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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC6649A

Sampling Date: 06/05/23



Report to:

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Total number of pages in report: 650



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

Norm Farmer
Technical Director

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Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001)
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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: FC6649-3: AF-RHMW10-WGN01LF-2306	7
4.2: FC6649-4: AF-RHMW04-WGN01LF-2306	10
4.3: FC6649-5: AF-RHMW16-WGN01LF-2306	13
4.4: FC6649-6: AF-RHMW06-WGN01LF-2306	16
Section 5: Misc. Forms	19
5.1: Chain of Custody	20
5.2: QC Evaluation: DOD QSM5.x Limits	29
Section 6: MS Semi-volatiles - QC Data Summaries	30
6.1: Method Blank Summary	31
6.2: Blank Spike Summary	39
6.3: Matrix Spike Summary	43
6.4: Duplicate Summary	45
6.5: Injection Standard Area Summaries	47
6.6: TDCA Retention Time Checks	51
6.7: Ion Ratio Summaries	53
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	122
7.3: Blank Spikes	167
7.4: Matrix Spikes	211
7.5: Duplicates	233
7.6: Retention Time Markers	245
7.7: Initial and Continuing Calibrations	271
7.8: Instrument Run Logs	603
7.9: Standard Prep Logs	605
7.10: Sample Prep Logs	650



Sample Summary

AECOM, INC.

Job No: FC6649A

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC6649-3	06/05/23	10:40	GMA06/06/23	AQ	Ground Water	AF-RHMW10-WGN01LF-2306
FC6649-4	06/05/23	11:05	CH 06/06/23	AQ	Ground Water	AF-RHMW04-WGN01LF-2306
FC6649-5	06/05/23	12:50	CPAY 06/06/23	AQ	Ground Water	AF-RHMW16-WGN01LF-2306
FC6649-6	06/05/23	15:00	CH 06/06/23	AQ	Ground Water	AF-RHMW06-WGN01LF-2306

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC6649A

Site: N6274223F0104 RH Fire Suppression System

Report Date: 6/14/2023 2:54:16 PM

On 06/06/2023, 4 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 4.2 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC6649A 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, FC6649-1MS 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.

FC6649-3 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits.

FC6649-3 for MeFOSAA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6649-3 for Perfluorodecanesulfonic acid: Associated Low Level CCV outside of control limits high, sample was ND.

FC6649-3 for PFEESA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6649-4 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits.

FC6649-4 for MeFOSAA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6649-4 for Perfluorodecanesulfonic acid: Associated Low Level CCV outside of control limits high, sample was ND.

FC6649-4 for PFEESA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6649-5 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits.

FC6649-5 for MeFOSAA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6649-5 for Perfluorodecanesulfonic acid: Associated Low Level CCV outside of control limits high, sample was ND.

FC6649-5 for PFEESA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6649-6 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits.

FC6649-6 for MeFOSAA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6649-6 for Perfluorodecanesulfonic acid: Associated Low Level CCV outside of control limits high, sample was ND.

FC6649-6 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: FC6649A
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 06/05/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC6649-3 AF-RHMW10-WGN01LF-2306

No hits reported in this sample.

FC6649-4 AF-RHMW04-WGN01LF-2306

6:2 Fluorotelomer sulfonate	8.5 J	19	7.5	ng/l	EPA DRAFT 1633
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FC6649-5 AF-RHMW16-WGN01LF-2306

No hits reported in this sample.

FC6649-6 AF-RHMW06-WGN01LF-2306

No hits reported in this sample.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW10-WGN01LF-2306		
Lab Sample ID:	FC6649-3	Date Sampled:	06/05/23
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	6Q19271.D	1	06/12/23 23:01	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
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PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	3.5 U	14	3.5	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.0	1.8	0.82	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
335-67-1	Perfluorooctanoic acid	0.88 U	3.5	0.88	0.44	ng/l	
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	7.0 U	18	7.0	3.0	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.6	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.8 U	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-RHMW10-WGN01LF-2306		
Lab Sample ID:	FC6649-3	Date Sampled:	06/05/23
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	3.5 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	117%		20-150%
	13C5-PFPeA	118%		20-150%
	13C5-PFHxA	113%		20-150%
	13C4-PFHpA	114%		20-150%
	13C8-PFOA	128%		20-150%
	13C9-PFNA	113%		20-150%
	13C6-PFDA	123%		20-150%
	13C7-PFUnDA	113%		20-150%
	13C2-PFDoDA	115%		20-150%
	13C2-PFTeDA	102%		20-150%
	13C3-PFBS	120%		20-150%
	13C3-PFHxS	121%		20-150%

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

Report of Analysis

Client Sample ID:	AF-RHMW10-WGN01LF-2306	
Lab Sample ID:	FC6649-3	Date Sampled: 06/05/23
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	120%		20-150%
	13C8-FOSA	102%		20-150%
	d3-MeFOSA	94%		20-150%
	d5-EtFOSA	98%		20-150%
	d3-MeFOSAA	115%		20-150%
	d5-EtFOSAA	117%		20-150%
	d7-MeFOSE	82%		20-150%
	d9-EtFOSE	84%		20-150%
	13C2-4:2FTS	138%		20-180%
	13C2-6:2FTS	132%		20-180%
	13C2-8:2FTS	119%		20-180%
	13C3-HFPO-DA	117%		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-RHMW04-WGN01LF-2306		
Lab Sample ID:	FC6649-4	Date Sampled:	06/05/23
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	6Q19274.D	1	06/12/23 23:43	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
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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	7.5	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
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	8.5	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-RHMW04-WGN01LF-2306	
Lab Sample ID:	FC6649-4	Date Sampled: 06/05/23
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	3.8 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	107%		20-150%
	13C5-PFPeA	113%		20-150%
	13C5-PFHxA	117%		20-150%
	13C4-PFHpA	110%		20-150%
	13C8-PFOA	116%		20-150%
	13C9-PFNA	107%		20-150%
	13C6-PFDA	101%		20-150%
	13C7-PFUnDA	95%		20-150%
	13C2-PFDoDA	88%		20-150%
	13C2-PFTeDA	84%		20-150%
	13C3-PFBS	118%		20-150%
	13C3-PFHxS	114%		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

4.2
4

Report of Analysis

Client Sample ID:	AF-RHMW04-WGN01LF-2306		Date Sampled:	06/05/23
Lab Sample ID:	FC6649-4		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.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	105%		20-150%
	13C8-FOSA	92%		20-150%
	d3-MeFOSA	79%		20-150%
	d5-EtFOSA	80%		20-150%
	d3-MeFOSAA	102%		20-150%
	d5-EtFOSAA	97%		20-150%
	d7-MeFOSE	67%		20-150%
	d9-EtFOSE	69%		20-150%
	13C2-4:2FTS	135%		20-180%
	13C2-6:2FTS	127%		20-180%
	13C2-8:2FTS	109%		20-180%
	13C3-HFPO-DA	102%		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-RHMW16-WGN01LF-2306		
Lab Sample ID:	FC6649-5	Date Sampled:	06/05/23
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	6Q19276.D	1	06/13/23 00:11	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
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PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	3.6 U	14	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.1	1.8	0.84	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
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-RHMW16-WGN01LF-2306		
Lab Sample ID:	FC6649-5	Date Sampled:	06/05/23
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	3.6 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	91%	20-150%
13C5-PFPeA	109%	20-150%
13C5-PFHxA	107%	20-150%
13C4-PFHpA	105%	20-150%
13C8-PFOA	112%	20-150%
13C9-PFNA	95%	20-150%
13C6-PFDA	100%	20-150%
13C7-PFUnDA	84%	20-150%
13C2-PFDoDA	83%	20-150%
13C2-PFTeDA	74%	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

4.3
4

Report of Analysis

Client Sample ID:	AF-RHMW16-WGN01LF-2306		
Lab Sample ID:	FC6649-5	Date Sampled:	06/05/23
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	106%		20-150%
	13C8-FOSA	96%		20-150%
	d3-MeFOSA	85%		20-150%
	d5-EtFOSA	92%		20-150%
	d3-MeFOSAA	114%		20-150%
	d5-EtFOSAA	102%		20-150%
	d7-MeFOSE	72%		20-150%
	d9-EtFOSE	76%		20-150%
	13C2-4:2FTS	125%		20-180%
	13C2-6:2FTS	128%		20-180%
	13C2-8:2FTS	104%		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-RHMW06-WGN01LF-2306		
Lab Sample ID:	FC6649-6	Date Sampled:	06/05/23
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	6Q19277.D	1	06/13/23 00:25	MV	06/09/23 11:30	OP97275	S6Q287
Run #2							

Run #	Initial Volume	Final Volume
Run #1	550 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	3.6 U	15	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.3	1.8	0.85	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.91 U	3.6	0.91	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.55	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	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.76	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	0.64	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	0.49	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid ^a	1.8 U	3.6	1.8	0.58	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	7.3 U	18	7.3	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.7	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.8 U	3.6	1.8	0.61	ng/l	
31506-32-8	MeFOSA	3.6 U	7.3	3.6	0.91	ng/l	
4151-50-2	EtFOSA	3.6 U	7.3	3.6	0.91	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-RHMW06-WGN01LF-2306		
Lab Sample ID:	FC6649-6	Date Sampled:	06/05/23
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	0.91	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	4.0	ng/l	
1691-99-2	EtFOSE	18 U	36	18	6.7	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.8 U	3.6	1.8	0.91	ng/l	
919005-14-4	ADONA	3.6 U	7.3	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	7.3	1.8	0.91	ng/l	
863090-89-5	PFMBA	3.6 U	7.3	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	7.3	3.6	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	7.3	3.6	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	7.3	3.6	1.6	ng/l	
113507-82-7	PFEESA ^a	1.8 U	7.3	1.8	0.71	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylat ^b	9.1 U	18	9.1	4.1	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	91	18	7.9	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	91	18	7.1	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	117%		20-150%
	13C5-PFPeA	121%		20-150%
	13C5-PFHxA	114%		20-150%
	13C4-PFHpA	116%		20-150%
	13C8-PFOA	128%		20-150%
	13C9-PFNA	131%		20-150%
	13C6-PFDA	118%		20-150%
	13C7-PFUnDA	99%		20-150%
	13C2-PFDoDA	96%		20-150%
	13C2-PFTeDA	82%		20-150%
	13C3-PFBS	119%		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

Report of Analysis

Client Sample ID:	AF-RHMW06-WGN01LF-2306		
Lab Sample ID:	FC6649-6	Date Sampled:	06/05/23
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	117%		20-150%
	13C8-FOSA	95%		20-150%
	d3-MeFOSA	85%		20-150%
	d5-EtFOSA	90%		20-150%
	d3-MeFOSAA	116%		20-150%
	d5-EtFOSAA	104%		20-150%
	d7-MeFOSE	75%		20-150%
	d9-EtFOSE	76%		20-150%
	13C2-4:2FTS	135%		20-180%
	13C2-6:2FTS	137%		20-180%
	13C2-8:2FTS	128%		20-180%
	13C3-HFPO-DA	116%		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 #: 2305W5AFSG11

PAGE 1 OF 1

SGS - ORLANDO JOB # :

SGS - ORLANDO Quote #

SKIFF #

FC6649

Client / Reporting Information			Project Information			Analytical Information										Matrix Codes				
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System			<div style="text-align: center;"> </div>										DW - Drinking Water GW - Ground Water WW - 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 #																
Phone #: 303-796-4624 / 808-954-4512			Client Purchase Order #			PFAS EPA Draft 1633 X X														
Sampler(s) Name(s) (Printed) Sampler 1: Anthony Lopez Sampler 2: Ben Switzer																				
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION										LAB USE ONLY					
		DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	PC	NaOH	HNDS	RECK	NaOH+ZnAC	DI WATER		MECH				
1	AF-RHMW17D-WGN01LF-2305W5	6/2/23	1030	BS, AL	GW	3		X												
2	AF-RHMW17D-WQFB01-2305W5	6/2/23	1020	BS, AL	GW	3		X												
										INITIAL ASSESSMENT <u>SP</u>										
										LABEL VERIFICATION <u>SP</u>										
Turnaround Time (Business days)					Data Deliverable Information					Comments / Remarks										
10 Day (Business) Approved By: / Date: _____ 7 Day _____ <input type="checkbox"/> 5 Day _____ 3 Day RUSH _____ 2 Day RUSH _____ 1 Day RUSH _____ Other _____					<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S					EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWE 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:			Received By/Affiliation								
1 Andy Young / AECOM			6/12/23 12:00			2 Sam Kelley / AECOM			6/15/23 1:50			4 United Cargo								
Relinquished by/Affiliation			Date Time:			Received By/Affiliation			Date Time:			Received By/Affiliation								
5 United Cargo			6 12/23 1730			7														
Lab Use Only: Cooler Temperature (s) Celsius (corrected): <u>4.2</u>																				

PFAS_COCs_ALL.xls Rev 031318

FC6649A: Chain of Custody

Page 1 of 9





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 #: 2306AFSG03

SGS - ORLANDO JOB #:

PAGE 1 OF 1

FC6649

SGS - ORLANDO Quote #

SKIFF #

Form containing Client/Reporting Information, Project Information, Analytical Information, Matrix Codes, and Chain of Custody table with columns for Sample #, Field ID, Date, Time, and various analytical parameters.

5.1 5

FC6649A: Chain of Custody

Page 2 of 9





SGS North America Inc - Orlando

Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, FL 32811
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COC #: 2306AFSG08


SGS - ORLANDO JOB #:

PAGE 1 OF 1

SGS - ORLANDO Quote #

SKIFF #

FC6649

Client / Reporting Information			Project Information								Analytical Information										Matrix Codes									
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System								<div style="writing-mode: vertical-rl; transform: rotate(180deg);">PFAS EPA Draft 1653</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 #																											
Phone #: 303-796-4624 / 808-954-4512			Client Purchase Order #								<p style="text-align: center;">INITIAL ASSESSMENT</p> <hr/> <p style="text-align: center;">LABEL VERIFICATION</p> <p style="text-align: center;">4.2 13#1</p>																			
Sampler(s) Name(s) (Printed)																														
Sampler 1: Sampler 2:																														
SGS Orlando Sample #			COLLECTION			CONTAINER INFORMATION															<p style="text-align: center;">LAB USE ONLY</p>									
Field ID / Point of Collection			DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NOVE	KCI																				
4	AF-RHWM04-WGN01LF-2306		6/5/23	1105	CH	GW	3		X																					
Turnaround Time (Business days)			Data Deliverable Information								Comments / Remarks																			
10 Day (Business) Approved By / Date: 7 Day <input checked="" type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other			<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S								EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWR 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/Affiliation 1 <i>Christina Hajdari AECOM</i>	Date Time: 6/5/23 1:30	Received By/Affiliation 2 <i>John Noman</i>	Relinquished By/Affiliation 3 <i>John Noman</i>	Date Time: 6/5/23 1:30	Received By/Affiliation 4 <i>United Cargo</i>	Relinquished by/Affiliation 5 <i>United Cargo</i>	Date Time: 6/6/23 17:30	Received By/Affiliation 6 <i>[Signature]</i>	Relinquished By/Affiliation 7 <i>[Signature]</i>	Date Time: 6/6/23 17:30	Received By/Affiliation 8 <i>[Signature]</i>																			
Lab Use Only: Cooler Temperature (s) Celsius (corrected):			http://www.sgs.com/en/terms-and-conditions																											

5.1
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FC6649A: Chain of Custody

Page 3 of 9





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 #: 2306AFSG06

SGS - ORLANDO JOB #:

PAGE 1 OF 1

SGS - ORLANDO Quote #

SKIFF #

FC6649

Client / Reporting Information, Project Information, Analytical Information, Matrix Codes, Collection, Container Information, Turnaround Time, Data Deliverable Information, Comments / Remarks, Relinquished/Received By/Affiliation, Date Time, Lab Use Only.

5.1 5

FC6649A: Chain of Custody

Page 4 of 9





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 #: 2306AFSG09

SGS - ORLANDO JOB #:

PAGE 1 OF 1

SGS - ORLANDO Quote #

SKIFF #

FC6649

Client / Reporting Information		Project Information		Analytical Information												Matrix Codes	
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">PFAS EPA Draft 1633</div> <div style="flex-grow: 1; text-align: center;"> </div> </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 # 60697810															
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #															
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order #															
Sampler(s) Name(s) (Printed)		Sampler 1: Sampler 2:															
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION										PFAS EPA Draft 1633	LAB USE ONLY	
		DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HIG	HN03	HS04	MOH+2M0C	DI WATER	WEDH			
10	AF-RHMW06-WGN01LF-2306	6-5-23	1500	CH	GW	3		X									
Turnaround Time (Business days)		Approved By: / Date:		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				<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 V.A. Tech 6/15/23 016 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 Christina Brantley		6-5-23		2 [Signature] AECOM				5/4/23 1600		3 [Signature]				5/4/23		4 United Cargo	
5 United Cargo				6 [Signature] 1730						7 [Signature]						8	
Lab Use Only: Cooler Temperature (s) Celsius (corrected):		http://www.sgs.com/en/terms-and-conditions															

PFAS_COCS_ALL.xls Rev 031318

FC6649A: Chain of Custody

Page 5 of 9



SGS Sample Receipt Summary

Job Number: FC6649

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: (4.3);

Cooler Temps (Corrected) °C: Cooler 1: (4.2);

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"/>
	W	or	S	N/A
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

FC6649A: Chain of Custody

Page 6 of 9

Job Change Order: FC6649

Requested Date:	6/14/2023	Received Date:	6/6/2023
Account Name:	AECOM, INC.	Due Date:	6/13/2023
Project Description:	N6274223F0104 RH Fire Suppression System	Deliverable:	FULT2
CSR:	EK	TAT (Days):	7

=====
Sample #: FC6649-1 **Change:**
Dept: Sample to be reported separately for EDMS Upload to GW 2023 May Event.
TAT: Reissue report under Job FC6649
7

AF-RHMW17D-WGN01LF-2305W5
=====

=====
Sample #: FC6649-2 **Change:**
Dept: Sample to be reported separately for EDMS Upload to GW 2023 May Event
TAT: 7

AF-RHMW17D-WQFB01-2305W5
=====

FC6649A: Chain of Custody

Above Changes Per: Mark Kromis

Date/Time: 6/14/2023 3:33:00 PM

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Job Change Order: FC6649A

Requested Date: 6/14/2023 **Received Date:** 6/6/2023
Account Name: AECOM, INC. **Due Date:** 6/13/2023
Project Description: N6274223F0104 RH Fire Suppression System **Deliverable:** FULT2
CSR: EK **TAT (Days):** 7

=====
Sample #: FC6649A-3 **Change:**
Dept: Sample to be reported separately for EDMS Upload to GW 2023 June Event.
Reissue report under Job FC6649A
TAT: 7
AF-RHMW10-WGN01LF-2306
=====

=====
Sample #: FC6649A-4 **Change:**
Dept: Sample to be reported separately for EDMS Upload to GW 2023 June Event.
Reissue report under Job FC6649A
TAT: 7
AF-RHMW04-WGN01LF-2306
=====

=====
Sample #: FC6649A-5 **Change:**
Dept: Sample to be reported separately for EDMS Upload to GW 2023 June Event.
Reissue report under Job FC6649A
TAT: 7
AF-RHMW16-WGN01LF-2306
=====

=====
Sample #: FC6649A-6 **Change:**
Dept: Sample to be reported separately for EDMS Upload to GW 2023 June Event.
Reissue report under Job FC6649A
TAT: 7
AF-RHMW06-WGN01LF-2306
=====

FC6649A: Chain of Custody

Page 8 of 9

Above Changes Per: Mark Kromis

Date/Time: 6/14/2023 3:38:23 PM

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Page 1 of 2

5.1
5

Job Change Order: FC6649A

Requested Date:	6/14/2023	Received Date:	6/6/2023
Account Name:	AECOM, INC.	Due Date:	6/13/2023
Project Description:	N6274223F0104 RH Fire Suppression System	Deliverable:	FULT2
CSR:	EK	TAT (Days):	7

5.1
5

FC6649A: Chain of Custody

Page 9 of 9

Above Changes Per: Mark Kromis

Date/Time: 6/14/2023 3:38:23 PM

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Page 2 of 2

QC Evaluation: DOD QSM5.x Limits

Job Number: FC6649A
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 06/05/23

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 FC6649A

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: FC6649A
 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

FC6649-3, FC6649-4, FC6649-5, FC6649-6

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: FC6649A
 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

FC6649-3, FC6649-4, FC6649-5, FC6649-6

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%

6.1.1

6

Continuing Calibration Blank

Job Number: FC6649A
 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

FC6649-3

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: FC6649A
 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

FC6649-3

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%

Continuing Calibration Blank

Job Number: FC6649A
 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

FC6649-4, FC6649-5, FC6649-6

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: FC6649A
 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

FC6649-4, FC6649-5, FC6649-6

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: FC6649A
 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

FC6649-3, FC6649-4, FC6649-5, FC6649-6

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: FC6649A
 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

FC6649-3, FC6649-4, FC6649-5, FC6649-6

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%

6.1.4
6

Blank Spike Summary

Job Number: FC6649A
 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

FC6649-3, FC6649-4, FC6649-5, FC6649-6

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: FC6649A
 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

FC6649-3, FC6649-4, FC6649-5, FC6649-6

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: FC6649A
 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

FC6649-3, FC6649-4, FC6649-5, FC6649-6

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: FC6649A
 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

FC6649-3, FC6649-4, FC6649-5, FC6649-6

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: FC6649A
 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

FC6649-3, FC6649-4, FC6649-5, FC6649-6

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: FC6649A
 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

FC6649-3, FC6649-4, FC6649-5, FC6649-6

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: FC6649A
 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

FC6649-3, FC6649-4, FC6649-5, FC6649-6

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: FC6649A
 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

FC6649-3, FC6649-4, FC6649-5, FC6649-6

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: FC6649A
 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
FC6649-3	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-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.

Injection Standard Area Summary

Job Number: FC6649A
 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
FC6649-3	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.

6.5.1
6

Injection Standard Area Summary

Job Number: FC6649A
 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
FC6649-5	61800	3.10	48754	5.80	81859	7.35	48410	7.89	32446	8.40	1
FC6649-6	56464	3.10	45605	5.80	72120	7.35	40697	7.89	27764	8.39	1
ZZZZZZ	49189	3.10	44087	5.79	77344	7.34	38719	7.89	26988	8.39	1
ZZZZZZ	57651	3.10	44683	5.80	78578	7.35	41826	7.89	27161	8.39	1
ZZZZZZ	45502	3.09	51475	5.78	87318	7.35	50390	7.89	30634	8.39	1
ZZZZZZ	57602	3.10	47341	5.79	80713	7.35	44569	7.89	26517	8.39	1
ZZZZZZ	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: FC6649A
 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
FC6649-5	8802	7.49	14595	8.58	1
FC6649-6	8240	7.49	13950	8.58	1
ZZZZZZ	8407	7.48	13470	8.56	1
ZZZZZZ	8482	7.48	14373	8.58	1
ZZZZZZ	8594	7.48	14310	8.58	1
ZZZZZZ	8612	7.48	13258	8.58	1
ZZZZZZ	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: FC6649A
 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 FC6649A)
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 FC6649A)
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 FC6649A)
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 FC6649A)
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: FC6649A
 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
FC6649-3	6Q19271.D	06/12/23	23:01	07:55	AF-RHMW10-WGN01LF-2306
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	AF-RHMW04-WGN01LF-2306
OP97275-DUP	6Q19275.D	06/12/23	23:57	08:51	Duplicate
FC6649-5	6Q19276.D	06/13/23	00:11	09:05	AF-RHMW16-WGN01LF-2306
FC6649-6	6Q19277.D	06/13/23	00:25	09:19	AF-RHMW06-WGN01LF-2306
ZZZZZZ	6Q19278.D	06/13/23	00:39	09:33	(unrelated sample)
ZZZZZZ	6Q19279.D	06/13/23	00:53	09:47	(unrelated sample)
ZZZZZZ	6Q19280.D	06/13/23	01:07	10:01	(unrelated sample)
ZZZZZZ	6Q19281.D	06/13/23	01:21	10:15	(unrelated sample)
ZZZZZZ	6Q19282.D	06/13/23	01:35	10:29	(unrelated sample)
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: FC6649A
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 6:2FTS
S6Q287-ICC287	6Q19243.D	36.4
FC6649-3	6Q19271.D	
FC6649-4	6Q19274.D	34.2
FC6649-5	6Q19276.D	
FC6649-6	6Q19277.D	

6.7.1

6

Isotope Dilution Standard Recovery Summary

Job Number: FC6649A
 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
FC6649-3	6Q19271.D	117	118	113	114	128	113	123	113
FC6649-4	6Q19274.D	107	113	117	110	116	107	101	95
FC6649-5	6Q19276.D	91	109	107	105	112	95	100	84
FC6649-6	6Q19277.D	117	121	114	116	128	131	118	99
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	6Q19262.D	100	103	98	104	96	109	101	100
S6Q287-ICCB	6Q19273.D	100	96	92	100	100	96	100	101

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: FC6649A
 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
FC6649-3	6Q19271.D	115	102	120	121	120	102	94	98
FC6649-4	6Q19274.D	88	84	118	114	105	92	79	80
FC6649-5	6Q19276.D	83	74	111	111	106	96	85	92
FC6649-6	6Q19277.D	96	82	119	115	117	95	85	90
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	6Q19262.D	96	96	109	108	104	100	96	99
S6Q287-ICCB	6Q19273.D	98	88	101	102	97	100	91	97

Isotope Dilution Standards	Recovery Limits
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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: FC6649A
 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
FC6649-3	6Q19271.D	115	117	82	84	138	132	119	117
FC6649-4	6Q19274.D	102	97	67	69	135	127	109	102
FC6649-5	6Q19276.D	114	102	72	76	125	128	104	110
FC6649-6	6Q19277.D	116	104	75	76	135	137	128	116
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	6Q19262.D	105	101	100	86	128	124	112	96
S6Q287-ICCB	6Q19273.D	102	94	86	82	113	123	108	90

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: FC6649A
Account: AECOM 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
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
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
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
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
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
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

Initial Calibration Summary

Job Number: FC6649A
 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: FC6649A
 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-PFTEA	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-HPOD-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; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Initial Calibration Summary

Job Number: FC6649A
 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: FC6649A
 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: FC6649A
 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: FC6649A
 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: FC6649A
 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: FC6649A
 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: FC6649A
 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--		
11C1-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: FC6649A
 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: FC6649A
 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: FC6649A
 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: FC6649A
 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: FC6649A
 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: FC6649A
 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: FC6649A
 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: FC6649A
 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: FC6649A
 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 FC6649A)
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 FC6649A)
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 FC6649A)
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 FC6649A)
OP97275-MS	6Q19269.D	06/12/23 22:33	OP97275	Matrix Spike
ZZZZZZ	6Q19270.D	06/12/23 22:47	OP97275	(unrelated sample)
FC6649-3	6Q19271.D	06/12/23 23:01	OP97275	AF-RHMW10-WGN01LF-2306
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	AF-RHMW04-WGN01LF-2306
OP97275-DUP	6Q19275.D	06/12/23 23:57	OP97275	Duplicate
FC6649-5	6Q19276.D	06/13/23 00:11	OP97275	AF-RHMW16-WGN01LF-2306
FC6649-6	6Q19277.D	06/13/23 00:25	OP97275	AF-RHMW06-WGN01LF-2306
ZZZZZZ	6Q19278.D	06/13/23 00:39	OP97275	(unrelated sample)
ZZZZZZ	6Q19279.D	06/13/23 00:53	OP97275	(unrelated sample)
ZZZZZZ	6Q19280.D	06/13/23 01:07	OP97275	(unrelated sample)

Run Sequence Report

Job Number: FC6649A
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
ZZZZZZ	6Q19281.D	06/13/23 01:21	OP97275	(unrelated sample)
ZZZZZZ	6Q19282.D	06/13/23 01:35	OP97275	(unrelated sample)
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

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19271.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 11:01:54 PM
 Sample Name : FC6649-3
 Vial : P2-B9
 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	156068	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	52936	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	56333	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	53152	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	87020	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	38027	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	22015	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	28575	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	25013	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	12950	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	26545	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	20261	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	12805	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	12361	2.50 µg/L	0.012
M2-4:2FTS	5.442	329.1 -> 80.9	3389	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	4885	5.00 µg/L	0.000
M2-8:2FTS	8.175	529.1 -> 80.9	4228	5.00 µg/L	0.012
M3-MeFOSAA	8.420	573.2 -> 419.0	30311	5.00 µg/L	0.012
M3-HFPO-DA	6.169	286.9 -> 168.9	37062	10.00 µg/L	0.000
M5-EtFOSAA	8.628	589.2 -> 419.0	25993	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	106065	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	135785	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	11072	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	10957	2.50 µg/L	0.000
13C4-PFOS	8.576	502.8 -> 79.9	14076	2.50 µg/L	0.012
13C3-PFBA	3.101	216.0 -> 172.0	56674	5.00 µg/L	0.012
18O2-PFHxS	7.477	403.0 -> 83.9	7989	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	72995	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	26049	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	44227	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	46298	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	3389	6.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 137.8%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4885	6.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 132.2%		
13C2-8:2FTS	8.175	529.1 -> 80.9	4228	5.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.4%		
13C2-PFDoDA	9.297	615.1 -> 570.0	25013	1.44 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 114.9%		
13C2-PFTeDA	10.012	715.2 -> 670.0	12950	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C3-PFBS	5.746	302.1 -> 79.9	20261	3.00 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 120.0%		
13C3-PFHxS	7.478	402.1 -> 79.9	12805	3.02 µg/L	0.000

7.1.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 120.7%	
13C4-PFBA	3.097	216.8 -> 171.9	156068	11.73 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 117.3%	
13C4-PFHpA	6.707	367.1 -> 322.0	53152	2.86 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.3%	
13C5-PFHxA	5.792	318.0 -> 273.0	56333	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.6%	
13C5-PFPeA	4.560	268.3 -> 223.0	52936	5.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.4%	
13C6-PFDA	8.387	519.1 -> 474.1	22015	1.53 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 122.5%	
13C7-PFUnDA	8.866	570.0 -> 525.1	28575	1.41 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 122.8%	
13C8-FOSA	9.674	506.1 -> 77.8	26545	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C8-PFOA	7.352	421.1 -> 376.0	87020	3.20 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 127.8%	
13C8-PFOS	8.575	507.1 -> 79.9	12361	3.00 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.9%	
13C9-PFNA	7.895	472.1 -> 427.0	38027	1.41 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.7%	
d3-MeFOSAA	8.420	573.2 -> 419.0	30311	5.74 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.8%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	37062	11.68 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 116.8%	
d3-MeFOSA	10.775	515.0 -> 219.0	10957	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
d5-EtFOSAA	8.628	589.2 -> 419.0	25993	5.83 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.7%	
d7-MeFOSE	10.685	623.2 -> 58.9	106065	20.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 82.1%	
d9-EtFOSE	10.930	639.2 -> 58.9	135785	21.04 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 84.2%	
d5-EtFOSA	10.996	531.1 -> 219.0	11072	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	

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	9.685	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)
		599.0 -> 98.8				
PFHpA	-	363.1 -> 319.0	-	N.D.		
		363.1 -> 169.0				
PFHpS	-	449.0 -> 79.9	-	N.D.		
		449.0 -> 98.9				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 118.9				
PFHxS	-	398.7 -> 79.9	-	N.D.		
		398.7 -> 98.9				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFNS	-	548.8 -> 79.9	-	N.D.		
		548.8 -> 98.9				
PFOA	7.849	413.0 -> 369.0	0	µg/L	m	1
		413.0 -> 169.0	0			
PFOS	-	498.9 -> 79.9	-	N.D.		
		498.9 -> 98.8				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	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				

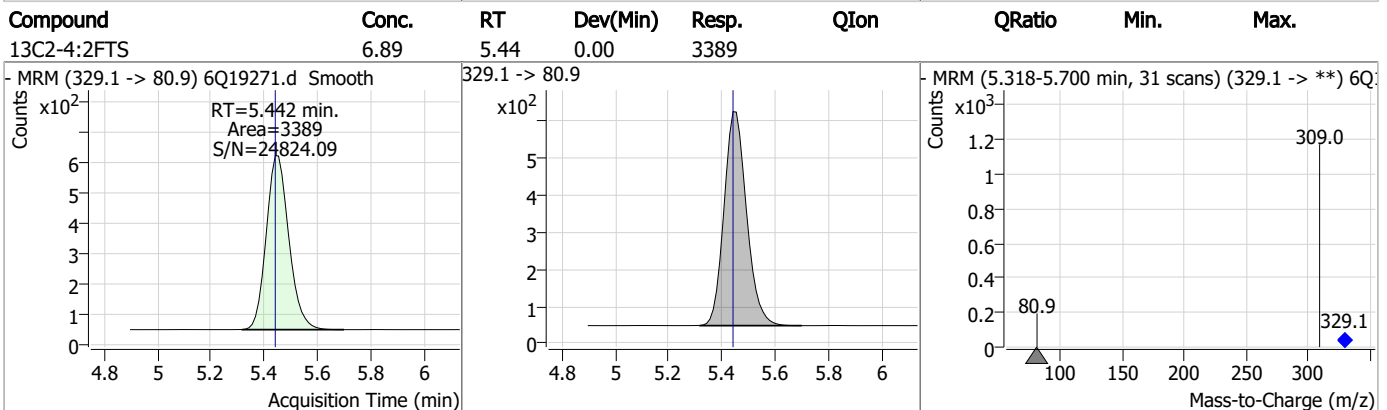
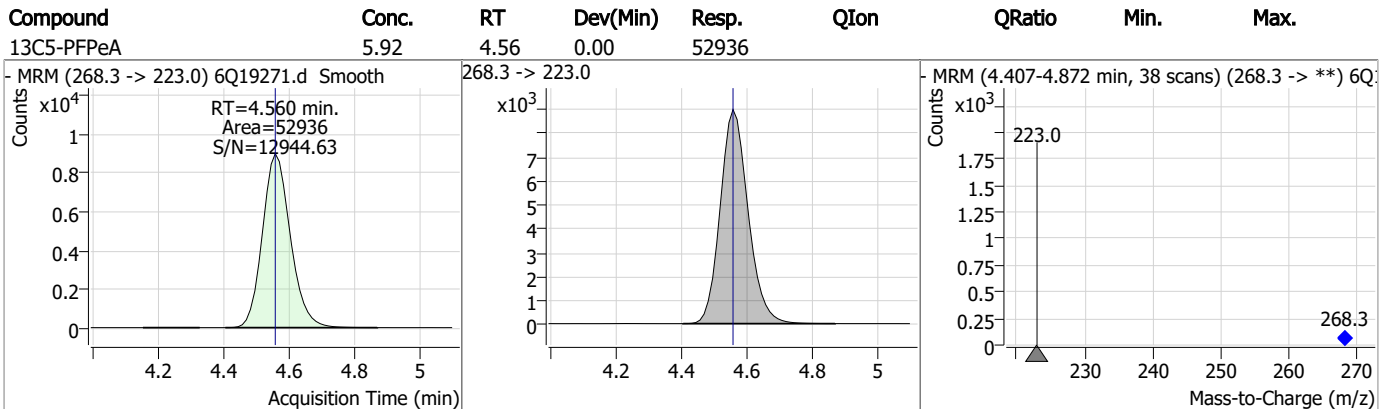
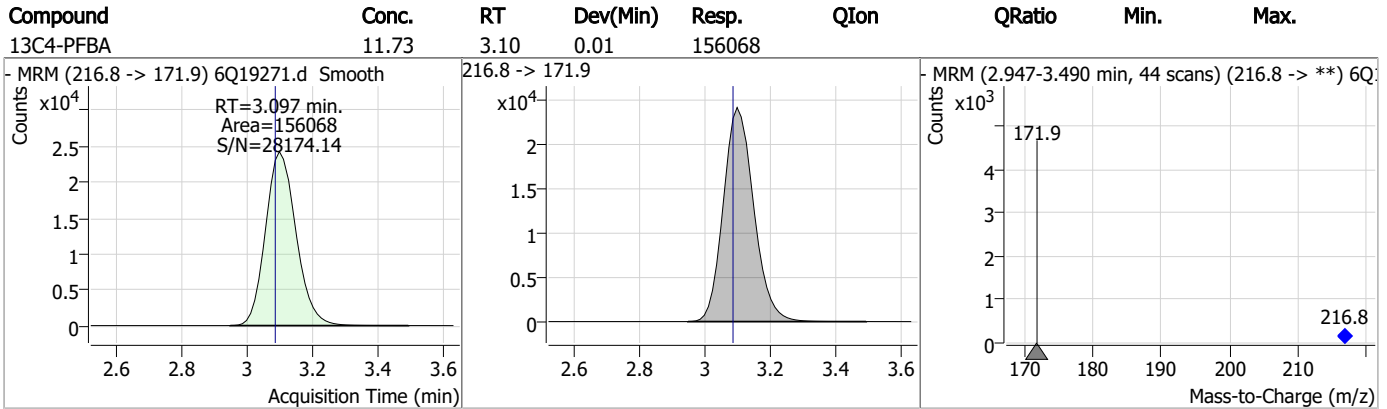
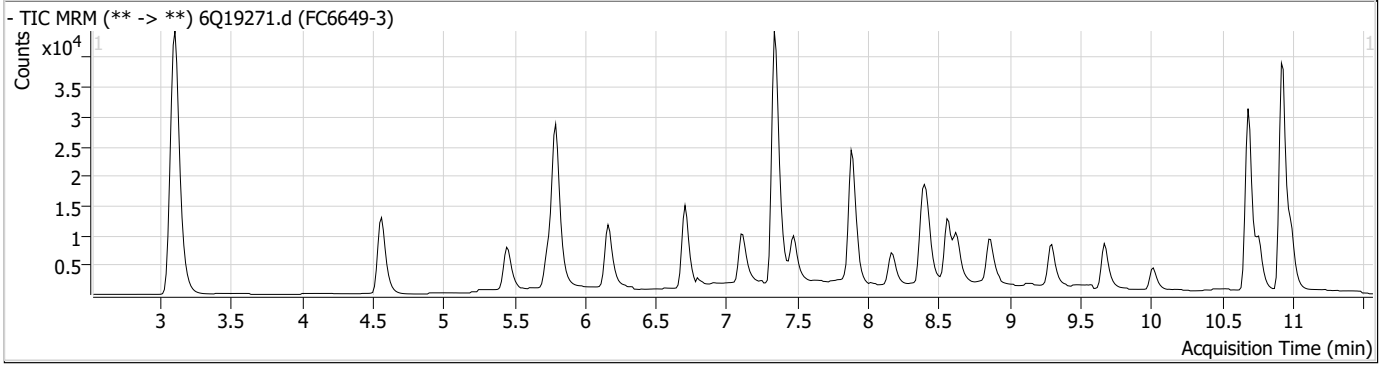
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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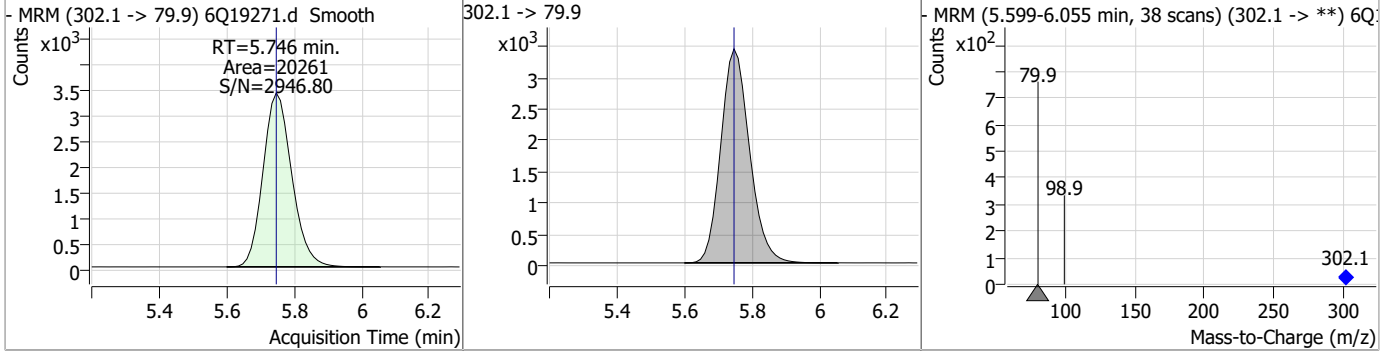
7.1.1
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Perfluorinated Compounds by LC/MS/MS

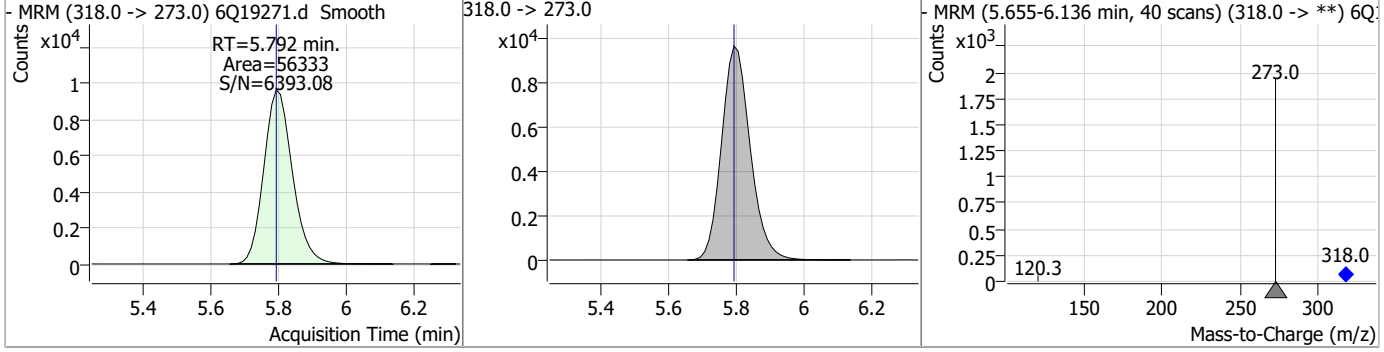


Perfluorinated Compounds by LC/MS/MS

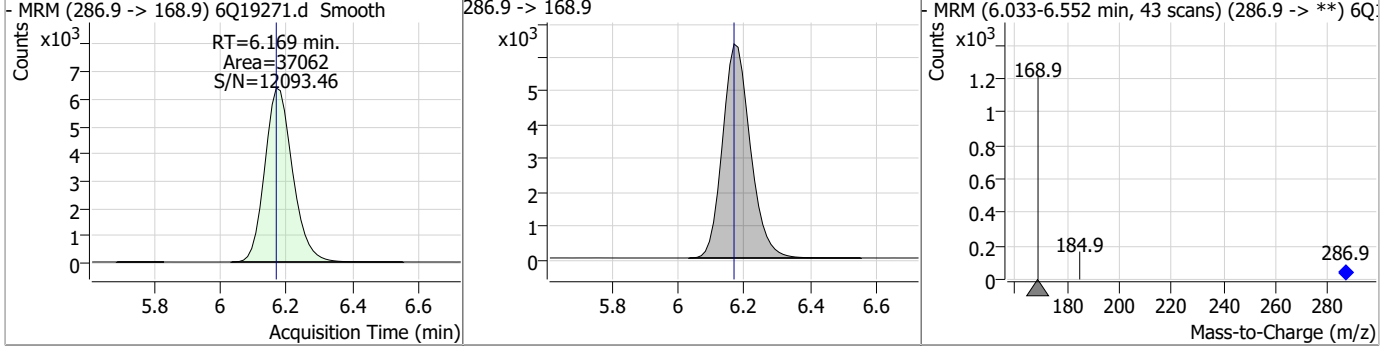
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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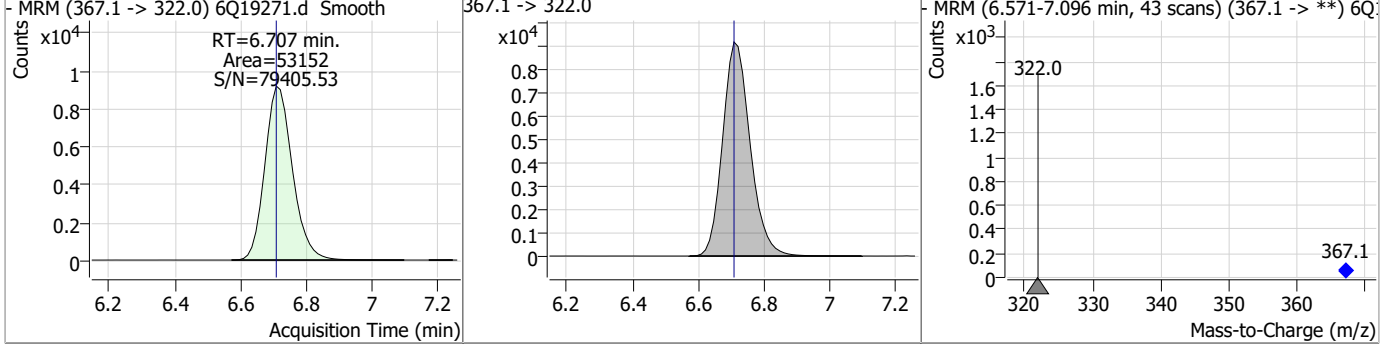
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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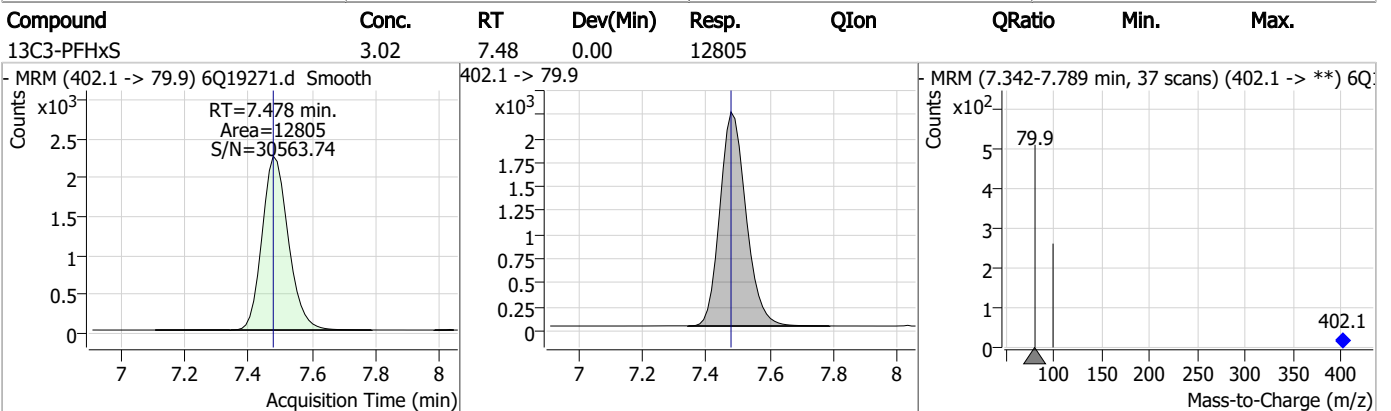
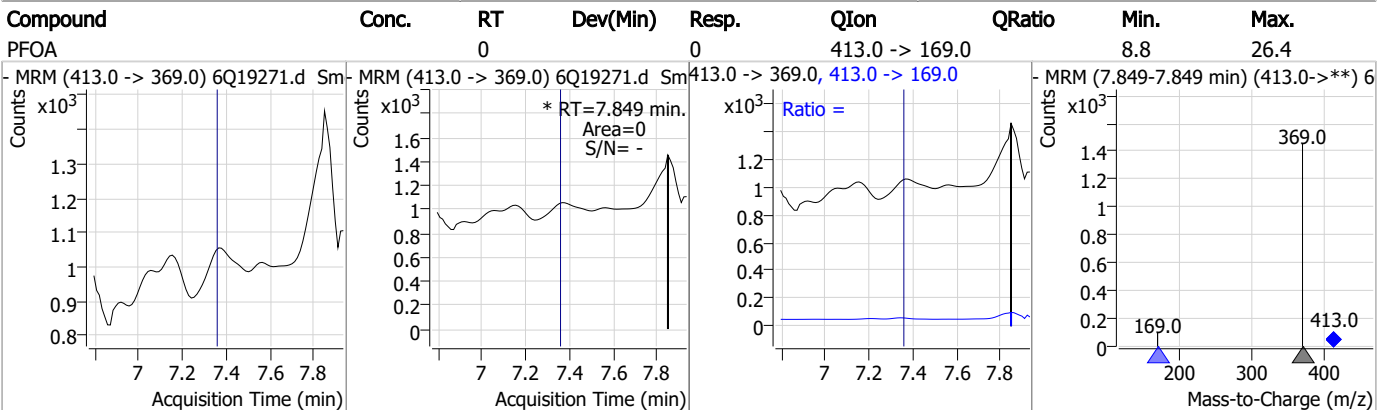
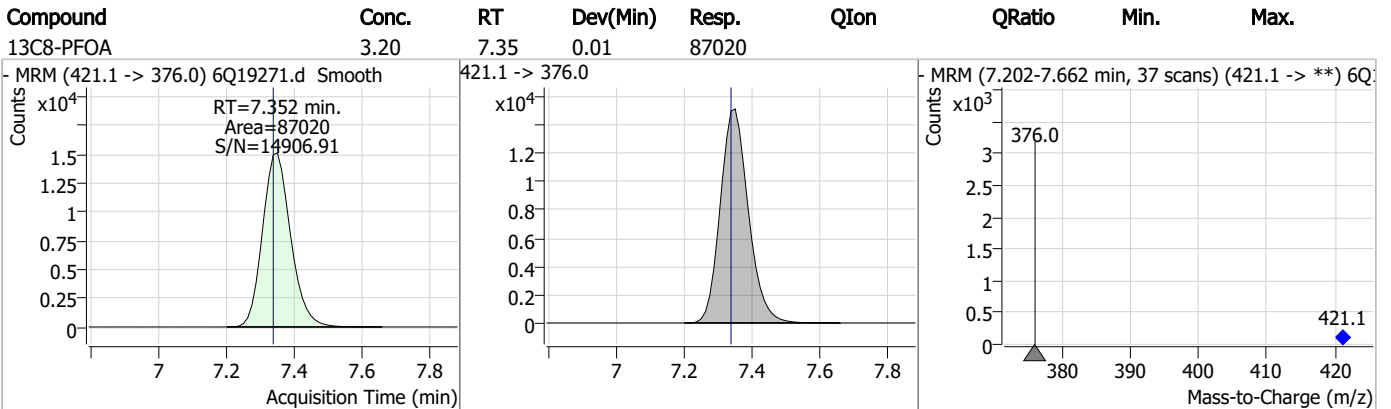
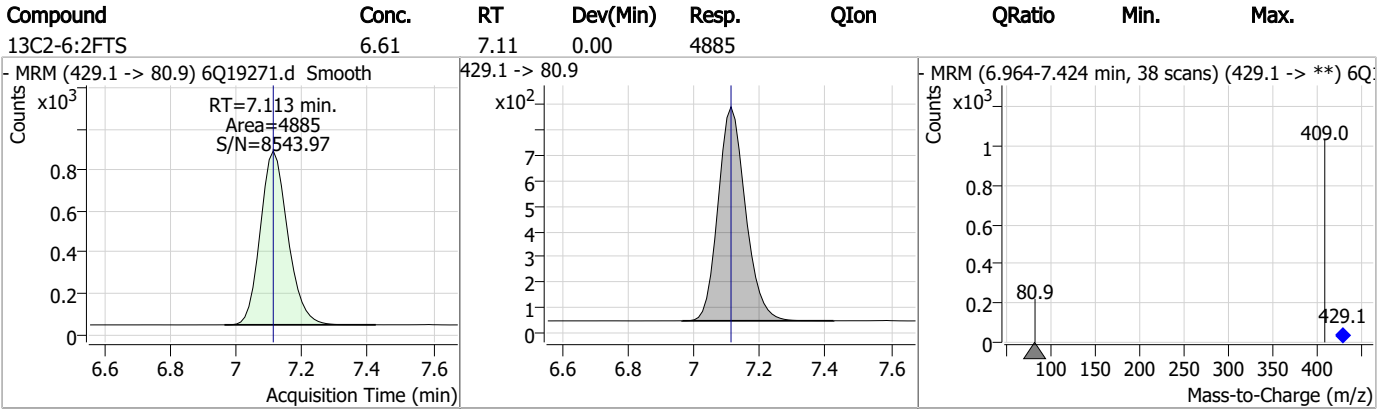
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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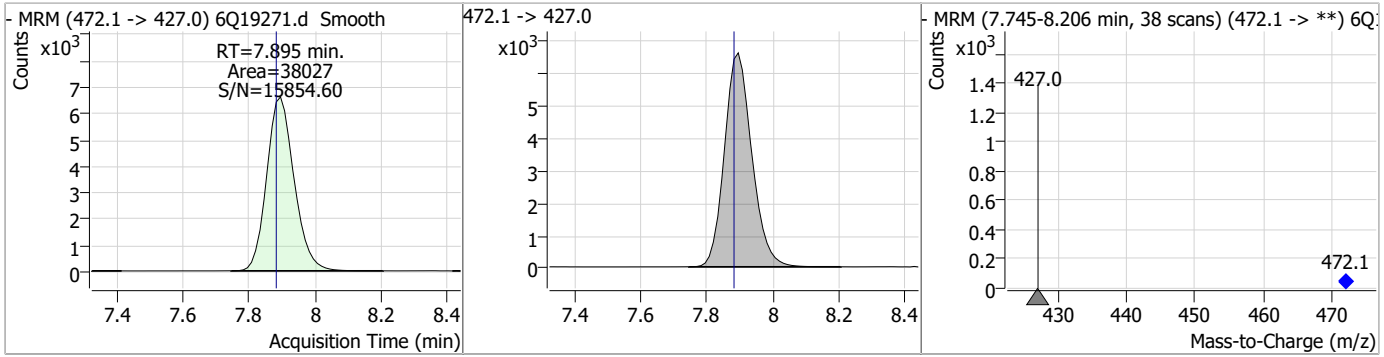


Perfluorinated Compounds by LC/MS/MS

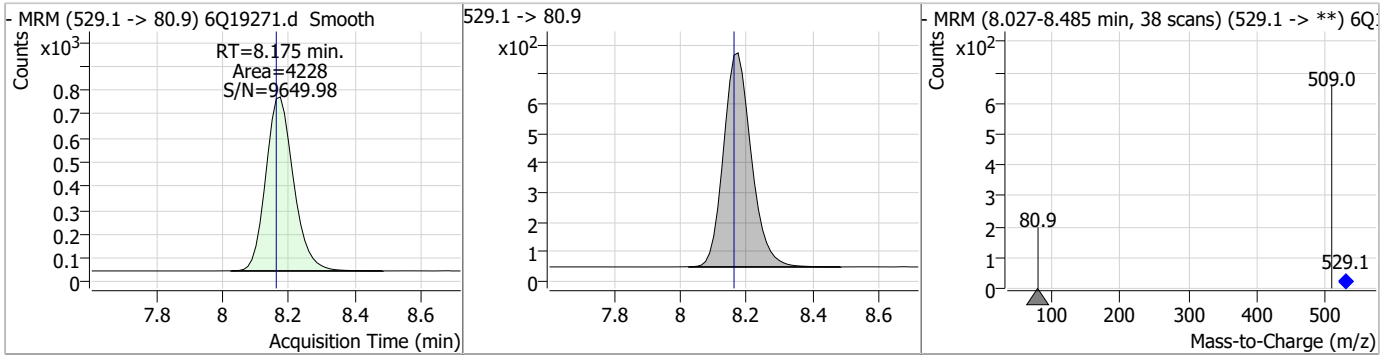


Perfluorinated Compounds by LC/MS/MS

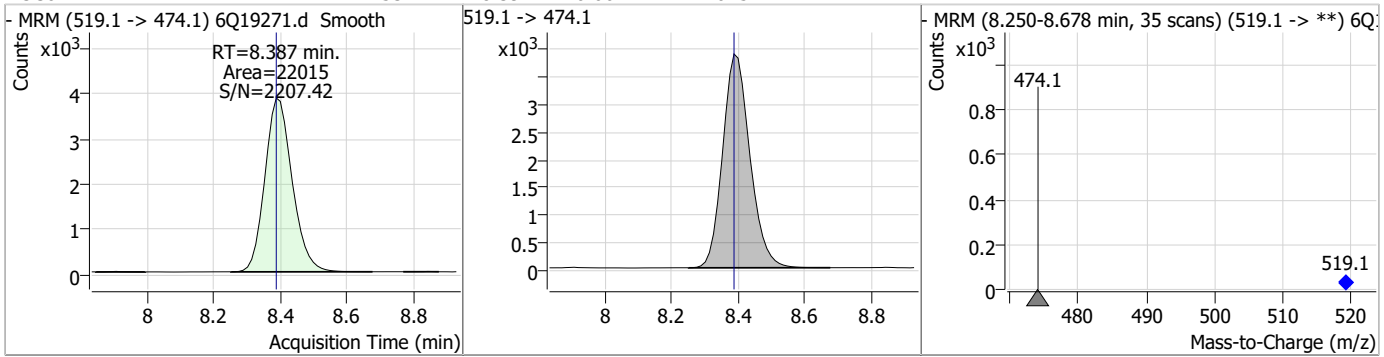
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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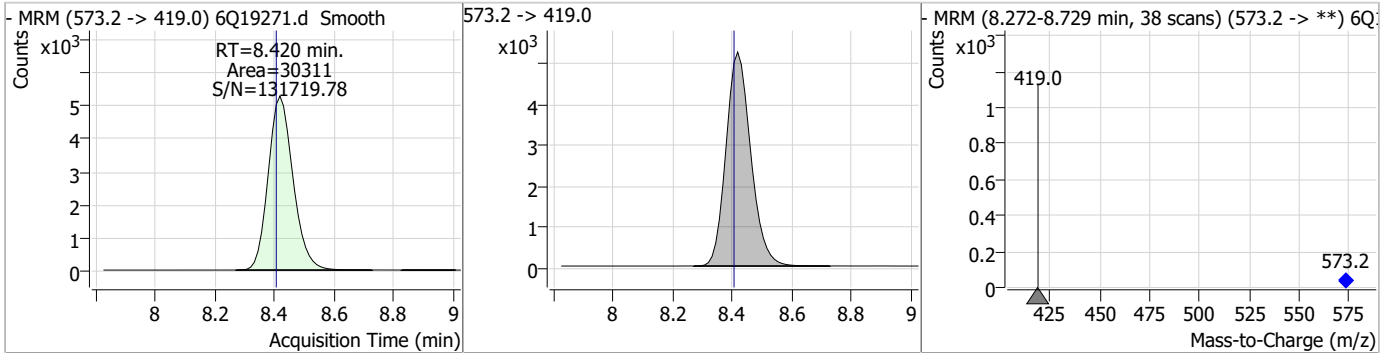
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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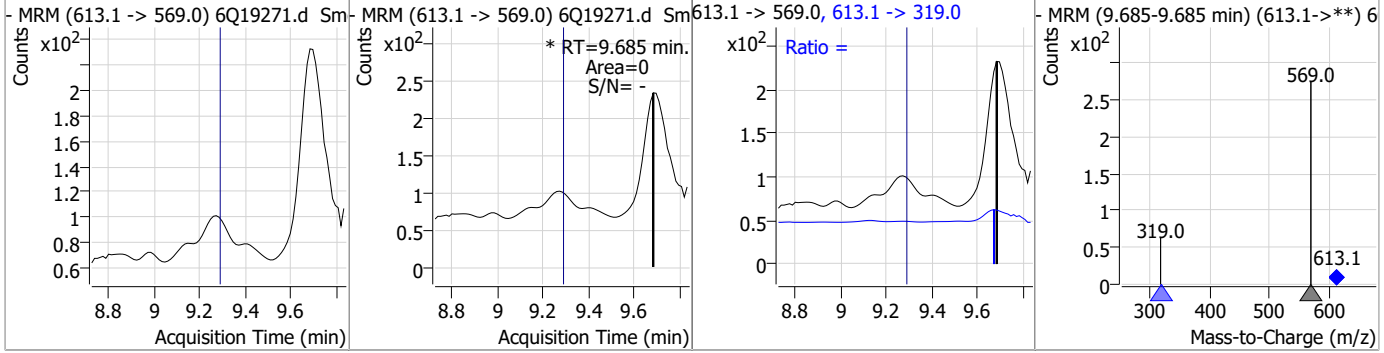


Perfluorinated Compounds by LC/MS/MS

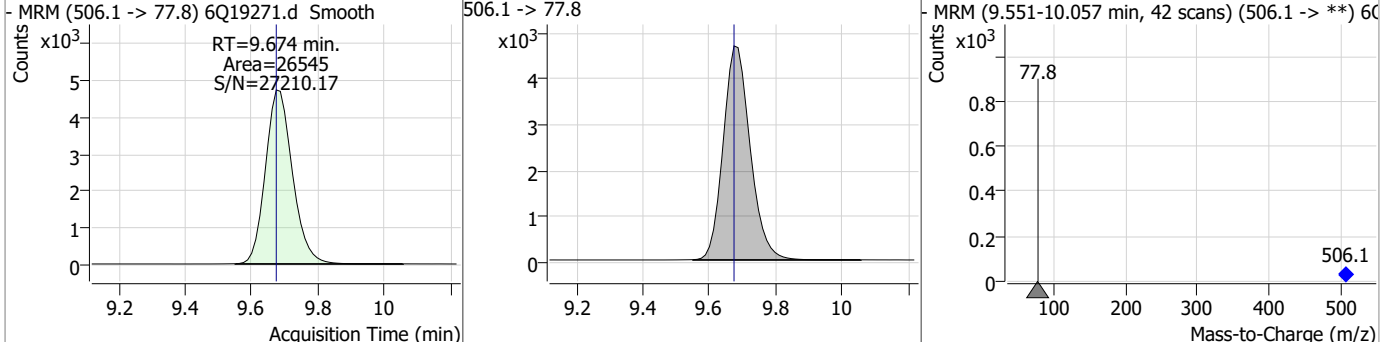
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	3.00	8.57	0.01	12361				
- MRM (507.1 -> 79.9) 6Q19271.d Smooth			507.1 -> 79.9		- MRM (8.426-8.834 min, 34 scans) (507.1 -> **) 6Q			
d5-EtFOSAA	5.83	8.63	0.01	25993				
- MRM (589.2 -> 419.0) 6Q19271.d Smooth			589.2 -> 419.0		- MRM (8.480-8.926 min, 37 scans) (589.2 -> **) 6Q			
13C7-PFUnDA	1.41	8.87	0.01	28575				
- MRM (570.0 -> 525.1) 6Q19271.d Smooth			570.0 -> 525.1		- MRM (8.717-9.150 min, 36 scans) (570.0 -> **) 6Q			
13C2-PFDoDA	1.44	9.30	0.01	25013				
- MRM (615.1 -> 570.0) 6Q19271.d Smooth			615.1 -> 570.0		- MRM (9.160-9.583 min, 35 scans) (615.1 -> **) 6Q			

Perfluorinated Compounds by LC/MS/MS

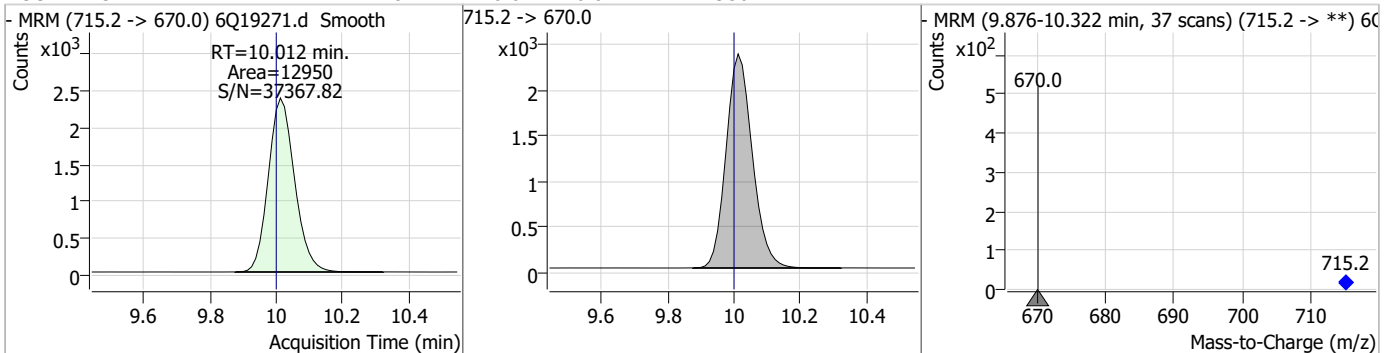
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	0	0		0	613.1 -> 319.0		8.3	25.0



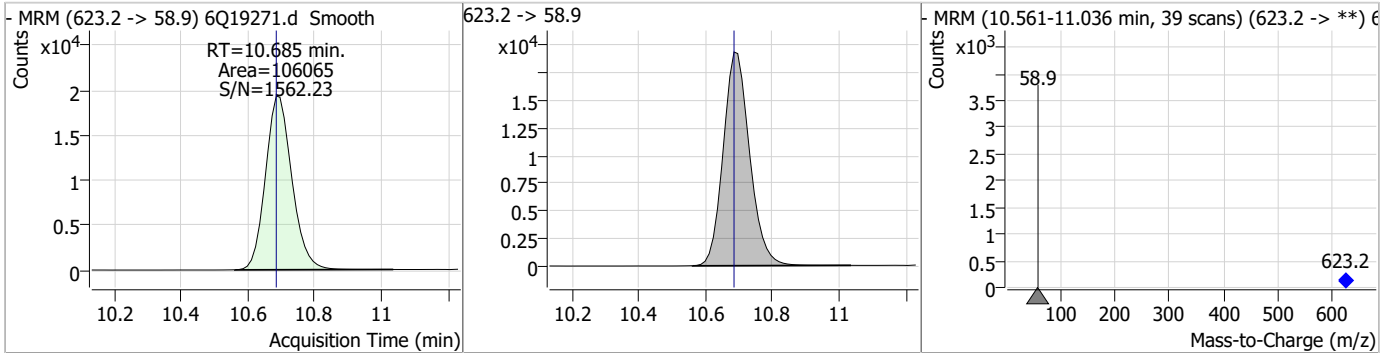
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.55	9.67	0.00	26545				



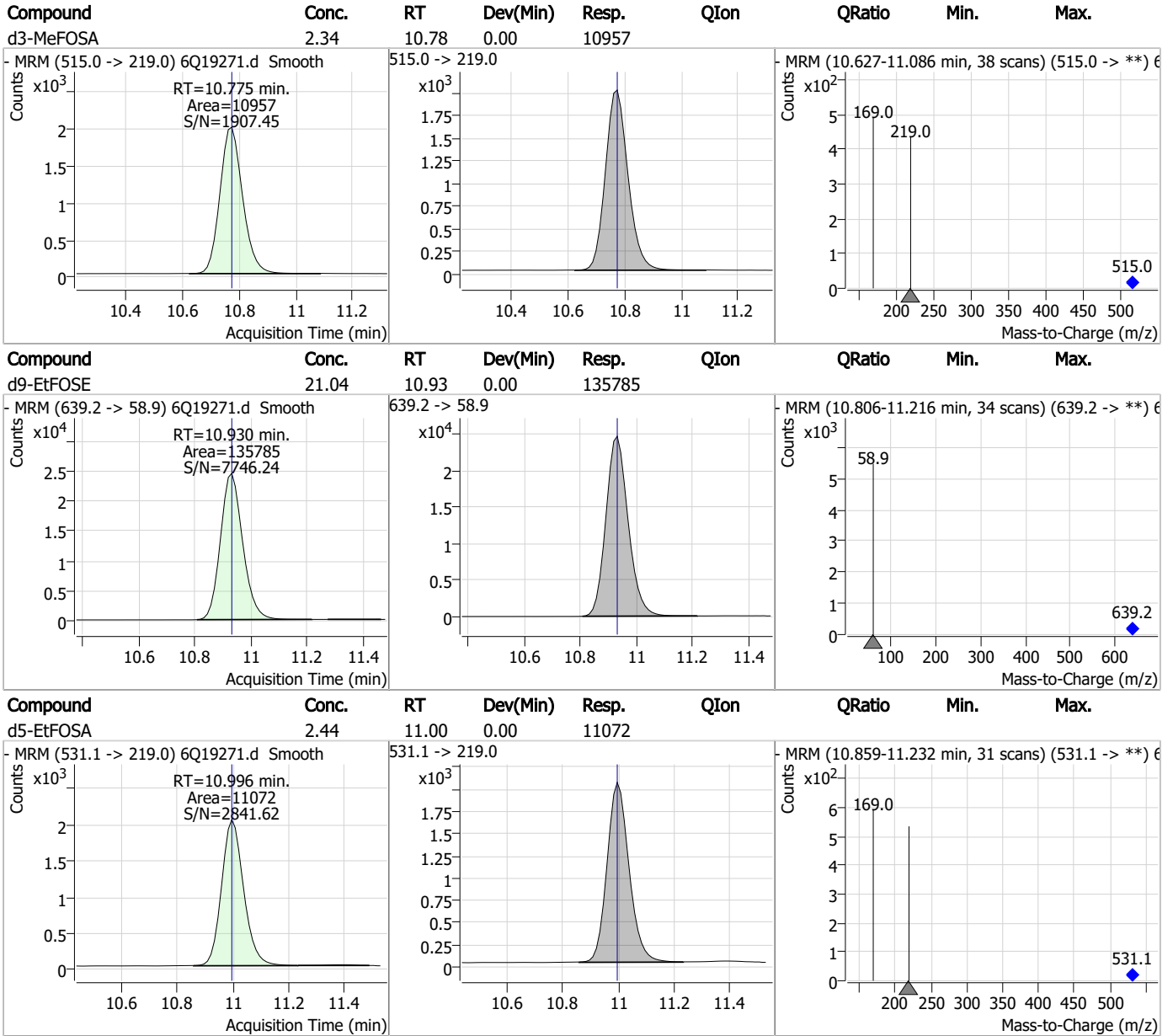
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.28	10.01	0.01	12950				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.53	10.68	0.00	106065				



Perfluorinated Compounds by LC/MS/MS



7.1.1

7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19274.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 11:43:49 PM
 Sample Name : FC6649-4
 Vial : P2-C1
 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	147684	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	50483	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	58740	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	51306	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	83818	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	34492	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	18629	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	24620	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	19559	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	10916	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	24981	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	20104	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	12187	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	11314	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	3346	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	4719	5.00 µg/L	0.000
M2-8:2FTS	8.175	529.1 -> 80.9	3895	5.00 µg/L	0.012
M3-MeFOSAA	8.420	573.2 -> 419.0	28070	5.00 µg/L	0.012
M3-HFPO-DA	6.169	286.9 -> 168.9	32554	10.00 µg/L	0.000
M5-EtFOSAA	8.628	589.2 -> 419.0	22412	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	90450	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	116052	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	9483	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	9605	2.50 µg/L	0.000
13C4-PFOS	8.576	502.8 -> 79.9	14653	2.50 µg/L	0.012
13C3-PFBA	3.101	216.0 -> 172.0	58568	5.00 µg/L	0.012
18O2-PFHxS	7.477	403.0 -> 83.9	8045	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	77542	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	26672	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	42250	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	46367	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3346	6.76 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 135.1%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4719	6.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 126.8%		
13C2-8:2FTS	8.175	529.1 -> 80.9	3895	5.46 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C2-PFDoDA	9.297	615.1 -> 570.0	19559	1.10 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.8%		
13C2-PFTeDA	10.012	715.2 -> 670.0	10916	1.05 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 84.4%		
13C3-PFBS	5.746	302.1 -> 79.9	20104	2.96 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 118.3%		
13C3-PFHxS	7.478	402.1 -> 79.9	12187	2.85 µg/L	0.000

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 = 114.1%	
13C4-PFBA	3.097	216.8 -> 171.9	147684	10.74 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C4-PFHpA	6.707	367.1 -> 322.0	51306	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C5-PFHxA	5.792	318.0 -> 273.0	58740	2.93 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 117.2%	
13C5-PFPeA	4.560	268.3 -> 223.0	50483	5.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.7%	
13C6-PFDA	8.387	519.1 -> 474.1	18629	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C7-PFUnDA	8.866	570.0 -> 525.1	24620	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C8-FOSA	9.674	506.1 -> 77.8	24981	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.0%	
13C8-PFOA	7.352	421.1 -> 376.0	83818	2.90 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.9%	
13C8-PFOS	8.575	507.1 -> 79.9	11314	2.64 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C9-PFNA	7.895	472.1 -> 427.0	34492	1.34 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.0%	
d3-MeFOSAA	8.420	573.2 -> 419.0	28070	5.11 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	32554	10.24 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
d3-MeFOSA	10.775	515.0 -> 219.0	9605	1.97 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.9%	
d5-EtFOSAA	8.628	589.2 -> 419.0	22412	4.83 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
d7-MeFOSE	10.685	623.2 -> 58.9	90450	16.82 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 67.3%	
d9-EtFOSE	10.930	639.2 -> 58.9	116052	17.28 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 69.1%	
d5-EtFOSA	10.996	531.1 -> 219.0	9483	2.01 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.4%	

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	5167 1768	0.91 µg/L	96
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.	

7.12

7

Perfluorinated Compounds by LC/MS/MS

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

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

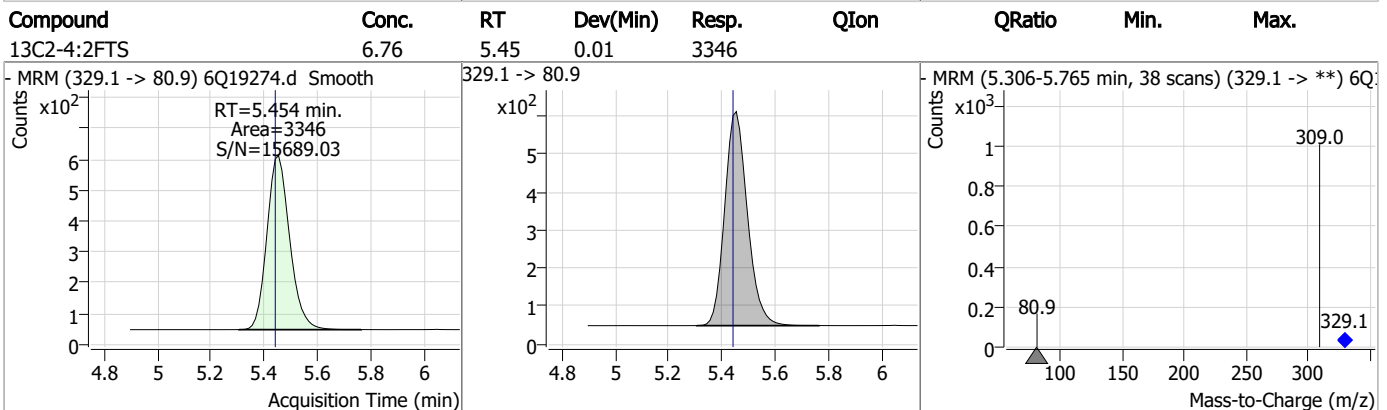
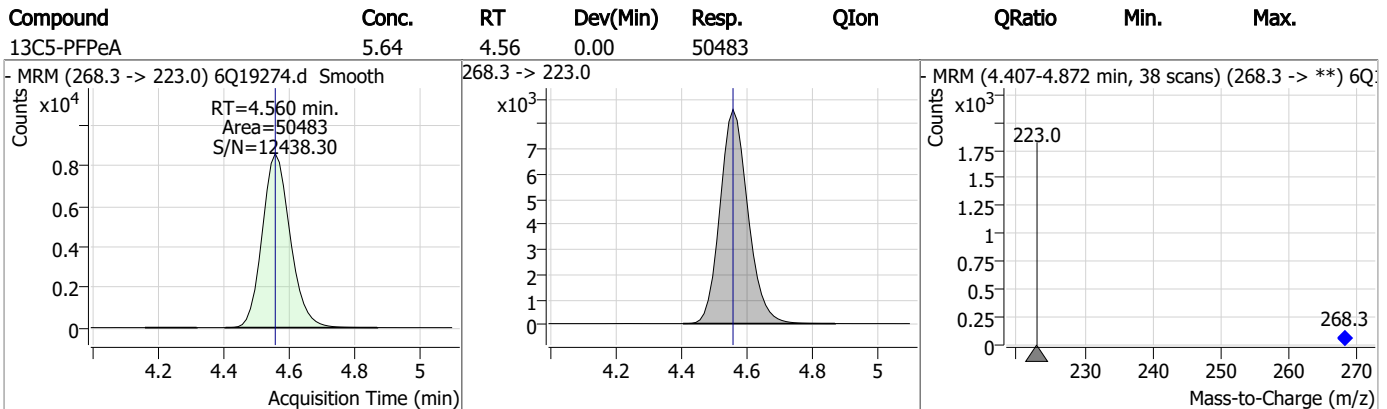
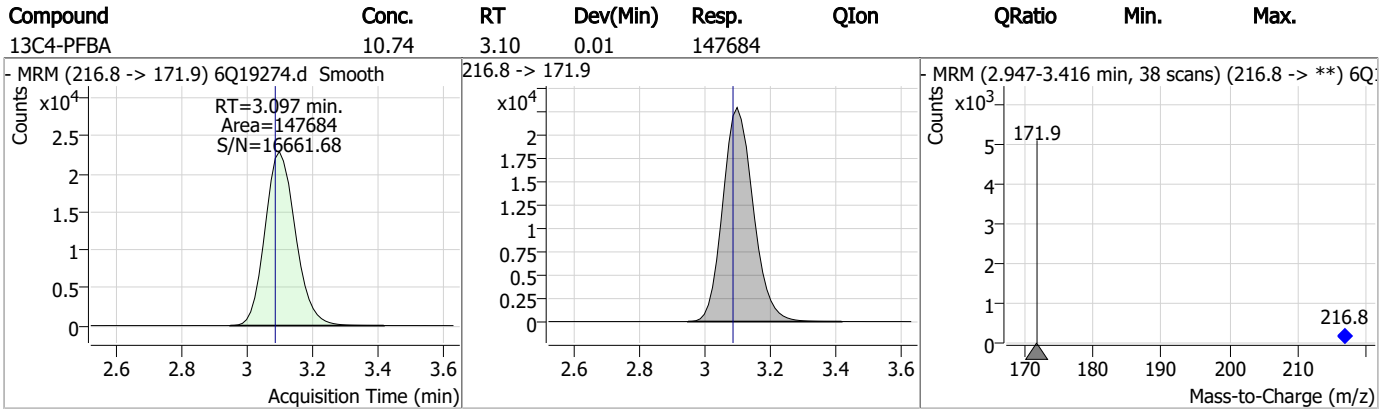
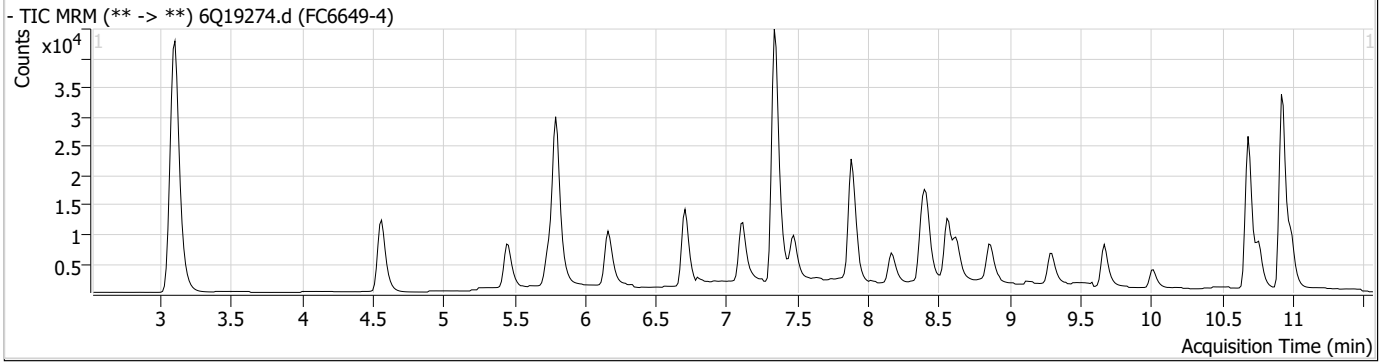
Perfluorinated Compounds by LC/MS/MS

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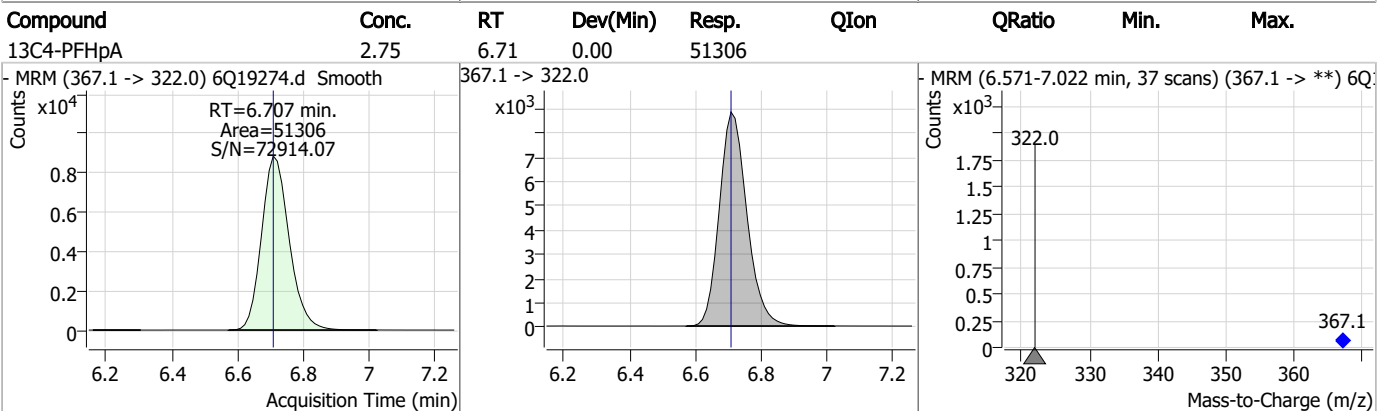
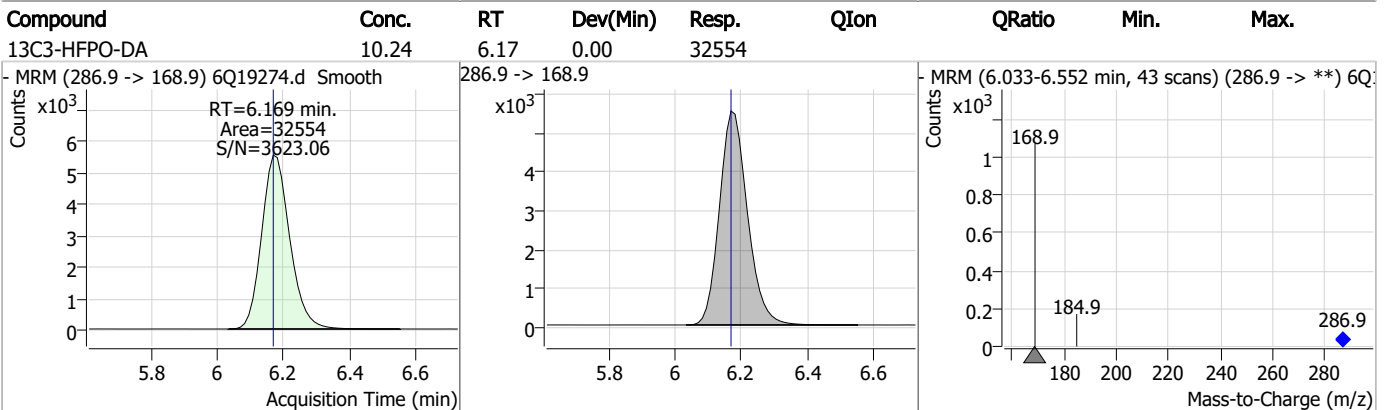
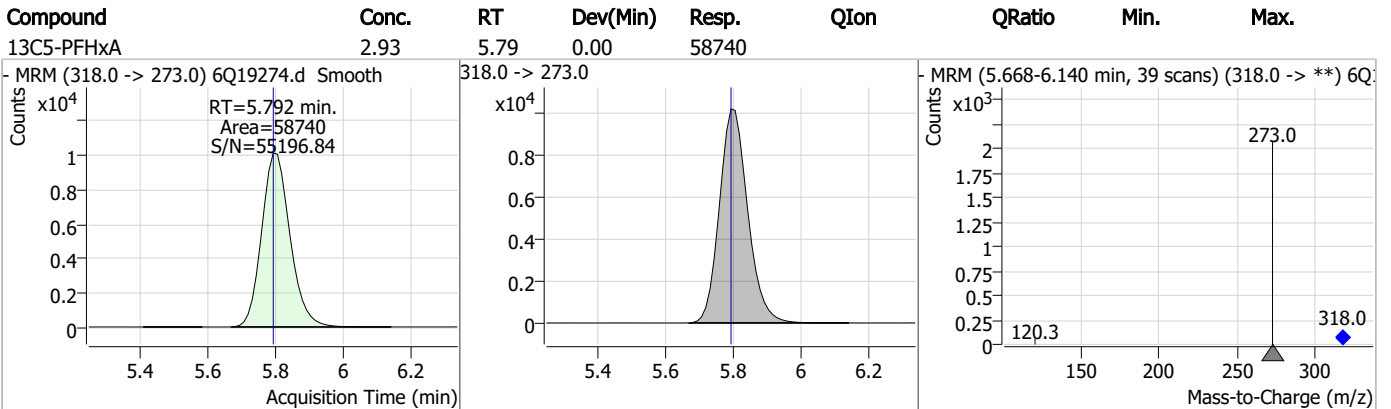
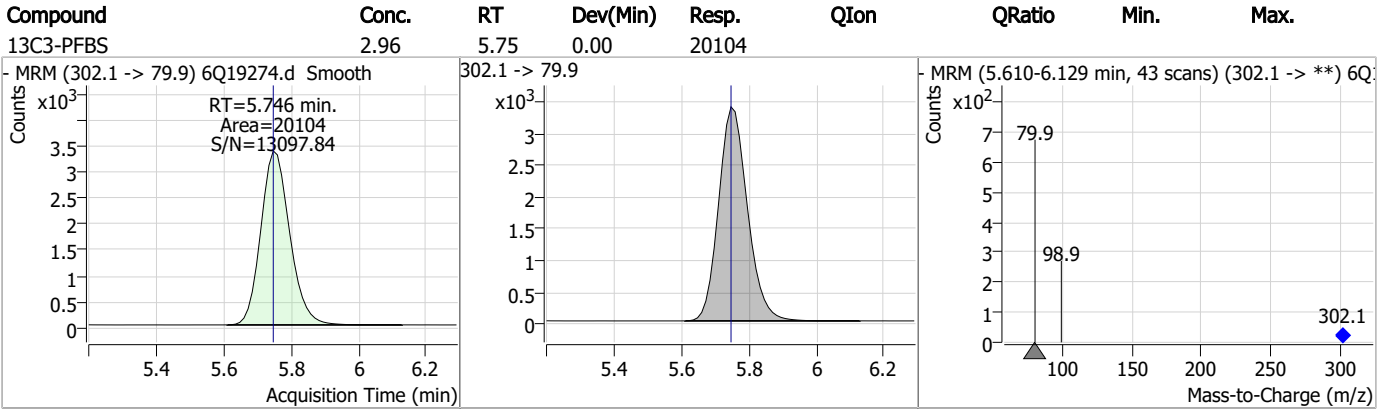
7.1.2
7



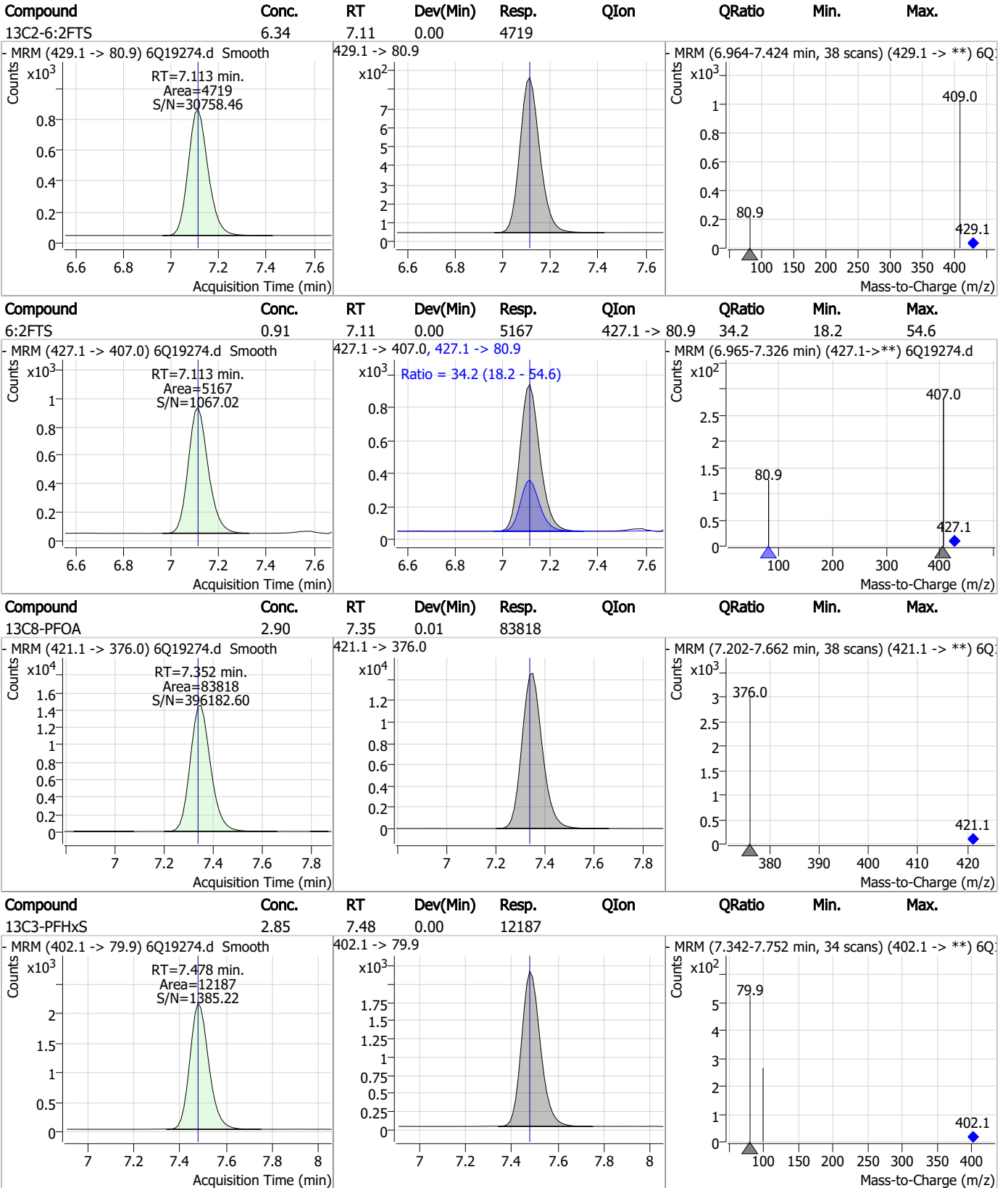
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.2

7

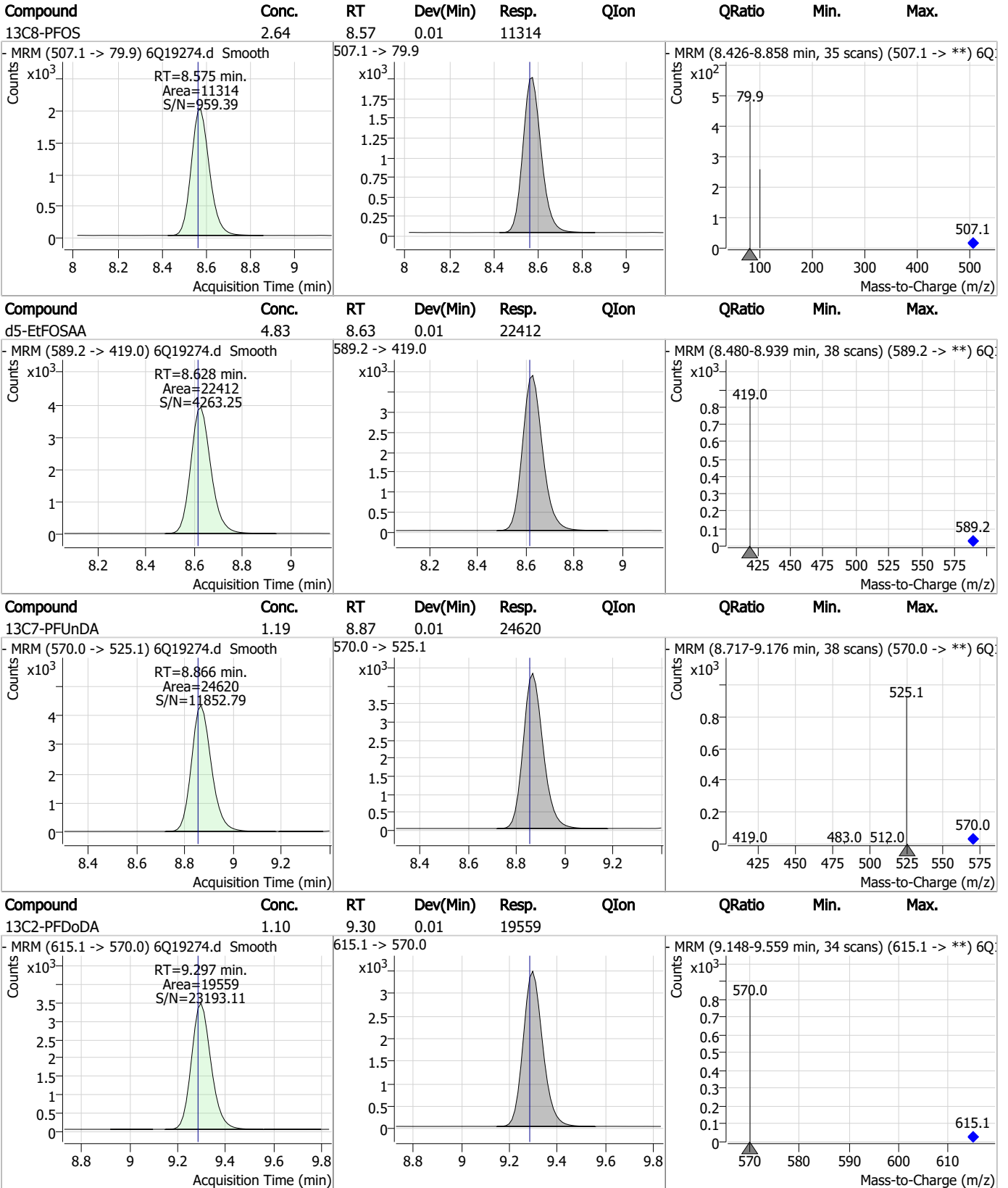
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.34	7.89	0.01	34492				
13C2-8:2FTS	5.46	8.18	0.01	3895				
13C6-PFDA	1.27	8.39	0.00	18629				
d3-MeFOSAA	5.11	8.42	0.01	28070				

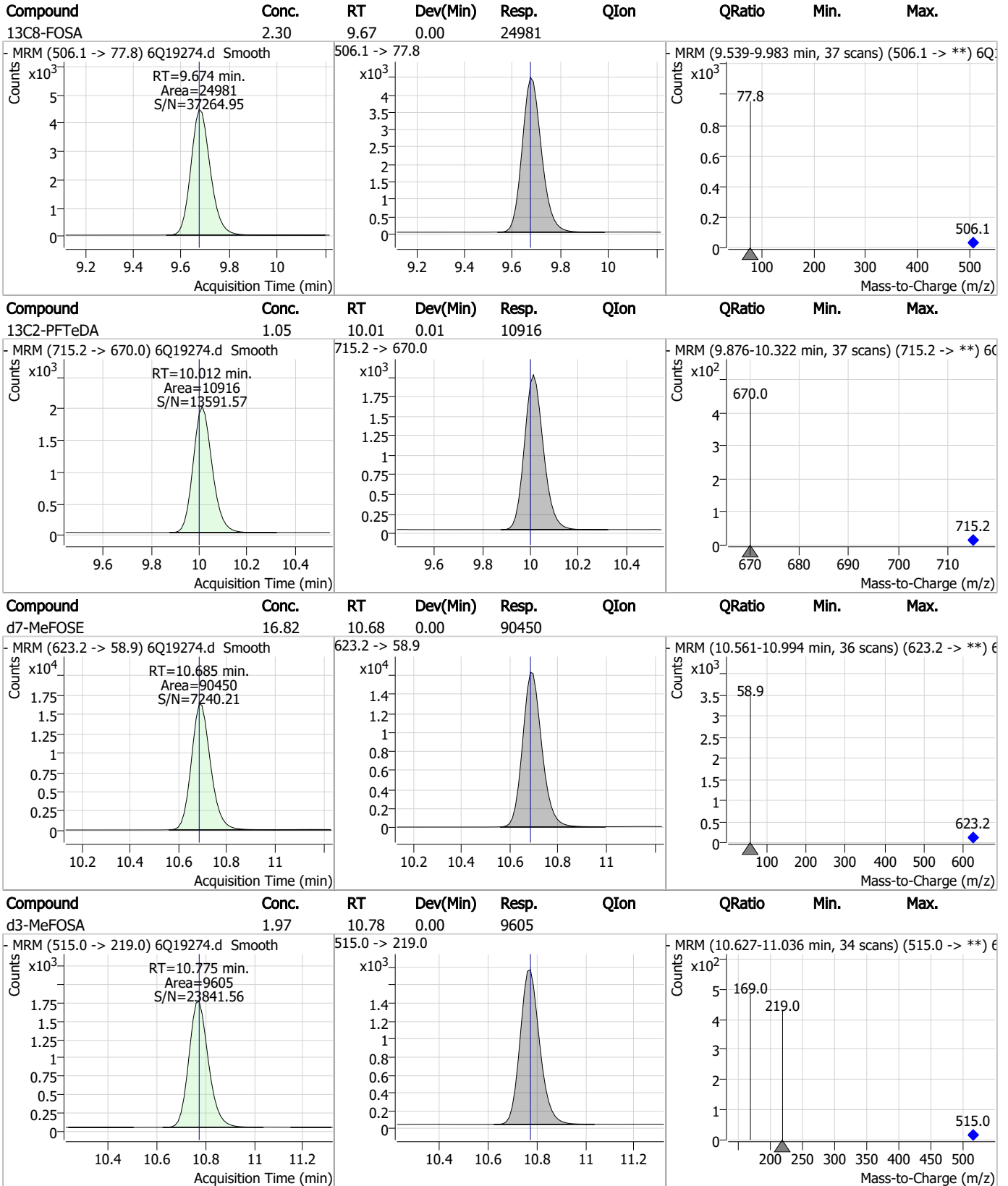
7.1.2

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Perfluorinated Compounds by LC/MS/MS

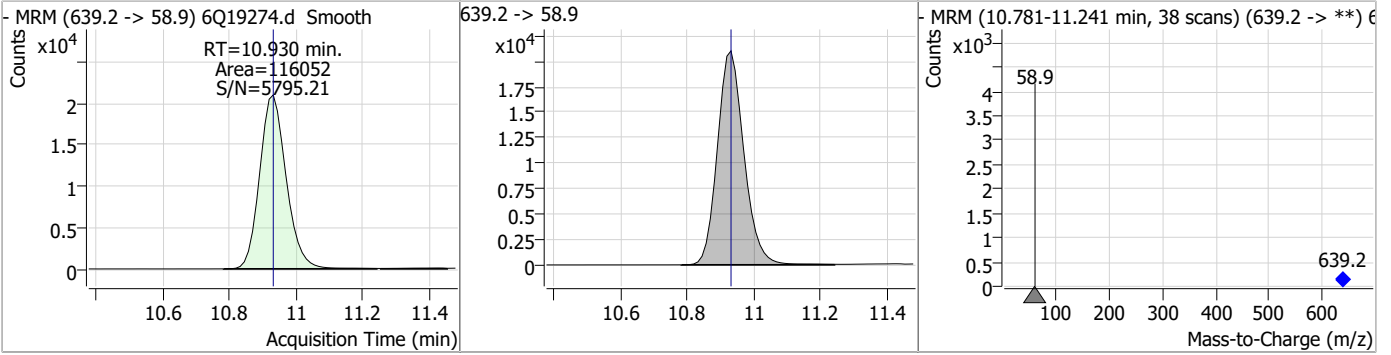


Perfluorinated Compounds by LC/MS/MS

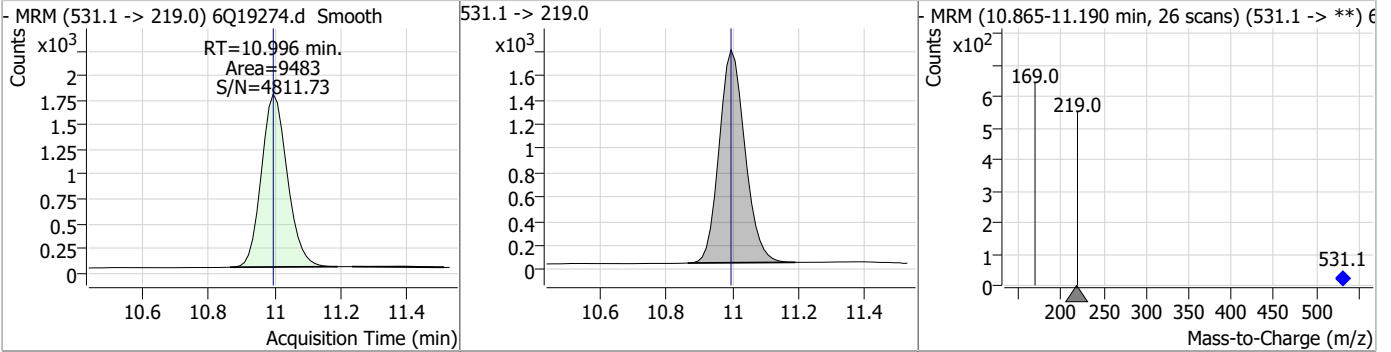


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	17.28	10.93	0.00	116052				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.01	11.00	0.00	9483				



7.1.2

7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19276.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/13/2023 12:11:45 AM
 Sample Name : FC6649-5
 Vial : P2-C3
 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	132227	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	51263	5.00 µg/L	0.000
M5-PFHxA	5.804	318.0 -> 273.0	56144	2.50 µg/L	0.012
M4-PFHpA	6.719	367.1 -> 322.0	51523	2.50 µg/L	0.012
M8-PFOA	7.352	421.1 -> 376.0	85285	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	35198	1.25 µg/L	0.013
M6-PFDA	8.400	519.1 -> 474.1	22331	1.25 µg/L	0.012
M7-PFUnDA	8.866	570.0 -> 525.1	26658	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	22601	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	11588	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	25851	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	20667	2.50 µg/L	0.000
M3-PFHxS	7.490	402.1 -> 79.9	12987	2.50 µg/L	0.012
M8-PFOS	8.575	507.1 -> 79.9	11282	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	3394	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	5230	5.00 µg/L	0.000
M2-8:2FTS	8.175	529.1 -> 80.9	4070	5.00 µg/L	0.012
M3-MeFOSAA	8.420	573.2 -> 419.0	31187	5.00 µg/L	0.012
M3-HFPO-DA	6.181	286.9 -> 168.9	36894	10.00 µg/L	0.012
M5-EtFOSAA	8.628	589.2 -> 419.0	23617	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	96982	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	126768	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	10866	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	10286	2.50 µg/L	0.000
13C4-PFOS	8.576	502.8 -> 79.9	14595	2.50 µg/L	0.012
13C3-PFBA	3.101	216.0 -> 172.0	61800	5.00 µg/L	0.012
18O2-PFHxS	7.490	403.0 -> 83.9	8802	2.50 µg/L	0.012
13C4-PFOA	7.352	417.1 -> 372.0	81859	2.50 µg/L	0.012
13C2-PFDA	8.400	515.1 -> 470.1	32446	1.25 µg/L	0.012
13C5-PFNA	7.895	468.0 -> 423.0	48410	1.25 µg/L	0.013
13C2-PFHxA	5.805	315.1 -> 270.0	48754	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3394	6.26 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 125.2%		
13C2-6:2FTS	7.113	429.1 -> 80.9	5230	6.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.4%		
13C2-8:2FTS	8.175	529.1 -> 80.9	4070	5.22 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C2-PFDoDA	9.297	615.1 -> 570.0	22601	1.04 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 83.4%		
13C2-PFTeDA	10.012	715.2 -> 670.0	11588	0.92 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 73.6%		
13C3-PFBS	5.746	302.1 -> 79.9	20667	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.1%		
13C3-PFHxS	7.490	402.1 -> 79.9	12987	2.78 µg/L	0.012

7.1.3
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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 = 111.2%	
13C4-PFBA	3.097	216.8 -> 171.9	132227	9.11 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.1%	
13C4-PFHpA	6.719	367.1 -> 322.0	51523	2.63 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C5-PFHxA	5.804	318.0 -> 273.0	56144	2.66 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C5-PFPeA	4.560	268.3 -> 223.0	51263	5.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C6-PFDA	8.400	519.1 -> 474.1	22331	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C7-PFUnDA	8.866	570.0 -> 525.1	26658	1.06 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 84.5%	
13C8-FOSA	9.674	506.1 -> 77.8	25851	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C8-PFOA	7.352	421.1 -> 376.0	85285	2.79 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.7%	
13C8-PFOS	8.575	507.1 -> 79.9	11282	2.64 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C9-PFNA	7.895	472.1 -> 427.0	35198	1.19 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.3%	
d3-MeFOSAA	8.420	573.2 -> 419.0	31187	5.70 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.9%	
13C3-HFPO-DA	6.181	286.9 -> 168.9	36894	11.04 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.4%	
d3-MeFOSA	10.775	515.0 -> 219.0	10286	2.12 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.8%	
d5-EtFOSAA	8.628	589.2 -> 419.0	23617	5.11 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
d7-MeFOSE	10.685	623.2 -> 58.9	96982	18.11 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 72.4%	
d9-EtFOSE	10.930	639.2 -> 58.9	126768	18.95 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.8%	
d5-EtFOSA	10.996	531.1 -> 219.0	10866	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.5%	

7.13
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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	9.685	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	7.861	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

7.1.3
7

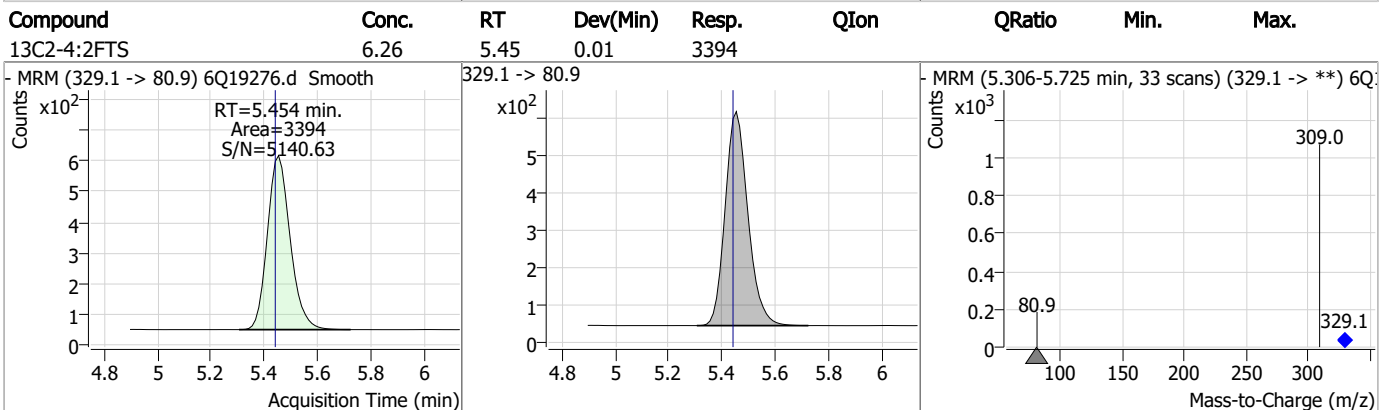
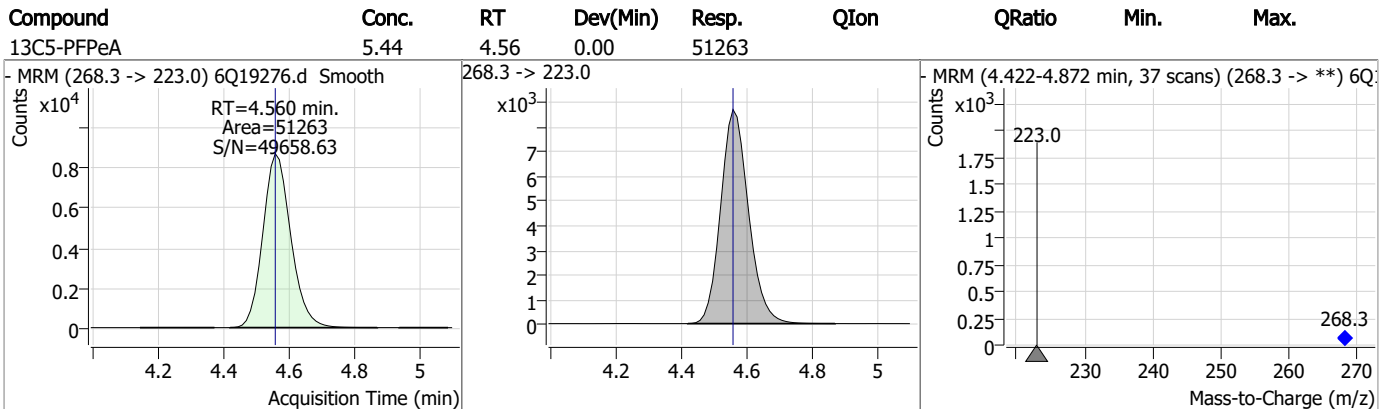
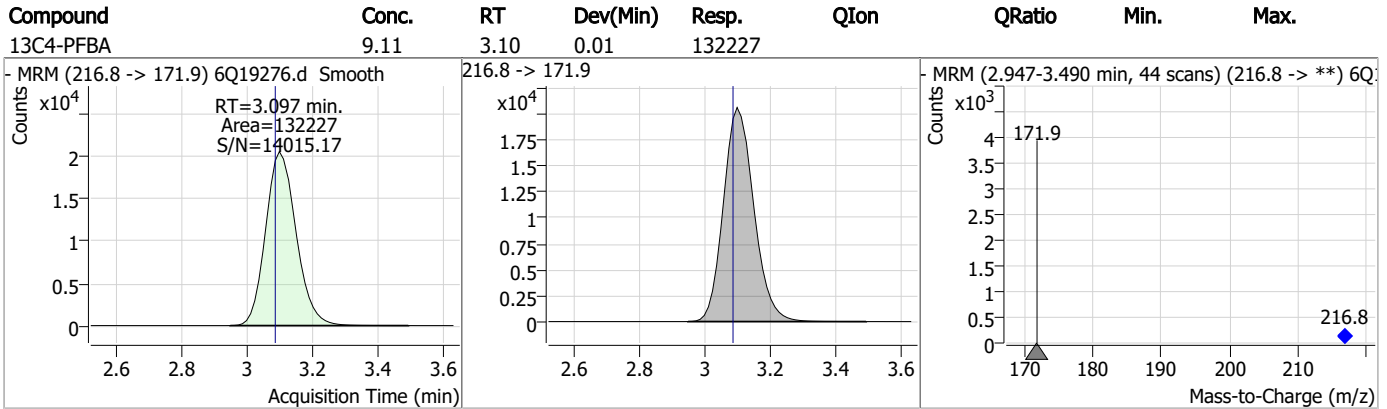
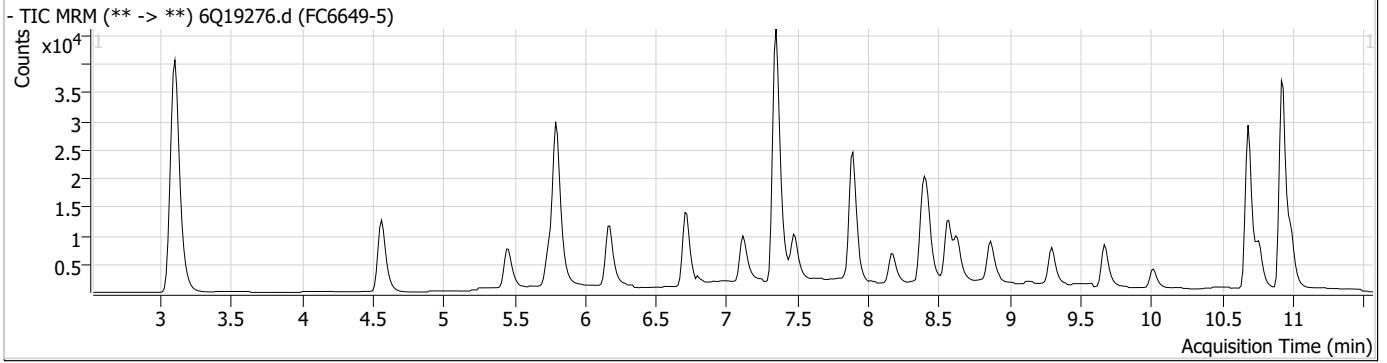
Perfluorinated Compounds by LC/MS/MS

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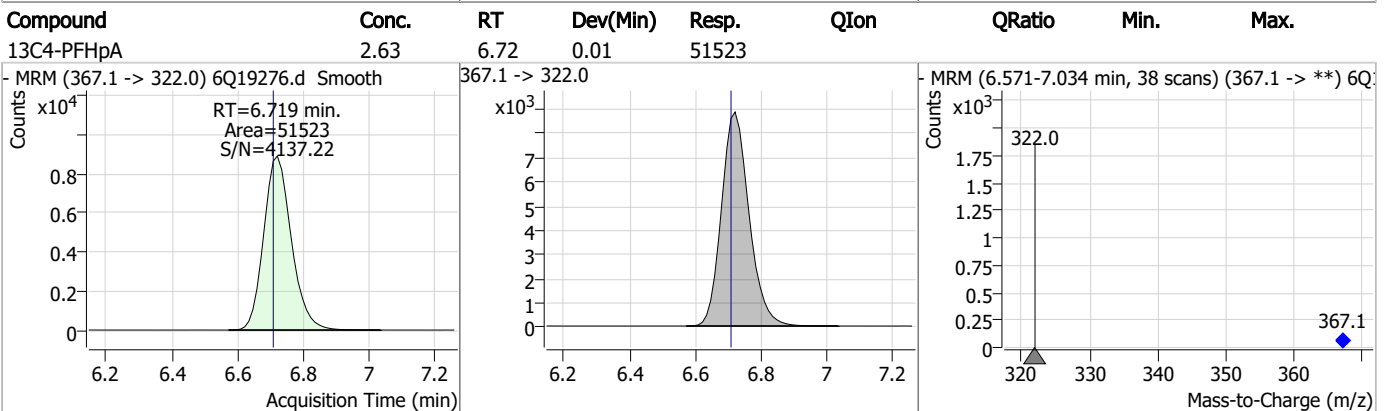
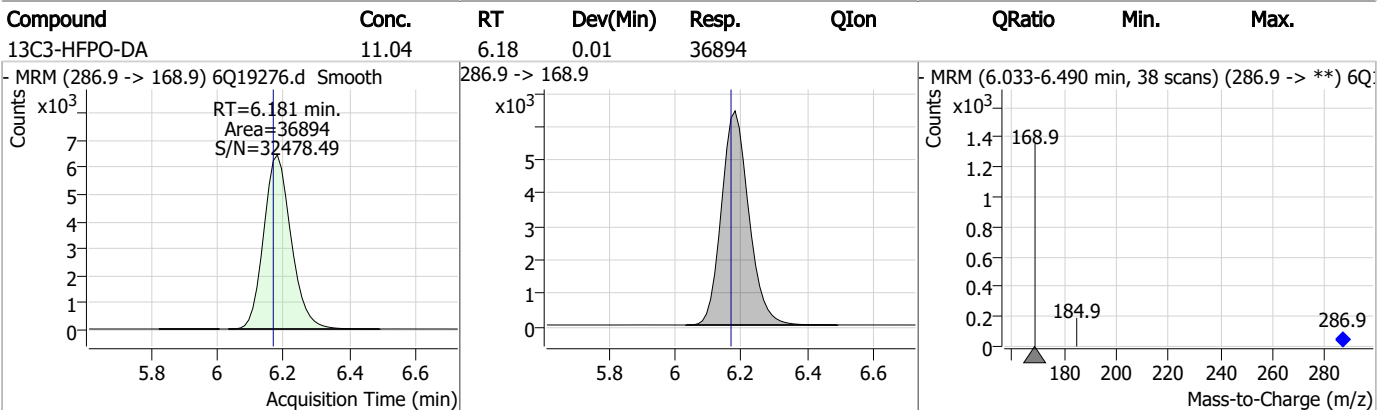
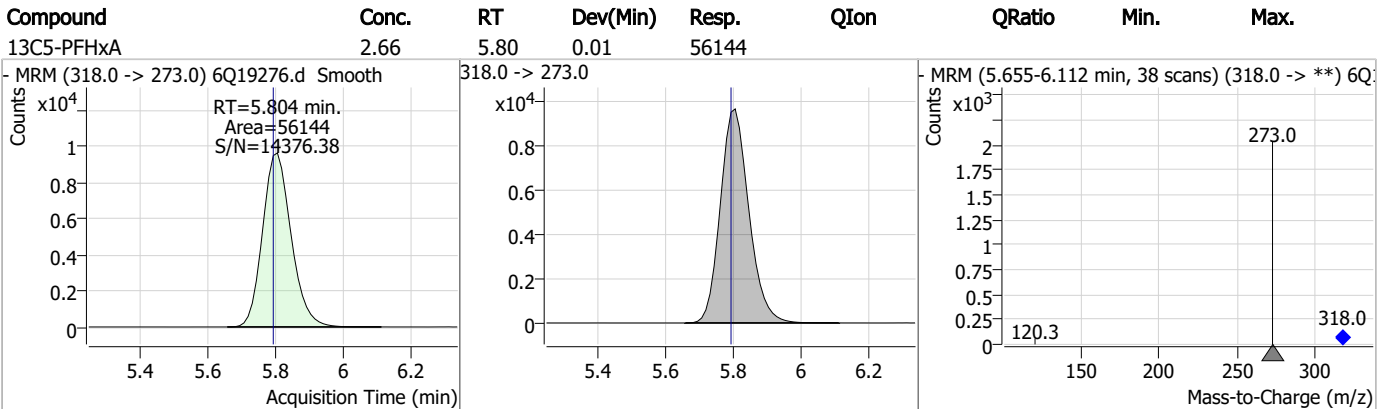
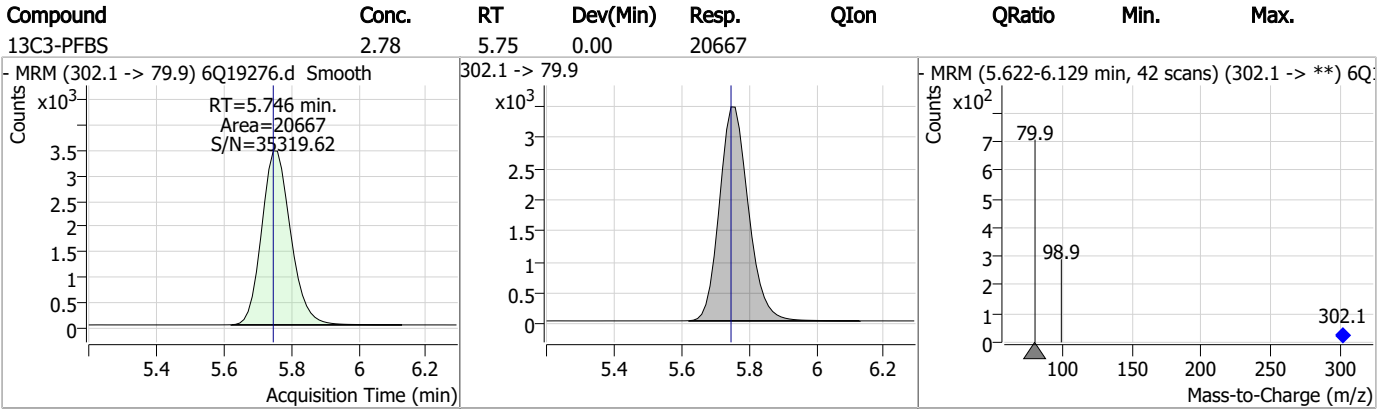
7.1.3

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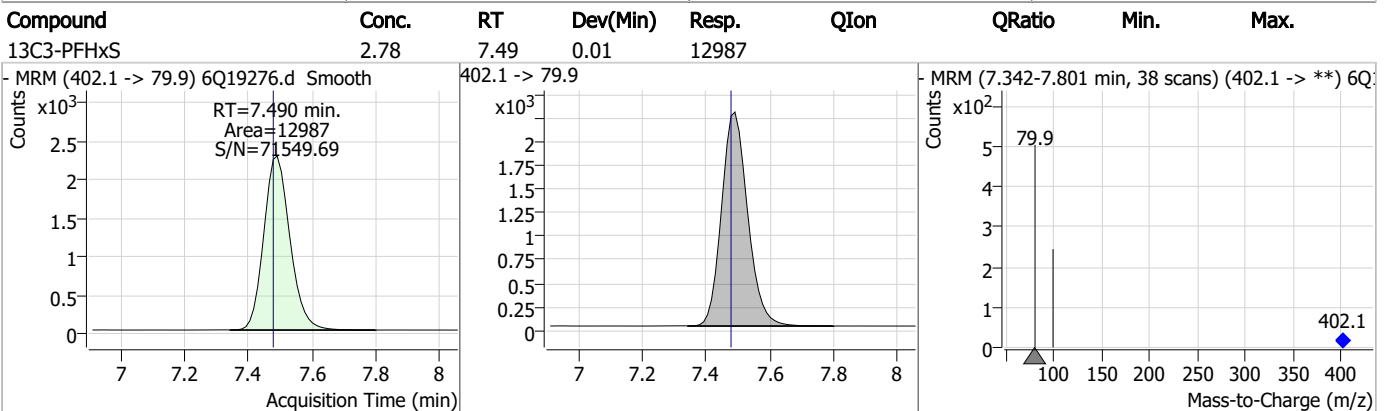
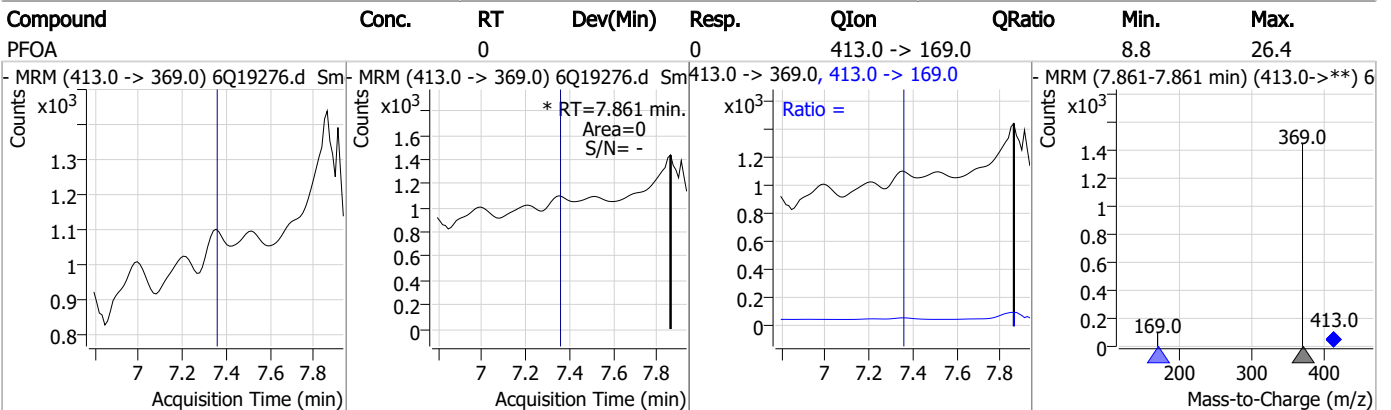
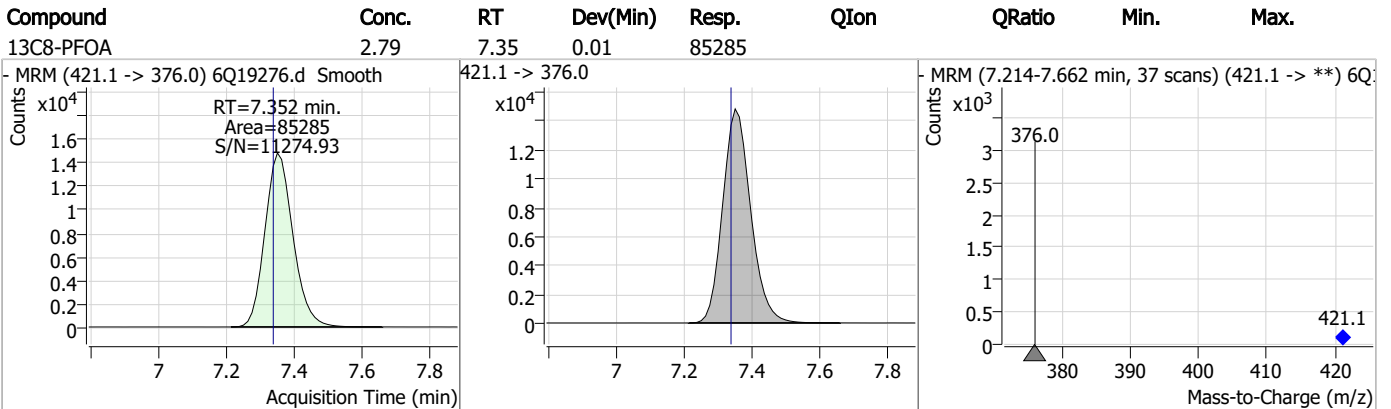
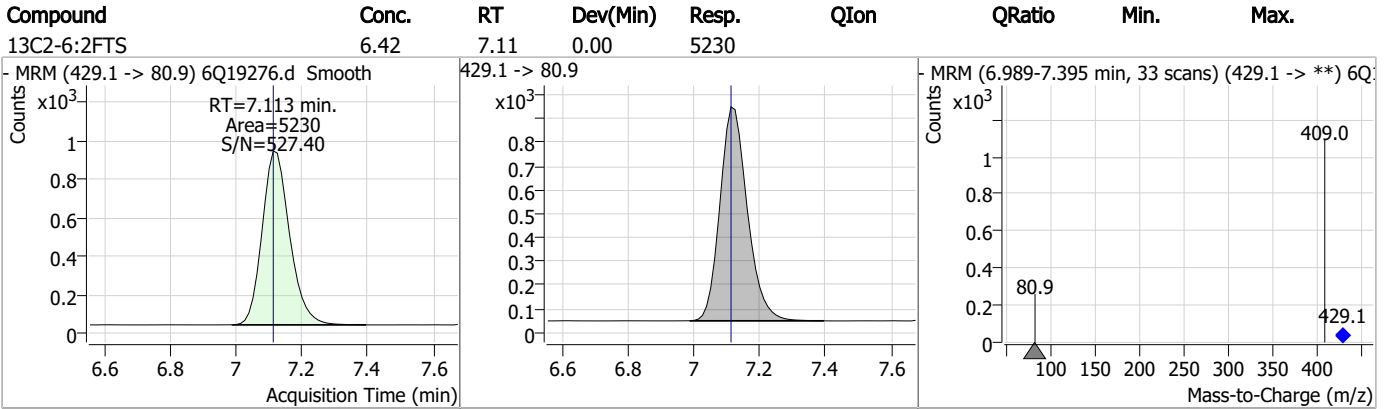
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



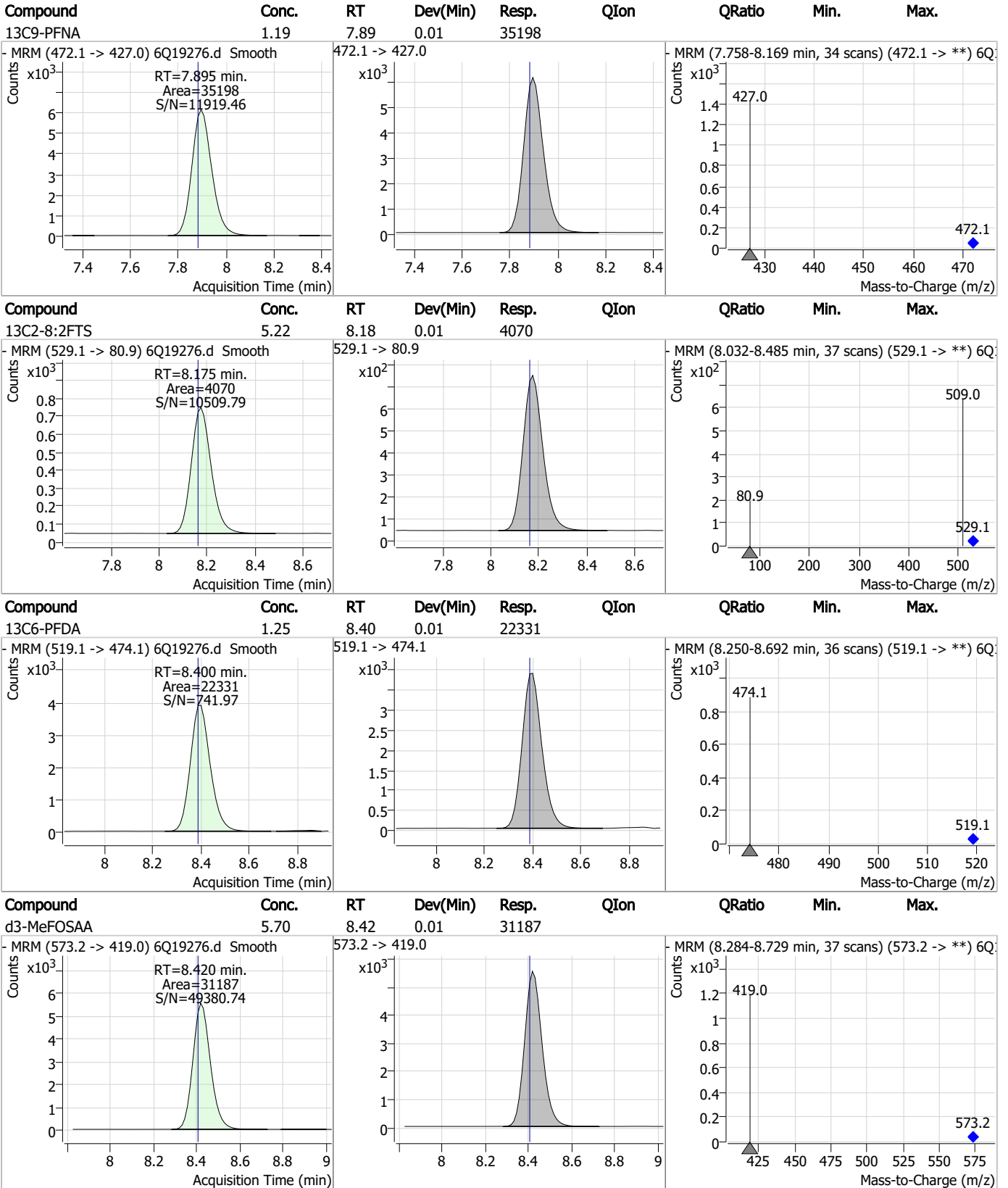
Perfluorinated Compounds by LC/MS/MS



7.1.3

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Perfluorinated Compounds by LC/MS/MS



7.1.3

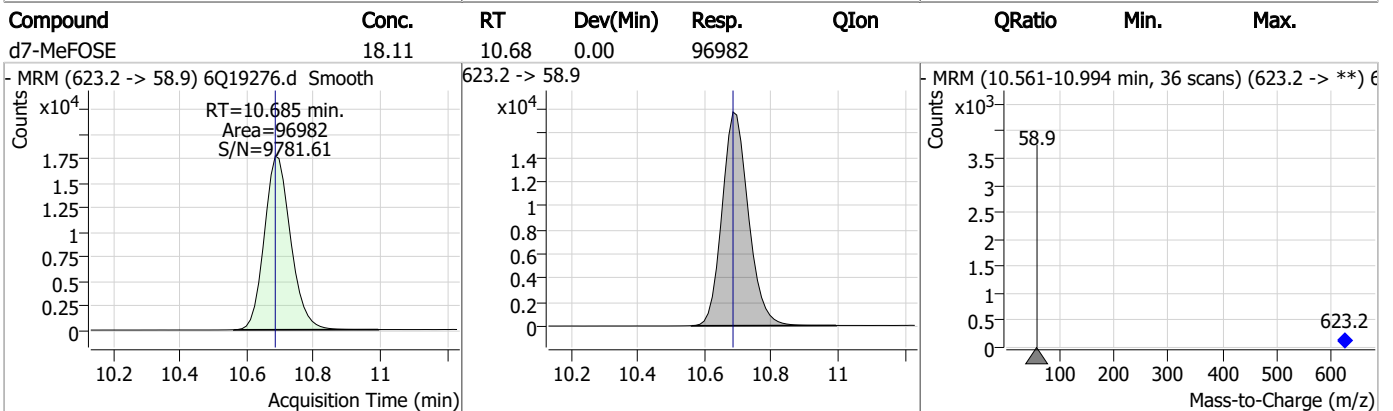
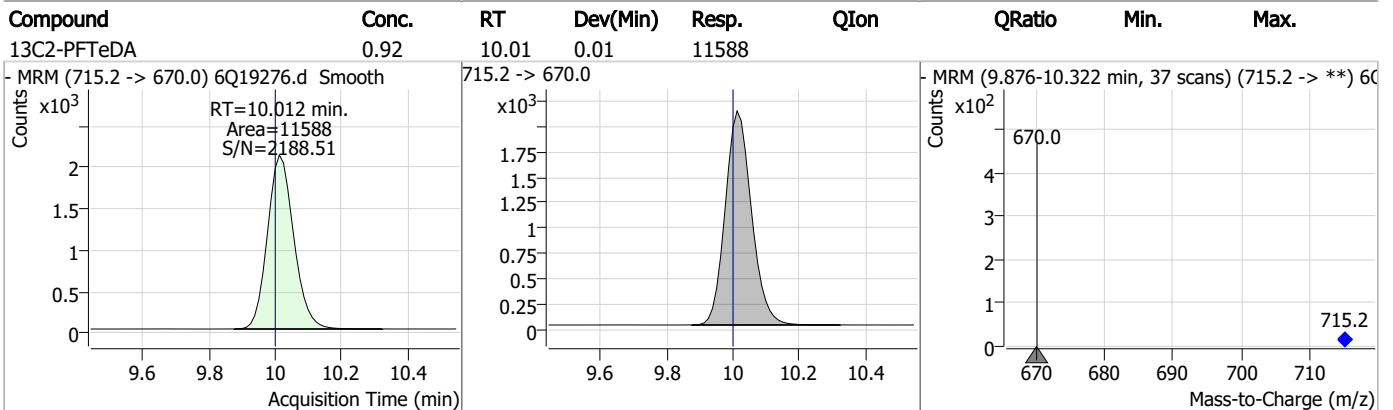
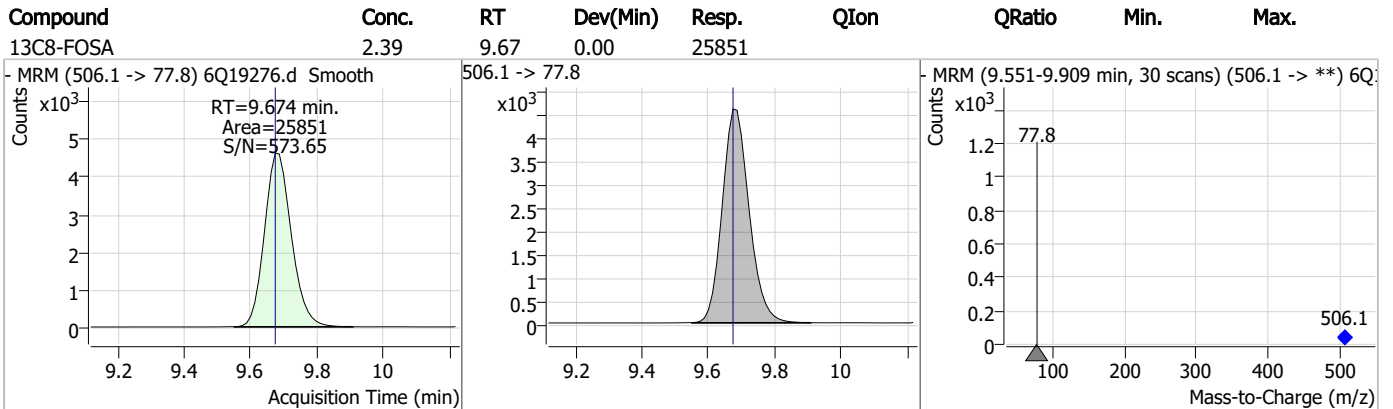
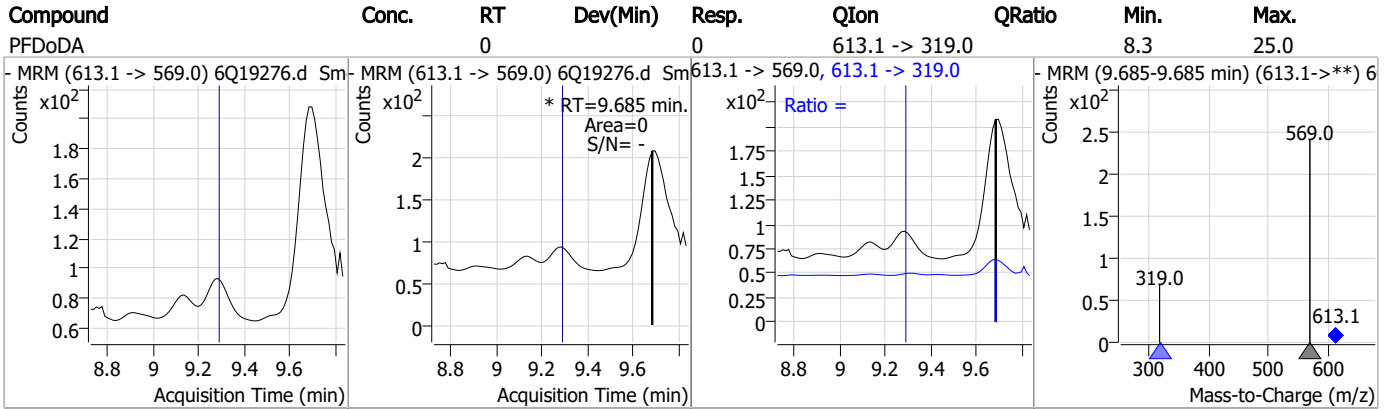
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.64	8.57	0.01	11282				
d5-EtFOSAA	5.11	8.63	0.01	23617				
13C7-PFUnDA	1.06	8.87	0.01	26658				
13C2-PFDoDA	1.04	9.30	0.01	22601				

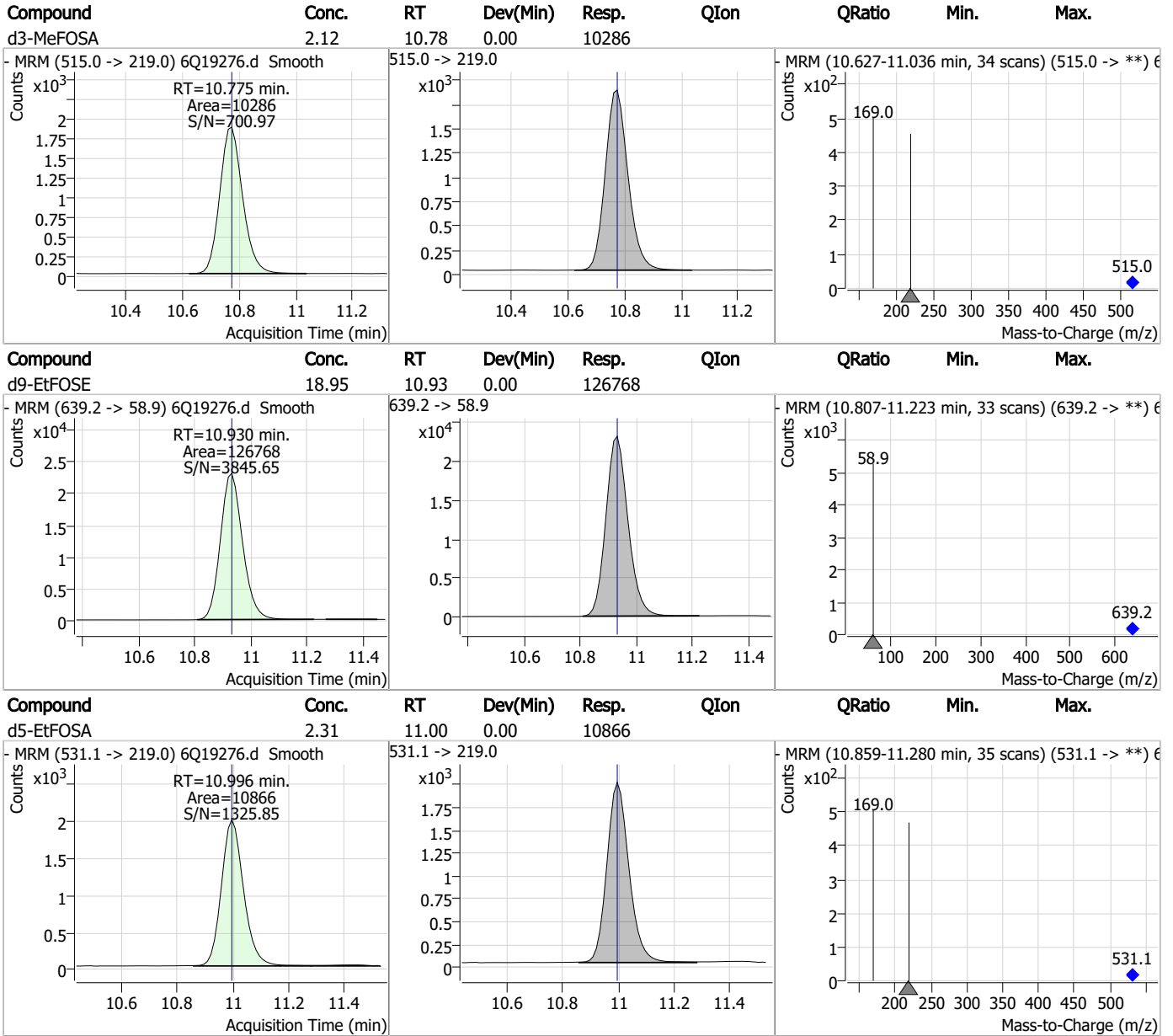
Perfluorinated Compounds by LC/MS/MS



7.1.3

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Perfluorinated Compounds by LC/MS/MS



7.1.3

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19277.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/13/2023 12:25:44 AM
 Sample Name : FC6649-6
 Vial : P2-C4
 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	154877	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	53346	5.00 µg/L	0.000
M5-PFHxA	5.804	318.0 -> 273.0	56336	2.50 µg/L	0.012
M4-PFHpA	6.719	367.1 -> 322.0	53203	2.50 µg/L	0.012
M8-PFOA	7.352	421.1 -> 376.0	86158	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	40709	1.25 µg/L	0.013
M6-PFDA	8.400	519.1 -> 474.1	22547	1.25 µg/L	0.012
M7-PFUnDA	8.866	570.0 -> 525.1	26613	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	22360	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	11041	1.25 µg/L	0.012
M8-FOSA	9.687	506.1 -> 77.8	24451	2.50 µg/L	0.012
M3-PFBS	5.759	302.1 -> 79.9	20738	2.50 µg/L	0.012
M3-PFHxS	7.490	402.1 -> 79.9	12601	2.50 µg/L	0.012
M8-PFOS	8.575	507.1 -> 79.9	11902	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	3431	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	5208	5.00 µg/L	0.000
M2-8:2FTS	8.175	529.1 -> 80.9	4664	5.00 µg/L	0.012
M3-MeFOSAA	8.420	573.2 -> 419.0	30440	5.00 µg/L	0.012
M3-HFPO-DA	6.181	286.9 -> 168.9	36194	10.00 µg/L	0.012
M5-EtFOSAA	8.628	589.2 -> 419.0	23060	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	95582	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	121378	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	10105	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	9912	2.50 µg/L	0.000
13C4-PFOS	8.576	502.8 -> 79.9	13950	2.50 µg/L	0.012
13C3-PFBA	3.101	216.0 -> 172.0	56464	5.00 µg/L	0.012
18O2-PFHxS	7.490	403.0 -> 83.9	8240	2.50 µg/L	0.012
13C4-PFOA	7.352	417.1 -> 372.0	72120	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	27764	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	40697	1.25 µg/L	0.013
13C2-PFHxA	5.805	315.1 -> 270.0	45605	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3431	6.76 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 135.2%		
13C2-6:2FTS	7.113	429.1 -> 80.9	5208	6.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 136.6%		
13C2-8:2FTS	8.175	529.1 -> 80.9	4664	6.38 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 127.7%		
13C2-PFDoDA	9.297	615.1 -> 570.0	22360	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C2-PFTeDA	10.012	715.2 -> 670.0	11041	1.02 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 82.0%		
13C3-PFBS	5.759	302.1 -> 79.9	20738	2.98 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 119.1%		
13C3-PFHxS	7.490	402.1 -> 79.9	12601	2.88 µg/L	0.012

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 = 115.2%		
13C4-PFBA	3.097	216.8 -> 171.9	154877	11.68	µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 116.8%		
13C4-PFHpA	6.719	367.1 -> 322.0	53203	2.90	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.1%		
13C5-PFHxA	5.804	318.0 -> 273.0	56336	2.86	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.3%		
13C5-PFPeA	4.560	268.3 -> 223.0	53346	6.05	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 121.1%		
13C6-PFDA	8.400	519.1 -> 474.1	22547	1.47	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 117.7%		
13C7-PFUnDA	8.866	570.0 -> 525.1	26613	1.23	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.6%		
13C8-FOSA	9.687	506.1 -> 77.8	24451	2.37	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%		
13C8-PFOA	7.352	421.1 -> 376.0	86158	3.20	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 128.1%		
13C8-PFOS	8.575	507.1 -> 79.9	11902	2.91	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.5%		
13C9-PFNA	7.895	472.1 -> 427.0	40709	1.64	µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 131.1%		
d3-MeFOSAA	8.420	573.2 -> 419.0	30440	5.82	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.3%		
13C3-HFPO-DA	6.181	286.9 -> 168.9	36194	11.58	µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.8%		
d3-MeFOSA	10.775	515.0 -> 219.0	9912	2.14	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.5%		
d5-EtFOSAA	8.628	589.2 -> 419.0	23060	5.22	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.5%		
d7-MeFOSE	10.685	623.2 -> 58.9	95582	18.67	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.7%		
d9-EtFOSE	10.930	639.2 -> 58.9	121378	18.98	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.9%		
d5-EtFOSA	10.996	531.1 -> 219.0	10105	2.25	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.9%		

Target Compounds

Compound	RT	Transition	Response	Conc.	Units	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	9.697	613.1 -> 569.0 613.1 -> 319.0	0 0	µg/L	m	1
PFDS	-	599.0 -> 79.9	-	N.D.		

7.14
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	7.923	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				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

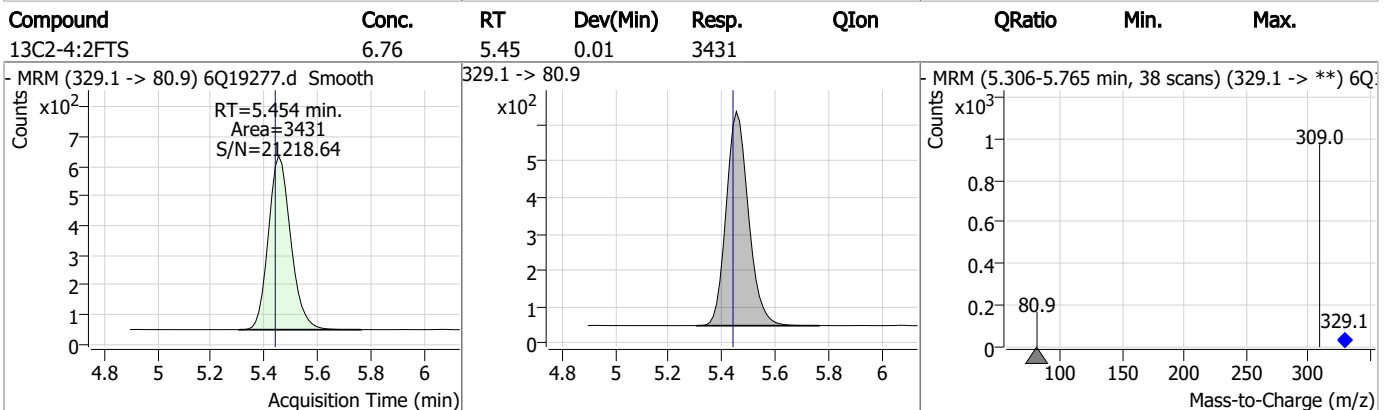
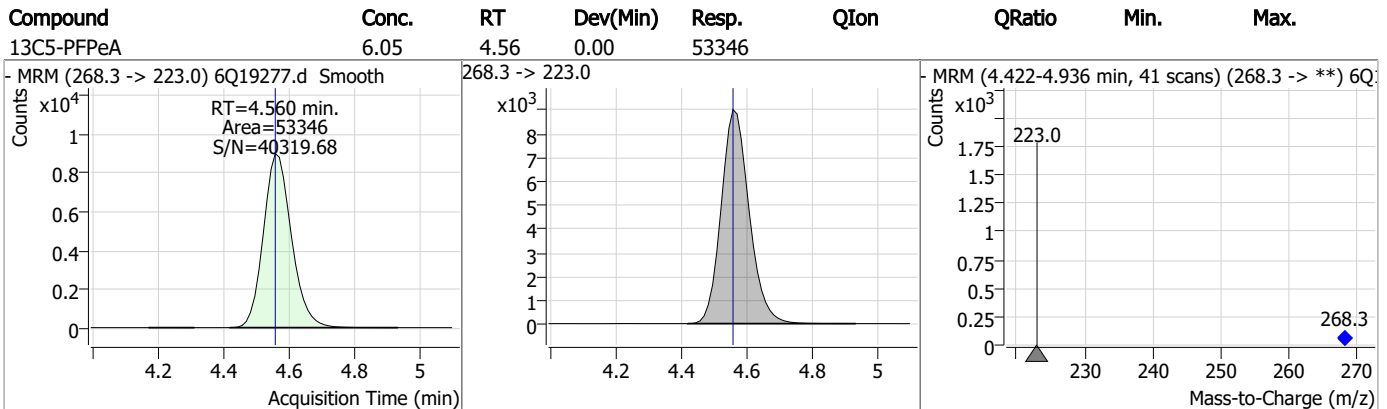
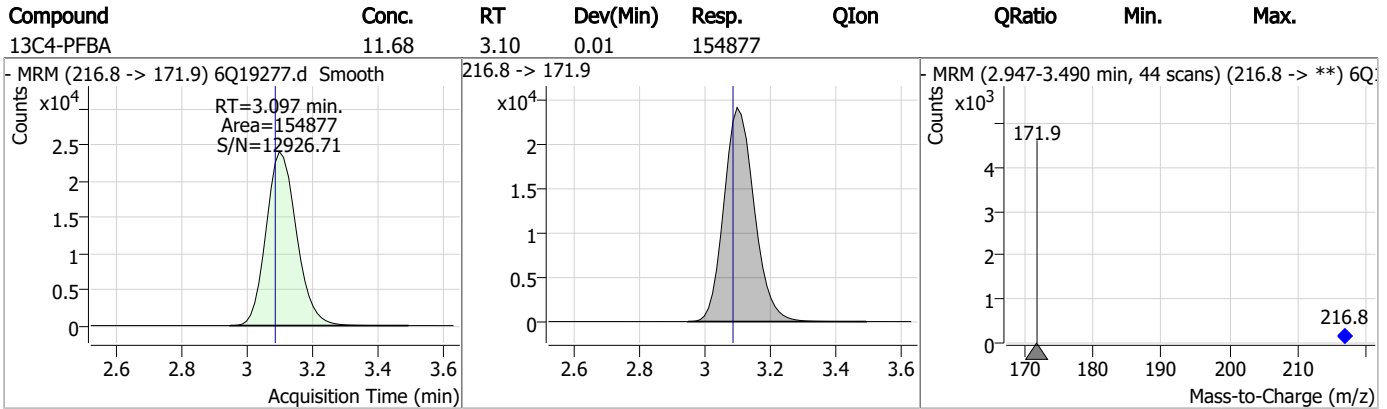
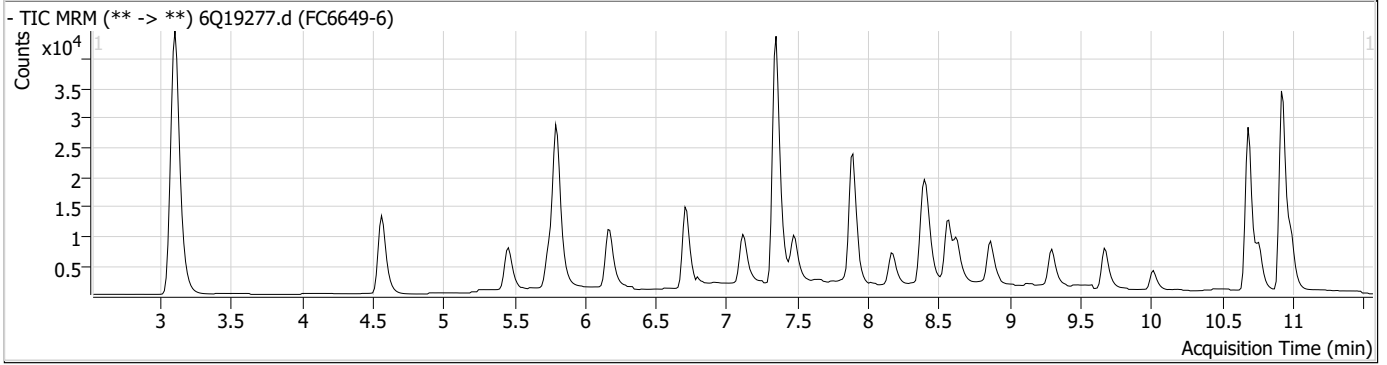
Perfluorinated Compounds by LC/MS/MS

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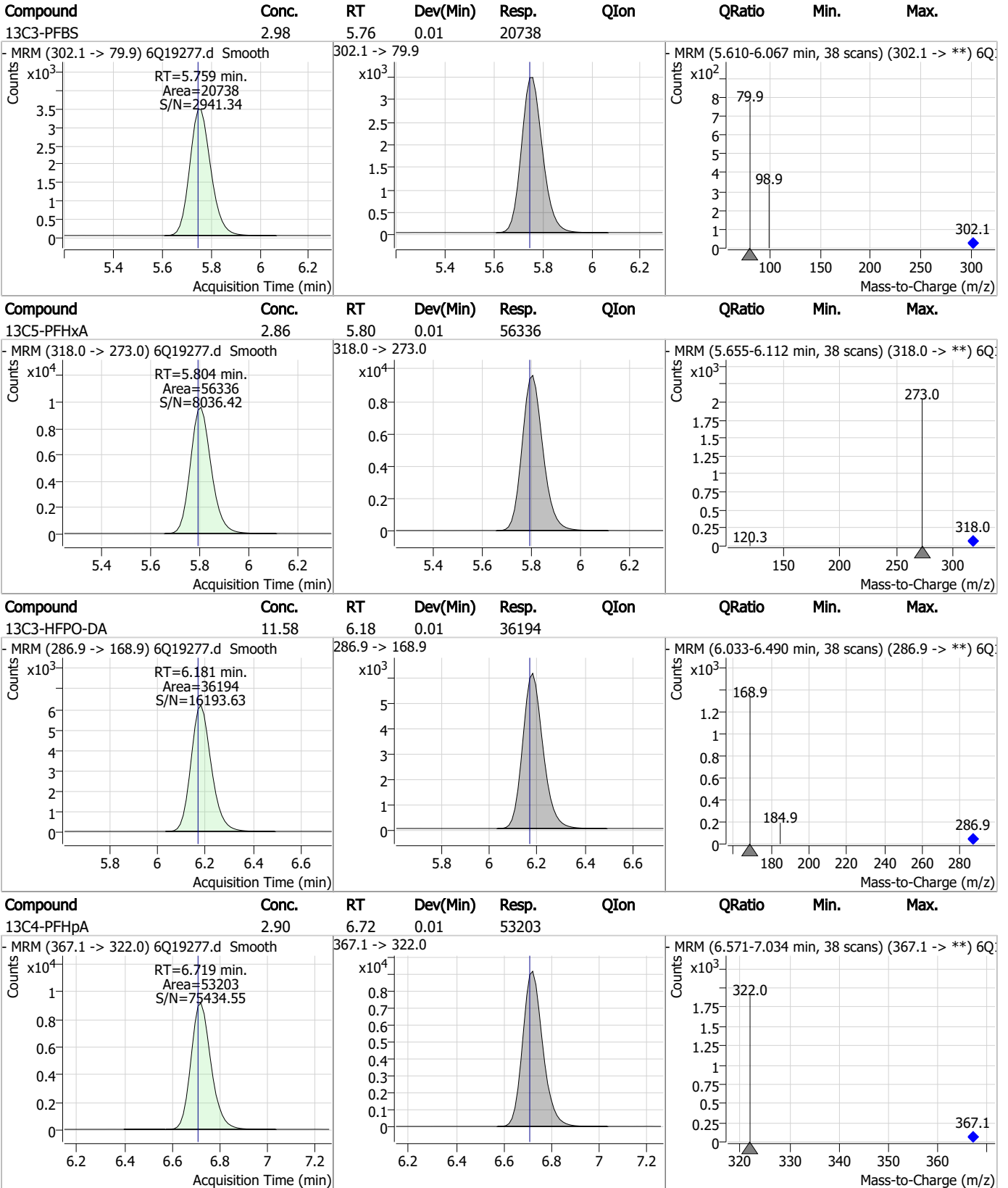
7.1.4
7



Perfluorinated Compounds by LC/MS/MS



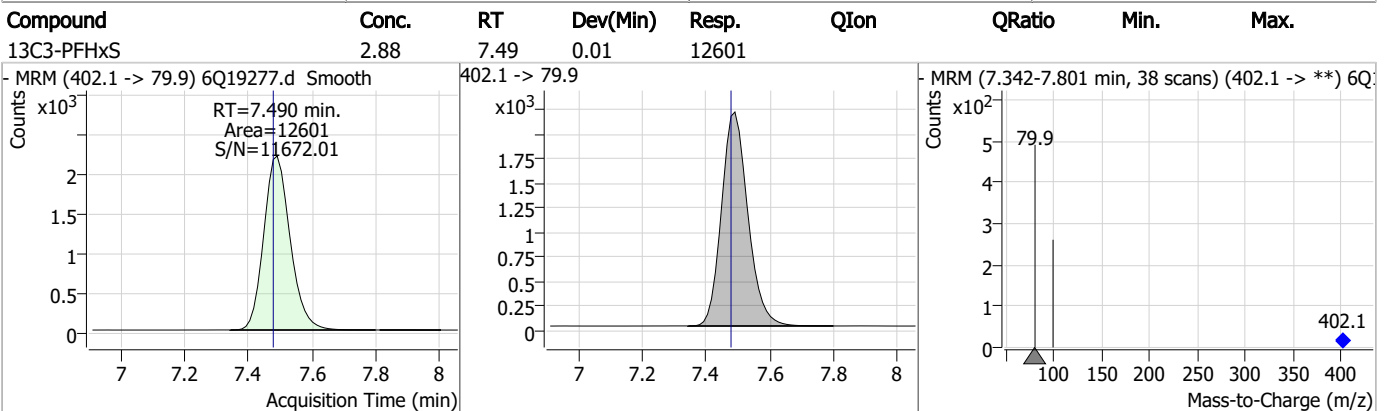
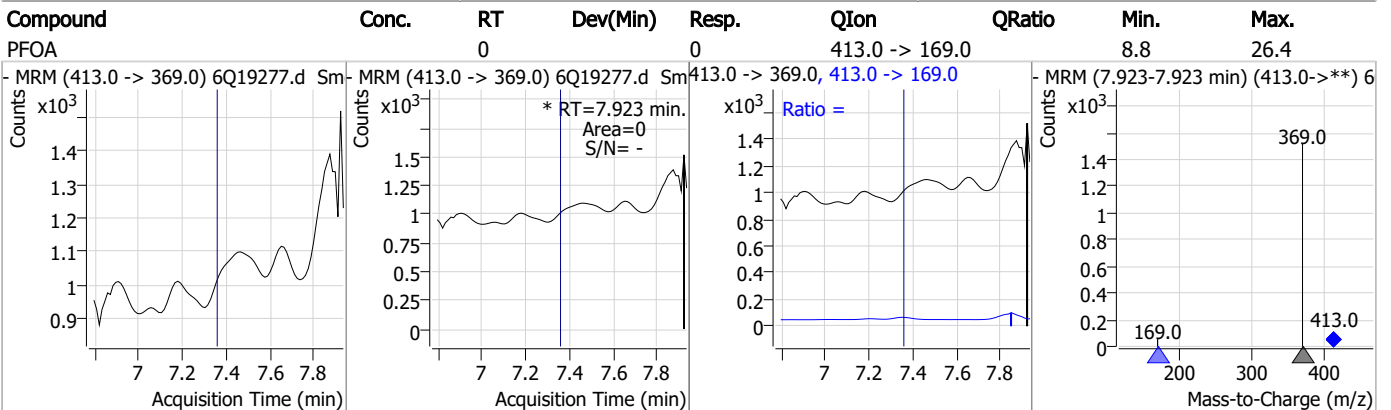
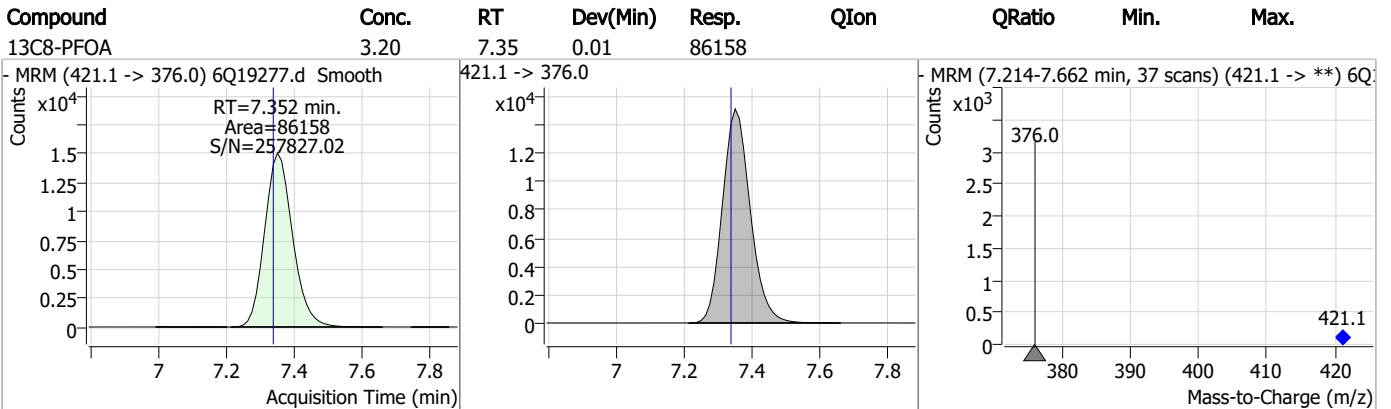
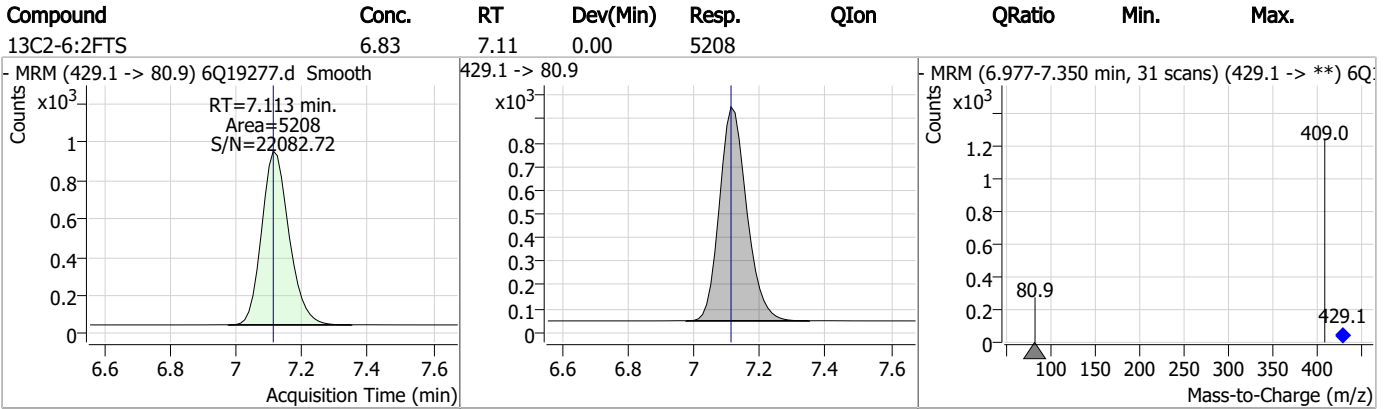
Perfluorinated Compounds by LC/MS/MS



7.1.4

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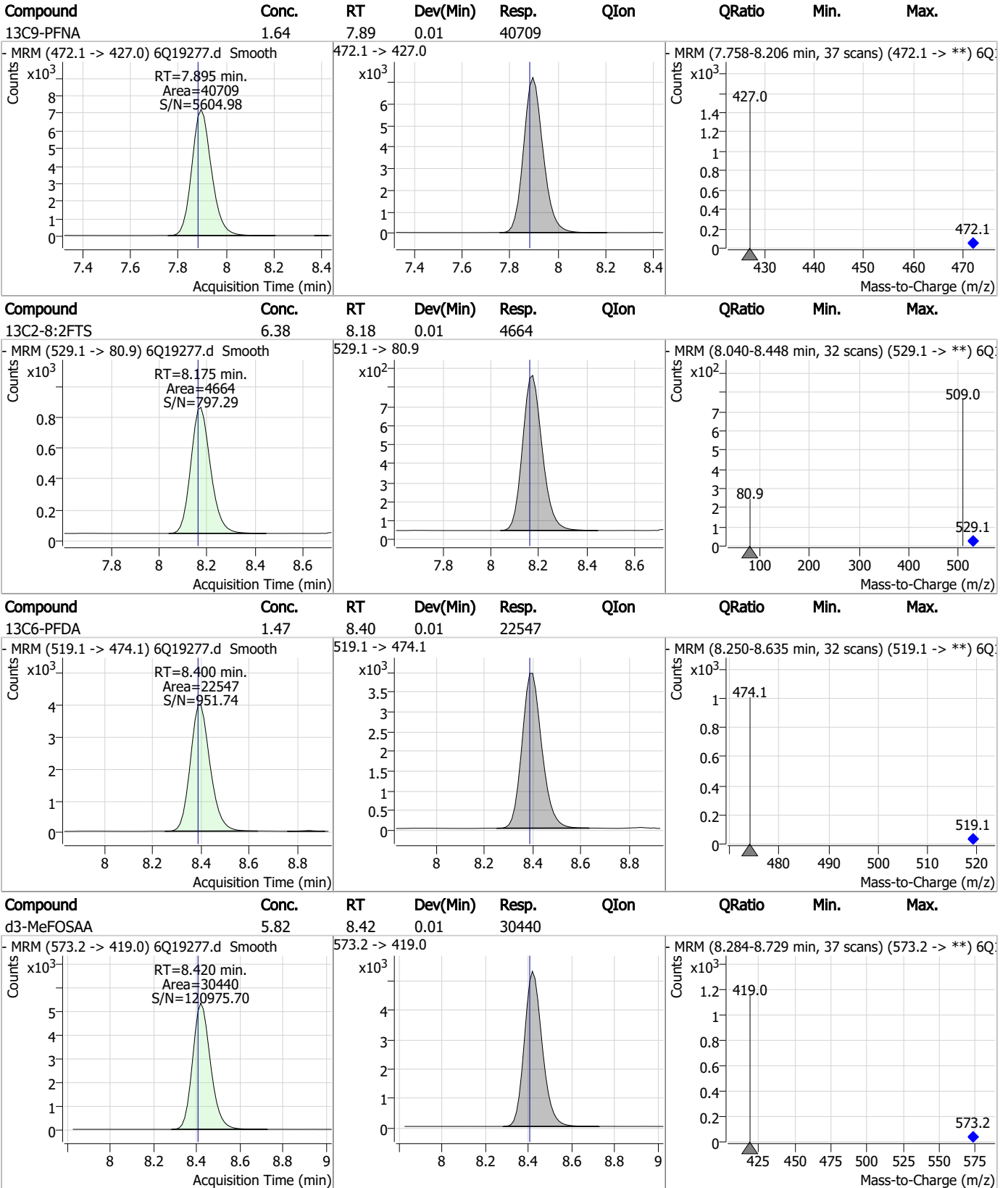
Perfluorinated Compounds by LC/MS/MS



7.1.4

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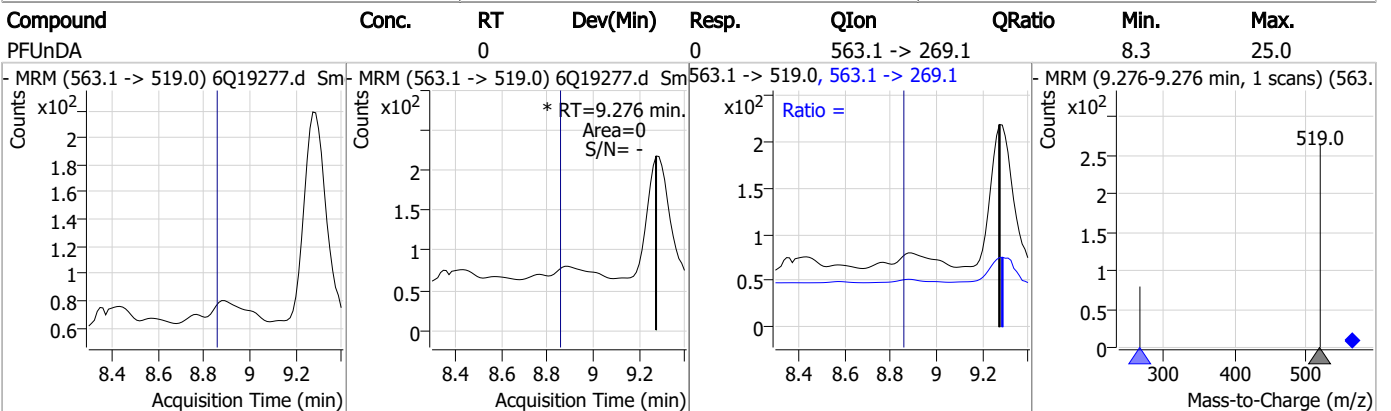
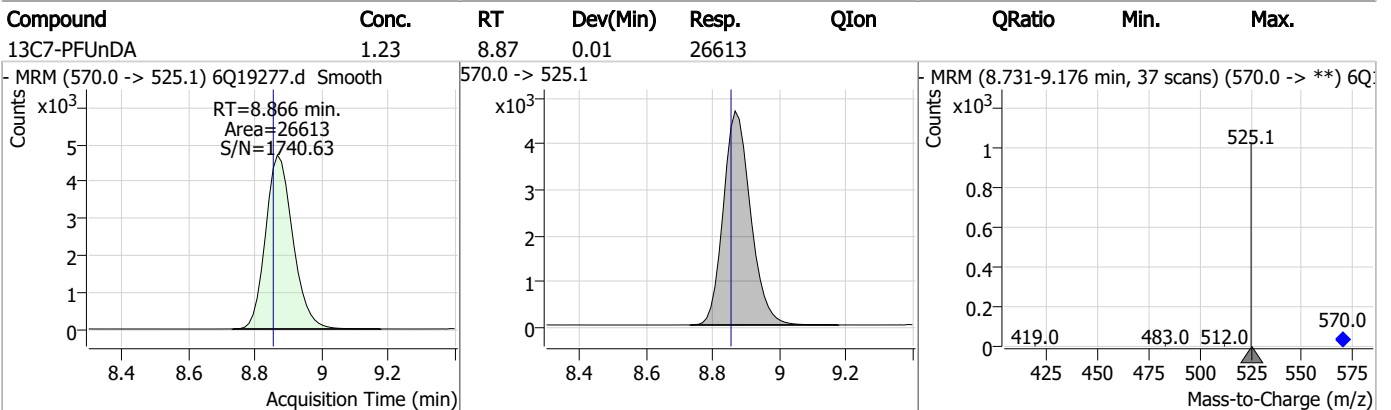
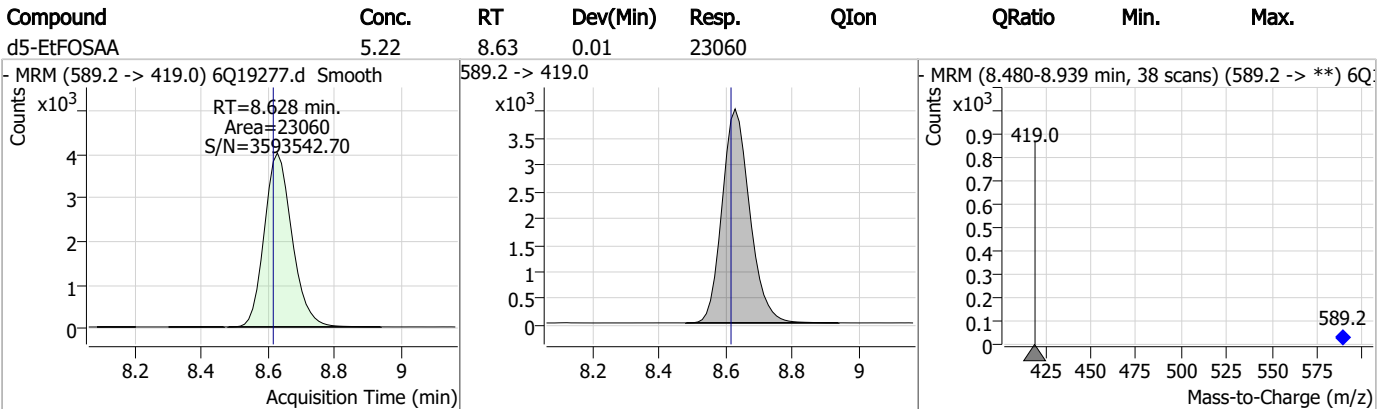
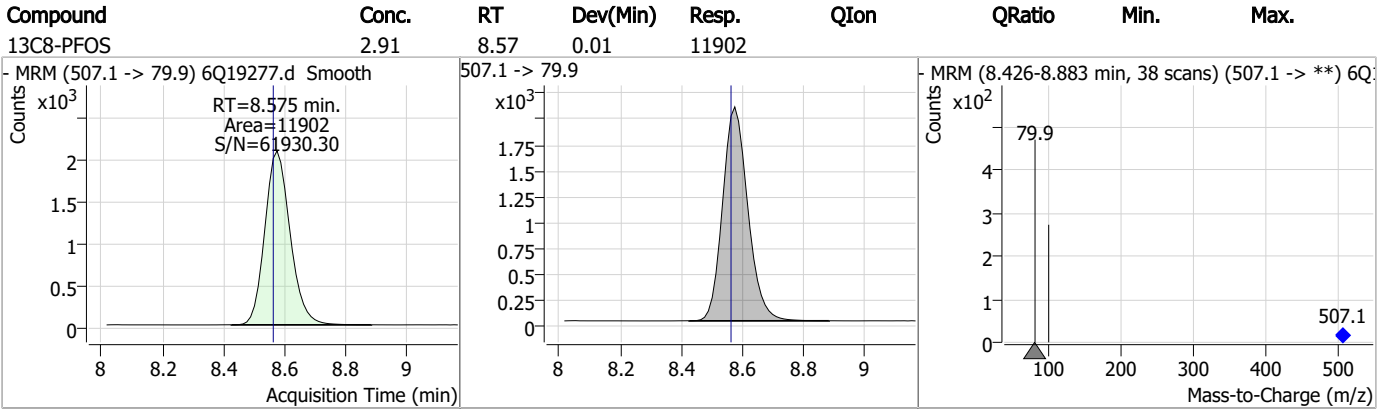
Perfluorinated Compounds by LC/MS/MS



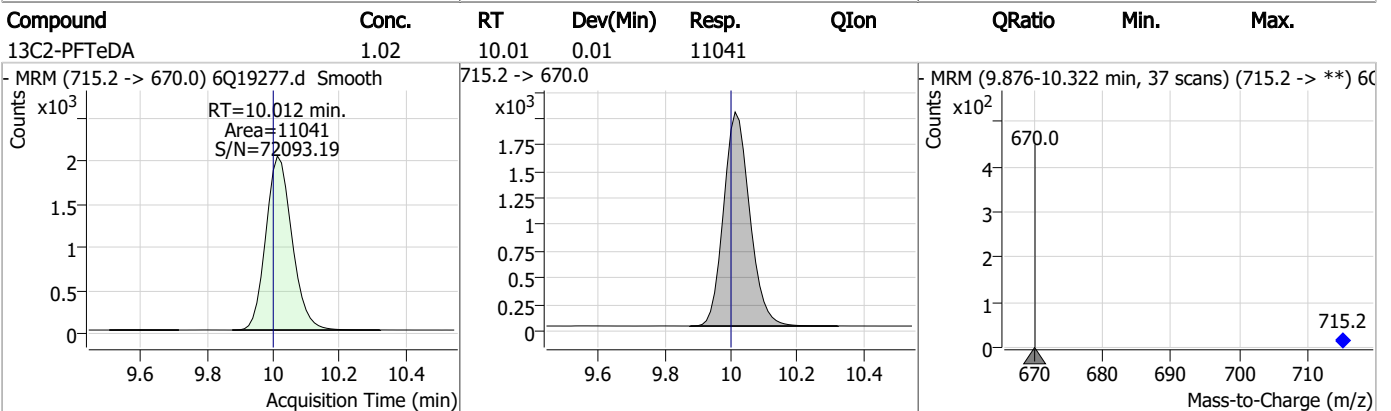
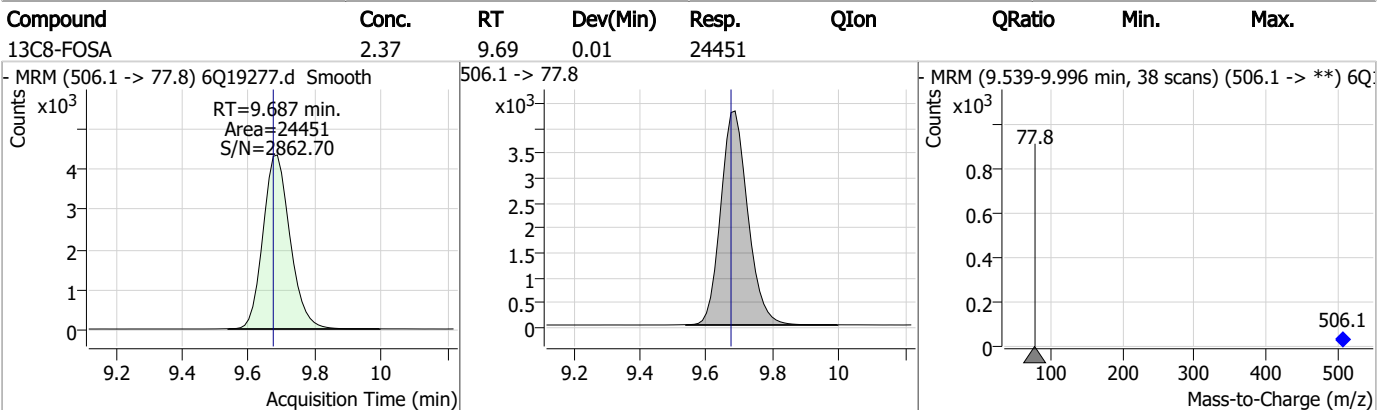
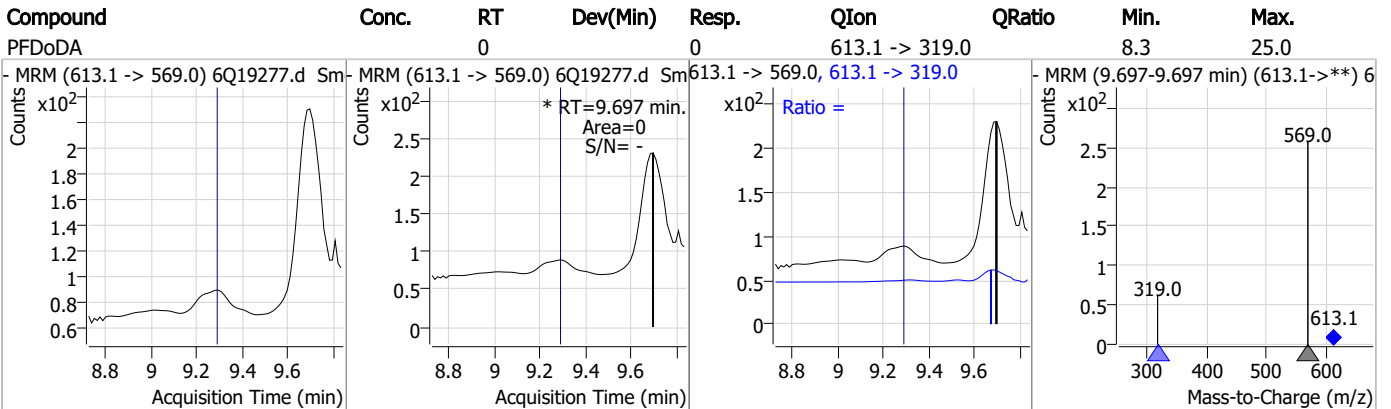
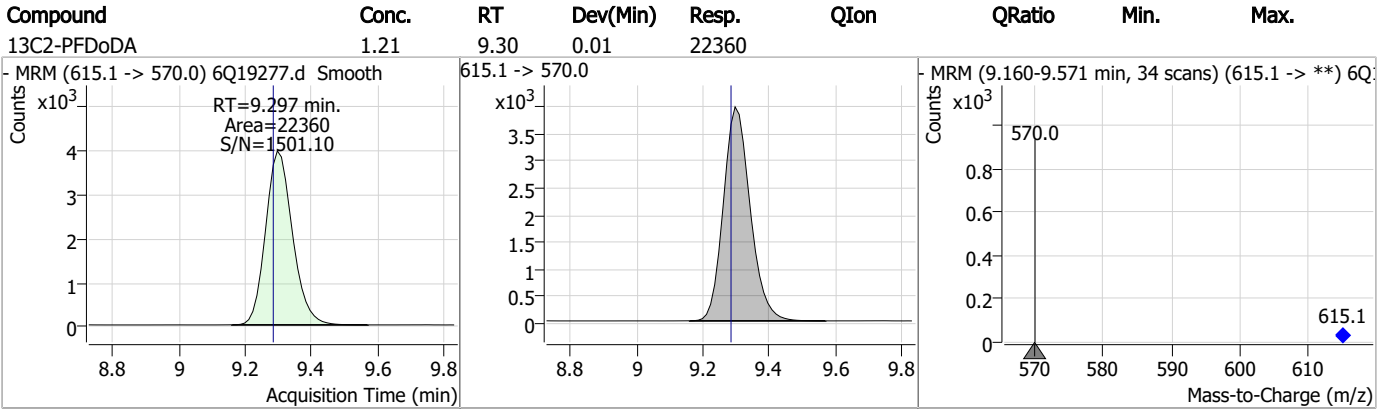
7.1.4

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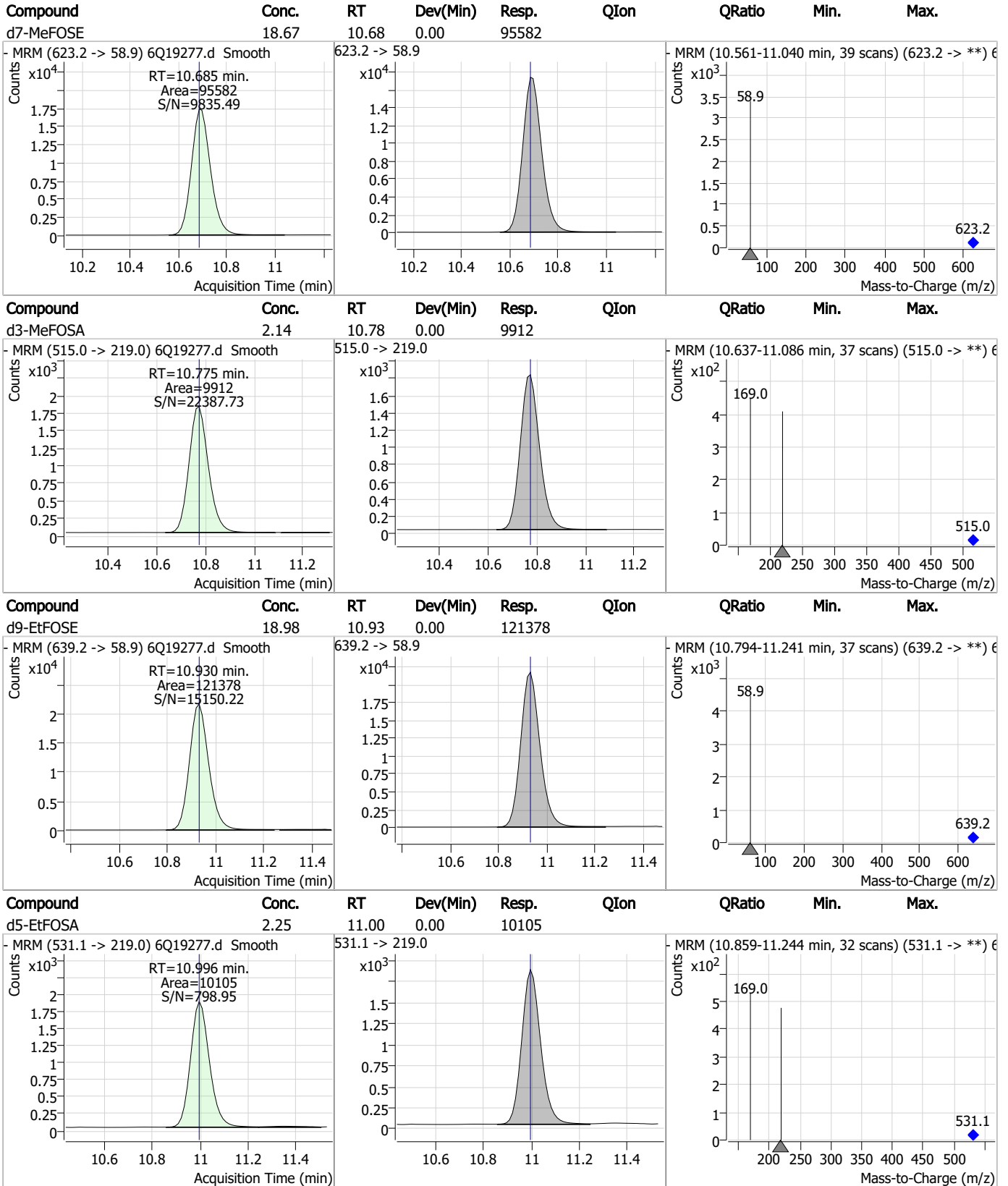
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

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 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 9:37:59 PM
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 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					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	9.697	613.1 -> 569.0 613.1 -> 319.0	0 0	µg/L m	1
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

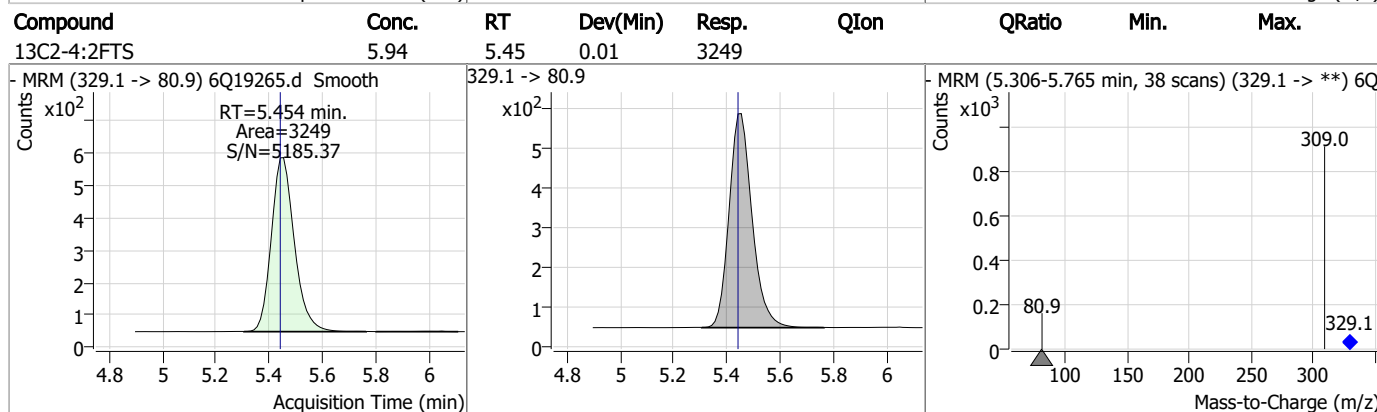
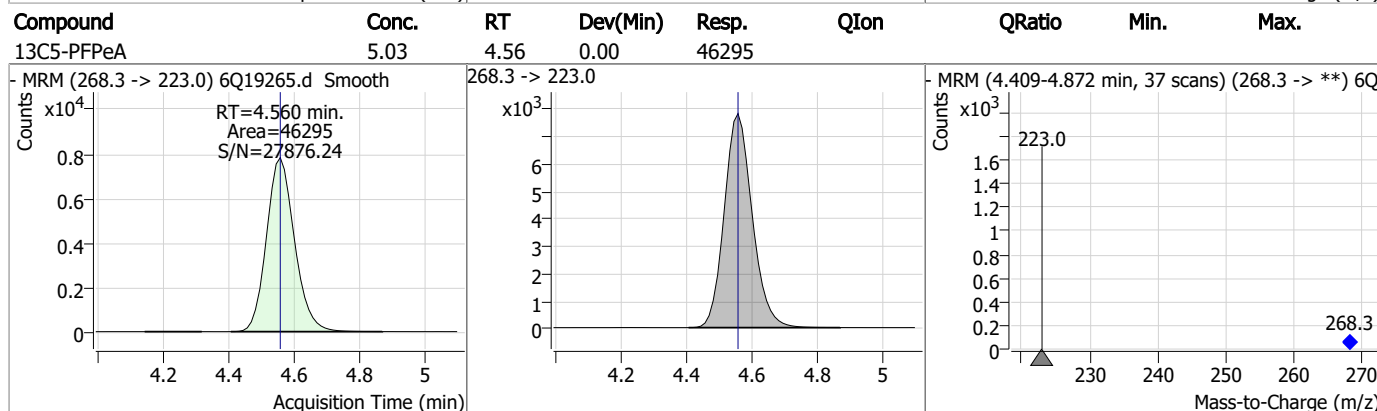
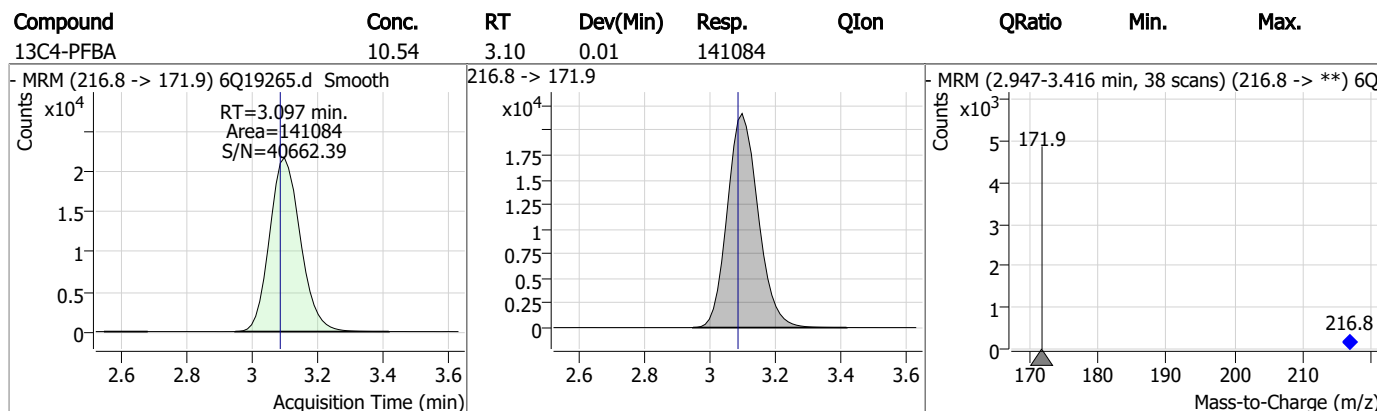
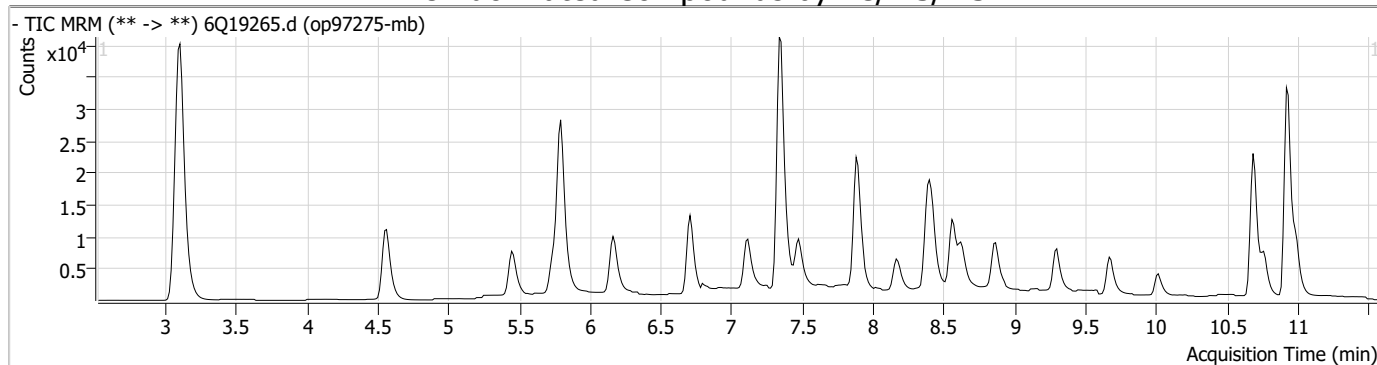
Perfluorinated Compounds by LC/MS/MS

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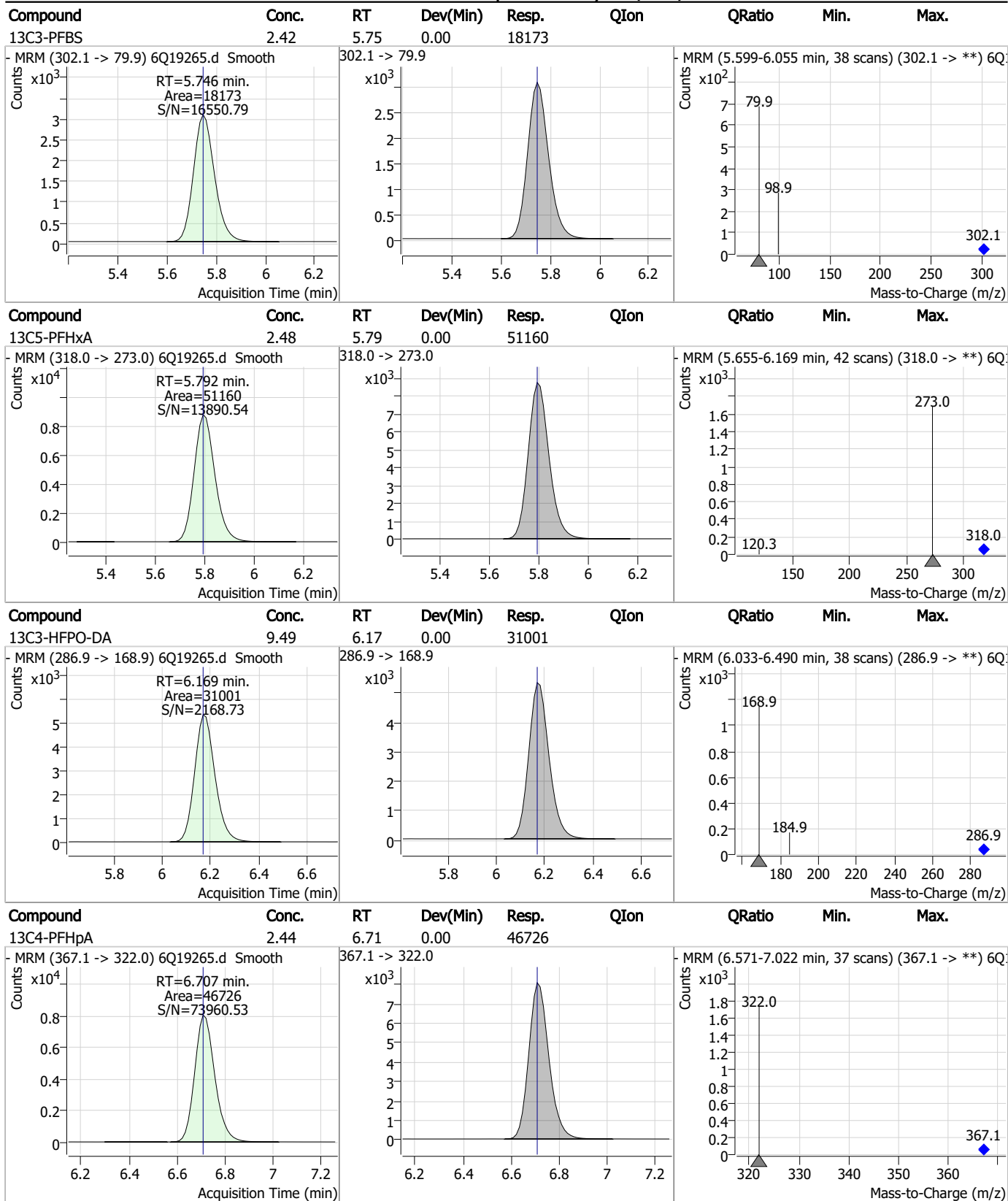
7.2.1

7

Perfluorinated Compounds by LC/MS/MS

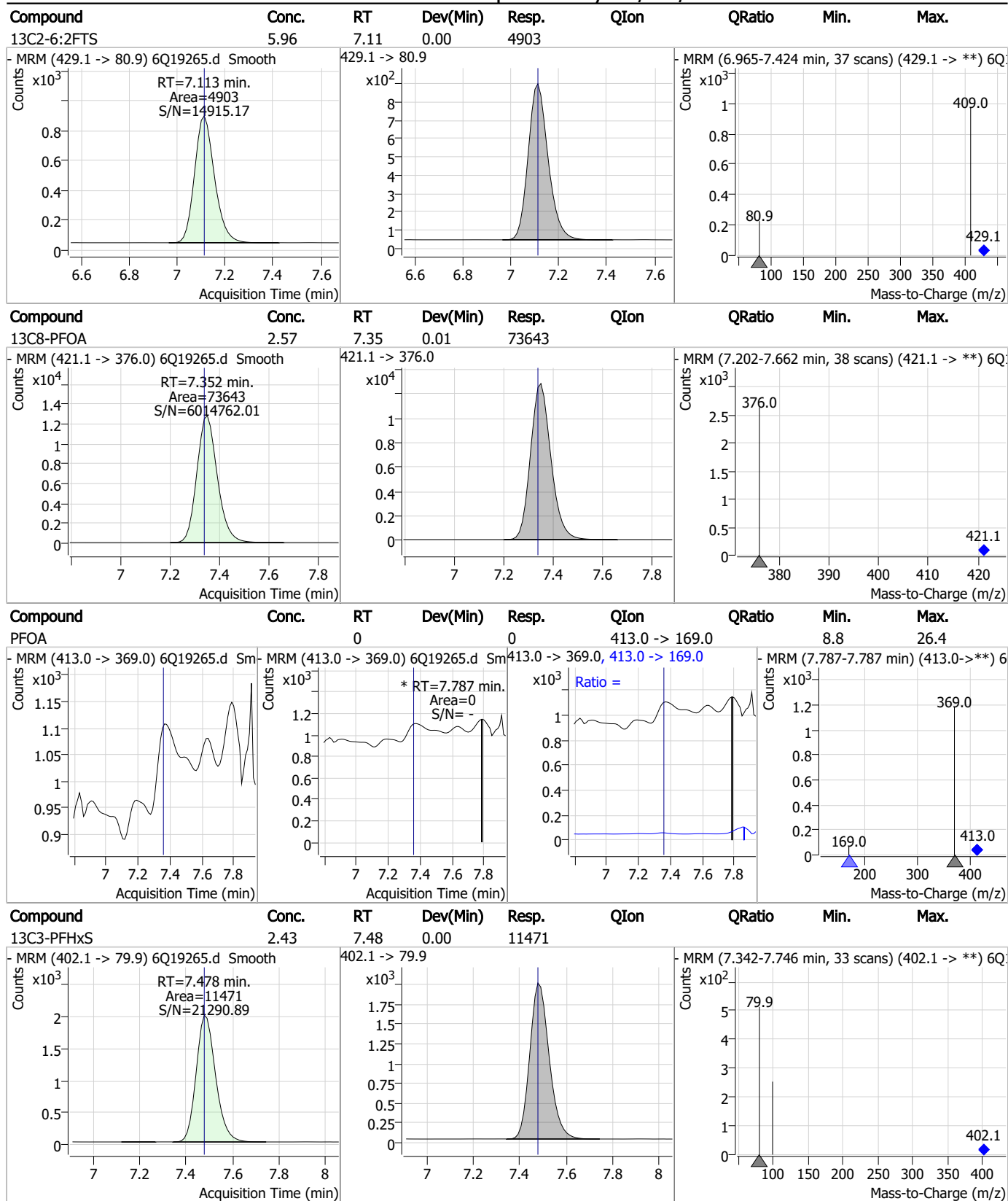


Perfluorinated Compounds by LC/MS/MS



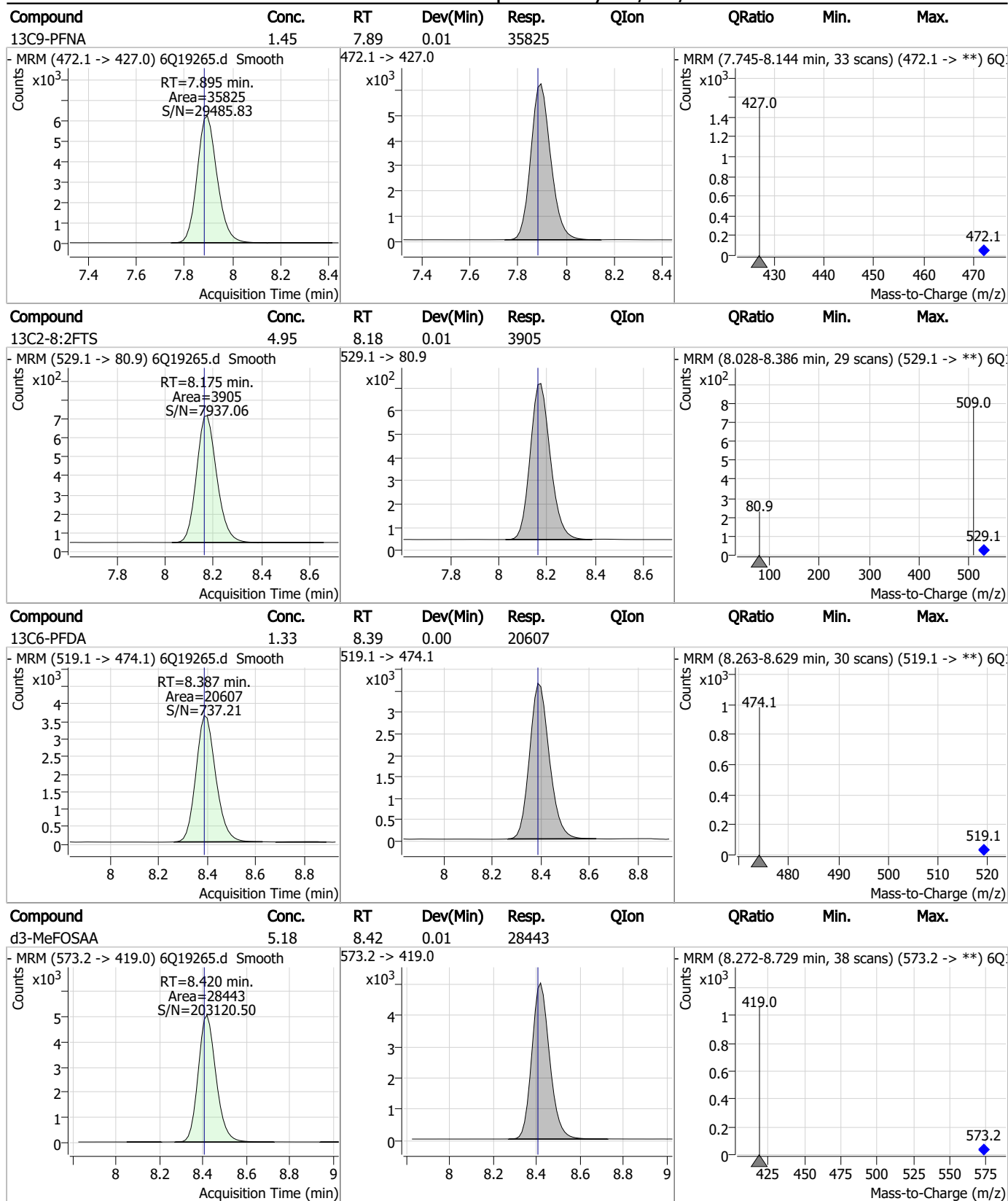
7.2.1
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Perfluorinated Compounds by LC/MS/MS



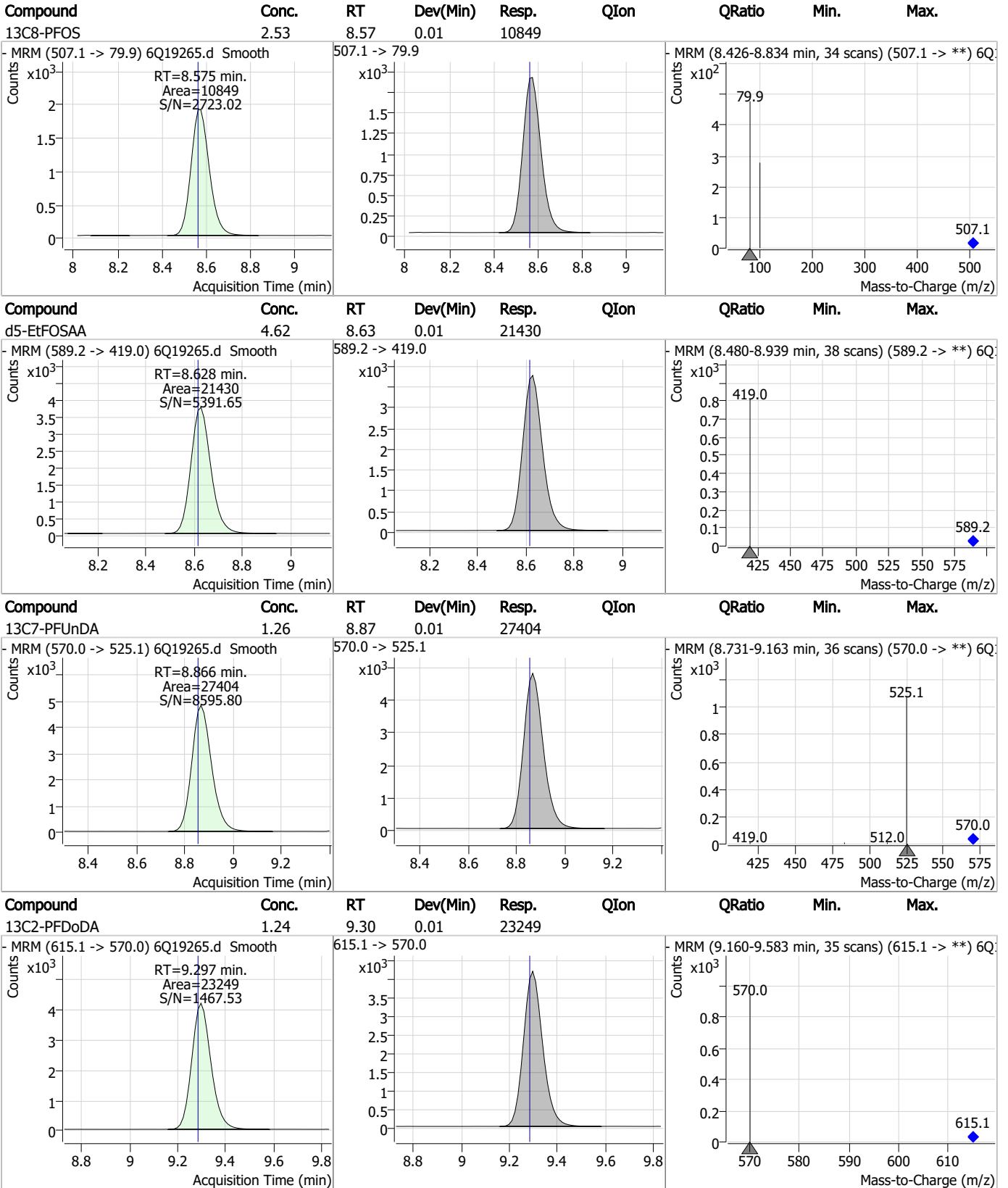
7.2.1
7

Perfluorinated Compounds by LC/MS/MS



7.2.1
7

Perfluorinated Compounds by LC/MS/MS

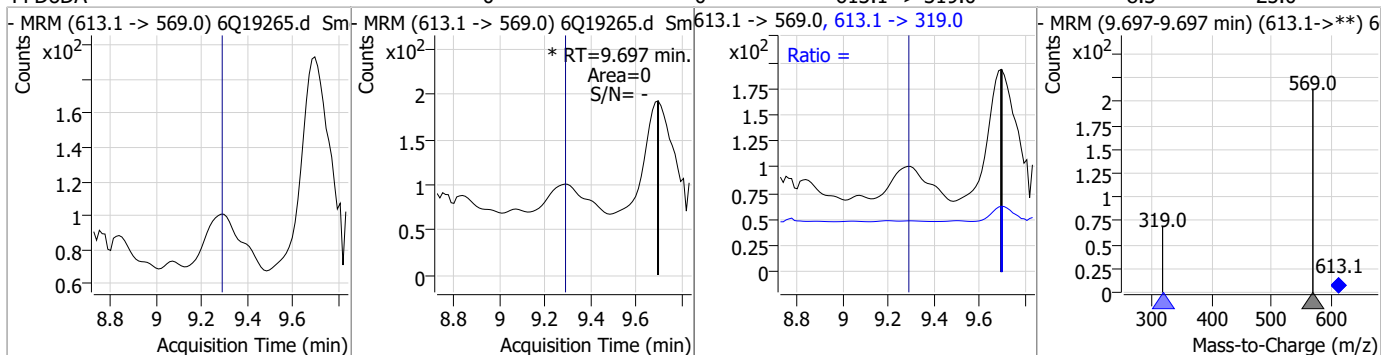


7.2.1

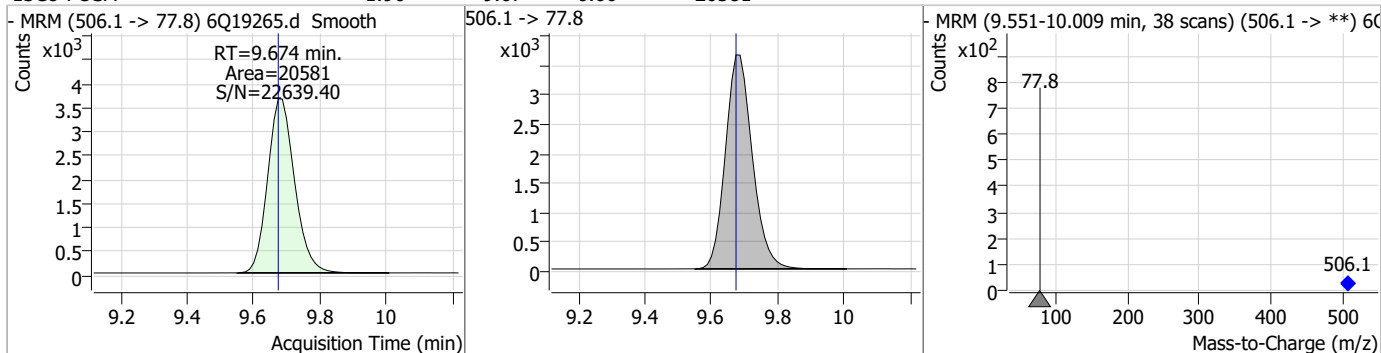
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Perfluorinated Compounds by LC/MS/MS

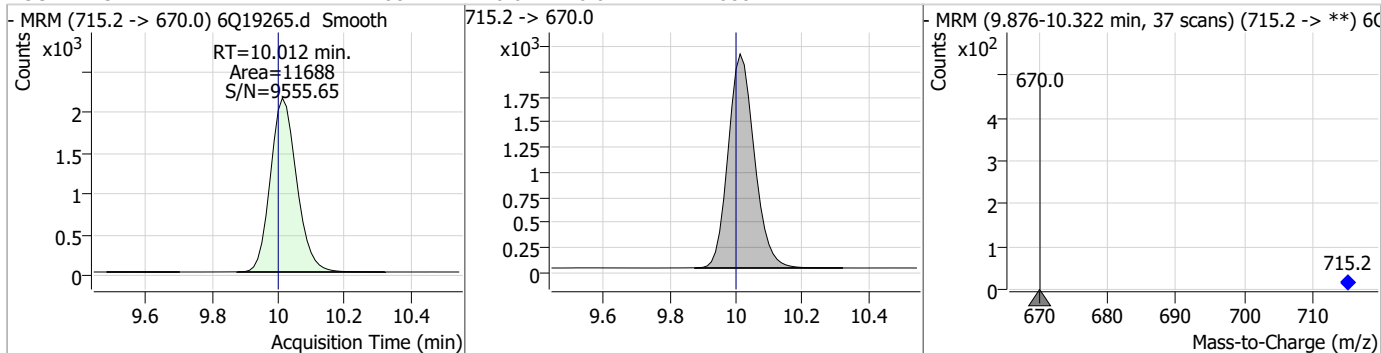
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DA	0	0		0	613.1 -> 319.0		8.3	25.0



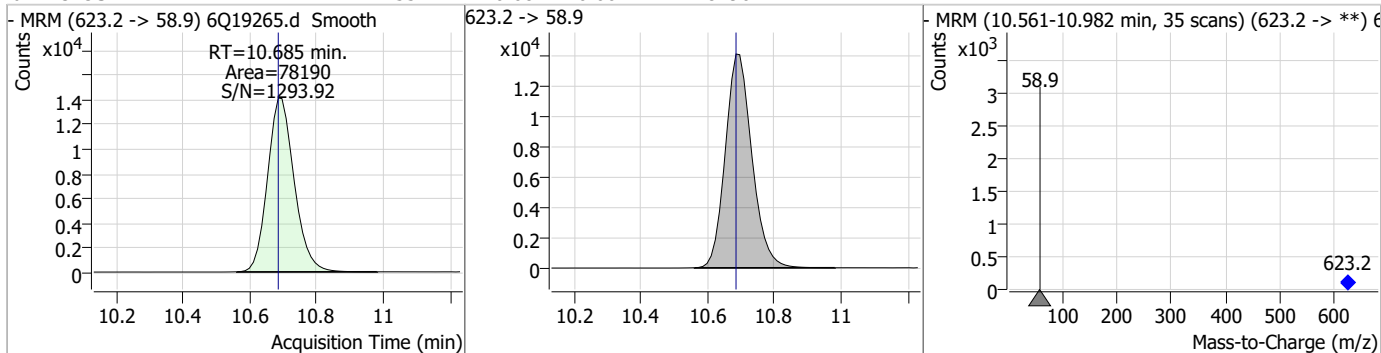
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	1.90	9.67	0.00	20581				



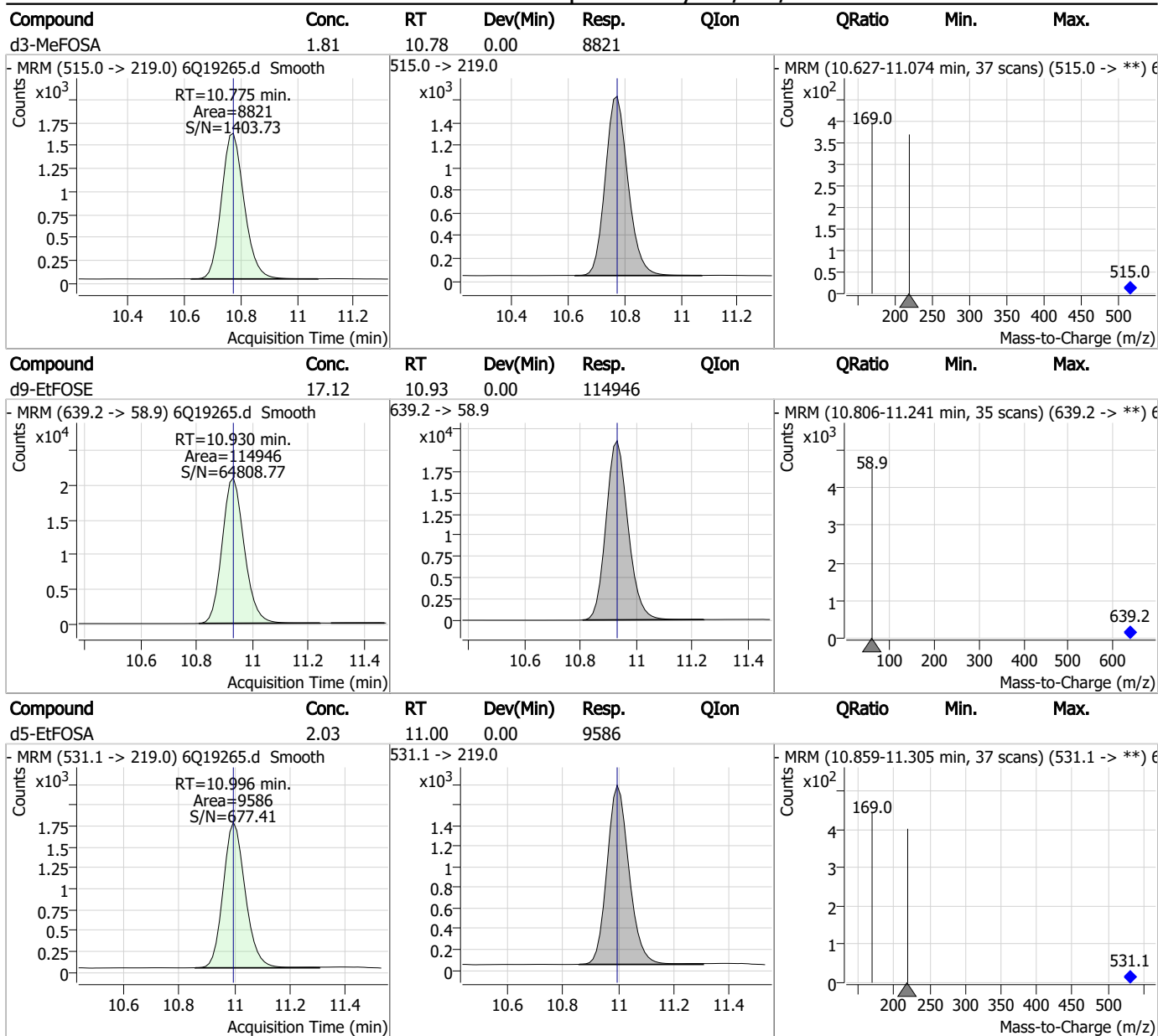
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.08	10.01	0.01	11688				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	14.55	10.68	0.00	78190				



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
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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 = 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%	

7.22
7

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	8.845	512.9 -> 469.0 512.9 -> 219.0	0 0	µg/L	m 1
PFDODA	-	613.1 -> 569.0 613.1 -> 319.0	-	N.D.	
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	9.276	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

7.22
7

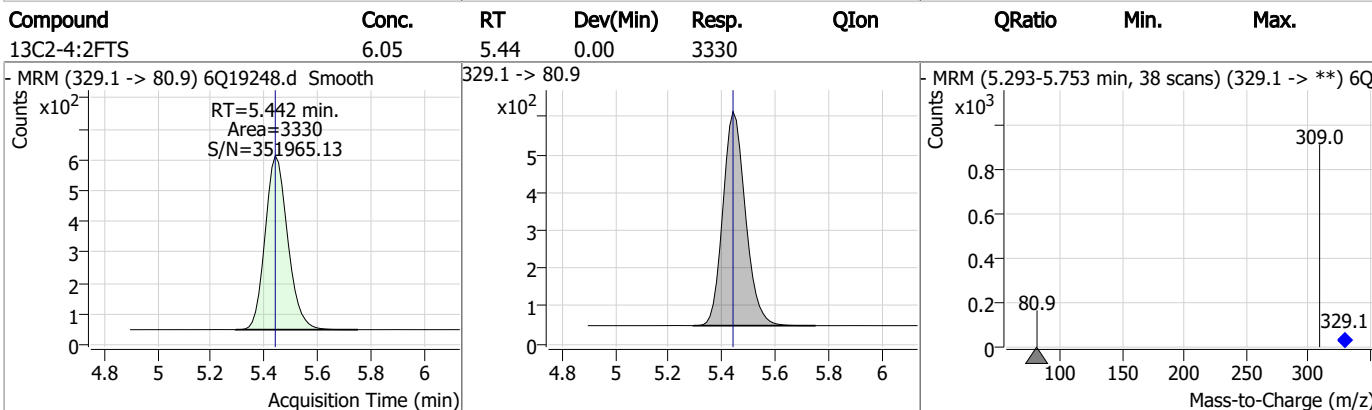
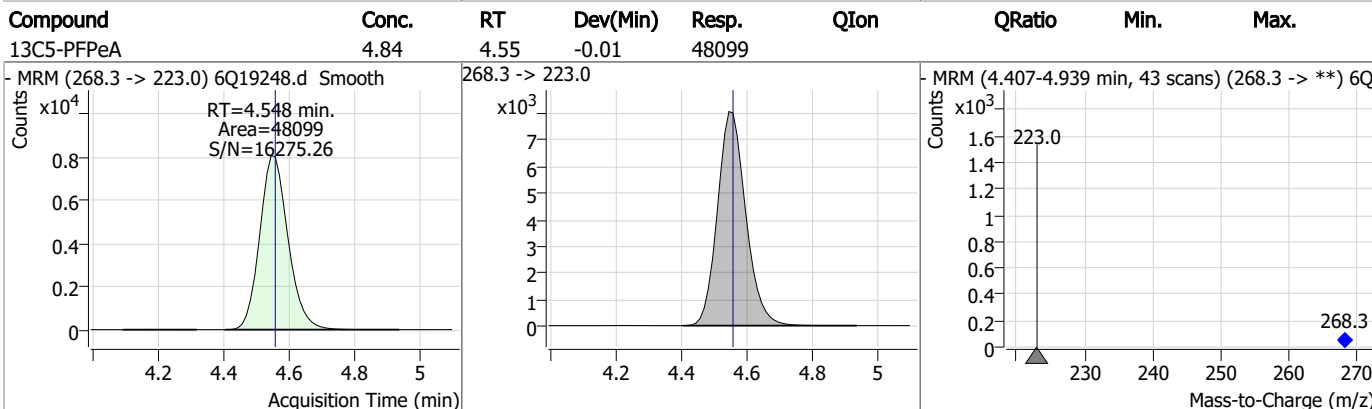
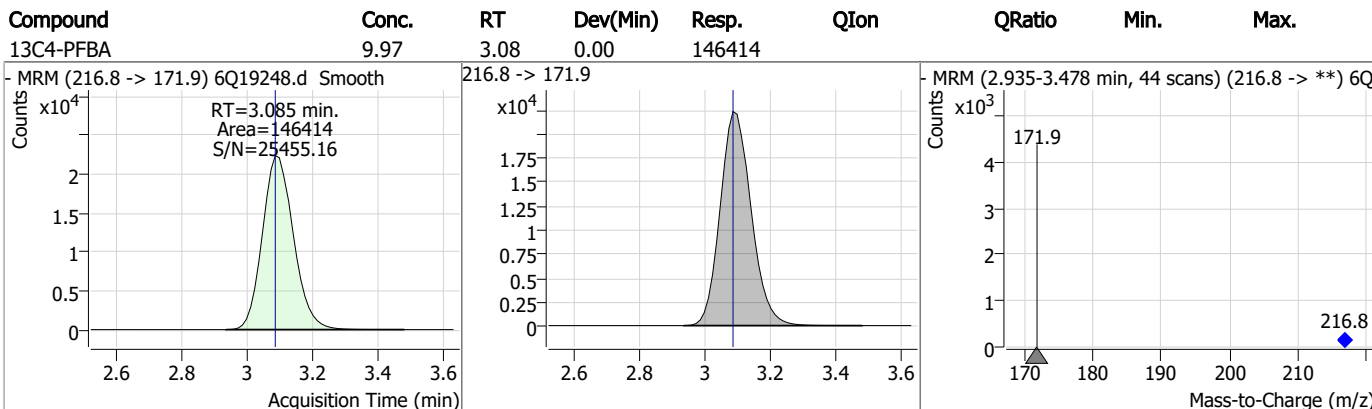
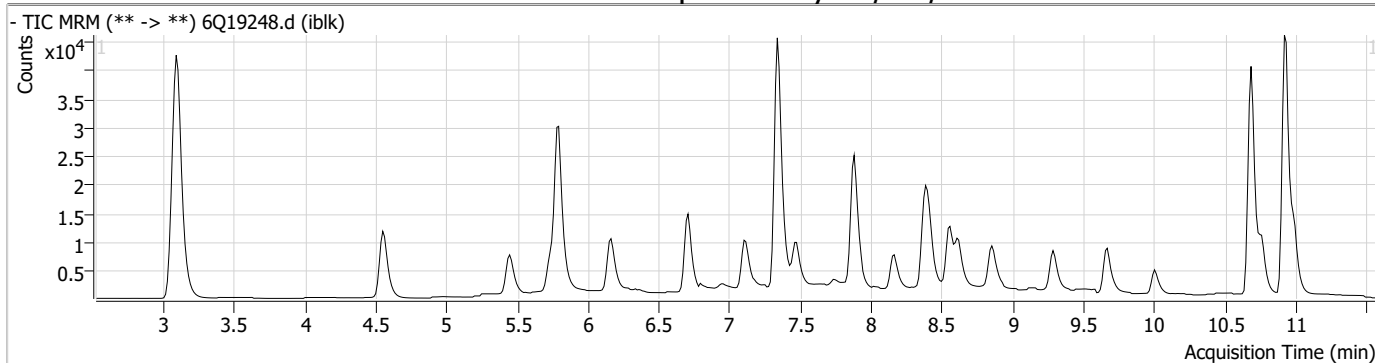
Perfluorinated Compounds by LC/MS/MS

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

7

Perfluorinated Compounds by LC/MS/MS



7.2.2
7

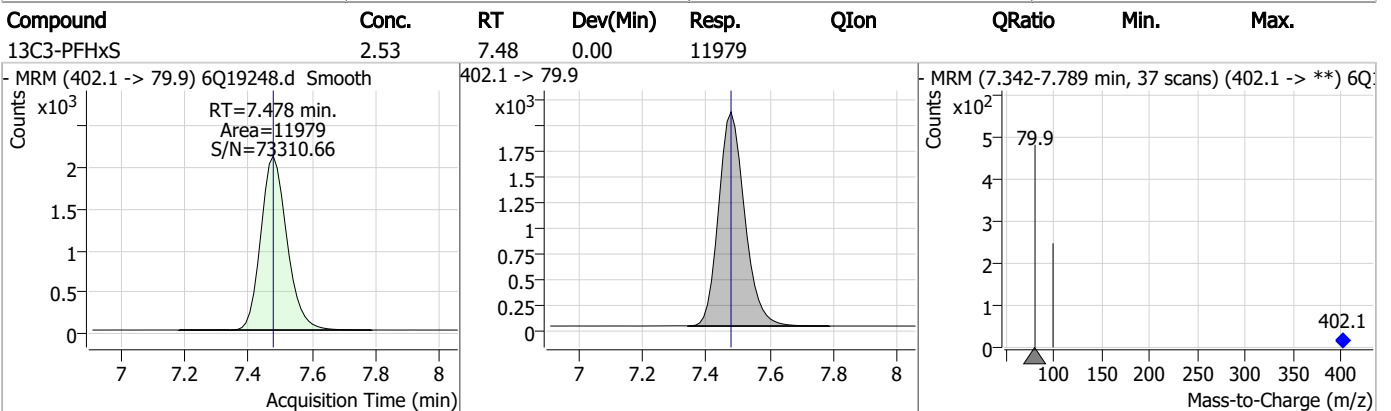
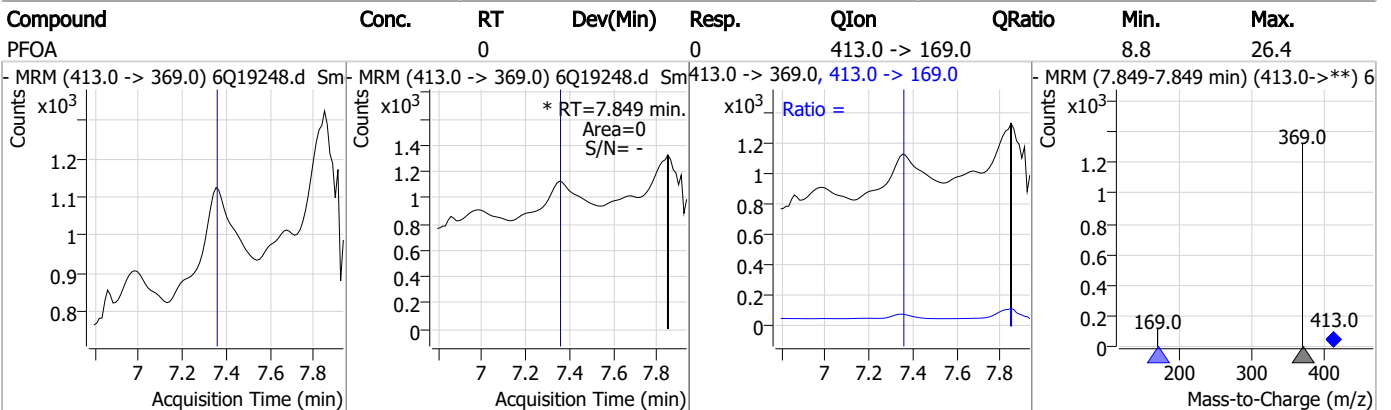
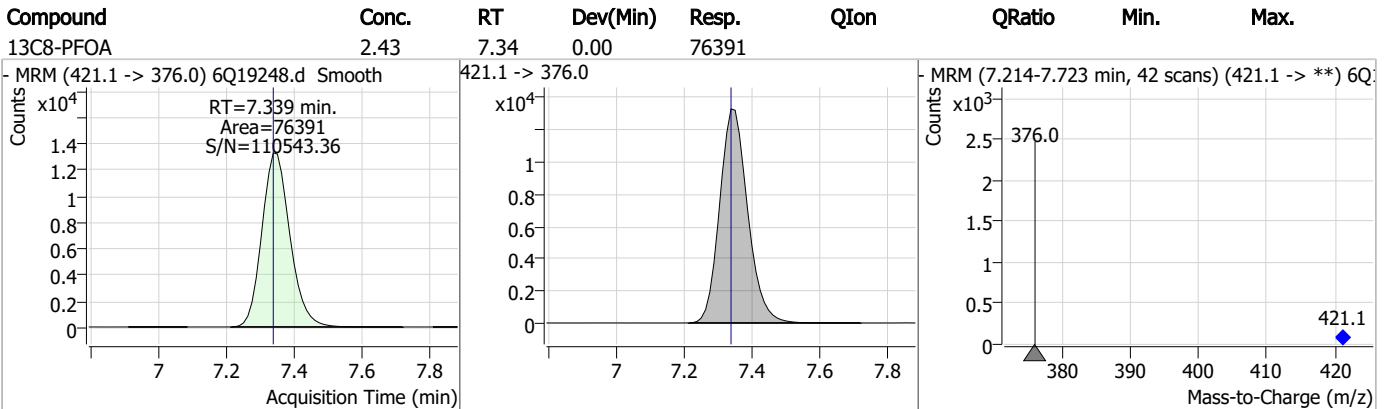
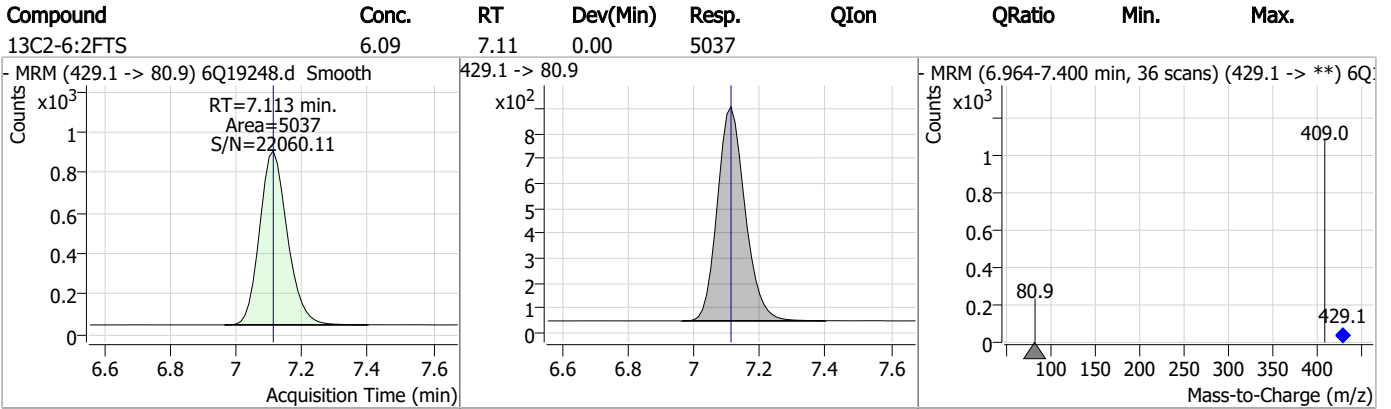
Perfluorinated Compounds by LC/MS/MS

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

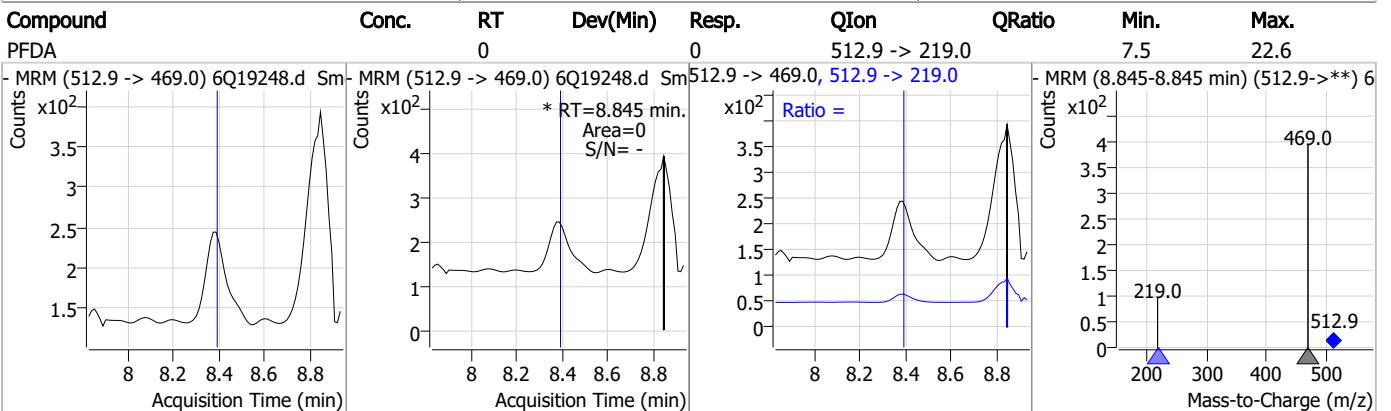
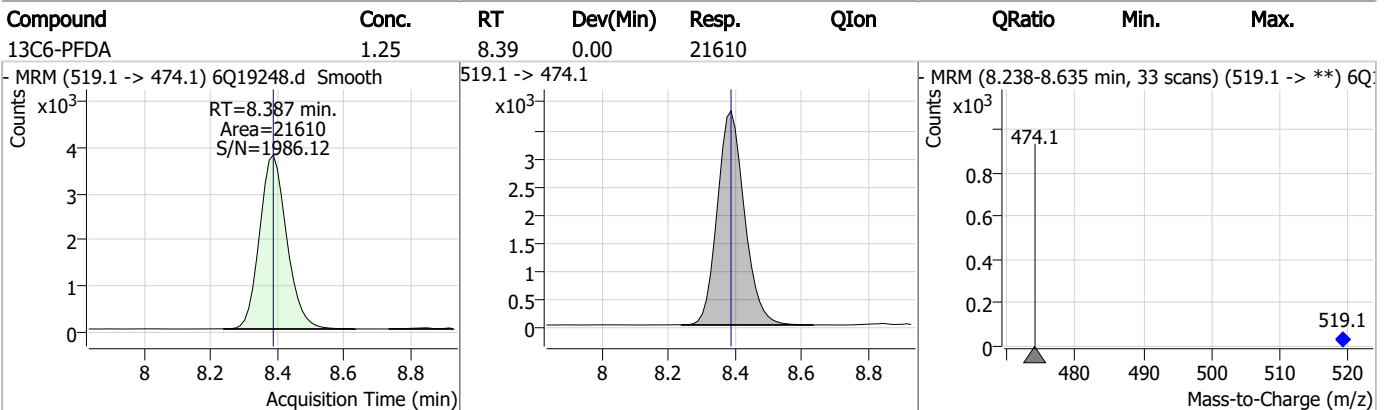
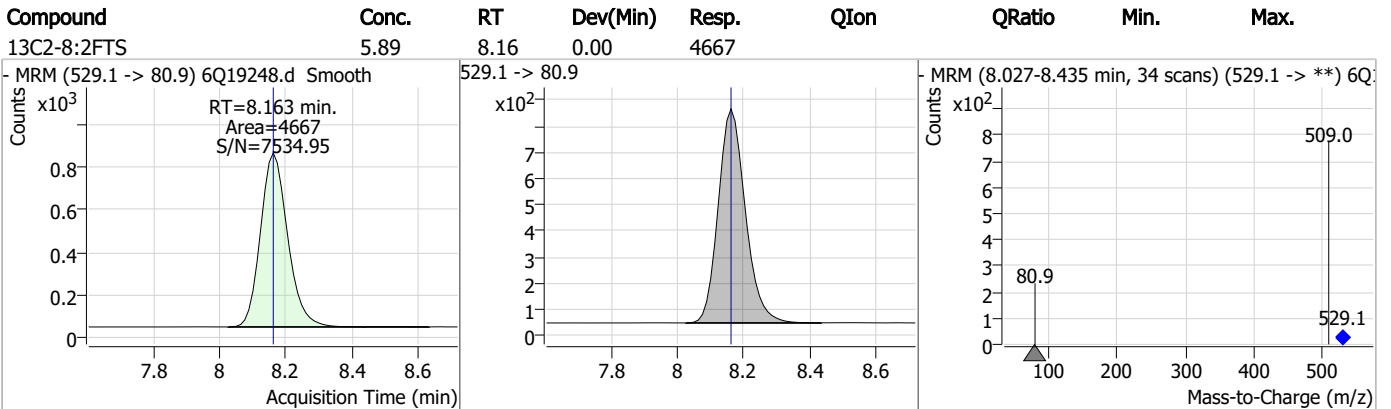
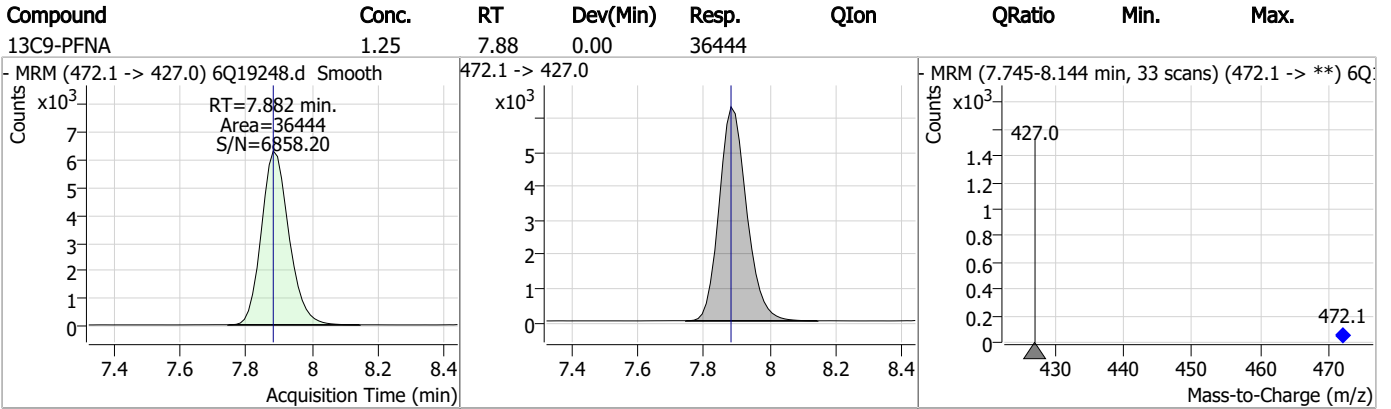


Perfluorinated Compounds by LC/MS/MS

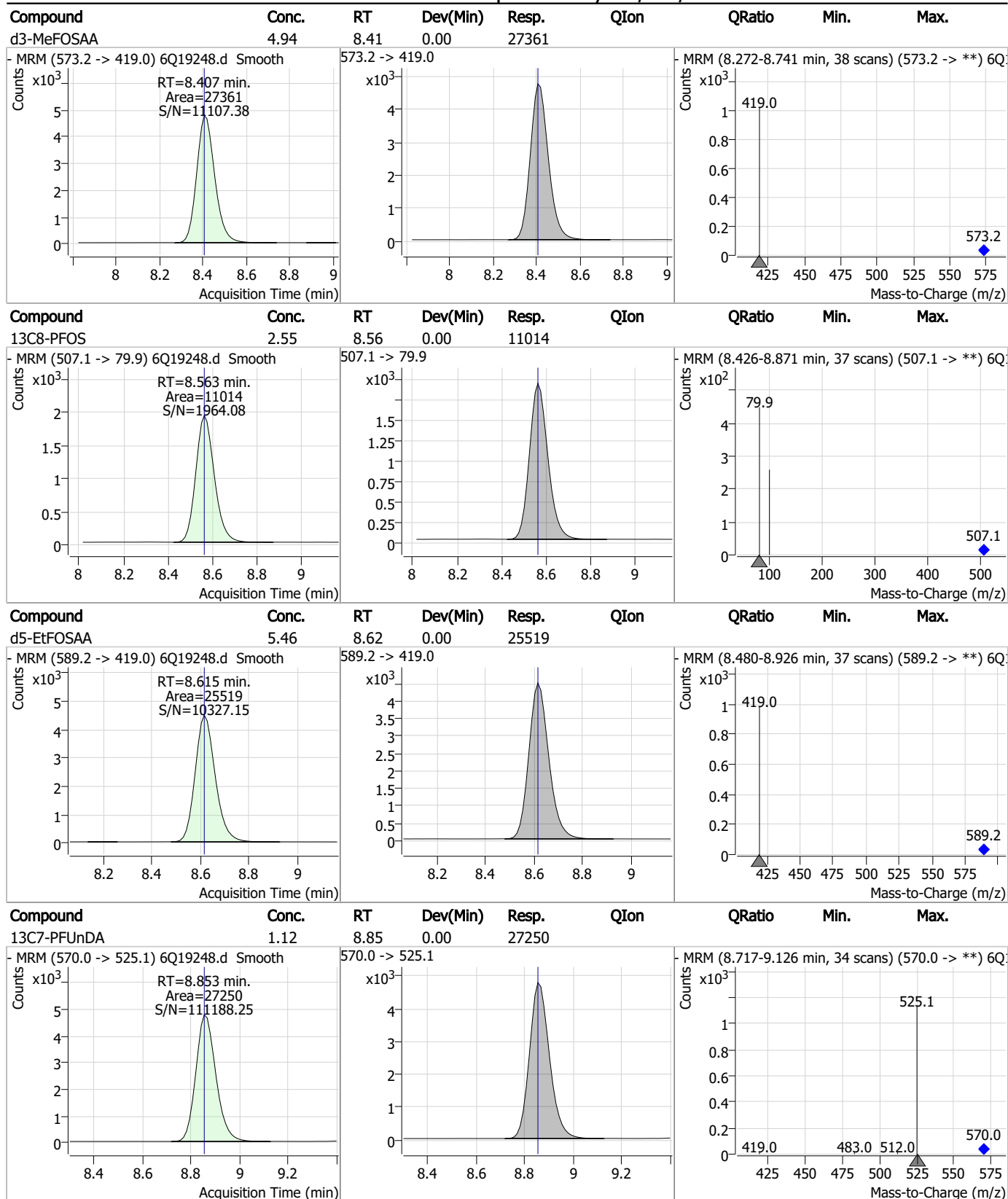


7.2.2
7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

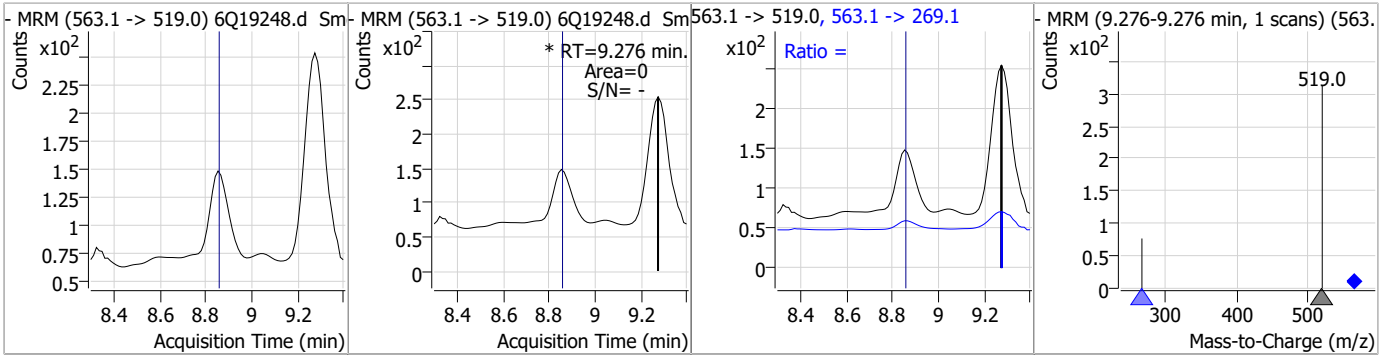


7.2.2
7

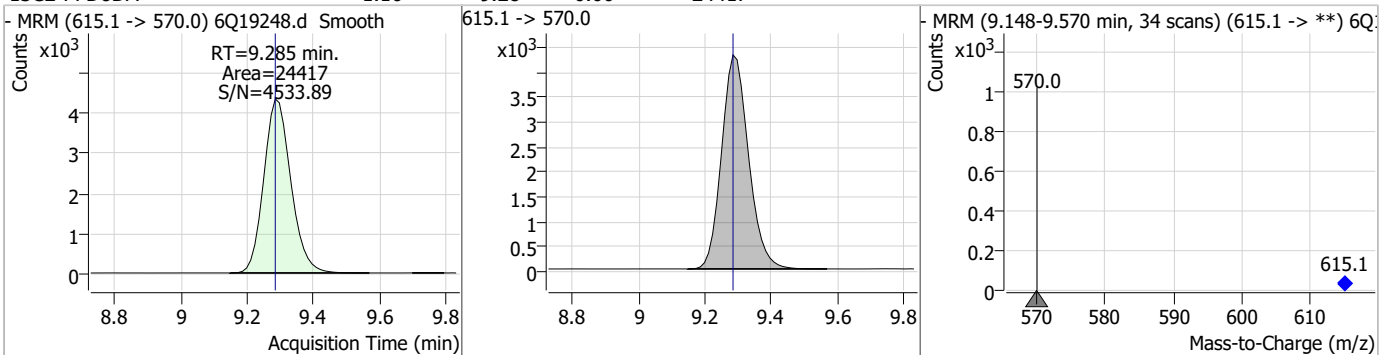


Perfluorinated Compounds by LC/MS/MS

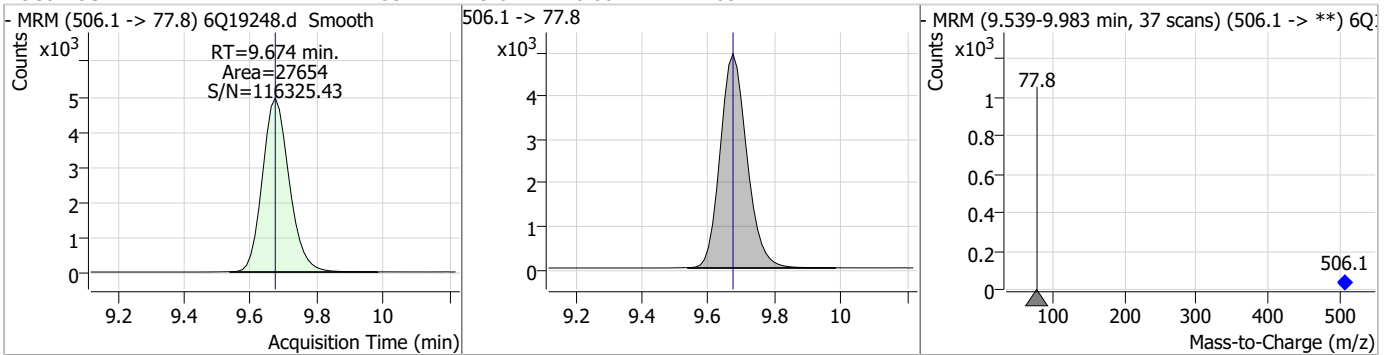
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0	0		0	563.1 -> 269.1		8.3	25.0



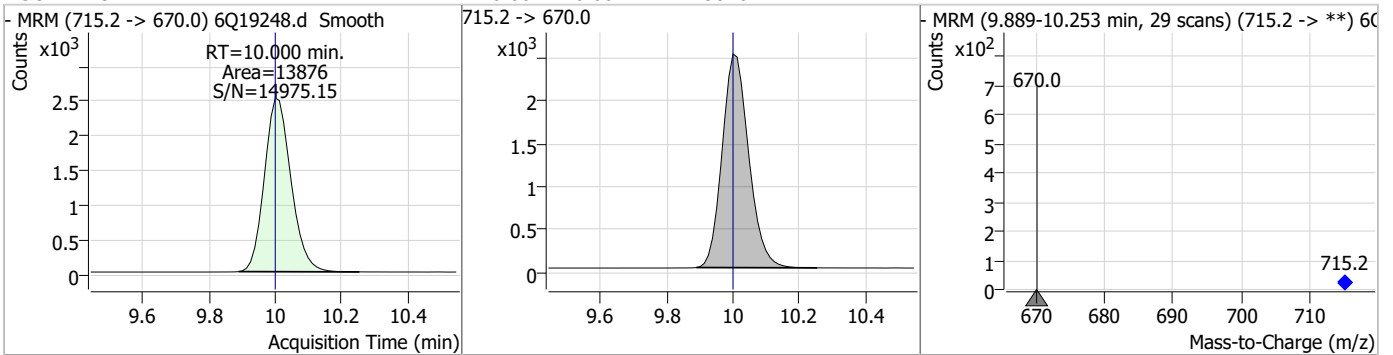
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.16	9.28	0.00	24417				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.53	9.67	0.00	27654				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.14	10.00	0.00	13876				



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.09	10.68	0.00	135931				
- MRM (623.2 -> 58.9) 6Q19248.d Smooth			623.2 -> 58.9		- MRM (10.561-10.994 min, 36 scans) (623.2 -> **) €			
d3-MeFOSEA	2.58	10.76	-0.01	12665				
- MRM (515.0 -> 219.0) 6Q19248.d Smooth			515.0 -> 219.0		- MRM (10.640-11.065 min, 35 scans) (515.0 -> **) €			
d9-EtFOSE	23.67	10.93	0.00	160183				
- MRM (639.2 -> 58.9) 6Q19248.d Smooth			639.2 -> 58.9		- MRM (10.781-11.241 min, 38 scans) (639.2 -> **) €			
d5-EtFOSEA	2.68	11.00	0.00	12738				
- MRM (531.1 -> 219.0) 6Q19248.d Smooth			531.1 -> 219.0		- MRM (10.871-11.272 min, 33 scans) (531.1 -> **) €			

7.2.2

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

7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.3%	
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.	

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

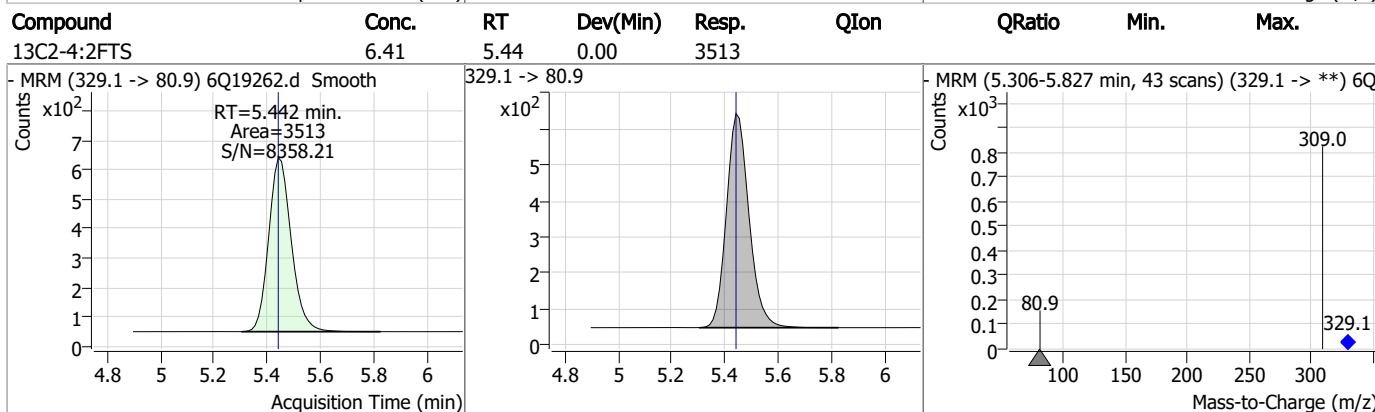
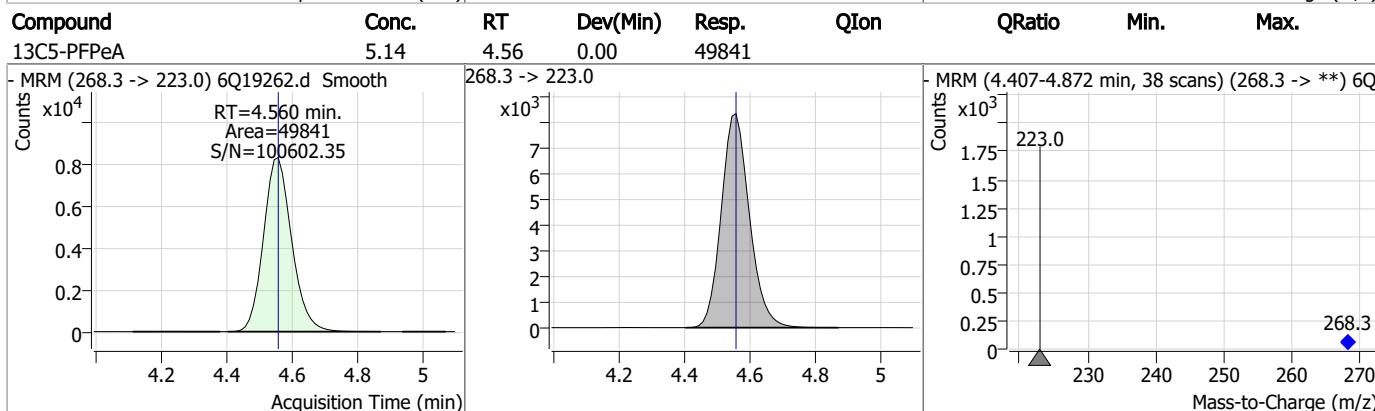
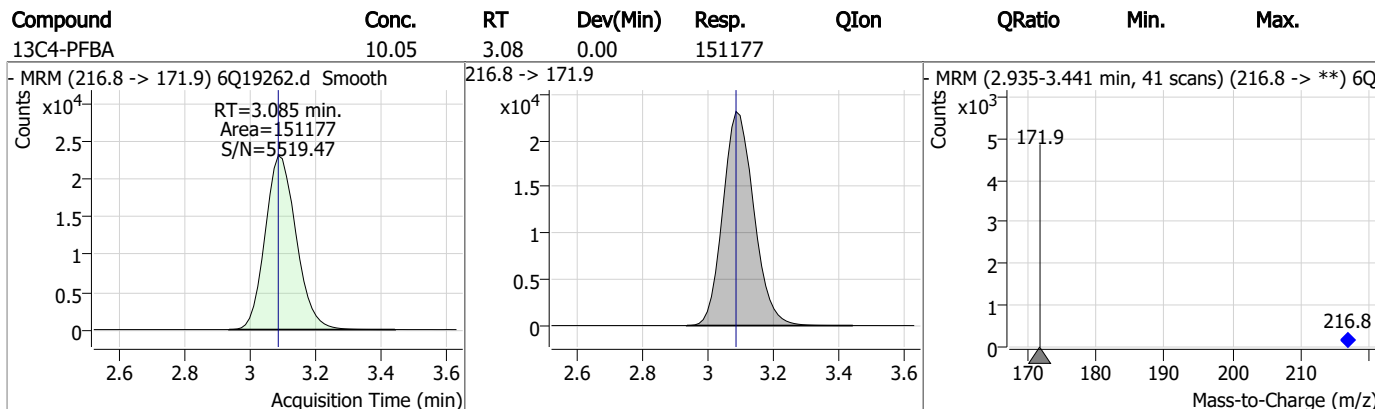
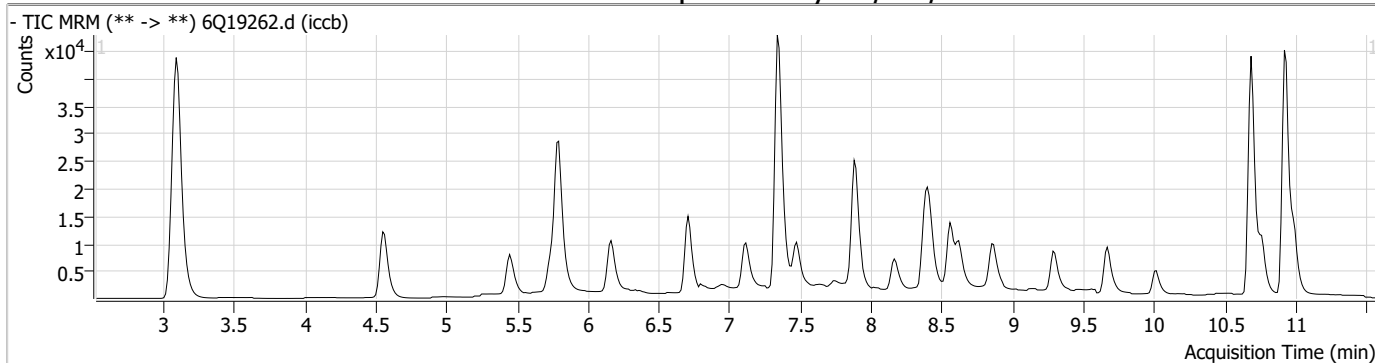
Perfluorinated Compounds by LC/MS/MS

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

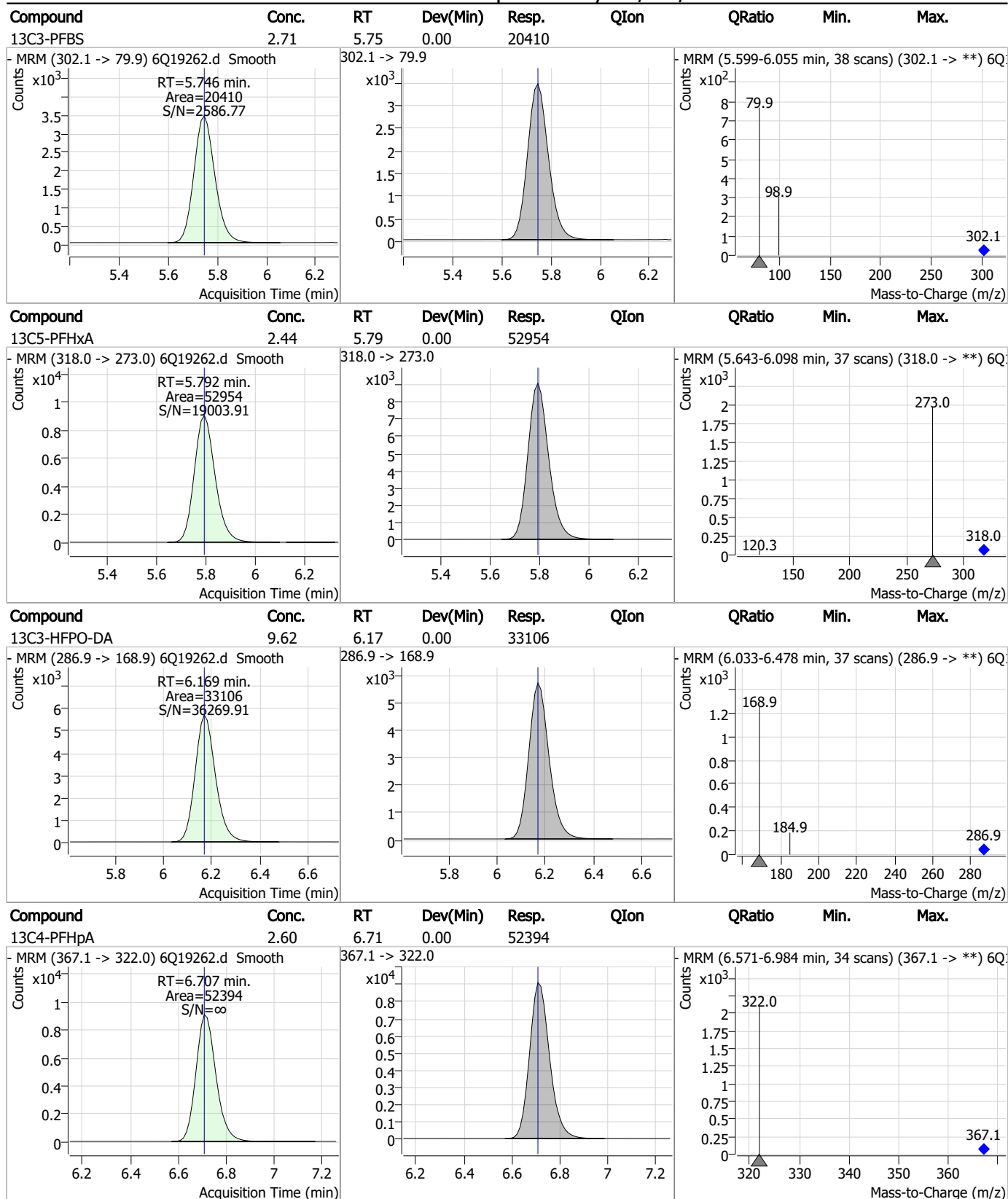
7

Perfluorinated Compounds by LC/MS/MS



7.2.3
7

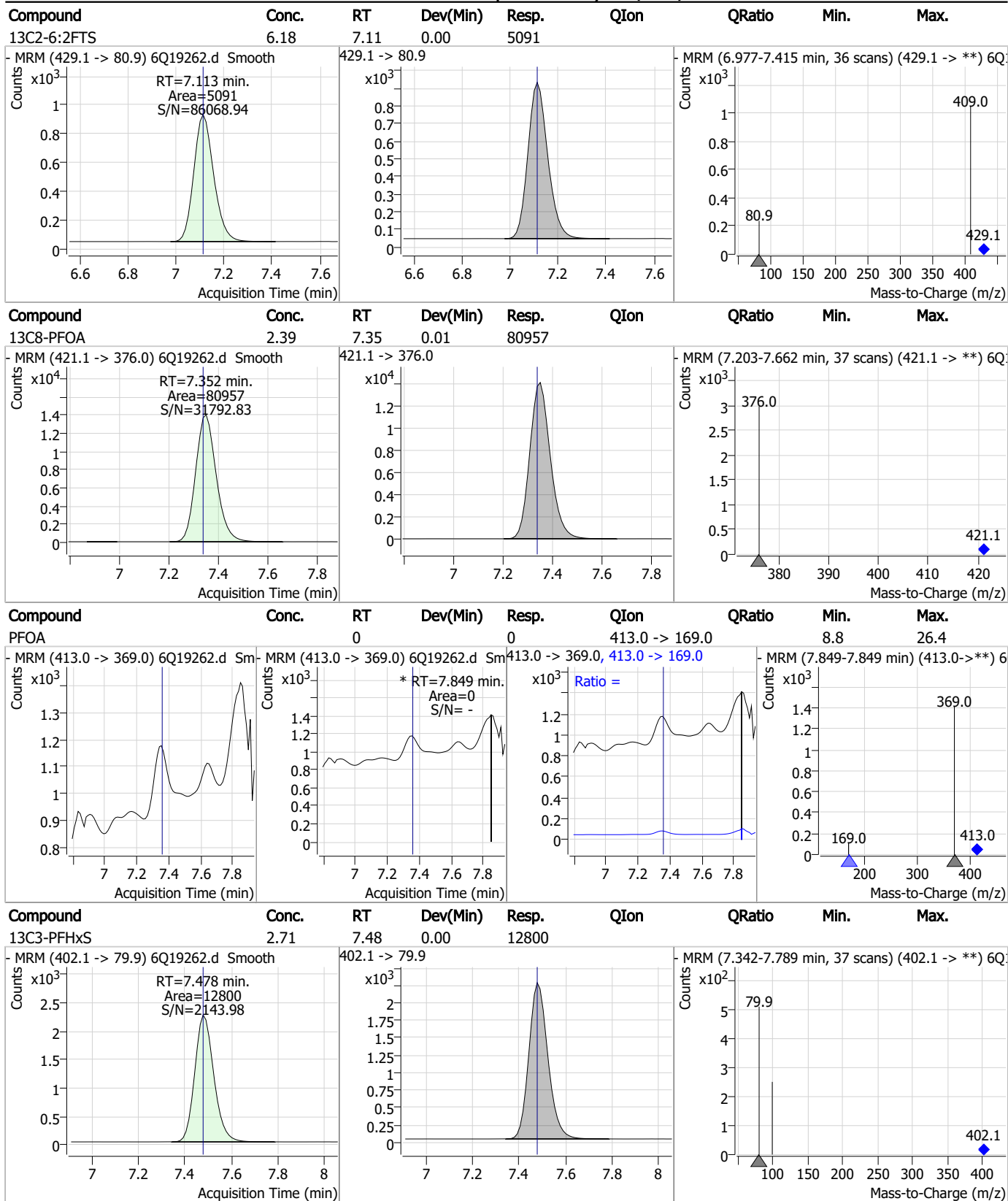
Perfluorinated Compounds by LC/MS/MS



7.2.3

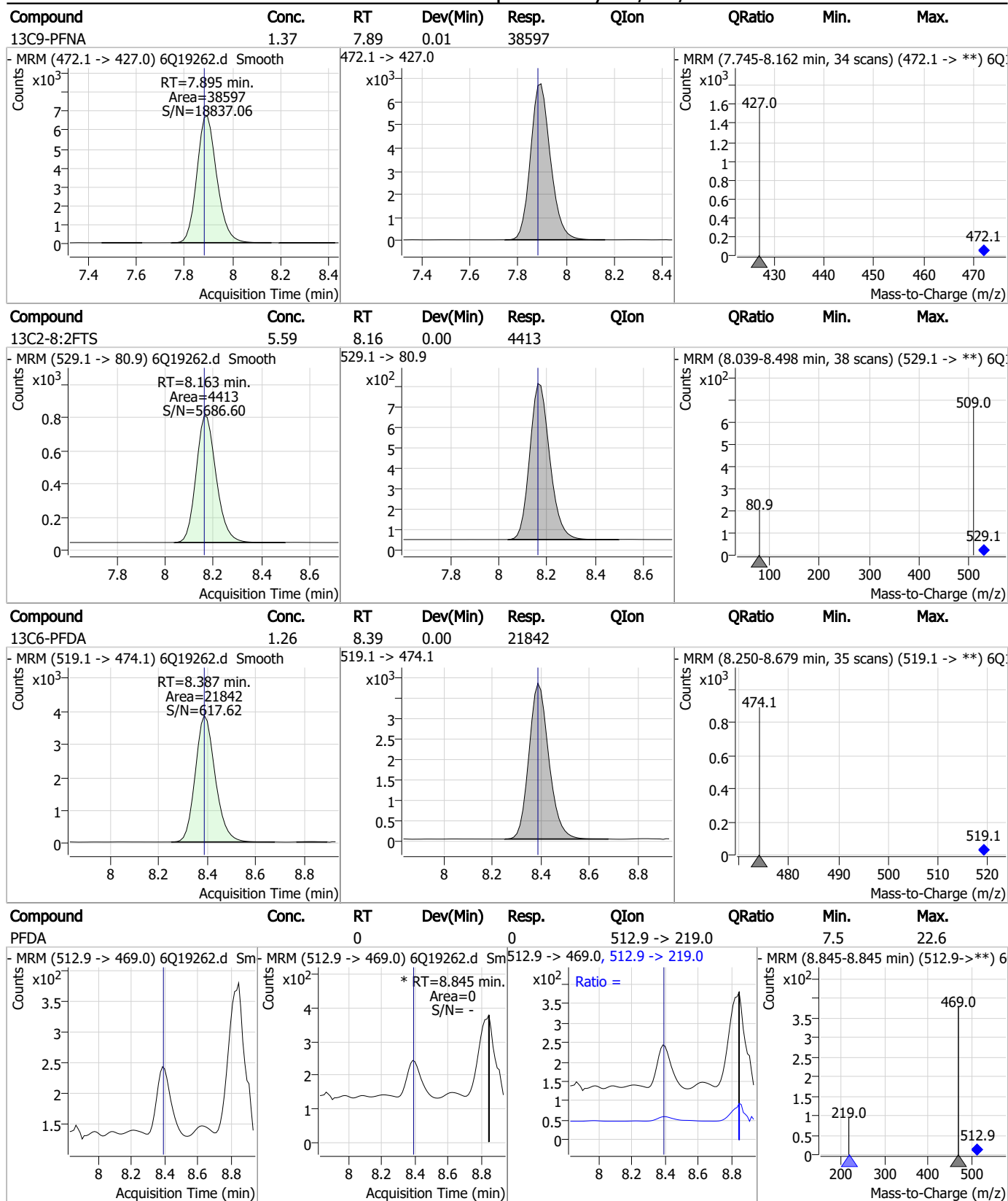
7

Perfluorinated Compounds by LC/MS/MS



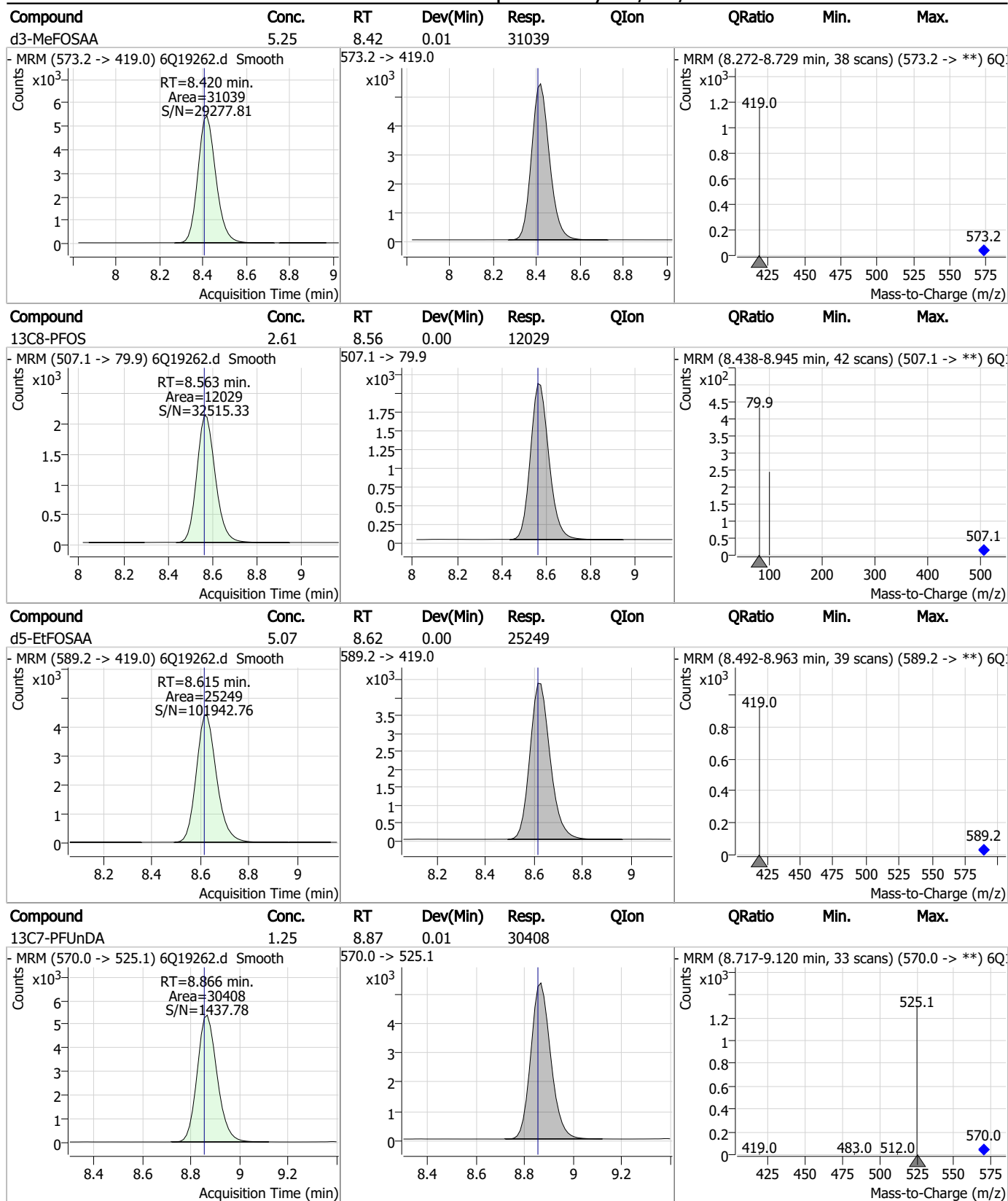
7.2.3
7

Perfluorinated Compounds by LC/MS/MS



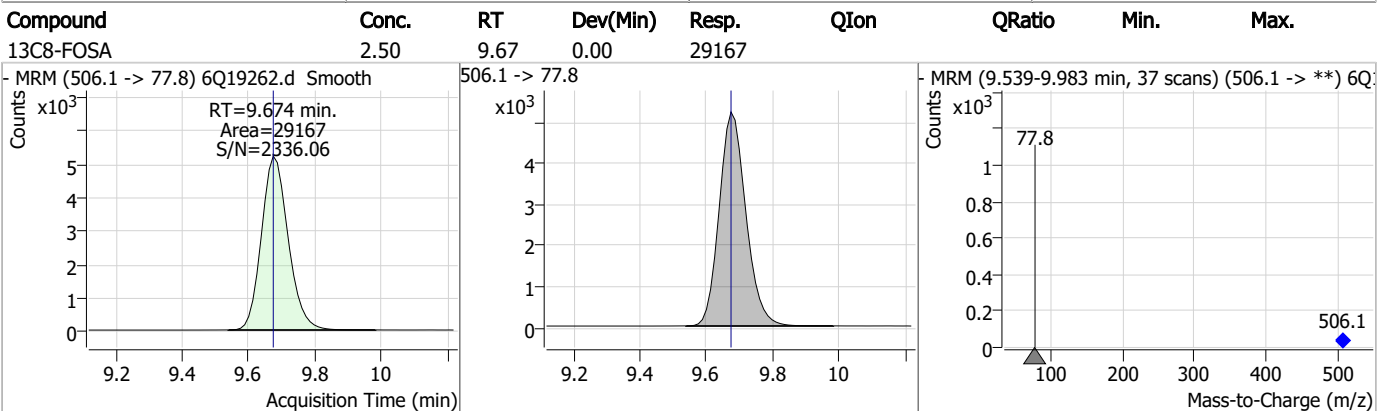
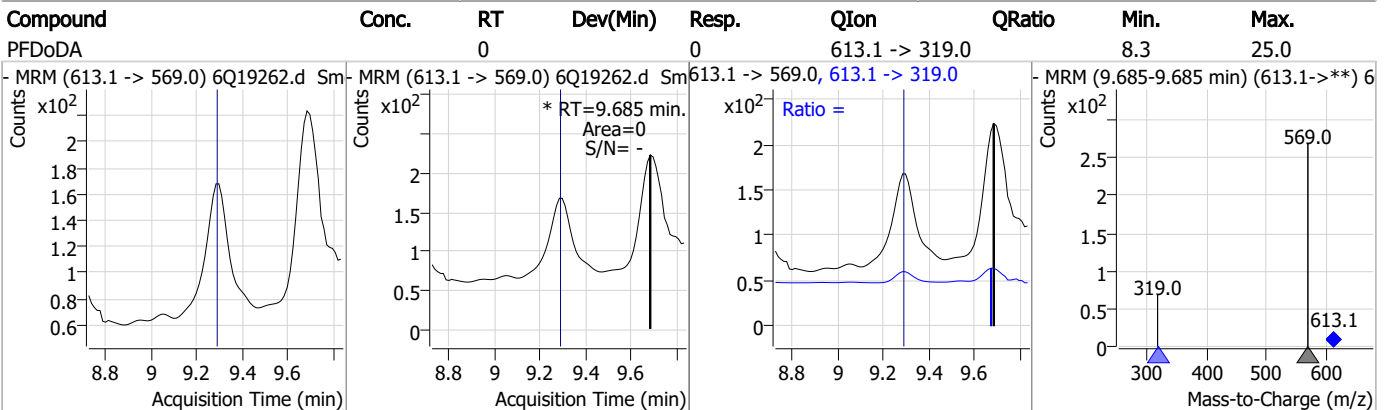
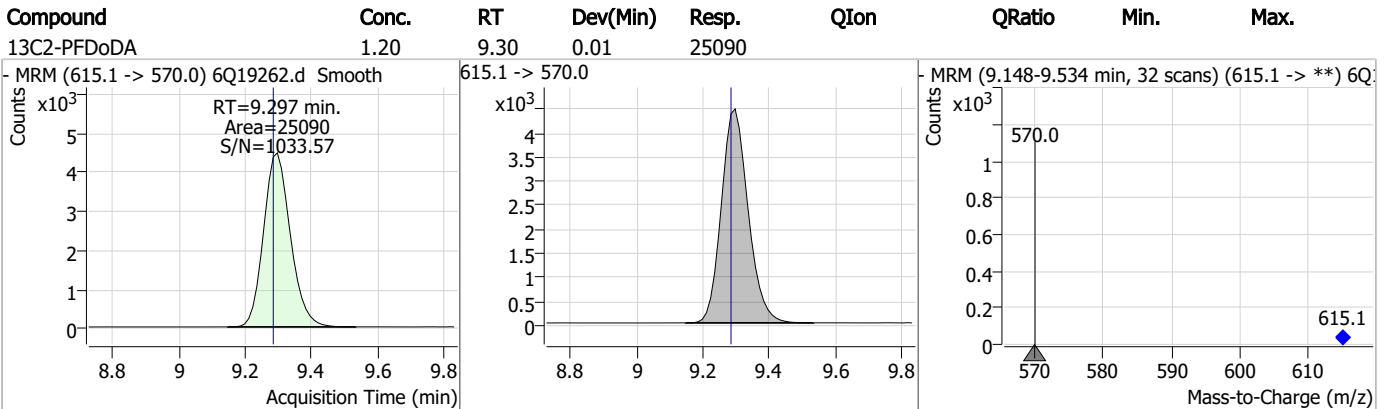
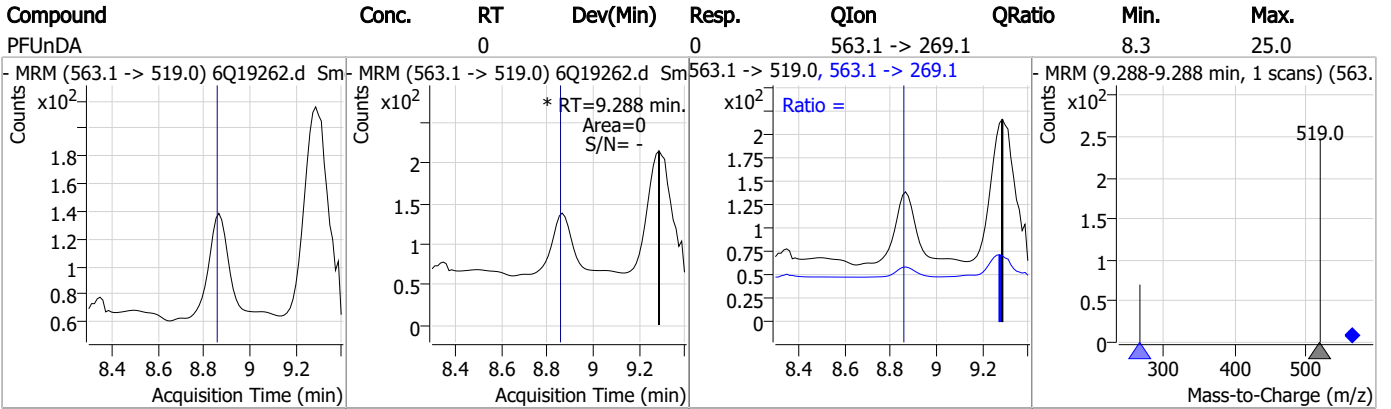
7.2.3
7

Perfluorinated Compounds by LC/MS/MS



7.2.3
7

Perfluorinated Compounds by LC/MS/MS



7.2.3

7

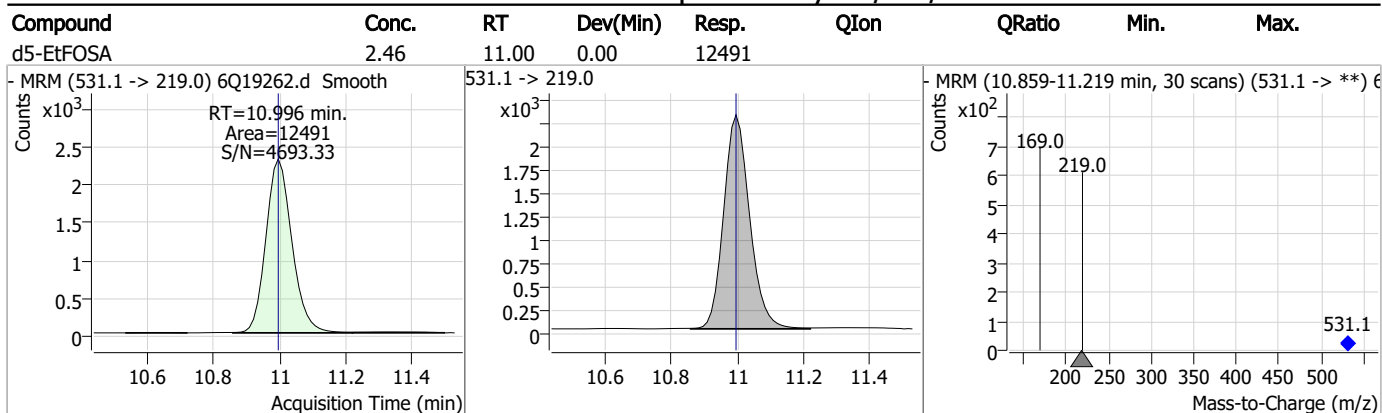
Perfluorinated Compounds by LC/MS/MS

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

7.2.3
7



Perfluorinated Compounds by LC/MS/MS



7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19273.d
 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

7.2.4
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 = 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%	

7.24
7

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



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	9.288	563.1 -> 519.0	0		µg/L	m
		563.1 -> 269.1	0			
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

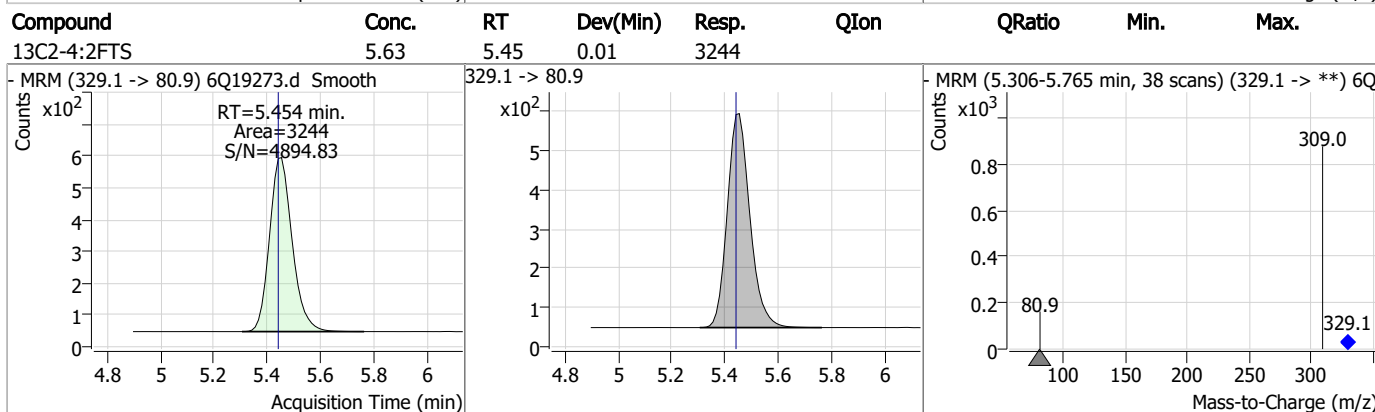
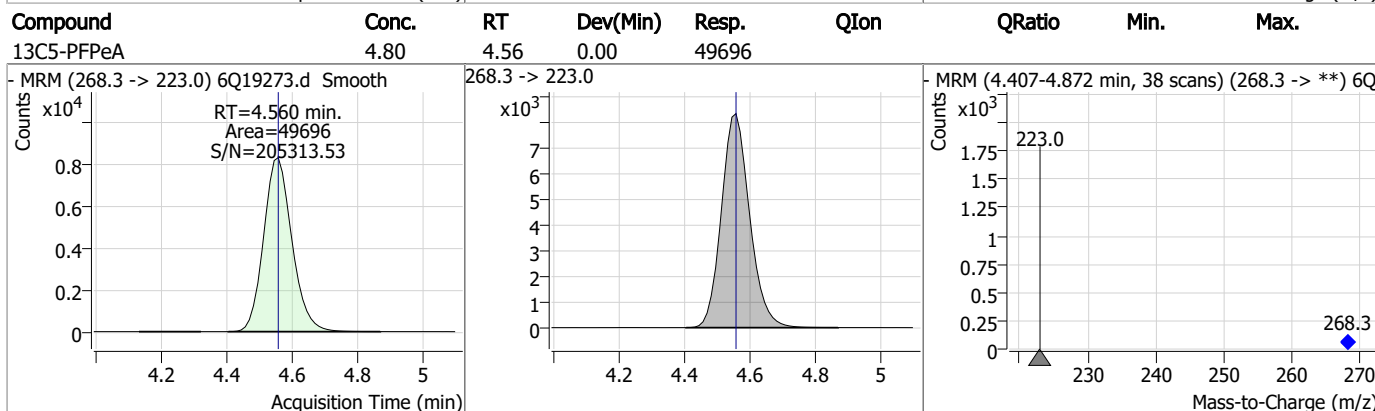
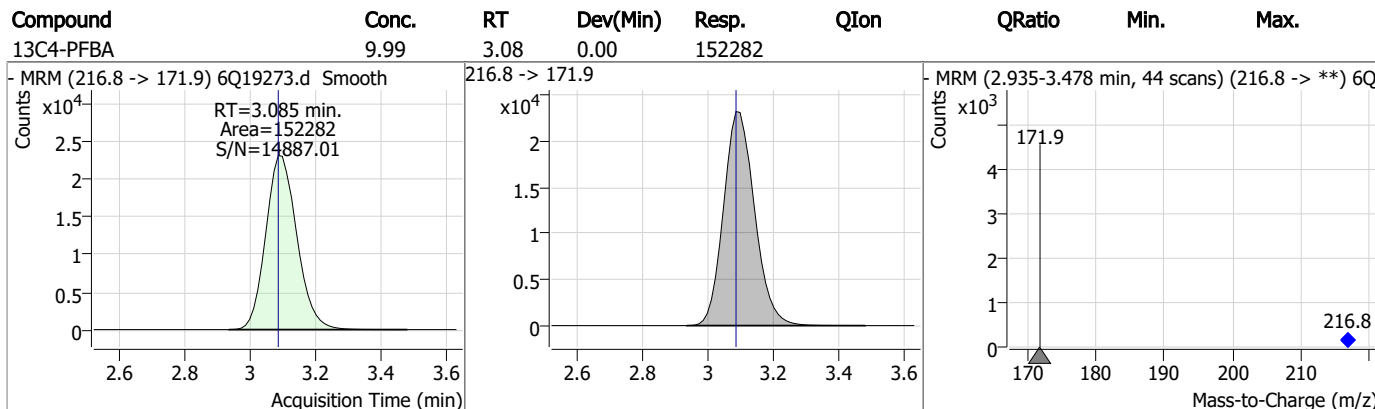
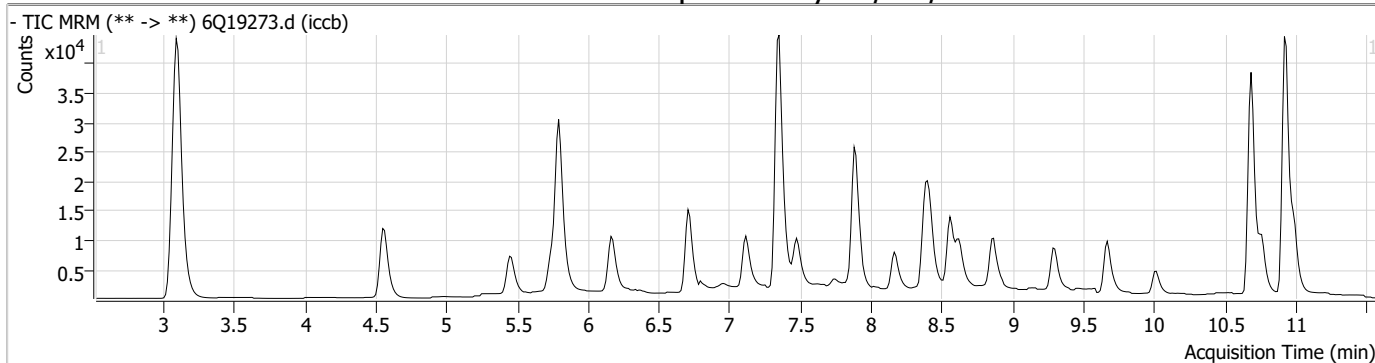
Perfluorinated Compounds by LC/MS/MS

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

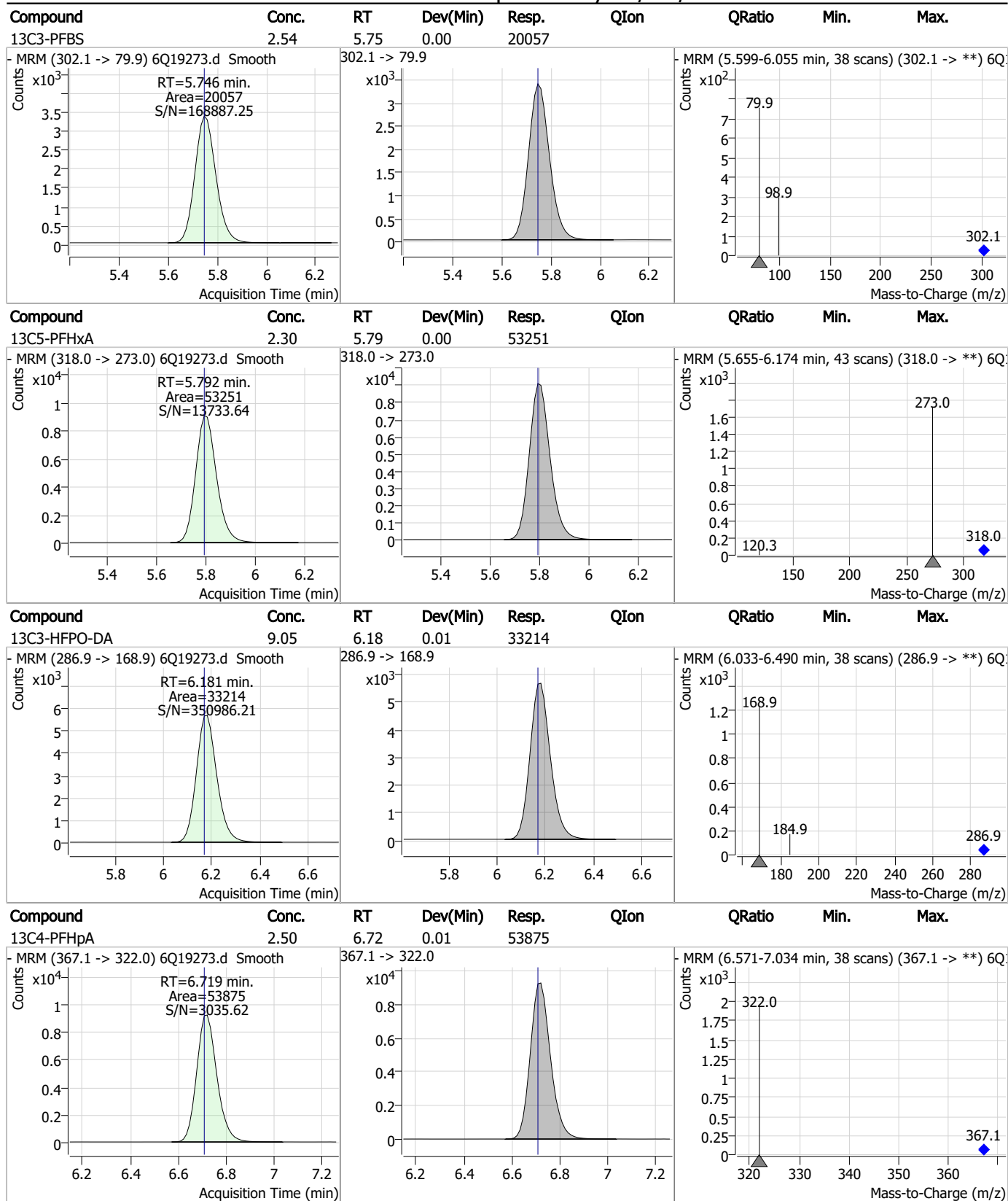
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Perfluorinated Compounds by LC/MS/MS



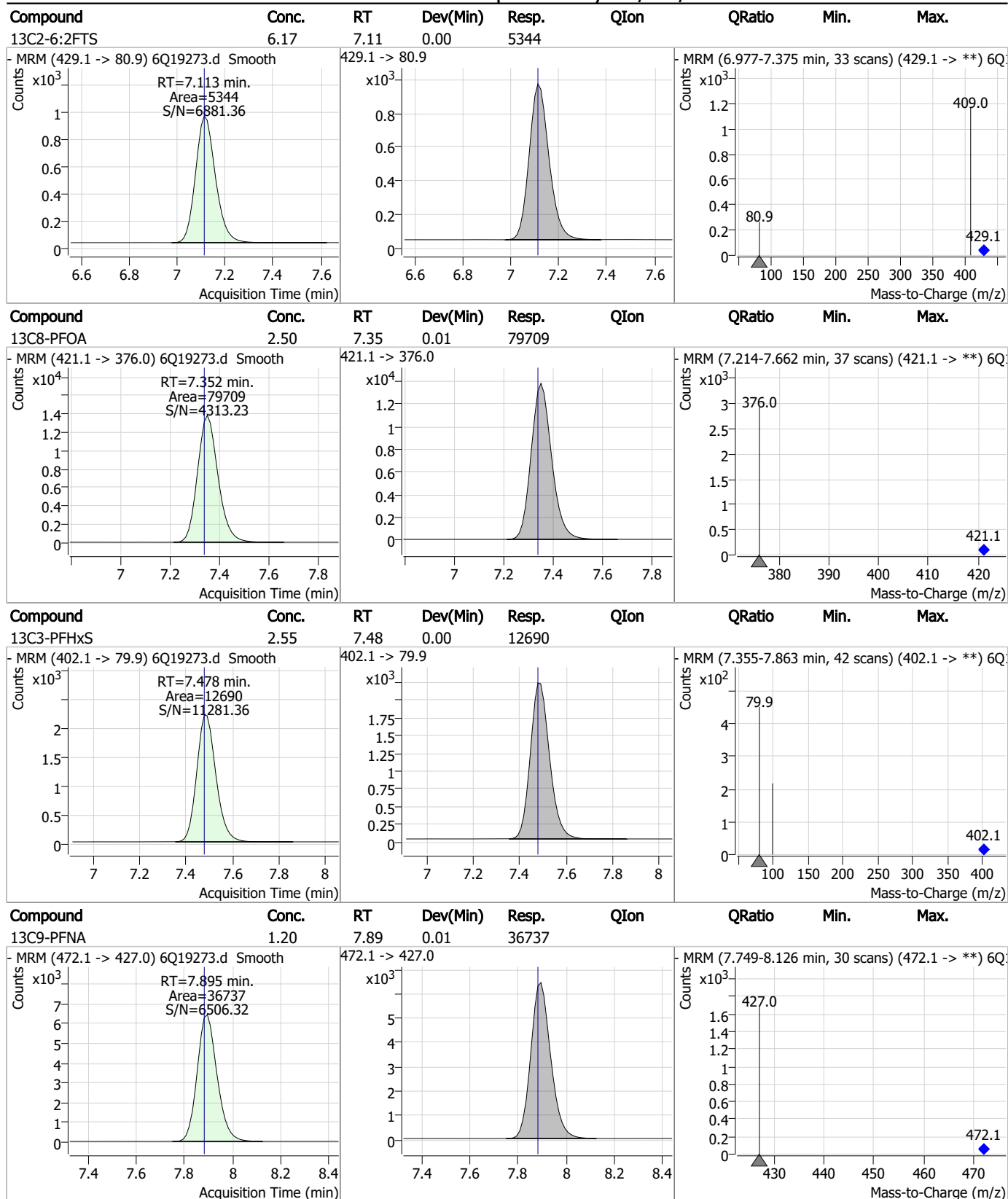
7.2.4
7

Perfluorinated Compounds by LC/MS/MS



7.2.4
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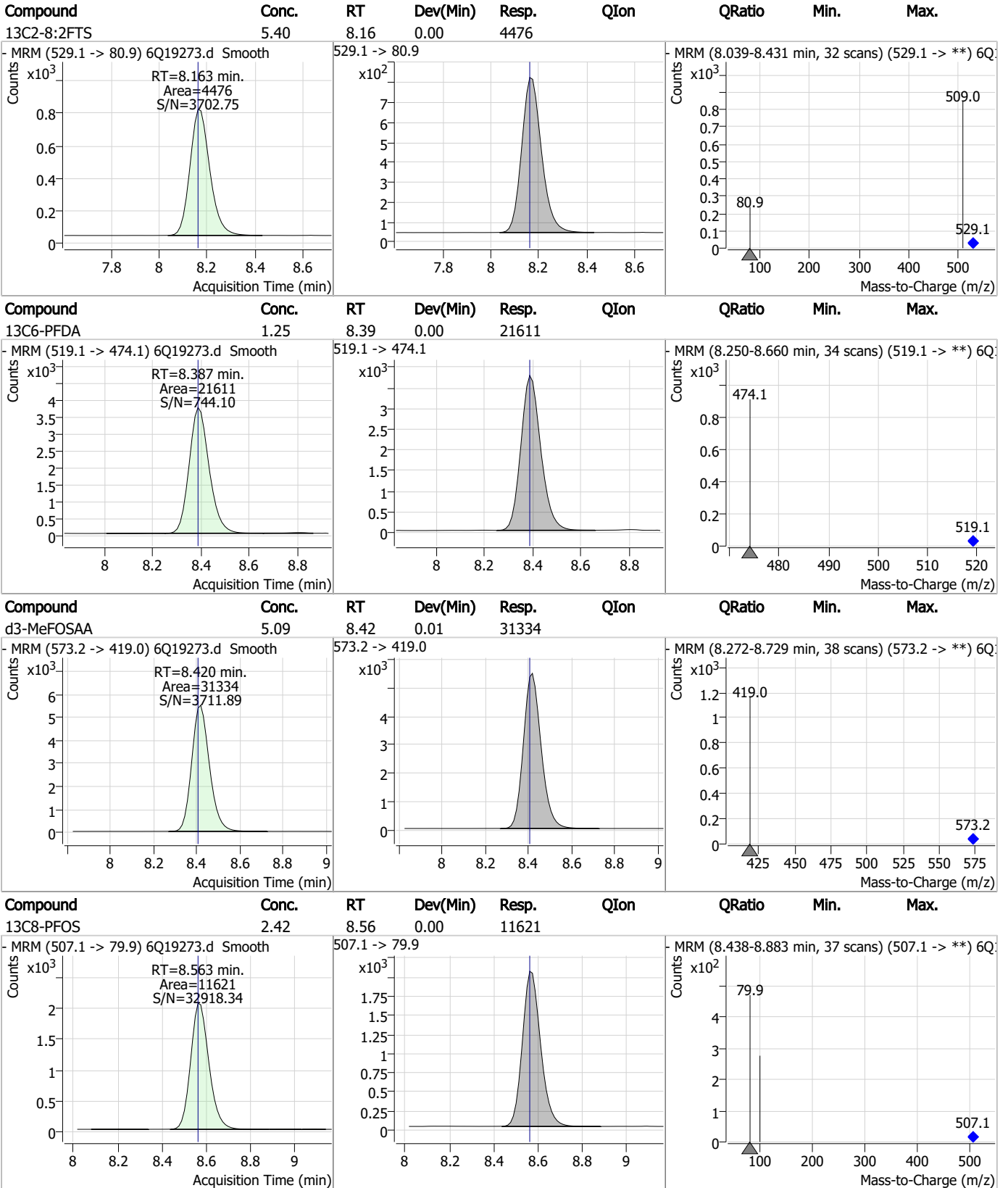
Perfluorinated Compounds by LC/MS/MS



7.2.4
7



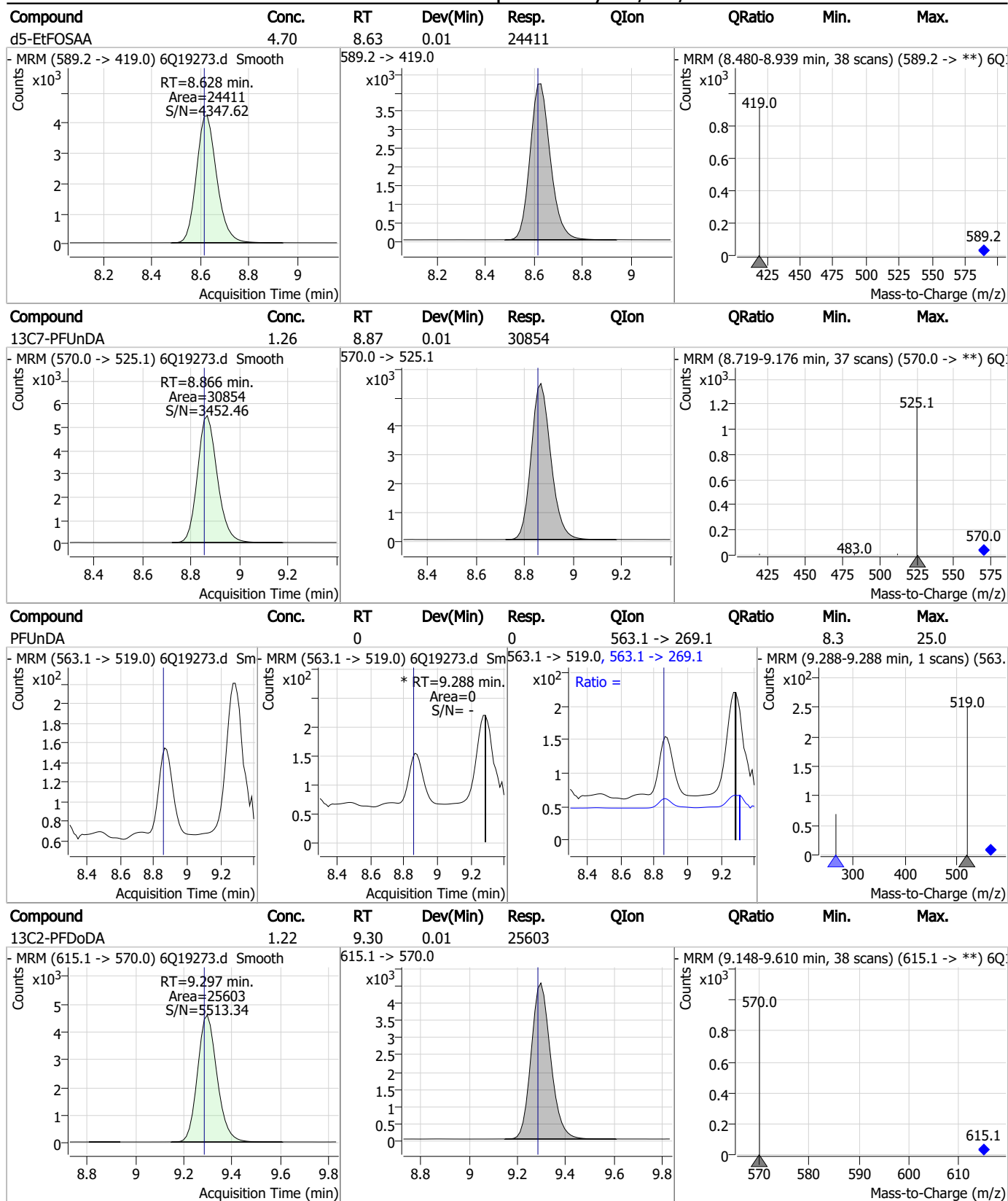
Perfluorinated Compounds by LC/MS/MS



7.2.4

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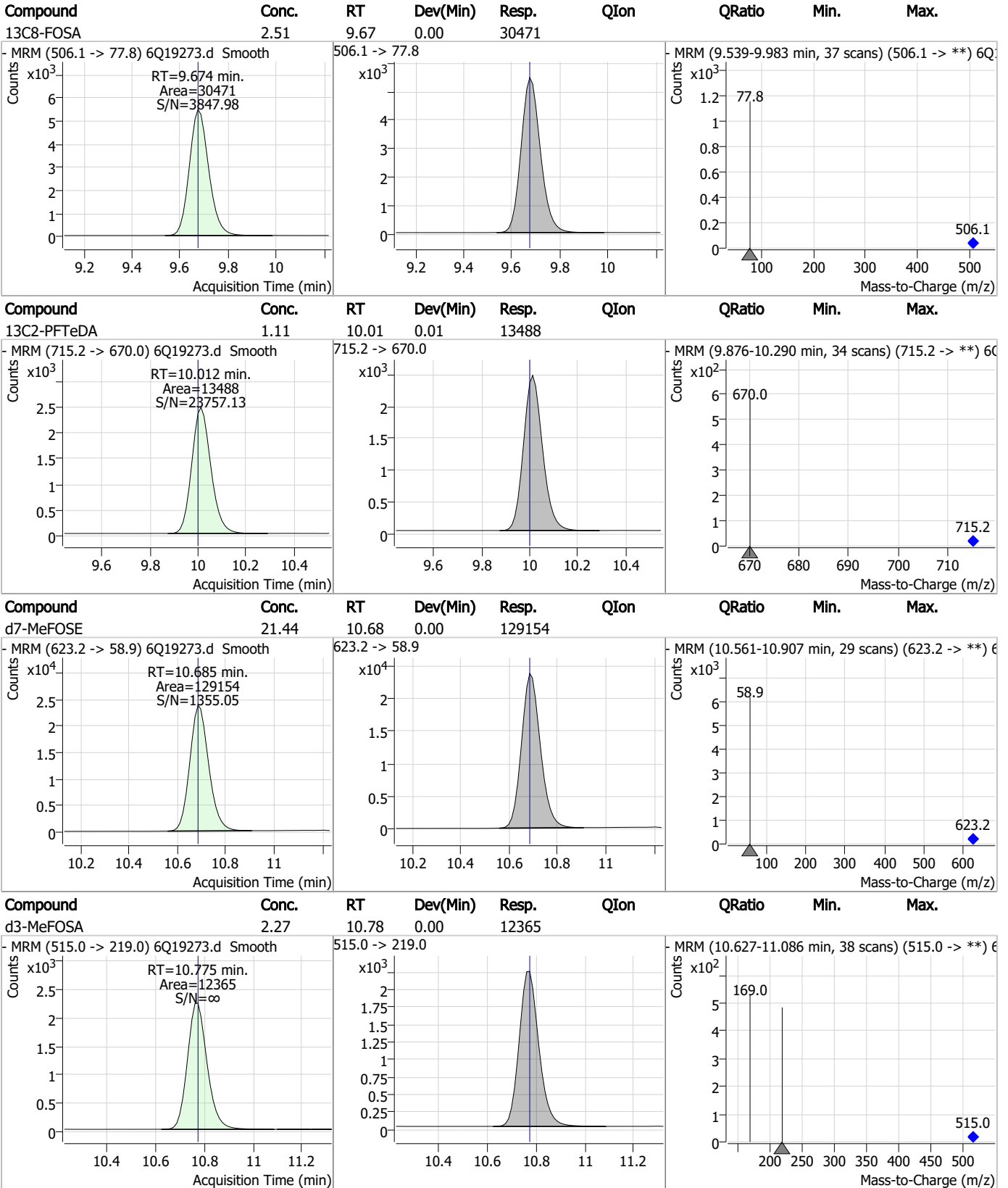
Perfluorinated Compounds by LC/MS/MS



7.24
7



Perfluorinated Compounds by LC/MS/MS

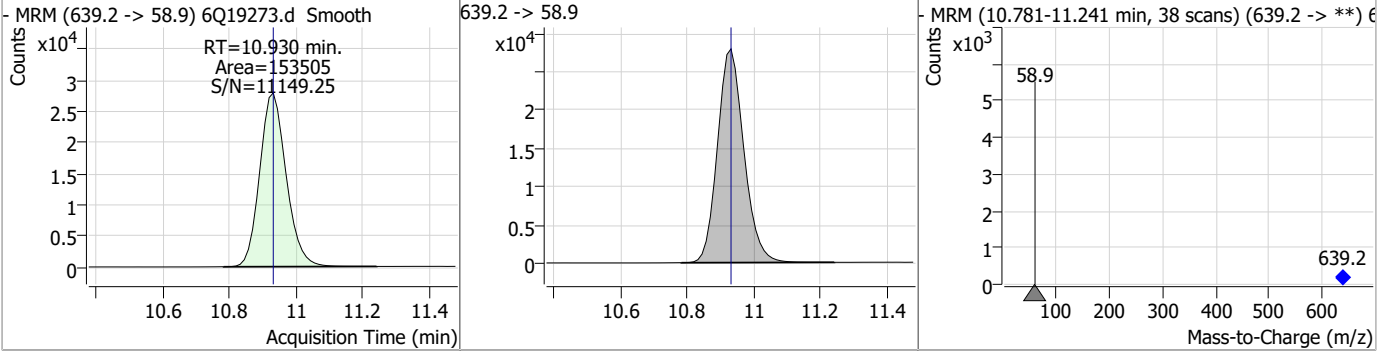


7.2.4

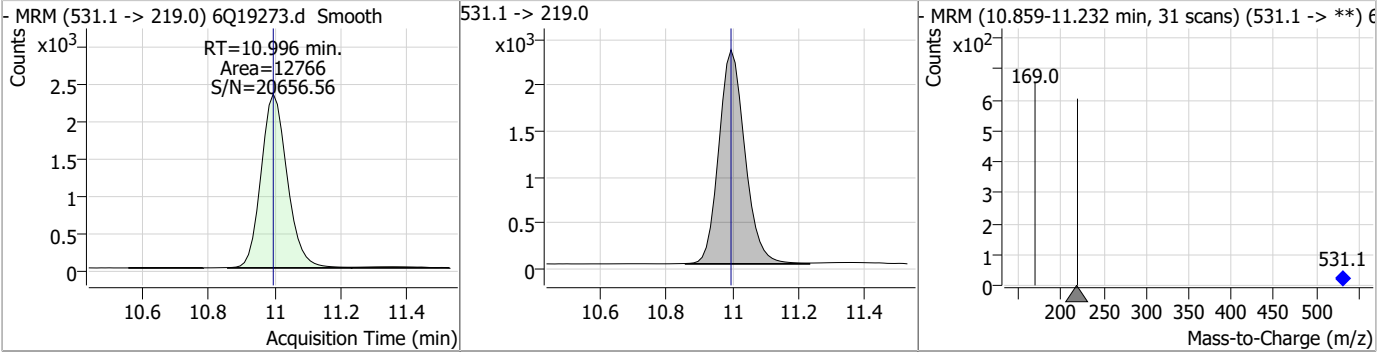
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Perfluorinated Compounds by LC/MS/MS

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



7.2.4

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
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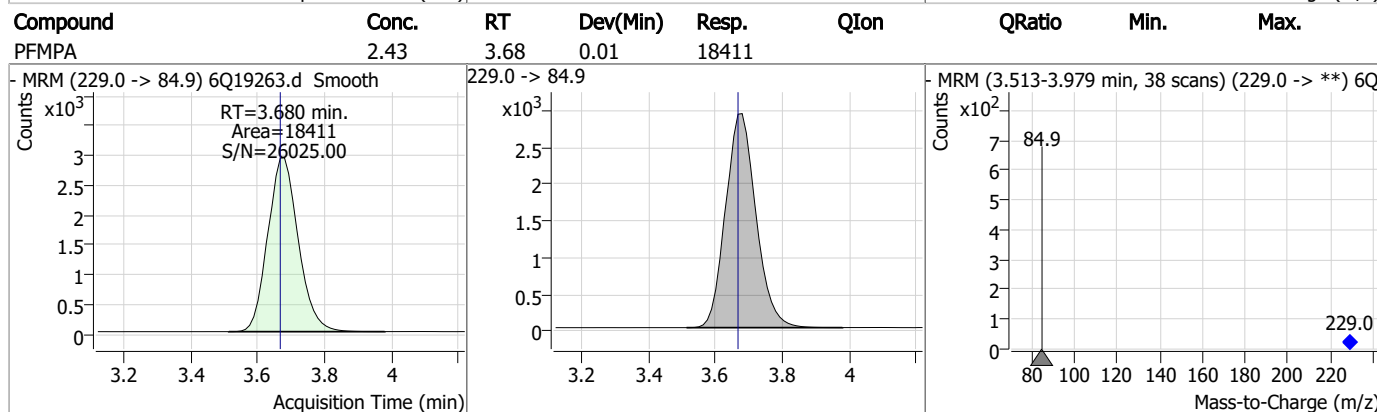
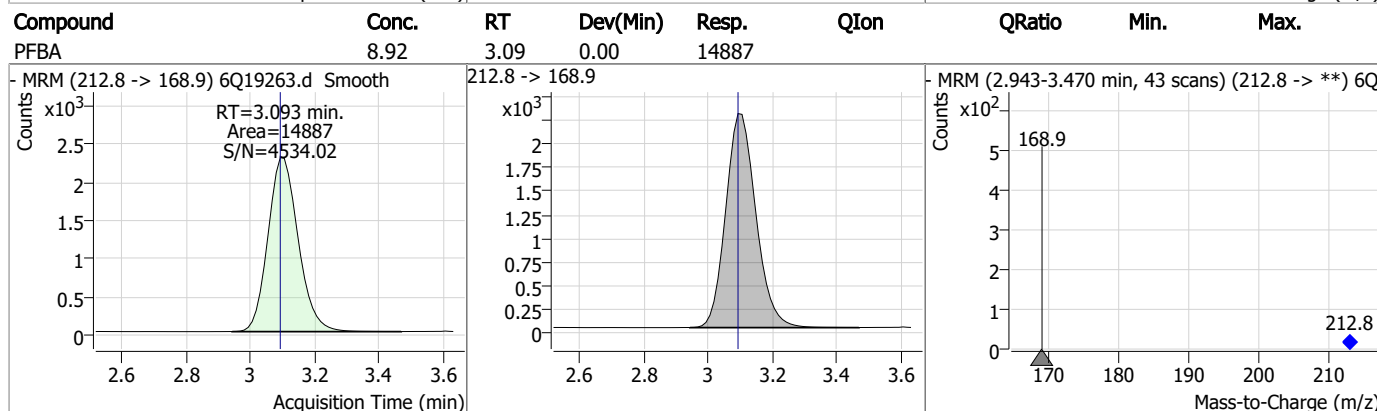
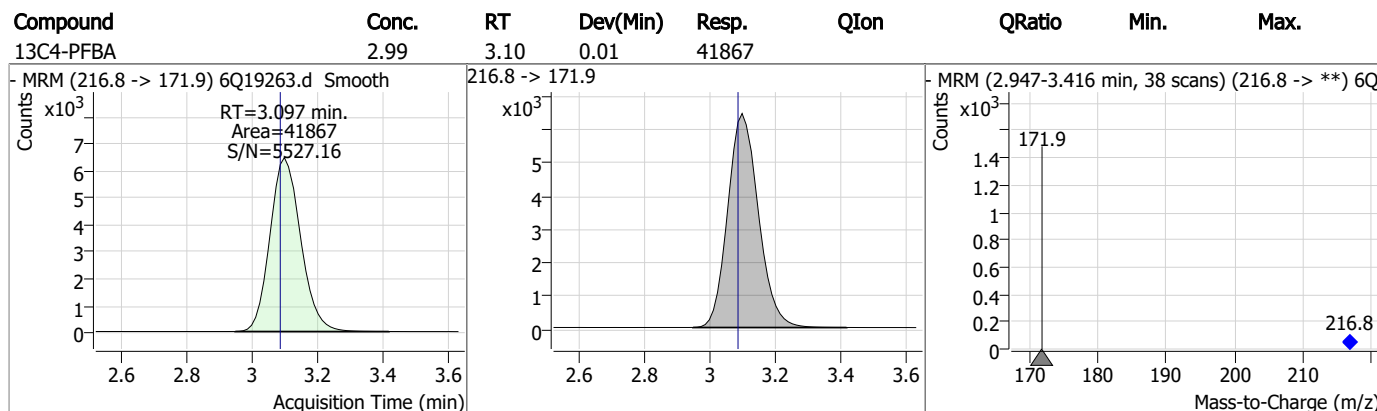
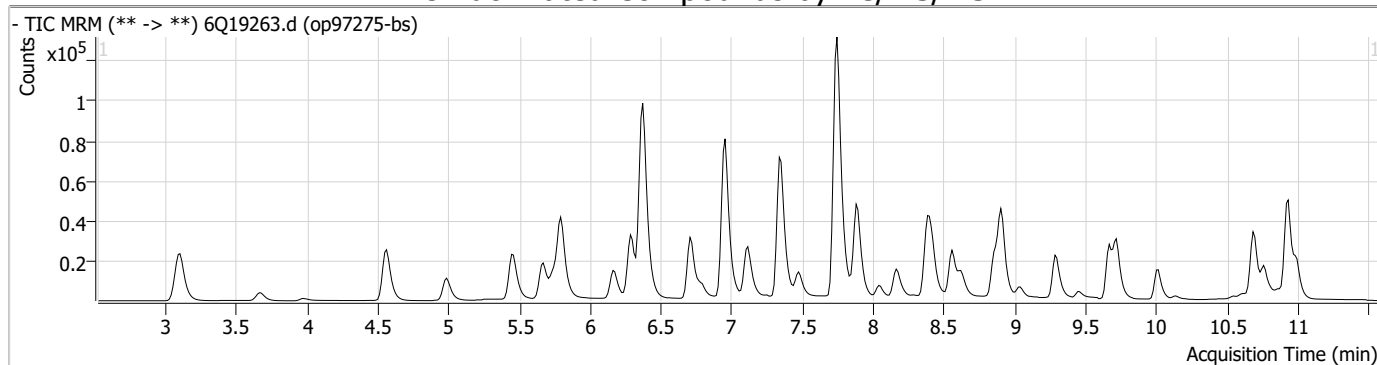
Perfluorinated Compounds by LC/MS/MS

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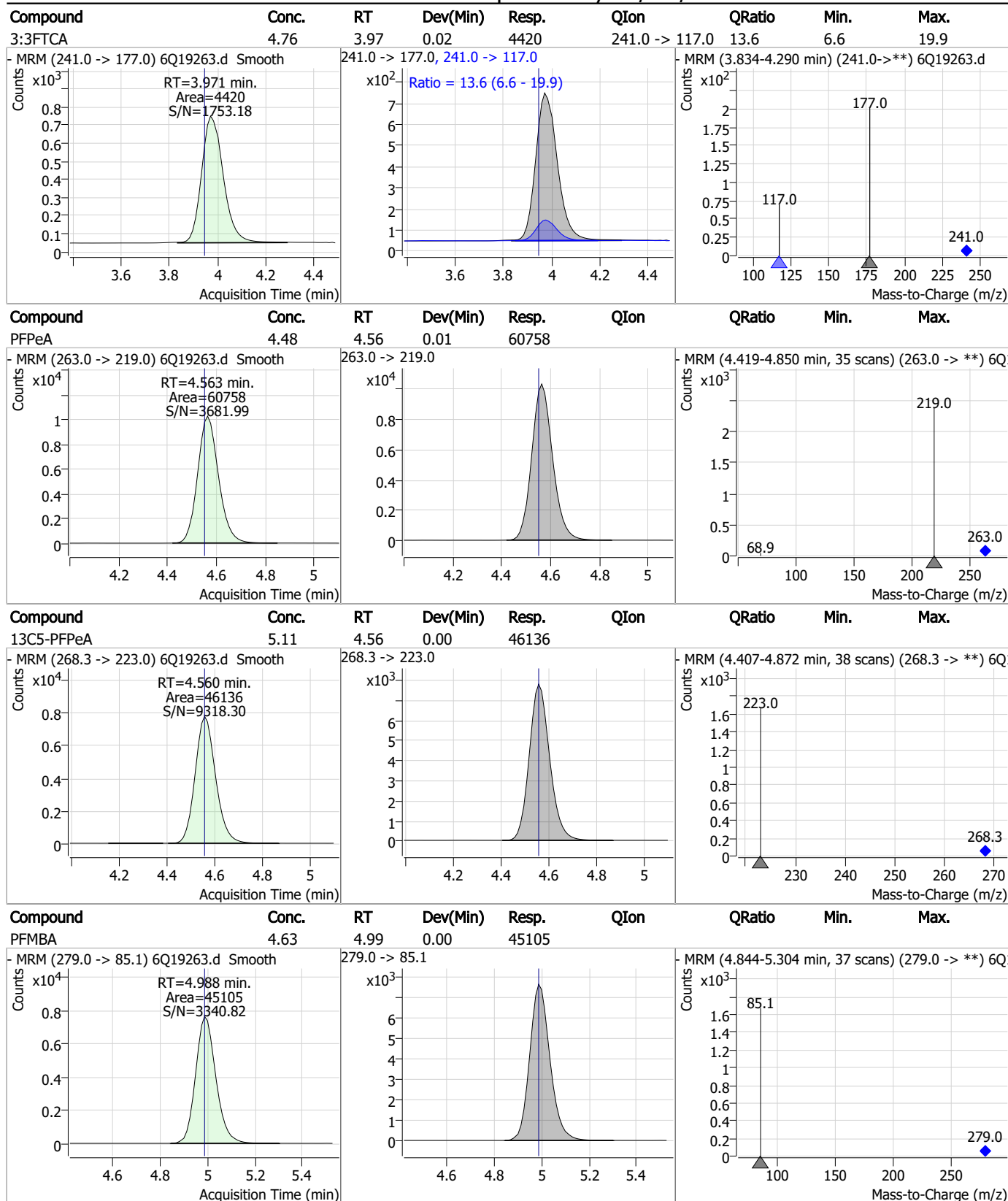
7.3.1

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Perfluorinated Compounds by LC/MS/MS

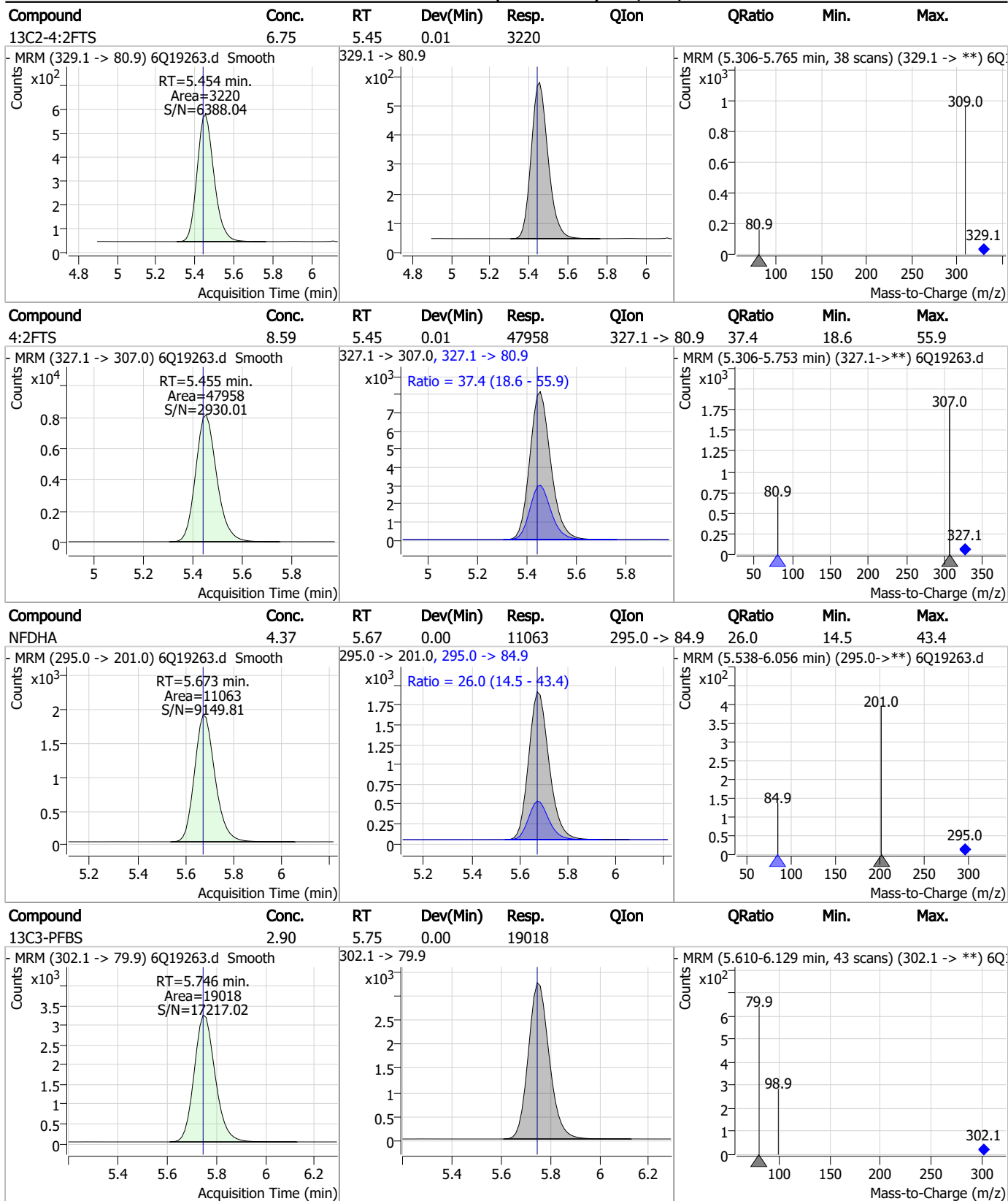


Perfluorinated Compounds by LC/MS/MS



7.3.1
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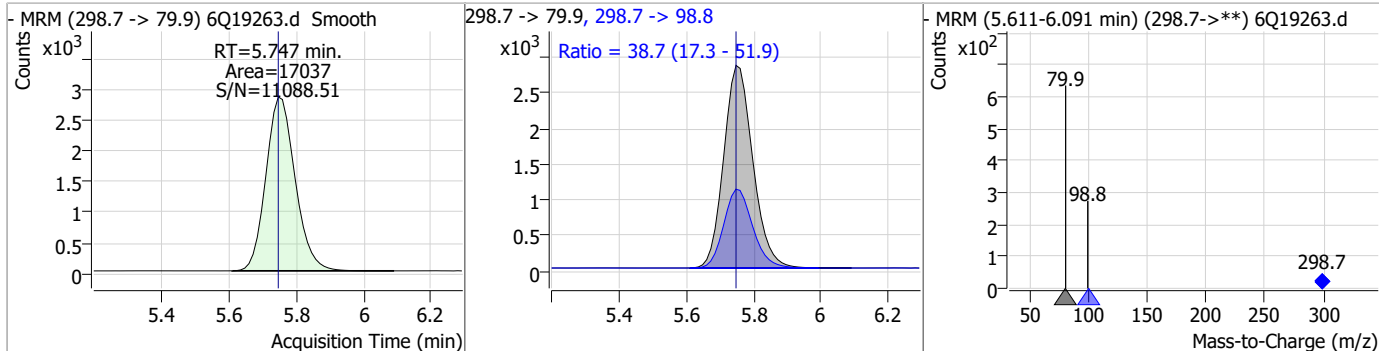
Perfluorinated Compounds by LC/MS/MS



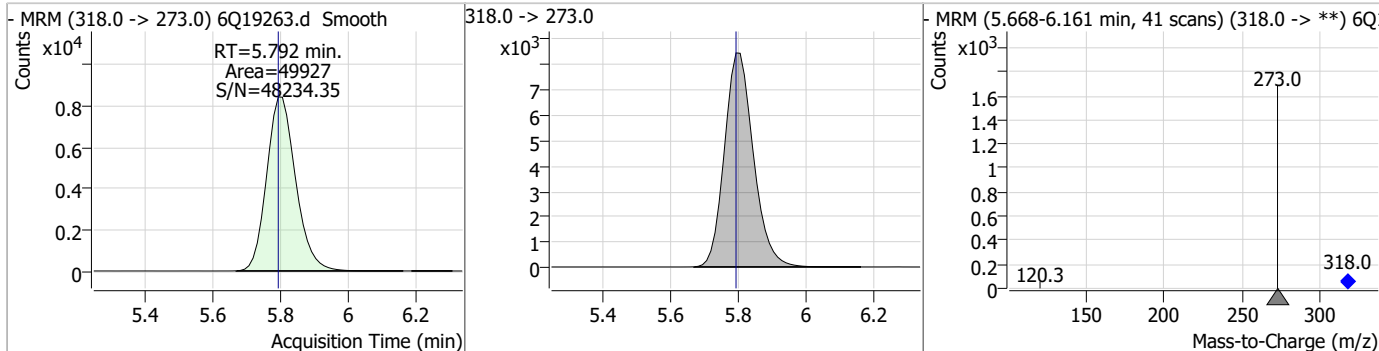
7.3.1
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Perfluorinated Compounds by LC/MS/MS

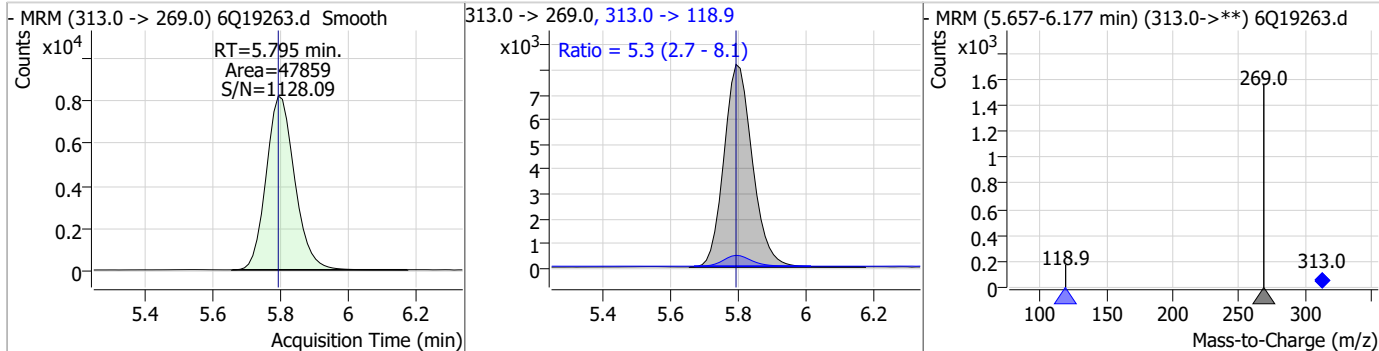
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.04	5.75	0.00	17037	298.7 -> 98.8	38.7	17.3	51.9



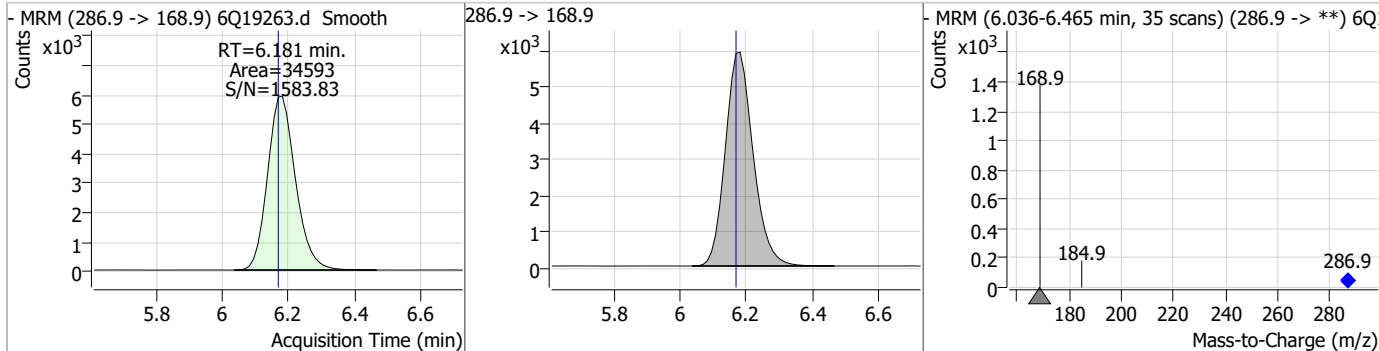
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.47	5.79	0.00	49927				



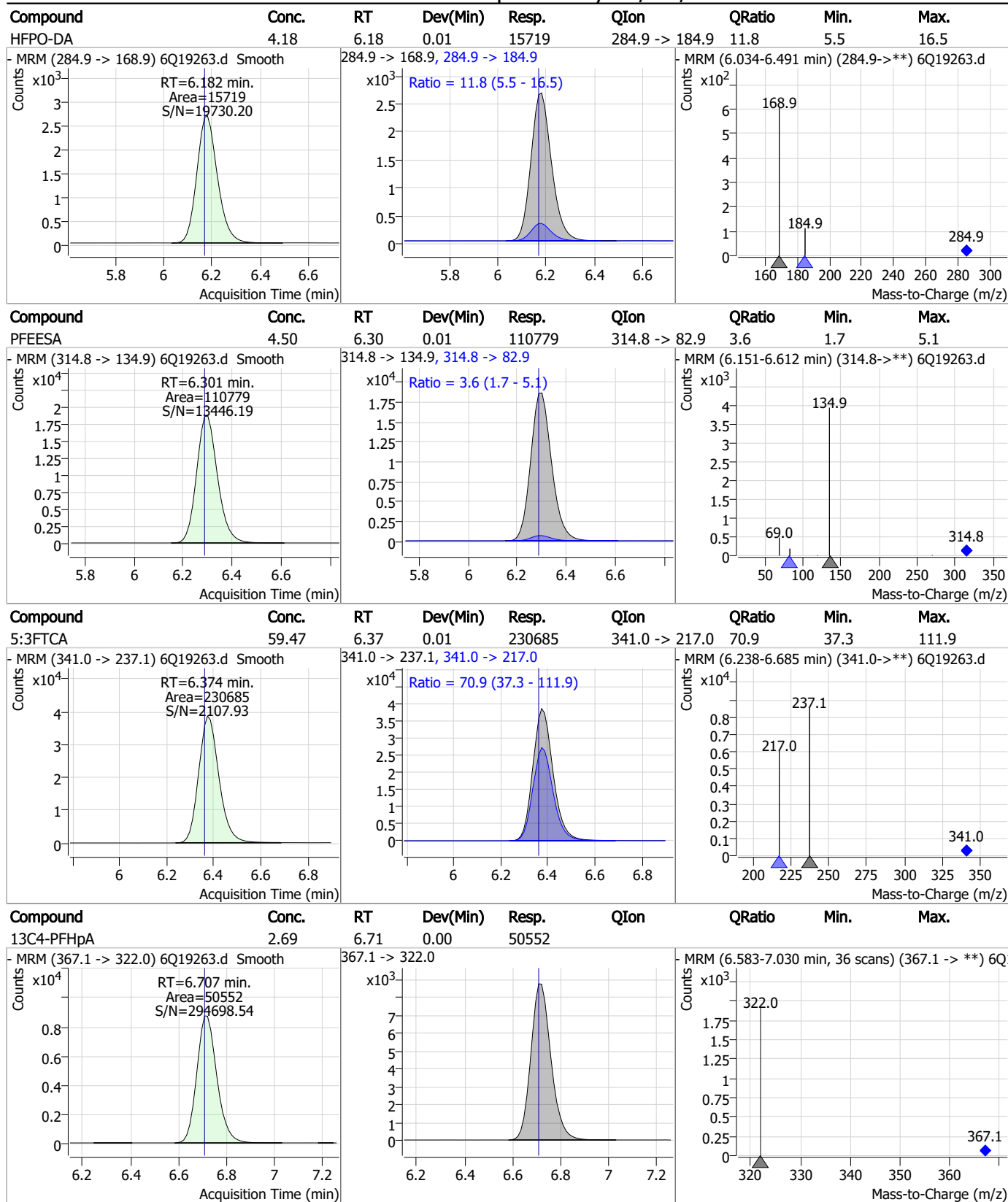
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.39	5.79	0.00	47859	313.0 -> 118.9	5.3	2.7	8.1



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

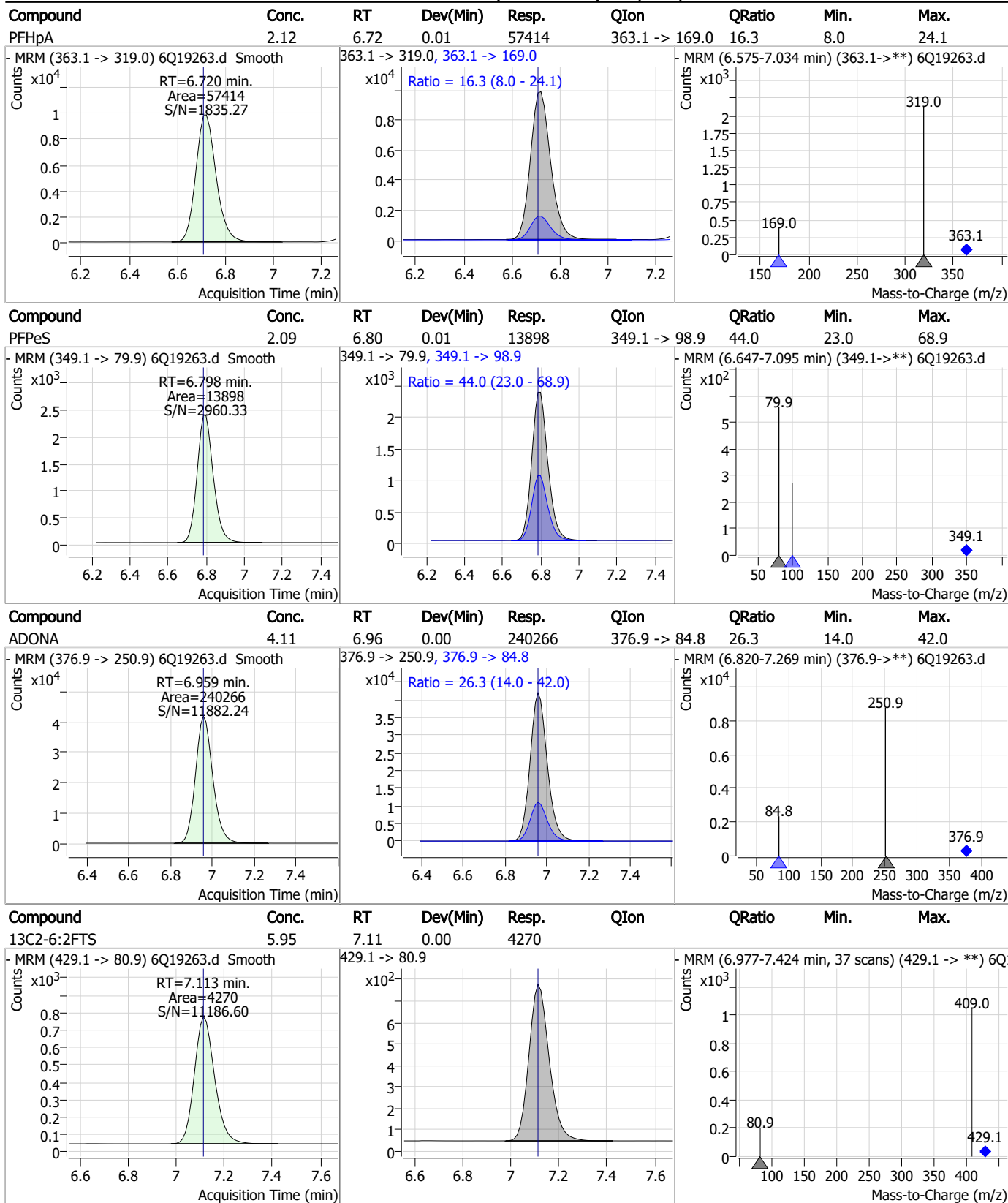


Perfluorinated Compounds by LC/MS/MS



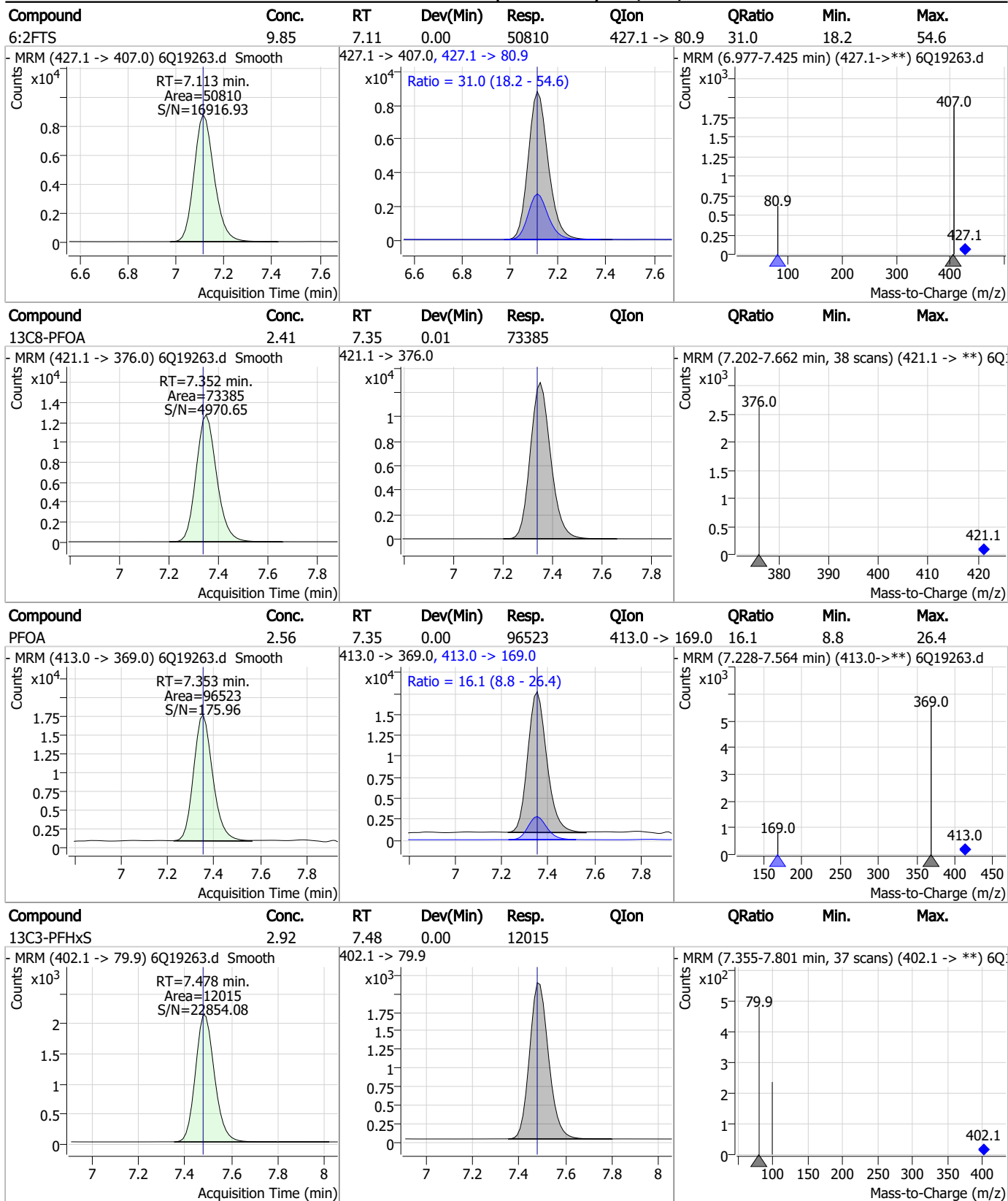
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Perfluorinated Compounds by LC/MS/MS



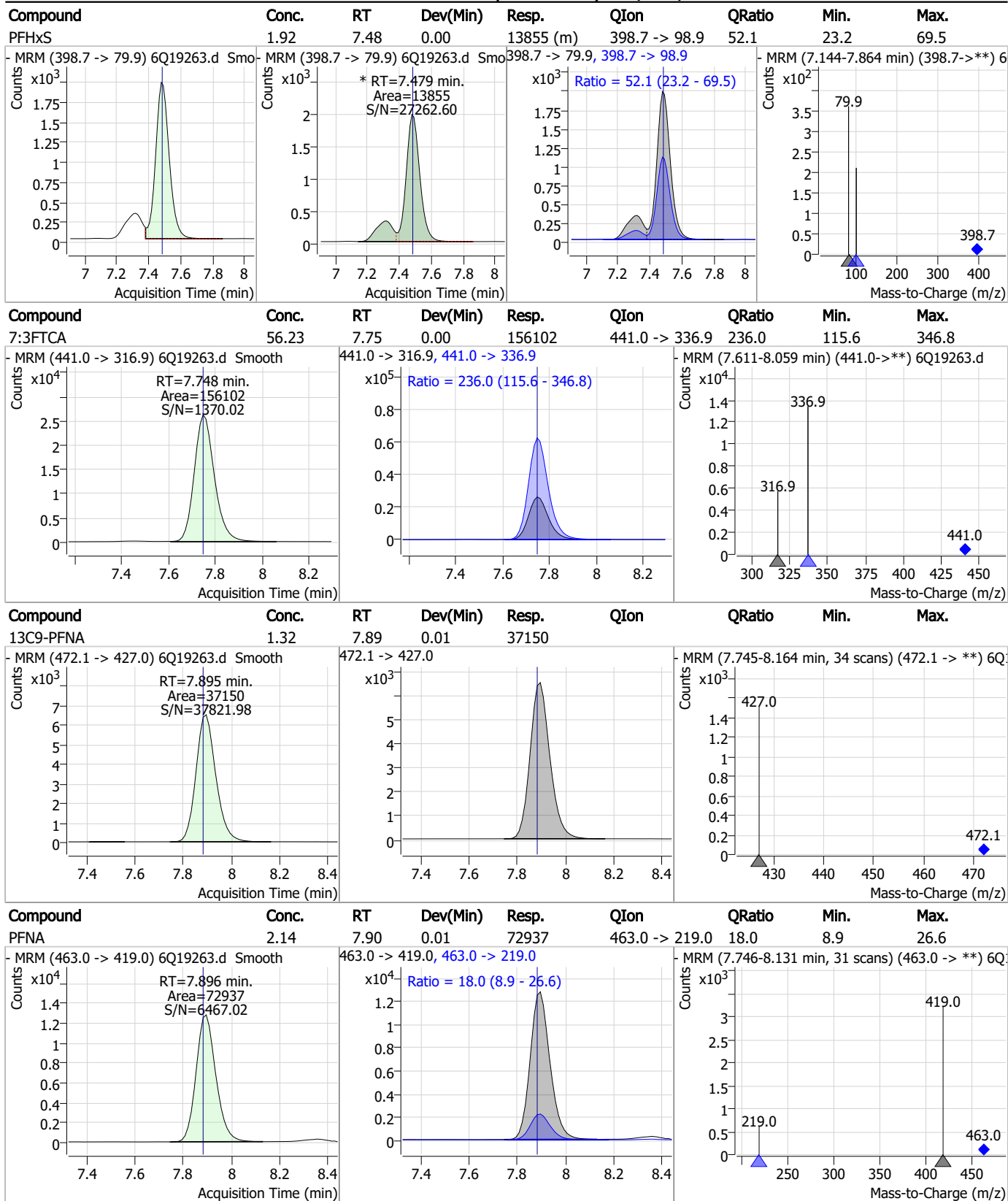
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Perfluorinated Compounds by LC/MS/MS



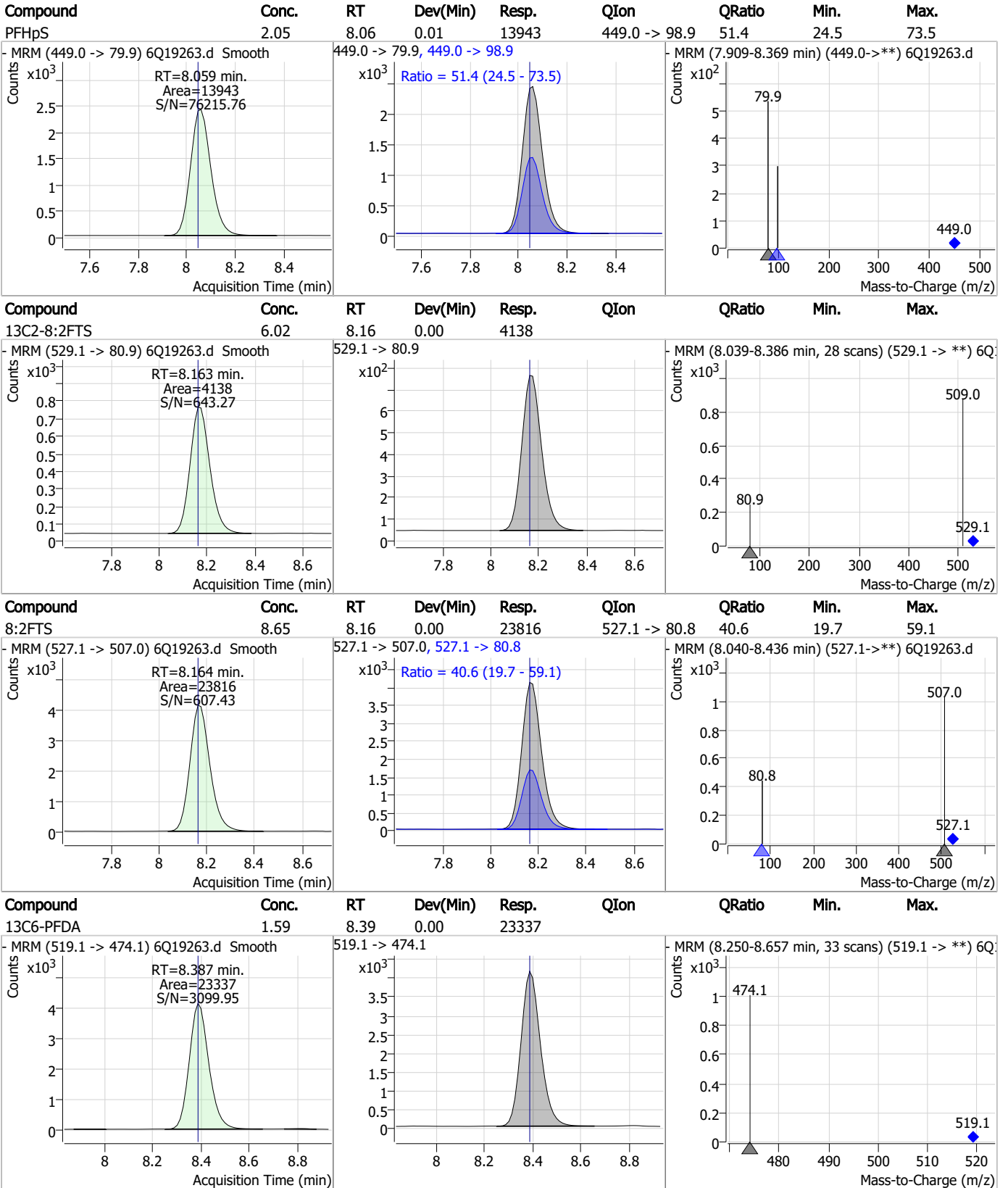
7.3.1
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Perfluorinated Compounds by LC/MS/MS



7.3.1
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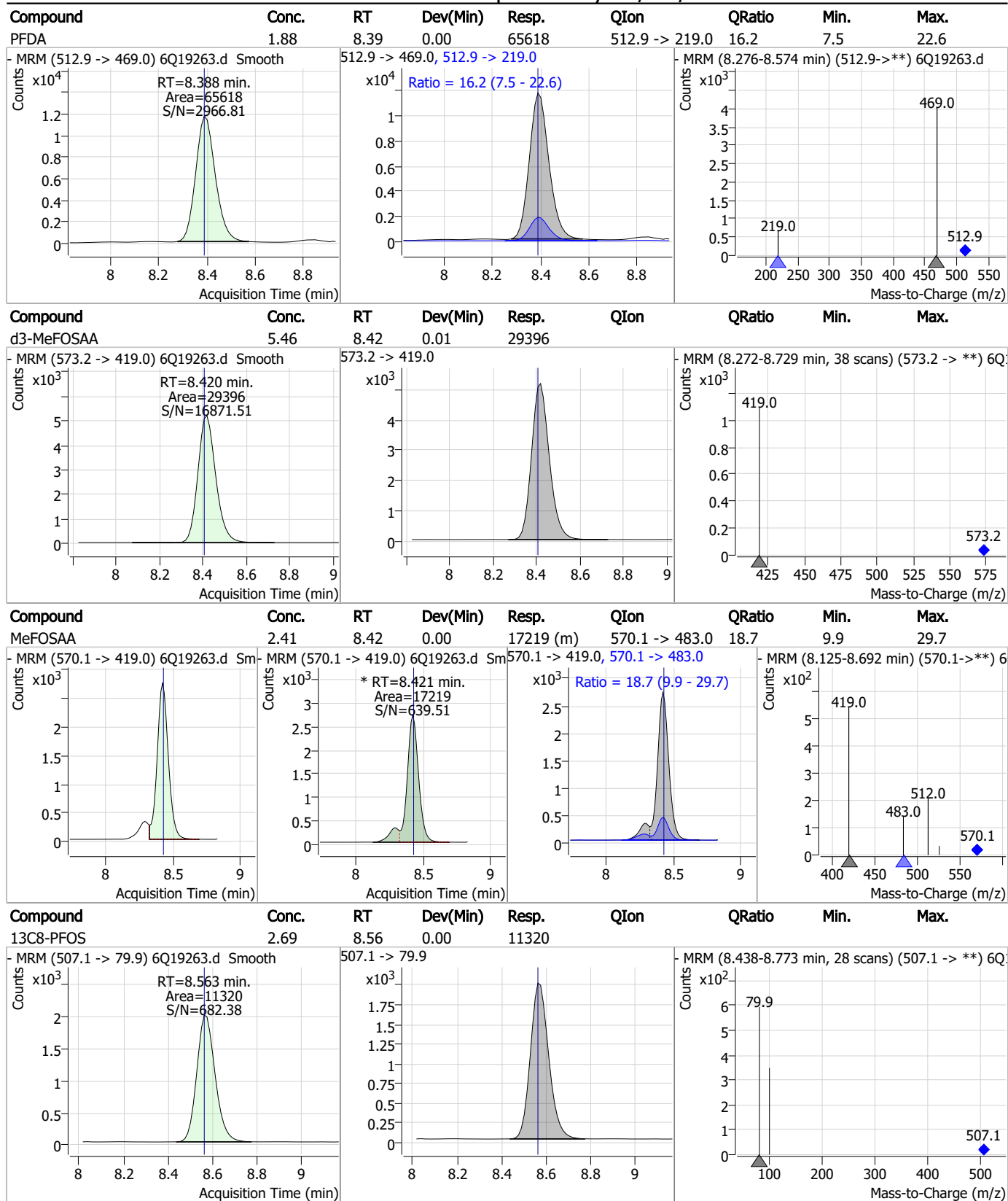
Perfluorinated Compounds by LC/MS/MS



7.3.1

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Perfluorinated Compounds by LC/MS/MS

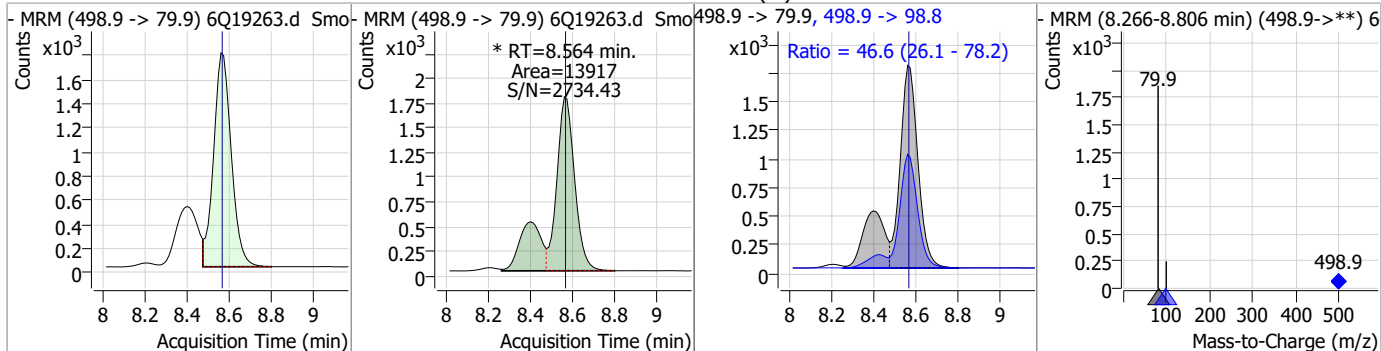


7.3.1
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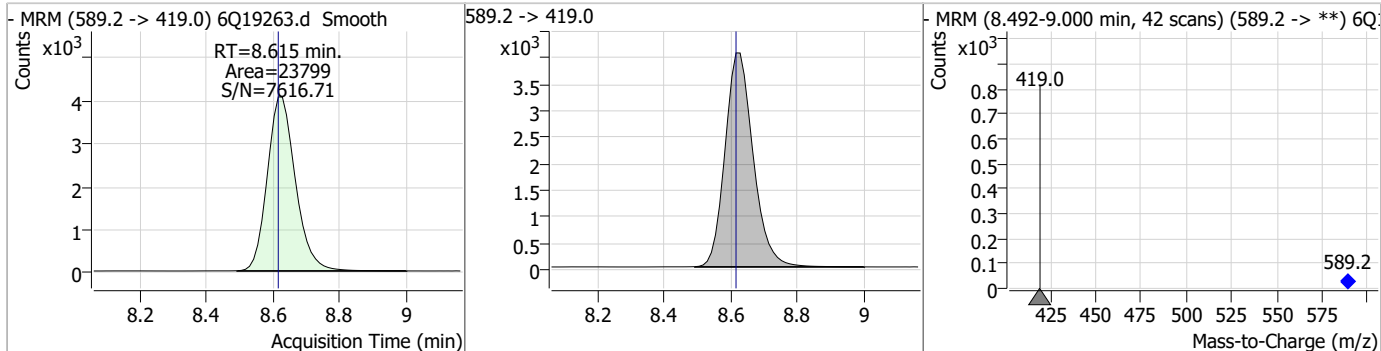


Perfluorinated Compounds by LC/MS/MS

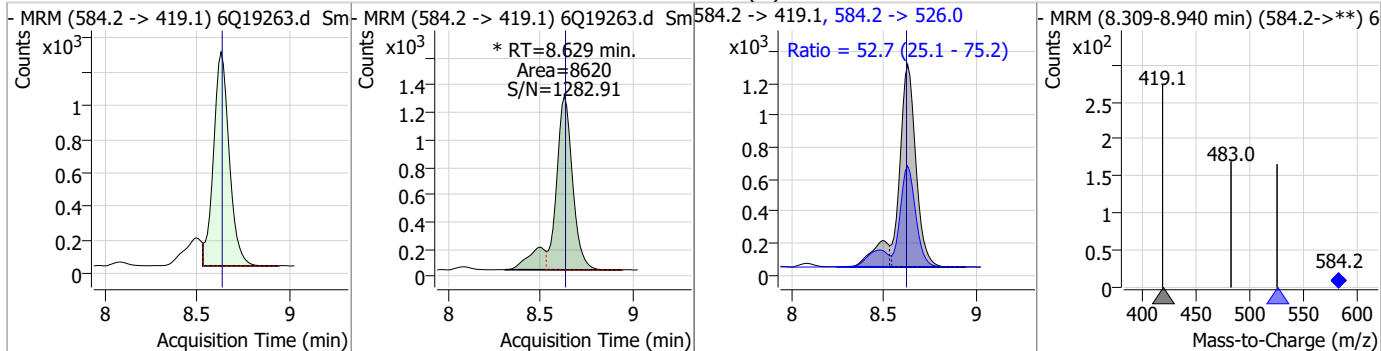
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.09	8.56	0.00	13917 (m)	498.9 -> 98.8	46.6	26.1	78.2



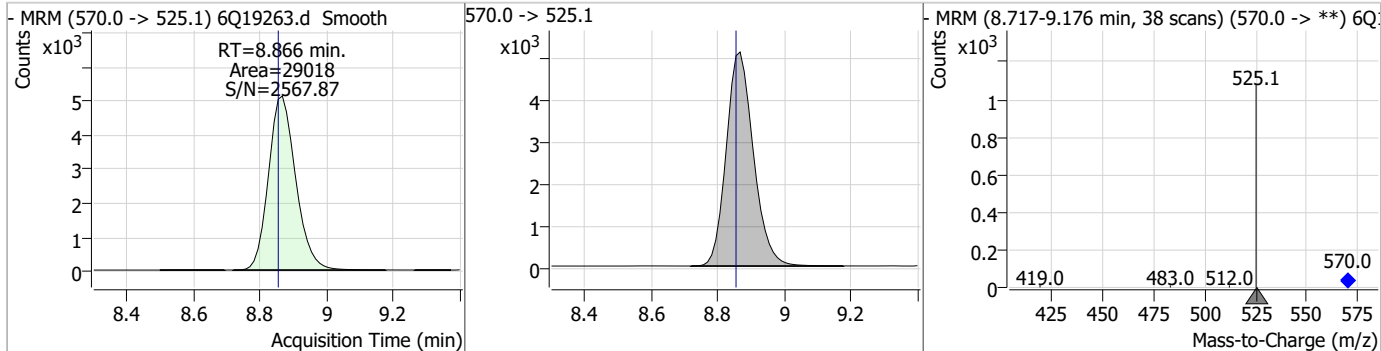
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.24	8.62	0.00	23799				



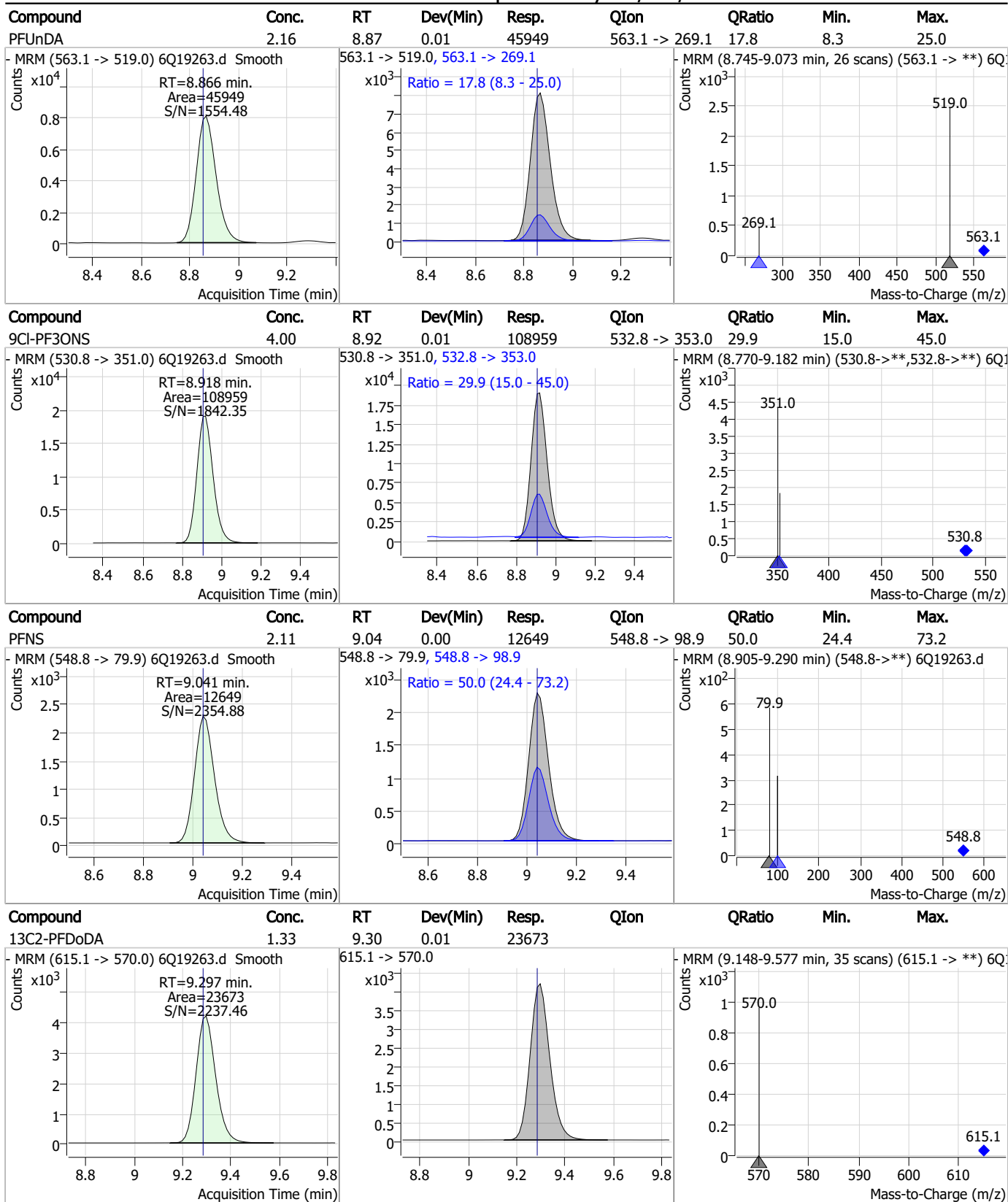
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.18	8.63	0.00	8620 (m)	584.2 -> 526.0	52.7	25.1	75.2



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

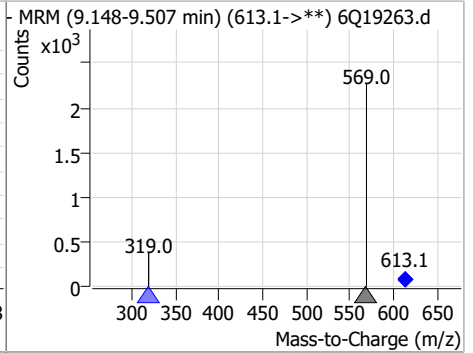
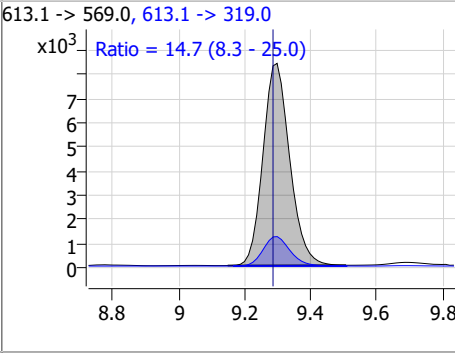
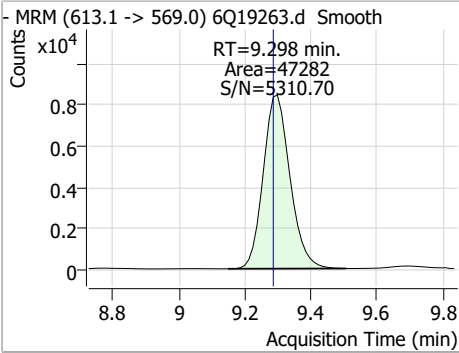


7.3.1

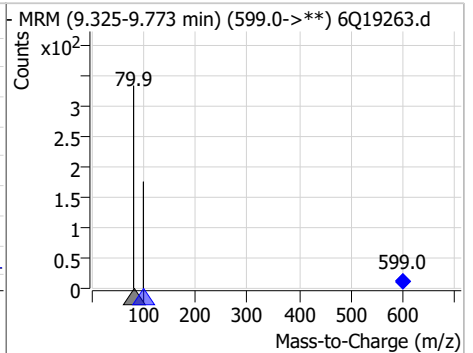
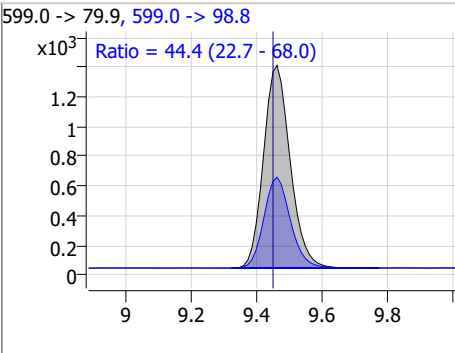
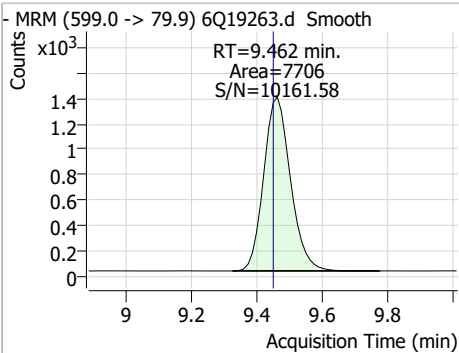
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Perfluorinated Compounds by LC/MS/MS

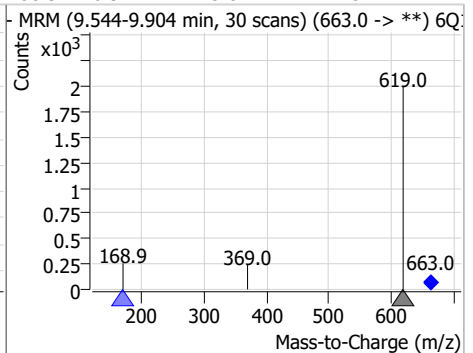
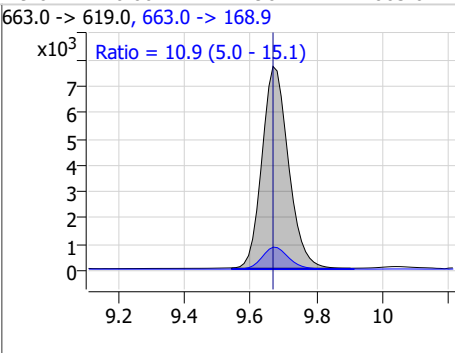
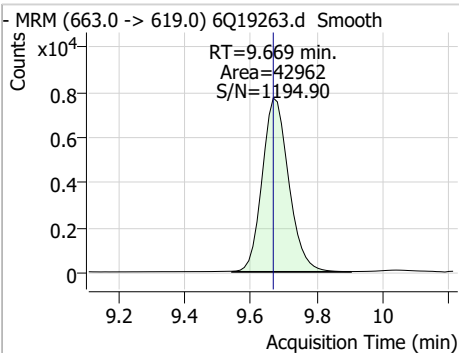
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	2.43	9.30	0.01	47282	613.1 -> 319.0	14.7	8.3	25.0



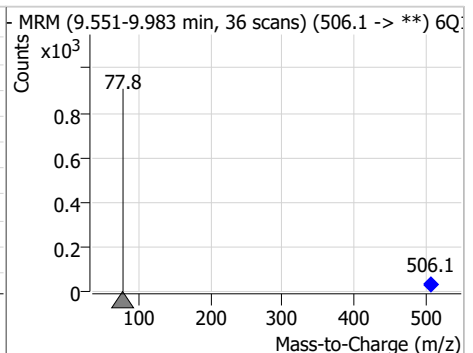
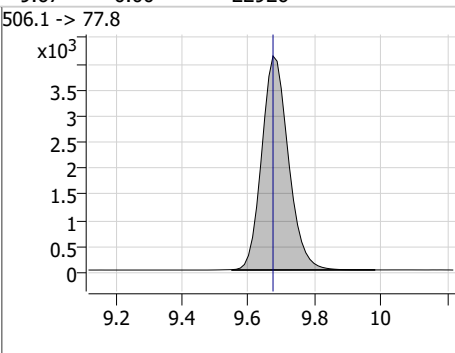
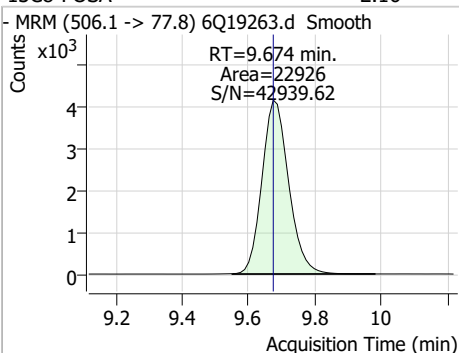
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	2.26	9.46	0.01	7706	599.0 -> 98.8	44.4	22.7	68.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	2.22	9.67	0.00	42962	663.0 -> 168.9	10.9	5.0	15.1

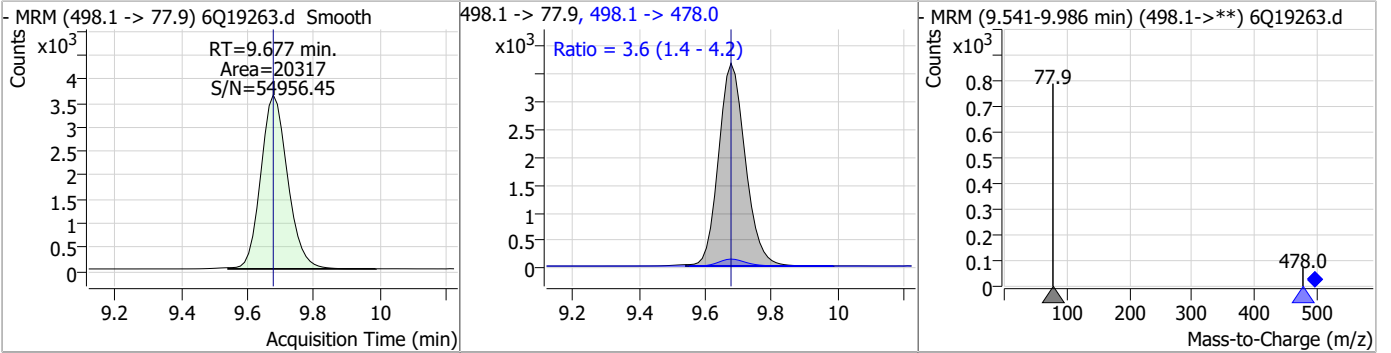


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.16	9.67	0.00	22926	506.1 -> 77.8			

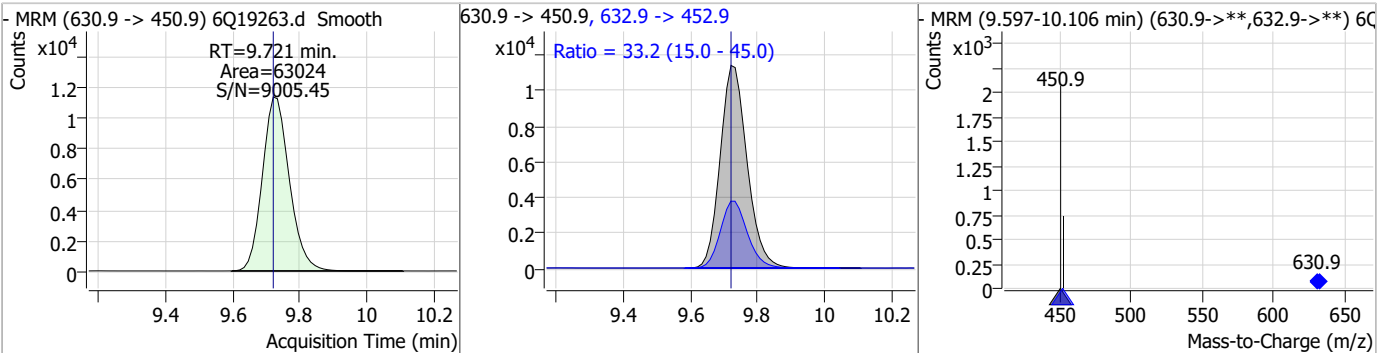


Perfluorinated Compounds by LC/MS/MS

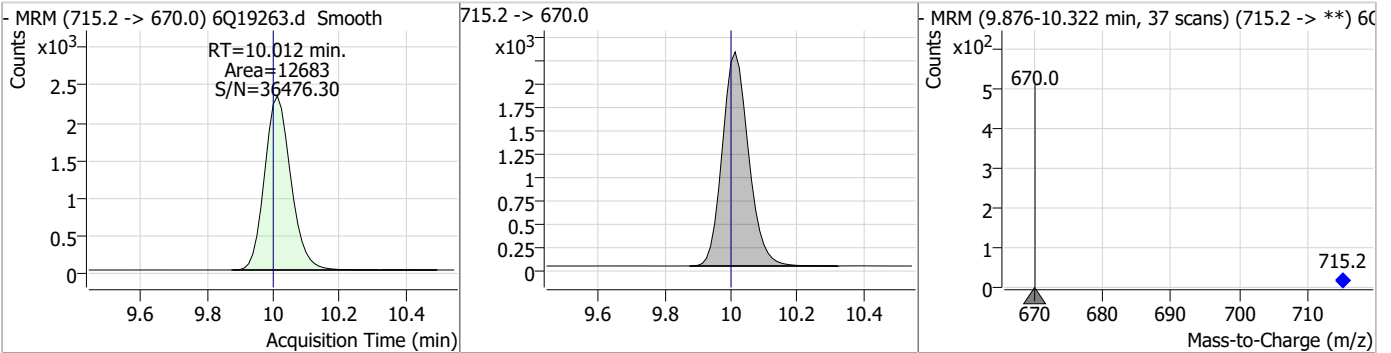
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.16	9.68	0.00	20317	498.1 -> 478.0	3.6	1.4	4.2



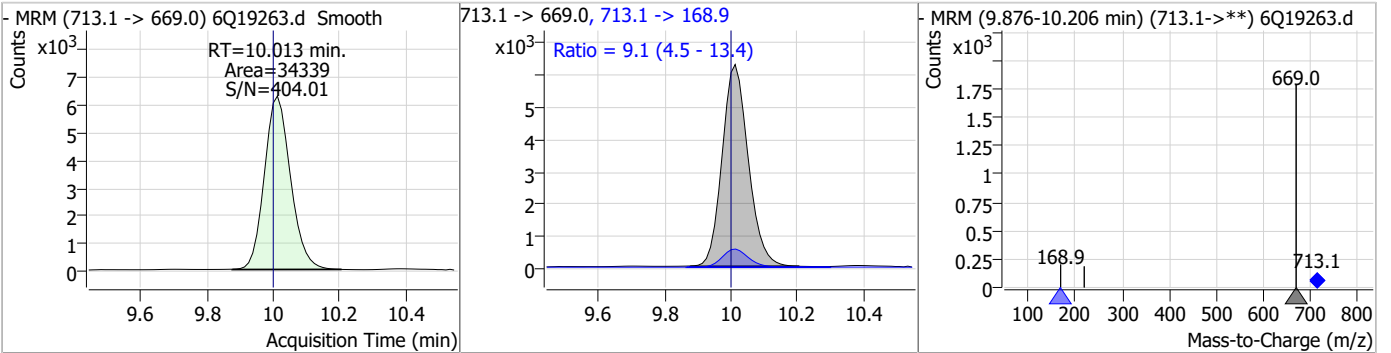
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	3.87	9.72	0.00	63024	630.9 -> 452.9	33.2	15.0	45.0



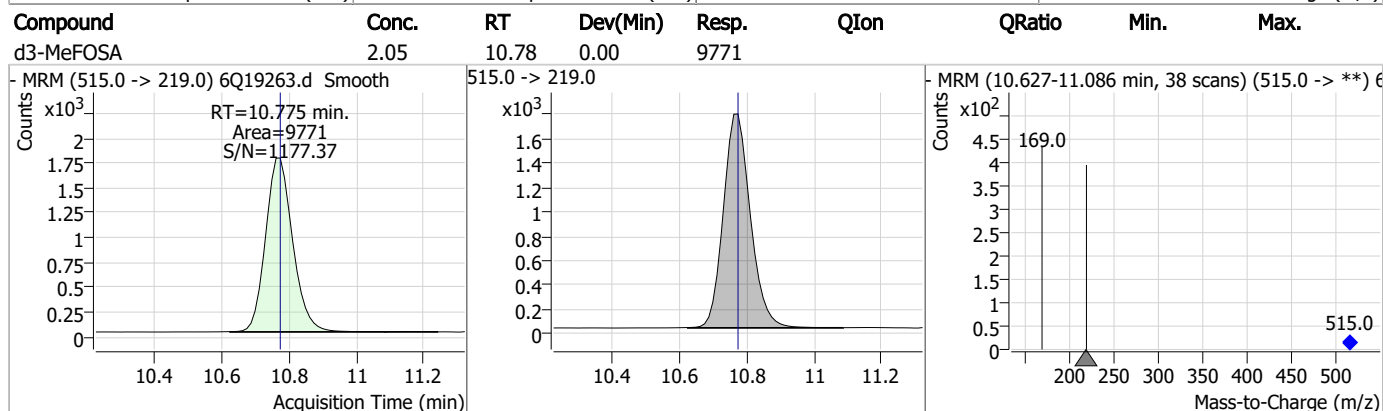
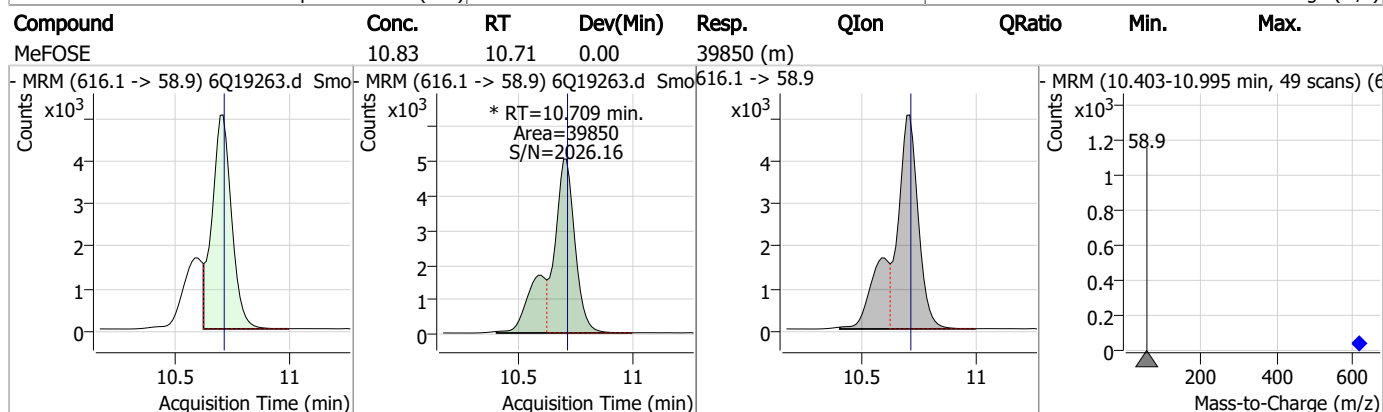
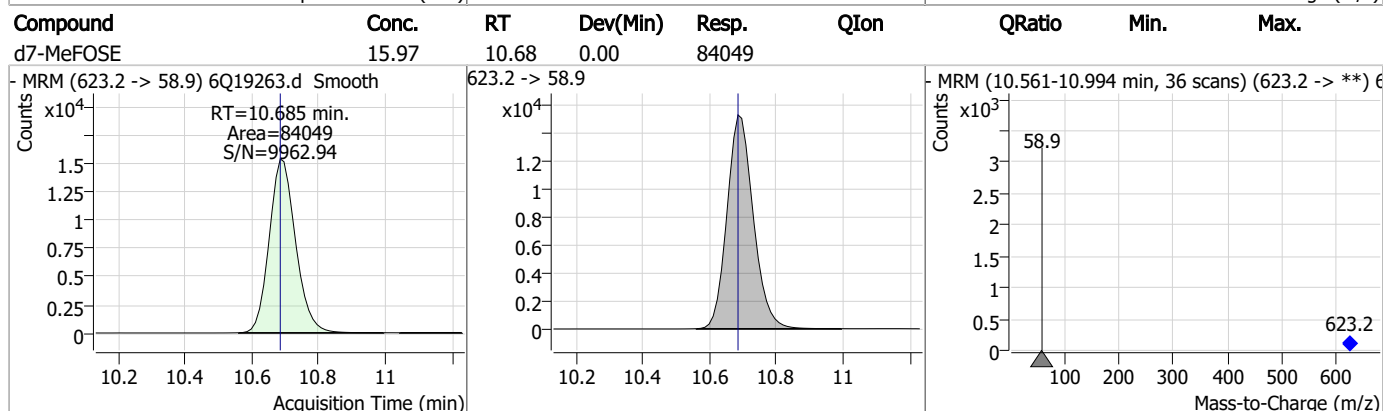
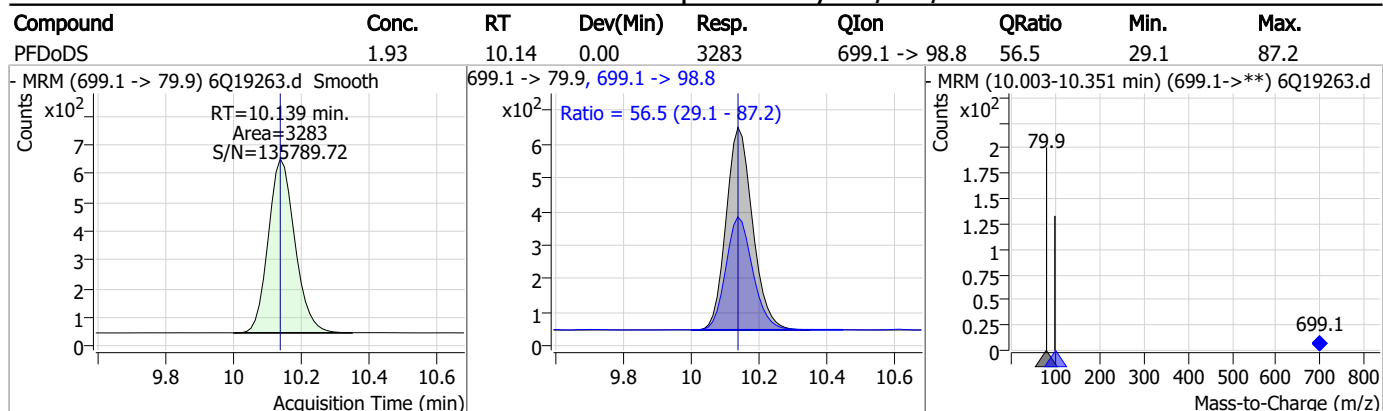
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.23	10.01	0.01	12683	715.2 -> 670.0	9.1	4.5	13.4



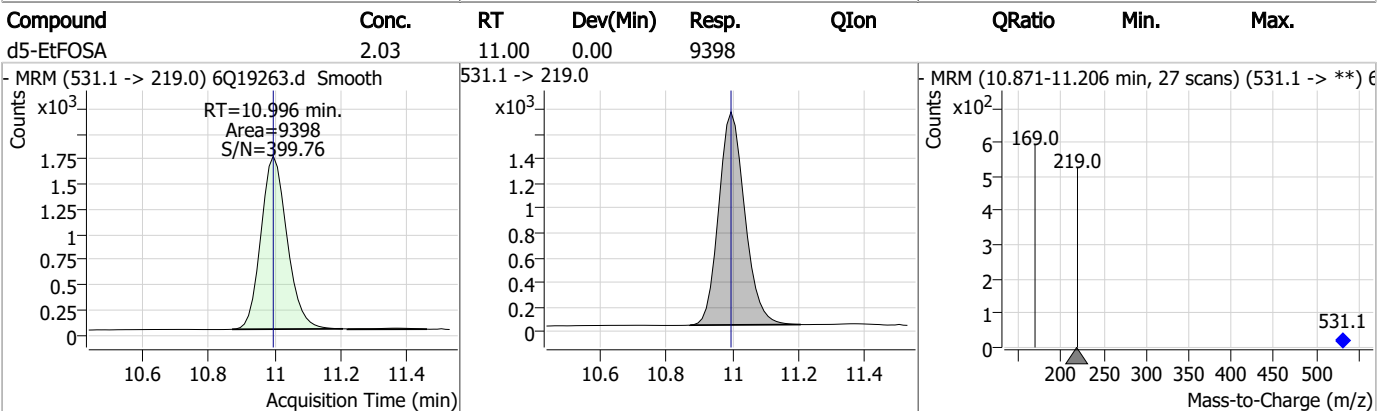
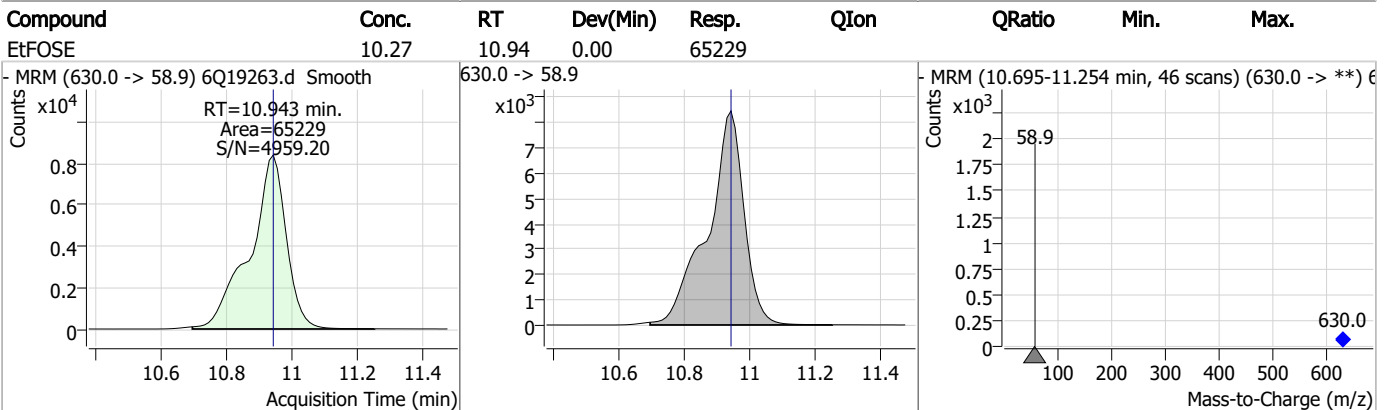
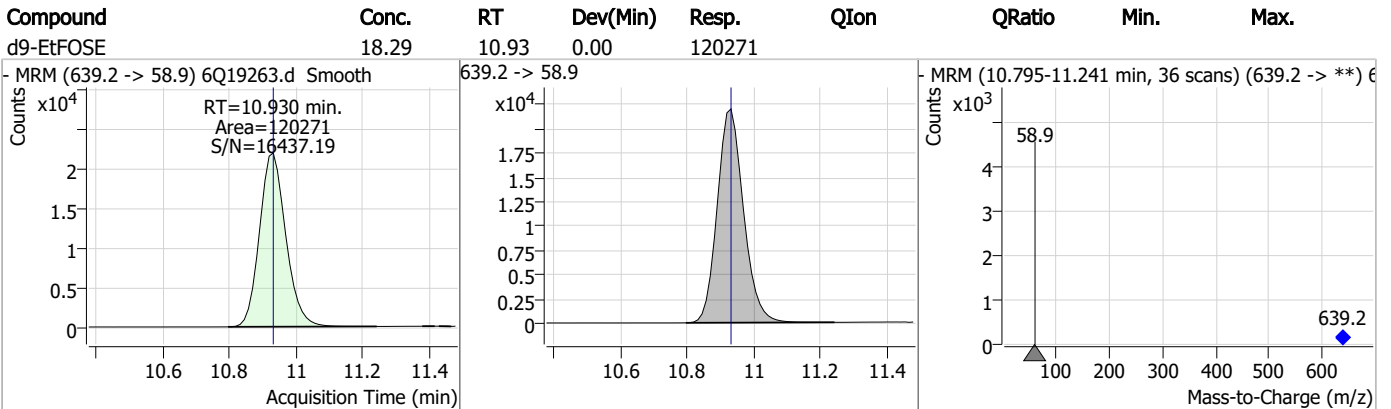
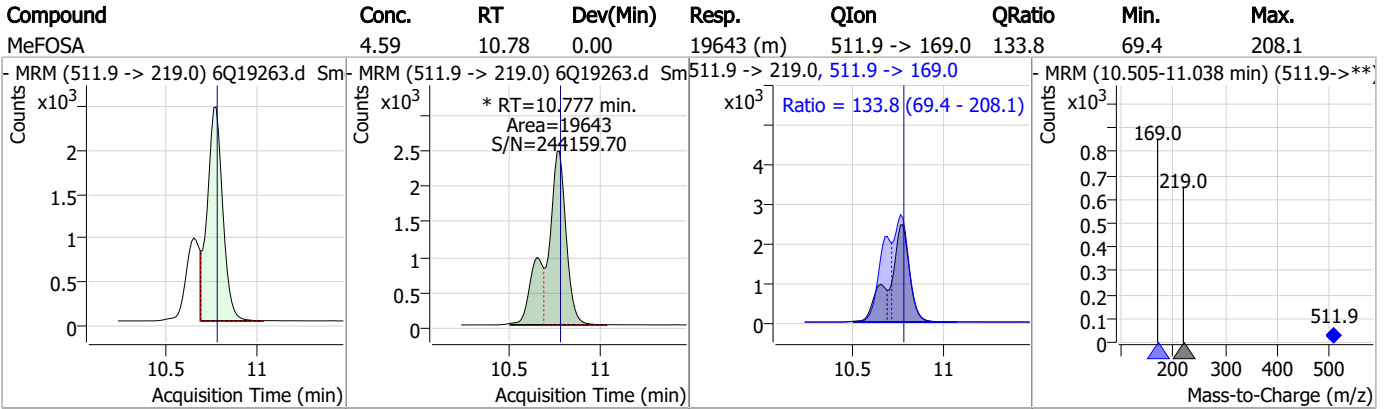
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.26	10.01	0.01	34339	713.1 -> 168.9	9.1	4.5	13.4



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

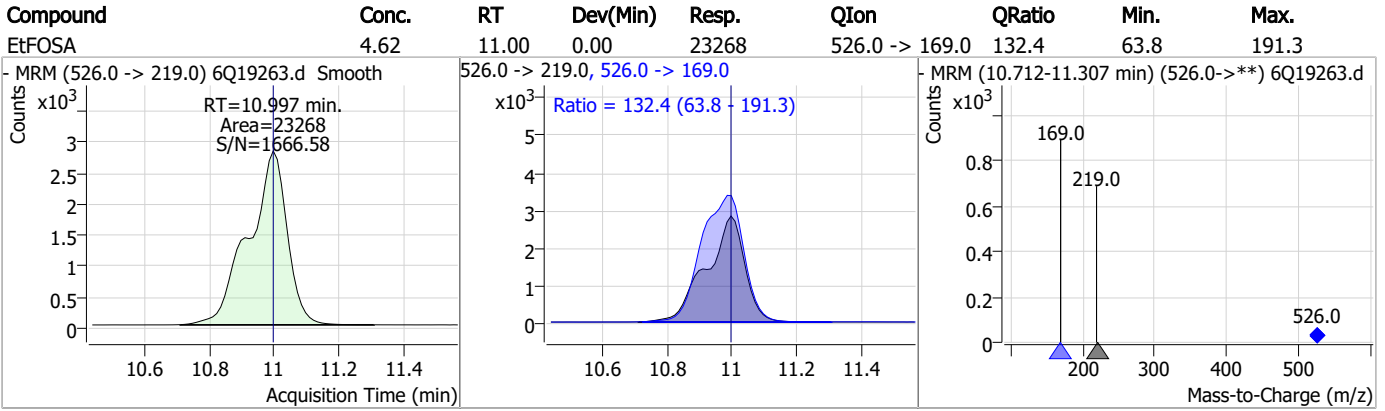


7.3.1

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Perfluorinated Compounds by LC/MS/MS



7.3.1

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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
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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

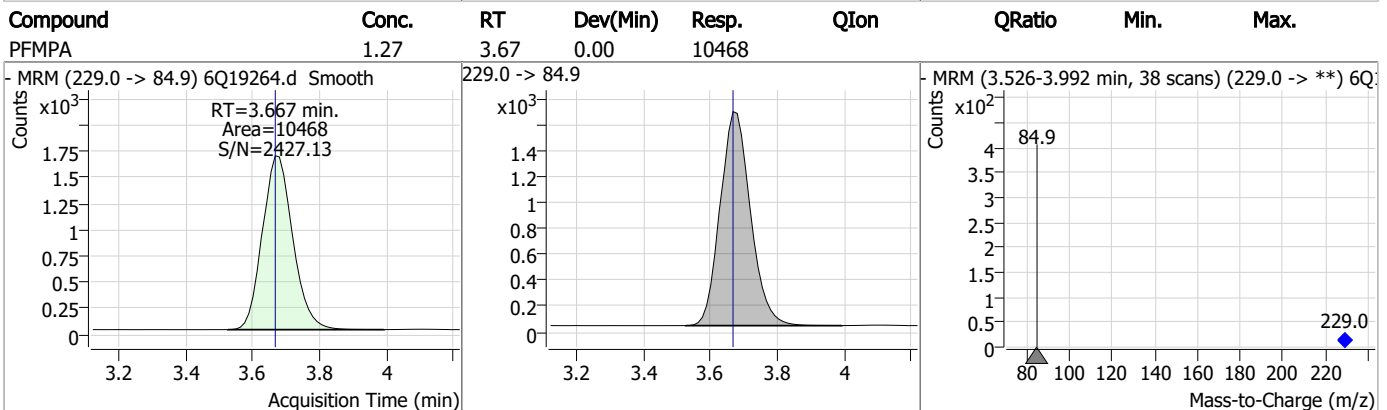
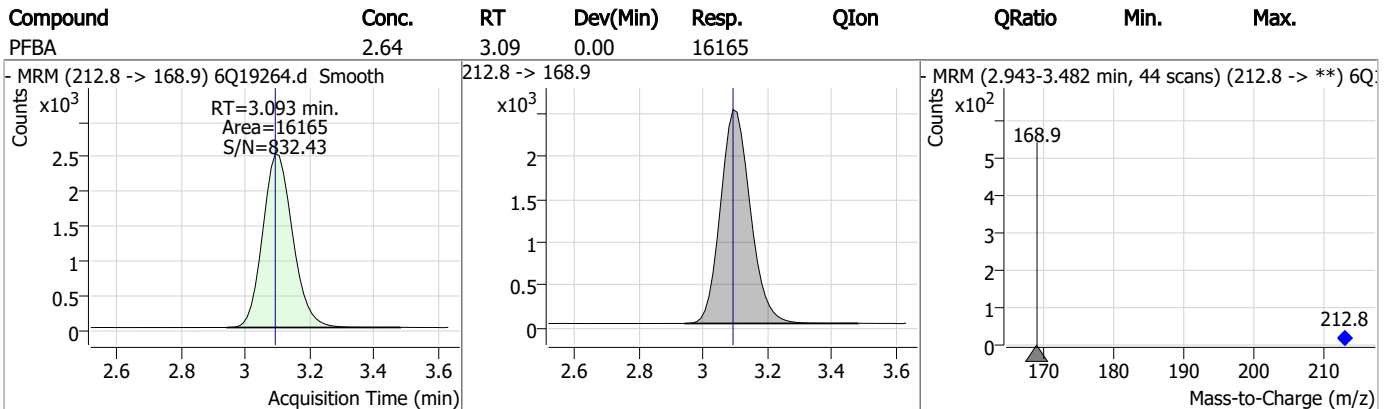
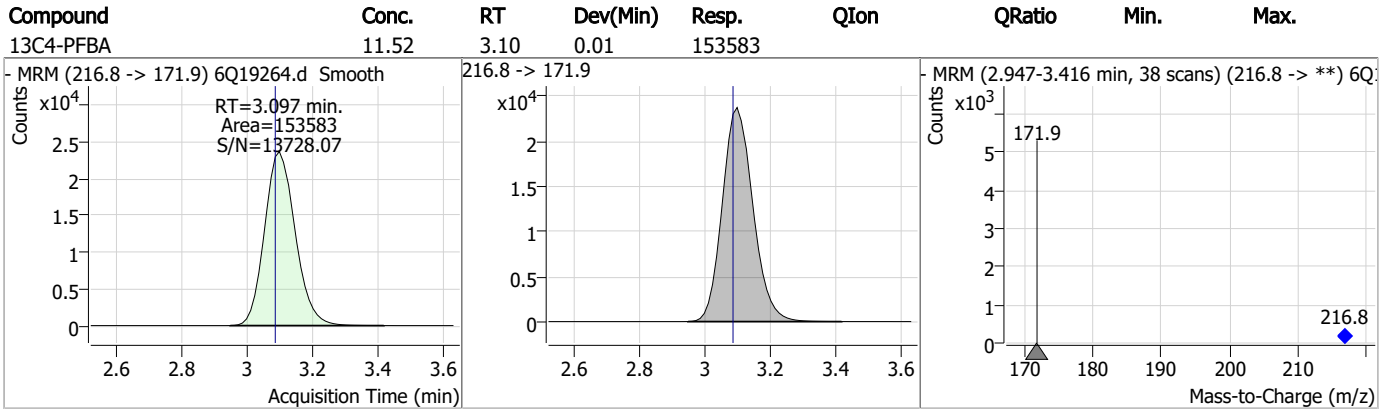
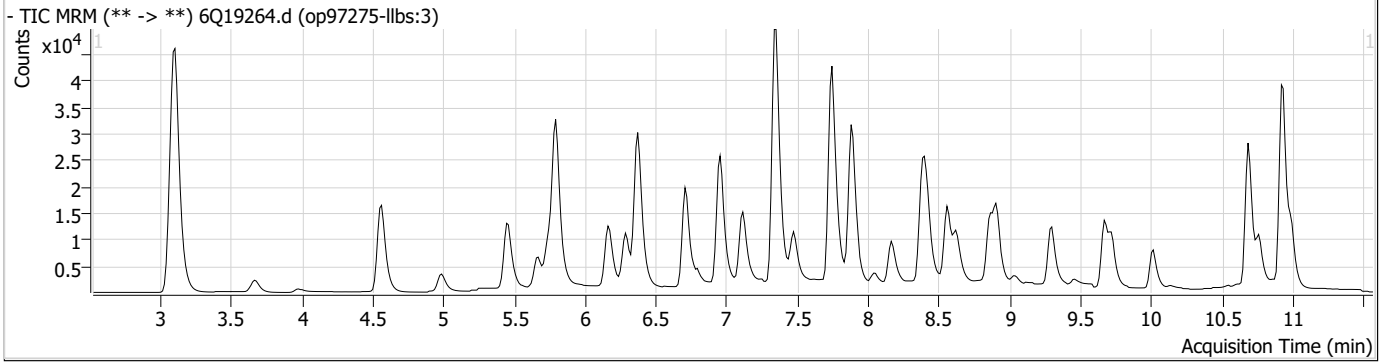
Perfluorinated Compounds by LC/MS/MS

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

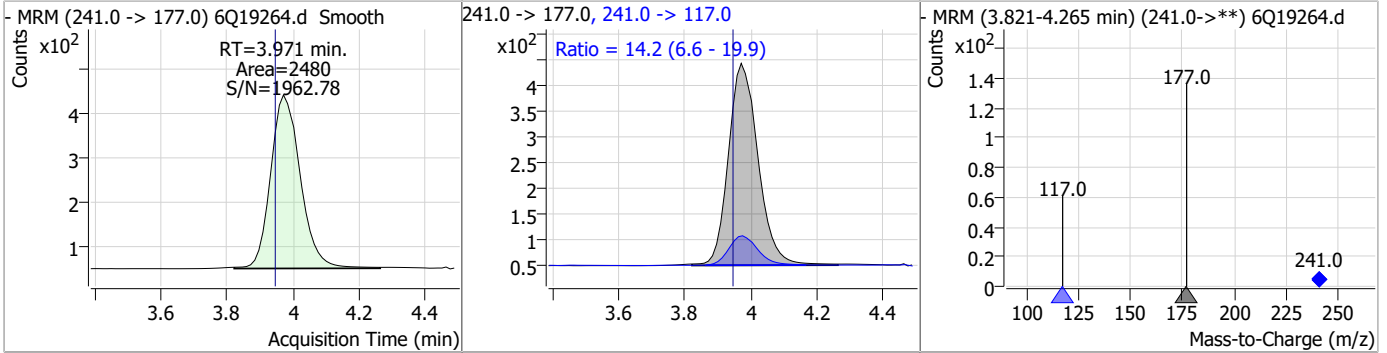
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Perfluorinated Compounds by LC/MS/MS

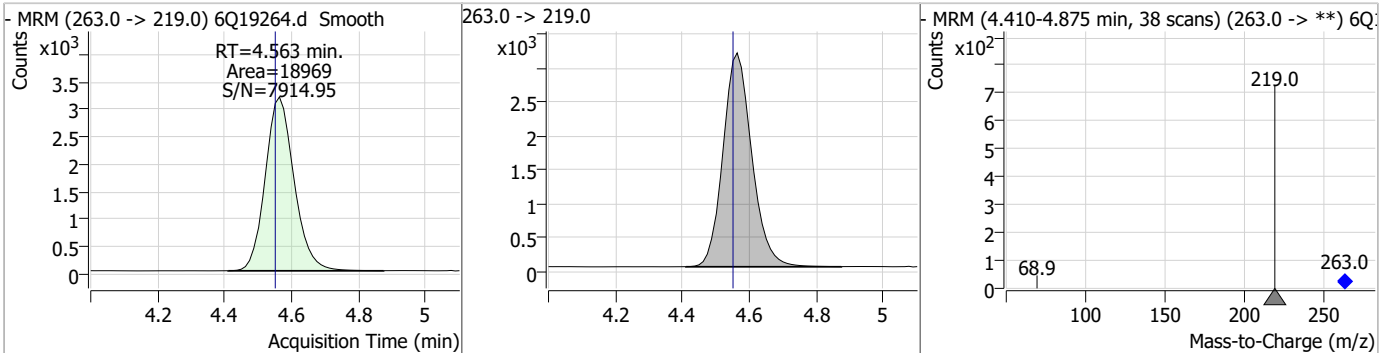


Perfluorinated Compounds by LC/MS/MS

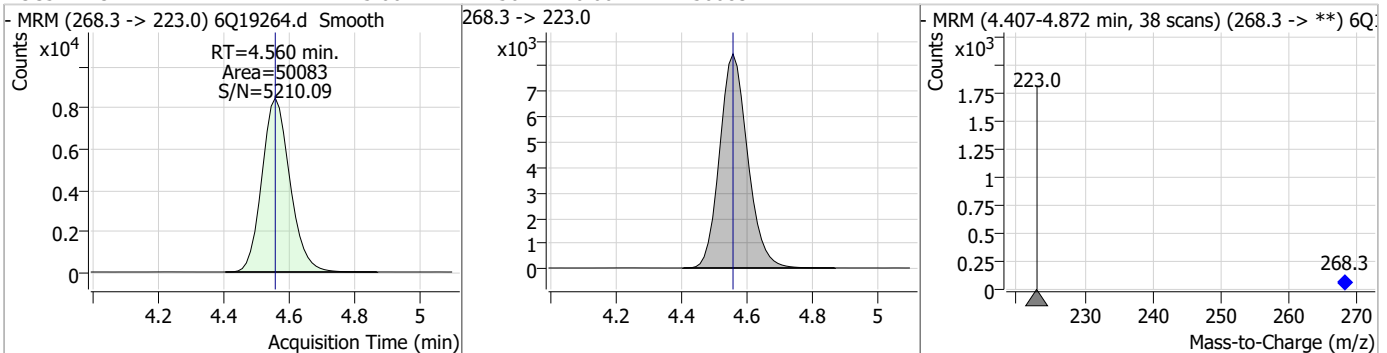
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	2.46	3.97	0.02	2480	241.0 -> 117.0	14.2	6.6	19.9



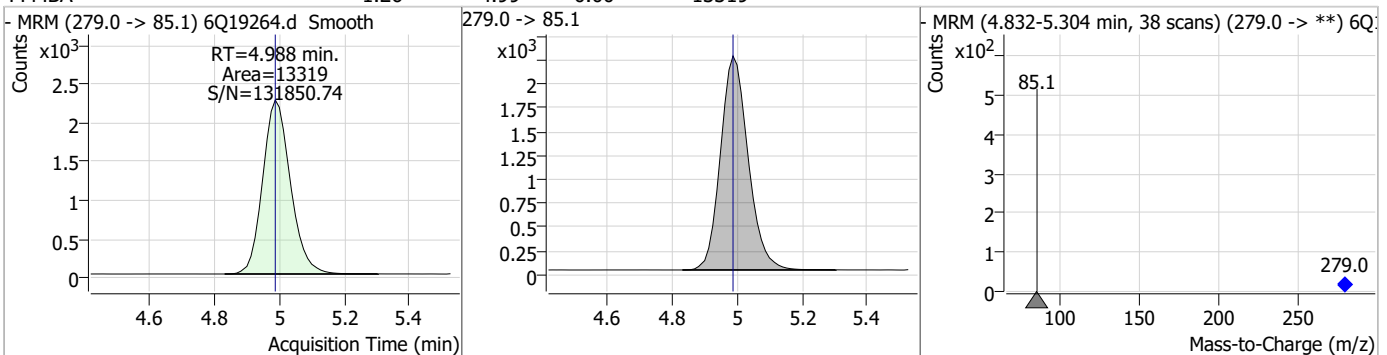
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.29	4.56	0.01	18969	263.0 -> 219.0			



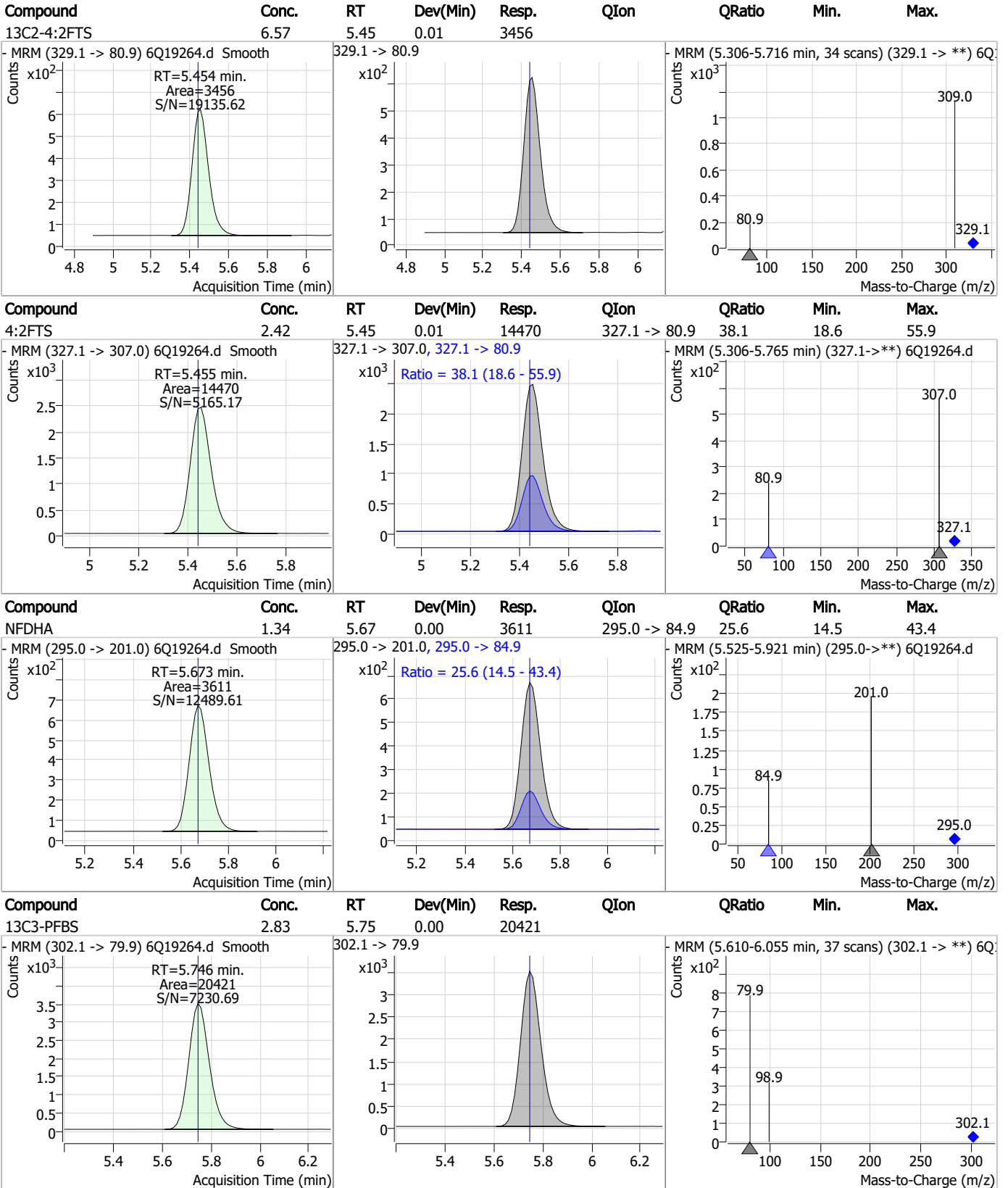
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.66	4.56	0.00	50083	268.3 -> 223.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	1.26	4.99	0.00	13319	279.0 -> 85.1			



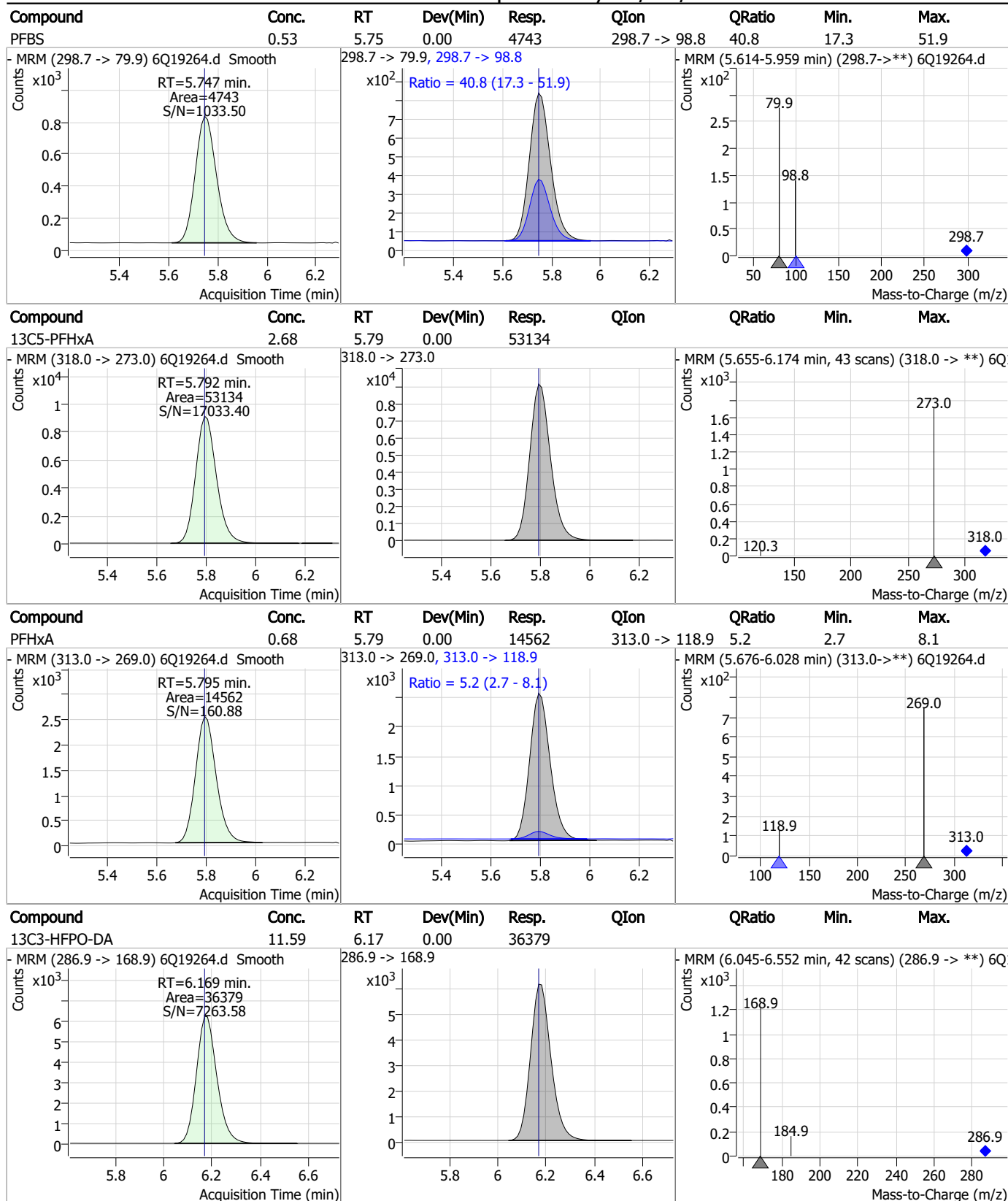
Perfluorinated Compounds by LC/MS/MS



7.3.2

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Perfluorinated Compounds by LC/MS/MS

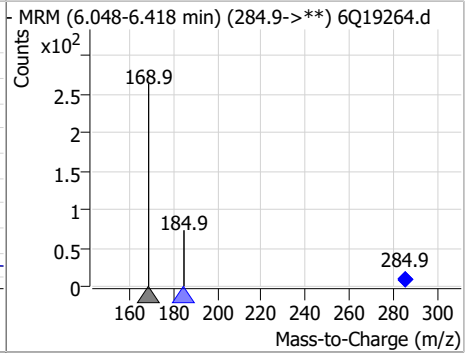
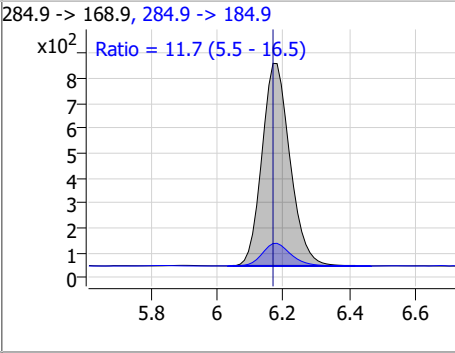
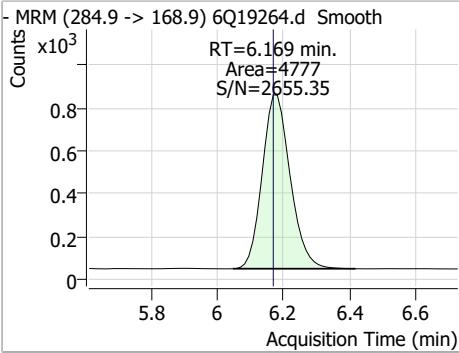


7.3.2
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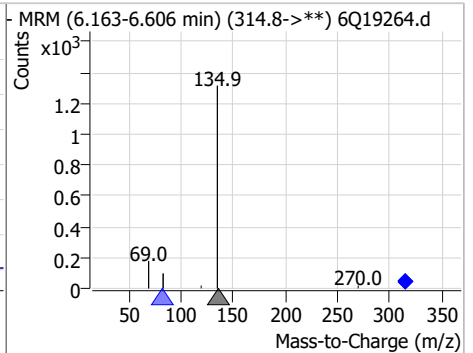
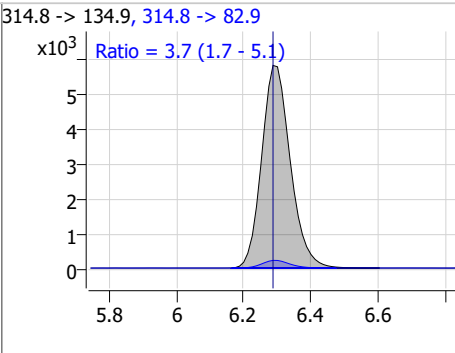
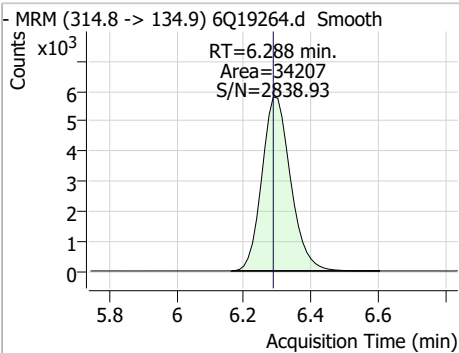


Perfluorinated Compounds by LC/MS/MS

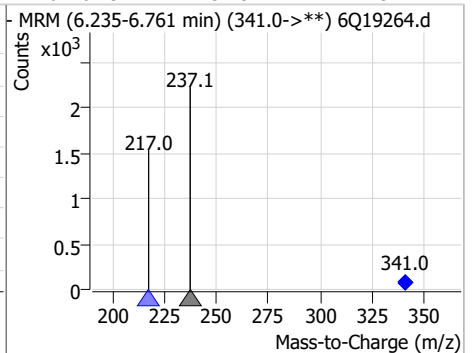
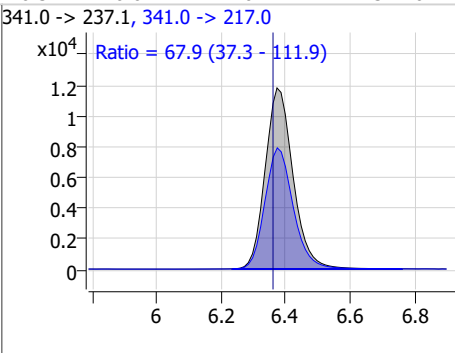
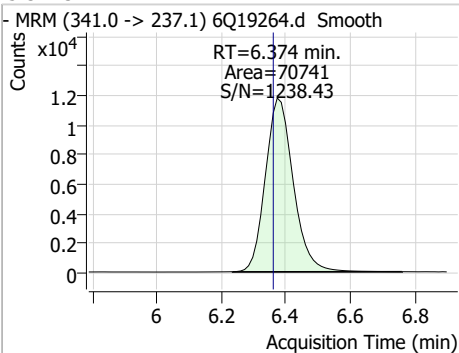
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.20	6.17	0.00	4777	284.9 -> 184.9	11.7	5.5	16.5



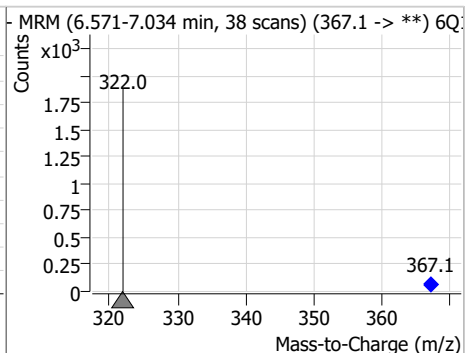
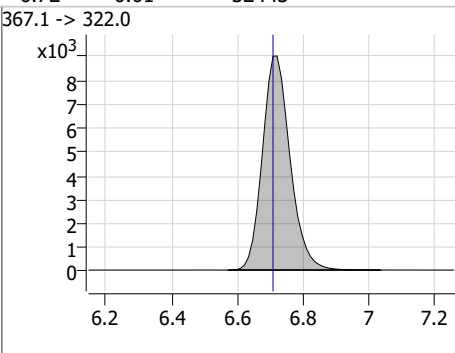
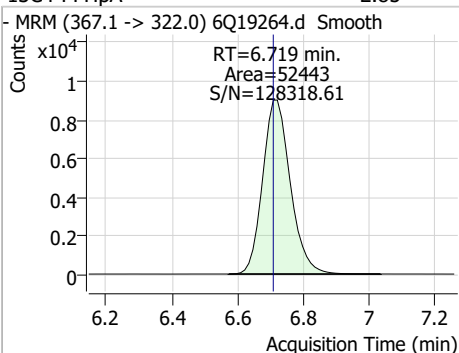
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	1.31	6.29	0.00	34207	314.8 -> 82.9	3.7	1.7	5.1



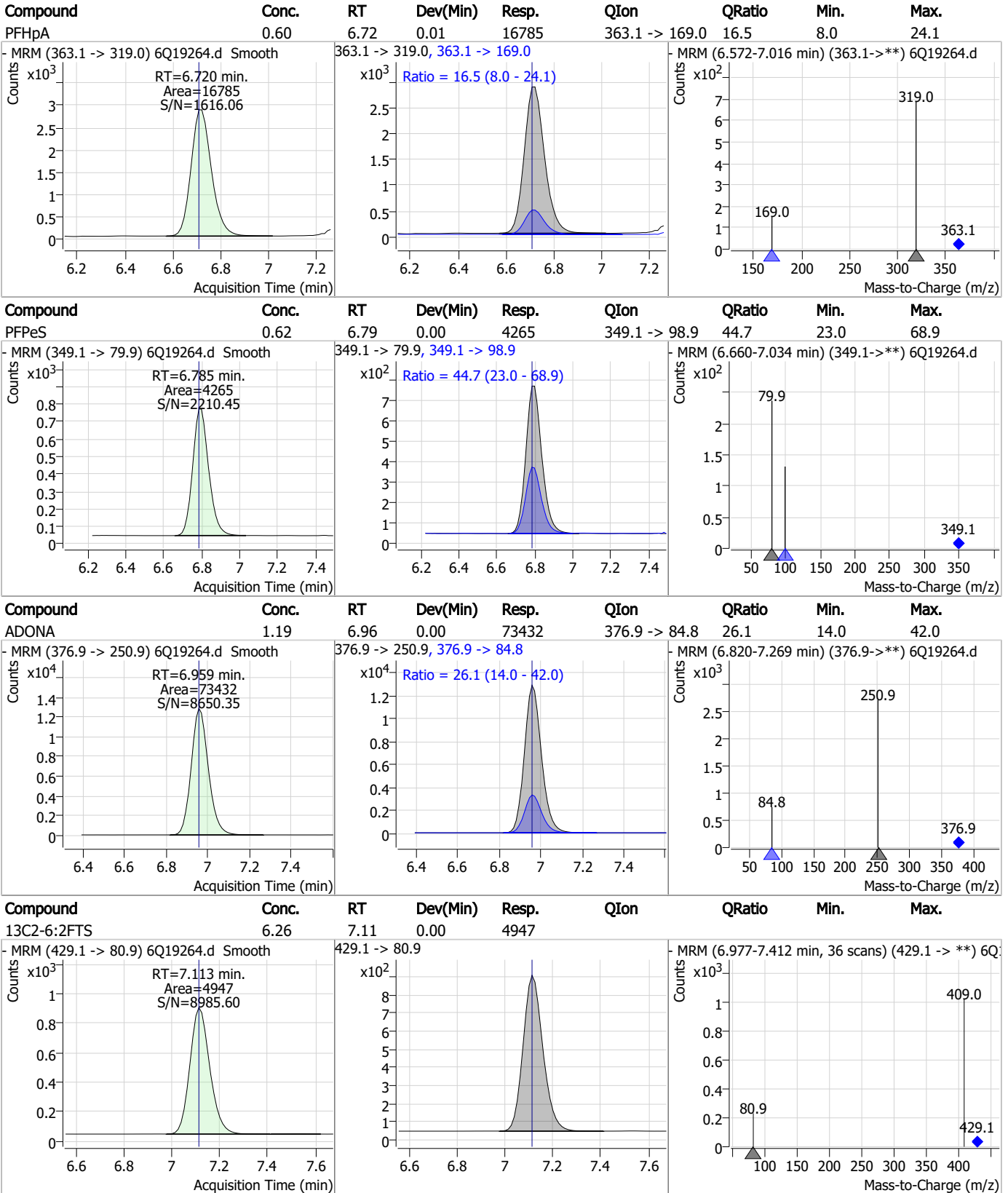
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	17.14	6.37	0.01	70741	341.0 -> 217.0	67.9	37.3	111.9



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



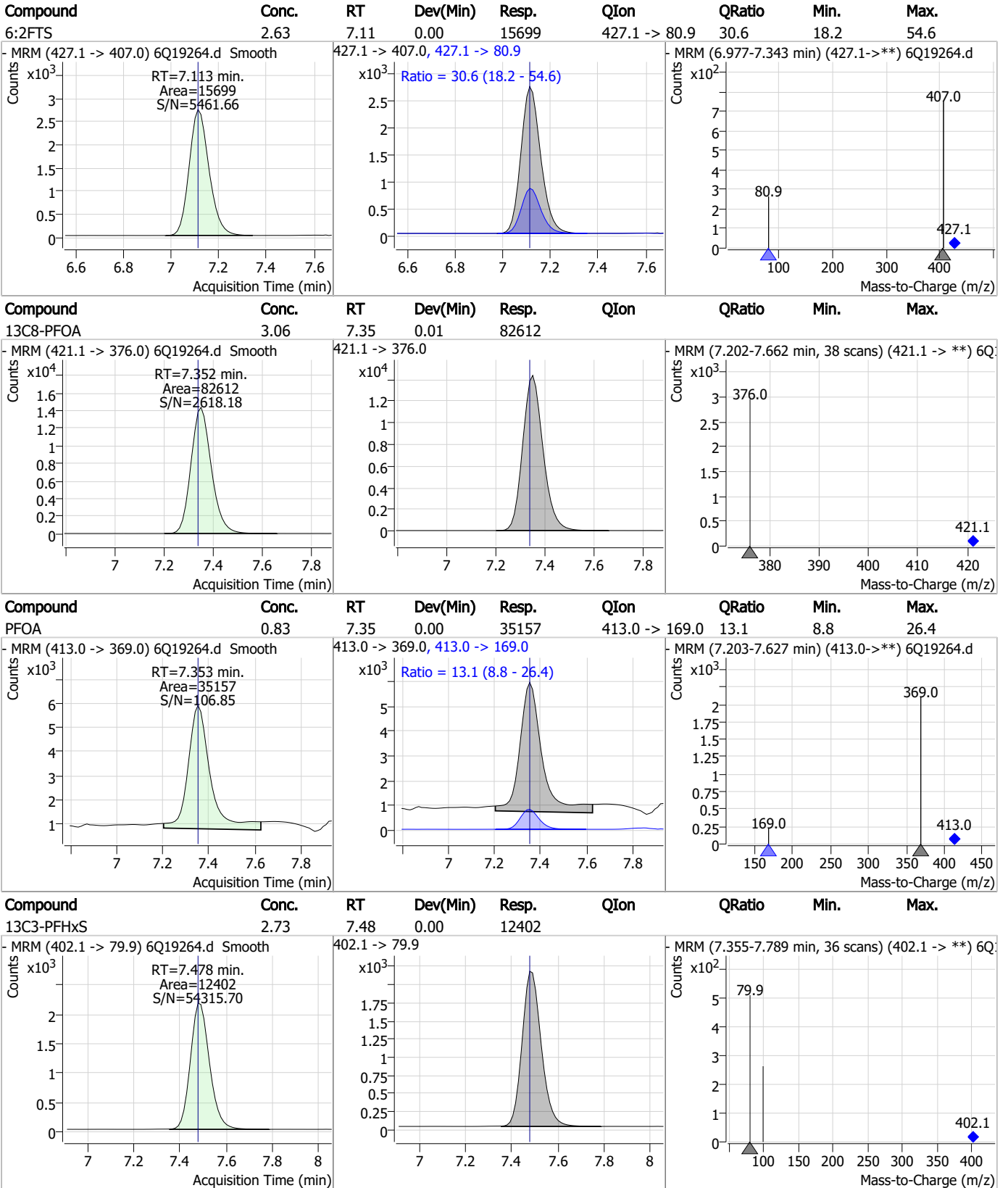
Perfluorinated Compounds by LC/MS/MS



7.3.2

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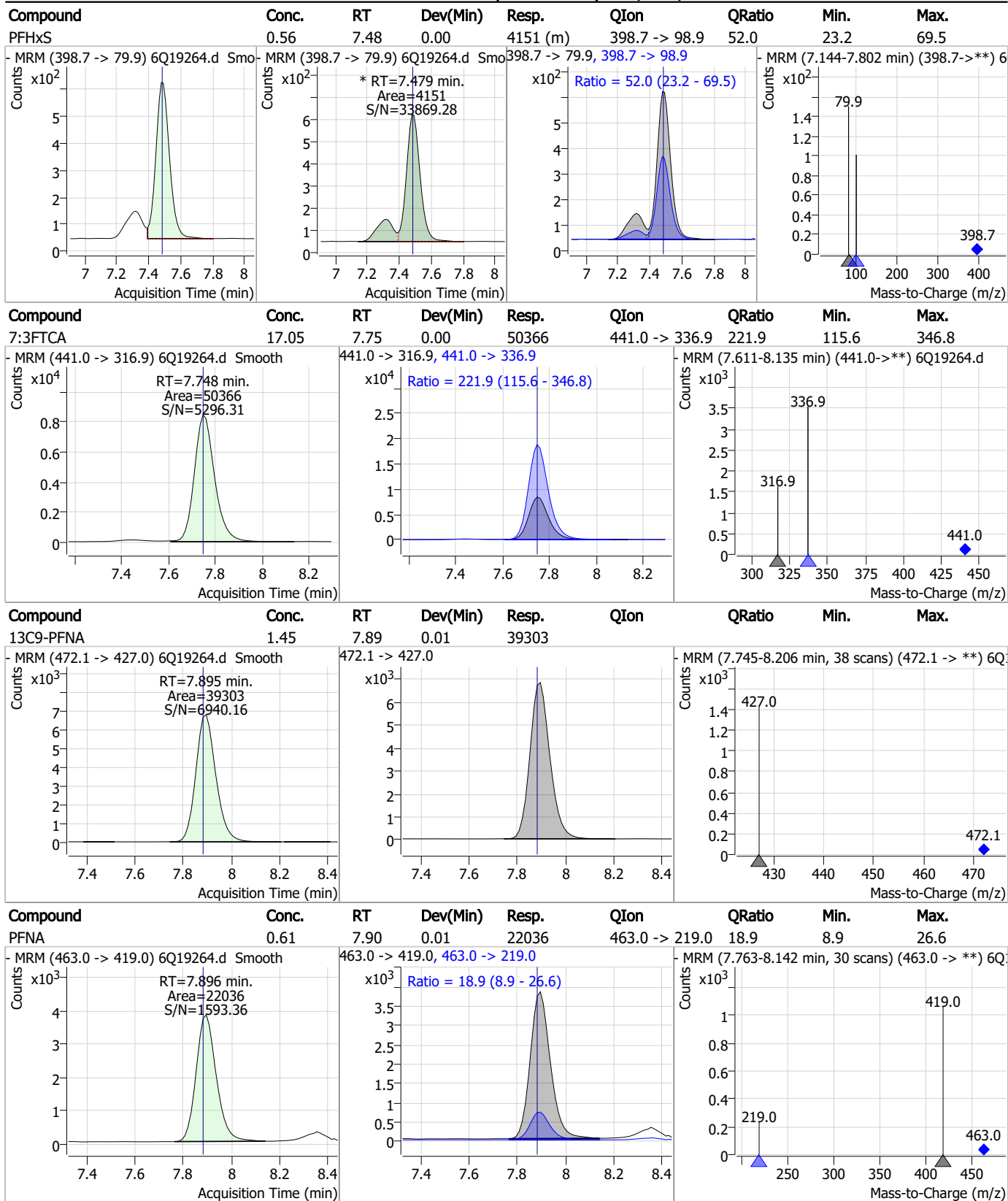
Perfluorinated Compounds by LC/MS/MS



7.3.2

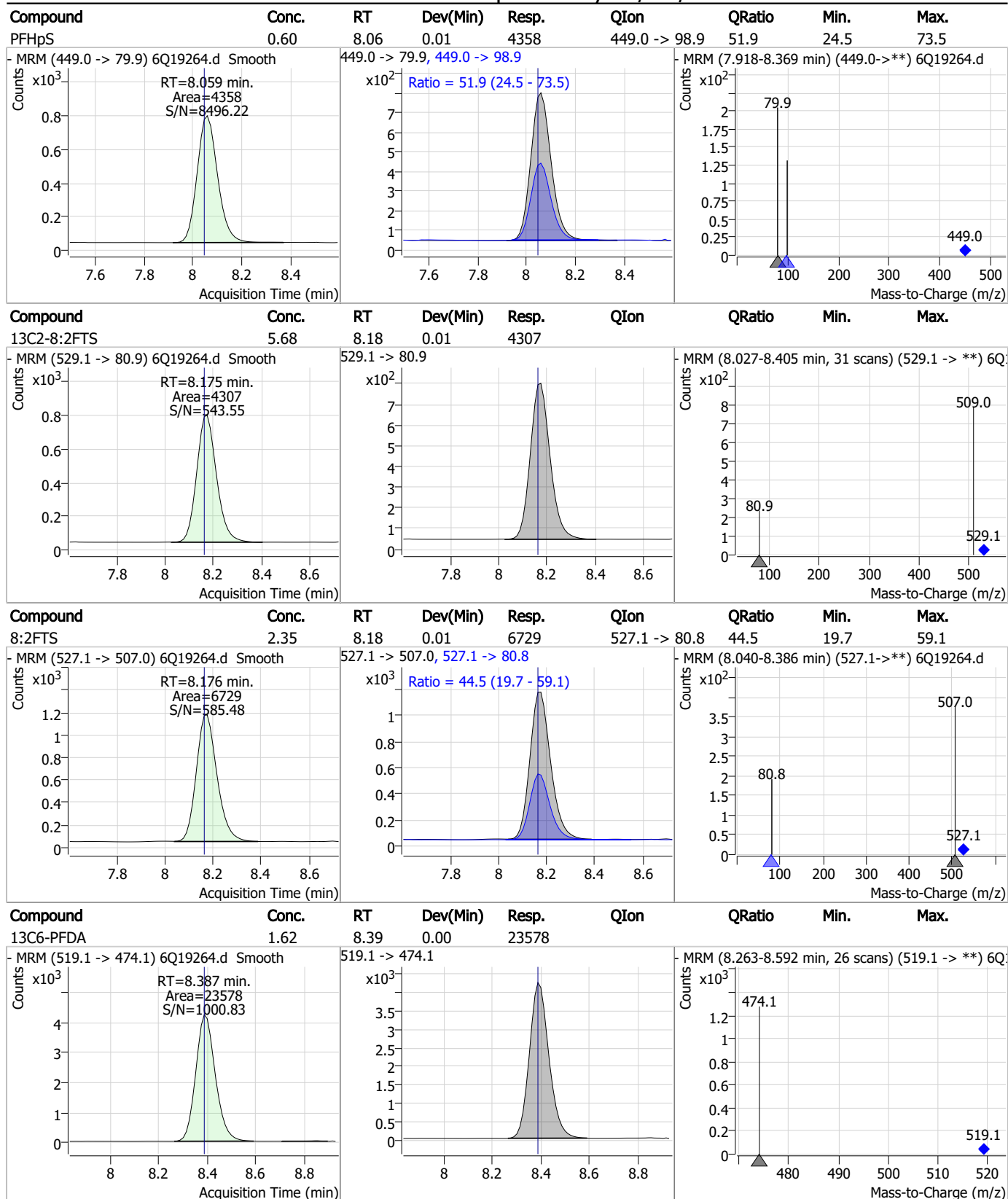


Perfluorinated Compounds by LC/MS/MS



7.3.2
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Perfluorinated Compounds by LC/MS/MS

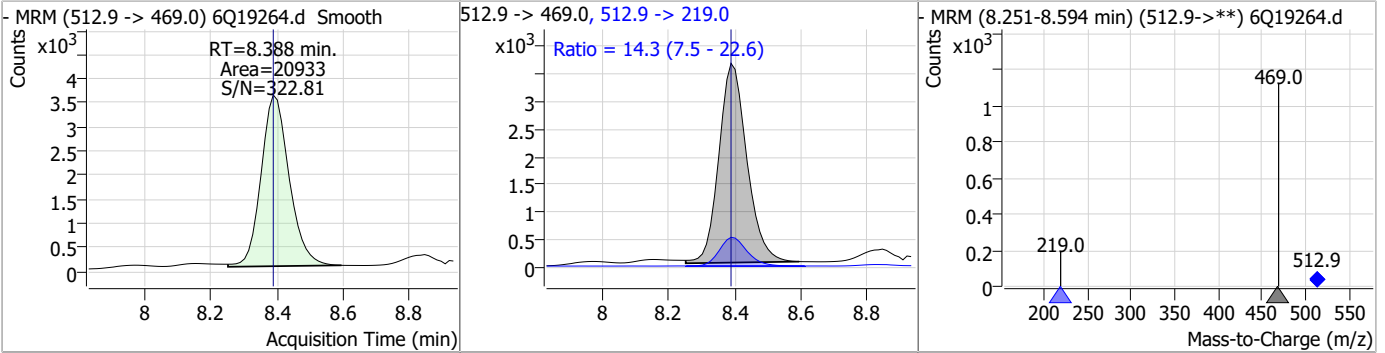


7.3.2
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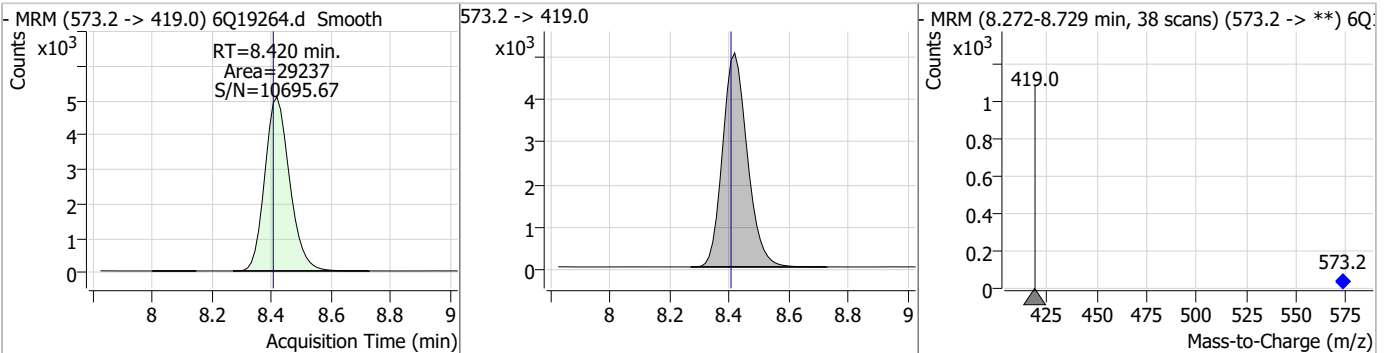


Perfluorinated Compounds by LC/MS/MS

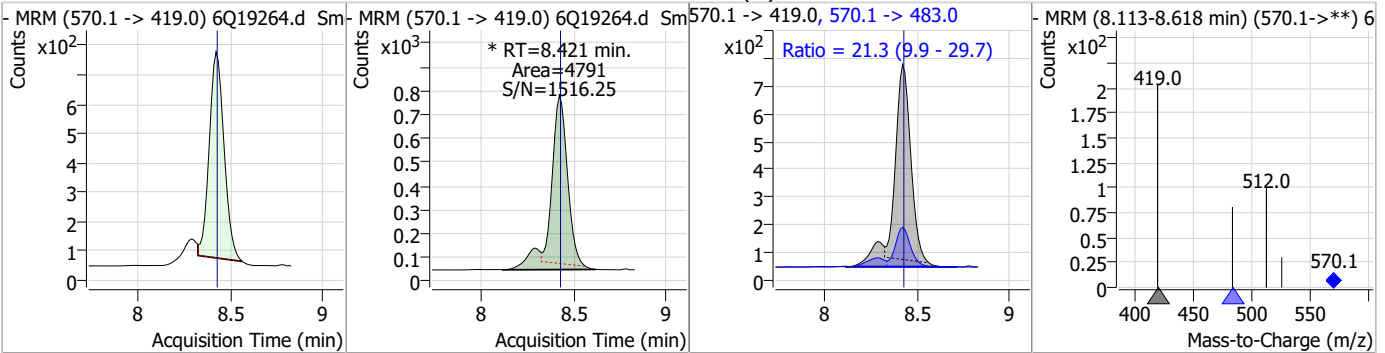
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.59	8.39	0.00	20933	512.9 -> 219.0	14.3	7.5	22.6



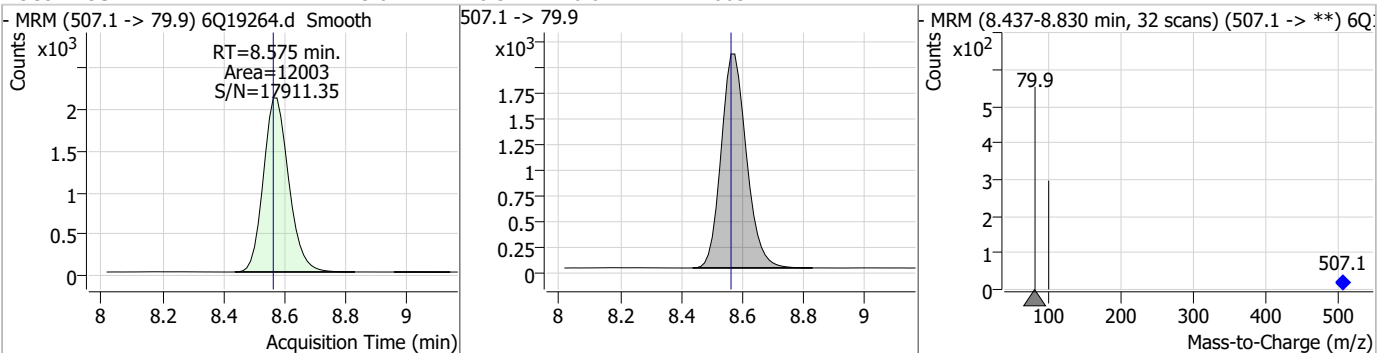
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.72	8.42	0.01	29237				



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

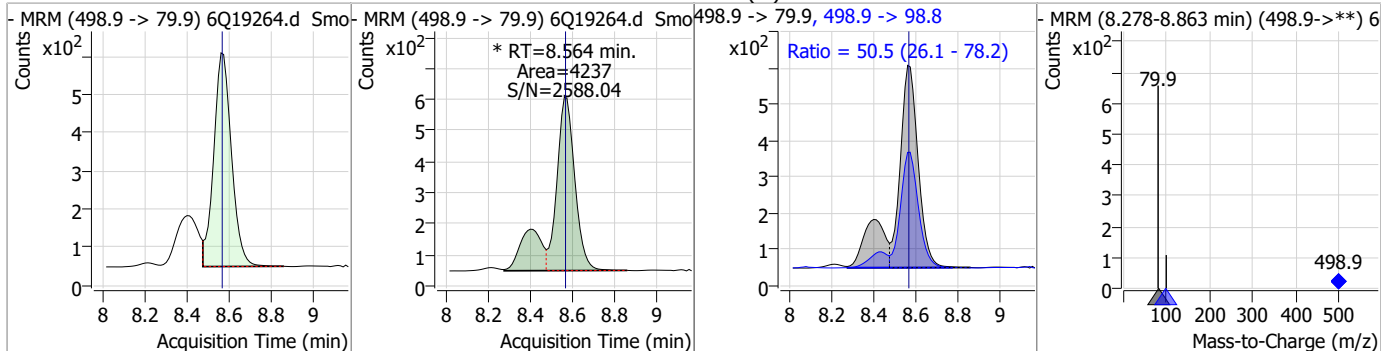


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	3.01	8.57	0.01	12003				

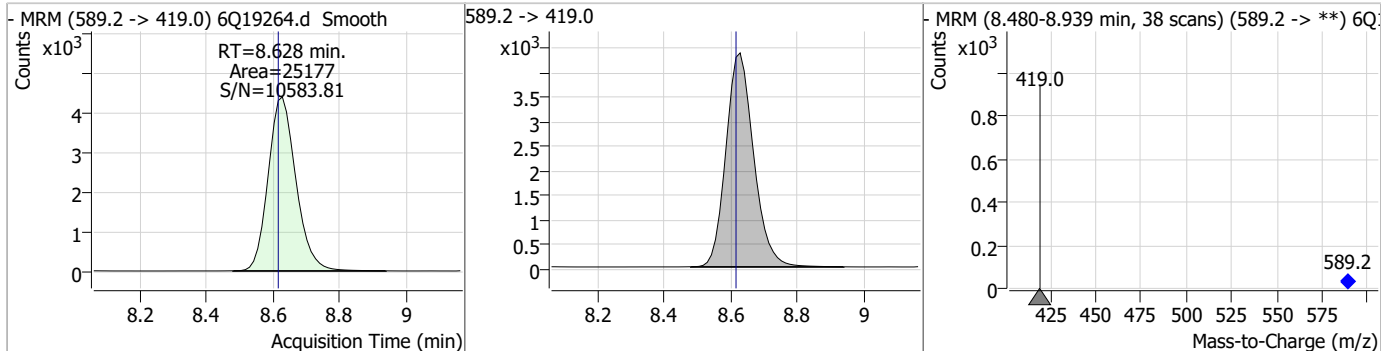


Perfluorinated Compounds by LC/MS/MS

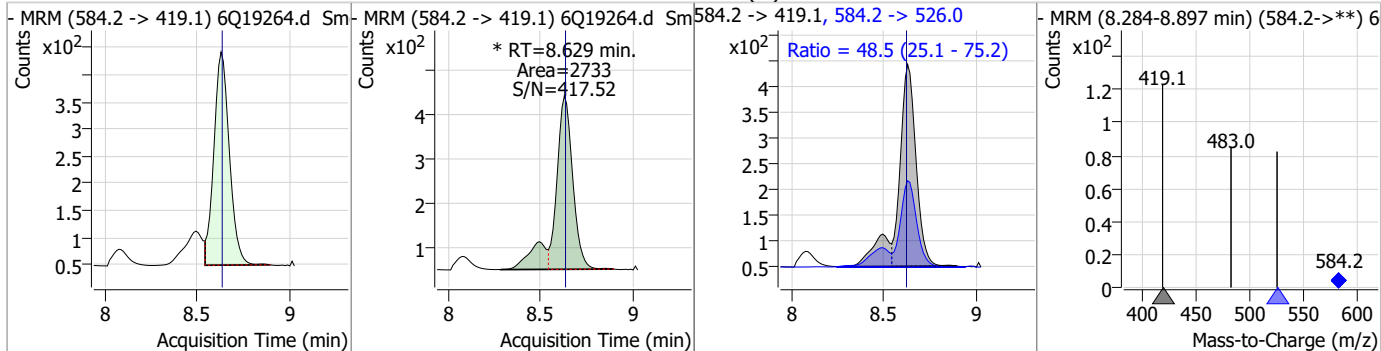
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.60	8.56	0.00	4237 (m)	498.9 -> 98.8	50.5	26.1	78.2



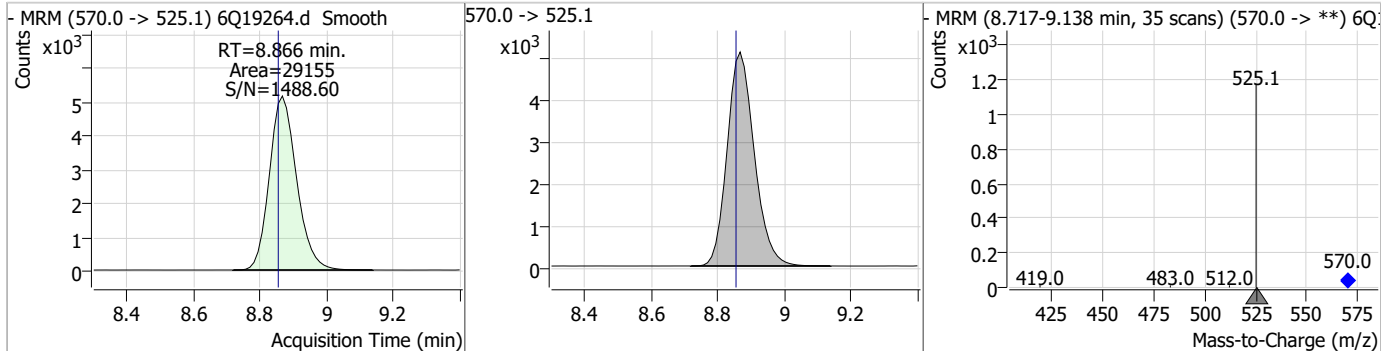
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.84	8.63	0.01	25177				



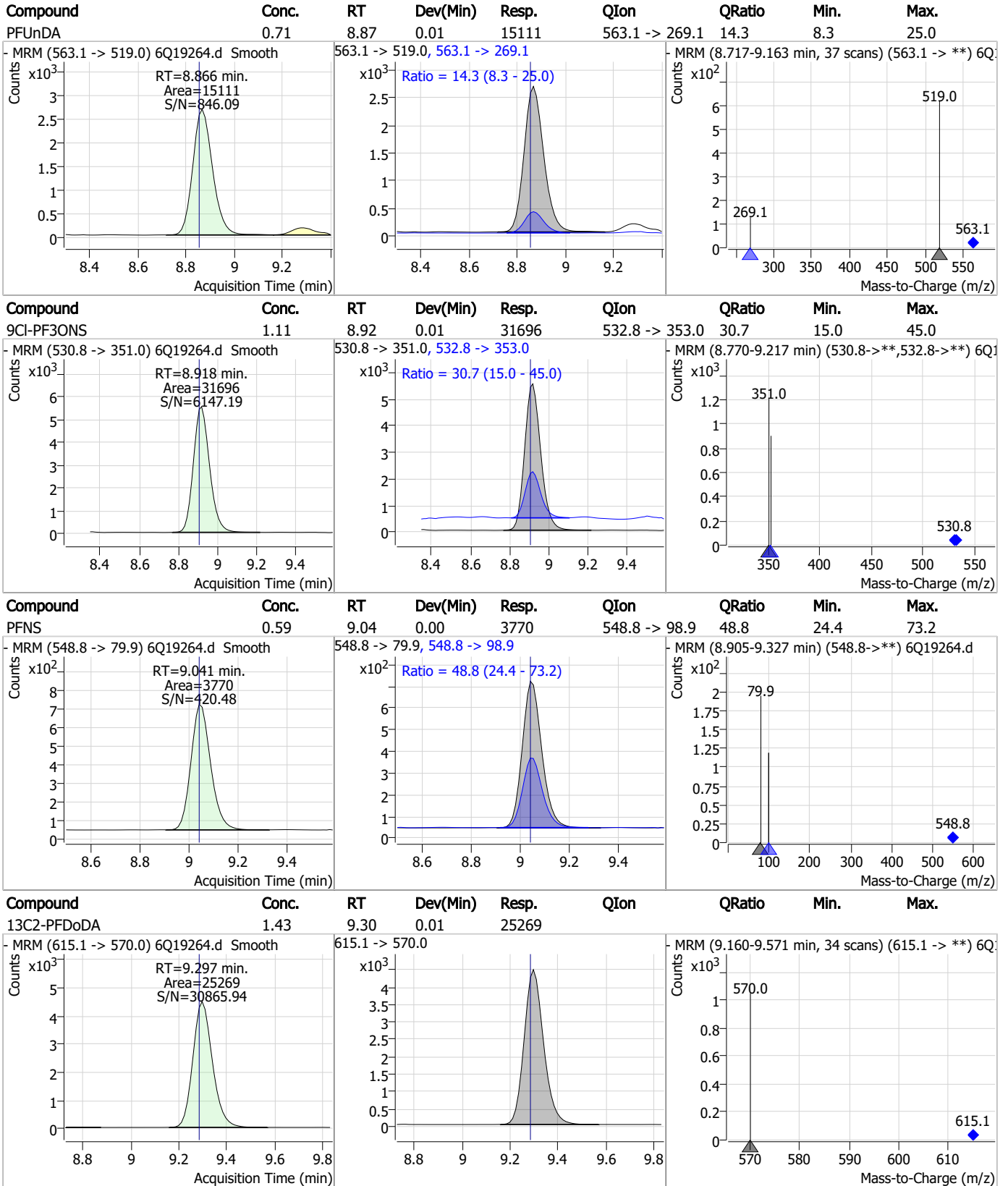
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.65	8.63	0.00	2733 (m)	584.2 -> 526.0	48.5	25.1	75.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.42	8.87	0.01	29155				



Perfluorinated Compounds by LC/MS/MS

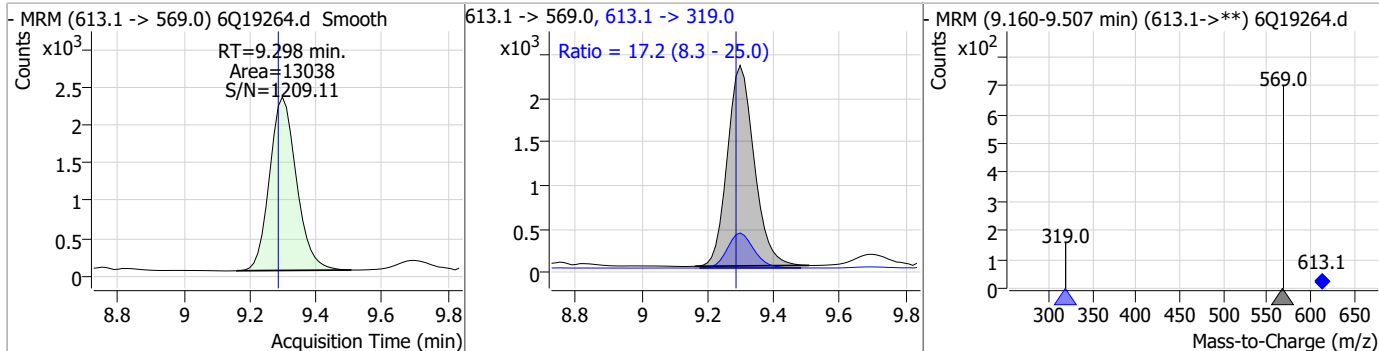


7.3.2

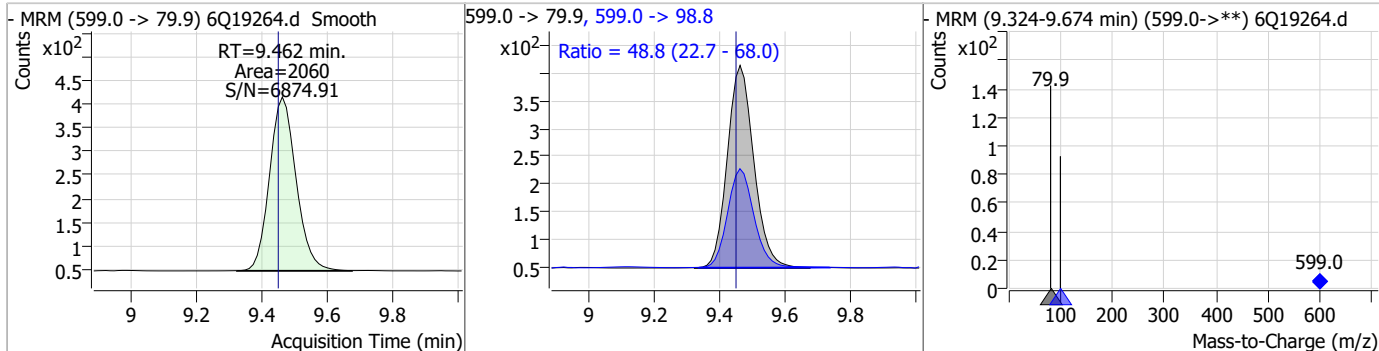
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Perfluorinated Compounds by LC/MS/MS

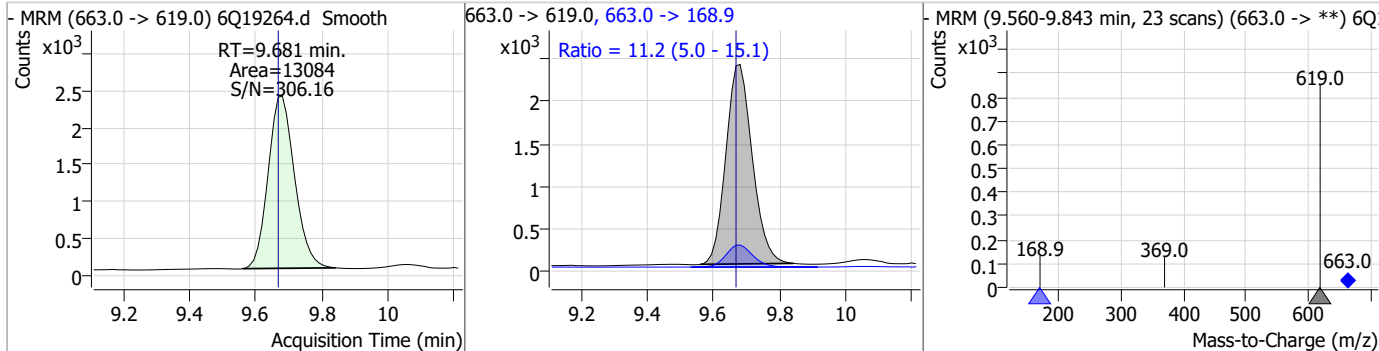
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	0.63	9.30	0.01	13038	613.1 -> 319.0	17.2	8.3	25.0



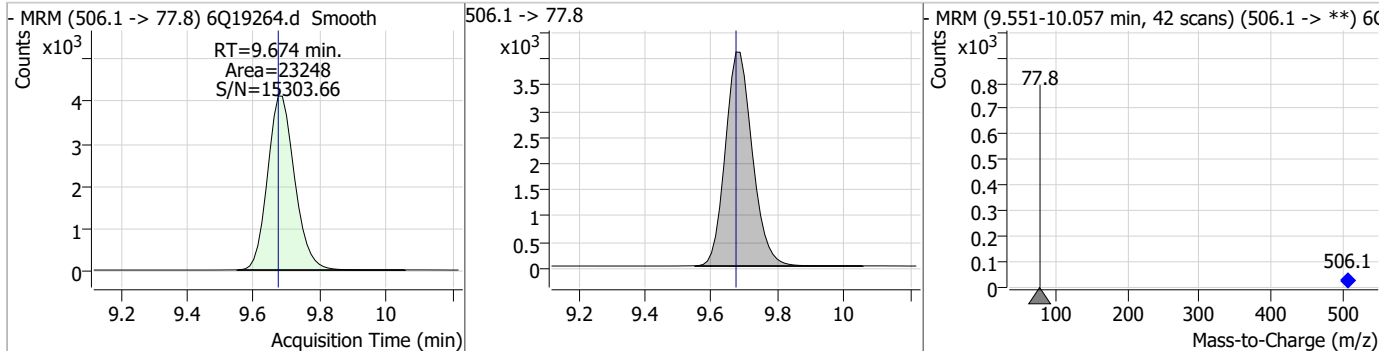
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDs	0.57	9.46	0.01	2060	599.0 -> 98.8	48.8	22.7	68.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.63	9.68	0.01	13084	663.0 -> 168.9	11.2	5.0	15.1



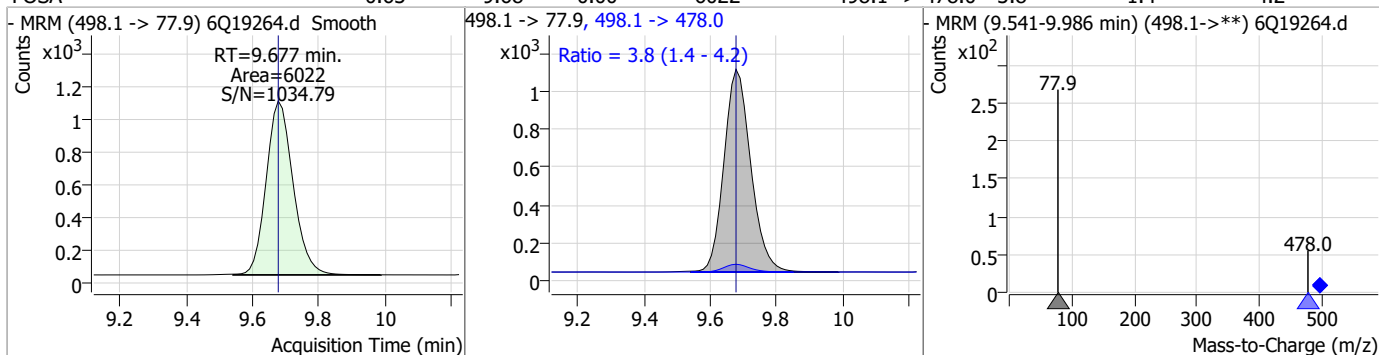
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.30	9.67	0.00	23248	506.1 -> 77.8			



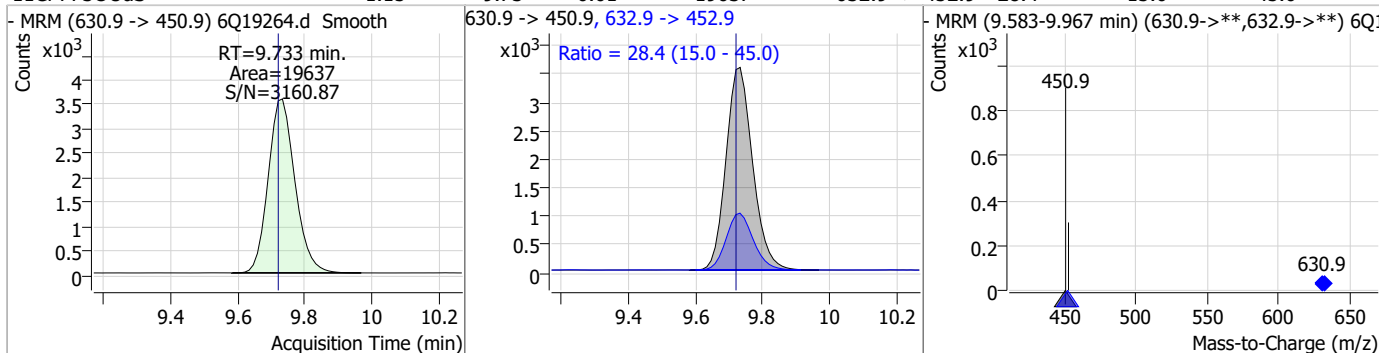
7.3.2
7

Perfluorinated Compounds by LC/MS/MS

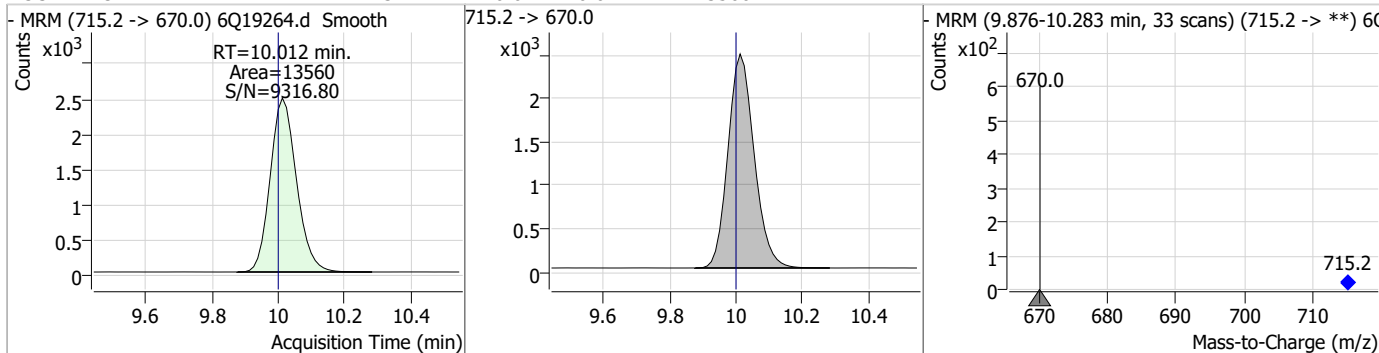
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.63	9.68	0.00	6022	498.1 -> 478.0	3.8	1.4	4.2



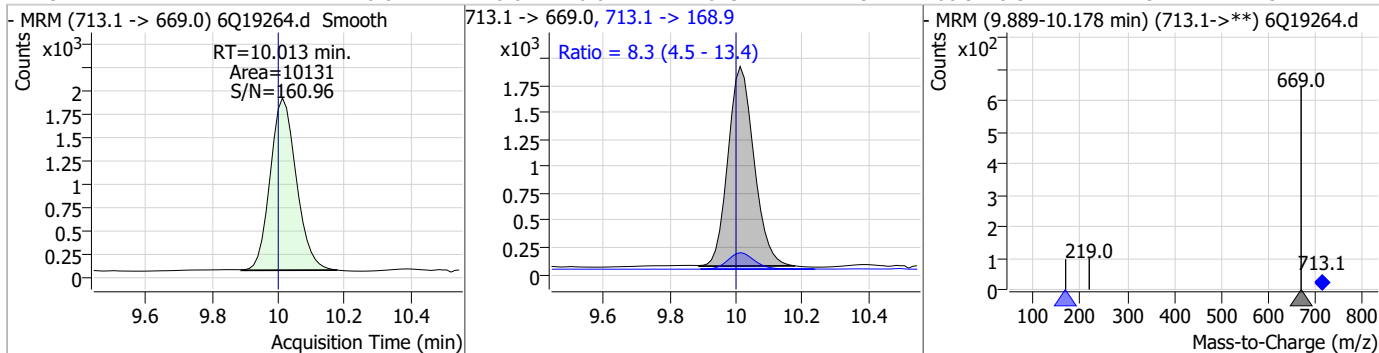
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	1.15	9.73	0.01	19637	630.9 -> 452.9	28.4	15.0	45.0



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



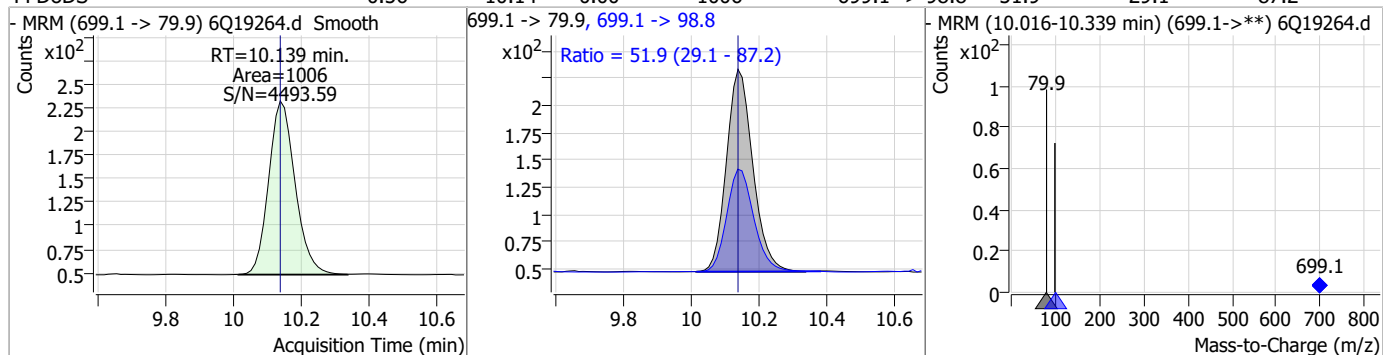
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.62	10.01	0.01	10131	713.1 -> 168.9	8.3	4.5	13.4



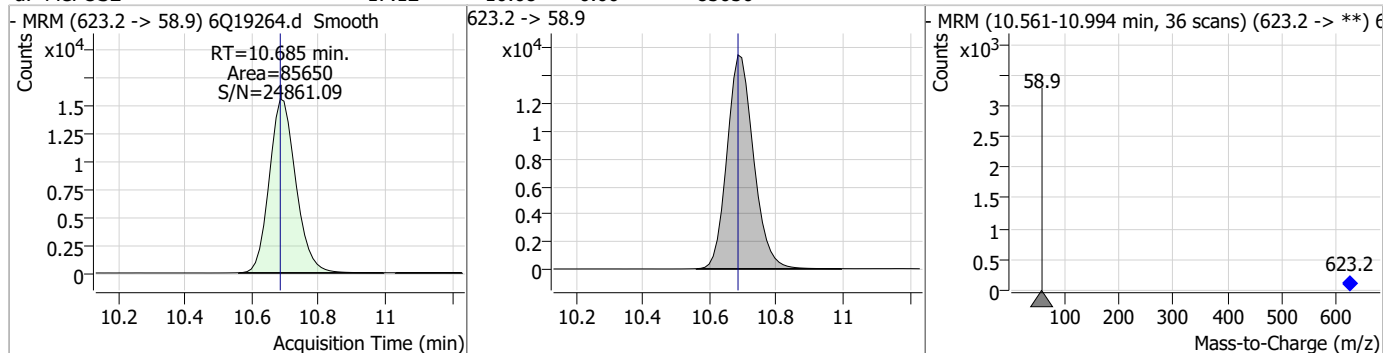
7.3.2
7

Perfluorinated Compounds by LC/MS/MS

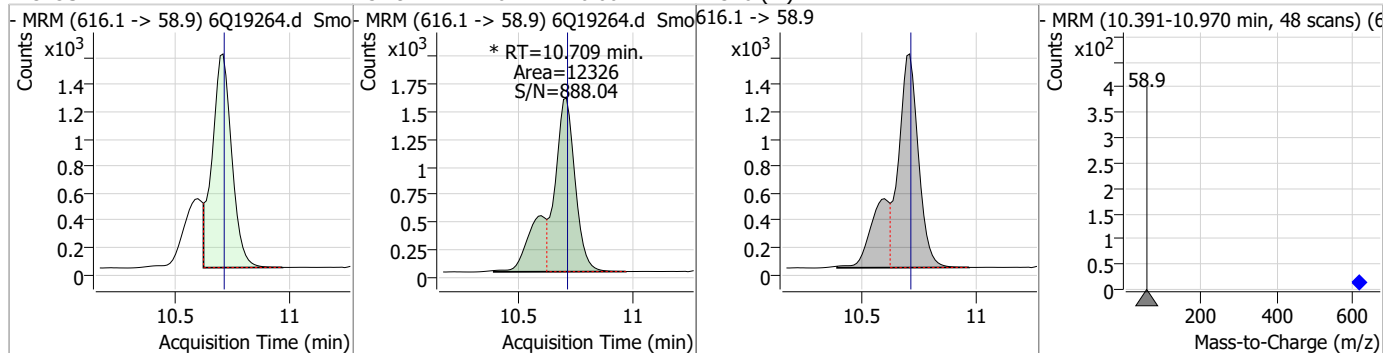
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.56	10.14	0.00	1006	699.1 -> 98.8	51.9	29.1	87.2



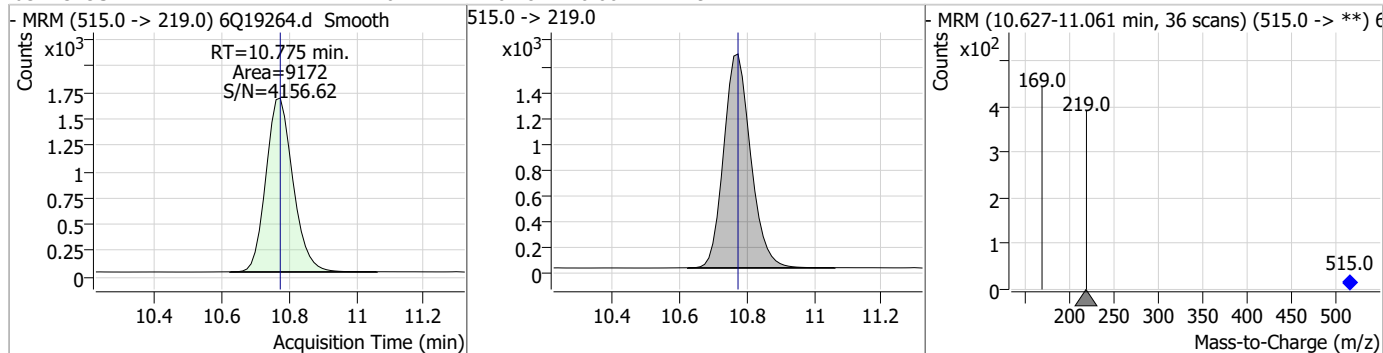
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	17.12	10.68	0.00	85650				



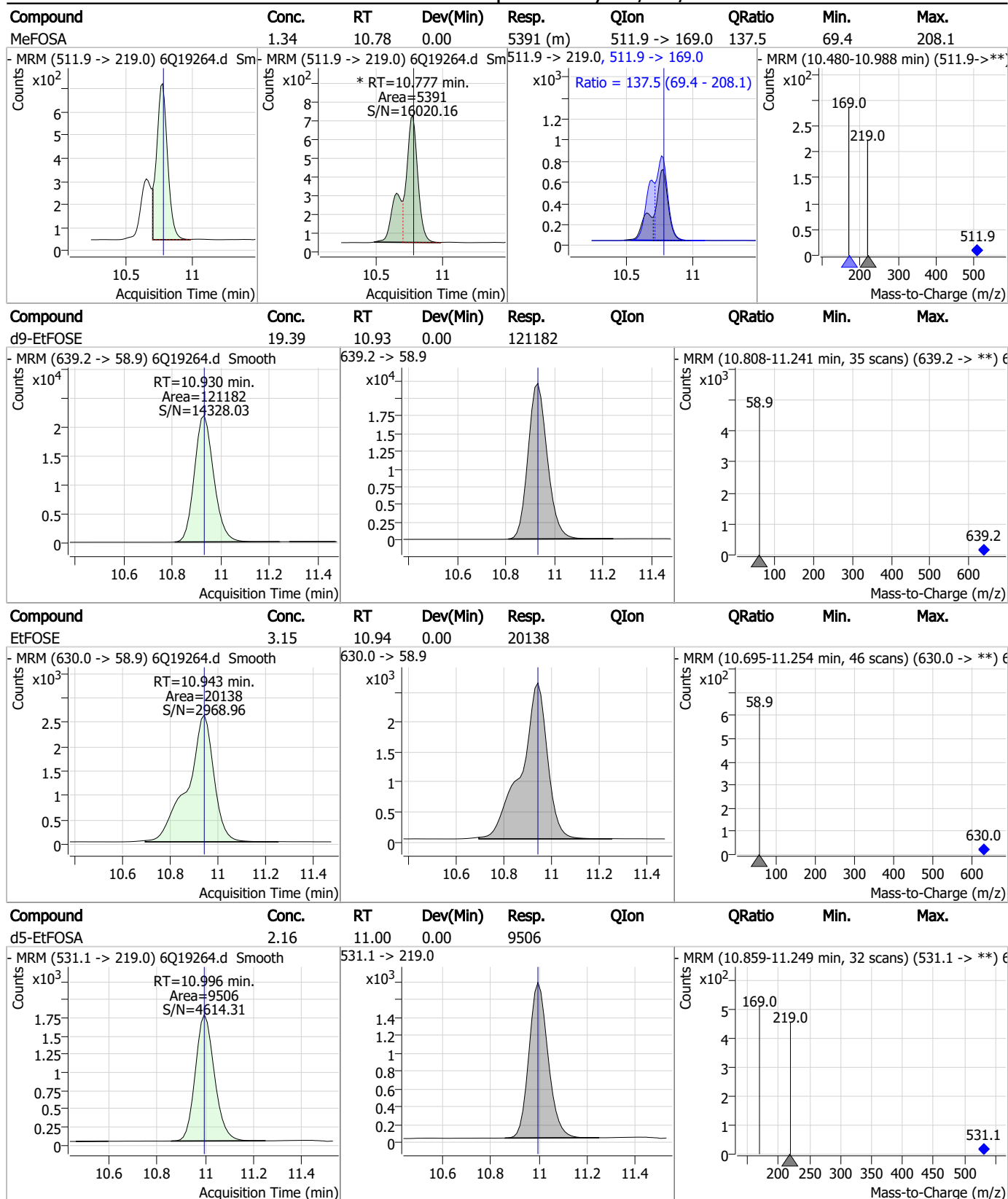
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	3.29	10.71	0.00	12326 (m)				



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

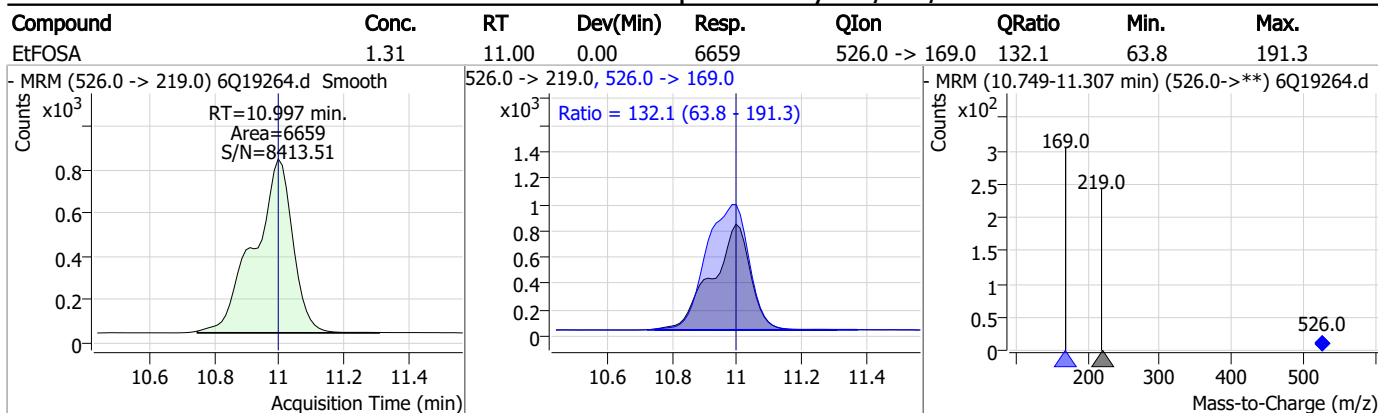


Perfluorinated Compounds by LC/MS/MS



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

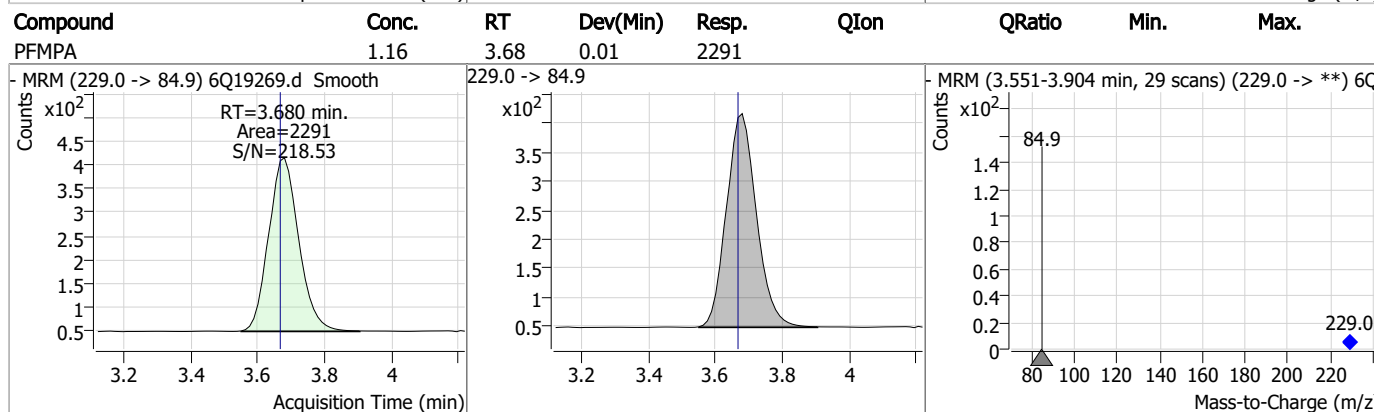
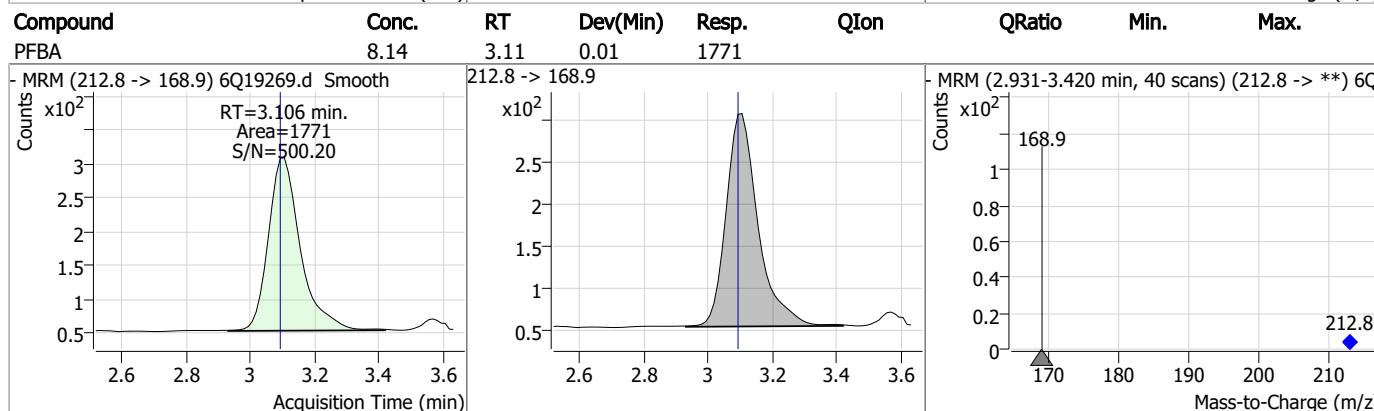
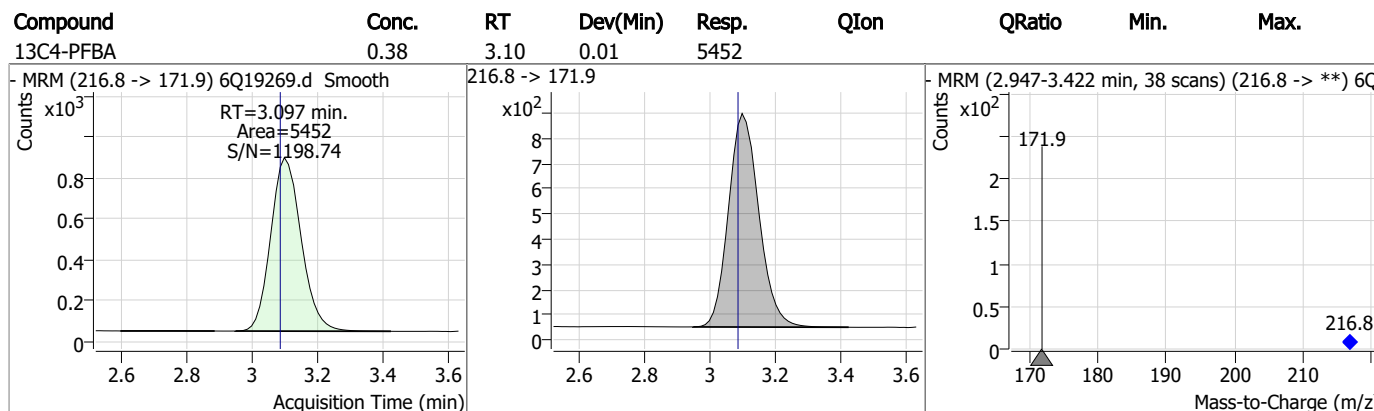
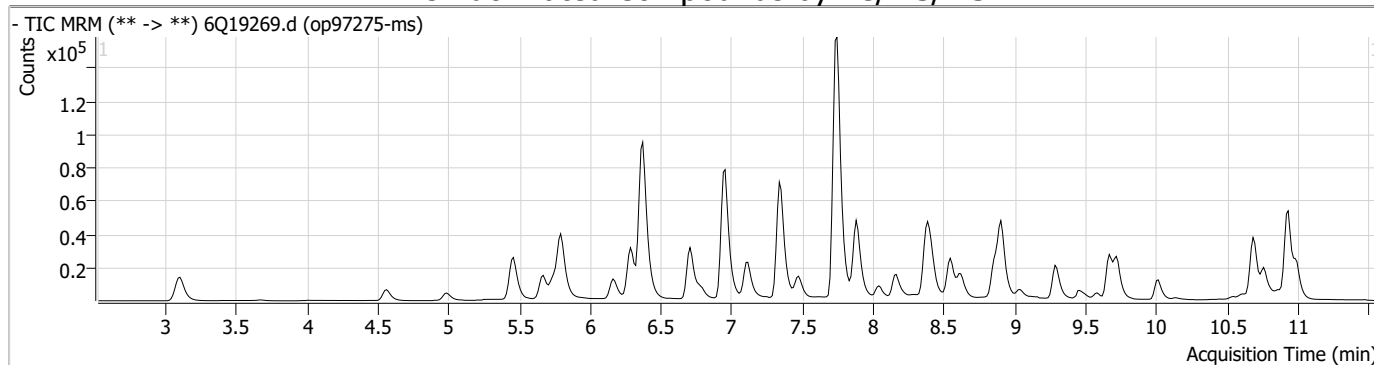
Perfluorinated Compounds by LC/MS/MS

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

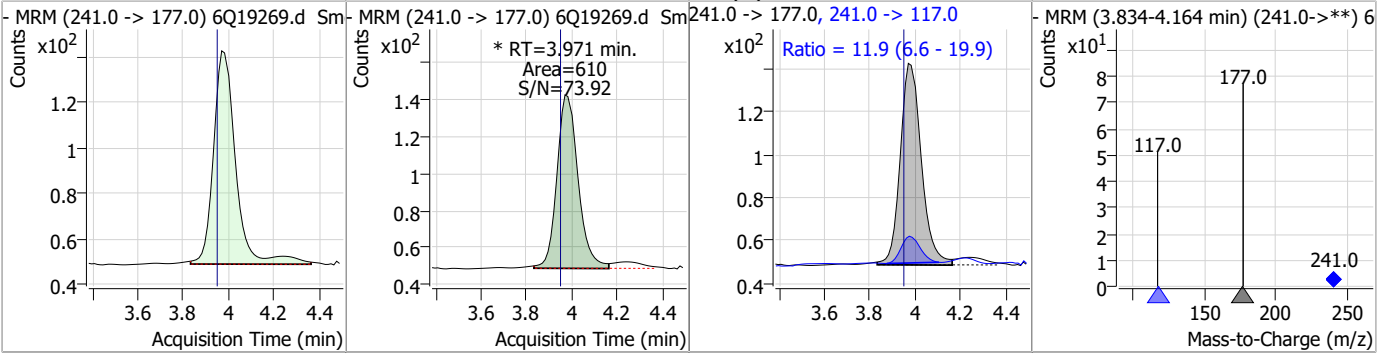
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Perfluorinated Compounds by LC/MS/MS

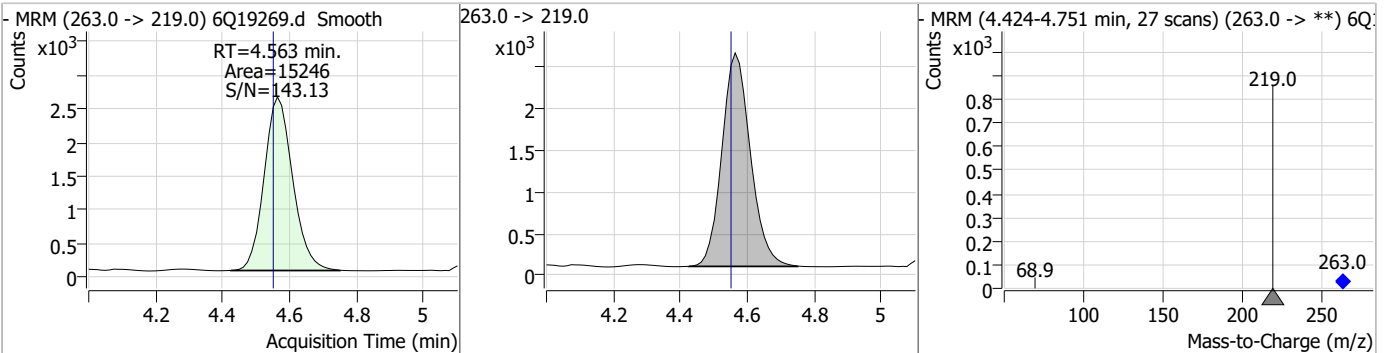


Perfluorinated Compounds by LC/MS/MS

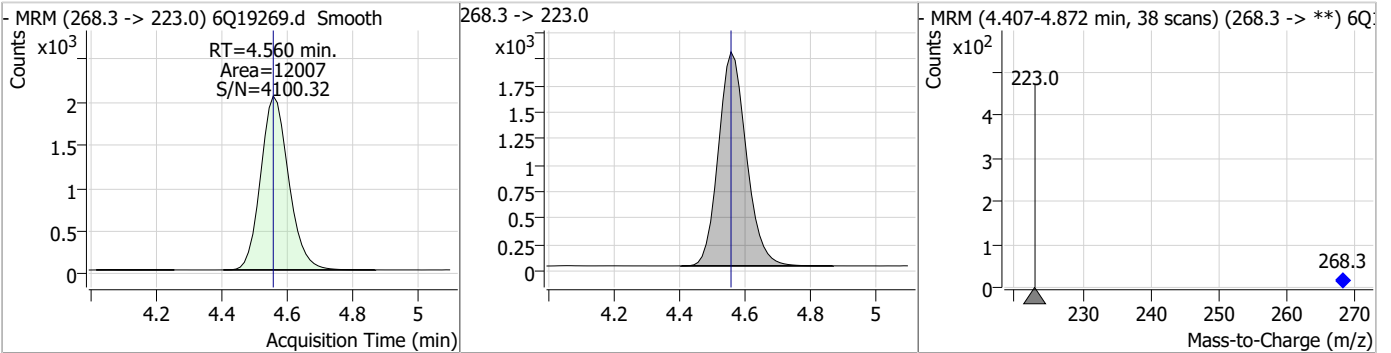
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	2.53	3.97	0.02	610 (m)	241.0 -> 117.0	11.9	6.6	19.9



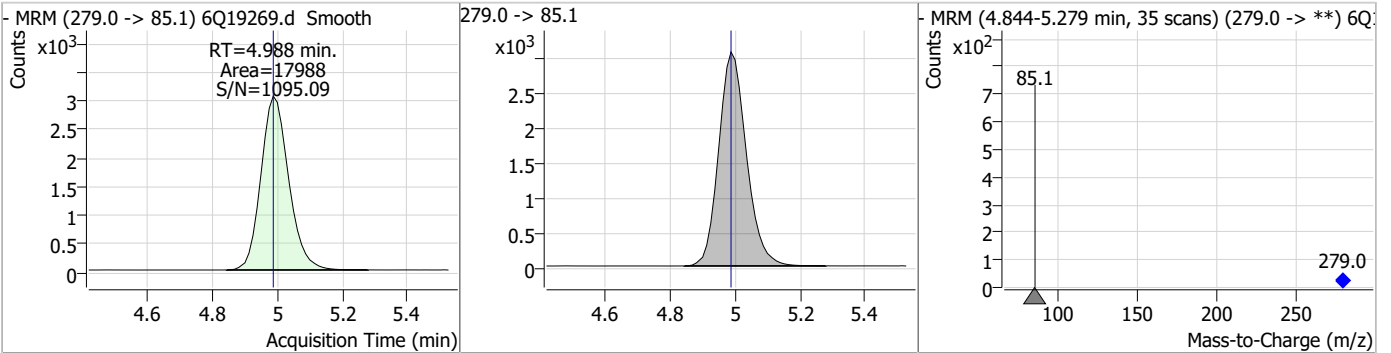
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.31	4.56	0.01	15246				



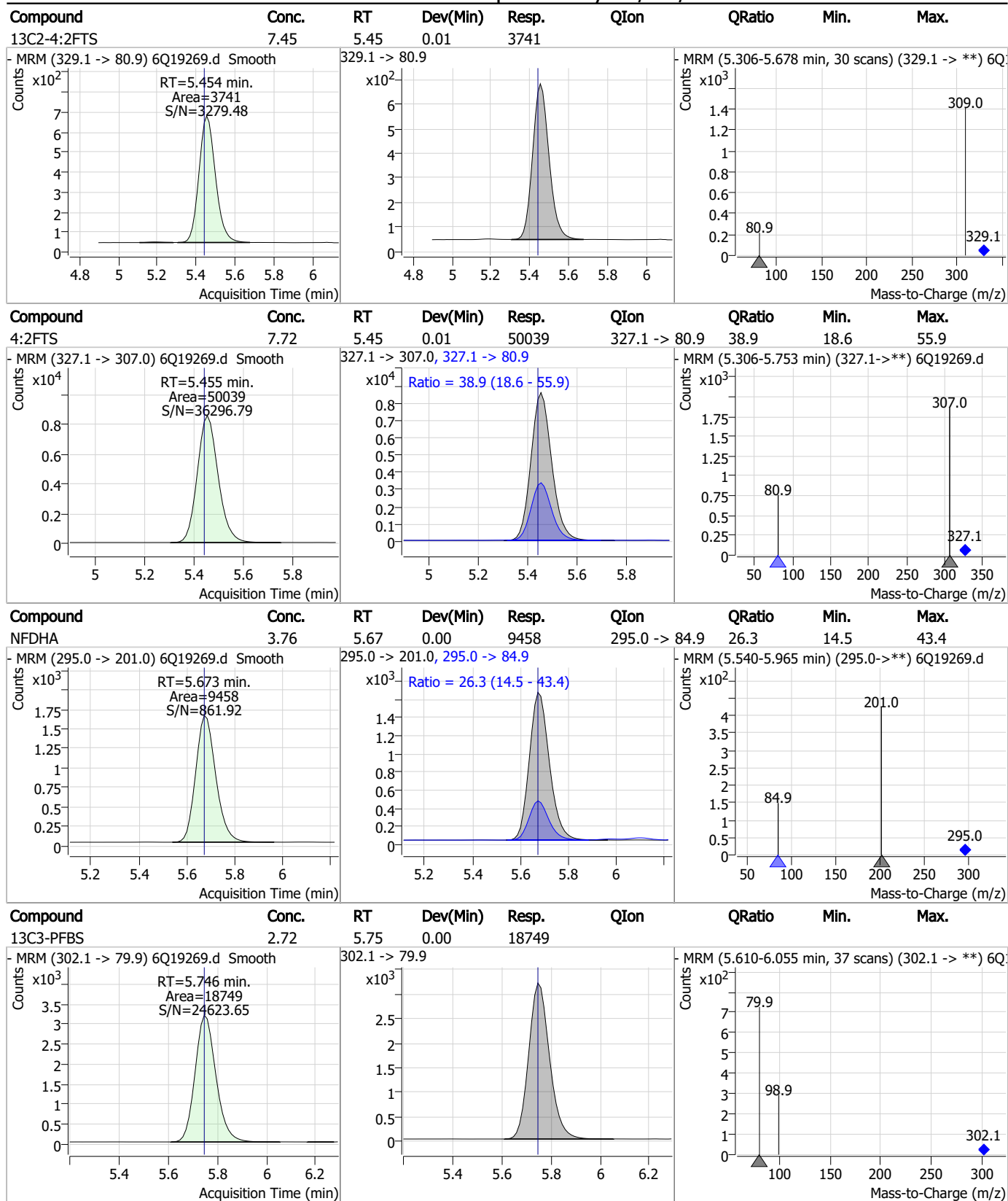
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	1.32	4.56	0.00	12007				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	7.10	4.99	0.00	17988				



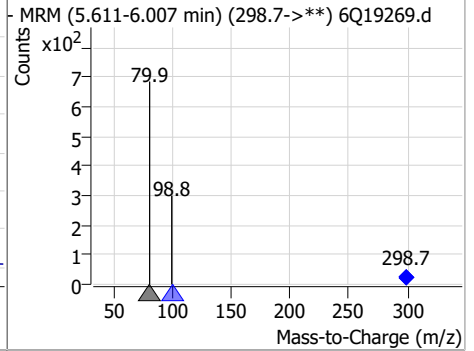
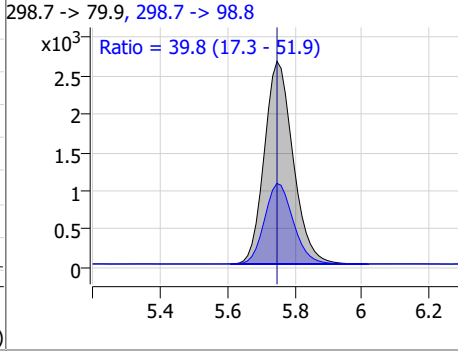
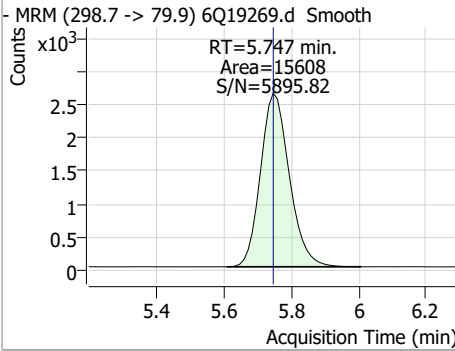
Perfluorinated Compounds by LC/MS/MS



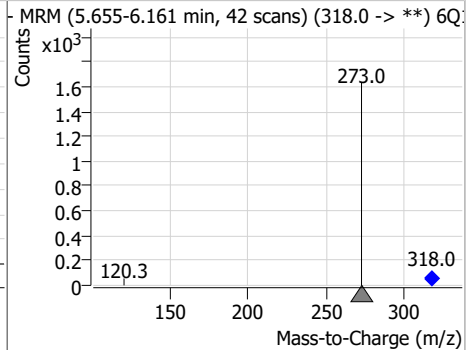
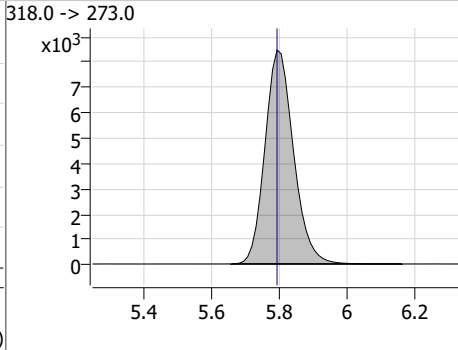
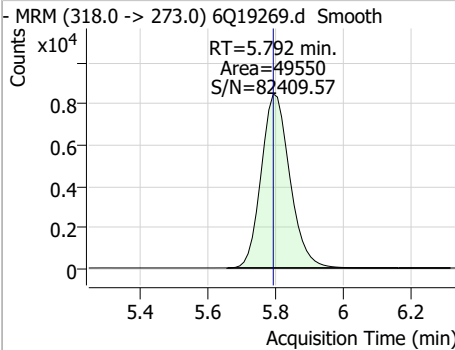
7.4.1
7

Perfluorinated Compounds by LC/MS/MS

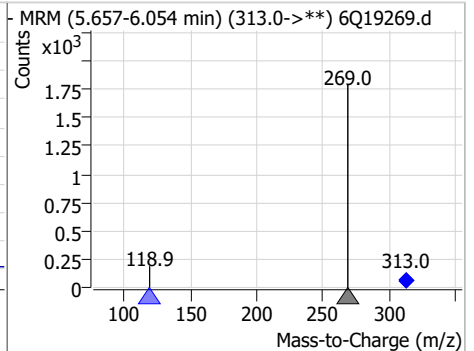
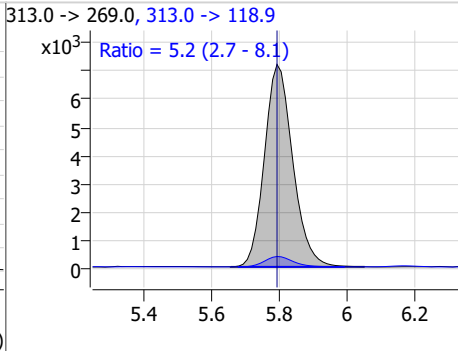
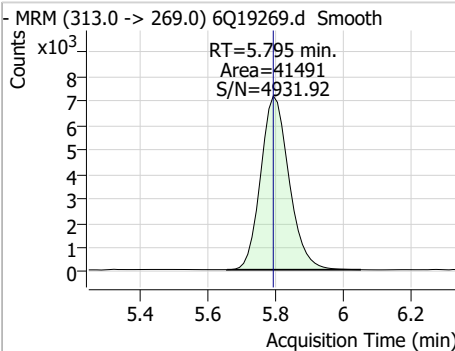
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.90	5.75	0.00	15608	298.7 -> 98.8	39.8	17.3	51.9



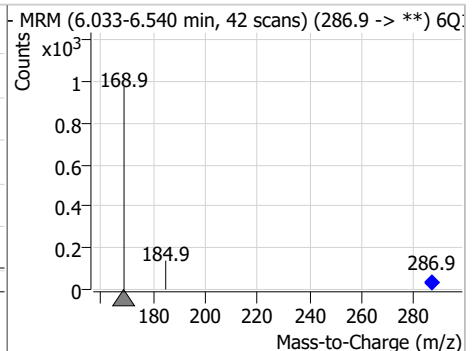
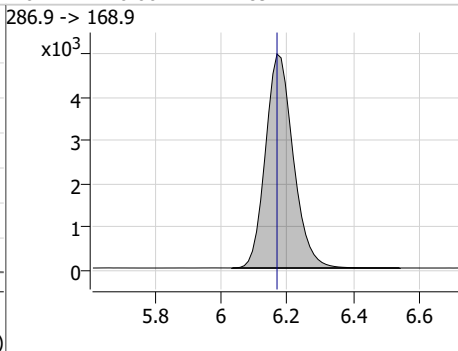
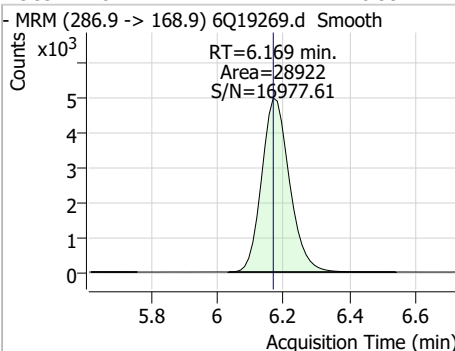
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.44	5.79	0.00	49550				



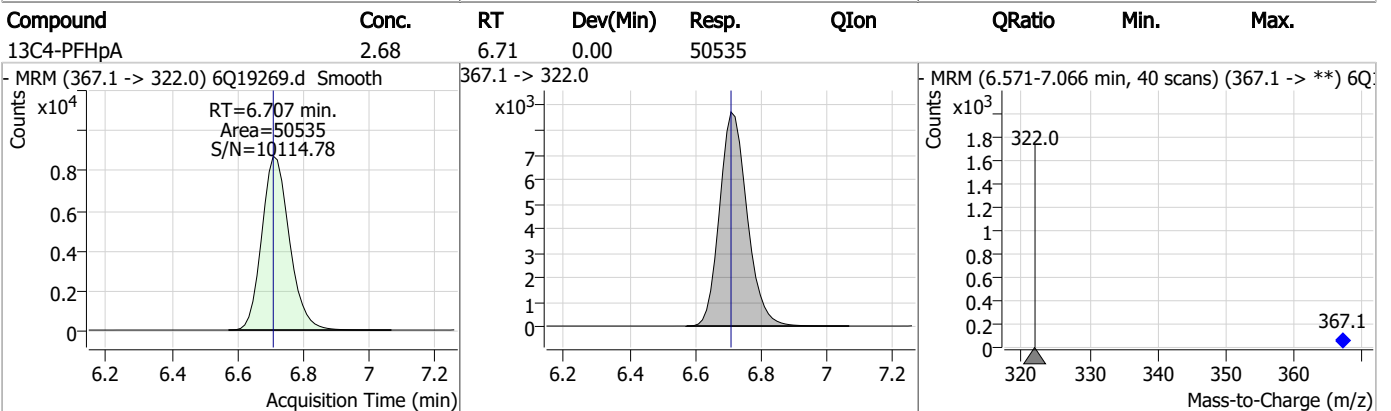
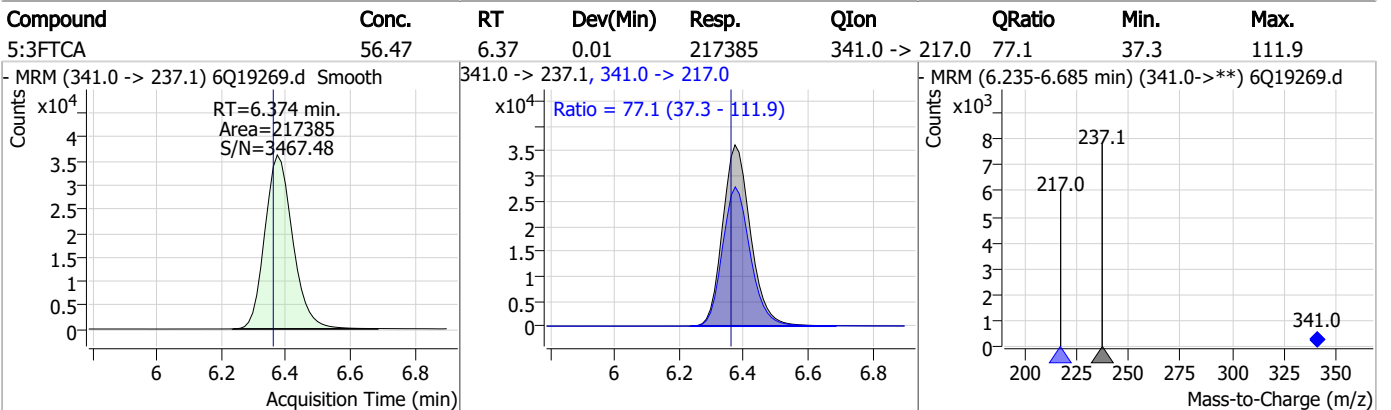
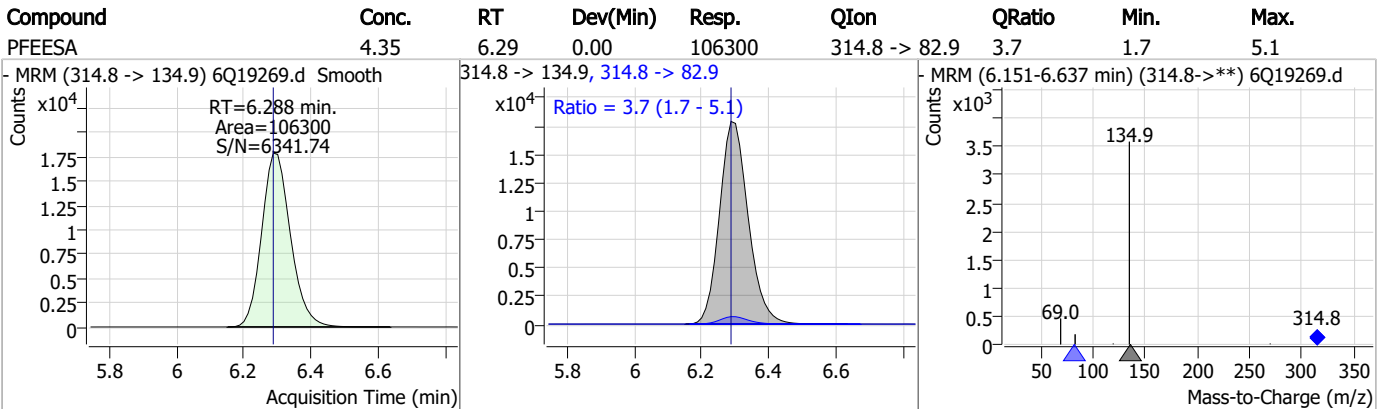
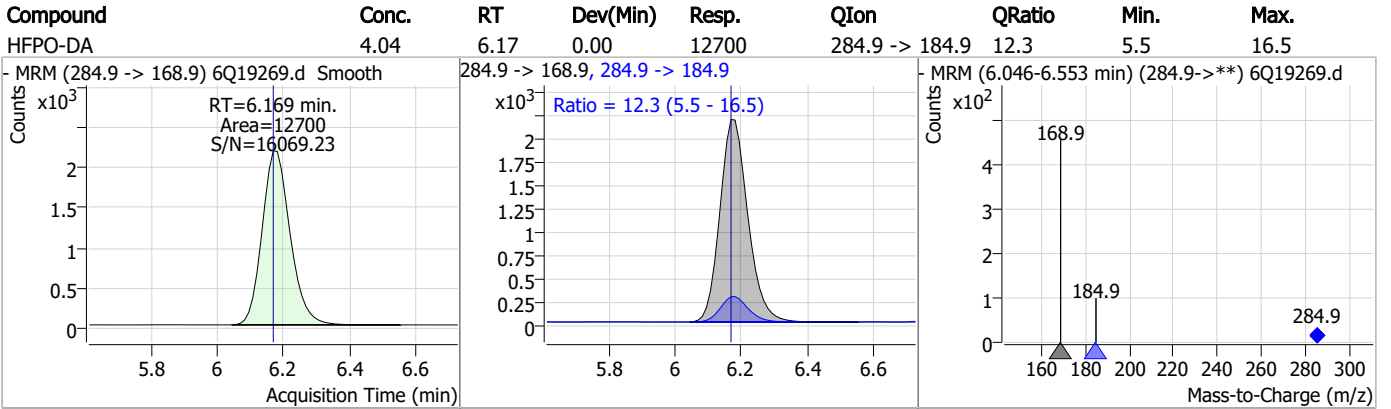
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.09	5.79	0.00	41491	313.0 -> 118.9	5.2	2.7	8.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.99	6.17	0.00	28922				



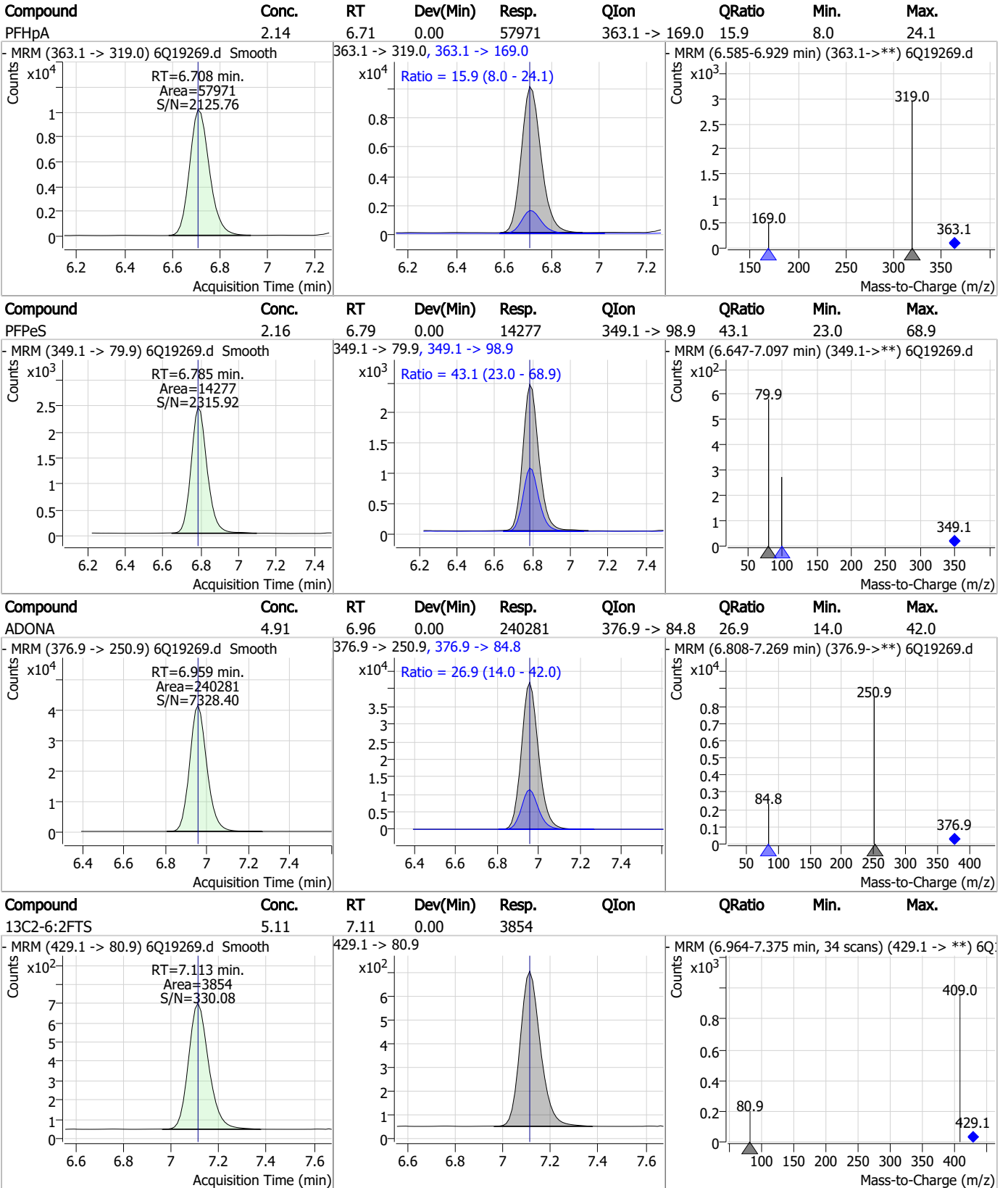
Perfluorinated Compounds by LC/MS/MS



7.4.1

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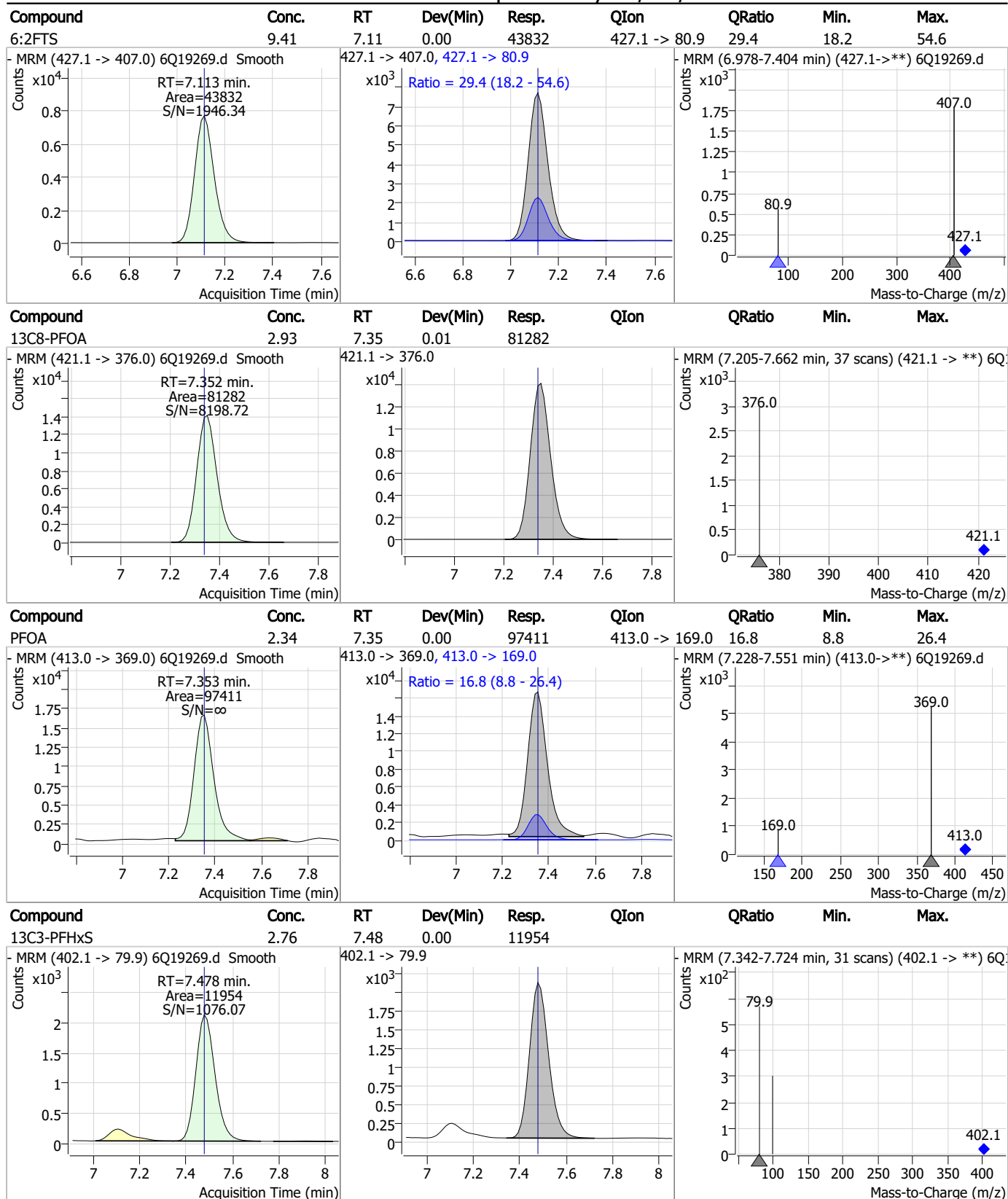
Perfluorinated Compounds by LC/MS/MS



7.4.1

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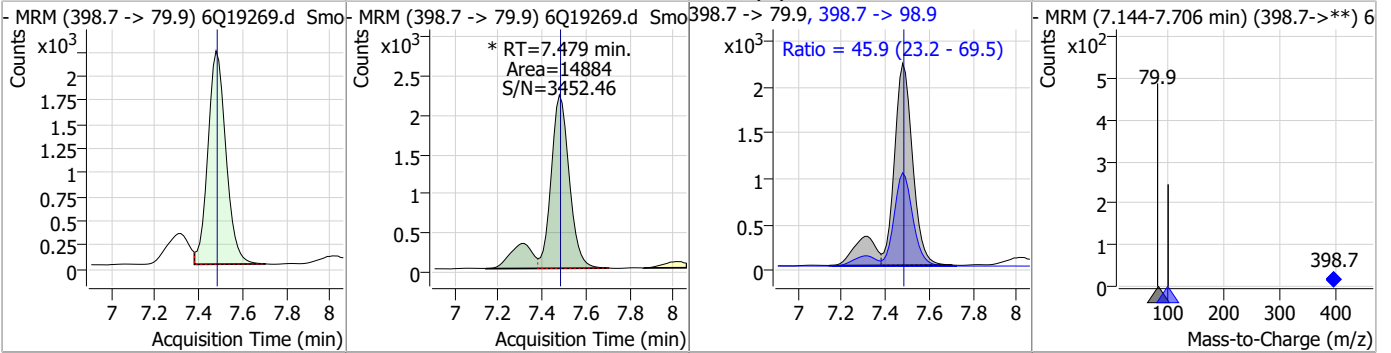
Perfluorinated Compounds by LC/MS/MS



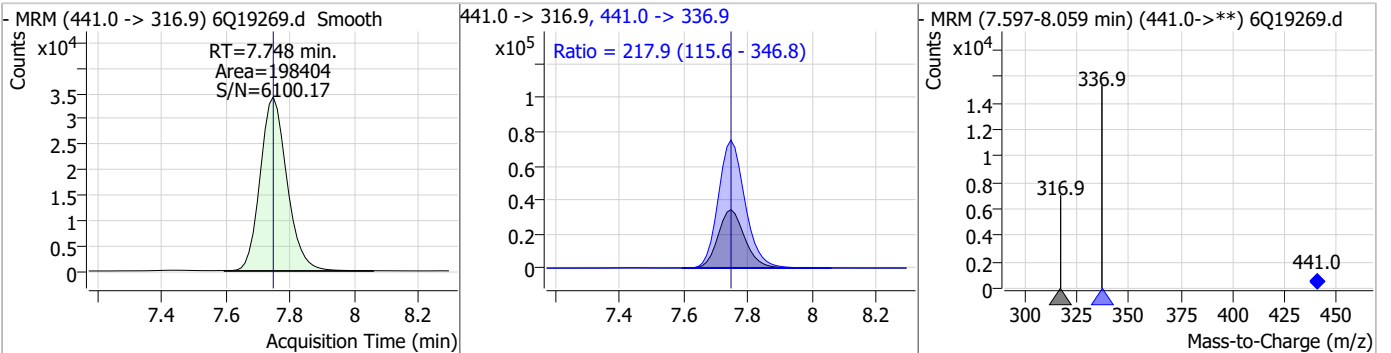
7.4.1
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Perfluorinated Compounds by LC/MS/MS

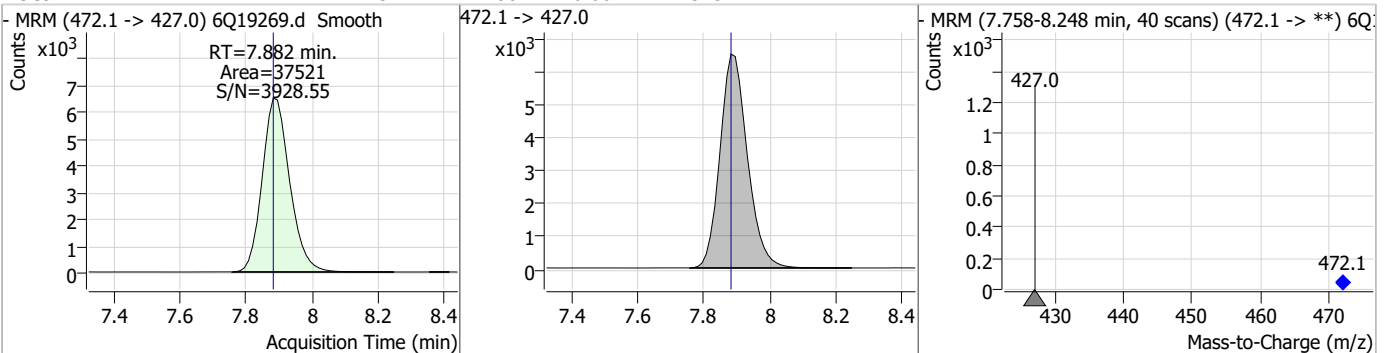
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.07	7.48	0.00	14884 (m)	398.7 -> 98.9	45.9	23.2	69.5



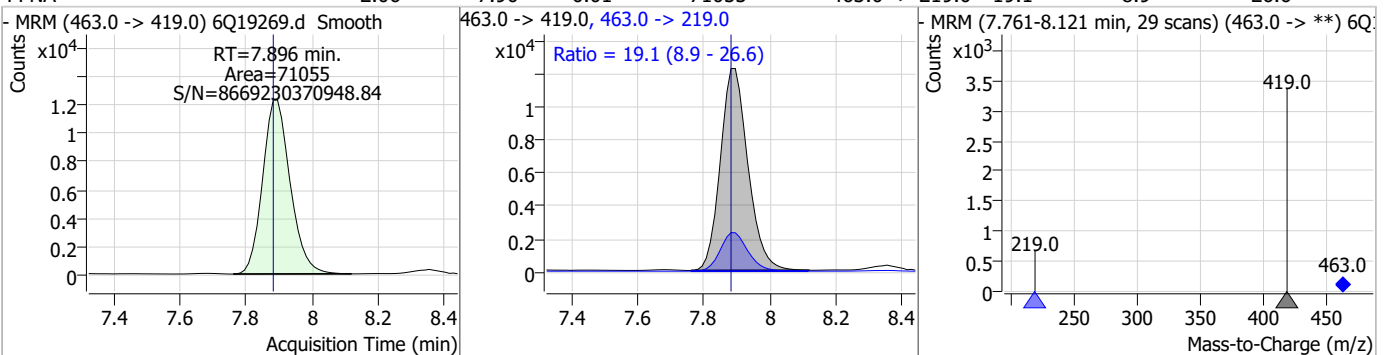
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	72.01	7.75	0.00	198404	441.0 -> 336.9	217.9	115.6	346.8



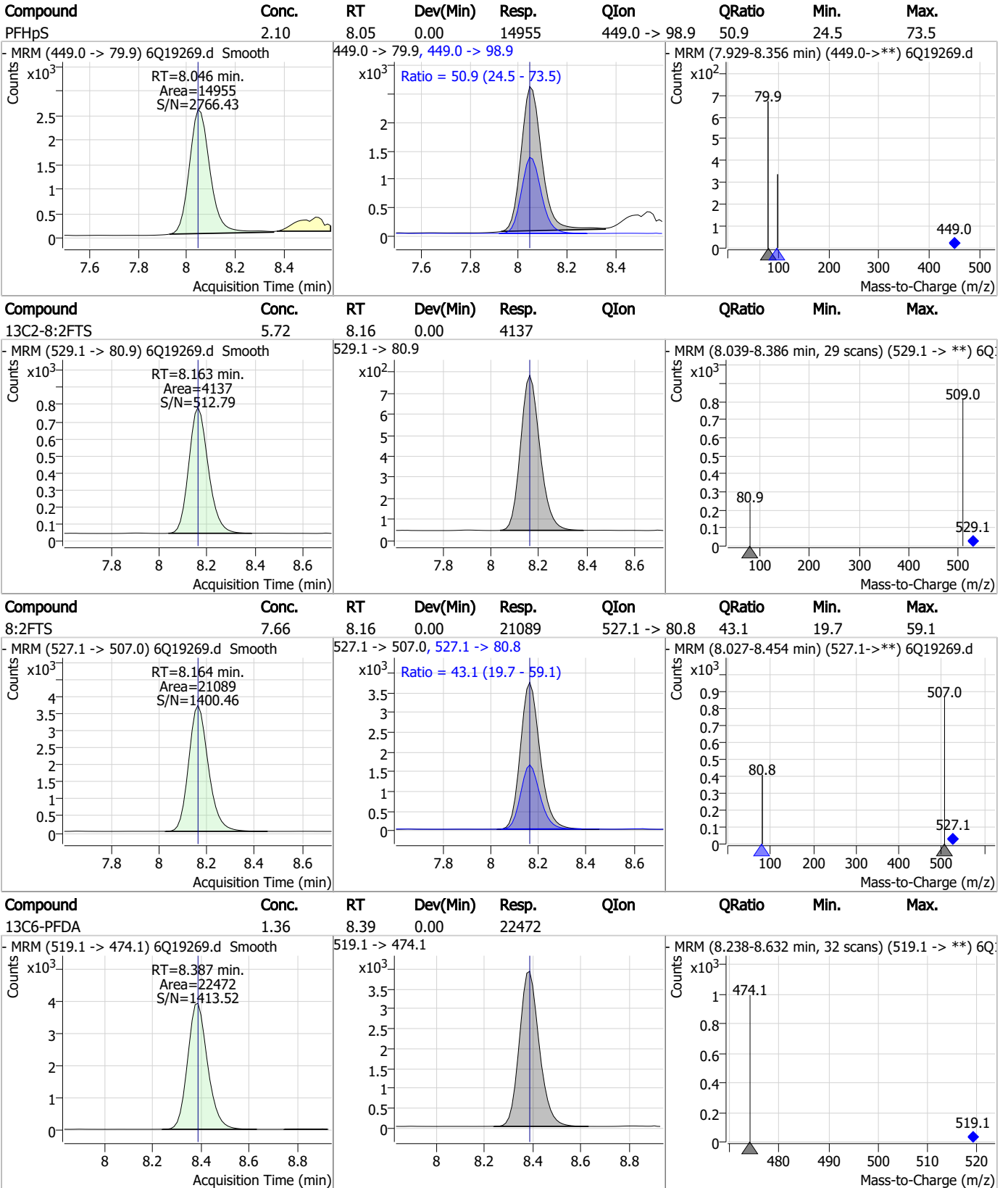
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.31	7.88	0.00	37521	472.1 -> 427.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.06	7.90	0.01	71055	463.0 -> 219.0	19.1	8.9	26.6



Perfluorinated Compounds by LC/MS/MS

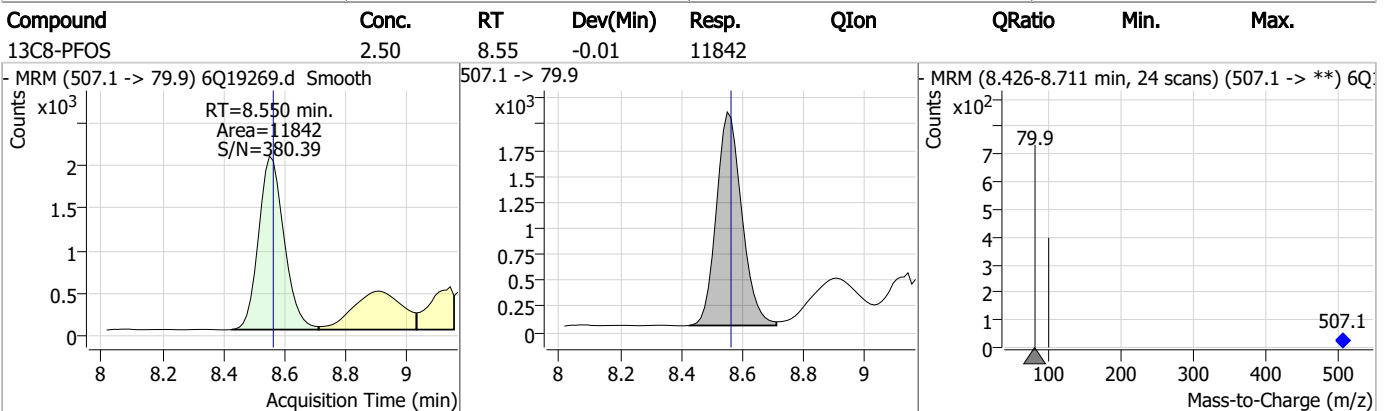
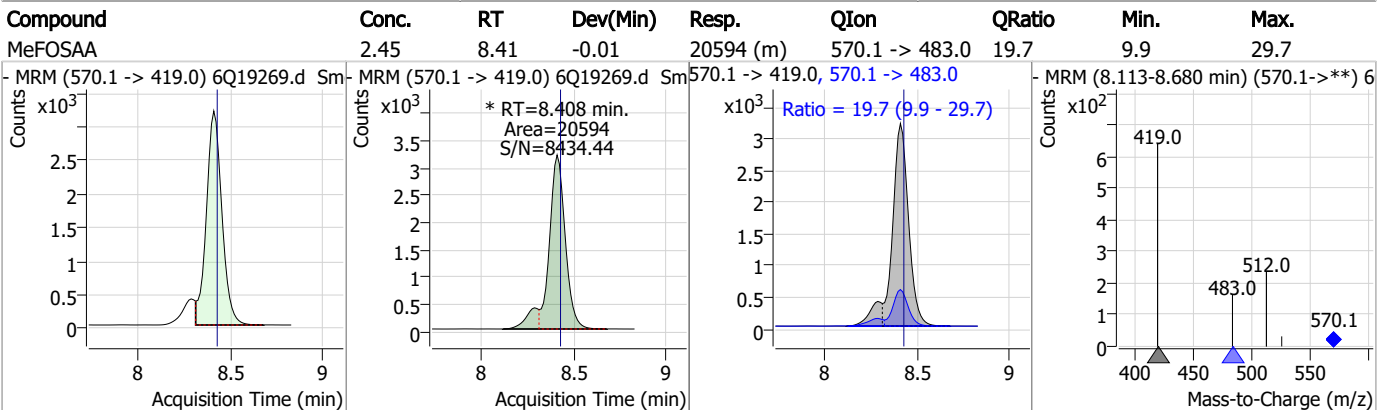
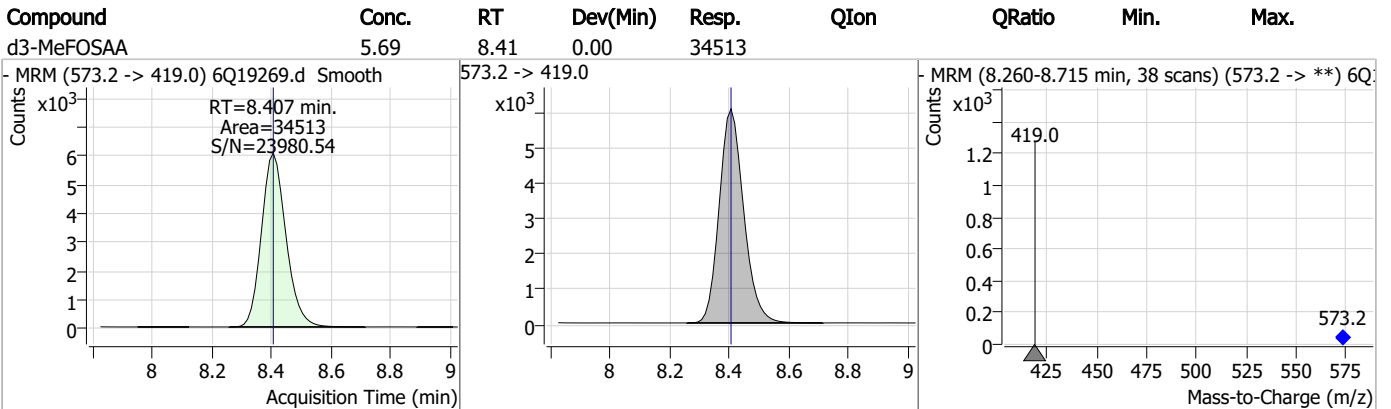
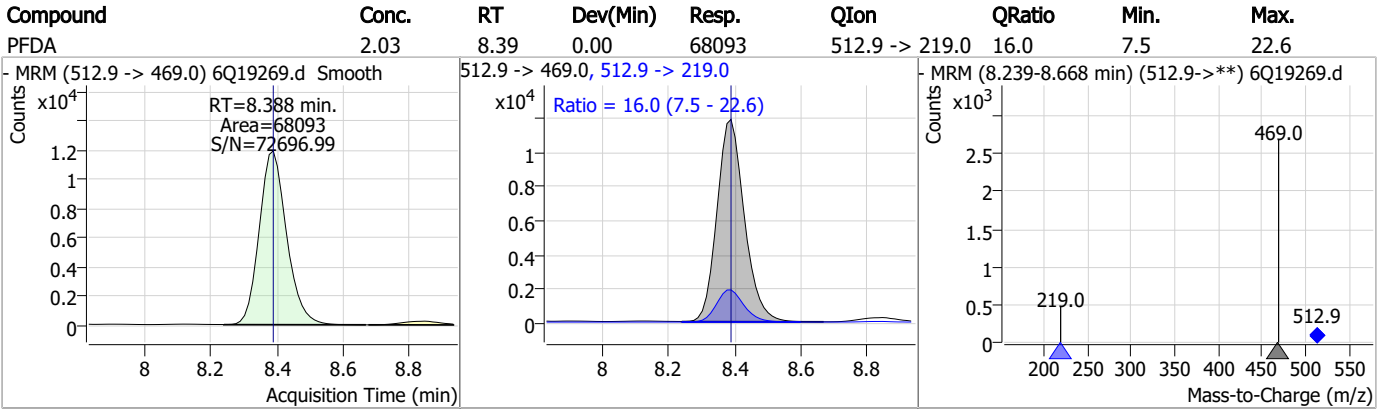


7.4.1

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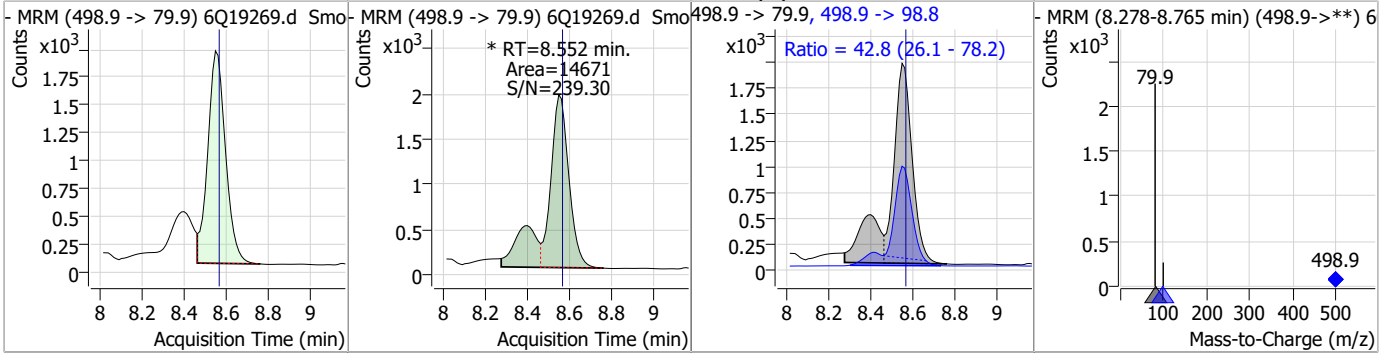


Perfluorinated Compounds by LC/MS/MS

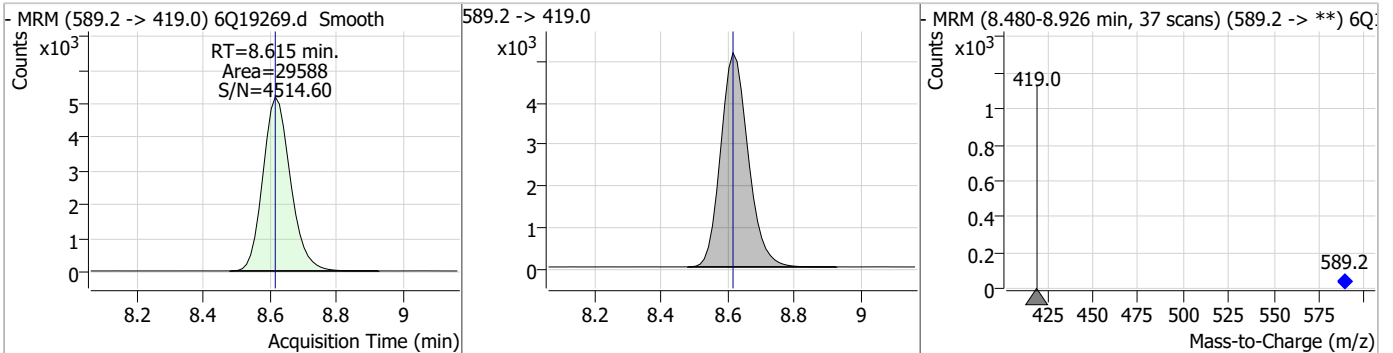


Perfluorinated Compounds by LC/MS/MS

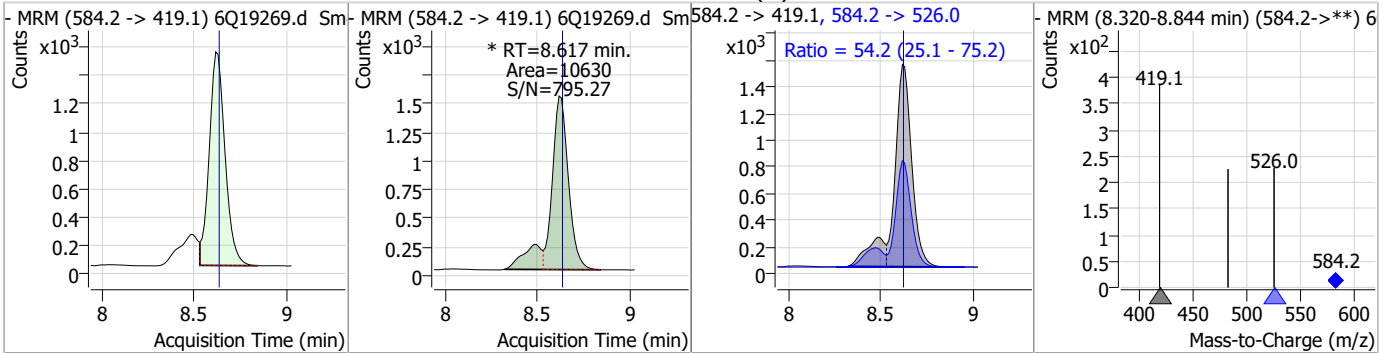
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.10	8.55	-0.01	14671 (m)	498.9 -> 98.8	42.8	26.1	78.2



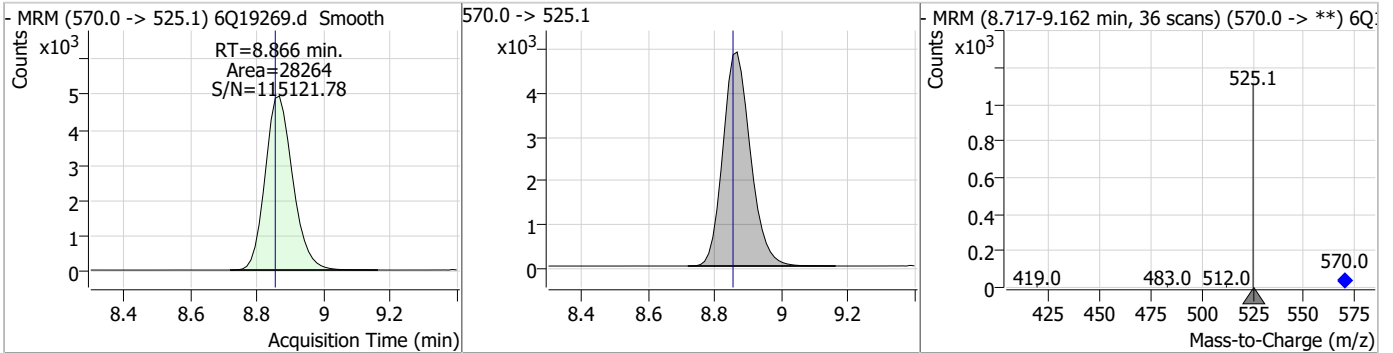
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.78	8.62	0.00	29588				



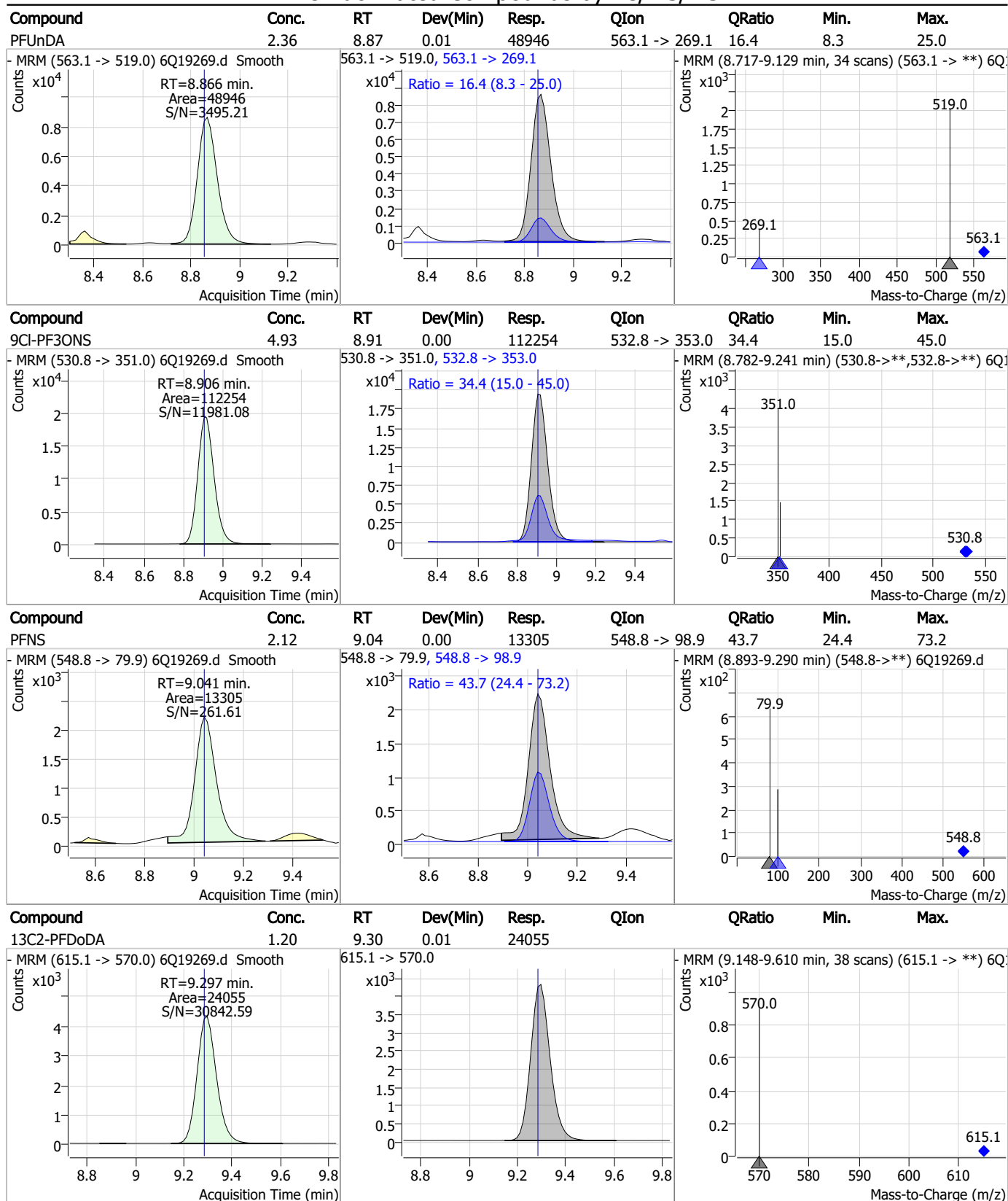
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.16	8.62	-0.01	10630 (m)	584.2 -> 526.0	54.2	25.1	75.2



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

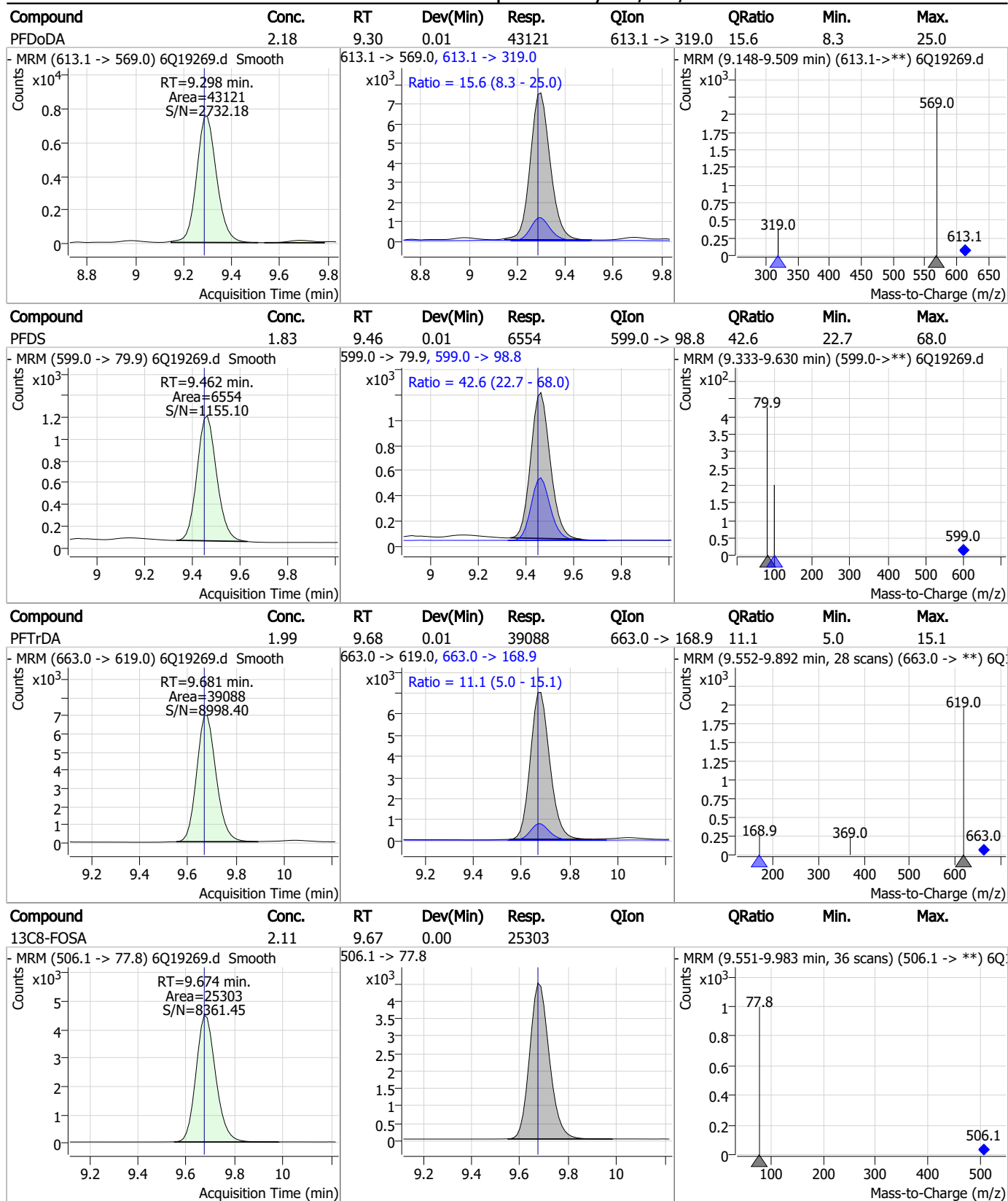


Perfluorinated Compounds by LC/MS/MS



7.4.1
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Perfluorinated Compounds by LC/MS/MS

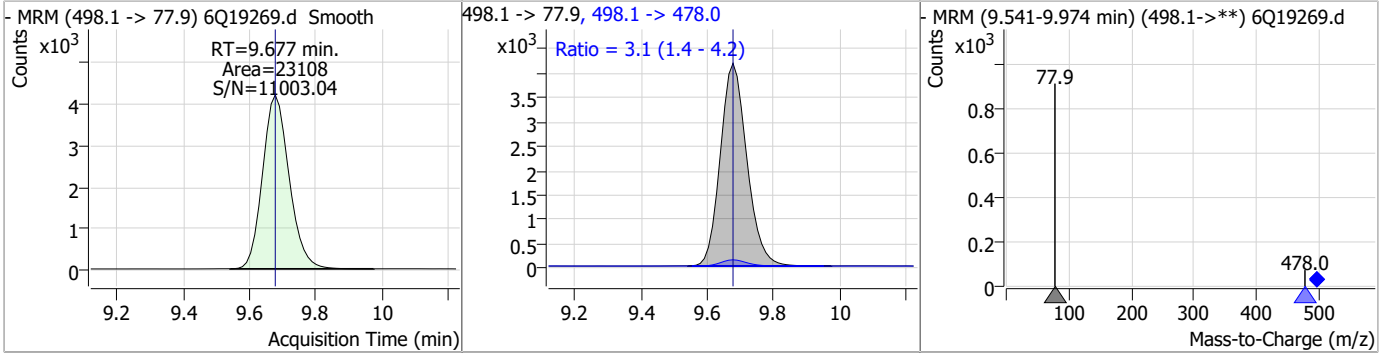


7.4.1

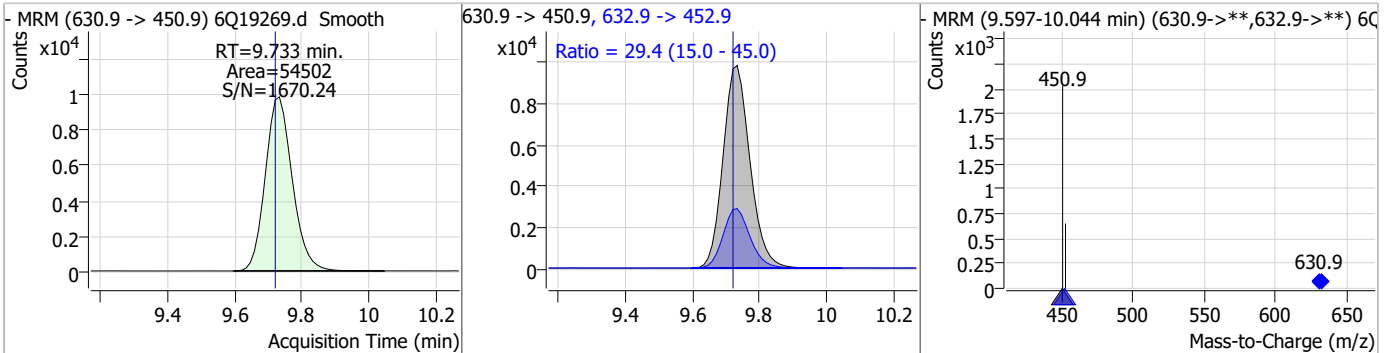
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Perfluorinated Compounds by LC/MS/MS

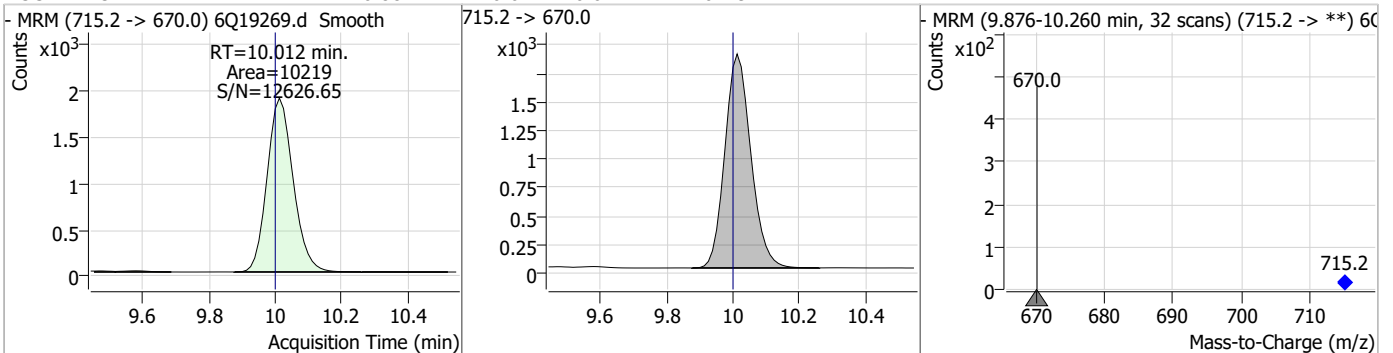
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.23	9.68	0.00	23108	498.1 -> 478.0	3.1	1.4	4.2



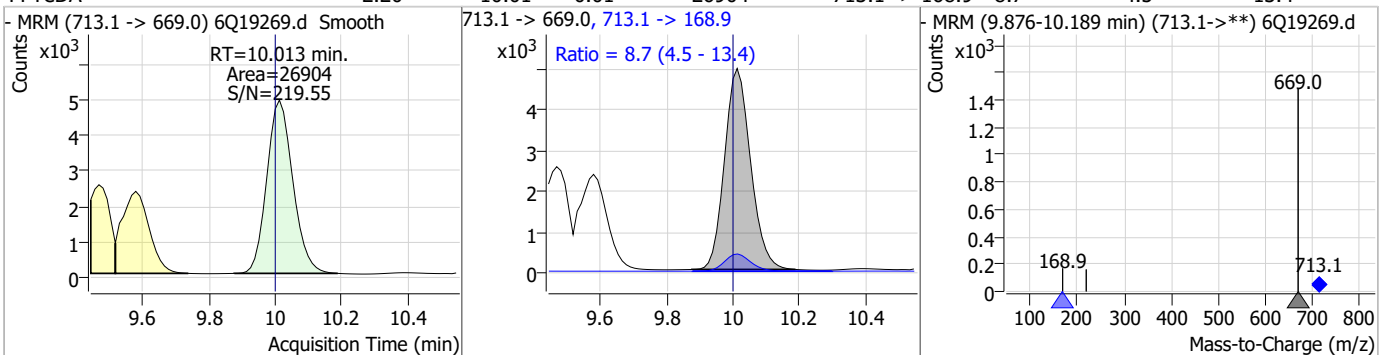
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	4.00	9.73	0.01	54502	632.9 -> 452.9	29.4	15.0	45.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.88	10.01	0.01	10219	715.2 -> 670.0	8.7	4.5	13.4



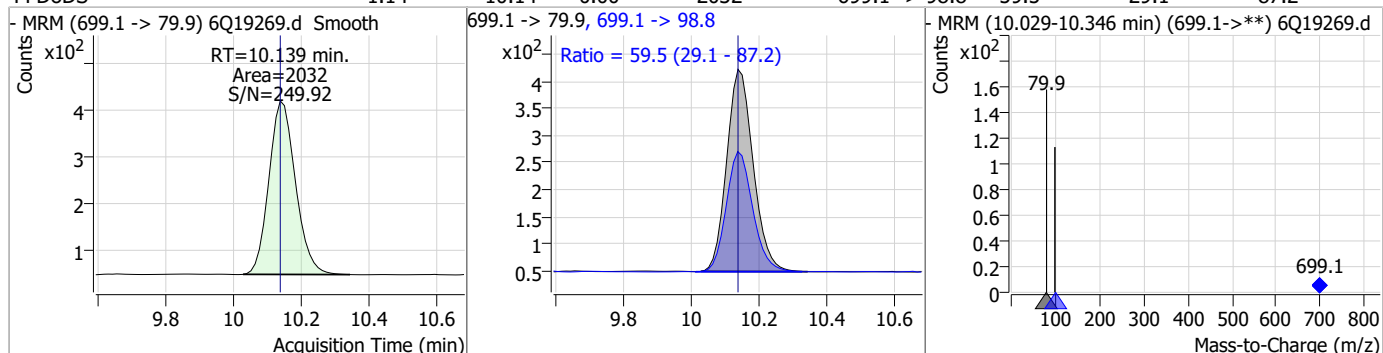
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.20	10.01	0.01	26904	713.1 -> 168.9	8.7	4.5	13.4



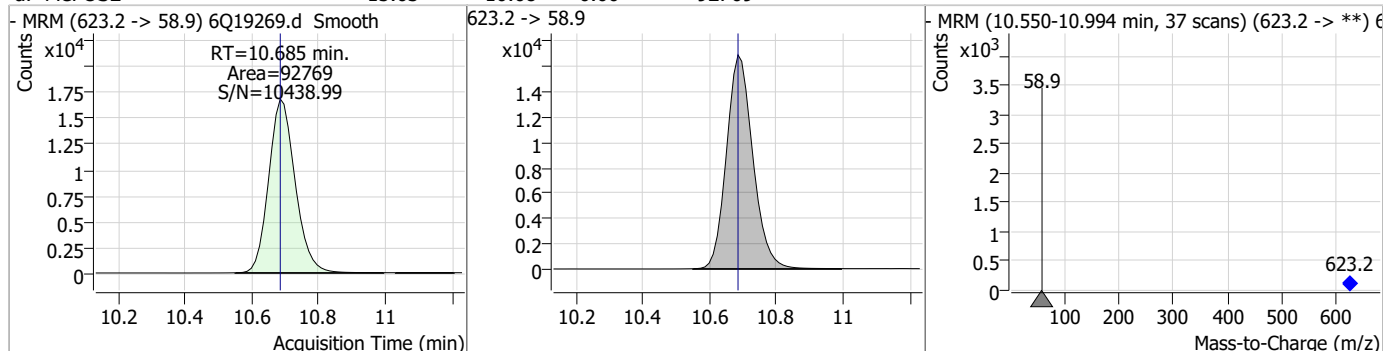
7.4.1
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Perfluorinated Compounds by LC/MS/MS

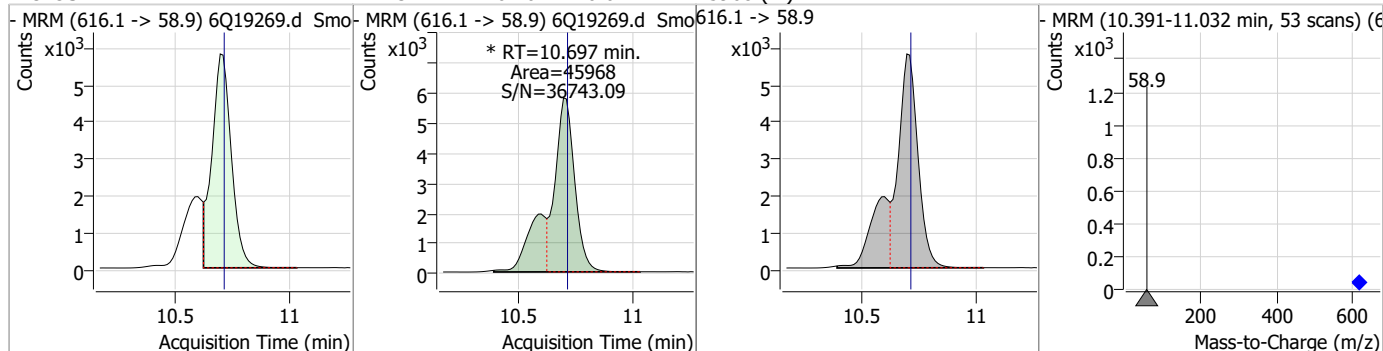
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.14	10.14	0.00	2032	699.1 -> 98.8	59.5	29.1	87.2



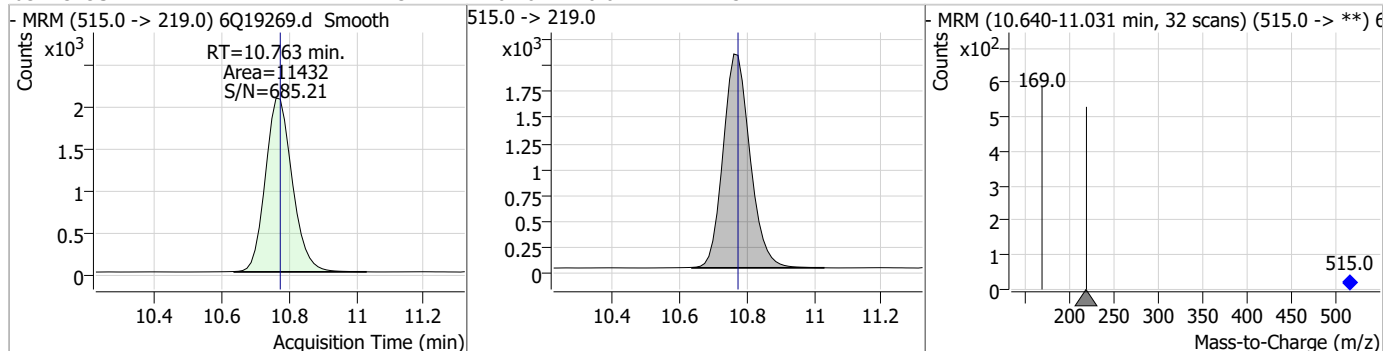
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	15.63	10.68	0.00	92769				



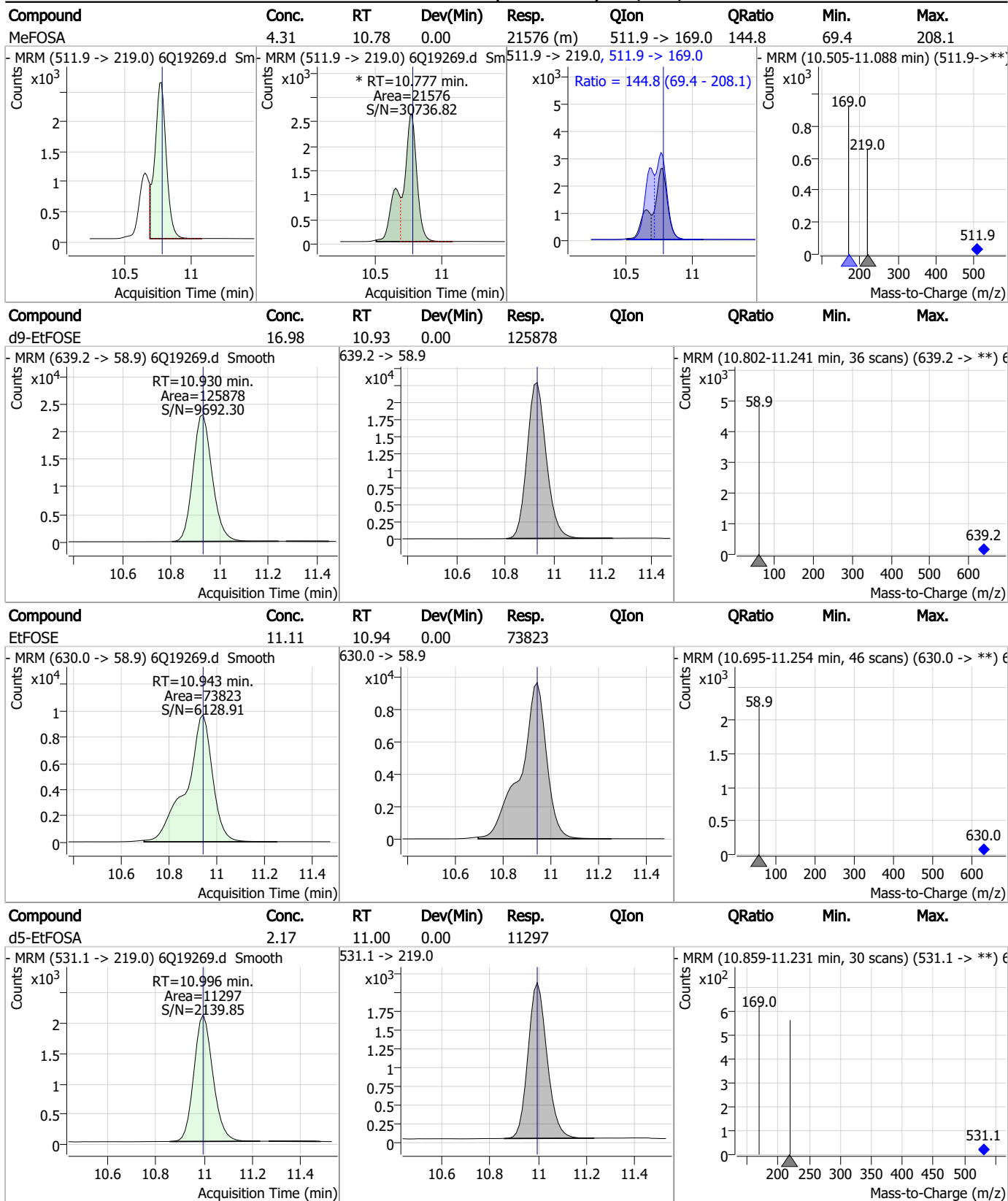
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.32	10.70	-0.01	45968 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.13	10.76	-0.01	11432				

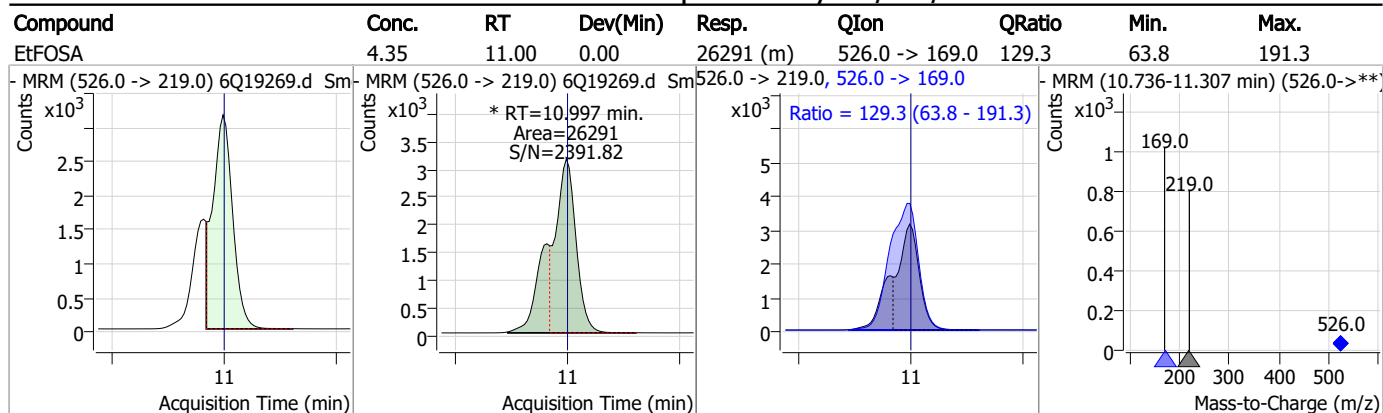


Perfluorinated Compounds by LC/MS/MS



7.4.1
7

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
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.2%	
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
7

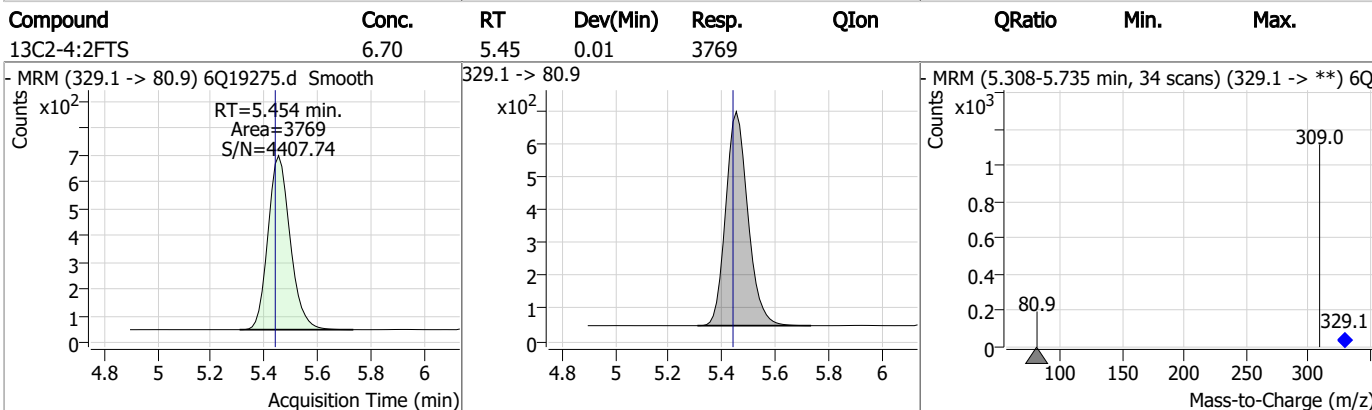
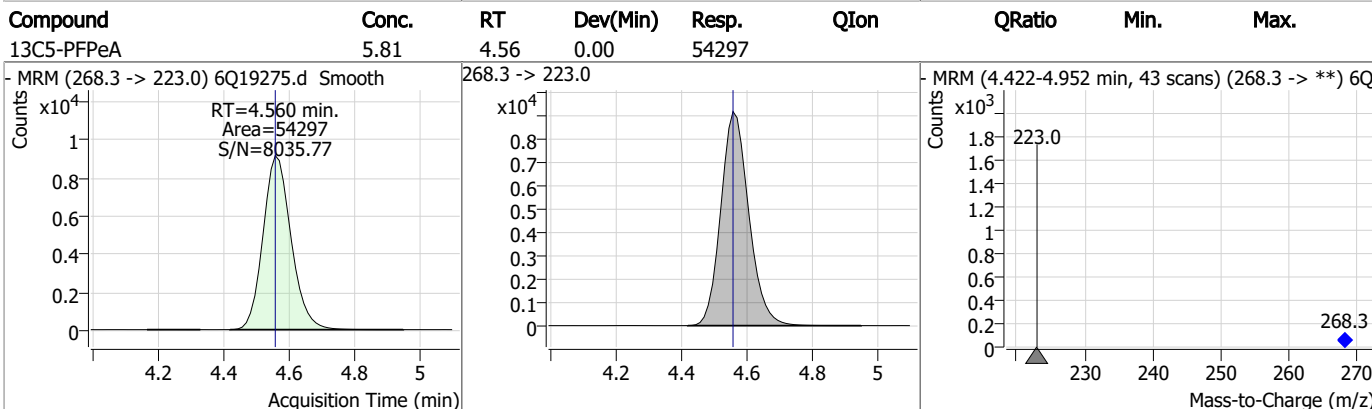
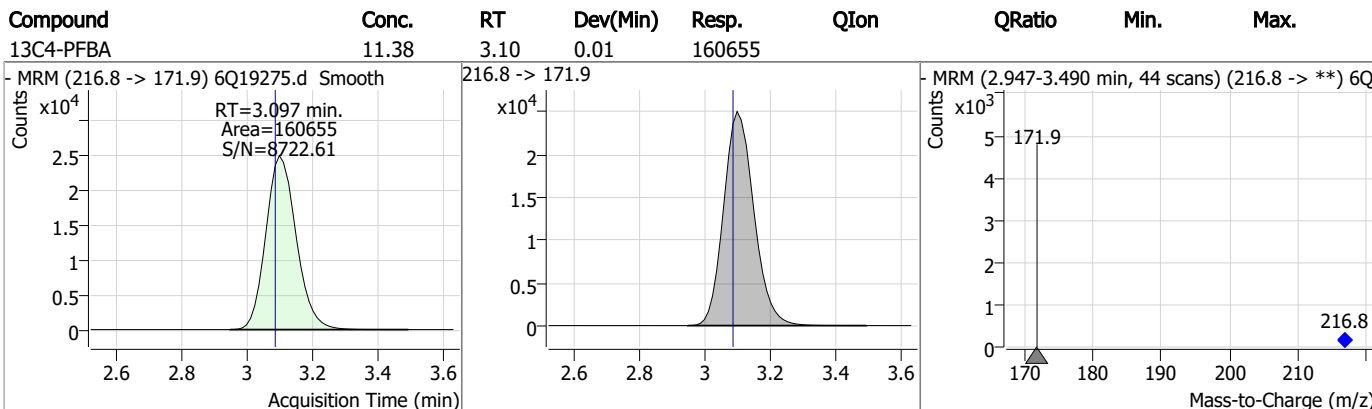
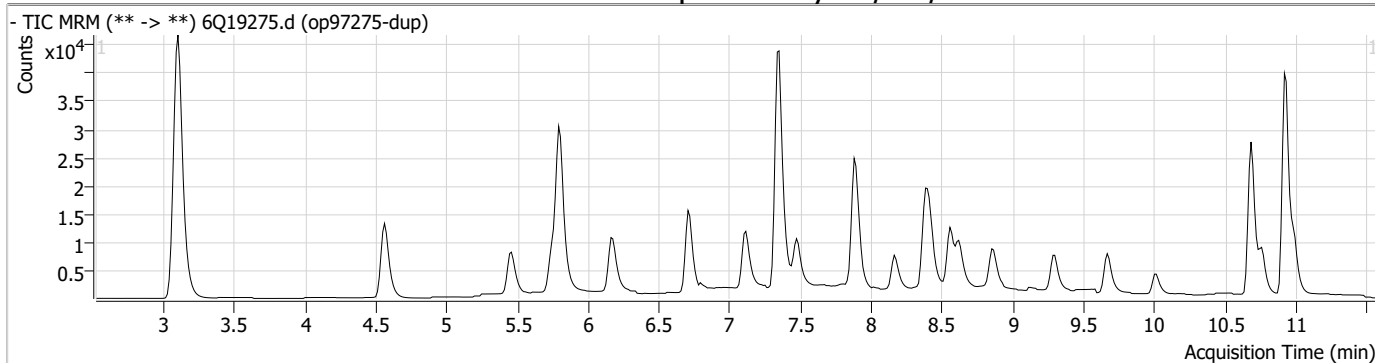
Perfluorinated Compounds by LC/MS/MS

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

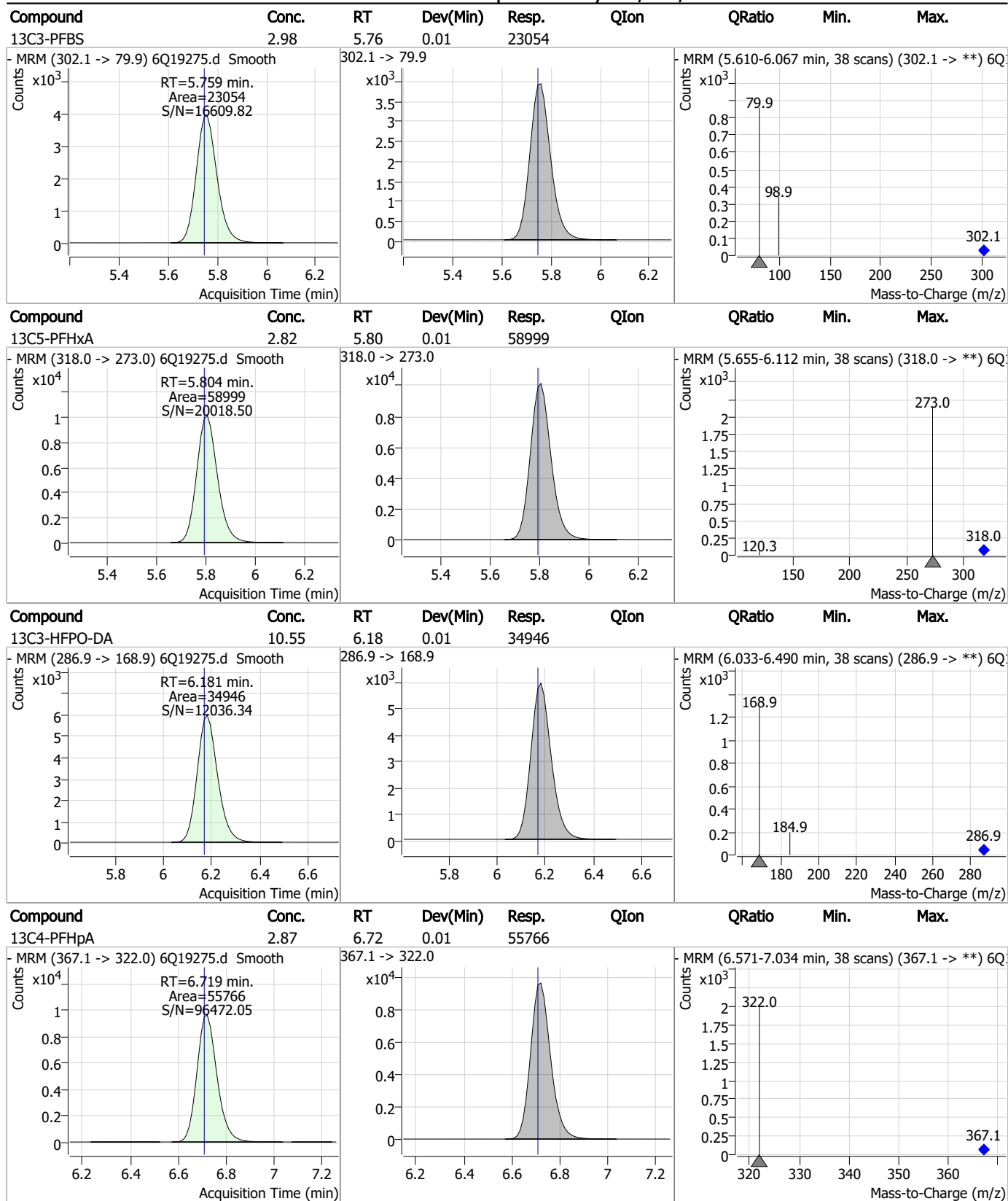
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Perfluorinated Compounds by LC/MS/MS



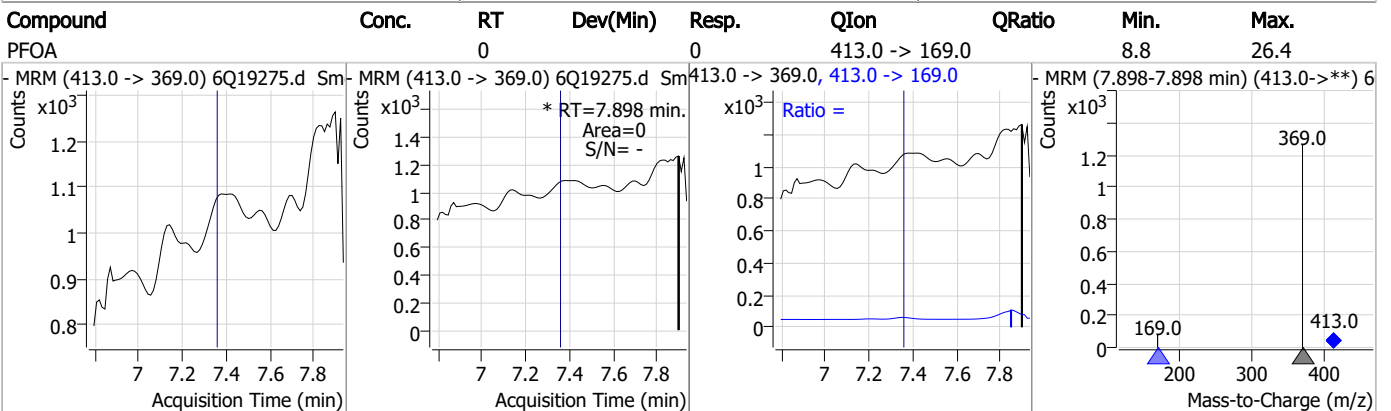
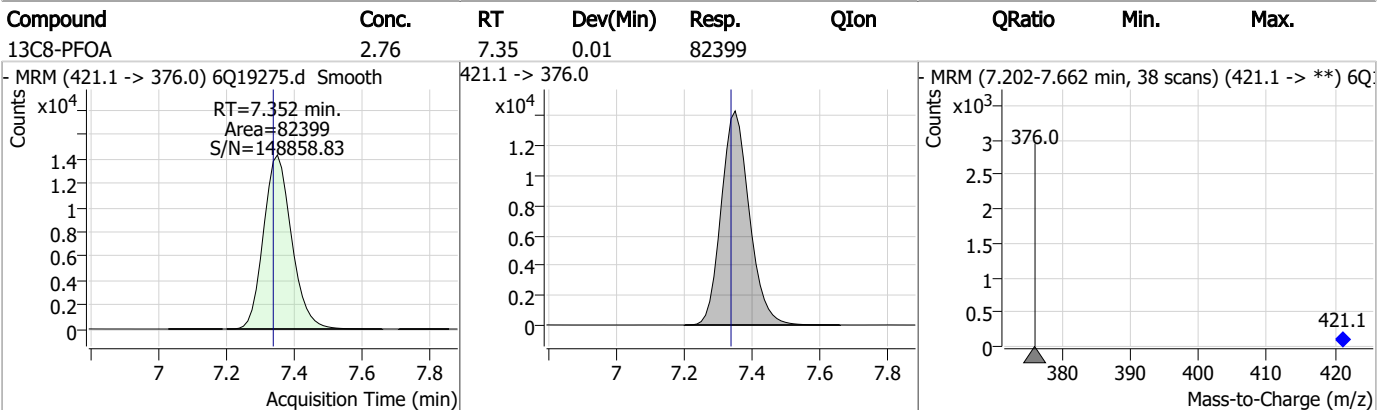
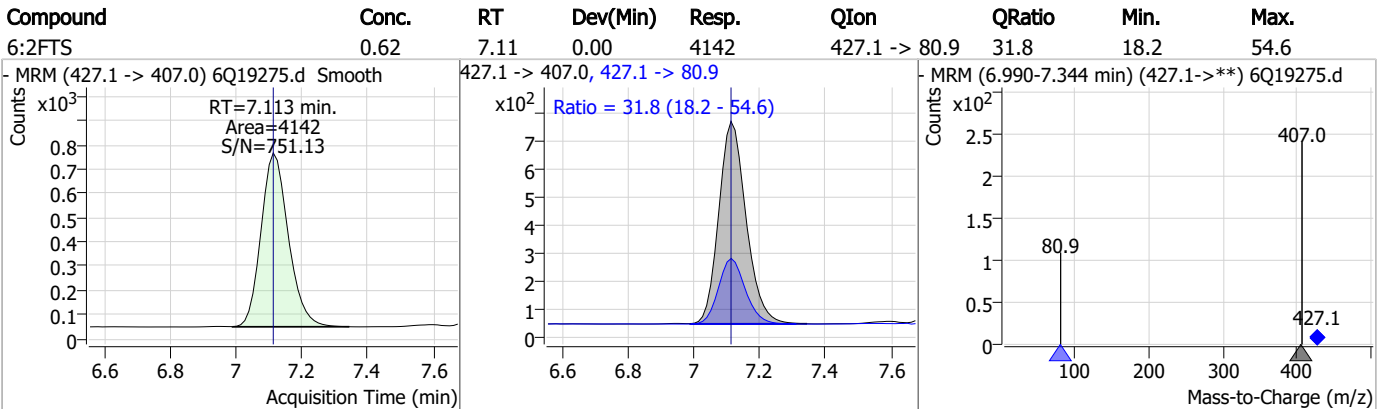
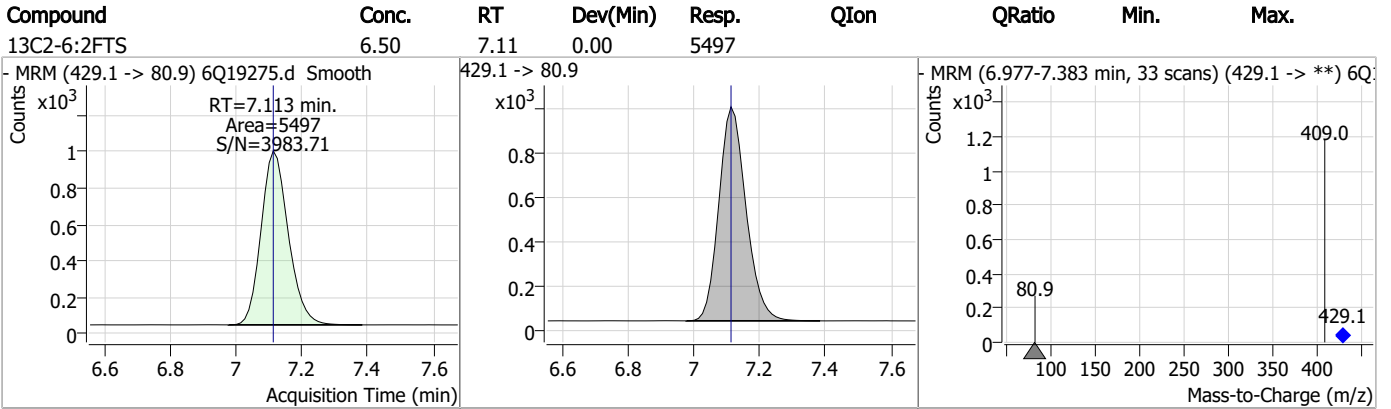
7.5.1
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Perfluorinated Compounds by LC/MS/MS



7.5.1
7

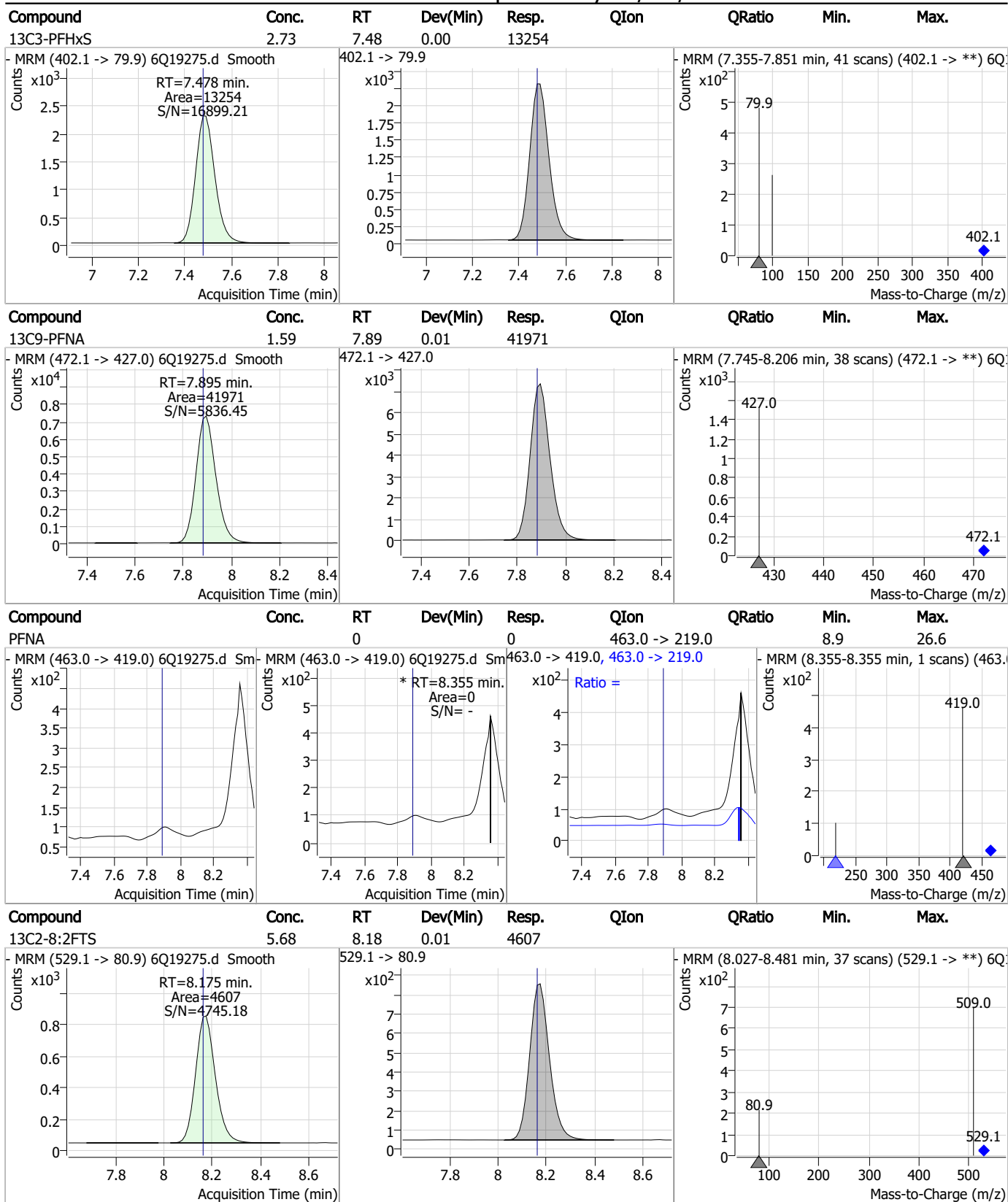
Perfluorinated Compounds by LC/MS/MS



7.5.1

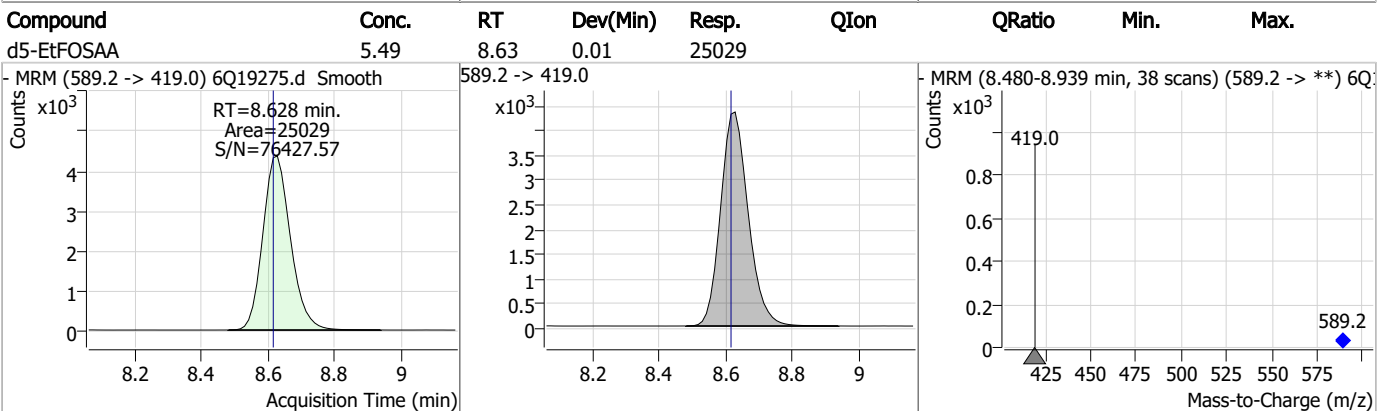
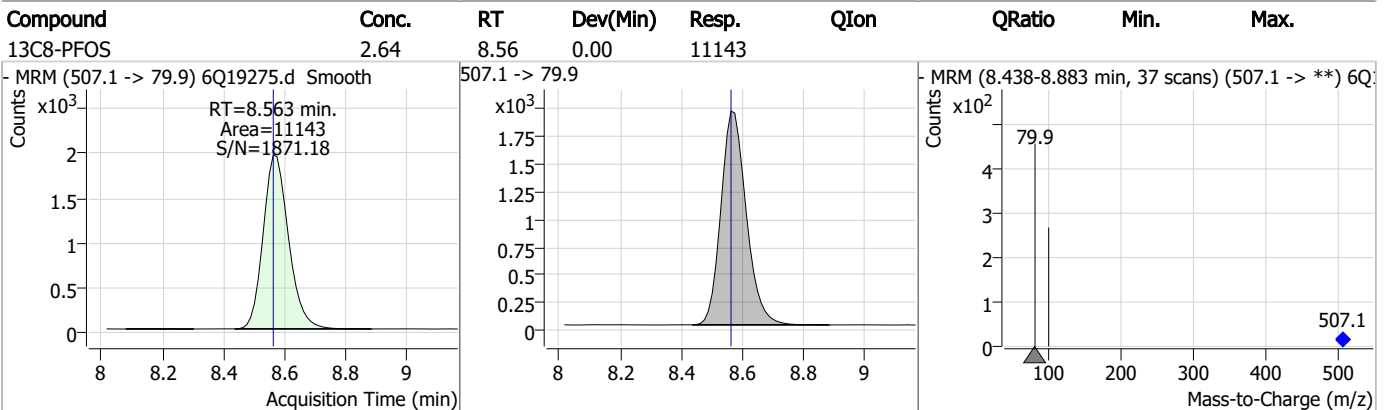
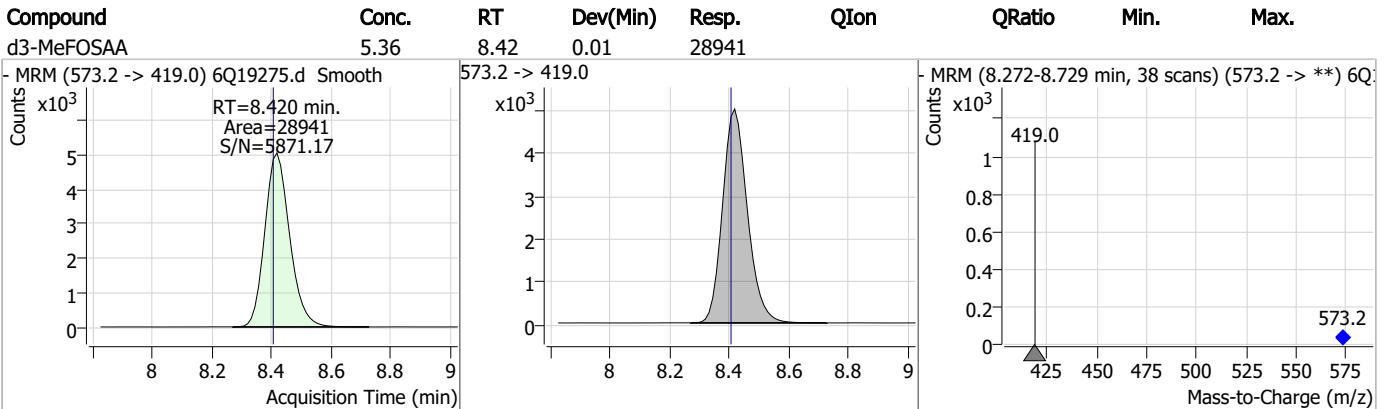
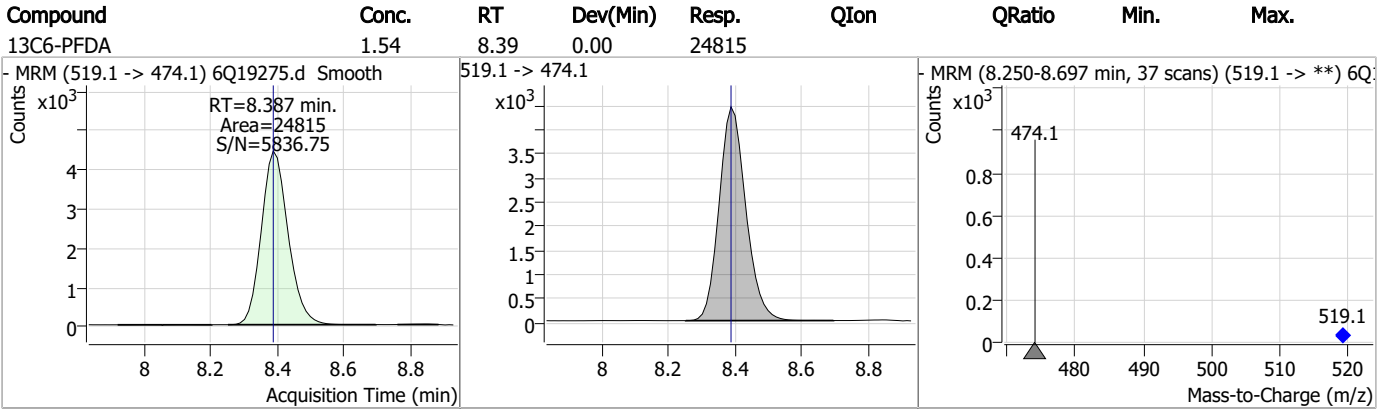
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Perfluorinated Compounds by LC/MS/MS

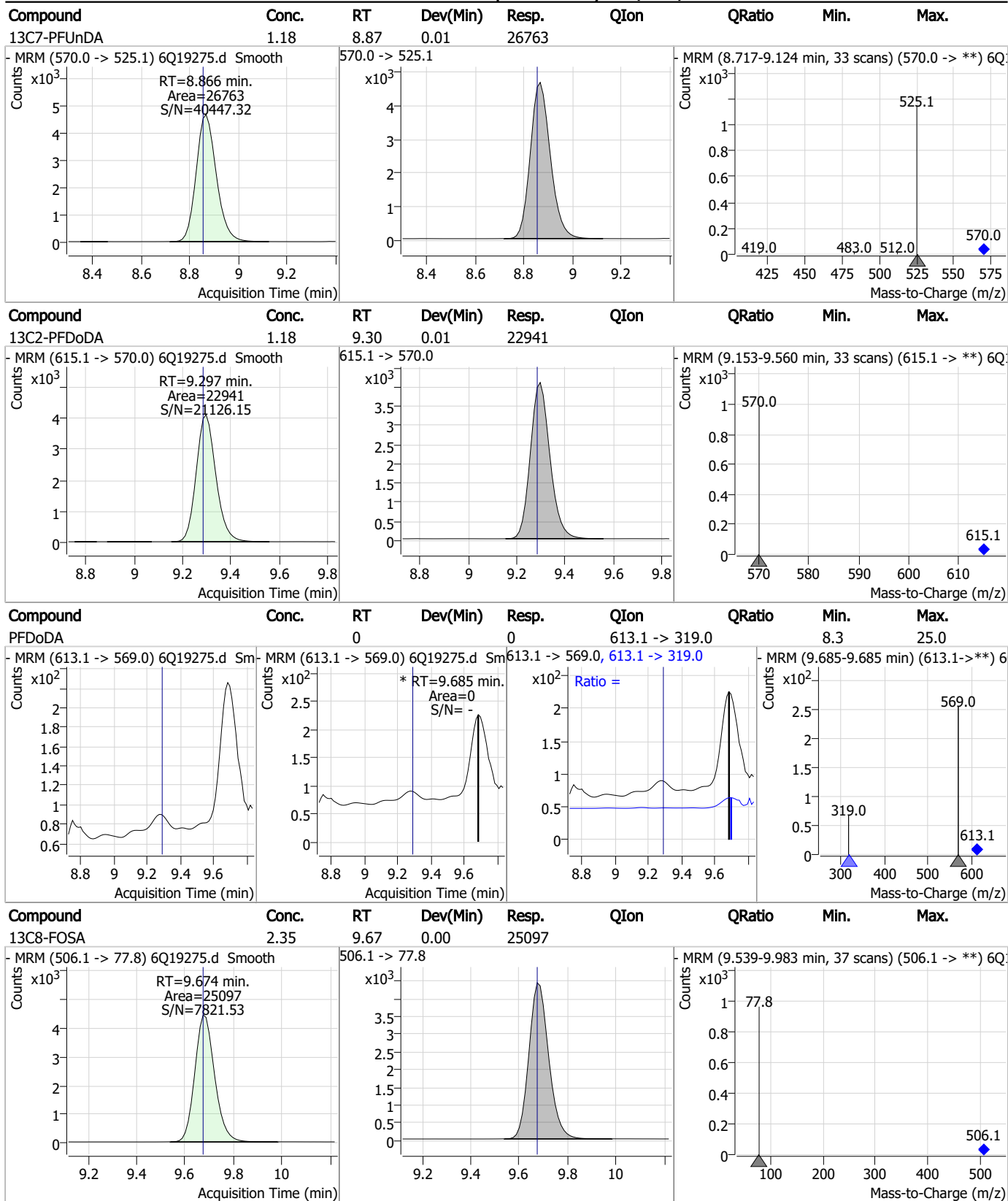


7.5.1
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.5.1
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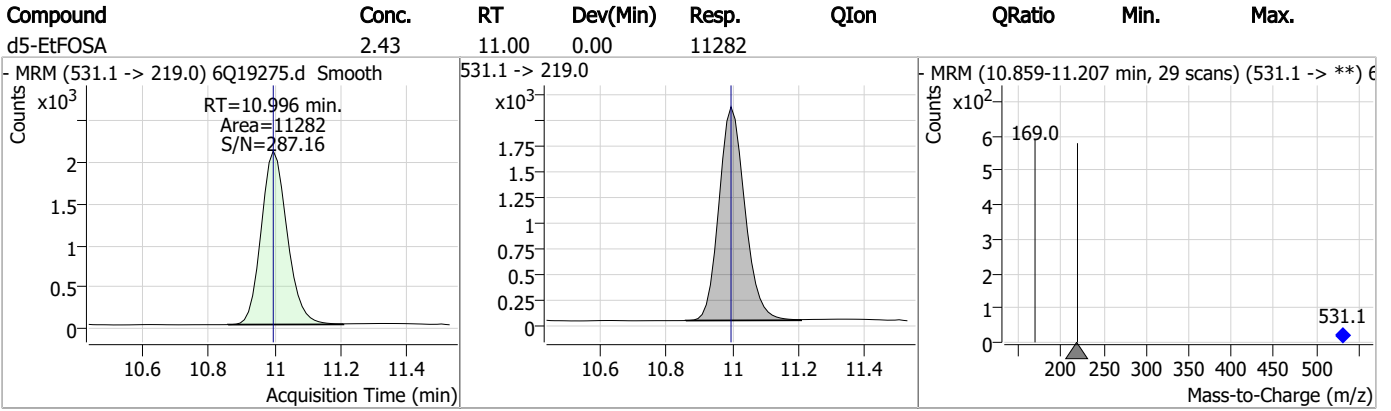
Perfluorinated Compounds by LC/MS/MS

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

7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Natasha Gumtie
 06/13/23 13:30

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

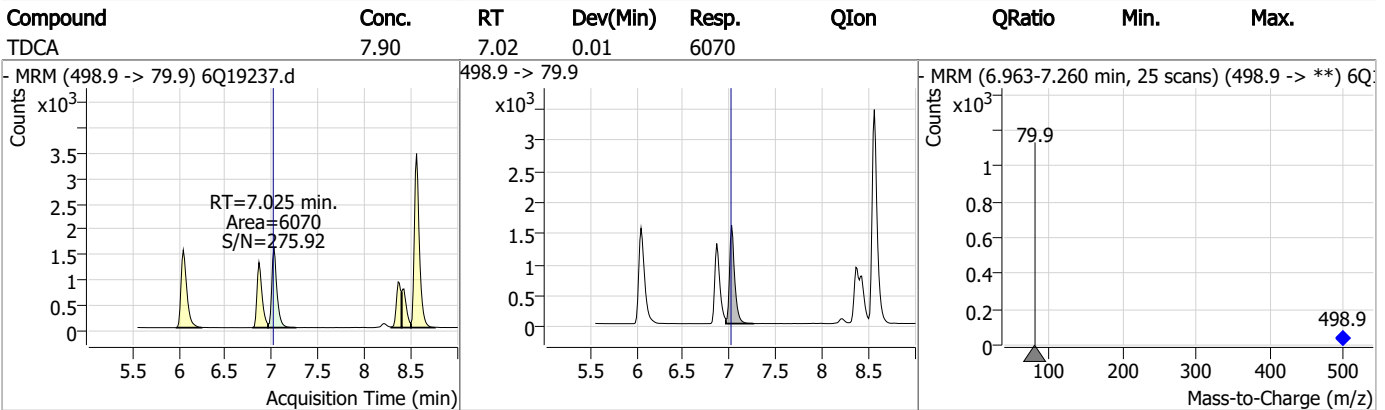
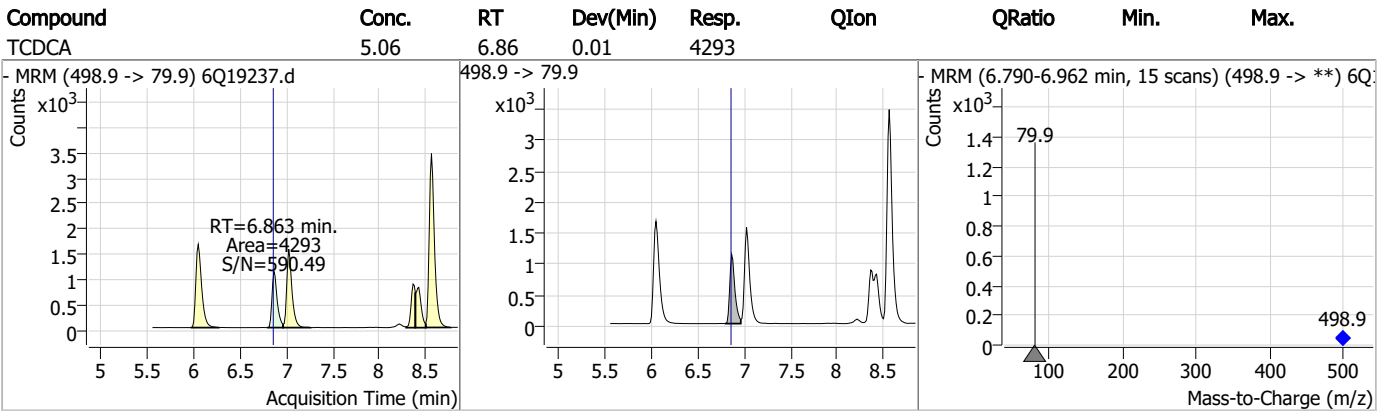
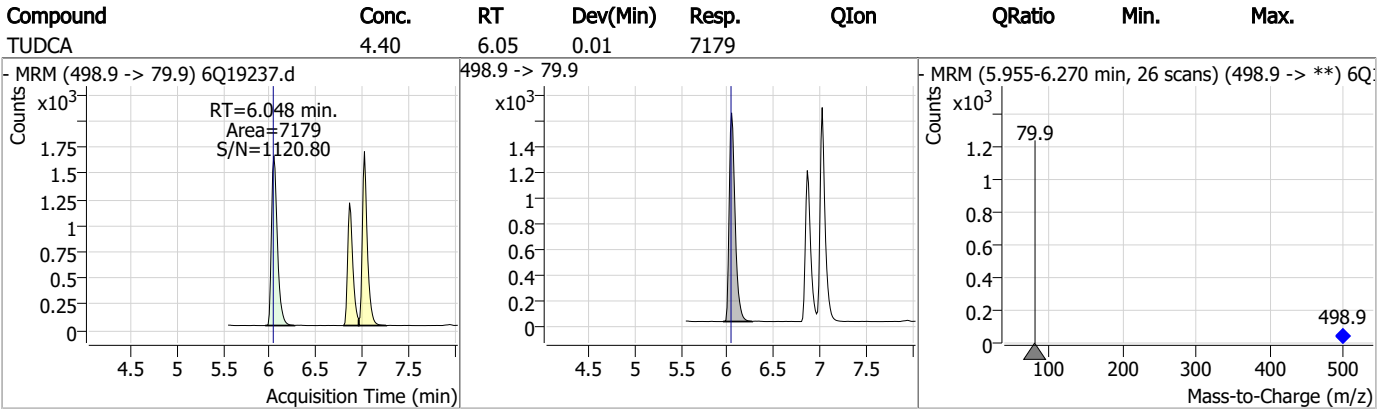
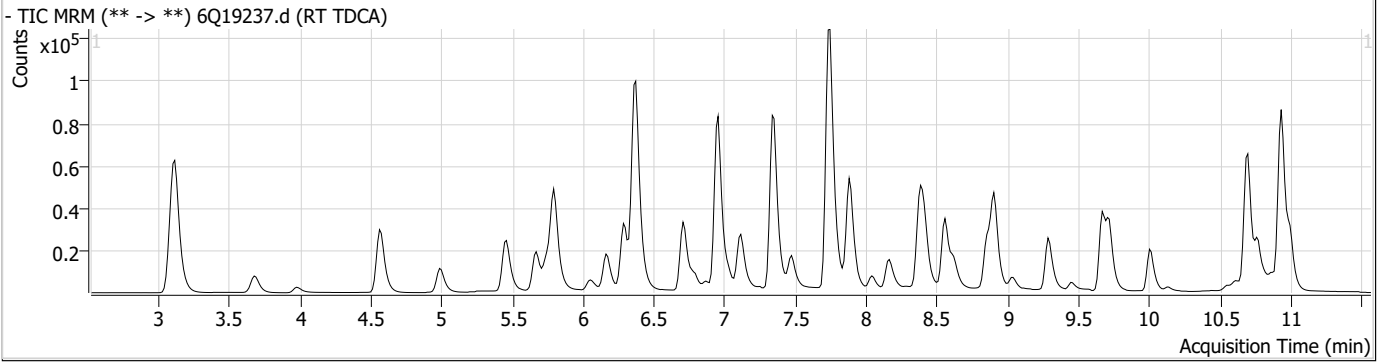
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.563	507.1 -> 79.9	18396	2.50	µg/L	-0.008	
13C4-PFOS	8.563	502.8 -> 79.9	21725	2.50	µg/L	-0.008	
System Monitoring Compounds							
13C8-PFOS	8.563	507.1 -> 79.9	18396	2.15	µg/L	-0.008	
Spiked Amount: 2.50	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
7



Perfluorinated Compounds by LC/MS/MS

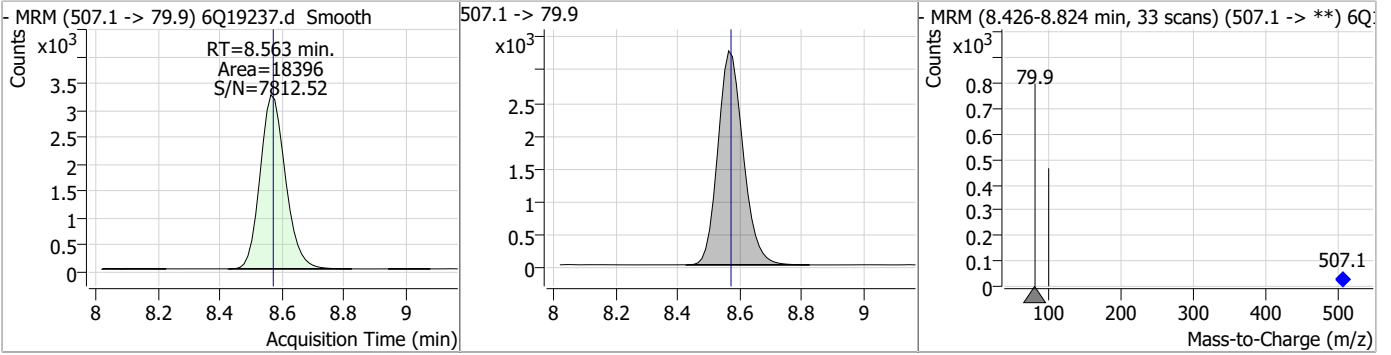


7.6.1

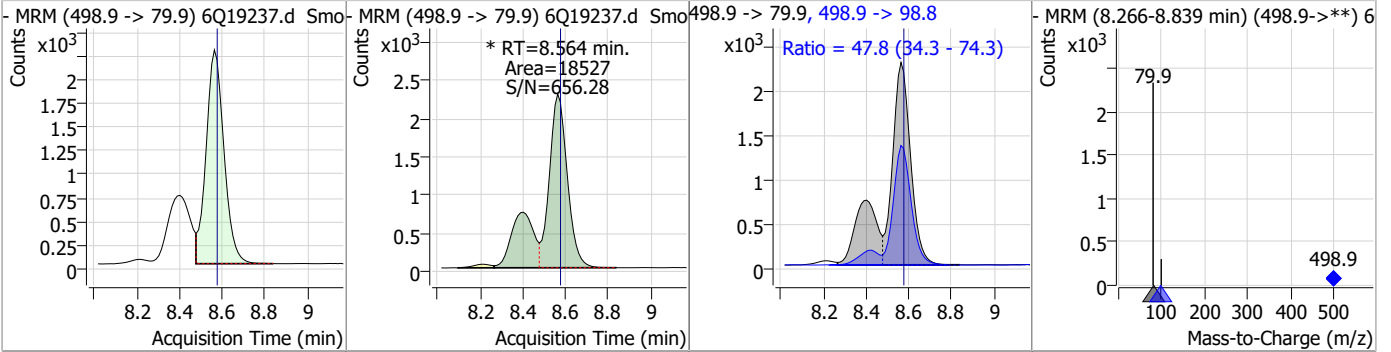
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Perfluorinated Compounds by LC/MS/MS

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

7



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

7.6.1.1

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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
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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 = 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

7.6.2
7

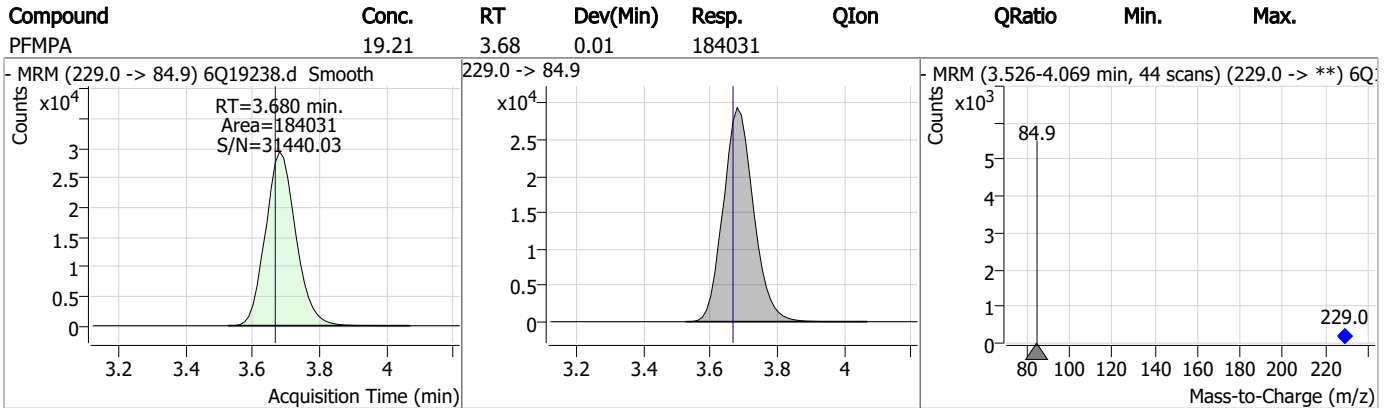
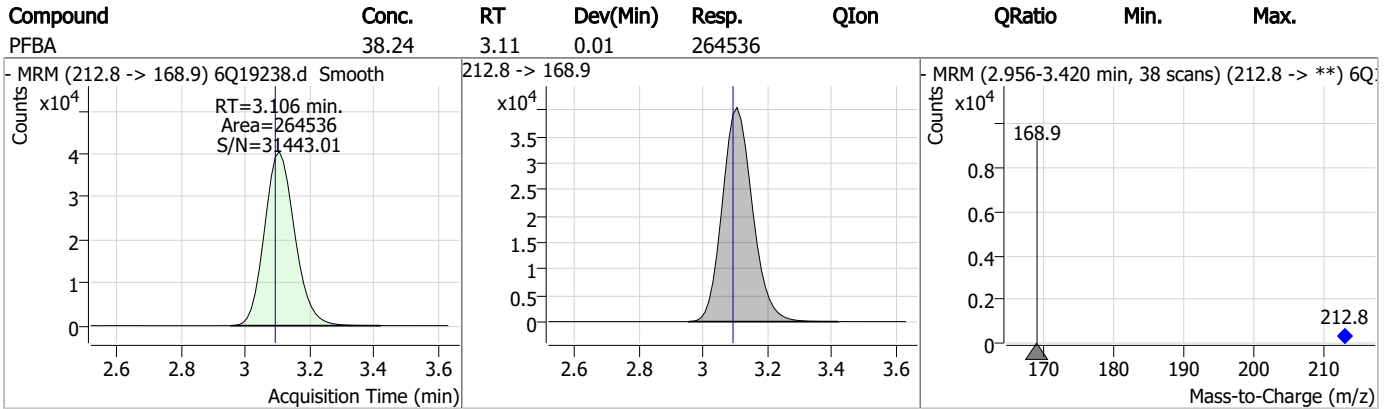
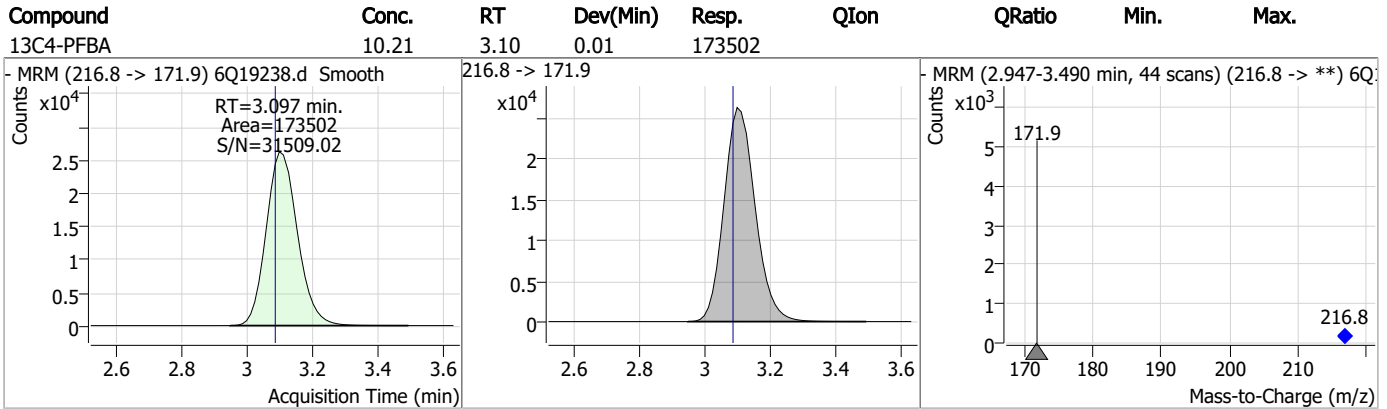
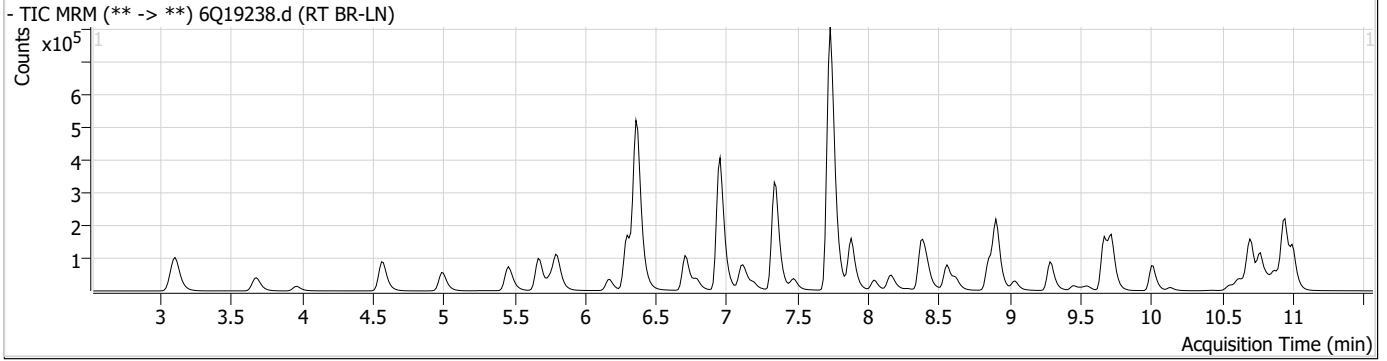
Perfluorinated Compounds by LC/MS/MS

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

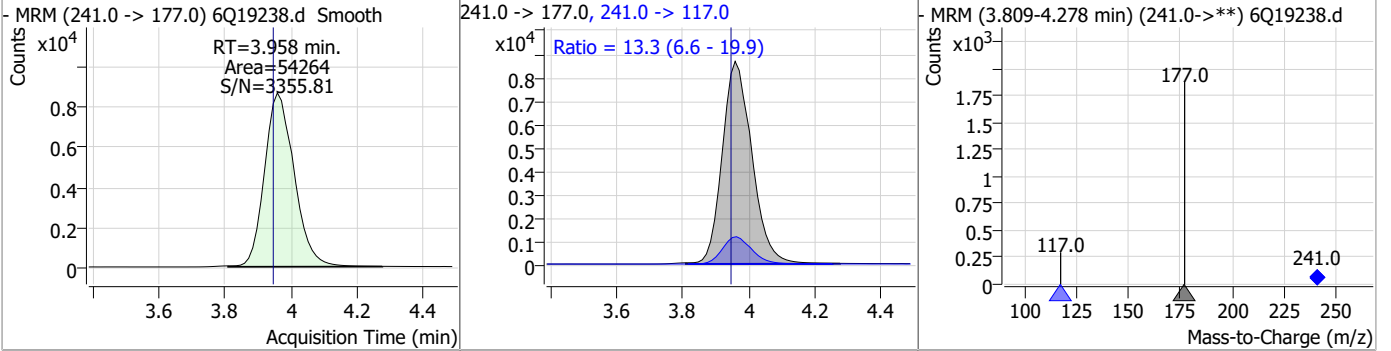
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Perfluorinated Compounds by LC/MS/MS

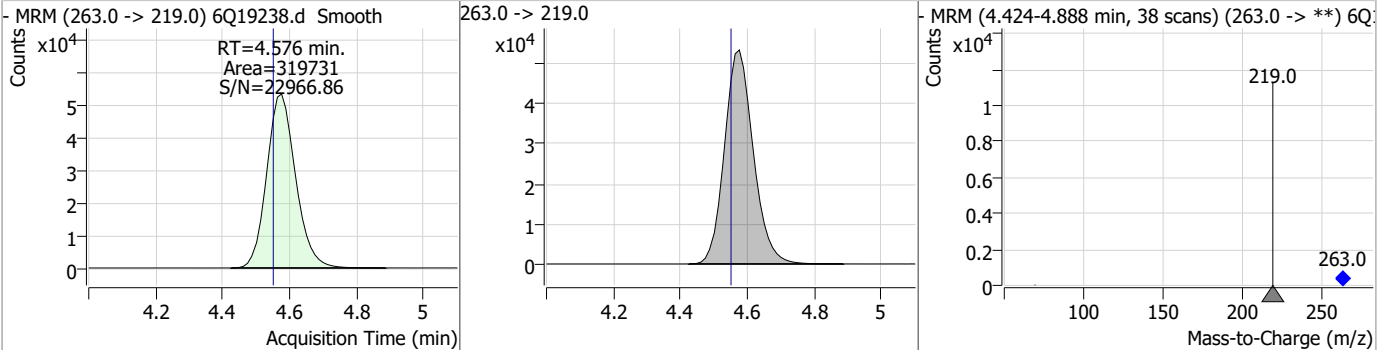


Perfluorinated Compounds by LC/MS/MS

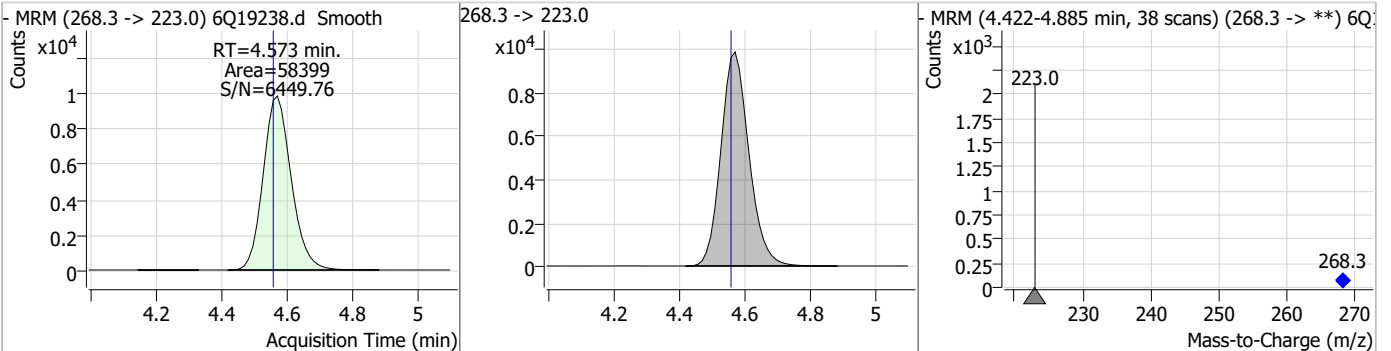
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	46.18	3.96	0.01	54264	241.0 -> 117.0	13.3	6.6	19.9



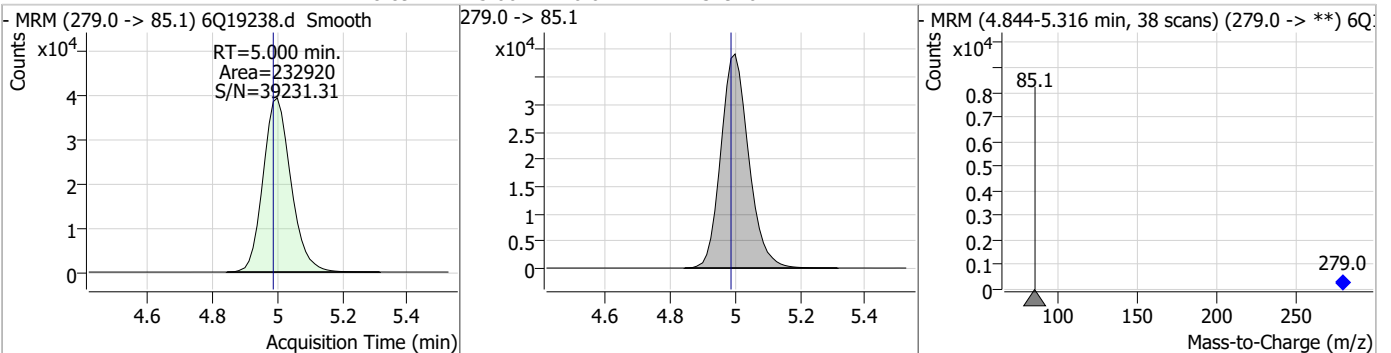
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	18.61	4.58	0.02	319731				



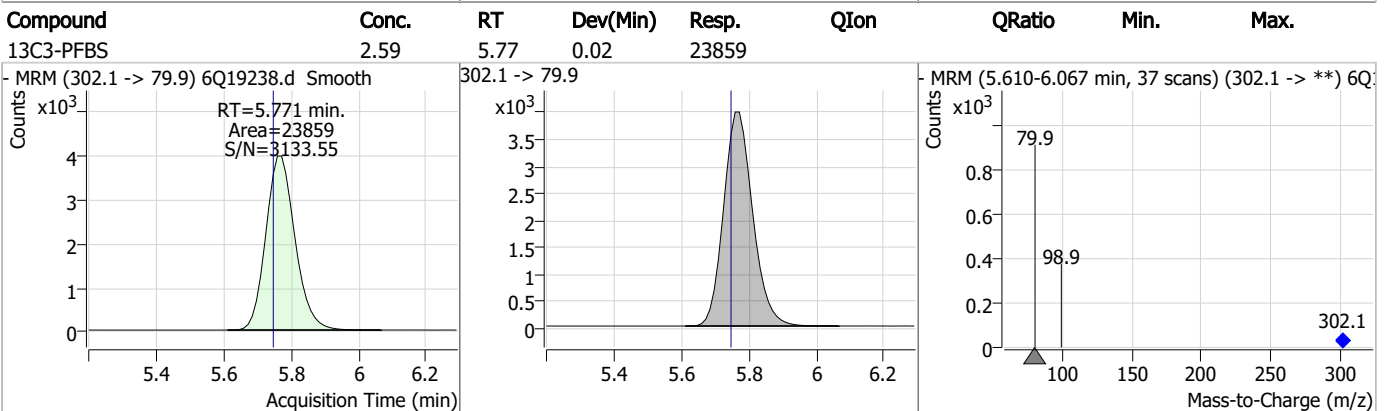
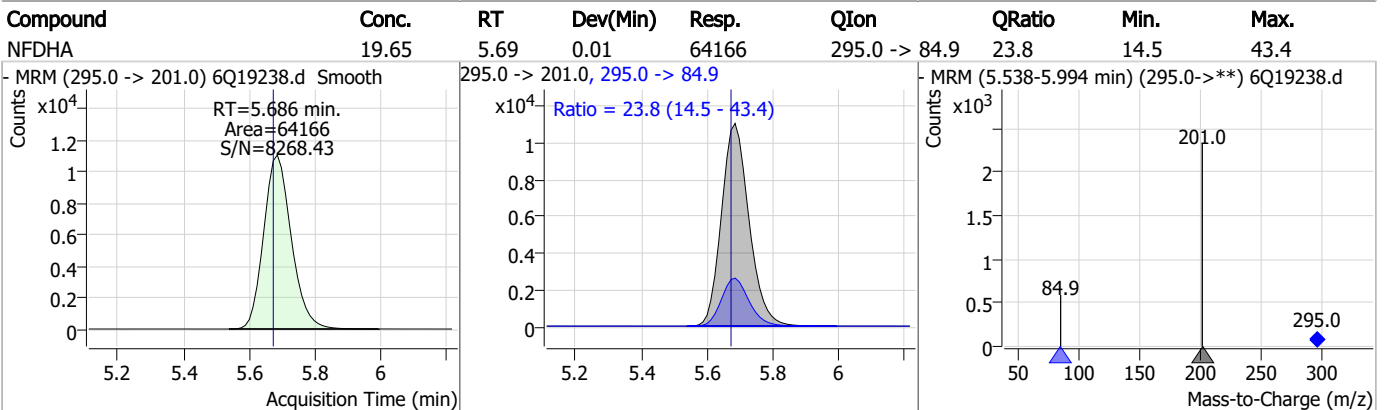
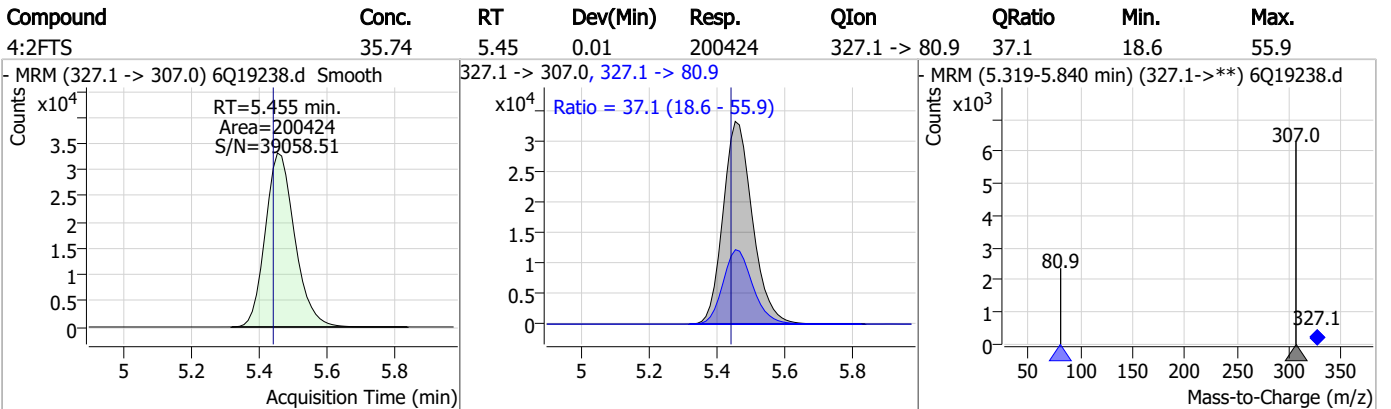
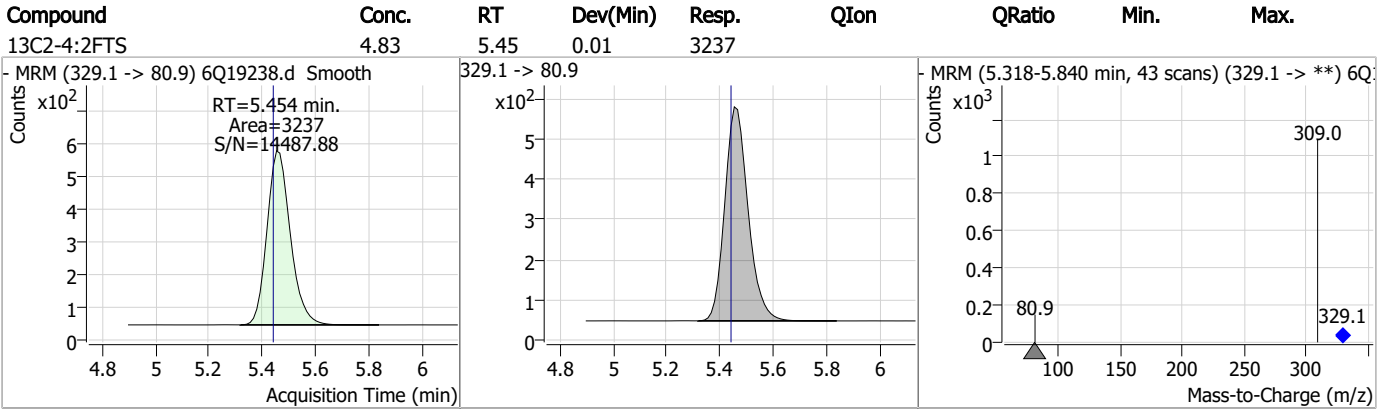
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.97	4.57	0.01	58399				



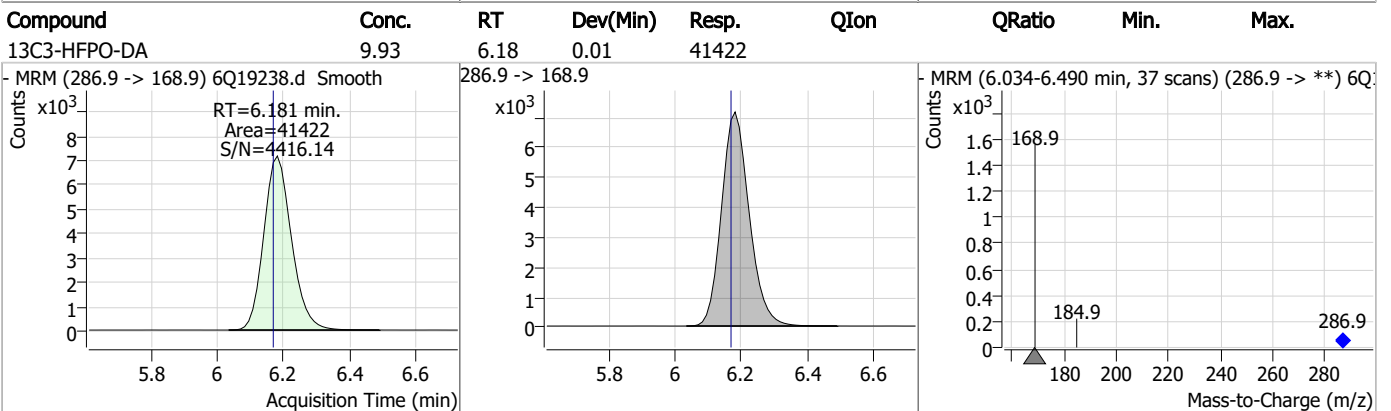
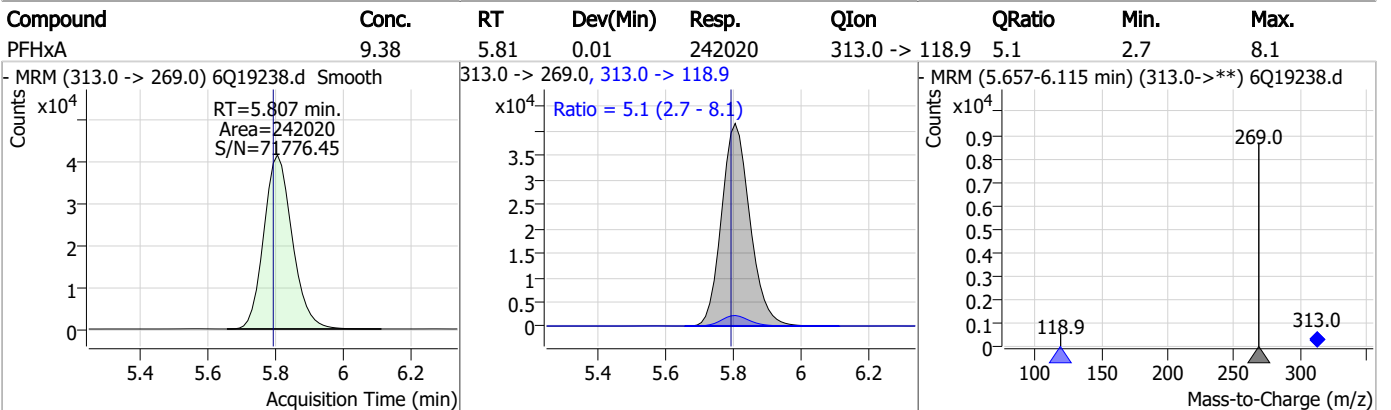
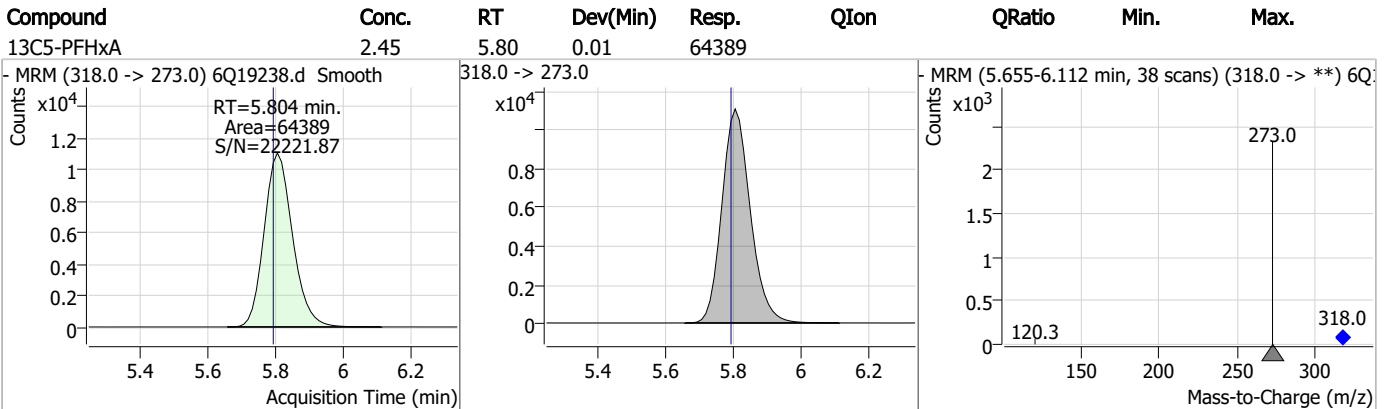
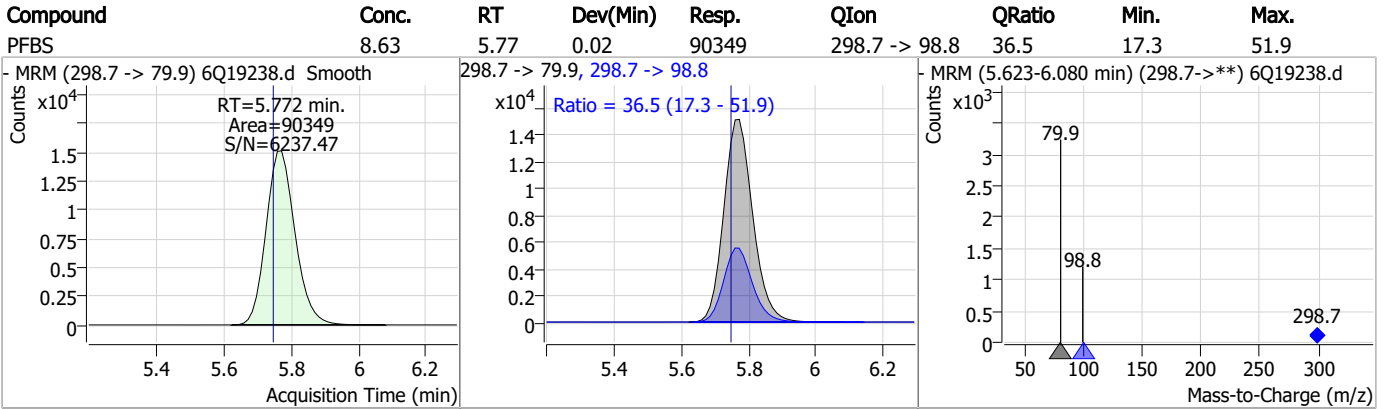
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	18.89	5.00	0.01	232920				



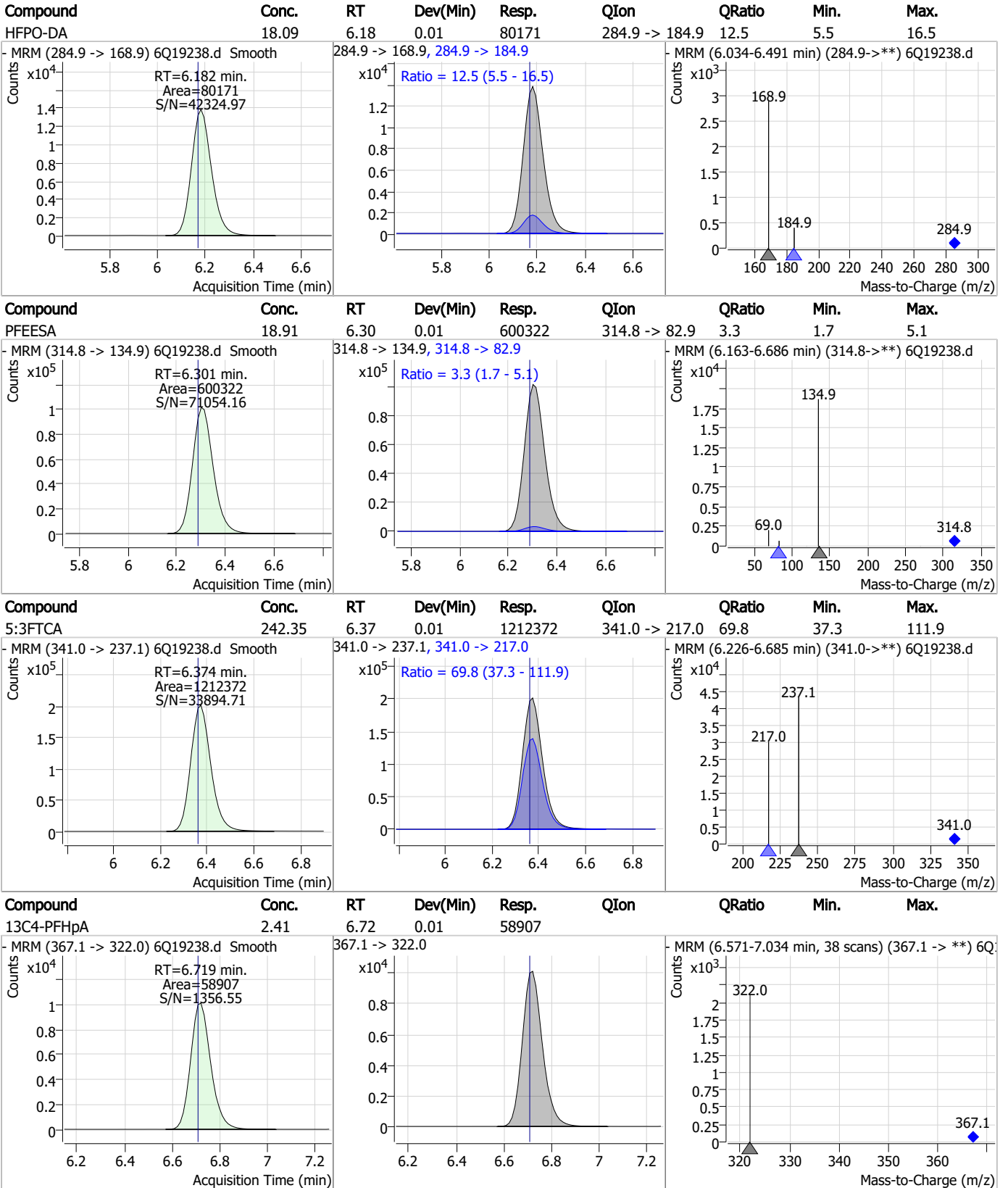
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



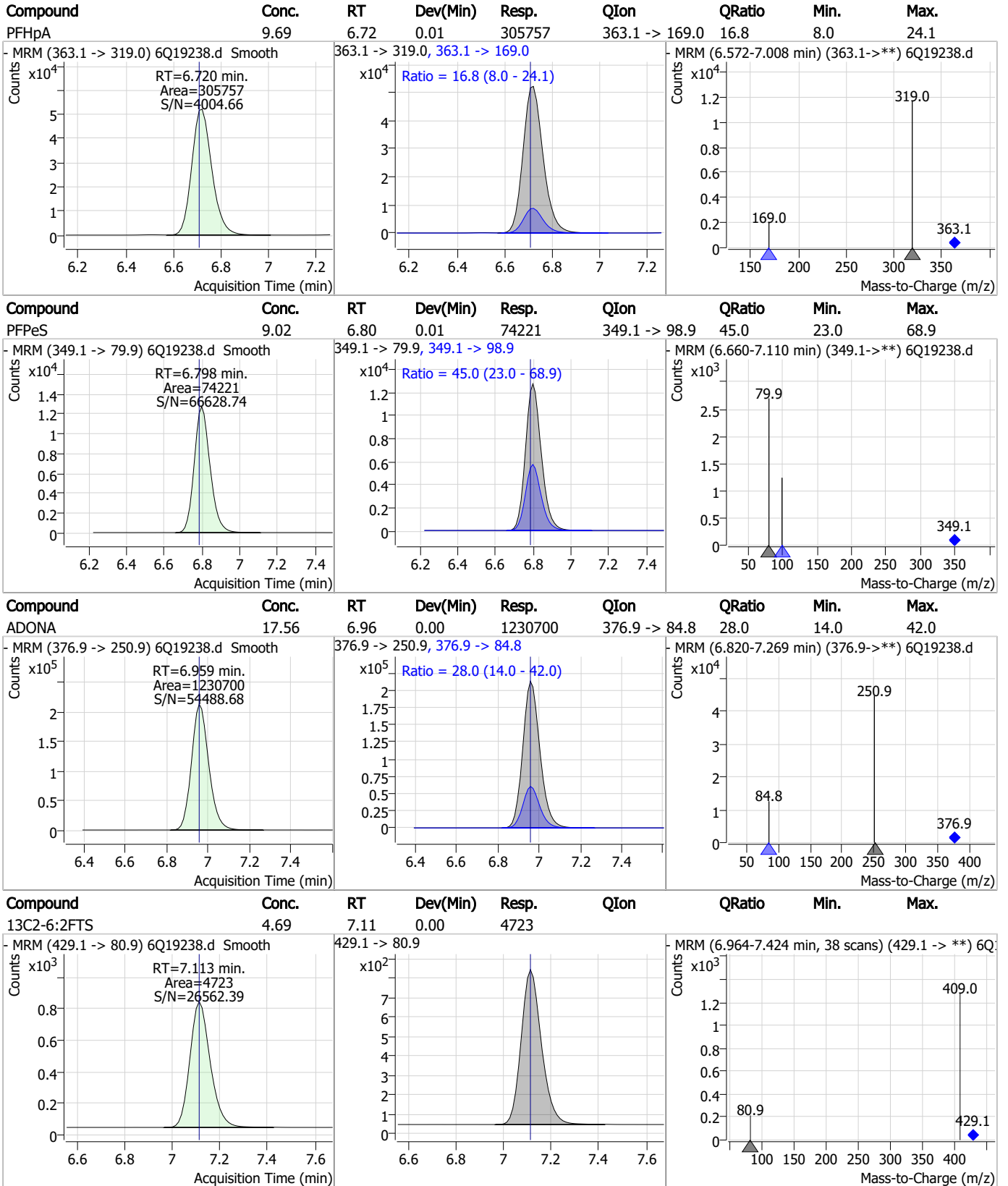
Perfluorinated Compounds by LC/MS/MS



7.6.2

7

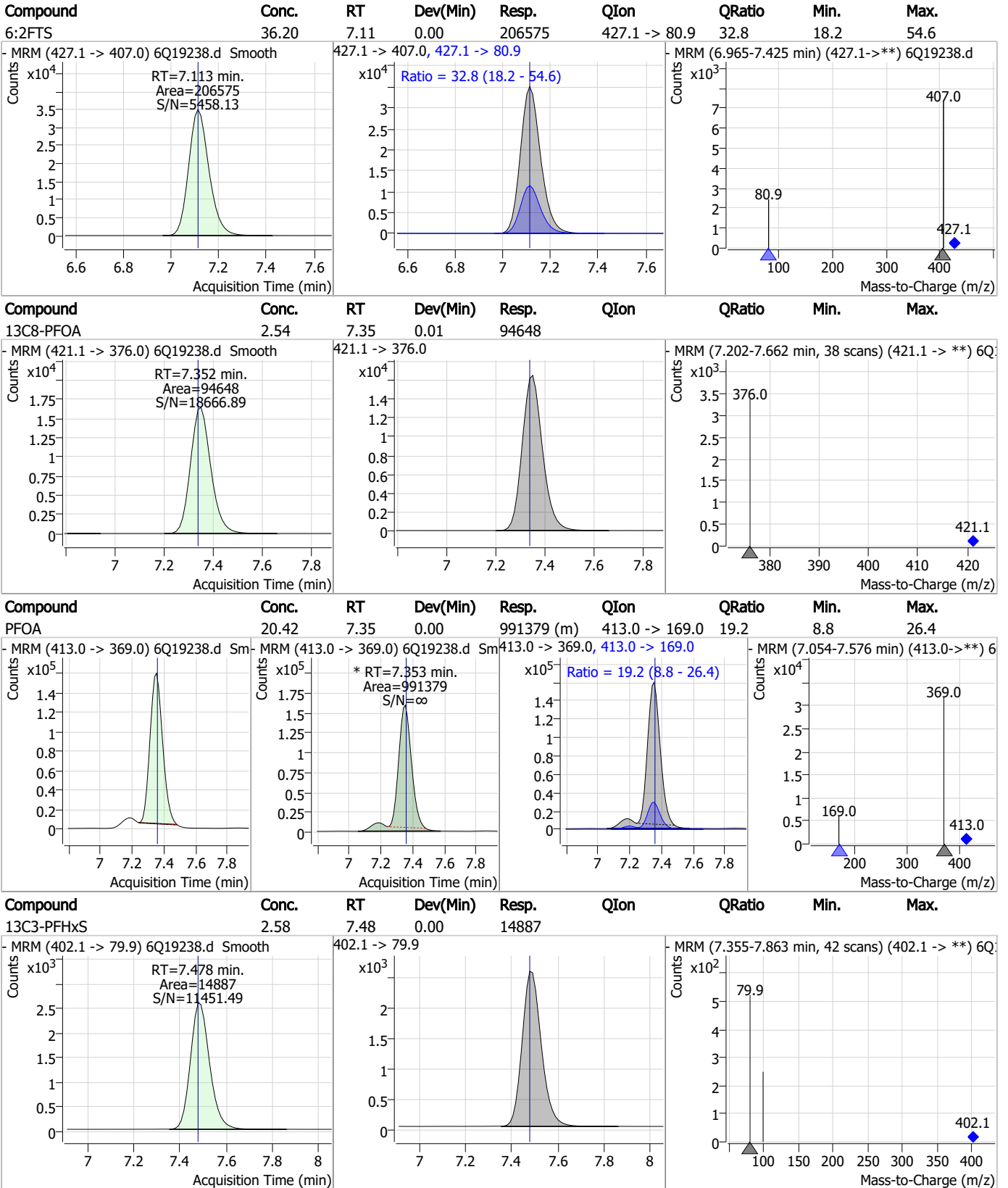
Perfluorinated Compounds by LC/MS/MS



7.6.2

7

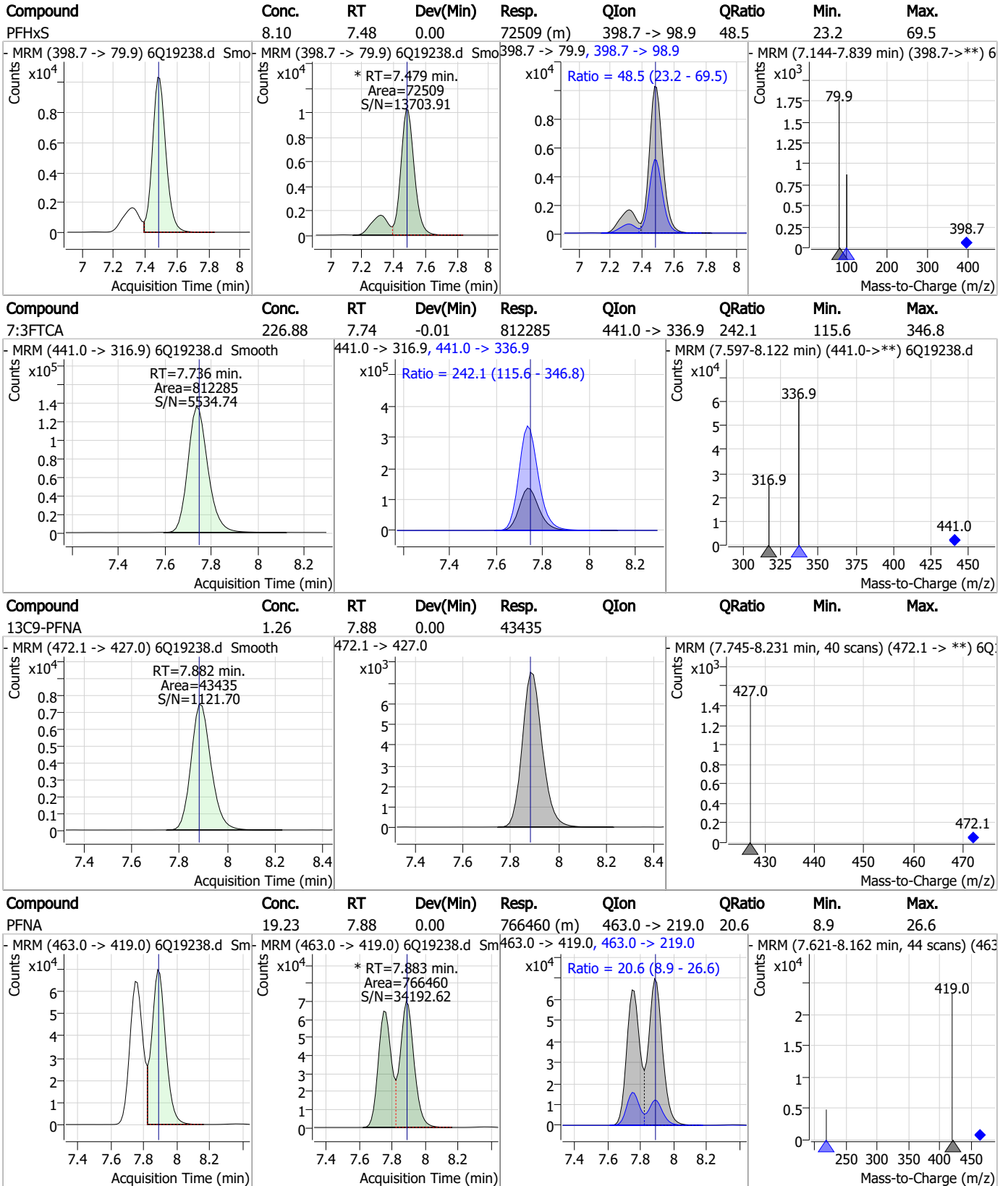
Perfluorinated Compounds by LC/MS/MS



7.6.2

7

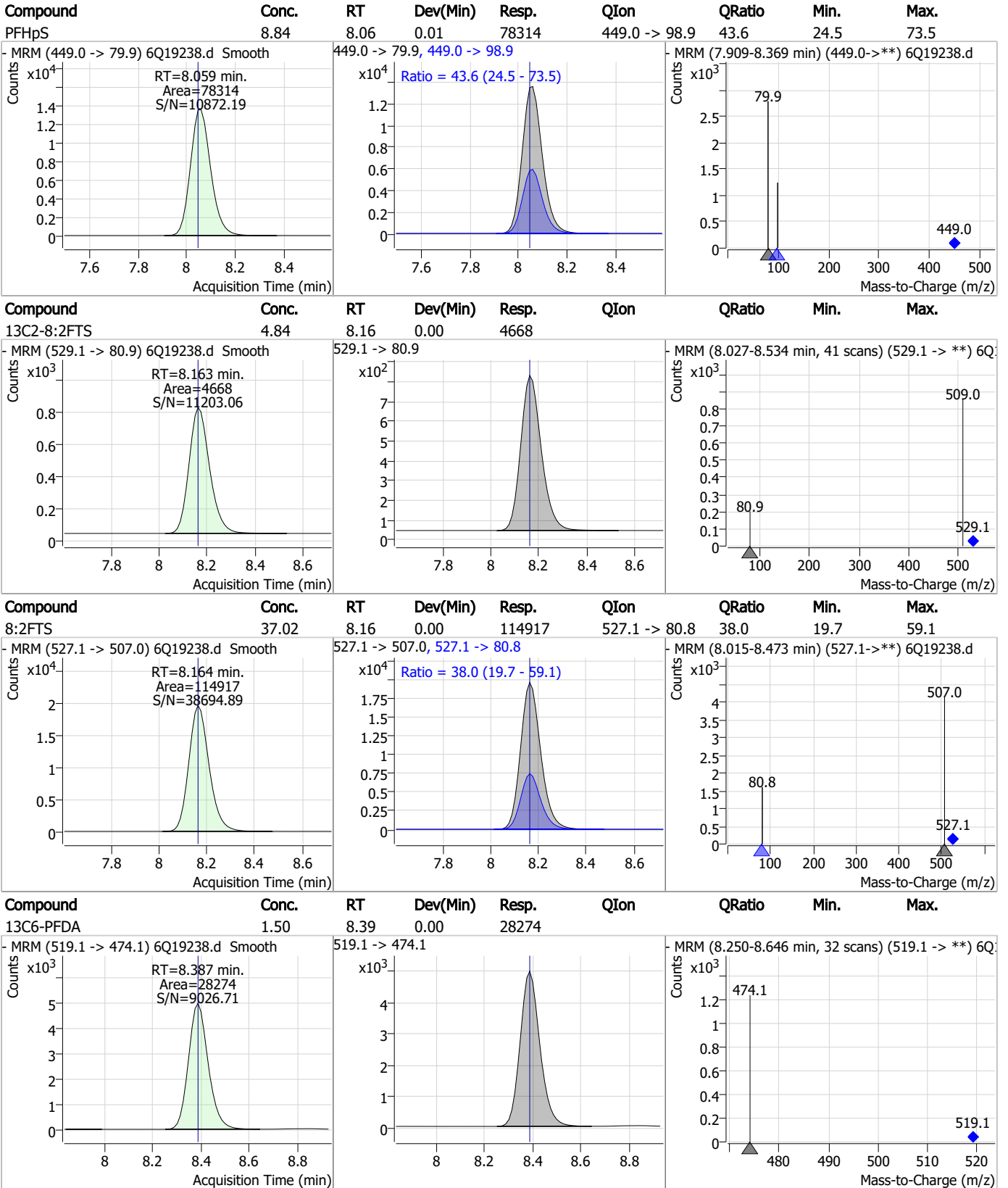
Perfluorinated Compounds by LC/MS/MS



7.6.2

7

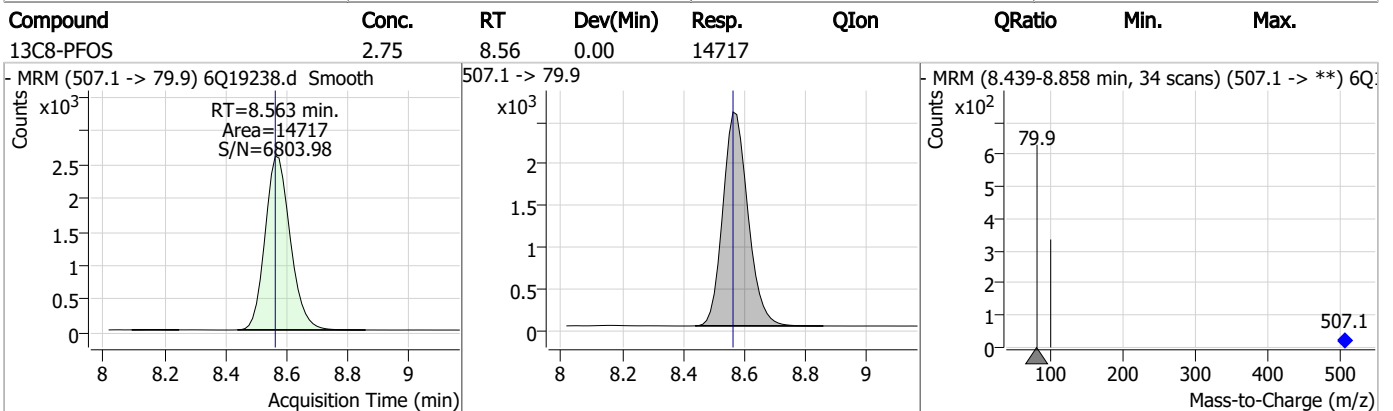
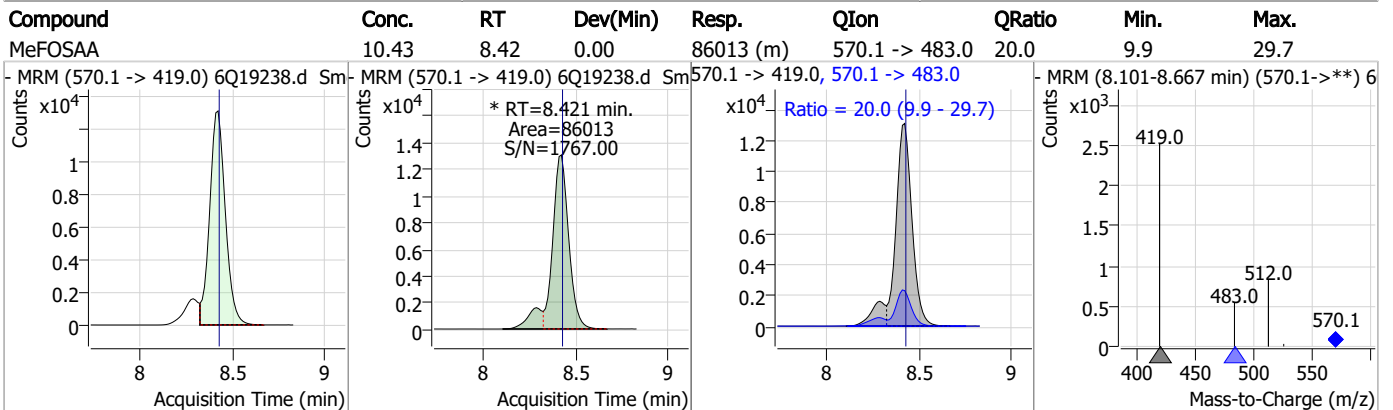
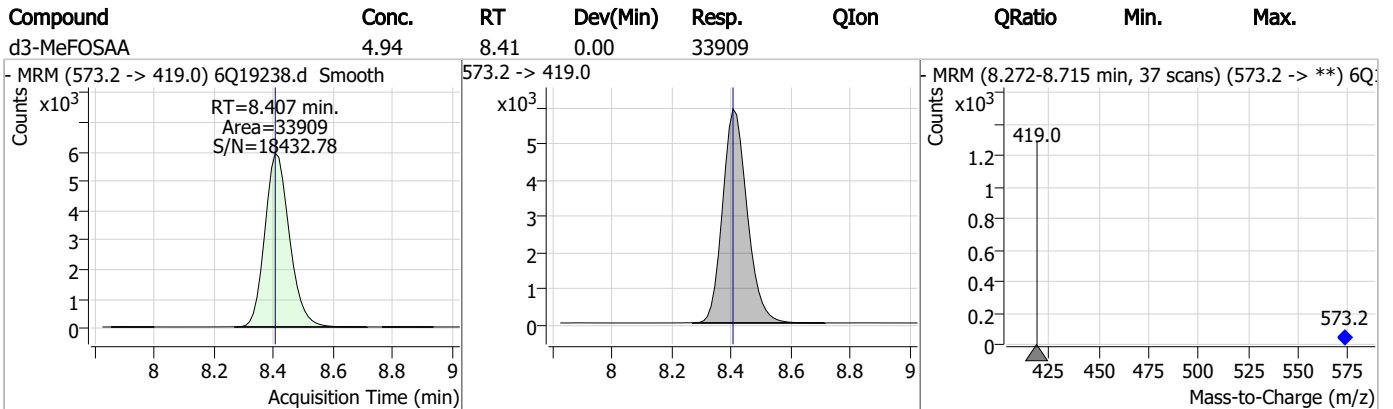
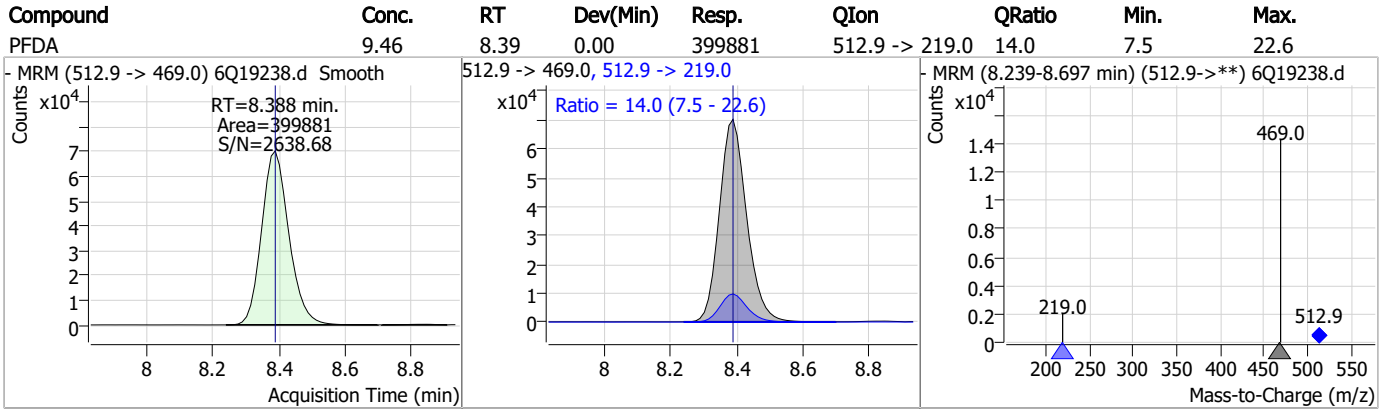
Perfluorinated Compounds by LC/MS/MS



7.6.2

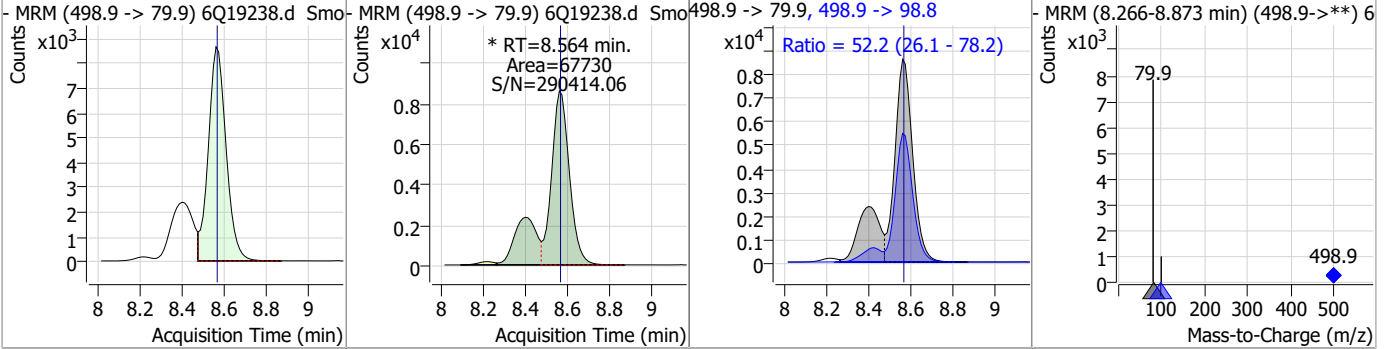
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Perfluorinated Compounds by LC/MS/MS

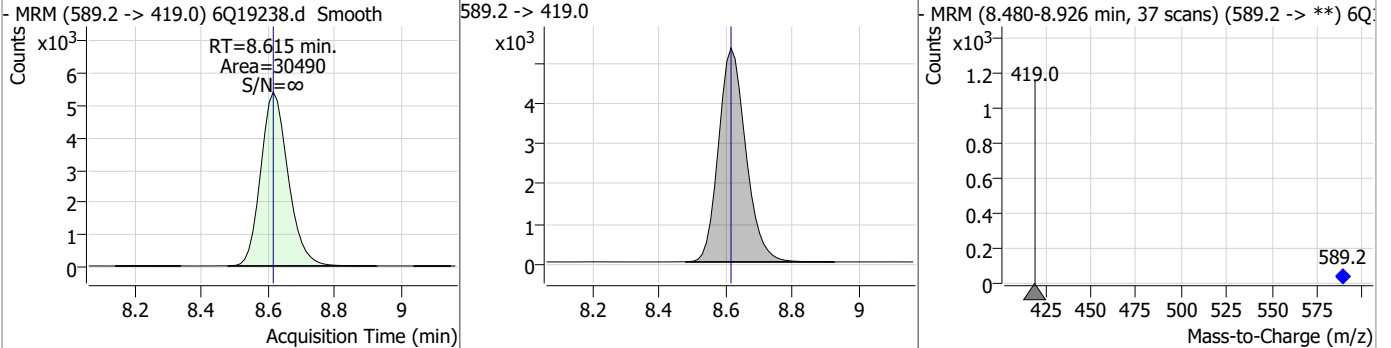


Perfluorinated Compounds by LC/MS/MS

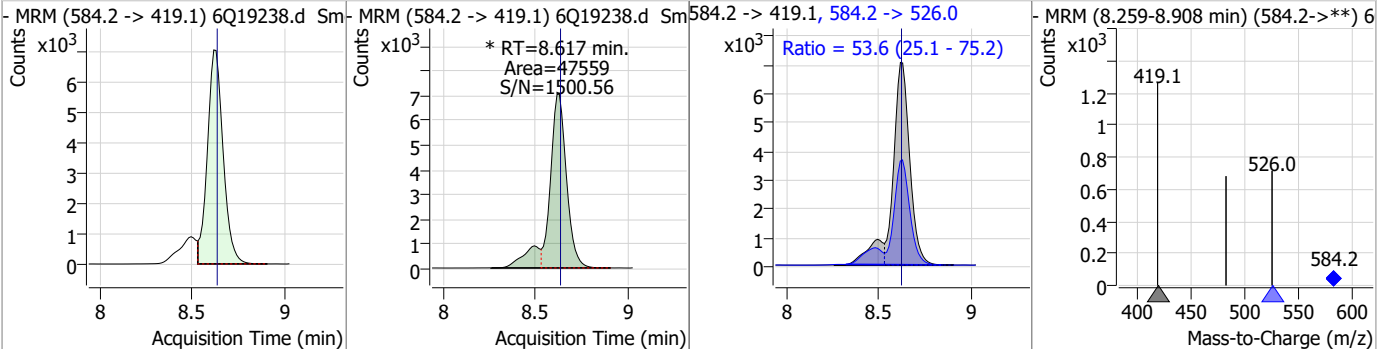
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	7.81	8.56	0.00	67730 (m)	498.9 -> 98.8	52.2	26.1	78.2



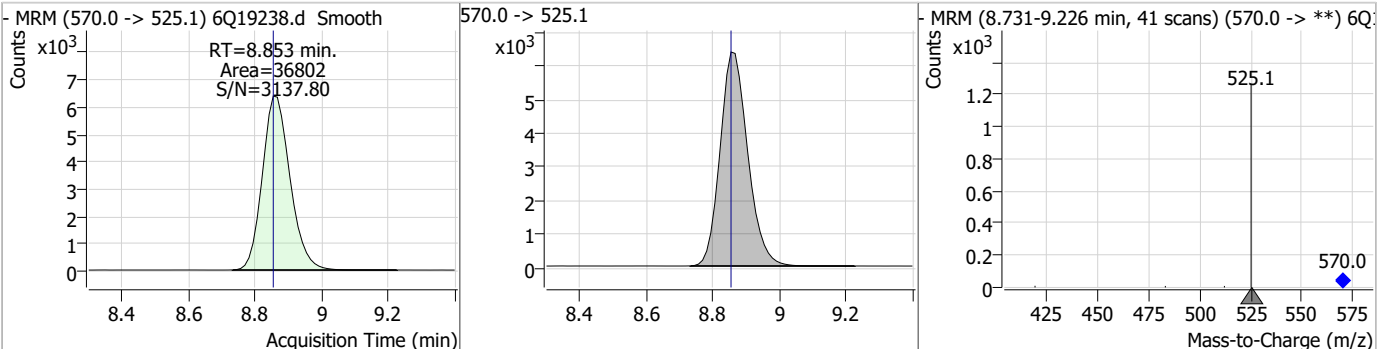
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.26	8.62	0.00	30490				



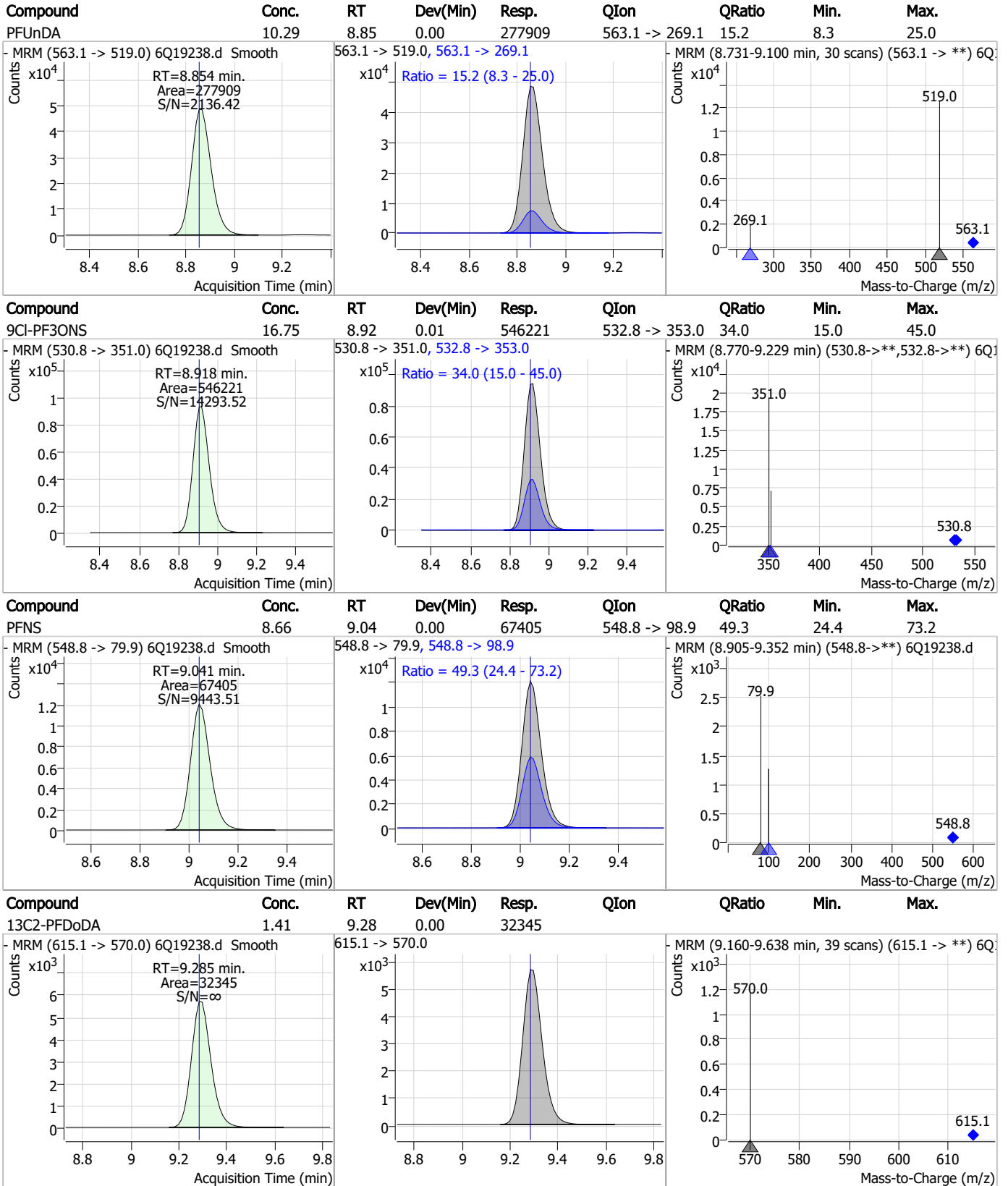
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	9.39	8.62	-0.01	47559 (m)	584.2 -> 526.0	53.6	25.1	75.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.38	8.85	0.00	36802				



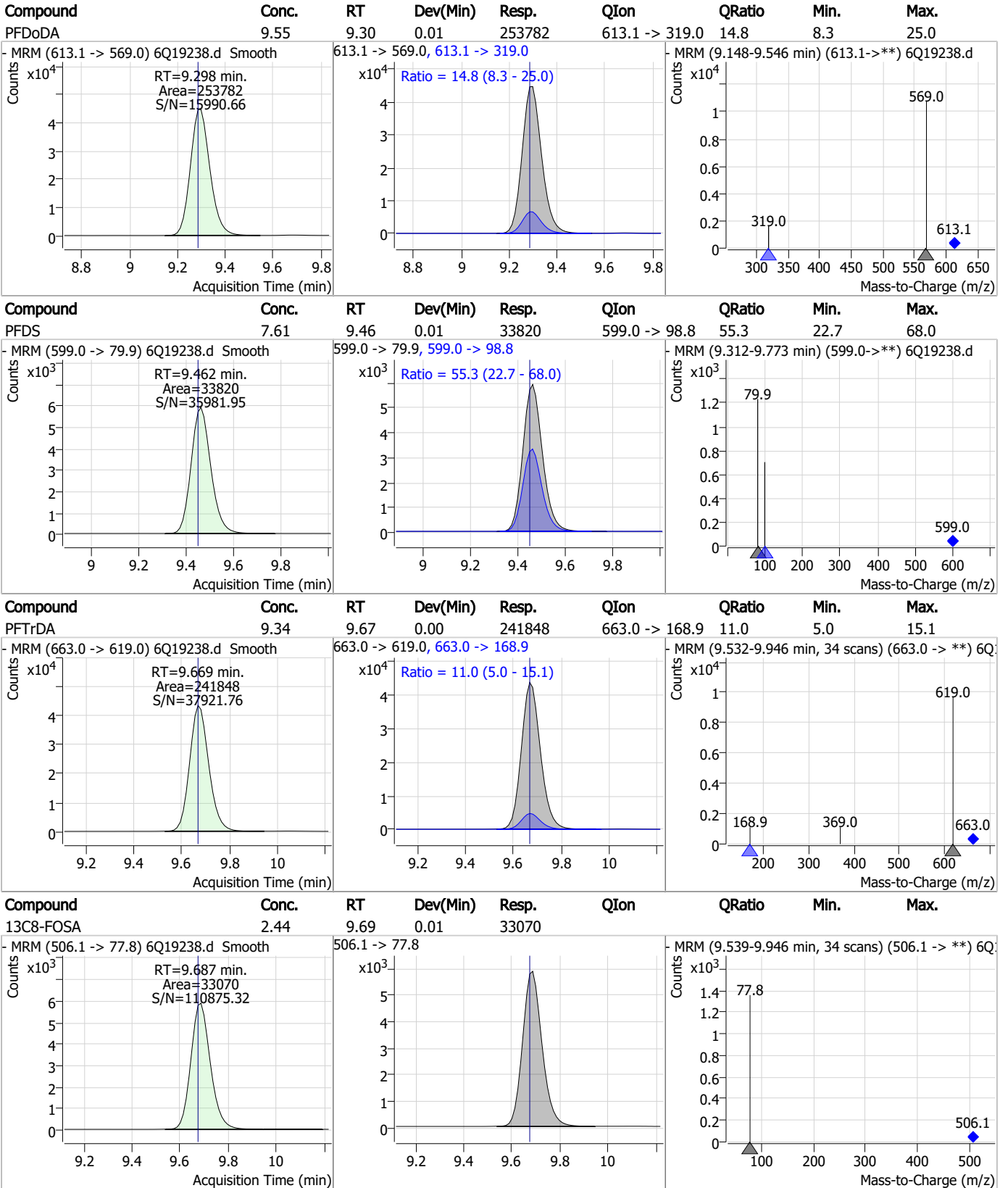
Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Perfluorinated Compounds by LC/MS/MS

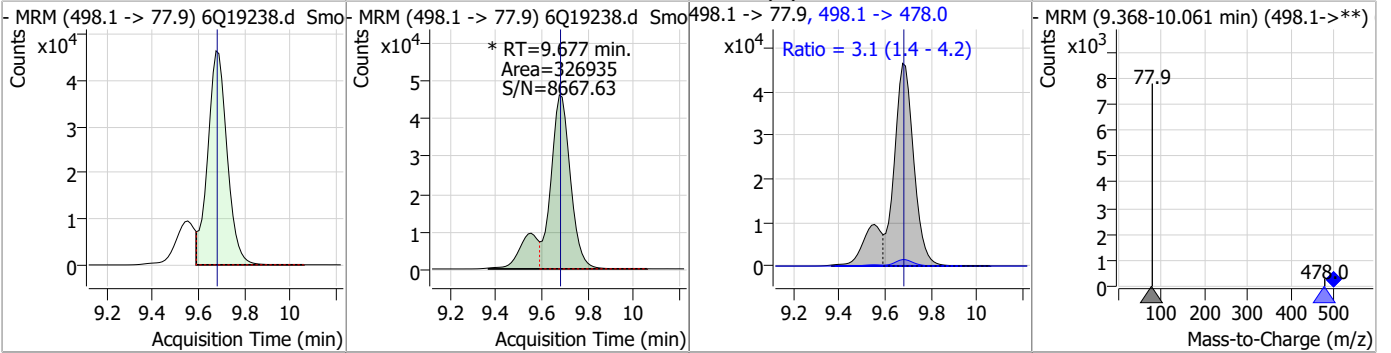


7.6.2

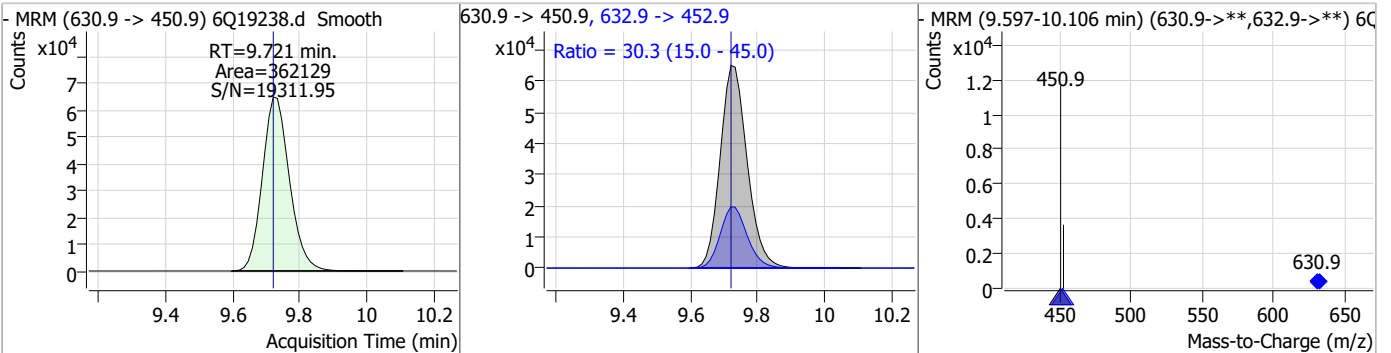
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Perfluorinated Compounds by LC/MS/MS

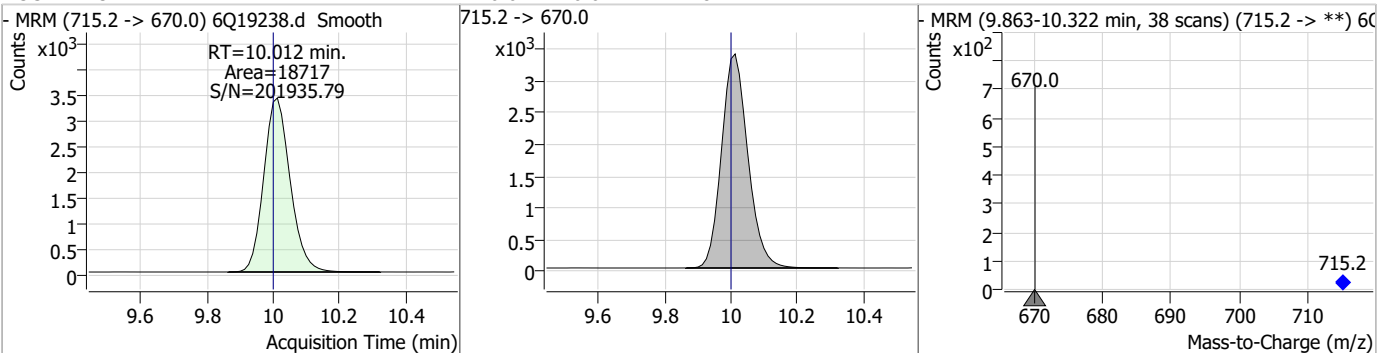
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	24.09	9.68	0.00	326935 (m)	498.1 -> 478.0	3.1	1.4	4.2



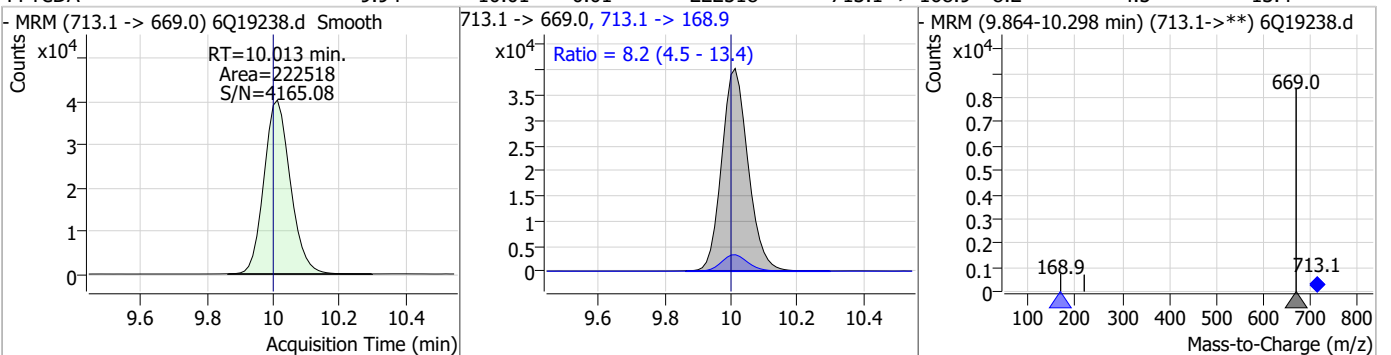
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	18.55	9.72	0.00	362129	632.9 -> 452.9	30.3	15.0	45.0



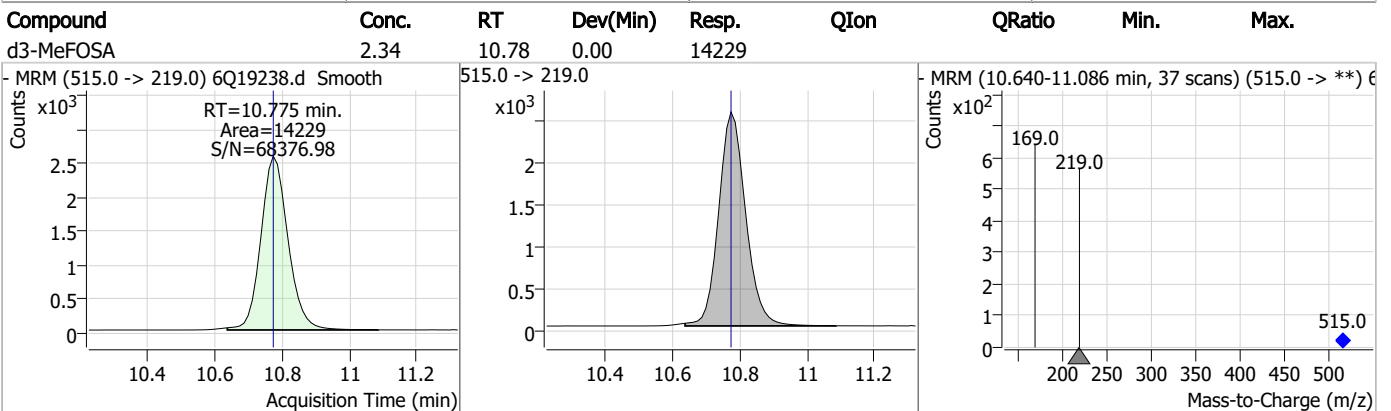
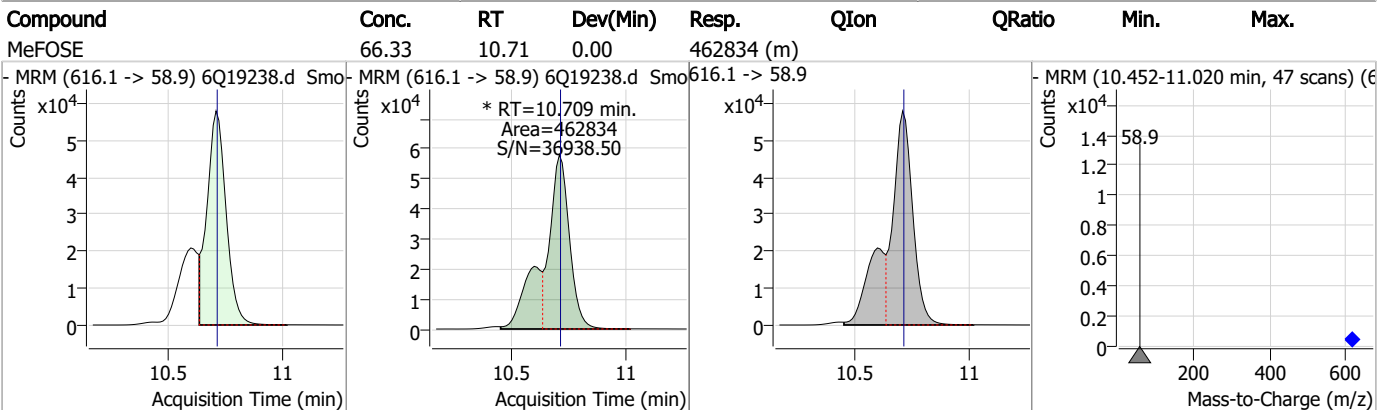
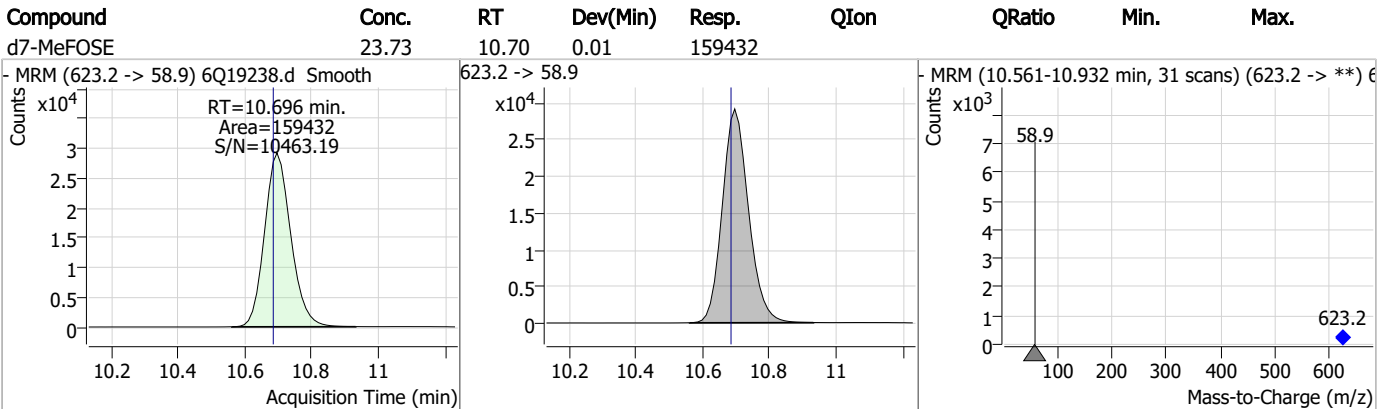
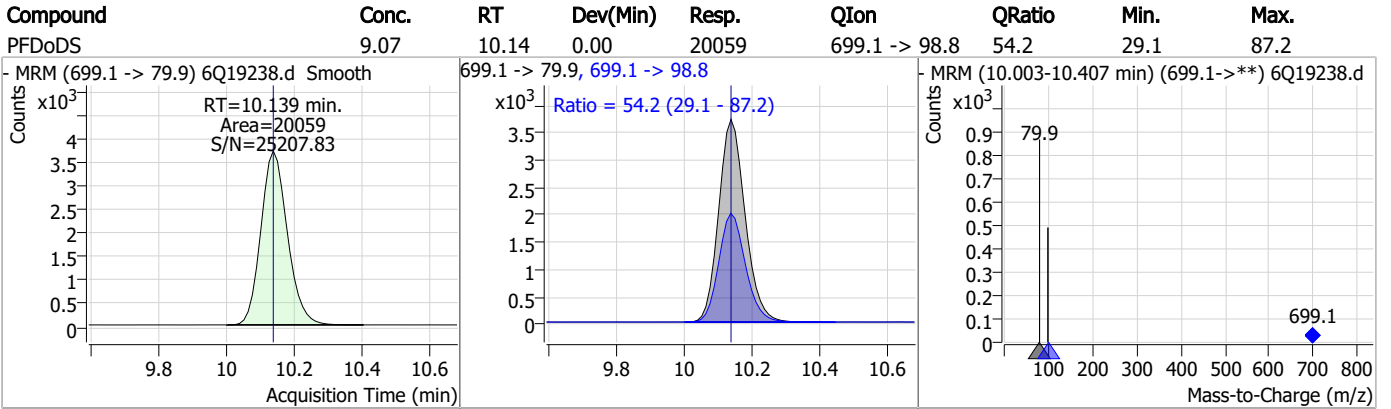
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.41	10.01	0.01	18717	715.2 -> 670.0	8.2	4.5	13.4



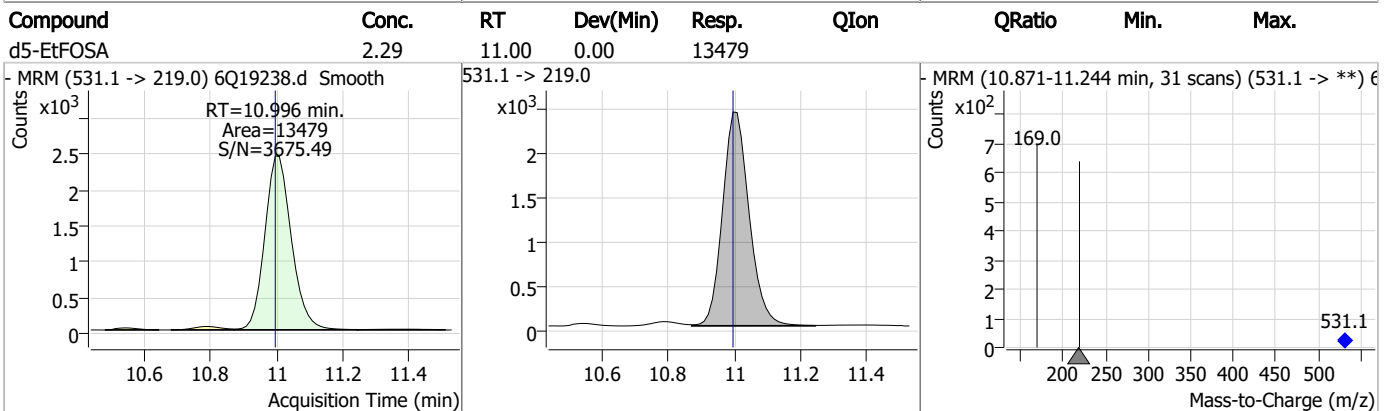
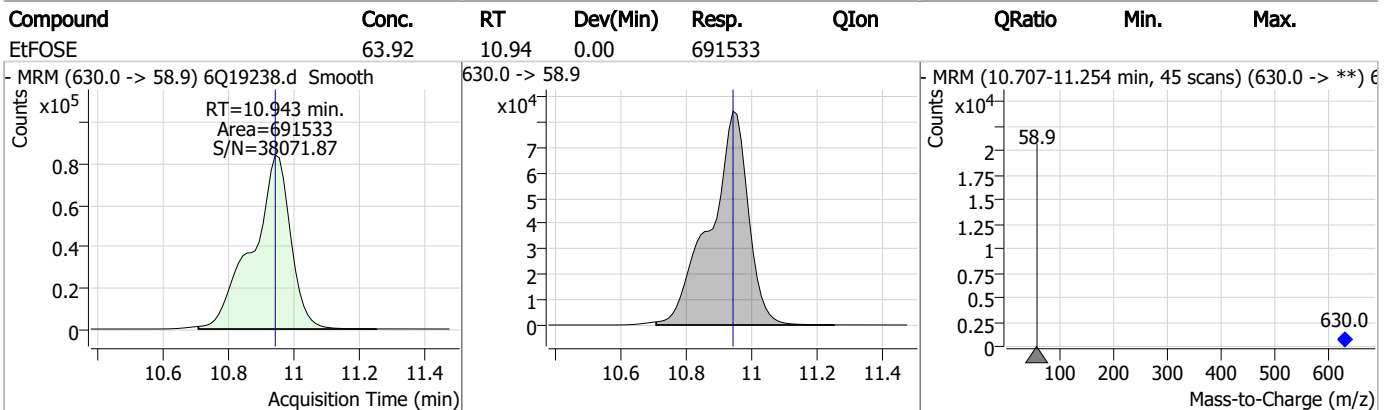
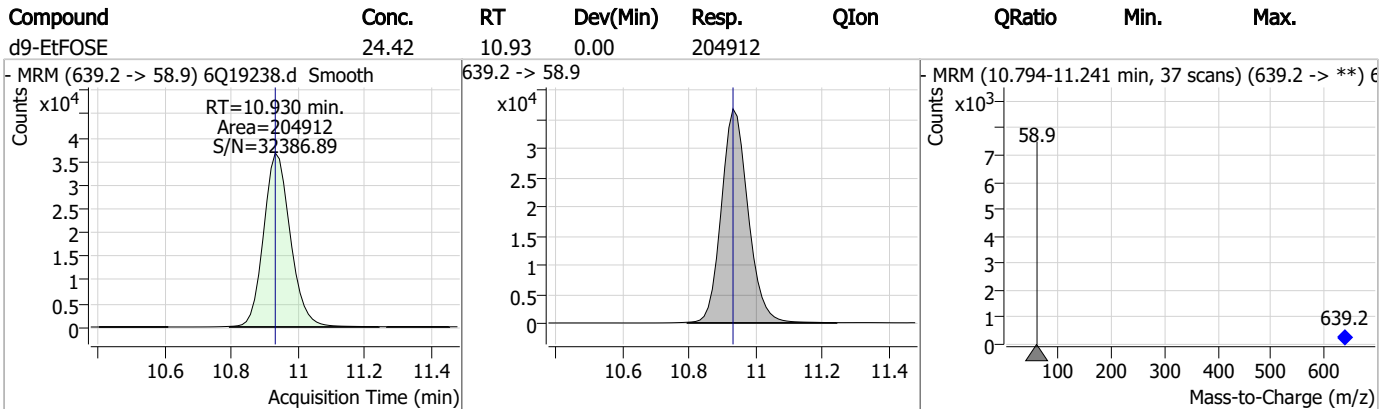
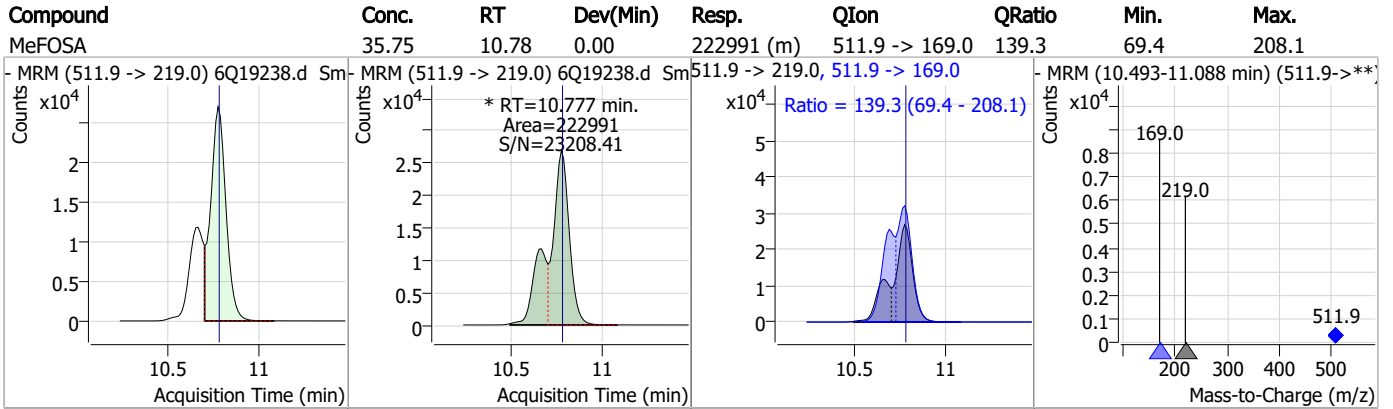
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	9.94	10.01	0.01	222518	713.1 -> 168.9	8.2	4.5	13.4



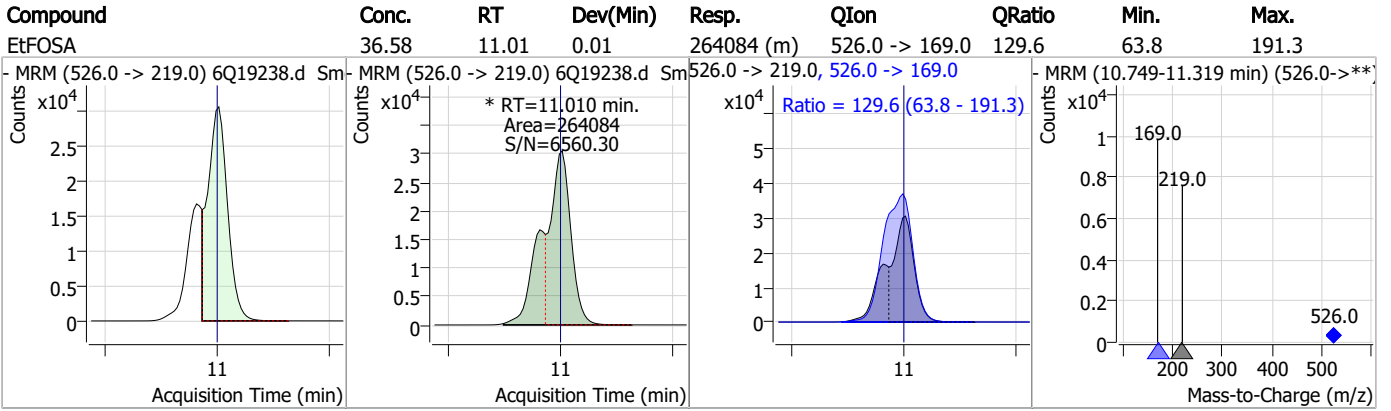
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S6Q287-RT
Lab FileID: 6Q19238.D
Injection Time: 06/12/23 15:20

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
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			
11Cl-PF3OUdS	9.721	630.9 -> 450.9	6441	0.44	µg/L	93
		632.9 -> 452.9	2189			
9Cl-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

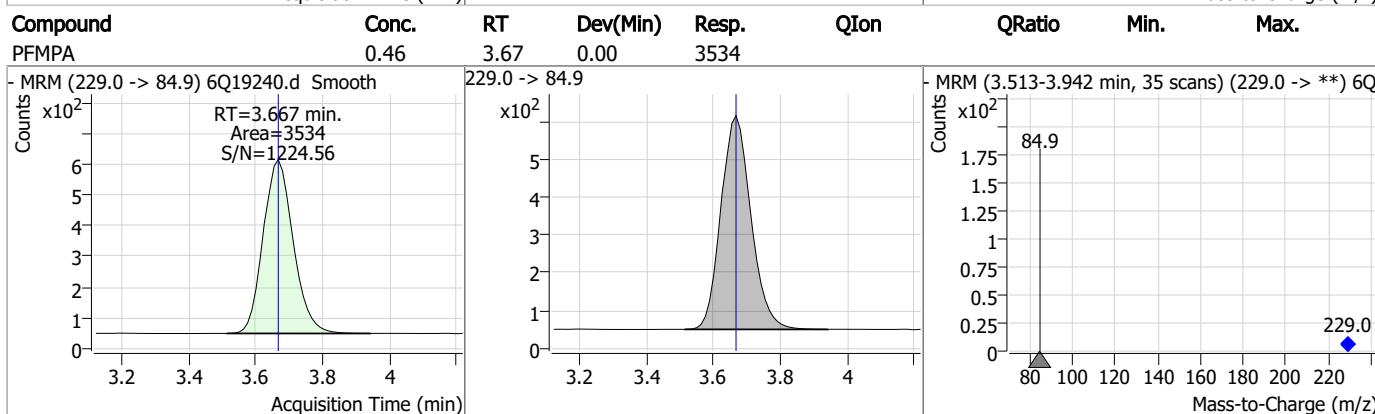
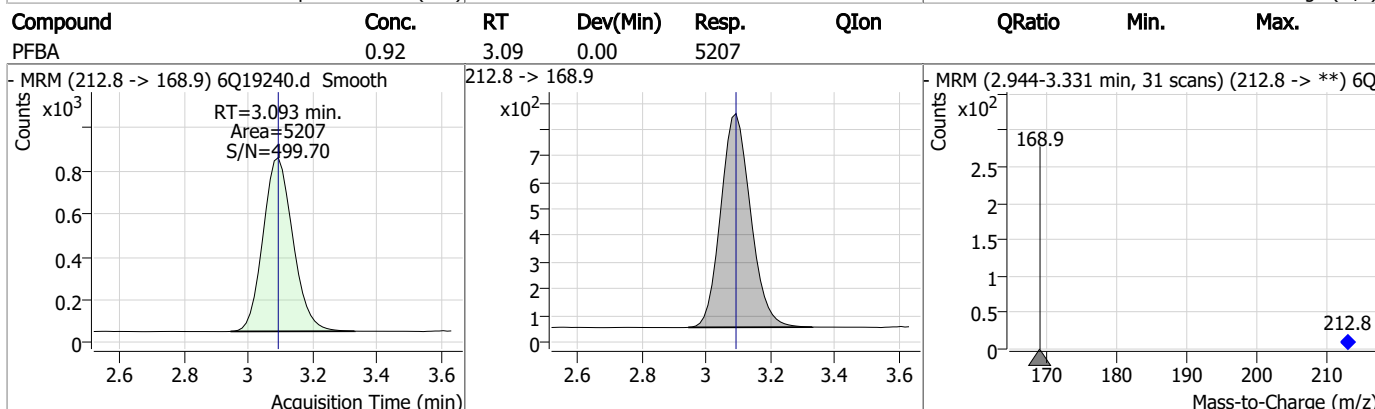
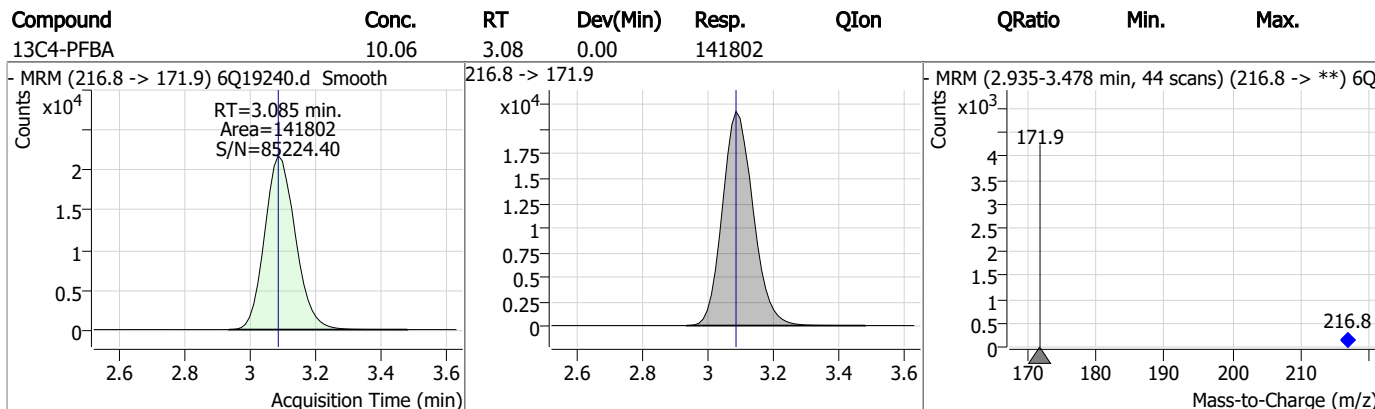
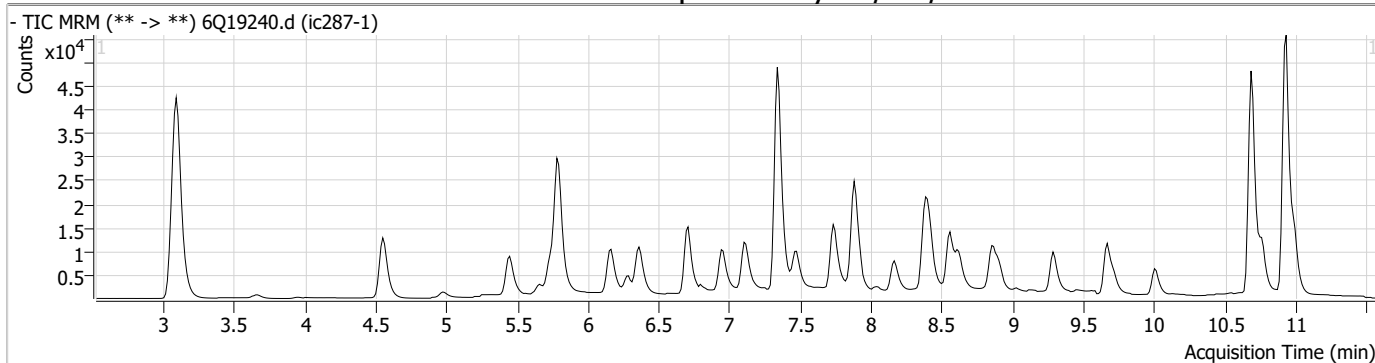
Perfluorinated Compounds by LC/MS/MS

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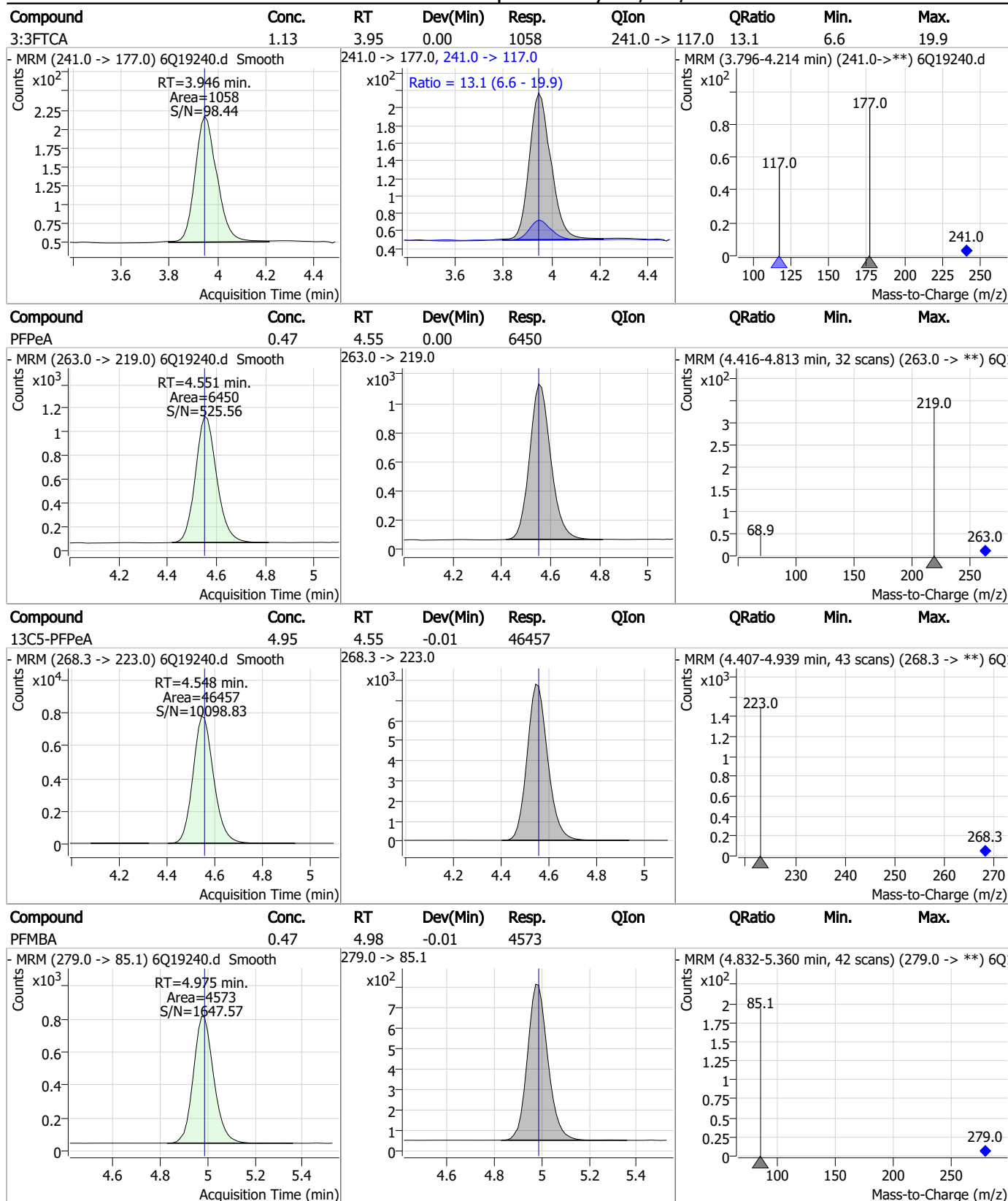


Perfluorinated Compounds by LC/MS/MS



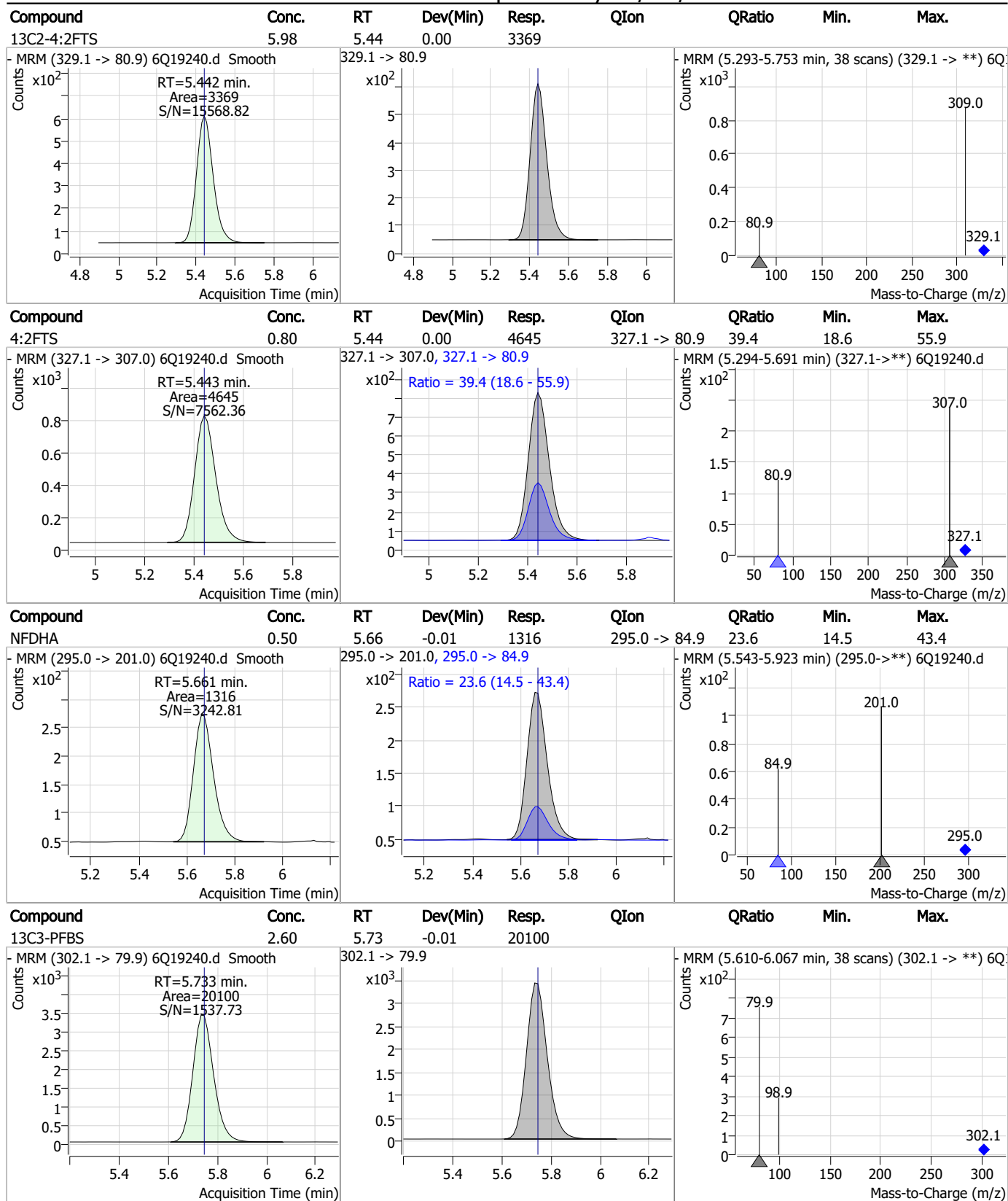
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Perfluorinated Compounds by LC/MS/MS



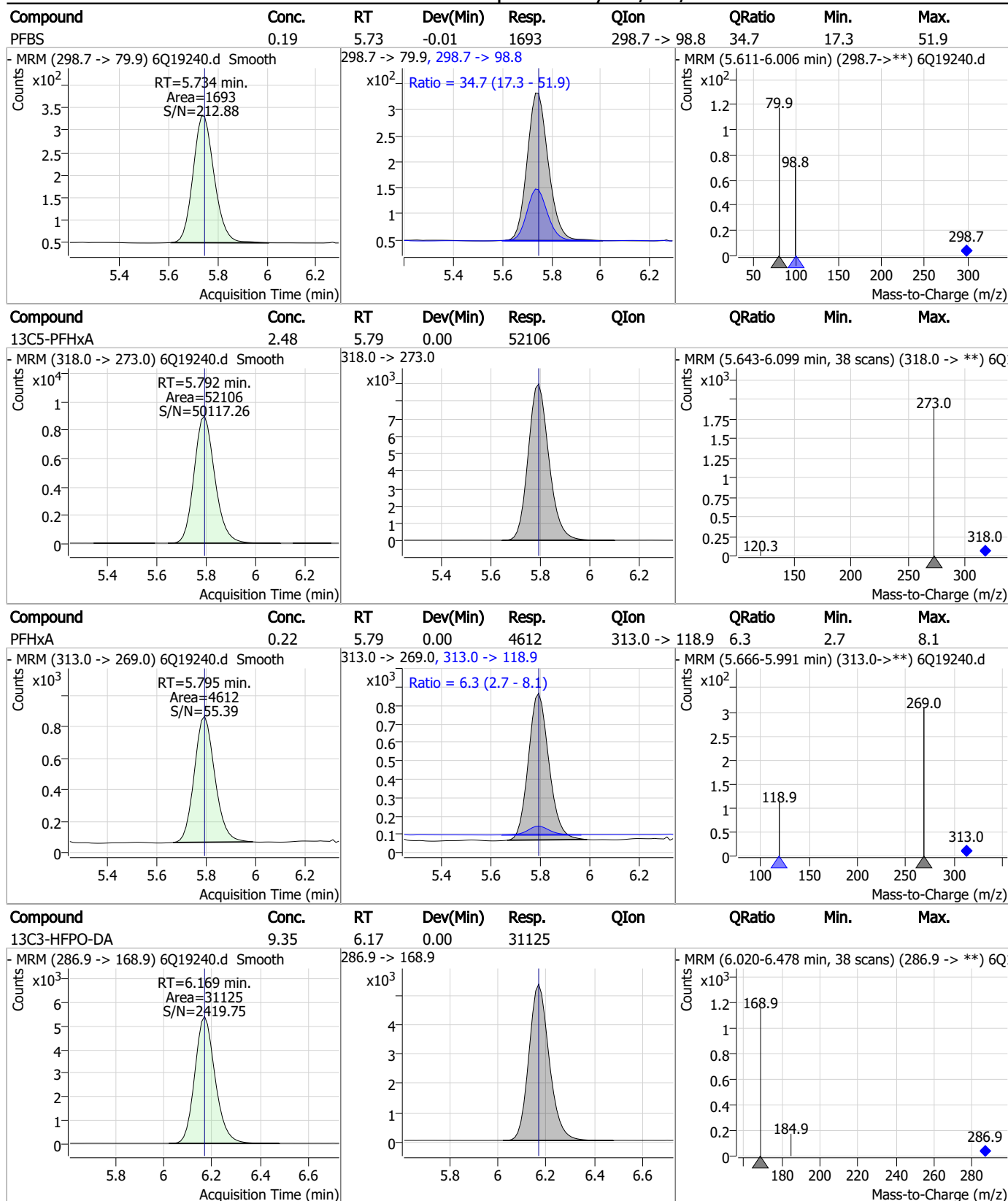
7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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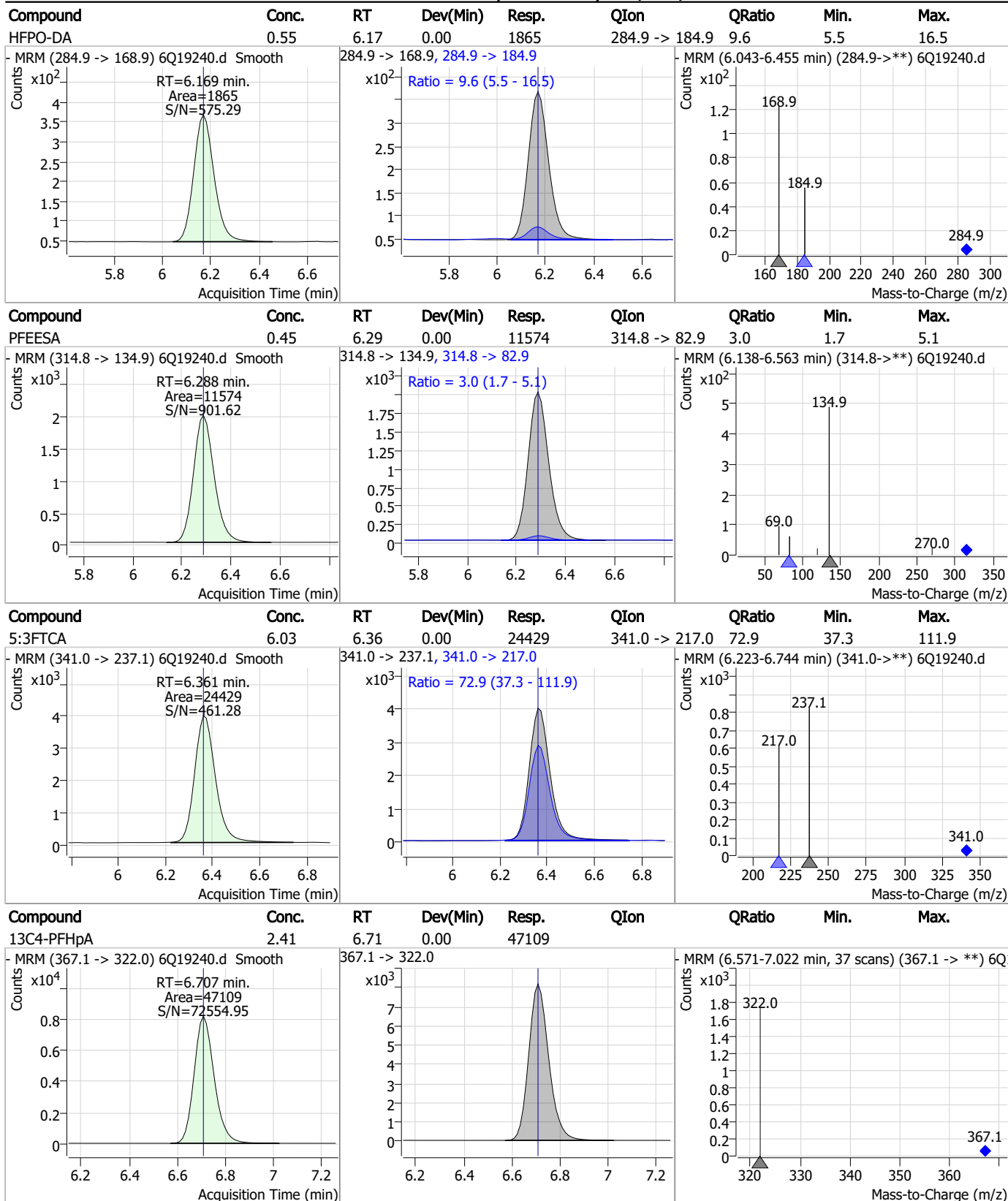
Perfluorinated Compounds by LC/MS/MS



7.7.2
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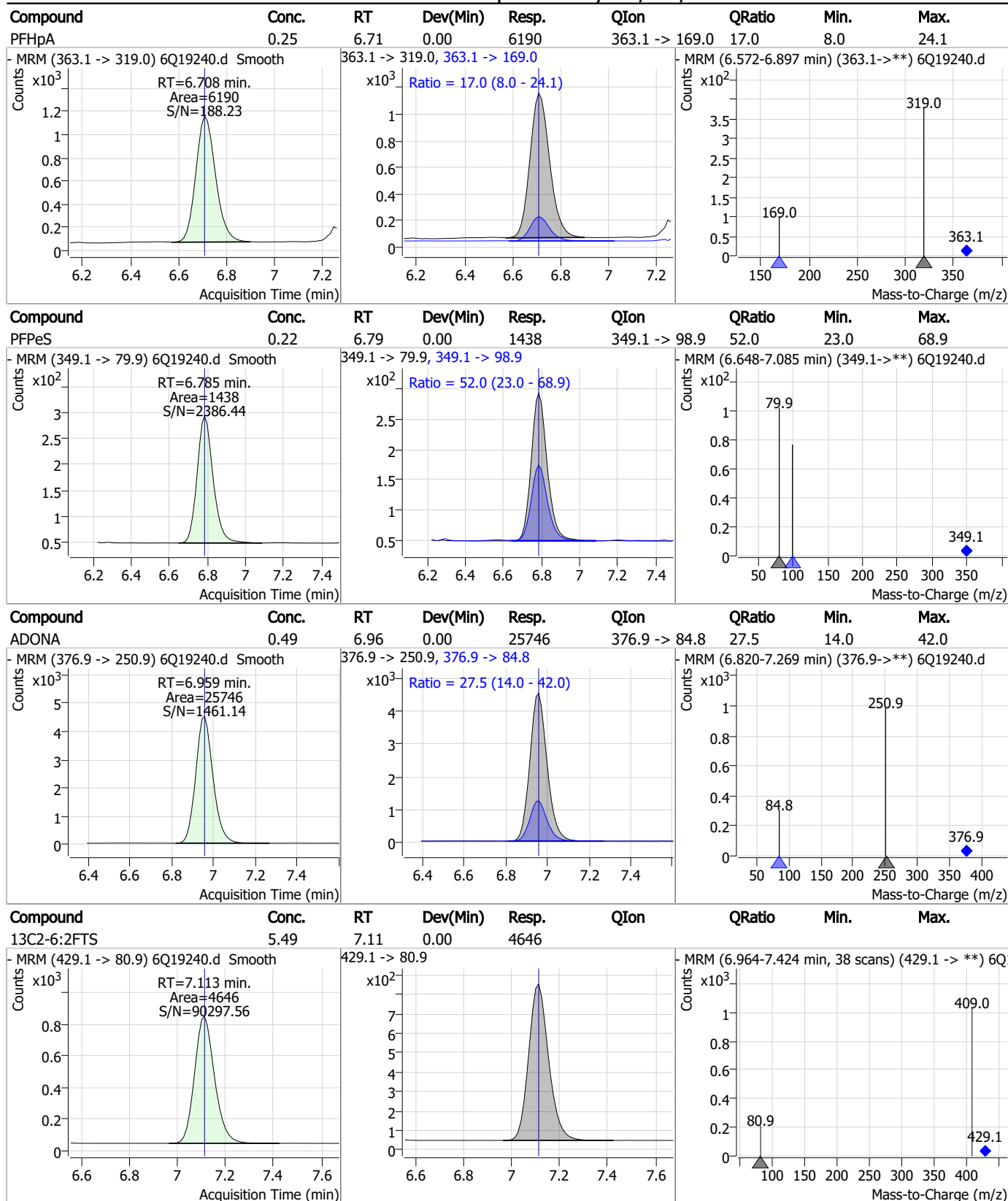


Perfluorinated Compounds by LC/MS/MS



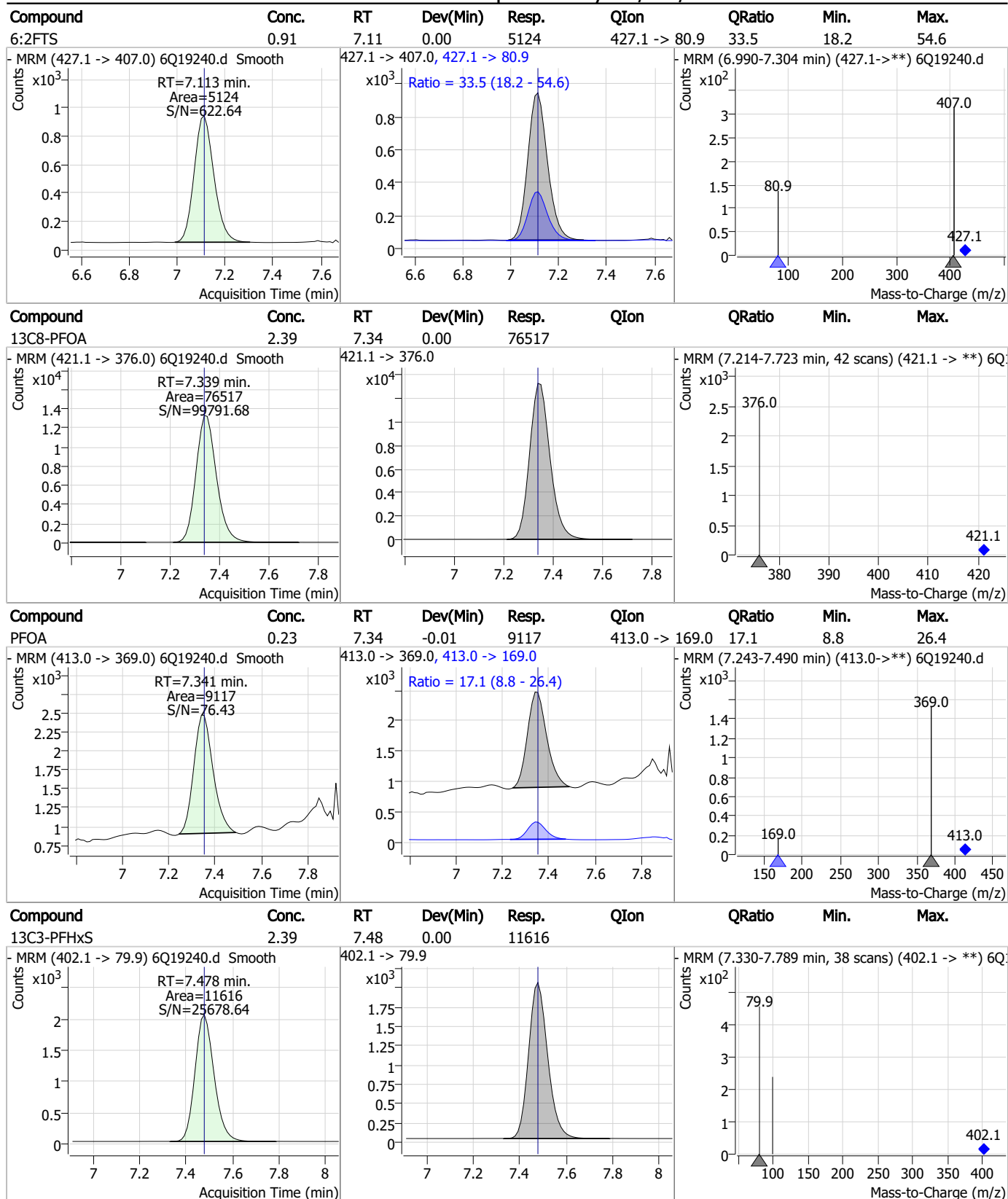
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Perfluorinated Compounds by LC/MS/MS



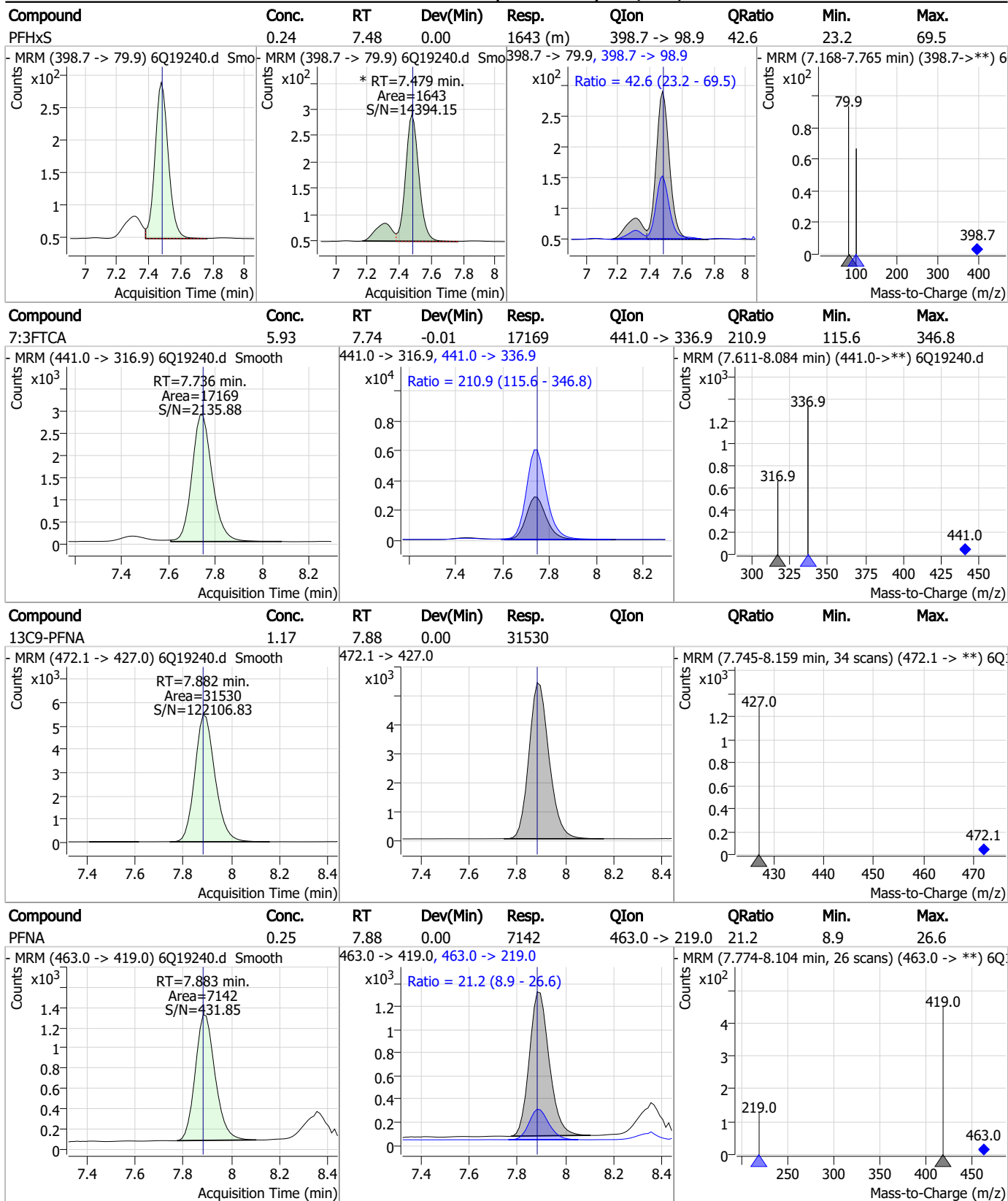
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Perfluorinated Compounds by LC/MS/MS



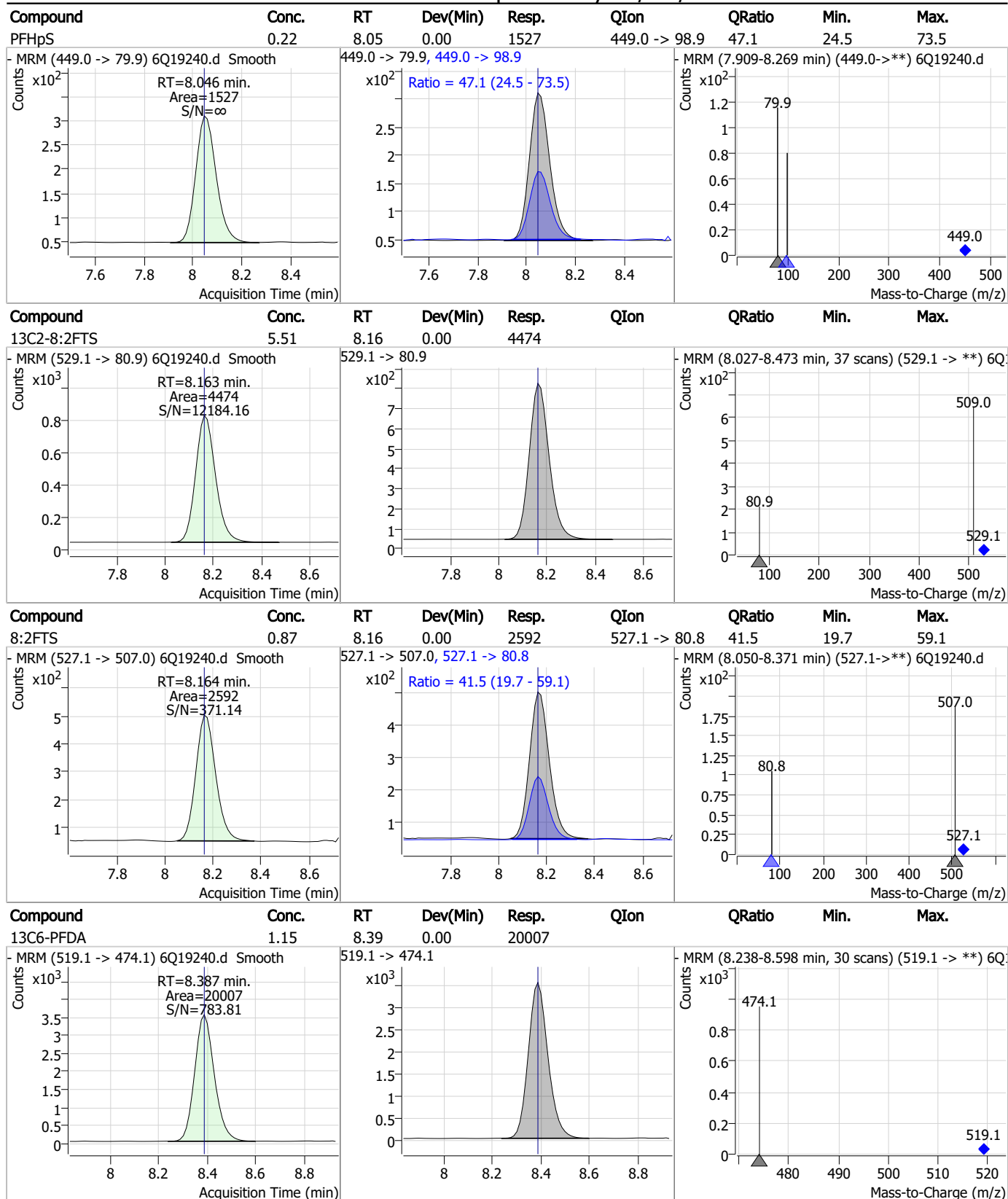
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Perfluorinated Compounds by LC/MS/MS



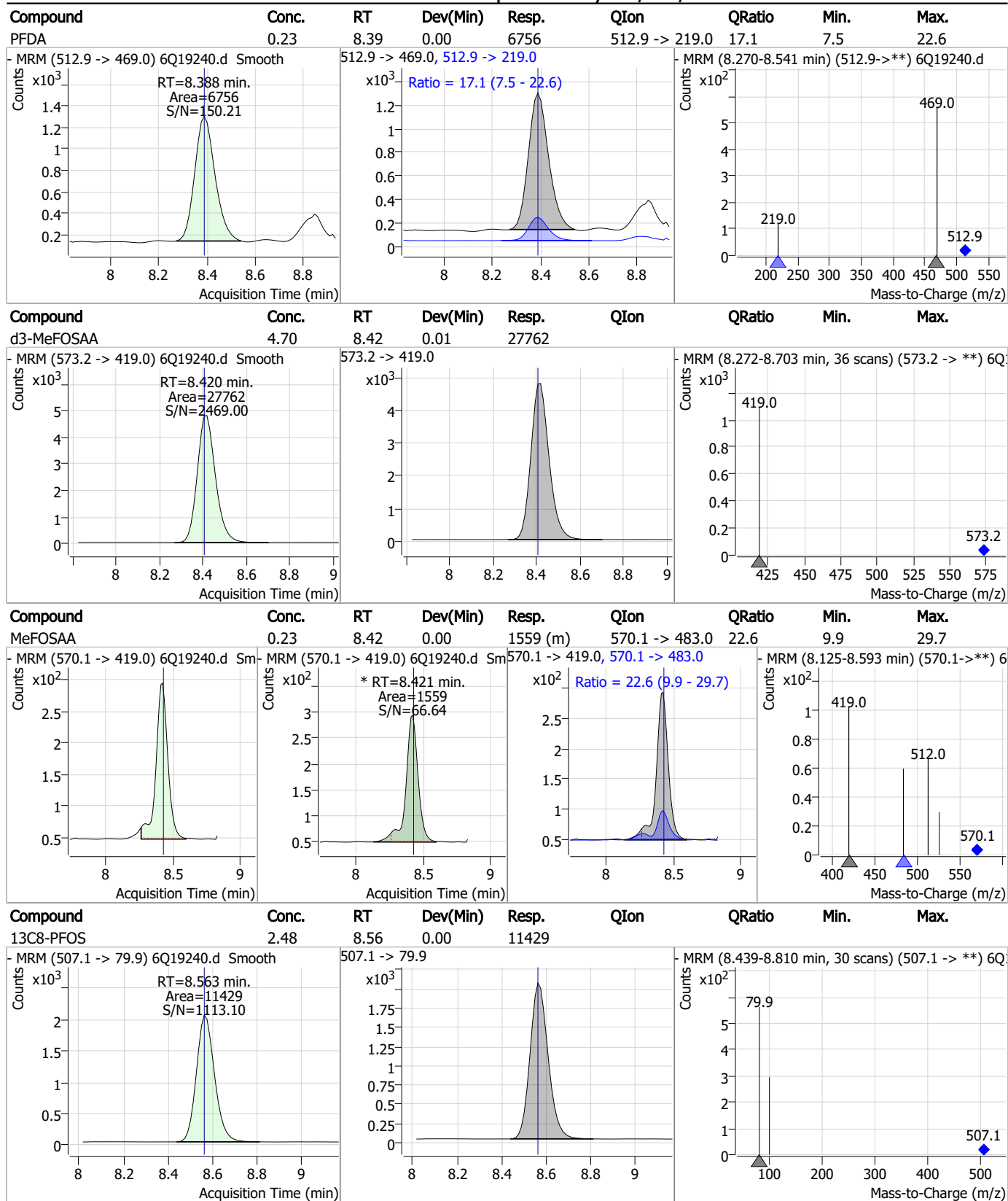
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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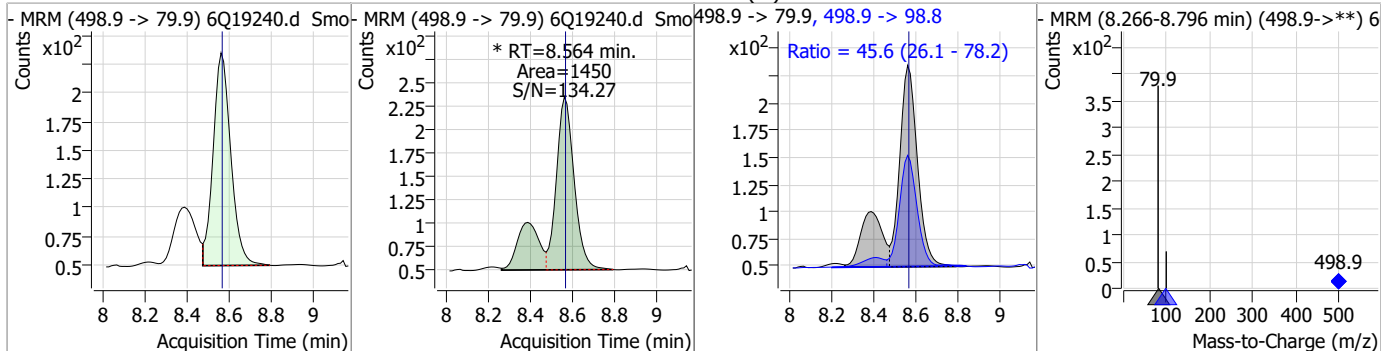
Perfluorinated Compounds by LC/MS/MS



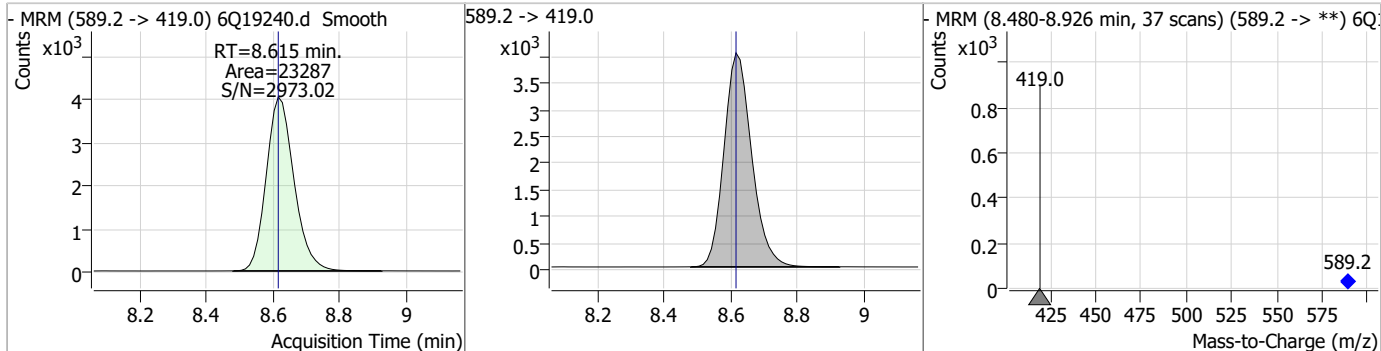
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Perfluorinated Compounds by LC/MS/MS

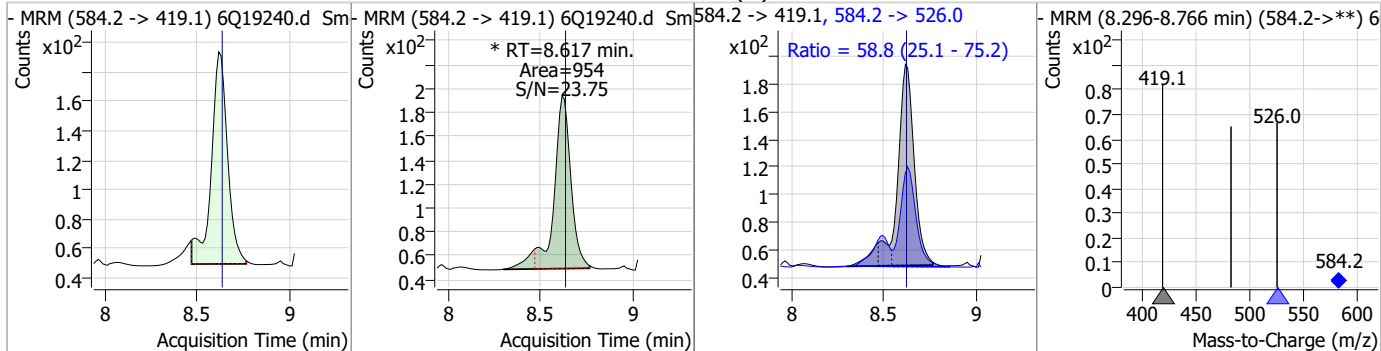
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.22	8.56	0.00	1450 (m)	498.9 -> 98.8	45.6	26.1	78.2



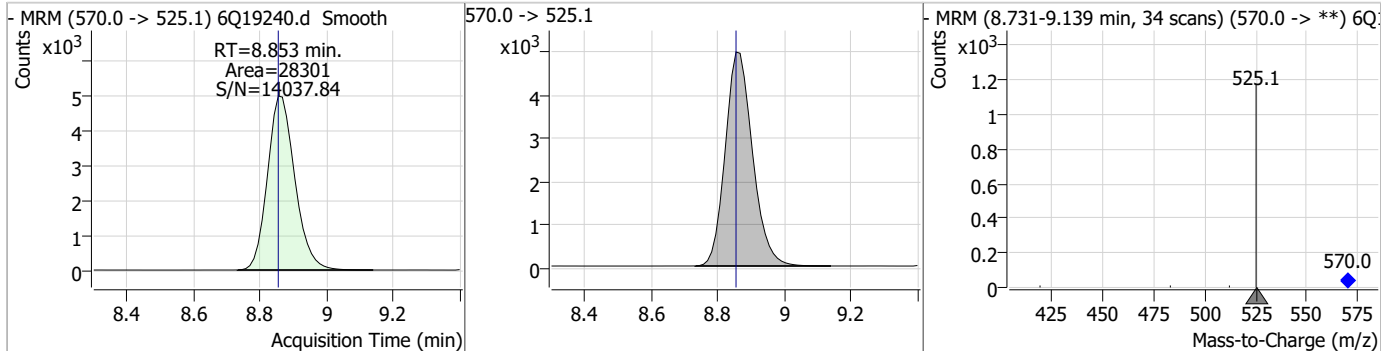
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.67	8.62	0.00	23287				



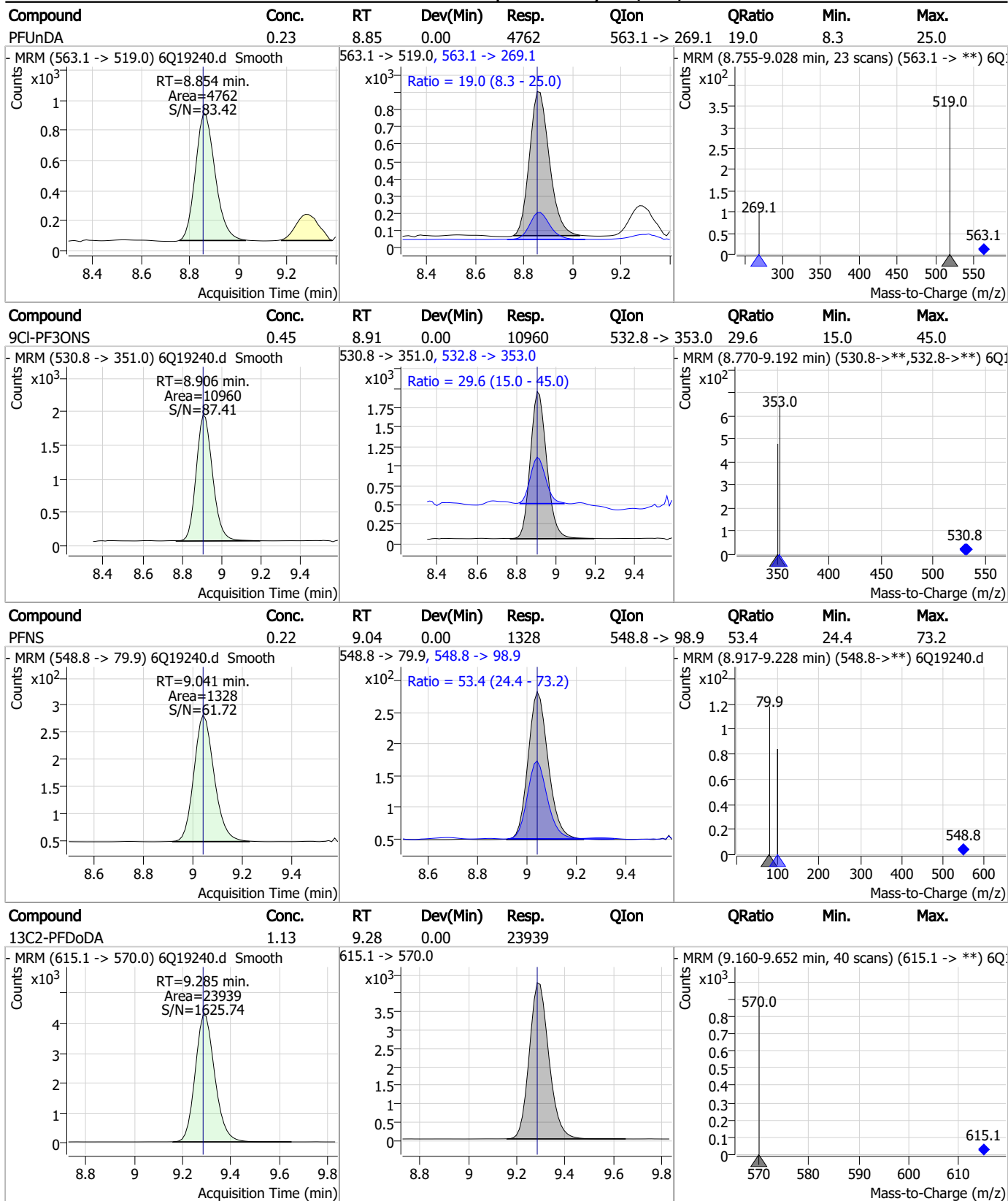
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.25	8.62	-0.01	954 (m)	584.2 -> 526.0	58.8	25.1	75.2



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

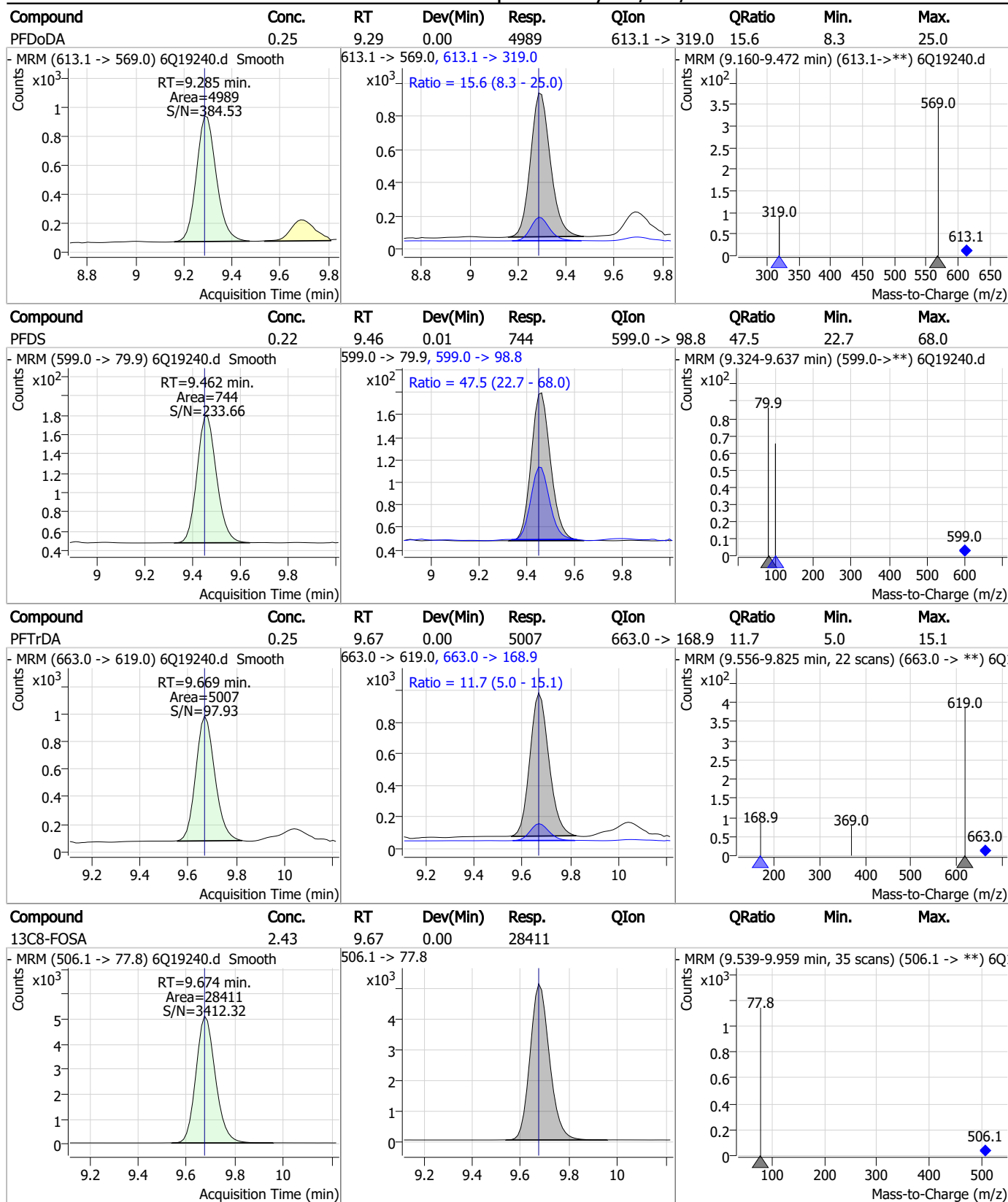


Perfluorinated Compounds by LC/MS/MS



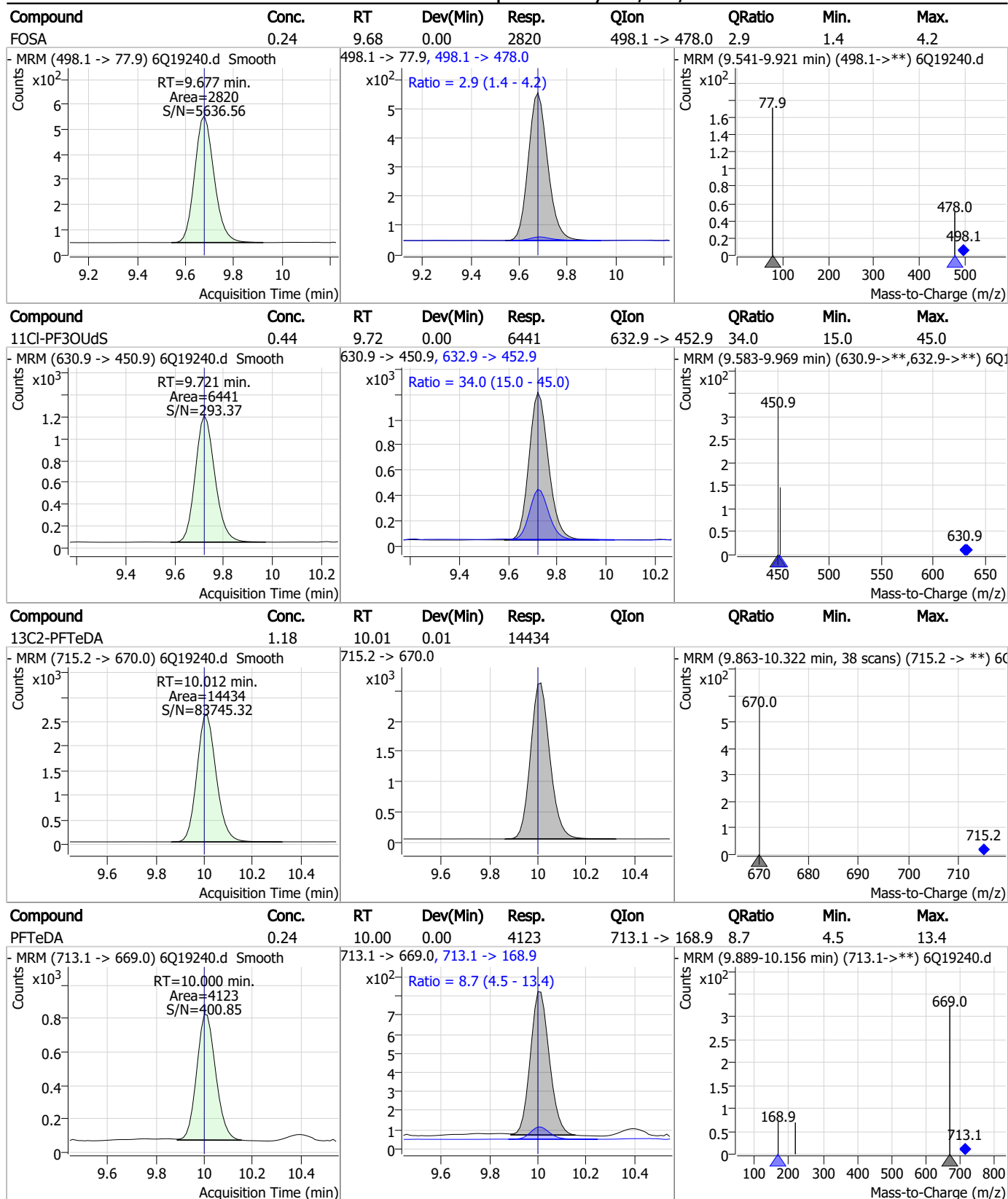
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Perfluorinated Compounds by LC/MS/MS



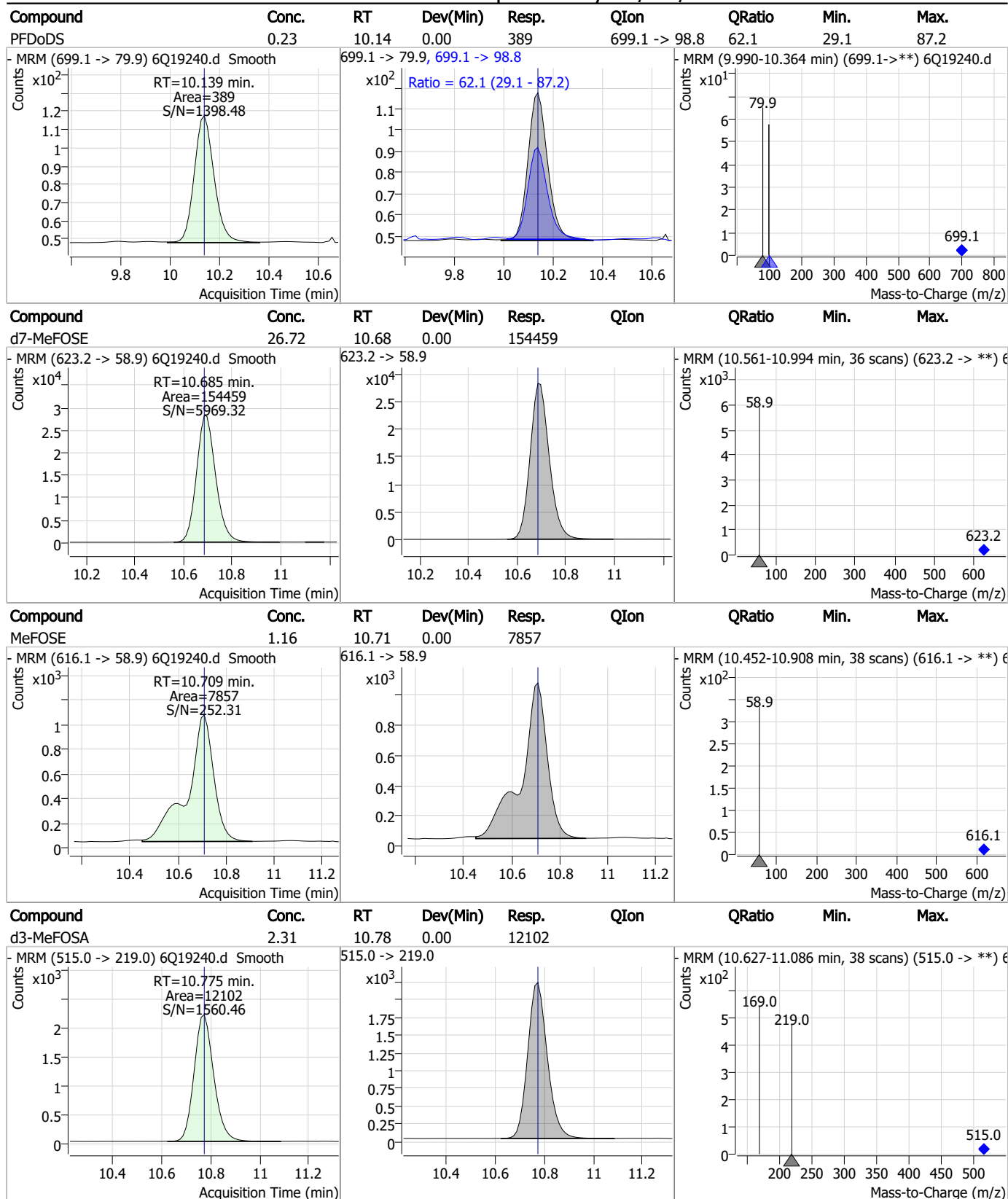
7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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Perfluorinated Compounds by LC/MS/MS

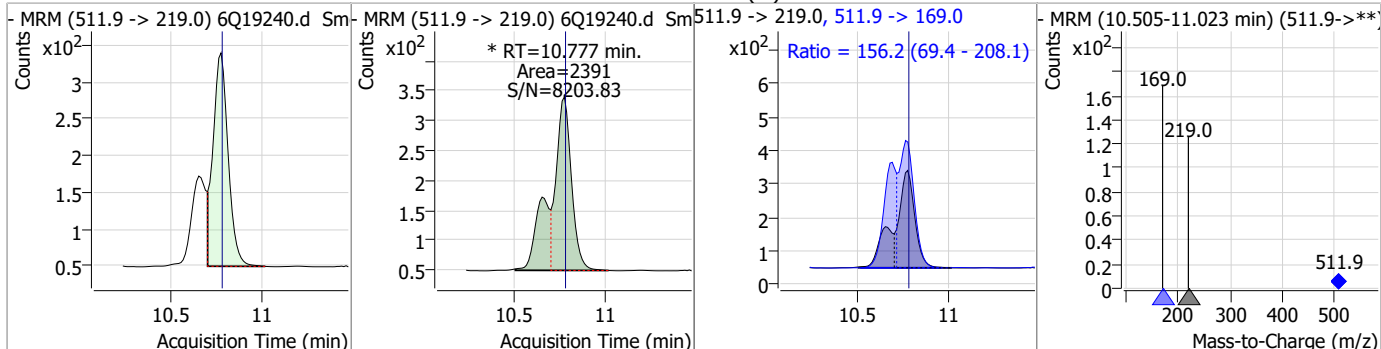


7.7.2
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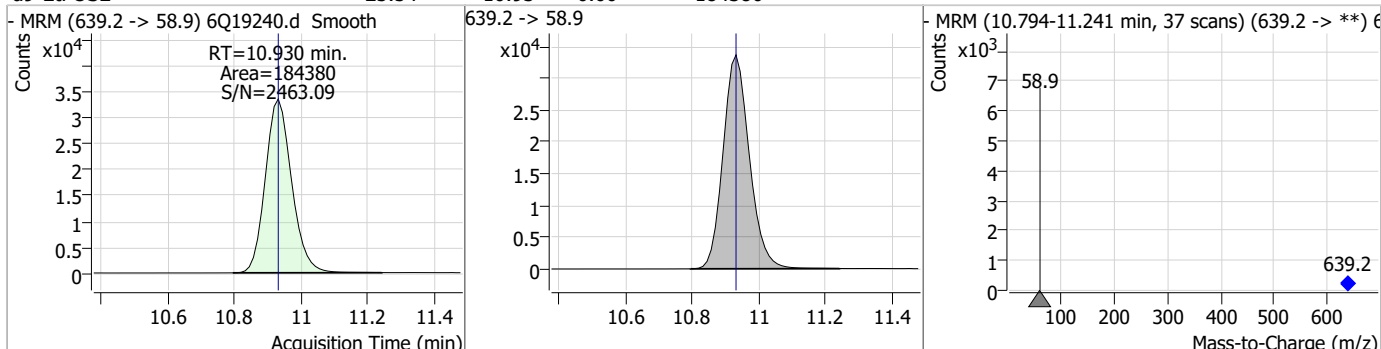


Perfluorinated Compounds by LC/MS/MS

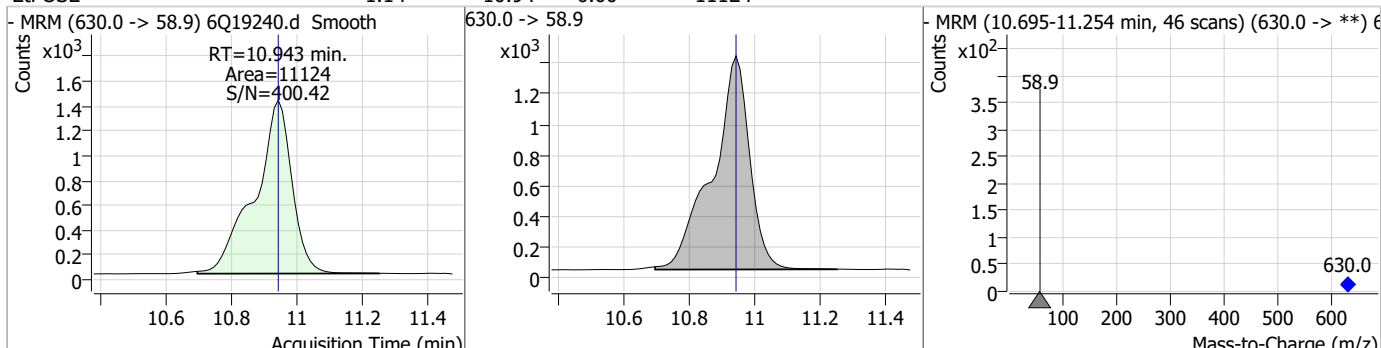
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.45	10.78	0.00	2391 (m)	511.9 -> 169.0	156.2	69.4	208.1



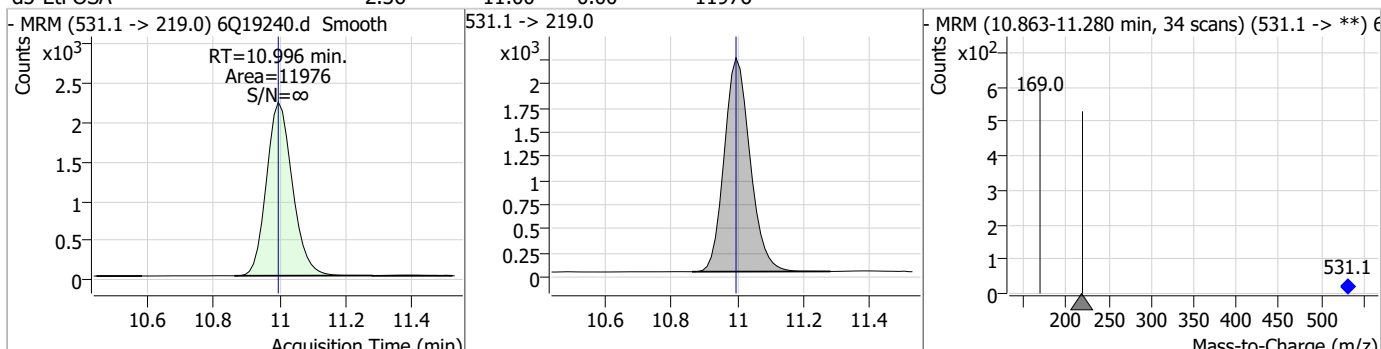
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.54	10.93	0.00	184380				



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

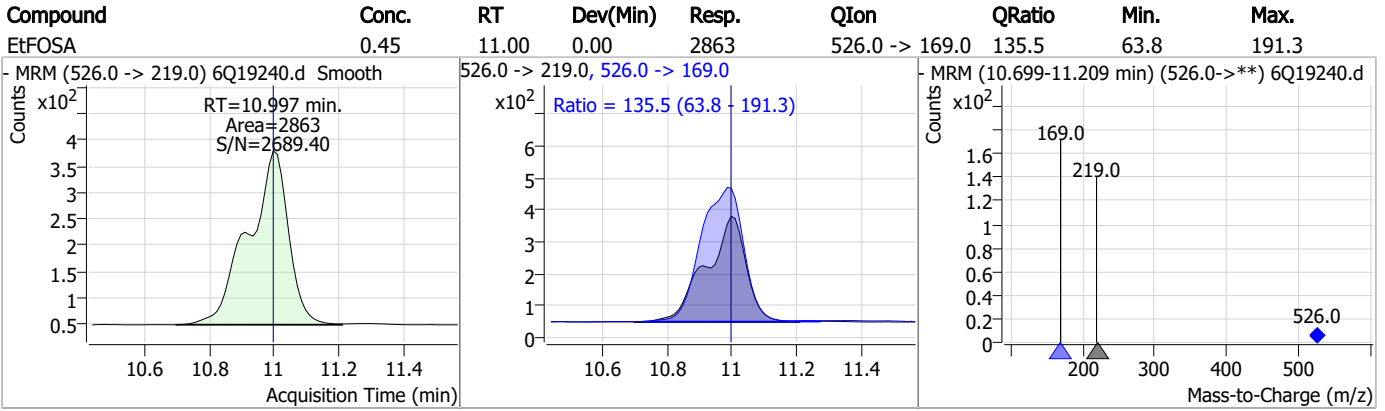


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.36	11.00	0.00	11976				



7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2

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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
7

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			
11Cl-PF3OUdS	9.721	630.9 -> 450.9	12285	0.82	µg/L	99
		632.9 -> 452.9	3725			
9Cl-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

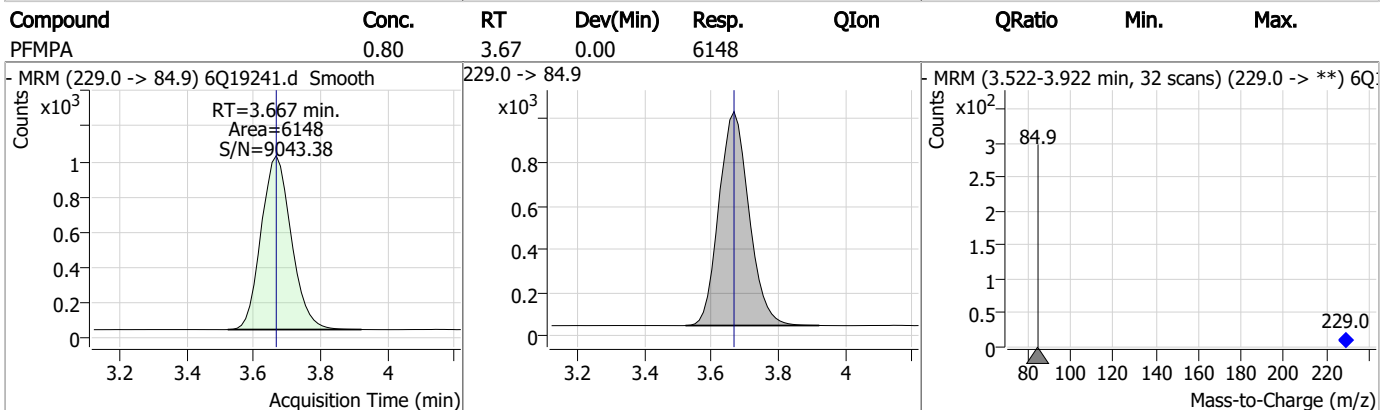
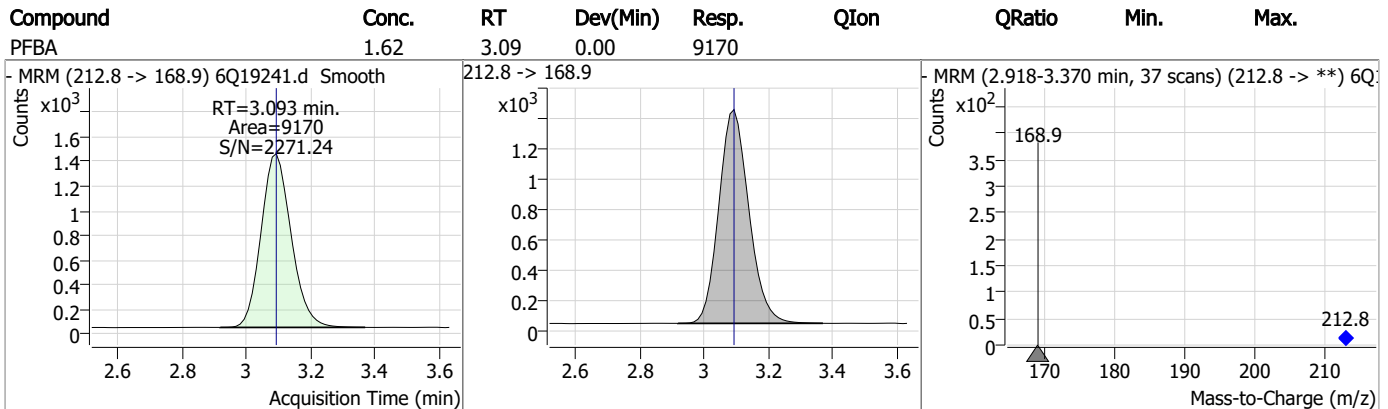
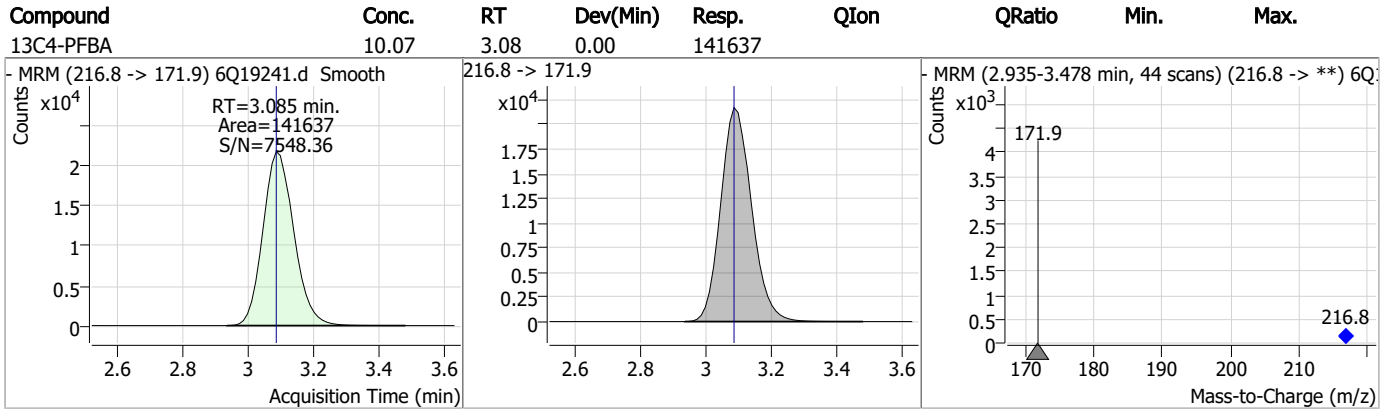
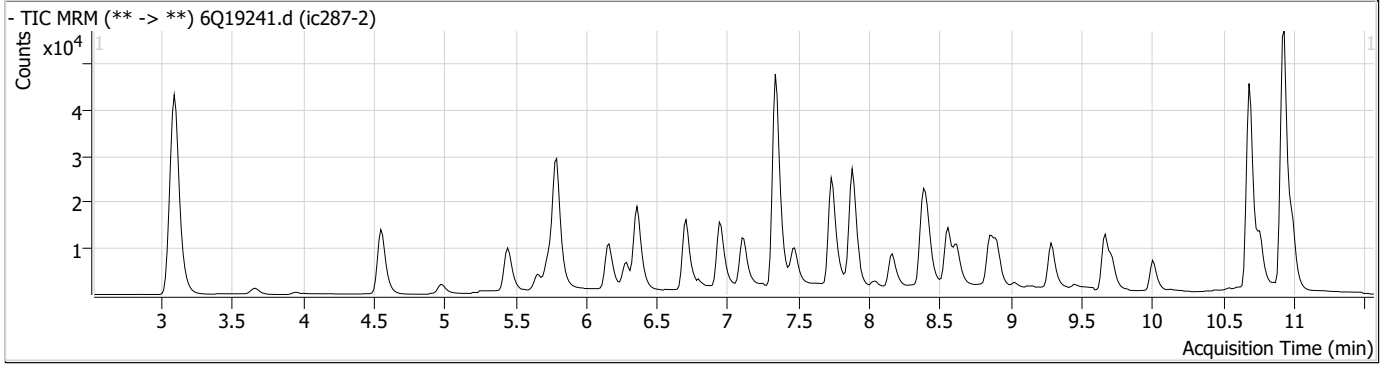
Perfluorinated Compounds by LC/MS/MS

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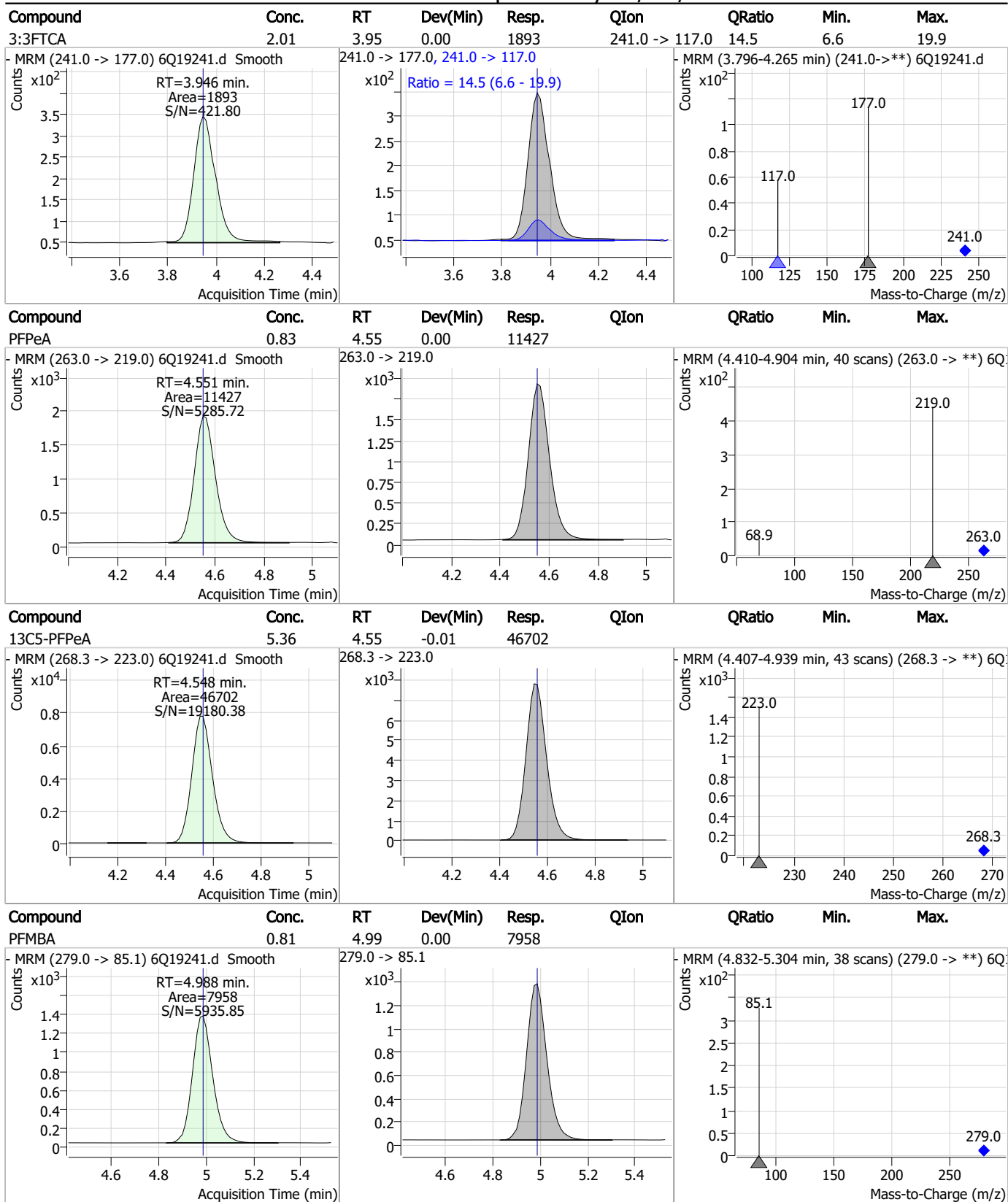
7.7.3

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Perfluorinated Compounds by LC/MS/MS



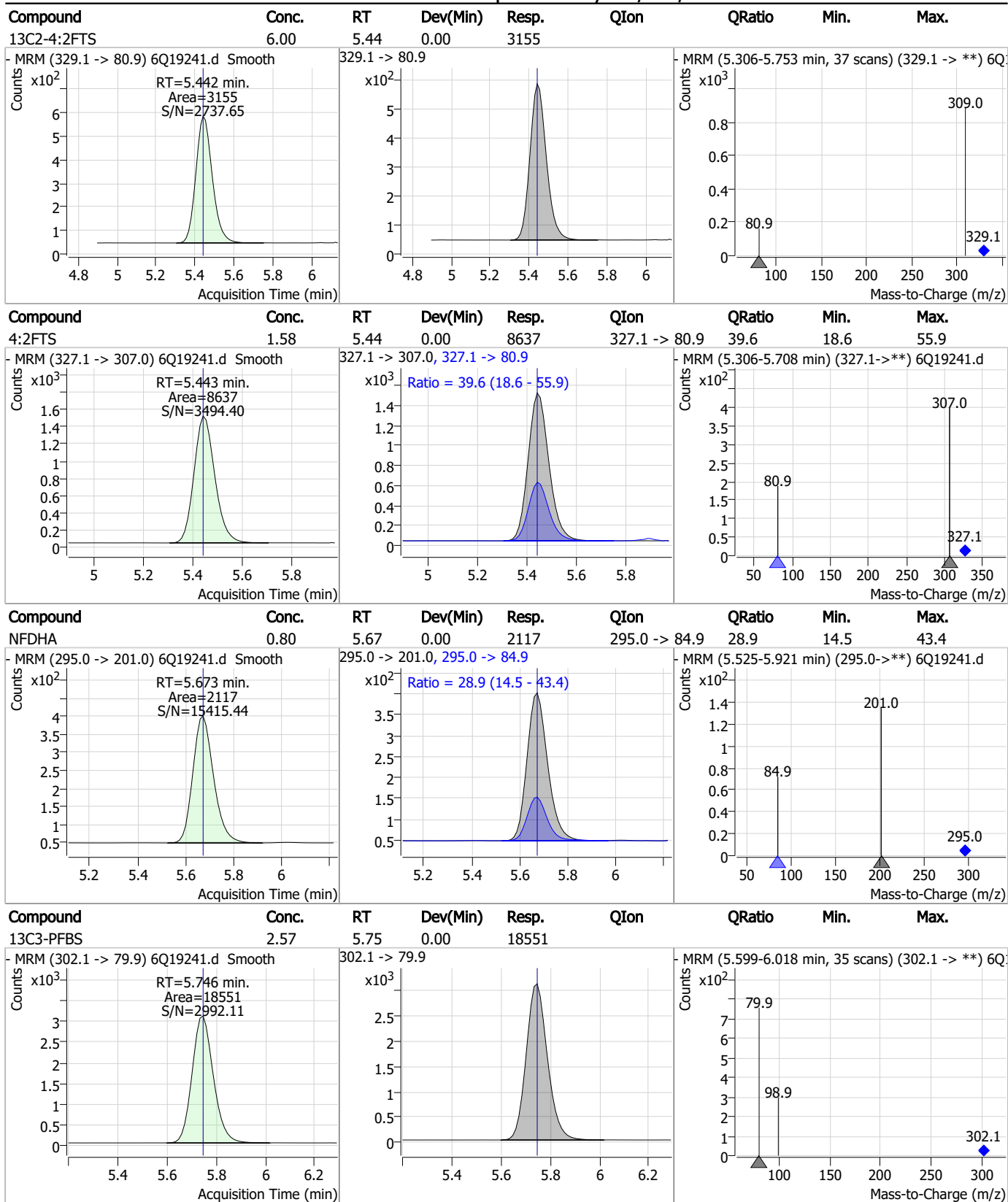
Perfluorinated Compounds by LC/MS/MS



7.7.3

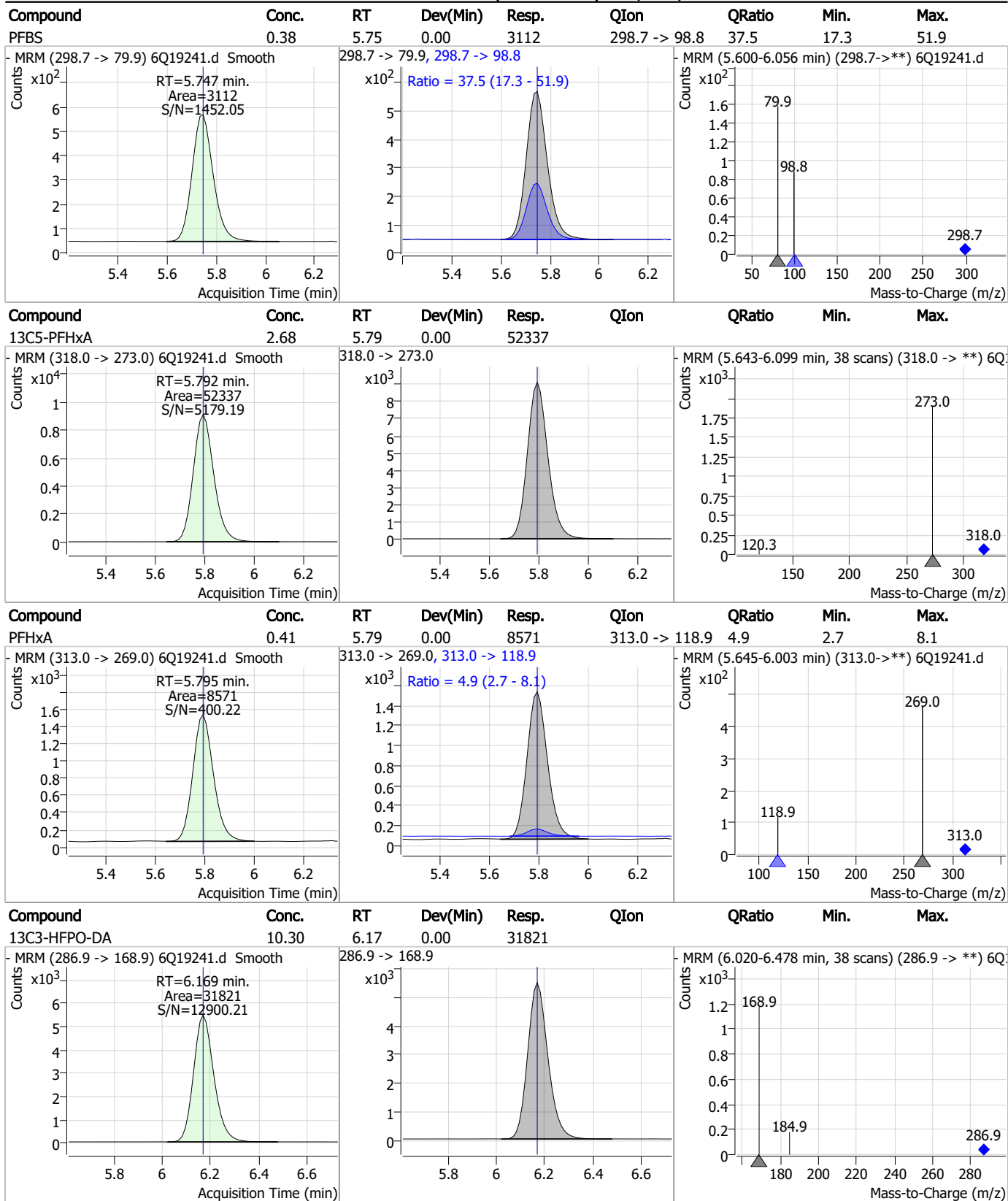
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Perfluorinated Compounds by LC/MS/MS



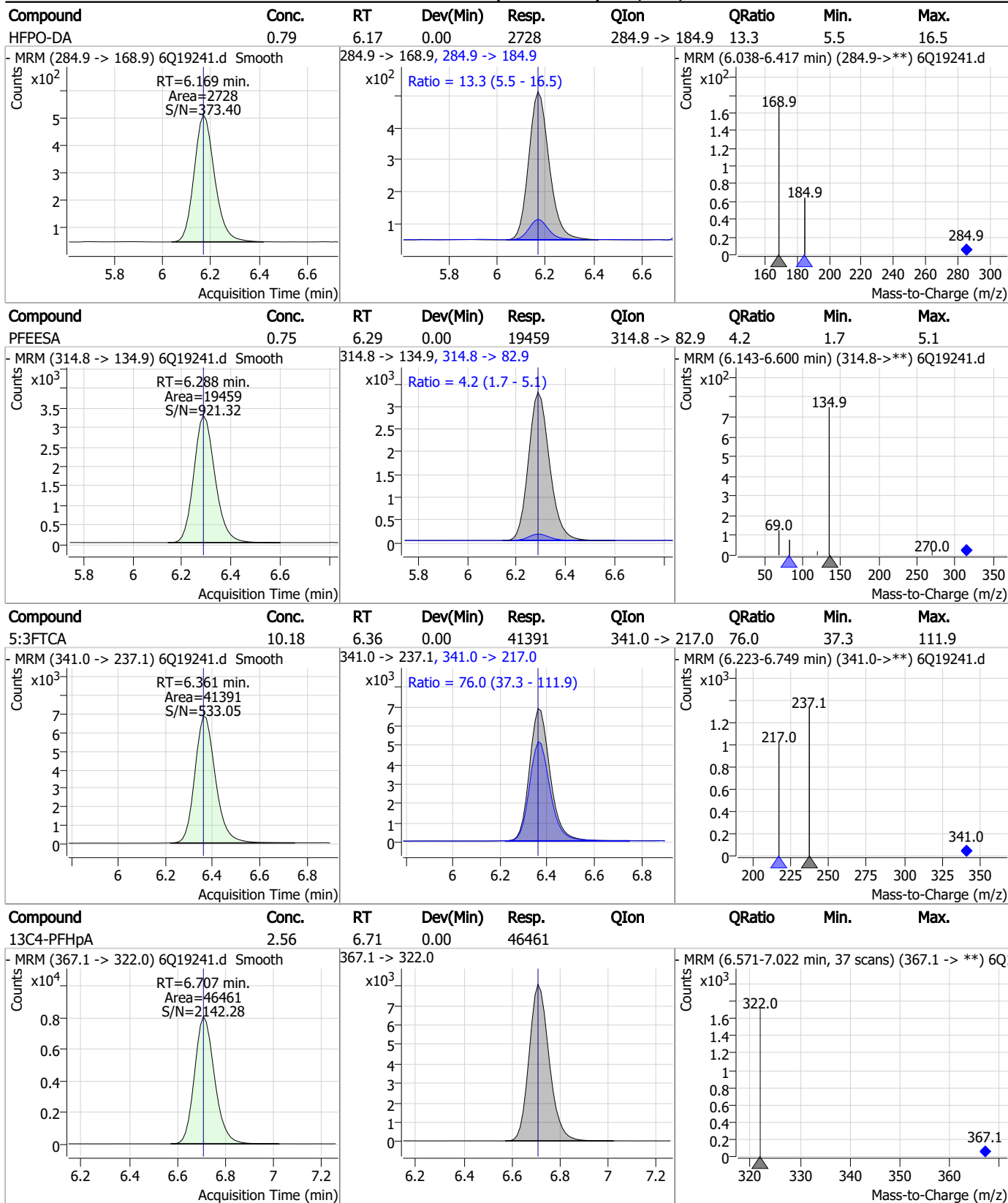
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Perfluorinated Compounds by LC/MS/MS



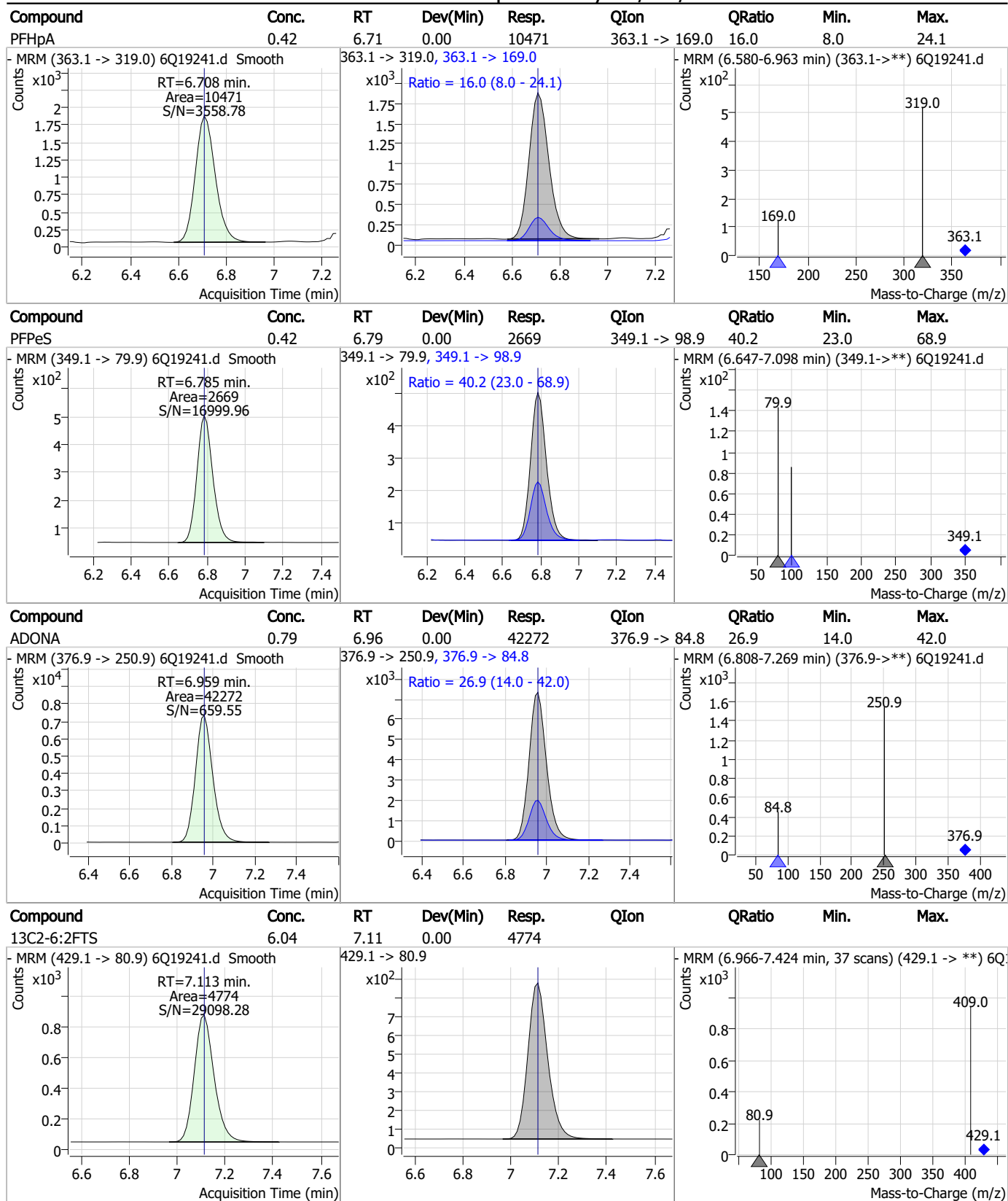
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Perfluorinated Compounds by LC/MS/MS



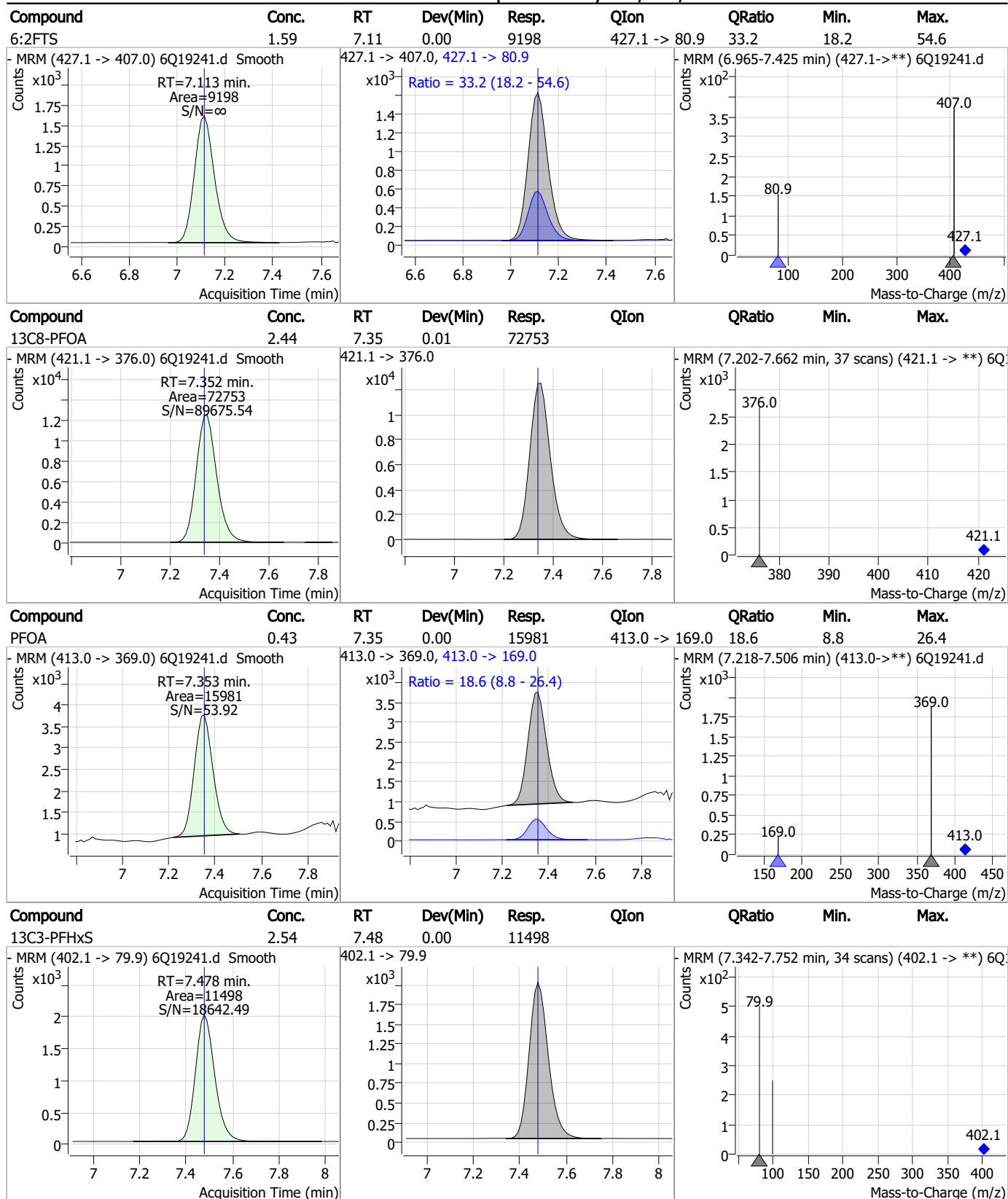
7.7.3
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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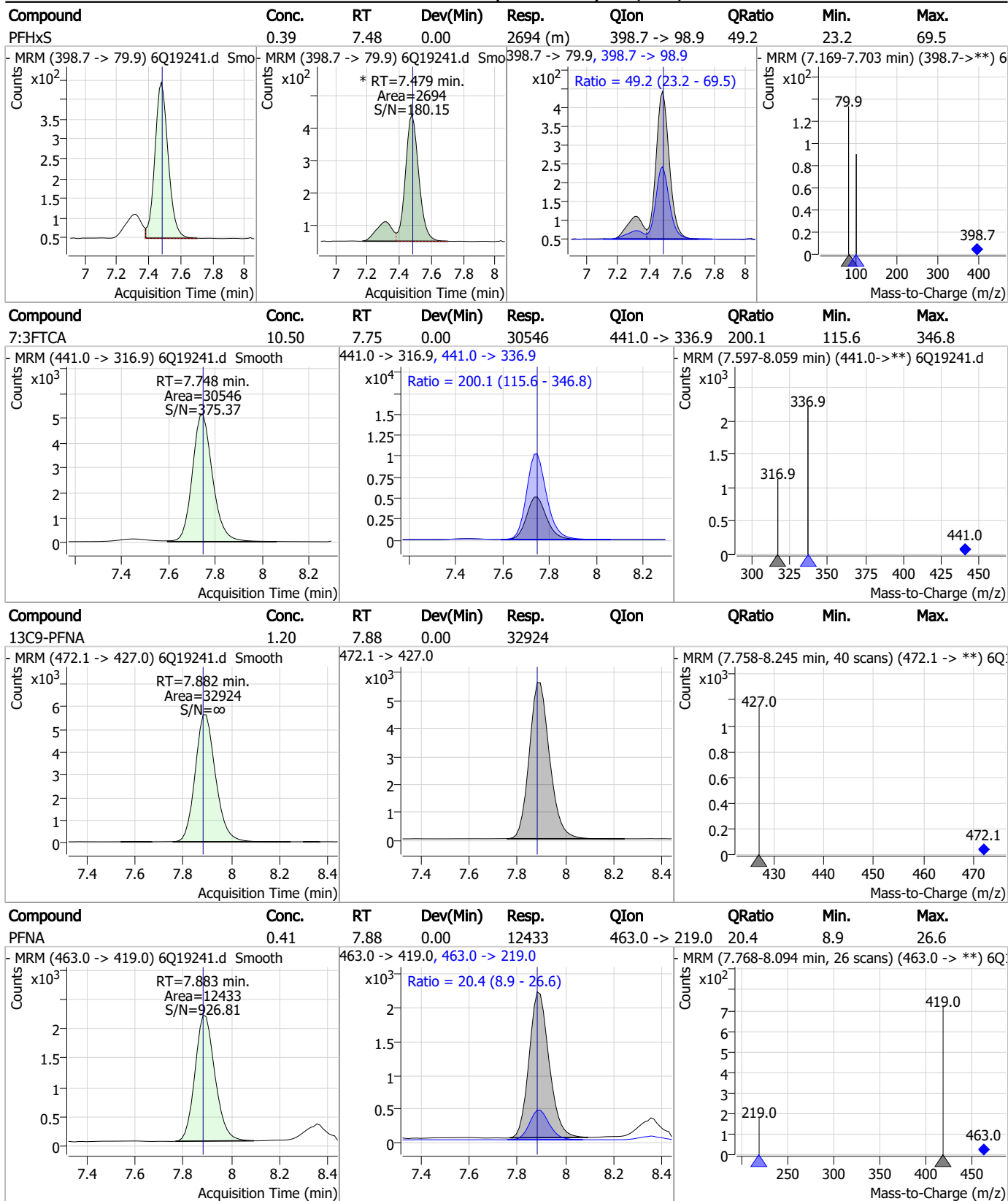
Perfluorinated Compounds by LC/MS/MS



7.7.3

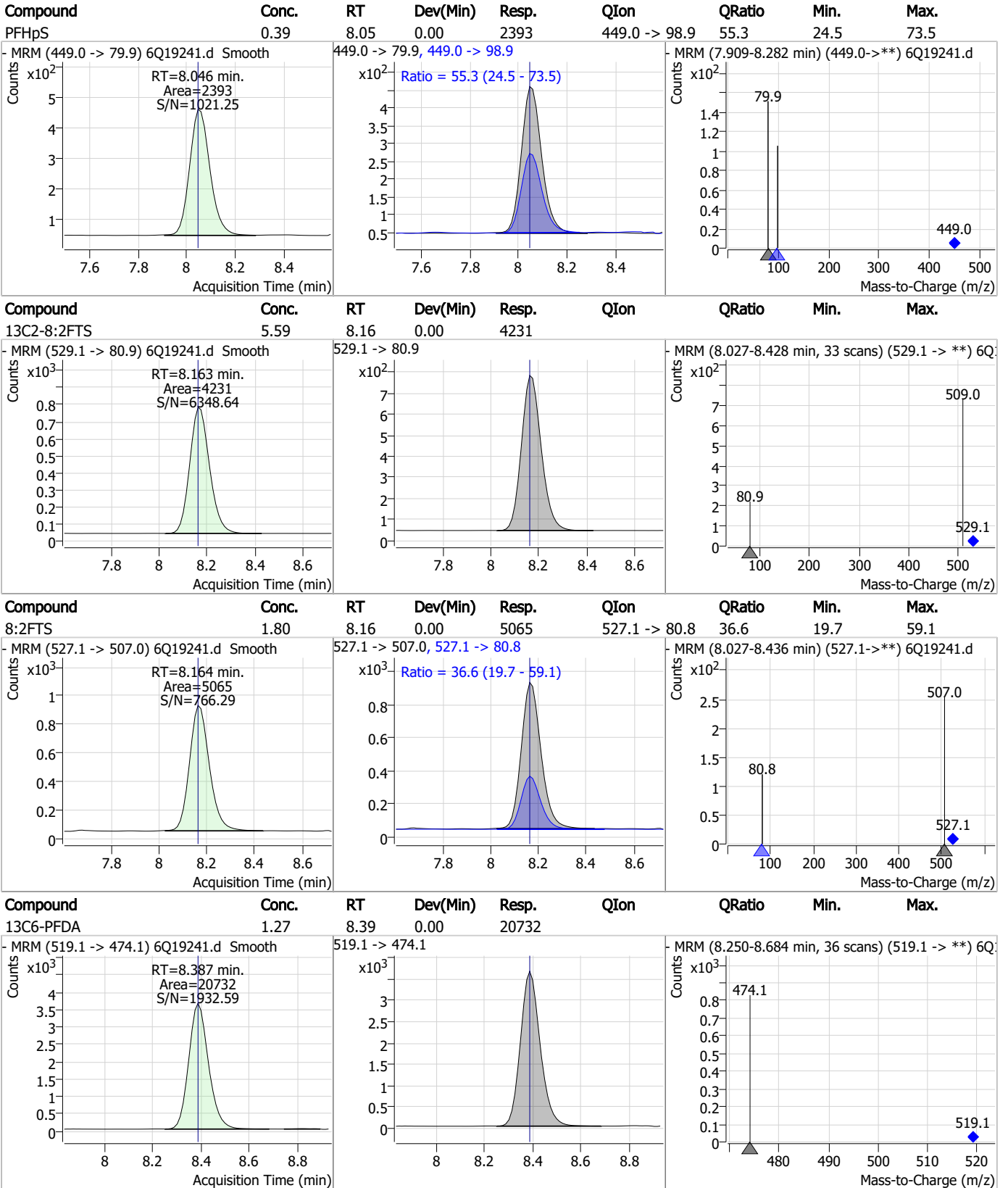
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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Perfluorinated Compounds by LC/MS/MS

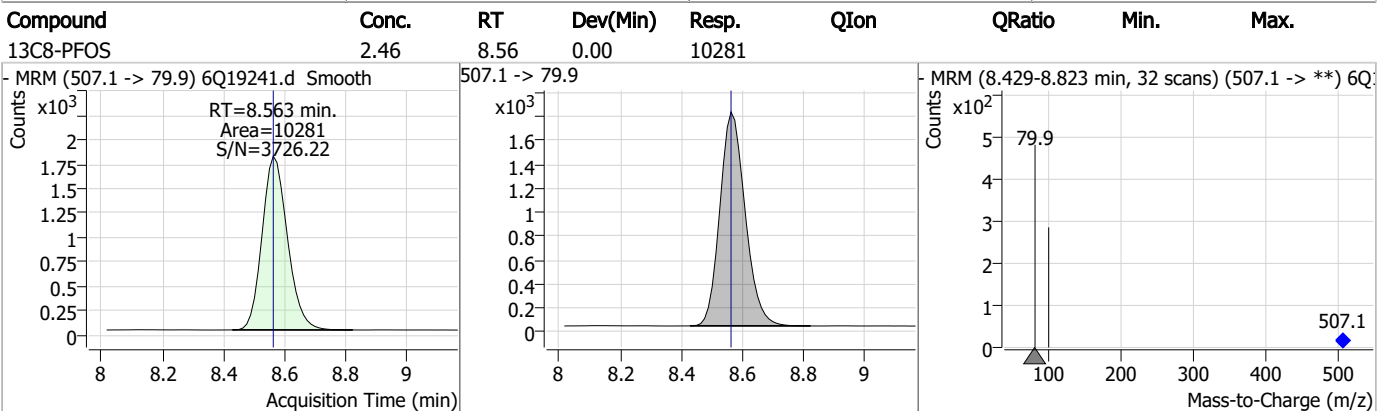
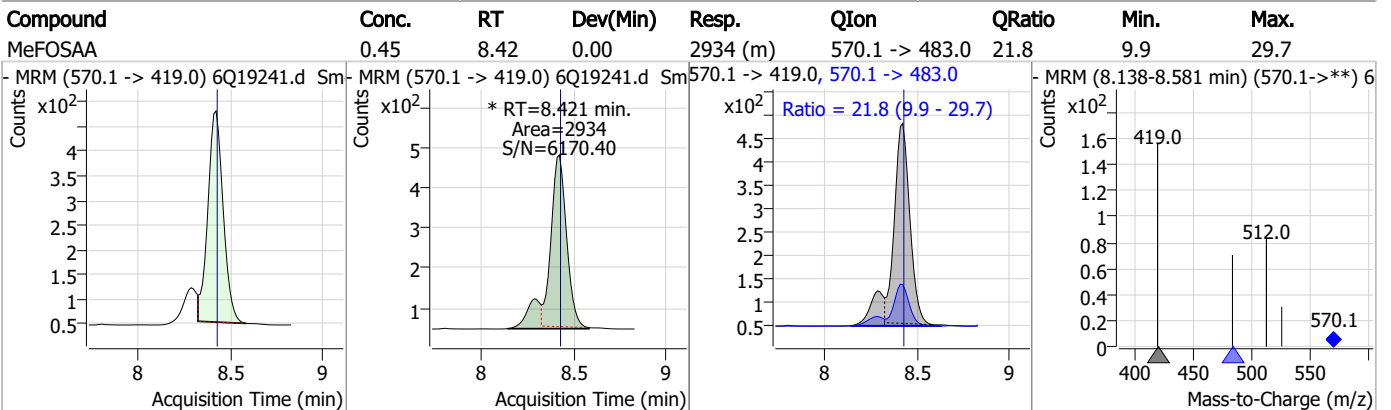
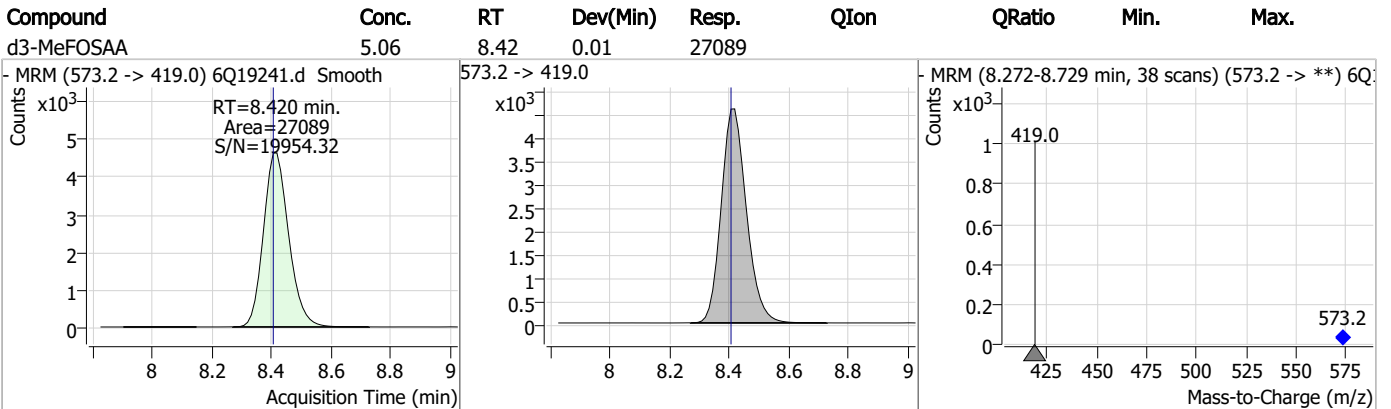
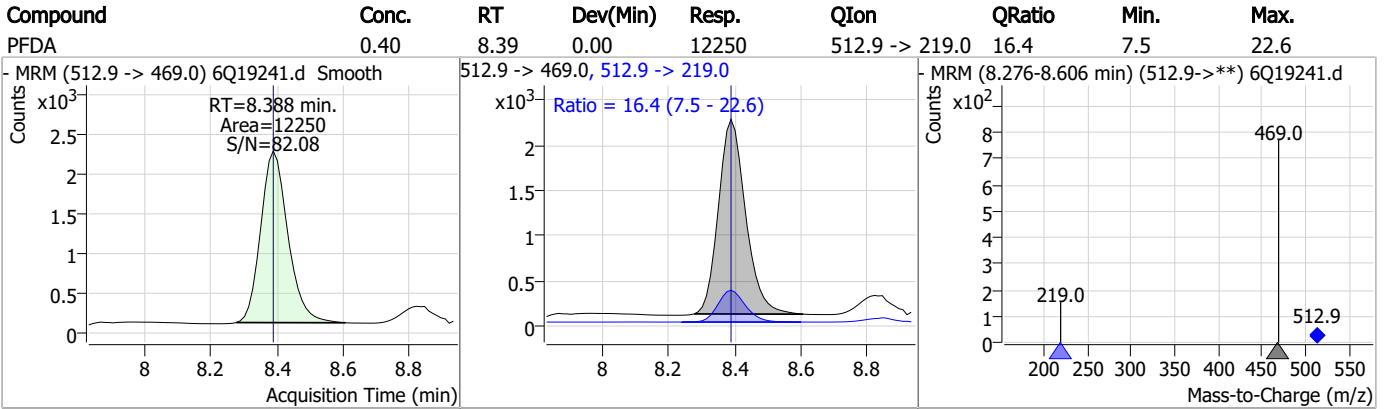


7.7.3

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Perfluorinated Compounds by LC/MS/MS

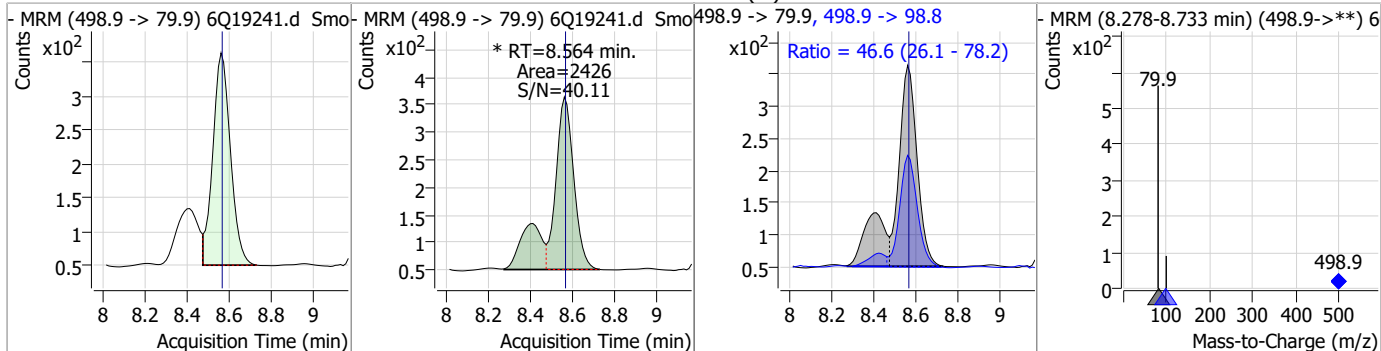


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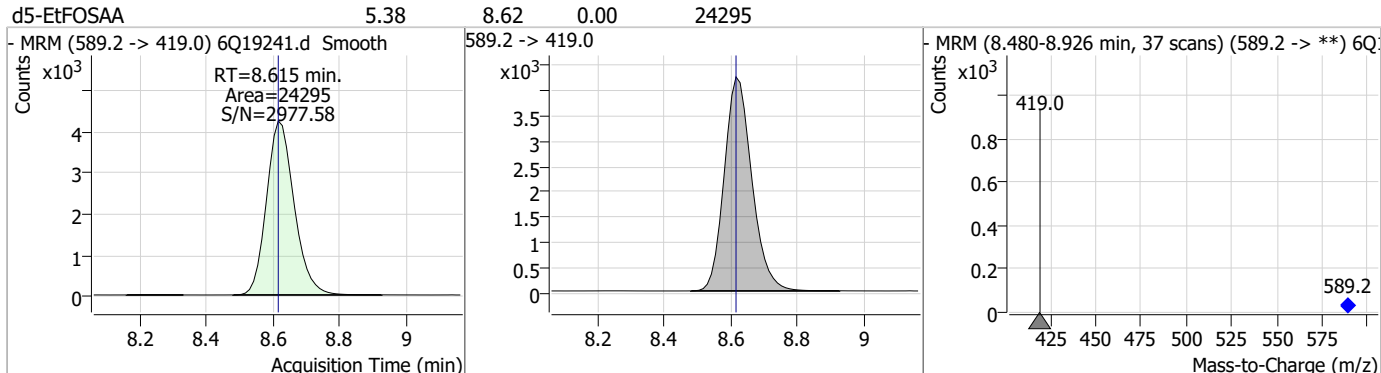
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Perfluorinated Compounds by LC/MS/MS

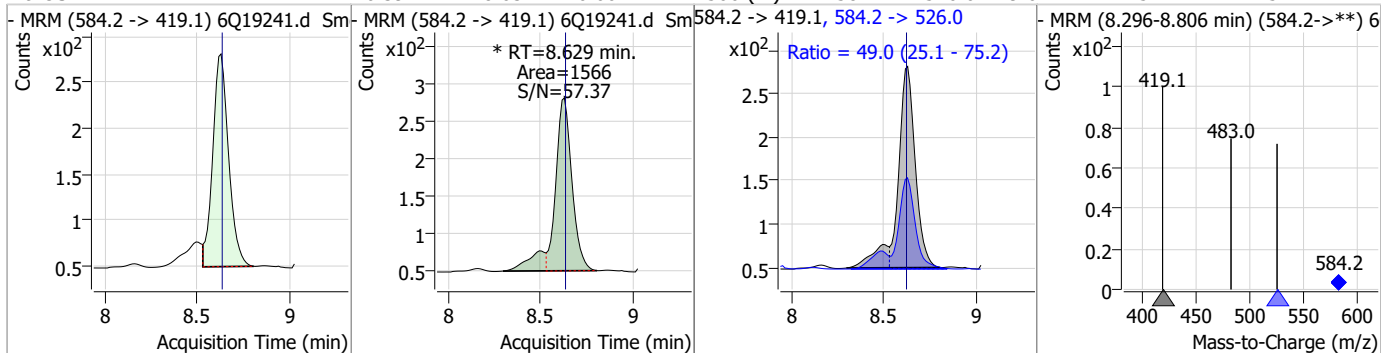
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.40	8.56	0.00	2426 (m)	498.9 -> 98.8	46.6	26.1	78.2



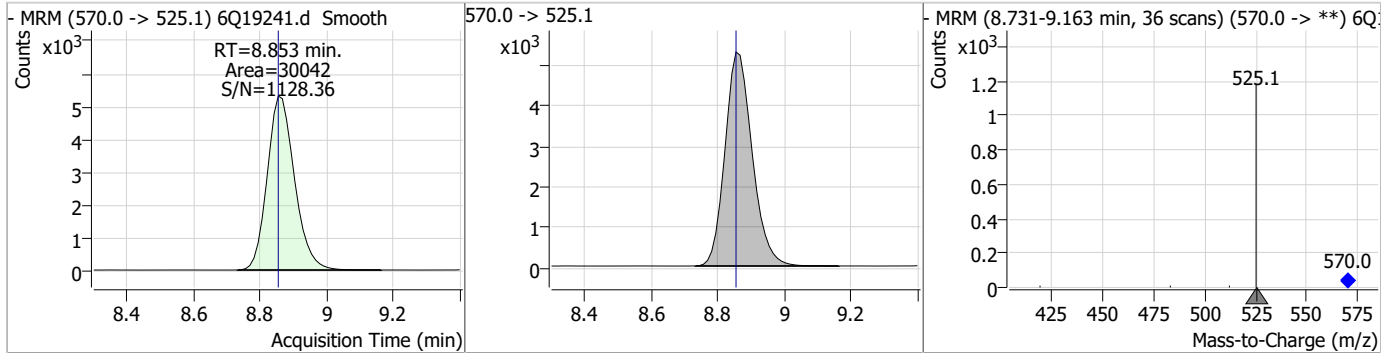
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.38	8.62	0.00	24295				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.39	8.63	0.00	1566 (m)	584.2 -> 526.0	49.0	25.1	75.2

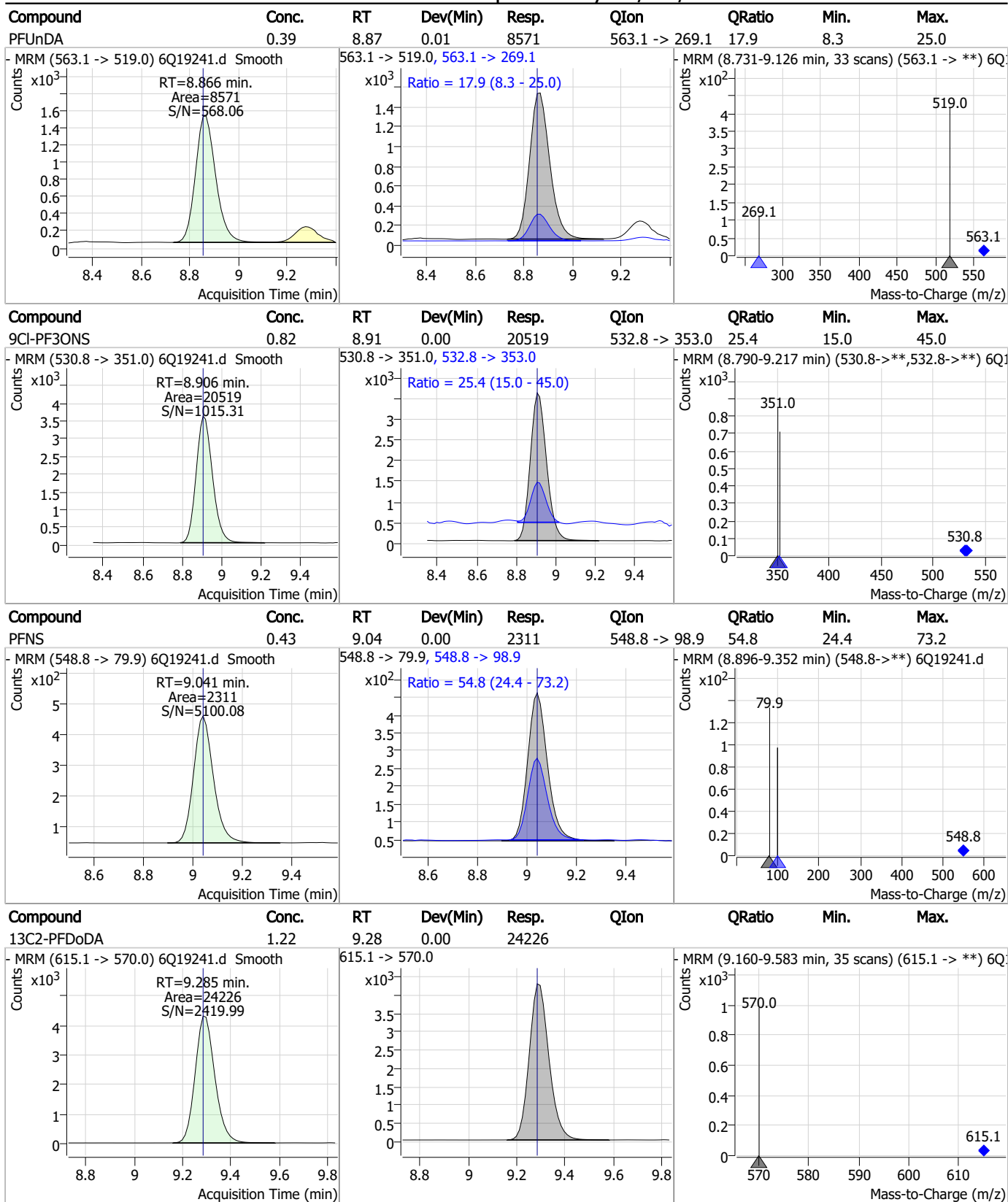


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.30	8.85	0.00	30042				



7.7.3
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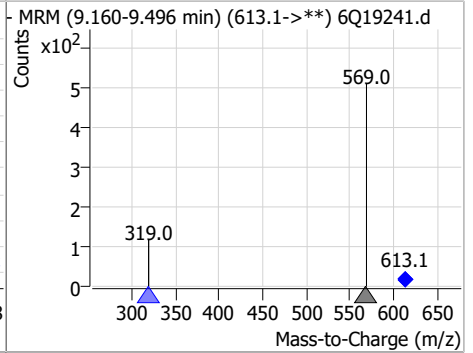
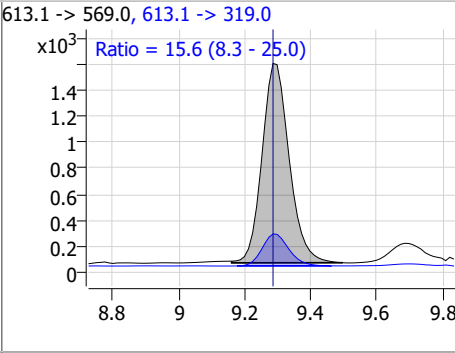
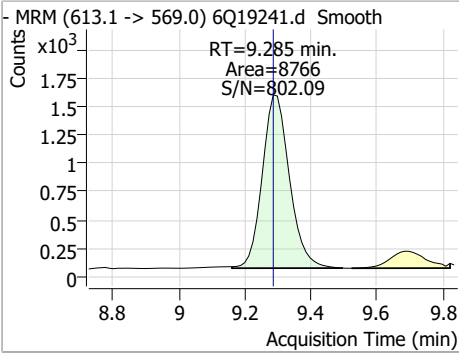
Perfluorinated Compounds by LC/MS/MS



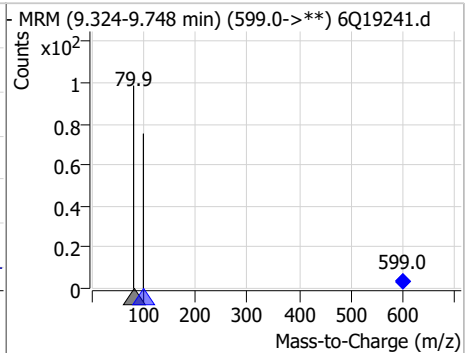
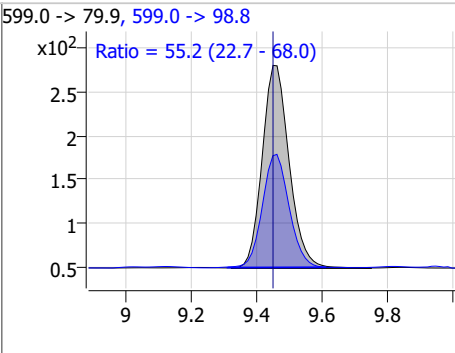
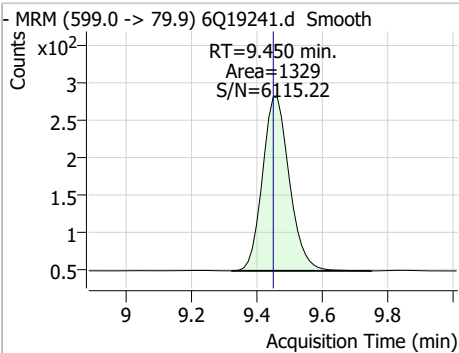
7.7.3
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Perfluorinated Compounds by LC/MS/MS

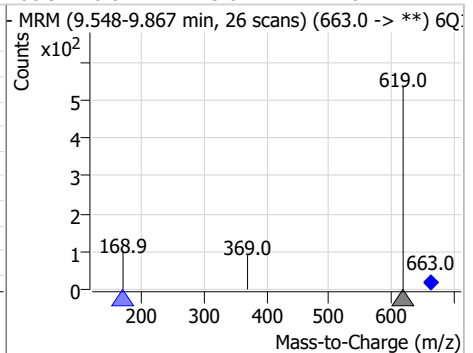
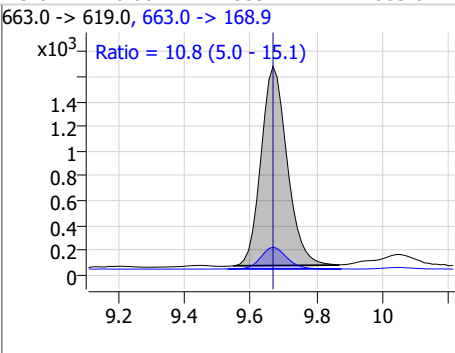
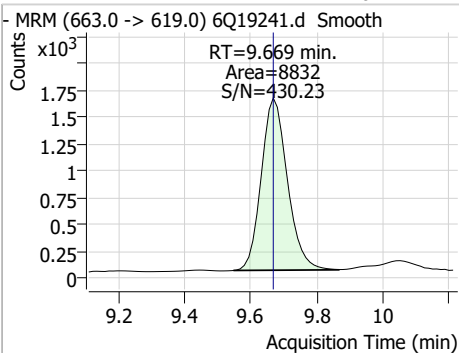
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	0.44	9.29	0.00	8766	613.1 -> 319.0	15.6	8.3	25.0



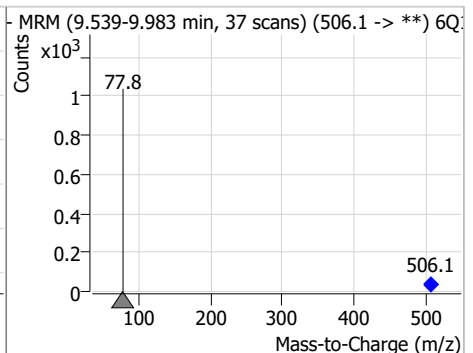
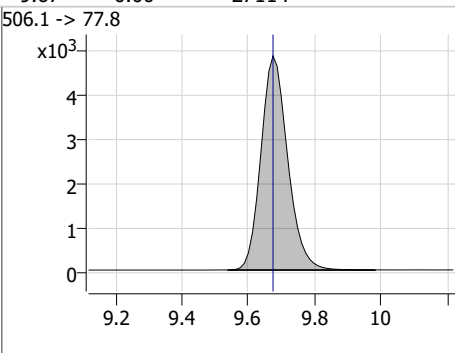
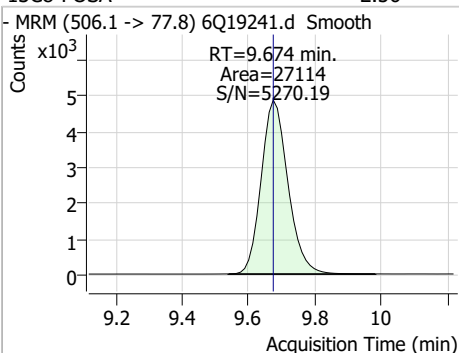
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDs	0.43	9.45	0.00	1329	599.0 -> 98.8	55.2	22.7	68.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.44	9.67	0.00	8832	663.0 -> 168.9	10.8	5.0	15.1

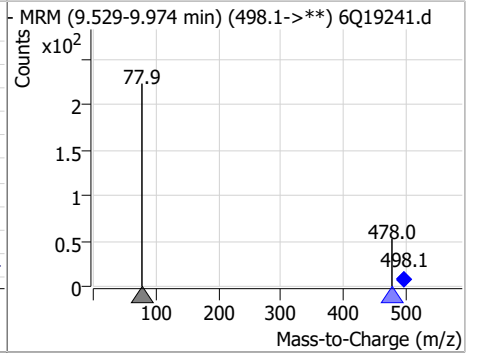
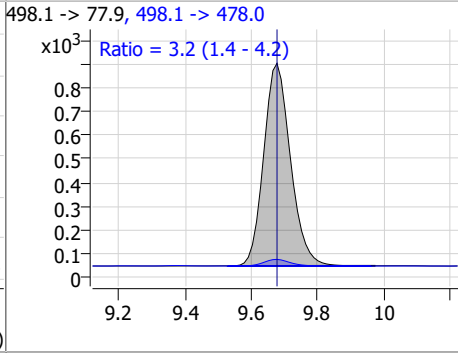
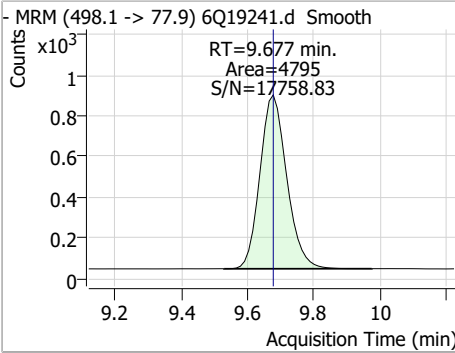


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.56	9.67	0.00	27114	506.1 -> 77.8			

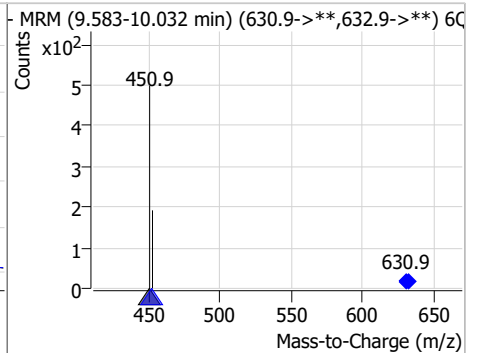
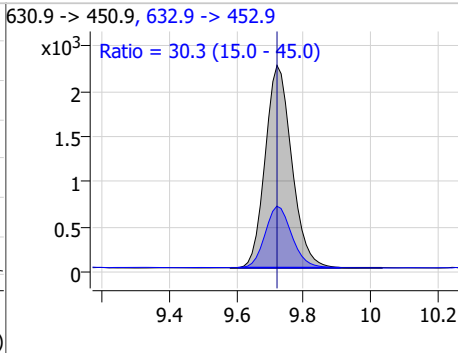
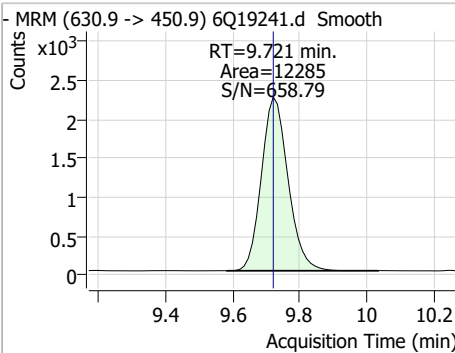


Perfluorinated Compounds by LC/MS/MS

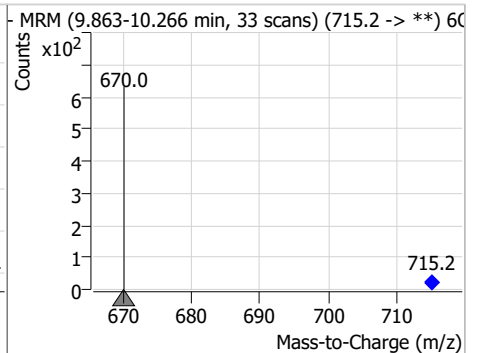
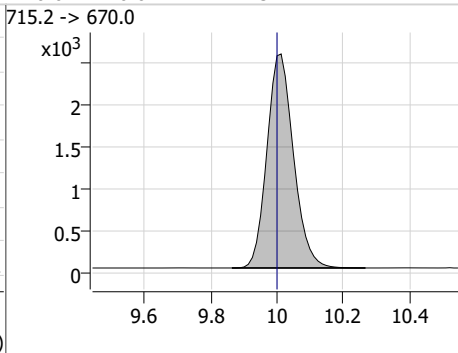
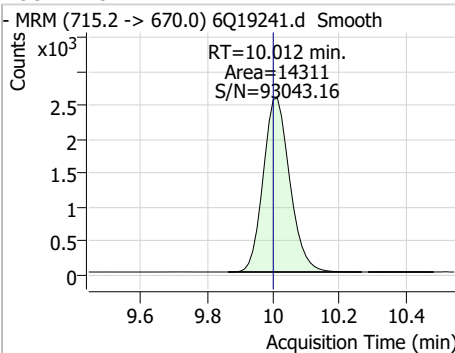
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.43	9.68	0.00	4795	498.1 -> 478.0	3.2	1.4	4.2



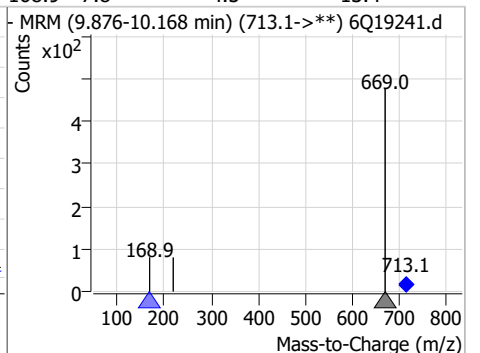
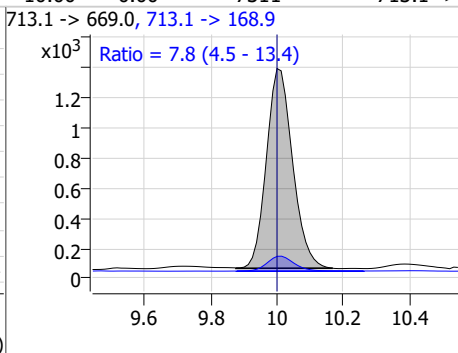
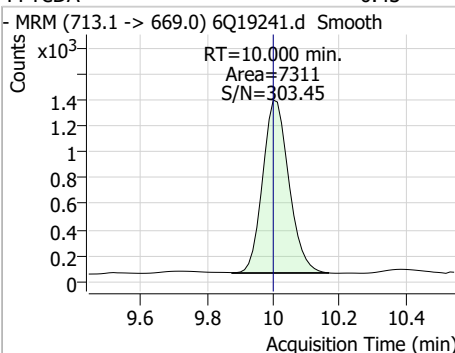
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	0.82	9.72	0.00	12285	632.9 -> 452.9	30.3	15.0	45.0



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

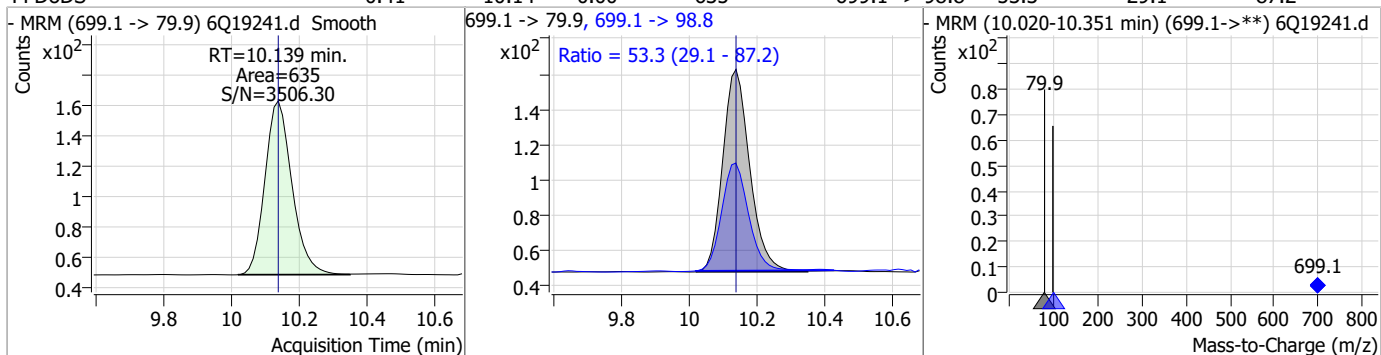


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.43	10.00	0.00	7311	713.1 -> 168.9	7.8	4.5	13.4

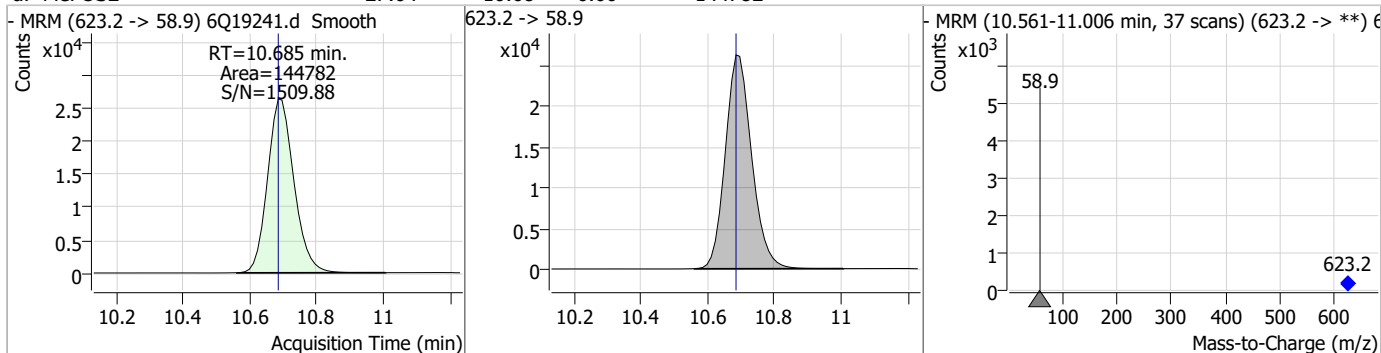


Perfluorinated Compounds by LC/MS/MS

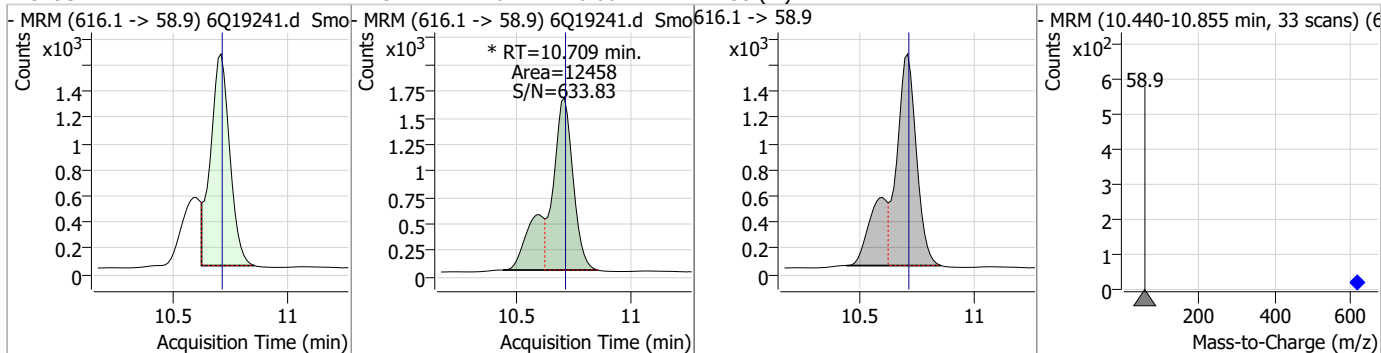
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.41	10.14	0.00	635	699.1 -> 98.8	53.3	29.1	87.2



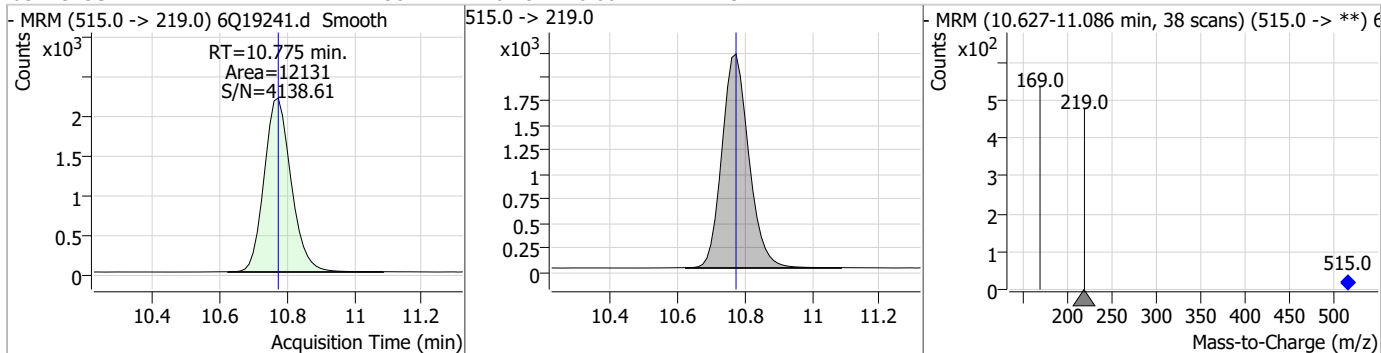
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.64	10.68	0.00	144782				



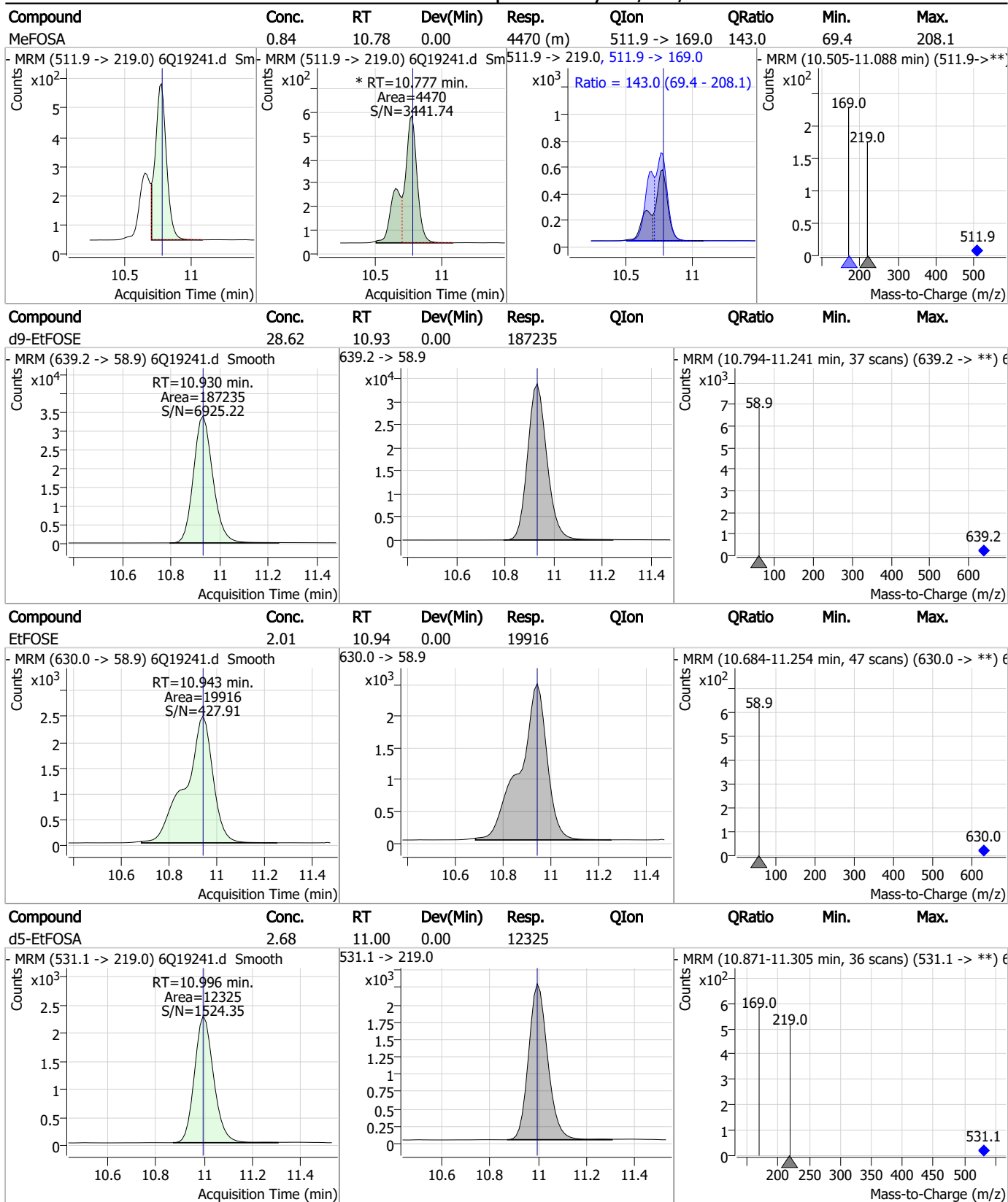
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.97	10.71	0.00	12458 (m)				



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

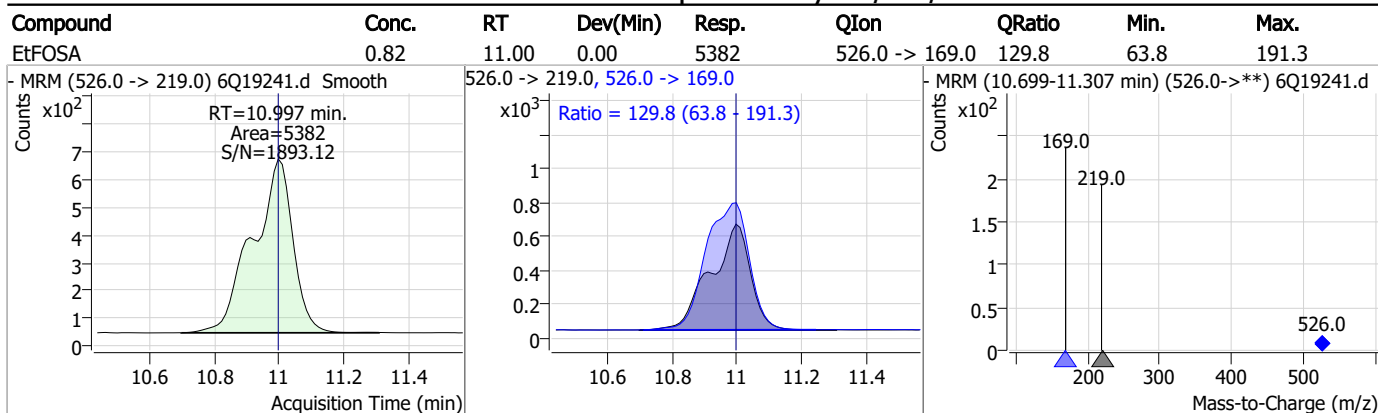


Perfluorinated Compounds by LC/MS/MS



7.7.3
7

Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Manual Integration Approval Summary

Sample Number: S6Q287-IC287
Lab FileID: 6Q19241.D
Injection Time: 06/12/23 16:02

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

7.7.3.1

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

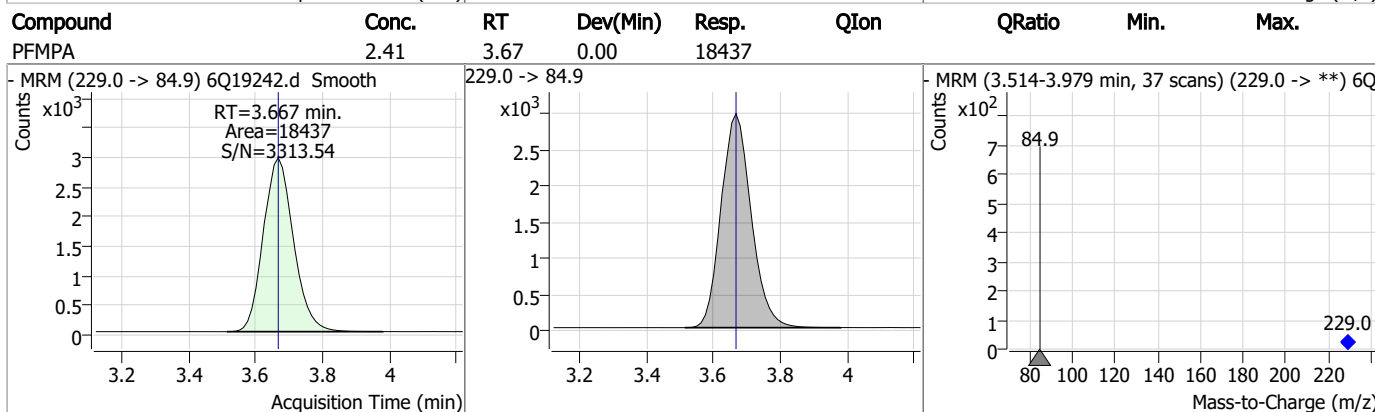
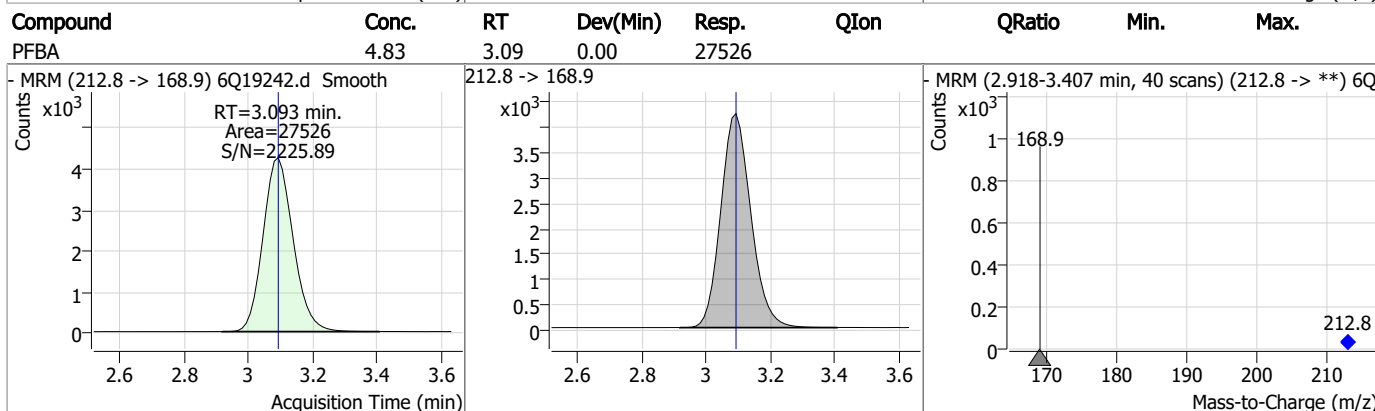
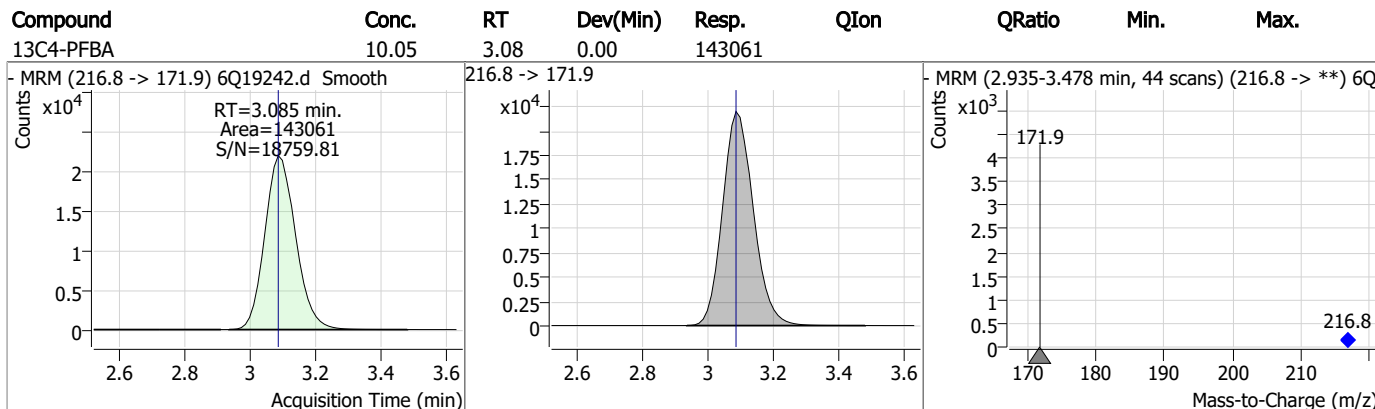
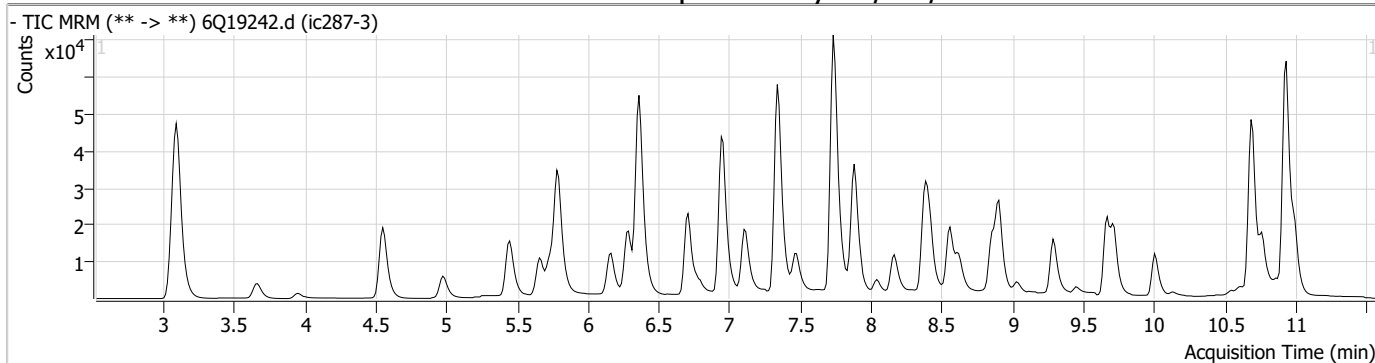
Perfluorinated Compounds by LC/MS/MS

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

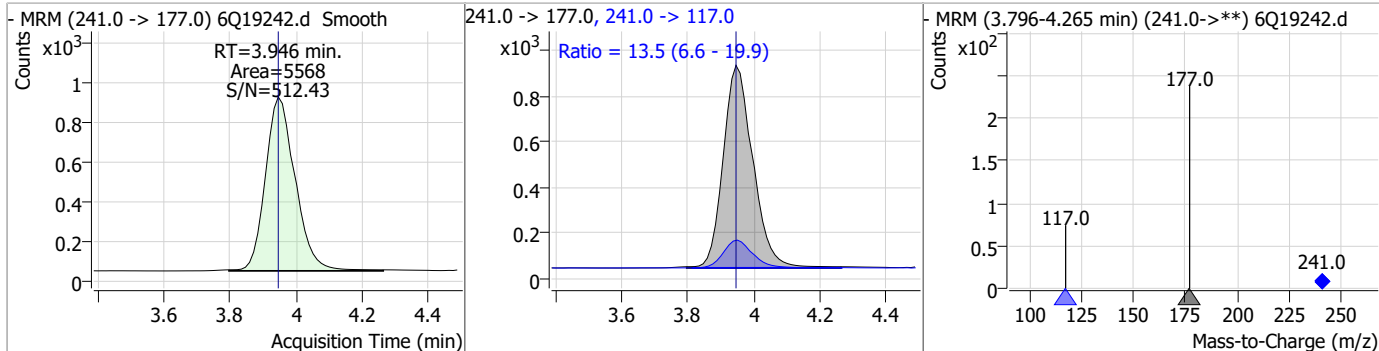
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Perfluorinated Compounds by LC/MS/MS

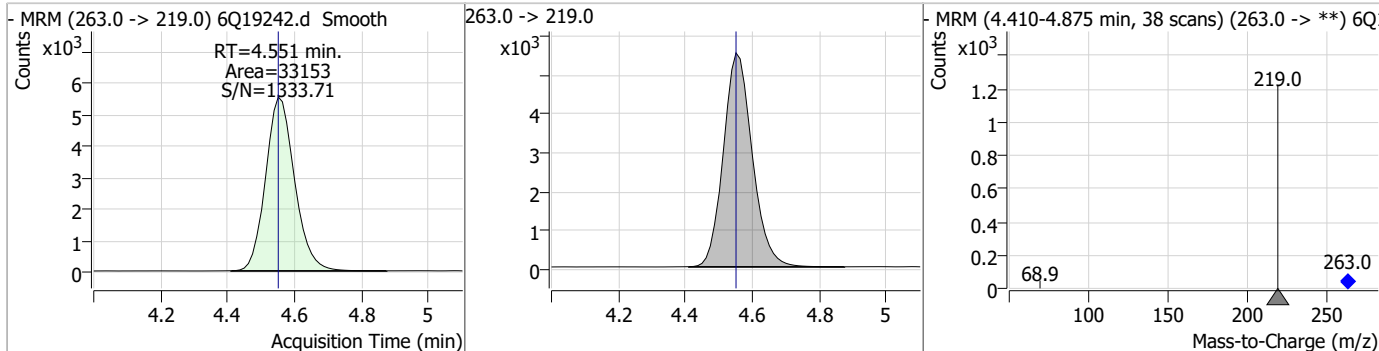


Perfluorinated Compounds by LC/MS/MS

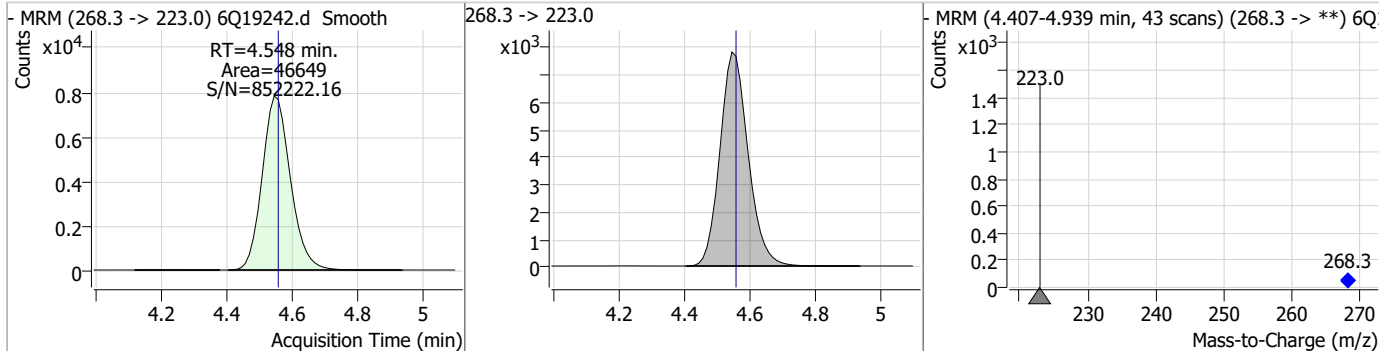
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	5.93	3.95	0.00	5568	241.0 -> 117.0	13.5	6.6	19.9



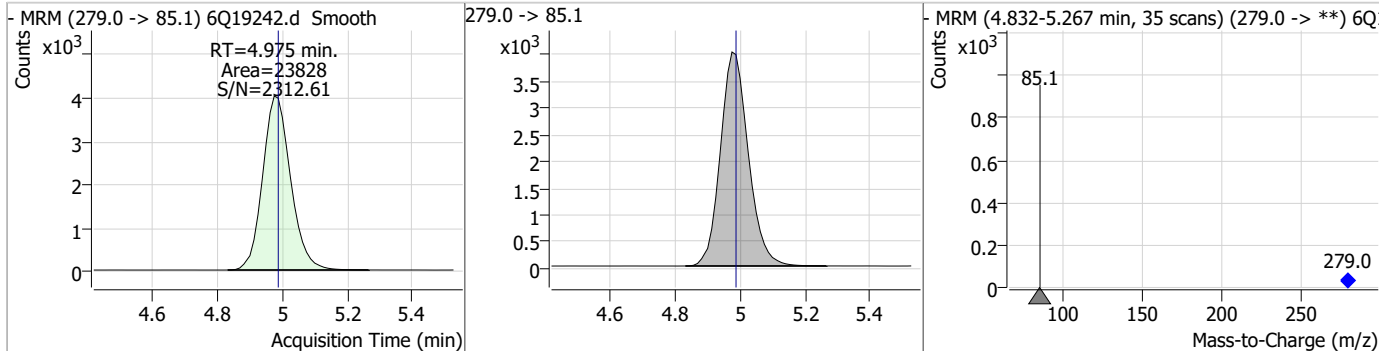
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.42	4.55	0.00	33153				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.92	4.55	-0.01	46649				

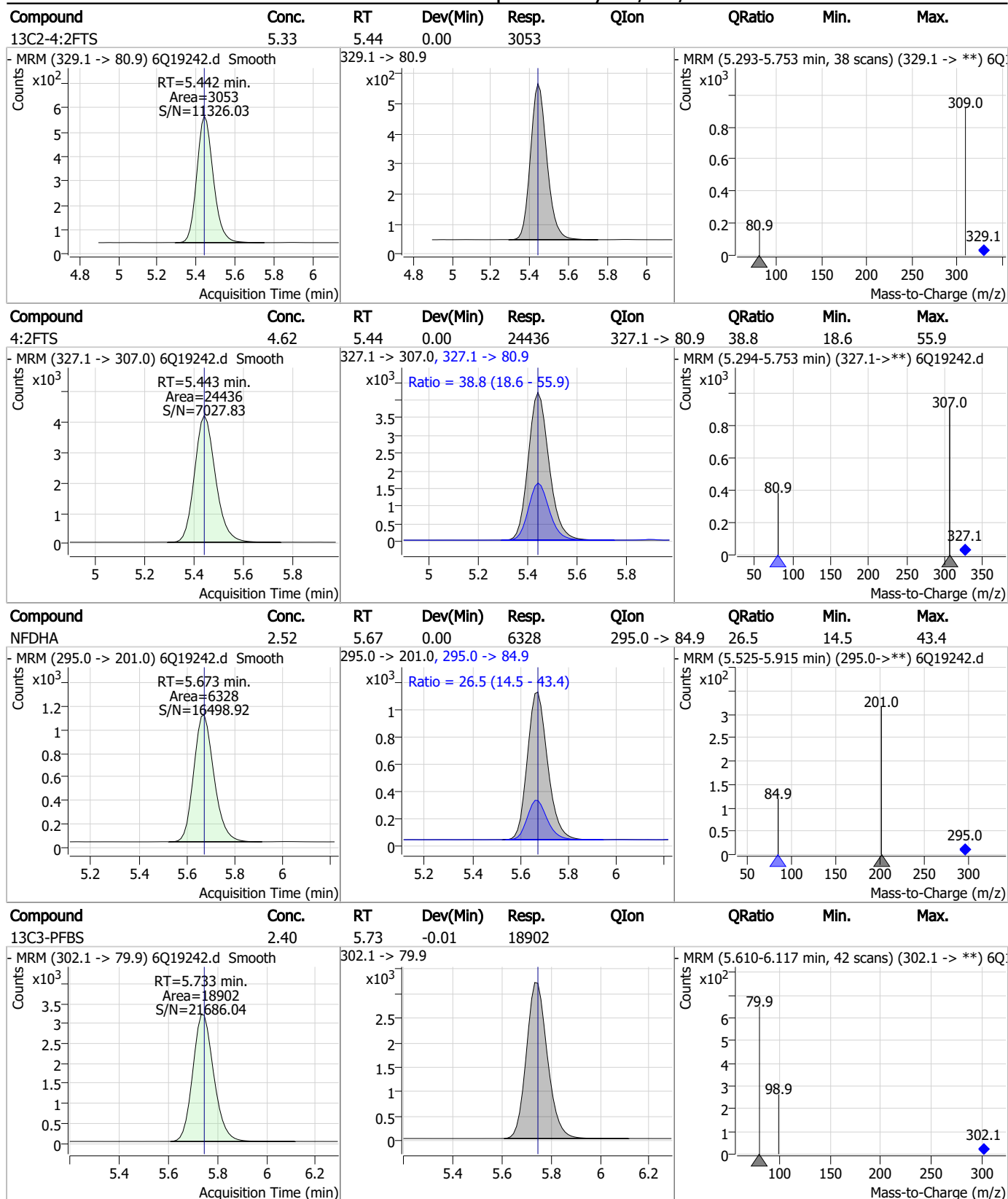


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	2.42	4.98	-0.01	23828				



7.7.4
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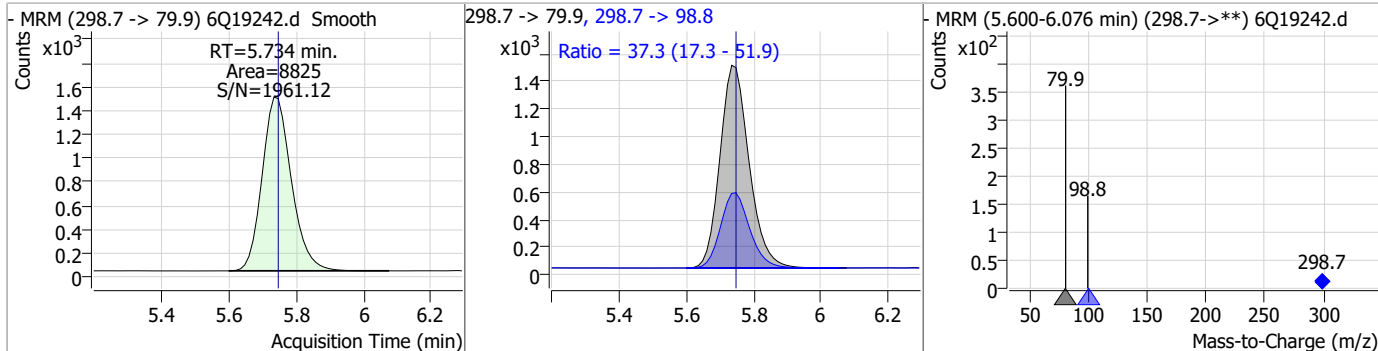
Perfluorinated Compounds by LC/MS/MS



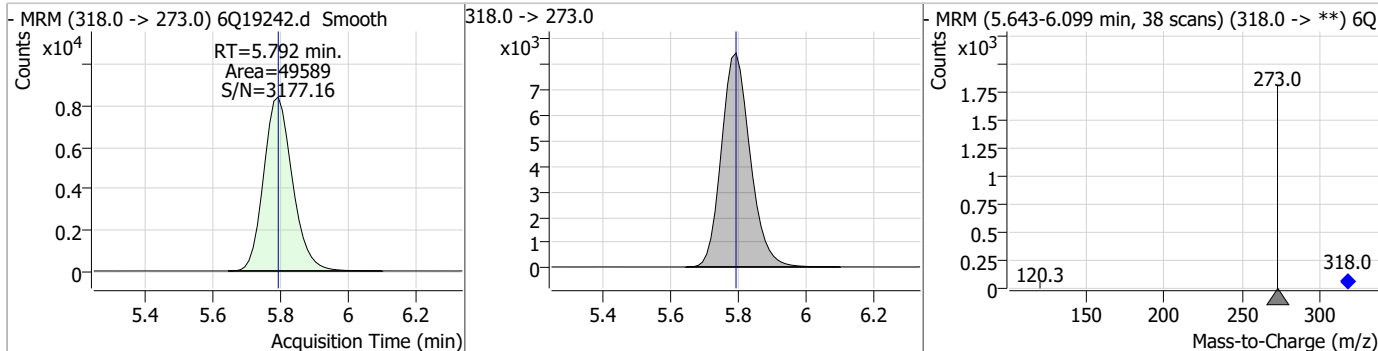
7.7.4
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Perfluorinated Compounds by LC/MS/MS

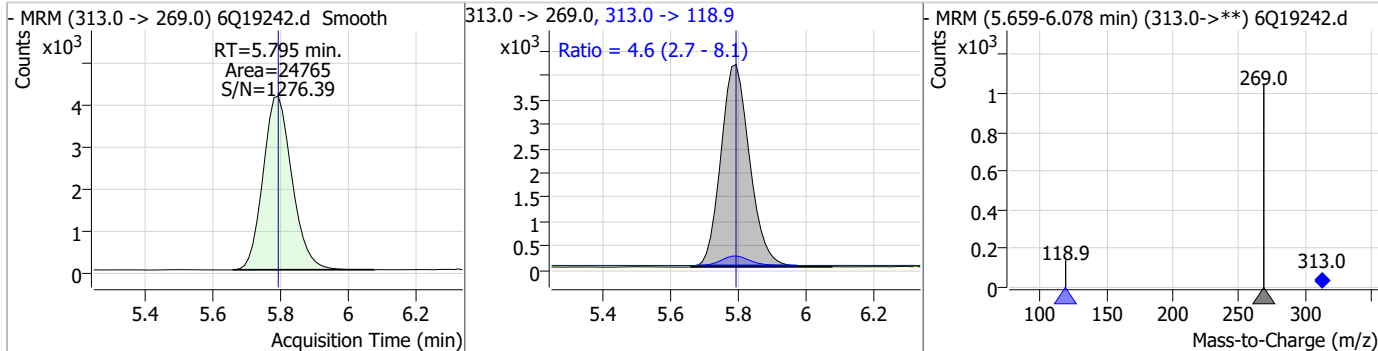
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.06	5.73	-0.01	8825	298.7 -> 98.8	37.3	17.3	51.9



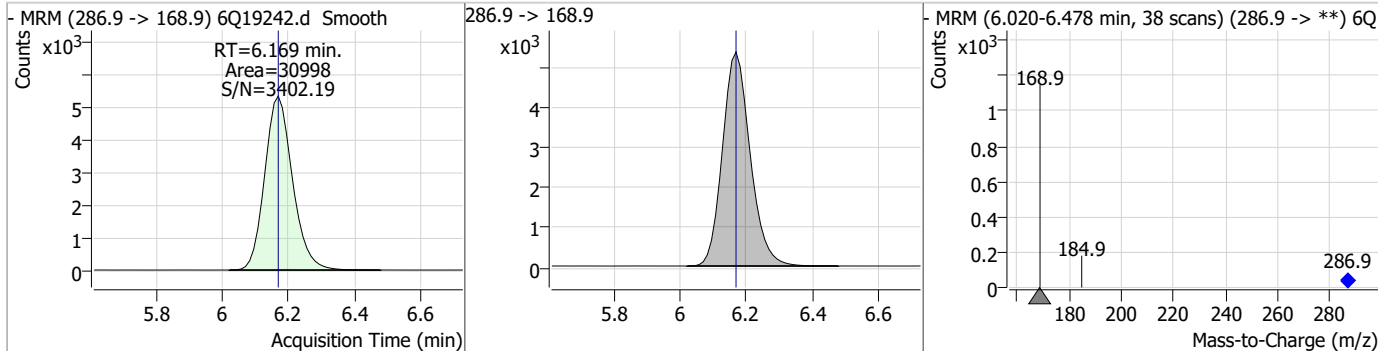
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.34	5.79	0.00	49589	318.0 -> 273.0			



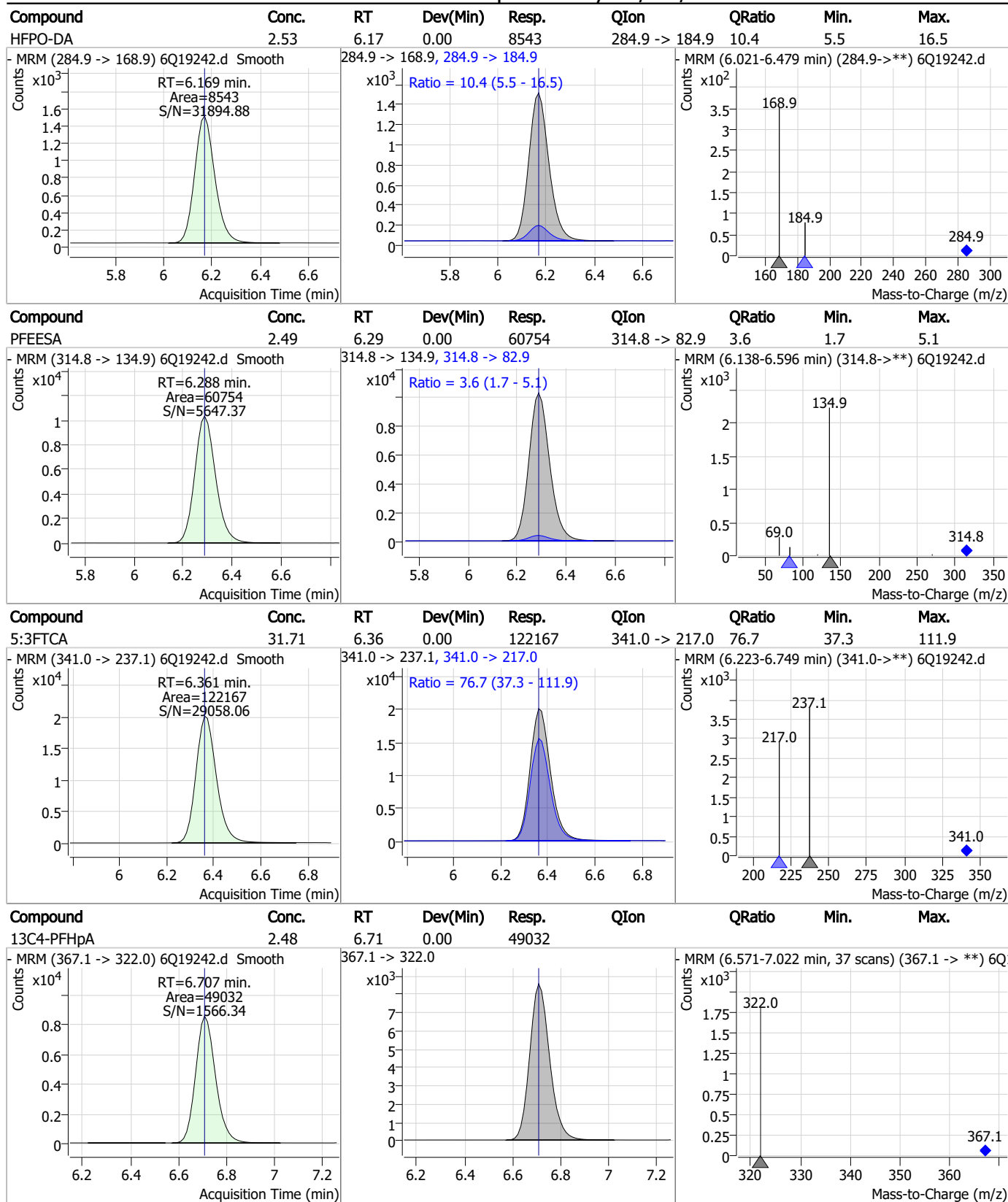
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.25	5.79	0.00	24765	313.0 -> 118.9	4.6	2.7	8.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.21	6.17	0.00	30998	286.9 -> 168.9			



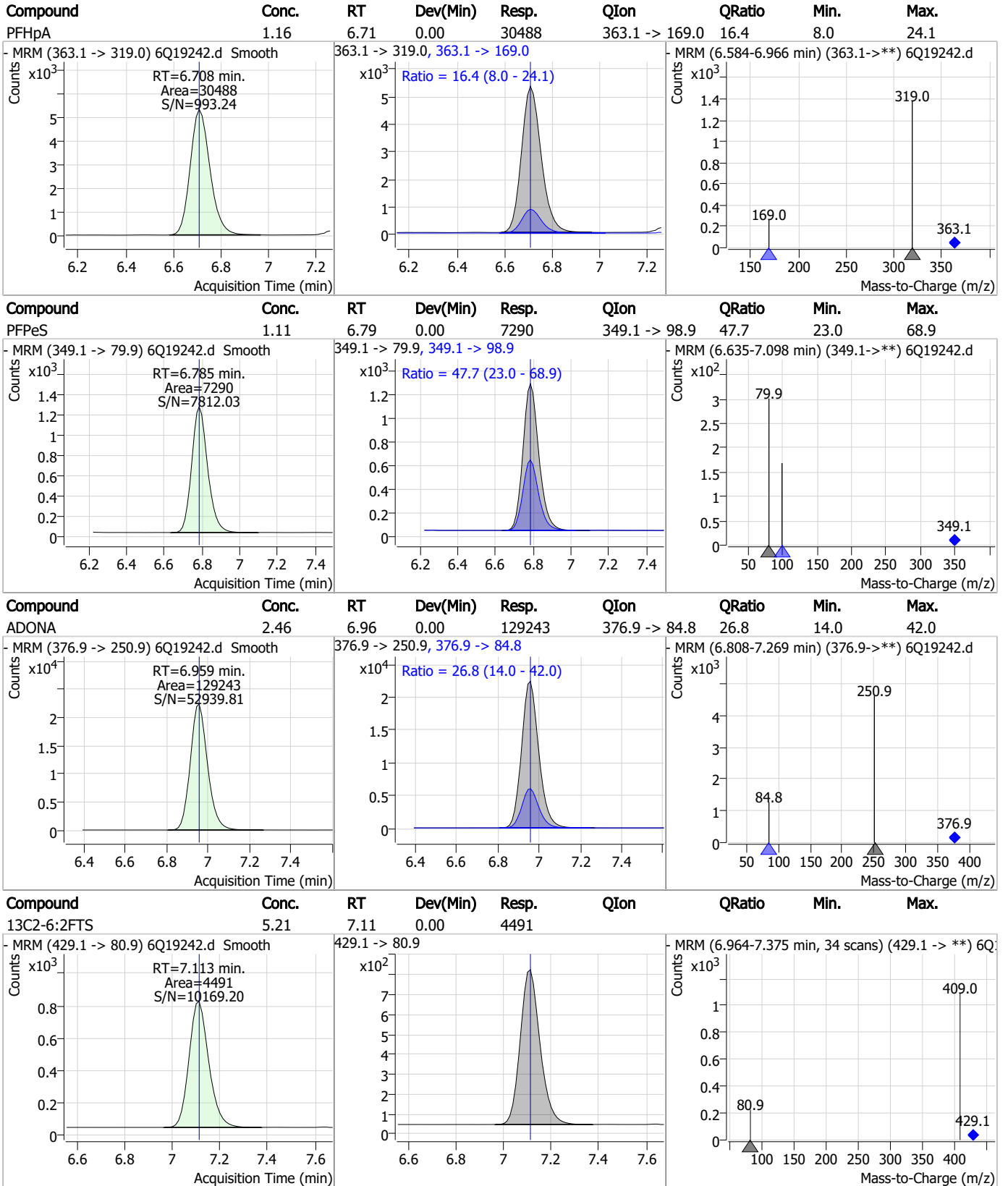
Perfluorinated Compounds by LC/MS/MS



7.7.4

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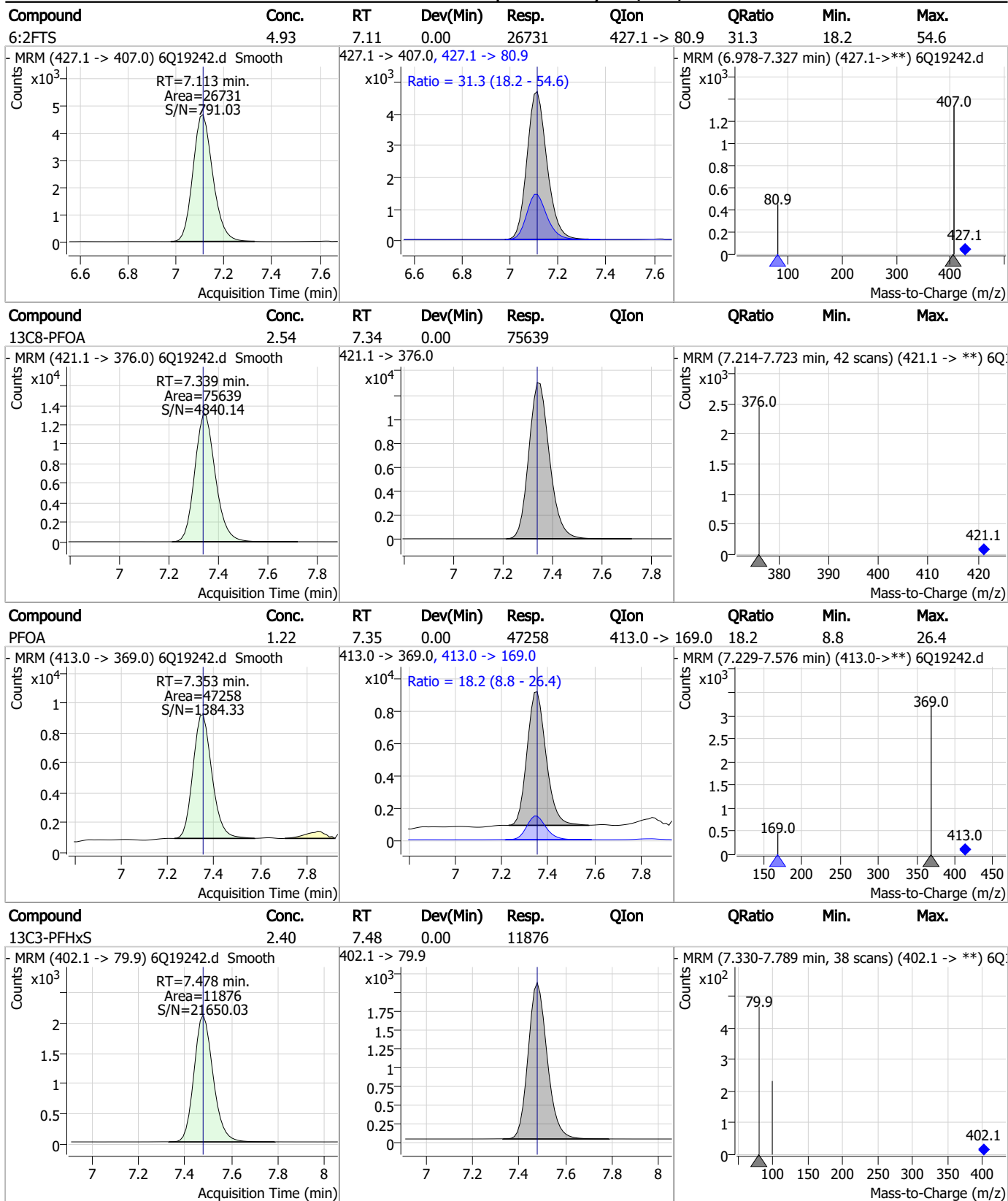
Perfluorinated Compounds by LC/MS/MS



7.7.4

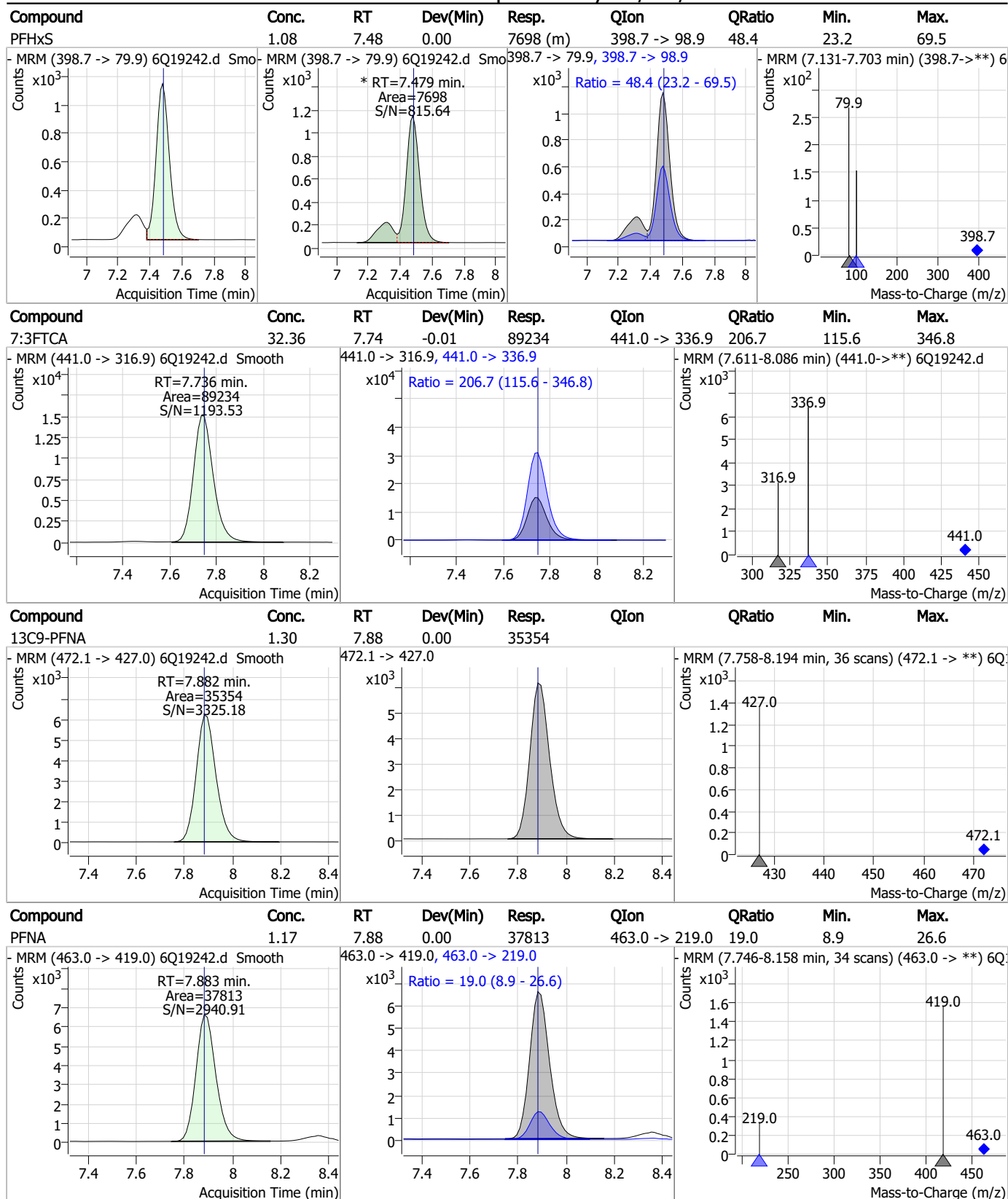
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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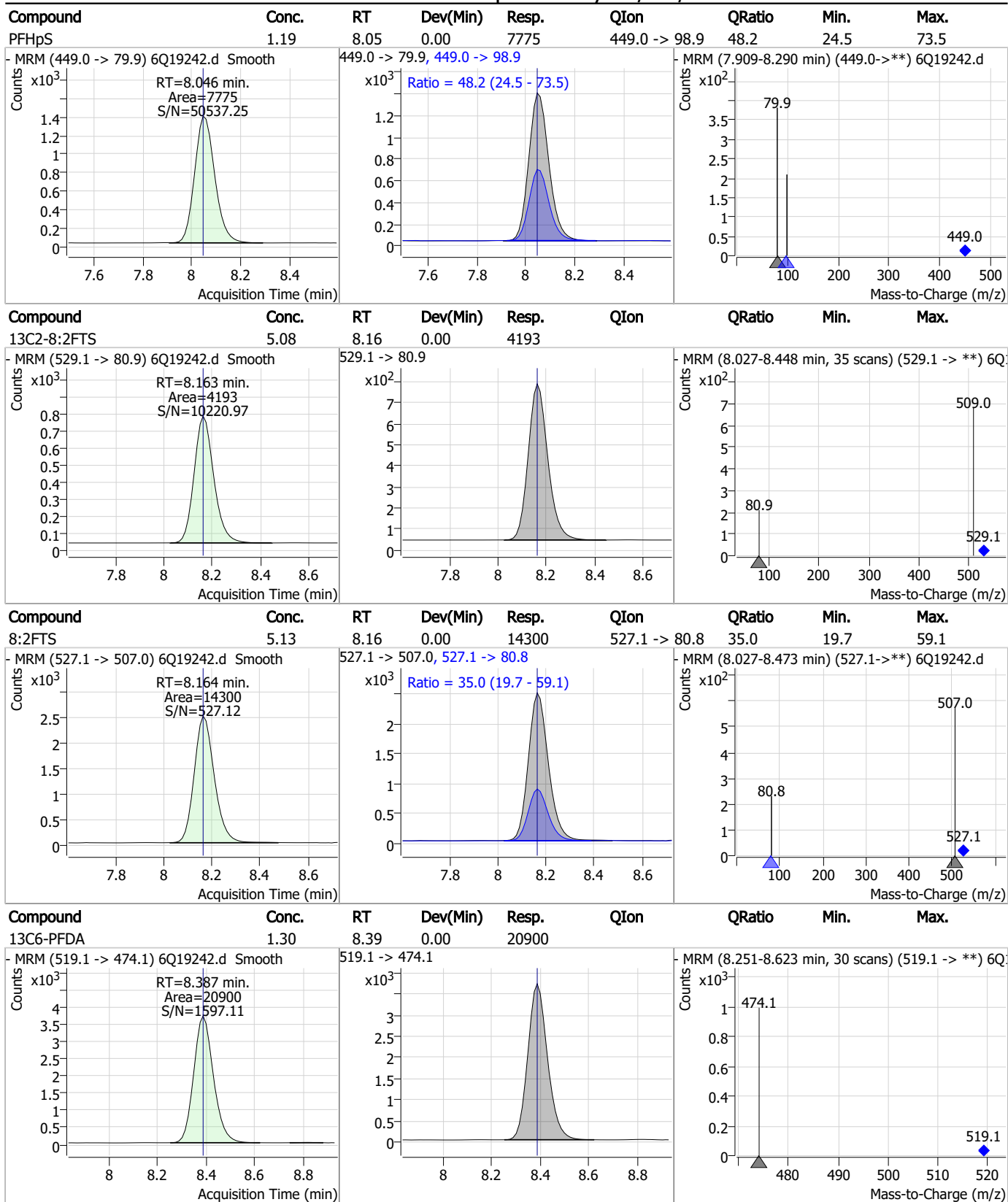
Perfluorinated Compounds by LC/MS/MS



7.7.4



Perfluorinated Compounds by LC/MS/MS

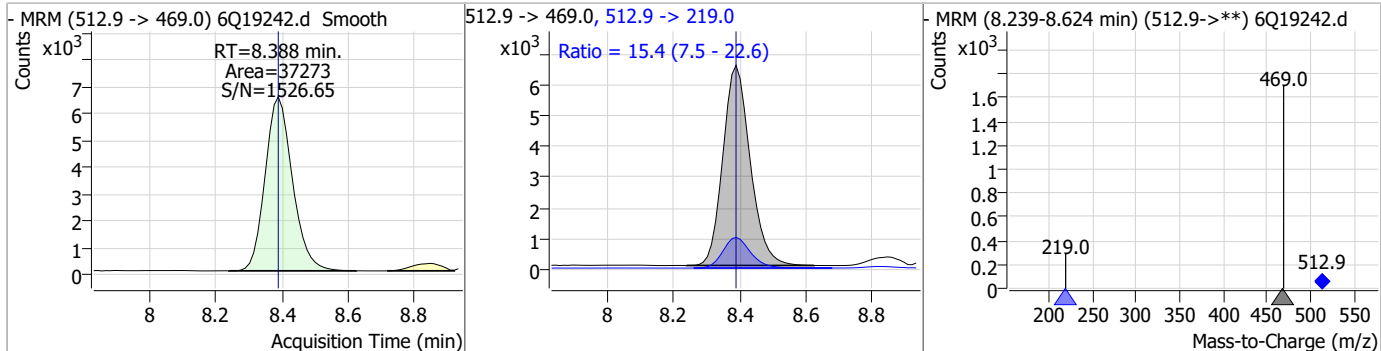


7.7.4

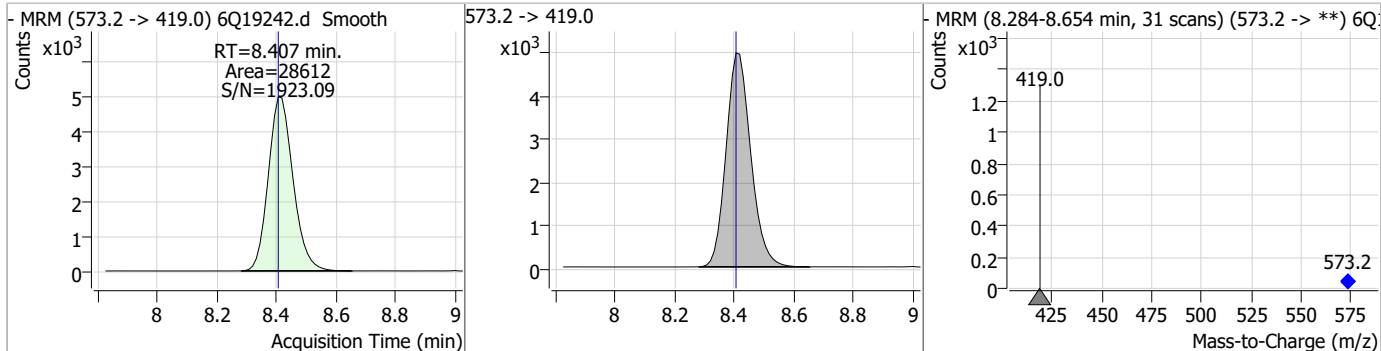
7

Perfluorinated Compounds by LC/MS/MS

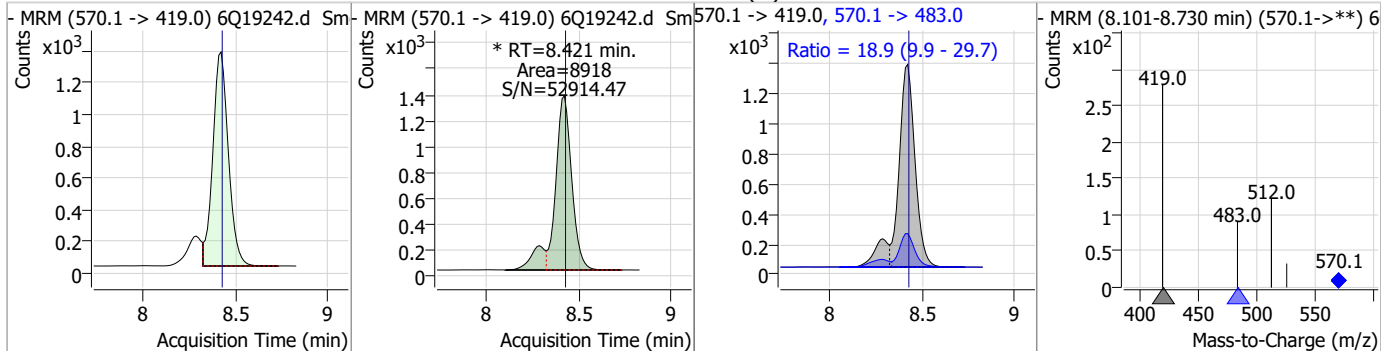
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.19	8.39	0.00	37273	512.9 -> 219.0	15.4	7.5	22.6



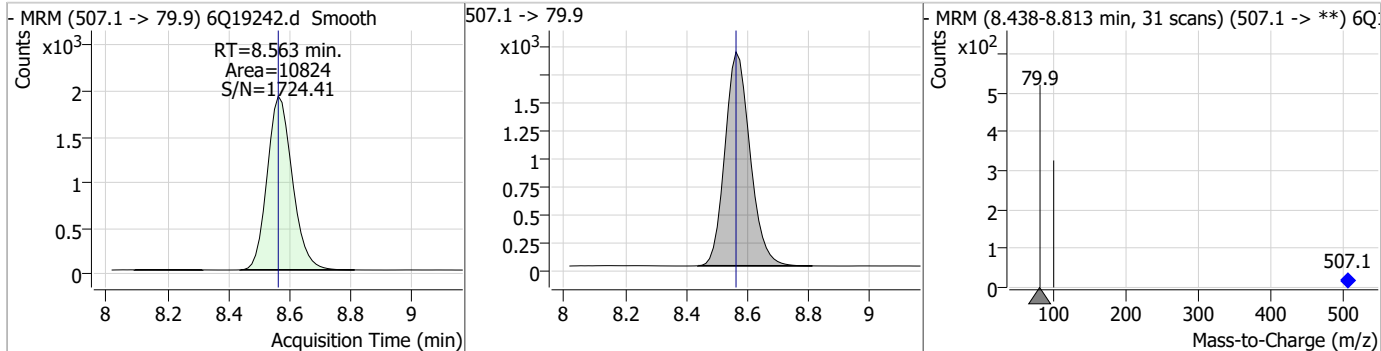
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.10	8.41	0.00	28612				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.28	8.42	0.00	8918 (m)	570.1 -> 483.0	18.9	9.9	29.7



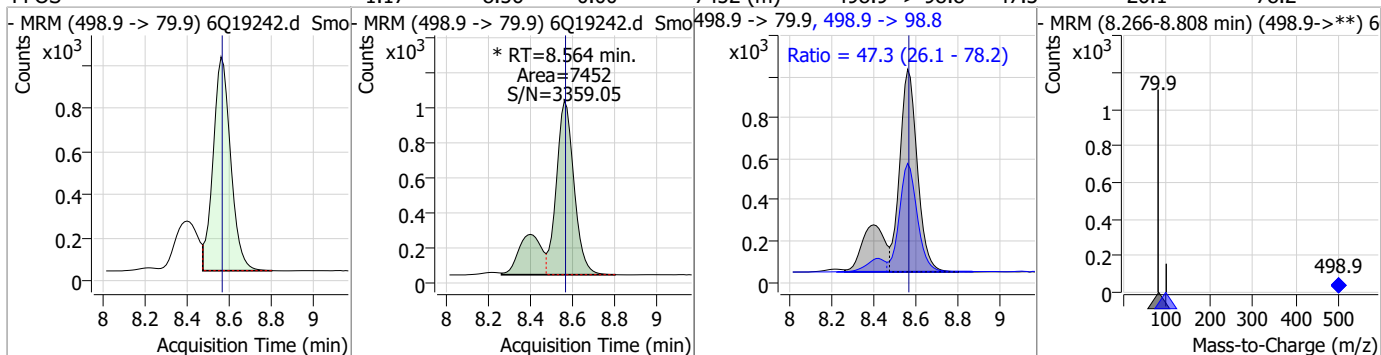
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.47	8.56	0.00	10824				



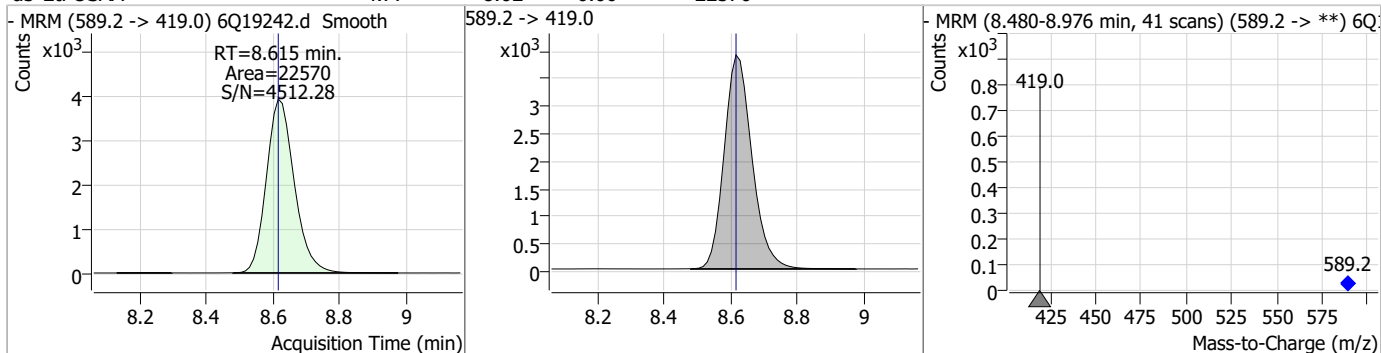
7.7.4
7

Perfluorinated Compounds by LC/MS/MS

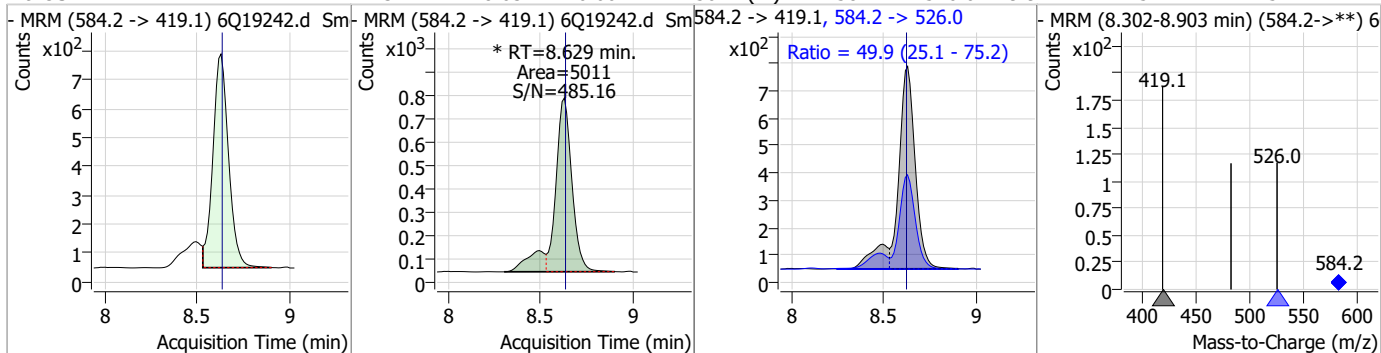
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.17	8.56	0.00	7452 (m)	498.9 -> 98.8	47.3	26.1	78.2



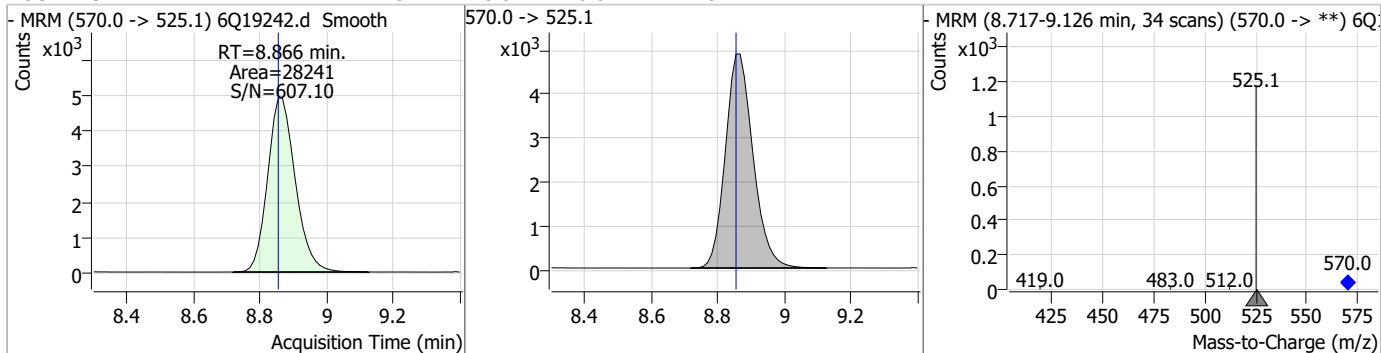
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.77	8.62	0.00	22570				



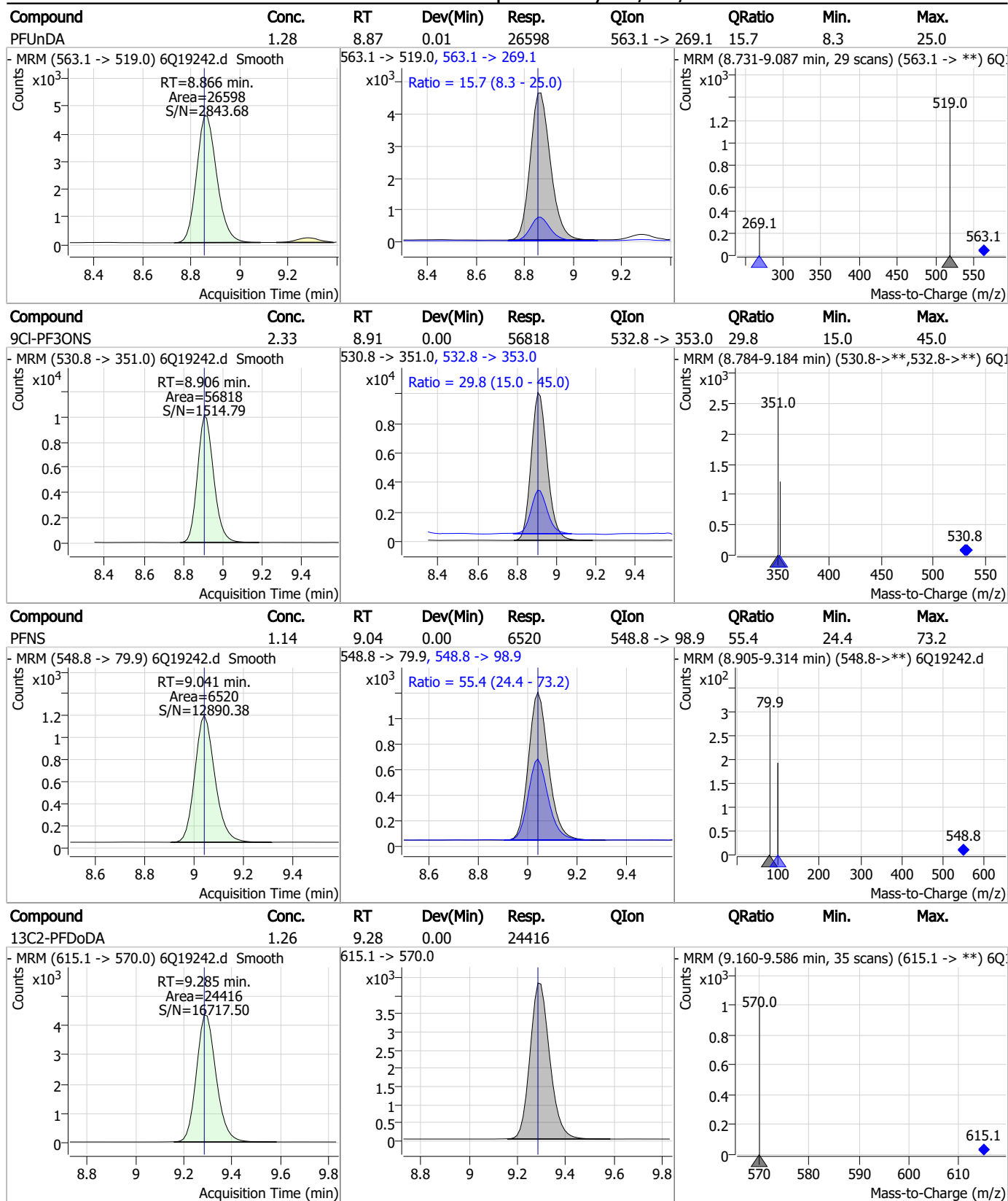
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.34	8.63	0.00	5011 (m)	584.2 -> 526.0	49.9	25.1	75.2



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



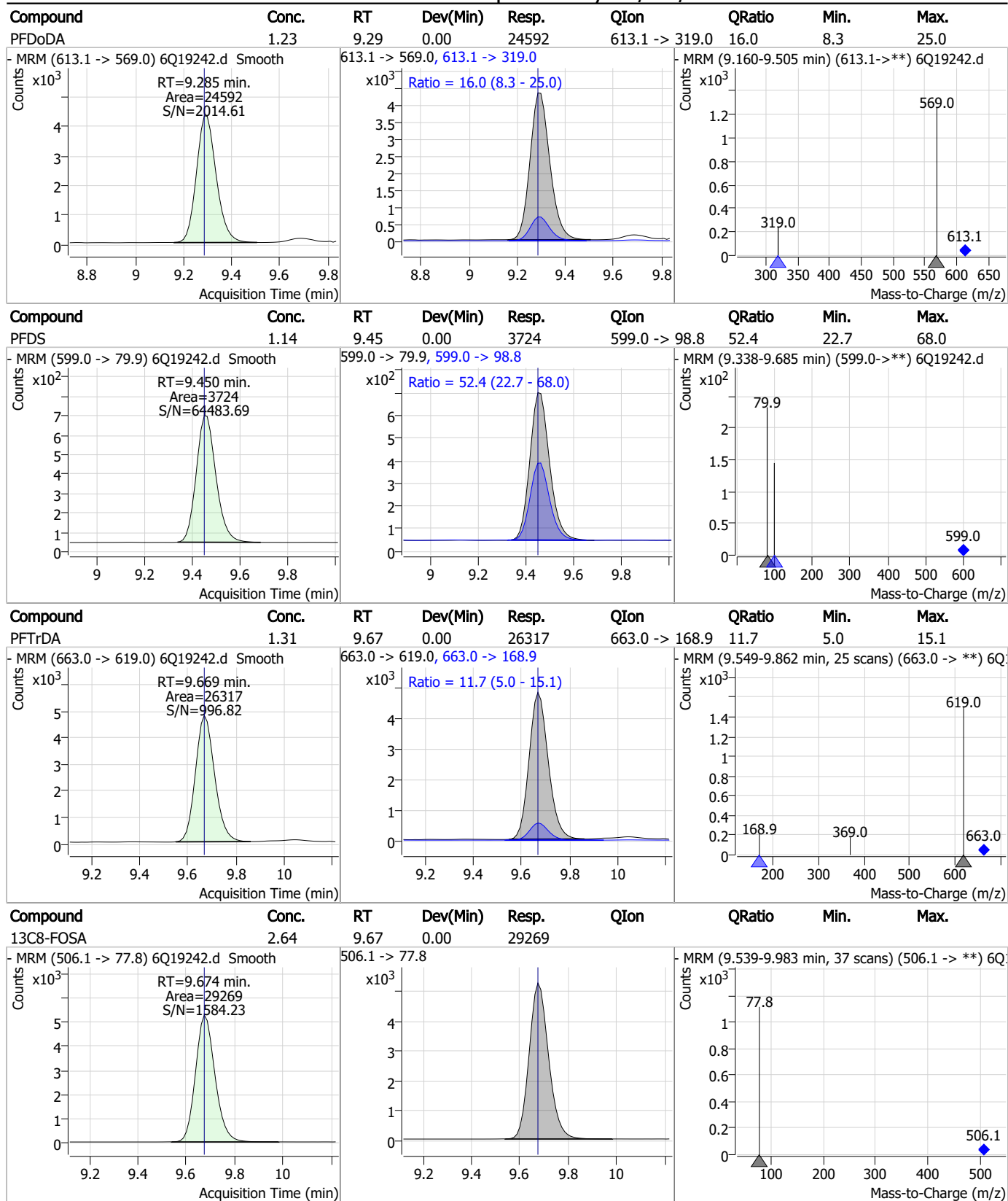
Perfluorinated Compounds by LC/MS/MS



7.7.4

7

Perfluorinated Compounds by LC/MS/MS

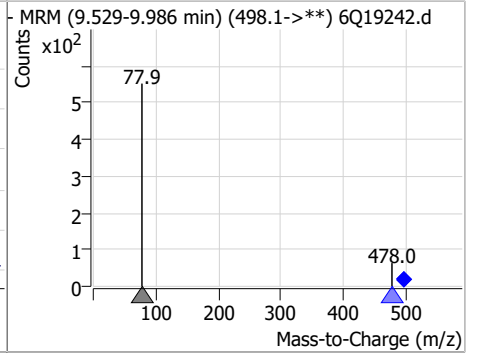
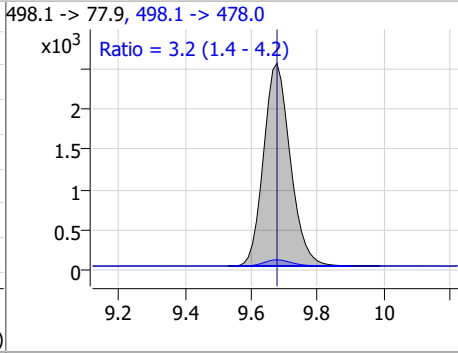
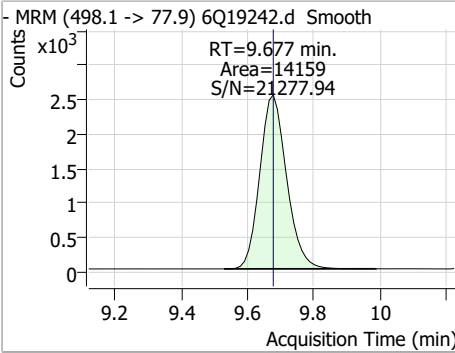


7.7.4

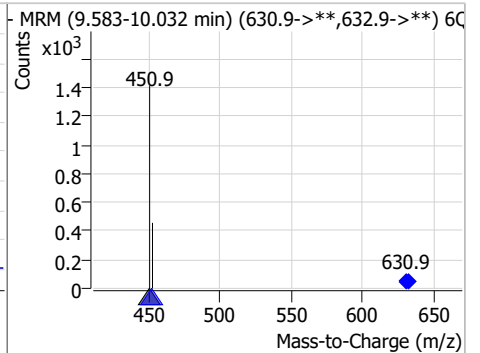
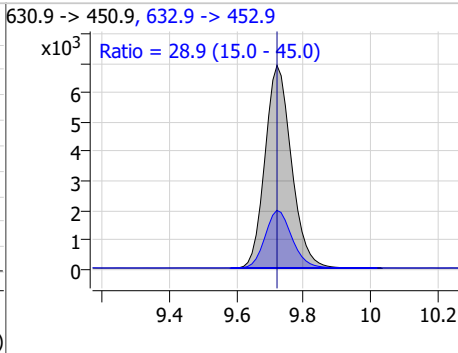
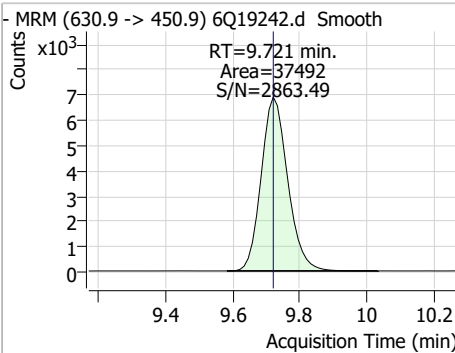
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Perfluorinated Compounds by LC/MS/MS

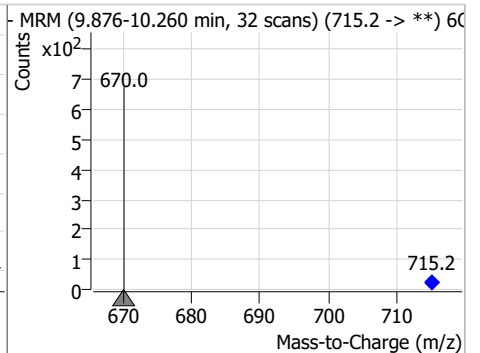
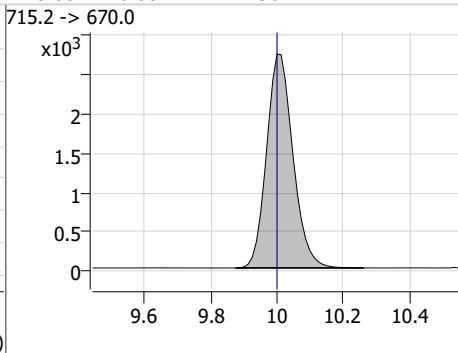
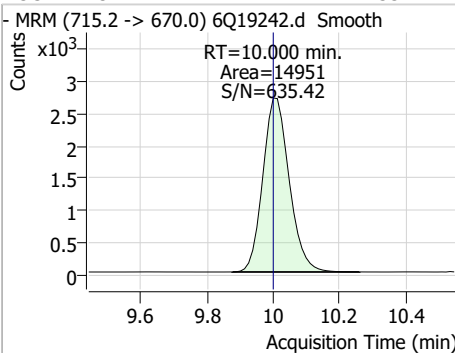
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.18	9.68	0.00	14159	498.1 -> 478.0	3.2	1.4	4.2



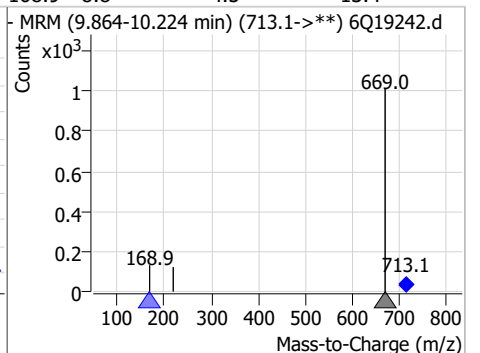
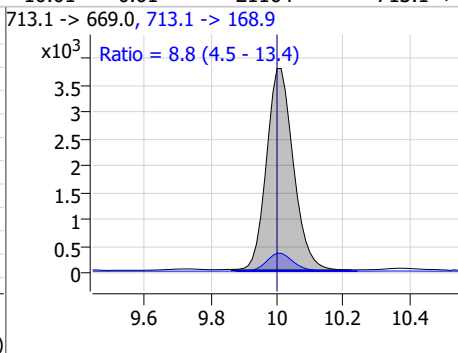
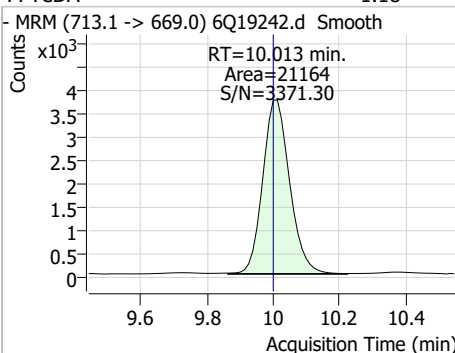
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	2.57	9.72	0.00	37492	630.9 -> 452.9	28.9	15.0	45.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.33	10.00	0.00	14951	715.2 -> 670.0			

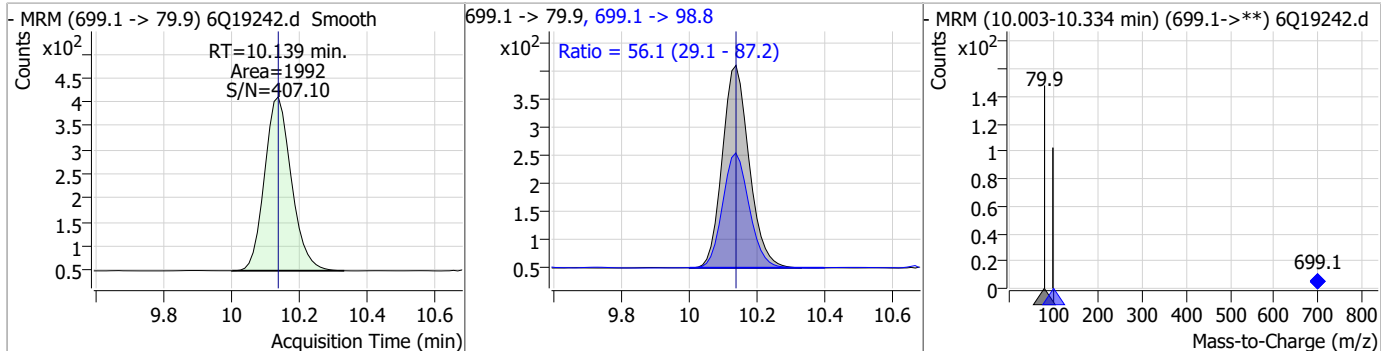


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.18	10.01	0.01	21164	713.1 -> 168.9	8.8	4.5	13.4

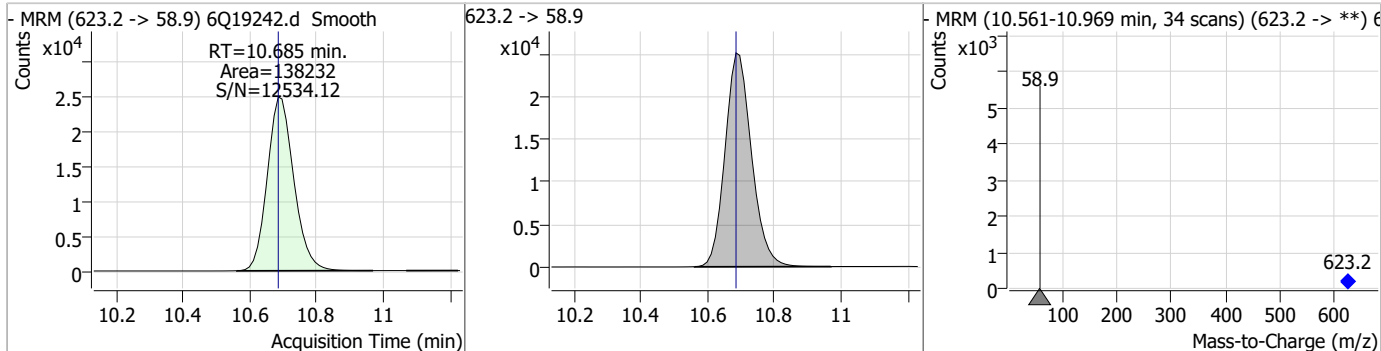


Perfluorinated Compounds by LC/MS/MS

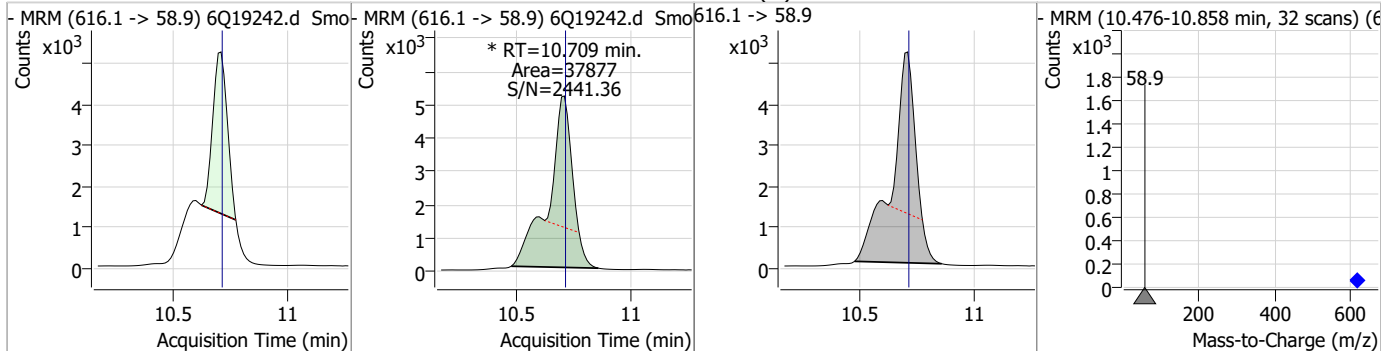
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	1.23	10.14	0.00	1992	699.1 -> 98.8	56.1	29.1	87.2



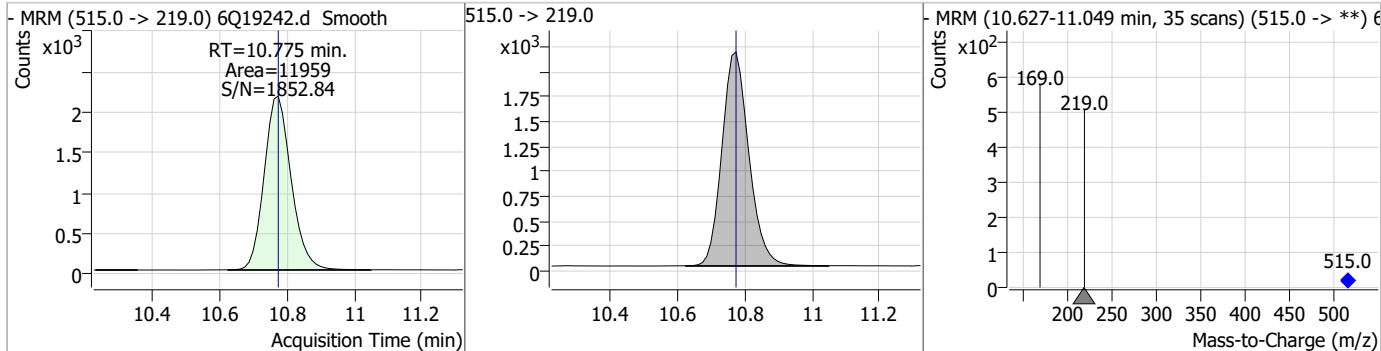
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.18	10.68	0.00	138232				



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



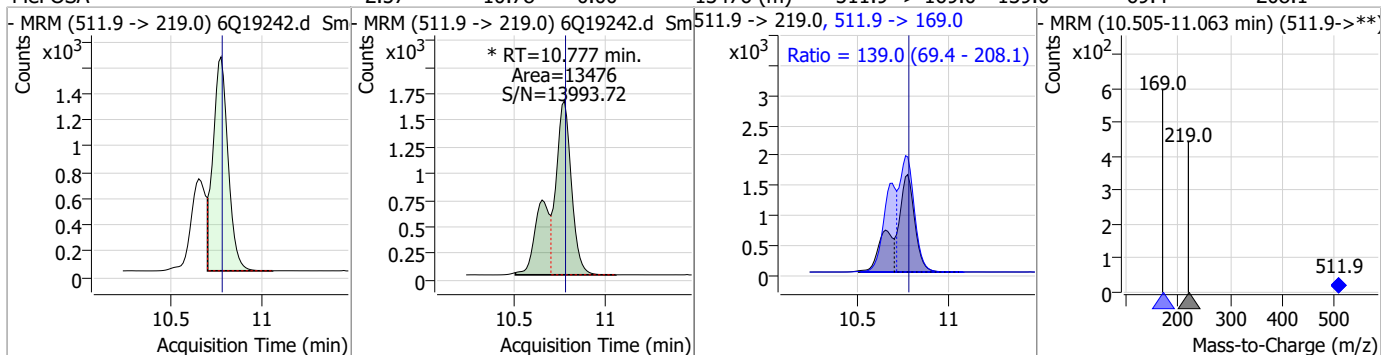
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.41	10.78	0.00	11959				



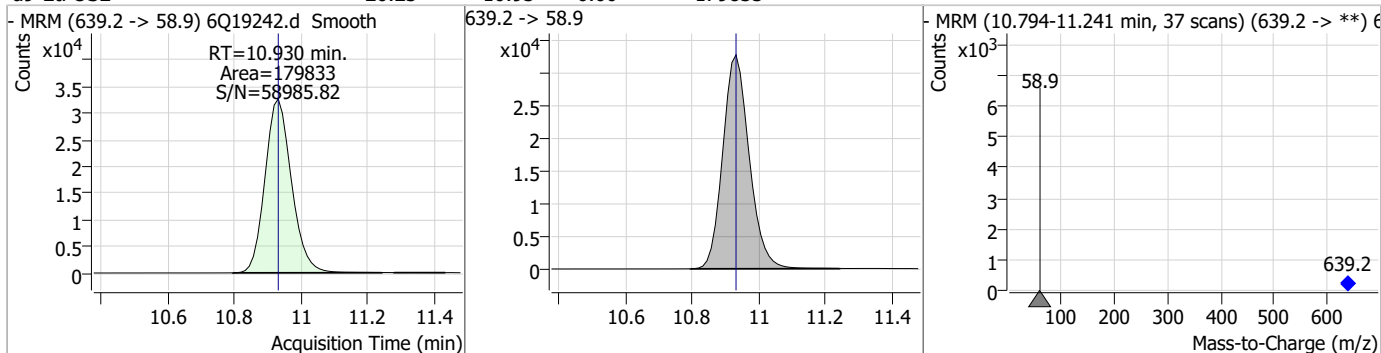
7.7.4
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Perfluorinated Compounds by LC/MS/MS

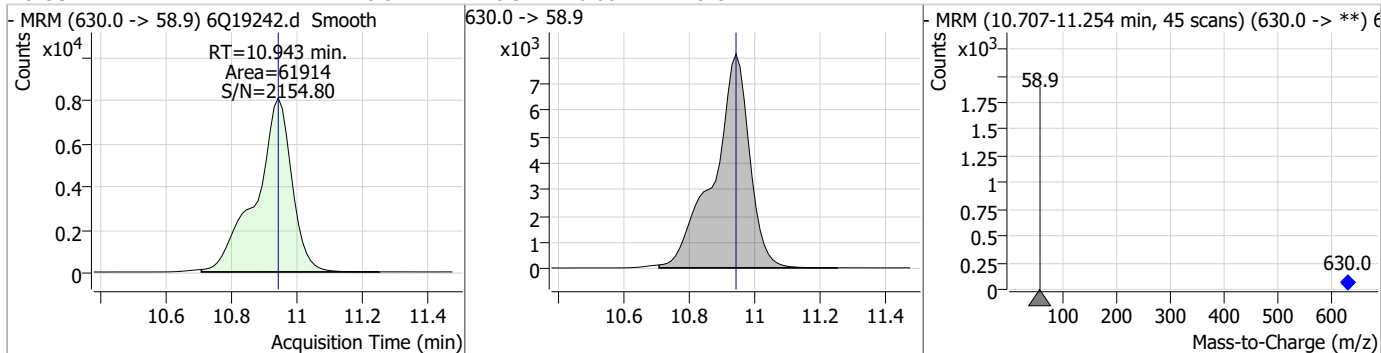
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.57	10.78	0.00	13476 (m)	511.9 -> 169.0	139.0	69.4	208.1



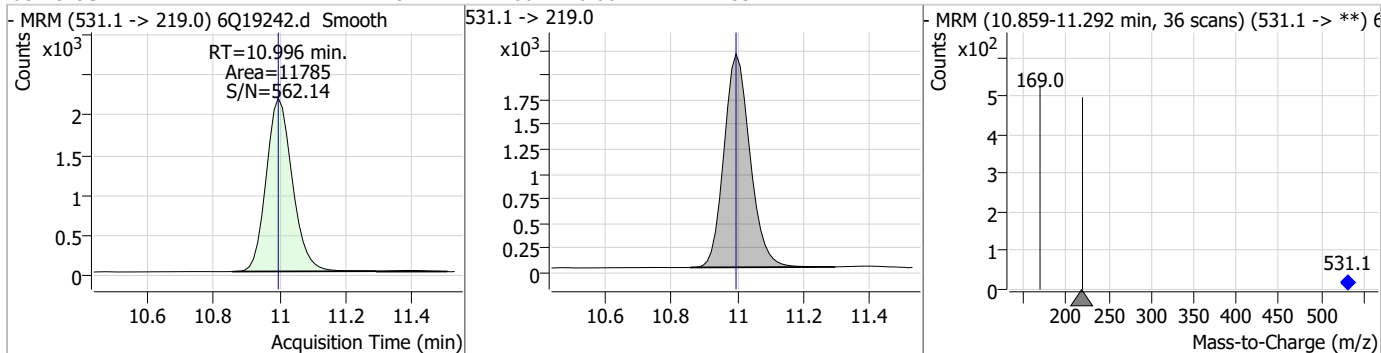
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.23	10.93	0.00	179833				



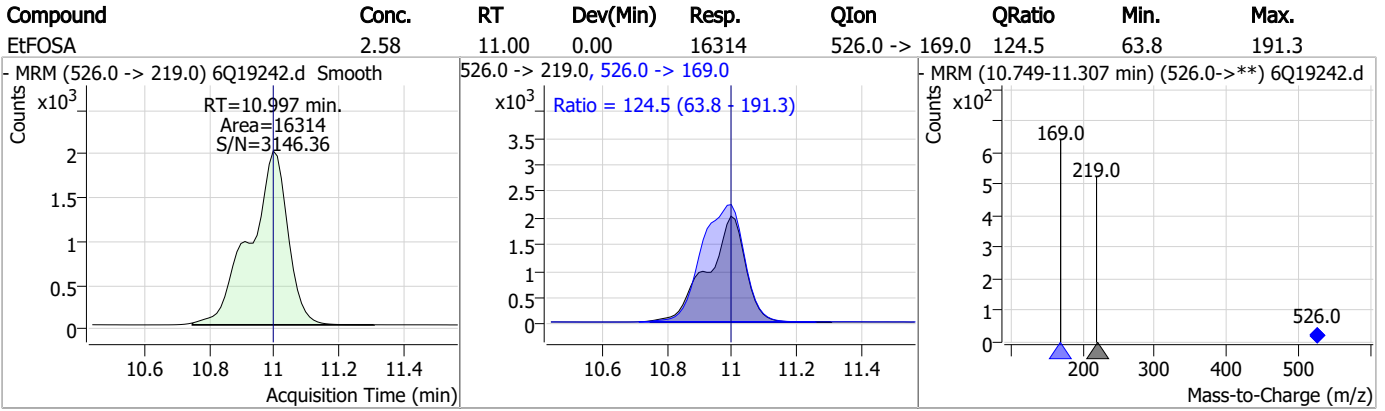
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	6.52	10.94	0.00	61914				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.45	11.00	0.00	11785				



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)
PFHpA	6.708	599.0 -> 98.8	3522	2.47	µg/L	100
		363.1 -> 319.0	61235			
PFHpS	8.046	363.1 -> 169.0	9828	2.13	µg/L	100
		449.0 -> 79.9	14466			
PFHxA	5.795	449.0 -> 98.9	7089	2.34	µg/L	100
		313.0 -> 269.0	47031			
PFHxS	7.479	313.0 -> 118.9	2536	2.15	µg/L	100
		398.7 -> 79.9	15250			
PFNA	7.883	398.7 -> 98.9	7061	2.53	µg/L	100
		463.0 -> 419.0	78087			
PFNS	9.041	463.0 -> 219.0	13826	2.27	µg/L	100
		548.8 -> 79.9	13594			
PFOA	7.353	548.8 -> 98.9	6636	2.38	µg/L	100
		413.0 -> 369.0	94981			
PFOS	8.564	413.0 -> 169.0	16702	2.09	µg/L	100
		498.9 -> 79.9	13905			
PFPeA	4.551	498.9 -> 98.8	7249	4.72	µg/L	100
		263.0 -> 219.0	64525			
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
		511.9 -> 219.0	25896			
MeFOSA	10.777	511.9 -> 169.0	35919	4.91	µg/L	100
		616.1 -> 58.9	73632			
MeFOSE	10.709	699.1 -> 79.9	3732	11.71	µg/L	100
		699.1 -> 98.8	2168			
PFDoDS	10.139	295.0 -> 201.0	11826	2.20	µg/L	100
		295.0 -> 84.9	3420			
NFDHA	5.673	279.0 -> 85.1	45915	4.65	µg/L	100
		229.0 -> 84.9	36379			
PFMBA	4.988	314.8 -> 134.9	116442	4.78	µg/L	100
		314.8 -> 82.9	3989			
PFMPA	3.667			4.71	µg/L	100
PFEESA	6.288			4.71	µg/L	100

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

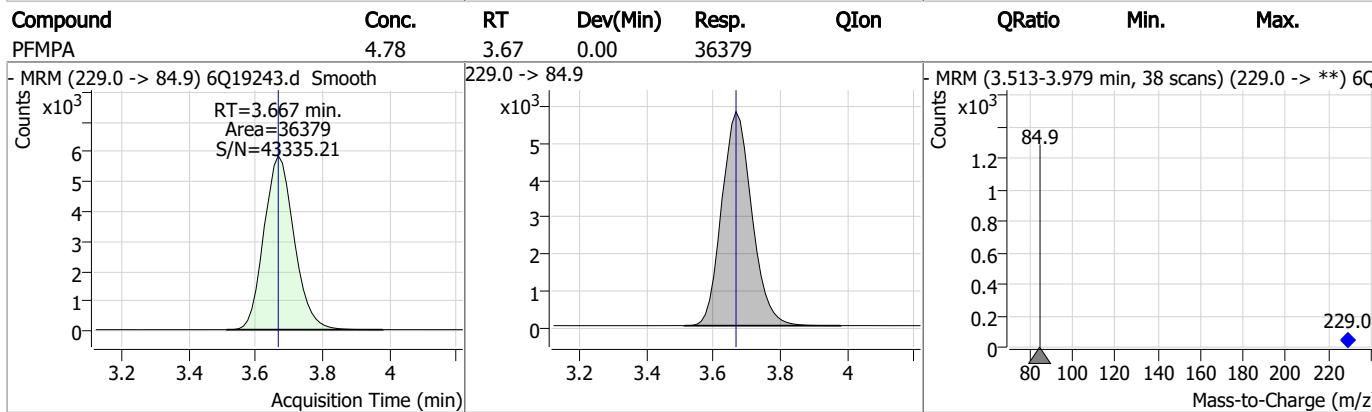
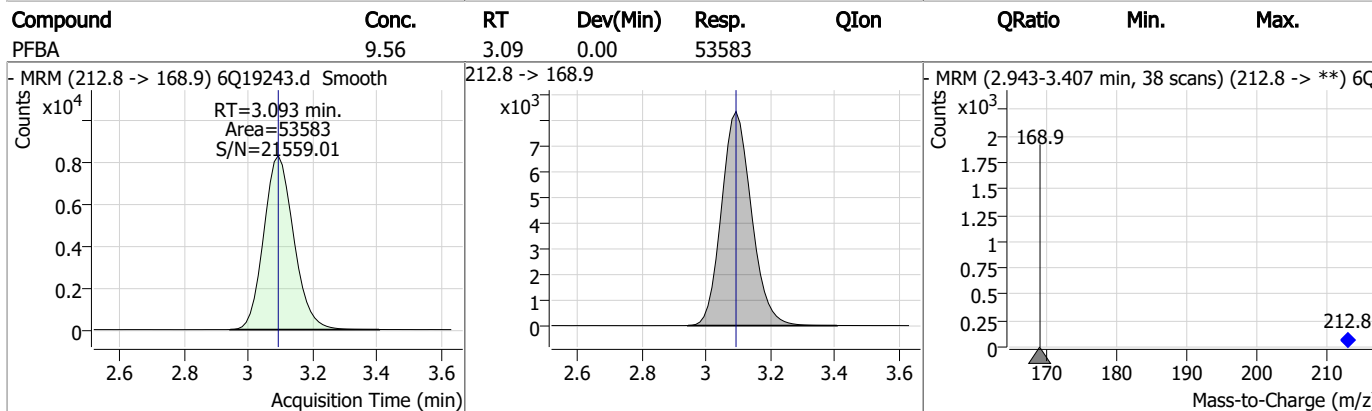
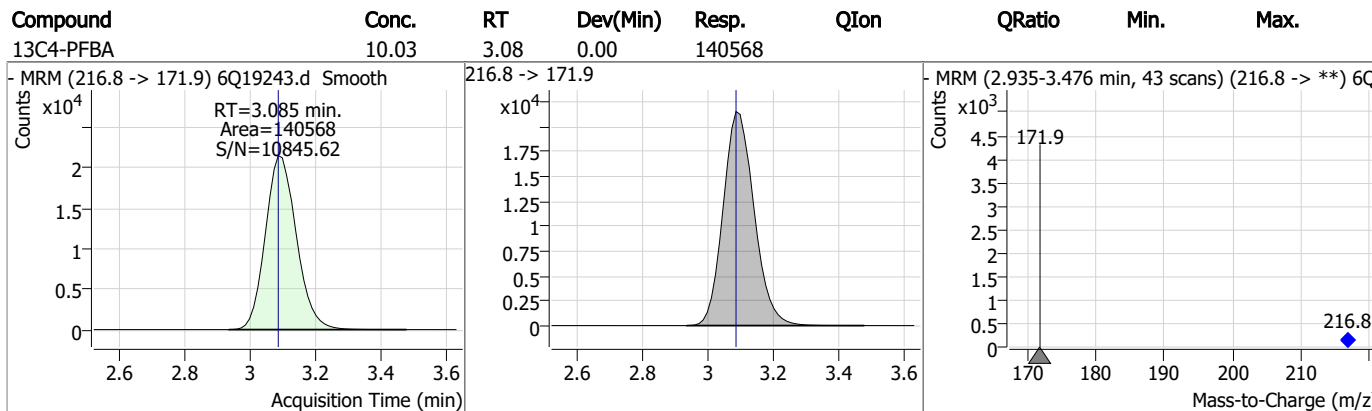
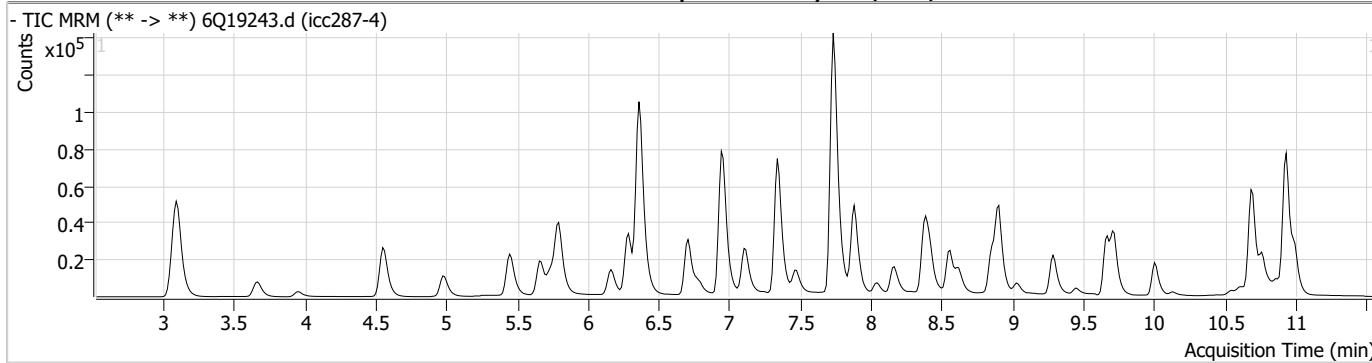
Perfluorinated Compounds by LC/MS/MS

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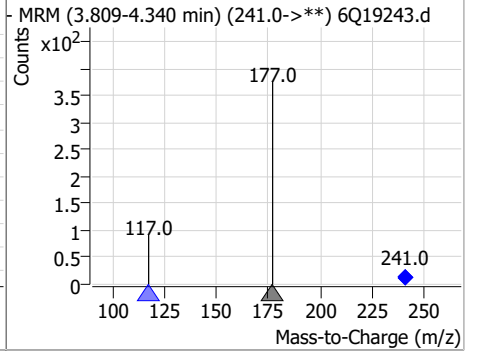
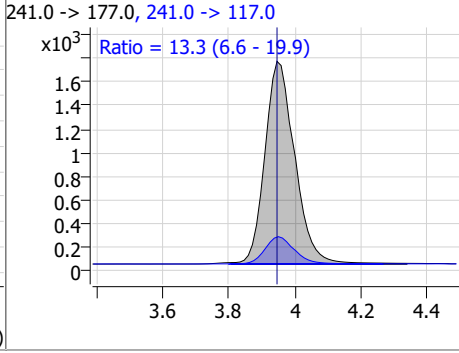
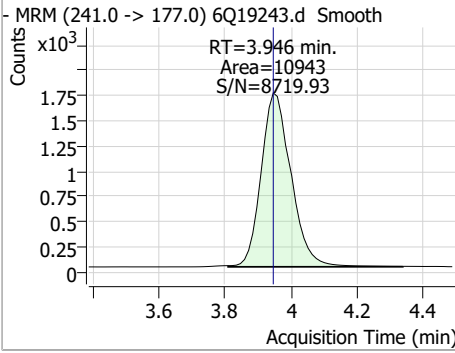


Perfluorinated Compounds by LC/MS/MS

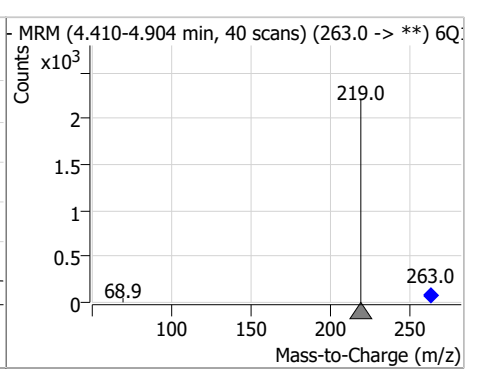
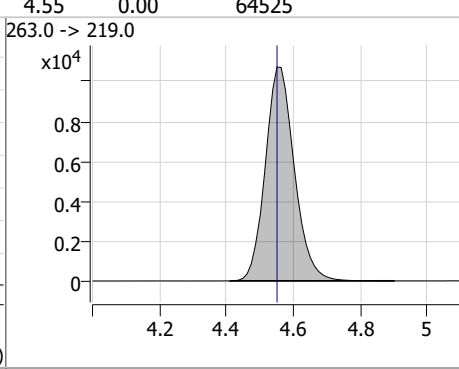
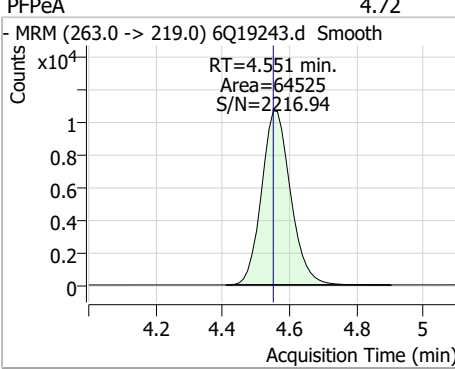


Perfluorinated Compounds by LC/MS/MS

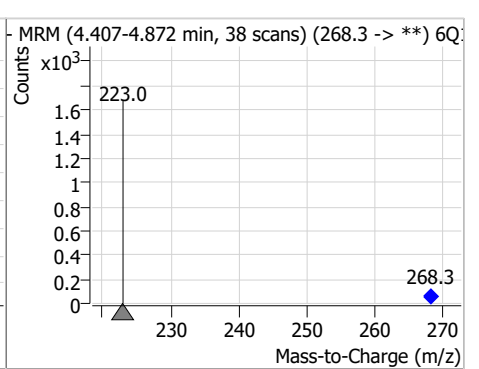
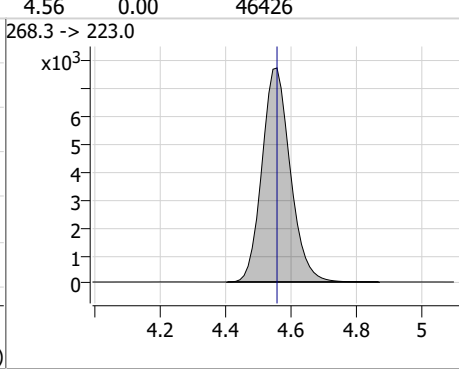
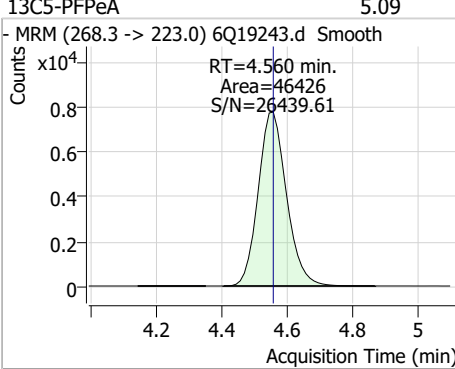
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.71	3.95	0.00	10943	241.0 -> 117.0	13.3	6.6	19.9



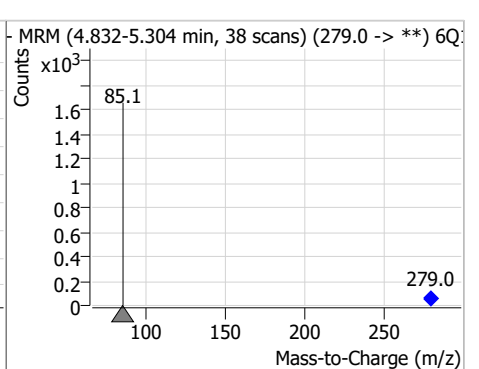
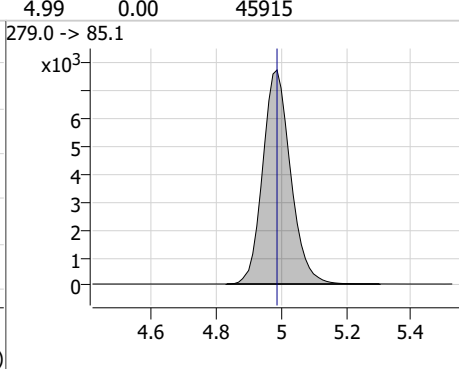
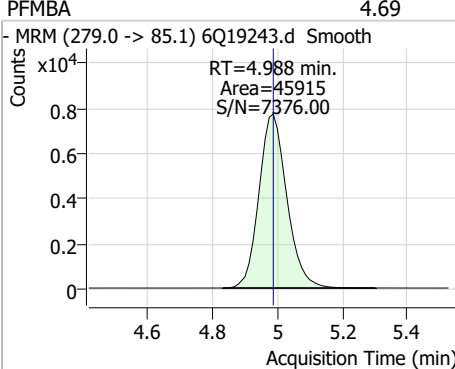
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.72	4.55	0.00	64525				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.09	4.56	0.00	46426				



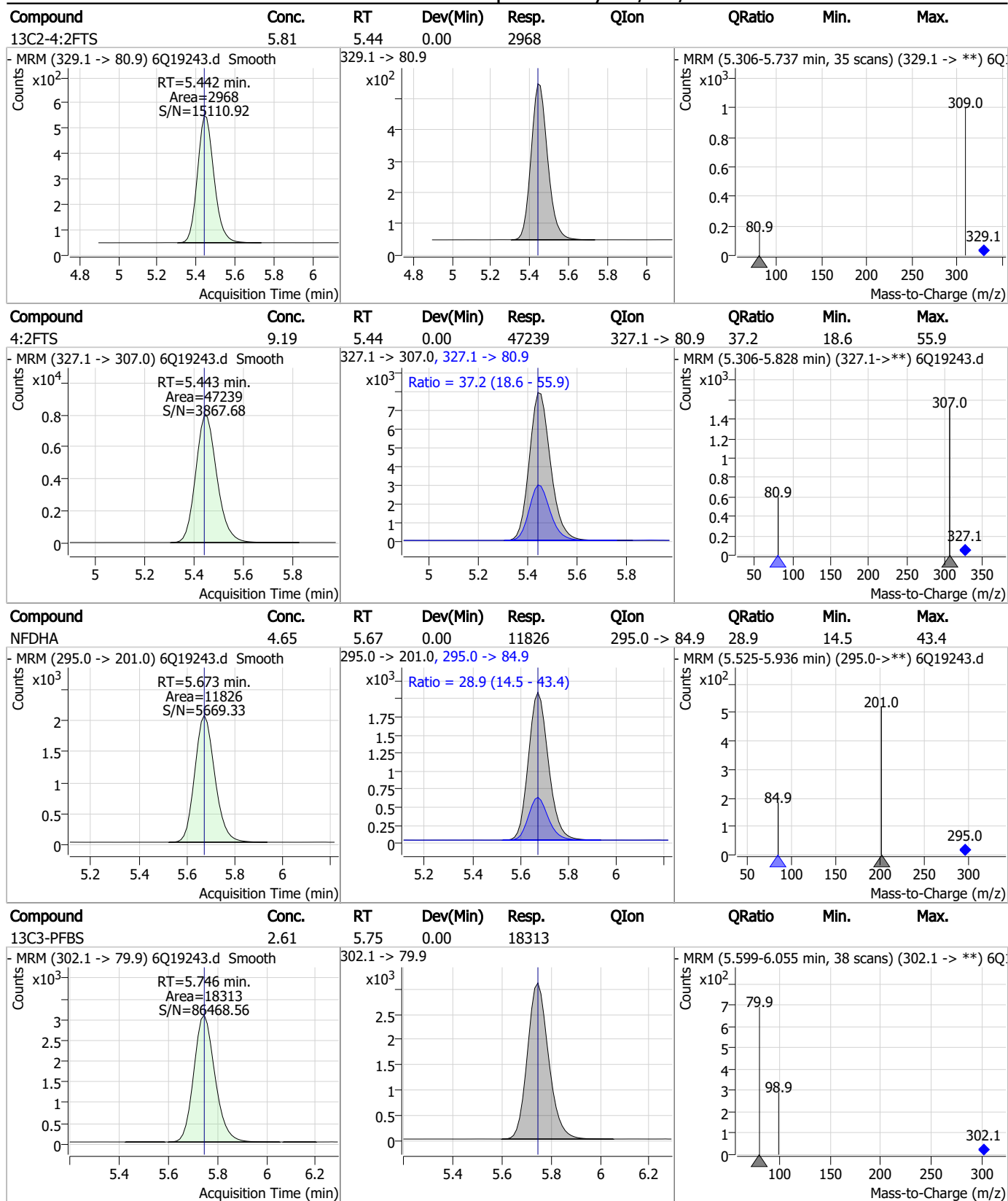
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.69	4.99	0.00	45915				



7.7.5

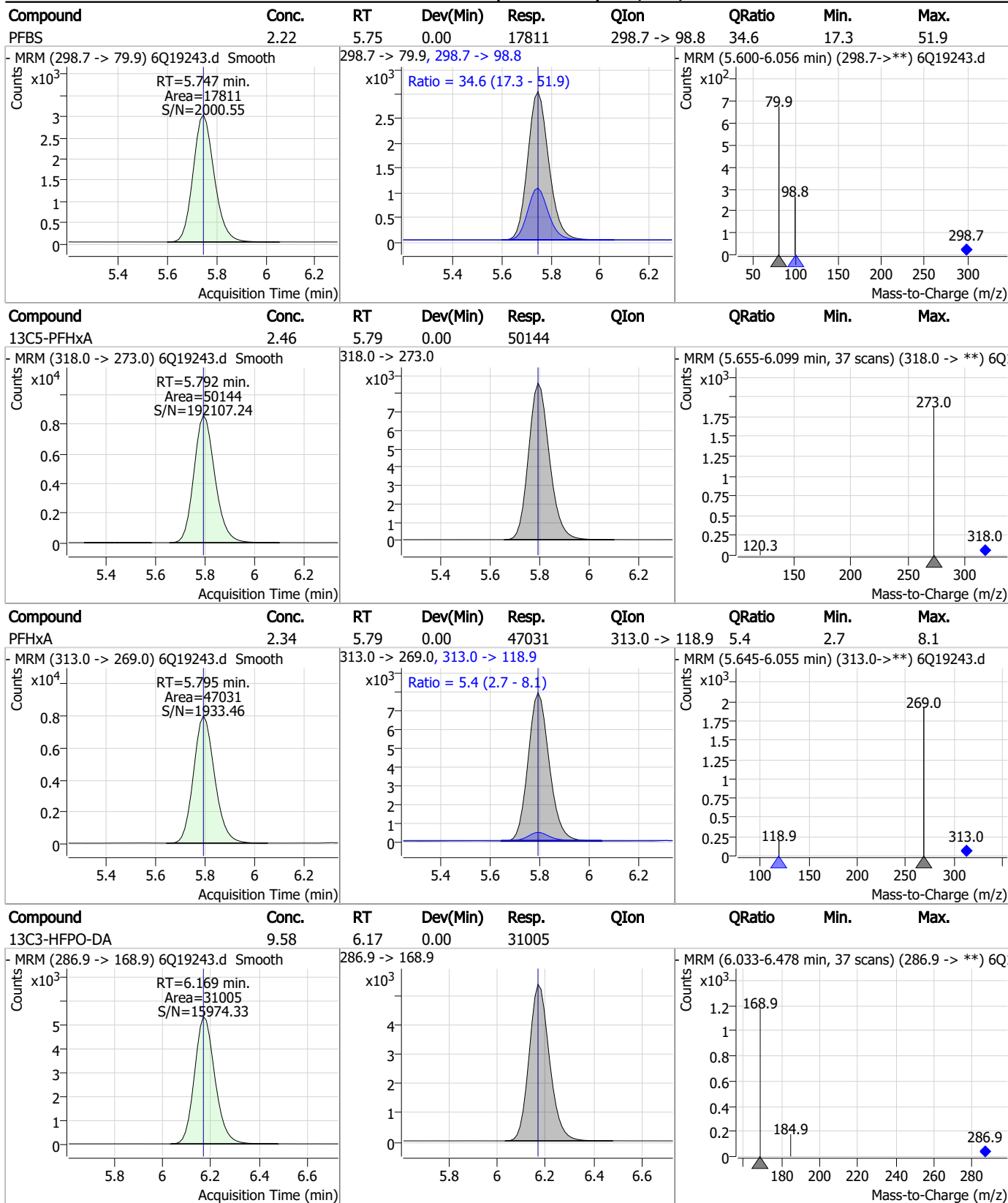
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Perfluorinated Compounds by LC/MS/MS



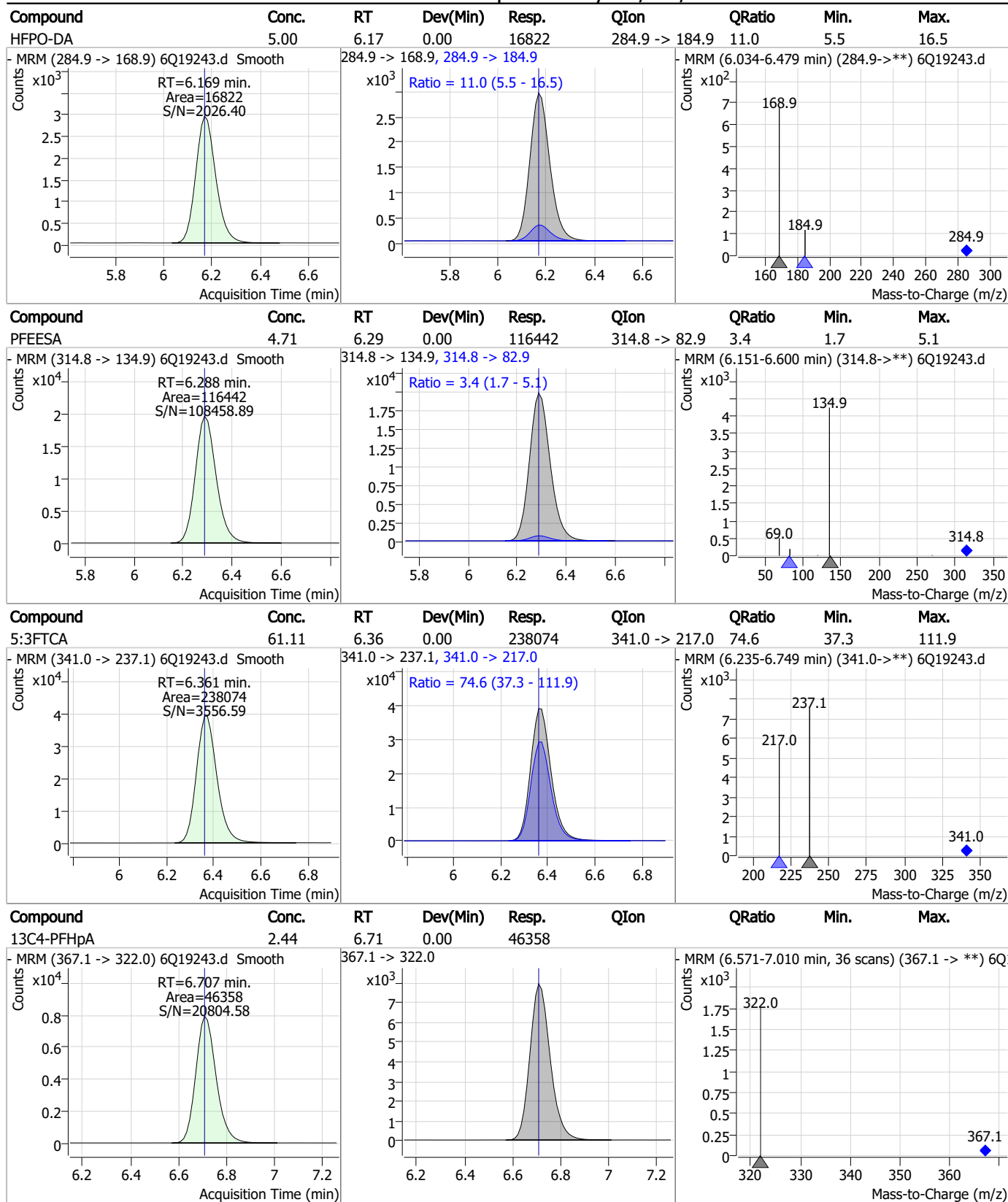
7.7.5
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Perfluorinated Compounds by LC/MS/MS



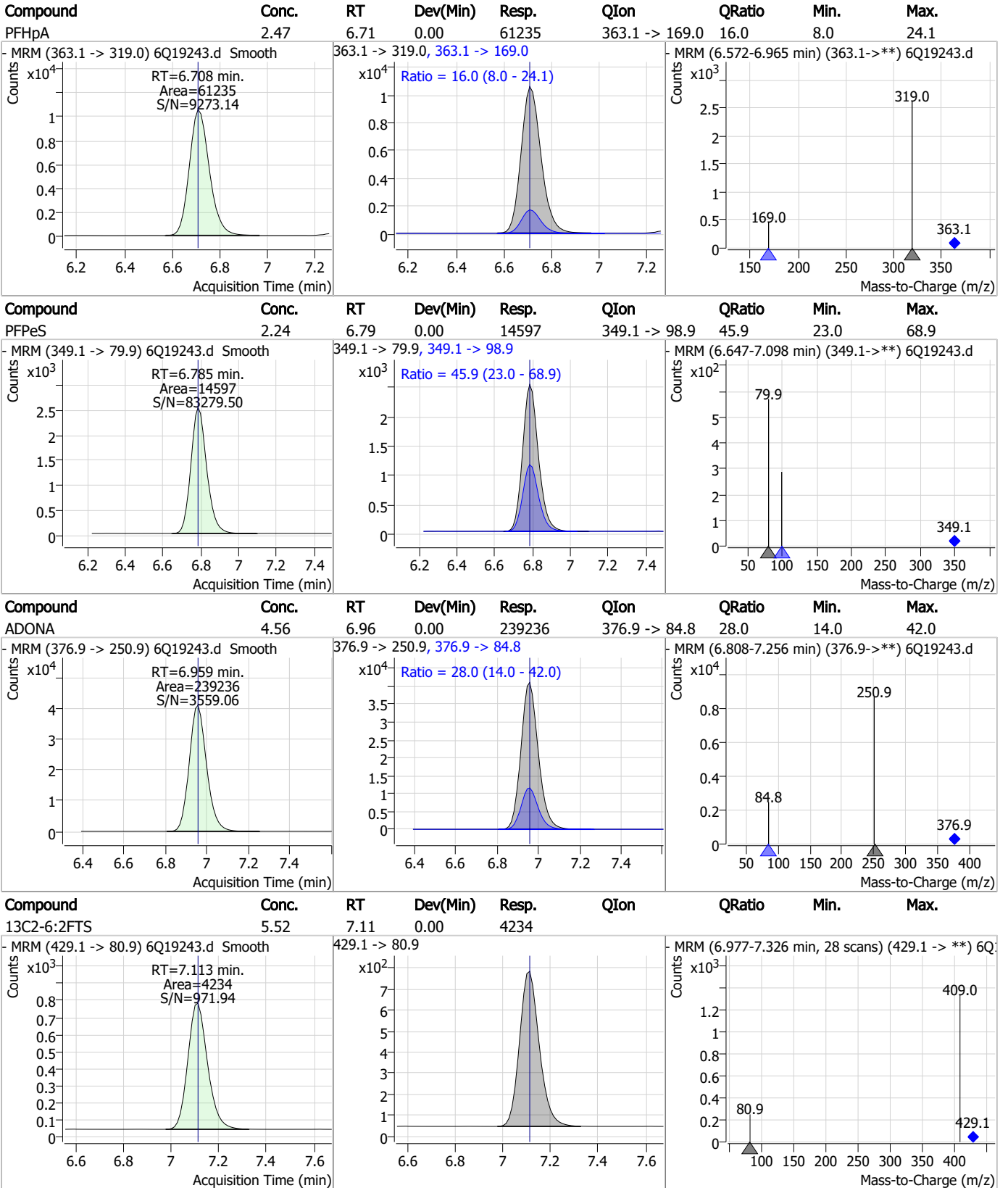
7.7.5
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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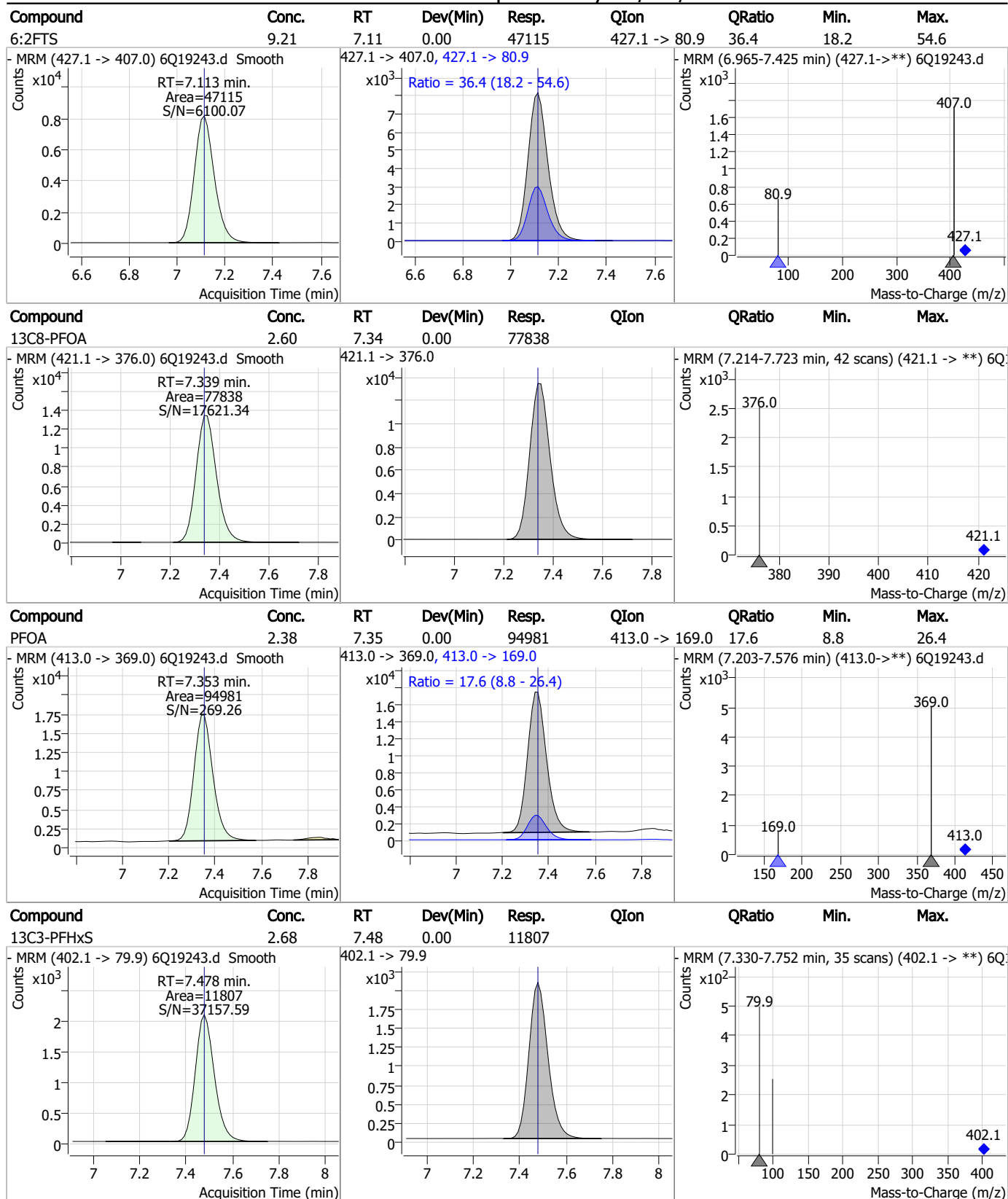
Perfluorinated Compounds by LC/MS/MS



7.7.5

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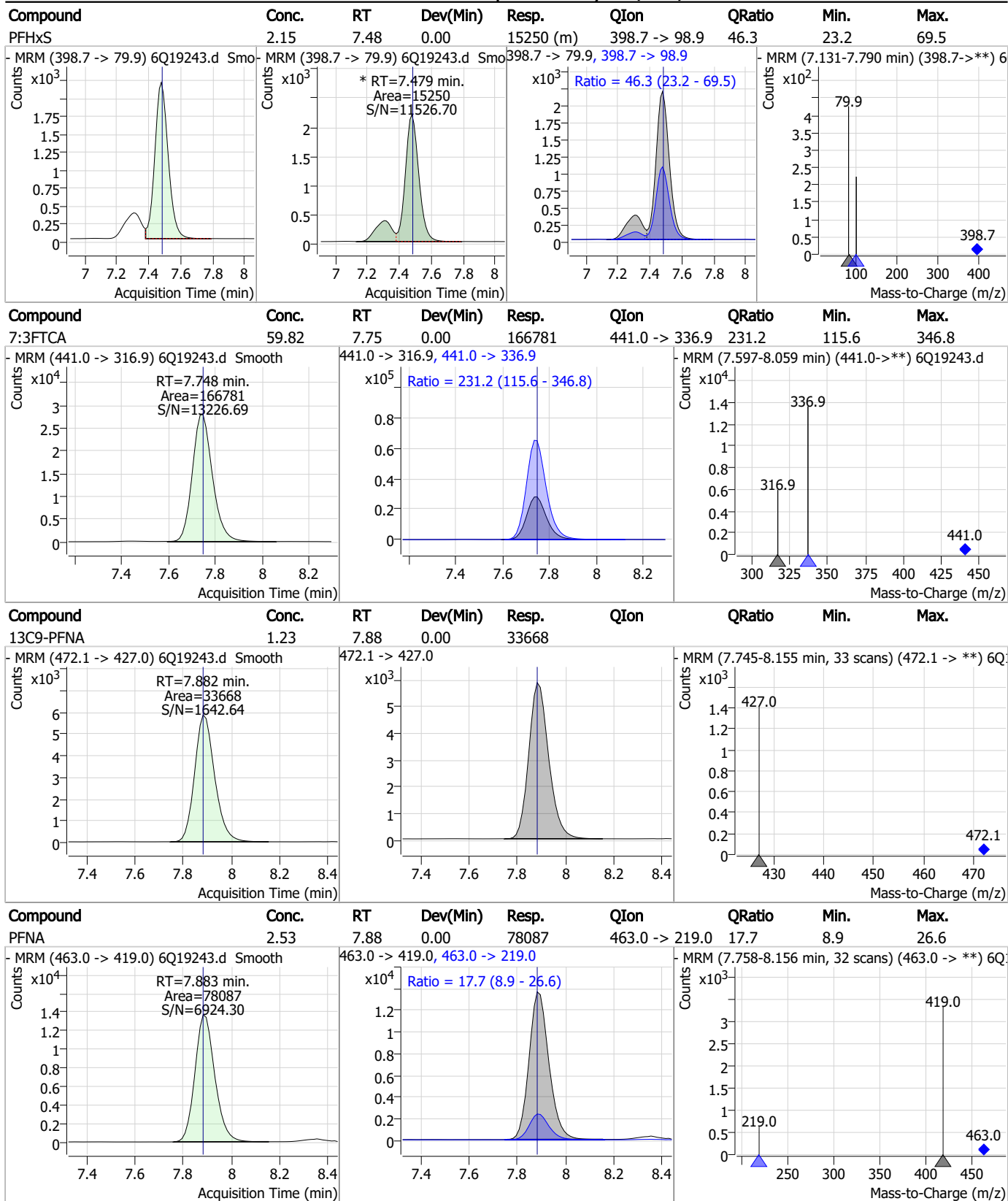
Perfluorinated Compounds by LC/MS/MS



7.7.5

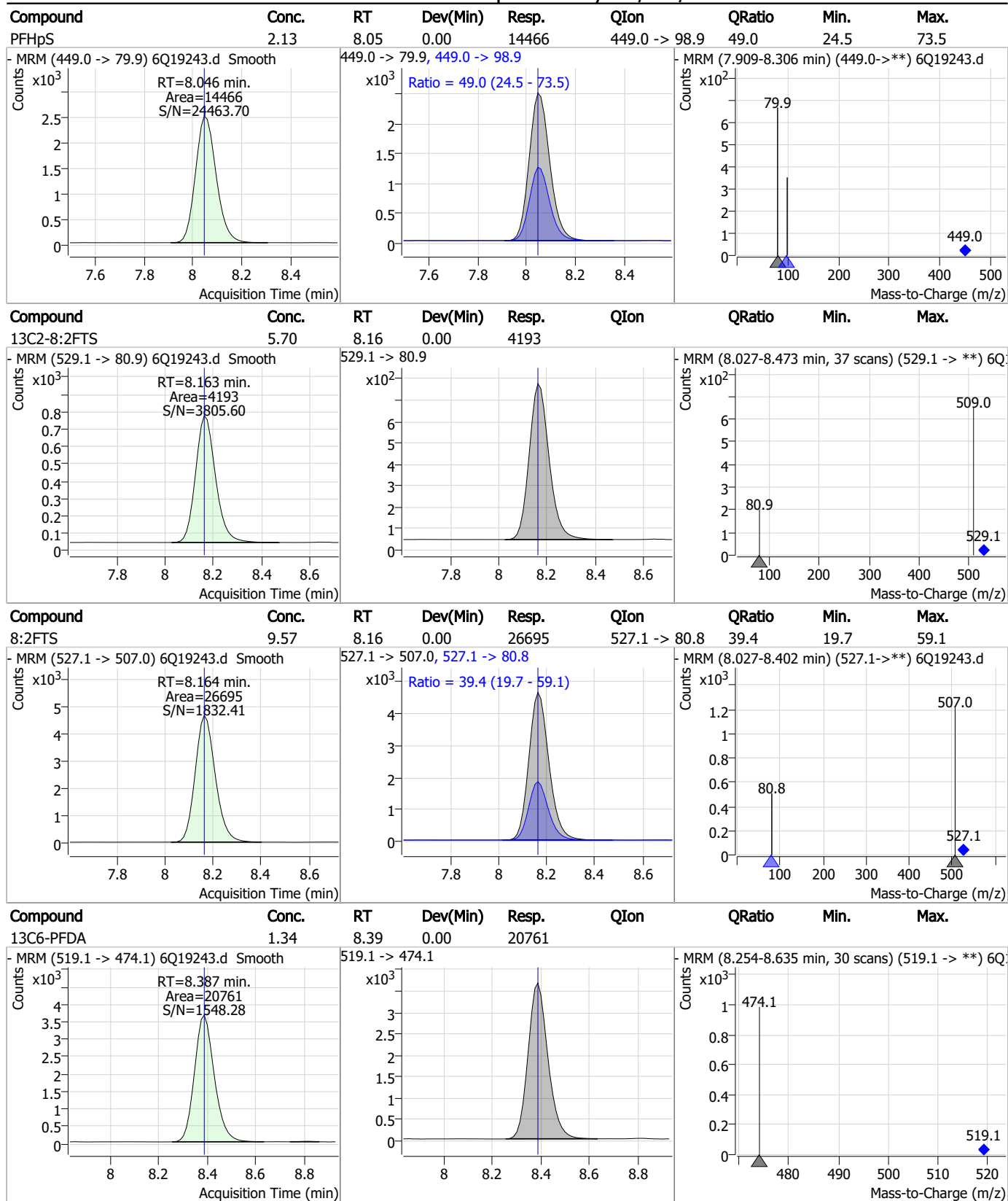
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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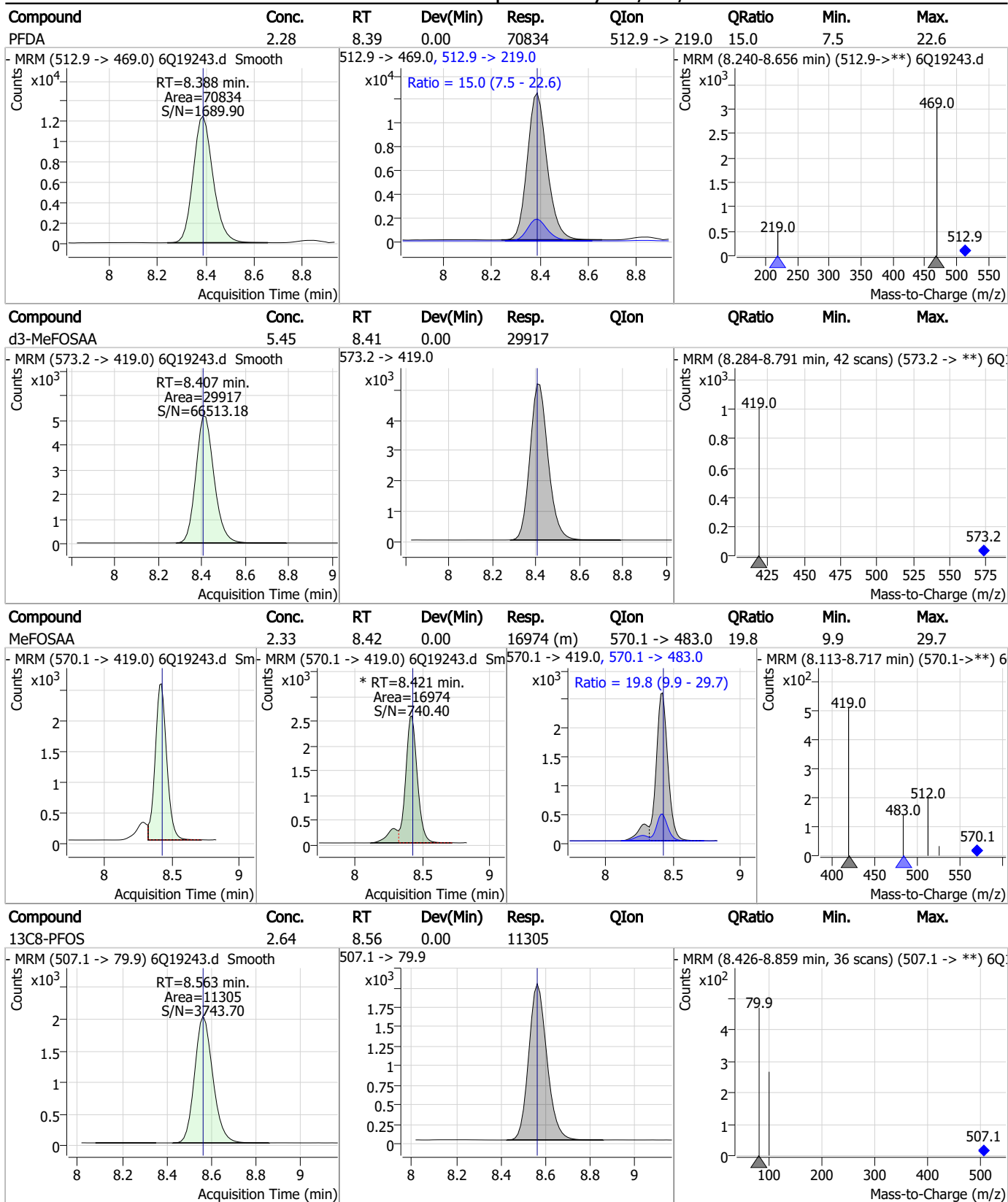
Perfluorinated Compounds by LC/MS/MS



7.7.5
7



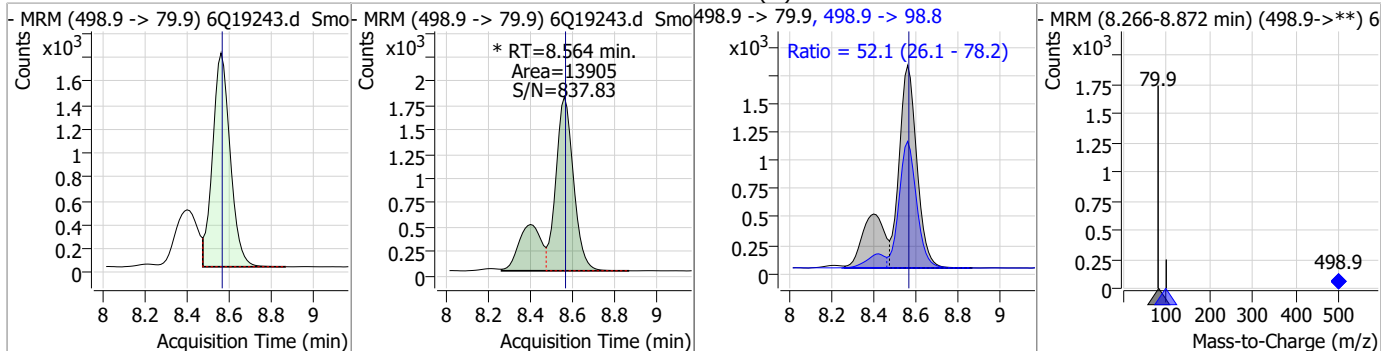
Perfluorinated Compounds by LC/MS/MS



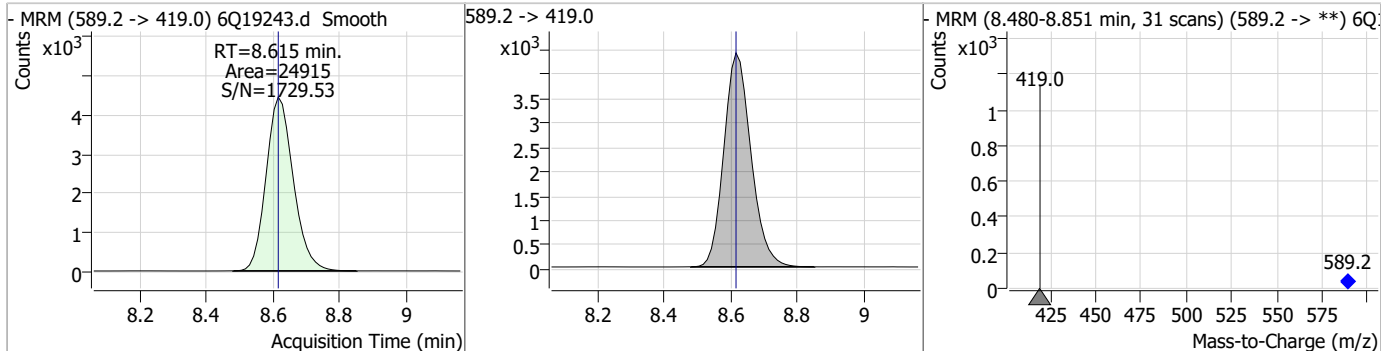
7.7.5
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Perfluorinated Compounds by LC/MS/MS

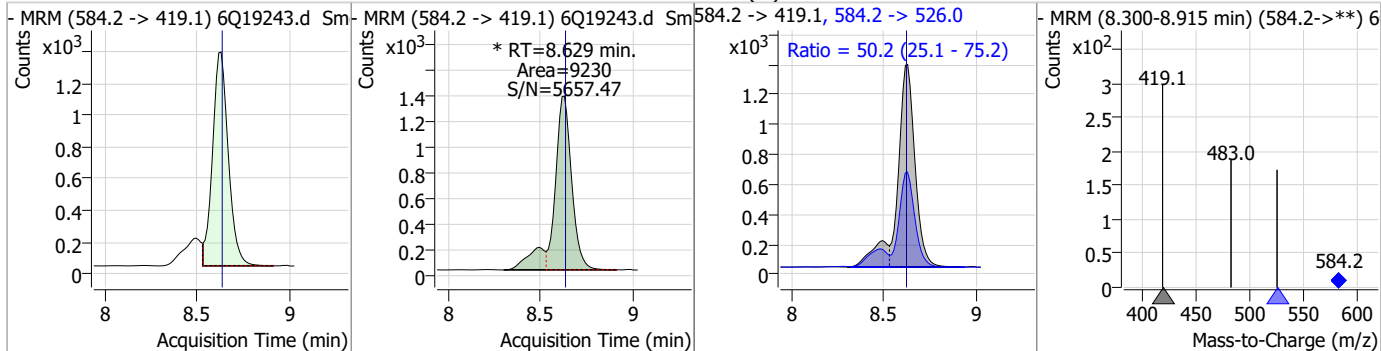
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.09	8.56	0.00	13905 (m)	498.9 -> 98.8	52.1	26.1	78.2



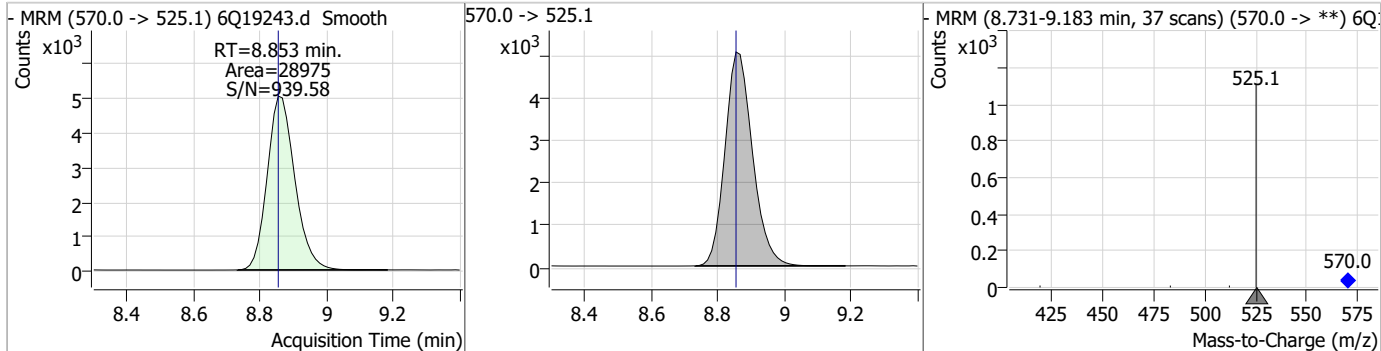
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.38	8.62	0.00	24915				



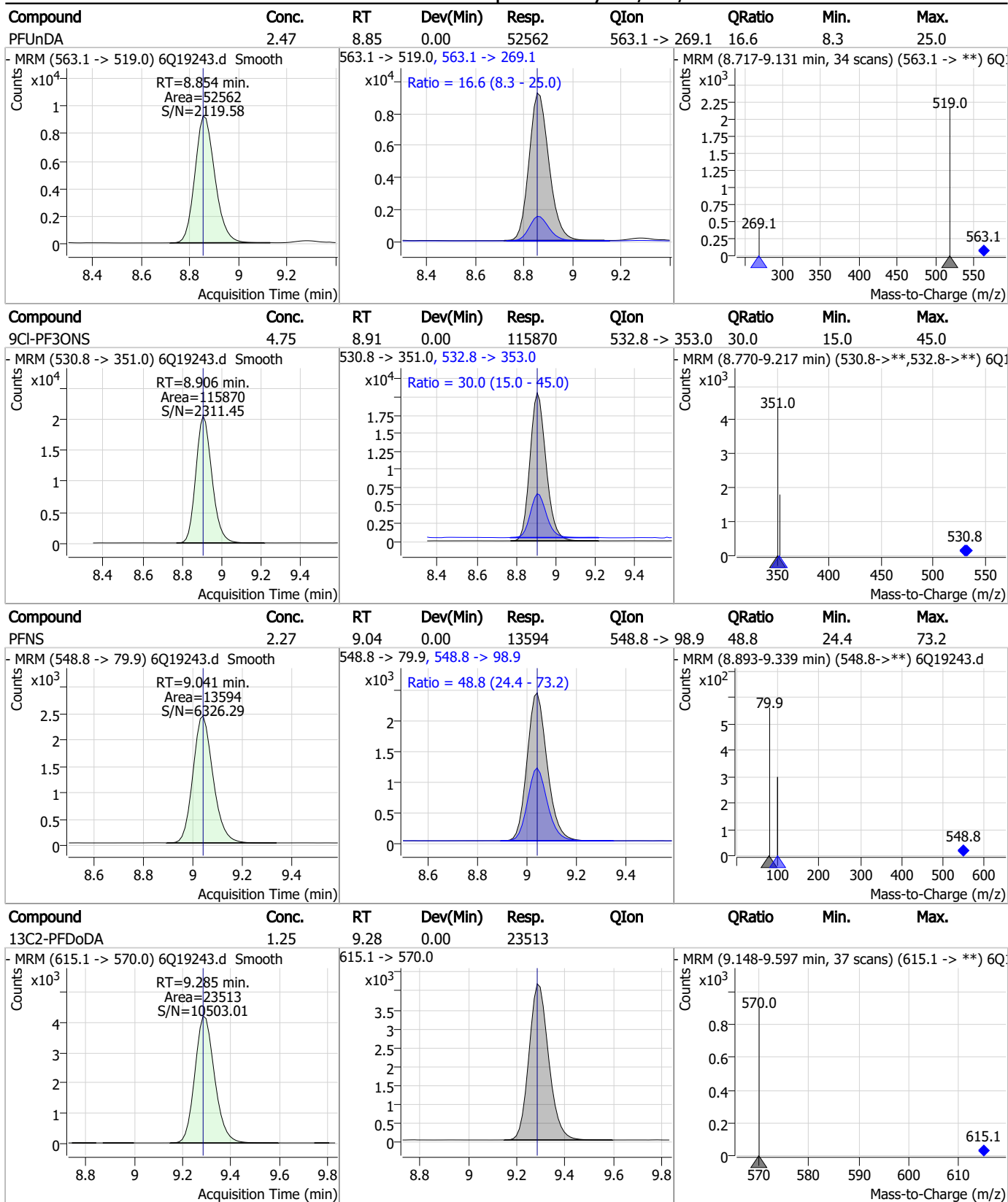
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.23	8.63	0.00	9230 (m)	584.2 -> 526.0	50.2	25.1	75.2



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

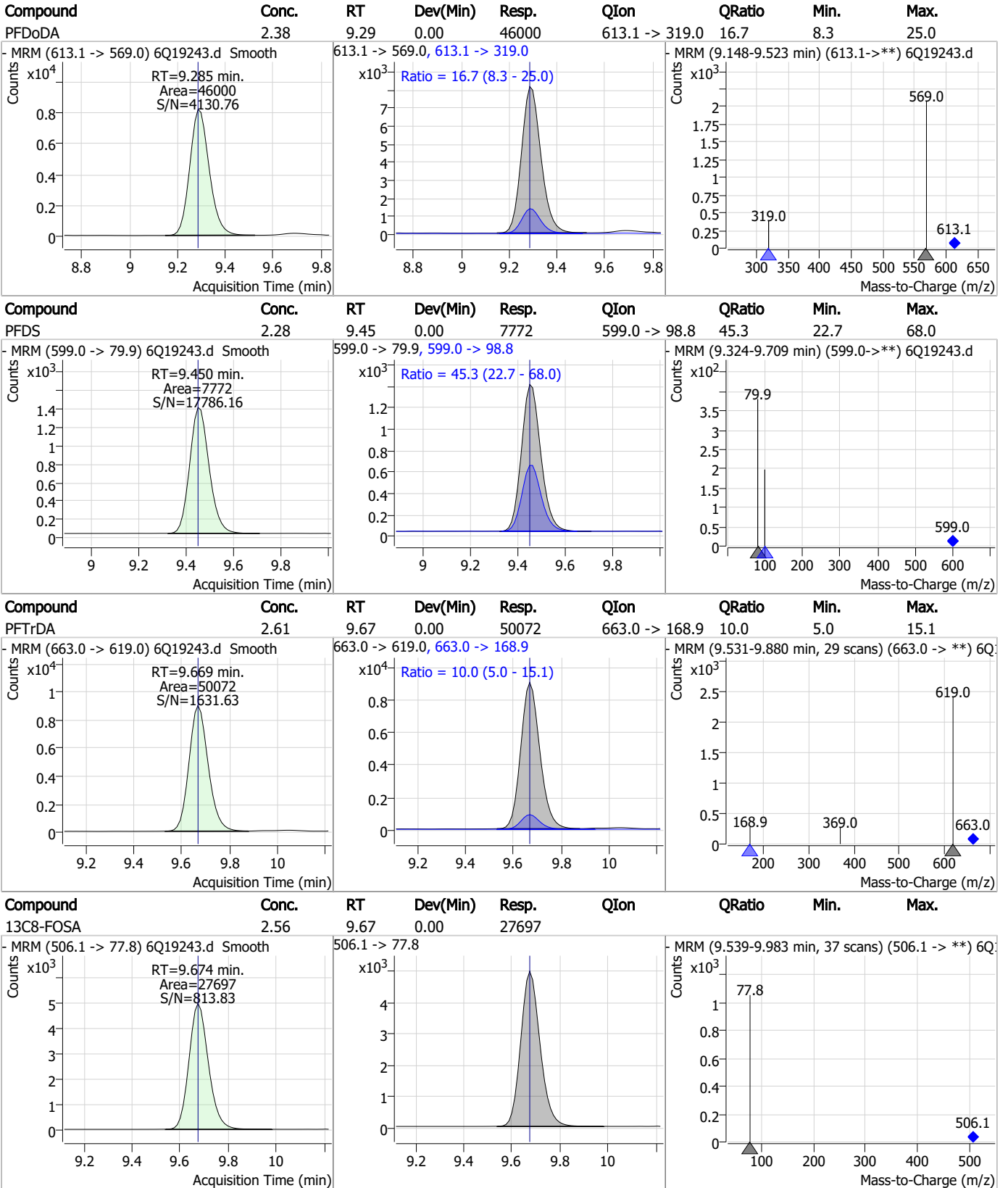


Perfluorinated Compounds by LC/MS/MS



7.7.5
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Perfluorinated Compounds by LC/MS/MS

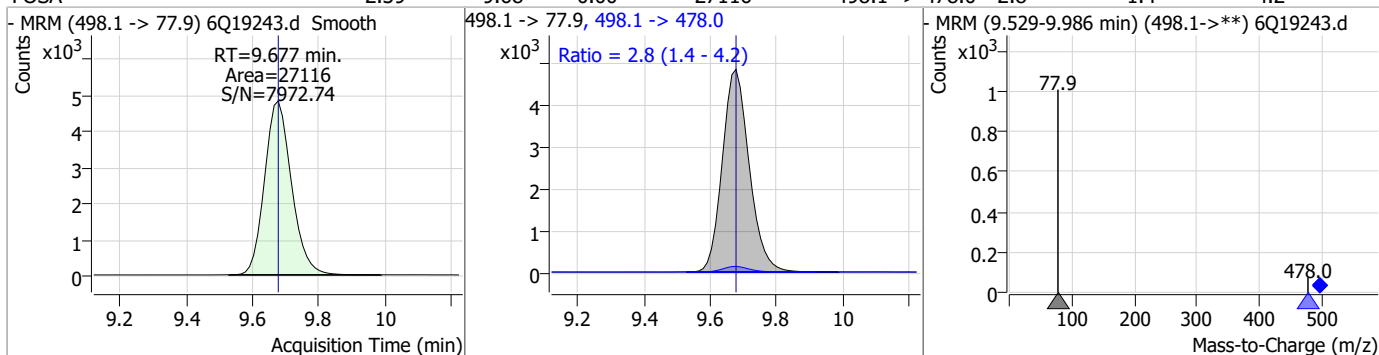


7.7.5

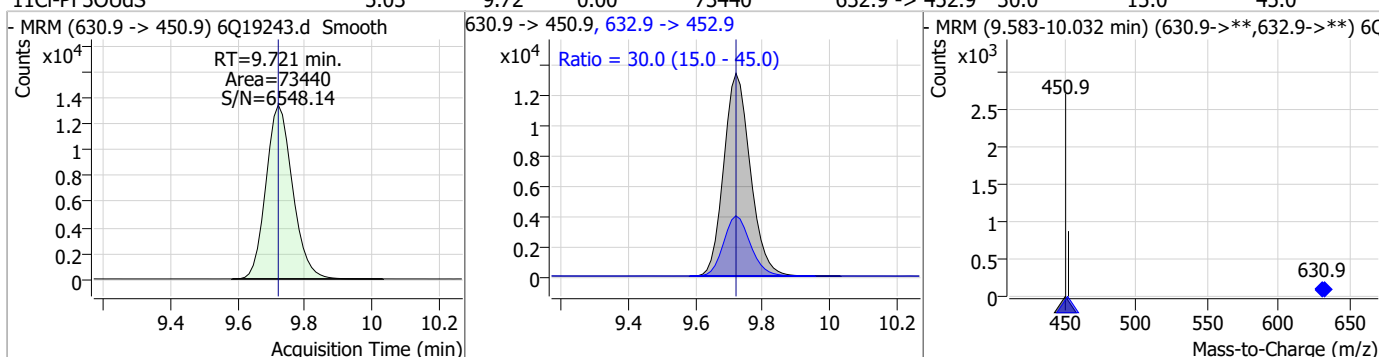
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Perfluorinated Compounds by LC/MS/MS

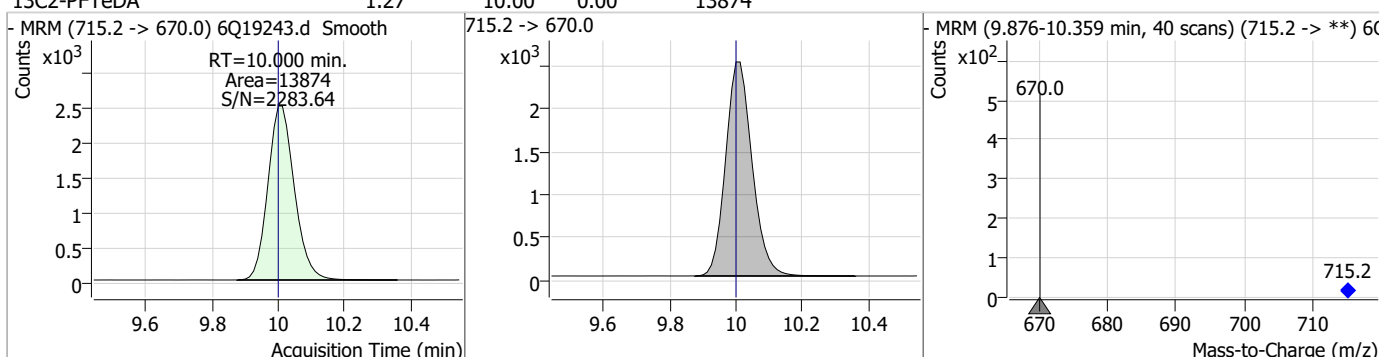
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.39	9.68	0.00	27116	498.1 -> 478.0	2.8	1.4	4.2



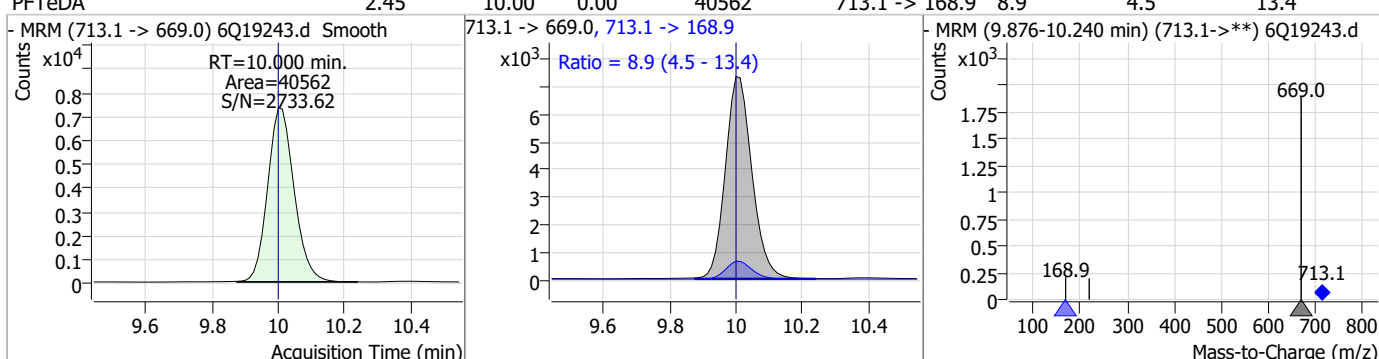
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	5.03	9.72	0.00	73440	632.9 -> 452.9	30.0	15.0	45.0



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

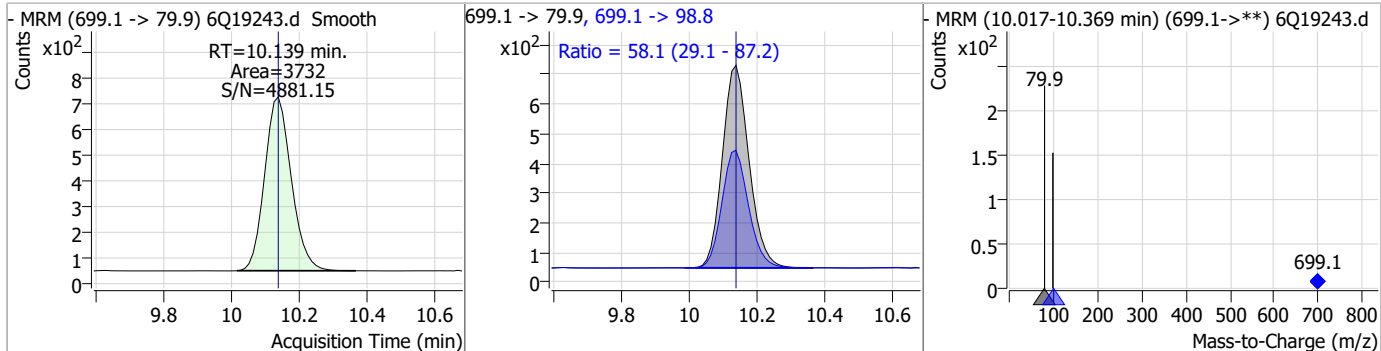


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.45	10.00	0.00	40562	713.1 -> 168.9	8.9	4.5	13.4

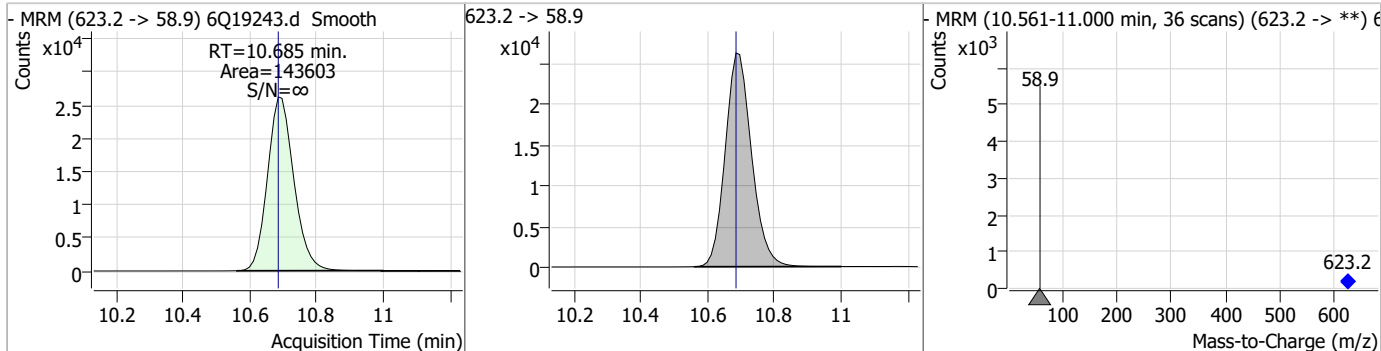


Perfluorinated Compounds by LC/MS/MS

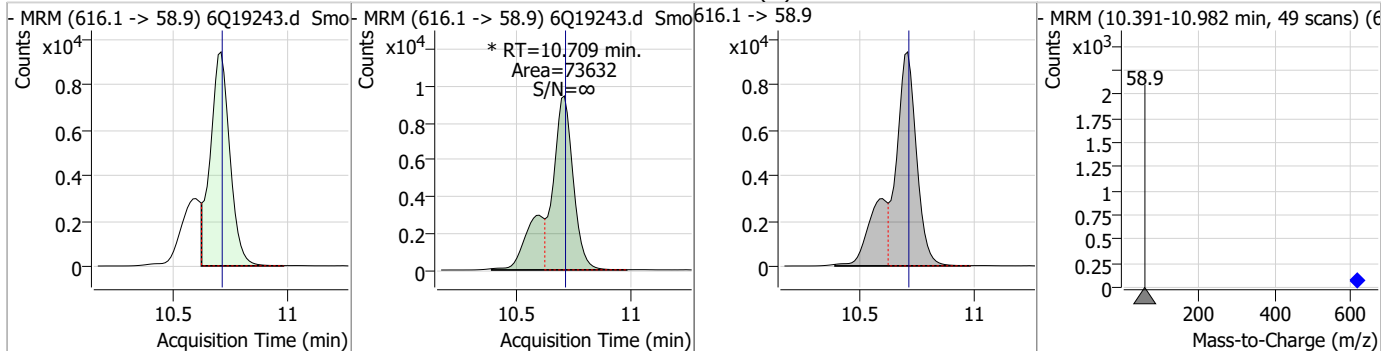
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.20	10.14	0.00	3732	699.1 -> 98.8	58.1	29.1	87.2



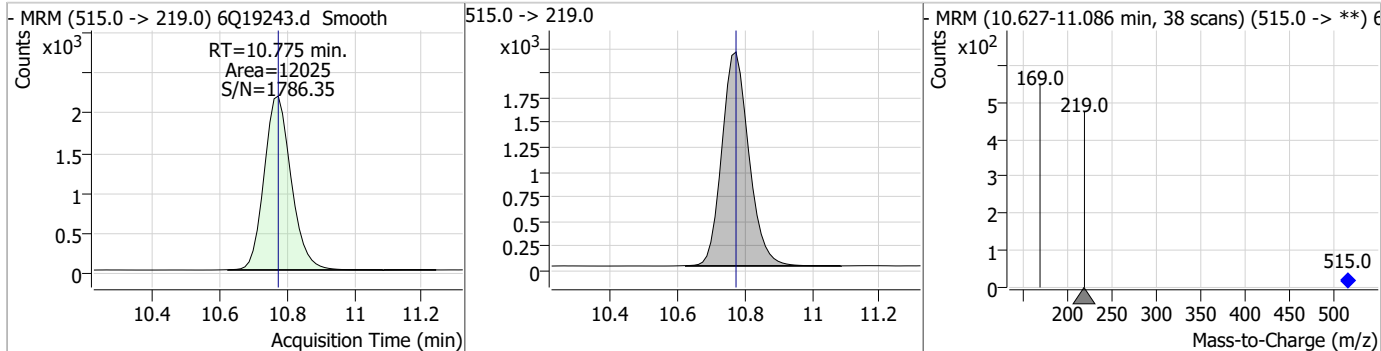
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.74	10.68	0.00	143603				



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

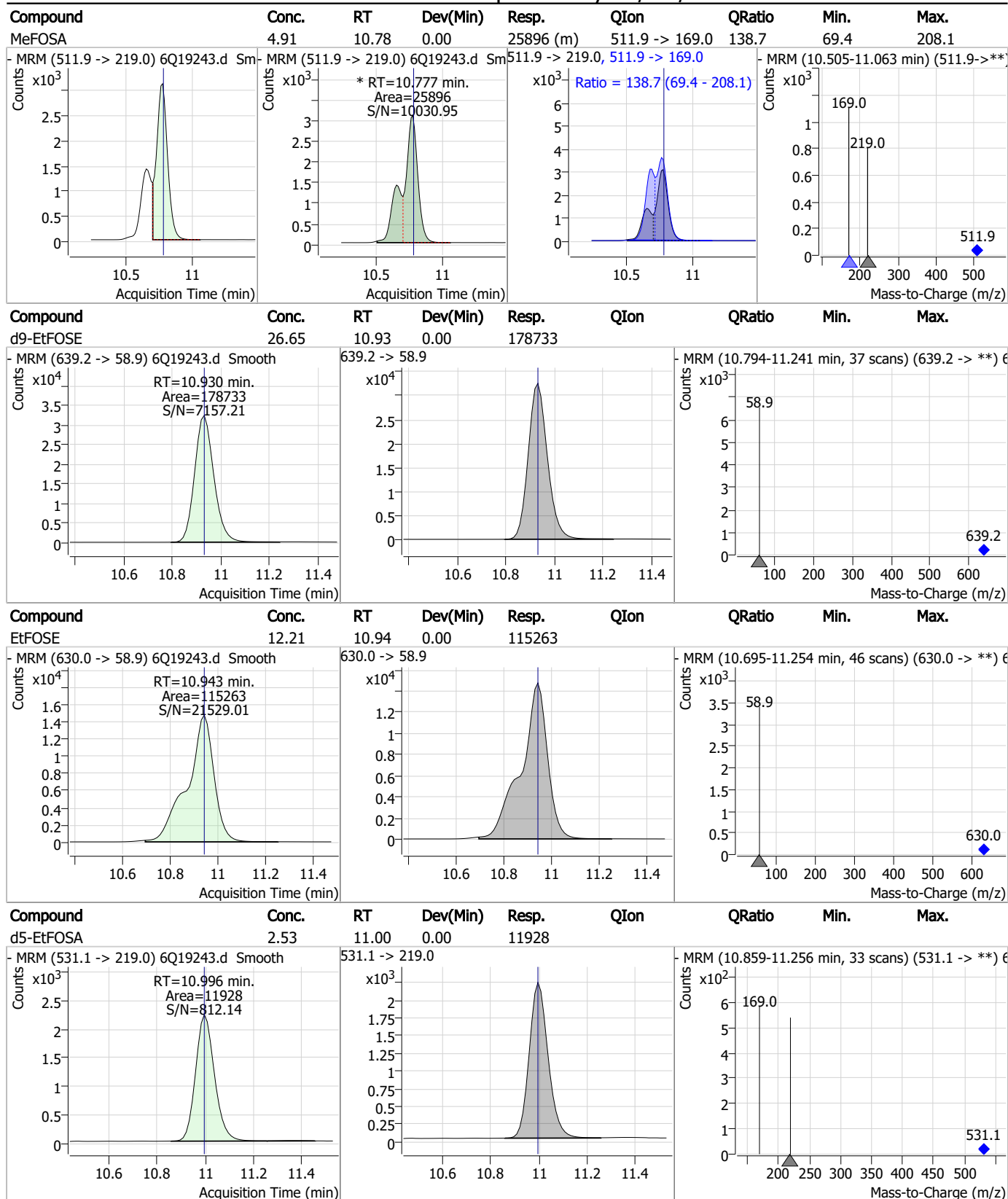


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.47	10.78	0.00	12025				



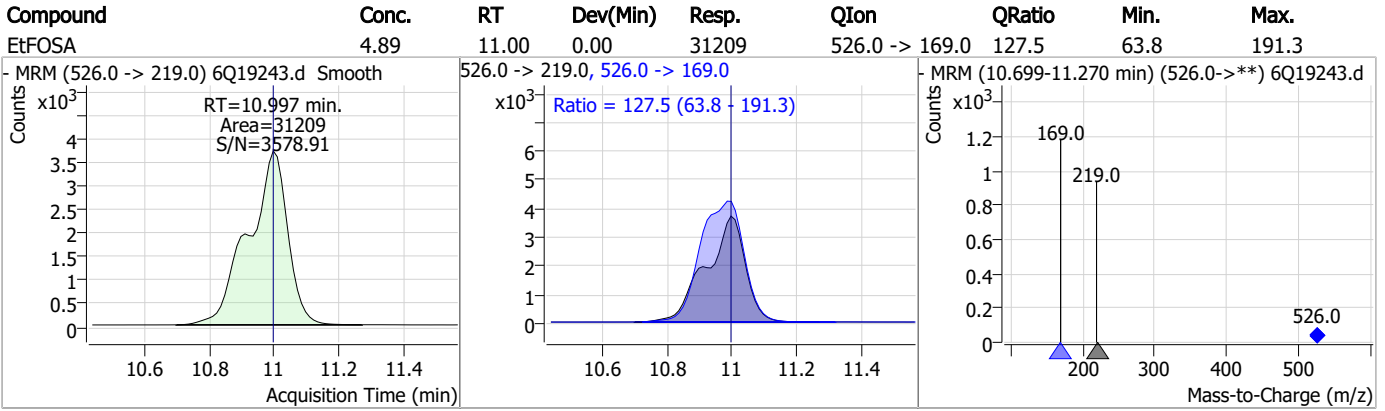
7.7.5
 7

Perfluorinated Compounds by LC/MS/MS



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
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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 = 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

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

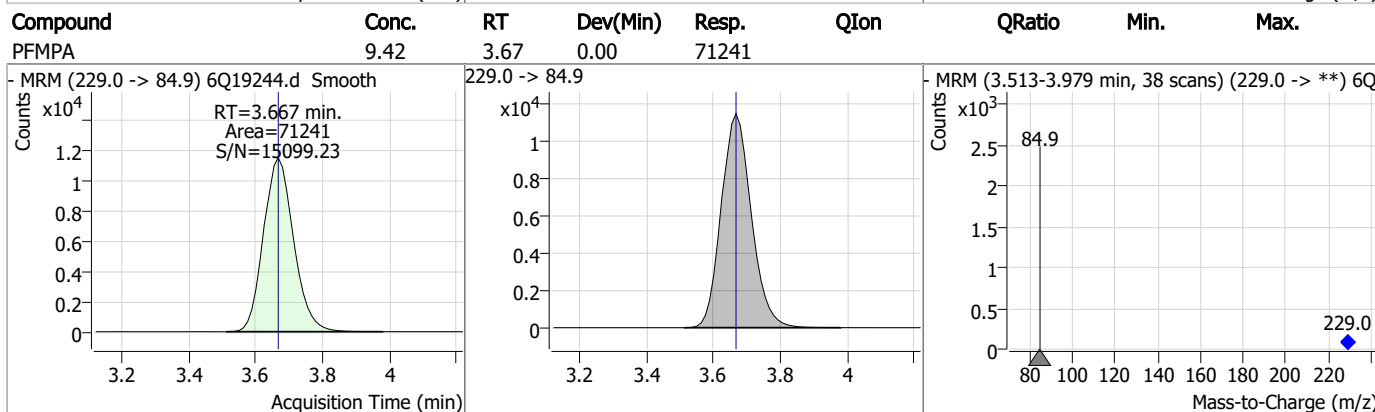
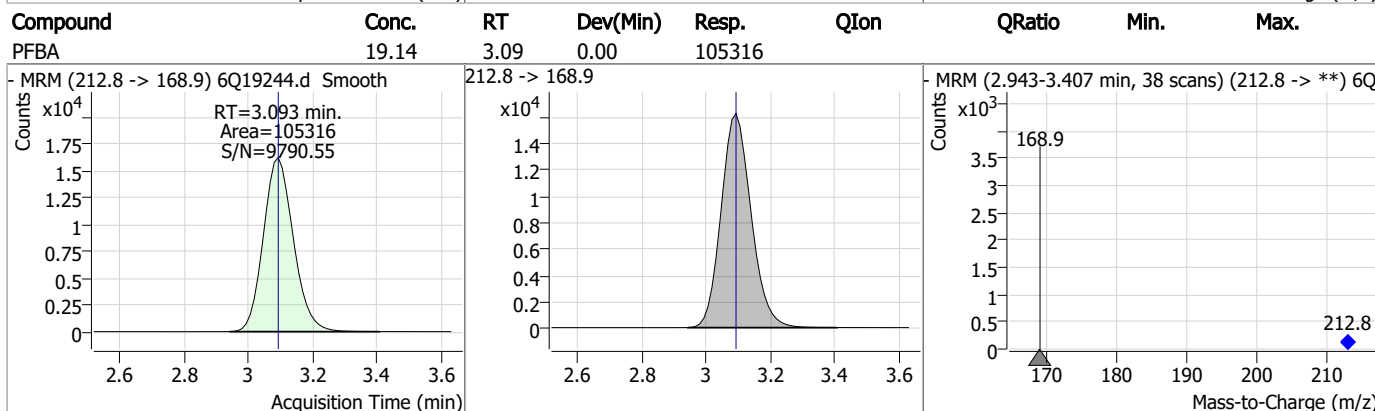
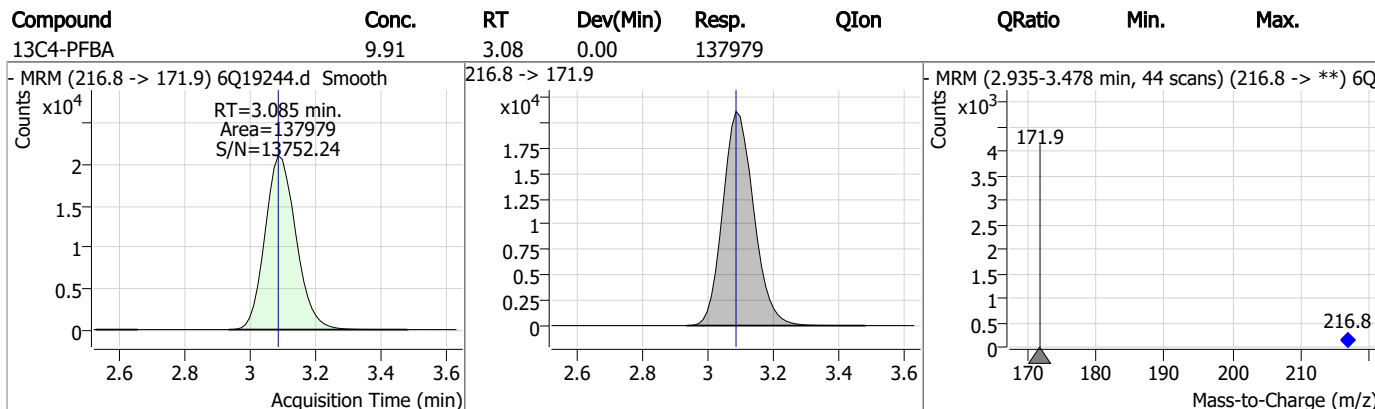
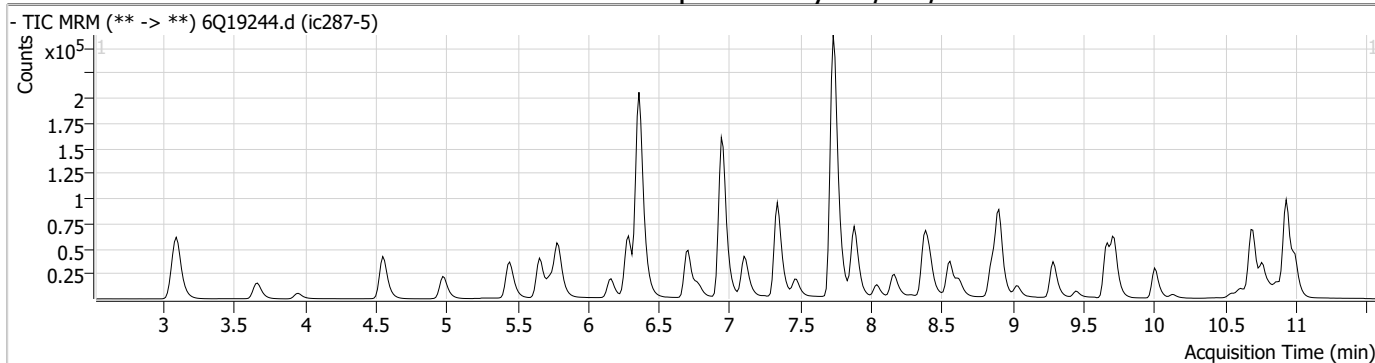
Perfluorinated Compounds by LC/MS/MS

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

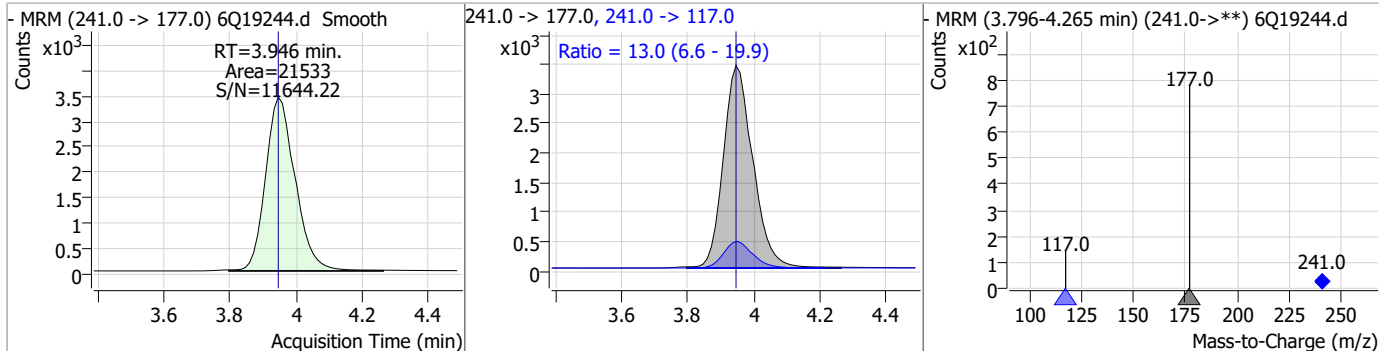
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Perfluorinated Compounds by LC/MS/MS

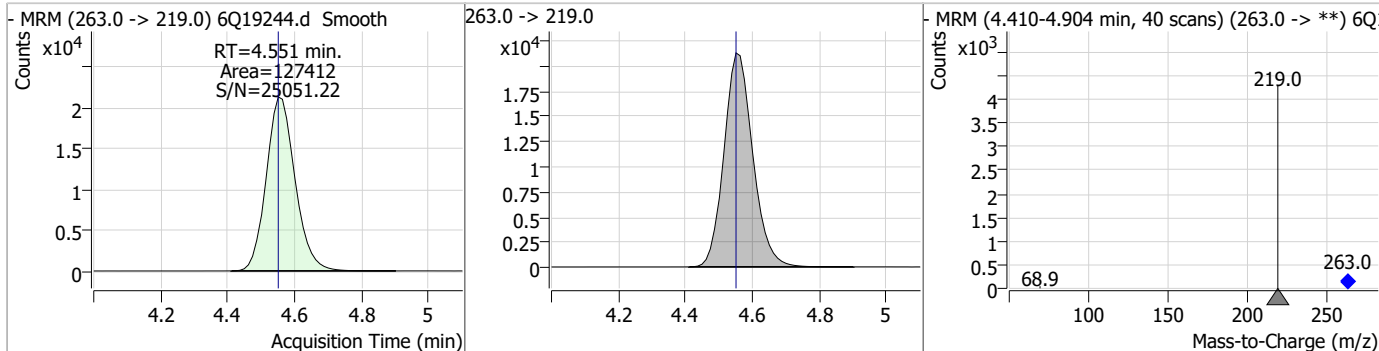


Perfluorinated Compounds by LC/MS/MS

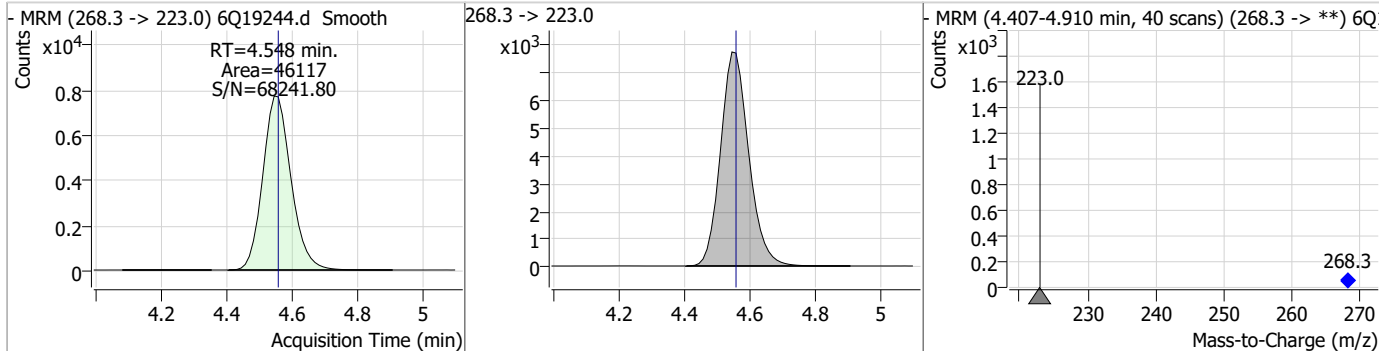
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	23.20	3.95	0.00	21533	241.0 -> 117.0	13.0	6.6	19.9



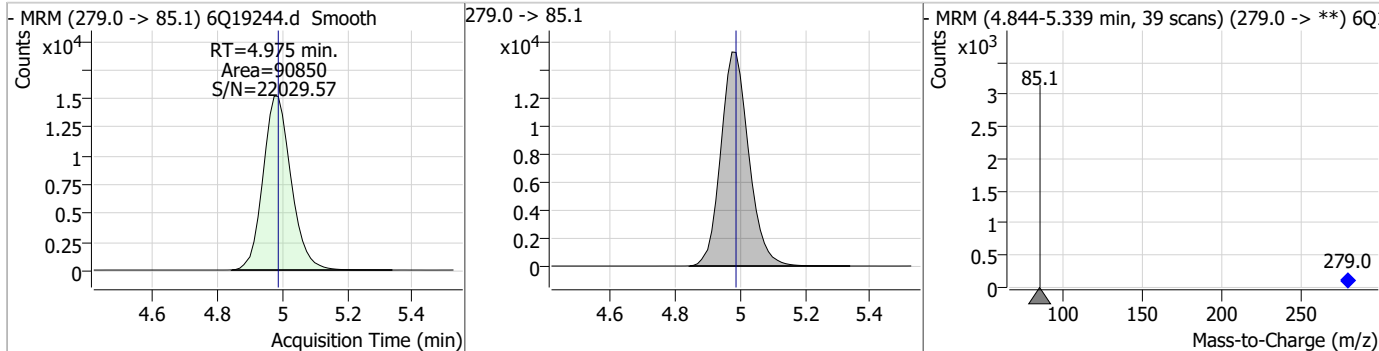
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	9.39	4.55	0.00	127412				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.17	4.55	-0.01	46117				

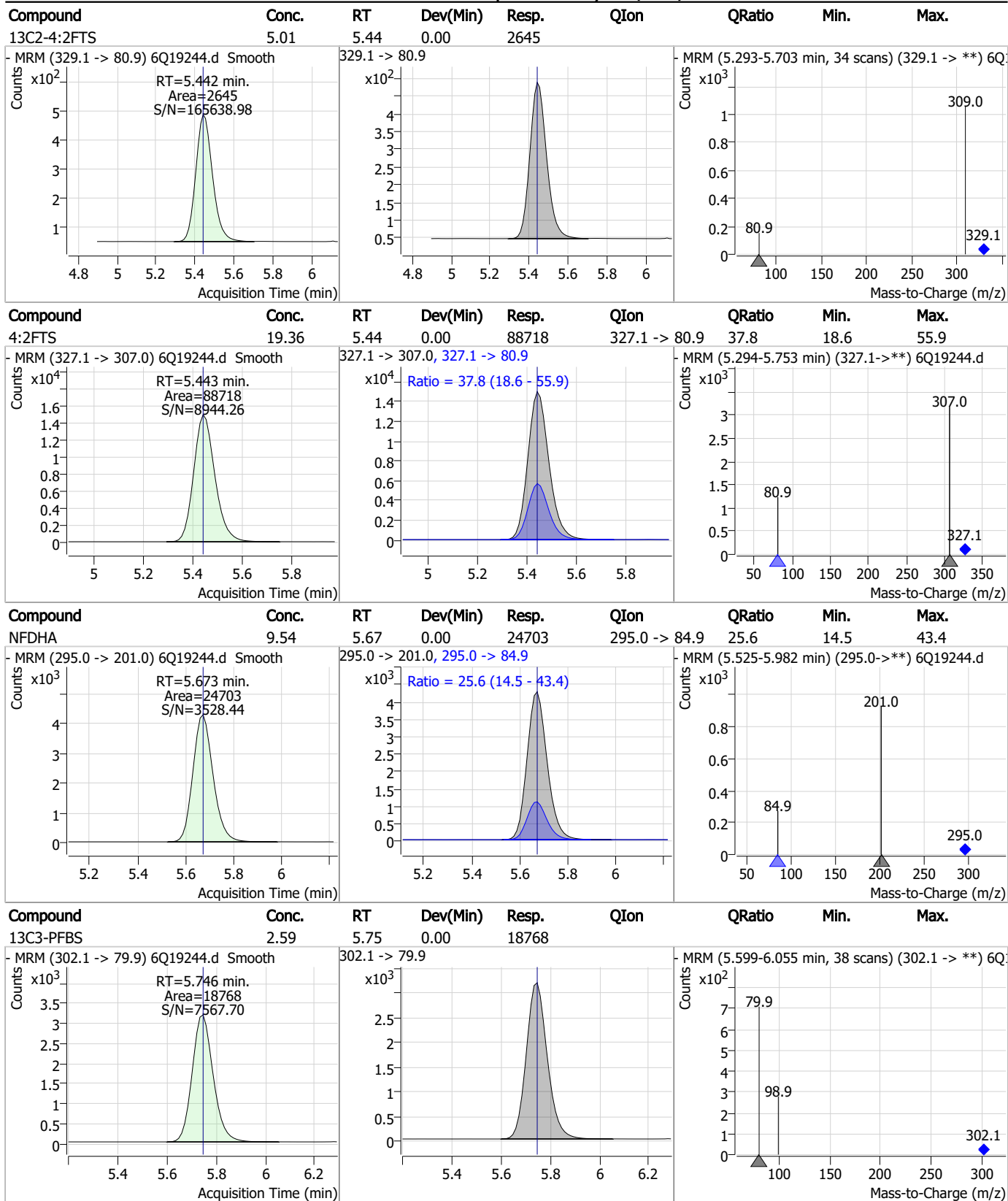


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	9.33	4.98	-0.01	90850				



7.7.6
7

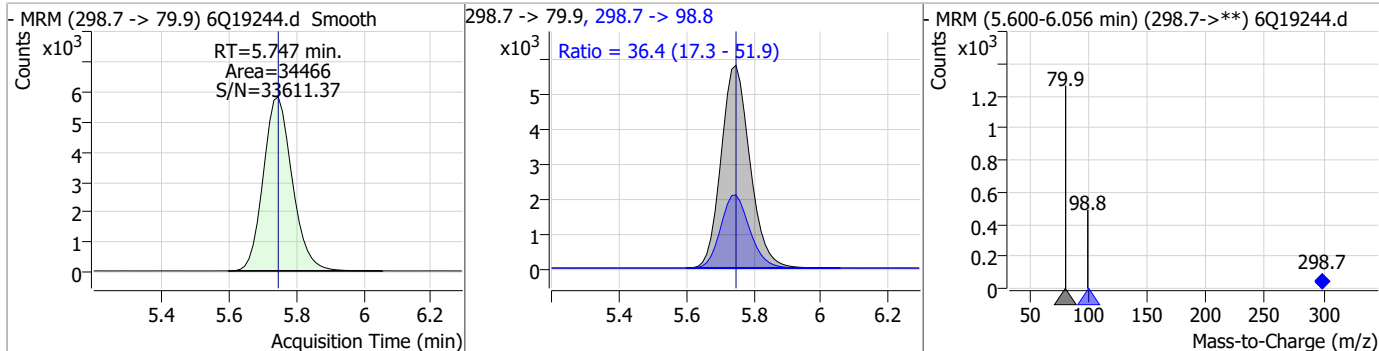
Perfluorinated Compounds by LC/MS/MS



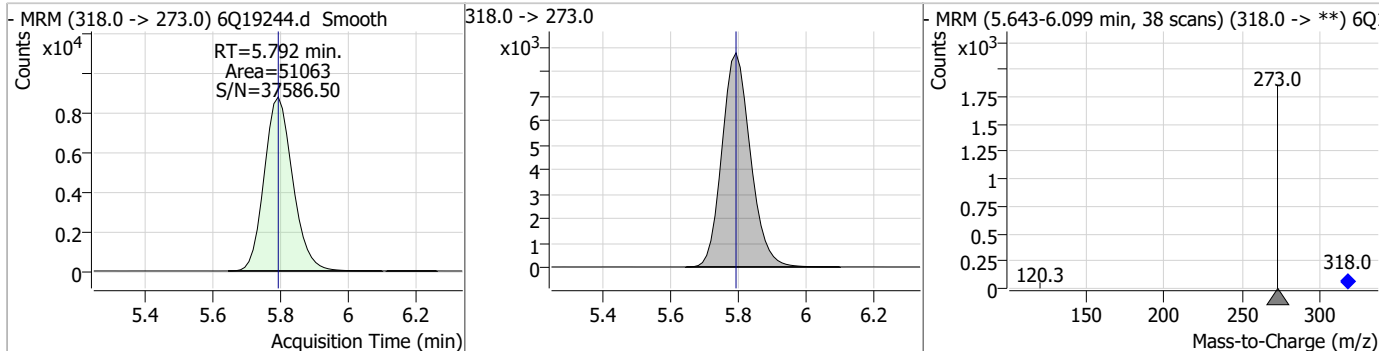
7.7.6
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Perfluorinated Compounds by LC/MS/MS

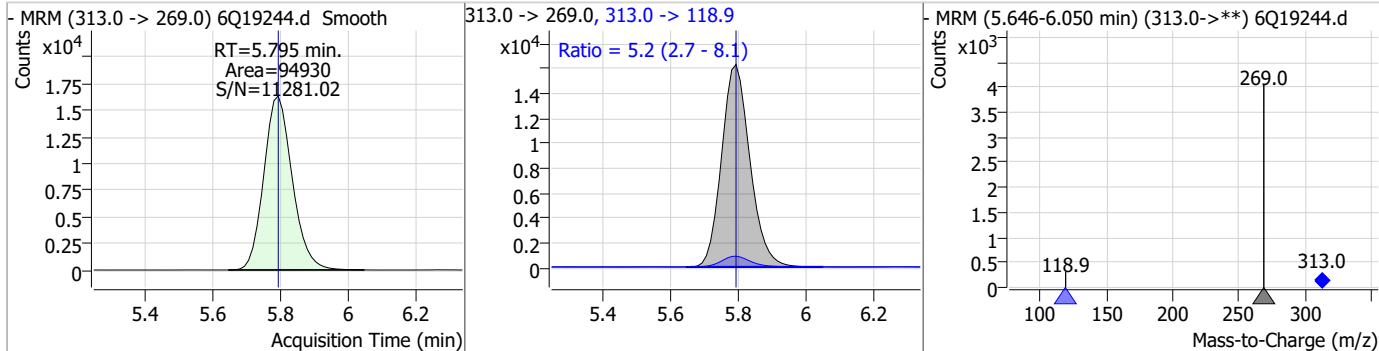
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.19	5.75	0.00	34466	298.7 -> 98.8	36.4	17.3	51.9



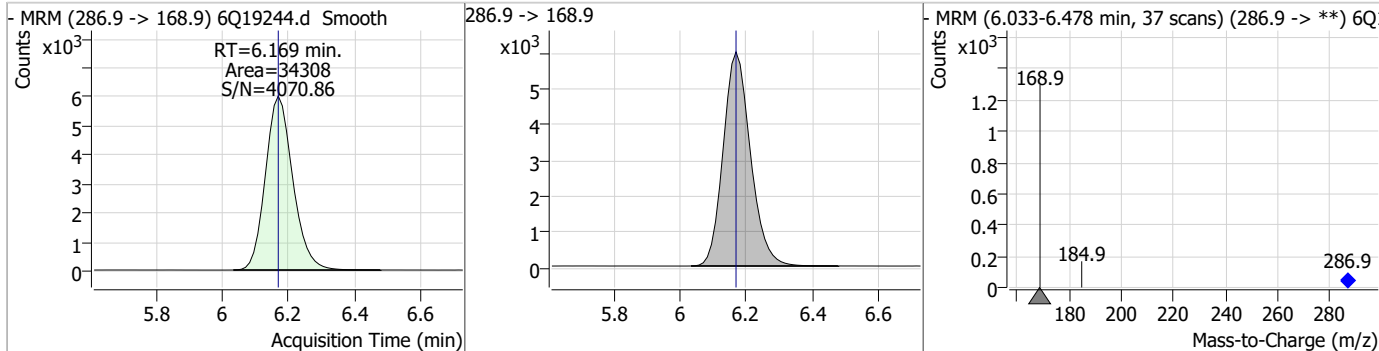
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.56	5.79	0.00	51063				



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



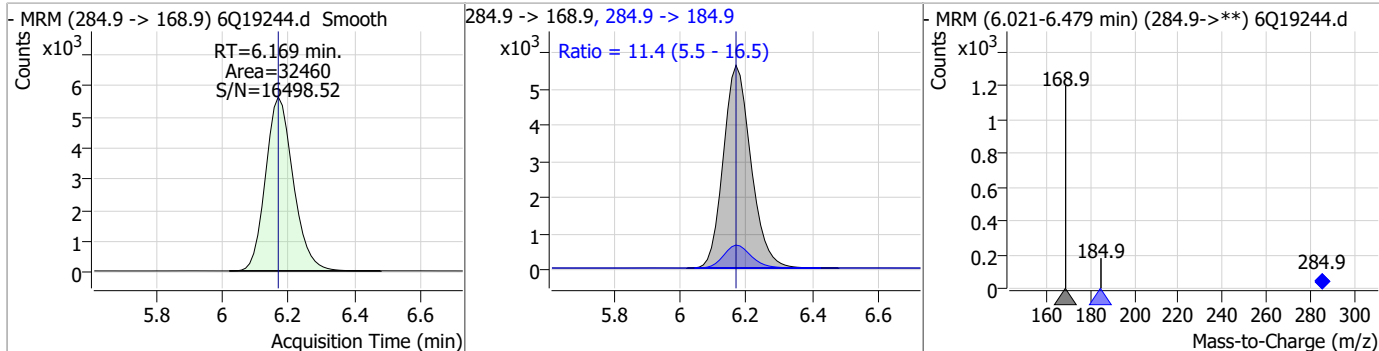
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.85	6.17	0.00	34308				



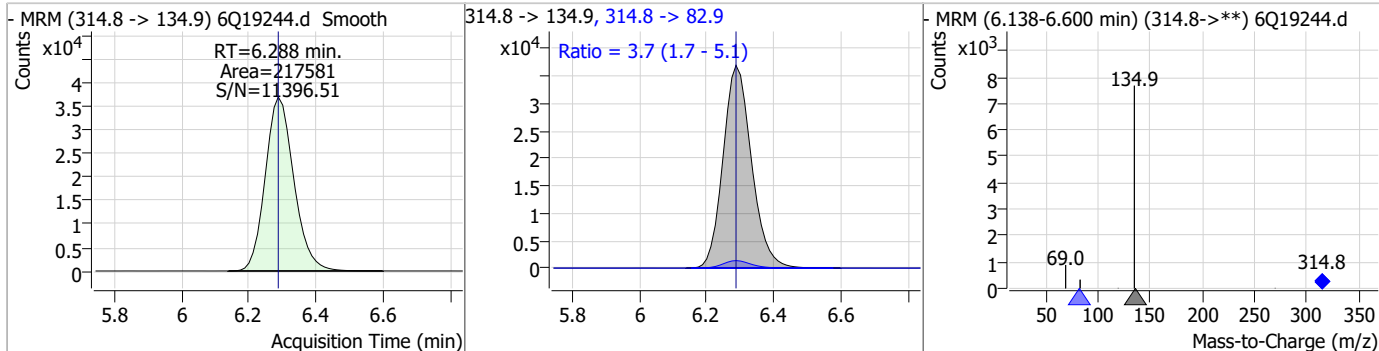
7.7.6
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Perfluorinated Compounds by LC/MS/MS

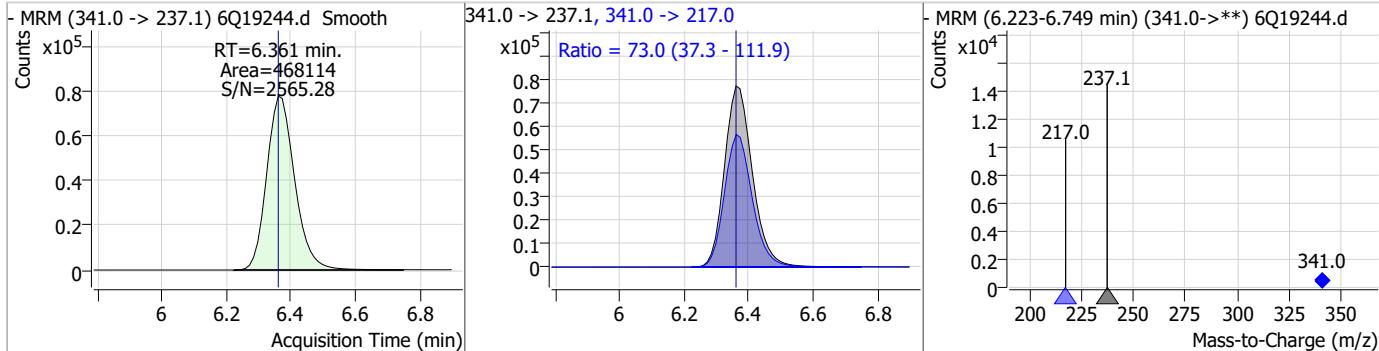
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	8.75	6.17	0.00	32460	284.9 -> 184.9	11.4	5.5	16.5



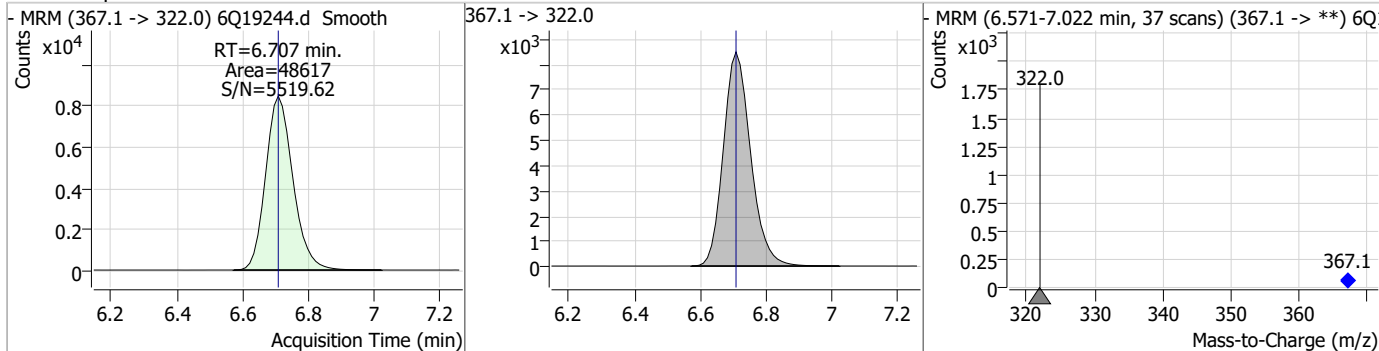
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	8.64	6.29	0.00	217581	314.8 -> 82.9	3.7	1.7	5.1



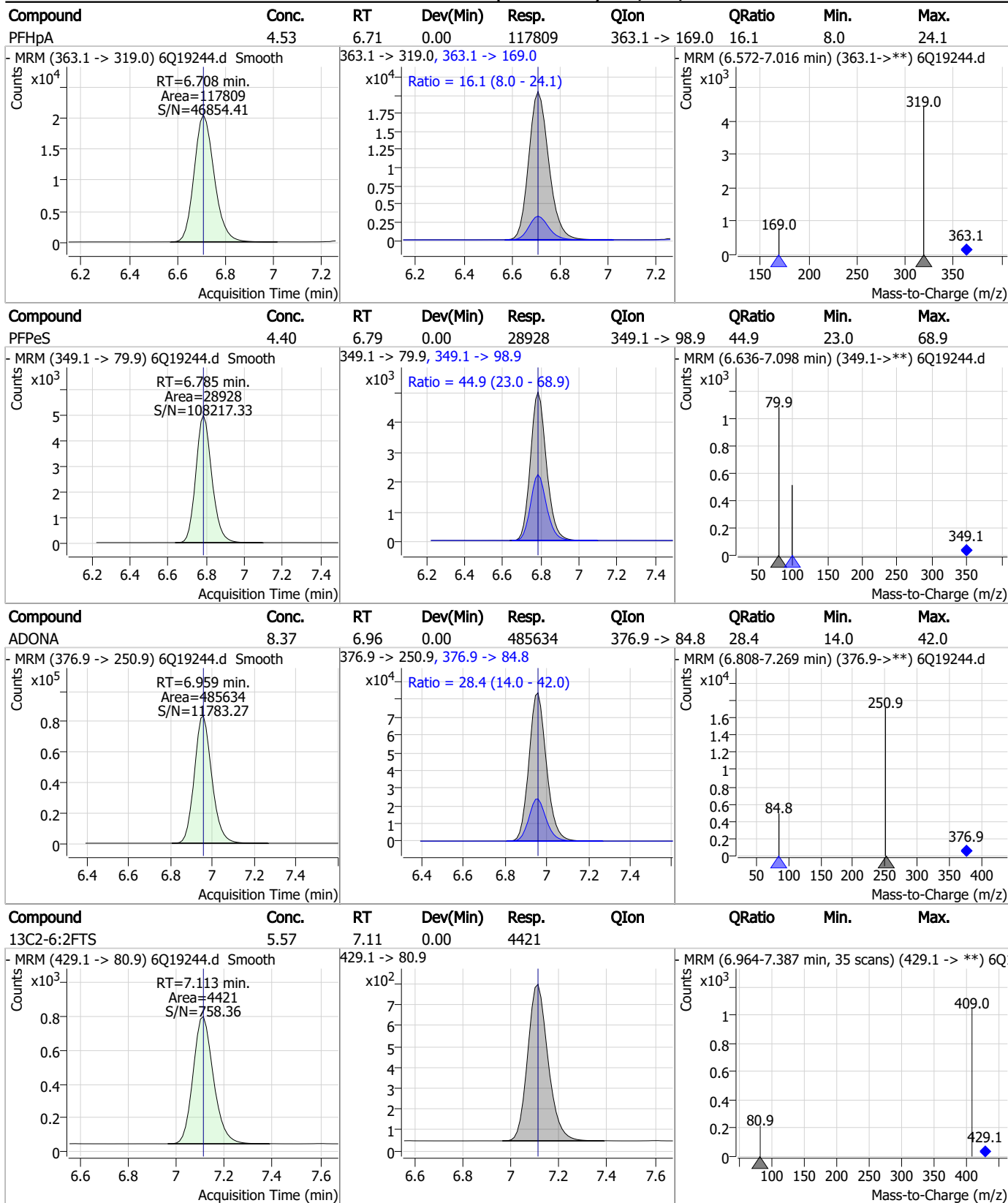
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	117.99	6.36	0.00	468114	341.0 -> 217.0	73.0	37.3	111.9



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

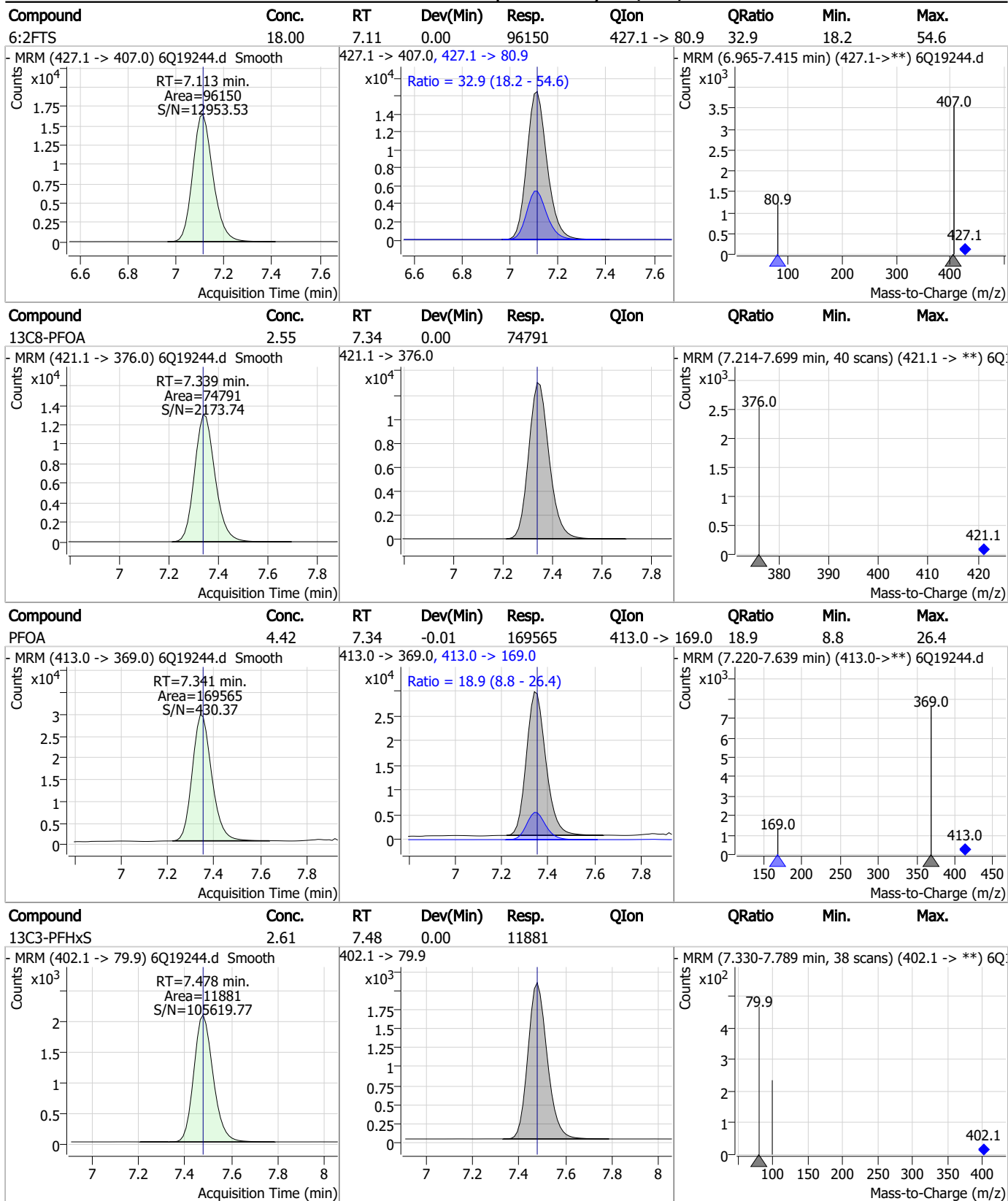


Perfluorinated Compounds by LC/MS/MS



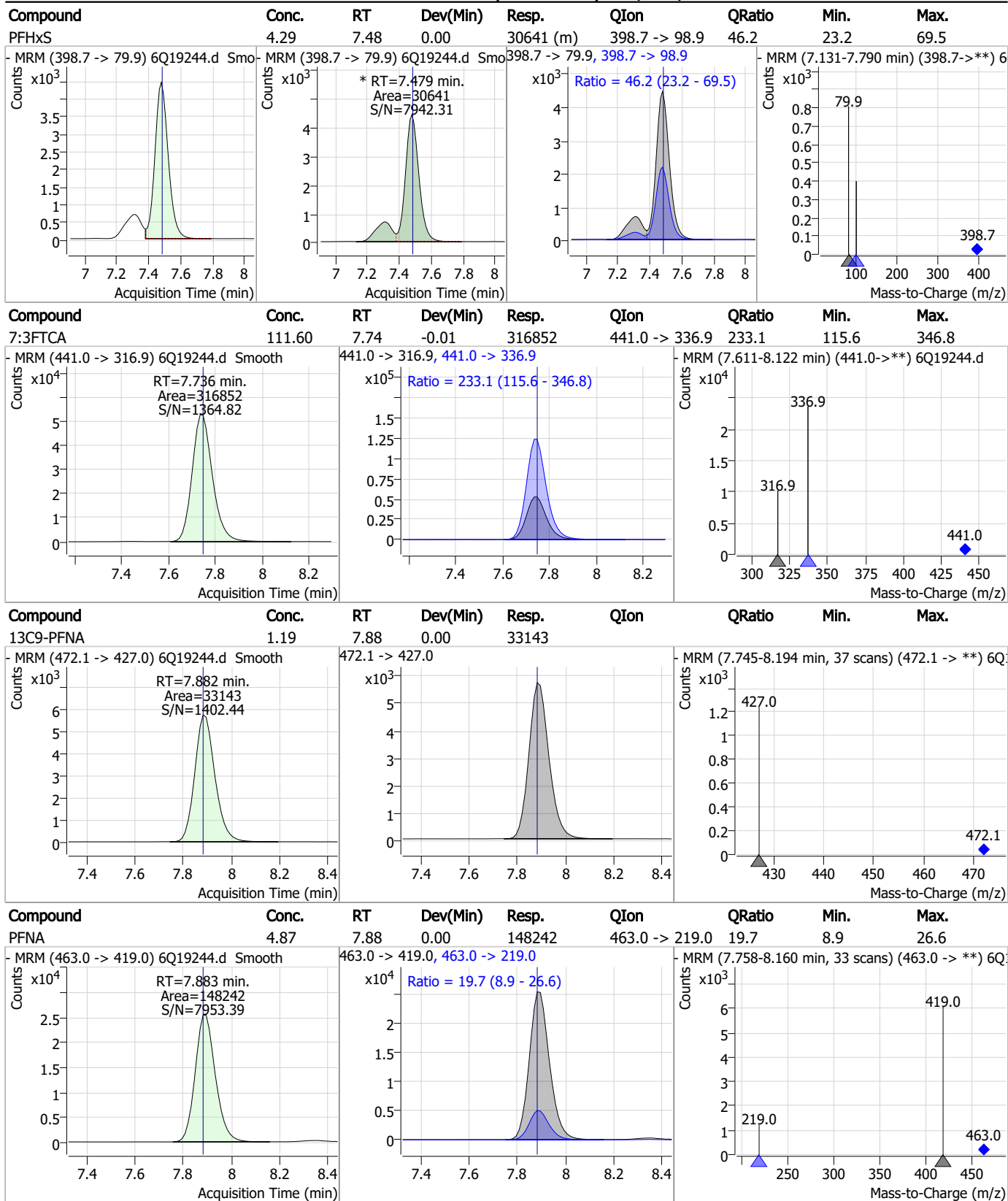
7.7.6
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Perfluorinated Compounds by LC/MS/MS



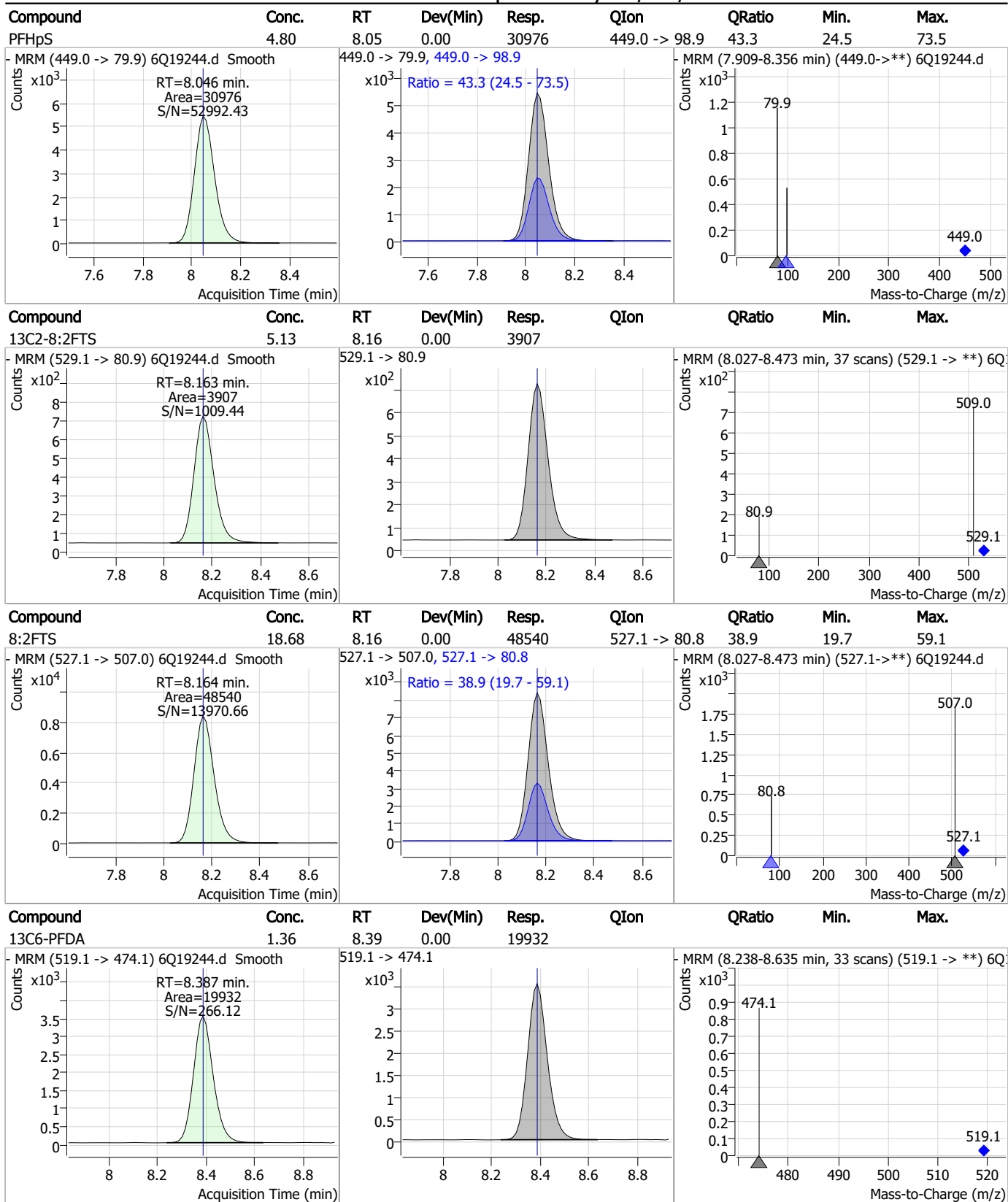
7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
7

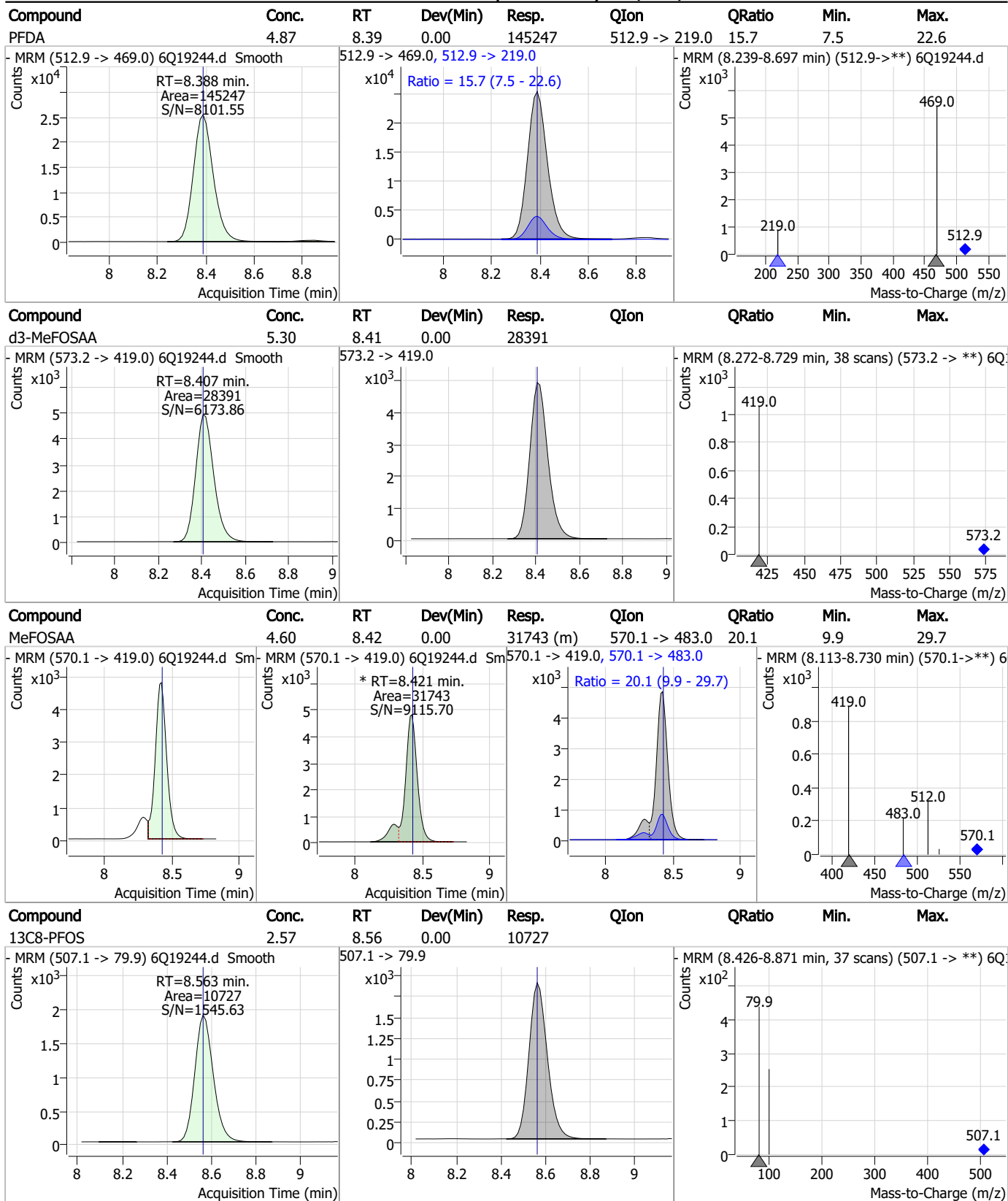
Perfluorinated Compounds by LC/MS/MS



7.7.6

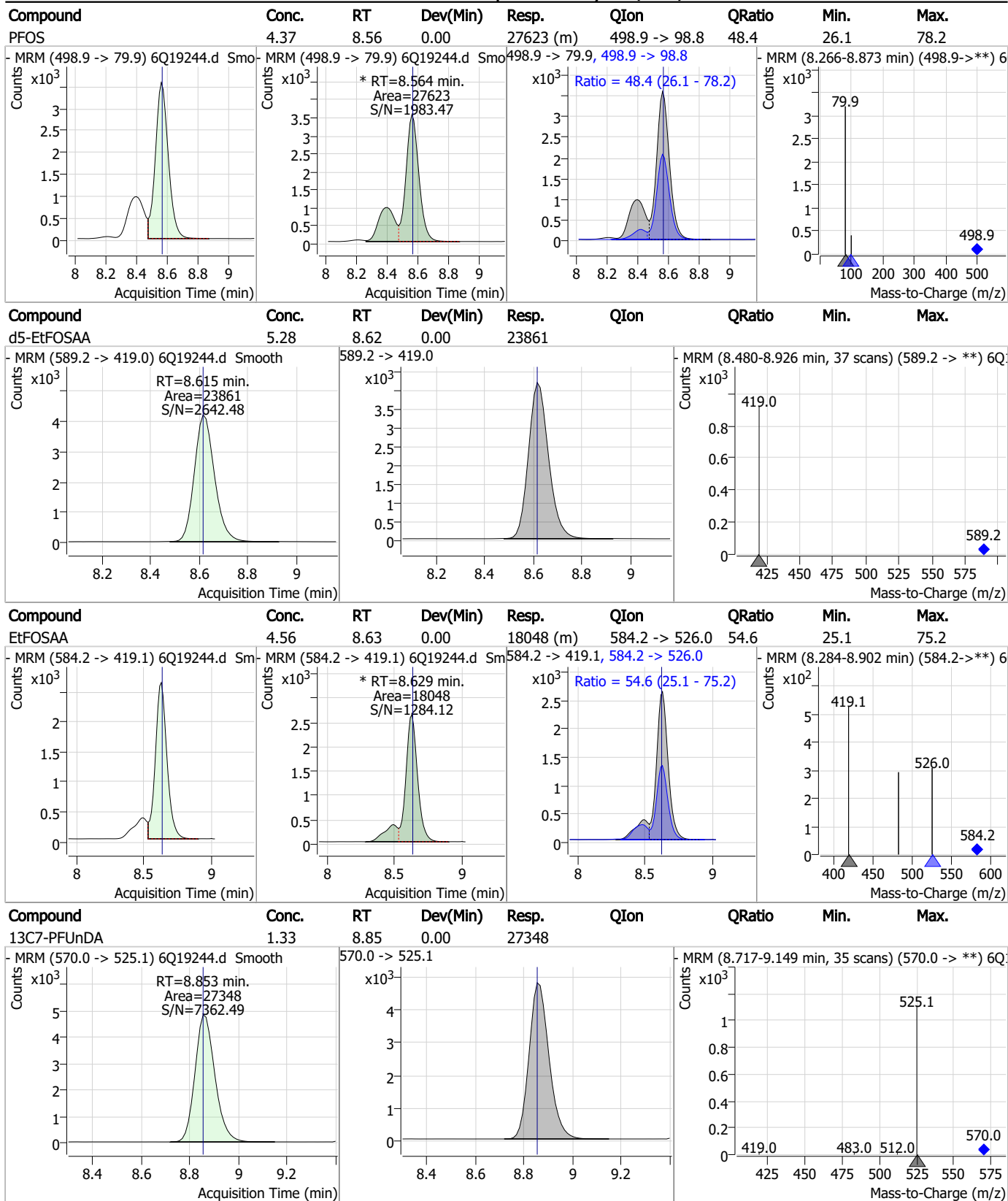
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Perfluorinated Compounds by LC/MS/MS



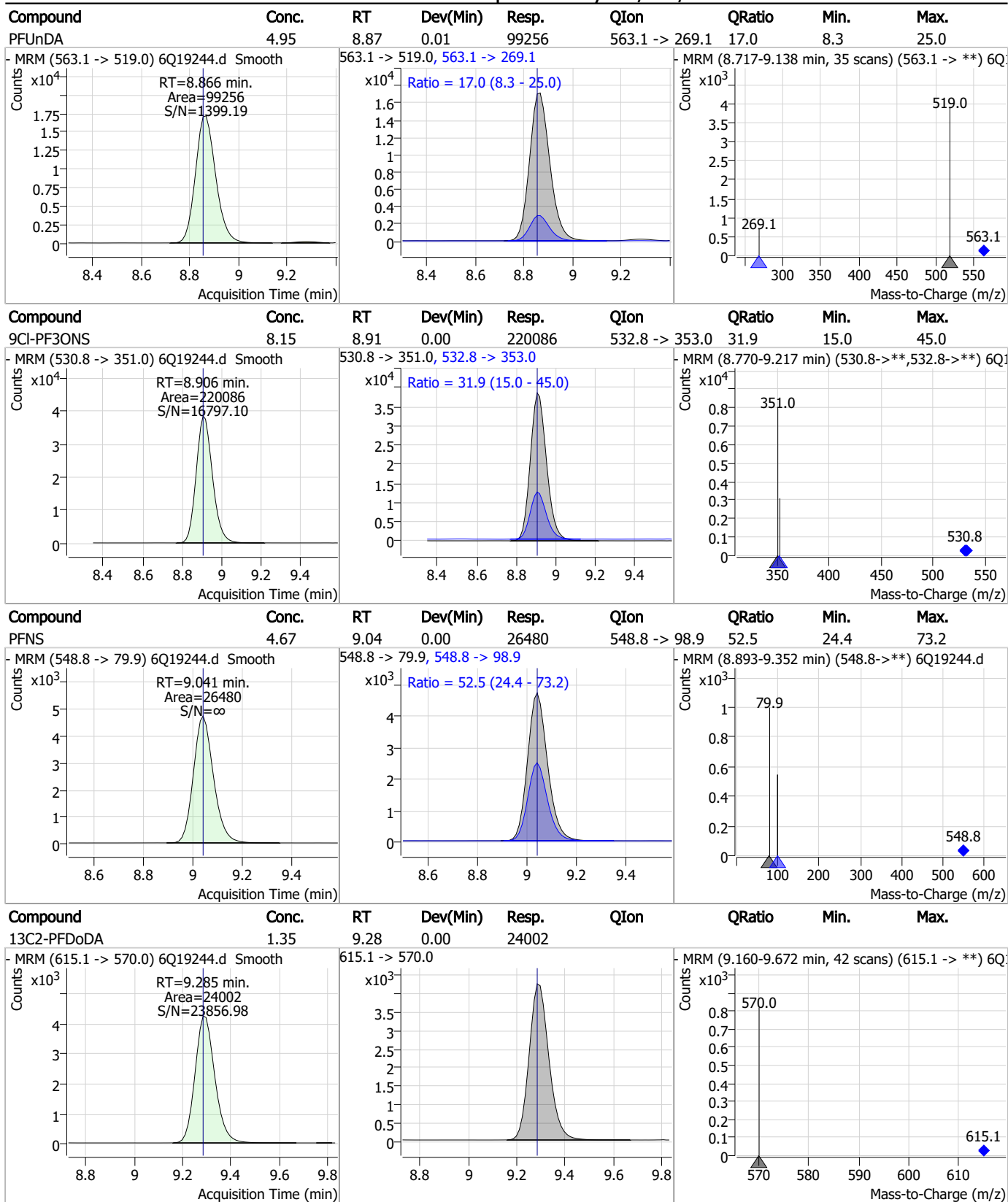
7.7.6
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Perfluorinated Compounds by LC/MS/MS



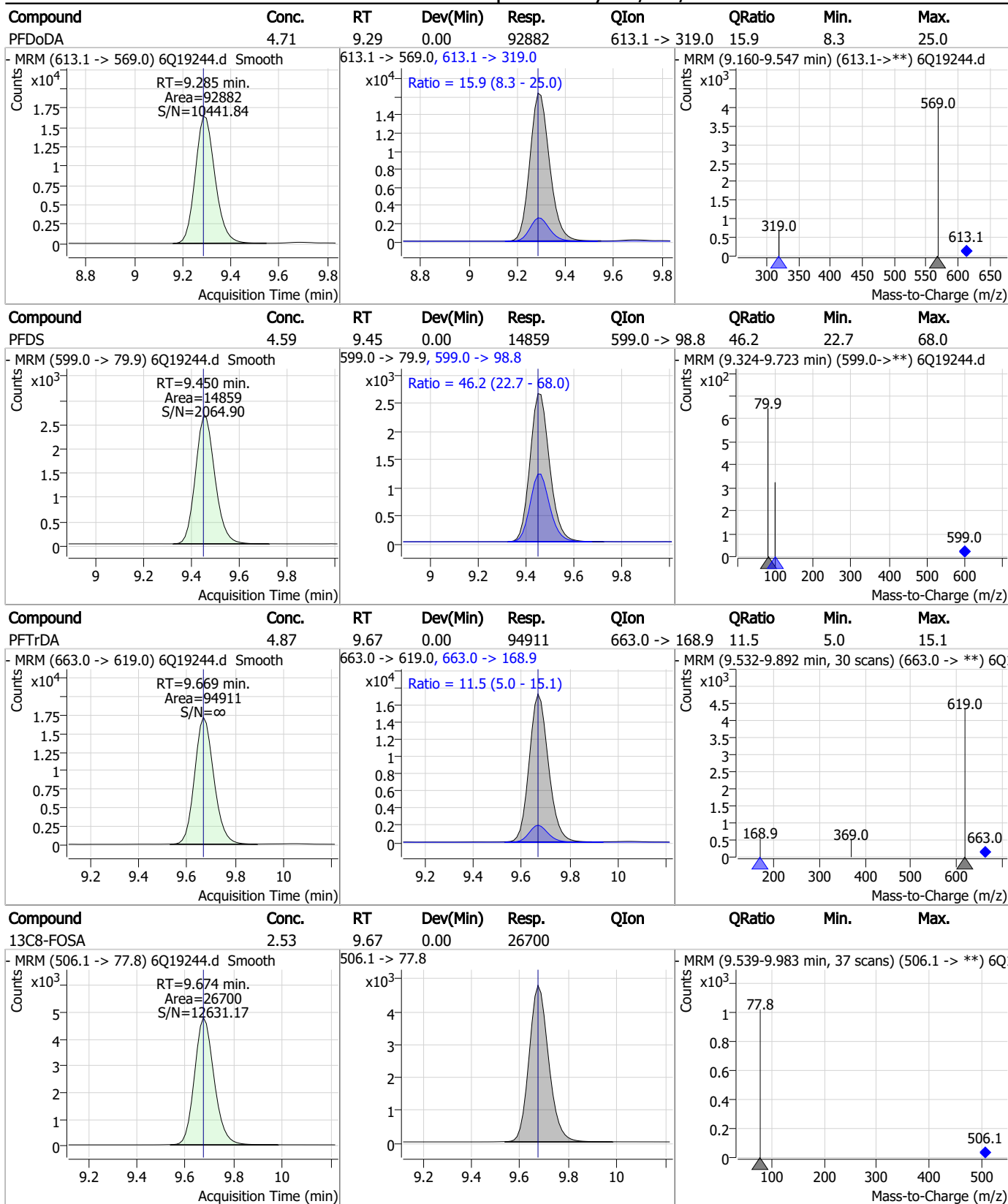
7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
7

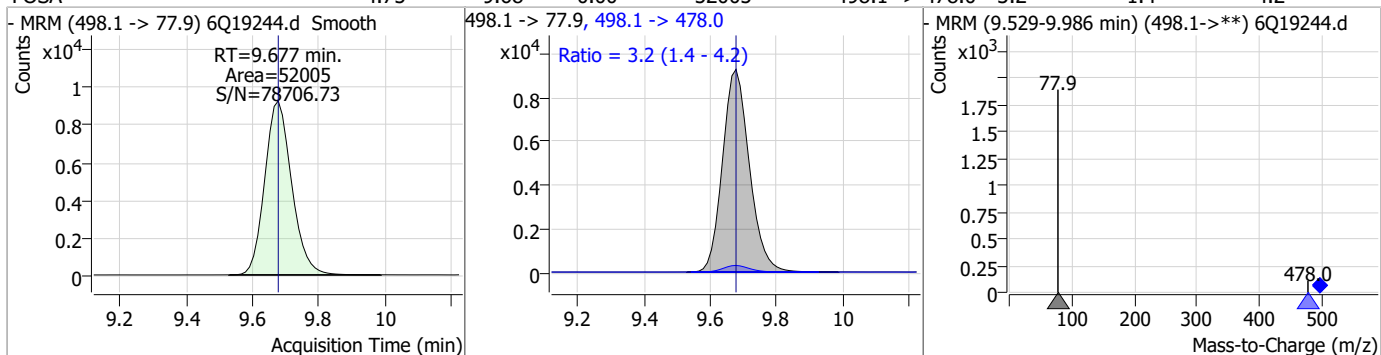
Perfluorinated Compounds by LC/MS/MS



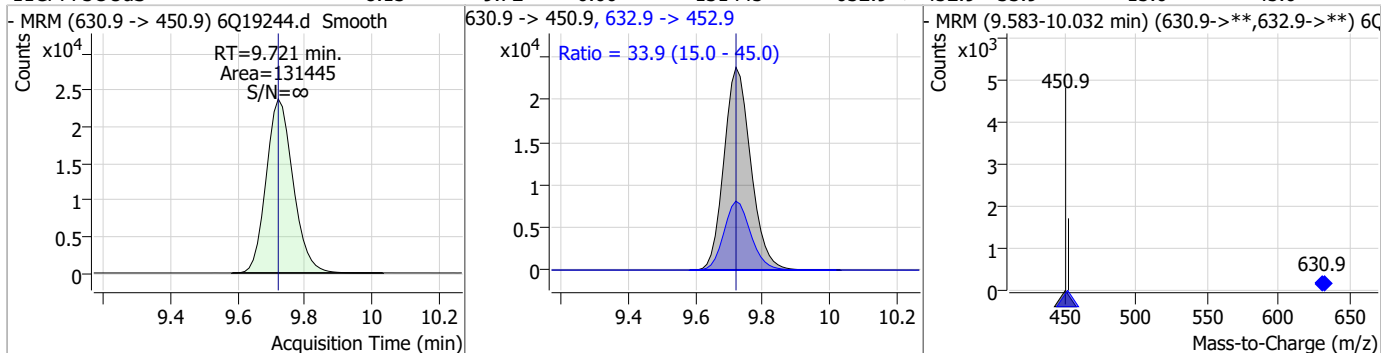
7.7.6
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Perfluorinated Compounds by LC/MS/MS

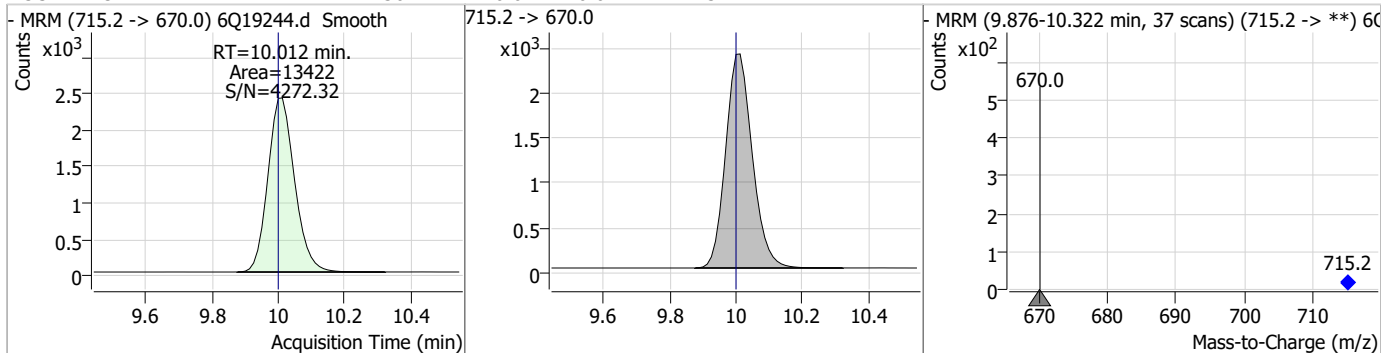
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	4.75	9.68	0.00	52005	498.1 -> 478.0	3.2	1.4	4.2



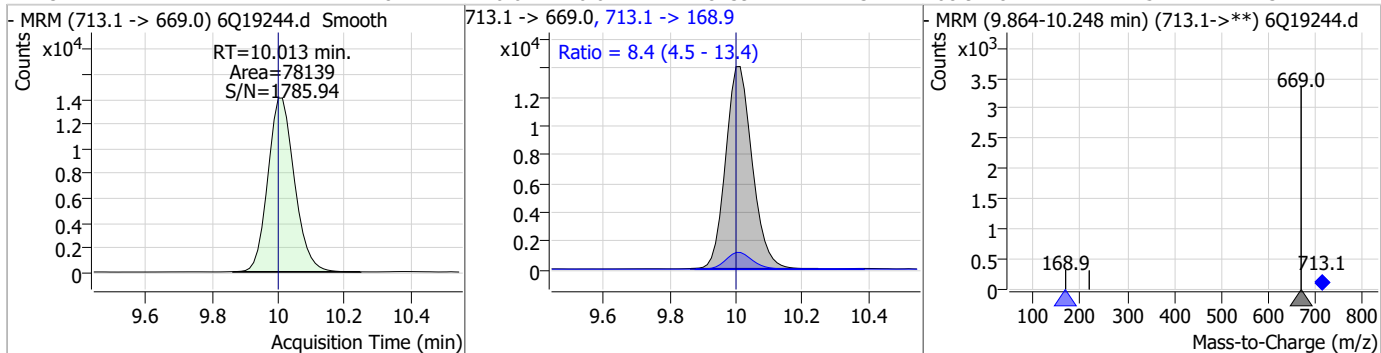
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	8.13	9.72	0.00	131445	632.9 -> 452.9	33.9	15.0	45.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.30	10.01	0.01	13422				

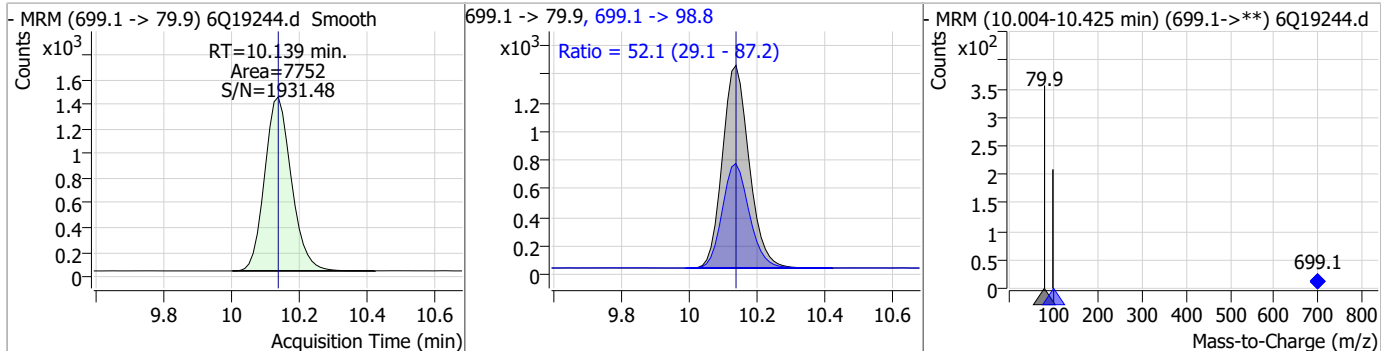


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.87	10.01	0.01	78139	713.1 -> 168.9	8.4	4.5	13.4

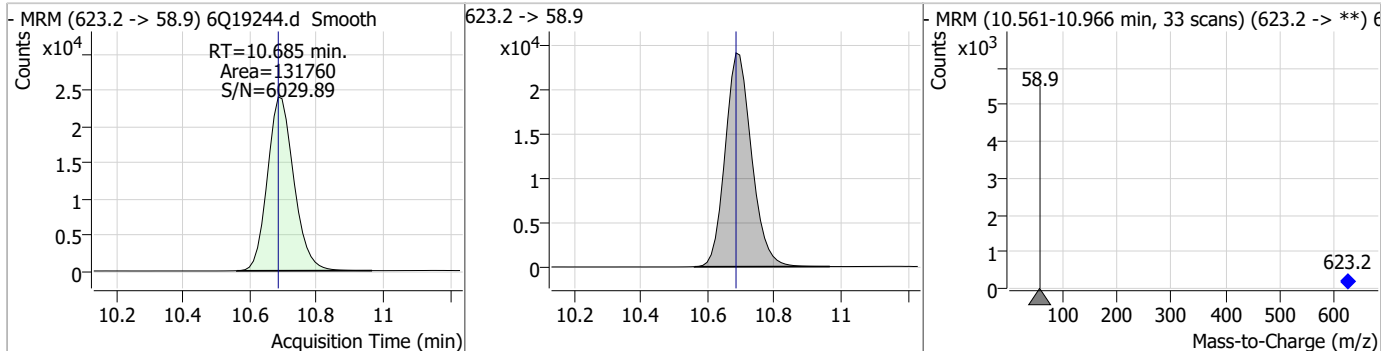


Perfluorinated Compounds by LC/MS/MS

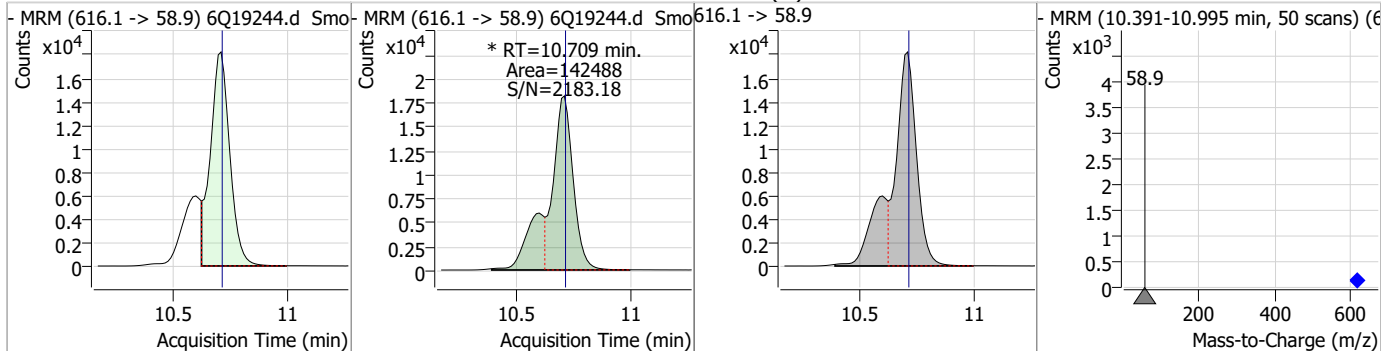
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	4.81	10.14	0.00	7752	699.1 -> 98.8	52.1	29.1	87.2



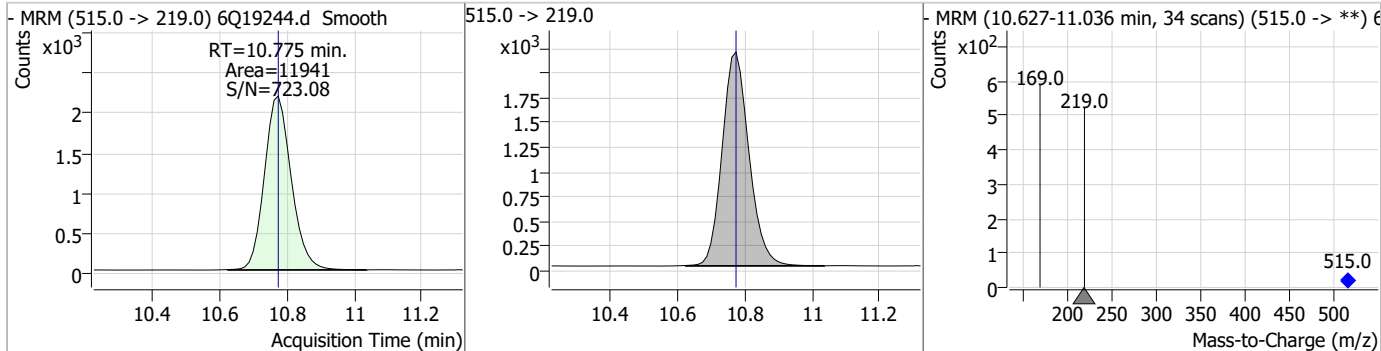
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.15	10.68	0.00	131760				



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

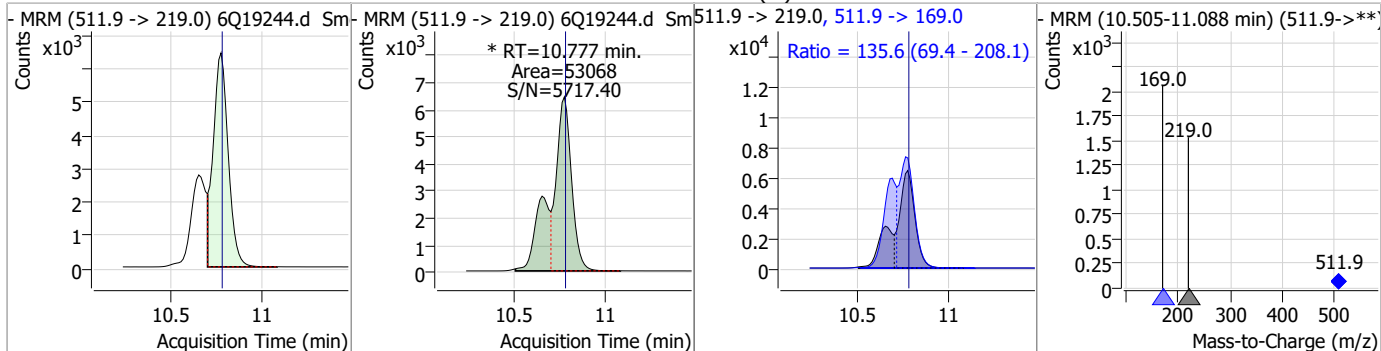


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.52	10.78	0.00	11941				

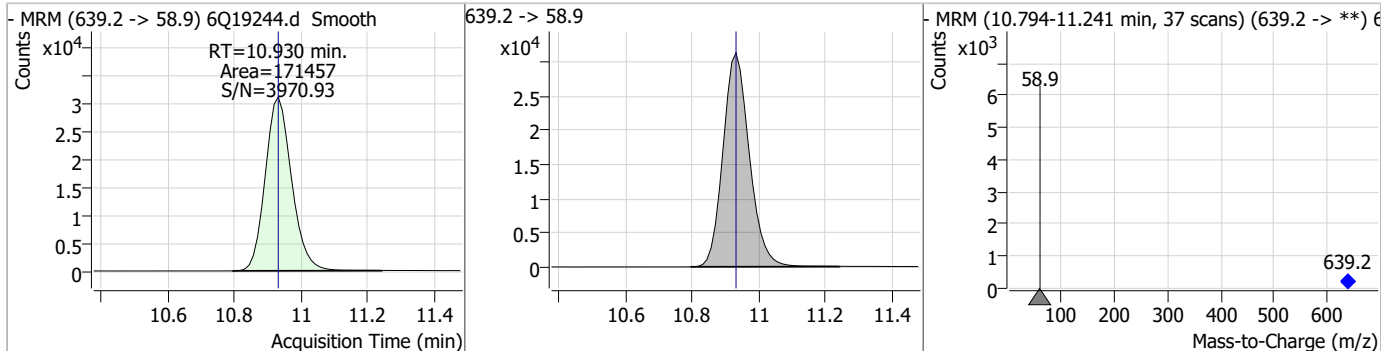


Perfluorinated Compounds by LC/MS/MS

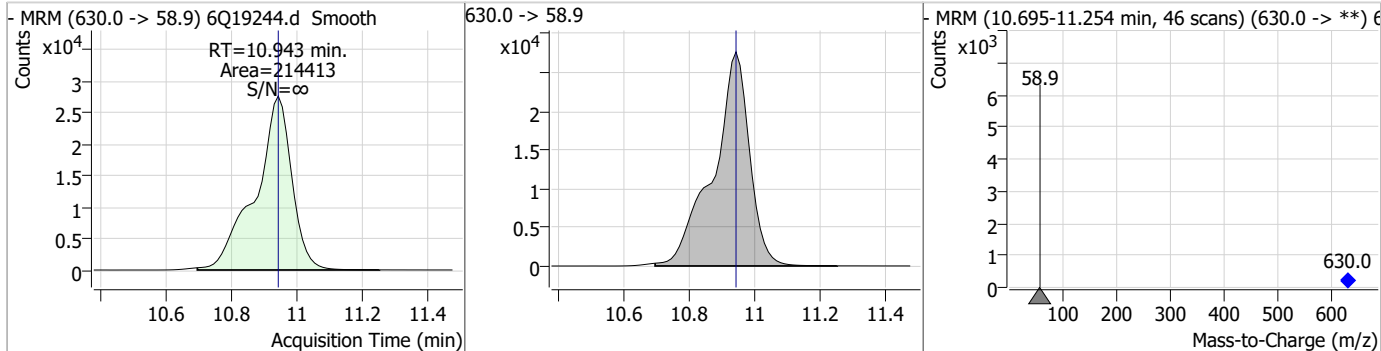
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	10.14	10.78	0.00	53068 (m)	511.9 -> 169.0	135.6	69.4	208.1



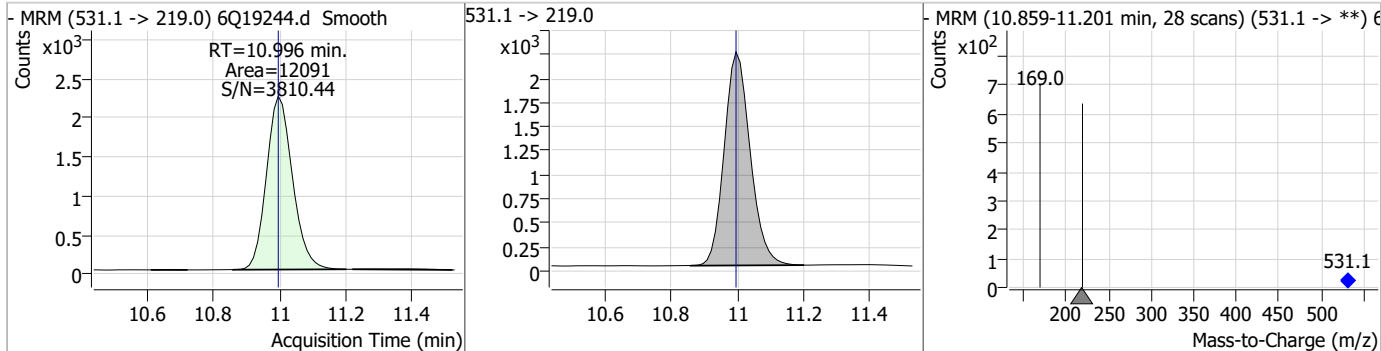
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.21	10.93	0.00	171457				



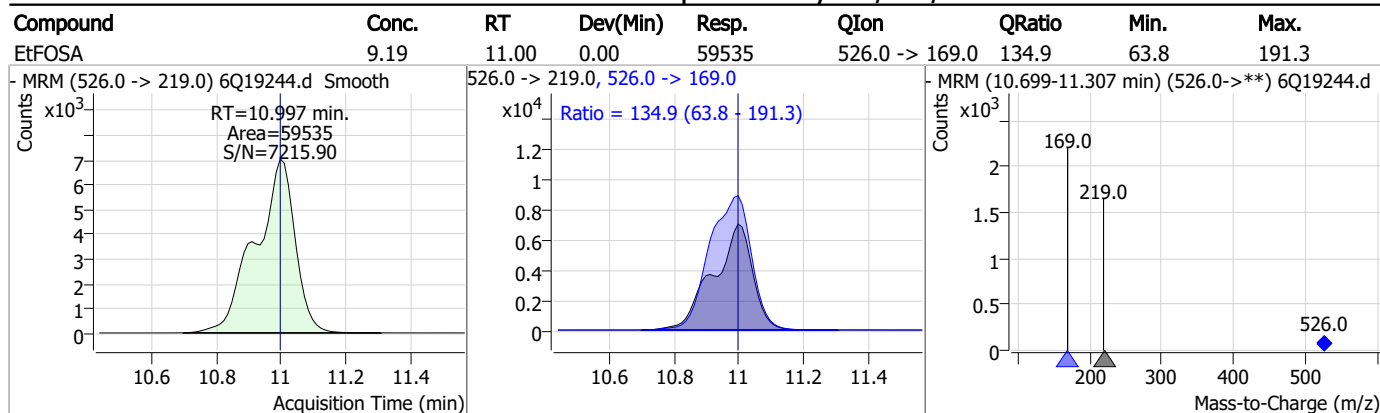
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	23.68	10.94	0.00	214413				



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



Perfluorinated Compounds by LC/MS/MS



7.7.6
7

Manual Integration Approval Summary

Sample Number: S6Q287-IC287
Lab FileID: 6Q19244.D
Injection Time: 06/12/23 16:44

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

7.7.6.1

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
PFDoS	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			

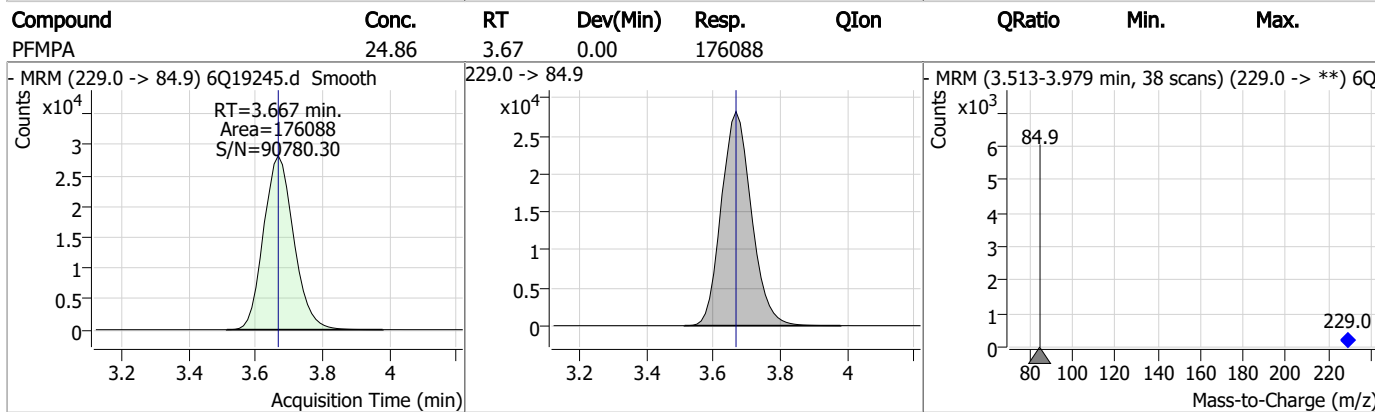
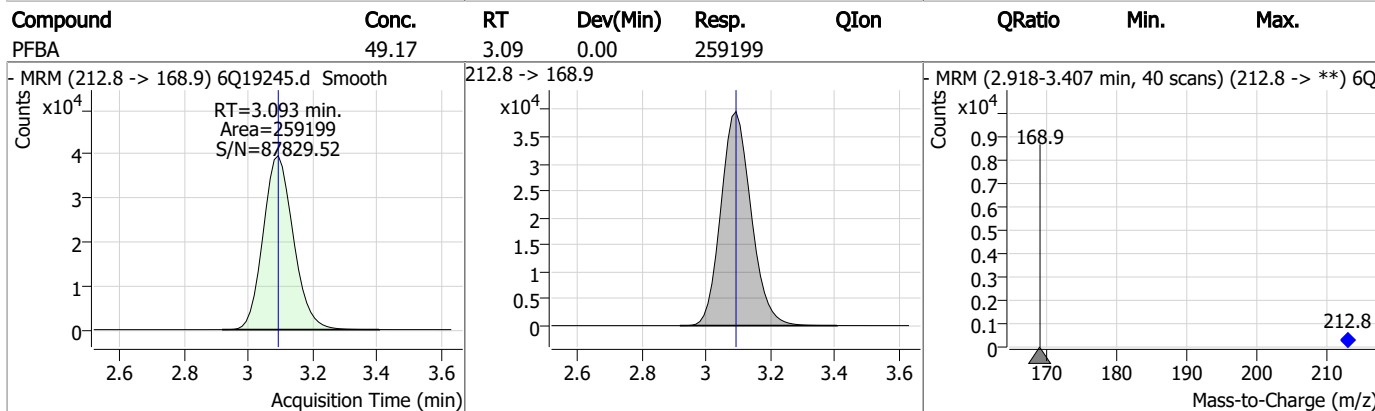
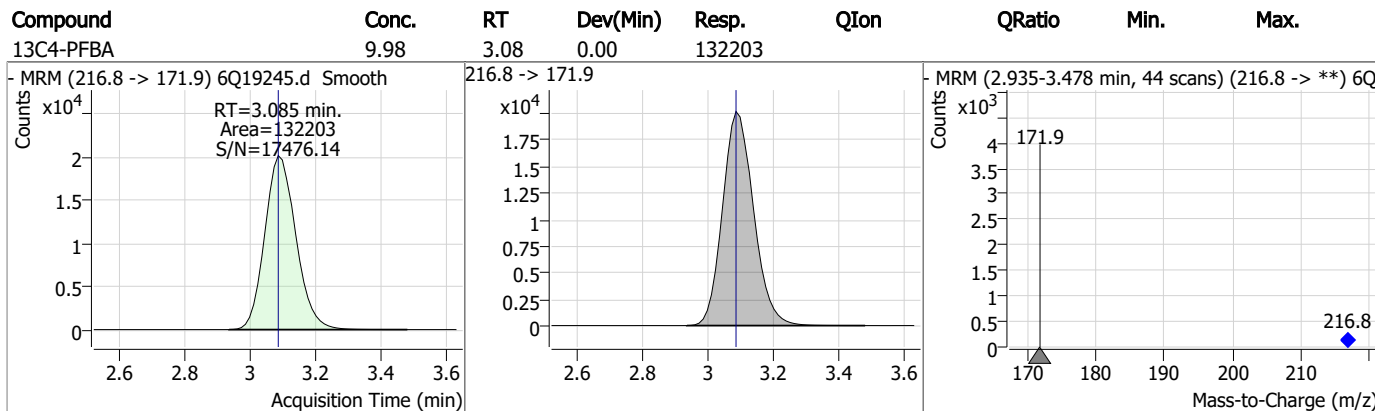
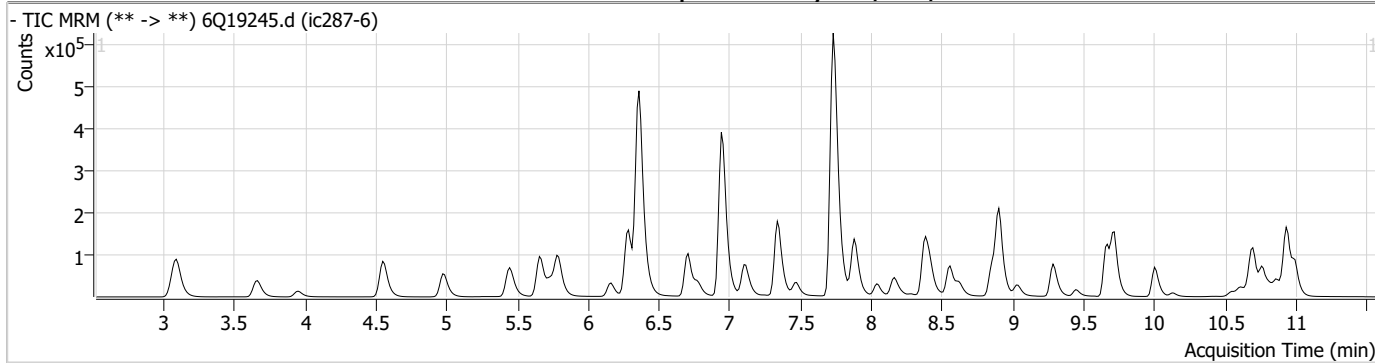
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

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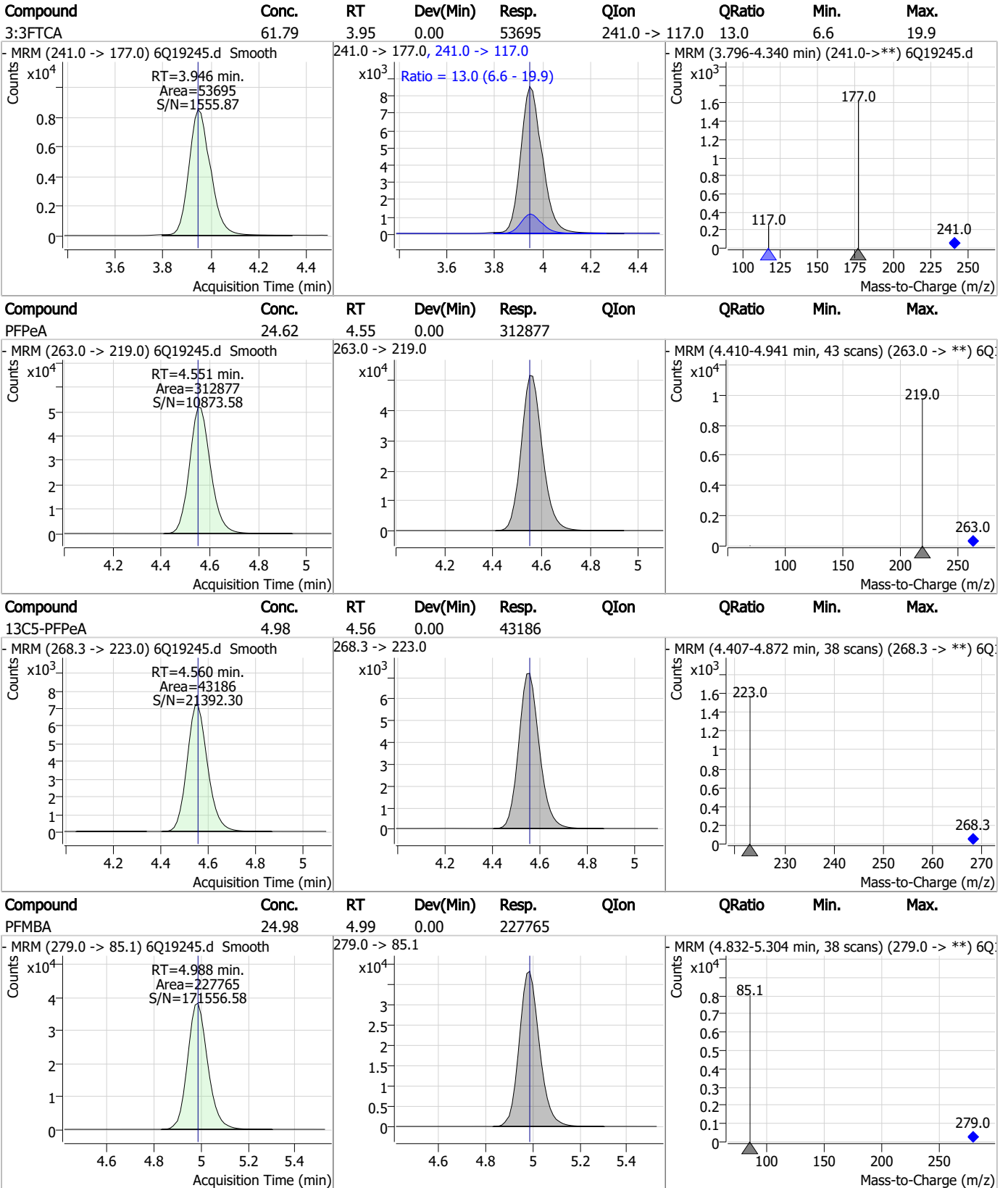
7.7.7
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Perfluorinated Compounds by LC/MS/MS



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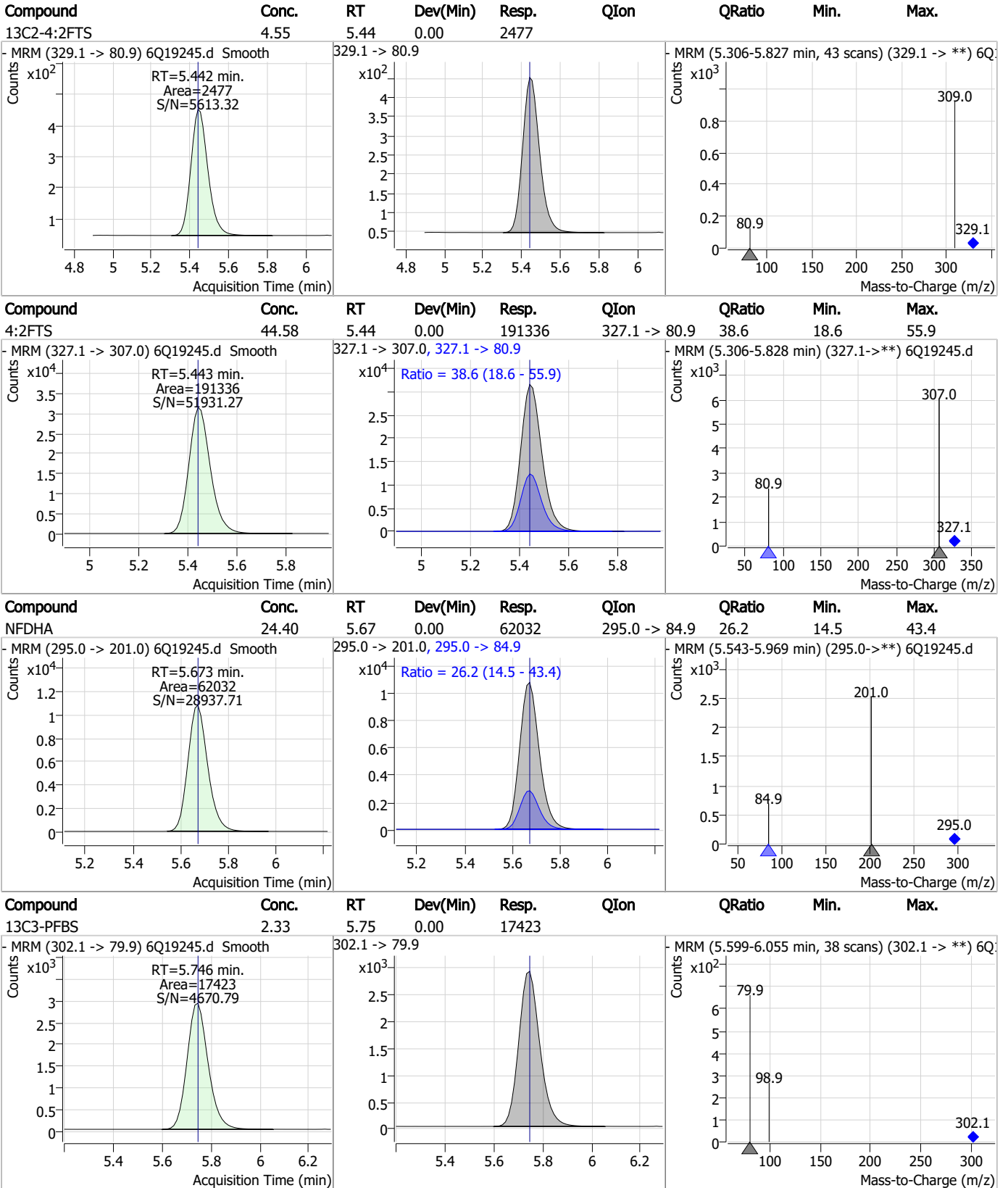
Perfluorinated Compounds by LC/MS/MS



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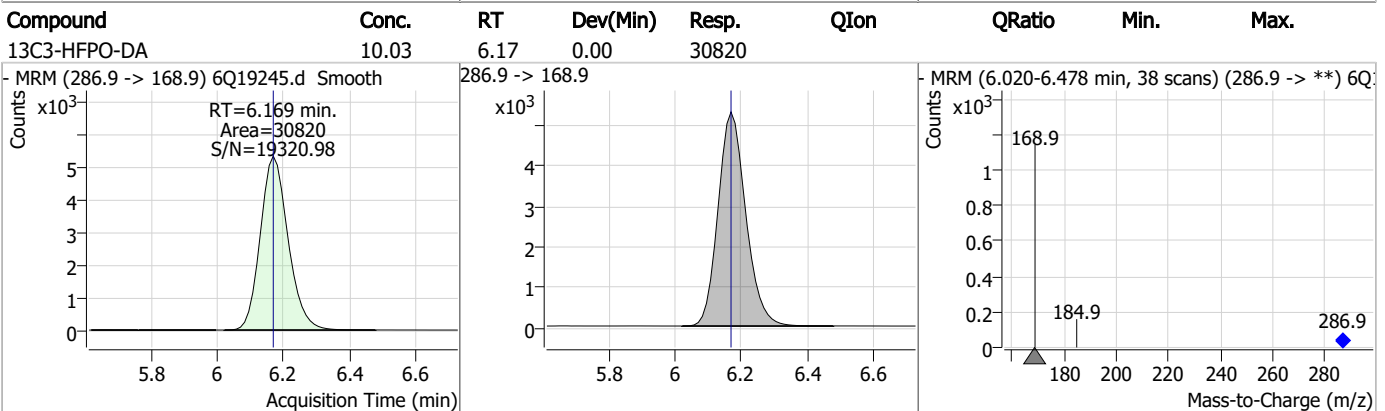
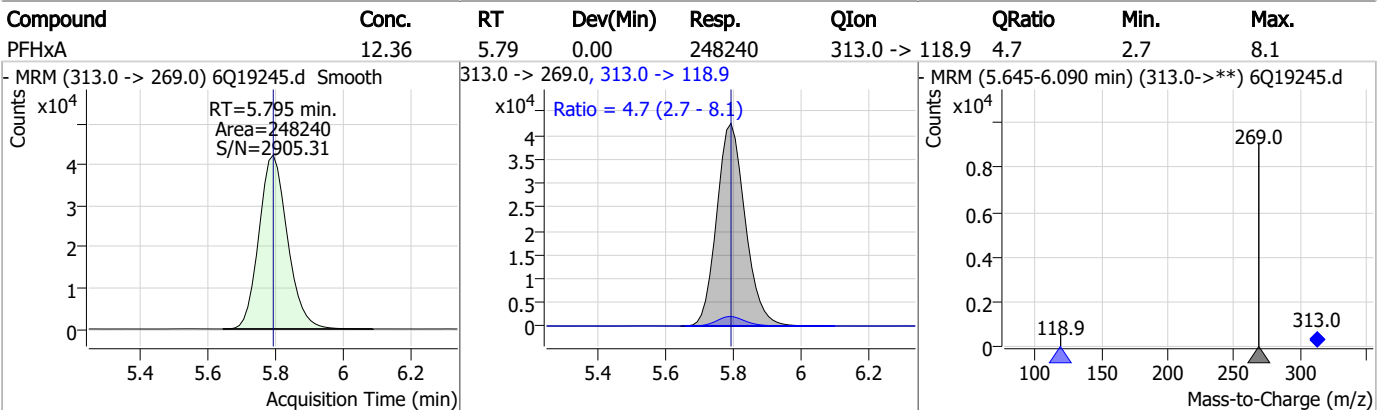
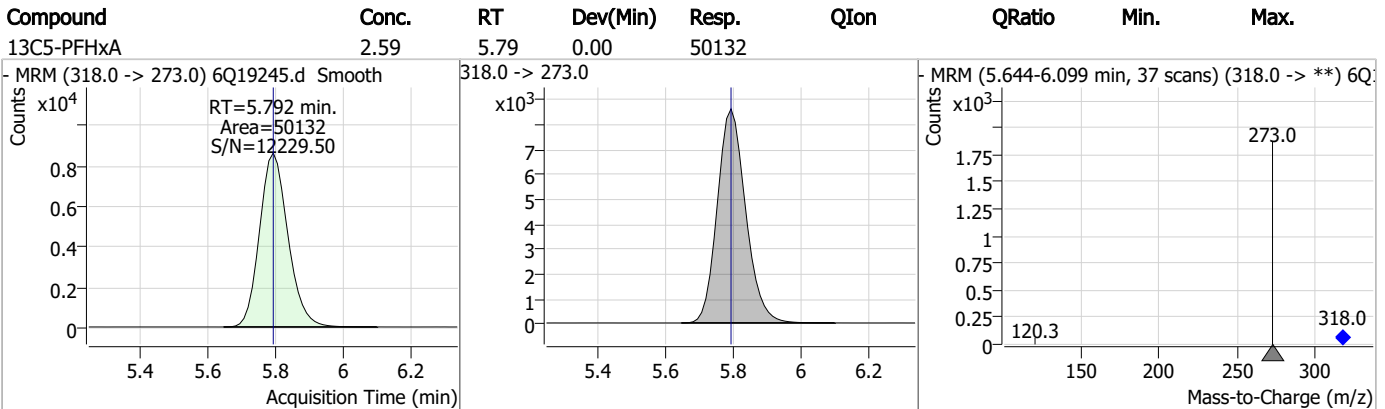
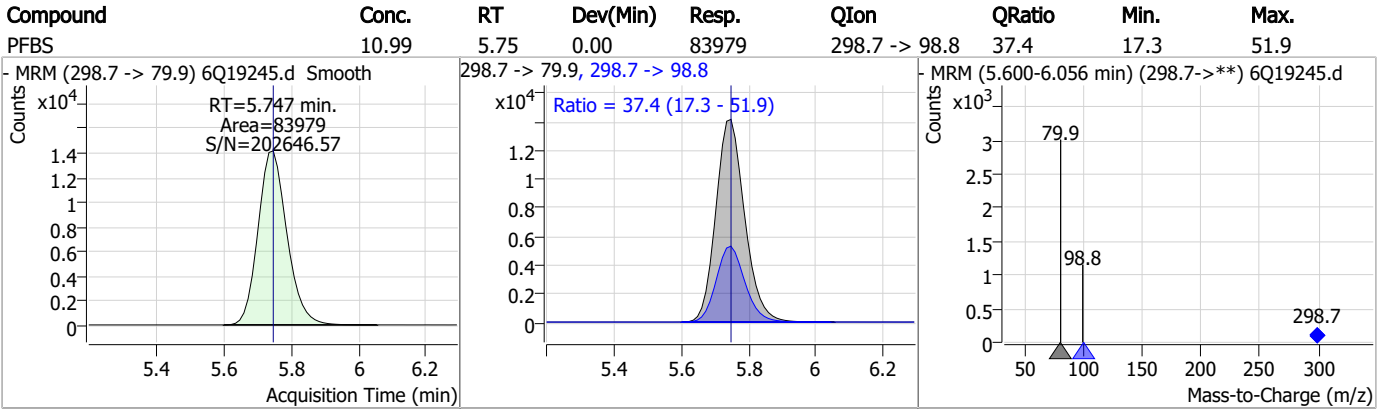
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

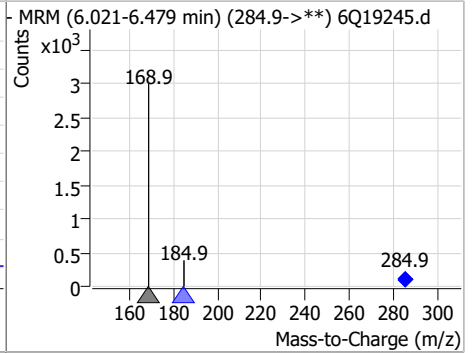
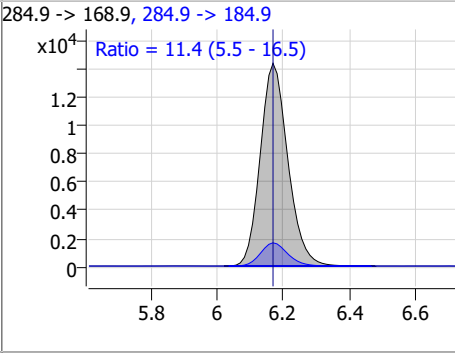
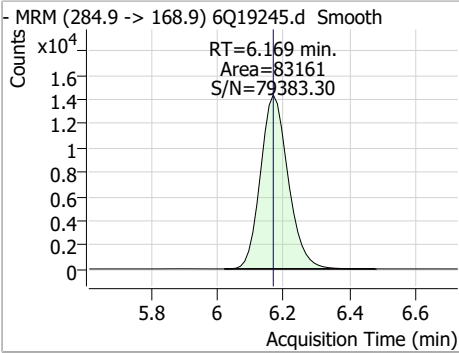


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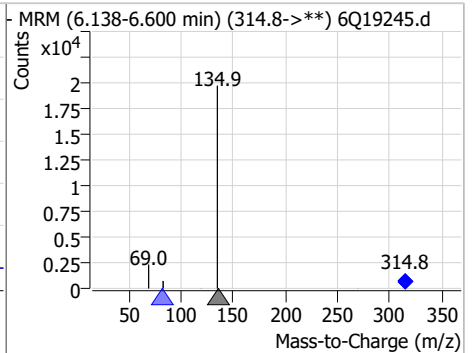
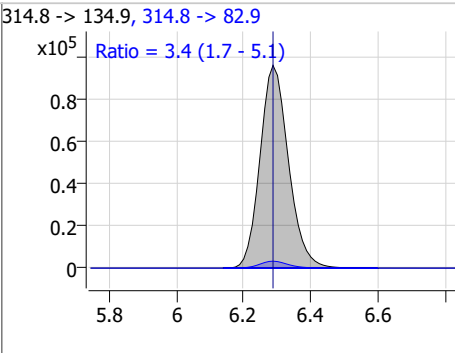
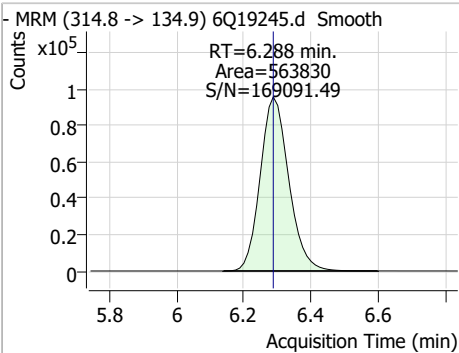
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Perfluorinated Compounds by LC/MS/MS

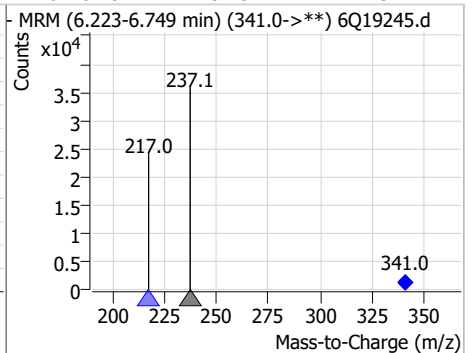
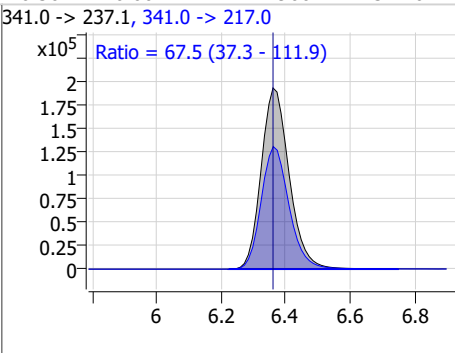
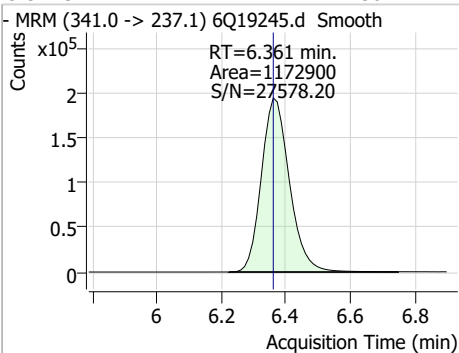
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	25.42	6.17	0.00	83161	284.9 -> 184.9	11.4	5.5	16.5



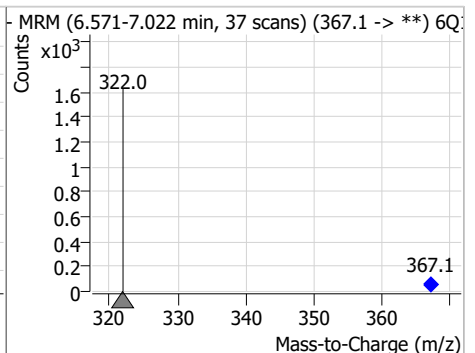
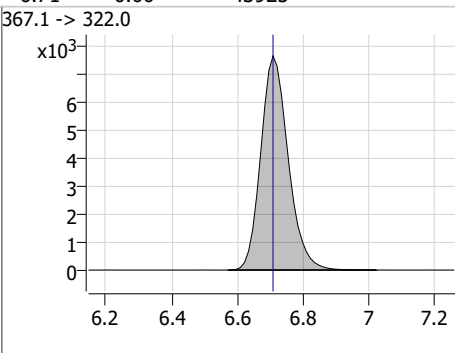
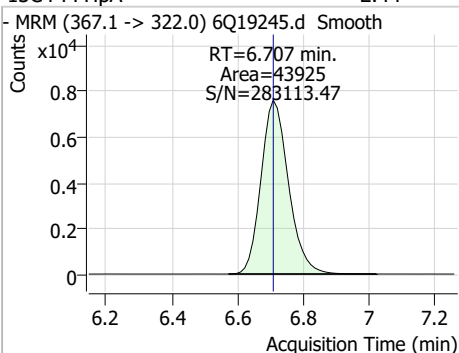
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	22.81	6.29	0.00	563830	314.8 -> 82.9	3.4	1.7	5.1



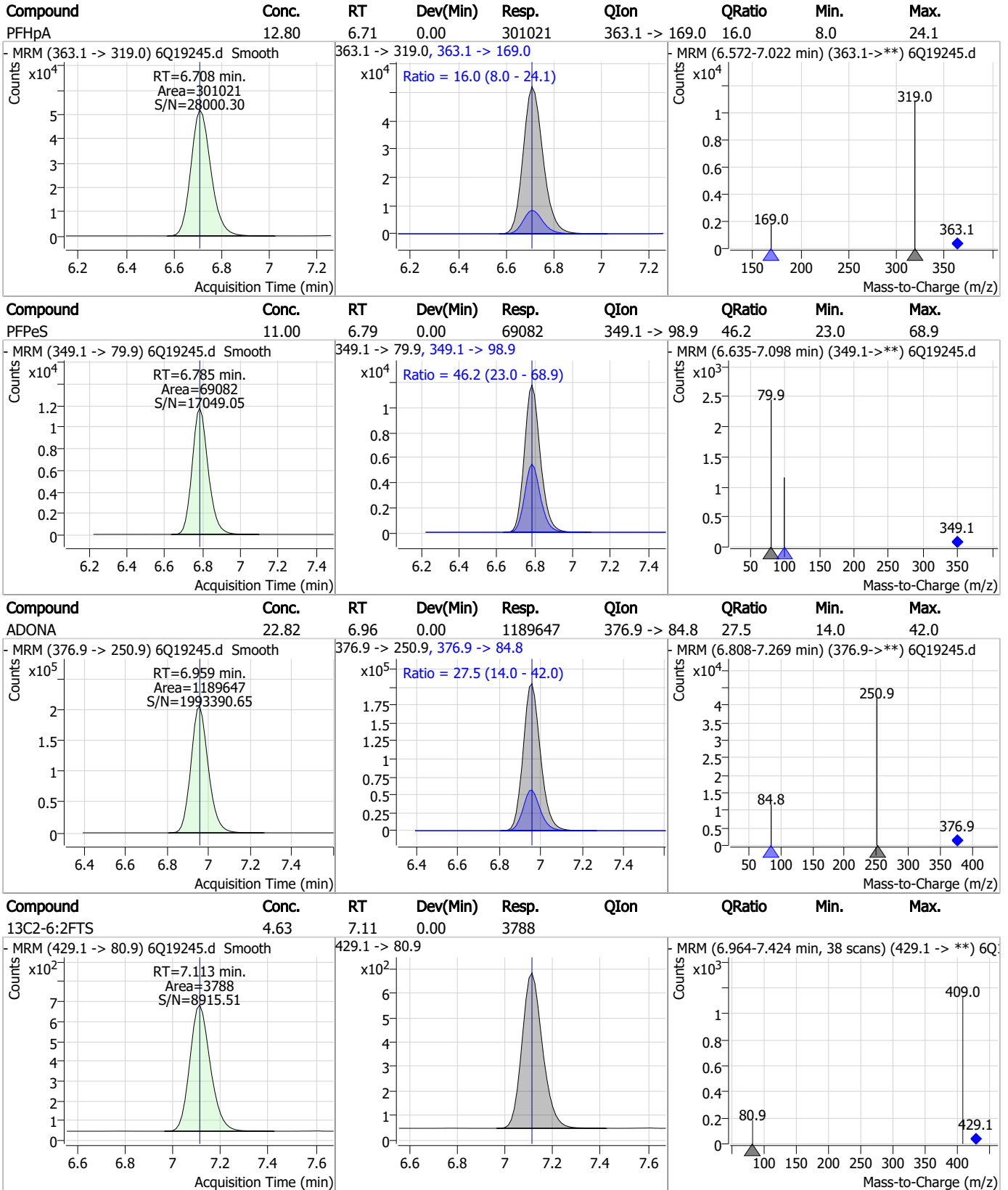
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	301.14	6.36	0.00	1172900	341.0 -> 217.0	67.5	37.3	111.9



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



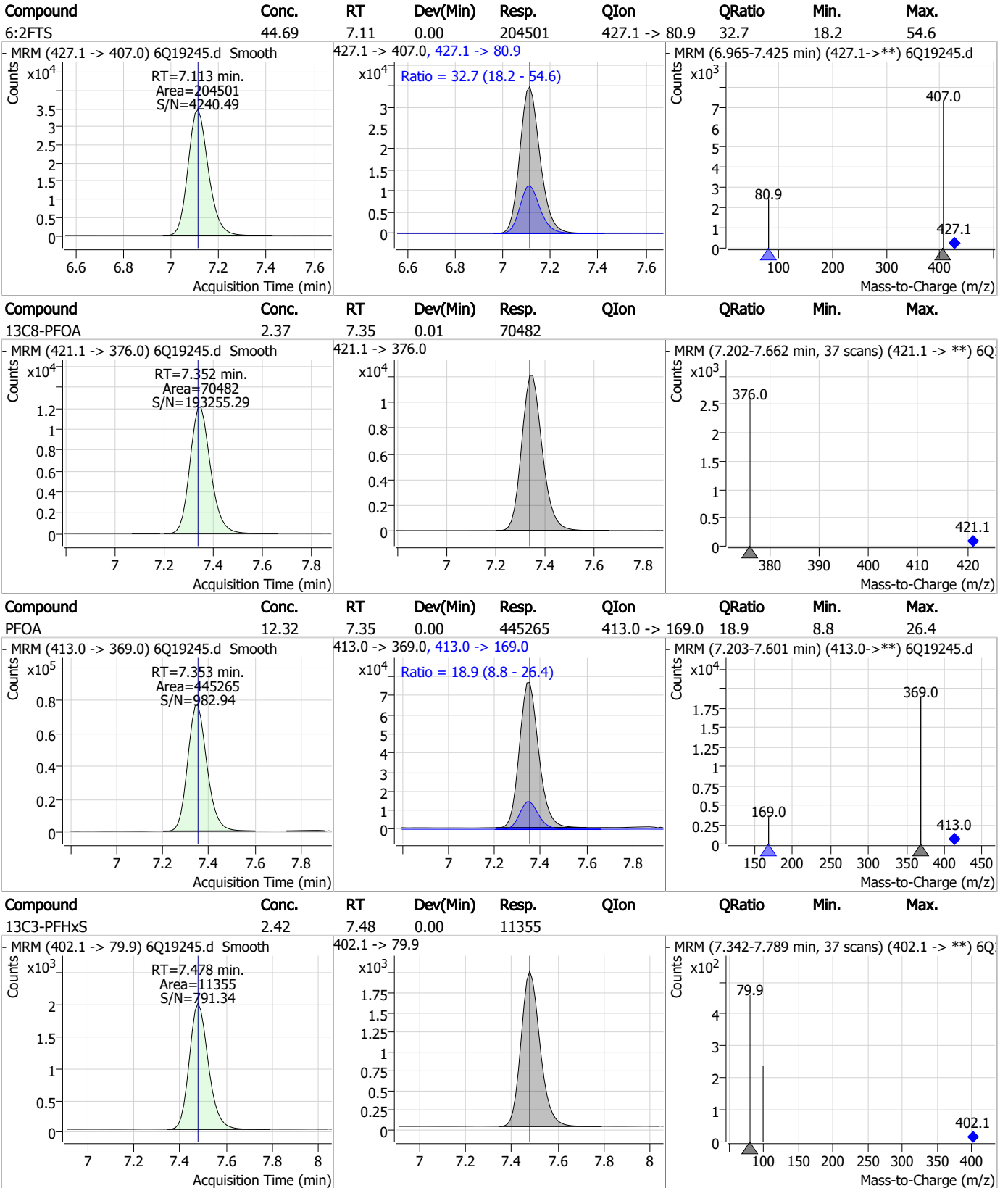
Perfluorinated Compounds by LC/MS/MS



7.7.7
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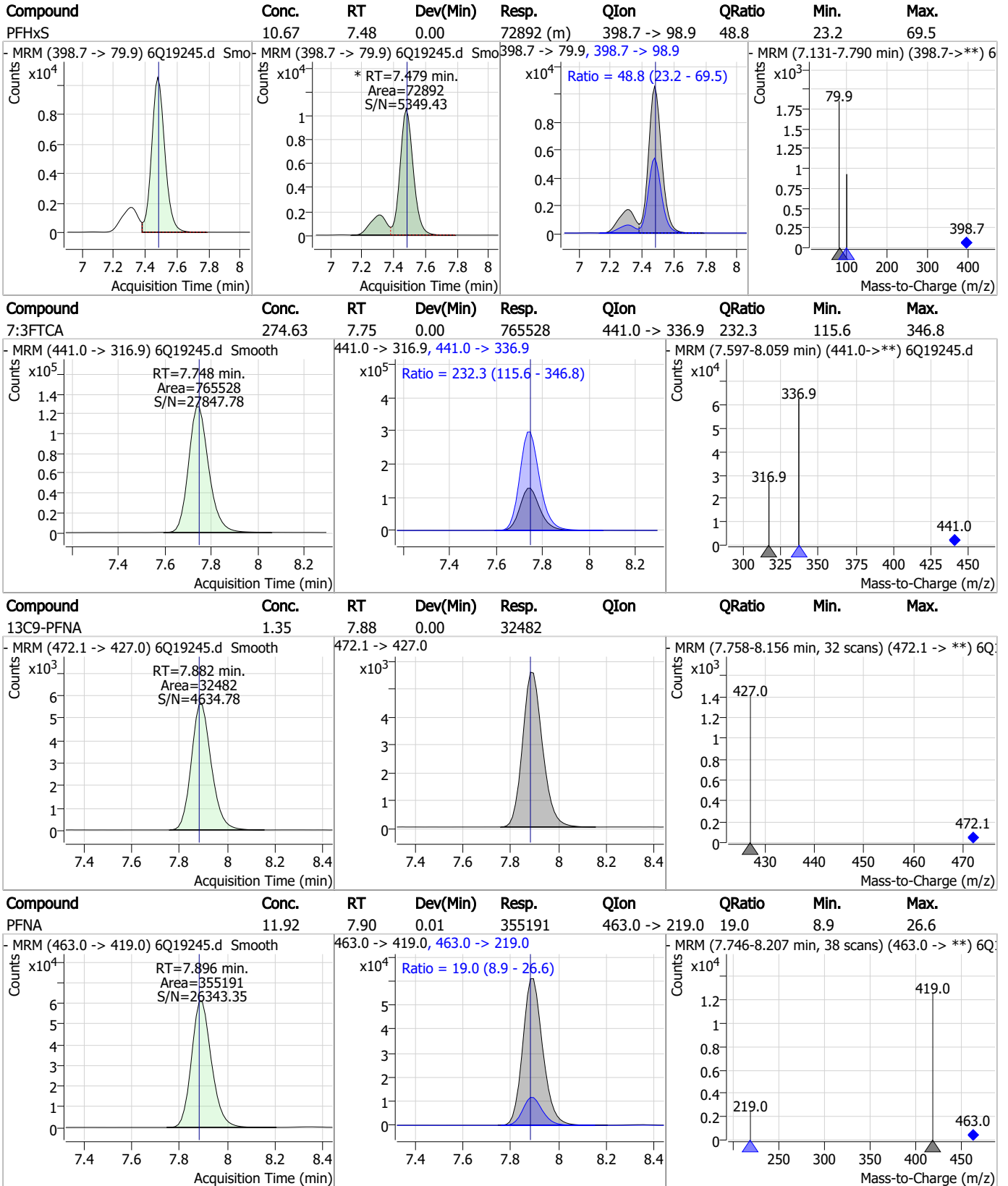
Perfluorinated Compounds by LC/MS/MS



7.7.7



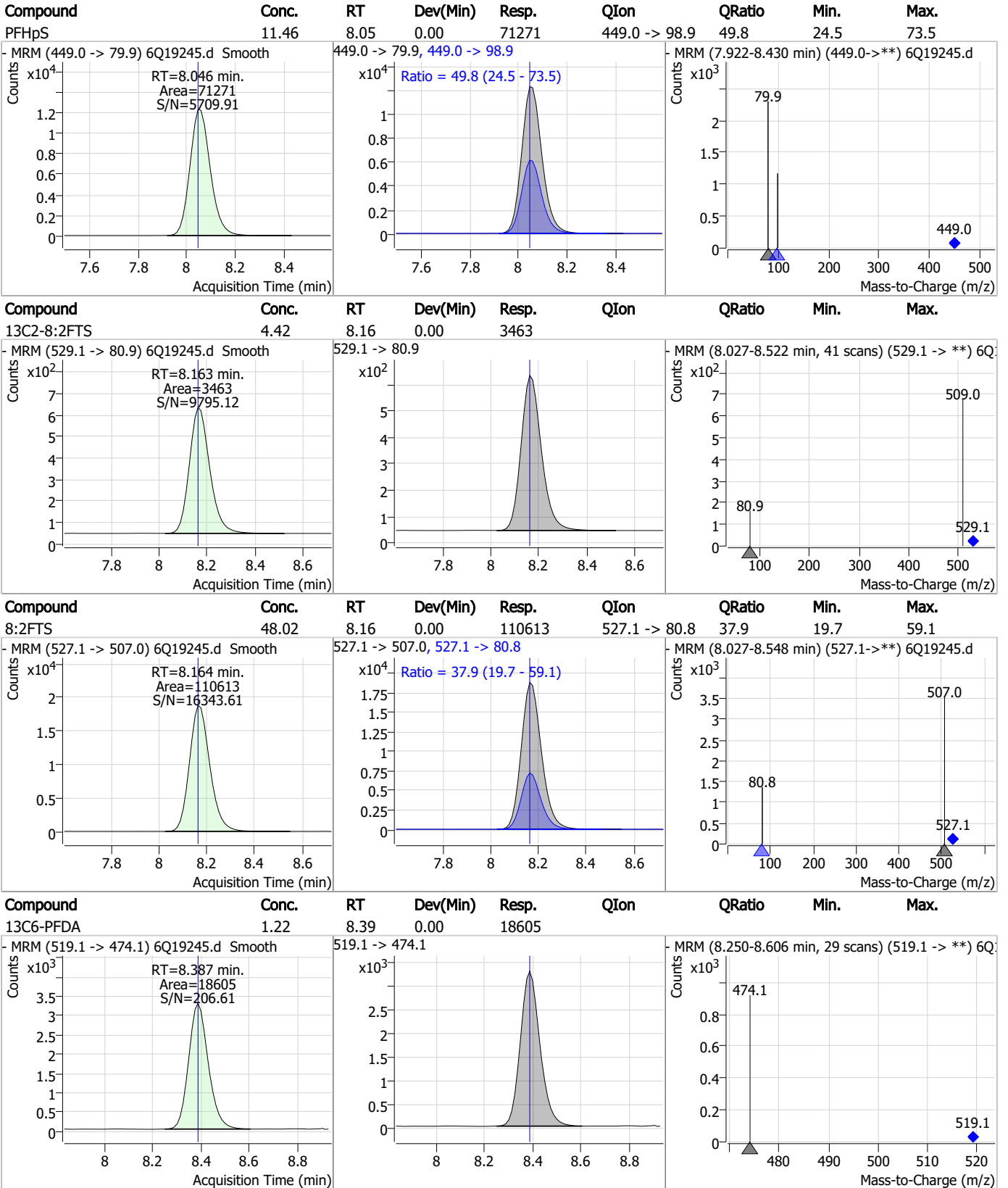
Perfluorinated Compounds by LC/MS/MS



7.7.7



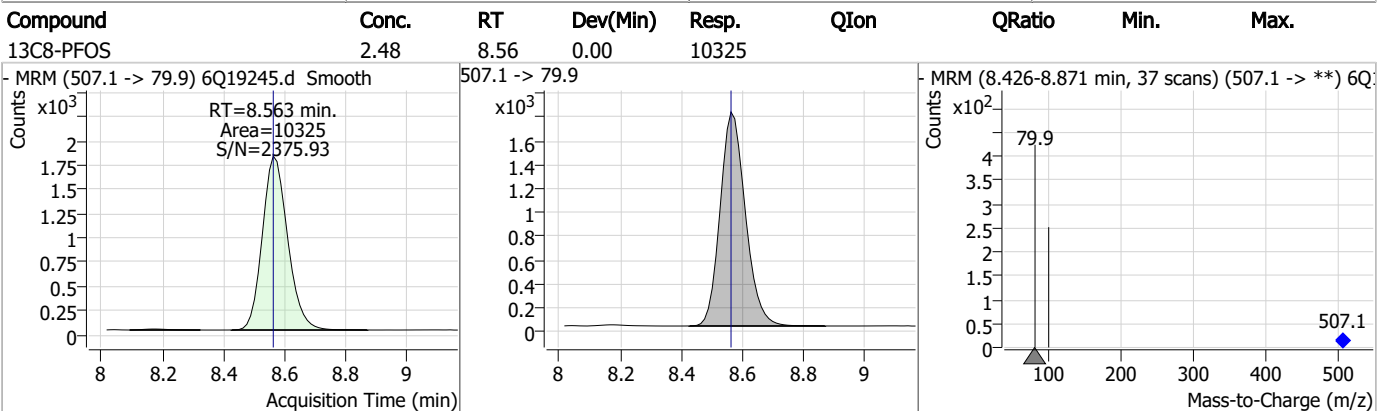
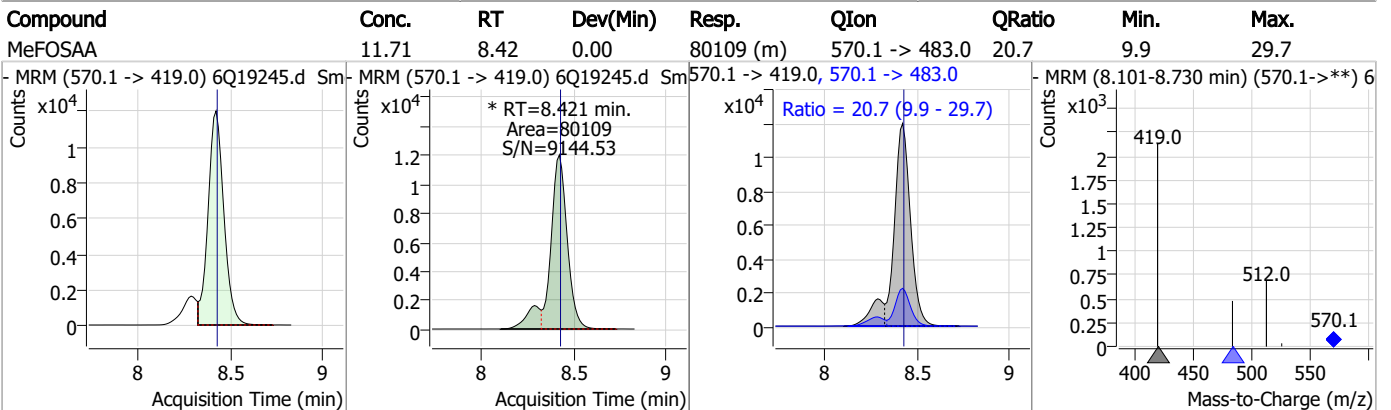
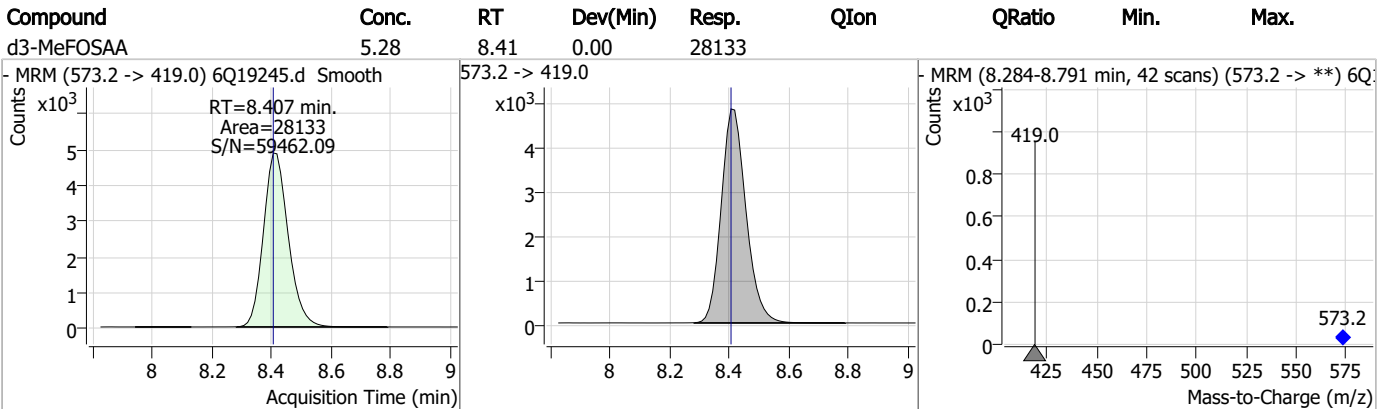
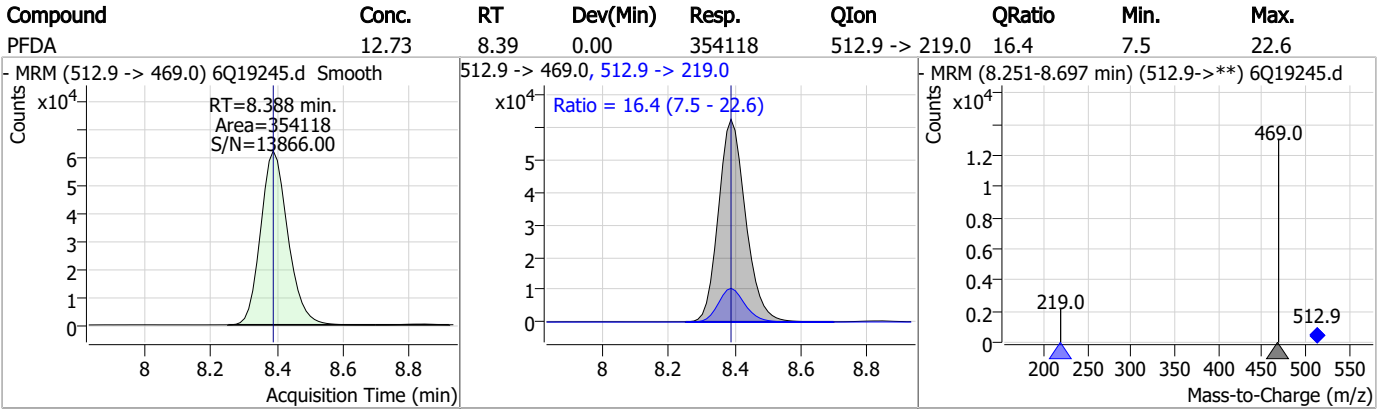
Perfluorinated Compounds by LC/MS/MS



7.7.7

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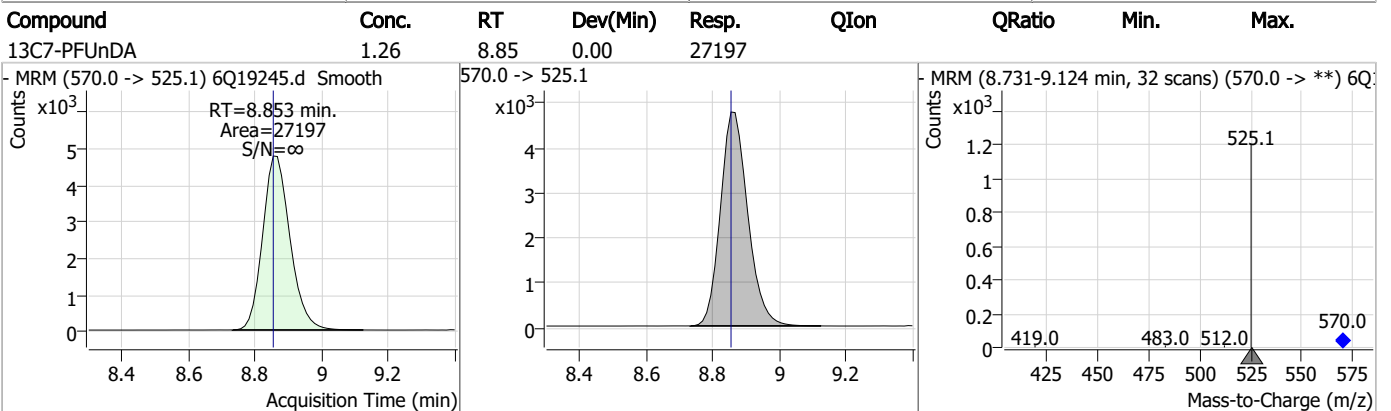
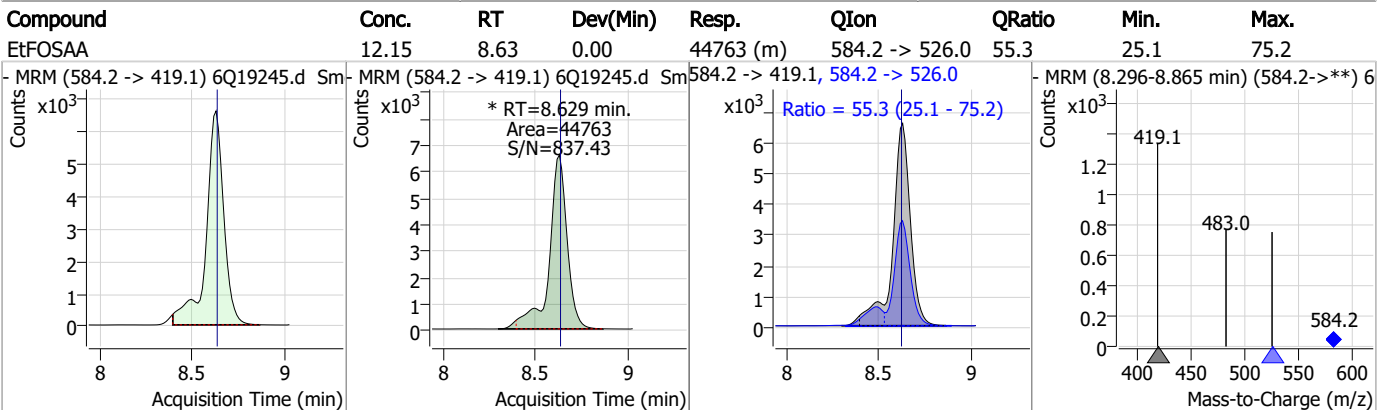
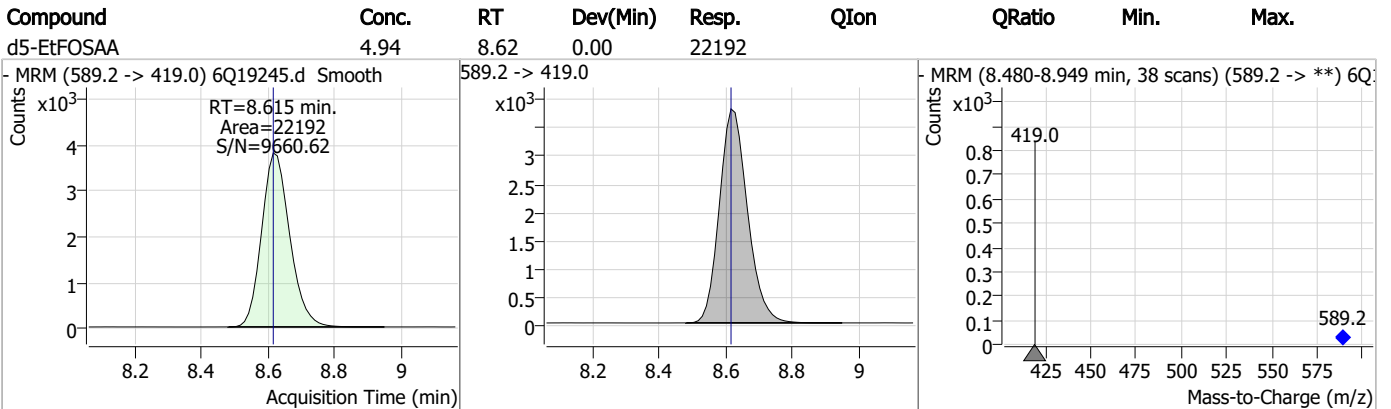
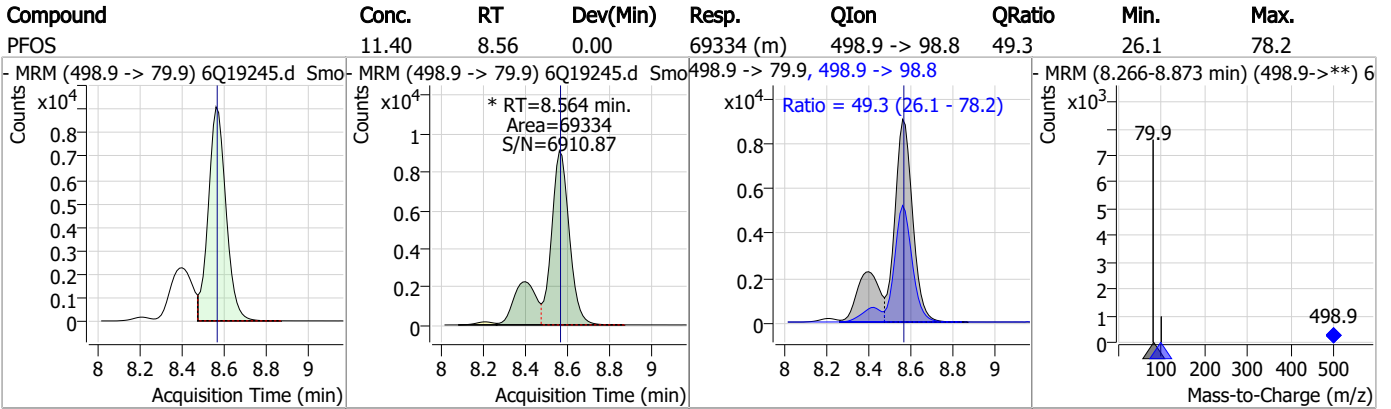
Perfluorinated Compounds by LC/MS/MS



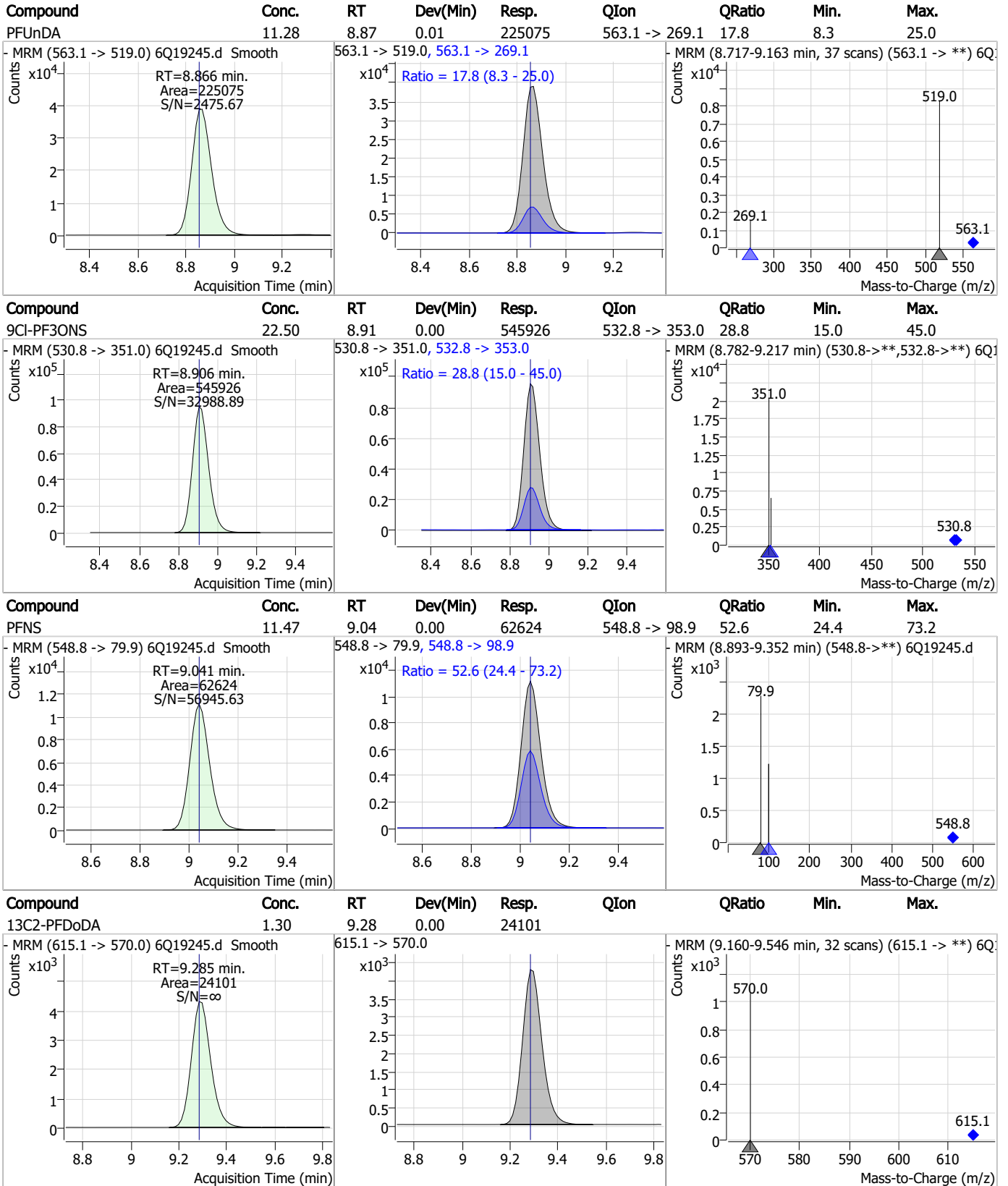
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Perfluorinated Compounds by LC/MS/MS



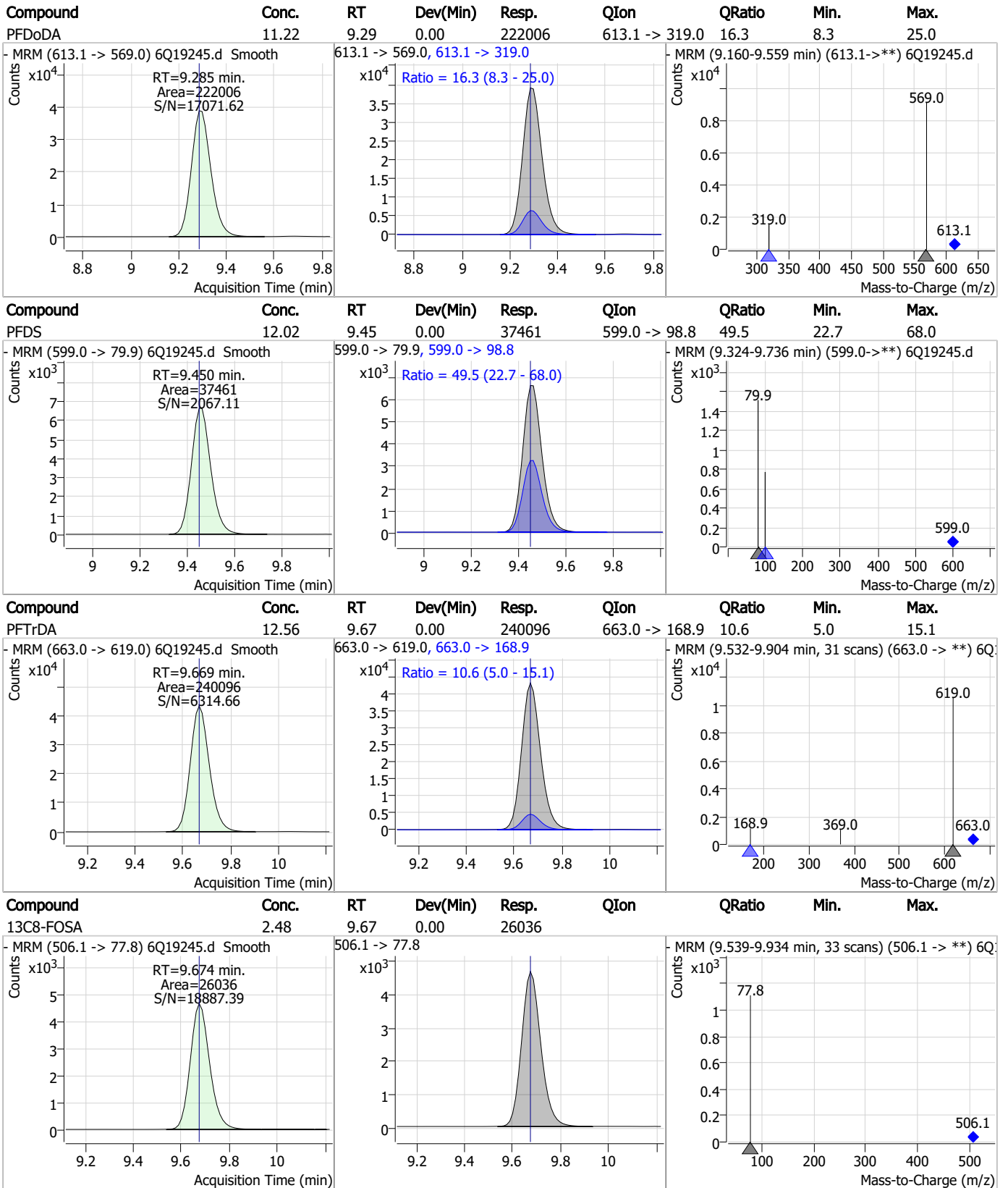
Perfluorinated Compounds by LC/MS/MS



7.7.7

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Perfluorinated Compounds by LC/MS/MS

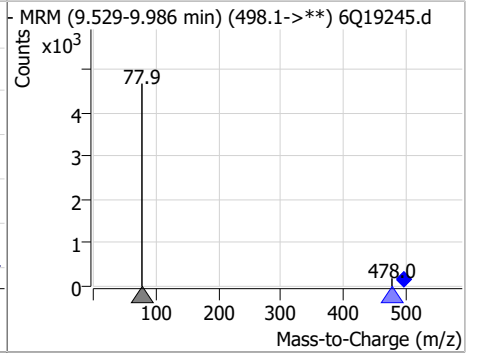
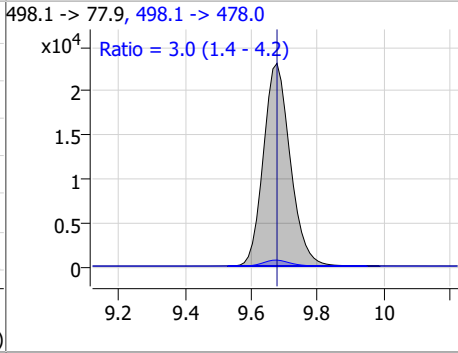
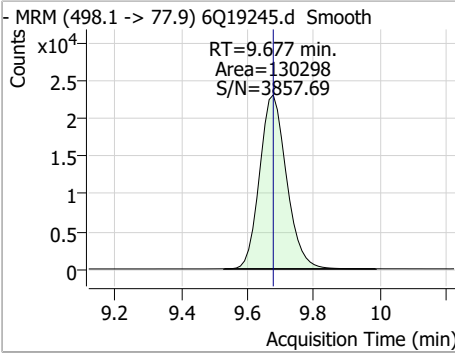


7.7.7

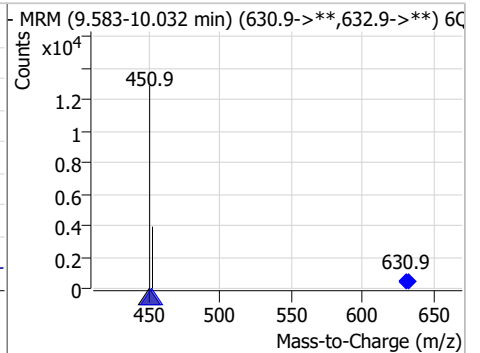
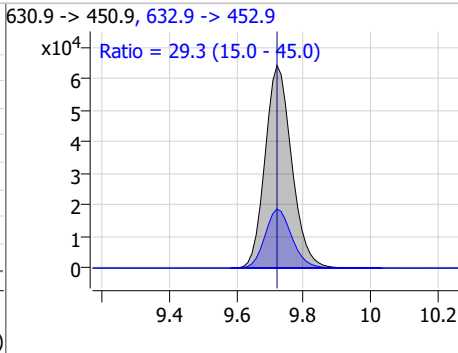
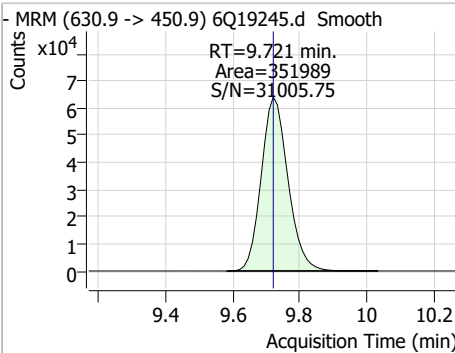
7

Perfluorinated Compounds by LC/MS/MS

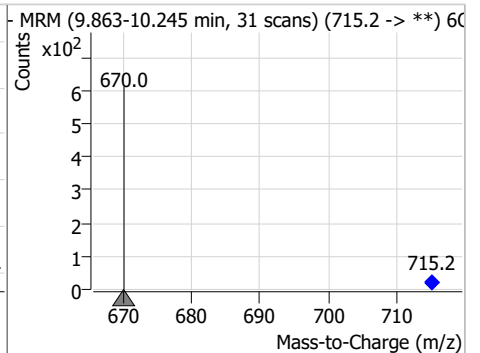
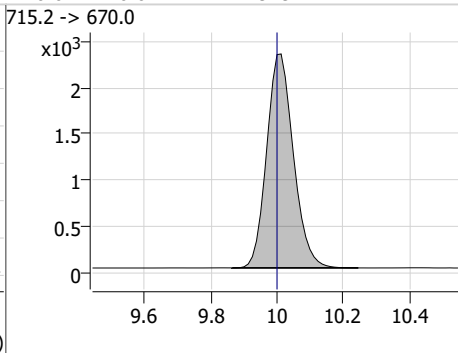
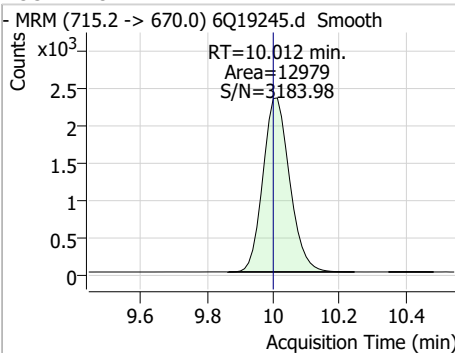
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	12.19	9.68	0.00	130298	498.1 -> 478.0	3.0	1.4	4.2



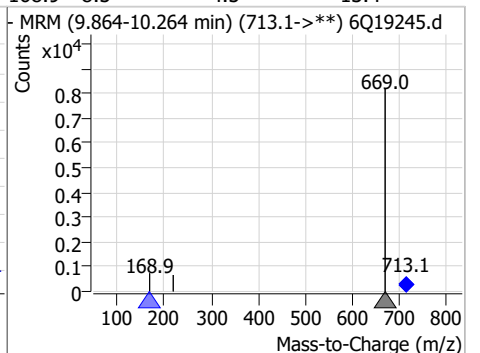
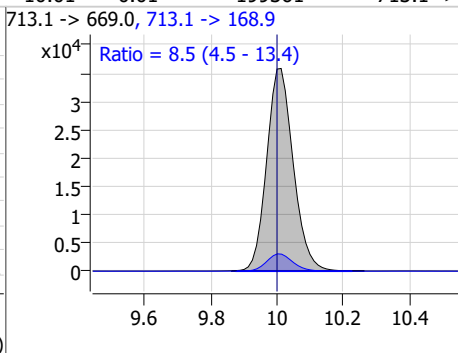
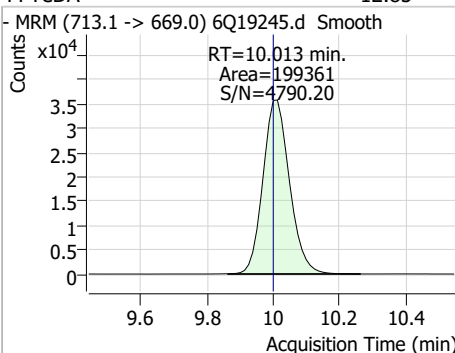
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	24.23	9.72	0.00	351989	632.9 -> 452.9	29.3	15.0	45.0



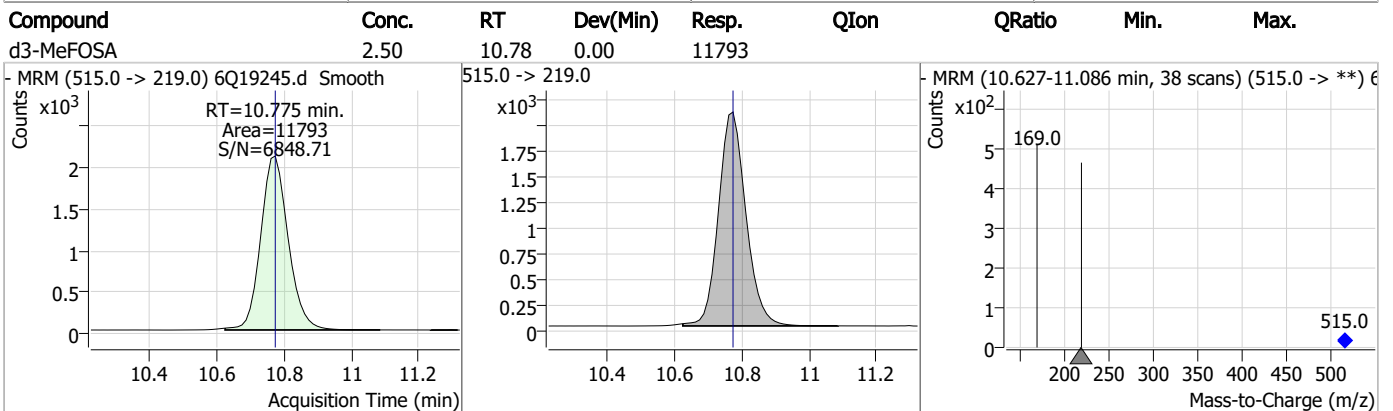
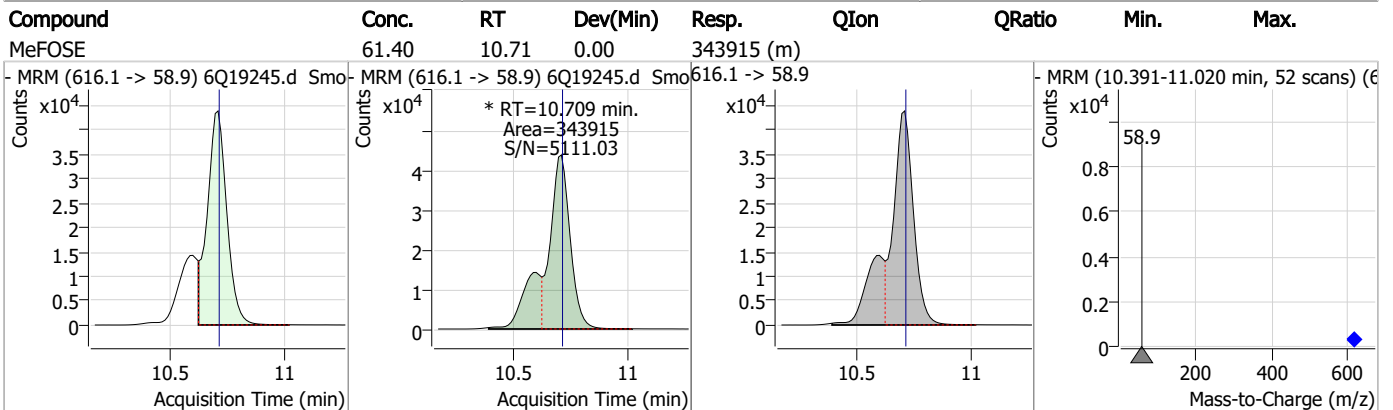
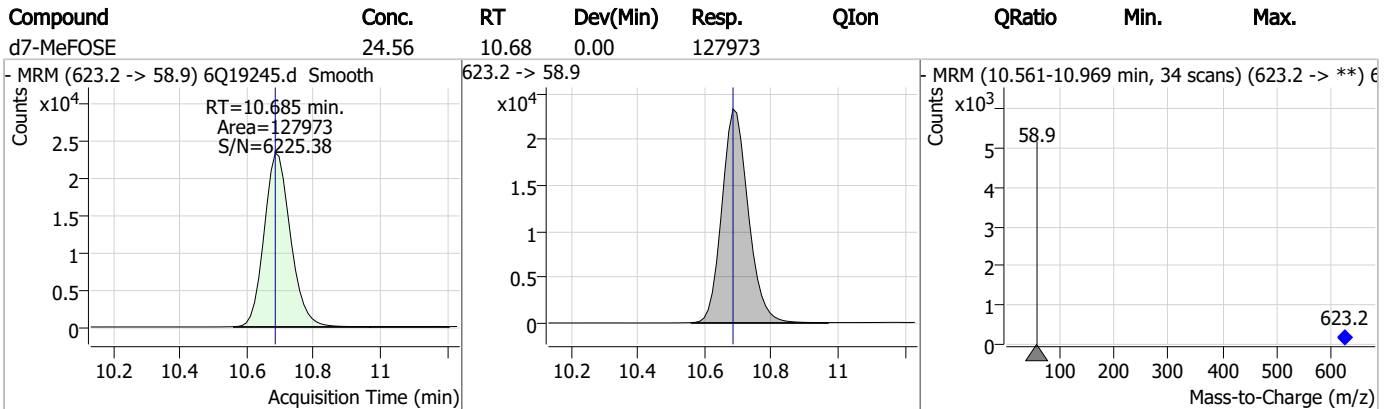
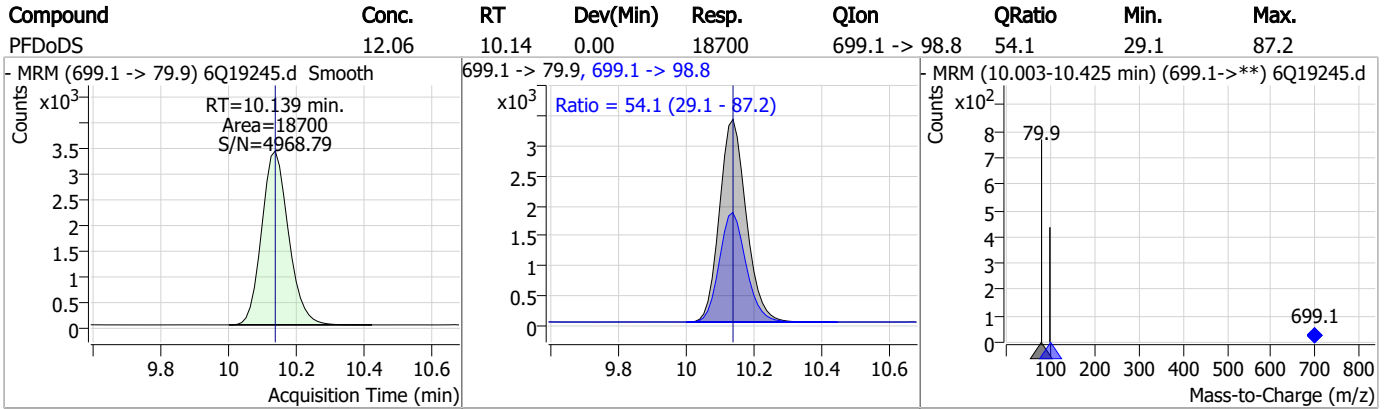
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	10.01	0.01	12979	715.2 -> 670.0			



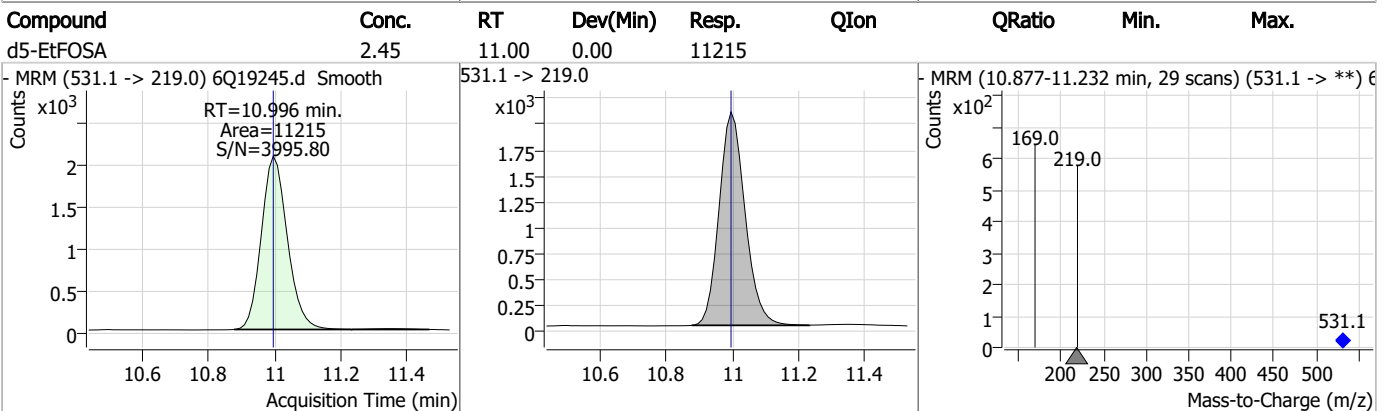
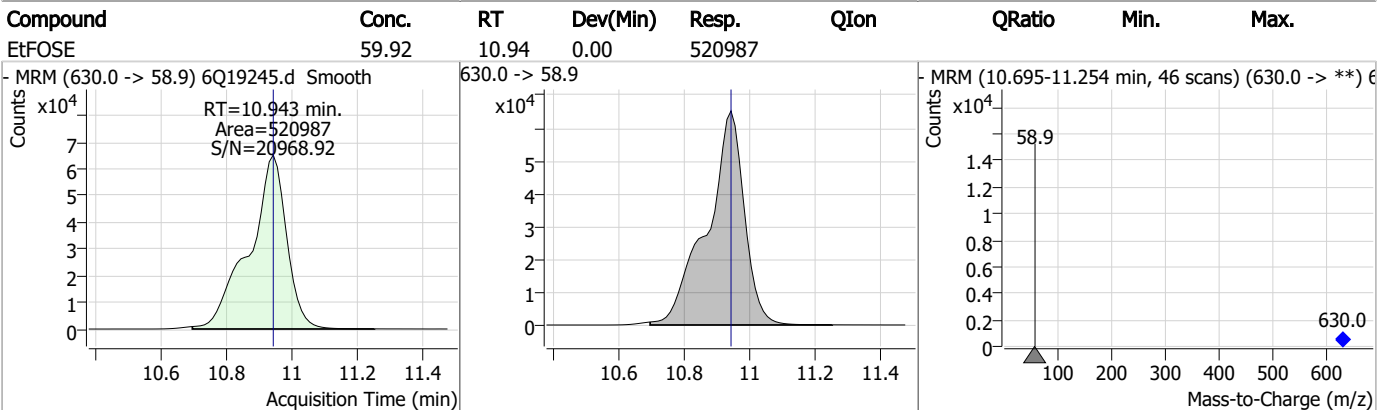
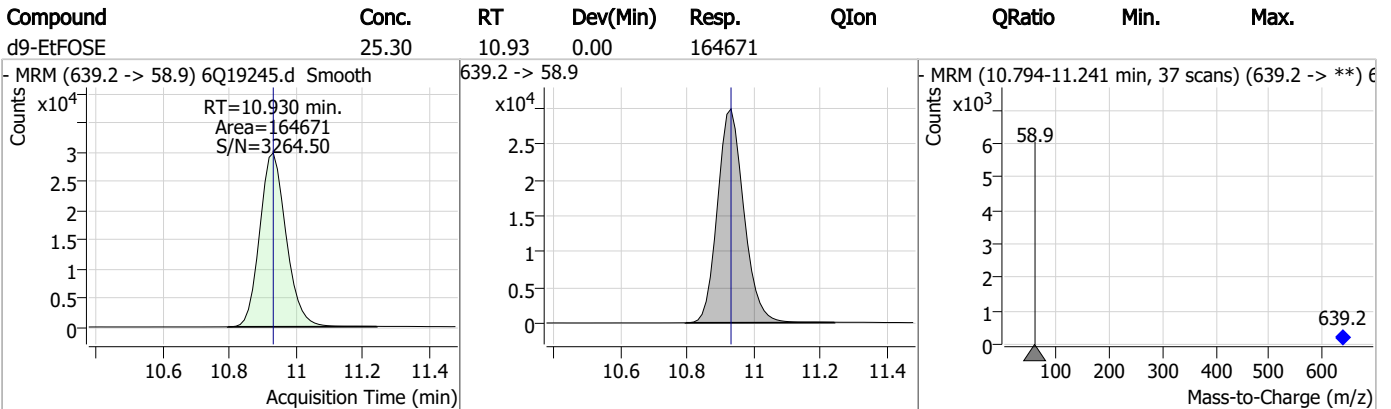
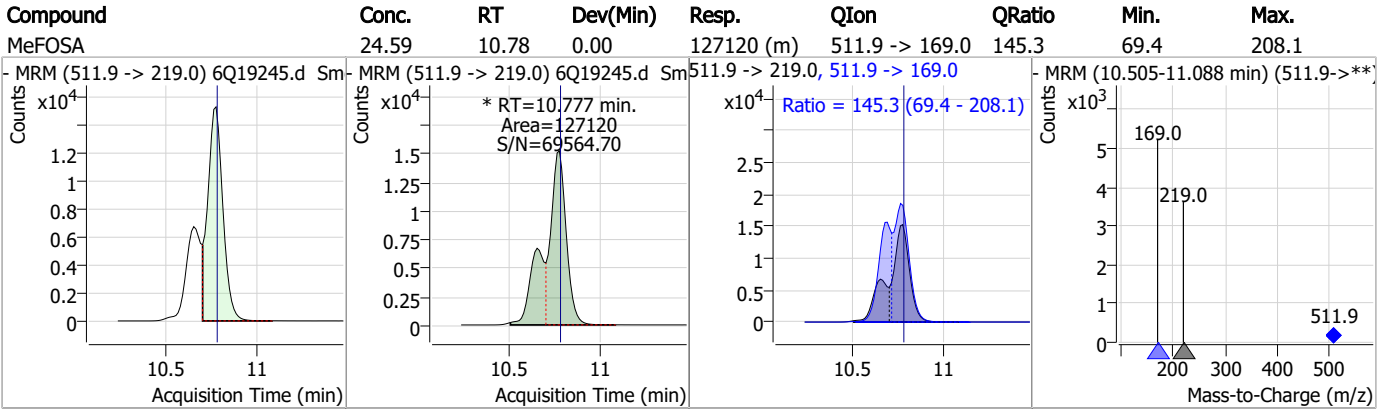
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	12.85	10.01	0.01	199361	713.1 -> 168.9	8.5	4.5	13.4



Perfluorinated Compounds by LC/MS/MS



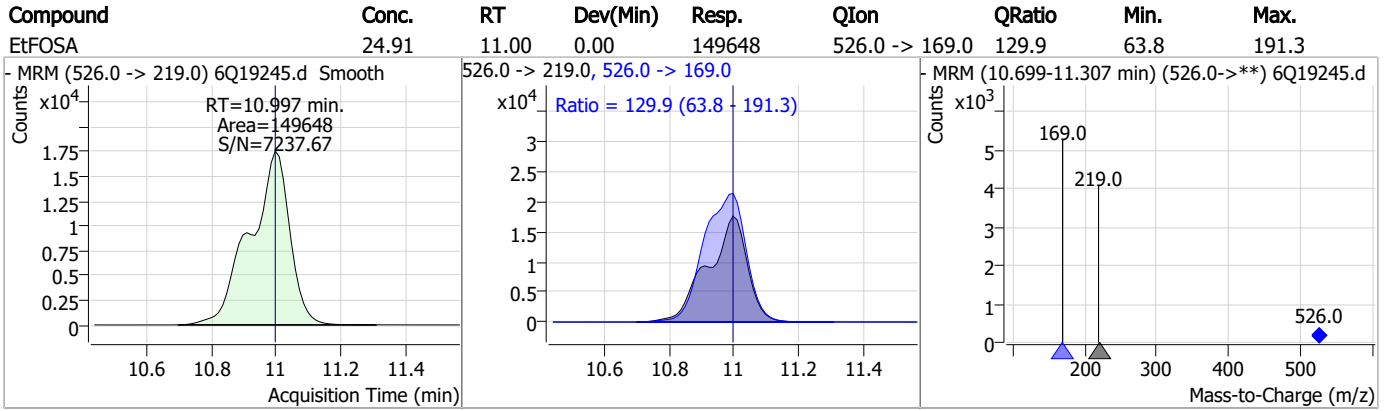
Perfluorinated Compounds by LC/MS/MS



7.7.7

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Perfluorinated Compounds by LC/MS/MS



7.7.7

7

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

7

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
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 = 100.2%	
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

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

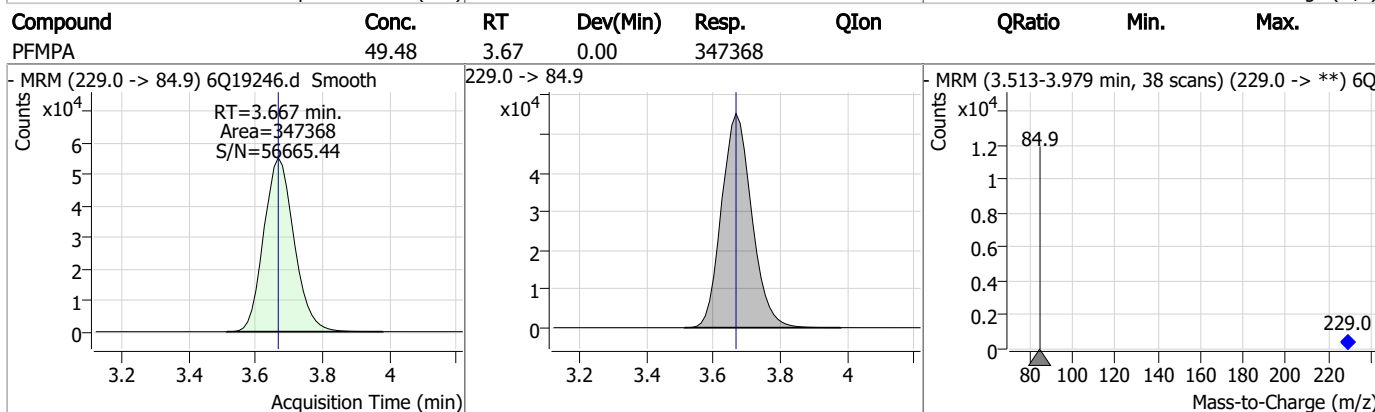
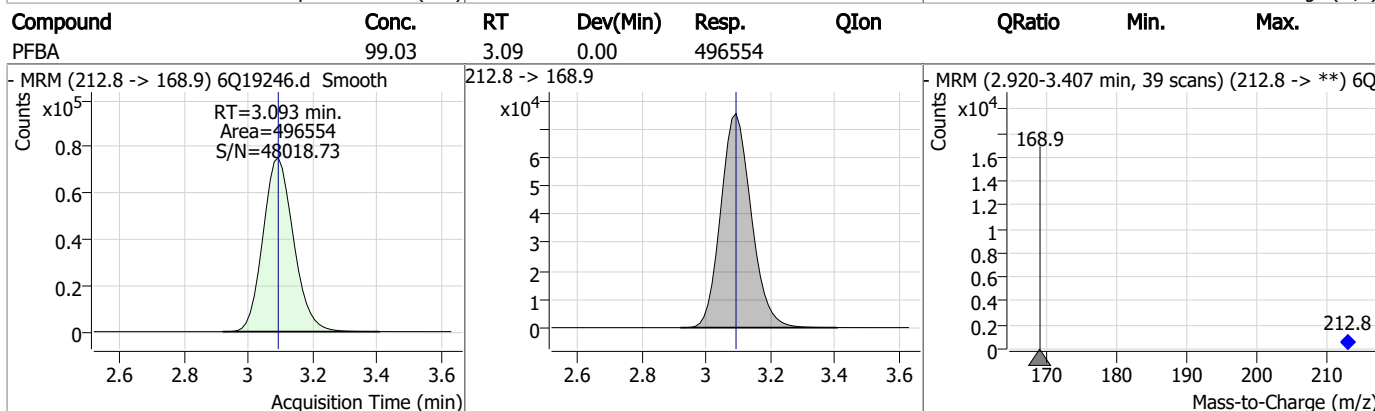
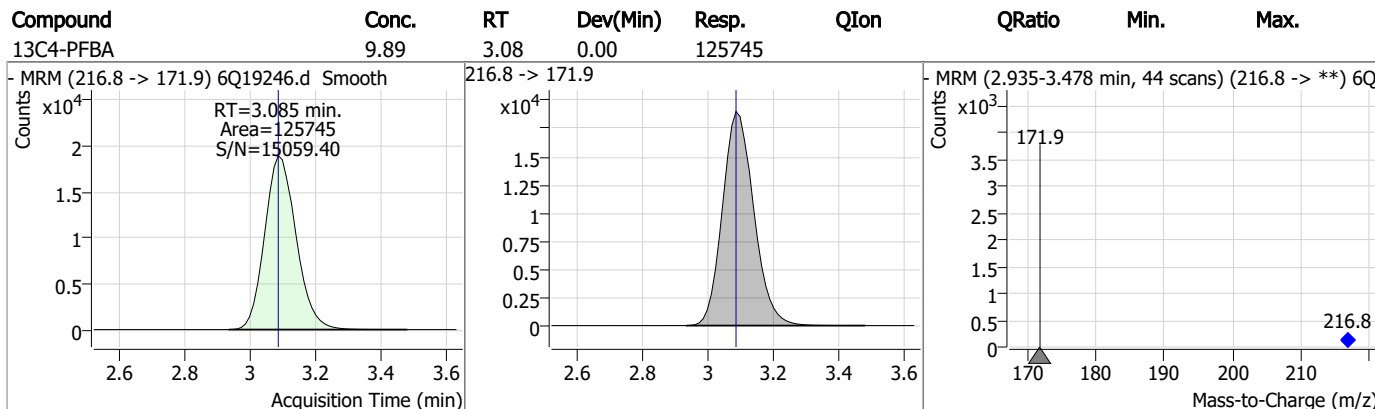
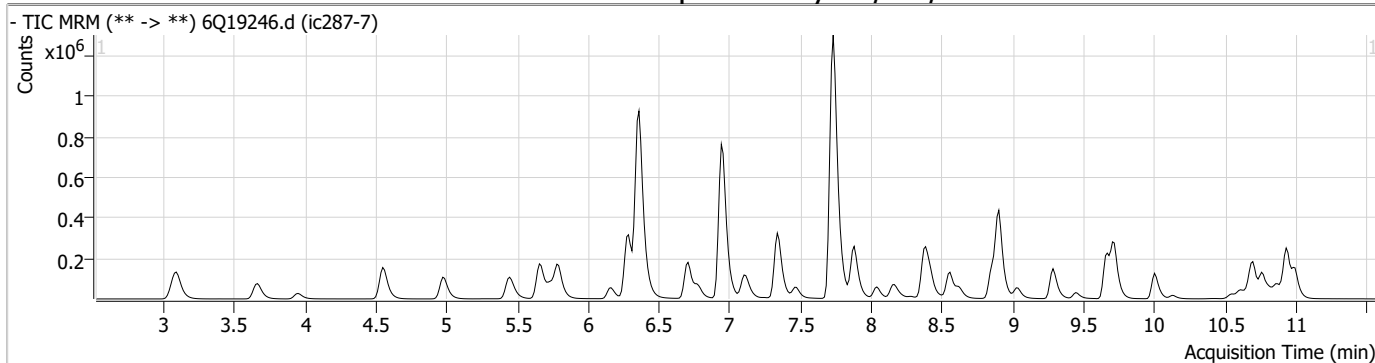
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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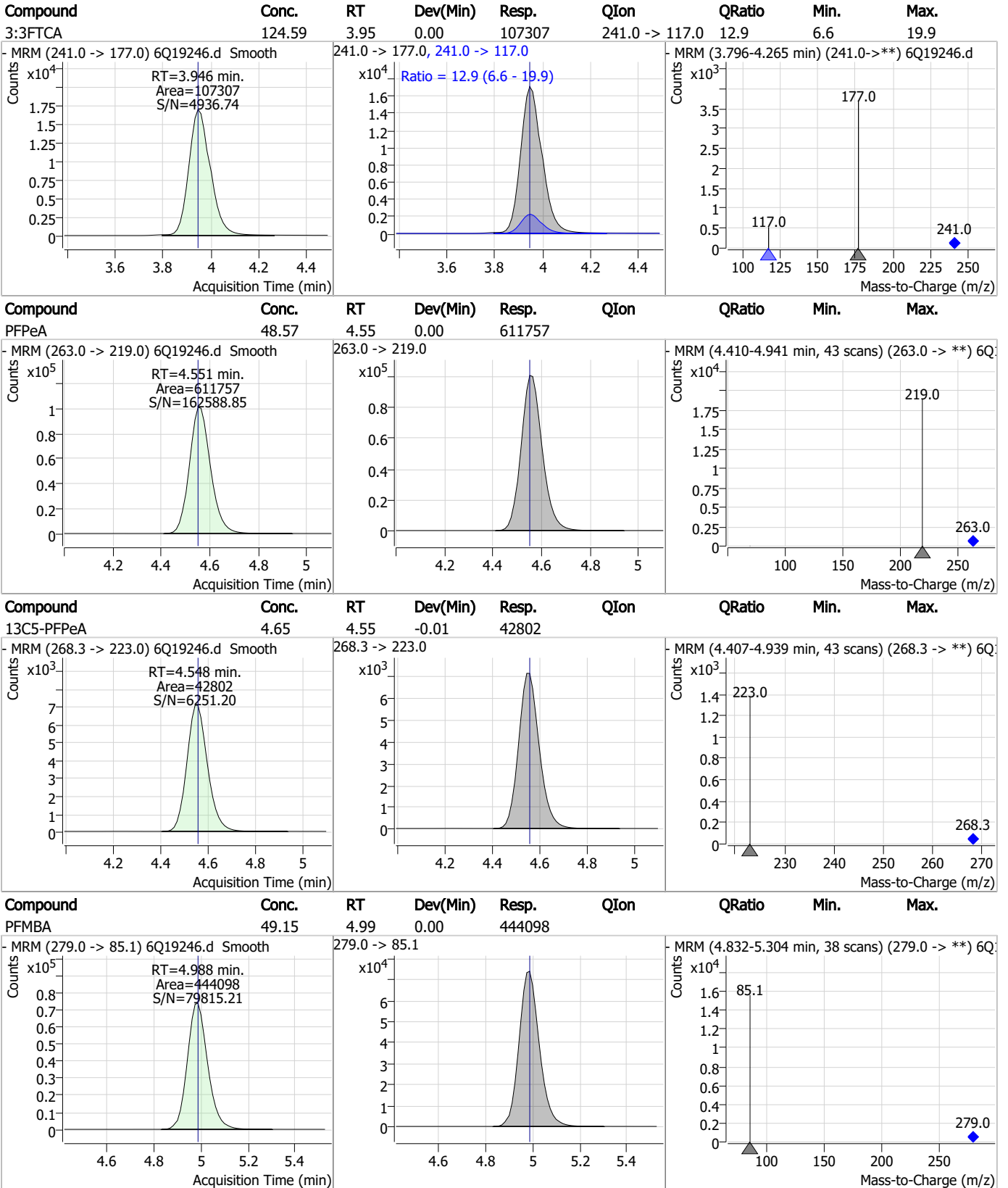
7.7.8
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Perfluorinated Compounds by LC/MS/MS



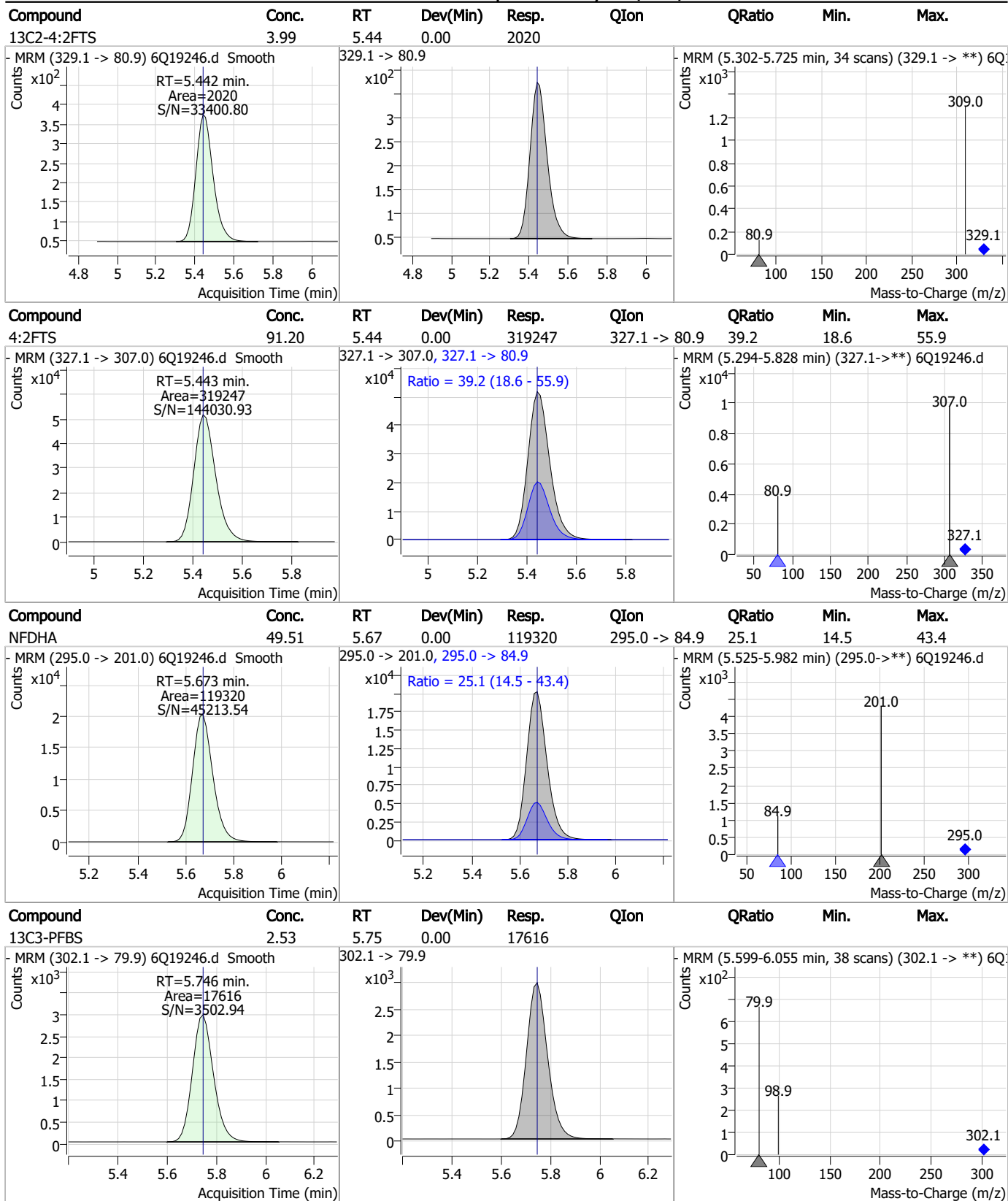
Perfluorinated Compounds by LC/MS/MS



7.7.8

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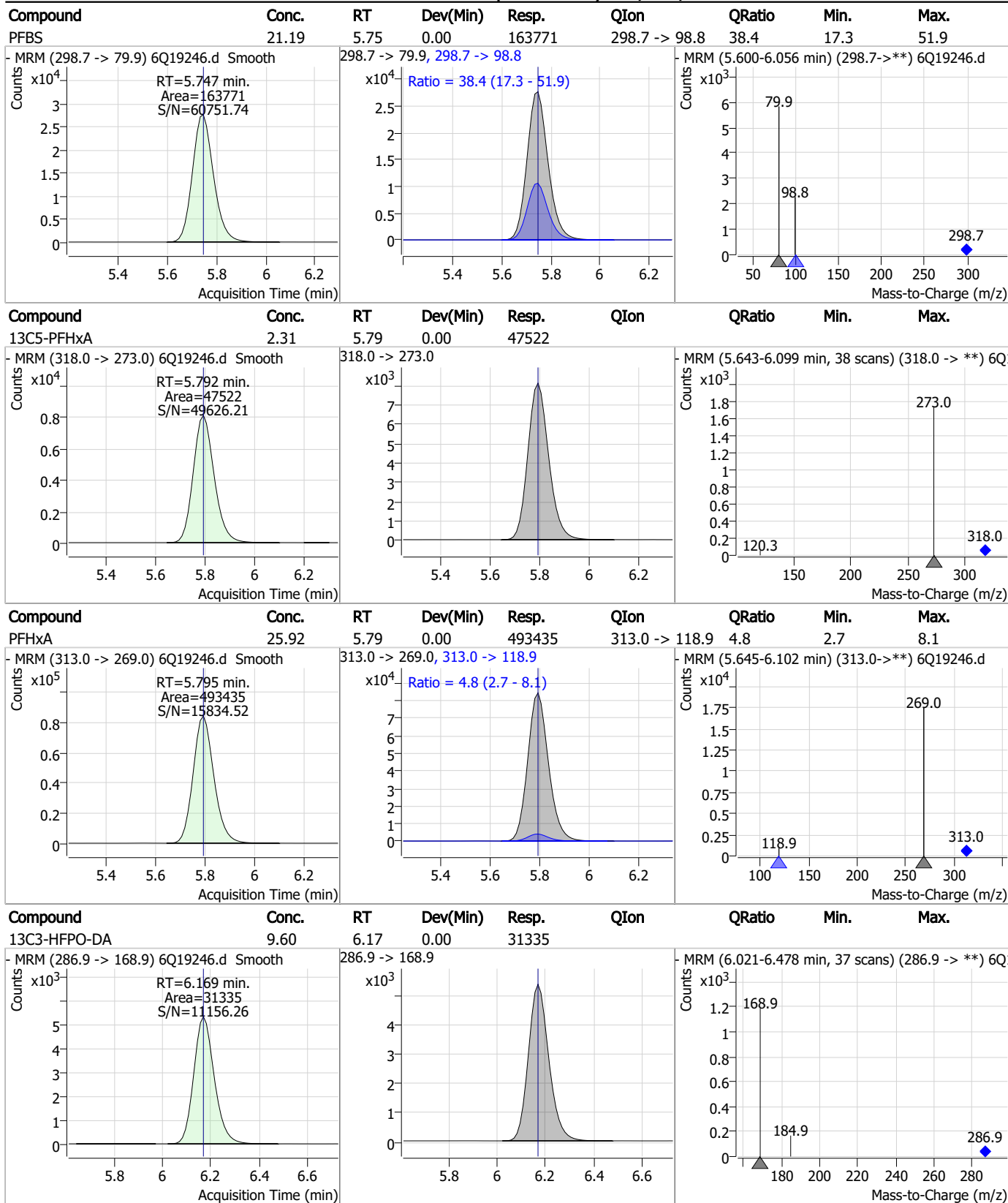
Perfluorinated Compounds by LC/MS/MS



7.7.8
7



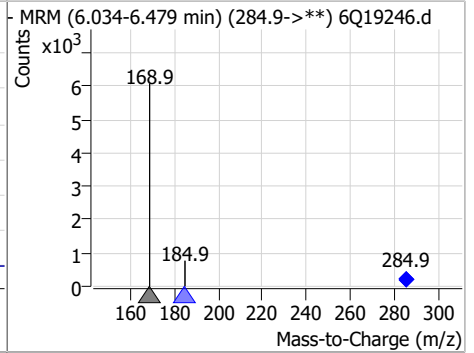
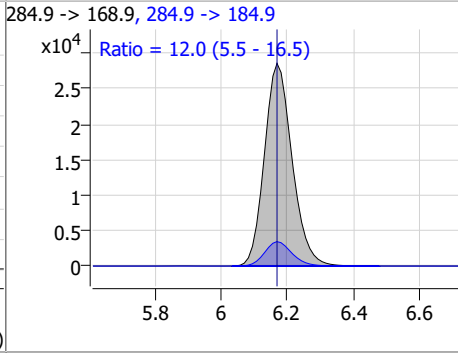
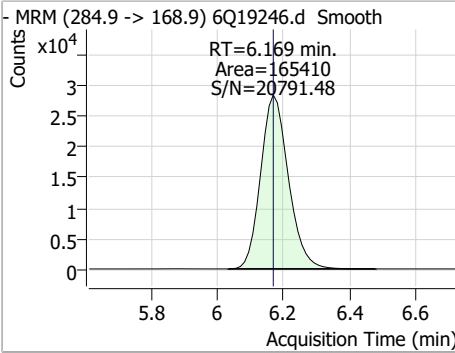
Perfluorinated Compounds by LC/MS/MS



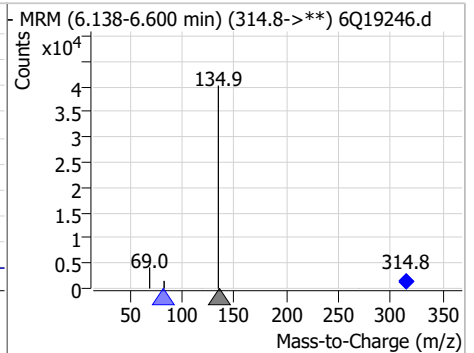
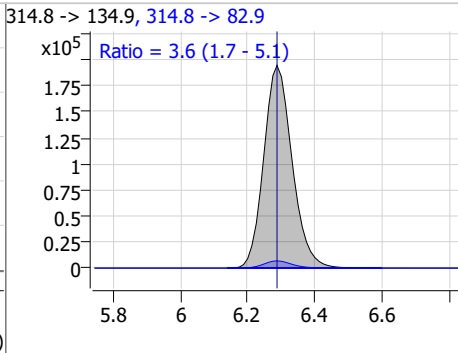
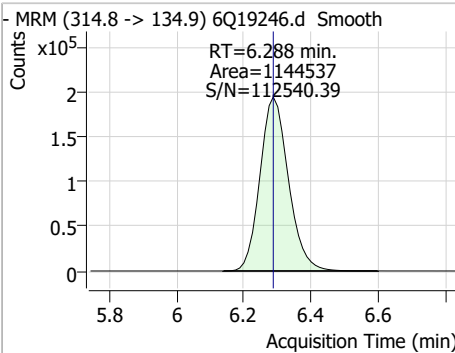
7.7.8
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Perfluorinated Compounds by LC/MS/MS

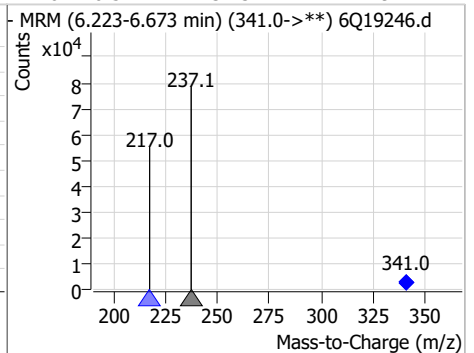
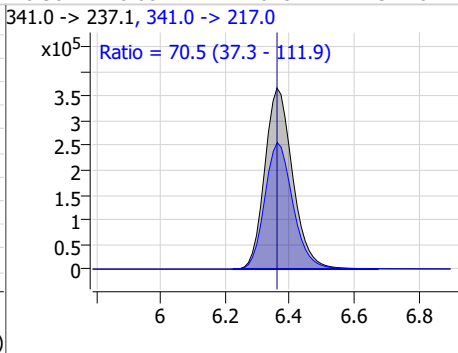
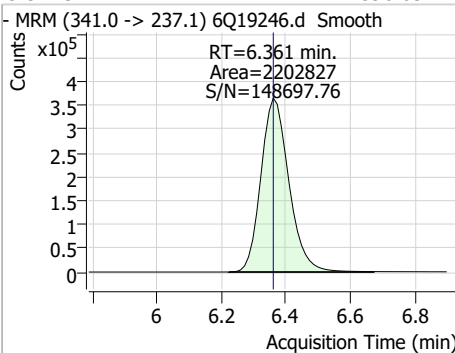
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	51.19	6.17	0.00	165410	284.9 -> 184.9	12.0	5.5	16.5



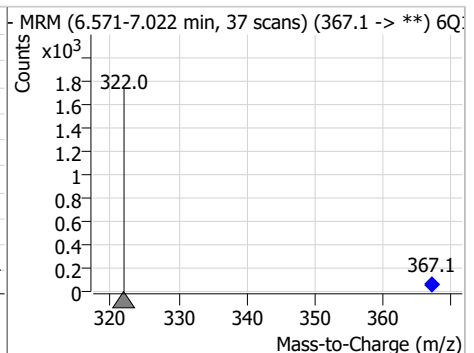
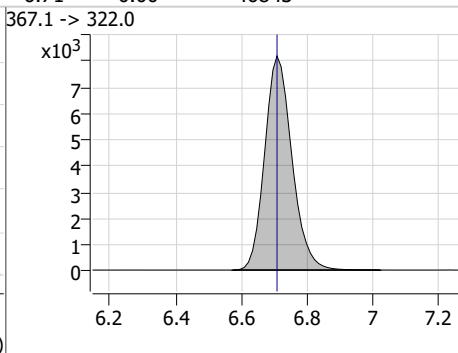
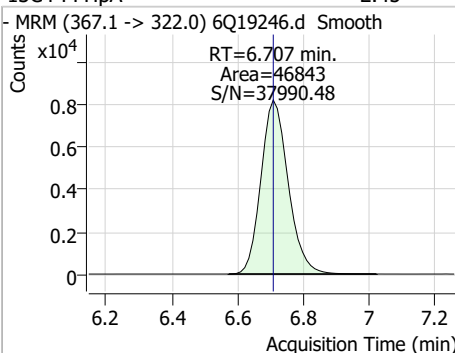
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	48.85	6.29	0.00	1144537	314.8 -> 82.9	3.6	1.7	5.1



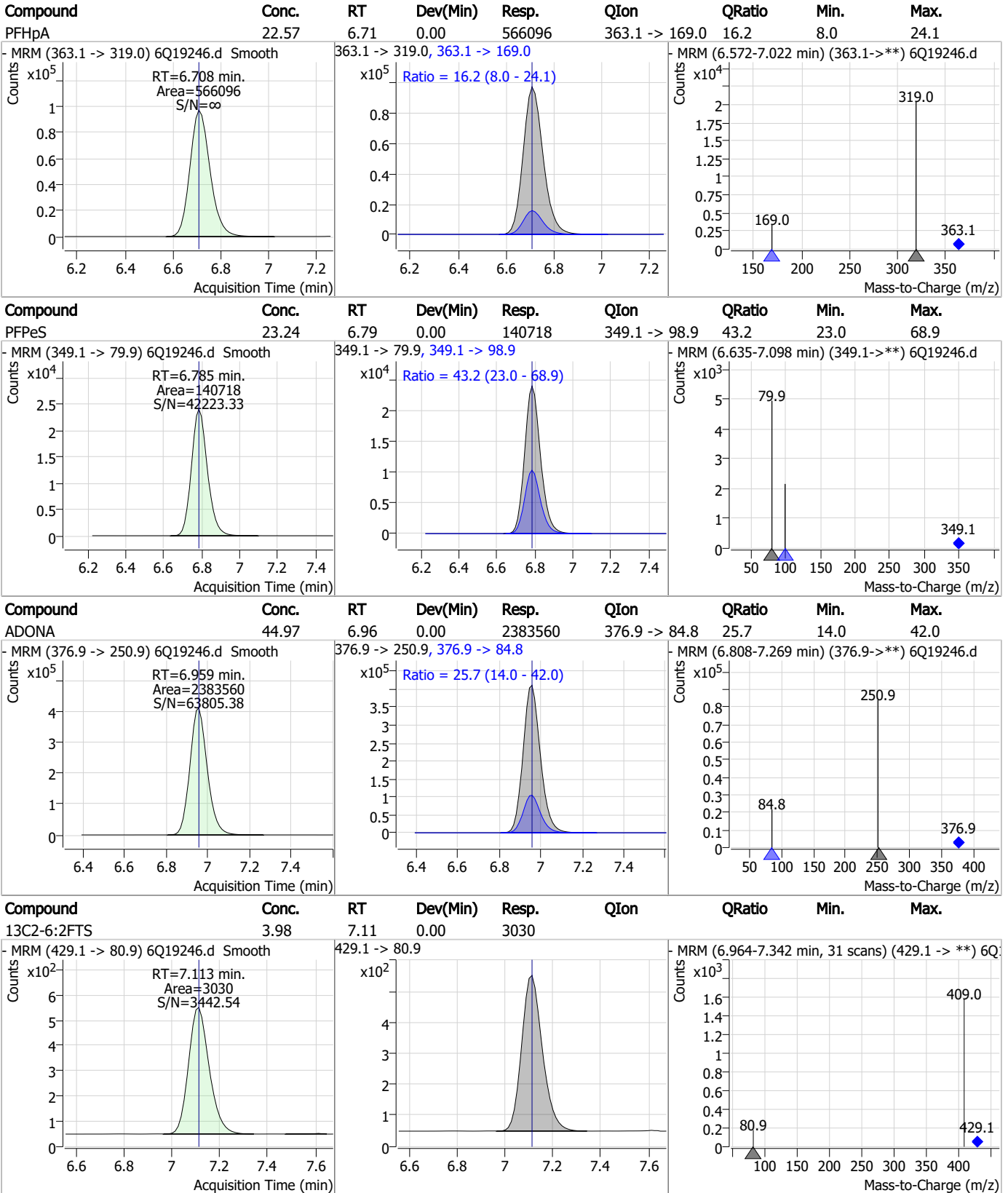
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	596.63	6.36	0.00	2202827	341.0 -> 217.0	70.5	37.3	111.9



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



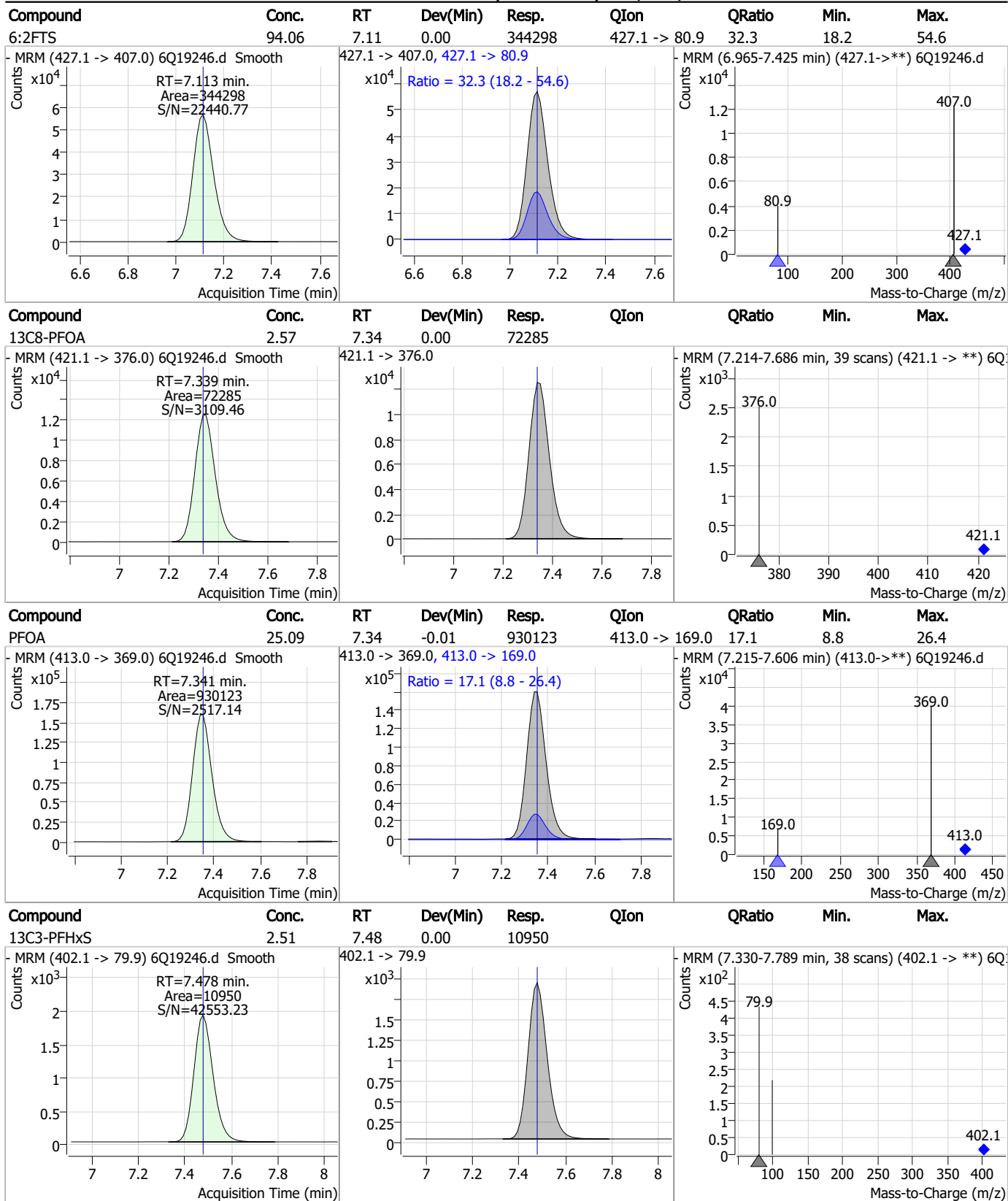
Perfluorinated Compounds by LC/MS/MS



7.7.8

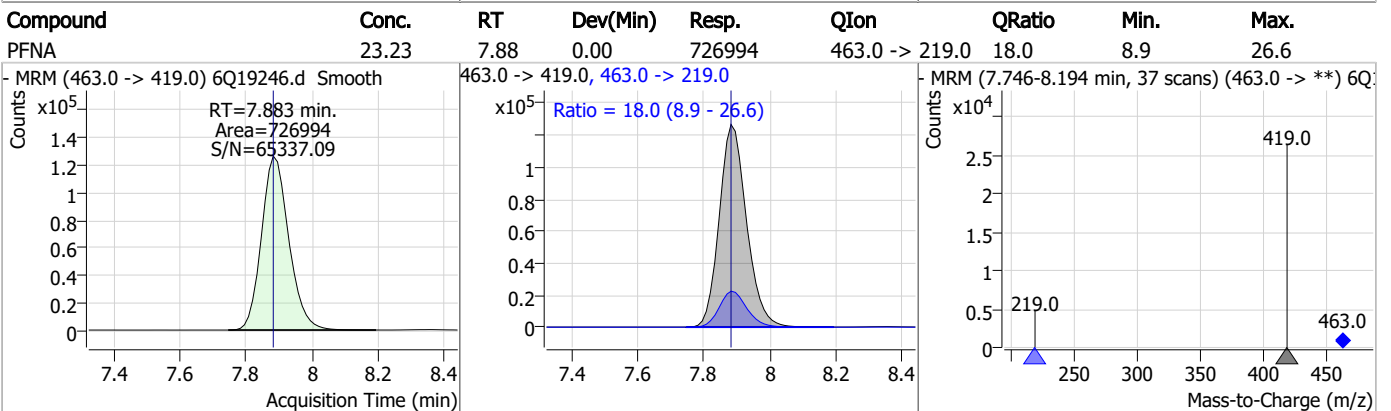
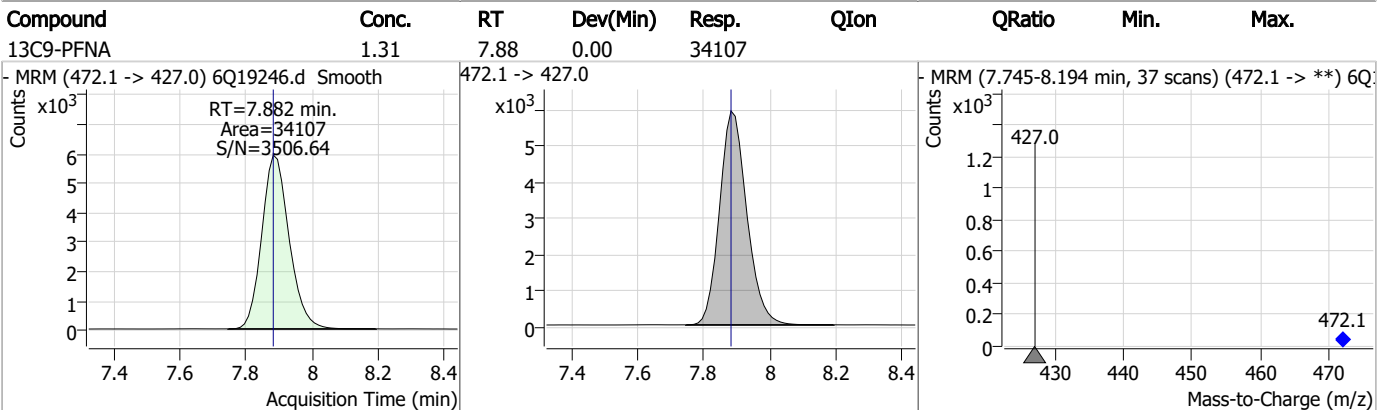
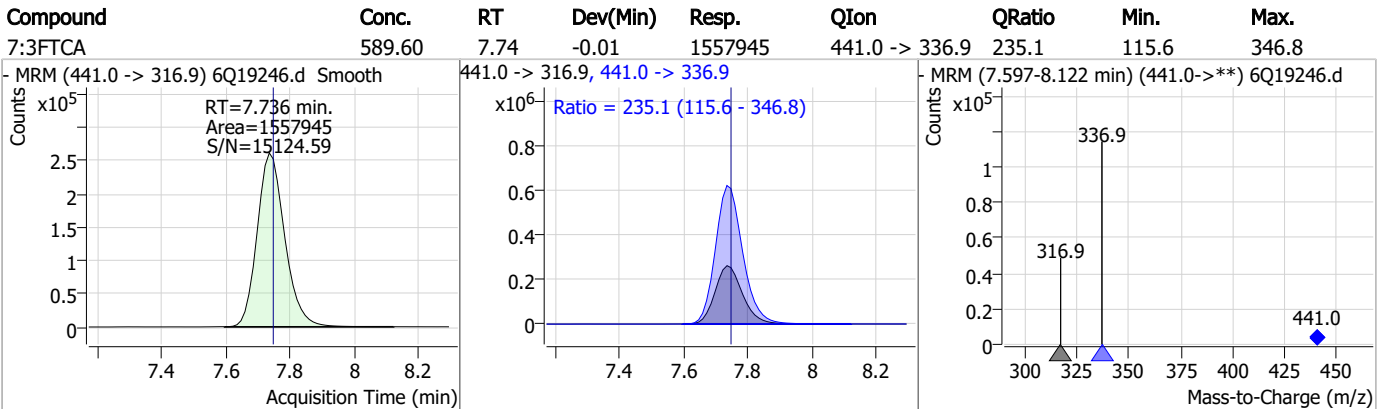
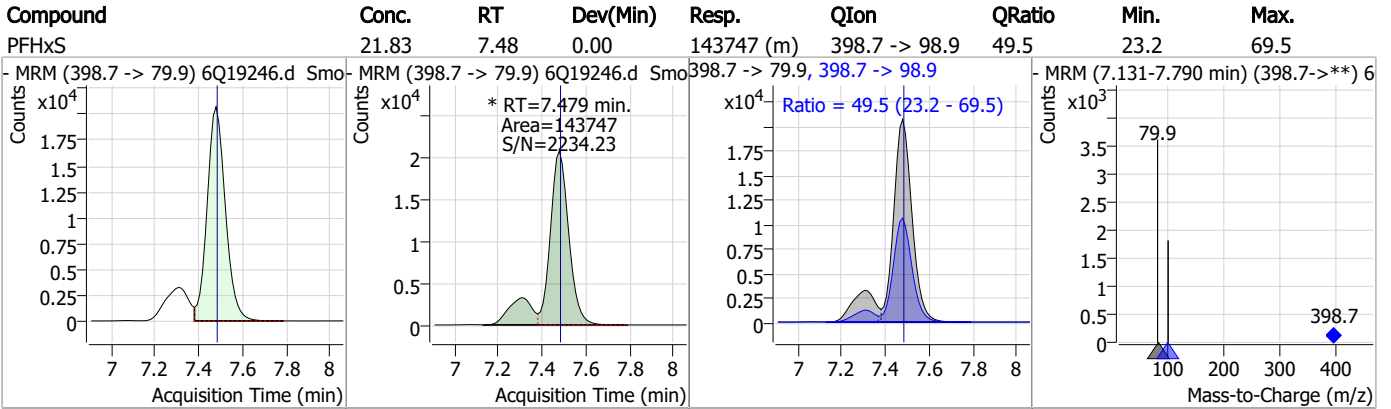
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Perfluorinated Compounds by LC/MS/MS

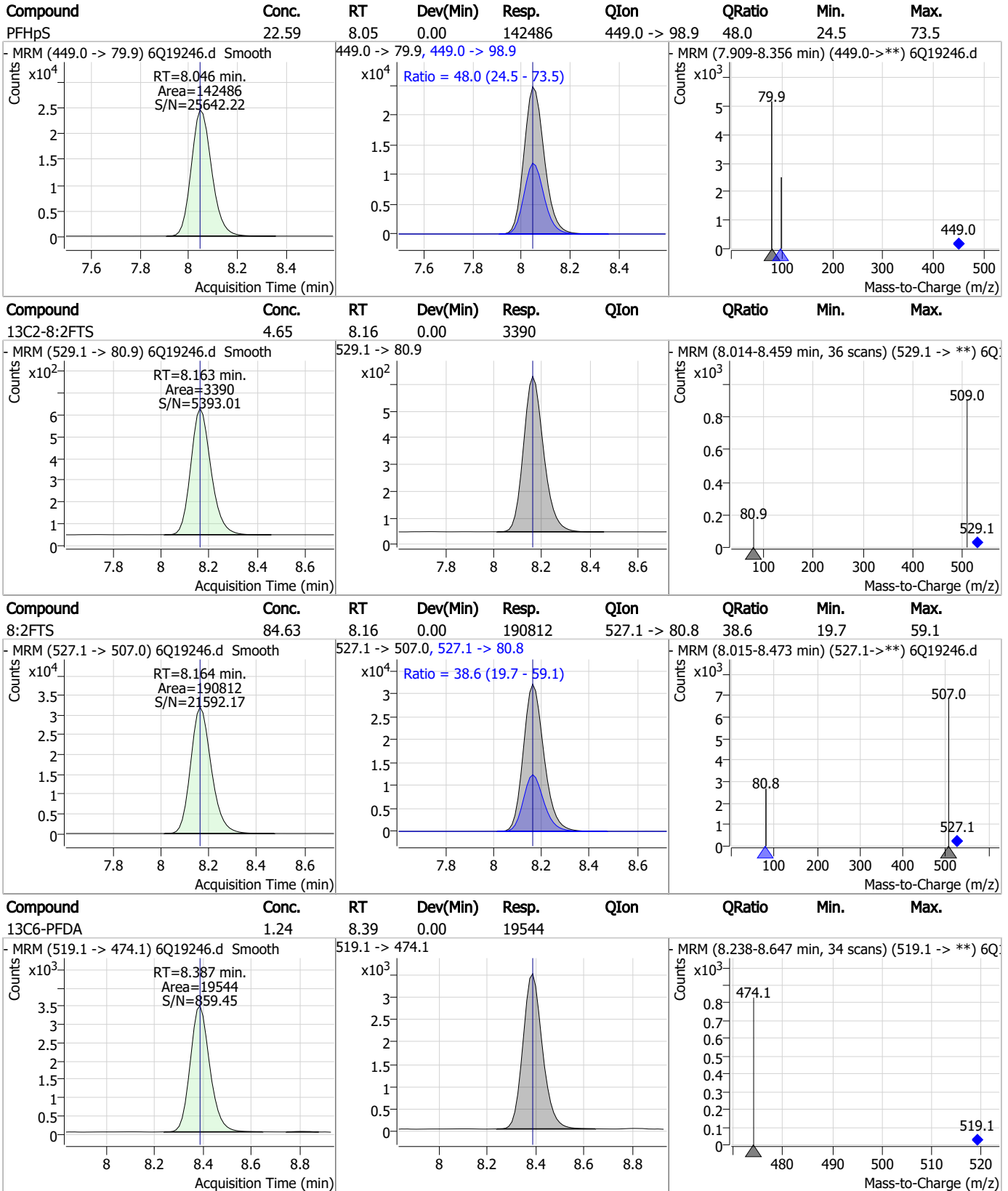


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Perfluorinated Compounds by LC/MS/MS



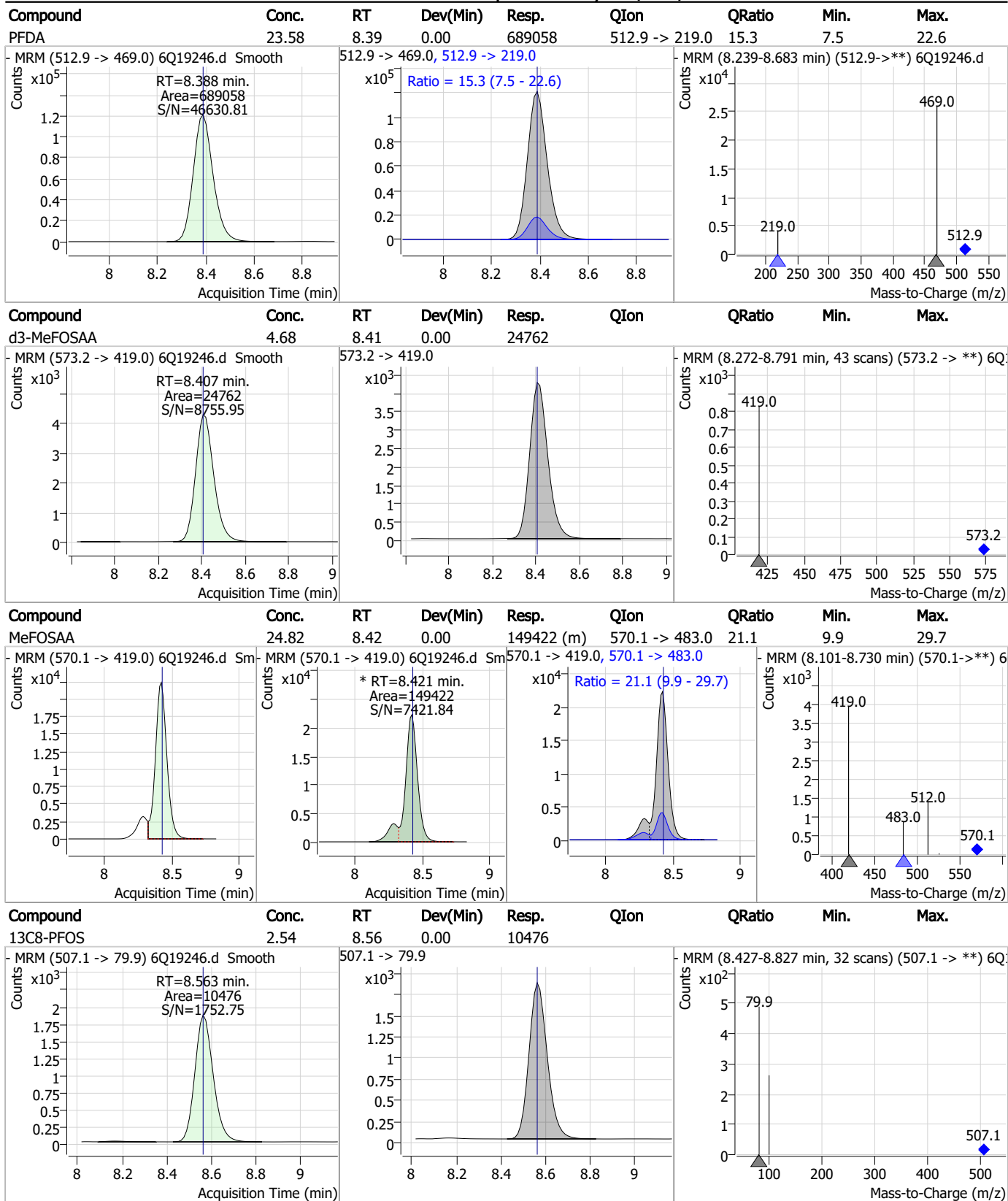
Perfluorinated Compounds by LC/MS/MS



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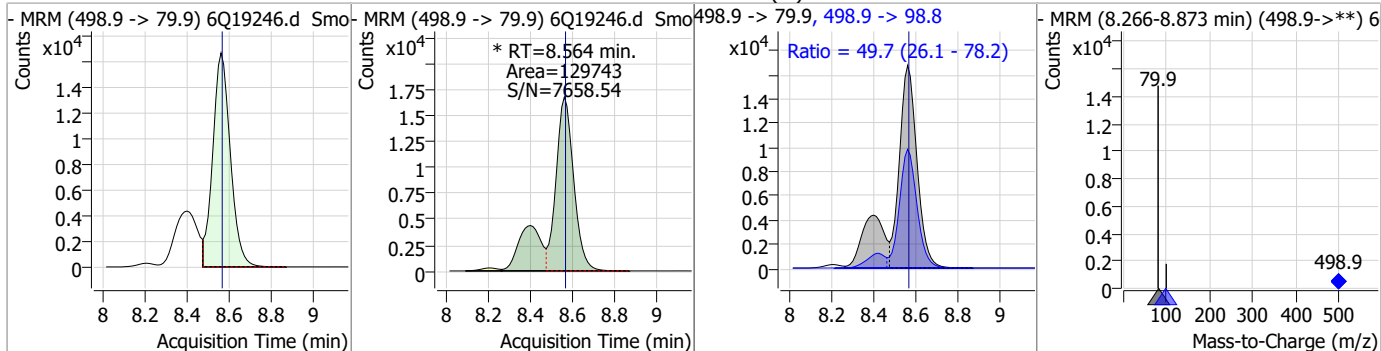
Perfluorinated Compounds by LC/MS/MS



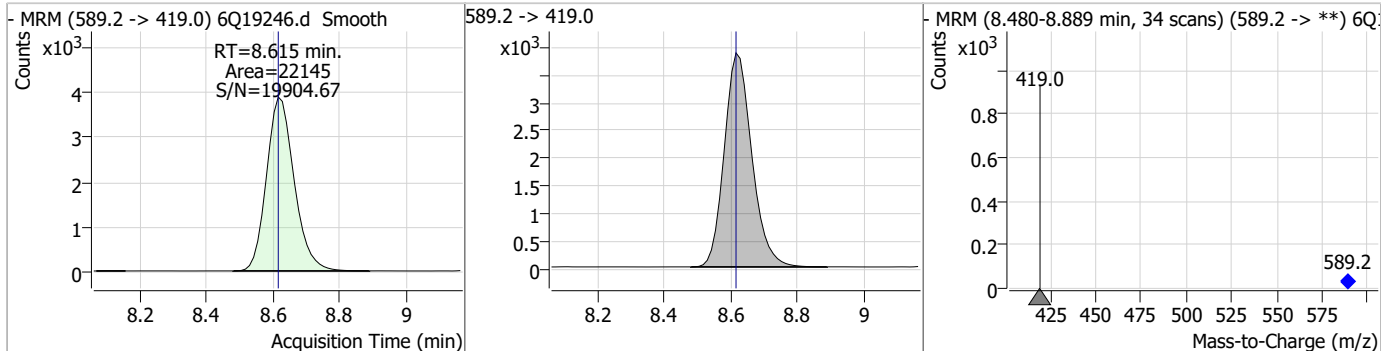
7.7.8
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Perfluorinated Compounds by LC/MS/MS

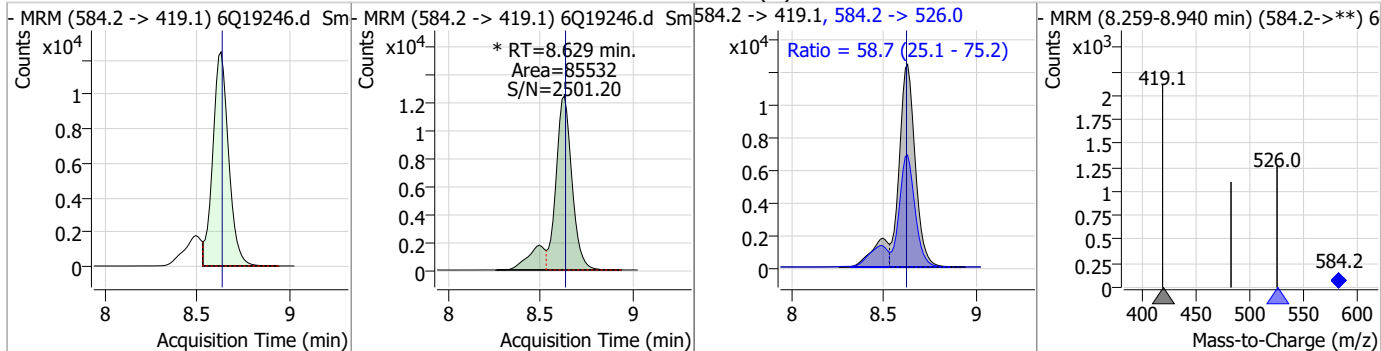
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	21.02	8.56	0.00	129743 (m)	498.9 -> 98.8	49.7	26.1	78.2



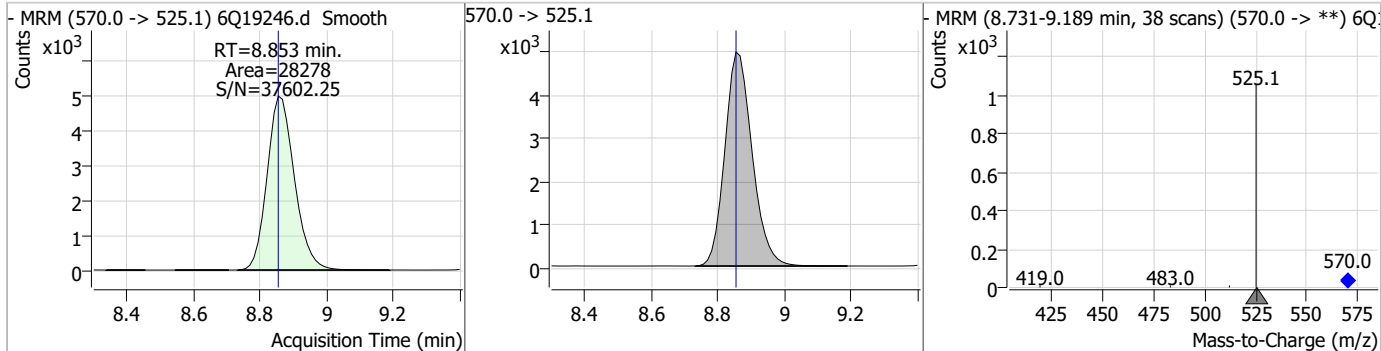
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.96	8.62	0.00	22145				



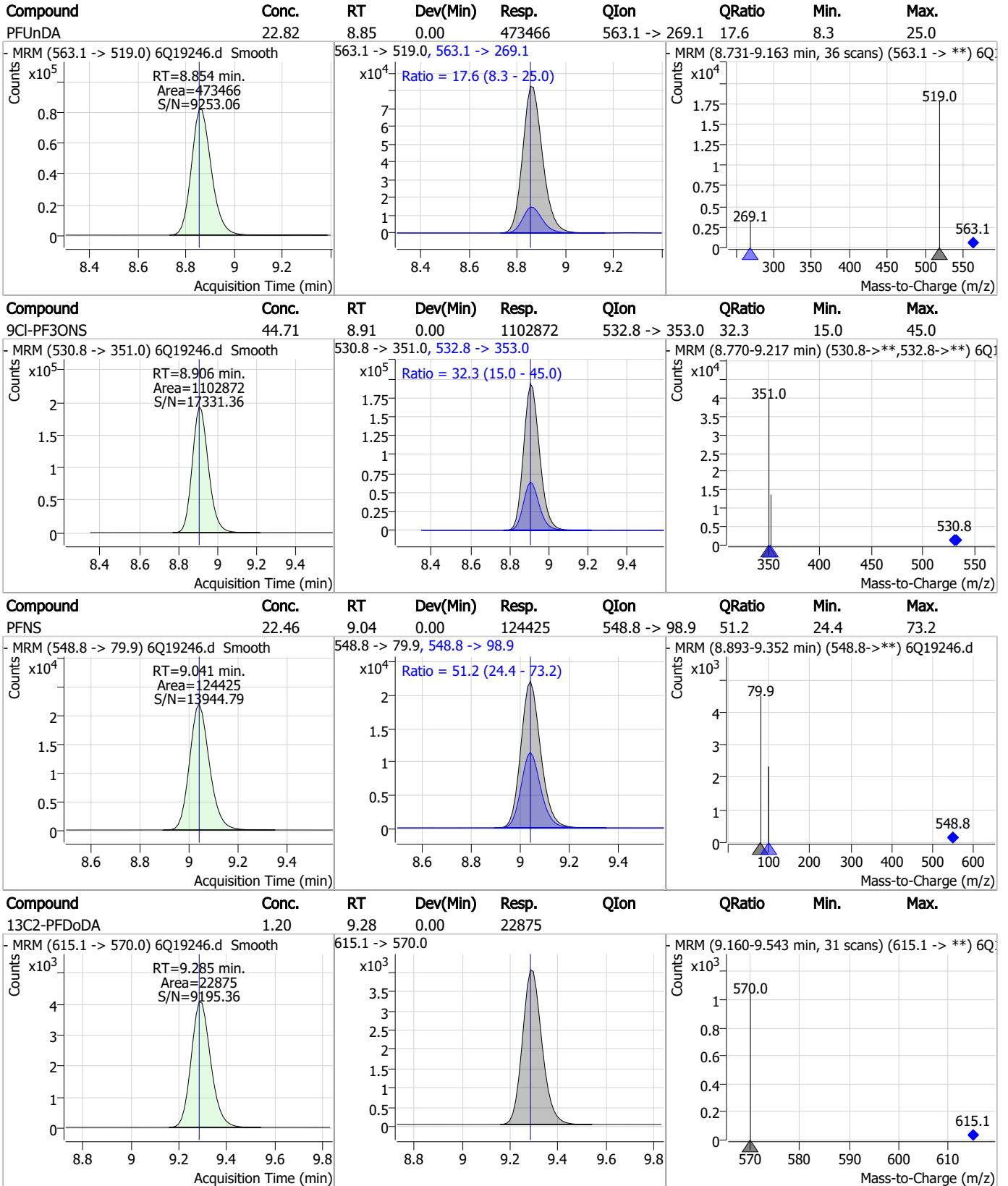
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	23.26	8.63	0.00	85532 (m)	584.2 -> 526.0	58.7	25.1	75.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.27	8.85	0.00	28278				



Perfluorinated Compounds by LC/MS/MS



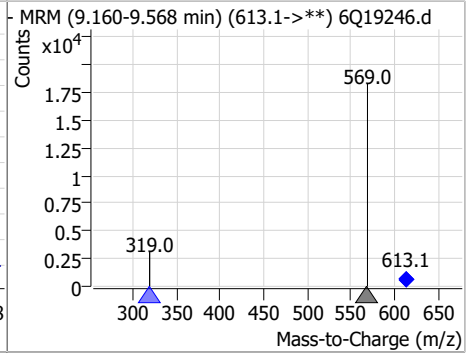
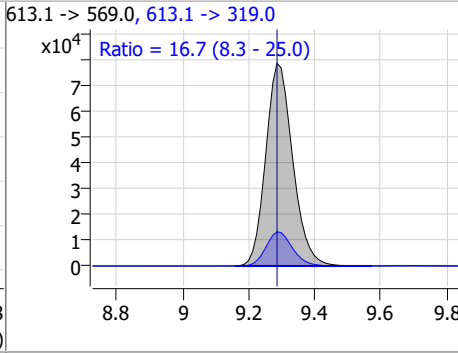
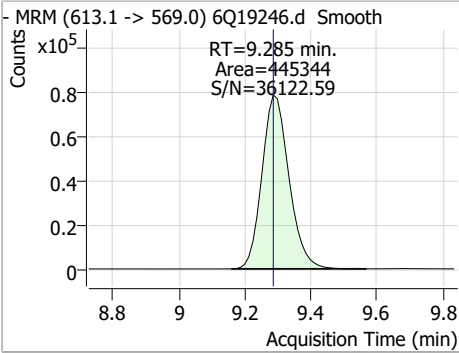
7.7.8

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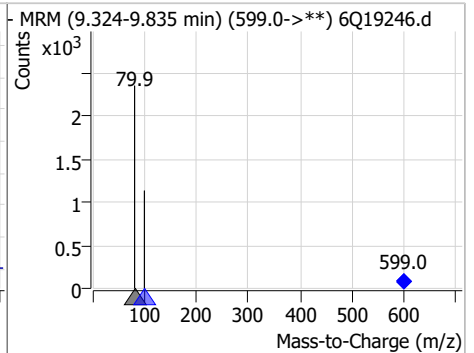
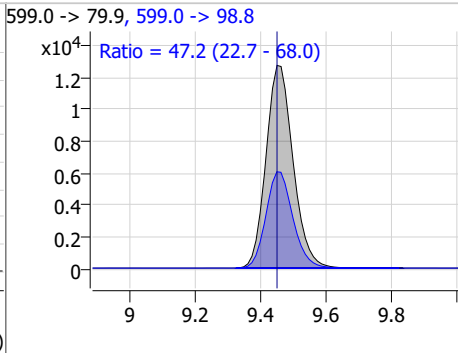
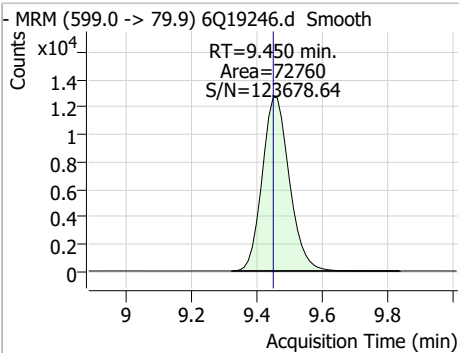


Perfluorinated Compounds by LC/MS/MS

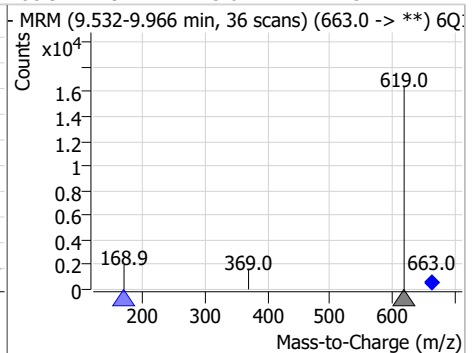
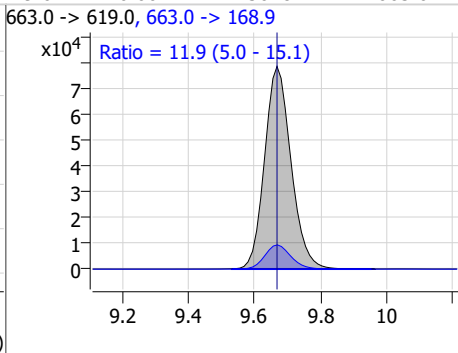
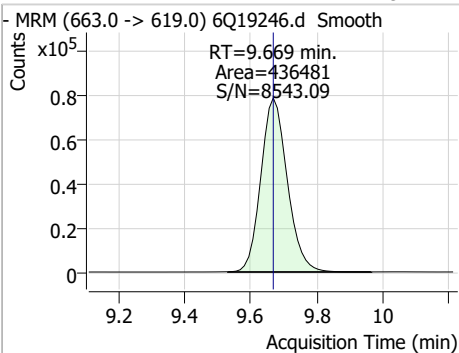
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	23.71	9.29	0.00	445344	613.1 -> 319.0	16.7	8.3	25.0



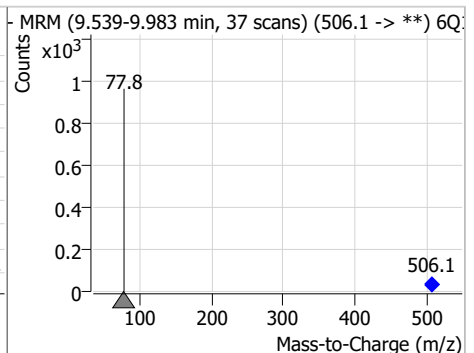
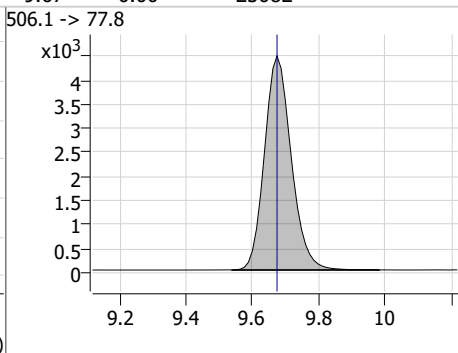
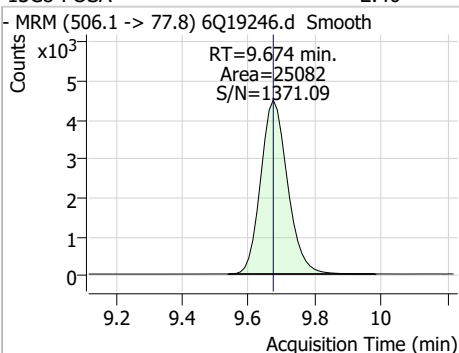
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDs	23.01	9.45	0.00	72760	599.0 -> 98.8	47.2	22.7	68.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	24.97	9.67	0.00	436481	663.0 -> 168.9	11.9	5.0	15.1

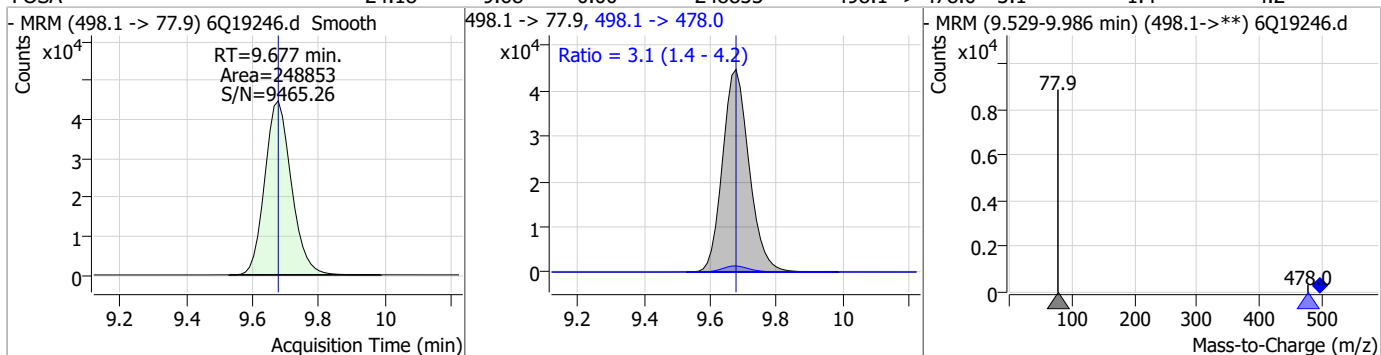


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.40	9.67	0.00	25082	506.1 -> 77.8			

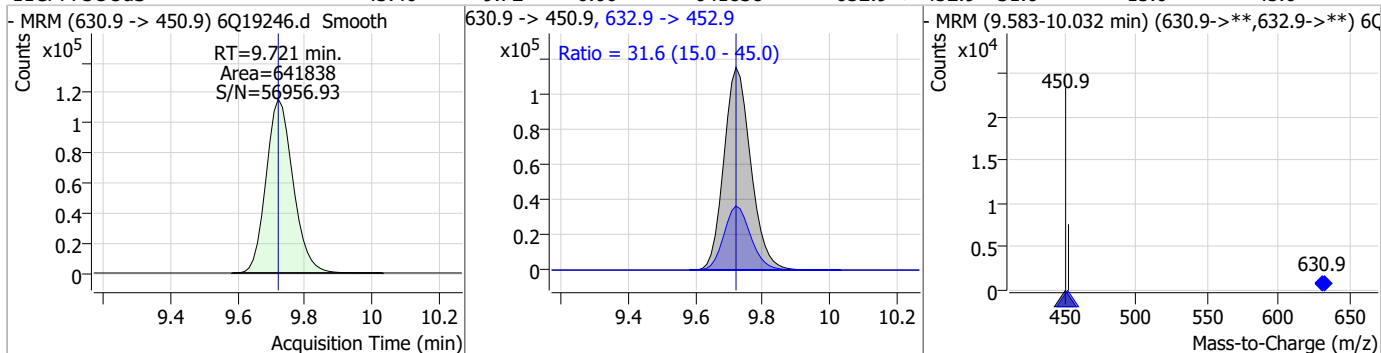


Perfluorinated Compounds by LC/MS/MS

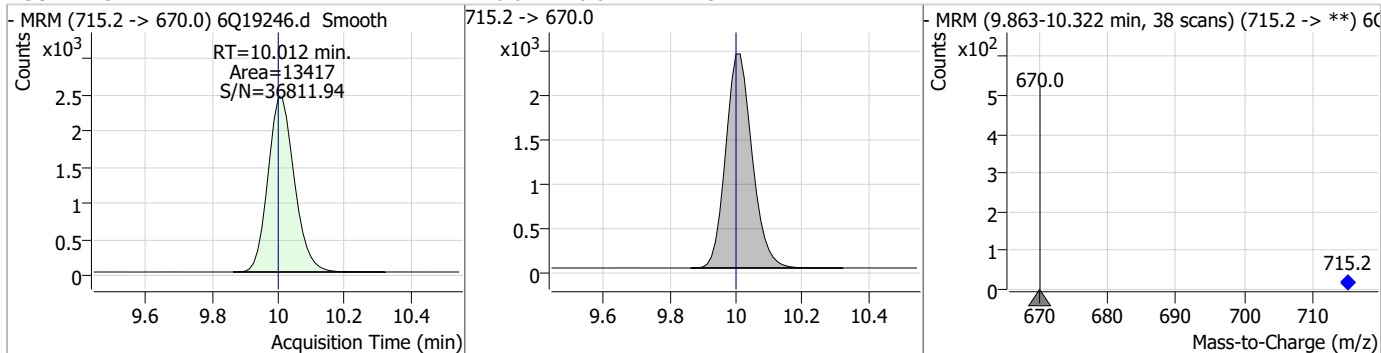
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	24.18	9.68	0.00	248853	498.1 -> 478.0	3.1	1.4	4.2



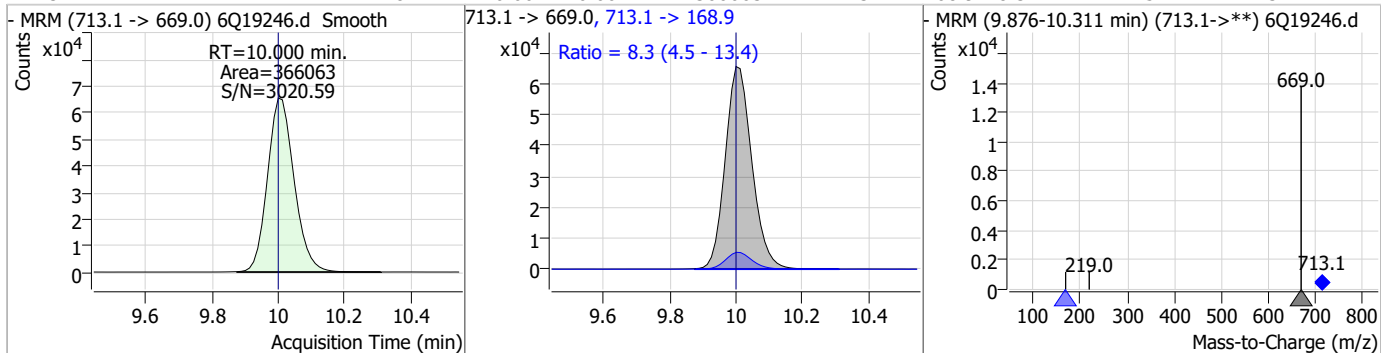
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	43.46	9.72	0.00	641838	632.9 -> 452.9	31.6	15.0	45.0



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

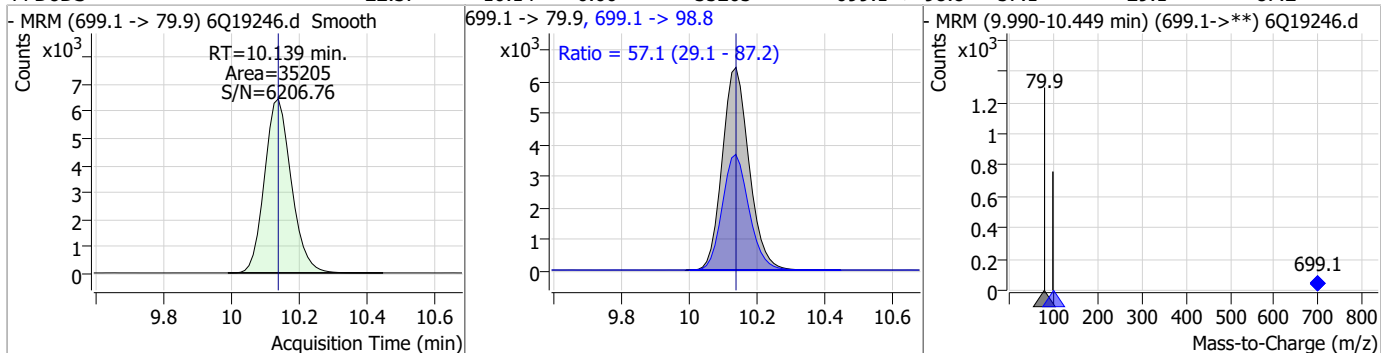


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	22.82	10.00	0.00	366063	713.1 -> 168.9	8.3	4.5	13.4

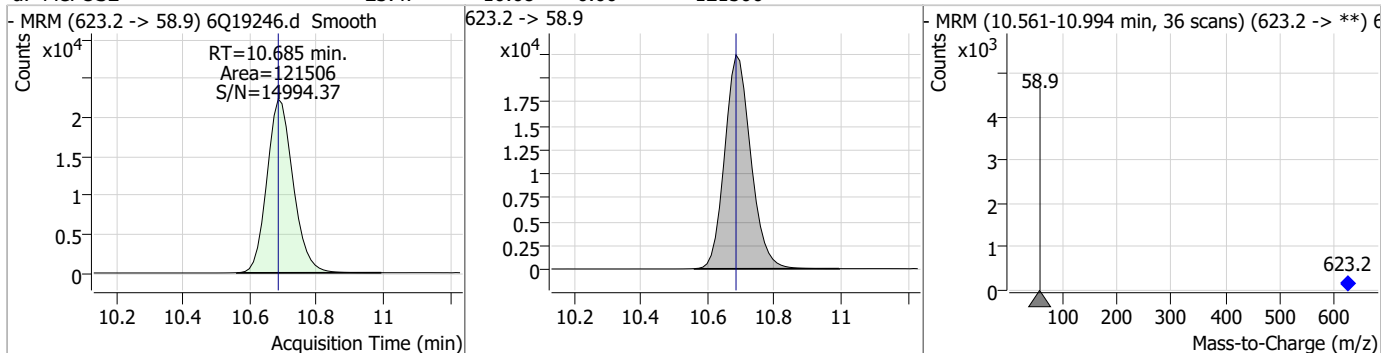


Perfluorinated Compounds by LC/MS/MS

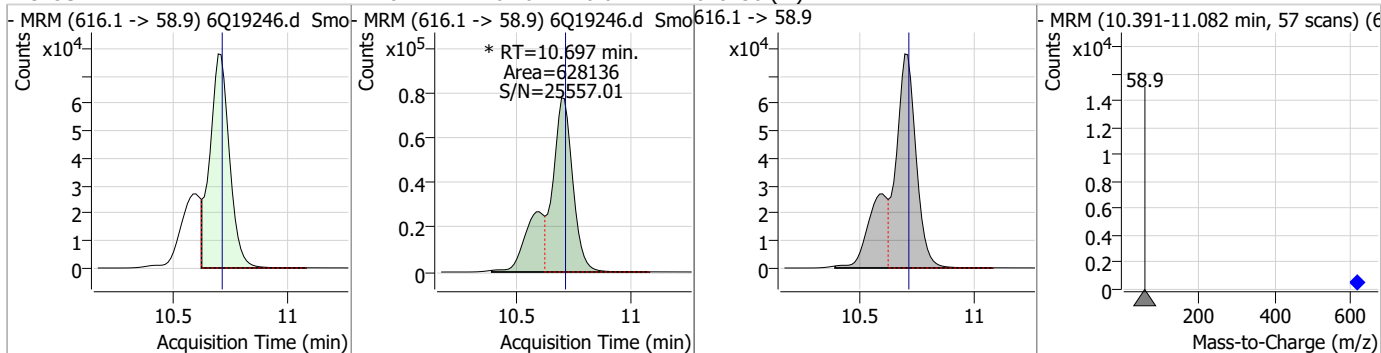
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	22.37	10.14	0.00	35205	699.1 -> 98.8	57.1	29.1	87.2



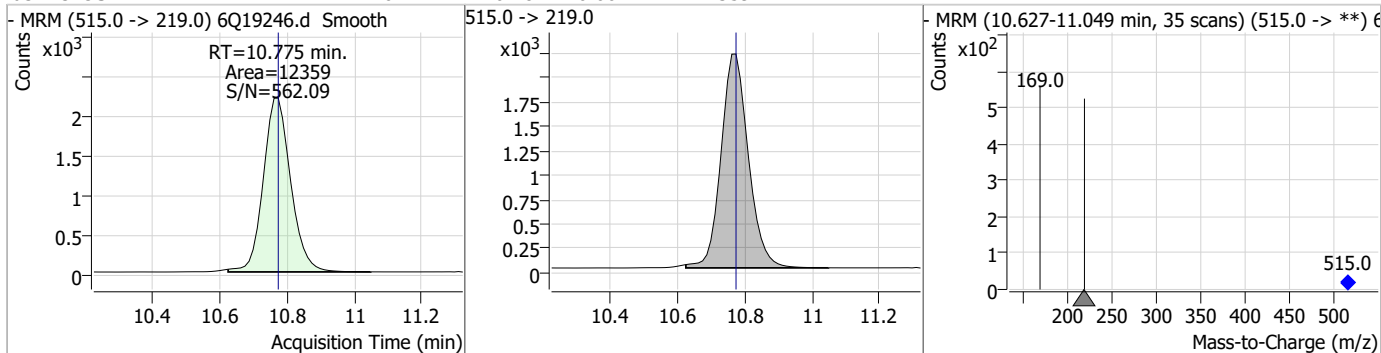
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.47	10.68	0.00	121506				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	118.11	10.70	-0.01	628136 (m)				



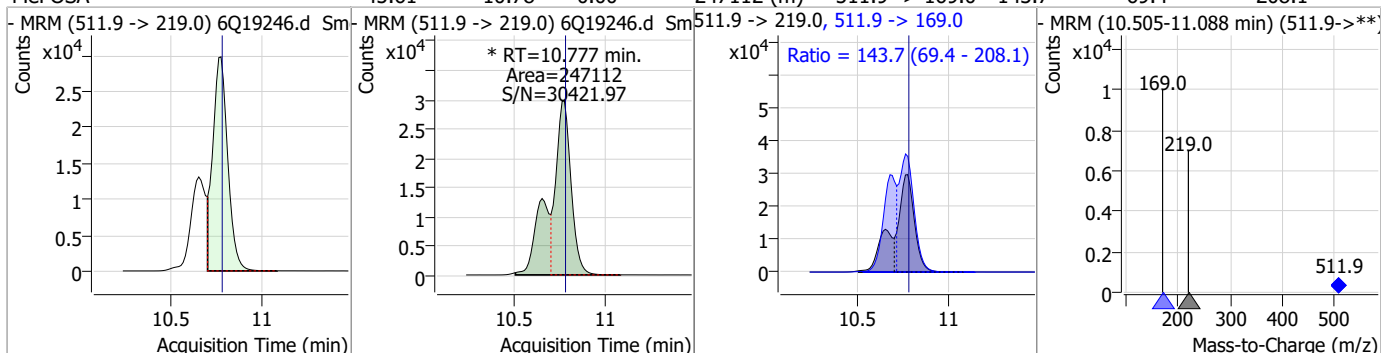
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.64	10.78	0.00	12359				



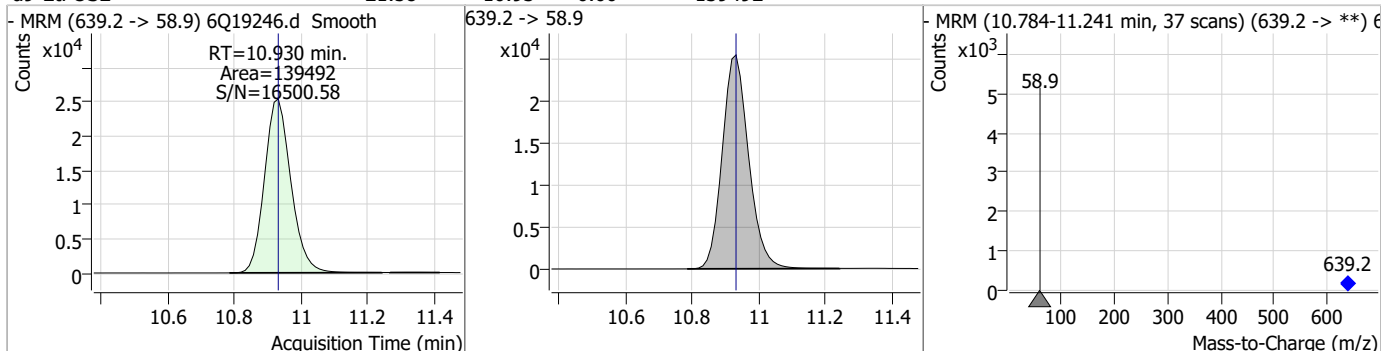
7.7.8
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Perfluorinated Compounds by LC/MS/MS

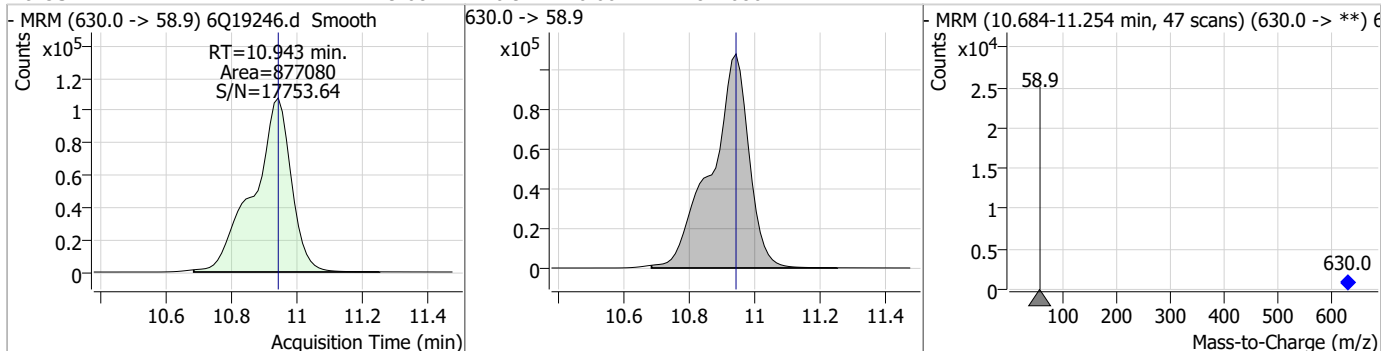
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	45.61	10.78	0.00	247112 (m)	511.9 -> 169.0	143.7	69.4	208.1



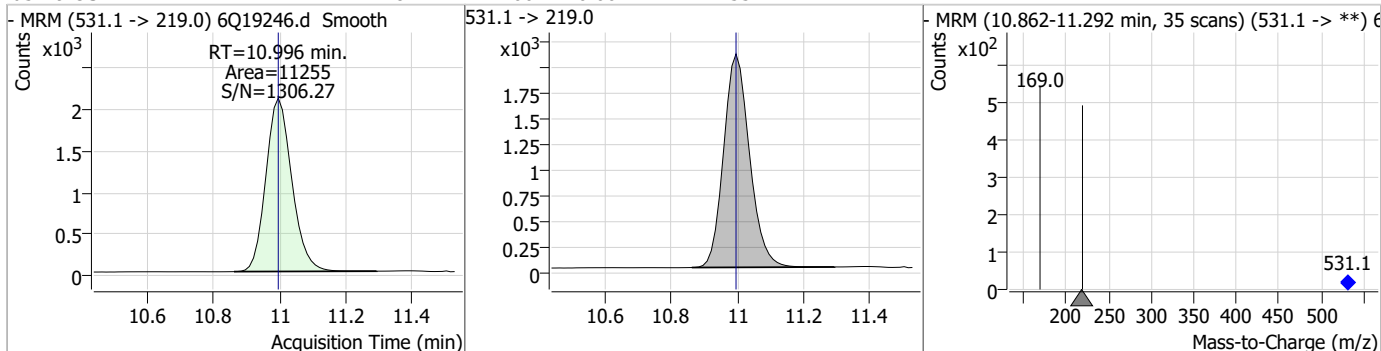
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	21.58	10.93	0.00	139492				



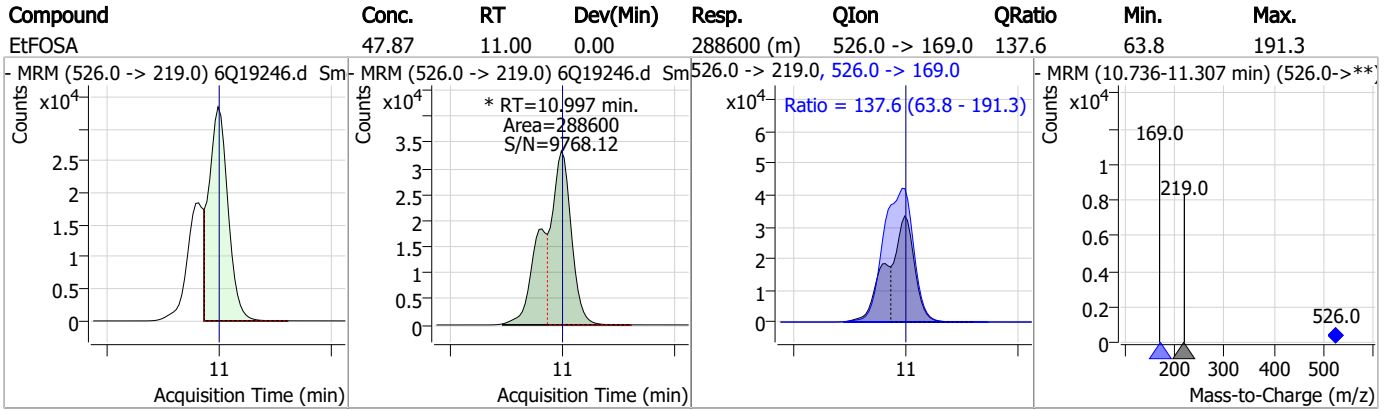
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	119.08	10.94	0.00	877080				



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

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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

7.7.9
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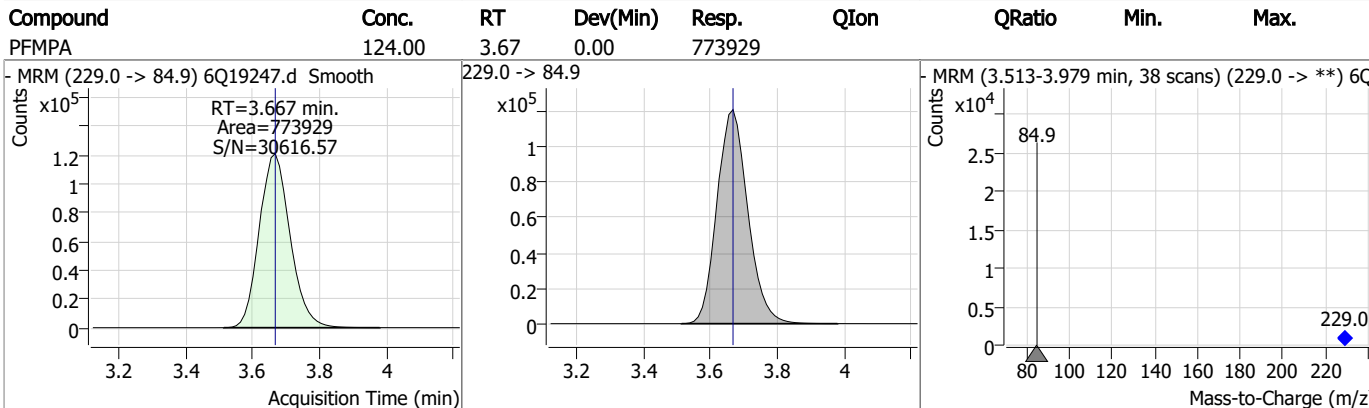
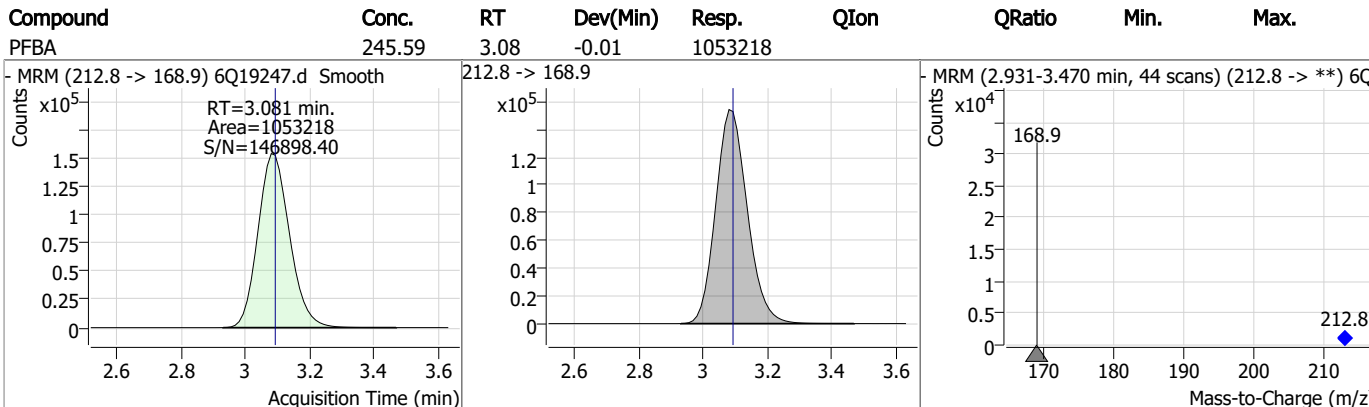
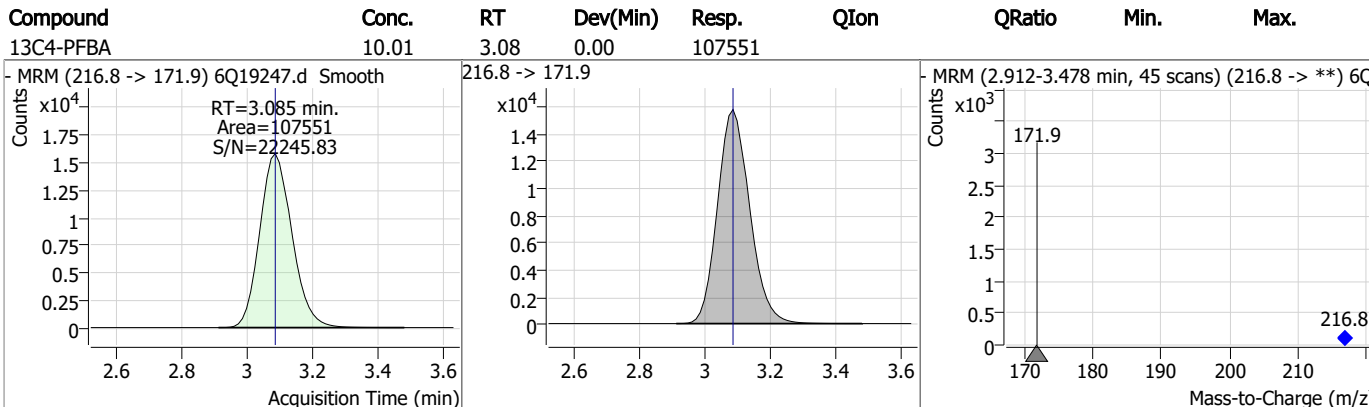
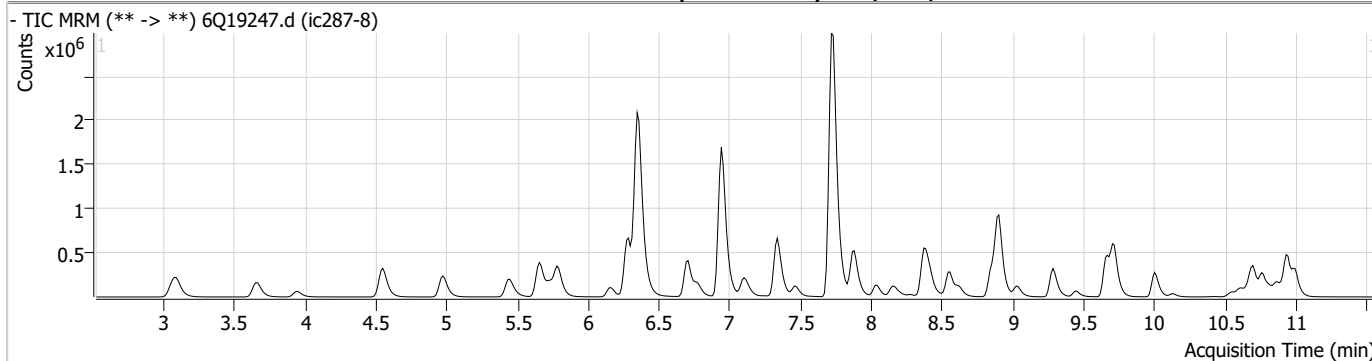
Perfluorinated Compounds by LC/MS/MS

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

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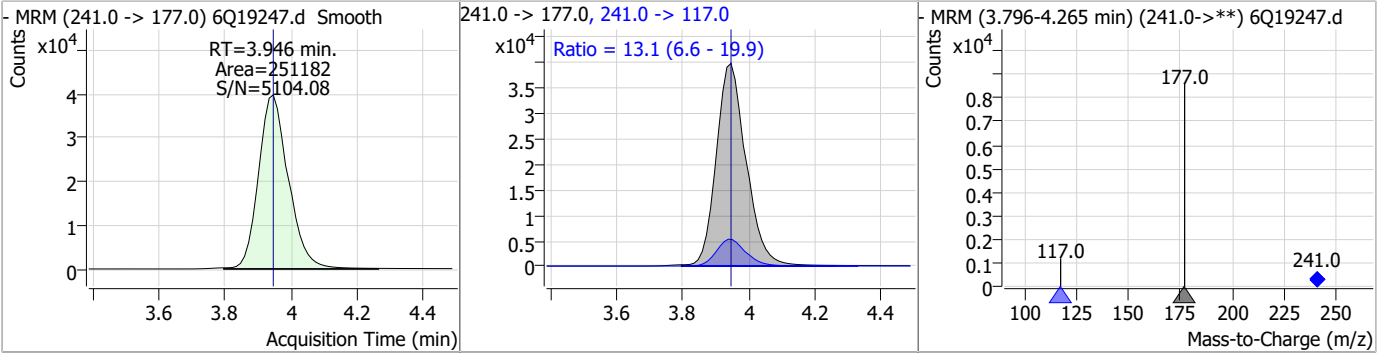
Perfluorinated Compounds by LC/MS/MS



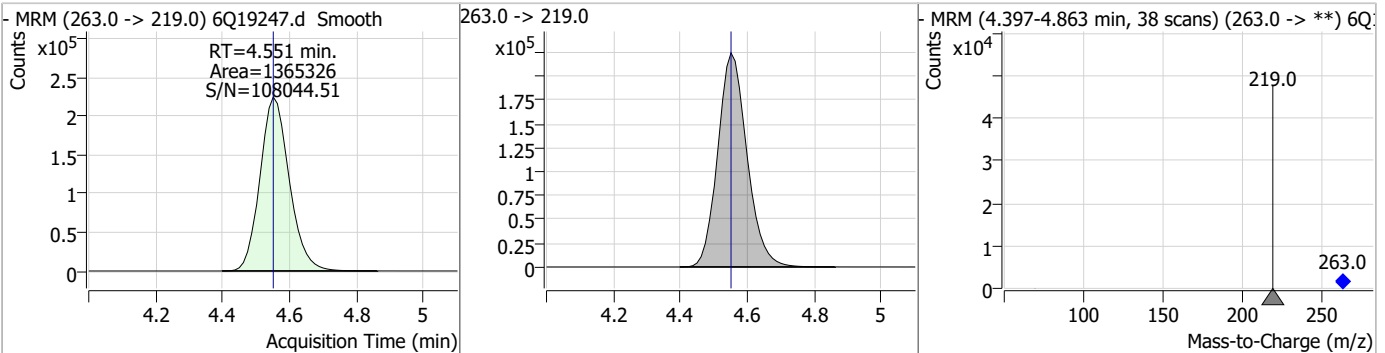
7.7.9
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Perfluorinated Compounds by LC/MS/MS

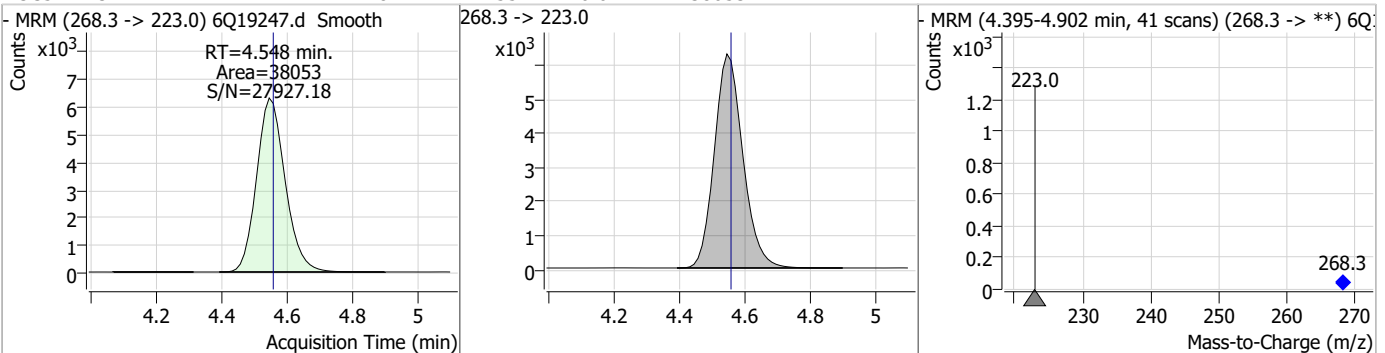
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	328.03	3.95	0.00	251182	241.0 -> 117.0	13.1	6.6	19.9



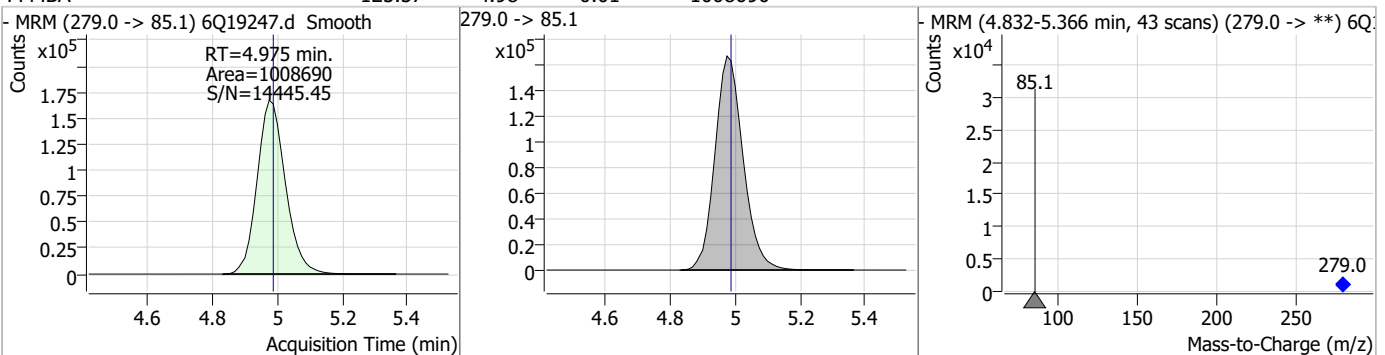
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	121.93	4.55	0.00	1365326				



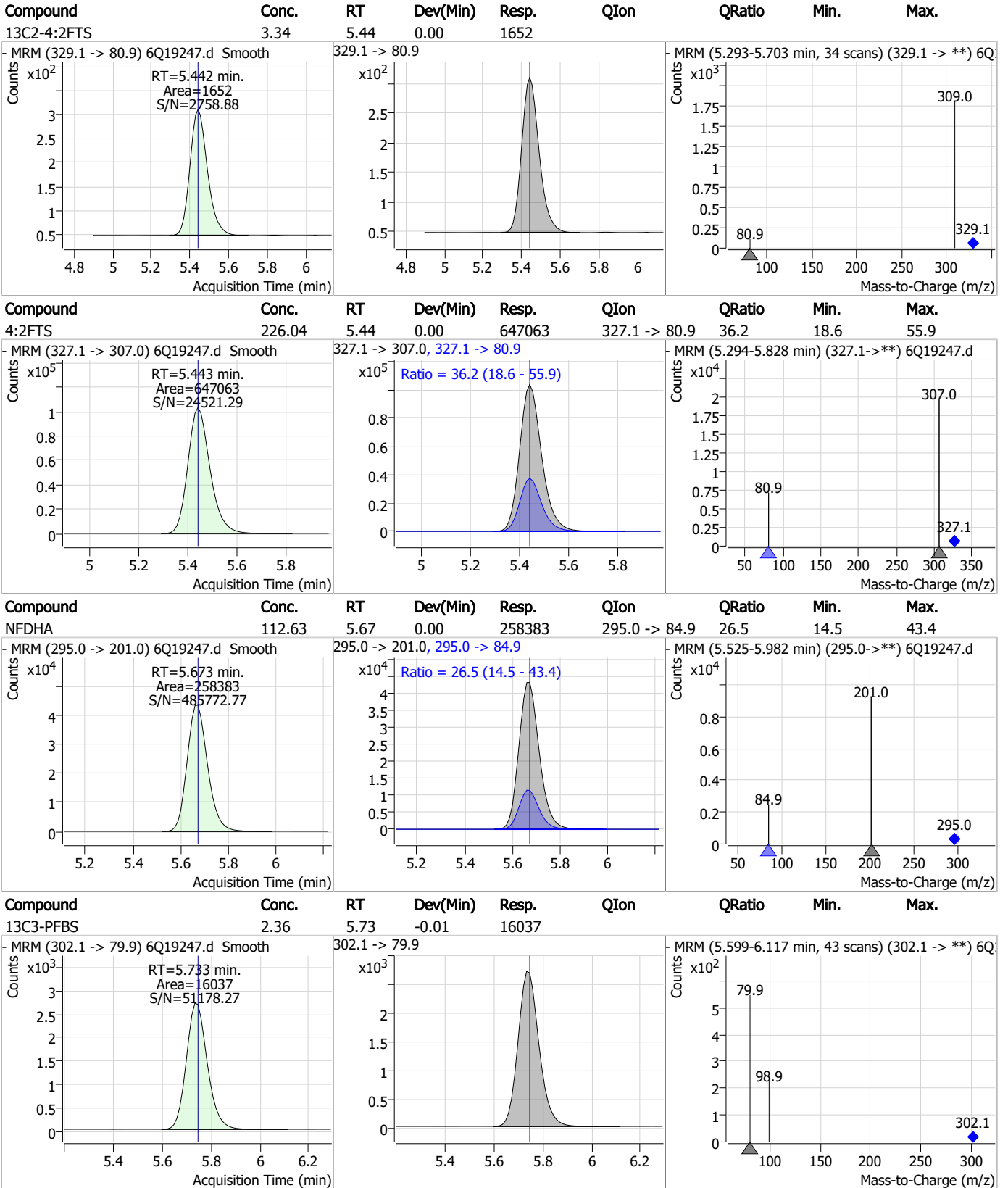
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.87	4.55	-0.01	38053				



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



Perfluorinated Compounds by LC/MS/MS

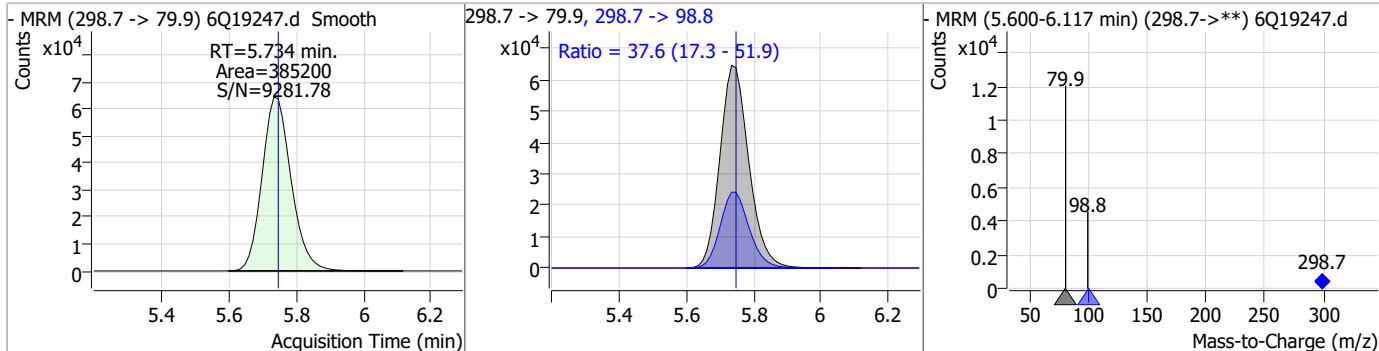


7.7.9

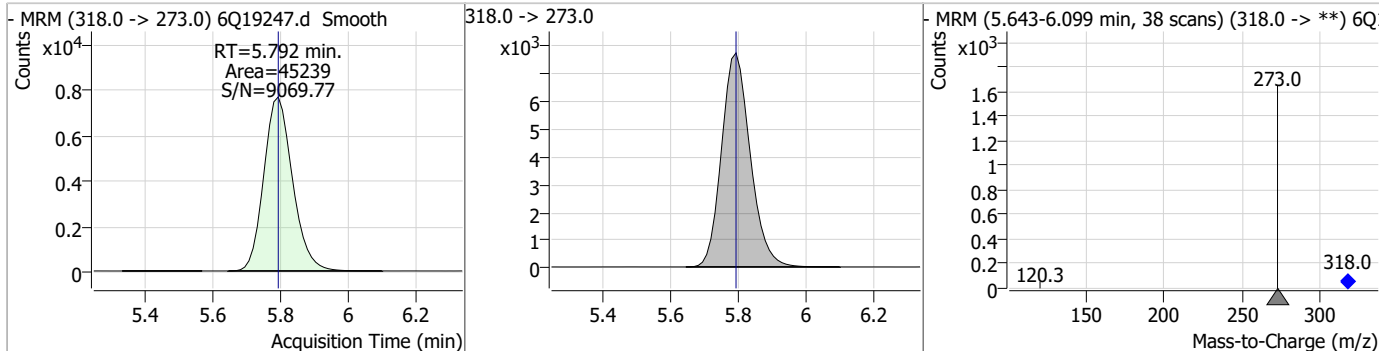
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Perfluorinated Compounds by LC/MS/MS

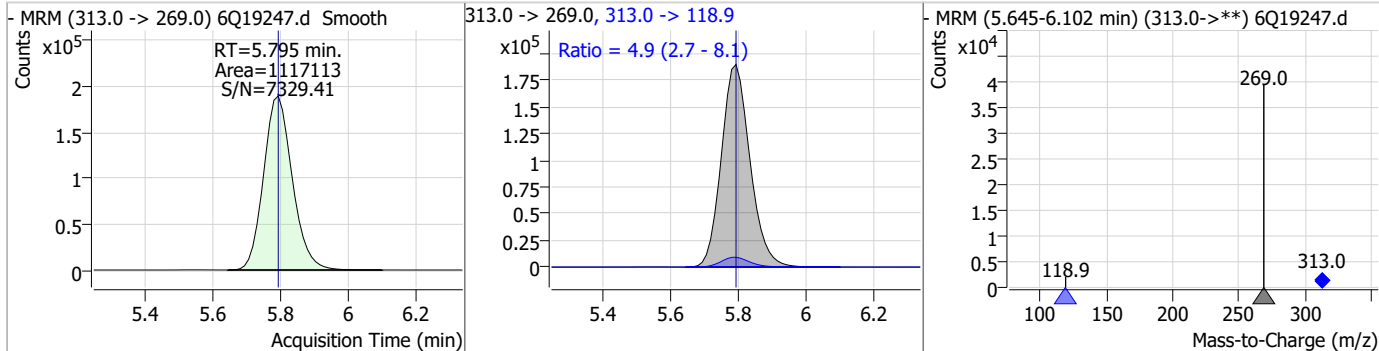
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	54.76	5.73	-0.01	385200	298.7 -> 98.8	37.6	17.3	51.9



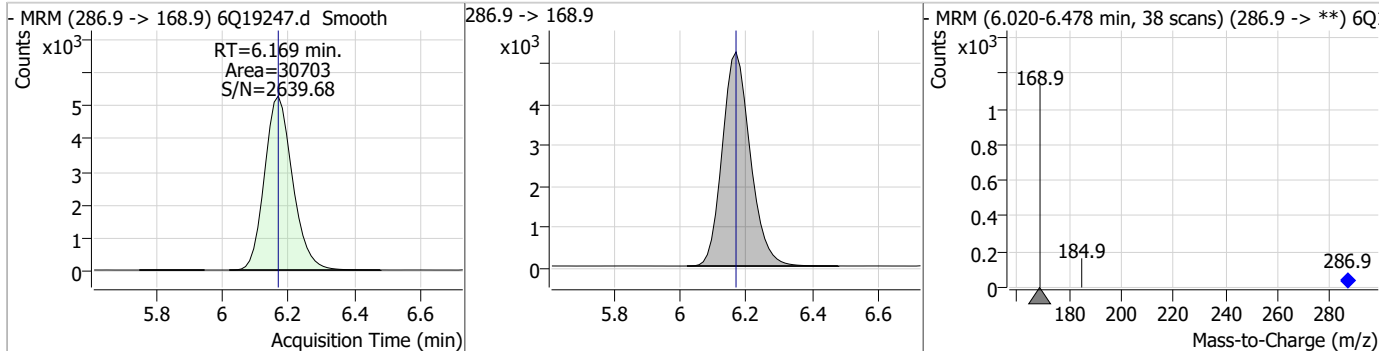
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.59	5.79	0.00	45239				



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



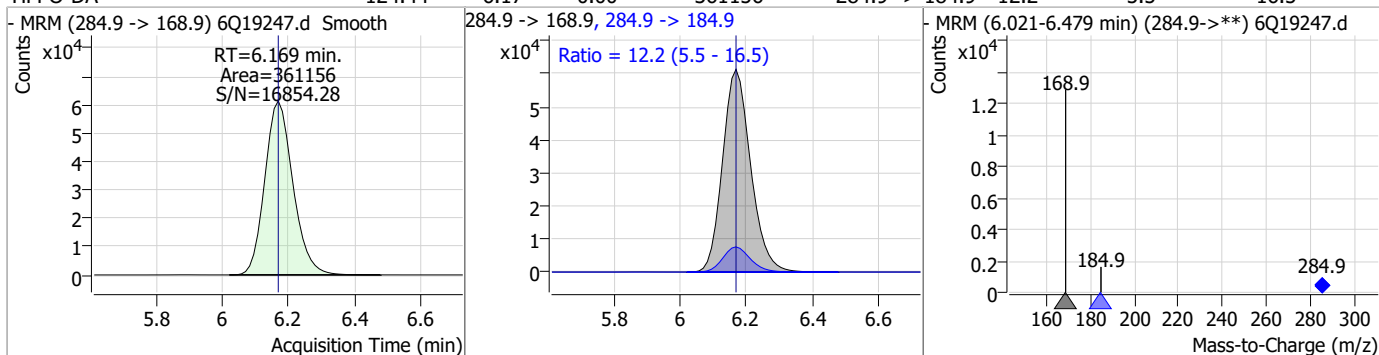
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.08	6.17	0.00	30703				



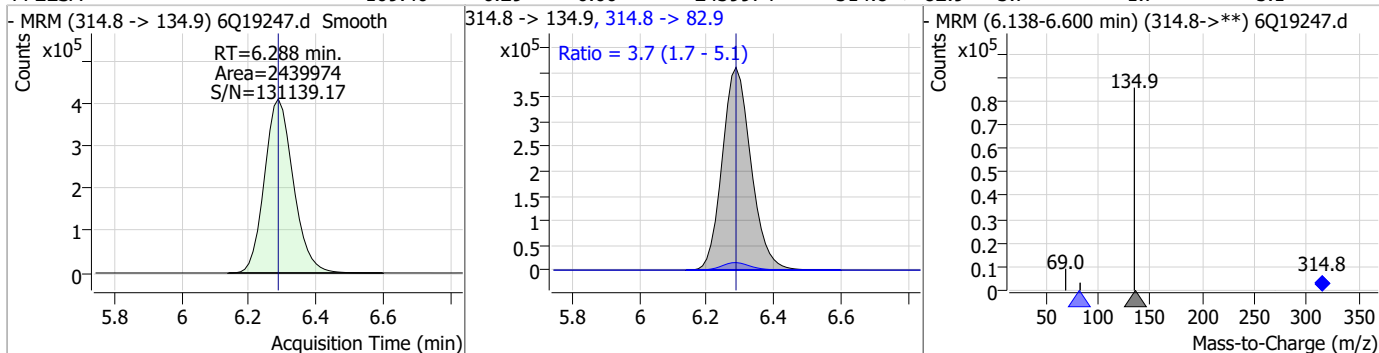
7.7.9
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Perfluorinated Compounds by LC/MS/MS

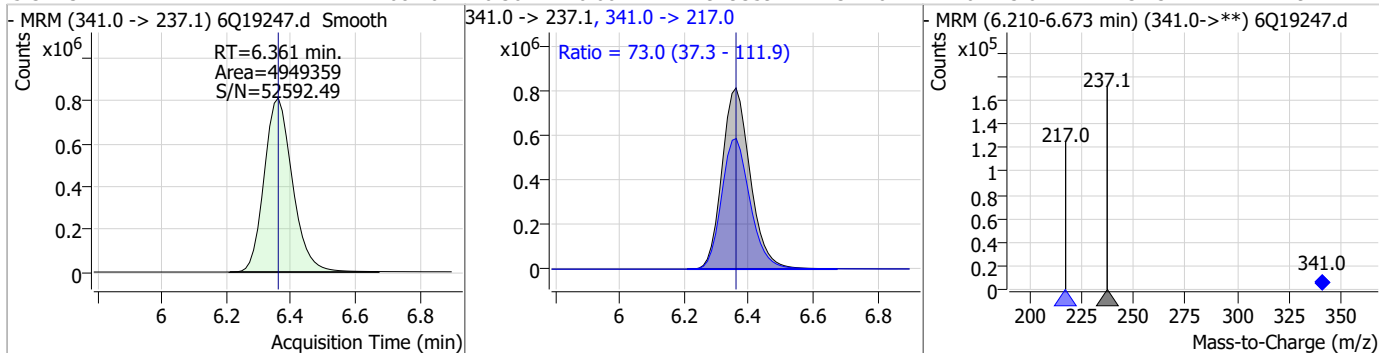
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	124.44	6.17	0.00	361156	284.9 -> 184.9	12.2	5.5	16.5



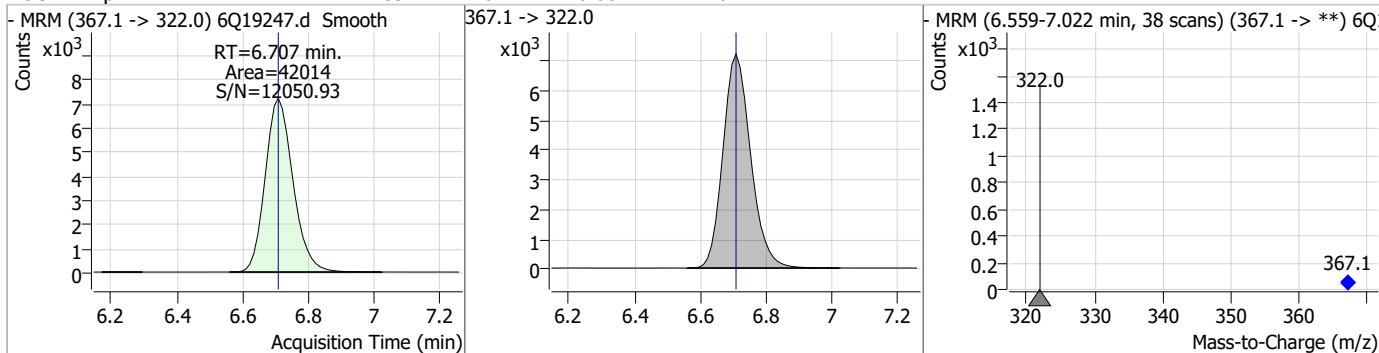
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	109.40	6.29	0.00	2439974	314.8 -> 82.9	3.7	1.7	5.1



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

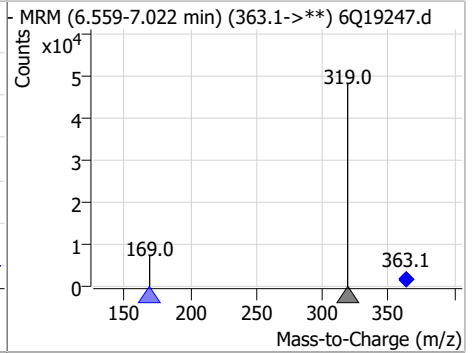
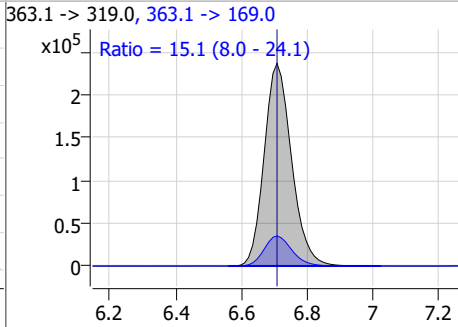
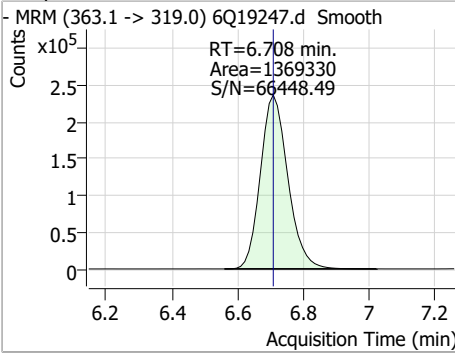


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.59	6.71	0.00	42014				

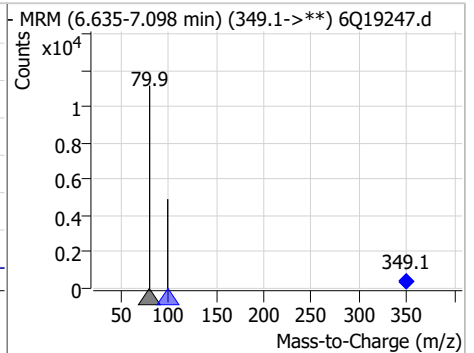
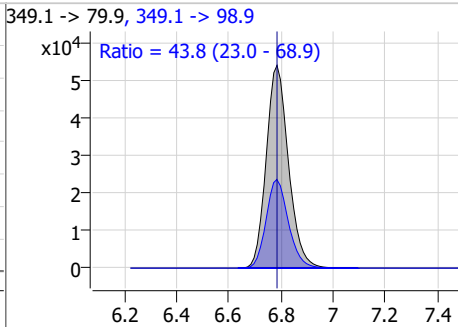
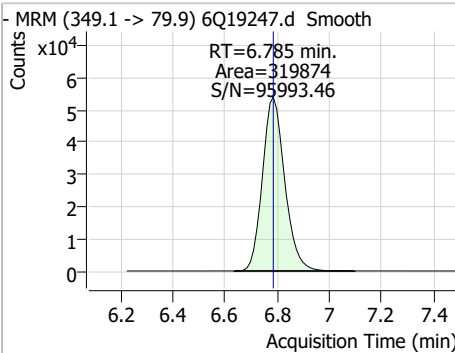


Perfluorinated Compounds by LC/MS/MS

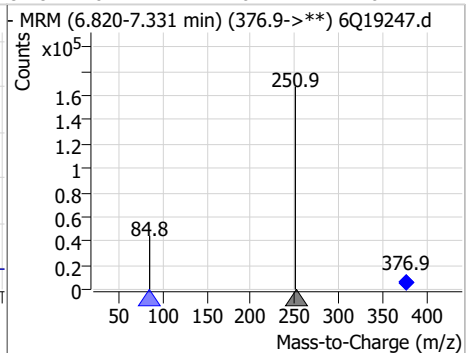
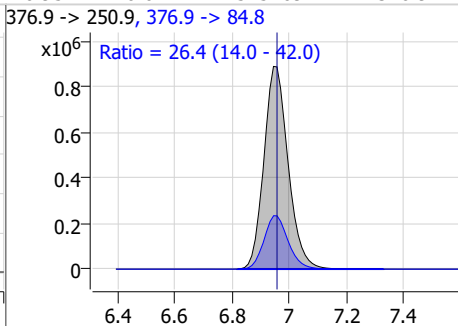
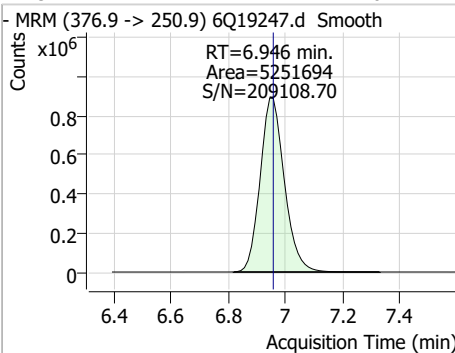
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	60.86	6.71	0.00	1369330	363.1 -> 169.0	15.1	8.0	24.1



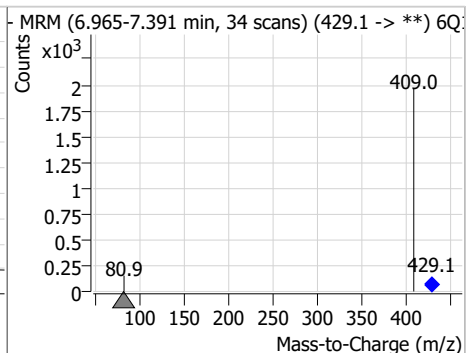
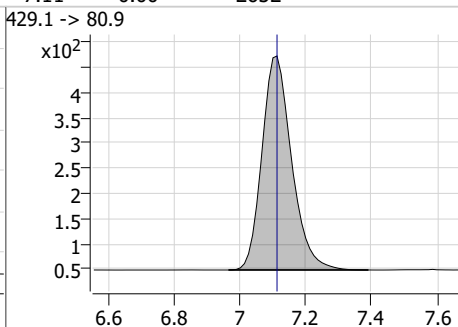
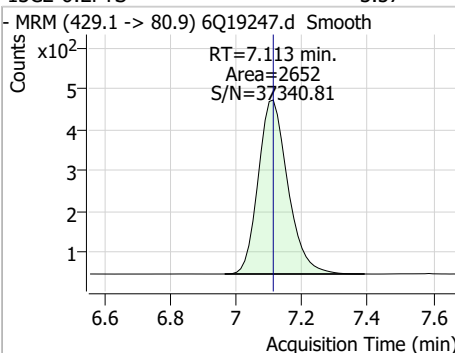
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	55.22	6.79	0.00	319874	349.1 -> 98.9	43.8	23.0	68.9



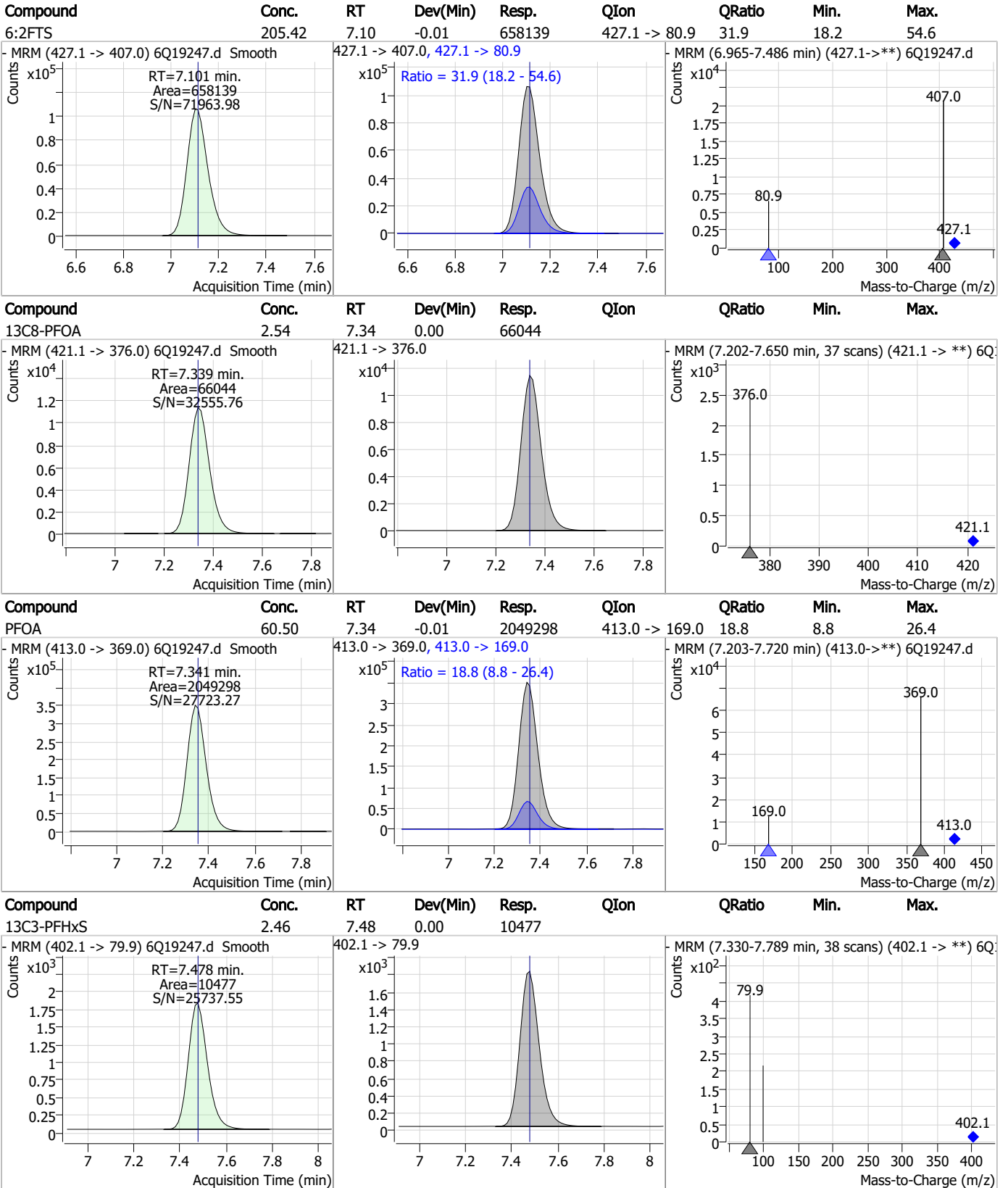
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	101.11	6.95	-0.01	5251694	376.9 -> 84.8	26.4	14.0	42.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	3.57	7.11	0.00	2652	429.1 -> 80.9			



Perfluorinated Compounds by LC/MS/MS

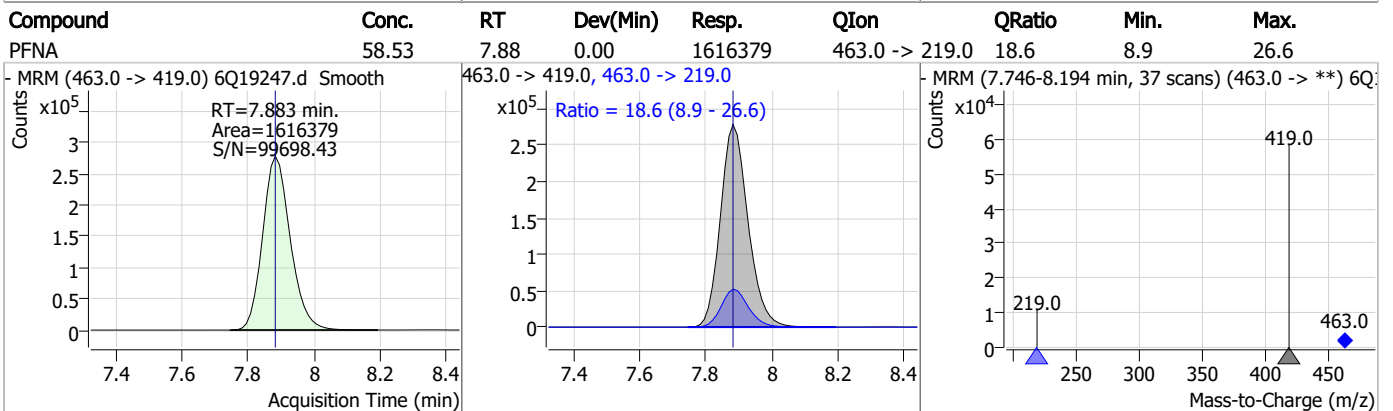
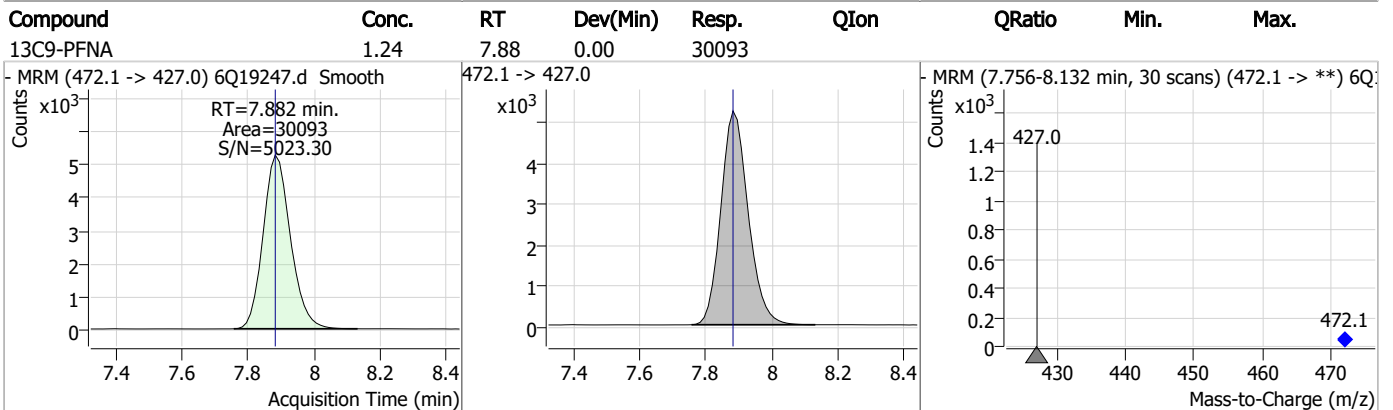
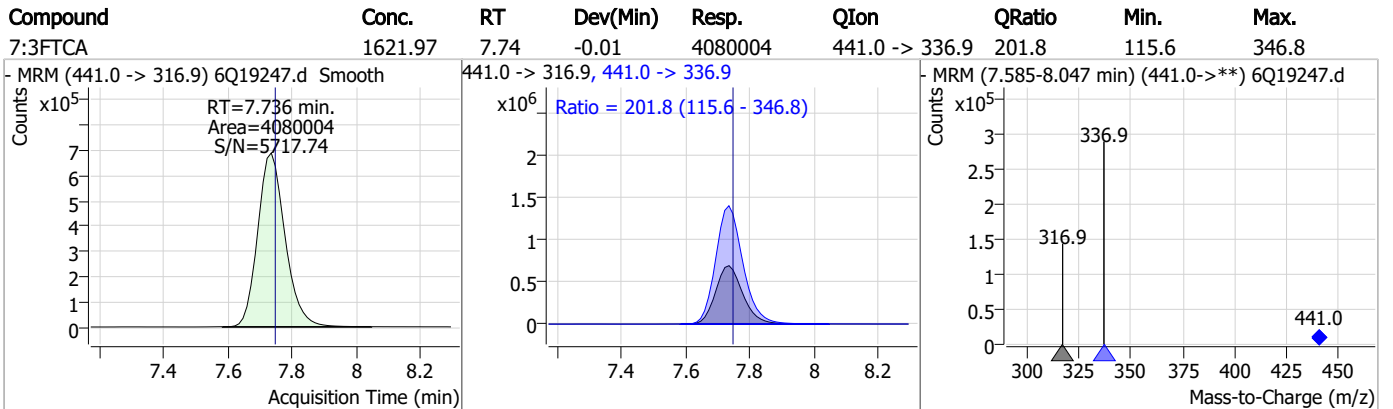
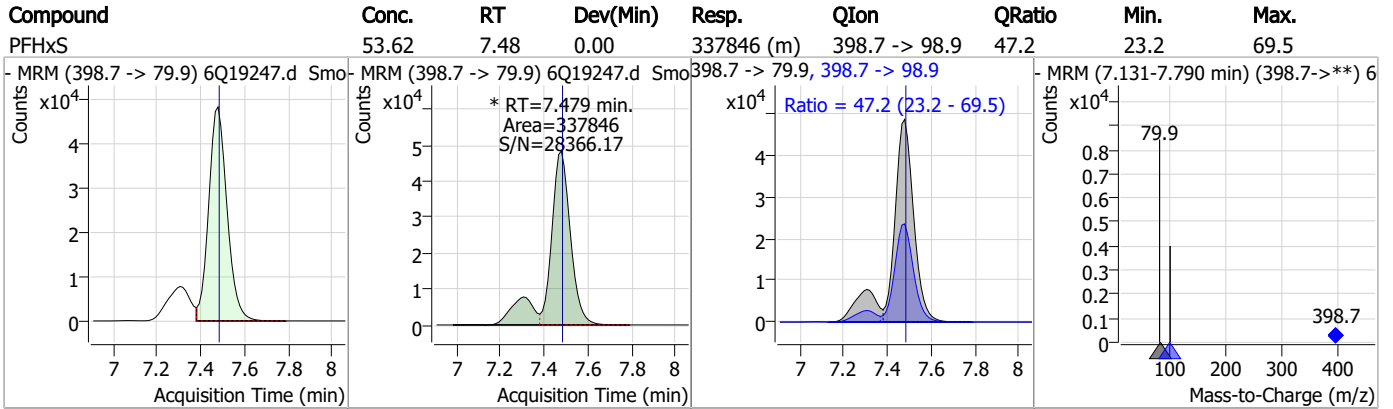


7.7.9

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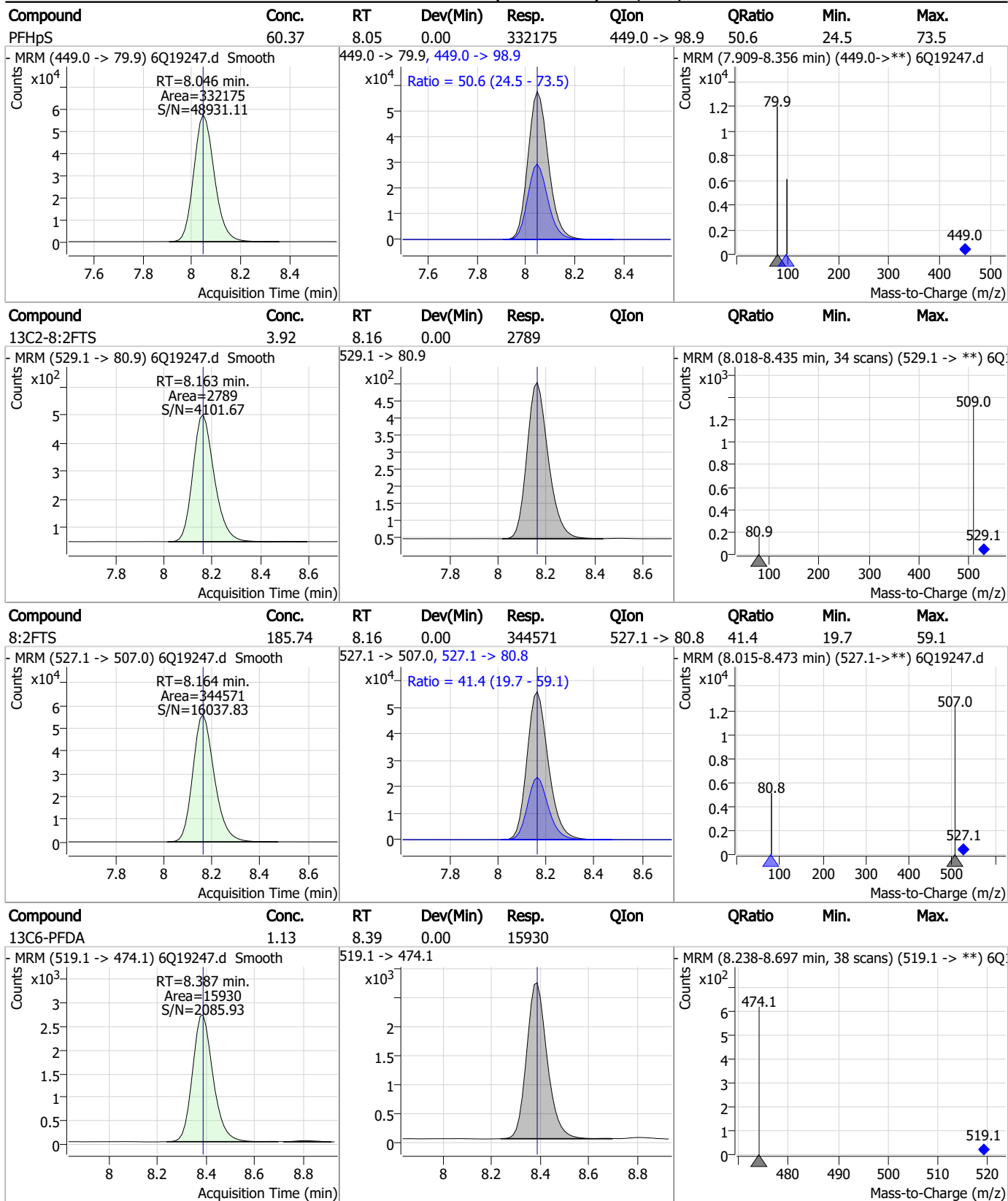
Perfluorinated Compounds by LC/MS/MS



7.7.9

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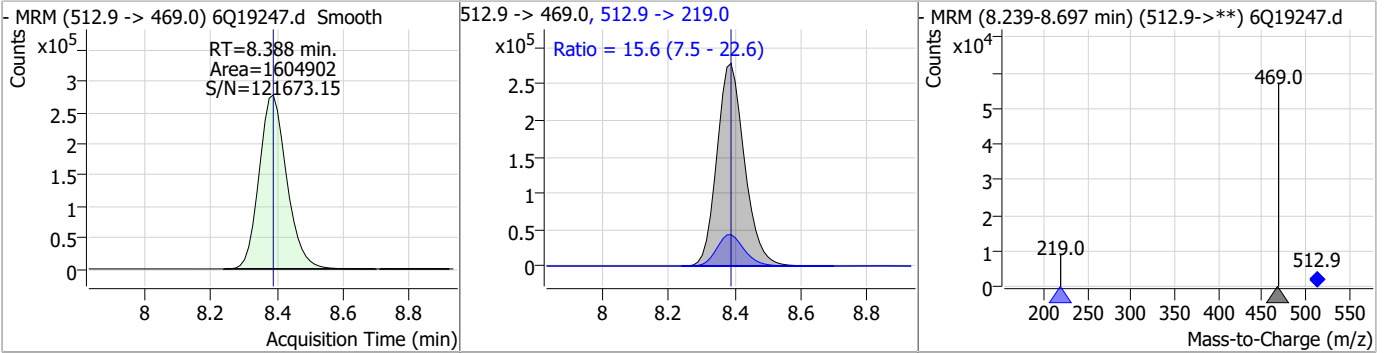
Perfluorinated Compounds by LC/MS/MS



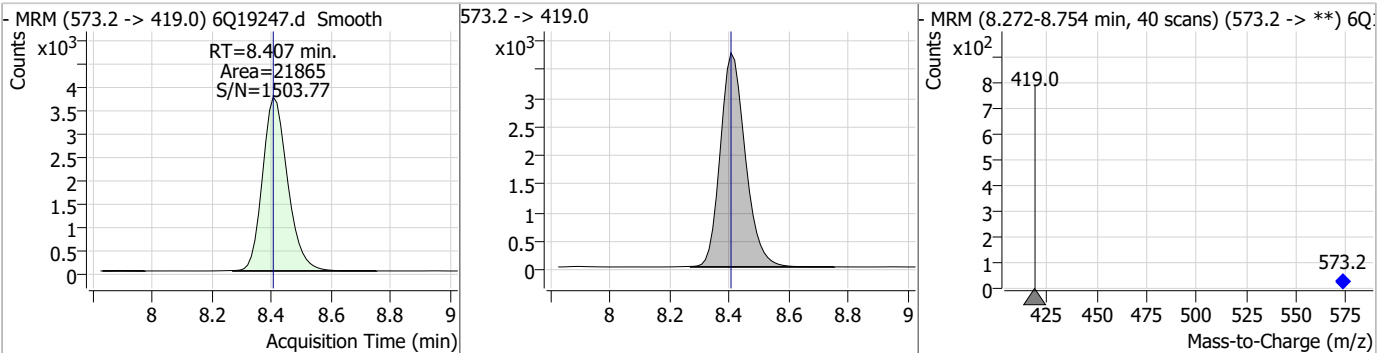
7.7.9
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Perfluorinated Compounds by LC/MS/MS

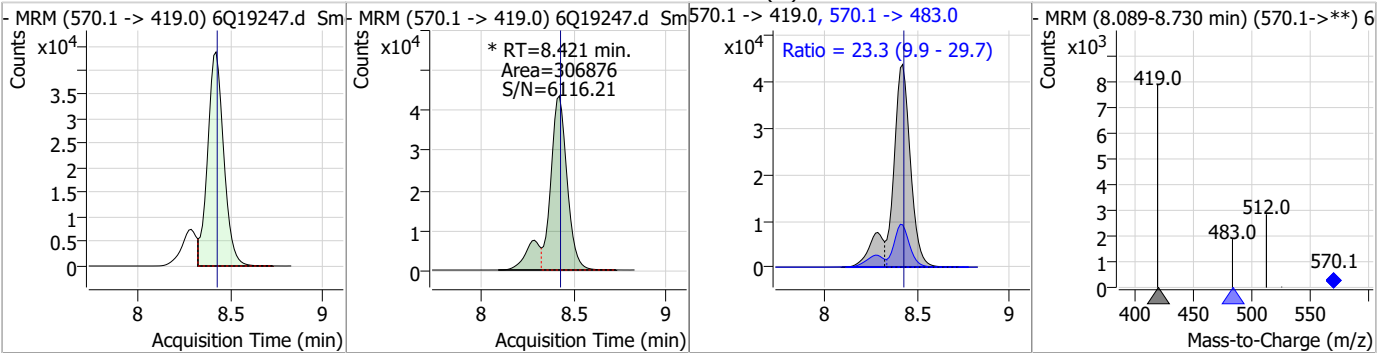
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	67.39	8.39	0.00	1604902	512.9 -> 219.0	15.6	7.5	22.6



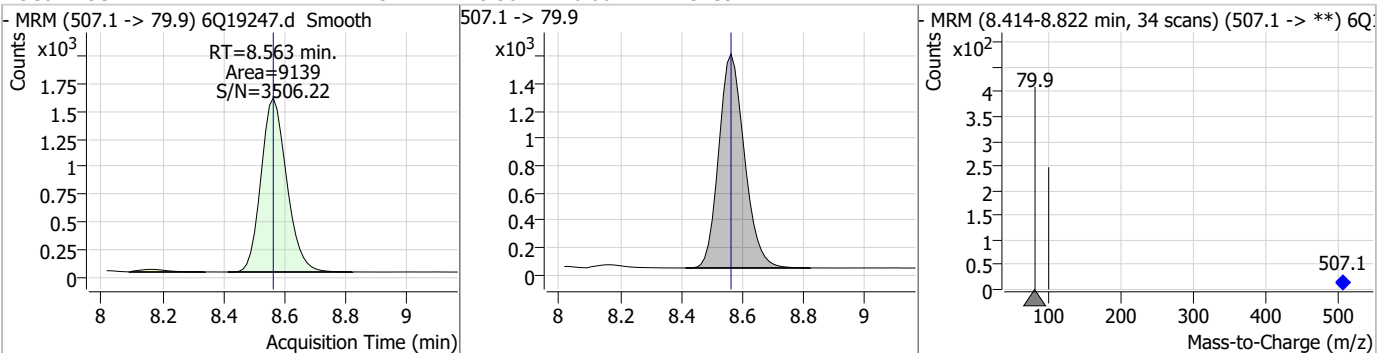
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.43	8.41	0.00	21865				



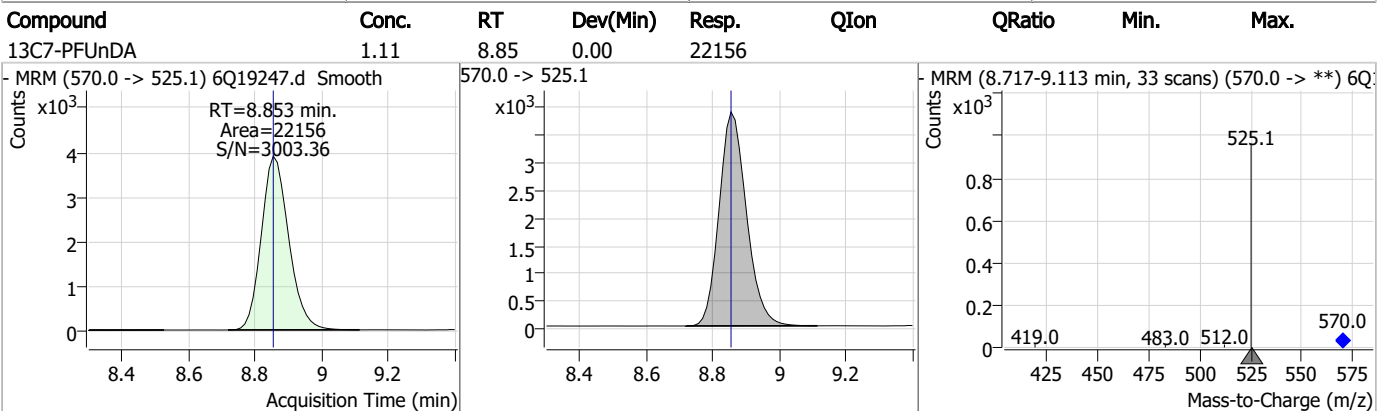
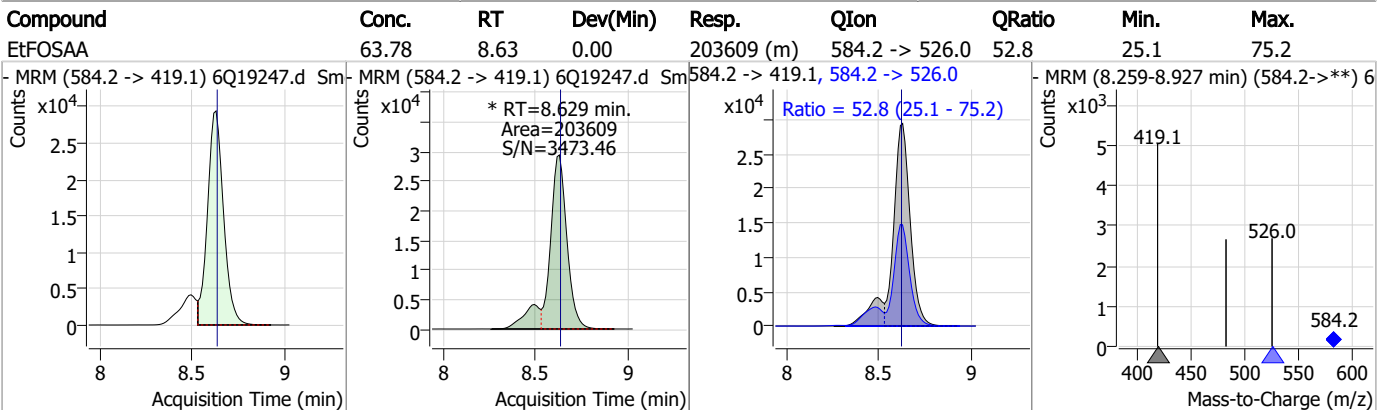
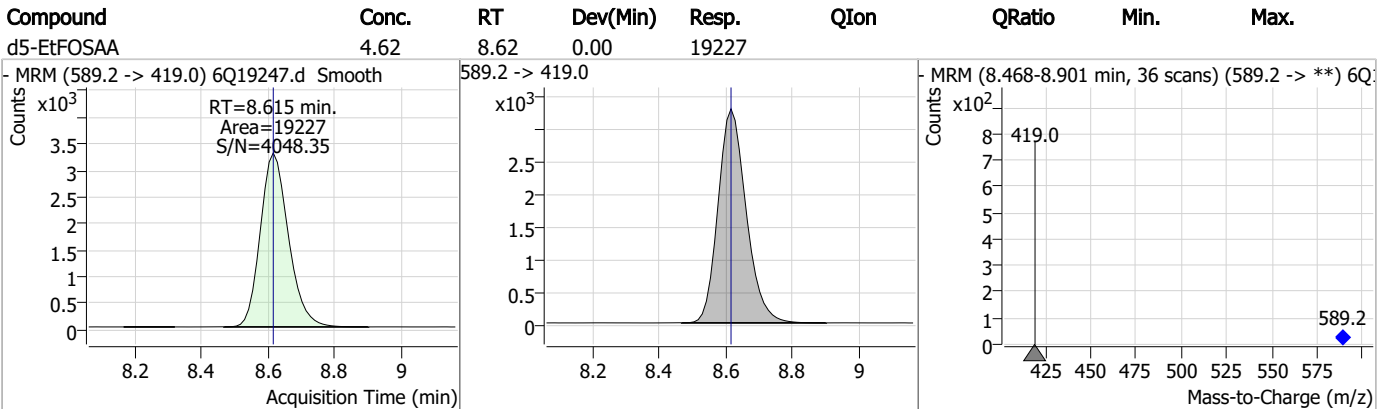
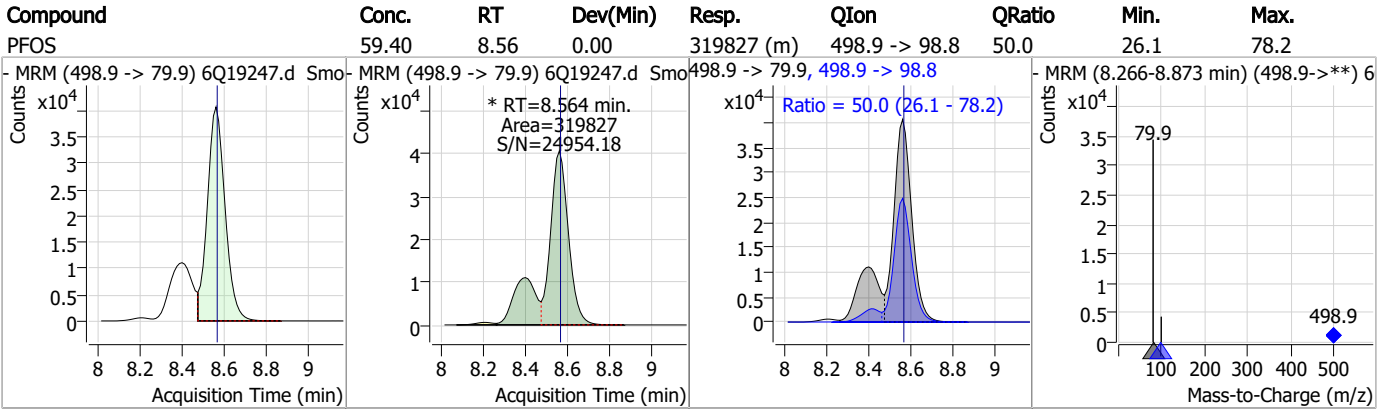
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	57.72	8.42	0.00	306876 (m)	570.1 -> 483.0	23.3	9.9	29.7



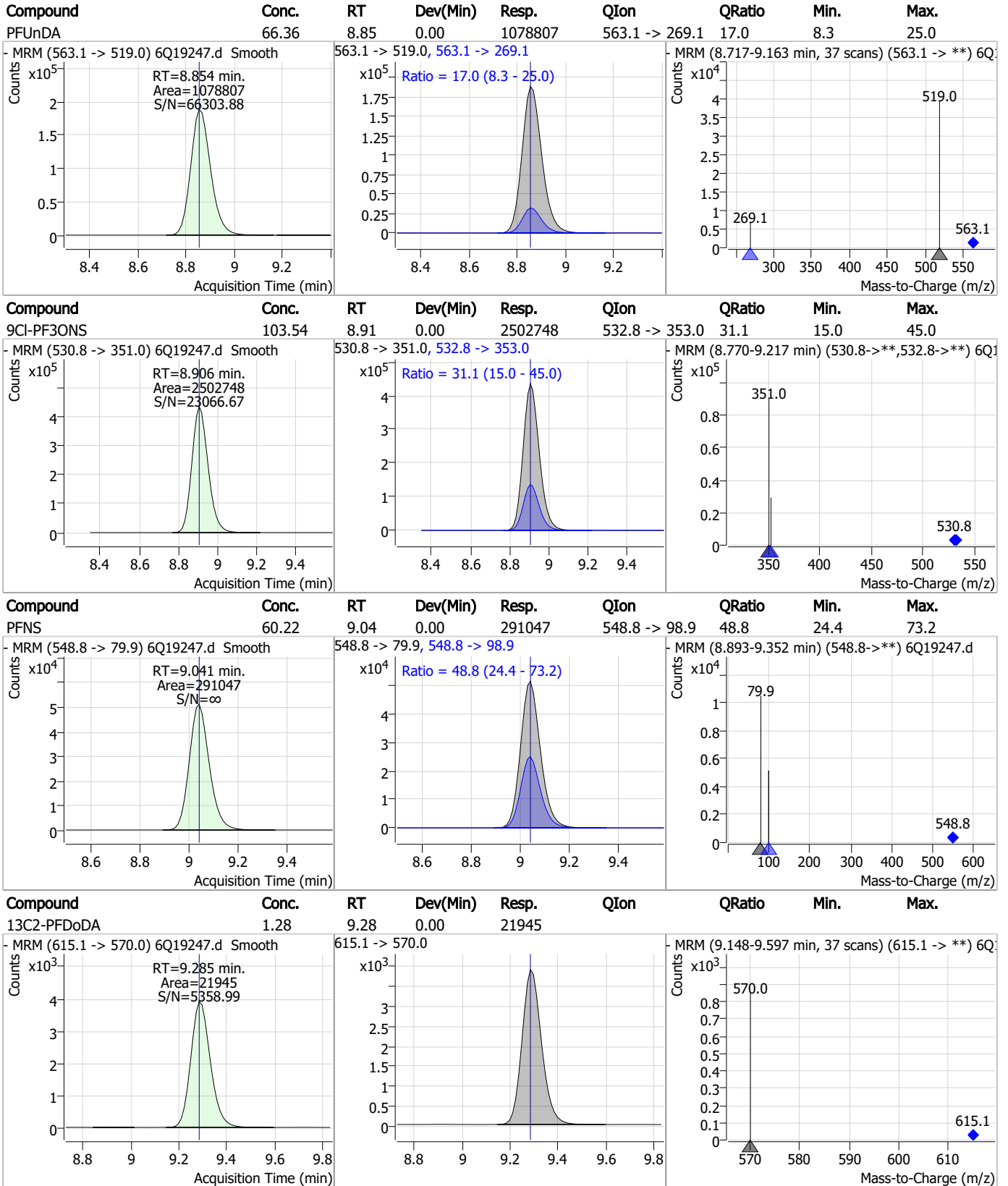
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.37	8.56	0.00	9139				



Perfluorinated Compounds by LC/MS/MS



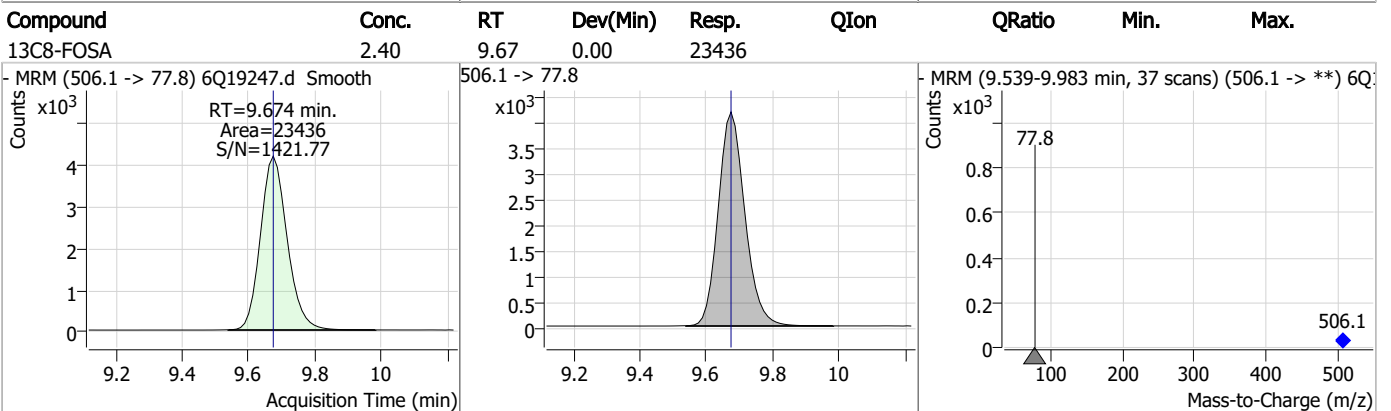
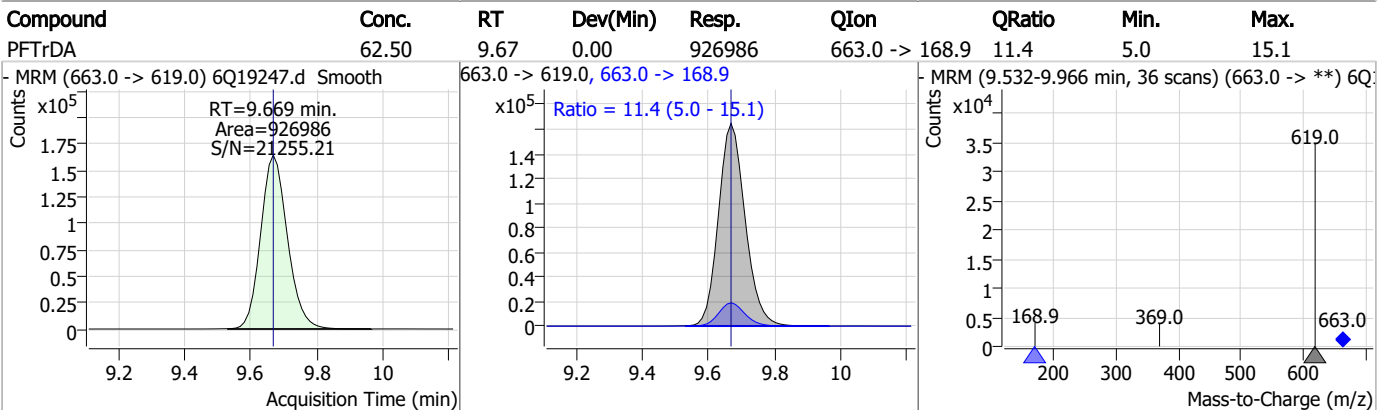
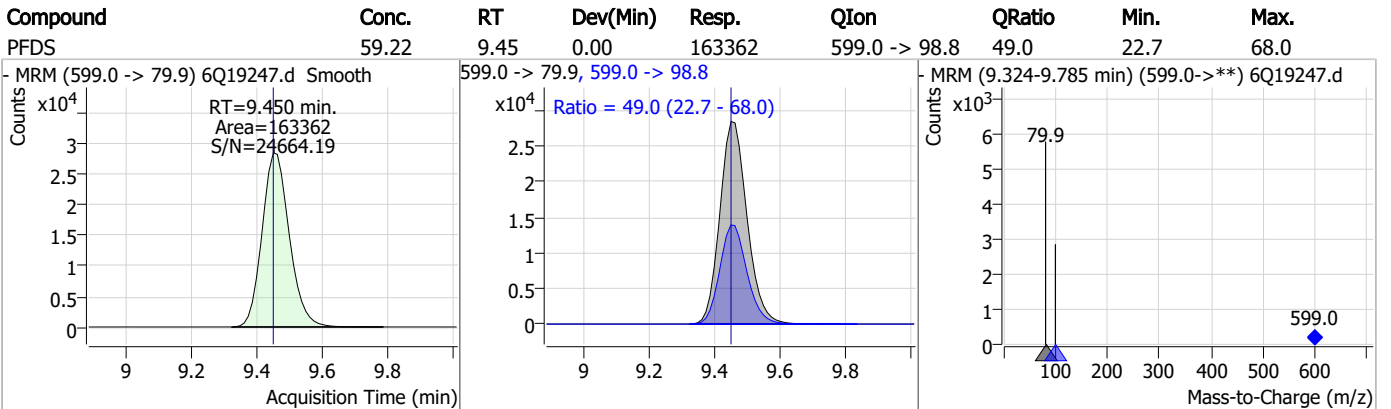
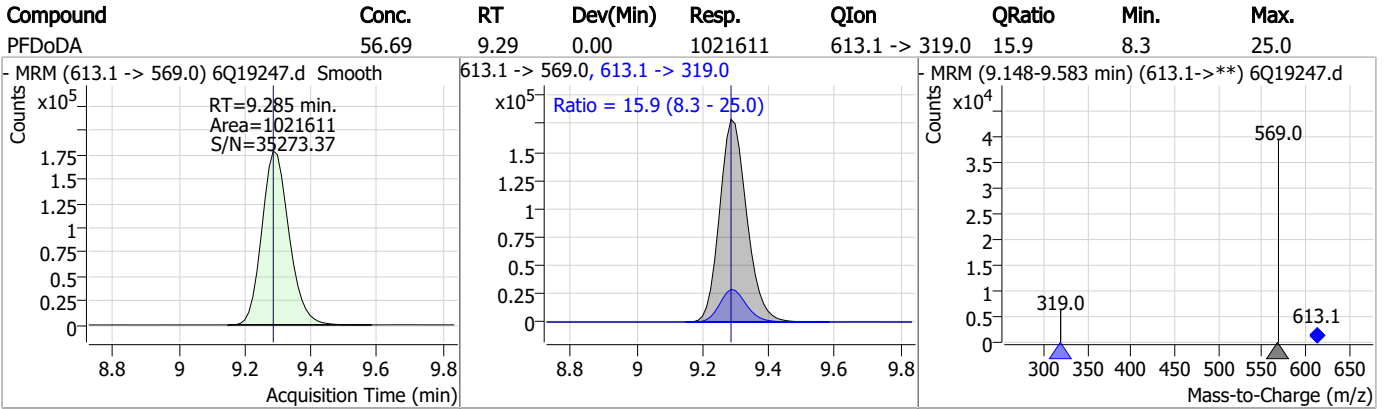
Perfluorinated Compounds by LC/MS/MS



7.7.9

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Perfluorinated Compounds by LC/MS/MS

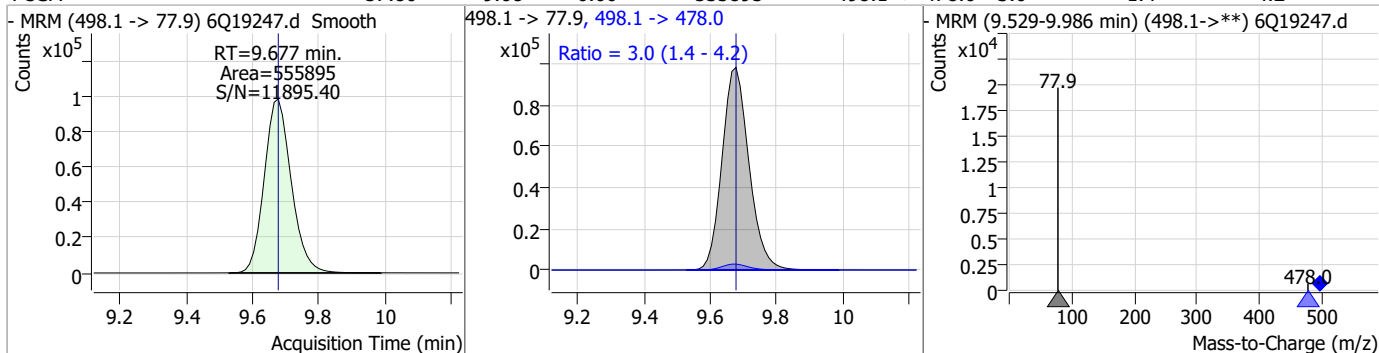


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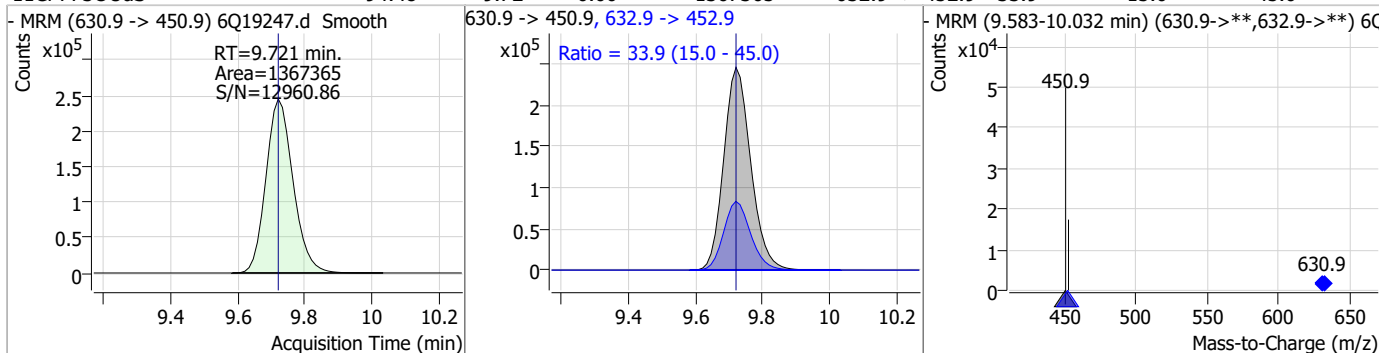
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Perfluorinated Compounds by LC/MS/MS

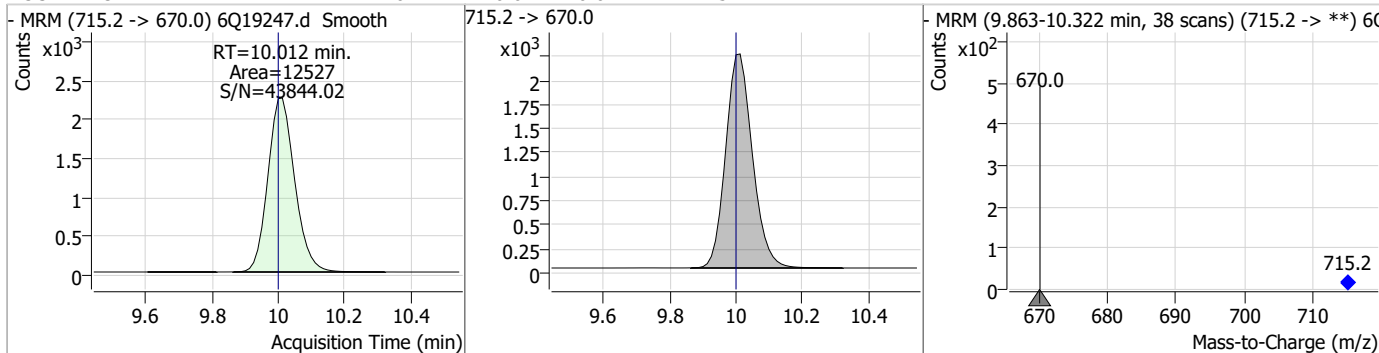
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	57.80	9.68	0.00	555895	498.1 -> 478.0	3.0	1.4	4.2



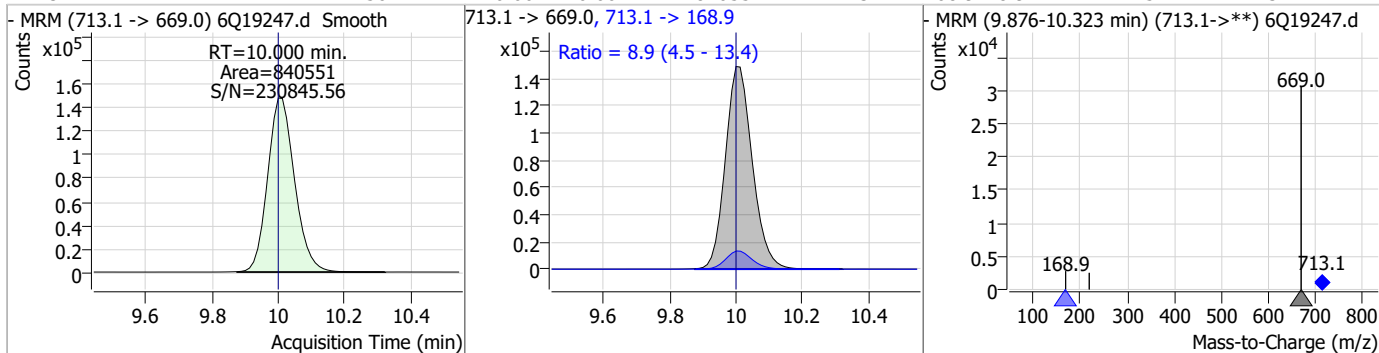
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	94.48	9.72	0.00	1367365	630.9 -> 452.9	33.9	15.0	45.0



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

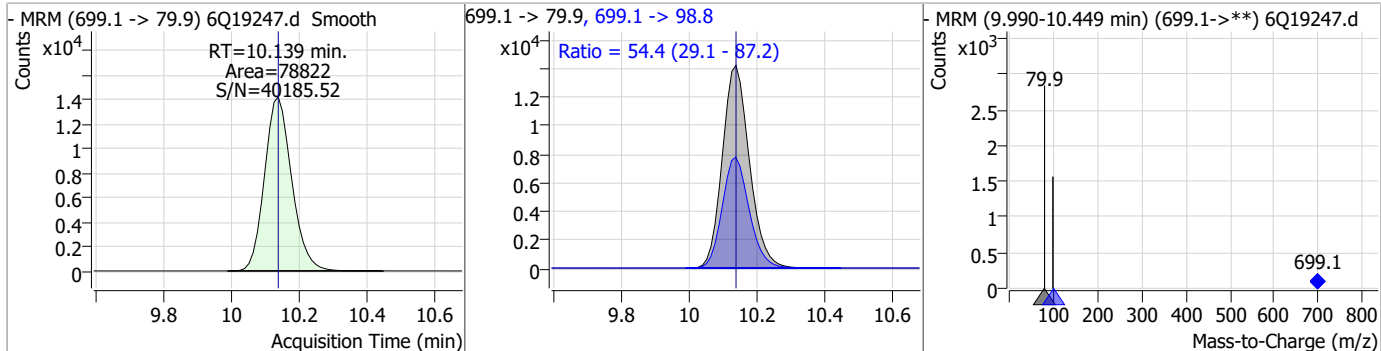


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	56.12	10.00	0.00	840551	713.1 -> 168.9	8.9	4.5	13.4

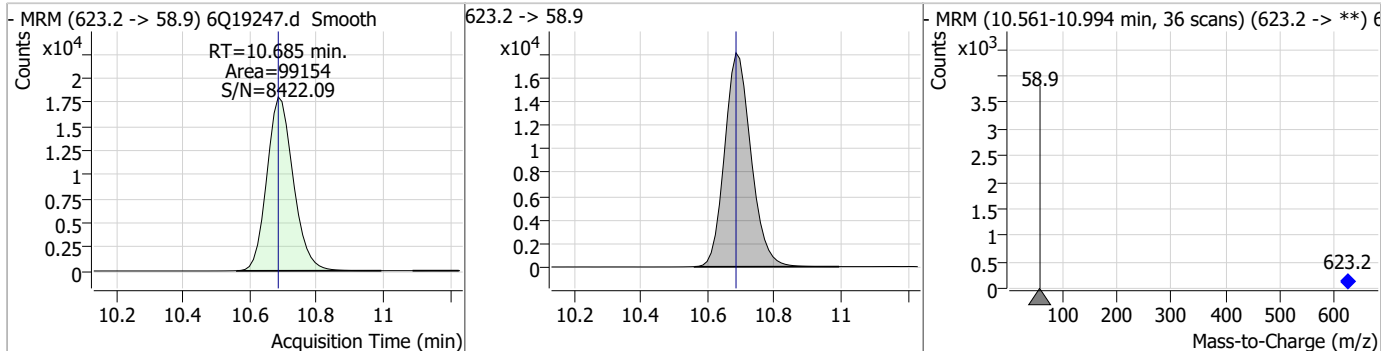


Perfluorinated Compounds by LC/MS/MS

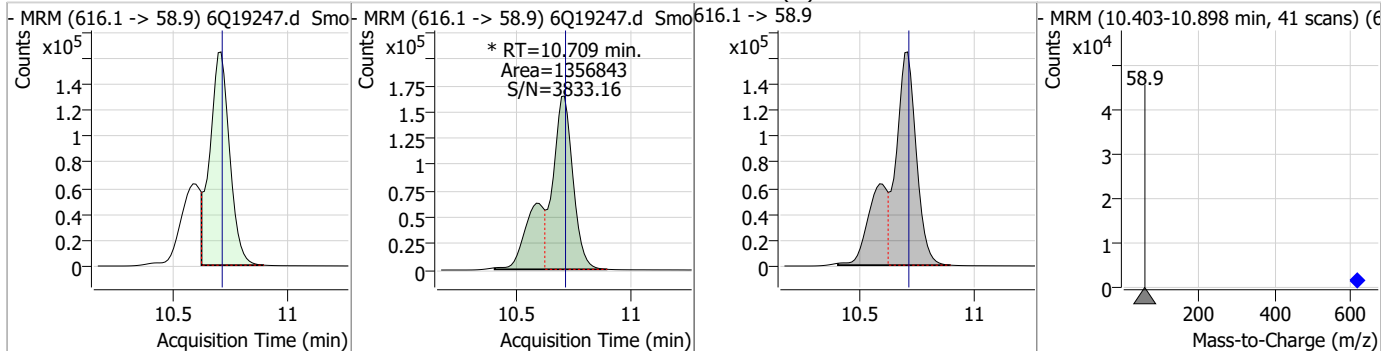
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	57.41	10.14	0.00	78822	699.1 -> 98.8	54.4	29.1	87.2



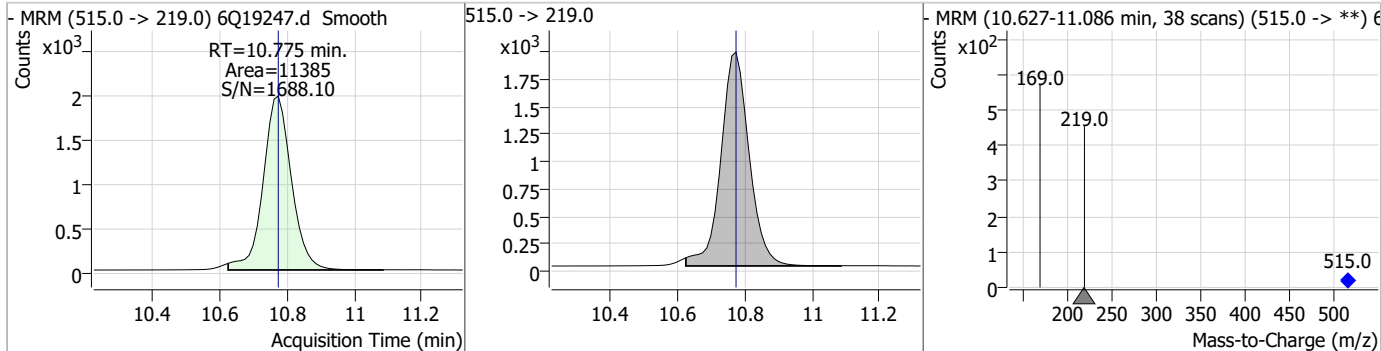
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.52	10.68	0.00	99154				



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

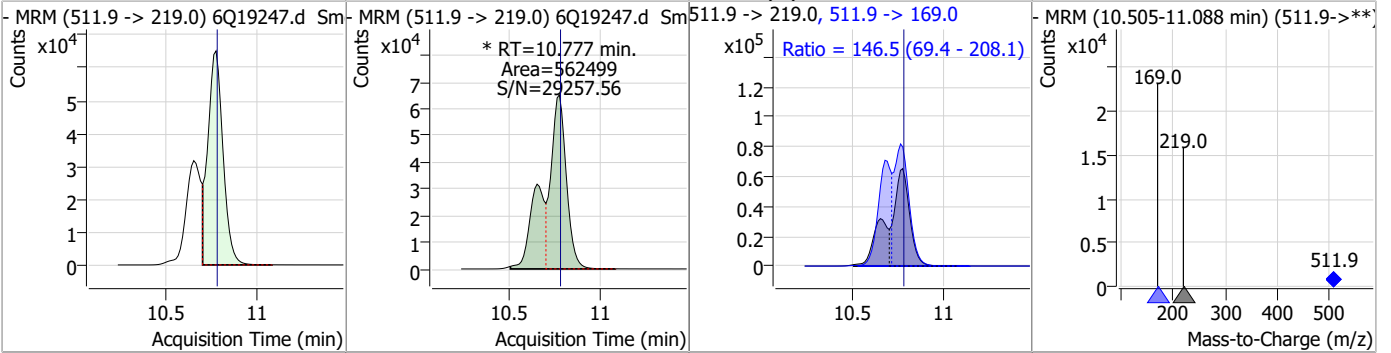


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.60	10.78	0.00	11385				

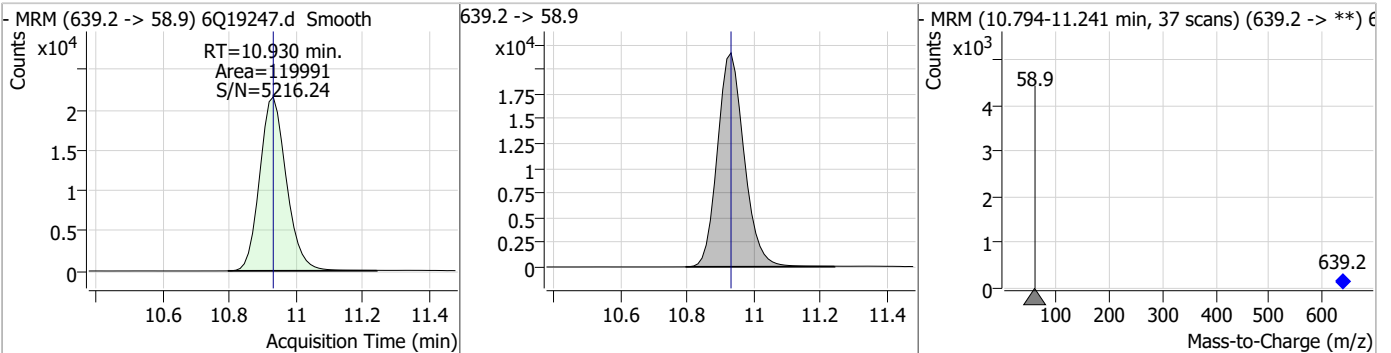


Perfluorinated Compounds by LC/MS/MS

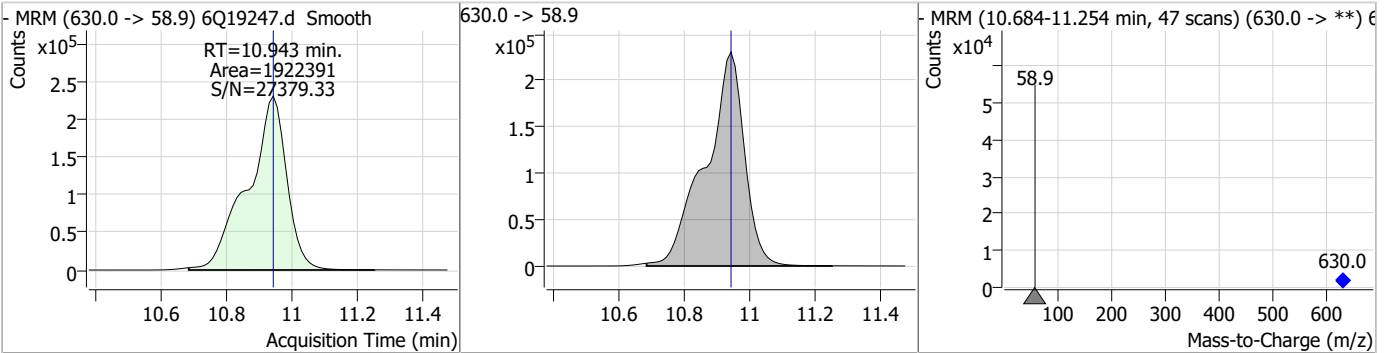
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	112.71	10.78	0.00	562499 (m)	511.9 -> 169.0	146.5	69.4	208.1



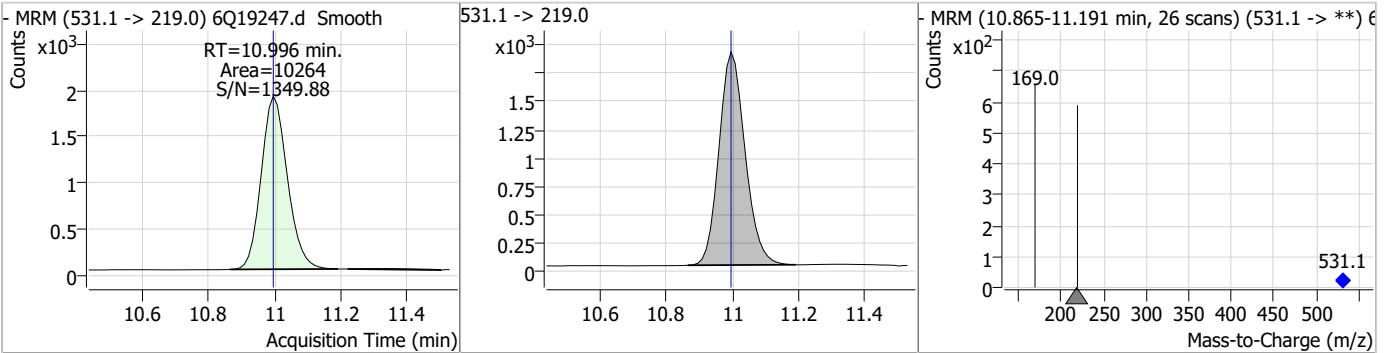
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.88	10.93	0.00	119991				



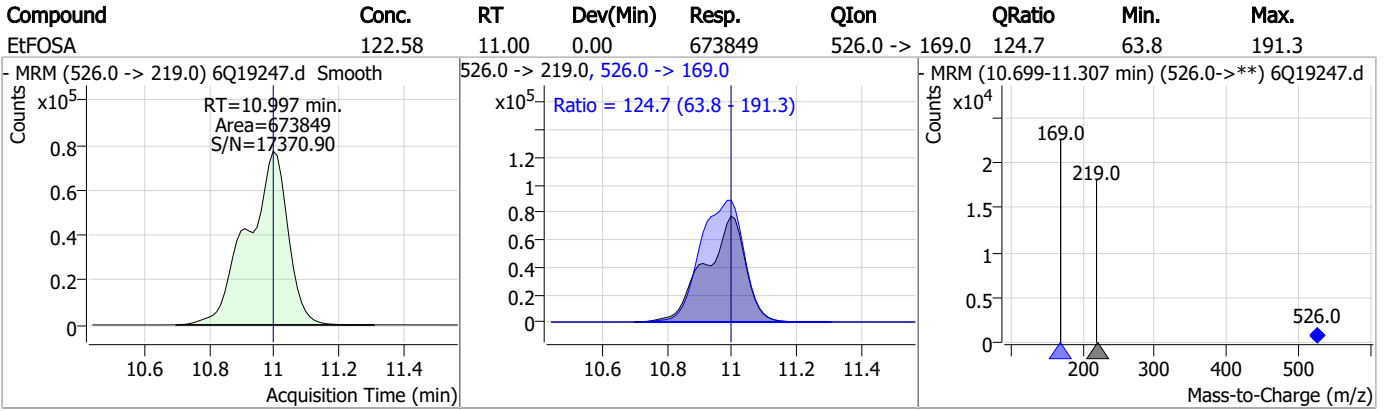
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	303.43	10.94	0.00	1922391				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.42	11.00	0.00	10264				



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

7

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

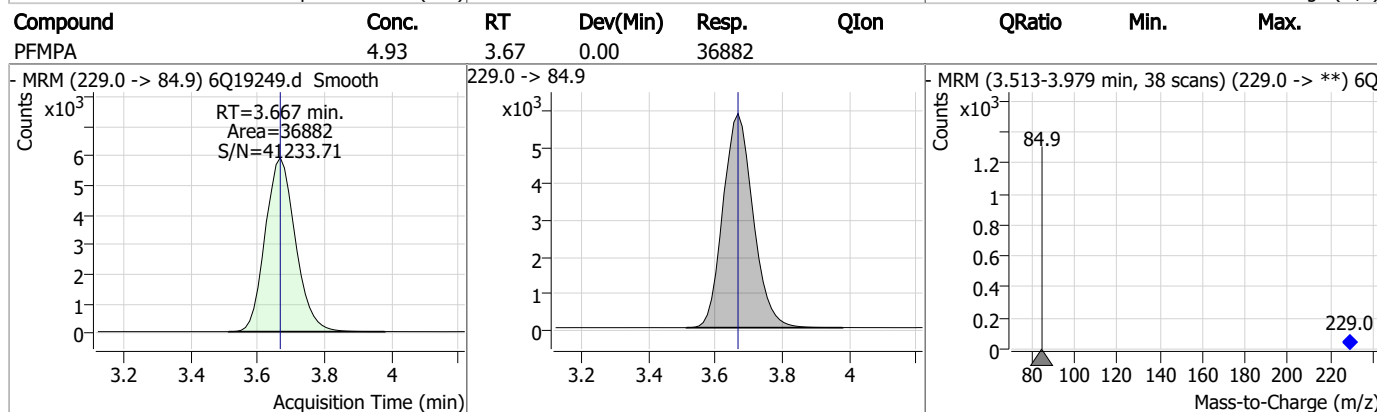
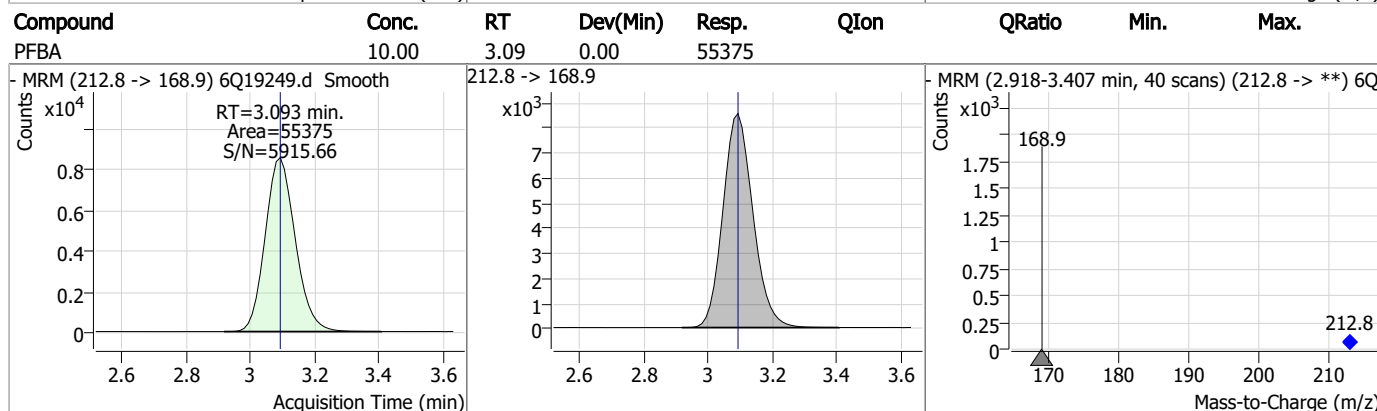
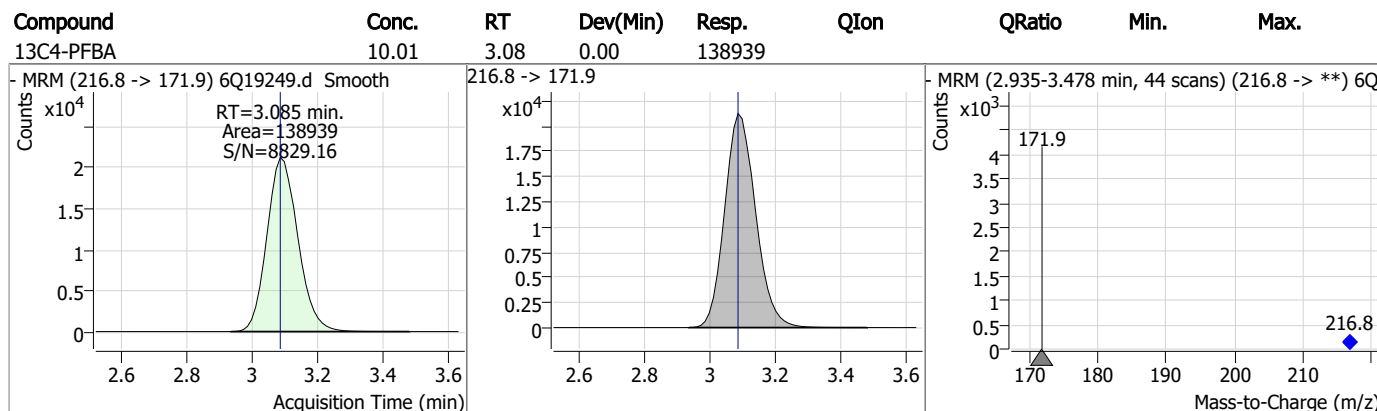
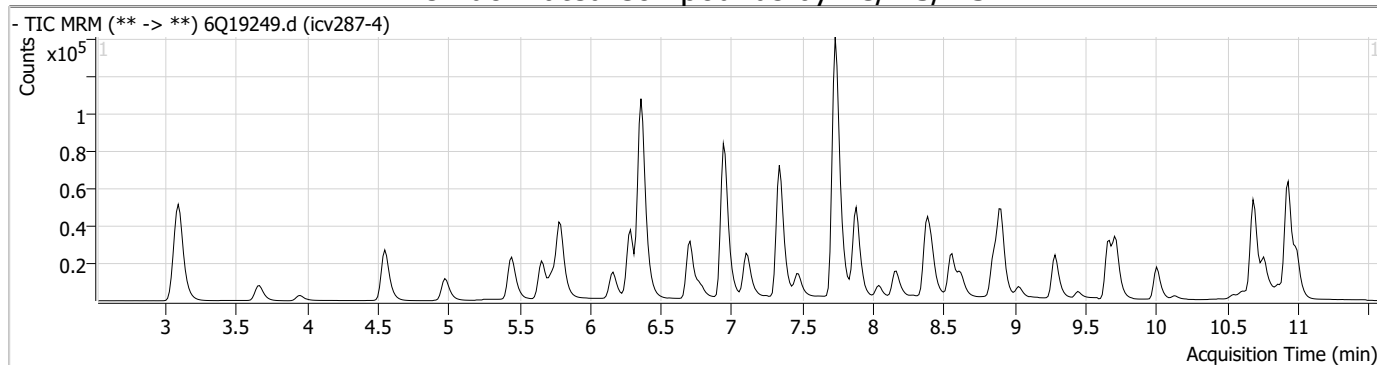
Perfluorinated Compounds by LC/MS/MS

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

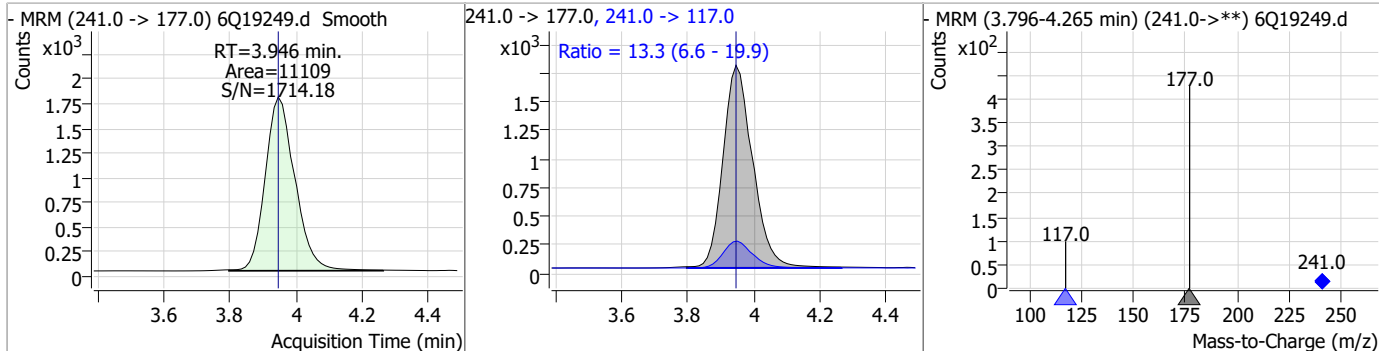
7

Perfluorinated Compounds by LC/MS/MS

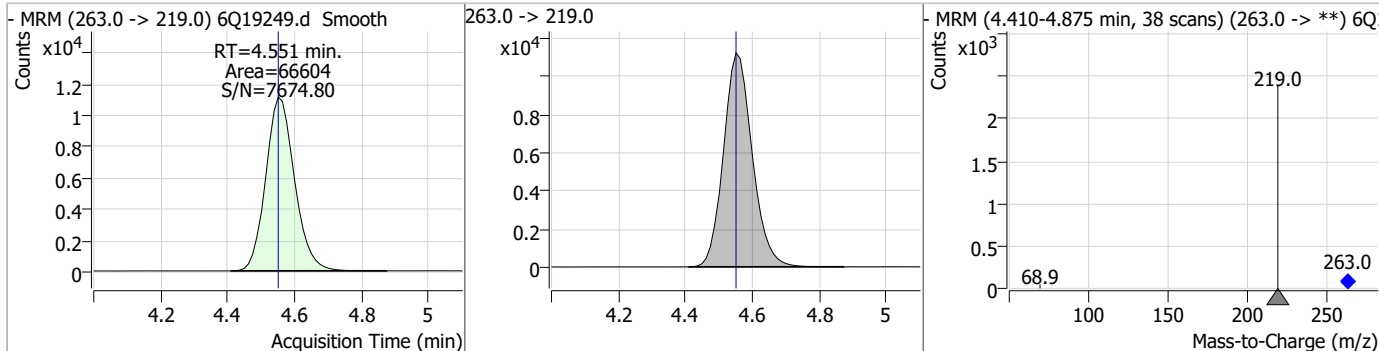


Perfluorinated Compounds by LC/MS/MS

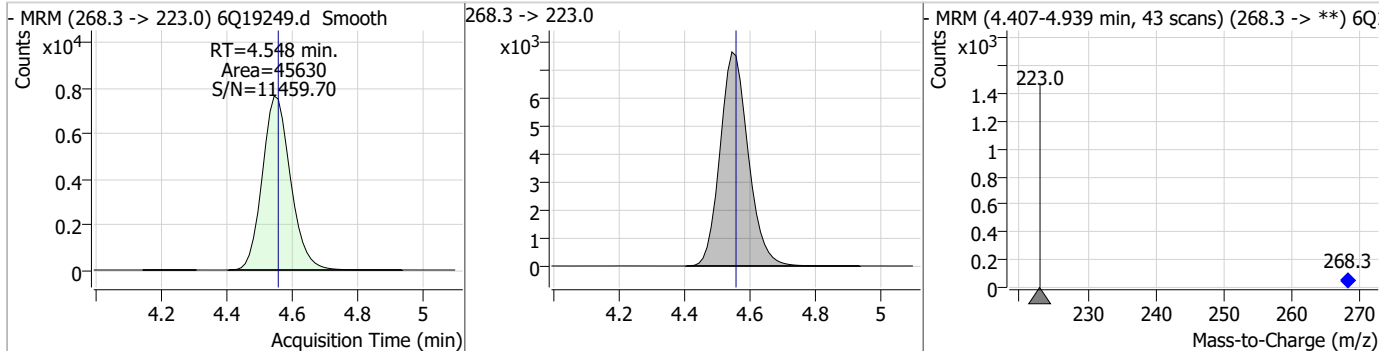
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.10	3.95	0.00	11109	241.0 -> 117.0	13.3	6.6	19.9



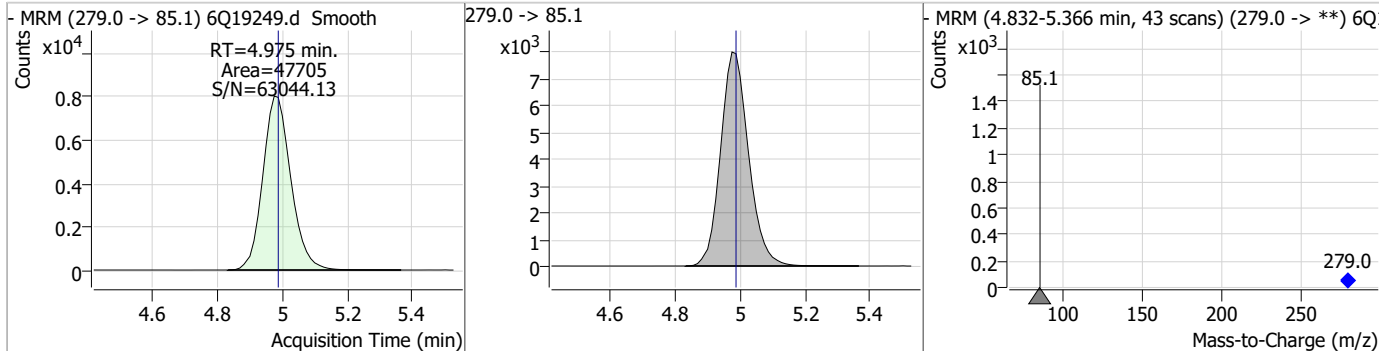
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.96	4.55	0.00	66604				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.04	4.55	-0.01	45630				

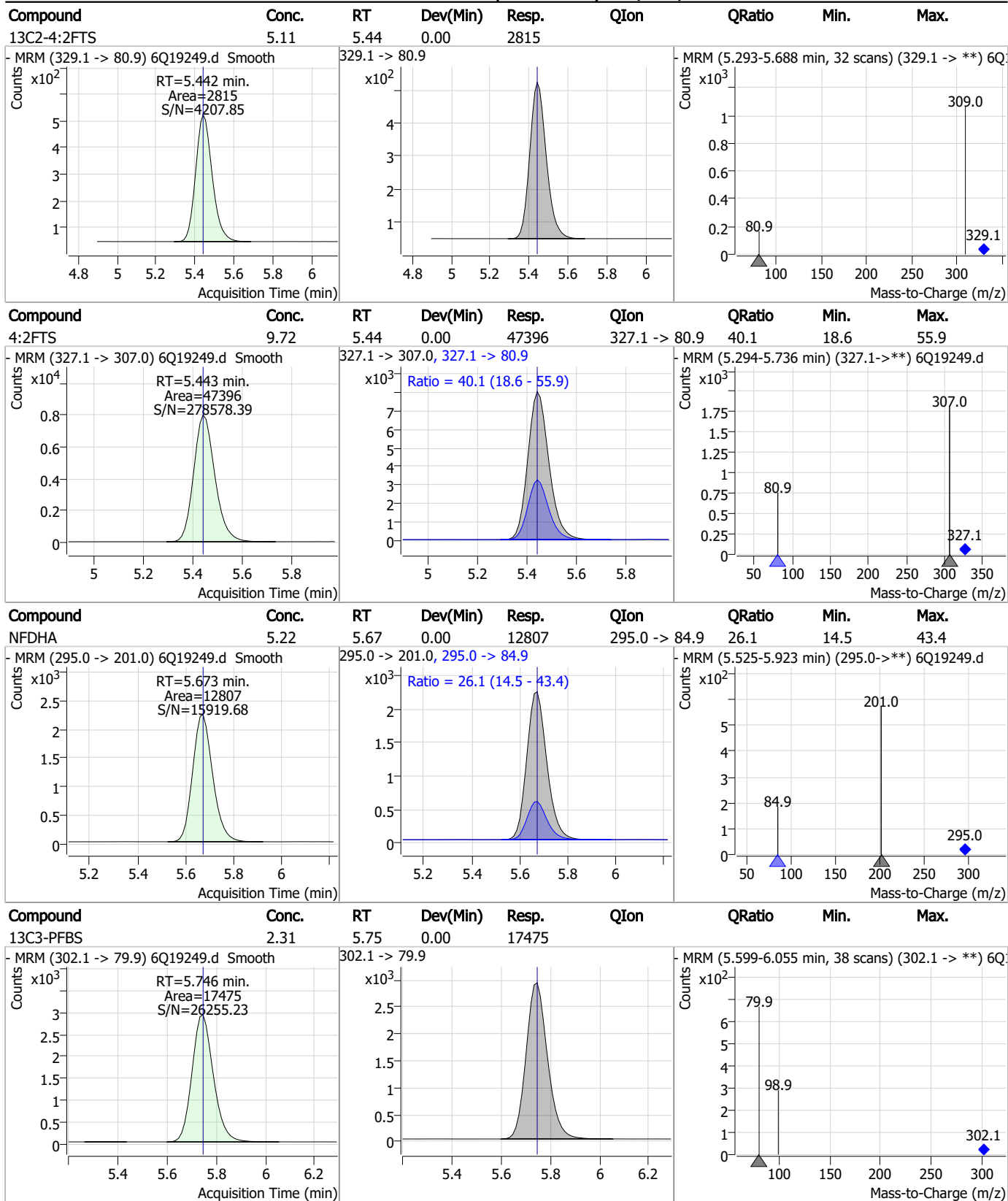


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.95	4.98	-0.01	47705				



7.7.10 7

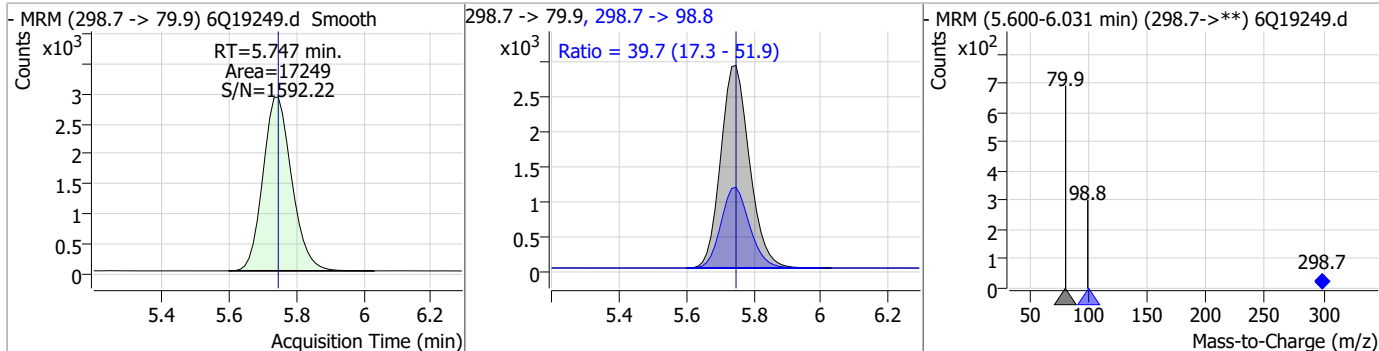
Perfluorinated Compounds by LC/MS/MS



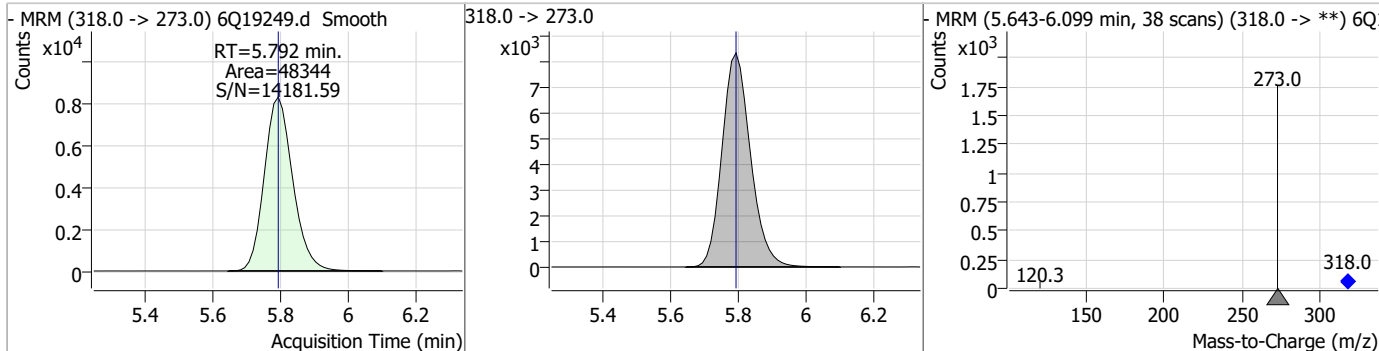
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

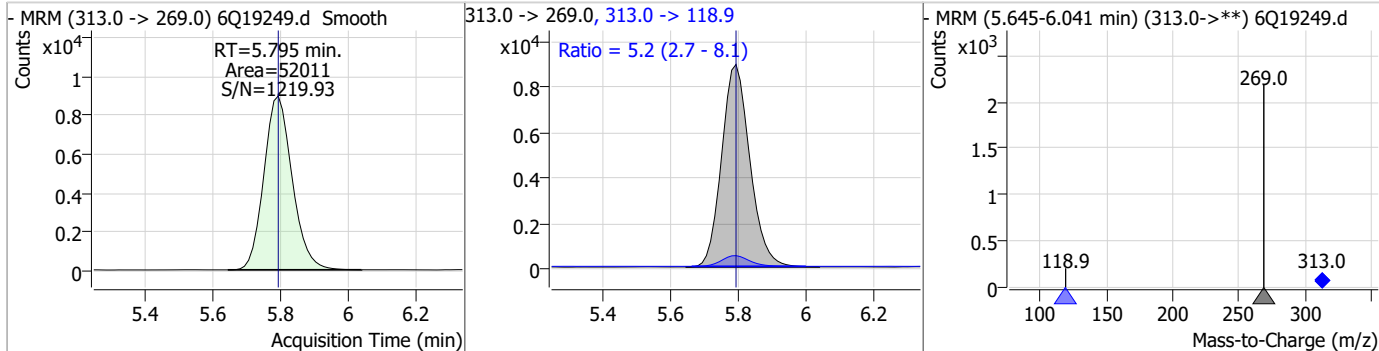
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.25	5.75	0.00	17249	298.7 -> 98.8	39.7	17.3	51.9



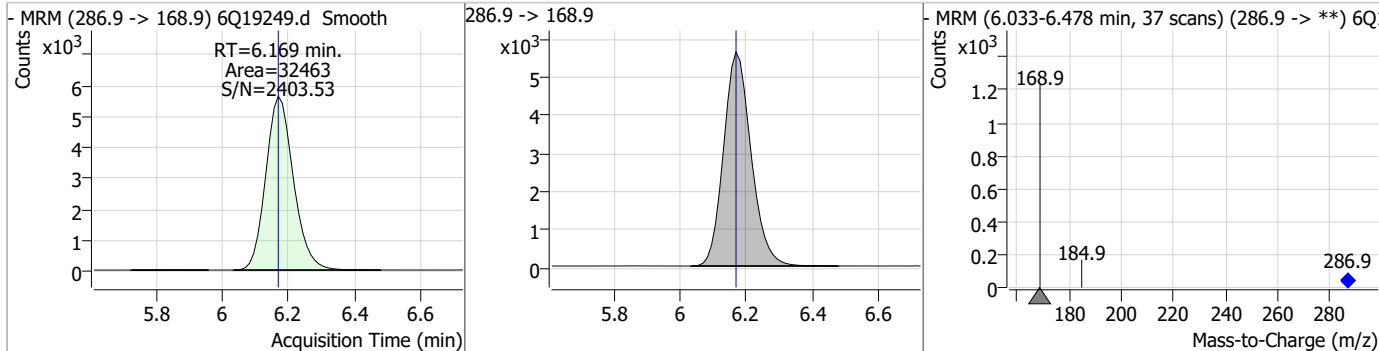
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.39	5.79	0.00	48344				



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

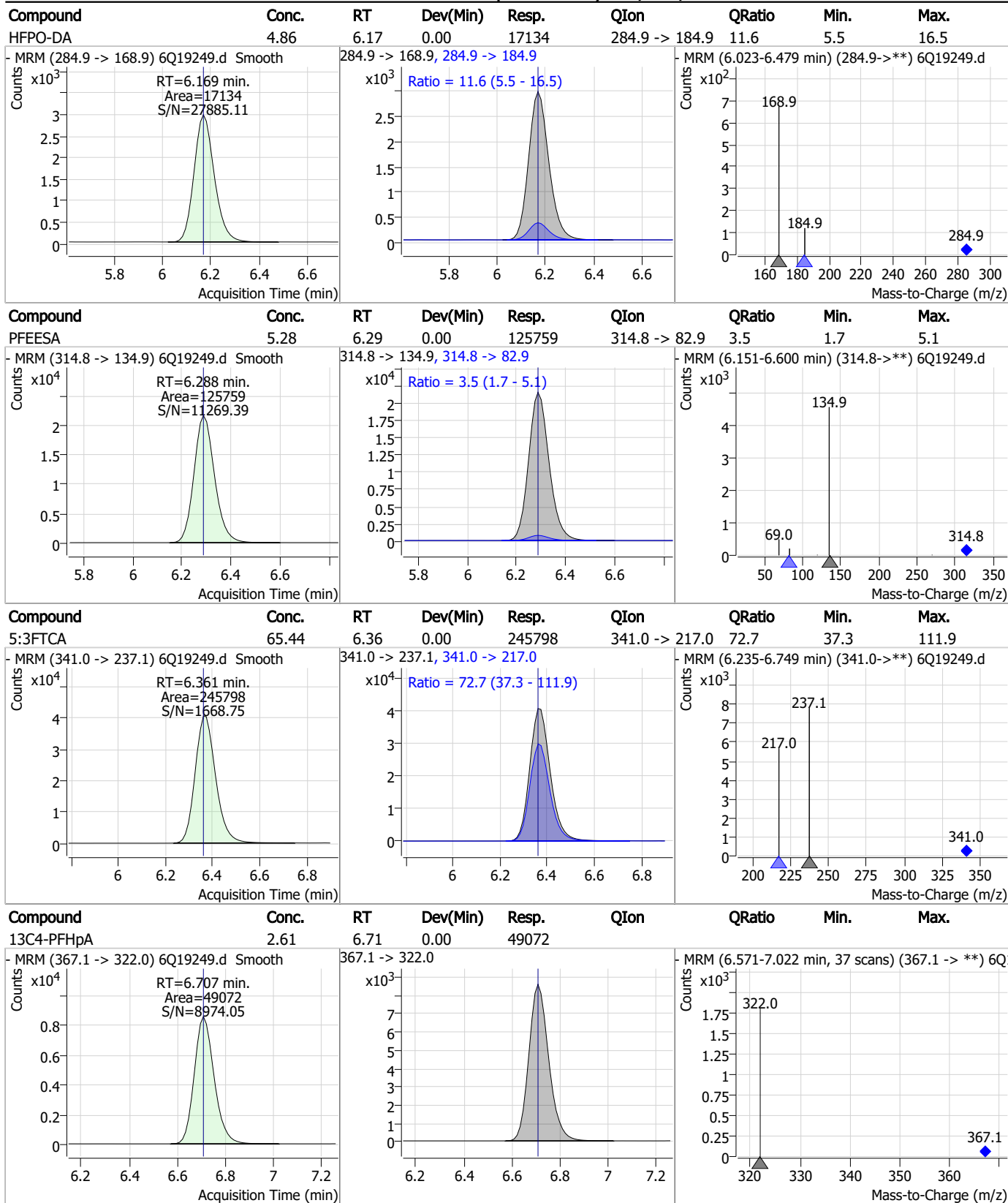


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.10	6.17	0.00	32463				



7.7.10
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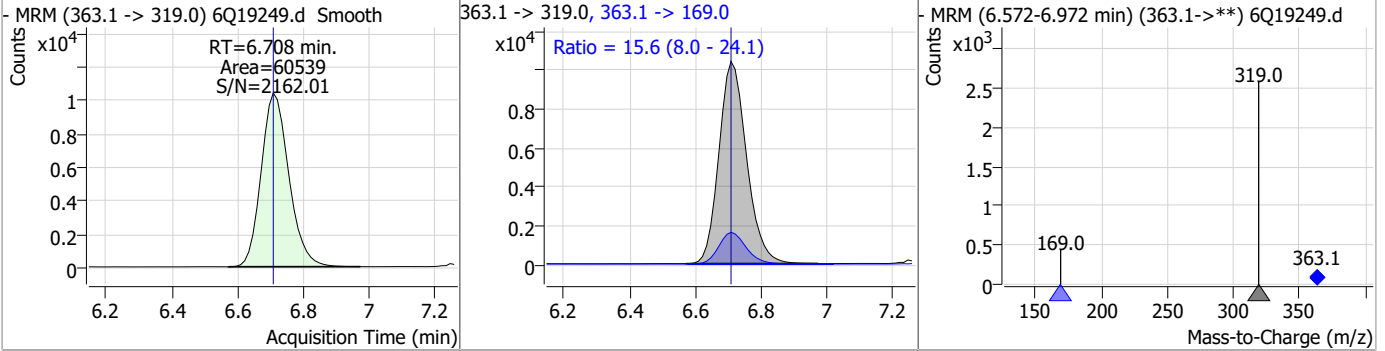
Perfluorinated Compounds by LC/MS/MS



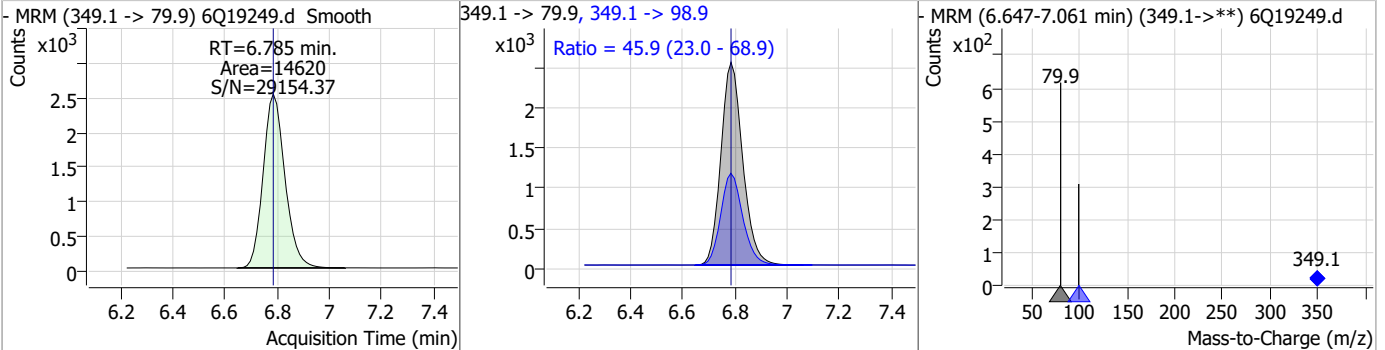
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

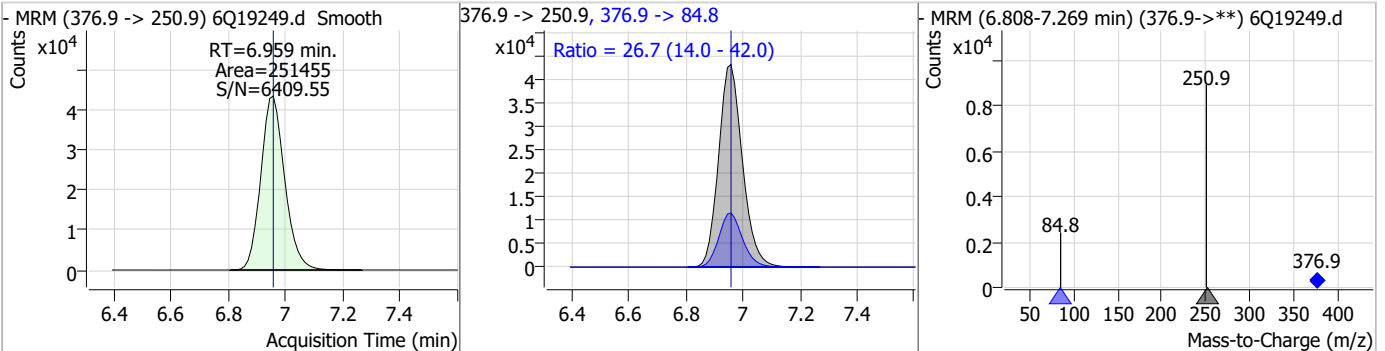
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.30	6.71	0.00	60539	363.1 -> 169.0	15.6	8.0	24.1



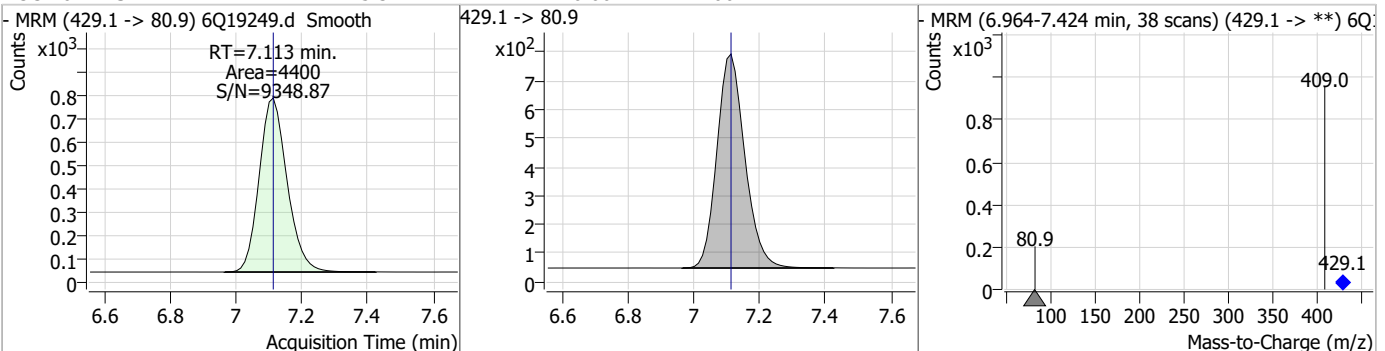
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.39	6.79	0.00	14620	349.1 -> 98.9	45.9	23.0	68.9



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

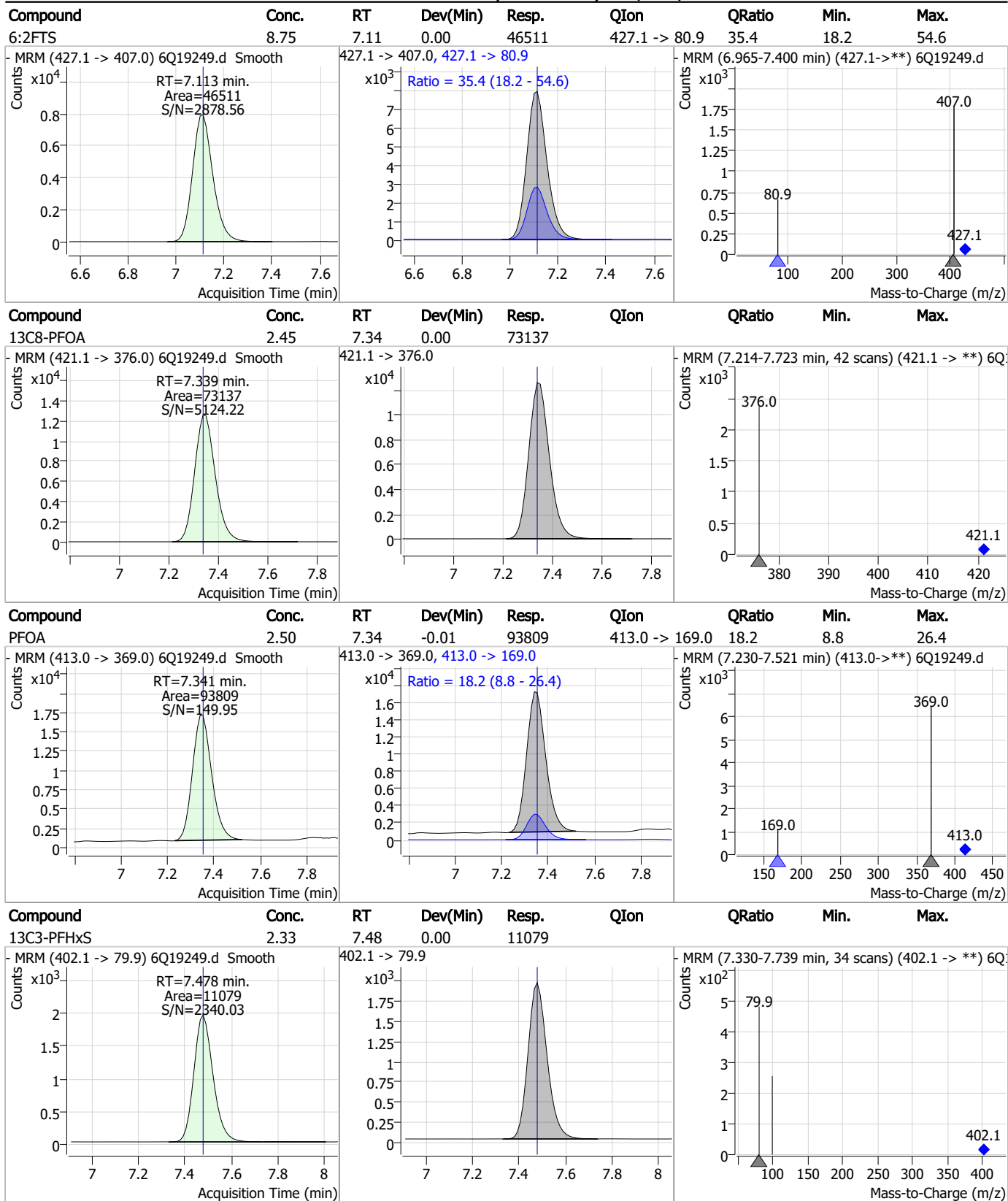


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.32	7.11	0.00	4400	429.1 -> 80.9			



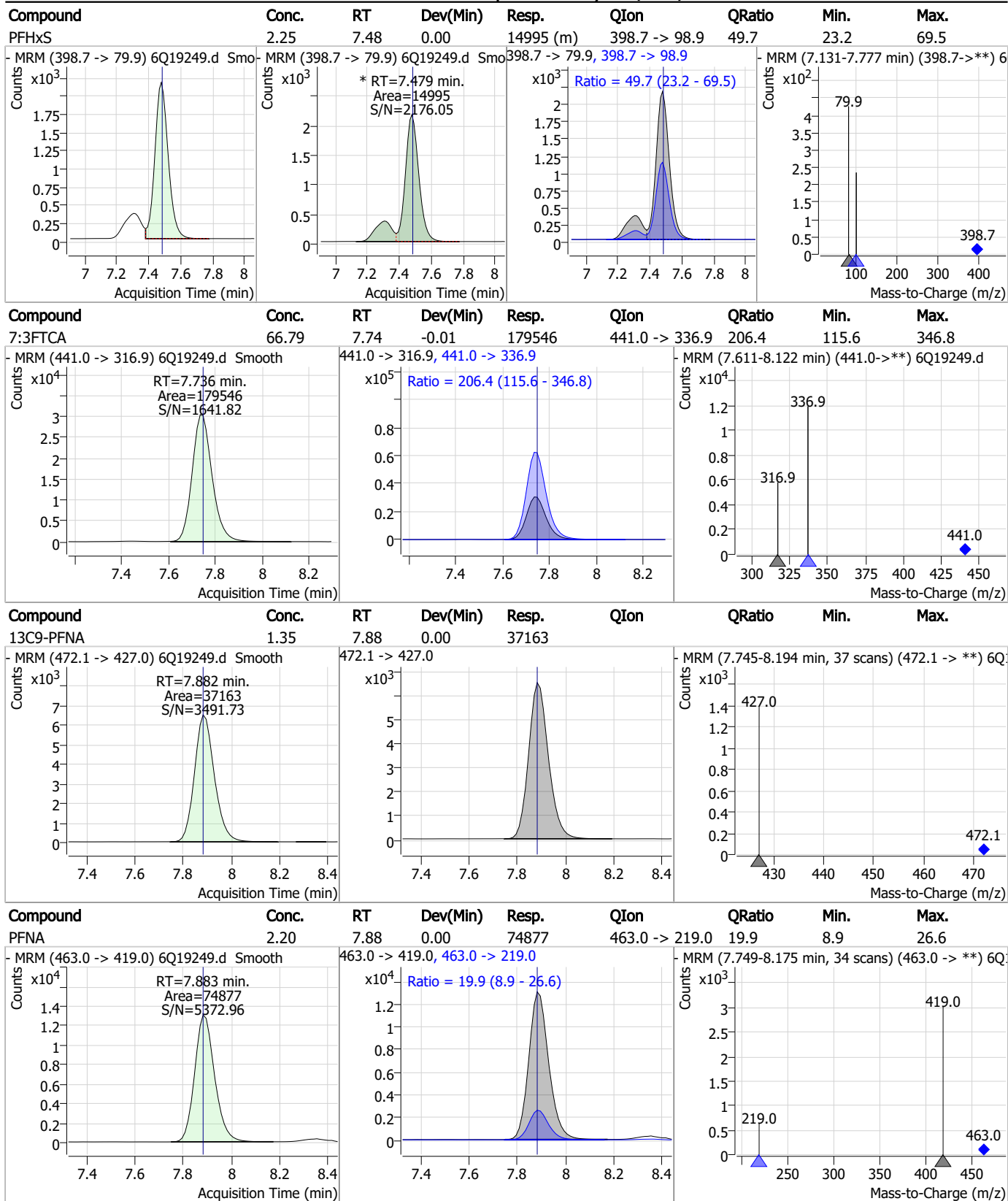
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



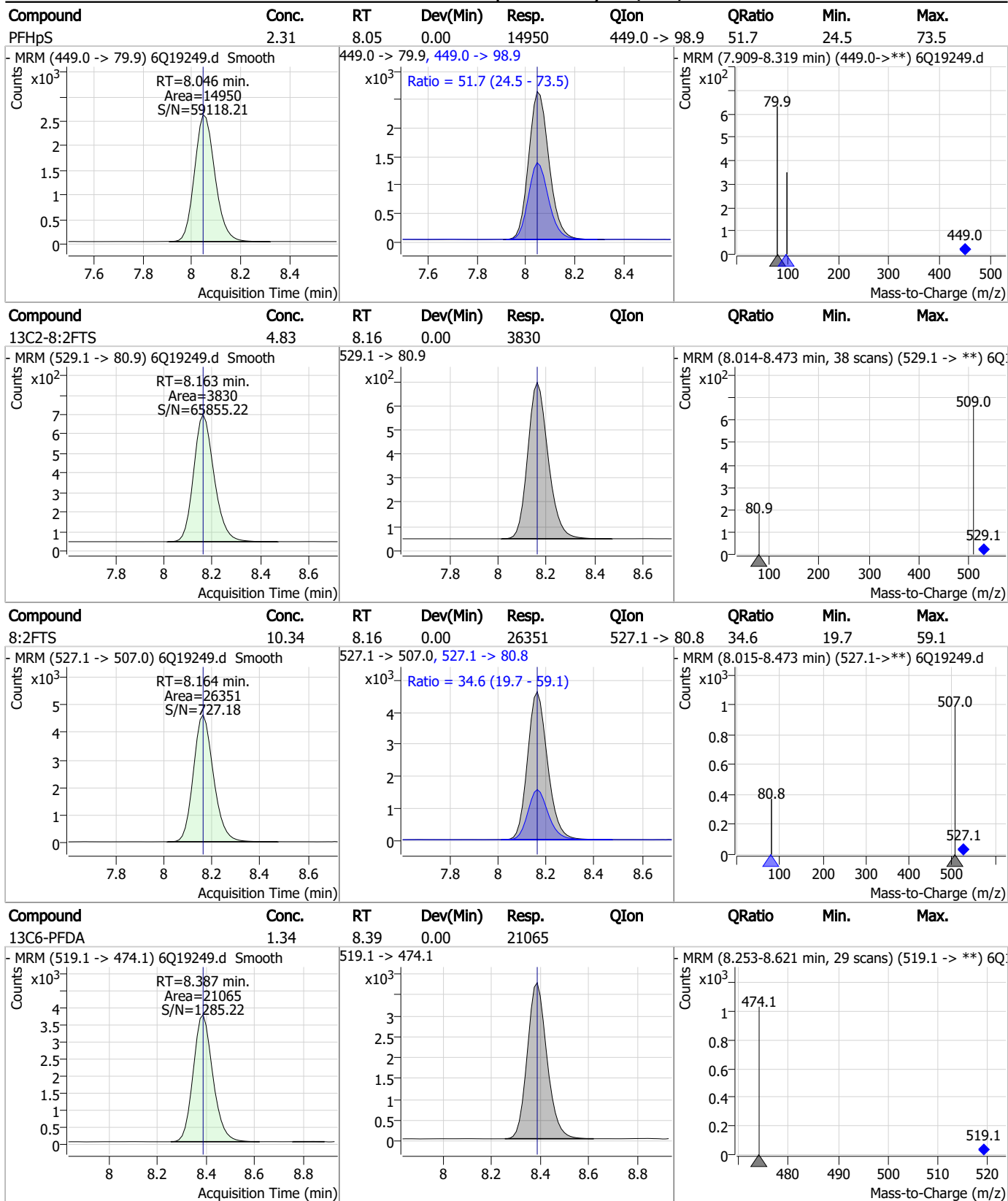
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



7.7.10
7

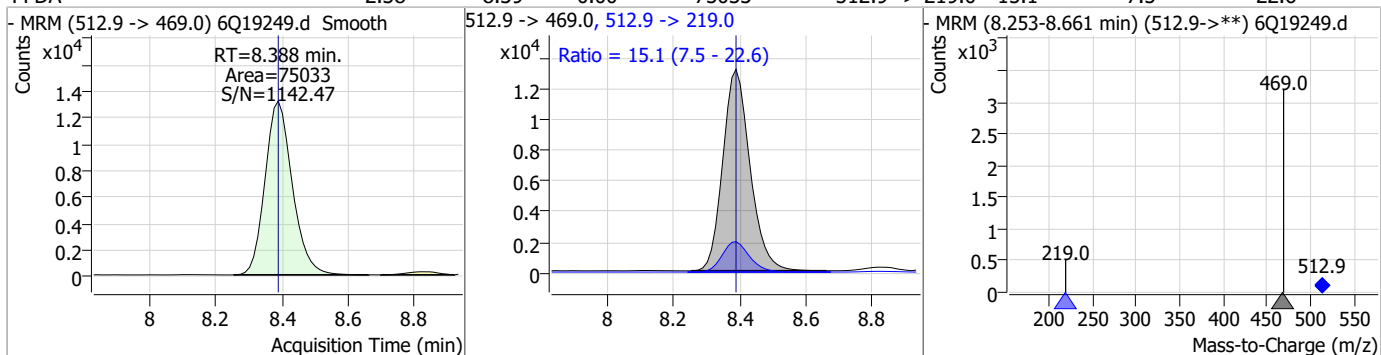
Perfluorinated Compounds by LC/MS/MS



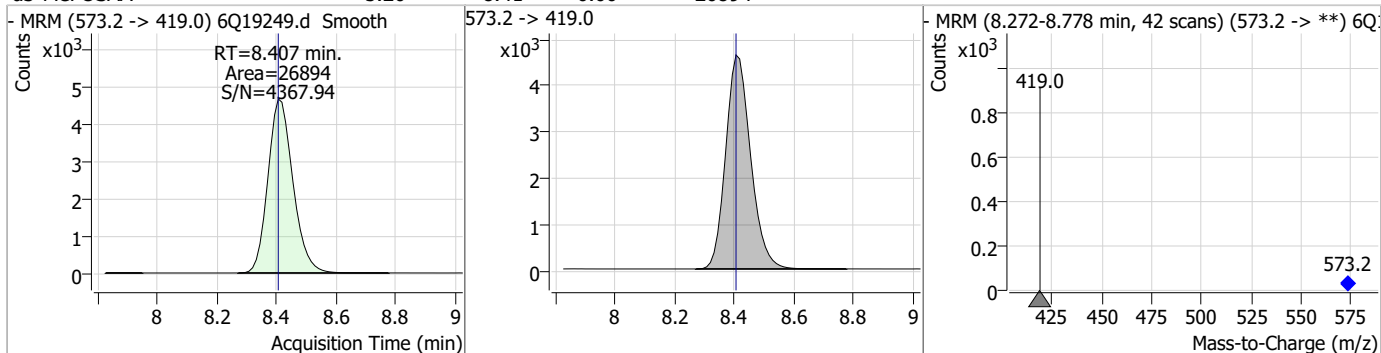
7.7.10
7

Perfluorinated Compounds by LC/MS/MS

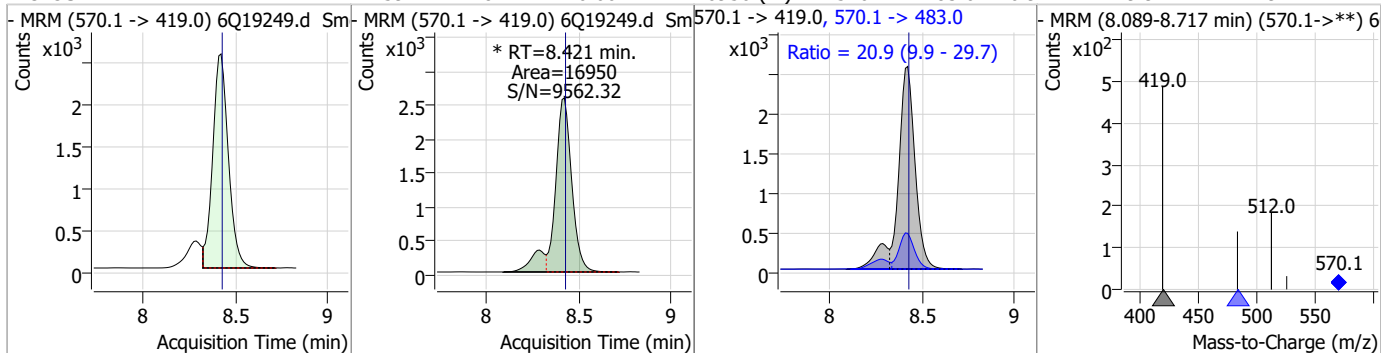
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.38	8.39	0.00	75033	512.9 -> 219.0	15.1	7.5	22.6



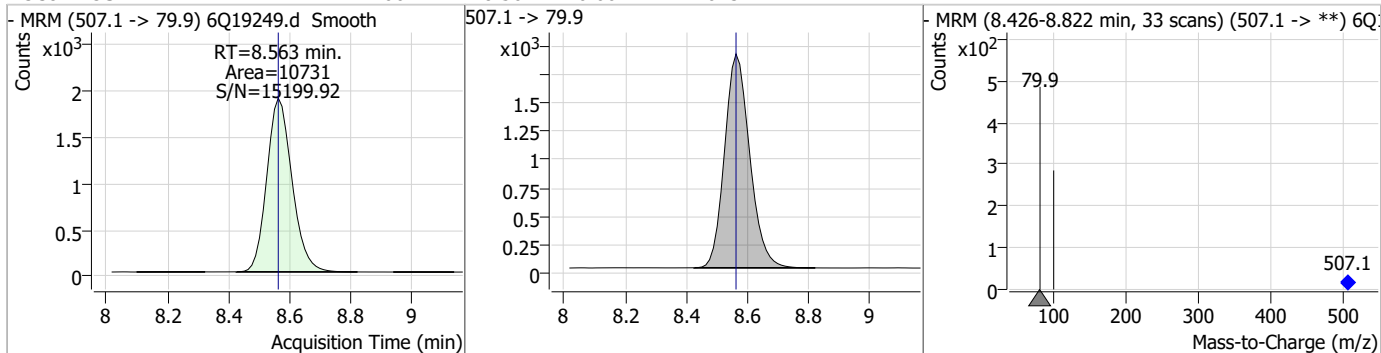
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.20	8.41	0.00	26894				



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

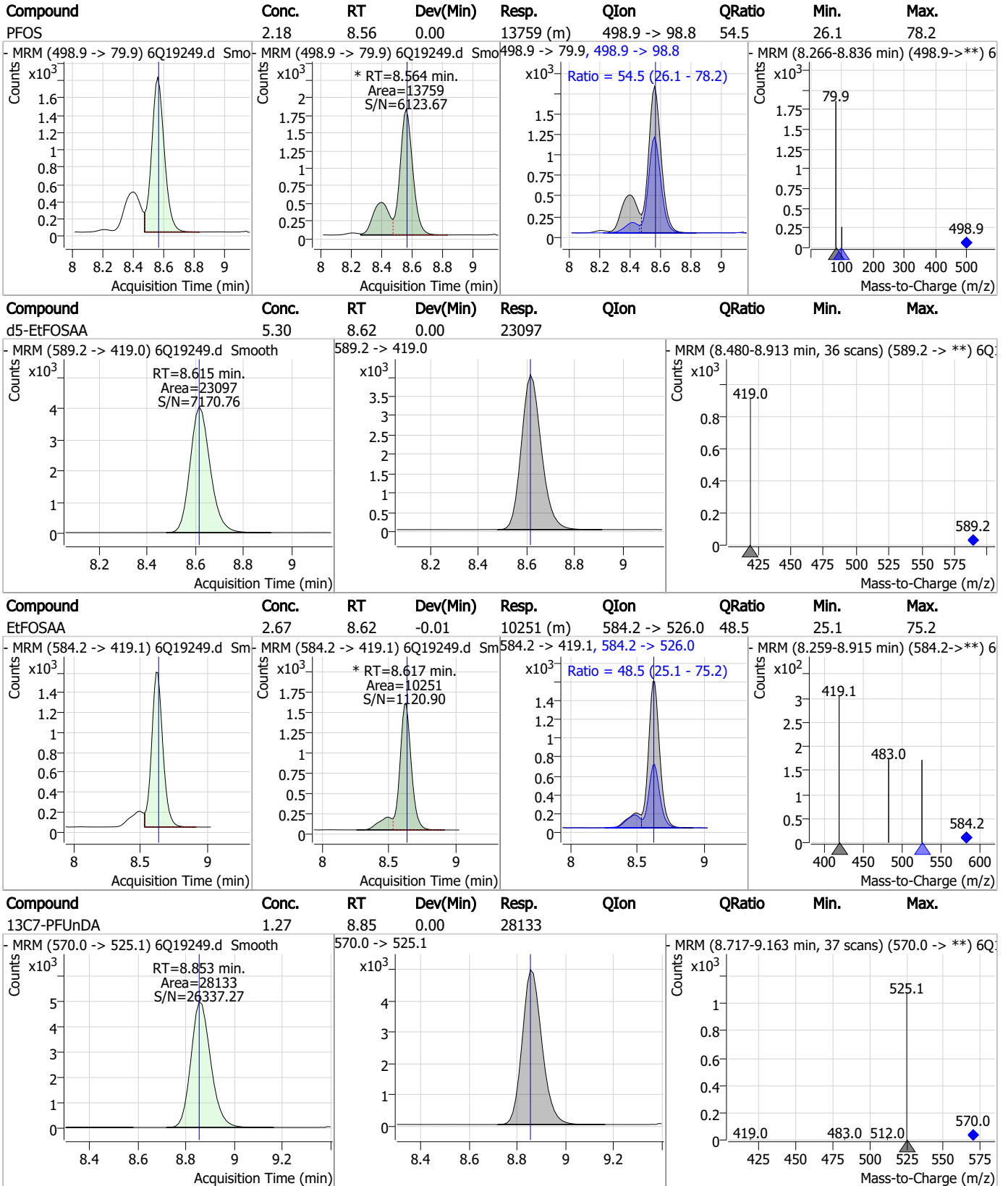


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.66	8.56	0.00	10731				



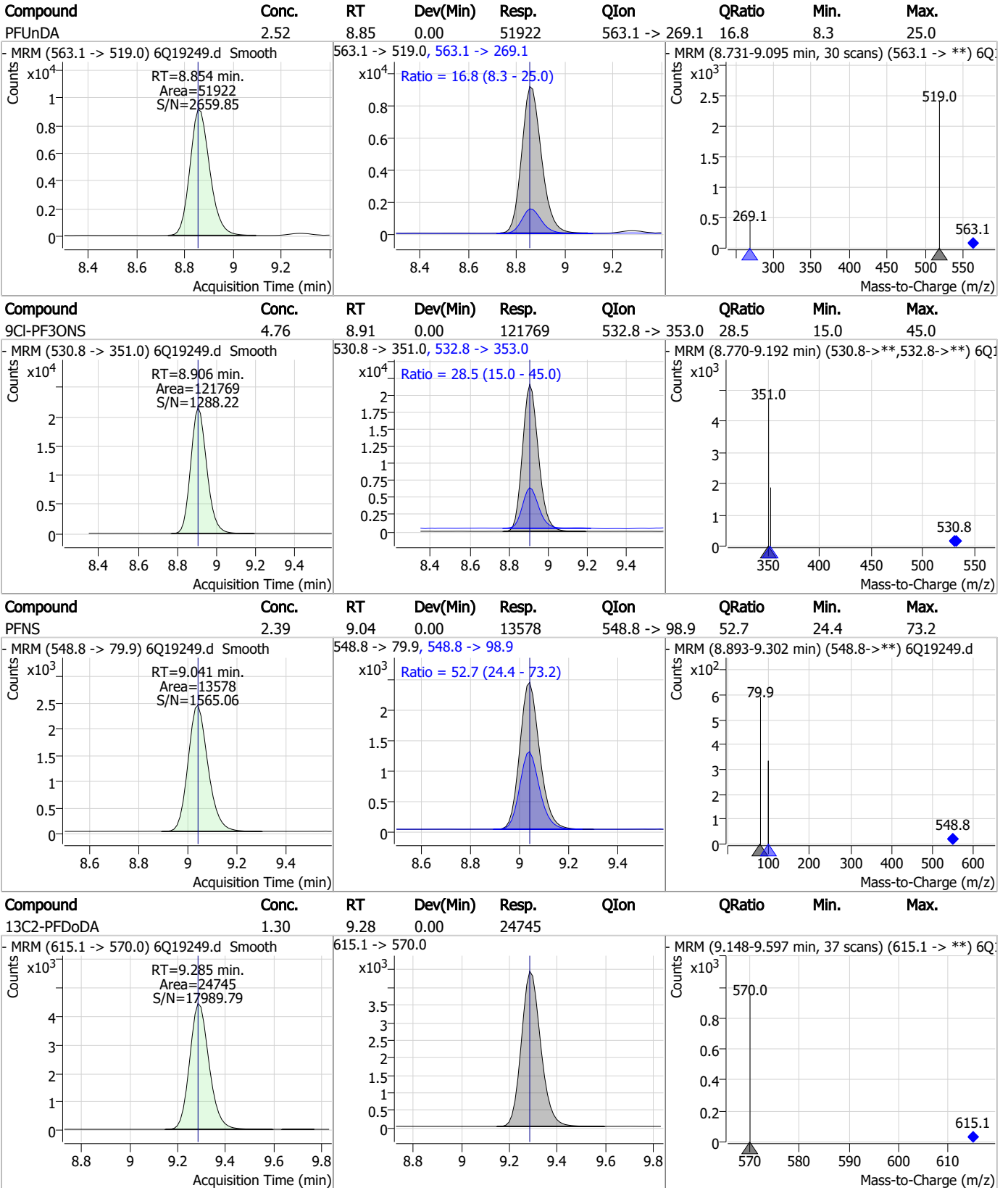
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



7.7.10 7

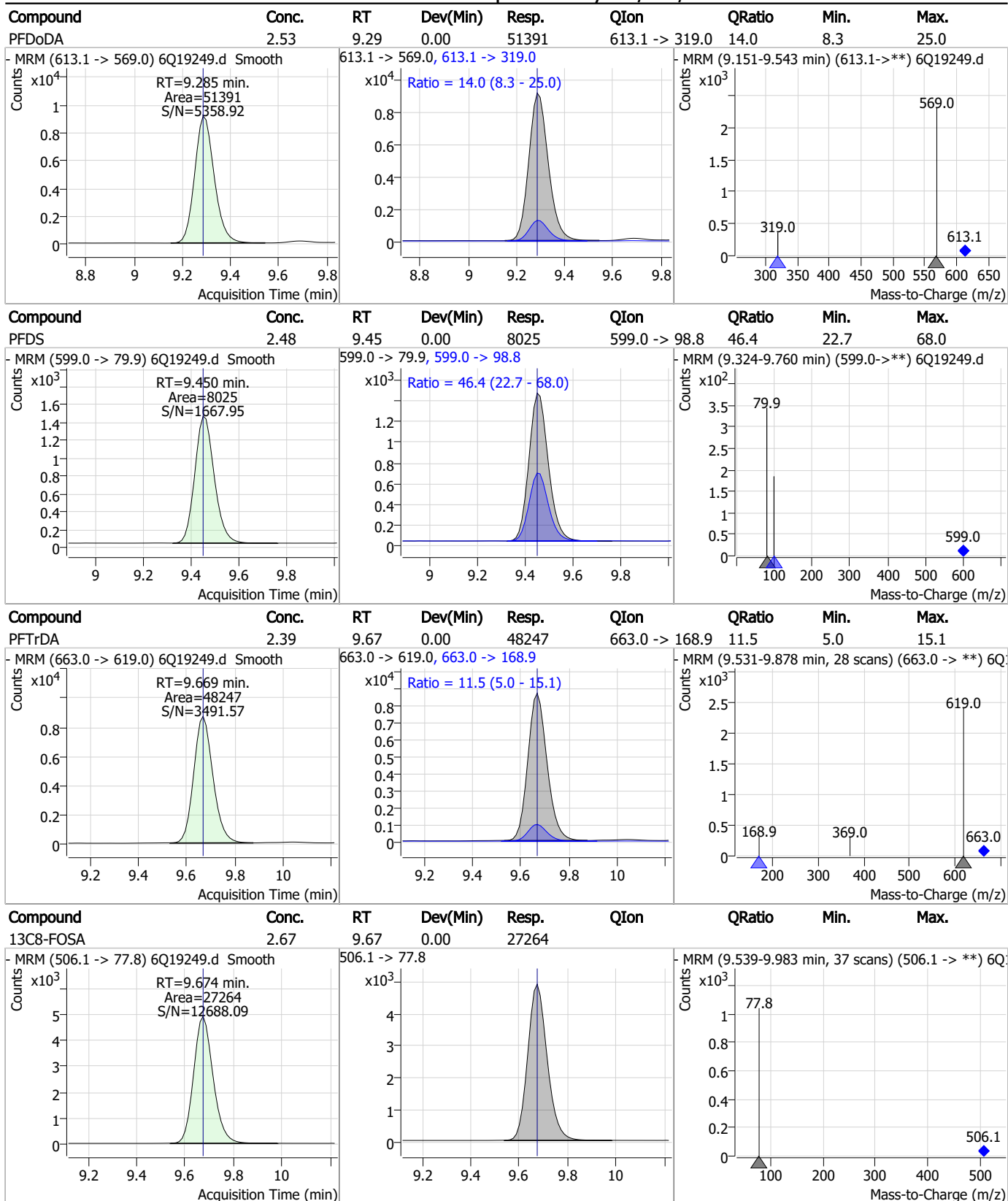
Perfluorinated Compounds by LC/MS/MS



7.7.10 7



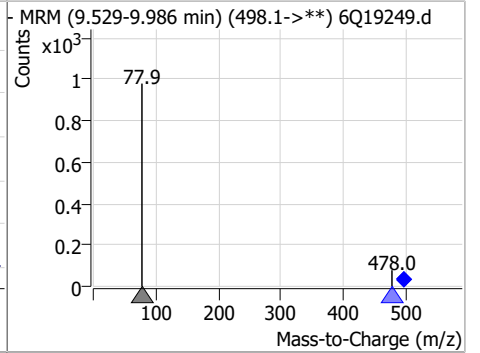
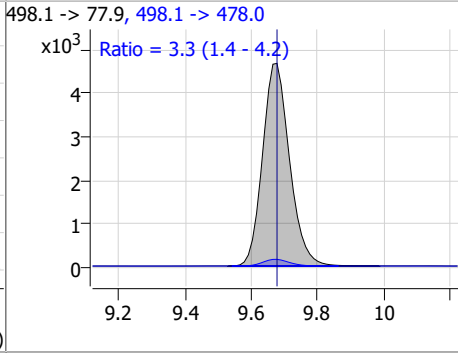
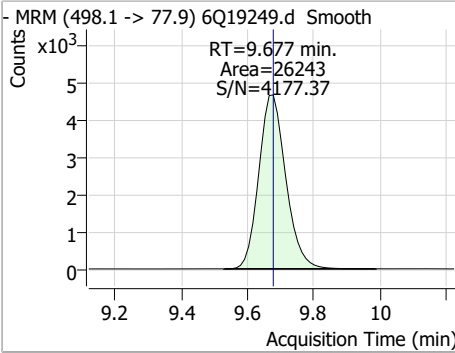
Perfluorinated Compounds by LC/MS/MS



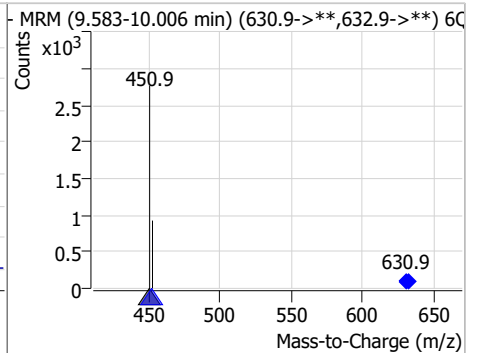
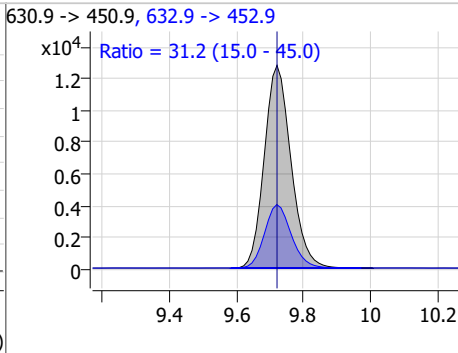
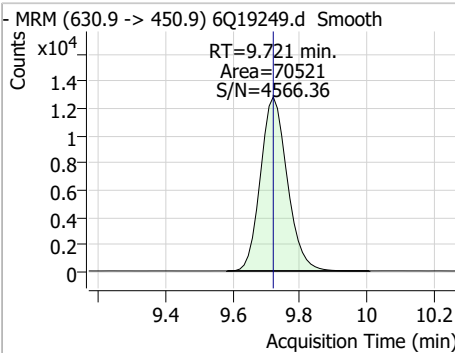
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

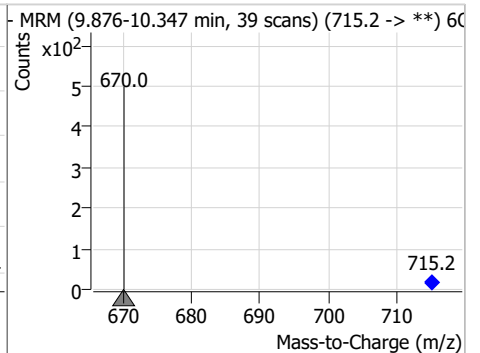
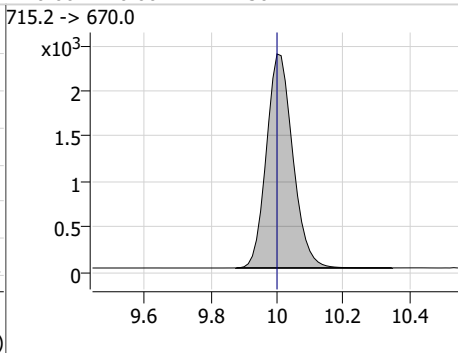
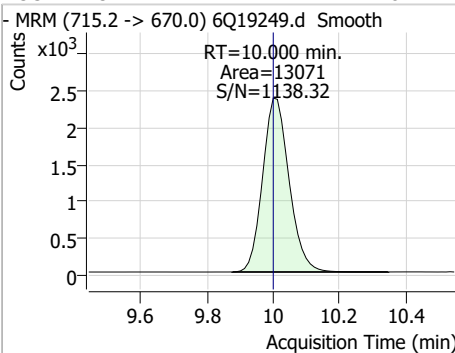
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.35	9.68	0.00	26243	498.1 -> 478.0	3.3	1.4	4.2



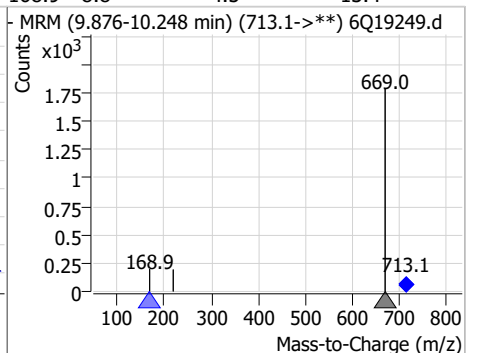
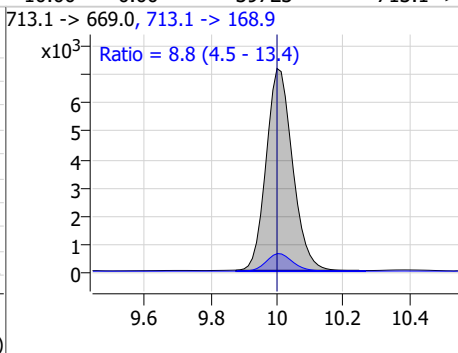
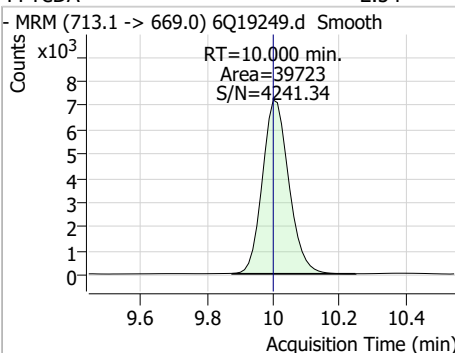
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	4.61	9.72	0.00	70521	632.9 -> 452.9	31.2	15.0	45.0



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

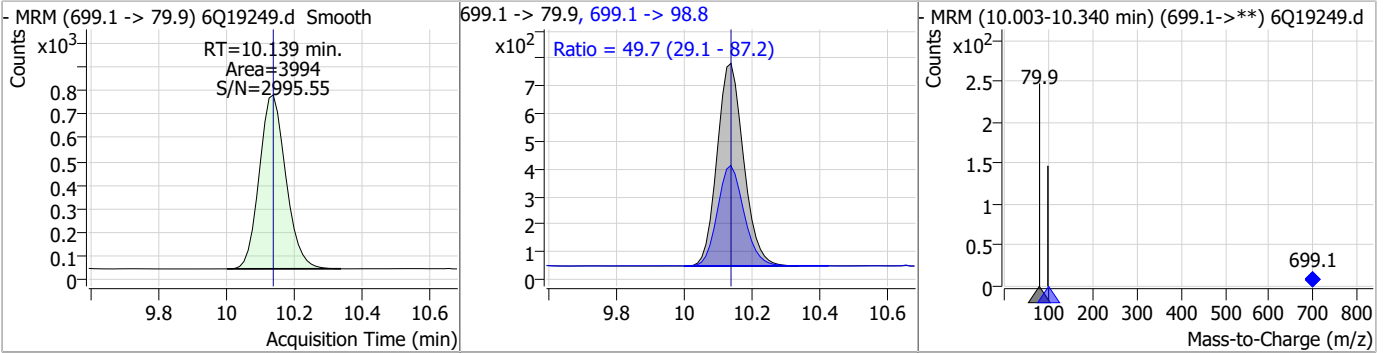


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.54	10.00	0.00	39723	713.1 -> 168.9	8.8	4.5	13.4

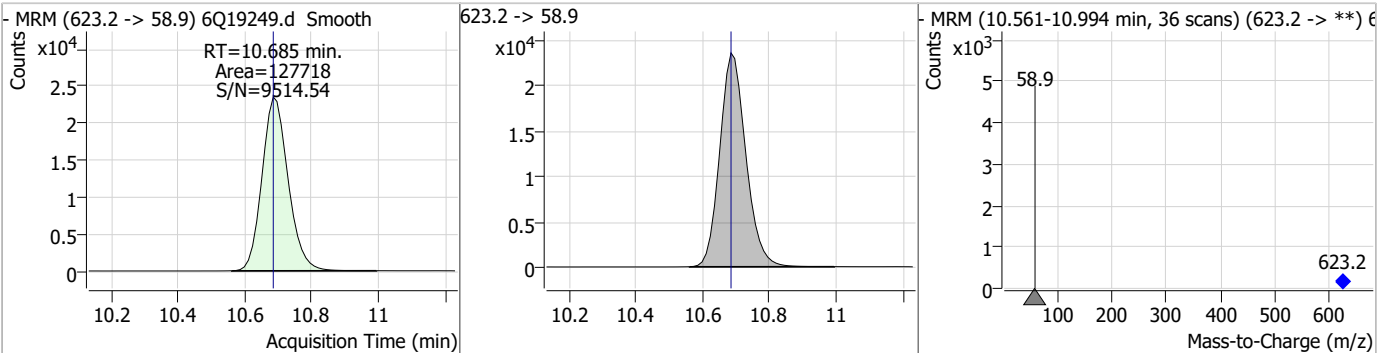


Perfluorinated Compounds by LC/MS/MS

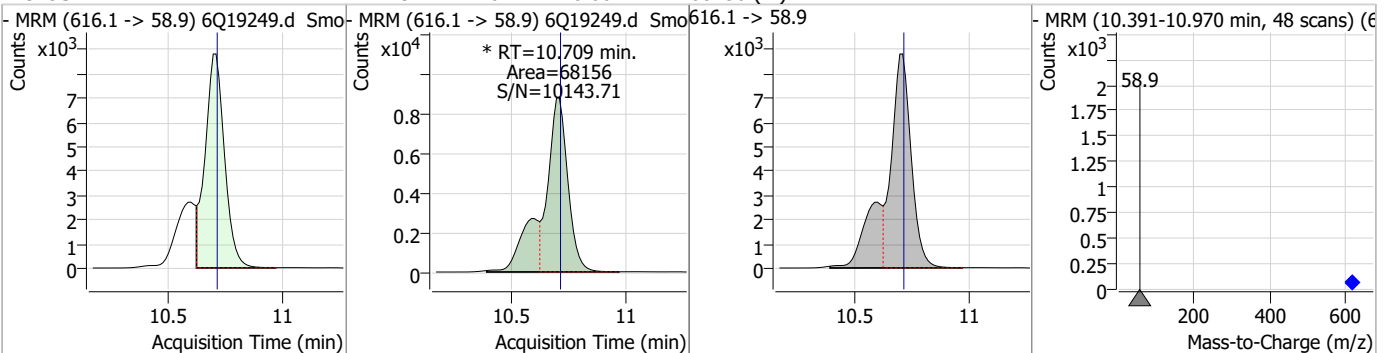
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.48	10.14	0.00	3994	699.1 -> 98.8	49.7	29.1	87.2



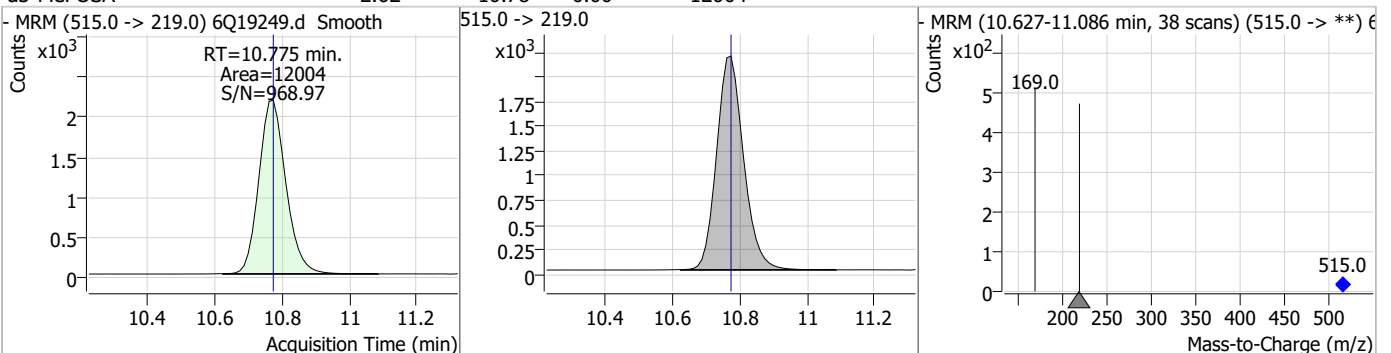
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.26	10.68	0.00	127718				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.19	10.71	0.00	68156 (m)				

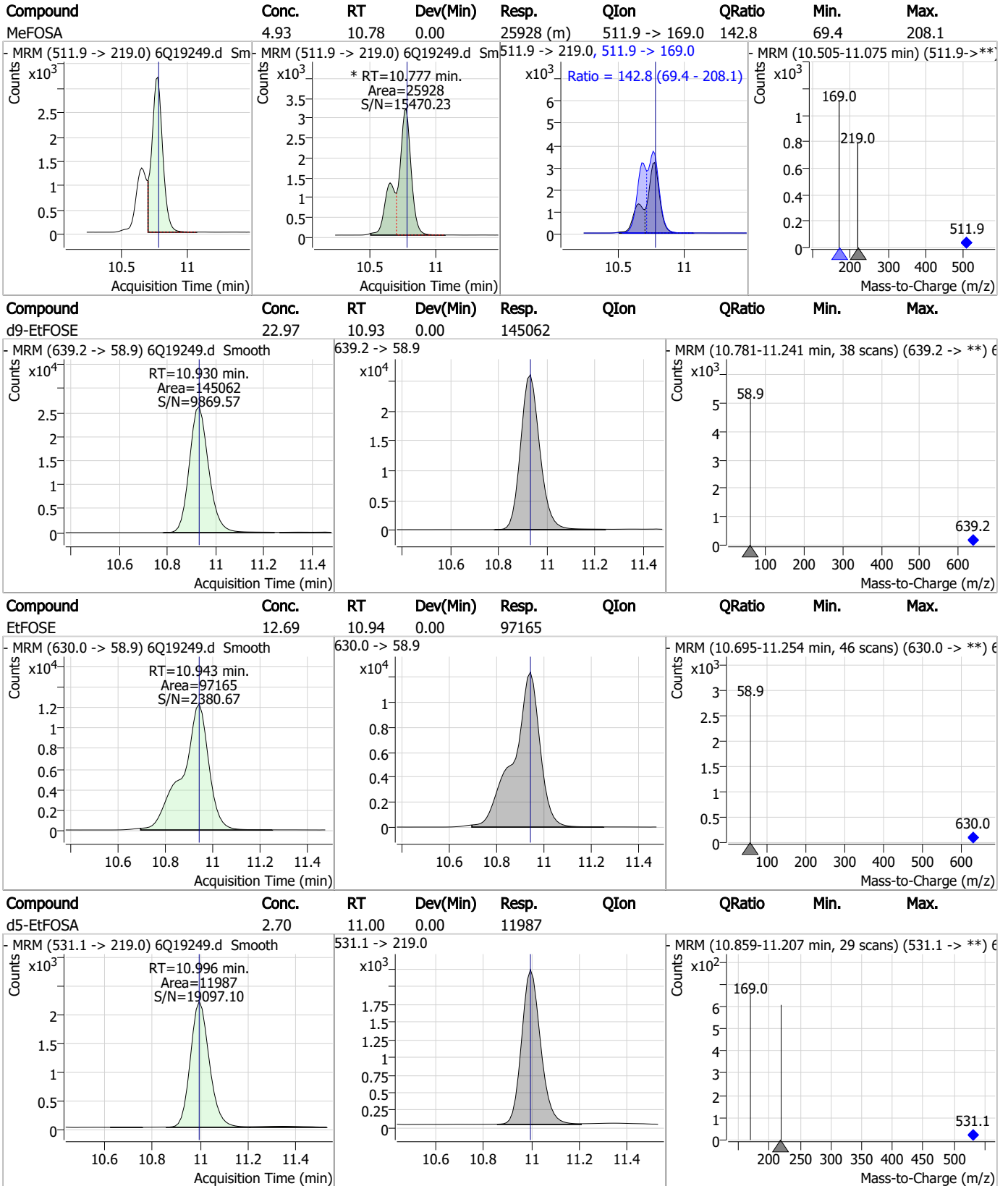


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.62	10.78	0.00	12004				



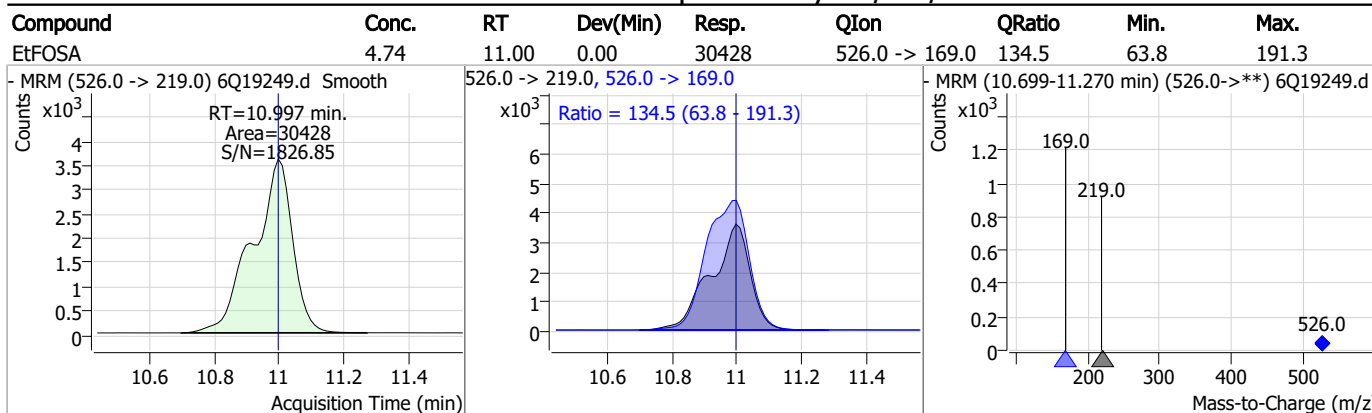
7.7.10 7

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

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Natasha Gumtie
 06/13/23 13:30

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			
11CI-PF3OUdS	9.721	630.9 -> 450.9	307399	15.05	µg/L	95
		632.9 -> 452.9	100291			
9CI-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

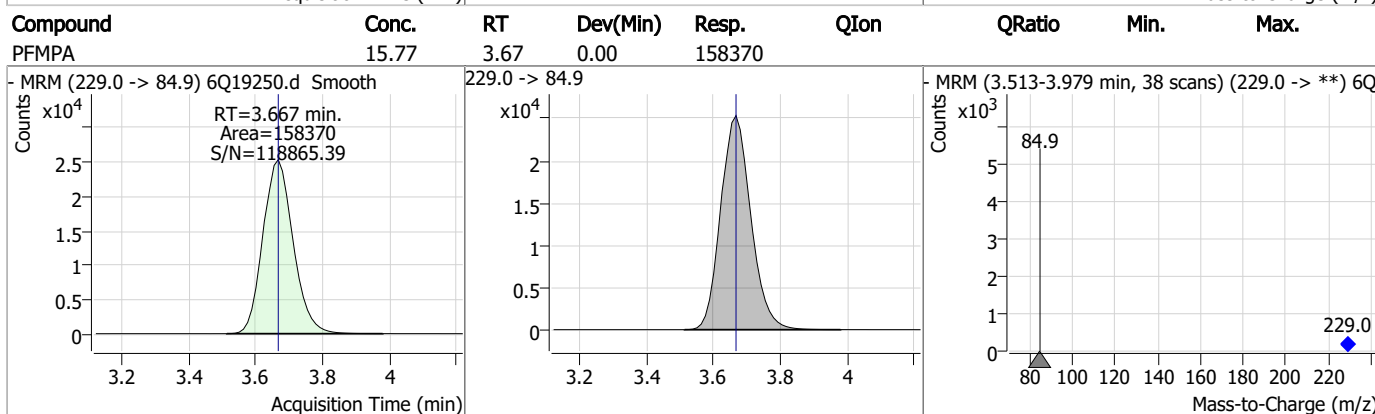
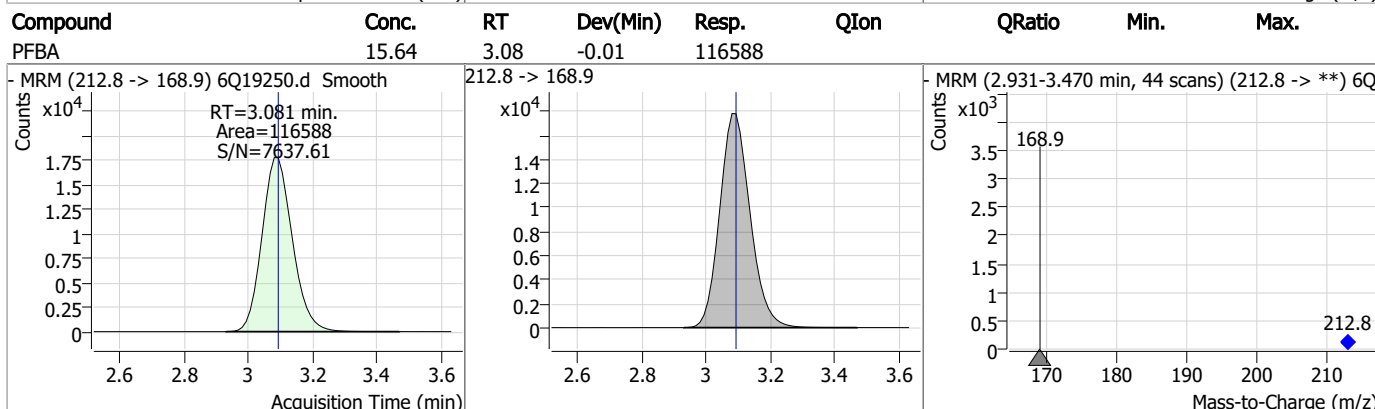
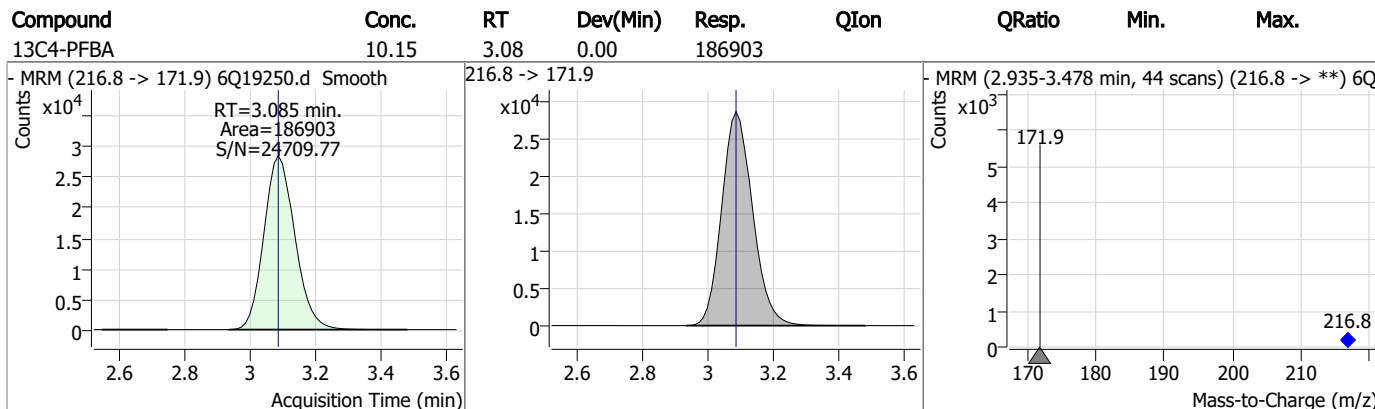
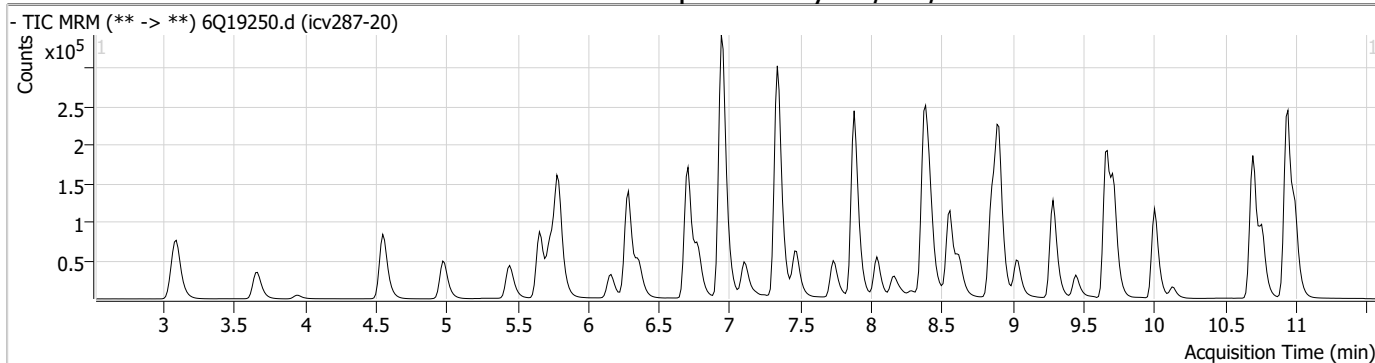
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.11

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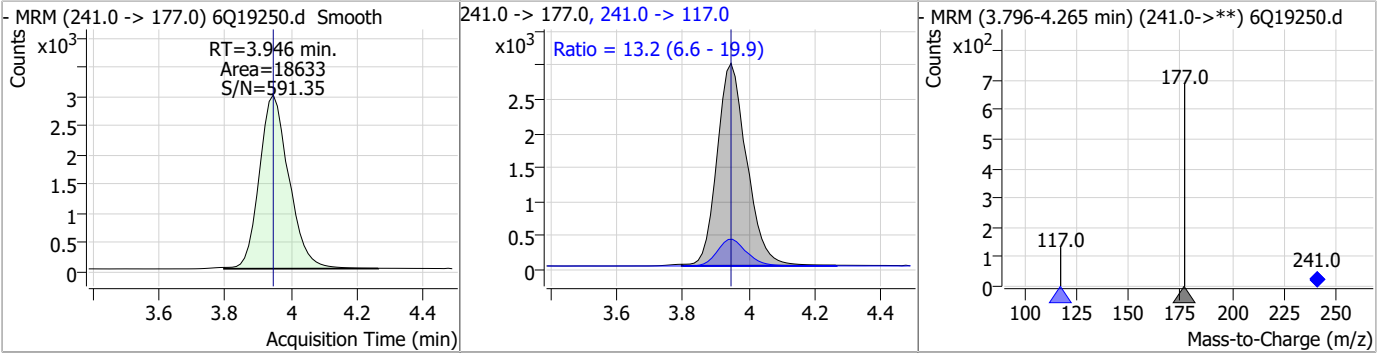
Perfluorinated Compounds by LC/MS/MS



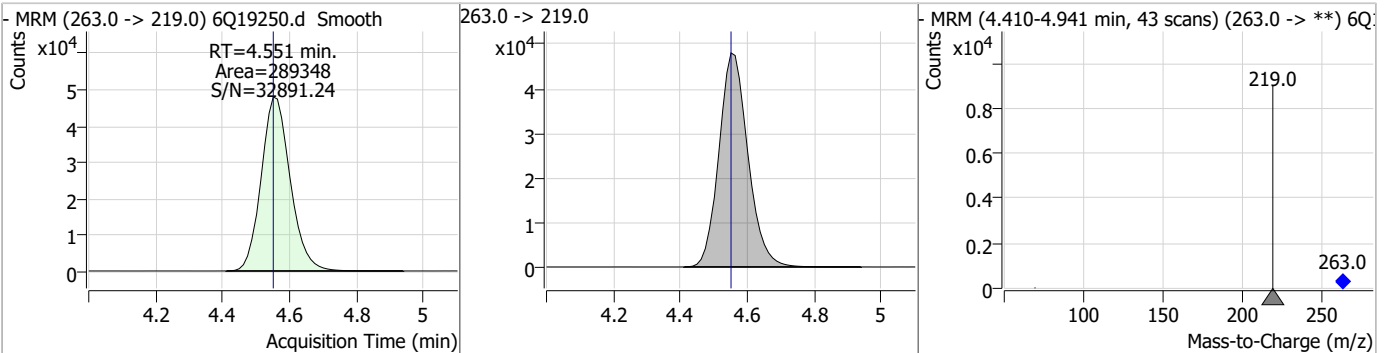
7.7.11
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Perfluorinated Compounds by LC/MS/MS

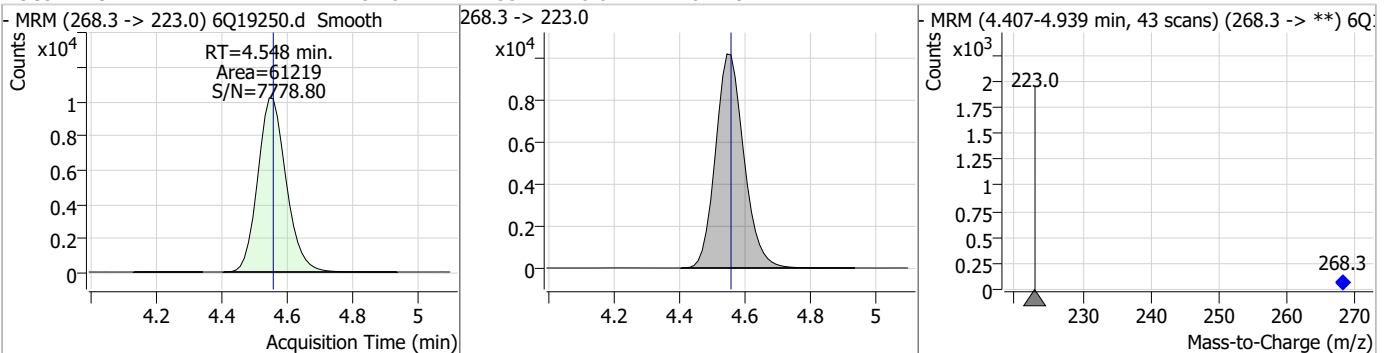
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	15.13	3.95	0.00	18633	241.0 -> 117.0	13.2	6.6	19.9



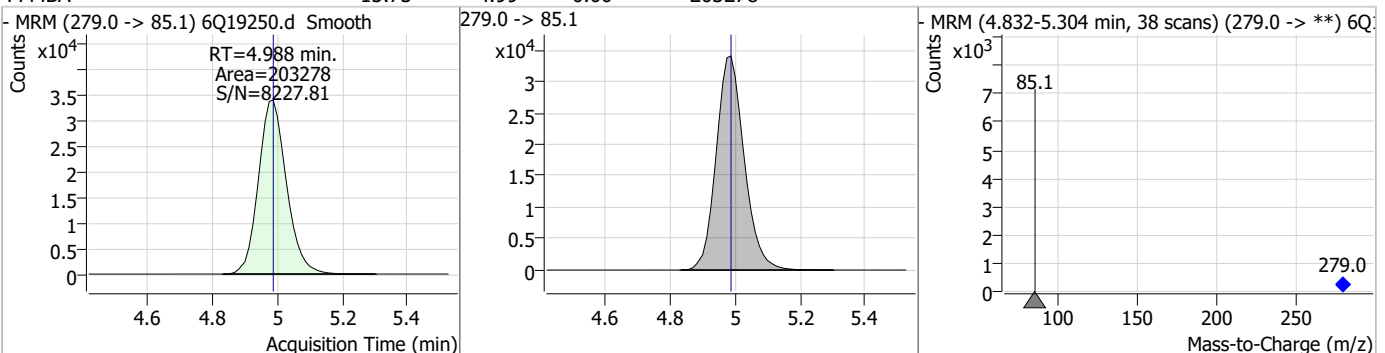
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	16.06	4.55	0.00	289348				



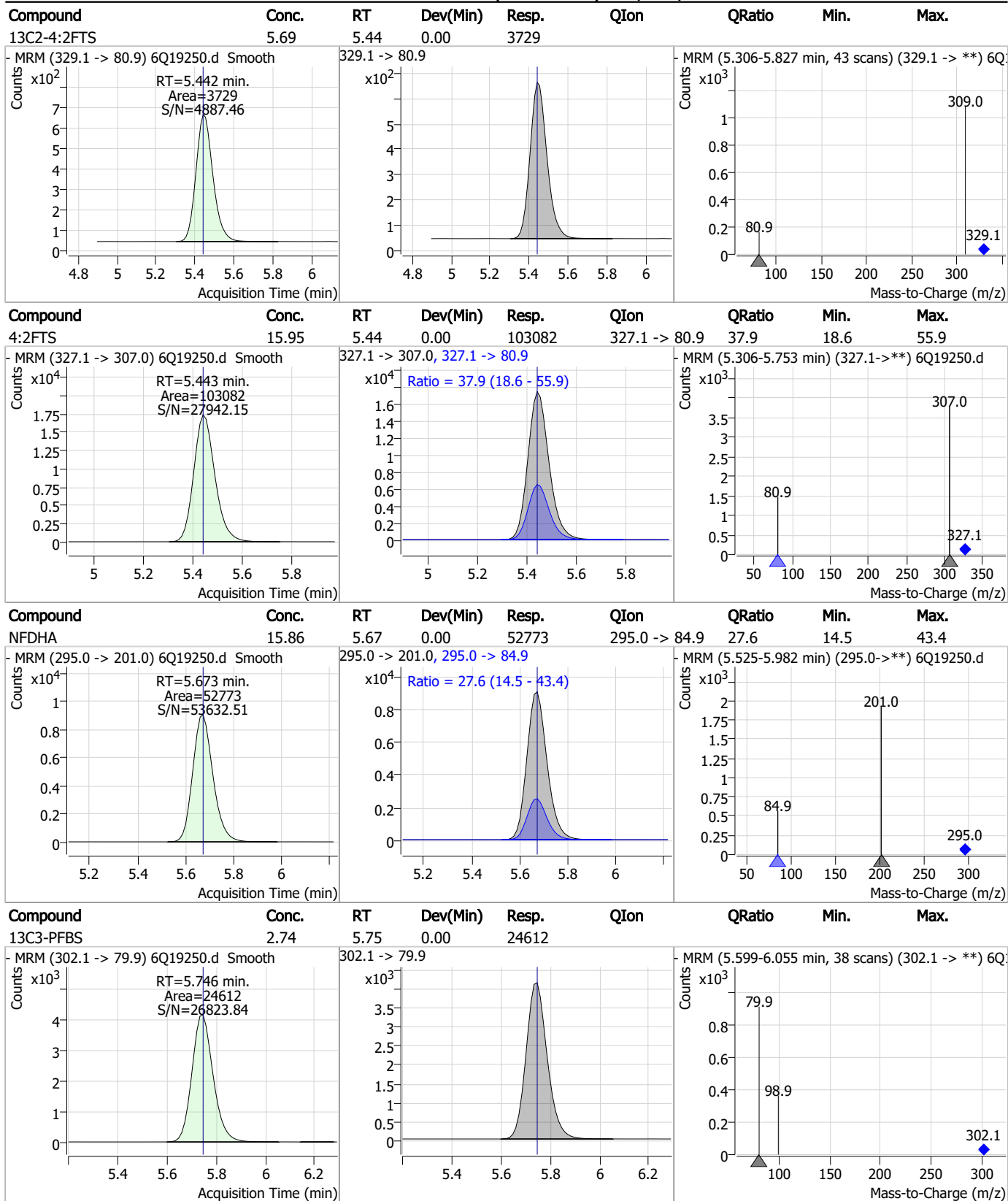
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.16	4.55	-0.01	61219				



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



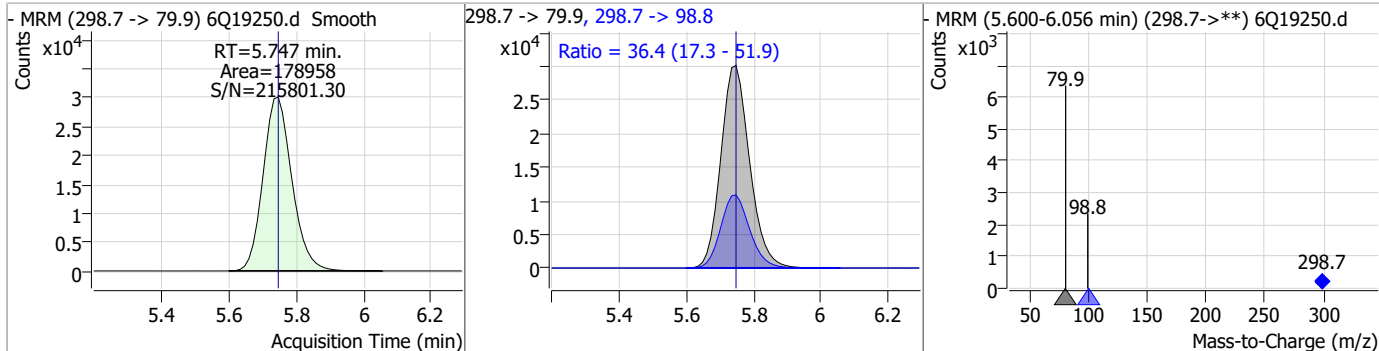
Perfluorinated Compounds by LC/MS/MS



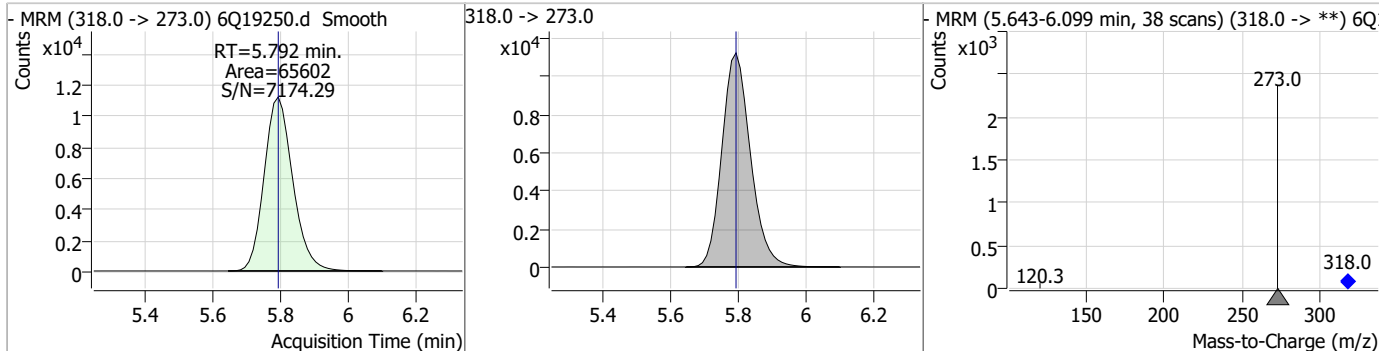
7.7.11
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Perfluorinated Compounds by LC/MS/MS

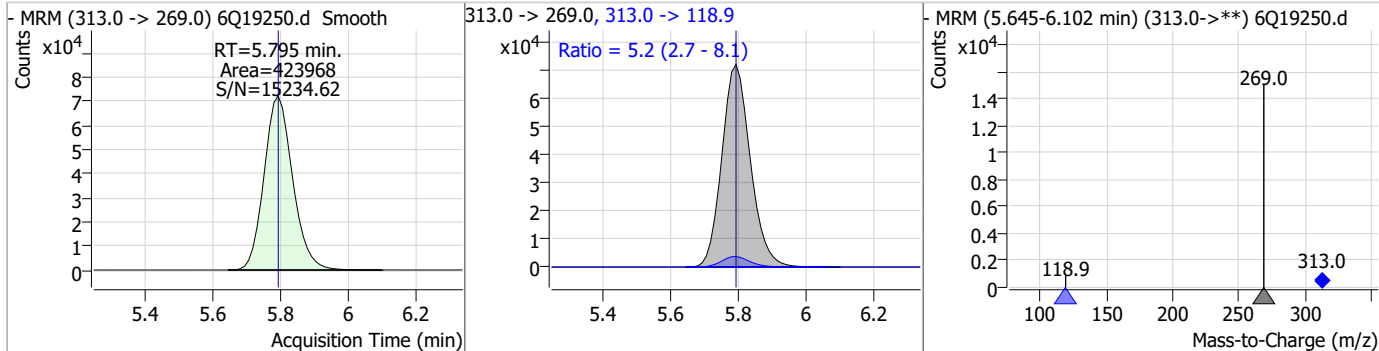
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	16.58	5.75	0.00	178958	298.7 -> 98.8	36.4	17.3	51.9



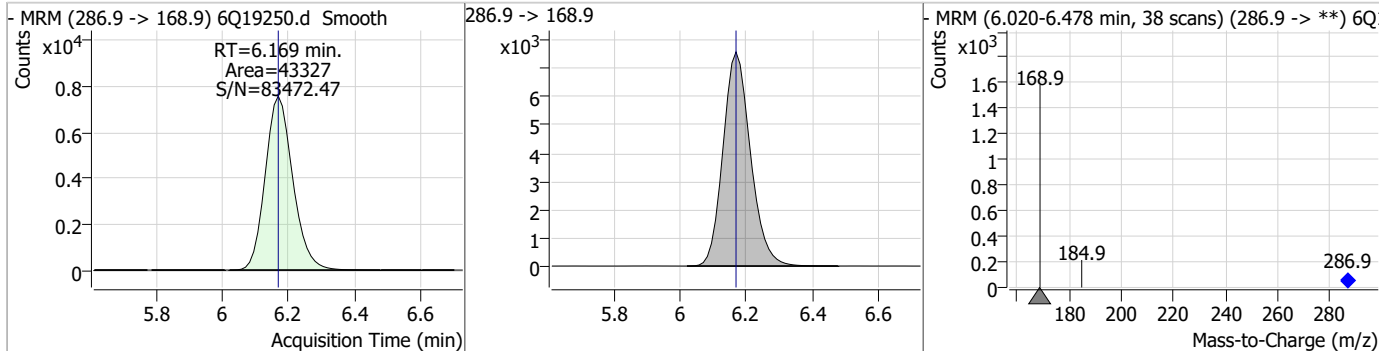
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.47	5.79	0.00	65602				



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

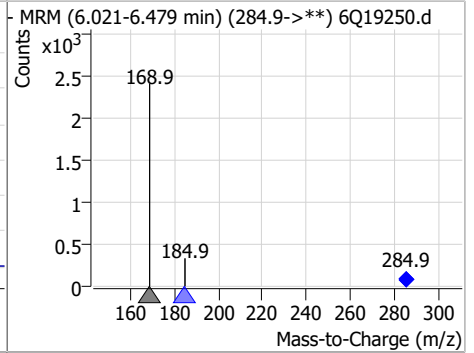
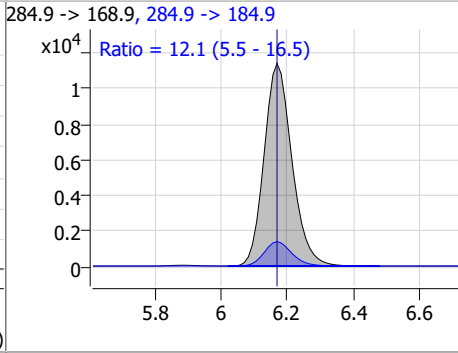
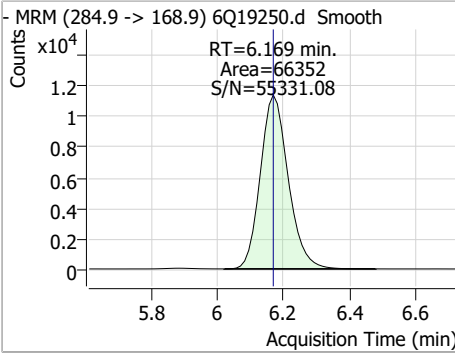


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.29	6.17	0.00	43327				

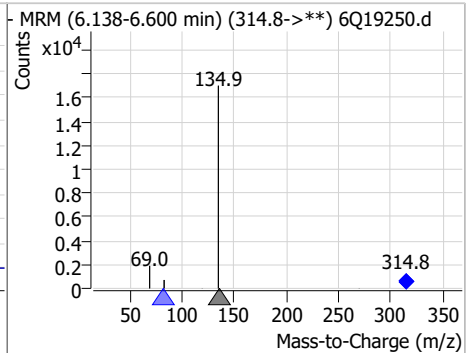
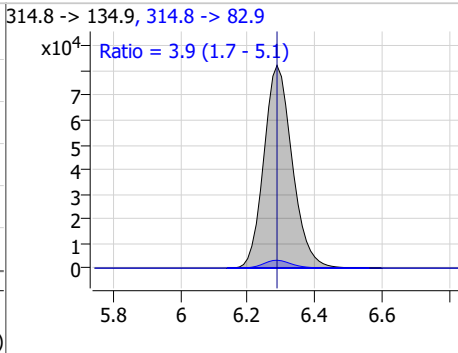
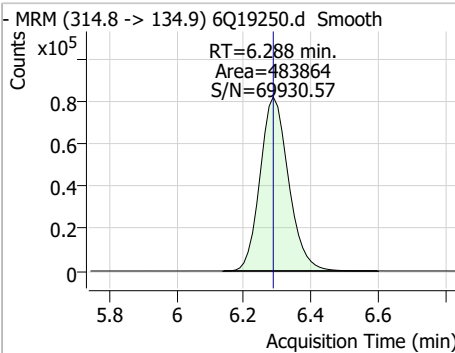


Perfluorinated Compounds by LC/MS/MS

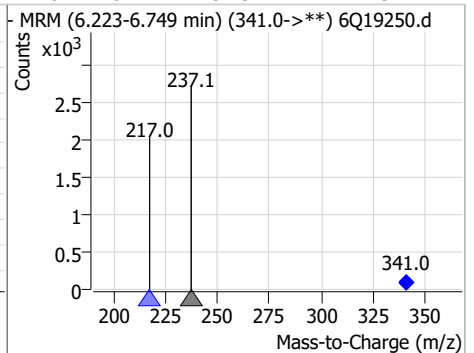
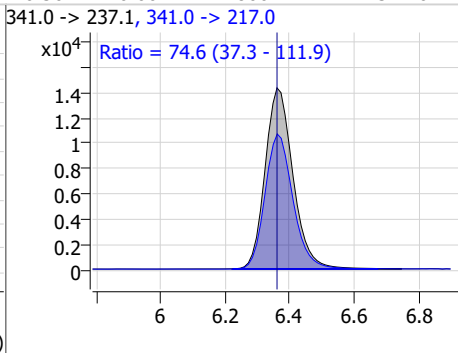
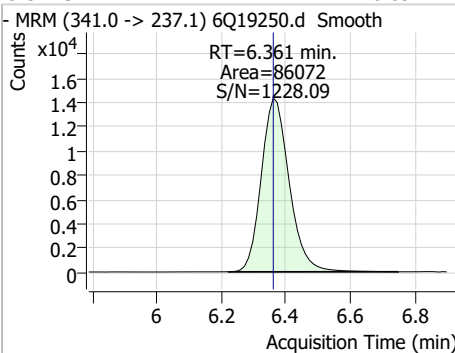
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	14.25	6.17	0.00	66352	284.9 -> 184.9	12.1	5.5	16.5



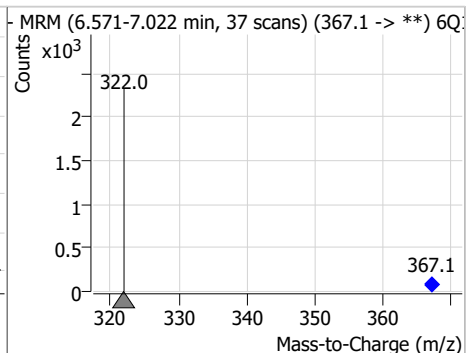
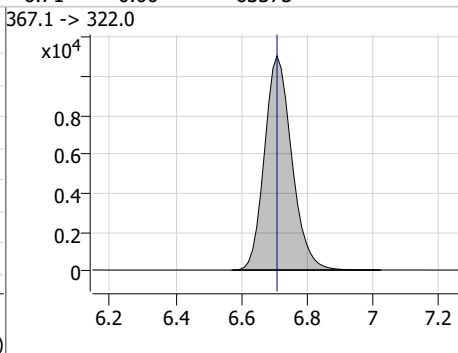
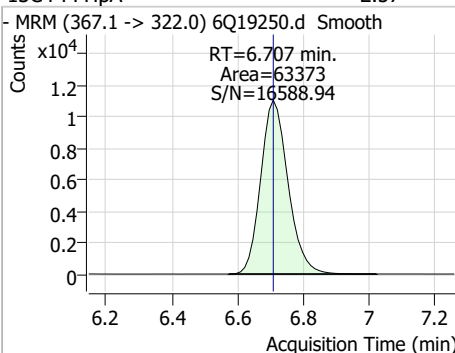
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	14.96	6.29	0.00	483864	314.8 -> 82.9	3.9	1.7	5.1



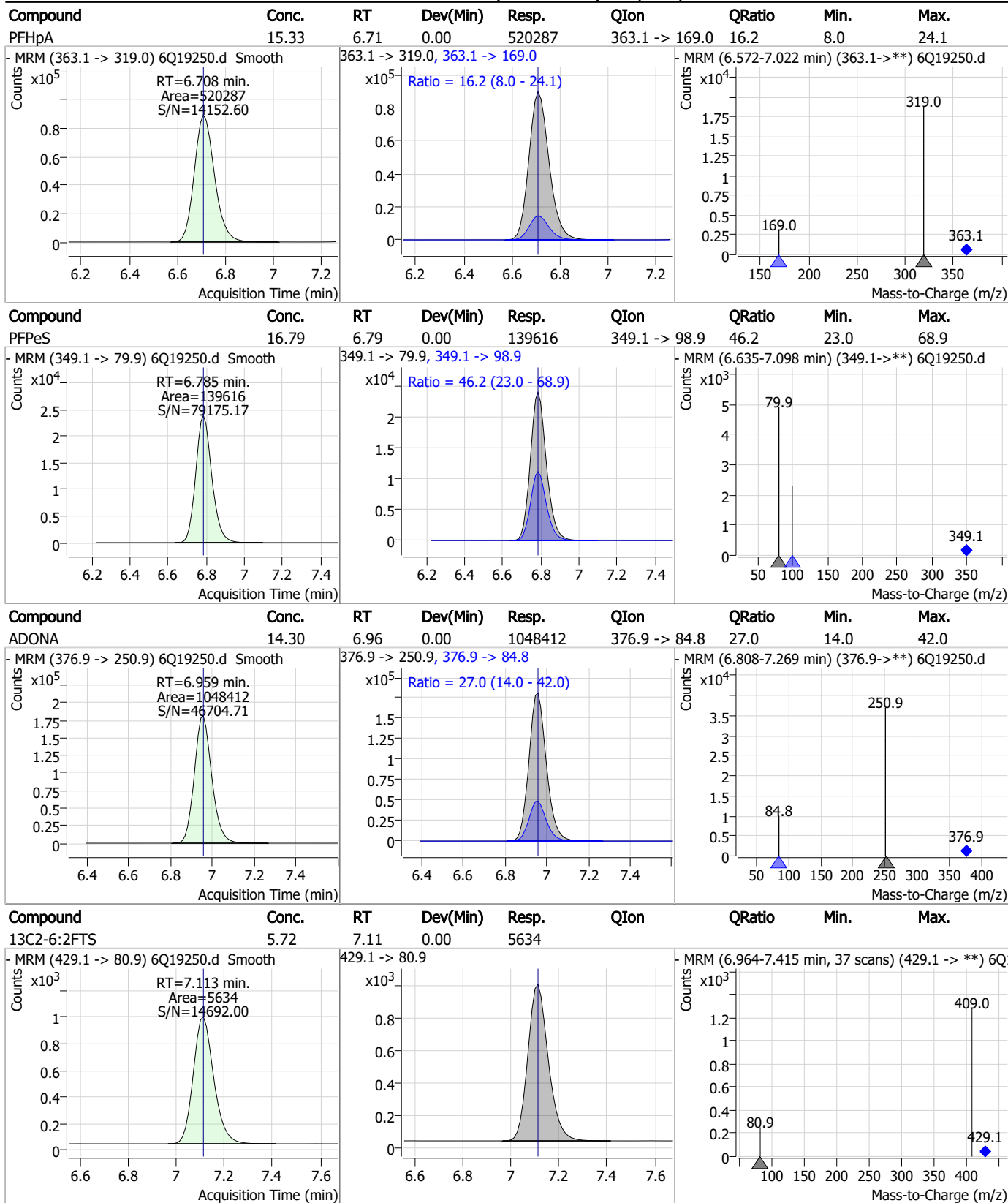
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	16.89	6.36	0.00	86072	341.0 -> 217.0	74.6	37.3	111.9



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

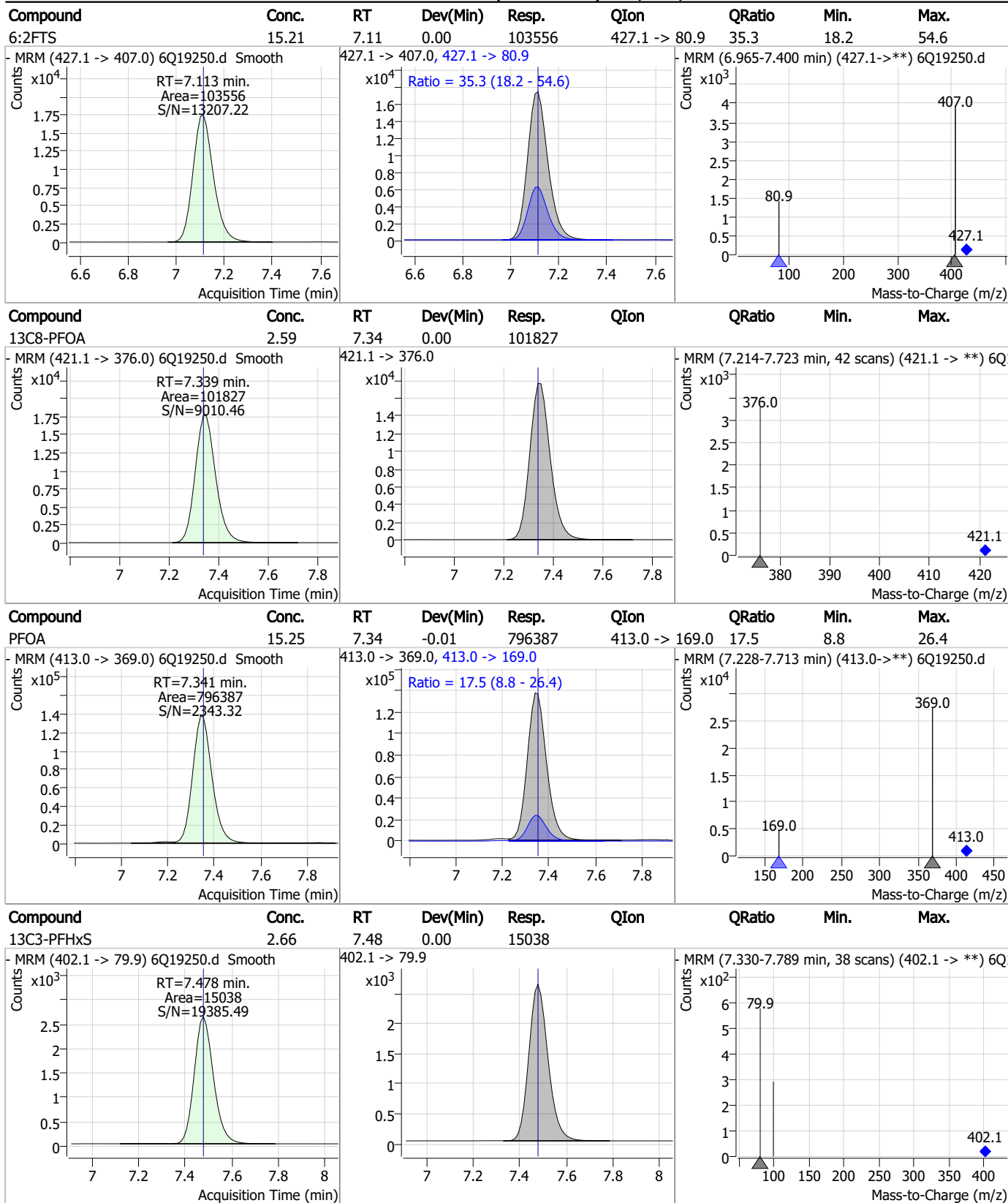


Perfluorinated Compounds by LC/MS/MS



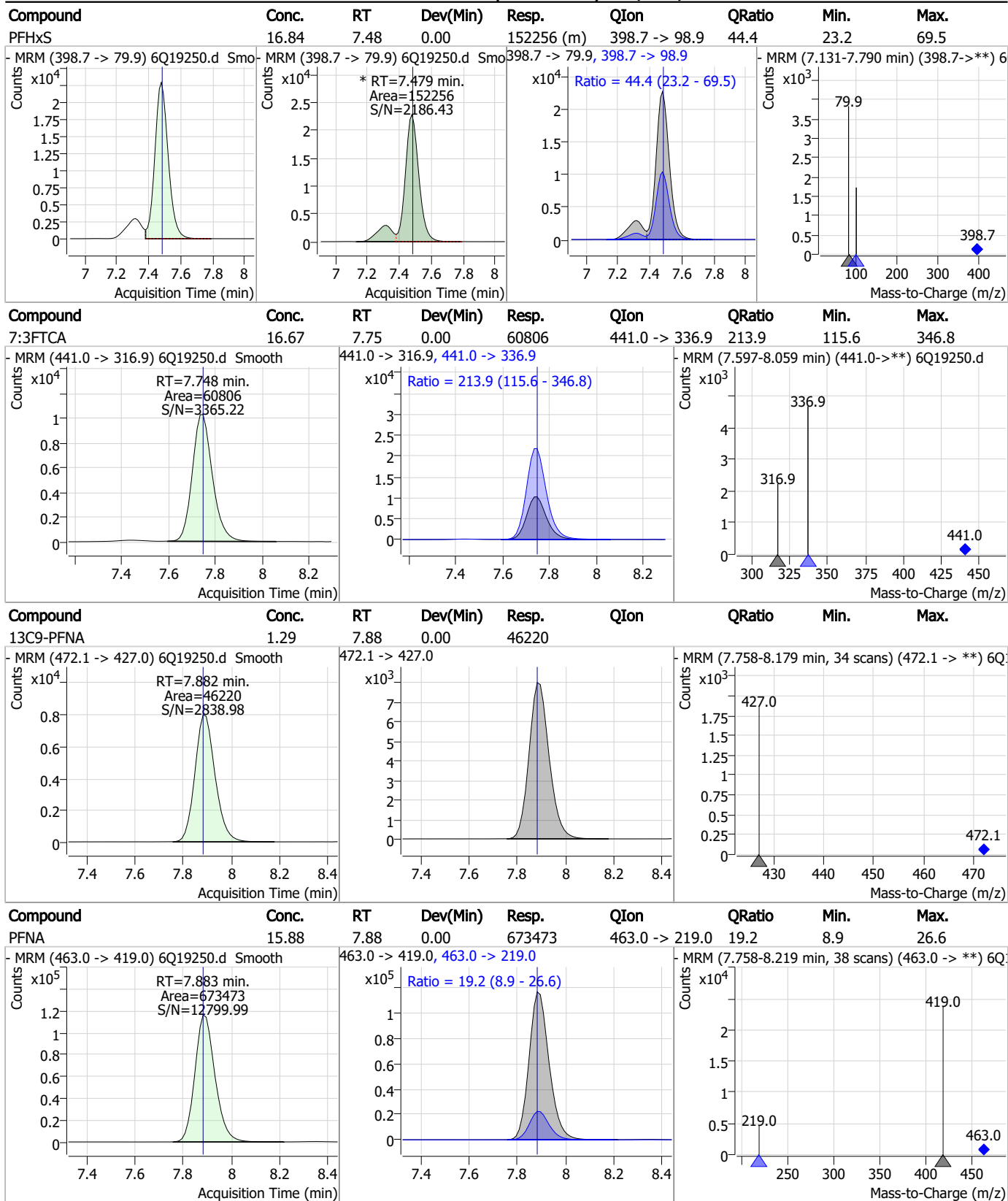
7.7.11
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Perfluorinated Compounds by LC/MS/MS



7.7.11
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Perfluorinated Compounds by LC/MS/MS



7.7.11
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Perfluorinated Compounds by LC/MS/MS

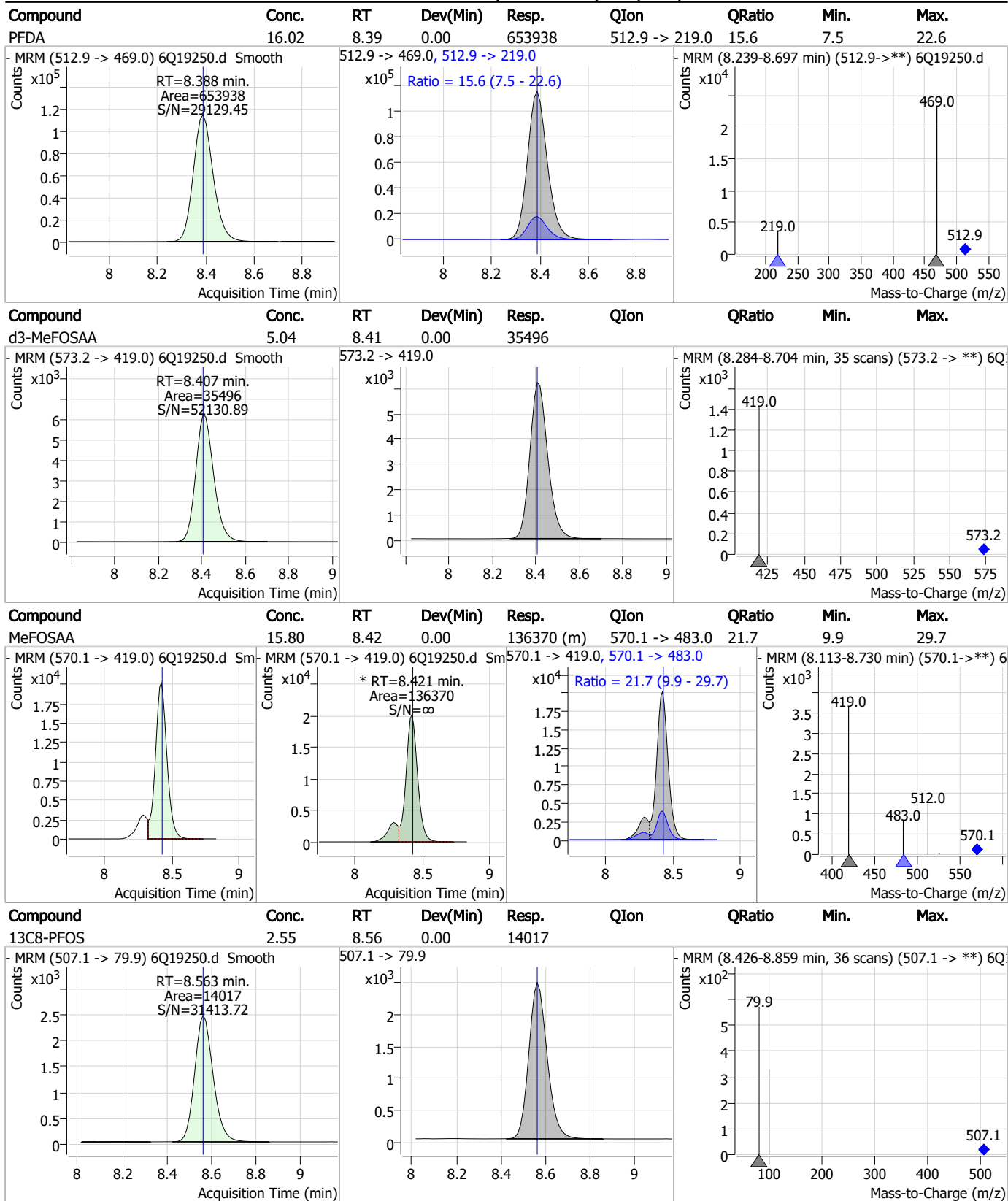
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	15.90	8.05	0.00	134182	449.0 -> 98.9	46.1	24.5	73.5
13C2-8:2FTS	5.28	8.16	0.00	4977				
8:2FTS	16.17	8.16	0.00	53526	527.1 -> 80.8	39.5	19.7	59.1
13C6-PFDA	1.34	8.39	0.00	27311				

7.7.11

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Perfluorinated Compounds by LC/MS/MS

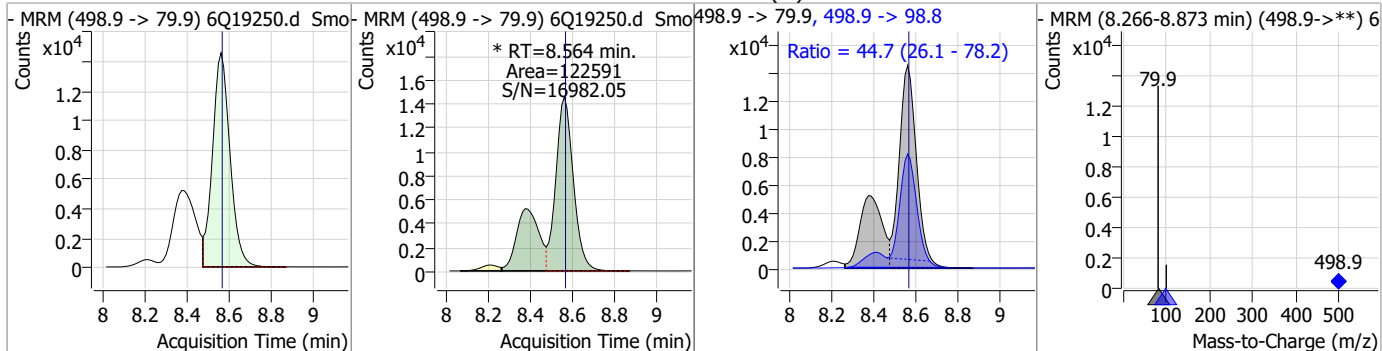


7.7.11
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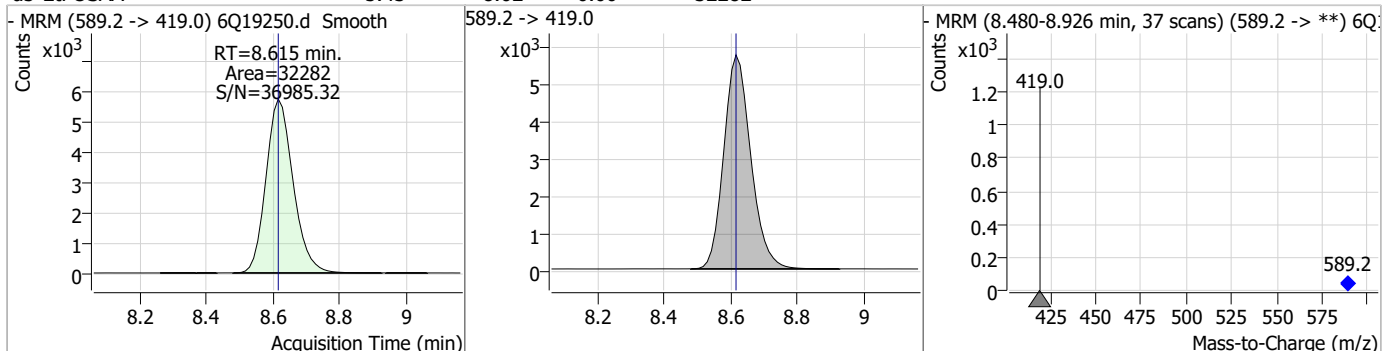


Perfluorinated Compounds by LC/MS/MS

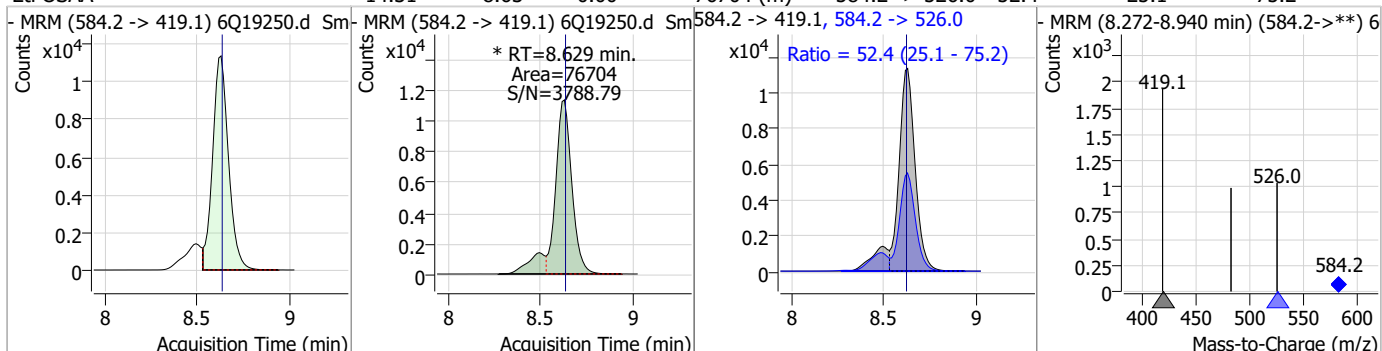
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	14.85	8.56	0.00	122591 (m)	498.9 -> 98.8	44.7	26.1	78.2



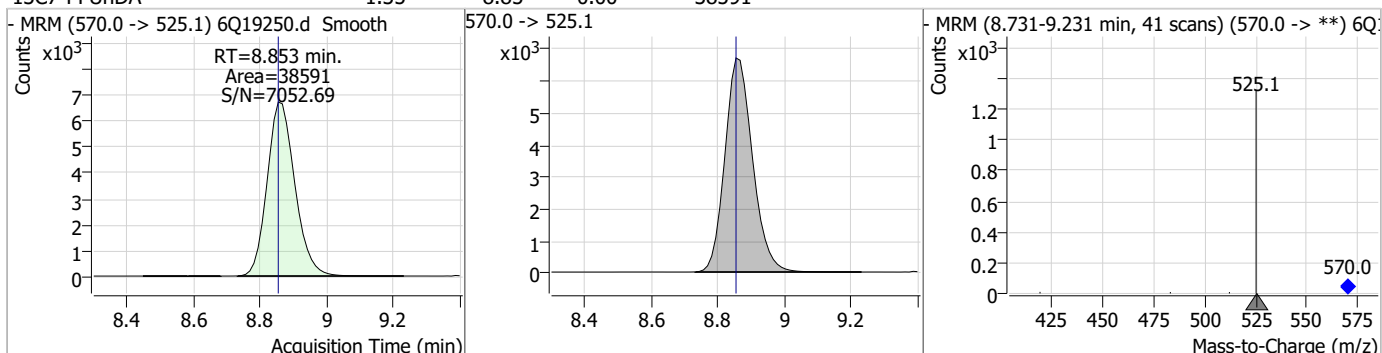
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.43	8.62	0.00	32282				



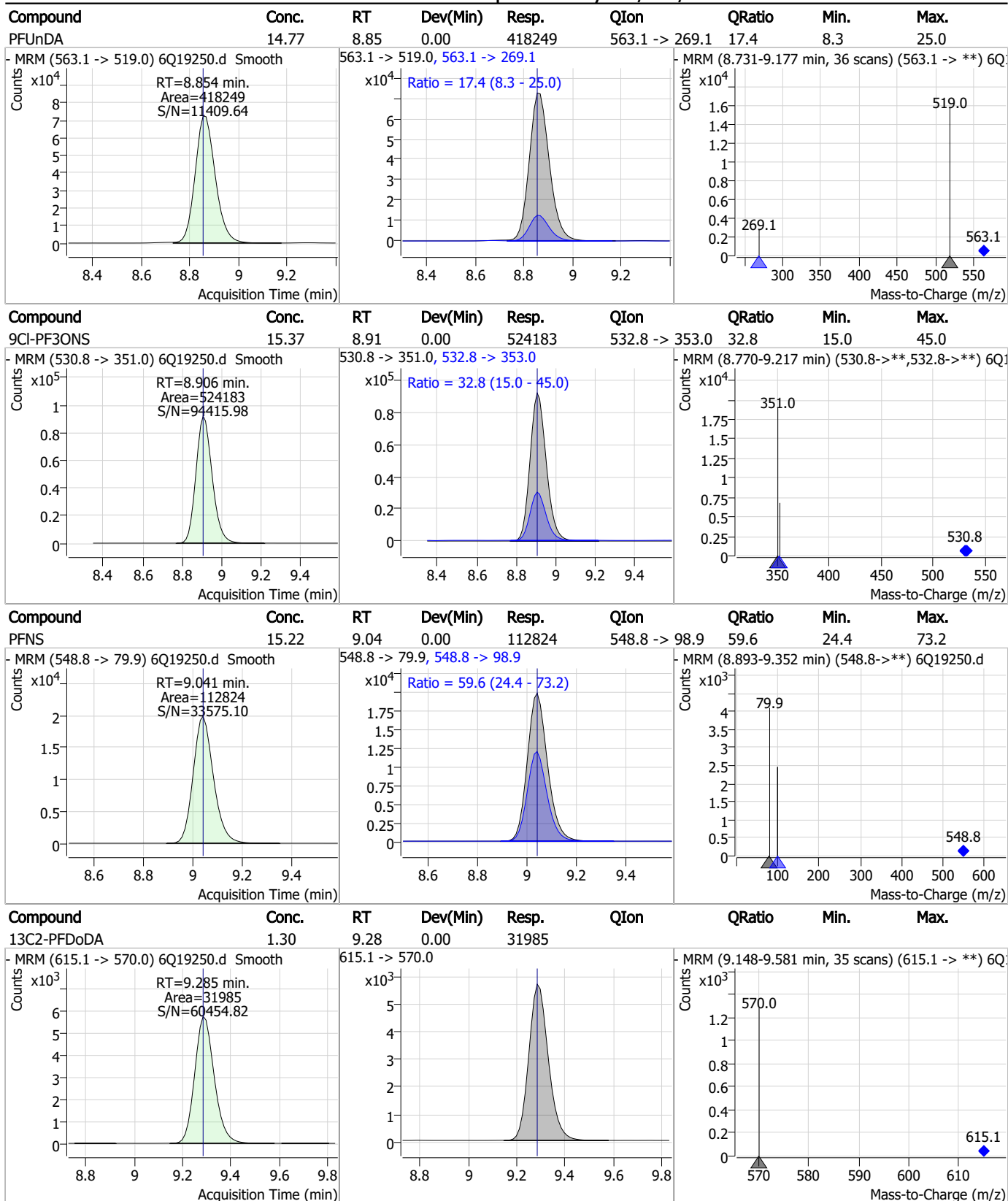
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	14.31	8.63	0.00	76704 (m)	584.2 -> 526.0	52.4	25.1	75.2



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



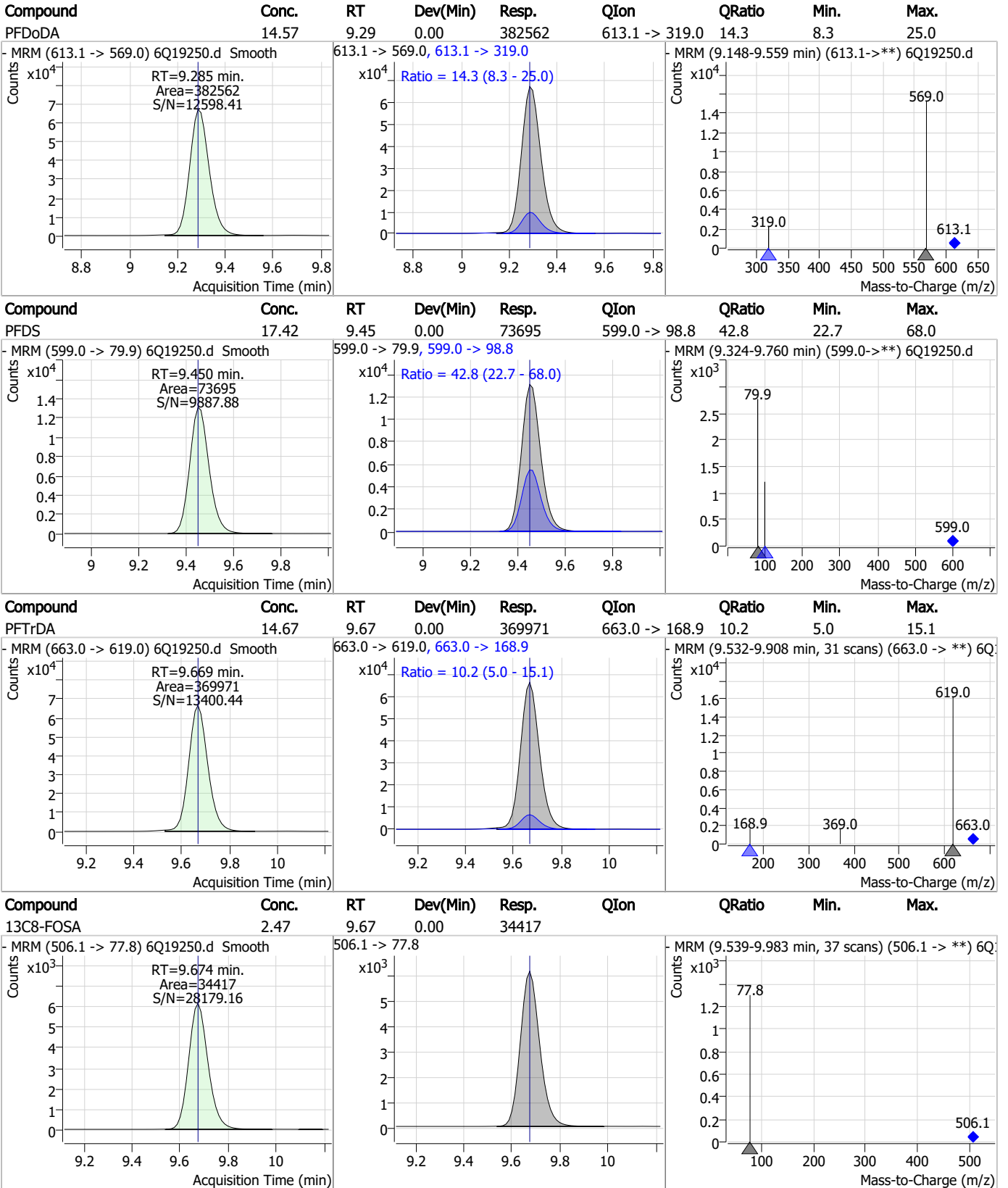
Perfluorinated Compounds by LC/MS/MS



7.7.11

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Perfluorinated Compounds by LC/MS/MS



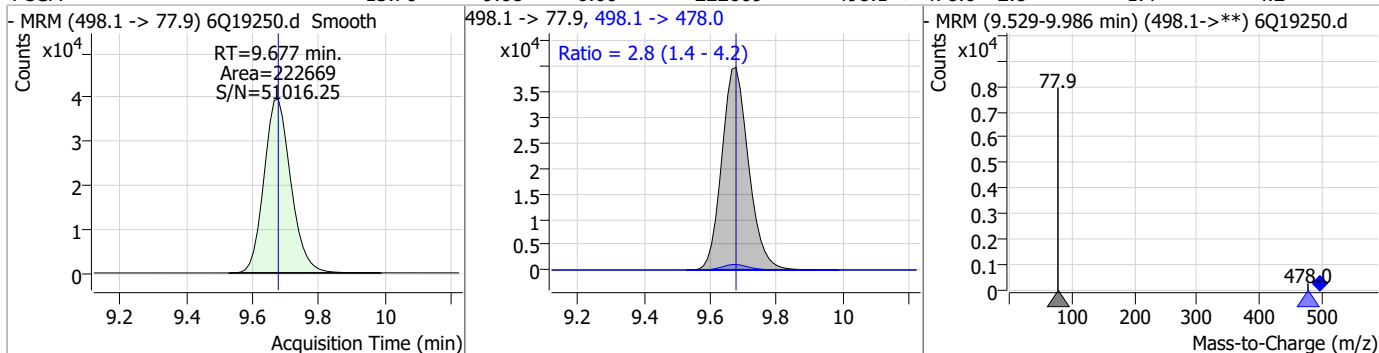
7.7.11

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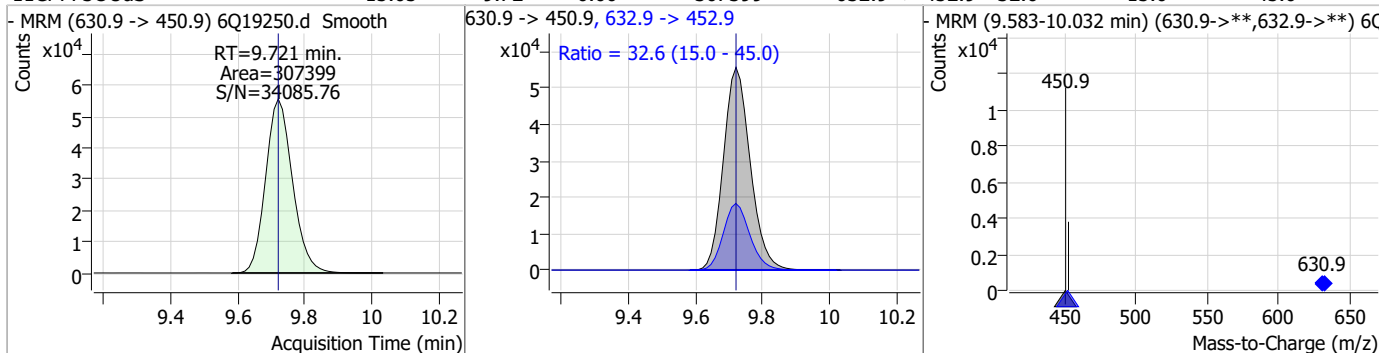


Perfluorinated Compounds by LC/MS/MS

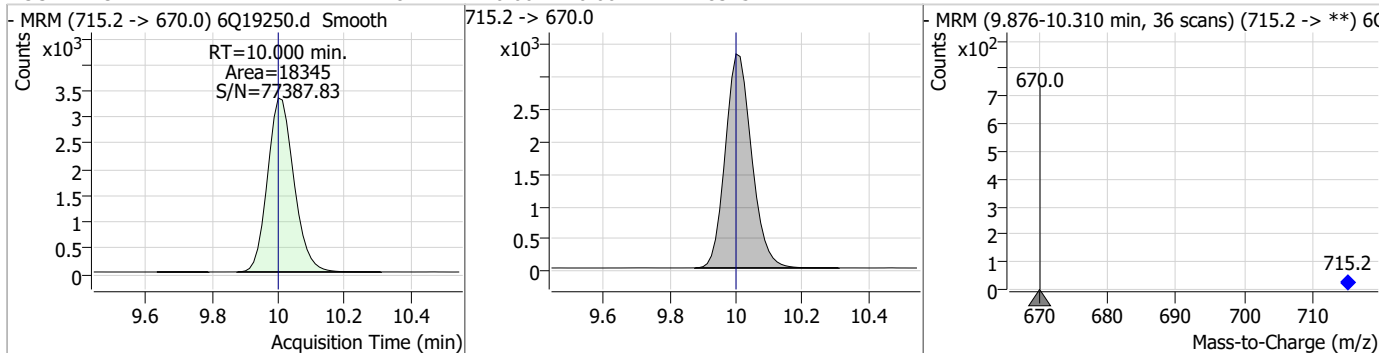
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	15.76	9.68	0.00	222669	498.1 -> 478.0	2.8	1.4	4.2



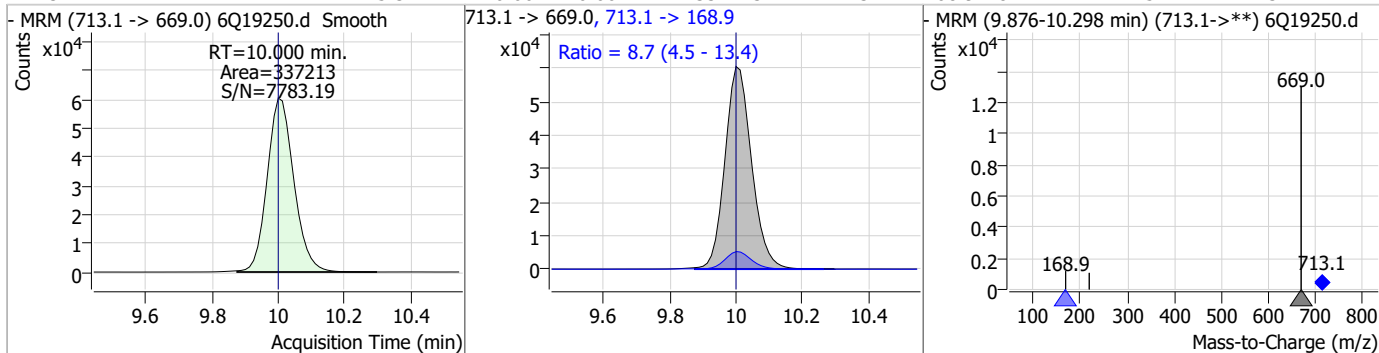
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	15.05	9.72	0.00	307399	630.9 -> 452.9	32.6	15.0	45.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.28	10.00	0.00	18345	715.2 -> 670.0	8.7	4.5	13.4

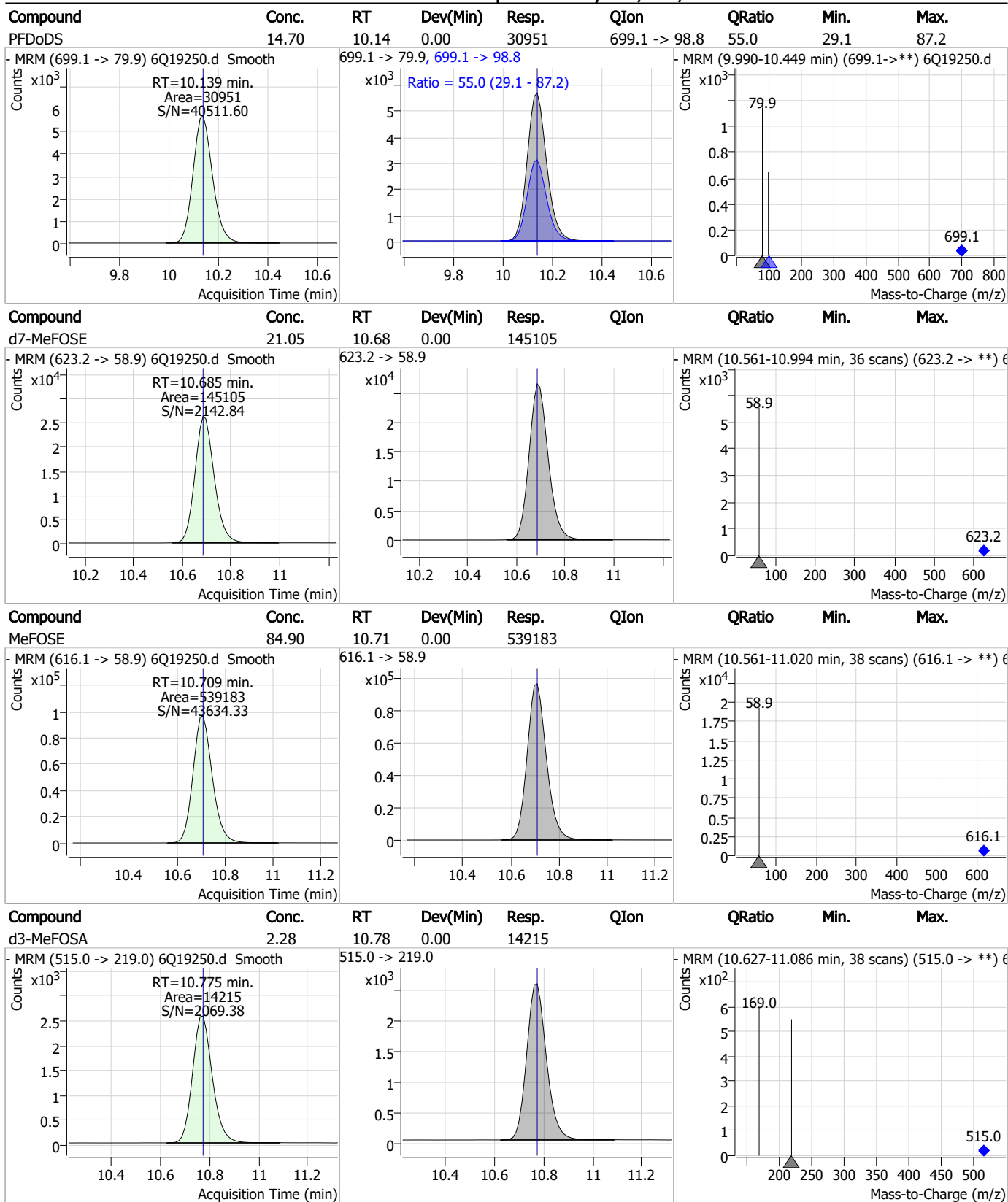


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	15.37	10.00	0.00	337213	713.1 -> 168.9	8.7	4.5	13.4



7.7.11
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Perfluorinated Compounds by LC/MS/MS



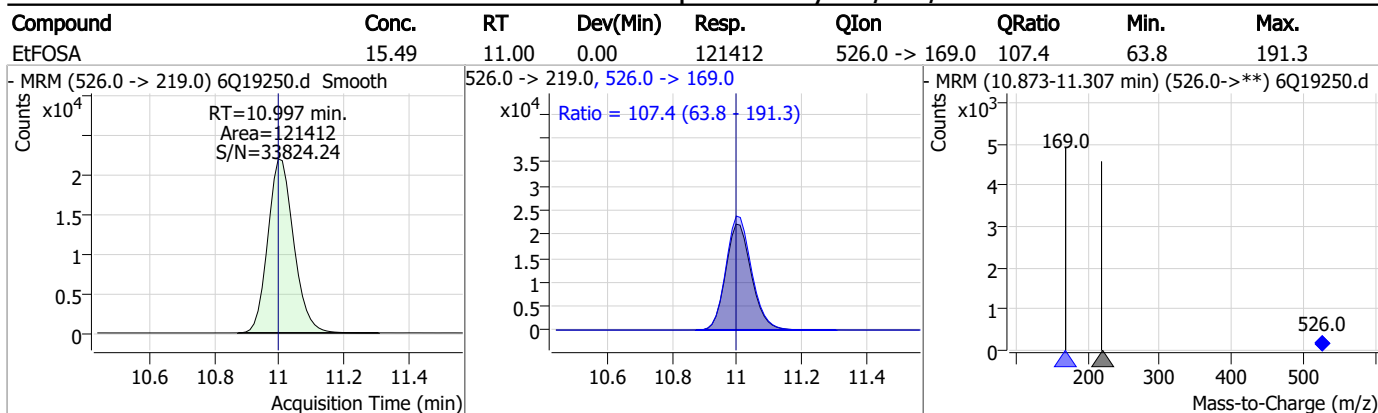
7.7.11
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	16.34	10.78	0.00	101806	511.9 -> 169.0	113.1	69.4	208.1
d9-EtFOSE	18.97	10.93	0.00	163323	639.2 -> 58.9	639.2 -> 58.9	58.9	639.2
EtFOSE	86.65	10.94	0.00	747230	630.0 -> 58.9	630.0 -> 58.9	58.9	630.0
d5-EtFOSA	2.42	11.00	0.00	14632	531.1 -> 219.0	531.1 -> 219.0	169.0	531.1

7.7.11
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Perfluorinated Compounds by LC/MS/MS



7.7.11

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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

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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)
		599.0 -> 98.8	3798			
PFHpA	6.708	363.1 -> 319.0	57423	2.23	µg/L	97
		363.1 -> 169.0	9923			
PFHpS	8.046	449.0 -> 79.9	15833	2.53	µg/L	97
		449.0 -> 98.9	7486			
PFHxA	5.795	313.0 -> 269.0	48907	2.43	µg/L	99
		313.0 -> 118.9	2436			
PFHxS	7.479	398.7 -> 79.9	14376	2.13	µg/L	m 93
		398.7 -> 98.9	7308			
PFNA	7.883	463.0 -> 419.0	76743	2.37	µg/L	100
		463.0 -> 219.0	13595			
PFNS	9.041	548.8 -> 79.9	13347	2.43	µg/L	99
		548.8 -> 98.9	6570			
PFOA	7.341	413.0 -> 369.0	94219	2.40	µg/L	98
		413.0 -> 169.0	15822			
PFOS	8.564	498.9 -> 79.9	13698	2.24	µg/L	m 97
		498.9 -> 98.8	6876			
PFPeA	4.563	263.0 -> 219.0	64688	4.74	µg/L	100
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			
11CI-PF3OUdS	9.721	630.9 -> 450.9	73003	4.66	µg/L	99
		632.9 -> 452.9	21480			
9CI-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
MeFOSA	10.777	511.9 -> 219.0	25048	5.12	µg/L	m 98
		511.9 -> 169.0	35455			
MeFOSE	10.697	616.1 -> 58.9	66303	12.16	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	3593	2.30	µg/L	99
		699.1 -> 98.8	2058			
NFDHA	5.673	295.0 -> 201.0	12242	4.81	µg/L	98
		295.0 -> 84.9	3399			
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

7.7.12
7

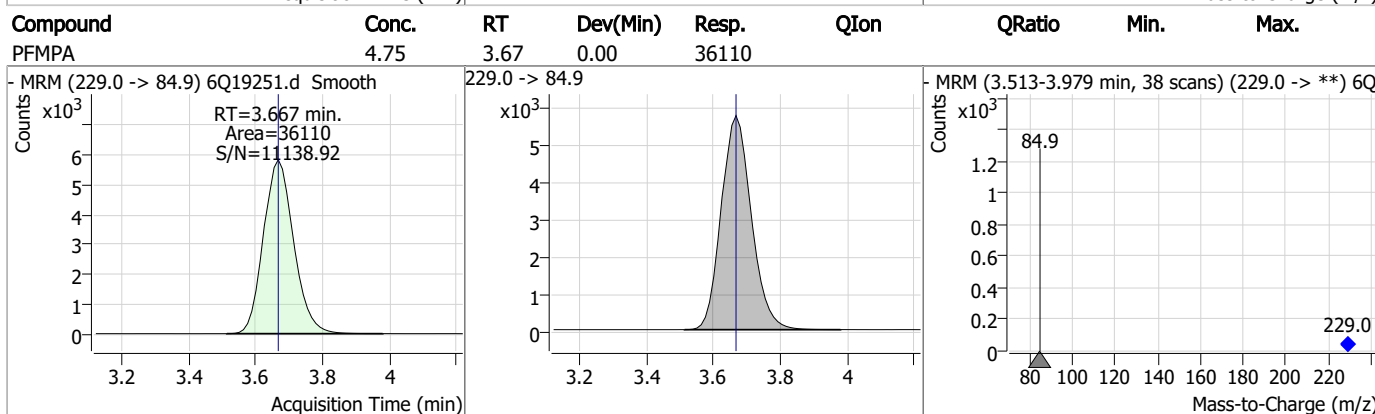
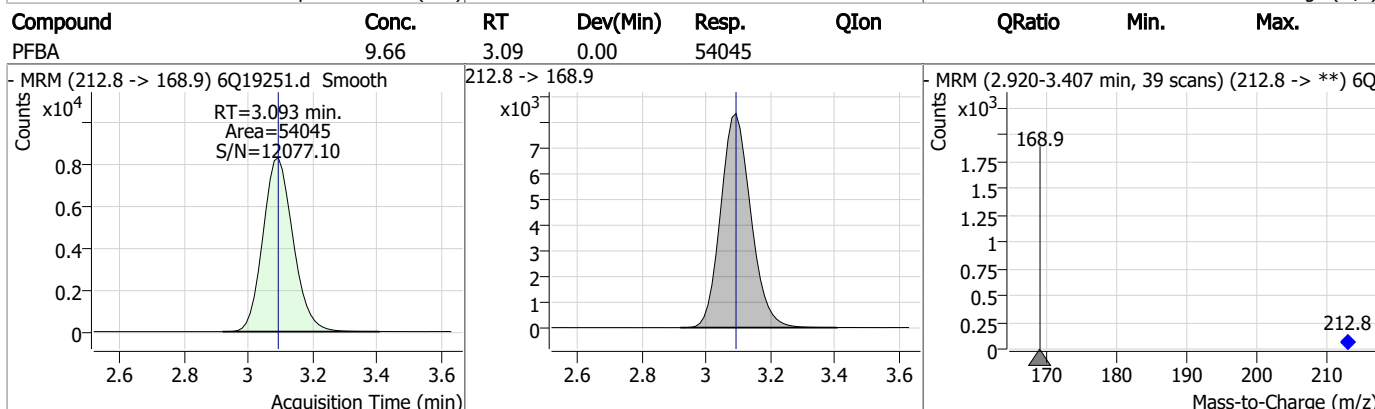
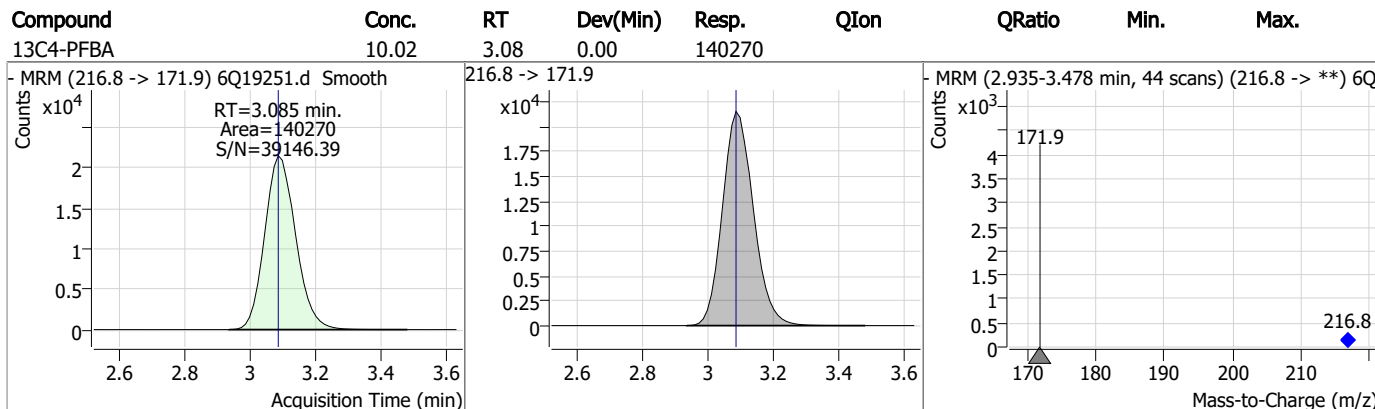
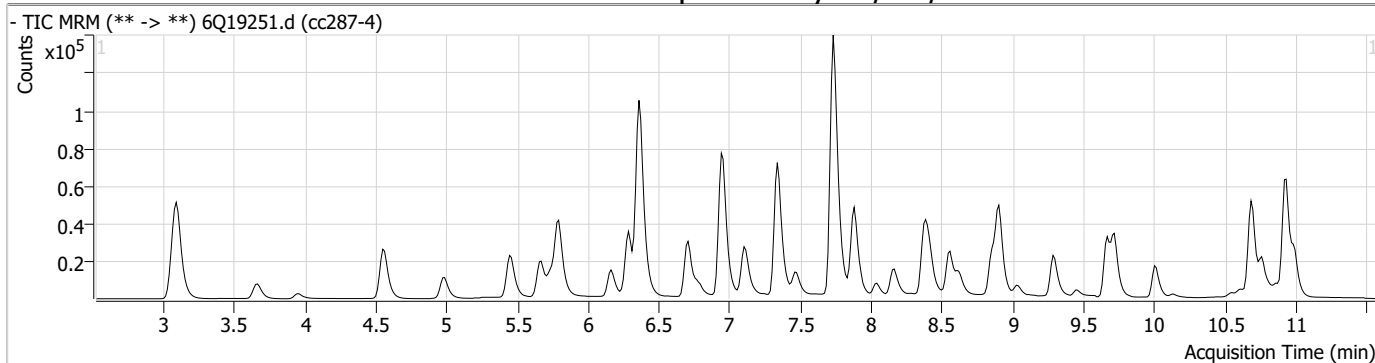
Perfluorinated Compounds by LC/MS/MS

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

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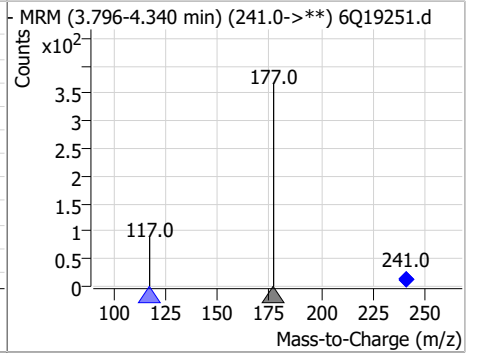
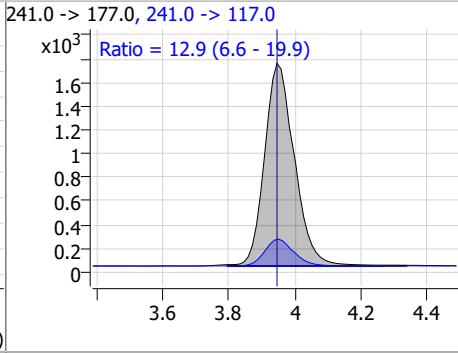
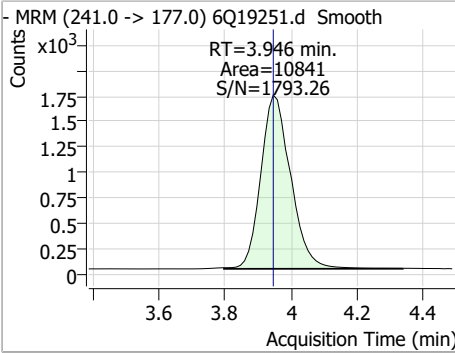
Perfluorinated Compounds by LC/MS/MS



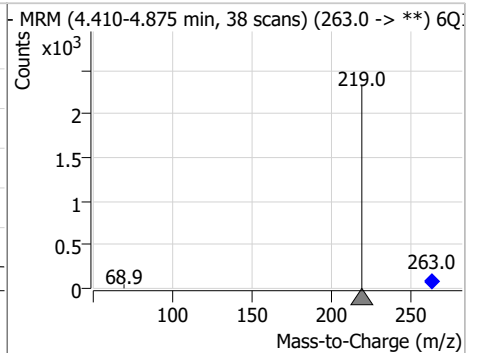
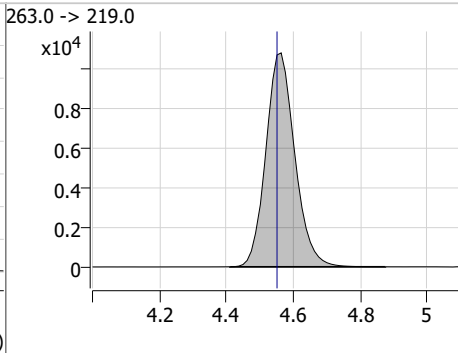
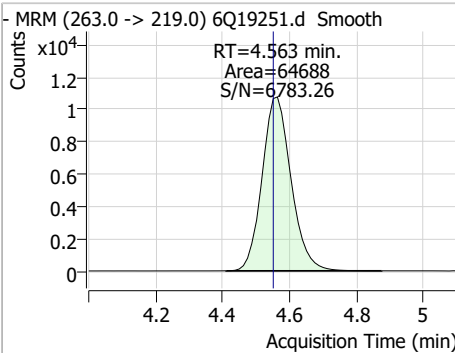
7.7.12
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Perfluorinated Compounds by LC/MS/MS

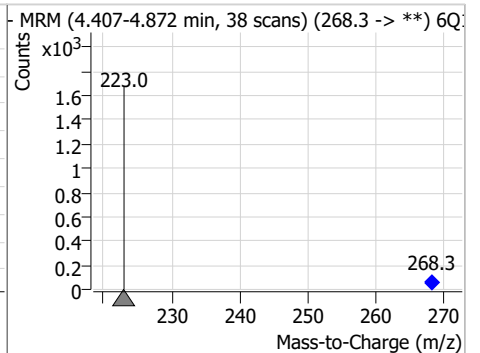
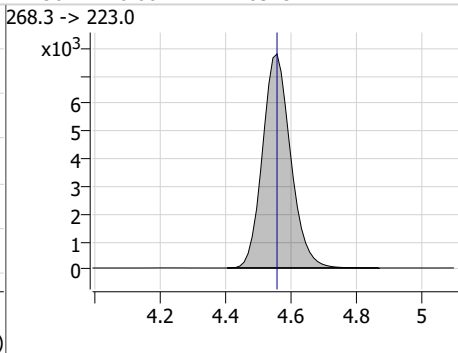
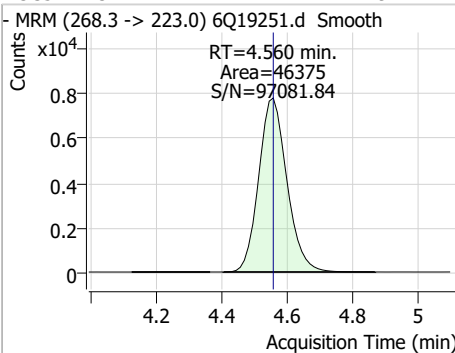
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.62	3.95	0.00	10841	241.0 -> 117.0	12.9	6.6	19.9



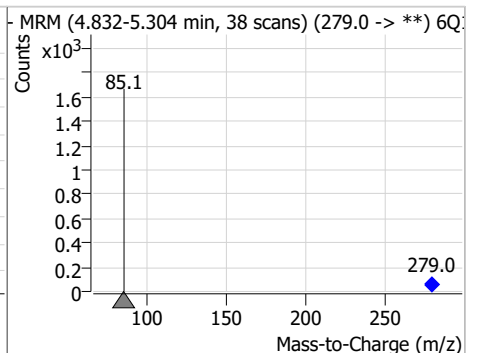
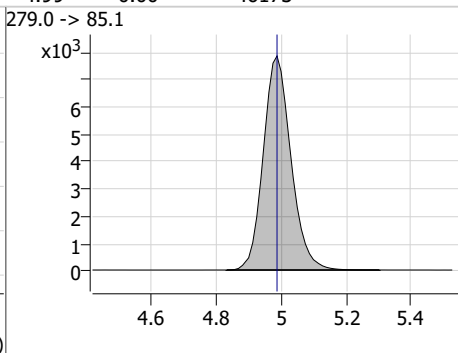
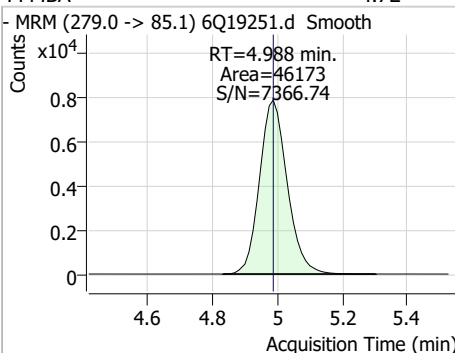
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.74	4.56	0.01	64688				



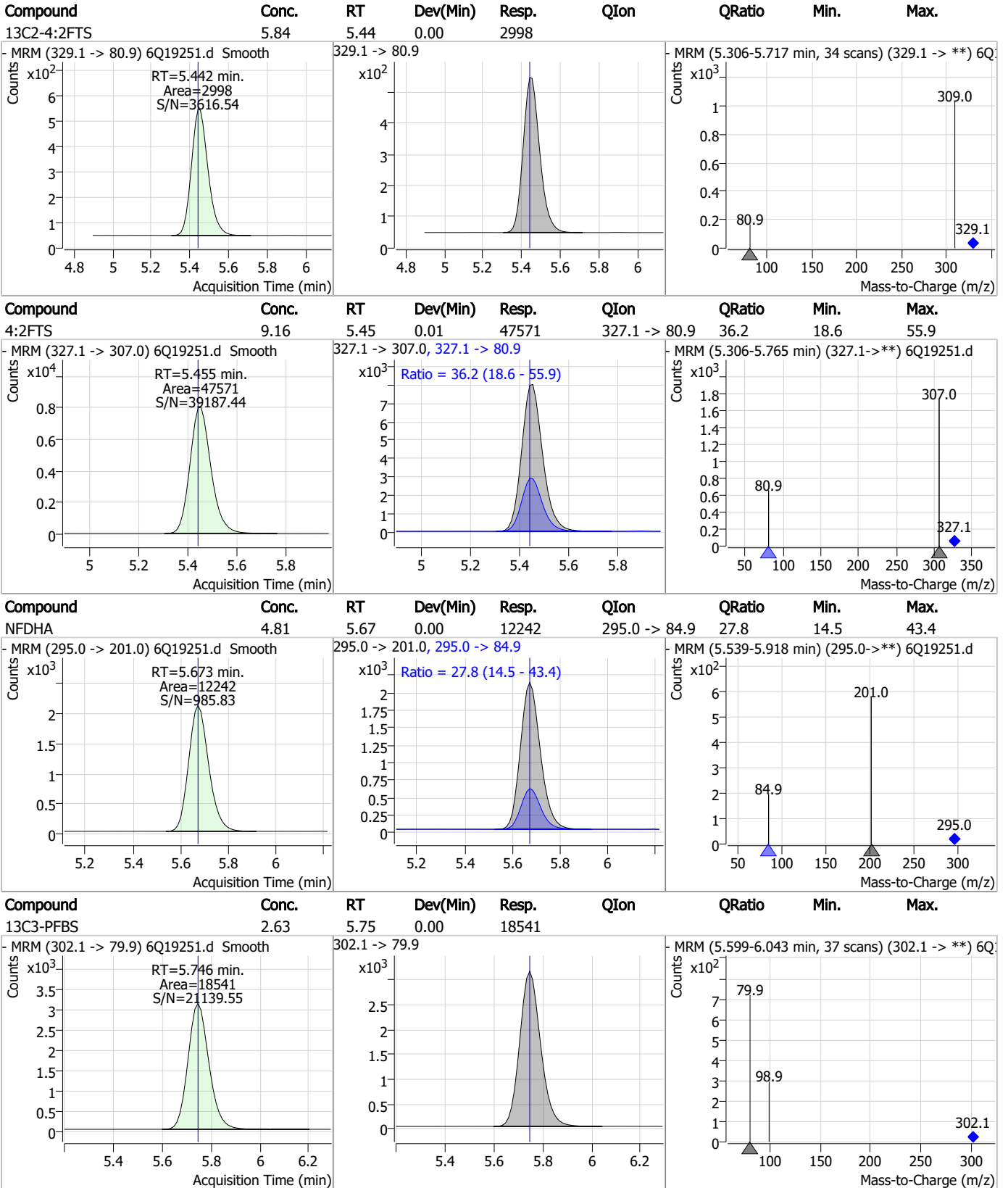
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.92	4.56	0.00	46375				



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



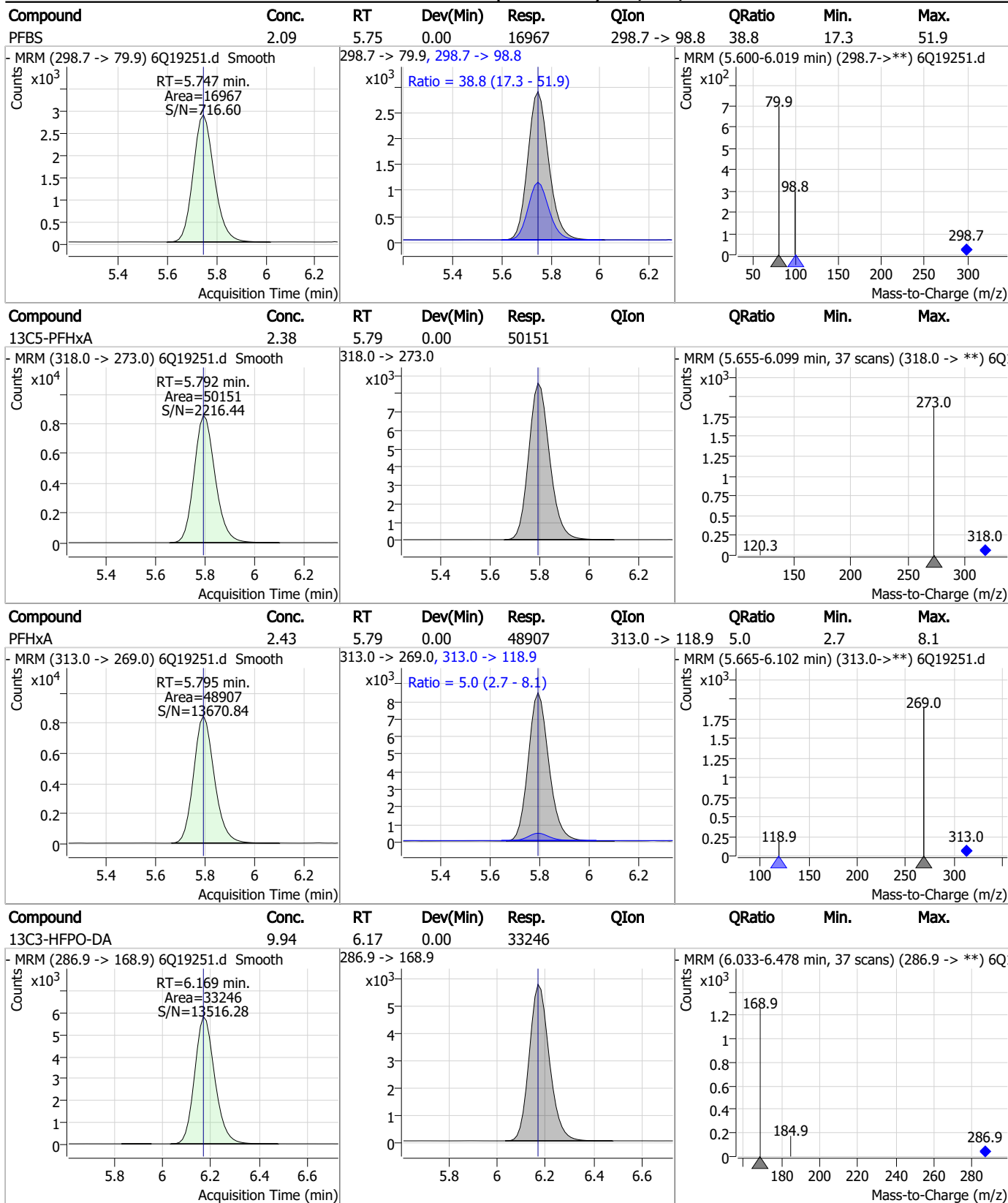
Perfluorinated Compounds by LC/MS/MS



7.7.12 7



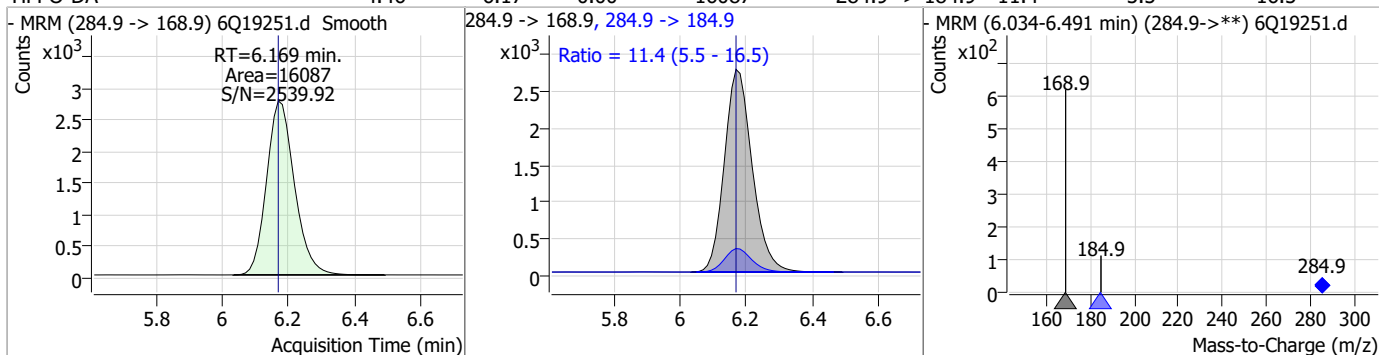
Perfluorinated Compounds by LC/MS/MS



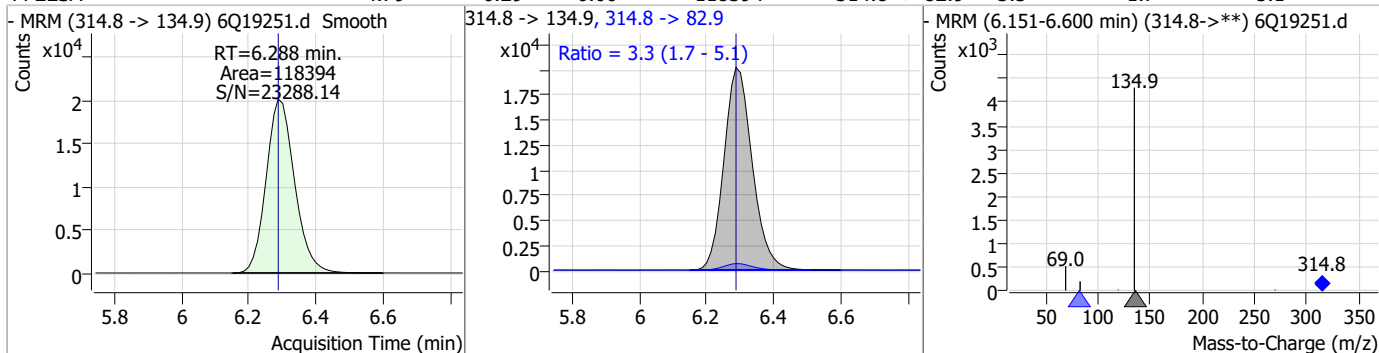
7.7.12

Perfluorinated Compounds by LC/MS/MS

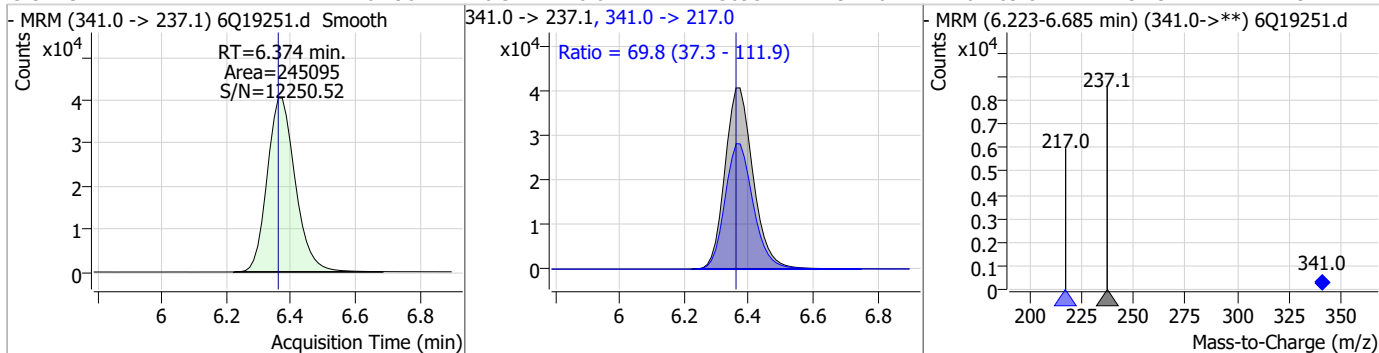
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.46	6.17	0.00	16087	284.9 -> 184.9	11.4	5.5	16.5



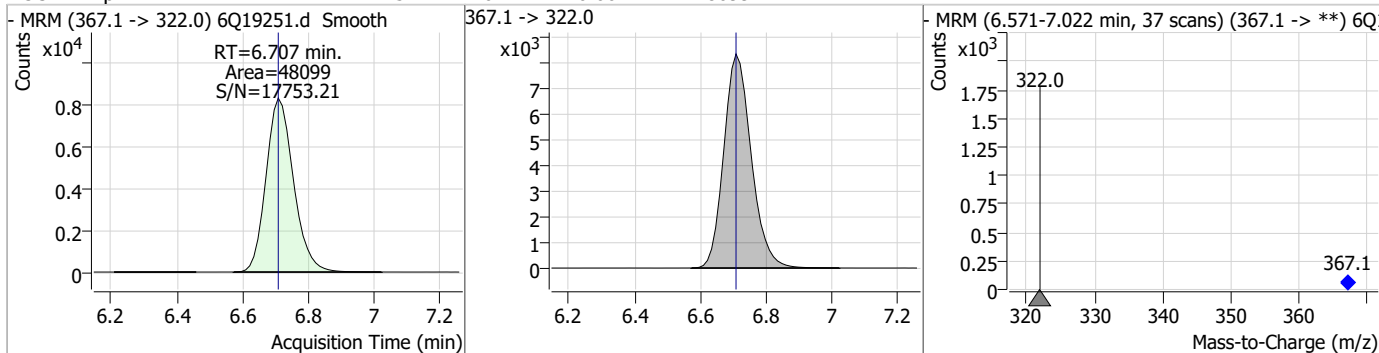
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.79	6.29	0.00	118394	314.8 -> 82.9	3.3	1.7	5.1



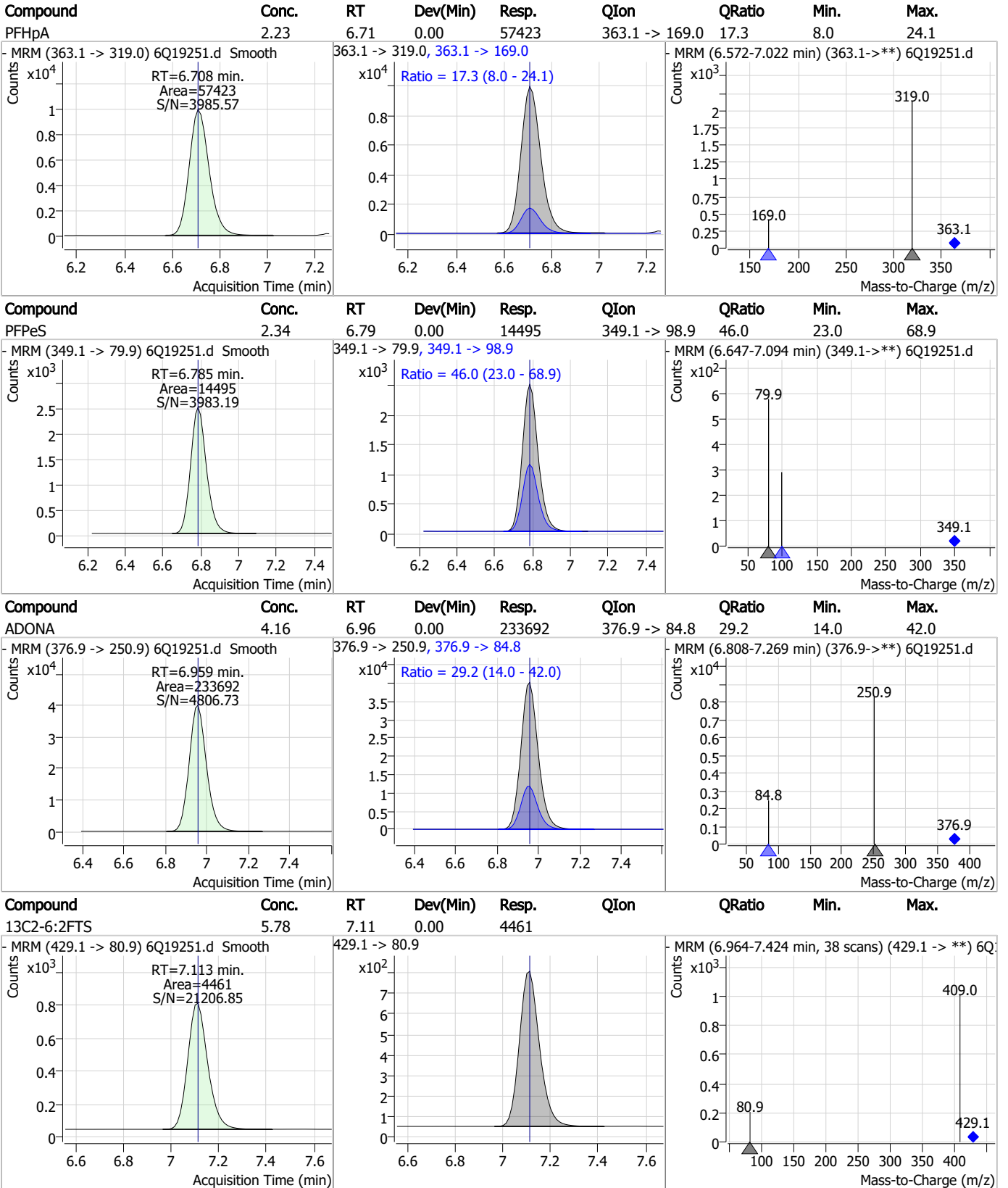
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	62.90	6.37	0.01	245095	341.0 -> 217.0	69.8	37.3	111.9



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



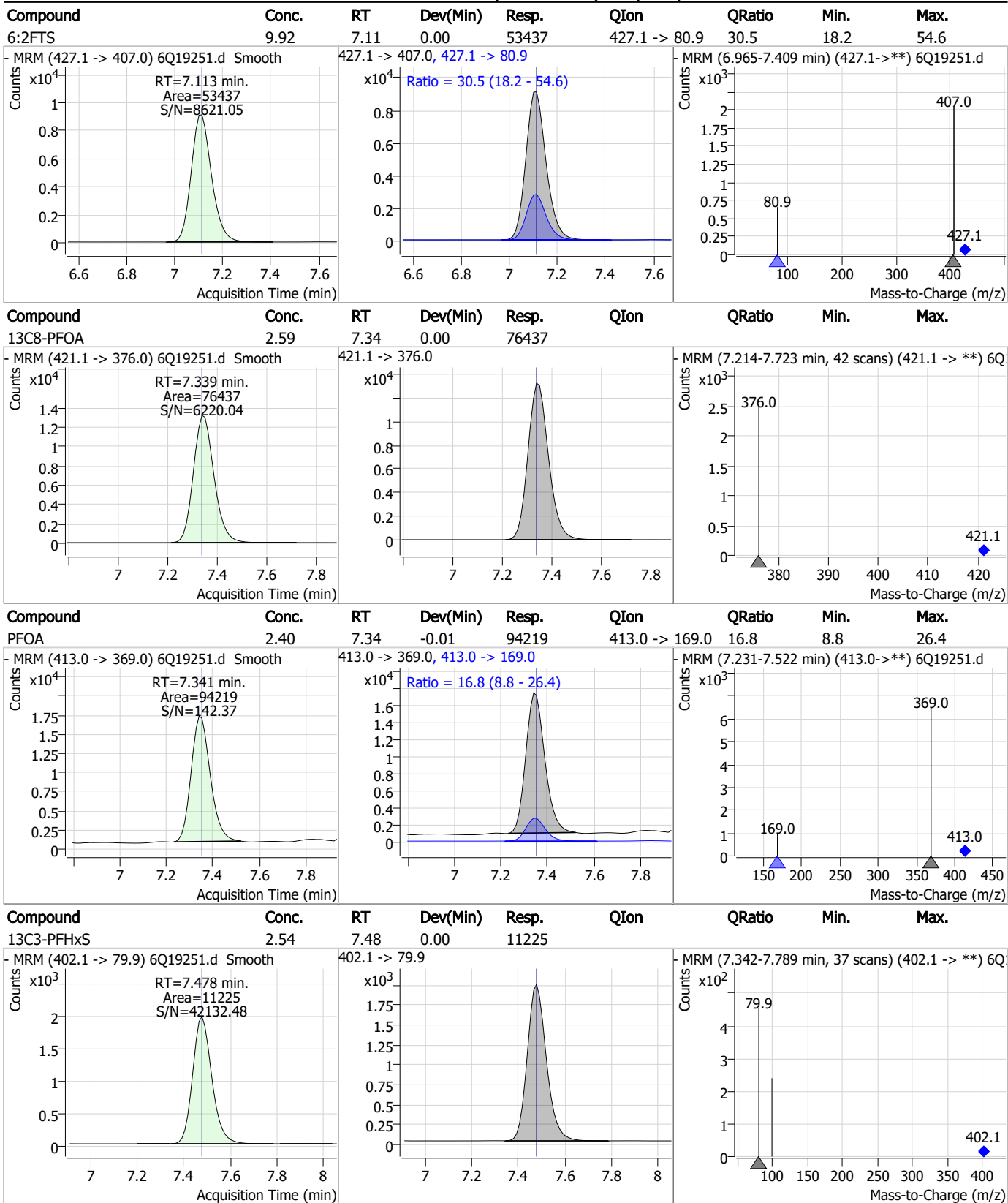
Perfluorinated Compounds by LC/MS/MS



7.7.12 7

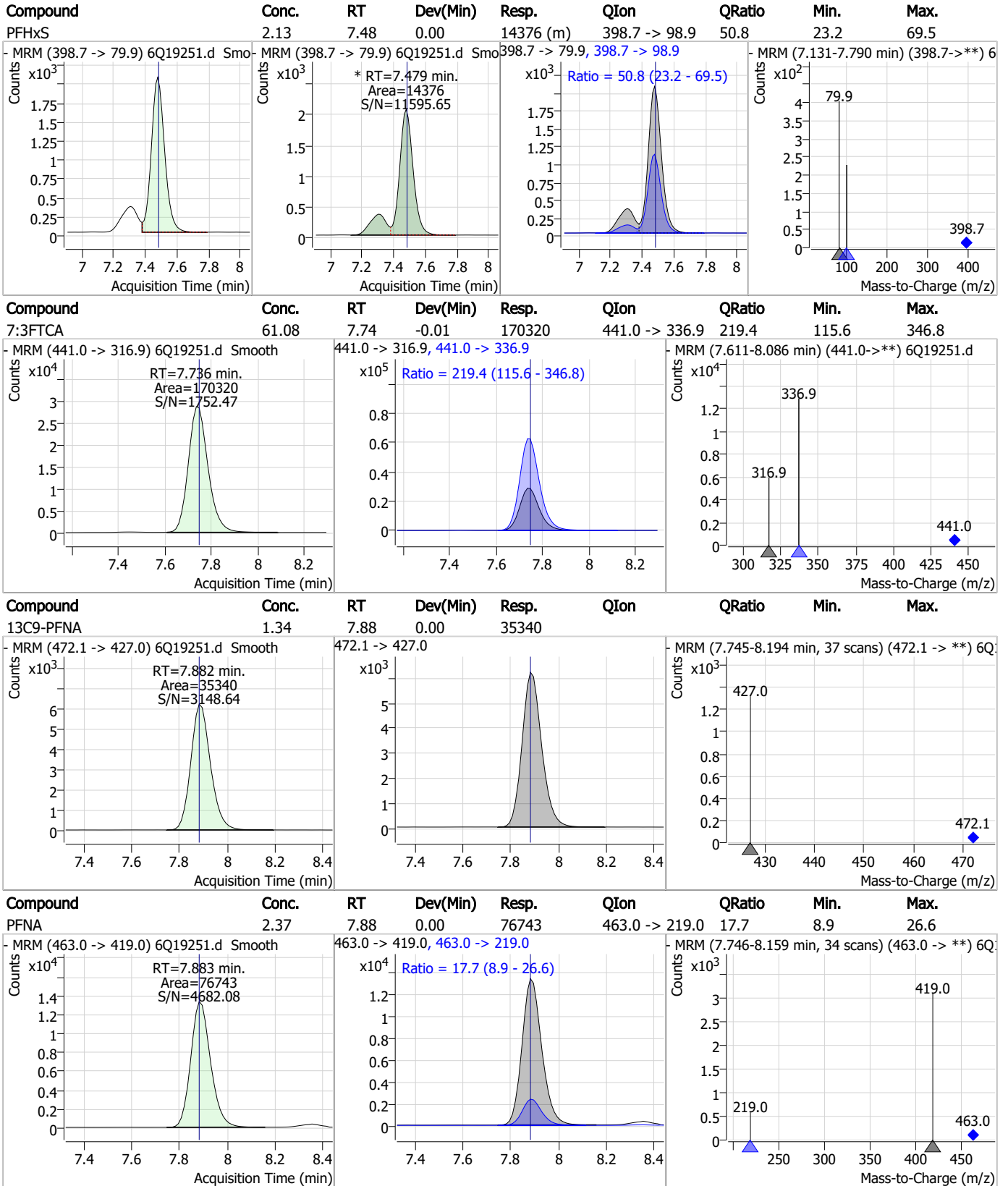


Perfluorinated Compounds by LC/MS/MS



7.7.12

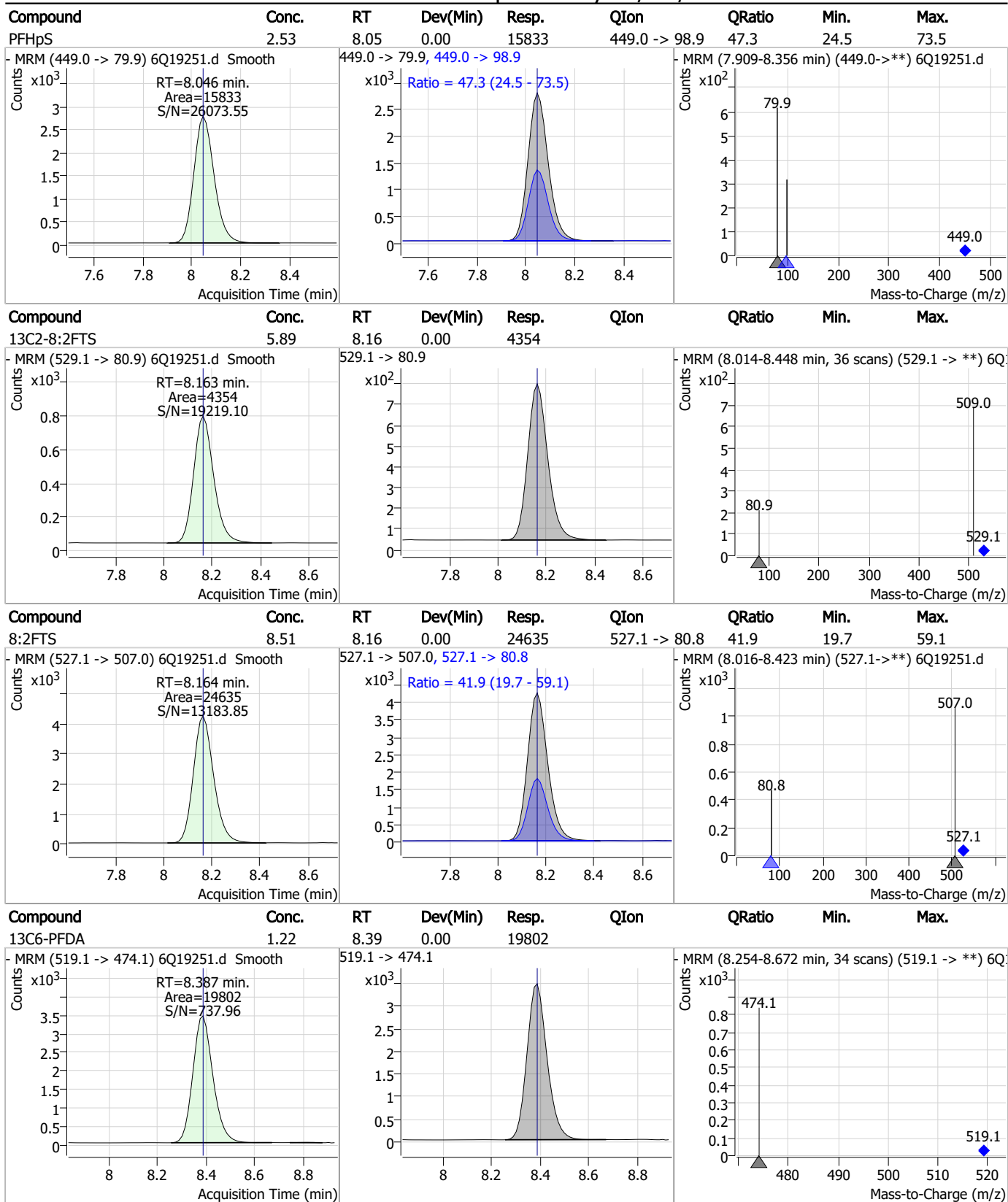
Perfluorinated Compounds by LC/MS/MS



7.7.12
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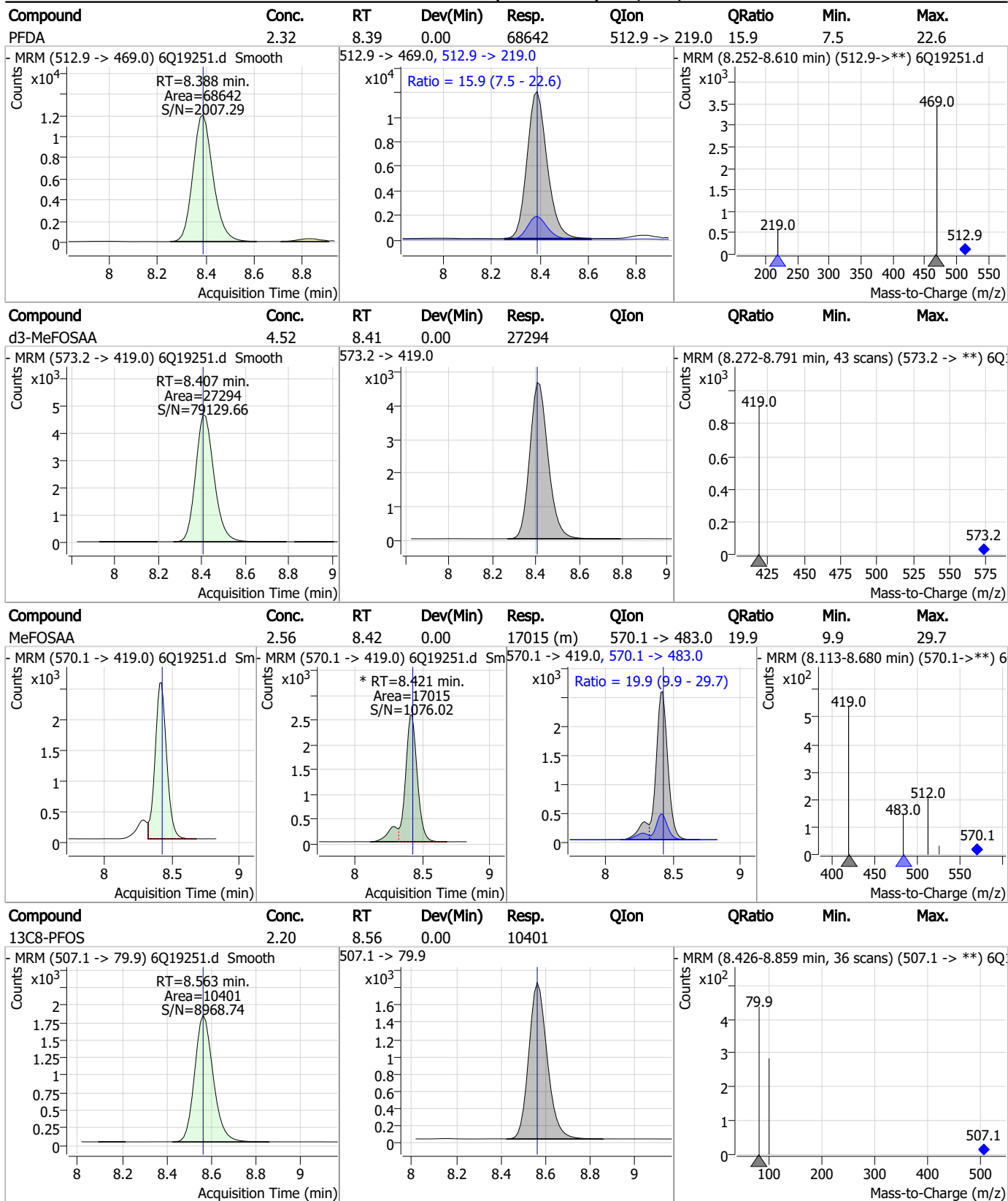


Perfluorinated Compounds by LC/MS/MS



7.7.12
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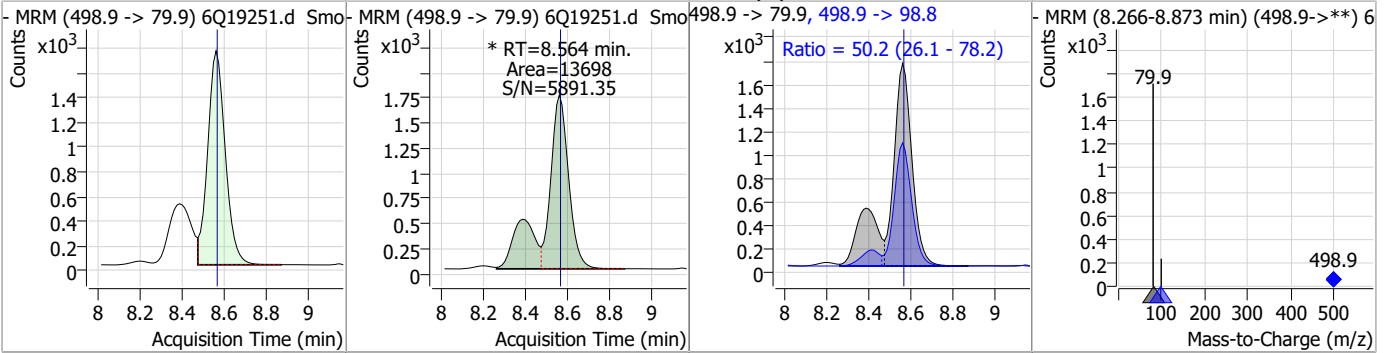
Perfluorinated Compounds by LC/MS/MS



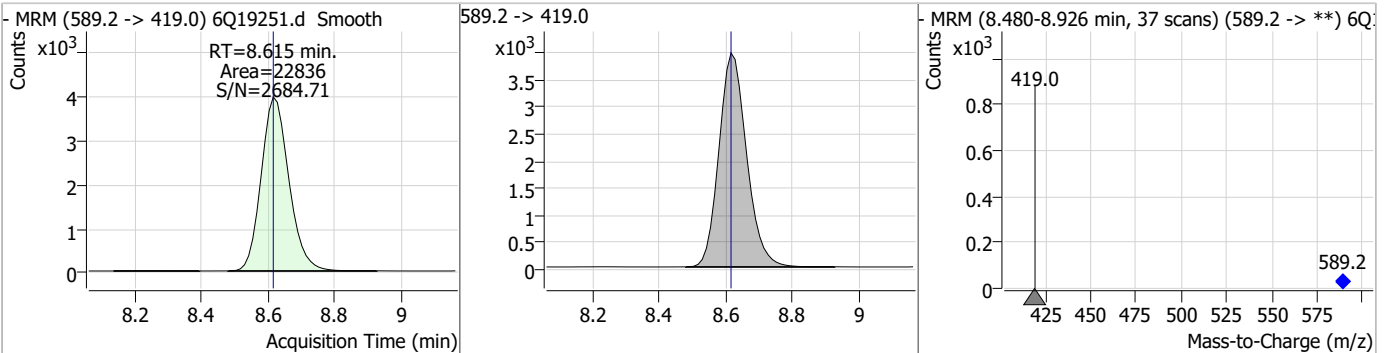
7.7.12
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Perfluorinated Compounds by LC/MS/MS

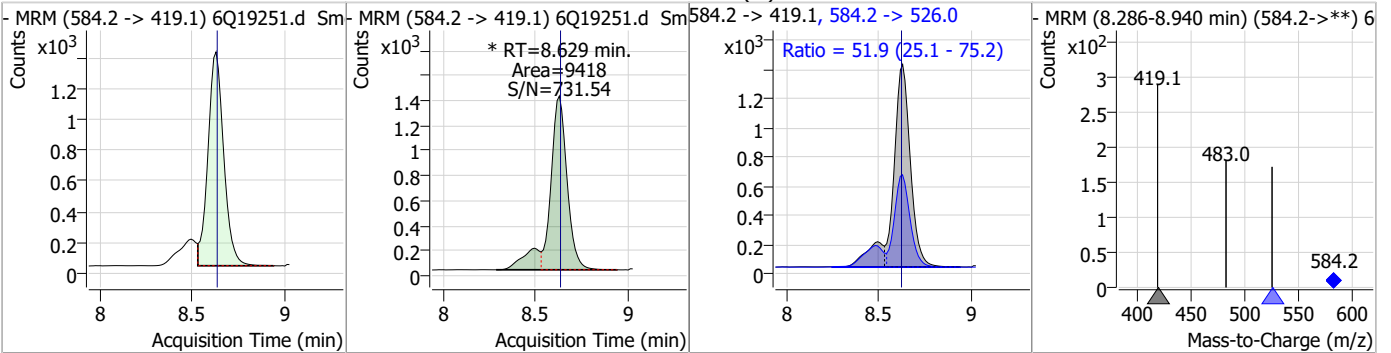
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.24	8.56	0.00	13698 (m)	498.9 -> 98.8	50.2	26.1	78.2



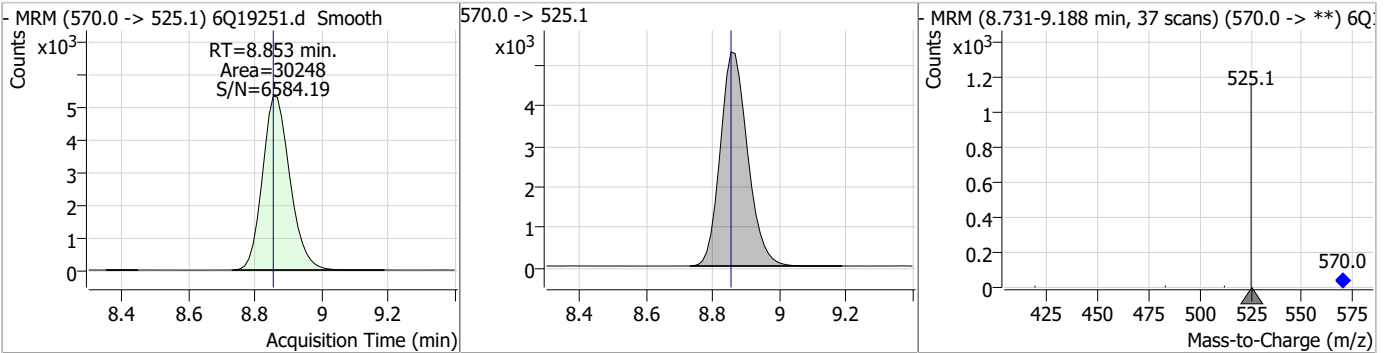
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.48	8.62	0.00	22836				



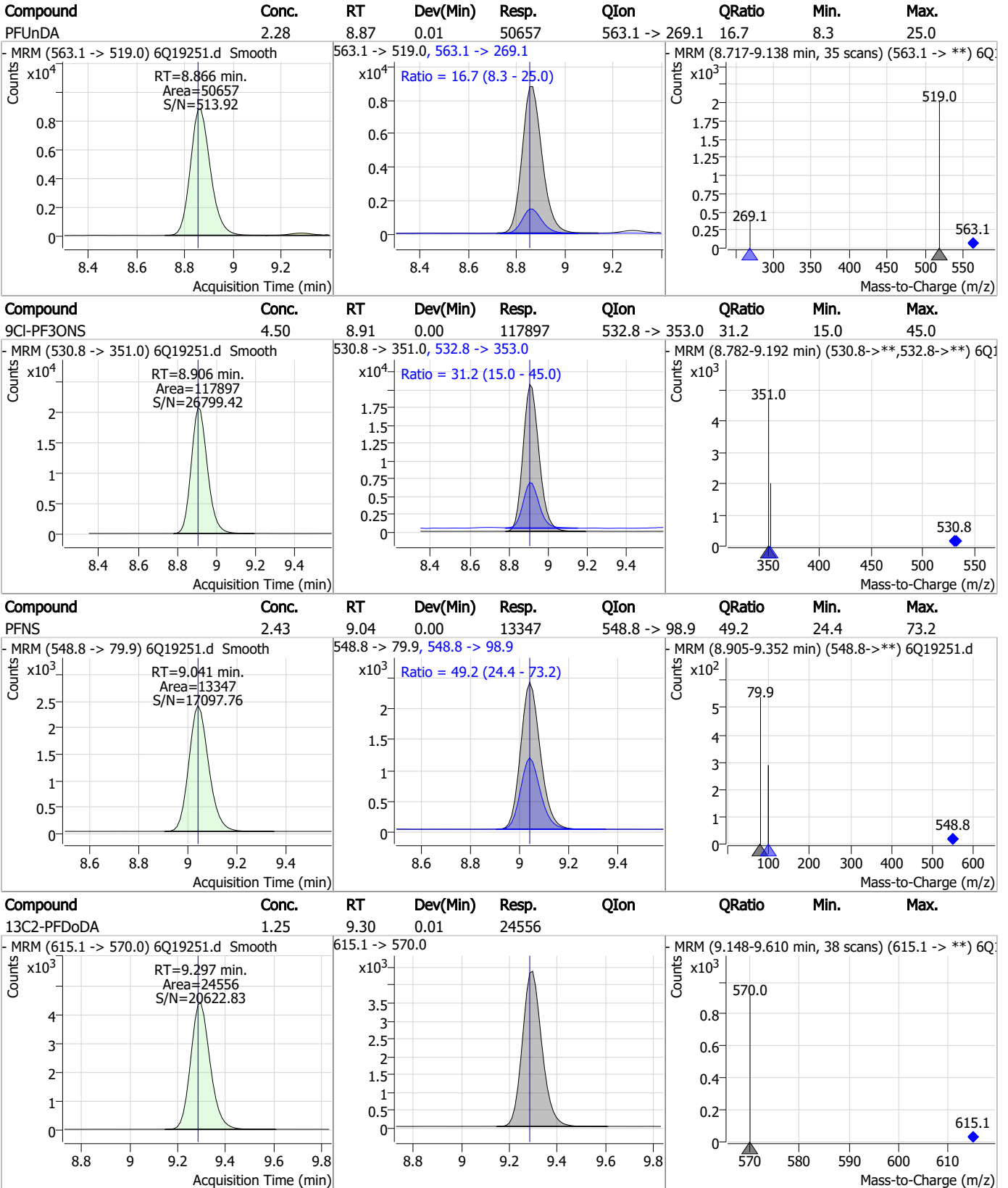
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.48	8.63	0.00	9418 (m)	584.2 -> 526.0	51.9	25.1	75.2



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



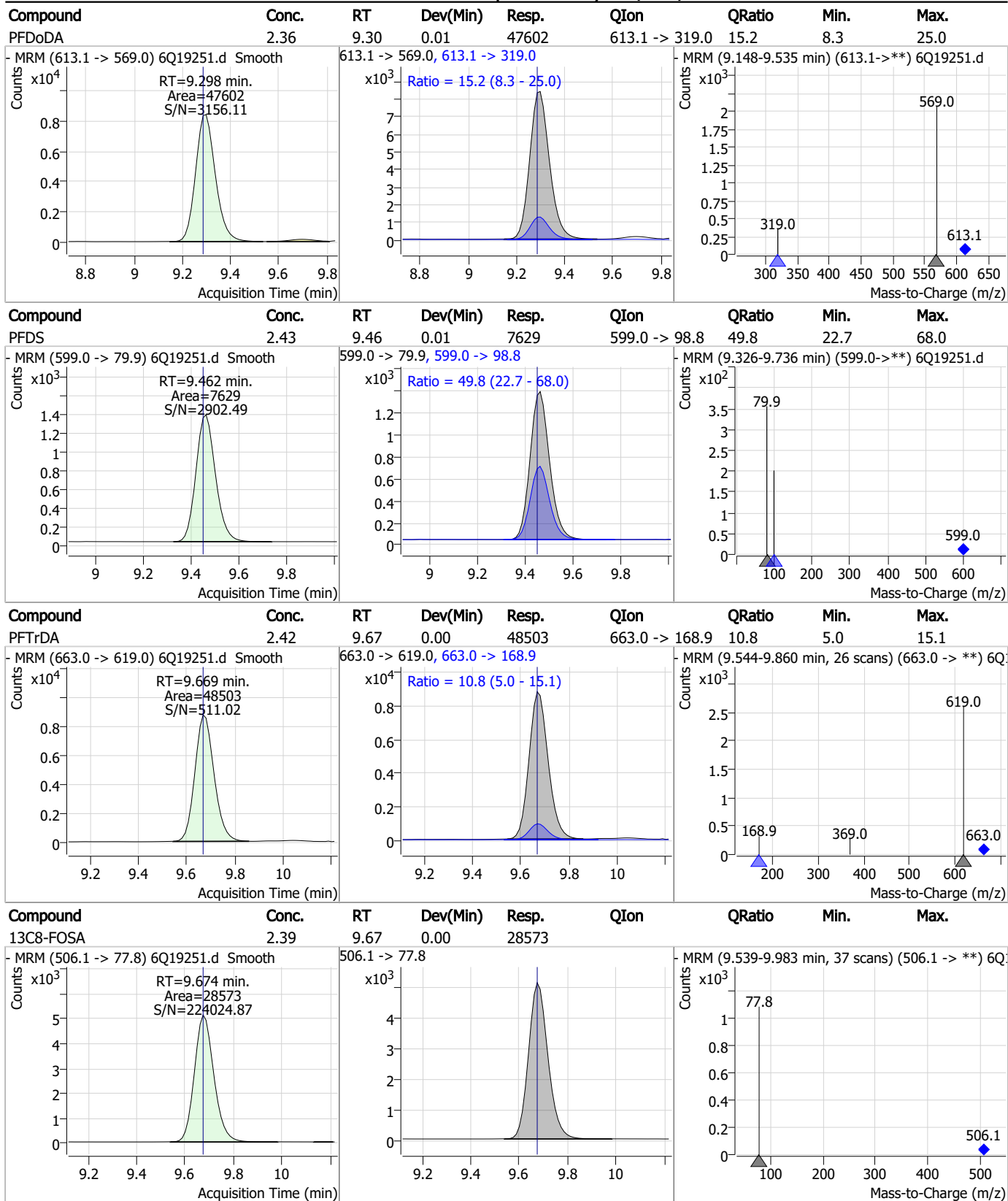
Perfluorinated Compounds by LC/MS/MS



7.7.12 7



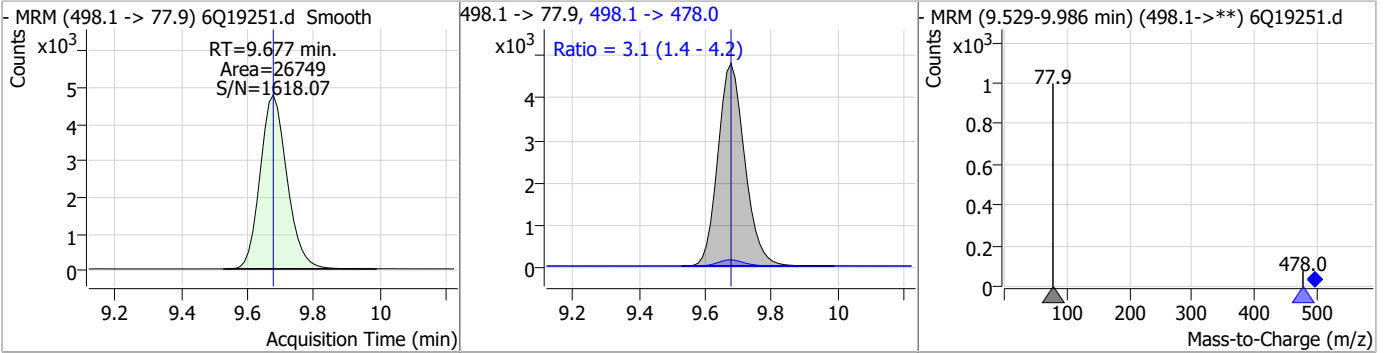
Perfluorinated Compounds by LC/MS/MS



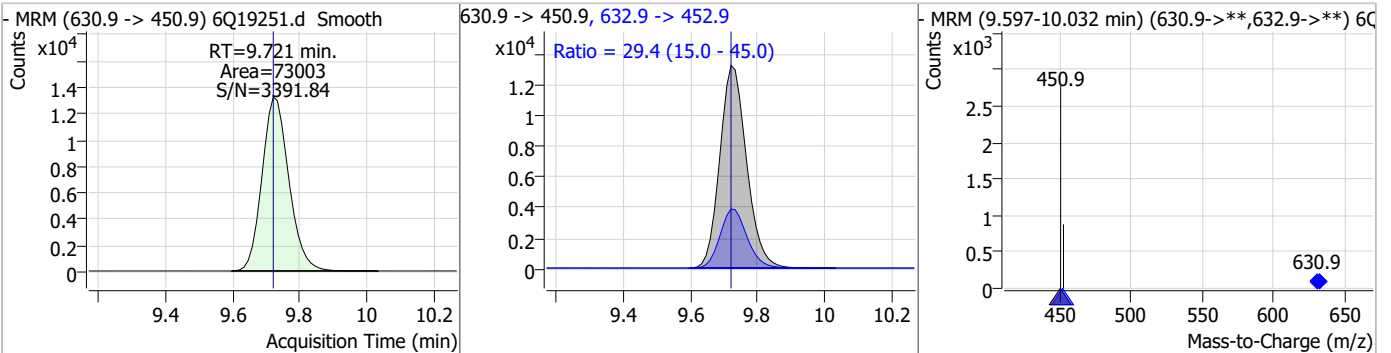
7.7.12
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Perfluorinated Compounds by LC/MS/MS

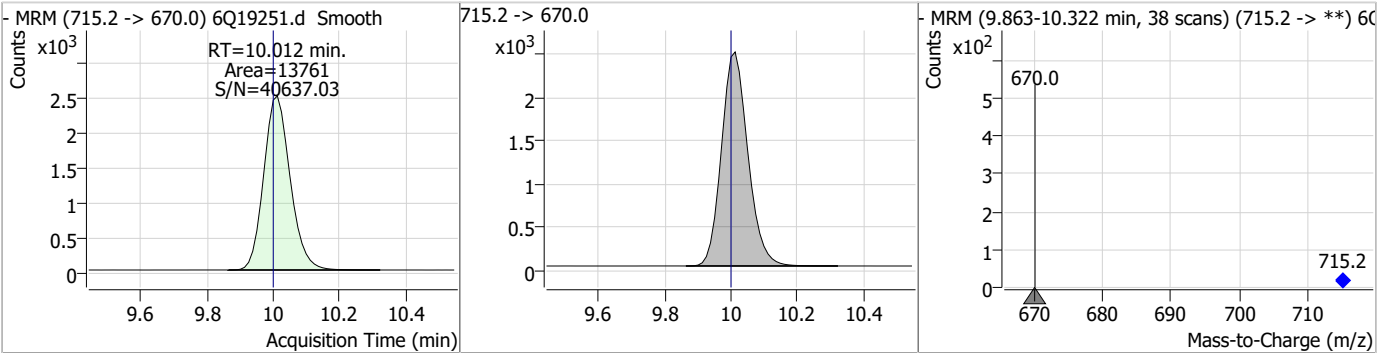
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.28	9.68	0.00	26749	498.1 -> 478.0	3.1	1.4	4.2



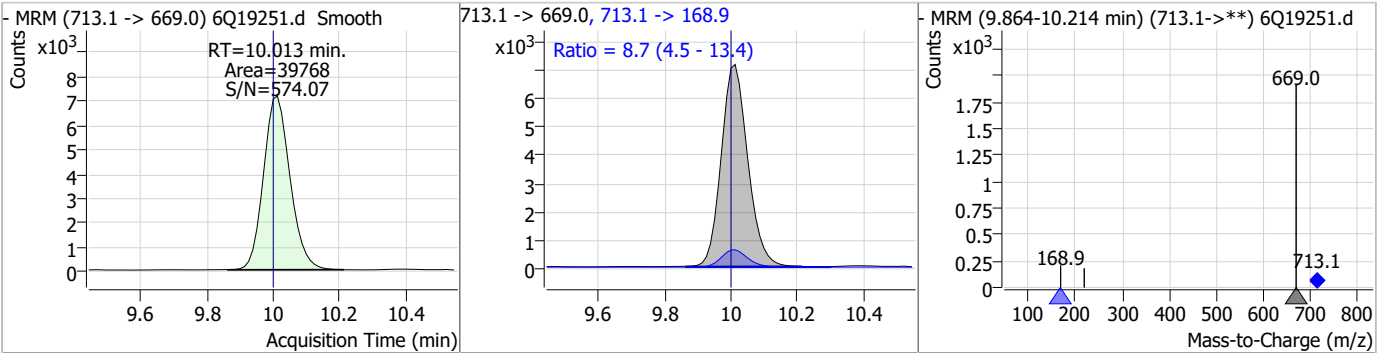
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	4.66	9.72	0.00	73003	632.9 -> 452.9	29.4	15.0	45.0



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

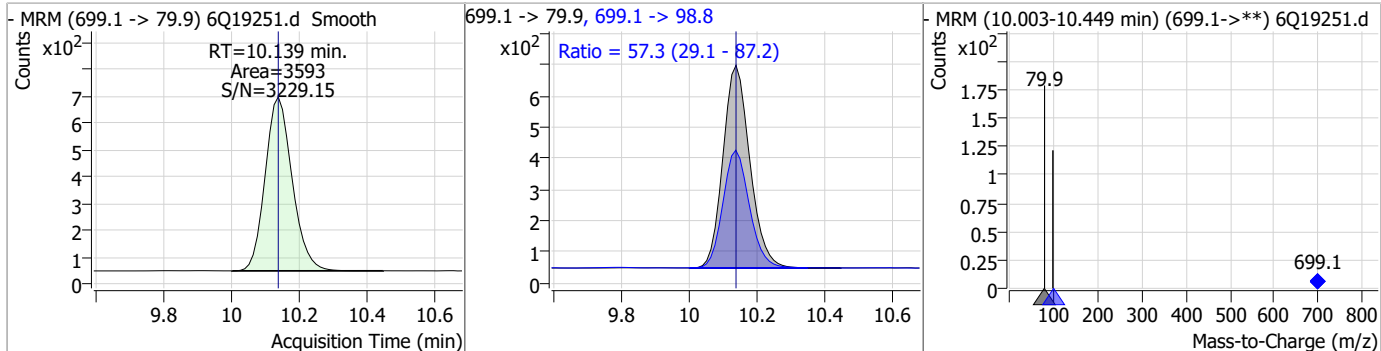


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.42	10.01	0.01	39768	713.1 -> 168.9	8.7	4.5	13.4

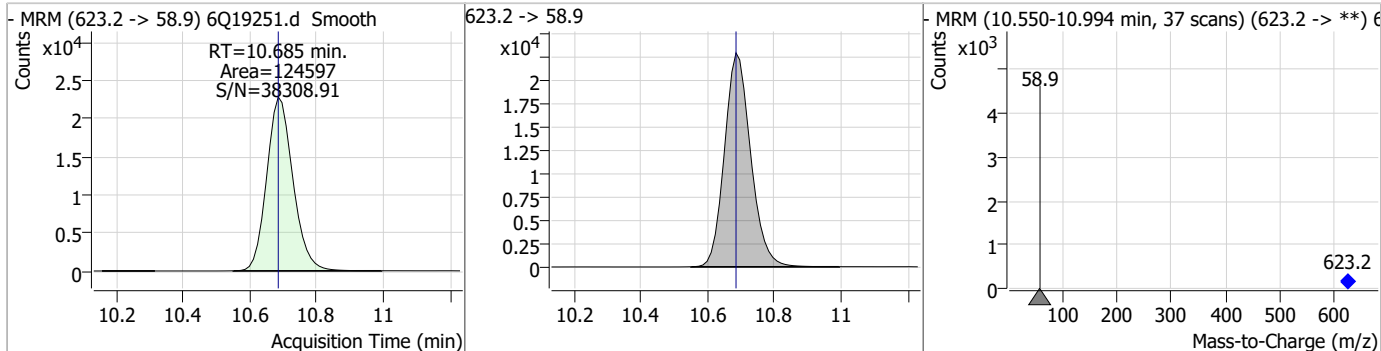


Perfluorinated Compounds by LC/MS/MS

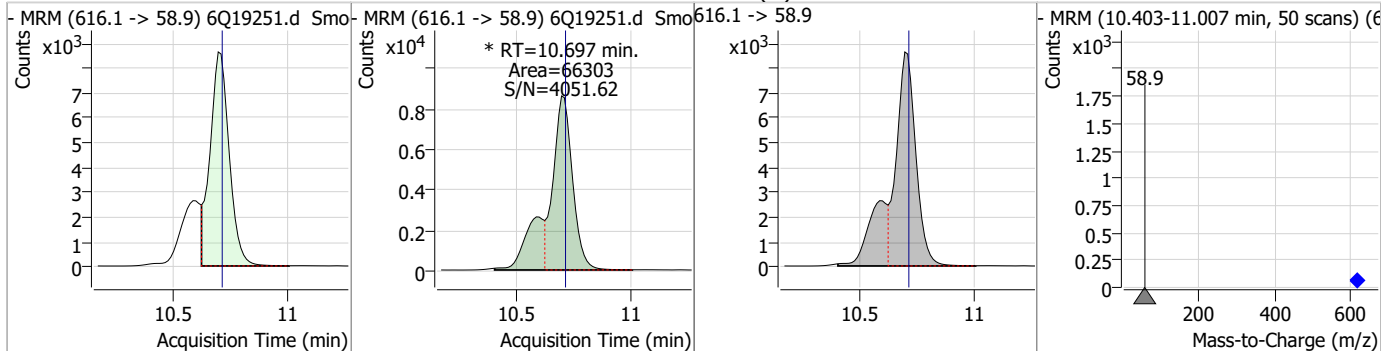
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.30	10.14	0.00	3593	699.1 -> 98.8	57.3	29.1	87.2



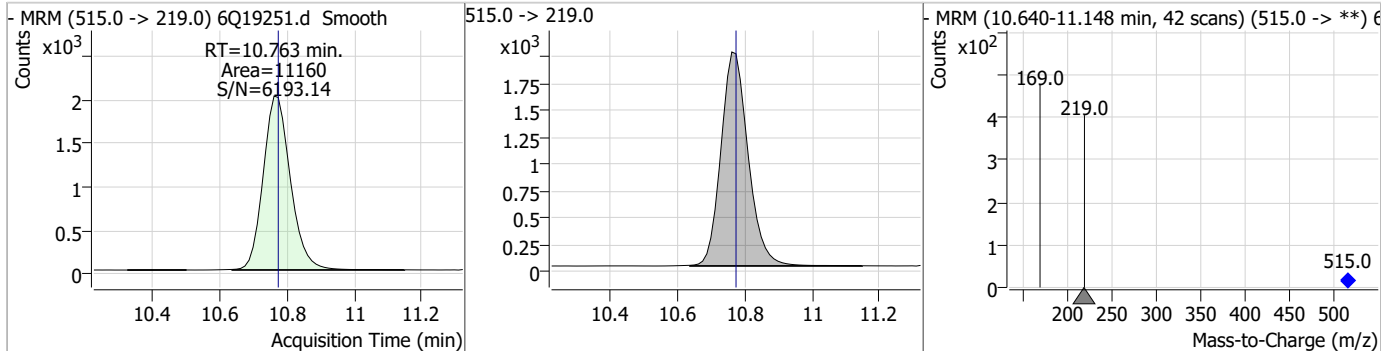
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.07	10.68	0.00	124597				



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

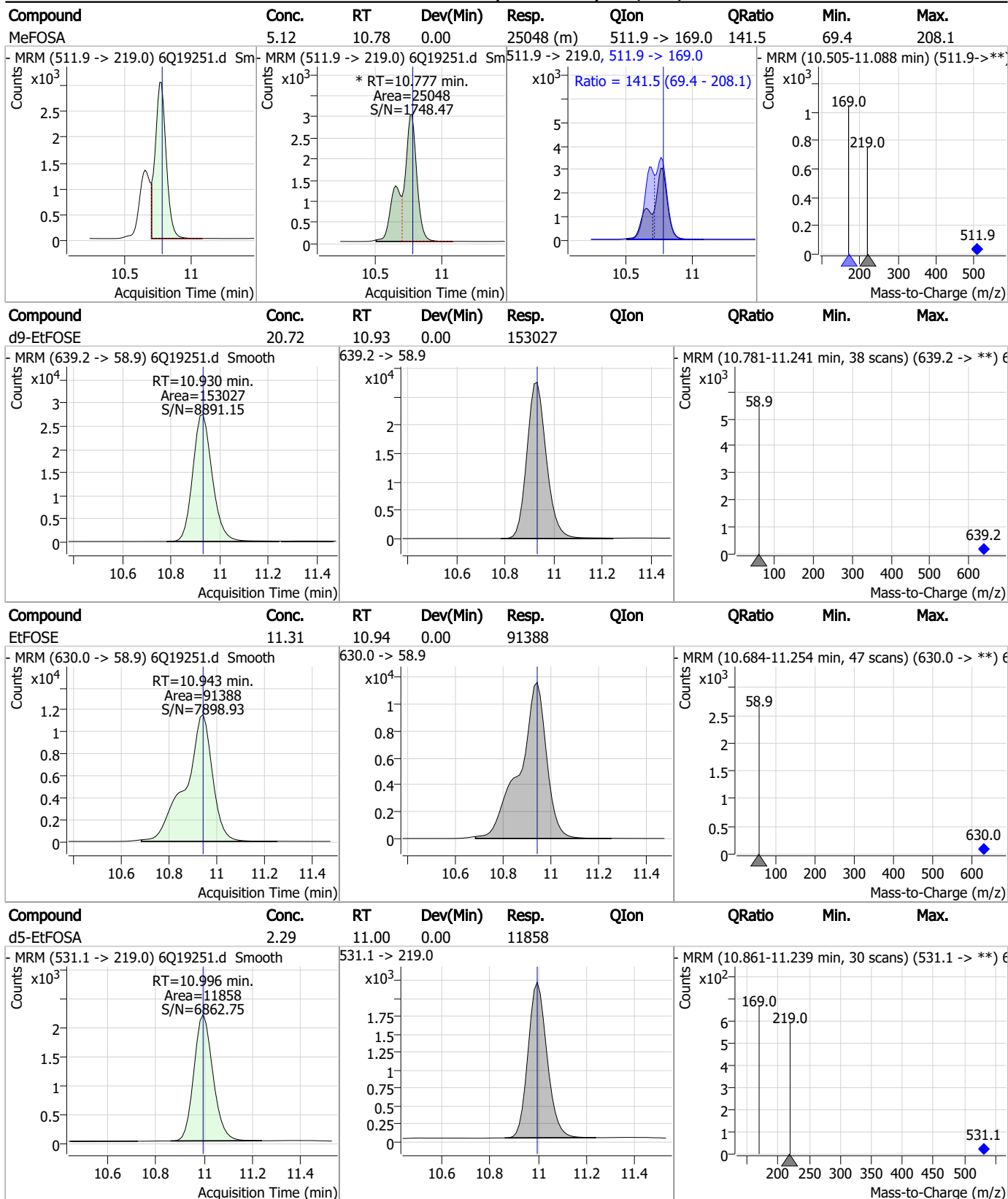


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.08	10.76	-0.01	11160				



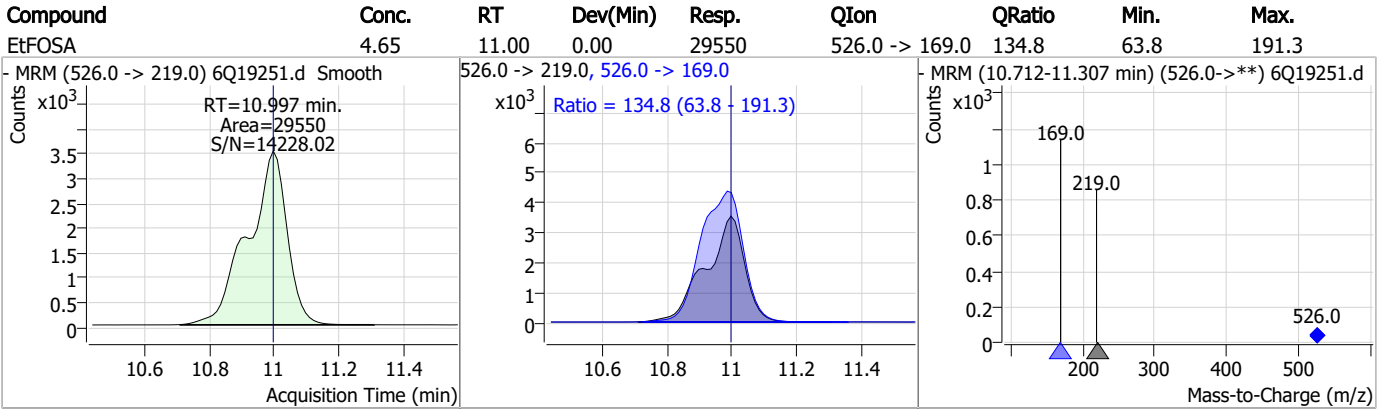
7.7.12
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Perfluorinated Compounds by LC/MS/MS



7.7.12
7

Perfluorinated Compounds by LC/MS/MS



7.7.12
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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
7

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
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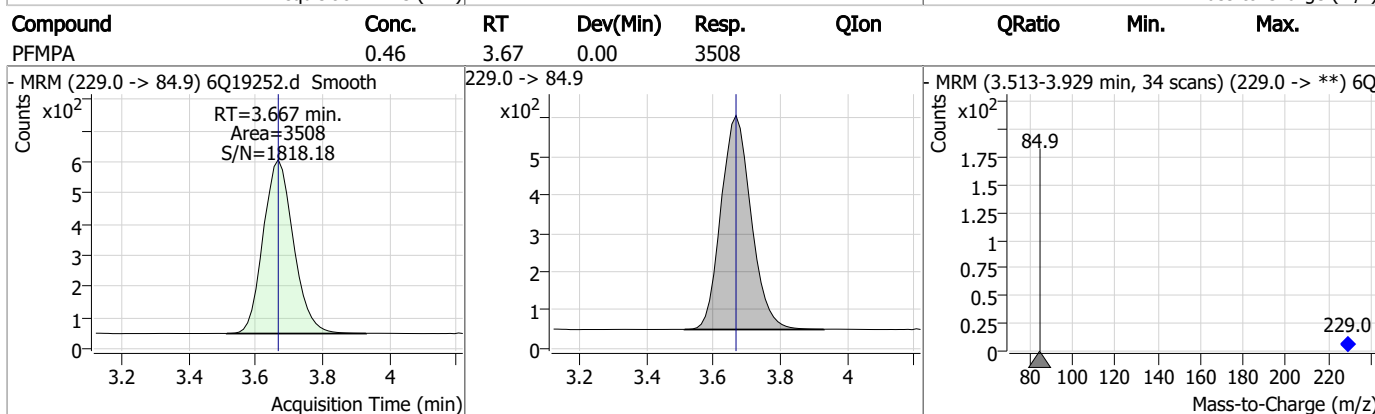
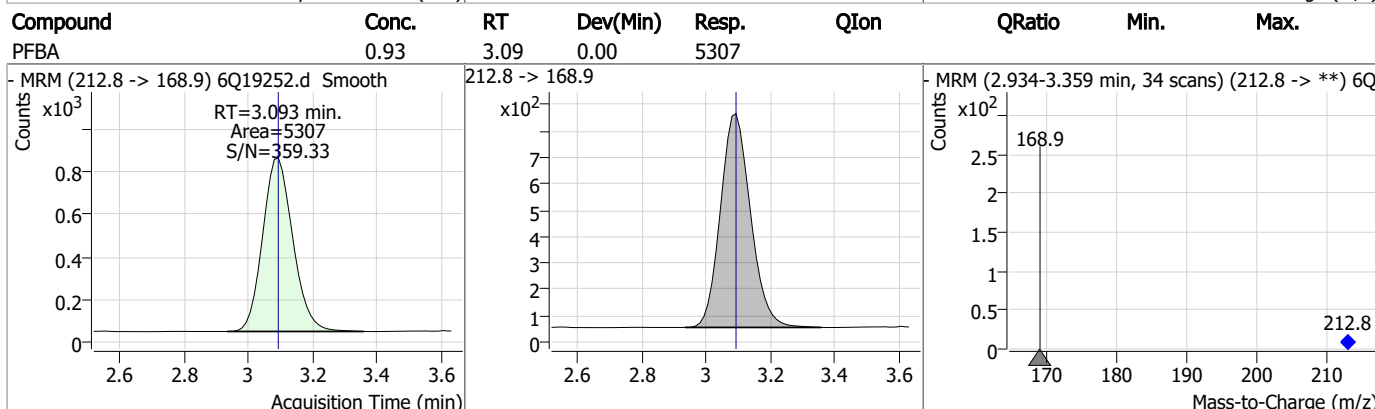
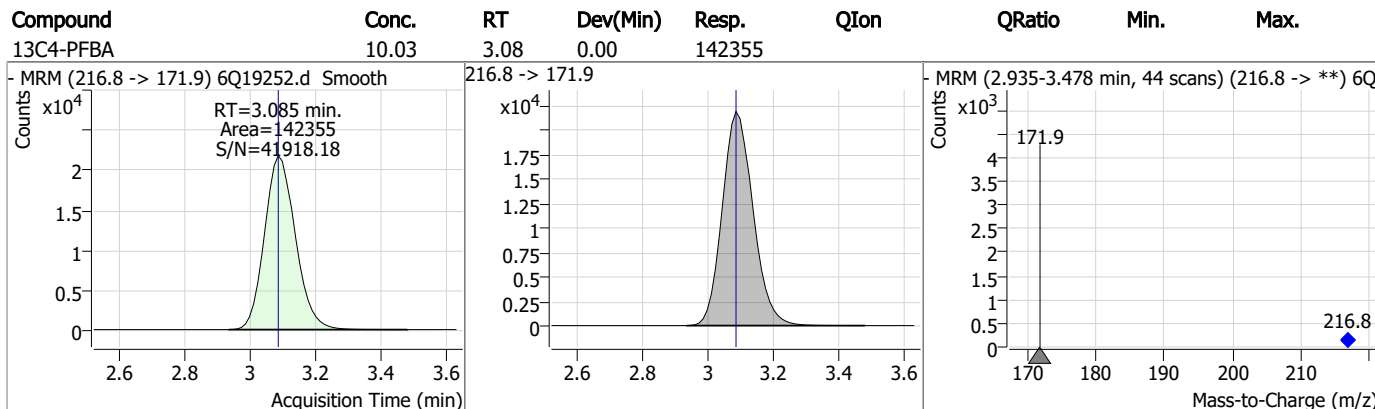
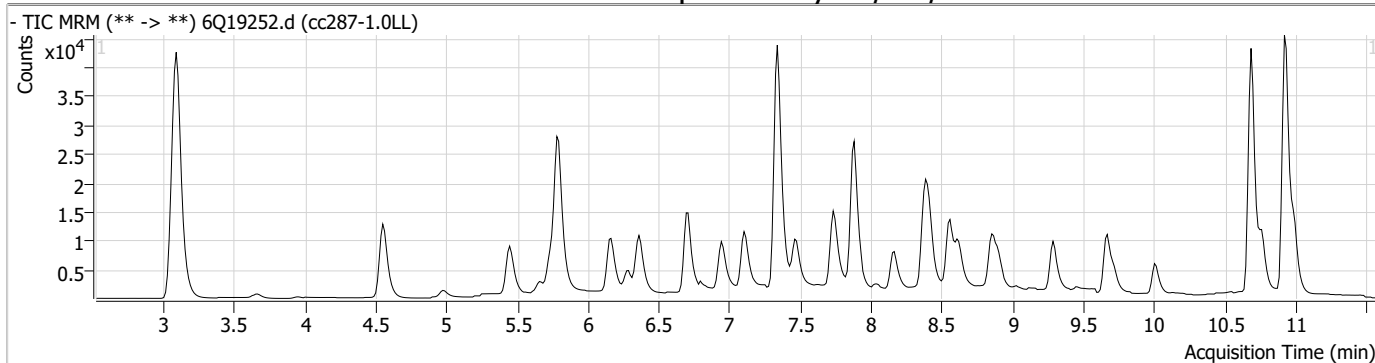
Perfluorinated Compounds by LC/MS/MS

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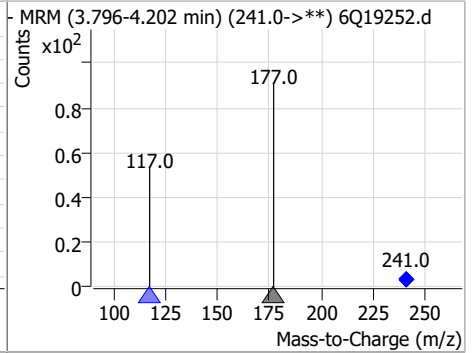
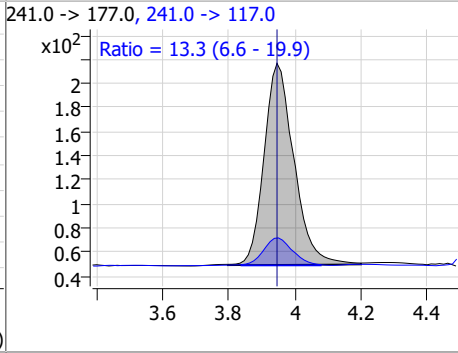
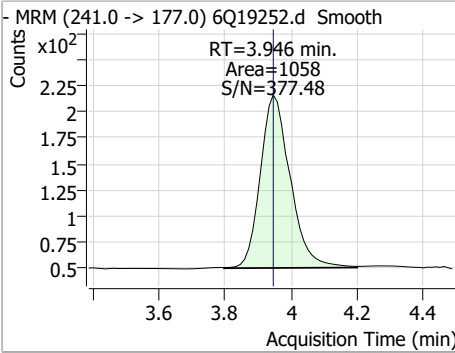
Perfluorinated Compounds by LC/MS/MS



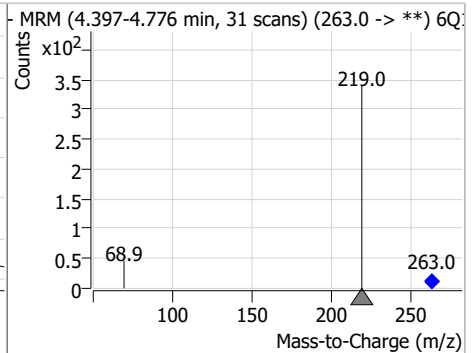
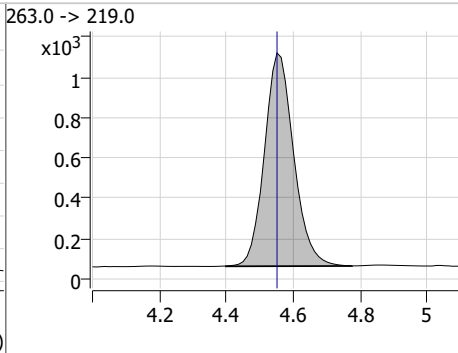
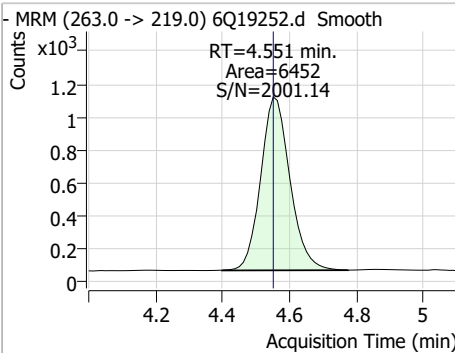
7.7.13
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Perfluorinated Compounds by LC/MS/MS

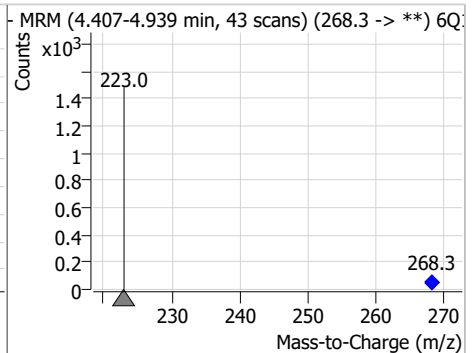
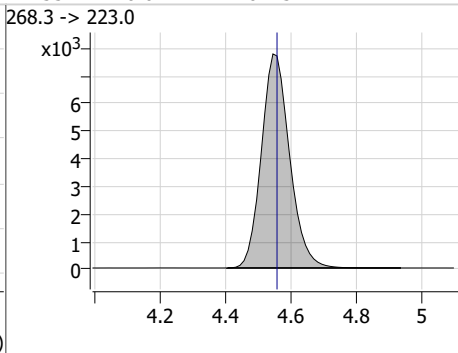
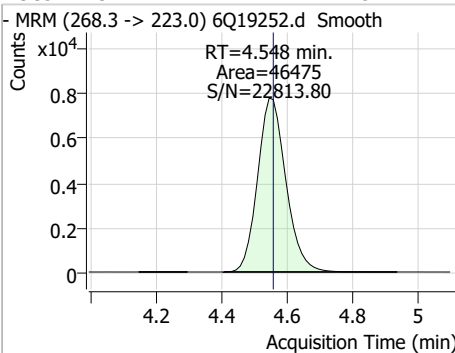
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	1.13	3.95	0.00	1058	241.0 -> 117.0	13.3	6.6	19.9



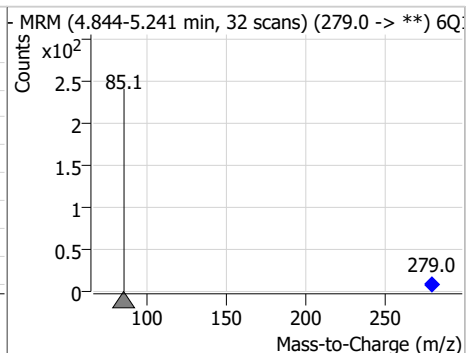
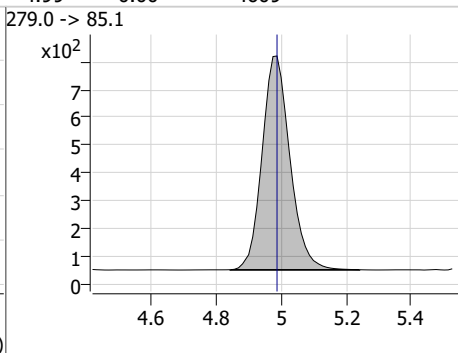
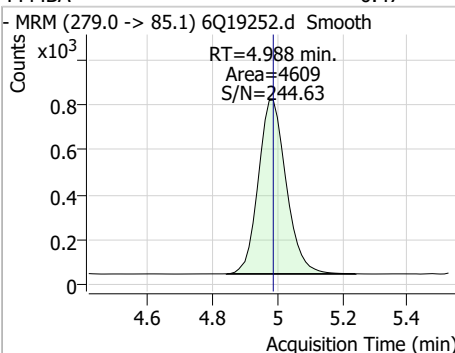
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.47	4.55	0.00	6452				



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

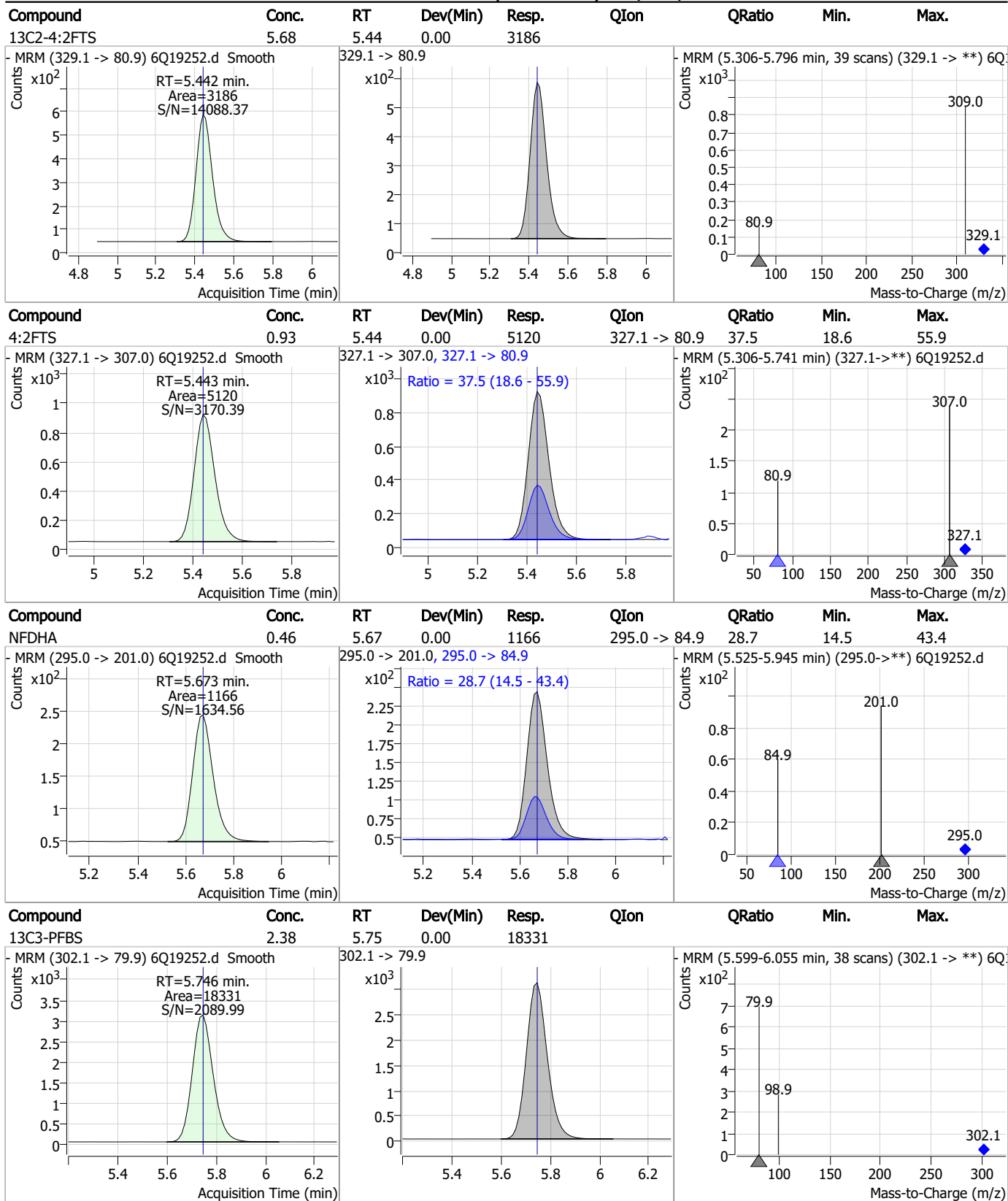


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.47	4.99	0.00	4609				



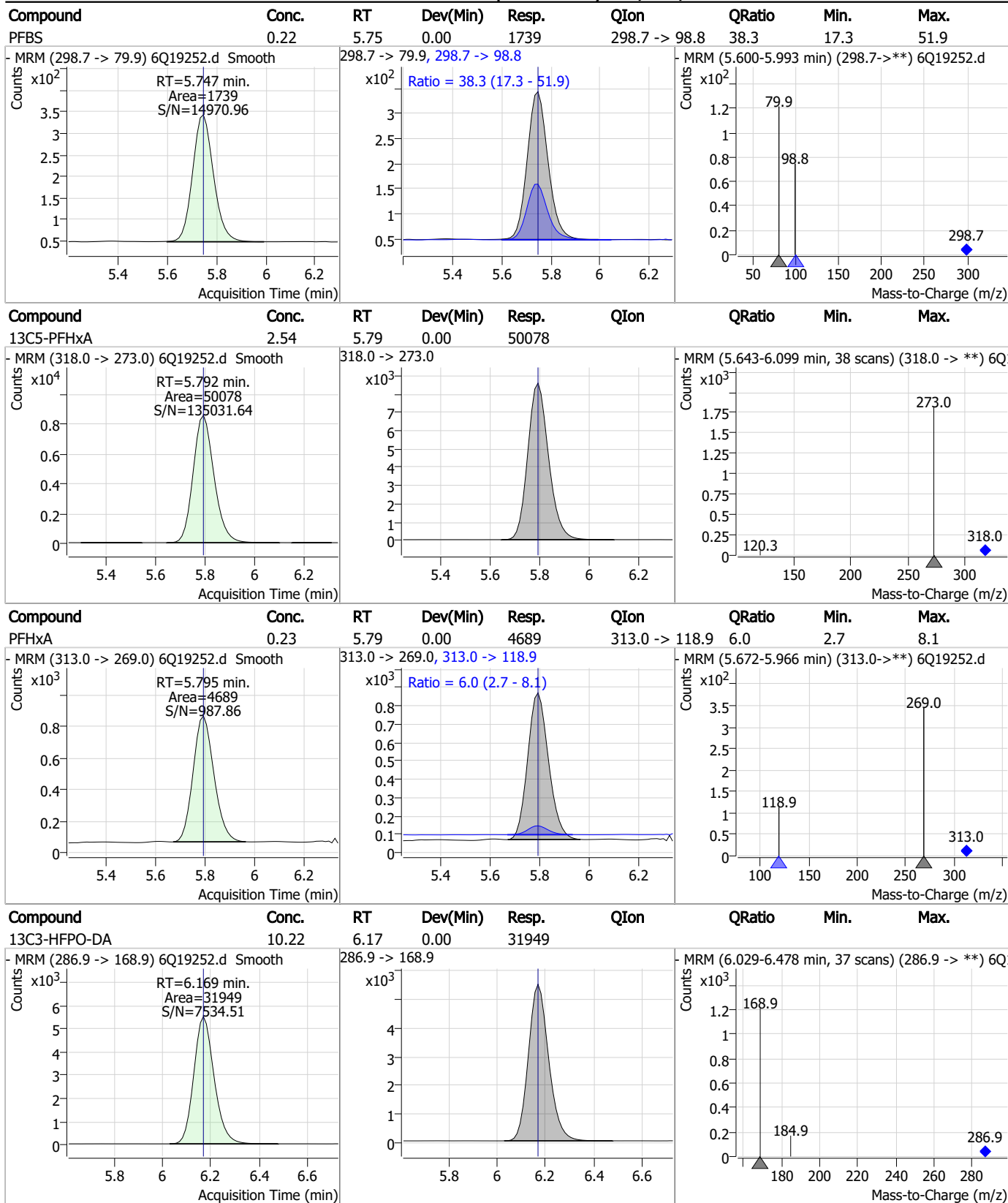
7.7.13
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Perfluorinated Compounds by LC/MS/MS



7.7.13
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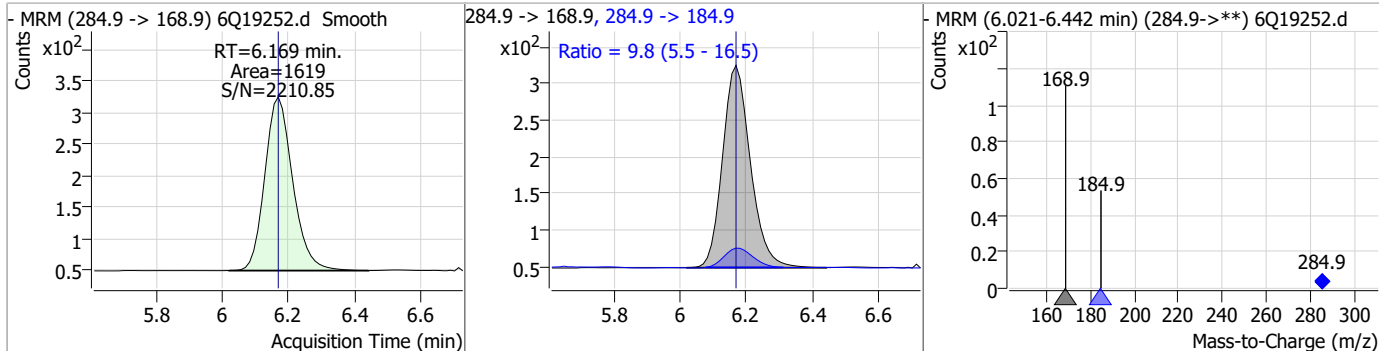
Perfluorinated Compounds by LC/MS/MS



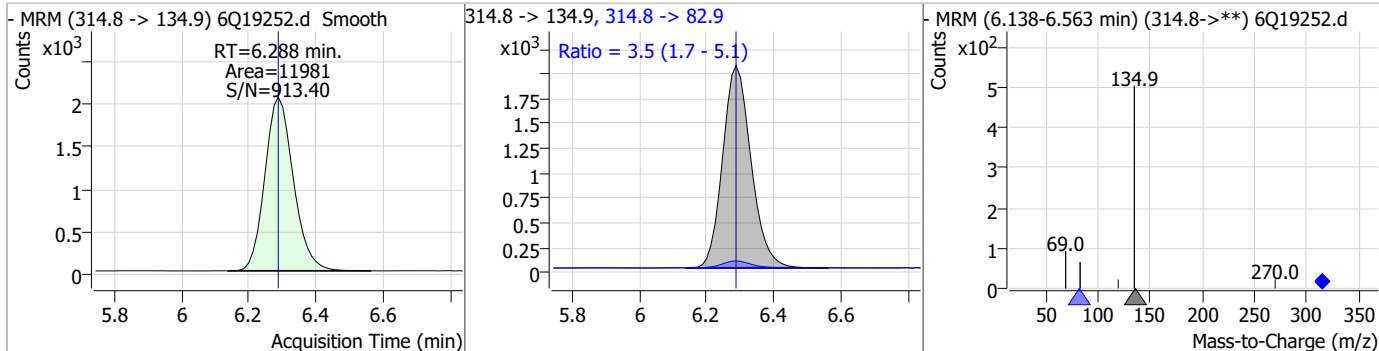
7.7.13

Perfluorinated Compounds by LC/MS/MS

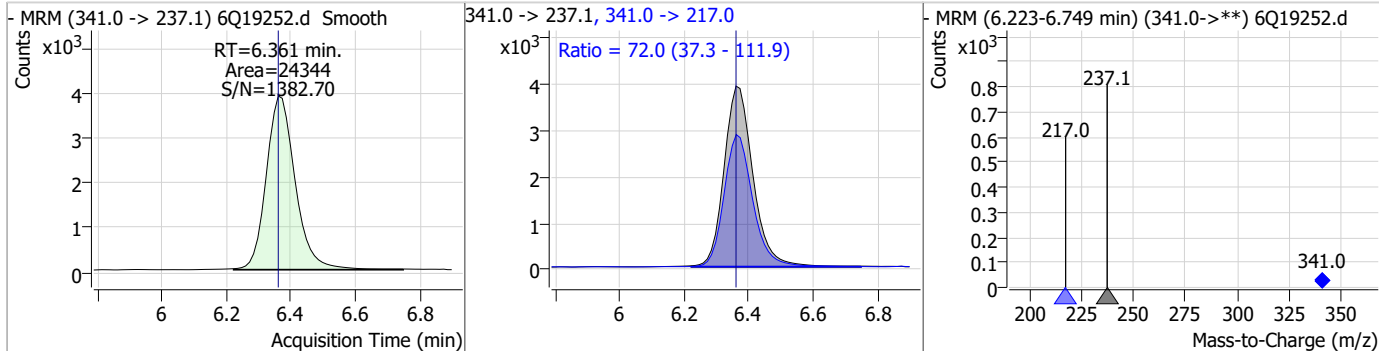
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.46	6.17	0.00	1619	284.9 -> 184.9	9.8	5.5	16.5



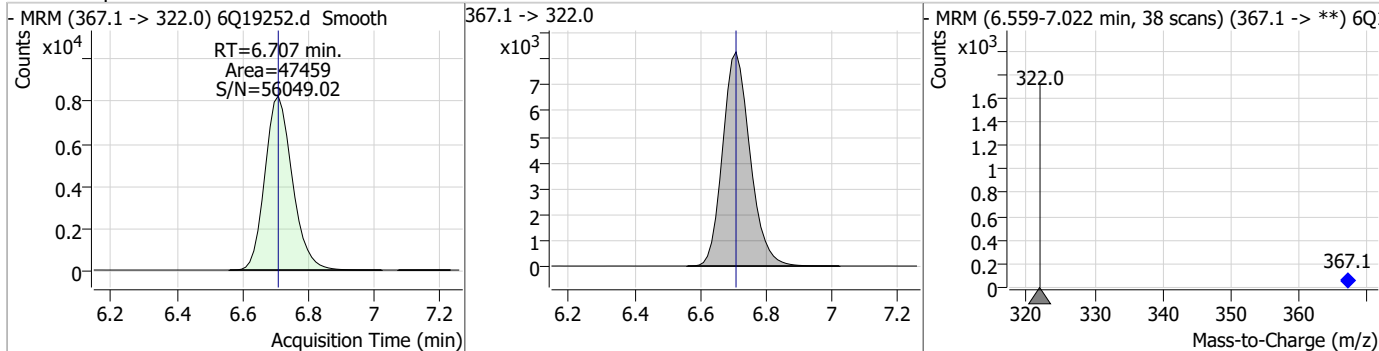
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.49	6.29	0.00	11981	314.8 -> 82.9	3.5	1.7	5.1



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

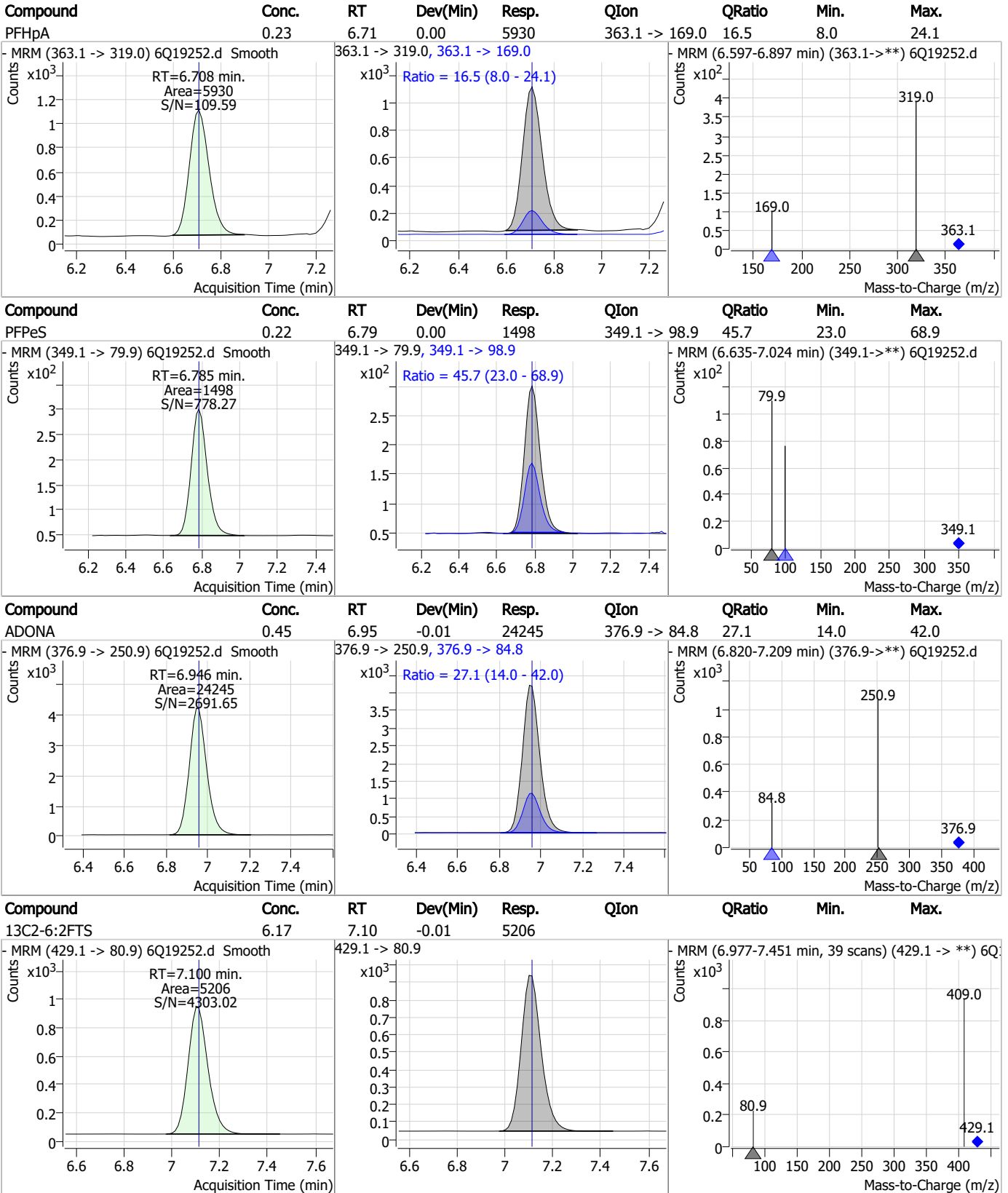


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.59	6.71	0.00	47459	367.1 -> 322.0			



7.7.13
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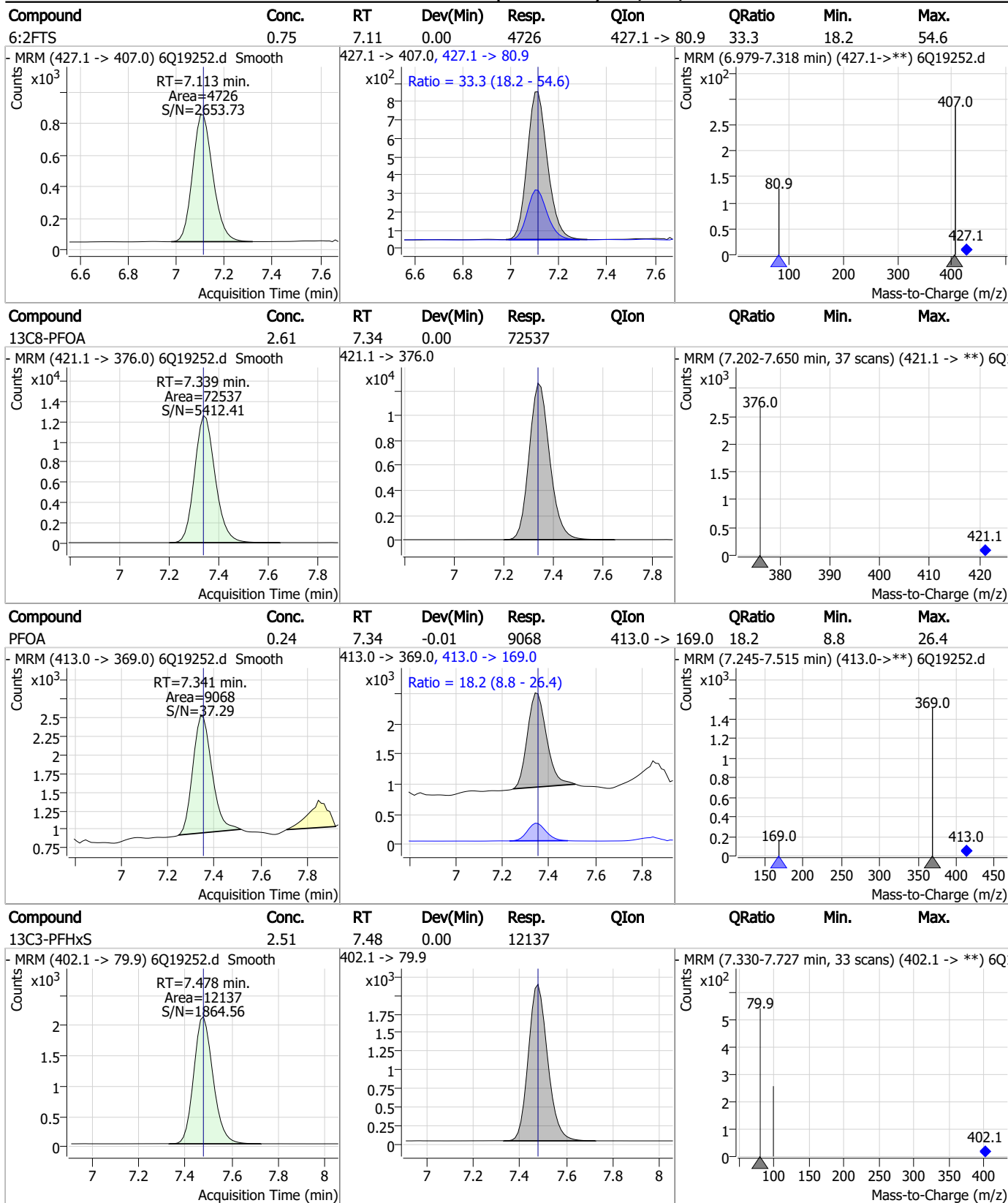
Perfluorinated Compounds by LC/MS/MS



7.7.13
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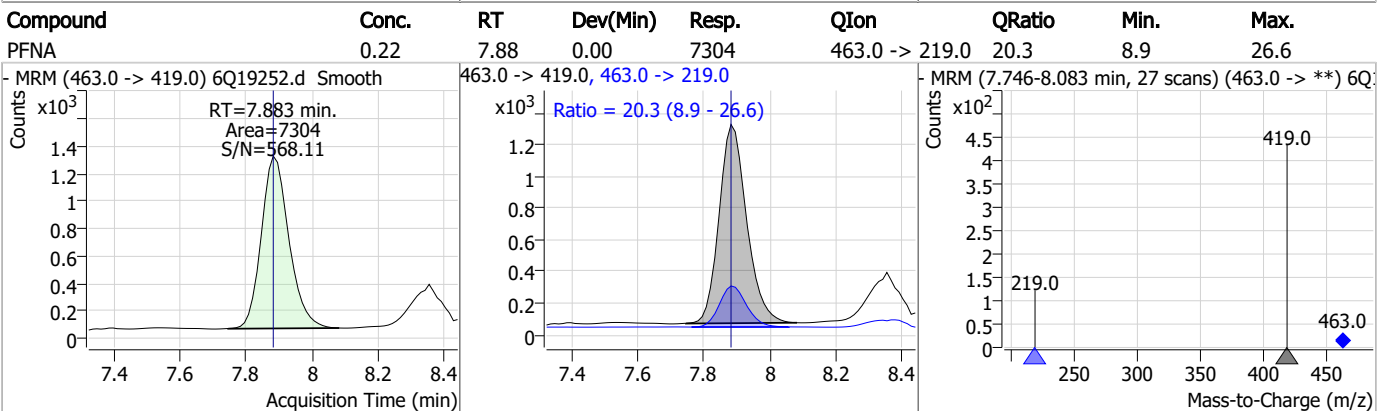
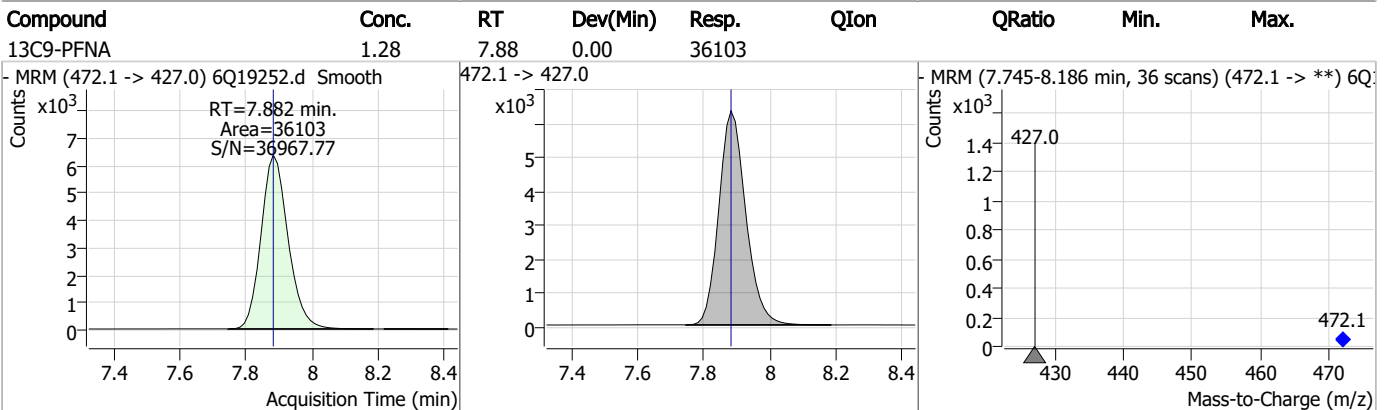
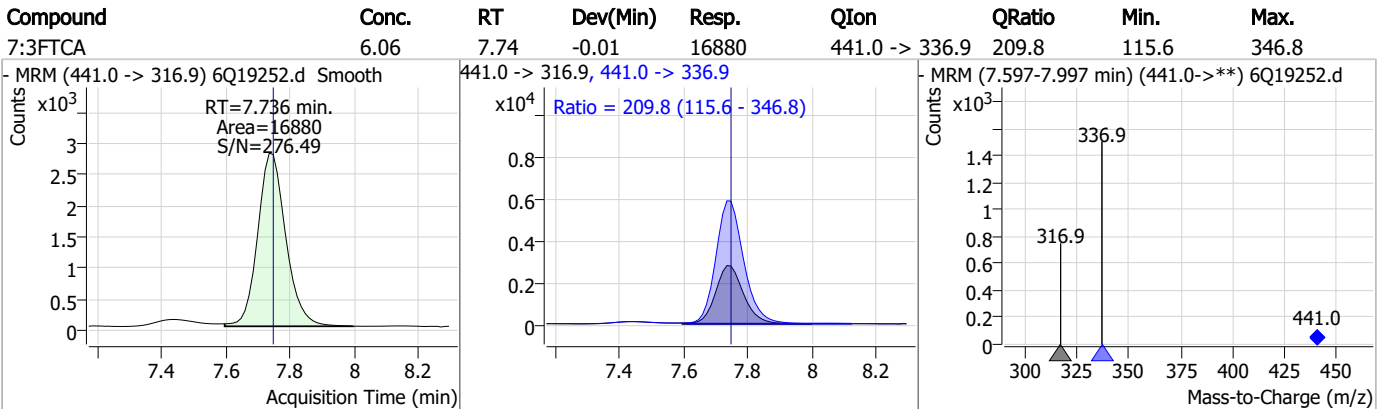
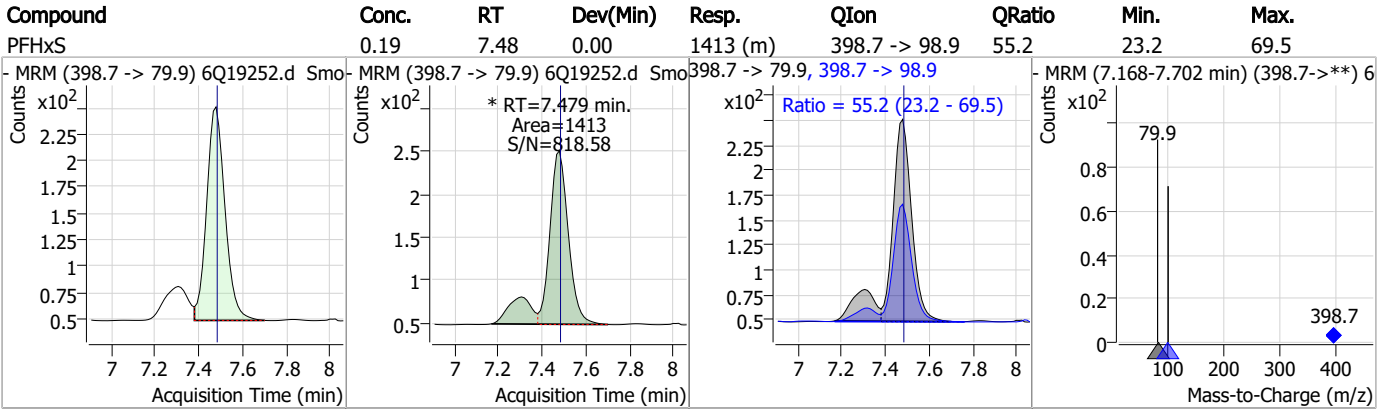


Perfluorinated Compounds by LC/MS/MS



7.7.13
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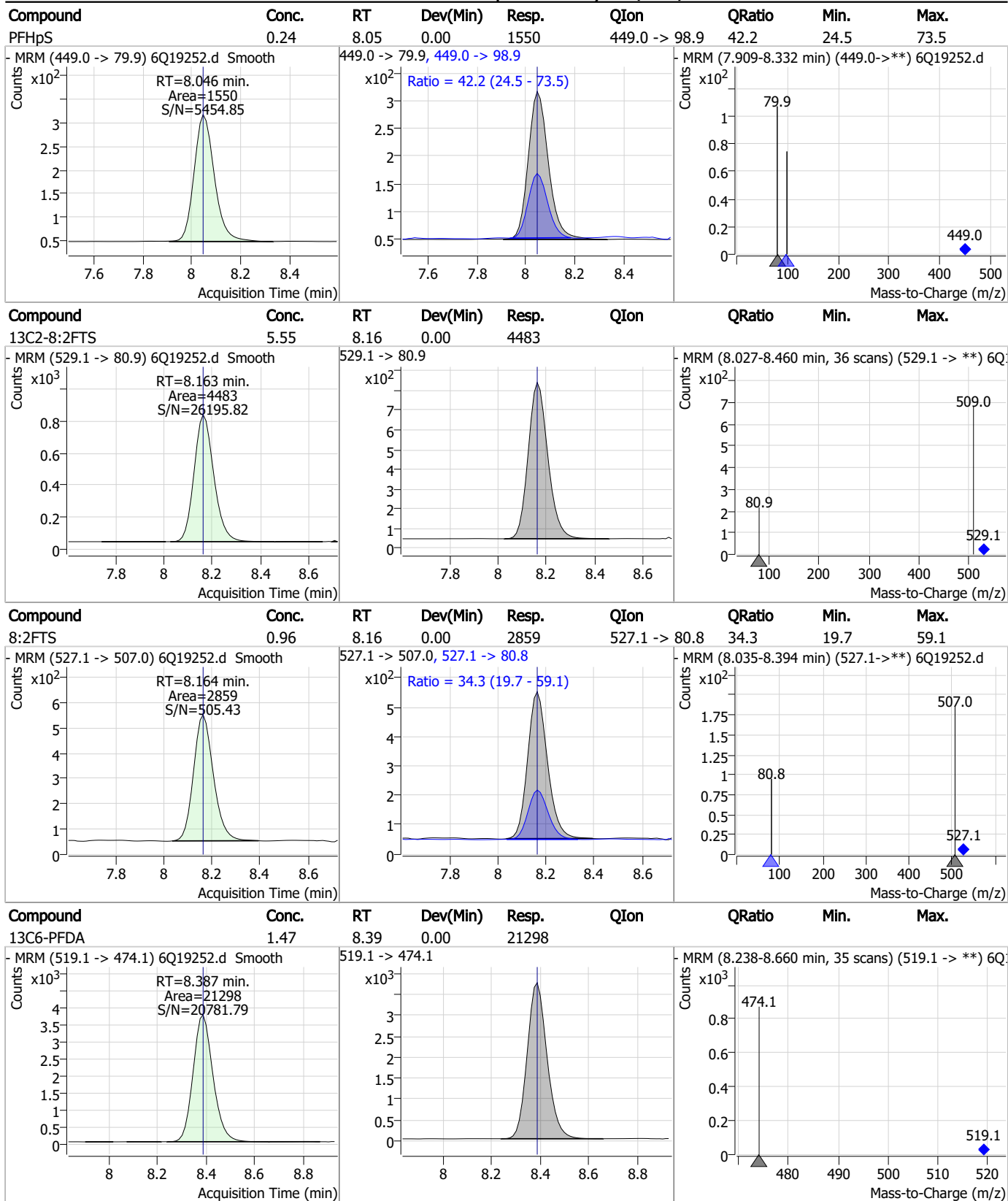
Perfluorinated Compounds by LC/MS/MS



7.7.13
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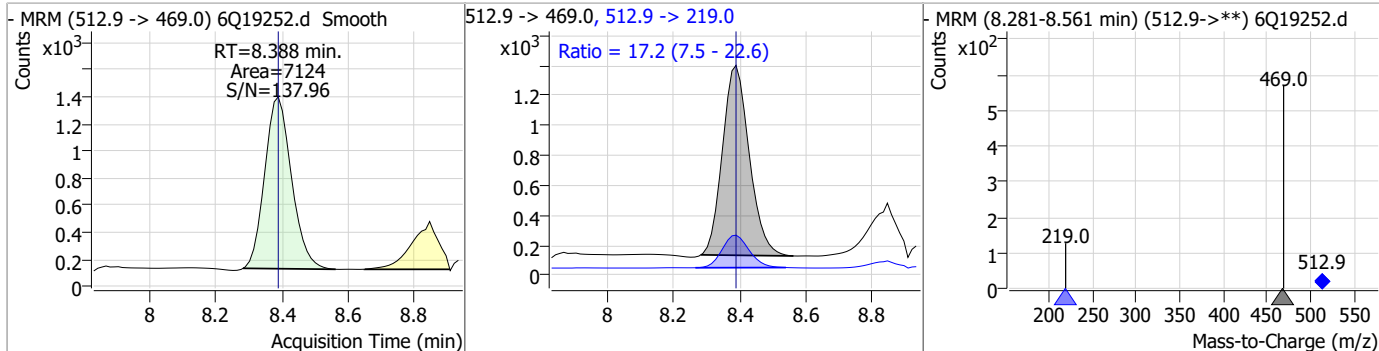
Perfluorinated Compounds by LC/MS/MS



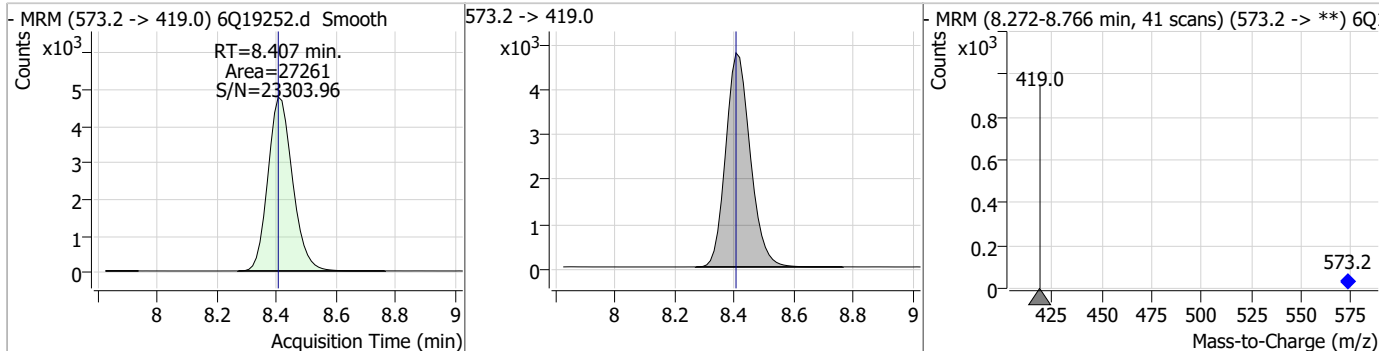
7.7.13
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Perfluorinated Compounds by LC/MS/MS

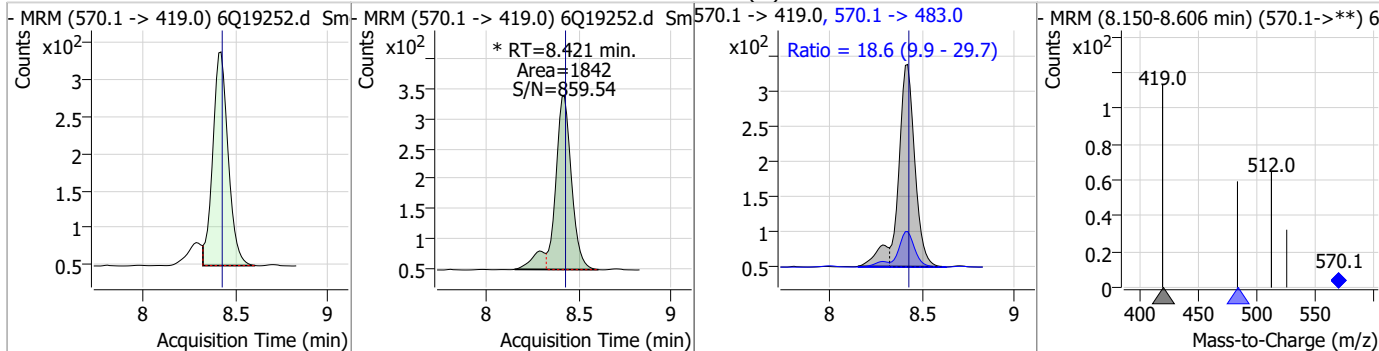
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.22	8.39	0.00	7124	512.9 -> 219.0	17.2	7.5	22.6



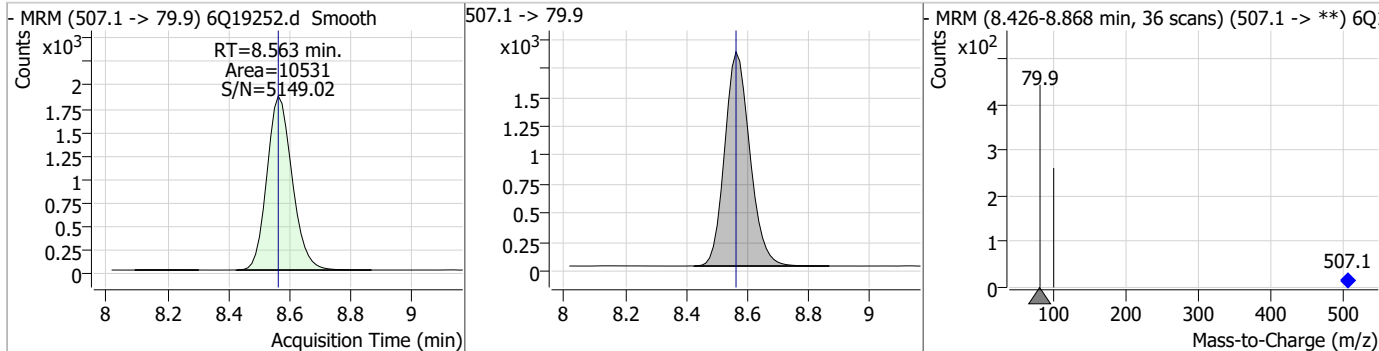
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.95	8.41	0.00	27261	573.2 -> 419.0	18.6	9.9	29.7



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

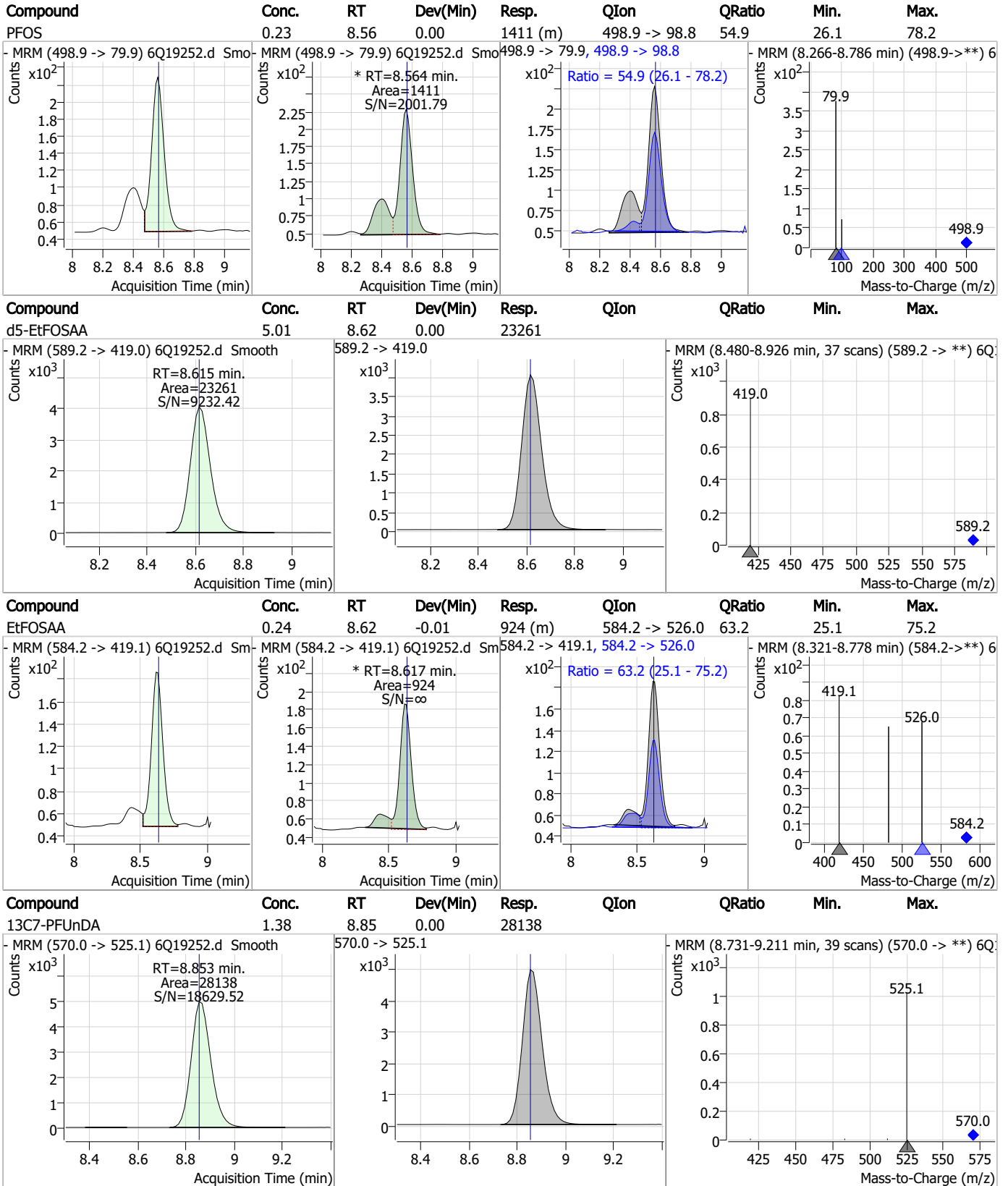


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.45	8.56	0.00	10531	507.1 -> 79.9	18.6	9.9	29.7



7.7.13
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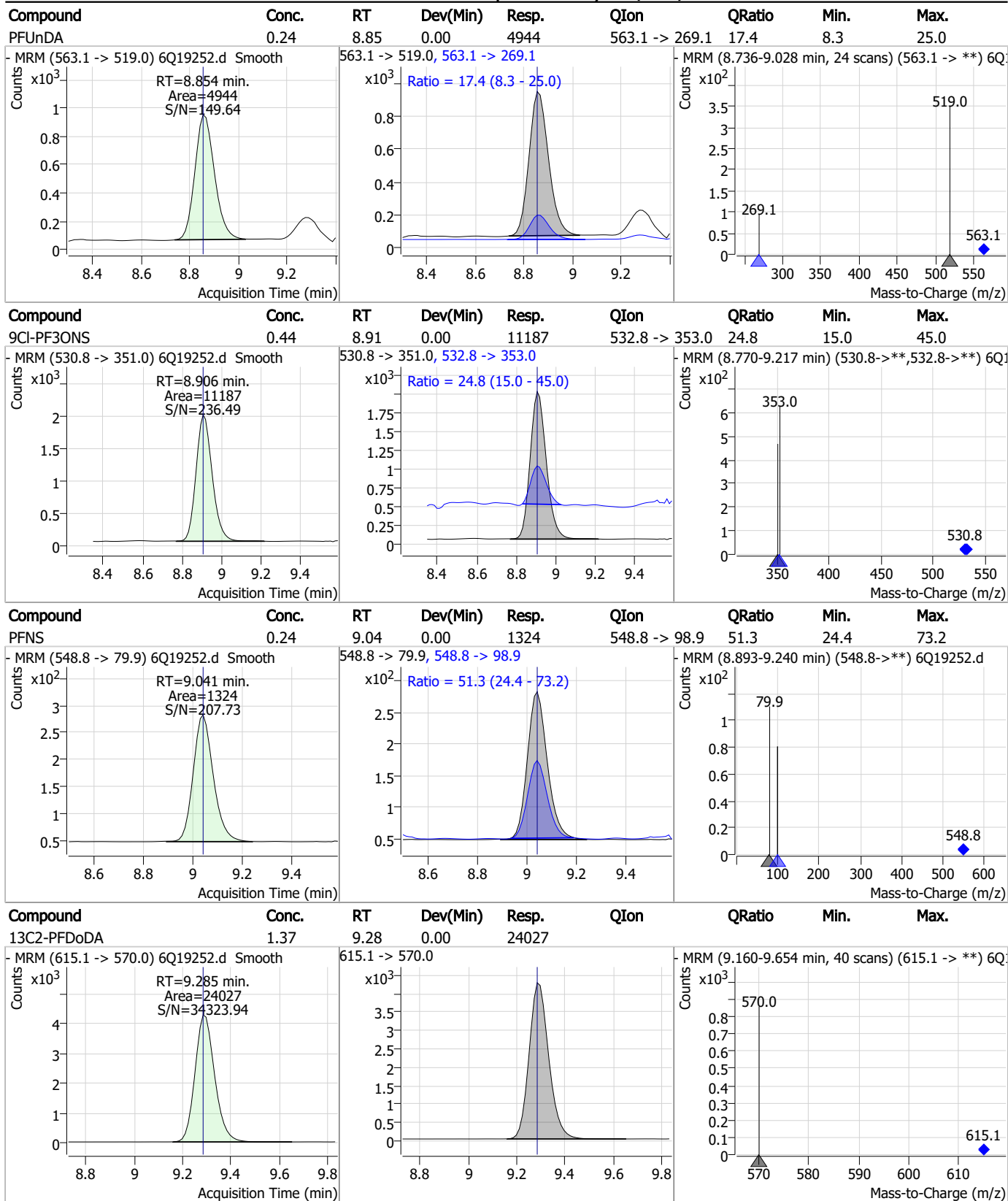
Perfluorinated Compounds by LC/MS/MS



7.7.13 7

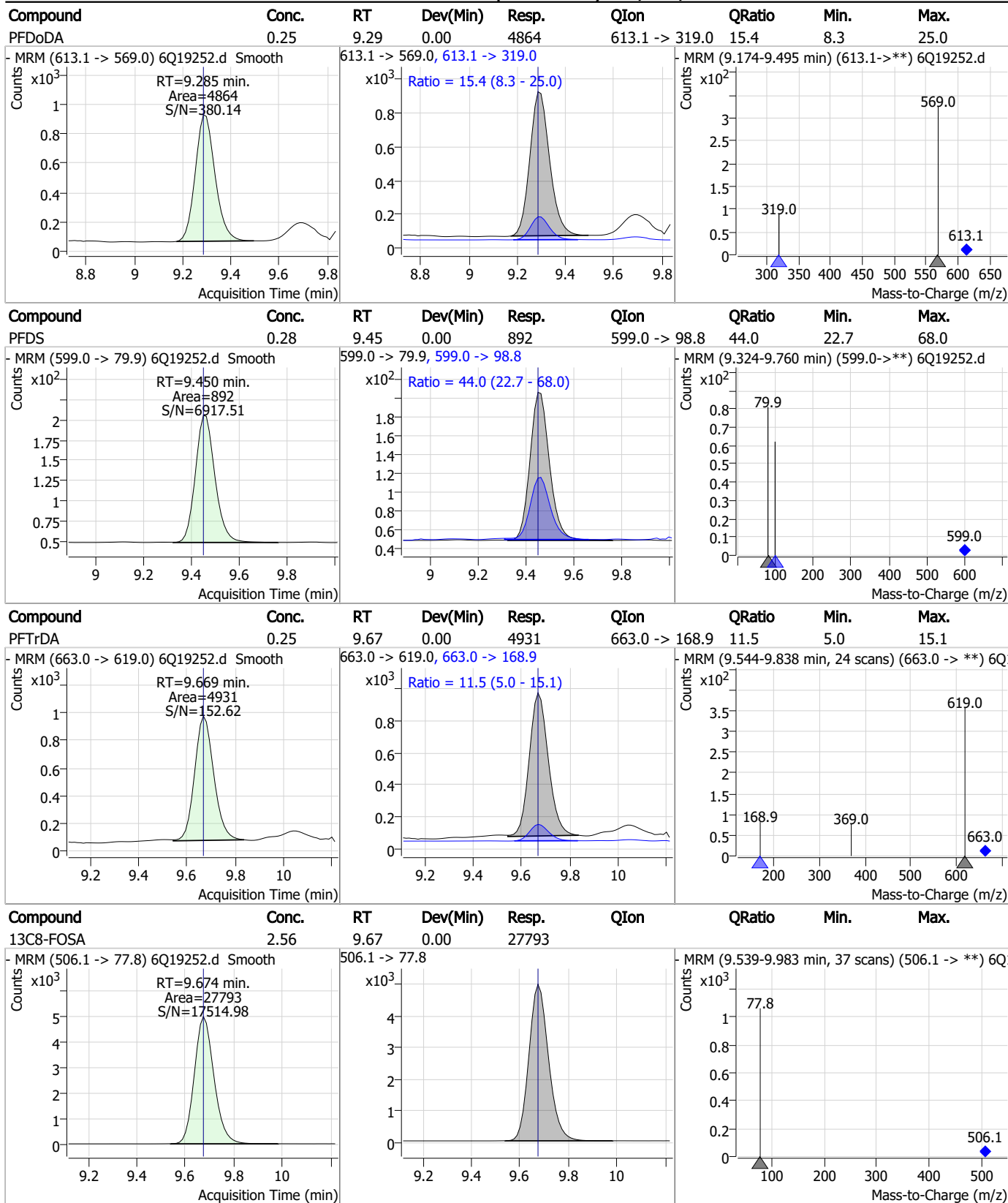


Perfluorinated Compounds by LC/MS/MS



7.7.13
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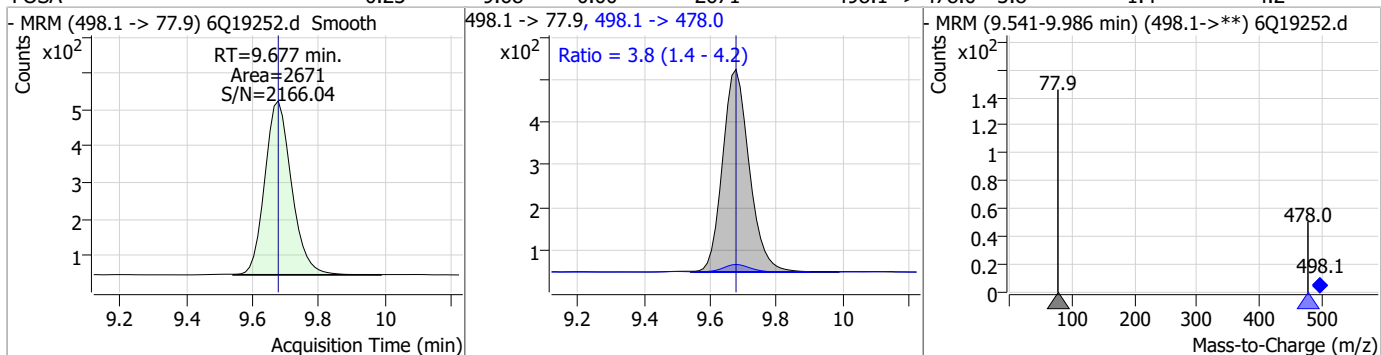
Perfluorinated Compounds by LC/MS/MS



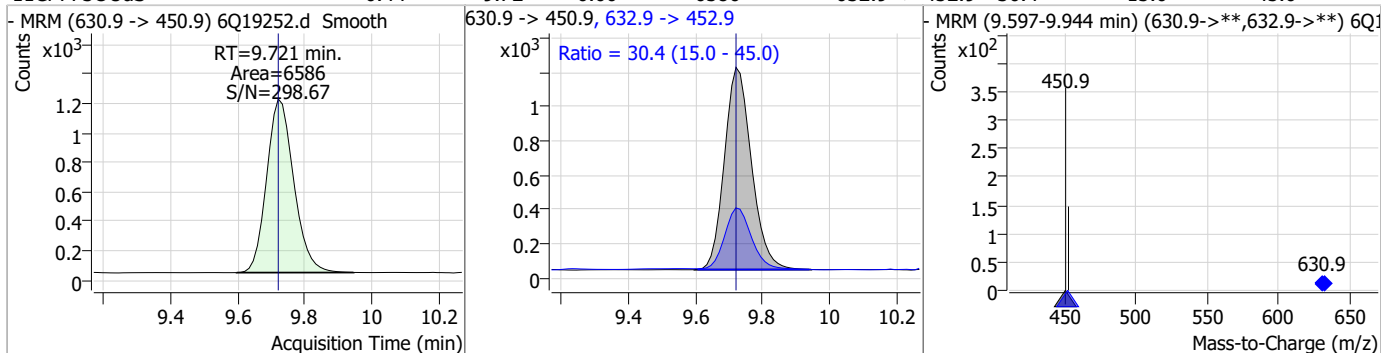
7.7.13
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Perfluorinated Compounds by LC/MS/MS

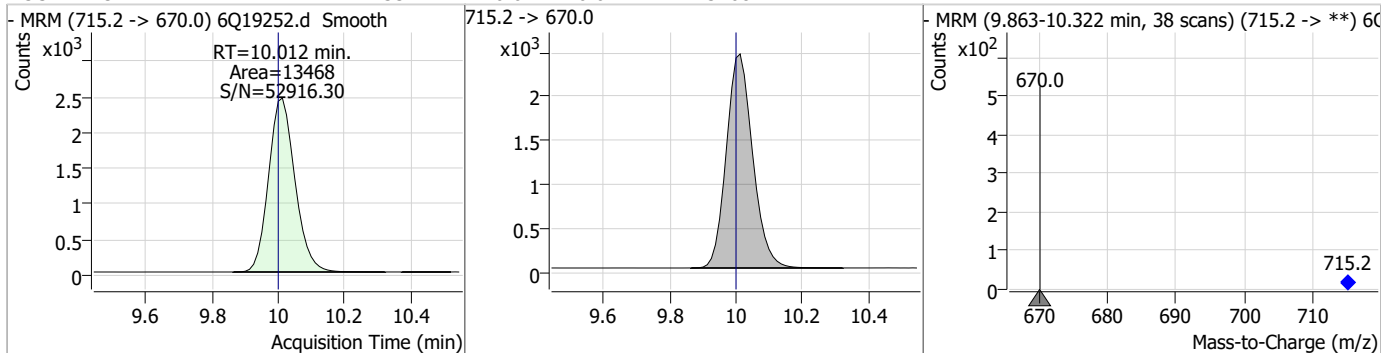
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.23	9.68	0.00	2671	498.1 -> 478.0	3.8	1.4	4.2



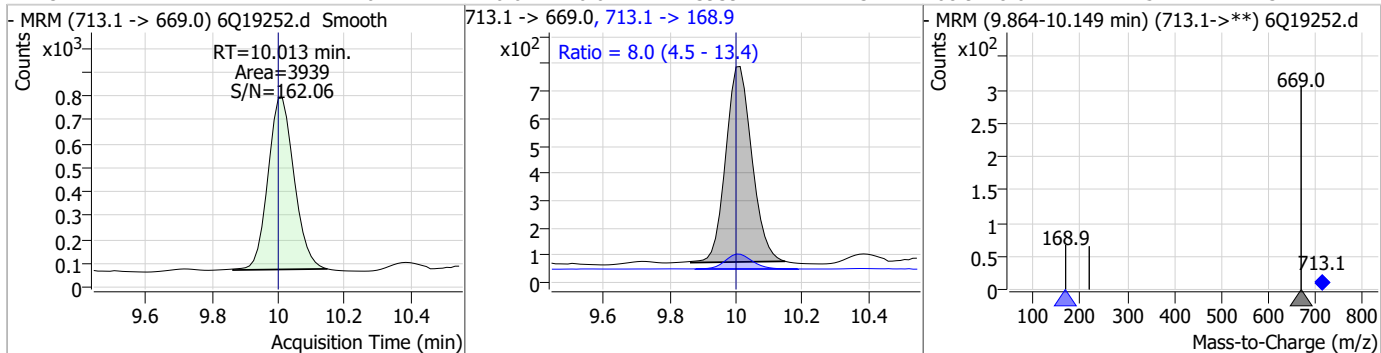
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	0.44	9.72	0.00	6586	632.9 -> 452.9	30.4	15.0	45.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.33	10.01	0.01	13468				



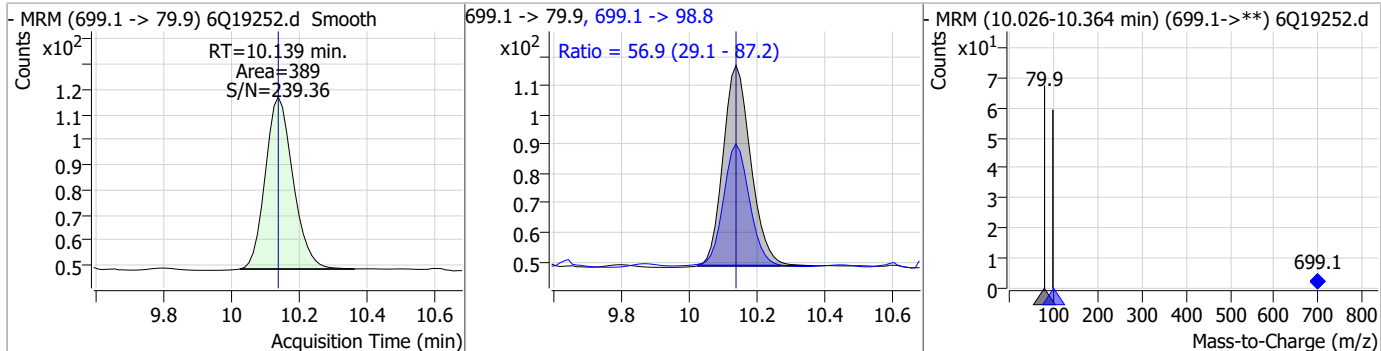
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.24	10.01	0.01	3939	713.1 -> 168.9	8.0	4.5	13.4



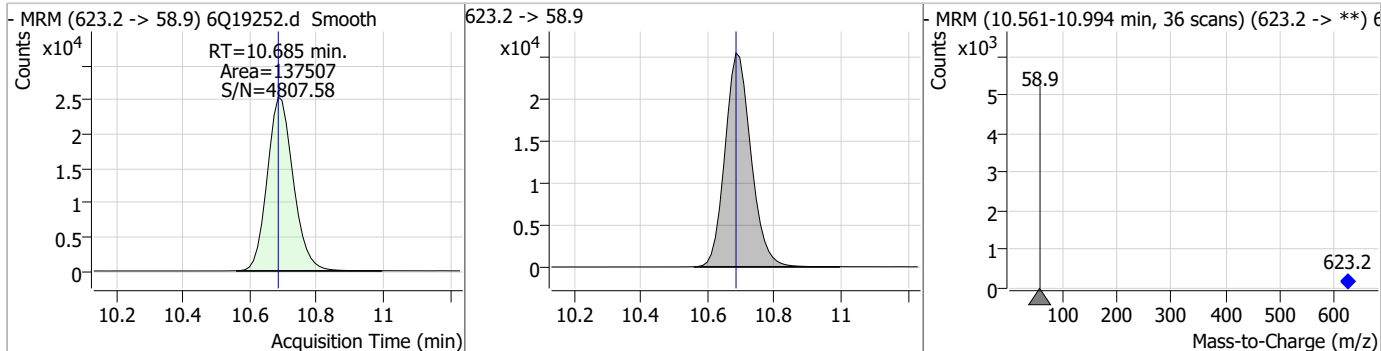
7.7.13
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Perfluorinated Compounds by LC/MS/MS

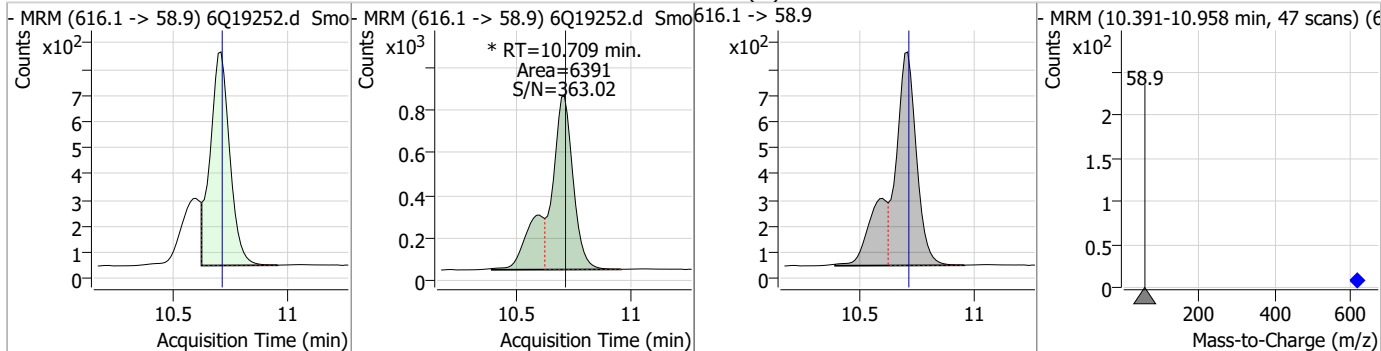
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	0.25	10.14	0.00	389	699.1 -> 98.8	56.9	29.1	87.2



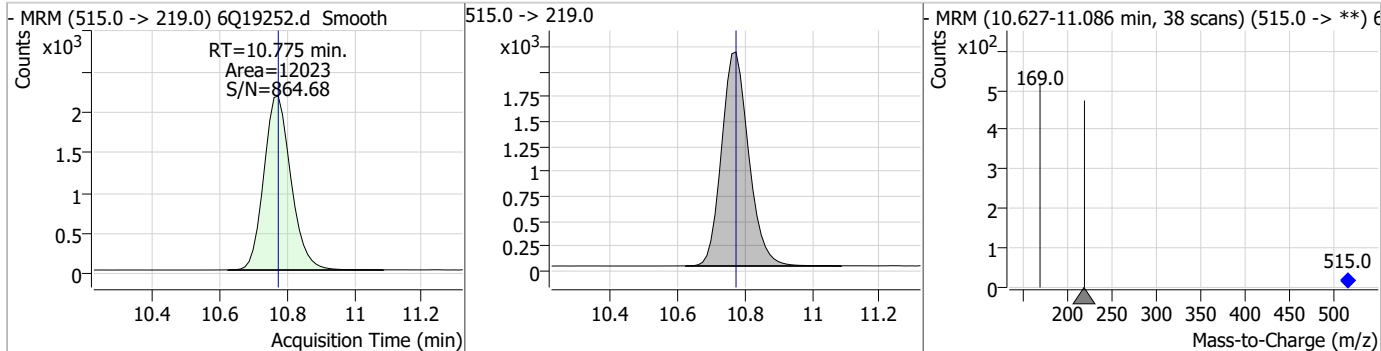
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.54	10.68	0.00	137507				



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

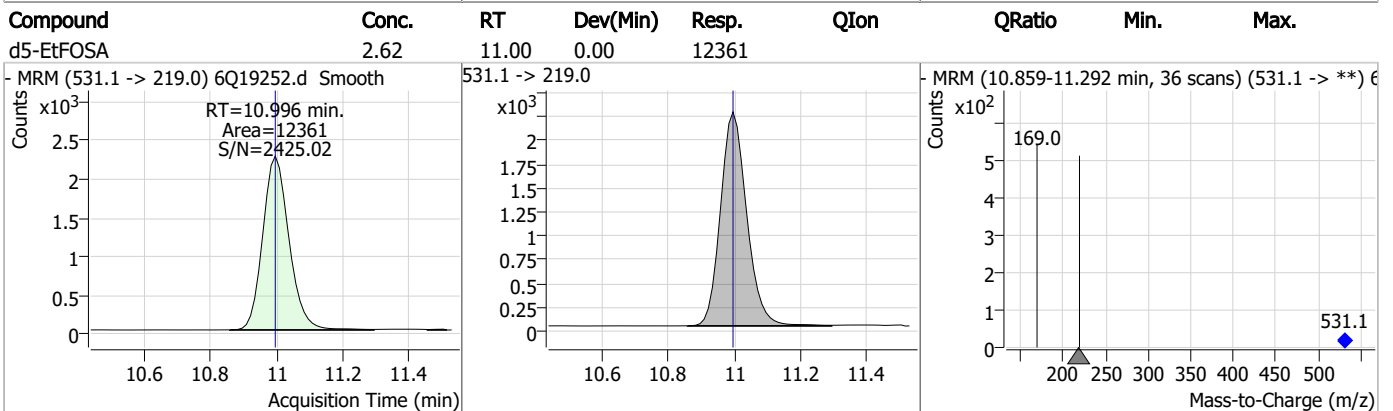
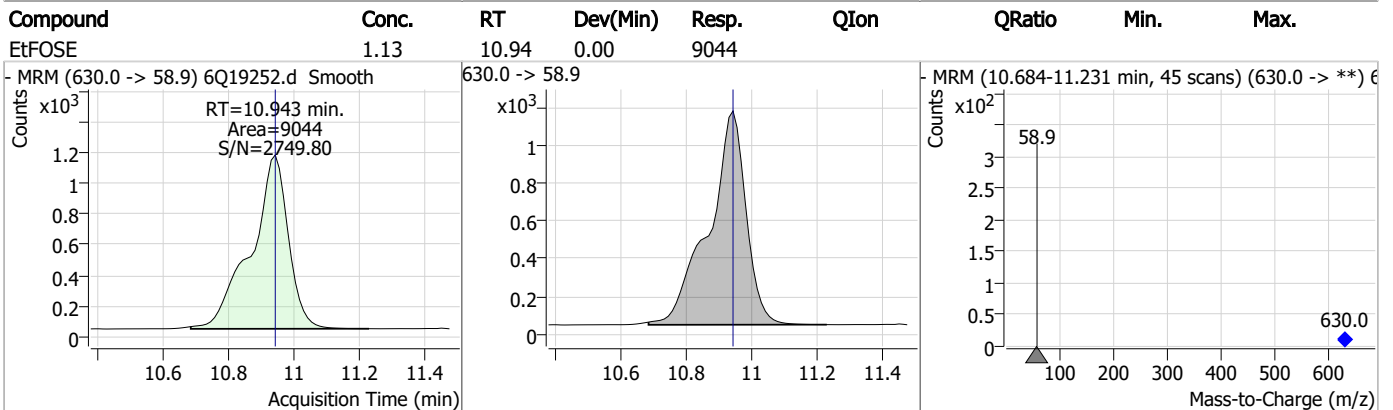
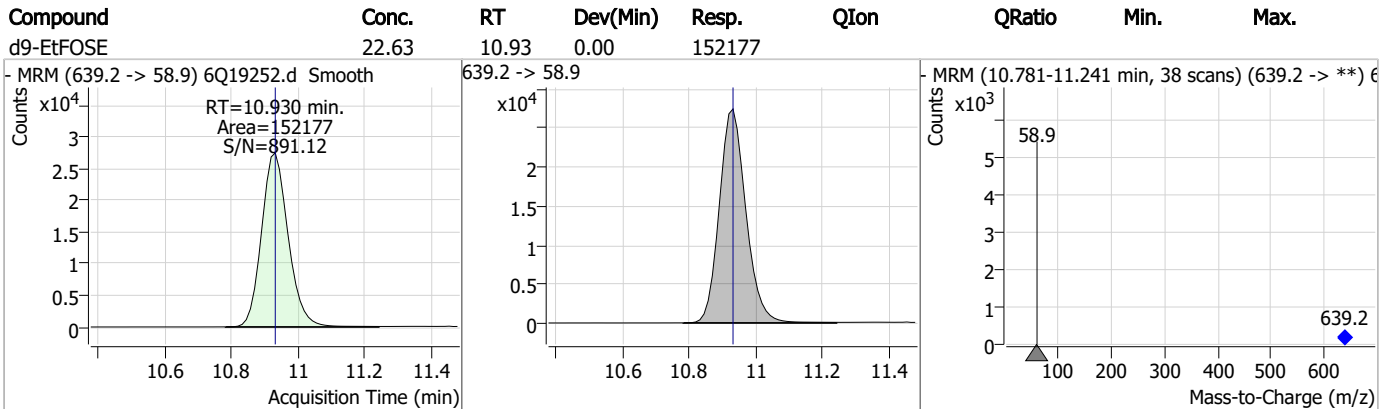
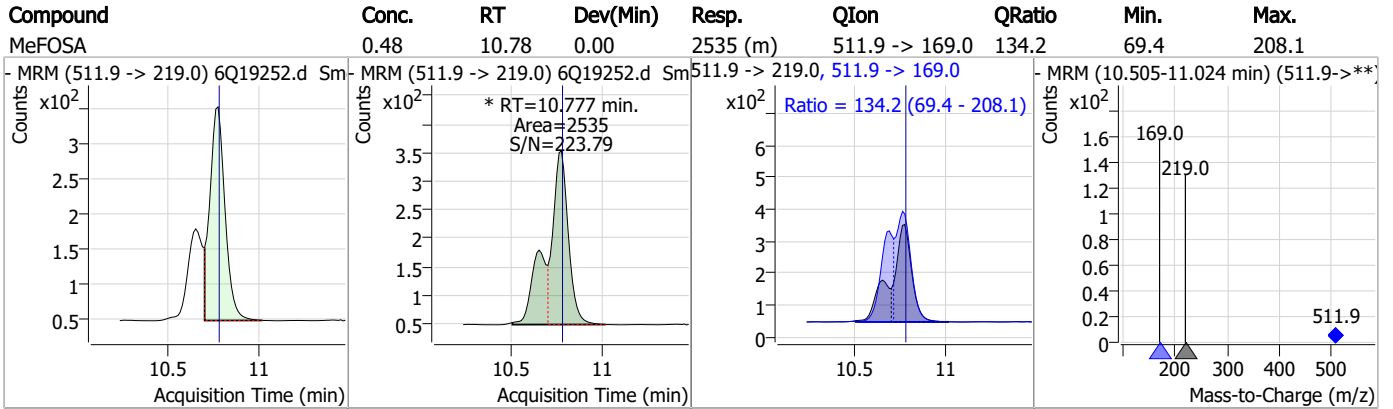


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.47	10.78	0.00	12023				



7.7.13
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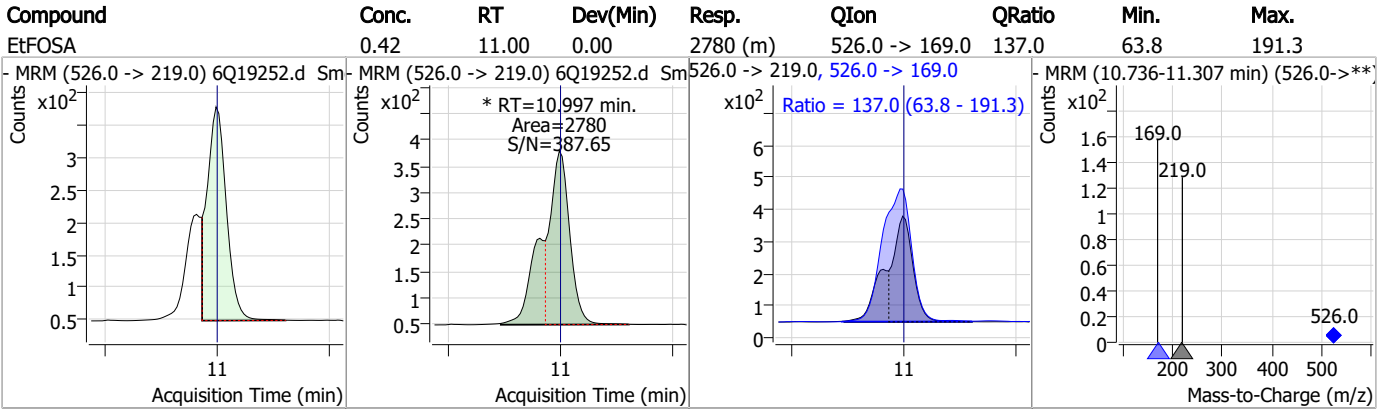
Perfluorinated Compounds by LC/MS/MS



7.7.13
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Perfluorinated Compounds by LC/MS/MS



7.7.13

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Manual Integration Approval Summary

Sample Number: S6Q287-CC287 Method: EPA DRAFT 1633
Lab FileID: 6Q19252.D Analyst approved: 06/13/23 14:02 Natasha Gumtie
Injection Time: 06/12/23 18:36 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
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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
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3926			
PFHpA	6.708	363.1 -> 319.0	60027	2.20	µg/L	98
		363.1 -> 169.0	10021			
PFHpS	8.059	449.0 -> 79.9	13981	2.14	µg/L	90
		449.0 -> 98.9	7776			
PFHxA	5.795	313.0 -> 269.0	51073	2.58	µg/L	98
		313.0 -> 118.9	2498			
PFHxS	7.479	398.7 -> 79.9	15142	2.21	µg/L	m 97
		398.7 -> 98.9	7347			
PFNA	7.896	463.0 -> 419.0	73834	2.35	µg/L	98
		463.0 -> 219.0	13648			
PFNS	9.041	548.8 -> 79.9	13766	2.40	µg/L	96
		548.8 -> 98.9	7120			
PFOA	7.353	413.0 -> 369.0	99522	2.66	µg/L	97
		413.0 -> 169.0	16370			
PFOS	8.564	498.9 -> 79.9	13503	2.11	µg/L	m 97
		498.9 -> 98.8	6712			
PFPeA	4.563	263.0 -> 219.0	65194	4.77	µg/L	100
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
MeFOSA	10.765	511.9 -> 219.0	25285	4.71	µg/L	m 97
		511.9 -> 169.0	35903			
MeFOSE	10.697	616.1 -> 58.9	64473	11.78	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	3756	2.31	µg/L	92
		699.1 -> 98.8	1963			
NFDHA	5.673	295.0 -> 201.0	11793	4.70	µg/L	95
		295.0 -> 84.9	3124			
PFMBA	4.988	279.0 -> 85.1	47786	4.88	µg/L	100
PFMPA	3.667	229.0 -> 84.9	36661	4.81	µg/L	100
PFEESA	6.288	314.8 -> 134.9	123119	5.05	µg/L	100
		314.8 -> 82.9	4229			

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

7.7.14
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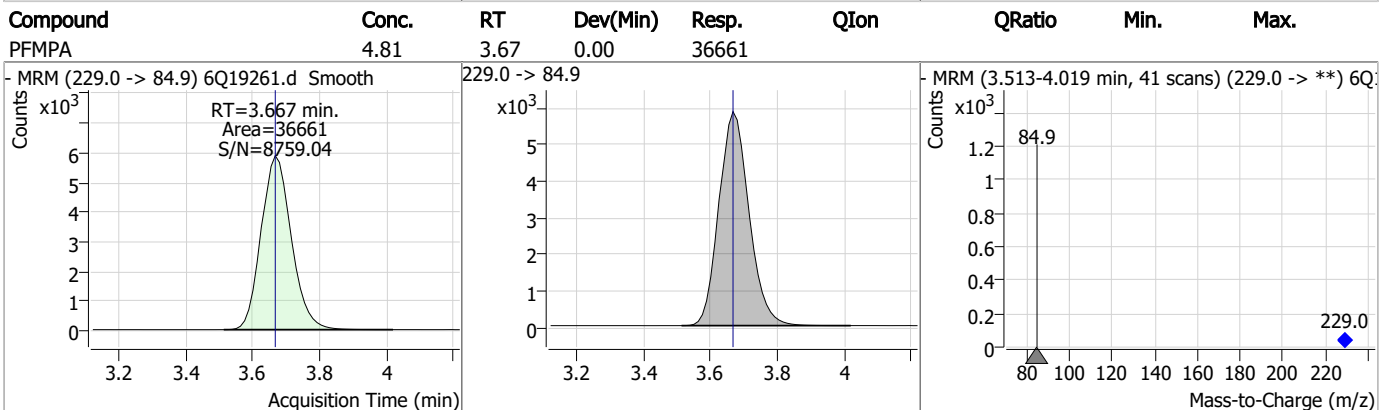
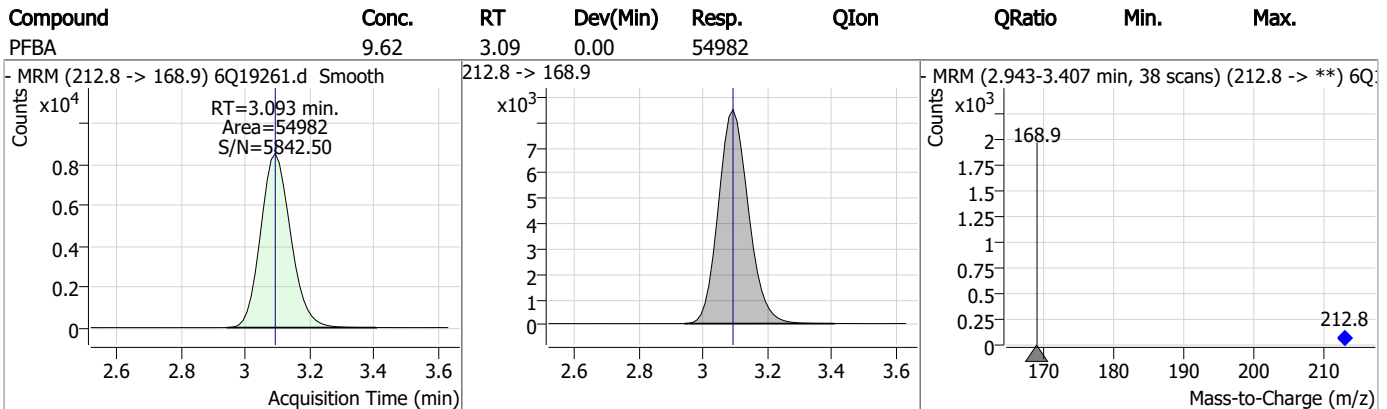
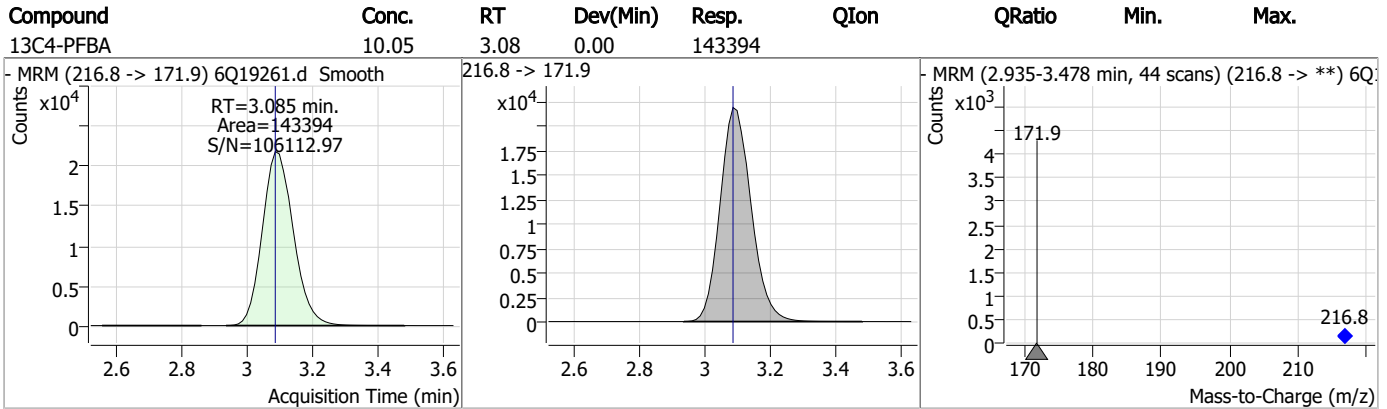
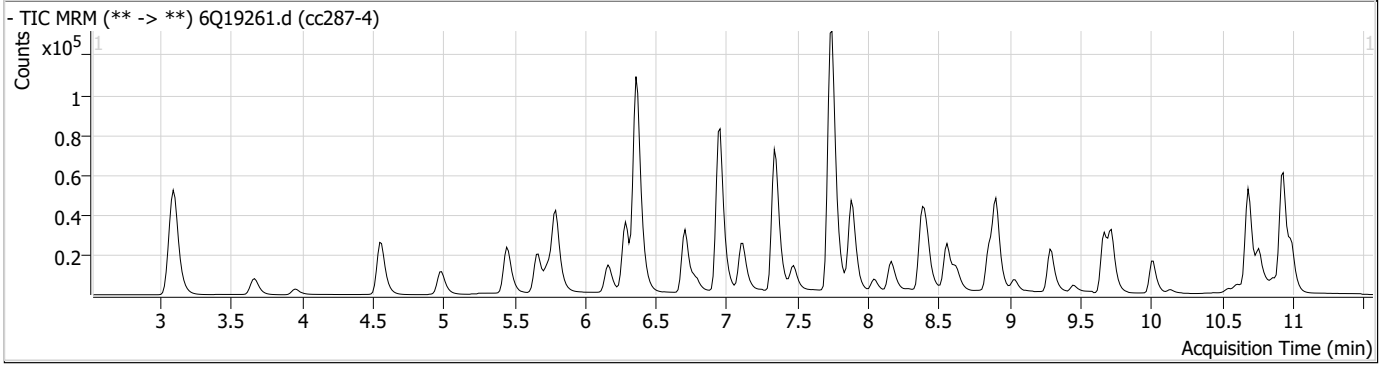
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.14

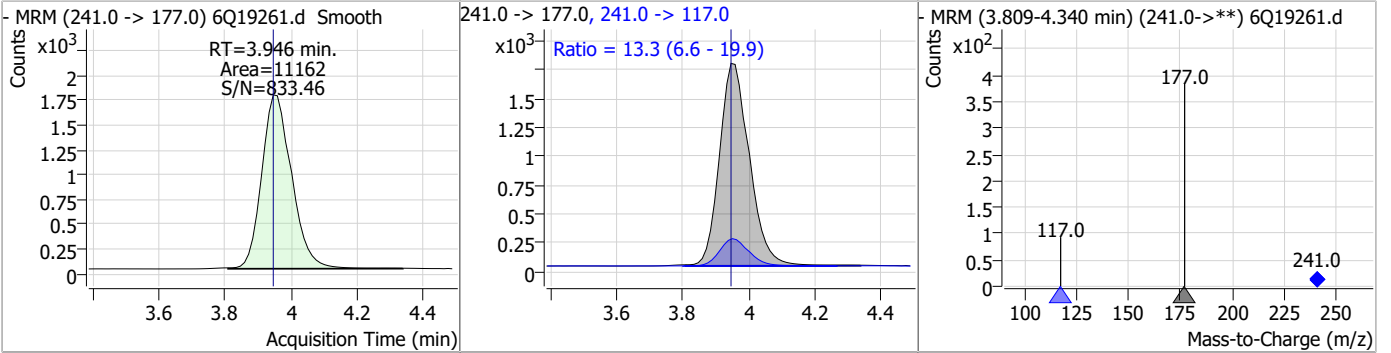
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Perfluorinated Compounds by LC/MS/MS

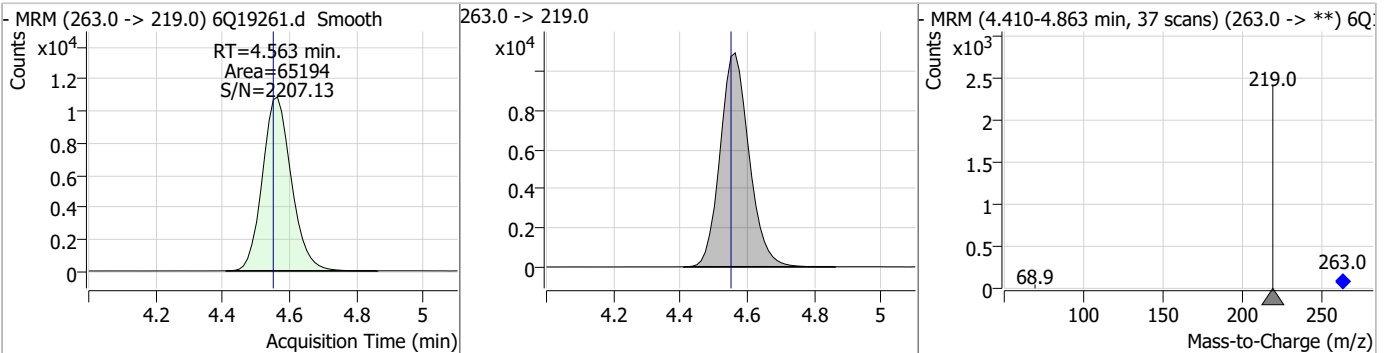


Perfluorinated Compounds by LC/MS/MS

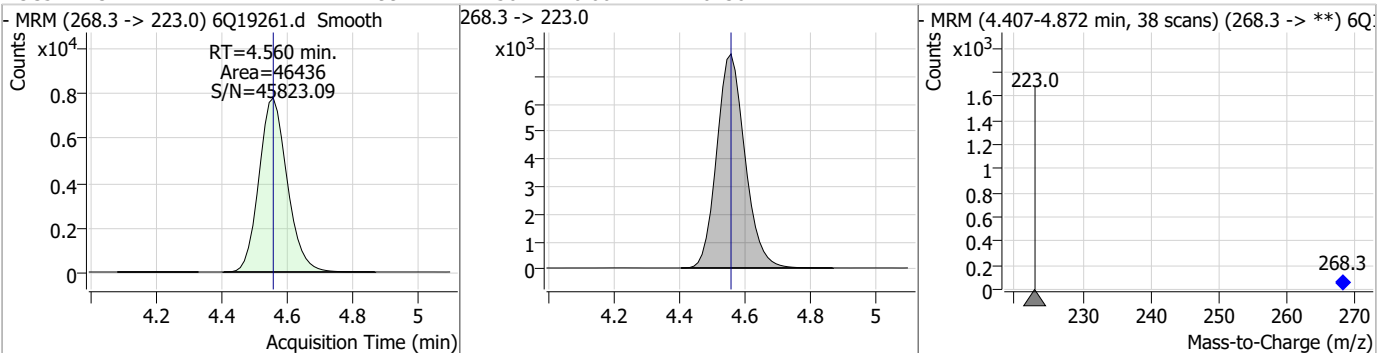
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.95	3.95	0.00	11162	241.0 -> 117.0	13.3	6.6	19.9



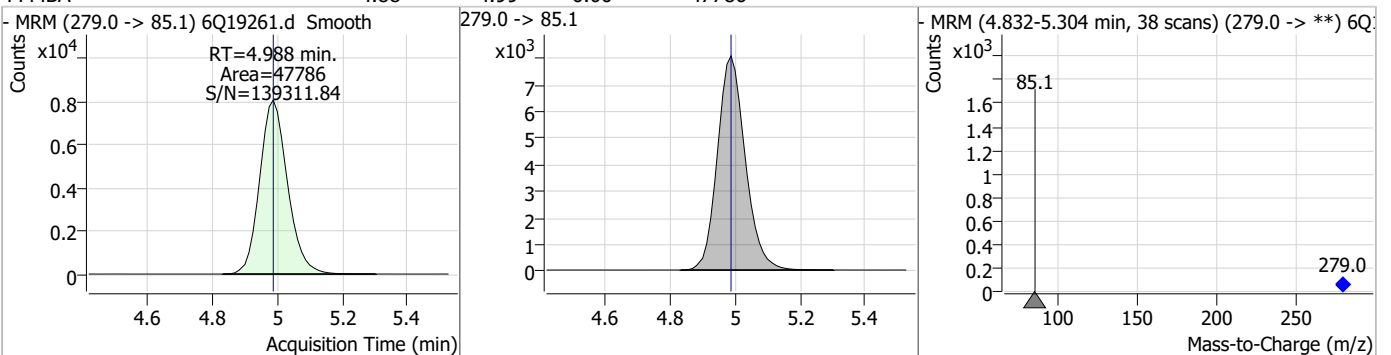
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.77	4.56	0.01	65194				



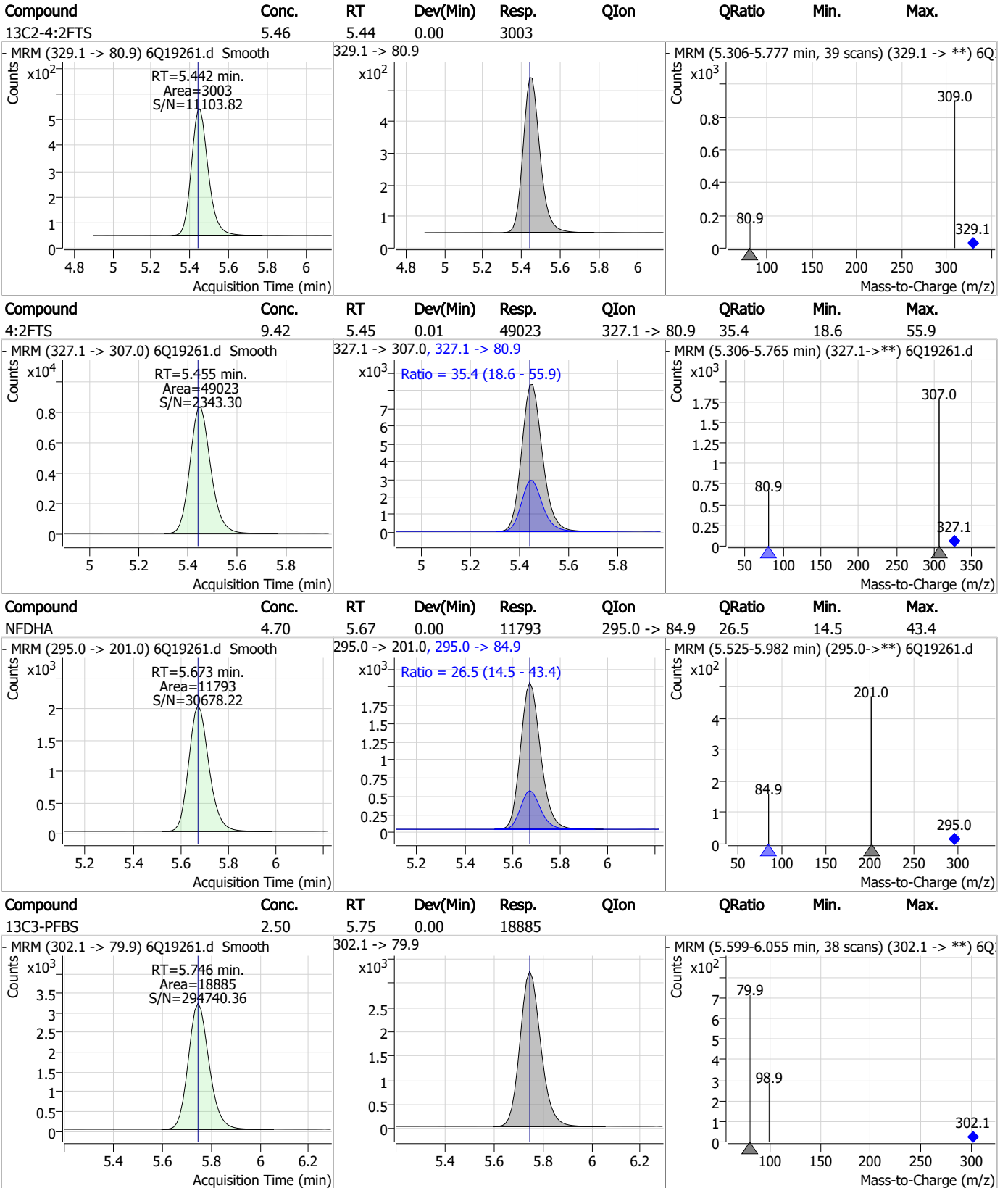
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.99	4.56	0.00	46436				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.88	4.99	0.00	47786				



Perfluorinated Compounds by LC/MS/MS

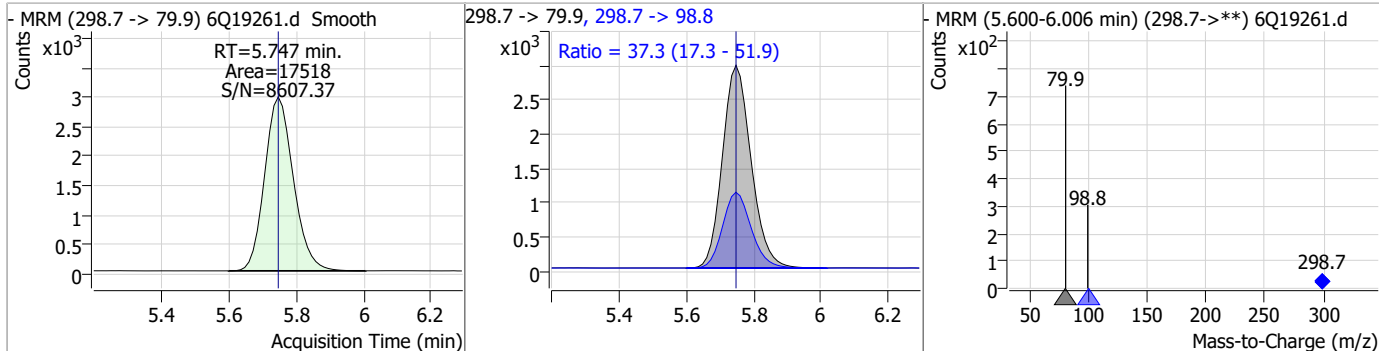


7.7.14

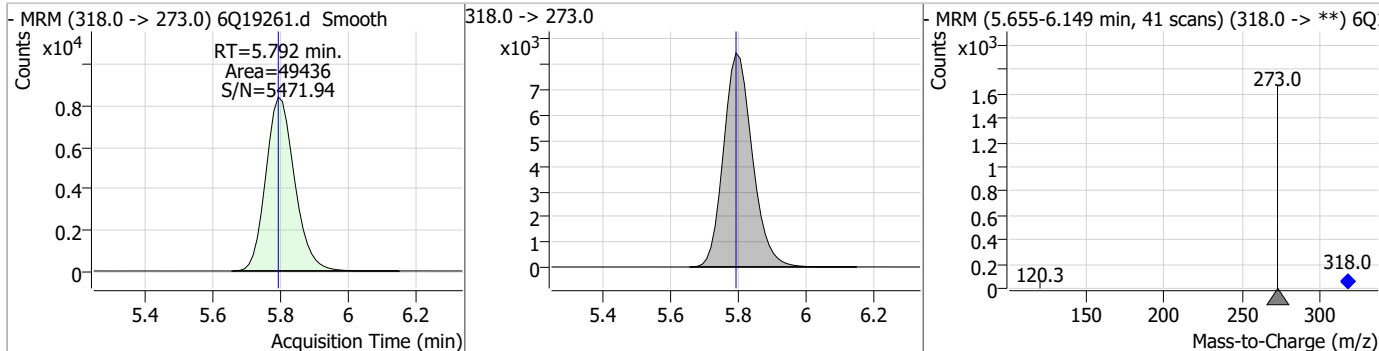


Perfluorinated Compounds by LC/MS/MS

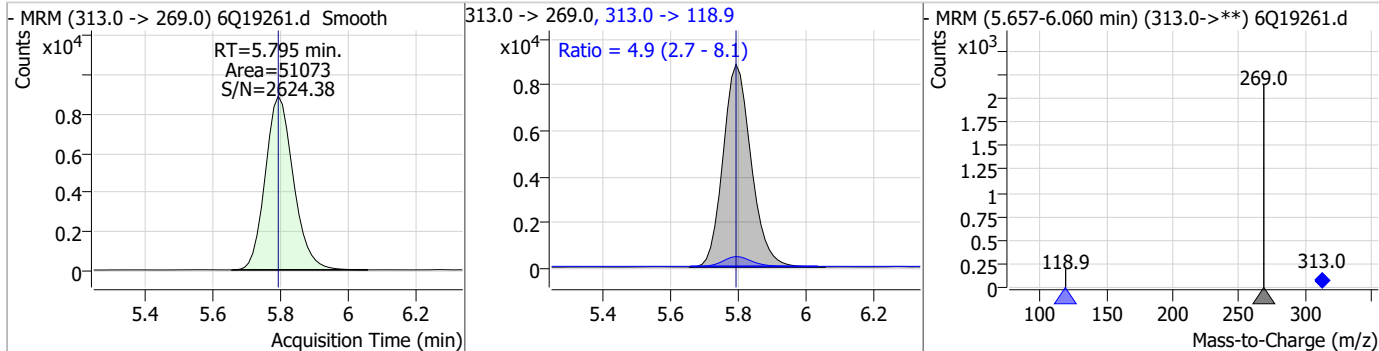
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.11	5.75	0.00	17518	298.7 -> 98.8	37.3	17.3	51.9



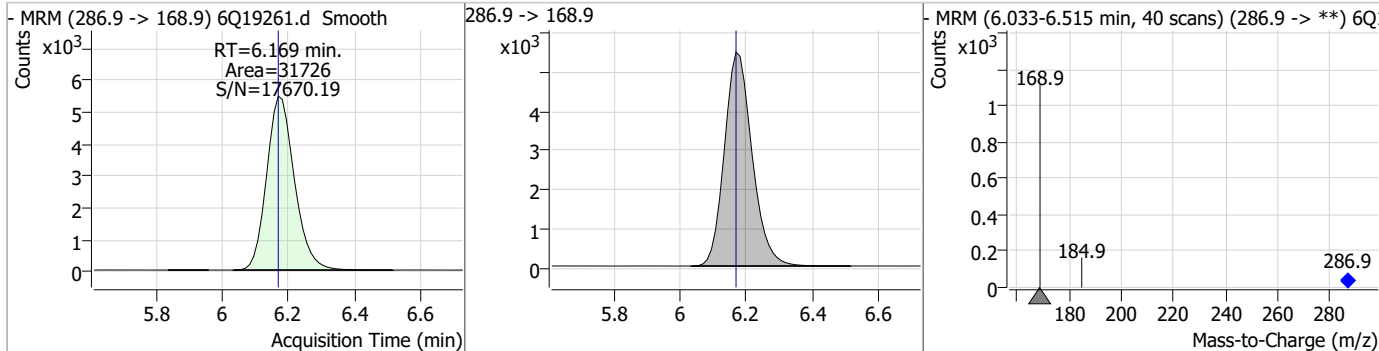
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.37	5.79	0.00	49436				



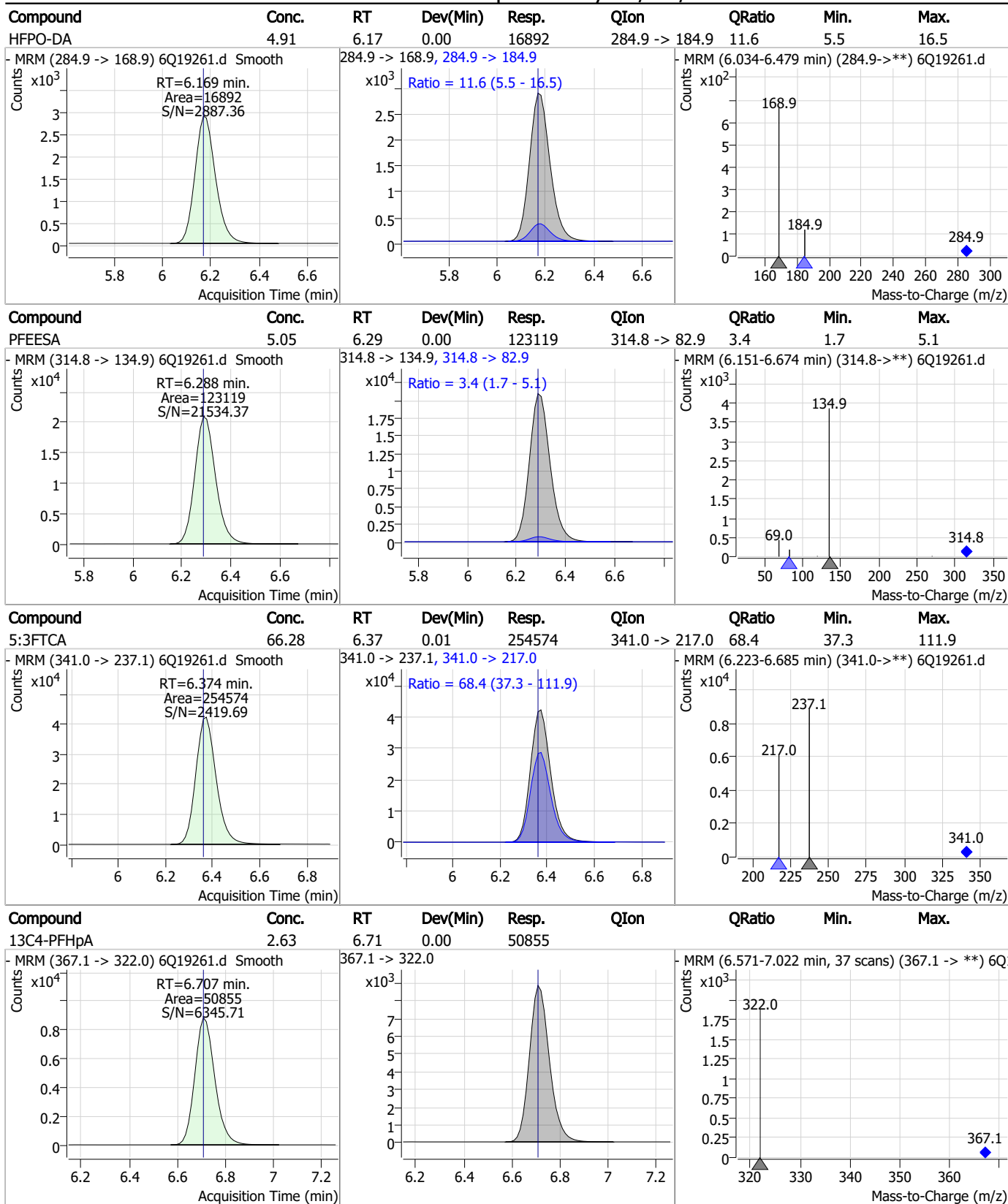
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.58	5.79	0.00	51073	313.0 -> 118.9	4.9	2.7	8.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.60	6.17	0.00	31726				

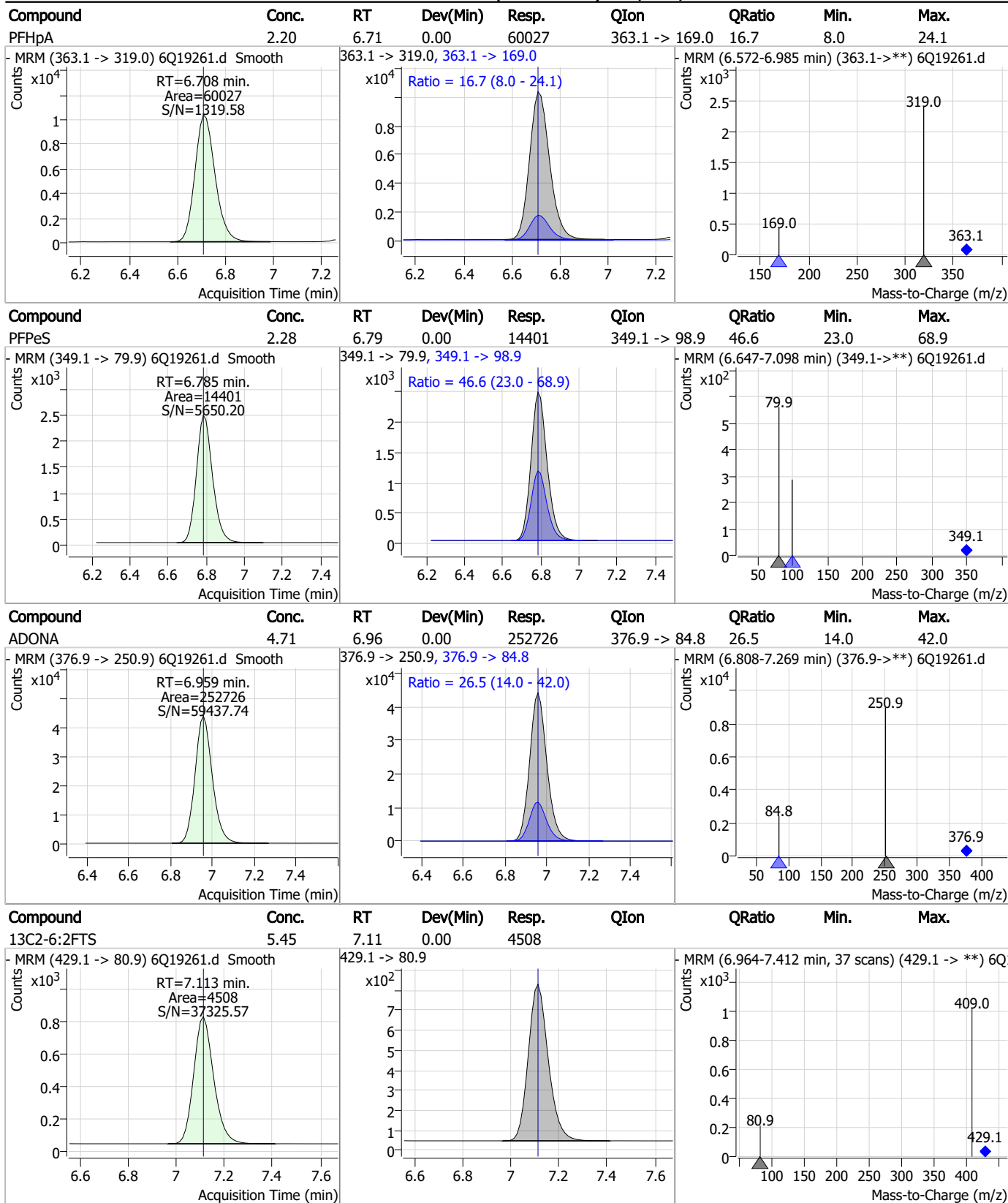


Perfluorinated Compounds by LC/MS/MS



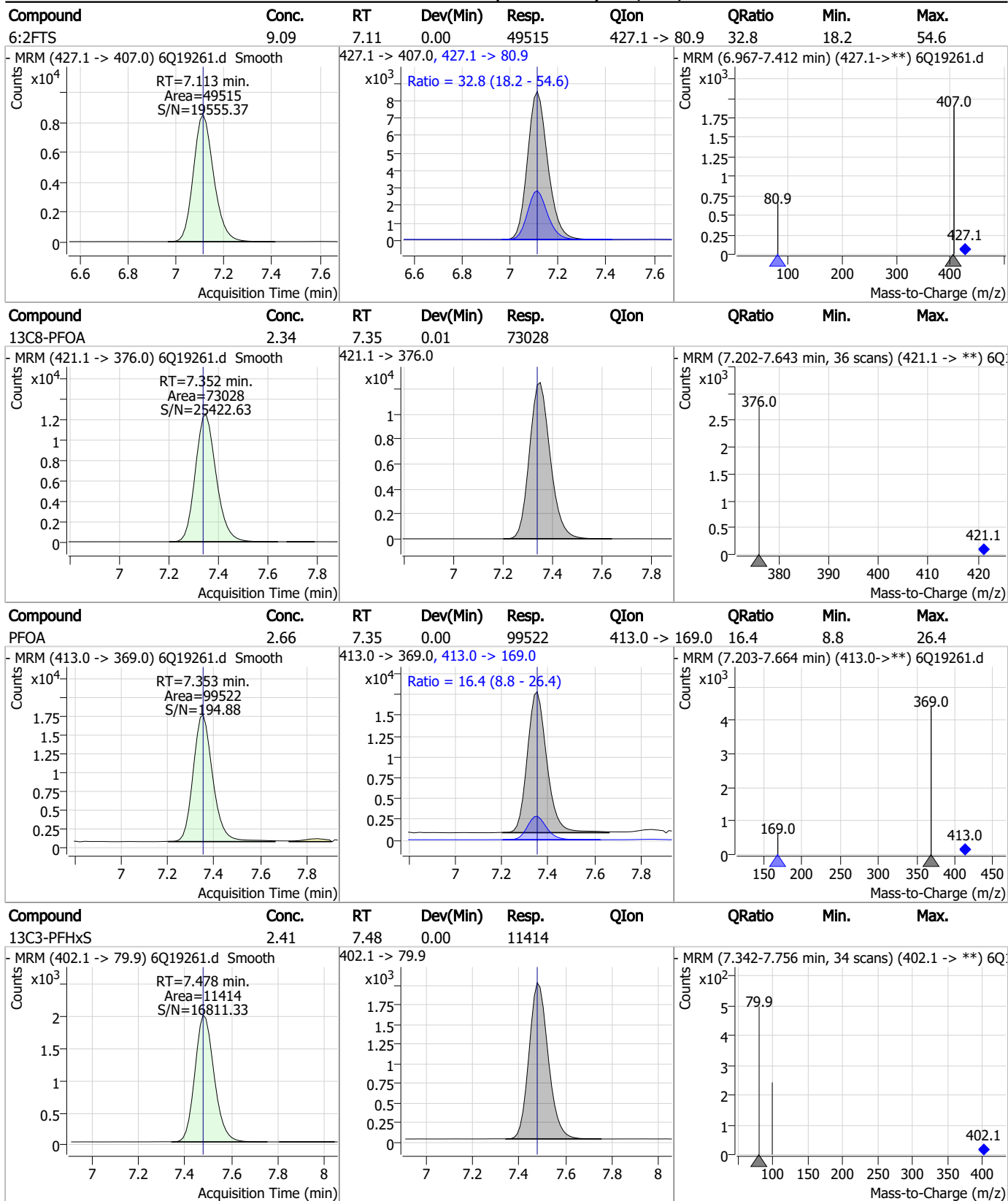
7.7.14
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Perfluorinated Compounds by LC/MS/MS



7.7.14
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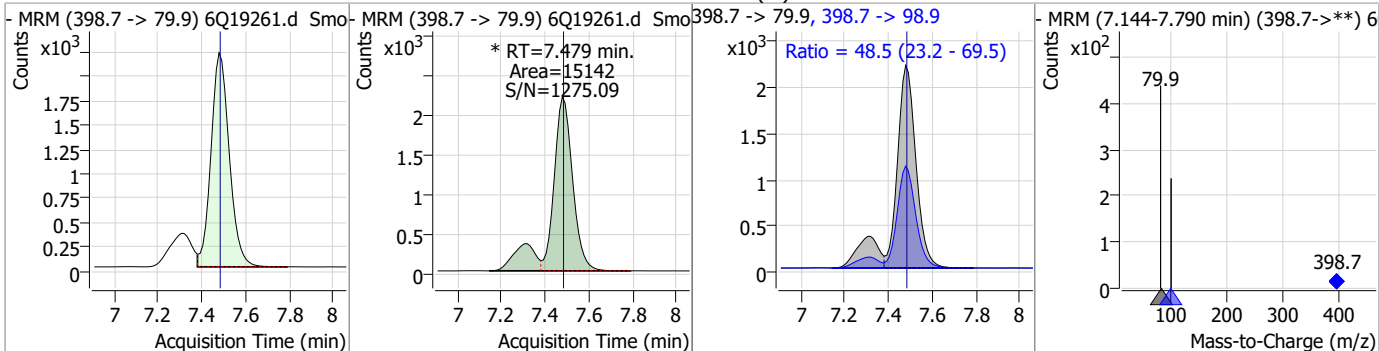
Perfluorinated Compounds by LC/MS/MS



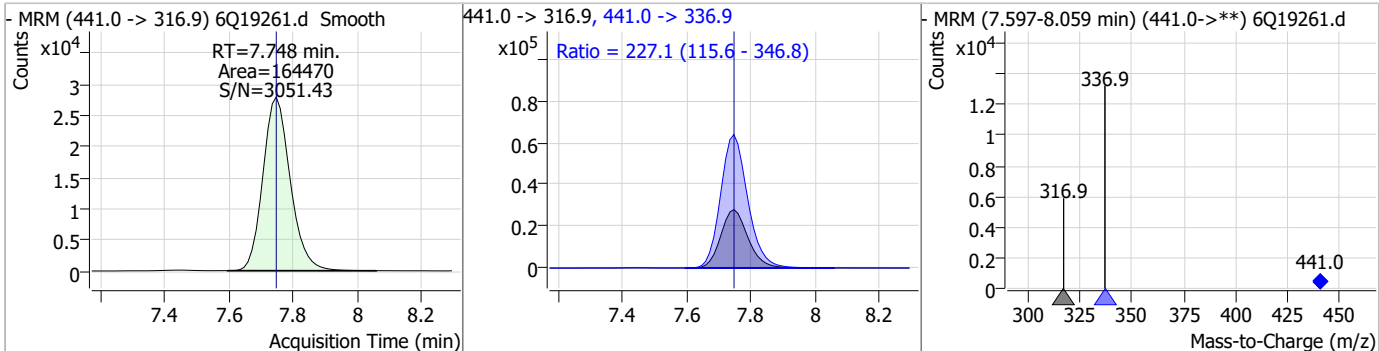
7.7.14

Perfluorinated Compounds by LC/MS/MS

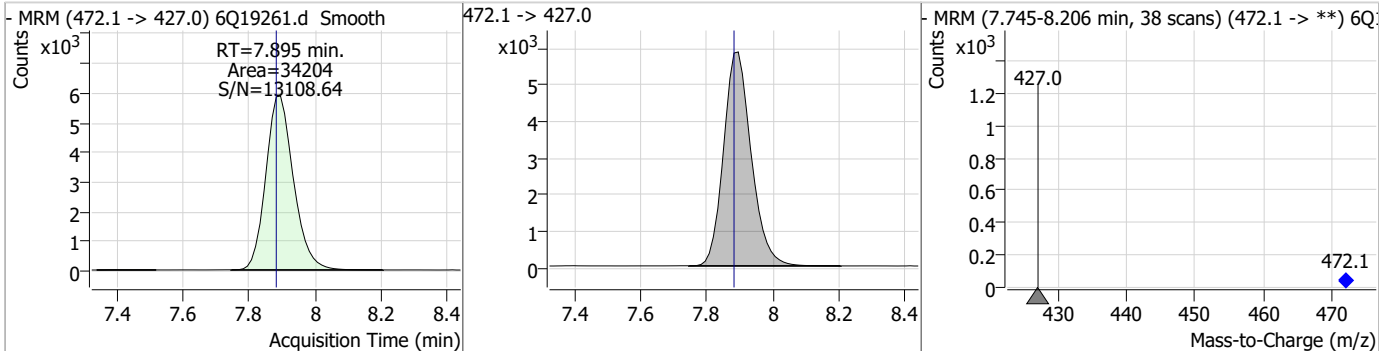
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.21	7.48	0.00	15142 (m)	398.7 -> 98.9	48.5	23.2	69.5



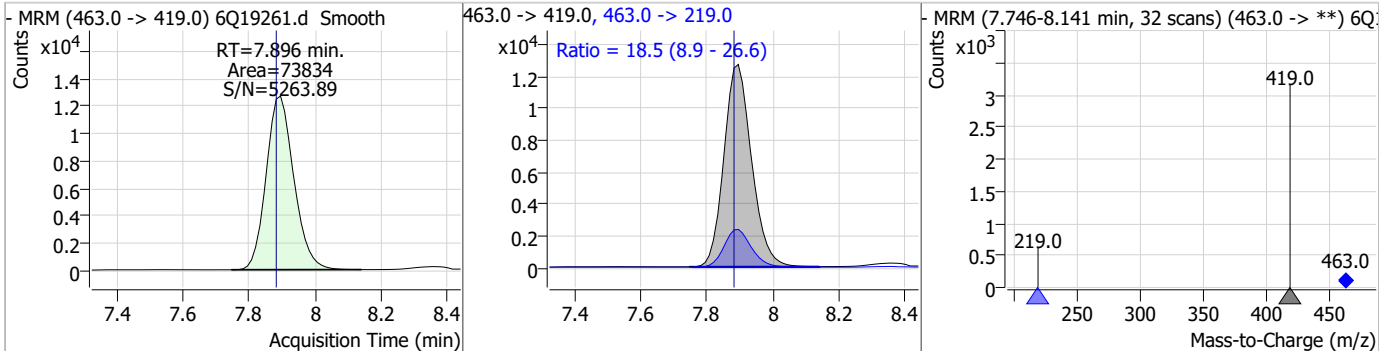
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	59.83	7.75	0.00	164470	441.0 -> 336.9	227.1	115.6	346.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.23	7.89	0.01	34204	472.1 -> 427.0			

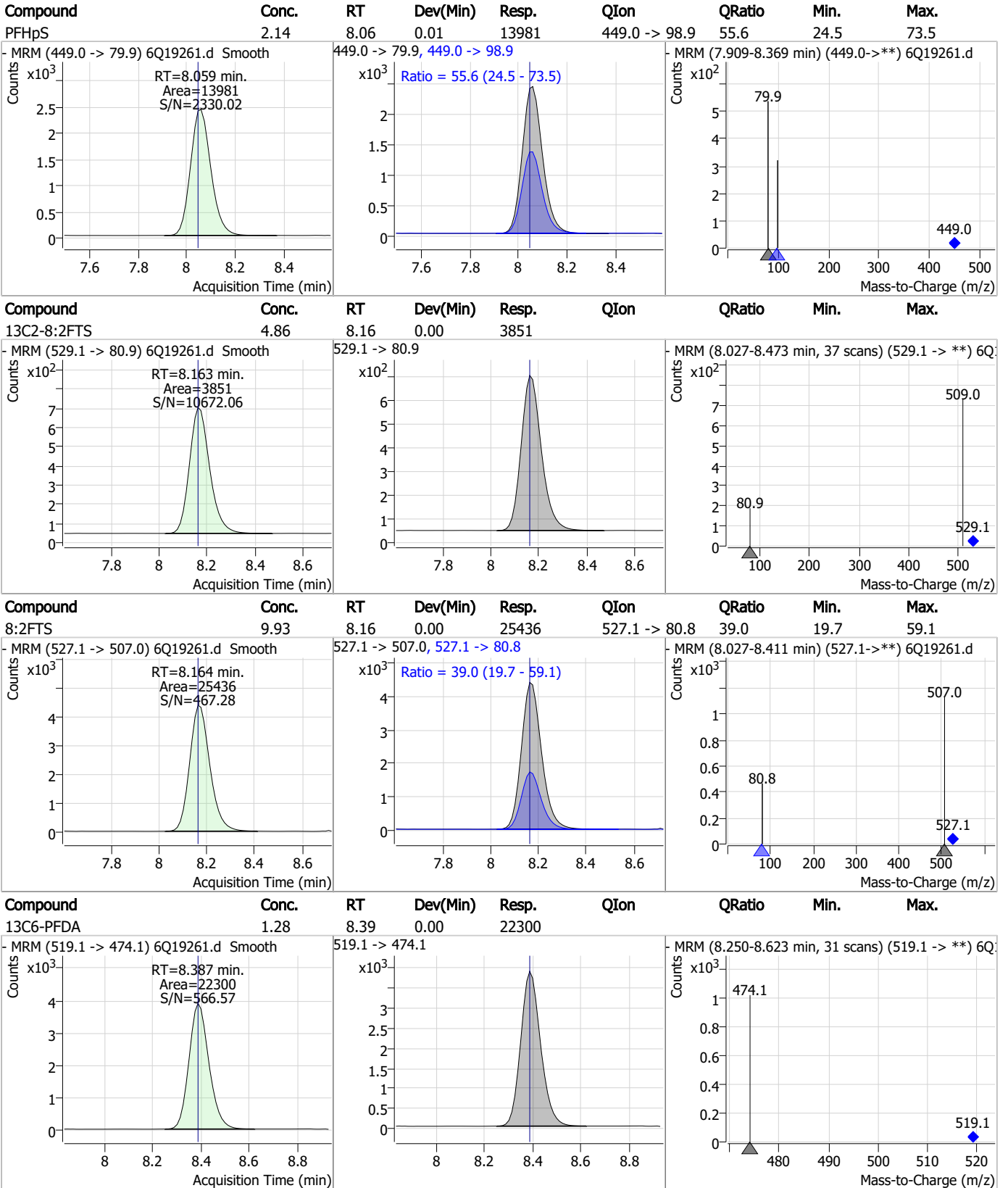


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.35	7.90	0.01	73834	463.0 -> 219.0	18.5	8.9	26.6



7.7.14
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Perfluorinated Compounds by LC/MS/MS

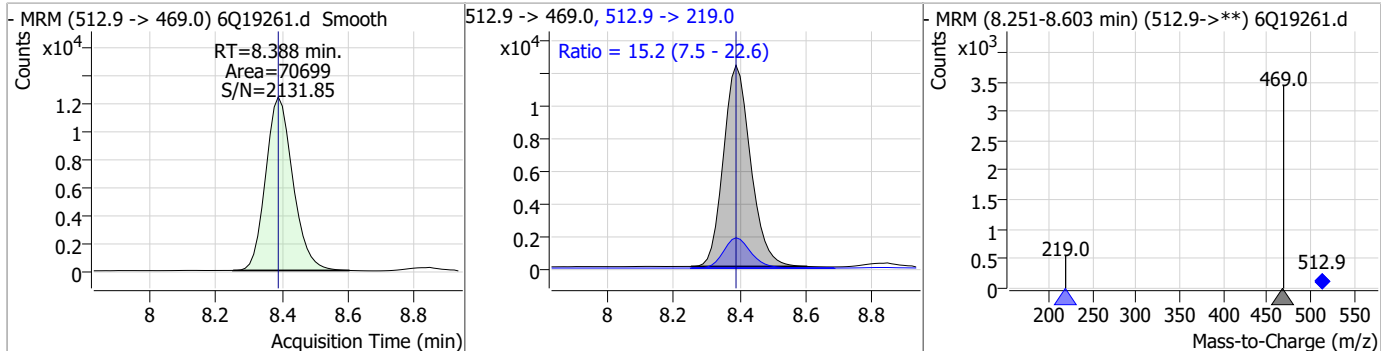


7.7.14

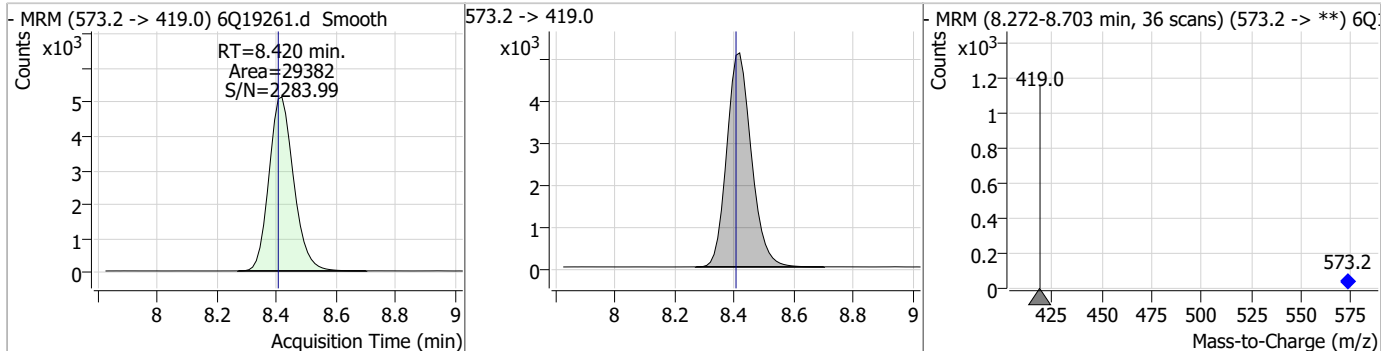


Perfluorinated Compounds by LC/MS/MS

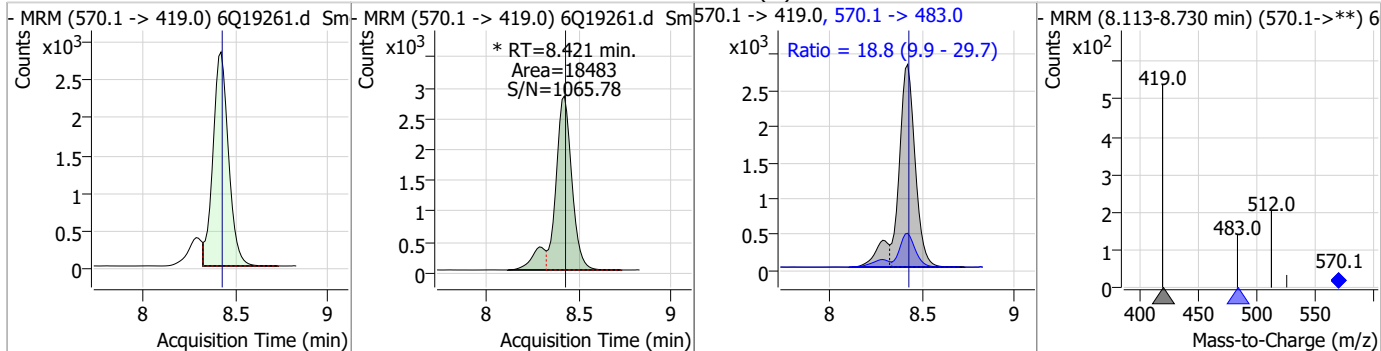
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.12	8.39	0.00	70699	512.9 -> 219.0	15.2	7.5	22.6



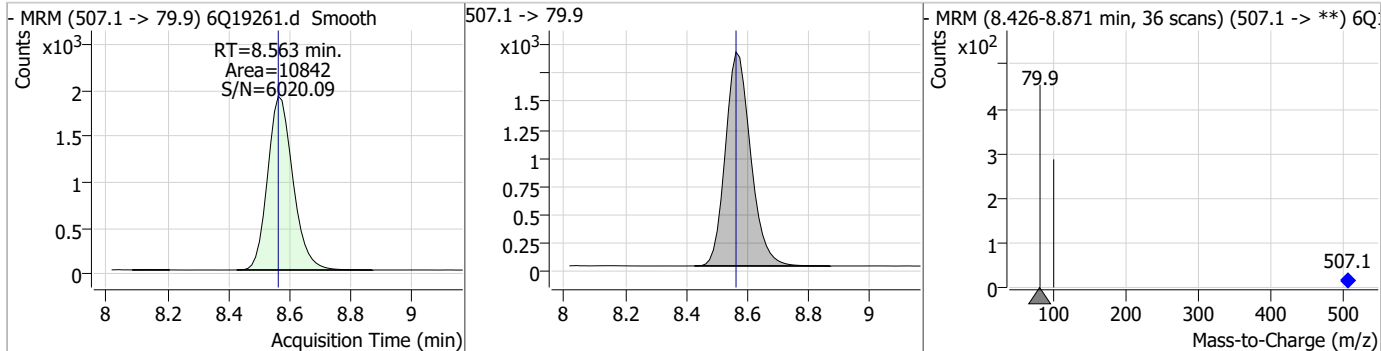
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.03	8.42	0.01	29382				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.59	8.42	0.00	18483 (m)	570.1 -> 483.0	18.8	9.9	29.7

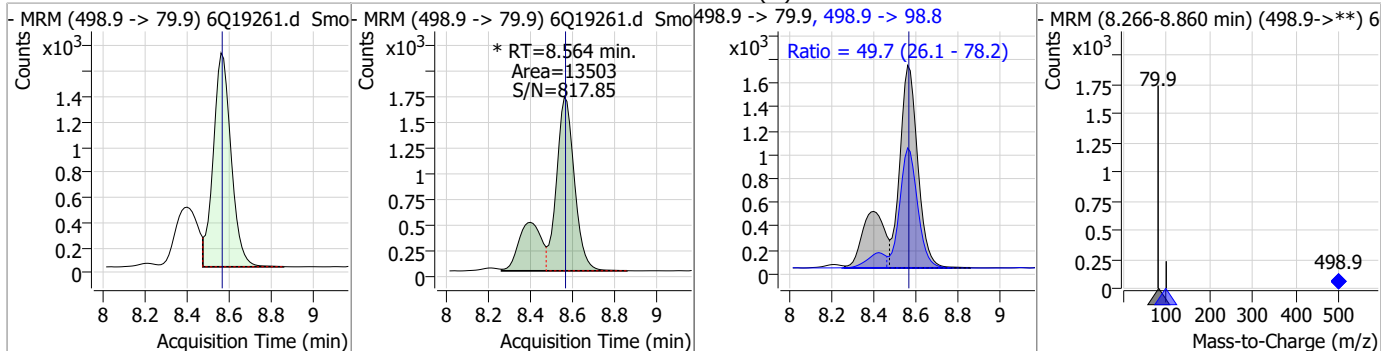


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.38	8.56	0.00	10842				

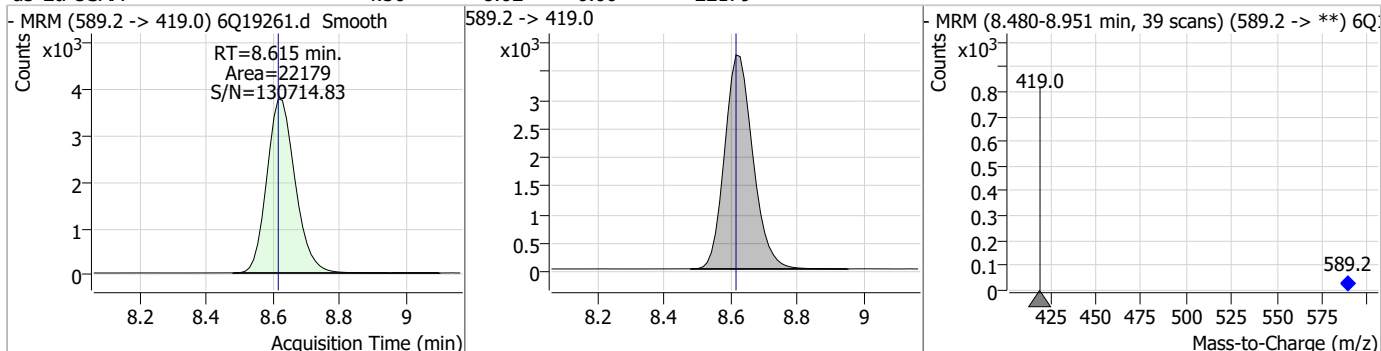


Perfluorinated Compounds by LC/MS/MS

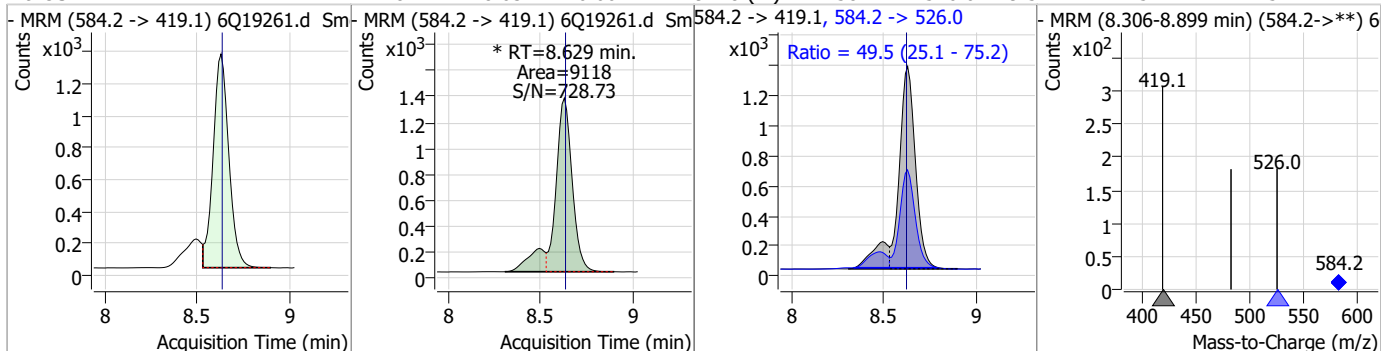
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.11	8.56	0.00	13503 (m)	498.9 -> 98.8	49.7	26.1	78.2



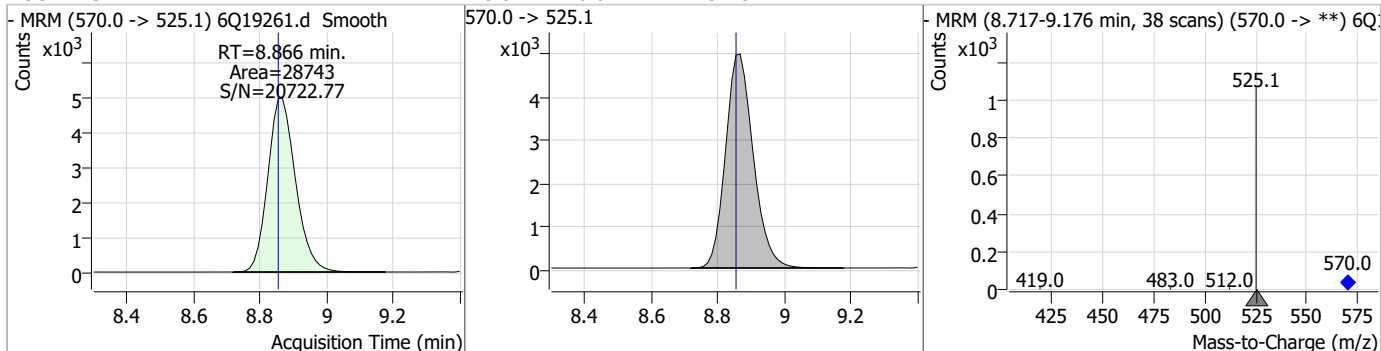
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.50	8.62	0.00	22179				



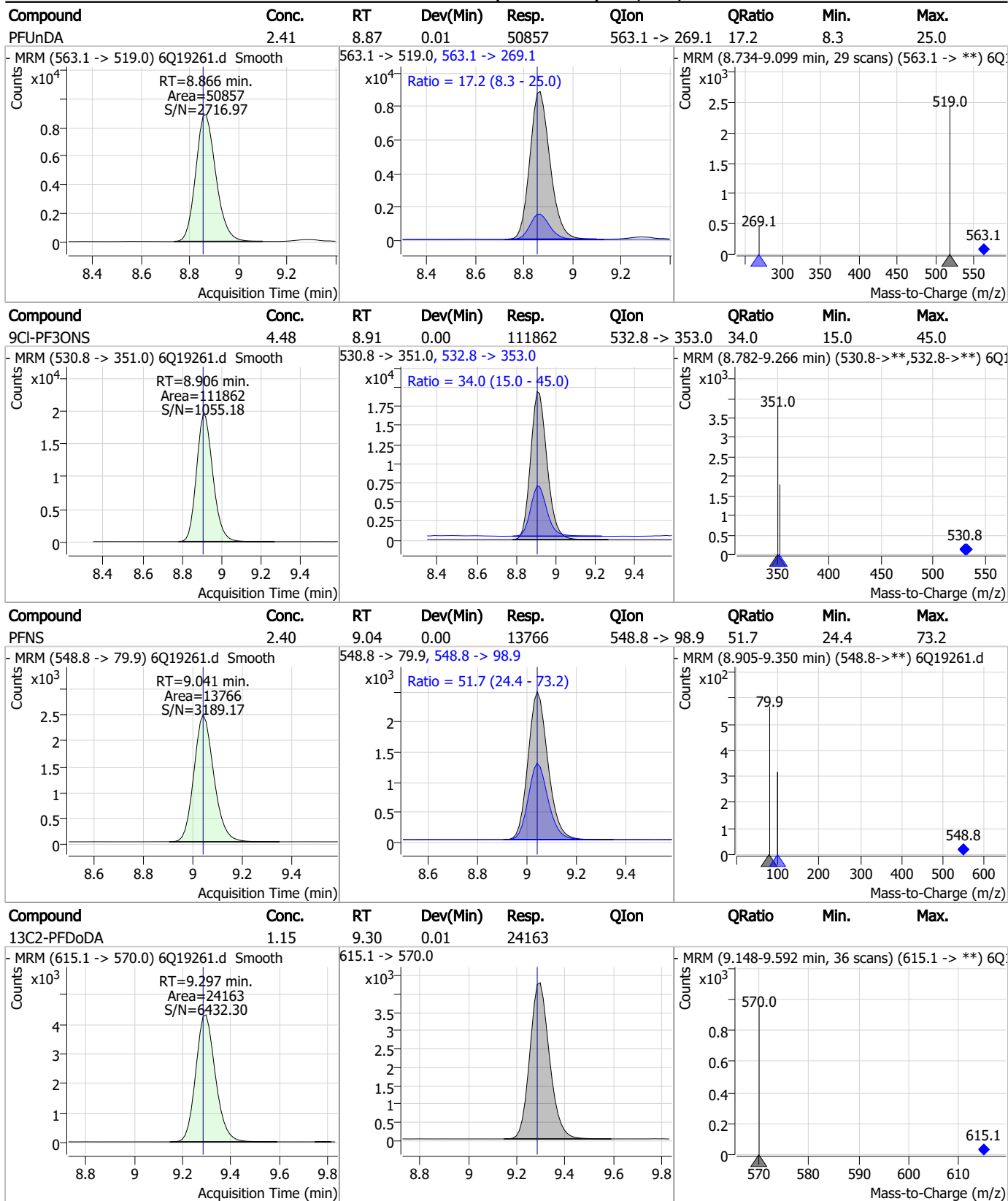
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.48	8.63	0.00	9118 (m)	584.2 -> 526.0	49.5	25.1	75.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.17	8.87	0.01	28743				

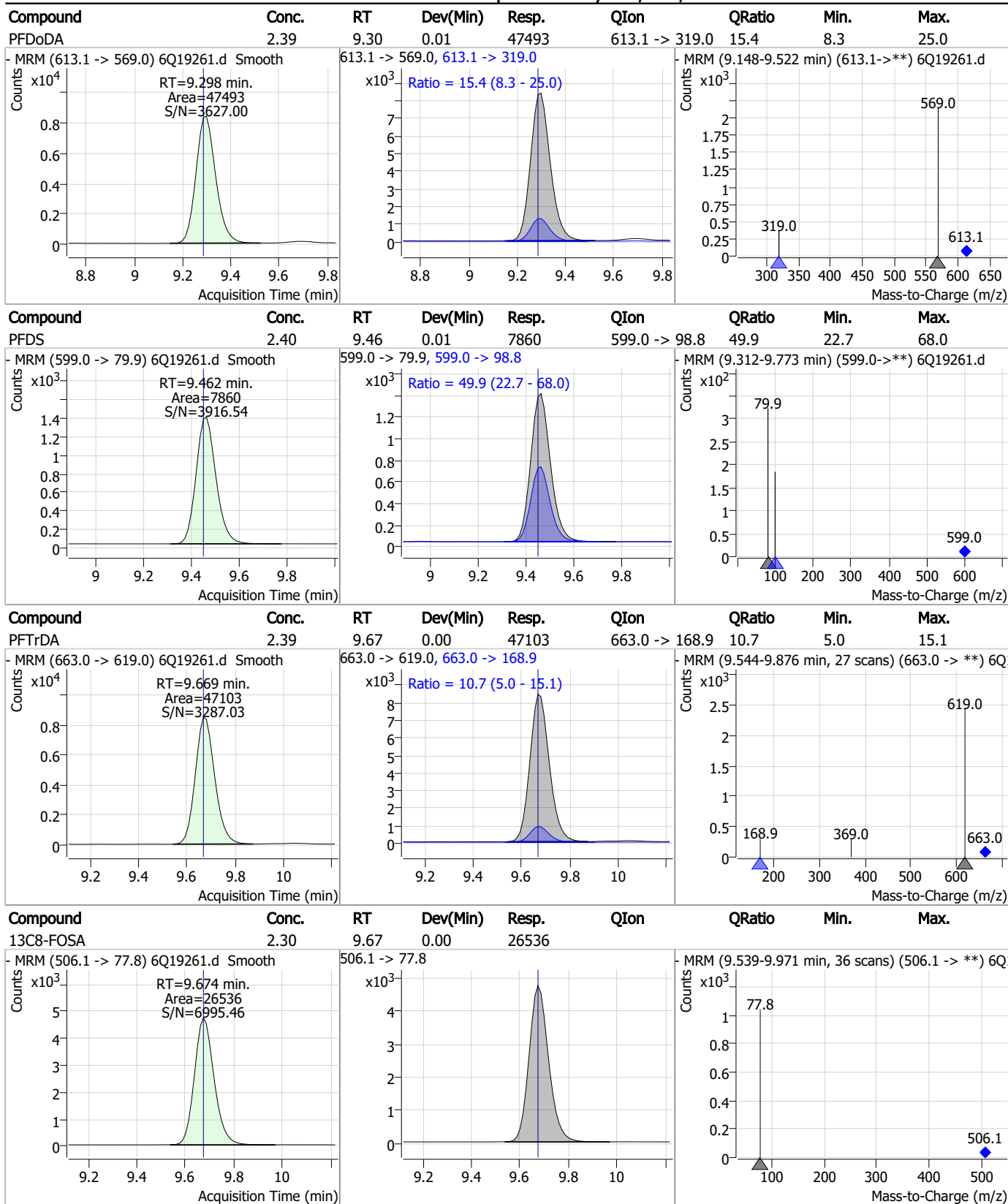


Perfluorinated Compounds by LC/MS/MS



7.7.14
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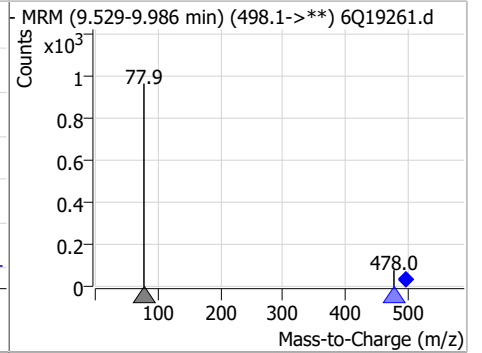
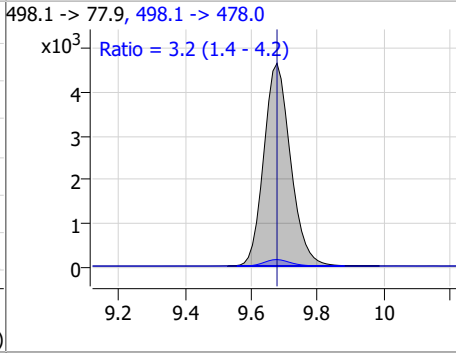
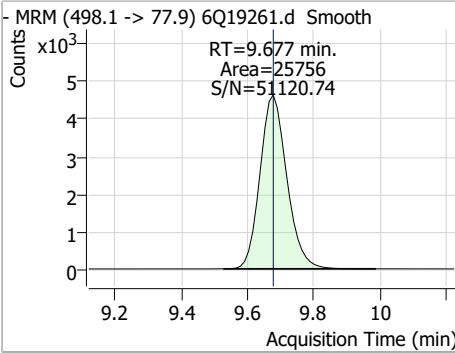
Perfluorinated Compounds by LC/MS/MS



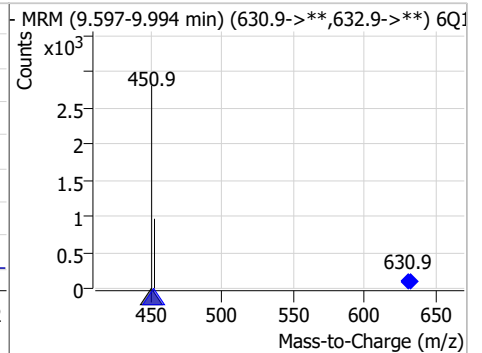
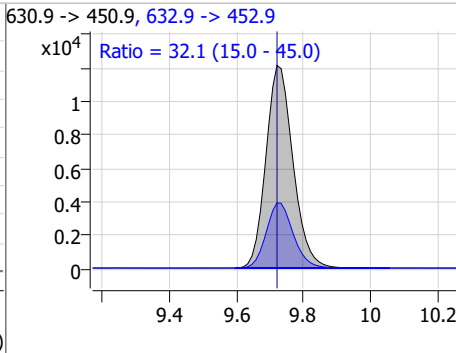
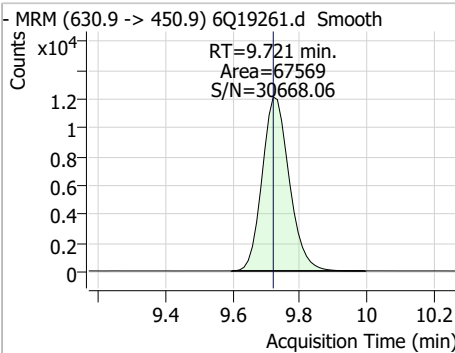
7.7.14
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Perfluorinated Compounds by LC/MS/MS

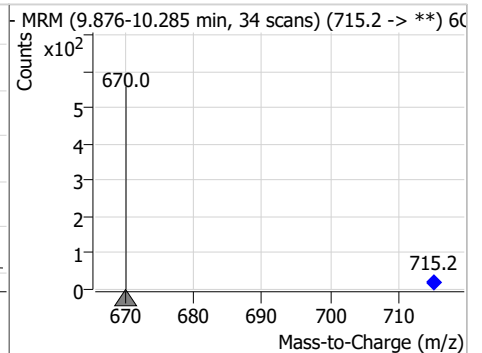
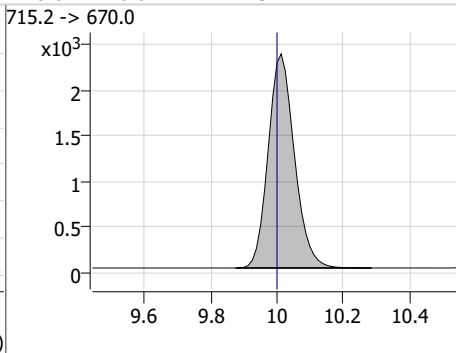
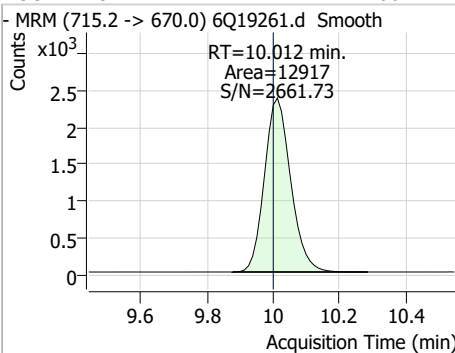
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.37	9.68	0.00	25756	498.1 -> 478.0	3.2	1.4	4.2



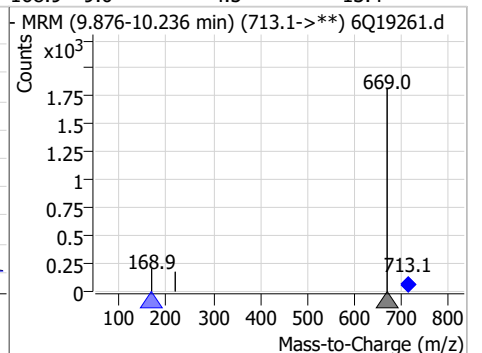
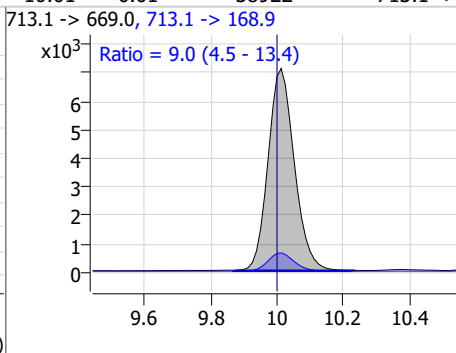
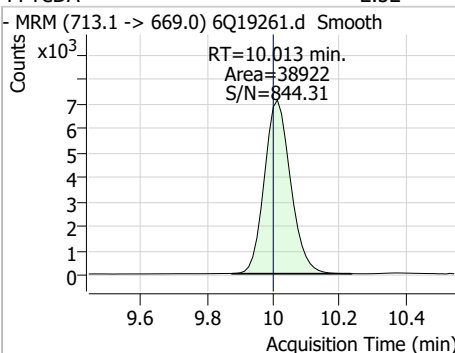
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	4.52	9.72	0.00	67569	630.9 -> 452.9	32.1	15.0	45.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.06	10.01	0.01	12917	715.2 -> 670.0			

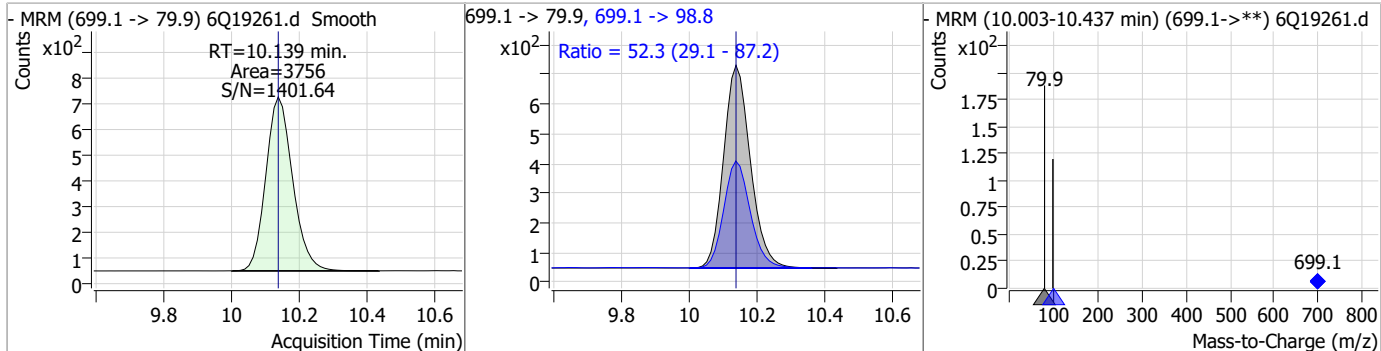


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.52	10.01	0.01	38922	713.1 -> 168.9	9.0	4.5	13.4

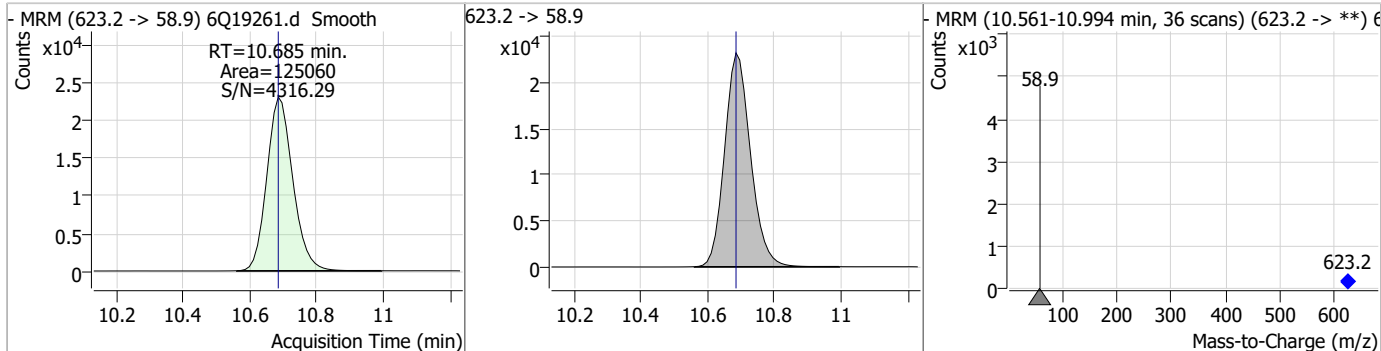


Perfluorinated Compounds by LC/MS/MS

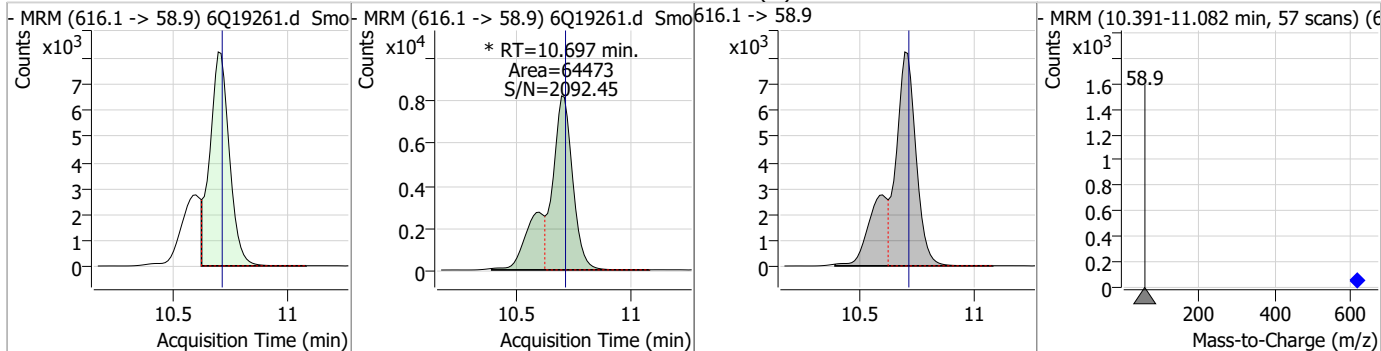
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.31	10.14	0.00	3756	699.1 -> 98.8	52.3	29.1	87.2



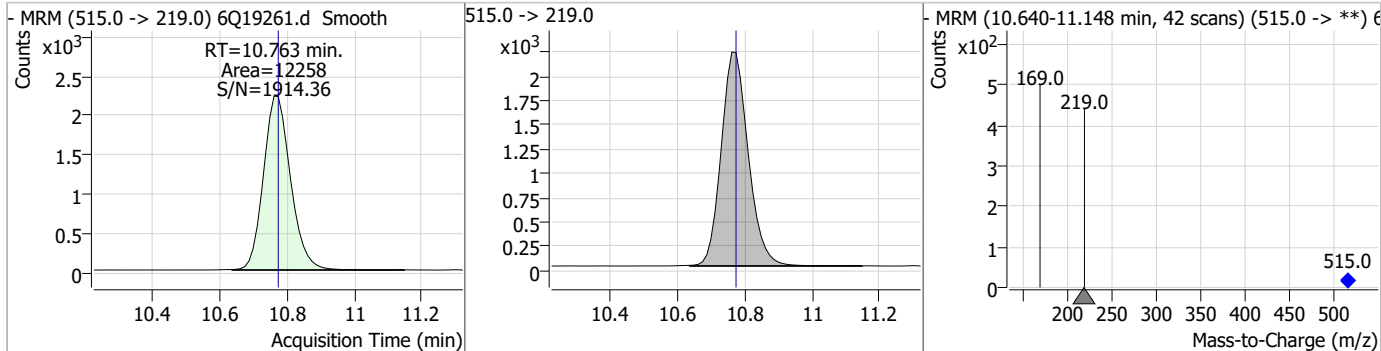
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.87	10.68	0.00	125060				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.78	10.70	-0.01	64473 (m)				

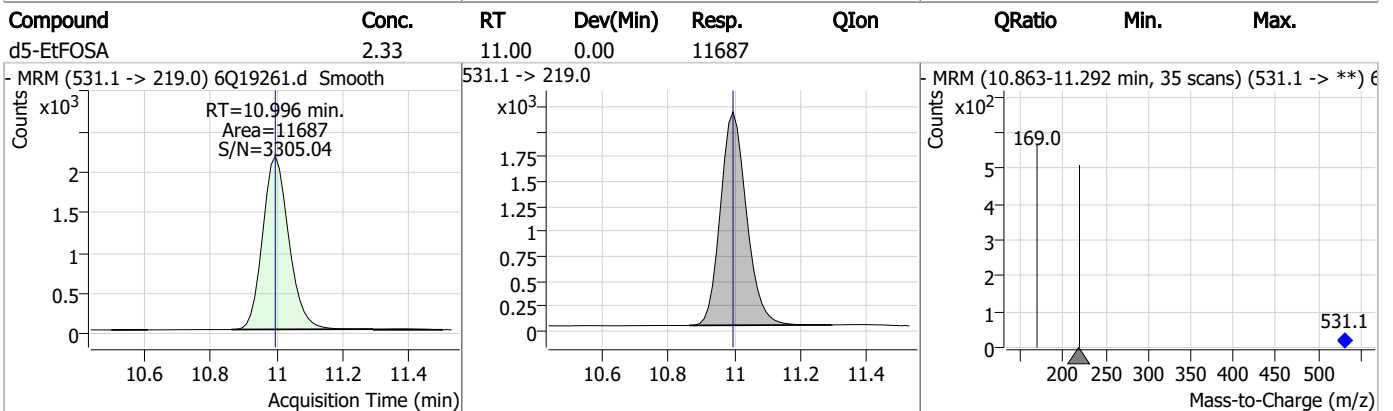
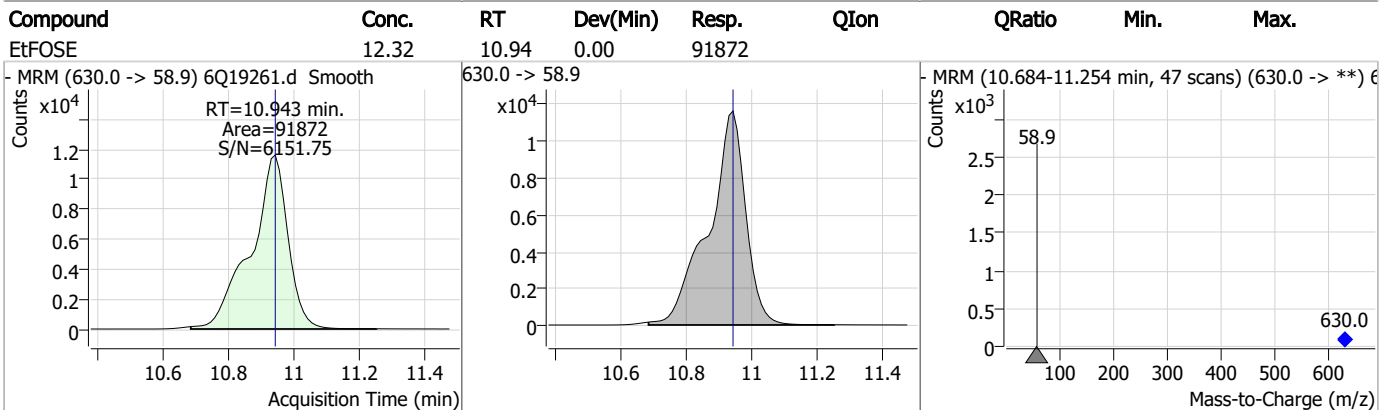
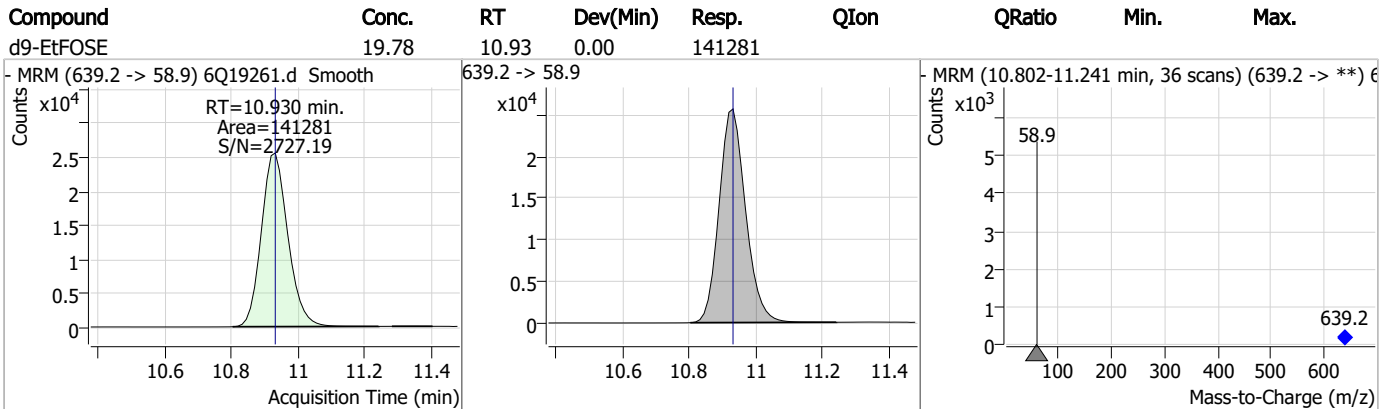
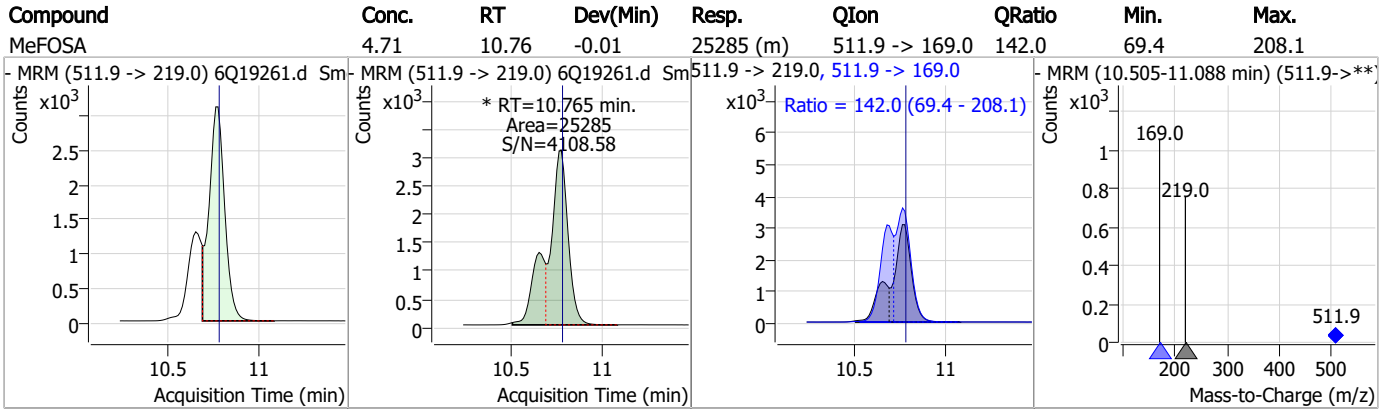


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.37	10.76	-0.01	12258				



7.7.14
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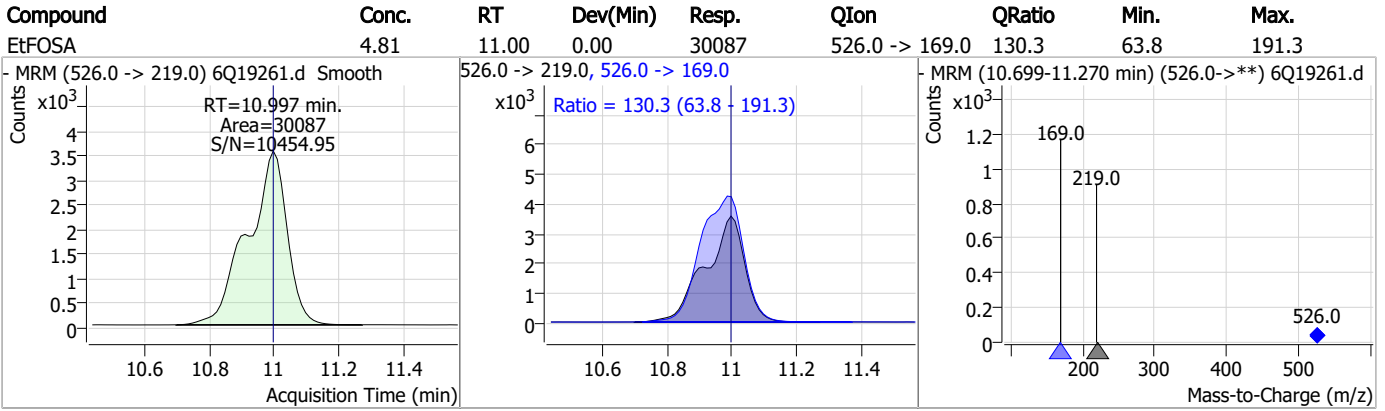
Perfluorinated Compounds by LC/MS/MS



7.7.14



Perfluorinated Compounds by LC/MS/MS



7.7.14

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Manual Integration Approval Summary

Sample Number: S6Q287-CC287
Lab FileID: 6Q19261.D
Injection Time: 06/12/23 20:42

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		10.70	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
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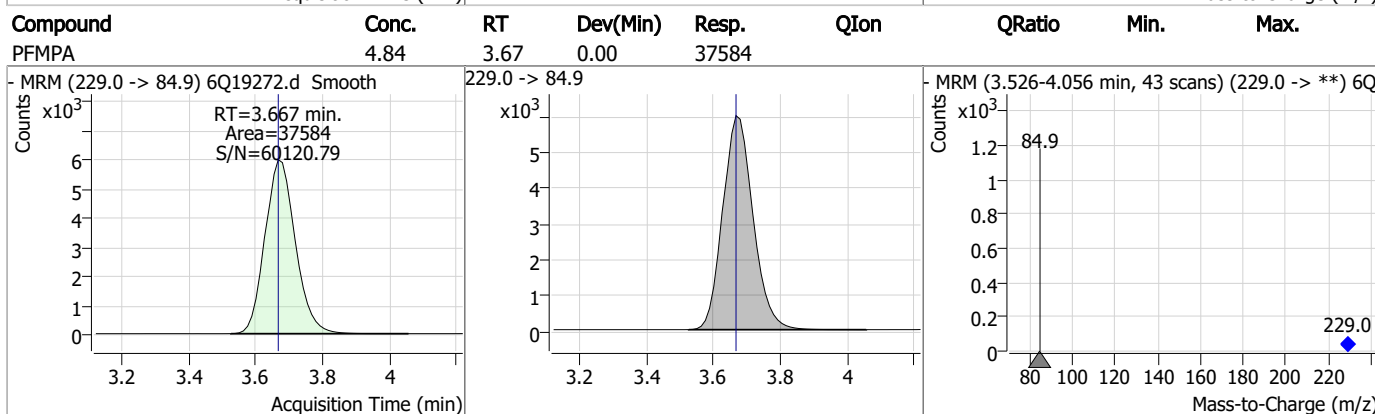
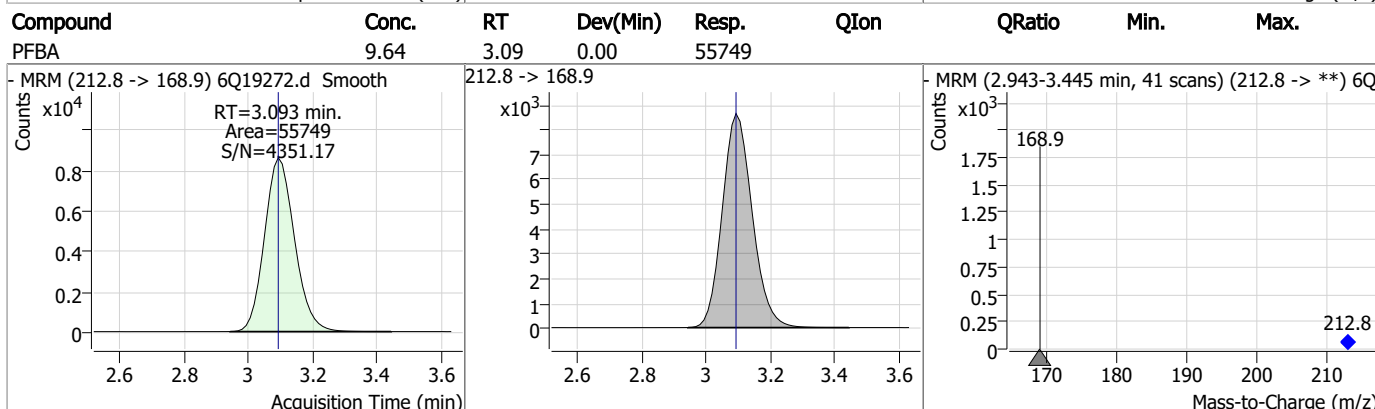
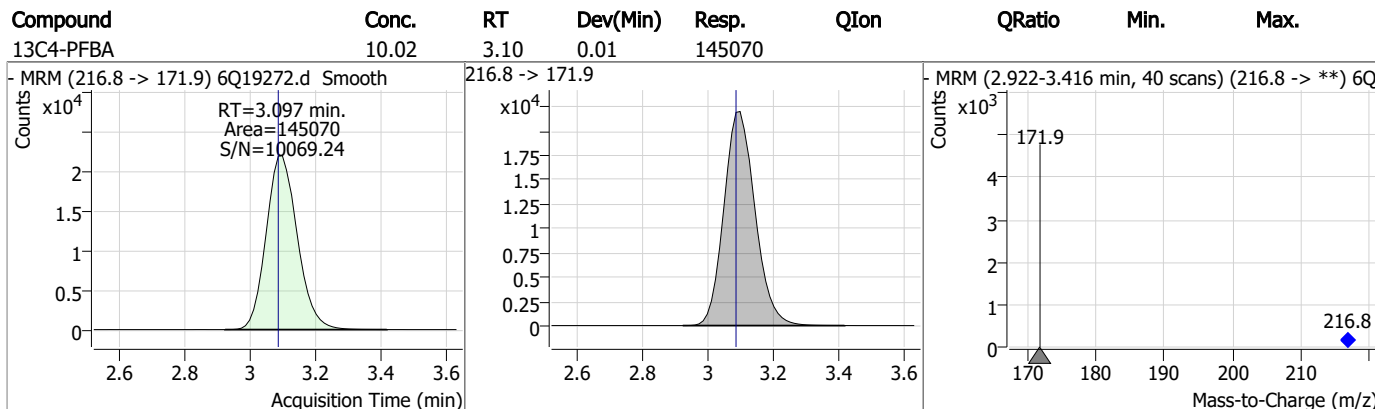
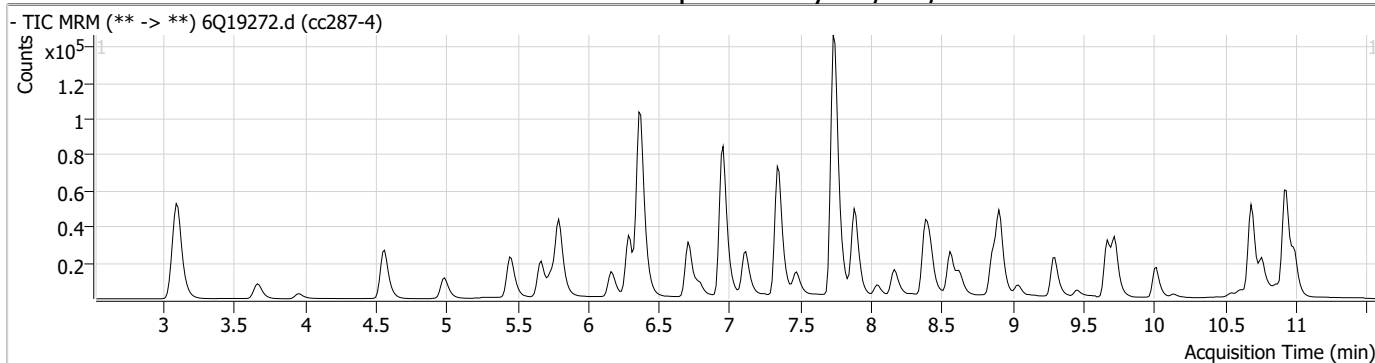
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.15

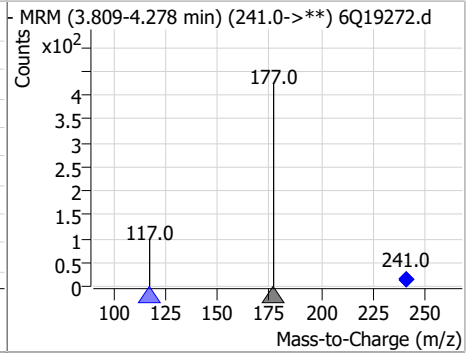
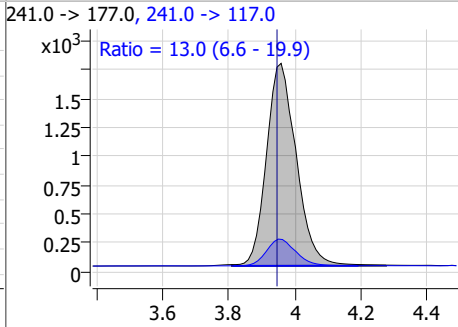
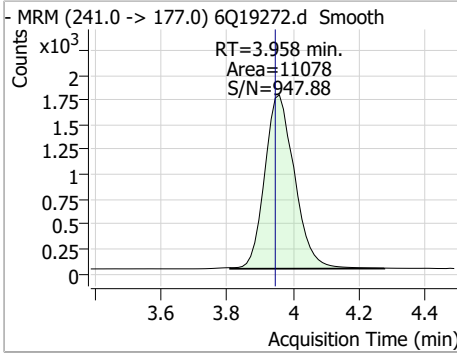
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Perfluorinated Compounds by LC/MS/MS

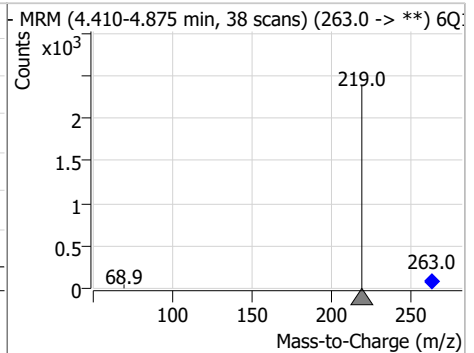
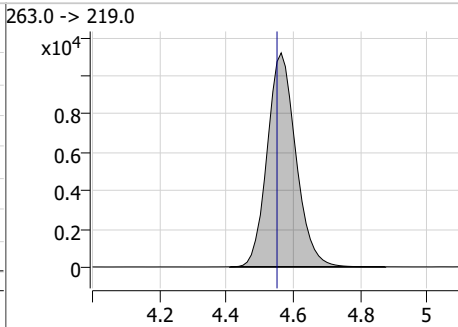
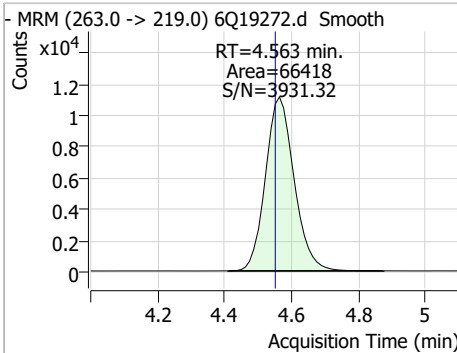


Perfluorinated Compounds by LC/MS/MS

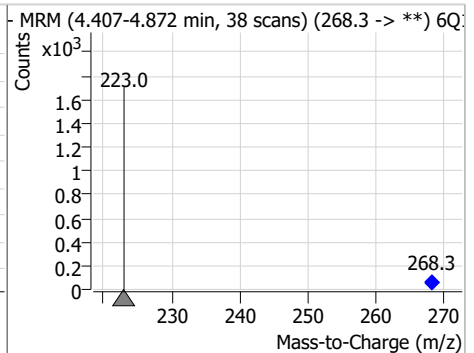
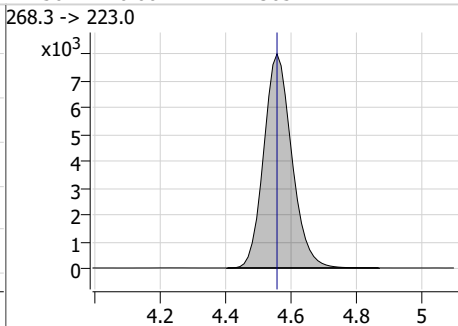
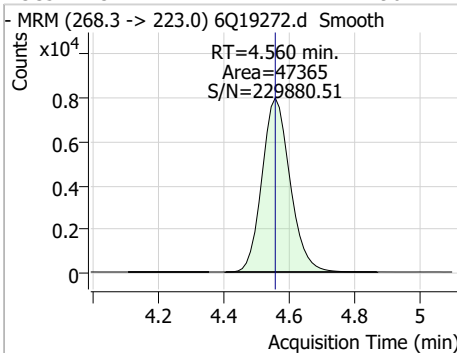
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.62	3.96	0.01	11078	241.0 -> 117.0	13.0	6.6	19.9



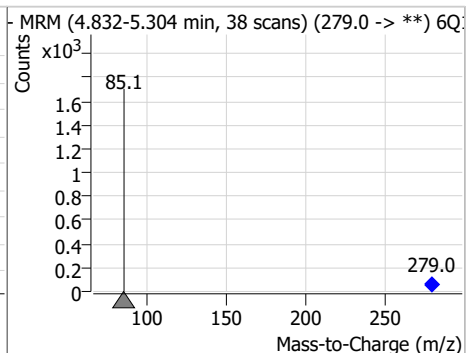
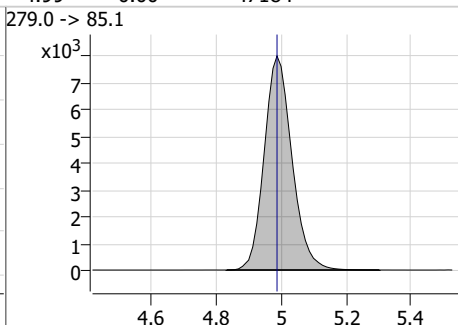
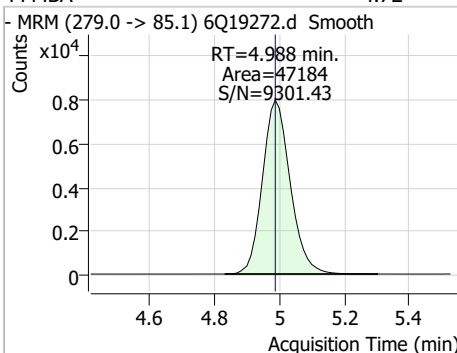
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.77	4.56	0.01	66418				



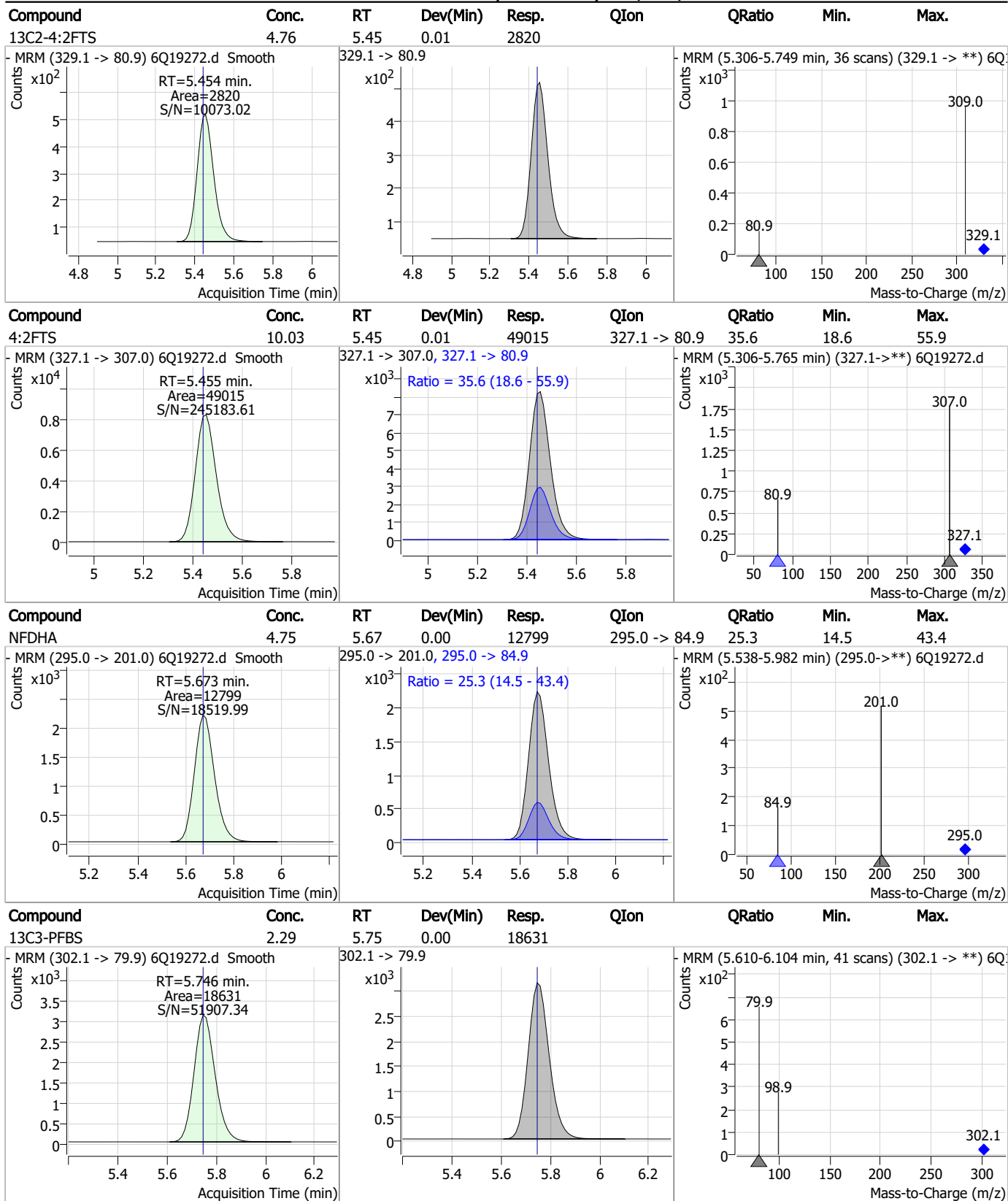
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.90	4.56	0.00	47365				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.72	4.99	0.00	47184				

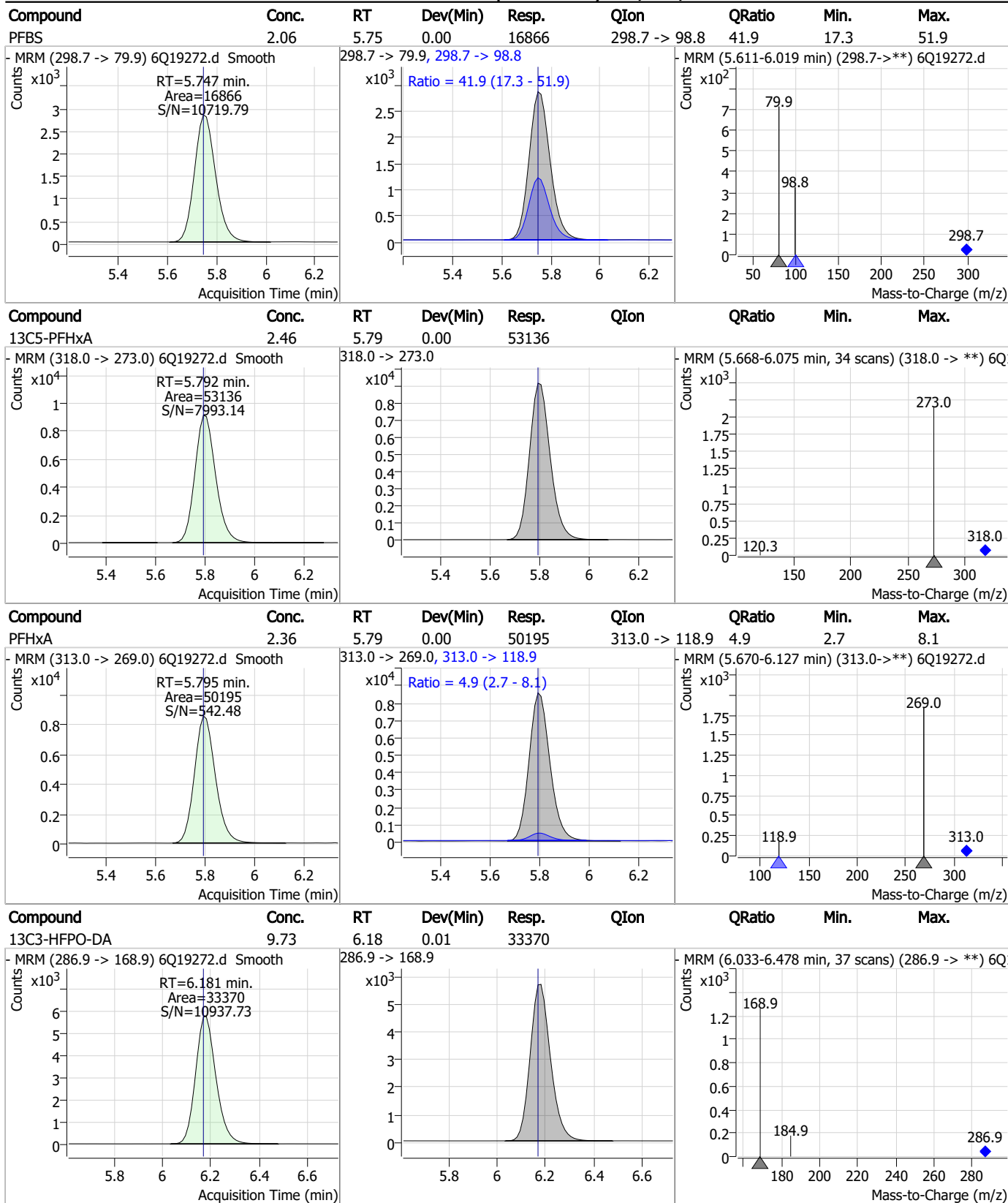


Perfluorinated Compounds by LC/MS/MS



7.7.15
7

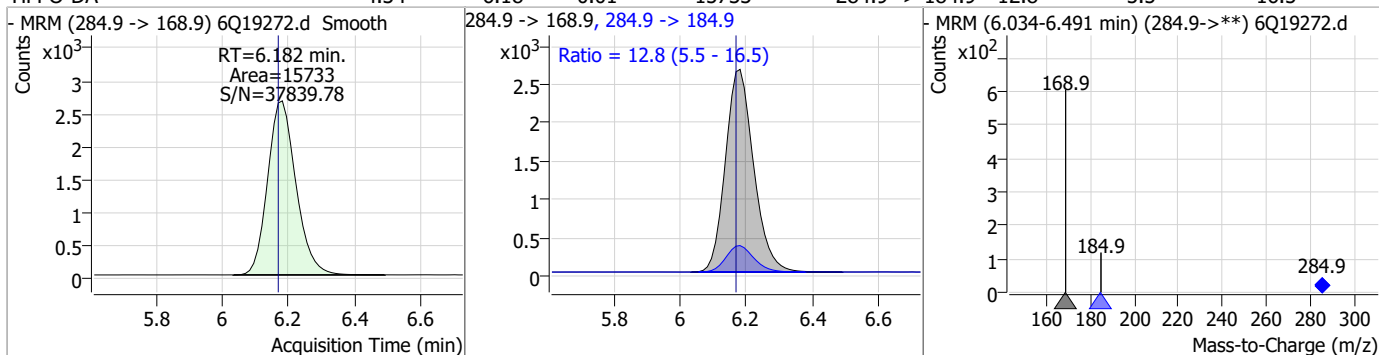
Perfluorinated Compounds by LC/MS/MS



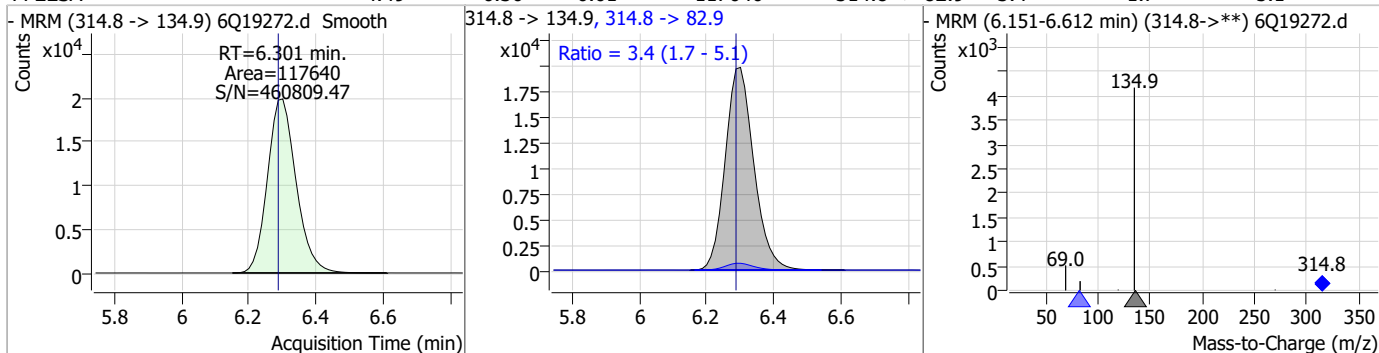
7.7.15
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Perfluorinated Compounds by LC/MS/MS

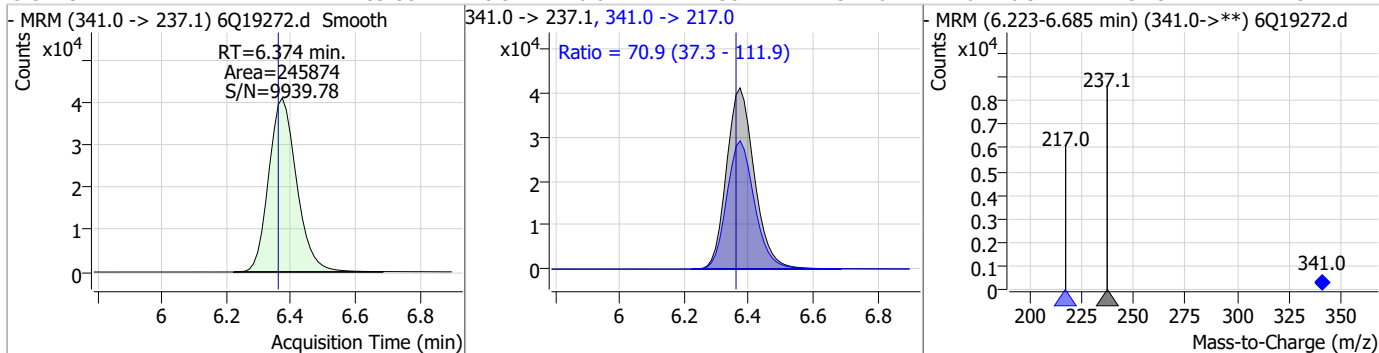
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.34	6.18	0.01	15733	284.9 -> 184.9	12.8	5.5	16.5



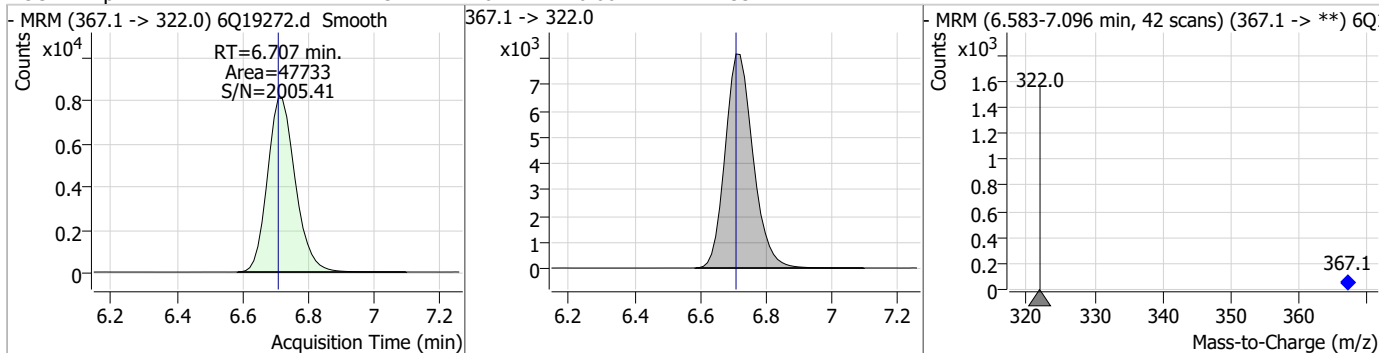
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.49	6.30	0.01	117640	314.8 -> 82.9	3.4	1.7	5.1



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



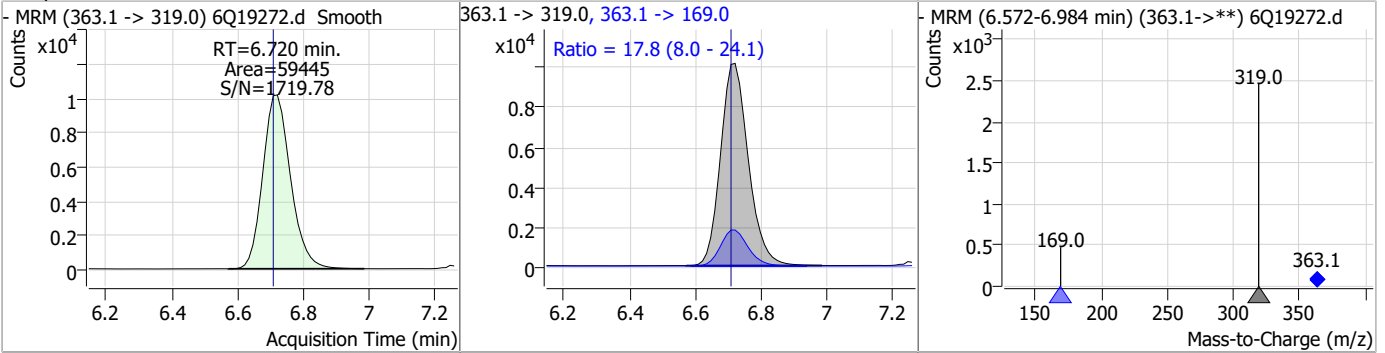
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.37	6.71	0.00	47733	367.1 -> 322.0			



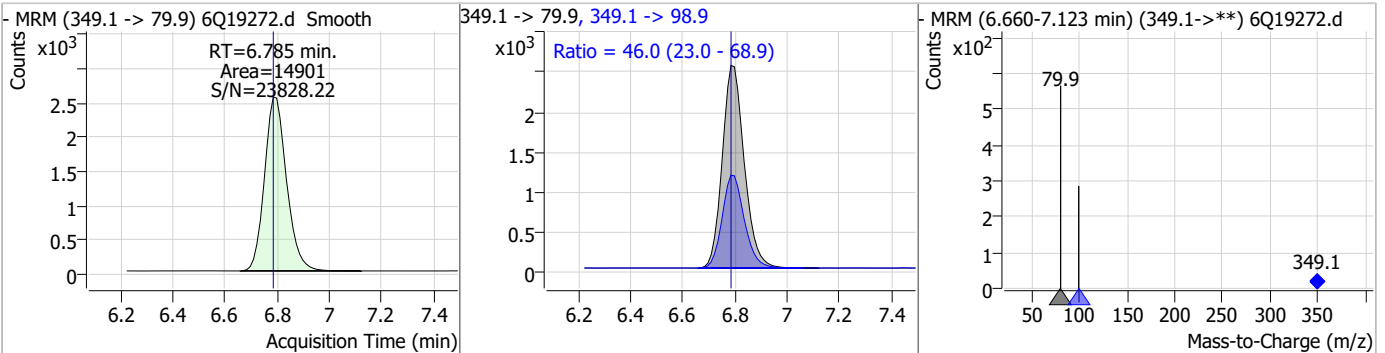
7.7.15
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Perfluorinated Compounds by LC/MS/MS

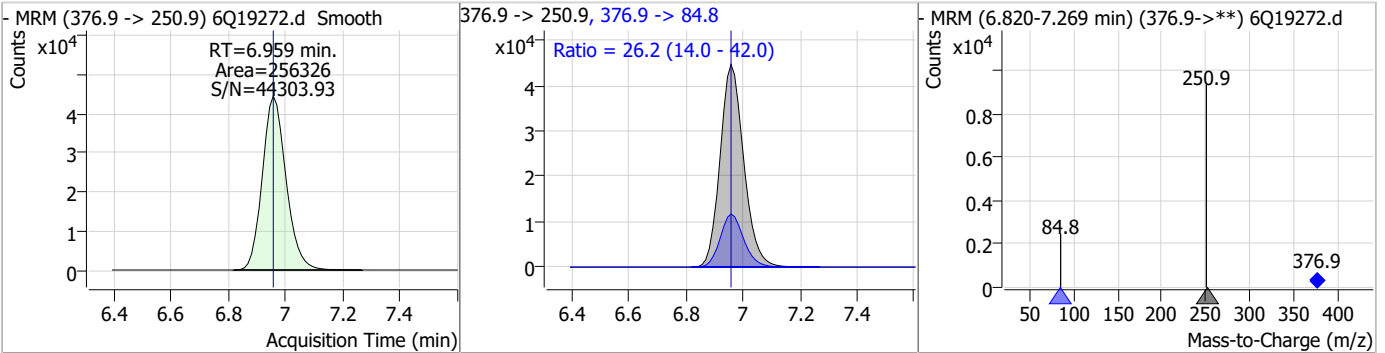
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.33	6.72	0.01	59445	363.1 -> 169.0	17.8	8.0	24.1



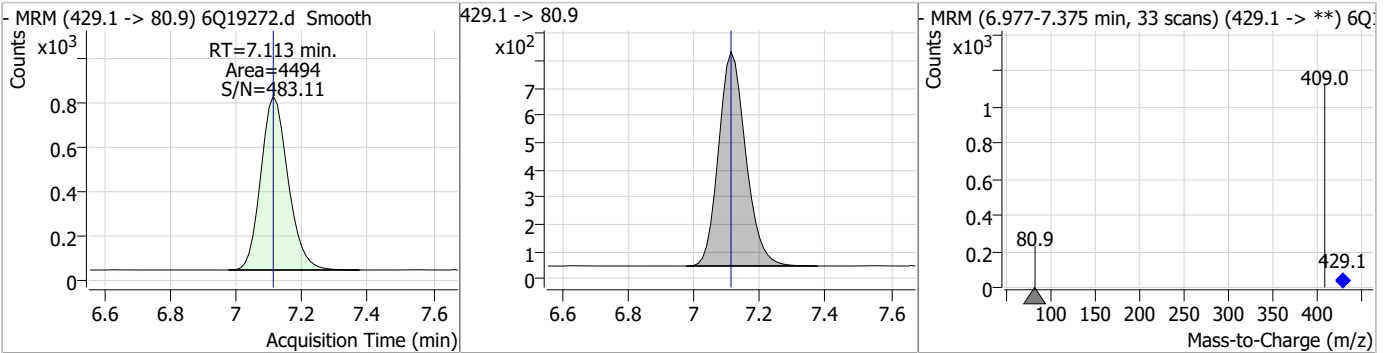
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.31	6.79	0.00	14901	349.1 -> 98.9	46.0	23.0	68.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.54	6.96	0.00	256326	376.9 -> 84.8	26.2	14.0	42.0

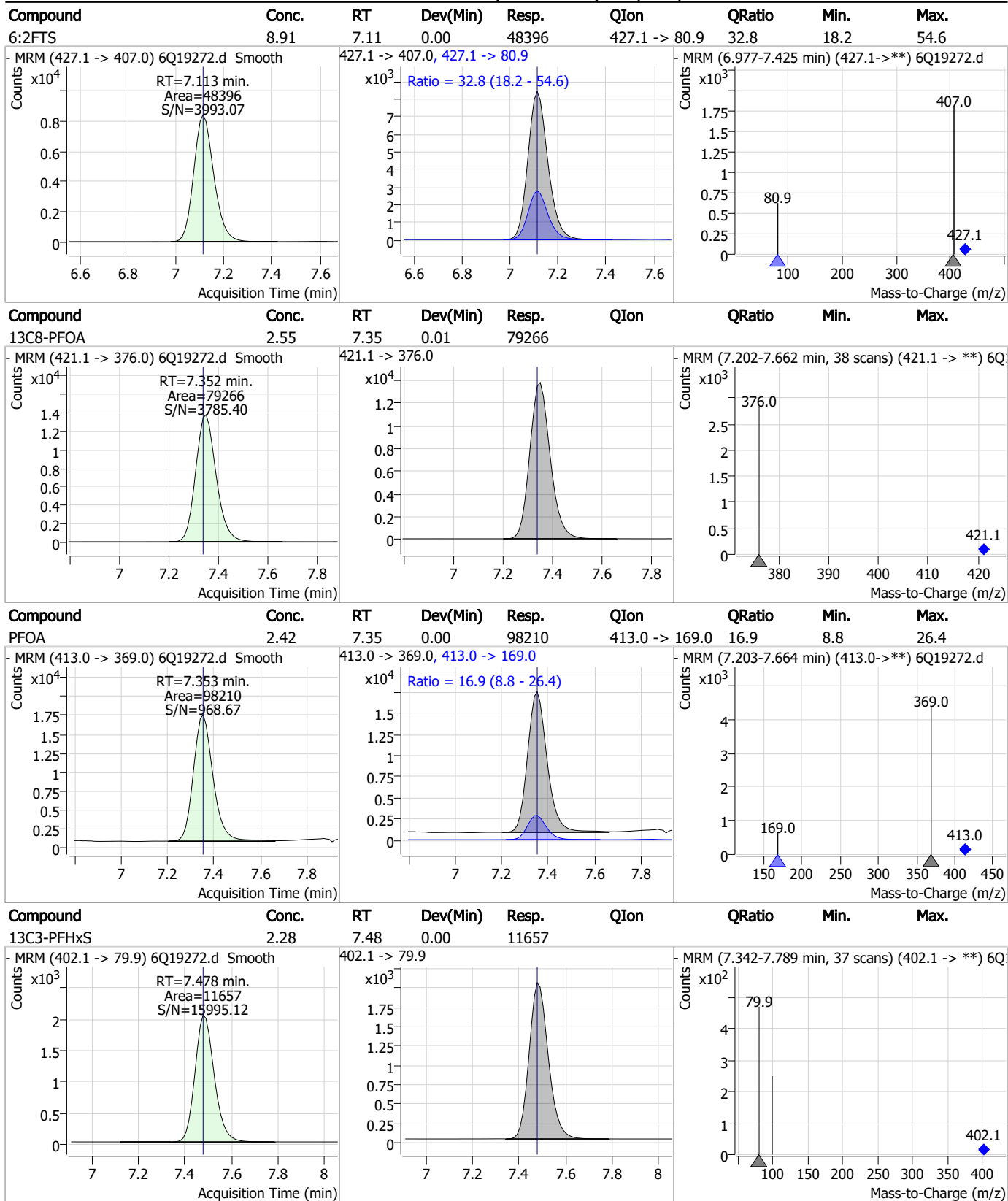


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.05	7.11	0.00	4494	429.1 -> 80.9			



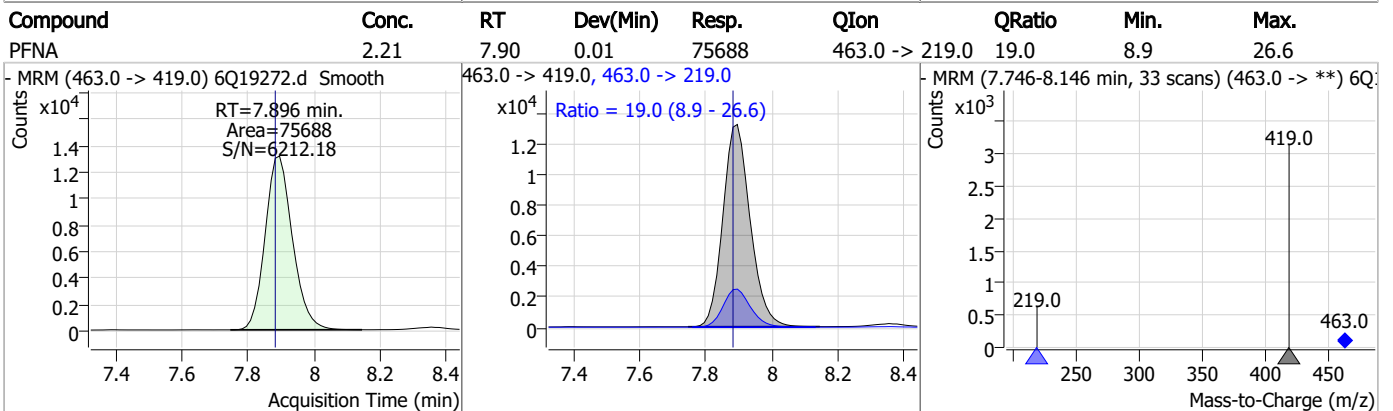
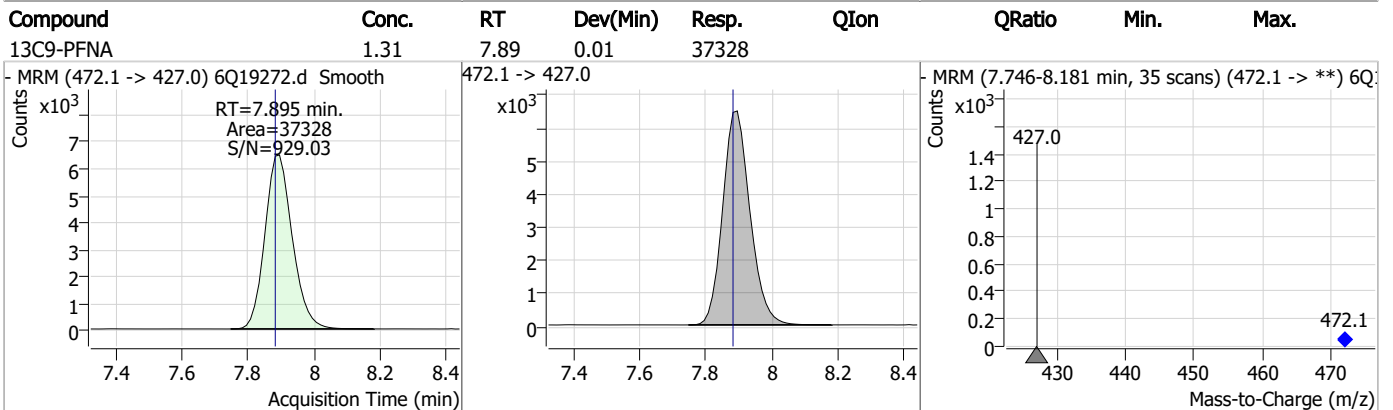
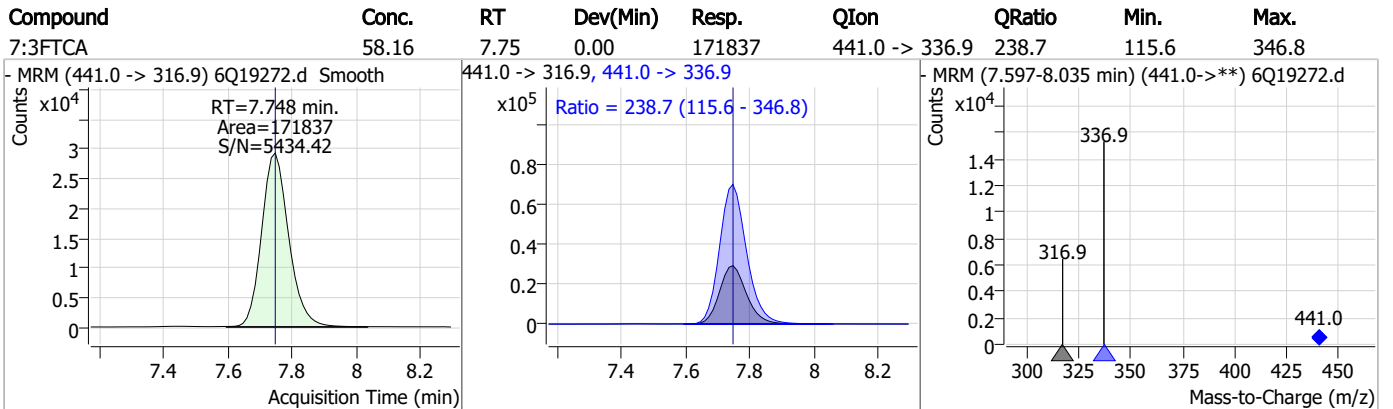
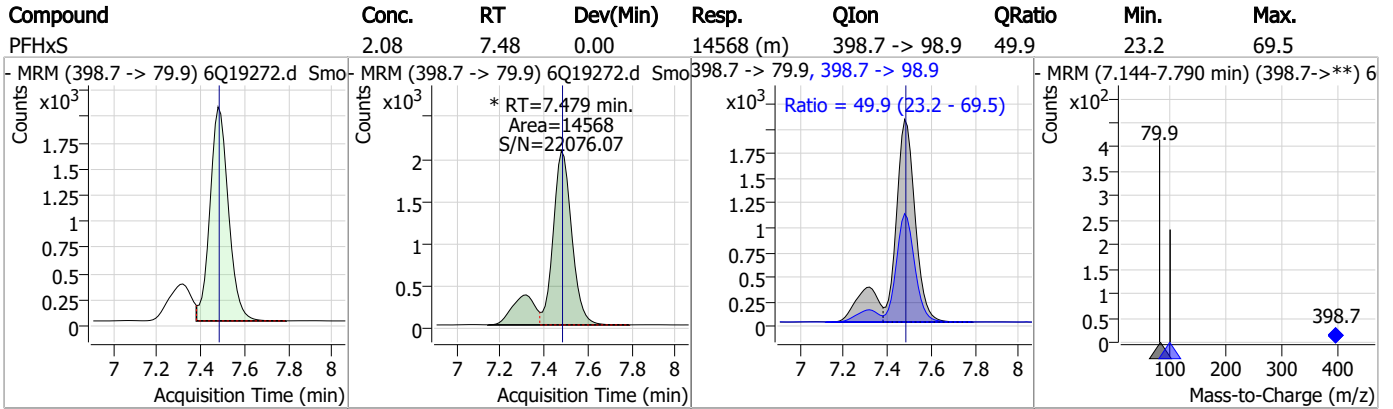
7.7.15
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Perfluorinated Compounds by LC/MS/MS



7.7.15
7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

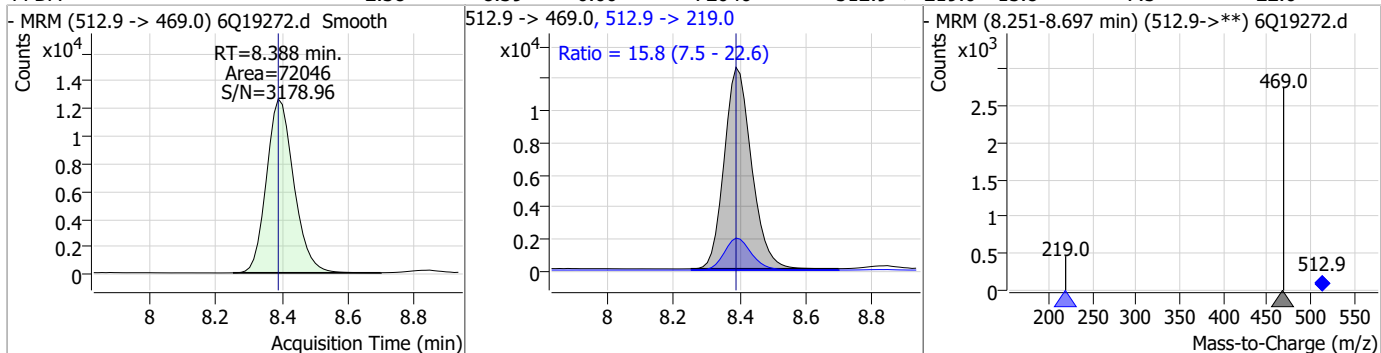
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.19	8.06	0.01	14870	449.0 -> 98.9	47.7	24.5	73.5
13C2-8:2FTS	5.02	8.16	0.00	4287	529.1 -> 80.9			
8:2FTS	9.09	8.16	0.00	25925	527.1 -> 80.8	38.8	19.7	59.1
13C6-PFDA	1.18	8.39	0.00	20215	519.1 -> 474.1			

7.7.15

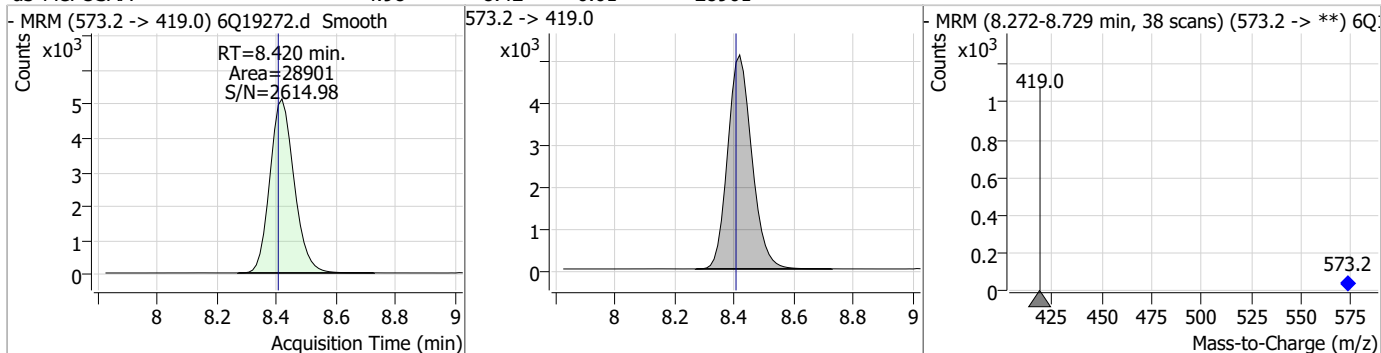


Perfluorinated Compounds by LC/MS/MS

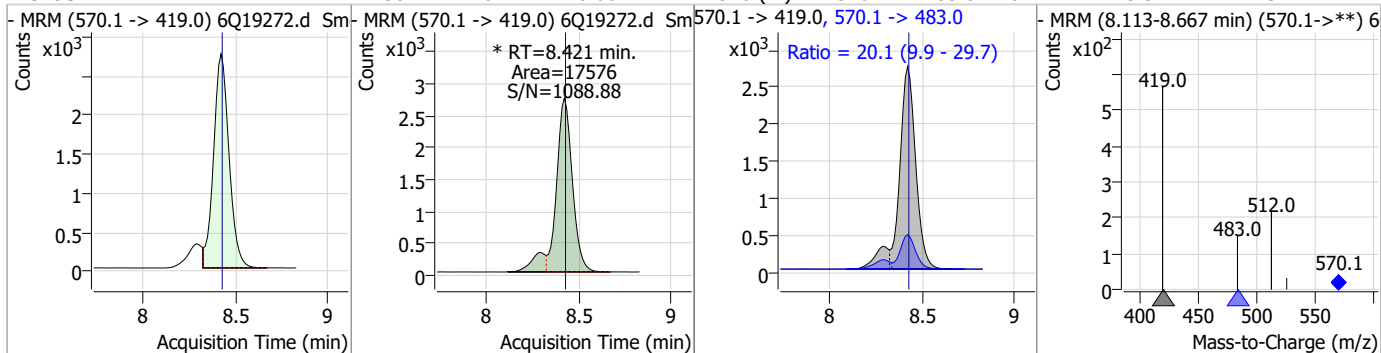
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.38	8.39	0.00	72046	512.9 -> 219.0	15.8	7.5	22.6



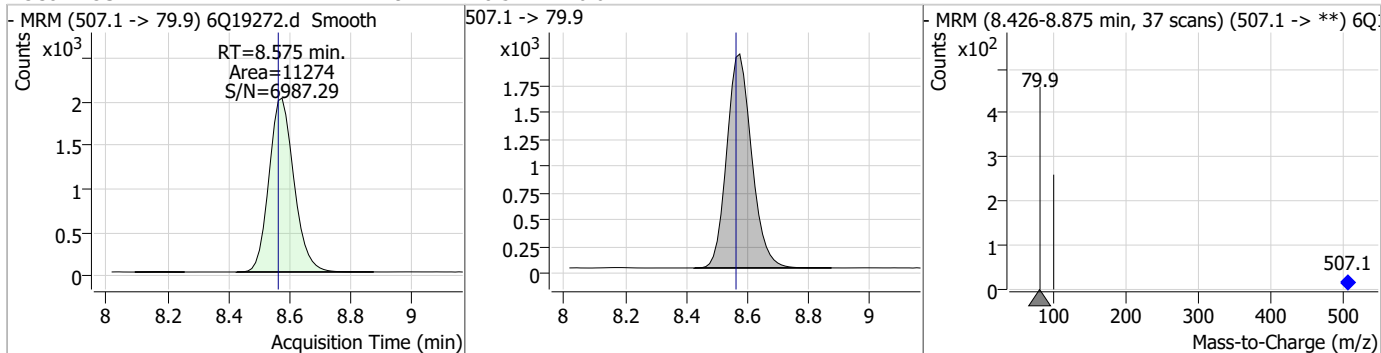
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.98	8.42	0.01	28901				



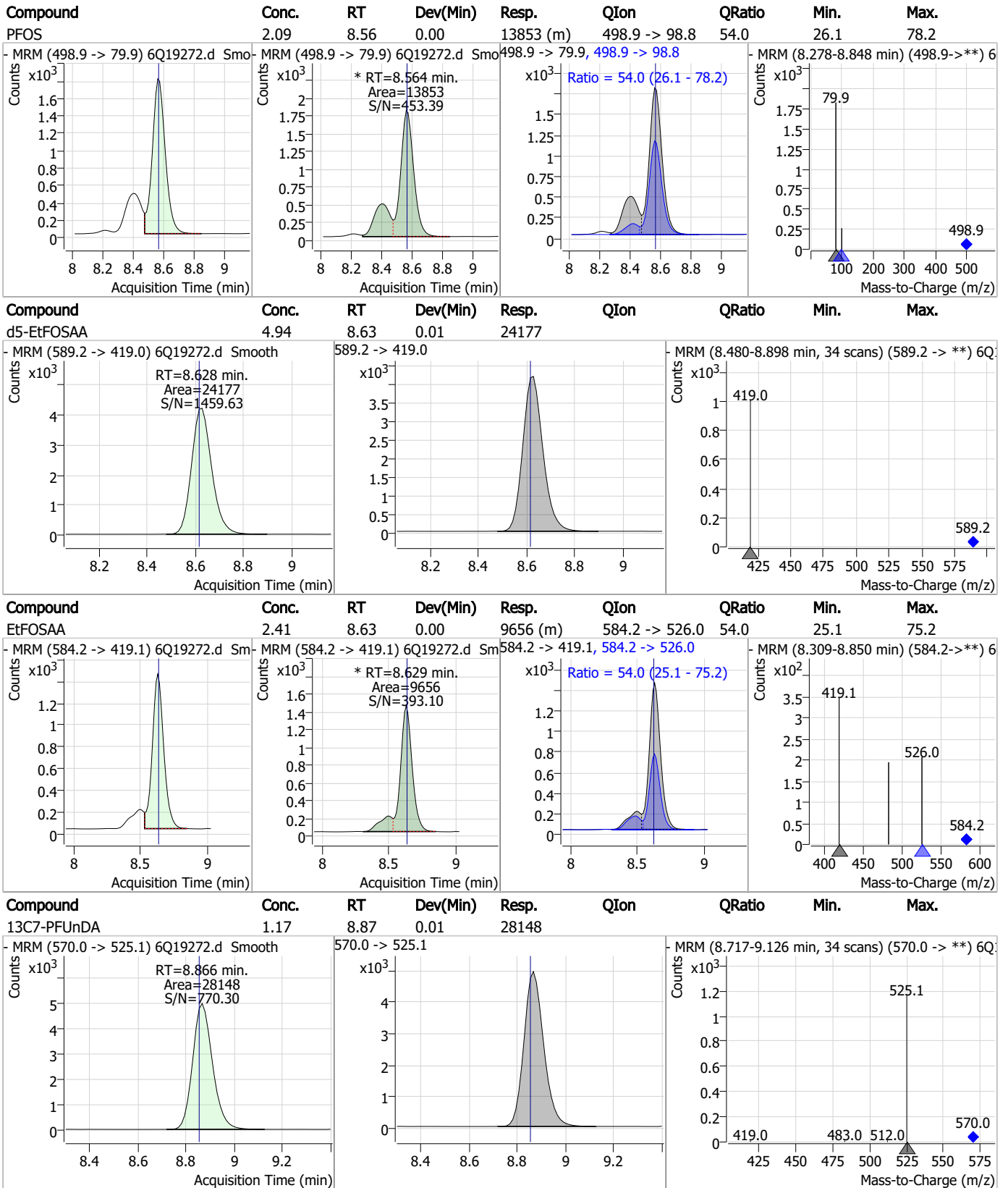
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.50	8.42	0.00	17576 (m)	570.1 -> 483.0	20.1	9.9	29.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.49	8.57	0.01	11274				

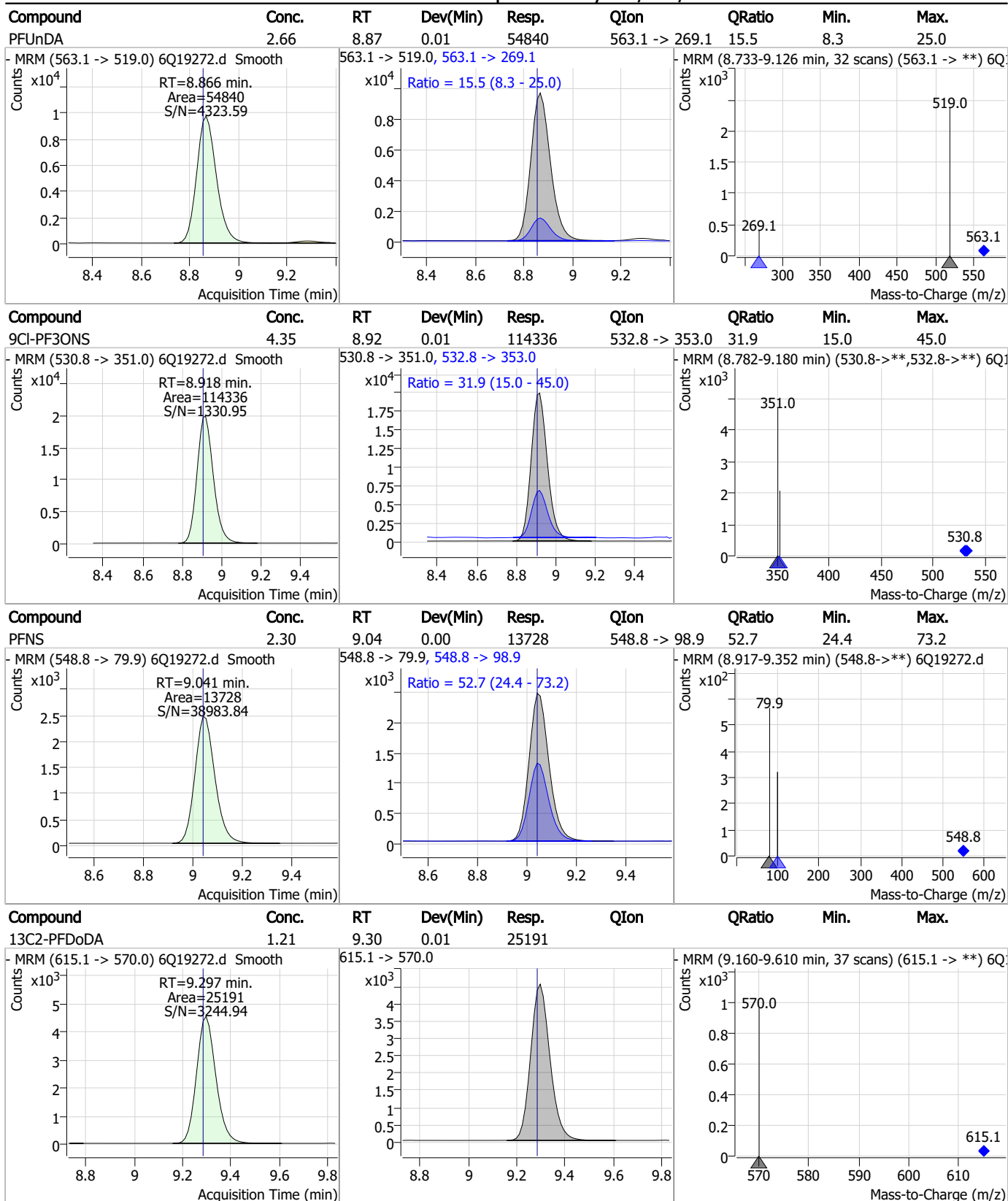


Perfluorinated Compounds by LC/MS/MS



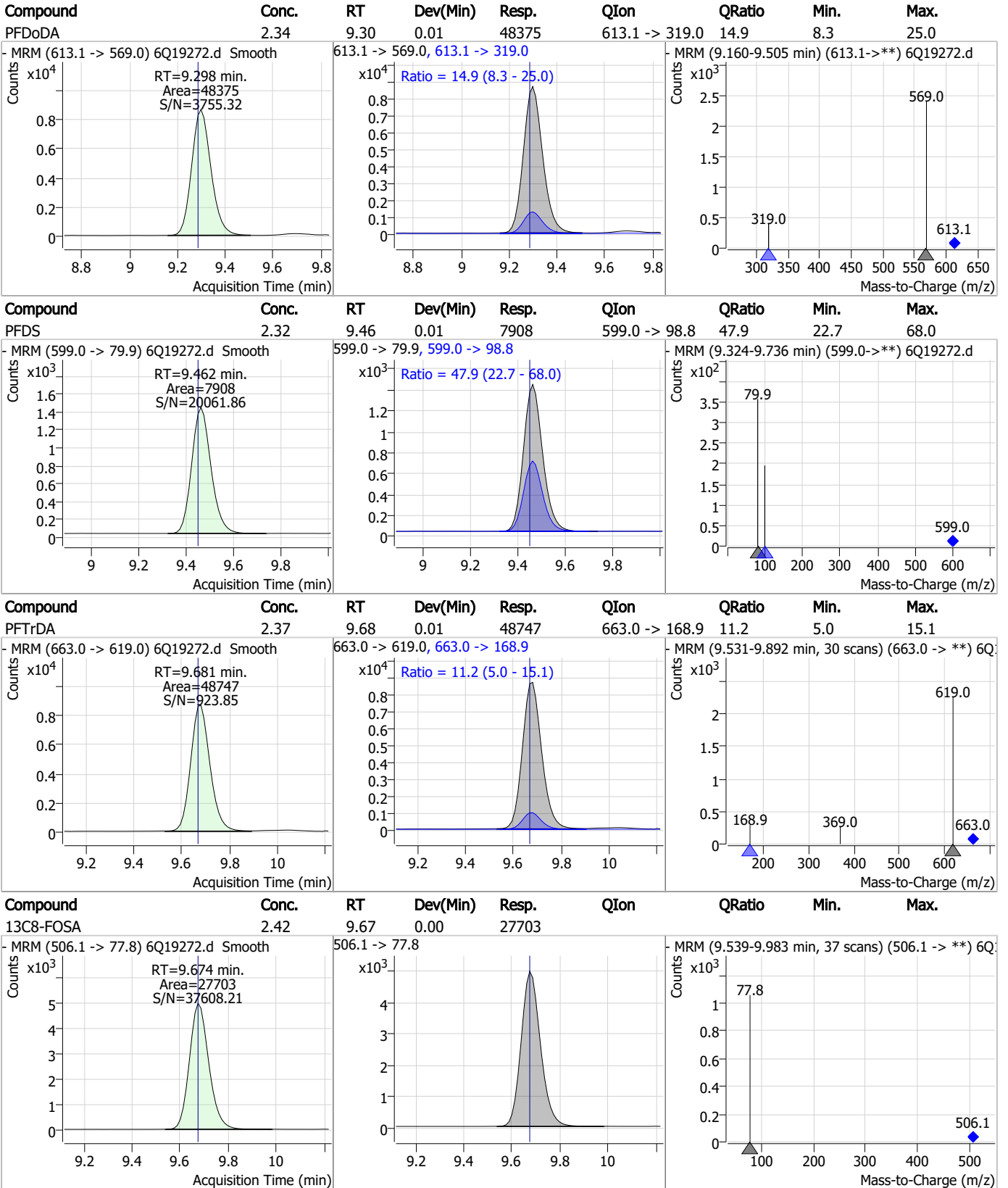
7.7.15
7

Perfluorinated Compounds by LC/MS/MS



7.7.15
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Perfluorinated Compounds by LC/MS/MS

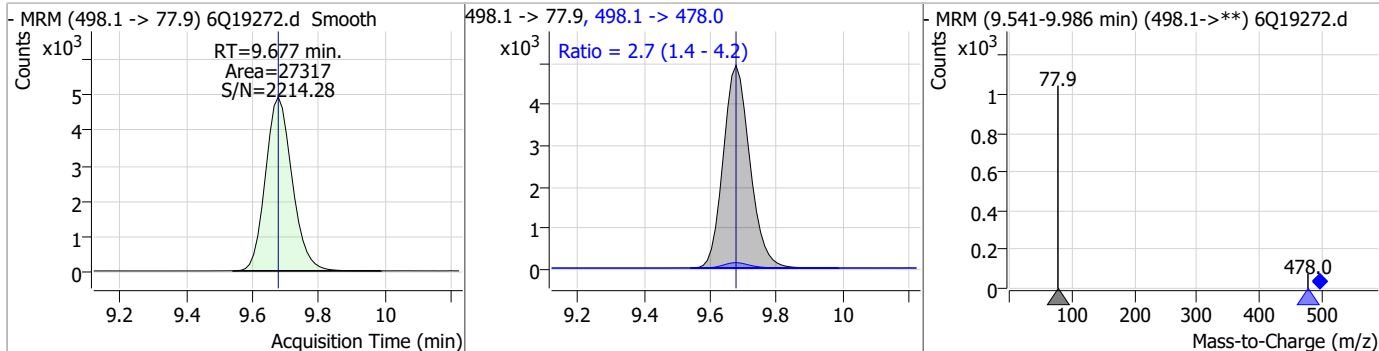


7.7.15
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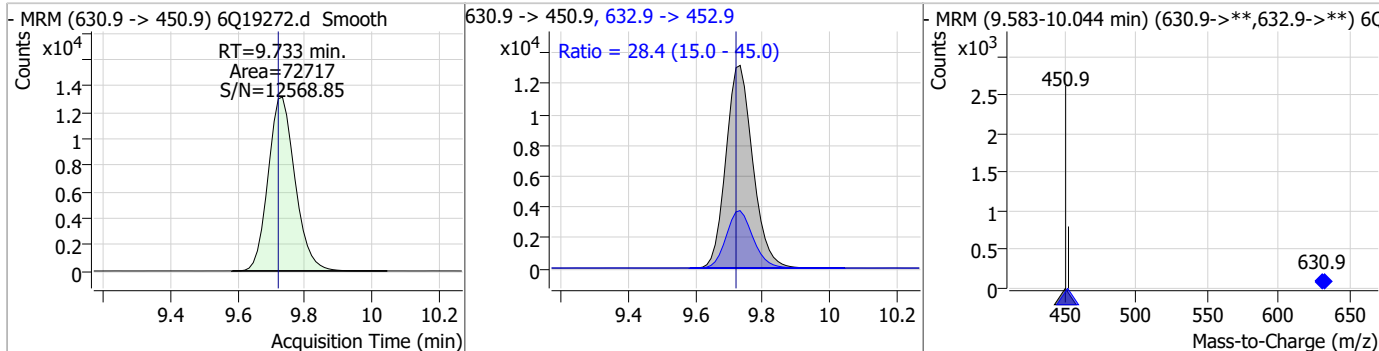


Perfluorinated Compounds by LC/MS/MS

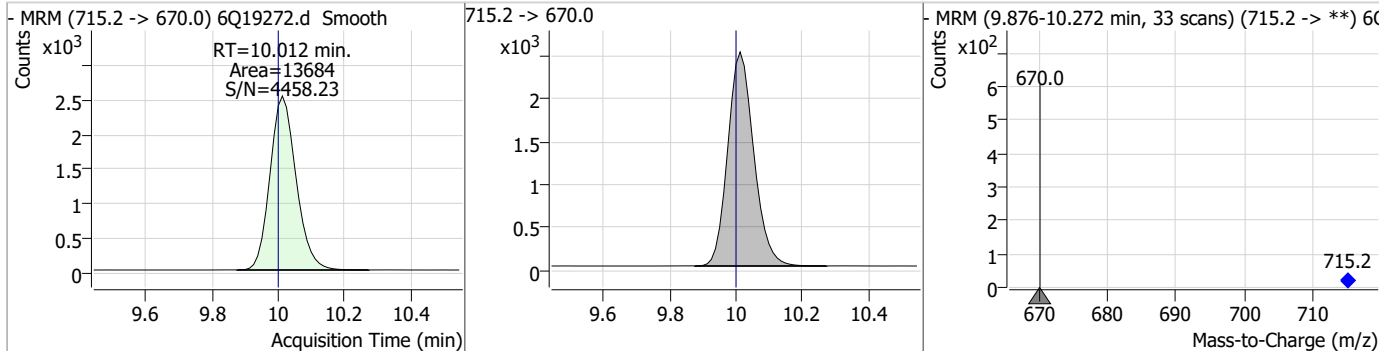
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.40	9.68	0.00	27317	498.1 -> 478.0	2.7	1.4	4.2



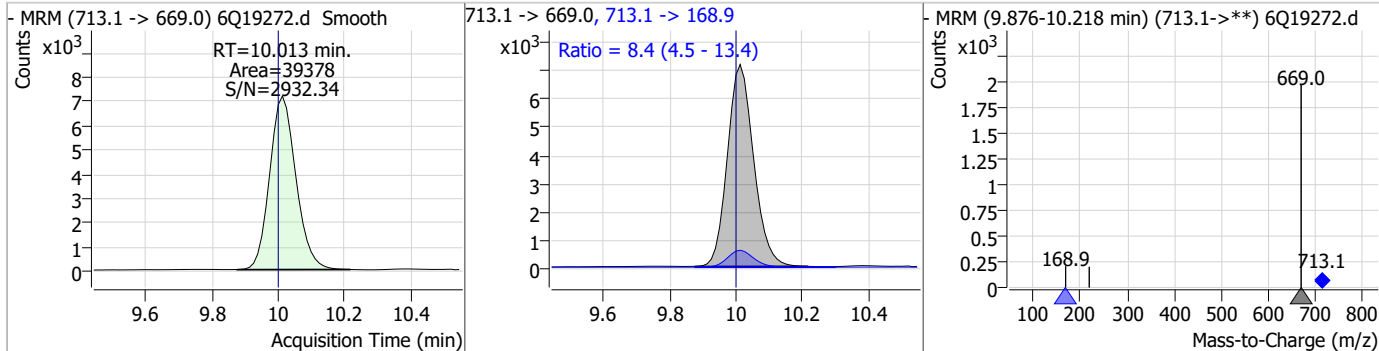
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	4.62	9.73	0.01	72717	632.9 -> 452.9	28.4	15.0	45.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.14	10.01	0.01	13684	715.2 -> 670.0	8.4	4.5	13.4

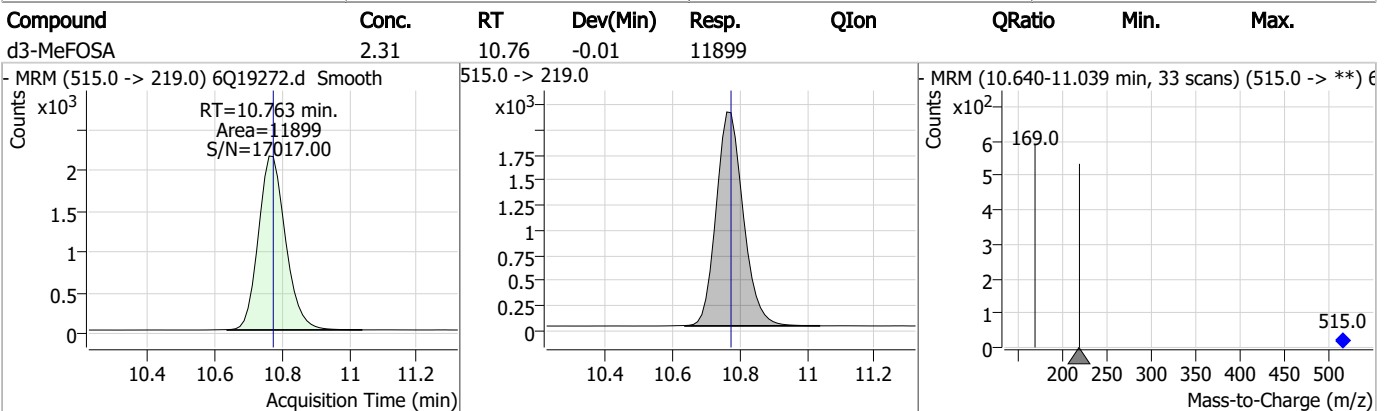
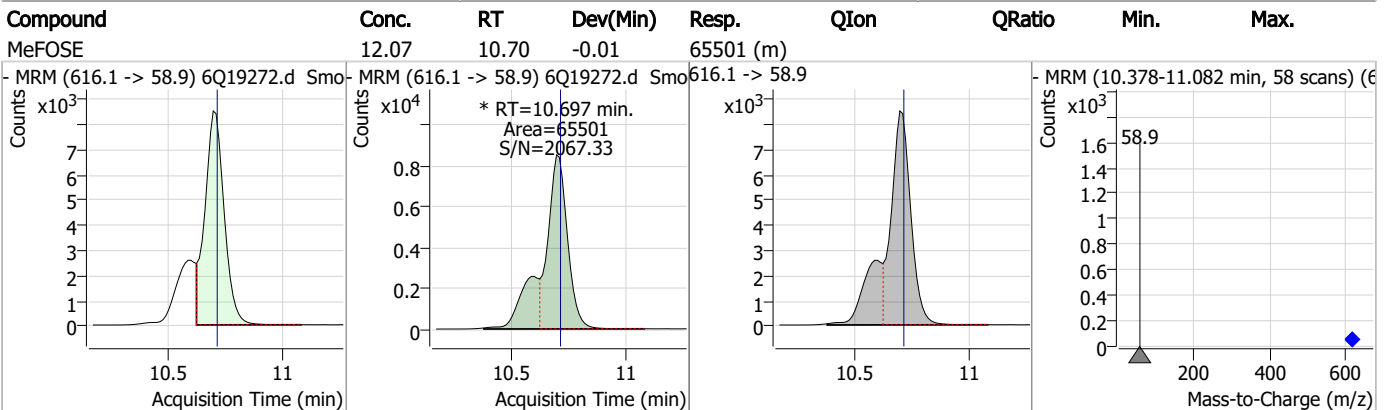
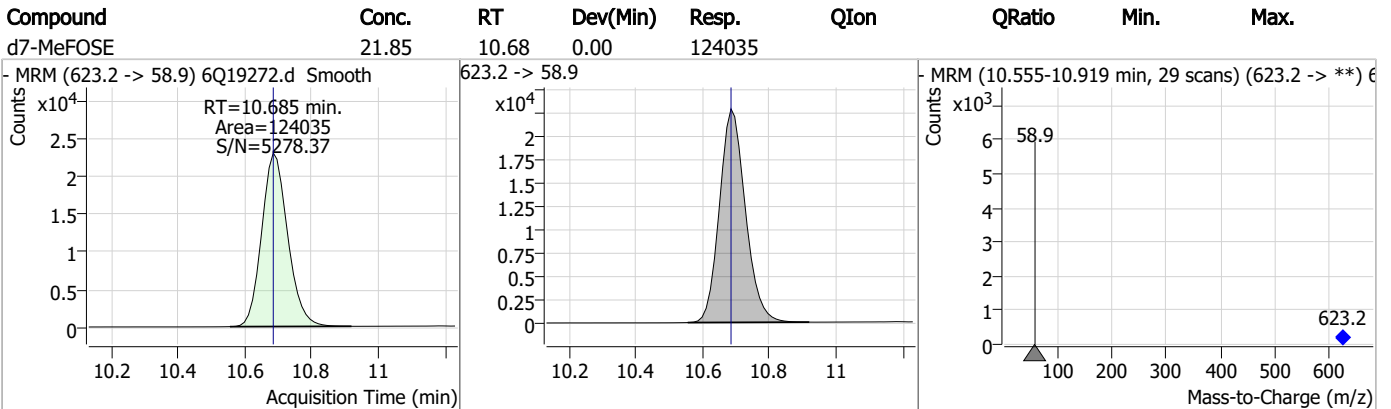
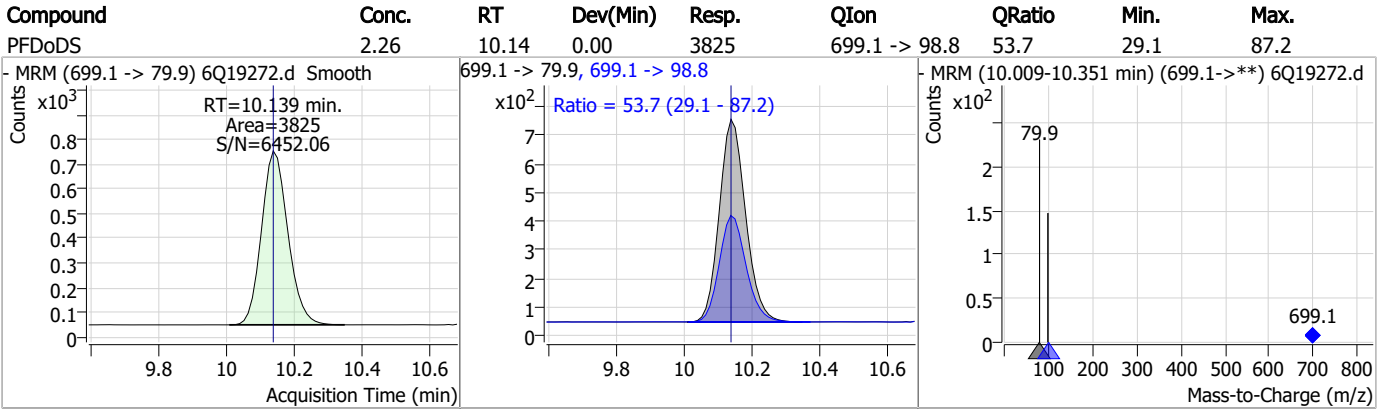


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.41	10.01	0.01	39378	713.1 -> 168.9	8.4	4.5	13.4



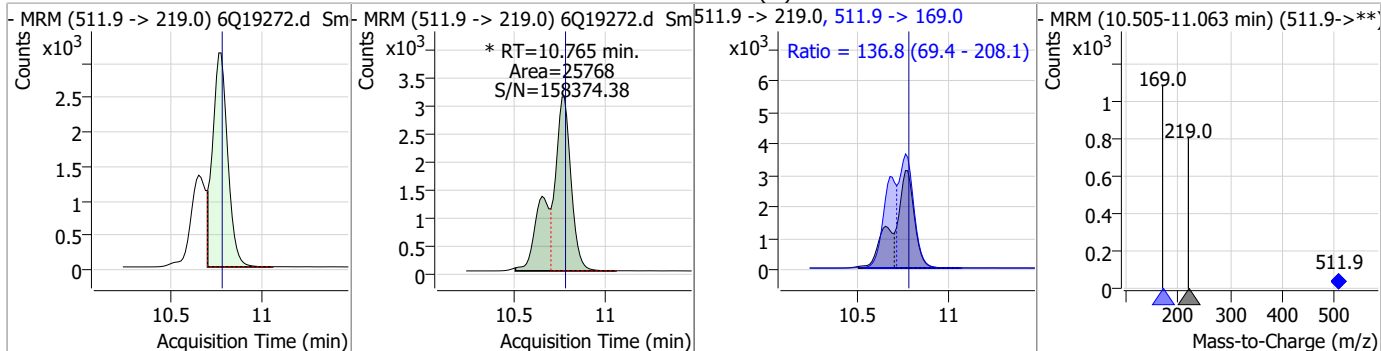
7.7.15
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Perfluorinated Compounds by LC/MS/MS

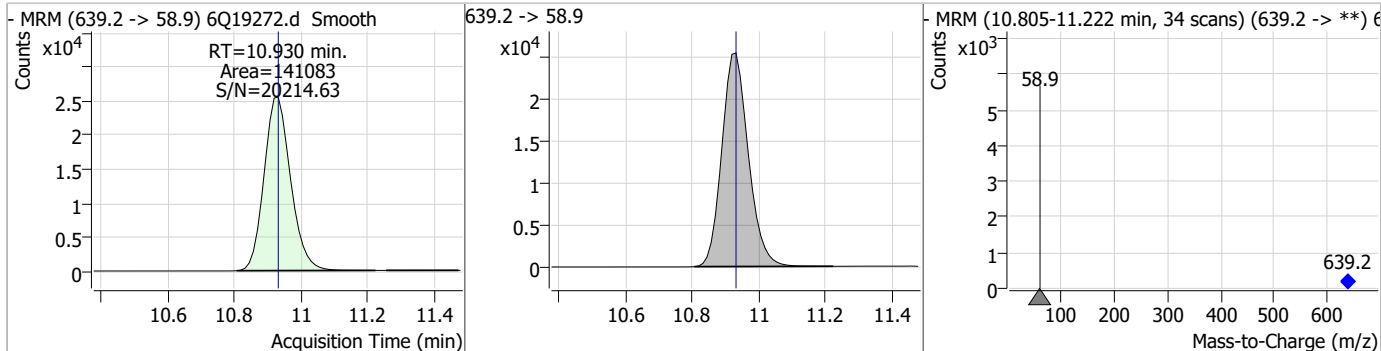


Perfluorinated Compounds by LC/MS/MS

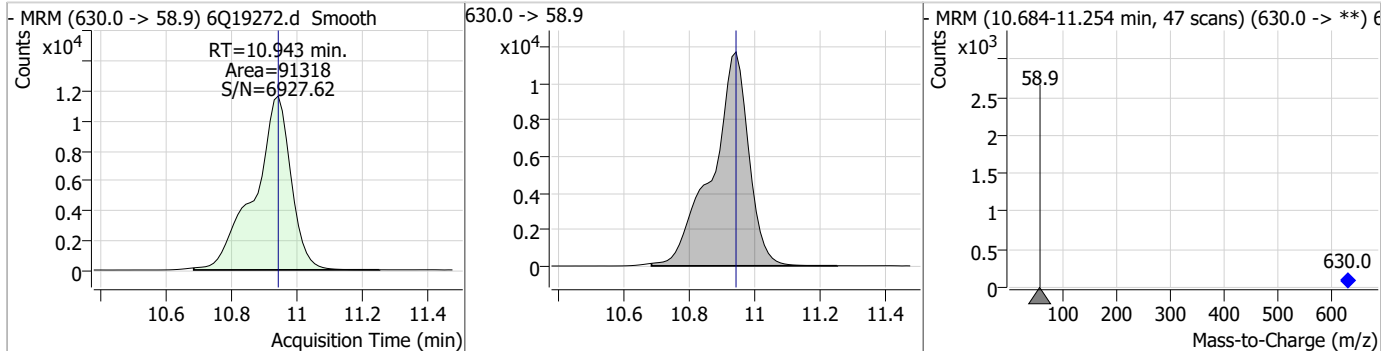
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	4.94	10.76	-0.01	25768 (m)	511.9 -> 169.0	136.8	69.4	208.1



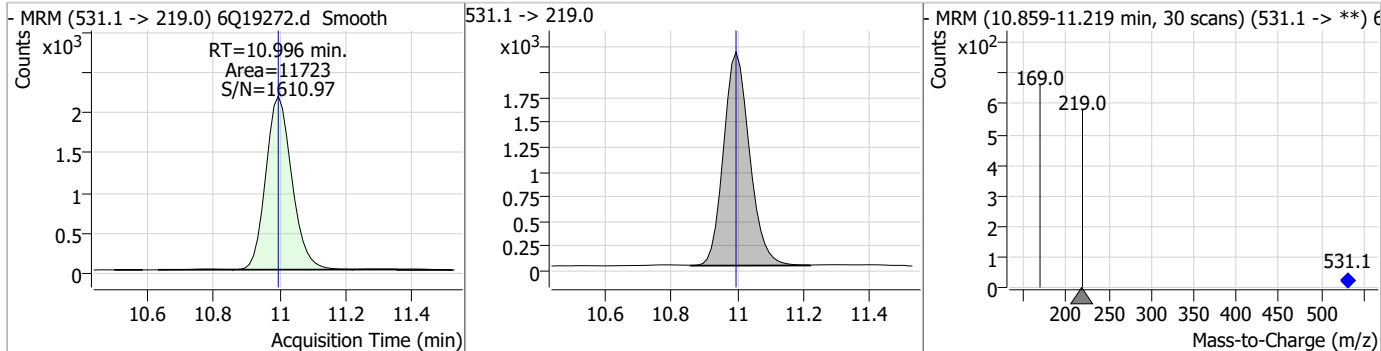
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.89	10.93	0.00	141083				



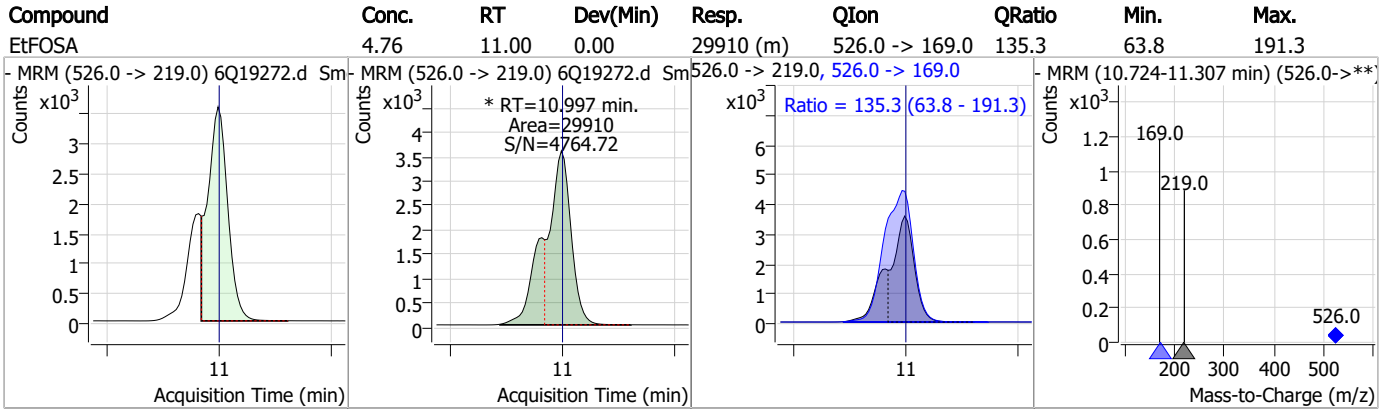
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.26	10.94	0.00	91318				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.35	11.00	0.00	11723				



Perfluorinated Compounds by LC/MS/MS



7.7.15

7

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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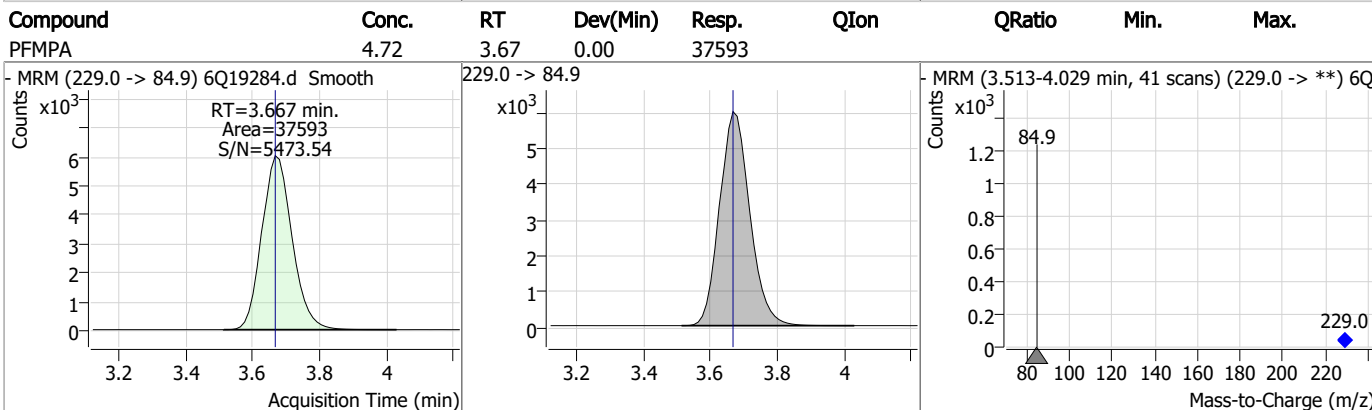
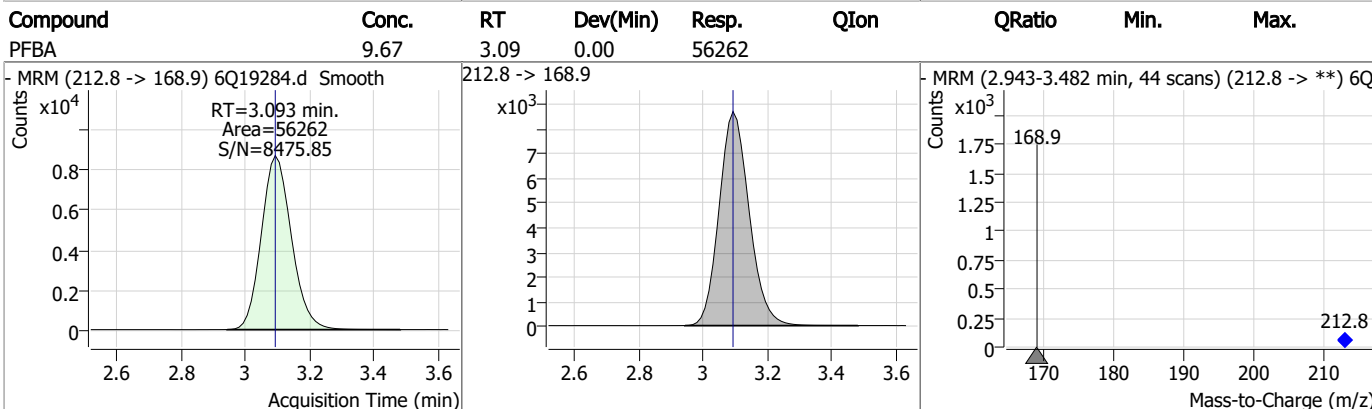
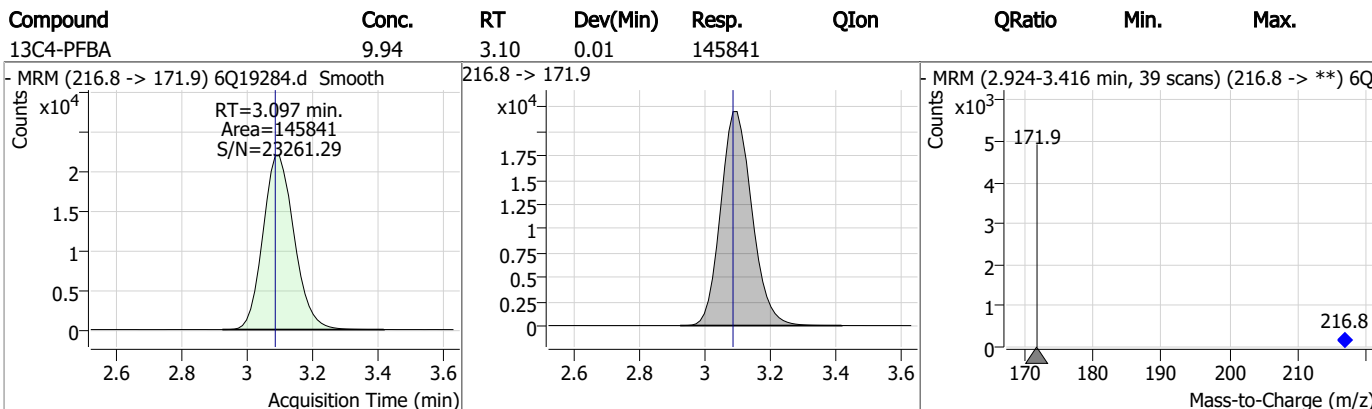
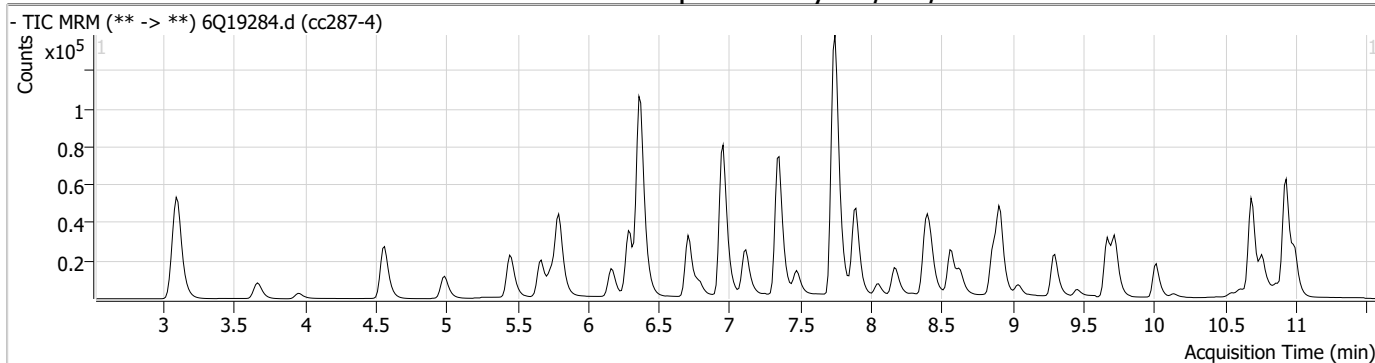
Perfluorinated Compounds by LC/MS/MS

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
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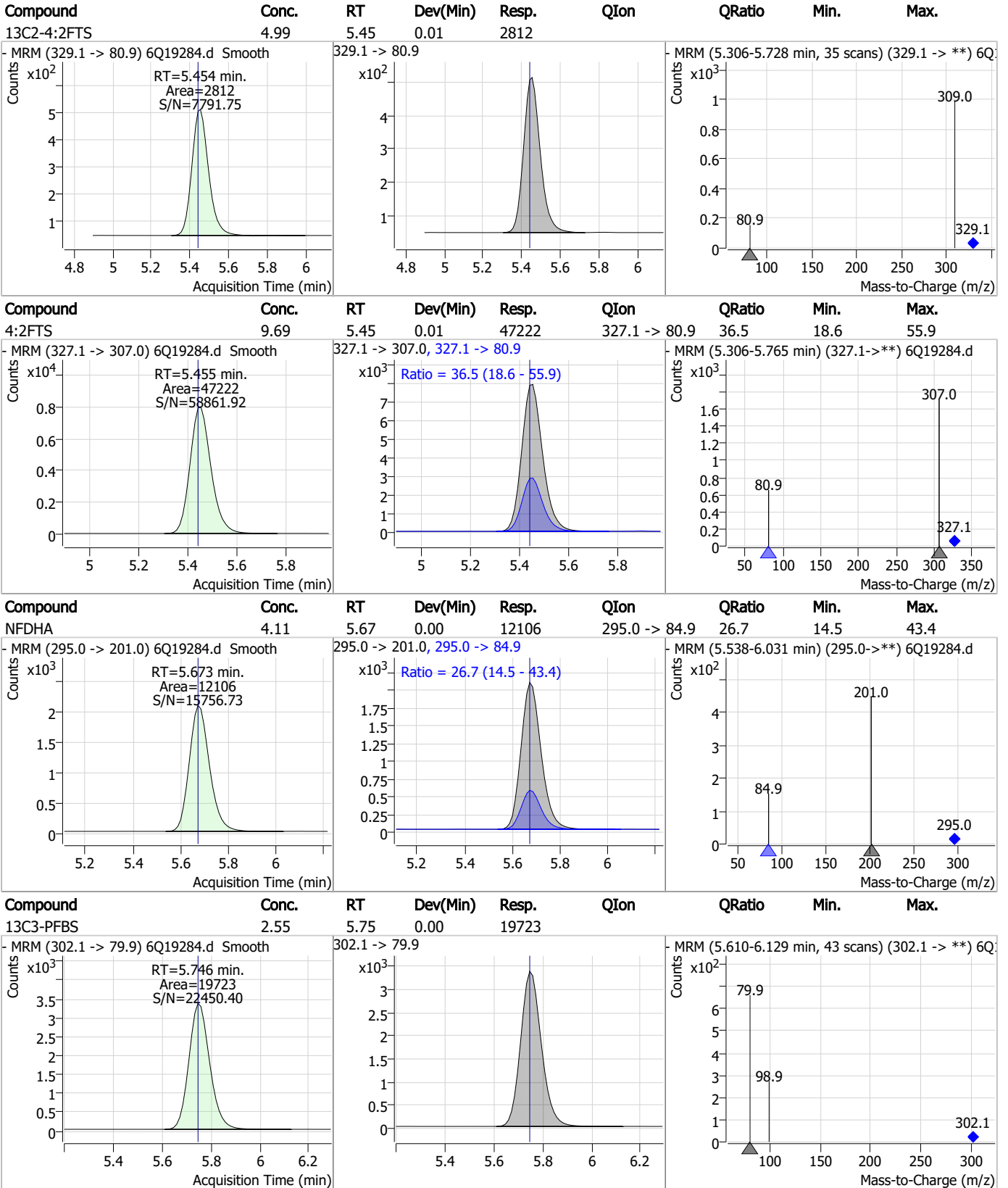
Perfluorinated Compounds by LC/MS/MS

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
PFPeA	4.71	4.56	0.01	67306	263.0 -> 219.0	-	-	-
13C5-PFPeA	5.10	4.56	0.00	48607	268.3 -> 223.0	-	-	-
PFMBA	4.65	4.99	0.00	47676	279.0 -> 85.1	-	-	-

7.7.16 7



Perfluorinated Compounds by LC/MS/MS

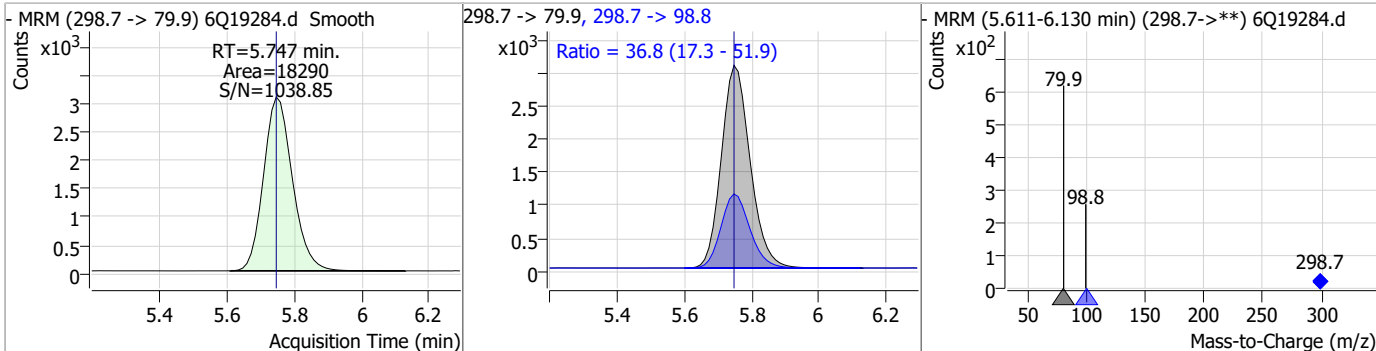


7.7.16 7

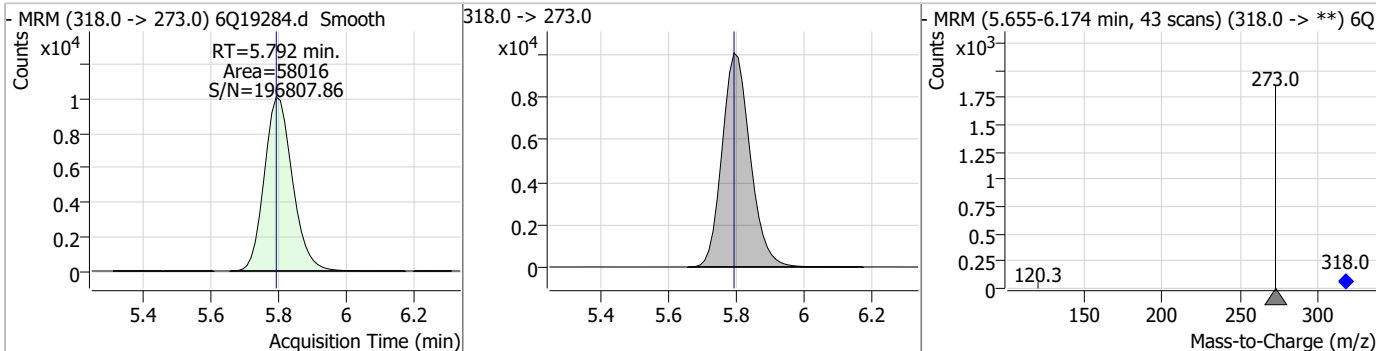


Perfluorinated Compounds by LC/MS/MS

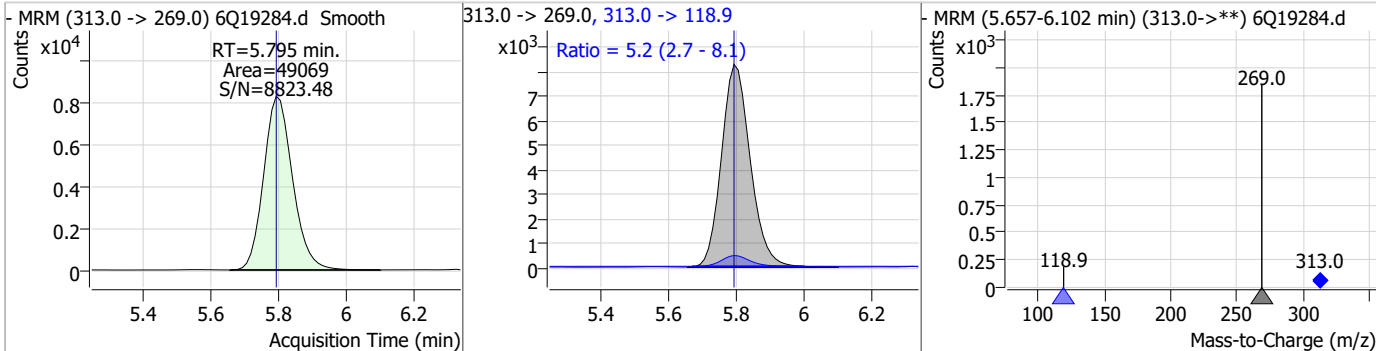
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.11	5.75	0.00	18290	298.7 -> 98.8	36.8	17.3	51.9



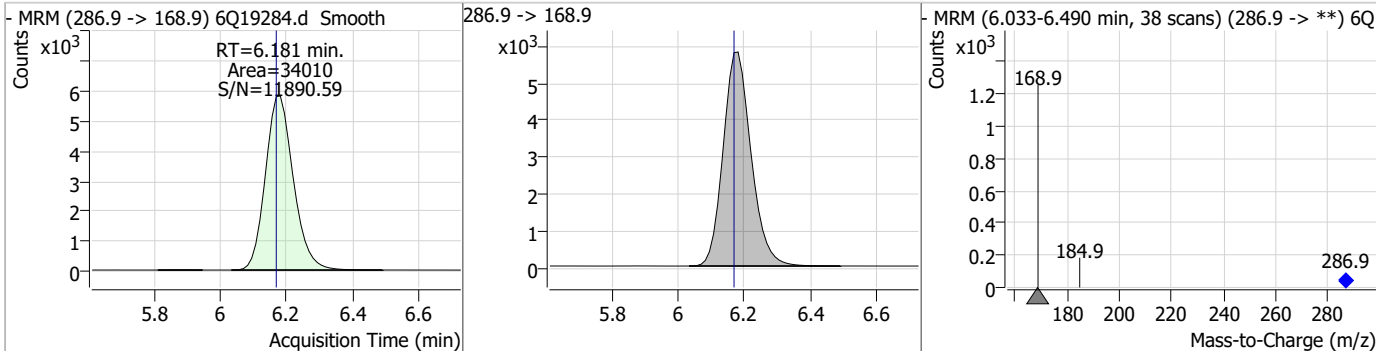
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.72	5.79	0.00	58016				



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



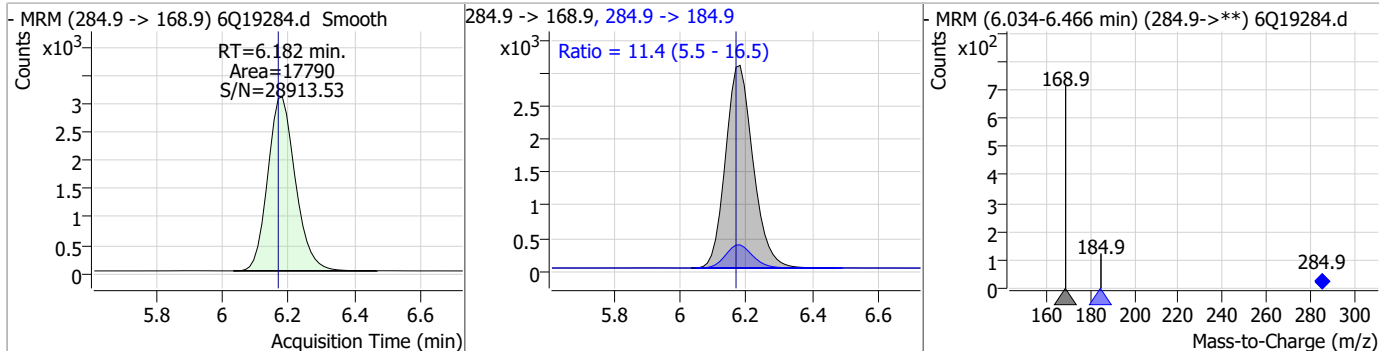
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.07	6.18	0.01	34010				



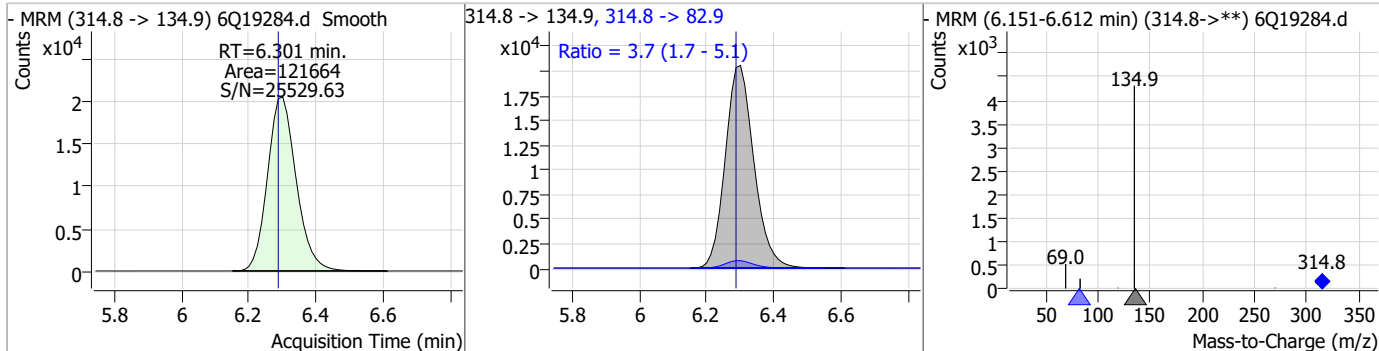
7.7.16
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Perfluorinated Compounds by LC/MS/MS

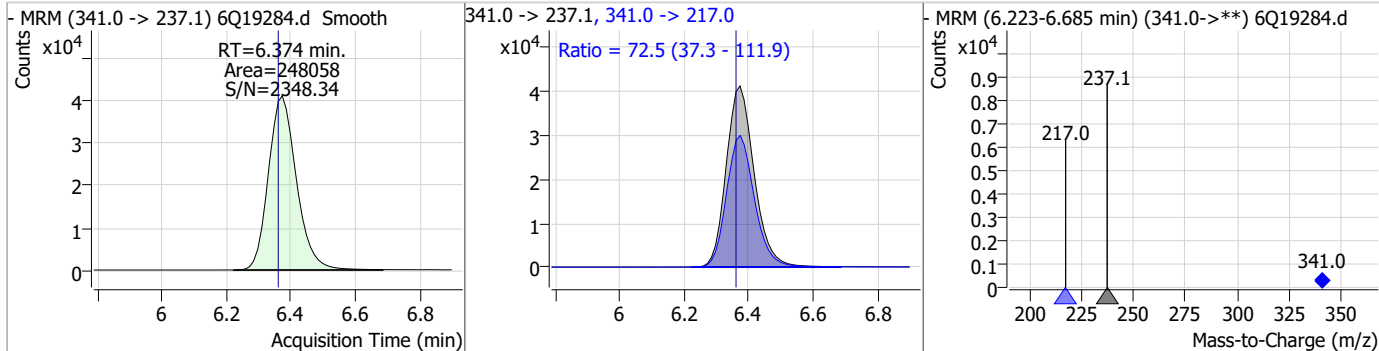
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.82	6.18	0.01	17790	284.9 -> 184.9	11.4	5.5	16.5



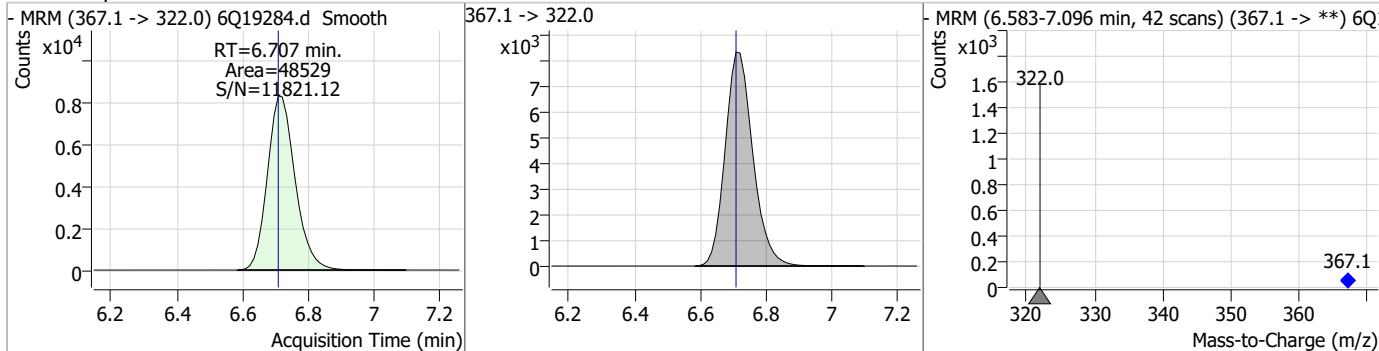
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.25	6.30	0.01	121664	314.8 -> 82.9	3.7	1.7	5.1



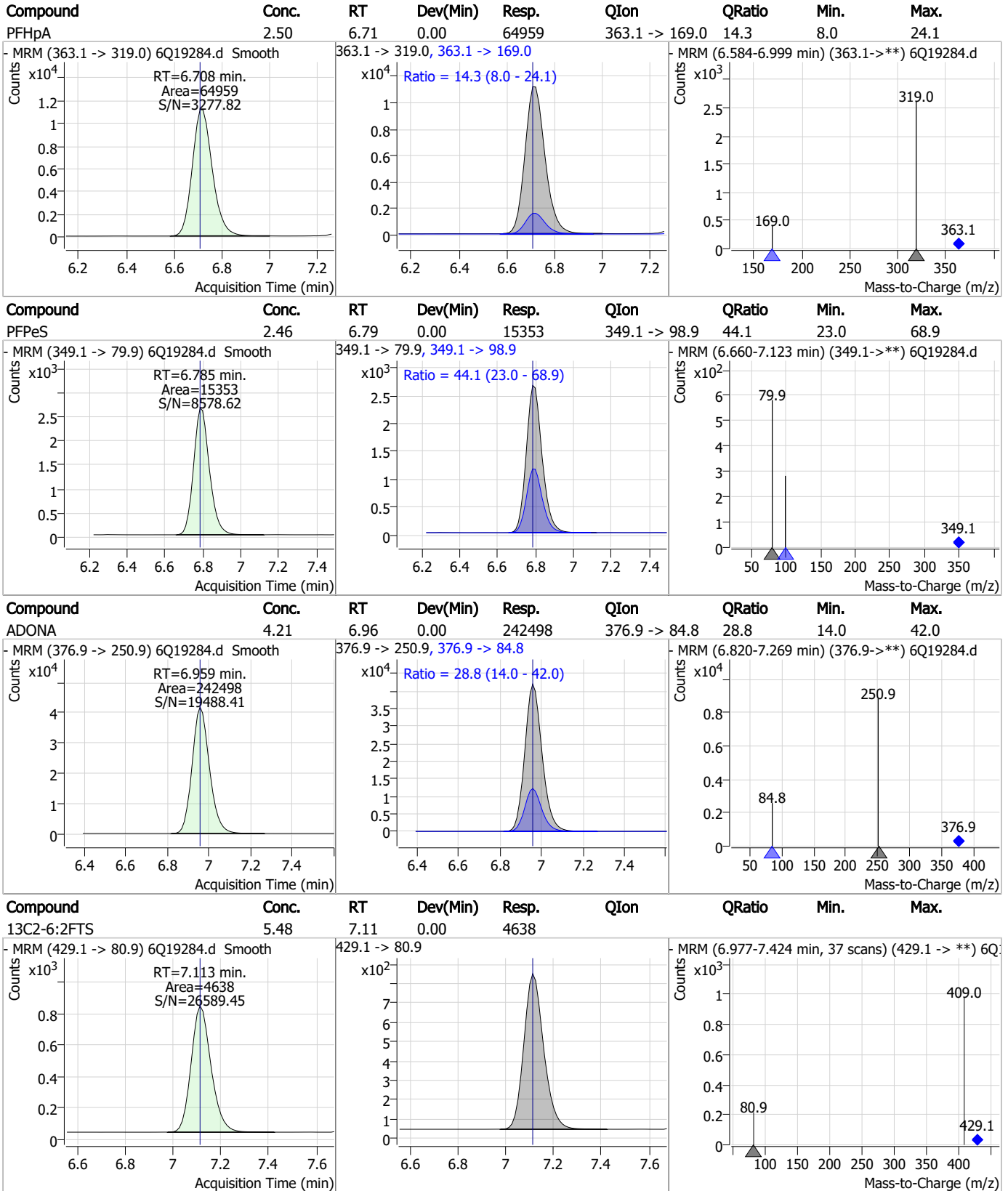
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	55.03	6.37	0.01	248058	341.0 -> 217.0	72.5	37.3	111.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.45	6.71	0.00	48529	367.1 -> 322.0			



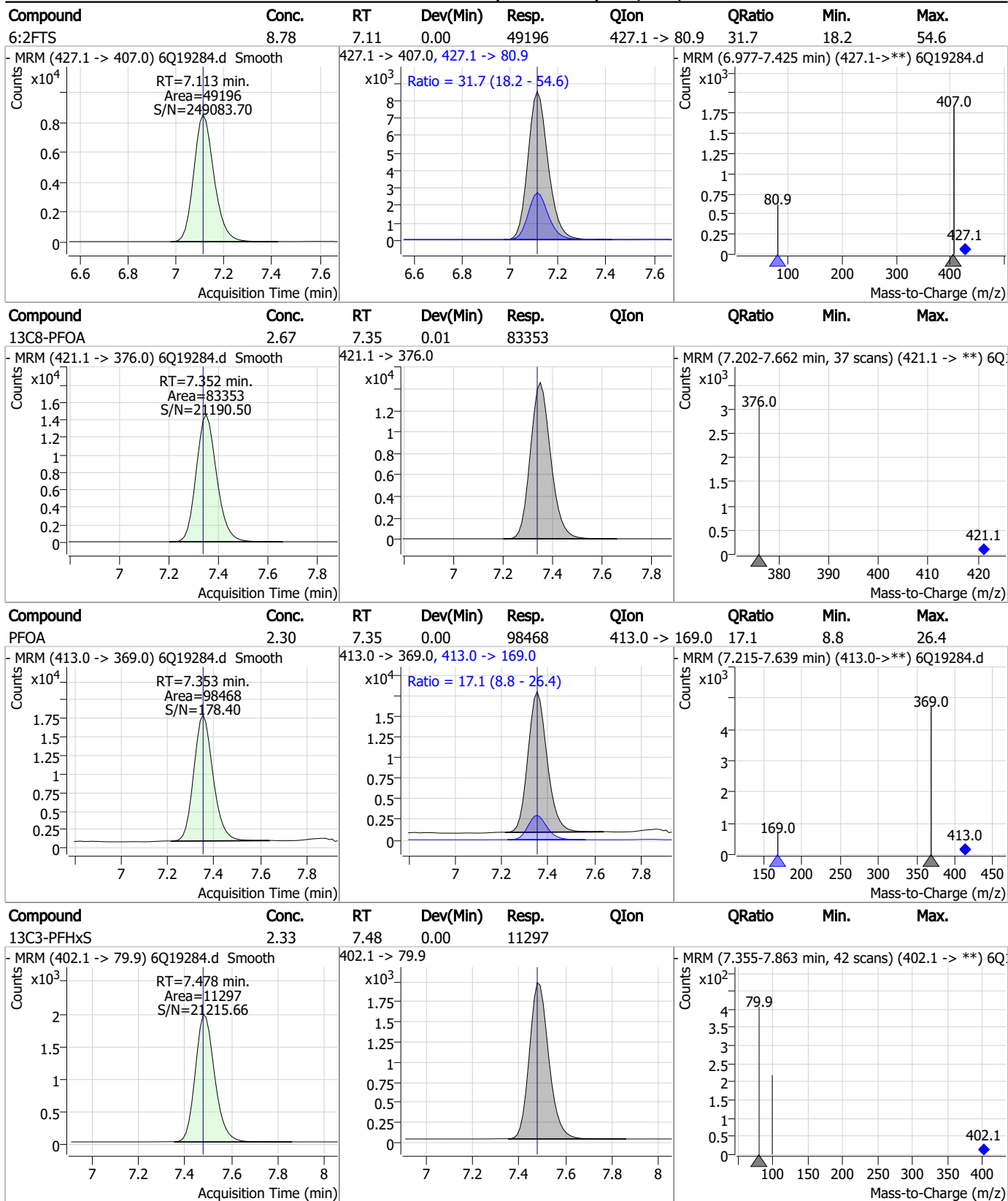
Perfluorinated Compounds by LC/MS/MS



7.7.16
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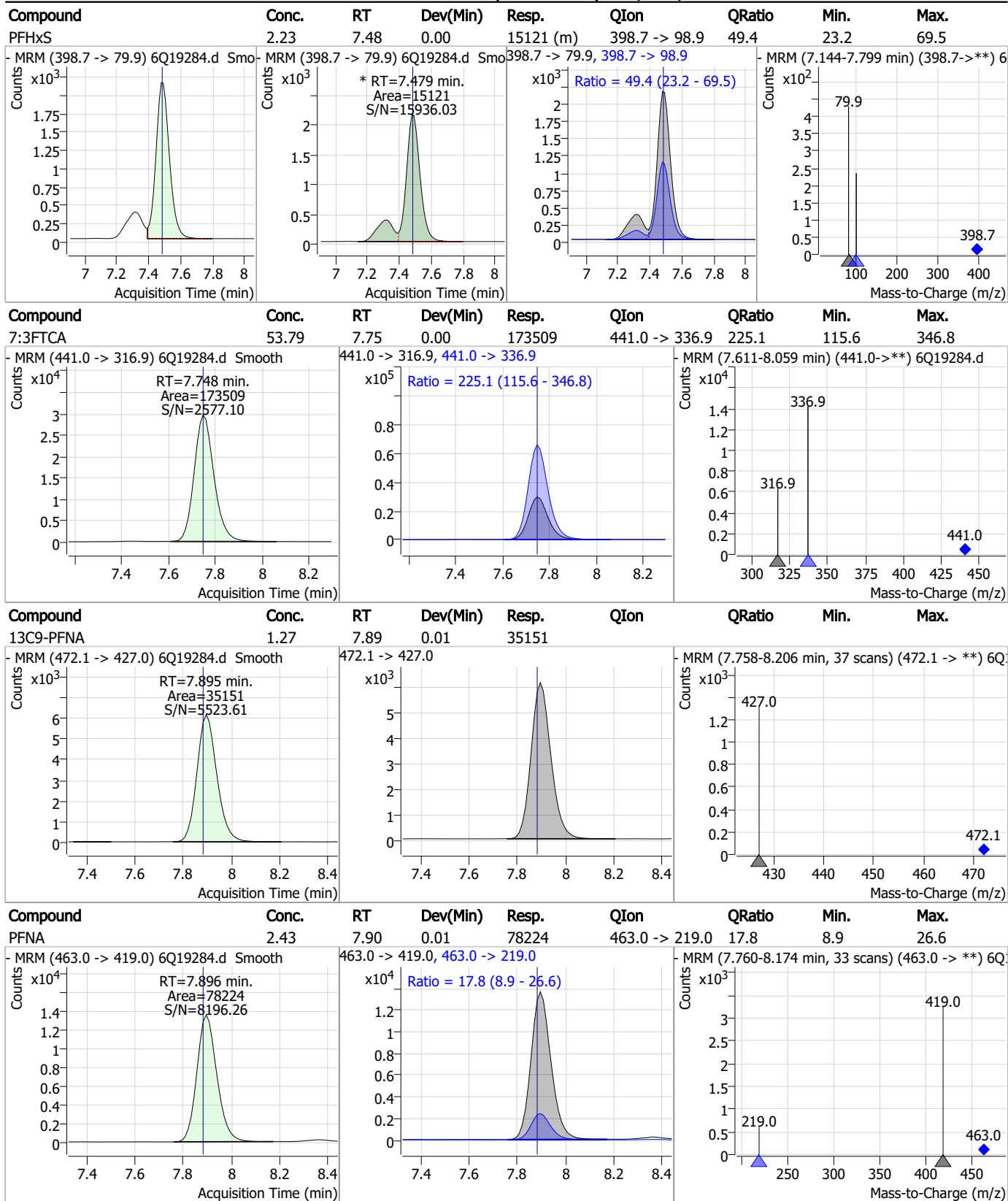


Perfluorinated Compounds by LC/MS/MS



7.7.16
7

Perfluorinated Compounds by LC/MS/MS



7.7.16
7

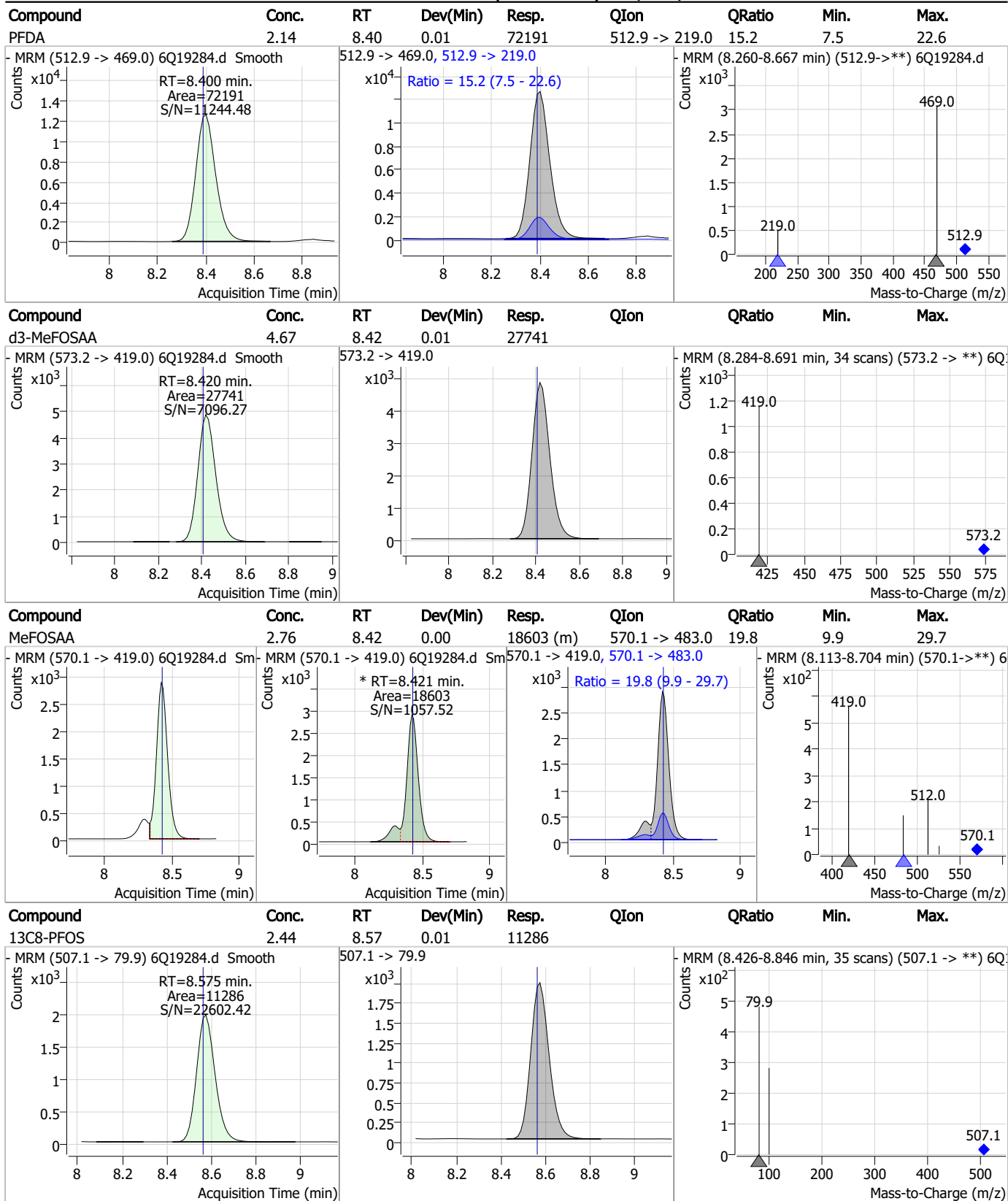
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.19	8.06	0.01	14883	449.0 -> 98.9	50.7	24.5	73.5
13C2-8:2FTS	4.61	8.18	0.01	3737	529.1 -> 80.9	37.3	19.7	59.1
8:2FTS	10.63	8.18	0.01	26427	527.1 -> 80.8	37.3	19.7	59.1
13C6-PFDA	1.43	8.40	0.01	22552	519.1 -> 474.1	37.3	19.7	59.1

7.7.16 7



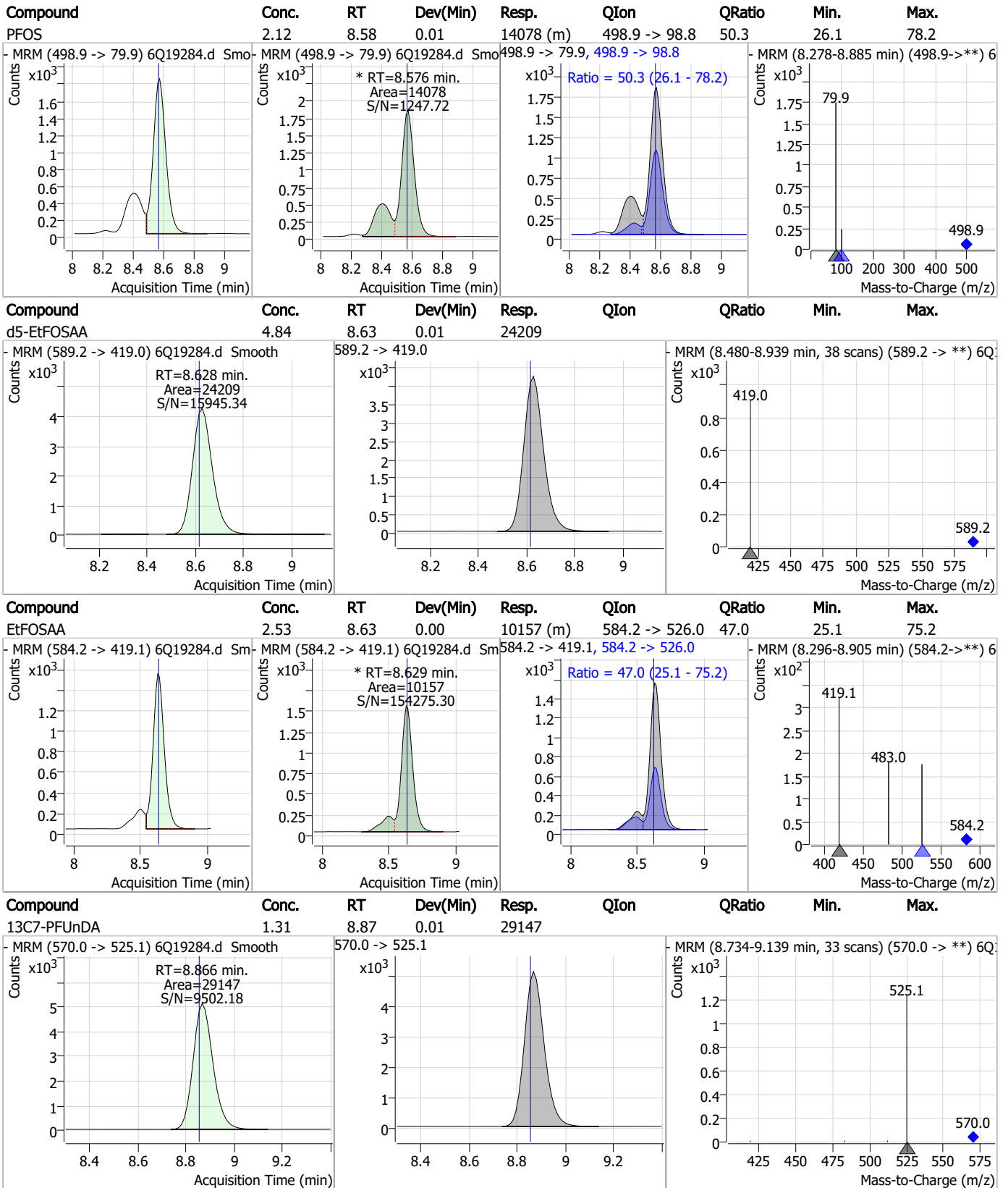
Perfluorinated Compounds by LC/MS/MS



7.7.16

7

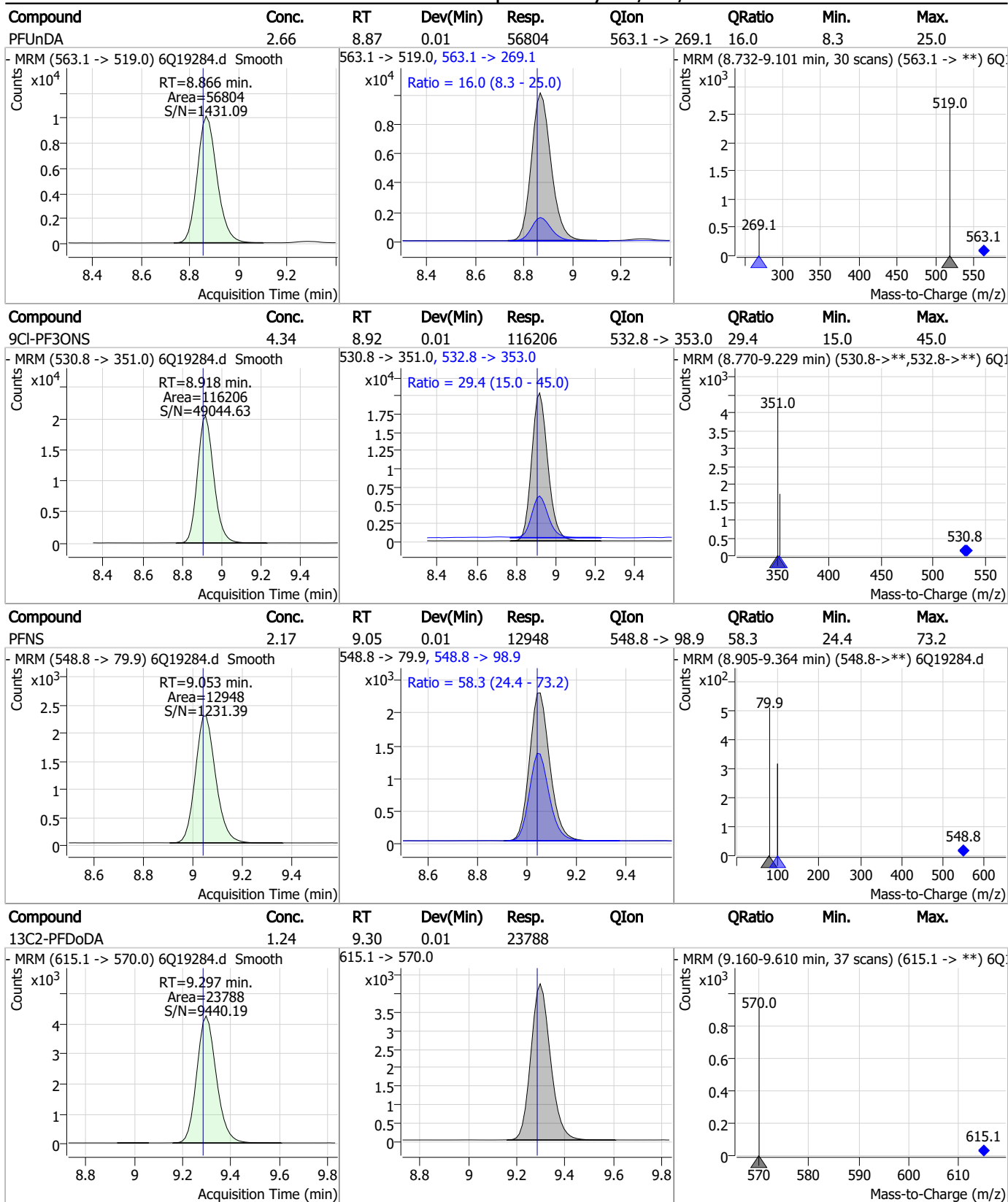
Perfluorinated Compounds by LC/MS/MS



7.7.16
7



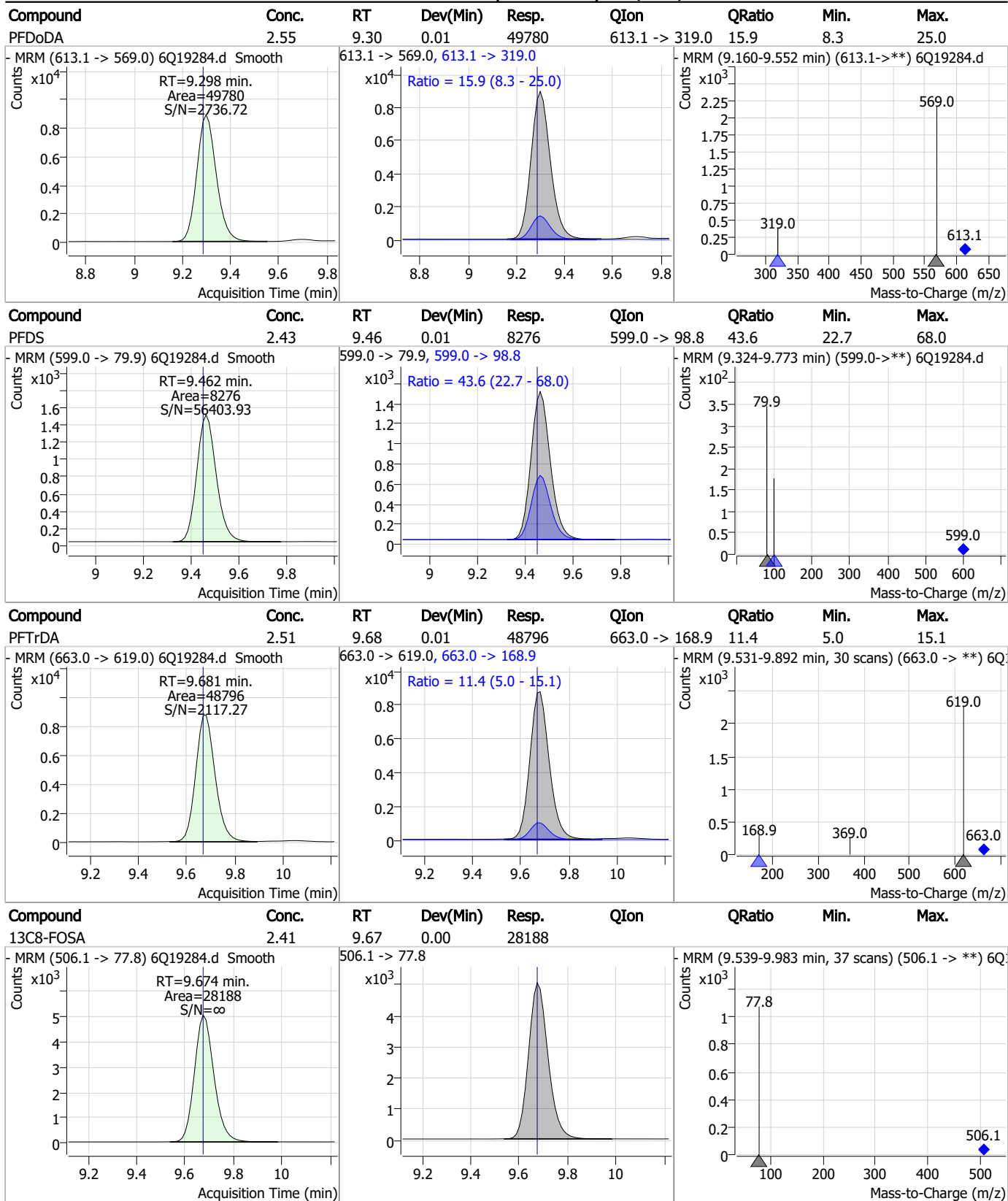
Perfluorinated Compounds by LC/MS/MS



7.7.16

7

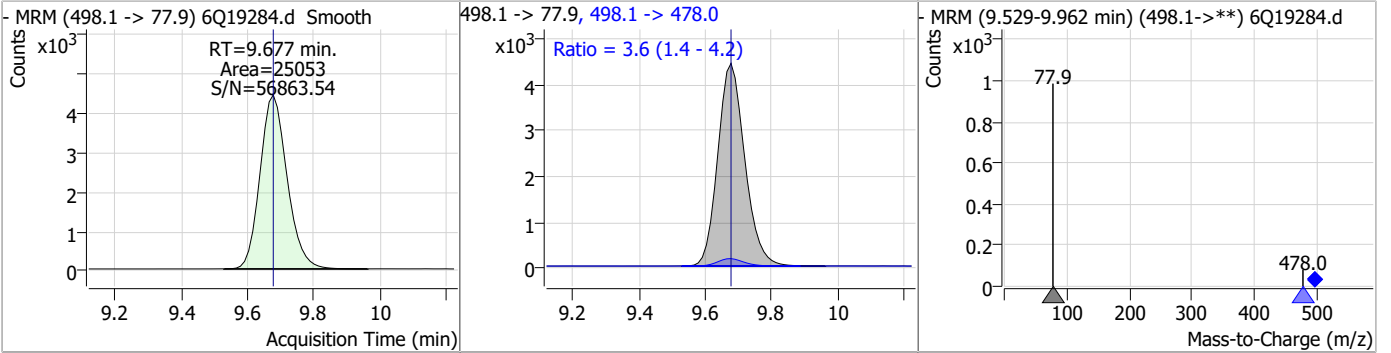
Perfluorinated Compounds by LC/MS/MS



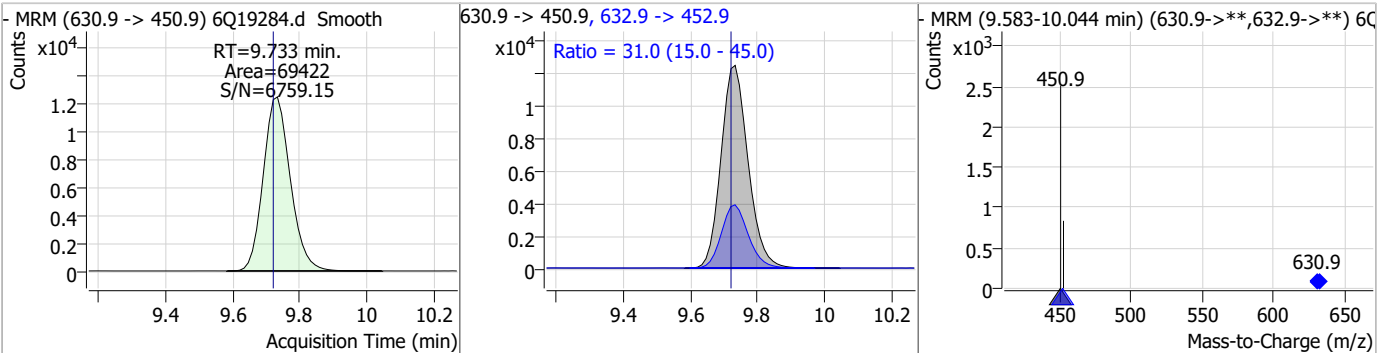
7.7.16
7

Perfluorinated Compounds by LC/MS/MS

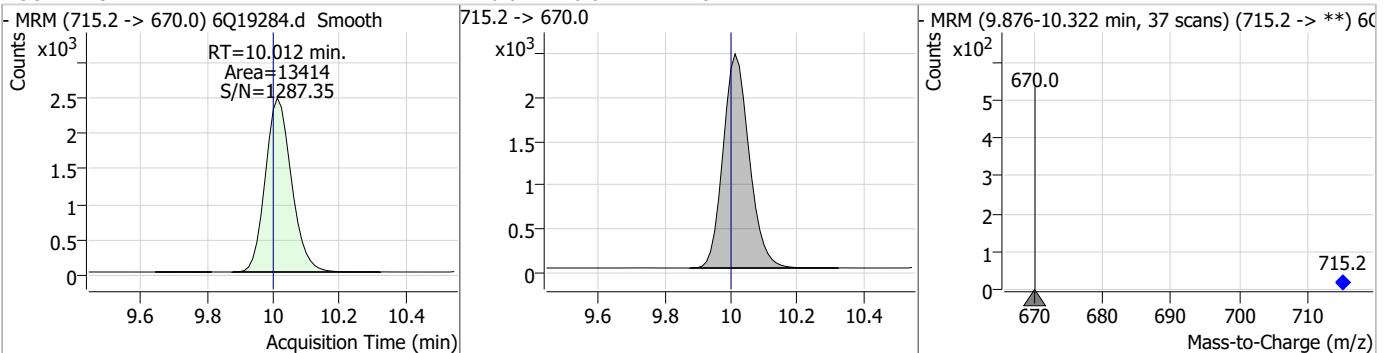
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.17	9.68	0.00	25053	498.1 -> 478.0	3.6	1.4	4.2



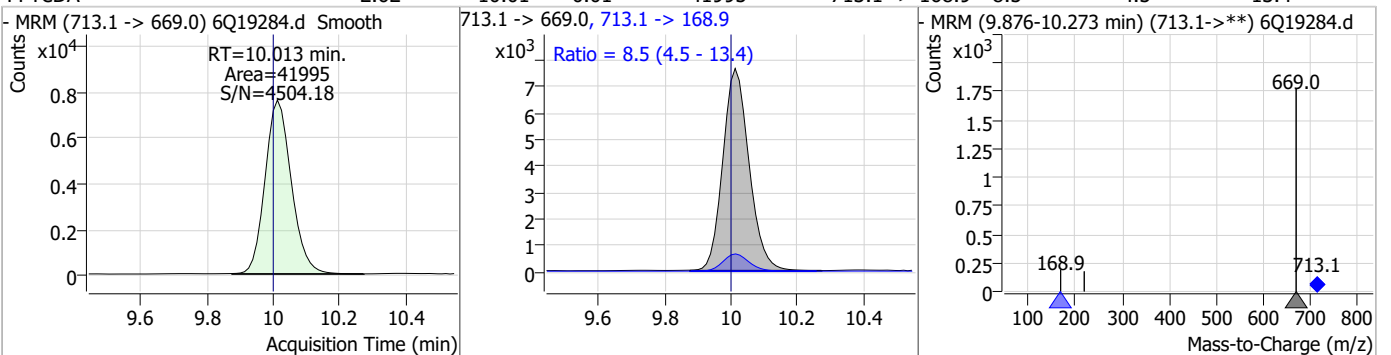
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	4.33	9.73	0.01	69422	632.9 -> 452.9	31.0	15.0	45.0



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



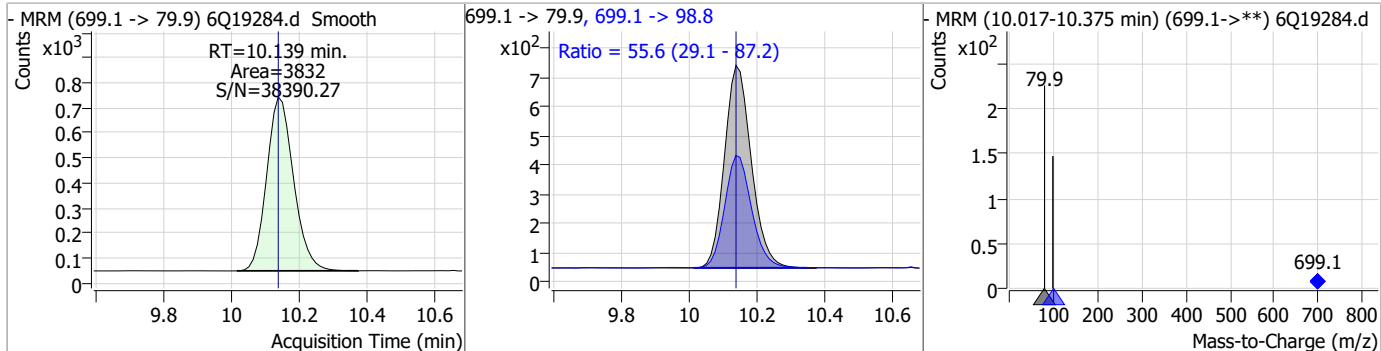
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.62	10.01	0.01	41995	713.1 -> 168.9	8.5	4.5	13.4



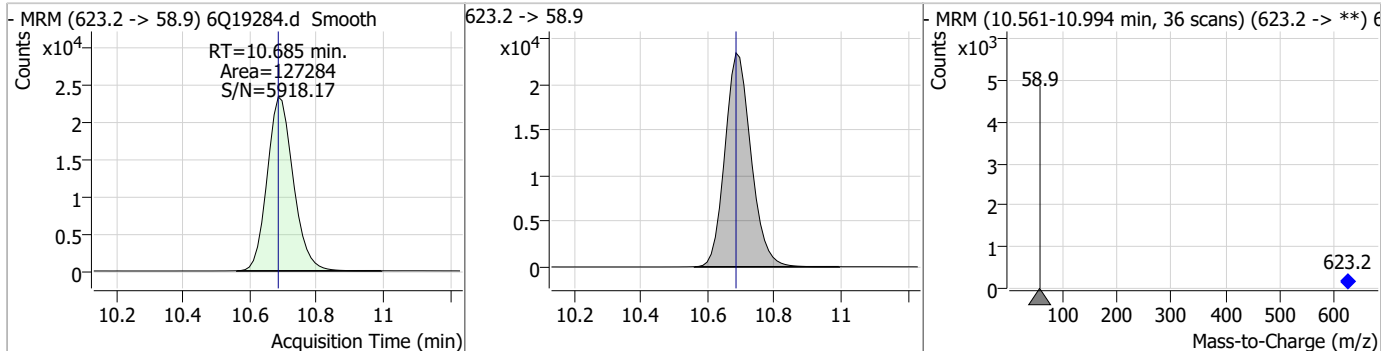
7.7.16 7

Perfluorinated Compounds by LC/MS/MS

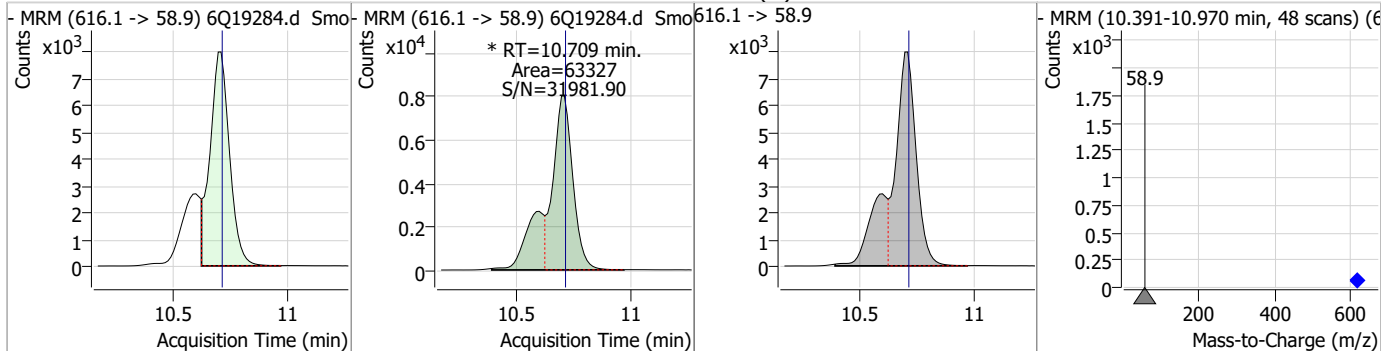
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.26	10.14	0.00	3832	699.1 -> 98.8	55.6	29.1	87.2



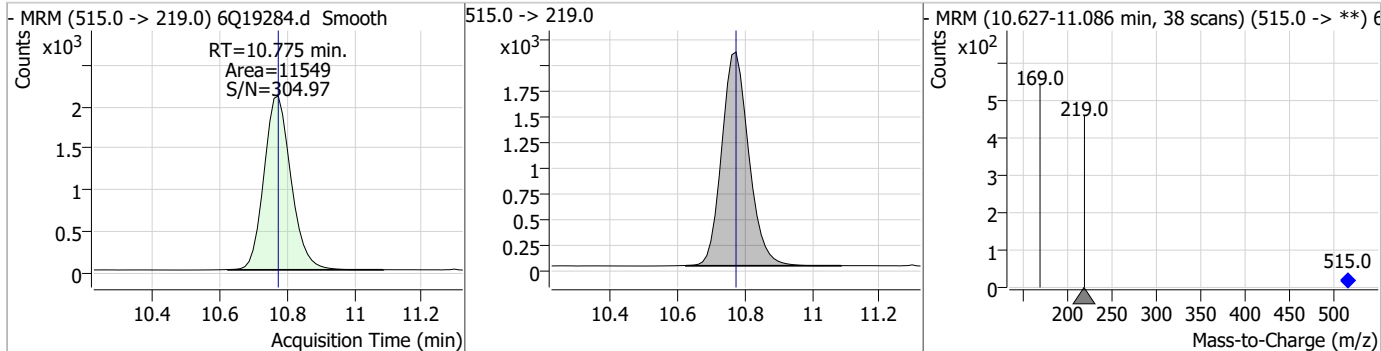
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.93	10.68	0.00	127284				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.37	10.71	0.00	63327 (m)				

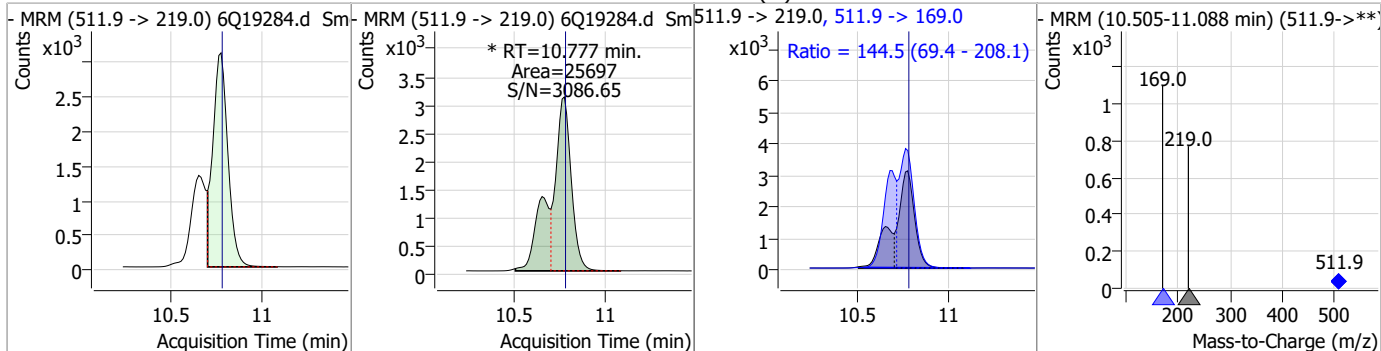


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.20	10.78	0.00	11549				

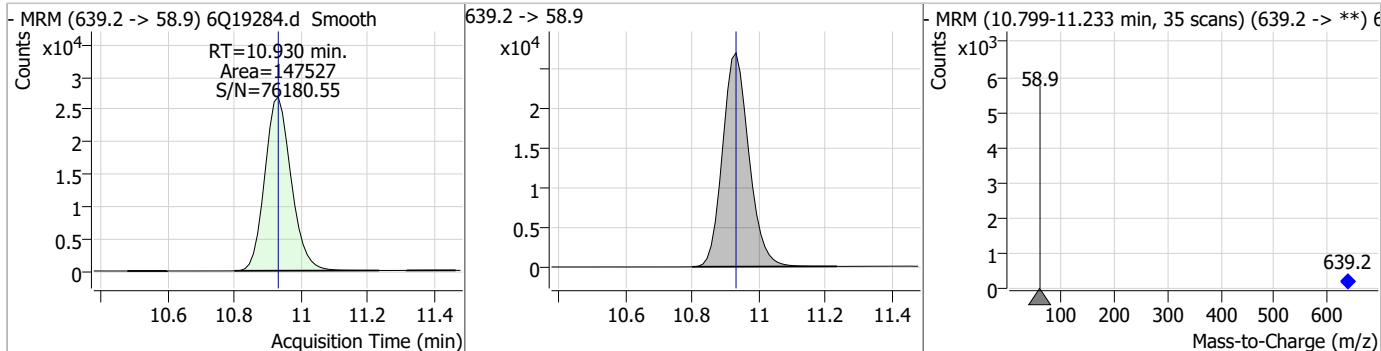


Perfluorinated Compounds by LC/MS/MS

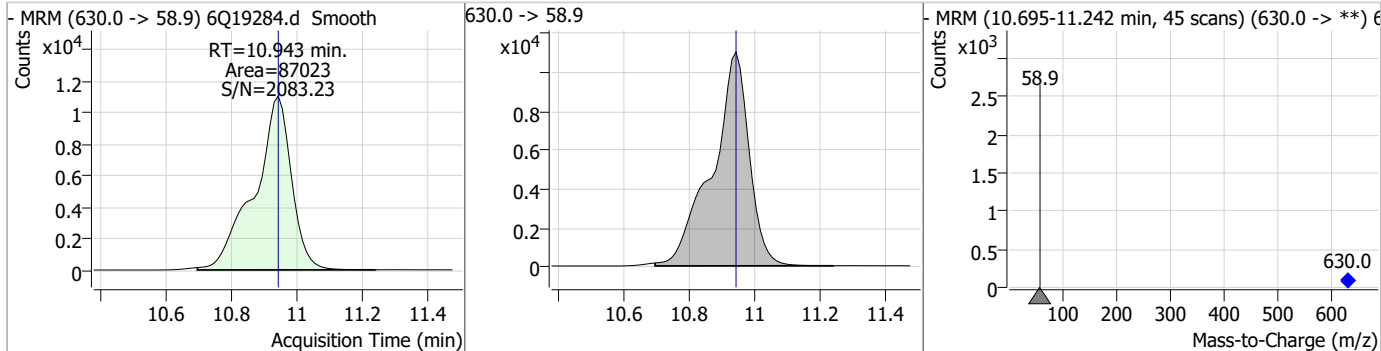
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.08	10.78	0.00	25697 (m)	511.9 -> 169.0	144.5	69.4	208.1



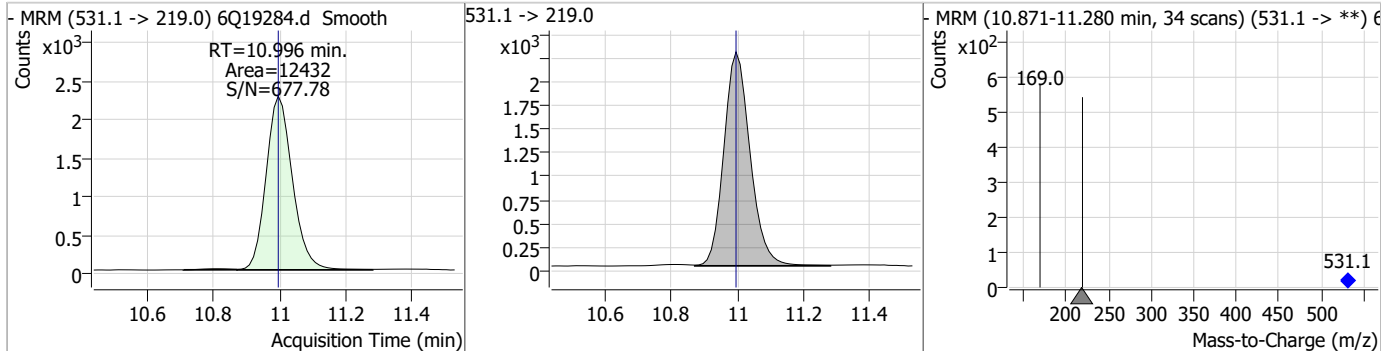
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.35	10.93	0.00	147527				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.17	10.94	0.00	87023				



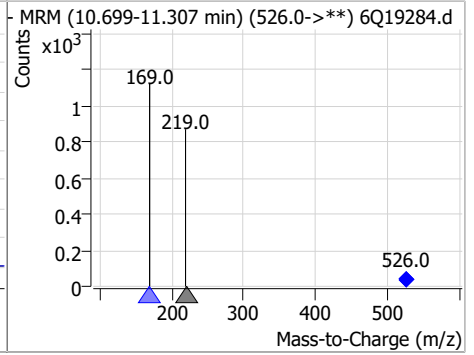
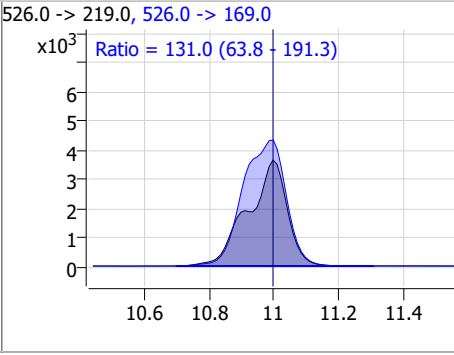
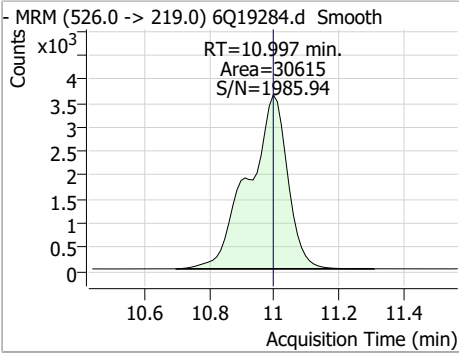
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.44	11.00	0.00	12432				



7.7.16
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	4.60	11.00	0.00	30615	526.0 -> 169.0	131.0	63.8	191.3



7.7.16
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Manual Integration Approval Summary

Sample Number: S6Q287-CC287
Lab FileID: 6Q19284.D
Injection Time: 06/13/23 02:03

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		8.58	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,SOLL	✓
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	OP97275.S6Q287.530,,,5.0,1,water	✓
48	6Q19275.d	P2-C2	op97275-dup	1633full.m	Sample	OP97275.S6Q287.570,,,5.0,1,water	✓
49	6Q19276.d	P2-C3	FC6649-5	1633full.m	Sample	OP97275.S6Q287.560,,,5.0,1,water	✓
50	6Q19277.d	P2-C4	FC6649-6	1633full.m	Sample	OP97275.S6Q287.550,,,5.0,1,water	✓
51	6Q19278.d	P2-C5	FC6651-1	1633full.m	Sample	OP97275.S6Q287.560,,,5.0,1,water	✓
52	6Q19279.d	P2-C6	FC6651-2	1633full.m	Sample	OP97275.S6Q287.520,,,5.0,1,water	✓
53	6Q19280.d	P2-C7	FC6651-3	1633full.m	Sample	OP97275.S6Q287.560,,,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 5/1.420	100ppb	05/16/23	11/02/23	NG
		11432	N-Me- FOSA-M	wellington Labs	02/18/27	03/16/24	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		03/18/27	04/18/24								NG
LCMS 2123-2124	1633 opike Cal std.	11799B	PFAC MXH	wellington	4/19/28	5/22/23 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	5/22/23 5-15-24	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	(10PTO) PFC ID SURF	11669	PFAC-2YES	Wellington Labs	01/18/23	03/28/24	1.0ppm	2.4mL	~50mL	0.5ppm	1633 MIX	03/28/23	09/28/23	NS
↓	↓	11585	PFAC-DA	↓	11/08/23	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
↓	↓	11431	PFAC-d-N	↓	05/06/23	03/13/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
LCMS 20940 A-B	1633 spike Cal std.	11672	PFAC-MxH	Wellington Labs	8/8/27	3/23/24	1-4 ppm	250uL	4mL	02.5 125 250ppb	1633 MIX	3/30/23	9/30/23	MU
↓	↓	11686	PFAC-MxI	↓	2/27/28	3/30/24	170 ppm	250uL	↓	↓	↓	↓	↓	↓
↓	↓	11674A	PFAC-MxH	↓	1/11/25	3/23/24	2ppm	500uL	↓	250ppb	↓	↓	↓	↓
↓	↓	11674B	PFAC-MxH	↓	12/11/27	3/30/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11675	PFAC-MxG	↓	9/14/26	3/23/24	4-20 ppm	312uL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11642B	PFAC-MxJ	↓	10/17/26	3/23/24	50ppm	200uL	5mL	2ppm	1633 MIX	4/6/23	10/28/23	MU
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	↓	10/17/27	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓					4/6/27								

* tested by S6Q 10/27

* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-icms std prep log.xls 030819



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 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
↓	↓	2067	40 LIST Aq. sol.	SGS old.	—	8/23/23	1.0ppm	400uL	↓	↓	↓	↓	↓	↓
↓	↓	2117	40 LIST Aq. sol.	↓	—	11/8/23	1.0ppm	400uL	↓	↓	↓	↓	↓	↓
↓	↓	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	Wellington	4/19/28	5/22/24	1-4 ppm	2.5uL	4mL	62.5 125 250ppb	1033 MIX (2688mL)	5/24/23	10/28/23	MW
↓	↓	11807	MxH	Wellington	4/19/28	5/24/24	2 ppm	↓	↓	125 250ppb	↓	↓	↓	↓
↓	↓	LCMS 2097A-B	BE 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	5/22/24	2 ppm	↓	↓	125ppb	↓	↓	↓	↓
↓	↓	11809	PFAC Mx G	↓	3/28/28	5/24/24	4-20 ppm	3/2uL	↓	3/2 1/60ppb	↓	↓	↓	↓
LCMS 2128A-J	PRC ID SURT (10 PPB)	11819	MPAC - 24ES	Wellington Labs	01/18/28	06/10/24	1.0ppm	1.2mL	~2.5mL	0.5ppm	951MEOH 571H2O	06/10/23	10/28/23	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.

ORLD-QAC-0017-6-03-FORM-icms std prep log.xls 030819



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 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-OPFPA											
					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

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 2115	40 Sum Add-on 1510 mix	11523	Mefose	Wellington	1/23/27	5/9/24	50ppm	200uL	2 mL	(15) 5ppm	95% MeOH 5% H2O	5/9/23	8/23/23	MU
		11460	d9-N Etfose		1/27/27	12/6/23		200uL		5ppm				
		11115	M2- PFHDA		11/23/28	8/23/23		40uL		1ppm				
		10836	D-N- Etfosa		12/30/25	8/23/23		40uL		1ppm				
LCMS 2116	Full List (40) Spike (Cal. Std)	11053	PFOA 200 28 Comp.	Absolute	11/9/27	4/18/24	1.0ppm	400uL	4.0mL	100ppb	95% MeOH 5% H2O (2, 400ml)	5/9/23	8/23/23	MU
		LCMS 2067	40 List Add on #1			8/23/23	1.0ppm	400uL						
		LCMS 2117	40 List Add on #2			5/18/23	1.0ppm	400uL						
		LCMS 2054	FOSC Std.			7/24/23	5.0ppm	400uL		500ppb				
LCMS 2117	40 List Add on #2	11250	FOSA-1	Wellington	11/10/26	11/8/23	50ppm	80uL	4.0mL	1ppm	95% MeOH 5% H2O	5/9/23	11/8/23	MU
		11249	FHXGA-1		2/29/26	11/3/23	50ppm	80uL						
		11140B	L-PFAS		7/12/26	5/9/24	50ppm	80uL						
LCMS 2118 A	PFC ID Sum (10ppb)	11775A	MPFAC 24 ES	Wellington	1/18/28	5/10/24	1.0ppm	2.4mL	5.0mL	0.5ppm	95% MeOH 5% H2O	5/10/23	11/10/23	MU
		1635A	M3HPO DA		11/8/25	4/24/24	50ppm	48uL						
		11431	d-1 Methosm		5/6/27	3/15/24	50ppm	48uL						
						05/12/23								

* 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 2098A	1033 spike Cal std.	11672A	PFAC MxH	Wellington	8/8/24	3/23/24	1-4 ppm	2.50mL	4mL	6.25 250ppb	1033 mix	4/16/23	10/6/23	MU
LCMS 2097		LCMS 2097	Er-In Et. Me	SGS	1/9	10/28/23	3ppm	2.50mL		125ppb				
LCMS 11674B		11674B	PFAC MxH	Wellington	11/1/25	3/30/24	2ppm	500uL		350ppb				
LCMS 11675		11675	PFAC MxG		12/1/27	3/30/24	2ppm	2.50mL		125ppb				
LCMS 11672B		11672B	PFAC MxJ		9/14/26	3/23/24	4-20 ppm	312uL		312/1100 ppb				
LCMS 2099	537.1 DW std. (Interim)	11670	M3PF-PEA	Wellington Labs	07/06/25	04/06/24	50ppm	80uL	4mL	10ppm	96:1 MeOH 4:1 H2O	04/16/23	06/15/23	NG
LCMS 10436A		10436A	M302a FTS		11/05/25	04/06/24		80uL		10ppm				NG
LCMS 10528B		10528B	D3-N-MEFOAA		10/22/25	05/15/23		160uL		20ppm				NG
LCMS 10498A		10498A	M3FOS		11/02/25	07/22/24		80uL		10ppm				NG
LCMS 11669		11669	M3RFA		12/01/26	03/20/24		80uL		10ppm				NG
LCMS 2098	Full List (40)	11626	PF0A DEP 28 Comp.	Absolute	11/9/27	4/11/24	1.0ppm	400uL	4.0mL	100ppb	75% MeOH 5% H2O (2.40031)	4/11/23	7/24/23	MU
LCMS 2070	List 40 spike (Std)	LCMS 2067	40 List ADP FN	SGS add.		8/23/23	1.0ppm	400uL						
LCMS 2076		LCMS 2076	40 List ADP FN			5/12/23	1.0ppm	400uL						
LCMS 2054		LCMS 2054	F05F Std.			7/24/23	5.0ppm	400uL		50ppb				
LCMS 11336	F05F std.	11336	N-et F05F	Wellington	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	9/11/23	9/19/23	MU
LCMS 11338		11338	N-me f05F		5/13/27	9/19/23	50ppm	200uL						

* based on date opened as specified in each SGS - Orlando SOP. (1,000)

ORLD-QAC-0017-6-03-FORM-icms std prep log.xls 030819

10685A



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FPePA

LOT NUMBER:

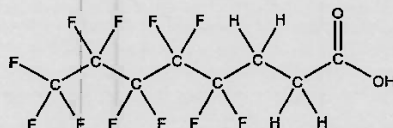
FPePA1120

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 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/11/2020

EXPIRY DATE: (mm/dd/yyyy)

11/11/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 5:3 telomer acid ($C_8H_3F_{11}O_2$) as an impurity determined by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

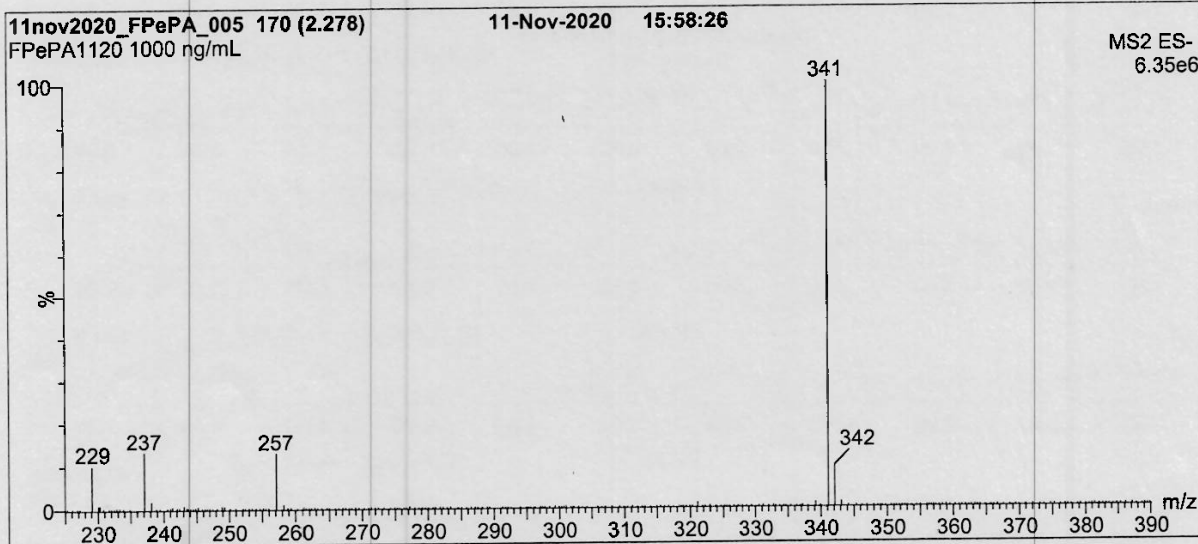
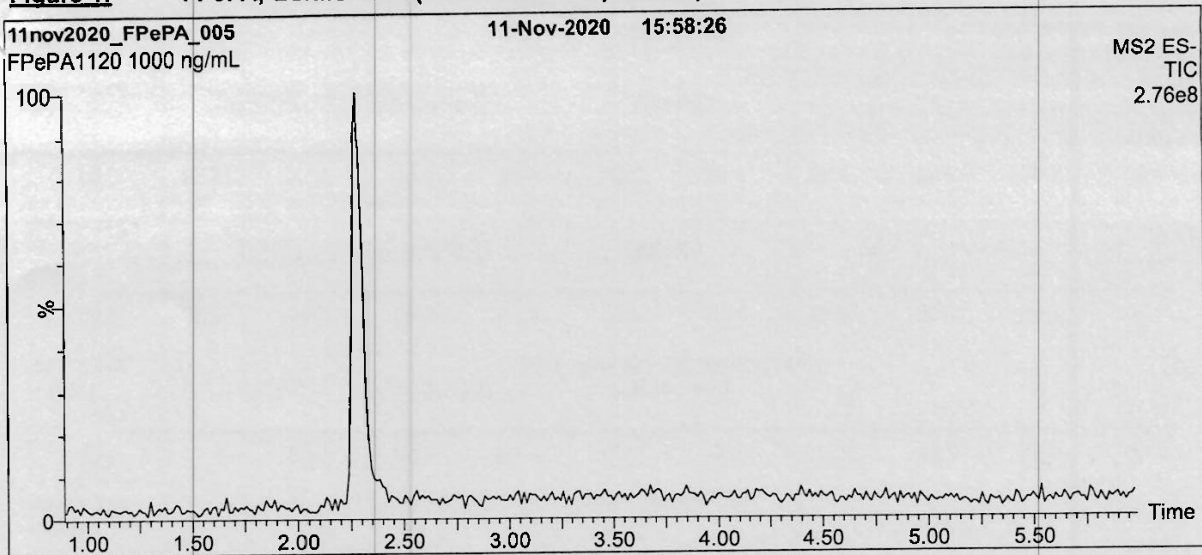
B.G. Chittim, General Manager

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

10726 A

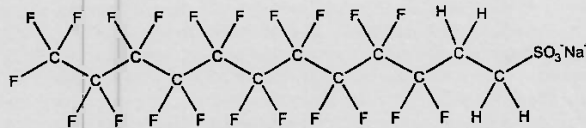


WELLINGTON LABORATORIES

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

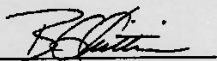
DOCUMENTATION/ DATA ATTACHED:

- 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)

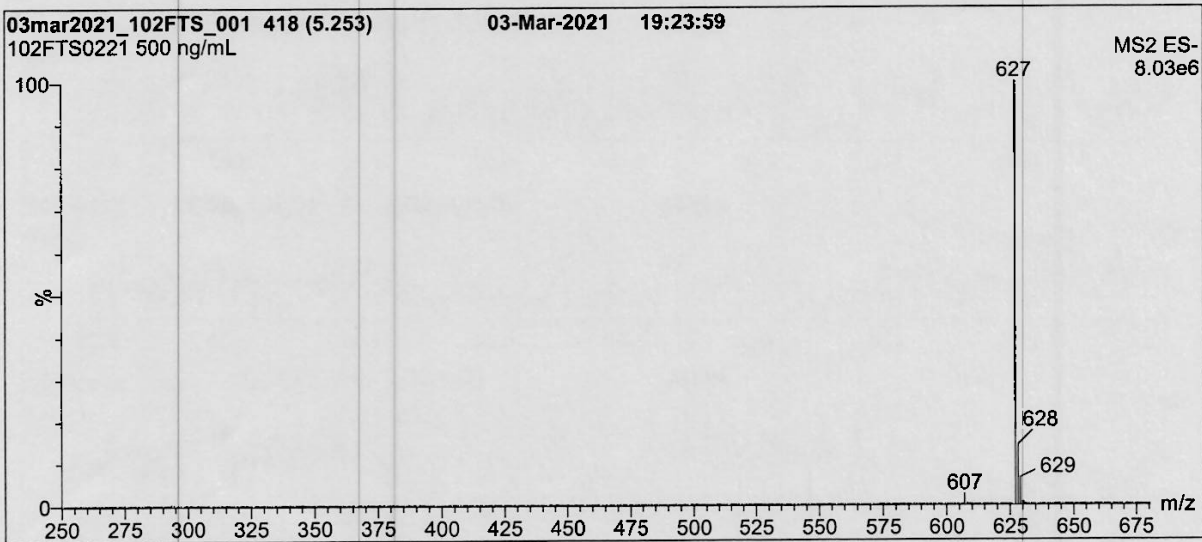
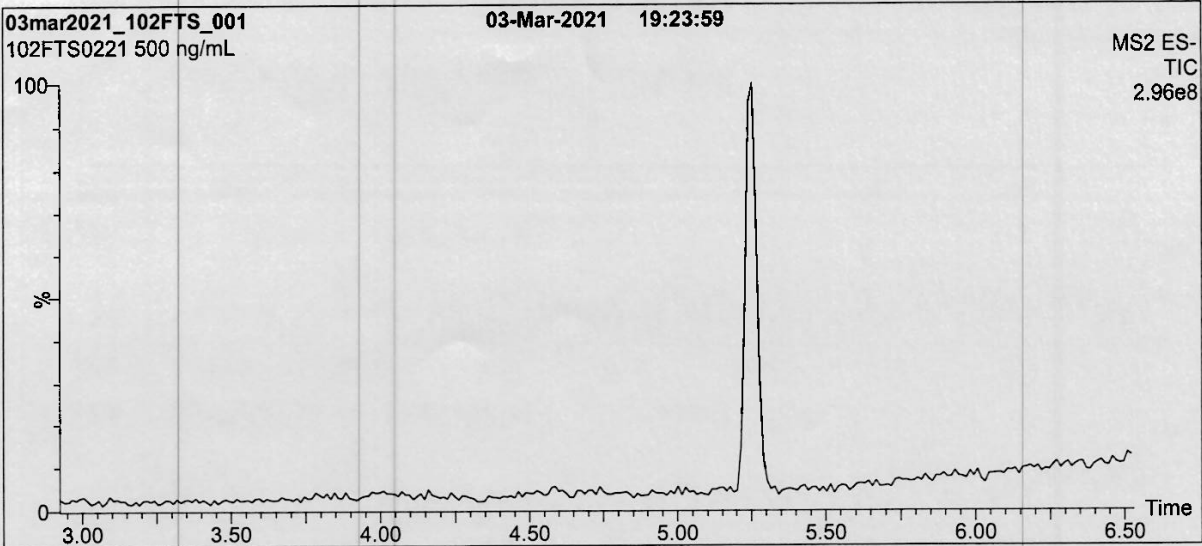
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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

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

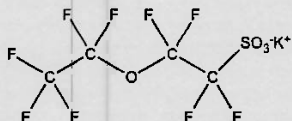
10762 A-B



WELLINGTON LABORATORIES

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 **MOLECULAR WEIGHT:** 354.19
CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol
 44.6 ± 2.2 µg/ml (PFEESA acid)
 44.5 ± 2.2 µg/ml (PFEESA anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/13/2020
EXPIRY DATE: (mm/dd/yyyy) 05/13/2025
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

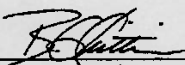
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
 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

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10763 A-B



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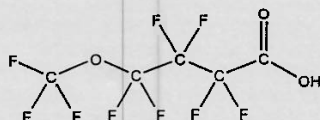
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF5OHxA *res'd with 8/20/21* **LOT NUMBER:** PF5OHxA0320

COMPOUND: Perfluoro-5-oxahexanoic acid

SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)

STRUCTURE: **CAS #:** 863090-89-5



MOLECULAR FORMULA: C₅HF₉O₃ **MOLECULAR WEIGHT:** 280.05

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

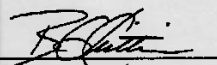
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 12/21/2020
(mm/dd/yyyy)

B.G. Chittim, General Manager

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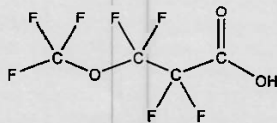
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

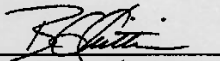
DOCUMENTATION/ DATA ATTACHED:

- 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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Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

PF4OPeA0320 (1 of 4)
rev1

7.9.1

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

*rec'd
WPH
8/20/21*

LOT NUMBER:

36OPFHpA0320

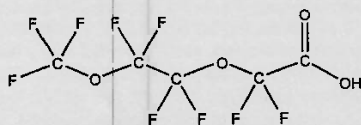
COMPOUND:

Perfluoro-3,6-dioxahexanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₁₀O₄

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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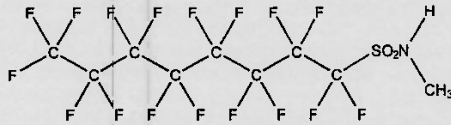
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

LOT NUMBER: NMeFOSA0721M

STRUCTURE:

CAS #: 31506-32-8



rec'd
WPA
10/5/21

MOLECULAR FORMULA: C₉H₄F₁₇NO₂S
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/03/2021
EXPIRY DATE: (mm/dd/yyyy) 08/03/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 513.17
SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: 
B.G. Chittim, General Manager

Date: 08/04/2021
(mm/dd/yyyy)

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Revision#:9, Revised 2020-12-23

NMeFOSA0721M (1 of 4)
rev0

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

10837

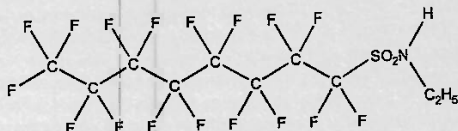
LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA:

C₁₀H₉F₁₇NO₂S

MOLECULAR WEIGHT:

527.20

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/12/2021

EXPIRY DATE: (mm/dd/yyyy)

08/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

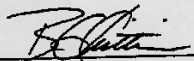
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:


B.G. Chittim, General Manager

Date: 08/16/2021

(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

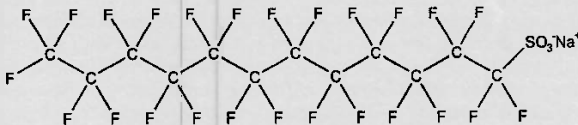
10840

PRODUCT CODE: L-PFDoS
COMPOUND: Sodium perfluoro-1-dodecanesulfonate

LOT NUMBER: LPFDoS0721

STRUCTURE:

CAS #: 1260224-54-1



MOLECULAR FORMULA: C₁₂F₂₅SO₃Na
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt)
48.5 ± 2.4 µg/mL (PFDoS acid)
48.4 ± 2.4 µg/mL (PFDoS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/09/2021
EXPIRY DATE: (mm/dd/yyyy) 07/09/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 722.14
SOLVENT(S): Methanol


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.2% of perfluoro-n-dodecanoic acid (PFDoA).

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Certified By: 
B.G. Chittim, General Manager
Date: 07/16/2021
(mm/dd/yyyy)

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Revision#: 9, Revised 2020-12-23

LPFDoS0721 (1 of 4)
rev0

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CERTIFICATE OF ANALYSIS DOCUMENTATION

10847 NG 01/18/23

PRODUCT CODE:

PFODA

LOT NUMBER:

PFODA0821

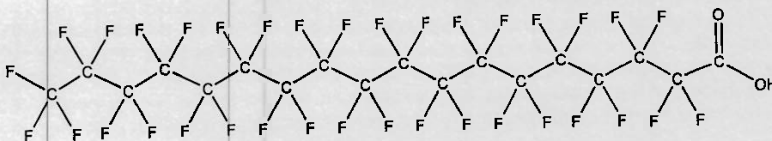
COMPOUND:

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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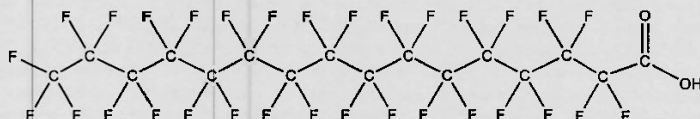
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

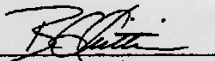
DOCUMENTATION/ DATA ATTACHED:

- 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.

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Certified By:  **Date:** 05/25/2021
 B.G. Chittim, General Manager (mm/dd/yyyy)

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1116B on the back NW



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PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

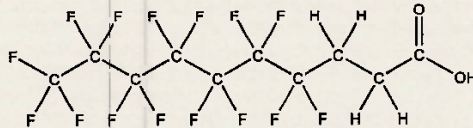
COMPOUND:

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

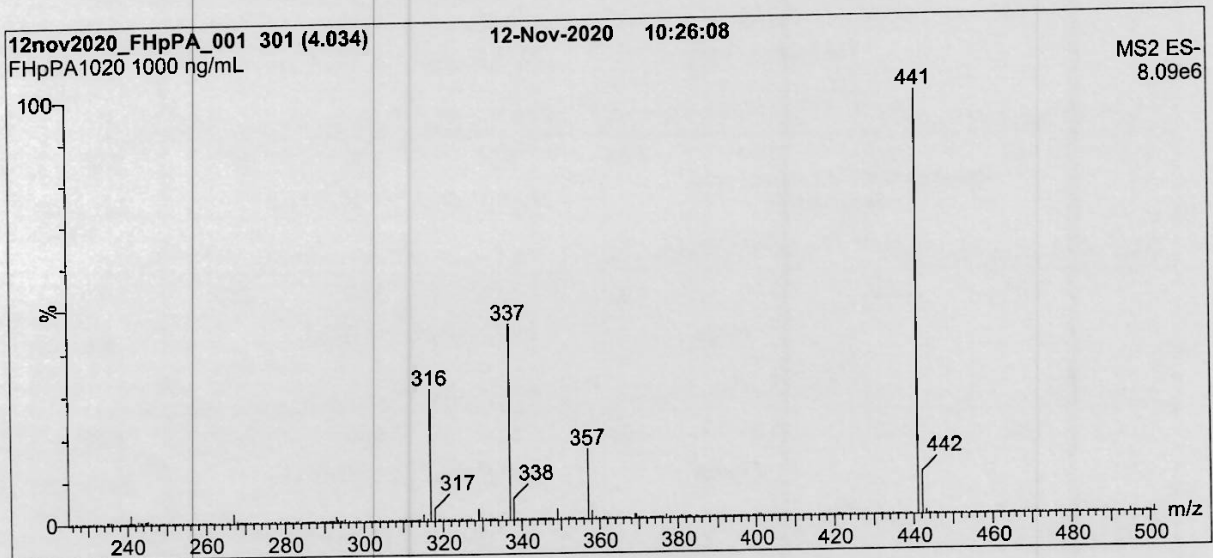
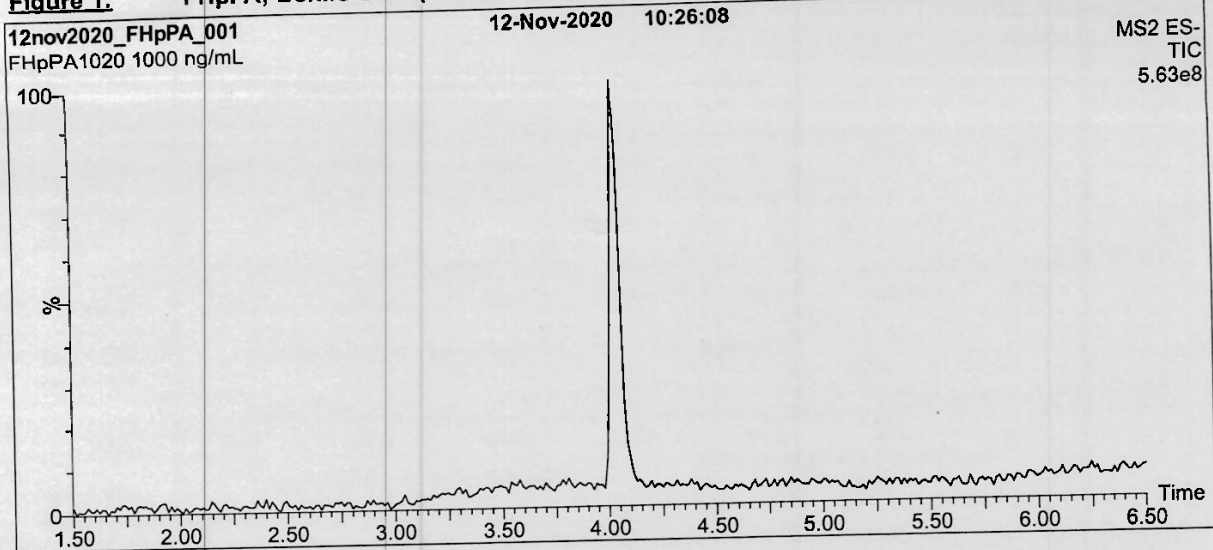
Date: 11/27/2020

(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

FPrPA(3:3FTCA) 1116 B



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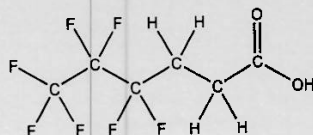
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

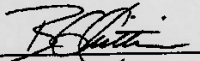
DOCUMENTATION/ DATA ATTACHED:

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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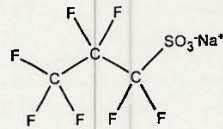
CERTIFICATE OF ANALYSIS DOCUMENTATION

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)
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

MOLECULAR WEIGHT: 272.07
SOLVENT(S): Methanol

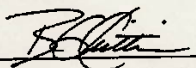
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: 
B.G. Chittim, General Manager

Date: 08/04/2021
(mm/dd/yyyy)

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Revision#:9, Revised 2020-12-23

LPFPrS0721 (1 of 4)
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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

LOT NUMBER:

FHxSA12211

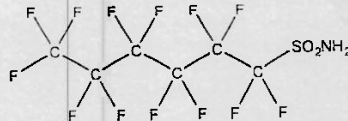
COMPOUND:

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:

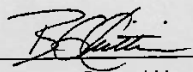
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:


B.G. Chittim, General Manager

Date: 01/10/2022

(mm/dd/yyyy)

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PRODUCT CODE:

FBSA-I

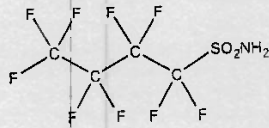
LOT NUMBER: FBSA11211

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.

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Certified By:

B.G. Chittim, General Manager

Date: 11/10/2021

(mm/dd/yyyy)

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FBSA11211 (1 of 4)
rev0

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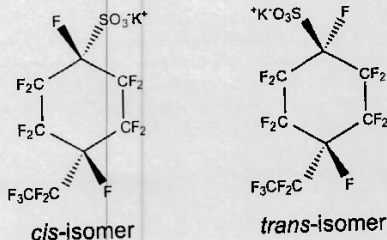
CERTIFICATE OF ANALYSIS DOCUMENTATION

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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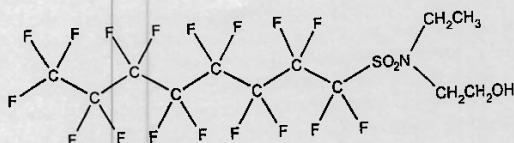
PRODUCT CODE:
COMPOUND:

N-EtFOSE-M
2-(N-ethylperfluoro-1-octanesulfonamido)ethanol

LOT NUMBER: NEtFOSE0622M

CAS #: 1691-99-2

STRUCTURE:



MOLECULAR FORMULA:

C₁₂H₁₀F₁₇NO₃S

MOLECULAR WEIGHT:

571.25

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)
05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy)

05/13/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 07/13/2022
(mm/dd/yyyy)

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NEtFOSE0622M (1 of 5)
rev0

Form#:27, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

11338



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

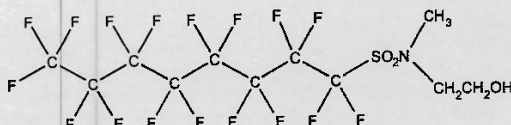
NMeFOSE0522M

COMPOUND:

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

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

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11495



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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSE

**2-(N-Ethylperfluorooctanesulfonamido)ethanol
Isomeric Mix**

<u>PRODUCT CODE:</u>	br-NEtFOSE
<u>LOT NUMBER:</u>	brNEtFOSE1022
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/12/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/12/2022 (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-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

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11497



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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSA

N-Methylperfluorooctanesulfonamide Isomeric Mix

PRODUCT CODE: br-NMeFOSA
LOT NUMBER: brNMeFOSA0822
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 08/18/2022
LAST TESTED: (mm/dd/yyyy) 08/23/2022
EXPIRY DATE: (mm/dd/yyyy) 08/23/2027
RECOMMENDED STORAGE: 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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Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

brNMeFOSA0822 (1 of 6)
rev1

11498



WELLINGTON LABORATORIES

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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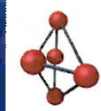
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Revision#:9, Revised 2020-12-23

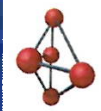
brNEtFOSA0922 (1 of 6)
rev1

7.9.1

7



Certified Reference Material CRM



MSDS Information
Formulated By: Prashant Chauhan
Reviewed By: Pedro L. Ramos

Part Number: 031323
Lot Number: 64029A
Description: Perfluorooctanoic acid (PFPOA)

Part Number: 031323
Lot Number: 64029A
Description: Perfluorooctanoic acid (PFPOA)

Expiration Date: N/A
Recommended Storage: N/A
Minimum Concentration (µg/mL): N/A

Notes: All assigned values are atom concentrations.
Volumetric shown below were combined and diluted to (mL).
Note: All assigned values are atom concentrations.

Part Number: 031323
Lot Number: 64029A
Description: Perfluorooctanoic acid (PFPOA)

Compound	Part Number	Lot Number	Dilution Factor	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Initial Final	Expanded Uncertainty	SOE Information
1. Perfluoro-n-butanoic acid (PFPSA)	99542	110422	0.02	2.00	0.017	50.1	1.00	0.02
2. Perfluoro-n-pentanoic acid (PFPPa)	99543	011723	0.02	2.00	0.017	50.3	1.01	0.02
3. Perfluoro-n-hexanoic acid (PFPPb)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02
4. Perfluoro-n-heptanoic acid (PFPPc)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02
5. Perfluoro-n-octanoic acid (PFPOA)	99202	090522	0.02	2.00	0.017	50.2	1.00	0.02
6. Perfluoro-n-nonoic acid (PFPPa)	99200	110922	0.02	2.00	0.017	50.1	1.00	0.02
7. Perfluoro-n-decanoic acid (PFPPb)	99195	110922	0.02	2.00	0.017	50.2	1.00	0.02
8. Perfluoro-n-undecanoic acid (PFPPc)	99205	071522	0.02	2.00	0.017	50.1	1.00	0.02
9. Perfluoro-n-dodecanoic acid (PFPPd)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02
10. Perfluoro-n-tridecanoic acid (PFPPe)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02
11. Perfluoro-n-tetradecanoic acid (PFPPf)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02
12. Perfluoro-1-iodo-n-tetradecanoic acid (PFPPf-I)	3677	FOSA0321	0.02	2.00	0.017	50.0	1.00	0.05
13. Methylperfluoro-n-tetradecanoic acid (PFPPf-Me)	4162	BMNFOSA042	0.02	2.00	0.017	50.0	1.00	0.05
14. Methylperfluoro-n-tetradecanoic acid (PFPPf-Me)	4163	BMNFOSA1121	0.02	2.00	0.017	50.0	1.00	0.05
15. Perfluorobutanoic acid (PFBS)	99194	060522	0.02	2.00	0.017	50.2	1.00	0.02
16. Perfluoropentanoic acid (PFPS)	99544	091522	0.02	2.00	0.017	50.1	1.00	0.02
17. Perfluorohexanoic acid (PFPH)	99198	030923	0.02	2.00	0.017	50.0	1.00	0.02
18. Perfluoroheptanoic acid (PFPP)	3672	LPFH0822	0.021	2.10	0.017	47.8	1.00	0.05
19. Perfluorooctanoic acid (PFPOA)	99201	030923	0.021	2.10	0.017	47.9	1.00	0.05
20. Perfluorononanoic acid (PFPP)	3987	LPFN0122	0.021	2.10	0.017	48.0	1.01	0.05
21. Perfluorodecanoic acid (PFPP)	3671	LPFN0122	0.021	2.10	0.017	48.2	1.01	0.05
22. Perfluoroundecanoic acid (PFPP)	68271	060522	0.02	2.00	0.017	50.2	1.00	0.05
23. 1,1,1,1,2,2,2,2-Perfluorodecanoic acid (2,2,2-F10)	3672	031023	0.02	2.00	0.017	50.2	1.00	0.05
24. 1,1,1,1,2,2,2,2-Perfluoroundecanoic acid (2,2,2-F11)	3682	8F150822	0.02	2.00	0.017	47.9	1.01	0.05
25. 2,2,2,2,4,4,4,4-Perfluorodecanoic acid (2,2,2-F10)	99598	060522	0.02	2.00	0.017	50.1	1.00	0.05
26. 2,2,2,2,4,4,4,4-Perfluoroundecanoic acid (2,2,2-F11)	4166	11CF-SOAS022	0.021	2.12	0.017	47.1	1.00	0.05
27. 2,2,2,2,4,4,4,4-Perfluorodecanoic acid (2,2,2-F10)	4164	8CF-SOAS1022	0.021	2.14	0.017	46.8	1.00	0.05
28. 2,2,2,2,4,4,4,4-Perfluoroundecanoic acid (2,2,2-F11)	4163	8CF-SOAS1022	0.021	2.12	0.017	47.1	1.00	0.05

Qualitative standard (Sect. 3.13) is available for PFPOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PCOA, or equivalent). This qualitative PFPOA standard must be purchased and used to identify the retention times of the branched PFPOA isomers. The qualitative PFPOA standard must be used in conjunction (Sect. 12.2) and a quantitative PFPOA standard containing the branched and linear isomers becomes commercially available.

Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

Notes:
 * The certified value is the concentration calculated from gravimetric and volumetric measurements under atmospheric conditions.
 * All standards are certified to 0.5% relative uncertainty, unless otherwise noted.
 * All standards are certified to 0.5% relative uncertainty, unless otherwise noted.
 * All standards, after opening ampule, should be stored with cap tightly and under appropriate laboratory conditions.
 * All standards are certified to 0.5% relative uncertainty, unless otherwise noted.
 * 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
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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: Σ branched isomers	240		17
N-Ethylperfluorooctanesulfonamidoacetic acid ^b	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: Σ 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: Σ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: Σ 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-dioxanonoate (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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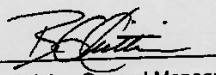
Form# 13, Issued 2004-11-10
Revision# 9, Revised 2020-12-23

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

Form#: 13, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

PFACMXG1122 (1 of 5)
rev0

7.9.1
7

Table A: PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxahexanoic acid	3,6-OPFHpA	2000		D
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

* Concentrations have been rounded to three significant figures.

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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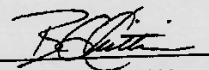
7.9.1

7

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**

<u>PRODUCT CODE:</u>	MPFAC-HIF-ES
<u>LOT NUMBER:</u>	MPFACHIFES1022
<u>SOLVENT(S):</u>	Methanol/Isopropanol (1%)/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	10/28/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	11/23/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	11/23/2025
<u>RECOMMENDED STORAGE:</u>	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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Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

MPFACHIFES1022 (1 of 7)
rev0

7.9.1
7

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	MPFDaA	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

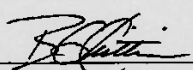
MPFACHIFIS1122 (1 of 5)
rev0

7.9.1
7

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	
	3	520	6					A6	
	4	560	6						
	5	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 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: 06/12/23

7.10.1 7