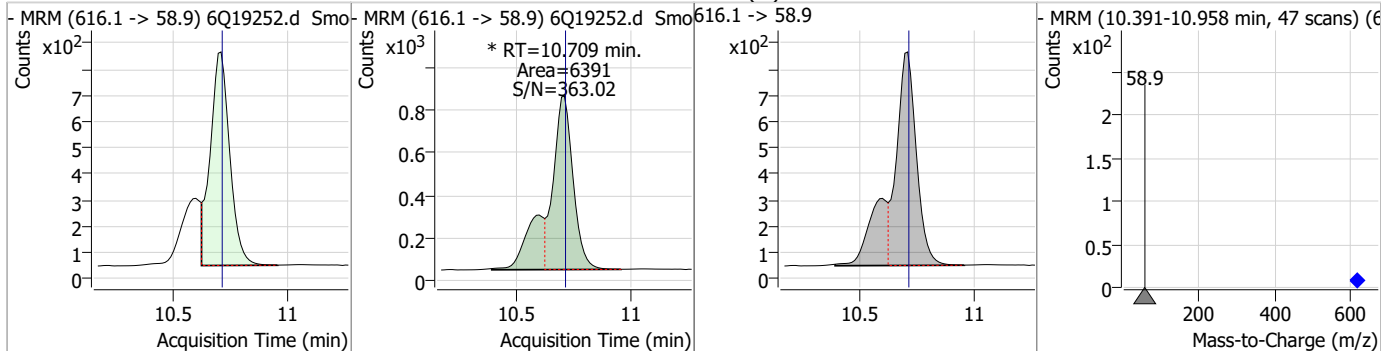
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.25	10.14	0.00	389	699.1 -> 98.8	56.9	29.1	87.2



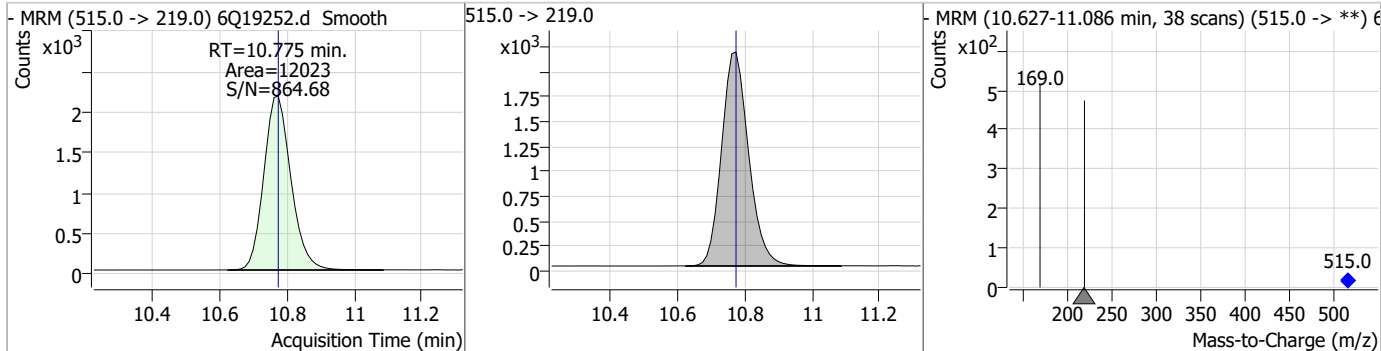
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.54	10.68	0.00	137507				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.06	10.71	0.00	6391 (m)				

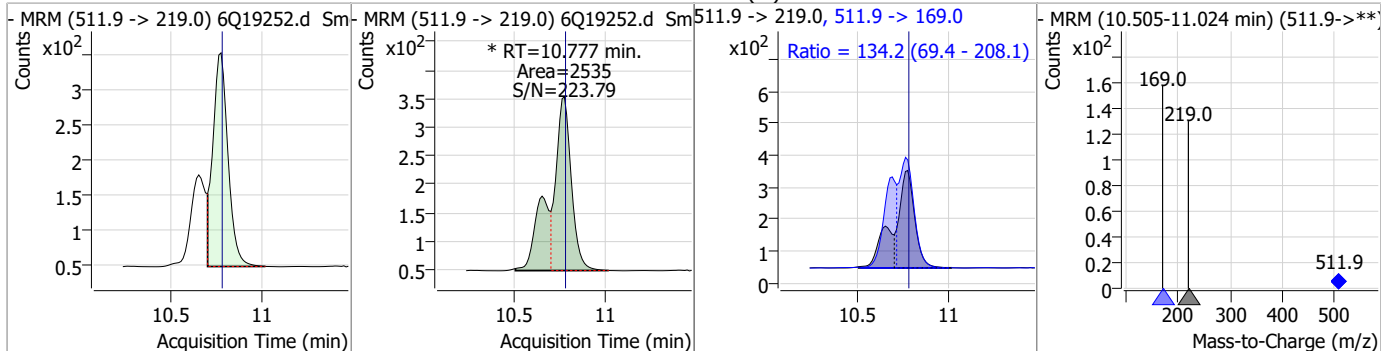


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.47	10.78	0.00	12023				

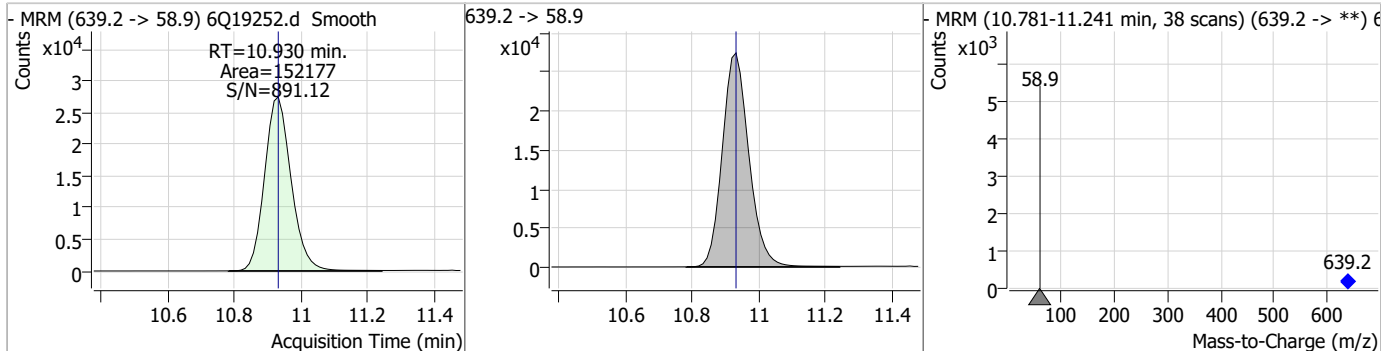


Perfluorinated Compounds by LC/MS/MS

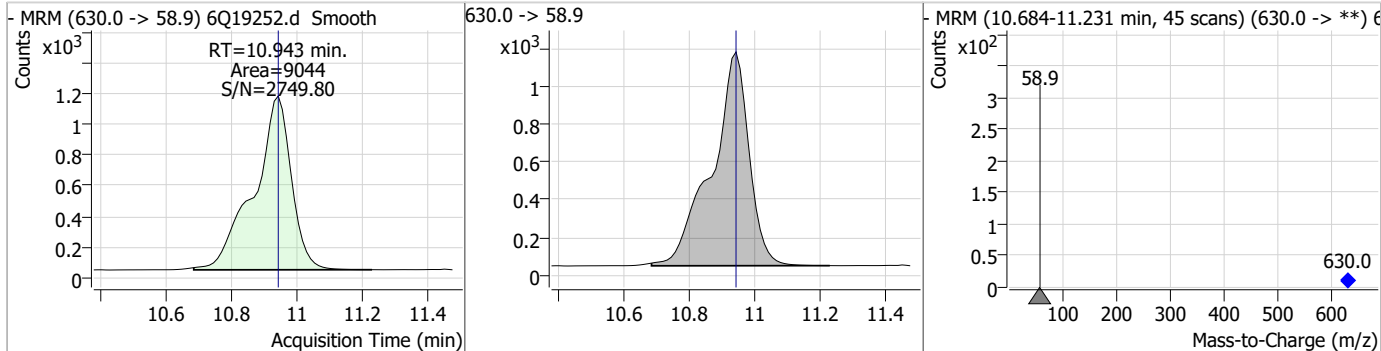
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.48	10.78	0.00	2535 (m)	511.9 -> 169.0	134.2	69.4	208.1



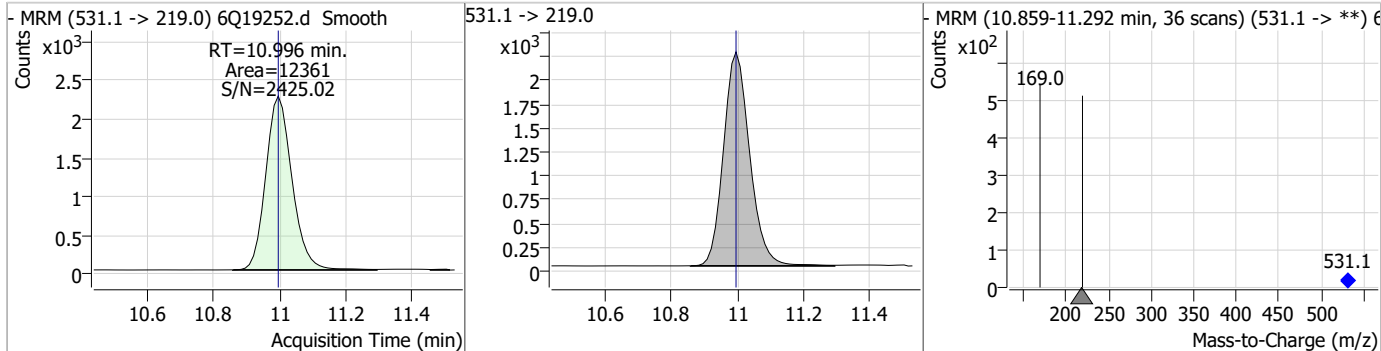
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	22.63	10.93	0.00	152177				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	1.13	10.94	0.00	9044				

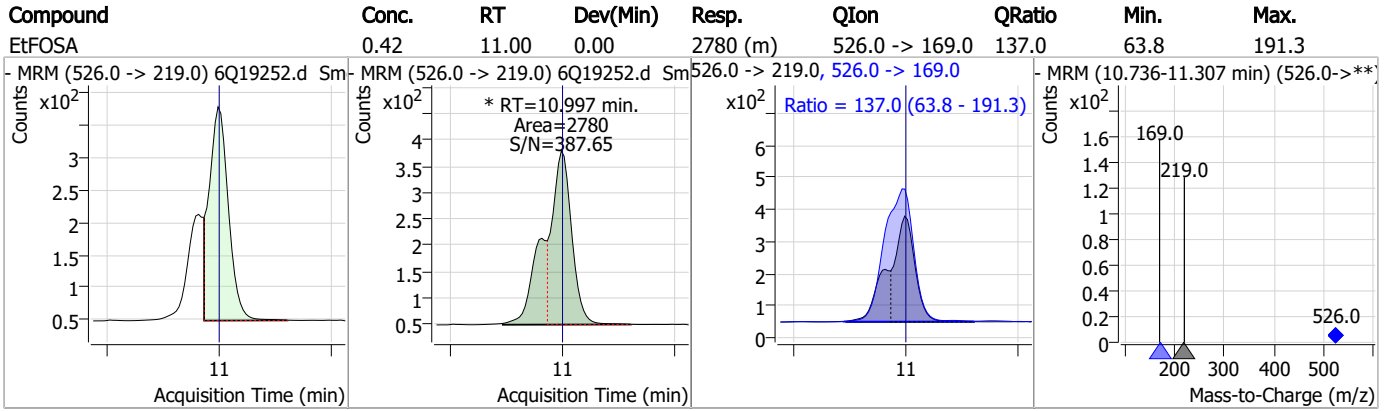


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.62	11.00	0.00	12361				



7.7.13
7

Perfluorinated Compounds by LC/MS/MS



7.7.13

7



Manual Integration Approval Summary

Sample Number: S6Q287-CC287
Lab FileID: 6Q19252.D
Injection Time: 06/12/23 18:36

Method: EPA DRAFT 1633
Analyst approved: 06/13/23 14:02 Natasha Gumtie
Supervisor approved: 06/13/23 14:13 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.62	Split peak
MeFOSE	24448-09-7		10.71	Split peak
MeFOSA	31506-32-8		10.78	Split peak
EtFOSA	4151-50-2		11.00	Split peak

7.7.13.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Natasha Gumtje
 06/13/23 13:30

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19261.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 8:42:06 PM
 Sample Name : cc287-4
 Vial : P1-A5
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	143394	10.00 µg/L	0.000
M5-PFPeA	4.560	268.3 -> 223.0	46436	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	49436	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	50855	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	73028	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	34204	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	22300	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	28743	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	24163	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	12917	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	26536	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	18885	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	11414	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	10842	2.50 µg/L	0.000
M2-4:2FTS	5.442	329.1 -> 80.9	3003	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	4508	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	3851	5.00 µg/L	0.000
M3-MeFOSAA	8.420	573.2 -> 419.0	29382	5.00 µg/L	0.012
M3-HFPO-DA	6.169	286.9 -> 168.9	31726	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	22179	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	125060	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	141281	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	11687	2.50 µg/L	0.000
M3-MeFOSA	10.763	515.0 -> 219.0	12258	2.50 µg/L	-0.012
13C4-PFOS	8.563	502.8 -> 79.9	15582	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	60775	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	8932	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	83698	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	31467	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	45724	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	48200	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	3003	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4508	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.1%		
13C2-8:2FTS	8.163	529.1 -> 80.9	3851	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C2-PFDoDA	9.297	615.1 -> 570.0	24163	1.15 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C2-PFTeDA	10.012	715.2 -> 670.0	12917	1.06 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 84.6%		
13C3-PFBS	5.746	302.1 -> 79.9	18885	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	7.478	402.1 -> 79.9	11414	2.41 µg/L	0.000

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 = 96.3%	
13C4-PFBA	3.085	216.8 -> 171.9	143394	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFHpA	6.707	367.1 -> 322.0	50855	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C5-PFHxA	5.792	318.0 -> 273.0	49436	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C5-PFPeA	4.560	268.3 -> 223.0	46436	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C6-PFDA	8.387	519.1 -> 474.1	22300	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C7-PFUnDA	8.866	570.0 -> 525.1	28743	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C8-FOSA	9.674	506.1 -> 77.8	26536	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.9%	
13C8-PFOA	7.352	421.1 -> 376.0	73028	2.34 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C8-PFOS	8.563	507.1 -> 79.9	10842	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C9-PFNA	7.895	472.1 -> 427.0	34204	1.23 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.1%	
d3-MeFOSAA	8.420	573.2 -> 419.0	29382	5.03 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	31726	9.60 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
d3-MeFOSA	10.763	515.0 -> 219.0	12258	2.37 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%	
d5-EtFOSAA	8.615	589.2 -> 419.0	22179	4.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.0%	
d7-MeFOSE	10.685	623.2 -> 58.9	125060	21.87 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.5%	
d9-EtFOSE	10.930	639.2 -> 58.9	141281	19.78 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.1%	
d5-EtFOSA	10.996	531.1 -> 219.0	11687	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.1%	
Target Compounds					QValue
4:2FTS	5.455	327.1 -> 307.0	49023	9.42 µg/L	97
		327.1 -> 80.9	17377		
6:2FTS	7.113	427.1 -> 407.0	49515	9.09 µg/L	94
		427.1 -> 80.9	16240		
8:2FTS	8.164	527.1 -> 507.0	25436	9.93 µg/L	99
		527.1 -> 80.8	9931		
EtFOSAA	8.629	584.2 -> 419.1	9118	2.48 µg/L	m 99
		584.2 -> 526.0	4515		
FOSA	9.677	498.1 -> 77.9	25756	2.37 µg/L	99
		498.1 -> 478.0	825		
MeFOSAA	8.421	570.1 -> 419.0	18483	2.59 µg/L	m 98
		570.1 -> 483.0	3476		
PFBA	3.093	212.8 -> 168.9	54982	9.62 µg/L	100
PFBS	5.747	298.7 -> 79.9	17518	2.11 µg/L	95
		298.7 -> 98.8	6537		
PFDA	8.388	512.9 -> 469.0	70699	2.12 µg/L	99
		512.9 -> 219.0	10780		
PFDODA	9.298	613.1 -> 569.0	47493	2.39 µg/L	97
		613.1 -> 319.0	7299		
PFDS	9.462	599.0 -> 79.9	7860	2.40 µg/L	93

7.7.14
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.708	599.0 -> 98.8	3926	2.20	µg/L	98
		363.1 -> 319.0	60027			
PFHpS	8.059	363.1 -> 169.0	10021	2.14	µg/L	90
		449.0 -> 79.9	13981			
PFHxA	5.795	449.0 -> 98.9	7776	2.58	µg/L	98
		313.0 -> 269.0	51073			
PFHxS	7.479	313.0 -> 118.9	2498	2.21	µg/L	m
		398.7 -> 79.9	15142			
PFNA	7.896	398.7 -> 98.9	7347	2.35	µg/L	98
		463.0 -> 419.0	73834			
PFNS	9.041	463.0 -> 219.0	13648	2.40	µg/L	96
		548.8 -> 79.9	13766			
PFOA	7.353	548.8 -> 98.9	7120	2.66	µg/L	97
		413.0 -> 369.0	99522			
PFOS	8.564	413.0 -> 169.0	16370	2.11	µg/L	m
		498.9 -> 79.9	13503			
PFPeA	4.563	498.9 -> 98.8	6712	4.77	µg/L	100
		263.0 -> 219.0	65194			
PFPeS	6.785	349.1 -> 79.9	14401	2.28	µg/L	99
		349.1 -> 98.9	6708			
PFTeDA	10.013	713.1 -> 669.0	38922	2.52	µg/L	100
		713.1 -> 168.9	3521			
PFTrDA	9.669	663.0 -> 619.0	47103	2.39	µg/L	98
		663.0 -> 168.9	5044			
PFUnDA	8.866	563.1 -> 519.0	50857	2.41	µg/L	99
		563.1 -> 269.1	8743			
11CI-PF3OUdS	9.721	630.9 -> 450.9	67569	4.52	µg/L	96
		632.9 -> 452.9	21712			
9CI-PF3ONS	8.906	530.8 -> 351.0	111862	4.48	µg/L	93
		532.8 -> 353.0	38034			
ADONA	6.959	376.9 -> 250.9	252726	4.71	µg/L	97
		376.9 -> 84.8	67034			
HFPO-DA	6.169	284.9 -> 168.9	16892	4.91	µg/L	98
		284.9 -> 184.9	1963			
3:3FTCA	3.946	241.0 -> 177.0	11162	11.95	µg/L	100
		241.0 -> 117.0	1488			
5:3FTCA	6.374	341.0 -> 237.1	254574	66.28	µg/L	93
		341.0 -> 217.0	174158			
7:3FTCA	7.748	441.0 -> 316.9	164470	59.83	µg/L	98
		441.0 -> 336.9	373472			
EtFOSA	10.997	526.0 -> 219.0	30087	4.81	µg/L	98
		526.0 -> 169.0	39205			
EtFOSE	10.943	630.0 -> 58.9	91872	12.32	µg/L	100
		511.9 -> 219.0	25285			
MeFOSA	10.765	511.9 -> 169.0	35903	4.71	µg/L	m
		616.1 -> 58.9	64473			
MeFOSE	10.697	699.1 -> 79.9	3756	11.78	µg/L	m
		699.1 -> 98.8	1963			
PFDoDS	10.139	295.0 -> 201.0	11793	2.31	µg/L	92
		295.0 -> 84.9	3124			
NFDHA	5.673	279.0 -> 85.1	47786	4.70	µg/L	95
		229.0 -> 84.9	36661			
PFMBA	4.988	314.8 -> 134.9	123119	4.88	µg/L	100
		314.8 -> 82.9	4229			
PFMPA	3.667			4.81	µg/L	100
PFEESA	6.288			5.05	µg/L	100

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



7.7.14
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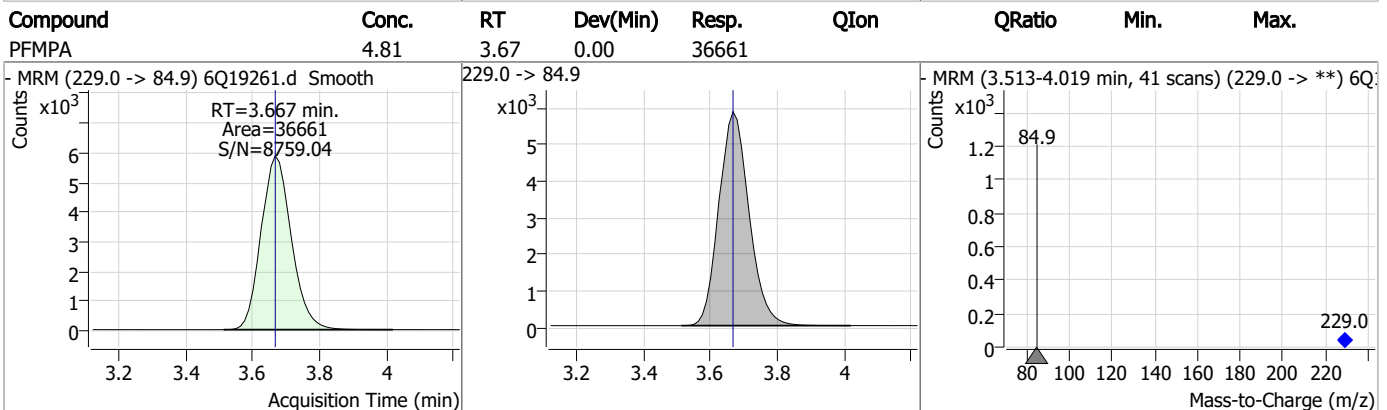
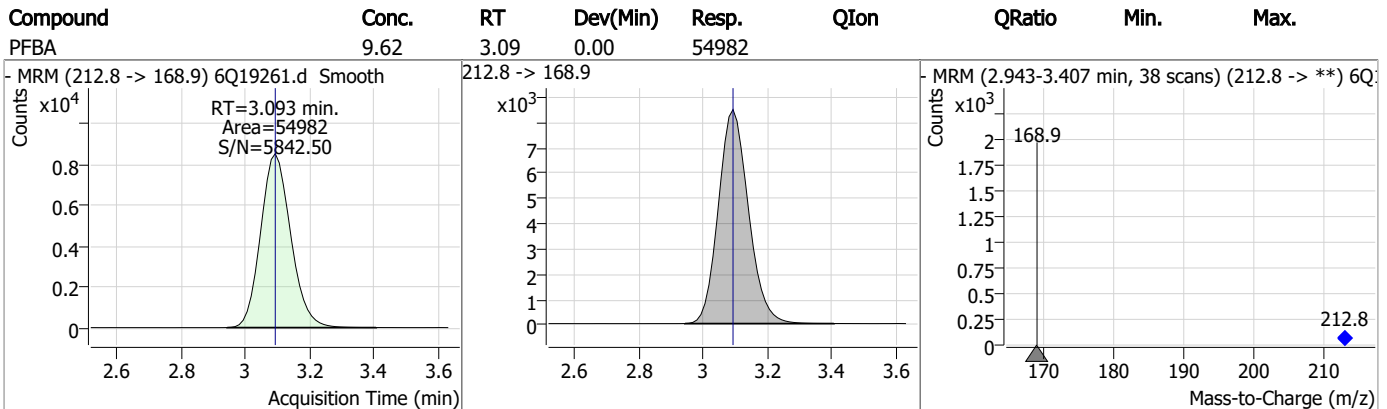
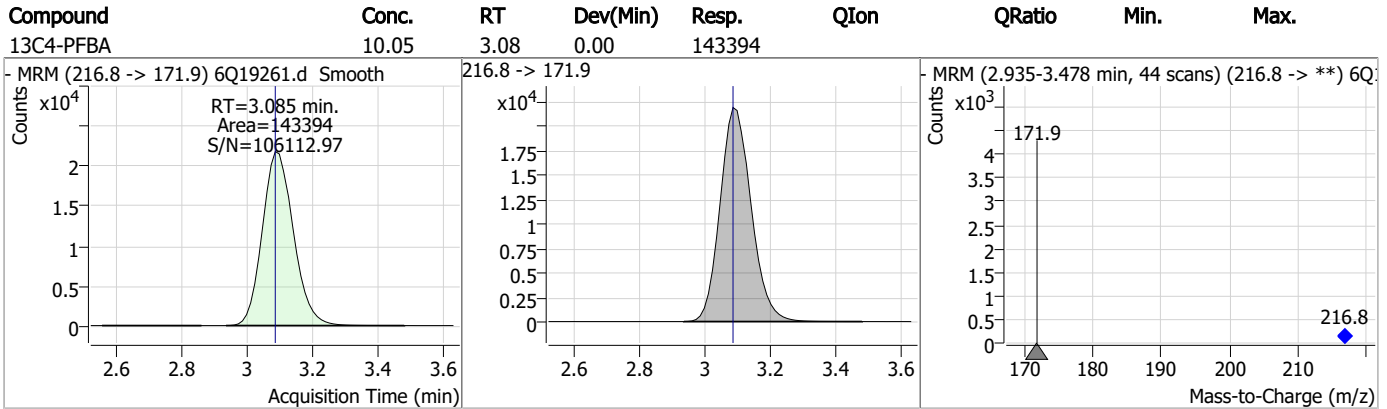
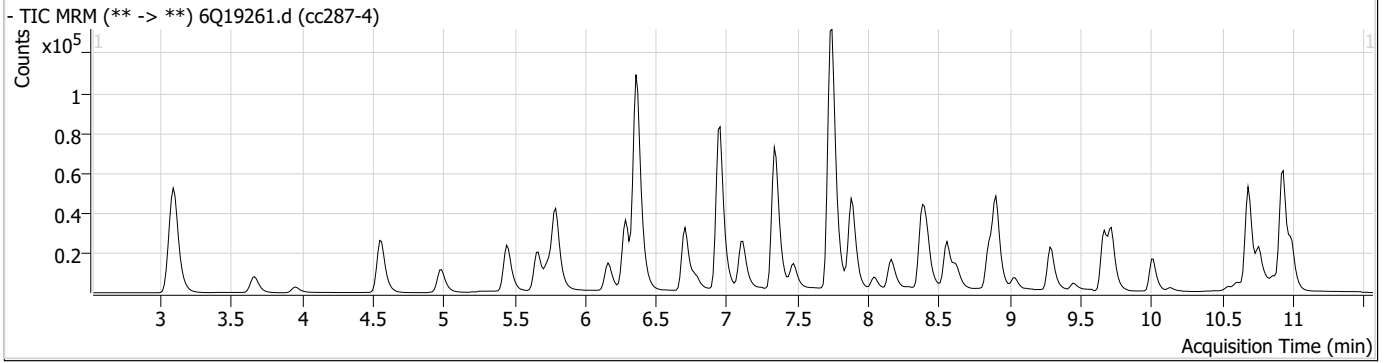
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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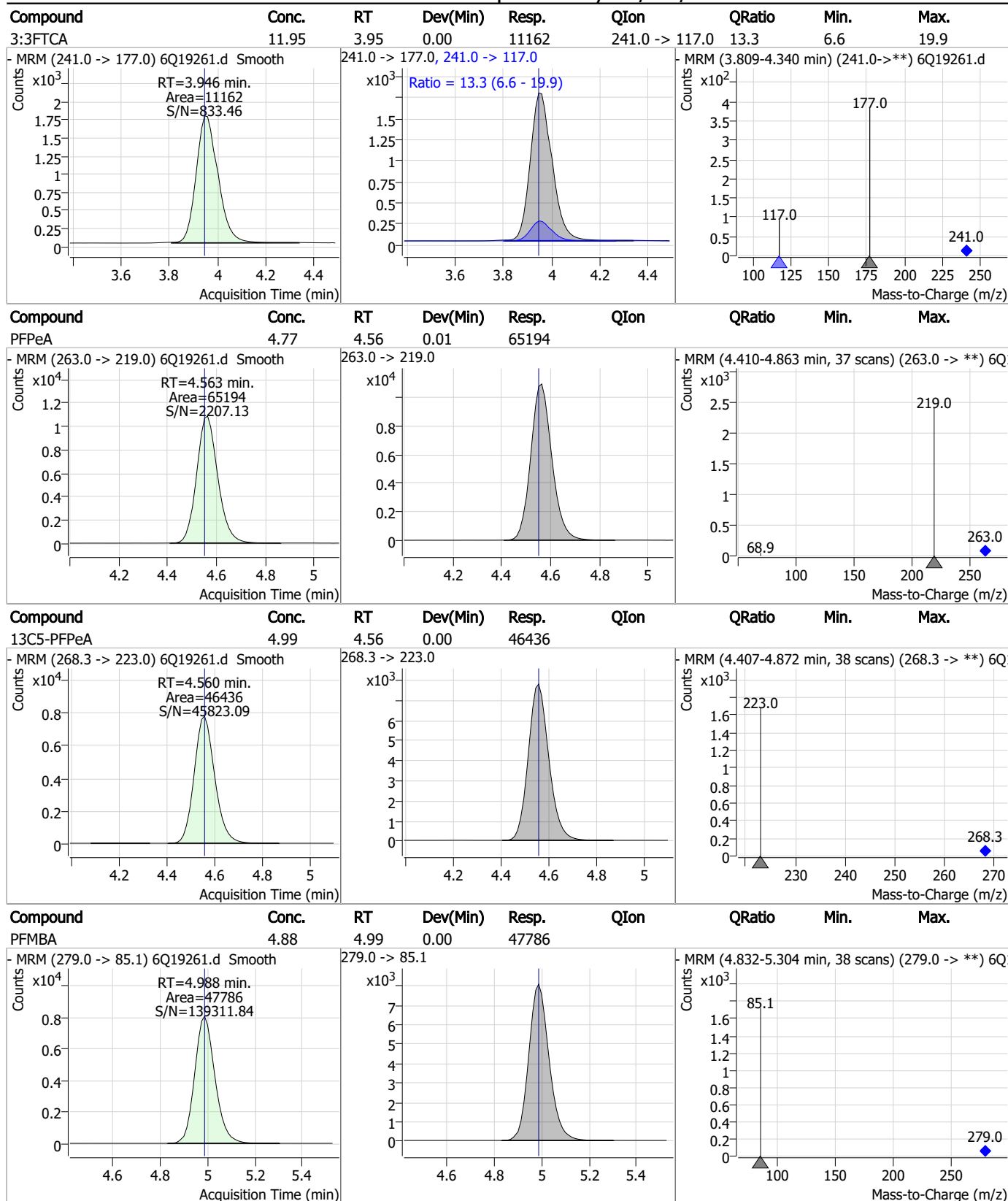
7.7.14

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Perfluorinated Compounds by LC/MS/MS



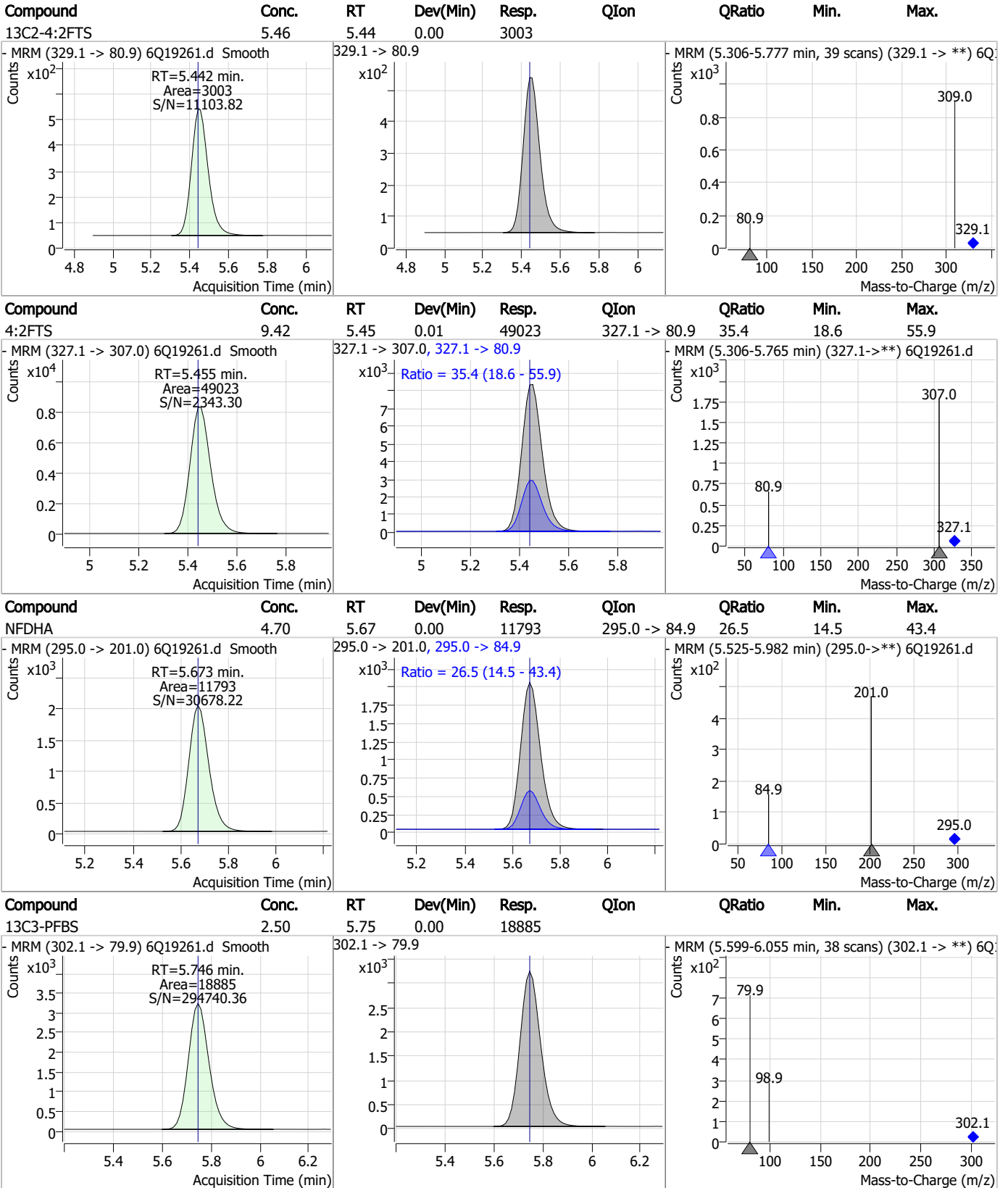
Perfluorinated Compounds by LC/MS/MS



7.7.14



Perfluorinated Compounds by LC/MS/MS

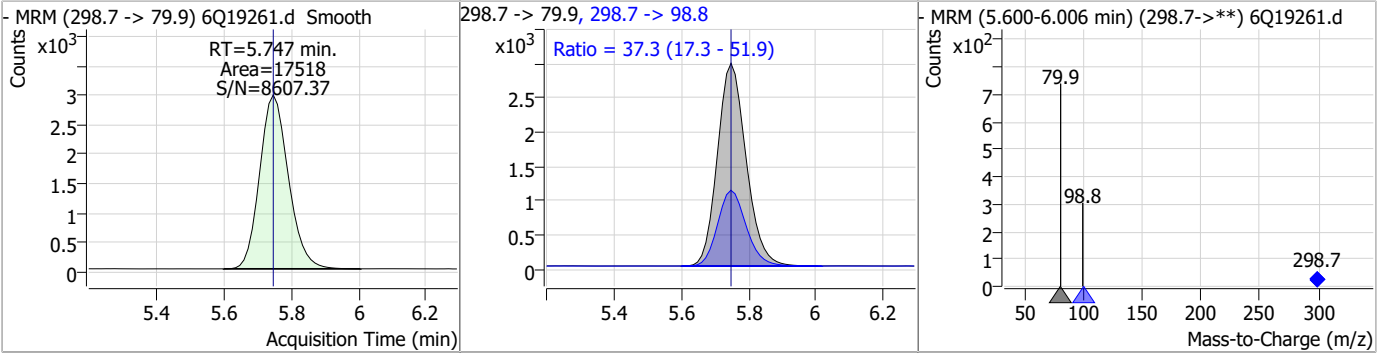


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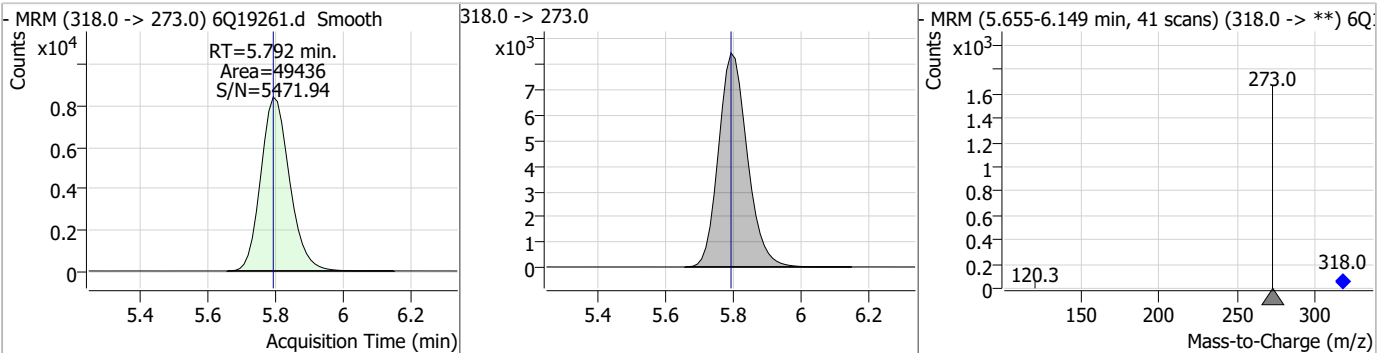


Perfluorinated Compounds by LC/MS/MS

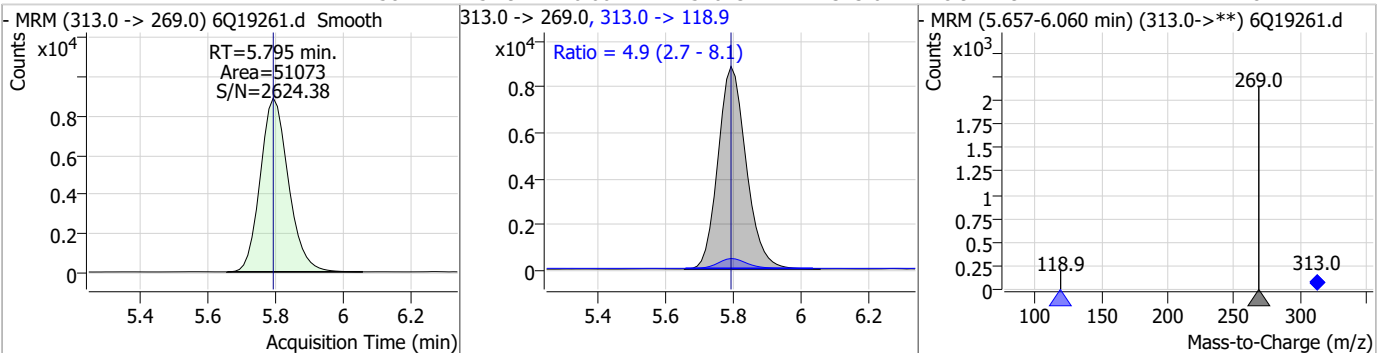
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.11	5.75	0.00	17518	298.7 -> 98.8	37.3	17.3	51.9



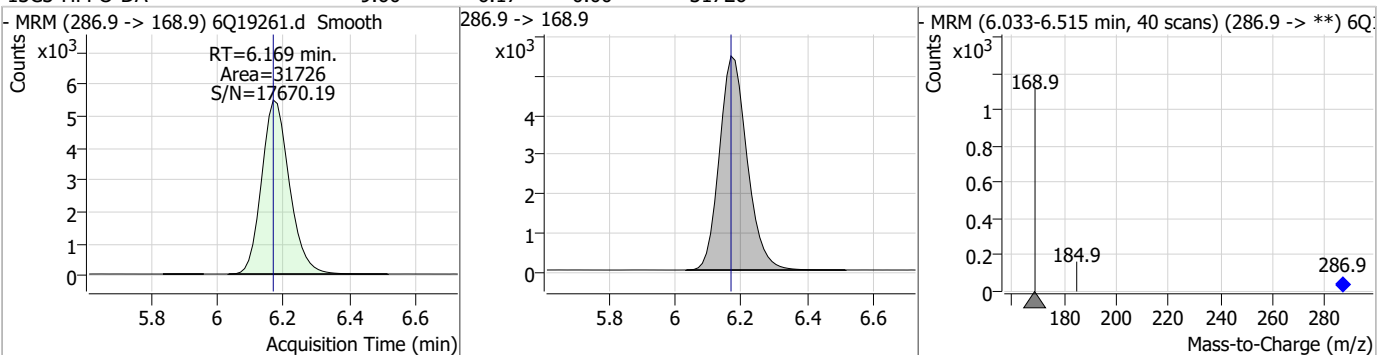
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.37	5.79	0.00	49436				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.58	5.79	0.00	51073	313.0 -> 118.9	4.9	2.7	8.1

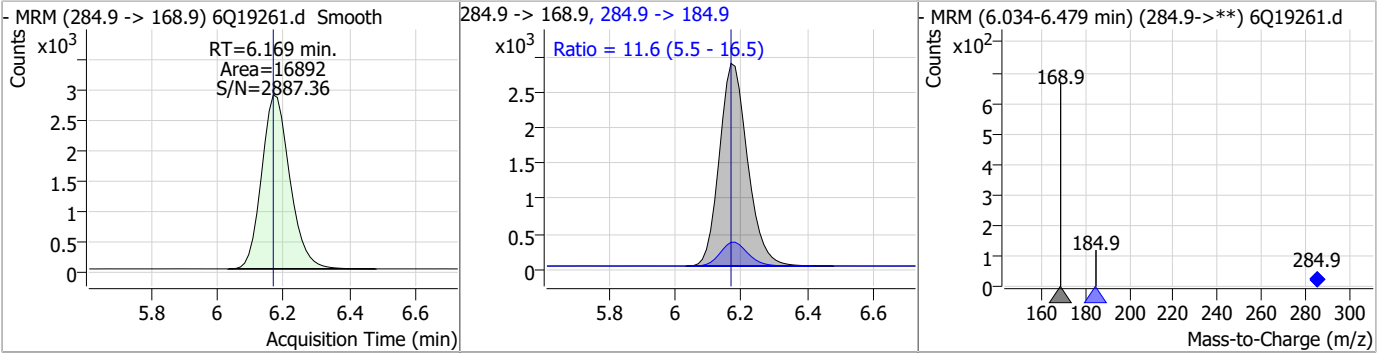


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.60	6.17	0.00	31726				

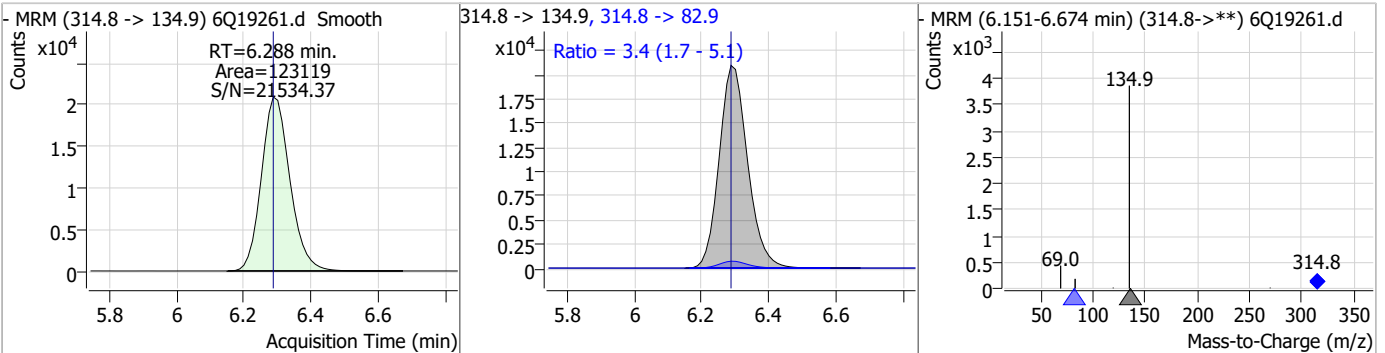


Perfluorinated Compounds by LC/MS/MS

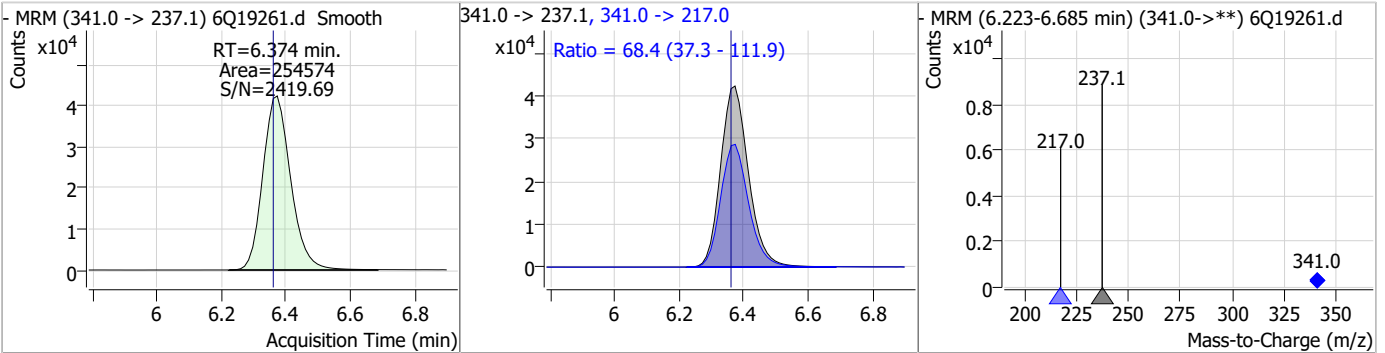
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.91	6.17	0.00	16892	284.9 -> 184.9	11.6	5.5	16.5



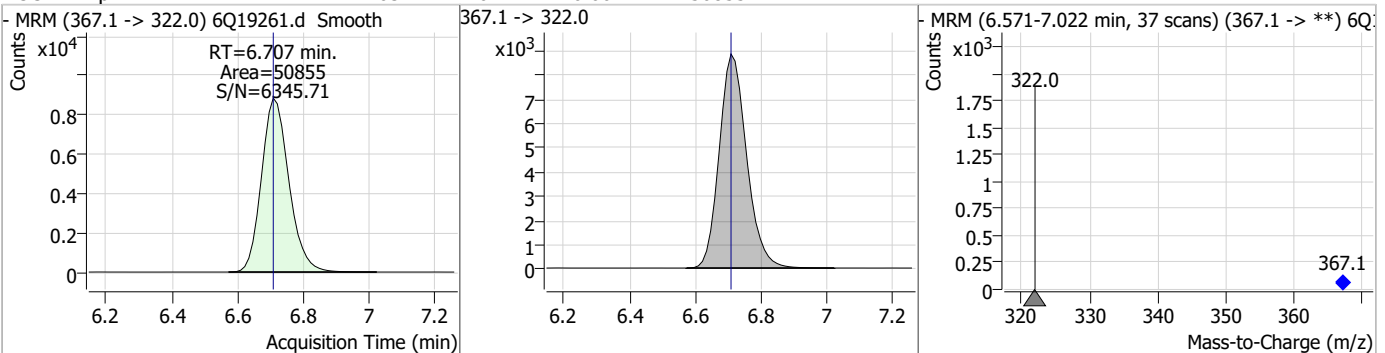
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	5.05	6.29	0.00	123119	314.8 -> 82.9	3.4	1.7	5.1



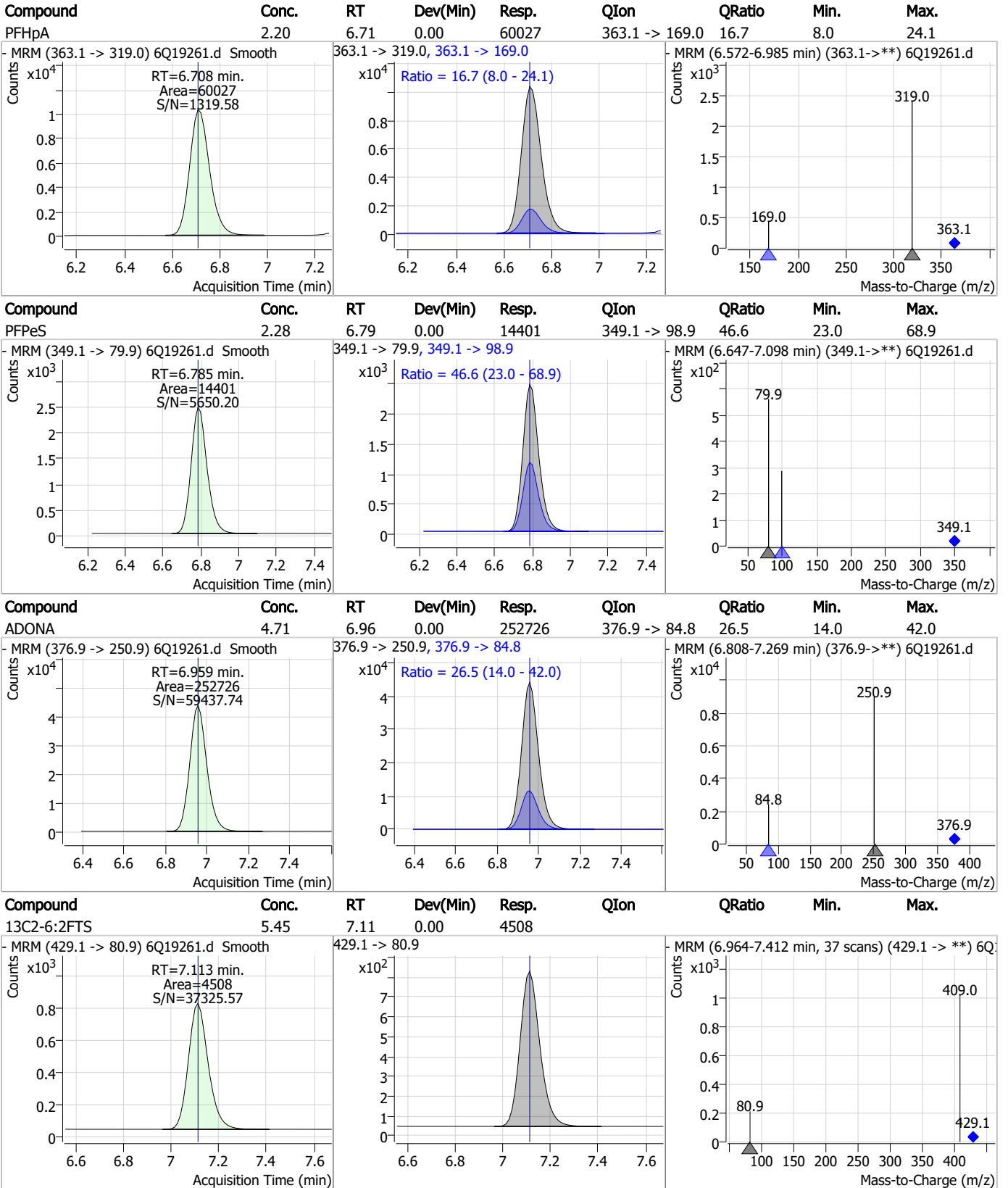
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	66.28	6.37	0.01	254574	341.0 -> 217.0	68.4	37.3	111.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.63	6.71	0.00	50855	367.1 -> 322.0			



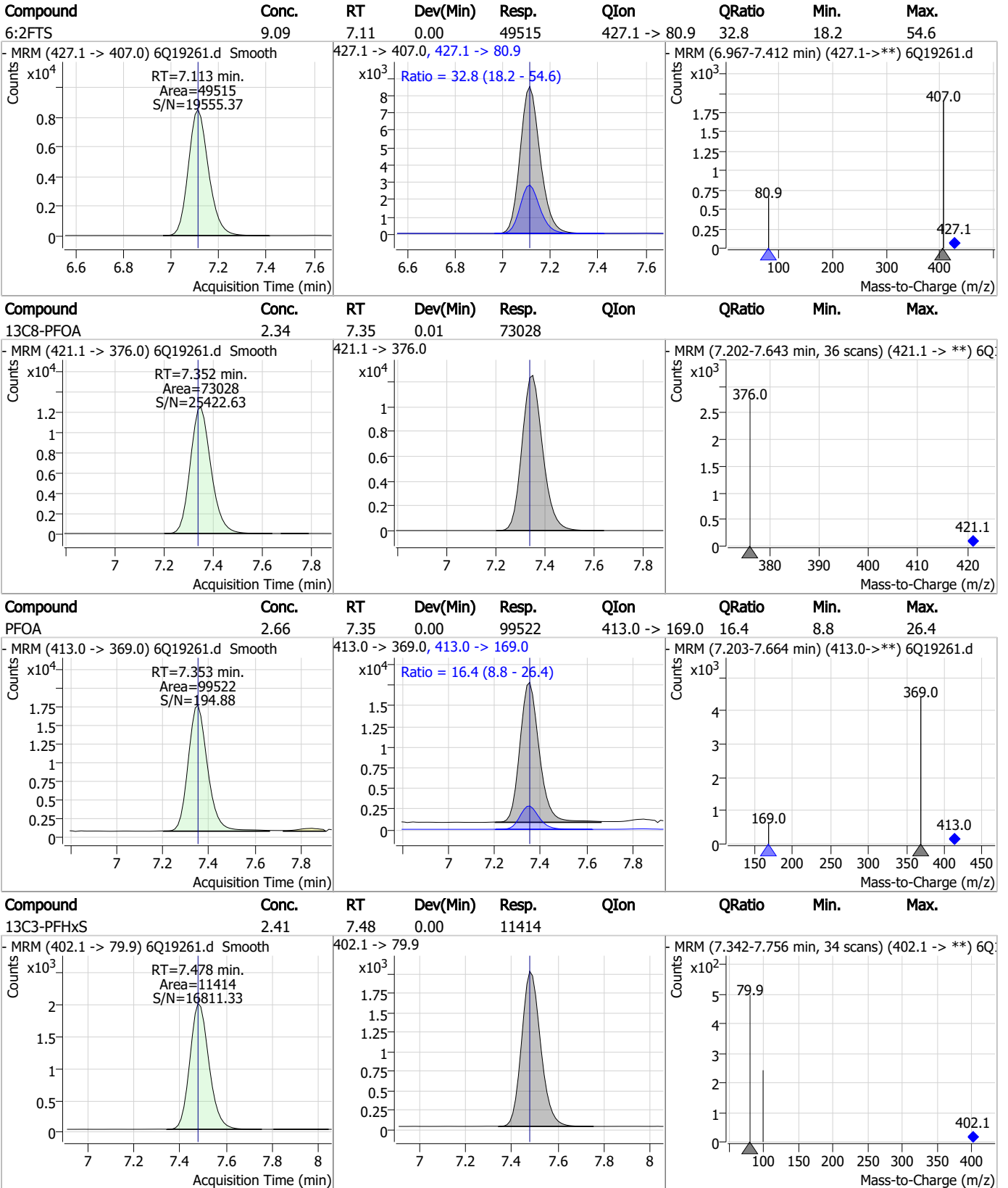
Perfluorinated Compounds by LC/MS/MS



7.7.14

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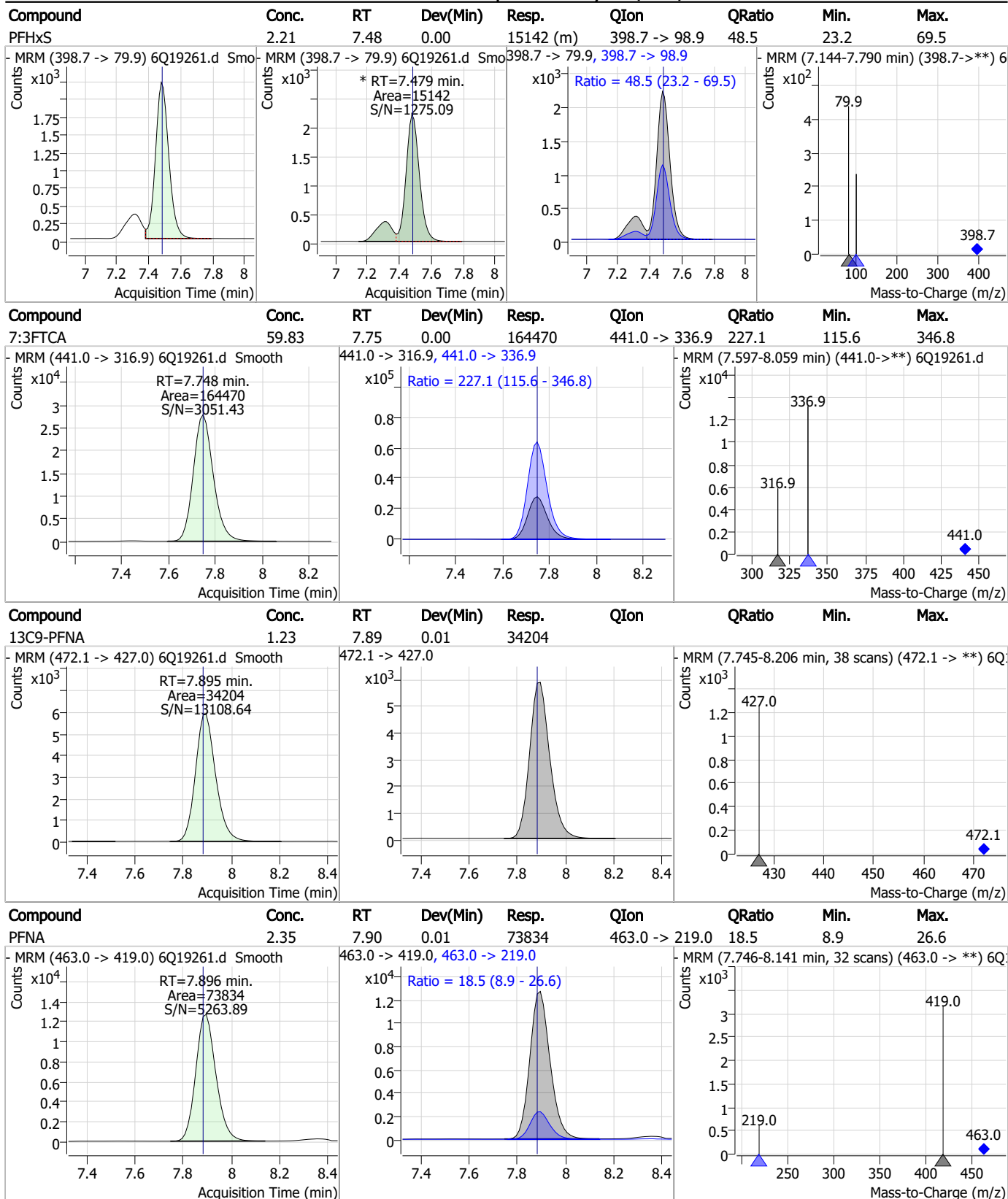
Perfluorinated Compounds by LC/MS/MS



7.7.14



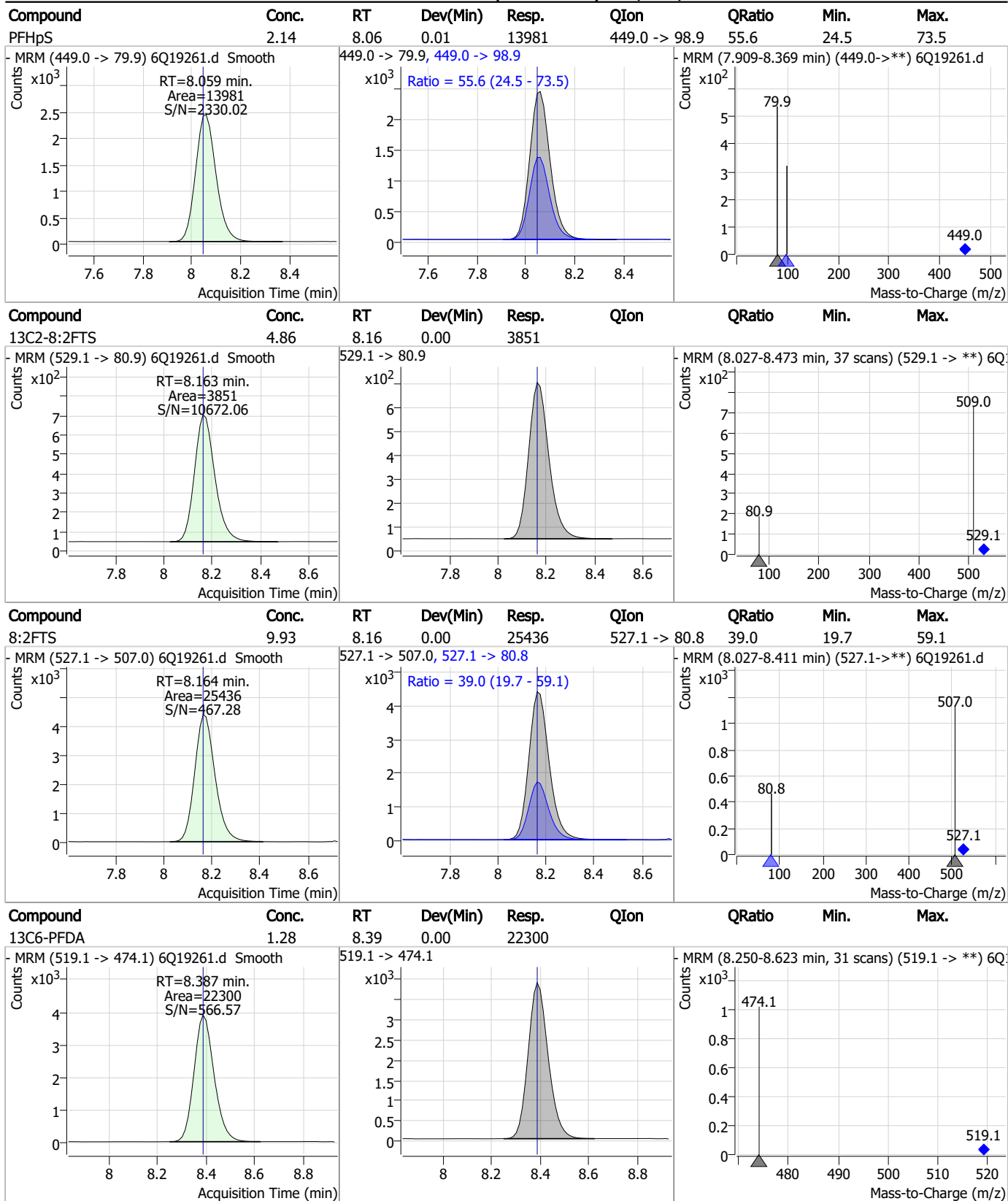
Perfluorinated Compounds by LC/MS/MS



7.7.14
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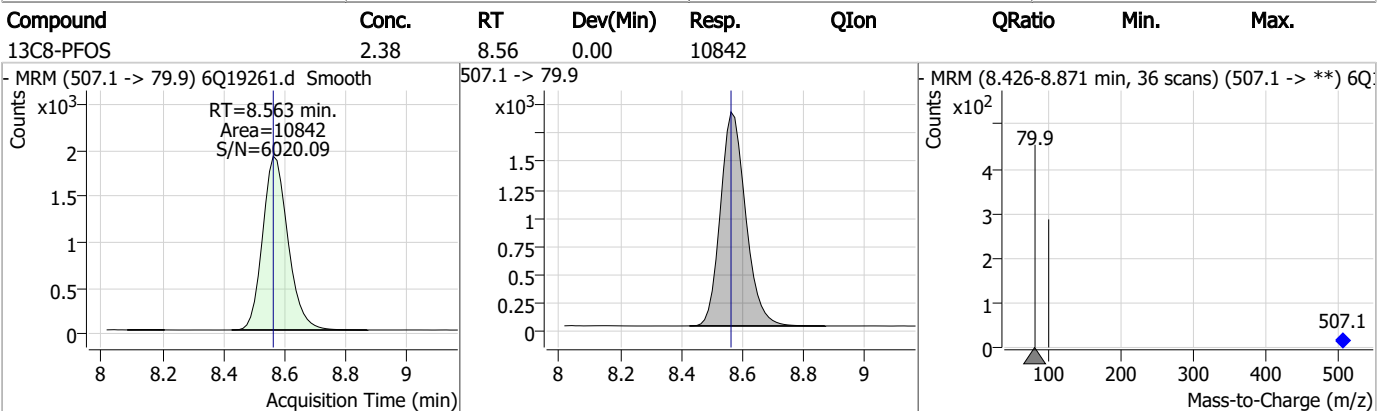
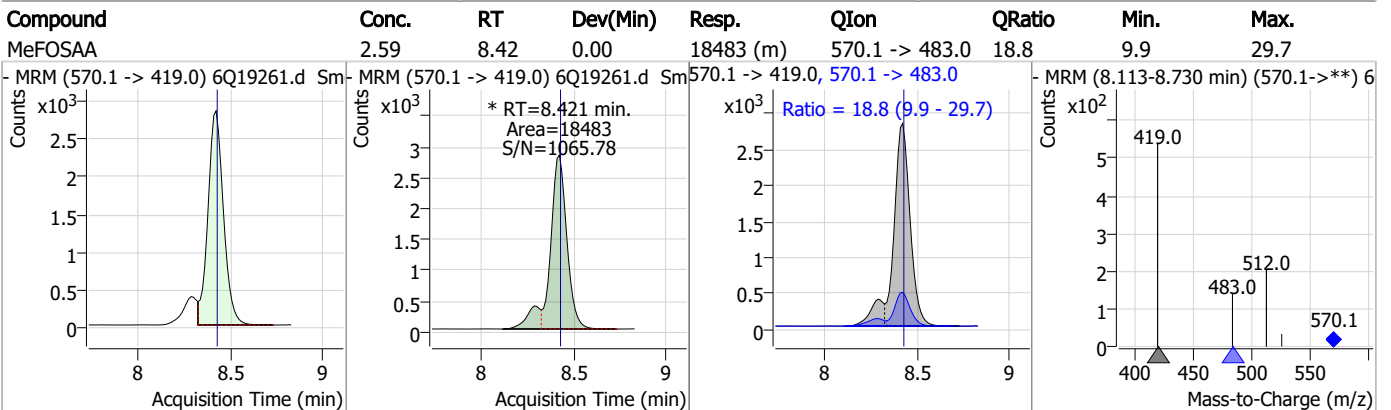
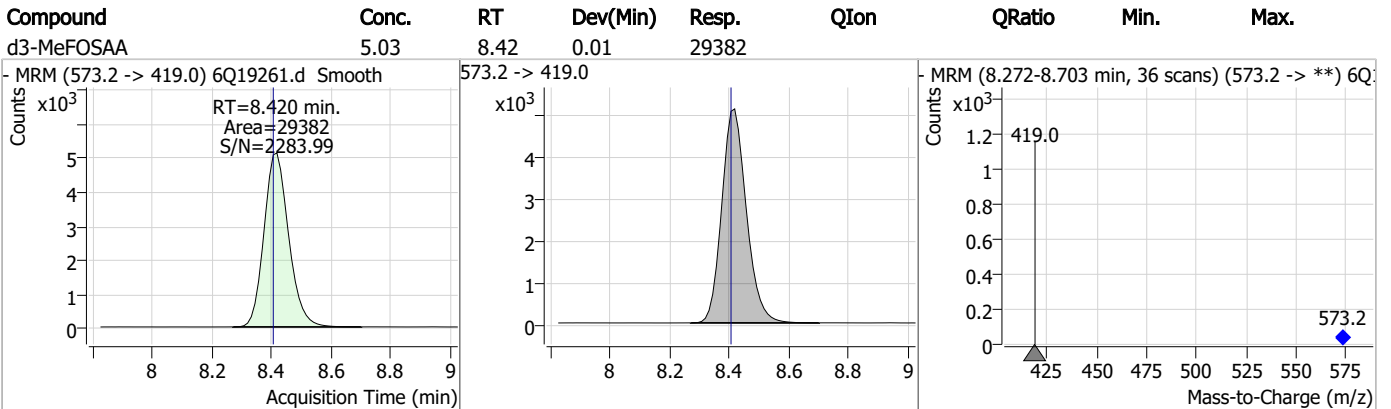
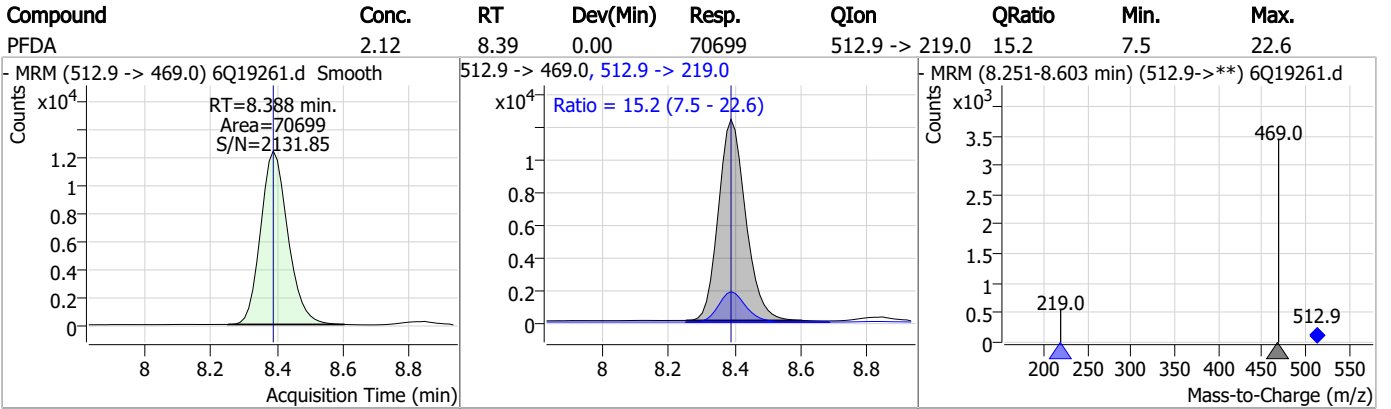


Perfluorinated Compounds by LC/MS/MS



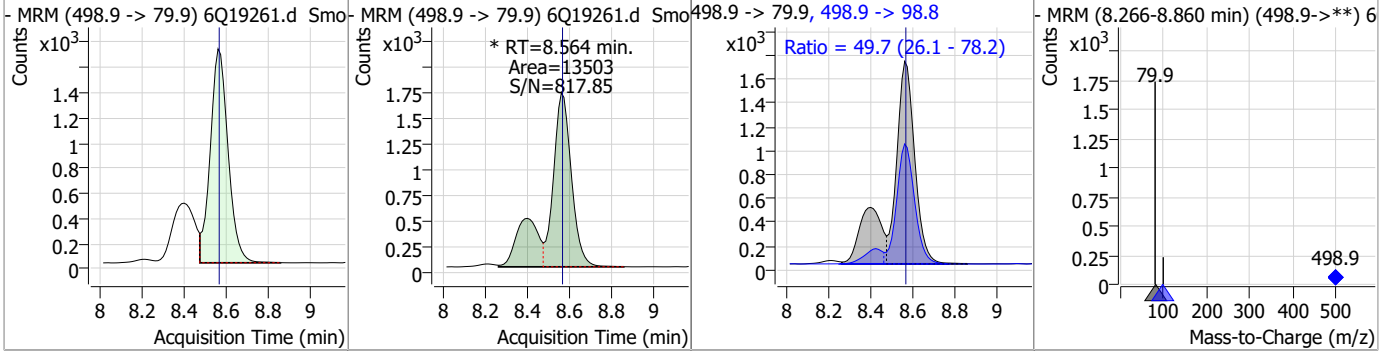
7.7.14
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Perfluorinated Compounds by LC/MS/MS

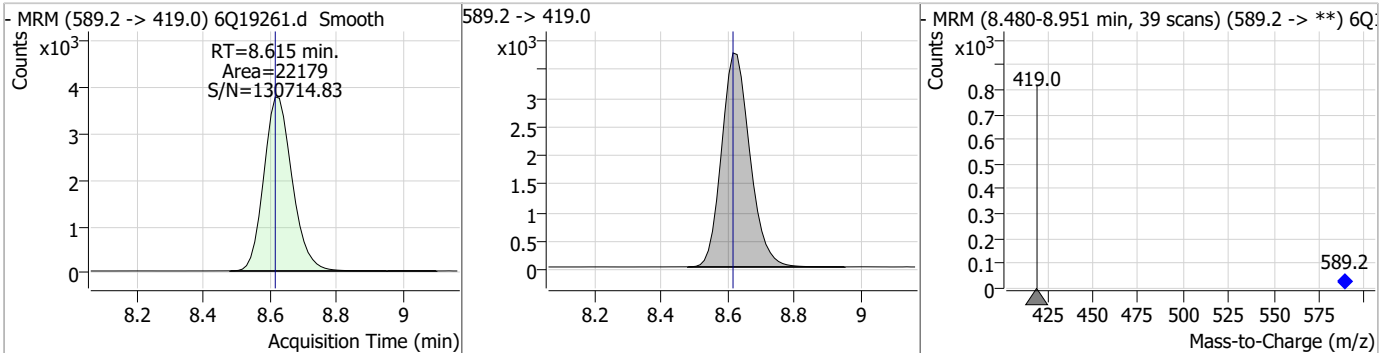


Perfluorinated Compounds by LC/MS/MS

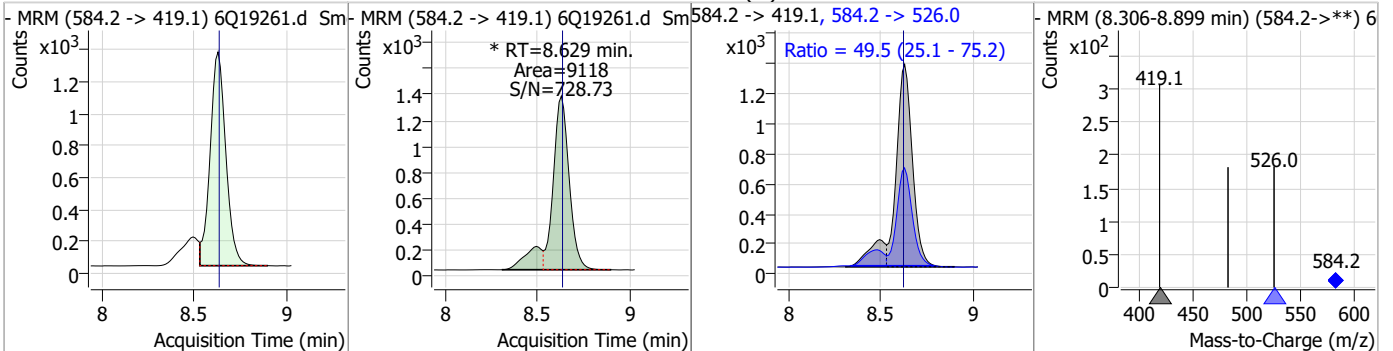
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.11	8.56	0.00	13503 (m)	498.9 -> 98.8	49.7	26.1	78.2



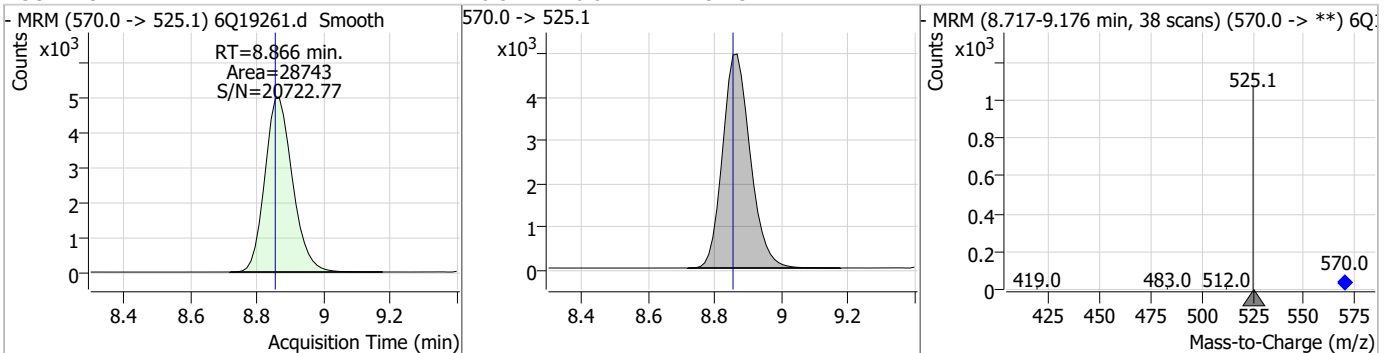
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.50	8.62	0.00	22179				



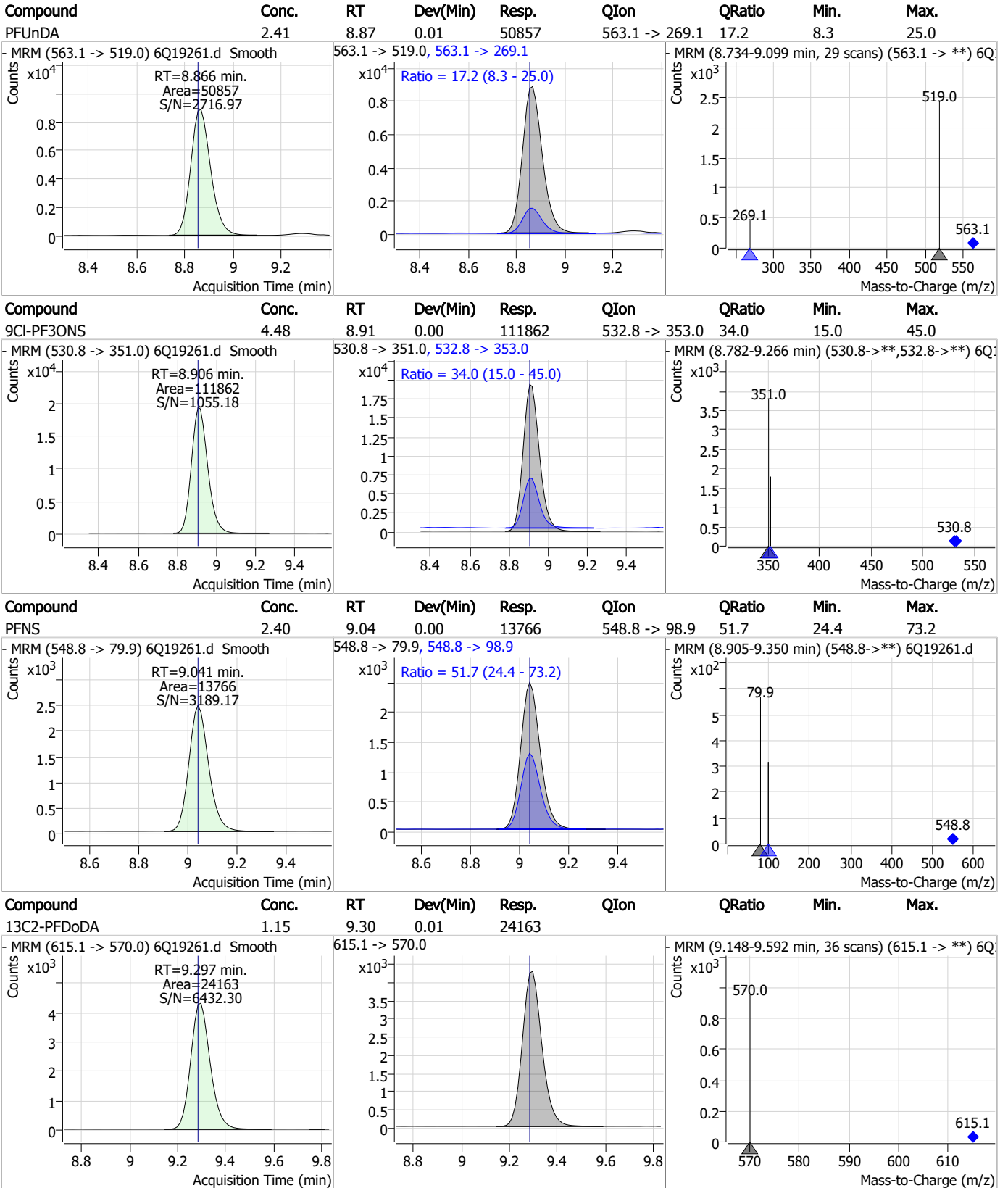
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.48	8.63	0.00	9118 (m)	584.2 -> 526.0	49.5	25.1	75.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.17	8.87	0.01	28743				



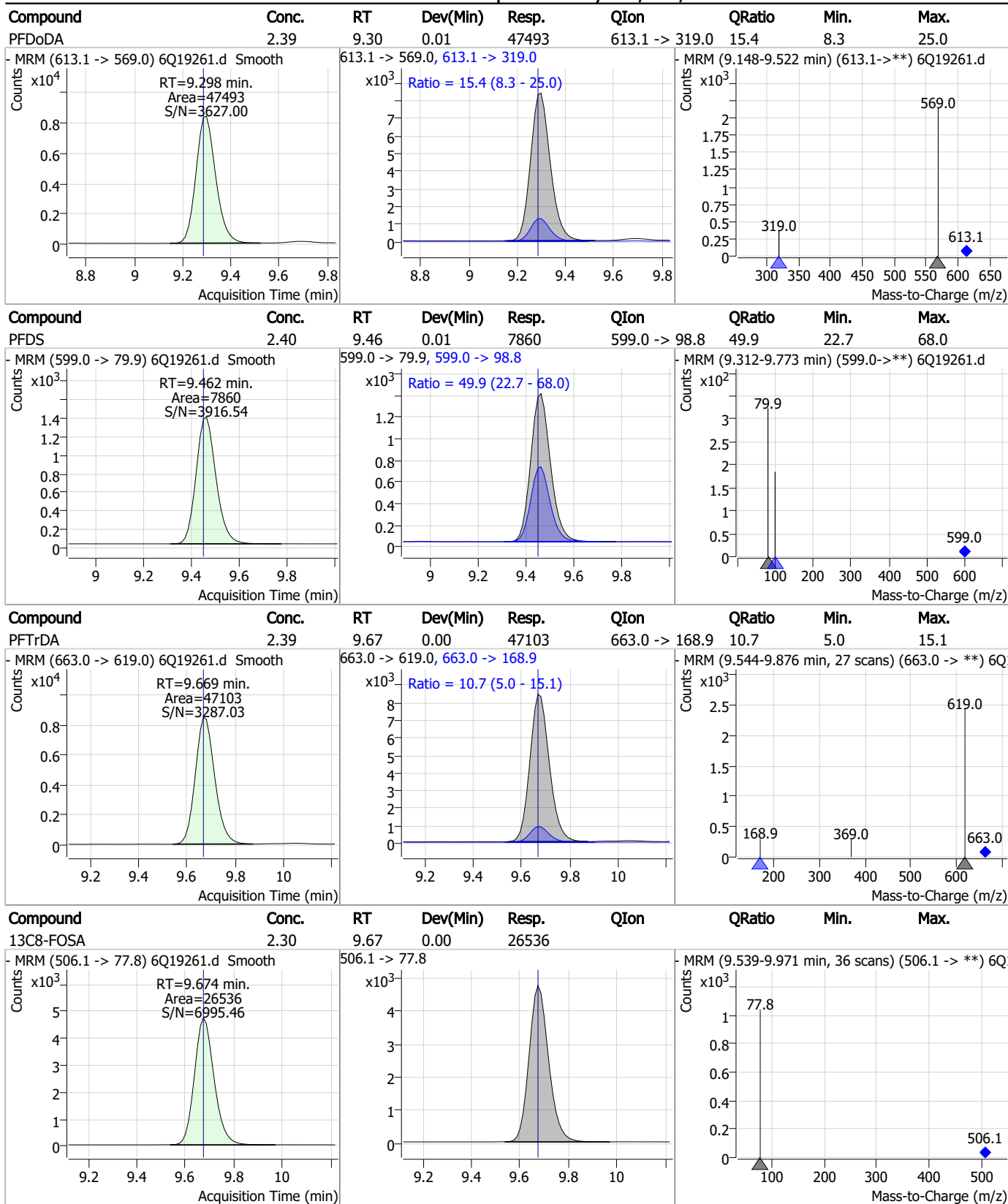
Perfluorinated Compounds by LC/MS/MS



7.7.14



Perfluorinated Compounds by LC/MS/MS

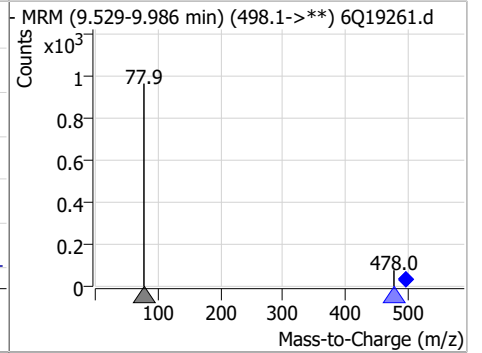
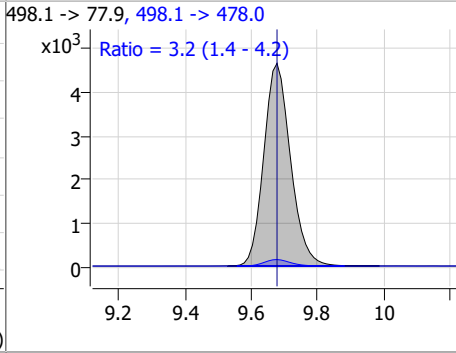
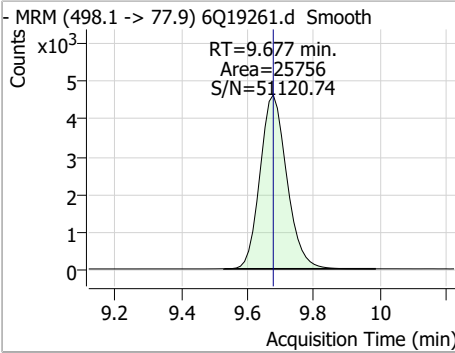


7.7.14
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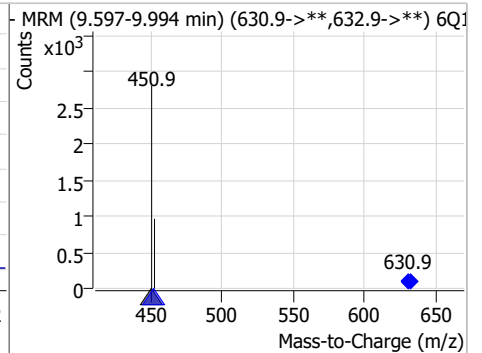
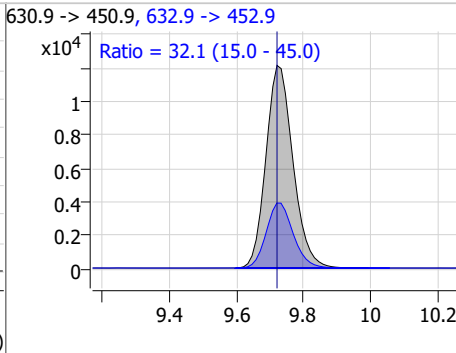
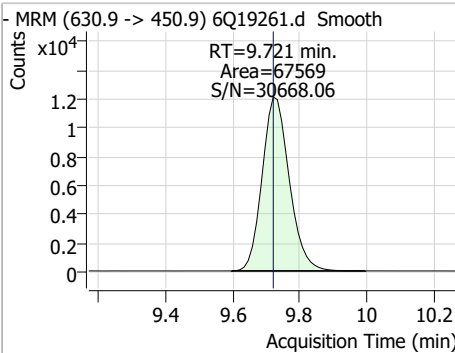


Perfluorinated Compounds by LC/MS/MS

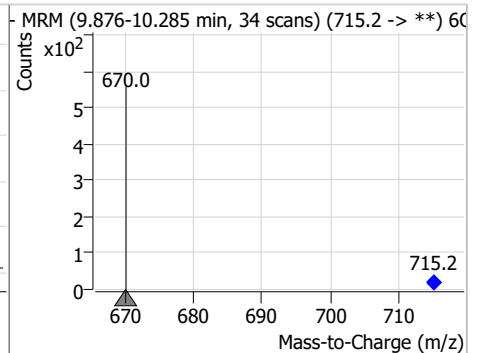
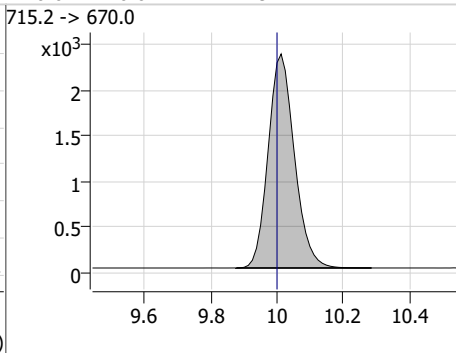
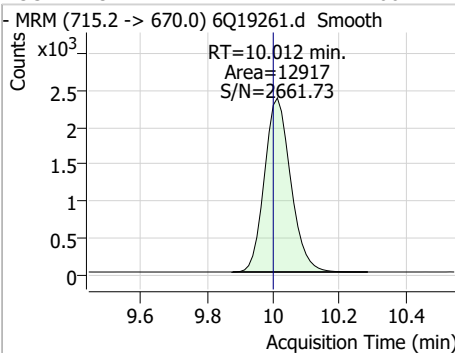
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.37	9.68	0.00	25756	498.1 -> 478.0	3.2	1.4	4.2



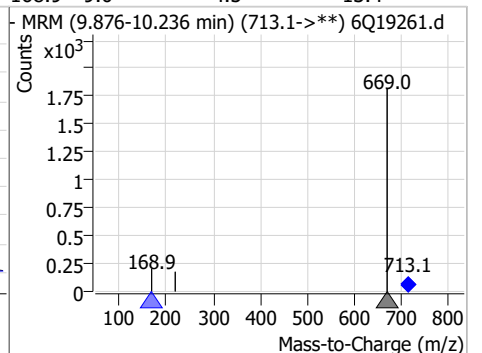
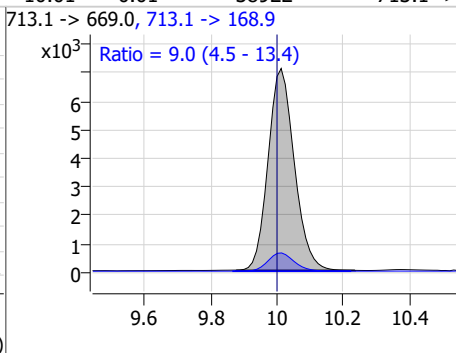
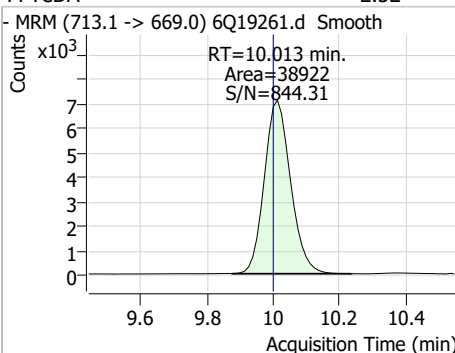
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	4.52	9.72	0.00	67569	630.9 -> 452.9	32.1	15.0	45.0



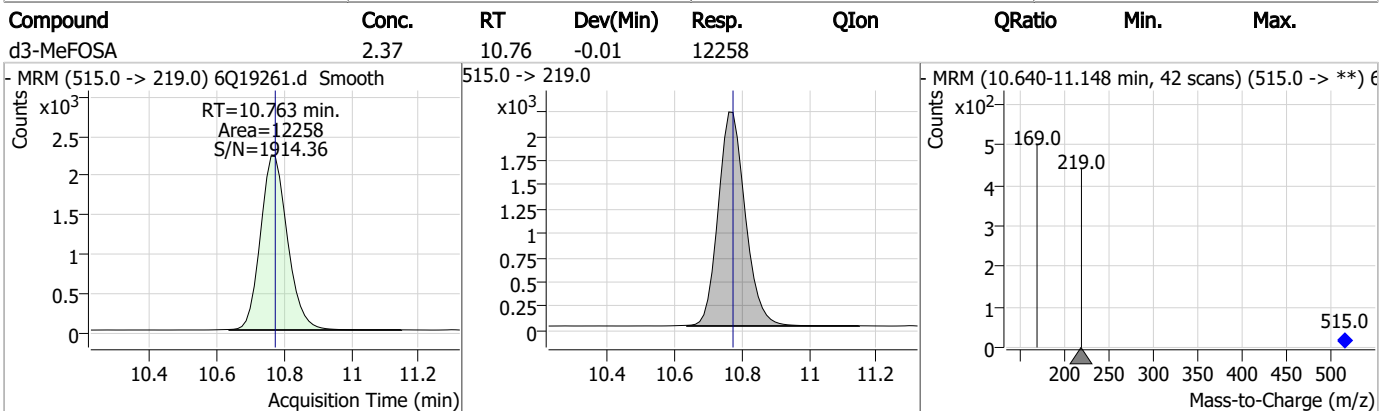
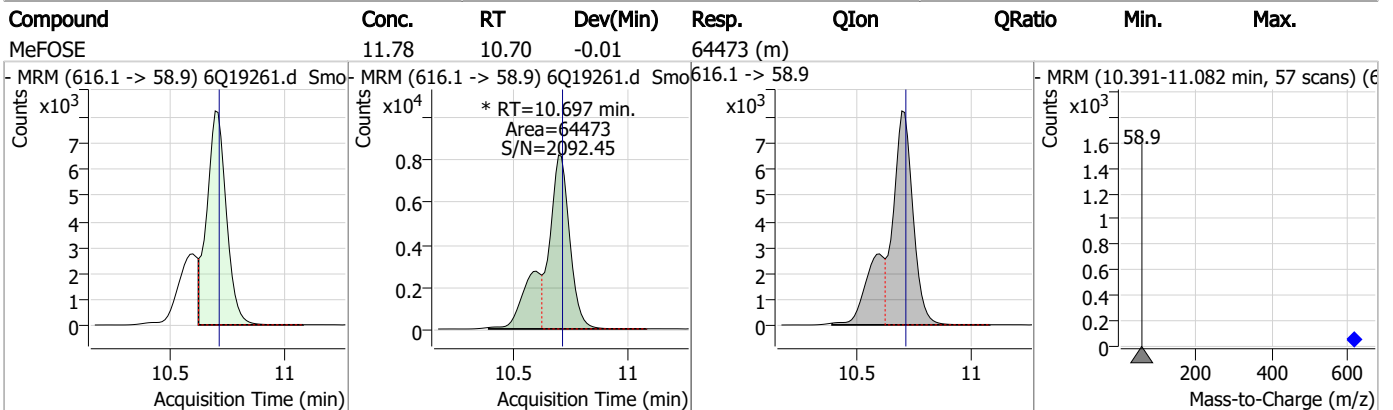
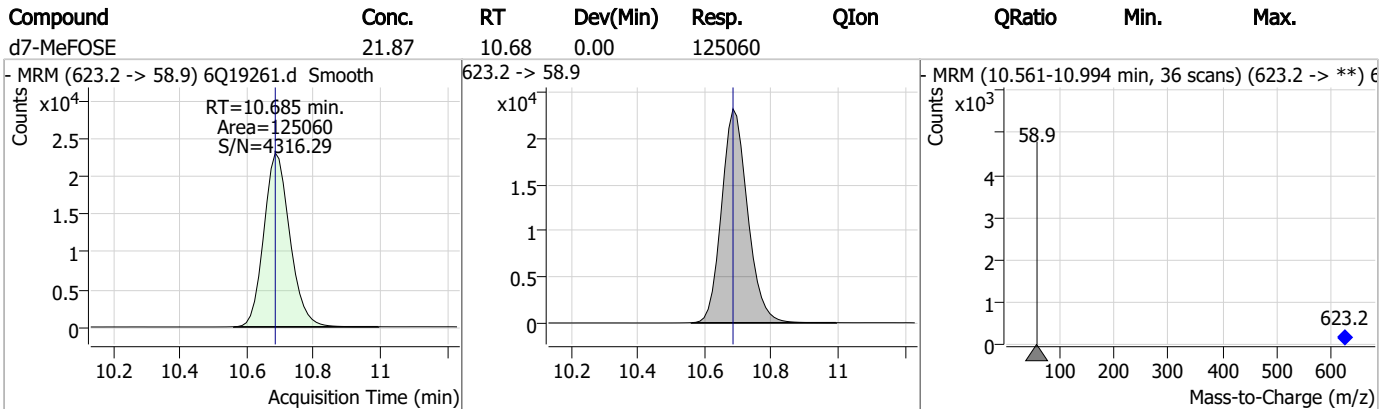
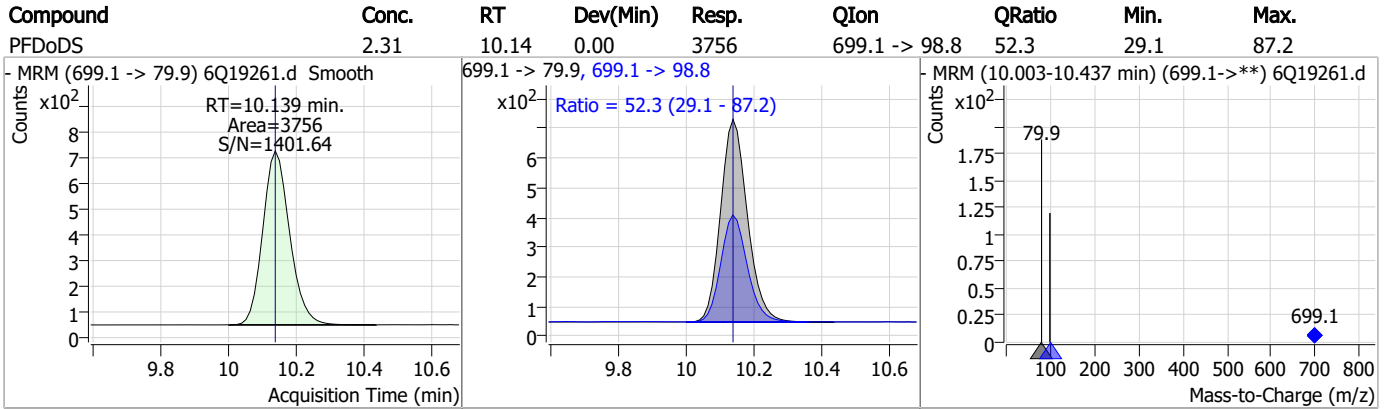
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.06	10.01	0.01	12917	715.2 -> 670.0			



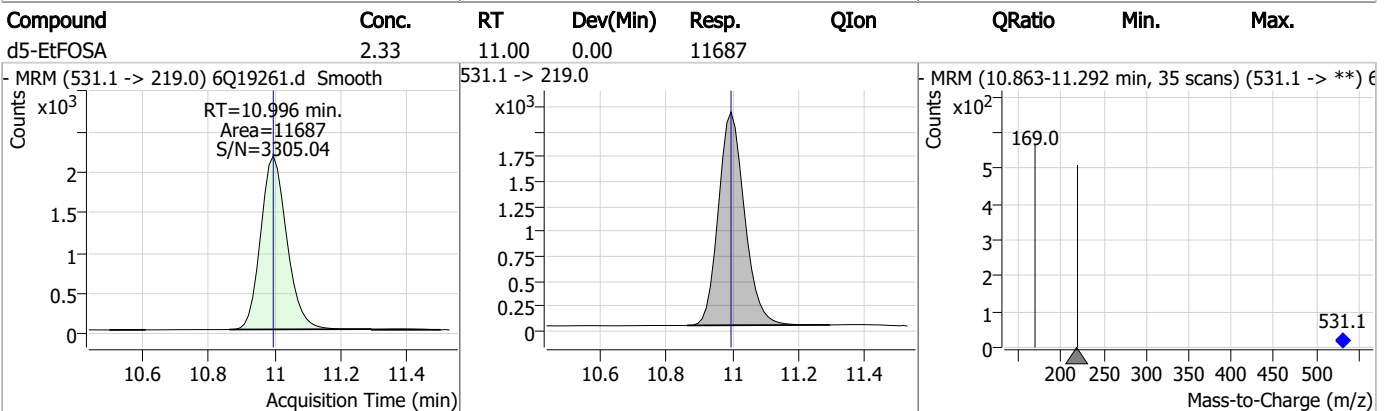
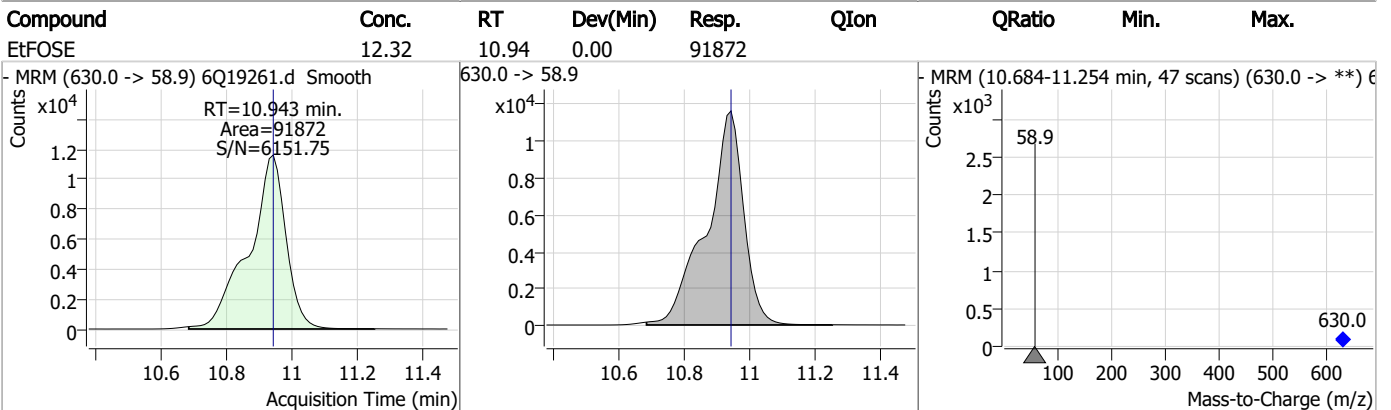
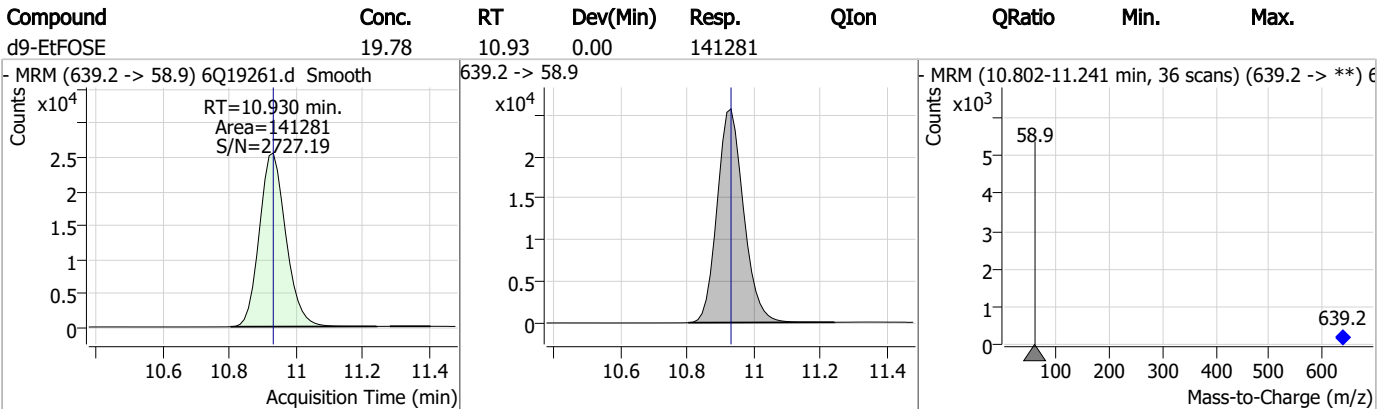
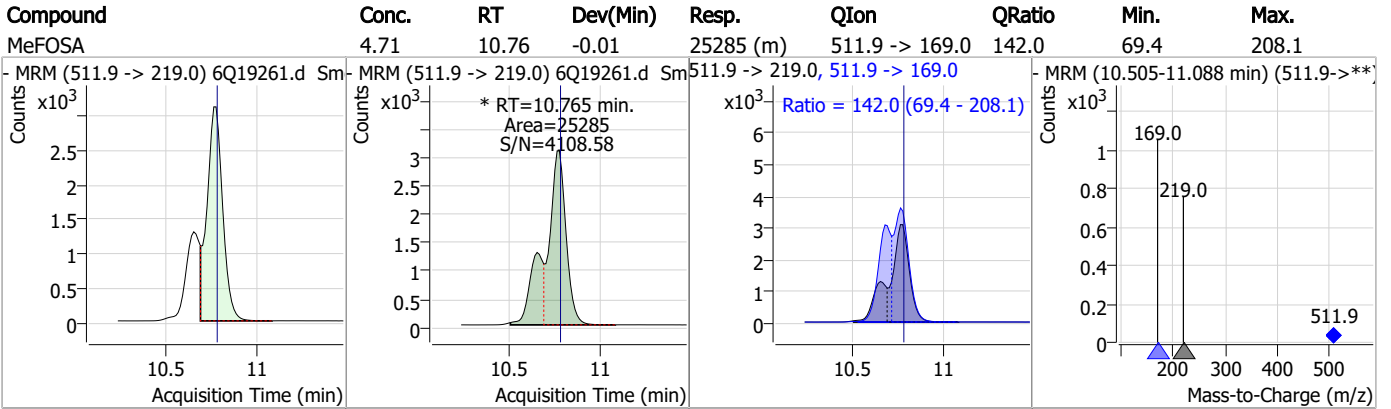
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.52	10.01	0.01	38922	713.1 -> 168.9	9.0	4.5	13.4



Perfluorinated Compounds by LC/MS/MS



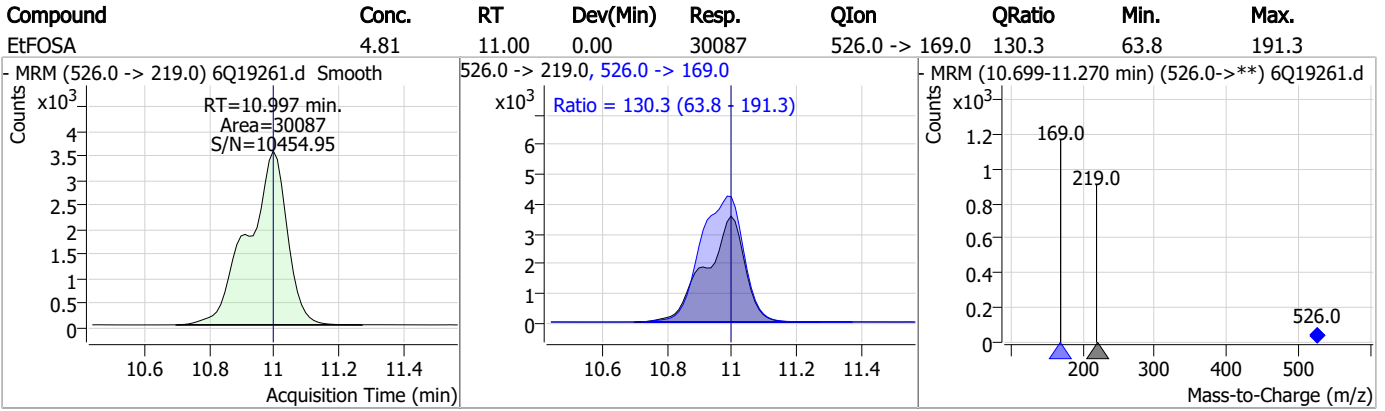
Perfluorinated Compounds by LC/MS/MS



7.7.14
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Perfluorinated Compounds by LC/MS/MS



7.7.14

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Manual Integration Approval Summary

Sample Number: S6Q287-CC287 Method: EPA DRAFT 1633
Lab FileID: 6Q19261.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 20:42 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.63	Split peak
MeFOSE	24448-09-7		10.70	Split peak
MeFOSA	31506-32-8		10.77	Split peak

7.7.14.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19272.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 11:15:53 PM
 Sample Name : cc287-4
 Vial : P1-A5
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	145070	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	47365	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	53136	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	47733	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	79266	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	37328	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	20215	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	28148	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	25191	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	13684	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	27703	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	18631	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	11657	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	11274	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	2820	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	4494	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4287	5.00 µg/L	0.000
M3-MeFOSAA	8.420	573.2 -> 419.0	28901	5.00 µg/L	0.012
M3-HFPO-DA	6.181	286.9 -> 168.9	33370	10.00 µg/L	0.012
M5-EtFOSAA	8.628	589.2 -> 419.0	24177	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	124035	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	141083	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	11723	2.50 µg/L	0.000
M3-MeFOSA	10.763	515.0 -> 219.0	11899	2.50 µg/L	-0.012
13C4-PFOS	8.563	502.8 -> 79.9	15470	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	61662	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	9625	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	83204	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	31042	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	46757	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	50016	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	2820	4.76 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.2%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4494	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4287	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-PFDoDA	9.297	615.1 -> 570.0	25191	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-PFTeDA	10.012	715.2 -> 670.0	13684	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.9%		
13C3-PFBS	5.746	302.1 -> 79.9	18631	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.6%		
13C3-PFHxS	7.478	402.1 -> 79.9	11657	2.28 µg/L	0.000

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 = 91.2%	
13C4-PFBA	3.097	216.8 -> 171.9	145070	10.02 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFHpA	6.707	367.1 -> 322.0	47733	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C5-PFHxA	5.792	318.0 -> 273.0	53136	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C5-PFPeA	4.560	268.3 -> 223.0	47365	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C6-PFDA	8.387	519.1 -> 474.1	20215	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.4%	
13C7-PFUnDA	8.866	570.0 -> 525.1	28148	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C8-FOSA	9.674	506.1 -> 77.8	27703	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C8-PFOA	7.352	421.1 -> 376.0	79266	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C8-PFOS	8.575	507.1 -> 79.9	11274	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C9-PFNA	7.895	472.1 -> 427.0	37328	1.31 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.7%	
d3-MeFOSAA	8.420	573.2 -> 419.0	28901	4.98 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C3-HFPO-DA	6.181	286.9 -> 168.9	33370	9.73 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
d3-MeFOSA	10.763	515.0 -> 219.0	11899	2.31 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.6%	
d5-EtFOSAA	8.628	589.2 -> 419.0	24177	4.94 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
d7-MeFOSE	10.685	623.2 -> 58.9	124035	21.85 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.4%	
d9-EtFOSE	10.930	639.2 -> 58.9	141083	19.89 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.6%	
d5-EtFOSA	10.996	531.1 -> 219.0	11723	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.1%	
Target Compounds					QValue
4:2FTS	5.455	327.1 -> 307.0	49015	10.03 µg/L	97
		327.1 -> 80.9	17438		
6:2FTS	7.113	427.1 -> 407.0	48396	8.91 µg/L	94
		427.1 -> 80.9	15870		
8:2FTS	8.164	527.1 -> 507.0	25925	9.09 µg/L	99
		527.1 -> 80.8	10046		
EtFOSAA	8.629	584.2 -> 419.1	9656	2.41 µg/L	m 95
		584.2 -> 526.0	5210		
FOSA	9.677	498.1 -> 77.9	27317	2.40 µg/L	100
		498.1 -> 478.0	749		
MeFOSAA	8.421	570.1 -> 419.0	17576	2.50 µg/L	m 99
		570.1 -> 483.0	3528		
PFBA	3.093	212.8 -> 168.9	55749	9.64 µg/L	100
PFBS	5.747	298.7 -> 79.9	16866	2.06 µg/L	87
		298.7 -> 98.8	7060		
PFDA	8.388	512.9 -> 469.0	72046	2.38 µg/L	98
		512.9 -> 219.0	11394		
PFDODA	9.298	613.1 -> 569.0	48375	2.34 µg/L	96
		613.1 -> 319.0	7220		
PFDS	9.462	599.0 -> 79.9	7908	2.32 µg/L	96

7.7.15
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3788			
PFHpA	6.720	363.1 -> 319.0	59445	2.33	µg/L	96
		363.1 -> 169.0	10559			
PFHpS	8.059	449.0 -> 79.9	14870	2.19	µg/L	98
		449.0 -> 98.9	7089			
PFHxA	5.795	313.0 -> 269.0	50195	2.36	µg/L	98
		313.0 -> 118.9	2449			
PFHxS	7.479	398.7 -> 79.9	14568	2.08	µg/L	m 95
		398.7 -> 98.9	7273			
PFNA	7.896	463.0 -> 419.0	75688	2.21	µg/L	97
		463.0 -> 219.0	14368			
PFNS	9.041	548.8 -> 79.9	13728	2.30	µg/L	94
		548.8 -> 98.9	7231			
PFOA	7.353	413.0 -> 369.0	98210	2.42	µg/L	98
		413.0 -> 169.0	16595			
PFOS	8.564	498.9 -> 79.9	13853	2.09	µg/L	m 97
		498.9 -> 98.8	7487			
PFPeA	4.563	263.0 -> 219.0	66418	4.77	µg/L	100
PFPeS	6.785	349.1 -> 79.9	14901	2.31	µg/L	100
		349.1 -> 98.9	6860			
PFTeDA	10.013	713.1 -> 669.0	39378	2.41	µg/L	99
		713.1 -> 168.9	3311			
PFTrDA	9.681	663.0 -> 619.0	48747	2.37	µg/L	97
		663.0 -> 168.9	5448			
PFUnDA	8.866	563.1 -> 519.0	54840	2.66	µg/L	98
		563.1 -> 269.1	8514			
11CI-PF3OUdS	9.733	630.9 -> 450.9	72717	4.62	µg/L	97
		632.9 -> 452.9	20638			
9CI-PF3ONS	8.918	530.8 -> 351.0	114336	4.35	µg/L	96
		532.8 -> 353.0	36524			
ADONA	6.959	376.9 -> 250.9	256326	4.54	µg/L	97
		376.9 -> 84.8	67056			
HFPO-DA	6.182	284.9 -> 168.9	15733	4.34	µg/L	95
		284.9 -> 184.9	2015			
3:3FTCA	3.958	241.0 -> 177.0	11078	11.62	µg/L	99
		241.0 -> 117.0	1438			
5:3FTCA	6.374	341.0 -> 237.1	245874	59.56	µg/L	96
		341.0 -> 217.0	174224			
7:3FTCA	7.748	441.0 -> 316.9	171837	58.16	µg/L	95
		441.0 -> 336.9	410157			
EtFOSA	10.997	526.0 -> 219.0	29910	4.76	µg/L	m 93
		526.0 -> 169.0	40479			
EtFOSE	10.943	630.0 -> 58.9	91318	12.26	µg/L	100
MeFOSA	10.765	511.9 -> 219.0	25768	4.94	µg/L	m 98
		511.9 -> 169.0	35262			
MeFOSE	10.697	616.1 -> 58.9	65501	12.07	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	3825	2.26	µg/L	94
		699.1 -> 98.8	2055			
NFDHA	5.673	295.0 -> 201.0	12799	4.75	µg/L	93
		295.0 -> 84.9	3237			
PFMBA	4.988	279.0 -> 85.1	47184	4.72	µg/L	100
PFMPA	3.667	229.0 -> 84.9	37584	4.84	µg/L	100
PFEESA	6.301	314.8 -> 134.9	117640	4.49	µg/L	100
		314.8 -> 82.9	3994			

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



7.7.15
7

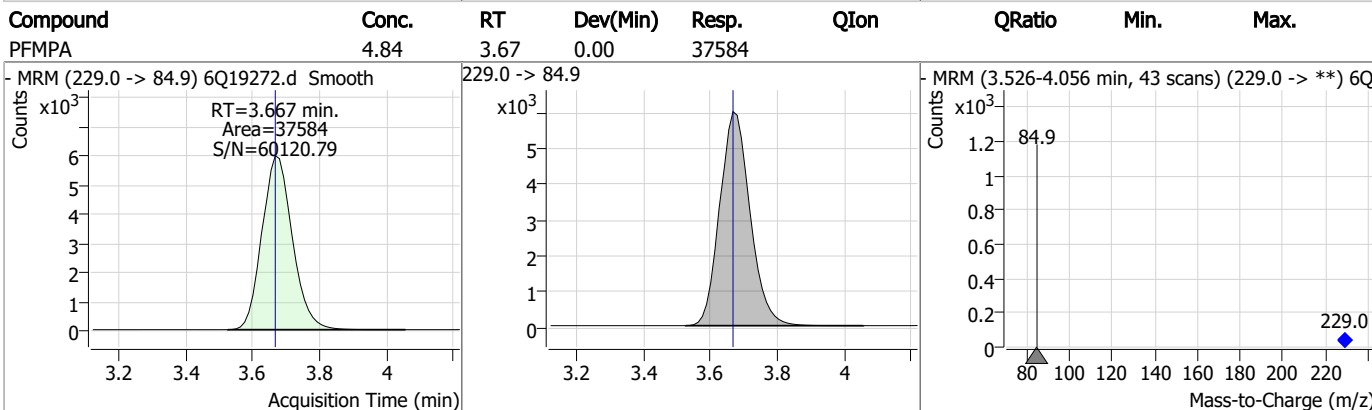
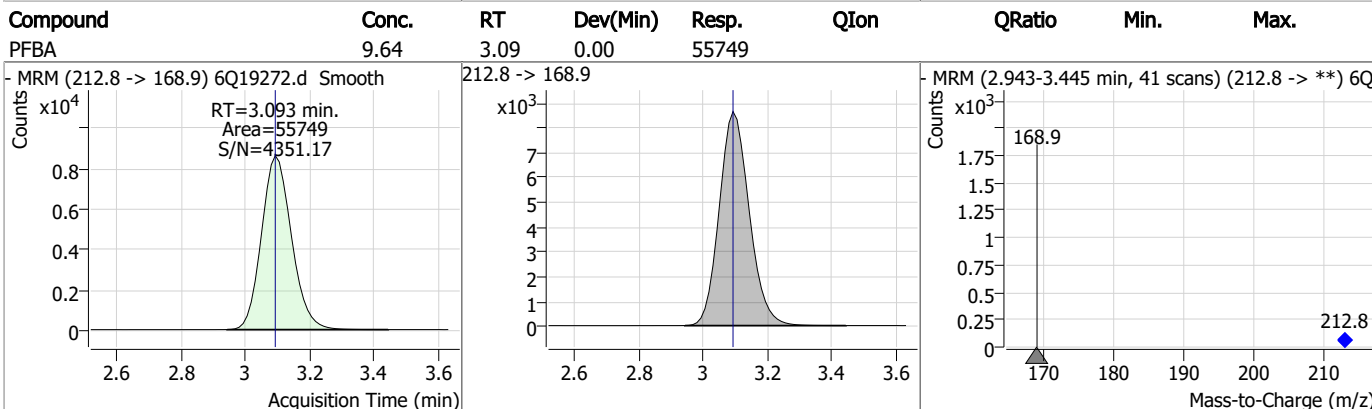
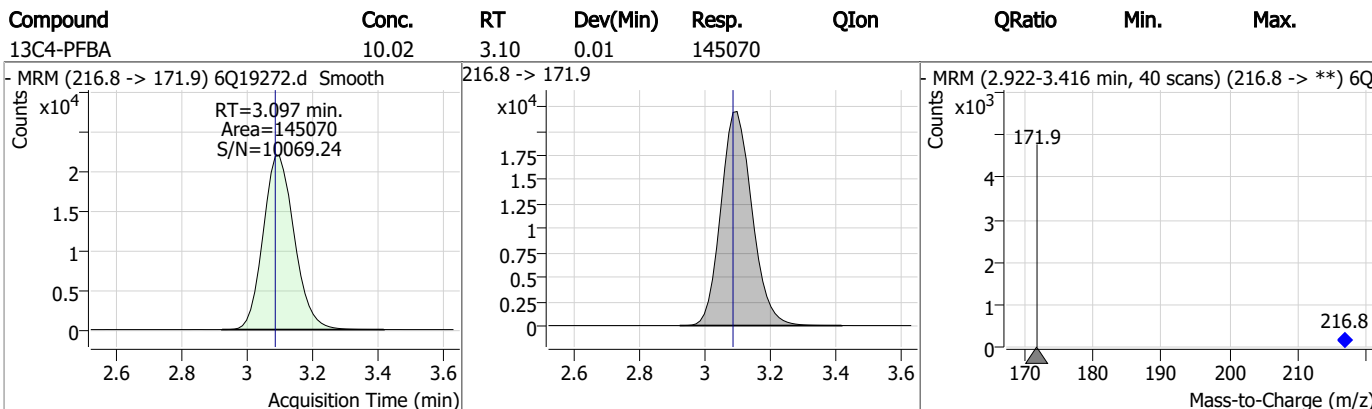
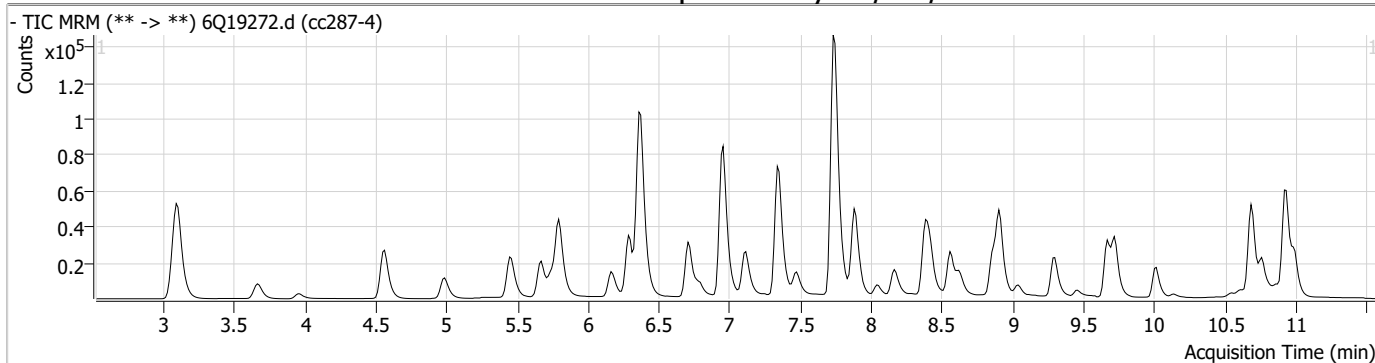
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.15

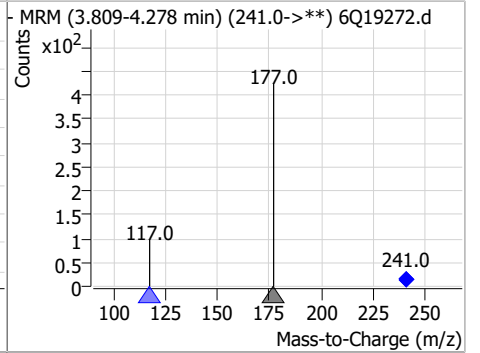
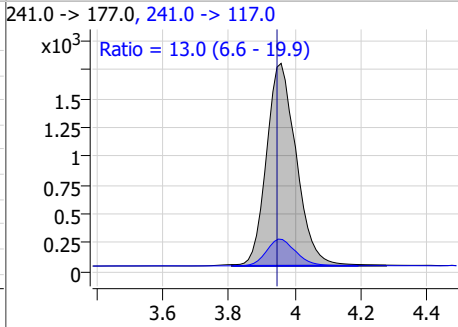
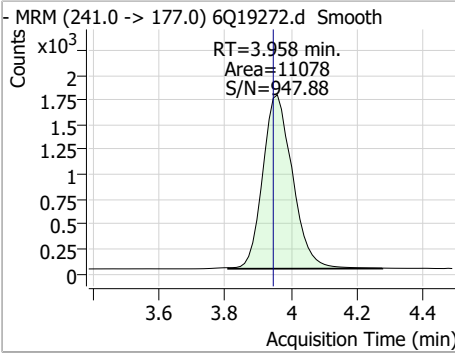
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Perfluorinated Compounds by LC/MS/MS

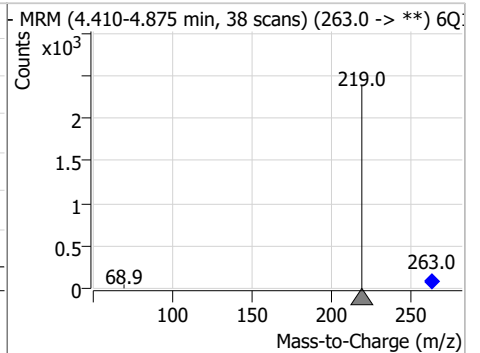
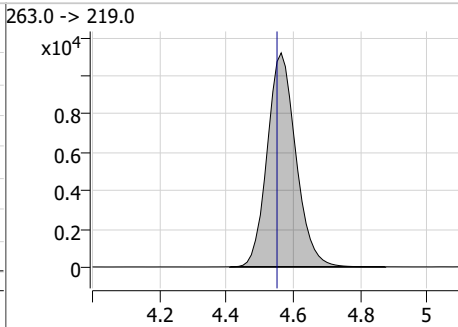
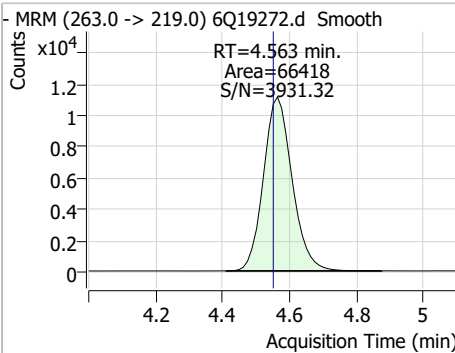


Perfluorinated Compounds by LC/MS/MS

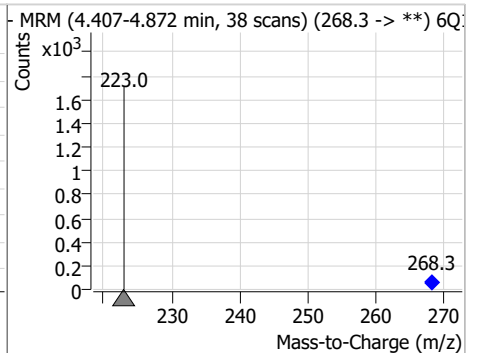
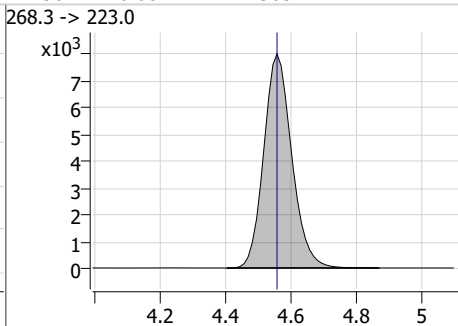
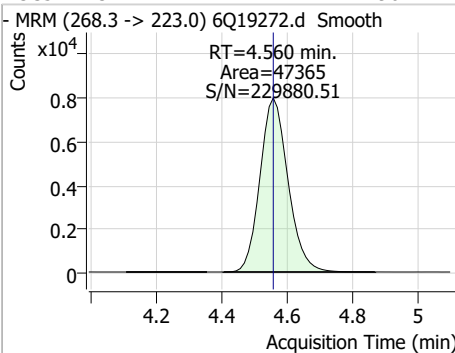
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.62	3.96	0.01	11078	241.0 -> 117.0	13.0	6.6	19.9



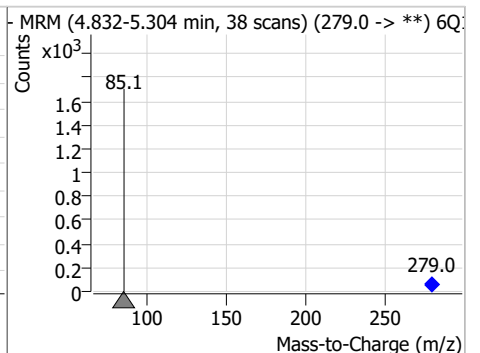
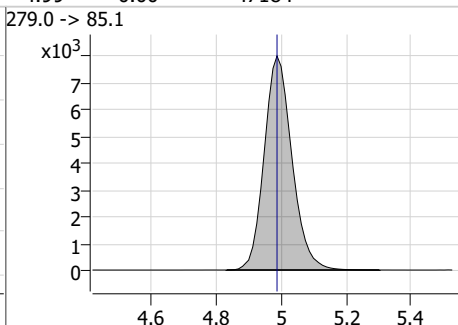
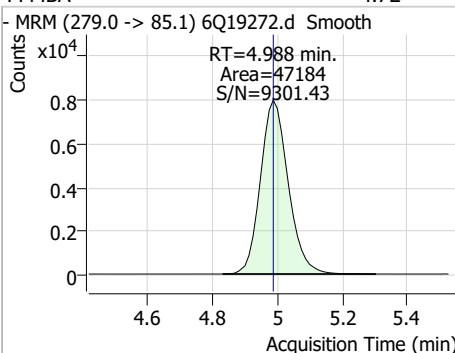
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.77	4.56	0.01	66418				



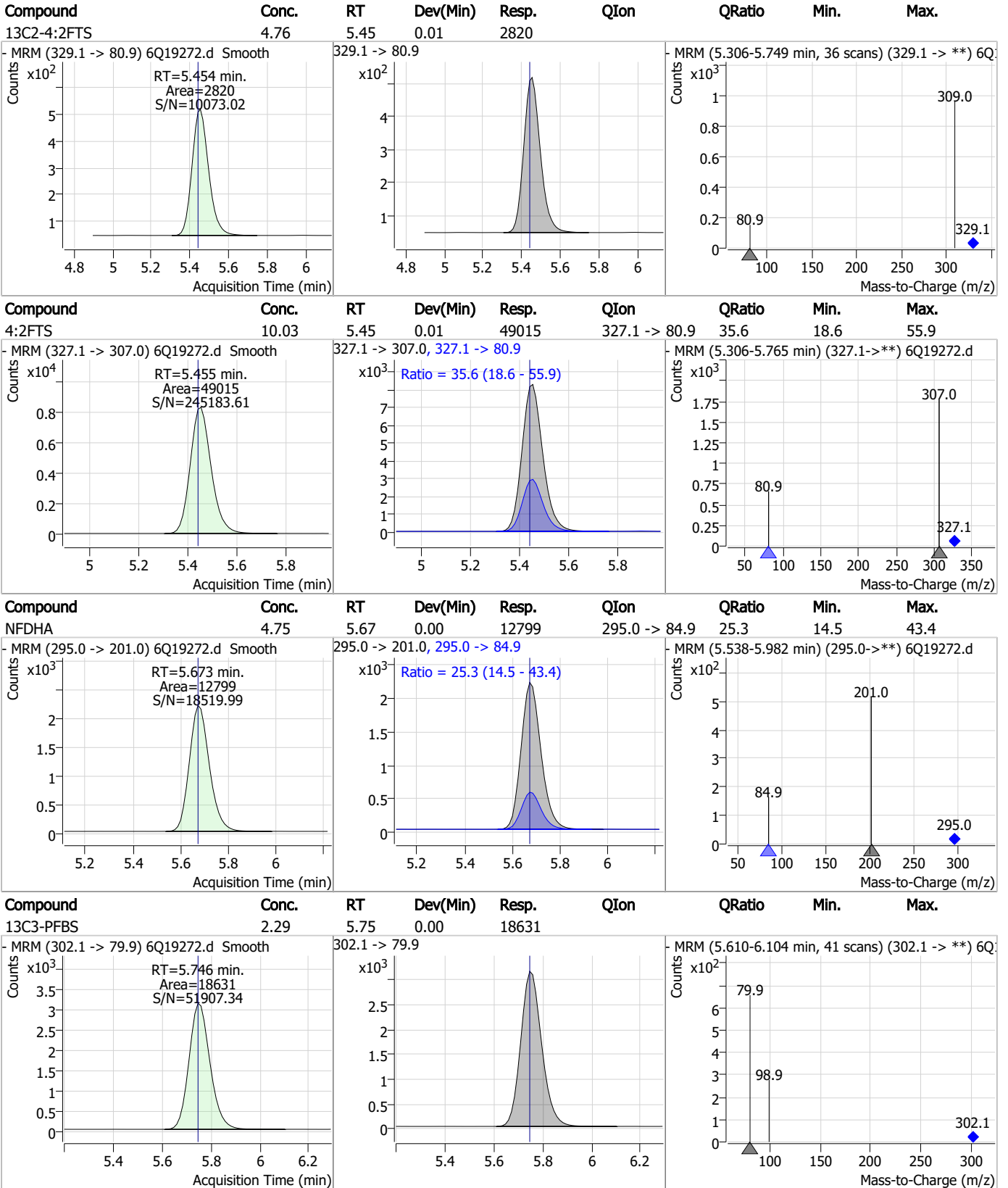
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.90	4.56	0.00	47365				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.72	4.99	0.00	47184				



Perfluorinated Compounds by LC/MS/MS

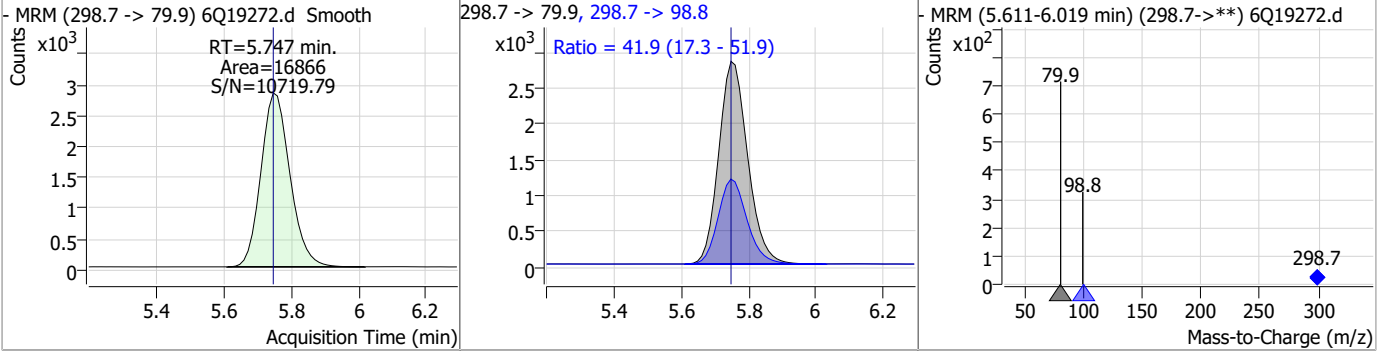


7.7.15 7

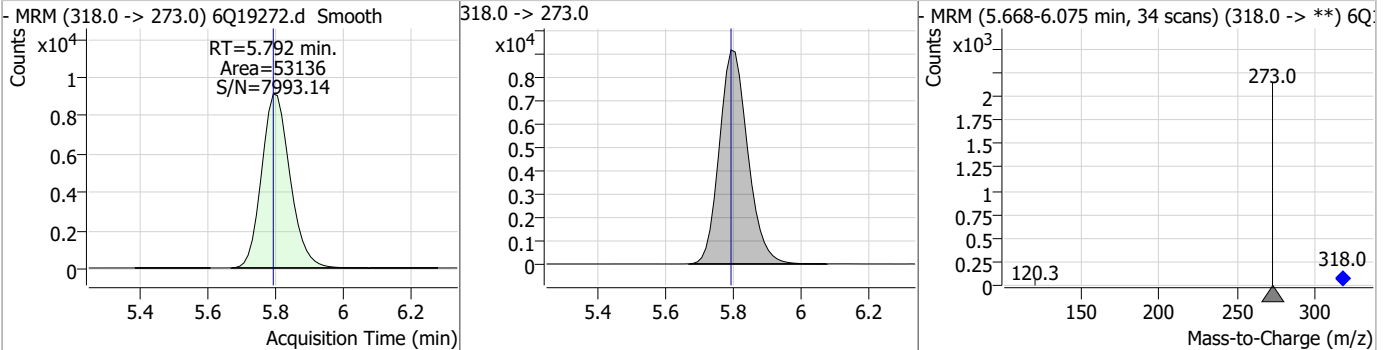


Perfluorinated Compounds by LC/MS/MS

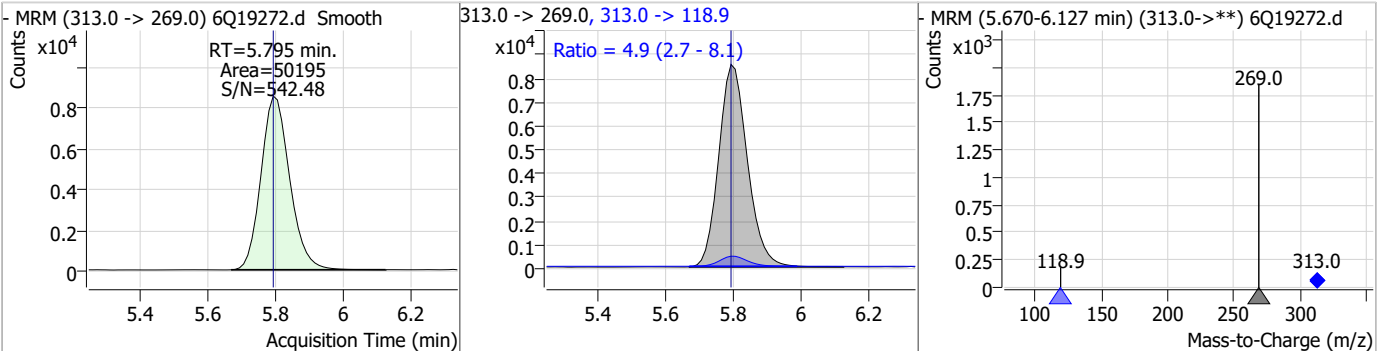
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.06	5.75	0.00	16866	298.7 -> 98.8	41.9	17.3	51.9



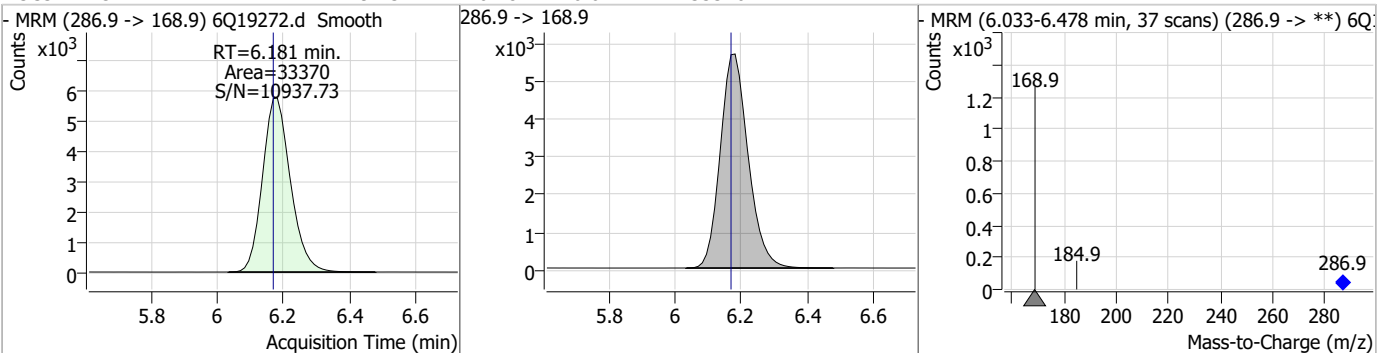
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.79	0.00	53136				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.36	5.79	0.00	50195	313.0 -> 118.9	4.9	2.7	8.1



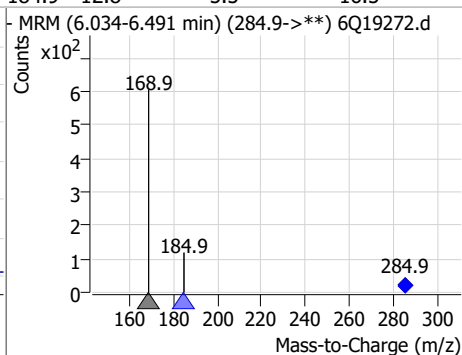
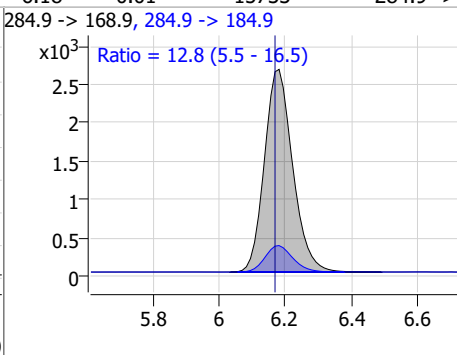
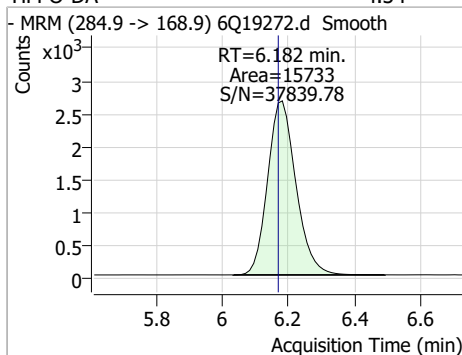
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.73	6.18	0.01	33370				



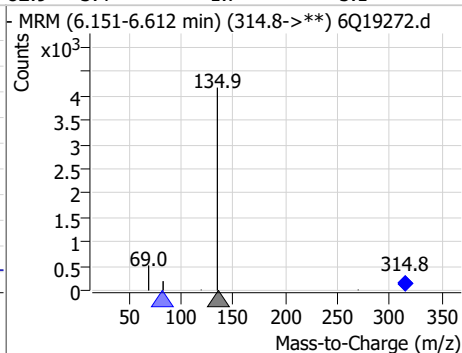
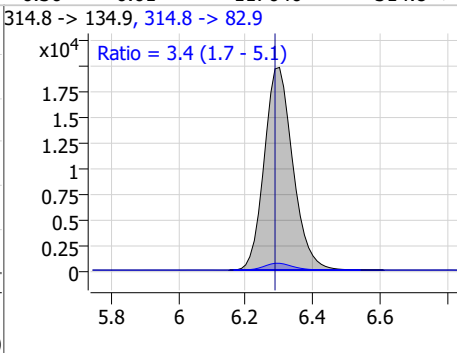
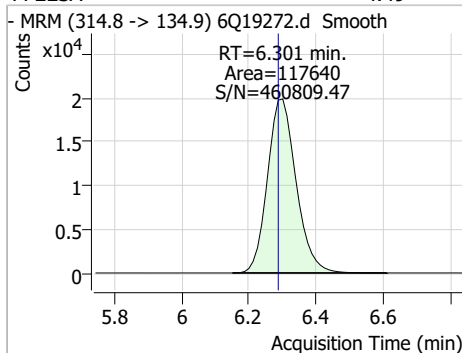
7.7.15
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Perfluorinated Compounds by LC/MS/MS

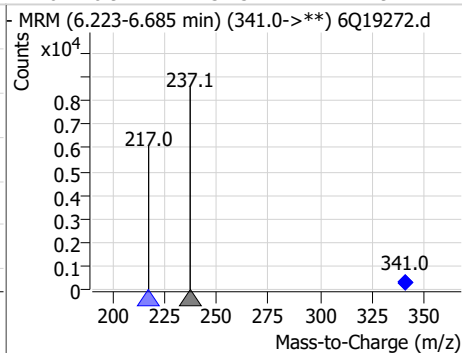
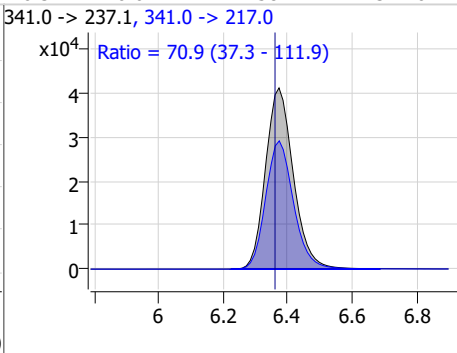
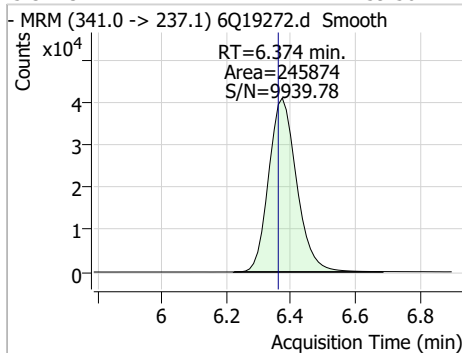
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.34	6.18	0.01	15733	284.9 -> 184.9	12.8	5.5	16.5



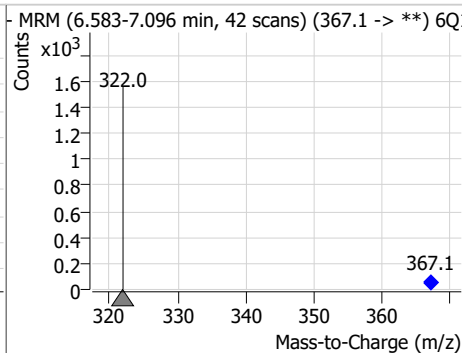
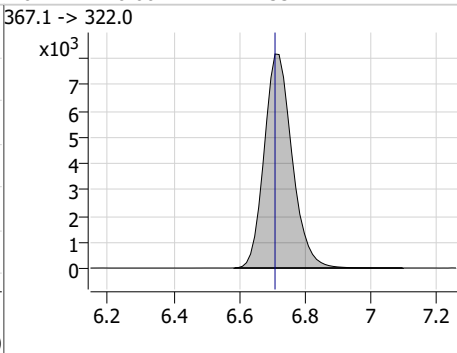
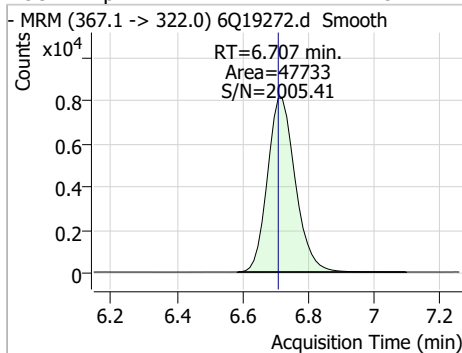
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.49	6.30	0.01	117640	314.8 -> 82.9	3.4	1.7	5.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	59.56	6.37	0.01	245874	341.0 -> 217.0	70.9	37.3	111.9

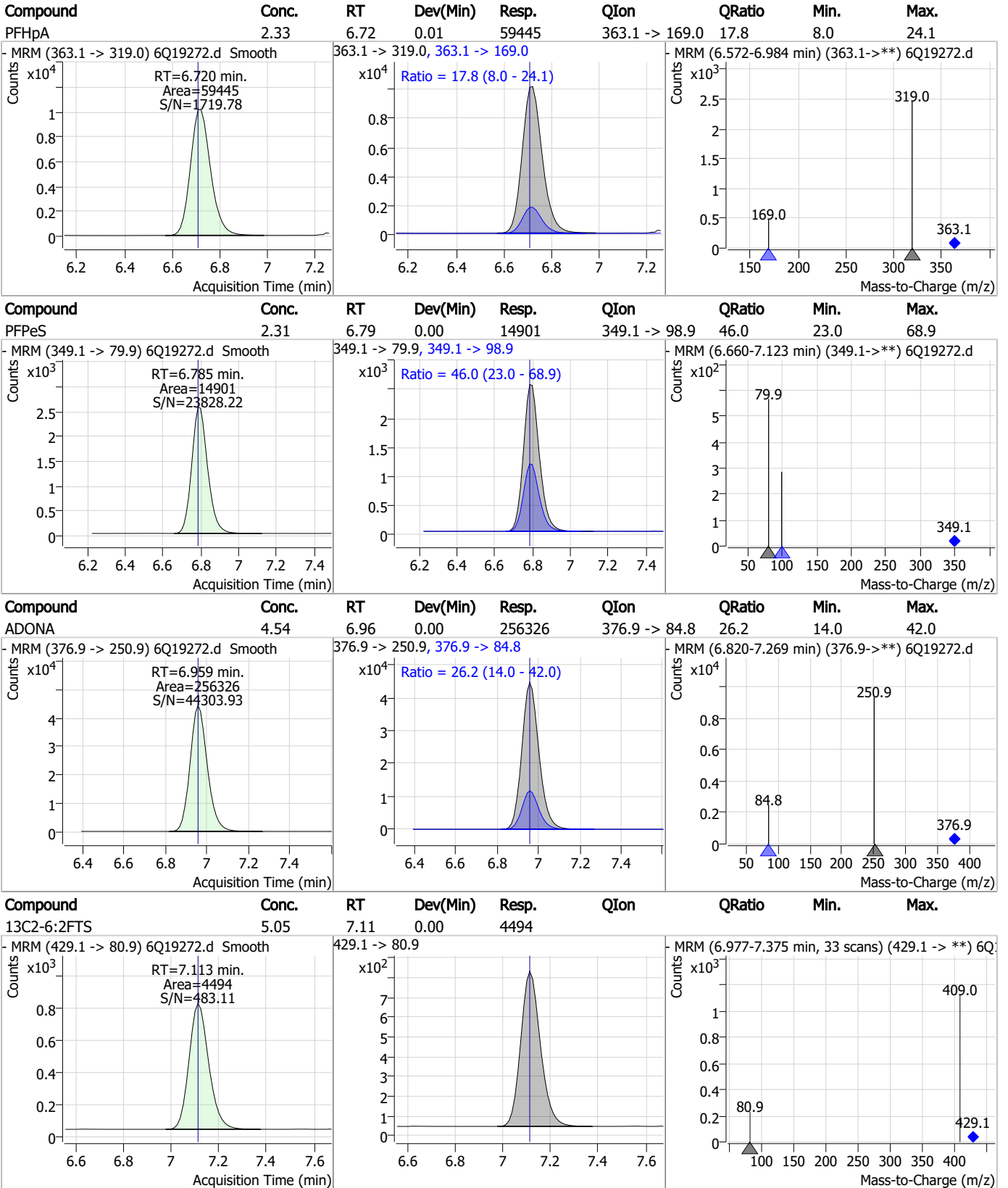


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.37	6.71	0.00	47733	367.1 -> 322.0			



7.7.15
7

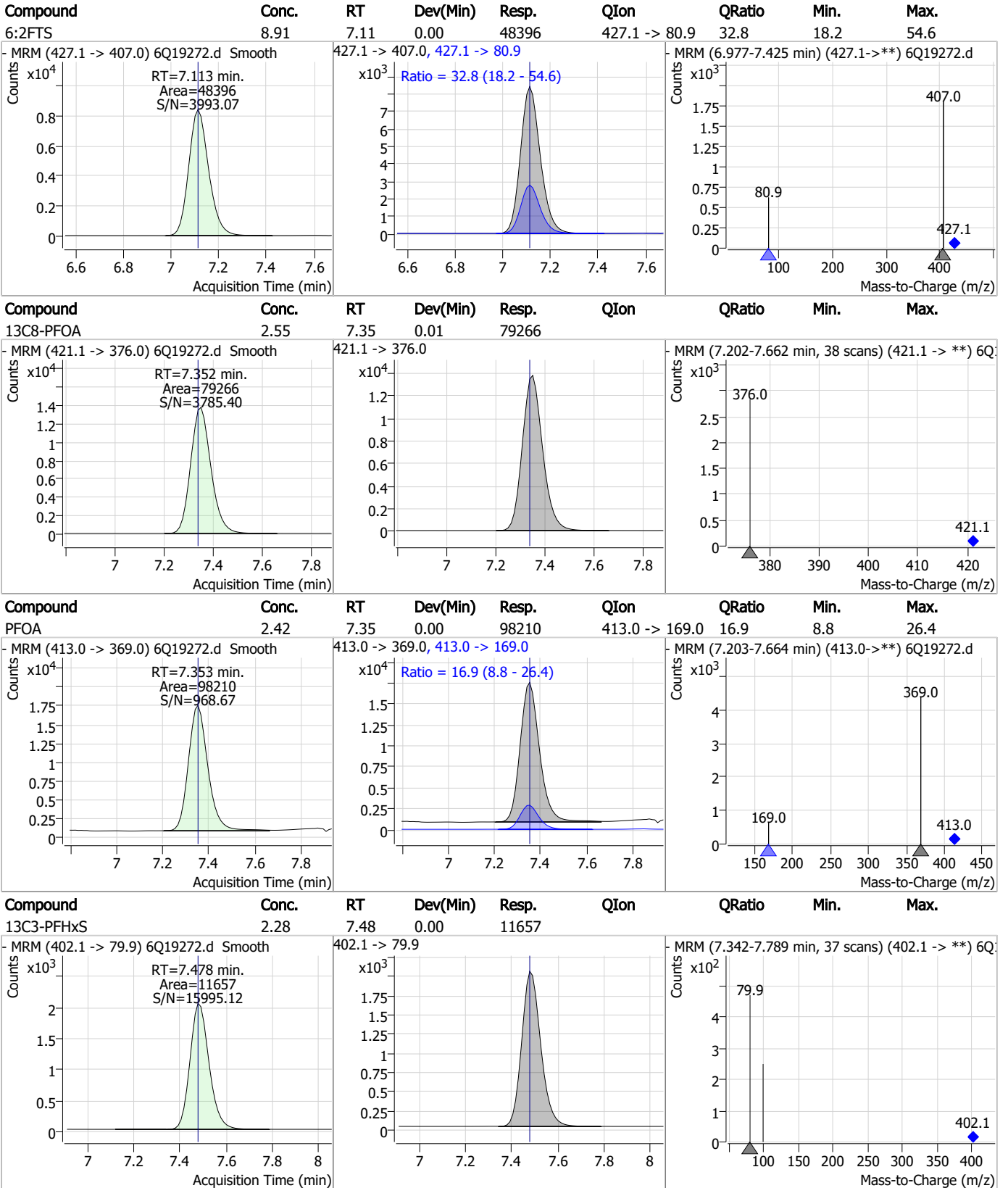
Perfluorinated Compounds by LC/MS/MS



7.7.15 7



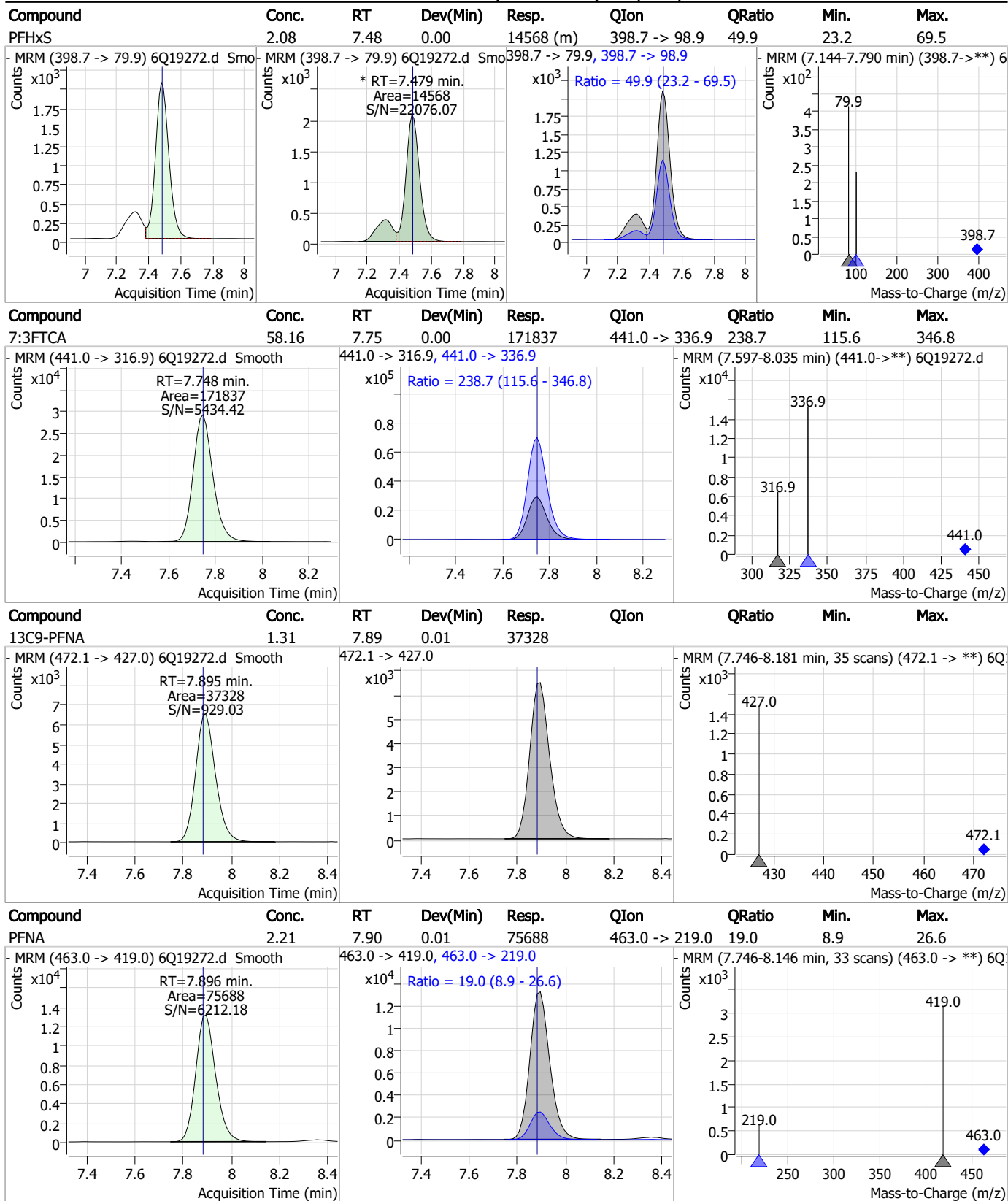
Perfluorinated Compounds by LC/MS/MS



7.7.15
7



Perfluorinated Compounds by LC/MS/MS



7.7.15
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Perfluorinated Compounds by LC/MS/MS

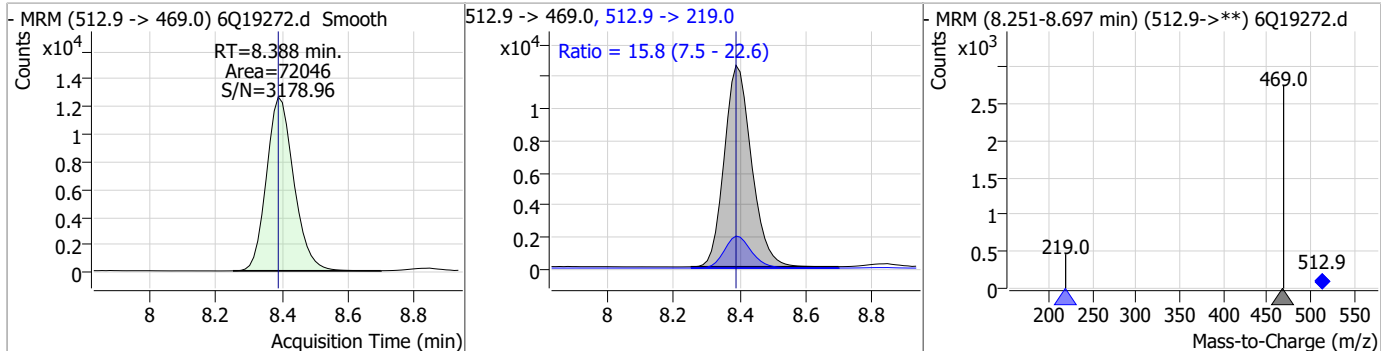
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.19	8.06	0.01	14870	449.0 -> 98.9	47.7	24.5	73.5
13C2-8:2FTS	5.02	8.16	0.00	4287	529.1 -> 80.9			
8:2FTS	9.09	8.16	0.00	25925	527.1 -> 80.8	38.8	19.7	59.1
13C6-PFDA	1.18	8.39	0.00	20215	519.1 -> 474.1			

7.7.15
7

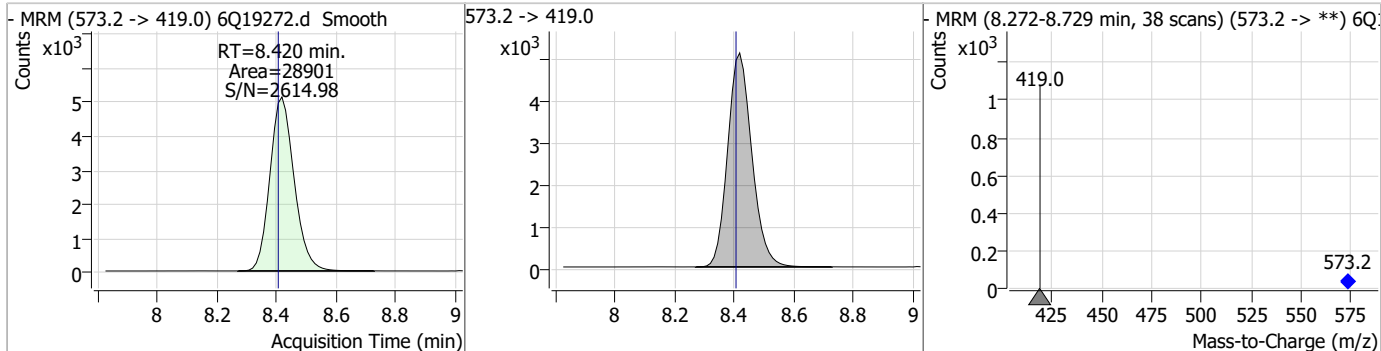


Perfluorinated Compounds by LC/MS/MS

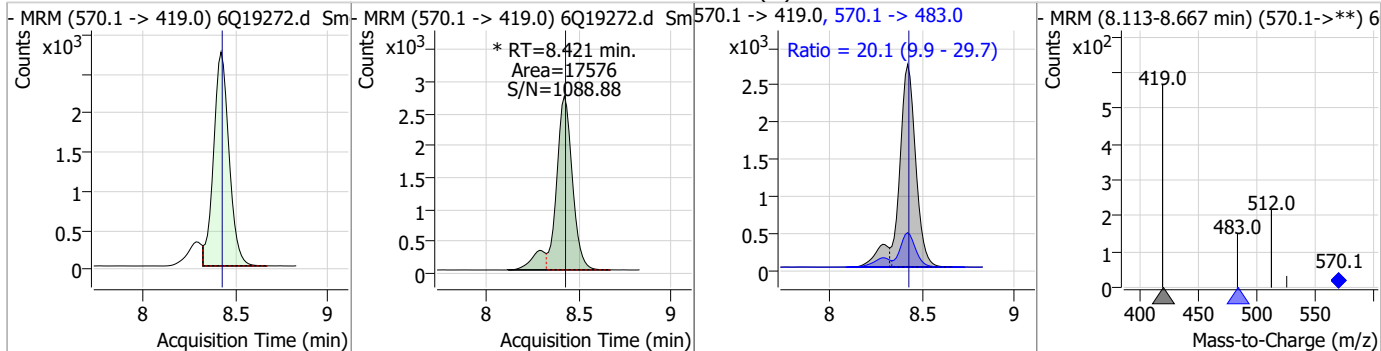
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.38	8.39	0.00	72046	512.9 -> 219.0	15.8	7.5	22.6



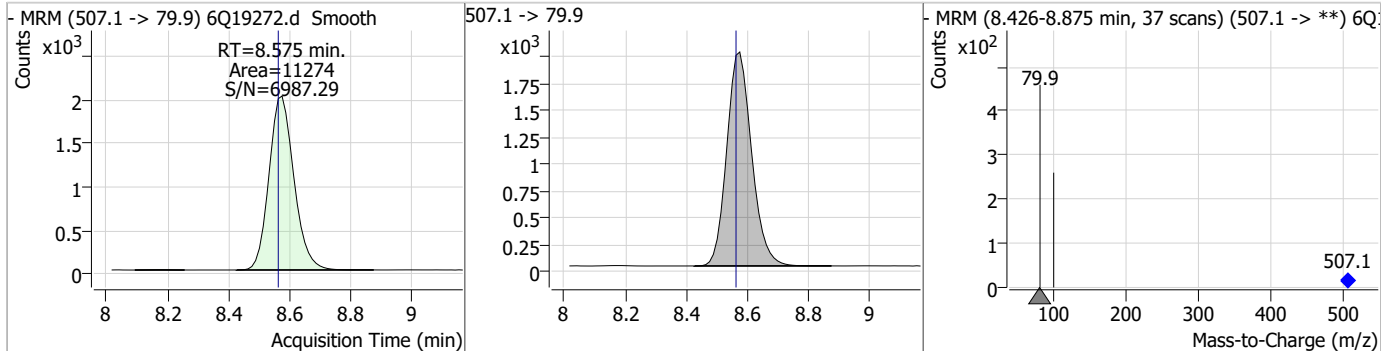
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.98	8.42	0.01	28901				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.50	8.42	0.00	17576 (m)	570.1 -> 483.0	20.1	9.9	29.7



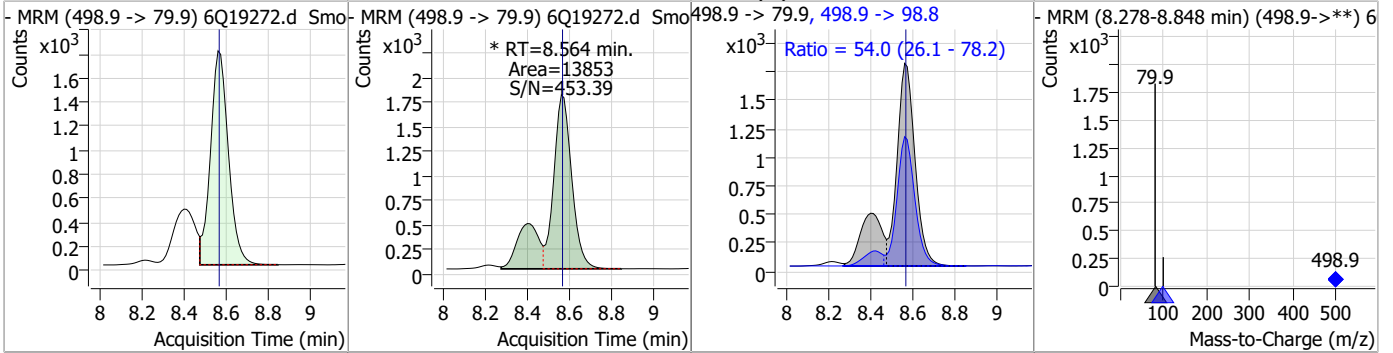
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.49	8.57	0.01	11274				



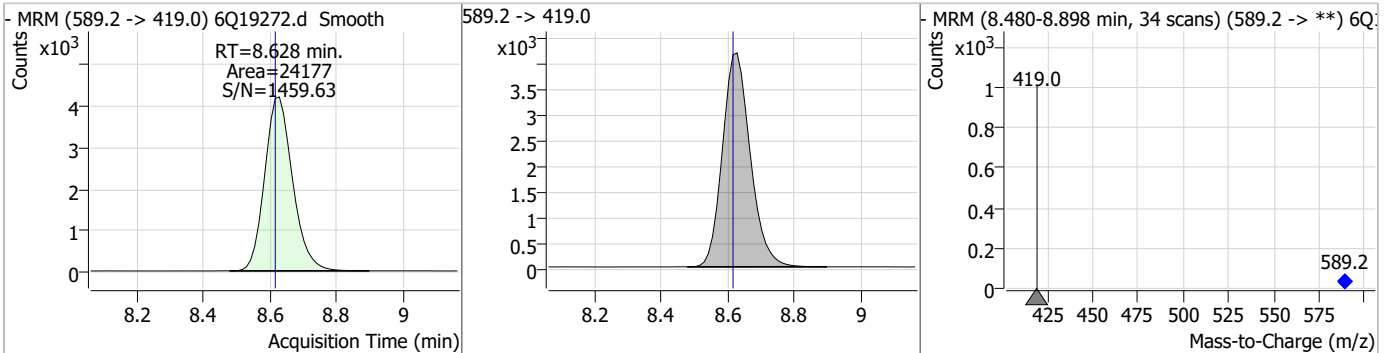
7.7.15
7

Perfluorinated Compounds by LC/MS/MS

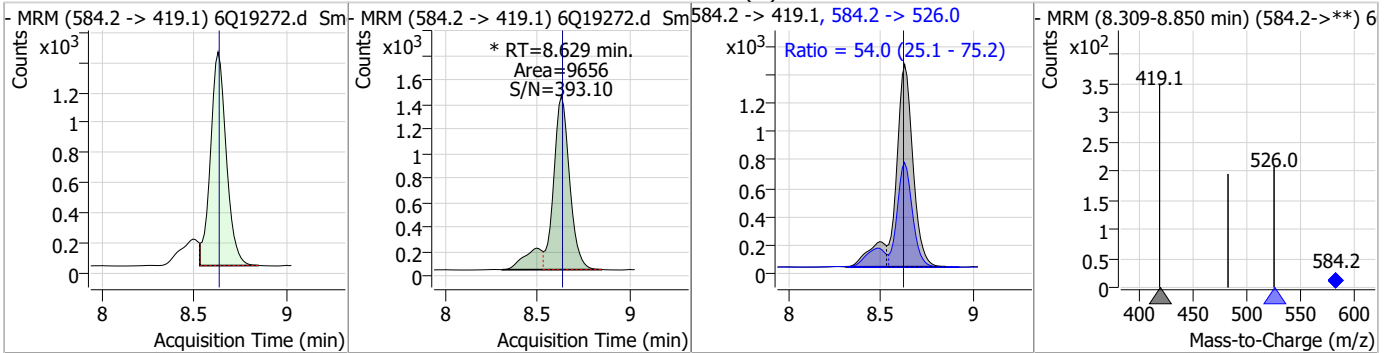
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.09	8.56	0.00	13853 (m)	498.9 -> 98.8	54.0	26.1	78.2



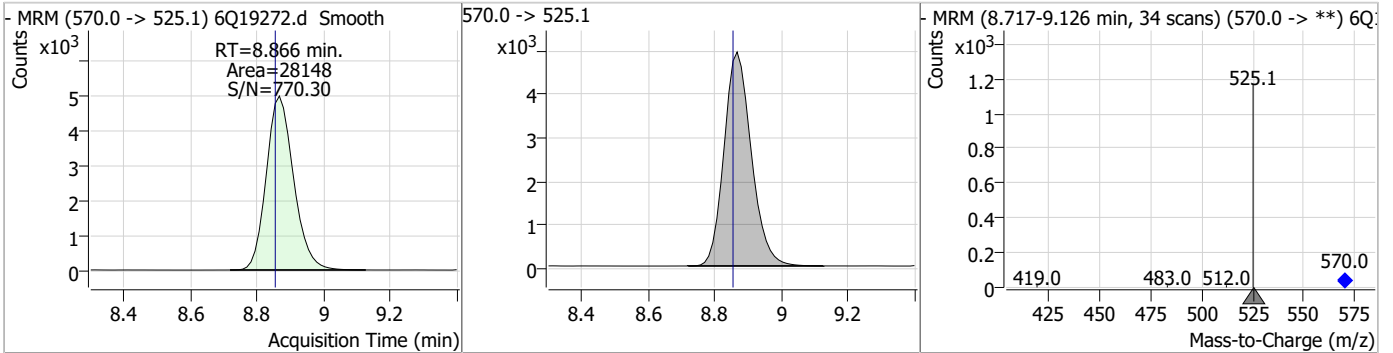
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.94	8.63	0.01	24177				



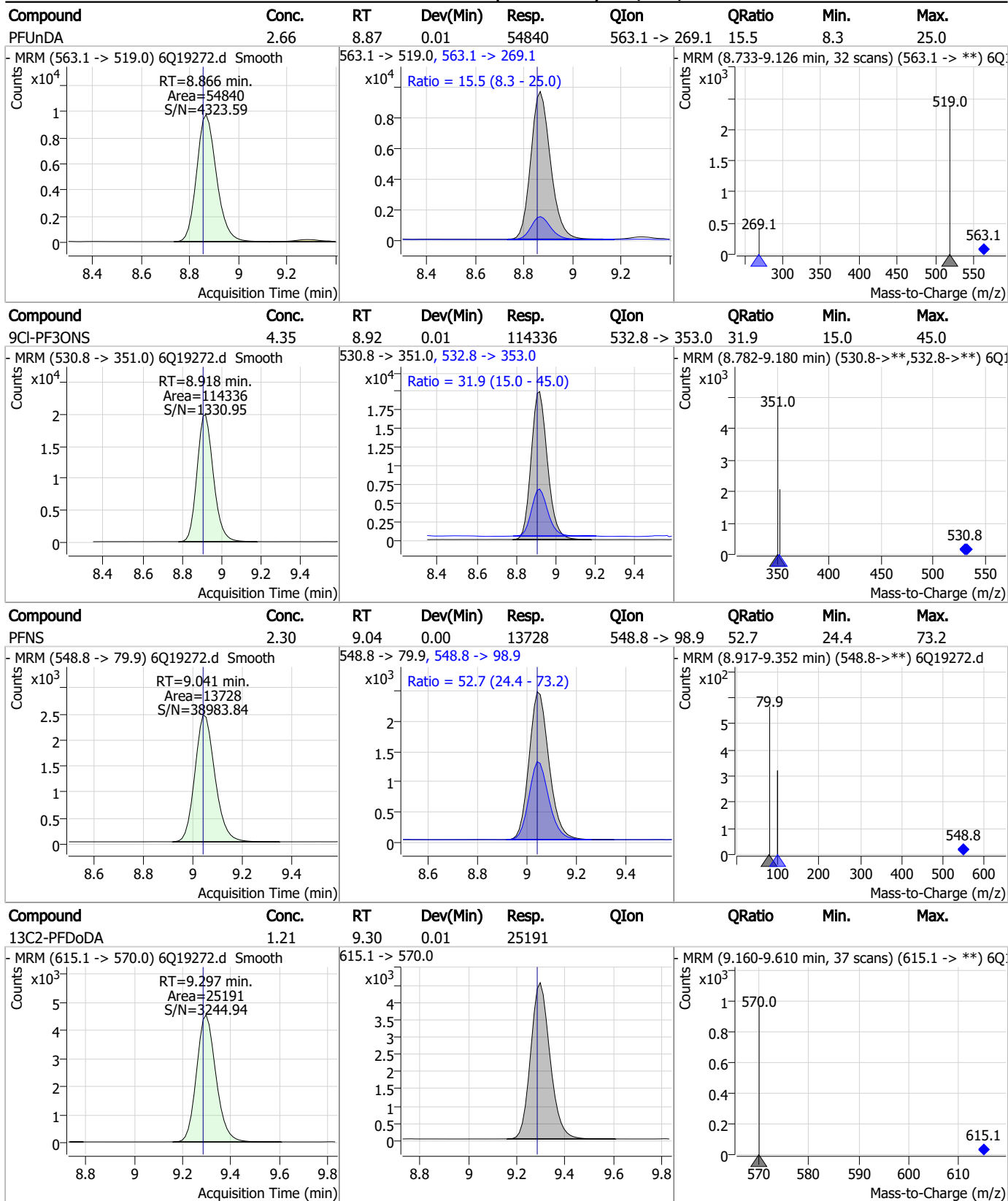
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.41	8.63	0.00	9656 (m)	584.2 -> 526.0	54.0	25.1	75.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.17	8.87	0.01	28148				

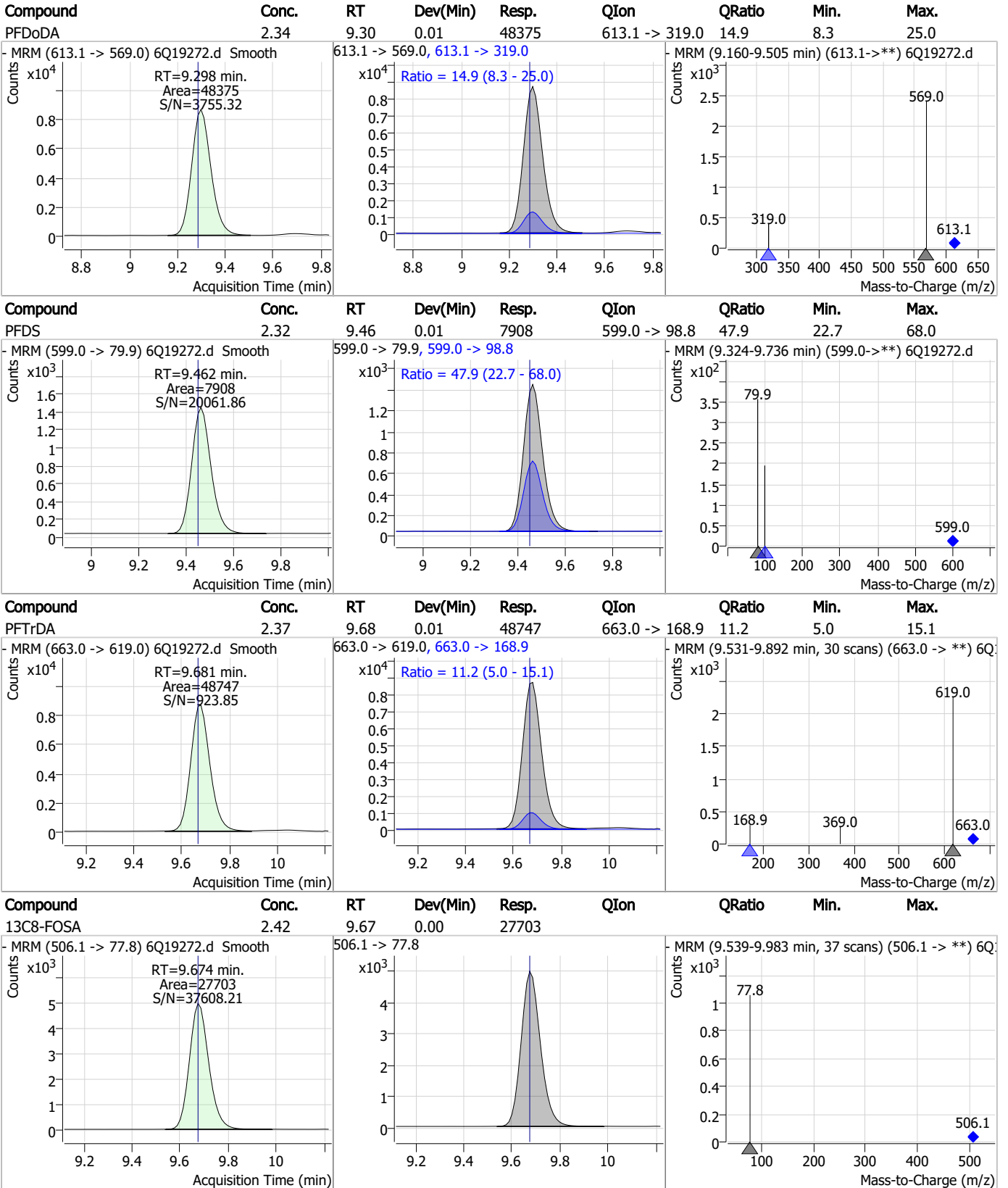


Perfluorinated Compounds by LC/MS/MS



7.7.15 7

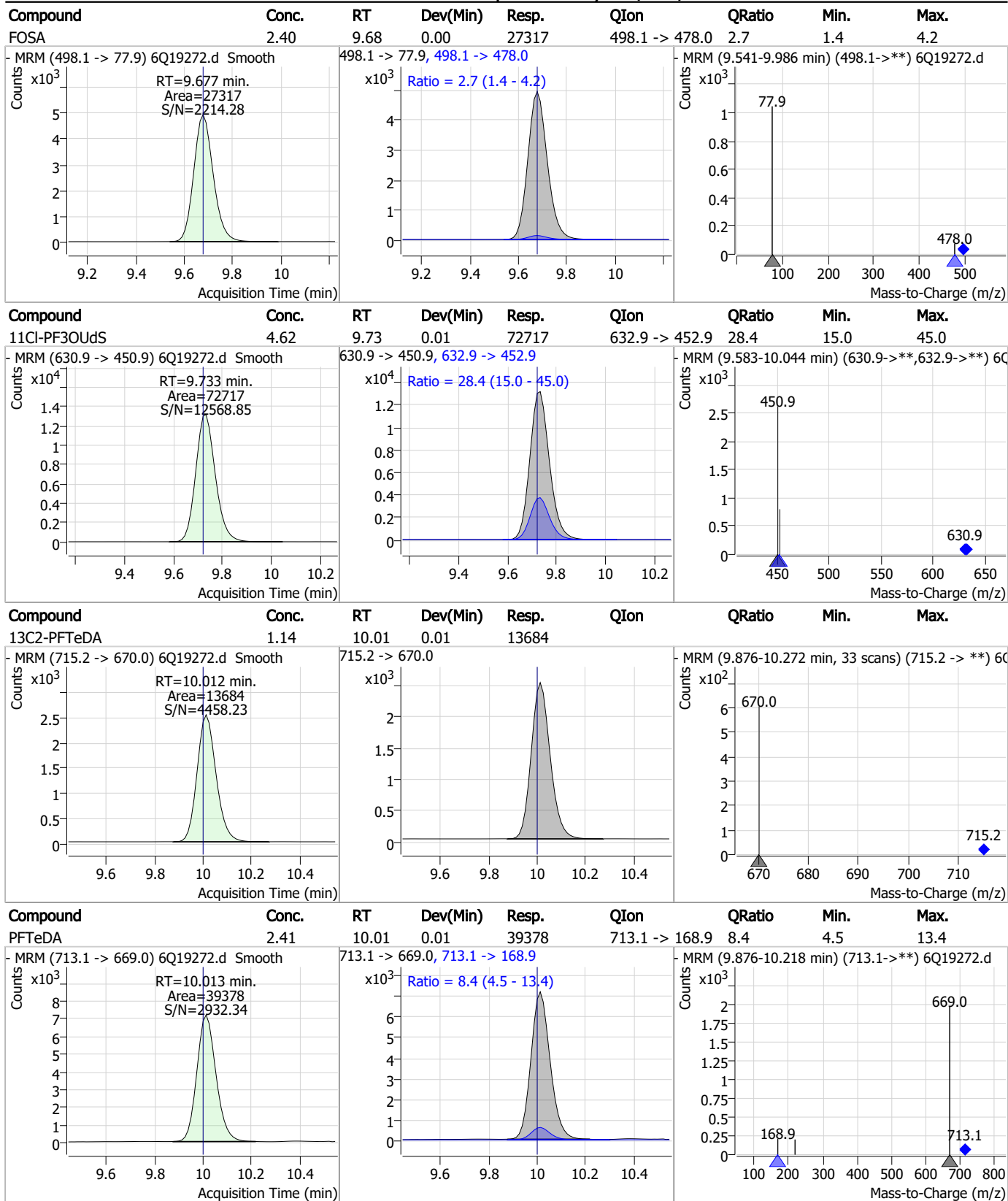
Perfluorinated Compounds by LC/MS/MS



7.7.15 7

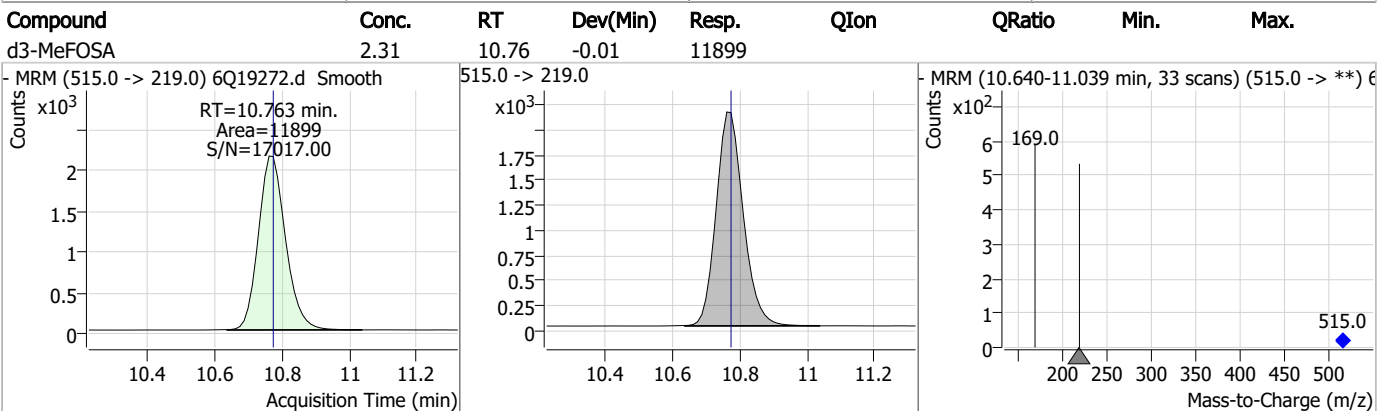
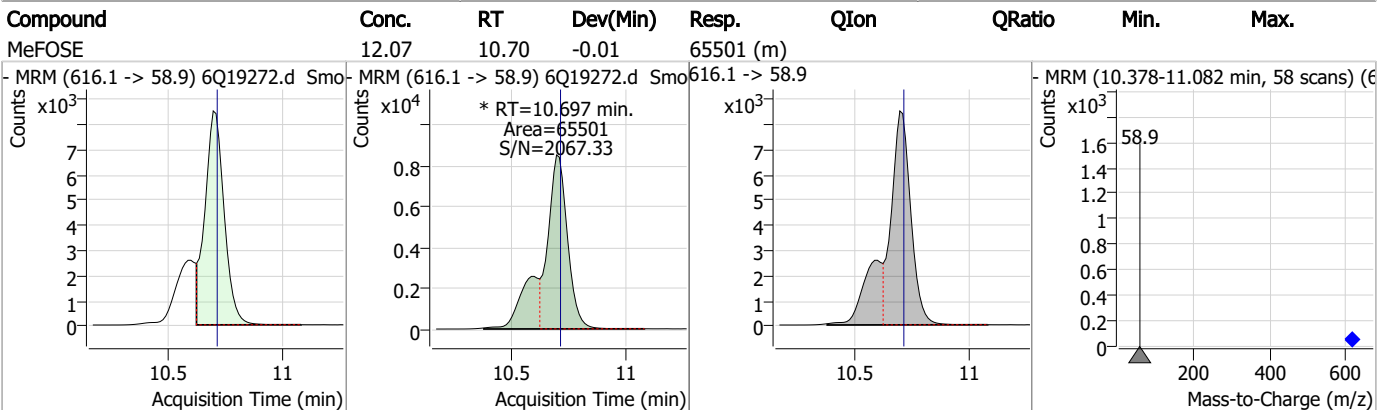
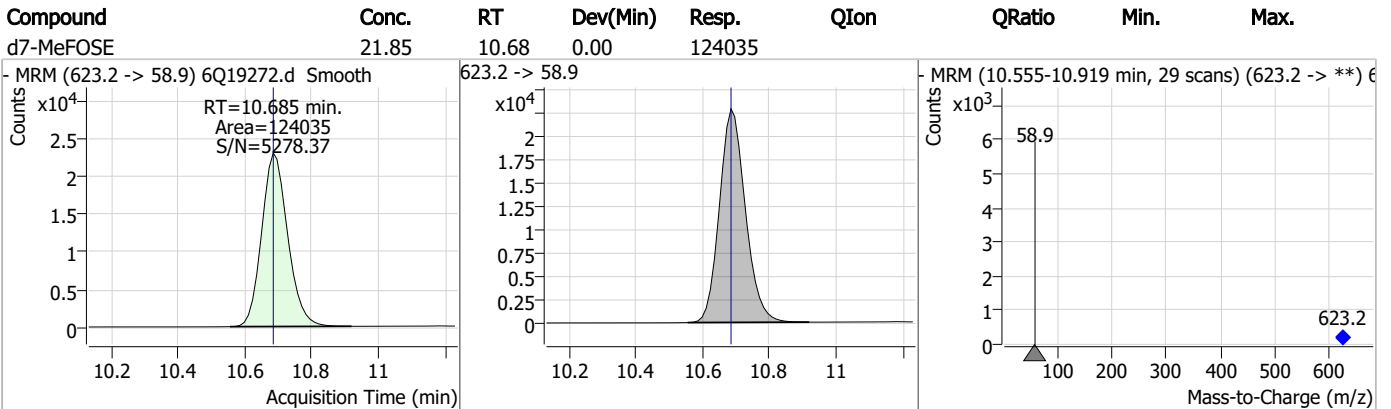
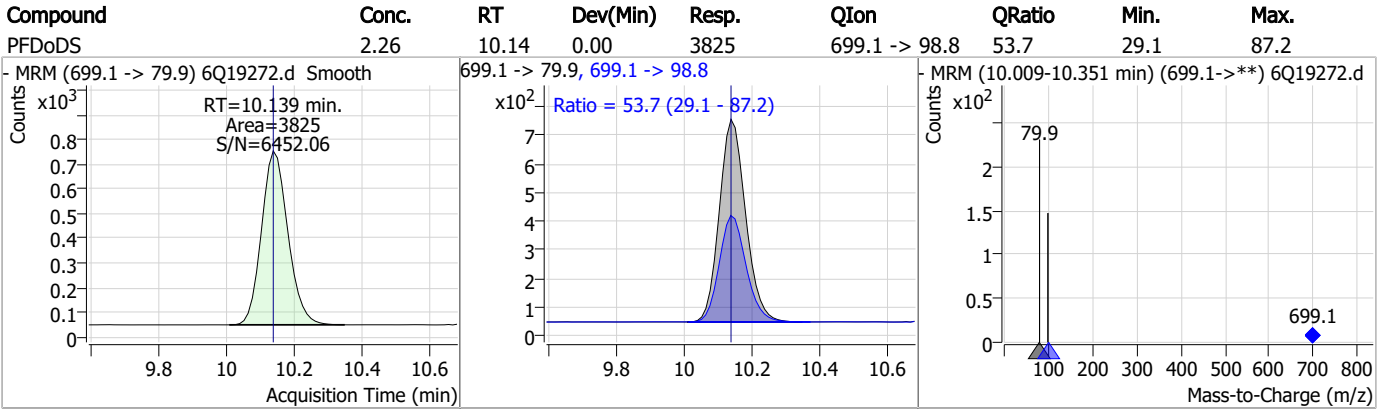


Perfluorinated Compounds by LC/MS/MS



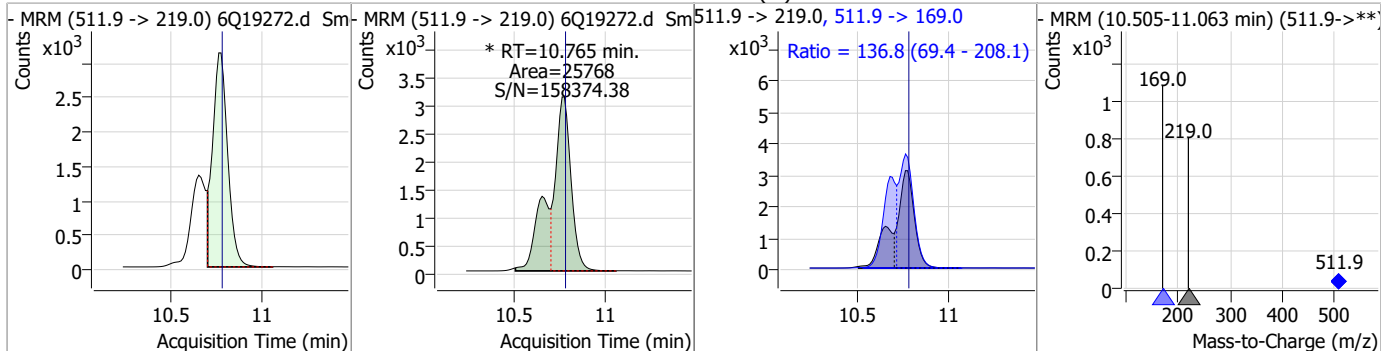
7.7.15

Perfluorinated Compounds by LC/MS/MS

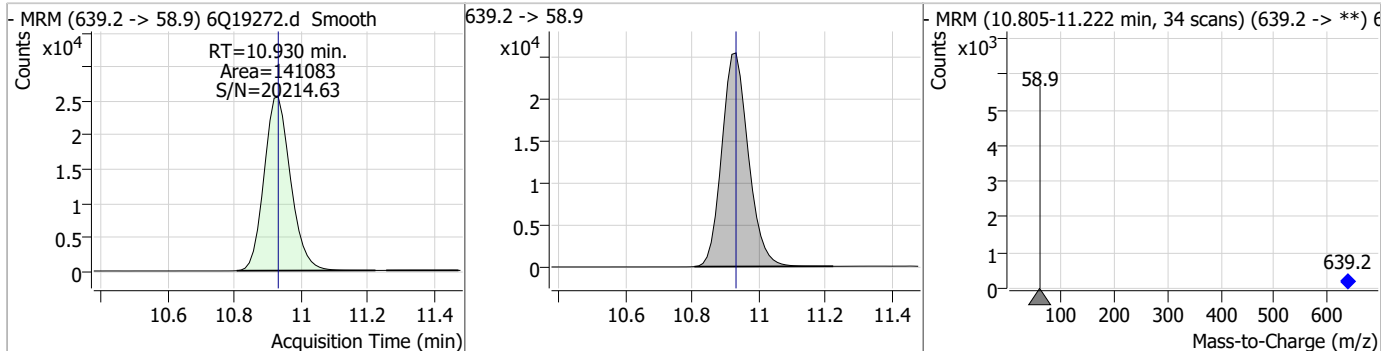


Perfluorinated Compounds by LC/MS/MS

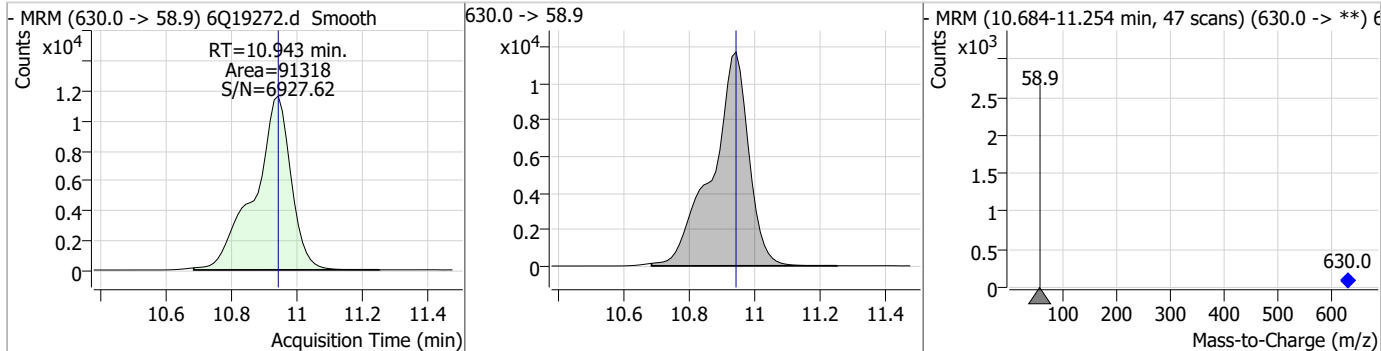
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.94	10.76	-0.01	25768 (m)	511.9 -> 169.0	136.8	69.4	208.1



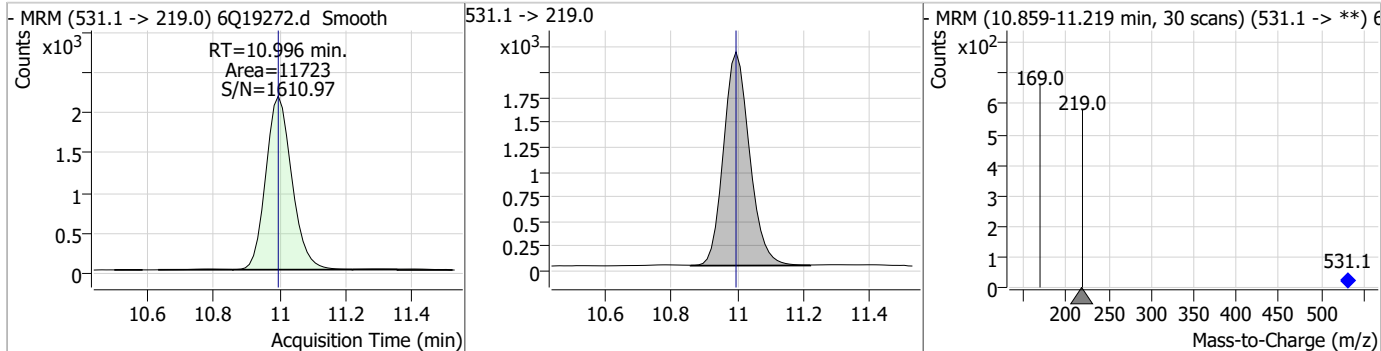
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.89	10.93	0.00	141083				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.26	10.94	0.00	91318				

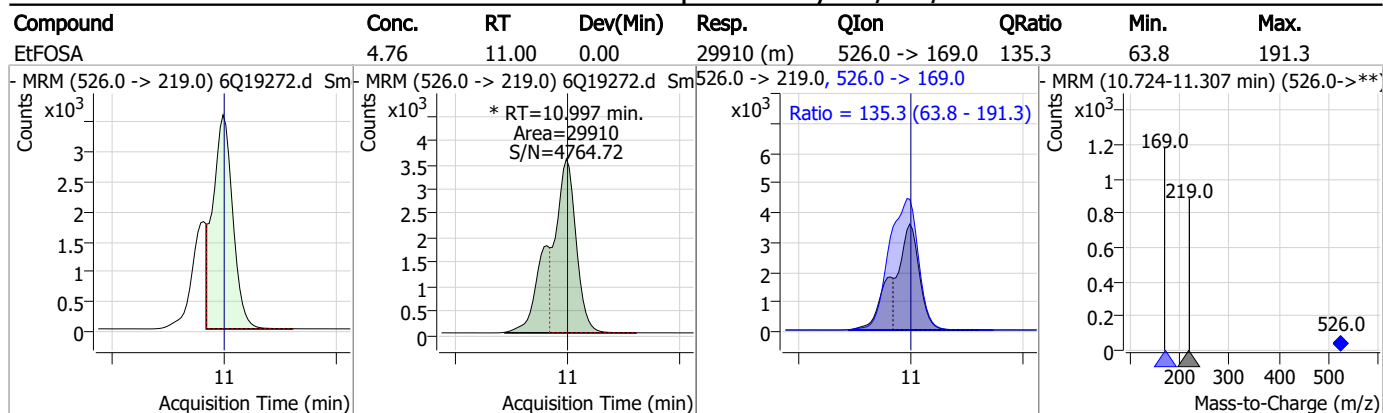


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.35	11.00	0.00	11723				



7.7.15
7

Perfluorinated Compounds by LC/MS/MS



7.7.15

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Manual Integration Approval Summary

Sample Number: S6Q287-CC287 Method: EPA DRAFT 1633
Lab FileID: 6Q19272.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 23:15 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.63	Split peak
MeFOSE	24448-09-7		10.70	Split peak
MeFOSA	31506-32-8		10.77	Split peak
EtFOSA	4151-50-2		11.00	Split peak

7.7.15.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19284.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/13/2023 2:03:39 AM
 Sample Name : cc287-4
 Vial : P1-A5
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	145841	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	48607	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	58016	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	48529	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	83353	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	35151	1.25 µg/L	0.013
M6-PFDA	8.400	519.1 -> 474.1	22552	1.25 µg/L	0.012
M7-PFUnDA	8.866	570.0 -> 525.1	29147	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	23788	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	13414	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	28188	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	19723	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	11297	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	11286	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	2812	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	4638	5.00 µg/L	0.000
M2-8:2FTS	8.175	529.1 -> 80.9	3737	5.00 µg/L	0.012
M3-MeFOSAA	8.420	573.2 -> 419.0	27741	5.00 µg/L	0.012
M3-HFPO-DA	6.181	286.9 -> 168.9	34010	10.00 µg/L	0.012
M5-EtFOSAA	8.628	589.2 -> 419.0	24209	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	127284	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	147527	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	12432	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	11549	2.50 µg/L	0.000
13C4-PFOS	8.576	502.8 -> 79.9	15818	2.50 µg/L	0.012
13C3-PFBA	3.089	216.0 -> 172.0	62519	5.00 µg/L	0.000
18O2-PFHxS	7.490	403.0 -> 83.9	9143	2.50 µg/L	0.012
13C4-PFOA	7.352	417.1 -> 372.0	83736	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	28601	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	45270	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	49285	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	2812	4.99 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4638	5.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.6%		
13C2-8:2FTS	8.175	529.1 -> 80.9	3737	4.61 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.2%		
13C2-PFDoDA	9.297	615.1 -> 570.0	23788	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C2-PFTeDA	10.012	715.2 -> 670.0	13414	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C3-PFBS	5.746	302.1 -> 79.9	19723	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C3-PFHxS	7.478	402.1 -> 79.9	11297	2.33 µg/L	0.000

7.7.16
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 = 93.1%	
13C4-PFBA	3.097	216.8 -> 171.9	145841	9.94 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C4-PFHpA	6.707	367.1 -> 322.0	48529	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C5-PFHxA	5.792	318.0 -> 273.0	58016	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C5-PFPeA	4.560	268.3 -> 223.0	48607	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C6-PFDA	8.400	519.1 -> 474.1	22552	1.43 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.3%	
13C7-PFUnDA	8.866	570.0 -> 525.1	29147	1.31 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C8-FOSA	9.674	506.1 -> 77.8	28188	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C8-PFOA	7.352	421.1 -> 376.0	83353	2.67 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C8-PFOS	8.575	507.1 -> 79.9	11286	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C9-PFNA	7.895	472.1 -> 427.0	35151	1.27 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.8%	
d3-MeFOSAA	8.420	573.2 -> 419.0	27741	4.67 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C3-HFPO-DA	6.181	286.9 -> 168.9	34010	10.07 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
d3-MeFOSA	10.775	515.0 -> 219.0	11549	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.9%	
d5-EtFOSAA	8.628	589.2 -> 419.0	24209	4.84 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
d7-MeFOSE	10.685	623.2 -> 58.9	127284	21.93 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.7%	
d9-EtFOSE	10.930	639.2 -> 58.9	147527	20.35 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.4%	
d5-EtFOSA	10.996	531.1 -> 219.0	12432	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
Target Compounds					QValue
4:2FTS	5.455	327.1 -> 307.0	47222	9.69 µg/L	99
		327.1 -> 80.9	17239		
6:2FTS	7.113	427.1 -> 407.0	49196	8.78 µg/L	92
		427.1 -> 80.9	15603		
8:2FTS	8.176	527.1 -> 507.0	26427	10.63 µg/L	97
		527.1 -> 80.8	9863		
EtFOSAA	8.629	584.2 -> 419.1	10157	2.53 µg/L	m 95
		584.2 -> 526.0	4774		
FOSA	9.677	498.1 -> 77.9	25053	2.17 µg/L	98
		498.1 -> 478.0	906		
MeFOSAA	8.421	570.1 -> 419.0	18603	2.76 µg/L	m 100
		570.1 -> 483.0	3682		
PFBA	3.093	212.8 -> 168.9	56262	9.67 µg/L	100
PFBS	5.747	298.7 -> 79.9	18290	2.11 µg/L	96
		298.7 -> 98.8	6728		
PFDA	8.400	512.9 -> 469.0	72191	2.14 µg/L	99
		512.9 -> 219.0	11006		
PFDoDA	9.298	613.1 -> 569.0	49780	2.55 µg/L	98
		613.1 -> 319.0	7907		
PFDS	9.462	599.0 -> 79.9	8276	2.43 µg/L	97

7.7.16
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3607			
PFHpA	6.708	363.1 -> 319.0	64959	2.50	µg/L	96
		363.1 -> 169.0	9284			
PFHpS	8.059	449.0 -> 79.9	14883	2.19	µg/L	97
		449.0 -> 98.9	7551			
PFHxA	5.795	313.0 -> 269.0	49069	2.11	µg/L	99
		313.0 -> 118.9	2542			
PFHxS	7.479	398.7 -> 79.9	15121	2.23	µg/L	m 95
		398.7 -> 98.9	7465			
PFNA	7.896	463.0 -> 419.0	78224	2.43	µg/L	100
		463.0 -> 219.0	13892			
PFNS	9.053	548.8 -> 79.9	12948	2.17	µg/L	86
		548.8 -> 98.9	7553			
PFOA	7.353	413.0 -> 369.0	98468	2.30	µg/L	99
		413.0 -> 169.0	16854			
PFOS	8.576	498.9 -> 79.9	14078	2.12	µg/L	m 97
		498.9 -> 98.8	7085			
PFPeA	4.563	263.0 -> 219.0	67306	4.71	µg/L	100
PFPeS	6.785	349.1 -> 79.9	15353	2.46	µg/L	97
		349.1 -> 98.9	6773			
PFTeDA	10.013	713.1 -> 669.0	41995	2.62	µg/L	99
		713.1 -> 168.9	3555			
PFTrDA	9.681	663.0 -> 619.0	48796	2.51	µg/L	96
		663.0 -> 168.9	5566			
PFUnDA	8.866	563.1 -> 519.0	56804	2.66	µg/L	99
		563.1 -> 269.1	9112			
11CI-PF3OUdS	9.733	630.9 -> 450.9	69422	4.33	µg/L	98
		632.9 -> 452.9	21521			
9CI-PF3ONS	8.918	530.8 -> 351.0	116206	4.34	µg/L	99
		532.8 -> 353.0	34186			
ADONA	6.959	376.9 -> 250.9	242498	4.21	µg/L	98
		376.9 -> 84.8	69941			
HFPO-DA	6.182	284.9 -> 168.9	17790	4.82	µg/L	99
		284.9 -> 184.9	2023			
3:3FTCA	3.958	241.0 -> 177.0	11283	11.54	µg/L	99
		241.0 -> 117.0	1473			
5:3FTCA	6.374	341.0 -> 237.1	248058	55.03	µg/L	97
		341.0 -> 217.0	179737			
7:3FTCA	7.748	441.0 -> 316.9	173509	53.79	µg/L	96
		441.0 -> 336.9	390497			
EtFOSA	10.997	526.0 -> 219.0	30615	4.60	µg/L	97
		526.0 -> 169.0	40099			
EtFOSE	10.943	630.0 -> 58.9	87023	11.17	µg/L	100
MeFOSA	10.777	511.9 -> 219.0	25697	5.08	µg/L	m 95
		511.9 -> 169.0	37140			
MeFOSE	10.709	616.1 -> 58.9	63327	11.37	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	3832	2.26	µg/L	97
		699.1 -> 98.8	2129			
NFDHA	5.673	295.0 -> 201.0	12106	4.11	µg/L	96
		295.0 -> 84.9	3231			
PFMBA	4.988	279.0 -> 85.1	47676	4.65	µg/L	100
PFMPA	3.667	229.0 -> 84.9	37593	4.72	µg/L	100
PFEESA	6.301	314.8 -> 134.9	121664	4.25	µg/L	99
		314.8 -> 82.9	4487			

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



7.7.16
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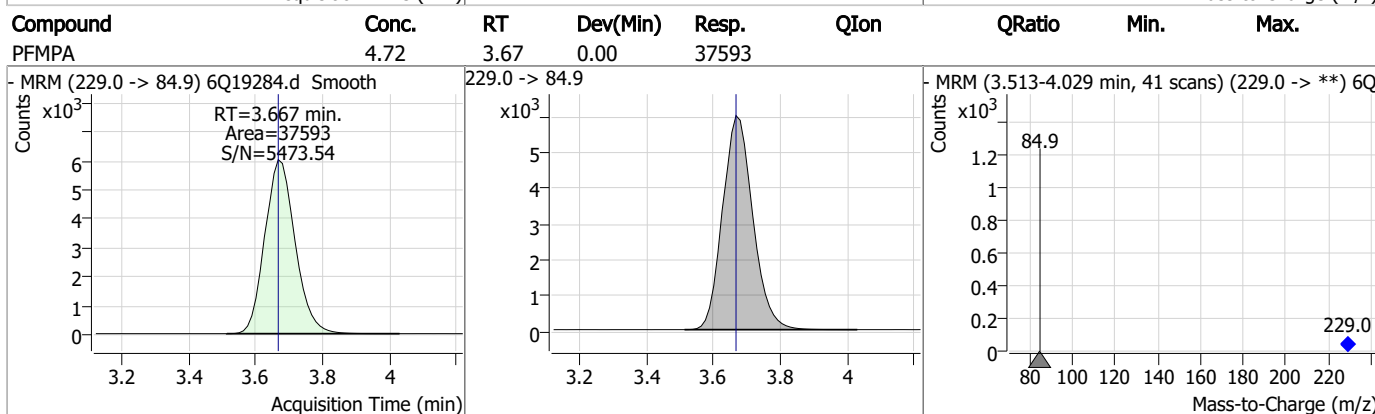
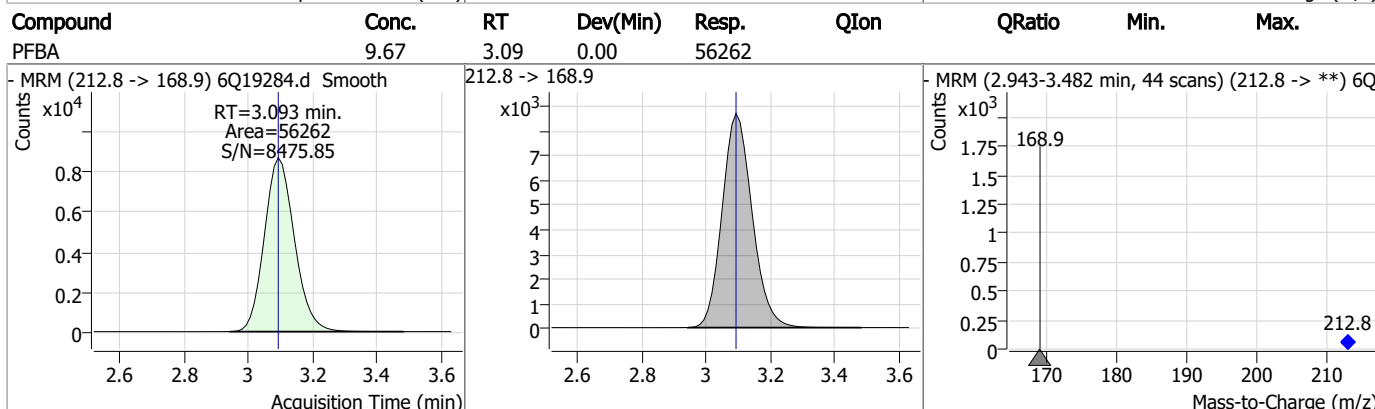
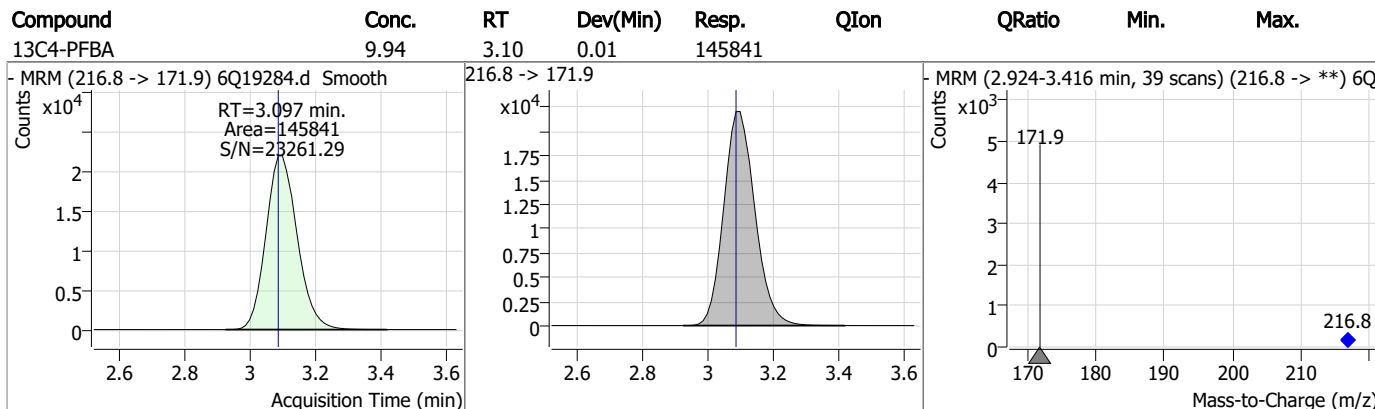
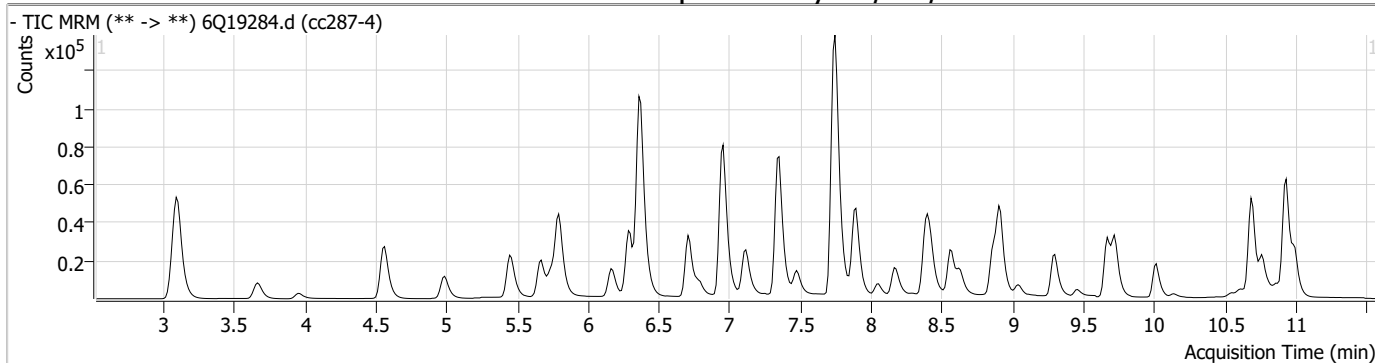
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.16

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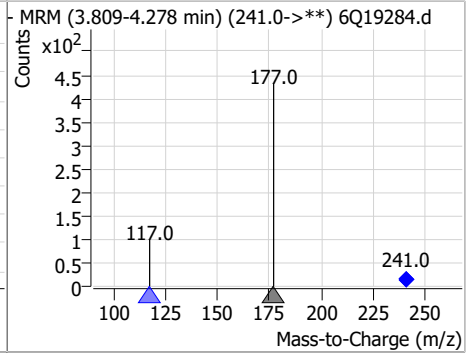
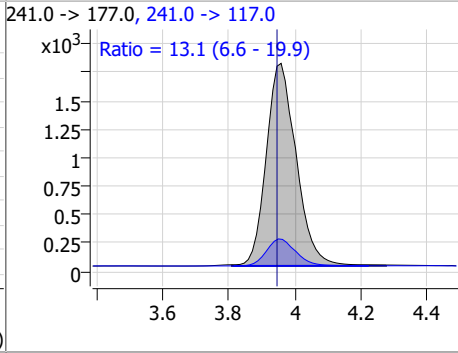
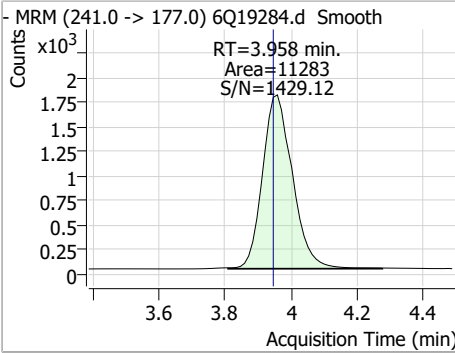
Perfluorinated Compounds by LC/MS/MS



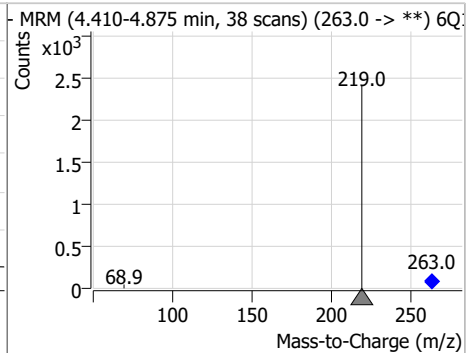
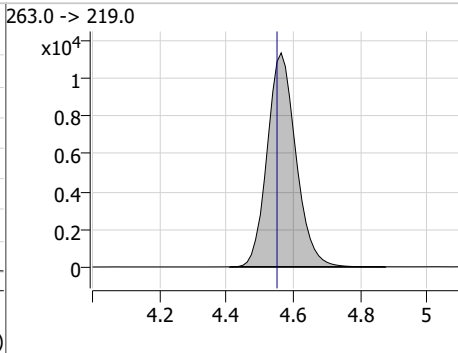
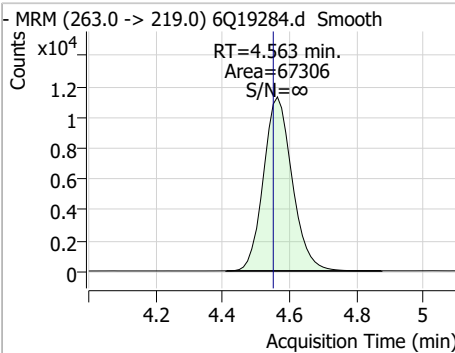
7.7.16
7

Perfluorinated Compounds by LC/MS/MS

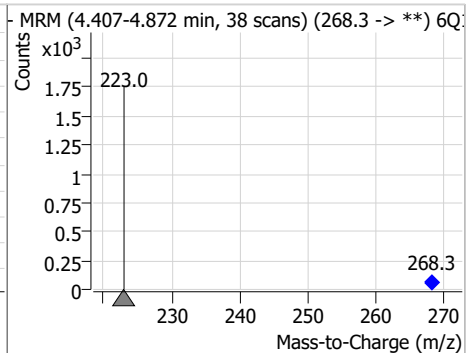
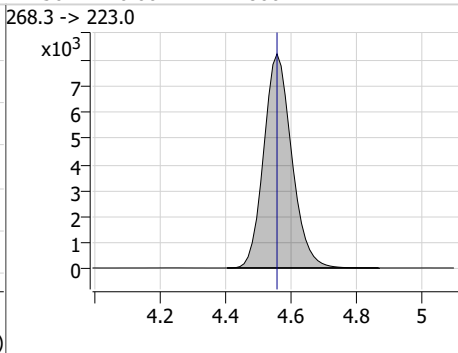
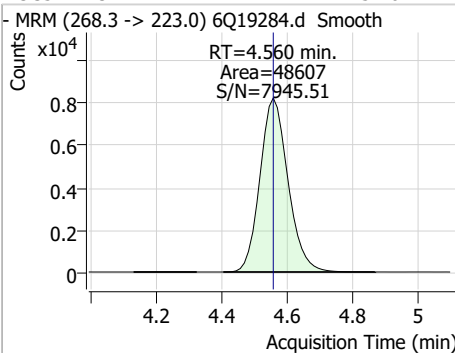
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.54	3.96	0.01	11283	241.0 -> 117.0	13.1	6.6	19.9



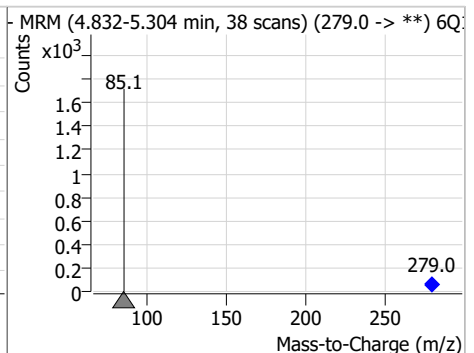
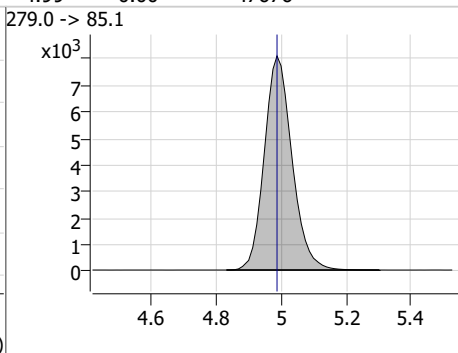
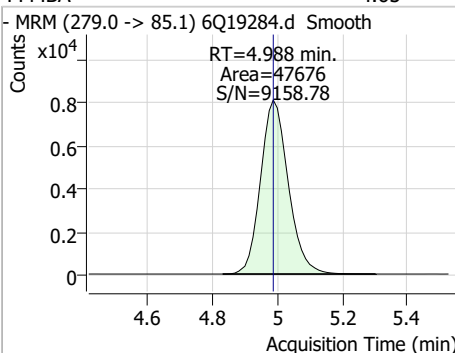
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.71	4.56	0.01	67306				



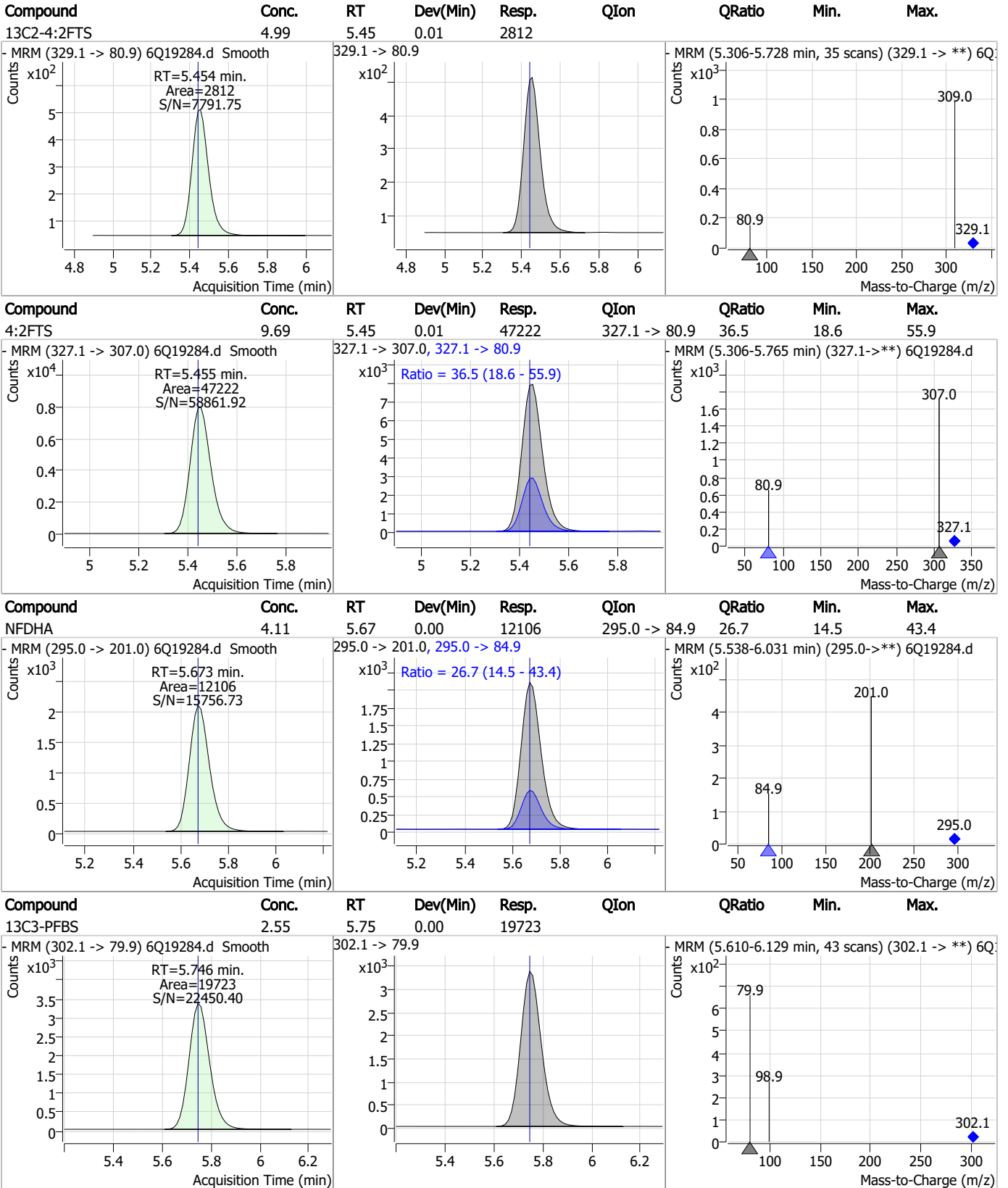
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.10	4.56	0.00	48607				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.65	4.99	0.00	47676				



Perfluorinated Compounds by LC/MS/MS

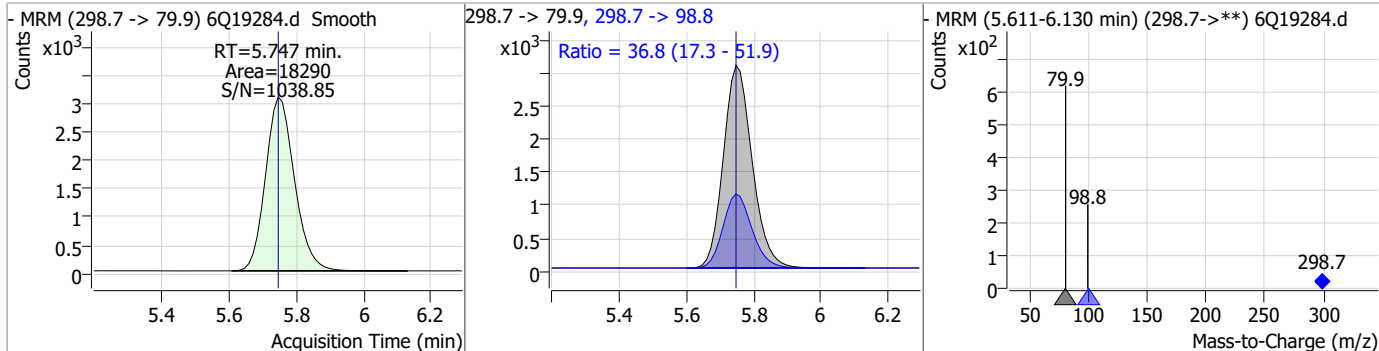


7.7.16 7

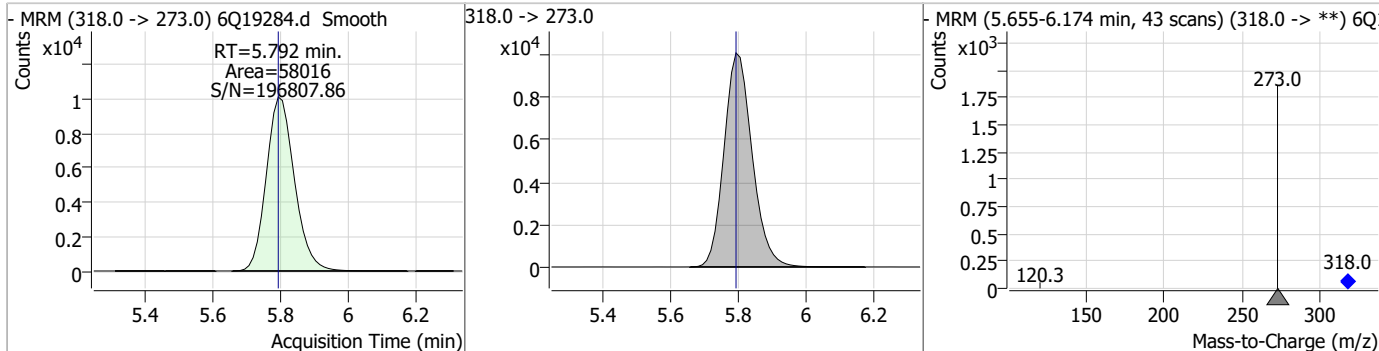


Perfluorinated Compounds by LC/MS/MS

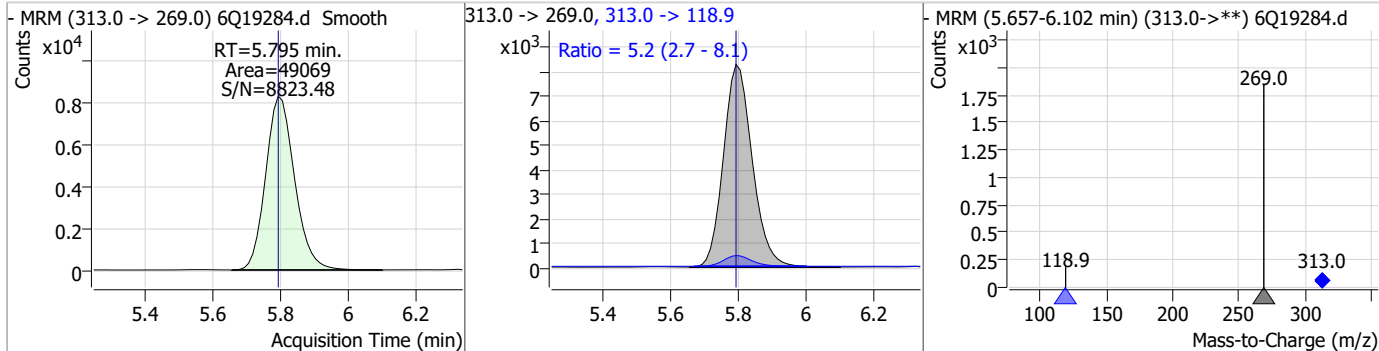
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.11	5.75	0.00	18290	298.7 -> 98.8	36.8	17.3	51.9



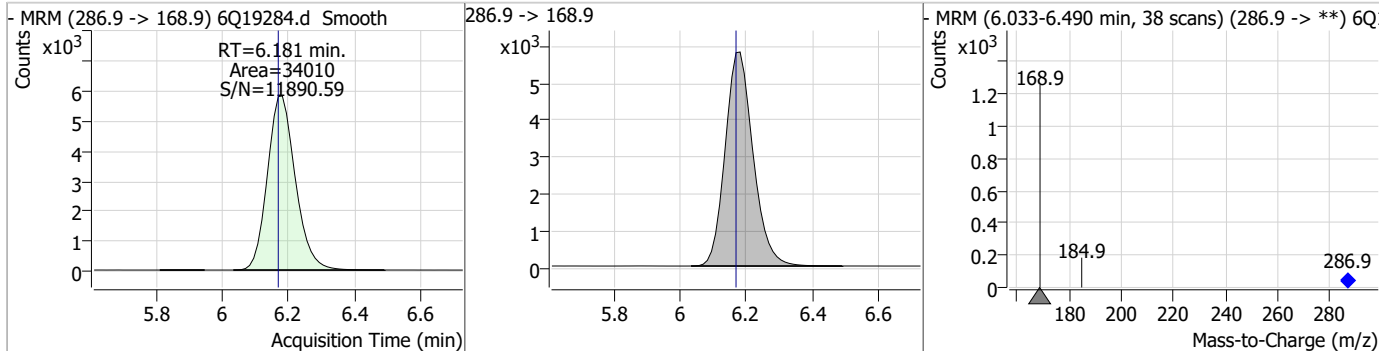
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.72	5.79	0.00	58016				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.11	5.79	0.00	49069	313.0 -> 118.9	5.2	2.7	8.1



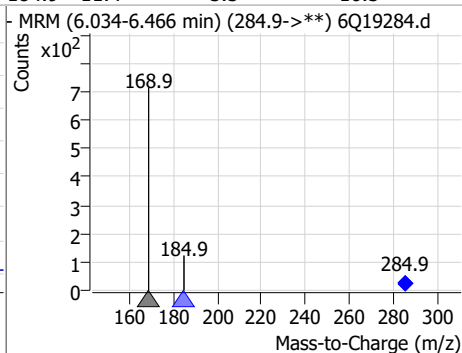
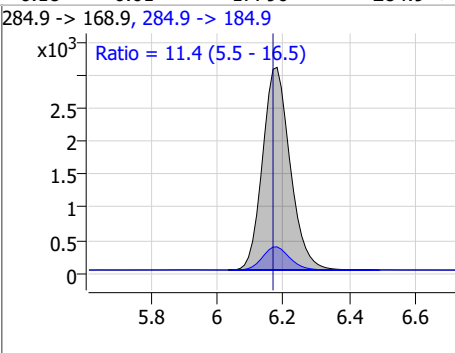
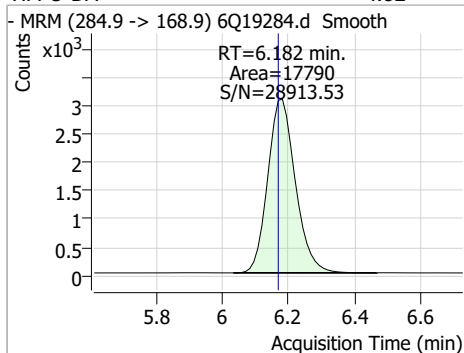
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.07	6.18	0.01	34010				



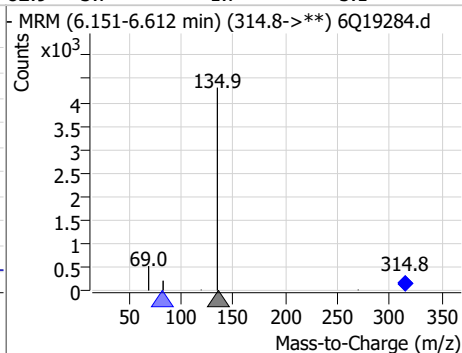
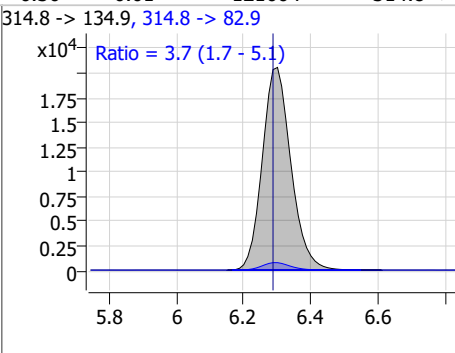
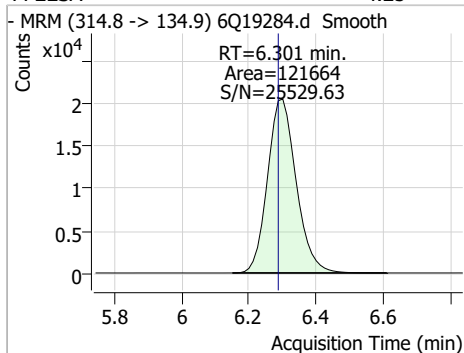
7.7.16
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Perfluorinated Compounds by LC/MS/MS

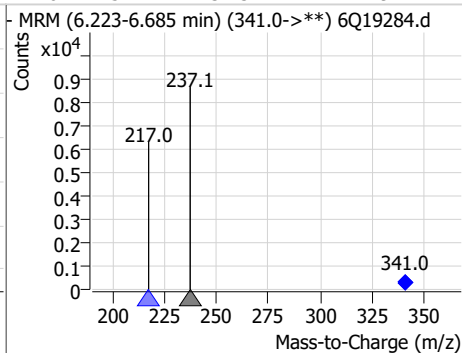
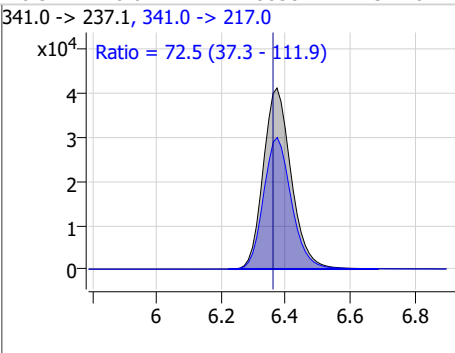
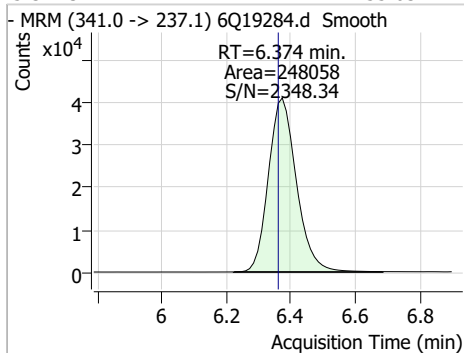
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.82	6.18	0.01	17790	284.9 -> 184.9	11.4	5.5	16.5



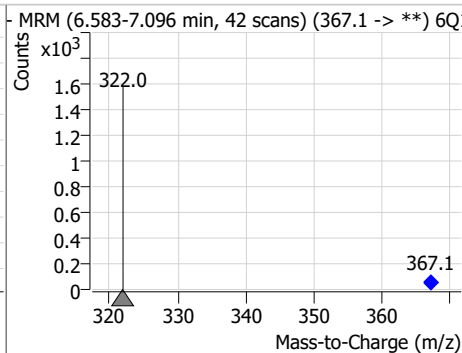
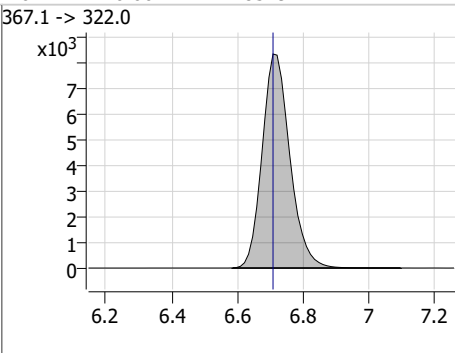
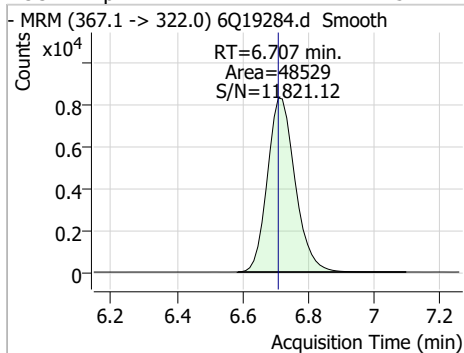
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.25	6.30	0.01	121664	314.8 -> 82.9	3.7	1.7	5.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	55.03	6.37	0.01	248058	341.0 -> 217.0	72.5	37.3	111.9

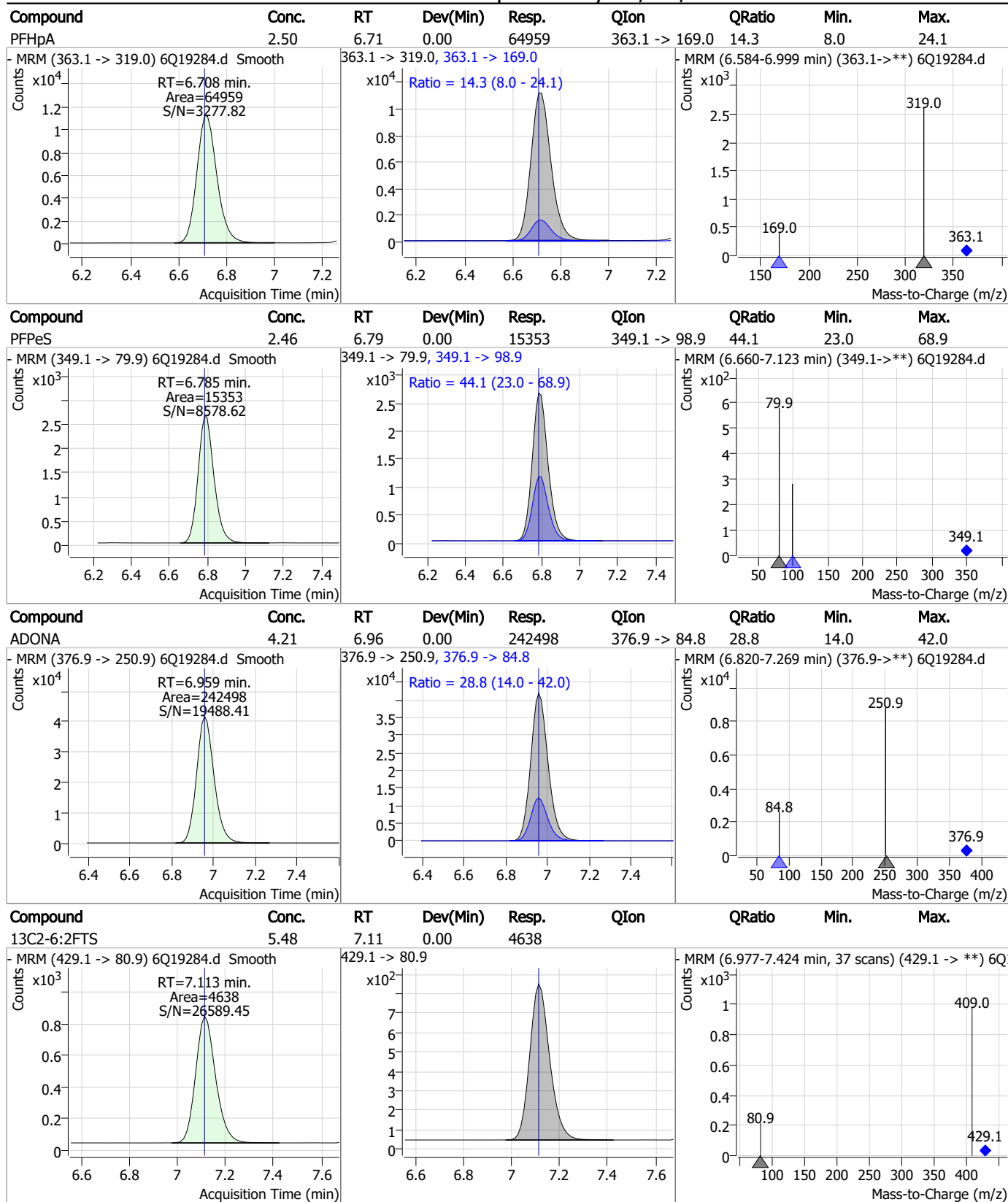


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.45	6.71	0.00	48529	367.1 -> 322.0			



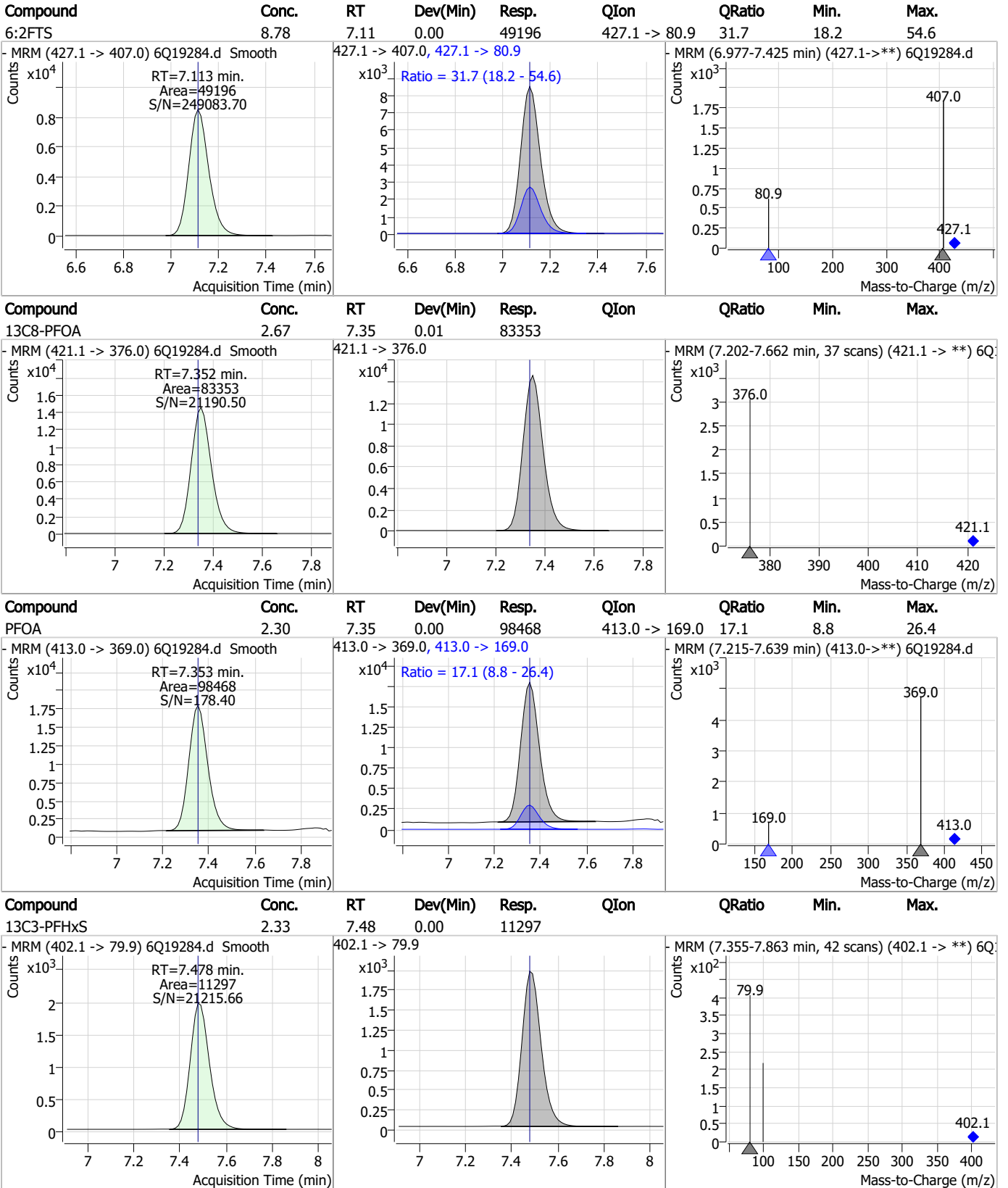
7.7.16
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Perfluorinated Compounds by LC/MS/MS



7.7.16
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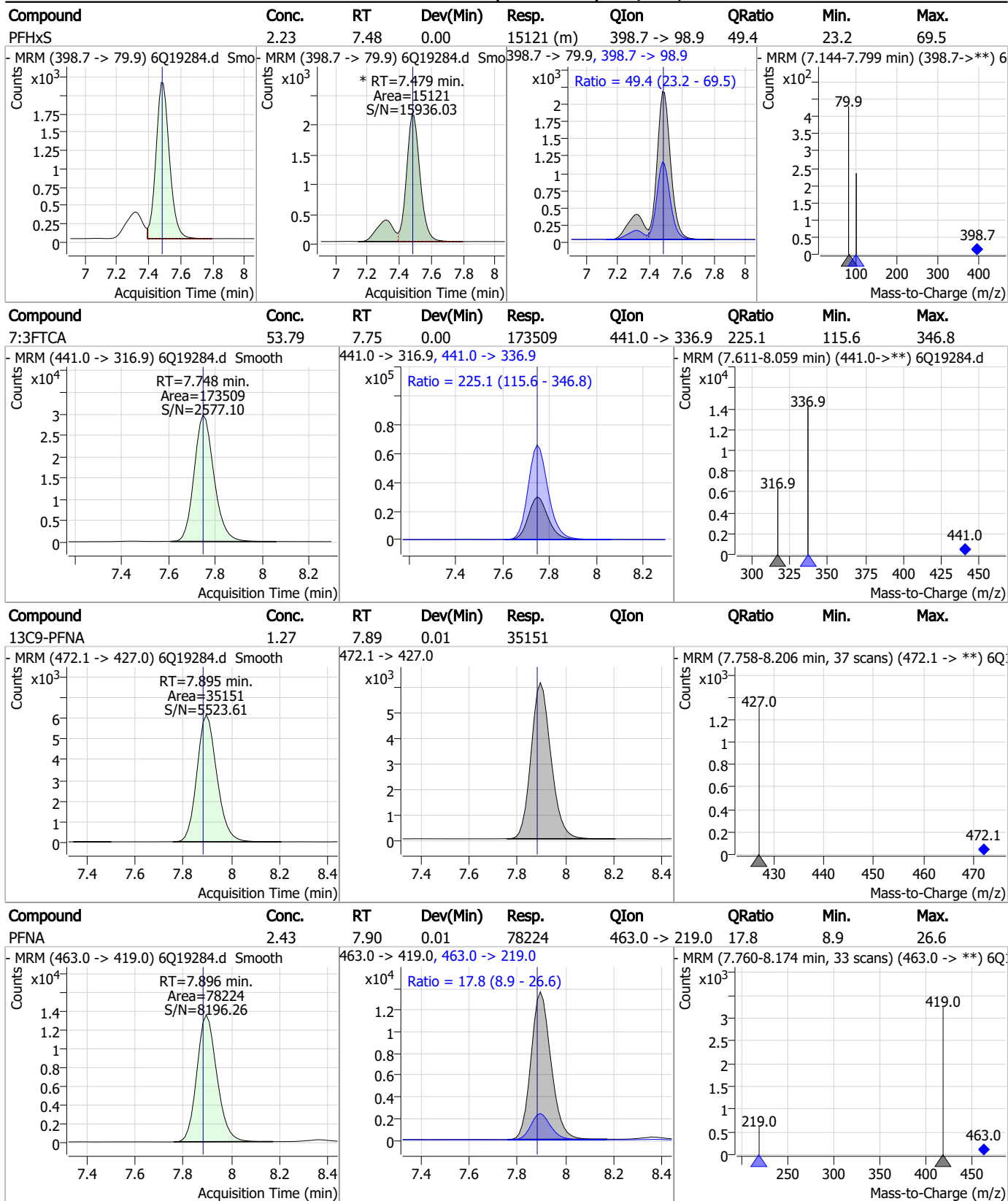
Perfluorinated Compounds by LC/MS/MS



7.7.16
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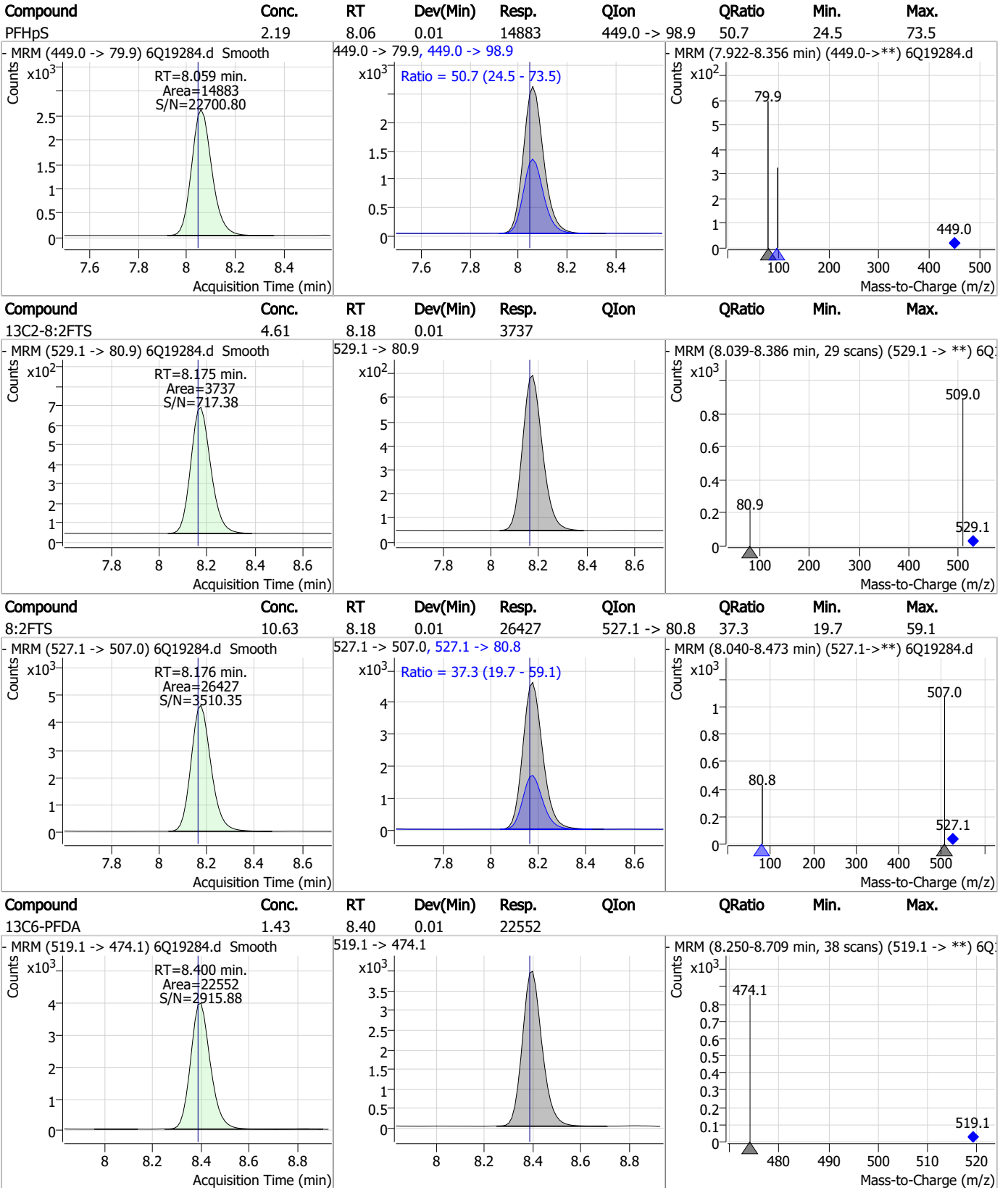


Perfluorinated Compounds by LC/MS/MS



7.7.16
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Perfluorinated Compounds by LC/MS/MS

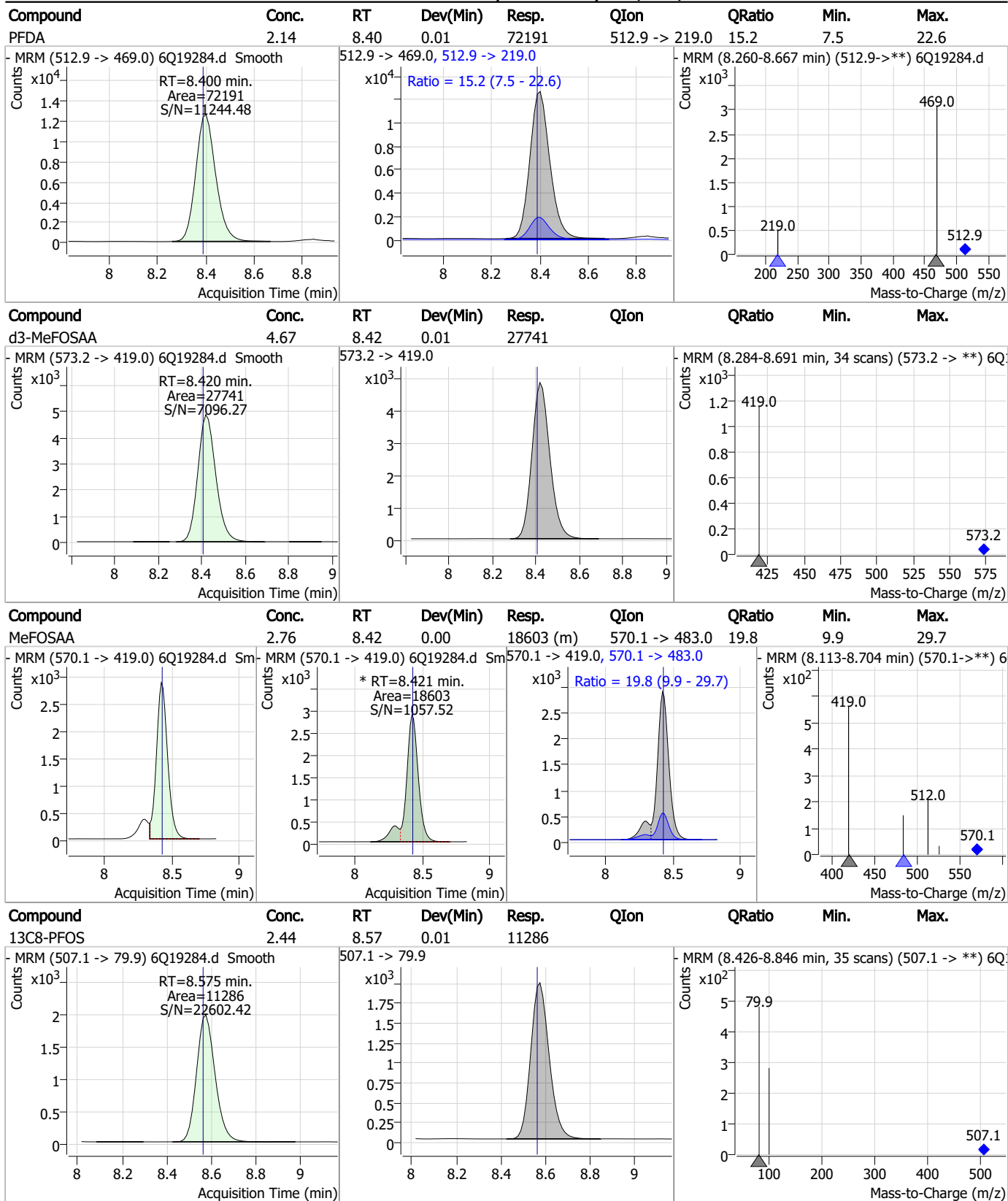


7.7.16

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Perfluorinated Compounds by LC/MS/MS

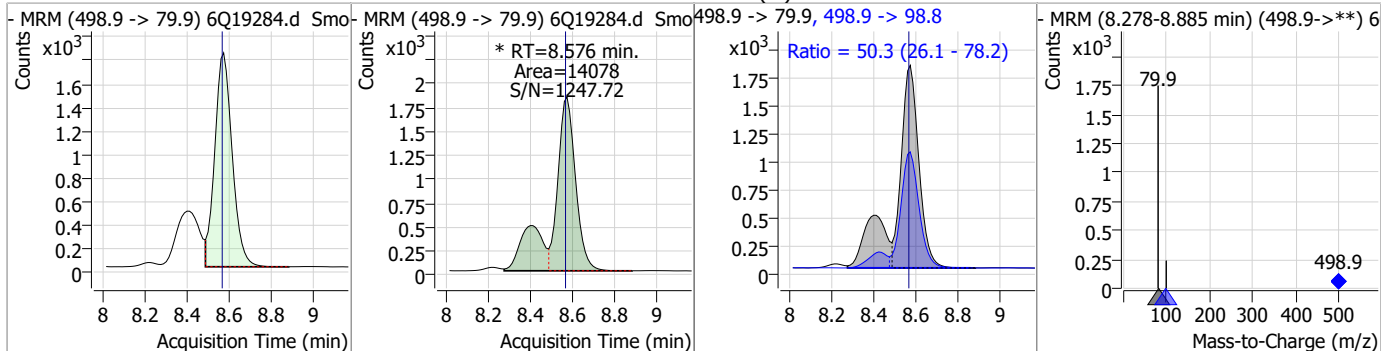


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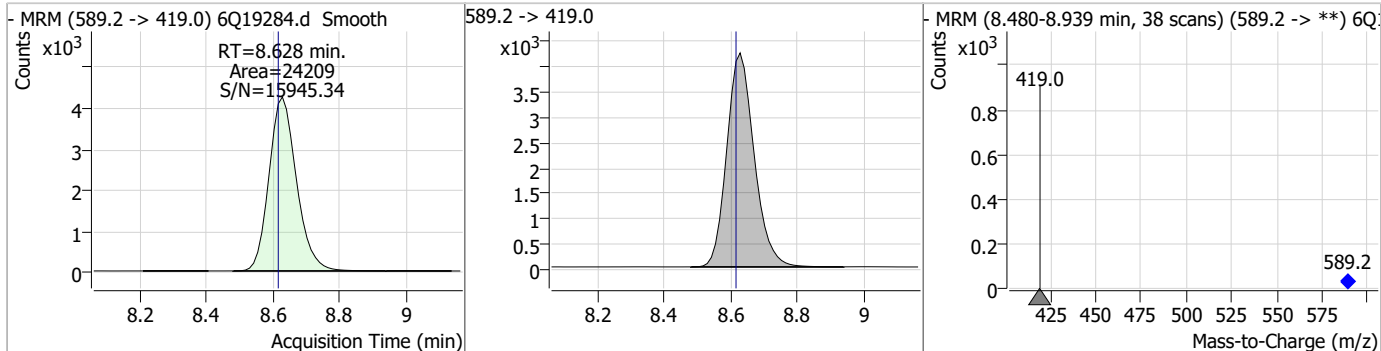
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Perfluorinated Compounds by LC/MS/MS

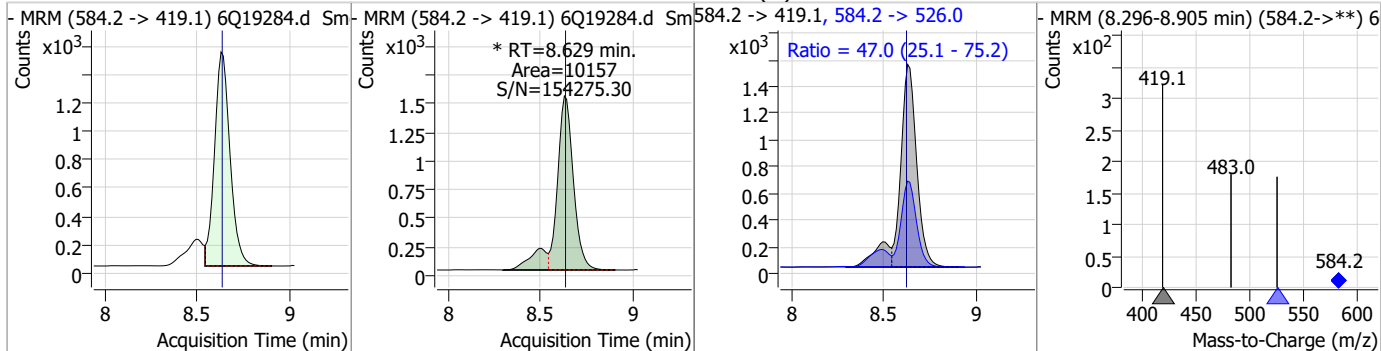
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.12	8.58	0.01	14078 (m)	498.9 -> 98.8	50.3	26.1	78.2



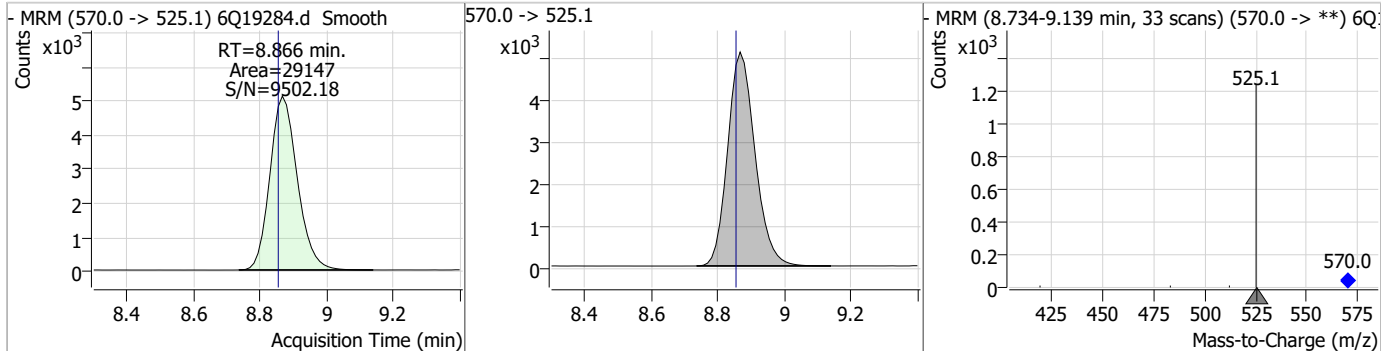
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.84	8.63	0.01	24209				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.53	8.63	0.00	10157 (m)	584.2 -> 526.0	47.0	25.1	75.2

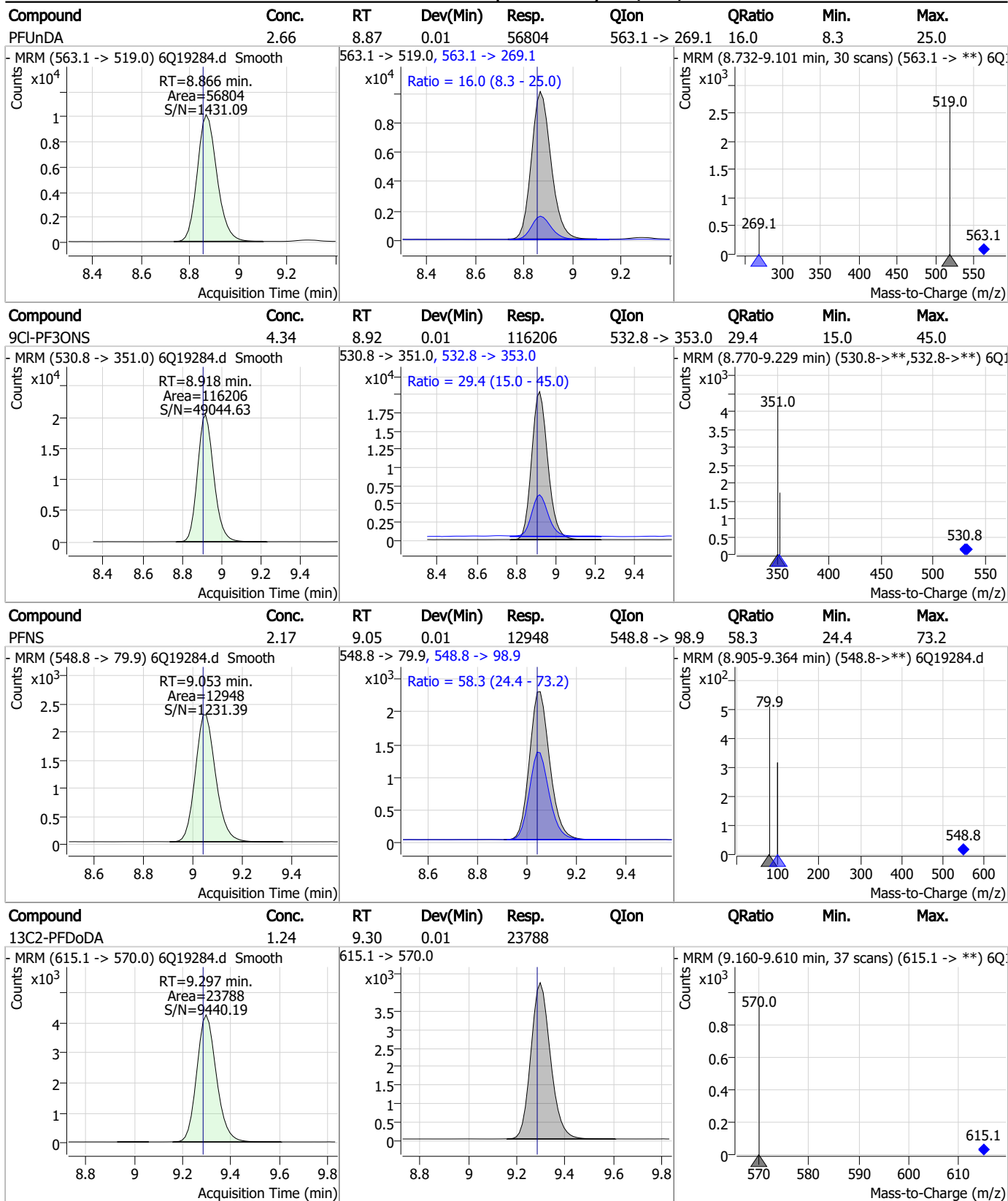


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.31	8.87	0.01	29147				



7.7.16
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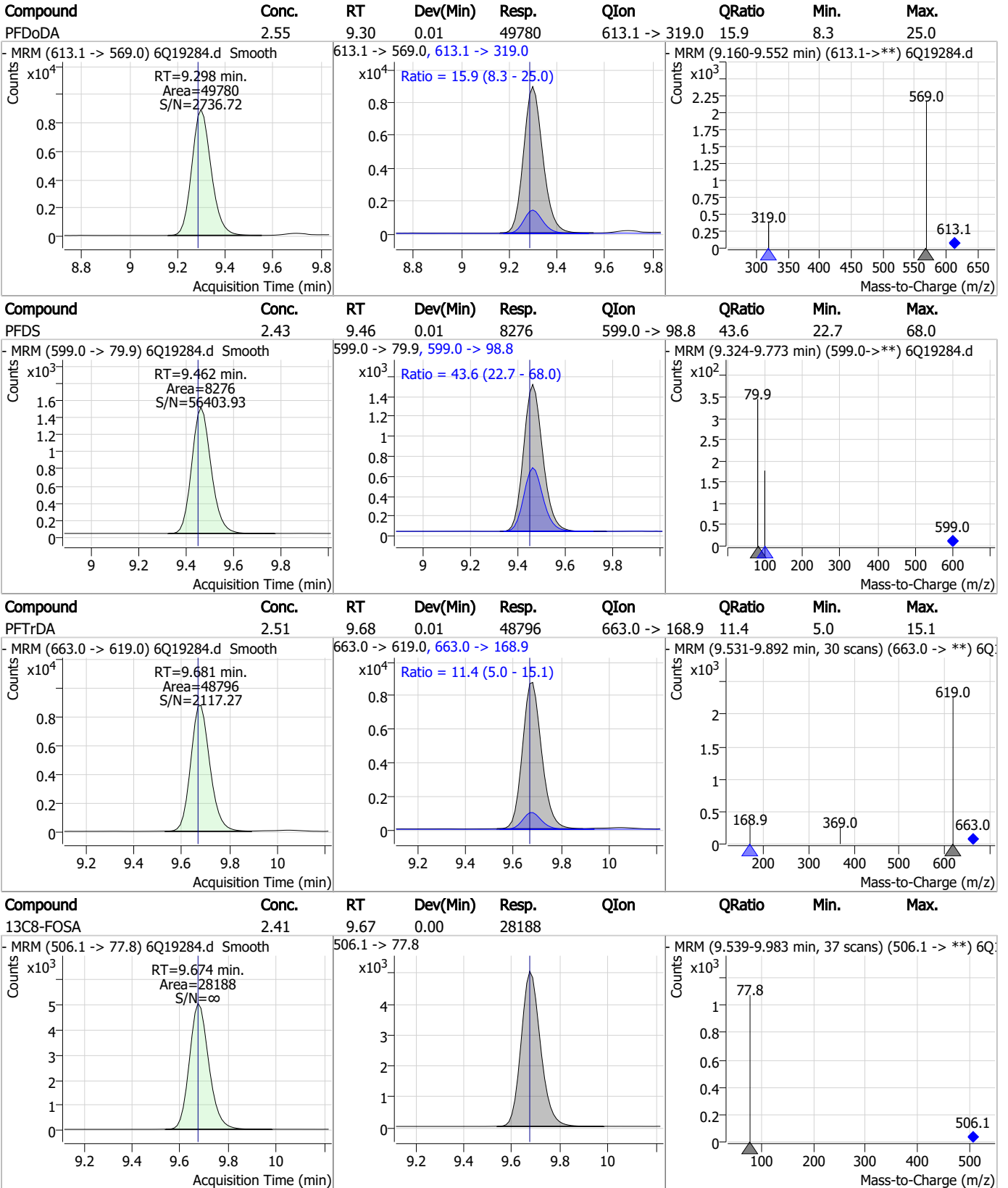
Perfluorinated Compounds by LC/MS/MS



7.7.16

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Perfluorinated Compounds by LC/MS/MS

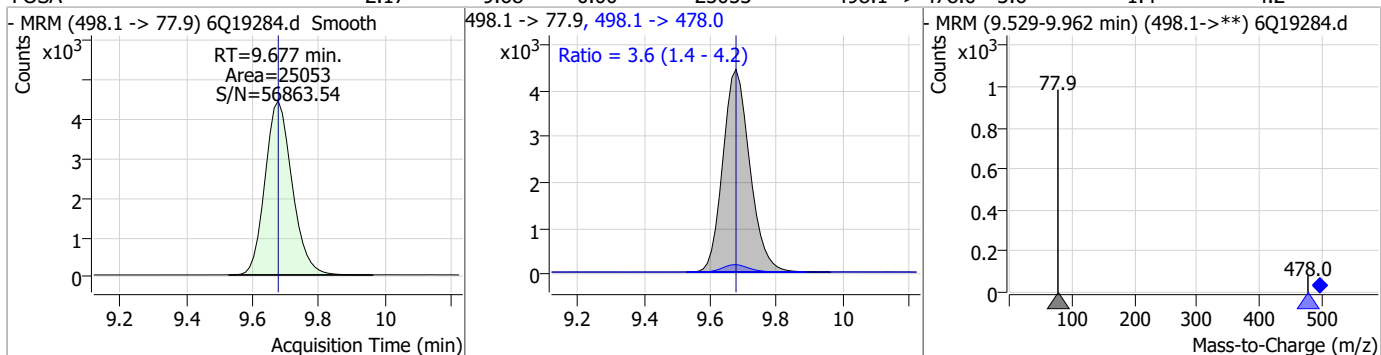


7.7.16 7

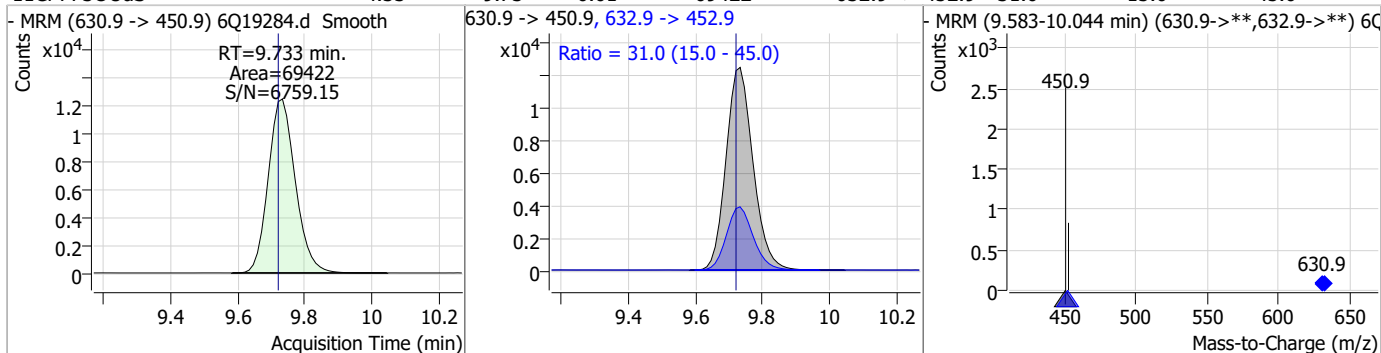


Perfluorinated Compounds by LC/MS/MS

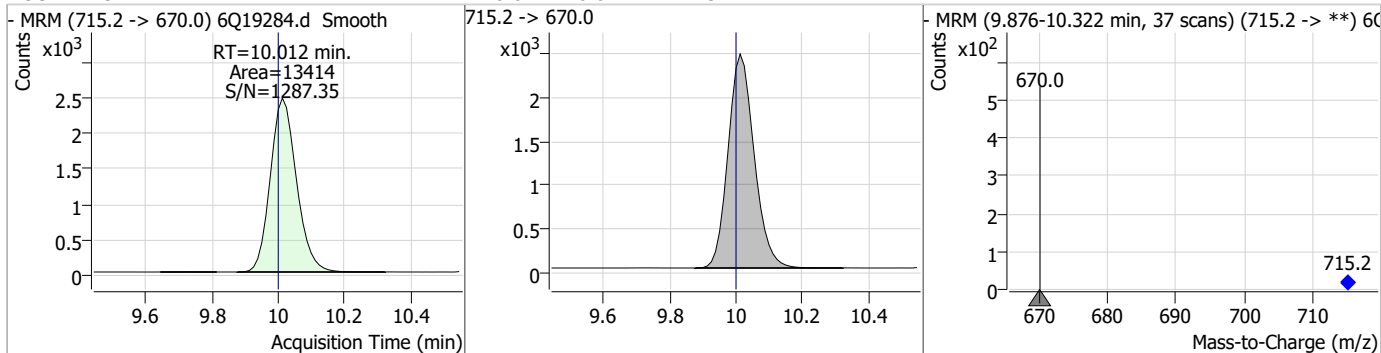
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.17	9.68	0.00	25053	498.1 -> 478.0	3.6	1.4	4.2



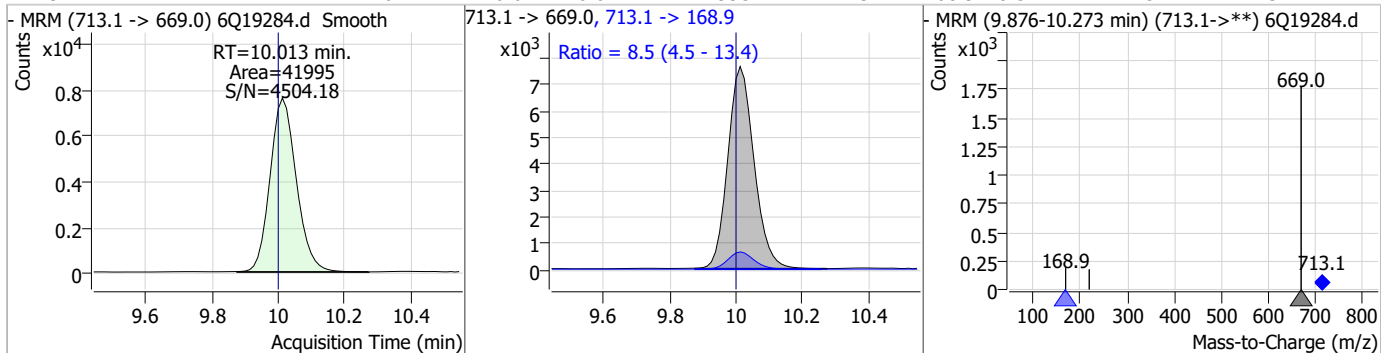
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	4.33	9.73	0.01	69422	632.9 -> 452.9	31.0	15.0	45.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	10.01	0.01	13414	715.2 -> 670.0	8.5	4.5	13.4

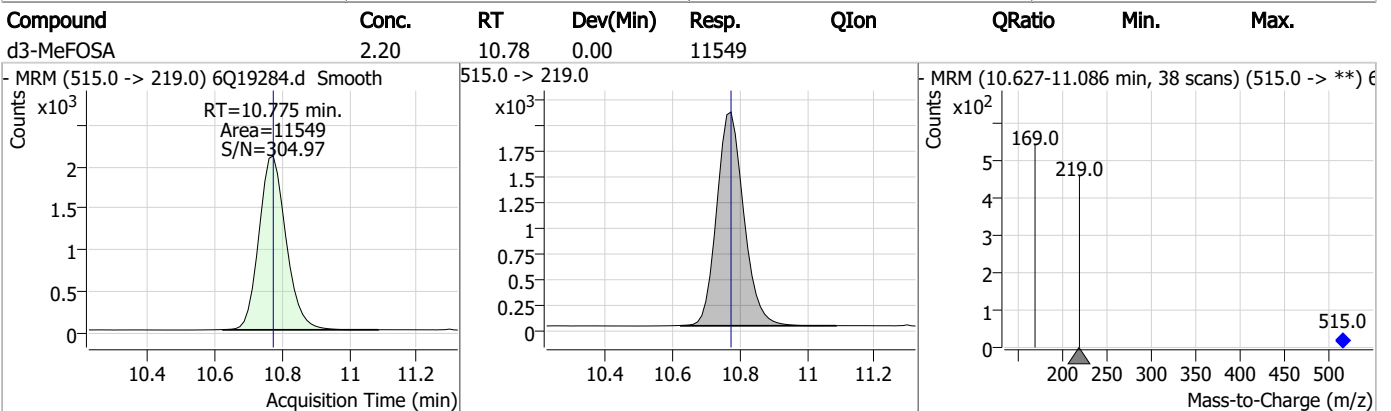
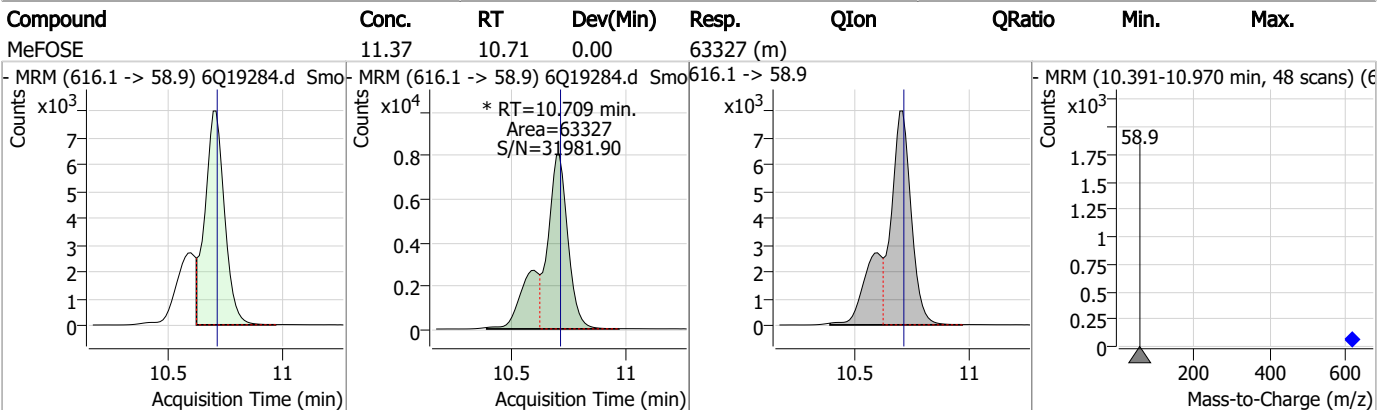
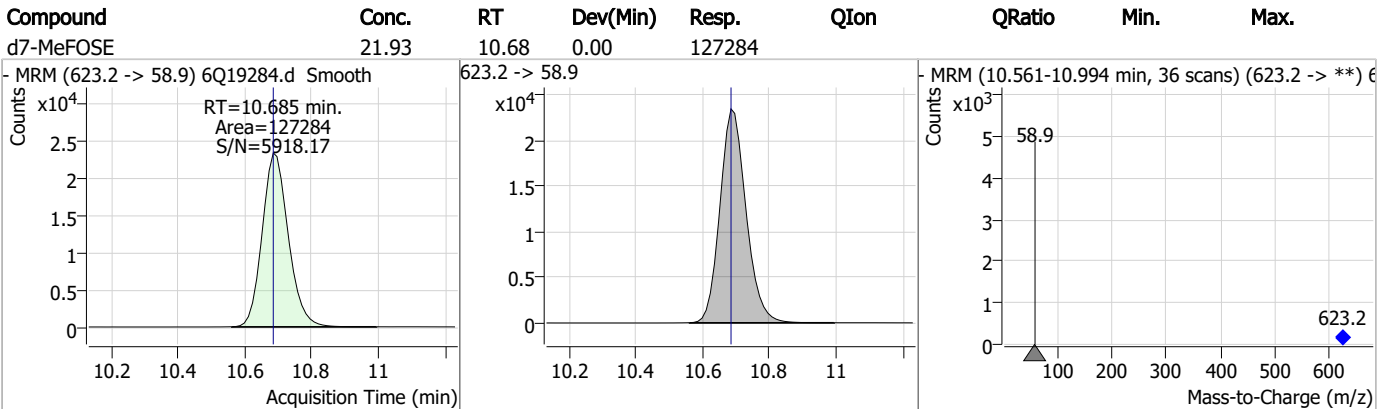
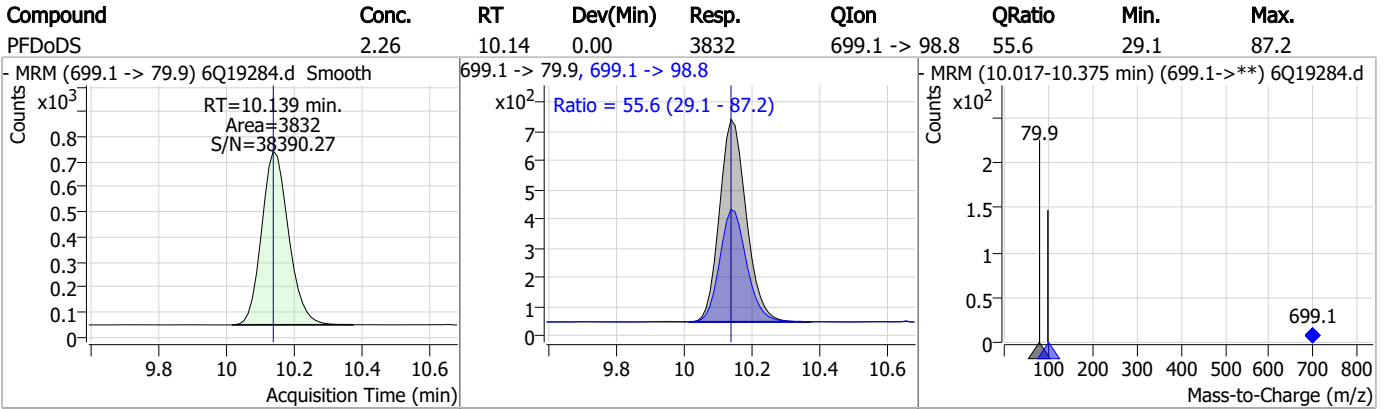


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.62	10.01	0.01	41995	713.1 -> 168.9	8.5	4.5	13.4

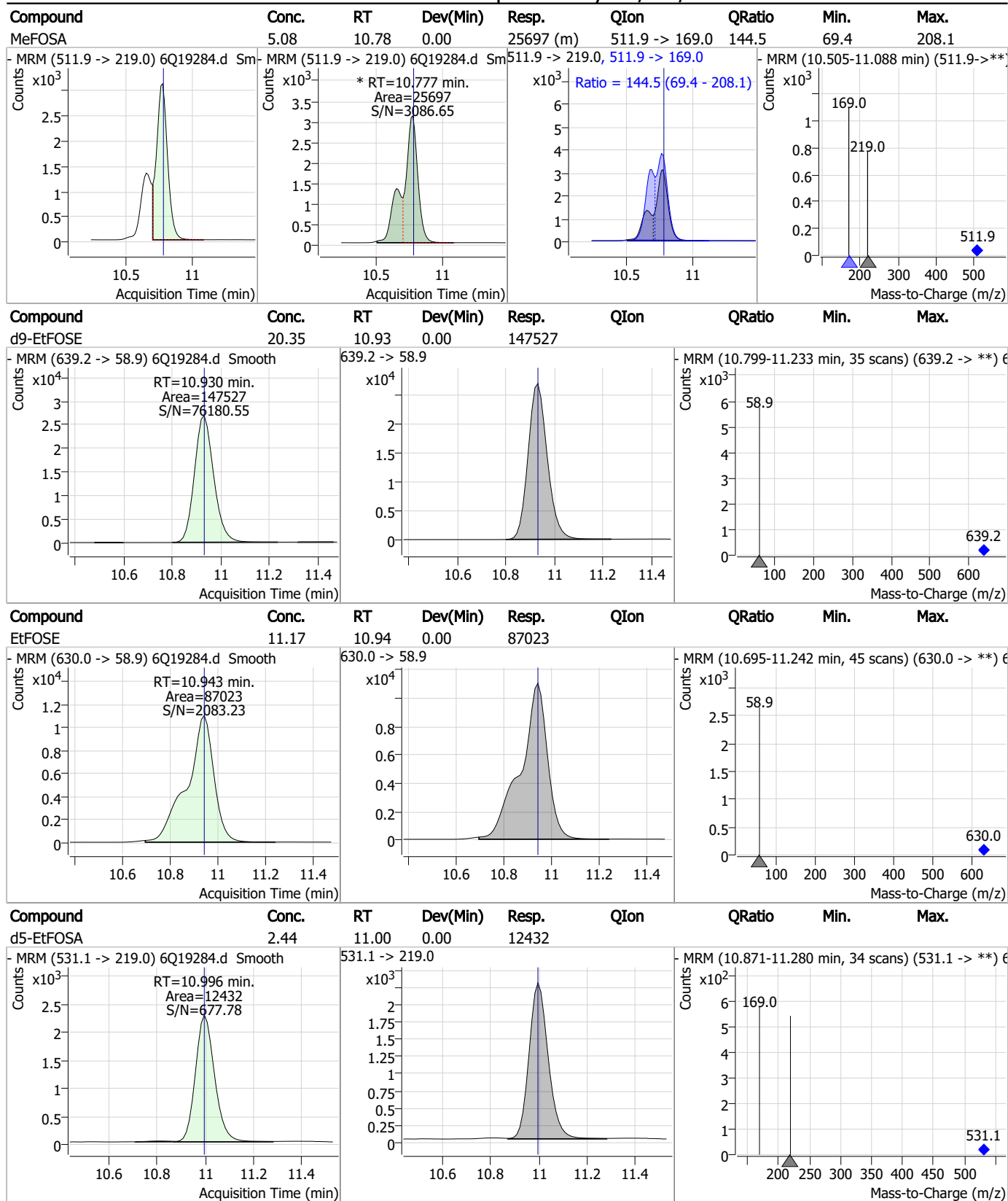


7.7.16
7

Perfluorinated Compounds by LC/MS/MS



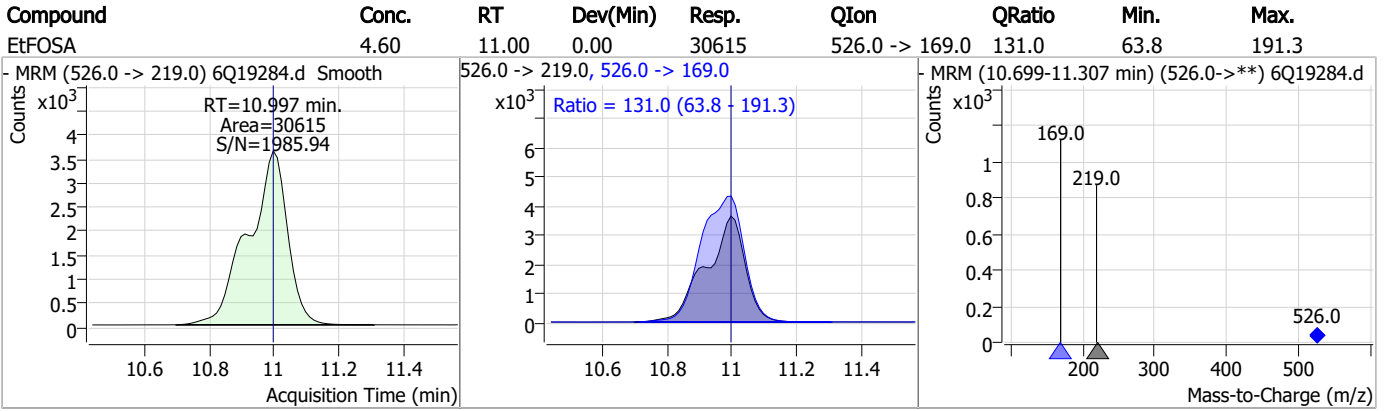
Perfluorinated Compounds by LC/MS/MS



7.7.16

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Perfluorinated Compounds by LC/MS/MS



7.7.16
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Manual Integration Approval Summary

Sample Number: S6Q287-CC287 Method: EPA DRAFT 1633
Lab FileID: 6Q19284.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/13/23 02:03 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.58	Split peak
EtFOSAA	2991-50-6		8.63	Split peak
MeFOSE	24448-09-7		10.71	Split peak
MeFOSA	31506-32-8		10.78	Split peak

7.7.16.1
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SGS ORLANDO

DATE:	06/12/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_061223_S6Q287
CAL DATE:	06/12/23
ANALYST:	M. Valls
RUN BATCH:	S6Q287

ELUENT A LOT #:	ACN 220811
ELUENT B LOT #:	HPLC WATER LOT: 230470 W5% Methanol 224279 2mM AMAC: 11387
IC/CC STD LOT #:	LCMS 2124-D
ICV STD LOT #:	LCMS 2124D/2125B
ISTD/ID STD LOT #:	11851/11850

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q19228.d	P1-B9	CCB	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	✓
2	6Q19229.d	P1-A9	Check peaks	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	New column, RT set up
3	6Q19230.d	P1-A5	Check peaks	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	↓
4	6Q19231.d	P1-B9	CCB	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	↓
5	6Q19232.d	P1-B3	RT TDCA	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	↓
6	6Q19233.d	P1-B9	CCB	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	↓
7	6Q19234.d	P1-B9	CCB	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	↓
8	6Q19235.d	P1-B3	RT TDCA	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	↓
9	6Q19236.d	P1-B4	RT BR-LN	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	↓
10	6Q19237.d	P1-B3	RT TDCA	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	✓
11	6Q19238.d	P1-B4	RT BR-LN	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	✓
12	6Q19239.d	P1-A1	ic287-0	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	✓
13	6Q19240.d	P1-A2	ic287-1	1633full.m	Calibration	1.6/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
14	6Q19241.d	P1-A3	ic287-2	1633full.m	Calibration	3.2/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
15	6Q19242.d	P1-A4	ic287-3	1633full.m	Calibration	10/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
16	6Q19243.d	P1-A5	icc287-4	1633full.m	Calibration	20/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
17	6Q19244.d	P1-A6	ic287-5	1633full.m	Calibration	40/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
18	6Q19245.d	P1-A7	ic287-6	1633full.m	Calibration	100/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
19	6Q19246.d	P1-A8	ic287-7	1633full.m	Calibration	200/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
20	6Q19247.d	P1-A9	ic287-8	1633full.m	Calibration	1x	OP97215,S6Q287,500,,,5.0,1,,water	✓
21	6Q19248.d	P1-A1	iblk	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	✓
22	6Q19249.d	P1-B1	icv287-4	1633full.m	QC	20/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
23	6Q19250.d	P1-B2	icv287-20	1633full.m	QC	100/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
24	6Q19251.d	P1-A5	cc287-4	1633full.m	QC	20/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
25	6Q19252.d	P1-A2	cc287-1,0LL	1633full.m	QC	1.6/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
26	6Q19253.d	P2-A1	FC6151-6	1633full.m	Sample	25/500	OP97120,S6Q287,500,,,5.0,16,S,OIL	✓
27	6Q19254.d	P2-A2	FC6342-11	1633full.m	Sample		OP97215,S6Q287,420,,,5.0,1,,water	✓
28	6Q19255.d	P2-A3	op97215-dup	1633full.m	Sample		OP97215,S6Q287,450,,,5.0,1,,water	✓
29	6Q19256.d	P2-A4	FC6213-6	1633full.m	Sample		OP97160,S6Q287,490,,,5.0,1,,water	pfba low, Redo
30	6Q19257.d	P2-A5	JD66240-1	1633full.m	Sample	100/500	OP97160,S6Q287,526,,,5.0,5,,water	✓
31	6Q19258.d	P2-A6	JD66240-2	1633full.m	Sample	100/500	OP97160,S6Q287,510,,,5.0,5,,water	low surr, Redo
32	6Q19259.d	P2-A7	FC6342-10	1633full.m	Sample	50/500	OP97215,S6Q287,480,,,5.0,10,,water	Redo lower volume
33	6Q19260.d	P2-A8	op97215-ms	1633full.m	Sample	50/500	OP97215,S6Q287,460,,,5.0,10,,water	✓
34	6Q19261.d	P1-A5	cc287-4	1633full.m	QC	20/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
35	6Q19262.d	P1-A1	iccb	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	✓

SGS ORLANDO LCMS6-6Q ANALYSIS LOG

36	6Q19263.d	P2-B1	op97275-bs	1633full.m	Sample	OP97275.S6Q287.500,,,5.0,1,water	✓
37	6Q19264.d	P2-B2	op97275-llbs:3	1633full.m	Sample	OP97275.S6Q287.500,,,5.0,1,water	✓
38	6Q19265.d	P2-B3	op97275-mb	1633full.m	Sample	OP97275.S6Q287.500,,,5.0,1,water	✓
39	6Q19266.d	P2-B4	FC6445-4	1633full.m	Sample	OP97275.S6Q287.510,,,5.0,1,water	✓
40	6Q19267.d	P2-B5	FC6445-4	1633full.m	Sample	OP97275.S6Q287.60,,,5.0,1,water	✓
41	6Q19268.d	P2-B6	FC6649-1	1633full.m	Sample	OP97275.S6Q287.540,,,5.0,1,water	✓
42	6Q19269.d	P2-B7	op97275-ms	1633full.m	Sample	OP97275.S6Q287.550,,,5.0,1,water	✓
43	6Q19270.d	P2-B8	FC6649-2	1633full.m	Sample	OP97275.S6Q287.560,,,5.0,1,water	✓
44	6Q19271.d	P2-B9	FC6649-3	1633full.m	Sample	OP97275.S6Q287.570,,,5.0,1,water	✓
45	6Q19272.d	P1-A5	cc287-4	1633full.m	QC	20/500	✓
46	6Q19273.d	P1-A1	iccb	1633full.m	Sample	OP97215.S6Q287.500,,,5.0,1,water	✓
47	6Q19274.d	P2-C1	FC6649-4	1633full.m	Sample	OP97215.S6Q287.500,,,5.0,1,water	✓
48	6Q19275.d	P2-C2	op97275-dup	1633full.m	Sample	OP97275.S6Q287.530,,,5.0,1,water	✓
49	6Q19276.d	P2-C3	FC6649-5	1633full.m	Sample	OP97275.S6Q287.570,,,5.0,1,water	✓
50	6Q19277.d	P2-C4	FC6649-6	1633full.m	Sample	OP97275.S6Q287.560,,,5.0,1,water	✓
51	6Q19278.d	P2-C5	FC6651-1	1633full.m	Sample	OP97275.S6Q287.550,,,5.0,1,water	✓
52	6Q19279.d	P2-C6	FC6651-2	1633full.m	Sample	OP97275.S6Q287.560,,,5.0,1,water	✓
53	6Q19280.d	P2-C7	FC6651-3	1633full.m	Sample	OP97275.S6Q287.520,,,5.0,1,water	✓
54	6Q19281.d	P2-C8	FC6651-4	1633full.m	Sample	OP97275.S6Q287.570,,,5.0,1,water	✓
55	6Q19282.d	P2-C9	FC6651-5	1633full.m	Sample	OP97275.S6Q287.530,,,5.0,1,water	✓
56	6Q19283.d	P2-D1	FC6699-1	1633full.m	Sample	OP97275.S6Q287.550,,,5.0,1,water	✓
57	6Q19284.d	P1-A5	cc287-4	1633full.m	QC	20/500	✓
58	6Q19285.d	P1-A1	iccb	1633full.m	Sample	OP97215.S6Q287.500,,,5.0,1,water	✓
59	6Q19286.d	P2-D2	FC6699-2	1633full.m	Sample	OP97275.S6Q287.560,,,5.0,1,water	✓
60	6Q19287.d	P2-D3	FC6699-3	1633full.m	Sample	OP97275.S6Q287.560,,,5.0,1,water	✓
61	6Q19288.d	P1-A5	ecc287-4	1633full.m	QC	20/500	✓
62	6Q19289.d	P1-A1	iccb	1633full.m	Sample	OP97215.S6Q287.500,,,5.0,1,water	✓



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 2122A-E	1633 opike Cal Std.	11771 11799A	PFAC MXF	wellington	4/19/28	4-27-24 5-15-24	1-4 ppm	250uL	4mL	62.5 125 250ppb	1633 mix	5/15/23	10/28/23	MJ
		LCMS 2097A	Br-LN Et+Me	sgs labo	N/A	10/28/23	2 ppm 5 ppm	250uL		125 312.5 ppb	2098ml			
		11772 11801A	PFAC MXF	wellington	3/24/26	4-27-24 5-15-24	2 ppm	250uL		125ppb				
		11774 11802A	PFAC MXG		12-01-27 12-01-27	4-27-24 5-15-24	2 ppm	250uL		125ppb				
		11738 11803A	PFAC MXJ		9/14/26 3-28-28	4-27-24 5-15-24	4-20 ppm	312uL	V	312/1160 ppb				
LCMS 2123A-B	PFC SPIKE	11750	PFAC MXJ	Absolute Wellington Labs	03/10/28	05/16/24	1.0ppm	2mL	5mL	95/1000 5/1/20	100ppb	05/16/23	11/02/23	NG
		11432	N-Me- FOSA-M	wellington Labs	02/18/27	03/10/24	50ppm	40uL						NG
		11513	FBSA-1		11/10/26	04/18/24								NG
		11514	FWSA-1		10/29/26	04/18/24								NG
		11332	PFECHS		03/10/27	04/18/24								NG
LCMS 2123-2124	1633 opike Cal std.	11799B	PFAC MXH	wellington	4/19/28	5/22/24 5-15-24	1-4 ppm	250uL	4mL	62.5 125 250ppb	1633 mix	5/22/23	10/28/23	NW
		LCMS 2097A 4801B	Br-LN Et+Me	sgs labo	N/A	10/28/23	2 ppm 5 ppm			125 312.5 ppb	(2098ml)			
		11801B	PFAC MXF	wellington	3/24/26	5/22/24	2 ppm			125ppb				
		11802B	PFAC MXG		12/1/27	5/22/24	2 ppm			125ppb				
		11803B	PFAC MXJ		3/28/28	5/22/24	4-20 ppm	312uL	V	312/1160 ppb				
						N/A	NW	Continue next page 5/22/23						

* based on date opened as specified in each SGS - Orlando SOP.



Organic Standards Preparation Log

SGS - Orlando Sid. #	Name Description	Parent Sid. #	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 2095A-J	(10PTD) PFC ID SURR	11669	PFAC-2YES	Wellington Labs	01/18/18	03/28/24	1.0ppm	2.4mL	~50mL	0.5ppm	NS/Meeth 51420	02/28/23	09/28/23	NS
↓	↓	11585	PFAC-DA	↓	11/08/18	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
↓	↓	11431	PFAC-d-N	↓	05/06/17	03/13/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
LCMS 20940 A-B	1033 spike Cal std.	11672	PFAC-MxH	Wellington Labs	8/8/27	3/23/24	1-4 ppm	250uL	4mL	02.5 125 250ppb	1033 MIX	3/30/23	9/30/23	MW
↓	↓	11686	PFAC-MxI	↓	2/27/28	3/30/24	170 ppm	250uL	↓	02.5 625ppb	↓	↓	↓	↓
↓	↓	11674A	PFAC-MxF	↓	1/11/25	3/23/24	2ppm	500uL	↓	250ppb	↓	↓	↓	↓
↓	↓	11674B	PFAC-MxF	↓	12/11/27	3/30/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11600	PFAC-MxG	↓	9/14/26	3/23/24	4-20 ppm	312uL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11675	PFAC-MxJ	↓	10/07/27	10/28/23	50ppm	200uL	5mL	2ppm 5ppm	1033 MIX	4/6/23	10/28/23	MW
LCMS 2097A-B	BR-LN metel for 1633	11497	br-N metosa	Wellington Labs	08/23/27	10/28/23	50ppm	200uL	↓	2ppm	↓	↓	↓	↓
↓	↓	11498	br-N Etfose	↓	10/07/27	10/28/23	50ppm	200uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11495	br-N metose	↓	10/07/27	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11494	br-N Etfose	↓	10/07/27	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓					4/8/27								

* tested & signed on 3/20/24

* based on date opened as specified in each SGS - Orlando SOP.



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 2125A-B	FULL LIST 40 SPIKE (CALC)	11750	PFOA 28 Comp.	Alabate	3/13/28	5/10/24	1.0ppm	400ul	4.0mL	100ppb	951MEOH 581H2O (2,400ml)	5/22/23	8/23/23	MW
↓	↓	LCMS 2067	40 LIST Aq. on #2	Sgs old.	—	8/23/23	1.0ppm	400ul	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 2117	40 LIST Aq. on #2	↓	—	11/8/23	1.0ppm	400ul	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 2101	F05E Std.	↓	—	7/19/23	5.0ppm	400ul	↓	500ppb	↓	↓	↓	↓
LCMS 2126A-J	PRC ID SURT (10 PPB)	11804	MPAC - 24ES	Wellington Labs	01/18/28	05/23/24	1.0ppm	1.2mL	~2.5mL	0.5ppm	951MEOH 571H2O	05/23/23	10/28/23	NG
↓	↓	11635A	M3HFO DA	↓	11/08/25	04/14/24	50ppm	24ul	↓	↓	↓	↓	↓	NG
↓	↓	11431	D-N- MERSAM	↓	05/06/27	02/10/24	50ppm	24ul	↓	↓	↓	↓	↓	NG
LCMS 2127A-E	1633-OPICE CAL STD.	11799B	PFAC MxH	Wellington	4/19/28	5/22/24	1-4 ppm	2.50ul	4mL	62.5 125 250ppb	1033 MIX (268ml)	5/24/23	10/28/23	MW
↓	↓	11807	MxH	↓	10/28/23	5/24/24	2 ppm	↓	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 2097A-B	BT IN ET ME	Sgs Labo	MA	10/28/23	2 ppm	↓	↓	↓	↓	↓	↓	↓
↓	↓	11801B	PFAC Mx F	Wellington	3/24/26	5/22/24	2 ppm	↓	↓	125ppb	↓	↓	↓	↓
↓	↓	11802B	PFAC Mx G	↓	12/1/27	5/24/24	2 ppm	↓	↓	125ppb	↓	↓	↓	↓
↓	↓	11809	PFAC Mx G	↓	3/28/28	5/24/24	4-20 ppm	3/2ul	↓	3/2 160ppb	↓	↓	↓	↓
LCMS 2128A-J	PRC ID SURT (10 PPB)	11803B	MPAC - 24ES	Wellington Labs	01/18/28	06/10/24	1.0ppm	1.2mL	~2.5mL	0.5ppm	951MEOH 581H2O	06/10/23	10/28/23	NG
↓	↓	11819	M3HFO DA	↓	11/08/25	04/14/24	50ppm	24ul	↓	↓	↓	↓	↓	NG
↓	↓	11635A	M3HFO DA	↓	11/08/25	04/14/24	50ppm	24ul	↓	↓	↓	↓	↓	NG
↓	↓	11584	D-N- MERSAM	↓	11/11/27	06/10/24	50ppm	24ul	↓	↓	↓	↓	↓	NG
						NG 06/10/24								

* based on date opened as specified in each SGS - Orlando SOP.



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 2067	40 List std. ADD-ON #1	10726A	10:2 FTS	Wellington	3/3/26	3/21/23	50 ppm	80 uL	4.0 mL	1 ppm	95% MeOH 5% H2O	2/8/23	3/21/23 8/23/23	MV
		10840	L- PFDOS		7/9/26	10/18/23							8/23/23	
		10829	N- MCFOSA		8/3/26	8/23/23								
		10837	N- Etfosa		8/3/26	8/23/23								
		10842	PFHxDA		9/3/26	10/18/23								
		10841	PFOBA		5/7/26	10/18/23								
		11116B	3:3 FTCA PFR-PA		2/3/27	2/8/24								
		10685A	5:3 FTCA PFPePA		11/11/25	8/23/23								
		11116A	7:3 FTCA FHP-PA		11/12/25	2/8/24								
		11332	PFECHS		3/2/27	10/18/23								
		10762B	PFEESA		5/13/25	10/18/23								
		10763B	PFMBA		3/31/25	10/18/23								
		10764	PFMFA		3/31/25	2/8/24								
		10765B	PF406A		3/31/25	10/18/23								
			NFHDA		3/31/25	10/18/23								
			3:6 OFFPA											
					NS	02/10/23								

* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-icms std prep log.xls 030819

10685A



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FPePA

LOT NUMBER:

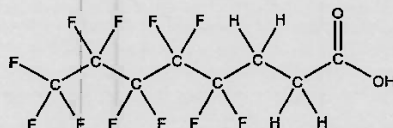
FPePA1120

COMPOUND:

3-Perfluoropentyl propanoic acid

STRUCTURE:**CAS #:**

914637-49-3

**MOLECULAR FORMULA:** $C_8H_5F_{11}O_2$ **MOLECULAR WEIGHT:**

342.11

CONCENTRATION: $50.0 \pm 2.5 \mu\text{g/mL}$ **SOLVENT(S):**

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/11/2020

EXPIRY DATE: (mm/dd/yyyy)

11/11/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 5:3 telomer acid ($C_8H_3F_{11}O_2$) as an impurity determined by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

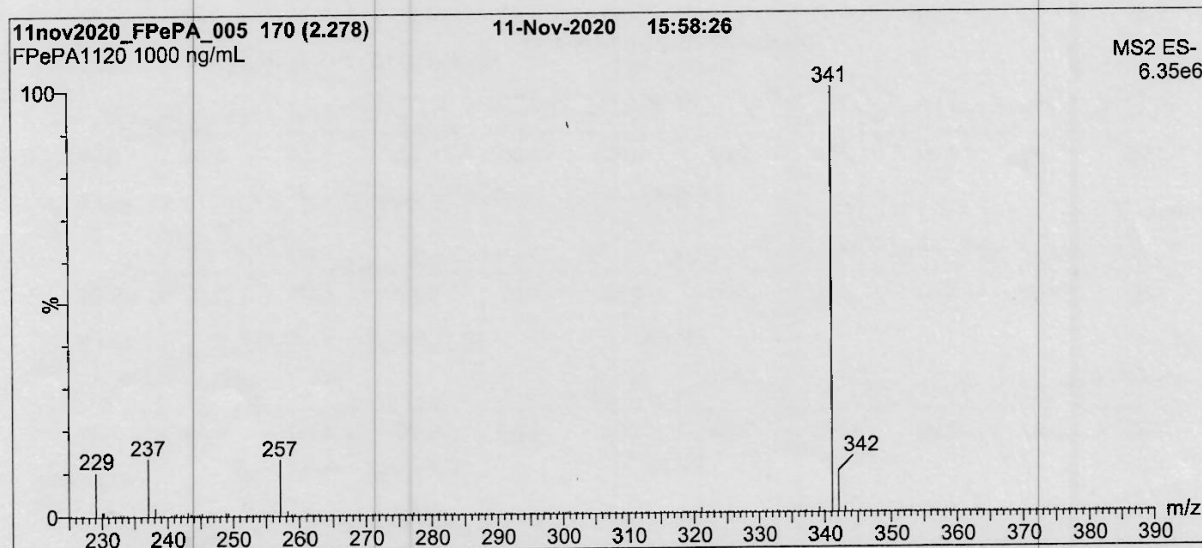
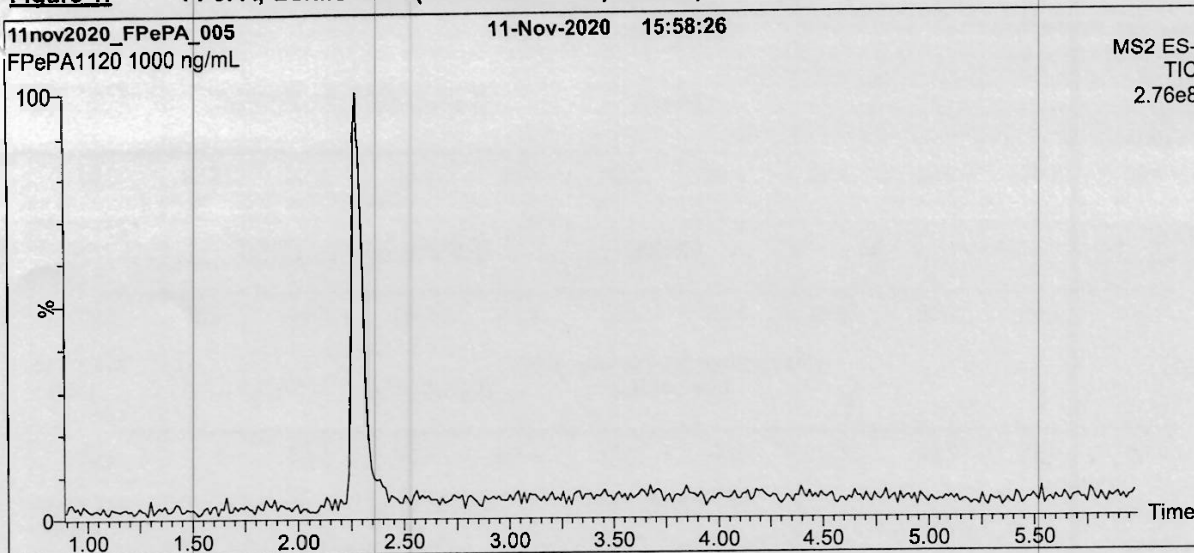
B.G. Chittim, General Manager

Date: 11/27/2020

(mm/dd/yyyy)

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Figure 1: FPePA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{1a}
1.7 μm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μL/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 18.50
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

10726 A

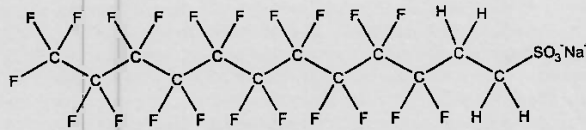


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 10:2FTS **LOT NUMBER:** 102FTS0221
COMPOUND: Sodium 1H,1H,2H,2H-perfluorododecanesulfonate

STRUCTURE: **CAS #:** 108026-35-3



MOLECULAR FORMULA: 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

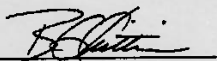
DOCUMENTATION/ DATA ATTACHED:

- 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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 03/05/2021
B.G. Chittim, General Manager (mm/dd/yyyy)

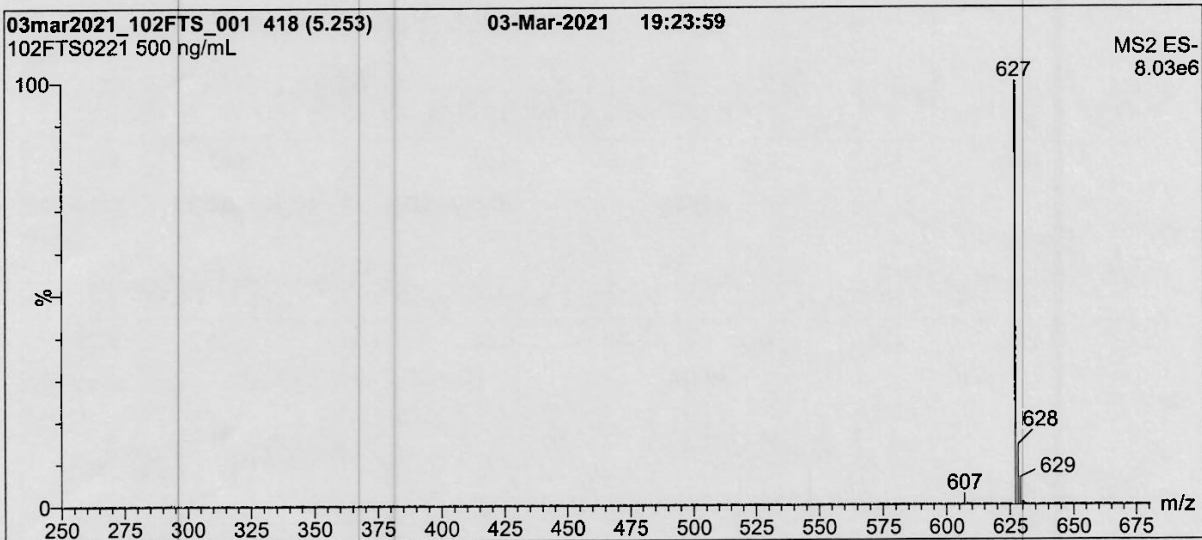
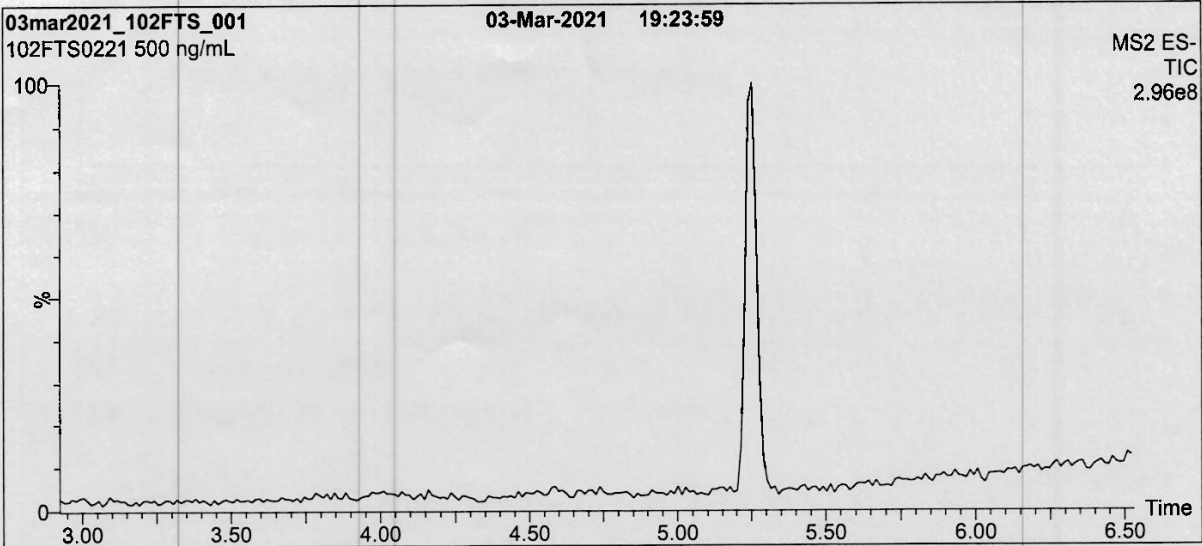
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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

7.9.1

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Figure 1: 10:2FTS; LC/MS Data (Full Scan and Mass Spectrum)



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:
 Column: Acquity UPLC BEH Shield RP₁₈
 1.7 μ m, 2.1 x 100 mm
 Mobile phase: Gradient
 Start: 40% H₂O / 60% (80:20 MeOH:ACN)
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 7 min and hold for 3 min
 before returning to initial conditions in 0.75 min.
 Time: 12 min
 Flow: 300 μ L/min

MS Parameters:
 Experiment: Full Scan (250 - 850 amu)
 Source: Electrospray (negative)
 Capillary Voltage (kV) = 2.00
 Cone Voltage (V) = 25.00
 Desolvation Temperature ($^{\circ}$ C) = 500
 Desolvation Gas Flow (L/hr) = 1000

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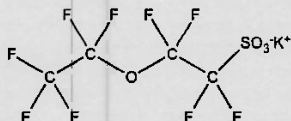
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CERTIFICATE OF ANALYSIS DOCUMENTATION

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

CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt)
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

MOLECULAR WEIGHT: 354.19

SOLVENT(S): Methanol

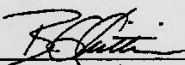
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 05/29/2020
(mm/dd/yyyy)

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Form#:27, Issued 2004-11-10
Revision#:7, Revised 2020-01-09

7.9.1

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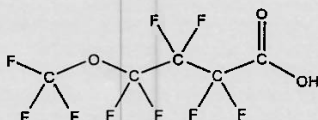
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

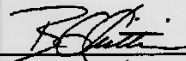
DOCUMENTATION/ DATA ATTACHED:

- 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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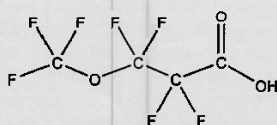
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

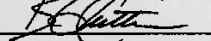
DOCUMENTATION/ DATA ATTACHED:

- 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

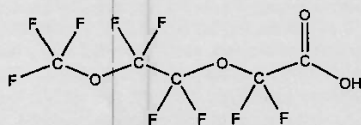
COMPOUND:

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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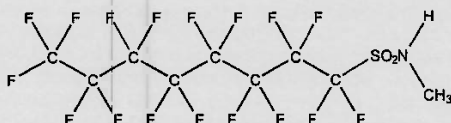
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

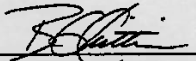
DOCUMENTATION/ DATA ATTACHED:

- 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: 
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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

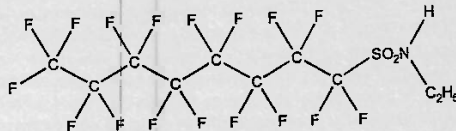
10837

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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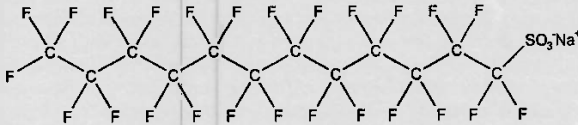
10840

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).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager
Date: 07/16/2021
(mm/dd/yyyy)

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PRODUCT CODE:

PFODA

10847 NS 01/18/23

LOT NUMBER:

PFODA0821

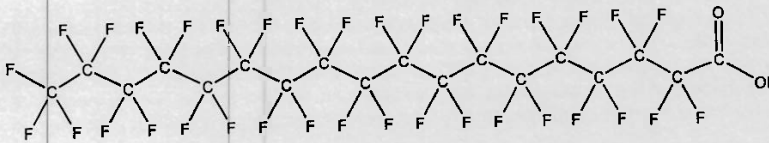
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

C₁₈H₃₅O₂

MOLECULAR WEIGHT:

914.14

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

09/03/2021

EXPIRY DATE: (mm/dd/yyyy)

09/03/2026

RECOMMENDED STORAGE:

Store ampoule at ambient temperature in a dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 09/28/2021

(mm/dd/yyyy)

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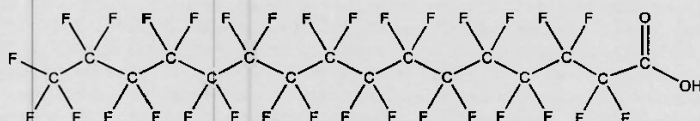
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

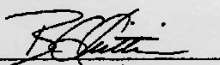
DOCUMENTATION/ DATA ATTACHED:

- 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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
 B.G. Chittim, General Manager **Date:** 05/25/2021
 (mm/dd/yyyy)

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Form#:27, Issued 2004-11-10
 Revision#:9, Revised 2020-12-23

PFHxDA0421 (1 of 4)
 rev0

7.9.1

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1116B on the back nw



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

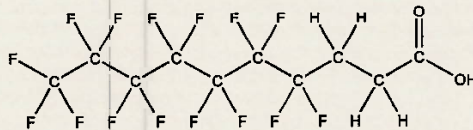
COMPOUND:

3-Perfluoroheptyl propanoic acid

STRUCTURE:

CAS #:

812-70-4



MOLECULAR FORMULA:

C₁₀H₅F₁₅O₂

MOLECULAR WEIGHT:

442.12

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/12/2020

EXPIRY DATE: (mm/dd/yyyy)

11/12/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 11/27/2020

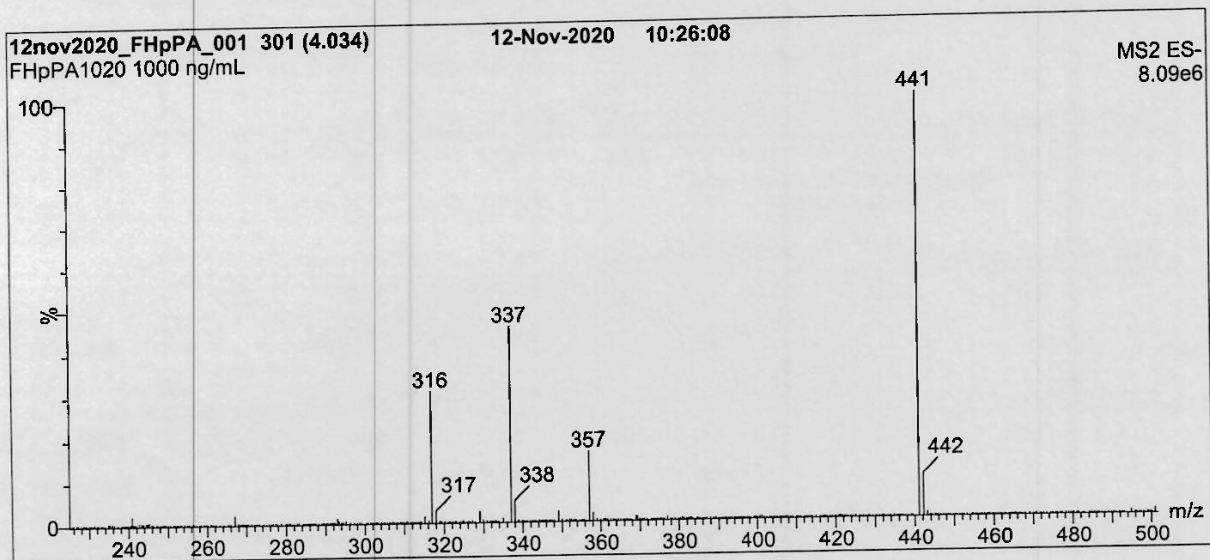
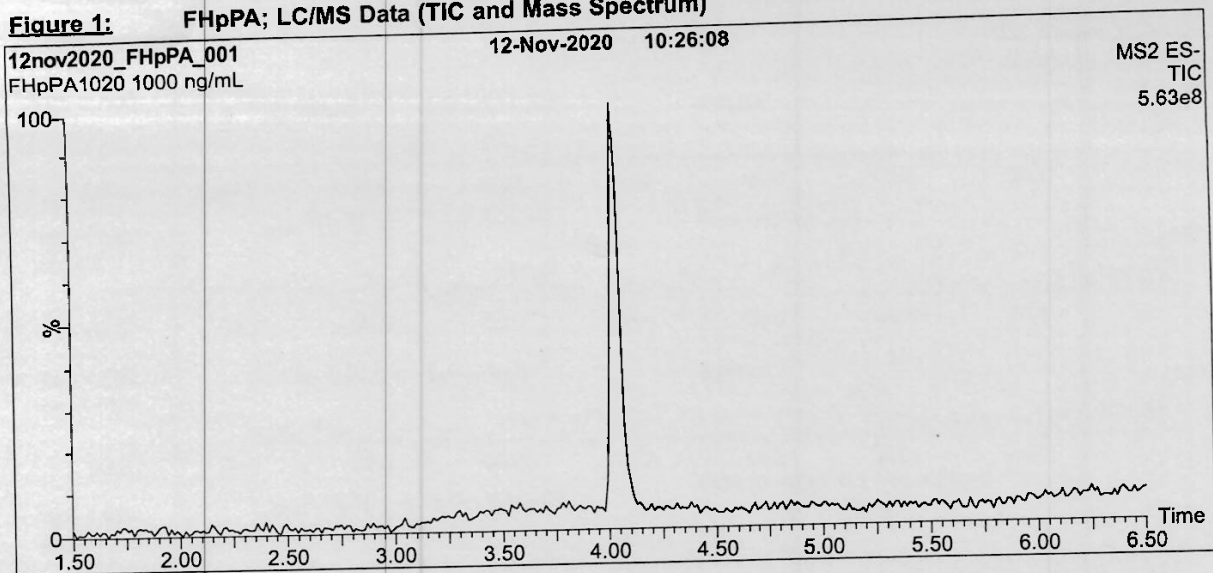
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

FHpPA1020 (1 of 4)
rev0

Figure 1: FHpPA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 28.50
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

FP_rPA(3:3FTEA) 1116 B



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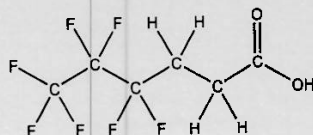
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FPrPA
COMPOUND: 3-Perfluoropropyl propanoic acid

LOT NUMBER: FPrPA0122

STRUCTURE:

CAS #: 356-02-5



MOLECULAR FORMULA: C₆H₅F₇O₂
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/03/2022
EXPIRY DATE: (mm/dd/yyyy) 02/03/2027
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 242.09
SOLVENT(S): Methanol

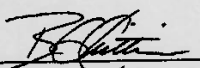
DOCUMENTATION/ DATA ATTACHED:

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 <1% of the unsaturated 3:3 telomer acid (C₆H₃F₇O₂) as an impurity determined by ¹⁹F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 02/04/2022
(mm/dd/yyyy)

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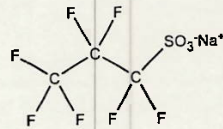
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

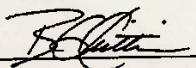
DOCUMENTATION/ DATA ATTACHED:

- 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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Revision#:9, Revised 2020-12-23

LPFPrS0721 (1 of 4)
rev0

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

LOT NUMBER:

FHxSA12211

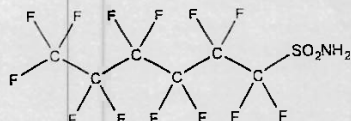
COMPOUND:

Perfluoro-1-hexanesulfonamide

STRUCTURE:

CAS #:

41997-13-1



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:

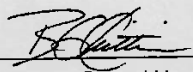
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:


B.G. Chittim, General Manager

Date: 01/10/2022

(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FBSA-I

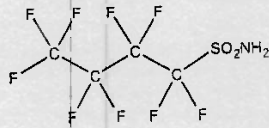
LOT NUMBER: FBSA11211

COMPOUND:

Perfluoro-1-butananesulfonamide

STRUCTURE:

CAS #: 30334-69-1



MOLECULAR FORMULA:

C₄H₂F₉NO₂S

MOLECULAR WEIGHT: 299.11

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S): Isopropanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/10/2021

EXPIRY DATE: (mm/dd/yyyy)

11/10/2026

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 11/10/2021

(mm/dd/yyyy)

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FBSA11211 (1 of 4)
rev0

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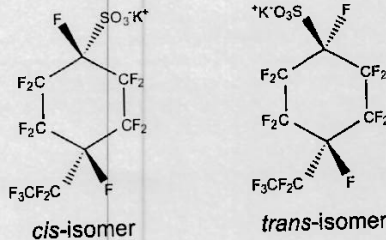
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:
COMPOUND:

PFECHS
Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

LOT NUMBER: PFECHS0222

STRUCTURE:



CAS #: 335-24-0

MOLECULAR FORMULA:
CONCENTRATION:

$C_8F_{15}SO_3K$
50.0 ± 2.5 µg/mL (K salt)
46.2 ± 2.3 µg/mL (PFECHS acid)
46.1 ± 2.3 µg/mL (PFECHS anion)
>98%

MOLECULAR WEIGHT: 500.22
SOLVENT(S): Methanol

CHEMICAL PURITY:

LAST TESTED: (mm/dd/yyyy)

03/28/2022

EXPIRY DATE: (mm/dd/yyyy)

03/28/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 03/30/2022
(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

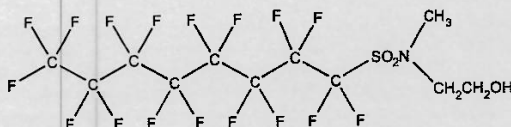
NMeFOSE0522M

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.

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Certified By:

B.G. Chittim, General Manager
Date: 06/14/2022
(mm/dd/yyyy)

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11494



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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSE

2-(N-Methylperfluorooctanesulfonamido)ethanol Isomeric Mix

<u>PRODUCT CODE:</u>	br-NMeFOSE
<u>LOT NUMBER:</u>	brNMeFOSE0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/02/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/07/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-methylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
 Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
 Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
 Figure 3: LC/MS Data (SIR)
 Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 24448-09-7 (for linear isomer).

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brNMeFOSE0922 (1 of 7)
rev1

7.9.1

7

11495



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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSE

2-(N-Ethylperfluorooctanesulfonamido)ethanol Isomeric Mix

PRODUCT CODE: br-NEtFOSE
LOT NUMBER: brNEtFOSE1022
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 09/12/2022
LAST TESTED: (mm/dd/yyyy) 09/12/2022 (HRGC/LRMS)
 10/07/2022 (LC/MS)
EXPIRY DATE: (mm/dd/yyyy) 10/07/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

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brNEtFOSE1022 (1 of 7)
rev1

7.9.1

7

11497



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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSA

N-Methylperfluorooctanesulfonamide Isomeric Mix

<u>PRODUCT CODE:</u>	br-NMeFOSA
<u>LOT NUMBER:</u>	brNMeFOSA0822
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/18/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	08/23/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	08/23/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 31506-32-8 (for linear isomer).

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brNMeFOSA0822 (1 of 6)
rev1

7.9.1

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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSA

N-Ethylperfluorooctanesulfonamide Isomeric Mix

<u>PRODUCT CODE:</u>	br-NEtFOSA
<u>LOT NUMBER:</u>	brNEtFOSA0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/23/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	10/07/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 4151-50-2 (for linear isomer).

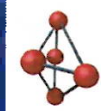
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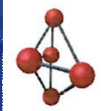
Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

brNEtFOSA0922 (1 of 6)
rev1

7.9.1
7



Certified Reference Material CRM



Part Number: 031323
Lot Number: 64029A
Description: PFOA - LOD 28 components
Expiration Date: 1/10/2025
Recommended Storage: 100.0
Net Concentration (µg/mL): 1.0
Notes: Volumes shown below were combined and diluted to (mL).
Note: All assigned values are atom concentrations.

Solvent(s): Methanol (1 mL KOH) 2-Propanol
Lot: 10722 (85%) 32500 (2%)
Balance Uncertainty: 0.001
Peak Uncertainty: 0.001

Formulated By: Prashant Chauhan
Reviewed By: Pedro L. Ramos

DATE: 03/13/23
DATE: 03/13/23

Expanded Uncertainty: (k=2)
Concentration: (µg/mL)
Final Concentration: (µg/mL)

Compound	Part Number	Lot	Dilution Factor	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Initial Final	Expanded Uncertainty (k=2)	Concentration (µg/mL)	Final Concentration (µg/mL)	SDS Information (Government CAS#)	OSHA PEL (TWA)	LOEL
1. Perfluoro-n-butanoic acid (PFNSA)	99542	110422	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A	N/A
2. Perfluoro-n-pentanoic acid (PFPPa)	99543	011723	0.02	2.00	0.017	50.3	1.01	0.02	2705-90-3	N/A	N/A	N/A
3. Perfluoro-n-hexanoic acid (PFHPa)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4	N/A	N/A	N/A
4. Perfluoro-n-heptanoic acid (PFHPa)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-85-9	N/A	N/A	N/A
5. Perfluoro-n-octanoic acid (PFPOA)	99202	090522	0.02	2.00	0.017	50.2	1.00	0.02	355-87-1 (L)	N/A	per se 100 mg/kg	N/A
6. Perfluoro-n-nonoic acid (PFNOA)	99200	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1	N/A	N/A	N/A
7. Perfluoro-n-decanoic acid (PFDA)	99195	110922	0.02	2.00	0.017	50.2	1.00	0.02	2059-94-8	N/A	N/A	per se 57 mg/kg
8. Perfluoro-n-undecanoic acid (PFUa)	99205	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A	N/A
9. Perfluoro-n-dodecanoic acid (PFDOa)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02	72609-94-8	N/A	N/A	N/A
10. Perfluoro-tridecanoic acid (PFTRDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	376-06-7	N/A	N/A	N/A
11. Perfluoro-tetradecanoic acid (PFTDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	754-91-6	N/A	N/A	N/A
12. Perfluoro-1-iodo-n-tetradecanoic acid (PFISa)	3677	FOSA0321	0.02	2.00	0.017	50.0	1.00	0.05	2955-31-9 (L)	N/A	N/A	N/A
13. Methylperfluorooctanoate (PFMOA)	4162	BNMFOA0422	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A	N/A
14. Methylperfluorooctanoate sodium salt (PFNEFOA)	4163	BNNEFOA1121	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A	N/A
15. Perfluorobutanesulfonic acid (PFBS)	99194	090522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5	N/A	N/A	N/A
16. Perfluoropentanesulfonic acid (PFPS)	99544	091522	0.02	2.00	0.017	50.1	1.00	0.02	2706-91-4	N/A	N/A	N/A
17. Perfluorohexanesulfonic acid (PFHPS)	99198	030923	0.02	2.00	0.017	50.0	1.00	0.02	355-46-4 (L)	N/A	N/A	N/A
18. Perfluoroheptanesulfonic acid (PFHPS)	3672	LFPHS0822	0.021	2.10	0.017	47.8	1.00	0.05	375-95-8	N/A	N/A	N/A
19. Perfluorooctanesulfonic acid (PFOS)	99201	030923	0.021	2.10	0.017	47.9	1.00	0.02	1783-23-1 (L)	N/A	N/A	N/A
20. Perfluorononanesulfonic acid (PFNS)	3987	LFPNH1122	0.021	2.10	0.017	48.0	1.01	0.05	68259-12-1	N/A	N/A	N/A
21. Perfluorodecane sulfonic acid (PFDS)	3671	LFPOH1122	0.021	2.10	0.017	48.2	1.01	0.05	335-77-3	N/A	N/A	N/A
22. 1H,1H,2,2,2-Tetrafluoroethane sulfonic acid (2:2:1:5)	68271	030522	0.02	2.00	0.017	50.2	1.00	0.05	279124-72-4	N/A	N/A	N/A
23. 1H,1H,1,1,2,2,2-Hexafluoroethane sulfonic acid (6:2:1:5)	68272	031023	0.02	2.00	0.017	50.2	1.00	0.05	7819-87-2	N/A	N/A	N/A
24. 1H,1H,1,1,2,2,2,2-Heptafluoroethane sulfonic acid (7:2:1:5)	3682	8F150822	0.02	2.00	0.017	47.9	1.01	0.05	33108-34-4	N/A	N/A	N/A
25. 2,2,2-Trifluoroethyl-2,2,2-trifluoroethylsulfonic acid (TFPOA)	99598	060522	0.02	2.00	0.017	50.1	1.00	0.02	13205-13-6	N/A	N/A	N/A
26. 1-Chloro-2,2,2-trifluoroethyl-2,2,2-trifluoroethylsulfonic acid (1:CF:TFPOA)	4166	11CF:TFPOA022	0.021	2.12	0.017	47.1	1.00	0.05	783051-28-9	N/A	N/A	N/A
27. 2-Chloro-2,2,2-trifluoroethyl-2,2,2-trifluoroethylsulfonic acid (2:CF:TFPOA)	4164	2CF:TFPOA022	0.021	2.14	0.017	46.8	1.00	0.05	79426-36-1	N/A	N/A	N/A
28. Decabromo-3,3',4,4'-tetrabromobiphenyl (DBOBA)	4103	NBD0FA0622	0.021	2.12	0.017	47.1	1.00	0.05	919005-14-4	N/A	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	060622	0.02	2.00	0.004	48.6	0.99	0.010	335-67-1 (L)	N/A	per se 100 mg/kg	N/A
Perfluorodecanoic acid (branched isomer)*	99202	060622	0.02	2.00	0.004	0.6	0.01	0.001	335-67-1 (L)	N/A	per se 100 mg/kg	N/A
Perfluoroundecanoic acid (linear)*	99198	030923	0.02	2.00	0.017	44.0	0.88	0.02	355-46-4 (L)	N/A	N/A	N/A
Perfluorododecanoic acid (branched isomer)*	99198	030923	0.02	2.00	0.017	6.0	0.12	0.0020	355-46-4 (L)	N/A	N/A	N/A
Perfluorotridecanoic acid (linear)*	99201	030923	0.02	2.00	0.017	38.1	0.76	0.02	1783-23-1 (L)	N/A	N/A	N/A
Perfluorotetradecanoic acid (branched isomer)*	99201	030923	0.02	2.00	0.017	7.5	0.15	0.005	1783-23-1 (L)	N/A	N/A	N/A
Perfluoropentadecanoic acid (branched isomer)*	99201	030923	0.02	2.00	0.017	4.0	0.08	0.002	1783-23-1 (L)	N/A	N/A	N/A
Perfluorohexadecanoic acid (branched isomer)*	99201	030923	0.02	2.00	0.017	0.5	0.010	0.0002	1783-23-1 (L)	N/A	N/A	N/A
Methylperfluorooctanoate (linear)*	4162	BNMFOA0422	0.02	2.00	0.017	36.0	0.72	0.04	2955-31-9 (L)	N/A	N/A	N/A
Methylperfluorooctanoate sodium salt (linear)*	4162	BNNEFOA0422	0.02	2.00	0.017	6.5	0.13	0.011	2955-31-9 (L)	N/A	N/A	N/A
Methylperfluorodecanoate (linear)*	4162	BNMFOA0422	0.02	2.00	0.017	5.0	0.10	0.005	2955-31-9 (L)	N/A	N/A	N/A
Methylperfluorodecanoate sodium salt (linear)*	4162	BNNEFOA0422	0.02	2.00	0.017	2.5	0.05	0.0009	2955-31-9 (L)	N/A	N/A	N/A
Methylperfluoroundecanoate (linear)*	4163	BNMFOA1121	0.02	2.00	0.017	36.5	0.73	0.04	2991-50-6 (L)	N/A	N/A	N/A
Methylperfluoroundecanoate sodium salt (linear)*	4163	BNNEFOA1121	0.02	2.00	0.017	7.7	0.15	0.009	2991-50-6 (L)	N/A	N/A	N/A
Methylperfluorododecanoate (linear)*	4163	BNMFOA1121	0.02	2.00	0.017	5.3	0.11	0.005	2991-50-6 (L)	N/A	N/A	N/A
Methylperfluorododecanoate sodium salt (linear)*	4163	BNNEFOA1121	0.02	2.00	0.017	0.4	0.007	0.0006	2991-50-6 (L)	N/A	N/A	N/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. Subsequent PFOA analysis must be done using the quantitative standard (Sect. 12.2) and a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.

*The certified value is the concentration calculated from gravimetric and volumetric measurements under reference conditions.
*Standard is certified to 0.5% of the stated value, unless otherwise noted.
*All standards, after opening ampule, should be stored with cap tightly and under appropriate laboratory conditions.
*This certificate is valid for the period of time stated on this certificate. For more information, please contact Absolute Standards, Inc. at 800-368-1131.
*NIST Technical Note 1871, U.S. Government Printing Office, Washington, DC, (1994).



11799 A-B
rec'd: 05/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXH
<u>LOT NUMBER:</u>	PFACMXH0423
<u>SOLVENT(S):</u>	Methanol/Isopropanol (2%)/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	04/06/2023
<u>LAST TESTED:</u> (mm/dd/yyyy)	04/19/2023
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	04/19/2028
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₅, C₇, C₉, C₁₀ and C₁₂ linear; C₆ 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. 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 N-MeFOSAA
- Table C: Isomeric Components and Percent Composition of N-EtFOSAA
- 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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Form#: 13, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

PFACMXH0423 (1 of 11)
rev1

7.9.1
7

Table A: PFAC-MXH; Components and Concentrations
(ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFUdA	1000		23
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTrDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		24
N-Methylperfluorooctanesulfonamidoacetic acid ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-Ethylperfluorooctanesulfonamidoacetic acid ^b	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNs	1000	962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2Fts	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2Fts	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2Fts	4000	3840	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: 05/11/2023
(mm/dd/yyyy)

11801A-B
rec'd: 05/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS
Solution/Mixture

PRODUCT CODE:

PFAC-MXF

LOT NUMBER:

PFACMXF0323

SOLVENT(S):

Methanol / Water (<1%)

DATE PREPARED: (mm/dd/yyyy)

03/23/2023

LAST TESTED: (mm/dd/yyyy)

03/24/2023

EXPIRY DATE: (mm/dd/yyyy)

03/24/2026

RECOMMENDED STORAGE:

Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). 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
- 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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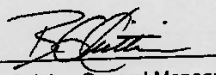
Form# 13, Issued 2004-11-10
Revision# 9, Revised 2020-12-23

PFACMXF0323 (1 of 5)
rev0

Table A: PFAC-MXF; Components and Concentrations (ng/mL; \pm 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-(1,1,2,2,3,3,3-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:  Date: 03/29/2023
(mm/dd/yyyy)
 B.G. Chittim, General Manager

11802 A-B
rec'd: 05/15/23



WELLINGTON LABORATORIES

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>	PFACMXG1122
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	11/30/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	12/01/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	12/01/2027
<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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Form#: 13, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

PFACMXG1122 (1 of 5)
rev0

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7

Table A: PFAC-MXG; Components and Concentrations (ng/mL; \pm 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-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

* Concentrations have been rounded to three significant figures.

Certified By: _____

B.G. Chittim, General Manager

Date: 12/09/2022
(mm/dd/yyyy)

11803 A-B
rec'd: 05/15/23

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE:
LOT NUMBER:
SOLVENT(S):
DATE PREPARED: (mm/dd/yyyy)
LAST TESTED: (mm/dd/yyyy)
EXPIRY DATE: (mm/dd/yyyy)
RECOMMENDED STORAGE:

PFAC-MXJ
PFACMXJ0323
Methanol
03/27/2023
03/28/2023
03/28/2028
Refrigerate ampoule

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

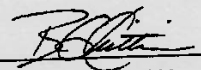
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Concentrations (µg/mL; ± 5% in methanol)

Table A: PFAC-MXJ; Components and

Compound	Acronym	Concentration (µg/mL)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By: 
B.G. Chittim, General Manager

Date: 04/12/2023
(mm/dd/yyyy)

11850 A-J
rec'd: 06/01/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-ES
LOT NUMBER: MPFACHIFES1022
SOLVENT(S): Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 10/28/2022
LAST TESTED: (mm/dd/yyyy) 11/23/2022
EXPIRY DATE: (mm/dd/yyyy) 11/23/2025
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) perfluorooctane-sulfonamidoethanols, 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		18
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	250		22
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		17
N-methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		24
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-ethyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₄ -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₄ -ol	d9-N-EtFOSE	5000		23
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: 11/24/2022
(mm/dd/yyyy)

11851 A-J
REC'D: 06/01/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

**Mass-Labelled PFAS Injection
Standard Solution/Mixture**

PRODUCT CODE: MPFAC-HIF-IS
LOT NUMBER: MPFACHIFIS1122
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 11/28/2022
LAST TESTED: (mm/dd/yyyy) 11/29/2022
EXPIRY DATE: (mm/dd/yyyy) 11/29/2027
RECOMMENDED STORAGE: 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.

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Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

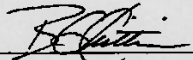
MPFACHIFIS1122 (1 of 5)
rev0

7.9.1
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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: 12/05/2022
(mm/dd/yyyy)

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time Started 06/09/23 11:30

Method EPA 1633 Draft (QSM) List 40

Date/Time Finished 6/12/23 9:40 AM

Balance ID: _____

Batch# OP97275 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 97275 MB		500	7						
OP 97275 BS		500	7	N/A	25		5	A4	
OP 97275 LLBS		500	7	N/A		200			
FC66445-4 Re	3	510	7			60			
FC6649-1	2	540	7						
	2	540	7						
	3	560	6						
	4	570	6						
	5	530	6						
	6	560	6						
FC6651-1	2	550	6						
	2	560	6					A4	
	2	520	6					A6	
	3	560	6						
	4	570	6						
	5	530	6						
FC6699-1	2	550	6						
	2	560	6						
	3	560	6						
FC66445-4 Re	1	60	7	N/A	25		5	A6	
OP FC6649-1 MS	3	550	7	N/A	25	200	5	A4	
OP MSD									
OP FC6649-4 DUP	3	570	6	N/A	25		5	A4	

Comments:

EIS (SURR) ID: 11821 F-H Conc: 250-5000 ng/mL Exp. Date 06/05/24 Inj. By: GH Ver. By: CM
 SPIKE.1 ID: LEMS 2127A Conc: VARIED Exp. Date: 10/28/23 Inj. By: GH Ver. By: CM
 SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 11820 F-H MS Conc: 250-1000 Exp. Date 06/05/24 Inj. By: MV Ver. By: NG

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot# 224279 1% NH4OH MeOH PF433 SPE Lot# 6736233-03
 Water Lot# OP97000 0.3M Formic Acid PF419 Syringe filter Lot# _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 215322
 0.1M Formic PF428 5% Formic Acid _____ Carbon Lot# 99687

Relinquished By: [Signature]
 Accepted By: [Signature]

Date: 06/09/23
 Date: 6/12/23

7.10.1
7