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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC3191

Sampling Date: 03/03/23



Report to:

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Total number of pages in report: 901



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.

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Sample Summary

AECOM, INC.

Job No: FC3191

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC3191-1	03/03/23	11:15 GA	03/04/23	AQ	Ground Water	AF-RHMW17S-WGN01LF-2302W4
FC3191-2	03/03/23	15:10 GA	03/04/23	AQ	Equipment Blank	AF-RHMW17S-WQEB01-2302W4
FC3191-3	03/03/23	12:35 GA	03/04/23	AQ	Ground Water	AF-RHMW17D-WGN01LF-2302W4
FC3191-4	03/03/23	12:05 GA	03/04/23	AQ	Field Blank Water	AF-RHMW17D-WQFB01-2302W4
FC3191-5	03/03/23	13:55 GA	03/04/23	AQ	Ground Water	AF-RHMW17-WGN01LF-2302W4

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC3191

Site: N6274223F0104 RH Fire Suppression System

Report Date: 3/10/2023 5:22:25 PM

On 03/04/2023, 4 Sample(s), 0 Trip Blank(s) and 1 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 4 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC3191 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: OP95747

Sample(s) FC3191-3MS, FC3191-5DUP, FC3191-3MS were used as the QC samples indicated.

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

RPD(s) for Duplicate for Perfluorooctanoic acid are outside control limits for sample OP95747-DUP. Probable cause is due to sample non-homogeneity.

Sample(s) FC3191-3 have surrogates outside control limits.

FC3191-3: Dilution required (ID recovery standard failure).

FC3191-3 for Perfluorobutanoic acid: Associated ID Standard outside control limits, Confirmed by batch QC.

FC3191-3 for 13C4-PFBA: Outside control limits.

FC3191-3 for d5-EtFOSAA: Outside control limits.

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: FC3191
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 03/03/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC3191-1 AF-RHMW17S-WGN01LF-2302W4

Perfluorooctanoic acid	0.74 J	4.5	0.89	ng/l	EPA DRAFT 1633
6:2 Fluorotelomer sulfonate	17.1 J	18	7.1	ng/l	EPA DRAFT 1633

FC3191-2 AF-RHMW17S-WQEB01-2302W4

No hits reported in this sample.

FC3191-3 AF-RHMW17D-WGN01LF-2302W4

No hits reported in this sample.

FC3191-4 AF-RHMW17D-WQFB01-2302W4

No hits reported in this sample.

FC3191-5 AF-RHMW17-WGN01LF-2302W4

Perfluorobutanoic acid	3.5 J	18	3.6	ng/l	EPA DRAFT 1633
Perfluoropentanoic acid	10.6	9.1	1.8	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	6.2	4.5	0.91	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	0.99 J	4.5	0.91	ng/l	EPA DRAFT 1633
Perfluorooctanoic acid	0.63 J	4.5	0.91	ng/l	EPA DRAFT 1633
6:2 Fluorotelomer sulfonate	28.4	18	7.3	ng/l	EPA DRAFT 1633

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	AF-RHMW17S-WGN01LF-2302W4		
Lab Sample ID:	FC3191-1	Date Sampled:	03/03/23
Matrix:	AQ - Ground Water	Date Received:	03/04/23
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	6Q14550.D	1	03/08/23 20:41	MV	03/06/23 09:00	OP95747	S6Q220
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.6 U	18	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	8.9	1.8	0.84	ng/l	
307-24-4	Perfluorohexanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.74	4.5	0.89	0.45	ng/l	J
375-95-1	Perfluorononanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	4.5	1.8	0.75	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.89 U	4.5	0.89	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	4.5	1.8	0.62	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.89 U	4.5	0.89	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	4.5	1.8	0.48	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	4.5	1.8	0.51	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	4.5	1.8	0.57	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.1 U	18	7.1	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	17.1	18	7.1	3.1	ng/l	J
39108-34-4	8:2 Fluorotelomer sulfonate	7.1 U	18	7.1	3.7	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	4.5	1.8	0.60	ng/l	
31506-32-8	MeFOSA	1.8 U	4.5	1.8	0.89	ng/l	
4151-50-2	EtFOSA	1.8 U	4.5	1.8	0.89	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17S-WGN01LF-2302W4		
Lab Sample ID:	FC3191-1	Date Sampled:	03/03/23
Matrix:	AQ - Ground Water	Date Received:	03/04/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

2355-31-9	MeFOSAA	3.6 U	4.5	3.6	0.89	ng/l	
2991-50-6	EtFOSAA	3.6 U	4.5	3.6	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	8.9 U	45	8.9	3.9	ng/l	
1691-99-2	EtFOSE	18 U	45	18	6.6	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.6 U	18	3.6	0.89	ng/l	
919005-14-4	ADONA	3.6 U	18	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	8.9	1.8	0.89	ng/l	
863090-89-5	PFMBA	3.6 U	8.9	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	8.9	3.6	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	18	3.6	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	18	3.6	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	8.9	1.8	0.70	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	8.9 U	22	8.9	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	110	18	7.8	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	110	18	7.0	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	59%		20-150%
	13C5-PFPeA	91%		20-150%
	13C5-PFHxA	96%		20-150%
	13C4-PFHpA	97%		20-150%
	13C8-PFOA	91%		20-150%
	13C9-PFNA	99%		20-150%
	13C6-PFDA	92%		20-150%
	13C7-PFUnDA	89%		20-150%
	13C2-PFDoDA	77%		20-150%
	13C2-PFTeDA	52%		20-150%
	13C3-PFBS	102%		20-150%
	13C3-PFHxS	97%		20-150%

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

Report of Analysis

Client Sample ID:	AF-RHMW17S-WGN01LF-2302W4		
Lab Sample ID:	FC3191-1	Date Sampled:	03/03/23
Matrix:	AQ - Ground Water	Date Received:	03/04/23
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	86%		20-150%
	13C8-FOSA	91%		20-150%
	d3-MeFOSA	71%		20-150%
	d5-EtFOSA	62%		20-150%
	d3-MeFOSAA	89%		20-150%
	d5-EtFOSAA	96%		20-150%
	d7-MeFOSE	71%		20-150%
	d9-EtFOSE	67%		20-150%
	13C2-4:2FTS	109%		20-150%
	13C2-6:2FTS	93%		20-150%
	13C2-8:2FTS	87%		20-150%
	13C3-HFPO-DA	89%		20-150%

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

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-RHMW17S-WQEB01-2302W4		
Lab Sample ID:	FC3191-2	Date Sampled:	03/03/23
Matrix:	AQ - Equipment Blank	Date Received:	03/04/23
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	6Q14551.D	1	03/08/23 20:55	MV	03/06/23 09:00	OP95747	S6Q220
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	19	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	9.4	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.7	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.7	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.7	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.7	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.7	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.7	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.7	3.8	1.1	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.9 U	4.7	1.9	0.63	ng/l	
31506-32-8	MeFOSA	1.9 U	4.7	1.9	0.94	ng/l	
4151-50-2	EtFOSA	1.9 U	4.7	1.9	0.94	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17S-WQEB01-2302W4		Date Sampled:	03/03/23
Lab Sample ID:	FC3191-2	Date Received:	03/04/23	
Matrix:	AQ - Equipment Blank	Percent Solids:	n/a	
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

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

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

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

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

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	101%		20-150%
	13C5-PFPeA	98%		20-150%
	13C5-PFHxA	97%		20-150%
	13C4-PFHpA	96%		20-150%
	13C8-PFOA	101%		20-150%
	13C9-PFNA	96%		20-150%
	13C6-PFDA	96%		20-150%
	13C7-PFUnDA	94%		20-150%
	13C2-PFDoDA	82%		20-150%
	13C2-PFTeDA	76%		20-150%
	13C3-PFBS	94%		20-150%
	13C3-PFHxS	101%		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
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Report of Analysis

Client Sample ID:	AF-RHMW17S-WQEB01-2302W4		Date Sampled:	03/03/23
Lab Sample ID:	FC3191-2		Date Received:	03/04/23
Matrix:	AQ - Equipment Blank		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	96%		20-150%
	13C8-FOSA	82%		20-150%
	d3-MeFOSA	76%		20-150%
	d5-EtFOSA	75%		20-150%
	d3-MeFOSAA	100%		20-150%
	d5-EtFOSAA	86%		20-150%
	d7-MeFOSE	82%		20-150%
	d9-EtFOSE	80%		20-150%
	13C2-4:2FTS	111%		20-150%
	13C2-6:2FTS	99%		20-150%
	13C2-8:2FTS	105%		20-150%
	13C3-HFPO-DA	96%		20-150%

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

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-RHMW17D-WGN01LF-2302W4		
Lab Sample ID:	FC3191-3	Date Sampled:	03/03/23
Matrix:	AQ - Ground Water	Date Received:	03/04/23
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	6Q14554.D	1	03/08/23 21:37	MV	03/06/23 09:00	OP95747	S6Q220
Run #2 ^a	6Q14650.D	5	03/09/23 20:44	MV	03/06/23 09:00	OP95747	S6Q221

	Initial Volume	Final Volume
Run #1	550 ml	5.0 ml
Run #2	550 ml	5.0 ml

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

375-22-4	Perfluorobutanoic acid ^b	18 U ^c	91	18	8.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	9.1	1.8	0.85	ng/l	
307-24-4	Perfluorohexanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	4.5	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.91 U	4.5	0.91	0.45	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.91 U	4.5	0.91	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	4.5	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.91 U	4.5	0.91	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	4.5	1.8	0.49	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	4.5	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	4.5	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	4.5	1.8	0.61	ng/l	
31506-32-8	MeFOSA	1.8 U	4.5	1.8	0.91	ng/l	
4151-50-2	EtFOSA	1.8 U	4.5	1.8	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-RHMW17D-WGN01LF-2302W4		Date Sampled:	03/03/23
Lab Sample ID:	FC3191-3	Date Received:	03/04/23	
Matrix:	AQ - Ground Water	Percent Solids:	n/a	
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

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

2355-31-9	MeFOSAA	3.6 U	4.5	3.6	0.91	ng/l	
2991-50-6	EtFOSAA	18 U ^c	23	18	6.0	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.1 U	45	9.1	4.0	ng/l	
1691-99-2	EtFOSE	18 U	45	18	6.7	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.6 U	18	3.6	0.91	ng/l	
919005-14-4	ADONA	3.6 U	18	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	9.1	1.8	0.91	ng/l	
863090-89-5	PFMBA	3.6 U	9.1	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	9.1	3.6	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	18	3.6	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	18	3.6	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	9.1	1.8	0.71	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.1 U	23	9.1	4.1	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	110	18	7.9	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	110	18	7.1	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		2% ^d	3% ^d	20-150%
13C5-PFPeA		29%	29%	20-150%
13C5-PFHxA		96%	95%	20-150%
13C4-PFHpA		100%	95%	20-150%
13C8-PFOA		93%	106%	20-150%
13C9-PFNA		98%	101%	20-150%
13C6-PFDA		93%	107%	20-150%
13C7-PFUnDA		106%	98%	20-150%
13C2-PFDoDA		93%	91%	20-150%
13C2-PFTeDA		72%	64%	20-150%
13C3-PFBS		96%	117%	20-150%
13C3-PFHxS		93%	108%	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-RHMW17D-WGN01LF-2302W4	
Lab Sample ID:	FC3191-3	Date Sampled: 03/03/23
Matrix:	AQ - Ground Water	Date Received: 03/04/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	112%	50%	20-150%
	13C8-FOSA	108%	52%	20-150%
	d3-MeFOSA	100%	54%	20-150%
	d5-EtFOSA	100%	51%	20-150%
	d3-MeFOSAA	138%	67%	20-150%
	d5-EtFOSAA	161% ^d	63%	20-150%
	d7-MeFOSE	98%	45%	20-150%
	d9-EtFOSE	92%	46%	20-150%
	13C2-4:2FTS	142%	146%	20-150%
	13C2-6:2FTS	105%	130%	20-150%
	13C2-8:2FTS	110%	114%	20-150%
	13C3-HFPO-DA	82%	94%	20-150%

- (a) Dilution required (ID recovery standard failure).
- (b) Associated ID Standard outside control limits, Confirmed by batch QC.
- (c) Result is from Run# 2
- (d) 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

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Client Sample ID:	AF-RHMW17D-WQFB01-2302W4		
Lab Sample ID:	FC3191-4	Date Sampled:	03/03/23
Matrix:	AQ - Field Blank Water	Date Received:	03/04/23
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	6Q14556.D	1	03/08/23 22:05	MV	03/06/23 09:00	OP95747	S6Q220
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
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.6 U	18	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	9.1	1.8	0.85	ng/l	
307-24-4	Perfluorohexanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	4.5	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.91 U	4.5	0.91	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	4.5	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.91 U	4.5	0.91	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	4.5	1.8	0.49	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	4.5	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	4.5	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	4.5	1.8	0.61	ng/l	
31506-32-8	MeFOSA	1.8 U	4.5	1.8	0.91	ng/l	
4151-50-2	EtFOSA	1.8 U	4.5	1.8	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-RHMW17D-WQFB01-2302W4		
Lab Sample ID:	FC3191-4	Date Sampled:	03/03/23
Matrix:	AQ - Field Blank Water	Date Received:	03/04/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

2355-31-9	MeFOSAA	3.6 U	4.5	3.6	0.91	ng/l	
2991-50-6	EtFOSAA	3.6 U	4.5	3.6	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.1 U	45	9.1	4.0	ng/l	
1691-99-2	EtFOSE	18 U	45	18	6.7	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.6 U	18	3.6	0.91	ng/l	
919005-14-4	ADONA	3.6 U	18	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	9.1	1.8	0.91	ng/l	
863090-89-5	PFMBA	3.6 U	9.1	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	9.1	3.6	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	18	3.6	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	18	3.6	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	9.1	1.8	0.71	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.1 U	23	9.1	4.1	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	110	18	7.9	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	110	18	7.1	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	99%		20-150%
	13C5-PFPeA	94%		20-150%
	13C5-PFHxA	91%		20-150%
	13C4-PFHpA	95%		20-150%
	13C8-PFOA	96%		20-150%
	13C9-PFNA	99%		20-150%
	13C6-PFDA	105%		20-150%
	13C7-PFUnDA	93%		20-150%
	13C2-PFDoDA	84%		20-150%
	13C2-PFTeDA	92%		20-150%
	13C3-PFBS	97%		20-150%
	13C3-PFHxS	97%		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-RHMW17D-WQFB01-2302W4	
Lab Sample ID:	FC3191-4	Date Sampled: 03/03/23
Matrix:	AQ - Field Blank Water	Date Received: 03/04/23
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	92%		20-150%
	13C8-FOSA	88%		20-150%
	d3-MeFOSA	79%		20-150%
	d5-EtFOSA	80%		20-150%
	d3-MeFOSAA	88%		20-150%
	d5-EtFOSAA	92%		20-150%
	d7-MeFOSE	86%		20-150%
	d9-EtFOSE	84%		20-150%
	13C2-4:2FTS	109%		20-150%
	13C2-6:2FTS	113%		20-150%
	13C2-8:2FTS	109%		20-150%
	13C3-HFPO-DA	91%		20-150%

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-RHMW17-WGN01LF-2302W4		
Lab Sample ID:	FC3191-5	Date Sampled:	03/03/23
Matrix:	AQ - Ground Water	Date Received:	03/04/23
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	6Q14557.D	1	03/08/23 22:19	MV	03/06/23 09:00	OP95747	S6Q220
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
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.5	18	3.6	1.7	ng/l	J
2706-90-3	Perfluoropentanoic acid	10.6	9.1	1.8	0.85	ng/l	
307-24-4	Perfluorohexanoic acid	6.2	4.5	0.91	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	0.99	4.5	0.91	0.45	ng/l	J
335-67-1	Perfluorooctanoic acid	0.63	4.5	0.91	0.45	ng/l	J
375-95-1	Perfluorononanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	4.5	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.91 U	4.5	0.91	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	4.5	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.91 U	4.5	0.91	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	4.5	1.8	0.49	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	4.5	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	4.5	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	28.4	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	4.5	1.8	0.61	ng/l	
31506-32-8	MeFOSA	1.8 U	4.5	1.8	0.91	ng/l	
4151-50-2	EtFOSA	1.8 U	4.5	1.8	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-RHMW17-WGN01LF-2302W4		Date Sampled:	03/03/23
Lab Sample ID:	FC3191-5	Date Received:	03/04/23	
Matrix:	AQ - Ground Water	Percent Solids:	n/a	
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

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

2355-31-9	MeFOSAA	3.6 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	9.1 U	45	9.1	4.0	ng/l	
1691-99-2	EtFOSE	18 U	45	18	6.7	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.6 U	18	3.6	0.91	ng/l	
919005-14-4	ADONA	3.6 U	18	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	9.1	1.8	0.91	ng/l	
863090-89-5	PFMBA	3.6 U	9.1	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	9.1	3.6	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	18	3.6	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	18	3.6	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	9.1	1.8	0.71	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.1 U	23	9.1	4.1	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	110	18	7.9	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	110	18	7.1	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	106%		20-150%
	13C5-PFPeA	117%		20-150%
	13C5-PFHxA	115%		20-150%
	13C4-PFHpA	118%		20-150%
	13C8-PFOA	109%		20-150%
	13C9-PFNA	103%		20-150%
	13C6-PFDA	114%		20-150%
	13C7-PFUnDA	101%		20-150%
	13C2-PFDoDA	83%		20-150%
	13C2-PFTeDA	67%		20-150%
	13C3-PFBS	106%		20-150%
	13C3-PFHxS	105%		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-RHMW17-WGN01LF-2302W4	
Lab Sample ID:	FC3191-5	Date Sampled: 03/03/23
Matrix:	AQ - Ground Water	Date Received: 03/04/23
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	91%		20-150%
	13C8-FOSA	93%		20-150%
	d3-MeFOSA	79%		20-150%
	d5-EtFOSA	75%		20-150%
	d3-MeFOSAA	96%		20-150%
	d5-EtFOSAA	93%		20-150%
	d7-MeFOSE	83%		20-150%
	d9-EtFOSE	83%		20-150%
	13C2-4:2FTS	126%		20-150%
	13C2-6:2FTS	123%		20-150%
	13C2-8:2FTS	99%		20-150%
	13C3-HFPO-DA	116%		20-150%

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

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 **FC3191**
 Chain of Custody
 SC - ORLANDO JOB # :

4405 Vineland Road, Suite C15 Orlando, FL 32811
 TEL: 407-425-6700 FAX: 407-425-0707
 www.sgs.com

COC #: 2302W4AFSG12
 PAGE 1 OF 1

Client / Reporting Information		Project Information		SGS - ORLANDO Quote #		SKIFF #	
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		Analytical Information		Matrix Codes	
Address: 1001 Bishop St. ste 1600		Street				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	
City: Honolulu State: HI Zip: 96813		City Honolulu State Hawaii					
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # 60697810					
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #					
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order #		PFAS EPA Draft 1633		LAB USE ONLY	
Sampler(s) Name(s) (Printed) Sampler 1: <i>GABRIEL ALLEN</i> Sampler 2:		COLLECTION		CONTAINER INFORMATION			
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER
1	AF-RHMMW17S-WGN01LF-2302W4	3/30/23	1115	GA	GW	3	X
2	AF-RHMMW17S-WQEB01-2302W4	3/30/23	1510	GA	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 AWB 016-53687196			
Rush T/A Data Available VIA Email or Lablink							
Sample Custody must be documented below each time samples change possession, including courier delivery.							
Relinquished by Sampler/Affiliation 1 <i>GABRIEL ALLEN/AECOM</i>	Date Time: 03/30/23 1515	Received By/Affiliation 2 <i>Ken Gann/AECOM</i>	Relinquished By/Affiliation 3 <i>Ken Gann/AECOM</i>	Date Time: 3/31/23 1510	Received By/Affiliation 4 <i>[Signature]</i>	Date Time: 3/31/23 1500	
Relinquished by/Affiliation 5	Date Time:	Received By/Affiliation 6 <i>[Signature]</i>	Relinquished By/Affiliation 7	Date Time:	Received By/Affiliation 8 <i>[Signature]</i>	Date Time: 3/31/23 1500	
Lab Use Only : Cooler Temperature (s) Celsius (corrected):		38.8		http://www.sgs.com/en/terms-and-conditions			

PFAS_COCS_ALL.xls Rev 031318

FC3191: Chain of Custody

Page 1 of 4






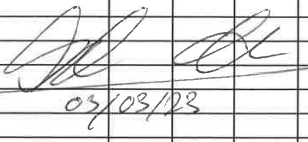
SGS North America Inc - Orlando
Chain of Custody

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

FC3191
SGS - ORLANDO JOB # :

COC #: 2302W4AFSG11

PAGE 1 OF 1

Client / Reporting Information		Project Information		SGS - ORLANDO Quote #		SKIFF #											
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Analytical Information</p>  </div>		<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Matrix Codes</p> <p>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</p> </div>											
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 Tani Email: watson.tani@aecom.com		Fax #															
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order #		PFAS EPA Draft 1633													
Sampler(s) Name(s) (Printed) Sampler 1: <i>Garrett Brown (GPA)</i> Sampler 2:																	
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	COLLECTION												LAB USE ONLY	
				SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	ICI	NACH	PNCO	R26C4	NACH-ZINC	D1 WATER	MEQH		
3	AF-RHMMW17D-WGN01LF-2302W4	08/03/23	1235	GPA	GW	3		X									X
4	AF-RHMMW17D-WQFB01-2302W4	↓	1205	GPA	GW	3		X									X
																	
Turnaround Time (Business days)				Data Deliverable Information				Comments / Remarks									
10 Day (Business) 7 Day <input checked="" type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other		Approved By: / Date:		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S				EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWRB 016-53687196									
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 <i>Garrett Brown / AECOM</i>		Date Time: <i>08/03/23/1510</i>		Received By/Affiliation <i>Ken Yarn AECOM</i>		Date Time: <i>1548</i>		Relinquished By/Affiliation <i>Ken Yarn</i>		Date Time: <i>31323</i>		Received By/Affiliation <i>Ken Yarn</i>					
Relinquished by/Affiliation		Date Time:		Received By/Affiliation		Date Time:		Relinquished By/Affiliation		Date Time:		Received By/Affiliation					
5				6				7				8					
Lab Use Only : Cooler Temperature (s) Celsius (corrected):												http://www.sgs.com/en/terms-and-conditions					

PFAS_COCs_ALL.xls Rev 031318



5.1
5

SGS Sample Receipt Summary

Job Number: FC3191

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 3/4/2023 3:00:00 PM

Delivery Method: United Cargo/Airspace

Airbill #'s: United Cargo AWB #: 016-53687196

Therm ID: IR 1;

Therm CF: 0.2;

of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (3.8);

Cooler Temps (Corrected) °C: Cooler 1: (4.0);

Cooler Information

Y or N

- 1. Custody Seals Present
- 2. Custody Seals Intact
- 3. Temp criteria achieved
- 4. Cooler temp verification IR Gun
- 5. Cooler media Ice (Bag)

Trip Blank Information

Y or N N/A

- 1. Trip Blank present / cooler
 - 2. Trip Blank listed on COC
- W or S N/A
- 3. Type Of TB Received

Sample Information

Y or N N/A

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

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____

Number of 5035 Field Kits: _____

Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230315

pH 10-12 219813A

Other: (Specify) _____

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: NATHANS

Date: 3/4/2023 3:00:00 PM

Reviewer: CD

Date: 3/6/2023

FC3191: Chain of Custody

Page 4 of 4

QC Evaluation: DOD QSM5.x Limits

Job Number: FC3191
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 03/03/23

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

* Sample used for QC is not from job FC3191

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: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q221-IBLK	6Q14618.D	1	03/09/23	MV	n/a	n/a	S6Q221

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3191-3

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0040	ug/l	
2991-50-6	EtFOSAA	ND	0.0020	0.0013	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	103%
	13C5-PFPeA	99%
	13C5-PFHxA	101%
	13C4-PFHpA	97%
	13C8-PFOA	93%
	13C9-PFNA	99%
	13C6-PFDA	91%
	13C7-PFUnDA	89%
	13C2-PFDoDA	94%
	13C2-PFTeDA	90%
	13C3-PFBS	102%
	13C3-PFHxS	97%
	13C8-PFOS	105%
	13C8-FOSA	114%
	d3-MeFOSA	99%
	d5-EtFOSA	107%
	d3-MeFOSAA	101%
	d5-EtFOSAA	110%
	d7-MeFOSE	98%
	d9-EtFOSE	103%
	13C2-4:2FTS	110%
	13C2-6:2FTS	123%
	13C2-8:2FTS	110%
	13C3-HFPO-DA	100%

Continuing Calibration Blank

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q221-ICCB	6Q14644.D	1	03/09/23	MV	n/a	n/a	S6Q221

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3191-3

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0040	ug/l	
2991-50-6	EtFOSAA	ND	0.0020	0.0013	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	102% 20-150%
	13C5-PFPeA	102% 20-150%
	13C5-PFHxA	104% 20-150%
	13C4-PFHpA	102% 20-150%
	13C8-PFOA	100% 20-150%
	13C9-PFNA	94% 20-150%
	13C6-PFDA	94% 20-150%
	13C7-PFUnDA	94% 20-150%
	13C2-PFDoDA	95% 20-150%
	13C2-PFTeDA	92% 20-150%
	13C3-PFBS	100% 20-150%
	13C3-PFHxS	96% 20-150%
	13C8-PFOS	98% 20-150%
	13C8-FOSA	99% 20-150%
	d3-MeFOSA	92% 20-150%
	d5-EtFOSA	90% 20-150%
	d3-MeFOSAA	100% 20-150%
	d5-EtFOSAA	100% 20-150%
	d7-MeFOSE	97% 20-150%
	d9-EtFOSE	88% 20-150%
	13C2-4:2FTS	102% 20-150%
	13C2-6:2FTS	124% 20-150%
	13C2-8:2FTS	128% 20-150%
	13C3-HFPO-DA	98% 20-150%

Continuing Calibration Blank

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q221-ICCB	6Q14653.D	1	03/09/23	MV	n/a	n/a	S6Q221

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3191-3

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0040	ug/l	
2991-50-6	EtFOSAA	ND	0.0020	0.0013	ug/l	

CAS No.	ID Standard Recoveries	Limits	
	13C4-PFBA	99%	20-150%
	13C5-PFPeA	97%	20-150%
	13C5-PFHxA	100%	20-150%
	13C4-PFHpA	107%	20-150%
	13C8-PFOA	97%	20-150%
	13C9-PFNA	97%	20-150%
	13C6-PFDA	97%	20-150%
	13C7-PFUnDA	100%	20-150%
	13C2-PFDoDA	91%	20-150%
	13C2-PFTeDA	87%	20-150%
	13C3-PFBS	96%	20-150%
	13C3-PFHxS	98%	20-150%
	13C8-PFOS	96%	20-150%
	13C8-FOSA	98%	20-150%
	d3-MeFOSA	86%	20-150%
	d5-EtFOSA	92%	20-150%
	d3-MeFOSAA	96%	20-150%
	d5-EtFOSAA	99%	20-150%
	d7-MeFOSE	88%	20-150%
	d9-EtFOSE	83%	20-150%
	13C2-4:2FTS	116%	20-150%
	13C2-6:2FTS	130%	20-150%
	13C2-8:2FTS	103%	20-150%
	13C3-HFPO-DA	100%	20-150%

Continuing Calibration Blank

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q220-ICCB	6Q14541.D	1	03/08/23	MV	n/a	n/a	S6Q220

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3191-1, FC3191-2

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0050	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.050	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.050	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q220-ICCB	6Q14541.D	1	03/08/23	MV	n/a	n/a	S6Q220

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3191-1, FC3191-2

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	101% 20-150%
	13C5-PFPeA	99% 20-150%
	13C5-PFHxA	103% 20-150%
	13C4-PFHpA	107% 20-150%
	13C8-PFOA	101% 20-150%
	13C9-PFNA	105% 20-150%
	13C6-PFDA	98% 20-150%
	13C7-PFUnDA	99% 20-150%
	13C2-PFDoDA	97% 20-150%
	13C2-PFTeDA	94% 20-150%
	13C3-PFBS	98% 20-150%
	13C3-PFHxS	100% 20-150%
	13C8-PFOS	96% 20-150%
	13C8-FOSA	105% 20-150%
	d3-MeFOSAA	97% 20-150%
	d5-EtFOSAA	94% 20-150%
	13C2-4:2FTS	123% 20-150%
	13C2-6:2FTS	110% 20-150%
	13C2-8:2FTS	128% 20-150%

Continuing Calibration Blank

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q220-ICCB	6Q14553.D	1	03/08/23	MV	n/a	n/a	S6Q220

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3191-3, FC3191-4, FC3191-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0050	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.050	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.050	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q220-ICCB	6Q14553.D	1	03/08/23	MV	n/a	n/a	S6Q220

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3191-3, FC3191-4, FC3191-5

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	94% 20-150%
	13C5-PFHxA	93% 20-150%
	13C4-PFHpA	98% 20-150%
	13C8-PFOA	95% 20-150%
	13C9-PFNA	99% 20-150%
	13C6-PFDA	92% 20-150%
	13C7-PFUnDA	95% 20-150%
	13C2-PFDoDA	92% 20-150%
	13C2-PFTeDA	91% 20-150%
	13C3-PFBS	98% 20-150%
	13C3-PFHxS	104% 20-150%
	13C8-PFOS	92% 20-150%
	13C8-FOSA	95% 20-150%
	d3-MeFOSAA	94% 20-150%
	d5-EtFOSAA	96% 20-150%
	13C2-4:2FTS	129% 20-150%
	13C2-6:2FTS	114% 20-150%
	13C2-8:2FTS	115% 20-150%

Method Blank Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95747-MB	6Q14548.D	1	03/08/23	MV	03/06/23	OP95747	S6Q220

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3191-1, FC3191-2, FC3191-3

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0050	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.050	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.050	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Method Blank Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95747-MB	6Q14548.D	1	03/08/23	MV	03/06/23	OP95747	S6Q220

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3191-1, FC3191-2, FC3191-3

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	111% 20-150%
	13C5-PFPeA	110% 20-150%
	13C5-PFHxA	111% 20-150%
	13C4-PFHpA	112% 20-150%
	13C8-PFOA	110% 20-150%
	13C9-PFNA	98% 20-150%
	13C6-PFDA	112% 20-150%
	13C7-PFUnDA	105% 20-150%
	13C2-PFDoDA	88% 20-150%
	13C2-PFTeDA	82% 20-150%
	13C3-PFBS	115% 20-150%
	13C3-PFHxS	99% 20-150%
	13C8-PFOS	119% 20-150%
	13C8-FOSA	95% 20-150%
	d3-MeFOSA	74% 20-150%
	d5-EtFOSA	72% 20-150%
	d3-MeFOSAA	115% 20-150%
	d5-EtFOSAA	98% 20-150%
	d7-MeFOSE	78% 20-150%
	d9-EtFOSE	80% 20-150%
	13C2-4:2FTS	124% 20-150%
	13C2-6:2FTS	130% 20-150%
	13C2-8:2FTS	120% 20-150%
	13C3-HFPO-DA	105% 20-150%

Instrument Blank

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q220-IBLK	6Q14525.D	1	03/08/23	MV	n/a	n/a	S6Q220

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP95747-MS

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0050	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.050	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.050	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Instrument Blank

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q220-IBLK	6Q14525.D	1	03/08/23	MV	n/a	n/a	S6Q220

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP95747-MS

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	101% 20-150%
	13C5-PFPeA	94% 20-150%
	13C5-PFHxA	92% 20-150%
	13C4-PFHpA	94% 20-150%
	13C8-PFOA	99% 20-150%
	13C9-PFNA	116% 20-150%
	13C6-PFDA	100% 20-150%
	13C7-PFUnDA	103% 20-150%
	13C2-PFDoDA	101% 20-150%
	13C2-PFTeDA	107% 20-150%
	13C3-PFBS	109% 20-150%
	13C3-PFHxS	109% 20-150%
	13C8-PFOS	99% 20-150%
	13C8-FOSA	106% 20-150%
	d3-MeFOSAA	103% 20-150%
	d5-EtFOSAA	102% 20-150%
	13C2-4:2FTS	107% 20-150%
	13C2-6:2FTS	106% 20-150%
	13C2-8:2FTS	113% 20-150%

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Leachate Blank Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95772-LB	6Q14623.D	1	03/09/23	MV	03/07/23	OP95772	S6Q221

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

S6Q221-IBLK, S6Q221-ICCB

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.067	0.033	ug/l	
2991-50-6	EtFOSAA	ND	0.017	0.011	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C5-PFHxA	72% 20-150%
	13C4-PFHpA	74% 20-150%
	13C8-PFOA	70% 20-150%
	13C9-PFNA	65% 20-150%
	13C6-PFDA	73% 20-150%
	13C7-PFUnDA	69% 20-150%
	13C2-PFDoDA	64% 20-150%
	13C2-PFTeDA	71% 20-150%
	13C3-PFBS	67% 20-150%
	13C3-PFHxS	65% 20-150%
	13C8-PFOS	66% 20-150%
	d3-MeFOSAA	67% 20-150%
	d5-EtFOSAA	65% 20-150%
	13C3-HFPO-DA	77% 20-150%

Blank Spike Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95747-LLBS	6Q14547.D	1	03/08/23	MV	03/06/23	OP95747	S6Q220

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3191-1, FC3191-2, FC3191-3, FC3191-4, FC3191-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.04	0.0332	83	40-150
2706-90-3	Perfluoropentanoic acid	0.02	0.0176	88	40-150
307-24-4	Perfluorohexanoic acid	0.01	0.0088	88	40-150
375-85-9	Perfluoroheptanoic acid	0.01	0.0082	82	40-150
335-67-1	Perfluorooctanoic acid	0.01	0.0087	87	40-150
375-95-1	Perfluorononanoic acid	0.01	0.0092	92	40-150
335-76-2	Perfluorodecanoic acid	0.01	0.0090	90	40-150
2058-94-8	Perfluoroundecanoic acid	0.01	0.0084	84	40-150
307-55-1	Perfluorododecanoic acid	0.01	0.0085	85	40-150
72629-94-8	Perfluorotridecanoic acid	0.01	0.0081	81	40-150
376-06-7	Perfluorotetradecanoic acid	0.01	0.0082	82	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00887	0.0072	81	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00941	0.0085	90	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00914	0.0073	80	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00953	0.0082	86	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00928	0.0086	93	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00962	0.0088	91	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00965	0.0084	87	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0097	0.0079	81	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0375	0.0335	89	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.038	0.0323	85	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0384	0.0364	95	40-150
754-91-6	PFOSA	0.01	0.0095	95	40-150
31506-32-8	MeFOSA	0.01	0.0092	92	40-150
4151-50-2	EtFOSA	0.01	0.0085	85	40-150
2355-31-9	MeFOSAA	0.01	0.0094	94	40-150
2991-50-6	EtFOSAA	0.01	0.0092	92	40-150
24448-09-7	MeFOSE	0.1	0.0857	86	40-150
1691-99-2	EtFOSE	0.1	0.0864	86	40-150
13252-13-6	HFPO-DA (GenX)	0.04	0.0348	87	40-150
919005-14-4	ADONA	0.0378	0.0352	93	40-150
377-73-1	PFMPA	0.02	0.0175	88	40-150
863090-89-5	PFMBA	0.02	0.0186	93	40-150
151772-58-6	NFDHA	0.02	0.0164	82	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0374	0.0340	91	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0378	0.0327	87	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95747-LLBS	6Q14547.D	1	03/08/23	MV	03/06/23	OP95747	S6Q220

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3191-1, FC3191-2, FC3191-3, FC3191-4, FC3191-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0178	0.0156	88	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.05	0.0395	79	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.25	0.223	89	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.25	0.223	89	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	96%	20-150%
	13C5-PFPeA	95%	20-150%
	13C5-PFHxA	98%	20-150%
	13C4-PFHpA	104%	20-150%
	13C8-PFOA	94%	20-150%
	13C9-PFNA	84%	20-150%
	13C6-PFDA	92%	20-150%
	13C7-PFUnDA	93%	20-150%
	13C2-PFDoDA	88%	20-150%
	13C2-PFTeDA	86%	20-150%
	13C3-PFBS	96%	20-150%
	13C3-PFHxS	96%	20-150%
	13C8-PFOS	92%	20-150%
	13C8-FOSA	93%	20-150%
	d3-MeFOSA	78%	20-150%
	d5-EtFOSA	76%	20-150%
	d3-MeFOSAA	92%	20-150%
	d5-EtFOSAA	98%	20-150%
	d7-MeFOSE	84%	20-150%
	d9-EtFOSE	79%	20-150%
	13C2-4:2FTS	113%	20-150%
	13C2-6:2FTS	106%	20-150%
	13C2-8:2FTS	103%	20-150%
	13C3-HFPO-DA	93%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95747-BS	6Q14546.D	1	03/08/23	MV	03/06/23	OP95747	S6Q220

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3191-1, FC3191-2, FC3191-3, FC3191-4, FC3191-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0867	87	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0448	90	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0241	96	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0230	92	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0202	81	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0233	93	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0207	83	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0236	94	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0248	99	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0206	82	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0229	92	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0199	90	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0220	94	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0212	93	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0191	80	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0196	84	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0206	86	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0197	82	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0197	81	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0915	98	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0907	95	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0915	95	40-150
754-91-6	PFOSA	0.025	0.0227	91	40-150
31506-32-8	MeFOSA	0.025	0.0239	96	40-150
4151-50-2	EtFOSA	0.025	0.0220	88	40-150
2355-31-9	MeFOSAA	0.025	0.0228	91	40-150
2991-50-6	EtFOSAA	0.025	0.0237	95	40-150
24448-09-7	MeFOSE	0.25	0.221	88	40-150
1691-99-2	EtFOSE	0.25	0.221	88	40-150
13252-13-6	HFPO-DA (GenX)	0.1	0.0956	96	40-150
919005-14-4	ADONA	0.0945	0.0901	95	40-150
377-73-1	PFMPA	0.05	0.0242	48	40-150
863090-89-5	PFMBA	0.05	0.0467	93	40-150
151772-58-6	NFDHA	0.05	0.0464	93	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0935	0.0915	98	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0945	0.0896	95	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95747-BS	6Q14546.D	1	03/08/23	MV	03/06/23	OP95747	S6Q220

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3191-1, FC3191-2, FC3191-3, FC3191-4, FC3191-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0437	98	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0958	77	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.624	100	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.642	103	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	22%	20-150%
	13C5-PFPeA	87%	20-150%
	13C5-PFHxA	83%	20-150%
	13C4-PFHpA	90%	20-150%
	13C8-PFOA	87%	20-150%
	13C9-PFNA	77%	20-150%
	13C6-PFDA	79%	20-150%
	13C7-PFUnDA	72%	20-150%
	13C2-PFDoDA	68%	20-150%
	13C2-PFTeDA	64%	20-150%
	13C3-PFBS	83%	20-150%
	13C3-PFHxS	81%	20-150%
	13C8-PFOS	87%	20-150%
	13C8-FOSA	83%	20-150%
	d3-MeFOSA	71%	20-150%
	d5-EtFOSA	65%	20-150%
	d3-MeFOSAA	81%	20-150%
	d5-EtFOSAA	83%	20-150%
	d7-MeFOSE	68%	20-150%
	d9-EtFOSE	64%	20-150%
	13C2-4:2FTS	93%	20-150%
	13C2-6:2FTS	88%	20-150%
	13C2-8:2FTS	90%	20-150%
	13C3-HFPO-DA	83%	20-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95747-MS	6Q14555.D	1	03/08/23	MV	03/06/23	OP95747	S6Q220
FC3191-3	6Q14554.D	1	03/08/23	MV	03/06/23	OP95747	S6Q220
FC3191-3 ^a	6Q14650.D	5	03/09/23	MV	03/06/23	OP95747	S6Q221

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3191-1, FC3191-2, FC3191-3, FC3191-4, FC3191-5

CAS No.	Compound	FC3191-3 ug/l	Spike Q	ug/l	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.091 U ^b	0.0909	0.0535	59	40-150	
2706-90-3	Perfluoropentanoic acid	0.0091 U	0.0455	0.0409	90	40-150	
307-24-4	Perfluorohexanoic acid	0.0045 U	0.0227	0.0198	87	40-150	
375-85-9	Perfluoroheptanoic acid	0.0045 U	0.0227	0.0205	90	40-150	
335-67-1	Perfluorooctanoic acid	0.0045 U	0.0227	0.0209	92	40-150	
375-95-1	Perfluorononanoic acid	0.0045 U	0.0227	0.0207	91	40-150	
335-76-2	Perfluorodecanoic acid	0.0045 U	0.0227	0.0206	91	40-150	
2058-94-8	Perfluoroundecanoic acid	0.0045 U	0.0227	0.0204	90	40-150	
307-55-1	Perfluorododecanoic acid	0.0045 U	0.0227	0.0209	92	40-150	
72629-94-8	Perfluorotridecanoic acid	0.0045 U	0.0227	0.0163	72	40-150	
376-06-7	Perfluorotetradecanoic acid	0.0045 U	0.0227	0.0202	89	40-150	
375-73-5	Perfluorobutanesulfonic acid	0.0045 U	0.0202	0.0182	90	40-150	
2706-91-4	Perfluoropentanesulfonic acid	0.0045 U	0.0214	0.0192	90	40-150	
355-46-4	Perfluorohexanesulfonic acid	0.0045 U	0.0208	0.0182	88	40-150	
375-92-8	Perfluoroheptanesulfonic acid	0.0045 U	0.0217	0.0271	125	40-150	
1763-23-1	Perfluorooctanesulfonic acid	0.0045 U	0.0211	0.0160	76	40-150	
68259-12-1	Perfluorononanesulfonic acid	0.0045 U	0.0219	0.0175	80	40-150	
335-77-3	Perfluorodecanesulfonic acid	0.0045 U	0.0219	0.0151	69	40-150	
79780-39-5	Perfluorododecanesulfonic aci	0.0045 U	0.022	0.0112	51	40-150	
757124-72-44:2	Fluorotelomer sulfonate	0.018 U	0.0852	0.0846	99	40-150	
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U	0.0864	0.0863	100	40-150	
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U	0.0873	0.0856	98	40-150	
754-91-6	PFOSA	0.0045 U	0.0227	0.0213	94	40-150	
31506-32-8	MeFOSA	0.0045 U	0.0227	0.0219	96	40-150	
4151-50-2	EtFOSA	0.0045 U	0.0227	0.0207	91	40-150	
2355-31-9	MeFOSAA	0.0045 U	0.0227	0.0207	91	40-150	
2991-50-6	EtFOSAA	0.023 U ^b	0.0227	0.0196	86	40-150	
24448-09-7	MeFOSE	0.045 U	0.227	0.223	98	40-150	
1691-99-2	EtFOSE	0.045 U	0.227	0.210	92	40-150	
13252-13-6	HFPO-DA (GenX)	0.018 U	0.0909	0.0817	90	40-150	
919005-14-4	ADONA	0.018 U	0.0859	0.0853	99	40-150	
377-73-1	PFMPA	0.0091 U	0.0455	0.0057	13*	40-150	
863090-89-5	PFMBA	0.0091 U	0.0455	0.0912	201*	40-150	
151772-58-6	NFDHA	0.0091 U	0.0455	0.0336	74	40-150	
756426-58-19	Cl-PF3ONS (F-53B Major)	0.018 U	0.085	0.0885	104	40-150	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.018 U	0.0859	0.0718	84	40-150	

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95747-MS	6Q14555.D	1	03/08/23	MV	03/06/23	OP95747	S6Q220
FC3191-3	6Q14554.D	1	03/08/23	MV	03/06/23	OP95747	S6Q220
FC3191-3 ^a	6Q14650.D	5	03/09/23	MV	03/06/23	OP95747	S6Q221

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3191-1, FC3191-2, FC3191-3, FC3191-4, FC3191-5

CAS No.	Compound	FC3191-3 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0091 U	0.0405	0.0379	94	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.023 U	0.114	0.0506	45	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.11 U	0.568	0.554	98	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.11 U	0.568	0.547	96	40-150

CAS No.	ID Standard Recoveries	MS	FC3191-3	FC3191-3	Limits
	13C4-PFBA	2%* c	2%* c	3%* c	20-150%
	13C5-PFPeA	22%	29%	29%	20-150%
	13C5-PFHxA	99%	96%	95%	20-150%
	13C4-PFHpA	104%	100%	95%	20-150%
	13C8-PFOA	95%	93%	106%	20-150%
	13C9-PFNA	101%	98%	101%	20-150%
	13C6-PFDA	104%	93%	107%	20-150%
	13C7-PFUnDA	101%	106%	98%	20-150%
	13C2-PFDoDA	85%	93%	91%	20-150%
	13C2-PFTeDA	65%	72%	64%	20-150%
	13C3-PFBS	94%	96%	117%	20-150%
	13C3-PFHxS	106%	93%	108%	20-150%
	13C8-PFOS	110%	112%	50%	20-150%
	13C8-FOSA	100%	108%	52%	20-150%
	d3-MeFOSA	93%	100%	54%	20-150%
	d5-EtFOSA	94%	100%	51%	20-150%
	d3-MeFOSAA	124%	138%	67%	20-150%
	d5-EtFOSAA	144%	161%* c	63%	20-150%
	d7-MeFOSE	78%	98%	45%	20-150%
	d9-EtFOSE	77%	92%	46%	20-150%
	13C2-4:2FTS	135%	142%	146%	20-150%
	13C2-6:2FTS	104%	105%	130%	20-150%
	13C2-8:2FTS	104%	110%	114%	20-150%
	13C3-HFPO-DA	90%	82%	94%	20-150%

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

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95747-DUP	6Q14558.D	1	03/08/23	MV	03/06/23	OP95747	S6Q220
FC3191-5	6Q14557.D	1	03/08/23	MV	03/06/23	OP95747	S6Q220

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3191-1, FC3191-2, FC3191-3, FC3191-4, FC3191-5

CAS No.	Compound	FC3191-5 ug/l	DUP Q	ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.0035	J	0.0033	J	6	30
2706-90-3	Perfluoropentanoic acid	0.0106		0.0105		1	30
307-24-4	Perfluorohexanoic acid	0.0062		0.0060		3	30
375-85-9	Perfluoroheptanoic acid	0.00099	J	0.0010	J	1	30
335-67-1	Perfluorooctanoic acid	0.00063	J	0.00091	J	36*	30
375-95-1	Perfluorononanoic acid	0.0045	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0045	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0045	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0045	U	ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0045	U	ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0045	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0045	U	ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0045	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0045	U	ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0045	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0045	U	ND		nc	30
68259-12-1	Perfluorononanesulfonic acid	0.0045	U	ND		nc	30
335-77-3	Perfluorodecanesulfonic acid	0.0045	U	ND		nc	30
79780-39-5	Perfluorododecanesulfonic aci	0.0045	U	ND		nc	30
757124-72-44:2	Fluorotelomer sulfonate	0.018	U	ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0284		0.0314		10	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.018	U	ND		nc	30
754-91-6	PFOSA	0.0045	U	ND		nc	30
31506-32-8	MeFOSA	0.0045	U	ND		nc	30
4151-50-2	EtFOSA	0.0045	U	ND		nc	30
2355-31-9	MeFOSAA	0.0045	U	ND		nc	30
2991-50-6	EtFOSAA	0.0045	U	ND		nc	30
24448-09-7	MeFOSE	0.045	U	ND		nc	30
1691-99-2	EtFOSE	0.045	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.018	U	ND		nc	30
919005-14-4	ADONA	0.018	U	ND		nc	30
377-73-1	PFMPA	0.0091	U	ND		nc	30
863090-89-5	PFMBA	0.0091	U	ND		nc	30
151772-58-6	NFDHA	0.0091	U	ND		nc	30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.018	U	ND		nc	30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.018	U	ND		nc	30

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95747-DUP	6Q14558.D	1	03/08/23	MV	03/06/23	OP95747	S6Q220
FC3191-5	6Q14557.D	1	03/08/23	MV	03/06/23	OP95747	S6Q220

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3191-1, FC3191-2, FC3191-3, FC3191-4, FC3191-5

CAS No.	Compound	FC3191-5 ug/l	DUP Q	ug/l	Q	RPD	Limits
113507-82-7	PFEESA	0.0091	U	ND		nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.023	U	ND		nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.11	U	ND		nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.11	U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC3191-5	Limits
	13C4-PFBA	91%	106%	20-150%
	13C5-PFPeA	90%	117%	20-150%
	13C5-PFHxA	91%	115%	20-150%
	13C4-PFHpA	91%	118%	20-150%
	13C8-PFOA	102%	109%	20-150%
	13C9-PFNA	99%	103%	20-150%
	13C6-PFDA	79%	114%	20-150%
	13C7-PFUnDA	71%	101%	20-150%
	13C2-PFDoDA	53%	83%	20-150%
	13C2-PFTeDA	48%	67%	20-150%
	13C3-PFBS	88%	106%	20-150%
	13C3-PFHxS	88%	105%	20-150%
	13C8-PFOS	92%	91%	20-150%
	13C8-FOSA	92%	93%	20-150%
	d3-MeFOSA	75%	79%	20-150%
	d5-EtFOSA	68%	75%	20-150%
	d3-MeFOSAA	83%	96%	20-150%
	d5-EtFOSAA	81%	93%	20-150%
	d7-MeFOSE	70%	83%	20-150%
	d9-EtFOSE	67%	83%	20-150%
	13C2-4:2FTS	103%	126%	20-150%
	13C2-6:2FTS	100%	123%	20-150%
	13C2-8:2FTS	95%	99%	20-150%
	13C3-HFPO-DA	87%	116%	20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q220-CC220	Injection Date:	03/08/23
Lab File ID:	6Q14540.D	Injection Time:	18:21
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	32616	3.08	31336	5.80	62819	7.26	14444	7.76	17740	8.23
Check Std ^c	33207	3.09	33003	5.82	66058	7.27	14217	7.76	17904	8.23
Upper Limit ^d	65232	3.49	62672	6.22	125638	7.67	28888	8.16	35480	8.63
Lower Limit ^e	9785	2.69	9401	5.42	18846	6.87	4333	7.36	5322	7.83

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
S6Q220-ICCB	31820	3.10	30815	5.82	62571	7.27	13668	7.76	18228	8.23	1
ZZZZZZ	36662	3.21	35999	5.83	72705	7.27	14832	7.78	18729	8.23	1
ZZZZZZ	36941	3.15	36831	5.83	71896	7.27	16313	7.78	22047	8.24	1
ZZZZZZ	38741	3.17	35736	5.83	73057	7.27	17019	7.78	20312	8.23	1
ZZZZZZ	38541	3.17	38538	5.83	71064	7.27	16359	7.78	20852	8.23	1
OP95747-BS	43142	3.21	39512	5.83	78876	7.27	18100	7.76	25275	8.23	1
OP95747-LLBS	37868	3.22	35200	5.83	71931	7.27	16273	7.78	20547	8.23	1
OP95747-MB	32450	3.22	30993	5.83	60762	7.27	14618	7.78	17457	8.24	1
ZZZZZZ	33636	3.22	33262	5.83	69114	7.27	13980	7.76	18127	8.23	1
FC3191-1	33774	3.21	33888	5.83	70852	7.27	15721	7.78	19750	8.23	1
FC3191-2	36375	3.22	34839	5.83	66675	7.27	15513	7.76	20108	8.23	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: S6Q220-ICCB 6Q14540.D 03/08/23 13:42. 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.

6.6.1
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Injection Standard Area Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q220-CC220	Injection Date:	03/08/23
Lab File ID:	6Q14540.D	Injection Time:	18:21
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	5778	7.50	8393	8.49
Check Std ^c	5881	7.51	8821	8.51
Upper Limit ^d	11556	7.91	16786	8.91
Lower Limit ^e	1733	7.11	2518	8.11

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q220-ICCB	5603	7.51	8735	8.51	1
ZZZZZZ	6073	7.52	8999	8.52	1
ZZZZZZ	6443	7.52	9199	8.52	1
ZZZZZZ	6121	7.52	9731	8.52	1
ZZZZZZ	6311	7.51	9560	8.52	1
OP95747-BS	7337	7.51	10899	8.51	1
OP95747-LLBS	6483	7.52	9256	8.52	1
OP95747-MB	5405	7.52	8219	8.52	1
ZZZZZZ	5808	7.51	8488	8.52	1
FC3191-1	5967	7.52	9000	8.52	1
FC3191-2	6254	7.51	9514	8.52	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q220-ICC220 6Q14520.D 03/08/23 13:42. 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.

6.6.1
6

Injection Standard Area Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q220-CC220	Injection Date:	03/08/23
Lab File ID:	6Q14552.D	Injection Time:	21:09
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	32616	3.08	31336	5.80	62819	7.26	14444	7.76	17740	8.23
Check Std ^c	33280	3.10	33503	5.82	62343	7.27	14501	7.76	18089	8.23
Upper Limit ^d	65232	3.50	62672	6.22	125638	7.67	28888	8.16	35480	8.63
Lower Limit ^e	9785	2.70	9401	5.42	18846	6.87	4333	7.36	5322	7.83

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
S6Q220-ICCB	32517	3.09	33147	5.82	65740	7.27	14342	7.76	18218	8.23	1
FC3191-3	37046	3.22	34947	5.83	70383	7.27	15530	7.78	19402	8.23	1
OP95747-MS	35352	3.21	33127	5.83	67167	7.27	15046	7.78	18682	8.23	1
FC3191-4	36729	3.22	35676	5.83	71291	7.27	14910	7.76	18761	8.23	1
FC3191-5	31744	3.22	27967	5.83	59997	7.27	13777	7.76	16772	8.23	1
OP95747-DUP	38154	3.22	36939	5.83	66945	7.29	15508	7.78	21472	8.24	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: S6Q220-ICCB 6Q14520.D 03/08/23 13:42. 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.

6.6.2
6

Injection Standard Area Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q220-CC220	Injection Date:	03/08/23
Lab File ID:	6Q14552.D	Injection Time:	21:09
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	5778	7.50	8393	8.49
Check Std ^c	6030	7.51	8913	8.51
Upper Limit ^d	11556	7.91	16786	8.91
Lower Limit ^e	1733	7.11	2518	8.11

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q220-ICCB	5588	7.51	9132	8.52	1
FC3191-3	6247	7.52	8341	8.51	1
OP95747-MS	5735	7.51	8514	8.51	1
FC3191-4	6137	7.51	9652	8.51	1
FC3191-5	5682	7.52	8648	8.52	1
OP95747-DUP	6666	7.52	8849	8.52	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q220-ICC220 6Q14520.D 03/08/23 13:42. 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.

6.6.2
6

Injection Standard Area Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q221-CC220	Injection Date:	03/09/23
Lab File ID:	6Q14619.D	Injection Time:	13:09
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	32616	3.08	31336	5.80	62819	7.26	14444	7.76	17740	8.23
Check Std ^c	32569	3.09	32297	5.83	65981	7.26	15976	7.77	19740	8.22
Upper Limit ^d	65232	3.49	62672	6.23	125638	7.66	28888	8.17	35480	8.62
Lower Limit ^e	9785	2.69	9401	5.43	18846	6.86	4333	7.37	5322	7.82

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
OP95772-LBS	34735	3.19	33531	5.84	66543	7.27	15885	7.77	18443	8.23	1
OP95772-LLBS	34434	3.18	32172	5.84	64268	7.27	14798	7.78	18385	8.23	1
OP95772-LB	37331	3.18	33241	5.83	71355	7.27	17829	7.77	20567	8.23	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: S6Q220-ICC220 6Q14520.D 03/08/23 13:42. 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.

6.6.3
6

Injection Standard Area Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q221-CC220	Injection Date:	03/09/23
Lab File ID:	6Q14619.D	Injection Time:	13:09
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	5778	7.50	8393	8.49
Check Std ^c	5539	7.50	9316	8.51
Upper Limit ^d	11556	7.90	16786	8.91
Lower Limit ^e	1733	7.10	2518	8.11

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
OP95772-LBS	5738	7.51	8557	8.52	1
OP95772-LLBS	5945	7.53	9075	8.52	1
OP95772-LB	6693	7.51	10270	8.52	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q220-ICC220 6Q14520.D 03/08/23 13:42. 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.

6.6.3
6

Injection Standard Area Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q221-CC220	Injection Date:	03/09/23
Lab File ID:	6Q14643.D	Injection Time:	19:07
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	32616	3.08	31336	5.80	62819	7.26	14444	7.76	17740	8.23
Check Std ^c	32860	3.09	33620	5.83	67095	7.27	15539	7.78	19527	8.25
Upper Limit ^d	65232	3.49	62672	6.23	125638	7.67	28888	8.18	35480	8.65
Lower Limit ^e	9785	2.69	9401	5.43	18846	6.87	4333	7.38	5322	7.85

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
S6Q221-ICCB	32157	3.09	31080	5.83	63856	7.27	16391	7.77	19524	8.23	1
S6Q221-ICCB	32157	3.09	31080	5.83	63856	7.27	16391	7.77	19524	8.23	1
OP95791-BS	31689	3.20	31091	5.83	61687	7.27	14321	7.77	17547	8.23	1
OP95791-LLBS	31223	3.22	30295	5.84	58204	7.27	13590	7.77	18097	8.23	1
OP95791-MB	30472	3.22	30289	5.84	53717	7.29	13661	7.78	17190	8.25	1
FC3167-1	27705	3.22	29212	5.84	59689	7.27	14547	7.78	16279	8.25	1
OP95791-MS	27735	3.20	31199	5.83	61793	7.27	12633	7.78	18504	8.25	1
FC3191-3 ^f	29820	3.11	32320	5.83	62340	7.27	15750	7.77	19230	8.23	5
ZZZZZZ	30215	3.11	30045	5.83	60715	7.27	14330	7.77	17450	8.23	5
S6Q221-ECC220	33564	3.09	32324	5.83	63539	7.27	16292	7.77	19911	8.23	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: S6Q220-ICC220 6Q14520.D 03/08/23 13:42. 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.
- (f) Dilution required (ID recovery standard failure).

Injection Standard Area Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q221-CC220	Injection Date:	03/09/23
Lab File ID:	6Q14643.D	Injection Time:	19:07
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	5778	7.50	8393	8.49
Check Std ^c	6048	7.51	8779	8.52
Upper Limit ^d	11556	7.91	16786	8.92
Lower Limit ^e	1733	7.11	2518	8.12

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q221-ICCB	5954	7.51	9165	8.52	1
S6Q221-ICCB	5954	7.51	9165	8.52	1
OP95791-BS	5444	7.51	8344	8.52	1
OP95791-LLBS	4985	7.51	7959	8.51	1
OP95791-MB	4839	7.53	8407	8.52	1
FC3167-1	5226	7.53	7840	8.52	1
OP95791-MS	5278	7.53	8488	8.52	1
FC3191-3 ^f	5160	7.51	16460	8.51	5
ZZZZZZ	5360	7.51	8400	8.51	5
S6Q221-ECC220	5784	7.51	9285	8.51	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q220-ICC220 6Q14520.D 03/08/23 13:42. 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.
- (f) Dilution required (ID recovery standard failure).

TDCA Retention Time Check

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q220-RT	Injection Date:	03/08/23
Lab File ID:	6Q14514.D	Injection Time:	12:18
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.471	--	--
TDCA	6.895	1.576	1.000
TCDCA	6.746	1.725	1.000
TUDCA	5.931	2.540	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
S6Q220-IC220	6Q14516.D	03/08/23	12:46	00:28	Mass Calibration Verification
S6Q220-IC220	6Q14517.D	03/08/23	13:00	00:42	Initial cal 1
S6Q220-IC220	6Q14518.D	03/08/23	13:14	00:56	Initial cal 2
S6Q220-IC220	6Q14519.D	03/08/23	13:28	01:10	Initial cal 3
S6Q220-ICC220	6Q14520.D	03/08/23	13:42	01:24	Initial cal 4
S6Q220-IC220	6Q14521.D	03/08/23	13:56	01:38	Initial cal 5
S6Q220-IC220	6Q14522.D	03/08/23	14:10	01:52	Initial cal 6
S6Q220-IC220	6Q14523.D	03/08/23	14:24	02:06	Initial cal 7
S6Q220-IC220	6Q14524.D	03/08/23	14:38	02:20	Initial cal 8
S6Q220-IBLK	6Q14525.D	03/08/23	14:52	02:34	Instrument Blank
S6Q220-IBLK	6Q14525.D	03/08/23	14:52	02:34	Instrument Blank
S6Q220-ICV220	6Q14526.D	03/08/23	15:06	02:48	Initial cal verification 4
S6Q220-ICV220	6Q14527.D	03/08/23	15:20	03:02	Initial cal verification 20
S6Q220-CC220	6Q14528.D	03/08/23	15:34	03:16	Continuing cal 4
S6Q220-CC220	6Q14529.D	03/08/23	15:48	03:30	Continuing cal 1.0LL
OP95749-BS	6Q14530.D	03/08/23	16:02	03:44	Blank Spike
OP95749-LLBS	6Q14531.D	03/08/23	16:16	03:58	Blank Spike
OP95749-MB	6Q14532.D	03/08/23	16:30	04:12	Method Blank
ZZZZZZ	6Q14533.D	03/08/23	16:43	04:25	(unrelated sample)
JD60819-1	6Q14534.D	03/08/23	16:57	04:39	(used for QC only; not part of job FC3191)
OP95749-MS	6Q14535.D	03/08/23	17:11	04:53	Matrix Spike
JD60819-2	6Q14536.D	03/08/23	17:25	05:07	(used for QC only; not part of job FC3191)
OP95749-DUP	6Q14537.D	03/08/23	17:39	05:21	Duplicate
ZZZZZZ	6Q14538.D	03/08/23	17:53	05:35	(unrelated sample)
ZZZZZZ	6Q14539.D	03/08/23	18:07	05:49	(unrelated sample)
S6Q220-CC220	6Q14540.D	03/08/23	18:21	06:03	Continuing cal 4
S6Q220-ICCB	6Q14541.D	03/08/23	18:35	06:17	Continuing Calibration Blank
ZZZZZZ	6Q14542.D	03/08/23	18:49	06:31	(unrelated sample)
ZZZZZZ	6Q14543.D	03/08/23	19:03	06:45	(unrelated sample)
ZZZZZZ	6Q14544.D	03/08/23	19:17	06:59	(unrelated sample)
ZZZZZZ	6Q14545.D	03/08/23	19:31	07:13	(unrelated sample)
OP95747-BS	6Q14546.D	03/08/23	19:45	07:27	Blank Spike
OP95747-LLBS	6Q14547.D	03/08/23	19:59	07:41	Blank Spike
OP95747-MB	6Q14548.D	03/08/23	20:13	07:55	Method Blank

TDCA Retention Time Check

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q220-RT	Injection Date:	03/08/23
Lab File ID:	6Q14514.D	Injection Time:	12:18
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q14549.D	03/08/23	20:27	08:09	(unrelated sample)
FC3191-1	6Q14550.D	03/08/23	20:41	08:23	AF-RHMW17S-WGN01LF-2302W4
FC3191-2	6Q14551.D	03/08/23	20:55	08:37	AF-RHMW17S-WQEB01-2302W4
S6Q220-CC220	6Q14552.D	03/08/23	21:09	08:51	Continuing cal 4
S6Q220-ICCB	6Q14553.D	03/08/23	21:23	09:05	Continuing Calibration Blank
FC3191-3	6Q14554.D	03/08/23	21:37	09:19	AF-RHMW17D-WGN01LF-2302W4
OP95747-MS	6Q14555.D	03/08/23	21:51	09:33	Matrix Spike
FC3191-4	6Q14556.D	03/08/23	22:05	09:47	AF-RHMW17D-WQFB01-2302W4
FC3191-5	6Q14557.D	03/08/23	22:19	10:01	AF-RHMW17-WGN01LF-2302W4
OP95747-DUP	6Q14558.D	03/08/23	22:33	10:15	Duplicate
S6Q220-CC220	6Q14559.D	03/08/23	22:47	10:29	Continuing cal 4
S6Q220-ICCB	6Q14560.D	03/08/23	23:01	10:43	Continuing Calibration Blank
S6Q220-CC220	6Q14569.D	03/09/23	01:07	12:49	Continuing cal 4
S6Q220-CC220	6Q14570.D	03/09/23	01:21	13:03	Continuing cal 1.0LL
S6Q220-ICCB	6Q14571.D	03/09/23	01:35	13:17	Continuing Calibration Blank
S6Q220-ICCB	6Q14571.D	03/09/23	01:35	13:17	Continuing Calibration Blank
OP95742-BS	6Q14572.D	03/09/23	01:49	13:31	Blank Spike
OP95742-LLBS	6Q14573.D	03/09/23	02:03	13:45	Blank Spike
OP95742-MB	6Q14574.D	03/09/23	02:17	13:59	Method Blank
ZZZZZZ	6Q14575.D	03/09/23	02:31	14:13	(unrelated sample)
ZZZZZZ	6Q14576.D	03/09/23	02:45	14:27	(unrelated sample)
ZZZZZZ	6Q14577.D	03/09/23	02:59	14:41	(unrelated sample)
ZZZZZZ	6Q14578.D	03/09/23	03:13	14:55	(unrelated sample)
ZZZZZZ	6Q14579.D	03/09/23	03:27	15:09	(unrelated sample)
S6Q220-CC220	6Q14580.D	03/09/23	03:41	15:23	Continuing cal 4
S6Q220-ICCB	6Q14581.D	03/09/23	03:55	15:37	Continuing Calibration Blank
JD60906-3A	6Q14582.D	03/09/23	04:09	15:51	(used for QC only; not part of job FC3191)
OP95742-MS	6Q14583.D	03/09/23	04:23	16:05	Matrix Spike
OP95742-MSD	6Q14584.D	03/09/23	04:37	16:19	Matrix Spike Duplicate
OP95743-BS	6Q14585.D	03/09/23	04:51	16:33	Blank Spike
OP95743-LLBS	6Q14586.D	03/09/23	05:05	16:47	Blank Spike
OP95743-MB	6Q14587.D	03/09/23	05:19	17:01	Method Blank
JD60940-1	6Q14588.D	03/09/23	05:33	17:15	(used for QC only; not part of job FC3191)
OP95743-MS	6Q14589.D	03/09/23	05:47	17:29	Matrix Spike
OP95743-MSD	6Q14590.D	03/09/23	06:01	17:43	Matrix Spike Duplicate
ZZZZZZ	6Q14591.D	03/09/23	06:15	17:57	(unrelated sample)
S6Q220-CC220	6Q14592.D	03/09/23	06:29	18:11	Continuing cal 4
S6Q220-ICCB	6Q14593.D	03/09/23	06:43	18:25	Continuing Calibration Blank
ZZZZZZ	6Q14594.D	03/09/23	06:57	18:39	(unrelated sample)
ZZZZZZ	6Q14595.D	03/09/23	07:11	18:53	(unrelated sample)
ZZZZZZ	6Q14596.D	03/09/23	07:25	19:07	(unrelated sample)
ZZZZZZ	6Q14597.D	03/09/23	07:39	19:21	(unrelated sample)
ZZZZZZ	6Q14598.D	03/09/23	07:53	19:35	(unrelated sample)
ZZZZZZ	6Q14599.D	03/09/23	08:07	19:49	(unrelated sample)

6.7.1

6

TDCA Retention Time Check

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q220-RT	Injection Date:	03/08/23
Lab File ID:	6Q14514.D	Injection Time:	12:18
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q14600.D	03/09/23	08:21	20:03	(unrelated sample)
ZZZZZZ	6Q14601.D	03/09/23	08:35	20:17	(unrelated sample)
ZZZZZZ	6Q14602.D	03/09/23	08:49	20:31	(unrelated sample)
ZZZZZZ	6Q14603.D	03/09/23	09:03	20:45	(unrelated sample)
S6Q220-CC220	6Q14604.D	03/09/23	09:17	20:59	Continuing cal 4
S6Q220-ICCB	6Q14605.D	03/09/23	09:31	21:13	Continuing Calibration Blank
ZZZZZZ	6Q14606.D	03/09/23	09:45	21:27	(unrelated sample)
ZZZZZZ	6Q14607.D	03/09/23	09:59	21:41	(unrelated sample)
ZZZZZZ	6Q14608.D	03/09/23	10:13	21:55	(unrelated sample)
S6Q220-ECC220	6Q14609.D	03/09/23	10:27	22:09	Ending cal 4
S6Q220-ICCB	6Q14610.D	03/09/23	10:41	22:23	Continuing Calibration Blank

6.7.1
6

TDCA Retention Time Check

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q221-RT	Injection Date:	03/09/23
Lab File ID:	6Q14615.D	Injection Time:	12:13
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.510	--	--
TDCA	6.886	1.624	1.000
TCDCA	6.738	1.772	1.000
TUDCA	5.948	2.562	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
S6Q221-IBLK	6Q14618.D	03/09/23	12:55	00:42	Instrument Blank
S6Q221-IBLK	6Q14618.D	03/09/23	12:55	00:42	Instrument Blank
S6Q221-CC220	6Q14619.D	03/09/23	13:09	00:56	Continuing cal 4
S6Q221-CC220	6Q14620.D	03/09/23	13:30	01:17	Continuing cal 1.0LL
OP95772-LBS	6Q14621.D	03/09/23	13:44	01:31	Blank Spike
OP95772-LLBS	6Q14622.D	03/09/23	13:58	01:45	Blank Spike
OP95772-LB	6Q14623.D	03/09/23	14:12	01:59	Leachate Blank
S6Q221-CC220	6Q14631.D	03/09/23	16:04	03:51	Continuing cal 4
S6Q221-ICCB	6Q14632.D	03/09/23	16:33	04:20	Continuing Calibration Blank
JD60059-26AT	6Q14636.D	03/09/23	17:29	05:16	(used for QC only; not part of job FC3191)
OP95772-MS	6Q14637.D	03/09/23	17:43	05:30	Matrix Spike
JD60059-27AT	6Q14638.D	03/09/23	17:57	05:44	(used for QC only; not part of job FC3191)
OP95772-DUP	6Q14639.D	03/09/23	18:11	05:58	Duplicate
JD60059-29AT	6Q14640.D	03/09/23	18:25	06:12	(used for QC only; not part of job FC3191)
OP95772-DUP2	6Q14641.D	03/09/23	18:39	06:26	Duplicate
S6Q221-CC220	6Q14643.D	03/09/23	19:07	06:54	Continuing cal 4
S6Q221-ICCB	6Q14644.D	03/09/23	19:21	07:08	Continuing Calibration Blank
S6Q221-ICCB	6Q14644.D	03/09/23	19:21	07:08	Continuing Calibration Blank
OP95791-BS	6Q14645.D	03/09/23	19:35	07:22	Blank Spike
OP95791-LLBS	6Q14646.D	03/09/23	19:49	07:36	Blank Spike
OP95791-MB	6Q14647.D	03/09/23	20:03	07:50	Method Blank
FC3167-1	6Q14648.D	03/09/23	20:16	08:03	(used for QC only; not part of job FC3191)
OP95791-MS	6Q14649.D	03/09/23	20:30	08:17	Matrix Spike
FC3191-3	6Q14650.D	03/09/23	20:44	08:31	AF-RHMW17D-WGN01LF-2302W4
ZZZZZZ	6Q14651.D	03/09/23	20:58	08:45	(unrelated sample)
S6Q221-ECC220	6Q14652.D	03/09/23	21:12	08:59	Ending cal 4
S6Q221-ICCB	6Q14653.D	03/09/23	21:26	09:13	Continuing Calibration Blank
S6Q221-ICCB	6Q14653.D	03/09/23	21:26	09:13	Continuing Calibration Blank

Ion Ratio Summary

Job Number: FC3191
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q220	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios					
		PFBA	PFPeA	PFHxA	PFHpA	PFOA	6:2FTS
S6Q220-ICC220	6Q14520.D	0	0	4.4	14	13.6	21.9
FC3191-1	6Q14550.D					13.3	19.4
FC3191-2	6Q14551.D						
FC3191-3	6Q14554.D						
FC3191-4	6Q14556.D						
FC3191-5	6Q14557.D	0	0	4.2	15.3	7.4	21.7

6.8.1

6

Isotope Dilution Standard Recovery Summary

Job Number: FC3191
 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
FC3191-1	6Q14550.D	59	91	96	97	91	99	92	89
FC3191-2	6Q14551.D	101	98	97	96	101	96	96	94
FC3191-3	6Q14650.D	3* a	29	95	95	106	101	107	98
FC3191-3	6Q14554.D	2* a	29	96	100	93	98	93	106
FC3191-4	6Q14556.D	99	94	91	95	96	99	105	93
FC3191-5	6Q14557.D	106	117	115	118	109	103	114	101
OP95747-BS	6Q14546.D	22	87	83	90	87	77	79	72
OP95747-DUP	6Q14558.D	91	90	91	91	102	99	79	71
OP95747-LLBS	6Q14547.D	96	95	98	104	94	84	92	93
OP95747-MB	6Q14548.D	111	110	111	112	110	98	112	105
OP95747-MS	6Q14555.D	2* a	22	99	104	95	101	104	101
S6Q220-ICCB	6Q14541.D	101	99	103	107	101	105	98	99
S6Q220-ICCB	6Q14553.D	100	94	93	98	95	99	92	95
S6Q220-IBLK	6Q14525.D	101	94	92	94	99	116	100	103

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.

Isotope Dilution Standard Recovery Summary

Job Number: FC3191
 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
FC3191-1	6Q14550.D	77	52	102	97	86	91	71	62
FC3191-2	6Q14551.D	82	76	94	101	96	82	76	75
FC3191-3	6Q14650.D	91	64	117	108	50	52	54	51
FC3191-3	6Q14554.D	93	72	96	93	112	108	100	100
FC3191-4	6Q14556.D	84	92	97	97	92	88	79	80
FC3191-5	6Q14557.D	83	67	106	105	91	93	79	75
OP95747-BS	6Q14546.D	68	64	83	81	87	83	71	65
OP95747-DUP	6Q14558.D	53	48	88	88	92	92	75	68
OP95747-LLBS	6Q14547.D	88	86	96	96	92	93	78	76
OP95747-MB	6Q14548.D	88	82	115	99	119	95	74	72
OP95747-MS	6Q14555.D	85	65	94	106	110	100	93	94
S6Q220-ICCB	6Q14541.D	97	94	98	100	96	105		
S6Q220-ICCB	6Q14553.D	92	91	98	104	92	95		
S6Q220-IBLK	6Q14525.D	101	107	109	109	99	106		

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%

6.9.1

6

Isotope Dilution Standard Recovery Summary

Job Number: FC3191
 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
FC3191-1	6Q14550.D	89	96	71	67	109	93	87	89
FC3191-2	6Q14551.D	100	86	82	80	111	99	105	96
FC3191-3	6Q14650.D	67	63	45	46	146	130	114	94
FC3191-3	6Q14554.D	138	161* a	98	92	142	105	110	82
FC3191-4	6Q14556.D	88	92	86	84	109	113	109	91
FC3191-5	6Q14557.D	96	93	83	83	126	123	99	116
OP95747-BS	6Q14546.D	81	83	68	64	93	88	90	83
OP95747-DUP	6Q14558.D	83	81	70	67	103	100	95	87
OP95747-LLBS	6Q14547.D	92	98	84	79	113	106	103	93
OP95747-MB	6Q14548.D	115	98	78	80	124	130	120	105
OP95747-MS	6Q14555.D	124	144	78	77	135	104	104	90
S6Q220-ICCB	6Q14541.D	97	94			123	110	128	
S6Q220-ICCB	6Q14553.D	94	96			129	114	115	
S6Q220-IBLK	6Q14525.D	103	102			107	106	113	

Isotope Dilution Standards **Recovery Limits**

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

(a) Outside control limits.

Initial Calibration Summary

Job Number: FC3191
 Account: AECOM/CD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-ICC220
 Lab FileID: 6Q14520.D

Initial Calibration Report

Method Path	Method File	Batch Name	Last Calib Update	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD	Level Last Update Time
D:\MassHunter\Methods	1633_030823_S6Q220.quantmethod.xml	D:\MassHunter\Data\030823_1633_S6Q220\QuantResults\s6q220.batch.bin	3/8/2023 2:56:53 PM	D:\MassHunter\Data\030823_1633_S6Q220\6Q14517.d	Avg RF	0.2672	0.2466	0.2629	0.2505	0.2747	0.3034	0.3026	0.2865	0.2743	7.936	3/8/2023 2:56:53 PM
D:\MassHunter\Data\030823_1633_S6Q220\6Q14518.d	Avg RF	0.3361	0.3100	0.3254	0.3049	0.3376	0.3695	0.3668	0.3400	0.3696	0.3400	0.3696	0.3668	0.3400	7.734	3/8/2023 2:56:53 PM
D:\MassHunter\Data\030823_1633_S6Q220\6Q14519.d	Avg RF	0.0582	0.0573	0.0577	0.0520	0.0587	0.0624	0.0622	0.0641	0.0622	0.0624	0.0622	0.0641	0.0591	6.478	3/8/2023 2:56:53 PM
D:\MassHunter\Data\030823_1633_S6Q220\6Q14520.d	Avg RF	1.1072	1.0516	1.1533	1.0542	1.1935	1.2632	1.2756	1.1961	1.2632	1.2632	1.2756	1.1961	1.1618	7.432	3/8/2023 2:56:53 PM
D:\MassHunter\Data\030823_1633_S6Q220\6Q14521.d	Avg RF	0.4063	0.3634	0.3650	0.3543	0.3832	0.4328	0.4162	0.4009	0.3832	0.4328	0.4162	0.4009	0.3903	7.223	3/8/2023 2:56:53 PM
D:\MassHunter\Data\030823_1633_S6Q220\6Q14522.d	Avg RF	0.0671	0.0641	0.0702	0.0637	0.0731	0.0766	0.0672	0.0645	0.0731	0.0766	0.0672	0.0645	0.0683	6.821	3/8/2023 2:56:53 PM
D:\MassHunter\Data\030823_1633_S6Q220\6Q14523.d	Avg RF	1.0246	0.8734	1.0285	0.8377	1.0321	1.1159	0.9933	1.0384	1.0321	1.1159	0.9933	1.0384	0.9930	9.273	3/8/2023 2:56:53 PM
D:\MassHunter\Data\030823_1633_S6Q220\6Q14524.d	Avg RF	0.2207	0.2120	0.2199	0.2047	0.2218	0.2469	0.2098	0.1987	0.2218	0.2469	0.2098	0.1987	0.2168	6.755	3/8/2023 2:56:53 PM
I M5-PFHxA	Avg RF	1.4255	1.3408	1.4804	1.3096	1.4325	1.6108	1.4118	1.4038	1.4325	1.6108	1.4118	1.4038	1.4269	6.417	3/8/2023 2:56:53 PM
T 7:3FTCA	Avg RF	0.1036	0.0917	0.1009	0.0972	0.1067	0.1192	0.1080	0.1047	0.1067	0.1192	0.1080	0.1047	0.1040	7.819	3/8/2023 2:56:53 PM
I M4-PFHpA	Avg RF	1.7203	1.4250	1.6764	1.4371	1.5999	1.7125	1.6884	1.5748	1.5999	1.7125	1.6884	1.5748	1.6043	7.392	3/8/2023 2:56:53 PM
T PFHpA	Avg RF	1.4046	1.2137	1.1666	1.0631	1.2496	1.4194	1.2990	1.1975	1.2496	1.4194	1.2990	1.1975	1.2517	9.595	3/8/2023 2:56:53 PM
I M8-PFOA	Avg RF	0.9158	0.8444	0.8747	0.8337	0.8668	0.9141	0.8281	0.8119	0.8668	0.9141	0.8281	0.8119	0.8637	4.620	3/8/2023 2:56:53 PM
T PFOA	Avg RF	1.6280	1.3351	1.6259	1.3790	1.6317	1.8541	1.7679	1.6261	1.6317	1.8541	1.7679	1.6261	1.6060	10.904	3/8/2023 2:56:53 PM
I M9-PFNA	Avg RF	1.1725	1.0594	1.2691	1.0666	1.1449	1.3189	1.4642	1.2036	1.1449	1.3189	1.4642	1.2036	1.2124	11.191	3/8/2023 2:56:53 PM
T PFNA	Avg RF	1.6280	1.3351	1.6259	1.3790	1.6317	1.8541	1.7679	1.6261	1.6317	1.8541	1.7679	1.6261	1.6060	10.904	3/8/2023 2:56:53 PM
I M6-PFDA	Avg RF	1.1725	1.0594	1.2691	1.0666	1.1449	1.3189	1.4642	1.2036	1.1449	1.3189	1.4642	1.2036	1.2124	11.191	3/8/2023 2:56:53 PM
T PFDA	Avg RF	1.6280	1.3351	1.6259	1.3790	1.6317	1.8541	1.7679	1.6261	1.6317	1.8541	1.7679	1.6261	1.6060	10.904	3/8/2023 2:56:53 PM
I M7-PFUnDA	Avg RF	1.1725	1.0594	1.2691	1.0666	1.1449	1.3189	1.4642	1.2036	1.1449	1.3189	1.4642	1.2036	1.2124	11.191	3/8/2023 2:56:53 PM
T PFUnDA	Avg RF	1.6280	1.3351	1.6259	1.3790	1.6317	1.8541	1.7679	1.6261	1.6317	1.8541	1.7679	1.6261	1.6060	10.904	3/8/2023 2:56:53 PM
I M2-PFDODA	Avg RF	1.1725	1.0594	1.2691	1.0666	1.1449	1.3189	1.4642	1.2036	1.1449	1.3189	1.4642	1.2036	1.2124	11.191	3/8/2023 2:56:53 PM
T PFDODA	Avg RF	1.6280	1.3351	1.6259	1.3790	1.6317	1.8541	1.7679	1.6261	1.6317	1.8541	1.7679	1.6261	1.6060	10.904	3/8/2023 2:56:53 PM

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Initial Calibration Summary

Job Number: FC3191
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-ICC220
 Lab FileID: 6Q14520.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	1.0793	0.9444	0.9706	0.9348	1.0196	1.1321	1.1363	0.9881	1.0257	7.884
T PFTfDA	Avg RF	1.0614	0.9331	1.1338	0.9793	1.0258	1.0825	1.0661	0.9067	1.0236	7.629
I M2-PFTeDA	Avg RF	1.6699	1.4483	1.5330	1.4911	1.4995	1.7467	1.5446	1.5432	1.5595	6.370
T PFTeDA	Avg RF	1.6699	1.4483	1.5330	1.4911	1.4995	1.7467	1.5446	1.5432	1.5595	6.370
I M8-FOSA	Avg RF	0.9570	0.9761	0.9977	1.0135	1.0057	1.1625	1.0991	0.9775	1.0236	6.898
T FOSA	Avg RF	0.9570	0.9761	0.9977	1.0135	1.0057	1.1625	1.0991	0.9775	1.0236	6.898
I M3-PFBS	Avg RF	0.9969	0.8677	1.0792	0.9840	1.1012	1.1496	1.1368	1.0695	1.0481	8.957
T PFBS	Avg RF	0.9969	0.8677	1.0792	0.9840	1.1012	1.1496	1.1368	1.0695	1.0481	8.957
I M3-PFHxS	Avg RF	1.3387	1.4303	1.4947	1.3517	1.5077	1.6260	1.4596	1.3407	1.4437	6.948
T PFPeS	Avg RF	1.3387	1.4303	1.4947	1.3517	1.5077	1.6260	1.4596	1.3407	1.4437	6.948
T PFHxS	Avg RF	1.2809	1.2303	1.2071	1.1037	1.2520	1.2674	1.2812	1.1469	1.2212	5.349
I M8-PFOS	Avg RF	1.3962	0.9749	1.1143	1.1199	1.1891	1.2755	1.2607	1.1070	1.1797	10.996
T PFHpS	Avg RF	1.3962	0.9749	1.1143	1.1199	1.1891	1.2755	1.2607	1.1070	1.1797	10.996
T PFOS	Avg RF	1.3590	1.1316	1.2076	1.1968	1.2705	1.3612	1.2111	1.1871	1.2406	6.680
T PFNS	Avg RF	1.2064	1.1348	1.1755	1.0816	1.2282	1.3421	1.3032	1.2041	1.2095	6.978
T PFDS	Avg RF	0.9507	0.7122	0.8277	0.8075	0.8391	0.9154	0.8950	0.8497	0.8497	8.656
T PFDoDS	Avg RF	0.5869	0.4841	0.4564	0.4823	0.4909	0.5656	0.5341	0.5158	0.5145	8.735
I M2-4:2FTS	Avg RF	12.15	10.41	10.87	9.9661	11.19	12.56	11.48	11.66	11.28	7.655
T 4:2FTS	Avg RF	12.15	10.41	10.87	9.9661	11.19	12.56	11.48	11.66	11.28	7.655
I M2-6:2FTS	Avg RF	9.1744	6.0411	7.7776	7.0270	7.8819	8.2880	7.5439	6.4488	7.5228	13.390
T 6:2FTS	Avg RF	9.1744	6.0411	7.7776	7.0270	7.8819	8.2880	7.5439	6.4488	7.5228	13.390
I M2-8:2FTS	Avg RF	4.0121	3.7398	4.5568	3.9618	3.9585	4.4630	3.9805	3.1702	3.9803	10.749
T 8:2FTS	Avg RF	4.0121	3.7398	4.5568	3.9618	3.9585	4.4630	3.9805	3.1702	3.9803	10.749
I M3-MeFOSAA	Avg RF	1.1190	0.9760	1.1227	0.9799	1.0851	1.0833	1.0464	1.0594	1.0590	5.322
T MeFOSAA	Avg RF	1.1190	0.9760	1.1227	0.9799	1.0851	1.0833	1.0464	1.0594	1.0590	5.322
I M3-HFO-DA	Avg RF	0.9289	0.8699	0.9411	0.9259	1.0512	1.1728	1.0572	1.0454	0.9991	9.919
T HFO-DA	Avg RF	0.9289	0.8699	0.9411	0.9259	1.0512	1.1728	1.0572	1.0454	0.9991	9.919
T ADONA	Avg RF	20.75	20.43	20.52	20.40	21.58	23.79	19.61	20.88	20.99	5.982
T 9Cl-PF3ONS	Avg RF	9.5421	9.2999	10.72	10.64	10.83	13.13	10.99	10.70	10.73	10.740
T 11Cl-PF3OUds	Avg RF	5.8485	4.9829	6.1526	5.4268	5.9338	6.8565	6.0475	5.9932	5.9052	9.226
I M5-EFOSAA	Avg RF	0.6752	0.8214	0.7623	0.8183	0.9207	0.9630	0.9099	0.8569	0.8410	11.087
T EFOSAA	Avg RF	0.6752	0.8214	0.7623	0.8183	0.9207	0.9630	0.9099	0.8569	0.8410	11.087
I M7-MeFOSE	Avg RF	1.0276	0.8964	1.0399	0.9618	1.0235	1.1672	1.1231	0.9757	1.0269	8.475
T MeFOSE	Avg RF	1.0276	0.8964	1.0399	0.9618	1.0235	1.1672	1.1231	0.9757	1.0269	8.475
I M9-EFOSE	Avg RF	1.0145	0.9267	0.9172	0.9529	1.0138	1.1019	1.1213	1.1212	1.0212	8.363
T EFOSE	Avg RF	1.0145	0.9267	0.9172	0.9529	1.0138	1.1019	1.1213	1.1212	1.0212	8.363

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Initial Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-ICC220
 Lab FileID: 6Q14520.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA		1.1182	1.2551	1.1932	1.0489	1.2805	1.3036	1.2233	1.2853	1.2135	7.382
T EFOSA	Avg RF					ISTD					
I M3-MeFOSA		1.2177	1.1789	1.0606	1.1676	1.2167	1.4823	1.3413	1.1819	1.2309	10.363
T MeFOSA	Avg RF					ISTD					
I 13C4-PFOS		1.1603	1.1451	1.1706	1.0746	1.0710	1.2487	1.0441	1.2954	1.1512	7.669
S d3-MeFOSAA	Linear					ISTD					
S d5-EFOSAA	Linear	1.0721	1.0603	1.0924	1.1075	0.9824	1.0989	0.9700	1.1704	1.0693	6.183
S 13C8-PFOS	Linear	0.7416	0.9220	0.9463	0.8298	0.8151	0.8669	0.7707	0.9602	0.8566	9.485
S 13C8-FOSA	Linear	1.9067	1.9589	2.0580	1.9315	1.8277	1.9664	1.7016	2.3471	1.9622	9.580
S d7-MeFOSE	Linear	0.2894	0.3110	0.3135	0.2850	0.2733	0.3032	0.2509	0.3219	0.2935	8.064
S d3-MeFOSA	Linear	0.7013	0.6916	0.7672	0.6748	0.6882	0.6988	0.6278	0.8754	0.7156	10.480
S d9-EFOSE	Linear	0.1970	0.2079	0.2355	0.2052	0.1969	0.2164	0.1771	0.1917	0.2035	8.580
S d5-EFOSA	Linear	0.7906	0.7707	0.8139	0.8054	0.6966	0.8260	0.7224	0.8691	0.7868	7.117
I 13C3-PFBA		1.1452	1.1595	1.1599	1.1477	1.1338	1.1433	1.1395	1.1625	1.1489	0.920
S 13C4-PFBA	Linear					ISTD					
I 1802-PFHxS		0.1226	0.1237	0.1296	0.1348	0.1240	0.1175	0.1044	0.0959	0.1191	10.866
S 13C2-4:2FTS	Linear					ISTD					
S 13C3-PFBS	Linear	2.1952	2.2250	2.1632	2.2948	2.0894	2.2233	2.0277	2.2307	2.1812	3.934
S 13C2-6:2FTS	Linear	0.1473	0.1804	0.1634	0.1633	0.1565	0.1561	0.1451	0.1399	0.1565	8.213
S 13C3-PFHxS	Linear	1.4218	1.4191	1.4537	1.4823	1.3311	1.4541	1.3817	1.4993	1.4304	3.826
S 13C2-8:2FTS	Linear	0.1833	0.1639	0.1539	0.1561	0.1667	0.1526	0.1339	0.1495	0.1575	9.133
I 13C4-PFOA		0.8027	0.8663	0.8951	0.8762	0.8337	0.7551	0.8184	0.8114	0.8324	5.468
S 13C8-PFOA	Linear					ISTD					
I 13C2-PFDA		0.7611	0.7651	0.7049	0.8345	0.7900	0.6852	0.7350	0.7127	0.7486	6.572
S 13C6-PFDA	Linear					ISTD					
S 13C7-PFUnDA	Linear	0.8260	0.8505	0.8038	0.9409	0.8395	0.7445	0.7688	0.7961	0.8210	7.327
S 13C2-PFDODA	Linear	1.1057	1.1461	1.0652	1.0959	1.0400	0.9423	1.0150	1.0616	1.0590	5.875
S 13C2-PTEdA	Linear	0.6200	0.6828	0.6210	0.6904	0.6617	0.6275	0.7468	0.7289	0.6724	7.259
I 13C5-PFNA		0.9529	0.9567	0.9437	0.9249	0.9396	1.0690	0.9182	1.0035	0.9636	5.171
S 13C9-PFNA	Linear					ISTD					
I 13C2-PFHxA		0.5860	0.5795	0.5932	0.6099	0.6111	0.5938	0.5818	0.5866	0.5927	2.027
S 13C5-PPeA	Linear					ISTD					
S 13C5-PFHxA	Linear	0.9665	0.9952	1.0100	1.0674	1.0568	0.9924	1.0836	1.0302	1.0253	4.018
S 13C3-HPOdA	Linear	0.1134	0.1169	0.1143	0.1158	0.1190	0.1089	0.1178	0.1101	0.1145	3.134
S 13C4-PFHpA	Linear	0.9194	0.9651	0.9903	1.0401	1.0283	1.0372	0.9842	1.0223	0.9984	4.200

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

Initial Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-ICC220
 Lab FileID: 6Q14520.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 = 1.148933 * x	
S 13C5-PFPeA	Linear	y = 0.592731 * x	
S 13C2-4:2FTS	Linear	y = 0.119051 * x	
S 13C5-PFHxA	Linear	y = 1.025264 * x	
S 13C3-PFBS	Linear	y = 2.181155 * x	
S 13C3-HFPO-DA	Linear	y = 0.114531 * x	
S 13C4-PFHpA	Linear	y = 0.998354 * x	
S 13C2-6:2FTS	Linear	y = 0.156514 * x	
S 13C8-PFOA	Linear	y = 0.832366 * x	
S 13C3-PFHxS	Linear	y = 1.430405 * x	
S 13C9-PFNA	Linear	y = 0.963581 * x	
S 13C2-8:2FTS	Linear	y = 0.157475 * x	
S 13C6-PEDA	Linear	y = 0.748564 * x	
S d3-MeFOSAA	Linear	y = 1.151224 * x	
S d5-EFOSAA	Linear	y = 1.069258 * x	
S 13C8-PFOS	Linear	y = 0.856576 * x	
S 13C7-PFUridA	Linear	y = 0.821013 * x	
S 13C2-PFDODA	Linear	y = 1.058969 * x	
S 13C2-PFTeDA	Linear	y = 0.672376 * x	
S 13C8-FOSA	Linear	y = 1.962216 * x	
S d7-MeFOSE	Linear	y = 0.293520 * x	
S d3-MeFOSA	Linear	y = 0.715638 * x	
S d9-EFOSE	Linear	y = 0.203472 * x	
S d5-EFOSA	Linear	y = 0.786831 * x	

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

Initial Calibration Verification

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-ICV220
 Lab FileID: 6Q14526.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\030823_1633_S6Q220\s6q220.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\030823_1633_S6Q220\6Q14517.d
 2:D:\MassHunter\Data\030823_1633_S6Q220\6Q14518.d
 3:D:\MassHunter\Data\030823_1633_S6Q220\6Q14519.d
 4:D:\MassHunter\Data\030823_1633_S6Q220\6Q14520.d
 5:D:\MassHunter\Data\030823_1633_S6Q220\6Q14521.d
 6:D:\MassHunter\Data\030823_1633_S6Q220\6Q14522.d
 7:D:\MassHunter\Data\030823_1633_S6Q220\6Q14523.d
 8:D:\MassHunter\Data\030823_1633_S6Q220\6Q14524.d

Data File: 6Q14526
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.846	16.9	116.9
13C2-6:2FTS	5.000	5.667	13.3	113.3
13C2-8:2FTS	5.000	4.936	-1.3	98.7
13C2-PFDoDA	1.250	1.125	-10.0	90.0
13C2-PFTeDA	1.250	1.363	9.0	109.0
13C3-PFBS	2.500	2.639	5.6	105.6
13C3-PFHxS	2.500	2.652	6.1	106.1
13C4-PFBA	10.000	10.011	0.1	100.1
13C4-PFHpA	2.500	2.590	3.6	103.6
13C5-PFHxA	2.500	2.549	2.0	102.0
13C5-PFPeA	5.000	5.053	1.1	101.1
13C6-PFDA	1.250	1.153	-7.8	92.2
13C7-PFUnDA	1.250	1.264	1.2	101.2
13C8-FOSA	2.500	2.572	2.9	102.9
13C8-PFOA	2.500	2.585	3.4	103.4
13C8-PFOS	2.500	2.740	9.6	109.6
13C9-PFNA	1.250	1.179	-5.7	94.3
4:2FTS	9.375	9.322	-0.6	99.4
6:2FTS	9.500	10.284	8.3	108.3
8:2FTS	9.600	12.117	26.2	126.2
d3-MeFOSAA	5.000	5.453	9.1	109.1
EtFOSAA	2.500	2.453	-1.9	98.1
FOSA	2.500	2.450	-2.0	98.0
MeFOSAA	2.500	2.420	-3.2	96.8
PFBA	10.000	9.886	-1.1	98.9
PFBS	2.218	2.260	1.9	101.9
PFDA	2.500	2.680	7.2	107.2
PFDoDA	2.500	2.548	1.9	101.9
PFDS	2.413	2.108	-12.6	87.4
PFHpA	2.500	2.459	-1.6	98.4
PFHpS	2.383	2.196	-7.9	92.1
PFHxA	2.500	2.440	-2.4	97.6
PFHxS	2.285	2.136	-6.5	93.5
PFNA	2.500	2.510	0.4	100.4
PFNS	2.405	2.150	-10.6	89.4
PFOA	2.500	2.433	-2.7	97.3
PFOS	2.320	2.271	-2.1	97.9

Initial Calibration Verification

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-ICV220
 Lab FileID: 6Q14526.D

PFPeA	5.000	4.993	-0.1	99.9
PFPeS	2.353	2.289	-2.7	97.3
PFTeDA	2.500	2.507	0.3	100.3
PFTTrDA	2.500	2.482	-0.7	99.3
PFUnDA	2.500	2.475	-1.0	99.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	9.450	9.737	3.0	103.0
13C3-HFPO-DA	10.000	10.191	1.9	101.9
9C1-PF3ONS	9.350	9.848	5.3	105.3
ADONA	9.450	9.741	3.1	103.1
HFPO-DA	10.000	9.678	-3.2	96.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.434	-0.4	99.6
5:3FTCA	62.400	63.284	1.4	101.4
7:3FTCA	62.400	65.800	5.4	105.4
d3-MeFOSA	2.500	2.424	-3.0	97.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.515	0.6	100.6
EtFOSE	25.000	24.822	-0.7	99.3
MeFOSA	2.500	2.720	8.8	108.8
MeFOSE	25.000	23.545	-5.8	94.2
PFDoDS	2.425	2.345	-3.3	96.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.070	1.4	101.4
d7-MeFOSE	25.000	26.036	4.1	104.1
d9-EtFOSE	25.000	25.249	1.0	101.0
d5-EtFOSA	2.500	2.525	1.0	101.0
NFDHA	5.000	4.984	-0.3	99.7
PFMBA	5.000	4.849	-3.0	97.0
PFMPA	5.000	4.871	-2.6	97.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.549	2.2	102.2

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-ICV220
 Lab FileID: 6Q14527.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\030823_1633_S6Q220\s6q220.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\030823_1633_S6Q220\6Q14517.d
 2:D:\MassHunter\Data\030823_1633_S6Q220\6Q14518.d
 3:D:\MassHunter\Data\030823_1633_S6Q220\6Q14519.d
 4:D:\MassHunter\Data\030823_1633_S6Q220\6Q14520.d
 5:D:\MassHunter\Data\030823_1633_S6Q220\6Q14521.d
 6:D:\MassHunter\Data\030823_1633_S6Q220\6Q14522.d
 7:D:\MassHunter\Data\030823_1633_S6Q220\6Q14523.d
 8:D:\MassHunter\Data\030823_1633_S6Q220\6Q14524.d

Data File: 6Q14527
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.289	5.8	105.8
13C2-6:2FTS	5.000	6.132	22.6	122.6
13C2-8:2FTS	5.000	4.877	-2.5	97.5
13C2-PFDoDA	1.250	1.141	-8.7	91.3
13C2-PFTeDA	1.250	1.240	-0.8	99.2
13C3-PFBS	2.500	2.710	8.4	108.4
13C3-PFHxS	2.500	2.549	2.0	102.0
13C4-PFBA	10.000	10.148	1.5	101.5
13C4-PFHpA	2.500	2.625	5.0	105.0
13C5-PFHxA	2.500	2.510	0.4	100.4
13C5-PFPeA	5.000	5.154	3.1	103.1
13C6-PFDA	1.250	1.154	-7.7	92.3
13C7-PFUnDA	1.250	1.249	-0.1	99.9
13C8-FOSA	2.500	2.600	4.0	104.0
13C8-PFOA	2.500	2.535	1.4	101.4
13C8-PFOS	2.500	2.425	-3.0	97.0
13C9-PFNA	1.250	1.330	6.4	106.4
4:2FTS	20.000	22.599	13.0	113.0
6:2FTS	20.000	18.462	-7.7	92.3
8:2FTS	20.000	22.528	12.6	112.6
d3-MeFOSAA	5.000	4.535	-9.3	90.7
EtFOSAA	20.000	18.464	-7.7	92.3
FOSA	20.000	20.225	1.1	101.1
MeFOSAA	20.000	21.445	7.2	107.2
PFBA	20.000	19.595	-2.0	98.0
PFBS	20.000	20.588	2.9	102.9
PFDA	20.000	20.585	2.9	102.9
PFDoDA	20.000	18.954	-5.2	94.8
PFDS	20.000	19.362	-3.2	96.8
PFHpA	20.000	20.423	2.1	102.1
PFHpS	20.000	19.551	-2.2	97.8
PFHxA	20.000	21.619	8.1	108.1
PFHxS	20.000	22.110	10.5	110.5
PFNA	20.000	23.143	15.7	115.7
PFNS	20.000	20.150	0.7	100.7
PFOA	20.000	19.678	-1.6	98.4
PFOS	20.000	16.892	-15.5	84.5

Initial Calibration Verification

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-ICV220
 Lab FileID: 6Q14527.D

PFPeA	20.000	22.036	10.2	110.2
PFPeS	20.000	22.130	10.7	110.7
PFTeDA	20.000	21.596	8.0	108.0
PFTrDA	20.000	17.161	-14.2	85.8
PFUnDA	20.000	18.780	-6.1	93.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	22.754	13.8	113.8
13C3-HFPO-DA	10.000	10.068	0.7	100.7
9C1-PF3ONS	20.000	22.565	12.8	112.8
ADONA	20.000	21.888	9.4	109.4
HFPO-DA	20.000	21.954	9.8	109.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	19.067	-4.7	95.3
5:3FTCA	20.000	21.799	9.0	109.0
7:3FTCA	20.000	21.480	7.4	107.4
d3-MeFOSA	2.500	2.445	-2.2	97.8
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	19.824	-0.9	99.1
EtFOSE	100.000	96.457	-3.5	96.5
MeFOSA	20.000	19.065	-4.7	95.3
MeFOSE	100.000	96.151	-3.8	96.2
PFDoDS	20.000	18.146	-9.3	90.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.984	-0.3	99.7
d7-MeFOSE	25.000	23.478	-6.1	93.9
d9-EtFOSE	25.000	23.330	-6.7	93.3
d5-EtFOSA	2.500	2.406	-3.7	96.3
NFDHA	20.000	20.167	0.8	100.8
PFMBA	20.000	20.205	1.0	101.0
PFMPA	20.000	20.330	1.7	101.7
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	20.000	19.435	-2.8	97.2

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-CC220
 Lab FileID: 6Q14528.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\030823_1633_S6Q220\s6q220.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\030823_1633_S6Q220\6Q14517.d
 2:D:\MassHunter\Data\030823_1633_S6Q220\6Q14518.d
 3:D:\MassHunter\Data\030823_1633_S6Q220\6Q14519.d
 4:D:\MassHunter\Data\030823_1633_S6Q220\6Q14520.d
 5:D:\MassHunter\Data\030823_1633_S6Q220\6Q14521.d
 6:D:\MassHunter\Data\030823_1633_S6Q220\6Q14522.d
 7:D:\MassHunter\Data\030823_1633_S6Q220\6Q14523.d
 8:D:\MassHunter\Data\030823_1633_S6Q220\6Q14524.d

Data File: 6Q14528
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.546	10.9	110.9
13C2-6:2FTS	5.000	5.745	14.9	114.9
13C2-8:2FTS	5.000	5.616	12.3	112.3
13C2-PFDoDA	1.250	1.098	-12.1	87.9
13C2-PFTeDA	1.250	1.267	1.4	101.4
13C3-PFBS	2.500	2.744	9.8	109.8
13C3-PFHxS	2.500	2.635	5.4	105.4
13C4-PFBA	10.000	9.998	0.0	100.0
13C4-PFHpA	2.500	2.462	-1.5	98.5
13C5-PFHxA	2.500	2.494	-0.2	99.8
13C5-PFPeA	5.000	4.809	-3.8	96.2
13C6-PFDA	1.250	1.178	-5.8	94.2
13C7-PFUnDA	1.250	1.221	-2.3	97.7
13C8-FOSA	2.500	2.546	1.8	101.8
13C8-PFOA	2.500	2.632	5.3	105.3
13C8-PFOS	2.500	2.538	1.5	101.5
13C9-PFNA	1.250	1.235	-1.2	98.8
4:2FTS	9.375	9.510	1.4	101.4
6:2FTS	9.500	9.248	-2.7	97.3
8:2FTS	9.600	9.262	-3.5	96.5
d3-MeFOSAA	5.000	4.892	-2.2	97.8
EtFOSAA	2.500	2.252	-9.9	90.1
FOSA	2.500	2.325	-7.0	93.0
MeFOSAA	2.500	2.250	-10.0	90.0
PFBA	10.000	9.214	-7.9	92.1
PFBS	2.218	2.007	-9.5	90.5
PFDA	2.500	2.381	-4.7	95.3
PFDoDA	2.500	2.320	-7.2	92.8
PFDS	2.413	2.152	-10.8	89.2
PFHpA	2.500	2.174	-13.0	87.0
PFHpS	2.383	2.200	-7.7	92.3
PFHxA	2.500	2.347	-6.1	93.9
PFHxS	2.285	2.006	-12.2	87.8
PFNA	2.500	2.190	-12.4	87.6
PFNS	2.405	2.119	-11.9	88.1
PFOA	2.500	2.190	-12.4	87.6
PFOS	2.320	2.162	-6.8	93.2

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-CC220
 Lab FileID: 6Q14528.D

PFPeA	5.000	4.649	-7.0	93.0
PFPeS	2.353	2.224	-5.5	94.5
PFTeDA	2.500	2.269	-9.2	90.8
PFTrDA	2.500	2.185	-12.6	87.4
PFUnDA	2.500	2.115	-15.4	84.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	9.450	10.041	6.3	106.3
13C3-HFPO-DA	10.000	9.303	-7.0	93.0
9C1-PF3ONS	9.350	8.979	-4.0	96.0
ADONA	9.450	9.148	-3.2	96.8
HFPO-DA	10.000	9.657	-3.4	96.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.002	-11.8	88.2
5:3FTCA	62.400	58.844	-5.7	94.3
7:3FTCA	62.400	62.482	0.1	100.1
d3-MeFOSA	2.500	2.514	0.6	100.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.442	-2.3	97.7
EtFOSE	25.000	24.611	-1.6	98.4
MeFOSA	2.500	2.260	-9.6	90.4
MeFOSE	25.000	23.251	-7.0	93.0
PFDoDS	2.425	2.264	-6.6	93.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.941	-1.2	98.8
d7-MeFOSE	25.000	25.065	0.3	100.3
d9-EtFOSE	25.000	24.239	-3.0	97.0
d5-EtFOSA	2.500	2.391	-4.3	95.7
NFDHA	5.000	4.348	-13.0	87.0
PFMBA	5.000	4.534	-9.3	90.7
PFMPA	5.000	4.396	-12.1	87.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.100	-7.9	92.1

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-CC220
 Lab FileID: 6Q14529.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\030823_1633_S6Q220\s6q220.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\030823_1633_S6Q220\6Q14517.d
 2:D:\MassHunter\Data\030823_1633_S6Q220\6Q14518.d
 3:D:\MassHunter\Data\030823_1633_S6Q220\6Q14519.d
 4:D:\MassHunter\Data\030823_1633_S6Q220\6Q14520.d
 5:D:\MassHunter\Data\030823_1633_S6Q220\6Q14521.d
 6:D:\MassHunter\Data\030823_1633_S6Q220\6Q14522.d
 7:D:\MassHunter\Data\030823_1633_S6Q220\6Q14523.d
 8:D:\MassHunter\Data\030823_1633_S6Q220\6Q14524.d

Data File: 6Q14529
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.621	12.4	112.4
13C2-6:2FTS	5.000	5.659	13.2	113.2
13C2-8:2FTS	5.000	5.113	2.3	102.3
13C2-PFDoDA	1.250	1.162	-7.0	93.0
13C2-PFTeDA	1.250	1.290	3.2	103.2
13C3-PFBS	2.500	2.316	-7.4	92.6
13C3-PFHxS	2.500	2.428	-2.9	97.1
13C4-PFBA	10.000	10.048	0.5	100.5
13C4-PFHpA	2.500	2.489	-0.4	99.6
13C5-PFHxA	2.500	2.552	2.1	102.1
13C5-PFPeA	5.000	5.093	1.9	101.9
13C6-PFDA	1.250	1.247	-0.3	99.7
13C7-PFUnDA	1.250	1.144	-8.5	91.5
13C8-FOSA	2.500	2.521	0.8	100.8
13C8-PFOA	2.500	2.411	-3.6	96.4
13C8-PFOS	2.500	2.556	2.2	102.2
13C9-PFNA	1.250	1.175	-6.0	94.0
4:2FTS	0.750	0.691	-7.9	92.1
6:2FTS	0.760	0.730	-4.0	96.0
8:2FTS	0.768	0.895	16.5	116.5
d3-MeFOSAA	5.000	4.932	-1.4	98.6
EtFOSAA	0.200	0.220	10.0	110.0
FOSA	0.200	0.216	8.1	108.1
MeFOSAA	0.200	0.209	4.7	104.7
PFBA	0.800	0.781	-2.4	97.6
PFBS	0.177	0.171	-3.3	96.7
PFDA	0.200	0.198	-0.8	99.2
PFDoDA	0.200	0.205	2.5	102.5
PFDS	0.193	0.187	-3.1	96.9
PFHpA	0.200	0.197	-1.7	98.3
PFHpS	0.191	0.172	-10.1	89.9
PFHxA	0.200	0.209	4.7	104.7
PFHxS	0.183	0.170	-7.0	93.0
PFNA	0.200	0.195	-2.3	97.7
PFNS	0.192	0.187	-2.5	97.5
PFOA	0.200	0.217	8.4	108.4
PFOS	0.186	0.171	-7.9	92.1

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-CC220
 Lab FileID: 6Q14529.D

PFPeA	0.400	0.397	-0.8	99.2
PFPeS	0.188	0.189	0.7	100.7
PFTeDA	0.200	0.220	10.0	110.0
PFTTrDA	0.200	0.198	-0.9	99.1
PFUnDA	0.200	0.225	12.6	112.6
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	0.756	0.704	-6.9	93.1
13C3-HFPO-DA	10.000	10.089	0.9	100.9
9C1-PF3ONS	0.748	0.743	-0.7	99.3
ADONA	0.756	0.787	4.0	104.0
HFPO-DA	0.800	0.838	4.8	104.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.960	-3.9	96.1
5:3FTCA	4.992	5.208	4.3	104.3
7:3FTCA	4.992	4.928	-1.3	98.7
d3-MeFOSA	2.500	2.354	-5.8	94.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.200	0.213	6.4	106.4
EtFOSE	2.000	1.815	-9.2	90.8
MeFOSA	0.200	0.233	16.7	116.7
MeFOSE	2.000	1.971	-1.4	98.6
PFDoDS	0.194	0.182	-6.2	93.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.651	-7.0	93.0
d7-MeFOSE	25.000	24.592	-1.6	98.4
d9-EtFOSE	25.000	26.037	4.1	104.1
d5-EtFOSA	2.500	2.485	-0.6	99.4
NFDHA	0.400	0.353	-11.8	88.2
PFMBA	0.400	0.401	0.1	100.1
PFMPA	0.400	0.393	-1.8	98.2
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.338	-5.1	94.9

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-CC220
 Lab FileID: 6Q14540.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\030823_1633_S6Q220\s6q220.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\030823_1633_S6Q220\6Q14517.d
 2:D:\MassHunter\Data\030823_1633_S6Q220\6Q14518.d
 3:D:\MassHunter\Data\030823_1633_S6Q220\6Q14519.d
 4:D:\MassHunter\Data\030823_1633_S6Q220\6Q14520.d
 5:D:\MassHunter\Data\030823_1633_S6Q220\6Q14521.d
 6:D:\MassHunter\Data\030823_1633_S6Q220\6Q14522.d
 7:D:\MassHunter\Data\030823_1633_S6Q220\6Q14523.d
 8:D:\MassHunter\Data\030823_1633_S6Q220\6Q14524.d

Data File: 6Q14540
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.918	18.4	118.4
13C2-6:2FTS	5.000	5.493	9.9	109.9
13C2-8:2FTS	5.000	5.847	16.9	116.9
13C2-PFDoDA	1.250	1.241	-0.8	99.2
13C2-PFTeDA	1.250	1.302	4.1	104.1
13C3-PFBS	2.500	2.537	1.5	101.5
13C3-PFHxS	2.500	2.477	-0.9	99.1
13C4-PFBA	10.000	10.036	0.4	100.4
13C4-PFHpA	2.500	2.560	2.4	102.4
13C5-PFHxA	2.500	2.500	0.0	100.0
13C5-PFPeA	5.000	4.833	-3.3	96.7
13C6-PFDA	1.250	1.331	6.5	106.5
13C7-PFUnDA	1.250	1.275	2.0	102.0
13C8-FOSA	2.500	2.674	7.0	107.0
13C8-PFOA	2.500	2.506	0.2	100.2
13C8-PFOS	2.500	2.592	3.7	103.7
13C9-PFNA	1.250	1.282	2.6	102.6
4:2FTS	9.375	8.430	-10.1	89.9
6:2FTS	9.500	8.859	-6.7	93.3
8:2FTS	9.600	8.431	-12.2	87.8
d3-MeFOSAA	5.000	5.197	3.9	103.9
EtFOSAA	2.500	2.323	-7.1	92.9
FOSA	2.500	2.339	-6.4	93.6
MeFOSAA	2.500	2.184	-12.6	87.4
PFBA	10.000	9.258	-7.4	92.6
PFBS	2.218	1.897	-14.5	85.5
PFDA	2.500	2.215	-11.4	88.6
PFDoDA	2.500	2.323	-7.1	92.9
PFDS	2.413	2.064	-14.4	85.6
PFHpA	2.500	2.152	-13.9	86.1
PFHpS	2.383	2.000	-16.1	83.9
PFHxA	2.500	2.278	-8.9	91.1
PFHxS	2.285	2.117	-7.3	92.7
PFNA	2.500	2.386	-4.5	95.5
PFNS	2.405	2.261	-6.0	94.0
PFOA	2.500	2.213	-11.5	88.5
PFOS	2.320	2.122	-8.5	91.5

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-CC220
 Lab FileID: 6Q14540.D

PFPeA	5.000	4.730	-5.4	94.6
PFPeS	2.353	2.402	2.1	102.1
PFTeDA	2.500	2.342	-6.3	93.7
PFTrDA	2.500	2.160	-13.6	86.4
PFUnDA	2.500	2.564	2.6	102.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	9.450	8.918	-5.6	94.4
13C3-HFPO-DA	10.000	9.686	-3.1	96.9
9C1-PF3ONS	9.350	9.439	1.0	101.0
ADONA	9.450	9.591	1.5	101.5
HFPO-DA	10.000	9.211	-7.9	92.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.502	-7.8	92.2
5:3FTCA	62.400	59.608	-4.5	95.5
7:3FTCA	62.400	62.281	-0.2	99.8
d3-MeFOSA	2.500	2.402	-3.9	96.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.230	-10.8	89.2
EtFOSE	25.000	23.107	-7.6	92.4
MeFOSA	2.500	2.388	-4.5	95.5
MeFOSE	25.000	23.036	-7.9	92.1
PFDoDS	2.425	2.156	-11.1	88.9
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.072	1.4	101.4
d7-MeFOSE	25.000	25.217	0.9	100.9
d9-EtFOSE	25.000	23.698	-5.2	94.8
d5-EtFOSA	2.500	2.461	-1.6	98.4
NFDHA	5.000	4.325	-13.5	86.5
PFMBA	5.000	4.520	-9.6	90.4
PFMPA	5.000	4.468	-10.6	89.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.164	-6.4	93.6

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-CC220
 Lab FileID: 6Q14552.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\030823_1633_S6Q220\s6q220.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\030823_1633_S6Q220\6Q14517.d
 2:D:\MassHunter\Data\030823_1633_S6Q220\6Q14518.d
 3:D:\MassHunter\Data\030823_1633_S6Q220\6Q14519.d
 4:D:\MassHunter\Data\030823_1633_S6Q220\6Q14520.d
 5:D:\MassHunter\Data\030823_1633_S6Q220\6Q14521.d
 6:D:\MassHunter\Data\030823_1633_S6Q220\6Q14522.d
 7:D:\MassHunter\Data\030823_1633_S6Q220\6Q14523.d
 8:D:\MassHunter\Data\030823_1633_S6Q220\6Q14524.d

Data File: 6Q14552
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.668	13.4	113.4
13C2-6:2FTS	5.000	5.292	5.8	105.8
13C2-8:2FTS	5.000	5.468	9.4	109.4
13C2-PFDoDA	1.250	1.149	-8.1	91.9
13C2-PFTeDA	1.250	1.240	-0.8	99.2
13C3-PFBS	2.500	2.496	-0.1	99.9
13C3-PFHxS	2.500	2.475	-1.0	99.0
13C4-PFBA	10.000	10.128	1.3	101.3
13C4-PFHpA	2.500	2.445	-2.2	97.8
13C5-PFHxA	2.500	2.395	-4.2	95.8
13C5-PFPeA	5.000	4.797	-4.1	95.9
13C6-PFDA	1.250	1.200	-4.0	96.0
13C7-PFUnDA	1.250	1.277	2.1	102.1
13C8-FOSA	2.500	2.455	-1.8	98.2
13C8-PFOA	2.500	2.643	5.7	105.7
13C8-PFOS	2.500	2.467	-1.3	98.7
13C9-PFNA	1.250	1.249	-0.1	99.9
4:2FTS	9.375	8.642	-7.8	92.2
6:2FTS	9.500	9.323	-1.9	98.1
8:2FTS	9.600	8.816	-8.2	91.8
d3-MeFOSAA	5.000	5.016	0.3	100.3
EtFOSAA	2.500	2.378	-4.9	95.1
FOSA	2.500	2.298	-8.1	91.9
MeFOSAA	2.500	2.114	-15.4	84.6
PFBA	10.000	9.271	-7.3	92.7
PFBS	2.218	1.943	-12.4	87.6
PFDA	2.500	2.396	-4.2	95.8
PFDoDA	2.500	2.603	4.1	104.1
PFDS	2.413	2.104	-12.8	87.2
PFHpA	2.500	2.297	-8.1	91.9
PFHpS	2.383	2.077	-12.9	87.1
PFHxA	2.500	2.320	-7.2	92.8
PFHxS	2.285	2.083	-8.8	91.2
PFNA	2.500	2.228	-10.9	89.1
PFNS	2.405	2.222	-7.6	92.4
PFOA	2.500	2.140	-14.4	85.6
PFOS	2.320	2.091	-9.9	90.1

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-CC220
 Lab FileID: 6Q14552.D

PFPeA	5.000	4.684	-6.3	93.7
PFPeS	2.353	2.141	-9.0	91.0
PFTeDA	2.500	2.250	-10.0	90.0
PFTTrDA	2.500	2.449	-2.0	98.0
PFUnDA	2.500	2.527	1.1	101.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	9.450	8.100	-14.3	85.7
13C3-HFPO-DA	10.000	10.087	0.9	100.9
9C1-PF3ONS	9.350	8.613	-7.9	92.1
ADONA	9.450	9.124	-3.4	96.6
HFPO-DA	10.000	8.962	-10.4	89.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.532	-7.6	92.4
5:3FTCA	62.400	62.064	-0.5	99.5
7:3FTCA	62.400	63.653	2.0	102.0
d3-MeFOSA	2.500	2.401	-3.9	96.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.378	-4.9	95.1
EtFOSE	25.000	23.788	-4.8	95.2
MeFOSA	2.500	2.376	-4.9	95.1
MeFOSE	25.000	25.553	2.2	102.2
PFDODS	2.425	2.238	-7.7	92.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.846	-3.1	96.9
d7-MeFOSE	25.000	22.477	-10.1	89.9
d9-EtFOSE	25.000	22.928	-8.3	91.7
d5-EtFOSA	2.500	2.314	-7.4	92.6
NFDHA	5.000	4.495	-10.1	89.9
PFMBA	5.000	4.373	-12.5	87.5
PFMPA	5.000	4.506	-9.9	90.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.237	-4.8	95.2

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-CC220
 Lab FileID: 6Q14559.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\030823_1633_S6Q220\s6q220.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\030823_1633_S6Q220\6Q14517.d
 2:D:\MassHunter\Data\030823_1633_S6Q220\6Q14518.d
 3:D:\MassHunter\Data\030823_1633_S6Q220\6Q14519.d
 4:D:\MassHunter\Data\030823_1633_S6Q220\6Q14520.d
 5:D:\MassHunter\Data\030823_1633_S6Q220\6Q14521.d
 6:D:\MassHunter\Data\030823_1633_S6Q220\6Q14522.d
 7:D:\MassHunter\Data\030823_1633_S6Q220\6Q14523.d
 8:D:\MassHunter\Data\030823_1633_S6Q220\6Q14524.d

Data File: 6Q14559
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.511	10.2	110.2
13C2-6:2FTS	5.000	6.242	24.8	124.8
13C2-8:2FTS	5.000	5.924	18.5	118.5
13C2-PFDoDA	1.250	1.159	-7.3	92.7
13C2-PFTeDA	1.250	1.119	-10.5	89.5
13C3-PFBS	2.500	2.655	6.2	106.2
13C3-PFHxS	2.500	2.479	-0.8	99.2
13C4-PFBA	10.000	10.063	0.6	100.6
13C4-PFHpA	2.500	2.594	3.8	103.8
13C5-PFHxA	2.500	2.467	-1.3	98.7
13C5-PFPeA	5.000	4.956	-0.9	99.1
13C6-PFDA	1.250	1.242	-0.7	99.3
13C7-PFUnDA	1.250	1.228	-1.8	98.2
13C8-FOSA	2.500	2.547	1.9	101.9
13C8-PFOA	2.500	2.604	4.2	104.2
13C8-PFOS	2.500	2.672	6.9	106.9
13C9-PFNA	1.250	1.242	-0.7	99.3
4:2FTS	9.375	9.355	-0.2	99.8
6:2FTS	9.500	8.100	-14.7	85.3
8:2FTS	9.600	8.587	-10.6	89.4
d3-MeFOSAA	5.000	4.988	-0.2	99.8
EtFOSAA	2.500	2.226	-10.9	89.1
FOSA	2.500	2.249	-10.0	90.0
MeFOSAA	2.500	2.517	0.7	100.7
PFBA	10.000	9.335	-6.7	93.3
PFBS	2.218	1.950	-12.1	87.9
PFDA	2.500	2.076	-17.0	83.0
PFDoDA	2.500	2.382	-4.7	95.3
PFDS	2.413	2.205	-8.6	91.4
PFHpA	2.500	2.106	-15.8	84.2
PFHpS	2.383	2.050	-14.0	86.0
PFHxA	2.500	2.243	-10.3	89.7
PFHxS	2.285	2.065	-9.6	90.4
PFNA	2.500	2.491	-0.3	99.7
PFNS	2.405	2.243	-6.7	93.3
PFOA	2.500	2.172	-13.1	86.9
PFOS	2.320	2.105	-9.3	90.7

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q220-CC220
 Lab FileID: 6Q14559.D

PFPeA	5.000	4.654	-6.9	93.1
PFPeS	2.353	2.232	-5.2	94.8
PFTeDA	2.500	2.512	0.5	100.5
PFTrDA	2.500	2.220	-11.2	88.8
PFUnDA	2.500	2.444	-2.2	97.8
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	9.450	8.561	-9.4	90.6
13C3-HFPO-DA	10.000	9.685	-3.2	96.8
9C1-PF3ONS	9.350	9.788	4.7	104.7
ADONA	9.450	8.801	-6.9	93.1
HFPO-DA	10.000	9.483	-5.2	94.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.320	-9.3	90.7
5:3FTCA	62.400	60.909	-2.4	97.6
7:3FTCA	62.400	58.104	-6.9	93.1
d3-MeFOSA	2.500	2.566	2.6	102.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.350	-6.0	94.0
EtFOSE	25.000	23.567	-5.7	94.3
MeFOSA	2.500	2.249	-10.0	90.0
MeFOSE	25.000	24.255	-3.0	97.0
PFDoDS	2.425	2.333	-3.8	96.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.667	13.3	113.3
d7-MeFOSE	25.000	24.573	-1.7	98.3
d9-EtFOSE	25.000	23.627	-5.5	94.5
d5-EtFOSA	2.500	2.513	0.5	100.5
NFDHA	5.000	4.763	-4.7	95.3
PFMBA	5.000	4.300	-14.0	86.0
PFMPA	5.000	4.523	-9.5	90.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.194	-5.8	94.2

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q221-CC220
 Lab FileID: 6Q14619.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\030923_1633_S6Q221\s6q221.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\030823_1633_S6Q220\6Q14517.d
 2:D:\MassHunter\Data\030823_1633_S6Q220\6Q14518.d
 3:D:\MassHunter\Data\030823_1633_S6Q220\6Q14519.d
 4:D:\MassHunter\Data\030823_1633_S6Q220\6Q14520.d
 5:D:\MassHunter\Data\030823_1633_S6Q220\6Q14521.d
 6:D:\MassHunter\Data\030823_1633_S6Q220\6Q14522.d
 7:D:\MassHunter\Data\030823_1633_S6Q220\6Q14523.d
 8:D:\MassHunter\Data\030823_1633_S6Q220\6Q14524.d

Data File: 6Q14619
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.963	19.3	119.3
13C2-6:2FTS	5.000	6.159	23.2	123.2
13C2-8:2FTS	5.000	6.707	# 34.1	134.1
13C2-PFDoDA	1.250	1.146	-8.3	91.7
13C2-PFTeDA	1.250	1.230	-1.6	98.4
13C3-PFBS	2.500	2.736	9.4	109.4
13C3-PFHxS	2.500	2.895	15.8	115.8
13C4-PFBA	10.000	10.164	1.6	101.6
13C4-PFHpA	2.500	2.535	1.4	101.4
13C5-PFHxA	2.500	2.527	1.1	101.1
13C5-PFPeA	5.000	4.928	-1.4	98.6
13C6-PFDA	1.250	1.218	-2.6	97.4
13C7-PFUnDA	1.250	1.174	-6.1	93.9
13C8-FOSA	2.500	2.400	-4.0	96.0
13C8-PFOA	2.500	2.479	-0.8	99.2
13C8-PFOS	2.500	2.453	-1.9	98.1
13C9-PFNA	1.250	1.226	-1.9	98.1
4:2FTS	9.375	9.397	0.2	100.2
6:2FTS	9.500	8.962	-5.7	94.3
8:2FTS	9.600	8.495	-11.5	88.5
d3-MeFOSAA	5.000	4.481	-10.4	89.6
EtFOSAA	2.500	2.521	0.8	100.8
FOSA	2.500	2.300	-8.0	92.0
MeFOSAA	2.500	2.585	3.4	103.4
PFBA	10.000	9.128	-8.7	91.3
PFBS	2.218	2.223	0.2	100.2
PFDA	2.500	2.175	-13.0	87.0
PFDoDA	2.500	2.409	-3.6	96.4
PFDS	2.413	2.046	-15.2	84.8
PFHpA	2.500	2.344	-6.2	93.8
PFHpS	2.383	1.966	-17.5	82.5
PFHxA	2.500	2.323	-7.1	92.9
PFHxS	2.285	2.029	-11.2	88.8
PFNA	2.500	2.378	-4.9	95.1
PFNS	2.405	2.113	-12.1	87.9
PFOA	2.500	2.237	-10.5	89.5
PFOS	2.320	1.971	-15.1	84.9

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q221-CC220
 Lab FileID: 6Q14619.D

PFPeA	5.000	4.665	-6.7	93.3
PFPeS	2.353	2.069	-12.1	87.9
PFTeDA	2.500	2.113	-15.5	84.5
PFTTrDA	2.500	2.267	-9.3	90.7
PFUnDA	2.500	2.392	-4.3	95.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	9.450	9.409	-0.4	99.6
13C3-HFPO-DA	10.000	10.164	1.6	101.6
9C1-PF3ONS	9.350	8.947	-4.3	95.7
ADONA	9.450	8.992	-4.8	95.2
HFPO-DA	10.000	9.427	-5.7	94.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.337	-9.2	90.8
5:3FTCA	62.400	57.888	-7.2	92.8
7:3FTCA	62.400	55.912	-10.4	89.6
d3-MeFOSA	2.500	2.143	-14.3	85.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.202	-11.9	88.1
EtFOSE	25.000	23.326	-6.7	93.3
MeFOSA	2.500	2.561	2.4	102.4
MeFOSE	25.000	24.318	-2.7	97.3
PFDODS	2.425	2.118	-12.7	87.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.750	-5.0	95.0
d7-MeFOSE	25.000	22.285	-10.9	89.1
d9-EtFOSE	25.000	23.390	-6.4	93.6
d5-EtFOSA	2.500	2.413	-3.5	96.5
NFDHA	5.000	4.585	-8.3	91.7
PFMBA	5.000	4.576	-8.5	91.5
PFMPA	5.000	4.441	-11.2	88.8
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.324	-2.8	97.2

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q221-CC220
 Lab FileID: 6Q14620.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\030923_1633_S6Q221\s6q221.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\030823_1633_S6Q220\6Q14517.d
 2:D:\MassHunter\Data\030823_1633_S6Q220\6Q14518.d
 3:D:\MassHunter\Data\030823_1633_S6Q220\6Q14519.d
 4:D:\MassHunter\Data\030823_1633_S6Q220\6Q14520.d
 5:D:\MassHunter\Data\030823_1633_S6Q220\6Q14521.d
 6:D:\MassHunter\Data\030823_1633_S6Q220\6Q14522.d
 7:D:\MassHunter\Data\030823_1633_S6Q220\6Q14523.d
 8:D:\MassHunter\Data\030823_1633_S6Q220\6Q14524.d

Data File: 6Q14620
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	6.041	20.8	120.8
13C2-6:2FTS	5.000	5.488	9.8	109.8
13C2-8:2FTS	5.000	6.404	28.1	128.1
13C2-PFDoDA	1.250	1.103	-11.8	88.2
13C2-PFTeDA	1.250	1.203	-3.8	96.2
13C3-PFBS	2.500	2.755	10.2	110.2
13C3-PFHxS	2.500	2.493	-0.3	99.7
13C4-PFBA	10.000	9.947	-0.5	99.5
13C4-PFHpA	2.500	2.519	0.7	100.7
13C5-PFHxA	2.500	2.491	-0.4	99.6
13C5-PFPeA	5.000	4.929	-1.4	98.6
13C6-PFDA	1.250	1.202	-3.9	96.1
13C7-PFUnDA	1.250	1.153	-7.8	92.2
13C8-FOSA	2.500	2.638	5.5	105.5
13C8-PFOA	2.500	2.509	0.4	100.4
13C8-PFOS	2.500	2.689	7.5	107.5
13C9-PFNA	1.250	1.252	0.1	100.1
4:2FTS	0.750	0.727	-3.1	96.9
6:2FTS	0.760	0.755	-0.7	99.3
8:2FTS	0.768	0.648	-15.7	84.3
d3-MeFOSAA	5.000	4.878	-2.4	97.6
EtFOSAA	0.200	0.196	-2.0	98.0
FOSA	0.200	0.203	1.7	101.7
MeFOSAA	0.200	0.234	16.9	116.9
PFBA	0.800	0.758	-5.3	94.7
PFBS	0.177	0.192	8.5	108.5
PFDA	0.200	0.166	-17.2	82.8
PFDoDA	0.200	0.198	-1.1	98.9
PFDS	0.193	0.211	9.3	109.3
PFHpA	0.200	0.196	-1.8	98.2
PFHpS	0.191	0.163	-14.5	85.5
PFHxA	0.200	0.206	3.1	103.1
PFHxS	0.183	0.193	5.2	105.2
PFNA	0.200	0.191	-4.7	95.3
PFNS	0.192	0.170	-11.4	88.6
PFOA	0.200	0.194	-2.9	97.1
PFOS	0.186	0.202	8.6	108.6

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q221-CC220
 Lab FileID: 6Q14620.D

PFPeA	0.400	0.413	3.2	103.2
PFPeS	0.188	0.200	6.4	106.4
PFTeDA	0.200	0.224	12.2	112.2
PFTrDA	0.200	0.176	-12.2	87.8
PFUnDA	0.200	0.215	7.3	107.3
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	0.756	0.789	4.4	104.4
13C3-HFPO-DA	10.000	10.176	1.8	101.8
9C1-PF3ONS	0.748	0.722	-3.5	96.5
ADONA	0.756	0.764	1.0	101.0
HFPO-DA	0.800	0.755	-5.6	94.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.007	0.8	100.8
5:3FTCA	4.992	5.369	7.5	107.5
7:3FTCA	4.992	4.857	-2.7	97.3
d3-MeFOSA	2.500	2.540	1.6	101.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.200	0.210	5.0	105.0
EtFOSE	2.000	2.080	4.0	104.0
MeFOSA	0.200	0.193	-3.7	96.3
MeFOSE	2.000	2.106	5.3	105.3
PFDoDS	0.194	0.180	-7.1	92.9
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.239	4.8	104.8
d7-MeFOSE	25.000	24.536	-1.9	98.1
d9-EtFOSE	25.000	24.548	-1.8	98.2
d5-EtFOSA	2.500	2.584	3.4	103.4
NFDHA	0.400	0.392	-2.0	98.0
PFMBA	0.400	0.386	-3.5	96.5
PFMPA	0.400	0.396	-1.1	98.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.371	4.1	104.1

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q221-CC220
 Lab FileID: 6Q14631.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\030923_1633_S6Q221\s6q221.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\030823_1633_S6Q220\6Q14517.d
 2:D:\MassHunter\Data\030823_1633_S6Q220\6Q14518.d
 3:D:\MassHunter\Data\030823_1633_S6Q220\6Q14519.d
 4:D:\MassHunter\Data\030823_1633_S6Q220\6Q14520.d
 5:D:\MassHunter\Data\030823_1633_S6Q220\6Q14521.d
 6:D:\MassHunter\Data\030823_1633_S6Q220\6Q14522.d
 7:D:\MassHunter\Data\030823_1633_S6Q220\6Q14523.d
 8:D:\MassHunter\Data\030823_1633_S6Q220\6Q14524.d

Data File: 6Q14631
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.604	12.1	112.1
13C2-6:2FTS	5.000	5.694	13.9	113.9
13C2-8:2FTS	5.000	5.830	16.6	116.6
13C2-PFDoDA	1.250	1.108	-11.3	88.7
13C2-PFTeDA	1.250	1.125	-10.0	90.0
13C3-PFBS	2.500	2.659	6.4	106.4
13C3-PFHxS	2.500	2.389	-4.5	95.5
13C4-PFBA	10.000	9.967	-0.3	99.7
13C4-PFHpA	2.500	2.585	3.4	103.4
13C5-PFHxA	2.500	2.558	2.3	102.3
13C5-PFPeA	5.000	5.033	0.7	100.7
13C6-PFDA	1.250	1.198	-4.2	95.8
13C7-PFUnDA	1.250	1.219	-2.5	97.5
13C8-FOSA	2.500	2.487	-0.5	99.5
13C8-PFOA	2.500	2.369	-5.2	94.8
13C8-PFOS	2.500	2.418	-3.3	96.7
13C9-PFNA	1.250	1.311	4.9	104.9
4:2FTS	9.375	9.668	3.1	103.1
6:2FTS	9.500	9.690	2.0	102.0
8:2FTS	9.600	9.312	-3.0	97.0
d3-MeFOSAA	5.000	4.811	-3.8	96.2
EtFOSAA	2.500	2.428	-2.9	97.1
FOSA	2.500	2.162	-13.5	86.5
MeFOSAA	2.500	2.518	0.7	100.7
PFBA	10.000	9.241	-7.6	92.4
PFBS	2.218	2.111	-4.8	95.2
PFDA	2.500	2.158	-13.7	86.3
PFDoDA	2.500	2.484	-0.7	99.3
PFDS	2.413	2.135	-11.5	88.5
PFHpA	2.500	2.182	-12.7	87.3
PFHpS	2.383	2.043	-14.3	85.7
PFHxA	2.500	2.303	-7.9	92.1
PFHxS	2.285	2.213	-3.2	96.8
PFNA	2.500	2.114	-15.4	84.6
PFNS	2.405	2.157	-10.3	89.7
PFOA	2.500	2.383	-4.7	95.3
PFOS	2.320	2.065	-11.0	89.0

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q221-CC220
 Lab FileID: 6Q14631.D

PFPeA	5.000	4.561	-8.8	91.2
PFPeS	2.353	2.586	9.9	109.9
PFTeDA	2.500	2.417	-3.3	96.7
PFTTrDA	2.500	2.342	-6.3	93.7
PFUnDA	2.500	2.228	-10.9	89.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	9.450	9.808	3.8	103.8
13C3-HFPO-DA	10.000	9.556	-4.4	95.6
9C1-PF3ONS	9.350	9.190	-1.7	98.3
ADONA	9.450	9.638	2.0	102.0
HFPO-DA	10.000	10.195	1.9	101.9
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.133	-10.8	89.2
5:3FTCA	62.400	56.920	-8.8	91.2
7:3FTCA	62.400	61.406	-1.6	98.4
d3-MeFOSA	2.500	2.345	-6.2	93.8
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.324	-7.0	93.0
EtFOSE	25.000	23.609	-5.6	94.4
MeFOSA	2.500	2.216	-11.4	88.6
MeFOSE	25.000	25.642	2.6	102.6
PFDoDS	2.425	2.053	-15.3	84.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.049	1.0	101.0
d7-MeFOSE	25.000	21.854	-12.6	87.4
d9-EtFOSE	25.000	21.999	-12.0	88.0
d5-EtFOSA	2.500	2.236	-10.5	89.5
NFDHA	5.000	4.496	-10.1	89.9
PFMBA	5.000	4.504	-9.9	90.1
PFMPA	5.000	4.472	-10.6	89.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.231	-4.9	95.1

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q221-CC220
 Lab FileID: 6Q14643.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\030923_1633_S6Q221\s6q221.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\030823_1633_S6Q220\6Q14517.d
 2:D:\MassHunter\Data\030823_1633_S6Q220\6Q14518.d
 3:D:\MassHunter\Data\030823_1633_S6Q220\6Q14519.d
 4:D:\MassHunter\Data\030823_1633_S6Q220\6Q14520.d
 5:D:\MassHunter\Data\030823_1633_S6Q220\6Q14521.d
 6:D:\MassHunter\Data\030823_1633_S6Q220\6Q14522.d
 7:D:\MassHunter\Data\030823_1633_S6Q220\6Q14523.d
 8:D:\MassHunter\Data\030823_1633_S6Q220\6Q14524.d

Data File: 6Q14643
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.667	13.3	113.3
13C2-6:2FTS	5.000	5.947	18.9	118.9
13C2-8:2FTS	5.000	5.137	2.7	102.7
13C2-PFDoDA	1.250	1.185	-5.2	94.8
13C2-PFTeDA	1.250	1.227	-1.8	98.2
13C3-PFBS	2.500	2.380	-4.8	95.2
13C3-PFHxS	2.500	2.509	0.4	100.4
13C4-PFBA	10.000	10.014	0.1	100.1
13C4-PFHpA	2.500	2.459	-1.6	98.4
13C5-PFHxA	2.500	2.341	-6.4	93.6
13C5-PFPeA	5.000	4.750	-5.0	95.0
13C6-PFDA	1.250	1.135	-9.2	90.8
13C7-PFUnDA	1.250	1.194	-4.5	95.5
13C8-FOSA	2.500	2.540	1.6	101.6
13C8-PFOA	2.500	2.467	-1.3	98.7
13C8-PFOS	2.500	2.623	4.9	104.9
13C9-PFNA	1.250	1.260	0.8	100.8
4:2FTS	9.375	9.151	-2.4	97.6
6:2FTS	9.500	8.285	-12.8	87.2
8:2FTS	9.600	10.699	11.5	111.5
d3-MeFOSAA	5.000	5.417	8.3	108.3
EtFOSAA	2.500	2.398	-4.1	95.9
FOSA	2.500	2.286	-8.6	91.4
MeFOSAA	2.500	2.297	-8.1	91.9
PFBA	10.000	9.189	-8.1	91.9
PFBS	2.218	2.260	1.9	101.9
PFDA	2.500	2.345	-6.2	93.8
PFDoDA	2.500	2.357	-5.7	94.3
PFDS	2.413	2.004	-17.0	83.0
PFHpA	2.500	2.278	-8.9	91.1
PFHpS	2.383	2.034	-14.6	85.4
PFHxA	2.500	2.263	-9.5	90.5
PFHxS	2.285	2.022	-11.5	88.5
PFNA	2.500	2.456	-1.8	98.2
PFNS	2.405	2.067	-14.1	85.9
PFOA	2.500	2.287	-8.5	91.5
PFOS	2.320	2.153	-7.2	92.8

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q221-CC220
 Lab FileID: 6Q14643.D

PFPeA	5.000	4.593	-8.1	91.9
PFPeS	2.353	2.106	-10.5	89.5
PFTeDA	2.500	2.210	-11.6	88.4
PFTTrDA	2.500	2.180	-12.8	87.2
PFUnDA	2.500	2.326	-7.0	93.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	9.450	9.533	0.9	100.9
13C3-HFPO-DA	10.000	9.793	-2.1	97.9
9C1-PF3ONS	9.350	8.854	-5.3	94.7
ADONA	9.450	8.964	-5.1	94.9
HFPO-DA	10.000	9.524	-4.8	95.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.398	-8.7	91.3
5:3FTCA	62.400	60.148	-3.6	96.4
7:3FTCA	62.400	60.647	-2.8	97.2
d3-MeFOSA	2.500	2.405	-3.8	96.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.286	-8.5	91.5
EtFOSE	25.000	23.438	-6.2	93.8
MeFOSA	2.500	2.359	-5.7	94.3
MeFOSE	25.000	24.623	-1.5	98.5
PFDoDS	2.425	2.068	-14.7	85.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.443	8.9	108.9
d7-MeFOSE	25.000	23.106	-7.6	92.4
d9-EtFOSE	25.000	22.809	-8.8	91.2
d5-EtFOSA	2.500	2.463	-1.5	98.5
NFDHA	5.000	4.596	-8.1	91.9
PFMBA	5.000	4.479	-10.4	89.6
PFMPA	5.000	4.424	-11.5	88.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.306	-3.2	96.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q221-ECC220
 Lab FileID: 6Q14652.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\030923_1633_S6Q221\s6q221.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\030823_1633_S6Q220\6Q14517.d
 2:D:\MassHunter\Data\030823_1633_S6Q220\6Q14518.d
 3:D:\MassHunter\Data\030823_1633_S6Q220\6Q14519.d
 4:D:\MassHunter\Data\030823_1633_S6Q220\6Q14520.d
 5:D:\MassHunter\Data\030823_1633_S6Q220\6Q14521.d
 6:D:\MassHunter\Data\030823_1633_S6Q220\6Q14522.d
 7:D:\MassHunter\Data\030823_1633_S6Q220\6Q14523.d
 8:D:\MassHunter\Data\030823_1633_S6Q220\6Q14524.d

Data File: 6Q14652
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.872	17.4	117.4
13C2-6:2FTS	5.000	6.226	24.5	124.5
13C2-8:2FTS	5.000	6.138	22.8	122.8
13C2-PFDoDA	1.250	1.101	-12.0	88.0
13C2-PFTeDA	1.250	1.186	-5.1	94.9
13C3-PFBS	2.500	2.563	2.5	102.5
13C3-PFHxS	2.500	2.639	5.5	105.5
13C4-PFBA	10.000	9.894	-1.1	98.9
13C4-PFHpA	2.500	2.517	0.7	100.7
13C5-PFHxA	2.500	2.510	0.4	100.4
13C5-PFPeA	5.000	4.893	-2.1	97.9
13C6-PFDA	1.250	1.154	-7.7	92.3
13C7-PFUnDA	1.250	1.203	-3.8	96.2
13C8-FOSA	2.500	2.456	-1.8	98.2
13C8-PFOA	2.500	2.705	8.2	108.2
13C8-PFOS	2.500	2.512	0.5	100.5
13C9-PFNA	1.250	1.240	-0.8	99.2
4:2FTS	9.375	9.159	-2.3	97.7
6:2FTS	9.500	8.553	-10.0	90.0
8:2FTS	9.600	9.469	-1.4	98.6
d3-MeFOSAA	5.000	4.754	-4.9	95.1
EtFOSAA	2.500	2.423	-3.1	96.9
FOSA	2.500	2.232	-10.7	89.3
MeFOSAA	2.500	2.684	7.4	107.4
PFBA	10.000	9.131	-8.7	91.3
PFBS	2.218	2.184	-1.5	98.5
PFDA	2.500	2.333	-6.7	93.3
PFDoDA	2.500	2.671	6.8	106.8
PFDS	2.413	2.092	-13.3	86.7
PFHpA	2.500	2.359	-5.6	94.4
PFHpS	2.383	2.057	-13.7	86.3
PFHxA	2.500	2.185	-12.6	87.4
PFHxS	2.285	2.027	-11.3	88.7
PFNA	2.500	2.283	-8.7	91.3
PFNS	2.405	2.167	-9.9	90.1
PFOA	2.500	2.240	-10.4	89.6
PFOS	2.320	2.066	-10.9	89.1

Continuing Calibration Summary

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q221-ECC220
 Lab FileID: 6Q14652.D

PFPeA	5.000	4.670	-6.6	93.4
PFPeS	2.353	2.292	-2.6	97.4
PFTeDA	2.500	2.263	-9.5	90.5
PFTTrDA	2.500	2.266	-9.4	90.6
PFUnDA	2.500	2.389	-4.5	95.5
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	9.450	9.521	0.8	100.8
13C3-HFPO-DA	10.000	9.902	-1.0	99.0
9C1-PF3ONS	9.350	8.789	-6.0	94.0
ADONA	9.450	9.228	-2.4	97.6
HFPO-DA	10.000	9.703	-3.0	97.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.257	-9.8	90.2
5:3FTCA	62.400	56.457	-9.5	90.5
7:3FTCA	62.400	58.419	-6.4	93.6
d3-MeFOSA	2.500	2.377	-4.9	95.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.230	-10.8	89.2
EtFOSE	25.000	22.448	-10.2	89.8
MeFOSA	2.500	2.266	-9.4	90.6
MeFOSE	25.000	23.664	-5.3	94.7
PFDoDS	2.425	2.174	-10.4	89.6
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.937	-1.3	98.7
d7-MeFOSE	25.000	22.680	-9.3	90.7
d9-EtFOSE	25.000	22.850	-8.6	91.4
d5-EtFOSA	2.500	2.373	-5.1	94.9
NFDHA	5.000	4.733	-5.3	94.7
PFMBA	5.000	4.551	-9.0	91.0
PFMPA	5.000	4.527	-9.5	90.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.264	-4.2	95.8

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q220	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q220-RT	6Q14514.D	03/08/23 12:18	n/a	Retention Time Marker
S6Q220-RT	6Q14515.D	03/08/23 12:32	n/a	Retention Time Marker
S6Q220-IC220	6Q14516.D	03/08/23 12:46	n/a	Mass Calibration Verification
S6Q220-IC220	6Q14517.D	03/08/23 13:00	n/a	Initial cal 1
S6Q220-IC220	6Q14518.D	03/08/23 13:14	n/a	Initial cal 2
S6Q220-IC220	6Q14519.D	03/08/23 13:28	n/a	Initial cal 3
S6Q220-ICC220	6Q14520.D	03/08/23 13:42	n/a	Initial cal 4
S6Q220-IC220	6Q14521.D	03/08/23 13:56	n/a	Initial cal 5
S6Q220-IC220	6Q14522.D	03/08/23 14:10	n/a	Initial cal 6
S6Q220-IC220	6Q14523.D	03/08/23 14:24	n/a	Initial cal 7
S6Q220-IC220	6Q14524.D	03/08/23 14:38	n/a	Initial cal 8
S6Q220-IBLK	6Q14525.D	03/08/23 14:52	n/a	Instrument Blank
S6Q220-IBLK	6Q14525.D	03/08/23 14:52	n/a	Instrument Blank
S6Q220-ICV220	6Q14526.D	03/08/23 15:06	n/a	Initial cal verification 4
S6Q220-ICV220	6Q14527.D	03/08/23 15:20	n/a	Initial cal verification 20
S6Q220-CC220	6Q14528.D	03/08/23 15:34	n/a	Continuing cal 4
S6Q220-CC220	6Q14529.D	03/08/23 15:48	n/a	Continuing cal 1.0LL
OP95749-BS	6Q14530.D	03/08/23 16:02	OP95749	Blank Spike
OP95749-LLBS	6Q14531.D	03/08/23 16:16	OP95749	Blank Spike
OP95749-MB	6Q14532.D	03/08/23 16:30	OP95749	Method Blank
ZZZZZZ	6Q14533.D	03/08/23 16:43	OP95749	(unrelated sample)
JD60819-1	6Q14534.D	03/08/23 16:57	OP95749	(used for QC only; not part of job FC3191)
OP95749-MS	6Q14535.D	03/08/23 17:11	OP95749	Matrix Spike
JD60819-2	6Q14536.D	03/08/23 17:25	OP95749	(used for QC only; not part of job FC3191)
OP95749-DUP	6Q14537.D	03/08/23 17:39	OP95749	Duplicate
ZZZZZZ	6Q14538.D	03/08/23 17:53	OP95749	(unrelated sample)
ZZZZZZ	6Q14539.D	03/08/23 18:07	OP95749	(unrelated sample)
S6Q220-CC220	6Q14540.D	03/08/23 18:21	n/a	Continuing cal 4
S6Q220-ICCB	6Q14541.D	03/08/23 18:35	n/a	Continuing Calibration Blank
ZZZZZZ	6Q14542.D	03/08/23 18:49	OP95749	(unrelated sample)
ZZZZZZ	6Q14543.D	03/08/23 19:03	OP95749	(unrelated sample)
ZZZZZZ	6Q14544.D	03/08/23 19:17	OP95749	(unrelated sample)
ZZZZZZ	6Q14545.D	03/08/23 19:31	OP95749	(unrelated sample)
OP95747-BS	6Q14546.D	03/08/23 19:45	OP95747	Blank Spike
OP95747-LLBS	6Q14547.D	03/08/23 19:59	OP95747	Blank Spike
OP95747-MB	6Q14548.D	03/08/23 20:13	OP95747	Method Blank
ZZZZZZ	6Q14549.D	03/08/23 20:27	OP95747	(unrelated sample)
FC3191-1	6Q14550.D	03/08/23 20:41	OP95747	AF-RHMW17S-WGN01LF-2302W4
FC3191-2	6Q14551.D	03/08/23 20:55	OP95747	AF-RHMW17S-WQEB01-2302W4
S6Q220-CC220	6Q14552.D	03/08/23 21:09	n/a	Continuing cal 4
S6Q220-ICCB	6Q14553.D	03/08/23 21:23	n/a	Continuing Calibration Blank
FC3191-3	6Q14554.D	03/08/23 21:37	OP95747	AF-RHMW17D-WGN01LF-2302W4
OP95747-MS	6Q14555.D	03/08/23 21:51	OP95747	Matrix Spike
FC3191-4	6Q14556.D	03/08/23 22:05	OP95747	AF-RHMW17D-WQFB01-2302W4
FC3191-5	6Q14557.D	03/08/23 22:19	OP95747	AF-RHMW17-WGN01LF-2302W4
OP95747-DUP	6Q14558.D	03/08/23 22:33	OP95747	Duplicate

Run Sequence Report

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q220	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
S6Q220-CC220	6Q14559.D	03/08/23 22:47	n/a	Continuing cal 4
S6Q220-ICCB	6Q14560.D	03/08/23 23:01	n/a	Continuing Calibration Blank
S6Q220-CC220	6Q14569.D	03/09/23 01:07	n/a	Continuing cal 4
S6Q220-CC220	6Q14570.D	03/09/23 01:21	n/a	Continuing cal 1.0LL
S6Q220-ICCB	6Q14571.D	03/09/23 01:35	n/a	Continuing Calibration Blank
S6Q220-ICCB	6Q14571.D	03/09/23 01:35	n/a	Continuing Calibration Blank
OP95742-BS	6Q14572.D	03/09/23 01:49	OP95742	Blank Spike
OP95742-LLBS	6Q14573.D	03/09/23 02:03	OP95742	Blank Spike
OP95742-MB	6Q14574.D	03/09/23 02:17	OP95742	Method Blank
ZZZZZZ	6Q14575.D	03/09/23 02:31	OP95742	(unrelated sample)
ZZZZZZ	6Q14576.D	03/09/23 02:45	OP95742	(unrelated sample)
ZZZZZZ	6Q14577.D	03/09/23 02:59	OP95742	(unrelated sample)
ZZZZZZ	6Q14578.D	03/09/23 03:13	OP95742	(unrelated sample)
ZZZZZZ	6Q14579.D	03/09/23 03:27	OP95742	(unrelated sample)
S6Q220-CC220	6Q14580.D	03/09/23 03:41	n/a	Continuing cal 4
S6Q220-ICCB	6Q14581.D	03/09/23 03:55	n/a	Continuing Calibration Blank
JD60906-3A	6Q14582.D	03/09/23 04:09	OP95742	(used for QC only; not part of job FC3191)
OP95742-MS	6Q14583.D	03/09/23 04:23	OP95742	Matrix Spike
OP95742-MSD	6Q14584.D	03/09/23 04:37	OP95742	Matrix Spike Duplicate
OP95743-BS	6Q14585.D	03/09/23 04:51	OP95743	Blank Spike
OP95743-LLBS	6Q14586.D	03/09/23 05:05	OP95743	Blank Spike
OP95743-MB	6Q14587.D	03/09/23 05:19	OP95743	Method Blank
JD60940-1	6Q14588.D	03/09/23 05:33	OP95743	(used for QC only; not part of job FC3191)
OP95743-MS	6Q14589.D	03/09/23 05:47	OP95743	Matrix Spike
OP95743-MSD	6Q14590.D	03/09/23 06:01	OP95743	Matrix Spike Duplicate
ZZZZZZ	6Q14591.D	03/09/23 06:15	OP95743	(unrelated sample)
S6Q220-CC220	6Q14592.D	03/09/23 06:29	n/a	Continuing cal 4
S6Q220-ICCB	6Q14593.D	03/09/23 06:43	n/a	Continuing Calibration Blank
ZZZZZZ	6Q14594.D	03/09/23 06:57	OP95743	(unrelated sample)
ZZZZZZ	6Q14595.D	03/09/23 07:11	OP95743	(unrelated sample)
ZZZZZZ	6Q14596.D	03/09/23 07:25	OP95743	(unrelated sample)
ZZZZZZ	6Q14597.D	03/09/23 07:39	OP95743	(unrelated sample)
ZZZZZZ	6Q14598.D	03/09/23 07:53	OP95743	(unrelated sample)
ZZZZZZ	6Q14599.D	03/09/23 08:07	OP95743	(unrelated sample)
ZZZZZZ	6Q14600.D	03/09/23 08:21	OP95743	(unrelated sample)
ZZZZZZ	6Q14601.D	03/09/23 08:35	OP95743	(unrelated sample)
ZZZZZZ	6Q14602.D	03/09/23 08:49	OP95743	(unrelated sample)
ZZZZZZ	6Q14603.D	03/09/23 09:03	OP95743	(unrelated sample)
S6Q220-CC220	6Q14604.D	03/09/23 09:17	n/a	Continuing cal 4
S6Q220-ICCB	6Q14605.D	03/09/23 09:31	n/a	Continuing Calibration Blank
ZZZZZZ	6Q14606.D	03/09/23 09:45	OP95743	(unrelated sample)
ZZZZZZ	6Q14607.D	03/09/23 09:59	OP95743	(unrelated sample)
ZZZZZZ	6Q14608.D	03/09/23 10:13	OP95743	(unrelated sample)
S6Q220-ECC220	6Q14609.D	03/09/23 10:27	n/a	Ending cal 4
S6Q220-ICCB	6Q14610.D	03/09/23 10:41	n/a	Continuing Calibration Blank

6.11.1

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Run Sequence Report

Job Number: FC3191
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q221	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q221-RT	6Q14615.D	03/09/23 12:13	n/a	Retention Time Marker
S6Q221-RT	6Q14616.D	03/09/23 12:27	n/a	Retention Time Marker
S6Q221-IBLK	6Q14618.D	03/09/23 12:55	n/a	Instrument Blank
S6Q221-IBLK	6Q14618.D	03/09/23 12:55	n/a	Instrument Blank
S6Q221-CC220	6Q14619.D	03/09/23 13:09	n/a	Continuing cal 4
S6Q221-CC220	6Q14620.D	03/09/23 13:30	n/a	Continuing cal 1.0LL
OP95772-LBS	6Q14621.D	03/09/23 13:44	OP95772	Blank Spike
OP95772-LLBS	6Q14622.D	03/09/23 13:58	OP95772	Blank Spike
OP95772-LB	6Q14623.D	03/09/23 14:12	OP95772	Leachate Blank
S6Q221-CC220	6Q14631.D	03/09/23 16:04	n/a	Continuing cal 4
S6Q221-ICCB	6Q14632.D	03/09/23 16:33	n/a	Continuing Calibration Blank
JD60059-26AT	6Q14636.D	03/09/23 17:29	OP95772	(used for QC only; not part of job FC3191)
OP95772-MS	6Q14637.D	03/09/23 17:43	OP95772	Matrix Spike
JD60059-27AT	6Q14638.D	03/09/23 17:57	OP95772	(used for QC only; not part of job FC3191)
OP95772-DUP	6Q14639.D	03/09/23 18:11	OP95772	Duplicate
JD60059-29AT	6Q14640.D	03/09/23 18:25	OP95772	(used for QC only; not part of job FC3191)
OP95772-DUP2	6Q14641.D	03/09/23 18:39	OP95772	Duplicate
S6Q221-CC220	6Q14643.D	03/09/23 19:07	n/a	Continuing cal 4
S6Q221-ICCB	6Q14644.D	03/09/23 19:21	n/a	Continuing Calibration Blank
S6Q221-ICCB	6Q14644.D	03/09/23 19:21	n/a	Continuing Calibration Blank
OP95791-BS	6Q14645.D	03/09/23 19:35	OP95791	Blank Spike
OP95791-LLBS	6Q14646.D	03/09/23 19:49	OP95791	Blank Spike
OP95791-MB	6Q14647.D	03/09/23 20:03	OP95791	Method Blank
FC3167-1	6Q14648.D	03/09/23 20:16	OP95791	(used for QC only; not part of job FC3191)
OP95791-MS	6Q14649.D	03/09/23 20:30	OP95791	Matrix Spike
FC3191-3	6Q14650.D	03/09/23 20:44	OP95747	AF-RHMW17D-WGN01LF-2302W4
ZZZZZZ	6Q14651.D	03/09/23 20:58	OP95743	(unrelated sample)
S6Q221-ECC220	6Q14652.D	03/09/23 21:12	n/a	Ending cal 4
S6Q221-ICCB	6Q14653.D	03/09/23 21:26	n/a	Continuing Calibration Blank
S6Q221-ICCB	6Q14653.D	03/09/23 21:26	n/a	Continuing Calibration Blank

MS Semi-volatiles

Raw Data

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Natasha Gumtje
 03/10/23 10:55

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14550.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 8:41:48 PM
 Sample Name : FC3191-1
 Vial : P2-C1
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95747,S6Q220,560,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.216	216.8 -> 171.9	45975	10.00 µg/L	0.140
M5-PFPeA	4.665	268.3 -> 223.0	36455	5.00 µg/L	0.050
M5-PFHxA	5.822	318.0 -> 273.0	33340	2.50 µg/L	0.012
M4-PFHpA	6.693	367.1 -> 322.0	32935	2.50 µg/L	0.025
M8-PFOA	7.272	421.1 -> 376.0	53933	2.50 µg/L	0.012
M9-PFNA	7.779	472.1 -> 427.0	15001	1.25 µg/L	0.014
M6-PFDA	8.233	519.1 -> 474.1	13578	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	14445	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	16103	1.25 µg/L	0.000
M2-PFTeDA	9.881	715.2 -> 670.0	6964	1.25 µg/L	0.012
M8-FOSA	9.963	506.1 -> 77.8	16019	2.50 µg/L	0.037
M3-PFBS	5.963	302.1 -> 79.9	13336	2.50 µg/L	0.062
M3-PFHxS	7.511	402.1 -> 79.9	8247	2.50 µg/L	0.025
M8-PFOS	8.519	507.1 -> 79.9	6629	2.50 µg/L	0.012
M2-4:2FTS	5.500	329.1 -> 80.9	1543	5.00 µg/L	0.025
M2-6:2FTS	7.046	429.1 -> 80.9	1733	5.00 µg/L	0.012
M2-8:2FTS	8.019	529.1 -> 80.9	1626	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	18525	5.00 µg/L	0.012
M3-HFPO-DA	6.163	286.9 -> 168.9	13893	10.00 µg/L	0.012
M5-EtFOSAA	8.473	589.2 -> 419.0	18477	5.00 µg/L	0.000
M7-MeFOSE	10.876	623.2 -> 58.9	18788	25.00 µg/L	0.025
M9-EtFOSE	11.110	639.2 -> 58.9	12251	25.00 µg/L	0.012
M5-EtFOSA	11.188	531.1 -> 219.0	4410	2.50 µg/L	0.024
M3-MeFOSA	10.969	515.0 -> 219.0	4561	2.50 µg/L	0.025
13C4-PFOS	8.520	502.8 -> 79.9	9000	2.50 µg/L	0.025
13C3-PFBA	3.205	216.0 -> 172.0	33774	5.00 µg/L	0.127
18O2-PFHxS	7.522	403.0 -> 83.9	5967	2.50 µg/L	0.025
13C4-PFOA	7.272	417.1 -> 372.0	70852	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	19750	1.25 µg/L	0.000
13C5-PFNA	7.779	468.0 -> 423.0	15721	1.25 µg/L	0.014
13C2-PFHxA	5.835	315.1 -> 270.0	33888	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.500	329.1 -> 80.9	1543	5.43 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.6%		
13C2-6:2FTS	7.046	429.1 -> 80.9	1733	4.64 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.8%		
13C2-8:2FTS	8.019	529.1 -> 80.9	1626	4.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.5%		
13C2-PFDoDA	9.117	615.1 -> 570.0	16103	0.96 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 77.0%		
13C2-PFTeDA	9.881	715.2 -> 670.0	6964	0.66 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 52.4%		
13C3-PFBS	5.963	302.1 -> 79.9	13336	2.56 µg/L	0.062
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C3-PFHxS	7.511	402.1 -> 79.9	8247	2.42 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C4-PFBA	3.216	216.8 -> 171.9	45975	5.92 µg/L	0.140
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 59.2%	
13C4-PFHpA	6.693	367.1 -> 322.0	32935	2.43 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C5-PFHxA	5.822	318.0 -> 273.0	33340	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C5-PFPeA	4.665	268.3 -> 223.0	36455	4.54 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.7%	
13C6-PFDA	8.233	519.1 -> 474.1	13578	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.8%	
13C7-PFUnDA	8.687	570.0 -> 525.1	14445	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.1%	
13C8-FOSA	9.963	506.1 -> 77.8	16019	2.27 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.7%	
13C8-PFOA	7.272	421.1 -> 376.0	53933	2.29 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.5%	
13C8-PFOS	8.519	507.1 -> 79.9	6629	2.15 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.0%	
13C9-PFNA	7.779	472.1 -> 427.0	15001	1.24 µg/L	0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%	
d3-MeFOSAA	8.277	573.2 -> 419.0	18525	4.47 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.4%	
13C3-HFPO-DA	6.163	286.9 -> 168.9	13893	8.95 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.5%	
d3-MeFOSA	10.969	515.0 -> 219.0	4561	1.77 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 70.8%	
d5-EtFOSAA	8.473	589.2 -> 419.0	18477	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
d7-MeFOSE	10.876	623.2 -> 58.9	18788	17.78 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 71.1%	
d9-EtFOSE	11.110	639.2 -> 58.9	12251	16.73 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 66.9%	
d5-EtFOSA	11.188	531.1 -> 219.0	4410	1.56 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 62.3%	

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	7.046	427.1 -> 407.0	4988	1.91 µg/L	95
		427.1 -> 80.9	966		
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8				
PFHpA	-	363.1 -> 319.0	-	N.D.		
		363.1 -> 169.0				
PFHpS	7.867	449.0 -> 79.9	0	µg/L	m	1
		449.0 -> 98.9	0			
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	7.273	413.0 -> 369.0	2240	0.08 µg/L	m	99
		413.0 -> 169.0	297			
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

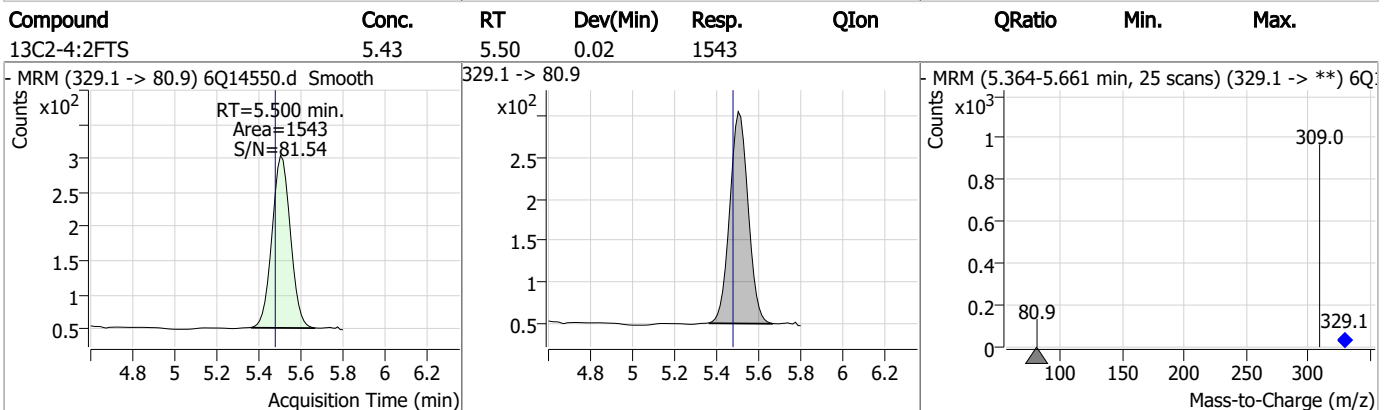
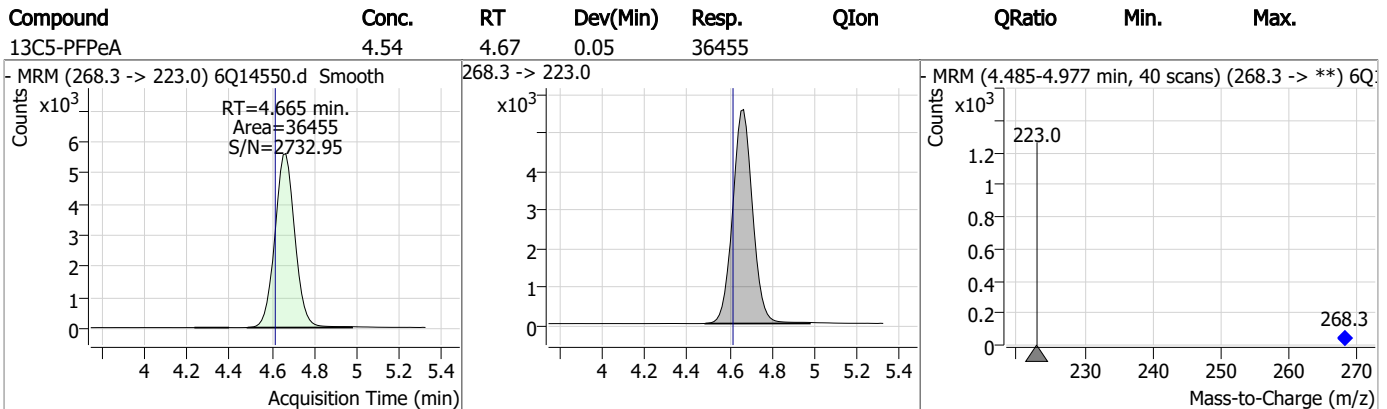
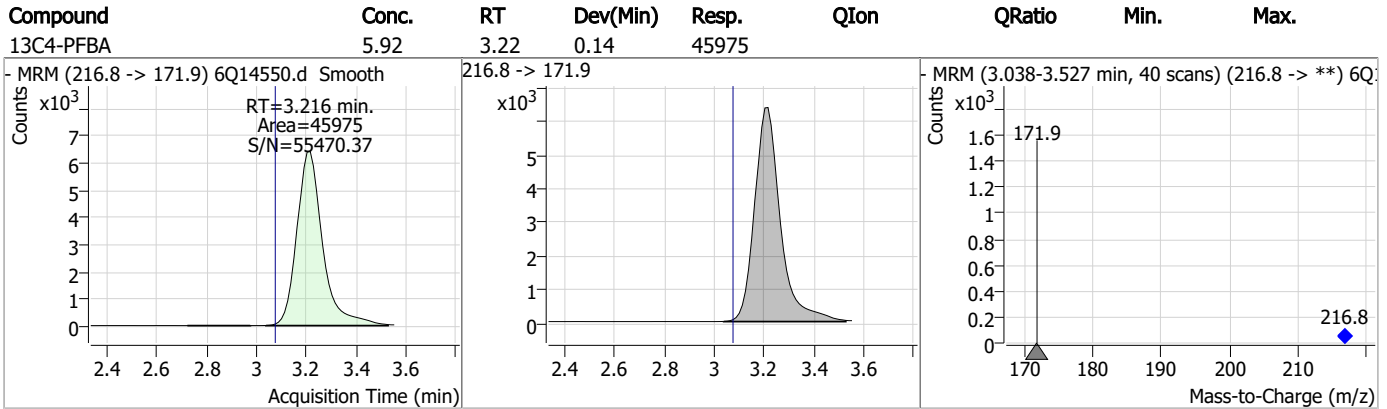
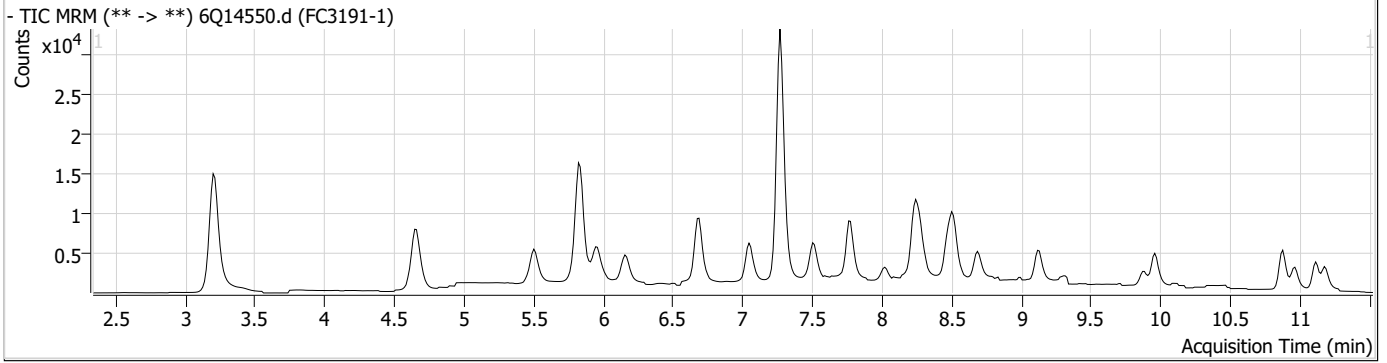
Perfluorinated Compounds by LC/MS/MS

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



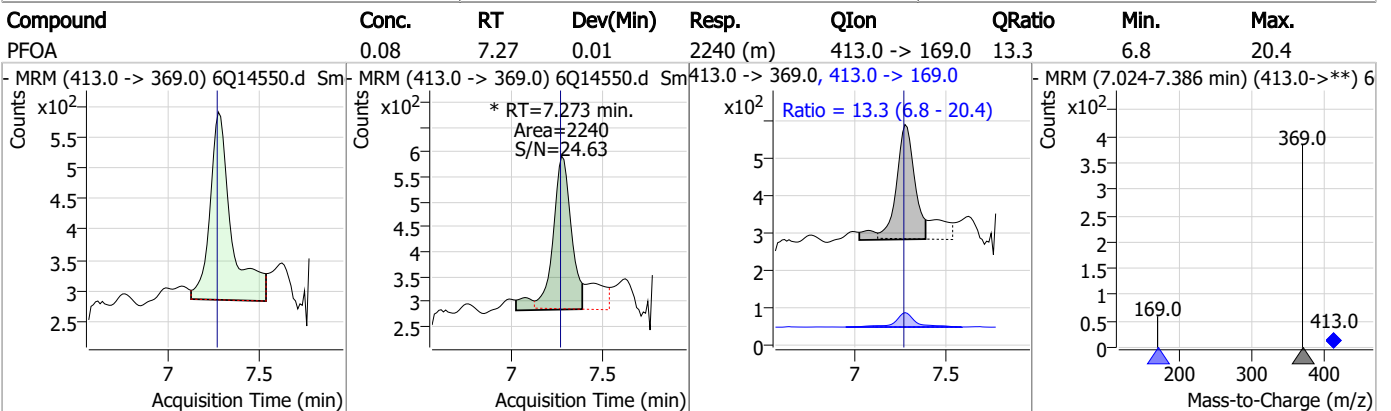
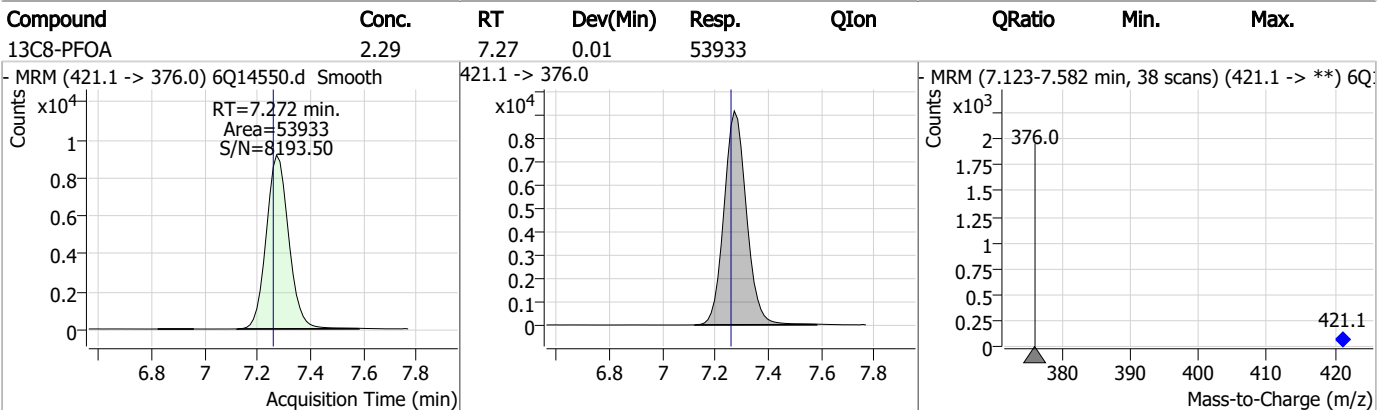
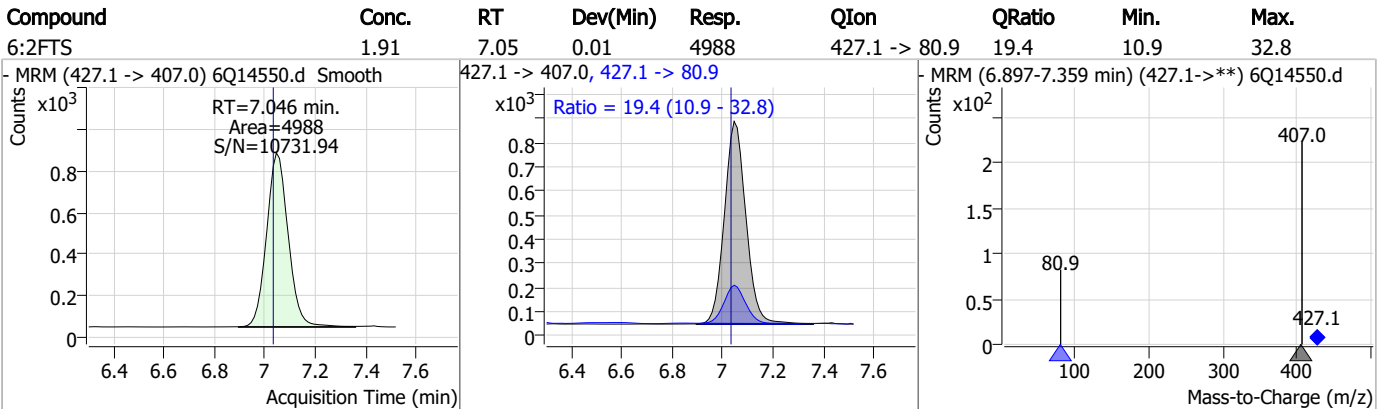
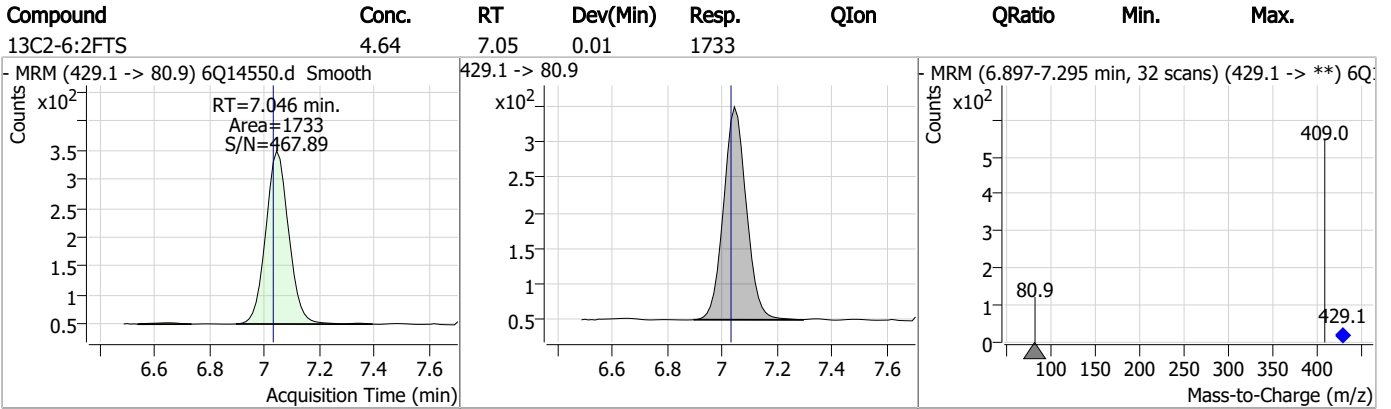
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.40	5.82	0.01	33340				
13C3-PFBS	2.56	5.96	0.06	13336				
13C3-HFPO-DA	8.95	6.16	0.01	13893				
13C4-PFHpA	2.43	6.69	0.03	32935				

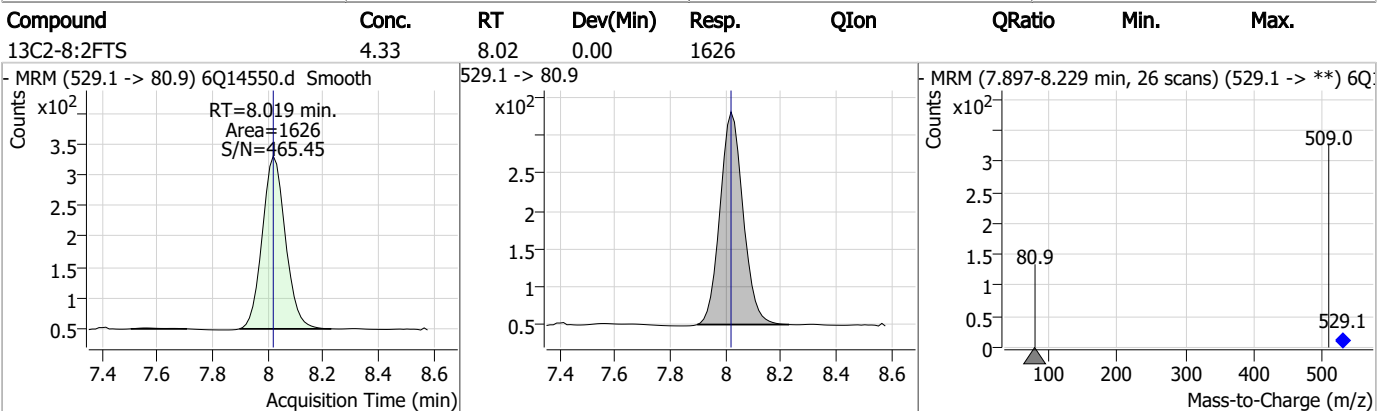
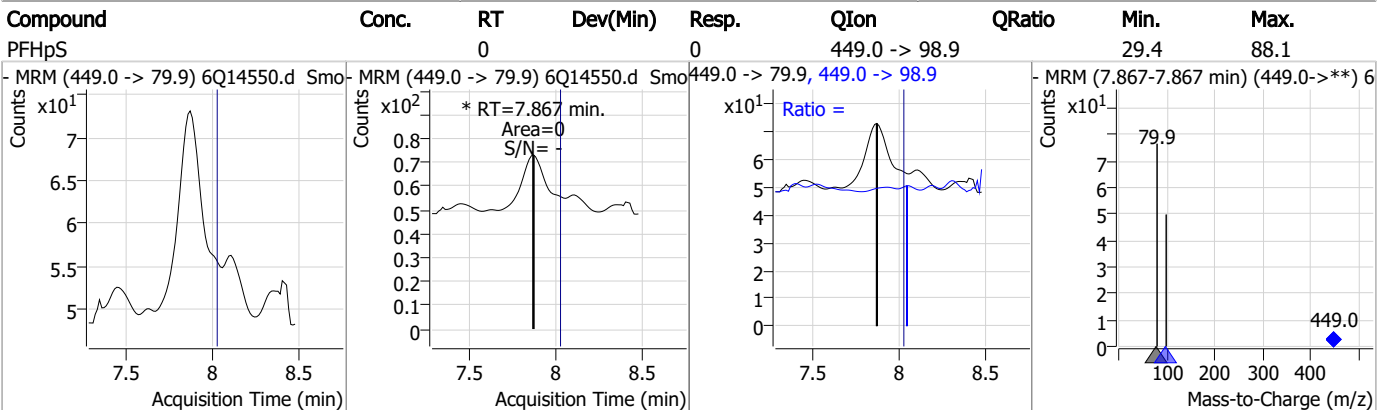
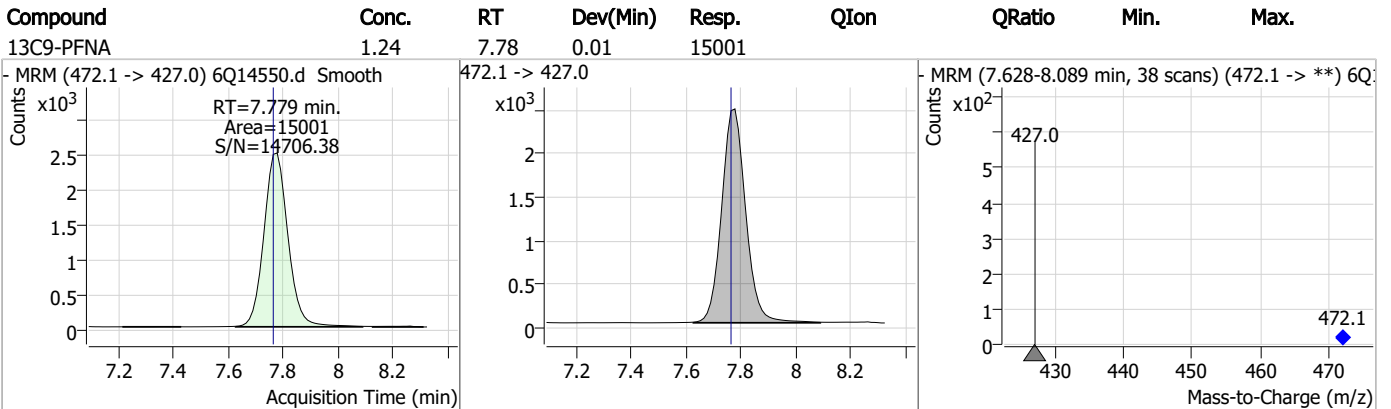
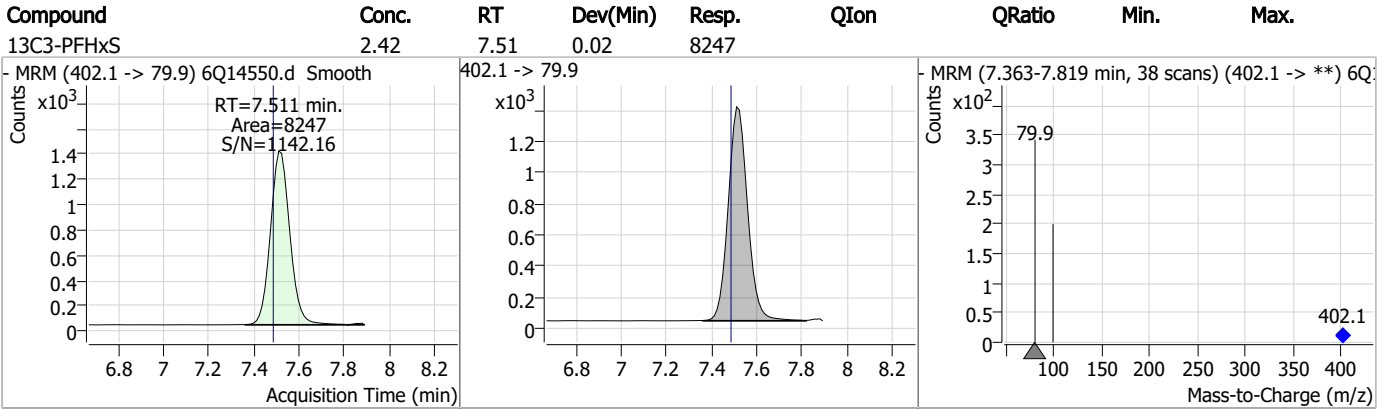
7.1.1
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Perfluorinated Compounds by LC/MS/MS



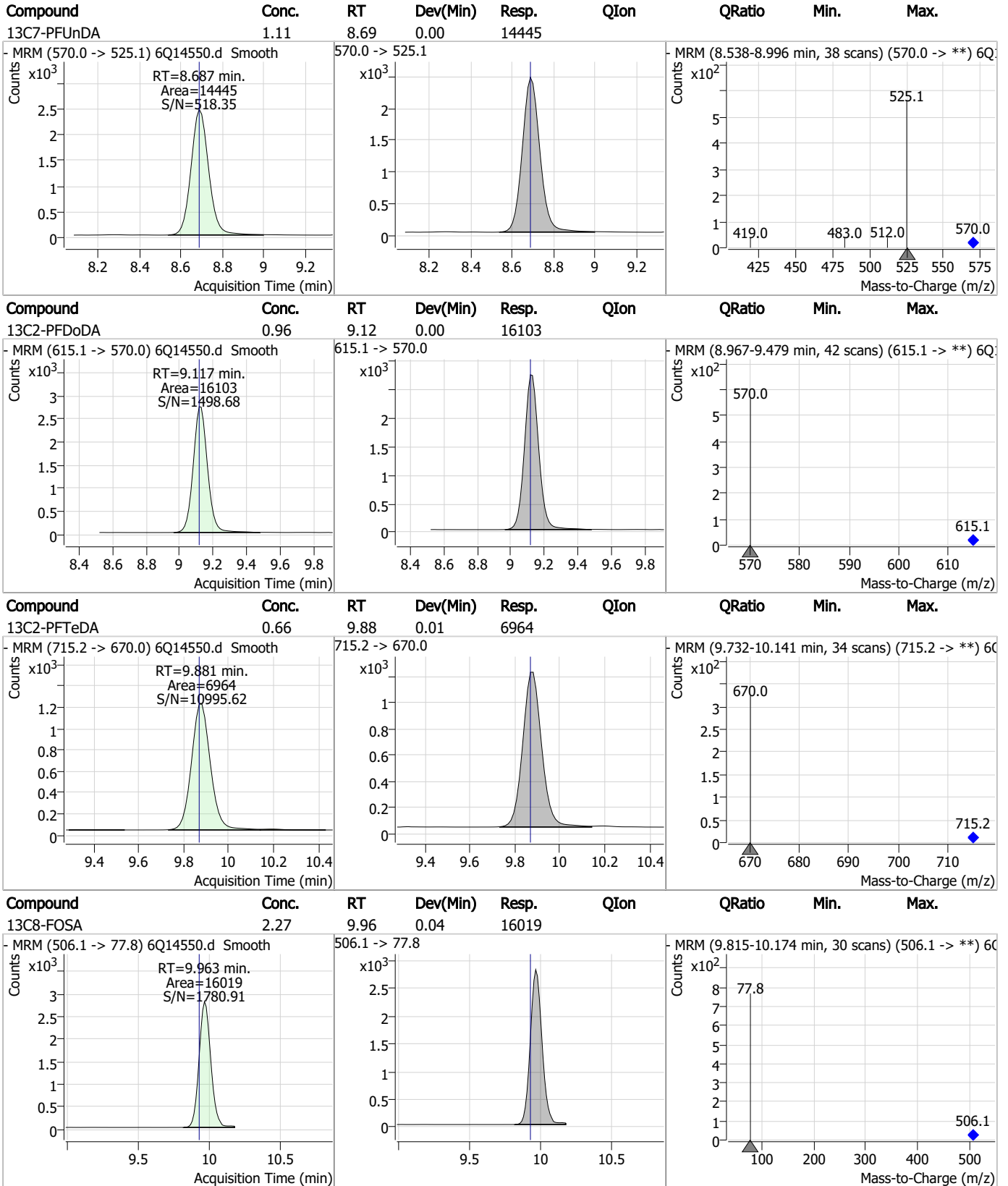
Perfluorinated Compounds by LC/MS/MS



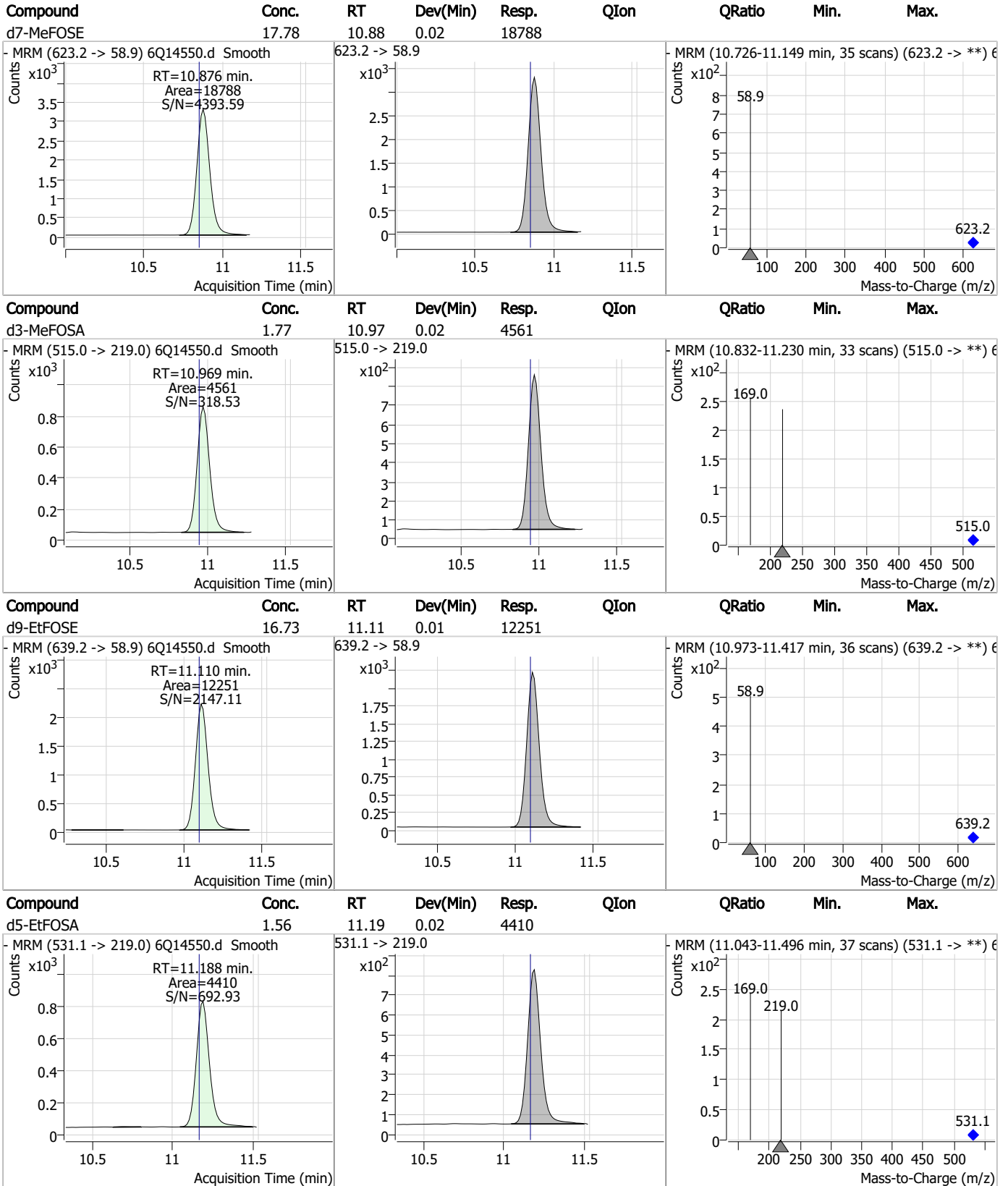
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.15	8.23	0.00	13578				
d3-MeFOSAA	4.47	8.28	0.01	18525				
d5-EtFOSAA	4.80	8.47	0.00	18477				
13C8-PFOS	2.15	8.52	0.01	6629				

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: FC3191-1 Method: EPA DRAFT 1633
Lab FileID: 6Q14550.D Analyst approved: 03/09/23 13:43 Martha Valls
Injection Time: 03/08/23 20:41 Supervisor approved: 03/10/23 10:55 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.27	Split peak

7.1.1.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14551.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 8:55:50 PM
 Sample Name : FC3191-2
 Vial : P2-C2
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95747,S6Q220,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.216	216.8 -> 171.9	84244	10.00 µg/L	0.140
M5-PFPeA	4.665	268.3 -> 223.0	40526	5.00 µg/L	0.050
M5-PFHxA	5.834	318.0 -> 273.0	34670	2.50 µg/L	0.025
M4-PFHpA	6.680	367.1 -> 322.0	33418	2.50 µg/L	0.012
M8-PFOA	7.272	421.1 -> 376.0	56305	2.50 µg/L	0.012
M9-PFNA	7.764	472.1 -> 427.0	14364	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	14462	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	15554	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	17491	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	10276	1.25 µg/L	0.000
M8-FOSA	9.963	506.1 -> 77.8	15301	2.50 µg/L	0.037
M3-PFBS	5.963	302.1 -> 79.9	12783	2.50 µg/L	0.062
M3-PFHxS	7.511	402.1 -> 79.9	9076	2.50 µg/L	0.025
M8-PFOS	8.519	507.1 -> 79.9	7825	2.50 µg/L	0.012
M2-4:2FTS	5.512	329.1 -> 80.9	1646	5.00 µg/L	0.037
M2-6:2FTS	7.046	429.1 -> 80.9	1932	5.00 µg/L	0.012
M2-8:2FTS	8.007	529.1 -> 80.9	2060	5.00 µg/L	-0.012
M3-MeFOSAA	8.265	573.2 -> 419.0	21966	5.00 µg/L	0.000
M3-HFPO-DA	6.163	286.9 -> 168.9	15272	10.00 µg/L	0.012
M5-EtFOSAA	8.460	589.2 -> 419.0	17441	5.00 µg/L	-0.012
M7-MeFOSE	10.876	623.2 -> 58.9	22872	25.00 µg/L	0.025
M9-EtFOSE	11.110	639.2 -> 58.9	15502	25.00 µg/L	0.012
M5-EtFOSA	11.188	531.1 -> 219.0	5625	2.50 µg/L	0.024
M3-MeFOSA	10.969	515.0 -> 219.0	5158	2.50 µg/L	0.025
13C4-PFOS	8.520	502.8 -> 79.9	9514	2.50 µg/L	0.025
13C3-PFBA	3.218	216.0 -> 172.0	36375	5.00 µg/L	0.139
18O2-PFHxS	7.510	403.0 -> 83.9	6254	2.50 µg/L	0.012
13C4-PFOA	7.272	417.1 -> 372.0	66675	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	20108	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	15513	1.25 µg/L	0.000
13C2-PFHxA	5.835	315.1 -> 270.0	34839	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.512	329.1 -> 80.9	1646	5.53 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.6%		
13C2-6:2FTS	7.046	429.1 -> 80.9	1932	4.94 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C2-8:2FTS	8.007	529.1 -> 80.9	2060	5.23 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C2-PFDoDA	9.117	615.1 -> 570.0	17491	1.03 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 82.1%		
13C2-PFTeDA	9.868	715.2 -> 670.0	10276	0.95 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 76.0%		
13C3-PFBS	5.963	302.1 -> 79.9	12783	2.34 µg/L	0.062
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.7%		
13C3-PFHxS	7.511	402.1 -> 79.9	9076	2.54 µg/L	0.025

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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 = 101.5%	
13C4-PFBA	3.216	216.8 -> 171.9	84244	10.08 µg/L	0.140
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C4-PFHpA	6.680	367.1 -> 322.0	33418	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C5-PFHxA	5.834	318.0 -> 273.0	34670	2.43 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C5-PFPeA	4.665	268.3 -> 223.0	40526	4.91 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C6-PFDA	8.233	519.1 -> 474.1	14462	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C7-PFUnDA	8.687	570.0 -> 525.1	15554	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C8-FOSA	9.963	506.1 -> 77.8	15301	2.05 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.0%	
13C8-PFOA	7.272	421.1 -> 376.0	56305	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C8-PFOS	8.519	507.1 -> 79.9	7825	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C9-PFNA	7.764	472.1 -> 427.0	14364	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.1%	
d3-MeFOSAA	8.265	573.2 -> 419.0	21966	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C3-HFPO-DA	6.163	286.9 -> 168.9	15272	9.57 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
d3-MeFOSA	10.969	515.0 -> 219.0	5158	1.89 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.8%	
d5-EtFOSAA	8.460	589.2 -> 419.0	17441	4.29 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 85.7%	
d7-MeFOSE	10.876	623.2 -> 58.9	22872	20.48 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.9%	
d9-EtFOSE	11.110	639.2 -> 58.9	15502	20.02 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.1%	
d5-EtFOSA	11.188	531.1 -> 219.0	5625	1.88 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.1%	
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	9.142	613.1 -> 569.0 613.1 -> 319.0	0	µg/L m	1
PFDS	-	599.0 -> 79.9	-	N.D.	

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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	8.250	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.682	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

7.12
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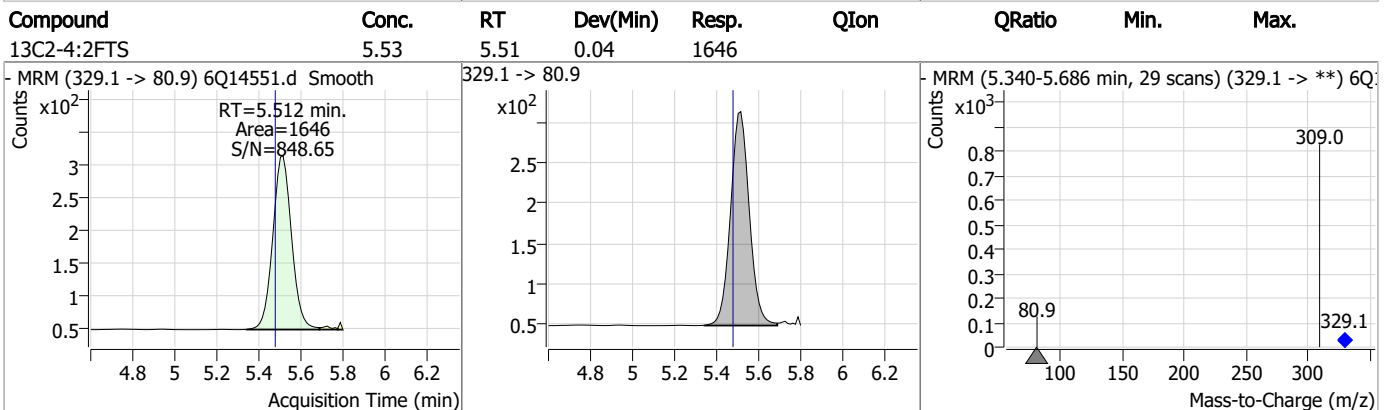
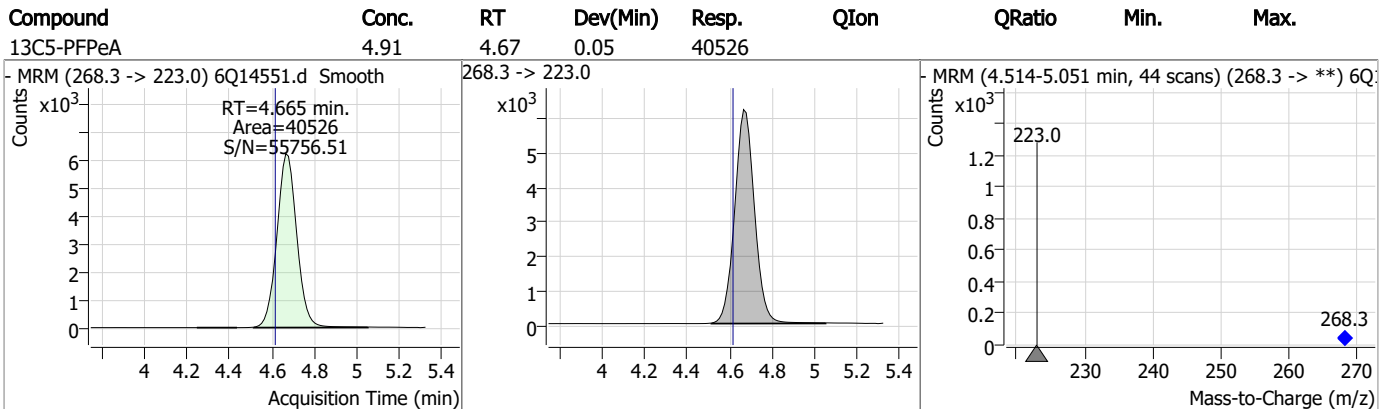
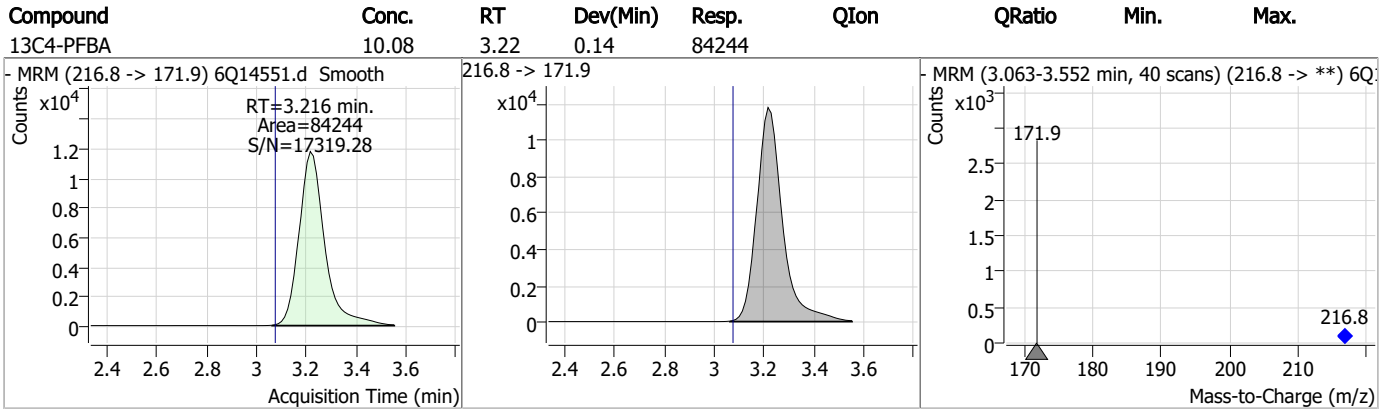
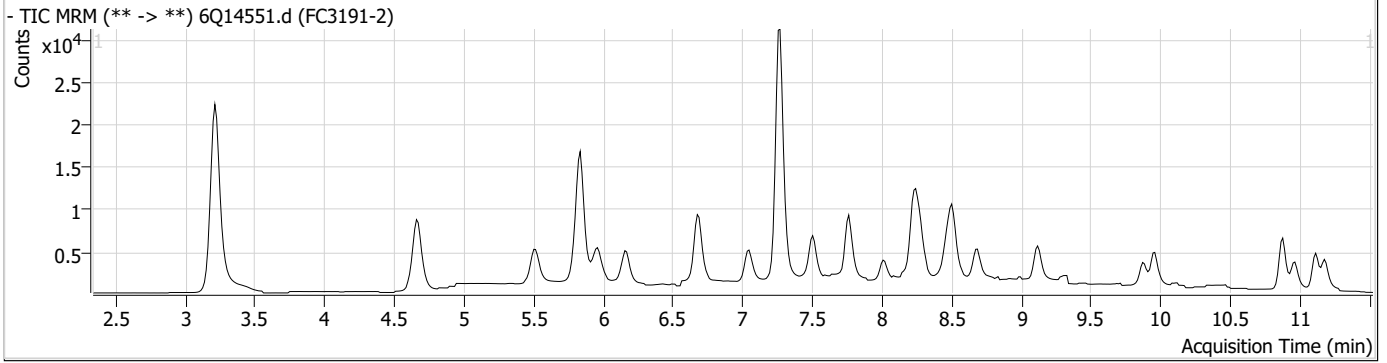
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.1.2
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

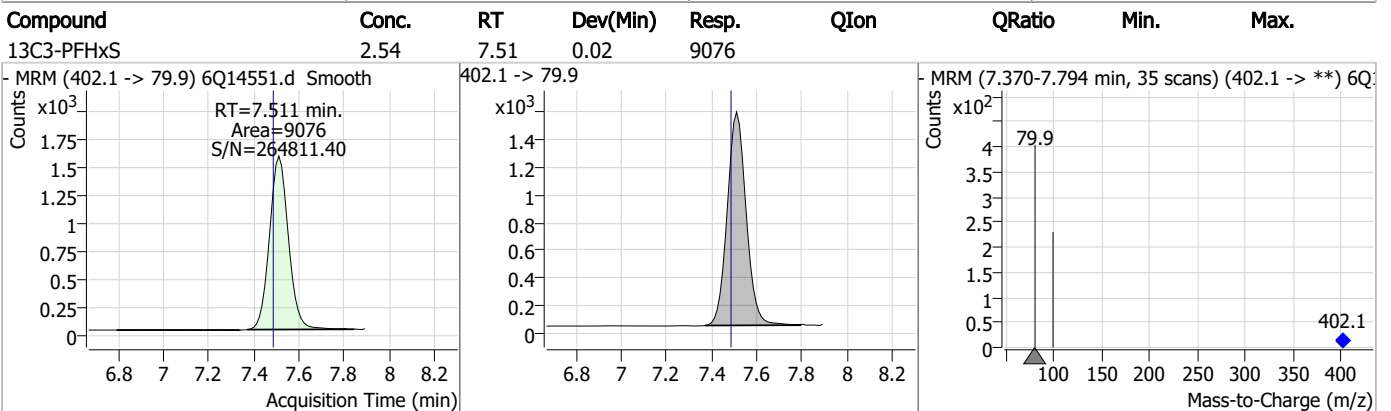
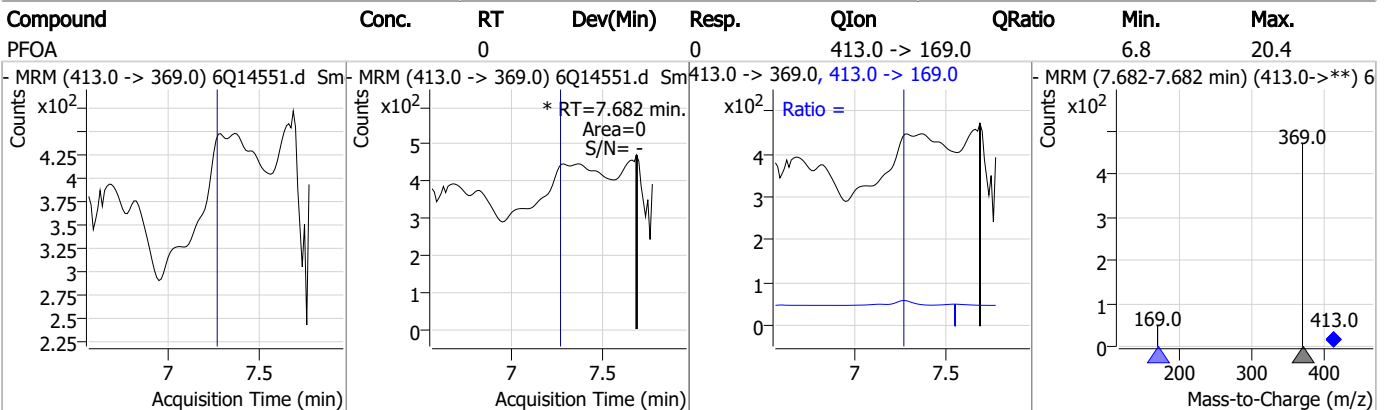
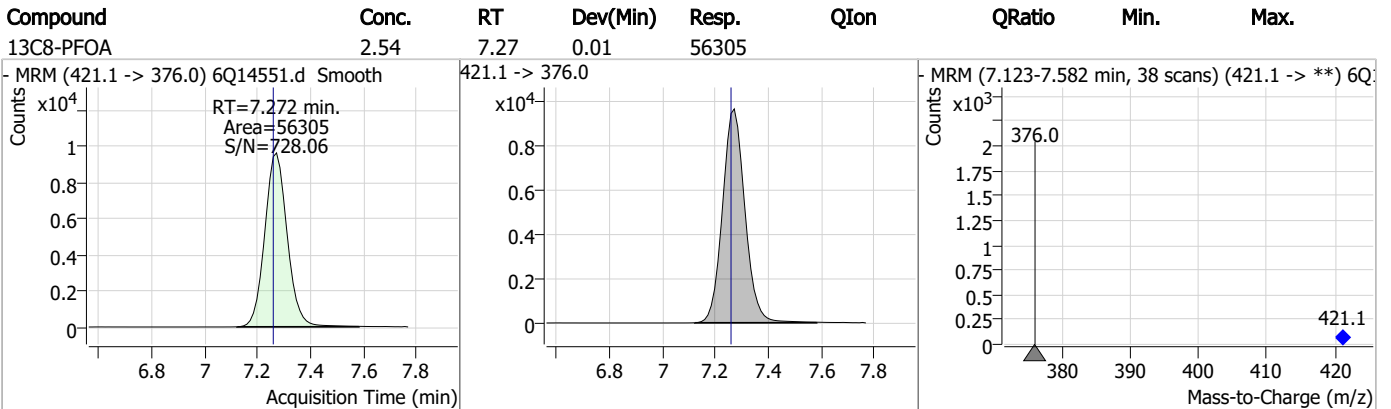
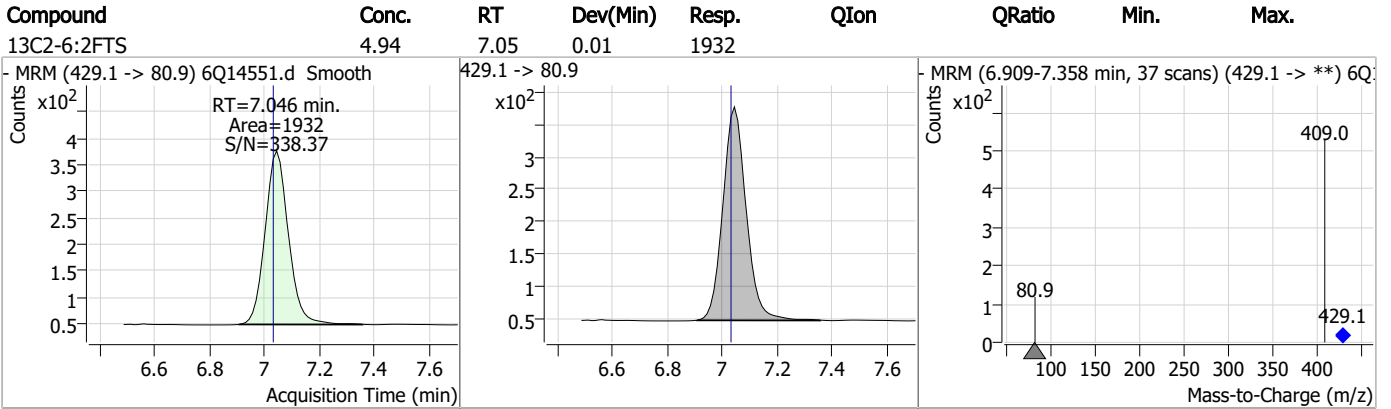
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.43	5.83	0.02	34670				
13C3-PFBS	2.34	5.96	0.06	12783				
13C3-HFPO-DA	9.57	6.16	0.01	15272				
13C4-PFHpA	2.40	6.68	0.01	33418				

7.1.2

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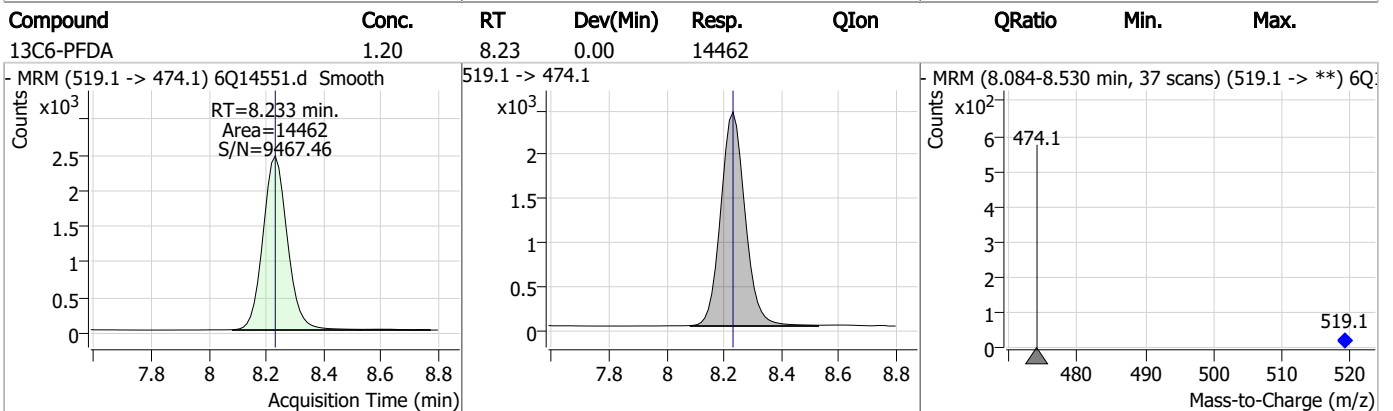
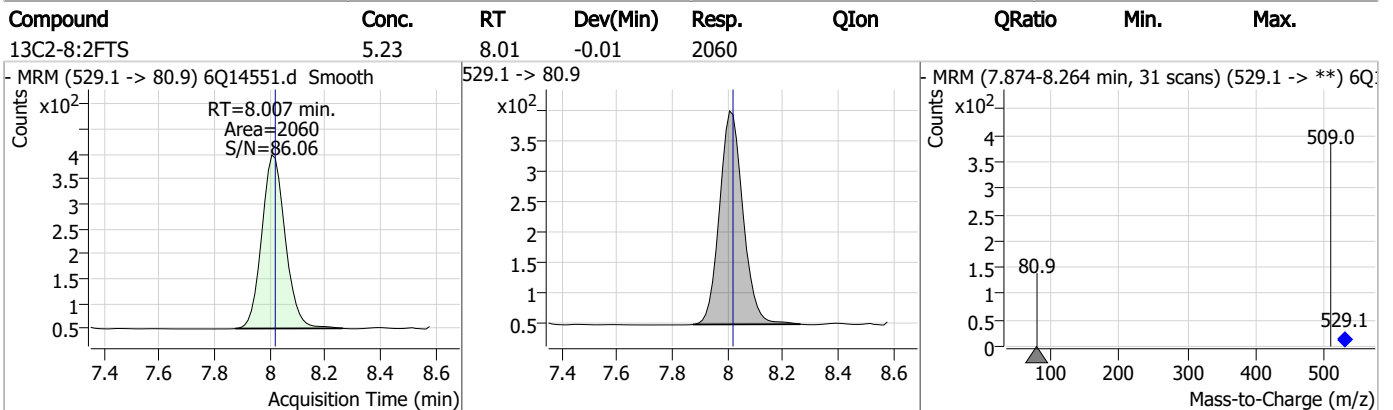
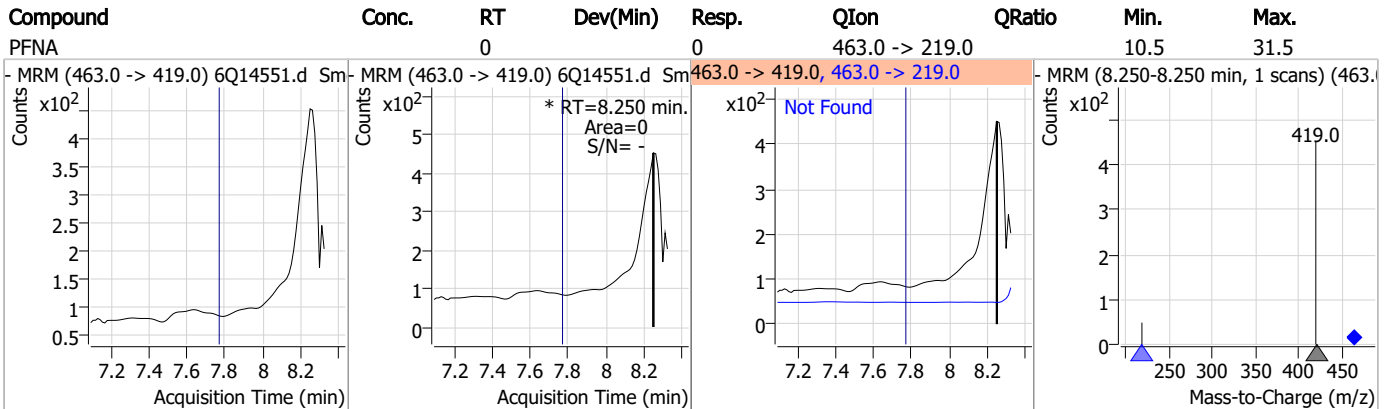
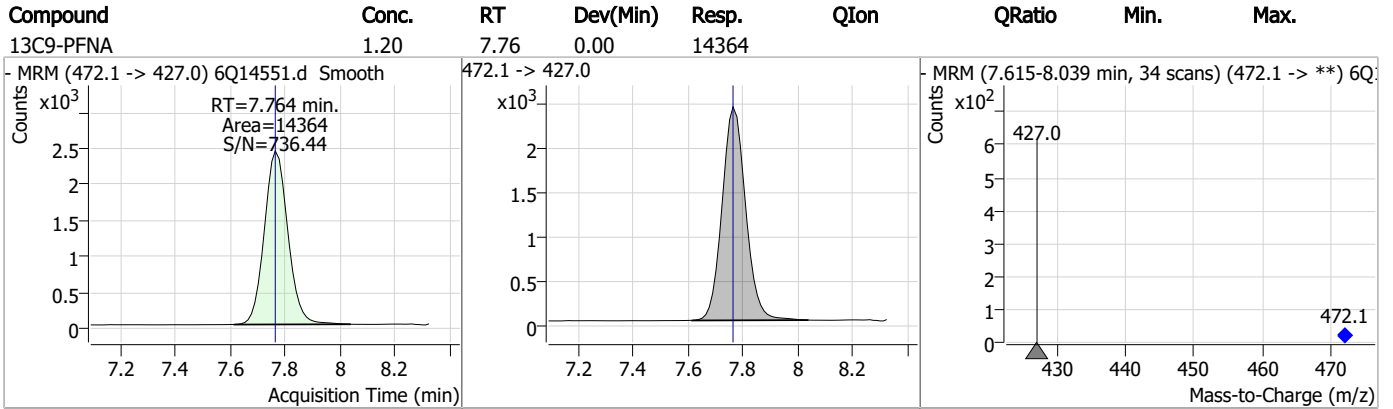
Perfluorinated Compounds by LC/MS/MS



7.1.2

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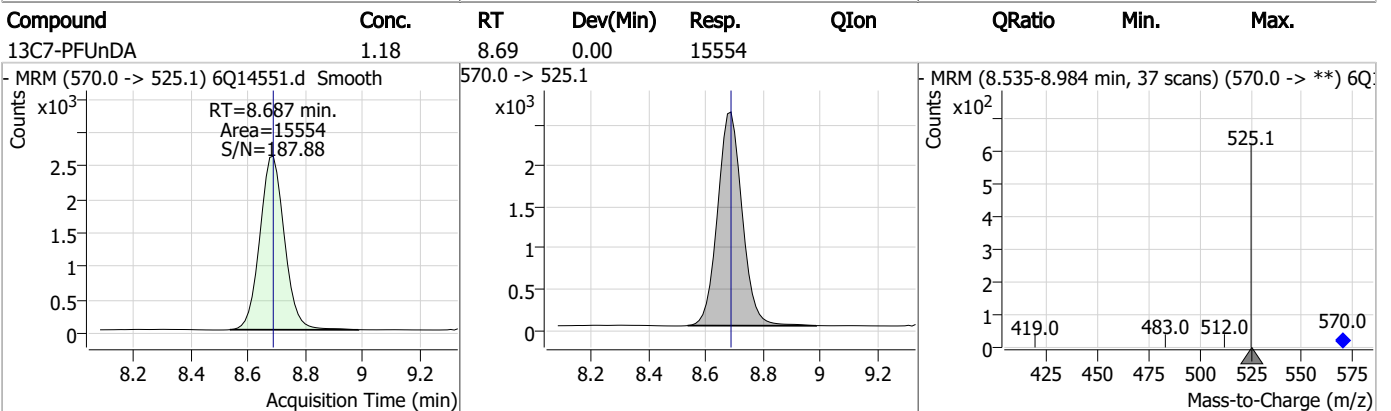
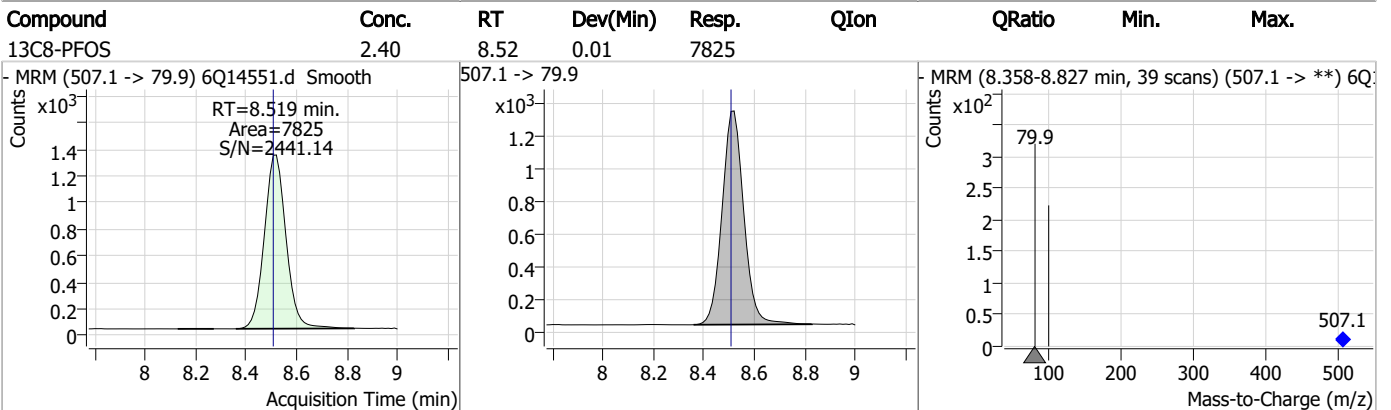
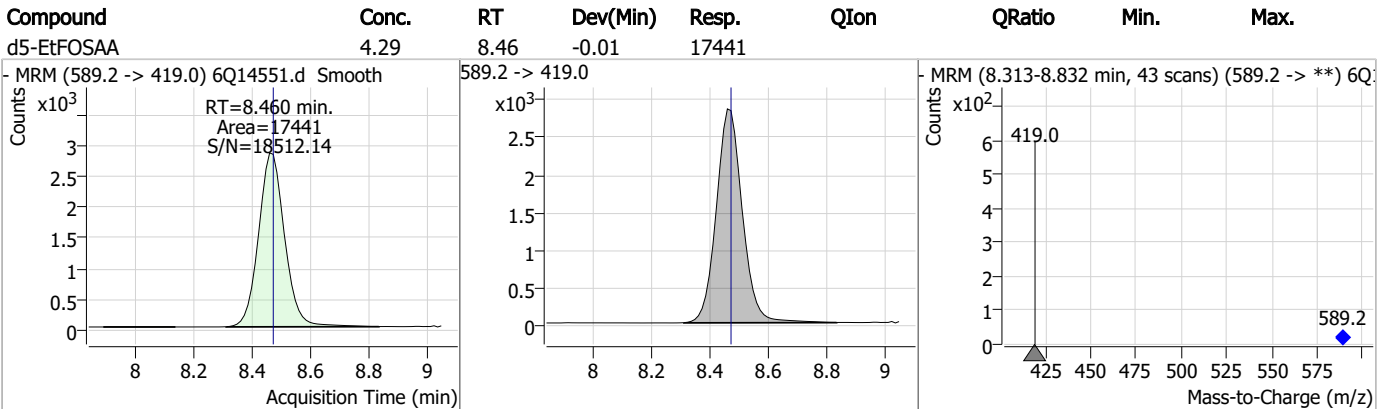
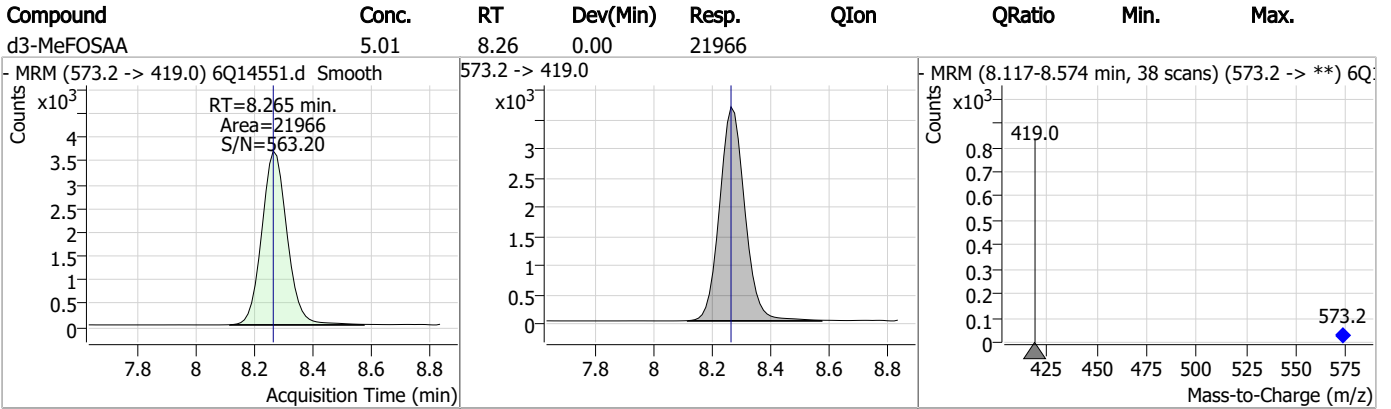
Perfluorinated Compounds by LC/MS/MS



7.1.2

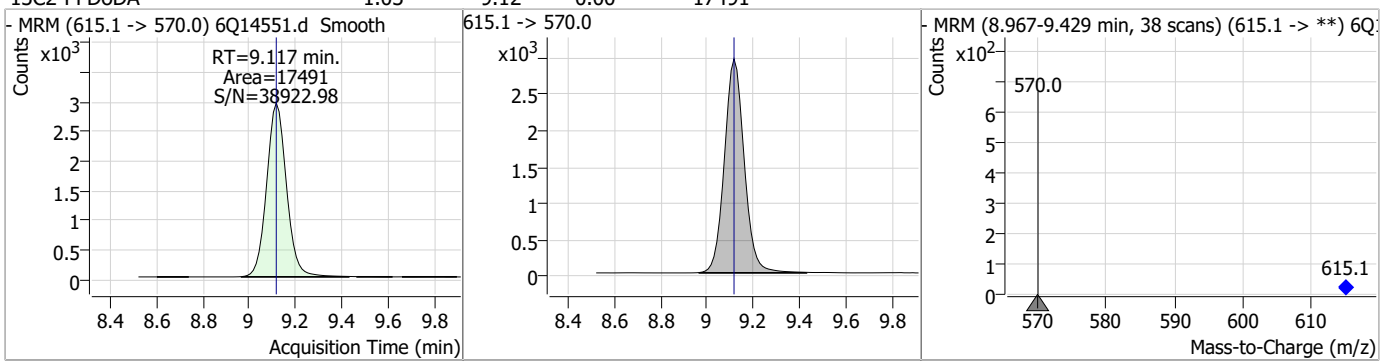
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Perfluorinated Compounds by LC/MS/MS

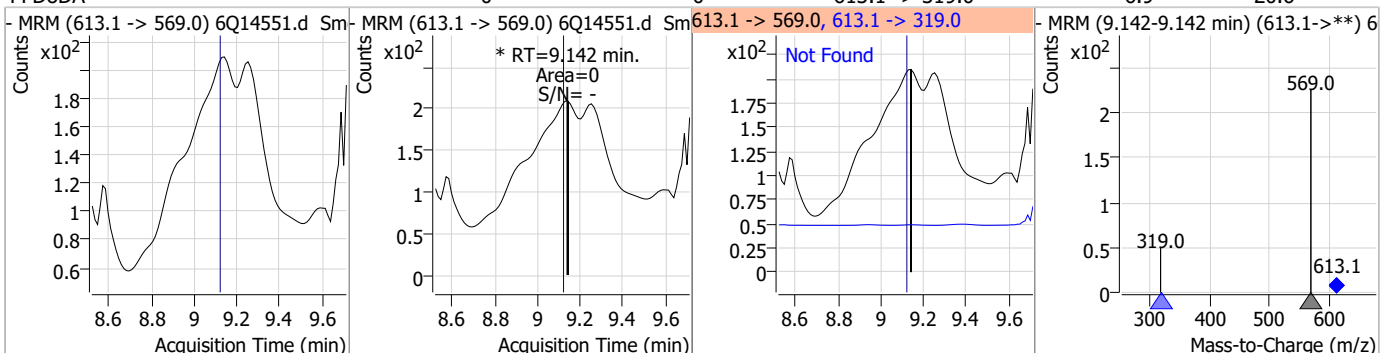


Perfluorinated Compounds by LC/MS/MS

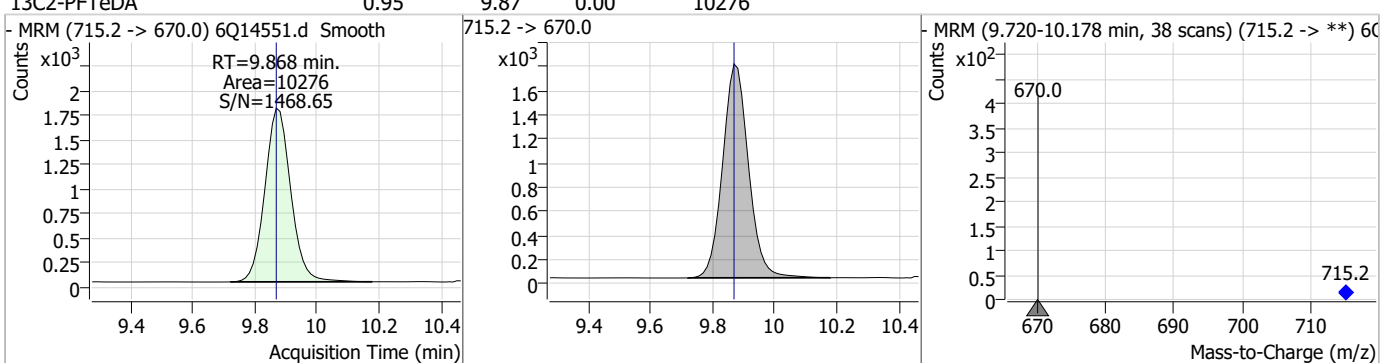
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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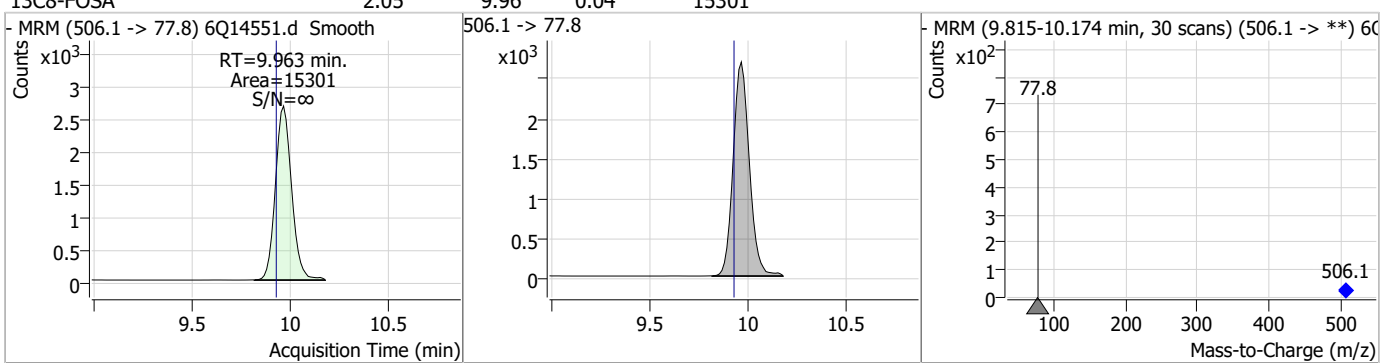
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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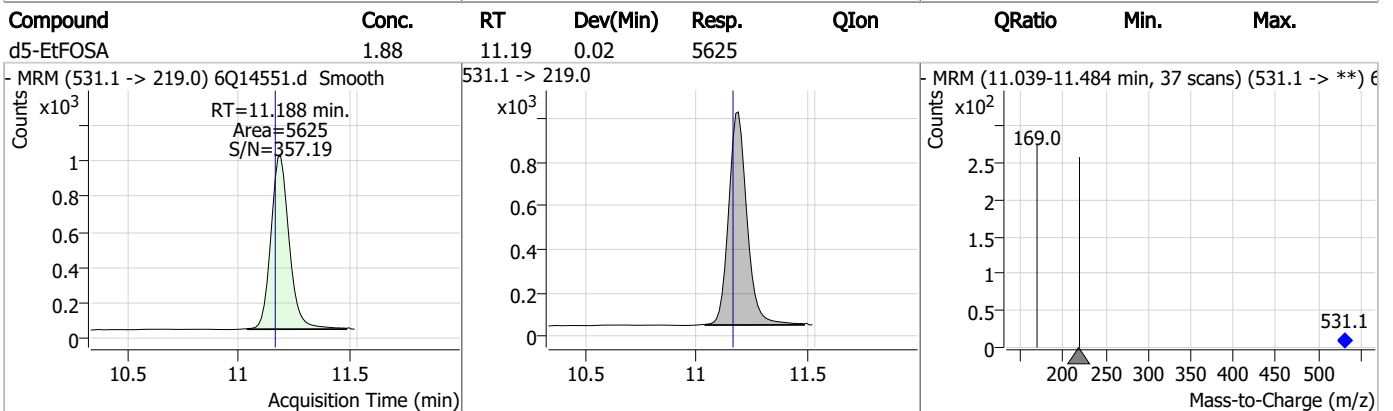
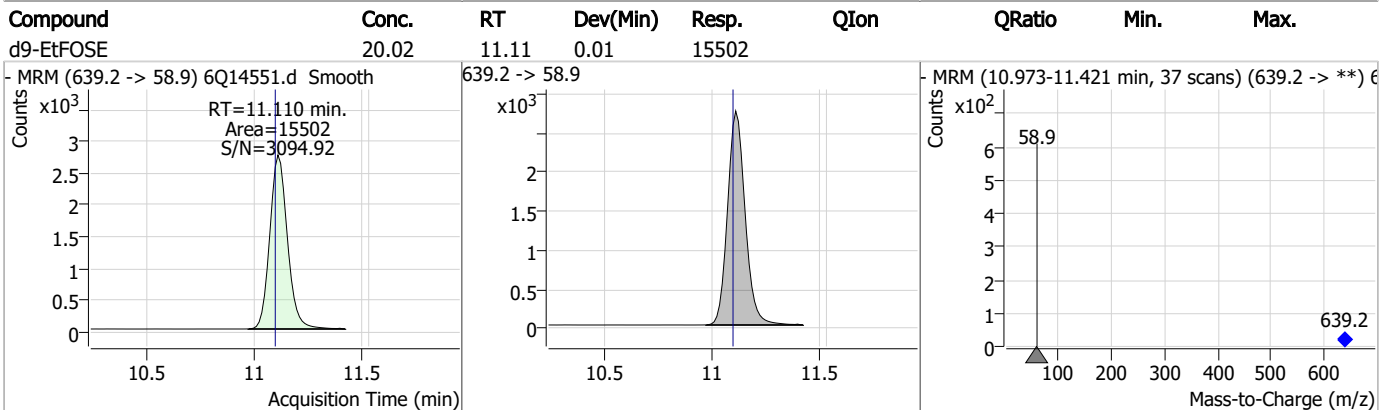
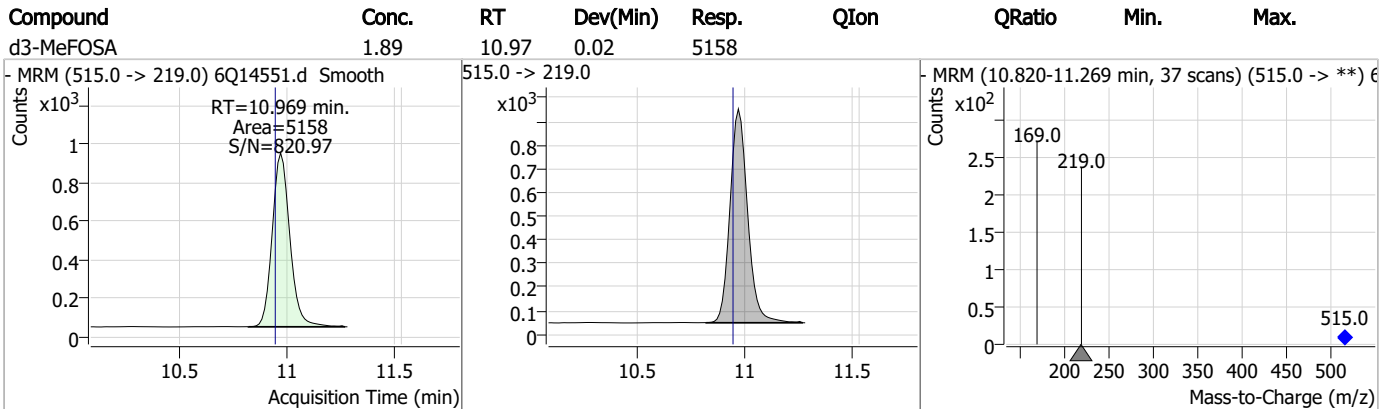
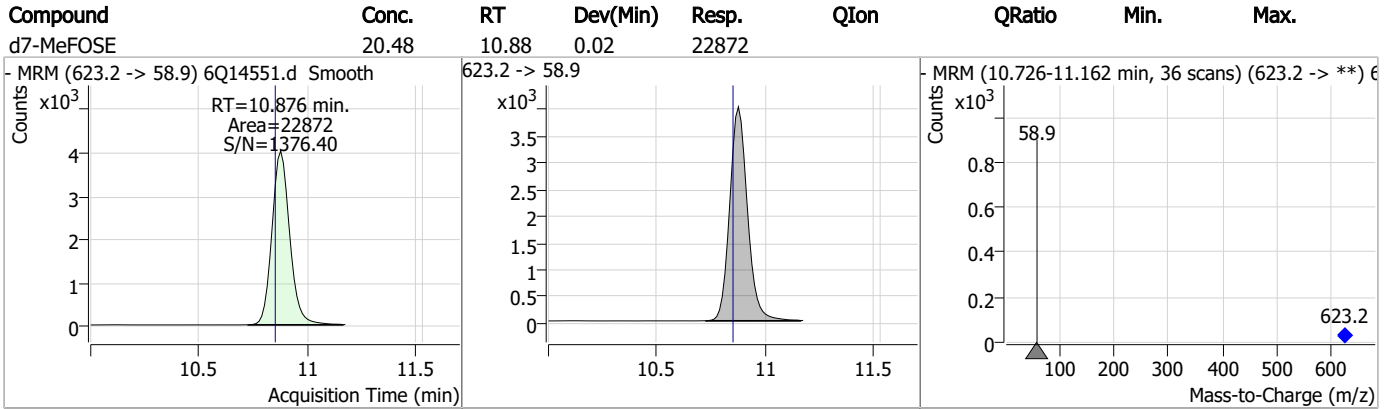


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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7.1.2
7

Perfluorinated Compounds by LC/MS/MS



7.1.2

7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14554.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 9:37:47 PM
 Sample Name : FC3191-3
 Vial : P2-C3
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95747,S6Q220,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.216	216.8 -> 171.9	1718	10.00 µg/L	0.140
M5-PFPeA	4.665	268.3 -> 223.0	12197	5.00 µg/L	0.050
M5-PFHxA	5.834	318.0 -> 273.0	34532	2.50 µg/L	0.025
M4-PFHpA	6.693	367.1 -> 322.0	34718	2.50 µg/L	0.025
M8-PFOA	7.272	421.1 -> 376.0	54263	2.50 µg/L	0.012
M9-PFNA	7.779	472.1 -> 427.0	14625	1.25 µg/L	0.014
M6-PFDA	8.233	519.1 -> 474.1	13452	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	16889	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	19209	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	9367	1.25 µg/L	0.000
M8-FOSA	9.963	506.1 -> 77.8	17687	2.50 µg/L	0.037
M3-PFBS	5.963	302.1 -> 79.9	13111	2.50 µg/L	0.062
M3-PFHxS	7.523	402.1 -> 79.9	8320	2.50 µg/L	0.037
M8-PFOS	8.507	507.1 -> 79.9	7989	2.50 µg/L	0.000
M2-4:2FTS	5.512	329.1 -> 80.9	2114	5.00 µg/L	0.037
M2-6:2FTS	7.046	429.1 -> 80.9	2044	5.00 µg/L	0.012
M2-8:2FTS	8.019	529.1 -> 80.9	2155	5.00 µg/L	0.000
M3-MeFOSAA	8.265	573.2 -> 419.0	26531	5.00 µg/L	0.000
M3-HFPO-DA	6.175	286.9 -> 168.9	13154	10.00 µg/L	0.025
M5-EtFOSAA	8.460	589.2 -> 419.0	28730	5.00 µg/L	-0.012
M7-MeFOSE	10.876	623.2 -> 58.9	24026	25.00 µg/L	0.025
M9-EtFOSE	11.110	639.2 -> 58.9	15658	25.00 µg/L	0.012
M5-EtFOSA	11.176	531.1 -> 219.0	6557	2.50 µg/L	0.012
M3-MeFOSA	10.969	515.0 -> 219.0	5963	2.50 µg/L	0.025
13C4-PFOS	8.508	502.8 -> 79.9	8341	2.50 µg/L	0.012
13C3-PFBA	3.218	216.0 -> 172.0	37046	5.00 µg/L	0.139
18O2-PFHxS	7.522	403.0 -> 83.9	6247	2.50 µg/L	0.025
13C4-PFOA	7.272	417.1 -> 372.0	70383	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	19402	1.25 µg/L	0.000
13C5-PFNA	7.779	468.0 -> 423.0	15530	1.25 µg/L	0.014
13C2-PFHxA	5.835	315.1 -> 270.0	34947	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.512	329.1 -> 80.9	2114	7.11 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 142.1%		
13C2-6:2FTS	7.046	429.1 -> 80.9	2044	5.23 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C2-8:2FTS	8.019	529.1 -> 80.9	2155	5.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.5%		
13C2-PFDoDA	9.117	615.1 -> 570.0	19209	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.5%		
13C2-PFTeDA	9.868	715.2 -> 670.0	9367	0.90 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 71.8%		
13C3-PFBS	5.963	302.1 -> 79.9	13111	2.41 µg/L	0.062
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C3-PFHxS	7.523	402.1 -> 79.9	8320	2.33 µg/L	0.037

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 = 93.1%		
13C4-PFBA	3.216	216.8 -> 171.9	1718	0.20 µg/L	0.140
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 2.0%		
13C4-PFHpA	6.693	367.1 -> 322.0	34718	2.49 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C5-PFHxA	5.834	318.0 -> 273.0	34532	2.41 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C5-PFPeA	4.665	268.3 -> 223.0	12197	1.47 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 29.4%		
13C6-PFDA	8.233	519.1 -> 474.1	13452	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.6%		
13C7-PFUnDA	8.687	570.0 -> 525.1	16889	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C8-FOSA	9.963	506.1 -> 77.8	17687	2.70 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C8-PFOA	7.272	421.1 -> 376.0	54263	2.32 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.6%		
13C8-PFOS	8.507	507.1 -> 79.9	7989	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C9-PFNA	7.779	472.1 -> 427.0	14625	1.22 µg/L	0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
d3-MeFOSAA	8.265	573.2 -> 419.0	26531	6.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 138.1%		
13C3-HFPO-DA	6.175	286.9 -> 168.9	13154	8.22 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 82.2%		
d3-MeFOSA	10.969	515.0 -> 219.0	5963	2.50 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
d5-EtFOSAA	8.460	589.2 -> 419.0	28730	8.05 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 161.1%		
d7-MeFOSE	10.876	623.2 -> 58.9	24026	24.53 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.1%		
d9-EtFOSE	11.110	639.2 -> 58.9	15658	23.06 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 92.3%		
d5-EtFOSA	11.176	531.1 -> 219.0	6557	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	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	8.932	599.0 -> 79.9	0	µg/L m	1



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	0			
PFHpA	-	363.1 -> 319.0	-	N.D.		
		363.1 -> 169.0				
PFHpS	8.053	449.0 -> 79.9	0	µg/L	m	1
		449.0 -> 98.9	0			
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	9.270	548.8 -> 79.9	0	µg/L	m	1
		548.8 -> 98.9	0			
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	7.888	498.9 -> 79.9	0	µg/L	m	1
		498.9 -> 98.8	0			
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	9.448	713.1 -> 669.0	0	µg/L	m	1
		713.1 -> 168.9	0			
PFTTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	8.193	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1	0			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.1.3
7



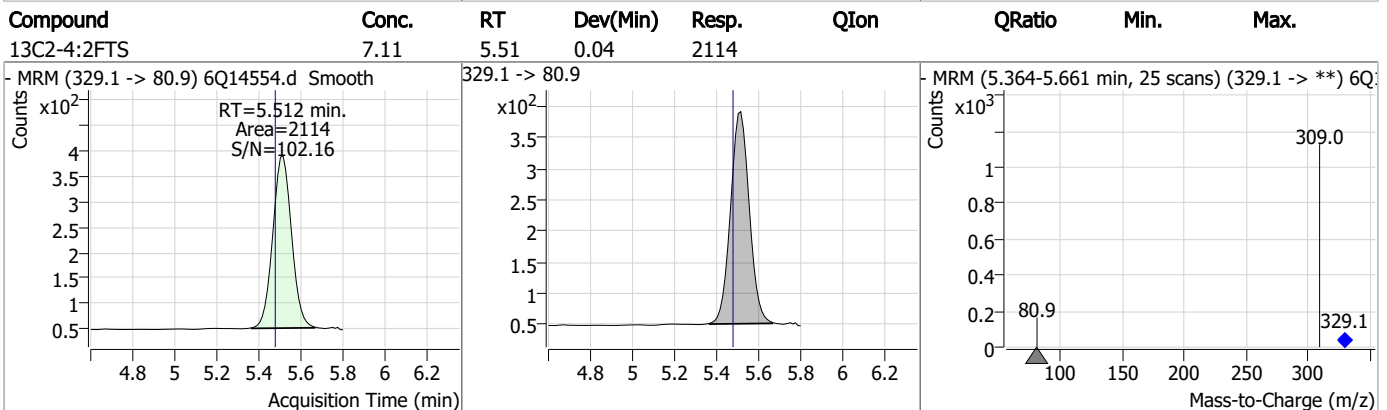
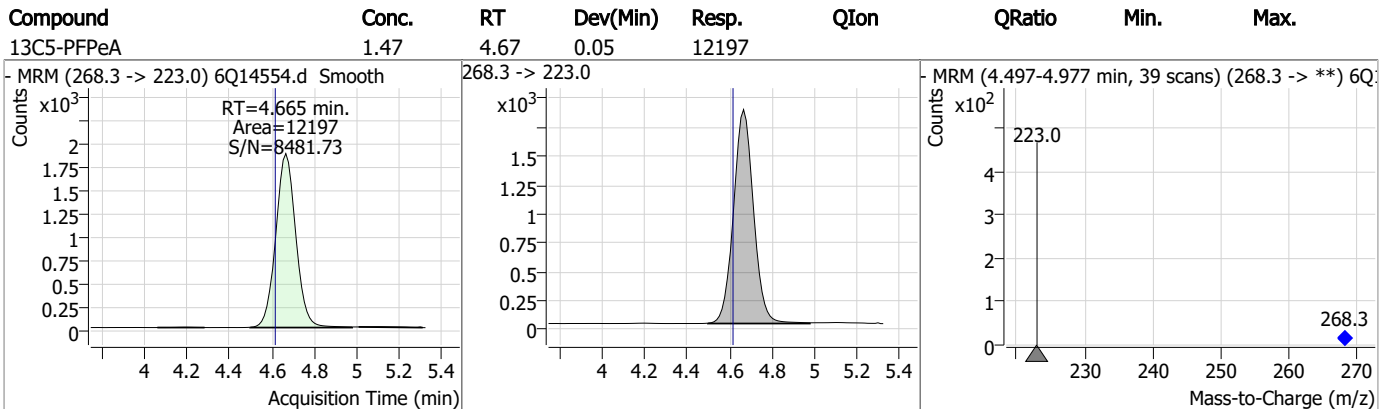
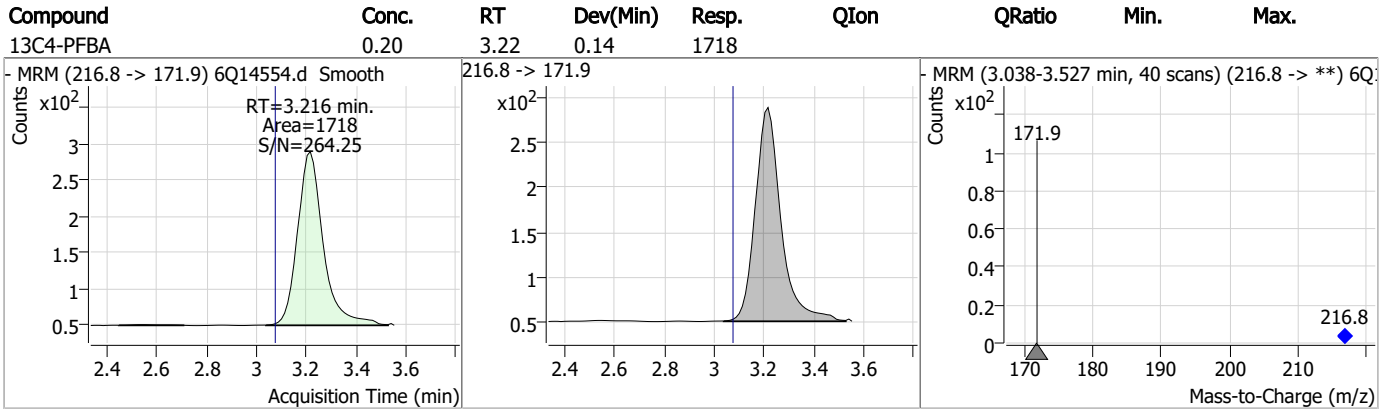
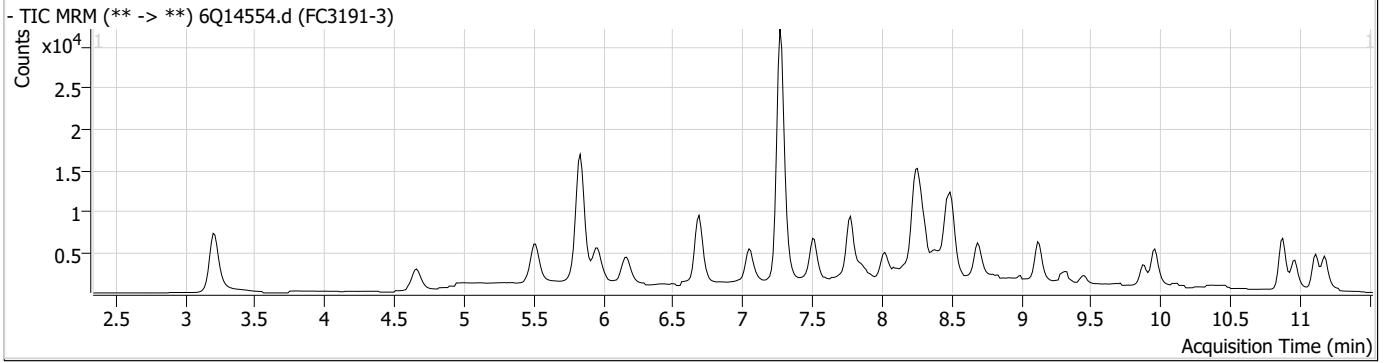
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.1.3
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Perfluorinated Compounds by LC/MS/MS



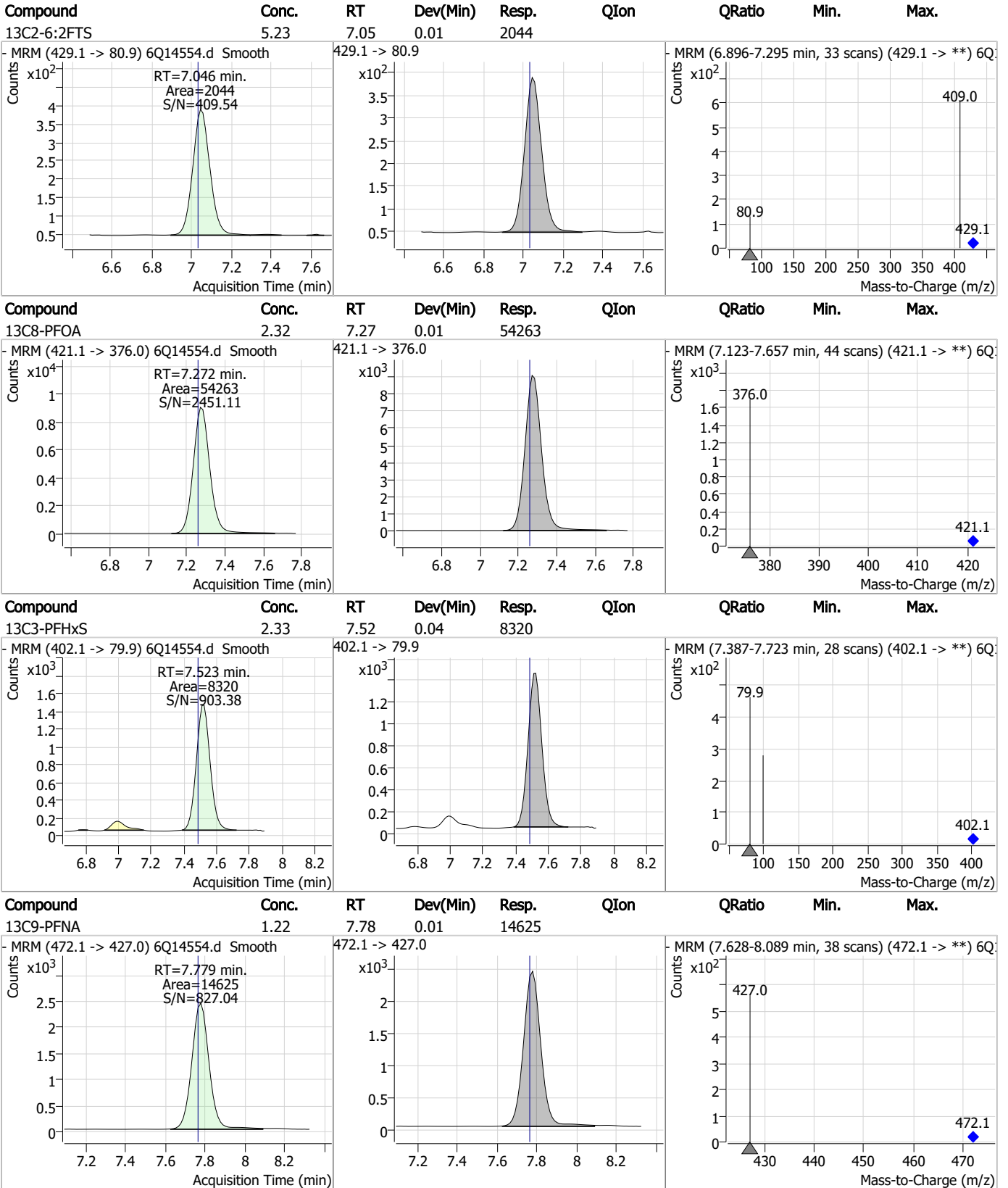
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.41	5.83	0.02	34532				
13C3-PFBS	2.41	5.96	0.06	13111				
13C3-HFPO-DA	8.22	6.18	0.02	13154				
13C4-PFHpA	2.49	6.69	0.03	34718				

7.1.3

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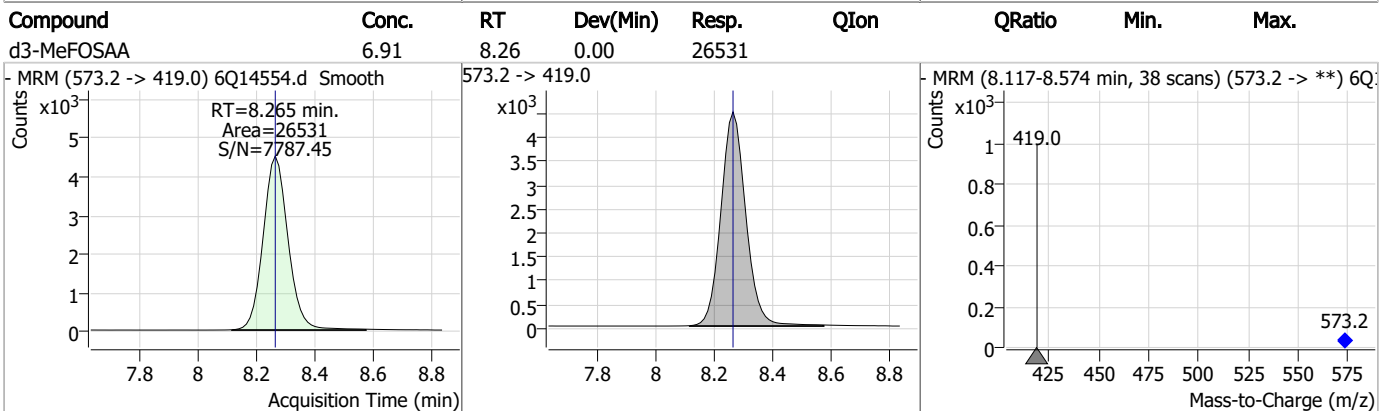
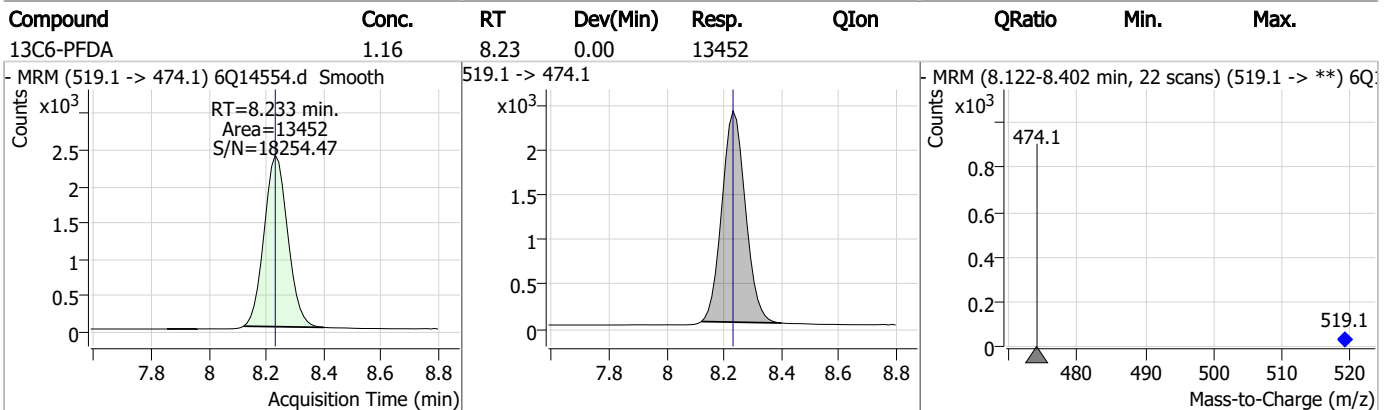
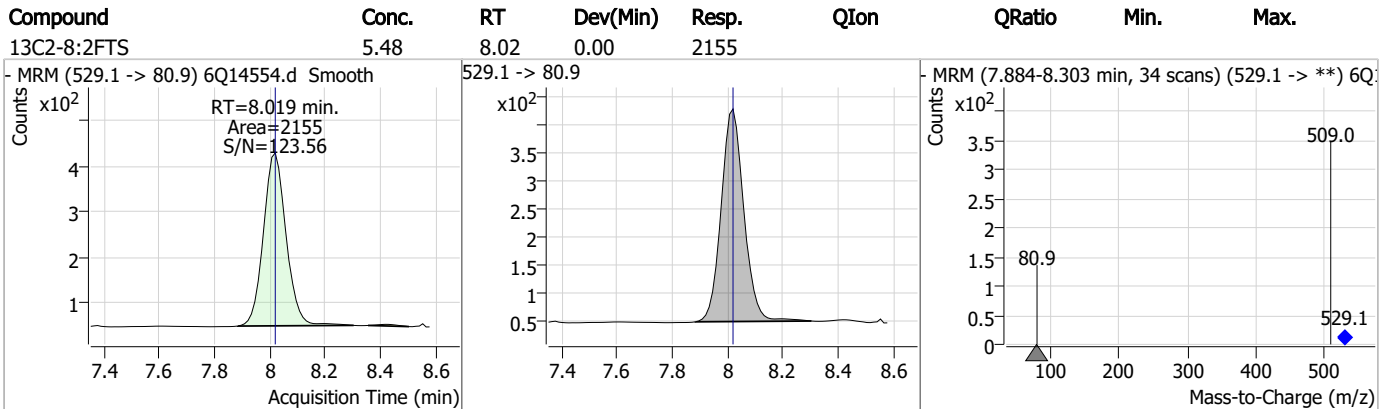
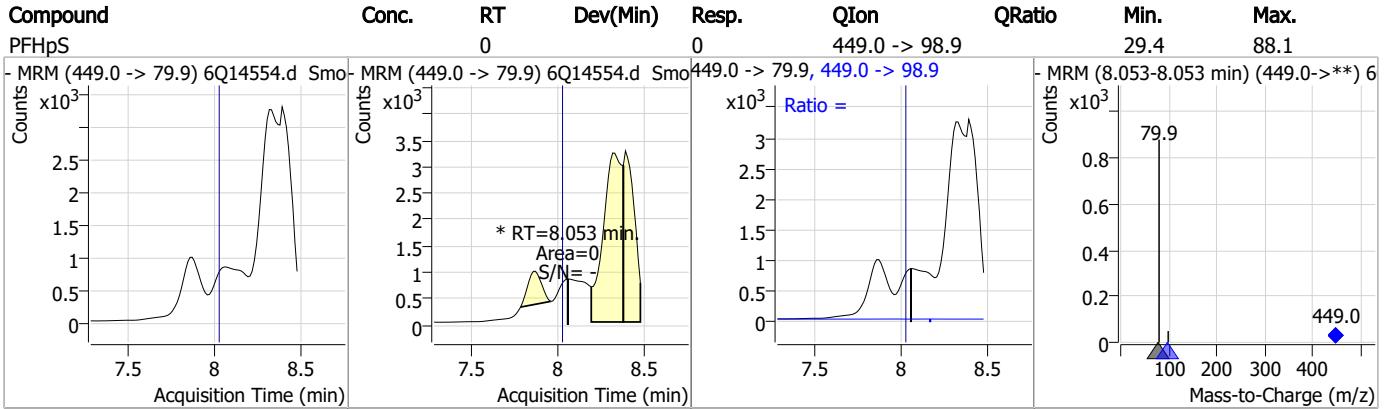
Perfluorinated Compounds by LC/MS/MS



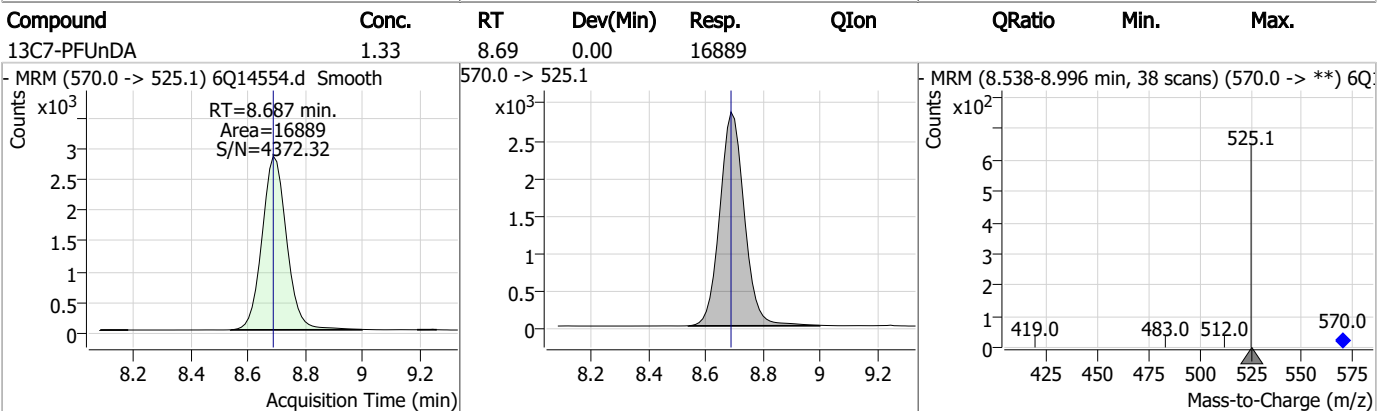
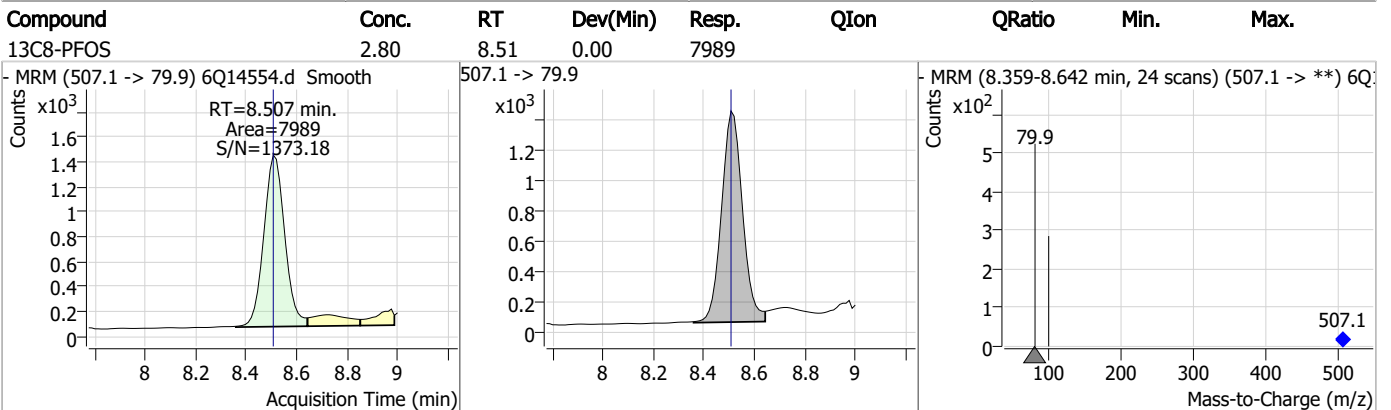
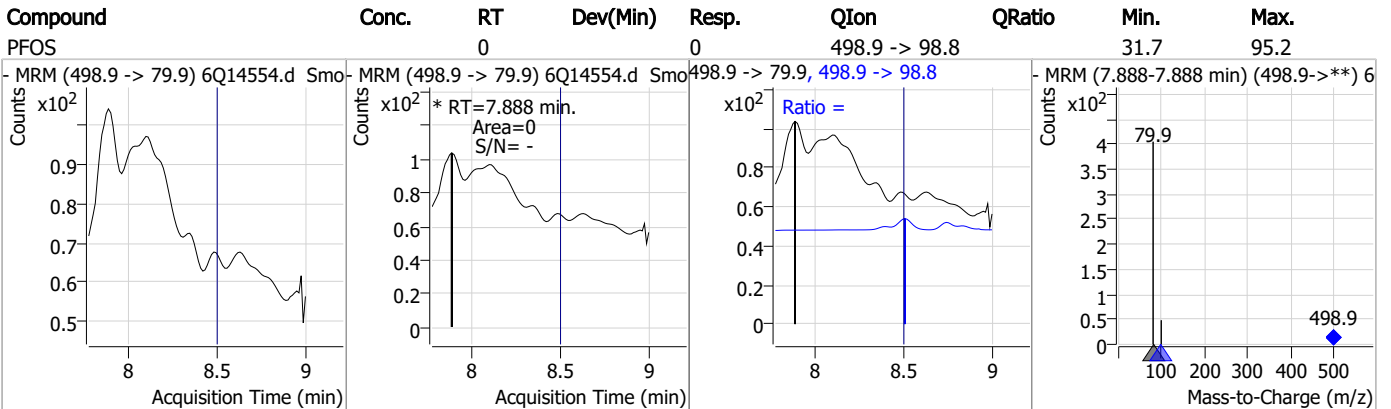
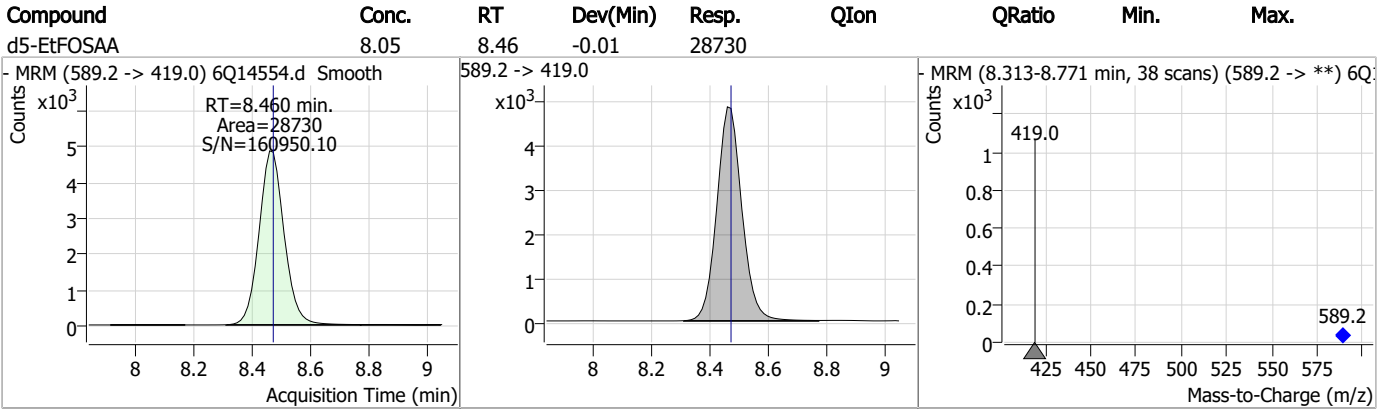
7.1.3

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Perfluorinated Compounds by LC/MS/MS



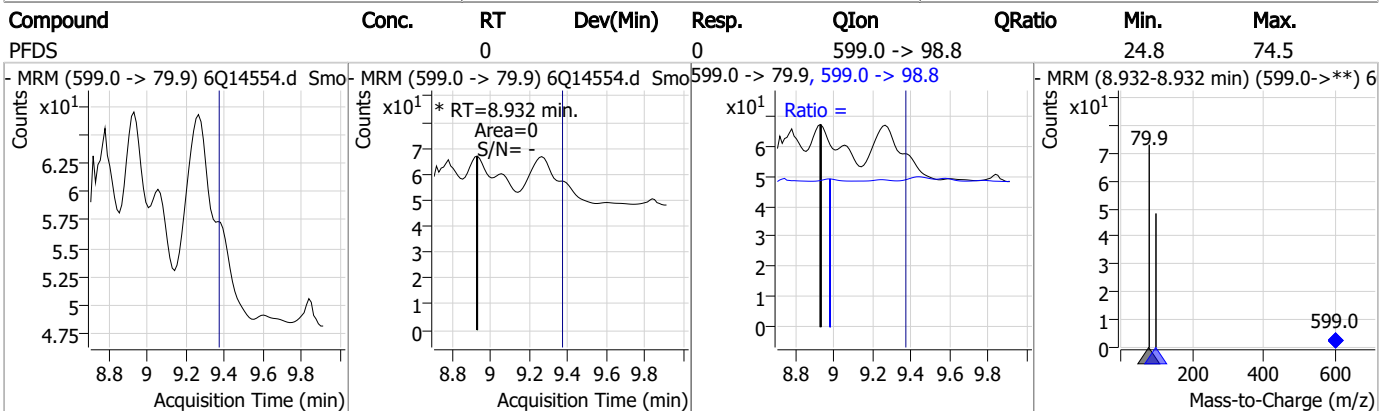
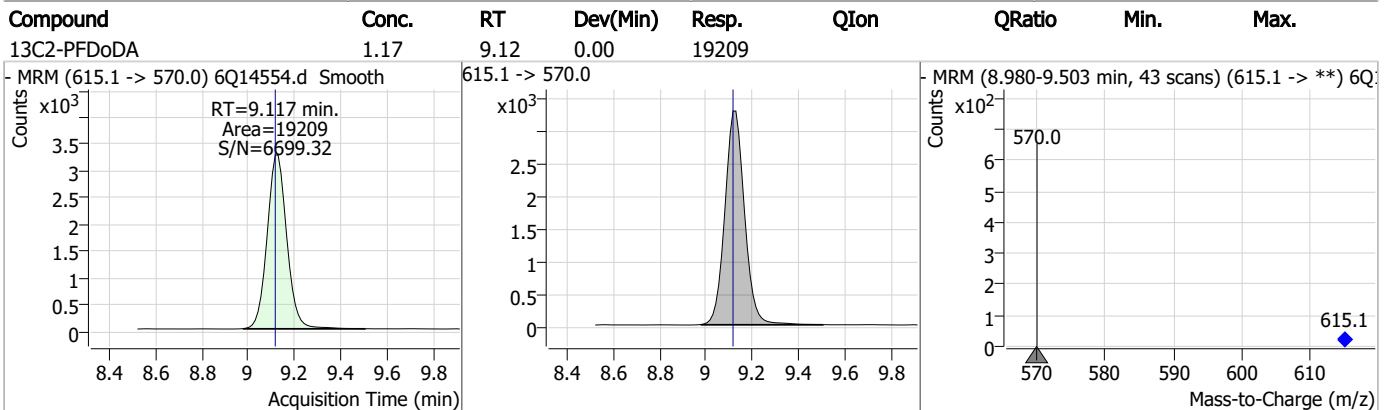
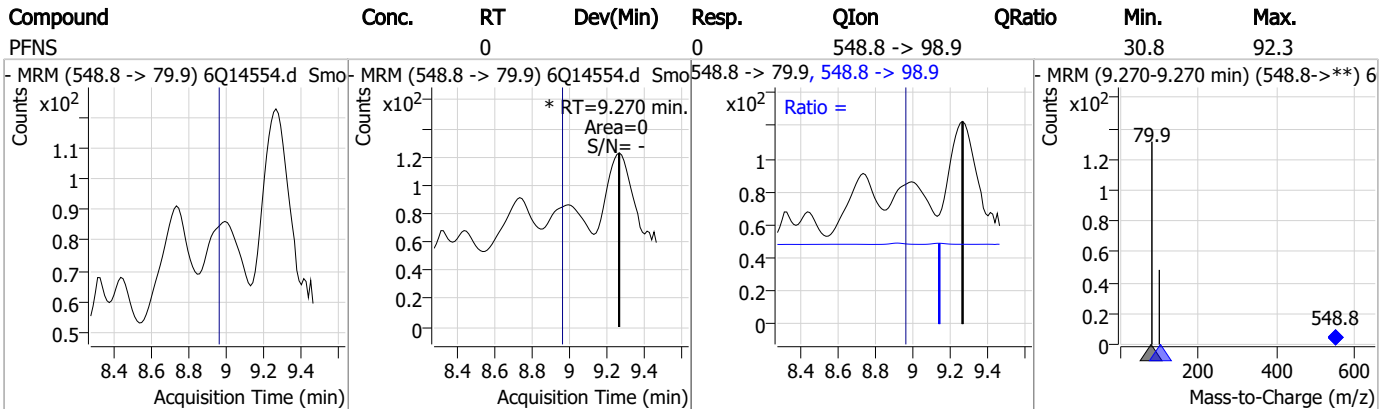
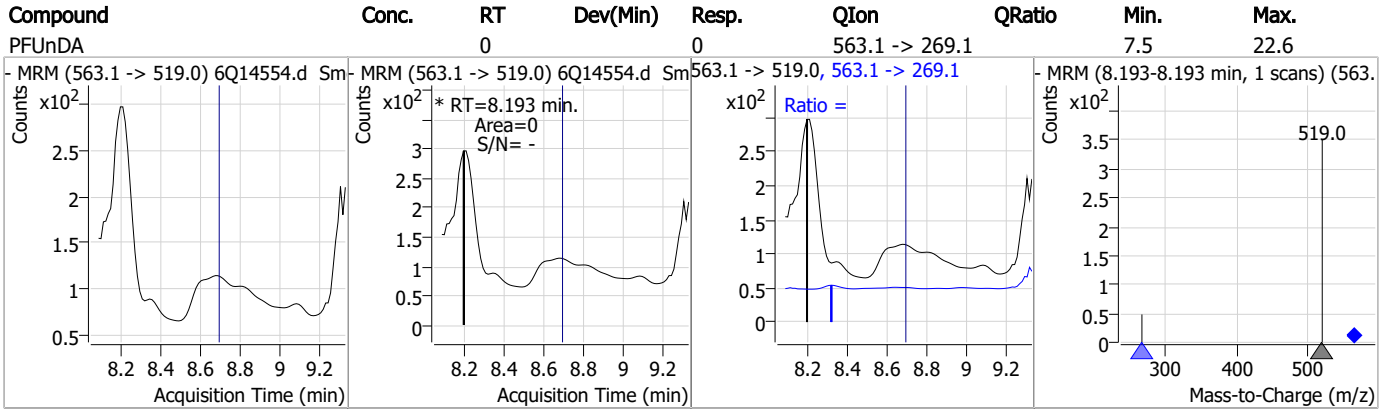
Perfluorinated Compounds by LC/MS/MS



7.1.3

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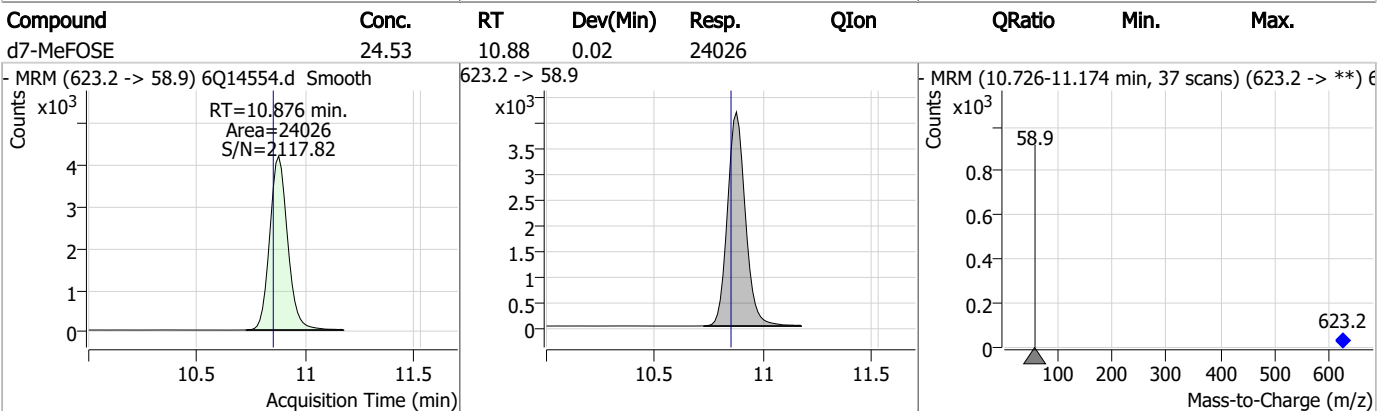
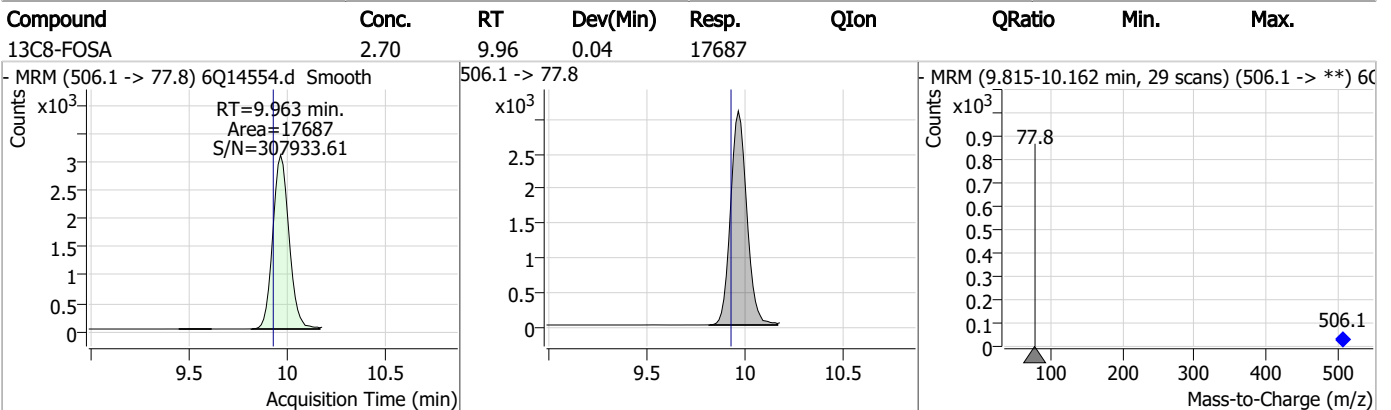
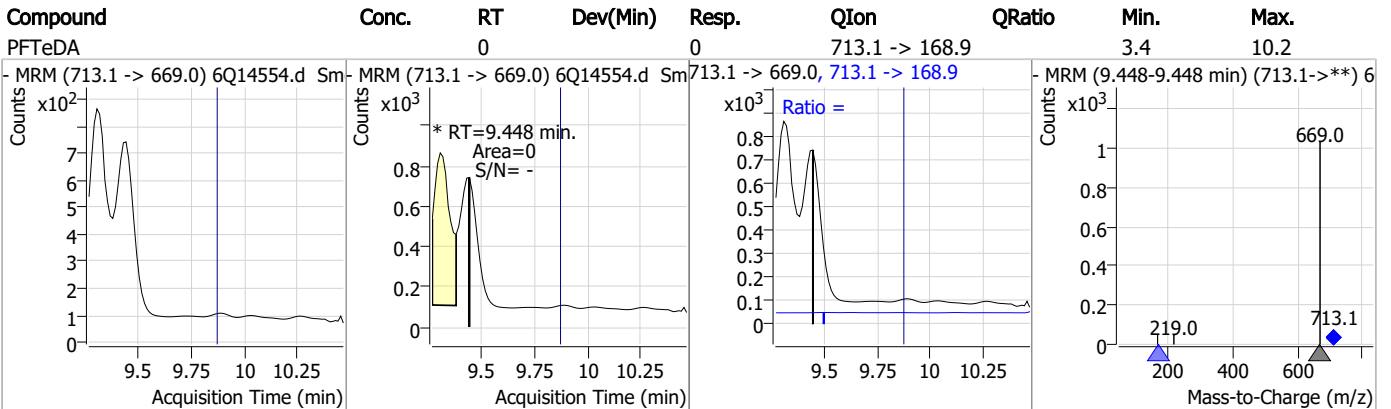
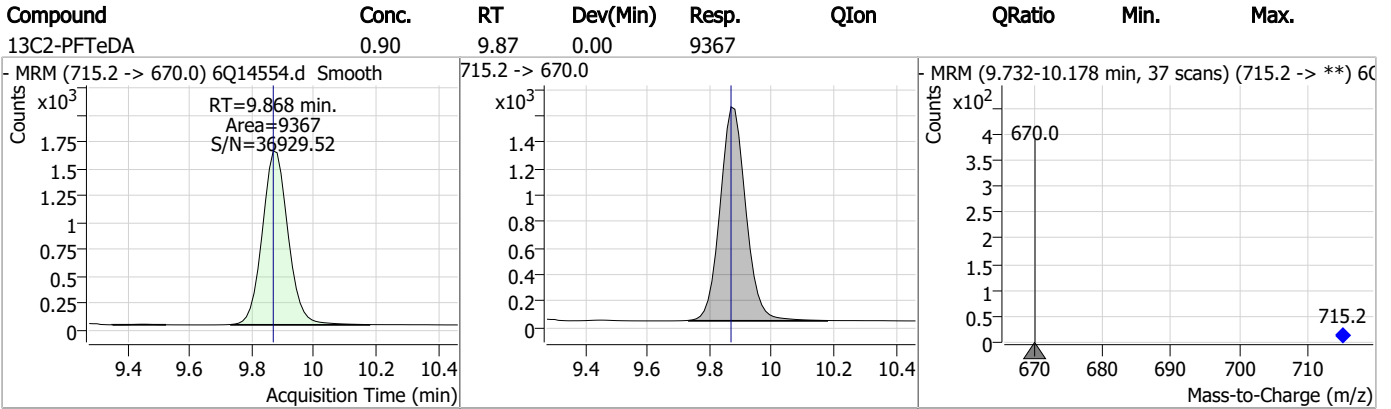
Perfluorinated Compounds by LC/MS/MS



7.1.3

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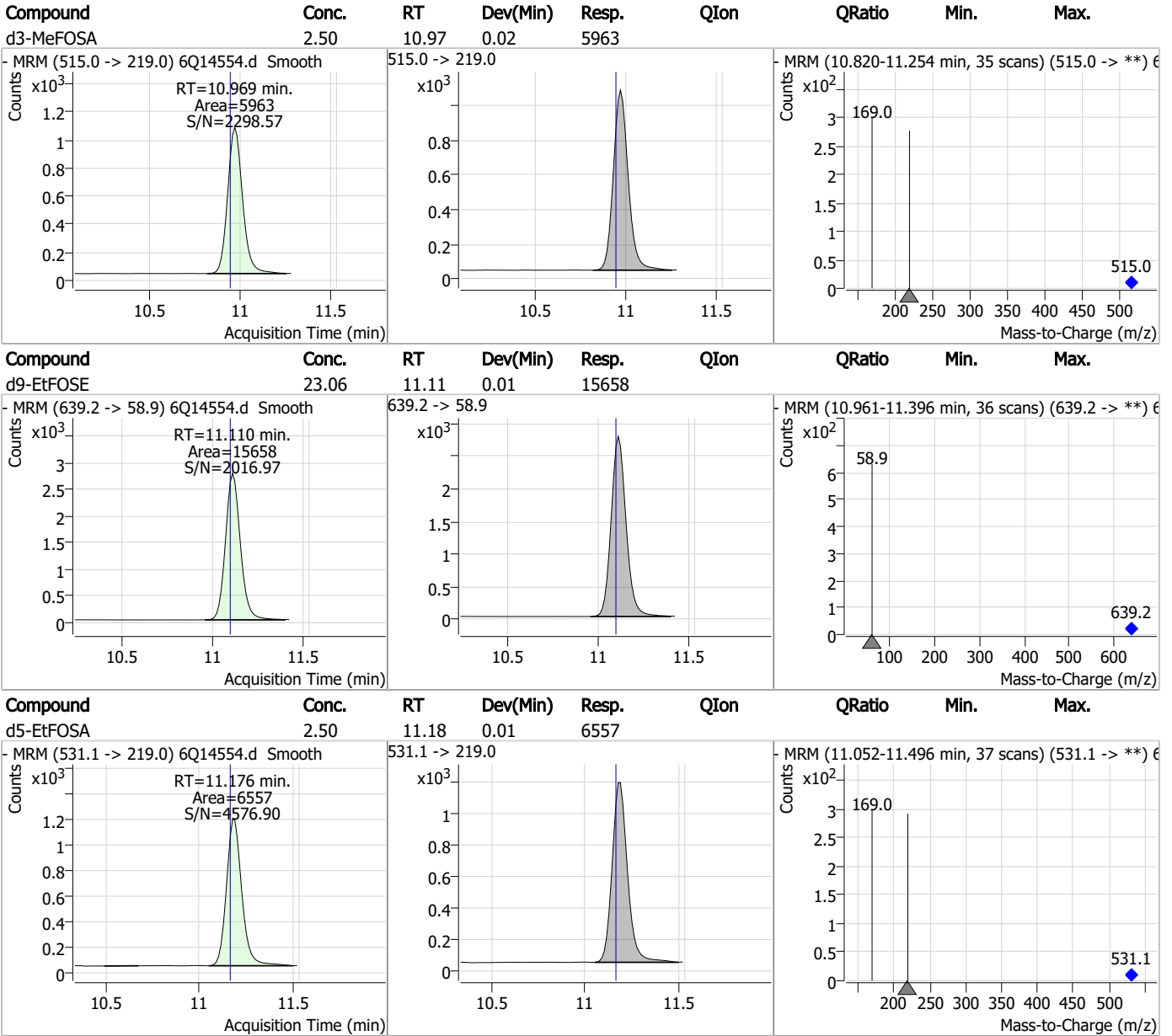
Perfluorinated Compounds by LC/MS/MS



7.1.3

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Perfluorinated Compounds by LC/MS/MS



7.1.3

7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14650.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/9/2023 8:44:56 PM
 Sample Name : FC3191-3
 Vial : P4-D3
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q221.batch.bin
 Sample Information : OP95747,S6Q221,550,,,5.0,5,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.110	216.8 -> 171.9	357	2.00 µg/L	0.034
M5-PFPeA	4.647	268.3 -> 223.0	2239	1.00 µg/L	0.032
M5-PFHxA	5.828	318.0 -> 273.0	6285	0.50 µg/L	0.018
M4-PFHpA	6.682	367.1 -> 322.0	6132	0.50 µg/L	0.014
M8-PFOA	7.274	421.1 -> 376.0	10986	0.50 µg/L	0.014
M9-PFNA	7.767	472.1 -> 427.0	3064	0.25 µg/L	0.003
M6-PFDA	8.234	519.1 -> 474.1	3086	0.25 µg/L	0.002
M7-PFUnDA	8.689	570.0 -> 525.1	3089	0.25 µg/L	0.002
M2-PFDoDA	9.119	615.1 -> 570.0	3694	0.25 µg/L	0.002
M2-PFTeDA	9.871	715.2 -> 670.0	1645	0.25 µg/L	0.003
M8-FOSA	9.966	506.1 -> 77.8	3378	0.50 µg/L	0.040
M3-PFBS	5.956	302.1 -> 79.9	2634	0.50 µg/L	0.055
M3-PFHxS	7.513	402.1 -> 79.9	1596	0.50 µg/L	0.027
M8-PFOS	8.509	507.1 -> 79.9	1409	0.50 µg/L	0.002
M2-4:2FTS	5.505	329.1 -> 80.9	359	1.00 µg/L	0.029
M2-6:2FTS	7.048	429.1 -> 80.9	421	1.00 µg/L	0.015
M2-8:2FTS	8.011	529.1 -> 80.9	369	1.00 µg/L	-0.009
M3-MeFOSAA	8.267	573.2 -> 419.0	5072	1.00 µg/L	0.002
M3-HFPO-DA	6.168	286.9 -> 168.9	2782	2.00 µg/L	0.017
M5-EtFOSAA	8.463	589.2 -> 419.0	4466	1.00 µg/L	-0.010
M7-MeFOSE	10.878	623.2 -> 58.9	4386	5.00 µg/L	0.027
M9-EtFOSE	11.112	639.2 -> 58.9	3067	5.00 µg/L	0.015
M5-EtFOSA	11.178	531.1 -> 219.0	1312	0.50 µg/L	0.014
M3-MeFOSA	10.970	515.0 -> 219.0	1278	0.50 µg/L	0.026
13C4-PFOS	8.509	502.8 -> 79.9	3292	0.50 µg/L	0.014
13C3-PFBA	3.114	216.0 -> 172.0	5964	1.00 µg/L	0.035
18O2-PFHxS	7.512	403.0 -> 83.9	1032	0.50 µg/L	0.015
13C4-PFOA	7.274	417.1 -> 372.0	12468	0.50 µg/L	0.014
13C2-PFDA	8.235	515.1 -> 470.1	3846	0.25 µg/L	0.002
13C5-PFNA	7.768	468.0 -> 423.0	3150	0.25 µg/L	0.003
13C2-PFHxA	5.829	315.1 -> 270.0	6464	0.50 µg/L	0.030
System Monitoring Compounds					
13C2-4:2FTS	5.505	329.1 -> 80.9	359	1.46 µg/L	0.029
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 29.2%		
13C2-6:2FTS	7.048	429.1 -> 80.9	421	1.30 µg/L	0.015
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 26.1%		
13C2-8:2FTS	8.011	529.1 -> 80.9	369	1.14 µg/L	-0.009
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 22.7%		
13C2-PFDoDA	9.119	615.1 -> 570.0	3694	0.23 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 18.1%		
13C2-PFTeDA	9.871	715.2 -> 670.0	1645	0.16 µg/L	0.003
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 12.7%		
13C3-PFBS	5.956	302.1 -> 79.9	2634	0.59 µg/L	0.055
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 23.4%		
13C3-PFHxS	7.513	402.1 -> 79.9	1596	0.54 µg/L	0.027

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 21.6%	
13C4-PFBA	3.110	216.8 -> 171.9	357	0.05 µg/L	0.034
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 0.5%	
13C4-PFHpA	6.682	367.1 -> 322.0	6132	0.48 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 19.0%	
13C5-PFHxA	5.828	318.0 -> 273.0	6285	0.47 µg/L	0.018
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 19.0%	
13C5-PFPeA	4.647	268.3 -> 223.0	2239	0.29 µg/L	0.032
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 5.8%	
13C6-PFDA	8.234	519.1 -> 474.1	3086	0.27 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 21.4%	
13C7-PFUnDA	8.689	570.0 -> 525.1	3089	0.24 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 19.6%	
13C8-FOSA	9.966	506.1 -> 77.8	3378	0.26 µg/L	0.040
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 10.5%	
13C8-PFOA	7.274	421.1 -> 376.0	10986	0.53 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 21.2%	
13C8-PFOS	8.509	507.1 -> 79.9	1409	0.25 µg/L	0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 10.0%	
13C9-PFNA	7.767	472.1 -> 427.0	3064	0.25 µg/L	0.003
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 20.2%	
d3-MeFOSAA	8.267	573.2 -> 419.0	5072	0.67 µg/L	0.002
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 13.4%	
13C3-HFPO-DA	6.168	286.9 -> 168.9	2782	1.88 µg/L	0.017
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 18.8%	
d3-MeFOSA	10.970	515.0 -> 219.0	1278	0.27 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 10.8%	
d5-EtFOSAA	8.463	589.2 -> 419.0	4466	0.63 µg/L	-0.010
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 12.7%	
d7-MeFOSE	10.878	623.2 -> 58.9	4386	2.27 µg/L	0.027
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 9.1%	
d9-EtFOSE	11.112	639.2 -> 58.9	3067	2.29 µg/L	0.015
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 9.2%	
d5-EtFOSA	11.178	531.1 -> 219.0	1312	0.25 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 10.1%	

Target Compounds

QValue

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

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	8.080	449.0 -> 79.9	0	µg/L	m	1
		449.0 -> 98.9	0			
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	9.236	548.8 -> 79.9	0	µg/L	m	1
		548.8 -> 98.9	0			
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	8.311	498.9 -> 79.9	0	µg/L	m	1
		498.9 -> 98.8	0			
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	8.208	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1	0			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
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

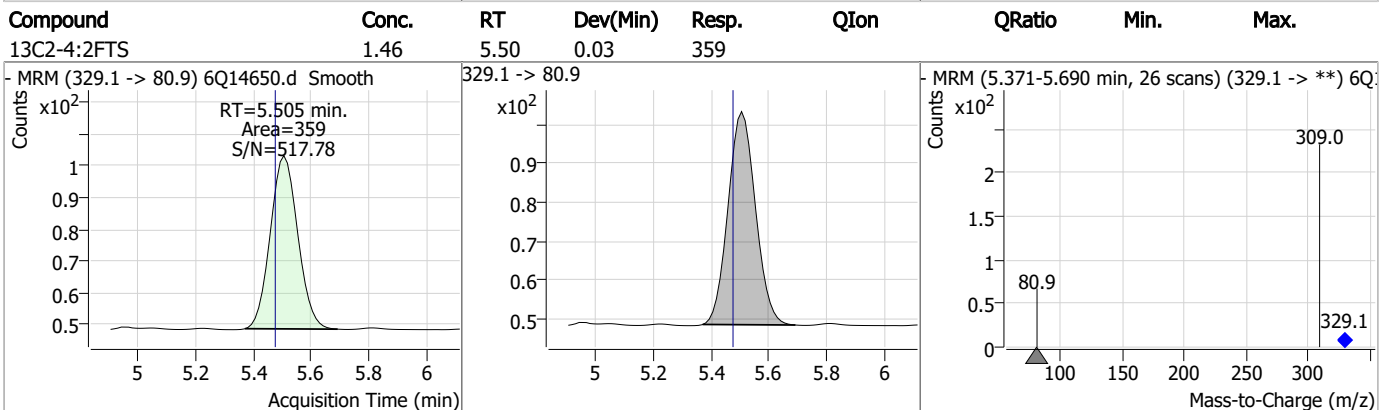
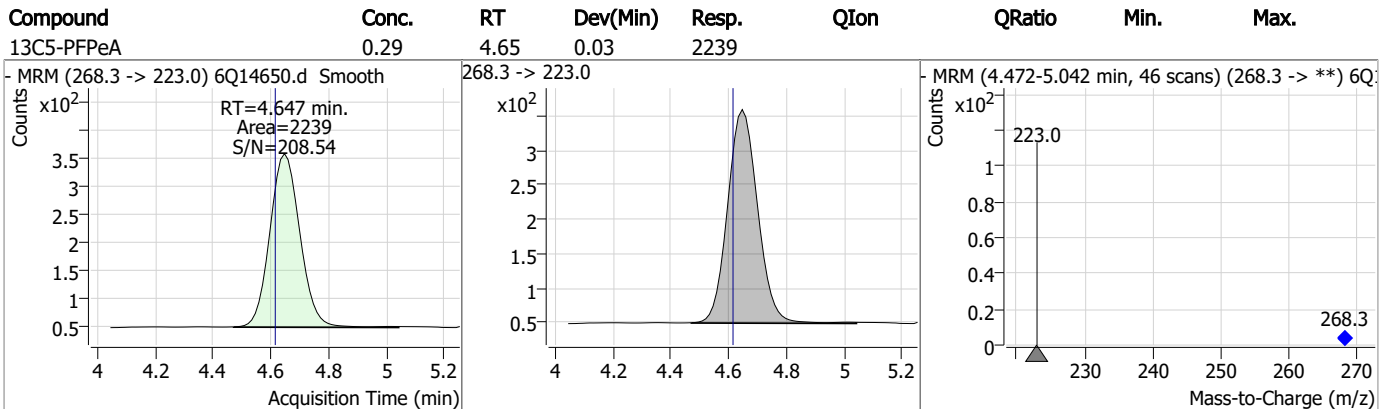
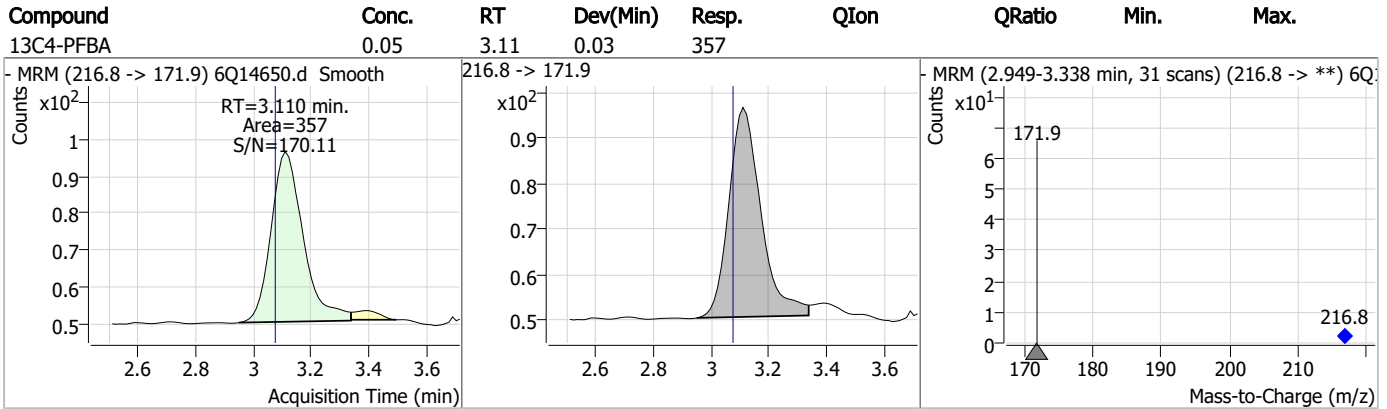
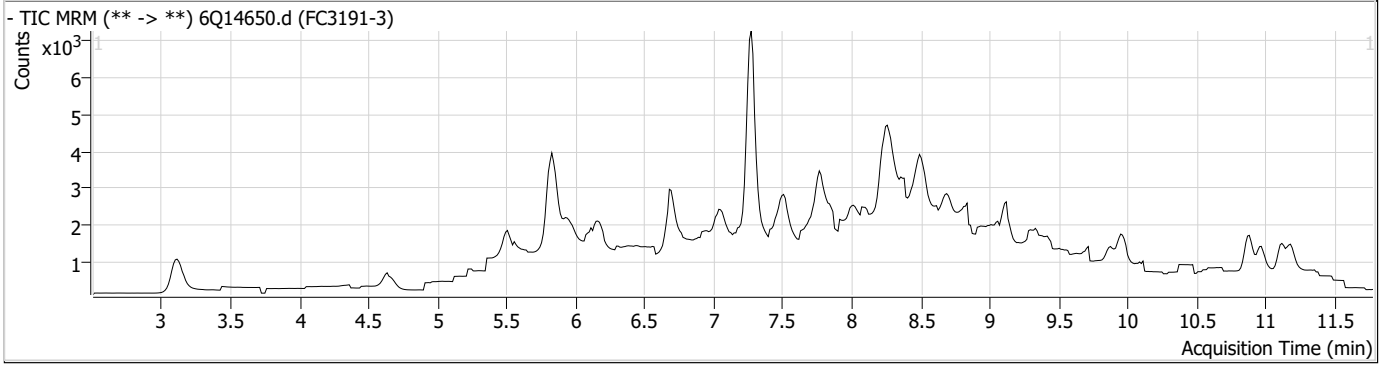
Perfluorinated Compounds by LC/MS/MS

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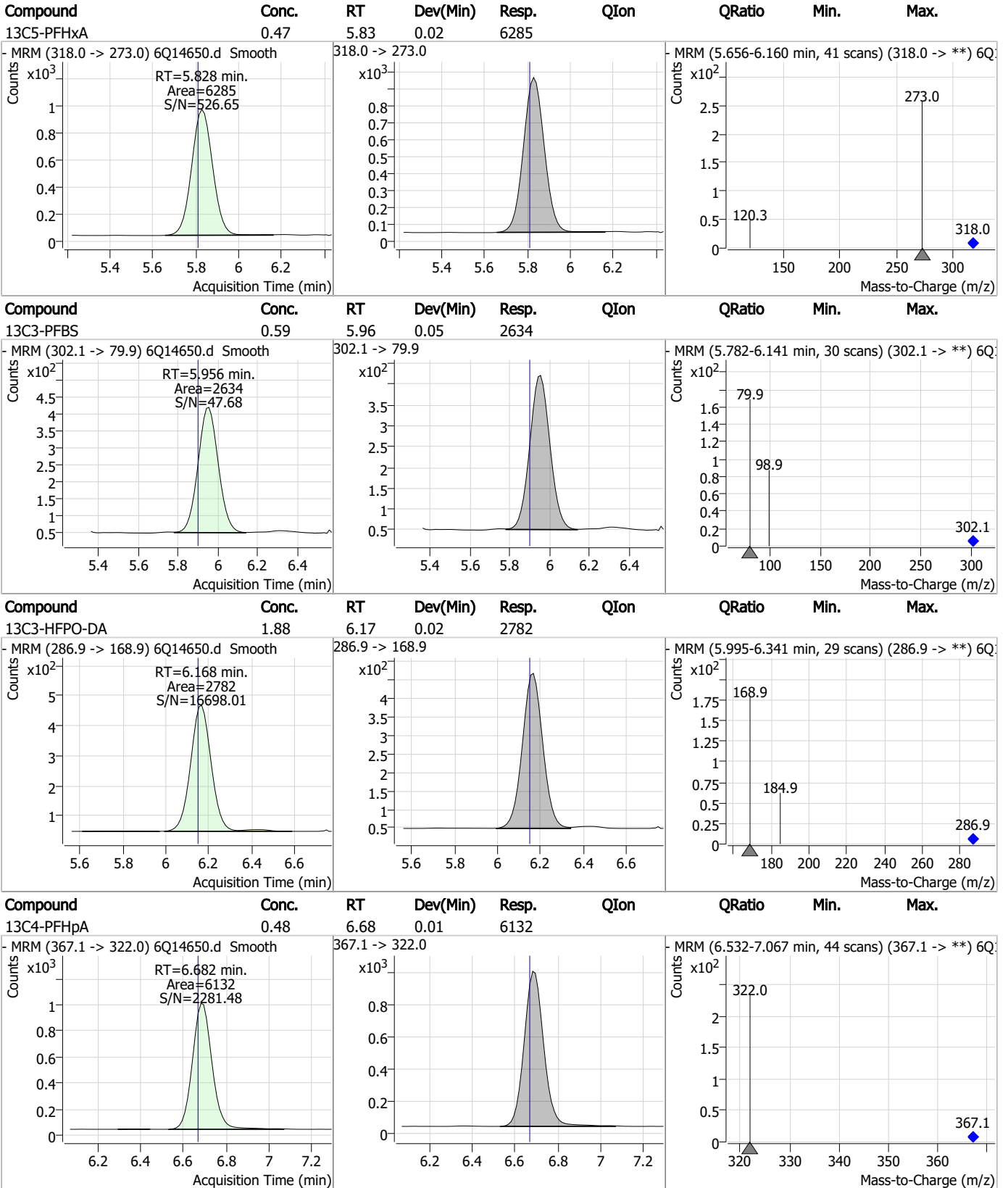
7.1.4
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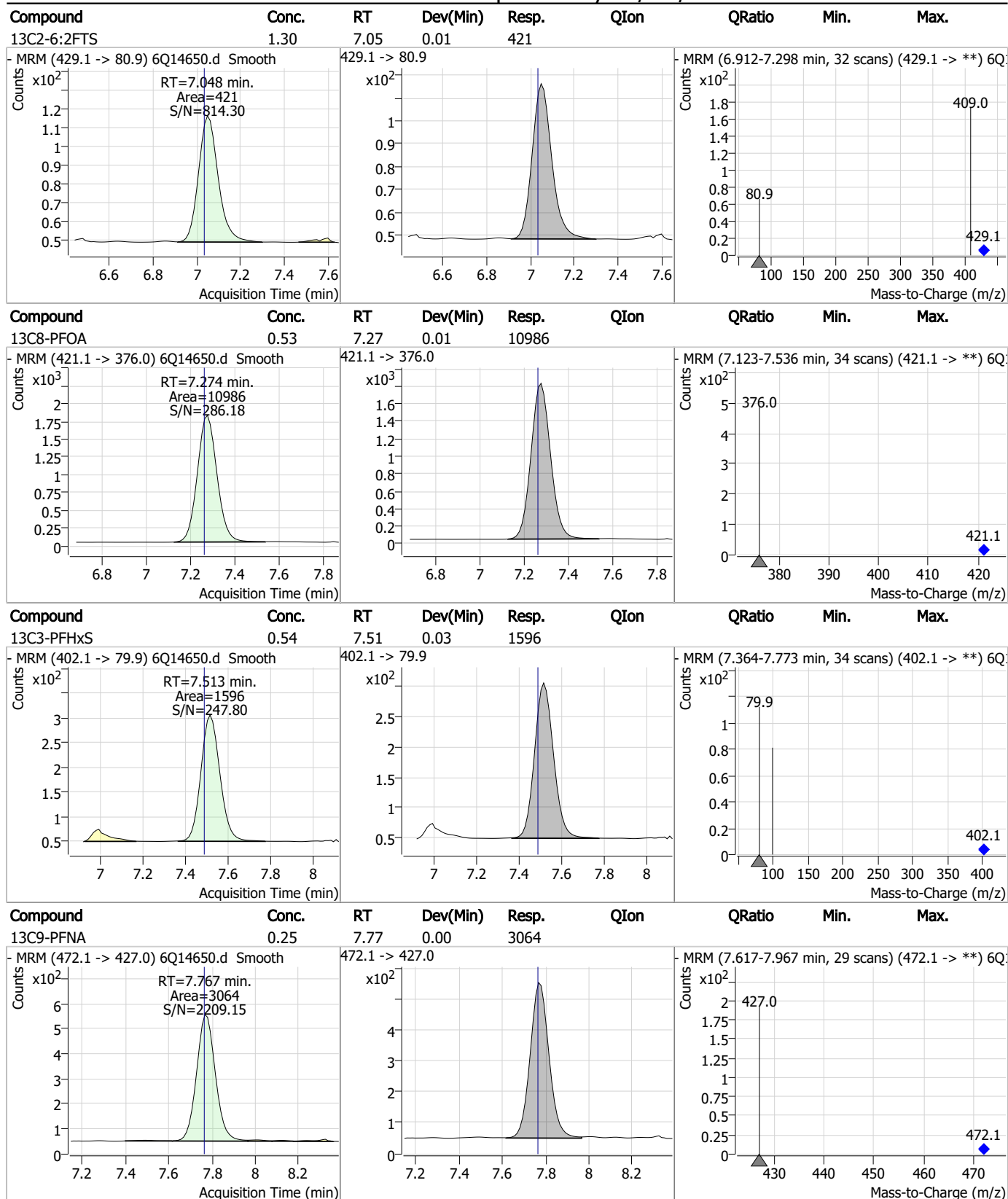
Perfluorinated Compounds by LC/MS/MS



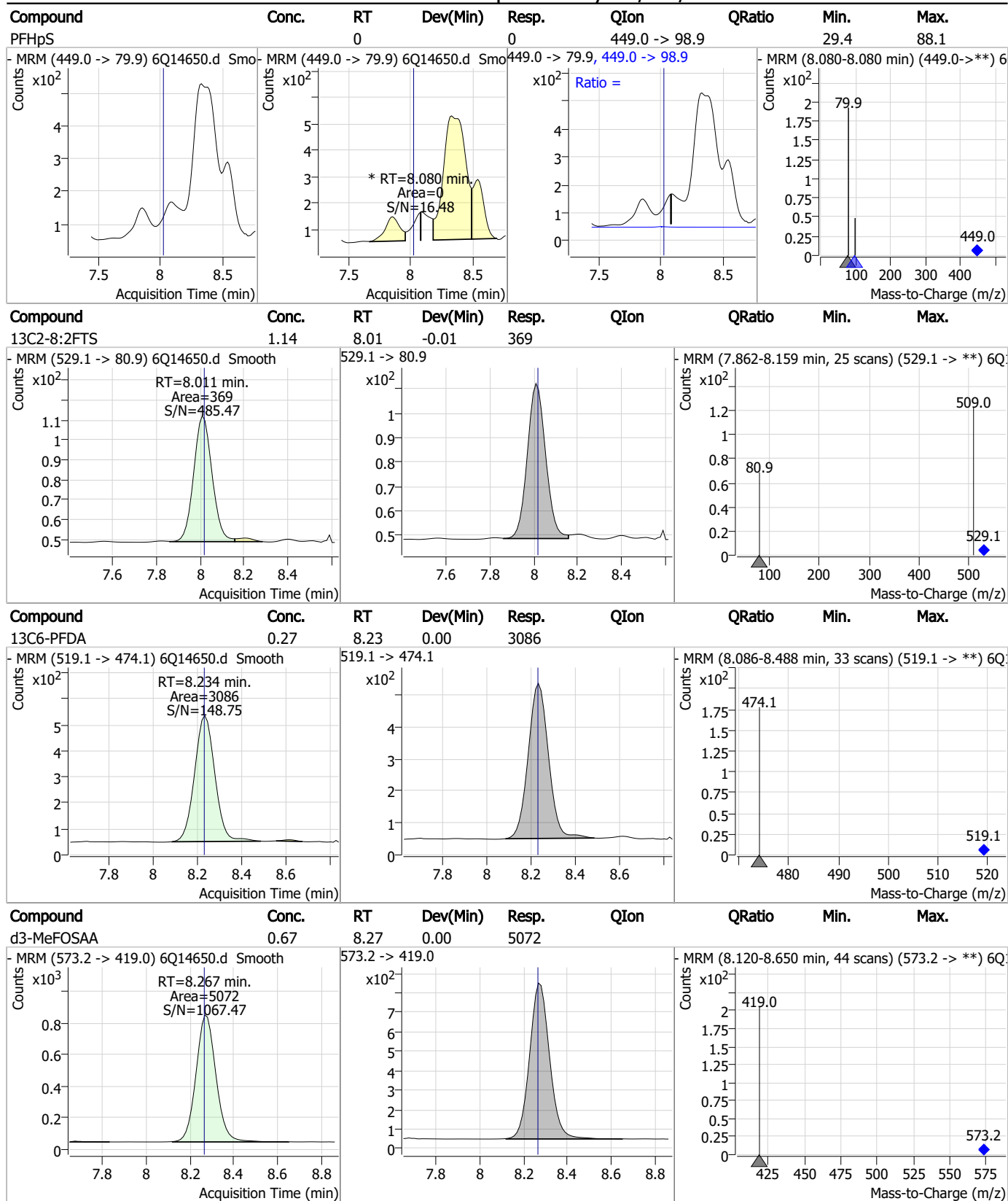
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

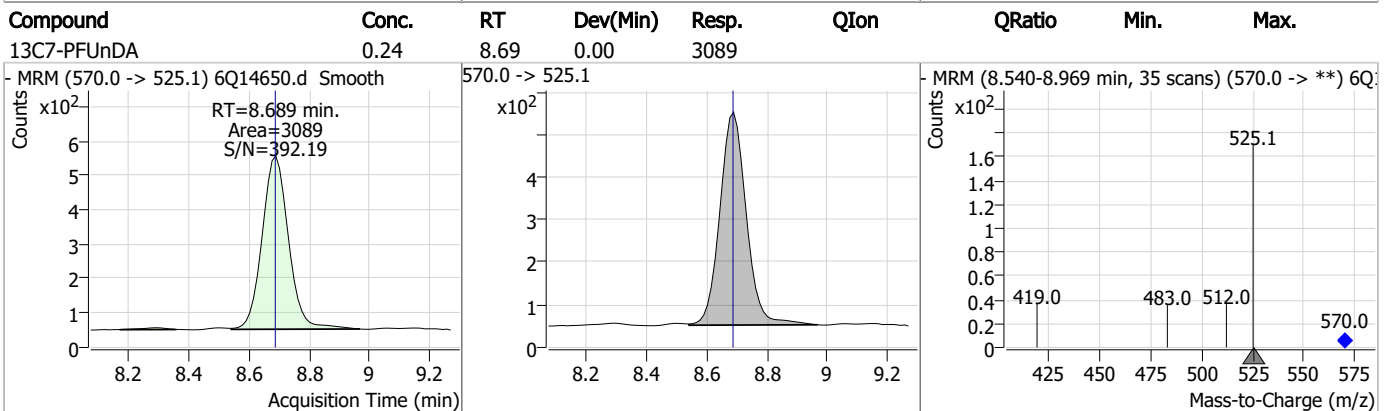
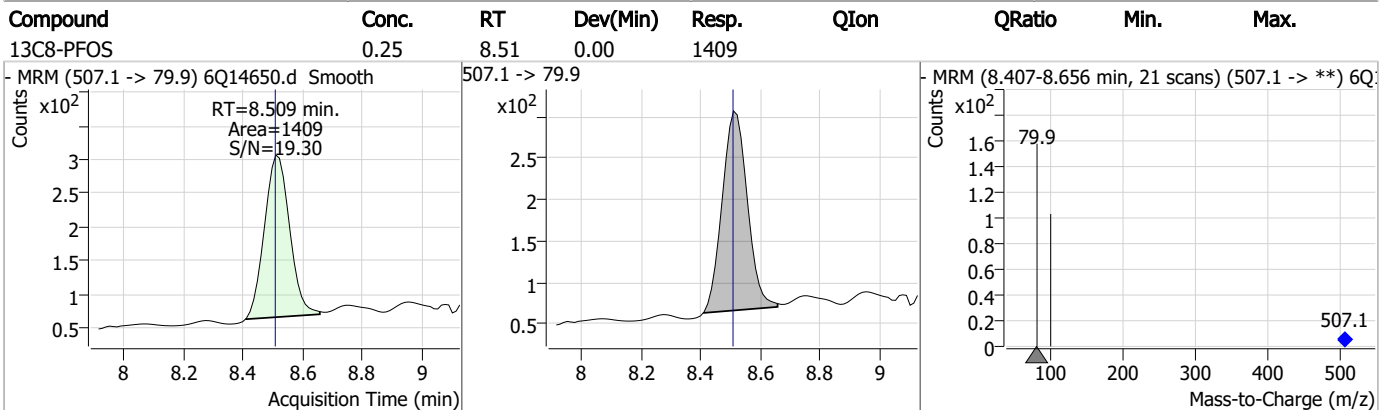
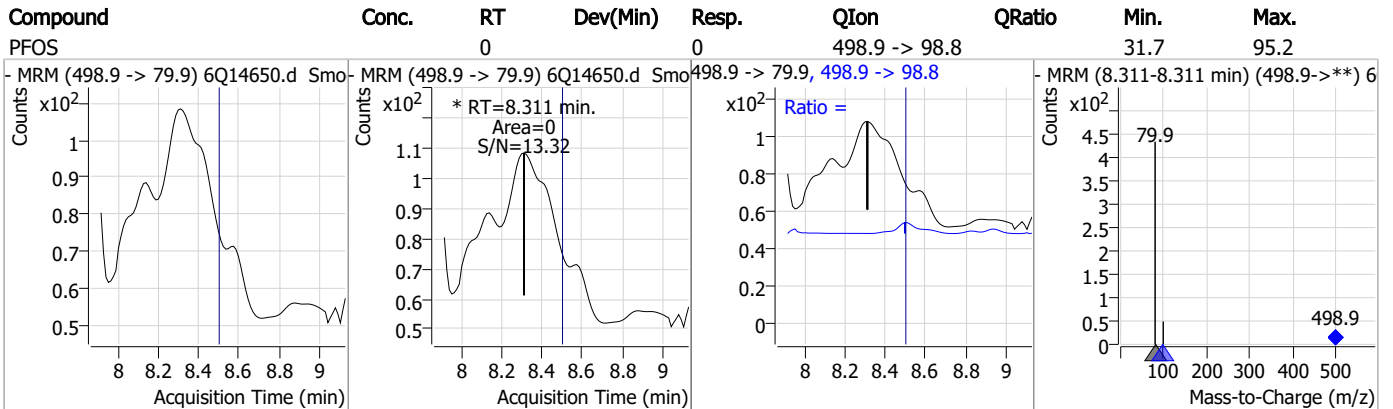
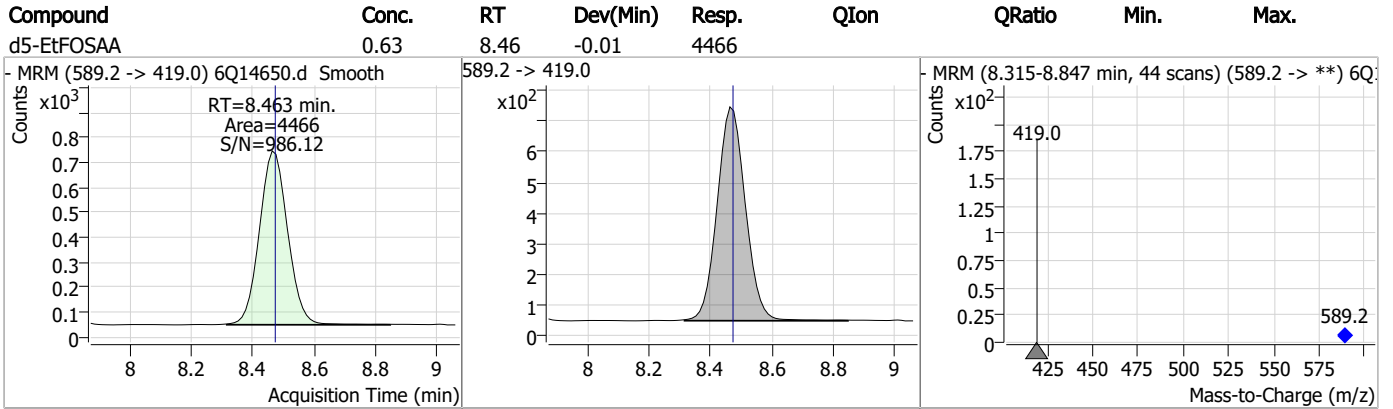


Perfluorinated Compounds by LC/MS/MS

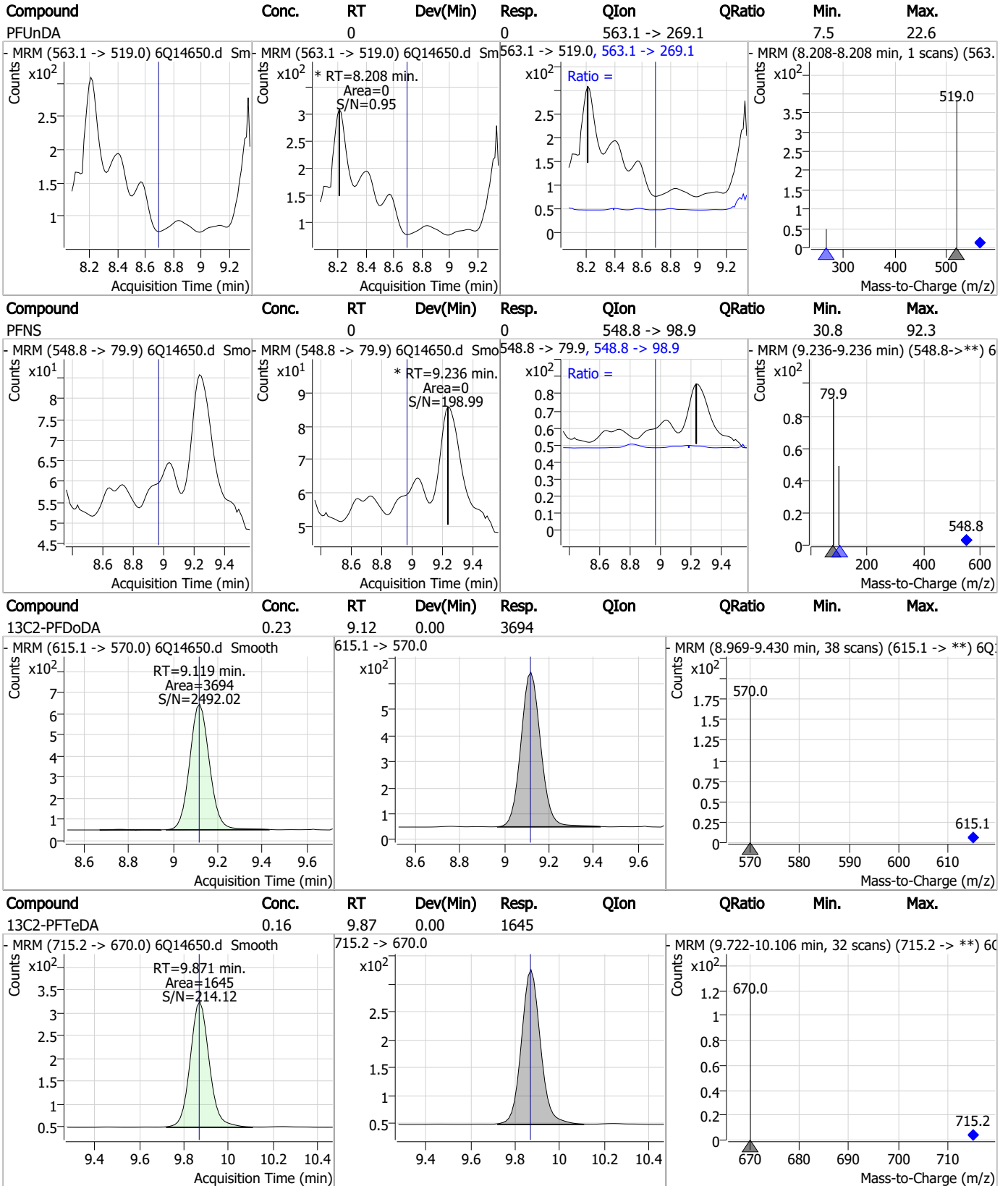


7.1.4
7

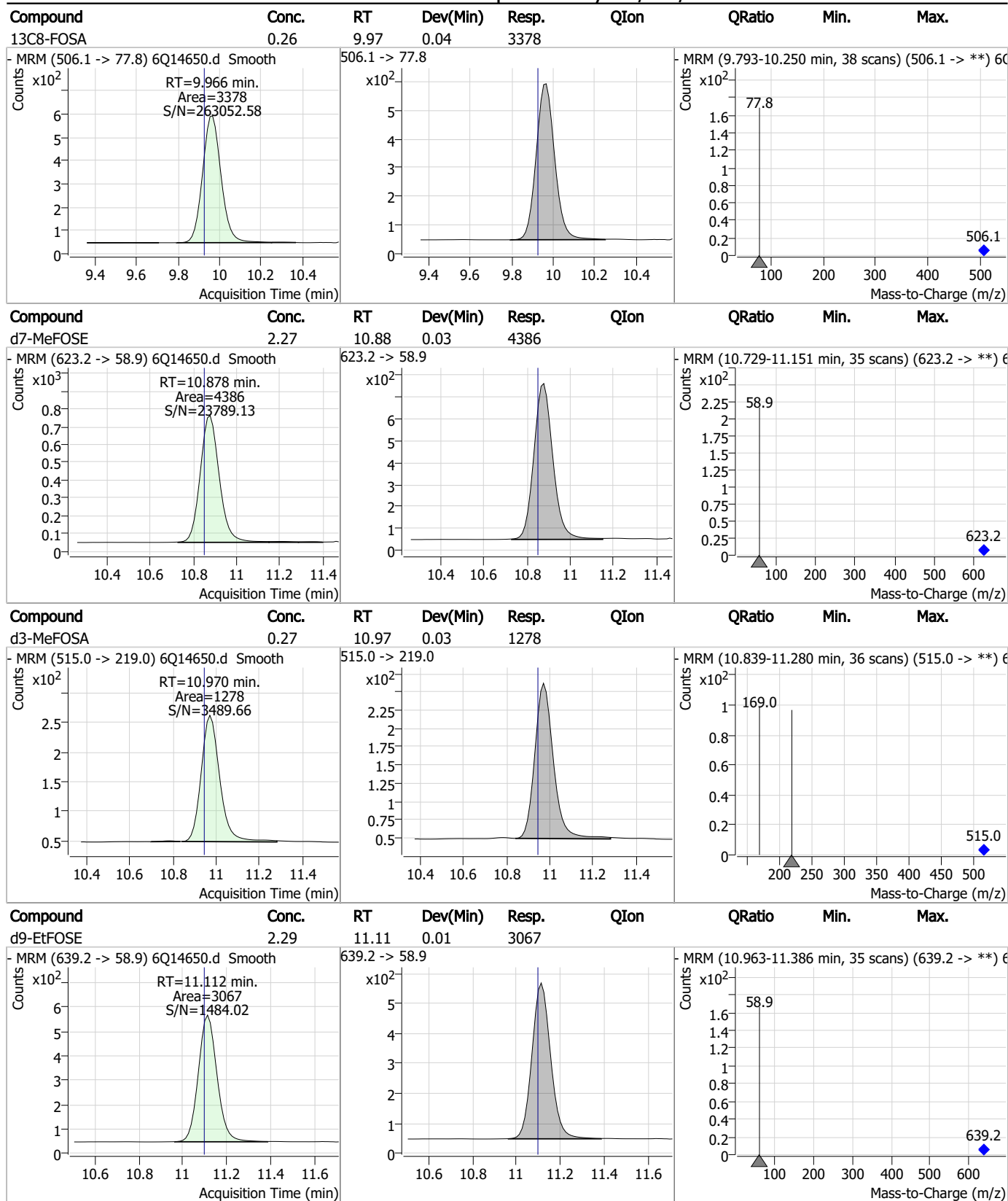
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



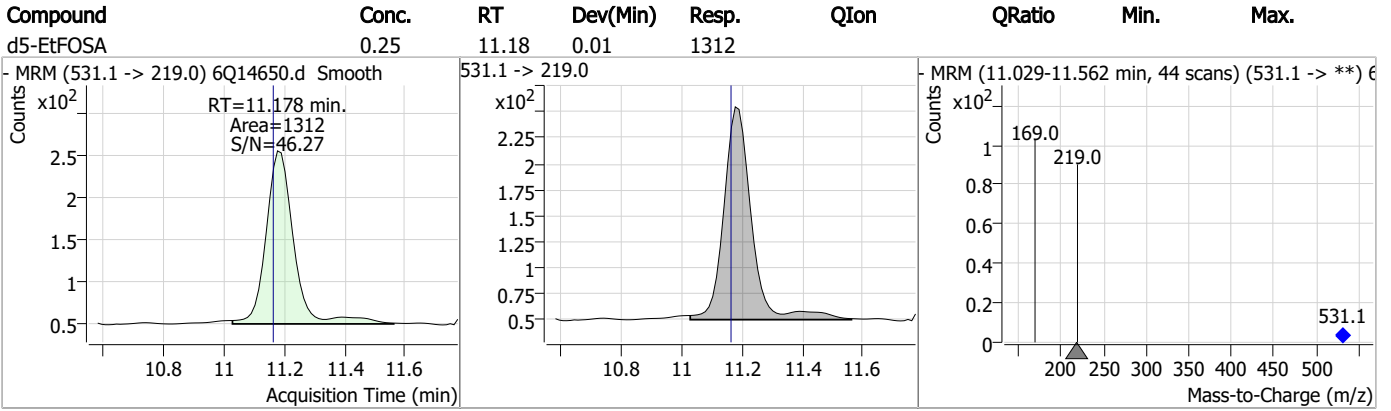
Perfluorinated Compounds by LC/MS/MS



7.1.4
7



Perfluorinated Compounds by LC/MS/MS



7.1.4

7

Perfluorinated Compounds by LC/MS/MS

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 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 10:05:44 PM
 Sample Name : FC3191-4
 Vial : P2-C5
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95747,S6Q220,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.216	216.8 -> 171.9	83447	10.00 µg/L	0.140
M5-PFPeA	4.665	268.3 -> 223.0	39791	5.00 µg/L	0.050
M5-PFHxA	5.834	318.0 -> 273.0	33215	2.50 µg/L	0.025
M4-PFHpA	6.680	367.1 -> 322.0	33959	2.50 µg/L	0.012
M8-PFOA	7.272	421.1 -> 376.0	57019	2.50 µg/L	0.012
M9-PFNA	7.764	472.1 -> 427.0	14156	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	14677	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	14361	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	16685	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	11568	1.25 µg/L	0.000
M8-FOSA	9.963	506.1 -> 77.8	16719	2.50 µg/L	0.037
M3-PFBS	5.963	302.1 -> 79.9	12955	2.50 µg/L	0.062
M3-PFHxS	7.511	402.1 -> 79.9	8544	2.50 µg/L	0.025
M8-PFOS	8.519	507.1 -> 79.9	7601	2.50 µg/L	0.012
M2-4:2FTS	5.500	329.1 -> 80.9	1587	5.00 µg/L	0.025
M2-6:2FTS	7.046	429.1 -> 80.9	2162	5.00 µg/L	0.012
M2-8:2FTS	8.019	529.1 -> 80.9	2106	5.00 µg/L	0.000
M3-MeFOSAA	8.265	573.2 -> 419.0	19638	5.00 µg/L	0.000
M3-HFPO-DA	6.163	286.9 -> 168.9	14817	10.00 µg/L	0.012
M5-EtFOSAA	8.473	589.2 -> 419.0	18943	5.00 µg/L	0.000
M7-MeFOSE	10.876	623.2 -> 58.9	24389	25.00 µg/L	0.025
M9-EtFOSE	11.110	639.2 -> 58.9	16409	25.00 µg/L	0.012
M5-EtFOSA	11.188	531.1 -> 219.0	6046	2.50 µg/L	0.024
M3-MeFOSA	10.969	515.0 -> 219.0	5490	2.50 µg/L	0.025
13C4-PFOS	8.508	502.8 -> 79.9	9652	2.50 µg/L	0.012
13C3-PFBA	3.218	216.0 -> 172.0	36729	5.00 µg/L	0.139
18O2-PFHxS	7.510	403.0 -> 83.9	6137	2.50 µg/L	0.012
13C4-PFOA	7.272	417.1 -> 372.0	71291	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	18761	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	14910	1.25 µg/L	0.000
13C2-PFHxA	5.835	315.1 -> 270.0	35676	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.500	329.1 -> 80.9	1587	5.43 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.6%		
13C2-6:2FTS	7.046	429.1 -> 80.9	2162	5.63 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.5%		
13C2-8:2FTS	8.019	529.1 -> 80.9	2106	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C2-PFDoDA	9.117	615.1 -> 570.0	16685	1.05 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 84.0%		
13C2-PFTeDA	9.868	715.2 -> 670.0	11568	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.7%		
13C3-PFBS	5.963	302.1 -> 79.9	12955	2.42 µg/L	0.062
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C3-PFHxS	7.511	402.1 -> 79.9	8544	2.43 µg/L	0.025

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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 = 97.3%		
13C4-PFBA	3.216	216.8 -> 171.9	83447	9.89 µg/L	0.140
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C4-PFHpA	6.680	367.1 -> 322.0	33959	2.38 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C5-PFHxA	5.834	318.0 -> 273.0	33215	2.27 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.8%		
13C5-PFPeA	4.665	268.3 -> 223.0	39791	4.70 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.1%		
13C6-PFDA	8.233	519.1 -> 474.1	14677	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C7-PFUnDA	8.687	570.0 -> 525.1	14361	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C8-FOSA	9.963	506.1 -> 77.8	16719	2.21 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 88.3%		
13C8-PFOA	7.272	421.1 -> 376.0	57019	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C8-PFOS	8.519	507.1 -> 79.9	7601	2.30 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C9-PFNA	7.764	472.1 -> 427.0	14156	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.5%		
d3-MeFOSAA	8.265	573.2 -> 419.0	19638	4.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.4%		
13C3-HFPO-DA	6.163	286.9 -> 168.9	14817	9.07 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 90.7%		
d3-MeFOSA	10.969	515.0 -> 219.0	5490	1.99 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 79.5%		
d5-EtFOSAA	8.473	589.2 -> 419.0	18943	4.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.8%		
d7-MeFOSE	10.876	623.2 -> 58.9	24389	21.52 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 86.1%		
d9-EtFOSE	11.110	639.2 -> 58.9	16409	20.89 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 83.6%		
d5-EtFOSA	11.188	531.1 -> 219.0	6046	1.99 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 79.6%		

Target Compounds

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.	

7.15

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8				
PFHpA	-	363.1 -> 319.0	-	N.D.		
		363.1 -> 169.0				
PFHpS	-	449.0 -> 79.9	-	N.D.		
		449.0 -> 98.9				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 118.9				
PFHxS	-	398.7 -> 79.9	-	N.D.		
		398.7 -> 98.9				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFNS	-	548.8 -> 79.9	-	N.D.		
		548.8 -> 98.9				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	498.9 -> 79.9	-	N.D.		
		498.9 -> 98.8				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
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

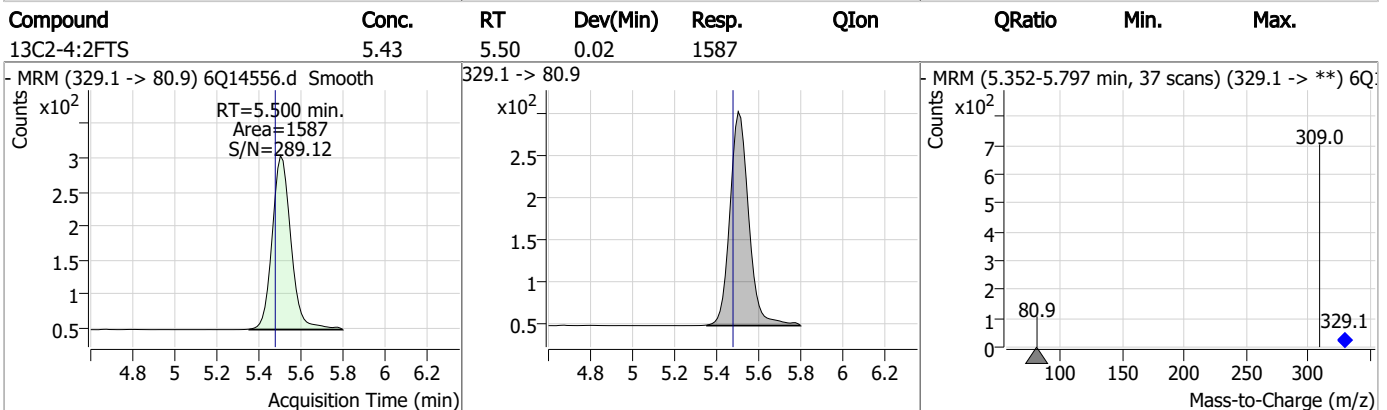
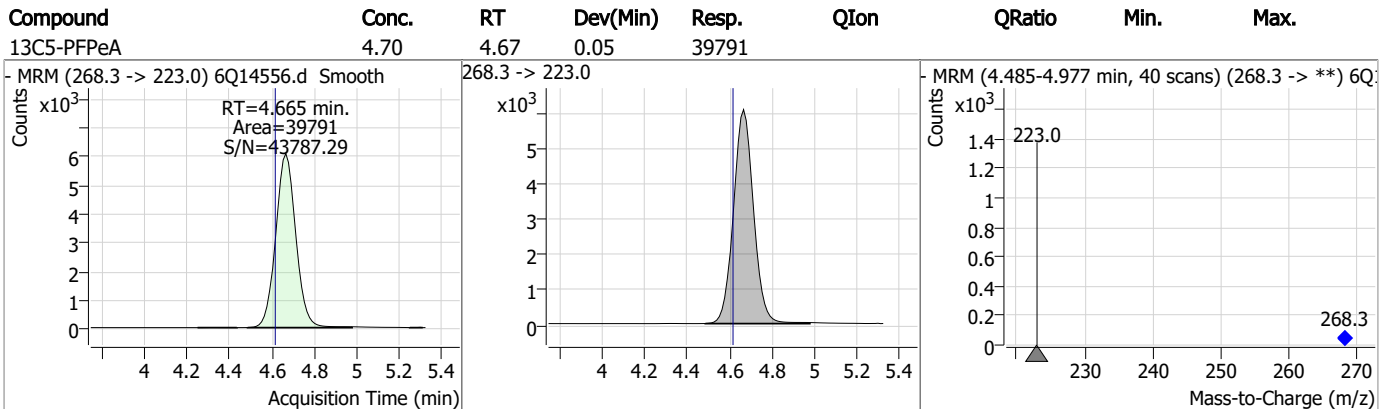
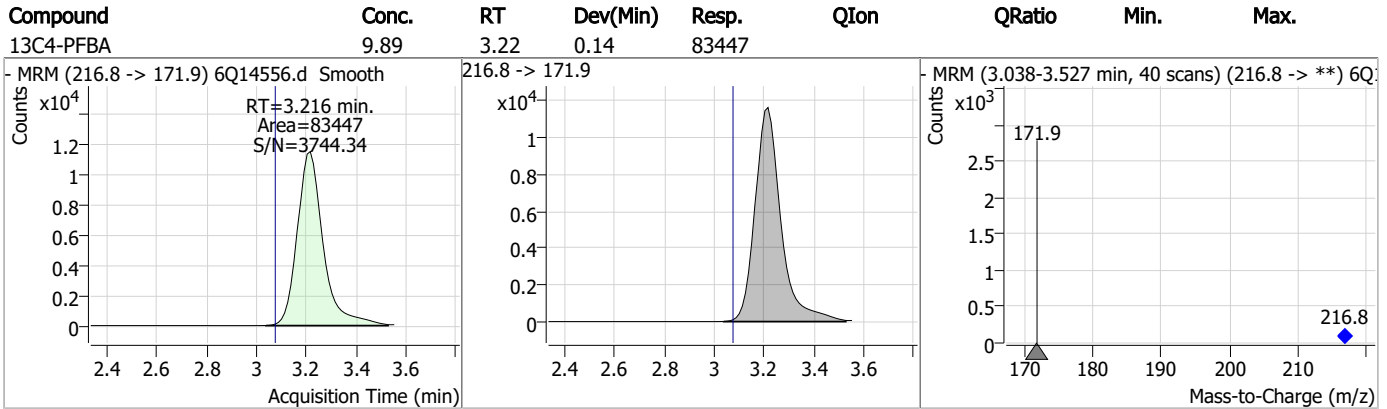
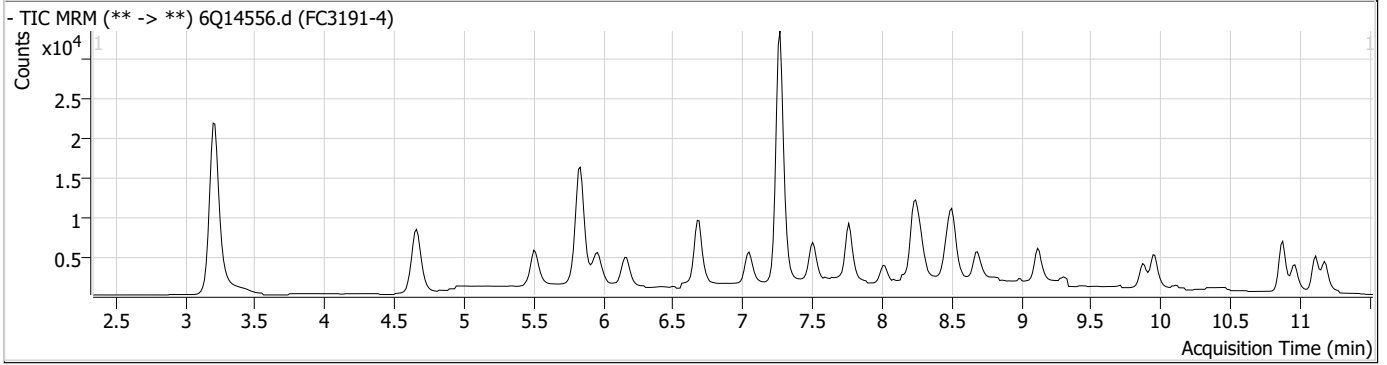
Perfluorinated Compounds by LC/MS/MS

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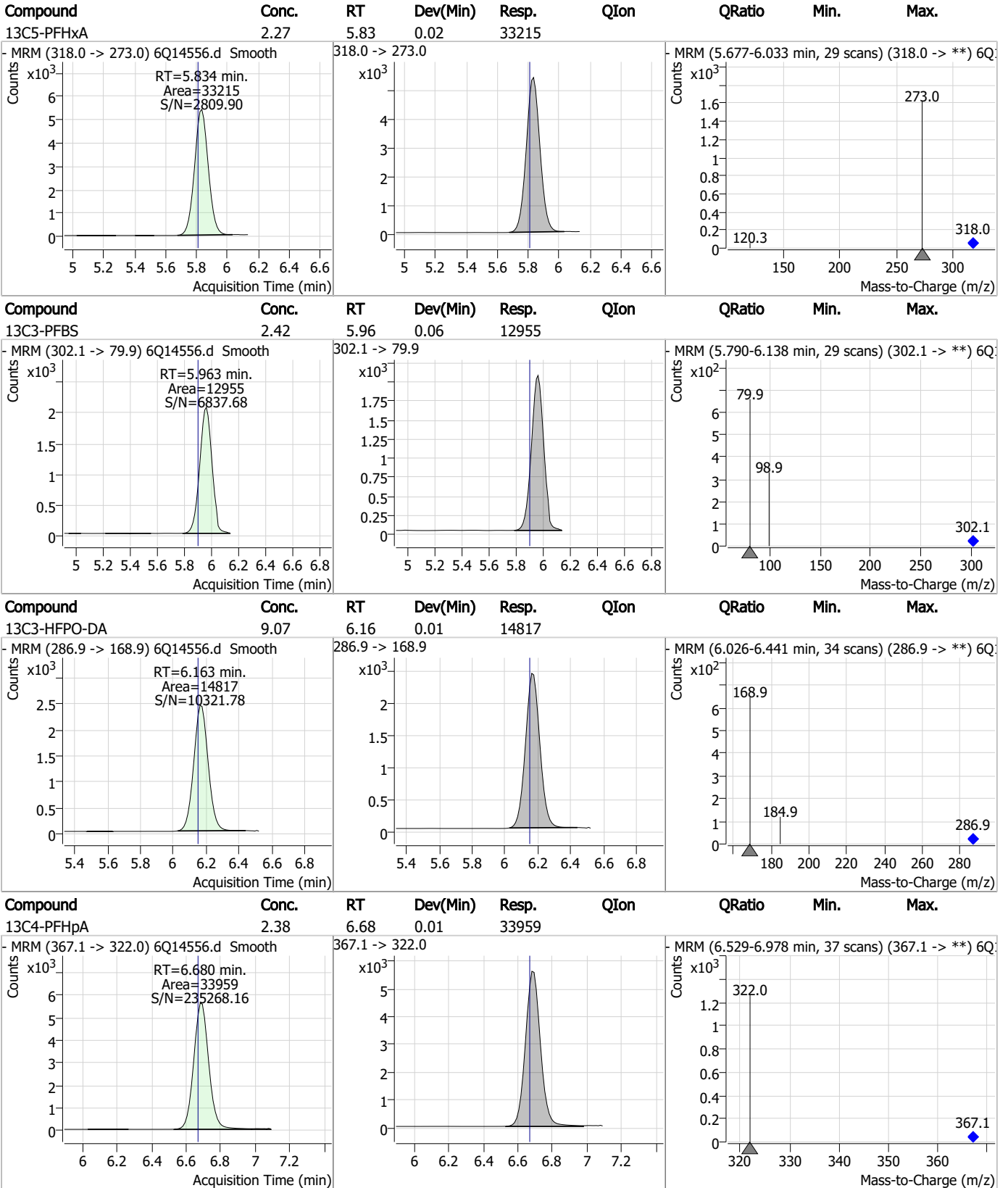
7.1.5
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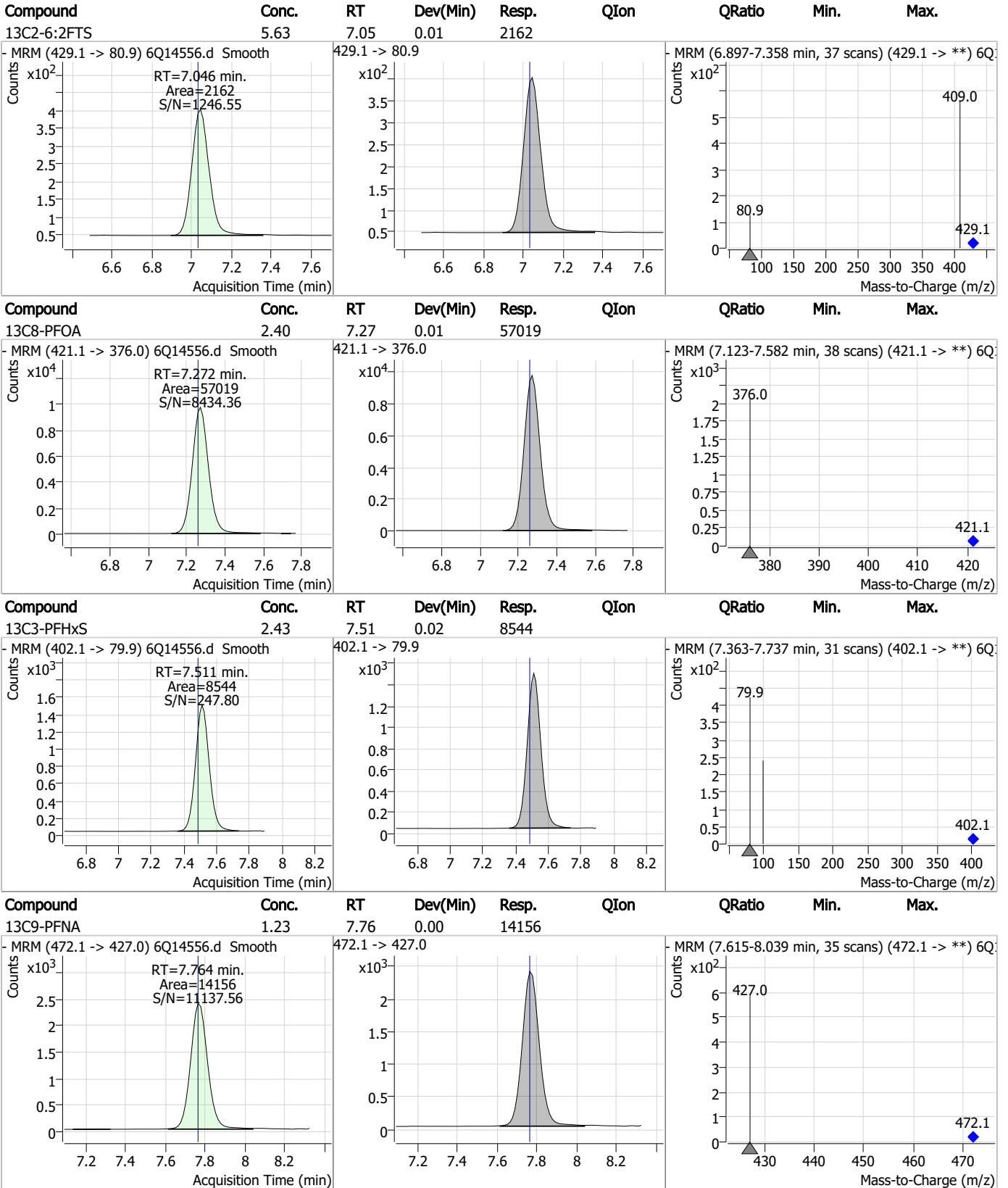
Perfluorinated Compounds by LC/MS/MS



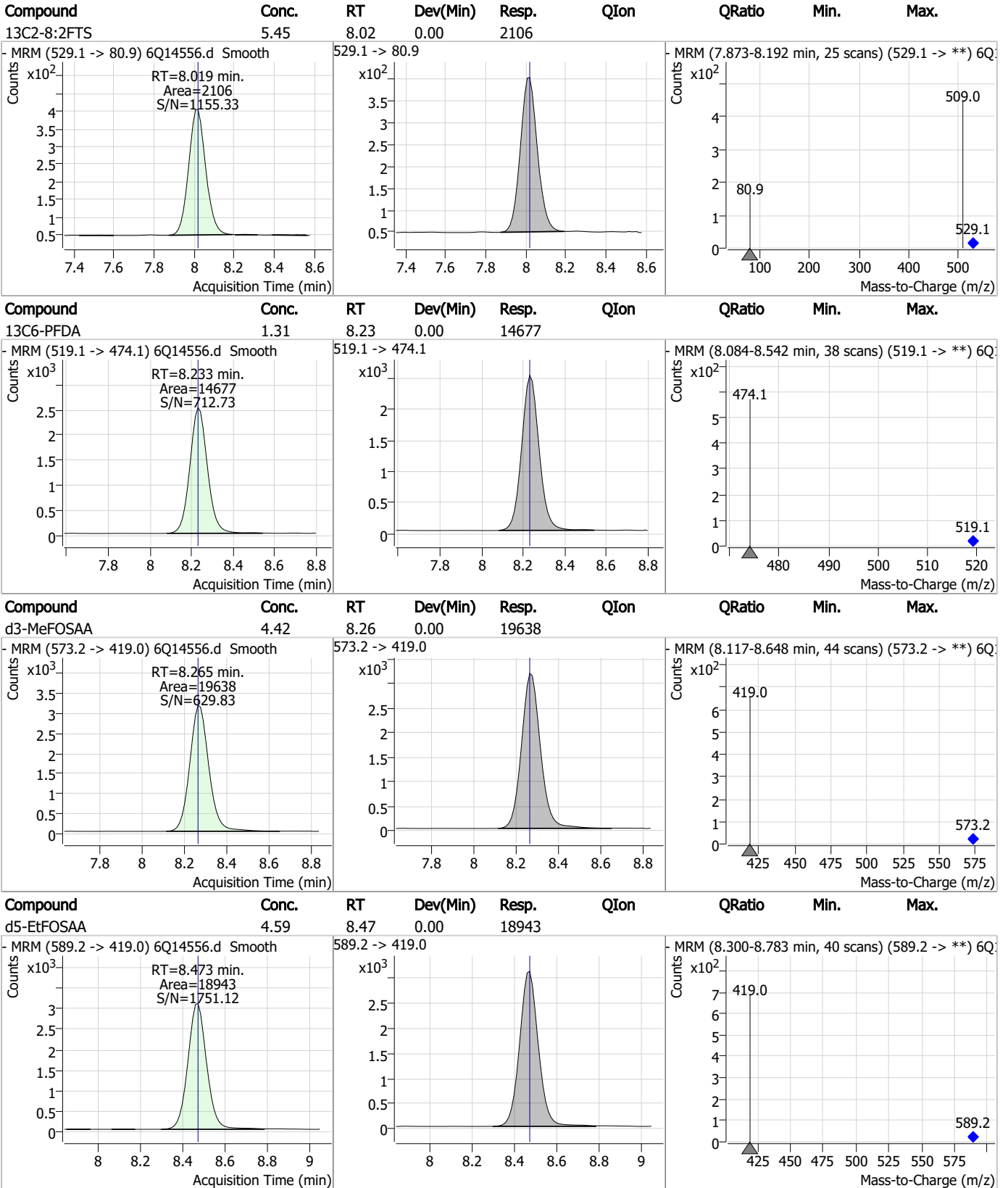
Perfluorinated Compounds by LC/MS/MS



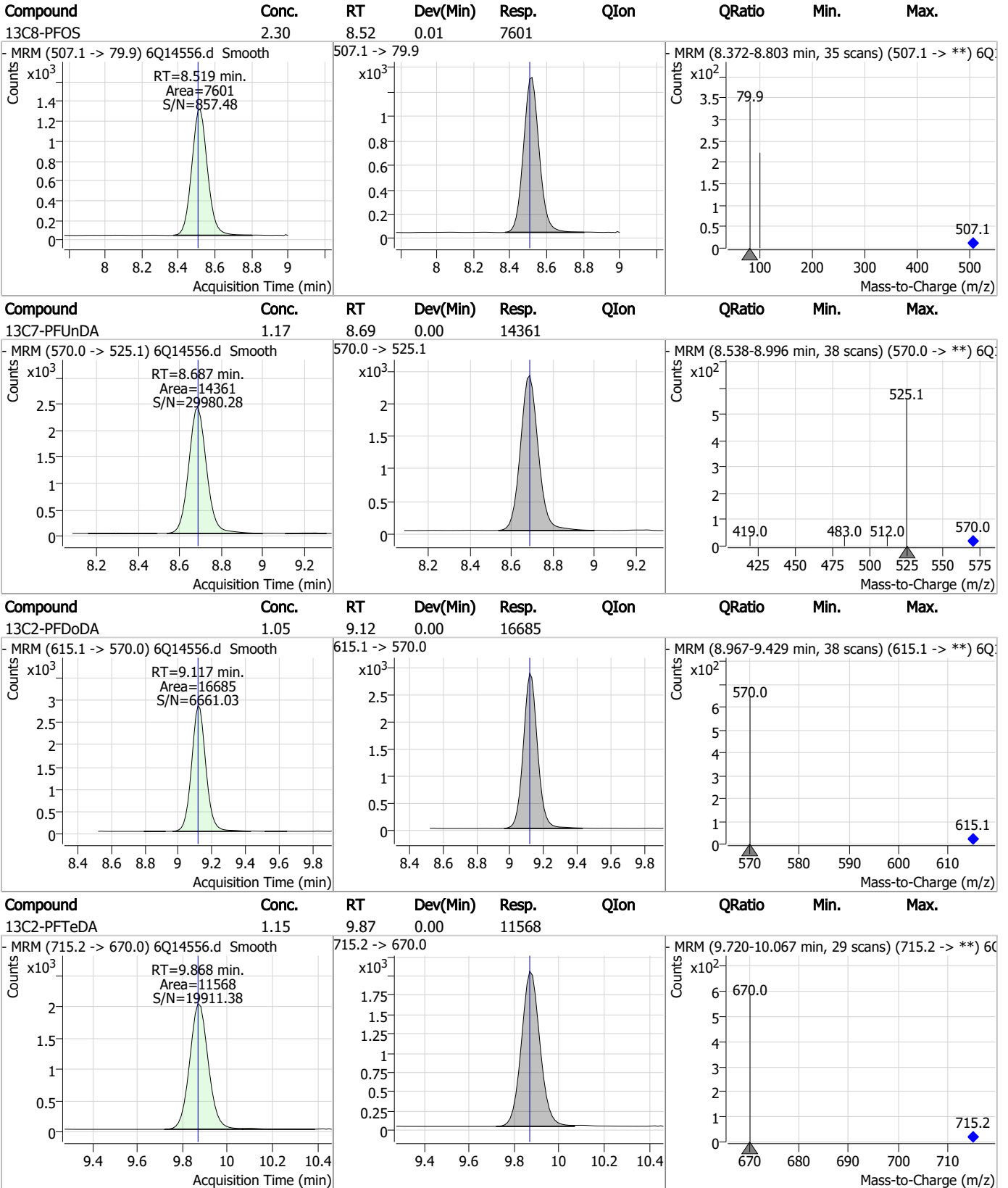
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

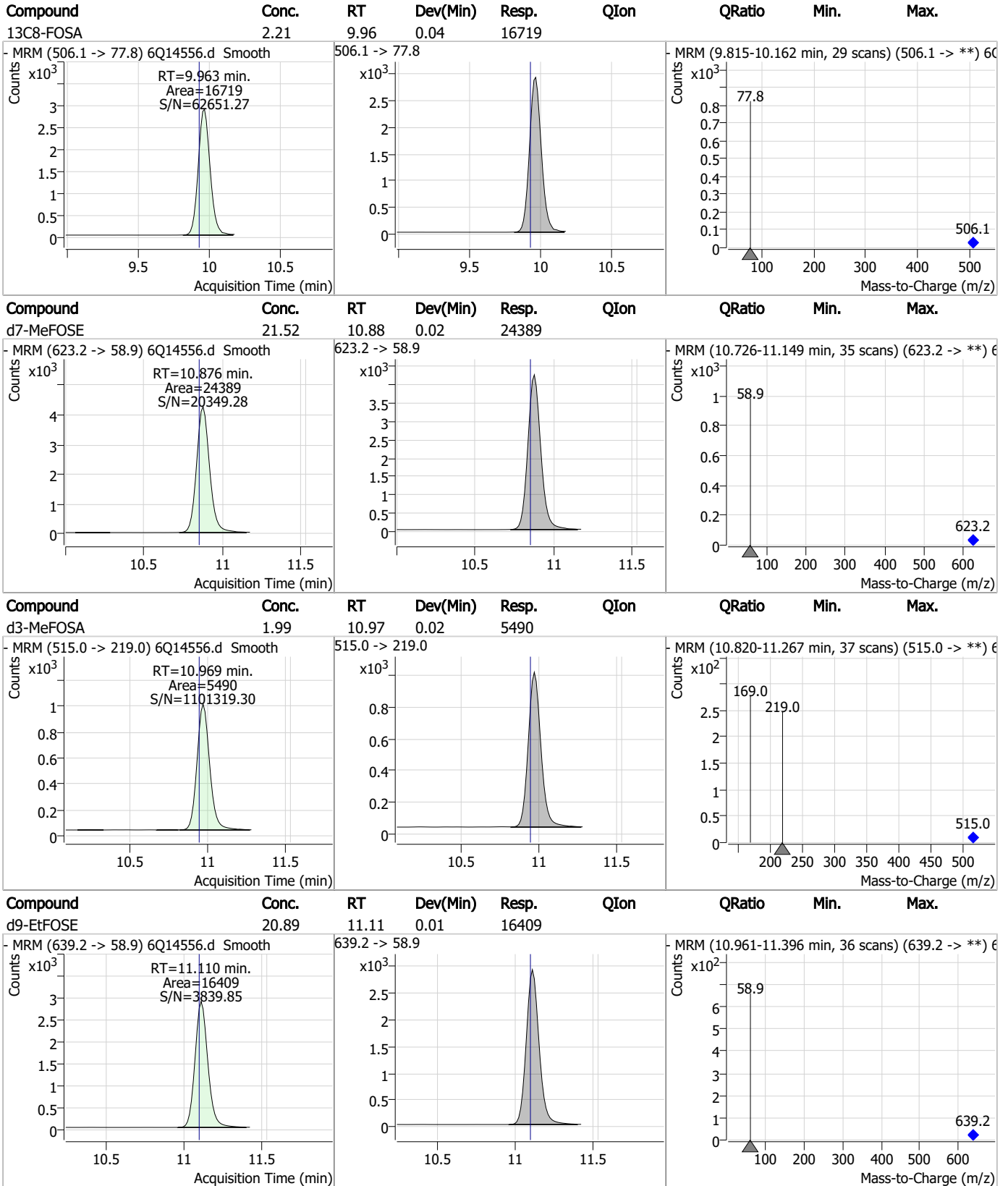


7.1.5

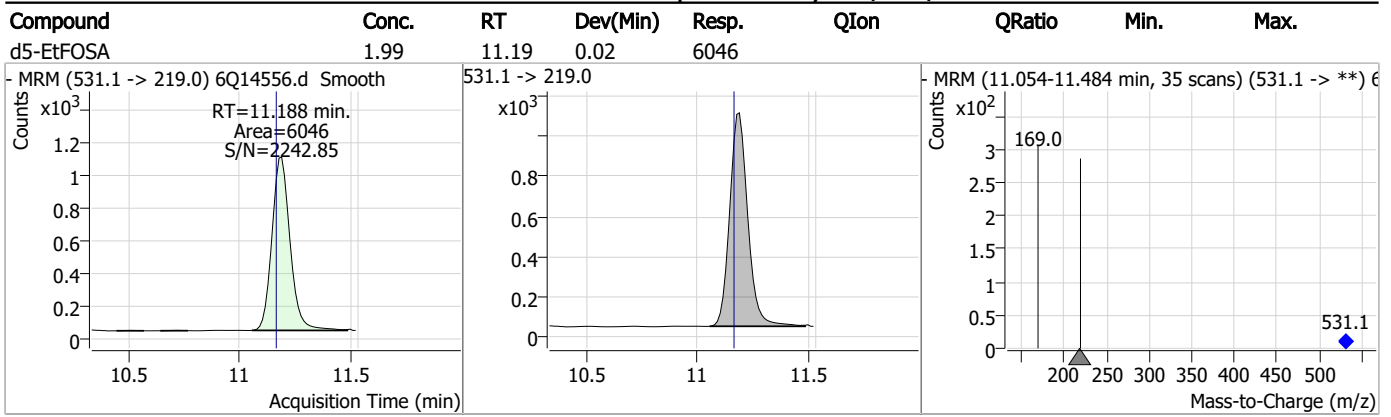
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.5
7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14557.d
Operator : marthav
Acq. Method : 1633full.m
Acq. Date-Time : 3/8/2023 10:19:43 PM
Sample Name : FC3191-5
Vial : P2-C6
DA Method File : 1633_030823_S6Q220.quantmethod.xml
Batch Name : s6q220.batch.bin
Sample Information : OP95747,S6Q220,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.216	216.8 -> 171.9	77035	10.00 µg/L	0.140
M5-PFPeA	4.665	268.3 -> 223.0	38702	5.00 µg/L	0.050
M5-PFHxA	5.834	318.0 -> 273.0	32965	2.50 µg/L	0.025
M4-PFHpA	6.693	367.1 -> 322.0	33058	2.50 µg/L	0.025
M8-PFOA	7.272	421.1 -> 376.0	54555	2.50 µg/L	0.012
M9-PFNA	7.764	472.1 -> 427.0	13608	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	14370	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	13931	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	14724	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	7513	1.25 µg/L	0.000
M8-FOSA	9.963	506.1 -> 77.8	15866	2.50 µg/L	0.037
M3-PFBS	5.963	302.1 -> 79.9	13198	2.50 µg/L	0.062
M3-PFHxS	7.523	402.1 -> 79.9	8561	2.50 µg/L	0.037
M8-PFOS	8.519	507.1 -> 79.9	6777	2.50 µg/L	0.012
M2-4:2FTS	5.512	329.1 -> 80.9	1704	5.00 µg/L	0.037
M2-6:2FTS	7.058	429.1 -> 80.9	2181	5.00 µg/L	0.025
M2-8:2FTS	8.019	529.1 -> 80.9	1774	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	19160	5.00 µg/L	0.012
M3-HFPO-DA	6.175	286.9 -> 168.9	14812	10.00 µg/L	0.025
M5-EtFOSAA	8.473	589.2 -> 419.0	17219	5.00 µg/L	0.000
M7-MeFOSE	10.876	623.2 -> 58.9	21163	25.00 µg/L	0.025
M9-EtFOSE	11.110	639.2 -> 58.9	14679	25.00 µg/L	0.012
M5-EtFOSA	11.176	531.1 -> 219.0	5132	2.50 µg/L	0.012
M3-MeFOSA	10.969	515.0 -> 219.0	4870	2.50 µg/L	0.025
13C4-PFOS	8.520	502.8 -> 79.9	8648	2.50 µg/L	0.025
13C3-PFBA	3.218	216.0 -> 172.0	31744	5.00 µg/L	0.139
18O2-PFHxS	7.522	403.0 -> 83.9	5682	2.50 µg/L	0.025
13C4-PFOA	7.272	417.1 -> 372.0	59997	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	16772	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	13777	1.25 µg/L	0.000
13C2-PFHxA	5.835	315.1 -> 270.0	27967	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.512	329.1 -> 80.9	1704	6.30 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 125.9%		
13C2-6:2FTS	7.058	429.1 -> 80.9	2181	6.13 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.6%		
13C2-8:2FTS	8.019	529.1 -> 80.9	1774	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-PFDoDA	9.117	615.1 -> 570.0	14724	1.04 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 82.9%		
13C2-PFTeDA	9.868	715.2 -> 670.0	7513	0.83 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 66.6%		
13C3-PFBS	5.963	302.1 -> 79.9	13198	2.66 µg/L	0.062
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.5%		
13C3-PFHxS	7.523	402.1 -> 79.9	8561	2.63 µg/L	0.037

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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 = 105.3%	
13C4-PFBA	3.216	216.8 -> 171.9	77035	10.56 µg/L	0.140
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C4-PFHpA	6.693	367.1 -> 322.0	33058	2.96 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 118.4%	
13C5-PFHxA	5.834	318.0 -> 273.0	32965	2.87 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.0%	
13C5-PFPeA	4.665	268.3 -> 223.0	38702	5.84 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.7%	
13C6-PFDA	8.233	519.1 -> 474.1	14370	1.43 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.5%	
13C7-PFUnDA	8.687	570.0 -> 525.1	13931	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-FOSA	9.963	506.1 -> 77.8	15866	2.34 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C8-PFOA	7.272	421.1 -> 376.0	54555	2.73 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C8-PFOS	8.519	507.1 -> 79.9	6777	2.29 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.5%	
13C9-PFNA	7.764	472.1 -> 427.0	13608	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.5%	
d3-MeFOSAA	8.277	573.2 -> 419.0	19160	4.81 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C3-HFPO-DA	6.175	286.9 -> 168.9	14812	11.56 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.6%	
d3-MeFOSA	10.969	515.0 -> 219.0	4870	1.97 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.7%	
d5-EtFOSAA	8.473	589.2 -> 419.0	17219	4.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.1%	
d7-MeFOSE	10.876	623.2 -> 58.9	21163	20.84 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.4%	
d9-EtFOSE	11.110	639.2 -> 58.9	14679	20.85 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.4%	
d5-EtFOSA	11.176	531.1 -> 219.0	5132	1.89 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.4%	

7.16
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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	7.046	427.1 -> 407.0	10246	3.12 µg/L	100
		427.1 -> 80.9	2226		
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	3.220	212.8 -> 168.9	821	0.39 µg/L	100
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	6.694	599.0 -> 98.8				
		363.1 -> 319.0	2308	0.11	µg/L	97
PFHpS	-	363.1 -> 169.0	354			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.838	449.0 -> 98.9				
		313.0 -> 269.0	8969	0.69	µg/L	100
PFHxS	-	313.0 -> 118.9	381			
		398.7 -> 79.9	-	N.D.		
PFNA	-	398.7 -> 98.9				
		463.0 -> 419.0	-	N.D.		
PFNS	-	463.0 -> 219.0				
		548.8 -> 79.9	-	N.D.		
PFOA	7.273	548.8 -> 98.9				
		413.0 -> 369.0	1903	0.07	µg/L	85
PFOS	-	413.0 -> 169.0	140		m	
		498.9 -> 79.9	-	N.D.		
PFPeA	4.666	498.9 -> 98.8				
		263.0 -> 219.0	10441	1.16	µg/L	100
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.1.6
7



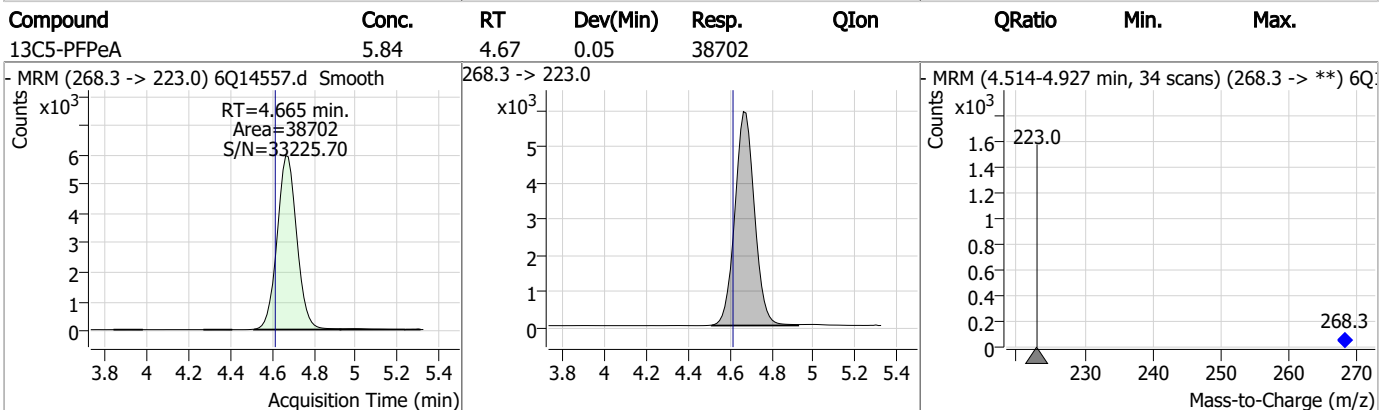
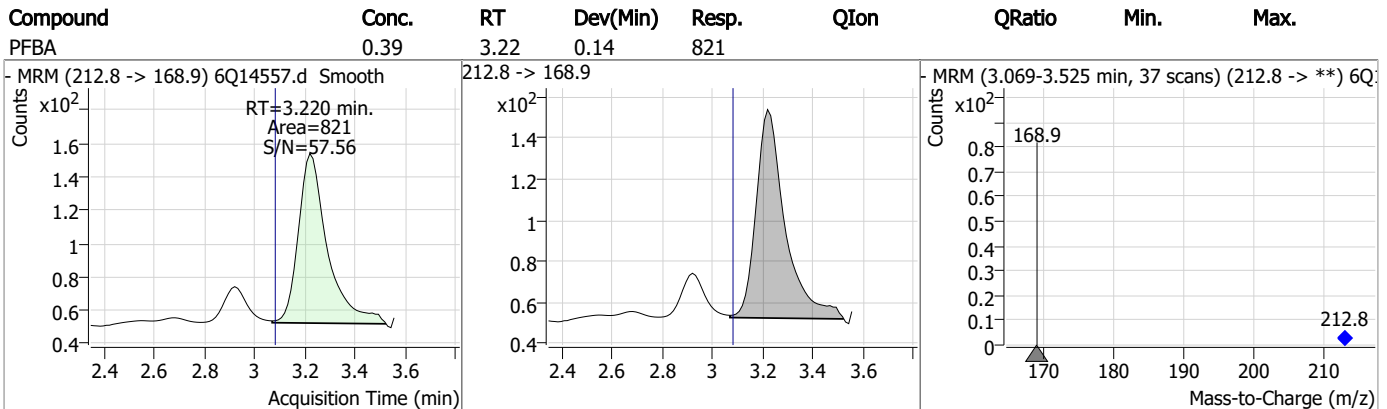
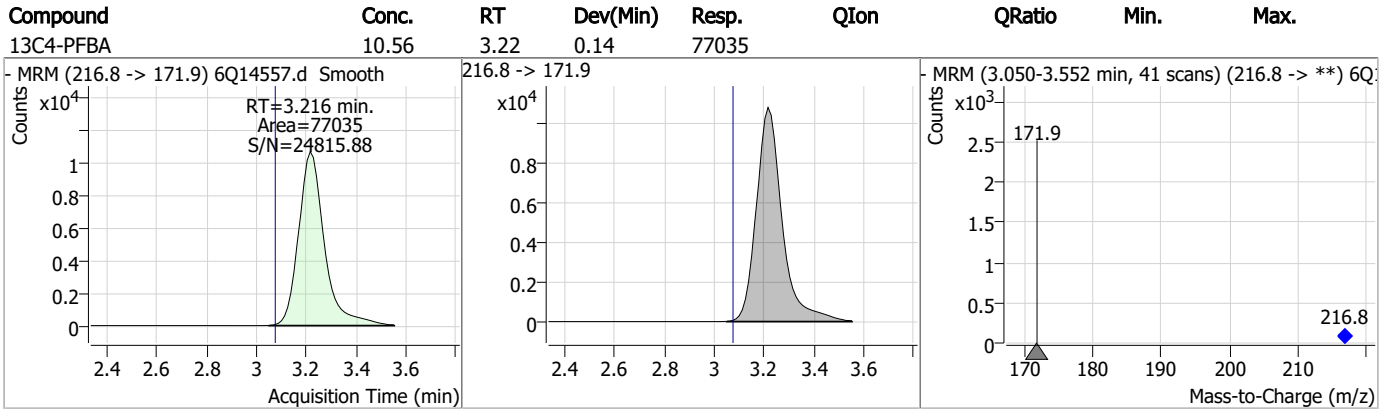
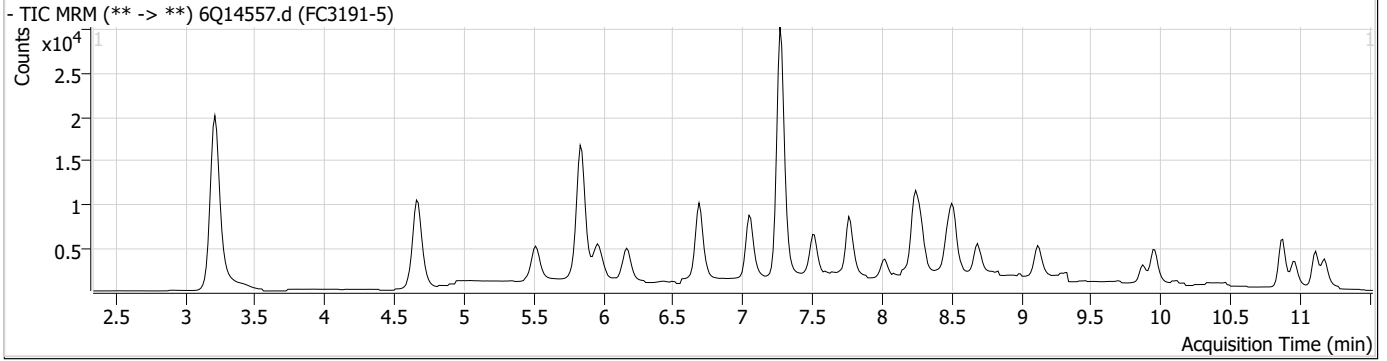
Perfluorinated Compounds by LC/MS/MS

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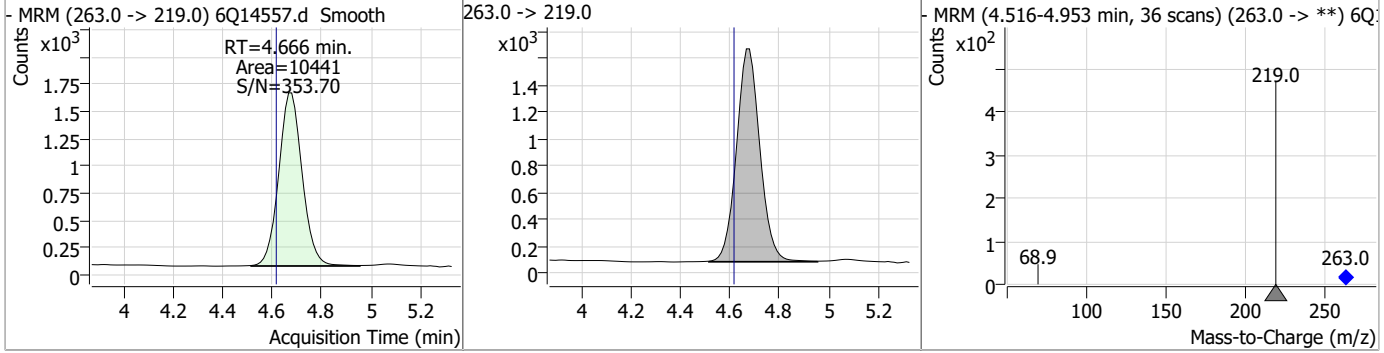


Perfluorinated Compounds by LC/MS/MS

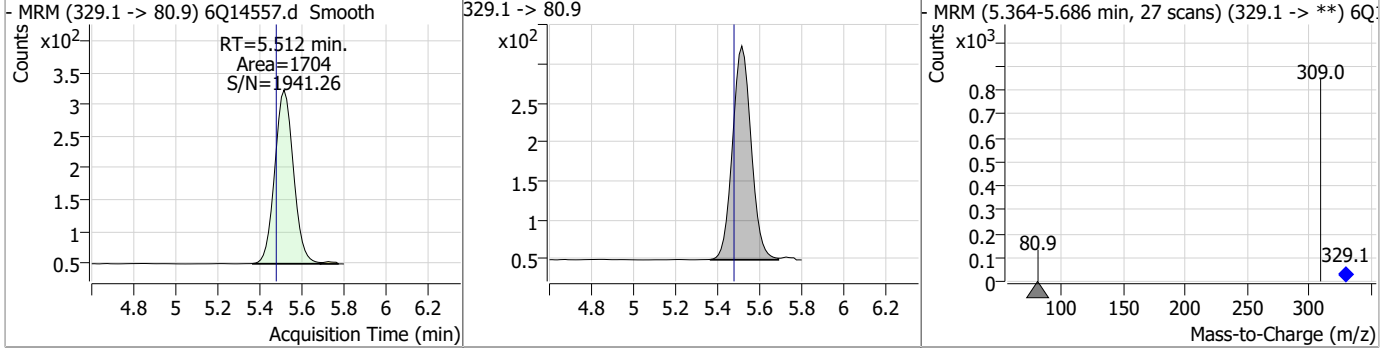


Perfluorinated Compounds by LC/MS/MS

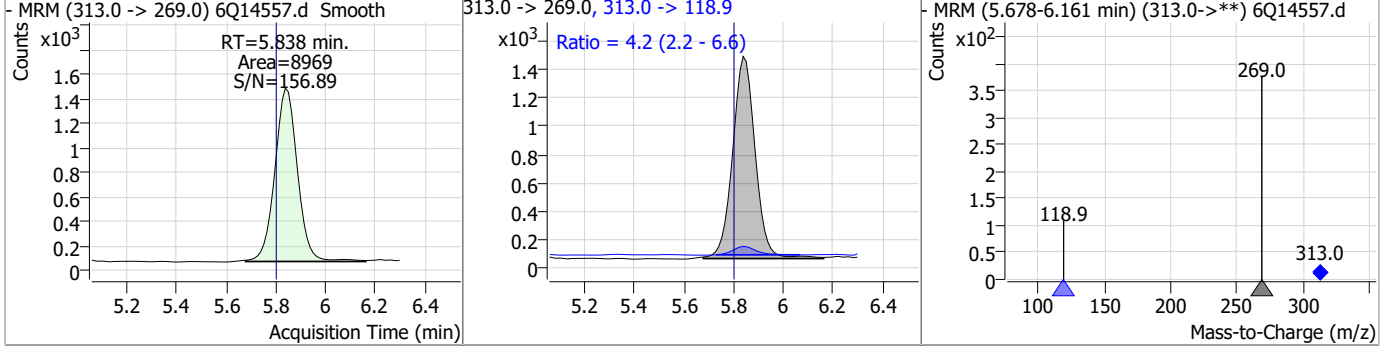
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.16	4.67	0.05	10441				



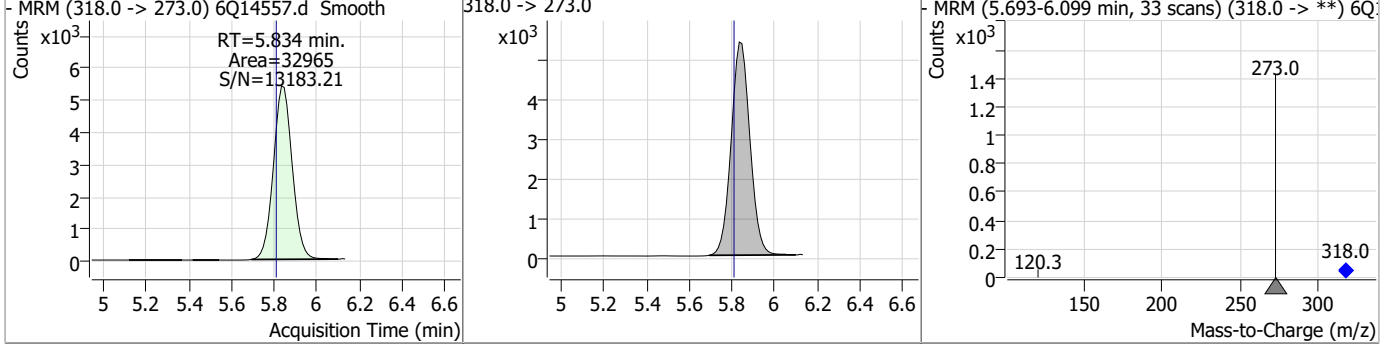
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	6.30	5.51	0.04	1704				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.69	5.84	0.04	8969	313.0 -> 118.9	4.2	2.2	6.6

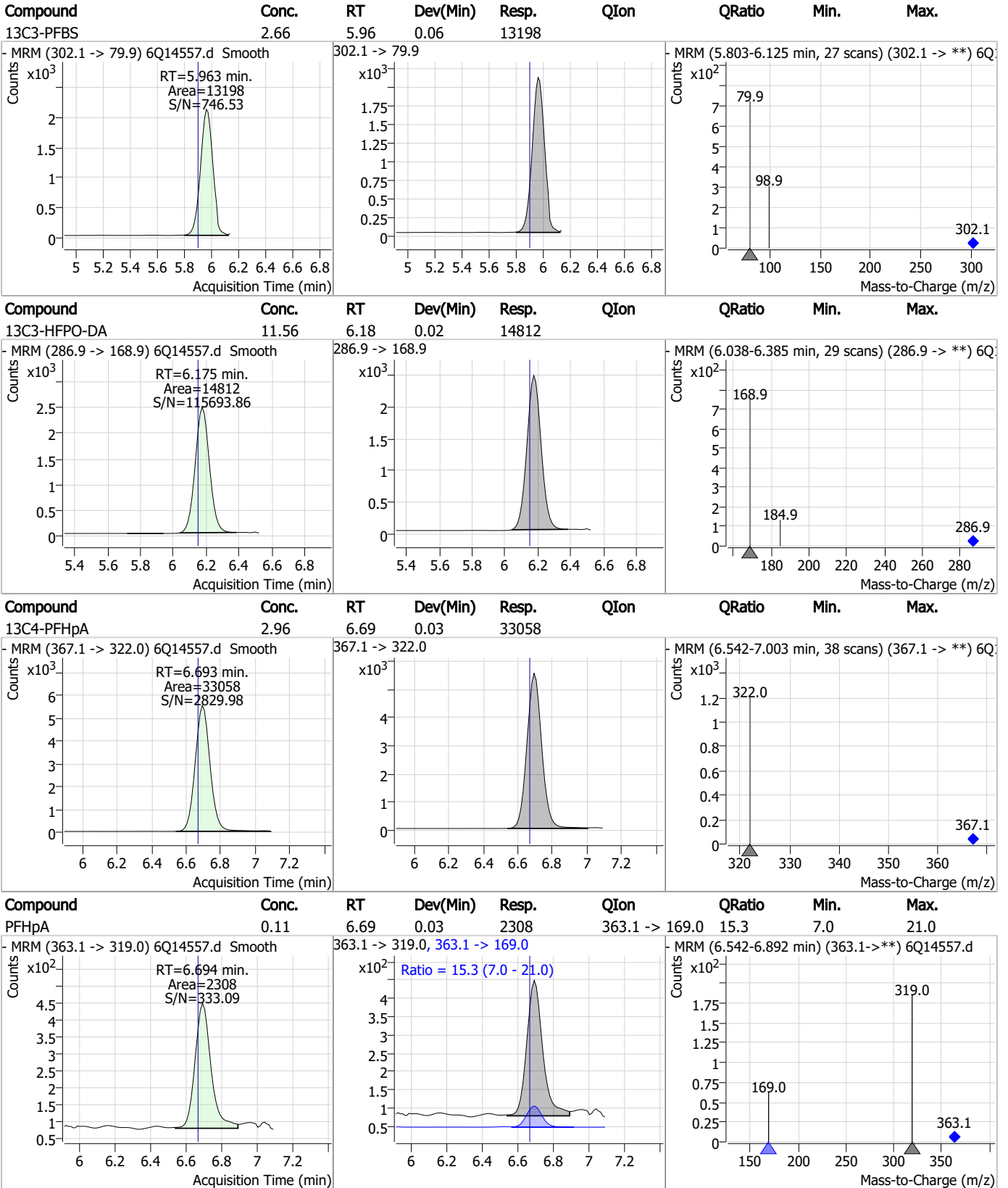


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.87	5.83	0.02	32965				



7.1.6
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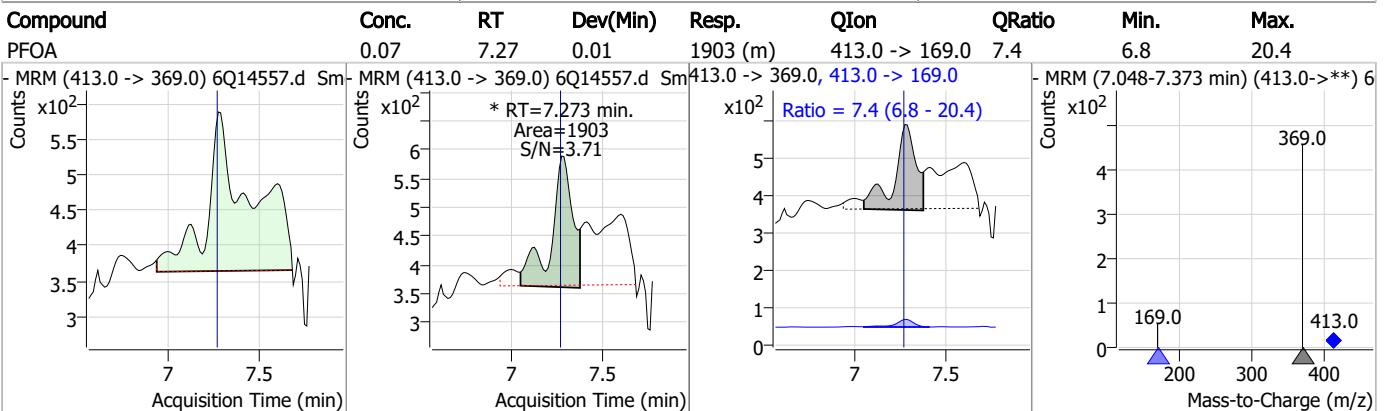
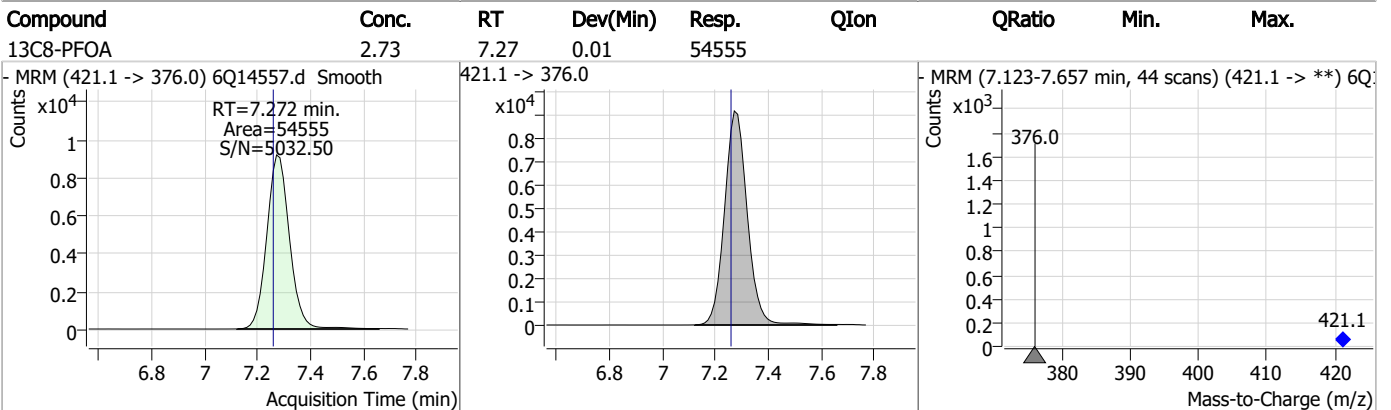
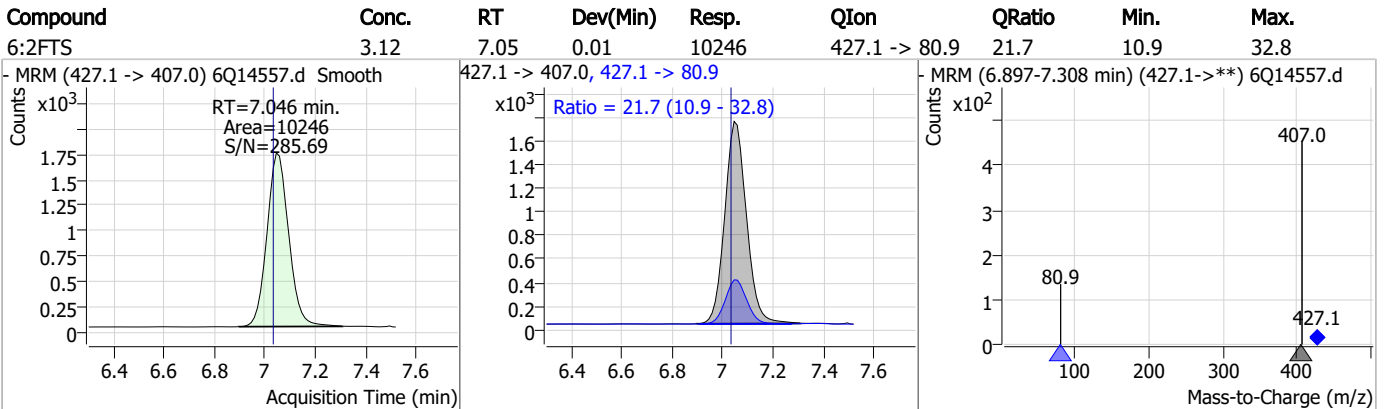
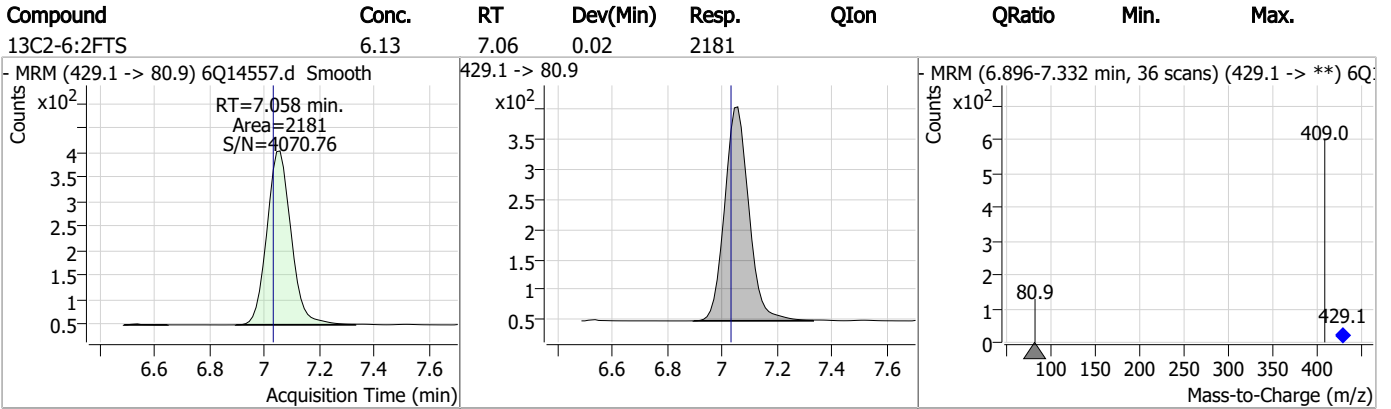
Perfluorinated Compounds by LC/MS/MS



7.1.6

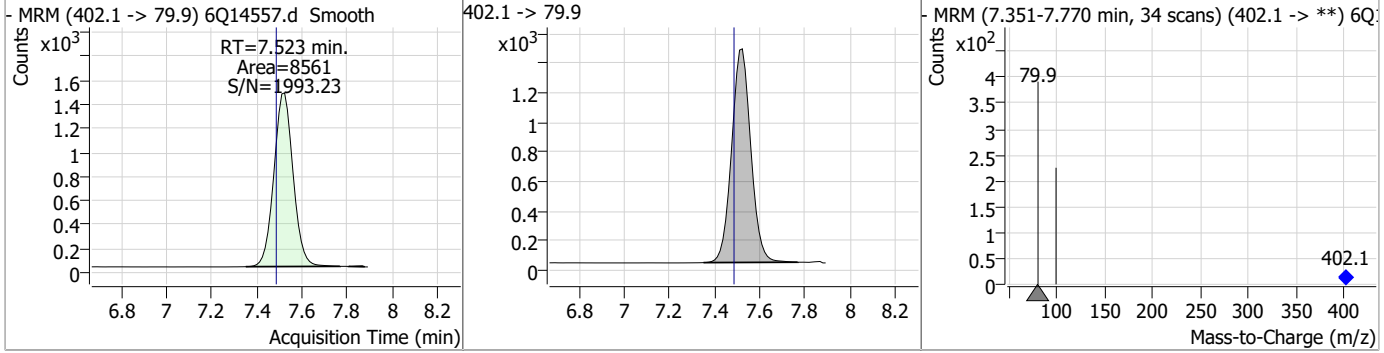
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Perfluorinated Compounds by LC/MS/MS

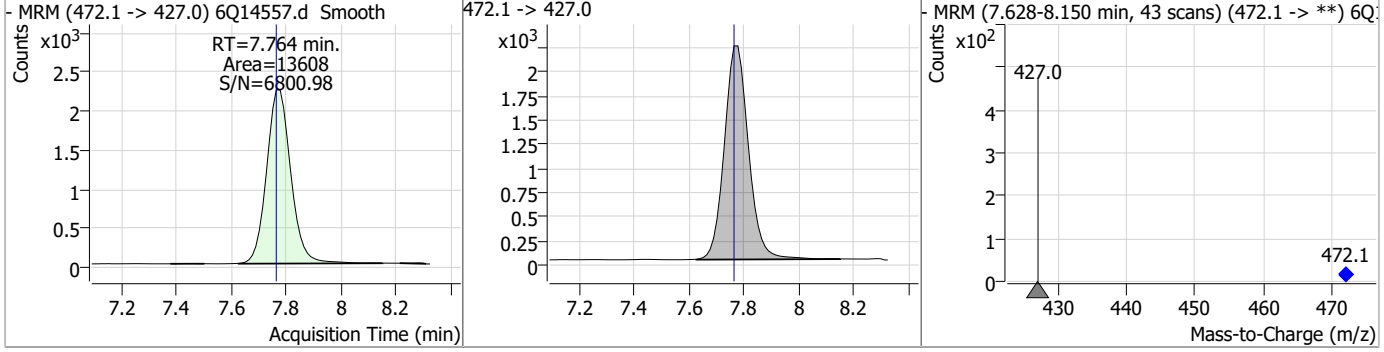


Perfluorinated Compounds by LC/MS/MS

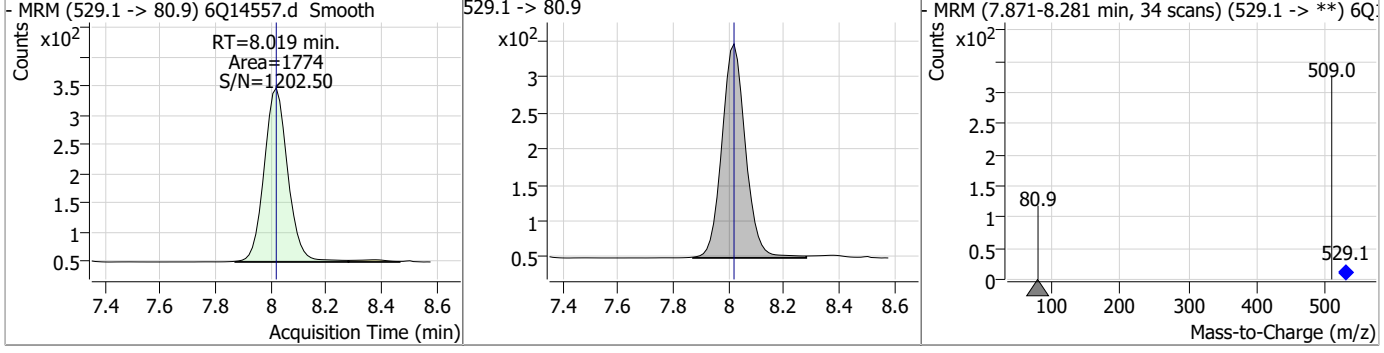
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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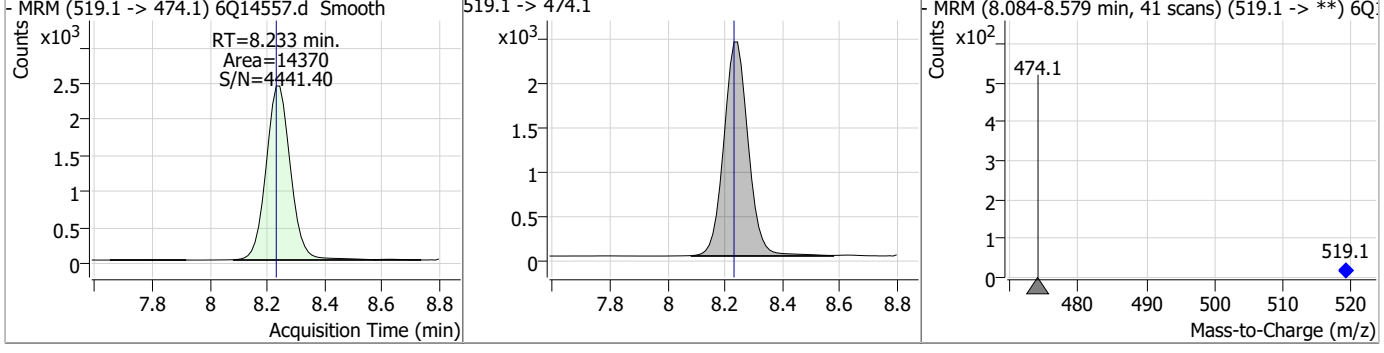
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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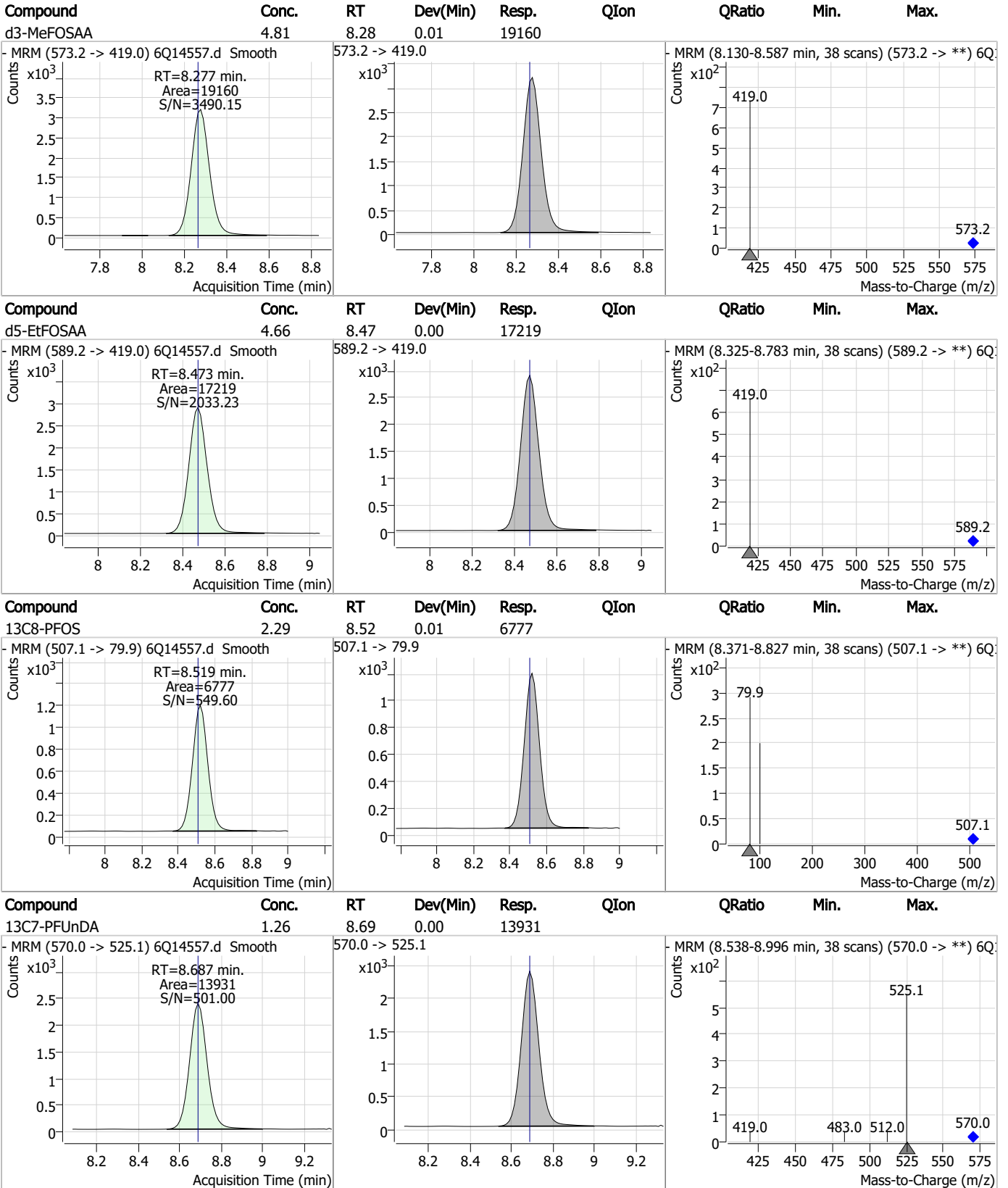


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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7.1.6

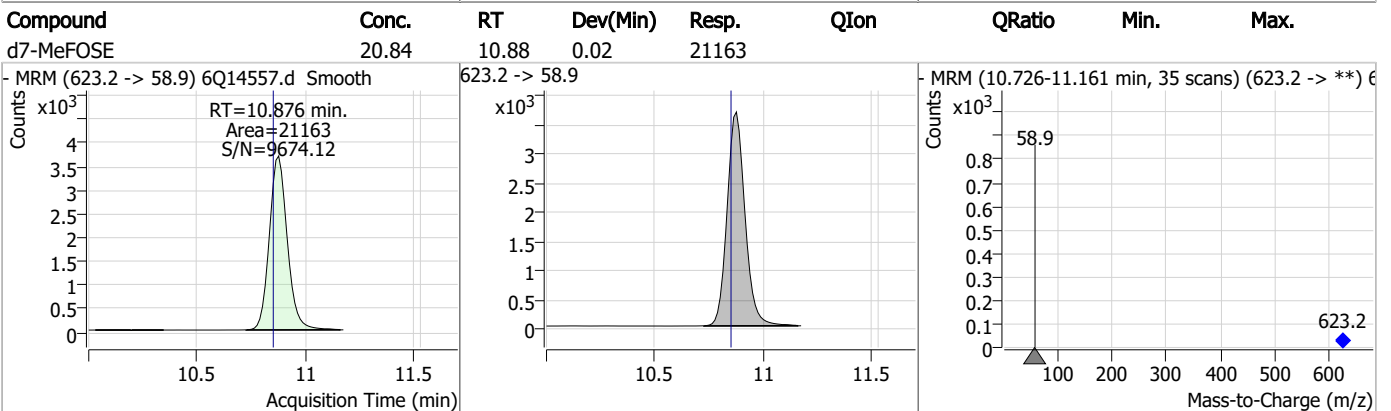
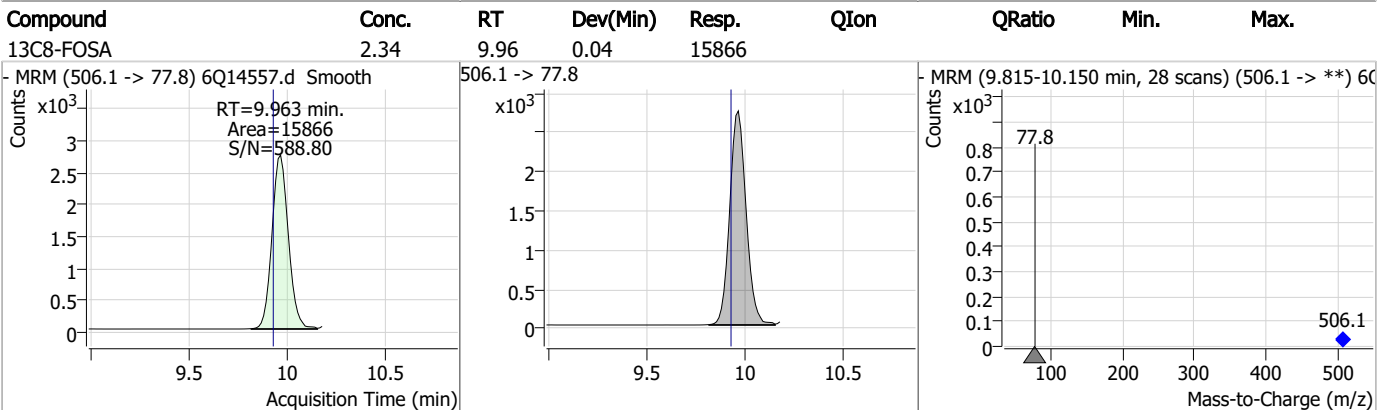
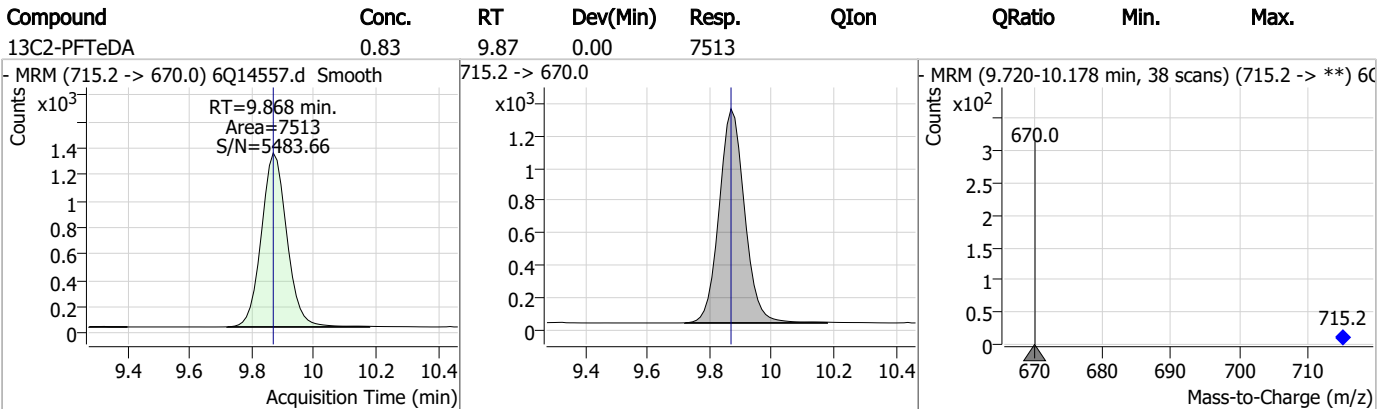
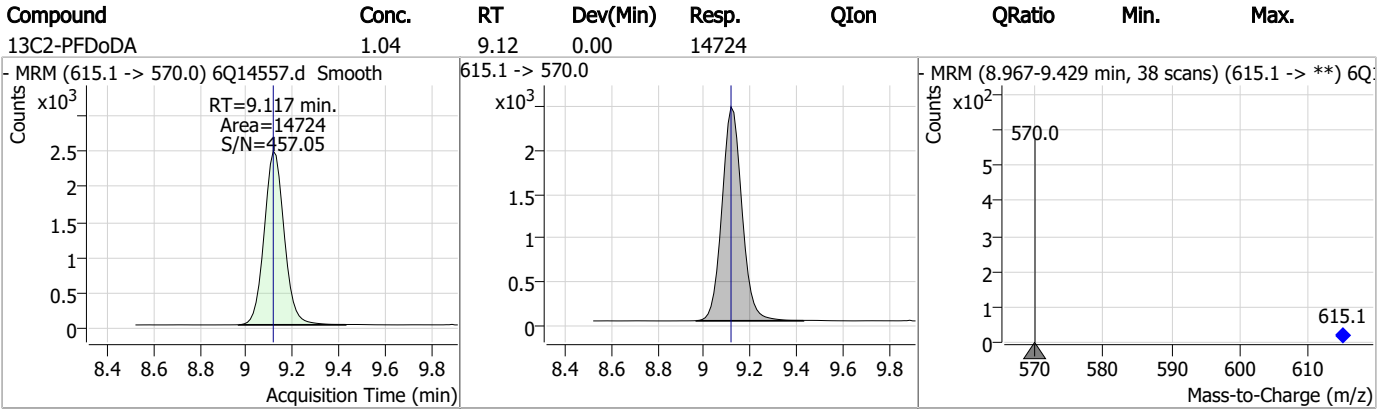
Perfluorinated Compounds by LC/MS/MS



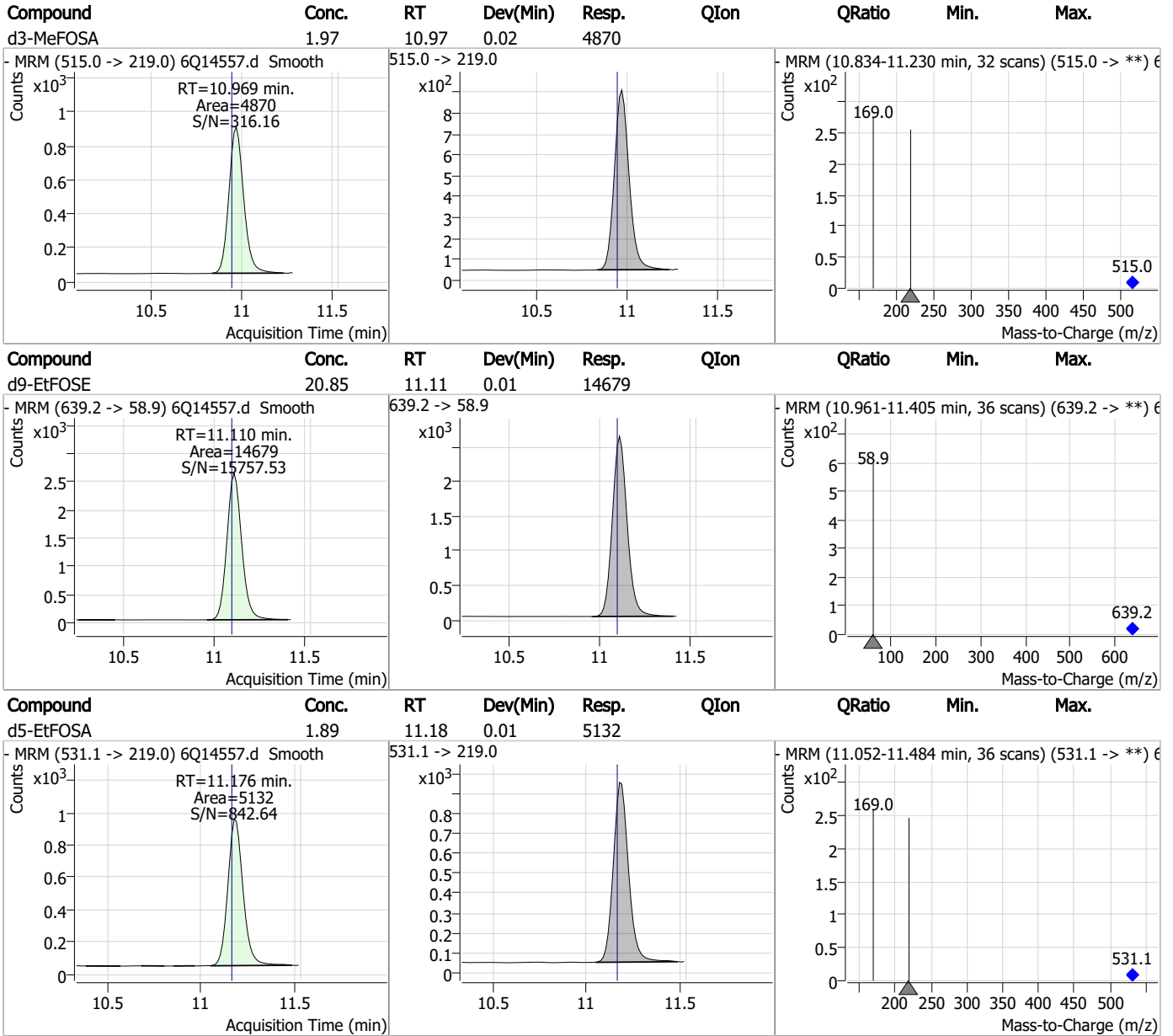
7.1.6

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.6

7

Manual Integration Approval Summary

Sample Number: FC3191-5 Method: EPA DRAFT 1633
Lab FileID: 6Q14557.D Analyst approved: 03/09/23 13:43 Martha Valls
Injection Time: 03/08/23 22:19 Supervisor approved: 03/10/23 10:55 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.27	Split peak

7.1.6.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14618.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/9/2023 12:55:47 PM
 Sample Name : IBLK
 Vial : P1-A1
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q221.batch.bin
 Sample Information : OP95772,S6Q221,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	74700	10.00 µg/L	0.009
M5-PFPeA	4.634	268.3 -> 223.0	37461	5.00 µg/L	0.018
M5-PFHxA	5.815	318.0 -> 273.0	33262	2.50 µg/L	0.005
M4-PFHpA	6.682	367.1 -> 322.0	30864	2.50 µg/L	0.014
M8-PFOA	7.274	421.1 -> 376.0	52618	2.50 µg/L	0.015
M9-PFNA	7.767	472.1 -> 427.0	15500	1.25 µg/L	0.003
M6-PFDA	8.234	519.1 -> 474.1	13081	1.25 µg/L	0.002
M7-PFUnDA	8.689	570.0 -> 525.1	14050	1.25 µg/L	0.002
M2-PFDoDA	9.119	615.1 -> 570.0	19004	1.25 µg/L	0.002
M2-PFTeDA	9.871	715.2 -> 670.0	11543	1.25 µg/L	0.003
M8-FOSA	9.954	506.1 -> 77.8	18977	2.50 µg/L	0.028
M3-PFBS	5.943	302.1 -> 79.9	12612	2.50 µg/L	0.042
M3-PFHxS	7.513	402.1 -> 79.9	7886	2.50 µg/L	0.027
M8-PFOS	8.521	507.1 -> 79.9	7607	2.50 µg/L	0.014
M2-4:2FTS	5.493	329.1 -> 80.9	1489	5.00 µg/L	0.017
M2-6:2FTS	7.048	429.1 -> 80.9	2186	5.00 µg/L	0.015
M2-8:2FTS	8.011	529.1 -> 80.9	1969	5.00 µg/L	-0.009
M3-MeFOSAA	8.267	573.2 -> 419.0	19632	5.00 µg/L	0.002
M3-HFPO-DA	6.155	286.9 -> 168.9	14669	10.00 µg/L	0.005
M5-EtFOSAA	8.463	589.2 -> 419.0	19896	5.00 µg/L	-0.010
M7-MeFOSE	10.878	623.2 -> 58.9	24500	25.00 µg/L	0.027
M9-EtFOSE	11.112	639.2 -> 58.9	17826	25.00 µg/L	0.015
M5-EtFOSA	11.178	531.1 -> 219.0	7158	2.50 µg/L	0.014
M3-MeFOSA	10.970	515.0 -> 219.0	5981	2.50 µg/L	0.026
13C4-PFOS	8.522	502.8 -> 79.9	8476	2.50 µg/L	0.026
13C3-PFBA	3.089	216.0 -> 172.0	31699	5.00 µg/L	0.011
18O2-PFHxS	7.512	403.0 -> 83.9	5676	2.50 µg/L	0.015
13C4-PFOA	7.274	417.1 -> 372.0	67850	2.50 µg/L	0.014
13C2-PFDA	8.235	515.1 -> 470.1	19138	1.25 µg/L	0.002
13C5-PFNA	7.768	468.0 -> 423.0	16204	1.25 µg/L	0.003
13C2-PFHxA	5.816	315.1 -> 270.0	31991	2.50 µg/L	0.017
System Monitoring Compounds					
13C2-4:2FTS	5.493	329.1 -> 80.9	1489	5.51 µg/L	0.017
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C2-6:2FTS	7.048	429.1 -> 80.9	2186	6.15 µg/L	0.015
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.0%		
13C2-8:2FTS	8.011	529.1 -> 80.9	1969	5.51 µg/L	-0.009
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.1%		
13C2-PFDoDA	9.119	615.1 -> 570.0	19004	1.17 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C2-PFTeDA	9.871	715.2 -> 670.0	11543	1.12 µg/L	0.003
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.7%		
13C3-PFBS	5.943	302.1 -> 79.9	12612	2.55 µg/L	0.042
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C3-PFHxS	7.513	402.1 -> 79.9	7886	2.43 µg/L	0.027

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 = 97.1%	
13C4-PFBA	3.085	216.8 -> 171.9	74700	10.26 µg/L	0.009
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C4-PFHpA	6.682	367.1 -> 322.0	30864	2.42 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C5-PFHxA	5.815	318.0 -> 273.0	33262	2.54 µg/L	0.005
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C5-PFPeA	4.634	268.3 -> 223.0	37461	4.94 µg/L	0.018
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C6-PFDA	8.234	519.1 -> 474.1	13081	1.14 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.3%	
13C7-PFUnDA	8.689	570.0 -> 525.1	14050	1.12 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.4%	
13C8-FOSA	9.954	506.1 -> 77.8	18977	2.85 µg/L	0.028
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.1%	
13C8-PFOA	7.274	421.1 -> 376.0	52618	2.33 µg/L	0.015
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C8-PFOS	8.521	507.1 -> 79.9	7607	2.62 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C9-PFNA	7.767	472.1 -> 427.0	15500	1.24 µg/L	0.003
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
d3-MeFOSAA	8.267	573.2 -> 419.0	19632	5.03 µg/L	0.002
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C3-HFPO-DA	6.155	286.9 -> 168.9	14669	10.01 µg/L	0.005
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
d3-MeFOSA	10.970	515.0 -> 219.0	5981	2.46 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
d5-EtFOSAA	8.463	589.2 -> 419.0	19896	5.49 µg/L	-0.010
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.8%	
d7-MeFOSE	10.878	623.2 -> 58.9	24500	24.62 µg/L	0.027
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
d9-EtFOSE	11.112	639.2 -> 58.9	17826	25.84 µg/L	0.015
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
d5-EtFOSA	11.178	531.1 -> 219.0	7158	2.68 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.3%	

Target Compounds

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.	

7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
		599.0 -> 98.8			
PFHpA	-	363.1 -> 319.0	-	N.D.	
		363.1 -> 169.0			
PFHpS	-	449.0 -> 79.9	-	N.D.	
		449.0 -> 98.9			
PFHxA	-	313.0 -> 269.0	-	N.D.	
		313.0 -> 118.9			
PFHxS	-	398.7 -> 79.9	-	N.D.	
		398.7 -> 98.9			
PFNA	-	463.0 -> 419.0	-	N.D.	
		463.0 -> 219.0			
PFNS	-	548.8 -> 79.9	-	N.D.	
		548.8 -> 98.9			
PFOA	-	413.0 -> 369.0	-	N.D.	
		413.0 -> 169.0			
PFOS	-	498.9 -> 79.9	-	N.D.	
		498.9 -> 98.8			
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
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

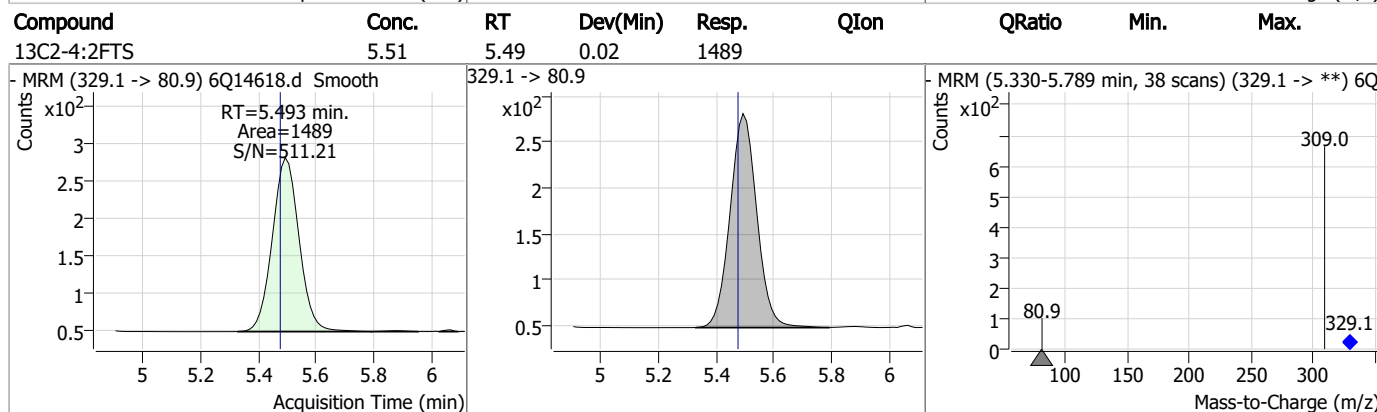
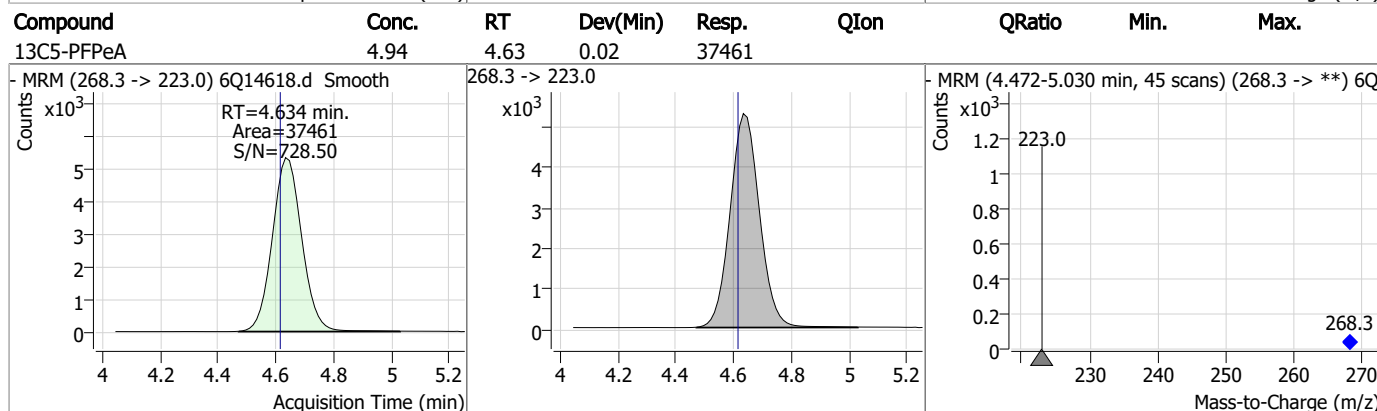
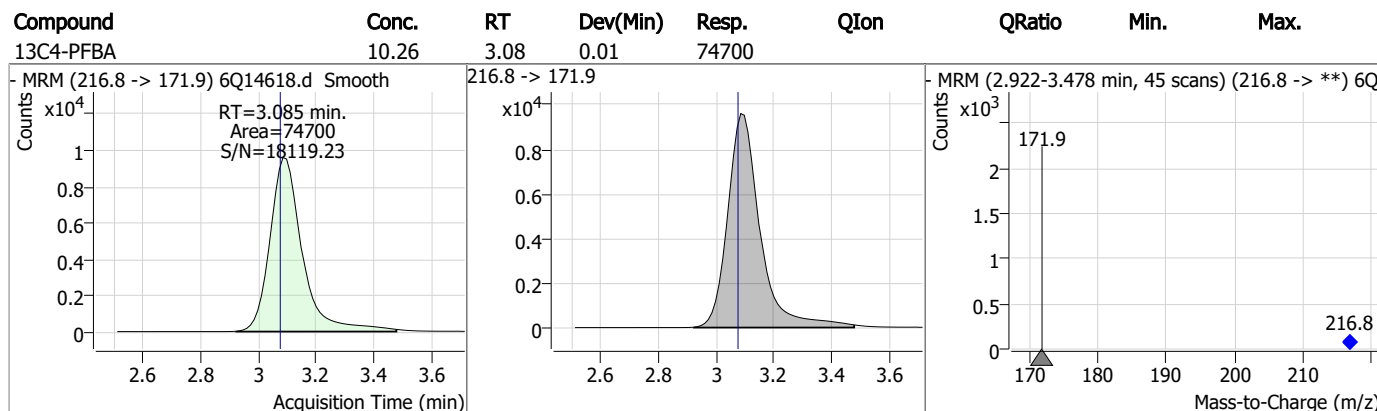
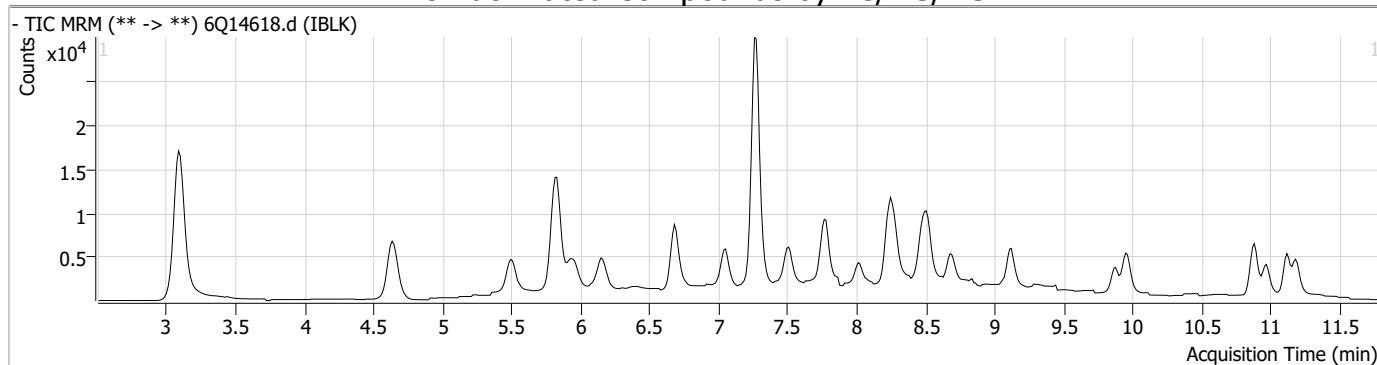
Perfluorinated Compounds by LC/MS/MS

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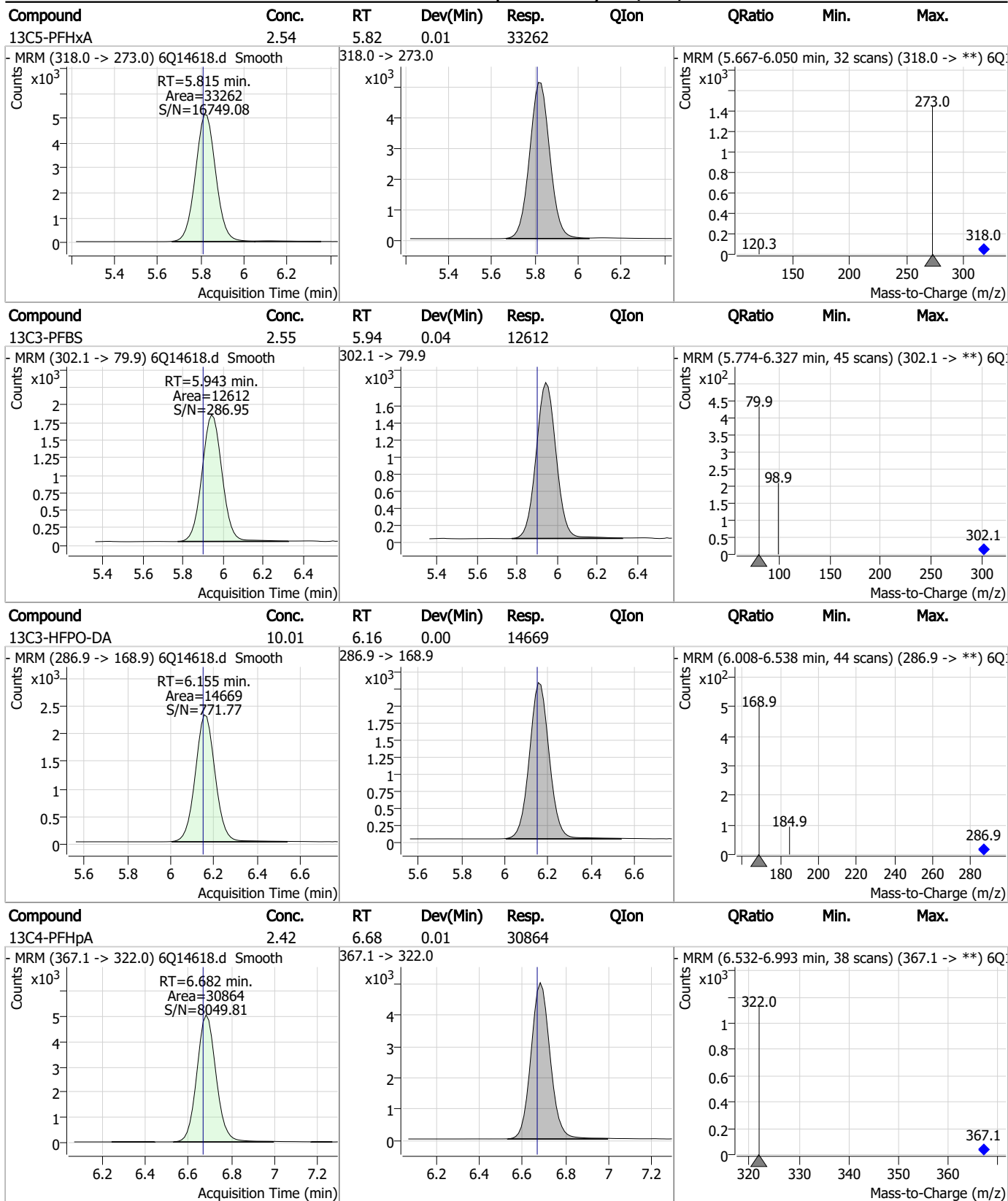
7.2.1

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Perfluorinated Compounds by LC/MS/MS

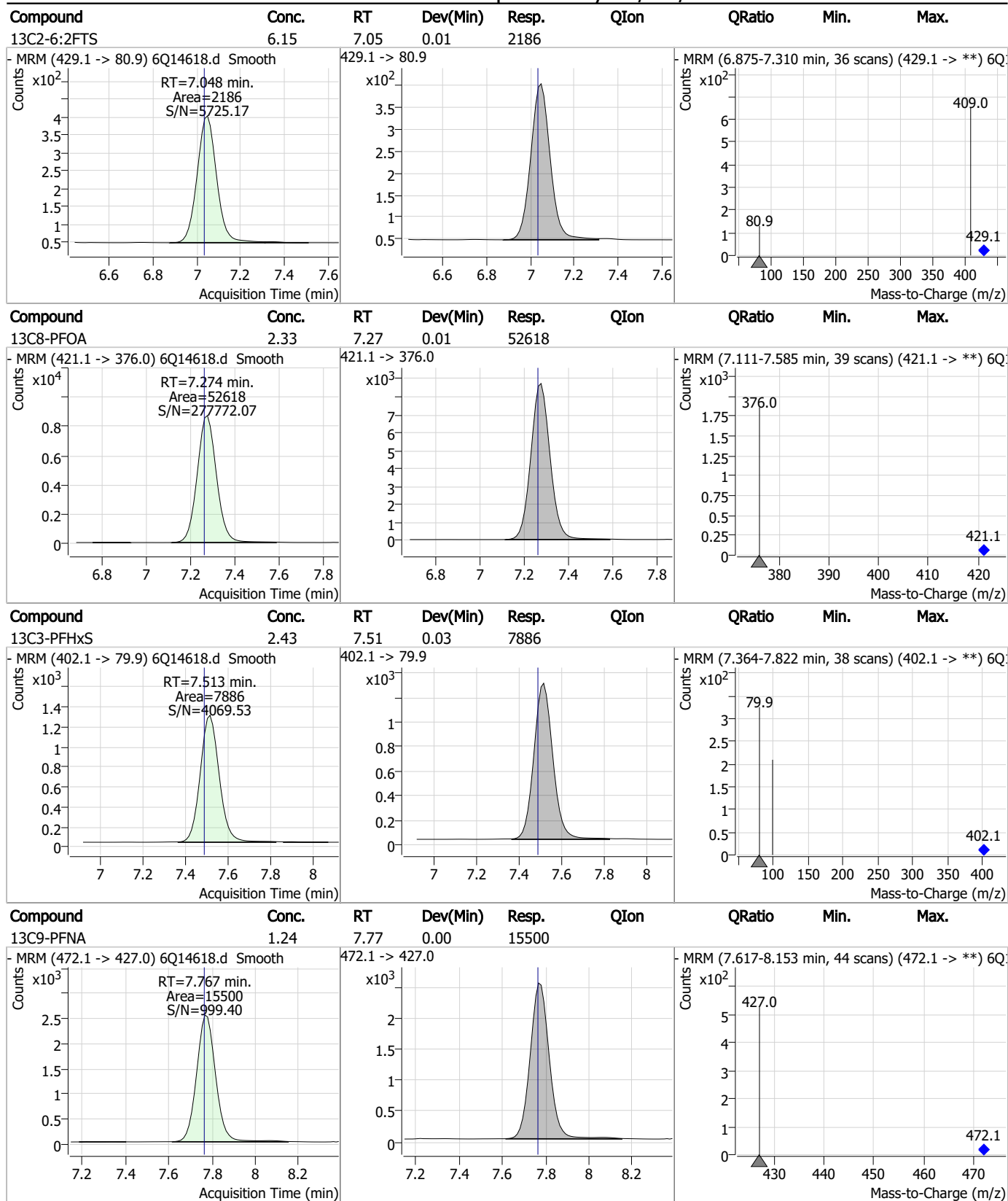


Perfluorinated Compounds by LC/MS/MS



7.2.1
7

Perfluorinated Compounds by LC/MS/MS



7.2.1
7

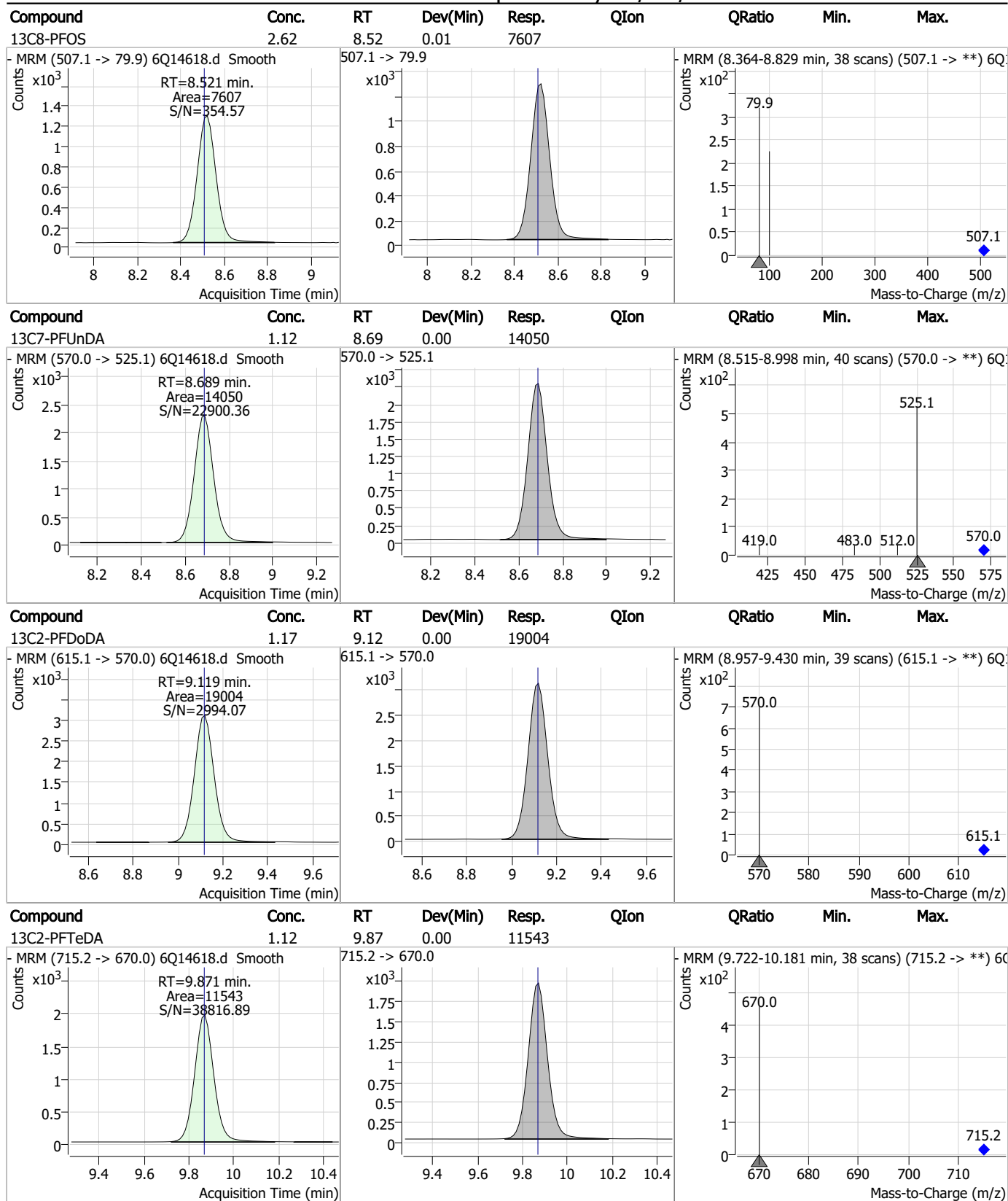
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.51	8.01	-0.01	1969				
13C6-PFDA	1.14	8.23	0.00	13081				
d3-MeFOSAA	5.03	8.27	0.00	19632				
d5-EtFOSAA	5.49	8.46	-0.01	19896				

7.2.1
7

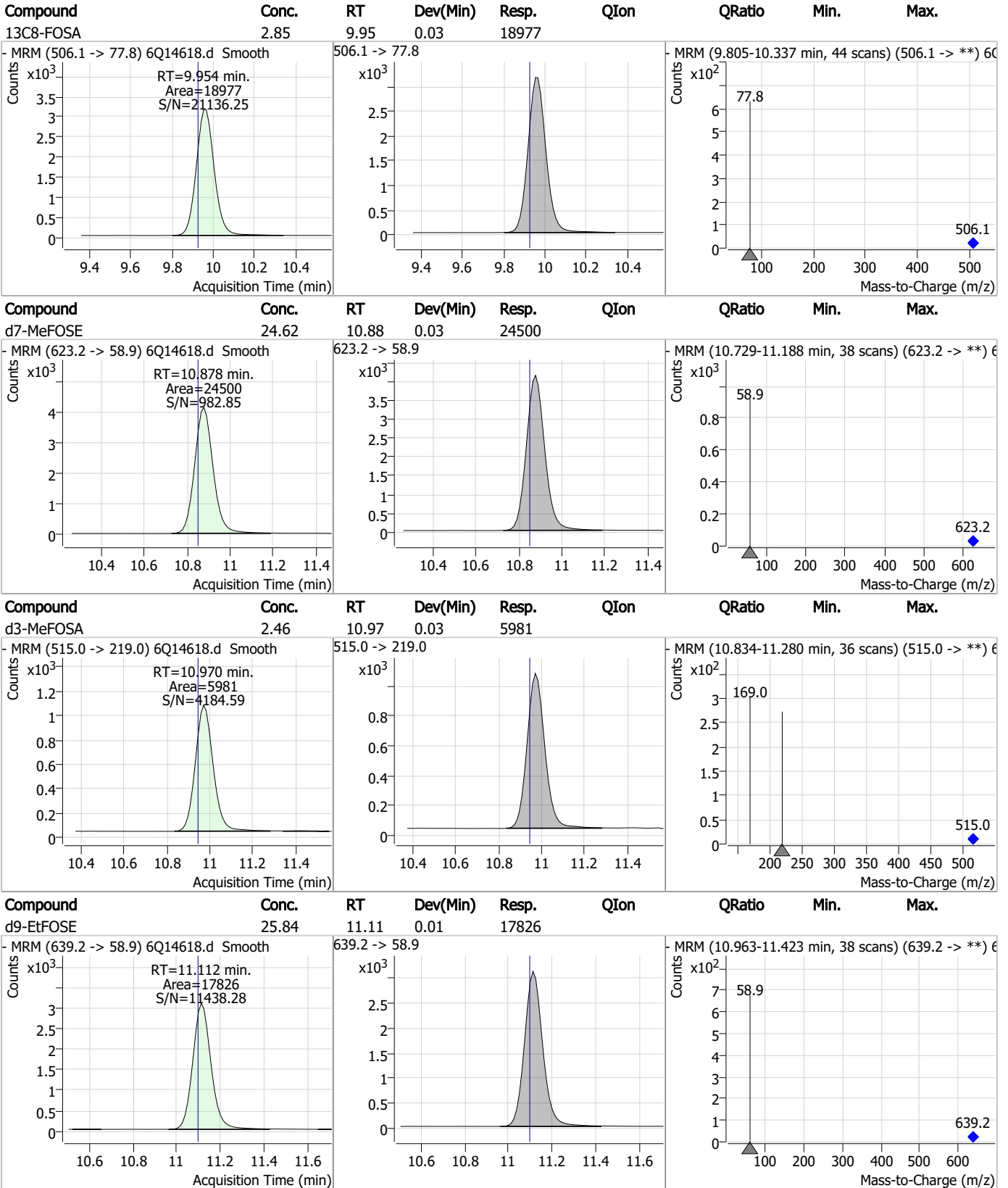


Perfluorinated Compounds by LC/MS/MS



7.2.1
7

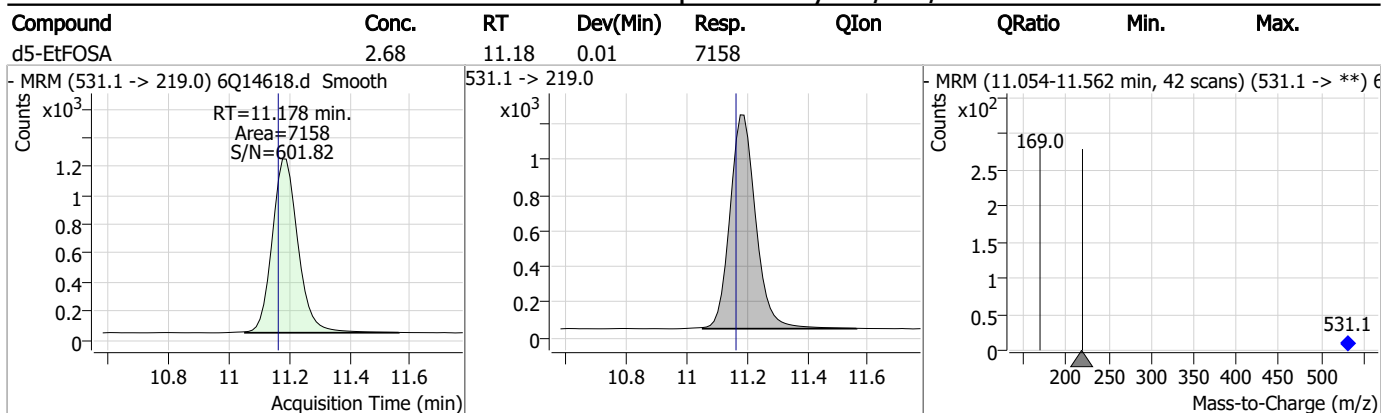
Perfluorinated Compounds by LC/MS/MS



7.2.1

7

Perfluorinated Compounds by LC/MS/MS



7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14644.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/9/2023 7:21:05 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q221.batch.bin
 Sample Information : OP95772,S6Q221,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	75405	10.00 µg/L	0.022
M5-PFPeA	4.634	268.3 -> 223.0	37635	5.00 µg/L	0.018
M5-PFHxA	5.828	318.0 -> 273.0	33087	2.50 µg/L	0.018
M4-PFHpA	6.682	367.1 -> 322.0	31802	2.50 µg/L	0.014
M8-PFOA	7.274	421.1 -> 376.0	53323	2.50 µg/L	0.014
M9-PFNA	7.767	472.1 -> 427.0	14799	1.25 µg/L	0.003
M6-PFDA	8.234	519.1 -> 474.1	13719	1.25 µg/L	0.002
M7-PFUnDA	8.689	570.0 -> 525.1	15018	1.25 µg/L	0.002
M2-PFDoDA	9.119	615.1 -> 570.0	19693	1.25 µg/L	0.002
M2-PFTeDA	9.871	715.2 -> 670.0	12055	1.25 µg/L	0.003
M8-FOSA	9.966	506.1 -> 77.8	17735	2.50 µg/L	0.040
M3-PFBS	5.943	302.1 -> 79.9	12997	2.50 µg/L	0.042
M3-PFHxS	7.513	402.1 -> 79.9	8157	2.50 µg/L	0.027
M8-PFOS	8.521	507.1 -> 79.9	7729	2.50 µg/L	0.014
M2-4:2FTS	5.505	329.1 -> 80.9	1440	5.00 µg/L	0.029
M2-6:2FTS	7.048	429.1 -> 80.9	2303	5.00 µg/L	0.015
M2-8:2FTS	8.011	529.1 -> 80.9	2399	5.00 µg/L	-0.009
M3-MeFOSAA	8.267	573.2 -> 419.0	21196	5.00 µg/L	0.002
M3-HFPO-DA	6.168	286.9 -> 168.9	13953	10.00 µg/L	0.017
M5-EtFOSAA	8.475	589.2 -> 419.0	19634	5.00 µg/L	0.002
M7-MeFOSE	10.878	623.2 -> 58.9	26131	25.00 µg/L	0.027
M9-EtFOSE	11.112	639.2 -> 58.9	16383	25.00 µg/L	0.015
M5-EtFOSA	11.178	531.1 -> 219.0	6471	2.50 µg/L	0.014
M3-MeFOSA	10.970	515.0 -> 219.0	6053	2.50 µg/L	0.026
13C4-PFOS	8.522	502.8 -> 79.9	9165	2.50 µg/L	0.026
13C3-PFBA	3.089	216.0 -> 172.0	32157	5.00 µg/L	0.010
18O2-PFHxS	7.512	403.0 -> 83.9	5954	2.50 µg/L	0.015
13C4-PFOA	7.274	417.1 -> 372.0	63856	2.50 µg/L	0.014
13C2-PFDA	8.235	515.1 -> 470.1	19524	1.25 µg/L	0.002
13C5-PFNA	7.768	468.0 -> 423.0	16391	1.25 µg/L	0.003
13C2-PFHxA	5.829	315.1 -> 270.0	31080	2.50 µg/L	0.030
System Monitoring Compounds					
13C2-4:2FTS	5.505	329.1 -> 80.9	1440	5.08 µg/L	0.029
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-6:2FTS	7.048	429.1 -> 80.9	2303	6.18 µg/L	0.015
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.6%		
13C2-8:2FTS	8.011	529.1 -> 80.9	2399	6.40 µg/L	-0.009
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 127.9%		
13C2-PFDoDA	9.119	615.1 -> 570.0	19693	1.19 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C2-PFTeDA	9.871	715.2 -> 670.0	12055	1.15 µg/L	0.003
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.8%		
13C3-PFBS	5.943	302.1 -> 79.9	12997	2.50 µg/L	0.042
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	7.513	402.1 -> 79.9	8157	2.39 µg/L	0.027

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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 = 95.8%	
13C4-PFBA	3.097	216.8 -> 171.9	75405	10.20 µg/L	0.022
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C4-PFHpA	6.682	367.1 -> 322.0	31802	2.56 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C5-PFHxA	5.828	318.0 -> 273.0	33087	2.60 µg/L	0.018
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C5-PFPeA	4.634	268.3 -> 223.0	37635	5.11 µg/L	0.018
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C6-PFDA	8.234	519.1 -> 474.1	13719	1.17 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C7-PFUnDA	8.689	570.0 -> 525.1	15018	1.17 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C8-FOSA	9.966	506.1 -> 77.8	17735	2.47 µg/L	0.040
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C8-PFOA	7.274	421.1 -> 376.0	53323	2.51 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C8-PFOS	8.521	507.1 -> 79.9	7729	2.46 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C9-PFNA	7.767	472.1 -> 427.0	14799	1.17 µg/L	0.003
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.7%	
d3-MeFOSAA	8.267	573.2 -> 419.0	21196	5.02 µg/L	0.002
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C3-HFPO-DA	6.168	286.9 -> 168.9	13953	9.80 µg/L	0.017
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d3-MeFOSA	10.970	515.0 -> 219.0	6053	2.31 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.3%	
d5-EtFOSAA	8.475	589.2 -> 419.0	19634	5.01 µg/L	0.002
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d7-MeFOSE	10.878	623.2 -> 58.9	26131	24.28 µg/L	0.027
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
d9-EtFOSE	11.112	639.2 -> 58.9	16383	21.96 µg/L	0.015
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.9%	
d5-EtFOSA	11.178	531.1 -> 219.0	6471	2.24 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.7%	

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	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



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Perfluorinated Compounds by LC/MS/MS

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

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

7.2.2
7

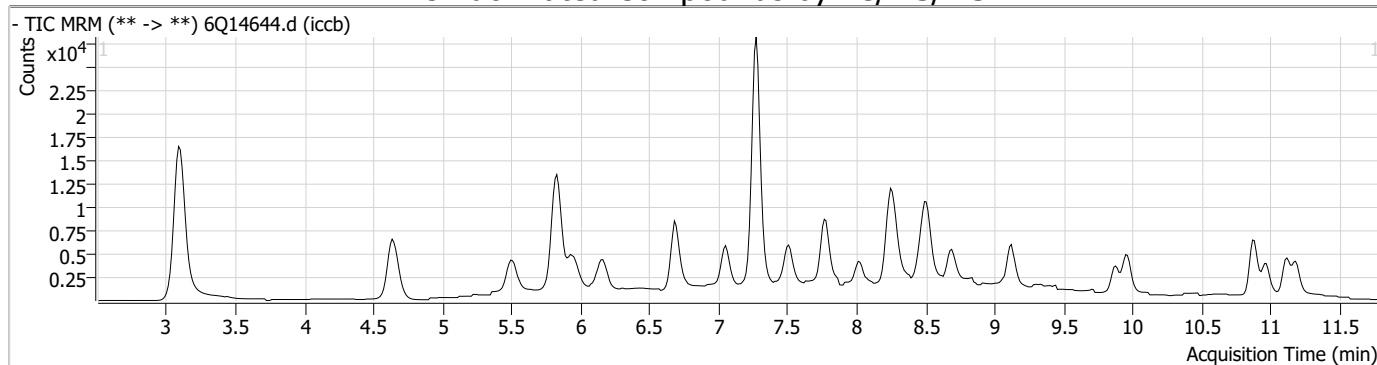
Perfluorinated Compounds by LC/MS/MS

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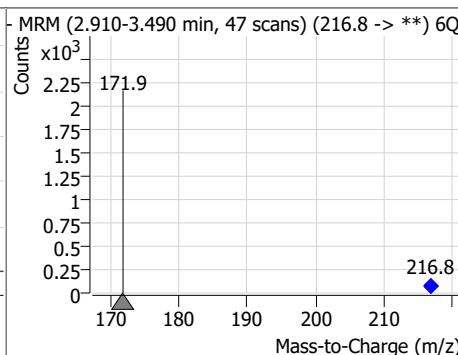
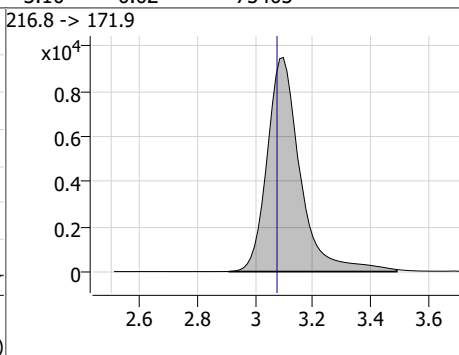
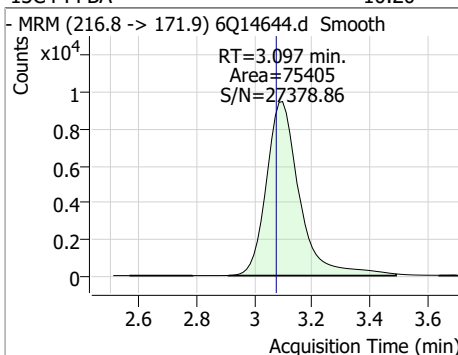
7.2.2

7

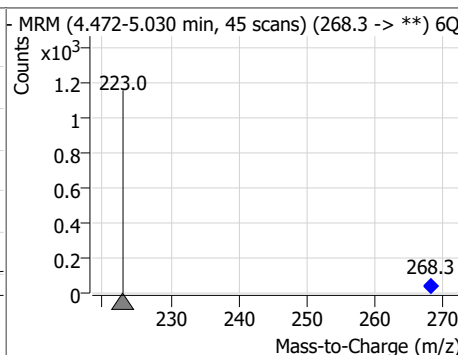
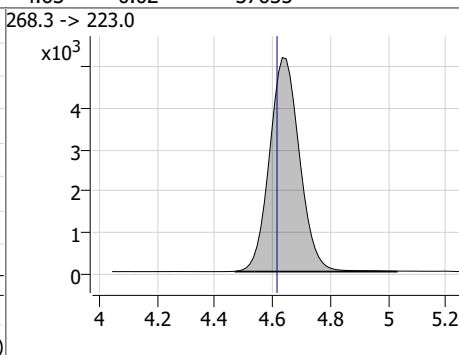
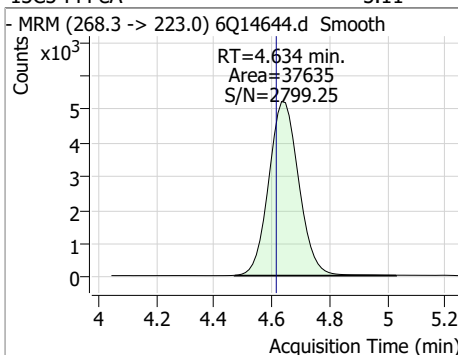
Perfluorinated Compounds by LC/MS/MS



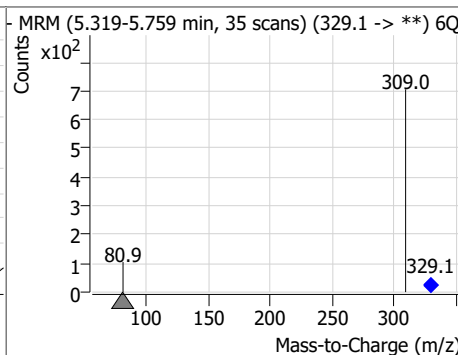
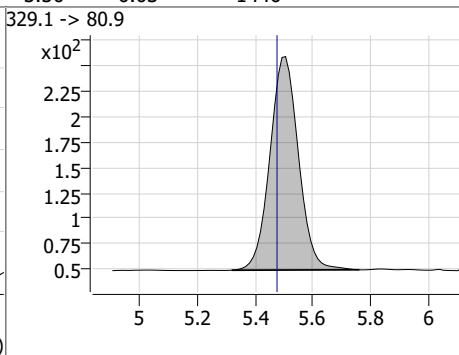
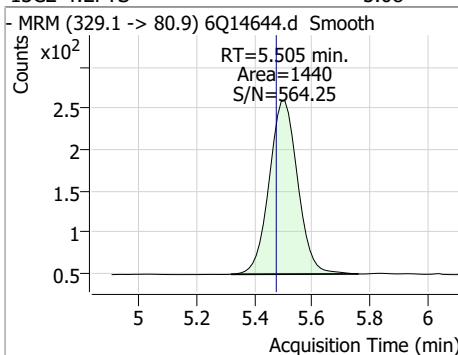
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.20	3.10	0.02	75405				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.11	4.63	0.02	37635				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.08	5.50	0.03	1440				



7.2.2
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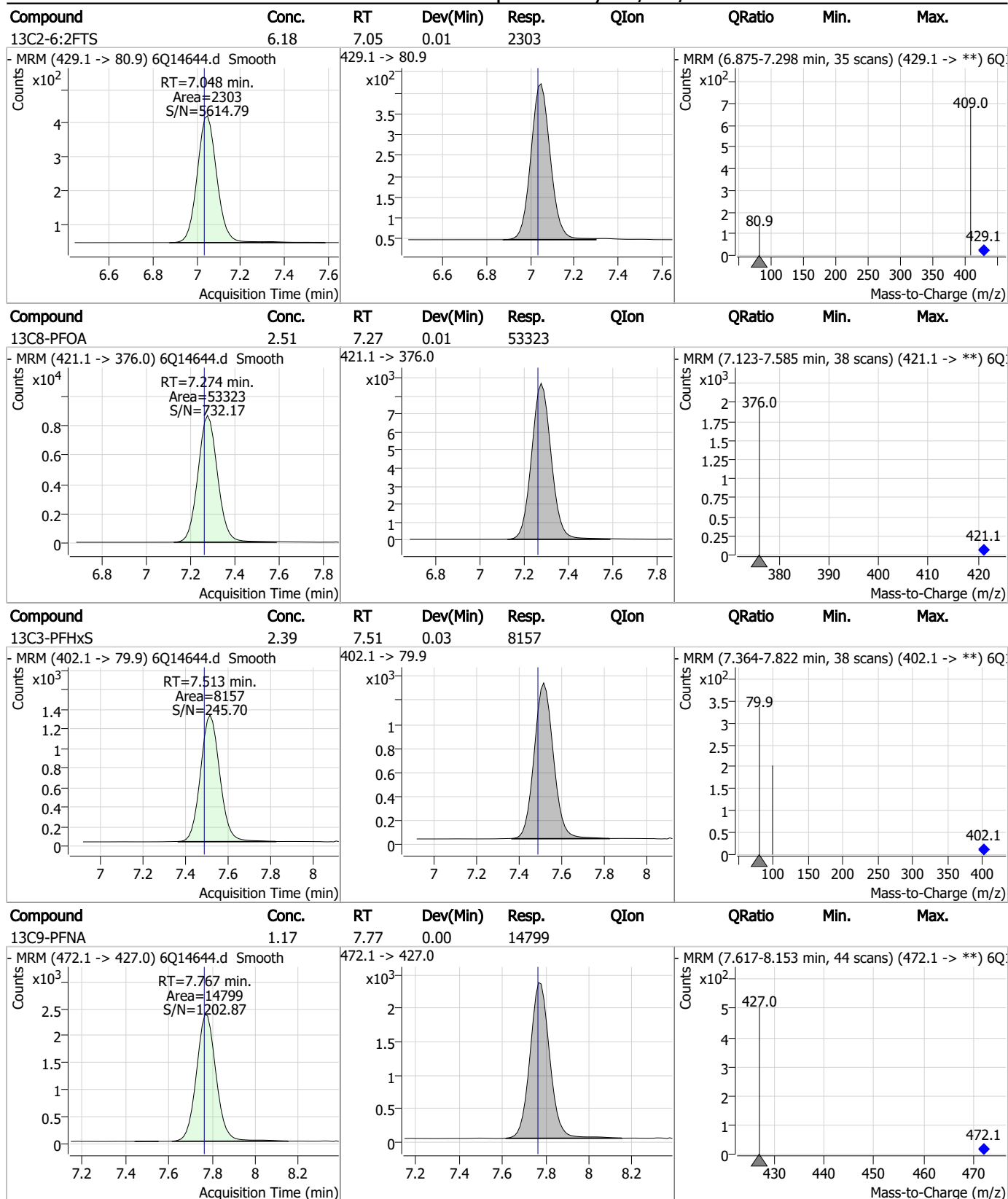
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.60	5.83	0.02	33087				
13C3-PFBS	2.50	5.94	0.04	12997				
13C3-HFPO-DA	9.80	6.17	0.02	13953				
13C4-PFHpA	2.56	6.68	0.01	31802				

7.2.2
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Perfluorinated Compounds by LC/MS/MS



7.2.2
7

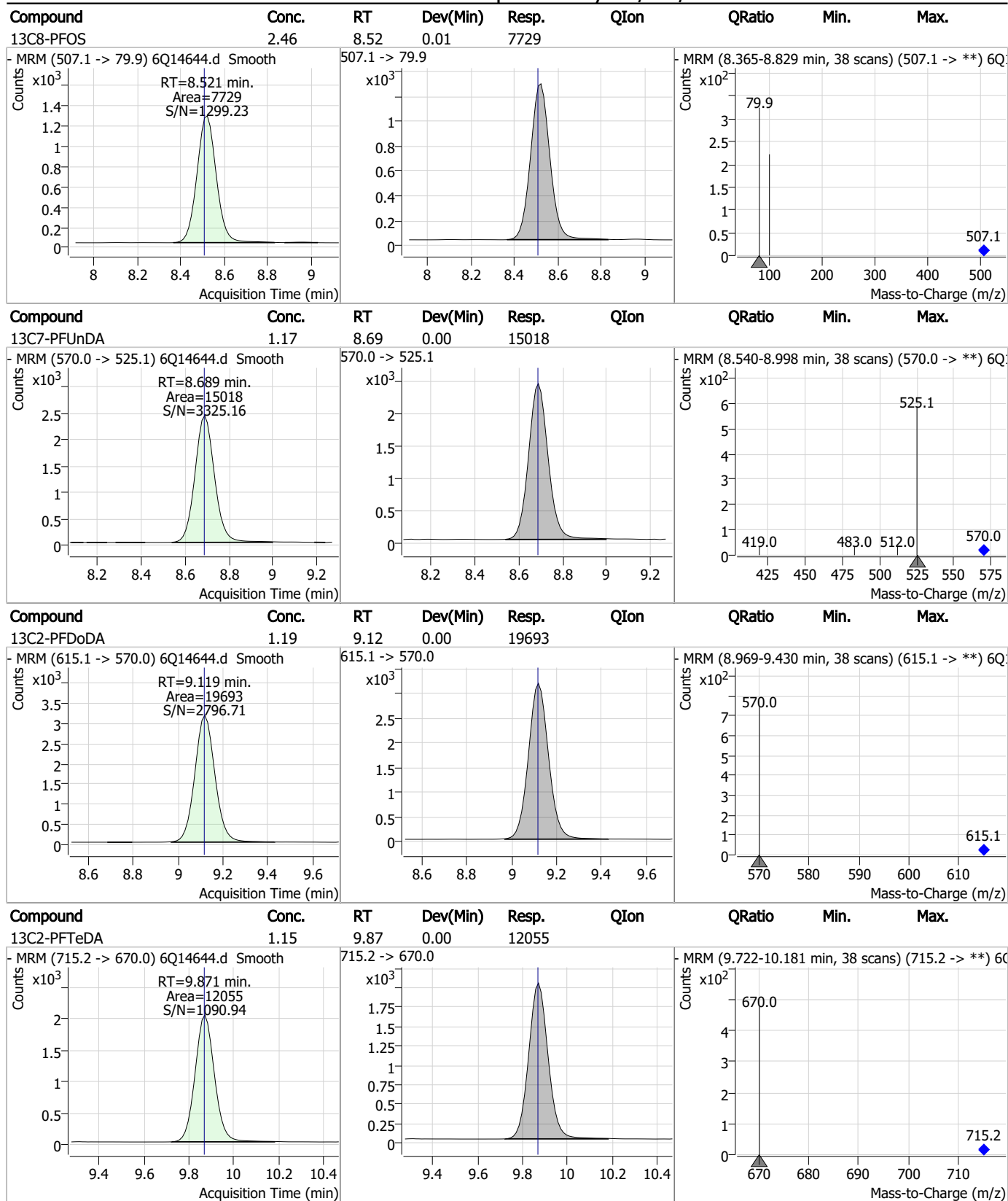
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	6.40	8.01	-0.01	2399				
- MRM (529.1 -> 80.9) 6Q14644.d Smooth Counts x10 ² RT=8.011 min. Area=2399 S/N=17959.48 Acquisition Time (min)			529.1 -> 80.9 Counts x10 ² Acquisition Time (min)			- MRM (7.876-8.258 min, 32 scans) (529.1 -> **) 6Q14644.d Smooth Counts x10 ² 80.9 509.0 529.1 Mass-to-Charge (m/z)		
13C6-PFDA	1.17	8.23	0.00	13719				
- MRM (519.1 -> 474.1) 6Q14644.d Smooth Counts x10 ³ RT=8.234 min. Area=13719 S/N=1570.08 Acquisition Time (min)			519.1 -> 474.1 Counts x10 ³ Acquisition Time (min)			- MRM (8.086-8.581 min, 41 scans) (519.1 -> **) 6Q14644.d Smooth Counts x10 ² 474.1 519.1 Mass-to-Charge (m/z)		
d3-MeFOSAA	5.02	8.27	0.00	21196				
- MRM (573.2 -> 419.0) 6Q14644.d Smooth Counts x10 ³ RT=8.267 min. Area=21196 S/N=673.59 Acquisition Time (min)			573.2 -> 419.0 Counts x10 ³ Acquisition Time (min)			- MRM (8.120-8.650 min, 44 scans) (573.2 -> **) 6Q14644.d Smooth Counts x10 ² 419.0 573.2 Mass-to-Charge (m/z)		
d5-EtFOSAA	5.01	8.48	0.00	19634				
- MRM (589.2 -> 419.0) 6Q14644.d Smooth Counts x10 ³ RT=8.475 min. Area=19634 S/N=750.54 Acquisition Time (min)			589.2 -> 419.0 Counts x10 ³ Acquisition Time (min)			- MRM (8.303-8.773 min, 39 scans) (589.2 -> **) 6Q14644.d Smooth Counts x10 ² 419.0 589.2 Mass-to-Charge (m/z)		

7.2.2
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Perfluorinated Compounds by LC/MS/MS



7.2.2
7

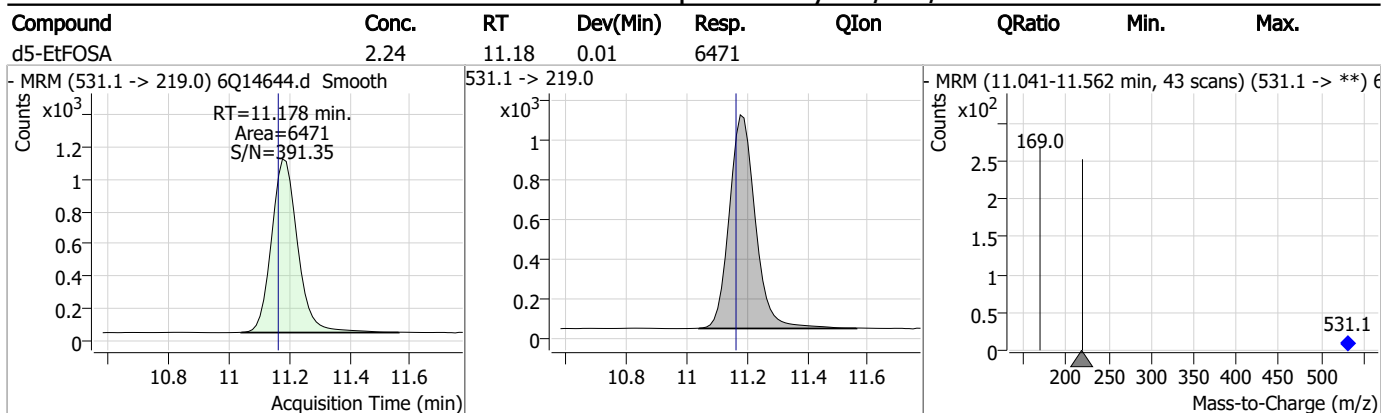


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.47	9.97	0.04	17735				
- MRM (506.1 -> 77.8) 6Q14644.d Smooth Counts x10 ³ RT=9.966 min. Area=17735 S/N=803.66 Acquisition Time (min)			506.1 -> 77.8 Counts x10 ³ Acquisition Time (min)			- MRM (9.805-10.275 min, 39 scans) (506.1 -> **) 6Q14644.d Smooth Counts x10 ² 77.8 506.1 Mass-to-Charge (m/z)		
d7-MeFOSE	24.28	10.88	0.03	26131				
- MRM (623.2 -> 58.9) 6Q14644.d Smooth Counts x10 ³ RT=10.878 min. Area=26131 S/N=1103.68 Acquisition Time (min)			623.2 -> 58.9 Counts x10 ³ Acquisition Time (min)			- MRM (10.729-11.188 min, 38 scans) (623.2 -> **) 6Q14644.d Smooth Counts x10 ³ 58.9 623.2 Mass-to-Charge (m/z)		
d3-MeFOSA	2.31	10.97	0.03	6053				
- MRM (515.0 -> 219.0) 6Q14644.d Smooth Counts x10 ³ RT=10.970 min. Area=6053 S/N=1558.63 Acquisition Time (min)			515.0 -> 219.0 Counts x10 ³ Acquisition Time (min)			- MRM (10.821-11.256 min, 36 scans) (515.0 -> **) 6Q14644.d Smooth Counts x10 ² 169.0 219.0 515.0 Mass-to-Charge (m/z)		
d9-EtFOSE	21.96	11.11	0.01	16383				
- MRM (639.2 -> 58.9) 6Q14644.d Smooth Counts x10 ³ RT=11.112 min. Area=16383 S/N=41247.12 Acquisition Time (min)			639.2 -> 58.9 Counts x10 ³ Acquisition Time (min)			- MRM (10.963-11.423 min, 38 scans) (639.2 -> **) 6Q14644.d Smooth Counts x10 ² 58.9 639.2 Mass-to-Charge (m/z)		

7.2.2
7

Perfluorinated Compounds by LC/MS/MS



7.2.2
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14653.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/9/2023 9:26:55 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q221.batch.bin
 Sample Information : OP95772,S6Q221,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	75224	10.00 µg/L	0.022
M5-PFPeA	4.647	268.3 -> 223.0	37686	5.00 µg/L	0.032
M5-PFHxA	5.828	318.0 -> 273.0	33664	2.50 µg/L	0.018
M4-PFHpA	6.682	367.1 -> 322.0	34781	2.50 µg/L	0.014
M8-PFOA	7.274	421.1 -> 376.0	55073	2.50 µg/L	0.014
M9-PFNA	7.780	472.1 -> 427.0	14722	1.25 µg/L	0.015
M6-PFDA	8.234	519.1 -> 474.1	14222	1.25 µg/L	0.002
M7-PFUnDA	8.689	570.0 -> 525.1	16093	1.25 µg/L	0.002
M2-PFDoDA	9.119	615.1 -> 570.0	18826	1.25 µg/L	0.002
M2-PFTeDA	9.871	715.2 -> 670.0	11486	1.25 µg/L	0.003
M8-FOSA	9.954	506.1 -> 77.8	18254	2.50 µg/L	0.028
M3-PFBS	5.956	302.1 -> 79.9	12626	2.50 µg/L	0.055
M3-PFHxS	7.513	402.1 -> 79.9	8446	2.50 µg/L	0.027
M8-PFOS	8.521	507.1 -> 79.9	7780	2.50 µg/L	0.014
M2-4:2FTS	5.505	329.1 -> 80.9	1676	5.00 µg/L	0.029
M2-6:2FTS	7.048	429.1 -> 80.9	2465	5.00 µg/L	0.015
M2-8:2FTS	8.023	529.1 -> 80.9	1959	5.00 µg/L	0.003
M3-MeFOSAA	8.280	573.2 -> 419.0	20794	5.00 µg/L	0.015
M3-HFPO-DA	6.168	286.9 -> 168.9	15045	10.00 µg/L	0.017
M5-EtFOSAA	8.475	589.2 -> 419.0	20032	5.00 µg/L	0.002
M7-MeFOSE	10.878	623.2 -> 58.9	24396	25.00 µg/L	0.027
M9-EtFOSE	11.112	639.2 -> 58.9	15927	25.00 µg/L	0.015
M5-EtFOSA	11.178	531.1 -> 219.0	6811	2.50 µg/L	0.014
M3-MeFOSA	10.970	515.0 -> 219.0	5843	2.50 µg/L	0.026
13C4-PFOS	8.522	502.8 -> 79.9	9454	2.50 µg/L	0.026
13C3-PFBA	3.089	216.0 -> 172.0	33007	5.00 µg/L	0.010
18O2-PFHxS	7.512	403.0 -> 83.9	6054	2.50 µg/L	0.015
13C4-PFOA	7.274	417.1 -> 372.0	68033	2.50 µg/L	0.014
13C2-PFDA	8.235	515.1 -> 470.1	19524	1.25 µg/L	0.002
13C5-PFNA	7.780	468.0 -> 423.0	15767	1.25 µg/L	0.015
13C2-PFHxA	5.829	315.1 -> 270.0	32687	2.50 µg/L	0.030
System Monitoring Compounds					
13C2-4:2FTS	5.505	329.1 -> 80.9	1676	5.81 µg/L	0.029
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.2%		
13C2-6:2FTS	7.048	429.1 -> 80.9	2465	6.50 µg/L	0.015
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 130.1%		
13C2-8:2FTS	8.023	529.1 -> 80.9	1959	5.14 µg/L	0.003
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C2-PFDoDA	9.119	615.1 -> 570.0	18826	1.14 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.1%		
13C2-PFTeDA	9.871	715.2 -> 670.0	11486	1.09 µg/L	0.003
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.5%		
13C3-PFBS	5.956	302.1 -> 79.9	12626	2.39 µg/L	0.055
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C3-PFHxS	7.513	402.1 -> 79.9	8446	2.44 µg/L	0.027

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 = 97.5%	
13C4-PFBA	3.097	216.8 -> 171.9	75224	9.92 µg/L	0.022
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C4-PFHpA	6.682	367.1 -> 322.0	34781	2.66 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C5-PFHxA	5.828	318.0 -> 273.0	33664	2.51 µg/L	0.018
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C5-PFPeA	4.647	268.3 -> 223.0	37686	4.86 µg/L	0.032
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C6-PFDA	8.234	519.1 -> 474.1	14222	1.22 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C7-PFUnDA	8.689	570.0 -> 525.1	16093	1.25 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C8-FOSA	9.954	506.1 -> 77.8	18254	2.46 µg/L	0.028
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C8-PFOA	7.274	421.1 -> 376.0	55073	2.43 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C8-PFOS	8.521	507.1 -> 79.9	7780	2.40 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C9-PFNA	7.780	472.1 -> 427.0	14722	1.21 µg/L	0.015
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.9%	
d3-MeFOSAA	8.280	573.2 -> 419.0	20794	4.78 µg/L	0.015
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C3-HFPO-DA	6.168	286.9 -> 168.9	15045	10.05 µg/L	0.017
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
d3-MeFOSA	10.970	515.0 -> 219.0	5843	2.16 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.4%	
d5-EtFOSAA	8.475	589.2 -> 419.0	20032	4.95 µg/L	0.002
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
d7-MeFOSE	10.878	623.2 -> 58.9	24396	21.98 µg/L	0.027
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.9%	
d9-EtFOSE	11.112	639.2 -> 58.9	15927	20.70 µg/L	0.015
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 82.8%	
d5-EtFOSA	11.178	531.1 -> 219.0	6811	2.29 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.6%	

Target Compounds

QValue

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

Perfluorinated Compounds by LC/MS/MS

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

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

7.2.3
7

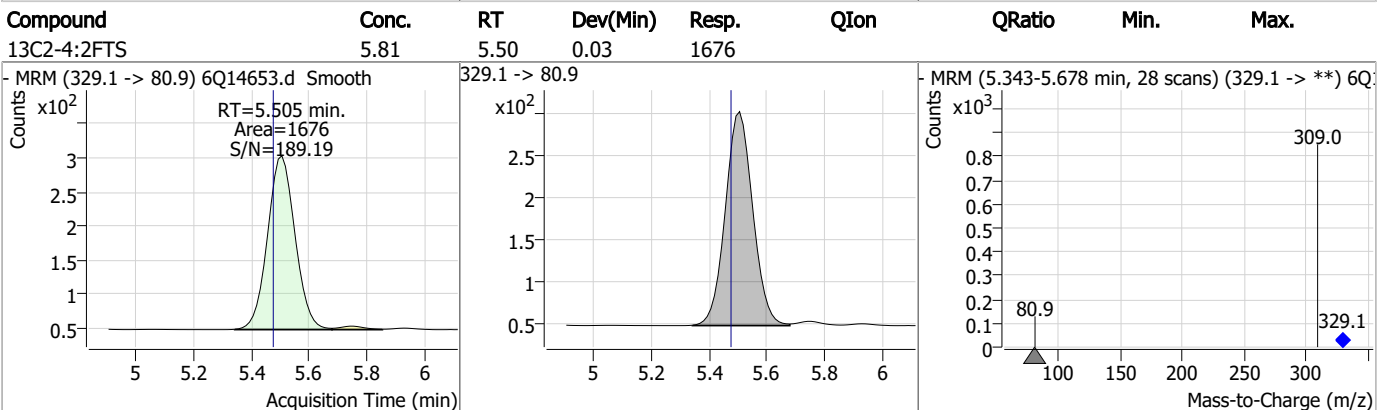
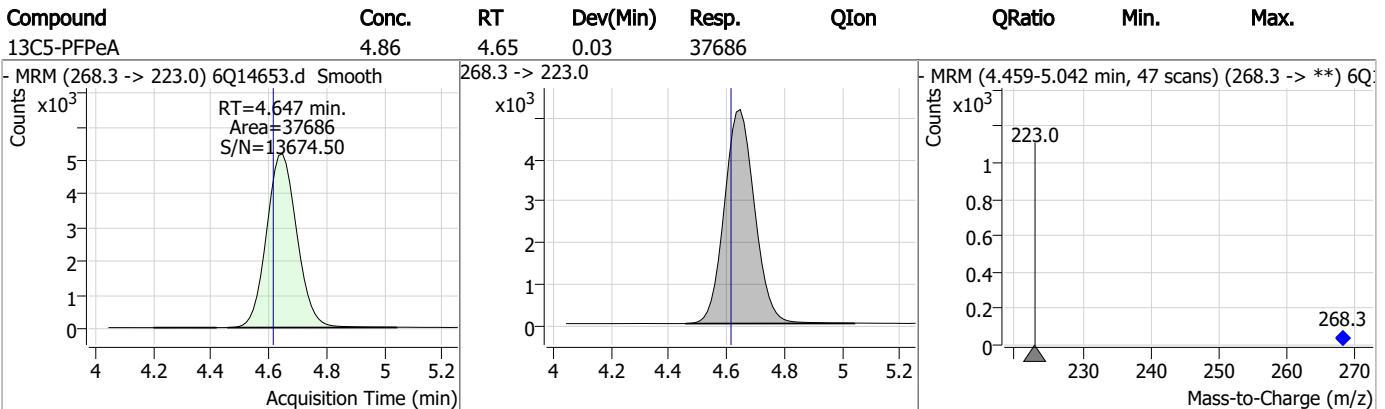
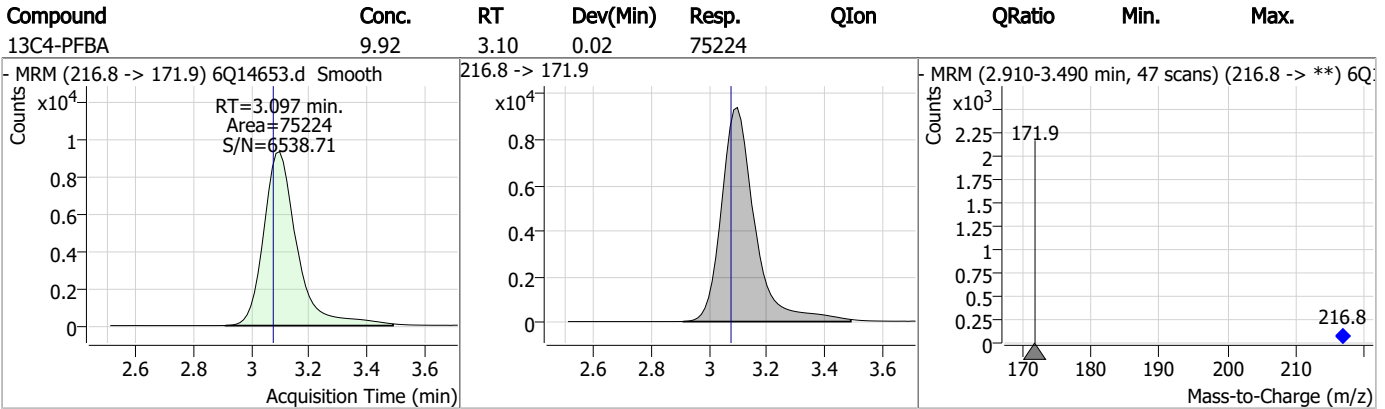
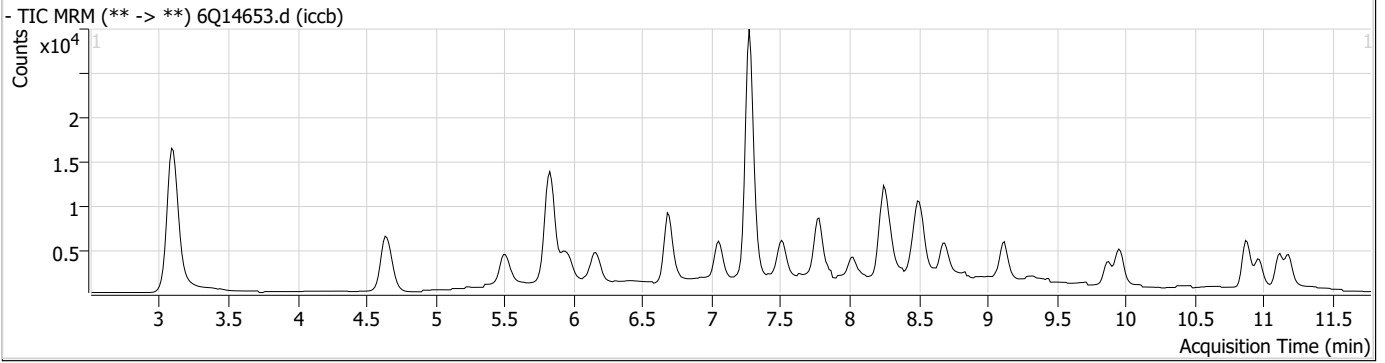
Perfluorinated Compounds by LC/MS/MS

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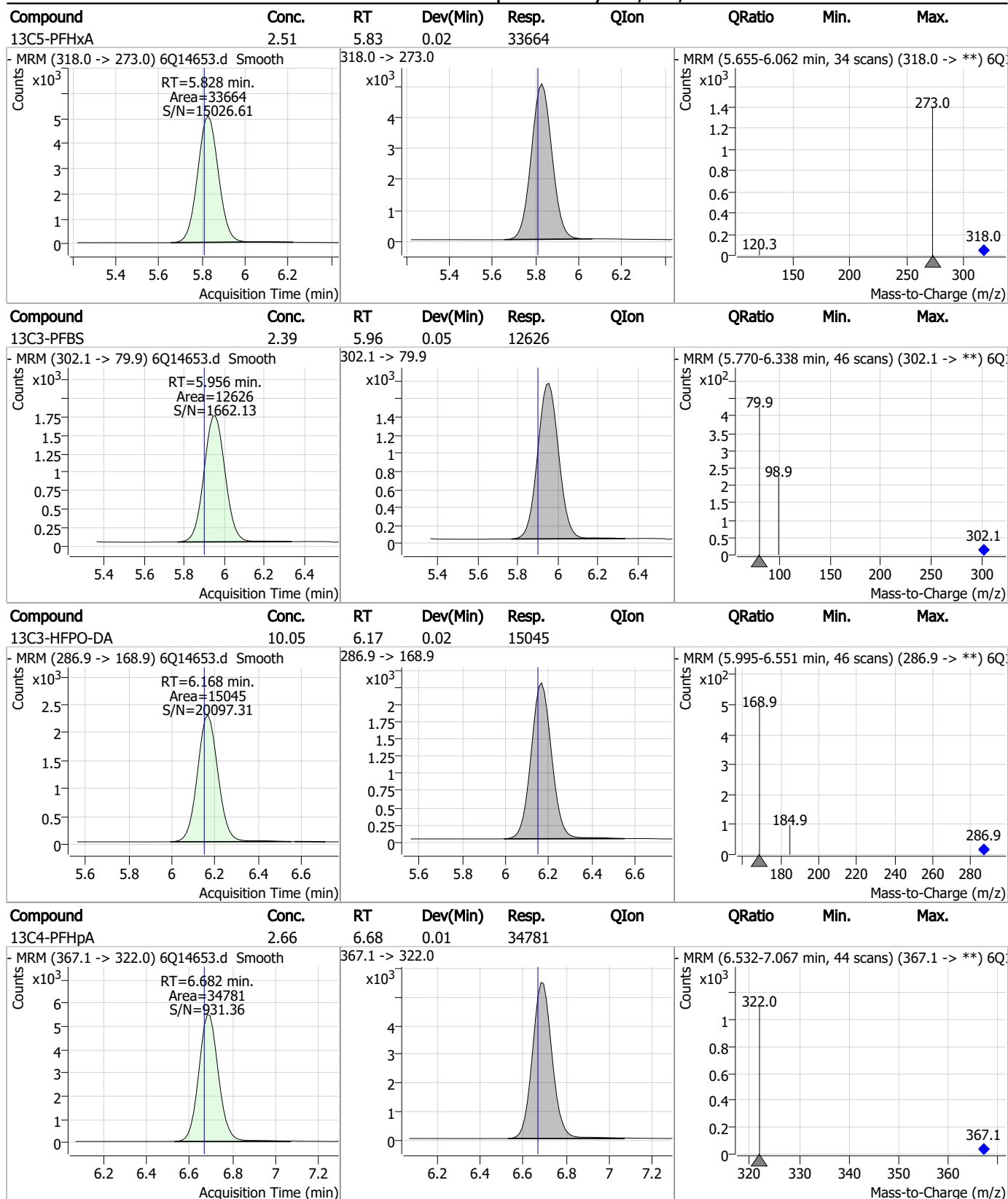
7.2.3

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Perfluorinated Compounds by LC/MS/MS

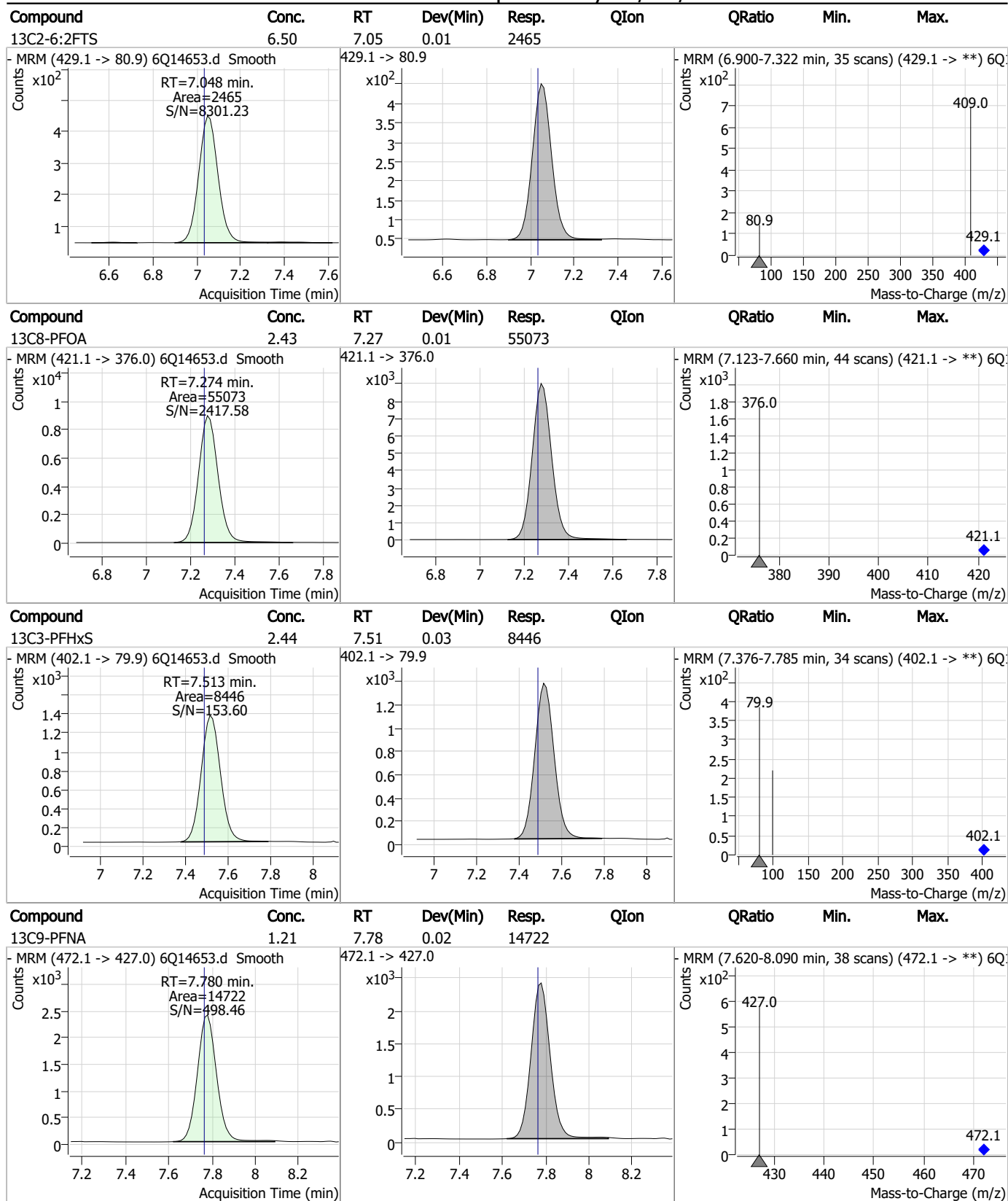


Perfluorinated Compounds by LC/MS/MS



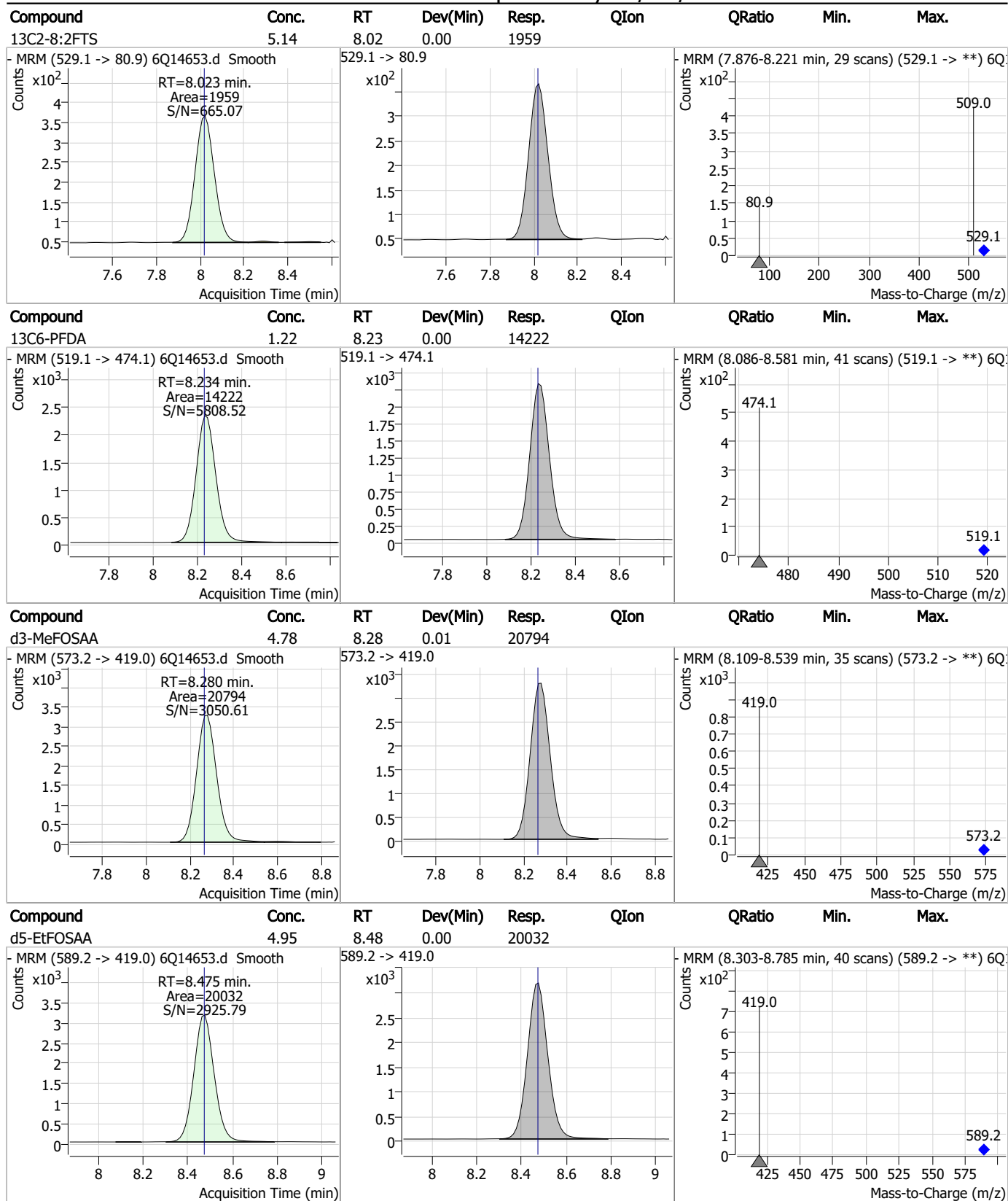
7.2.3
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Perfluorinated Compounds by LC/MS/MS



7.2.3
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Perfluorinated Compounds by LC/MS/MS



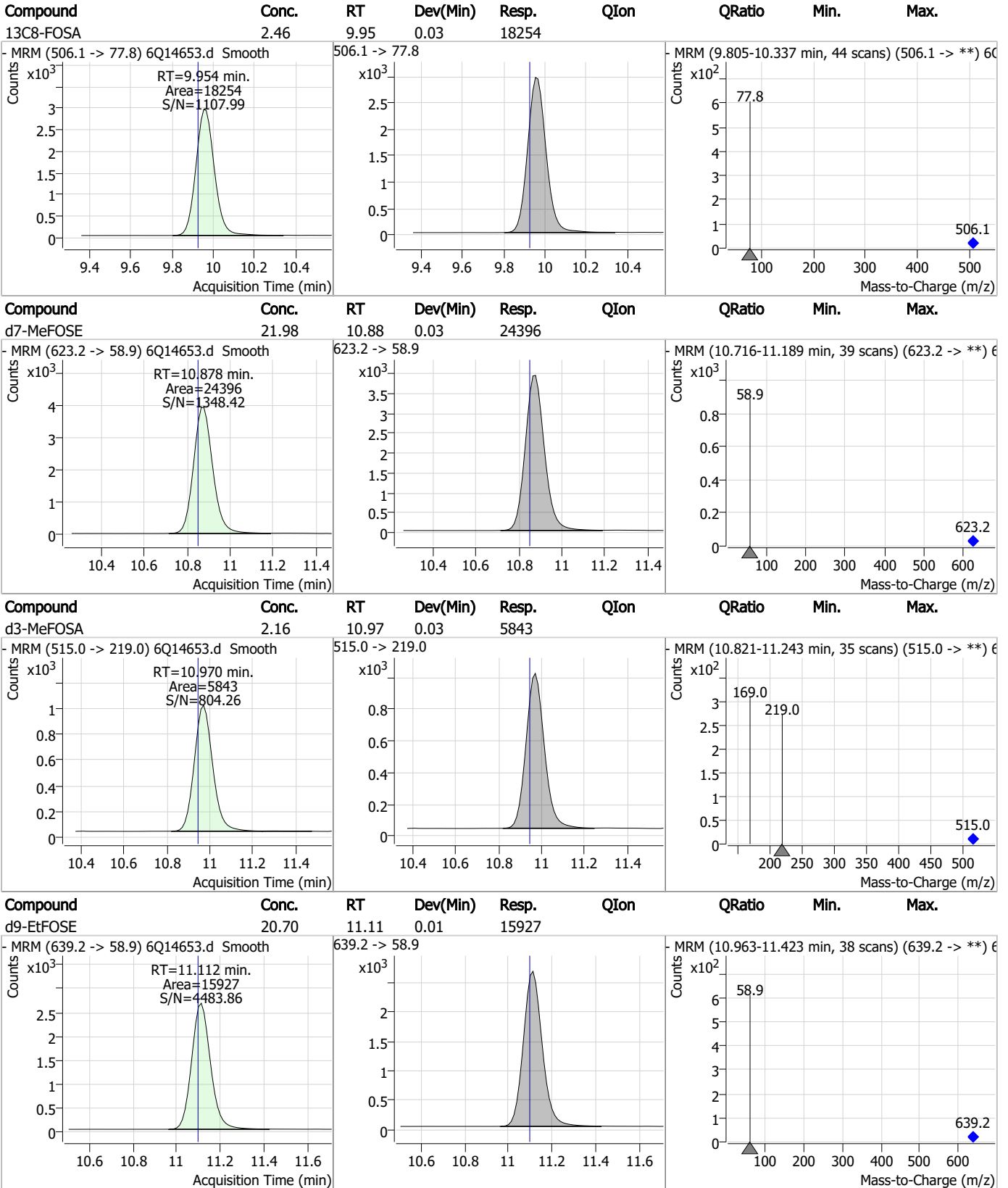
7.2.3
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.40	8.52	0.01	7780				
13C7-PFUnDA	1.25	8.69	0.00	16093				
13C2-PFDoDA	1.14	9.12	0.00	18826				
13C2-PFTeDA	1.09	9.87	0.00	11486				

7.2.3
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Perfluorinated Compounds by LC/MS/MS

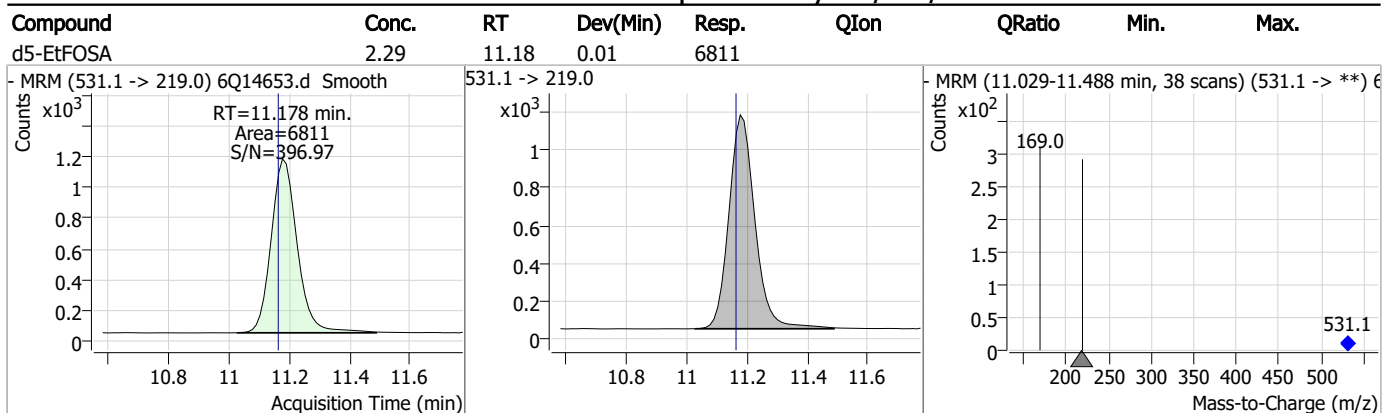


7.2.3

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Perfluorinated Compounds by LC/MS/MS



7.2.3

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Perfluorinated Compounds by LC/MS/MS

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 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 8:13:50 PM
 Sample Name : op95747-mb
 Vial : P2-B8
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95747,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.216	216.8 -> 171.9	82729	10.00 µg/L	0.140
M5-PFPeA	4.665	268.3 -> 223.0	40446	5.00 µg/L	0.050
M5-PFHxA	5.834	318.0 -> 273.0	35287	2.50 µg/L	0.025
M4-PFHpA	6.693	367.1 -> 322.0	34629	2.50 µg/L	0.025
M8-PFOA	7.284	421.1 -> 376.0	55445	2.50 µg/L	0.025
M9-PFNA	7.779	472.1 -> 427.0	13840	1.25 µg/L	0.014
M6-PFDA	8.245	519.1 -> 474.1	14664	1.25 µg/L	0.012
M7-PFUnDA	8.687	570.0 -> 525.1	15108	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	16272	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	9602	1.25 µg/L	0.000
M8-FOSA	9.963	506.1 -> 77.8	15279	2.50 µg/L	0.037
M3-PFBS	5.963	302.1 -> 79.9	13600	2.50 µg/L	0.062
M3-PFHxS	7.523	402.1 -> 79.9	7671	2.50 µg/L	0.037
M8-PFOS	8.519	507.1 -> 79.9	8369	2.50 µg/L	0.012
M2-4:2FTS	5.512	329.1 -> 80.9	1601	5.00 µg/L	0.037
M2-6:2FTS	7.046	429.1 -> 80.9	2202	5.00 µg/L	0.012
M2-8:2FTS	8.019	529.1 -> 80.9	2039	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	21756	5.00 µg/L	0.012
M3-HFPO-DA	6.175	286.9 -> 168.9	14957	10.00 µg/L	0.025
M5-EtFOSAA	8.473	589.2 -> 419.0	17288	5.00 µg/L	0.000
M7-MeFOSE	10.876	623.2 -> 58.9	18779	25.00 µg/L	0.025
M9-EtFOSE	11.110	639.2 -> 58.9	13455	25.00 µg/L	0.012
M5-EtFOSA	11.176	531.1 -> 219.0	4669	2.50 µg/L	0.012
M3-MeFOSA	10.969	515.0 -> 219.0	4341	2.50 µg/L	0.025
13C4-PFOS	8.520	502.8 -> 79.9	8219	2.50 µg/L	0.025
13C3-PFBA	3.218	216.0 -> 172.0	32450	5.00 µg/L	0.139
18O2-PFHxS	7.522	403.0 -> 83.9	5405	2.50 µg/L	0.025
13C4-PFOA	7.272	417.1 -> 372.0	60762	2.50 µg/L	0.012
13C2-PFDA	8.245	515.1 -> 470.1	17457	1.25 µg/L	0.012
13C5-PFNA	7.779	468.0 -> 423.0	14618	1.25 µg/L	0.014
13C2-PFHxA	5.835	315.1 -> 270.0	30993	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.512	329.1 -> 80.9	1601	6.22 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.4%		
13C2-6:2FTS	7.046	429.1 -> 80.9	2202	6.51 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 130.1%		
13C2-8:2FTS	8.019	529.1 -> 80.9	2039	5.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.8%		
13C2-PFDoDA	9.117	615.1 -> 570.0	16272	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.0%		
13C2-PFTeDA	9.868	715.2 -> 670.0	9602	1.02 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 81.8%		
13C3-PFBS	5.963	302.1 -> 79.9	13600	2.88 µg/L	0.062
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 115.4%		
13C3-PFHxS	7.523	402.1 -> 79.9	7671	2.48 µg/L	0.037

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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 = 99.2%	
13C4-PFBA	3.216	216.8 -> 171.9	82729	11.09 µg/L	0.140
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.9%	
13C4-PFHpA	6.693	367.1 -> 322.0	34629	2.80 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.9%	
13C5-PFHxA	5.834	318.0 -> 273.0	35287	2.78 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.0%	
13C5-PFPeA	4.665	268.3 -> 223.0	40446	5.50 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C6-PFDA	8.245	519.1 -> 474.1	14664	1.40 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C7-PFUnDA	8.687	570.0 -> 525.1	15108	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C8-FOSA	9.963	506.1 -> 77.8	15279	2.37 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C8-PFOA	7.284	421.1 -> 376.0	55445	2.74 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C8-PFOS	8.519	507.1 -> 79.9	8369	2.97 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 118.9%	
13C9-PFNA	7.779	472.1 -> 427.0	13840	1.23 µg/L	0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
d3-MeFOSAA	8.277	573.2 -> 419.0	21756	5.75 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.0%	
13C3-HFPO-DA	6.175	286.9 -> 168.9	14957	10.53 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
d3-MeFOSA	10.969	515.0 -> 219.0	4341	1.85 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 73.8%	
d5-EtFOSAA	8.473	589.2 -> 419.0	17288	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
d7-MeFOSE	10.876	623.2 -> 58.9	18779	19.46 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.8%	
d9-EtFOSE	11.110	639.2 -> 58.9	13455	20.12 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.5%	
d5-EtFOSA	11.176	531.1 -> 219.0	4669	1.80 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 72.2%	

Target Compounds

QValue

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

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7

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	7.273	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

7.24
7

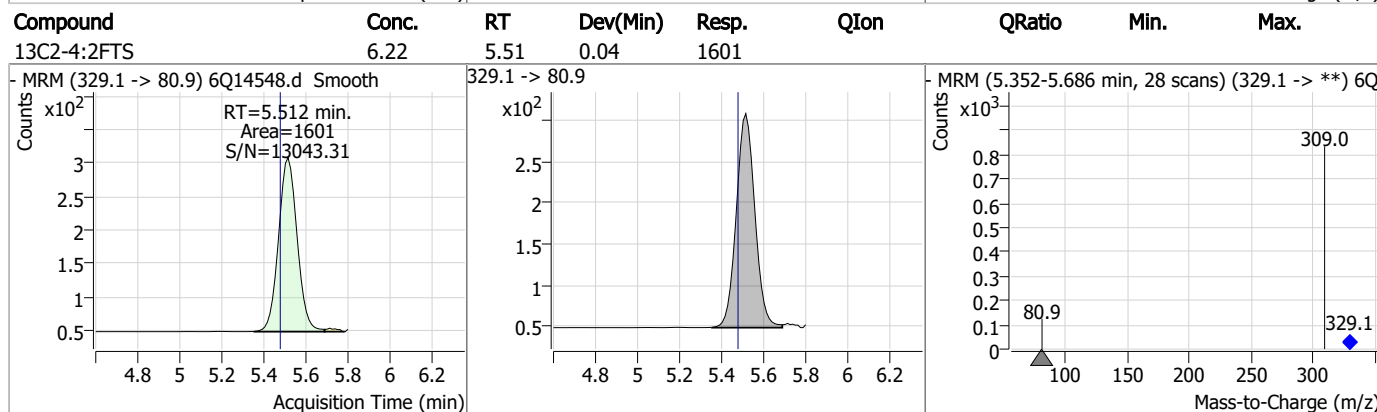
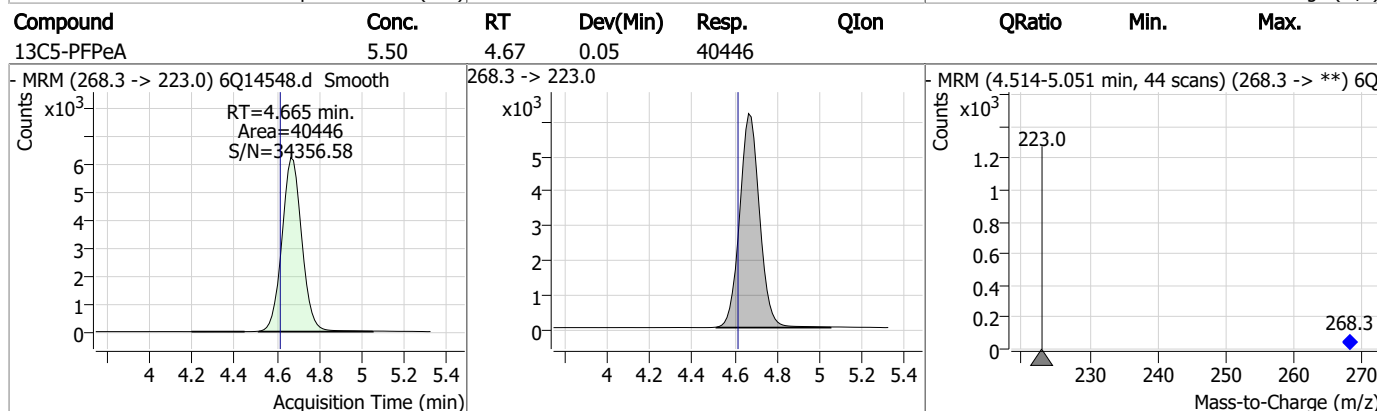
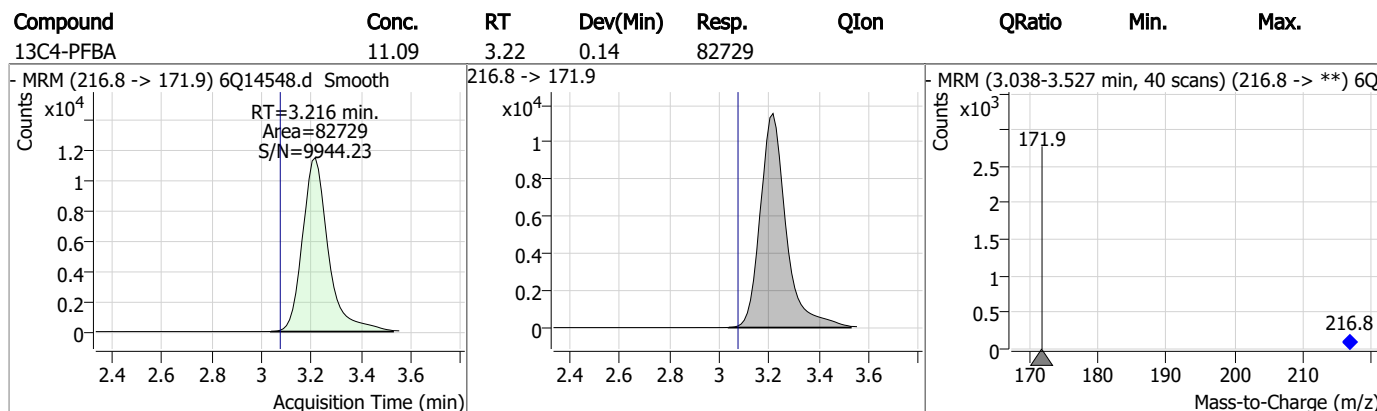
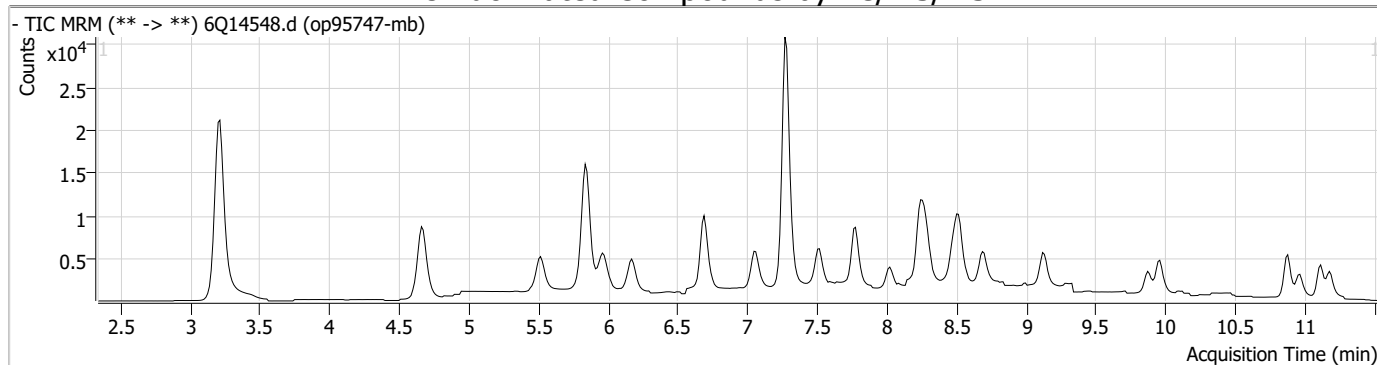
Perfluorinated Compounds by LC/MS/MS

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

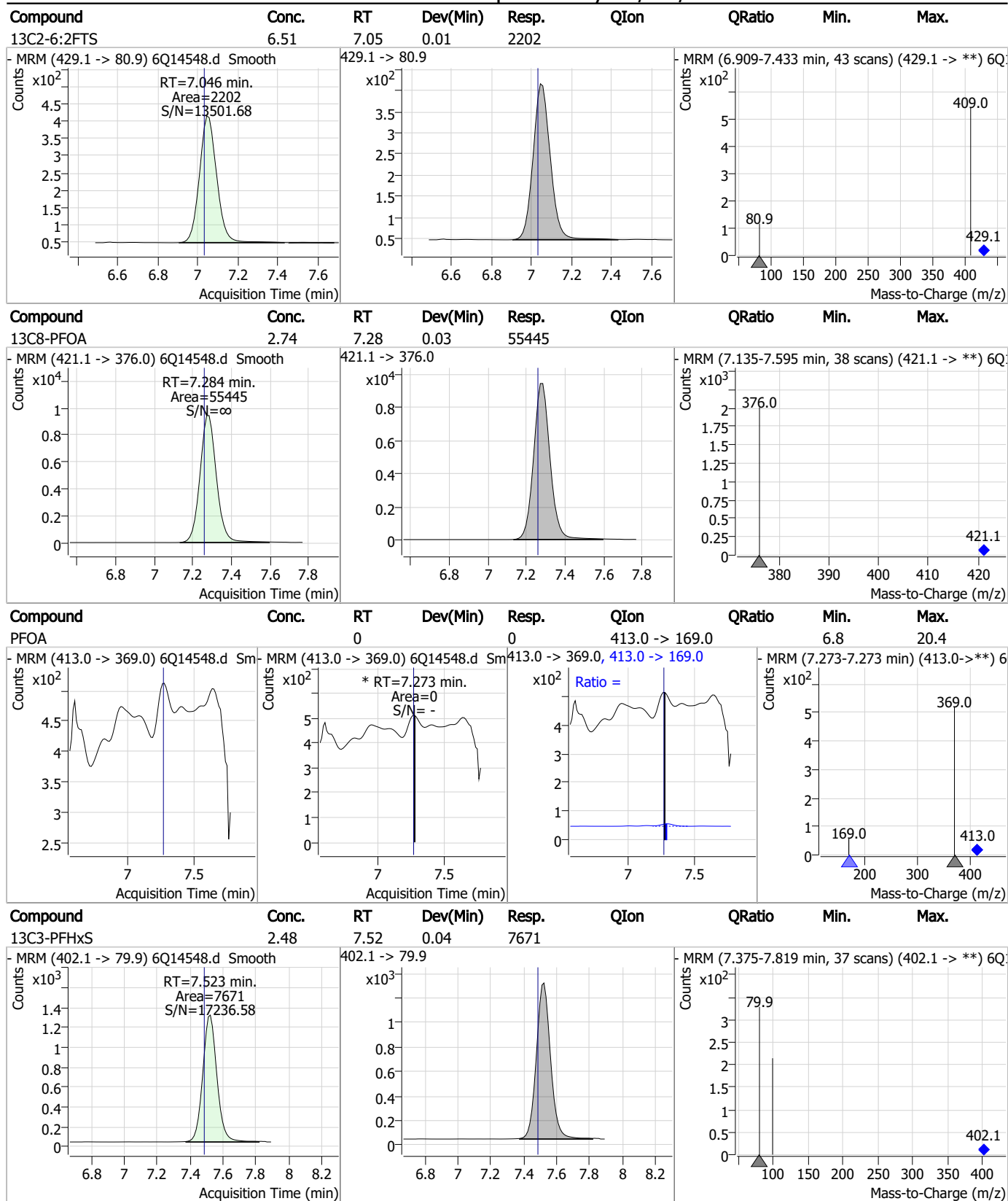
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.78	5.83	0.02	35287				
- MRM (318.0 -> 273.0) 6Q14548.d Smooth Counts x10 ³ RT=5.834 min. Area=35287 S/N=330.25 Acquisition Time (min)			318.0 -> 273.0 x10 ³ Acquisition Time (min)			- MRM (5.687-6.082 min, 33 scans) (318.0 -> **) 6Q Counts x10 ³ 273.0 120.3 318.0 Mass-to-Charge (m/z)		
13C3-PFBS	2.88	5.96	0.06	13600				
- MRM (302.1 -> 79.9) 6Q14548.d Smooth Counts x10 ³ RT=5.963 min. Area=13600 S/N=356.85 Acquisition Time (min)			302.1 -> 79.9 x10 ³ Acquisition Time (min)			- MRM (5.803-6.113 min, 26 scans) (302.1 -> **) 6Q Counts x10 ² 79.9 98.9 302.1 Mass-to-Charge (m/z)		
13C3-HFPO-DA	10.53	6.18	0.02	14957				
- MRM (286.9 -> 168.9) 6Q14548.d Smooth Counts x10 ³ RT=6.175 min. Area=14957 S/N=∞ Acquisition Time (min)			286.9 -> 168.9 x10 ³ Acquisition Time (min)			- MRM (6.027-6.373 min, 29 scans) (286.9 -> **) 6Q Counts x10 ² 168.9 184.9 286.9 Mass-to-Charge (m/z)		
13C4-PFHpA	2.80	6.69	0.03	34629				
- MRM (367.1 -> 322.0) 6Q14548.d Smooth Counts x10 ³ RT=6.693 min. Area=34629 S/N=112171.72 Acquisition Time (min)			367.1 -> 322.0 x10 ³ Acquisition Time (min)			- MRM (6.542-7.003 min, 38 scans) (367.1 -> **) 6Q Counts x10 ³ 322.0 367.1 Mass-to-Charge (m/z)		

7.2.4
7



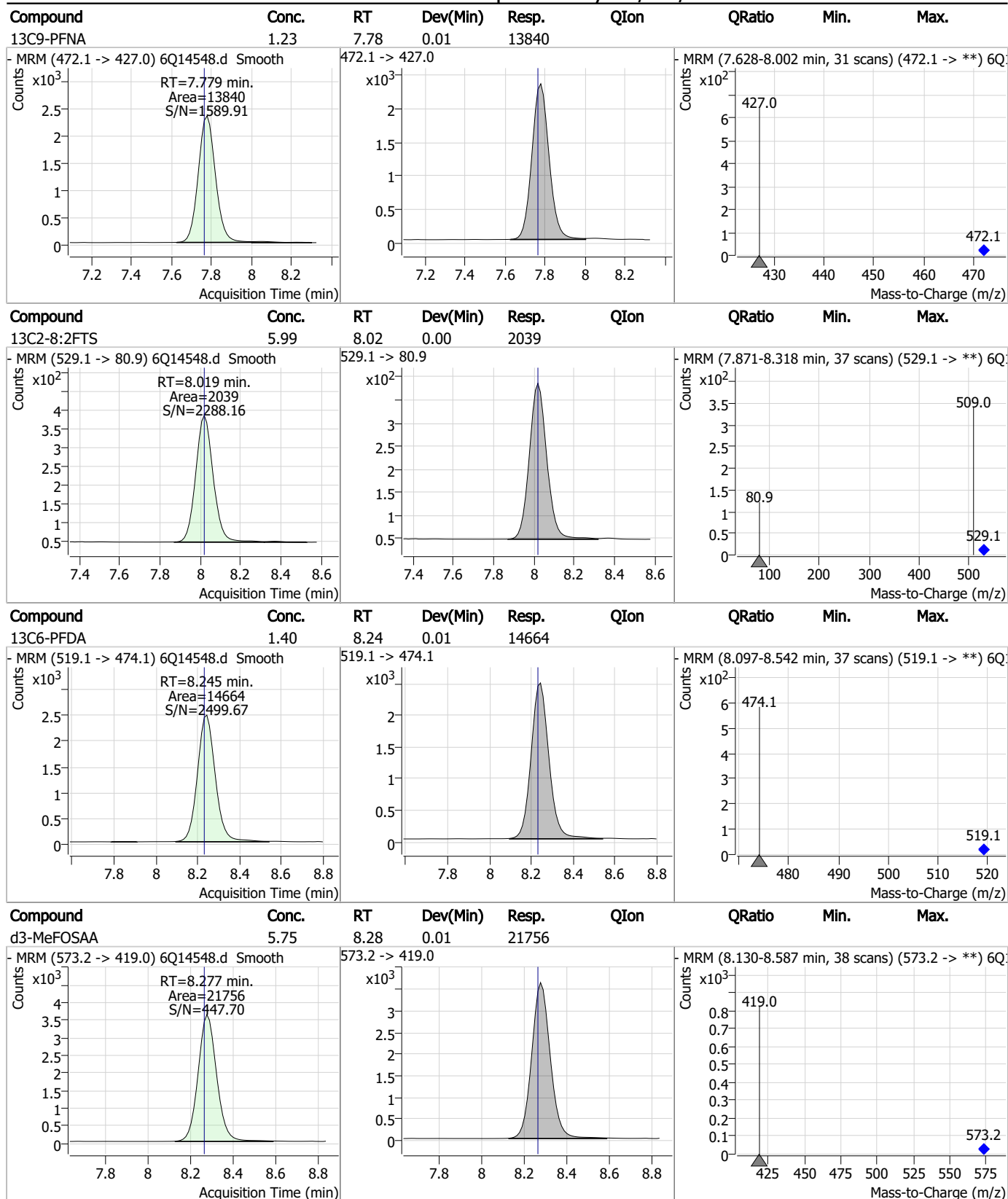
Perfluorinated Compounds by LC/MS/MS



7.2.4
7

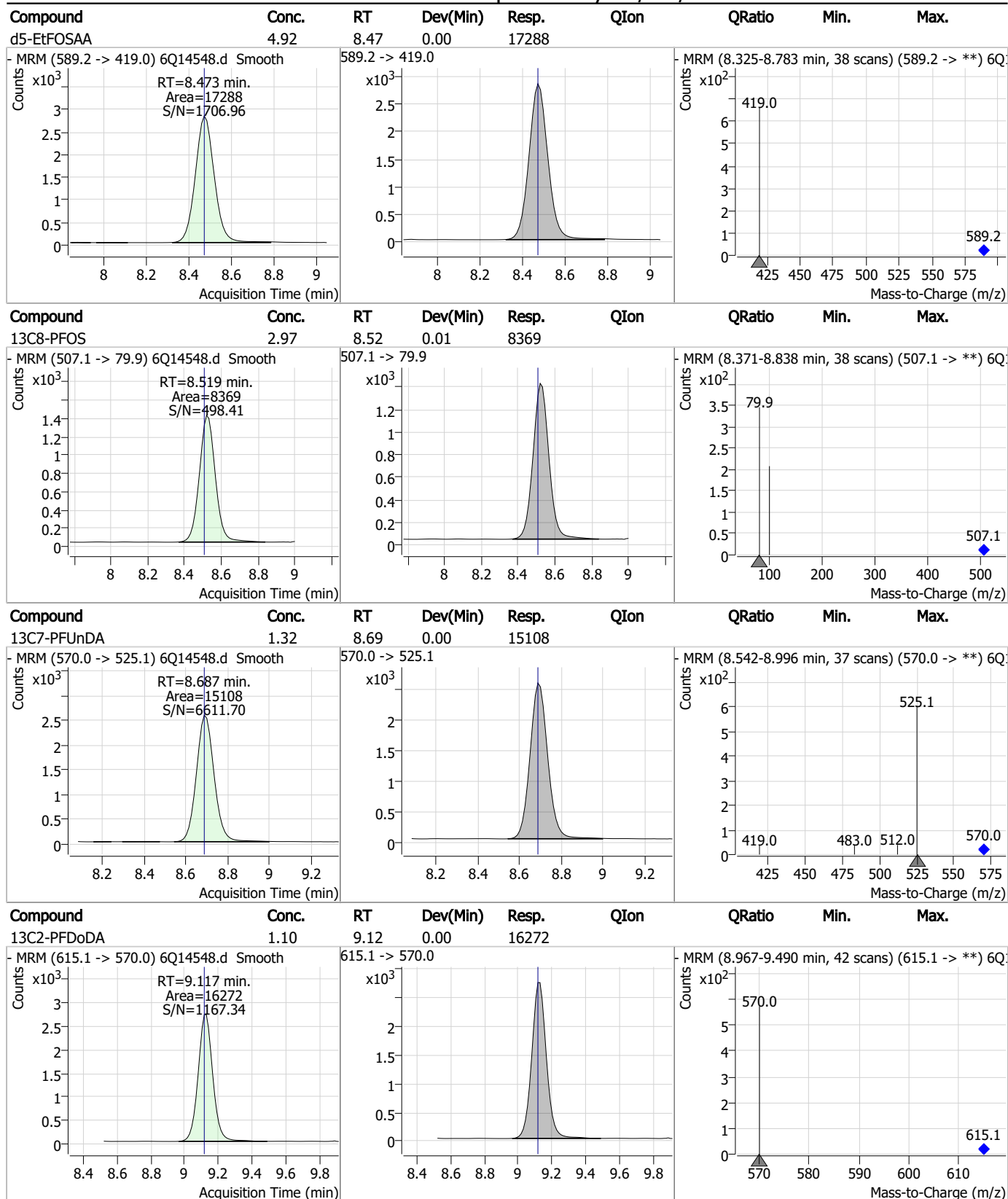


Perfluorinated Compounds by LC/MS/MS



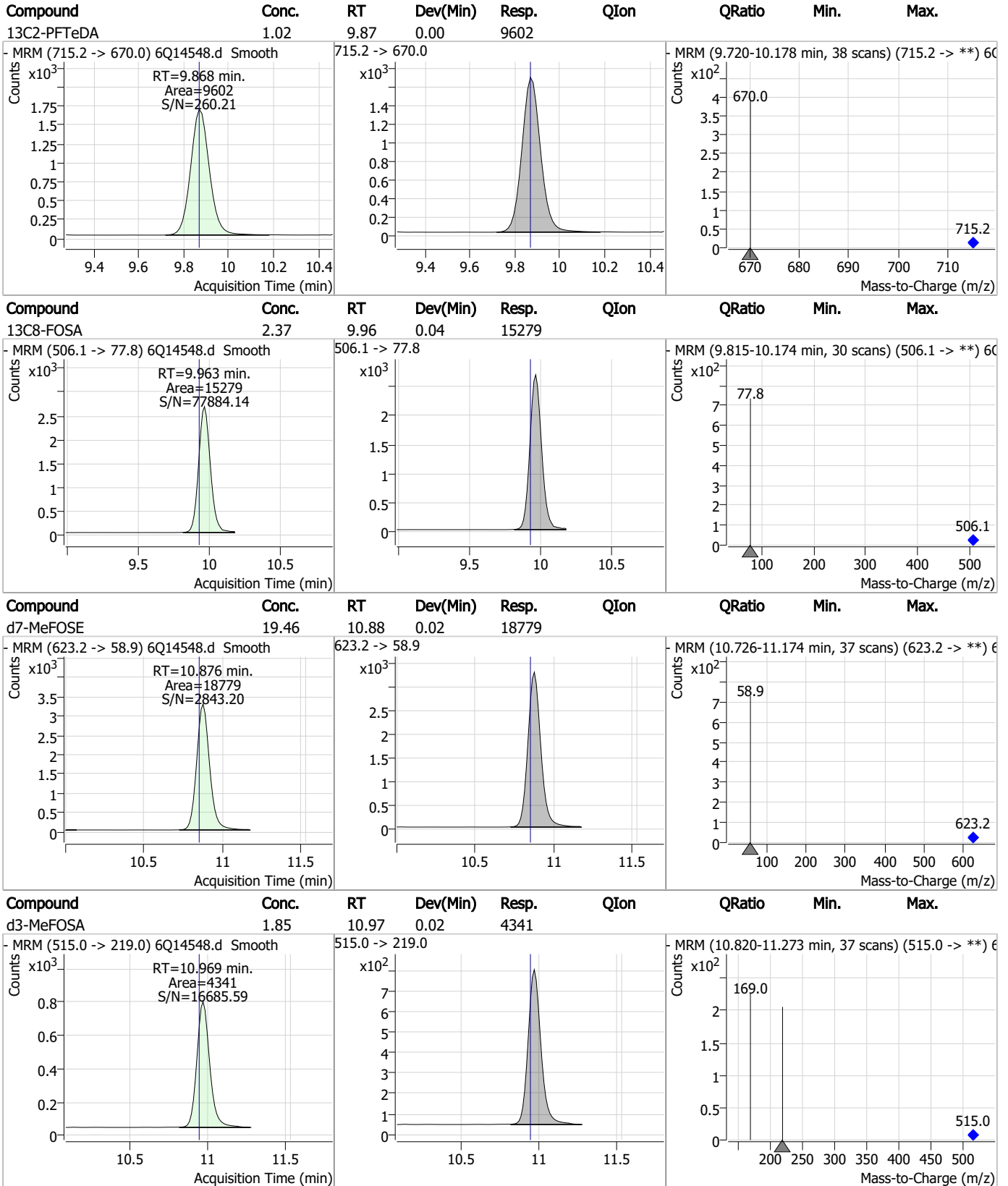
7.2.4
7

Perfluorinated Compounds by LC/MS/MS



7.2.4

Perfluorinated Compounds by LC/MS/MS



7.2.4

7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.12	11.11	0.01	13455				
- MRM (639.2 -> 58.9) 6Q14548.d Smooth Counts x10 ³ RT=11.110 min. Area=13455 S/N=72513.03 Acquisition Time (min)			639.2 -> 58.9 Counts x10 ³ Acquisition Time (min)			- MRM (10.973-11.409 min, 36 scans) (639.2 -> **) € Counts x10 ² 58.9 639.2 Mass-to-Charge (m/z)		
d5-EtFOSA	1.80	11.18	0.01	4669				
- MRM (531.1 -> 219.0) 6Q14548.d Smooth Counts x10 ³ RT=11.176 min. Area=4669 S/N=722.78 Acquisition Time (min)			531.1 -> 219.0 Counts x10 ² Acquisition Time (min)			- MRM (11.053-11.484 min, 35 scans) (531.1 -> **) € Counts x10 ² 169.0 531.1 Mass-to-Charge (m/z)		

7.2.4

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14541.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 6:35:57 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.100	216.8 -> 171.9	74065	10.00 µg/L	0.025
M5-PFPeA	4.653	268.3 -> 223.0	36061	5.00 µg/L	0.037
M5-PFHxA	5.822	318.0 -> 273.0	32455	2.50 µg/L	0.012
M4-PFHpA	6.680	367.1 -> 322.0	32955	2.50 µg/L	0.012
M8-PFOA	7.272	421.1 -> 376.0	52523	2.50 µg/L	0.012
M9-PFNA	7.764	472.1 -> 427.0	13777	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	13344	1.25 µg/L	0.000
M7-PFUnDA	8.674	570.0 -> 525.1	14808	1.25 µg/L	-0.012
M2-PFDoDA	9.104	615.1 -> 570.0	18728	1.25 µg/L	-0.012
M2-PFTeDA	9.868	715.2 -> 670.0	11527	1.25 µg/L	0.000
M8-FOSA	9.951	506.1 -> 77.8	18074	2.50 µg/L	0.025
M3-PFBS	5.951	302.1 -> 79.9	12029	2.50 µg/L	0.049
M3-PFHxS	7.511	402.1 -> 79.9	7980	2.50 µg/L	0.025
M8-PFOS	8.507	507.1 -> 79.9	7195	2.50 µg/L	0.000
M2-4:2FTS	5.500	329.1 -> 80.9	1635	5.00 µg/L	0.025
M2-6:2FTS	7.046	429.1 -> 80.9	1921	5.00 µg/L	0.012
M2-8:2FTS	8.007	529.1 -> 80.9	2255	5.00 µg/L	-0.012
M3-MeFOSAA	8.265	573.2 -> 419.0	19479	5.00 µg/L	0.000
M3-HFPO-DA	6.163	286.9 -> 168.9	14442	10.00 µg/L	0.012
M5-EtFOSAA	8.460	589.2 -> 419.0	17603	5.00 µg/L	-0.012
M7-MeFOSE	10.876	623.2 -> 58.9	23976	25.00 µg/L	0.025
M9-EtFOSE	11.110	639.2 -> 58.9	16748	25.00 µg/L	0.012
M5-EtFOSA	11.176	531.1 -> 219.0	6383	2.50 µg/L	0.012
M3-MeFOSA	10.969	515.0 -> 219.0	5887	2.50 µg/L	0.025
13C4-PFOS	8.508	502.8 -> 79.9	8735	2.50 µg/L	0.012
13C3-PFBA	3.103	216.0 -> 172.0	31820	5.00 µg/L	0.025
18O2-PFHxS	7.510	403.0 -> 83.9	5603	2.50 µg/L	0.012
13C4-PFOA	7.272	417.1 -> 372.0	62571	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	18228	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	13668	1.25 µg/L	0.000
13C2-PFHxA	5.823	315.1 -> 270.0	30815	2.50 µg/L	0.024
System Monitoring Compounds					
13C2-4:2FTS	5.500	329.1 -> 80.9	1635	6.13 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.5%		
13C2-6:2FTS	7.046	429.1 -> 80.9	1921	5.48 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.5%		
13C2-8:2FTS	8.007	529.1 -> 80.9	2255	6.39 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 127.8%		
13C2-PFDoDA	9.104	615.1 -> 570.0	18728	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C2-PFTeDA	9.868	715.2 -> 670.0	11527	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C3-PFBS	5.951	302.1 -> 79.9	12029	2.46 µg/L	0.049
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C3-PFHxS	7.511	402.1 -> 79.9	7980	2.49 µg/L	0.025

7.2.5
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C4-PFBA	3.100	216.8 -> 171.9	74065	10.13 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C4-PFHpA	6.680	367.1 -> 322.0	32955	2.68 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C5-PFHxA	5.822	318.0 -> 273.0	32455	2.57 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C5-PFPeA	4.653	268.3 -> 223.0	36061	4.94 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C6-PFDA	8.233	519.1 -> 474.1	13344	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C7-PFUnDA	8.674	570.0 -> 525.1	14808	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C8-FOSA	9.951	506.1 -> 77.8	18074	2.64 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C8-PFOA	7.272	421.1 -> 376.0	52523	2.52 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C8-PFOS	8.507	507.1 -> 79.9	7195	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C9-PFNA	7.764	472.1 -> 427.0	13777	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.6%	
d3-MeFOSAA	8.265	573.2 -> 419.0	19479	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C3-HFPO-DA	6.163	286.9 -> 168.9	14442	10.23 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
d3-MeFOSA	10.969	515.0 -> 219.0	5887	2.35 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.2%	
d5-EtFOSAA	8.460	589.2 -> 419.0	17603	4.71 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.2%	
d7-MeFOSE	10.876	623.2 -> 58.9	23976	23.38 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
d9-EtFOSE	11.110	639.2 -> 58.9	16748	23.56 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.2%	
d5-EtFOSA	11.176	531.1 -> 219.0	6383	2.32 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.9%	

Target Compounds

QValue

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

7.25
7

Perfluorinated Compounds by LC/MS/MS

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

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



7.2.5
7

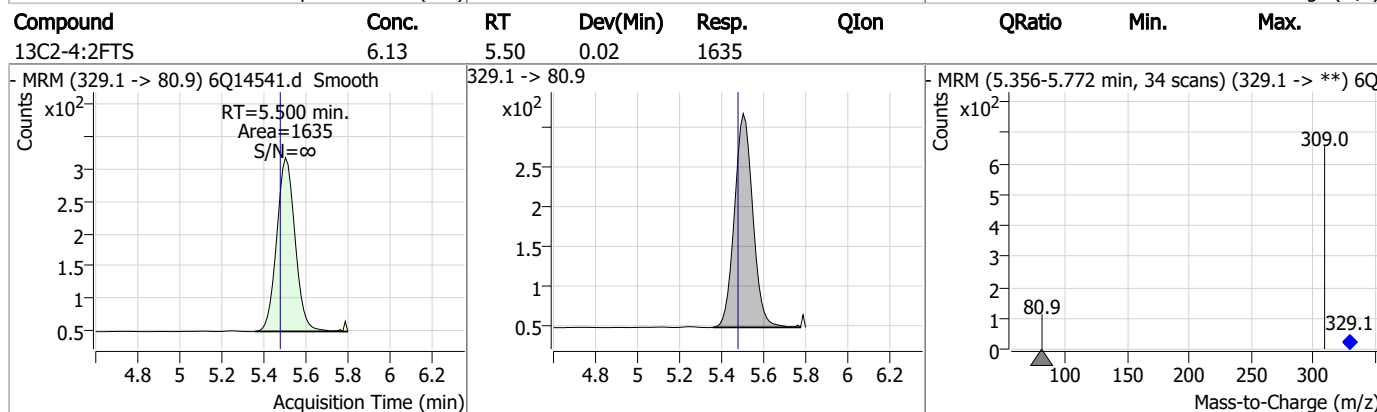
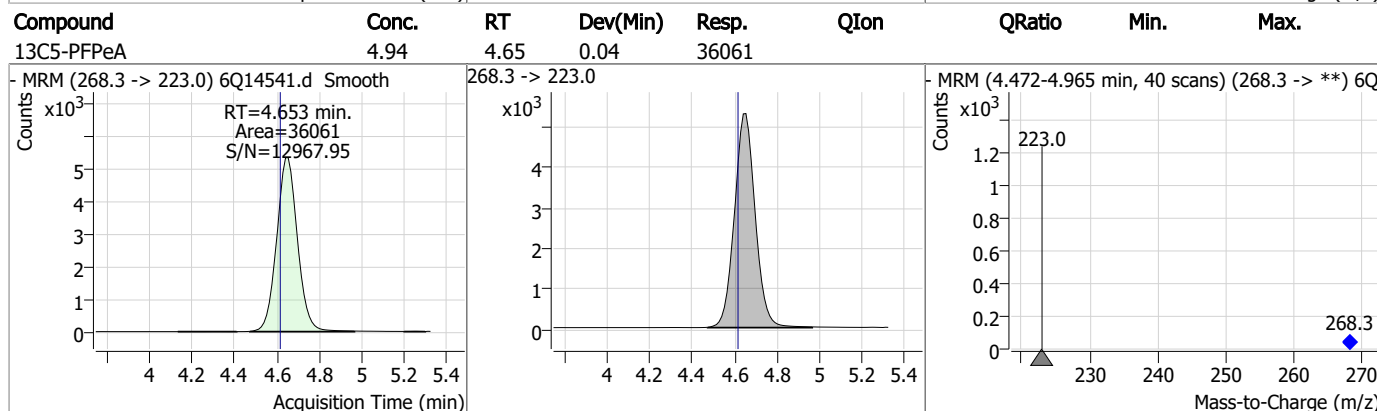
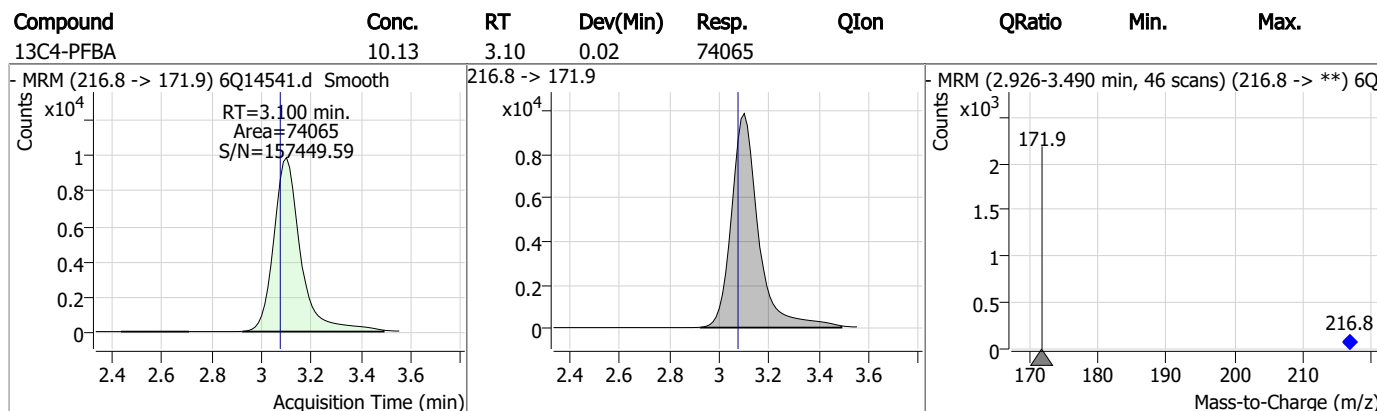
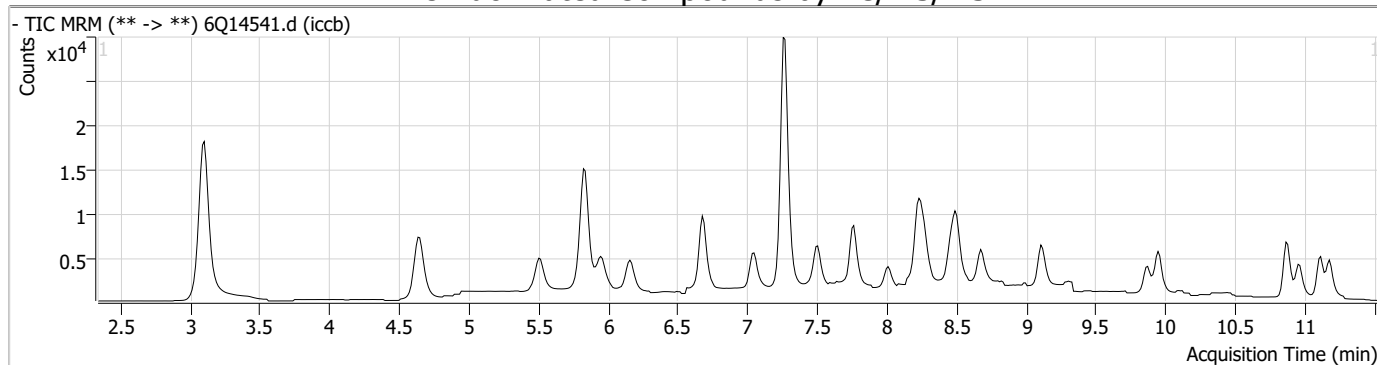
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.2.5

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Perfluorinated Compounds by LC/MS/MS



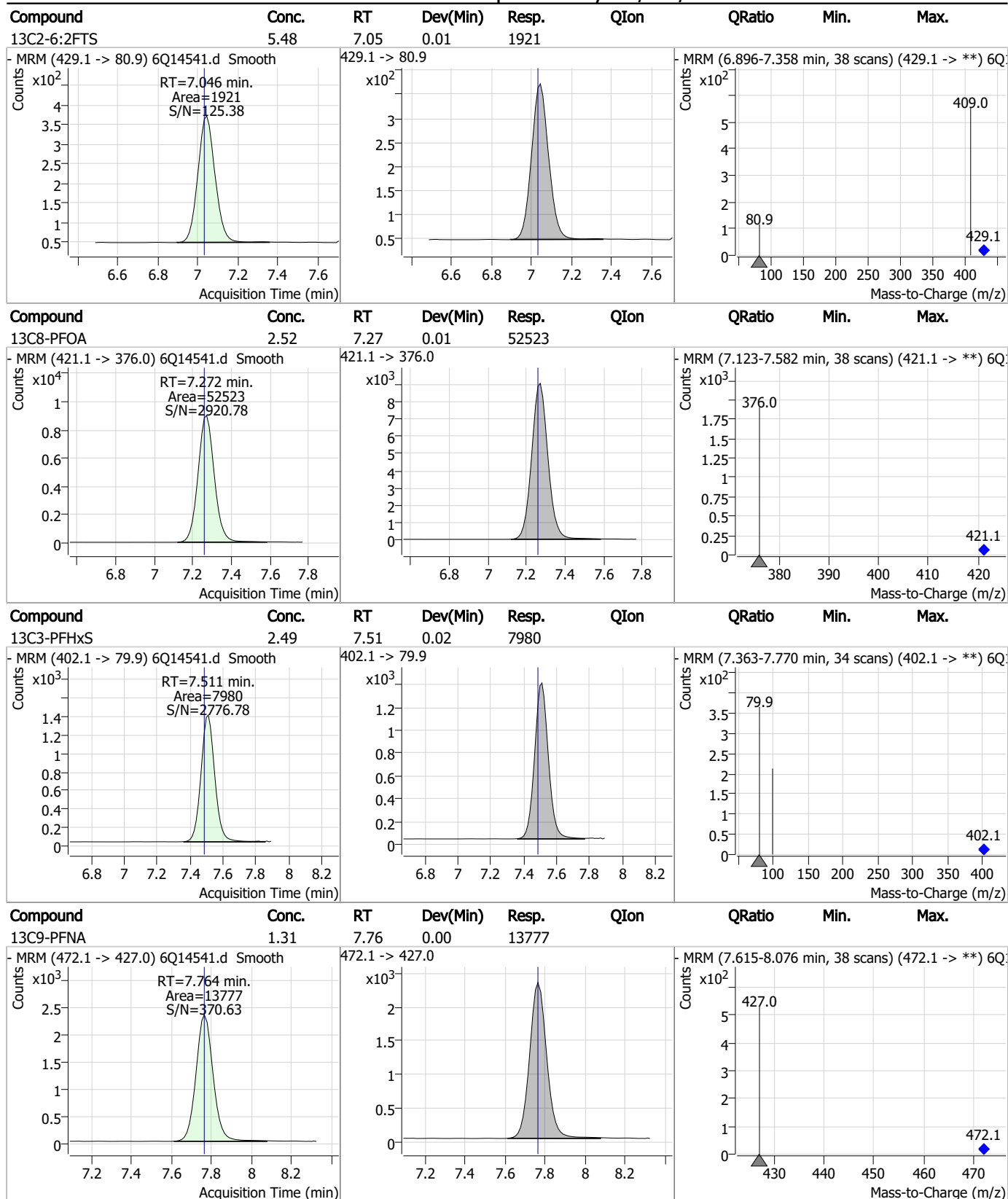
7.2.5
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.57	5.82	0.01	32455				
- MRM (318.0 -> 273.0) 6Q14541.d Smooth Counts x10 ³ RT=5.822 min. Area=32455 S/N=943.57 Acquisition Time (min)			318.0 -> 273.0 Counts x10 ³ Acquisition Time (min)			- MRM (5.675-6.120 min, 37 scans) (318.0 -> **) 6Q Counts x10 ³ 273.0 120.3 318.0 Mass-to-Charge (m/z)		
13C3-PFBS	2.46	5.95	0.05	12029				
- MRM (302.1 -> 79.9) 6Q14541.d Smooth Counts x10 ³ RT=5.951 min. Area=12029 S/N=744.77 Acquisition Time (min)			302.1 -> 79.9 Counts x10 ³ Acquisition Time (min)			- MRM (5.790-6.113 min, 27 scans) (302.1 -> **) 6Q Counts x10 ² 79.9 98.9 302.1 Mass-to-Charge (m/z)		
13C3-HFPO-DA	10.23	6.16	0.01	14442				
- MRM (286.9 -> 168.9) 6Q14541.d Smooth Counts x10 ³ RT=6.163 min. Area=14442 S/N=1285.17 Acquisition Time (min)			286.9 -> 168.9 Counts x10 ³ Acquisition Time (min)			- MRM (6.015-6.435 min, 35 scans) (286.9 -> **) 6Q Counts x10 ² 168.9 184.9 286.9 Mass-to-Charge (m/z)		
13C4-PFHpA	2.68	6.68	0.01	32955				
- MRM (367.1 -> 322.0) 6Q14541.d Smooth Counts x10 ³ RT=6.680 min. Area=32955 S/N=619821.79 Acquisition Time (min)			367.1 -> 322.0 Counts x10 ³ Acquisition Time (min)			- MRM (6.529-6.991 min, 38 scans) (367.1 -> **) 6Q Counts x10 ³ 322.0 367.1 Mass-to-Charge (m/z)		

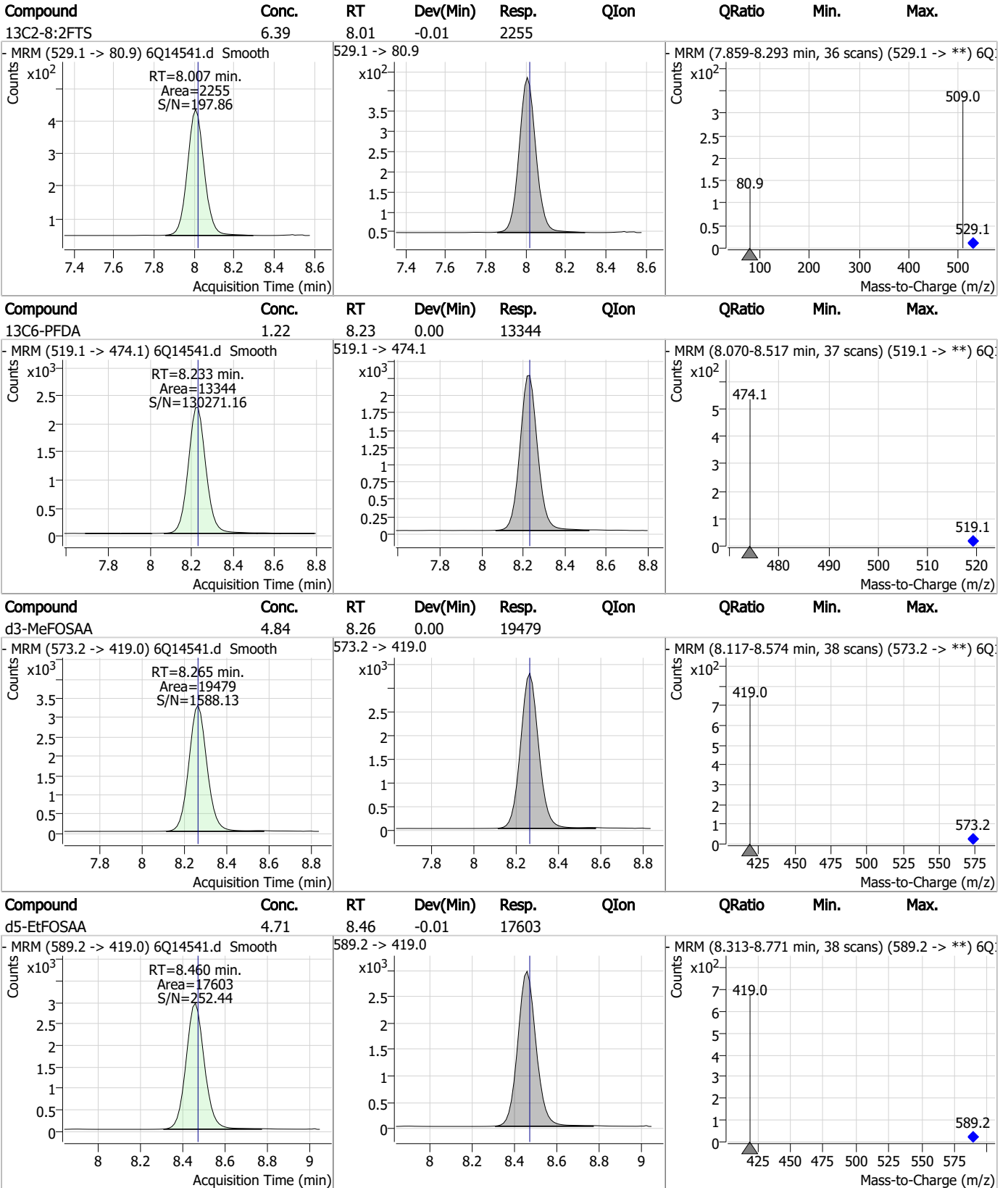
7.2.5
7

Perfluorinated Compounds by LC/MS/MS



7.25
7

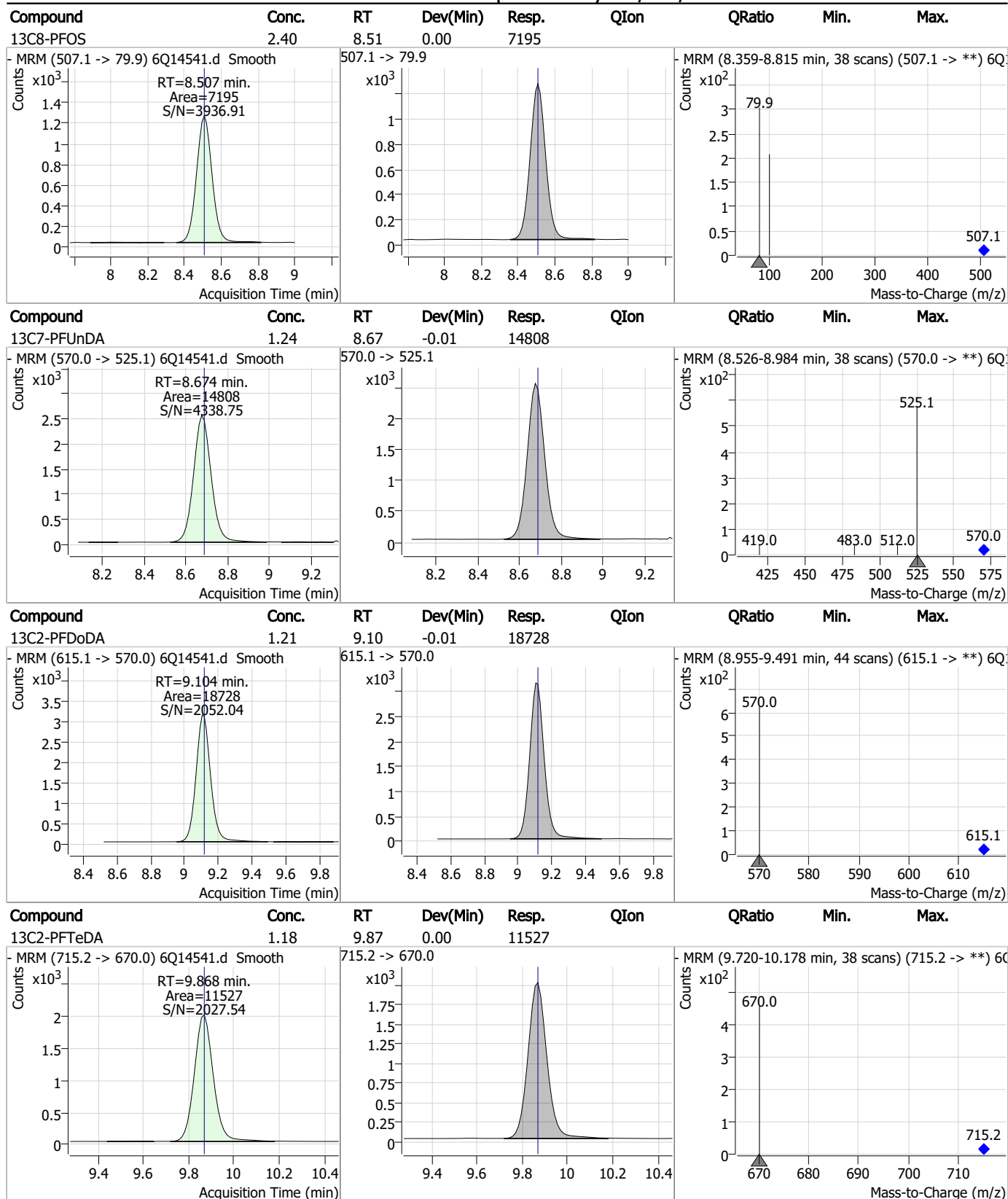
Perfluorinated Compounds by LC/MS/MS



7.2.5

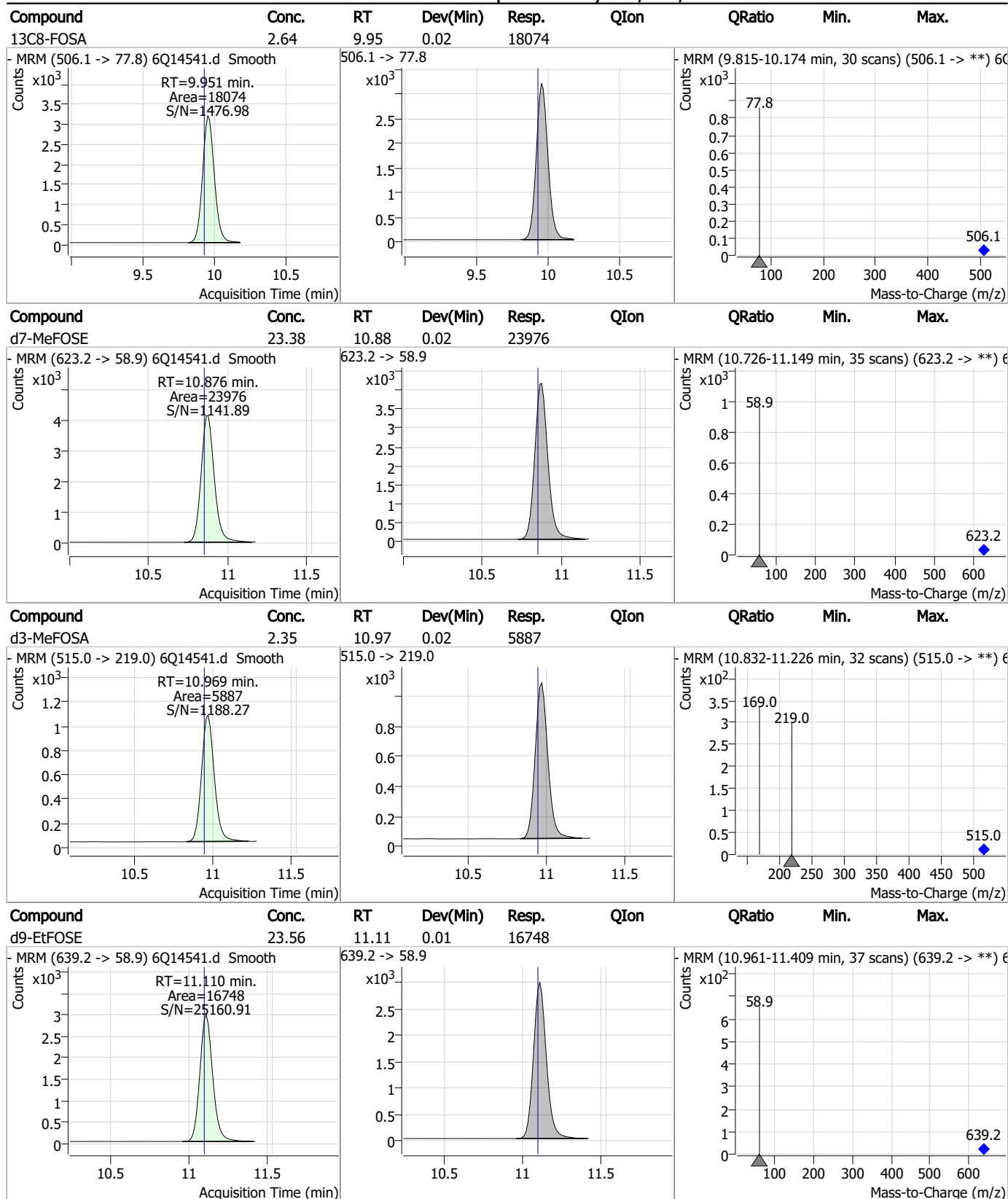
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Perfluorinated Compounds by LC/MS/MS



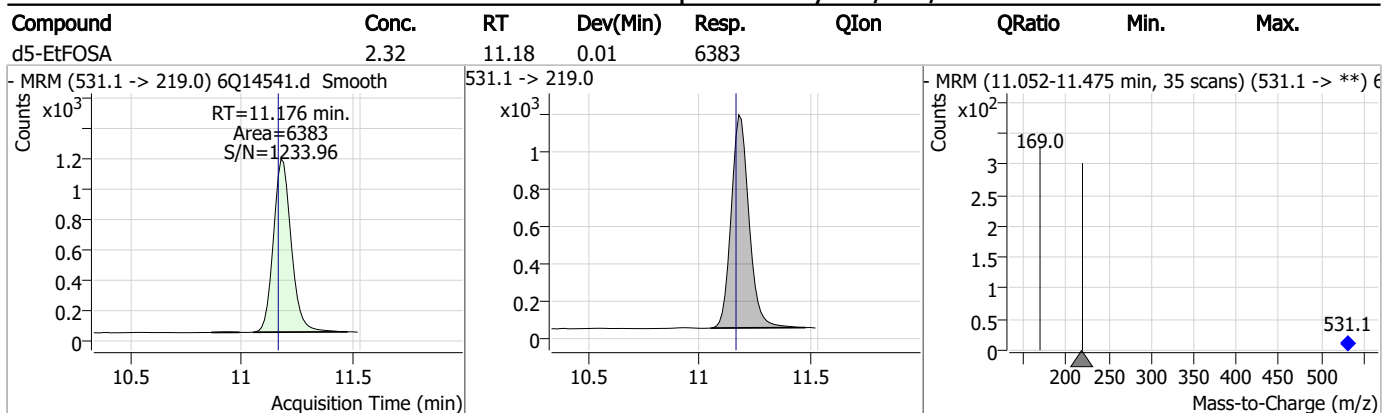
7.2.5
7

Perfluorinated Compounds by LC/MS/MS



7.2.5
7

Perfluorinated Compounds by LC/MS/MS



7.2.5
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14553.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 9:23:48 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.100	216.8 -> 171.9	74381	10.00 µg/L	0.025
M5-PFPeA	4.640	268.3 -> 223.0	36890	5.00 µg/L	0.025
M5-PFHxA	5.822	318.0 -> 273.0	31599	2.50 µg/L	0.012
M4-PFHpA	6.693	367.1 -> 322.0	32286	2.50 µg/L	0.025
M8-PFOA	7.272	421.1 -> 376.0	52227	2.50 µg/L	0.012
M9-PFNA	7.779	472.1 -> 427.0	13621	1.25 µg/L	0.014
M6-PFDA	8.233	519.1 -> 474.1	12518	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	14278	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	17799	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	11101	1.25 µg/L	0.000
M8-FOSA	9.951	506.1 -> 77.8	17034	2.50 µg/L	0.025
M3-PFBS	5.951	302.1 -> 79.9	11956	2.50 µg/L	0.049
M3-PFHxS	7.511	402.1 -> 79.9	8307	2.50 µg/L	0.025
M8-PFOS	8.519	507.1 -> 79.9	7204	2.50 µg/L	0.012
M2-4:2FTS	5.500	329.1 -> 80.9	1718	5.00 µg/L	0.025
M2-6:2FTS	7.046	429.1 -> 80.9	1998	5.00 µg/L	0.012
M2-8:2FTS	8.019	529.1 -> 80.9	2026	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	19784	5.00 µg/L	0.012
M3-HFPO-DA	6.163	286.9 -> 168.9	14101	10.00 µg/L	0.012
M5-EtFOSAA	8.473	589.2 -> 419.0	18820	5.00 µg/L	0.000
M7-MeFOSE	10.876	623.2 -> 58.9	23080	25.00 µg/L	0.025
M9-EtFOSE	11.110	639.2 -> 58.9	16260	25.00 µg/L	0.012
M5-EtFOSA	11.176	531.1 -> 219.0	6492	2.50 µg/L	0.012
M3-MeFOSA	10.969	515.0 -> 219.0	5887	2.50 µg/L	0.025
13C4-PFOS	8.520	502.8 -> 79.9	9132	2.50 µg/L	0.025
13C3-PFBA	3.091	216.0 -> 172.0	32517	5.00 µg/L	0.012
18O2-PFHxS	7.510	403.0 -> 83.9	5588	2.50 µg/L	0.012
13C4-PFOA	7.272	417.1 -> 372.0	65740	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	18218	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	14342	1.25 µg/L	0.000
13C2-PFHxA	5.823	315.1 -> 270.0	33147	2.50 µg/L	0.024
System Monitoring Compounds					
13C2-4:2FTS	5.500	329.1 -> 80.9	1718	6.45 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.1%		
13C2-6:2FTS	7.046	429.1 -> 80.9	1998	5.71 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.2%		
13C2-8:2FTS	8.019	529.1 -> 80.9	2026	5.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.1%		
13C2-PFDoDA	9.117	615.1 -> 570.0	17799	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C2-PFTeDA	9.868	715.2 -> 670.0	11101	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.6%		
13C3-PFBS	5.951	302.1 -> 79.9	11956	2.45 µg/L	0.049
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C3-PFHxS	7.511	402.1 -> 79.9	8307	2.60 µg/L	0.025

7.2.6
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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 = 103.9%	
13C4-PFBA	3.100	216.8 -> 171.9	74381	9.95 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.693	367.1 -> 322.0	32286	2.44 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C5-PFHxA	5.822	318.0 -> 273.0	31599	2.32 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.0%	
13C5-PFPeA	4.640	268.3 -> 223.0	36890	4.69 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C6-PFDA	8.233	519.1 -> 474.1	12518	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.8%	
13C7-PFUnDA	8.687	570.0 -> 525.1	14278	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C8-FOSA	9.951	506.1 -> 77.8	17034	2.38 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C8-PFOA	7.272	421.1 -> 376.0	52227	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C8-PFOS	8.519	507.1 -> 79.9	7204	2.30 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.1%	
13C9-PFNA	7.779	472.1 -> 427.0	13621	1.23 µg/L	0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.6%	
d3-MeFOSAA	8.277	573.2 -> 419.0	19784	4.70 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.1%	
13C3-HFPO-DA	6.163	286.9 -> 168.9	14101	9.29 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.9%	
d3-MeFOSA	10.969	515.0 -> 219.0	5887	2.25 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.1%	
d5-EtFOSAA	8.473	589.2 -> 419.0	18820	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
d7-MeFOSE	10.876	623.2 -> 58.9	23080	21.53 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.1%	
d9-EtFOSE	11.110	639.2 -> 58.9	16260	21.88 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.5%	
d5-EtFOSA	11.176	531.1 -> 219.0	6492	2.26 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.3%	

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	-	613.1 -> 569.0 613.1 -> 319.0	-	N.D.	
PFDS	-	599.0 -> 79.9	-	N.D.	

7.2.6
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Perfluorinated Compounds by LC/MS/MS

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

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

7.2.6
7

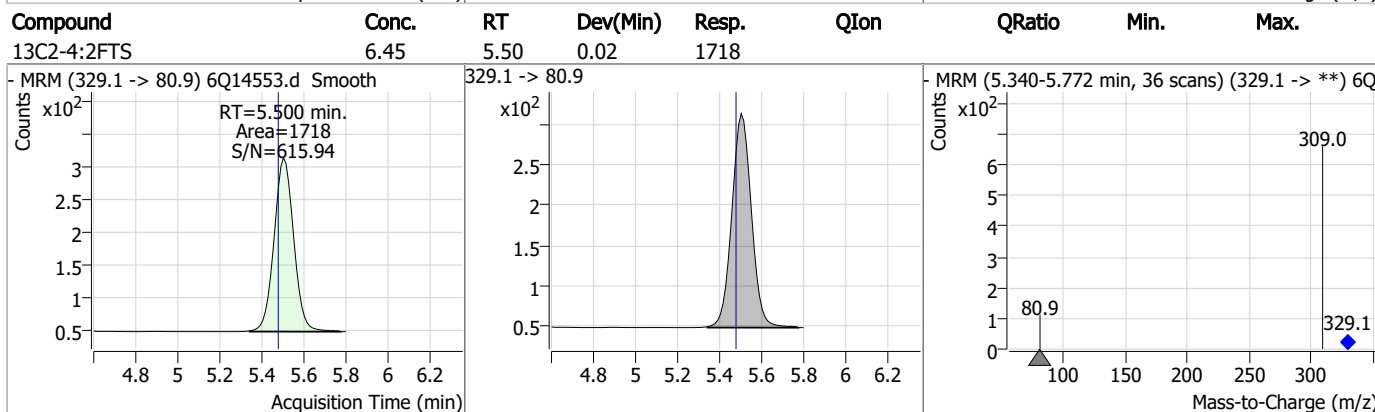
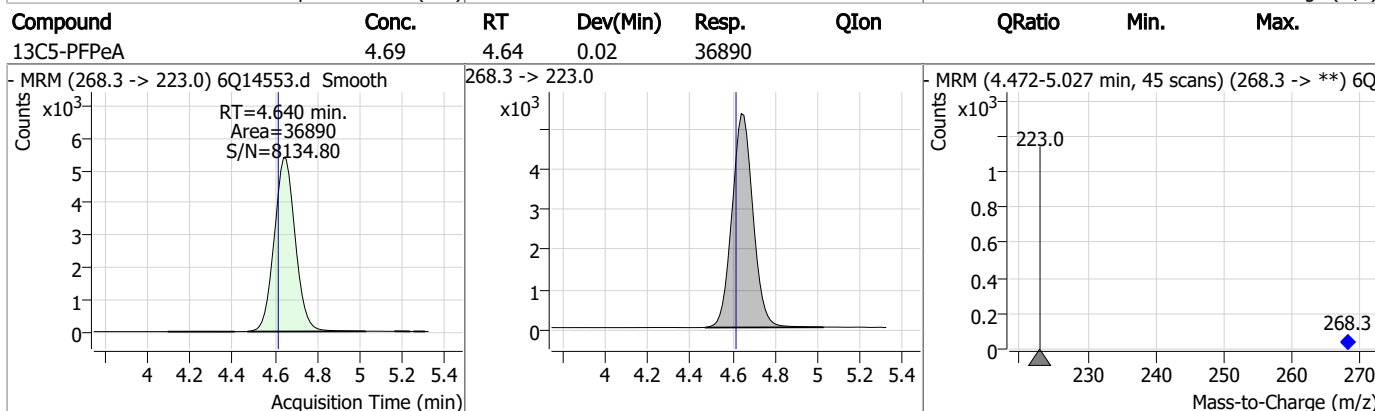
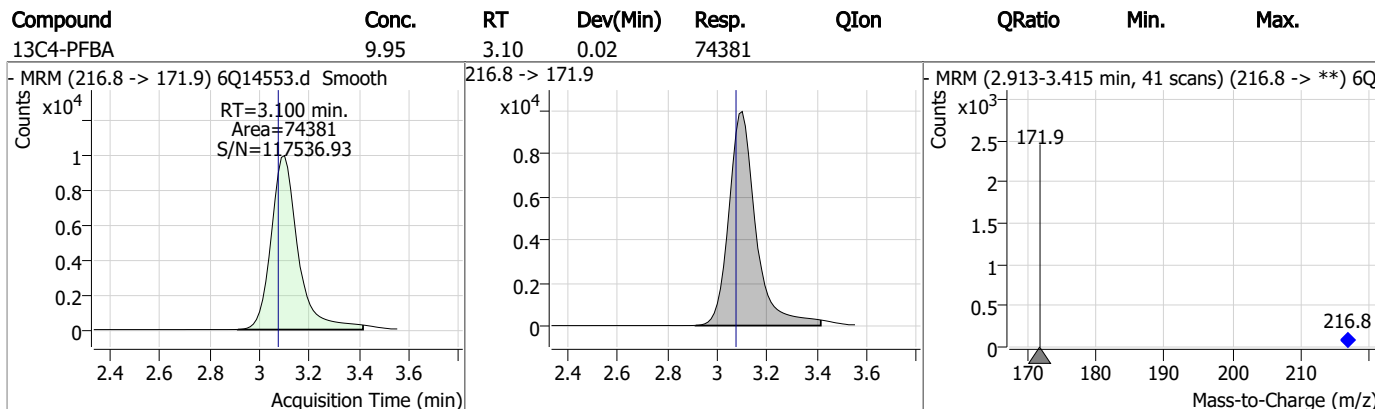
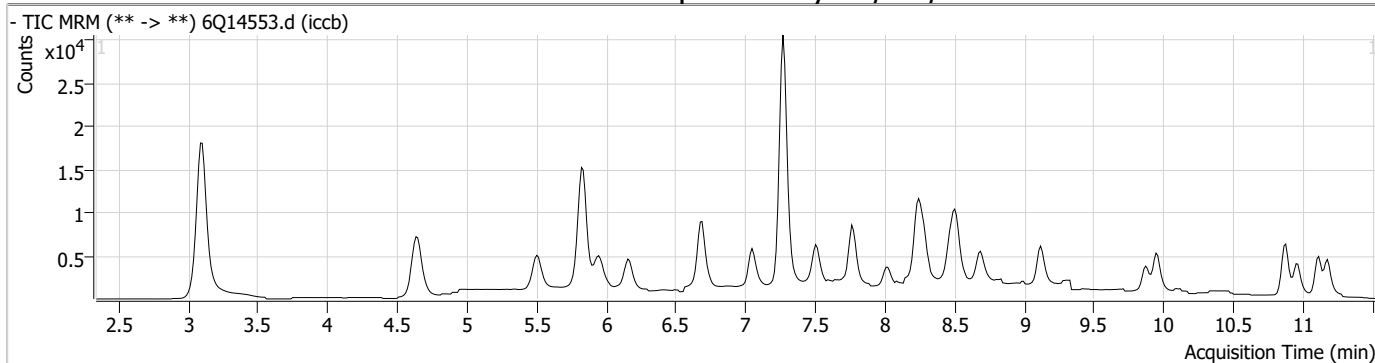
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.2.6

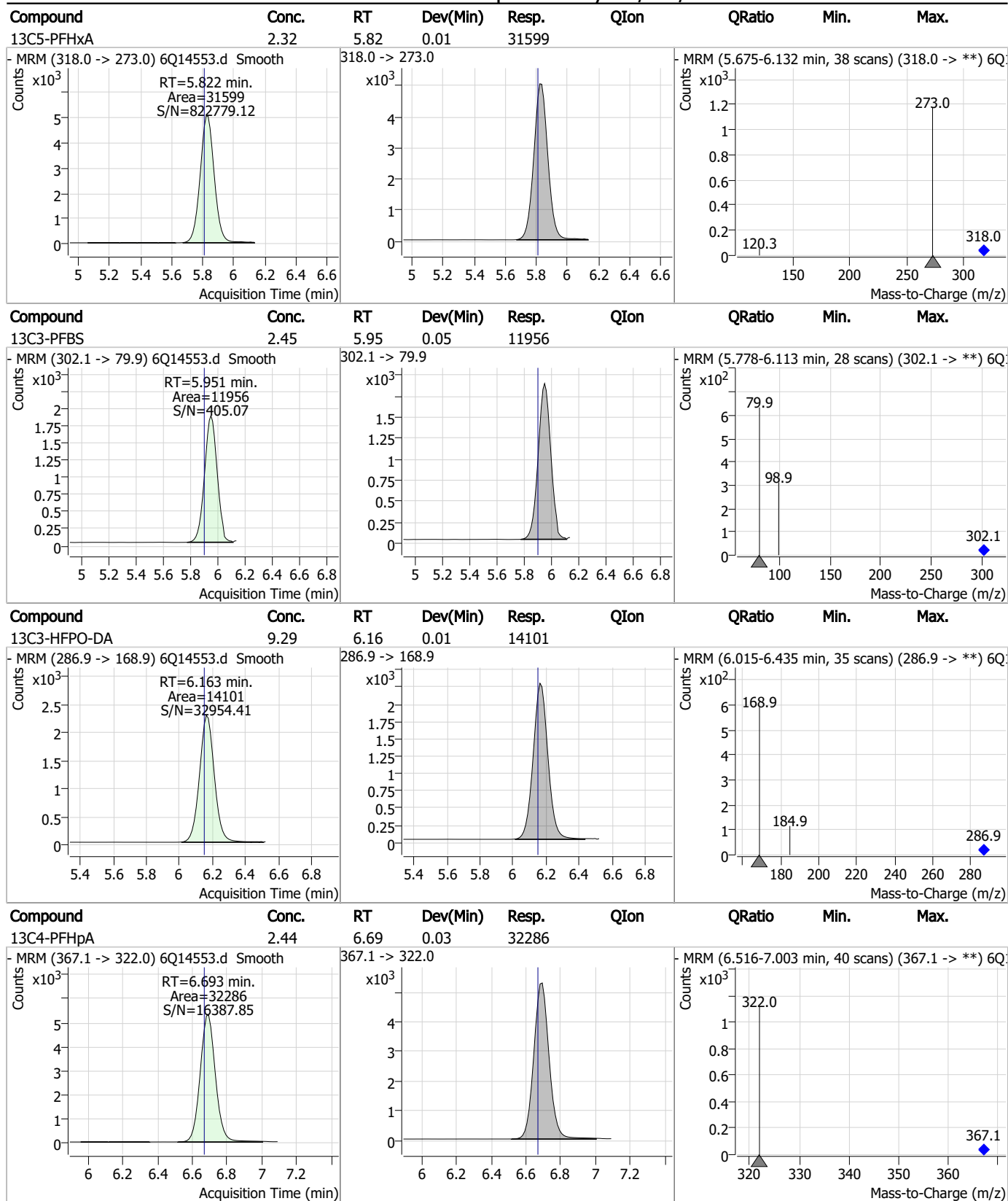
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Perfluorinated Compounds by LC/MS/MS



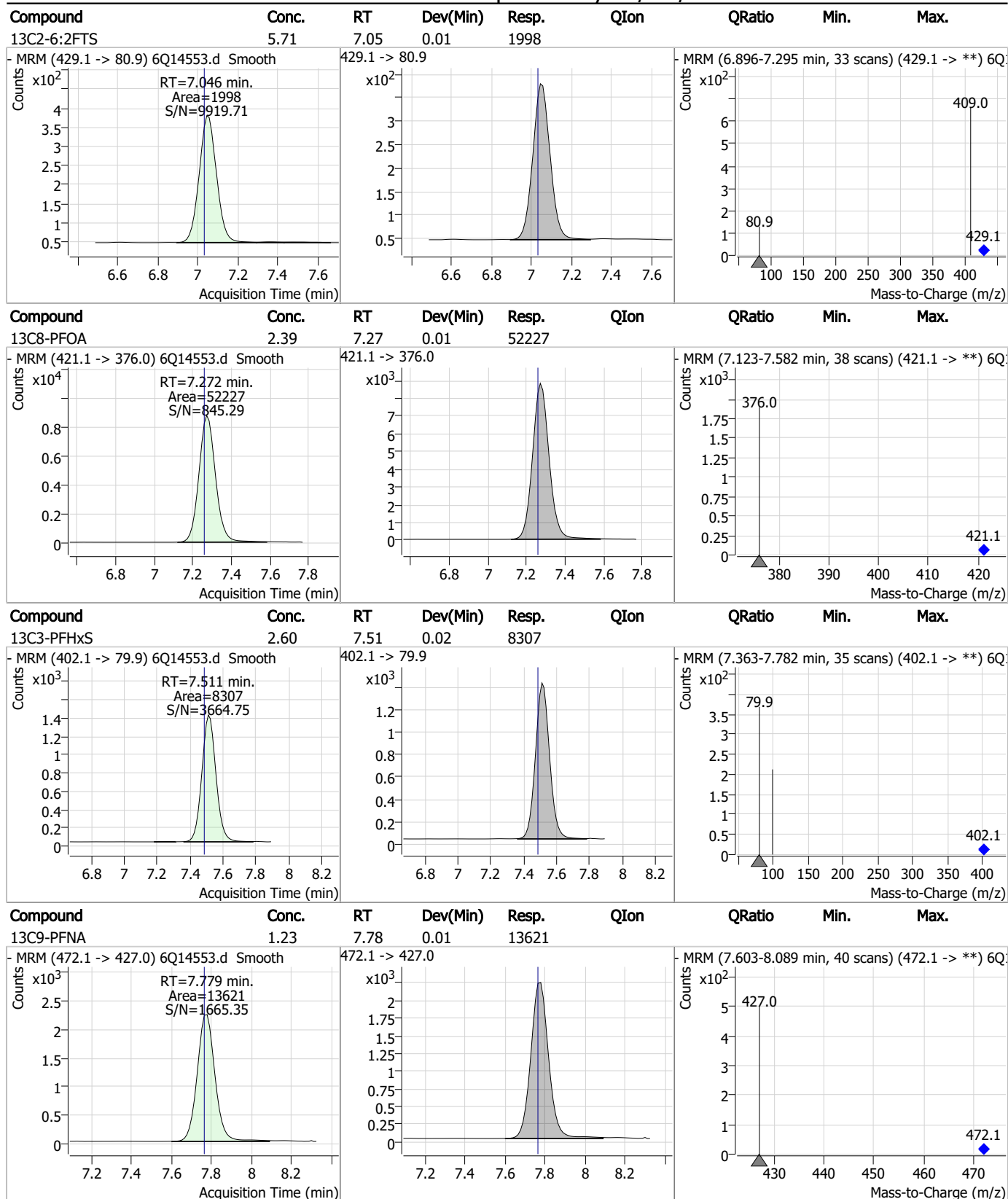
7.2.6
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Perfluorinated Compounds by LC/MS/MS



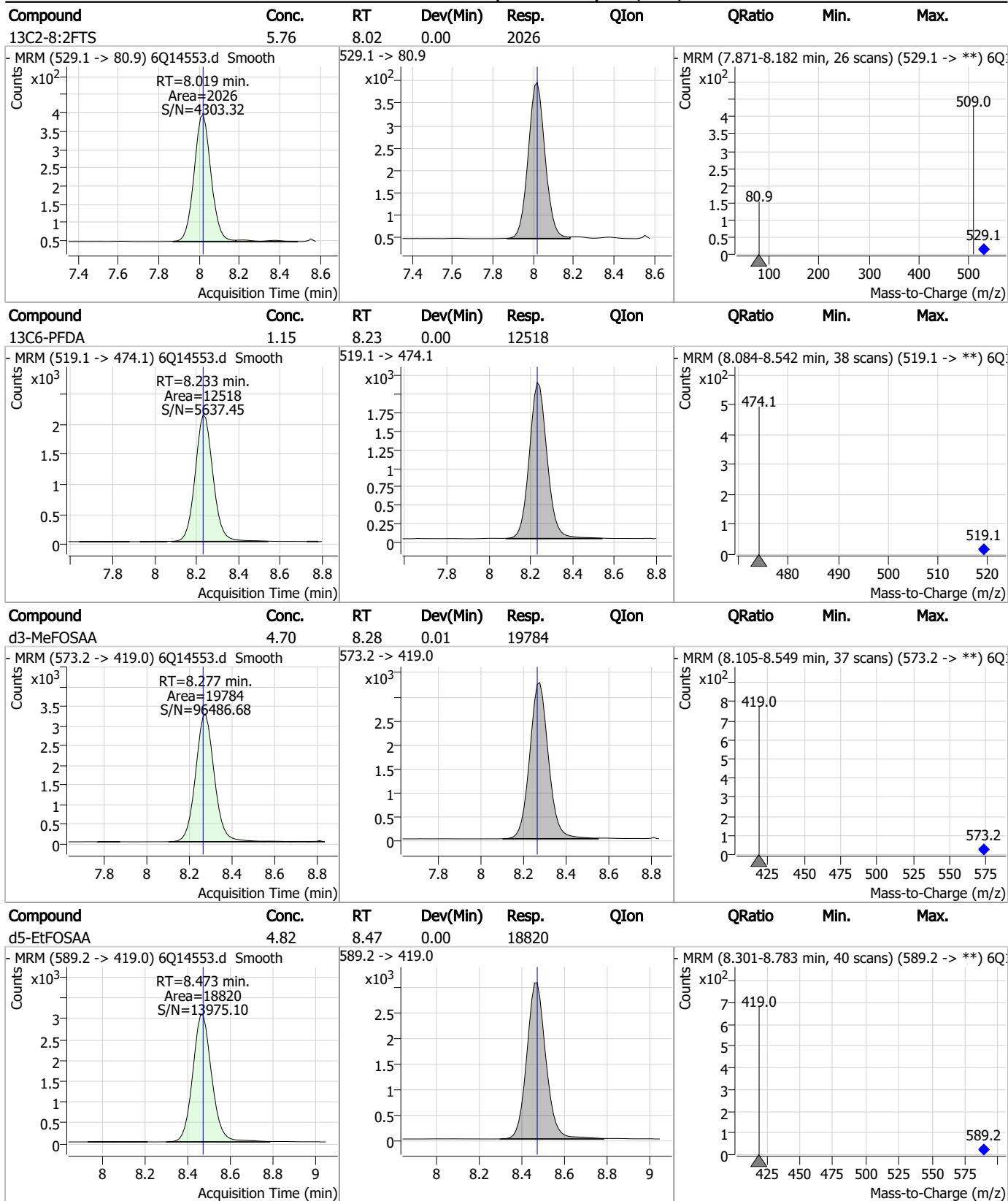
7.2.6
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Perfluorinated Compounds by LC/MS/MS



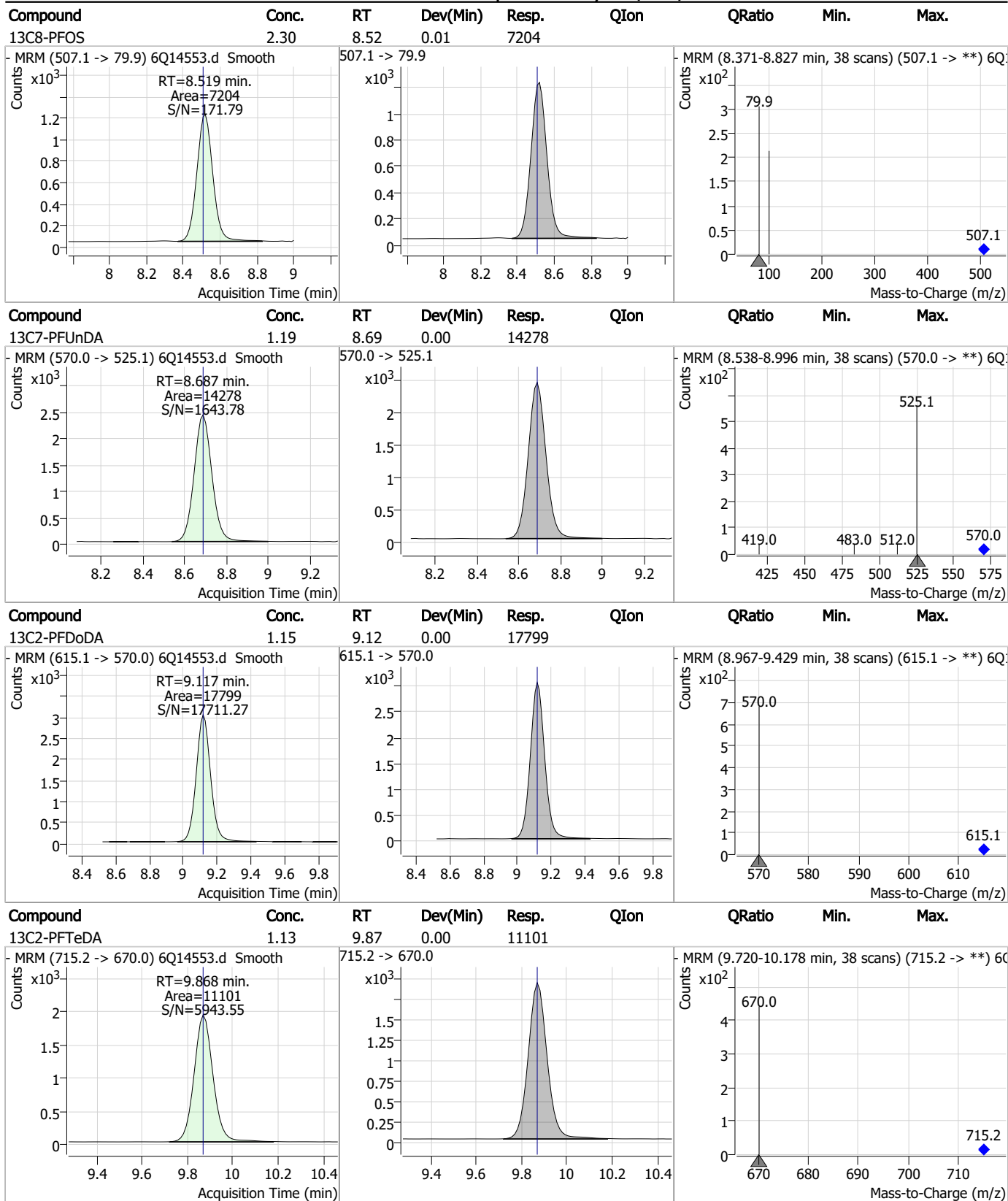
7.2.6
7

Perfluorinated Compounds by LC/MS/MS



7.2.6
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Perfluorinated Compounds by LC/MS/MS



7.2.6
7

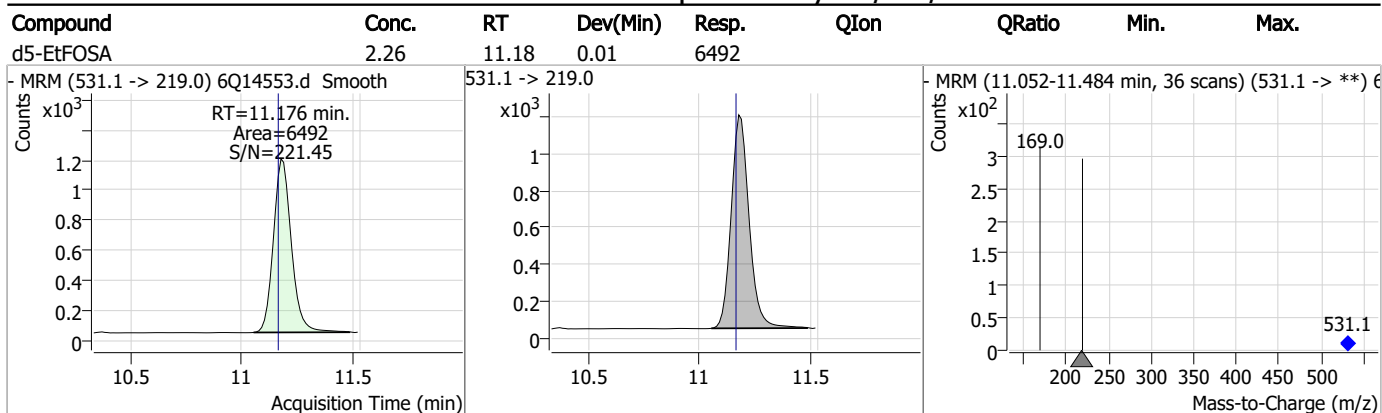
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.38	9.95	0.02	17034				
- MRM (506.1 -> 77.8) 6Q14553.d Smooth Counts x10 ³ RT=9.951 min. Area=17034 S/N=5194.41 Acquisition Time (min)			506.1 -> 77.8 Counts x10 ³ Acquisition Time (min)			- MRM (9.815-10.113 min, 25 scans) (506.1 -> **) 6Q14553.d Smooth Counts x10 ³ 77.8 506.1 Mass-to-Charge (m/z)		
d7-MeFOSE	21.53	10.88	0.02	23080				
- MRM (623.2 -> 58.9) 6Q14553.d Smooth Counts x10 ³ RT=10.876 min. Area=23080 S/N=14828.58 Acquisition Time (min)			623.2 -> 58.9 Counts x10 ³ Acquisition Time (min)			- MRM (10.726-11.149 min, 35 scans) (623.2 -> **) 6Q14553.d Smooth Counts x10 ³ 58.9 623.2 Mass-to-Charge (m/z)		
d3-MeFOSEA	2.25	10.97	0.02	5887				
- MRM (515.0 -> 219.0) 6Q14553.d Smooth Counts x10 ³ RT=10.969 min. Area=5887 S/N=46264.01 Acquisition Time (min)			515.0 -> 219.0 Counts x10 ³ Acquisition Time (min)			- MRM (10.824-11.253 min, 34 scans) (515.0 -> **) 6Q14553.d Smooth Counts x10 ² 169.0 219.0 515.0 Mass-to-Charge (m/z)		
d9-EtFOSE	21.88	11.11	0.01	16260				
- MRM (639.2 -> 58.9) 6Q14553.d Smooth Counts x10 ³ RT=11.110 min. Area=16260 S/N=3770.01 Acquisition Time (min)			639.2 -> 58.9 Counts x10 ³ Acquisition Time (min)			- MRM (10.961-11.409 min, 36 scans) (639.2 -> **) 6Q14553.d Smooth Counts x10 ² 58.9 639.2 Mass-to-Charge (m/z)		

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Perfluorinated Compounds by LC/MS/MS



7.2.6

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14525.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 2:52:06 PM
 Sample Name : IBLK
 Vial : P1-A1
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.088	216.8 -> 171.9	74202	10.00 µg/L	0.012
M5-PFPeA	4.640	268.3 -> 223.0	35882	5.00 µg/L	0.025
M5-PFHxA	5.822	318.0 -> 273.0	30311	2.50 µg/L	0.012
M4-PFHpA	6.680	367.1 -> 322.0	30215	2.50 µg/L	0.012
M8-PFOA	7.272	421.1 -> 376.0	50342	2.50 µg/L	0.012
M9-PFNA	7.764	472.1 -> 427.0	15485	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	12648	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	14315	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	18014	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	12202	1.25 µg/L	0.000
M8-FOSA	9.938	506.1 -> 77.8	16879	2.50 µg/L	0.012
M3-PFBS	5.926	302.1 -> 79.9	13279	2.50 µg/L	0.025
M3-PFHxS	7.498	402.1 -> 79.9	8755	2.50 µg/L	0.012
M8-PFOS	8.507	507.1 -> 79.9	6906	2.50 µg/L	0.000
M2-4:2FTS	5.488	329.1 -> 80.9	1424	5.00 µg/L	0.012
M2-6:2FTS	7.046	429.1 -> 80.9	1863	5.00 µg/L	0.012
M2-8:2FTS	8.019	529.1 -> 80.9	1999	5.00 µg/L	0.000
M3-MeFOSAA	8.265	573.2 -> 419.0	19189	5.00 µg/L	0.000
M3-HFPO-DA	6.151	286.9 -> 168.9	14082	10.00 µg/L	0.000
M5-EtFOSAA	8.460	589.2 -> 419.0	17727	5.00 µg/L	-0.012
M7-MeFOSE	10.863	623.2 -> 58.9	24352	25.00 µg/L	0.012
M9-EtFOSE	11.097	639.2 -> 58.9	17884	25.00 µg/L	0.000
M5-EtFOSA	11.176	531.1 -> 219.0	6517	2.50 µg/L	0.012
M3-MeFOSA	10.956	515.0 -> 219.0	5712	2.50 µg/L	0.012
13C4-PFOS	8.508	502.8 -> 79.9	8109	2.50 µg/L	0.012
13C3-PFBA	3.091	216.0 -> 172.0	31815	5.00 µg/L	0.012
18O2-PFHxS	7.498	403.0 -> 83.9	5604	2.50 µg/L	0.000
13C4-PFOA	7.272	417.1 -> 372.0	61186	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	16904	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	13888	1.25 µg/L	0.000
13C2-PFHxA	5.823	315.1 -> 270.0	32100	2.50 µg/L	0.024
System Monitoring Compounds					
13C2-4:2FTS	5.488	329.1 -> 80.9	1424	5.34 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C2-6:2FTS	7.046	429.1 -> 80.9	1863	5.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-8:2FTS	8.019	529.1 -> 80.9	1999	5.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.3%		
13C2-PFDoDA	9.117	615.1 -> 570.0	18014	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-PFTeDA	9.868	715.2 -> 670.0	12202	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.4%		
13C3-PFBS	5.926	302.1 -> 79.9	13279	2.72 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.6%		
13C3-PFHxS	7.498	402.1 -> 79.9	8755	2.73 µg/L	0.012

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C4-PFBA	3.088	216.8 -> 171.9	74202	10.15 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C4-PFHpA	6.680	367.1 -> 322.0	30215	2.36 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C5-PFHxA	5.822	318.0 -> 273.0	30311	2.30 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.1%	
13C5-PFPeA	4.640	268.3 -> 223.0	35882	4.71 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C6-PFDA	8.233	519.1 -> 474.1	12648	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C7-PFUnDA	8.687	570.0 -> 525.1	14315	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C8-FOSA	9.938	506.1 -> 77.8	16879	2.65 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C8-PFOA	7.272	421.1 -> 376.0	50342	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-PFOS	8.507	507.1 -> 79.9	6906	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C9-PFNA	7.764	472.1 -> 427.0	15485	1.45 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.7%	
d3-MeFOSAA	8.265	573.2 -> 419.0	19189	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C3-HFPO-DA	6.151	286.9 -> 168.9	14082	9.58 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.8%	
d3-MeFOSA	10.956	515.0 -> 219.0	5712	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
d5-EtFOSAA	8.460	589.2 -> 419.0	17727	5.11 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
d7-MeFOSE	10.863	623.2 -> 58.9	24352	25.58 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
d9-EtFOSE	11.097	639.2 -> 58.9	17884	27.10 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
d5-EtFOSA	11.176	531.1 -> 219.0	6517	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	

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

7.27
7

Perfluorinated Compounds by LC/MS/MS

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

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

7.27
7

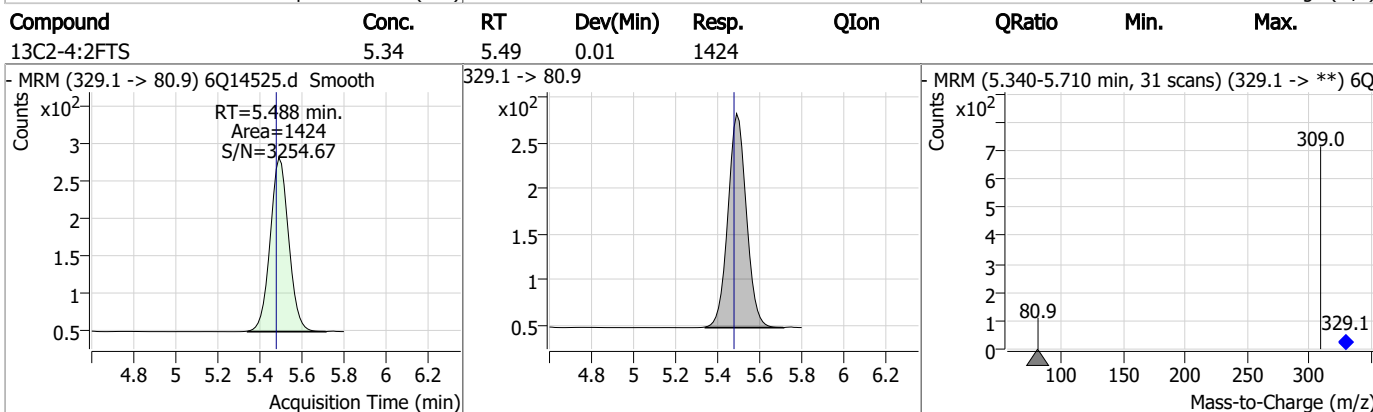
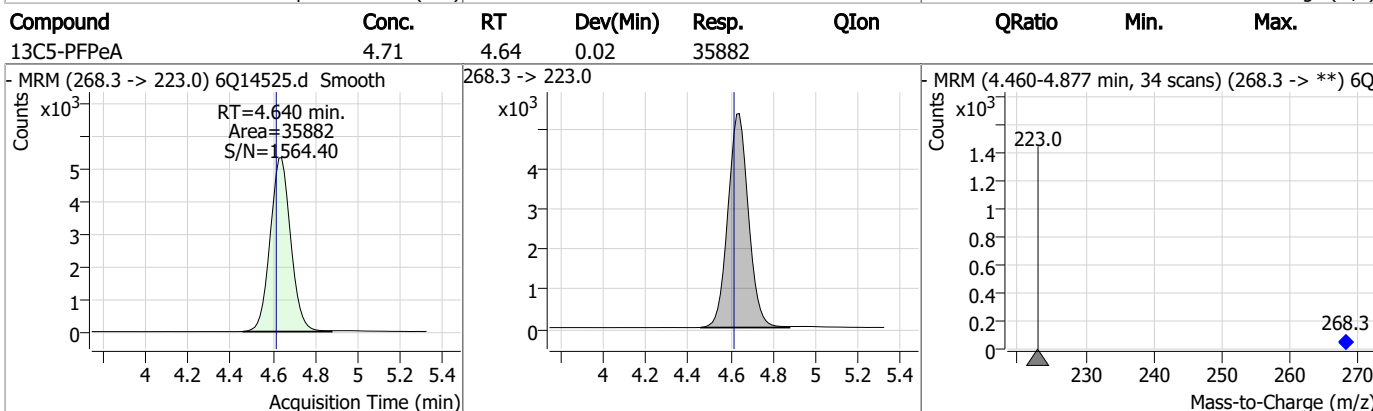
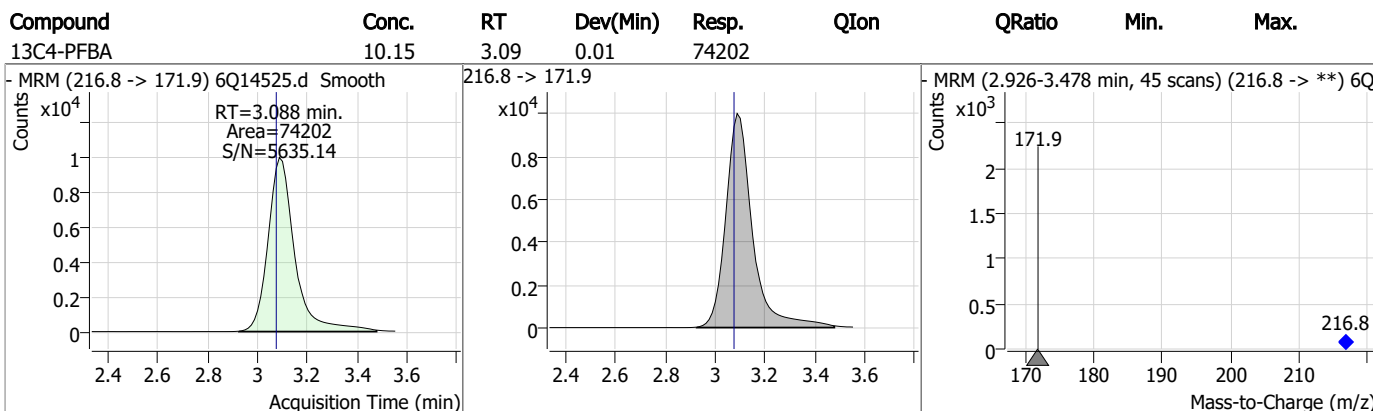
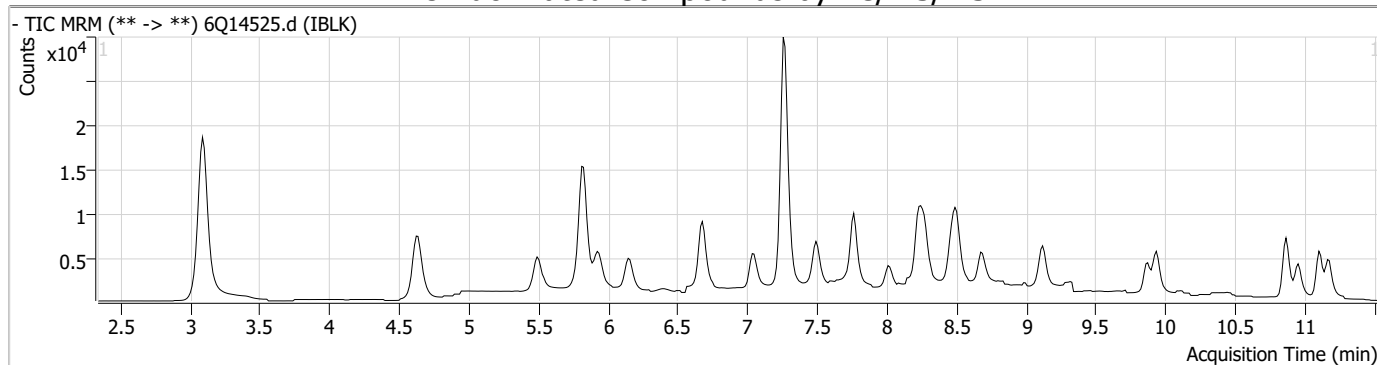
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.2.7

7

Perfluorinated Compounds by LC/MS/MS



7.2.7
7

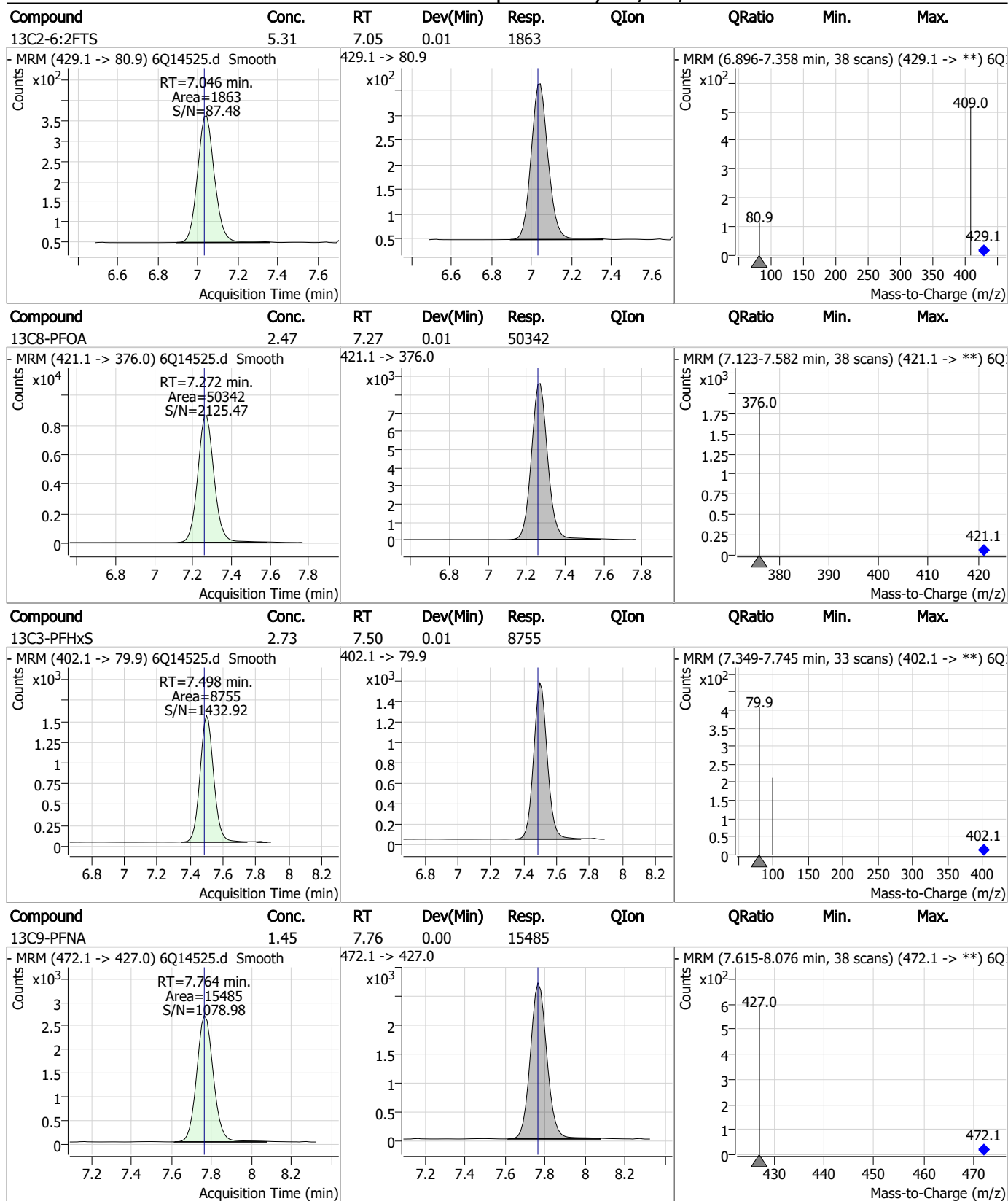
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.30	5.82	0.01	30311				
13C3-PFBS	2.72	5.93	0.02	13279				
13C3-HFPO-DA	9.58	6.15	0.00	14082				
13C4-PFHpA	2.36	6.68	0.01	30215				

7.2.7
7



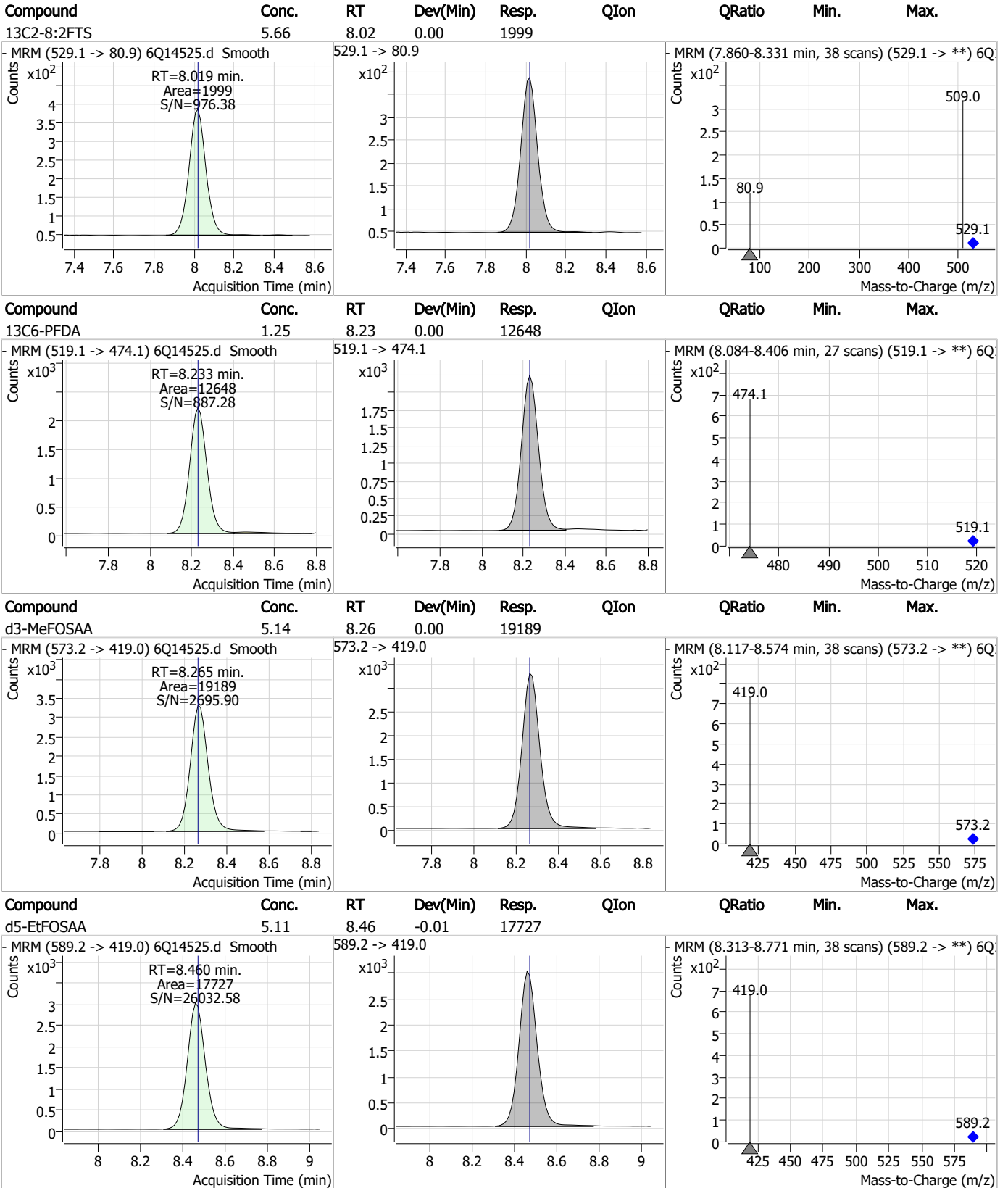
Perfluorinated Compounds by LC/MS/MS



7.27

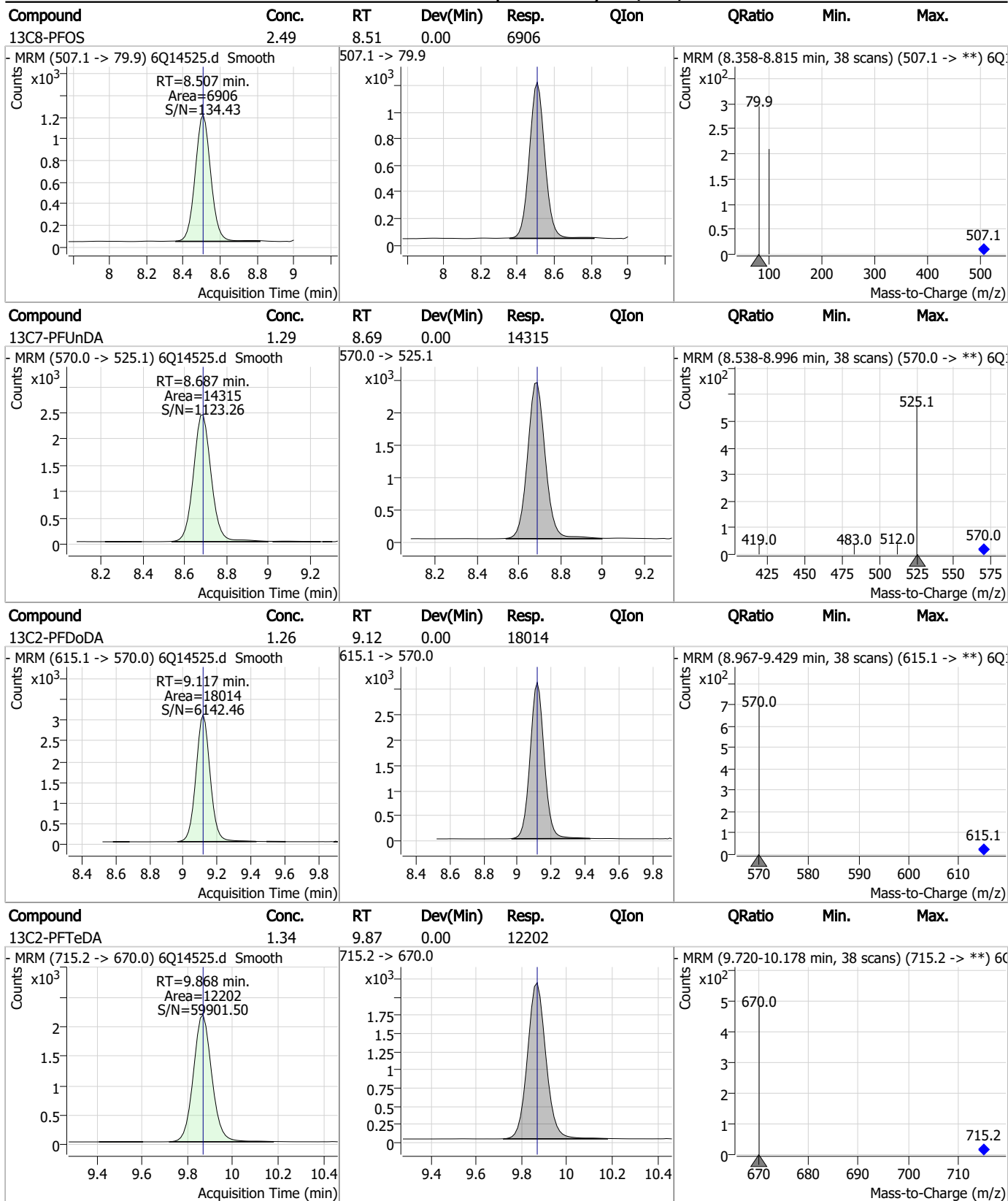


Perfluorinated Compounds by LC/MS/MS



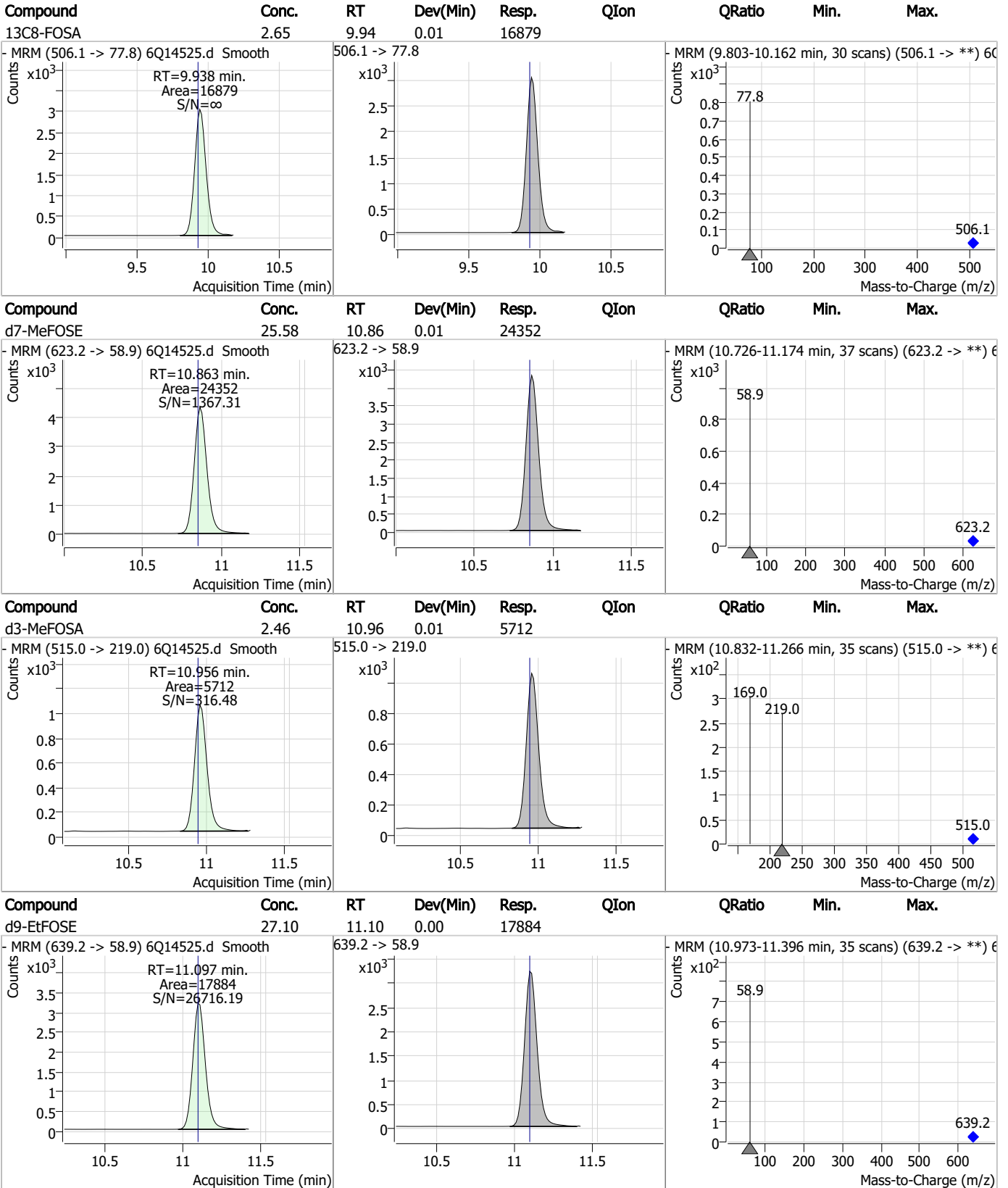
7.27
7

Perfluorinated Compounds by LC/MS/MS



7.27
7

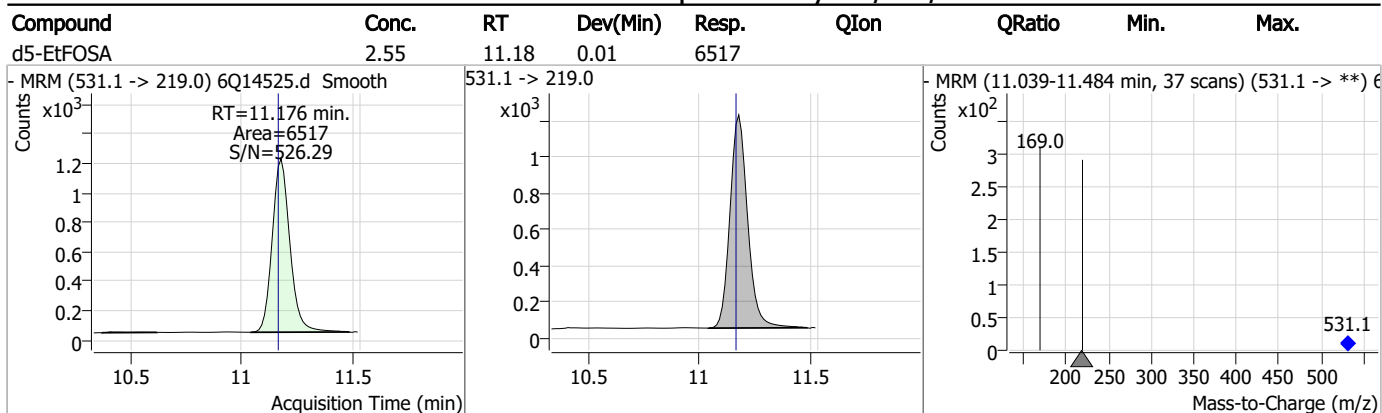
Perfluorinated Compounds by LC/MS/MS



7.2.7

7

Perfluorinated Compounds by LC/MS/MS



7.27
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14623.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/9/2023 2:12:21 PM
 Sample Name : op95772-lb
 Vial : P4-A3
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q221.batch.bin
 Sample Information : OP95772,S6Q221,60,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.175	216.8 -> 171.9	61785	10.00 µg/L	0.100
M5-PFPeA	4.660	268.3 -> 223.0	29295	5.00 µg/L	0.044
M5-PFHxA	5.840	318.0 -> 273.0	24383	2.50 µg/L	0.030
M4-PFHpA	6.694	367.1 -> 322.0	24676	2.50 µg/L	0.026
M8-PFOA	7.274	421.1 -> 376.0	41514	2.50 µg/L	0.014
M9-PFNA	7.780	472.1 -> 427.0	11081	1.25 µg/L	0.015
M6-PFDA	8.234	519.1 -> 474.1	11229	1.25 µg/L	0.002
M7-PFUnDA	8.689	570.0 -> 525.1	11735	1.25 µg/L	0.002
M2-PFDoDA	9.119	615.1 -> 570.0	13939	1.25 µg/L	0.002
M2-PFTeDA	9.871	715.2 -> 670.0	9790	1.25 µg/L	0.003
M8-FOSA	9.966	506.1 -> 77.8	13673	2.50 µg/L	0.040
M3-PFBS	5.956	302.1 -> 79.9	9788	2.50 µg/L	0.055
M3-PFHxS	7.513	402.1 -> 79.9	6241	2.50 µg/L	0.027
M8-PFOS	8.521	507.1 -> 79.9	5798	2.50 µg/L	0.014
M2-4:2FTS	5.505	329.1 -> 80.9	1327	5.00 µg/L	0.030
M2-6:2FTS	7.048	429.1 -> 80.9	1477	5.00 µg/L	0.015
M2-8:2FTS	8.011	529.1 -> 80.9	1549	5.00 µg/L	-0.009
M3-MeFOSAA	8.267	573.2 -> 419.0	15953	5.00 µg/L	0.002
M3-HFPO-DA	6.168	286.9 -> 168.9	11652	10.00 µg/L	0.017
M5-EtFOSAA	8.475	589.2 -> 419.0	14369	5.00 µg/L	0.002
M7-MeFOSE	10.878	623.2 -> 58.9	19920	25.00 µg/L	0.027
M9-EtFOSE	11.112	639.2 -> 58.9	13408	25.00 µg/L	0.015
M5-EtFOSA	11.190	531.1 -> 219.0	5140	2.50 µg/L	0.026
M3-MeFOSA	10.970	515.0 -> 219.0	4587	2.50 µg/L	0.026
13C4-PFOS	8.522	502.8 -> 79.9	10270	2.50 µg/L	0.026
13C3-PFBA	3.178	216.0 -> 172.0	37331	5.00 µg/L	0.100
18O2-PFHxS	7.512	403.0 -> 83.9	6693	2.50 µg/L	0.015
13C4-PFOA	7.274	417.1 -> 372.0	71355	2.50 µg/L	0.014
13C2-PFDA	8.235	515.1 -> 470.1	20567	1.25 µg/L	0.002
13C5-PFNA	7.768	468.0 -> 423.0	17829	1.25 µg/L	0.003
13C2-PFHxA	5.829	315.1 -> 270.0	33241	2.50 µg/L	0.030
System Monitoring Compounds					
13C2-4:2FTS	5.505	329.1 -> 80.9	1327	4.16 µg/L	0.030
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 83.3%		
13C2-6:2FTS	7.048	429.1 -> 80.9	1477	3.52 µg/L	0.015
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 70.5%		
13C2-8:2FTS	8.011	529.1 -> 80.9	1549	3.67 µg/L	-0.009
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 73.5%		
13C2-PFDoDA	9.119	615.1 -> 570.0	13939	0.80 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 64.0%		
13C2-PFTeDA	9.871	715.2 -> 670.0	9790	0.88 µg/L	0.003
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 70.8%		
13C3-PFBS	5.956	302.1 -> 79.9	9788	1.68 µg/L	0.055
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 67.0%		
13C3-PFHxS	7.513	402.1 -> 79.9	6241	1.63 µg/L	0.027

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 = 65.2%	
13C4-PFBA	3.175	216.8 -> 171.9	61785	7.20 µg/L	0.100
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.0%	
13C4-PFHpA	6.694	367.1 -> 322.0	24676	1.86 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.4%	
13C5-PFHxA	5.840	318.0 -> 273.0	24383	1.79 µg/L	0.030
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 71.5%	
13C5-PFPeA	4.660	268.3 -> 223.0	29295	3.72 µg/L	0.044
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 74.3%	
13C6-PFDA	8.234	519.1 -> 474.1	11229	0.91 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 72.9%	
13C7-PFUnDA	8.689	570.0 -> 525.1	11735	0.87 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 69.5%	
13C8-FOSA	9.966	506.1 -> 77.8	13673	1.70 µg/L	0.040
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 67.8%	
13C8-PFOA	7.274	421.1 -> 376.0	41514	1.75 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 69.9%	
13C8-PFOS	8.521	507.1 -> 79.9	5798	1.65 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 65.9%	
13C9-PFNA	7.780	472.1 -> 427.0	11081	0.81 µg/L	0.015
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 64.5%	
d3-MeFOSAA	8.267	573.2 -> 419.0	15953	3.37 µg/L	0.002
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 67.5%	
13C3-HFPO-DA	6.168	286.9 -> 168.9	11652	7.65 µg/L	0.017
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.5%	
d3-MeFOSA	10.970	515.0 -> 219.0	4587	1.56 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 62.4%	
d5-EtFOSAA	8.475	589.2 -> 419.0	14369	3.27 µg/L	0.002
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 65.4%	
d7-MeFOSE	10.878	623.2 -> 58.9	19920	16.52 µg/L	0.027
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 66.1%	
d9-EtFOSE	11.112	639.2 -> 58.9	13408	16.04 µg/L	0.015
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 64.2%	
d5-EtFOSA	11.190	531.1 -> 219.0	5140	1.59 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 63.6%	

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.	

7.3.1
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	7.611	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

7.3.1
7

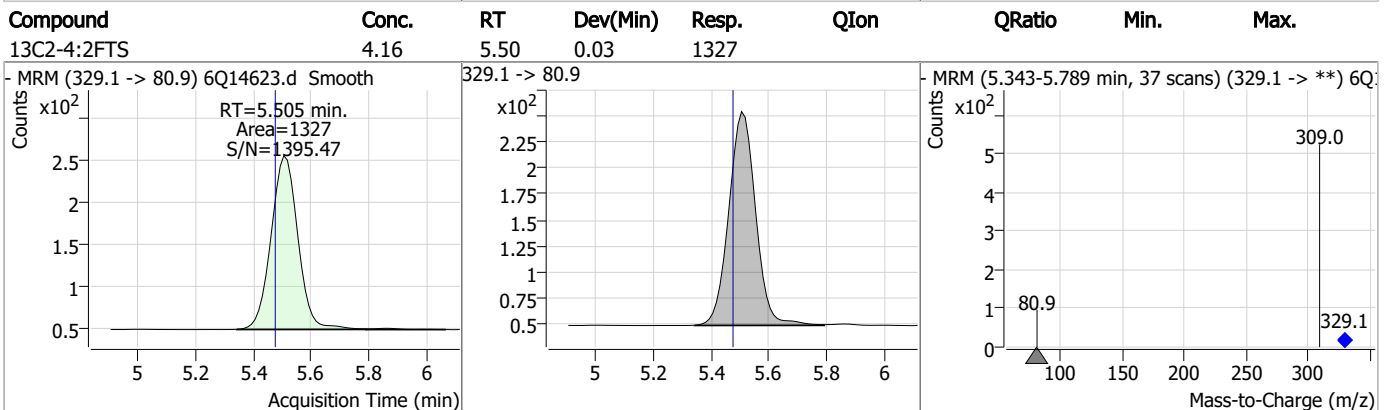
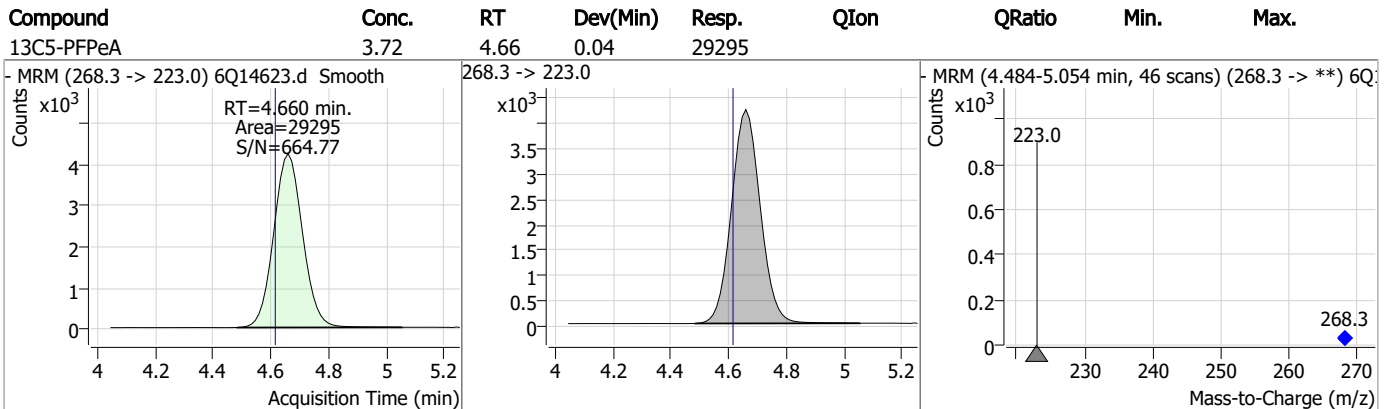
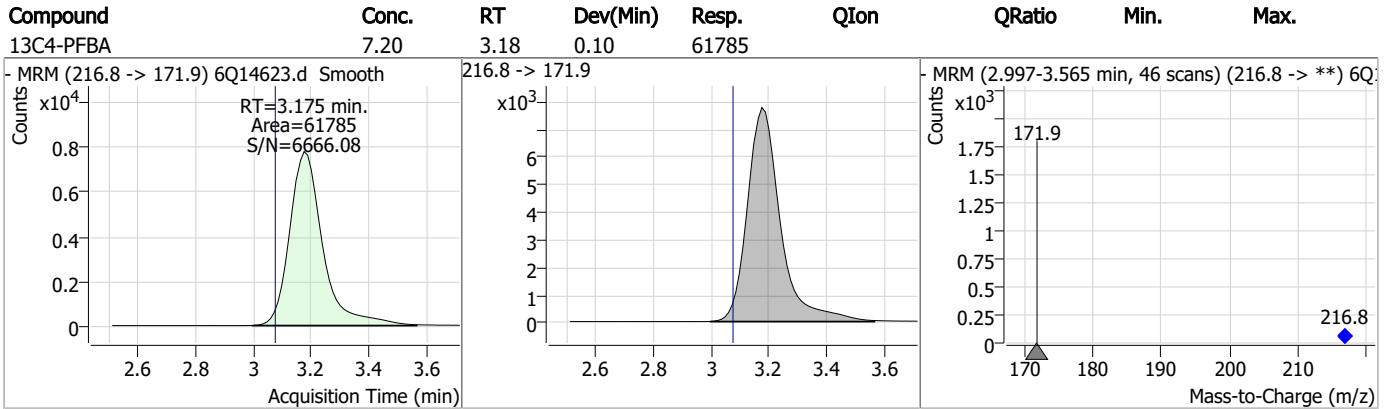
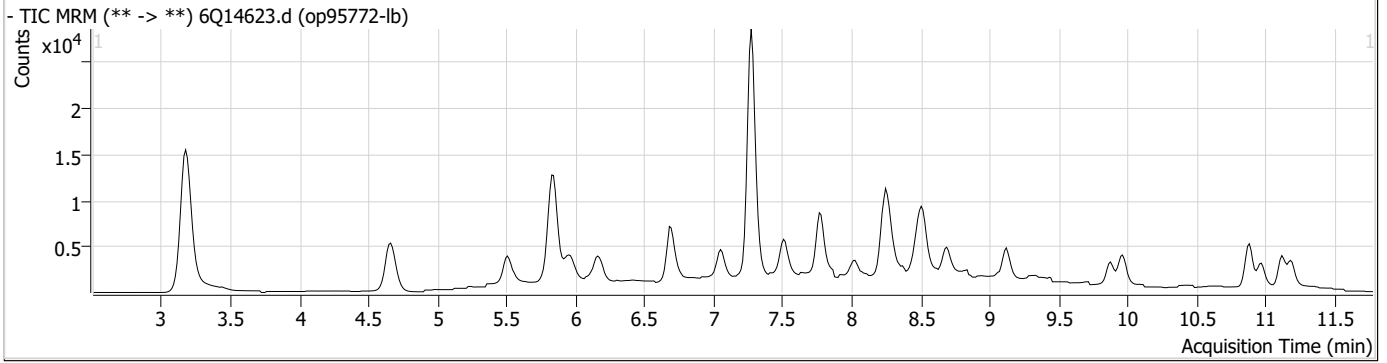
Perfluorinated Compounds by LC/MS/MS

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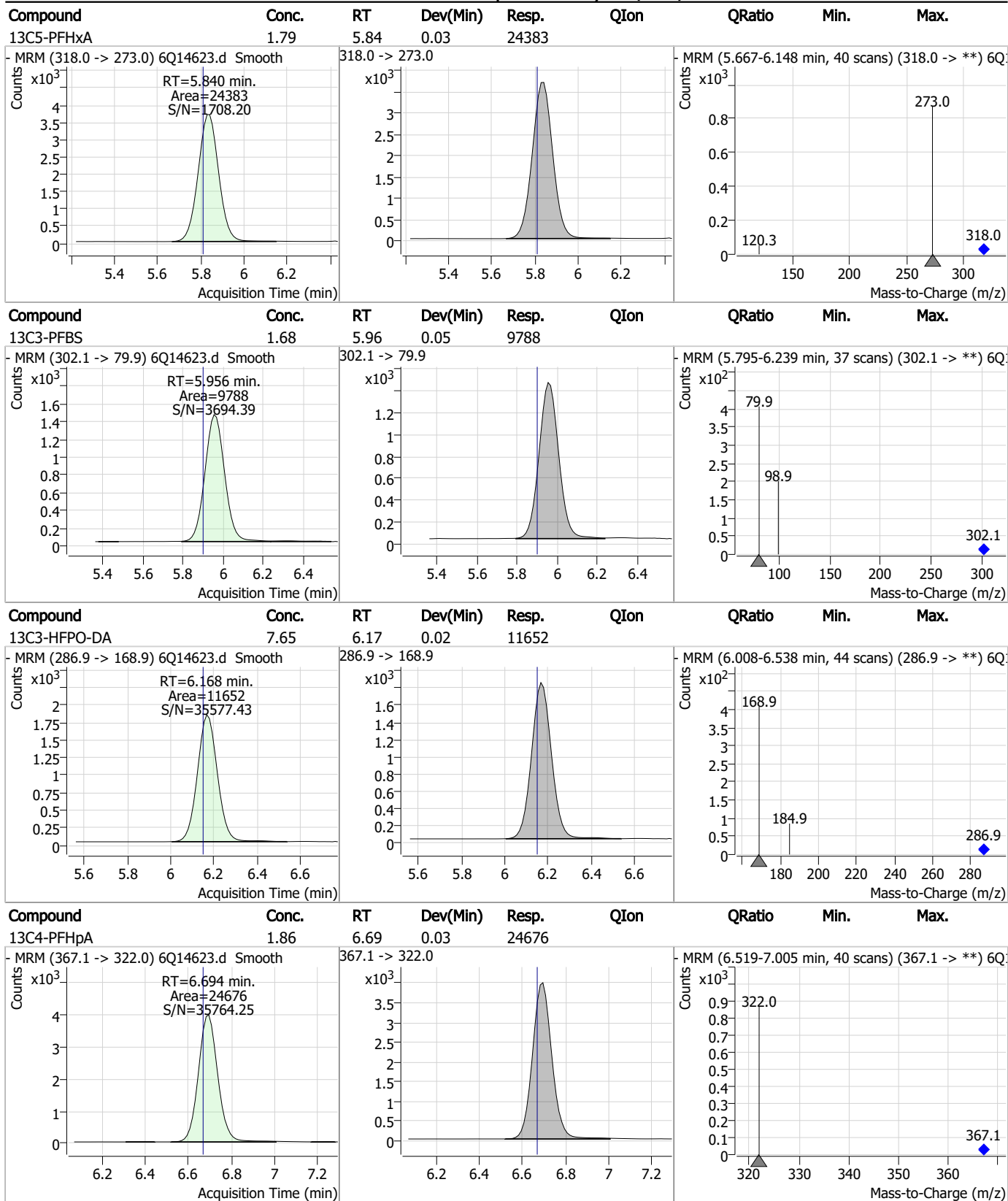
7.3.1

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Perfluorinated Compounds by LC/MS/MS

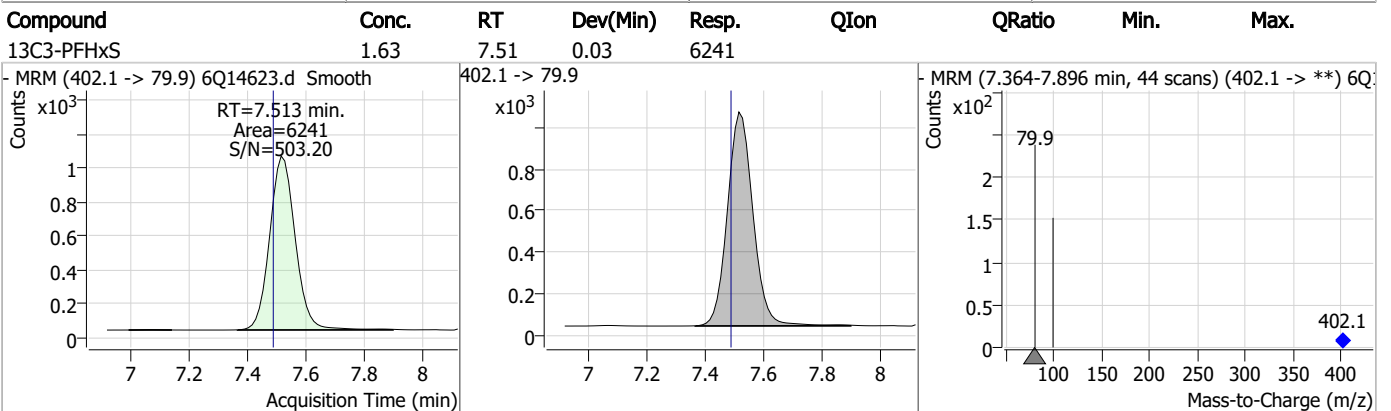
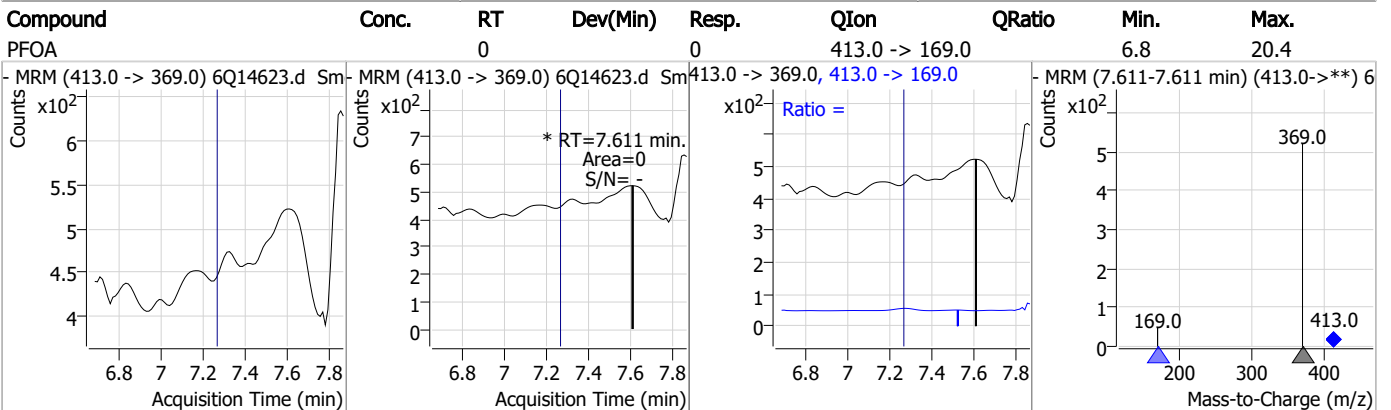
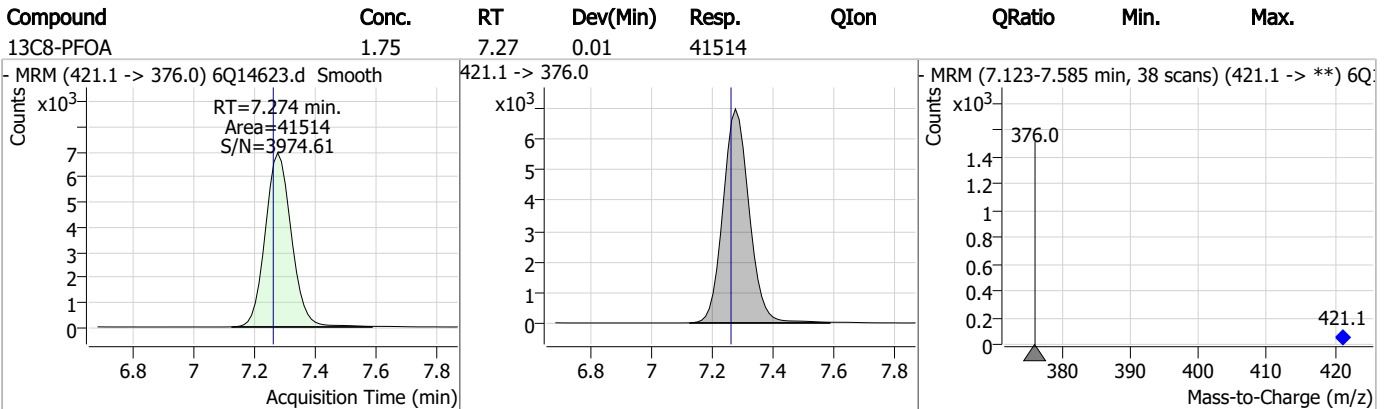
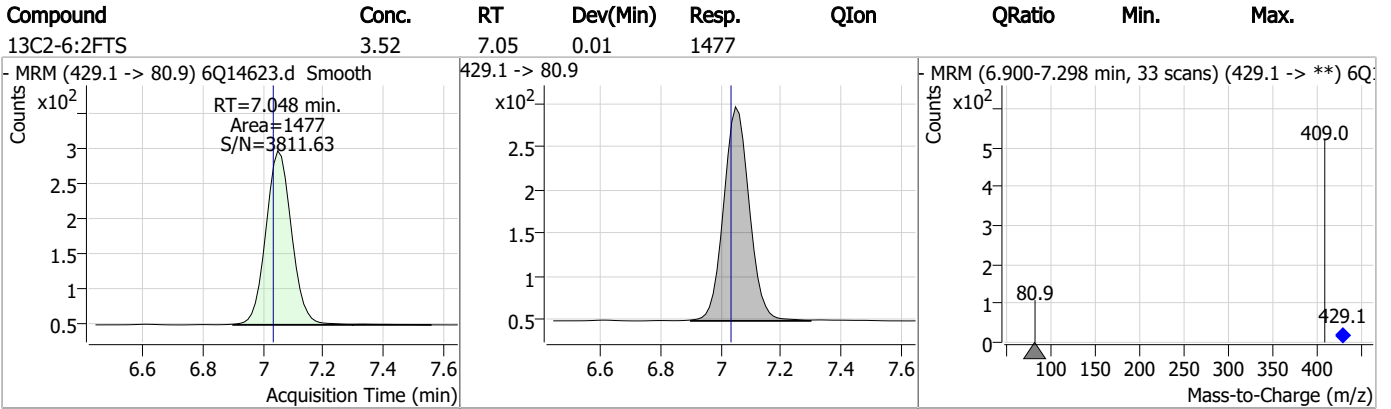


Perfluorinated Compounds by LC/MS/MS

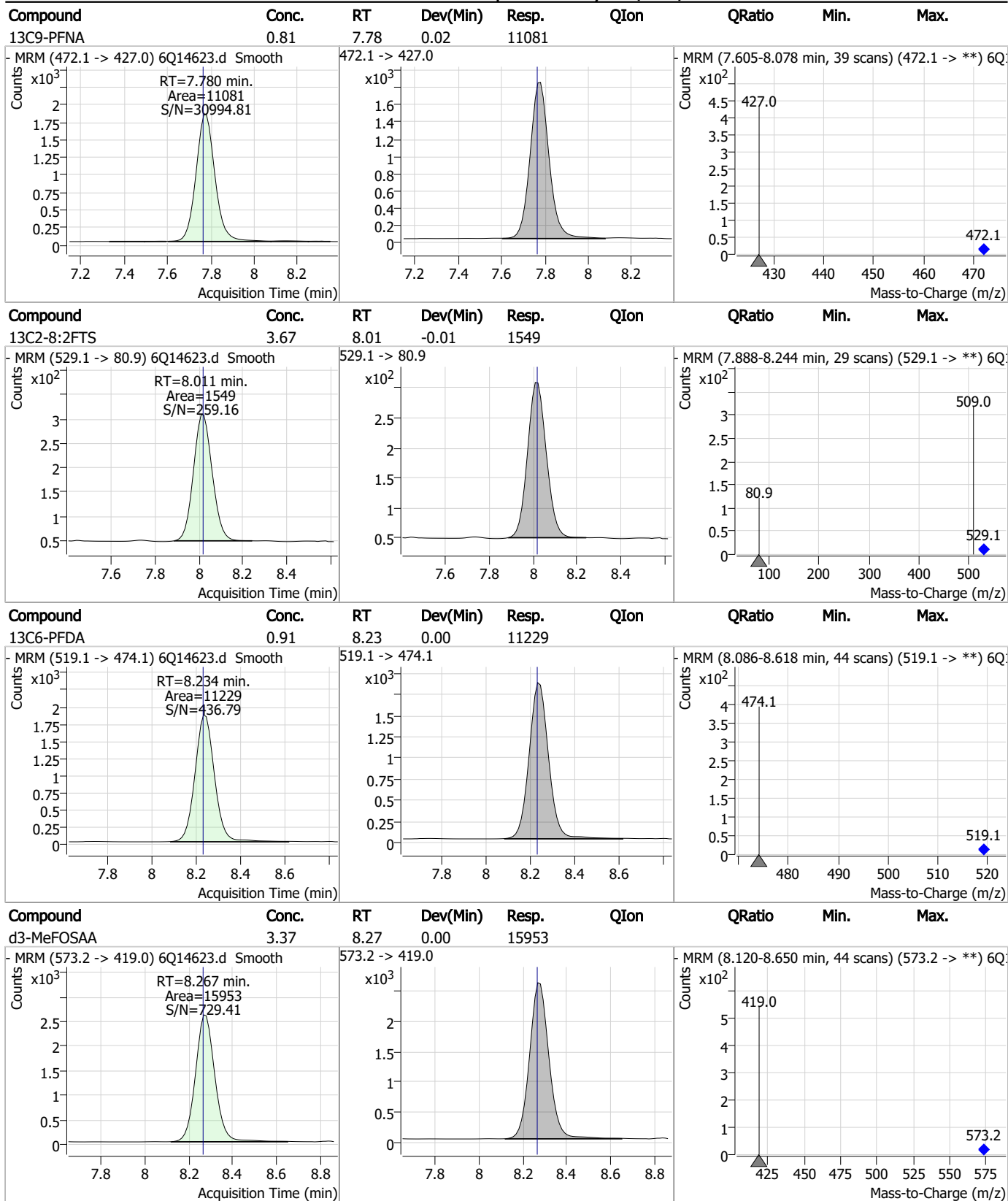


7.3.1
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Perfluorinated Compounds by LC/MS/MS

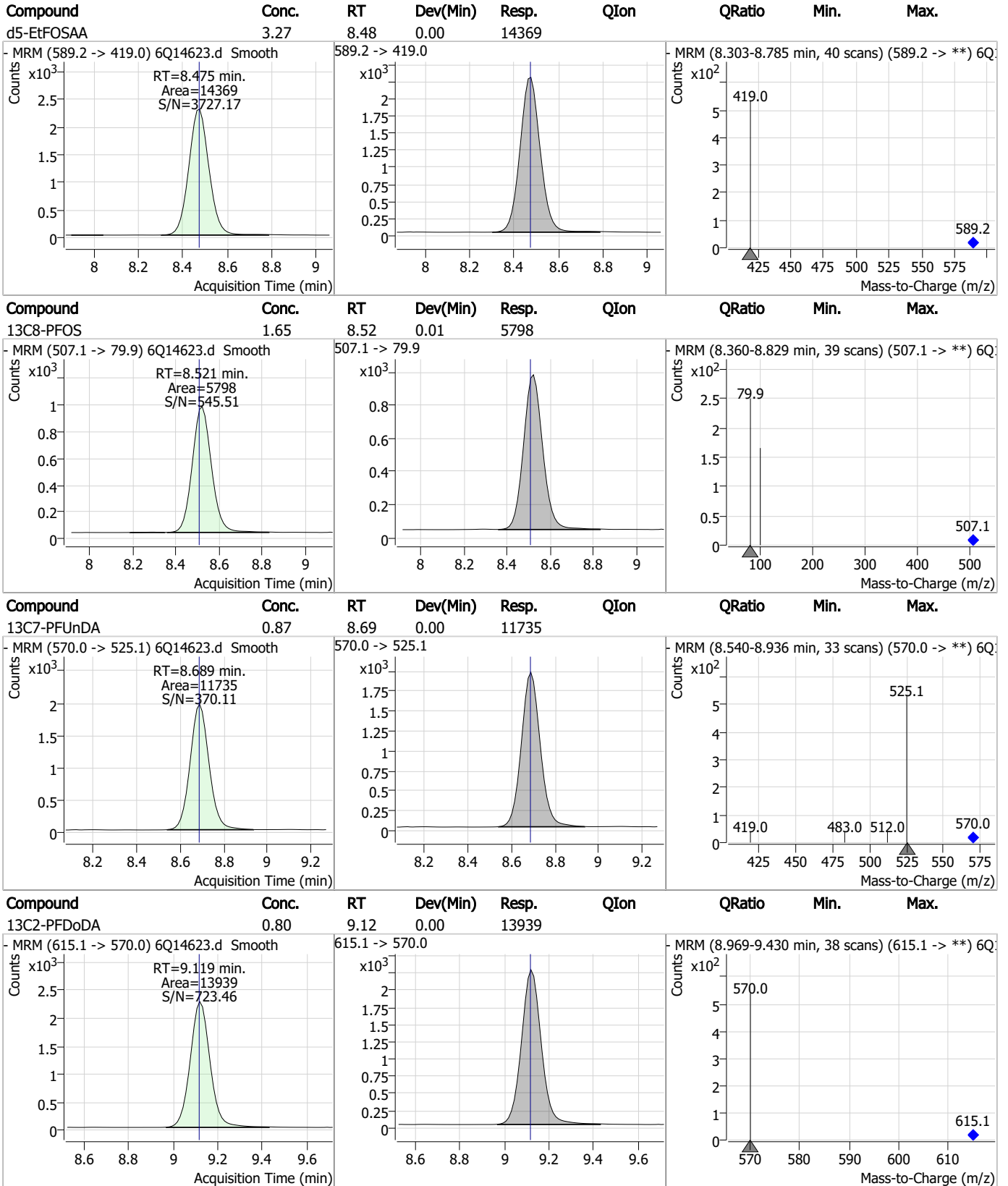


Perfluorinated Compounds by LC/MS/MS



7.3.1
7

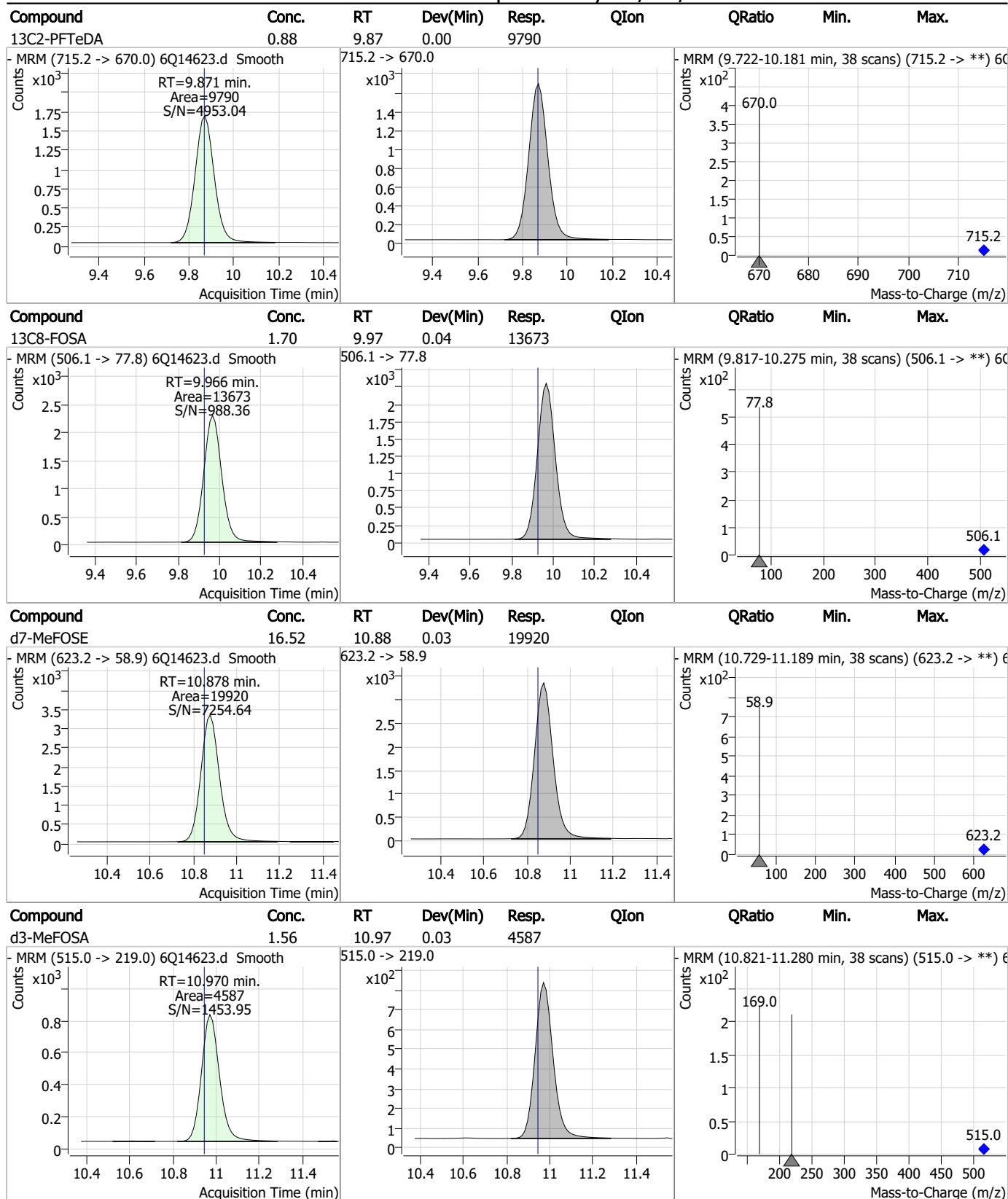
Perfluorinated Compounds by LC/MS/MS



7.3.1

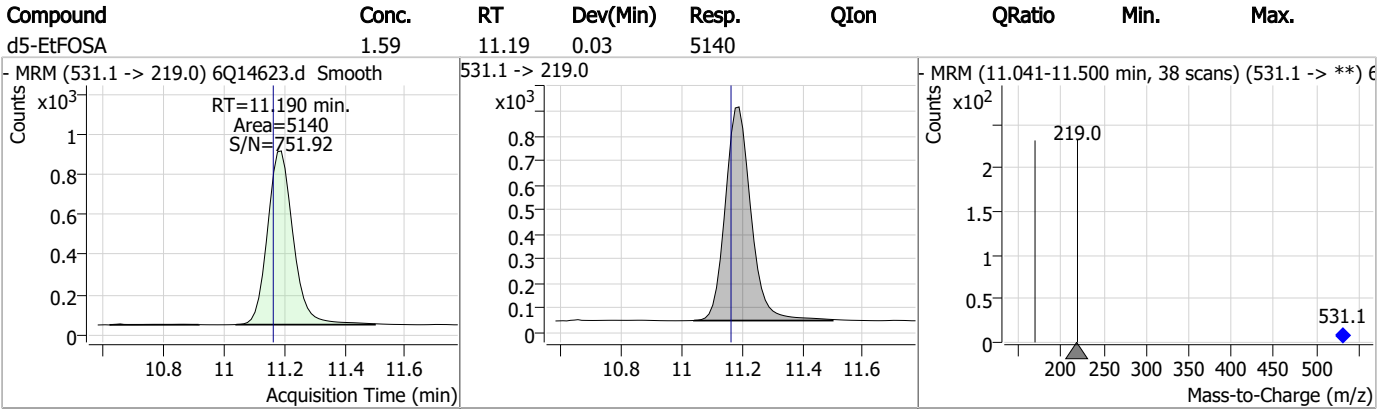
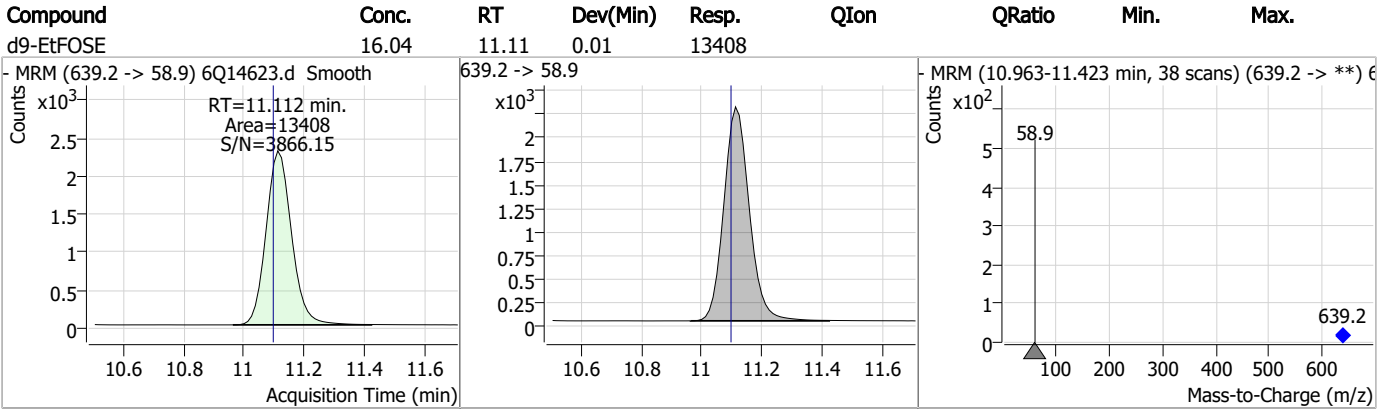
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Perfluorinated Compounds by LC/MS/MS



7.3.1
7

Perfluorinated Compounds by LC/MS/MS



7.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14546.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 7:45:51 PM
 Sample Name : op95747-bs
 Vial : P2-B6
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95747,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.216	216.8 -> 171.9	21812	10.00 µg/L	0.140
M5-PFPeA	4.665	268.3 -> 223.0	40687	5.00 µg/L	0.050
M5-PFHxA	5.834	318.0 -> 273.0	33770	2.50 µg/L	0.025
M4-PFHpA	6.680	367.1 -> 322.0	35694	2.50 µg/L	0.012
M8-PFOA	7.272	421.1 -> 376.0	57153	2.50 µg/L	0.012
M9-PFNA	7.764	472.1 -> 427.0	13418	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	14959	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	15015	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	18308	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	10949	1.25 µg/L	0.000
M8-FOSA	9.963	506.1 -> 77.8	17682	2.50 µg/L	0.037
M3-PFBS	5.963	302.1 -> 79.9	13221	2.50 µg/L	0.062
M3-PFHxS	7.511	402.1 -> 79.9	8458	2.50 µg/L	0.025
M8-PFOS	8.507	507.1 -> 79.9	8083	2.50 µg/L	0.000
M2-4:2FTS	5.500	329.1 -> 80.9	1618	5.00 µg/L	0.025
M2-6:2FTS	7.046	429.1 -> 80.9	2029	5.00 µg/L	0.012
M2-8:2FTS	8.007	529.1 -> 80.9	2082	5.00 µg/L	-0.012
M3-MeFOSAA	8.265	573.2 -> 419.0	20425	5.00 µg/L	0.000
M3-HFPO-DA	6.163	286.9 -> 168.9	15069	10.00 µg/L	0.012
M5-EtFOSAA	8.460	589.2 -> 419.0	19272	5.00 µg/L	-0.012
M7-MeFOSE	10.876	623.2 -> 58.9	21715	25.00 µg/L	0.025
M9-EtFOSE	11.110	639.2 -> 58.9	14115	25.00 µg/L	0.012
M5-EtFOSA	11.176	531.1 -> 219.0	5595	2.50 µg/L	0.012
M3-MeFOSA	10.969	515.0 -> 219.0	5571	2.50 µg/L	0.025
13C4-PFOS	8.508	502.8 -> 79.9	10899	2.50 µg/L	0.012
13C3-PFBA	3.205	216.0 -> 172.0	43142	5.00 µg/L	0.127
18O2-PFHxS	7.510	403.0 -> 83.9	7337	2.50 µg/L	0.012
13C4-PFOA	7.272	417.1 -> 372.0	78876	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	25275	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	18100	1.25 µg/L	0.000
13C2-PFHxA	5.835	315.1 -> 270.0	39512	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.500	329.1 -> 80.9	1618	4.63 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.6%		
13C2-6:2FTS	7.046	429.1 -> 80.9	2029	4.42 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.3%		
13C2-8:2FTS	8.007	529.1 -> 80.9	2082	4.51 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.1%		
13C2-PFDoDA	9.117	615.1 -> 570.0	18308	0.86 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 68.4%		
13C2-PFTeDA	9.868	715.2 -> 670.0	10949	0.81 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 64.4%		
13C3-PFBS	5.963	302.1 -> 79.9	13221	2.07 µg/L	0.062
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 82.6%		
13C3-PFHxS	7.511	402.1 -> 79.9	8458	2.01 µg/L	0.025

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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 = 80.6%	
13C4-PFBA	3.216	216.8 -> 171.9	21812	2.20 µg/L	0.140
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 22.0%	
13C4-PFHpA	6.680	367.1 -> 322.0	35694	2.26 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.5%	
13C5-PFHxA	5.834	318.0 -> 273.0	33770	2.08 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.4%	
13C5-PFPeA	4.665	268.3 -> 223.0	40687	4.34 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 86.9%	
13C6-PFDA	8.233	519.1 -> 474.1	14959	0.99 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 79.1%	
13C7-PFUnDA	8.687	570.0 -> 525.1	15015	0.90 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 72.4%	
13C8-FOSA	9.963	506.1 -> 77.8	17682	2.07 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.7%	
13C8-PFOA	7.272	421.1 -> 376.0	57153	2.18 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.1%	
13C8-PFOS	8.507	507.1 -> 79.9	8083	2.16 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.6%	
13C9-PFNA	7.764	472.1 -> 427.0	13418	0.96 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 76.9%	
d3-MeFOSAA	8.265	573.2 -> 419.0	20425	4.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 81.4%	
13C3-HFPO-DA	6.163	286.9 -> 168.9	15069	8.32 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.2%	
d3-MeFOSA	10.969	515.0 -> 219.0	5571	1.79 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 71.4%	
d5-EtFOSAA	8.460	589.2 -> 419.0	19272	4.13 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 82.7%	
d7-MeFOSE	10.876	623.2 -> 58.9	21715	16.97 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 67.9%	
d9-EtFOSE	11.110	639.2 -> 58.9	14115	15.91 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 63.6%	
d5-EtFOSA	11.176	531.1 -> 219.0	5595	1.63 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 65.2%	
Target Compounds					QValue
4:2FTS	5.500	327.1 -> 307.0	33399	9.15 µg/L	99
		327.1 -> 80.9	7984		
6:2FTS	7.046	427.1 -> 407.0	27694	9.07 µg/L	98
		427.1 -> 80.9	6387		
8:2FTS	8.008	527.1 -> 507.0	15163	9.15 µg/L	100
		527.1 -> 80.8	3982		
EtFOSAA	8.474	584.2 -> 419.1	7673	2.37 µg/L	m 98
		584.2 -> 526.0	3864		
FOSA	9.954	498.1 -> 77.9	16460	2.27 µg/L	100
		498.1 -> 478.0	595		
MeFOSAA	8.278	570.1 -> 419.0	9848	2.28 µg/L	99
		570.1 -> 483.0	1924		
PFBA	3.207	212.8 -> 168.9	5186	8.67 µg/L	100
PFBS	5.964	298.7 -> 79.9	11035	1.99 µg/L	95
		298.7 -> 98.8	4864		
PFDA	8.233	512.9 -> 469.0	39861	2.07 µg/L	95
		512.9 -> 219.0	5632		
PFDoDA	9.117	613.1 -> 569.0	37184	2.48 µg/L	96
		613.1 -> 319.0	4523		
PFDS	9.381	599.0 -> 79.9	5417	1.97 µg/L	94

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2922			
PFHpA	6.681	363.1 -> 319.0	52640	2.30	µg/L	100
		363.1 -> 169.0	7379			
PFHpS	8.028	449.0 -> 79.9	7281	1.91	µg/L	93
		449.0 -> 98.9	4681			
PFHxA	5.838	313.0 -> 269.0	32316	2.41	µg/L	99
		313.0 -> 118.9	1270			
PFHxS	7.512	398.7 -> 79.9	8769	2.12	µg/L	m 97
		398.7 -> 98.9	4762			
PFNA	7.765	463.0 -> 419.0	21558	2.33	µg/L	100
		463.0 -> 219.0	4533			
PFNS	8.973	548.8 -> 79.9	8060	2.06	µg/L	87
		548.8 -> 98.9	4146			
PFOA	7.273	413.0 -> 369.0	57766	2.02	µg/L	96
		413.0 -> 169.0	8757			
PFOS	8.521	498.9 -> 79.9	7877	1.96	µg/L	m 96
		498.9 -> 98.8	4743			
PFPeA	4.666	263.0 -> 219.0	42331	4.48	µg/L	100
PFPeS	6.894	349.1 -> 79.9	10737	2.20	µg/L	97
		349.1 -> 98.9	5529			
PFTeDA	9.869	713.1 -> 669.0	31311	2.29	µg/L	99
		713.1 -> 168.9	2240			
PFTrDA	9.513	663.0 -> 619.0	30831	2.06	µg/L	98
		663.0 -> 168.9	2726			
PFUnDA	8.687	563.1 -> 519.0	34409	2.36	µg/L	99
		563.1 -> 269.1	5041			
11CI-PF3OUdS	9.664	630.9 -> 450.9	79762	8.96	µg/L	93
		632.9 -> 452.9	24190			
9CI-PF3ONS	8.851	530.8 -> 351.0	147984	9.15	µg/L	99
		532.8 -> 353.0	47431			
ADONA	6.928	376.9 -> 250.9	285077	9.01	µg/L	98
		376.9 -> 84.8	66980			
HFPO-DA	6.164	284.9 -> 168.9	14395	9.56	µg/L	99
		284.9 -> 184.9	1759			
3:3FTCA	4.101	241.0 -> 177.0	4606	9.58	µg/L	99
		241.0 -> 117.0	687			
5:3FTCA	6.431	341.0 -> 237.1	182644	62.36	µg/L	99
		341.0 -> 217.0	153225			
7:3FTCA	7.755	441.0 -> 316.9	90238	64.23	µg/L	92
		441.0 -> 336.9	142709			
EtFOSA	11.190	526.0 -> 219.0	5972	2.20	µg/L	94
		526.0 -> 169.0	6398			
EtFOSE	11.123	630.0 -> 58.9	12762	22.13	µg/L	100
MeFOSA	10.971	511.9 -> 219.0	6558	2.39	µg/L	97
		511.9 -> 169.0	6853			
MeFOSE	10.889	616.1 -> 58.9	19703	22.09	µg/L	100
PFDoDS	10.082	699.1 -> 79.9	3276	1.97	µg/L	99
		699.1 -> 98.8	1869			
NFDHA	5.717	295.0 -> 201.0	4285	4.64	µg/L	91
		295.0 -> 84.9	1934			
PFMBA	5.051	279.0 -> 85.1	14821	4.67	µg/L	100
PFMPA	3.794	229.0 -> 84.9	6705	2.42	µg/L	100
PFEESA	6.433	314.8 -> 134.9	84308	4.37	µg/L	99
		314.8 -> 82.9	2063			

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

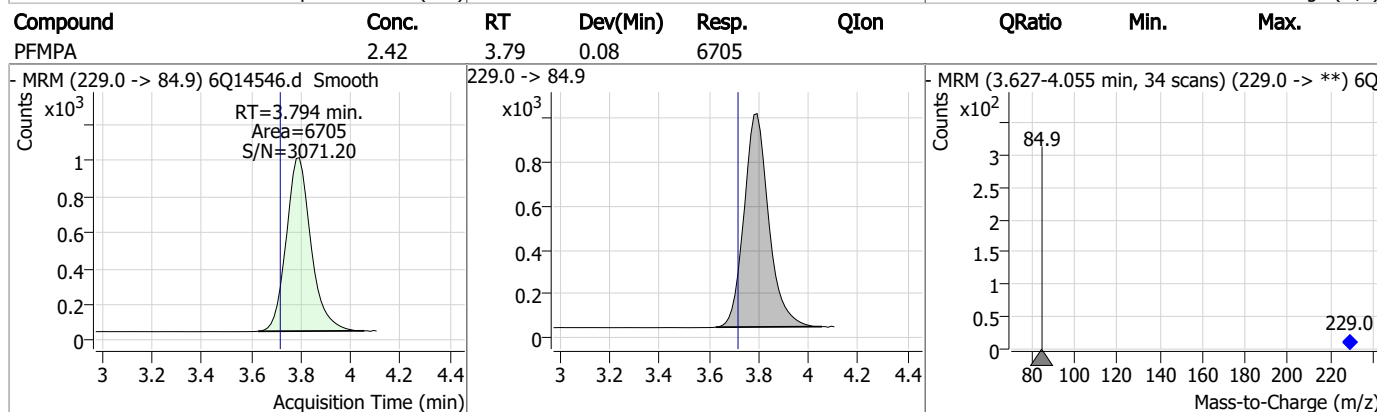
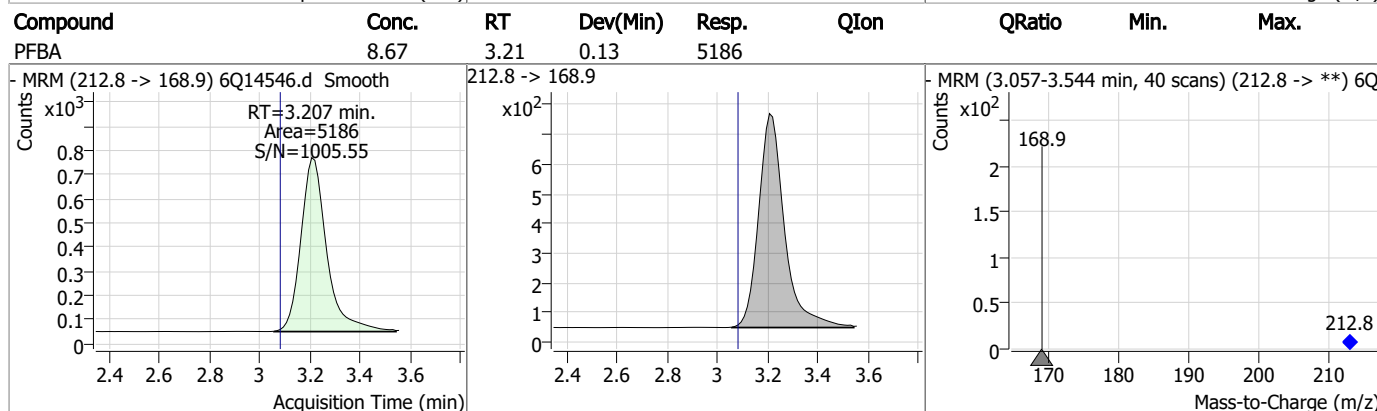
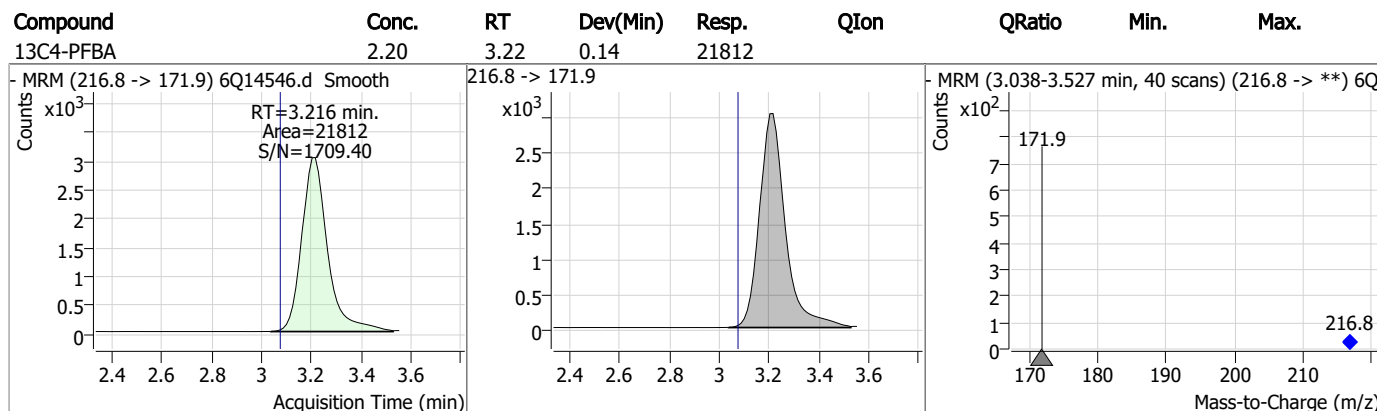
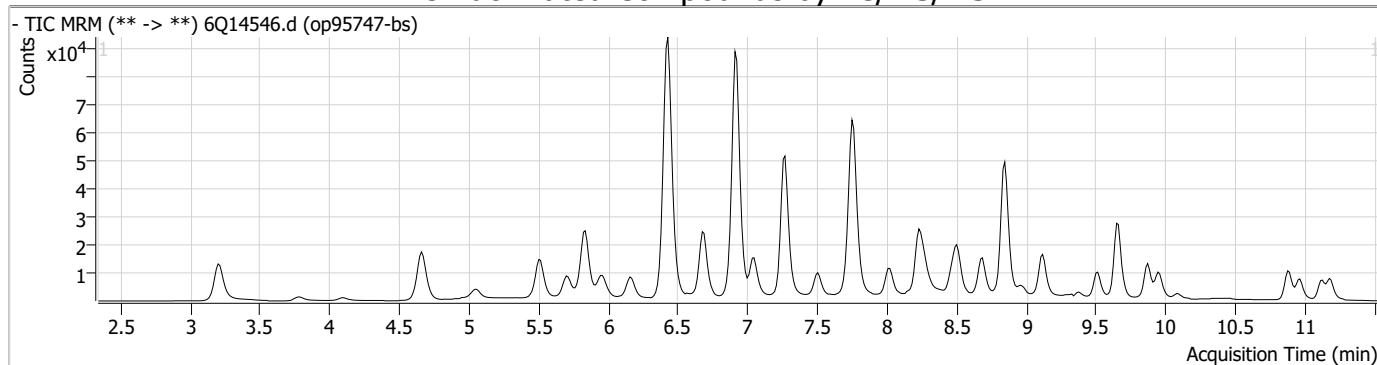
Perfluorinated Compounds by LC/MS/MS

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

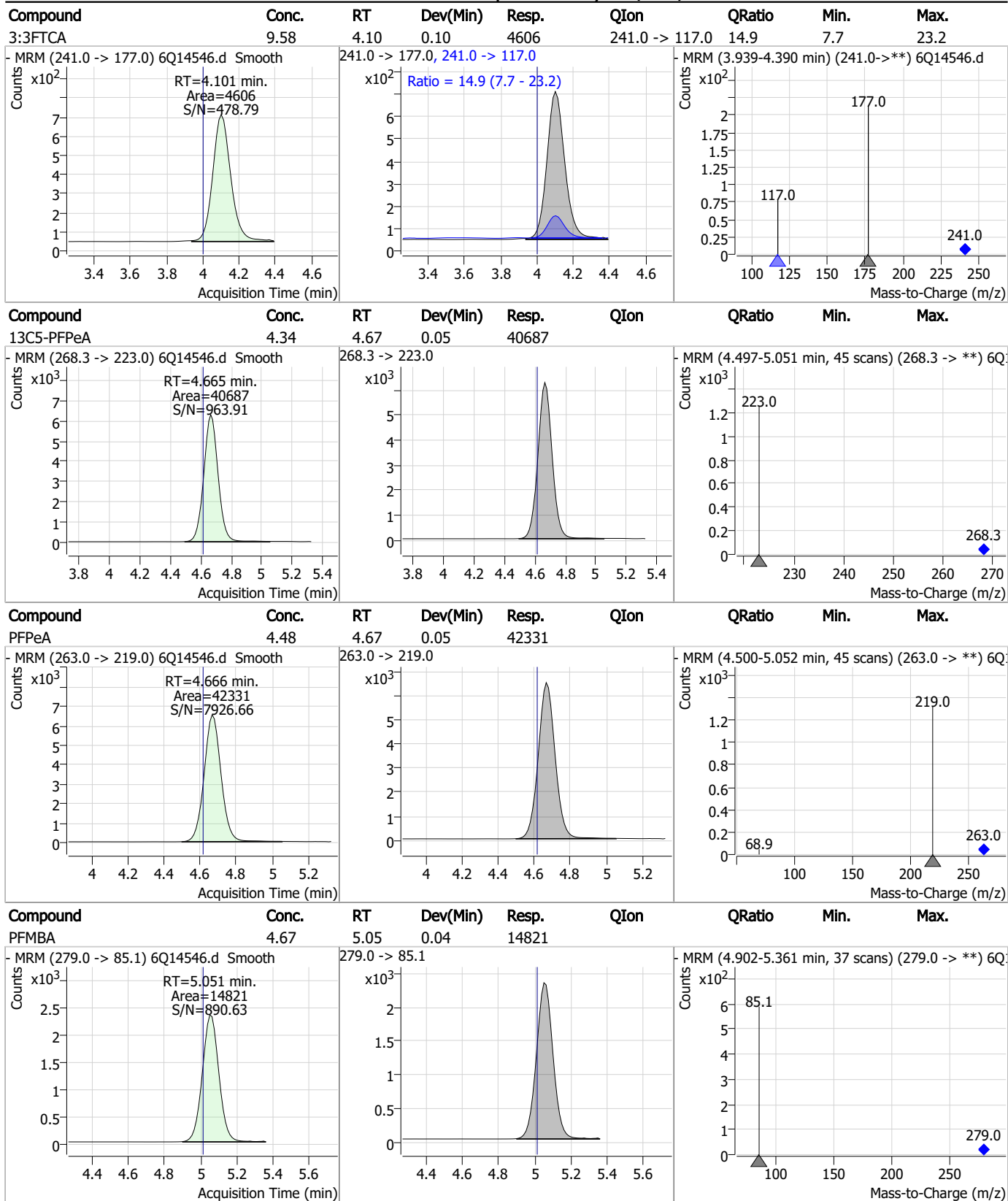
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Perfluorinated Compounds by LC/MS/MS



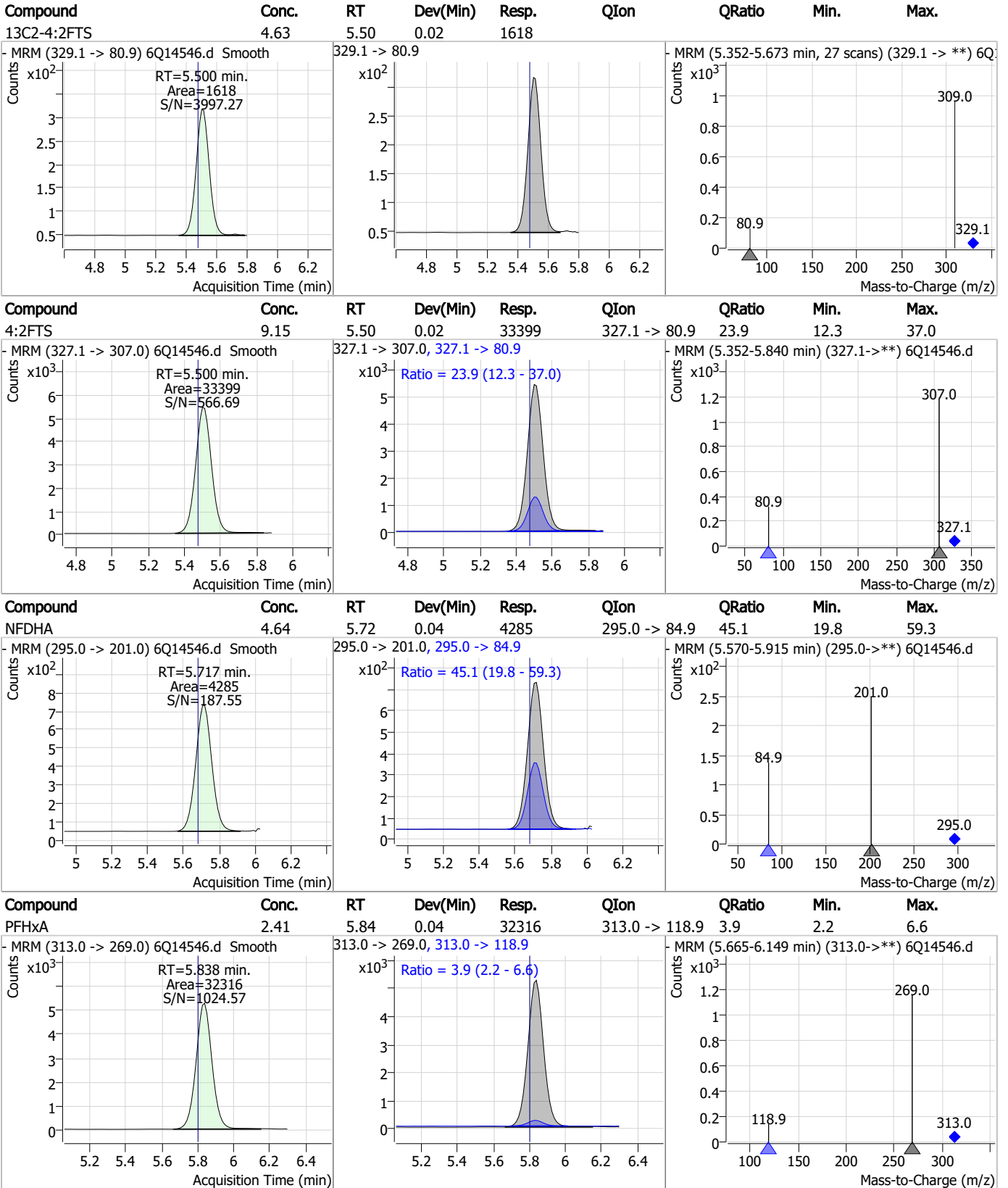
7.4.1
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Perfluorinated Compounds by LC/MS/MS



7.4.1
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Perfluorinated Compounds by LC/MS/MS



7.4.1

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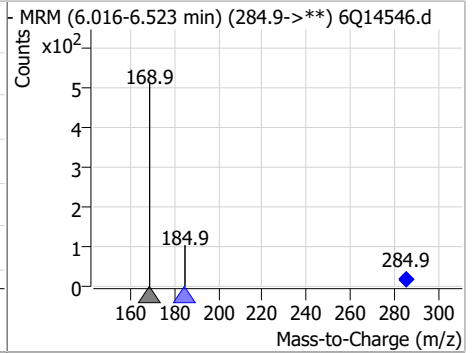
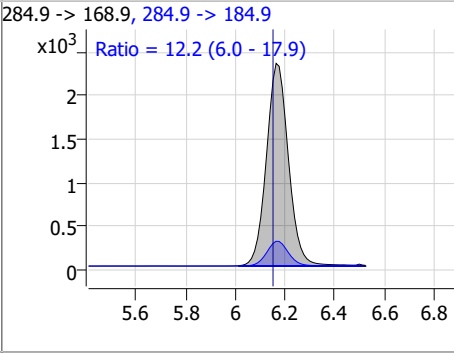
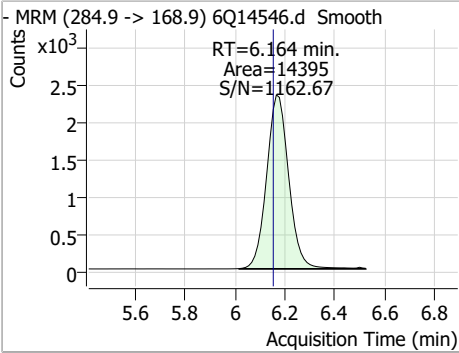
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.08	5.83	0.02	33770				
13C3-PFBS	2.07	5.96	0.06	13221				
PFBS	1.99	5.96	0.06	11035	298.7 -> 98.8	44.1	20.4	61.1
13C3-HFPO-DA	8.32	6.16	0.01	15069				

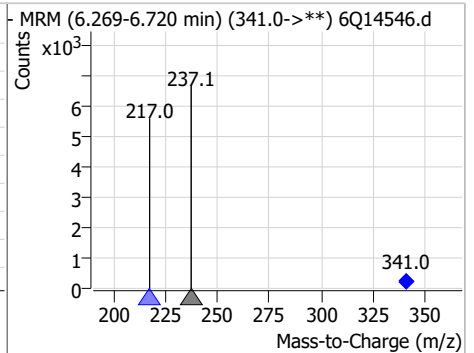
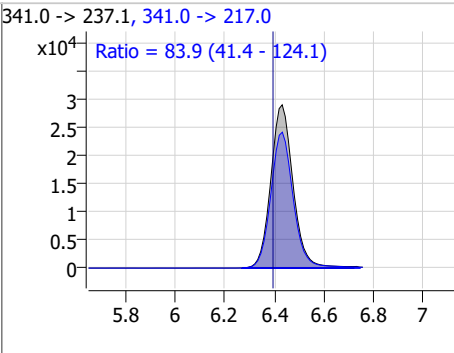
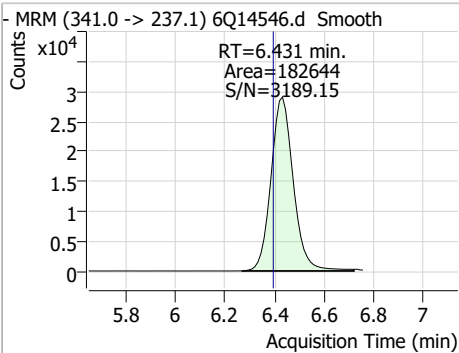
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Perfluorinated Compounds by LC/MS/MS

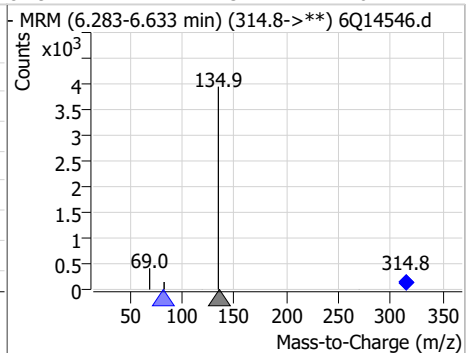
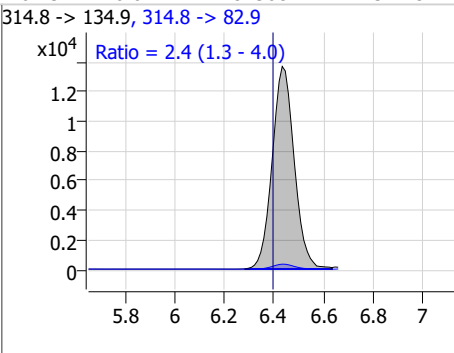
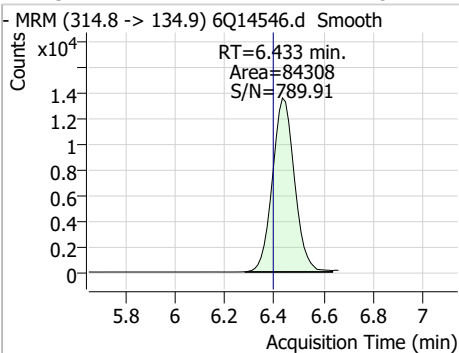
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.56	6.16	0.01	14395	284.9 -> 184.9	12.2	6.0	17.9



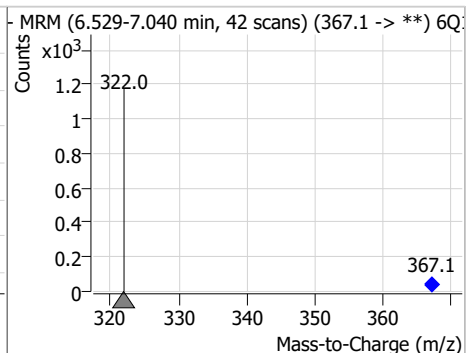
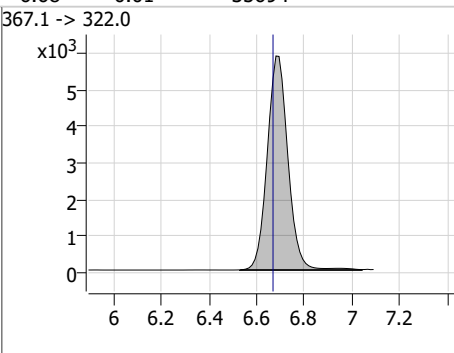
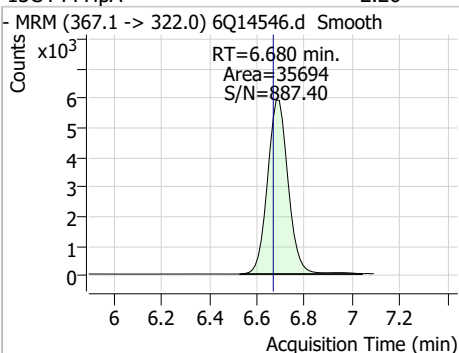
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	62.36	6.43	0.04	182644	341.0 -> 217.0	83.9	41.4	124.1



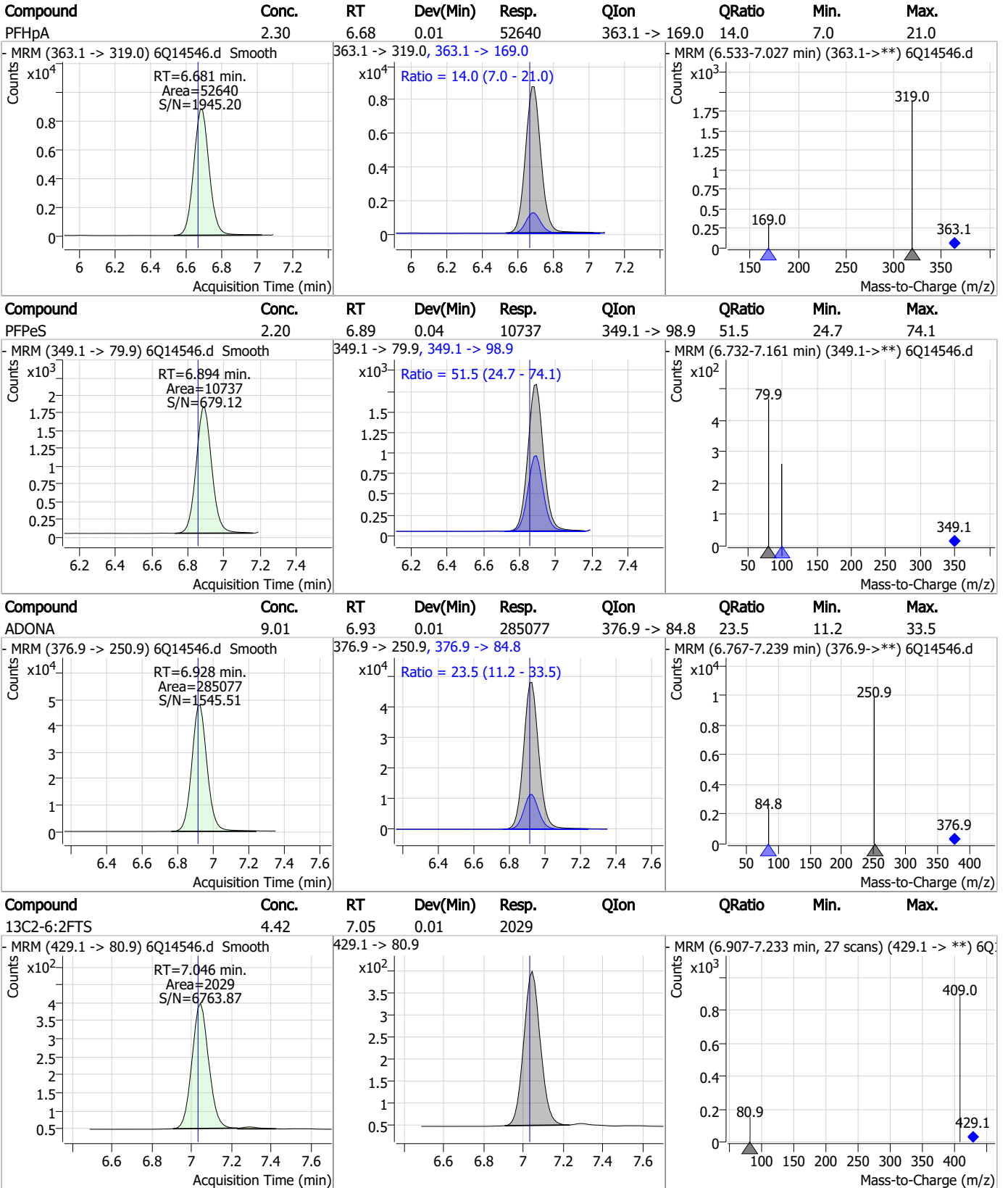
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.37	6.43	0.04	84308	314.8 -> 82.9	2.4	1.3	4.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.26	6.68	0.01	35694	367.1 -> 322.0			



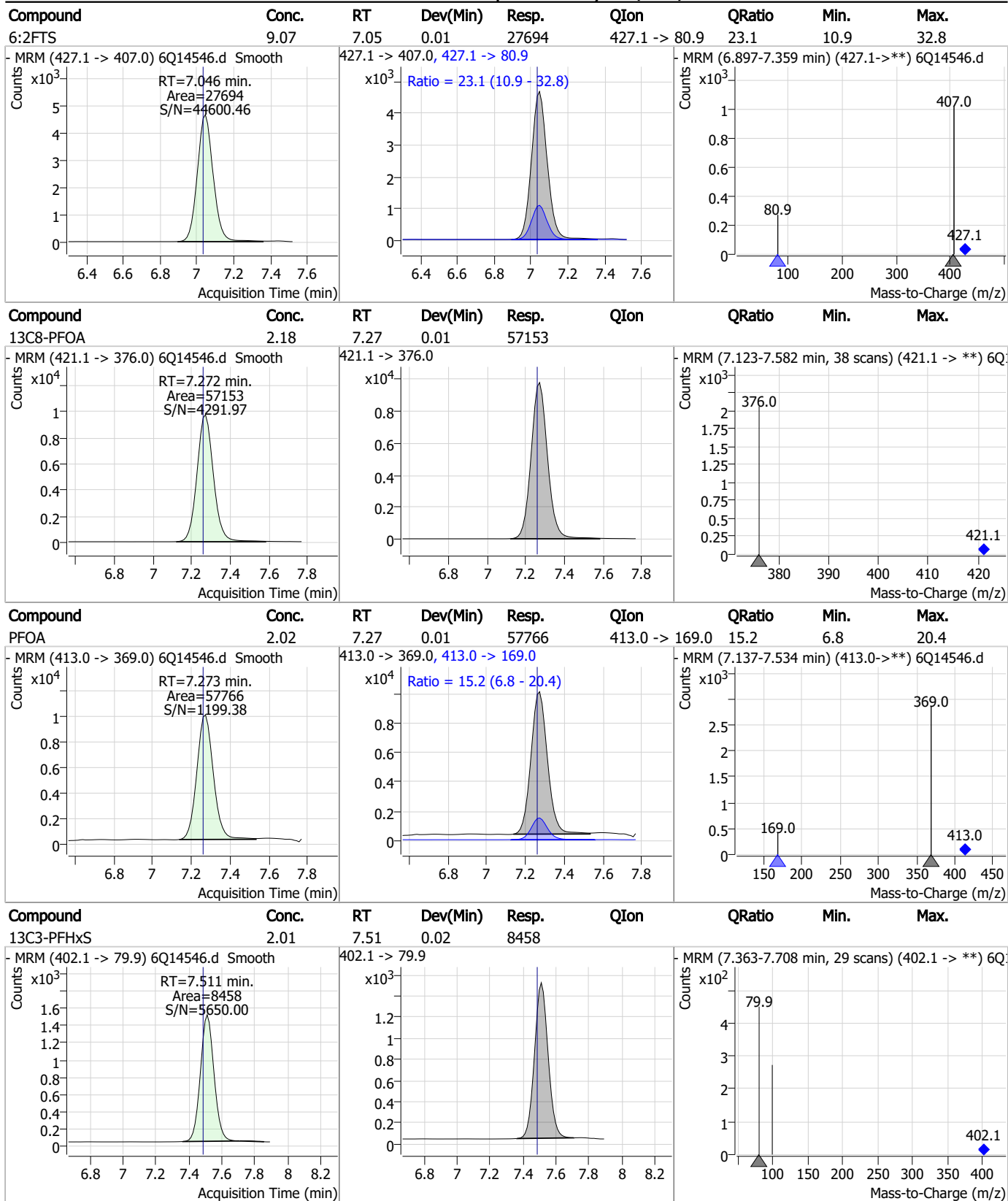
Perfluorinated Compounds by LC/MS/MS



7.4.1

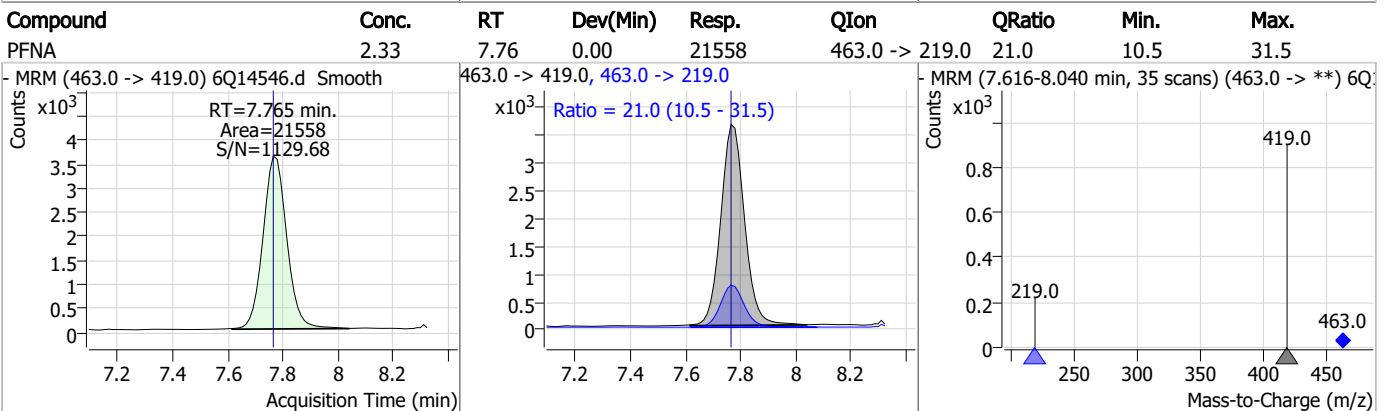
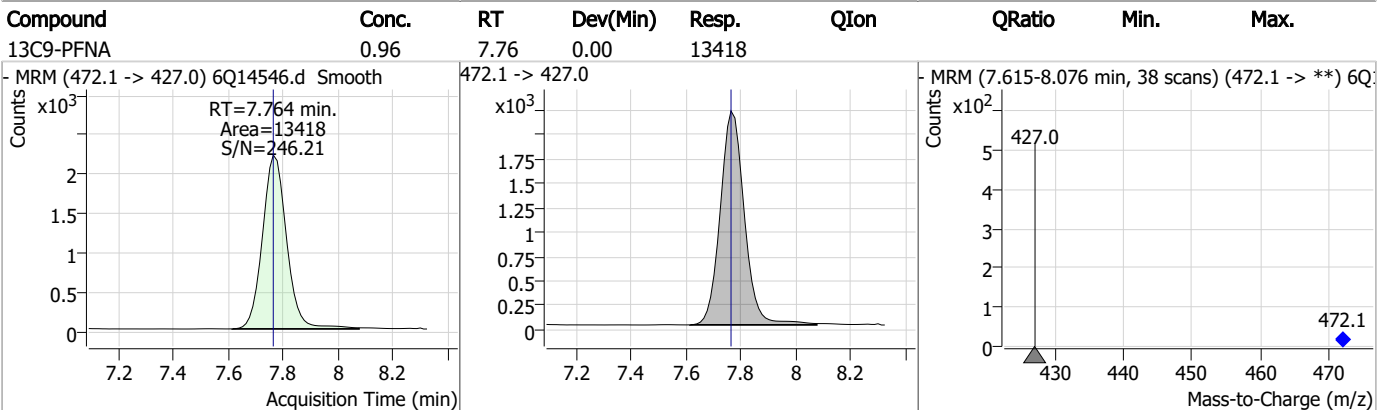
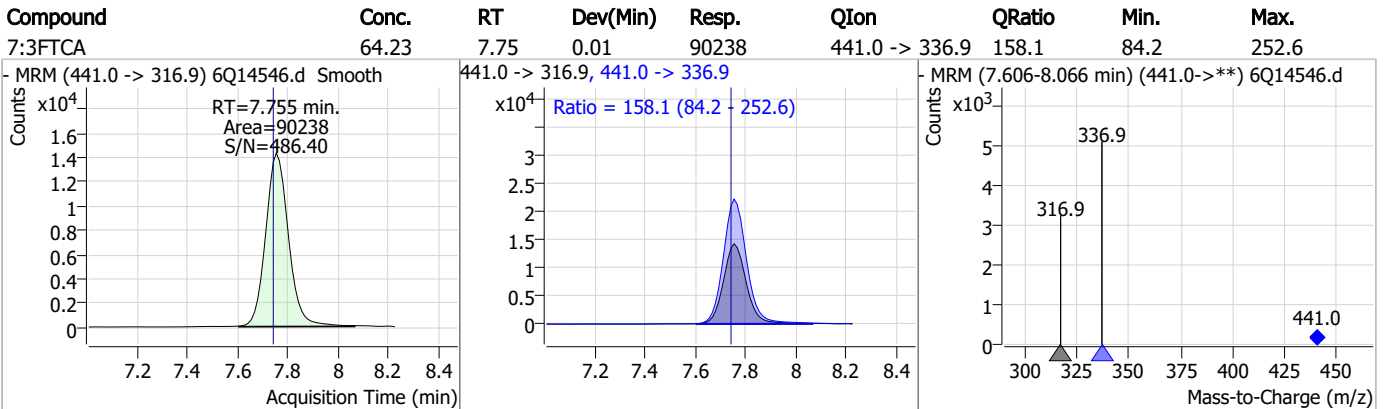
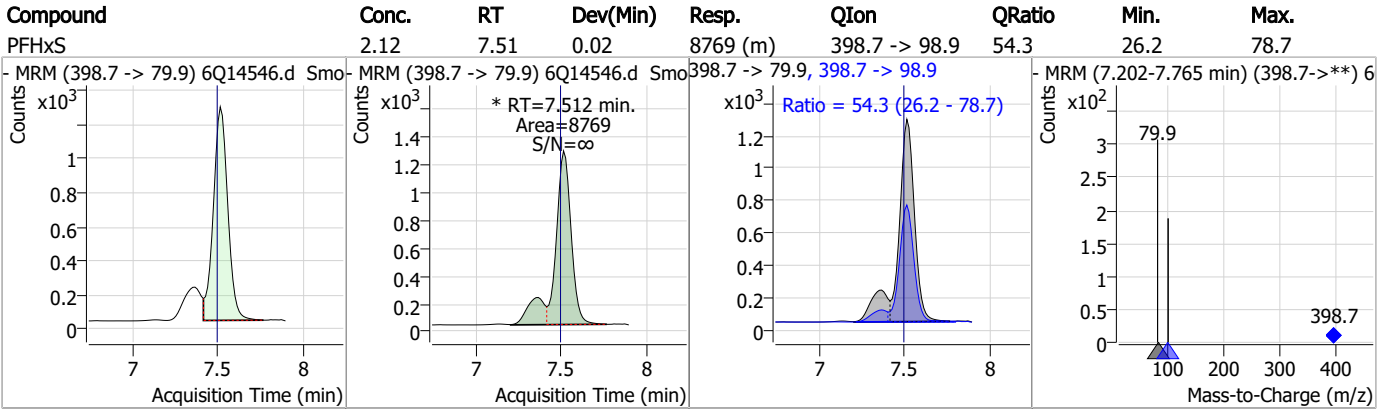
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Perfluorinated Compounds by LC/MS/MS



7.4.1
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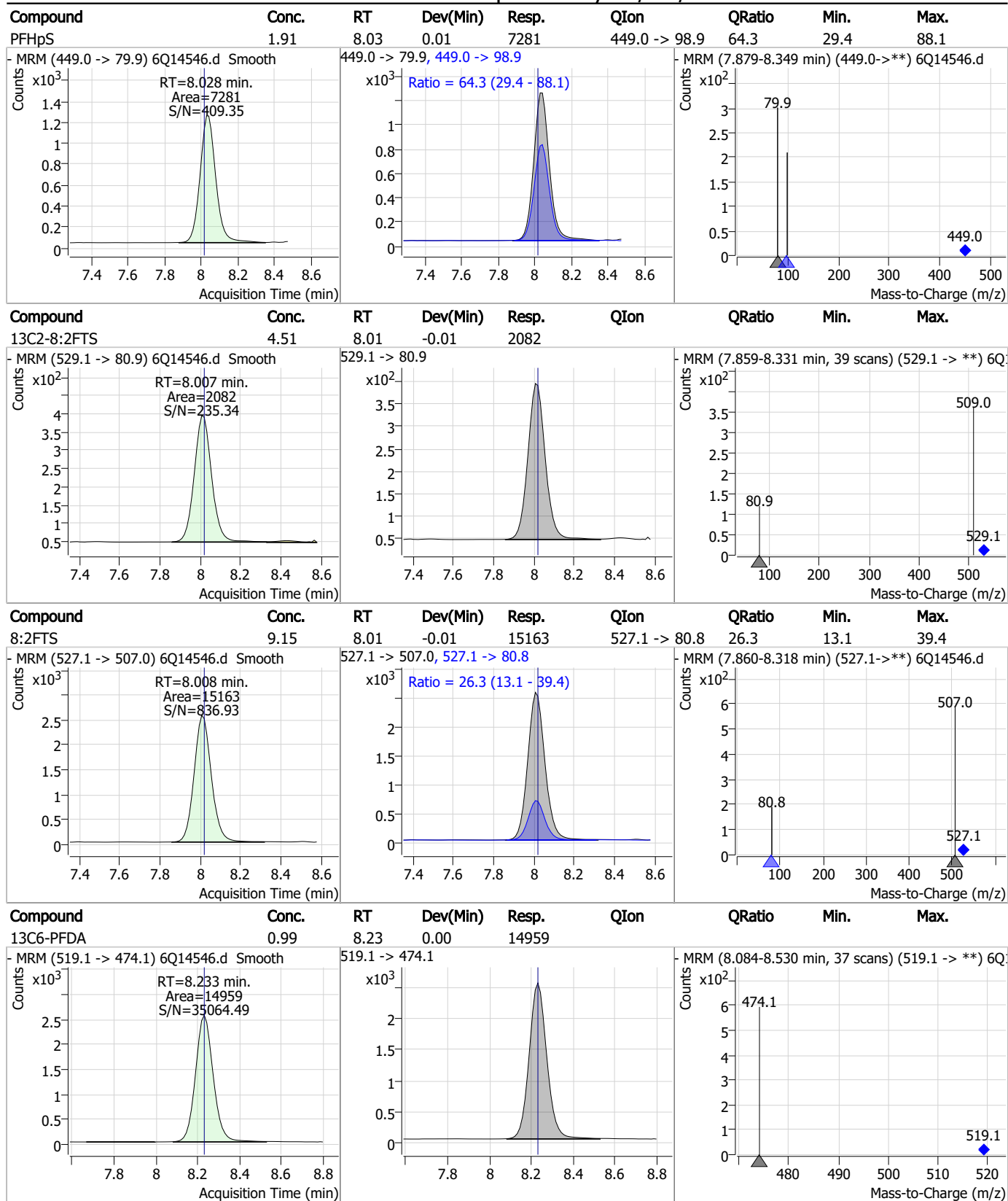
Perfluorinated Compounds by LC/MS/MS



7.4.1

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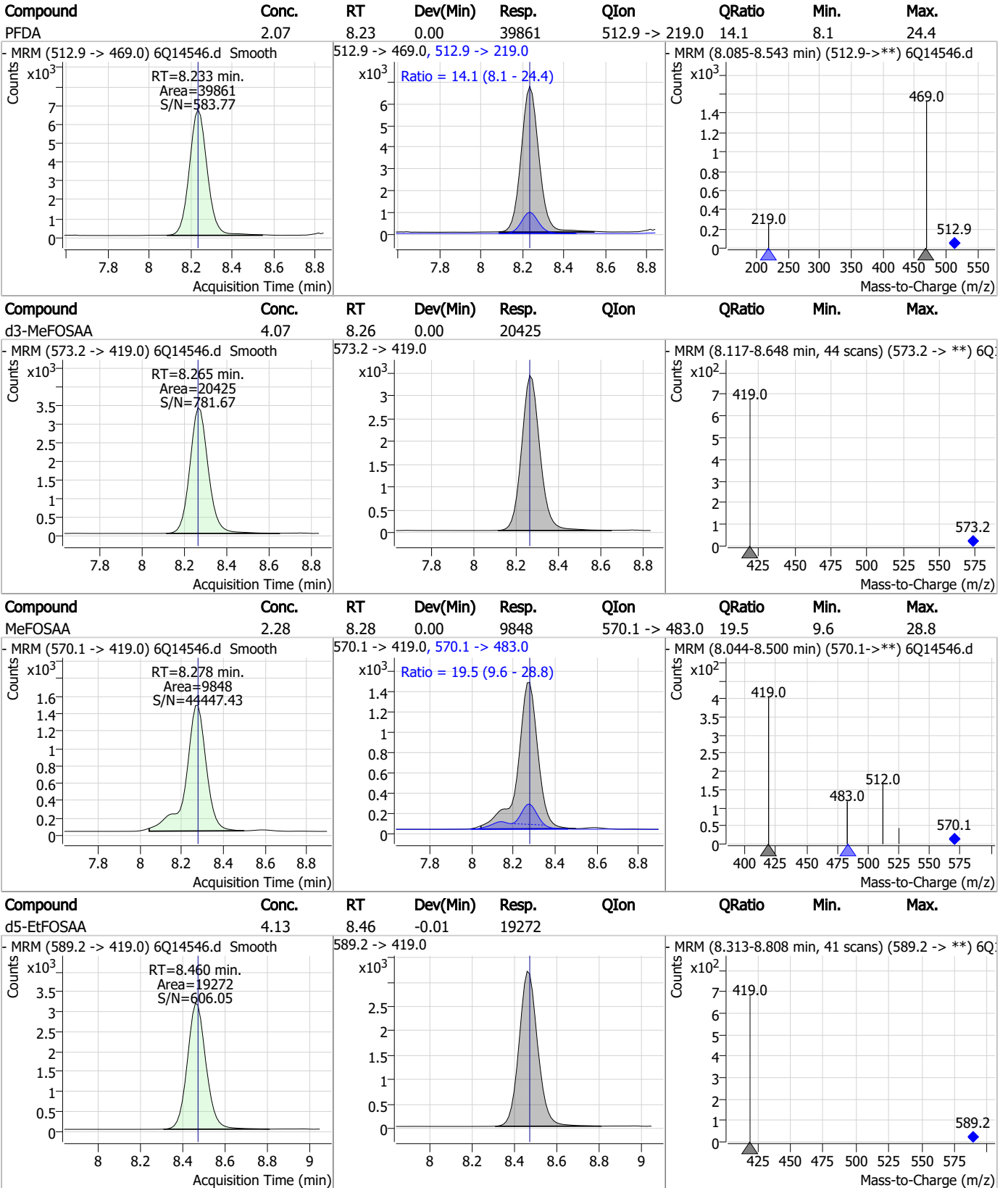
Perfluorinated Compounds by LC/MS/MS



7.4.1

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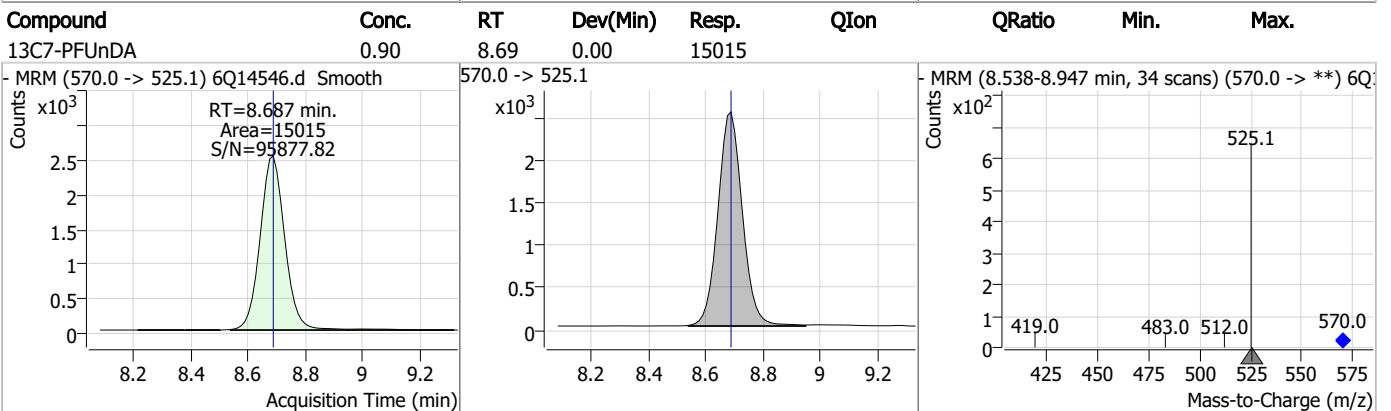
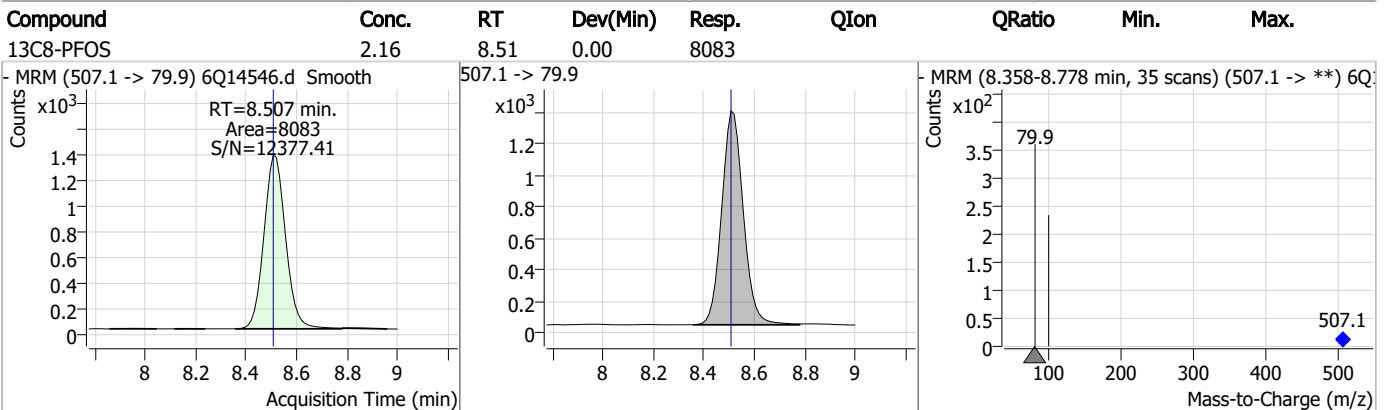
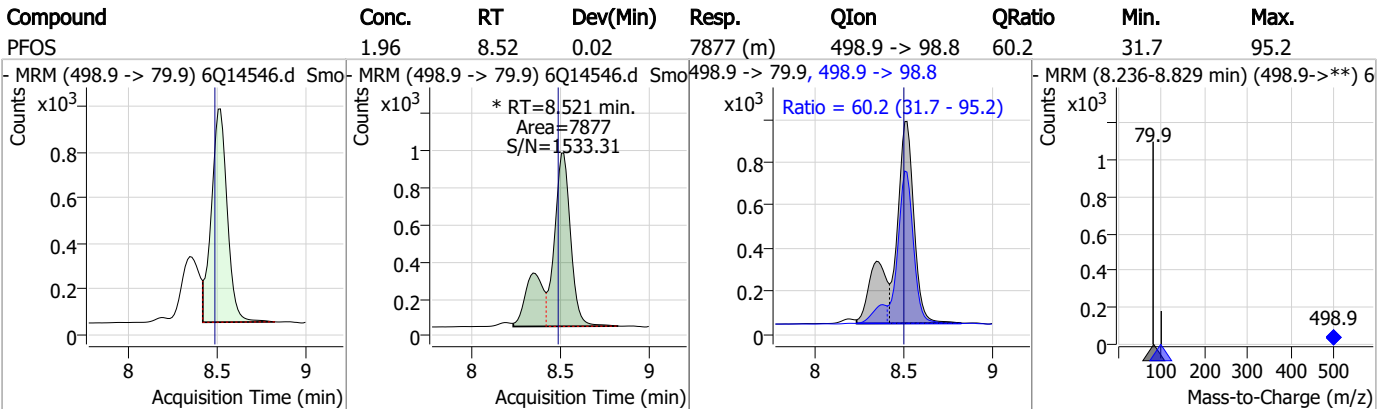
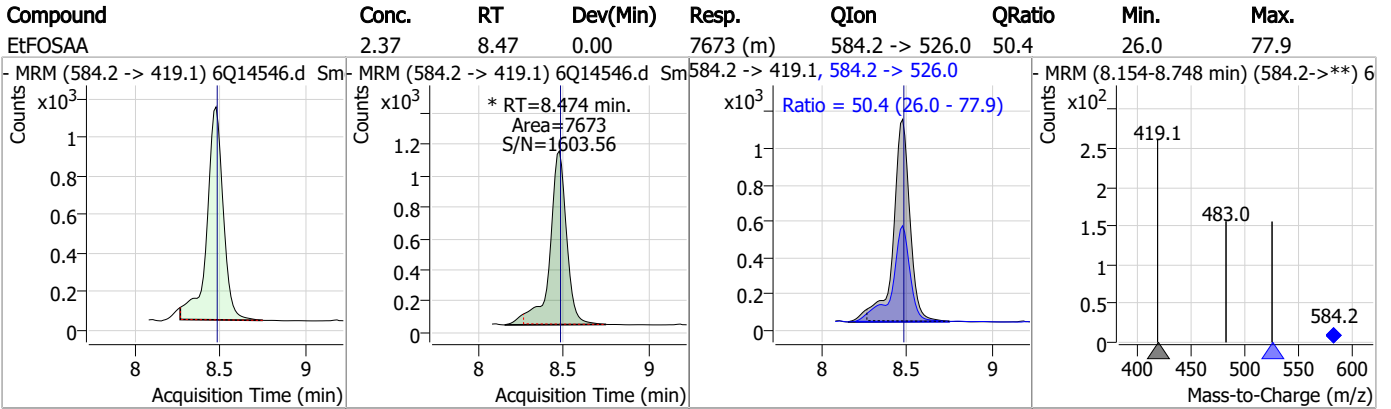
Perfluorinated Compounds by LC/MS/MS



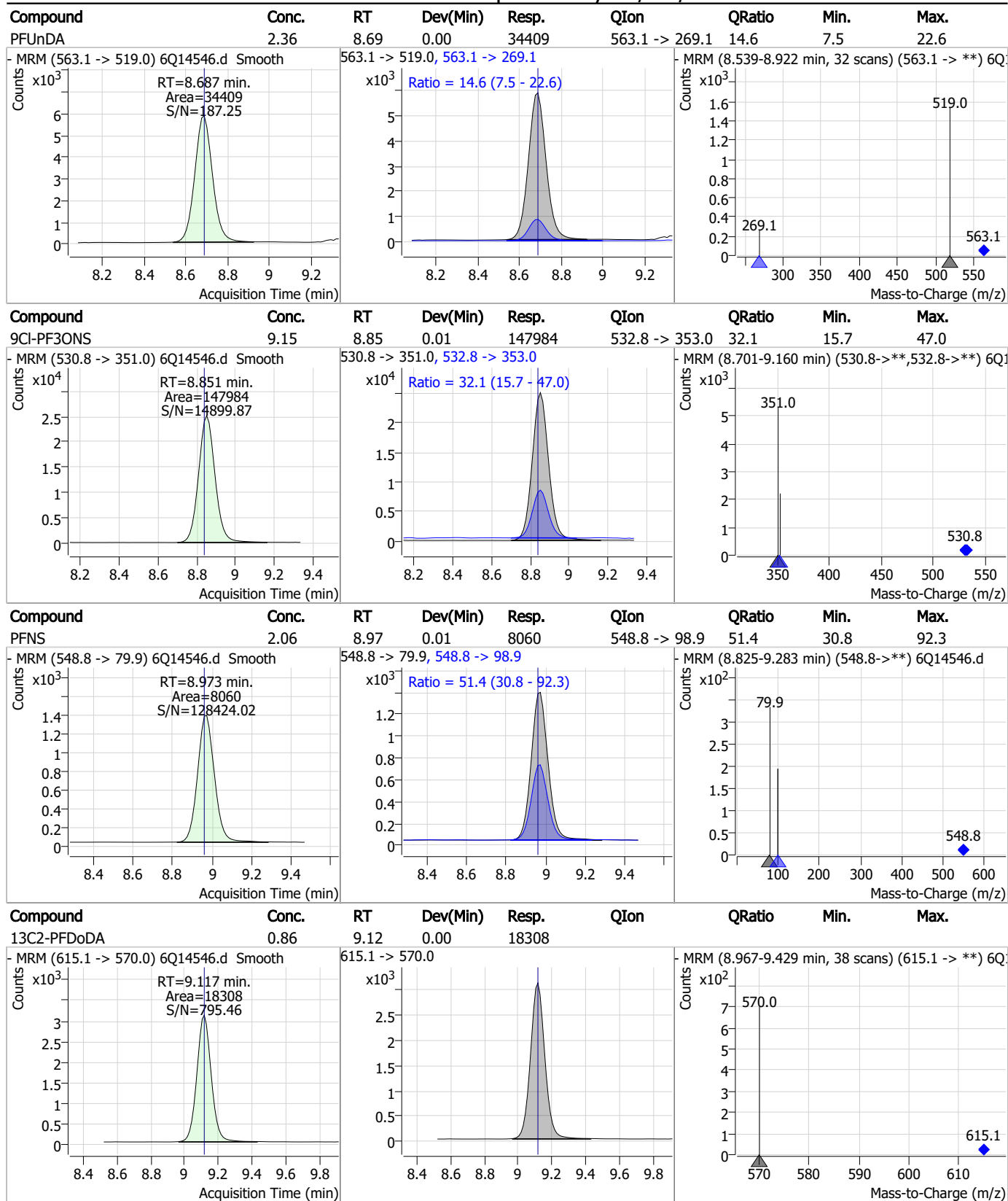
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Perfluorinated Compounds by LC/MS/MS



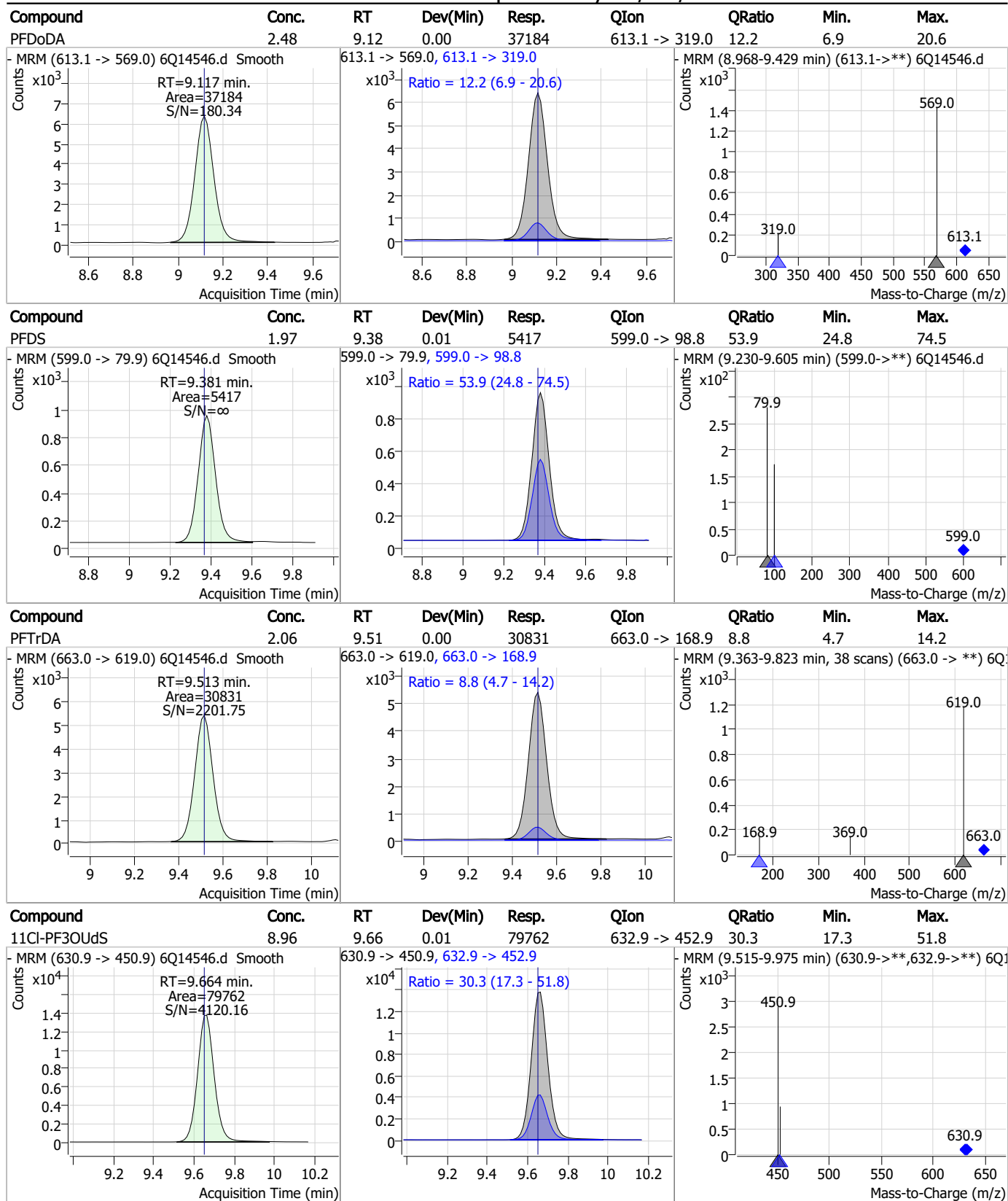
Perfluorinated Compounds by LC/MS/MS



7.4.1

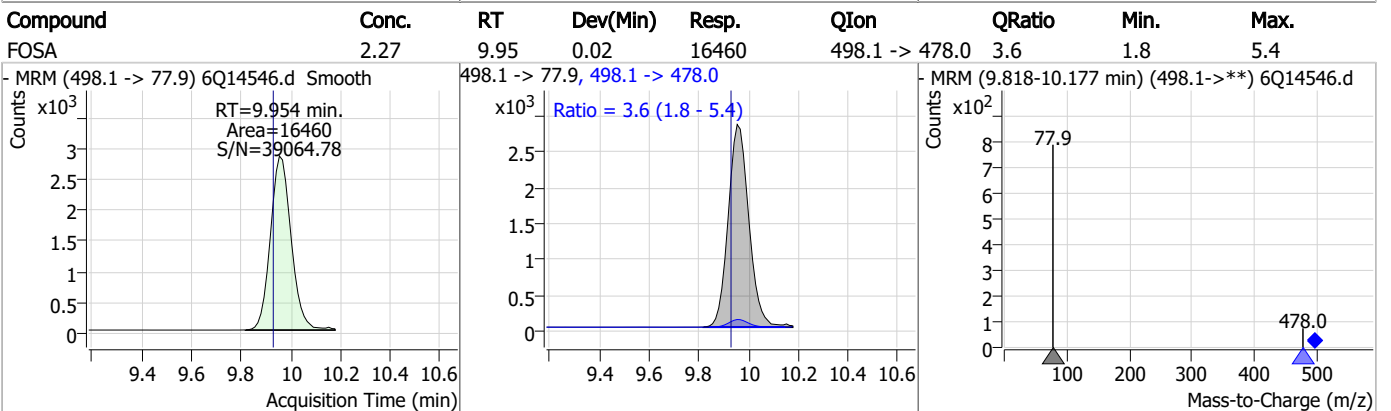
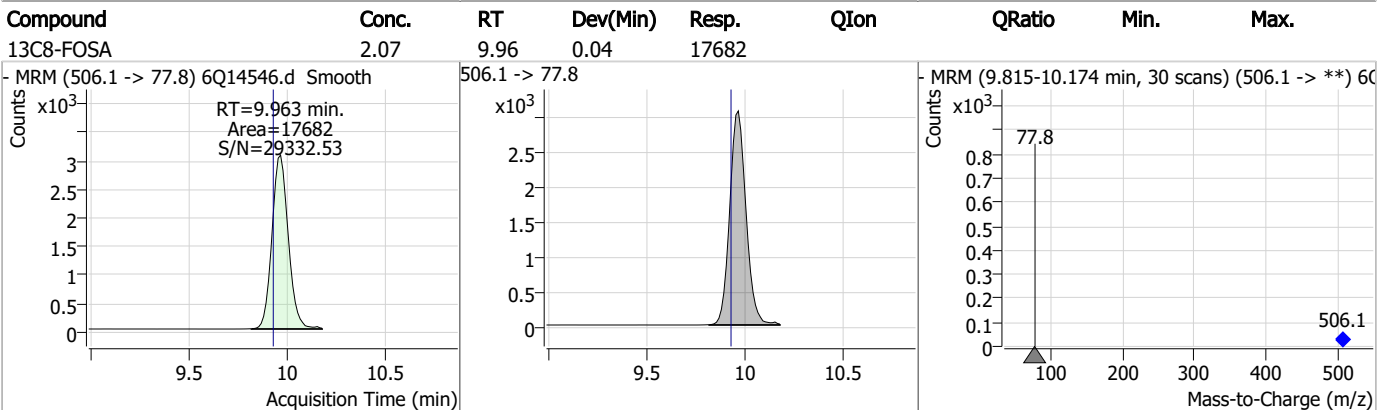
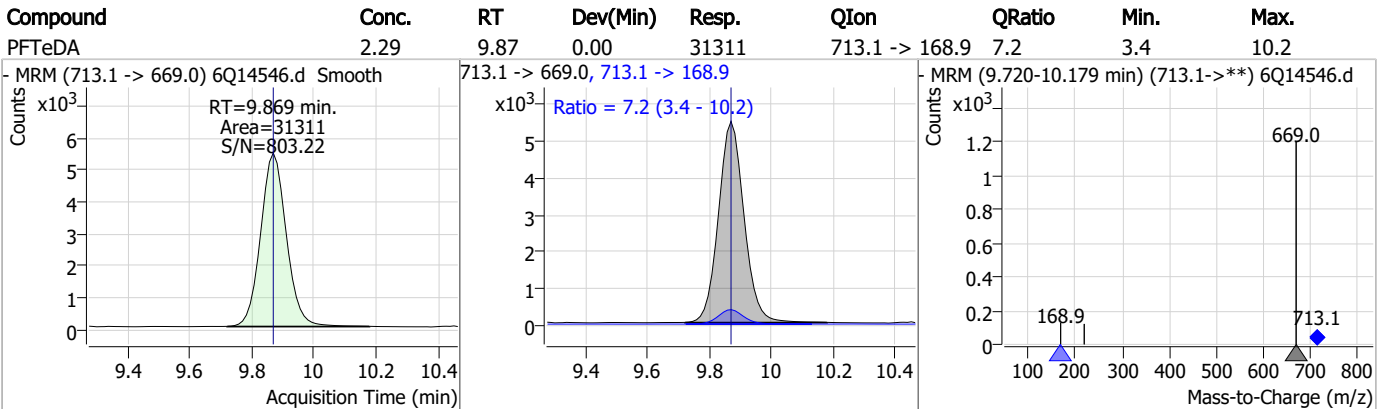
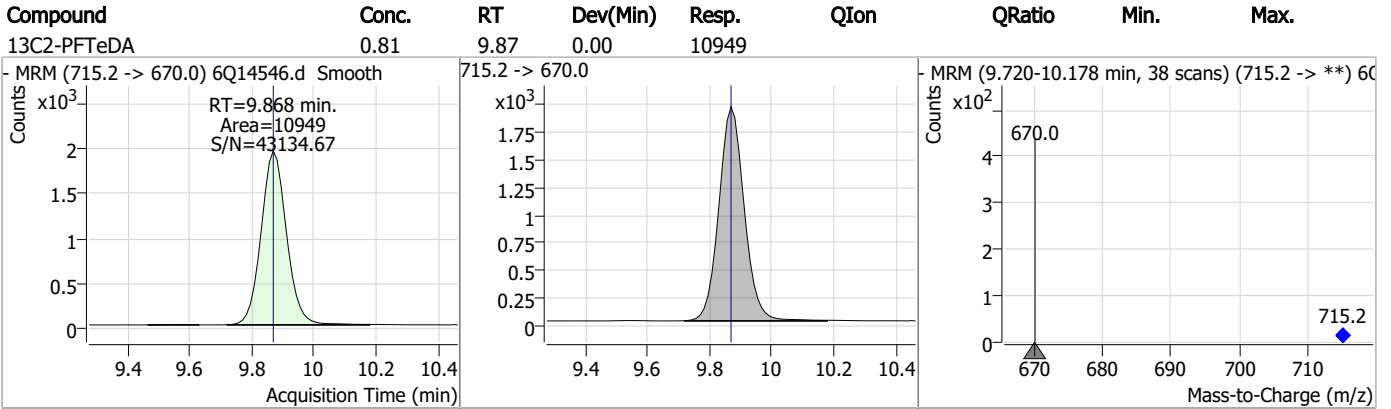
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Perfluorinated Compounds by LC/MS/MS

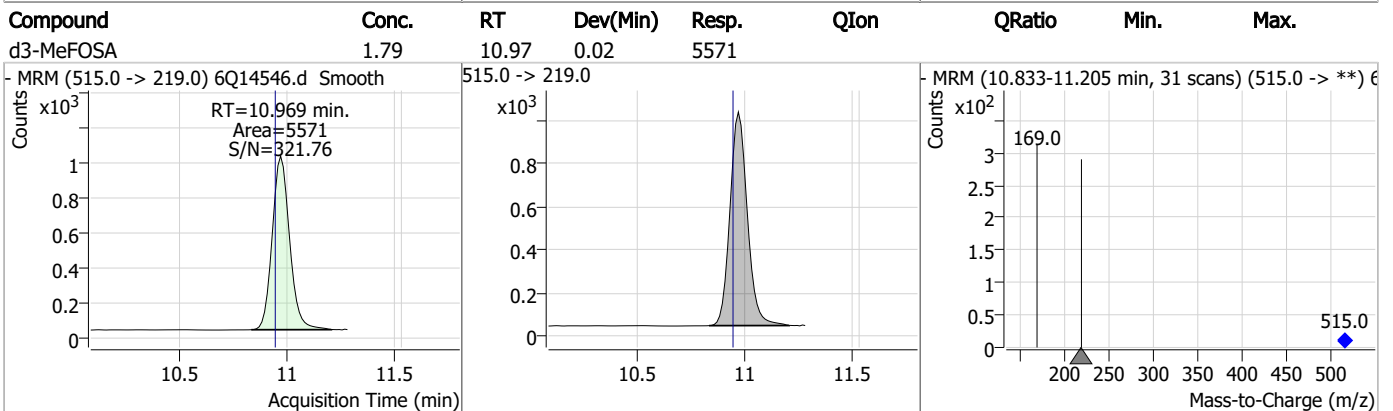
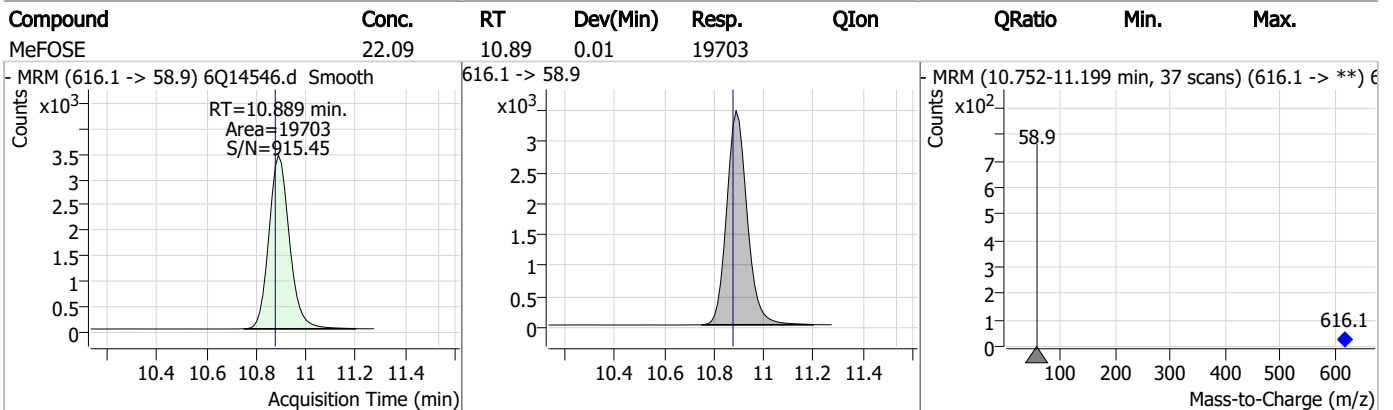
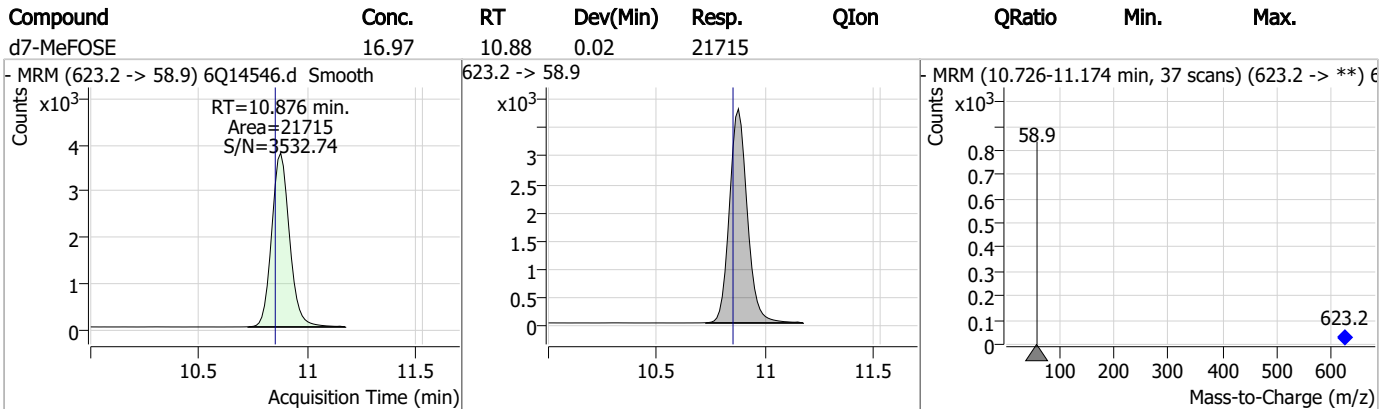
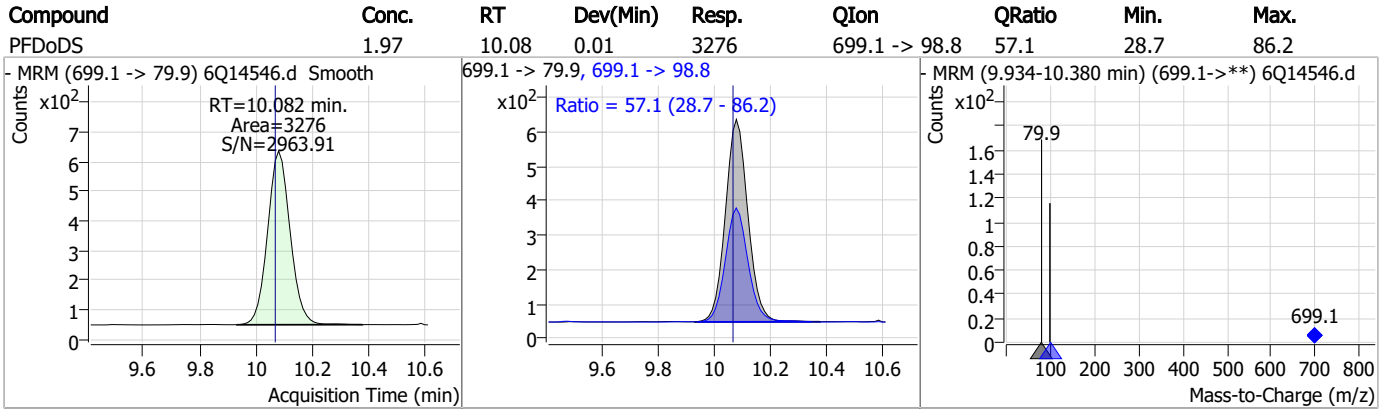


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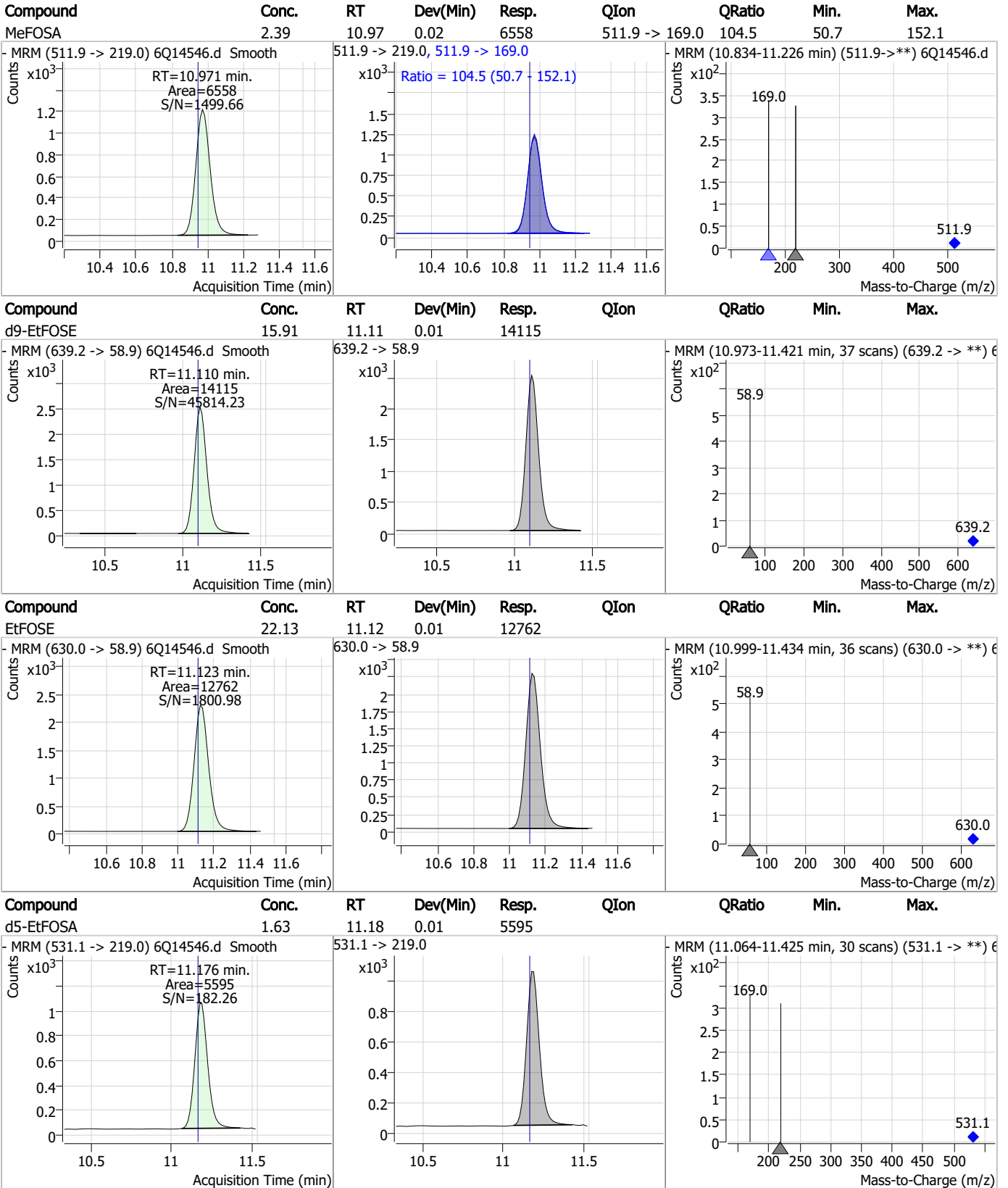
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



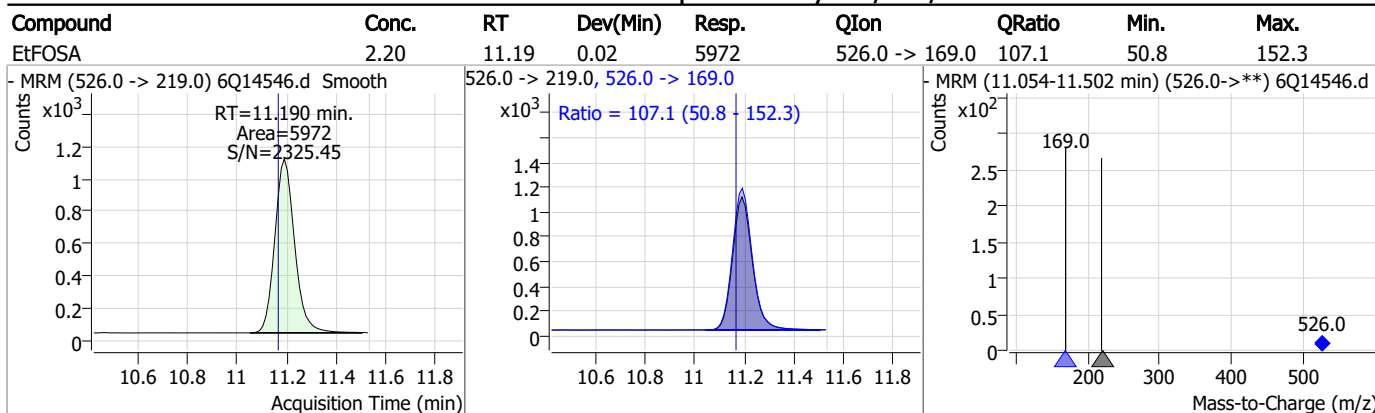
Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Manual Integration Approval Summary

Sample Number: OP95747-BS Method: EPA DRAFT 1633
Lab FileID: 6Q14546.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 19:45 Supervisor approved: 03/10/23 10:55 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.51	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.52	Split peak

7.4.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14547.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 7:59:51 PM
 Sample Name : op95747-llbs:3
 Vial : P2-B7
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95747,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.216	216.8 -> 171.9	83569	10.00 µg/L	0.140
M5-PFPeA	4.678	268.3 -> 223.0	39470	5.00 µg/L	0.062
M5-PFHxA	5.834	318.0 -> 273.0	35295	2.50 µg/L	0.025
M4-PFHpA	6.693	367.1 -> 322.0	36546	2.50 µg/L	0.025
M8-PFOA	7.272	421.1 -> 376.0	56119	2.50 µg/L	0.012
M9-PFNA	7.779	472.1 -> 427.0	13219	1.25 µg/L	0.014
M6-PFDA	8.233	519.1 -> 474.1	14157	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	15651	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	19092	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	11939	1.25 µg/L	0.000
M8-FOSA	9.963	506.1 -> 77.8	16925	2.50 µg/L	0.037
M3-PFBS	5.963	302.1 -> 79.9	13512	2.50 µg/L	0.062
M3-PFHxS	7.511	402.1 -> 79.9	8867	2.50 µg/L	0.025
M8-PFOS	8.519	507.1 -> 79.9	7296	2.50 µg/L	0.012
M2-4:2FTS	5.512	329.1 -> 80.9	1747	5.00 µg/L	0.037
M2-6:2FTS	7.046	429.1 -> 80.9	2159	5.00 µg/L	0.012
M2-8:2FTS	8.019	529.1 -> 80.9	2099	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	19649	5.00 µg/L	0.012
M3-HFPO-DA	6.175	286.9 -> 168.9	15030	10.00 µg/L	0.025
M5-EtFOSAA	8.473	589.2 -> 419.0	19477	5.00 µg/L	0.000
M7-MeFOSE	10.876	623.2 -> 58.9	22694	25.00 µg/L	0.025
M9-EtFOSE	11.110	639.2 -> 58.9	14854	25.00 µg/L	0.012
M5-EtFOSA	11.176	531.1 -> 219.0	5570	2.50 µg/L	0.012
M3-MeFOSA	10.969	515.0 -> 219.0	5166	2.50 µg/L	0.025
13C4-PFOS	8.520	502.8 -> 79.9	9256	2.50 µg/L	0.025
13C3-PFBA	3.218	216.0 -> 172.0	37868	5.00 µg/L	0.139
18O2-PFHxS	7.522	403.0 -> 83.9	6483	2.50 µg/L	0.025
13C4-PFOA	7.272	417.1 -> 372.0	71931	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	20547	1.25 µg/L	0.000
13C5-PFNA	7.779	468.0 -> 423.0	16273	1.25 µg/L	0.014
13C2-PFHxA	5.835	315.1 -> 270.0	35200	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.512	329.1 -> 80.9	1747	5.66 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.2%		
13C2-6:2FTS	7.046	429.1 -> 80.9	2159	5.32 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C2-8:2FTS	8.019	529.1 -> 80.9	2099	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-PFDoDA	9.117	615.1 -> 570.0	19092	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.7%		
13C2-PFTeDA	9.868	715.2 -> 670.0	11939	1.08 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.4%		
13C3-PFBS	5.963	302.1 -> 79.9	13512	2.39 µg/L	0.062
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C3-PFHxS	7.511	402.1 -> 79.9	8867	2.39 µg/L	0.025

7.4.2
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	3.216	216.8 -> 171.9	83569	9.60 µg/L	0.140
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C4-PFHpA	6.693	367.1 -> 322.0	36546	2.60 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C5-PFHxA	5.834	318.0 -> 273.0	35295	2.44 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C5-PFPeA	4.678	268.3 -> 223.0	39470	4.73 µg/L	0.062
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C6-PFDA	8.233	519.1 -> 474.1	14157	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C7-PFUnDA	8.687	570.0 -> 525.1	15651	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.8%		
13C8-FOSA	9.963	506.1 -> 77.8	16925	2.33 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C8-PFOA	7.272	421.1 -> 376.0	56119	2.34 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.7%		
13C8-PFOS	8.519	507.1 -> 79.9	7296	2.30 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C9-PFNA	7.779	472.1 -> 427.0	13219	1.05 µg/L	0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 84.3%		
d3-MeFOSAA	8.277	573.2 -> 419.0	19649	4.61 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.2%		
13C3-HFPO-DA	6.175	286.9 -> 168.9	15030	9.32 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 93.2%		
d3-MeFOSA	10.969	515.0 -> 219.0	5166	1.95 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 78.0%		
d5-EtFOSAA	8.473	589.2 -> 419.0	19477	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.4%		
d7-MeFOSE	10.876	623.2 -> 58.9	22694	20.88 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 83.5%		
d9-EtFOSE	11.110	639.2 -> 58.9	14854	19.72 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 78.9%		
d5-EtFOSA	11.176	531.1 -> 219.0	5570	1.91 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 76.5%		
Target Compounds					QValue
4:2FTS	5.513	327.1 -> 307.0	13202	3.35 µg/L	98
		327.1 -> 80.9	3109		
6:2FTS	7.046	427.1 -> 407.0	10479	3.23 µg/L	98
		427.1 -> 80.9	2403		
8:2FTS	8.020	527.1 -> 507.0	6075	3.64 µg/L	98
		527.1 -> 80.8	1544		
EtFOSAA	8.474	584.2 -> 419.1	3003	0.92 µg/L	88
		584.2 -> 526.0	1315		
FOSA	9.954	498.1 -> 77.9	6550	0.95 µg/L	100
		498.1 -> 478.0	231		
MeFOSAA	8.278	570.1 -> 419.0	3892	0.94 µg/L	94
		570.1 -> 483.0	858		
PFBA	3.220	212.8 -> 168.9	7619	3.32 µg/L	100
PFBS	5.976	298.7 -> 79.9	4082	0.72 µg/L	89
		298.7 -> 98.8	1951		
PFDA	8.233	512.9 -> 469.0	16318	0.90 µg/L	94
		512.9 -> 219.0	2267		
PFDODA	9.117	613.1 -> 569.0	13276	0.85 µg/L	99
		613.1 -> 319.0	1788		
PFDS	9.381	599.0 -> 79.9	2094	0.84 µg/L	98

7.4.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.694	599.0 -> 98.8	1068	0.82	µg/L	99
		363.1 -> 319.0	19324			
PFHpS	8.041	363.1 -> 169.0	2624	0.82	µg/L	97
		449.0 -> 79.9	2814			
PFHxA	5.838	449.0 -> 98.9	1719	0.88	µg/L	99
		313.0 -> 269.0	12367			
PFHxS	7.524	313.0 -> 118.9	580	0.73	µg/L	93
		398.7 -> 79.9	3174			
PFNA	7.779	398.7 -> 98.9	1812	0.92	µg/L	100
		463.0 -> 419.0	8438			
PFNS	8.973	463.0 -> 219.0	1773	0.88	µg/L	93
		548.8 -> 79.9	3092			
PFOA	7.273	548.8 -> 98.9	1739	0.87	µg/L	99
		413.0 -> 369.0	24481			
PFOS	8.521	413.0 -> 169.0	3396	0.86	µg/L	100
		498.9 -> 79.9	3110			
PFPeA	4.679	498.9 -> 98.8	1972	1.76	µg/L	100
		263.0 -> 219.0	16150			
PFPeS	6.894	349.1 -> 79.9	4341	0.85	µg/L	98
		349.1 -> 98.9	2100			
PFTeDA	9.869	713.1 -> 669.0	12149	0.82	µg/L	99
		713.1 -> 168.9	771			
PFTrDA	9.513	663.0 -> 619.0	12697	0.81	µg/L	98
		663.0 -> 168.9	1091			
PFUnDA	8.687	563.1 -> 519.0	12798	0.84	µg/L	97
		563.1 -> 269.1	1762			
11Cl-PF3OUdS	9.664	630.9 -> 450.9	28988	3.27	µg/L	95
		632.9 -> 452.9	9101			
9Cl-PF3ONS	8.851	530.8 -> 351.0	54919	3.40	µg/L	98
		532.8 -> 353.0	17691			
ADONA	6.928	376.9 -> 250.9	111169	3.52	µg/L	99
		376.9 -> 84.8	24380			
HFPO-DA	6.176	284.9 -> 168.9	5220	3.48	µg/L	97
		284.9 -> 184.9	678			
3:3FTCA	4.115	241.0 -> 177.0	1839	3.95	µg/L	98
		241.0 -> 117.0	266			
5:3FTCA	6.431	341.0 -> 237.1	68277	22.31	µg/L	97
		341.0 -> 217.0	58524			
7:3FTCA	7.767	441.0 -> 316.9	32787	22.33	µg/L	91
		441.0 -> 336.9	59334			
EtFOSA	11.190	526.0 -> 219.0	2303	0.85	µg/L	95
		526.0 -> 169.0	2446			
EtFOSE	11.123	630.0 -> 58.9	5241	8.64	µg/L	100
		511.9 -> 219.0	2343			
MeFOSA	10.971	511.9 -> 169.0	2430	0.92	µg/L	98
		616.1 -> 58.9	7985			
MeFOSE	10.889	699.1 -> 79.9	1186	8.57	µg/L	100
		699.1 -> 98.8	820			
PFDoDS	10.082	295.0 -> 201.0	1579	0.79	µg/L	84
		295.0 -> 84.9	701			
NFDHA	5.718	279.0 -> 85.1	5723	1.64	µg/L	92
		229.0 -> 84.9	4690			
PFMBA	5.063	314.8 -> 134.9	31353	1.75	µg/L	100
		314.8 -> 82.9	938			
PFMPA	3.794			1.56	µg/L	99
PFEESA	6.445					

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

7.4.2
7

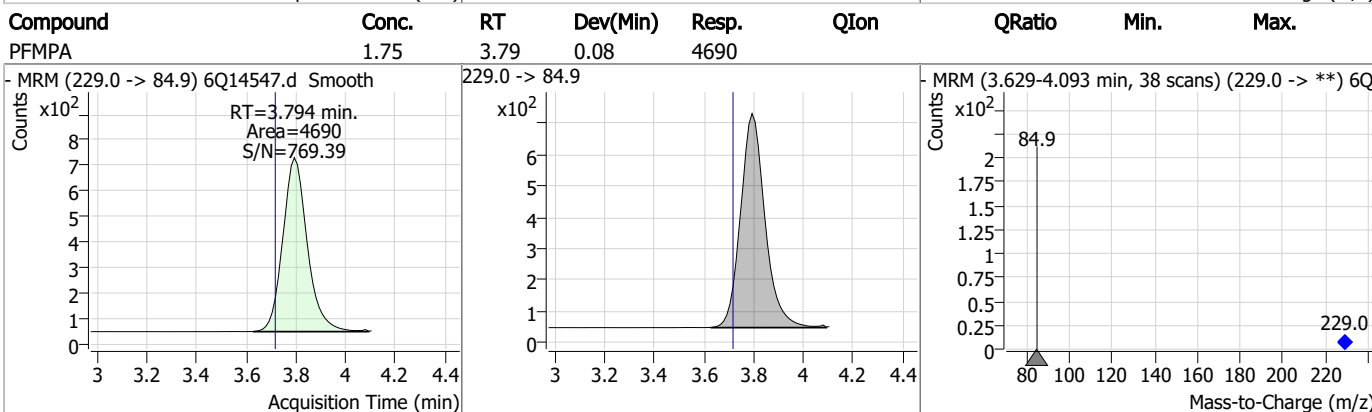
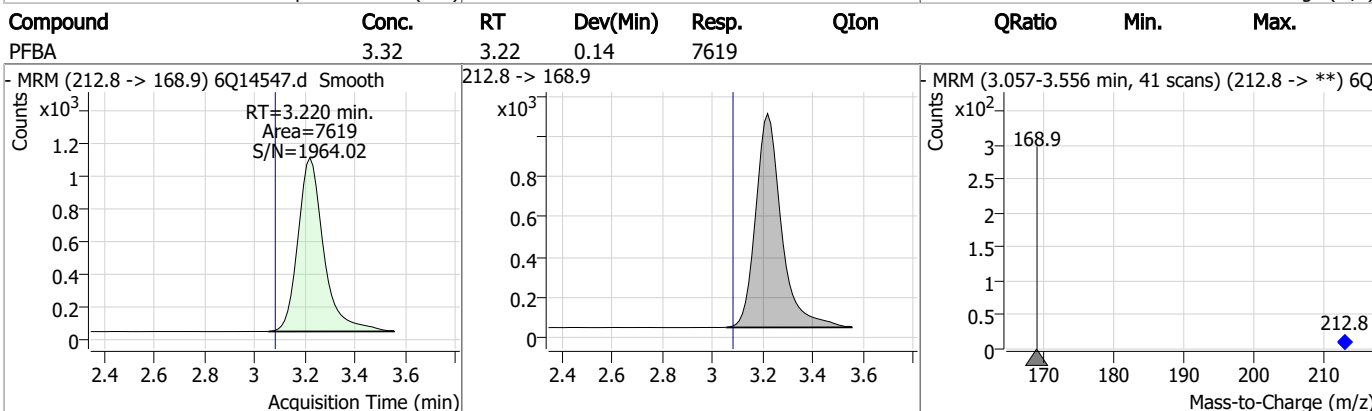
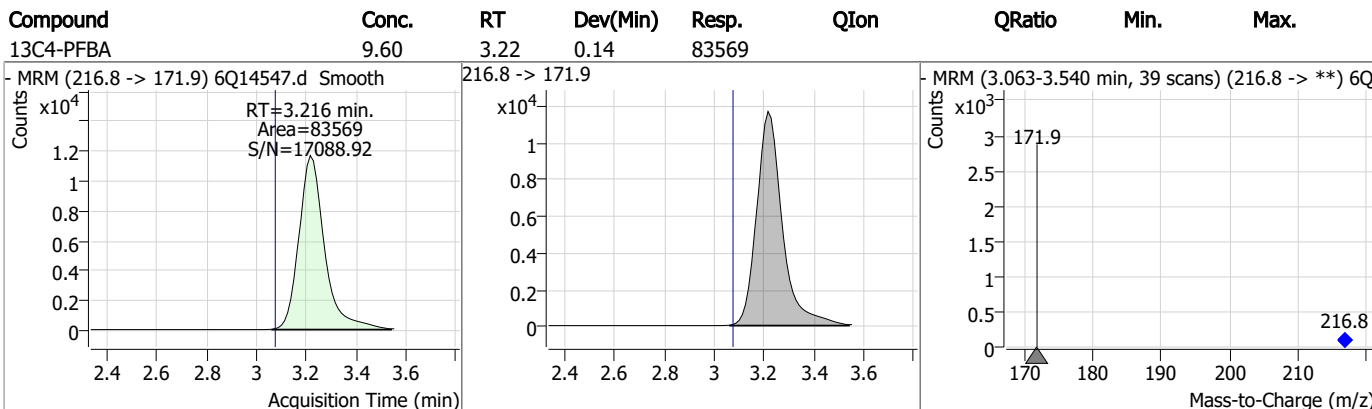
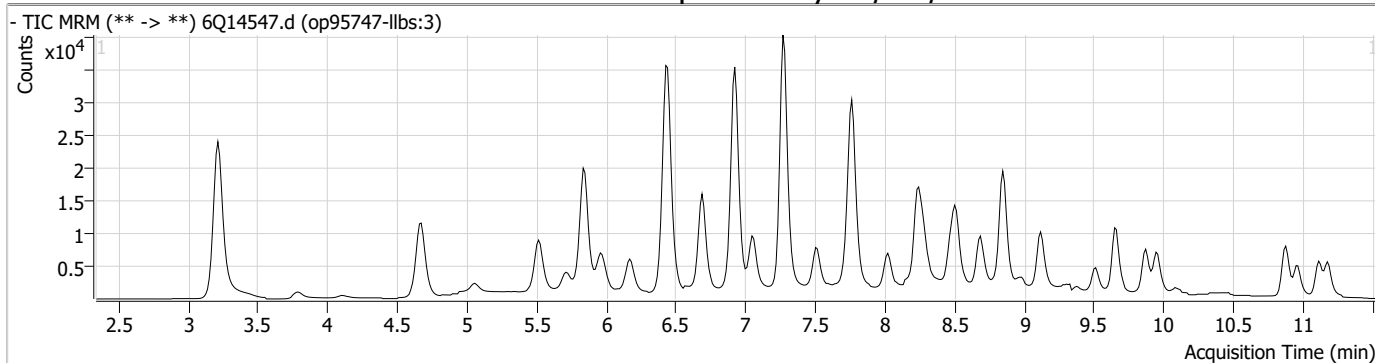
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.4.2

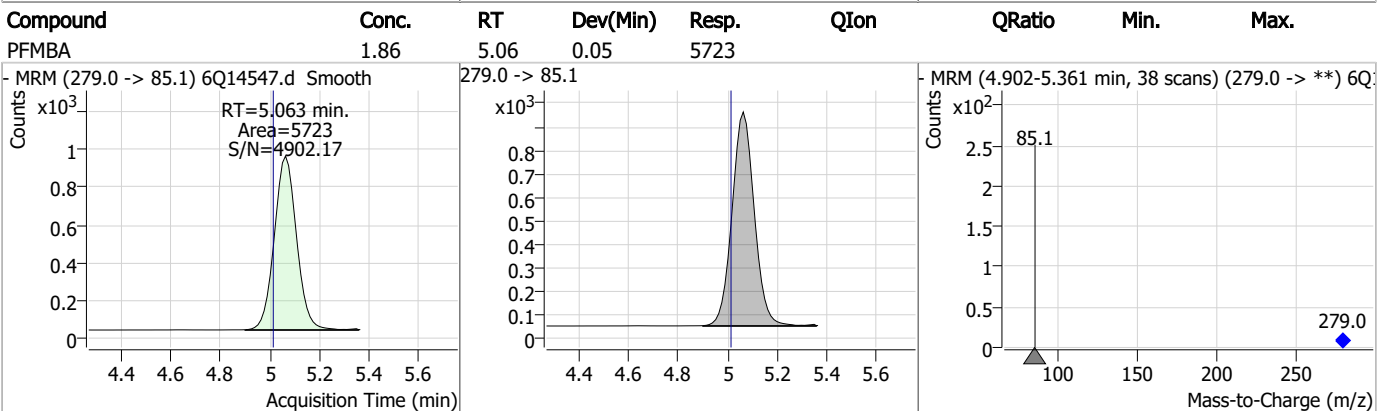
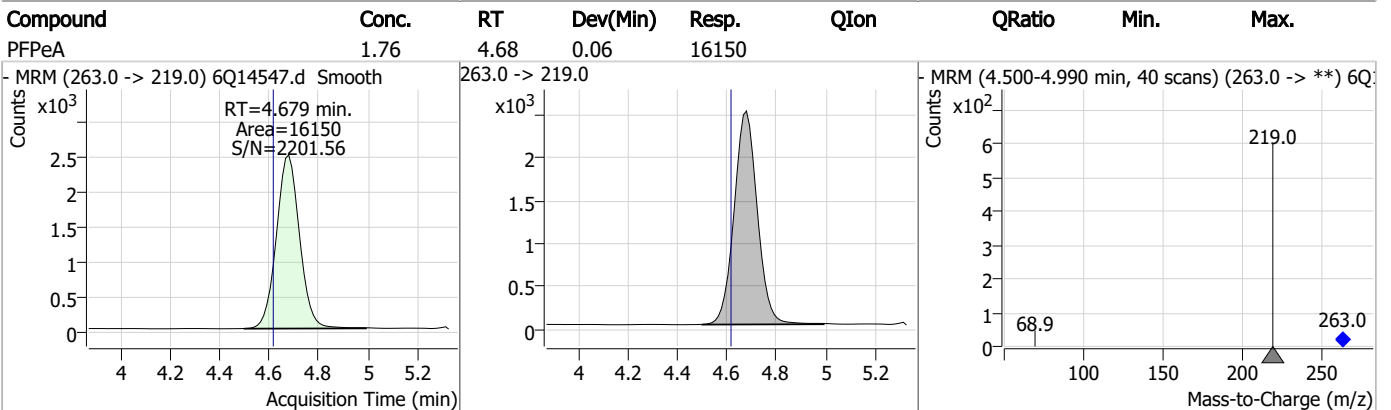
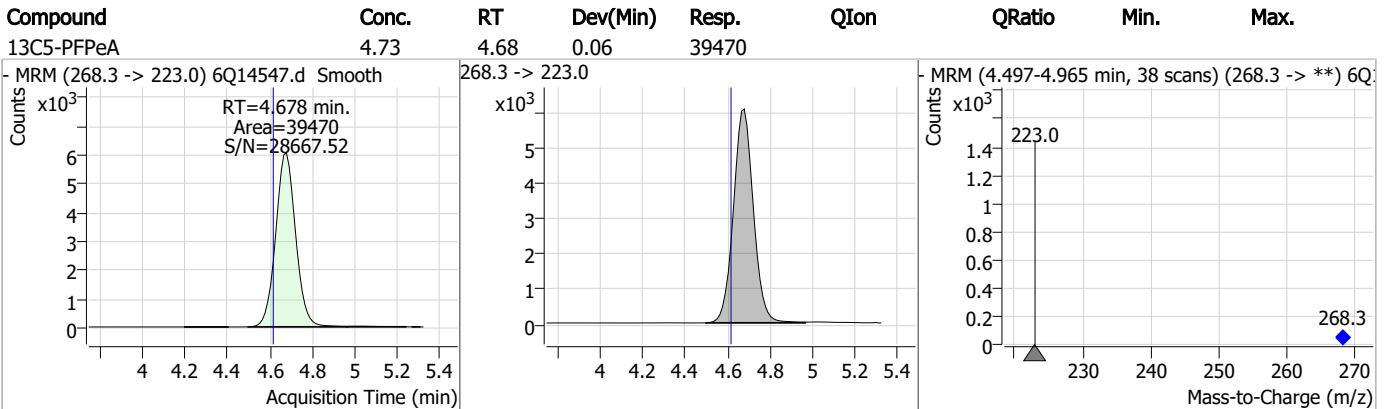
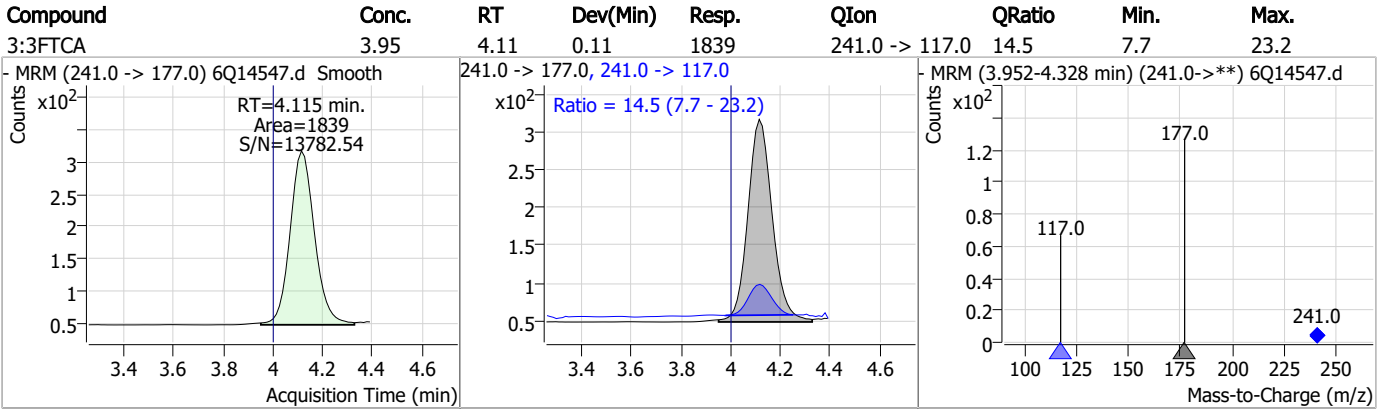
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Perfluorinated Compounds by LC/MS/MS



7.4.2
7

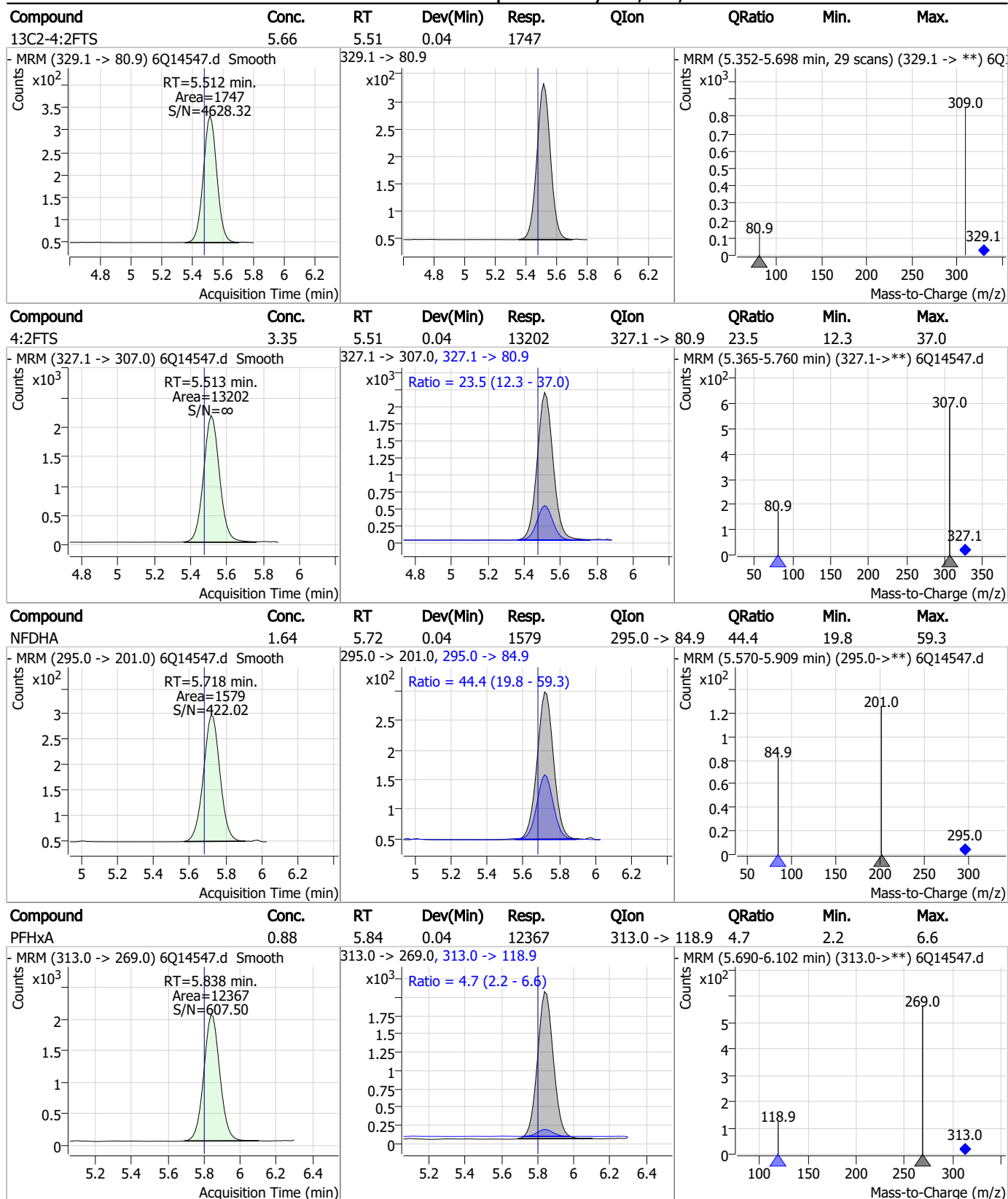
Perfluorinated Compounds by LC/MS/MS



7.4.2

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Perfluorinated Compounds by LC/MS/MS



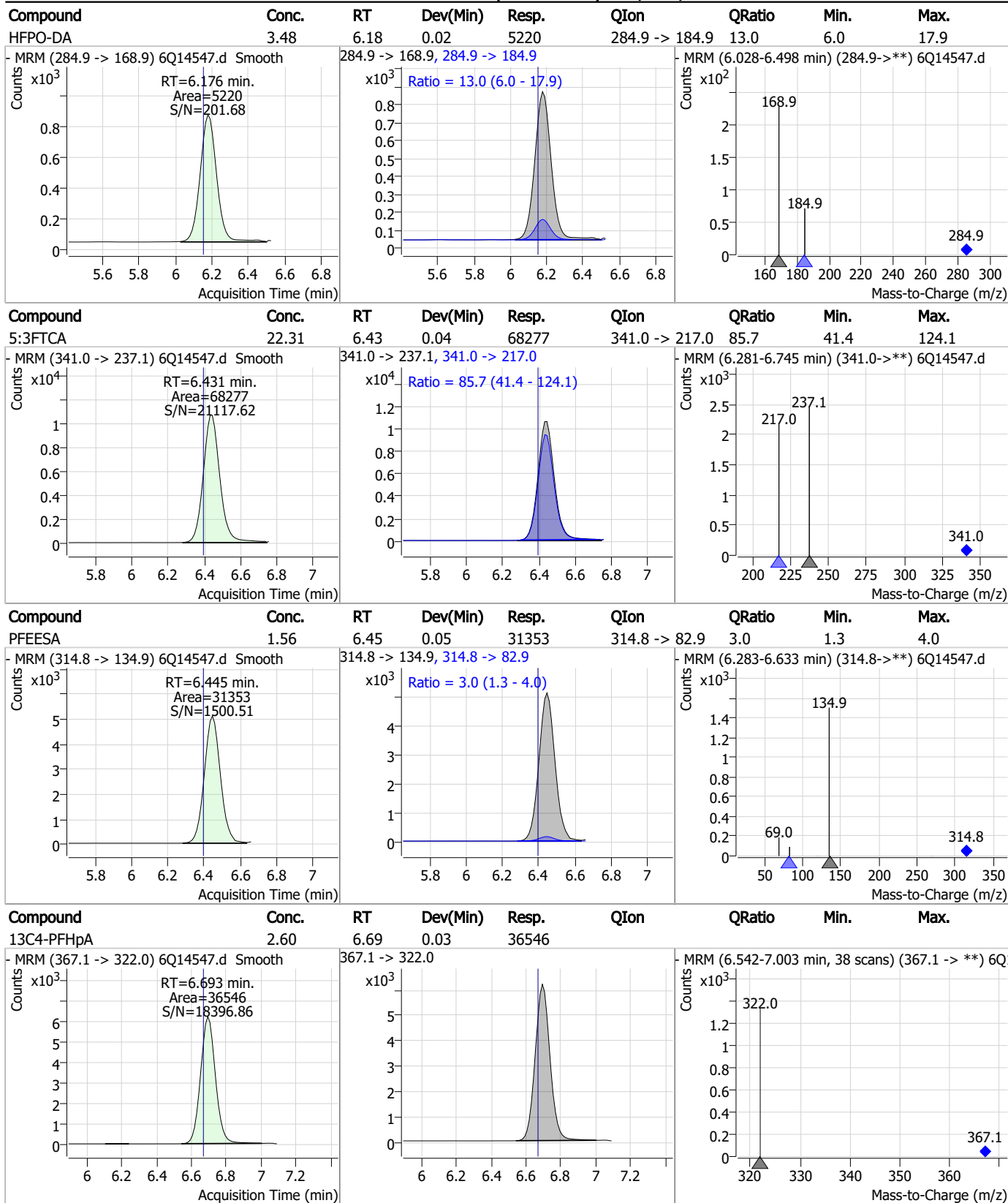
7.4.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.44	5.83	0.02	35295				
- MRM (318.0 -> 273.0) 6Q14547.d Smooth Counts x10 ³ RT=5.834 min. Area=35295 S/N=440.60 Acquisition Time (min)			318.0 -> 273.0 x10 ³ Acquisition Time (min)			- MRM (5.687-6.101 min, 34 scans) (318.0 -> **) 6Q14547.d Counts x10 ³ 273.0 120.3 318.0 Mass-to-Charge (m/z)		
13C3-PFBS	2.39	5.96	0.06	13512				
- MRM (302.1 -> 79.9) 6Q14547.d Smooth Counts x10 ³ RT=5.963 min. Area=13512 S/N=11164.25 Acquisition Time (min)			302.1 -> 79.9 x10 ³ Acquisition Time (min)			- MRM (5.815-6.137 min, 27 scans) (302.1 -> **) 6Q14547.d Counts x10 ² 79.9 98.9 302.1 Mass-to-Charge (m/z)		
PFBS	0.72	5.98	0.07	4082	298.7 -> 98.8	47.8	20.4	61.1
- MRM (298.7 -> 79.9) 6Q14547.d Smooth Counts x10 ² RT=5.976 min. Area=4082 S/N=167.62 Acquisition Time (min)			298.7 -> 79.9, 298.7 -> 98.8 x10 ² Ratio = 47.8 (20.4 - 61.1) Acquisition Time (min)			- MRM (5.807-6.064 min) (298.7->**) 6Q14547.d Counts x10 ² 79.9 98.8 298.7 Mass-to-Charge (m/z)		
13C3-HFPO-DA	9.32	6.18	0.02	15030				
- MRM (286.9 -> 168.9) 6Q14547.d Smooth Counts x10 ³ RT=6.175 min. Area=15030 S/N=1365.47 Acquisition Time (min)			286.9 -> 168.9 x10 ³ Acquisition Time (min)			- MRM (6.027-6.472 min, 37 scans) (286.9 -> **) 6Q14547.d Counts x10 ² 168.9 184.9 286.9 Mass-to-Charge (m/z)		

7.4.2
7

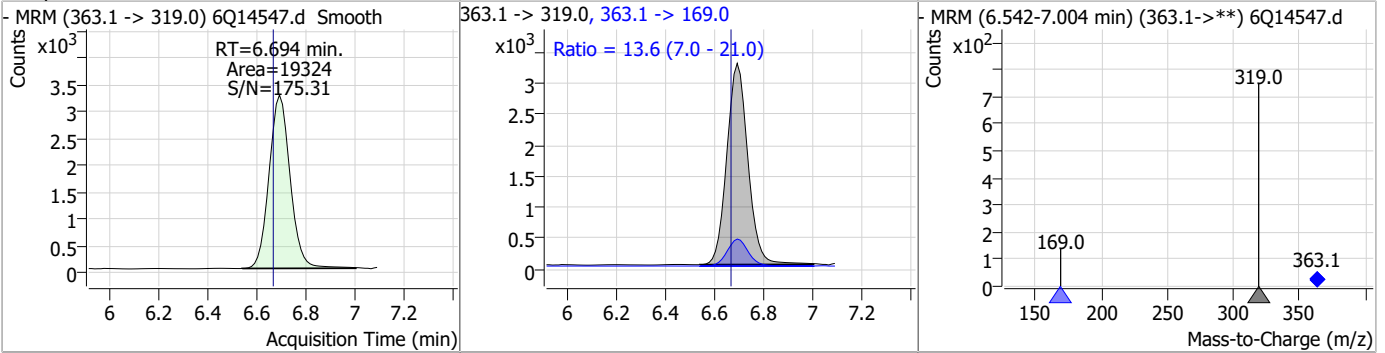
Perfluorinated Compounds by LC/MS/MS



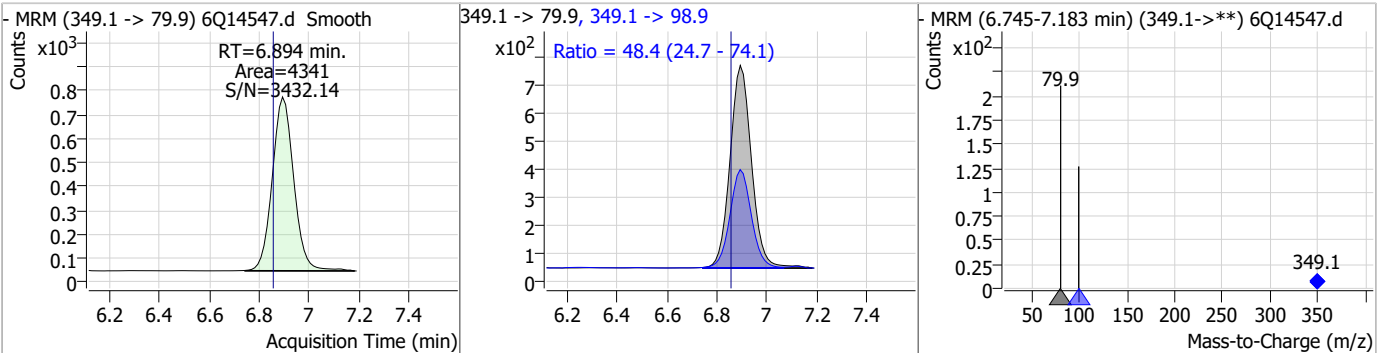
7.4.2
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Perfluorinated Compounds by LC/MS/MS

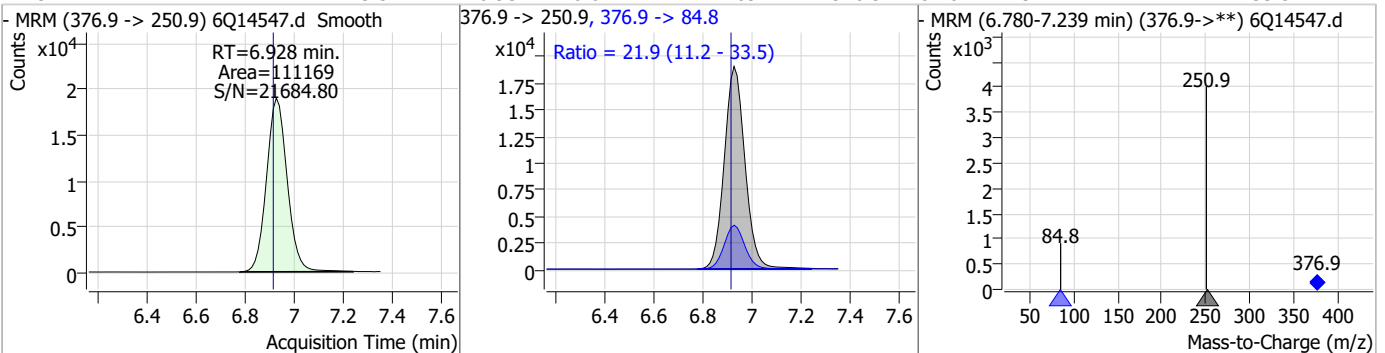
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.82	6.69	0.03	19324	363.1 -> 169.0	13.6	7.0	21.0



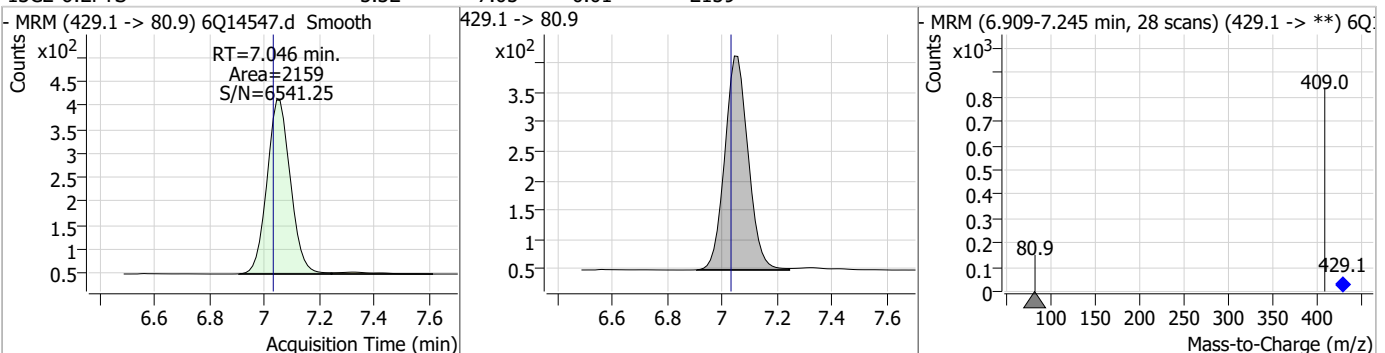
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.85	6.89	0.04	4341	349.1 -> 98.9	48.4	24.7	74.1



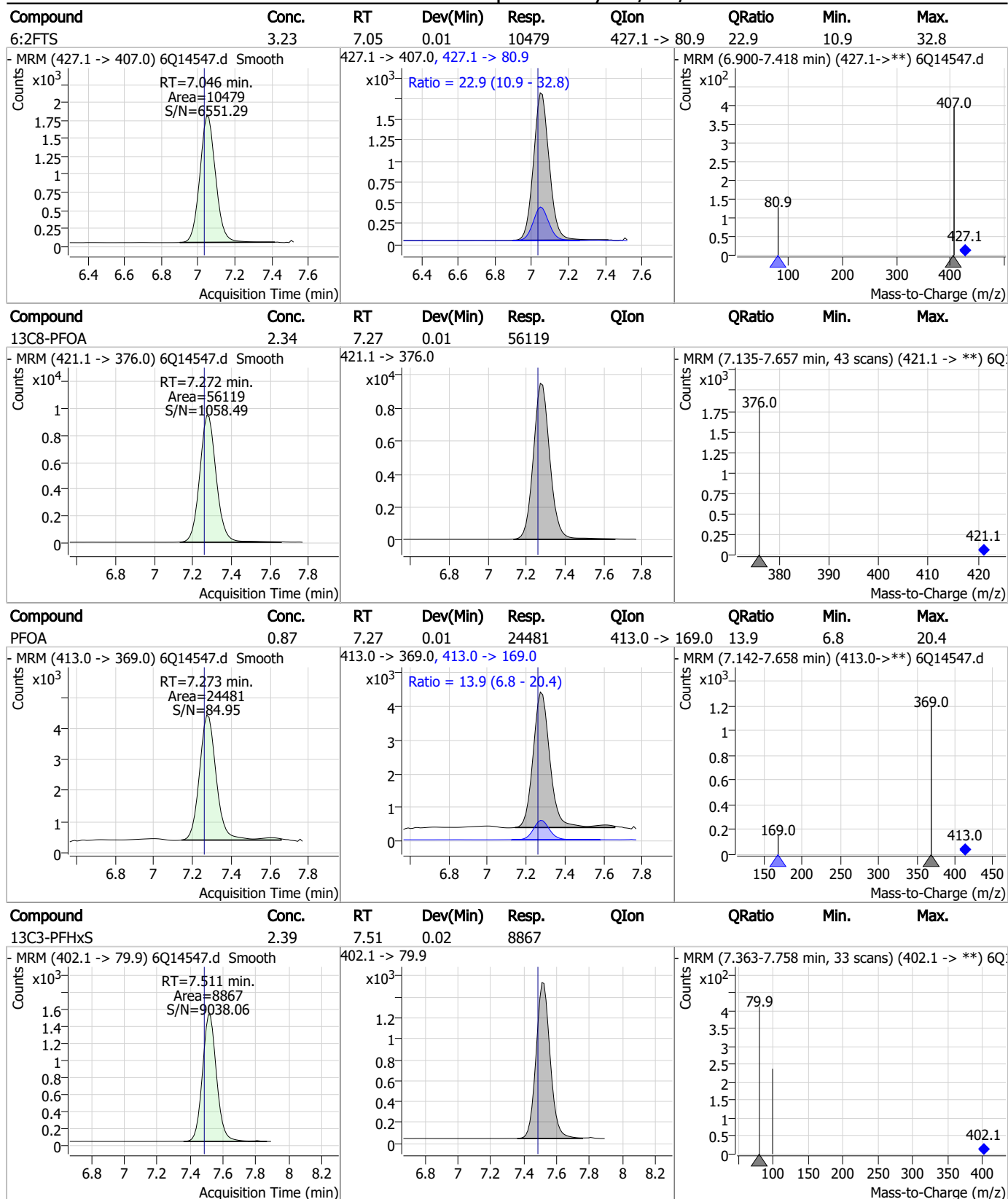
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	3.52	6.93	0.01	111169	376.9 -> 84.8	21.9	11.2	33.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.32	7.05	0.01	2159	429.1 -> 80.9			



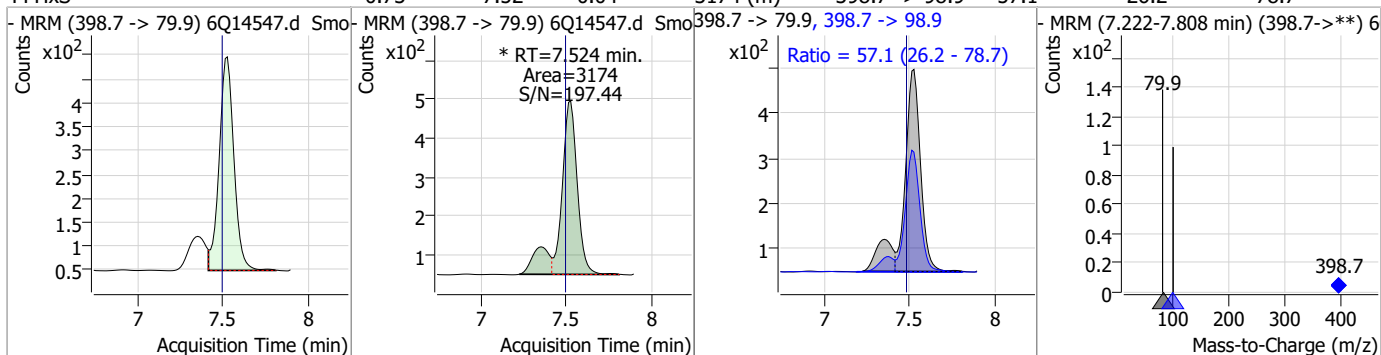
Perfluorinated Compounds by LC/MS/MS



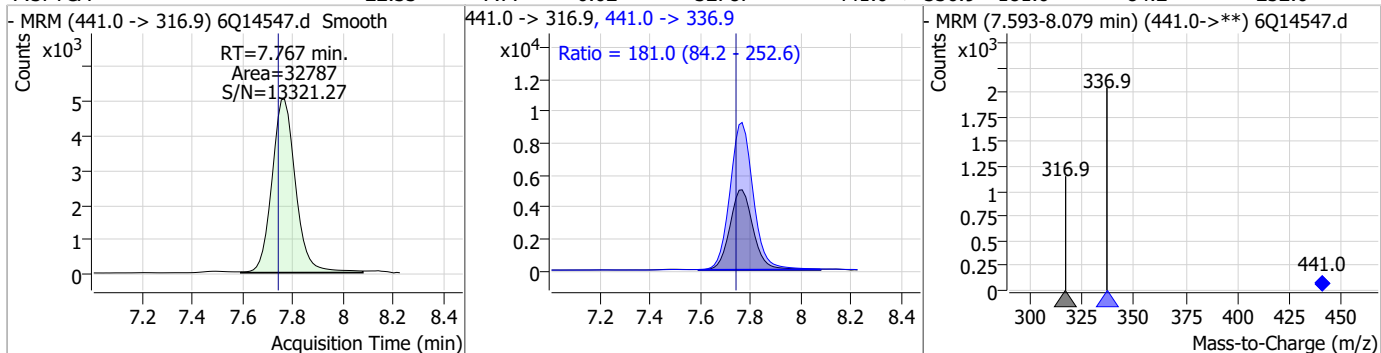
7.4.2
7

Perfluorinated Compounds by LC/MS/MS

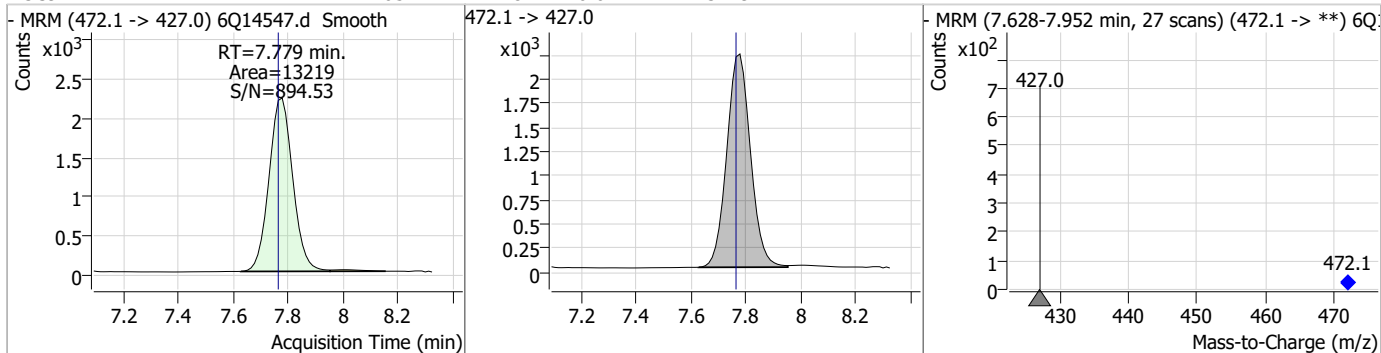
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.73	7.52	0.04	3174 (m)	398.7 -> 98.9	57.1	26.2	78.7



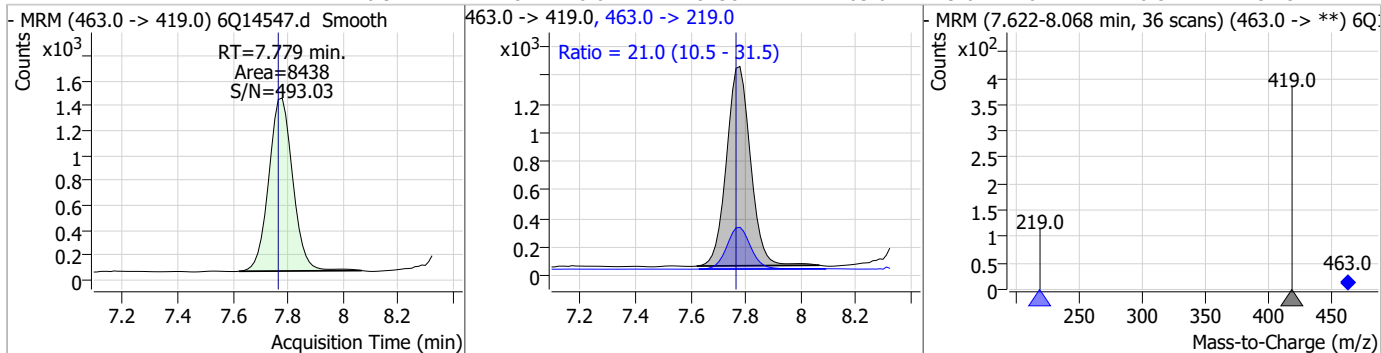
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	22.33	7.77	0.02	32787	441.0 -> 336.9	181.0	84.2	252.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.05	7.78	0.01	13219	472.1 -> 427.0			

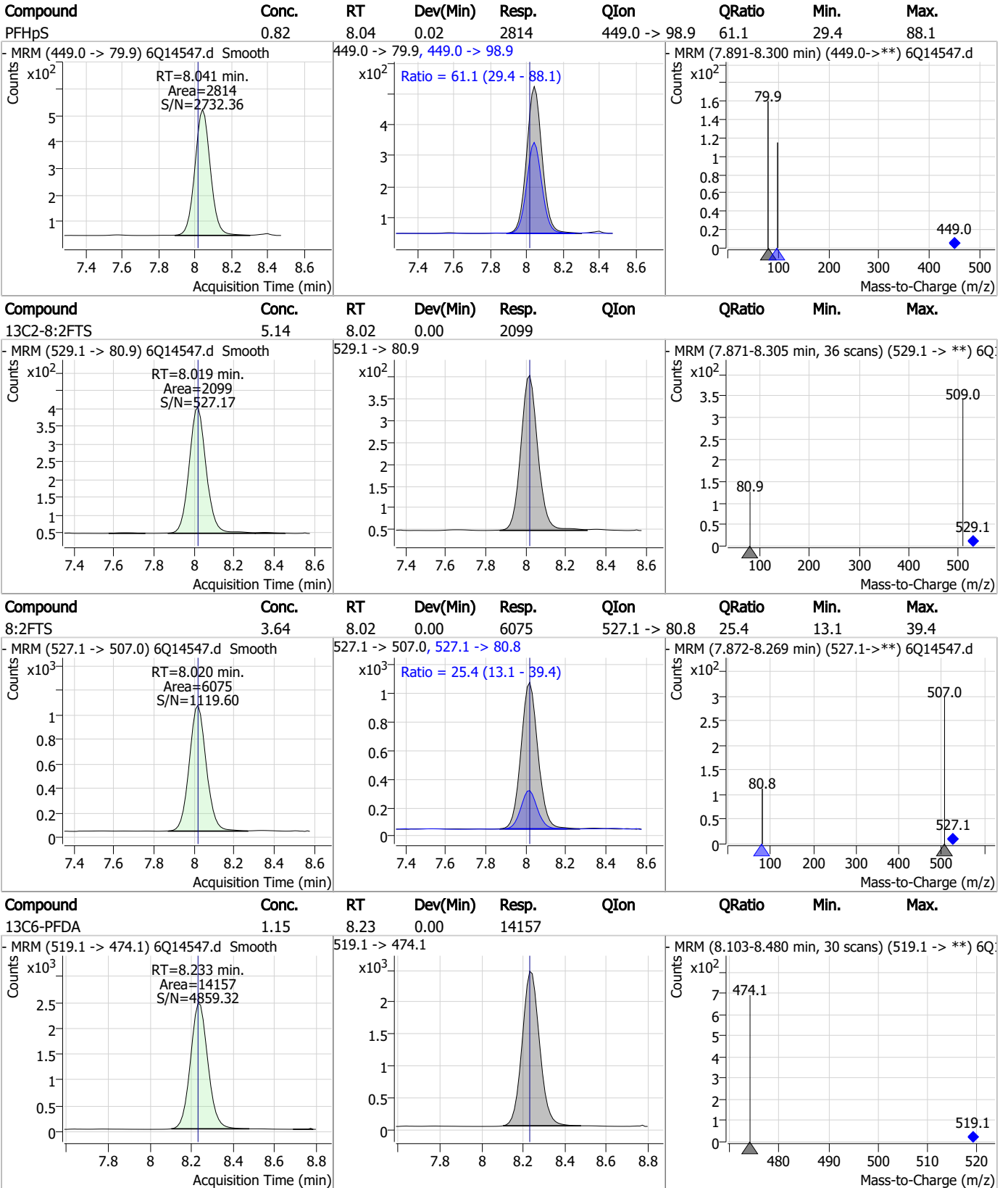


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.92	7.78	0.01	8438	463.0 -> 219.0	21.0	10.5	31.5



7.4.2
7

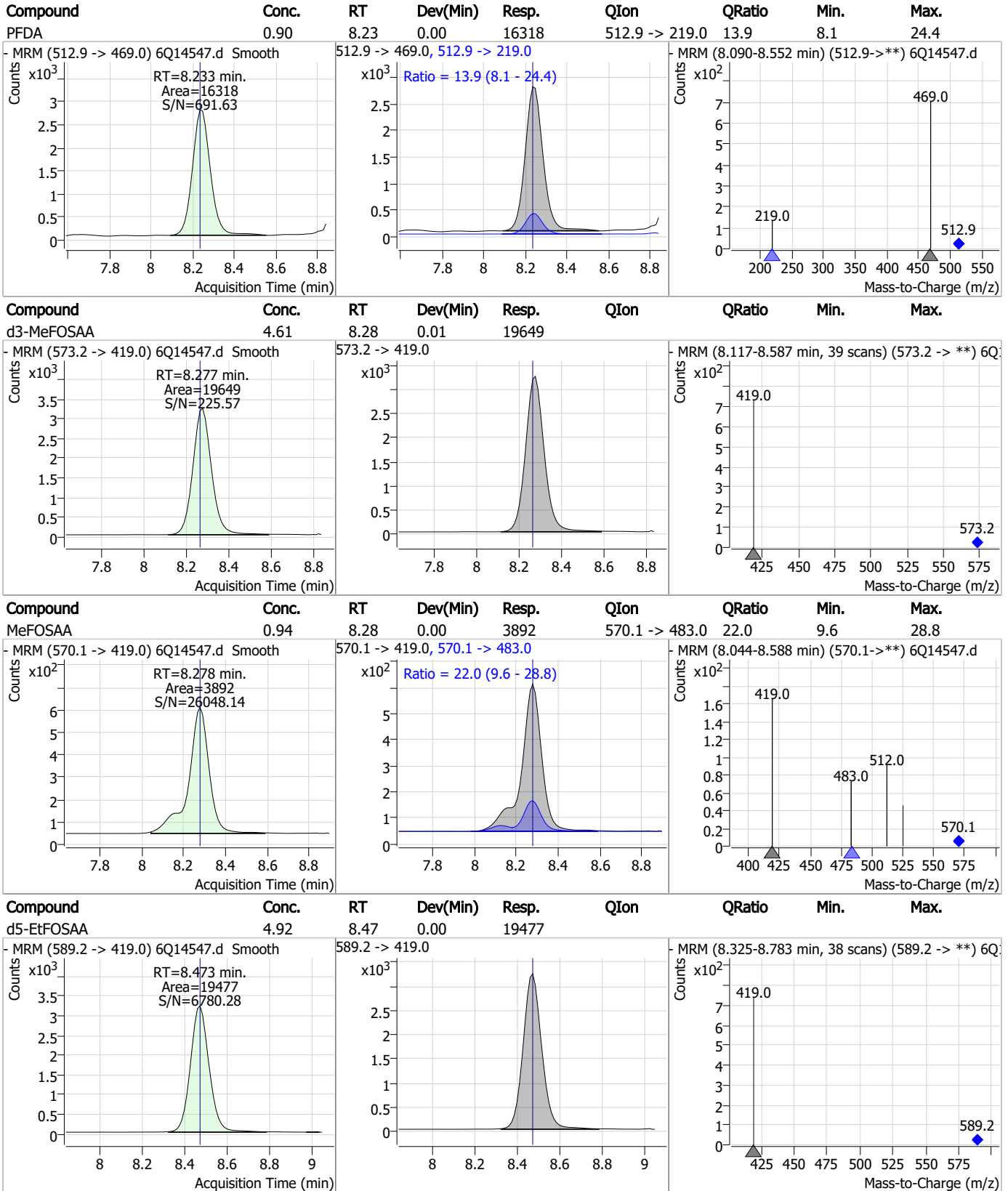
Perfluorinated Compounds by LC/MS/MS



7.4.2

7

Perfluorinated Compounds by LC/MS/MS



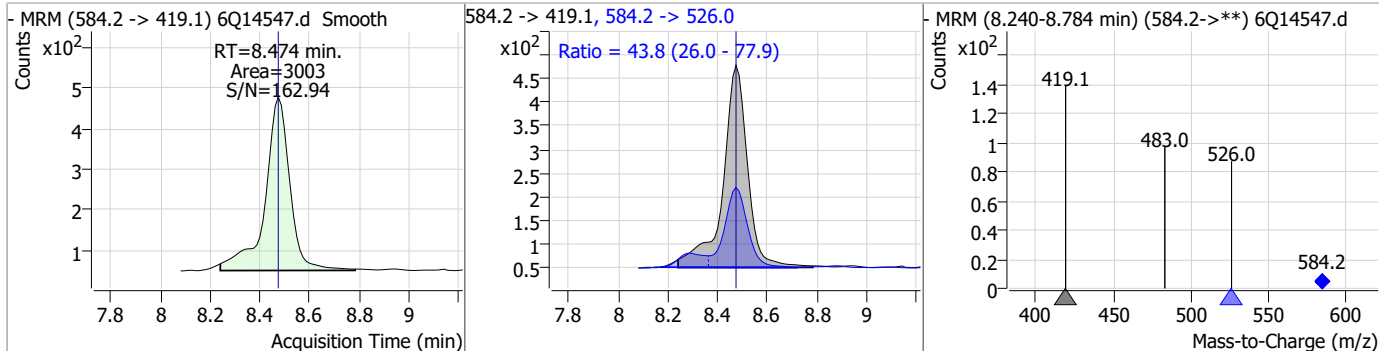
7.4.2

7

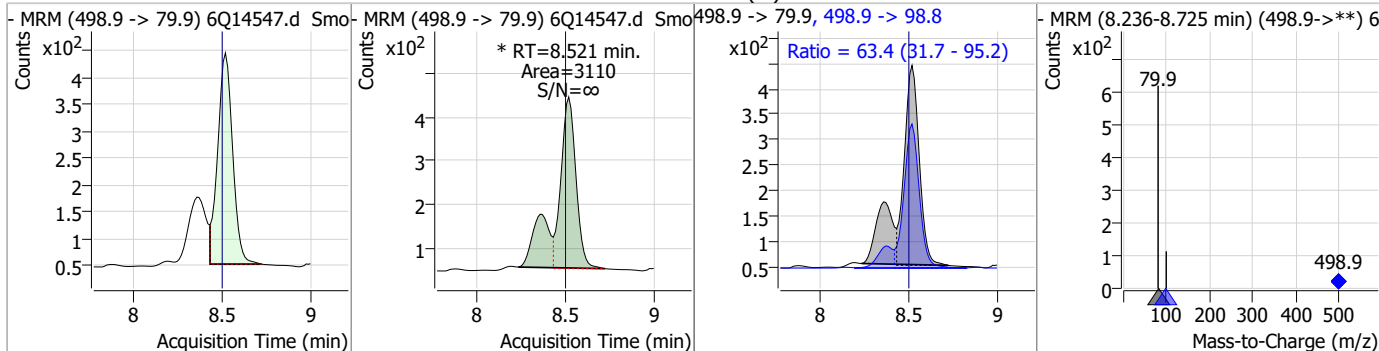


Perfluorinated Compounds by LC/MS/MS

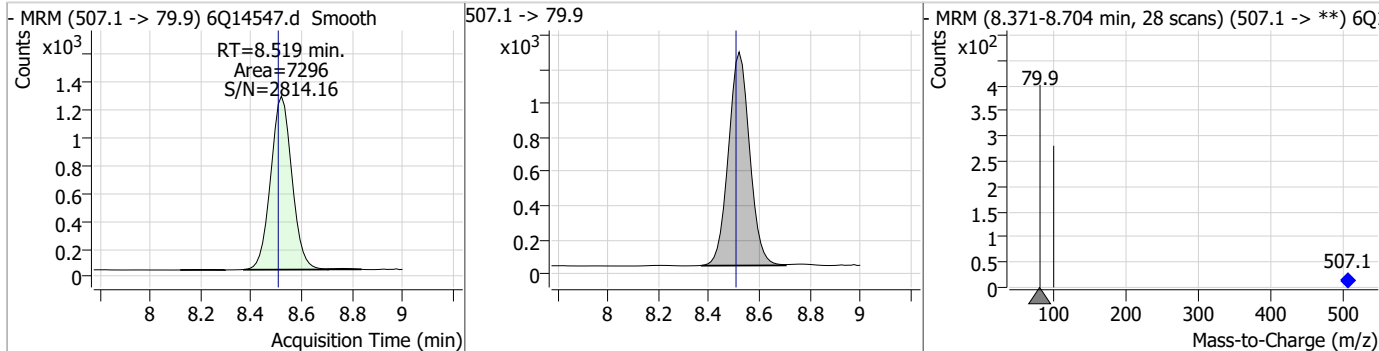
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.92	8.47	0.00	3003	584.2 -> 526.0	43.8	26.0	77.9



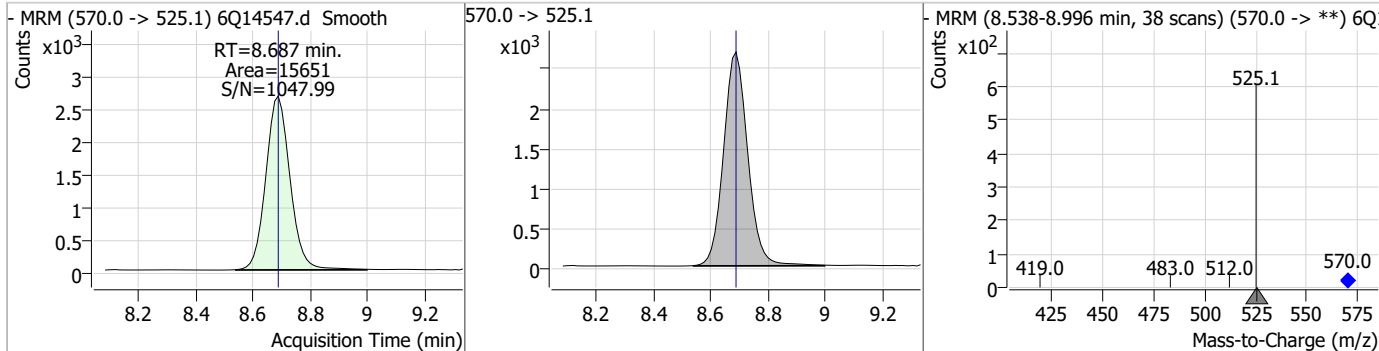
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.86	8.52	0.02	3110 (m)	498.9 -> 98.8	63.4	31.7	95.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.30	8.52	0.01	7296				

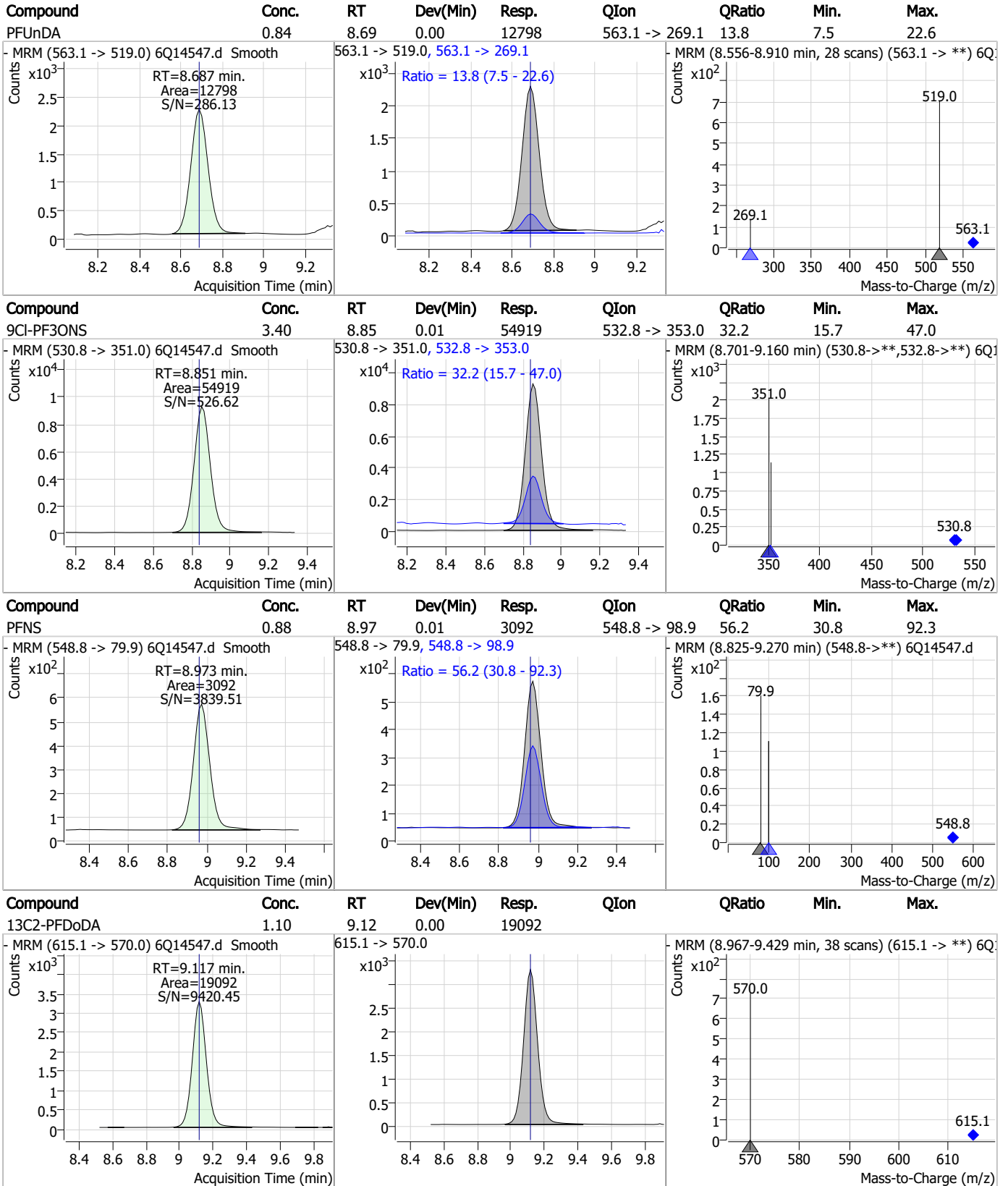


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.16	8.69	0.00	15651				



7.4.2
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Perfluorinated Compounds by LC/MS/MS

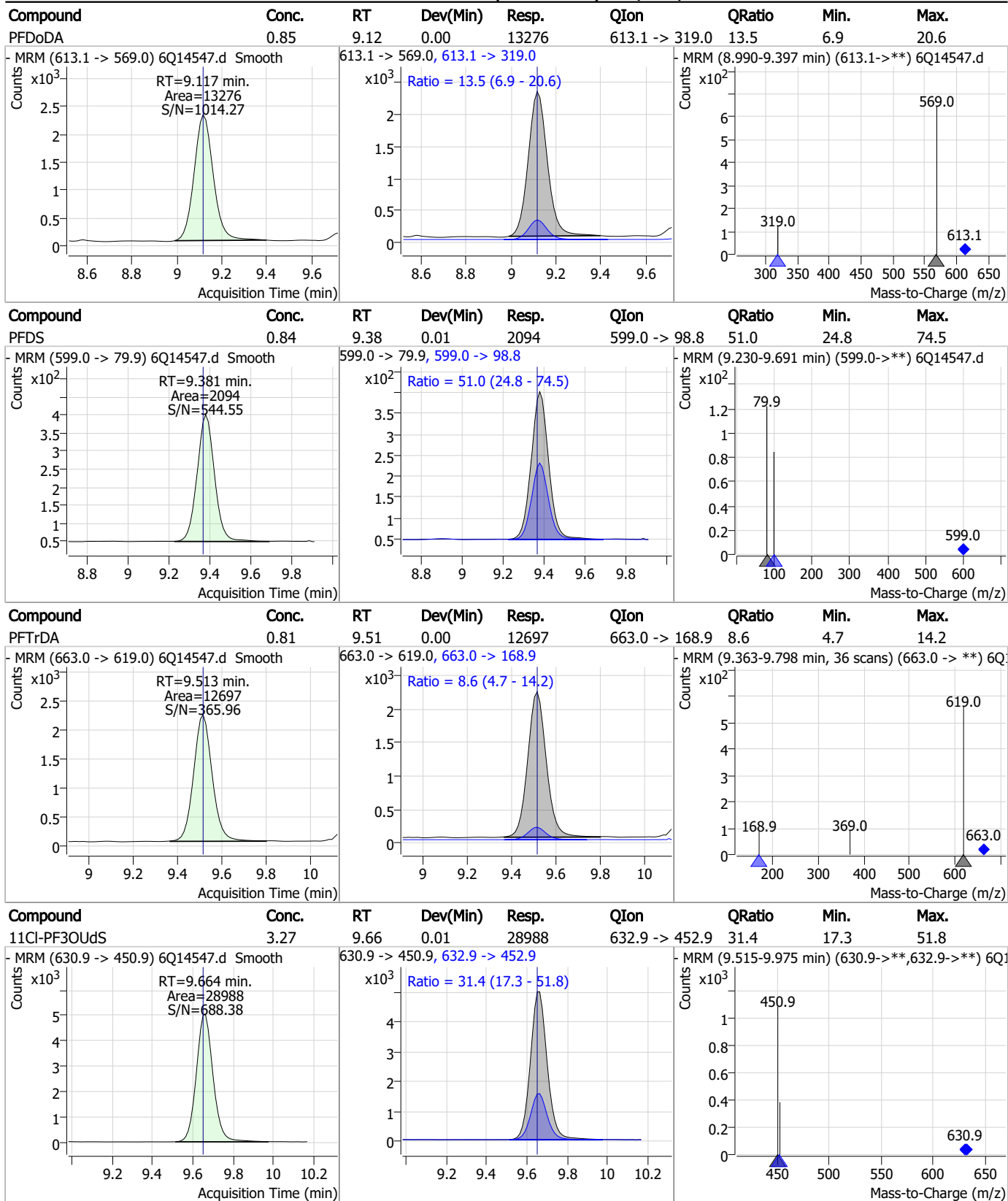


7.4.2

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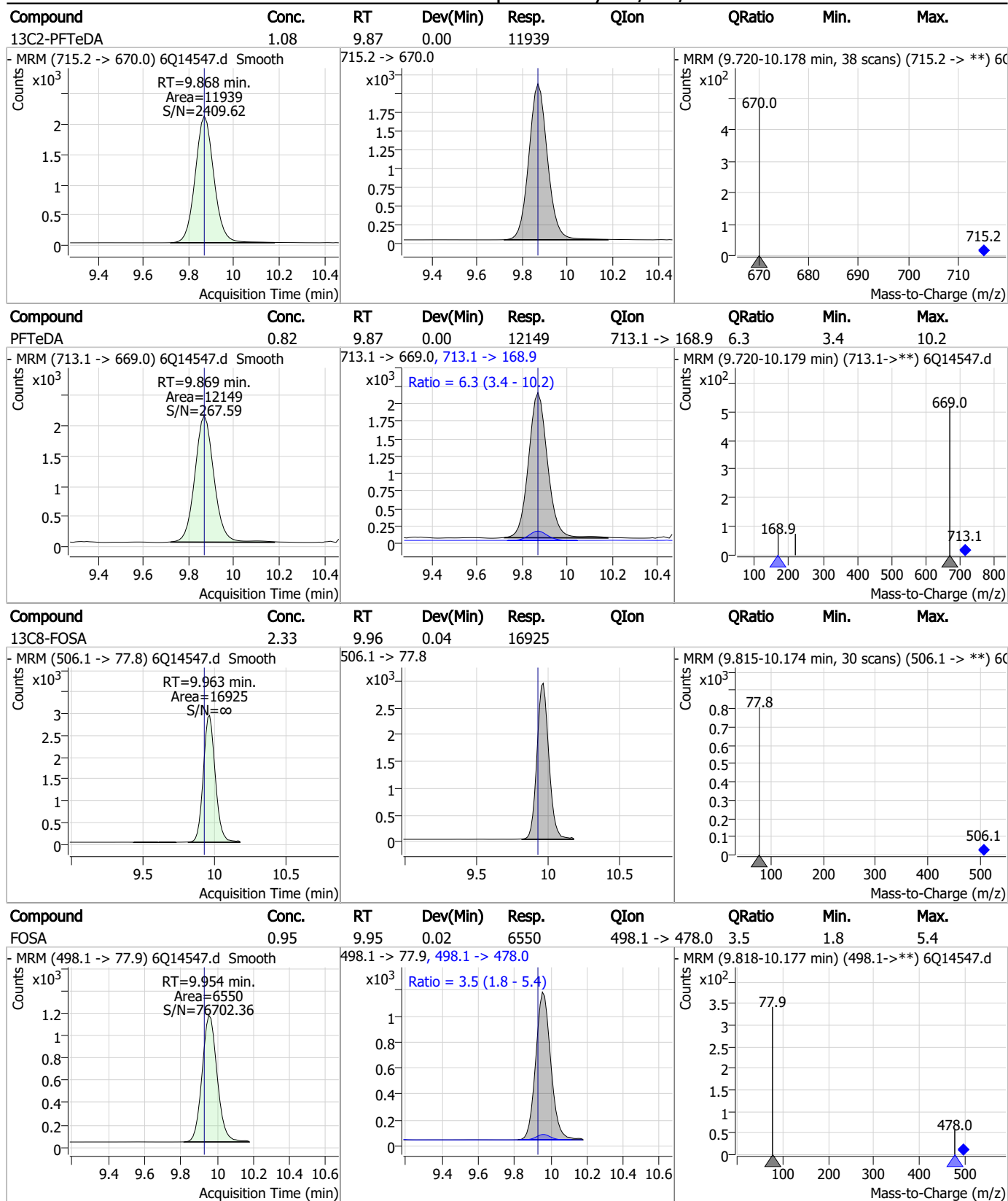


Perfluorinated Compounds by LC/MS/MS



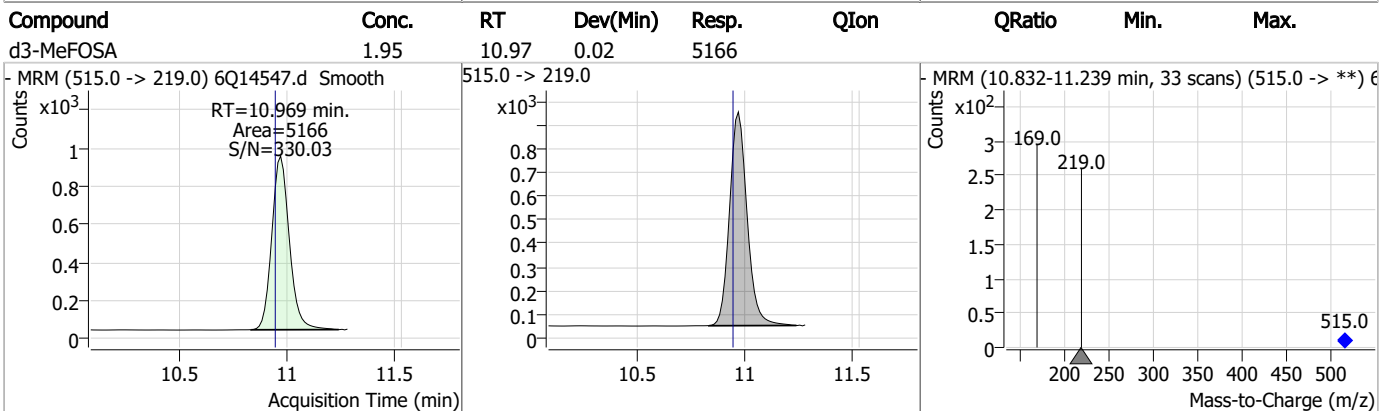
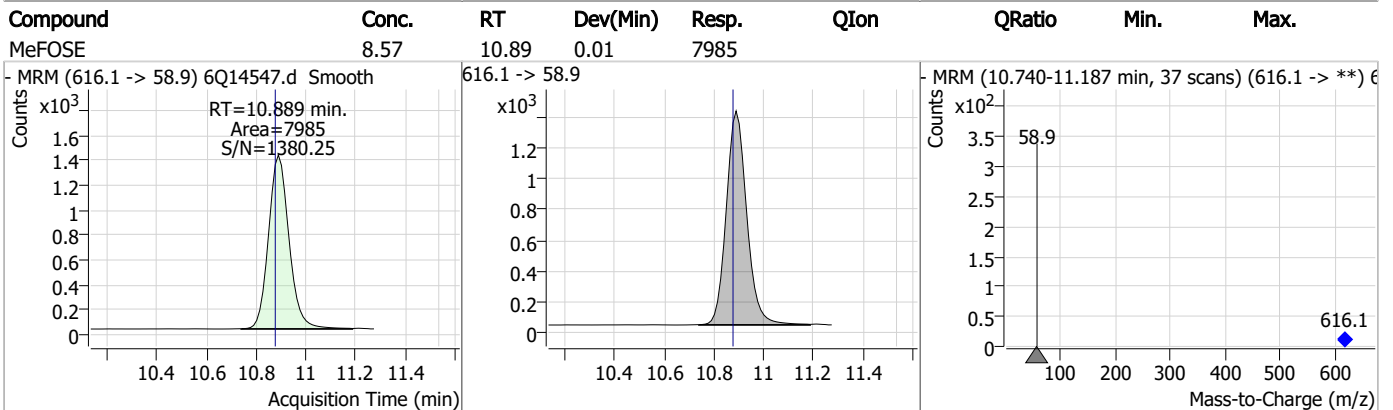
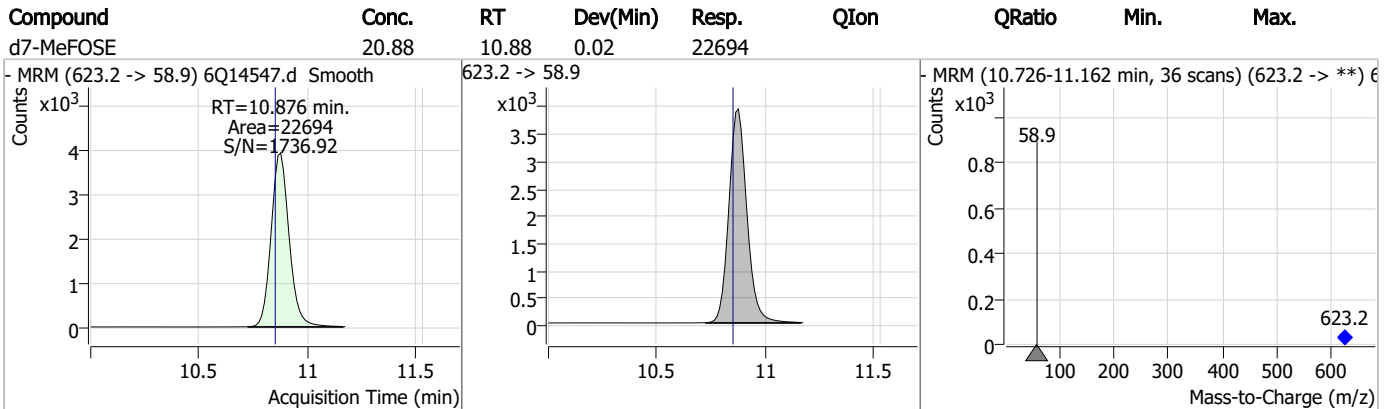
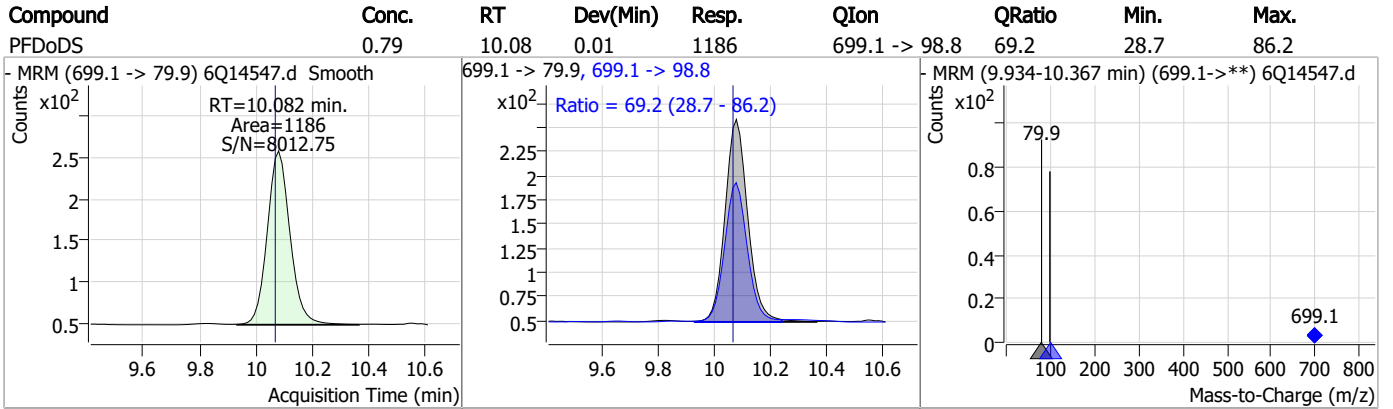
7.4.2
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Perfluorinated Compounds by LC/MS/MS



7.4.2
7

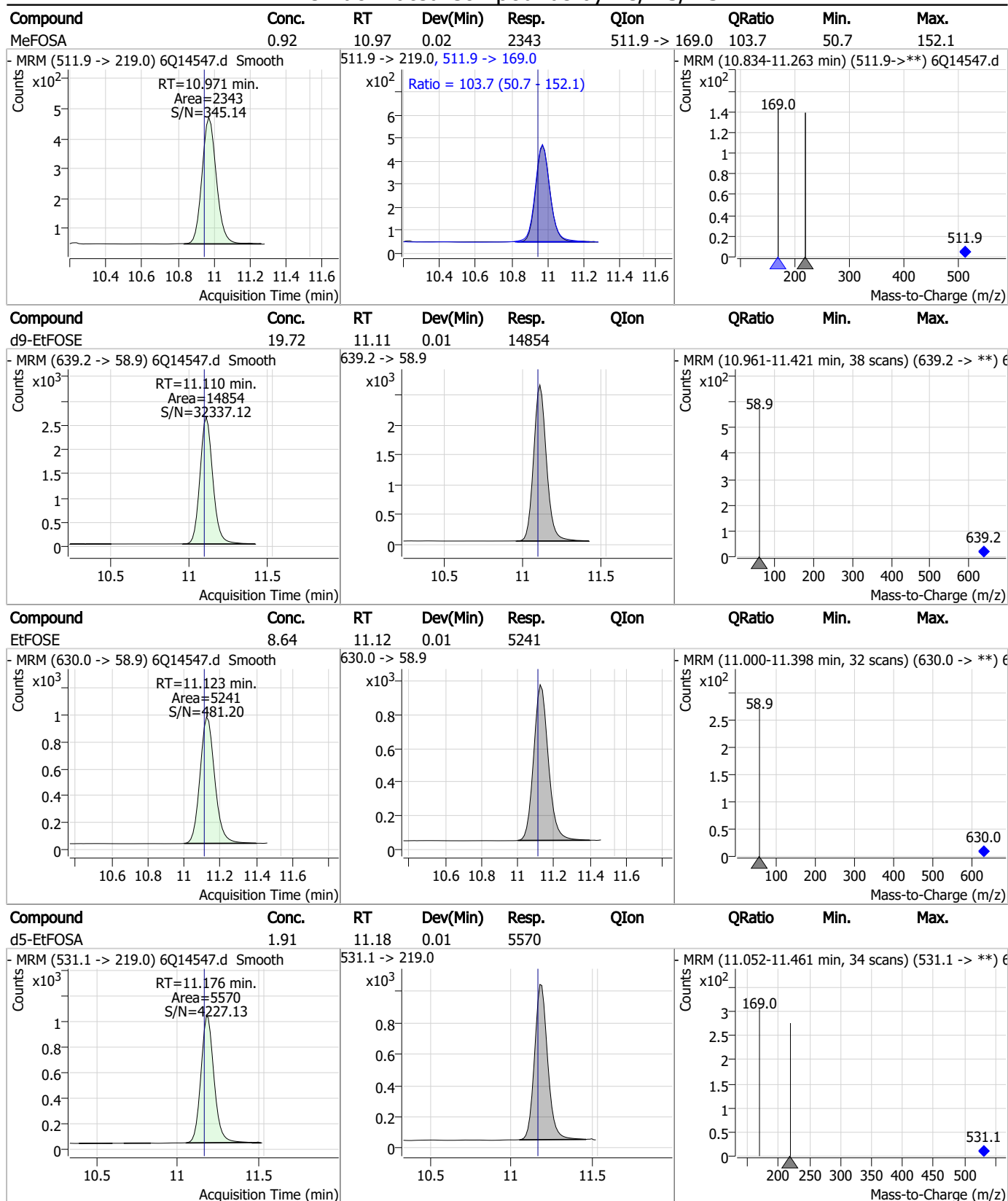
Perfluorinated Compounds by LC/MS/MS



7.4.2

7

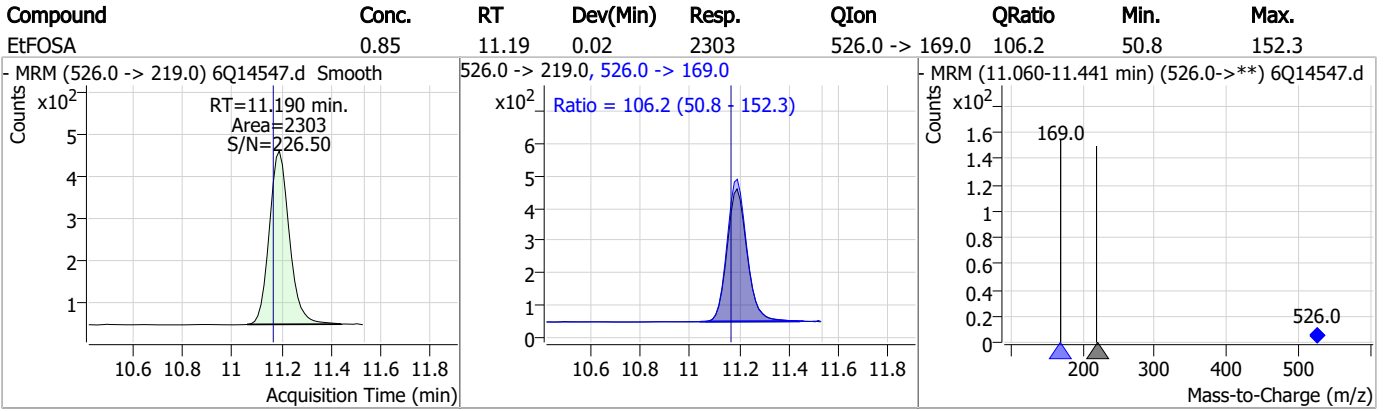
Perfluorinated Compounds by LC/MS/MS



7.4.2
7



Perfluorinated Compounds by LC/MS/MS



7.4.2

7

Manual Integration Approval Summary

Sample Number: OP95747-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q14547.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 19:59 Supervisor approved: 03/10/23 10:55 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.52	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.52	Split peak

7.4.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14555.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 9:51:46 PM
 Sample Name : op95747-ms
 Vial : P2-C4
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95747,S6Q220,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.203	216.8 -> 171.9	1339	10.00 µg/L	0.128
M5-PFPeA	4.653	268.3 -> 223.0	8525	5.00 µg/L	0.037
M5-PFHxA	5.822	318.0 -> 273.0	33612	2.50 µg/L	0.012
M4-PFHpA	6.680	367.1 -> 322.0	34234	2.50 µg/L	0.012
M8-PFOA	7.272	421.1 -> 376.0	53139	2.50 µg/L	0.012
M9-PFNA	7.764	472.1 -> 427.0	14632	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	14595	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	15463	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	16735	1.25 µg/L	0.000
M2-PFTeDA	9.881	715.2 -> 670.0	8142	1.25 µg/L	0.012
M8-FOSA	9.963	506.1 -> 77.8	16718	2.50 µg/L	0.037
M3-PFBS	5.950	302.1 -> 79.9	11725	2.50 µg/L	0.049
M3-PFHxS	7.511	402.1 -> 79.9	8730	2.50 µg/L	0.025
M8-PFOS	8.507	507.1 -> 79.9	8045	2.50 µg/L	0.000
M2-4:2FTS	5.500	329.1 -> 80.9	1845	5.00 µg/L	0.025
M2-6:2FTS	7.046	429.1 -> 80.9	1873	5.00 µg/L	0.012
M2-8:2FTS	8.019	529.1 -> 80.9	1880	5.00 µg/L	0.000
M3-MeFOSAA	8.265	573.2 -> 419.0	24320	5.00 µg/L	0.000
M3-HFPO-DA	6.163	286.9 -> 168.9	13703	10.00 µg/L	0.012
M5-EtFOSAA	8.460	589.2 -> 419.0	26290	5.00 µg/L	-0.012
M7-MeFOSE	10.876	623.2 -> 58.9	19444	25.00 µg/L	0.025
M9-EtFOSE	11.110	639.2 -> 58.9	13315	25.00 µg/L	0.012
M5-EtFOSA	11.188	531.1 -> 219.0	6319	2.50 µg/L	0.024
M3-MeFOSA	10.969	515.0 -> 219.0	5691	2.50 µg/L	0.025
13C4-PFOS	8.508	502.8 -> 79.9	8514	2.50 µg/L	0.012
13C3-PFBA	3.205	216.0 -> 172.0	35352	5.00 µg/L	0.127
18O2-PFHxS	7.510	403.0 -> 83.9	5735	2.50 µg/L	0.012
13C4-PFOA	7.272	417.1 -> 372.0	67167	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	18682	1.25 µg/L	0.000
13C5-PFNA	7.779	468.0 -> 423.0	15046	1.25 µg/L	0.014
13C2-PFHxA	5.835	315.1 -> 270.0	33127	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.500	329.1 -> 80.9	1845	6.76 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 135.1%		
13C2-6:2FTS	7.046	429.1 -> 80.9	1873	5.22 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C2-8:2FTS	8.019	529.1 -> 80.9	1880	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C2-PFDoDA	9.117	615.1 -> 570.0	16735	1.06 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 84.6%		
13C2-PFTeDA	9.881	715.2 -> 670.0	8142	0.81 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 64.8%		
13C3-PFBS	5.950	302.1 -> 79.9	11725	2.34 µg/L	0.049
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.7%		
13C3-PFHxS	7.511	402.1 -> 79.9	8730	2.66 µg/L	0.025

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 = 106.4%		
13C4-PFBA	3.203	216.8 -> 171.9	1339	0.16 µg/L	0.128
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 1.6%		
13C4-PFHpA	6.680	367.1 -> 322.0	34234	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C5-PFHxA	5.822	318.0 -> 273.0	33612	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C5-PFPeA	4.653	268.3 -> 223.0	8525	1.09 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 21.7%		
13C6-PFDA	8.233	519.1 -> 474.1	14595	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C7-PFUnDA	8.687	570.0 -> 525.1	15463	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C8-FOSA	9.963	506.1 -> 77.8	16718	2.50 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C8-PFOA	7.272	421.1 -> 376.0	53139	2.38 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C8-PFOS	8.507	507.1 -> 79.9	8045	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.3%		
13C9-PFNA	7.764	472.1 -> 427.0	14632	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.9%		
d3-MeFOSAA	8.265	573.2 -> 419.0	24320	6.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.1%		
13C3-HFPO-DA	6.163	286.9 -> 168.9	13703	9.03 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 90.3%		
d3-MeFOSA	10.969	515.0 -> 219.0	5691	2.34 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.4%		
d5-EtFOSAA	8.460	589.2 -> 419.0	26290	7.22 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 144.4%		
d7-MeFOSE	10.876	623.2 -> 58.9	19444	19.45 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 77.8%		
d9-EtFOSE	11.110	639.2 -> 58.9	13315	19.22 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 76.9%		
d5-EtFOSA	11.188	531.1 -> 219.0	6319	2.36 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.3%		
Target Compounds					QValue
4:2FTS	5.500	327.1 -> 307.0	38735	9.30 µg/L	99
		327.1 -> 80.9	9256		
6:2FTS	7.046	427.1 -> 407.0	26761	9.50 µg/L	100
		427.1 -> 80.9	5831		
8:2FTS	8.020	527.1 -> 507.0	14092	9.42 µg/L	98
		527.1 -> 80.8	3848		
EtFOSAA	8.474	584.2 -> 419.1	9512	2.15 µg/L	m 95
		584.2 -> 526.0	5288		
FOSA	9.967	498.1 -> 77.9	16015	2.34 µg/L	99
		498.1 -> 478.0	527		
MeFOSAA	8.266	570.1 -> 419.0	11703	2.27 µg/L	99
		570.1 -> 483.0	2175		
PFBA	3.220	212.8 -> 168.9	216	5.89 µg/L	m 100
PFBS	5.964	298.7 -> 79.9	9830	2.00 µg/L	96
		298.7 -> 98.8	4264		
PFDA	8.233	512.9 -> 469.0	42491	2.27 µg/L	92
		512.9 -> 219.0	5505		
PFDoDA	9.117	613.1 -> 569.0	31587	2.30 µg/L	98
		613.1 -> 319.0	4528		
PFDS	9.381	599.0 -> 79.9	4537	1.66 µg/L	90

7.5.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.681	599.0 -> 98.8	2553	2.25	µg/L	99
		363.1 -> 319.0	49494			
PFHpS	8.041	363.1 -> 169.0	6768	2.98	µg/L	m
		449.0 -> 79.9	11316			
PFHxA	5.825	449.0 -> 98.9	4285	2.18	µg/L	99
		313.0 -> 269.0	29129			
PFHxS	7.512	313.0 -> 118.9	1185	2.00	µg/L	m
		398.7 -> 79.9	8531			
PFNA	7.779	398.7 -> 98.9	4424	2.27	µg/L	97
		463.0 -> 419.0	22970			
PFNS	8.973	463.0 -> 219.0	4535	1.93	µg/L	88
		548.8 -> 79.9	7512			
PFOA	7.273	548.8 -> 98.9	3912	2.30	µg/L	99
		413.0 -> 369.0	61152			
PFOS	8.508	413.0 -> 169.0	8114	1.76	µg/L	m
		498.9 -> 79.9	7035			
PFPeA	4.666	498.9 -> 98.8	4854	4.50	µg/L	100
		263.0 -> 219.0	8916			
PFPeS	6.894	349.1 -> 79.9	10648	2.11	µg/L	93
		349.1 -> 98.9	5788			
PFTeDA	9.869	713.1 -> 669.0	22603	2.23	µg/L	99
		713.1 -> 168.9	1653			
PFTrDA	9.513	663.0 -> 619.0	24644	1.80	µg/L	98
		663.0 -> 168.9	2117			
PFUnDA	8.687	563.1 -> 519.0	33725	2.25	µg/L	98
		563.1 -> 269.1	4743			
11CI-PF3OUdS	9.664	630.9 -> 450.9	63893	7.90	µg/L	94
		632.9 -> 452.9	19778			
9CI-PF3ONS	8.851	530.8 -> 351.0	143211	9.74	µg/L	98
		532.8 -> 353.0	46609			
ADONA	6.928	376.9 -> 250.9	270077	9.39	µg/L	100
		376.9 -> 84.8	60768			
HFPO-DA	6.164	284.9 -> 168.9	12298	8.98	µg/L	97
		284.9 -> 184.9	1612			
3:3FTCA	4.101	241.0 -> 177.0	560	5.56	µg/L	#
		241.0 -> 117.0	138			
5:3FTCA	6.431	341.0 -> 237.1	177553	60.91	µg/L	96
		341.0 -> 217.0	153531			
7:3FTCA	7.755	441.0 -> 316.9	84186	60.21	µg/L	92
		441.0 -> 336.9	151315			
EtFOSA	11.190	526.0 -> 219.0	6976	2.27	µg/L	94
		526.0 -> 169.0	6677			
EtFOSE	11.123	630.0 -> 58.9	12573	23.12	µg/L	100
		511.9 -> 219.0	6754			
MeFOSA	10.971	511.9 -> 169.0	6873	2.41	µg/L	100
		616.1 -> 58.9	19619			
MeFOSE	10.889	699.1 -> 79.9	2038	24.56	µg/L	100
		699.1 -> 98.8	1203			
PFDoDS	10.082	295.0 -> 201.0	3398	1.23	µg/L	98
		295.0 -> 84.9	1621			
NFDHA	5.705	279.0 -> 85.1	6677	3.70	µg/L	87
		279.0 -> 85.1	6677			
PFMBA	5.051	229.0 -> 84.9	362	10.03	µg/L	100
		314.8 -> 134.9	80040			
PFMPA	3.781	314.8 -> 82.9	2005	0.63	µg/L	100
		314.8 -> 134.9	80040			
PFEESA	6.433	314.8 -> 82.9	2005	4.17	µg/L	99
		314.8 -> 82.9	2005			

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

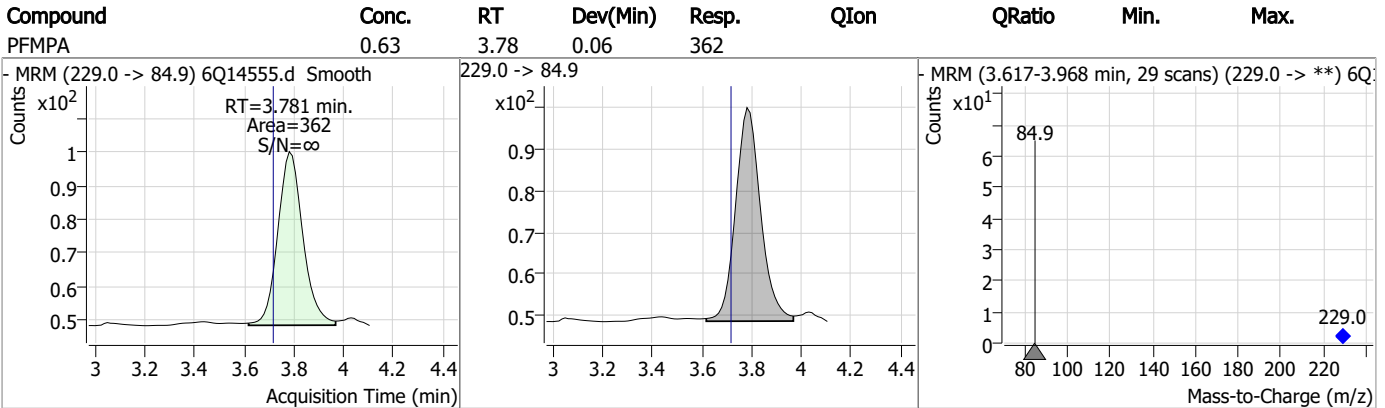
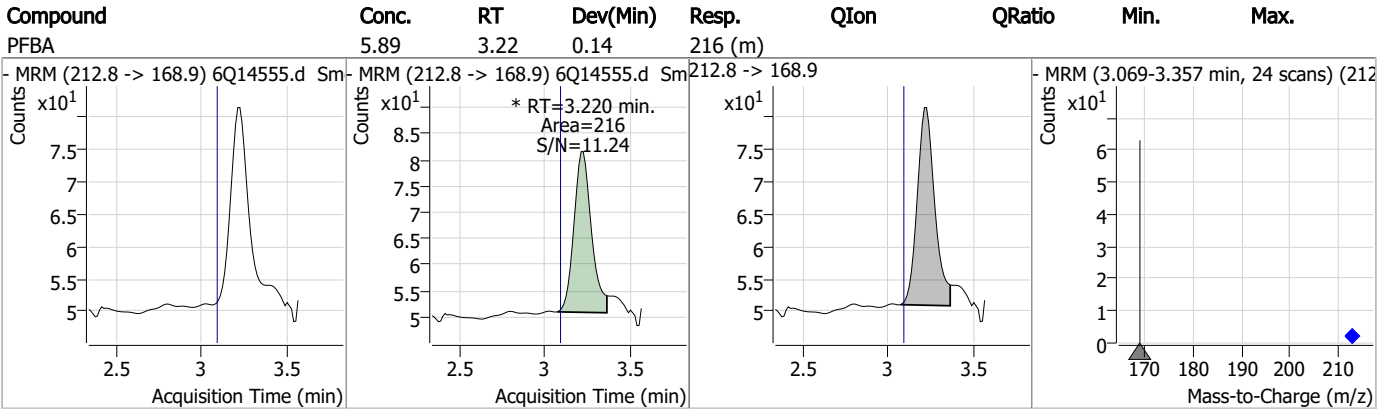
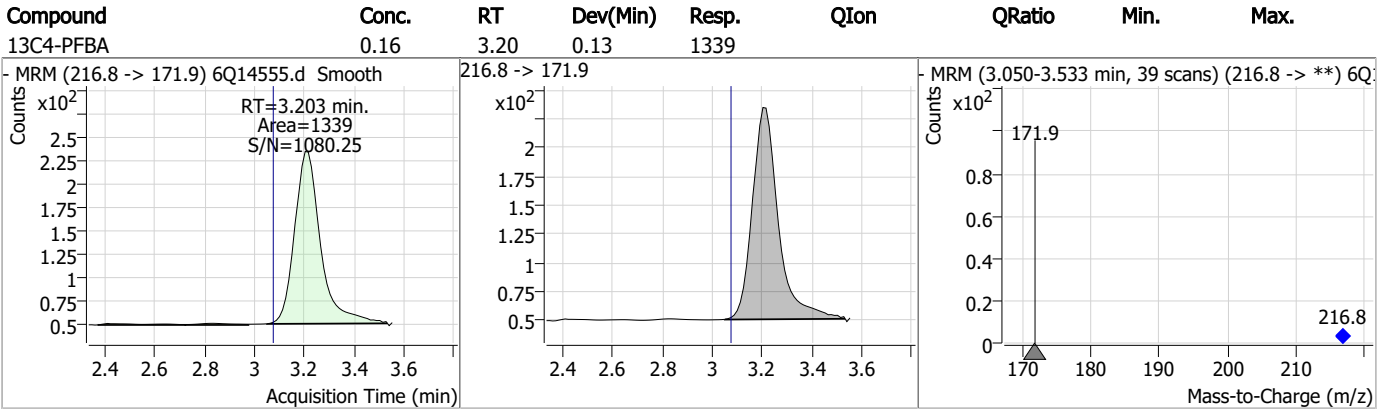
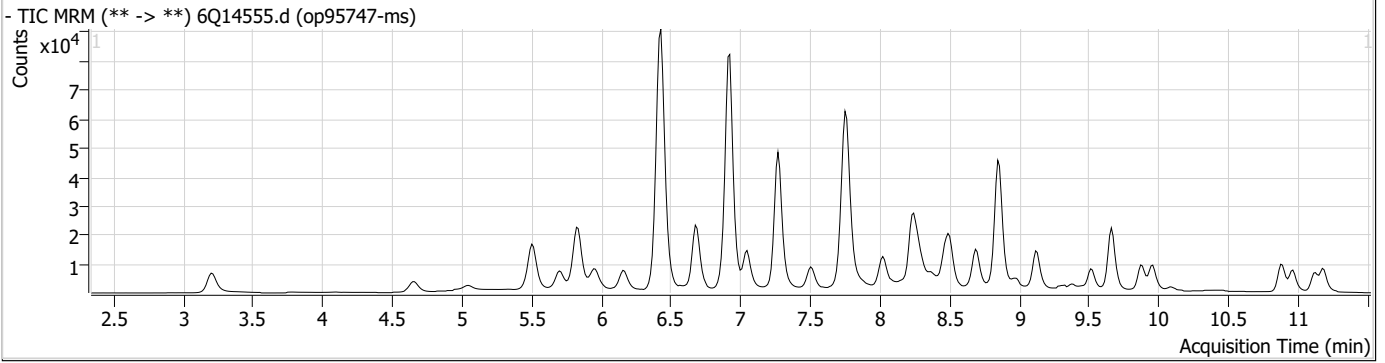
Perfluorinated Compounds by LC/MS/MS

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

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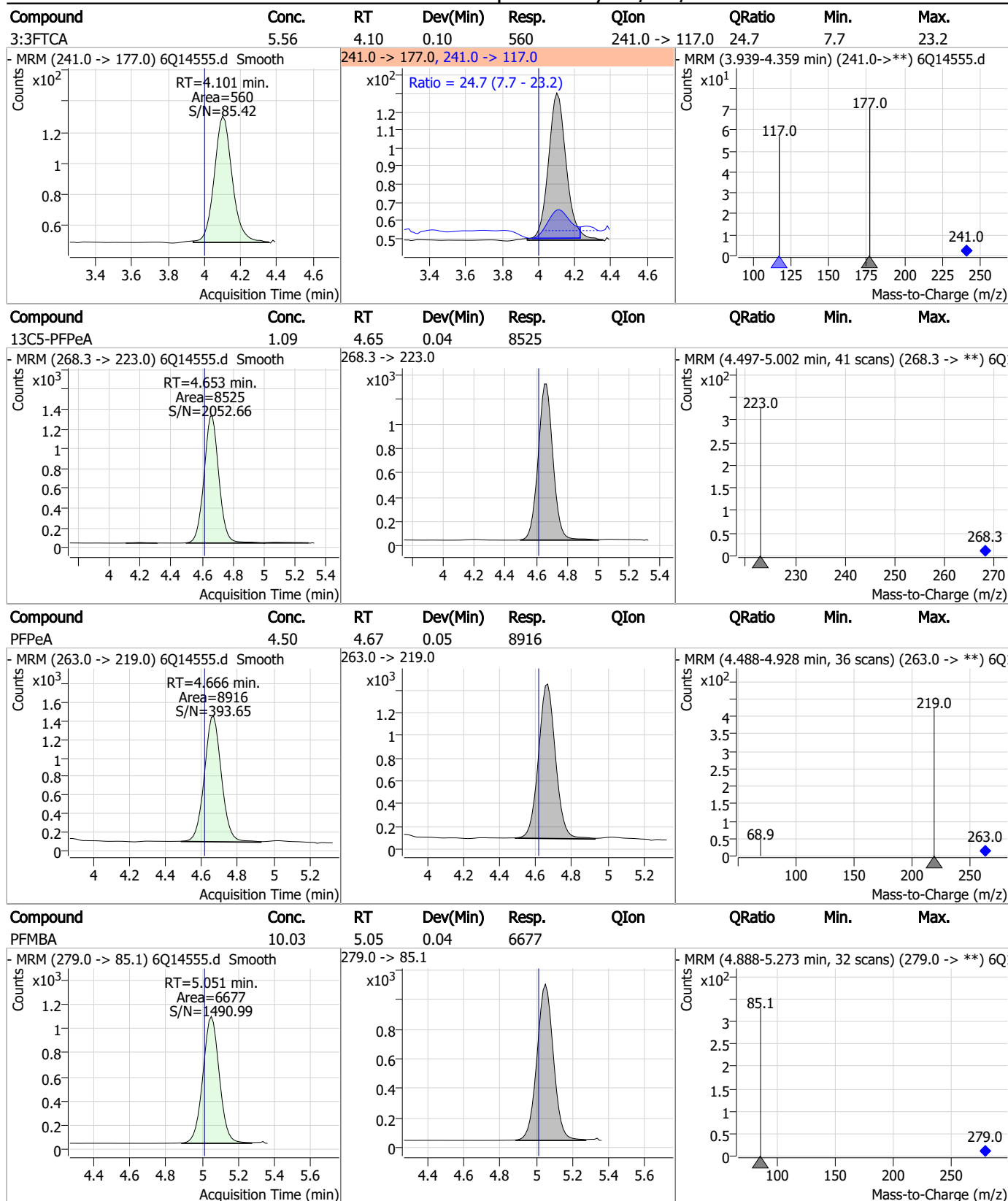
Perfluorinated Compounds by LC/MS/MS



7.5.1

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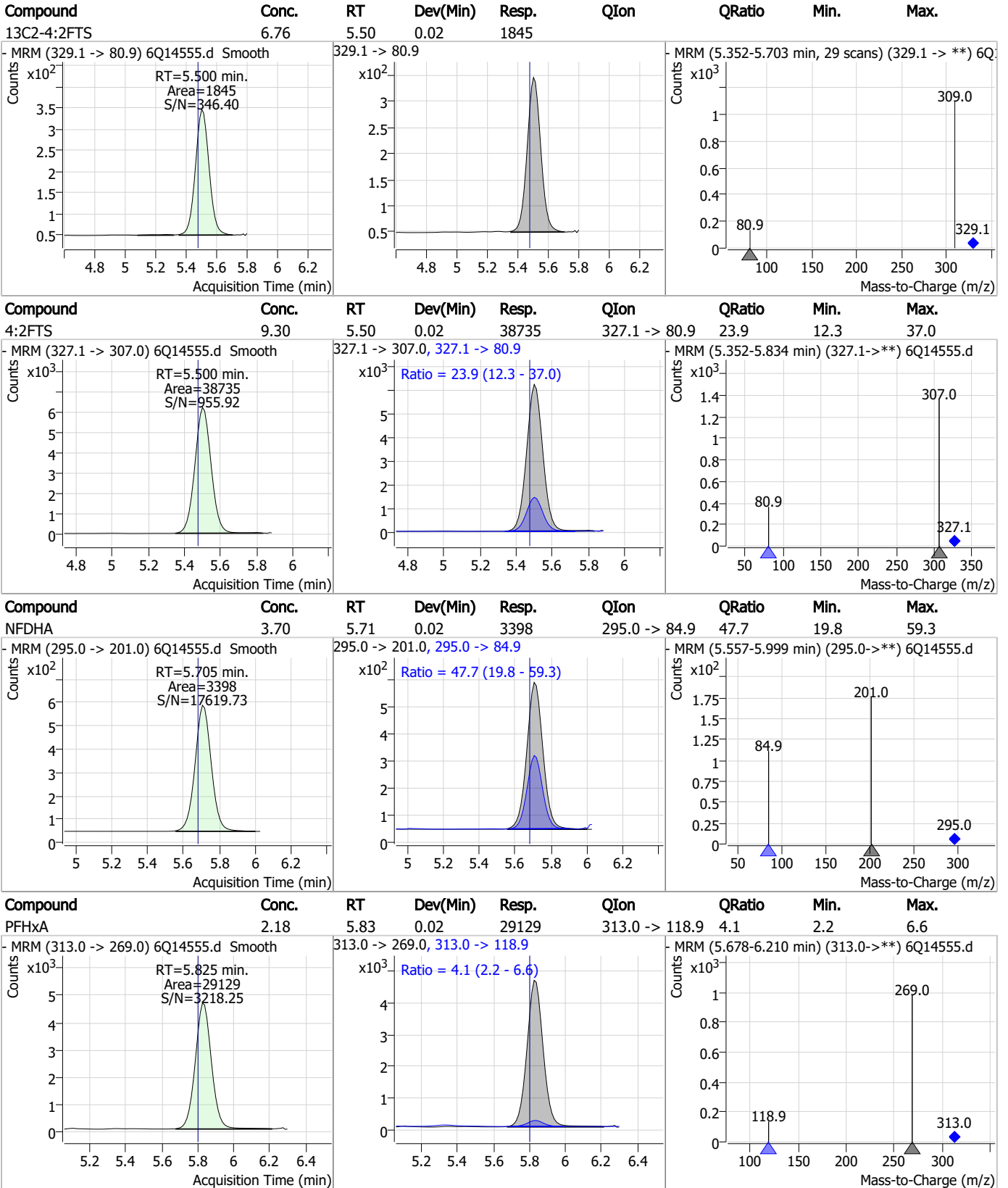
Perfluorinated Compounds by LC/MS/MS



7.5.1

7

Perfluorinated Compounds by LC/MS/MS



7.5.1

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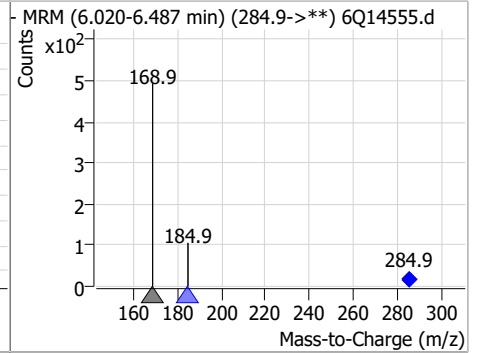
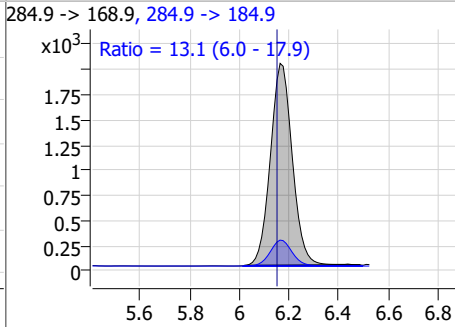
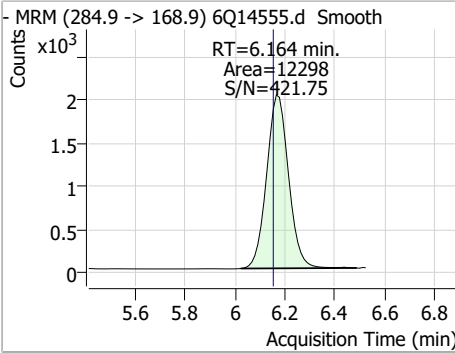
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.47	5.82	0.01	33612				
13C3-PFBS	2.34	5.95	0.05	11725				
PFBS	2.00	5.96	0.06	9830	298.7 -> 98.8	43.4	20.4	61.1
13C3-HFPO-DA	9.03	6.16	0.01	13703				

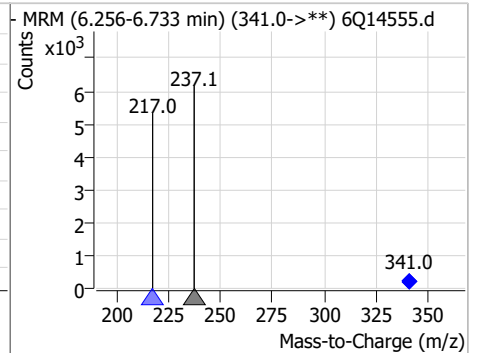
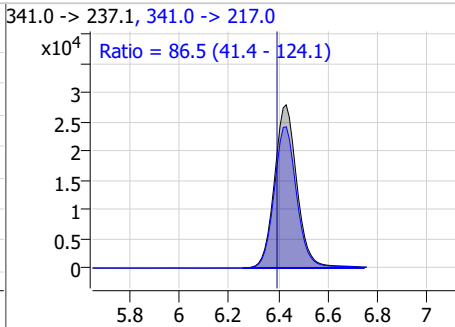
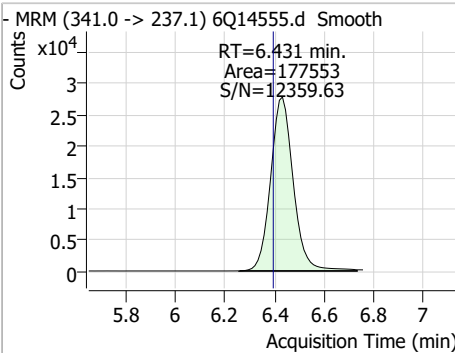
7.5.1
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Perfluorinated Compounds by LC/MS/MS

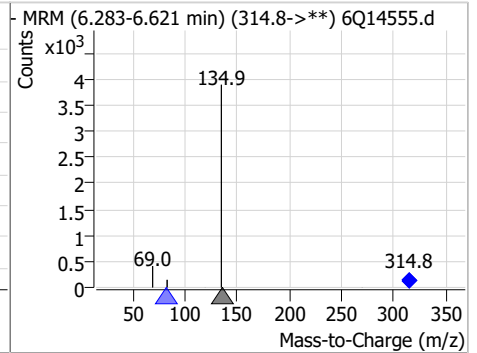
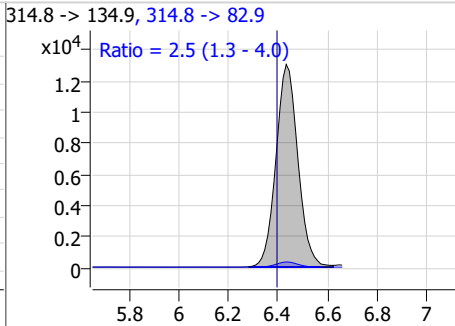
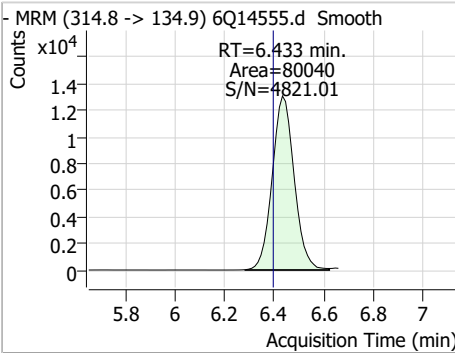
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	8.98	6.16	0.01	12298	284.9 -> 184.9	13.1	6.0	17.9



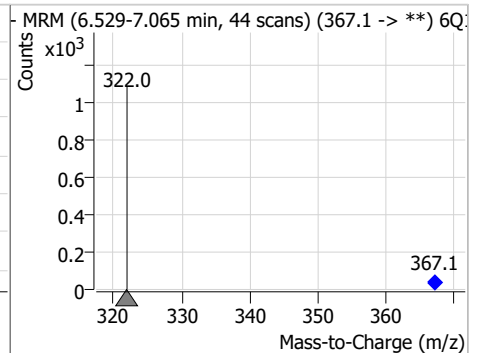
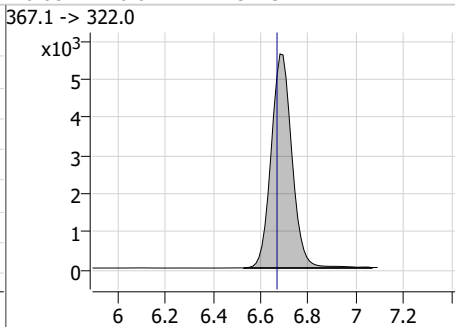
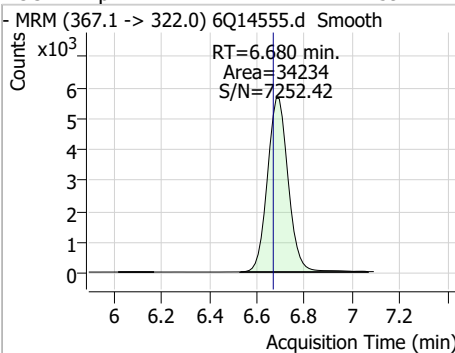
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	60.91	6.43	0.04	177553	341.0 -> 217.0	86.5	41.4	124.1



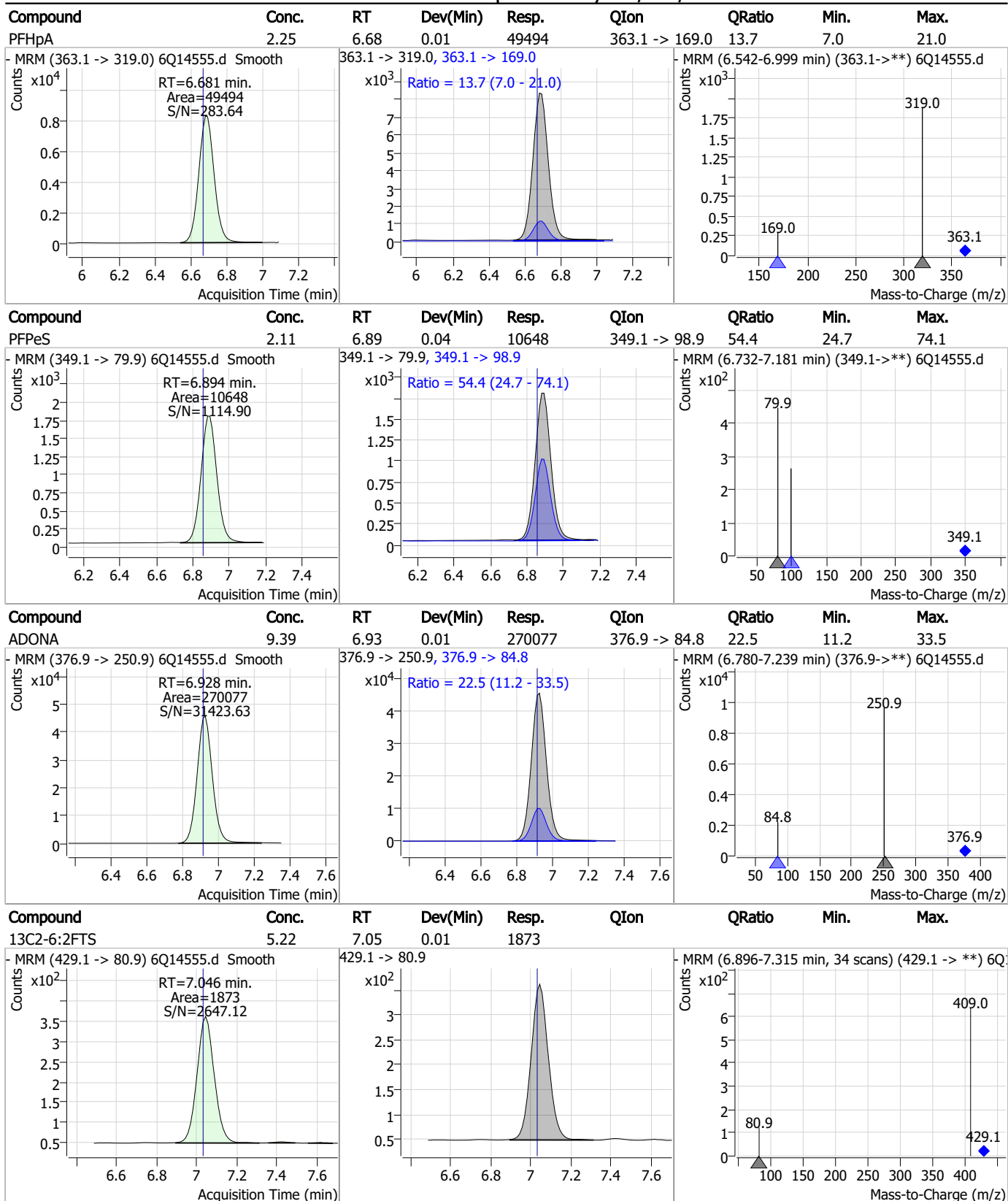
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.17	6.43	0.04	80040	314.8 -> 82.9	2.5	1.3	4.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.59	6.68	0.01	34234	367.1 -> 322.0			

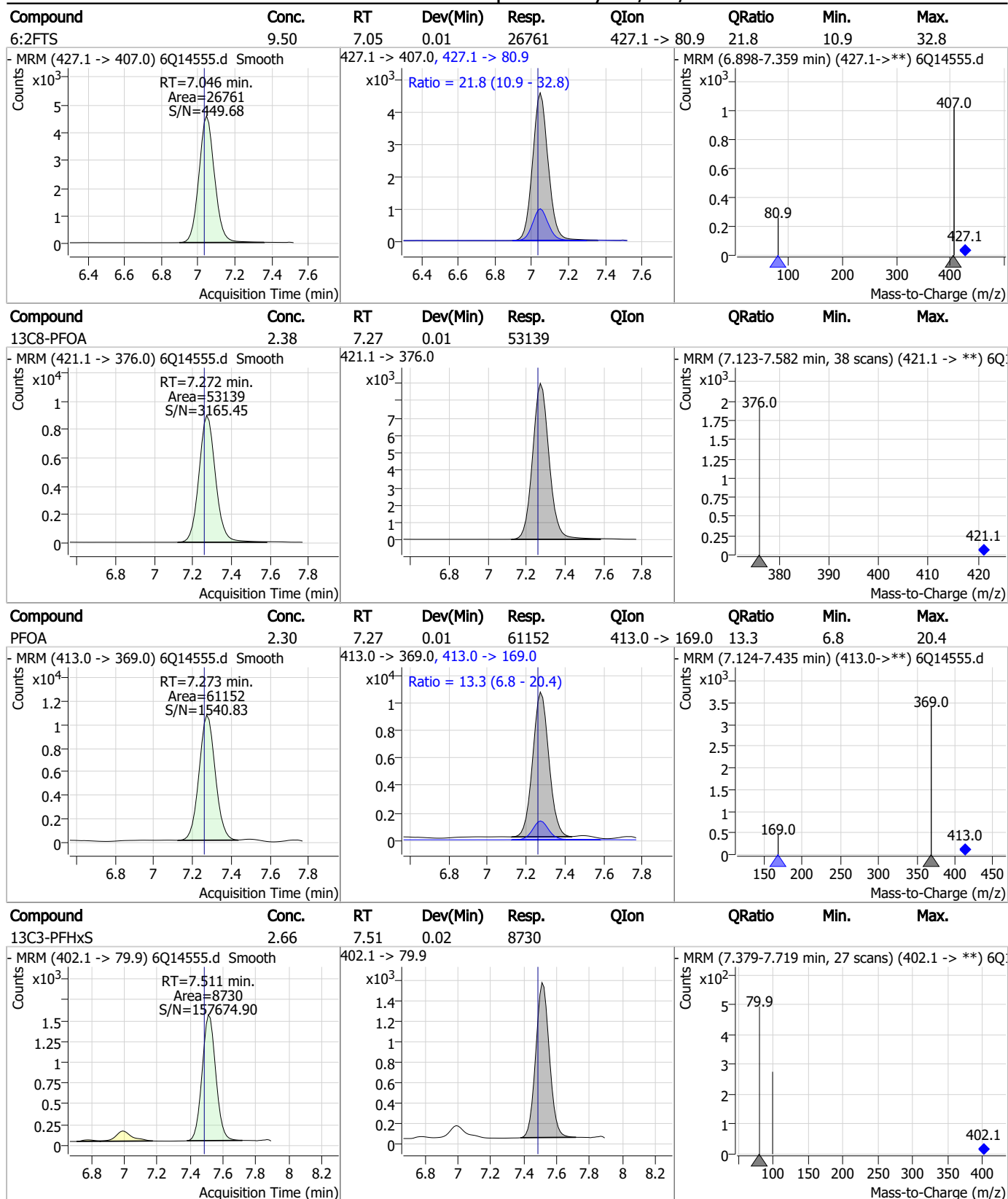


Perfluorinated Compounds by LC/MS/MS



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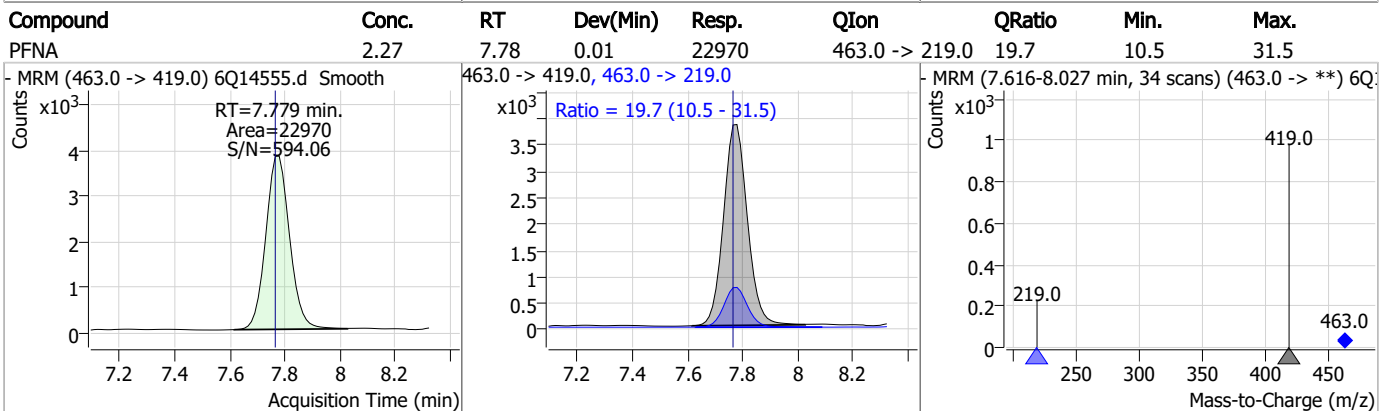
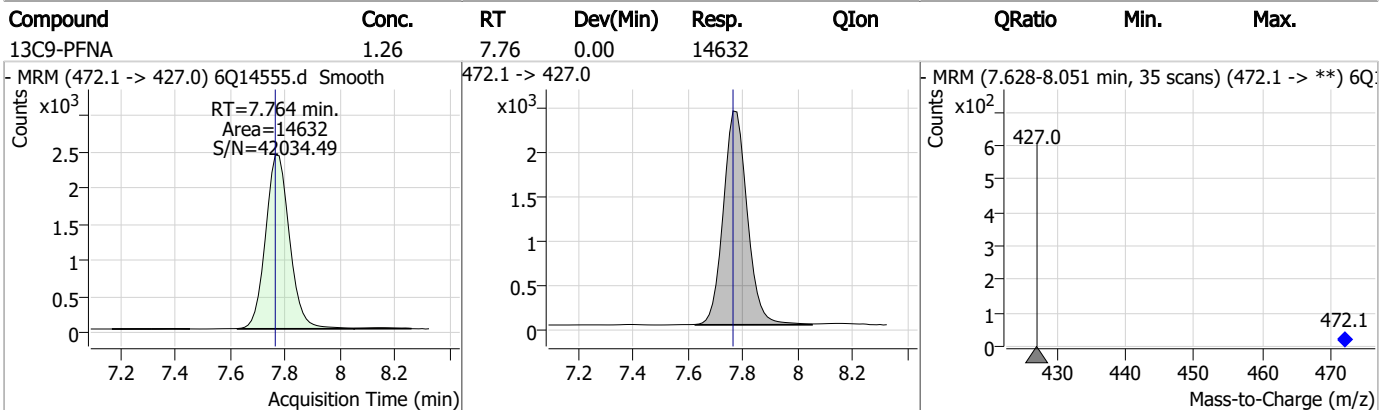
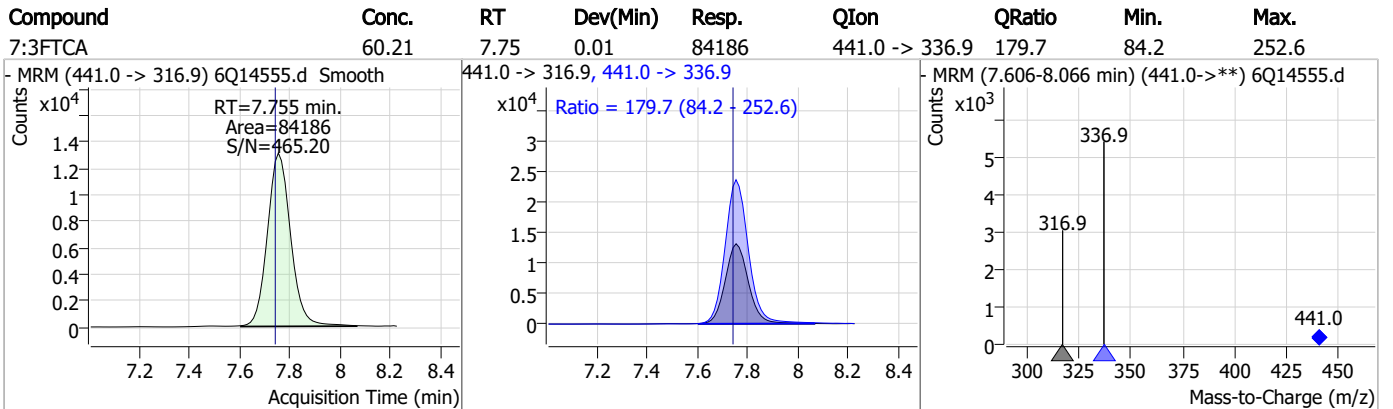
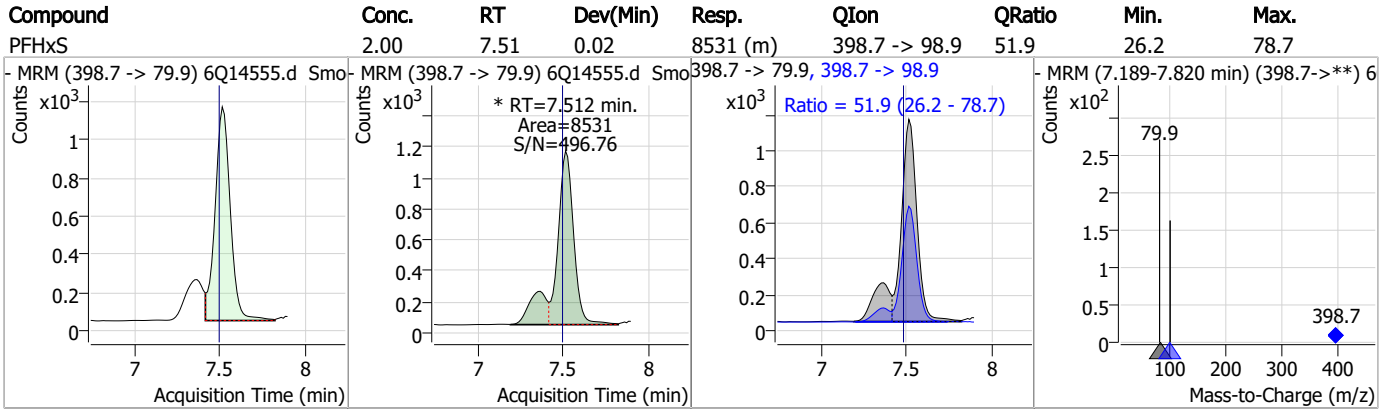
Perfluorinated Compounds by LC/MS/MS



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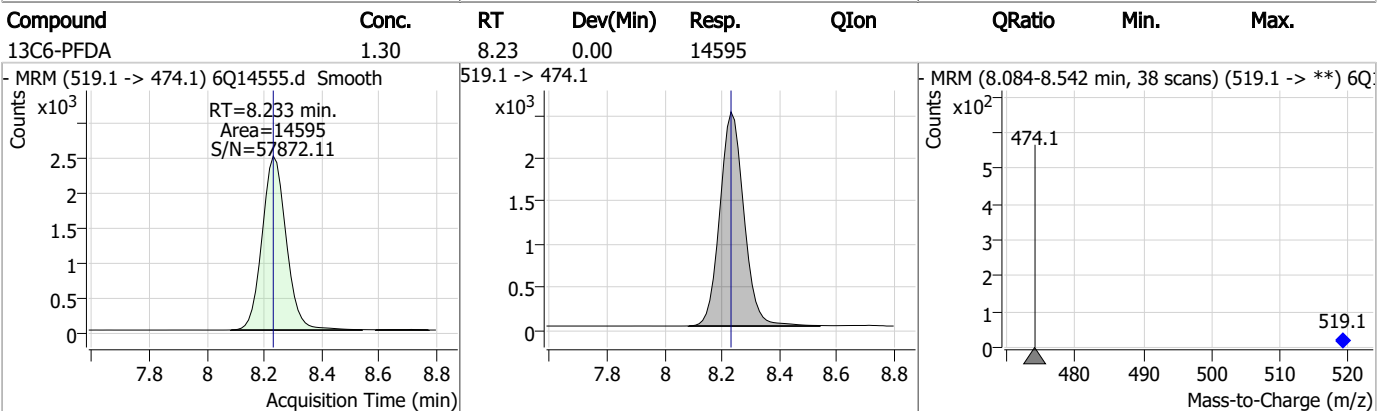
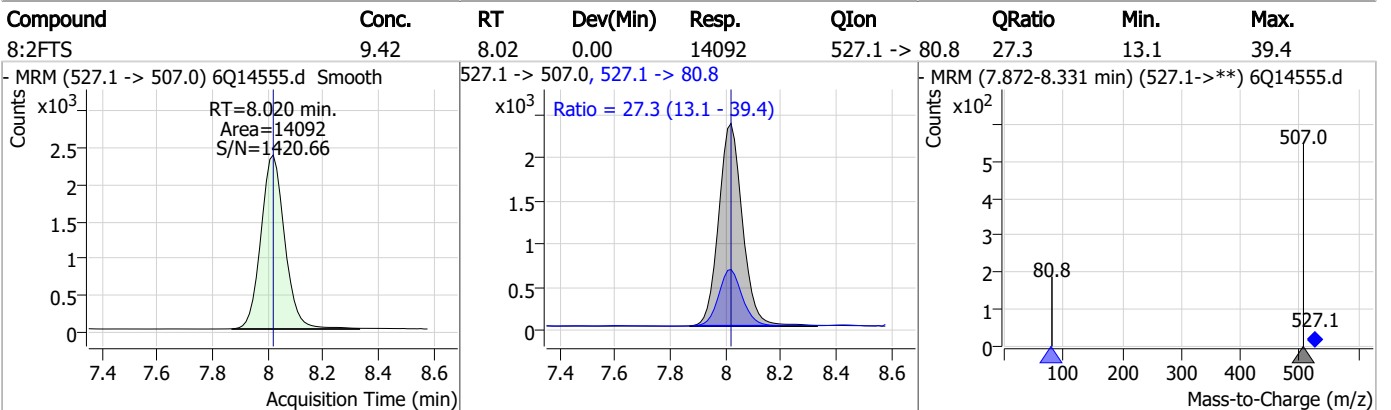
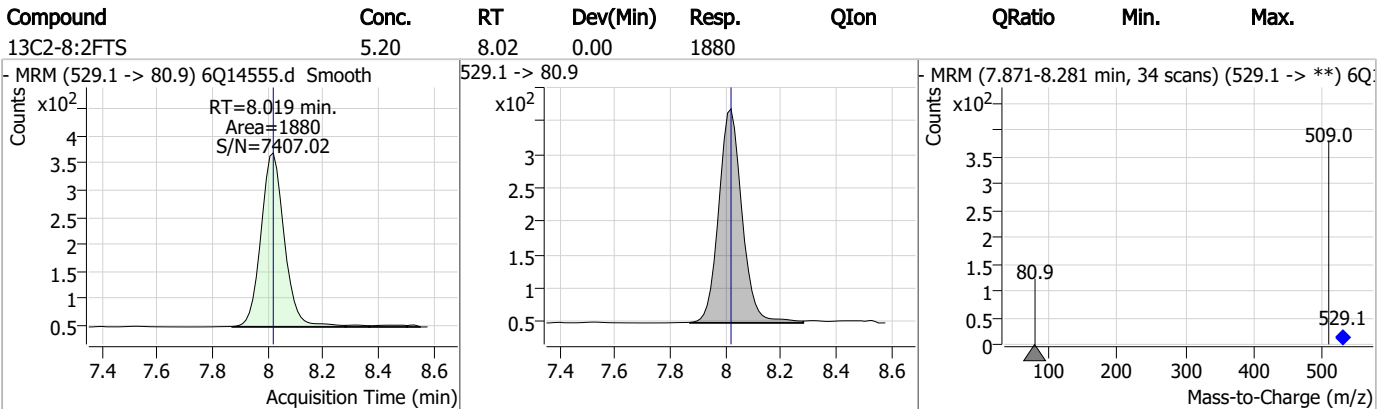
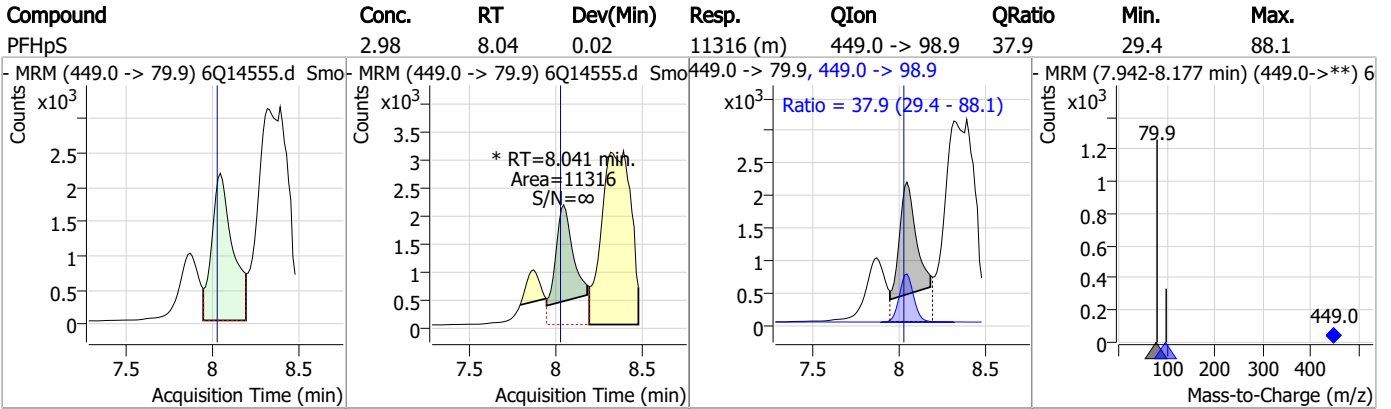
Perfluorinated Compounds by LC/MS/MS



7.5.1

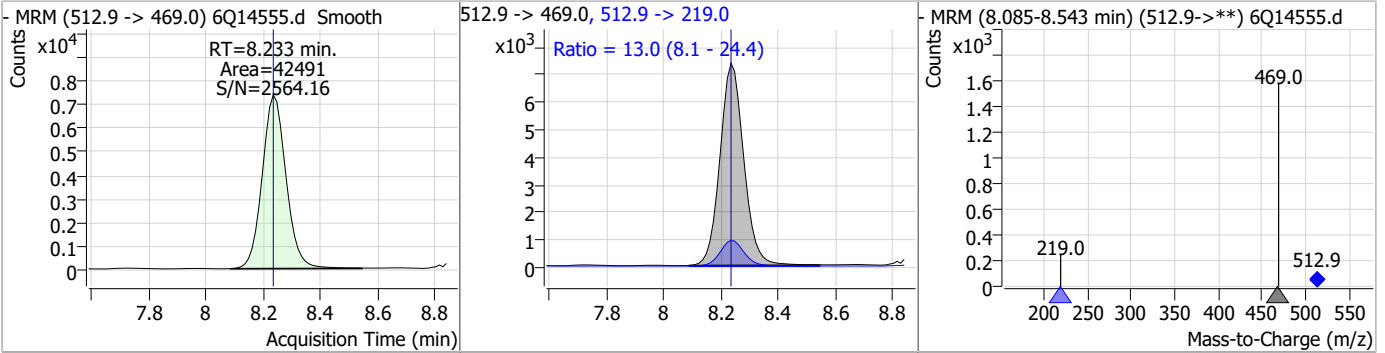
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Perfluorinated Compounds by LC/MS/MS

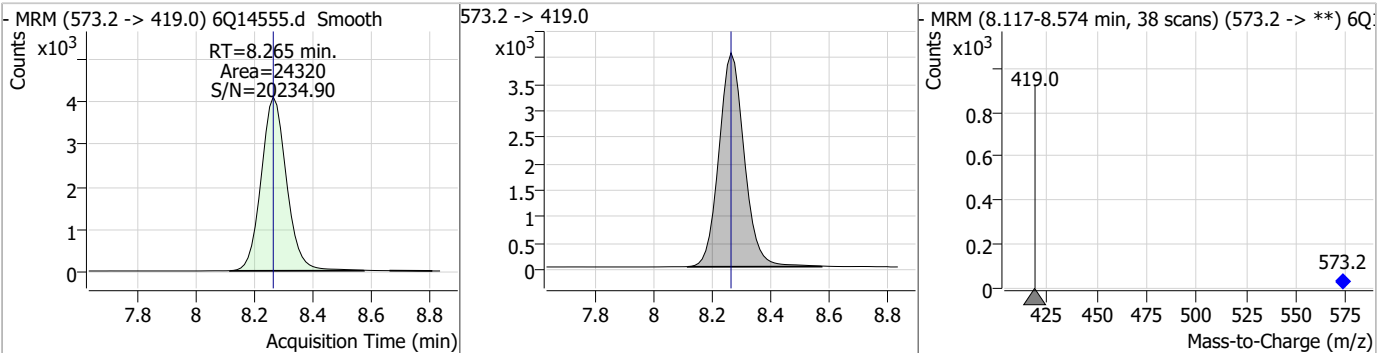


Perfluorinated Compounds by LC/MS/MS

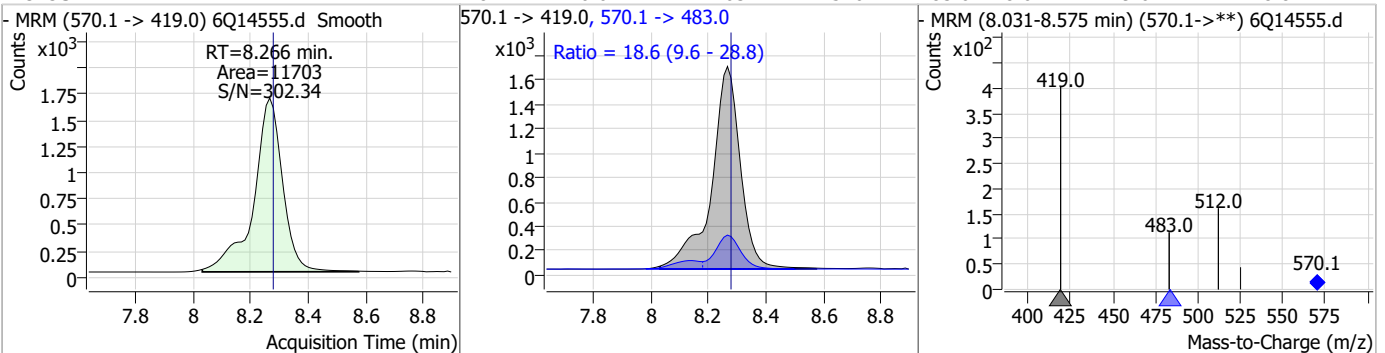
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.27	8.23	0.00	42491	512.9 -> 219.0	13.0	8.1	24.4



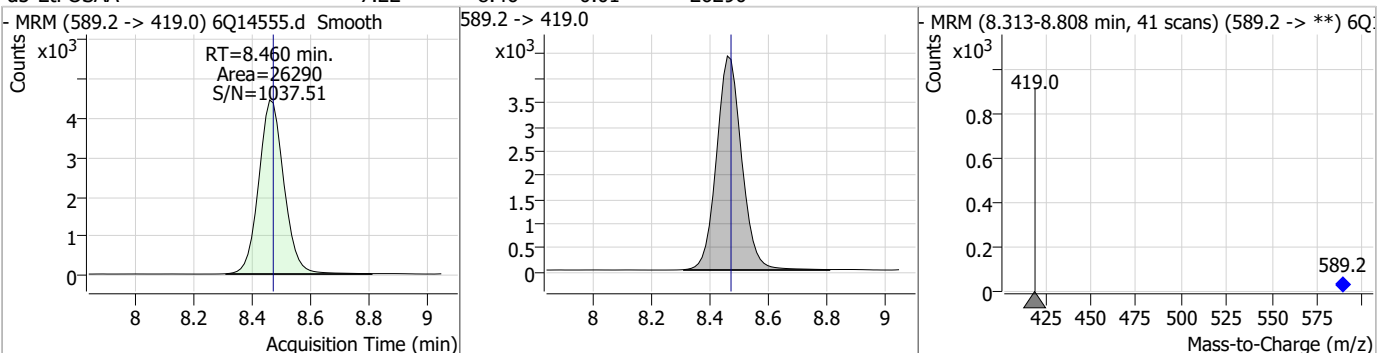
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	6.20	8.26	0.00	24320				



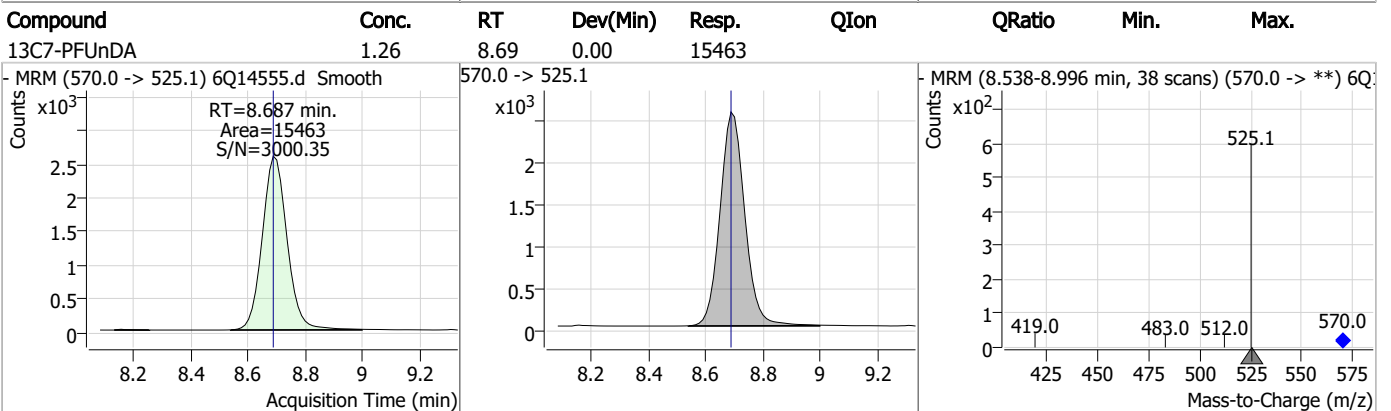
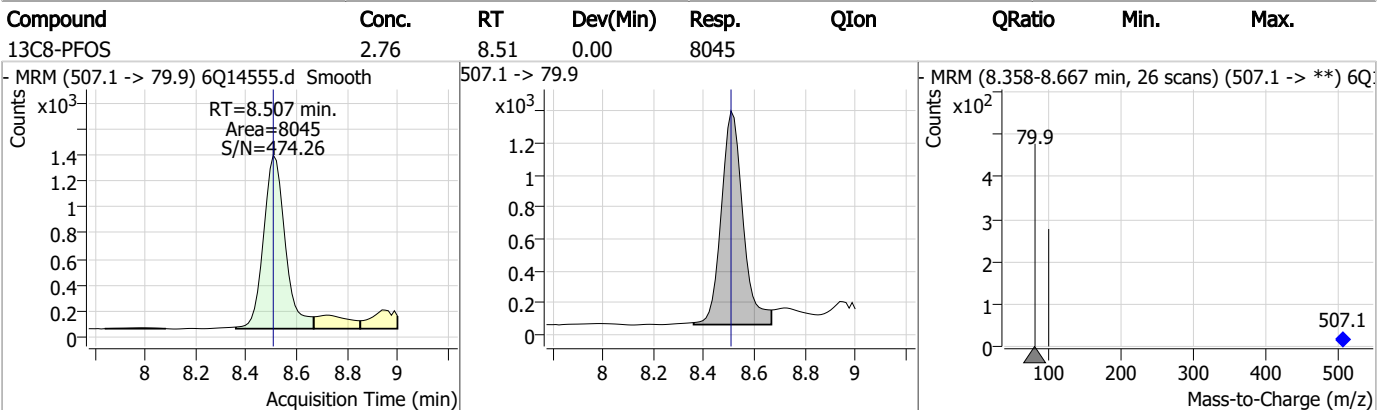
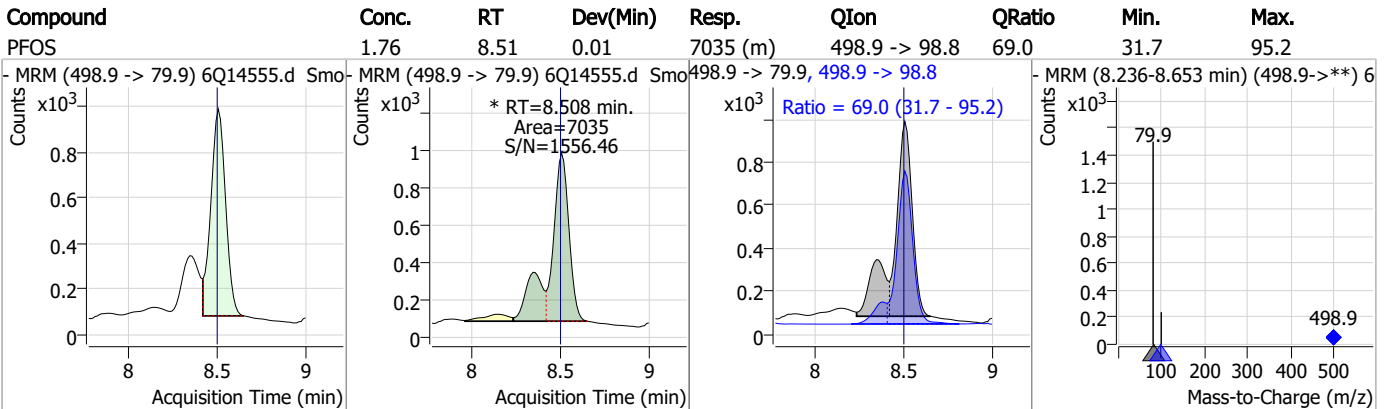
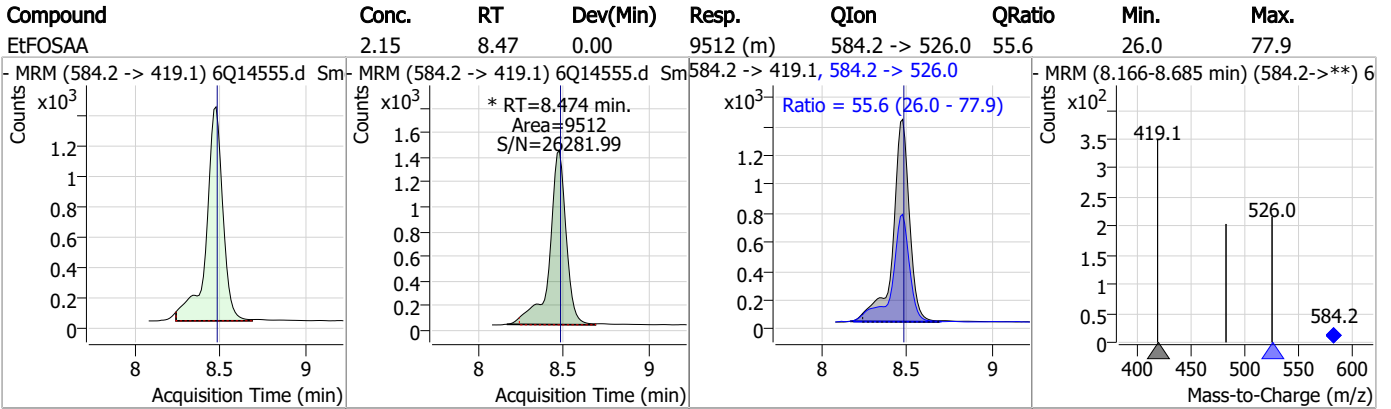
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.27	8.27	-0.01	11703	570.1 -> 483.0	18.6	9.6	28.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	7.22	8.46	-0.01	26290				



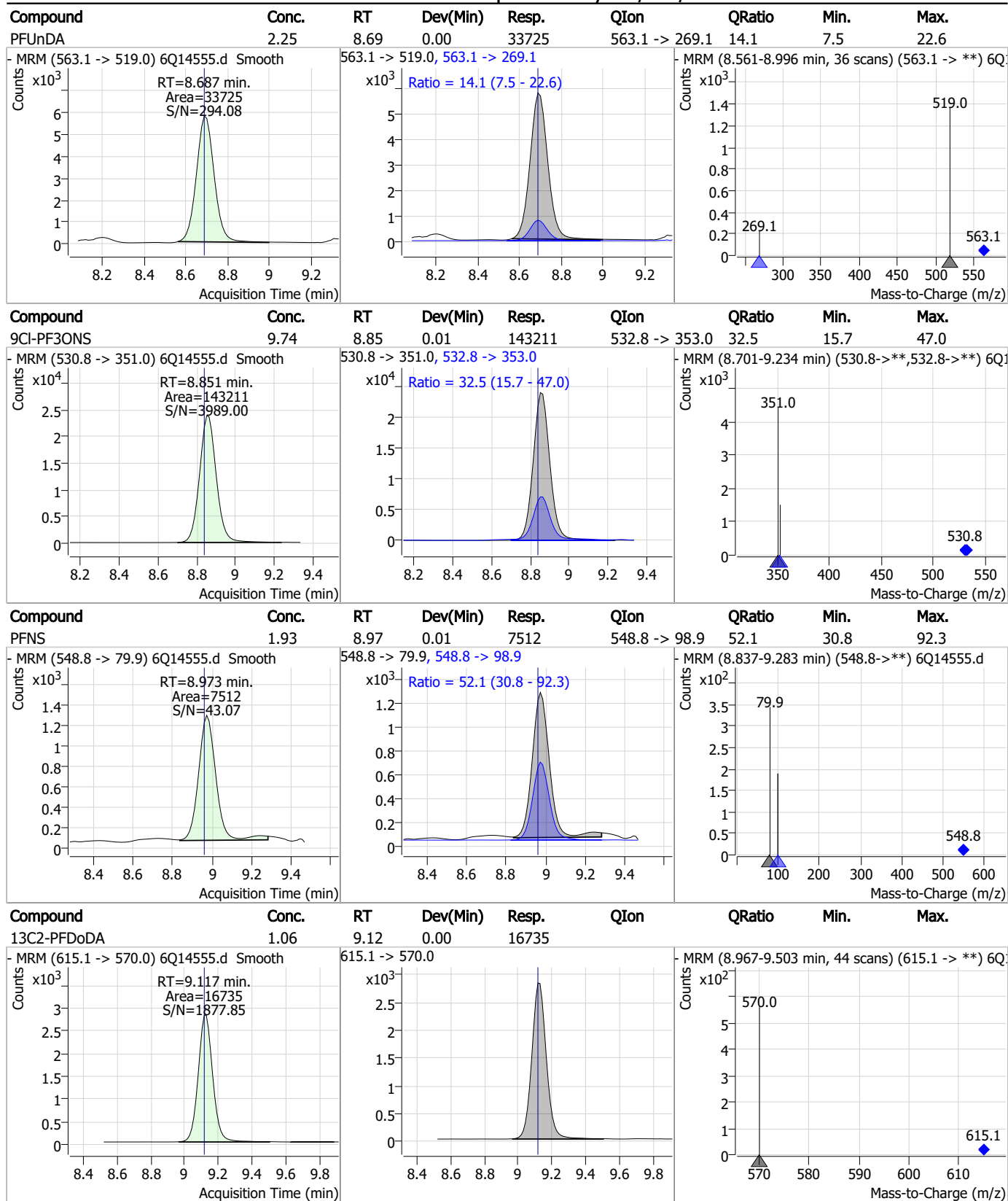
Perfluorinated Compounds by LC/MS/MS



7.5.1

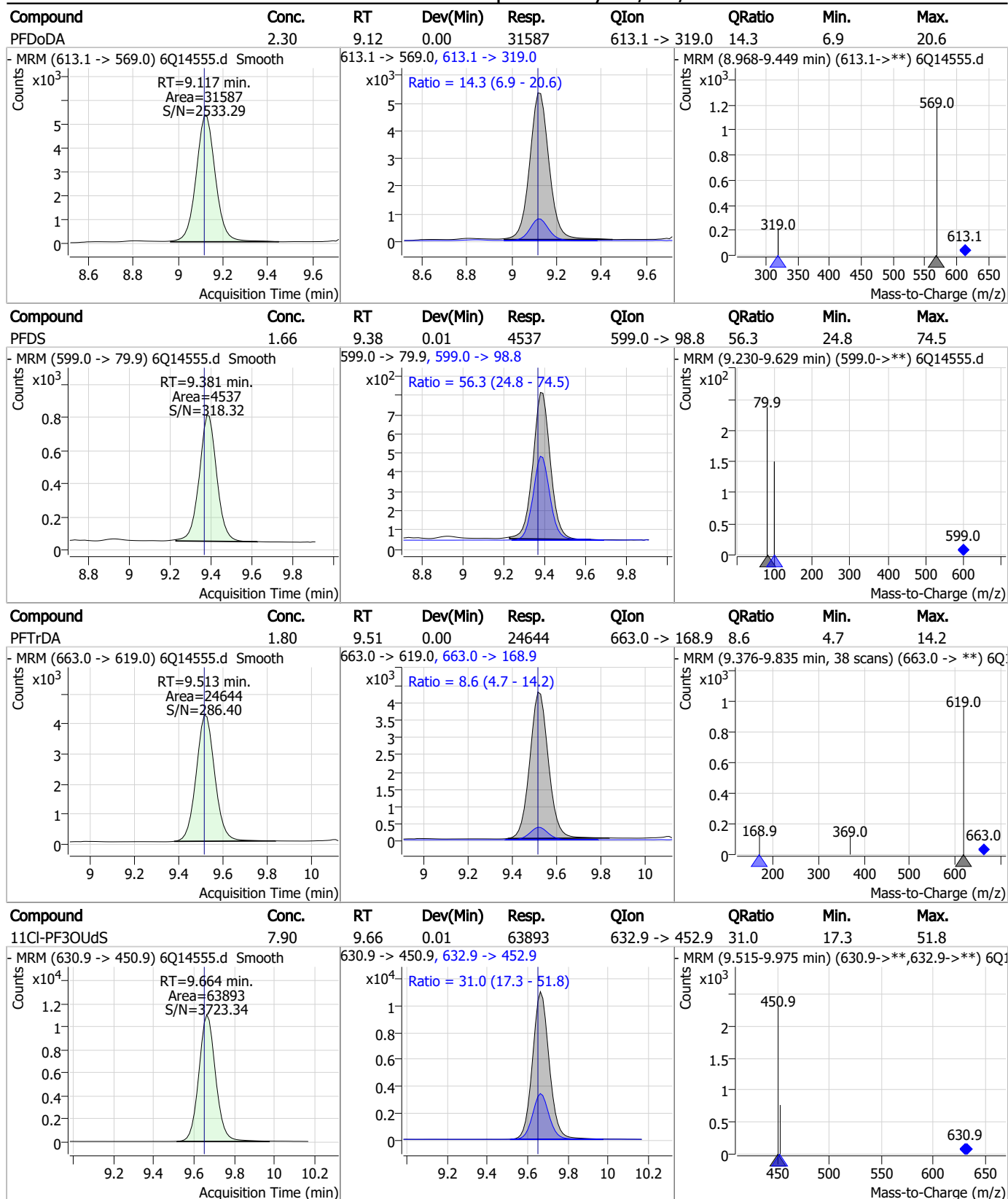
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Perfluorinated Compounds by LC/MS/MS



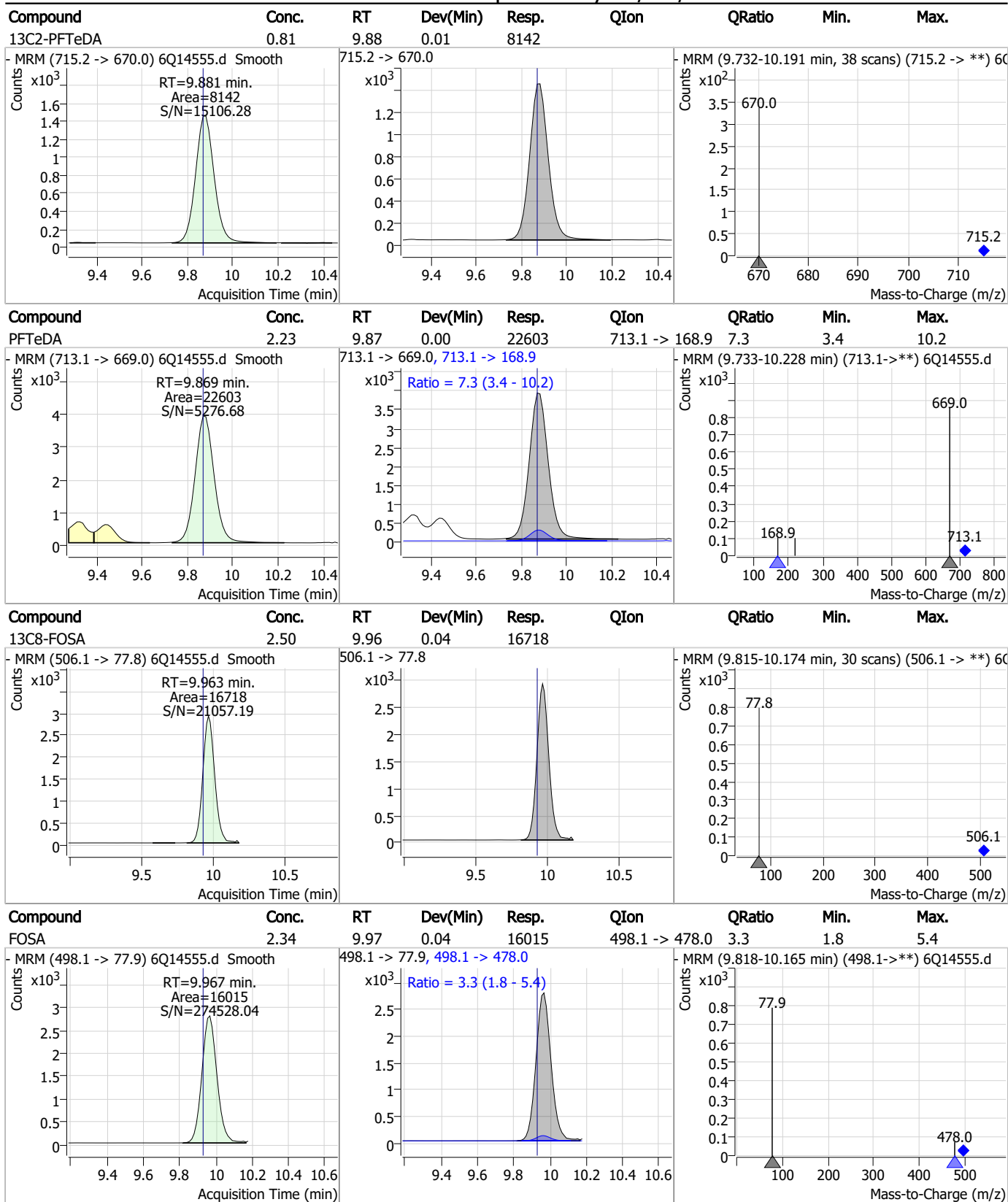
7.5.1
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

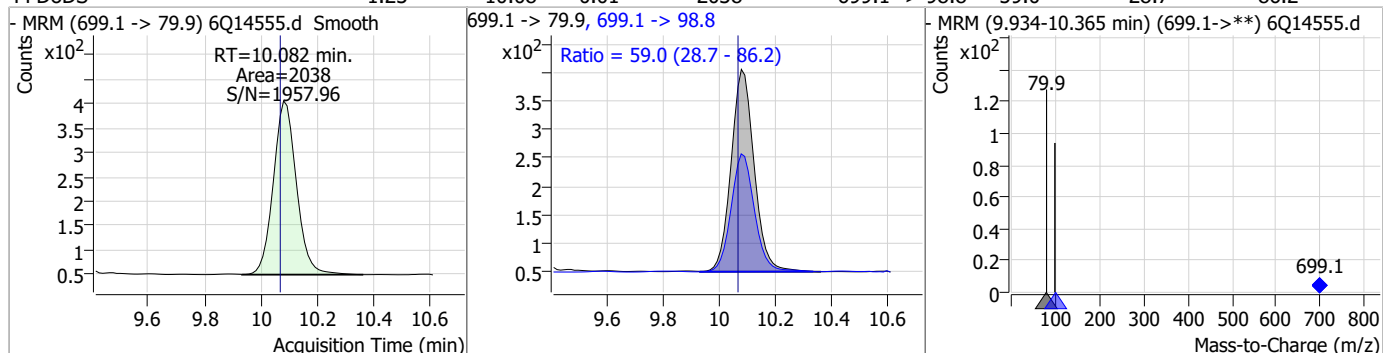


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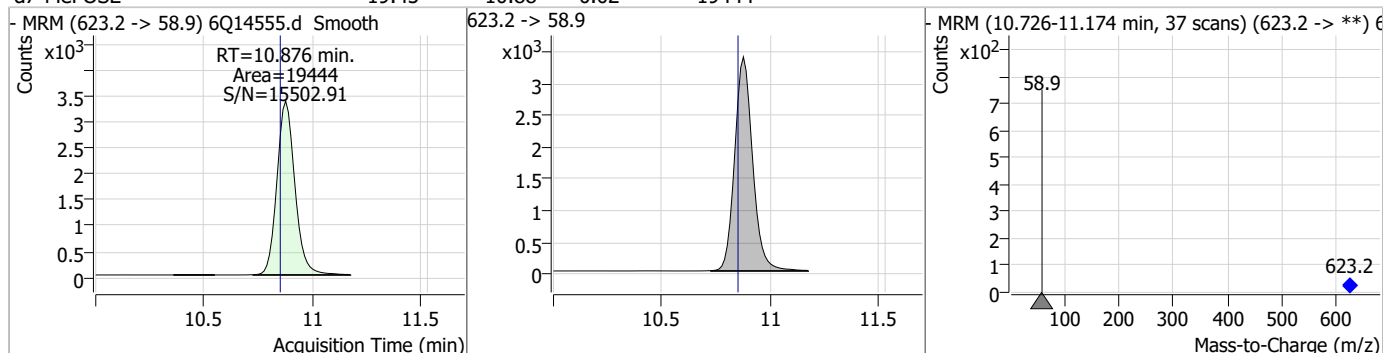
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Perfluorinated Compounds by LC/MS/MS

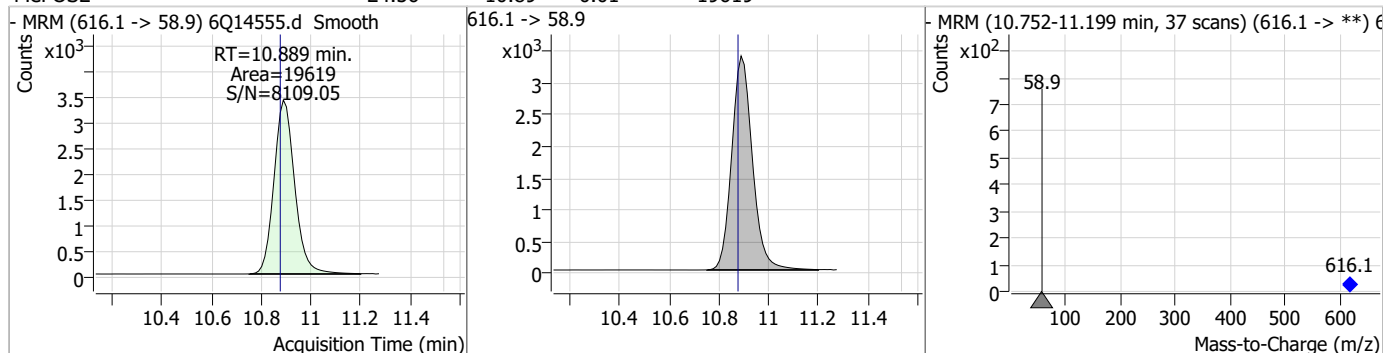
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.23	10.08	0.01	2038	699.1 -> 98.8	59.0	28.7	86.2



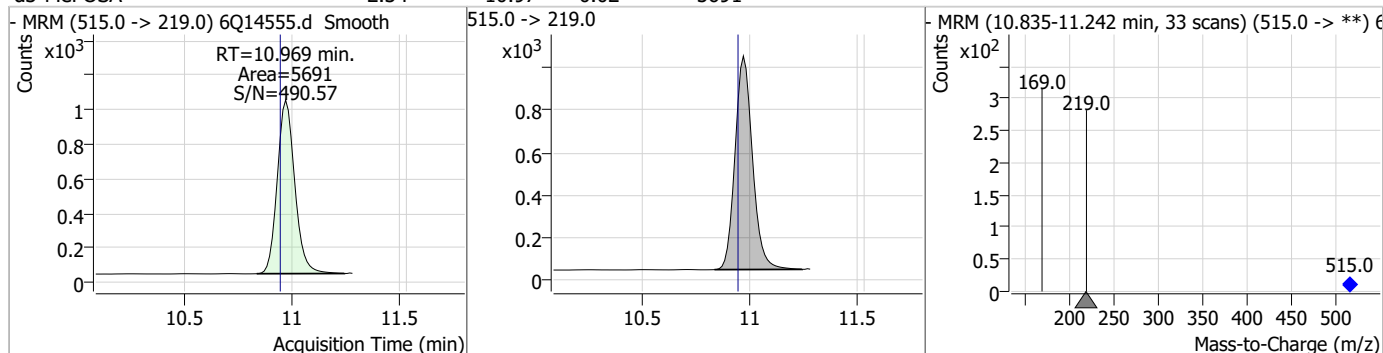
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.45	10.88	0.02	19444	623.2 -> 58.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	24.56	10.89	0.01	19619	616.1 -> 58.9			

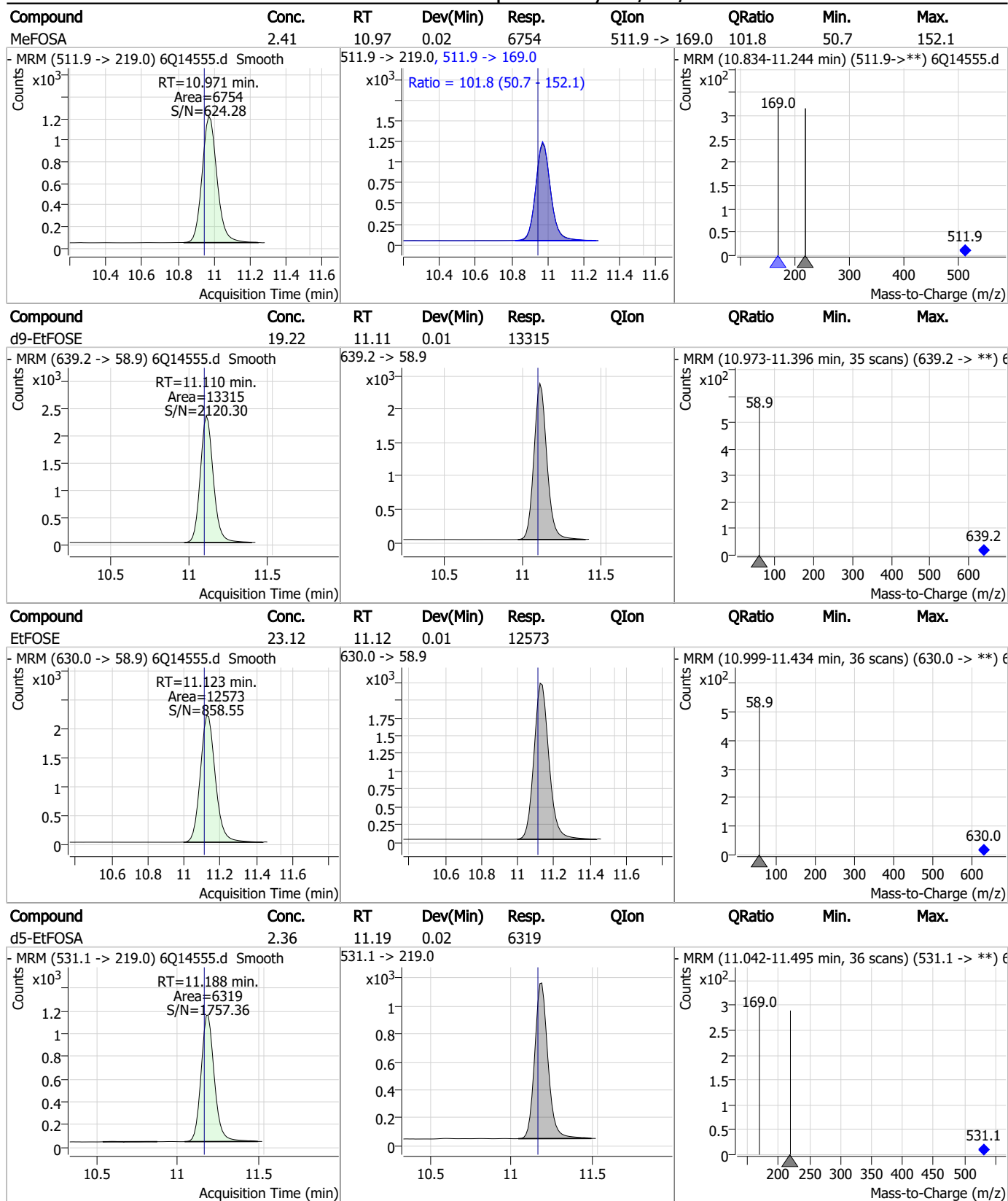


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.34	10.97	0.02	5691	515.0 -> 219.0			



7.5.1
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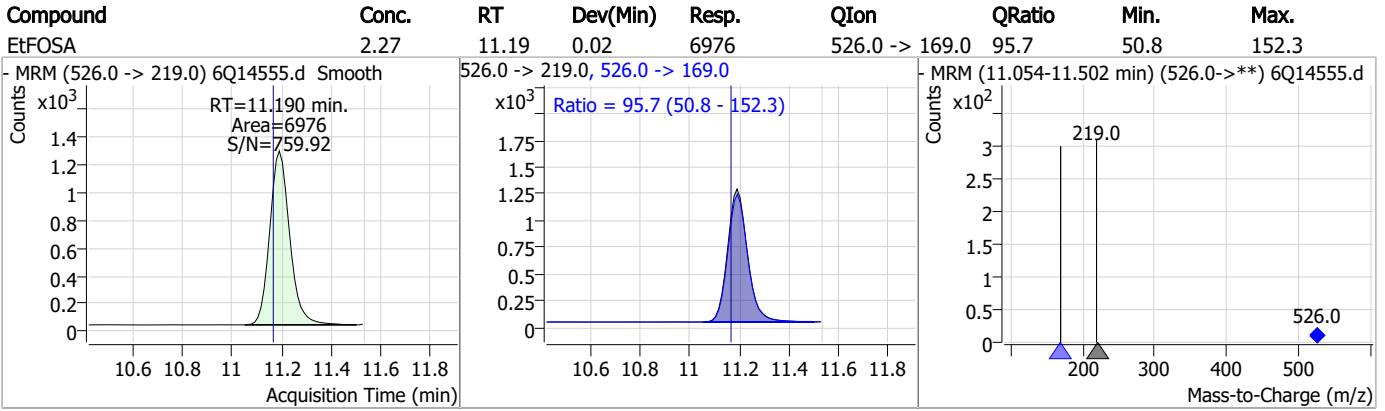
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: OP95747-MS Method: EPA DRAFT 1633
Lab FileID: 6Q14555.D Analyst approved: 03/10/23 15:37 Natasha Gumtie
Injection Time: 03/08/23 21:51 Supervisor approved: 03/10/23 15:41 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanoic acid	375-22-4		3.22	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.51	Split peak
Perfluoroheptanesulfonic acid	375-92-8		8.04	Poor instrument integration
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.51	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14558.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 10:33:42 PM
 Sample Name : op95747-dup
 Vial : P2-C7
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95747,S6Q220,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.216	216.8 -> 171.9	79995	10.00 µg/L	0.140
M5-PFPeA	4.665	268.3 -> 223.0	39445	5.00 µg/L	0.050
M5-PFHxA	5.834	318.0 -> 273.0	34506	2.50 µg/L	0.025
M4-PFHpA	6.693	367.1 -> 322.0	33399	2.50 µg/L	0.025
M8-PFOA	7.284	421.1 -> 376.0	56647	2.50 µg/L	0.025
M9-PFNA	7.779	472.1 -> 427.0	14793	1.25 µg/L	0.014
M6-PFDA	8.245	519.1 -> 474.1	12763	1.25 µg/L	0.012
M7-PFUnDA	8.687	570.0 -> 525.1	12448	1.25 µg/L	0.000
M2-PFDoDA	9.129	615.1 -> 570.0	11987	1.25 µg/L	0.012
M2-PFTeDA	9.868	715.2 -> 670.0	6904	1.25 µg/L	0.000
M8-FOSA	9.963	506.1 -> 77.8	15933	2.50 µg/L	0.037
M3-PFBS	5.963	302.1 -> 79.9	12827	2.50 µg/L	0.062
M3-PFHxS	7.523	402.1 -> 79.9	8354	2.50 µg/L	0.037
M8-PFOS	8.519	507.1 -> 79.9	7008	2.50 µg/L	0.012
M2-4:2FTS	5.512	329.1 -> 80.9	1628	5.00 µg/L	0.037
M2-6:2FTS	7.058	429.1 -> 80.9	2084	5.00 µg/L	0.025
M2-8:2FTS	8.019	529.1 -> 80.9	1992	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	16939	5.00 µg/L	0.012
M3-HFPO-DA	6.175	286.9 -> 168.9	14723	10.00 µg/L	0.025
M5-EtFOSAA	8.473	589.2 -> 419.0	15313	5.00 µg/L	0.000
M7-MeFOSE	10.876	623.2 -> 58.9	18178	25.00 µg/L	0.025
M9-EtFOSE	11.110	639.2 -> 58.9	12153	25.00 µg/L	0.012
M5-EtFOSA	11.176	531.1 -> 219.0	4700	2.50 µg/L	0.012
M3-MeFOSA	10.969	515.0 -> 219.0	4762	2.50 µg/L	0.025
13C4-PFOS	8.520	502.8 -> 79.9	8849	2.50 µg/L	0.025
13C3-PFBA	3.218	216.0 -> 172.0	38154	5.00 µg/L	0.139
18O2-PFHxS	7.522	403.0 -> 83.9	6666	2.50 µg/L	0.025
13C4-PFOA	7.285	417.1 -> 372.0	66945	2.50 µg/L	0.025
13C2-PFDA	8.245	515.1 -> 470.1	21472	1.25 µg/L	0.012
13C5-PFNA	7.779	468.0 -> 423.0	15508	1.25 µg/L	0.014
13C2-PFHxA	5.835	315.1 -> 270.0	36939	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.512	329.1 -> 80.9	1628	5.13 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C2-6:2FTS	7.058	429.1 -> 80.9	2084	4.99 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C2-8:2FTS	8.019	529.1 -> 80.9	1992	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.9%		
13C2-PFDoDA	9.129	615.1 -> 570.0	11987	0.66 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 52.7%		
13C2-PFTeDA	9.868	715.2 -> 670.0	6904	0.60 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 47.8%		
13C3-PFBS	5.963	302.1 -> 79.9	12827	2.21 µg/L	0.062
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 88.2%		
13C3-PFHxS	7.523	402.1 -> 79.9	8354	2.19 µg/L	0.037

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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 = 87.6%	
13C4-PFBA	3.216	216.8 -> 171.9	79995	9.12 µg/L	0.140
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.2%	
13C4-PFHpA	6.693	367.1 -> 322.0	33399	2.26 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.6%	
13C5-PFHxA	5.834	318.0 -> 273.0	34506	2.28 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.1%	
13C5-PFPeA	4.665	268.3 -> 223.0	39445	4.50 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.1%	
13C6-PFDA	8.245	519.1 -> 474.1	12763	0.99 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 79.4%	
13C7-PFUnDA	8.687	570.0 -> 525.1	12448	0.88 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 70.6%	
13C8-FOSA	9.963	506.1 -> 77.8	15933	2.29 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.8%	
13C8-PFOA	7.284	421.1 -> 376.0	56647	2.54 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C8-PFOS	8.519	507.1 -> 79.9	7008	2.31 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.5%	
13C9-PFNA	7.779	472.1 -> 427.0	14793	1.24 µg/L	0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%	
d3-MeFOSAA	8.277	573.2 -> 419.0	16939	4.16 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 83.1%	
13C3-HFPO-DA	6.175	286.9 -> 168.9	14723	8.70 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.0%	
d3-MeFOSA	10.969	515.0 -> 219.0	4762	1.88 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.2%	
d5-EtFOSAA	8.473	589.2 -> 419.0	15313	4.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 80.9%	
d7-MeFOSE	10.876	623.2 -> 58.9	18178	17.50 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 70.0%	
d9-EtFOSE	11.110	639.2 -> 58.9	12153	16.87 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 67.5%	
d5-EtFOSA	11.176	531.1 -> 219.0	4700	1.69 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 67.5%	
Target Compounds					QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	7.058	427.1 -> 407.0 427.1 -> 80.9	10831 2461	3.45 µg/L	98
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	3.220	212.8 -> 168.9	791	0.36 µg/L	100
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.	

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.694	599.0 -> 98.8				
		363.1 -> 319.0	2391	0.11	µg/L	100
PFHpS	-	363.1 -> 169.0	331			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.838	449.0 -> 98.9				
		313.0 -> 269.0	9039	0.66	µg/L	98
PFHxS	-	313.0 -> 118.9	351			
		398.7 -> 79.9	-	N.D.		
PFNA	-	398.7 -> 98.9				
		463.0 -> 419.0	-	N.D.		
PFNS	-	463.0 -> 219.0				
		548.8 -> 79.9	-	N.D.		
PFOA	7.286	548.8 -> 98.9				
		413.0 -> 369.0	2837	0.10	µg/L	77
PFOS	-	413.0 -> 169.0	128		#m	
		498.9 -> 79.9	-	N.D.		
PFPeA	4.666	498.9 -> 98.8				
		263.0 -> 219.0	10580	1.15	µg/L	100
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.6.1
7

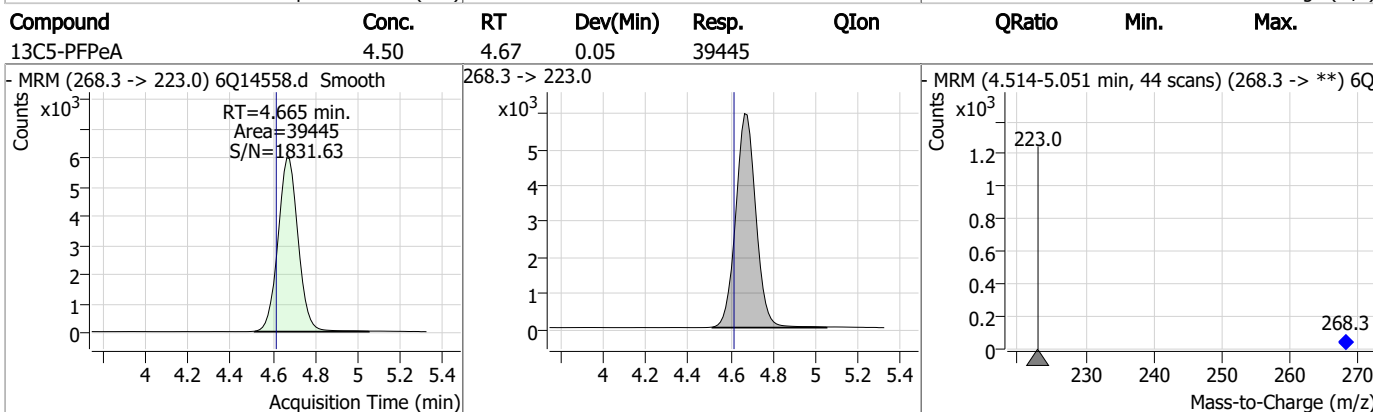
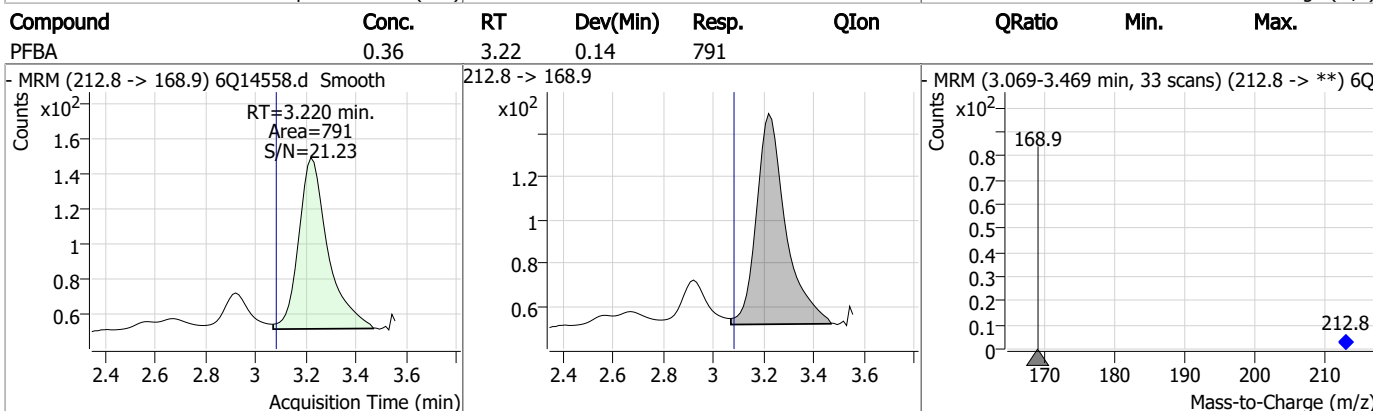
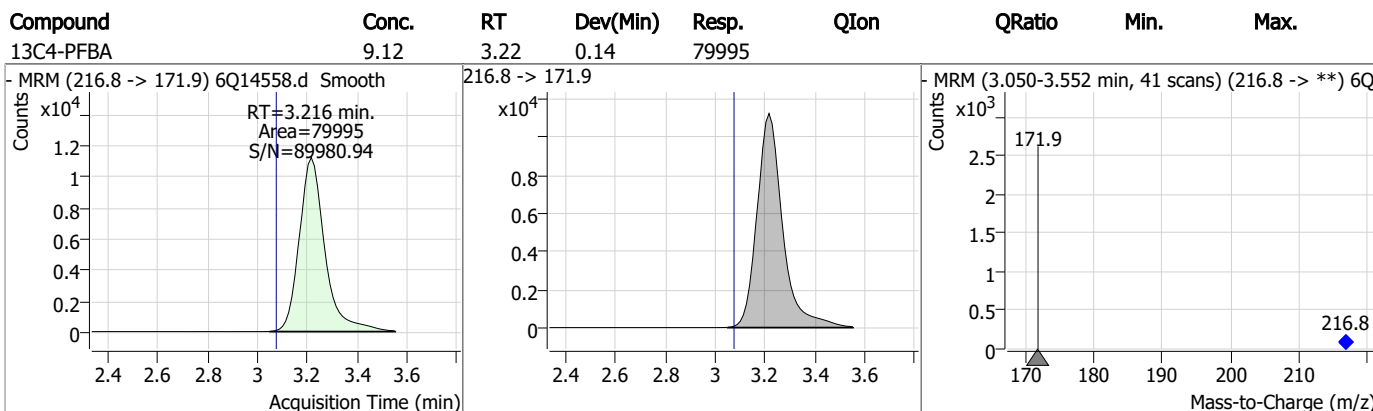
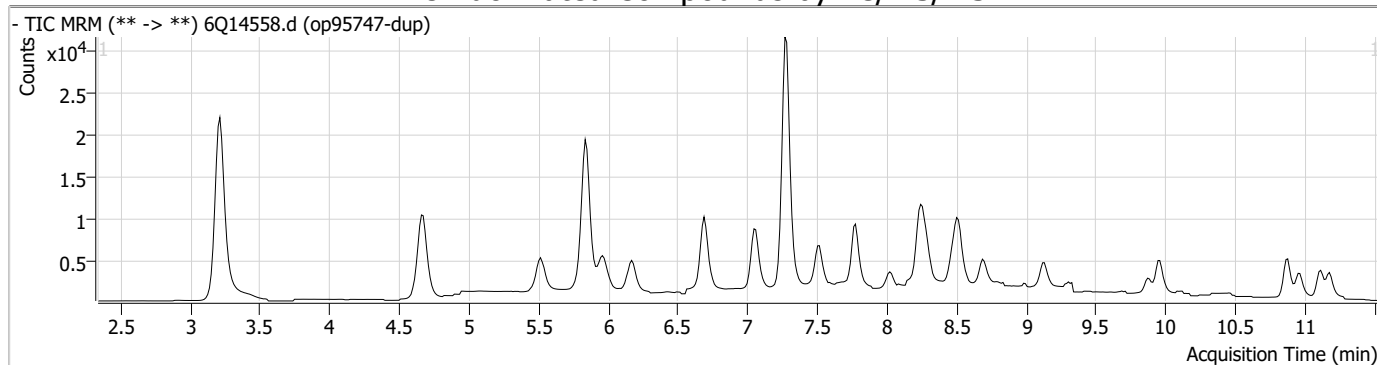
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.1

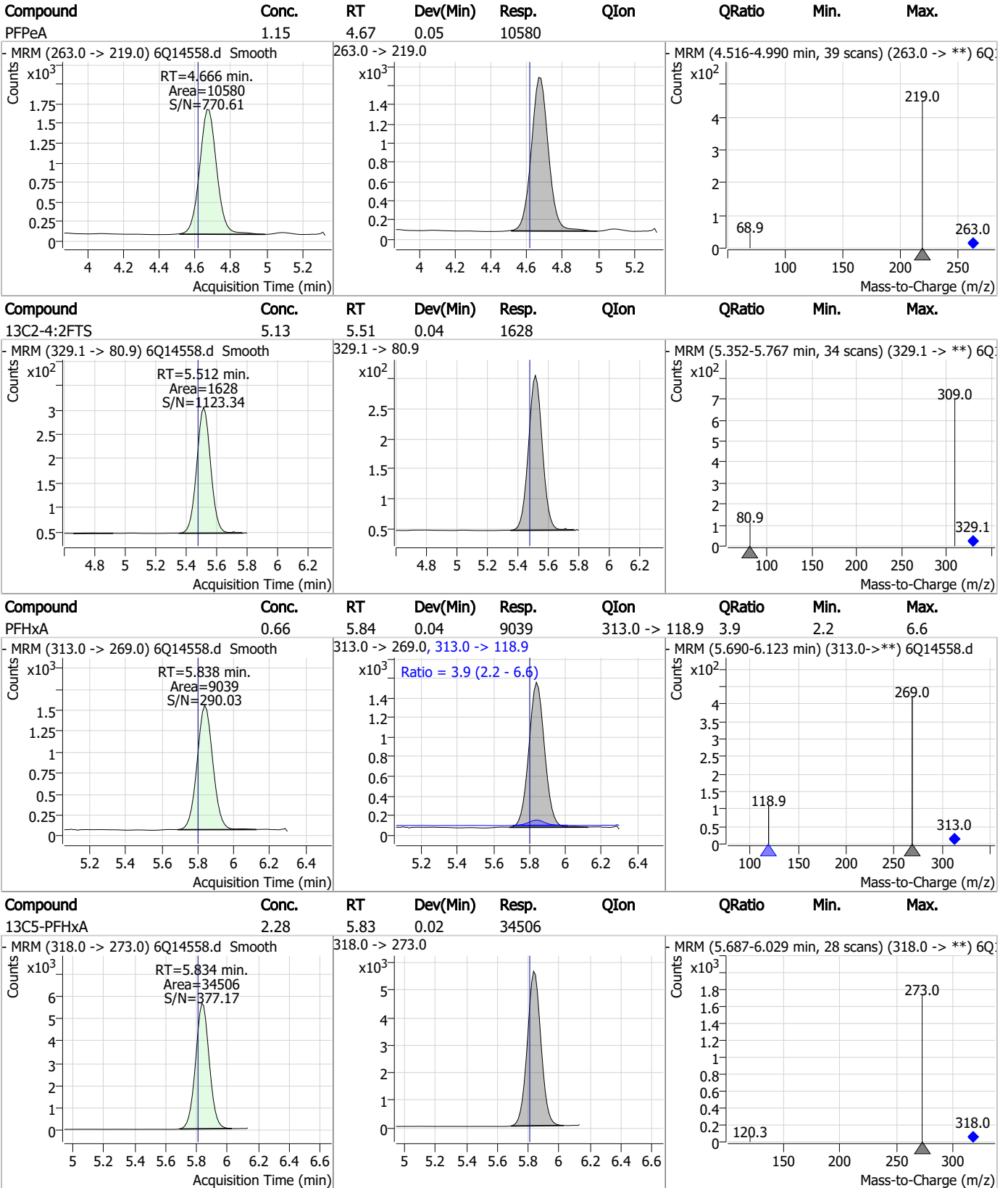
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Perfluorinated Compounds by LC/MS/MS



7.6.1
7

Perfluorinated Compounds by LC/MS/MS



7.6.1

7

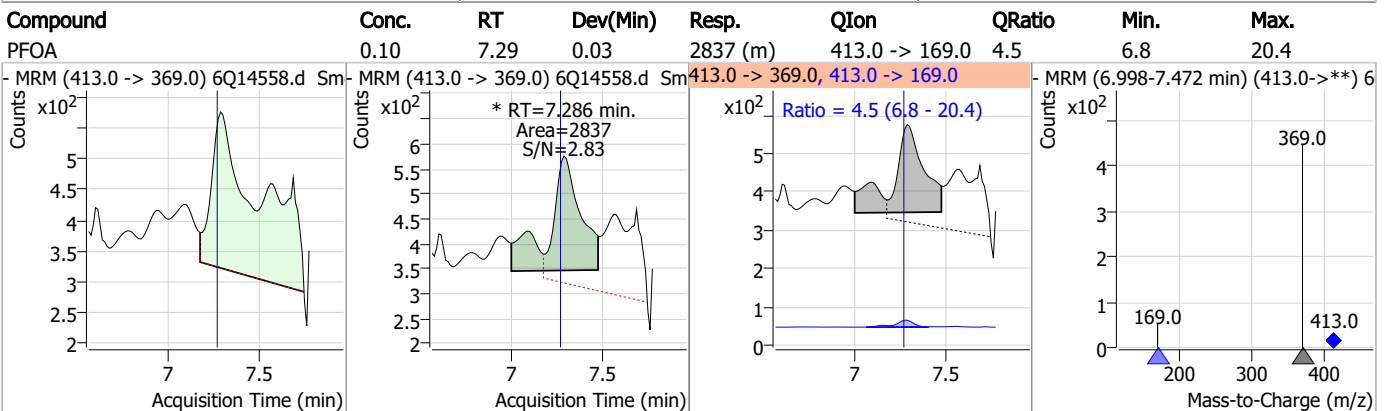
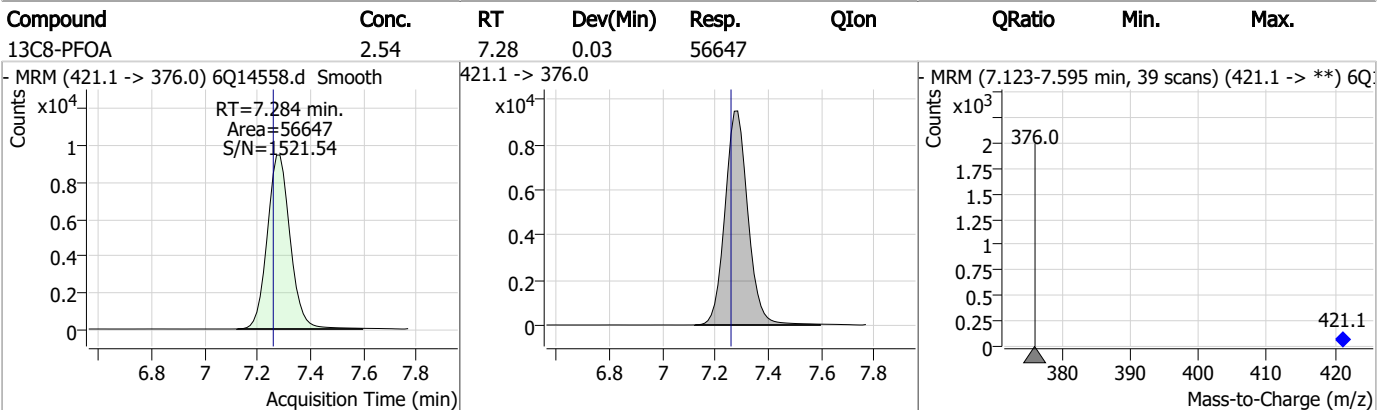
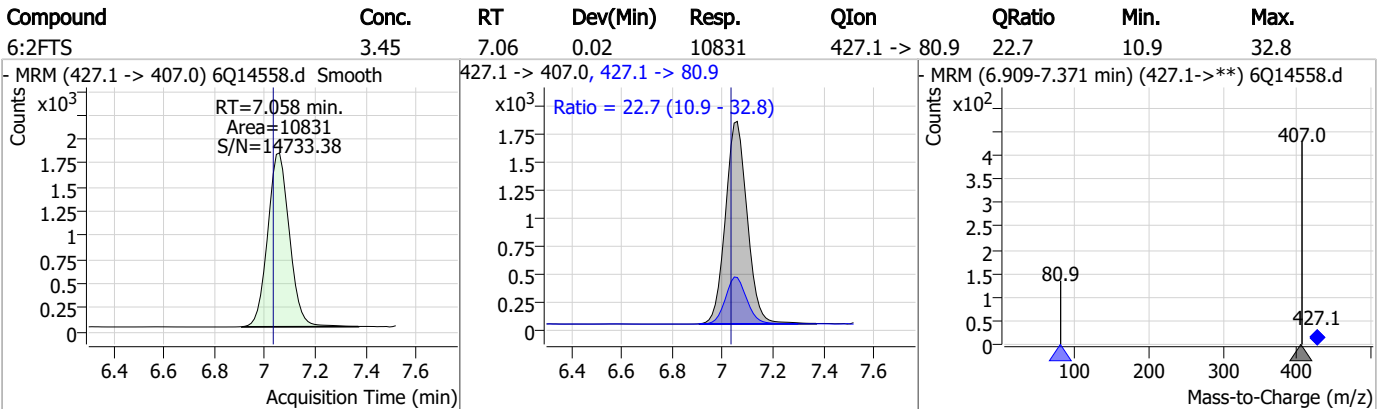
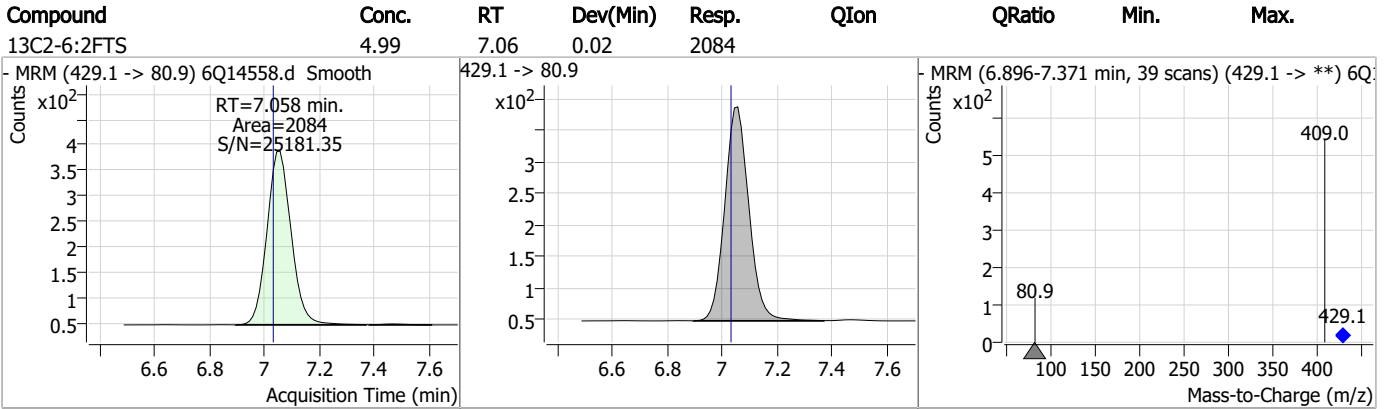


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.21	5.96	0.06	12827				
13C3-HFPO-DA	8.70	6.18	0.02	14723				
13C4-PFHpA	2.26	6.69	0.03	33399				
PFHpA	0.11	6.69	0.03	2391	363.1 -> 169.0	13.8	7.0	21.0

7.6.1
7

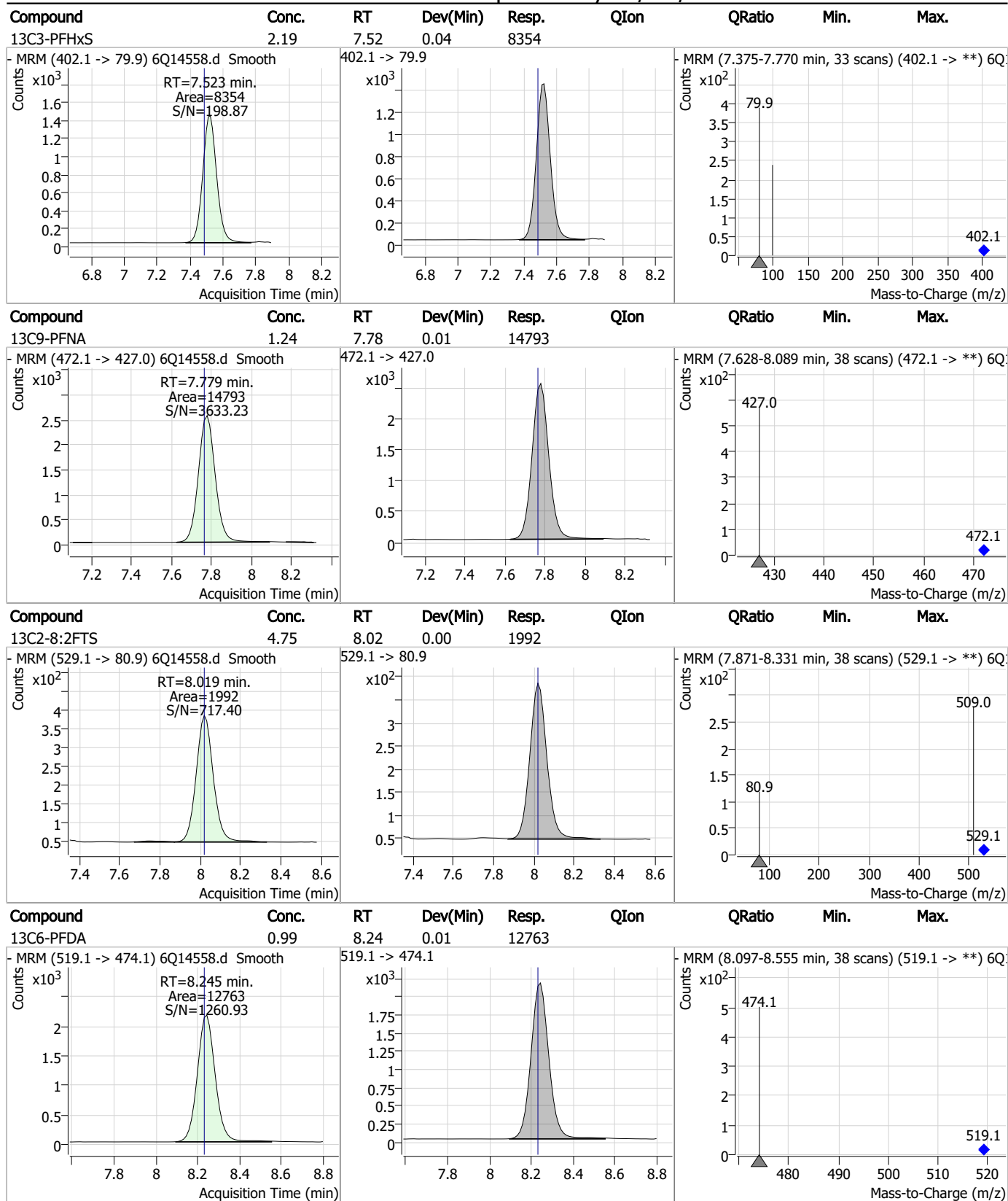
Perfluorinated Compounds by LC/MS/MS



7.6.1

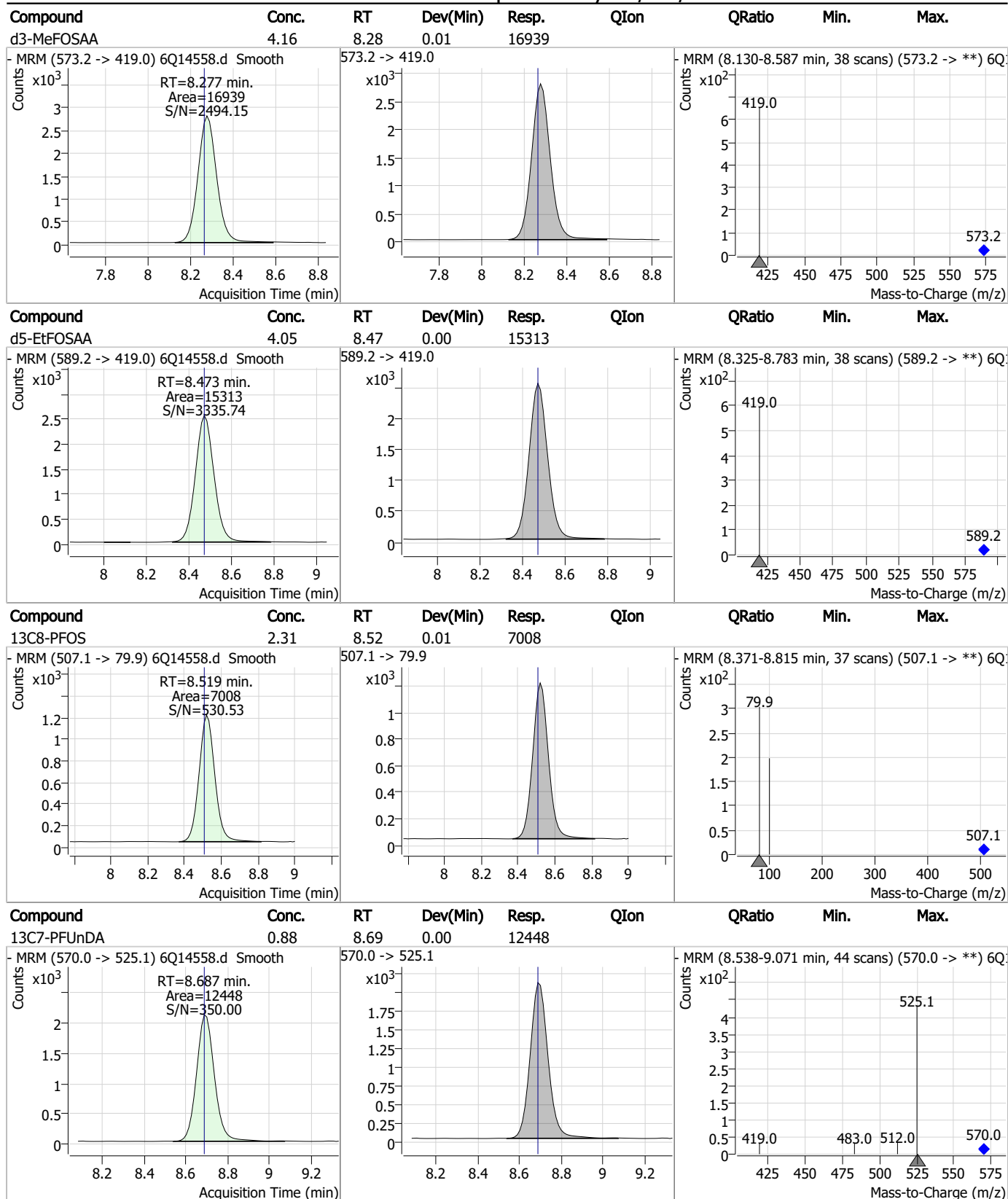
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Perfluorinated Compounds by LC/MS/MS



7.6.1
7

Perfluorinated Compounds by LC/MS/MS



7.6.1

7

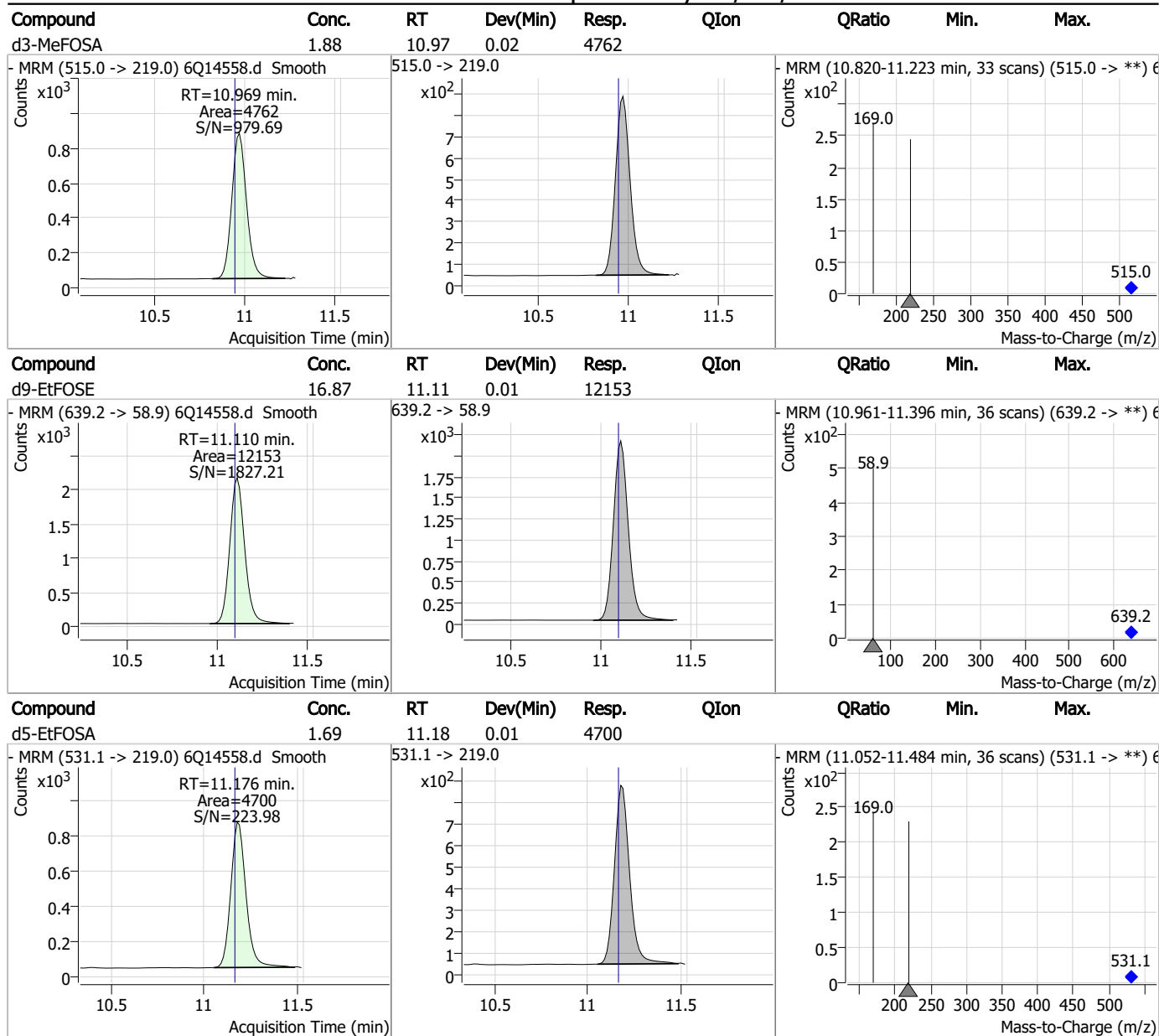
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	0.66	9.13	0.01	11987				
- MRM (615.1 -> 570.0) 6Q14558.d Smooth Counts x10 ³ RT=9.129 min. Area=11987 S/N=79483.05 Acquisition Time (min)			615.1 -> 570.0 Counts x10 ³ Acquisition Time (min)			- MRM (8.967-9.441 min, 39 scans) (615.1 -> **) 6Q14558.d Smooth Counts x10 ² Mass-to-Charge (m/z)		
13C2-PFTeDA	0.60	9.87	0.00	6904				
- MRM (715.2 -> 670.0) 6Q14558.d Smooth Counts x10 ³ RT=9.868 min. Area=6904 S/N=241.04 Acquisition Time (min)			715.2 -> 670.0 Counts x10 ³ Acquisition Time (min)			- MRM (9.720-10.178 min, 38 scans) (715.2 -> **) 6Q14558.d Smooth Counts x10 ² Mass-to-Charge (m/z)		
13C8-FOSA	2.29	9.96	0.04	15933				
- MRM (506.1 -> 77.8) 6Q14558.d Smooth Counts x10 ³ RT=9.963 min. Area=15933 S/N=384.05 Acquisition Time (min)			506.1 -> 77.8 Counts x10 ³ Acquisition Time (min)			- MRM (9.828-10.162 min, 28 scans) (506.1 -> **) 6Q14558.d Smooth Counts x10 ³ Mass-to-Charge (m/z)		
d7-MeFOSE	17.50	10.88	0.02	18178				
- MRM (623.2 -> 58.9) 6Q14558.d Smooth Counts x10 ³ RT=10.876 min. Area=18178 S/N=1475.60 Acquisition Time (min)			623.2 -> 58.9 Counts x10 ³ Acquisition Time (min)			- MRM (10.726-11.174 min, 37 scans) (623.2 -> **) 6Q14558.d Smooth Counts x10 ² Mass-to-Charge (m/z)		

7.6.1
7



Perfluorinated Compounds by LC/MS/MS



7.6.1
7

Manual Integration Approval Summary

Sample Number: OP95747-DUP Method: EPA DRAFT 1633
Lab FileID: 6Q14558.D Analyst approved: 03/09/23 13:43 Martha Valls
Injection Time: 03/08/23 22:33 Supervisor approved: 03/10/23 10:55 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.29	Split peak

7.6.1.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Natasha Gumtie
 03/10/23 10:46

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14514.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 12:18:13 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q220 TDCA.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

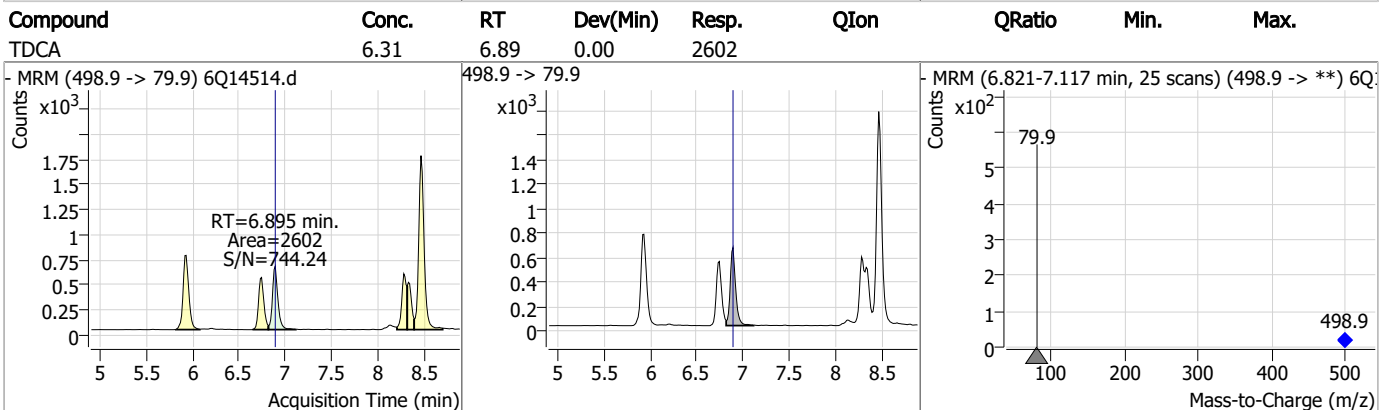
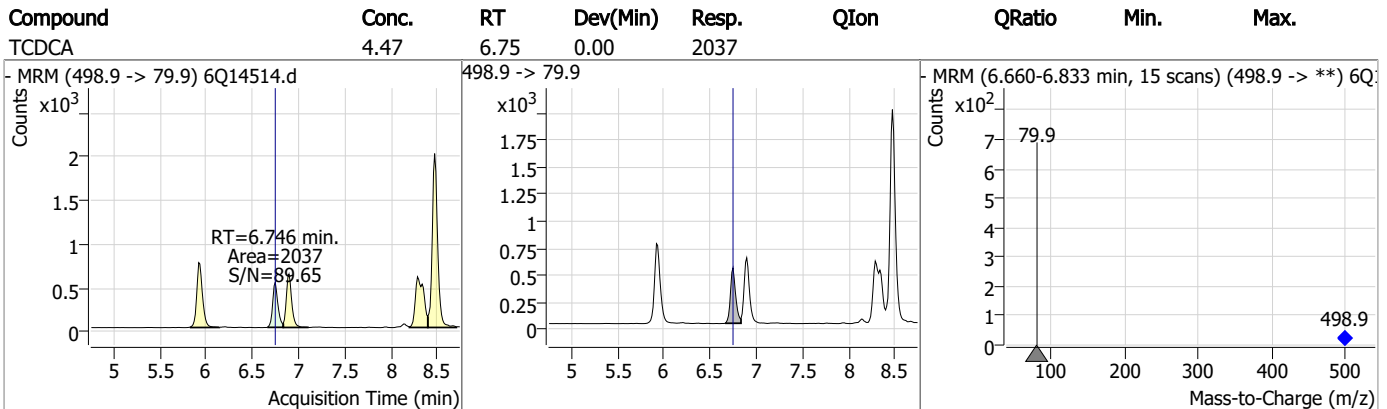
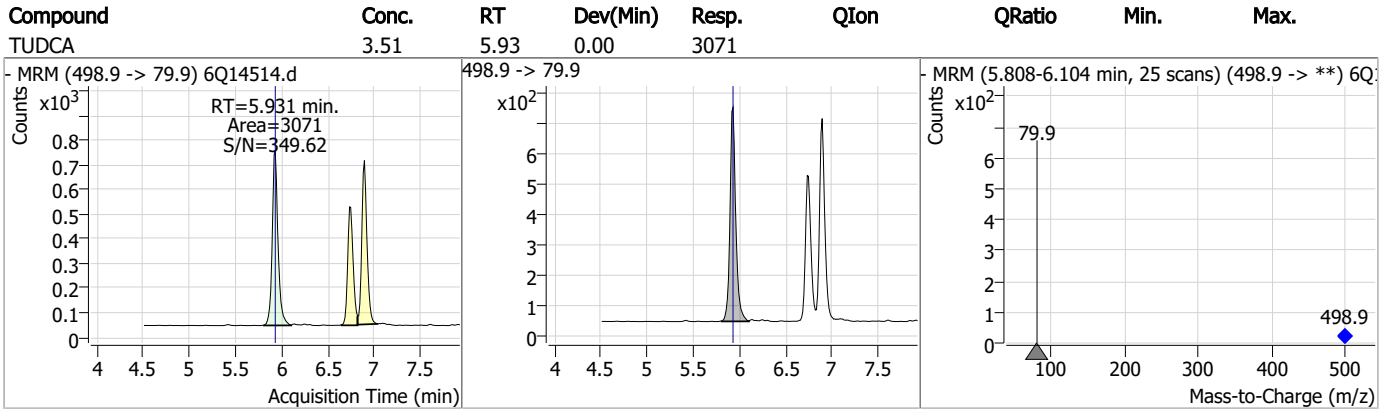
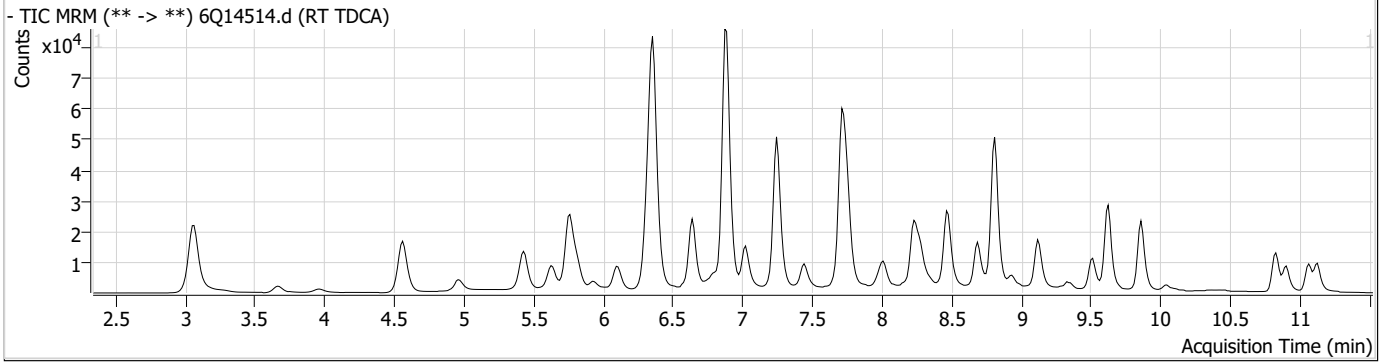
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M8-PFOS	8.469	507.1 -> 79.9	9876	2.50 µg/L	0.000
13C4-PFOS	8.470	502.8 -> 79.9	12521	2.50 µg/L	0.000
System Monitoring Compounds					
13C8-PFOS	8.469	507.1 -> 79.9	9876	2.00 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 80.0%		
Target Compounds					
PFOS	8.471	498.9 -> 79.9	10447	3.10 µg/L m	81
		498.9 -> 98.8	6233		
TCDCa	6.746	498.9 -> 79.9	2037	4.47 ng/ml	100
TDCA	6.895	498.9 -> 79.9	2602	6.31 ng/ml	100
TUDCA	5.931	498.9 -> 79.9	3071	3.51 ng/ml	100

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

7.7.1
7

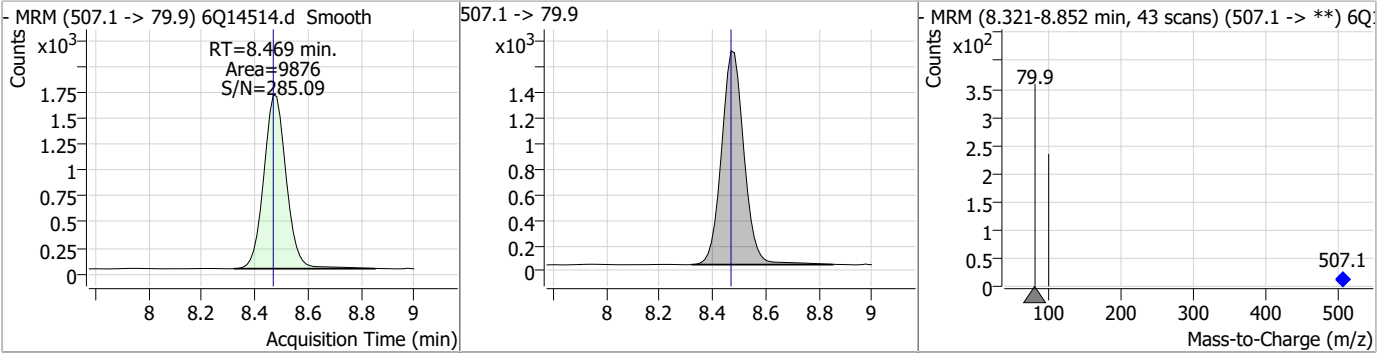


Perfluorinated Compounds by LC/MS/MS

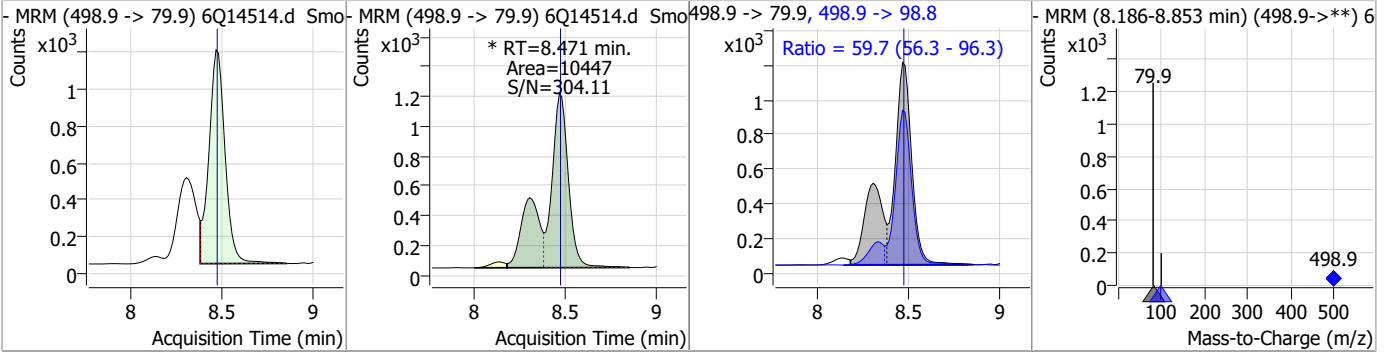


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.00	8.47	0.00	9876				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.10	8.47	0.00	10447 (m)	498.9 -> 98.8	59.7	56.3	96.3



7.7.1

7

Manual Integration Approval Summary

Sample Number: S6Q220-RT Method: EPA DRAFT 1633
Lab FileID: 6Q14514.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 12:18 Supervisor approved: 03/10/23 10:46 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak

7.7.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14515.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 12:32:12 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.075	216.8 -> 171.9	74659	10.00 µg/L	0.000
M5-PFPeA	4.589	268.3 -> 223.0	35874	5.00 µg/L	-0.027
M5-PFHxA	5.773	318.0 -> 273.0	30920	2.50 µg/L	-0.036
M4-PFHpA	6.654	367.1 -> 322.0	31898	2.50 µg/L	-0.014
M8-PFOA	7.259	421.1 -> 376.0	50497	2.50 µg/L	0.000
M9-PFNA	7.764	472.1 -> 427.0	13958	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	13197	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	15371	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	18072	1.25 µg/L	0.000
M2-PFTeDA	9.856	715.2 -> 670.0	10164	1.25 µg/L	-0.012
M8-FOSA	9.877	506.1 -> 77.8	15379	2.50 µg/L	-0.049
M3-PFBS	5.852	302.1 -> 79.9	12552	2.50 µg/L	-0.050
M3-PFHxS	7.461	402.1 -> 79.9	8152	2.50 µg/L	-0.025
M8-PFOS	8.482	507.1 -> 79.9	7309	2.50 µg/L	-0.025
M2-4:2FTS	5.451	329.1 -> 80.9	1304	5.00 µg/L	-0.025
M2-6:2FTS	7.021	429.1 -> 80.9	1751	5.00 µg/L	-0.012
M2-8:2FTS	8.019	529.1 -> 80.9	1804	5.00 µg/L	0.000
M3-MeFOSAA	8.265	573.2 -> 419.0	19277	5.00 µg/L	0.000
M3-HFPO-DA	6.126	286.9 -> 168.9	13689	10.00 µg/L	-0.025
M5-EtFOSAA	8.473	589.2 -> 419.0	20060	5.00 µg/L	0.000
M7-MeFOSE	10.826	623.2 -> 58.9	22512	25.00 µg/L	-0.025
M9-EtFOSE	11.060	639.2 -> 58.9	17320	25.00 µg/L	-0.037
M5-EtFOSA	11.139	531.1 -> 219.0	6334	2.50 µg/L	-0.025
M3-MeFOSA	10.919	515.0 -> 219.0	6071	2.50 µg/L	-0.025
13C4-PFOS	8.483	502.8 -> 79.9	8668	2.50 µg/L	-0.012
13C3-PFBA	3.078	216.0 -> 172.0	32653	5.00 µg/L	0.000
18O2-PFHxS	7.461	403.0 -> 83.9	5967	2.50 µg/L	-0.037
13C4-PFOA	7.260	417.1 -> 372.0	58194	2.50 µg/L	0.000
13C2-PFDA	8.233	515.1 -> 470.1	17111	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	13173	1.25 µg/L	0.000
13C2-PFHxA	5.774	315.1 -> 270.0	31533	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.451	329.1 -> 80.9	1304	4.59 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.8%		
13C2-6:2FTS	7.021	429.1 -> 80.9	1751	4.69 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.7%		
13C2-8:2FTS	8.019	529.1 -> 80.9	1804	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-PFDoDA	9.117	615.1 -> 570.0	18072	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-PFTeDA	9.856	715.2 -> 670.0	10164	1.10 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.3%		
13C3-PFBS	5.852	302.1 -> 79.9	12552	2.41 µg/L	-0.050
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C3-PFHxS	7.461	402.1 -> 79.9	8152	2.39 µg/L	-0.025

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 = 95.5%	
13C4-PFBA	3.075	216.8 -> 171.9	74659	9.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.654	367.1 -> 322.0	31898	2.53 µg/L	-0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C5-PFHxA	5.773	318.0 -> 273.0	30920	2.39 µg/L	-0.036
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C5-PFPeA	4.589	268.3 -> 223.0	35874	4.80 µg/L	-0.027
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C6-PFDA	8.233	519.1 -> 474.1	13197	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C7-PFUnDA	8.687	570.0 -> 525.1	15371	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.4%	
13C8-FOSA	9.877	506.1 -> 77.8	15379	2.26 µg/L	-0.049
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.4%	
13C8-PFOA	7.259	421.1 -> 376.0	50497	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C8-PFOS	8.482	507.1 -> 79.9	7309	2.46 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C9-PFNA	7.764	472.1 -> 427.0	13958	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.0%	
d3-MeFOSAA	8.265	573.2 -> 419.0	19277	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C3-HFPO-DA	6.126	286.9 -> 168.9	13689	9.48 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.8%	
d3-MeFOSA	10.919	515.0 -> 219.0	6071	2.45 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
d5-EtFOSAA	8.473	589.2 -> 419.0	20060	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.2%	
d7-MeFOSE	10.826	623.2 -> 58.9	22512	22.12 µg/L	-0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.5%	
d9-EtFOSE	11.060	639.2 -> 58.9	17320	24.55 µg/L	-0.037
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d5-EtFOSA	11.139	531.1 -> 219.0	6334	2.32 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.9%	
Target Compounds					QValue
4:2FTS	5.451	327.1 -> 307.0	137289	46.65 µg/L	96
		327.1 -> 80.9	36529		
6:2FTS	7.034	427.1 -> 407.0	126942	48.18 µg/L	98
		427.1 -> 80.9	26496		
8:2FTS	8.020	527.1 -> 507.0	70603	49.16 µg/L	98
		527.1 -> 80.8	17839		
EtFOSAA	8.474	584.2 -> 419.1	44103	13.07 µg/L	m 95
		584.2 -> 526.0	24372		
FOSA	9.880	498.1 -> 77.9	197705	31.40 µg/L	m 99
		498.1 -> 478.0	6216		
MeFOSAA	8.278	570.1 -> 419.0	52691	12.91 µg/L	m 100
		570.1 -> 483.0	10151		
PFBA	3.082	212.8 -> 168.9	105711	51.62 µg/L	100
PFBS	5.853	298.7 -> 79.9	60421	11.48 µg/L	92
		298.7 -> 98.8	27563		
PFDA	8.233	512.9 -> 469.0	213691	12.60 µg/L	98
		512.9 -> 219.0	32713		
PFDoDA	9.117	613.1 -> 569.0	187442	12.64 µg/L	99
		613.1 -> 319.0	24954		
PFDS	9.356	599.0 -> 79.9	29236	11.77 µg/L	94

7.7.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.655	599.0 -> 98.8	15672	12.42	µg/L	99
		363.1 -> 319.0	254305			
PFHpS	7.991	363.1 -> 169.0	34884	11.15	µg/L	95
		449.0 -> 79.9	38441			
PFHxA	5.776	449.0 -> 98.9	23992	13.49	µg/L	99
		313.0 -> 269.0	165650			
PFHxS	7.462	313.0 -> 118.9	6789	11.13	µg/L	m
		398.7 -> 79.9	44319			
PFNA	7.628	398.7 -> 98.9	24493	30.02	µg/L	m
		463.0 -> 419.0	289491			
PFNS	8.936	463.0 -> 219.0	66927	12.05	µg/L	90
		548.8 -> 79.9	42621			
PFOA	7.261	548.8 -> 98.9	22931	25.65	µg/L	m
		413.0 -> 369.0	648523			
PFOS	8.484	413.0 -> 169.0	99154	10.99	µg/L	m
		498.9 -> 79.9	39872			
PFPeA	4.590	498.9 -> 98.8	25704	26.01	µg/L	100
		263.0 -> 219.0	216786			
PFPeS	6.820	349.1 -> 79.9	54946	11.67	µg/L	93
		349.1 -> 98.9	29600			
PFTeDA	9.857	713.1 -> 669.0	169765	13.39	µg/L	100
		713.1 -> 168.9	11412			
PFTrDA	9.513	663.0 -> 619.0	170781	11.54	µg/L	96
		663.0 -> 168.9	13909			
PFUnDA	8.687	563.1 -> 519.0	194557	13.05	µg/L	99
		563.1 -> 269.1	28613			
11CI-PF3OUdS	9.626	630.9 -> 450.9	430303	53.23	µg/L	91
		632.9 -> 452.9	126952			
9CI-PF3ONS	8.813	530.8 -> 351.0	708273	48.21	µg/L	99
		532.8 -> 353.0	224955			
ADONA	6.891	376.9 -> 250.9	1489009	51.81	µg/L	99
		376.9 -> 84.8	325382			
HFPO-DA	6.127	284.9 -> 168.9	69612	50.90	µg/L	97
		284.9 -> 184.9	9000			
3:3FTCA	3.989	241.0 -> 177.0	26999	63.71	µg/L	97
		241.0 -> 117.0	3853			
5:3FTCA	6.382	341.0 -> 237.1	856254	319.31	µg/L	92
		341.0 -> 217.0	767895			
7:3FTCA	7.730	441.0 -> 316.9	410005	318.75	µg/L	82
		441.0 -> 336.9	790687			
EtFOSA	11.141	526.0 -> 219.0	100766	32.78	µg/L	88
		526.0 -> 169.0	114063			
EtFOSE	11.086	630.0 -> 58.9	96089	135.82	µg/L	100
		511.9 -> 219.0	88591			
MeFOSA	10.921	511.9 -> 169.0	105861	29.64	µg/L	m
		616.1 -> 58.9	136839			
MeFOSE	10.839	699.1 -> 79.9	17388	147.98	µg/L	100
		699.1 -> 98.8	10220			
PFDoDS	10.045	295.0 -> 201.0	21950	11.56	µg/L	98
		295.0 -> 84.9	9285			
NFDHA	5.656	279.0 -> 85.1	71409	25.97	µg/L	96
		229.0 -> 84.9	63170			
PFMBA	4.989	314.8 -> 134.9	415113	23.52	µg/L	100
		314.8 -> 82.9	10834			

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

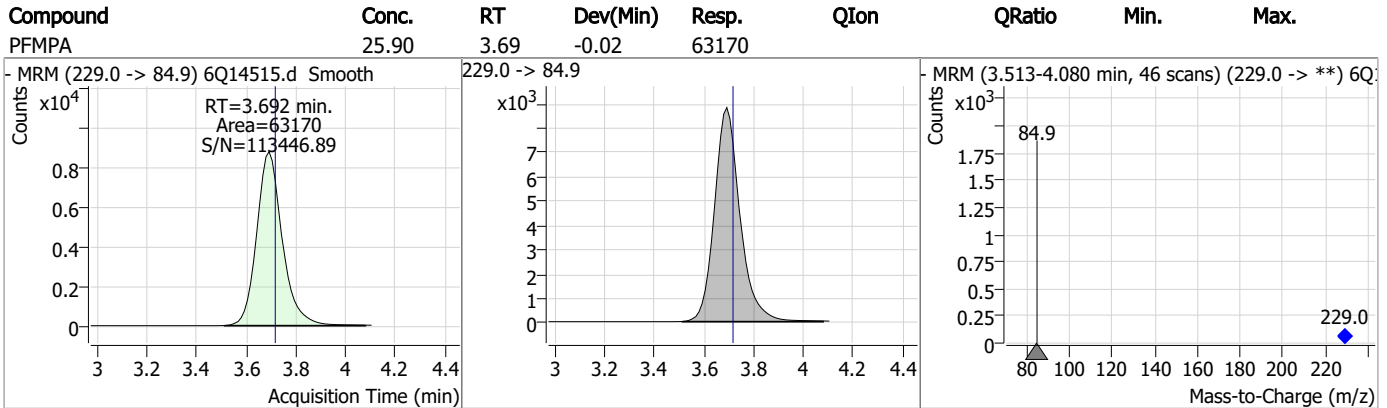
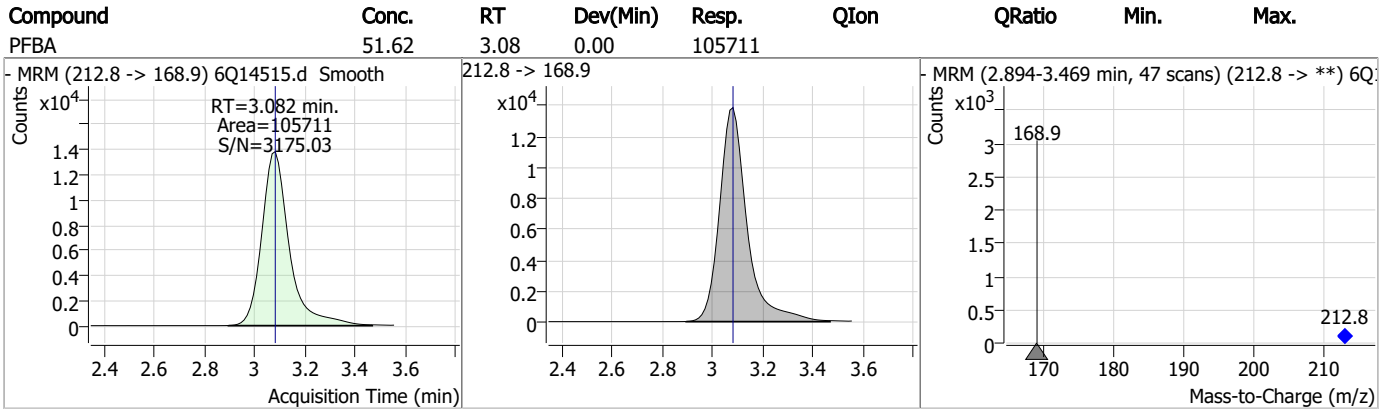
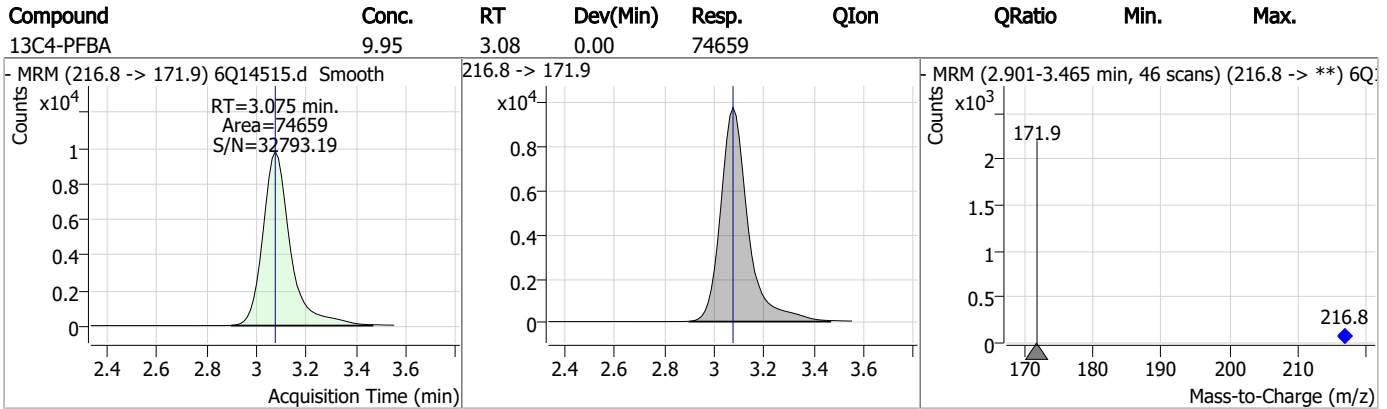
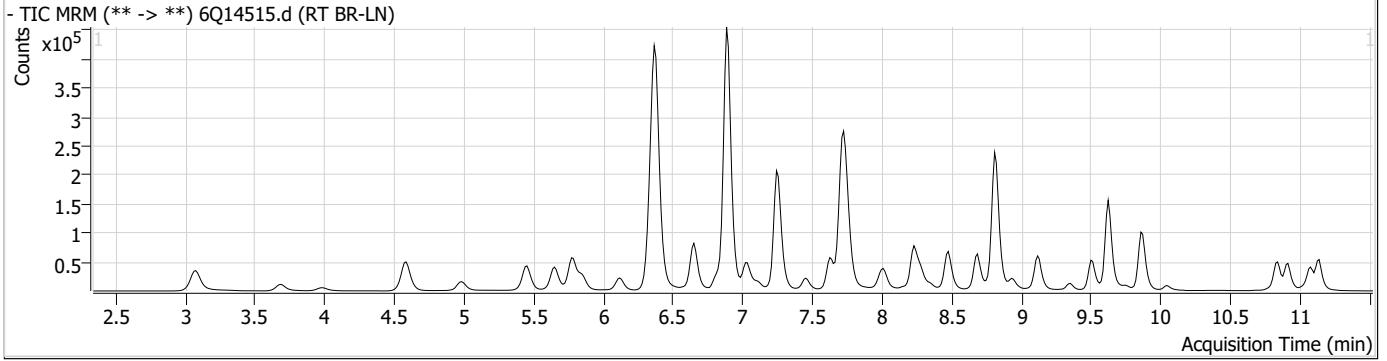
Perfluorinated Compounds by LC/MS/MS

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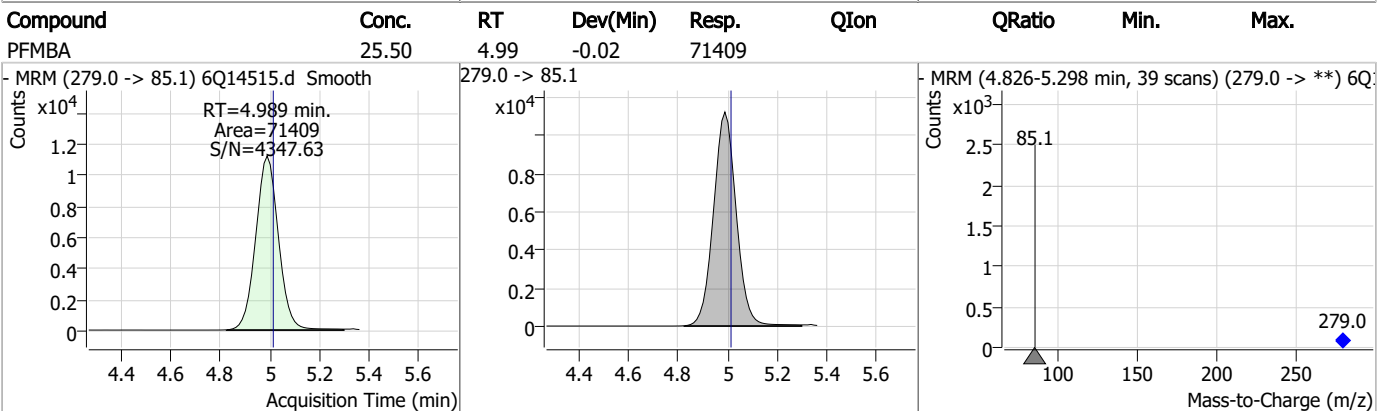
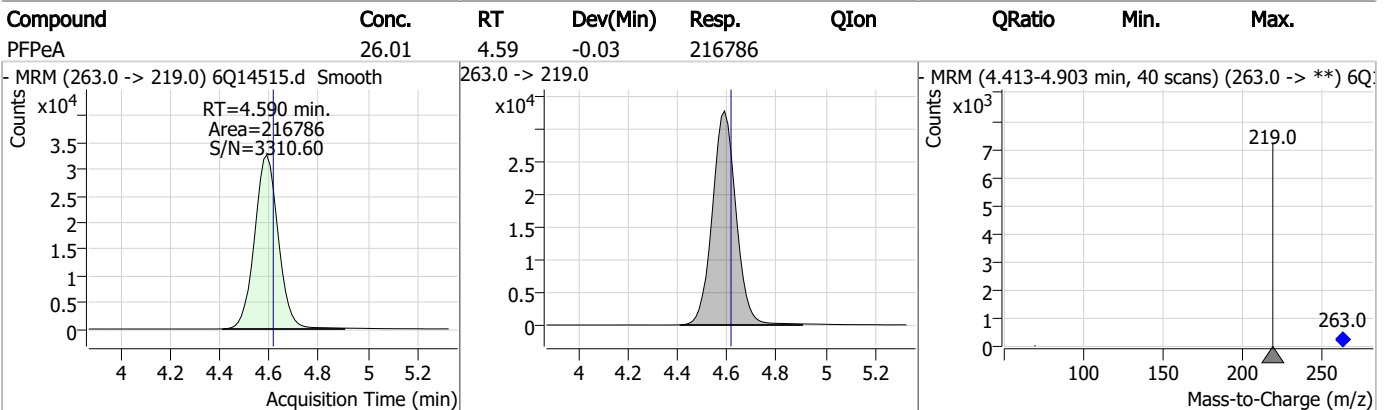
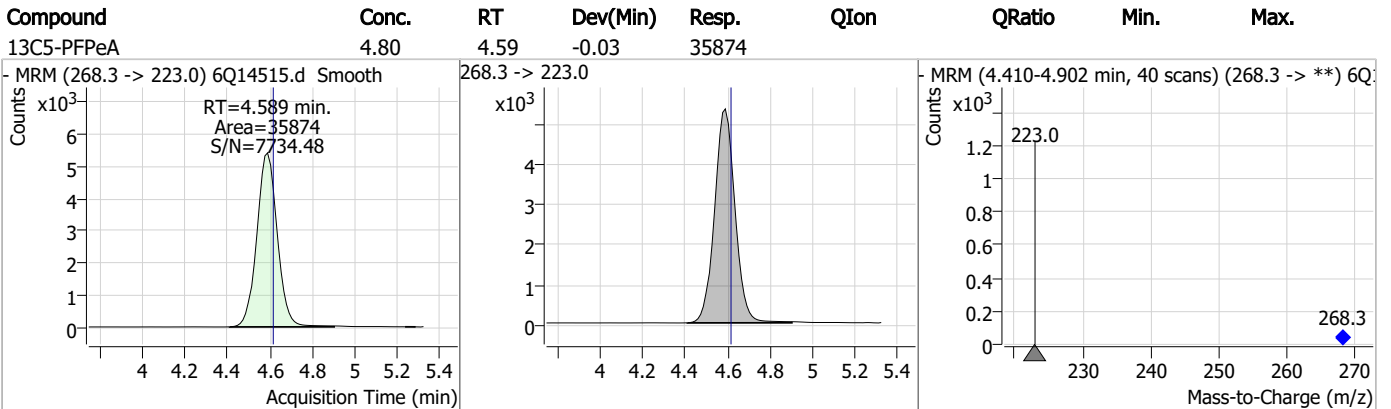
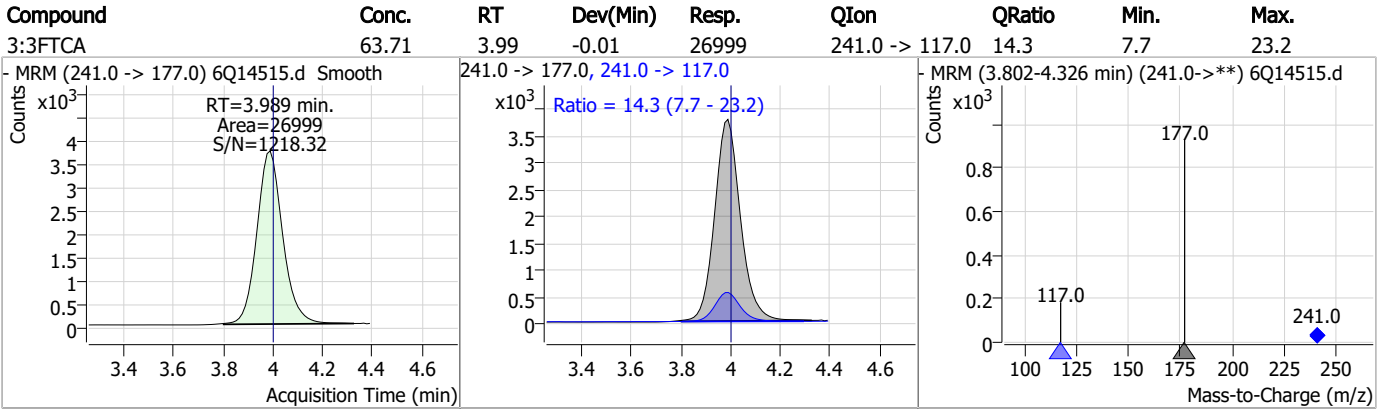
7.7.2

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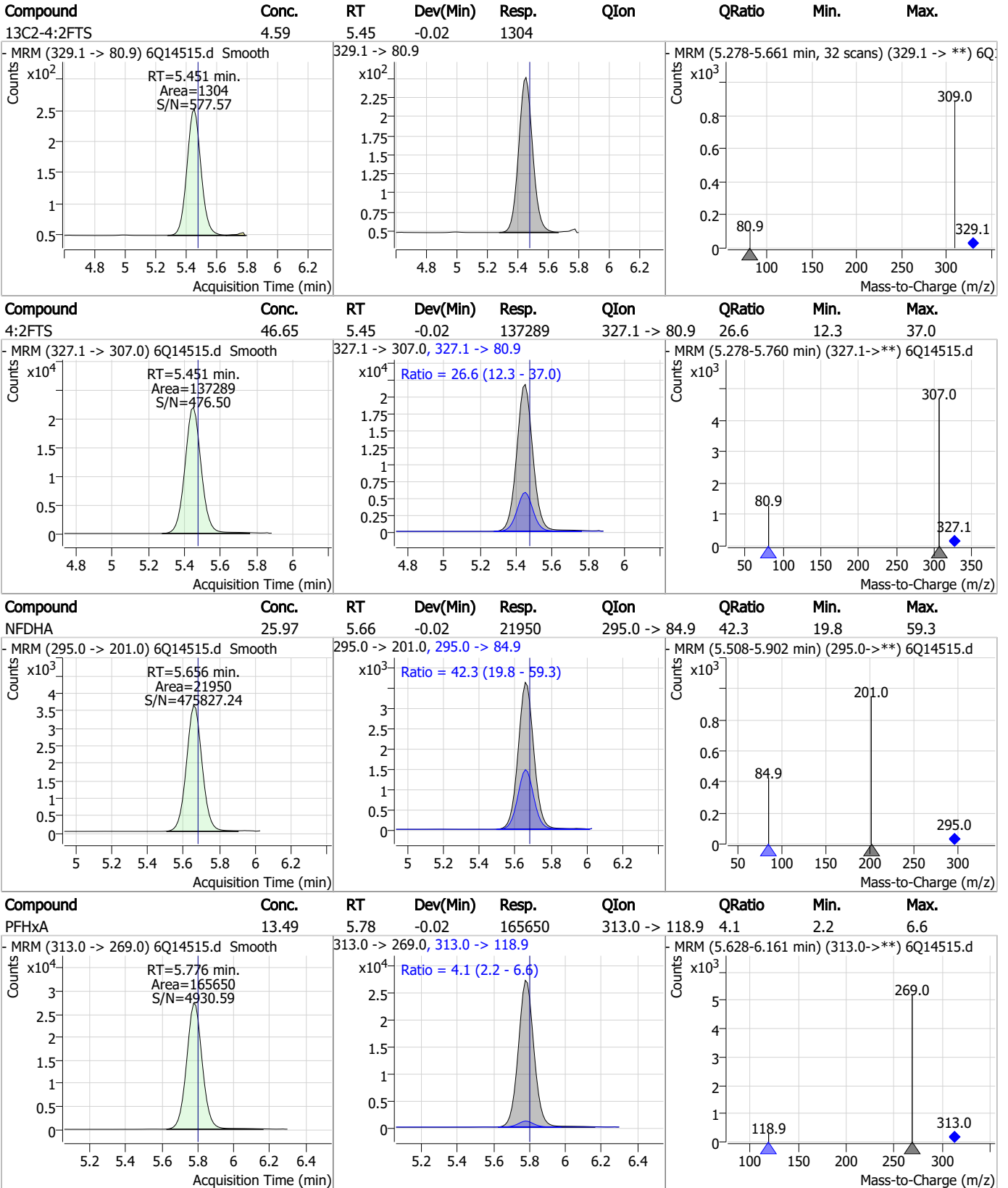
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.7.2

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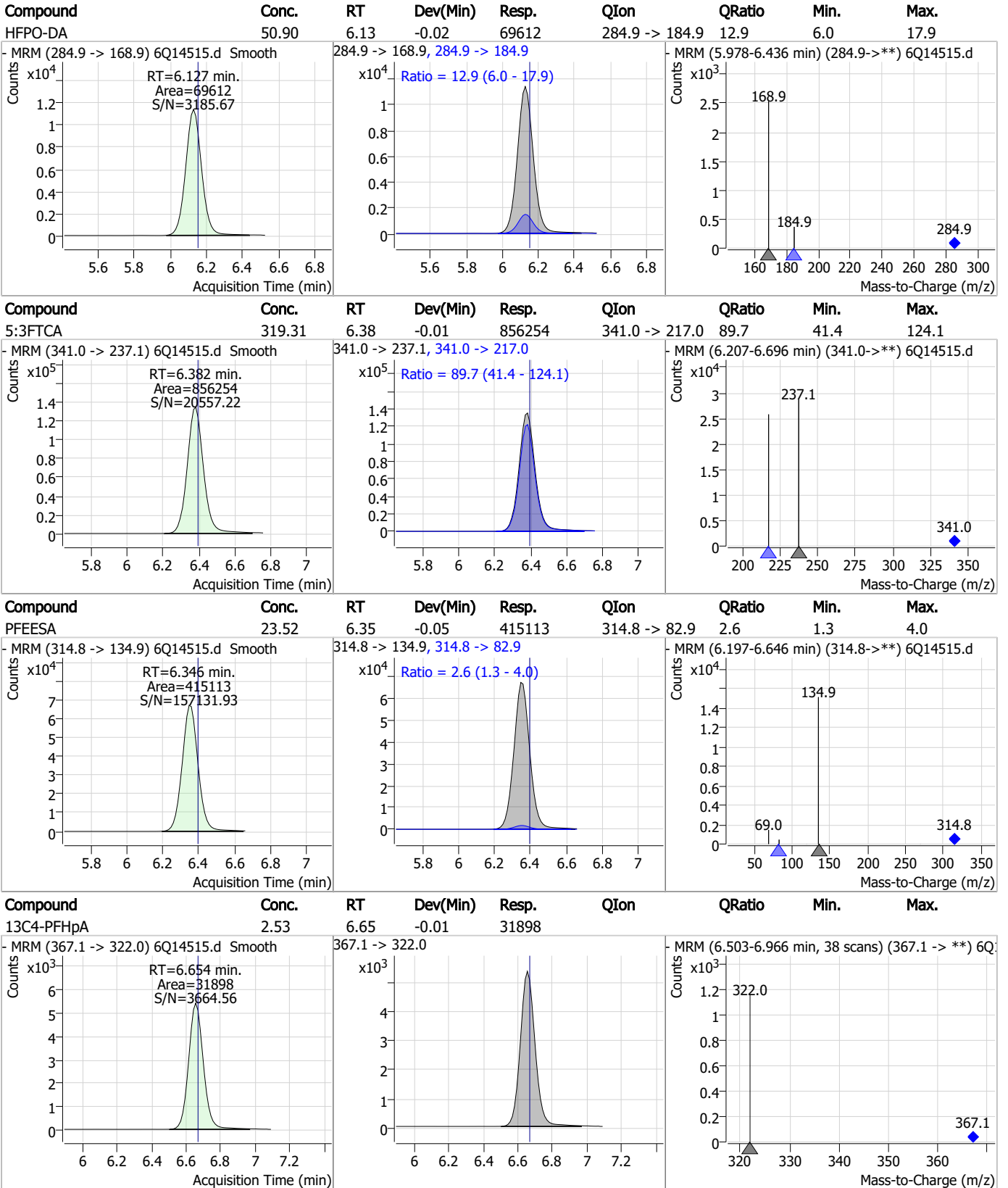
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.39	5.77	-0.04	30920				
13C3-PFBS	2.41	5.85	-0.05	12552				
PFBS	11.48	5.85	-0.05	60421	298.7 -> 98.8	45.6	20.4	61.1
13C3-HFPO-DA	9.48	6.13	-0.02	13689				

7.7.2

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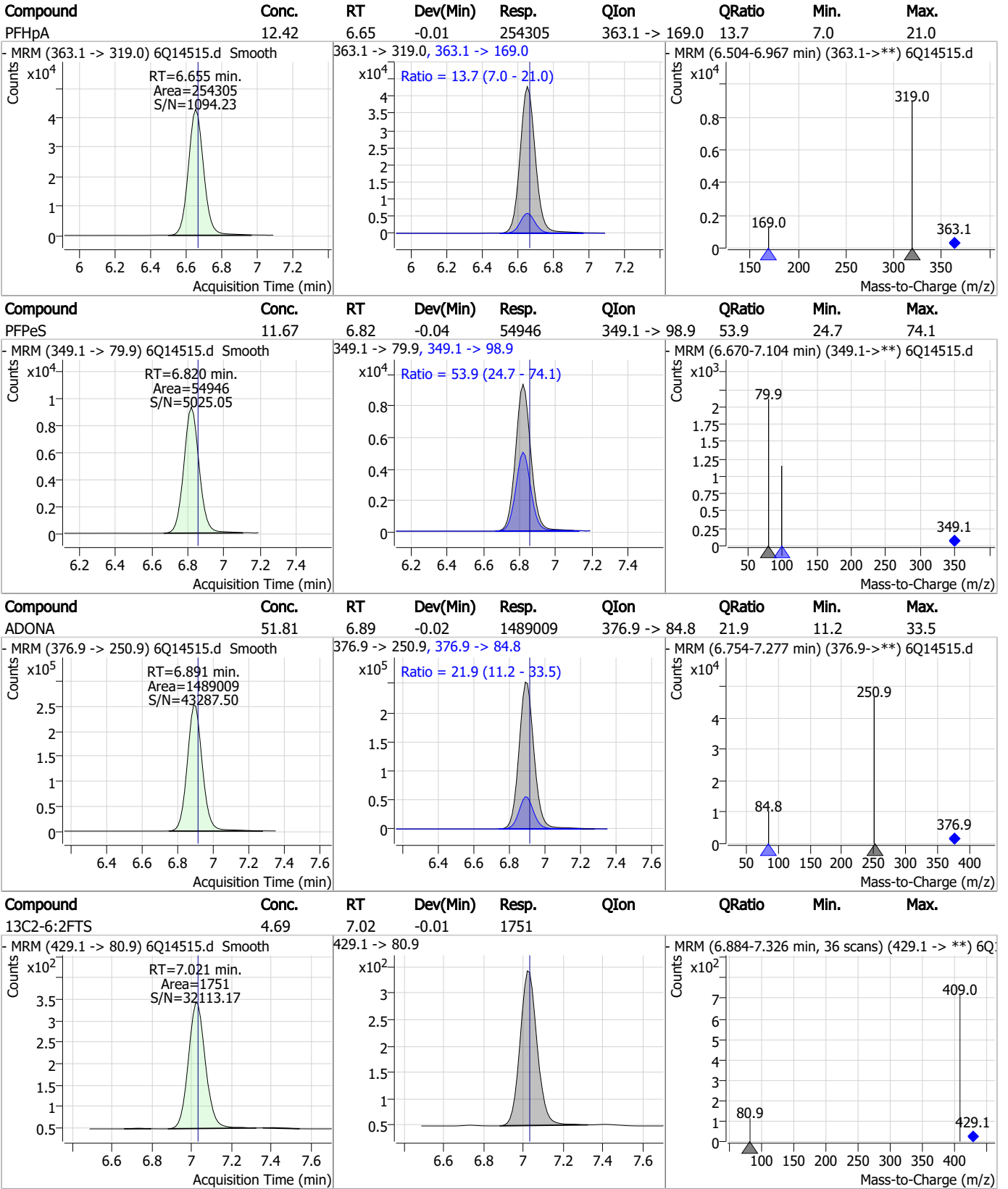
Perfluorinated Compounds by LC/MS/MS



7.7.2

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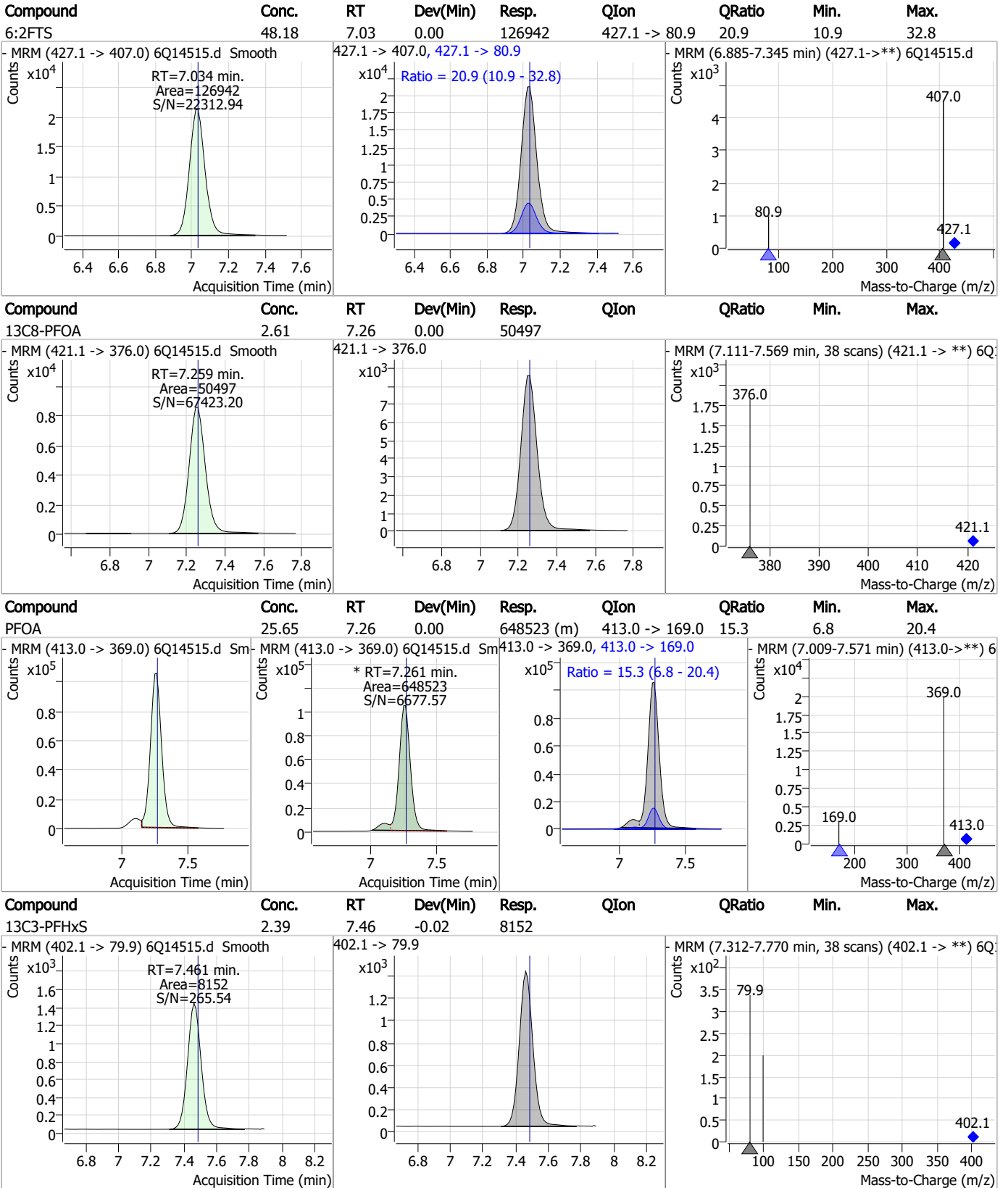
Perfluorinated Compounds by LC/MS/MS



7.7.2

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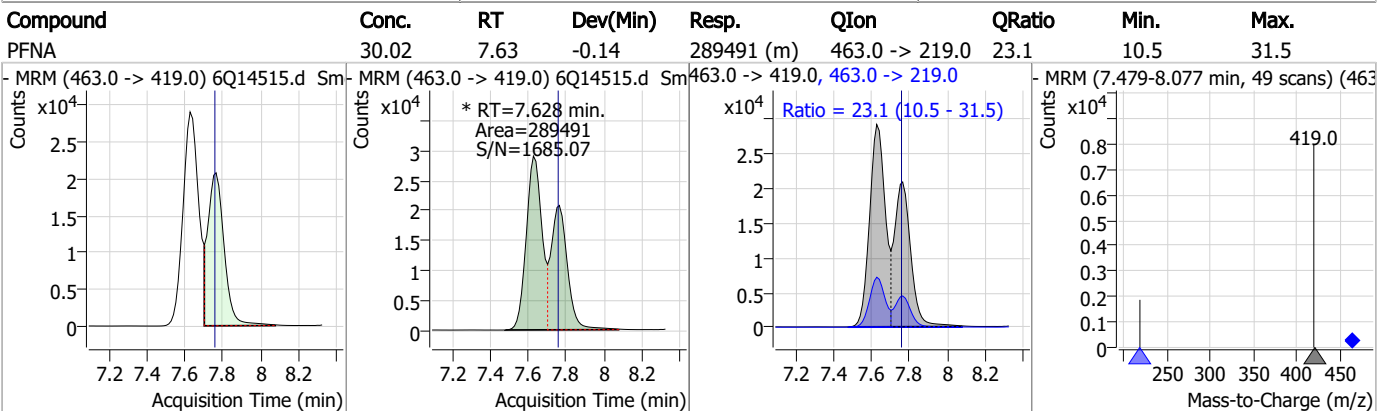
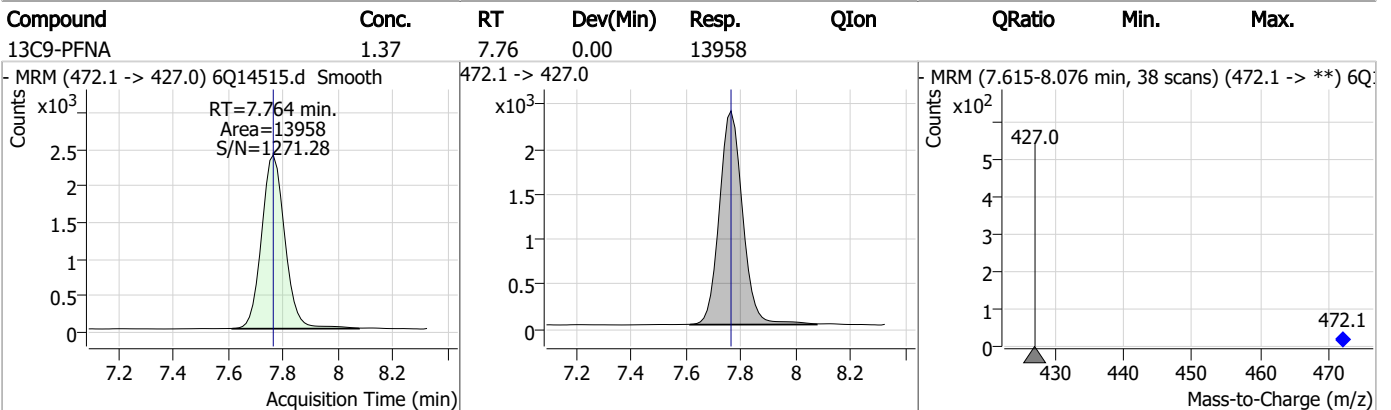
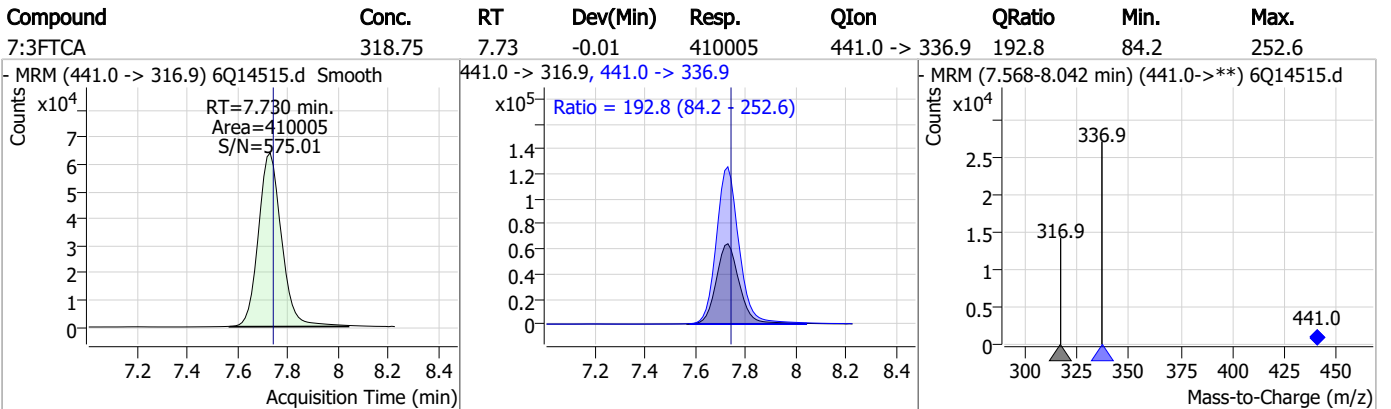
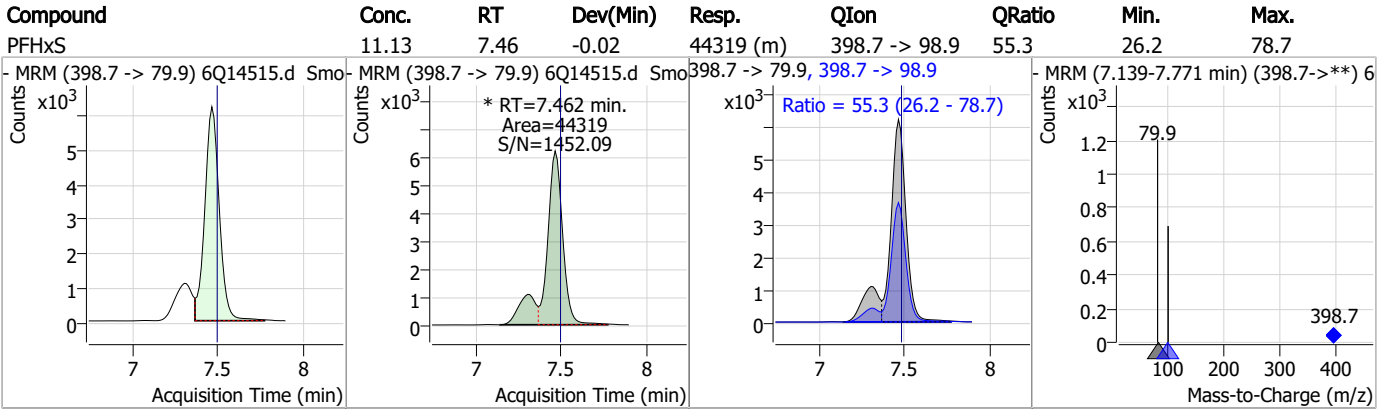
Perfluorinated Compounds by LC/MS/MS



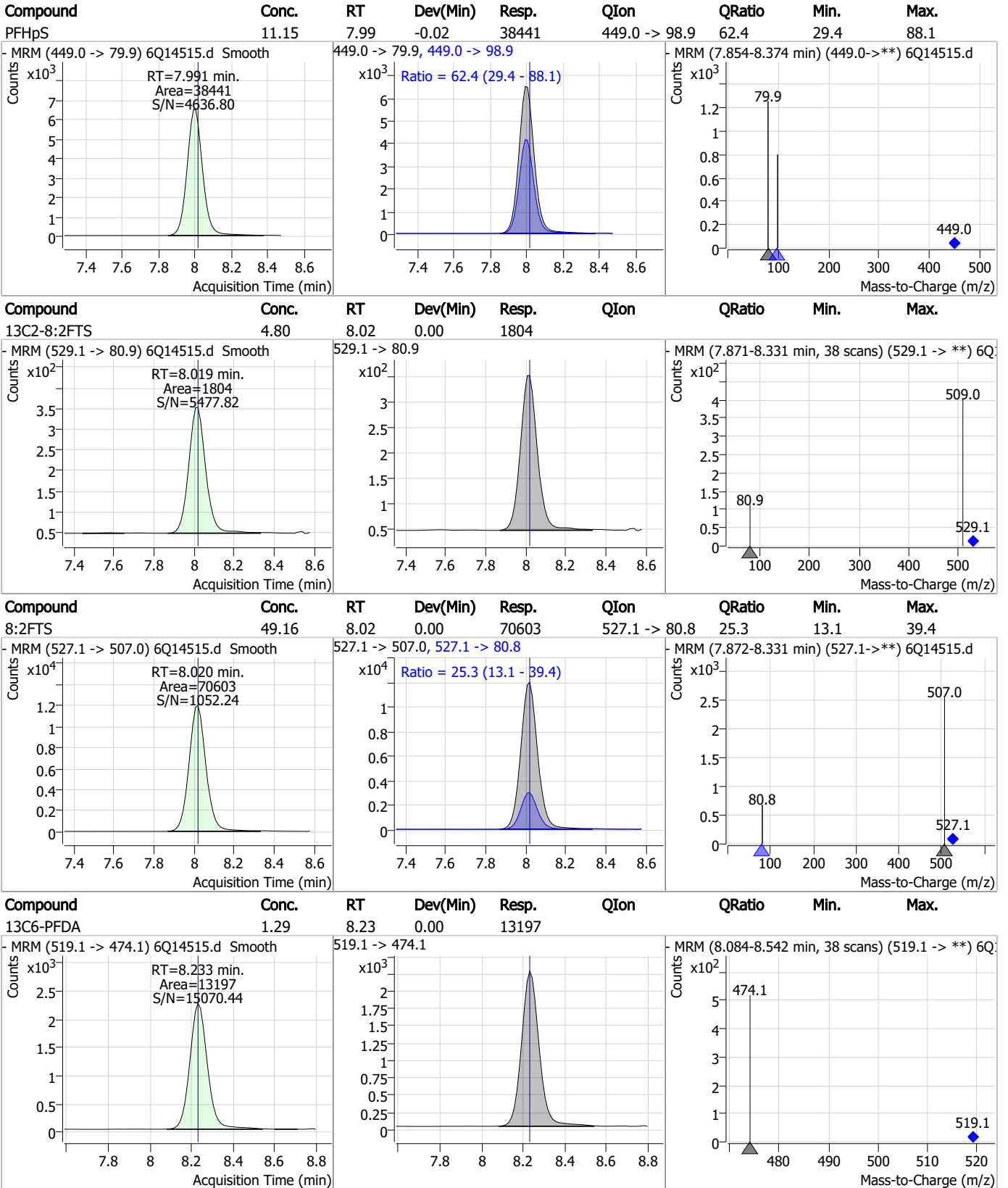
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

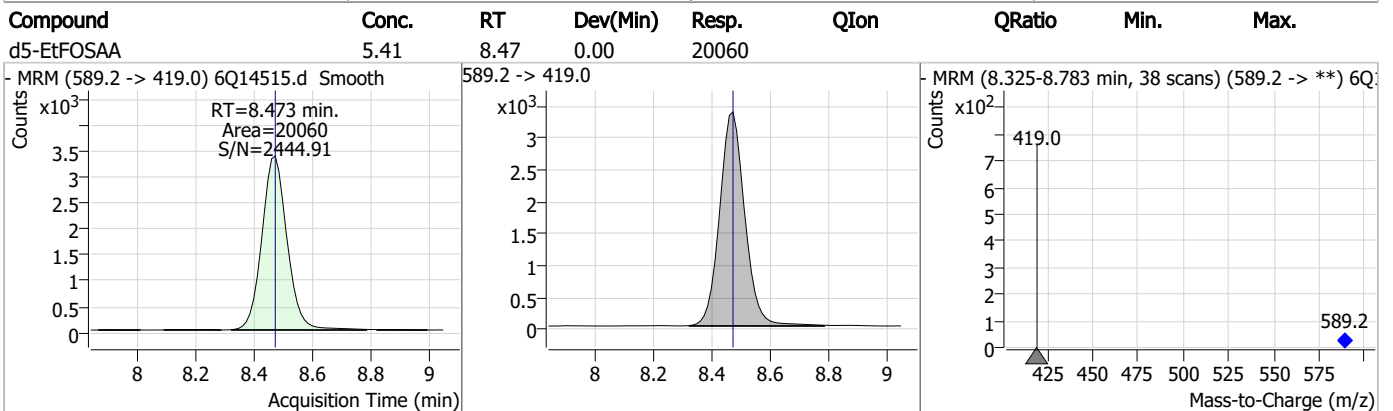
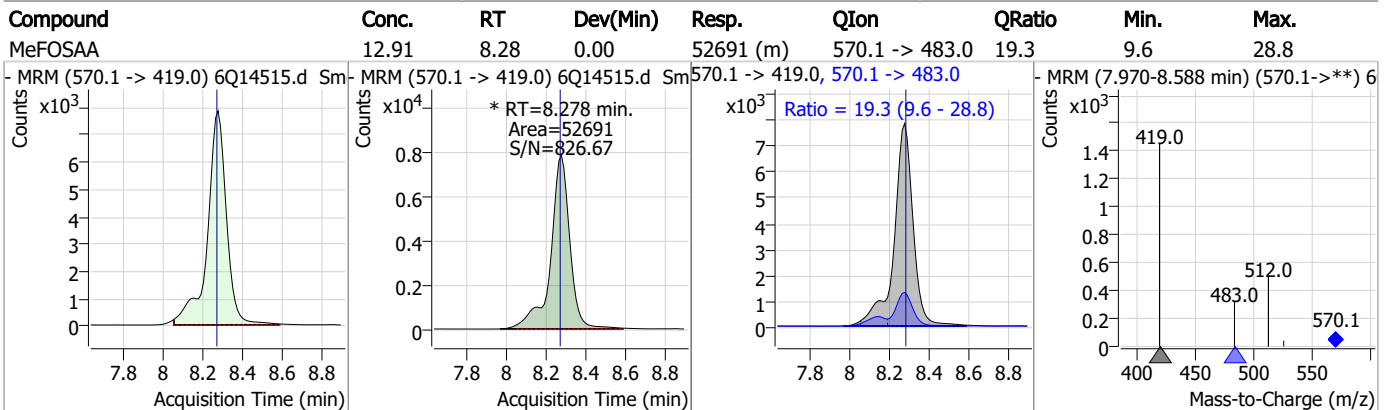
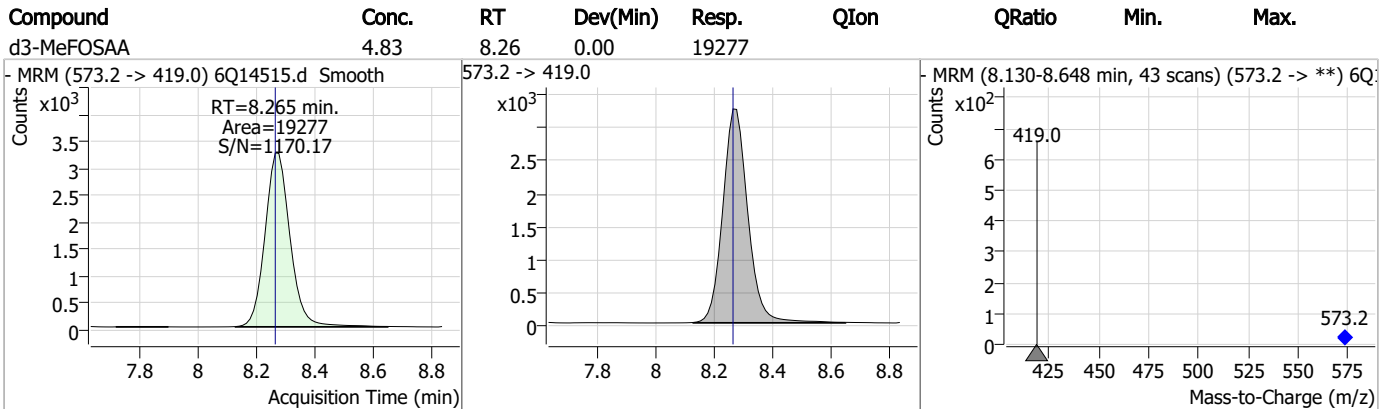
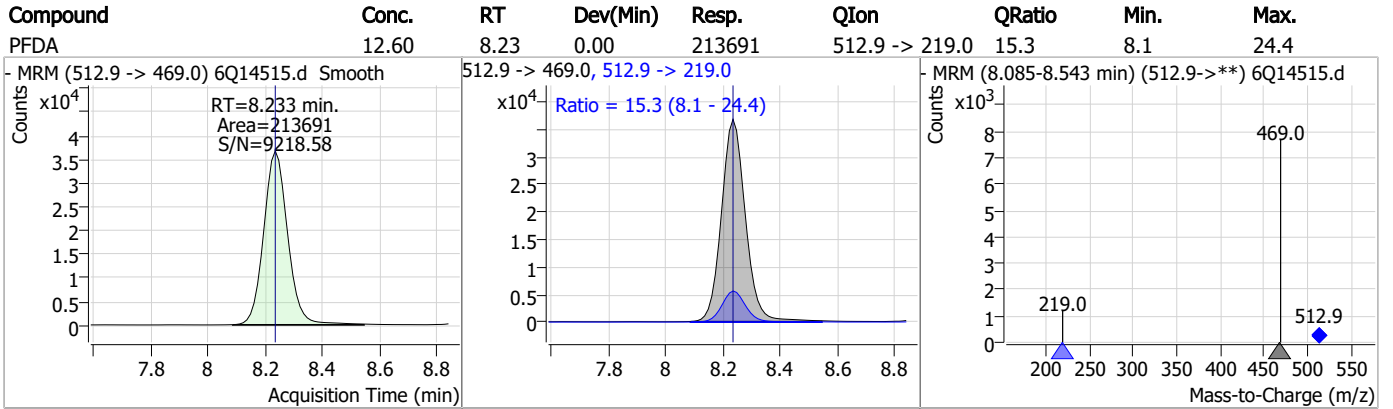


7.7.2

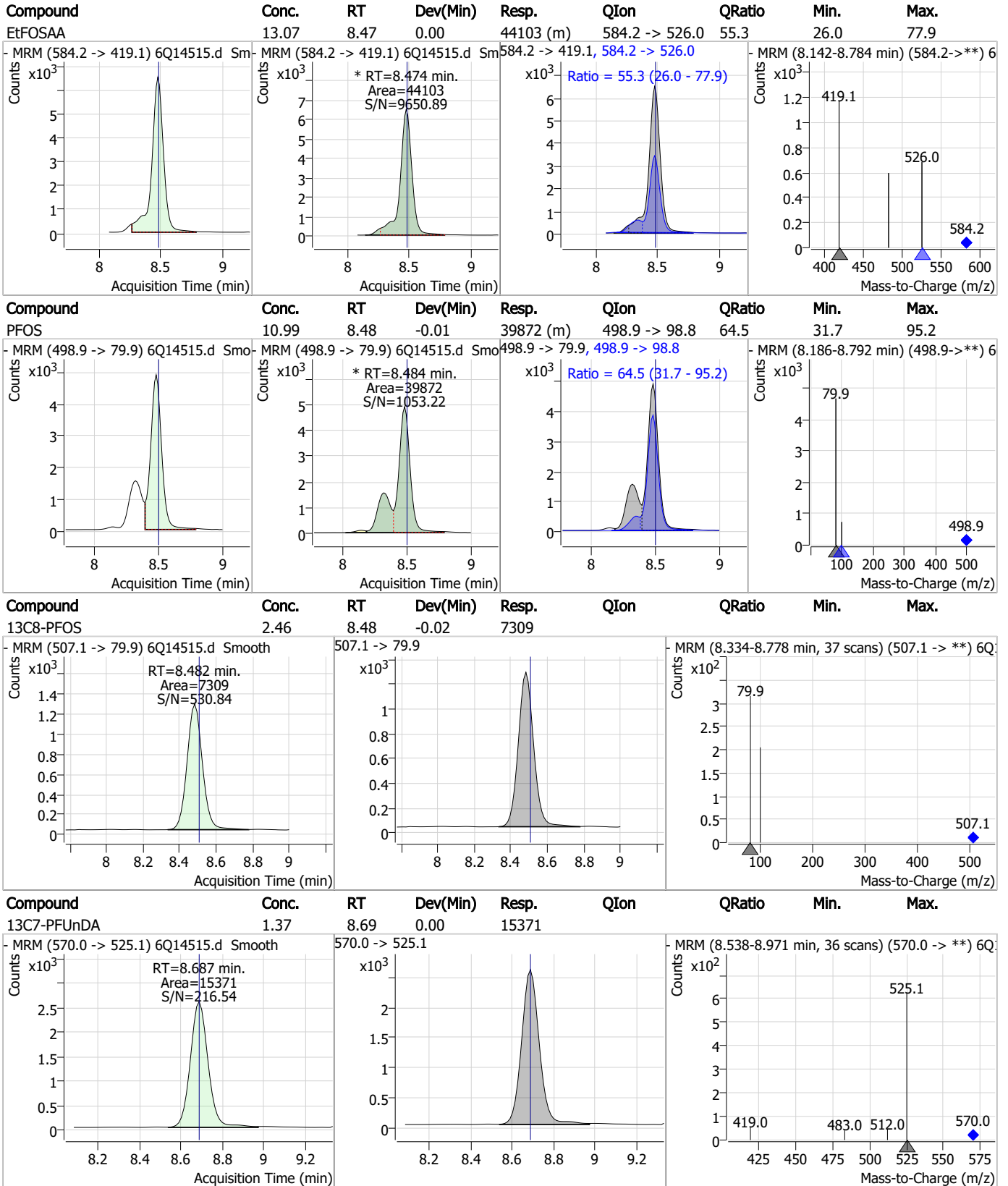
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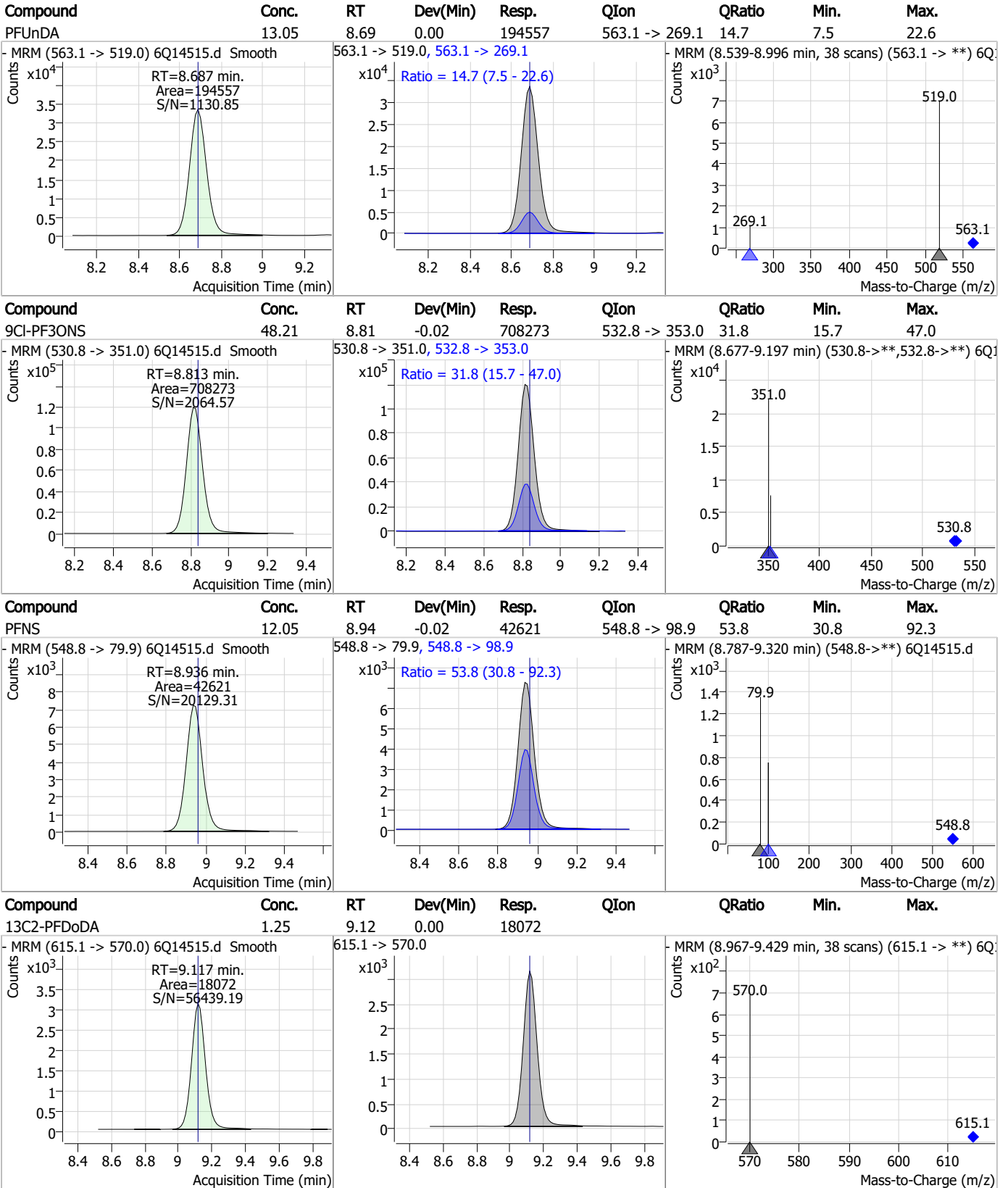
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

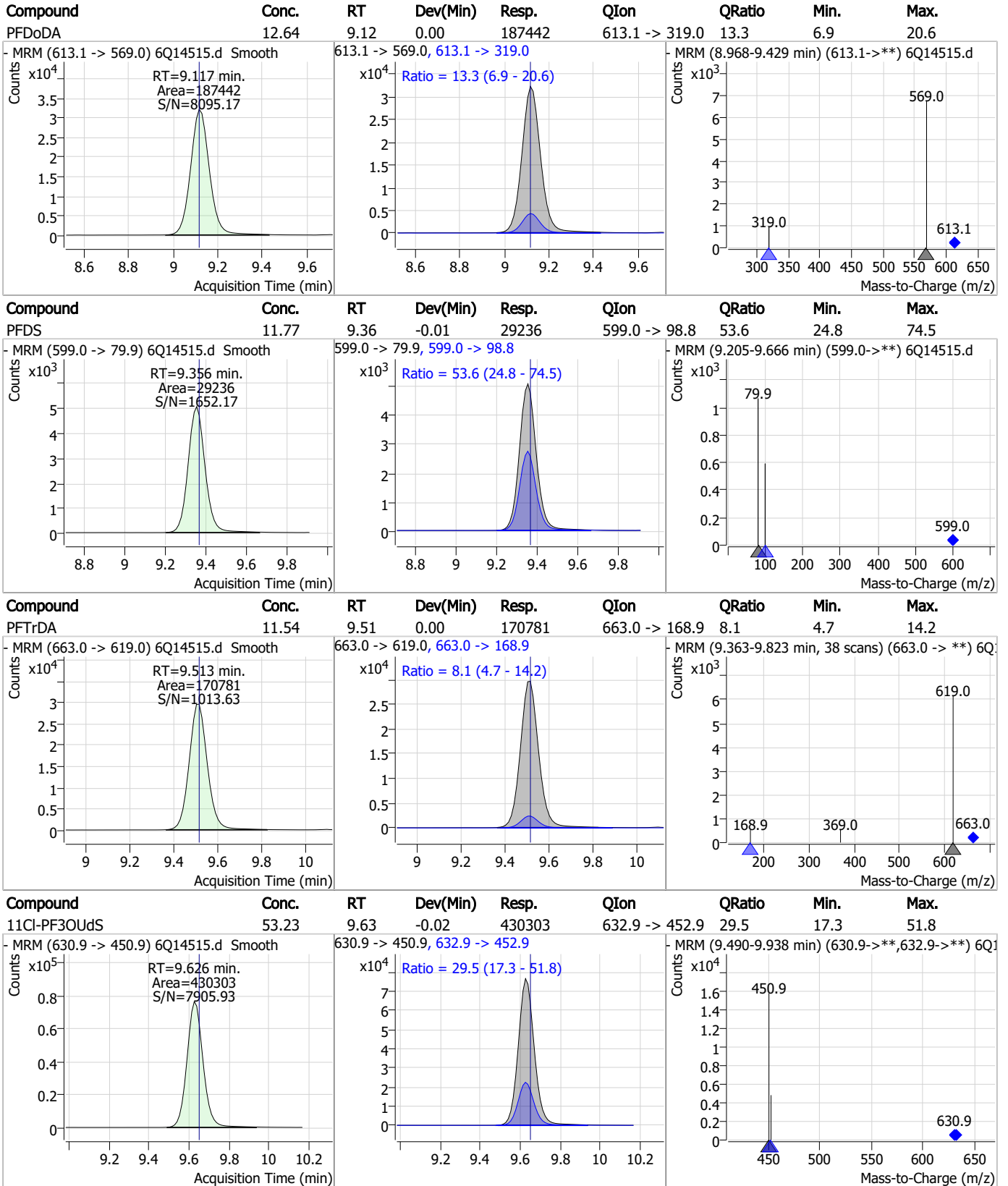


7.7.2

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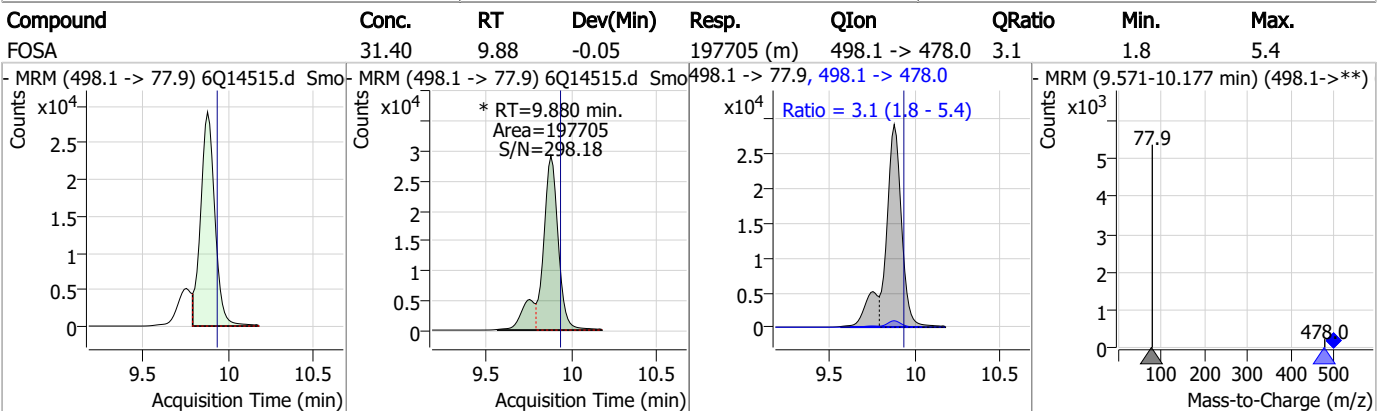
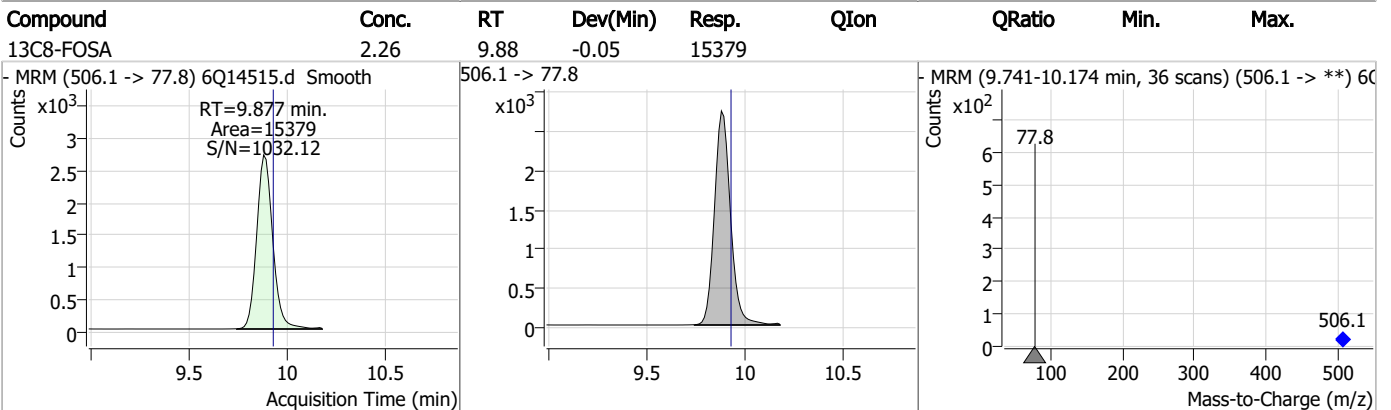
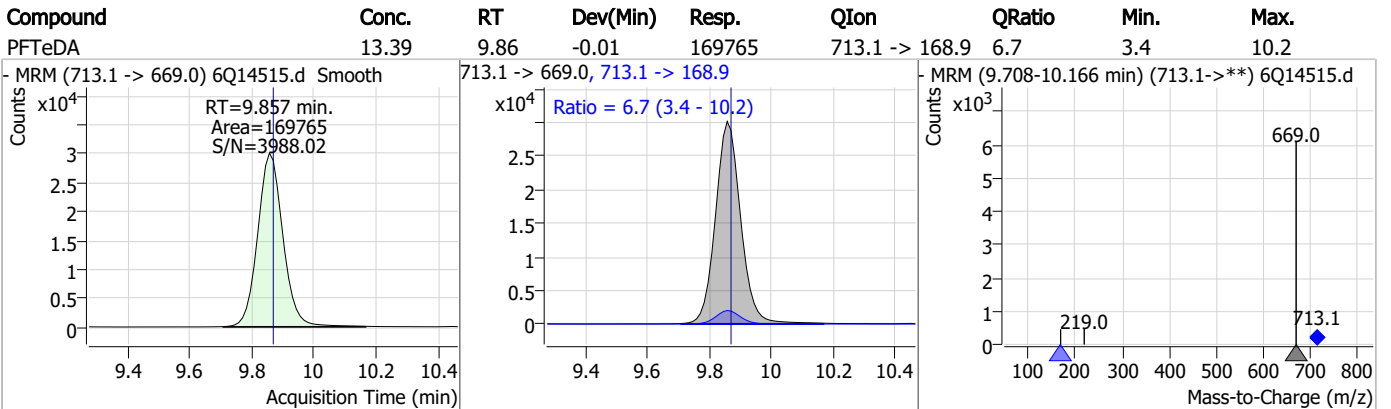
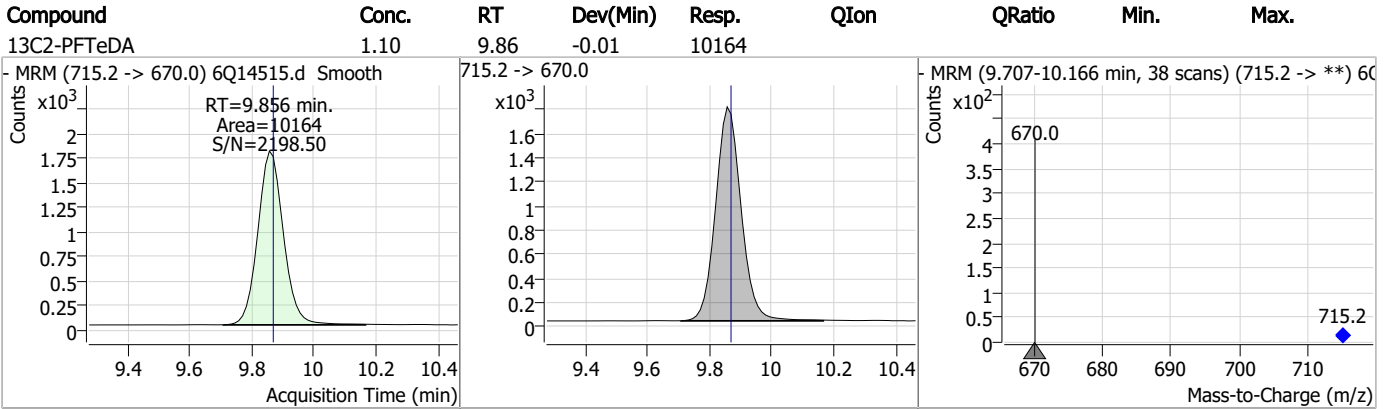
Perfluorinated Compounds by LC/MS/MS



7.7.2

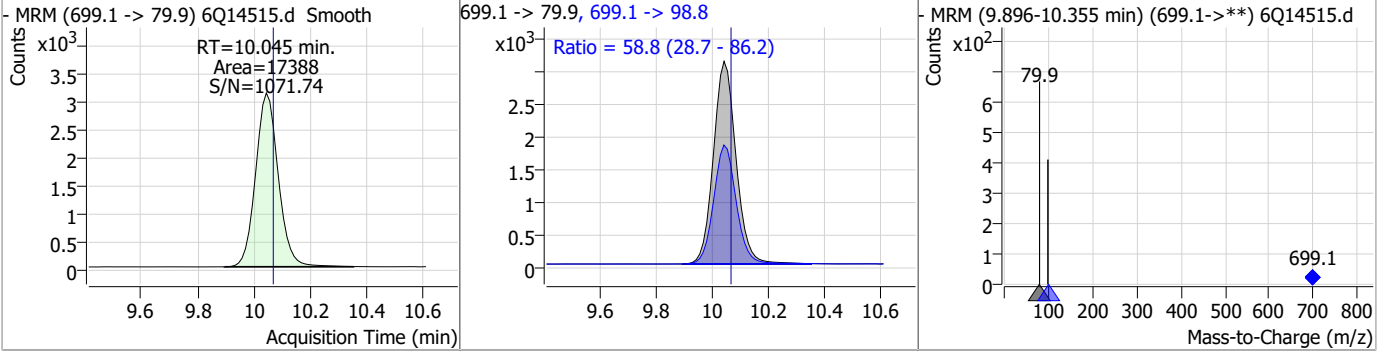
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Perfluorinated Compounds by LC/MS/MS

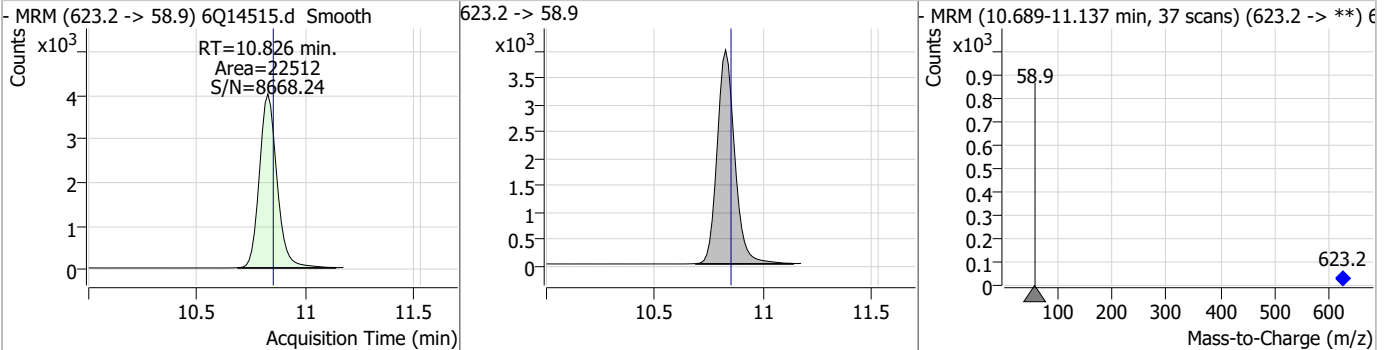


Perfluorinated Compounds by LC/MS/MS

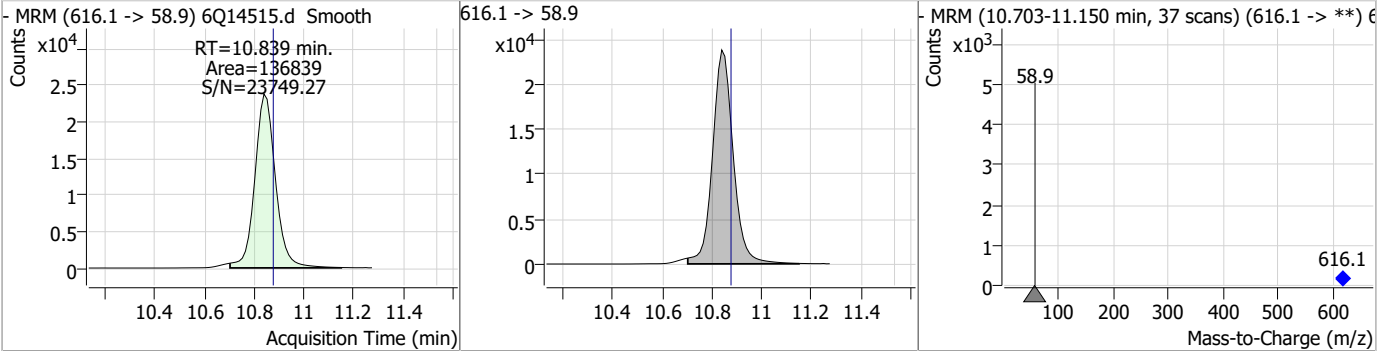
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	11.56	10.05	-0.02	17388	699.1 -> 98.8	58.8	28.7	86.2



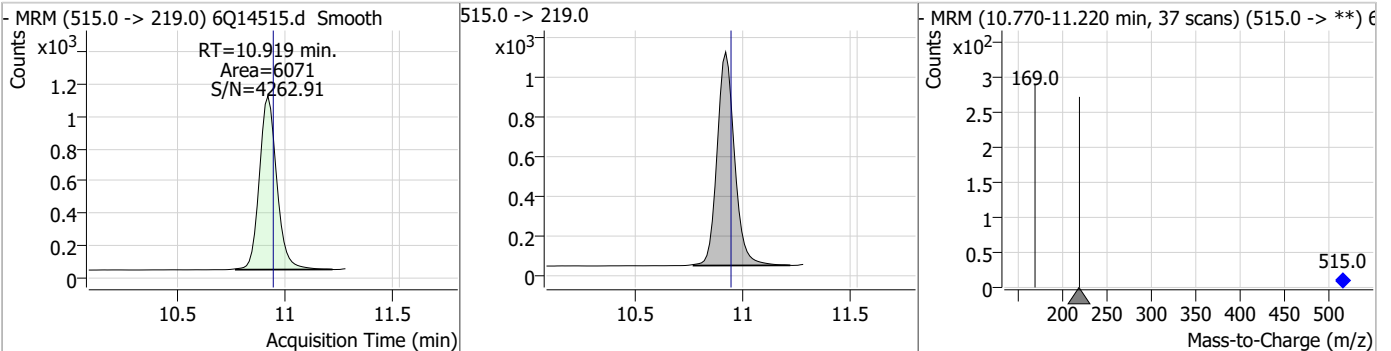
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.12	10.83	-0.02	22512				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	147.98	10.84	-0.04	136839				

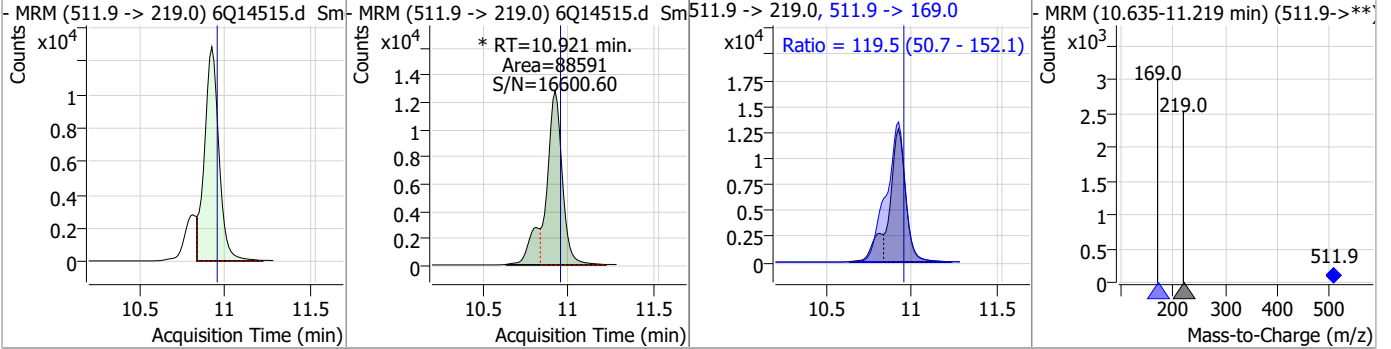


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.45	10.92	-0.02	6071				

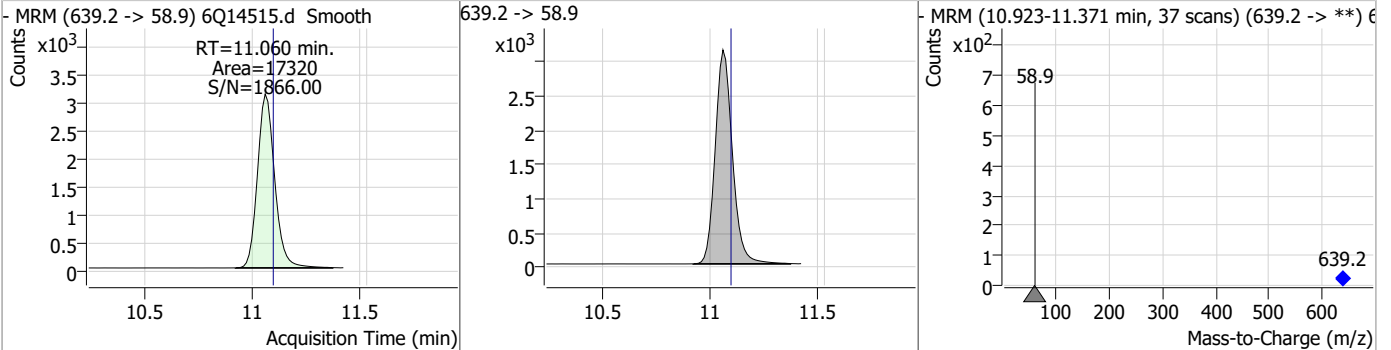


Perfluorinated Compounds by LC/MS/MS

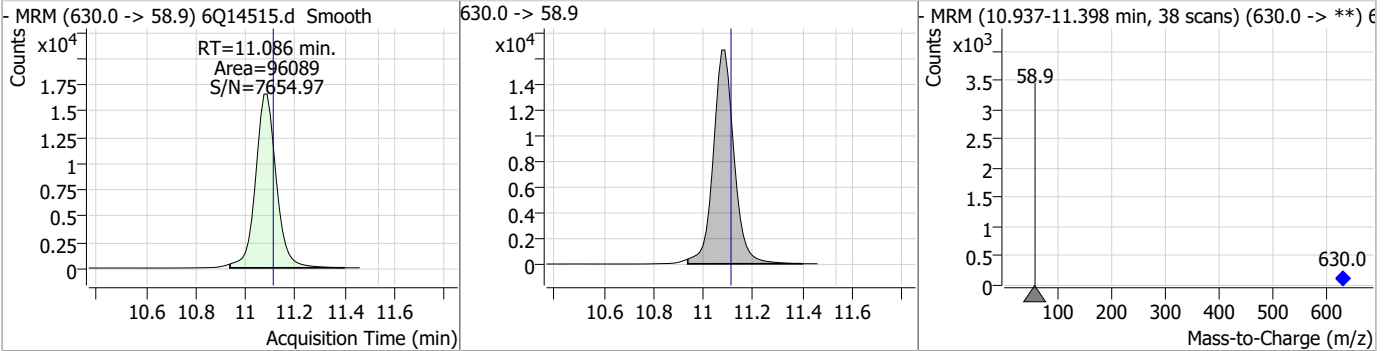
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	29.64	10.92	-0.02	88591 (m)	511.9 -> 169.0	119.5	50.7	152.1



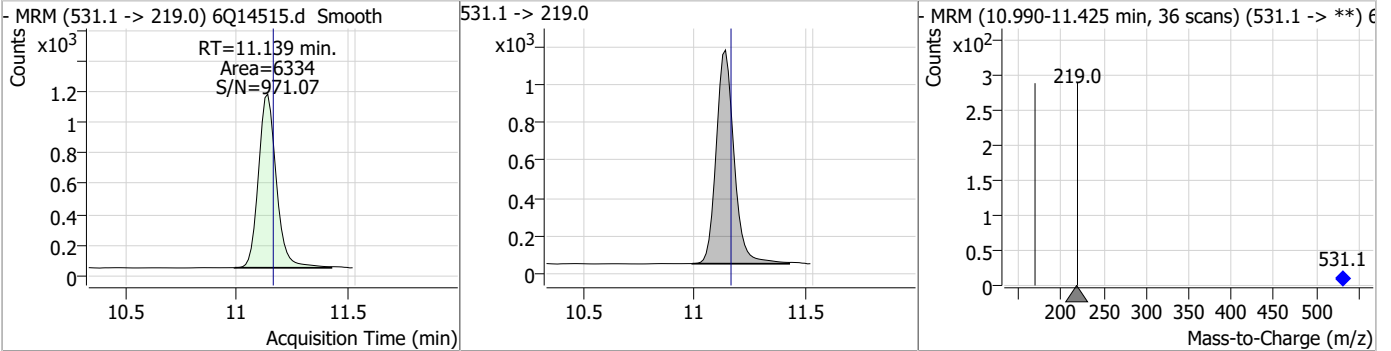
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.55	11.06	-0.04	17320				



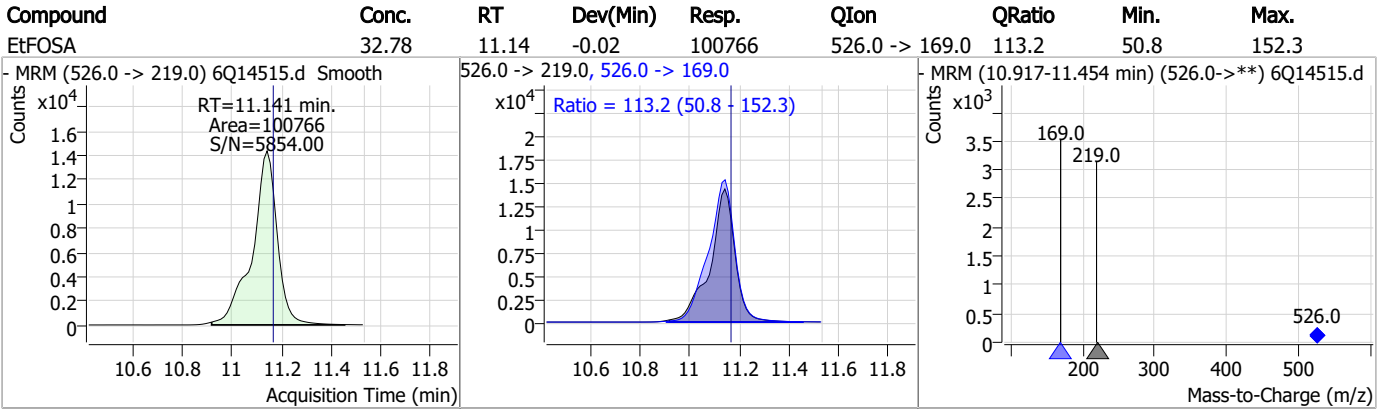
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	135.82	11.09	-0.02	96089				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.32	11.14	-0.02	6334				



Perfluorinated Compounds by LC/MS/MS



7.7.2

7

Manual Integration Approval Summary

Sample Number: S6Q220-RT Method: EPA DRAFT 1633
Lab FileID: 6Q14515.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 12:32 Supervisor approved: 03/10/23 10:46 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.26	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.46	Split peak
Perfluorononanoic acid	375-95-1		7.63	Split peak
MeFOSAA	2355-31-9		8.28	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.48	Split peak
PFOSA	754-91-6		9.88	Split peak
MeFOSA	31506-32-8		10.92	Split peak

7.7.2.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Natasha Gumtie
 03/10/23 14:34

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14615.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/9/2023 12:13:50 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : S6Q221 TDCA.batch.bin
 Sample Information : OP95772,S6Q221,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.509	507.1 -> 79.9	9069	2.50	µg/L	0.039	
13C4-PFOS	8.509	502.8 -> 79.9	11758	2.50	µg/L	0.039	
System Monitoring Compounds							
13C8-PFOS	8.509	507.1 -> 79.9	9069	1.96	µg/L	0.039	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 78.3%				
Target Compounds							
PFOS	8.510	498.9 -> 79.9 498.9 -> 98.8	11828 6702	3.82	µg/L	m	77
TCDCa	6.738	498.9 -> 79.9	2214	5.29	ng/ml		100
TDCA	6.886	498.9 -> 79.9	2604	6.87	ng/ml		100
TUDCA	5.948	498.9 -> 79.9	3320	4.13	ng/ml		100

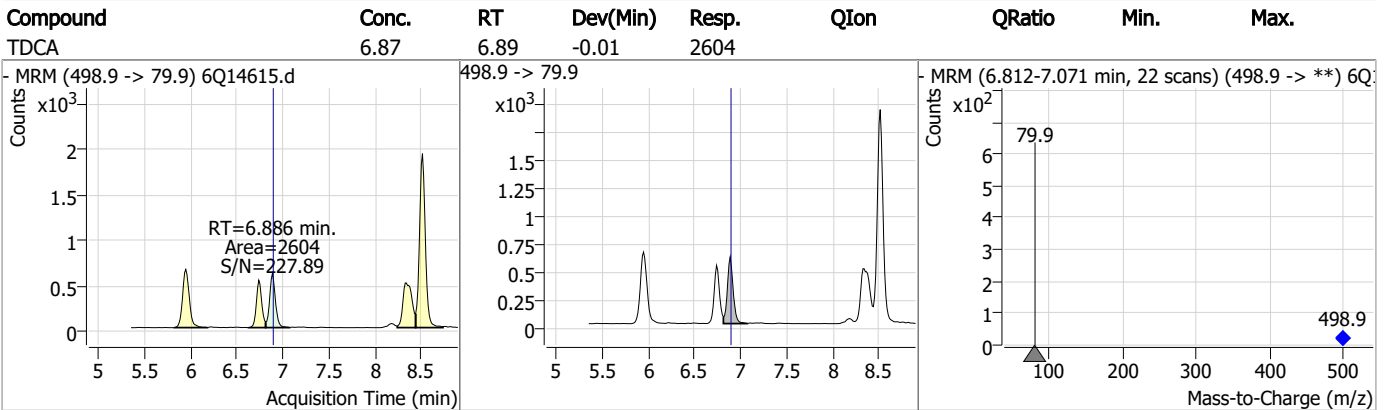
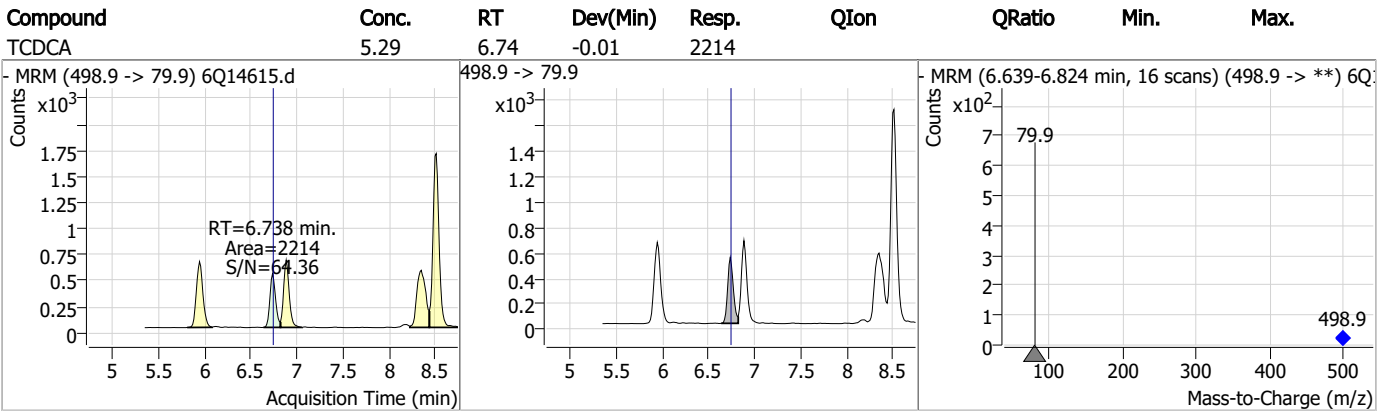
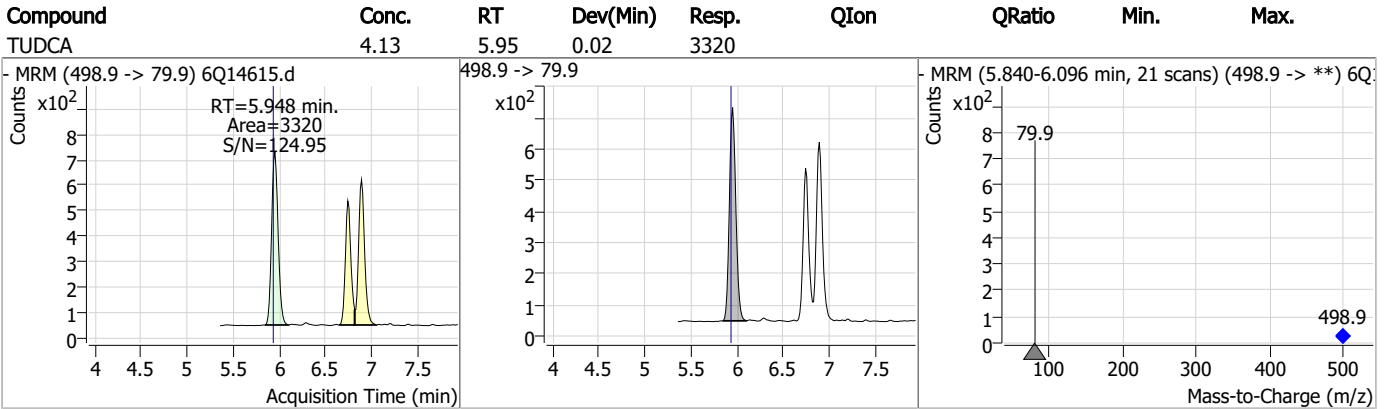
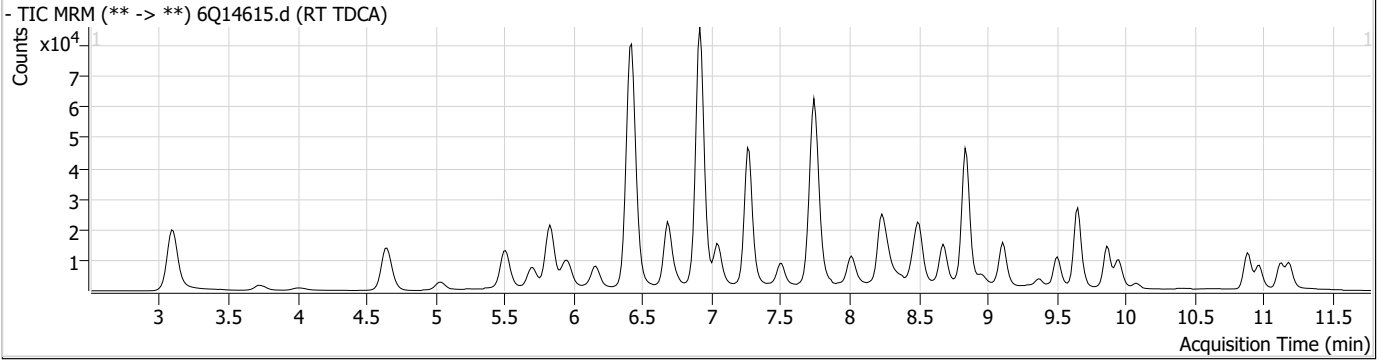
= Qualifier out of range, m = manually integrated, + = Area summed

7.7.3

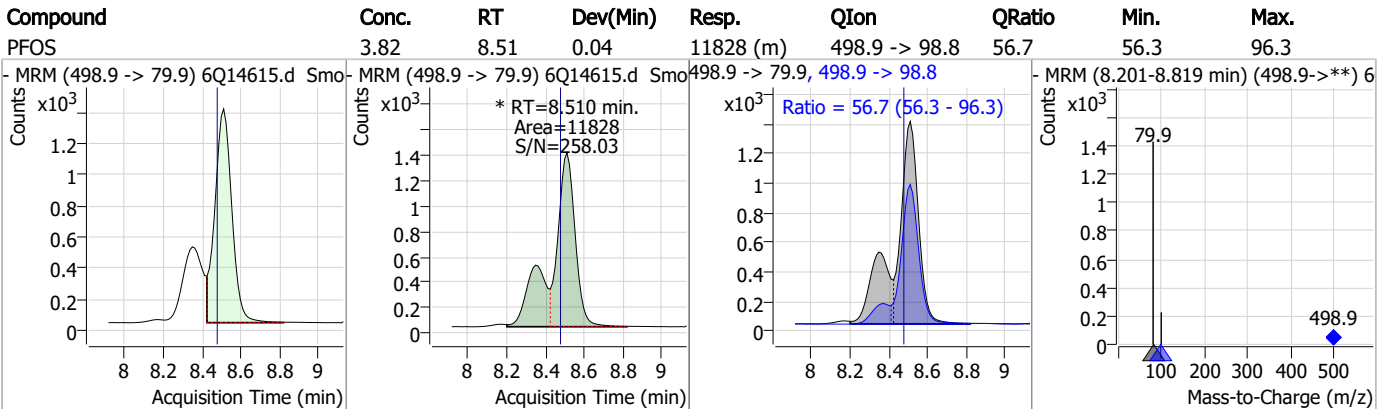
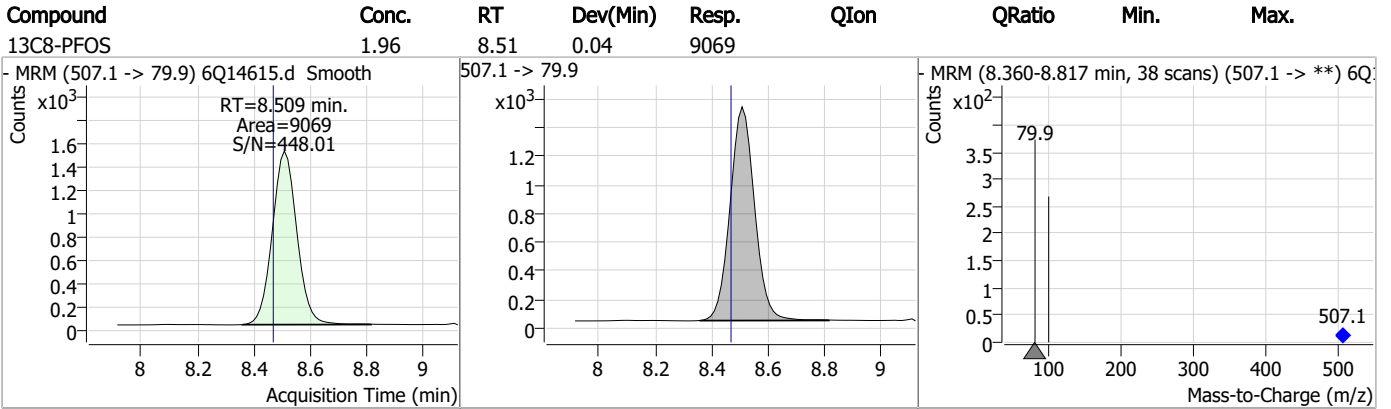
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.7.3
7



Manual Integration Approval Summary

Sample Number: S6Q221-RT Method: EPA DRAFT 1633
Lab FileID: 6Q14615.D Analyst approved: 03/10/23 10:37 Anna Ludwig
Injection Time: 03/09/23 12:13 Supervisor approved: 03/10/23 14:34 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.51	Split peak

7.7.3.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14616.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/9/2023 12:27:49 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q221.batch.bin
 Sample Information : OP95772,S6Q221,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	71338	10.00 µg/L	0.022
M5-PFPeA	4.647	268.3 -> 223.0	35398	5.00 µg/L	0.032
M5-PFHxA	5.828	318.0 -> 273.0	31508	2.50 µg/L	0.018
M4-PFHpA	6.694	367.1 -> 322.0	28982	2.50 µg/L	0.026
M8-PFOA	7.274	421.1 -> 376.0	49251	2.50 µg/L	0.014
M9-PFNA	7.767	472.1 -> 427.0	14079	1.25 µg/L	0.003
M6-PFDA	8.234	519.1 -> 474.1	13340	1.25 µg/L	0.002
M7-PFUnDA	8.676	570.0 -> 525.1	15086	1.25 µg/L	-0.011
M2-PFDoDA	9.106	615.1 -> 570.0	17291	1.25 µg/L	-0.010
M2-PFTeDA	9.858	715.2 -> 670.0	11548	1.25 µg/L	-0.010
M8-FOSA	9.954	506.1 -> 77.8	16959	2.50 µg/L	0.028
M3-PFBS	5.956	302.1 -> 79.9	12599	2.50 µg/L	0.055
M3-PFHxS	7.513	402.1 -> 79.9	8323	2.50 µg/L	0.027
M8-PFOS	8.509	507.1 -> 79.9	7431	2.50 µg/L	0.002
M2-4:2FTS	5.505	329.1 -> 80.9	1355	5.00 µg/L	0.029
M2-6:2FTS	7.048	429.1 -> 80.9	1868	5.00 µg/L	0.015
M2-8:2FTS	8.023	529.1 -> 80.9	1790	5.00 µg/L	0.003
M3-MeFOSAA	8.267	573.2 -> 419.0	20589	5.00 µg/L	0.002
M3-HFPO-DA	6.168	286.9 -> 168.9	14097	10.00 µg/L	0.017
M5-EtFOSAA	8.463	589.2 -> 419.0	18921	5.00 µg/L	-0.010
M7-MeFOSE	10.878	623.2 -> 58.9	24888	25.00 µg/L	0.027
M9-EtFOSE	11.112	639.2 -> 58.9	16025	25.00 µg/L	0.015
M5-EtFOSA	11.178	531.1 -> 219.0	6769	2.50 µg/L	0.014
M3-MeFOSA	10.970	515.0 -> 219.0	5907	2.50 µg/L	0.026
13C4-PFOS	8.509	502.8 -> 79.9	7589	2.50 µg/L	0.014
13C3-PFBA	3.101	216.0 -> 172.0	30853	5.00 µg/L	0.023
18O2-PFHxS	7.512	403.0 -> 83.9	5440	2.50 µg/L	0.015
13C4-PFOA	7.274	417.1 -> 372.0	60189	2.50 µg/L	0.014
13C2-PFDA	8.235	515.1 -> 470.1	18731	1.25 µg/L	0.002
13C5-PFNA	7.768	468.0 -> 423.0	14720	1.25 µg/L	0.003
13C2-PFHxA	5.829	315.1 -> 270.0	31083	2.50 µg/L	0.030
System Monitoring Compounds					
13C2-4:2FTS	5.505	329.1 -> 80.9	1355	5.23 µg/L	0.029
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C2-6:2FTS	7.048	429.1 -> 80.9	1868	5.49 µg/L	0.015
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C2-8:2FTS	8.023	529.1 -> 80.9	1790	5.22 µg/L	0.003
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C2-PFDoDA	9.106	615.1 -> 570.0	17291	1.09 µg/L	-0.010
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.2%		
13C2-PFTeDA	9.858	715.2 -> 670.0	11548	1.15 µg/L	-0.010
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.7%		
13C3-PFBS	5.956	302.1 -> 79.9	12599	2.65 µg/L	0.055
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C3-PFHxS	7.513	402.1 -> 79.9	8323	2.67 µg/L	0.027

7.7.4
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 = 107.0%	
13C4-PFBA	3.097	216.8 -> 171.9	71338	10.06 µg/L	0.022
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.694	367.1 -> 322.0	28982	2.33 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.4%	
13C5-PFHxA	5.828	318.0 -> 273.0	31508	2.47 µg/L	0.018
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C5-PFPeA	4.647	268.3 -> 223.0	35398	4.80 µg/L	0.032
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C6-PFDA	8.234	519.1 -> 474.1	13340	1.19 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C7-PFUnDA	8.676	570.0 -> 525.1	15086	1.23 µg/L	-0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C8-FOSA	9.954	506.1 -> 77.8	16959	2.85 µg/L	0.028
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.9%	
13C8-PFOA	7.274	421.1 -> 376.0	49251	2.46 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C8-PFOS	8.509	507.1 -> 79.9	7431	2.86 µg/L	0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.3%	
13C9-PFNA	7.767	472.1 -> 427.0	14079	1.24 µg/L	0.003
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
d3-MeFOSAA	8.267	573.2 -> 419.0	20589	5.89 µg/L	0.002
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.8%	
13C3-HFPO-DA	6.168	286.9 -> 168.9	14097	9.90 µg/L	0.017
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d3-MeFOSA	10.970	515.0 -> 219.0	5907	2.72 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.8%	
d5-EtFOSAA	8.463	589.2 -> 419.0	18921	5.83 µg/L	-0.010
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.6%	
d7-MeFOSE	10.878	623.2 -> 58.9	24888	27.93 µg/L	0.027
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 111.7%	
d9-EtFOSE	11.112	639.2 -> 58.9	16025	25.95 µg/L	0.015
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
d5-EtFOSA	11.178	531.1 -> 219.0	6769	2.83 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.4%	
Target Compounds					QValue
4:2FTS	5.505	327.1 -> 307.0	159443	52.12 µg/L	96
		327.1 -> 80.9	36301		
6:2FTS	7.048	427.1 -> 407.0	138629	49.32 µg/L	98
		427.1 -> 80.9	28957		
8:2FTS	8.011	527.1 -> 507.0	69223	48.59 µg/L	98
		527.1 -> 80.8	19071		
EtFOSAA	8.476	584.2 -> 419.1	43328	13.62 µg/L	m 95
		584.2 -> 526.0	20878		
FOSA	9.957	498.1 -> 77.9	202883	29.22 µg/L	100
		498.1 -> 478.0	7205		
MeFOSAA	8.268	570.1 -> 419.0	53907	12.36 µg/L	m 95
		570.1 -> 483.0	9231		
PFBA	3.093	212.8 -> 168.9	89079	45.52 µg/L	m 100
PFBS	5.957	298.7 -> 79.9	60707	11.49 µg/L	95
		298.7 -> 98.8	26490		
PFDA	8.235	512.9 -> 469.0	226547	13.22 µg/L	93
		512.9 -> 219.0	29711		
PFDoDA	9.107	613.1 -> 569.0	178932	12.61 µg/L	99
		613.1 -> 319.0	25298		
PFDS	9.383	599.0 -> 79.9	29175	11.55 µg/L	96

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	15307			
PFHpA	6.695	363.1 -> 319.0	262434	14.11	µg/L	99
		363.1 -> 169.0	35855			
PFHpS	8.043	449.0 -> 79.9	38690	11.03	µg/L	99
		449.0 -> 98.9	22329			
PFHxA	5.831	313.0 -> 269.0	163805	13.09	µg/L	99
		313.0 -> 118.9	6526			
PFHxS	7.514	398.7 -> 79.9	44882	11.04	µg/L	m 98
		398.7 -> 98.9	24130			
PFNA	7.643	463.0 -> 419.0	331390	34.07	µg/L	m 99
		463.0 -> 219.0	71521			
PFNS	8.963	548.8 -> 79.9	41178	11.45	µg/L	97
		548.8 -> 98.9	24492			
PFOA	7.275	413.0 -> 369.0	669855	27.16	µg/L	m 98
		413.0 -> 169.0	95441			
PFOS	8.510	498.9 -> 79.9	42740	11.59	µg/L	m 95
		498.9 -> 98.8	25435			
PFPeA	4.650	263.0 -> 219.0	212626	25.85	µg/L	100
PFPeS	6.895	349.1 -> 79.9	56759	11.81	µg/L	98
		349.1 -> 98.9	27347			
PFTeDA	9.859	713.1 -> 669.0	180410	12.52	µg/L	100
		713.1 -> 168.9	12499			
PFTrDA	9.503	663.0 -> 619.0	179862	12.70	µg/L	97
		663.0 -> 168.9	15292			
PFUnDA	8.689	563.1 -> 519.0	194172	13.27	µg/L	98
		563.1 -> 269.1	27391			
11Cl-PF3OUdS	9.654	630.9 -> 450.9	420754	50.54	µg/L	94
		632.9 -> 452.9	130445			
9Cl-PF3ONS	8.853	530.8 -> 351.0	714789	47.25	µg/L	97
		532.8 -> 353.0	237397			
ADONA	6.930	376.9 -> 250.9	1385483	46.81	µg/L	95
		376.9 -> 84.8	346771			
HFPO-DA	6.169	284.9 -> 168.9	75521	53.62	µg/L	100
		284.9 -> 184.9	8984			
3:3FTCA	4.026	241.0 -> 177.0	26554	63.51	µg/L	98
		241.0 -> 117.0	3903			
5:3FTCA	6.421	341.0 -> 237.1	851065	311.45	µg/L	94
		341.0 -> 217.0	751703			
7:3FTCA	7.745	441.0 -> 316.9	415656	317.11	µg/L	74
		441.0 -> 336.9	846862			
EtFOSA	11.192	526.0 -> 219.0	98750	30.06	µg/L	84
		526.0 -> 169.0	115994			
EtFOSE	11.126	630.0 -> 58.9	100931	154.19	µg/L	100
MeFOSA	10.972	511.9 -> 219.0	93406	32.12	µg/L	83
		511.9 -> 169.0	110608			
MeFOSE	10.891	616.1 -> 58.9	149547	146.29	µg/L	100
PFDoS	10.073	699.1 -> 79.9	17844	11.67	µg/L	94
		699.1 -> 98.8	11012			
NFDHA	5.710	295.0 -> 201.0	20661	23.99	µg/L	93
		295.0 -> 84.9	9109			
PFMBA	5.041	279.0 -> 85.1	69614	25.20	µg/L	100
PFMPA	3.742	229.0 -> 84.9	60701	25.22	µg/L	100
PFEESA	6.436	314.8 -> 134.9	409013	22.74	µg/L	100
		314.8 -> 82.9	10595			

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

7.7.4
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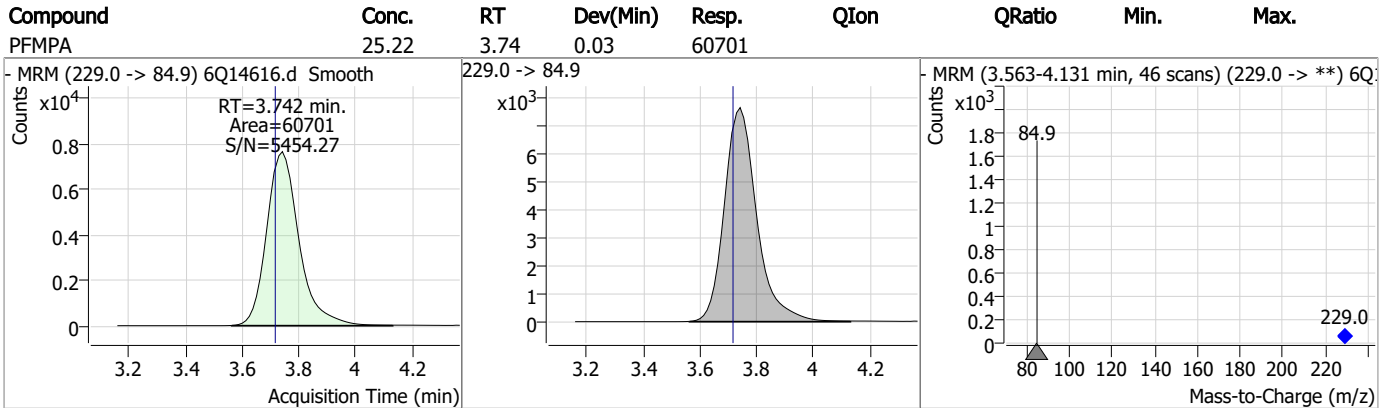
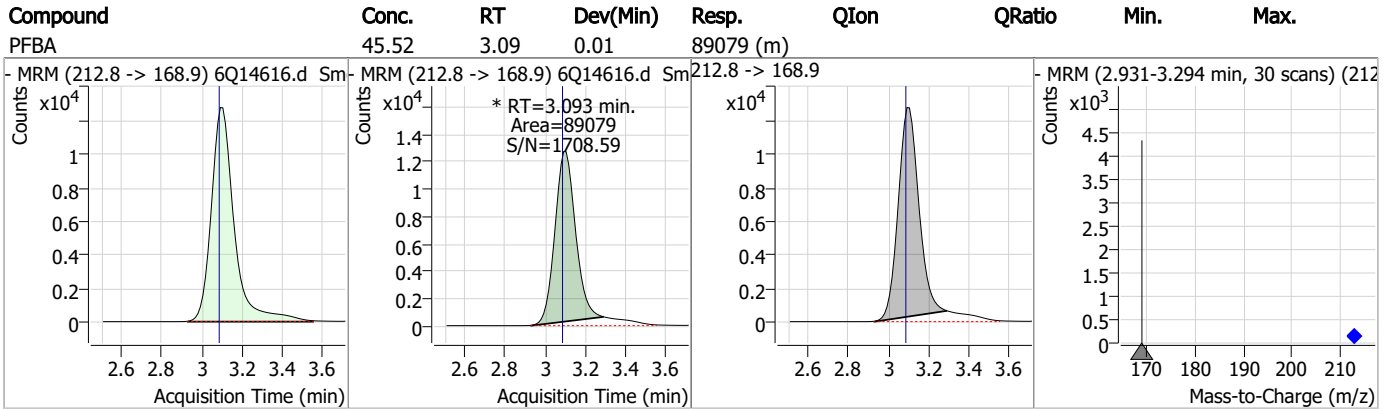
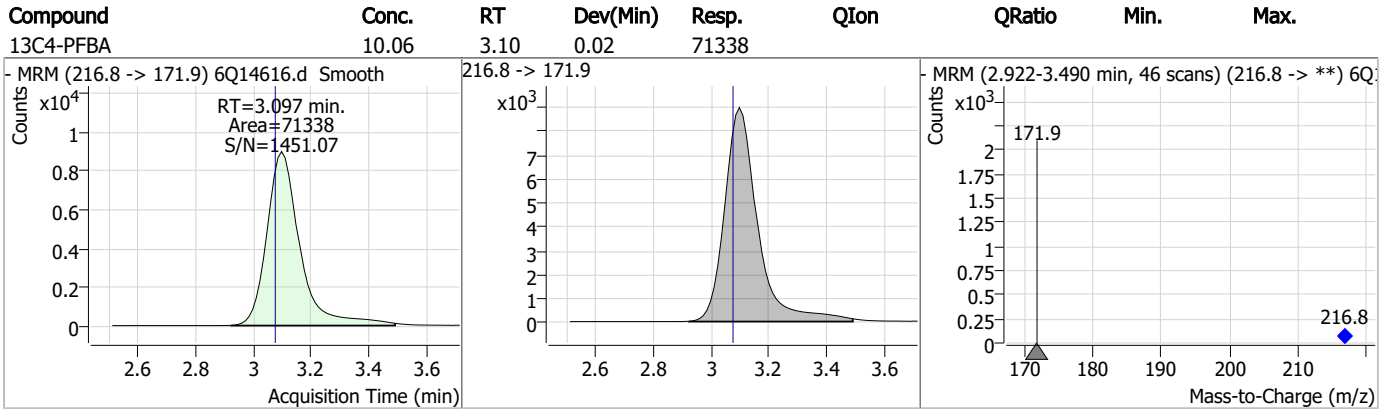
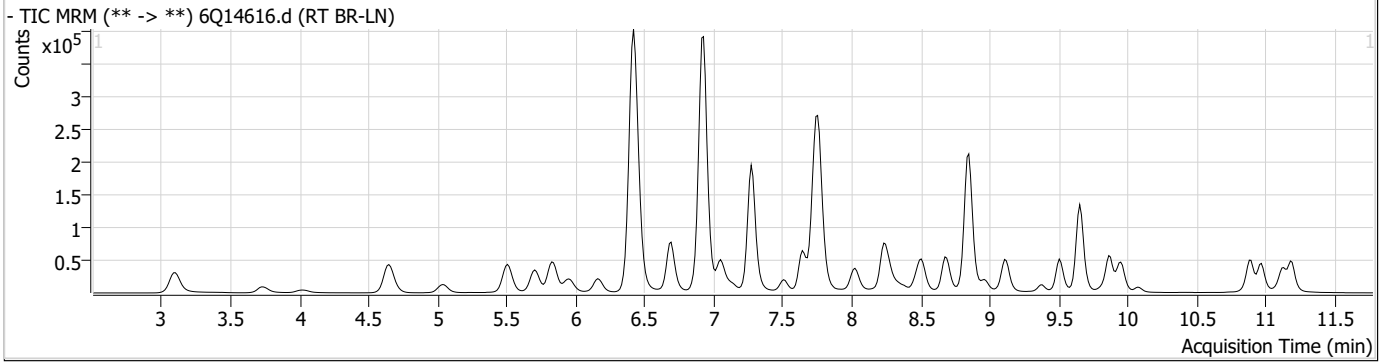
Perfluorinated Compounds by LC/MS/MS

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

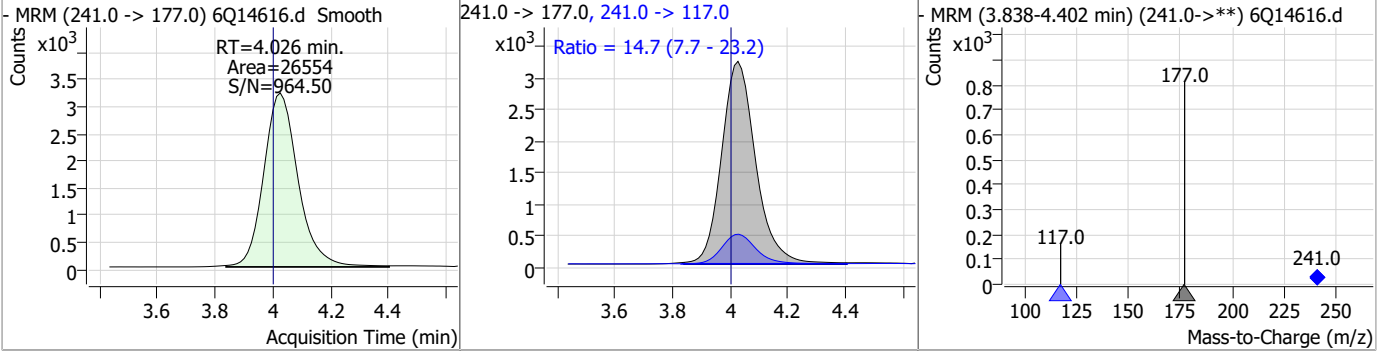
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Perfluorinated Compounds by LC/MS/MS

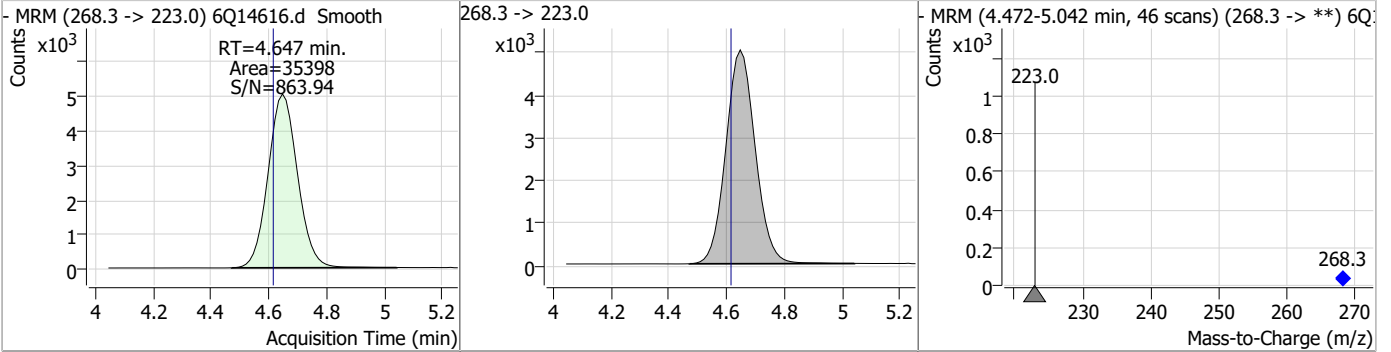


Perfluorinated Compounds by LC/MS/MS

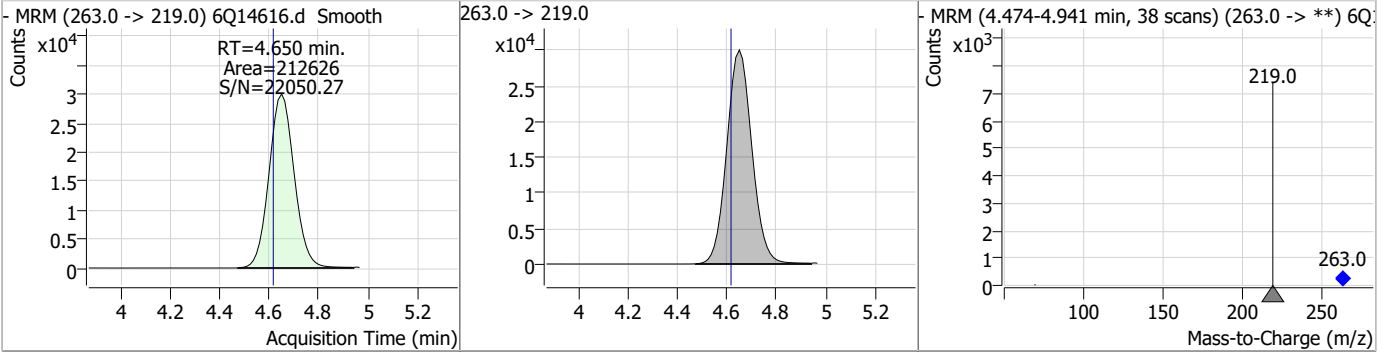
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	63.51	4.03	0.02	26554	241.0 -> 117.0	14.7	7.7	23.2



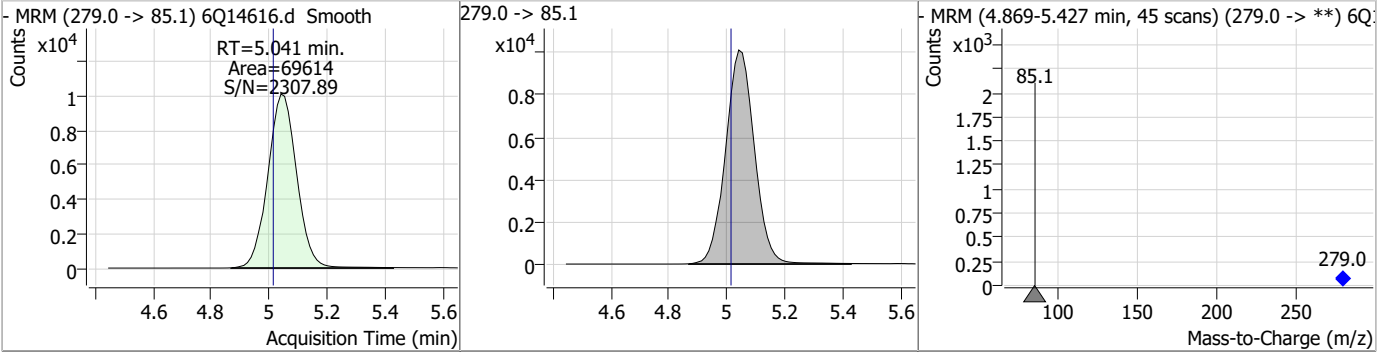
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.80	4.65	0.03	35398				



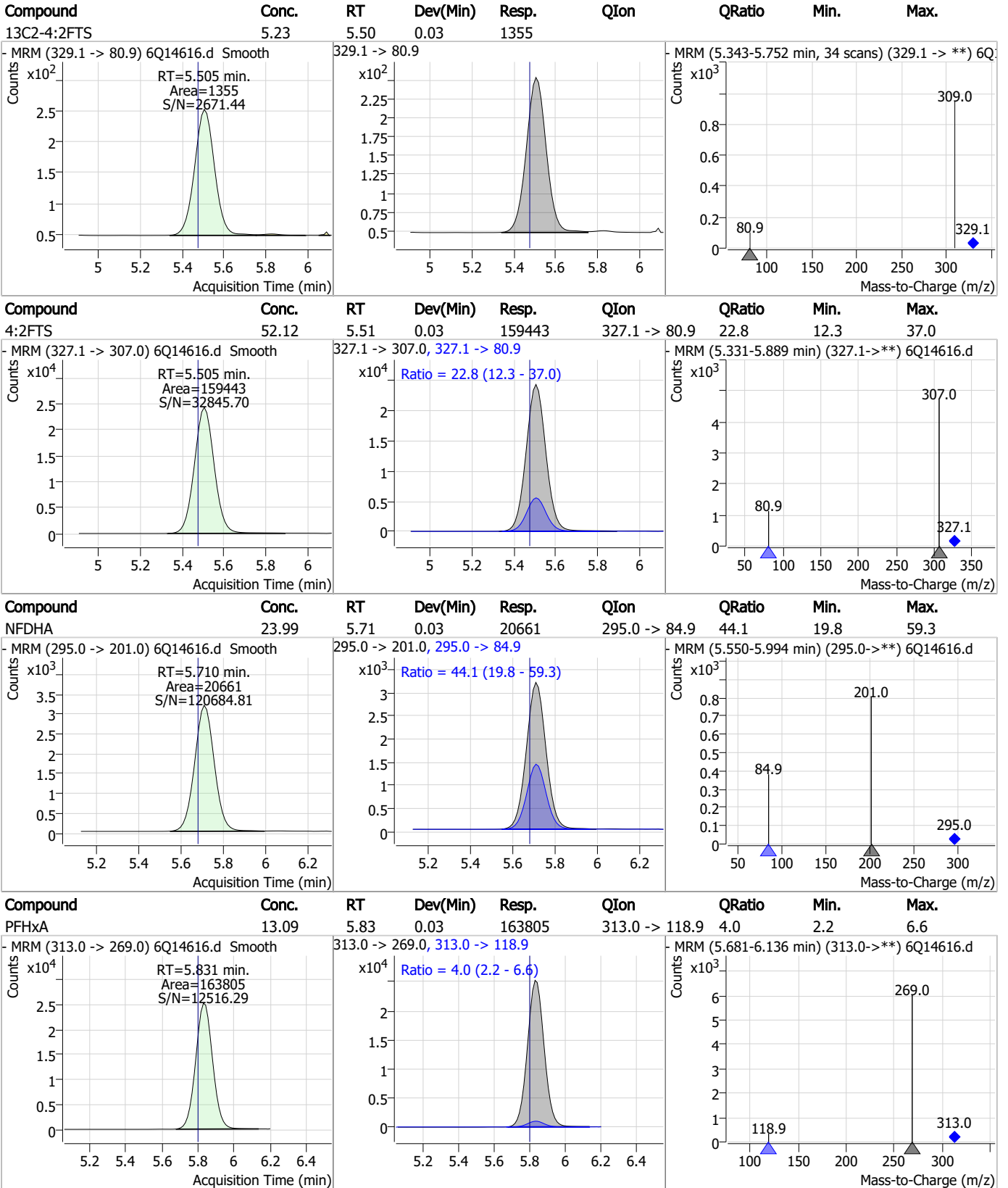
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	25.85	4.65	0.03	212626				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	25.20	5.04	0.03	69614				



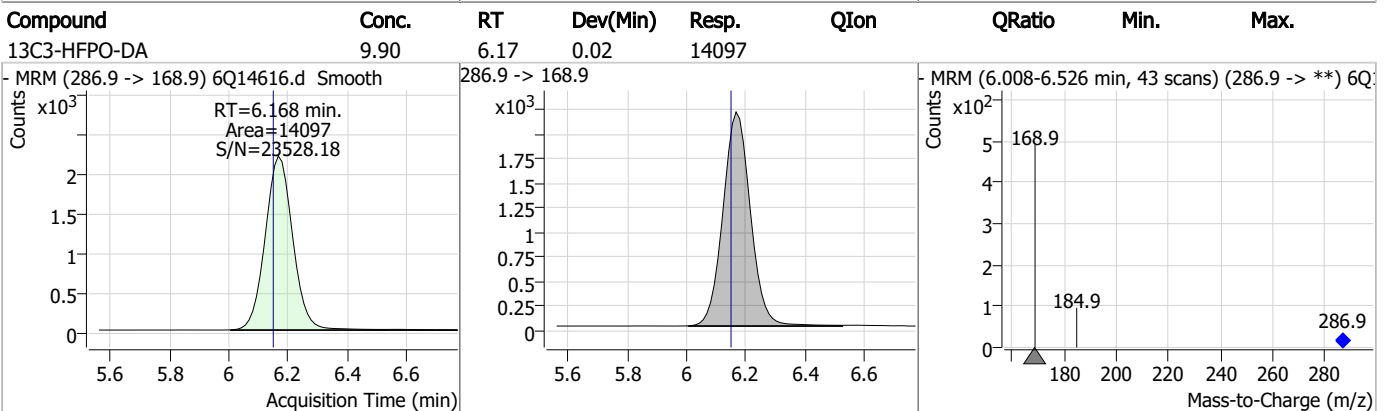
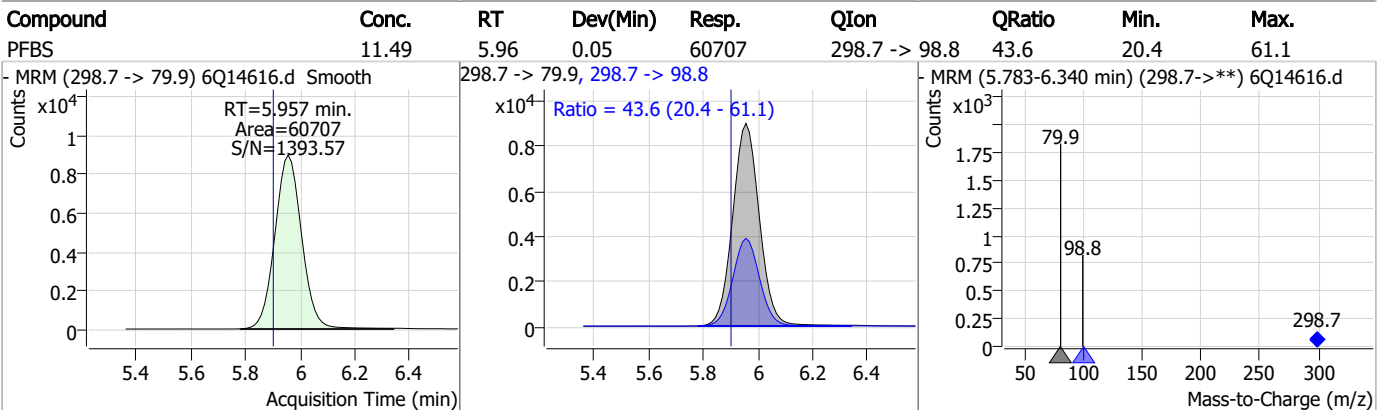
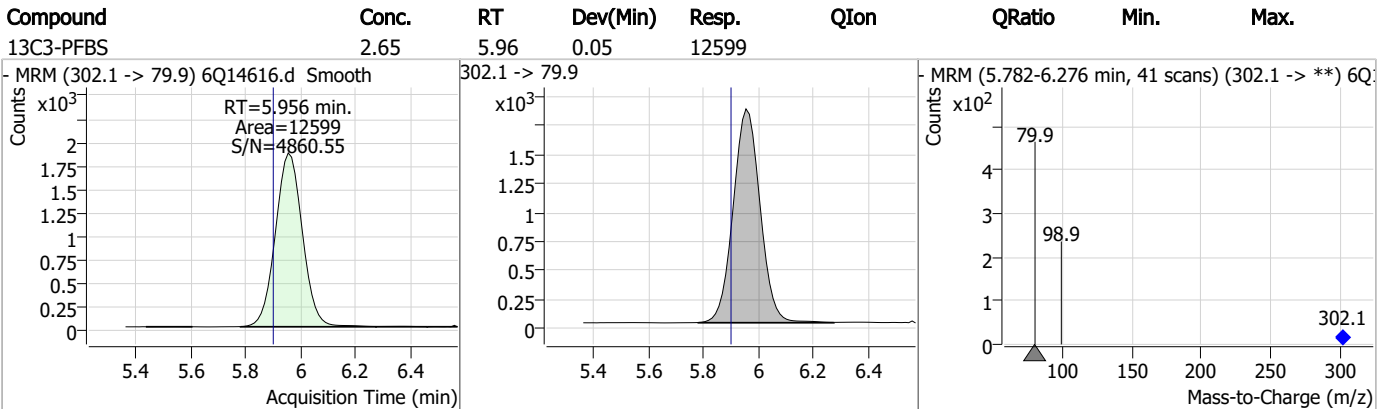
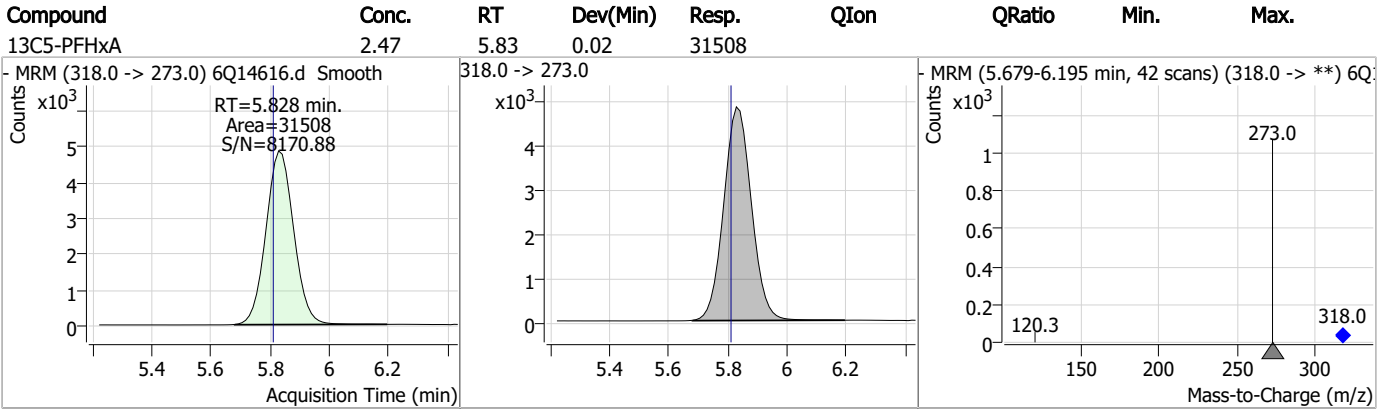
Perfluorinated Compounds by LC/MS/MS



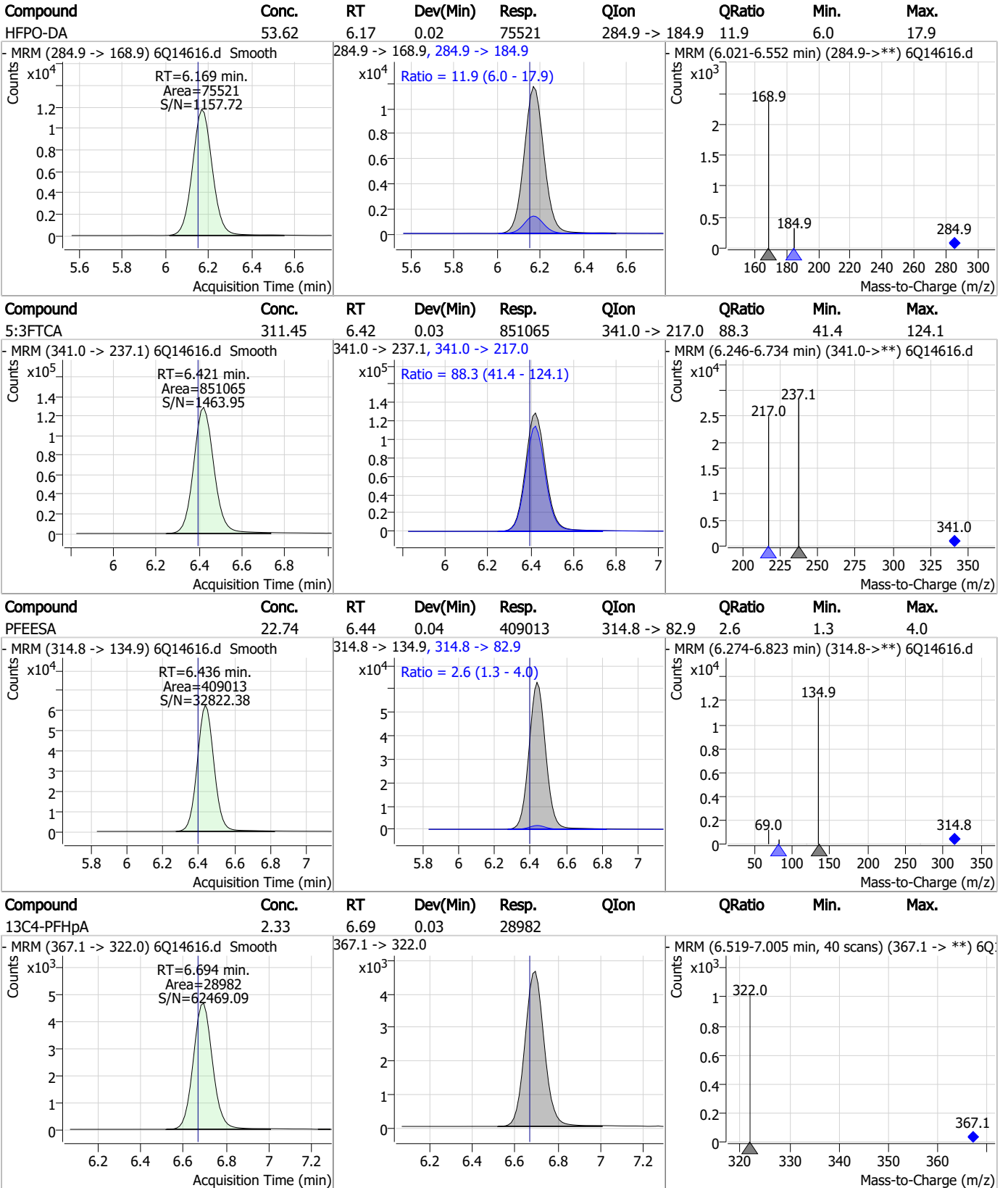
7.7.4

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Perfluorinated Compounds by LC/MS/MS



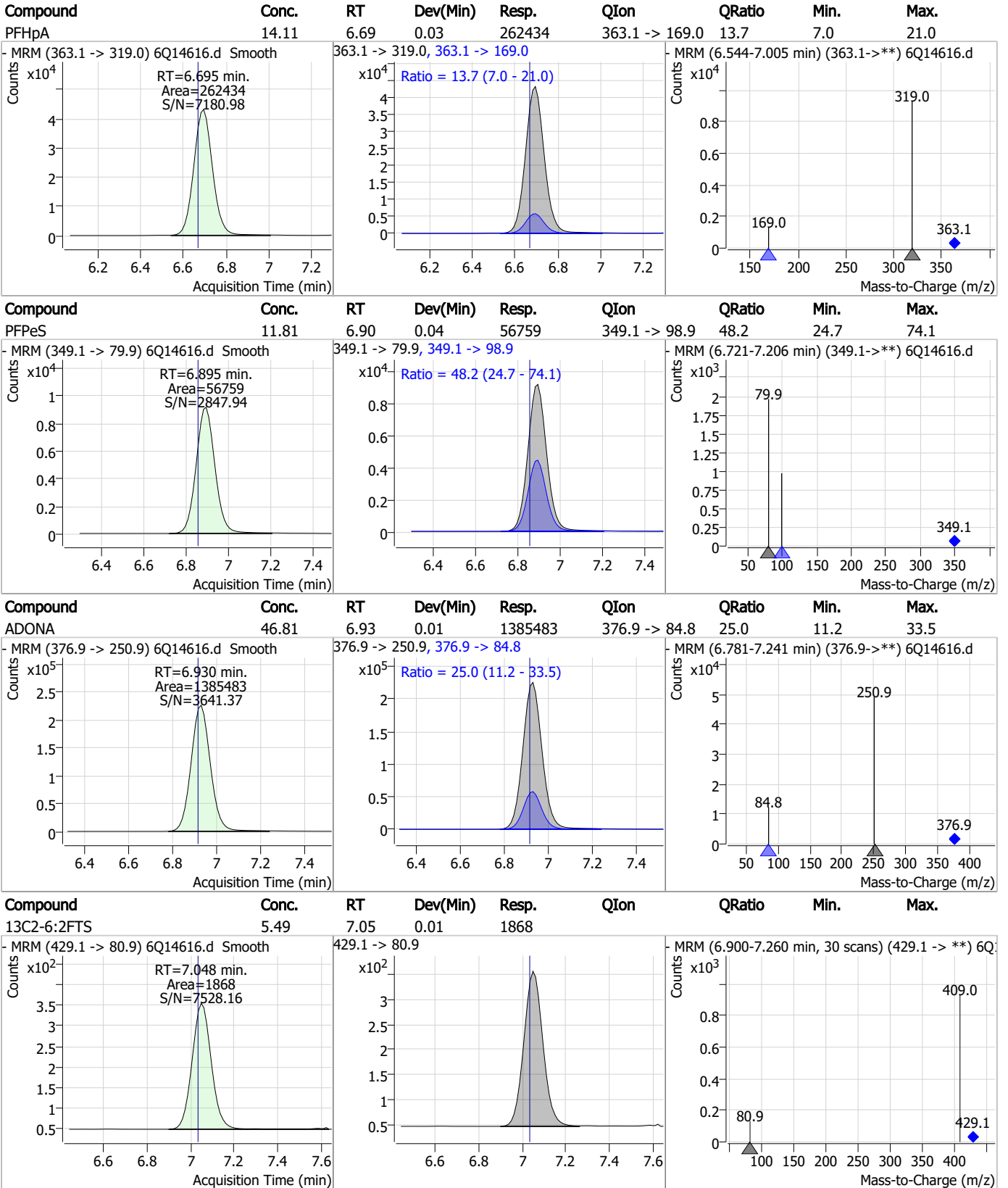
Perfluorinated Compounds by LC/MS/MS



7.7.4

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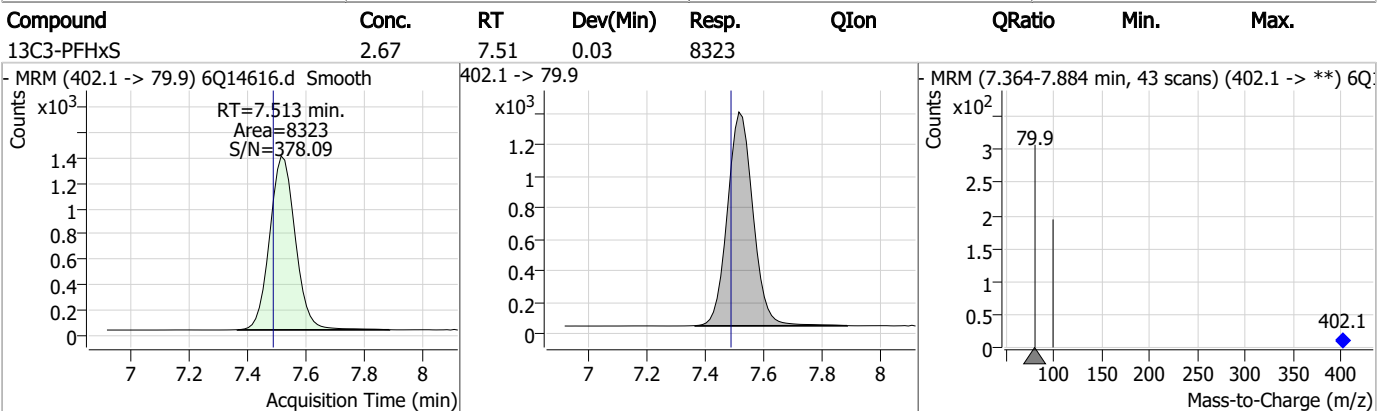
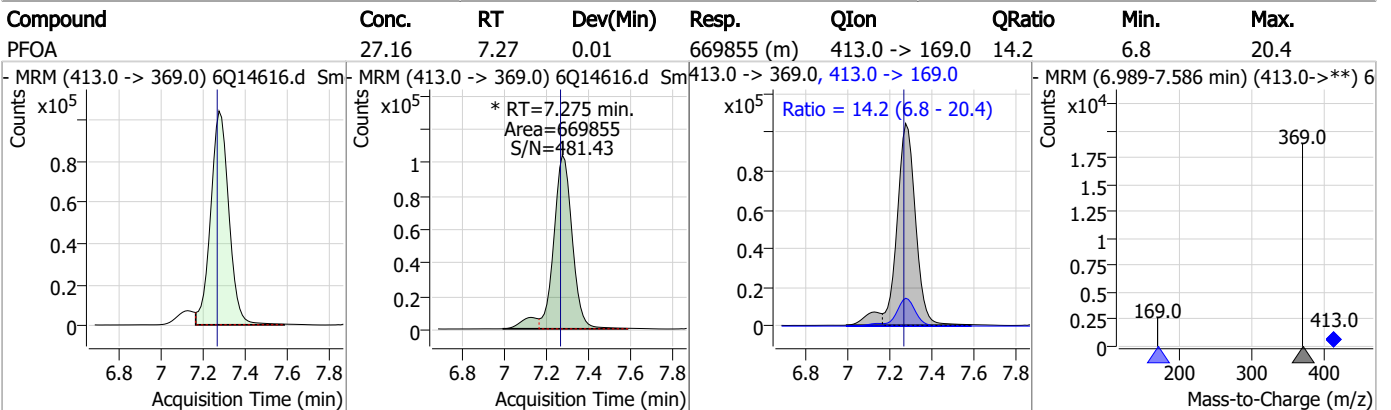
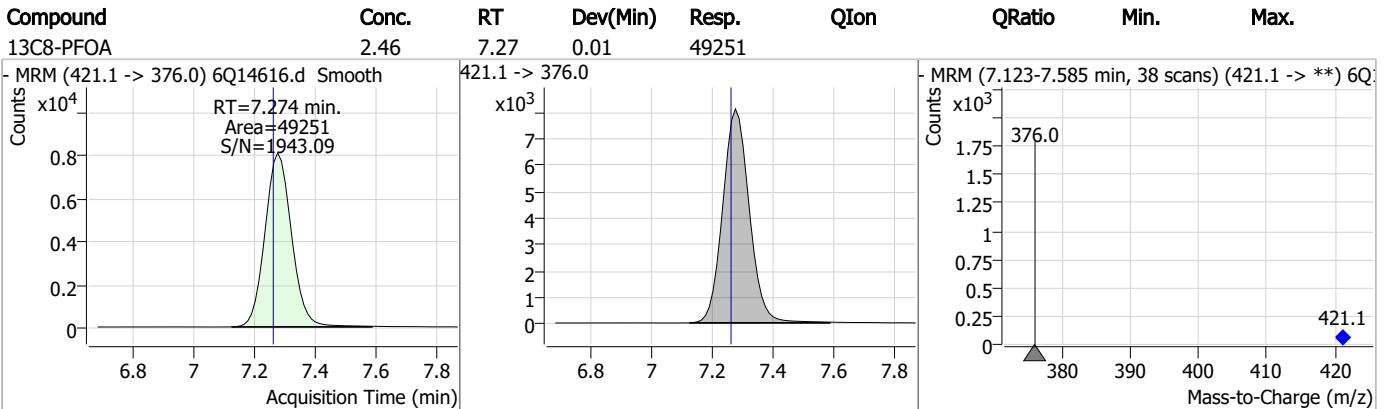
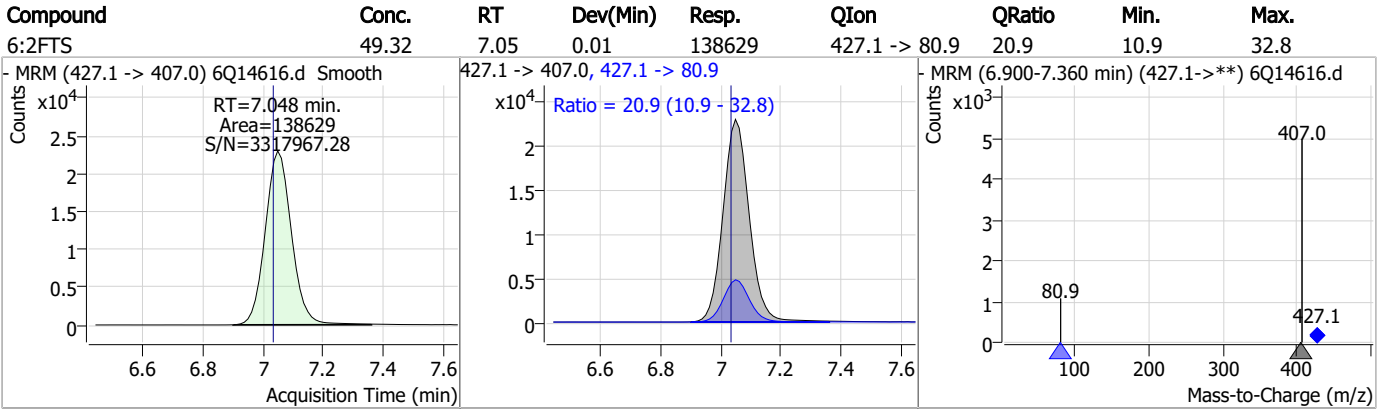
Perfluorinated Compounds by LC/MS/MS



7.7.4

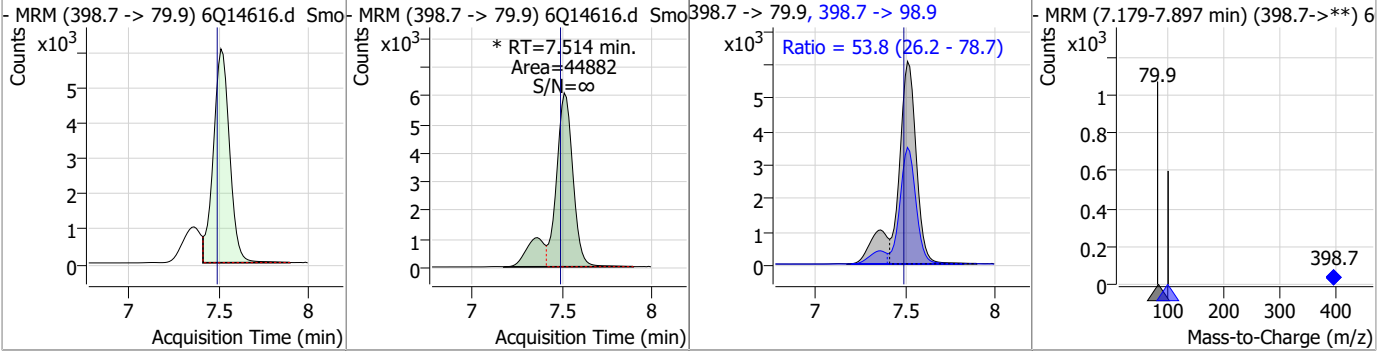
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Perfluorinated Compounds by LC/MS/MS

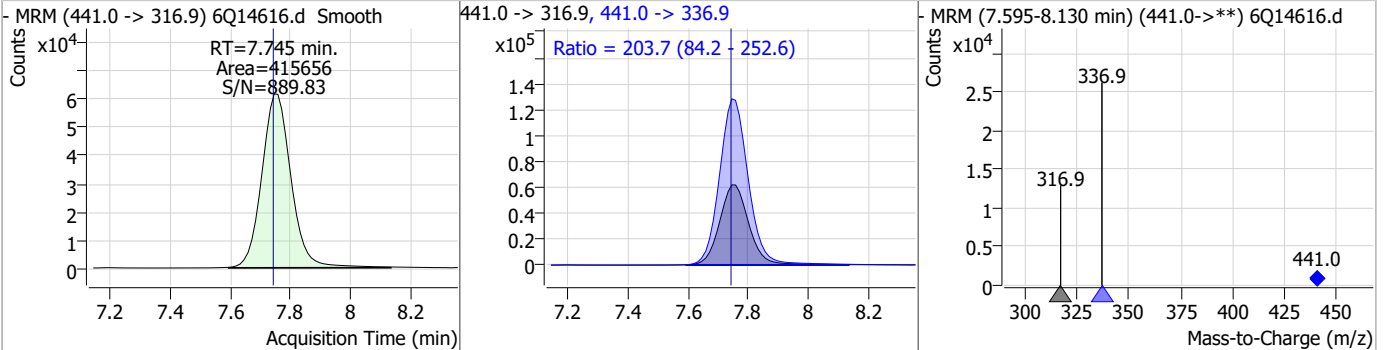


Perfluorinated Compounds by LC/MS/MS

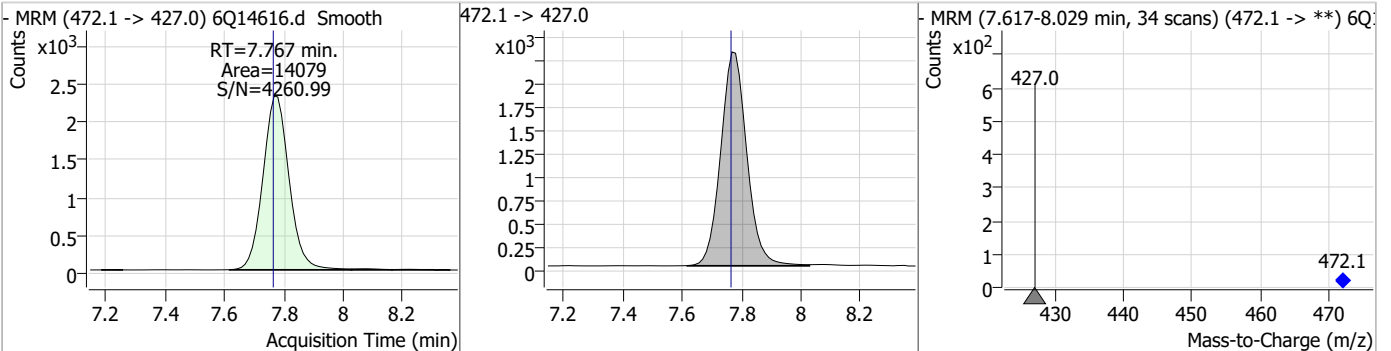
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	11.04	7.51	0.03	44882 (m)	398.7 -> 98.9	53.8	26.2	78.7



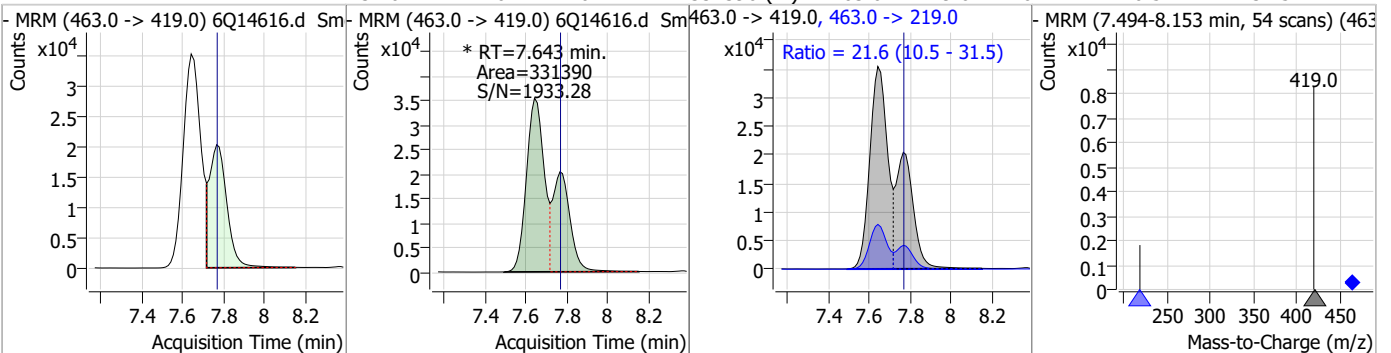
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	317.11	7.75	0.00	415656	441.0 -> 336.9	203.7	84.2	252.6



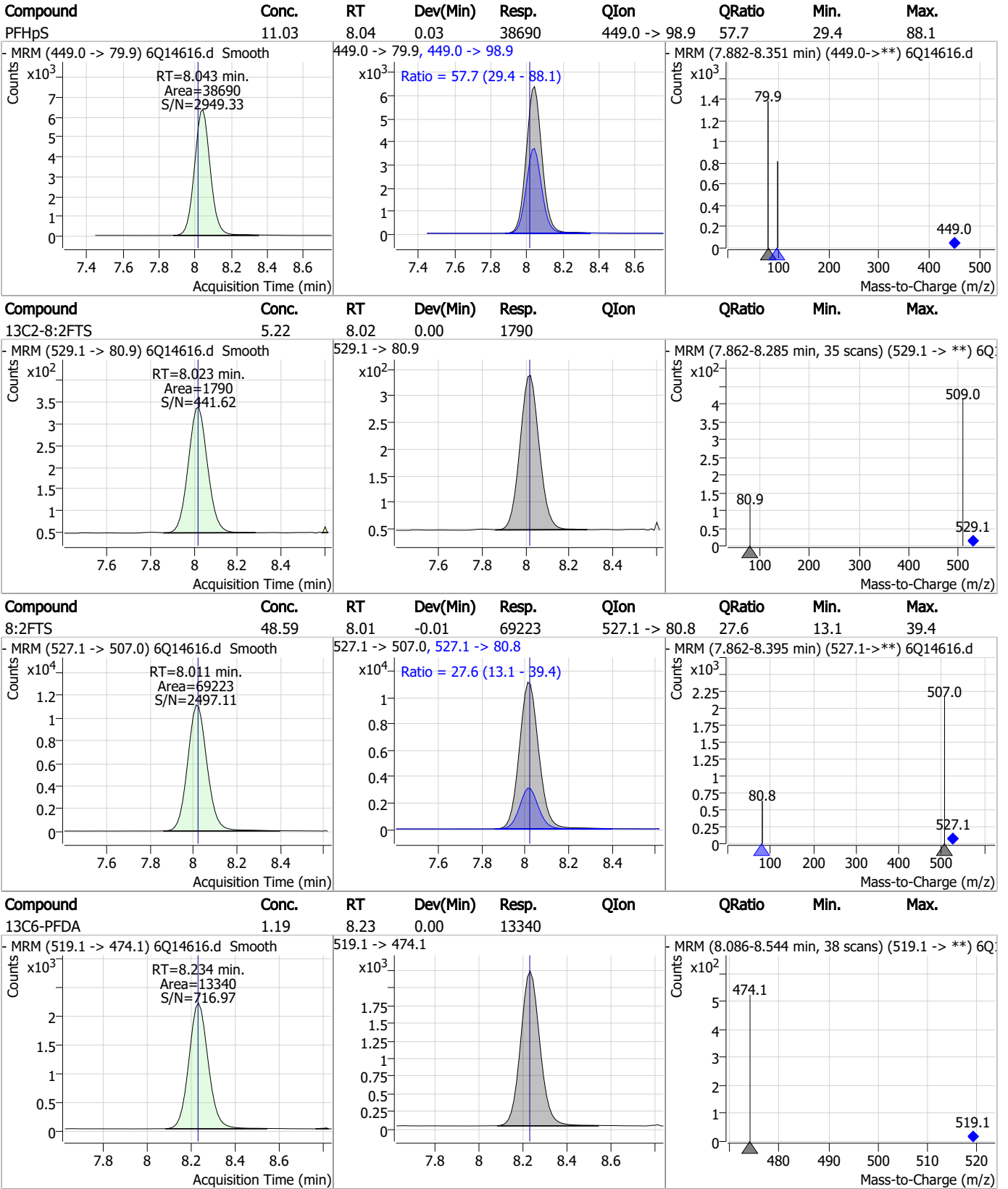
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.24	7.77	0.00	14079				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	34.07	7.64	-0.12	331390 (m)	463.0 -> 219.0	21.6	10.5	31.5



Perfluorinated Compounds by LC/MS/MS

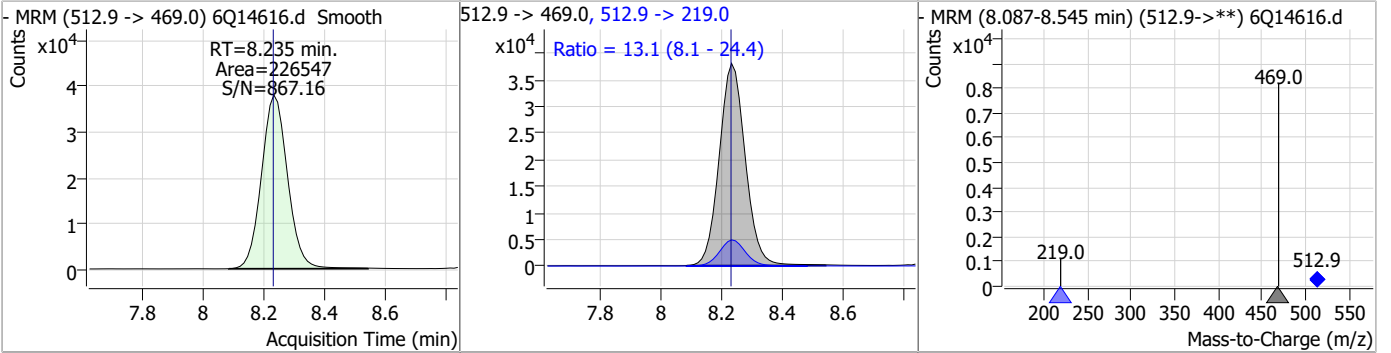


7.7.4

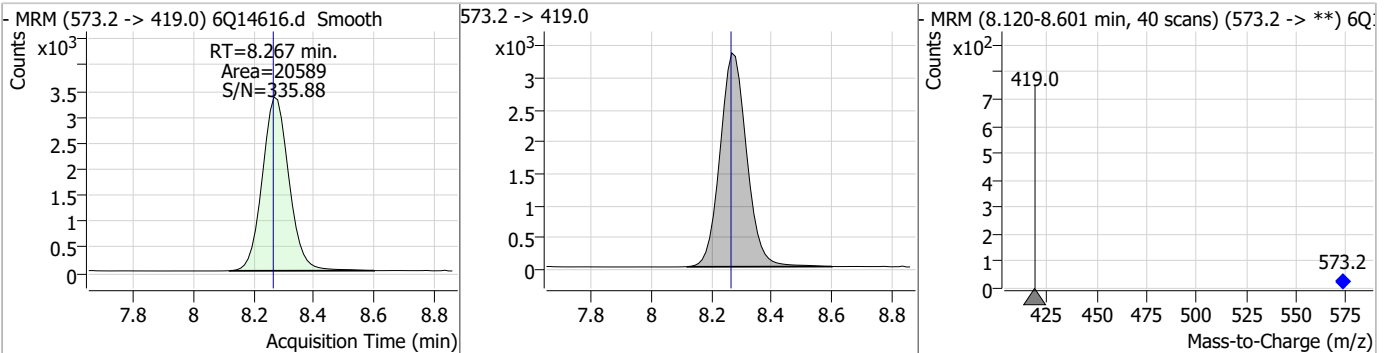
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Perfluorinated Compounds by LC/MS/MS

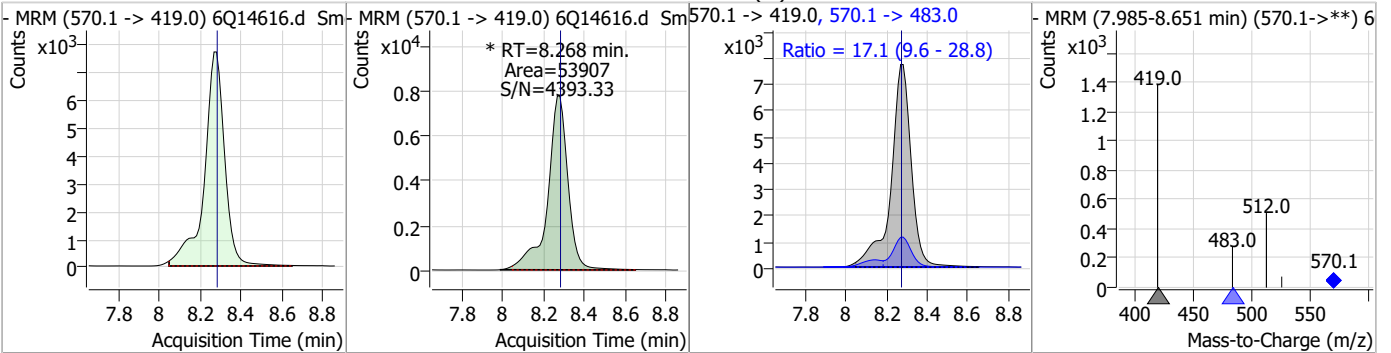
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	13.22	8.23	0.00	226547	512.9 -> 219.0	13.1	8.1	24.4



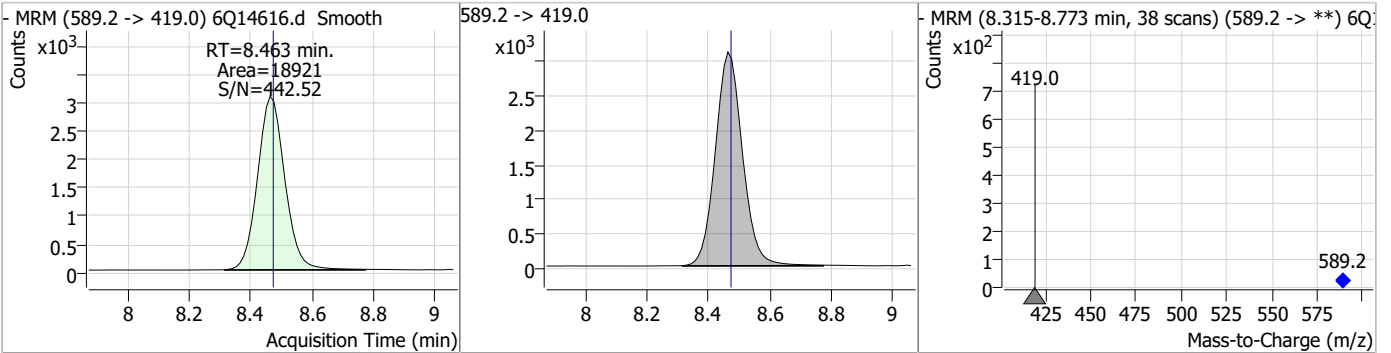
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.89	8.27	0.00	20589				



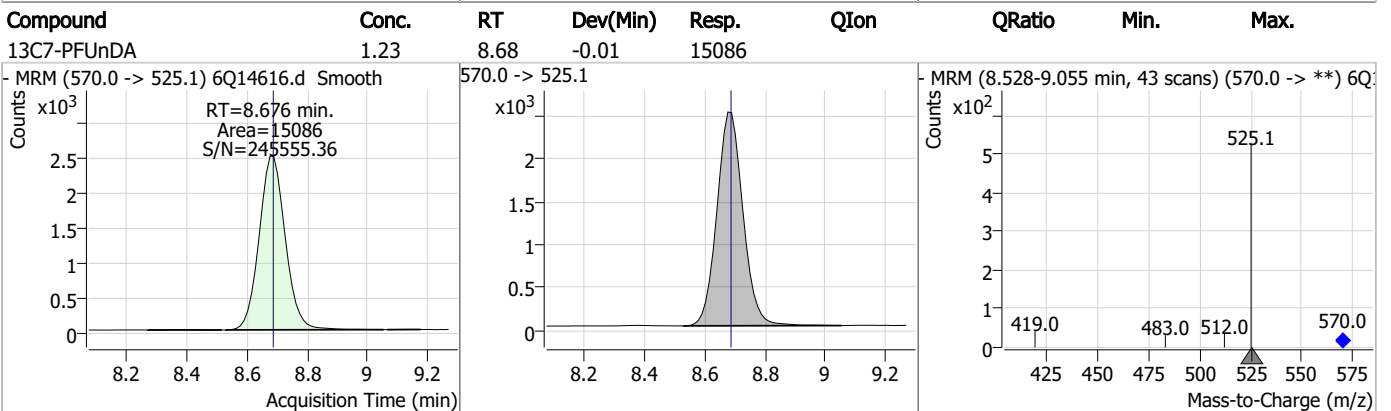
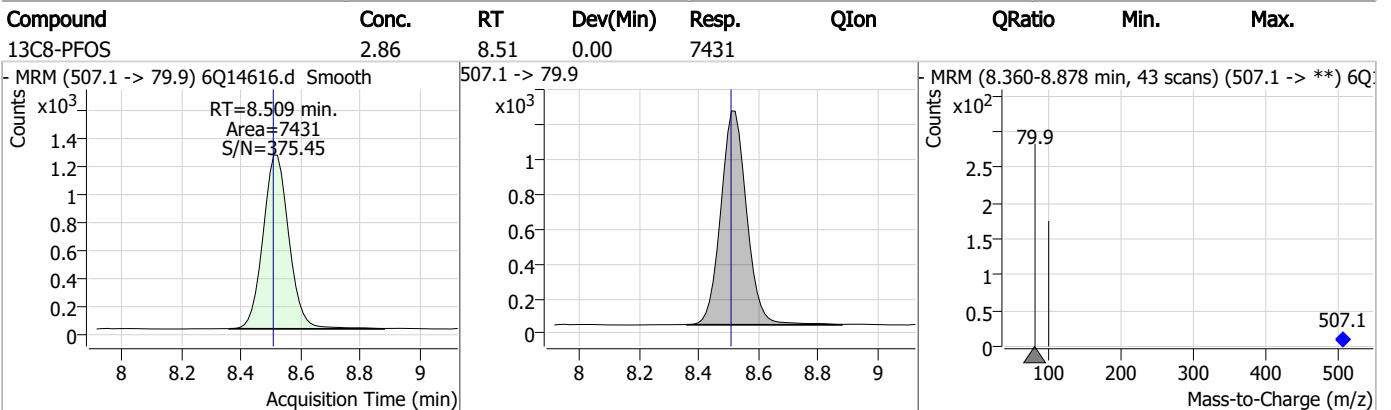
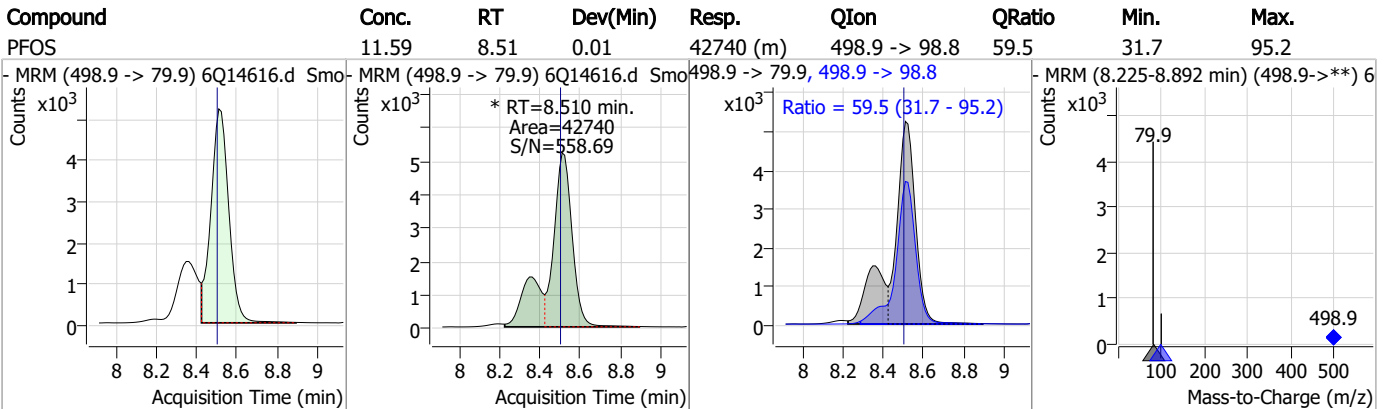
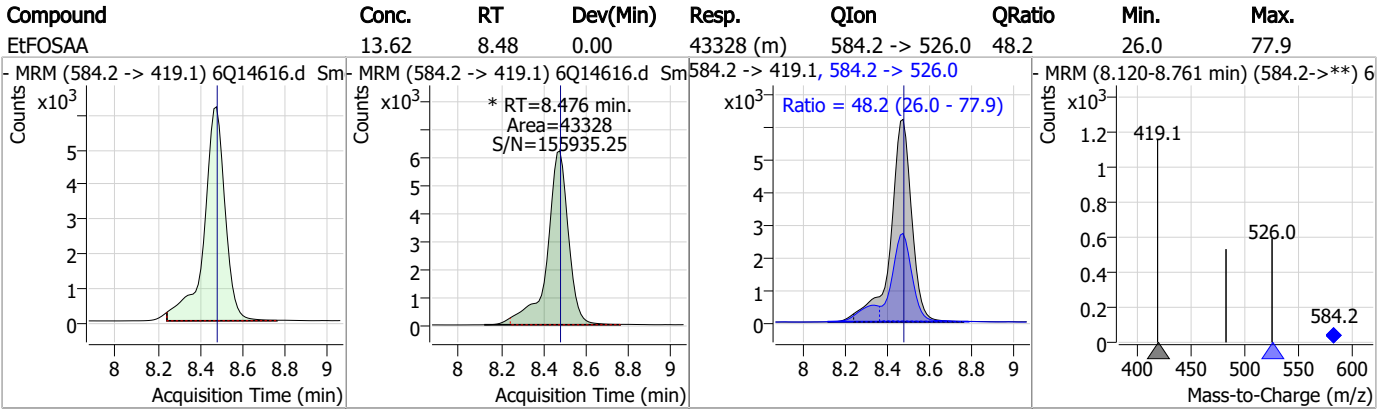
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	12.36	8.27	-0.01	53907 (m)	570.1 -> 483.0	17.1	9.6	28.8



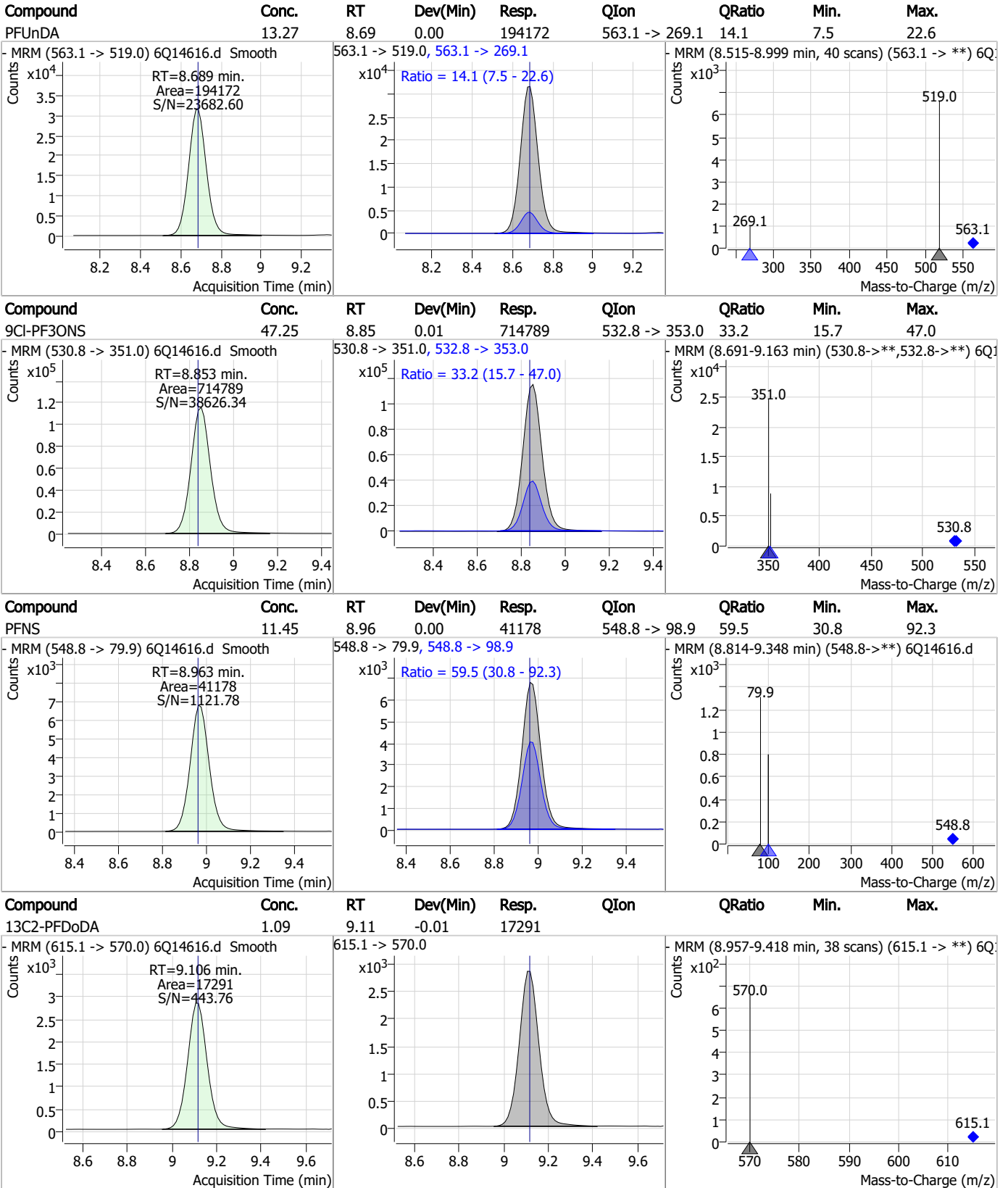
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.83	8.46	-0.01	18921				



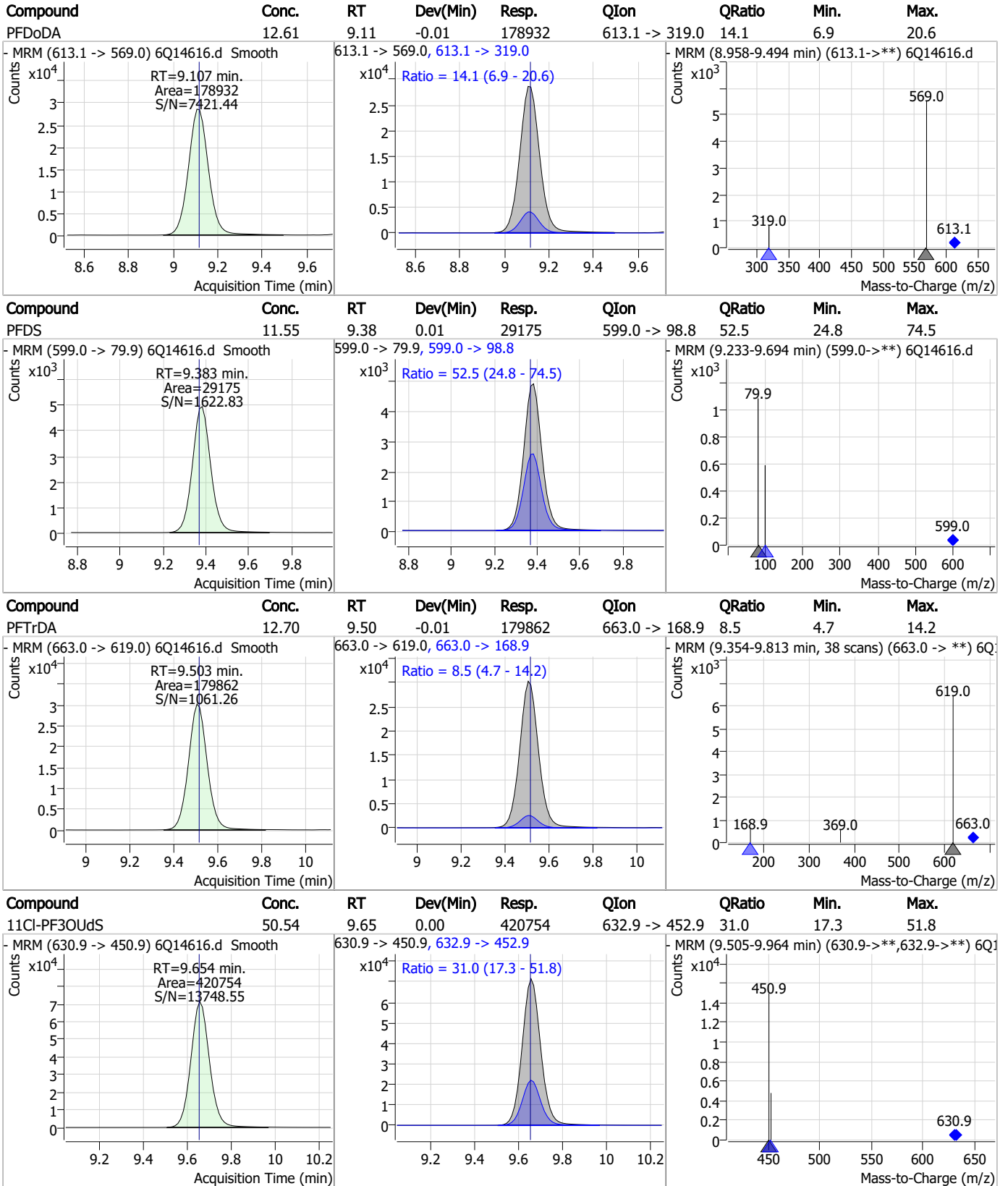
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

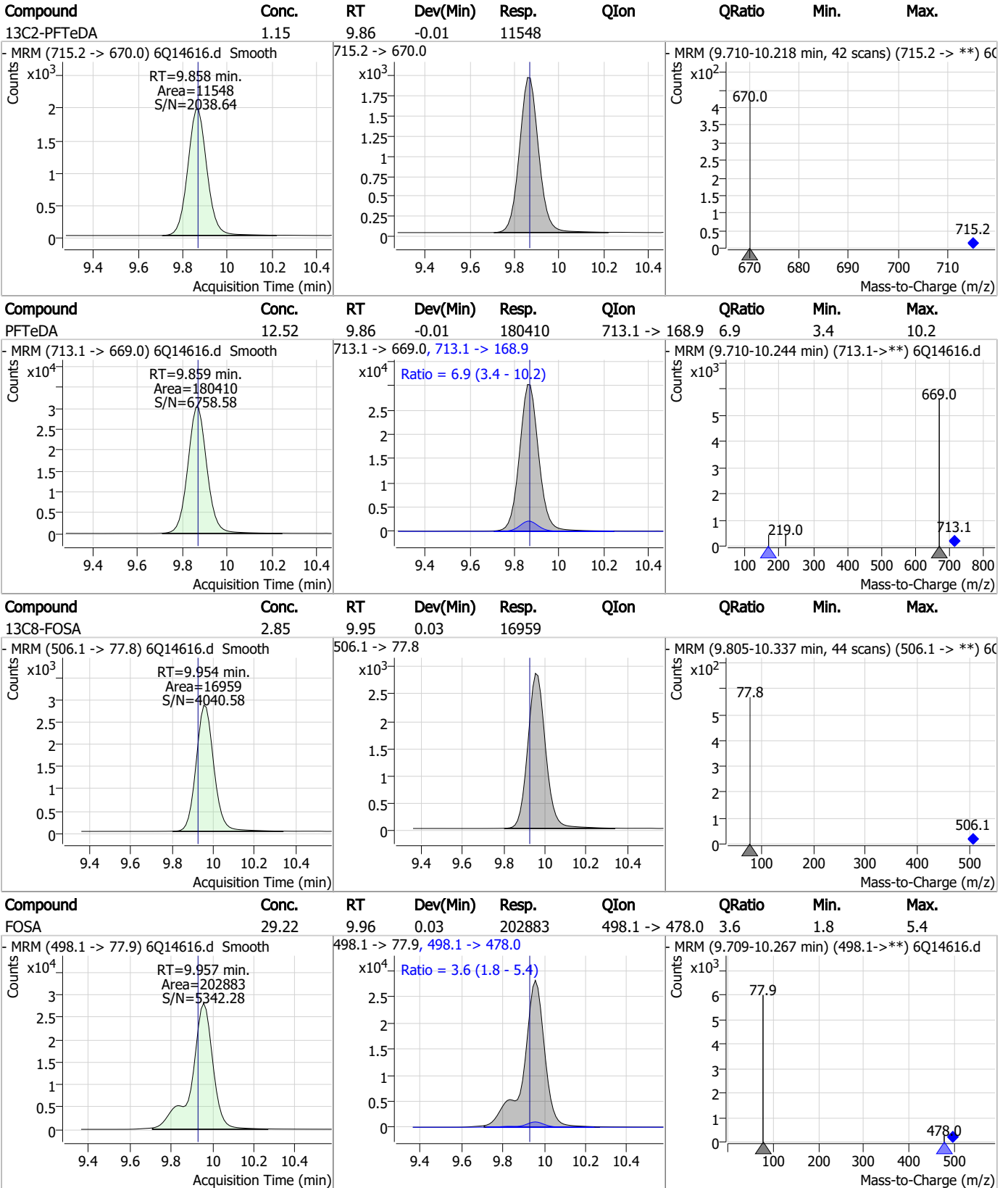


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Perfluorinated Compounds by LC/MS/MS

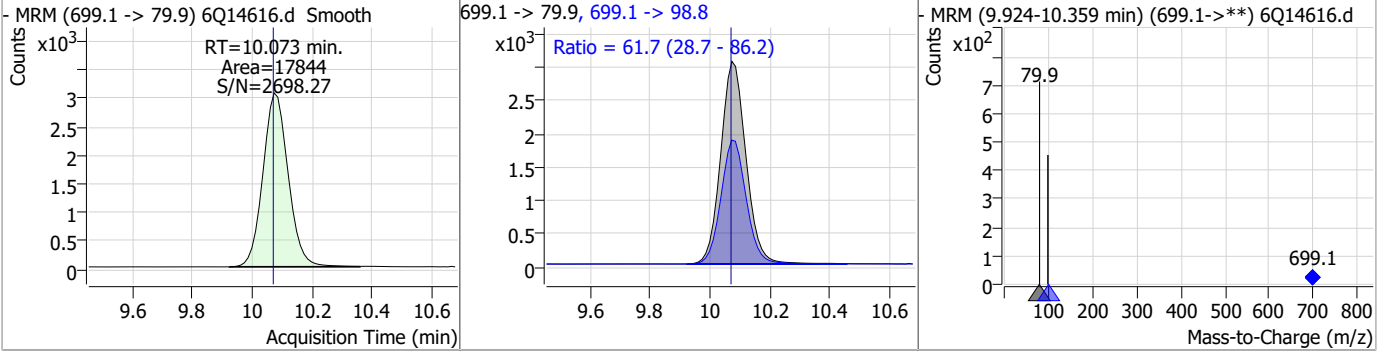


7.7.4

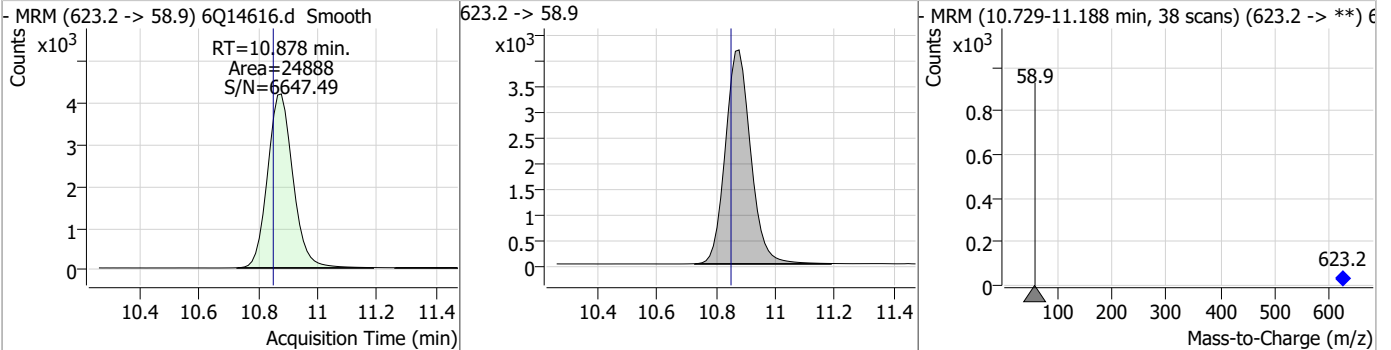
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Perfluorinated Compounds by LC/MS/MS

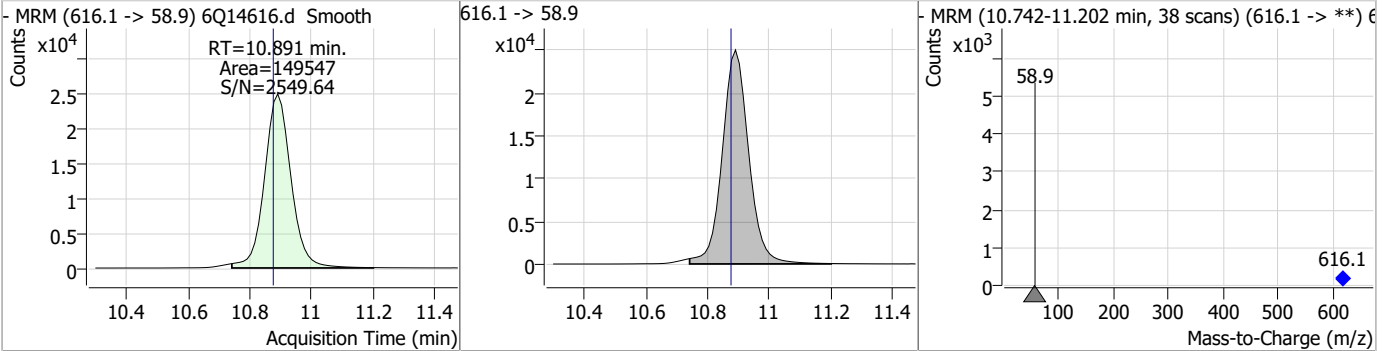
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	11.67	10.07	0.00	17844	699.1 -> 98.8	61.7	28.7	86.2



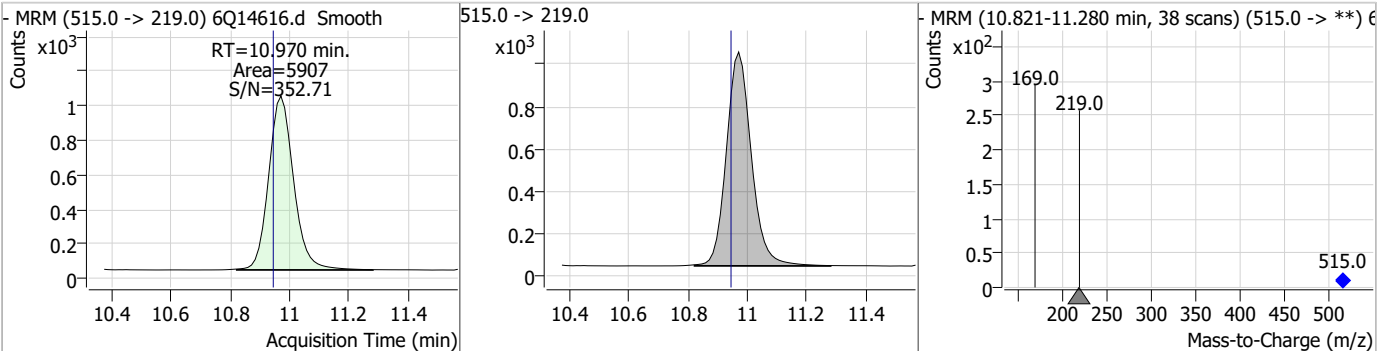
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.93	10.88	0.03	24888				



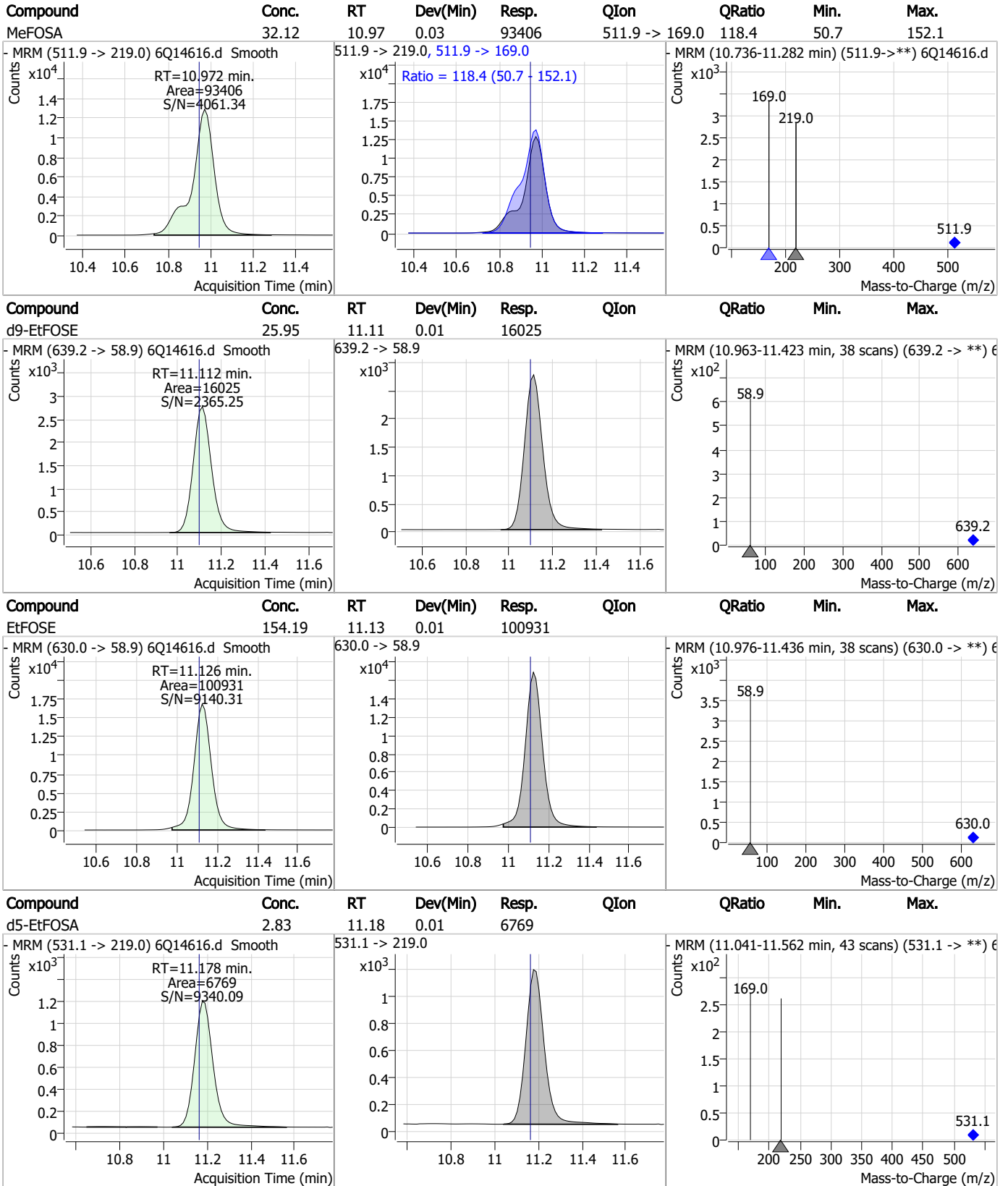
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	146.29	10.89	0.01	149547				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.72	10.97	0.03	5907				



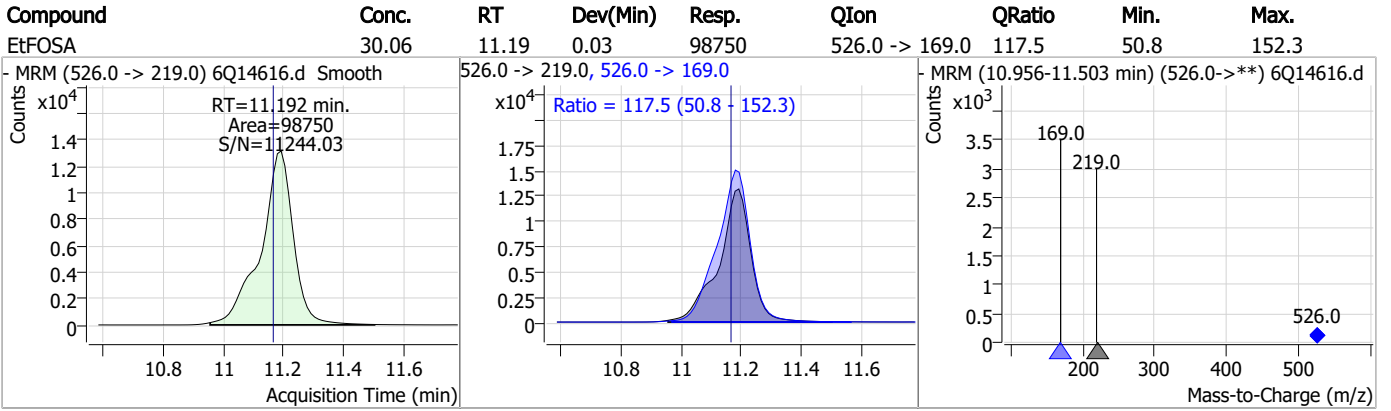
Perfluorinated Compounds by LC/MS/MS



7.7.4

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Perfluorinated Compounds by LC/MS/MS



7.7.4

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Manual Integration Approval Summary

Sample Number: S6Q221-RT Method: EPA DRAFT 1633
Lab FileID: 6Q14616.D Analyst approved: 03/10/23 10:37 Anna Ludwig
Injection Time: 03/09/23 12:27 Supervisor approved: 03/10/23 14:34 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanoic acid	375-22-4		3.09	Split peak
Perfluorooctanoic acid	335-67-1		7.28	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.51	Split peak
Perfluorononanoic acid	375-95-1		7.64	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.51	Split peak

7.7.4.1
7

QQQ Check Tune Report



Instrument Name LCMS Q6
MS Model G6495B
MS Instrument Serial SG1752D103
Software_Firmware Version 10.1.67, FW: A.00.08.112
Tune Date & Time 27 February 2023 14:10:53
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.80E+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

7.8.1

7

QQQ Check Tune Report



Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.91	-0.08	Pass	0.70	0.74	0.04	Pass	303255
302.00	302.00	0.00	Pass	0.70	0.76	0.06	Pass	1205628
601.98	601.97	-0.01	Pass	0.70	0.70	0.00	Pass	2108694
1033.99	1033.89	-0.10	Pass	0.70	0.77	0.07	Pass	833918
1633.95	1633.93	-0.02	Pass	0.70	0.83	0.13	Pass	494832
2233.91	2233.93	0.02	Pass	0.70	0.69	-0.01	Pass	186846

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.04	0.04	Pass	0.70	0.64	-0.06	Pass	118301
112.99	112.97	-0.02	Pass	0.70	0.71	0.01	Pass	544875
302.00	301.97	-0.03	Pass	0.70	0.64	-0.06	Pass	1519735
601.98	601.90	-0.08	Pass	0.70	0.76	0.06	Pass	1717764
1033.99	1033.93	-0.06	Pass	0.70	0.72	0.02	Pass	893437
1633.95	1633.92	-0.03	Pass	0.70	0.72	0.02	Pass	741801
2233.91	2233.84	-0.07	Pass	0.70	0.72	0.02	Pass	278440

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.85	-0.14	Pass	1.20	1.62	0.42	Pass	505492
302.00	301.95	-0.05	Pass	1.20	1.62	0.42	Pass	1893148
601.98	601.91	-0.07	Pass	1.20	1.63	0.43	Pass	3132099
1033.99	1033.87	-0.12	Pass	1.20	1.51	0.31	Pass	1299341
1633.95	1633.84	-0.11	Pass	1.20	1.36	0.16	Pass	909608
2233.91	2233.88	-0.03	Pass	1.20	1.26	0.06	Pass	336598

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.01	0.01	Pass	1.20	1.15	-0.05	Pass	177750
112.99	112.95	-0.04	Pass	1.20	1.19	-0.01	Pass	789256
302.00	302.02	0.02	Pass	1.20	1.26	0.06	Pass	2017642
601.98	601.97	-0.01	Pass	1.20	1.52	0.32	Pass	2674999
1033.99	1033.97	-0.02	Pass	1.20	1.37	0.17	Pass	1734213
1633.95	1633.87	-0.08	Pass	1.20	1.45	0.25	Pass	1838329
2233.91	2233.88	-0.03	Pass	1.20	1.34	0.14	Pass	789914

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.69	-0.30	Pass	2.50	2.39	-0.11	Pass	627286
302.00	301.74	-0.26	Pass	2.50	2.74	0.24	Pass	2672370
601.98	601.66	-0.32	Pass	2.50	2.85	0.35	Pass	4439174
1033.99	1033.82	-0.17	Pass	2.50	2.77	0.27	Pass	2549025
1633.95	1633.82	-0.13	Pass	2.50	2.62	0.12	Pass	1870577
2233.91	2233.64	-0.27	Pass	2.50	2.34	-0.16	Pass	1054025

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.04	0.04	Pass	2.50	2.53	0.03	Pass	221604
112.99	113.02	0.03	Pass	2.50	2.57	0.07	Pass	986655
302.00	301.96	-0.04	Pass	2.50	2.63	0.13	Pass	3096896
601.98	602.02	0.04	Pass	2.50	2.78	0.28	Pass	4745520
1033.99	1033.98	-0.01	Pass	2.50	2.60	0.10	Pass	3029039
1633.95	1634.04	0.09	Pass	2.50	2.69	0.19	Pass	3551985
2233.91	2233.84	-0.07	Pass	2.50	2.54	0.04	Pass	2062817

7.8.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14517.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 1:00:10 PM
 Sample Name : ic220-1
 Vial : P1-A2
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.075	216.8 -> 171.9	76346	10.00 µg/L	0.000
M5-PFPeA	4.603	268.3 -> 223.0	37630	5.00 µg/L	-0.012
M5-PFHxA	5.786	318.0 -> 273.0	31032	2.50 µg/L	-0.024
M4-PFHpA	6.668	367.1 -> 322.0	29522	2.50 µg/L	0.000
M8-PFOA	7.259	421.1 -> 376.0	51028	2.50 µg/L	0.000
M9-PFNA	7.764	472.1 -> 427.0	14121	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	13503	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	14654	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	19617	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	11000	1.25 µg/L	0.000
M8-FOSA	9.902	506.1 -> 77.8	16195	2.50 µg/L	-0.024
M3-PFBS	5.876	302.1 -> 79.9	12629	2.50 µg/L	-0.025
M3-PFHxS	7.474	402.1 -> 79.9	8180	2.50 µg/L	-0.012
M8-PFOS	8.495	507.1 -> 79.9	6299	2.50 µg/L	-0.012
M2-4:2FTS	5.463	329.1 -> 80.9	1411	5.00 µg/L	-0.012
M2-6:2FTS	7.033	429.1 -> 80.9	1695	5.00 µg/L	0.000
M2-8:2FTS	8.019	529.1 -> 80.9	2109	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	19711	5.00 µg/L	0.012
M3-HFPO-DA	6.138	286.9 -> 168.9	14570	10.00 µg/L	-0.012
M5-EtFOSAA	8.473	589.2 -> 419.0	18212	5.00 µg/L	0.000
M7-MeFOSE	10.838	623.2 -> 58.9	24579	25.00 µg/L	-0.012
M9-EtFOSE	11.072	639.2 -> 58.9	16736	25.00 µg/L	-0.025
M5-EtFOSA	11.151	531.1 -> 219.0	6715	2.50 µg/L	-0.012
M3-MeFOSA	10.932	515.0 -> 219.0	5957	2.50 µg/L	-0.012
13C4-PFOS	8.495	502.8 -> 79.9	8494	2.50 µg/L	0.000
13C3-PFBA	3.078	216.0 -> 172.0	33333	5.00 µg/L	0.000
18O2-PFHxS	7.485	403.0 -> 83.9	5753	2.50 µg/L	-0.012
13C4-PFOA	7.260	417.1 -> 372.0	63572	2.50 µg/L	0.000
13C2-PFDA	8.233	515.1 -> 470.1	17742	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	14819	1.25 µg/L	0.000
13C2-PFHxA	5.786	315.1 -> 270.0	32109	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.463	329.1 -> 80.9	1411	5.15 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C2-6:2FTS	7.033	429.1 -> 80.9	1695	4.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.1%		
13C2-8:2FTS	8.019	529.1 -> 80.9	2109	5.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.4%		
13C2-PFDoDA	9.117	615.1 -> 570.0	19617	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C2-PFTeDA	9.868	715.2 -> 670.0	11000	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.2%		
13C3-PFBS	5.876	302.1 -> 79.9	12629	2.52 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C3-PFHxS	7.474	402.1 -> 79.9	8180	2.48 µg/L	-0.012

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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 = 99.4%	
13C4-PFBA	3.075	216.8 -> 171.9	76346	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.668	367.1 -> 322.0	29522	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.1%	
13C5-PFHxA	5.786	318.0 -> 273.0	31032	2.36 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C5-PFPeA	4.603	268.3 -> 223.0	37630	4.94 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C6-PFDA	8.233	519.1 -> 474.1	13503	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C7-PFUnDA	8.687	570.0 -> 525.1	14654	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C8-FOSA	9.902	506.1 -> 77.8	16195	2.43 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C8-PFOA	7.259	421.1 -> 376.0	51028	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C8-PFOS	8.495	507.1 -> 79.9	6299	2.16 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.6%	
13C9-PFNA	7.764	472.1 -> 427.0	14121	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.9%	
d3-MeFOSAA	8.277	573.2 -> 419.0	19711	5.04 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C3-HFPO-DA	6.138	286.9 -> 168.9	14570	9.90 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d3-MeFOSA	10.932	515.0 -> 219.0	5957	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
d5-EtFOSAA	8.473	589.2 -> 419.0	18212	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
d7-MeFOSE	10.838	623.2 -> 58.9	24579	24.65 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
d9-EtFOSE	11.072	639.2 -> 58.9	16736	24.21 µg/L	-0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
d5-EtFOSA	11.151	531.1 -> 219.0	6715	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
Target Compounds					QValue
4:2FTS	5.463	327.1 -> 307.0	2571	0.81 µg/L	99
		327.1 -> 80.9	626		
6:2FTS	7.034	427.1 -> 407.0	2364	0.93 µg/L	97
		427.1 -> 80.9	479		
8:2FTS	8.020	527.1 -> 507.0	1299	0.77 µg/L	91
		527.1 -> 80.8	279		
EtFOSAA	8.474	584.2 -> 419.1	492	0.16 µg/L	m 79
		584.2 -> 526.0	326		
FOSA	9.905	498.1 -> 77.9	1240	0.19 µg/L	95
		498.1 -> 478.0	66		
MeFOSAA	8.278	570.1 -> 419.0	882	0.21 µg/L	m 90
		570.1 -> 483.0	129		
PFBA	3.082	212.8 -> 168.9	1632	0.78 µg/L	100
PFBS	5.877	298.7 -> 79.9	891	0.17 µg/L	89
		298.7 -> 98.8	427		
PFDA	8.233	512.9 -> 469.0	3517	0.20 µg/L	92
		512.9 -> 219.0	449		
PFDODA	9.117	613.1 -> 569.0	3388	0.21 µg/L	m 100
		613.1 -> 319.0	458		
PFDS	9.368	599.0 -> 79.9	462	0.22 µg/L	90

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	260			
PFHpA	6.669	363.1 -> 319.0	4063	0.21	µg/L	98
		363.1 -> 169.0	539			
PFHpS	8.016	449.0 -> 79.9	672	0.23	µg/L	87
		449.0 -> 98.9	327			
PFHxA	5.789	313.0 -> 269.0	2544	0.21	µg/L	# 89
		313.0 -> 118.9	201			
PFHxS	7.475	398.7 -> 79.9	767	0.19	µg/L	m 94
		398.7 -> 98.9	432			
PFNA	7.765	463.0 -> 419.0	2069	0.21	µg/L	99
		463.0 -> 219.0	440			
PFNS	8.948	548.8 -> 79.9	584	0.19	µg/L	93
		548.8 -> 98.9	328			
PFOA	7.261	413.0 -> 369.0	5734	0.22	µg/L	99
		413.0 -> 169.0	749			
PFOS	8.496	498.9 -> 79.9	637	0.20	µg/L	m 94
		498.9 -> 98.8	435			
PFPeA	4.604	263.0 -> 219.0	3333	0.38	µg/L	100
PFPeS	6.845	349.1 -> 79.9	823	0.17	µg/L	84
		349.1 -> 98.9	499			
PFTeDA	9.857	713.1 -> 669.0	2939	0.21	µg/L	96
		713.1 -> 168.9	161			
PFTrDA	9.513	663.0 -> 619.0	3331	0.21	µg/L	100
		663.0 -> 168.9	322			
PFUnDA	8.687	563.1 -> 519.0	2749	0.19	µg/L	98
		563.1 -> 269.1	398			
11CI-PF3OUdS	9.639	630.9 -> 450.9	6442	0.75	µg/L	96
		632.9 -> 452.9	2089			
9CI-PF3ONS	8.825	530.8 -> 351.0	10399	0.67	µg/L	97
		532.8 -> 353.0	3448			
ADONA	6.903	376.9 -> 250.9	22854	0.75	µg/L	98
		376.9 -> 84.8	5362			
HFPO-DA	6.139	284.9 -> 168.9	1083	0.74	µg/L	95
		284.9 -> 184.9	151			
3:3FTCA	3.989	241.0 -> 177.0	437	0.98	µg/L	93
		241.0 -> 117.0	81			
5:3FTCA	6.382	341.0 -> 237.1	13675	5.08	µg/L	92
		341.0 -> 217.0	12266			
7:3FTCA	7.742	441.0 -> 316.9	6417	4.97	µg/L	84
		441.0 -> 336.9	12206			
EtFOSA	11.153	526.0 -> 219.0	601	0.18	µg/L	90
		526.0 -> 169.0	673			
EtFOSE	11.098	630.0 -> 58.9	1358	1.99	µg/L	100
MeFOSA	10.934	511.9 -> 219.0	580	0.20	µg/L	95
		511.9 -> 169.0	619			
MeFOSE	10.864	616.1 -> 58.9	2021	2.00	µg/L	100
PFDoDS	10.058	699.1 -> 79.9	287	0.22	µg/L	91
		699.1 -> 98.8	184			
NFDHA	5.668	295.0 -> 201.0	333	0.39	µg/L	89
		295.0 -> 84.9	155			
PFMBA	5.002	279.0 -> 85.1	1223	0.42	µg/L	100
PFMPA	3.704	229.0 -> 84.9	1012	0.40	µg/L	100
PFEESA	6.371	314.8 -> 134.9	6299	0.36	µg/L	98
		314.8 -> 82.9	204			

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

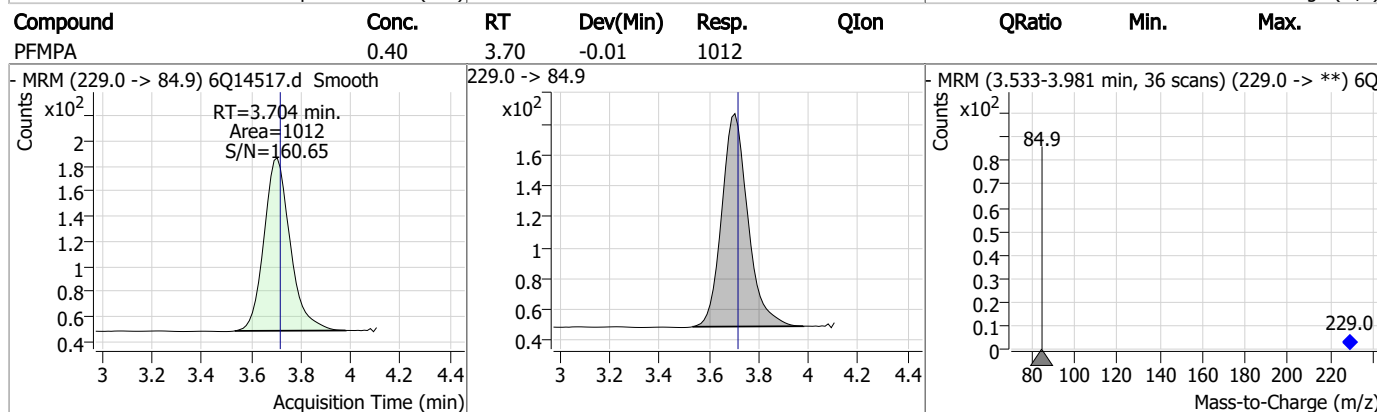
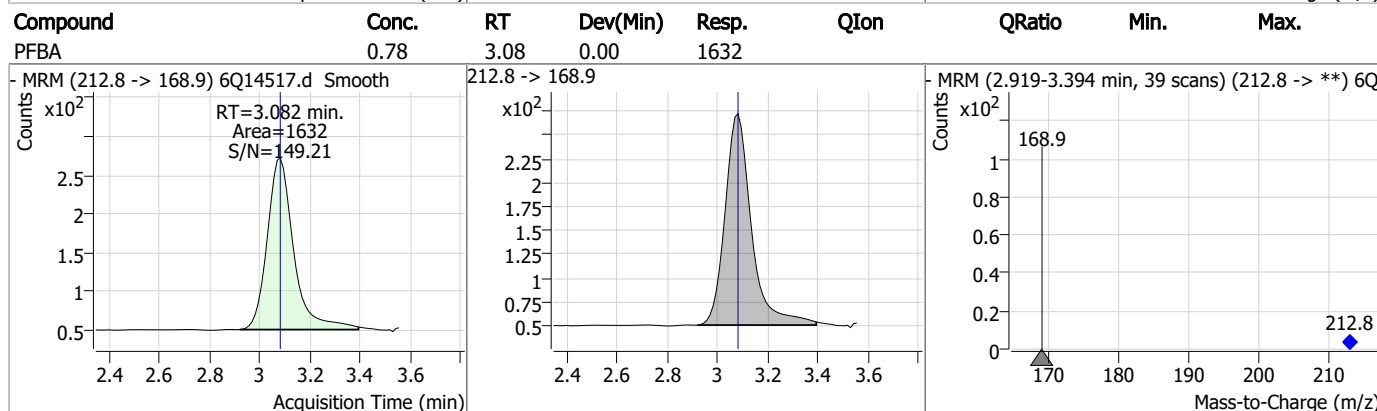
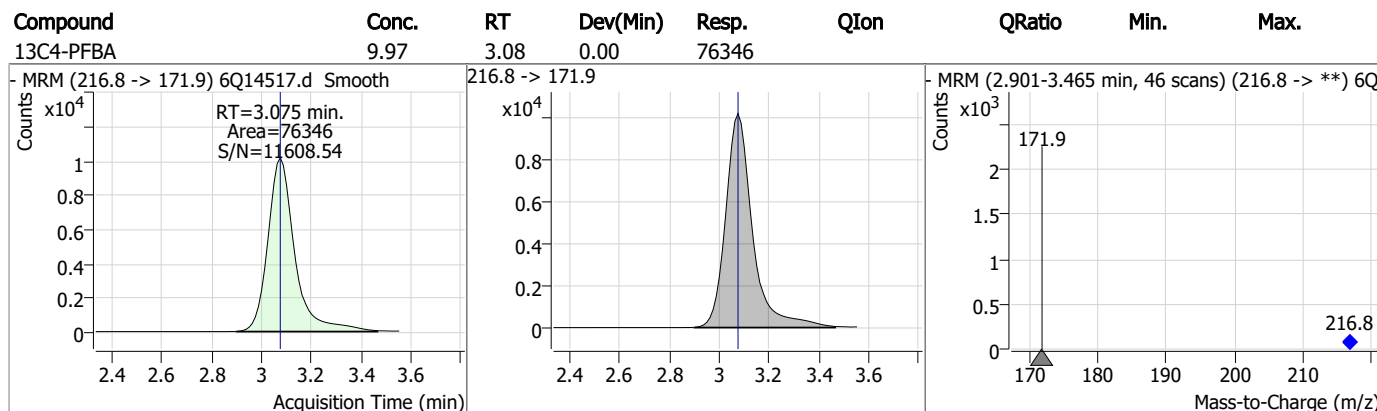
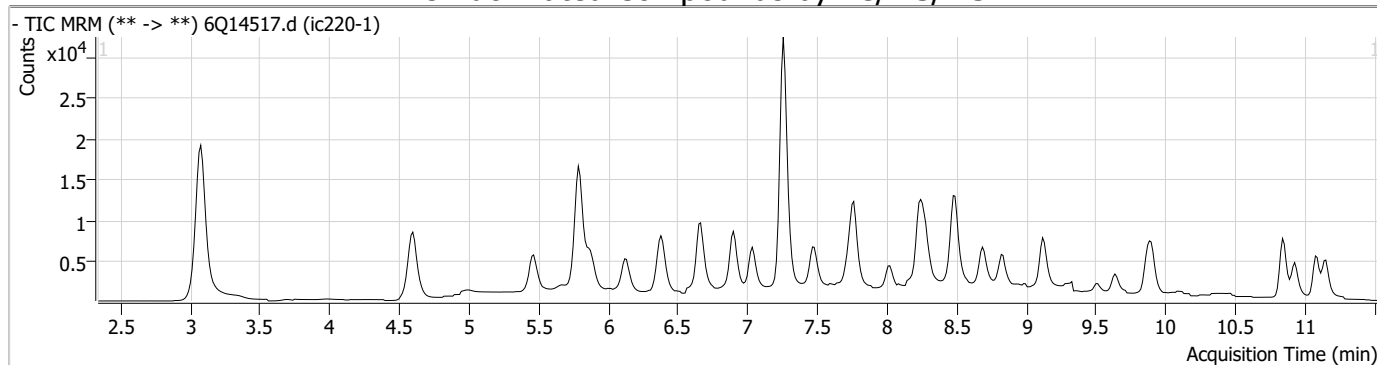
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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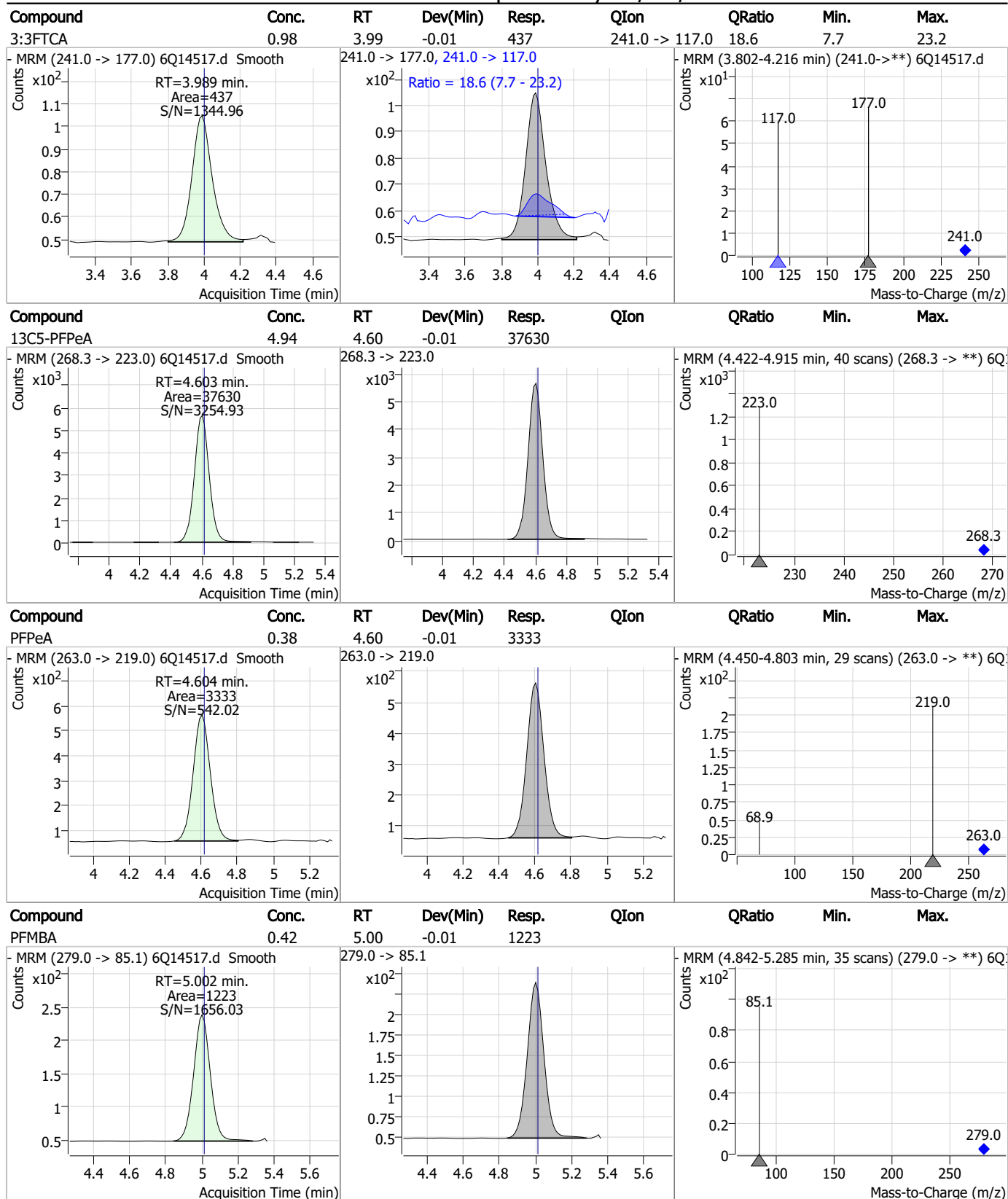
7.8.2
7



Perfluorinated Compounds by LC/MS/MS

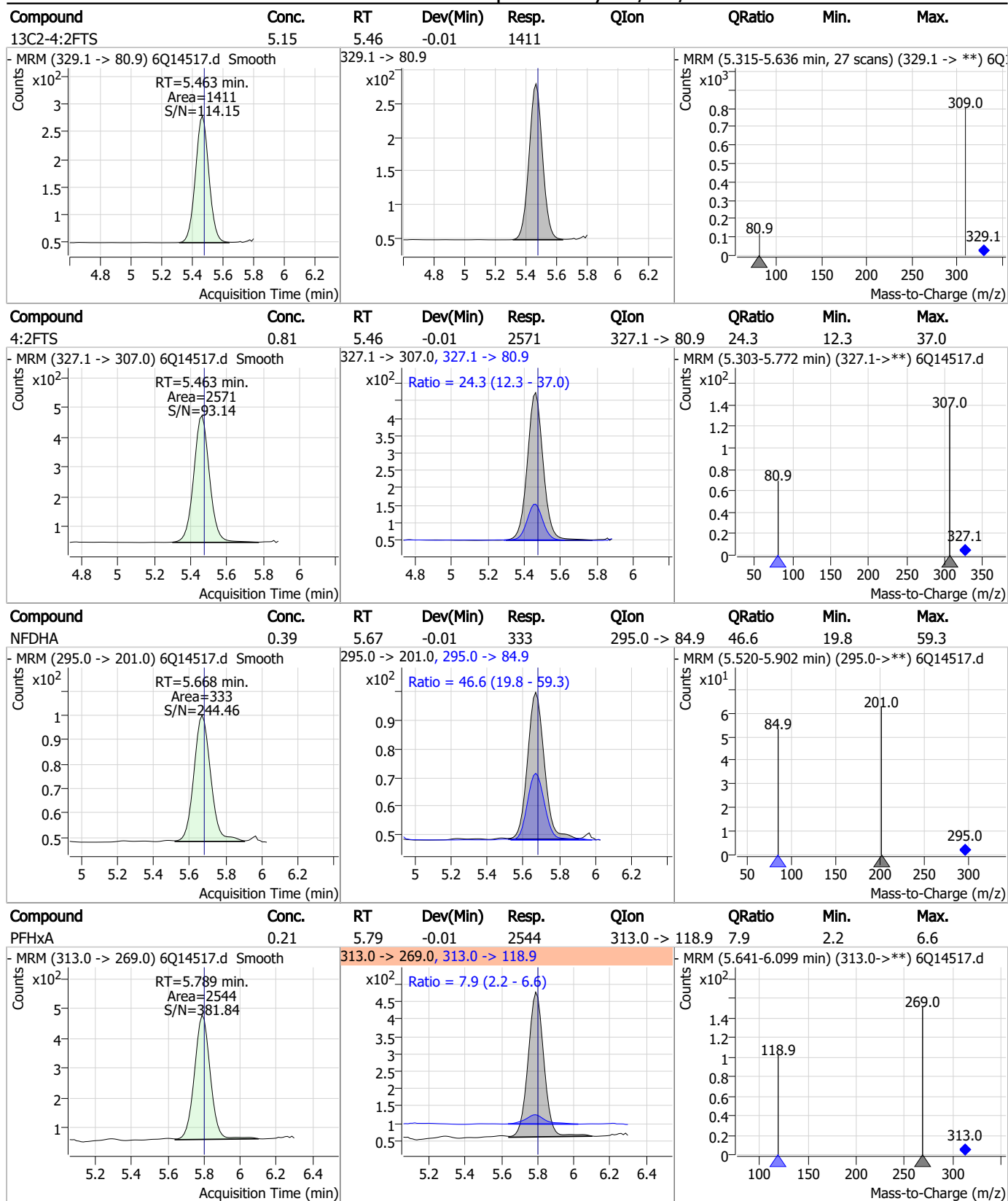


Perfluorinated Compounds by LC/MS/MS



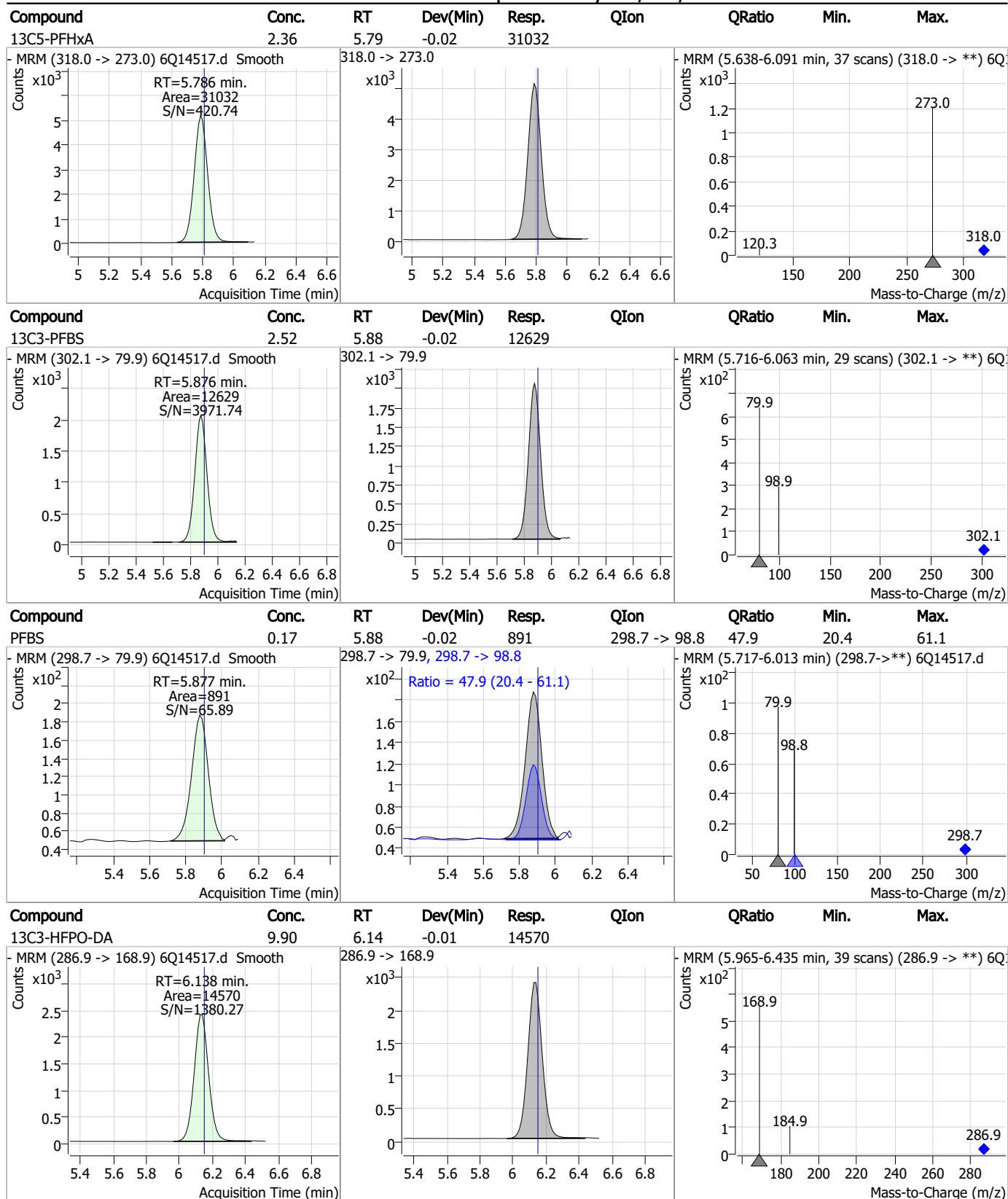
7.8.2
7

Perfluorinated Compounds by LC/MS/MS



7.8.2
7

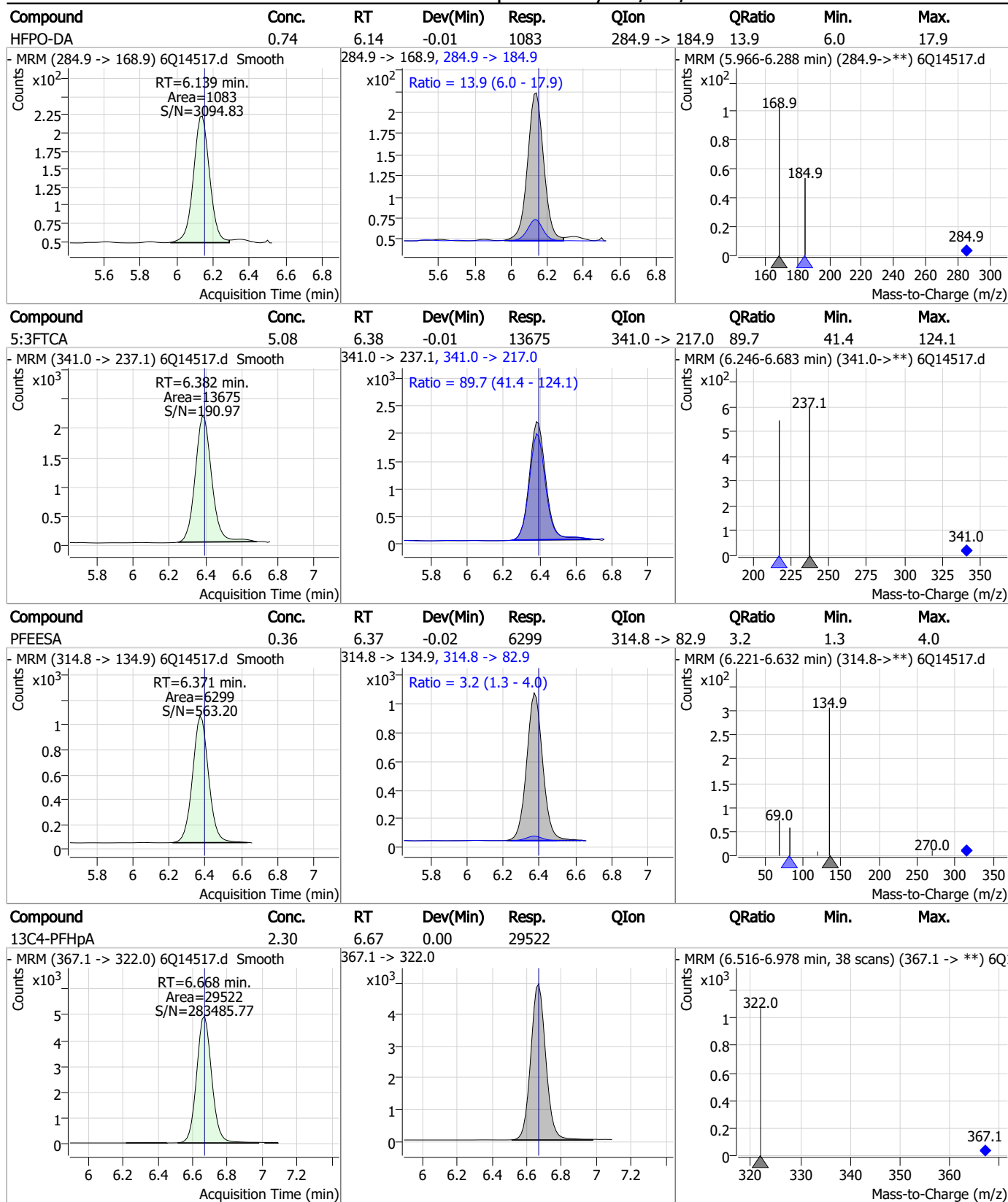
Perfluorinated Compounds by LC/MS/MS



7.8.2
7

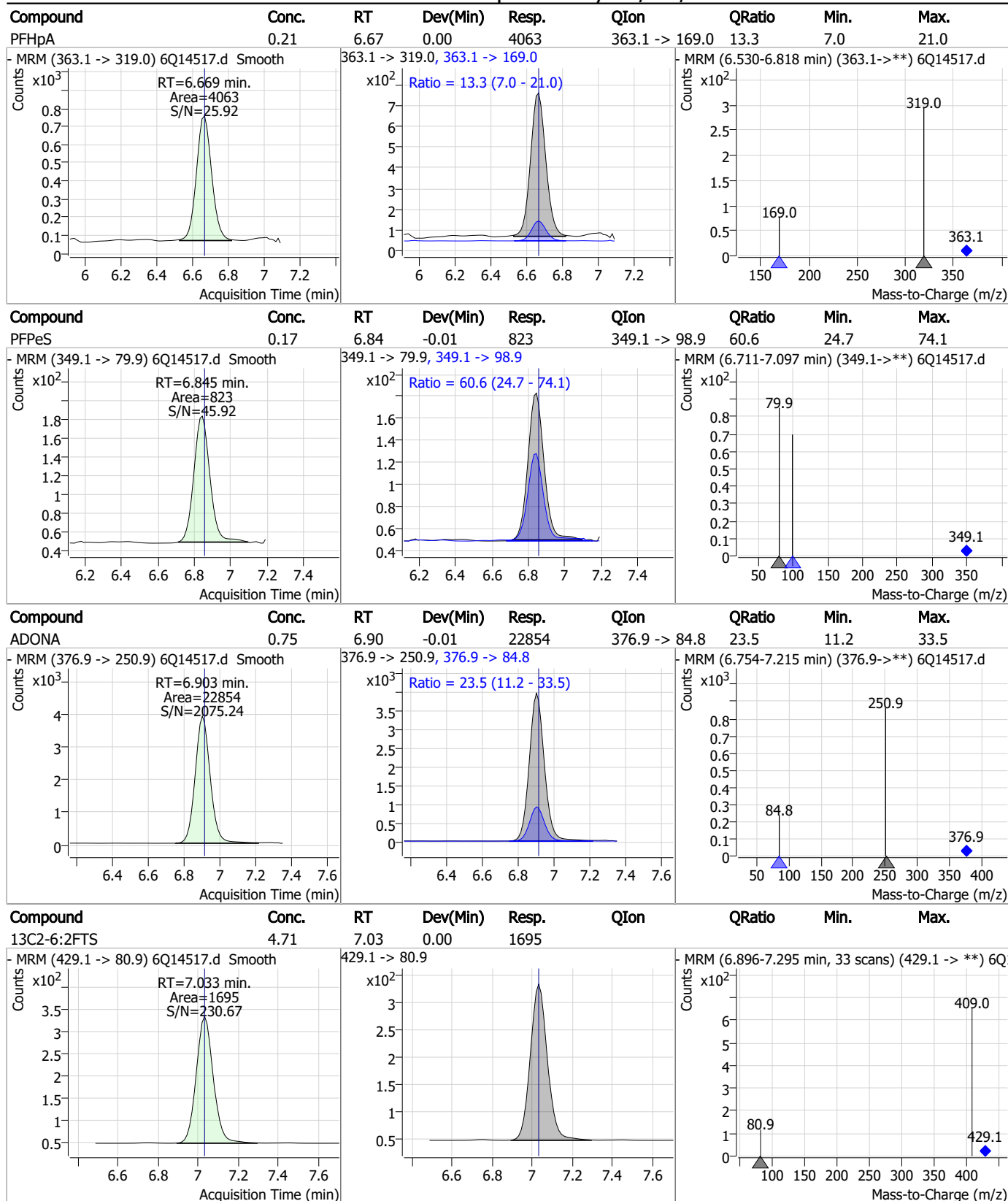


Perfluorinated Compounds by LC/MS/MS



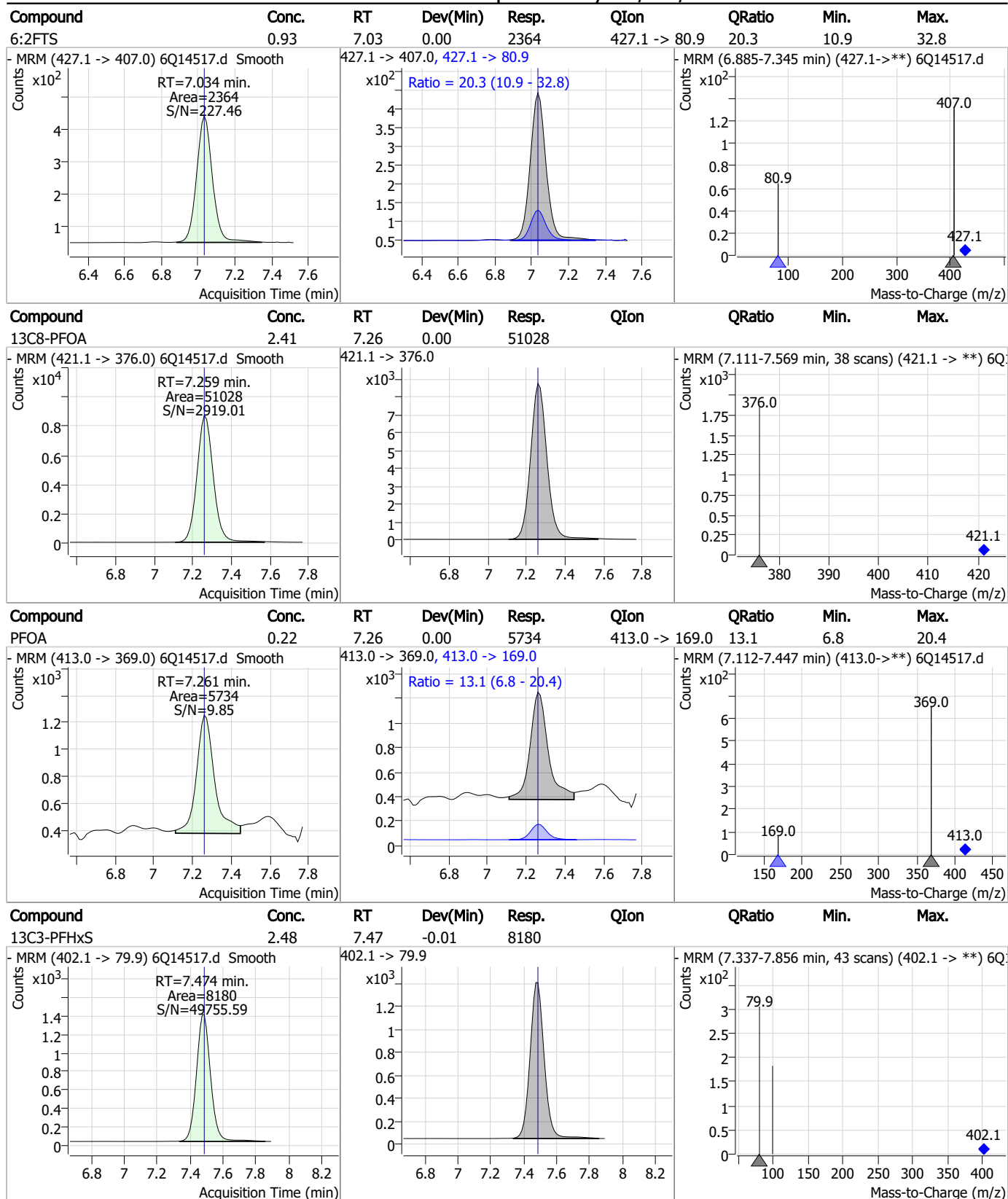
7.8.2
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Perfluorinated Compounds by LC/MS/MS



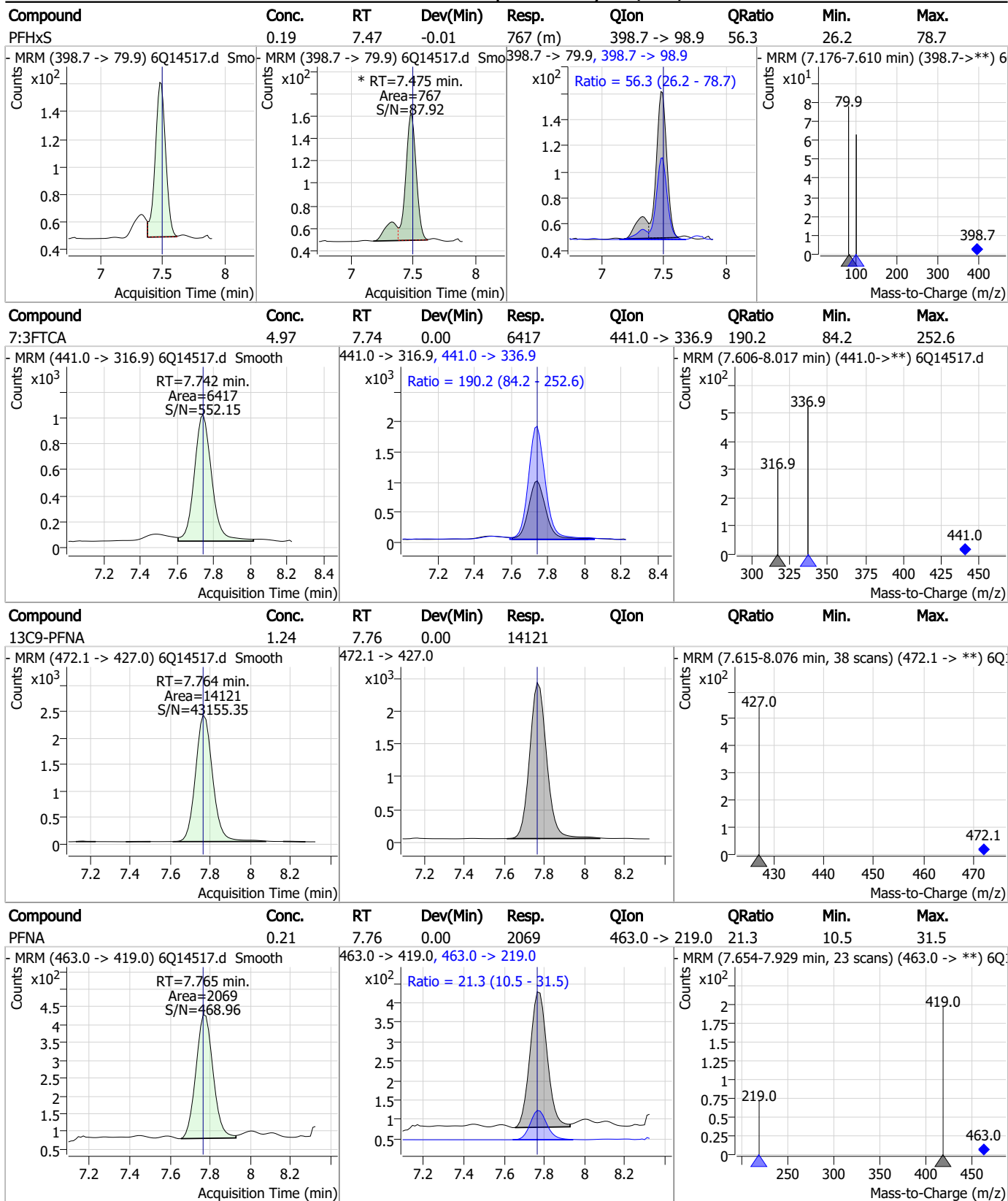
7.8.2
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Perfluorinated Compounds by LC/MS/MS



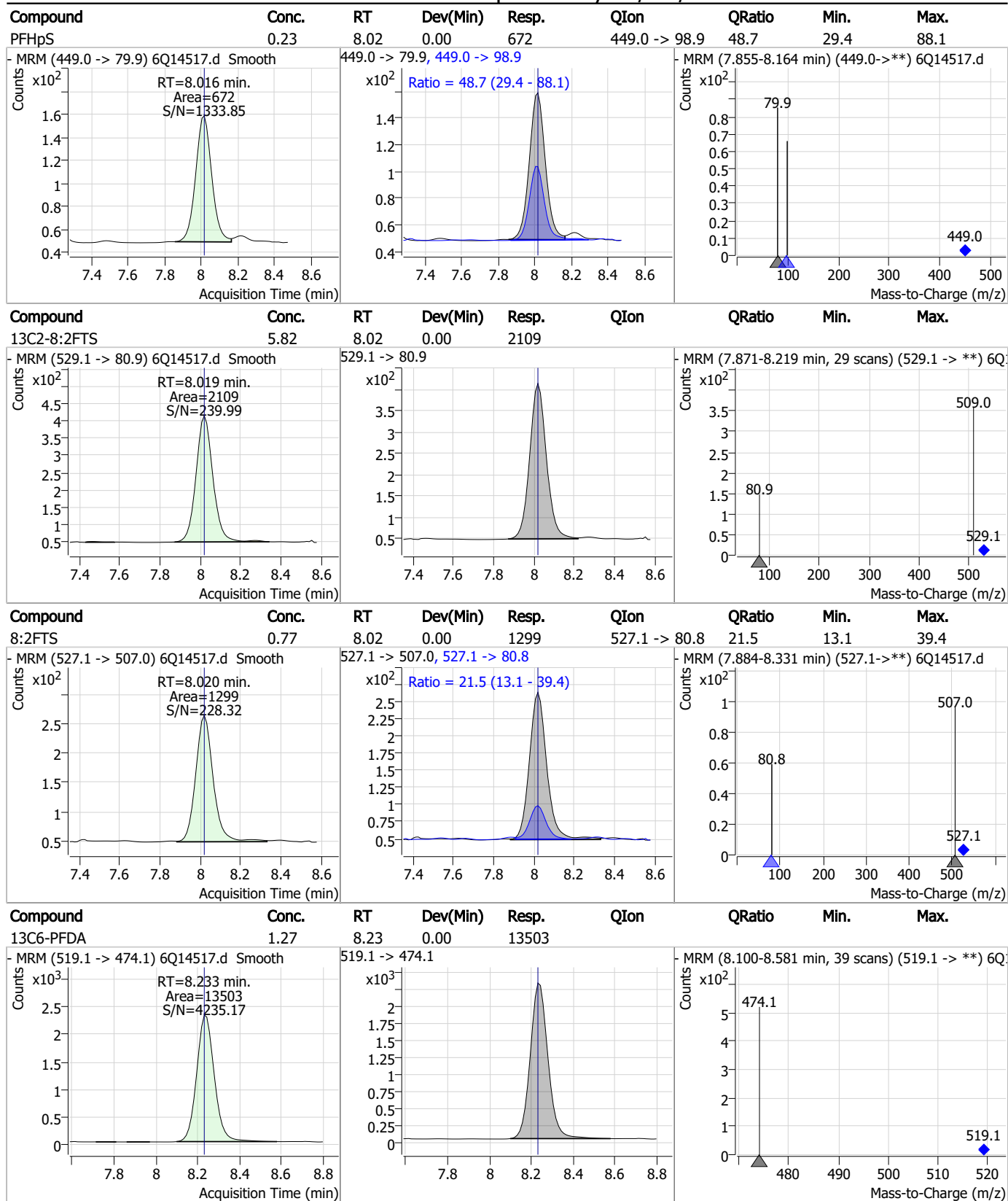
7.8.2
7

Perfluorinated Compounds by LC/MS/MS



7.8.2
7

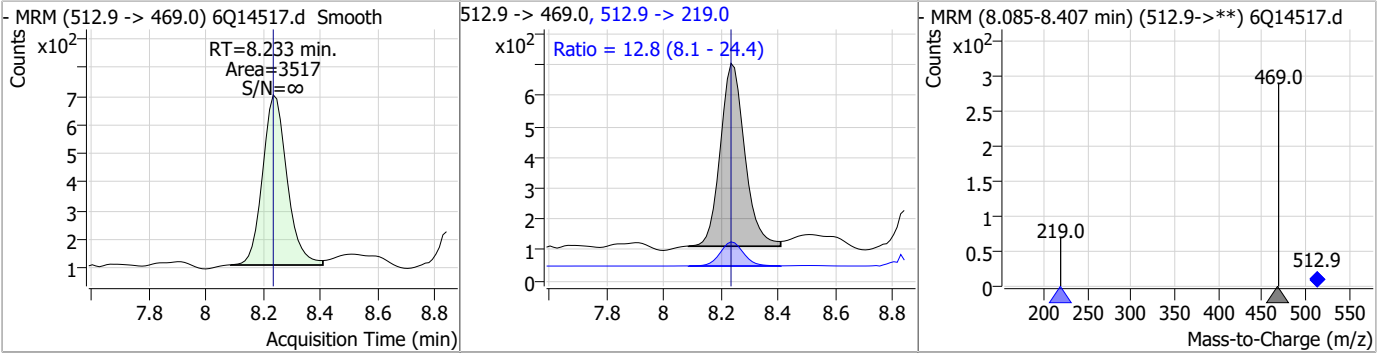
Perfluorinated Compounds by LC/MS/MS



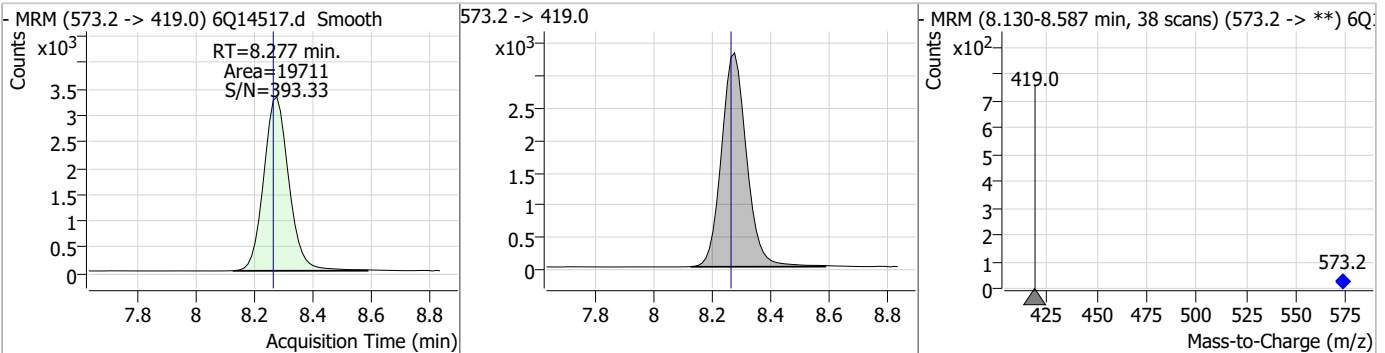
7.8.2
7

Perfluorinated Compounds by LC/MS/MS

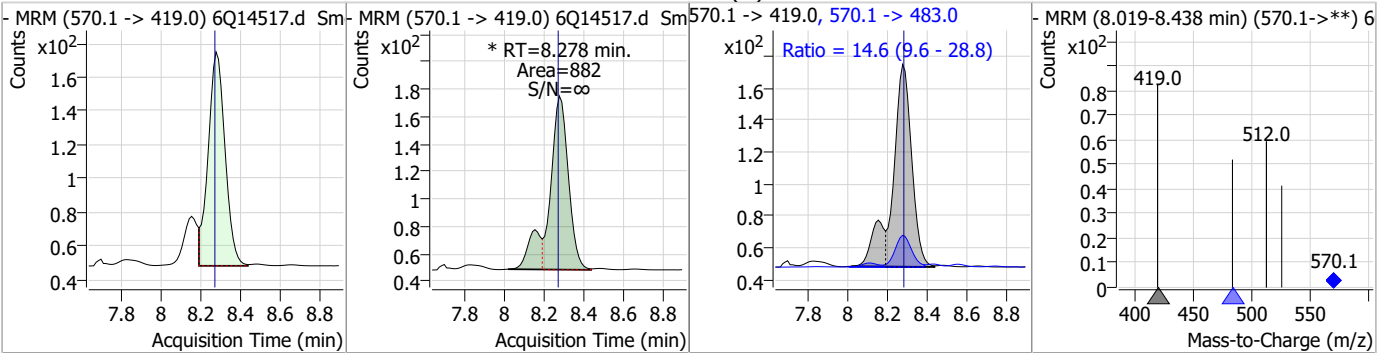
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.20	8.23	0.00	3517	512.9 -> 219.0	12.8	8.1	24.4



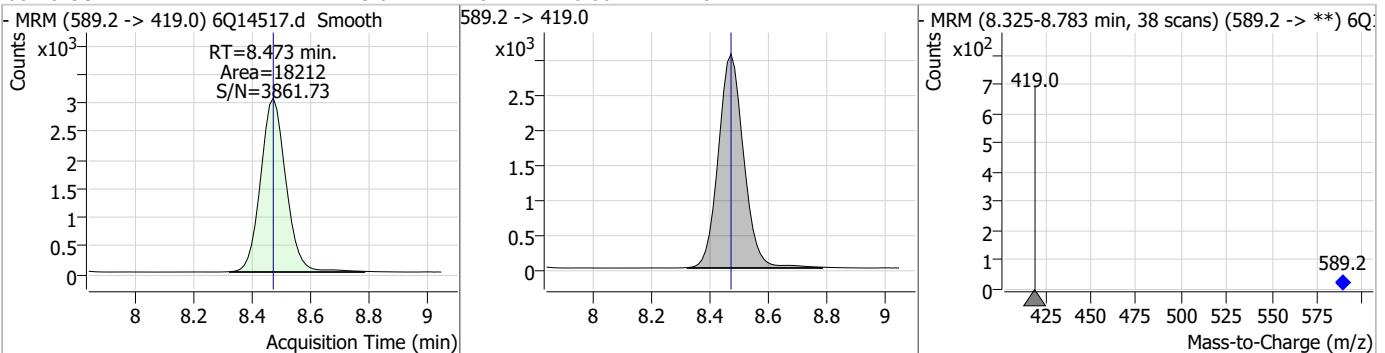
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.04	8.28	0.01	19711				



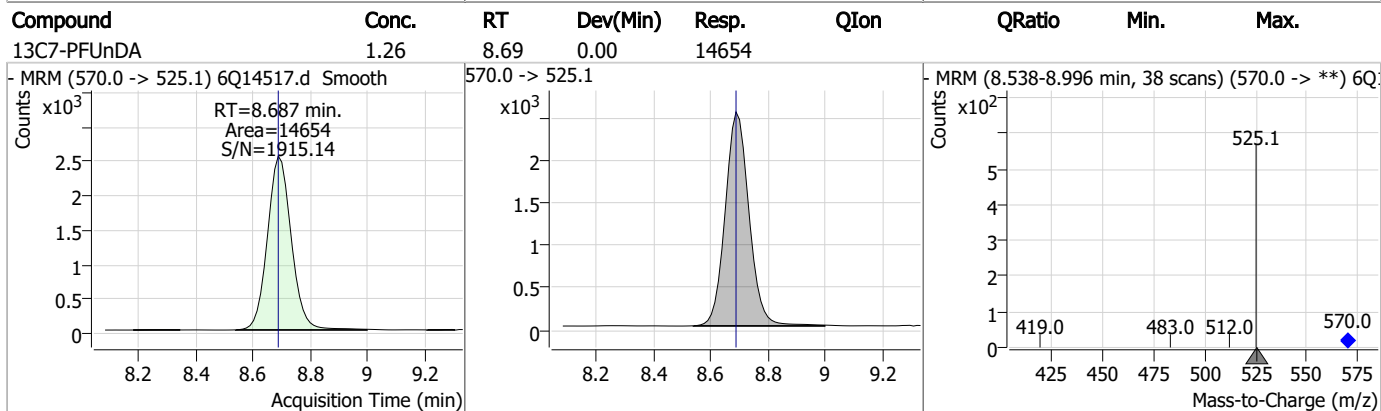
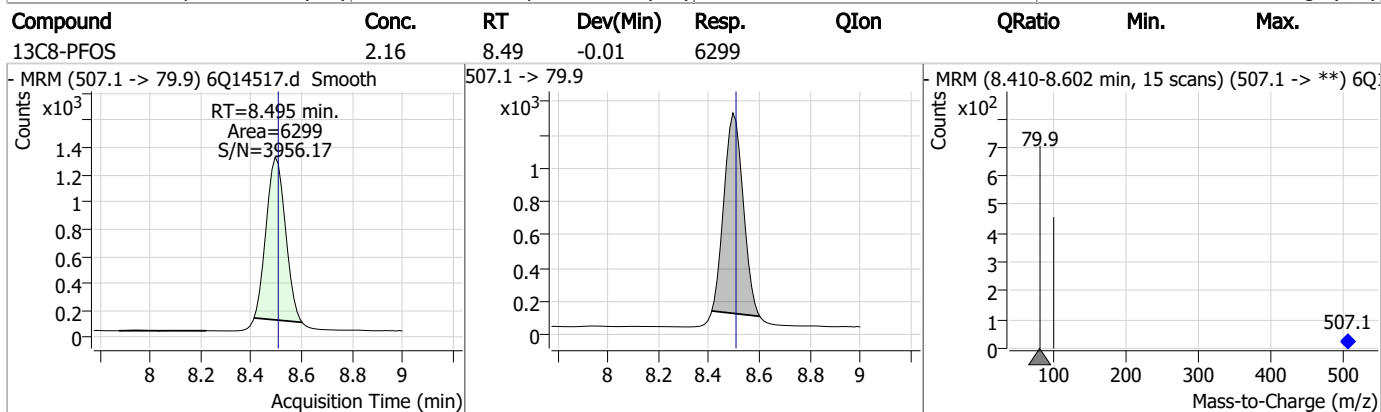
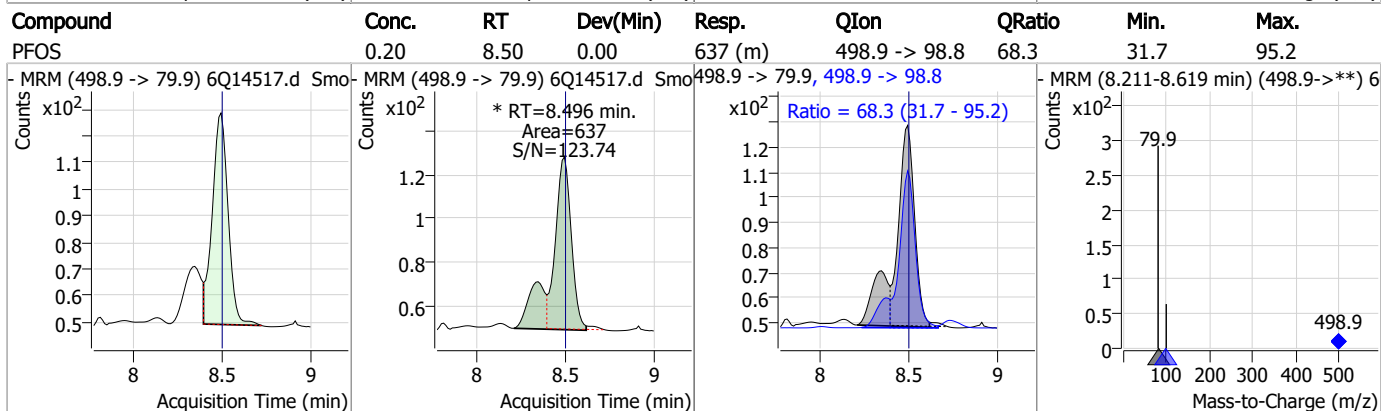
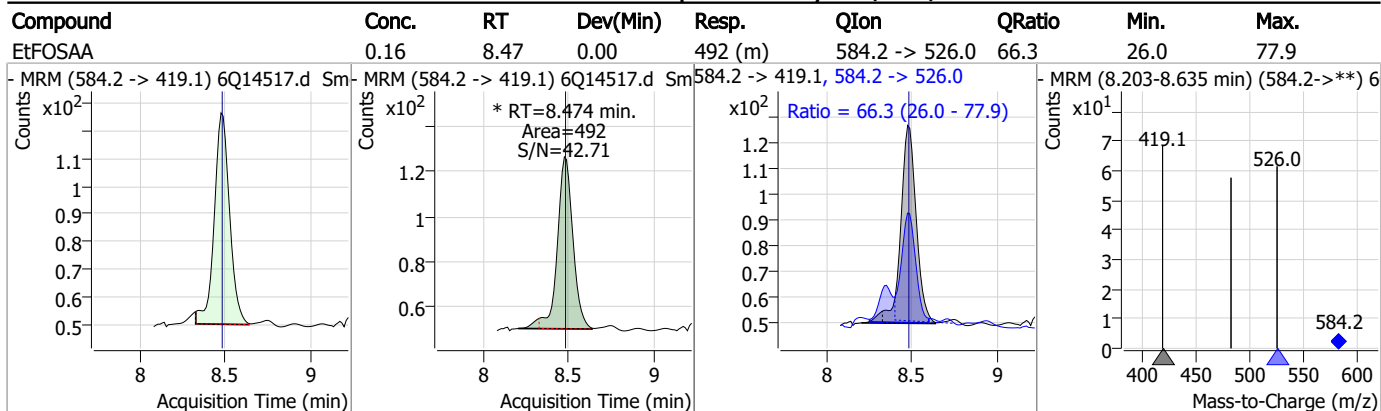
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.21	8.28	0.00	882 (m)	570.1 -> 483.0	14.6	9.6	28.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.01	8.47	0.00	18212				

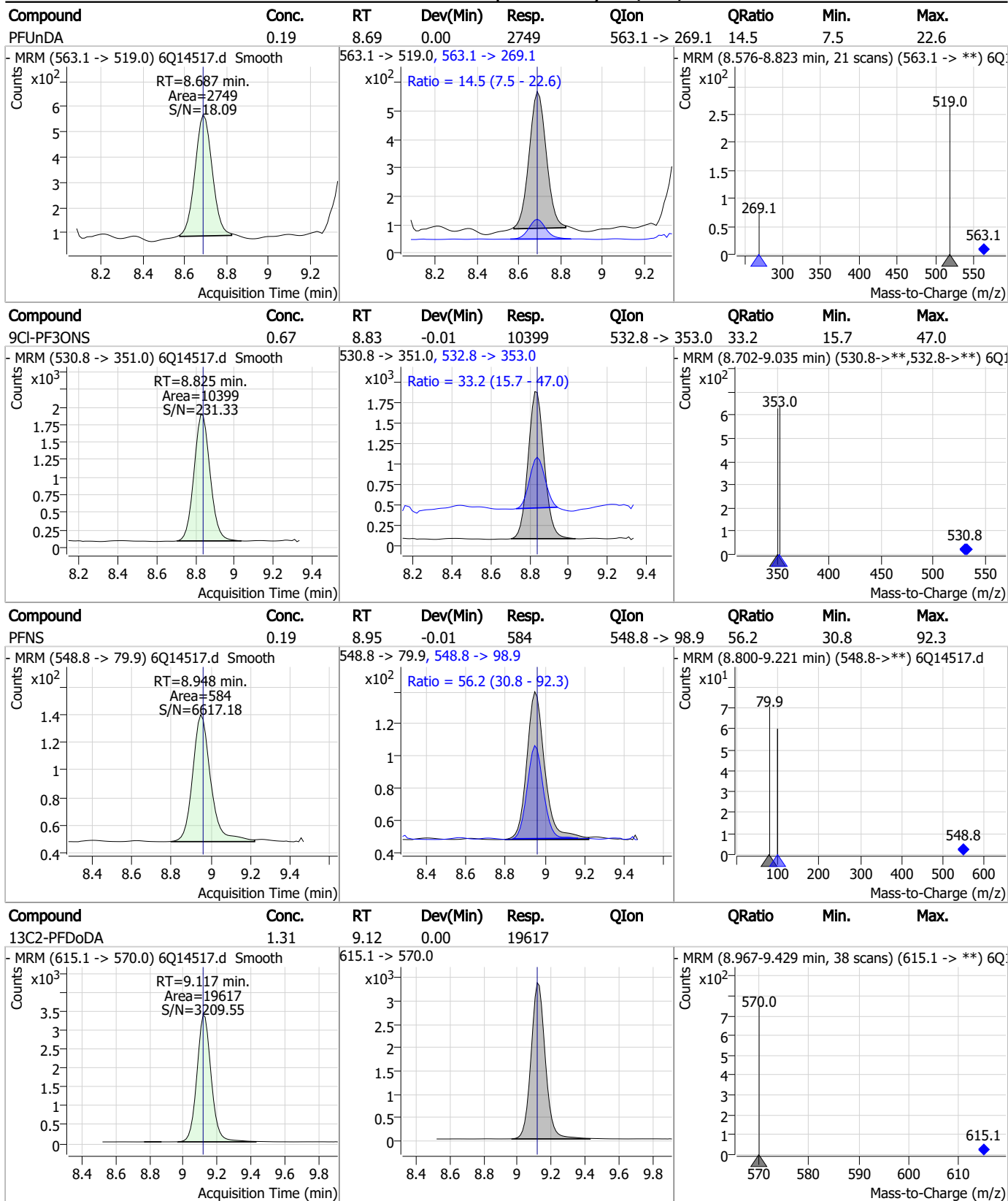


Perfluorinated Compounds by LC/MS/MS



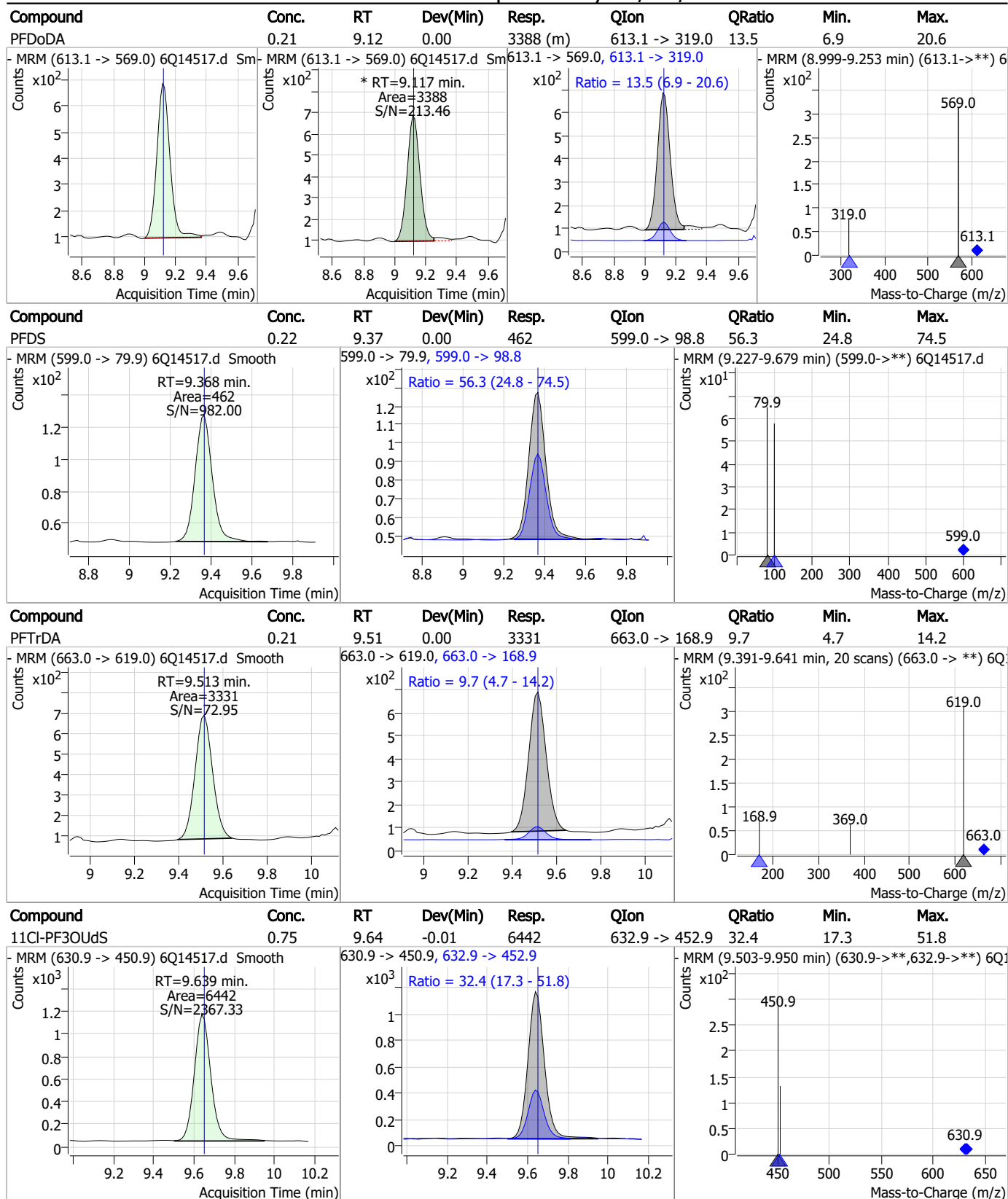
7.8.2
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Perfluorinated Compounds by LC/MS/MS



7.8.2
7

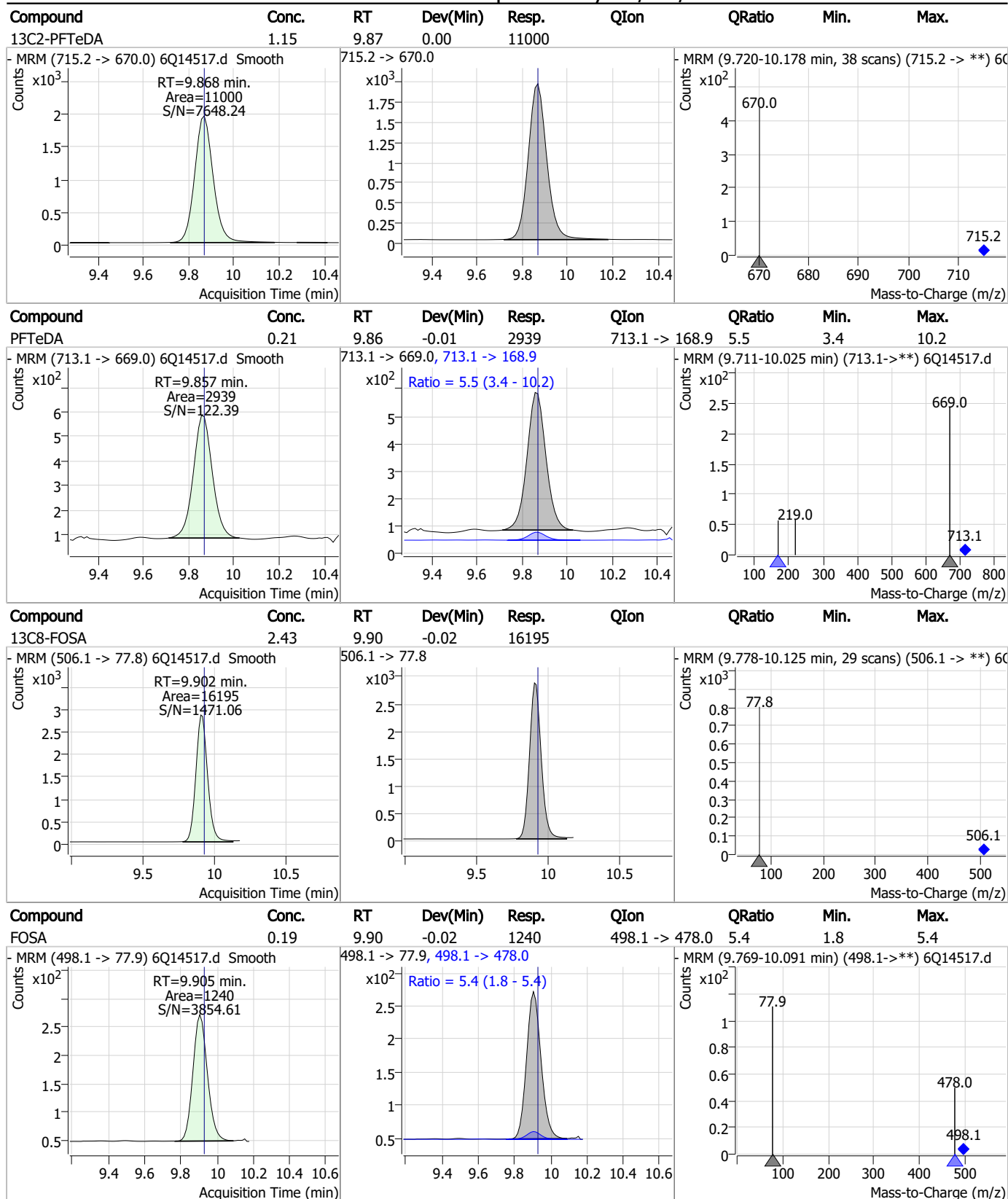
Perfluorinated Compounds by LC/MS/MS



7.8.2
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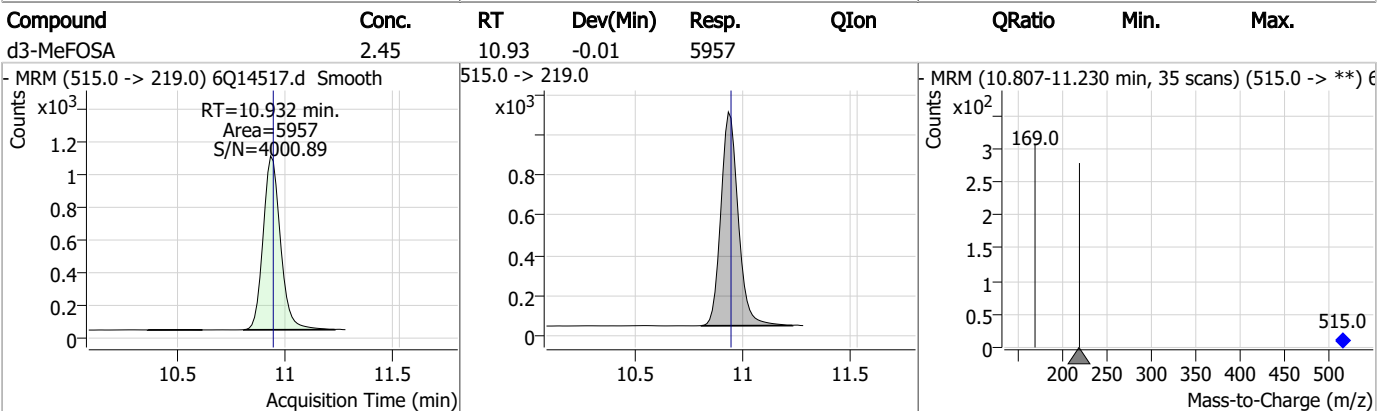
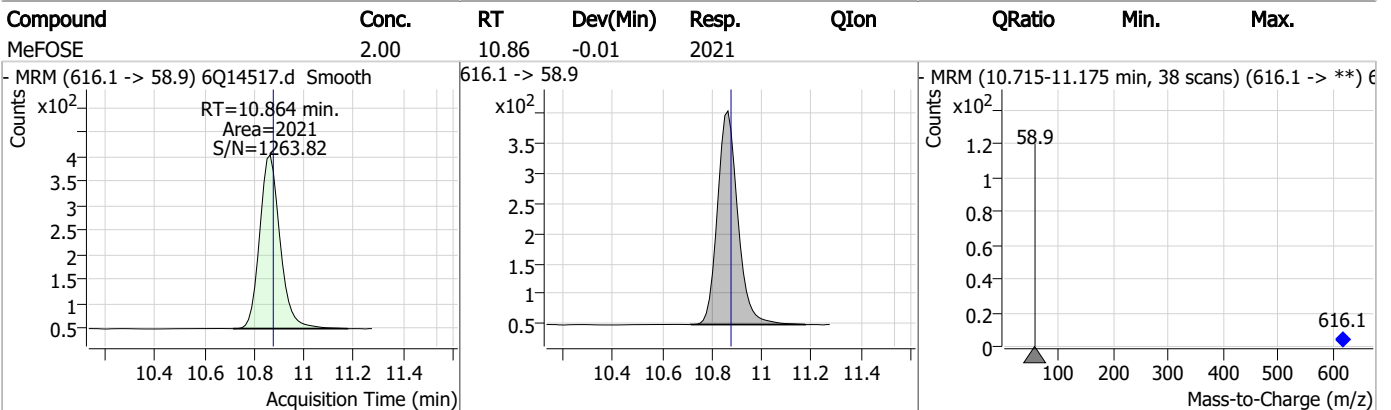
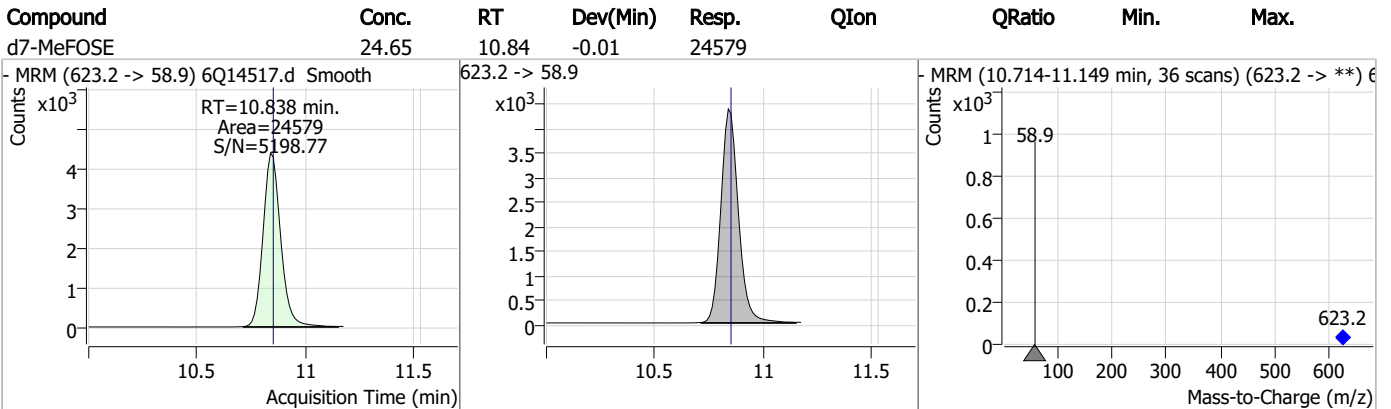
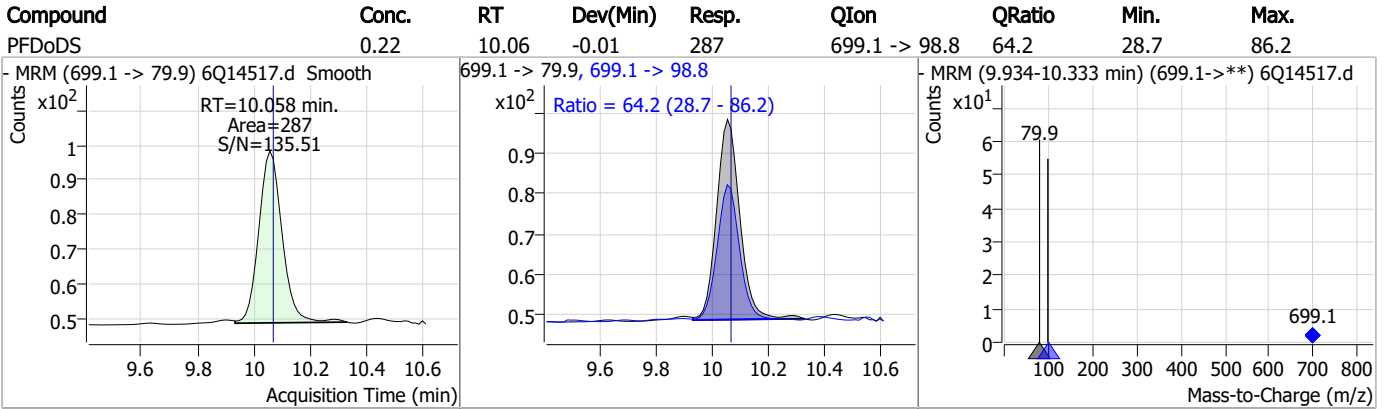


Perfluorinated Compounds by LC/MS/MS



7.8.2
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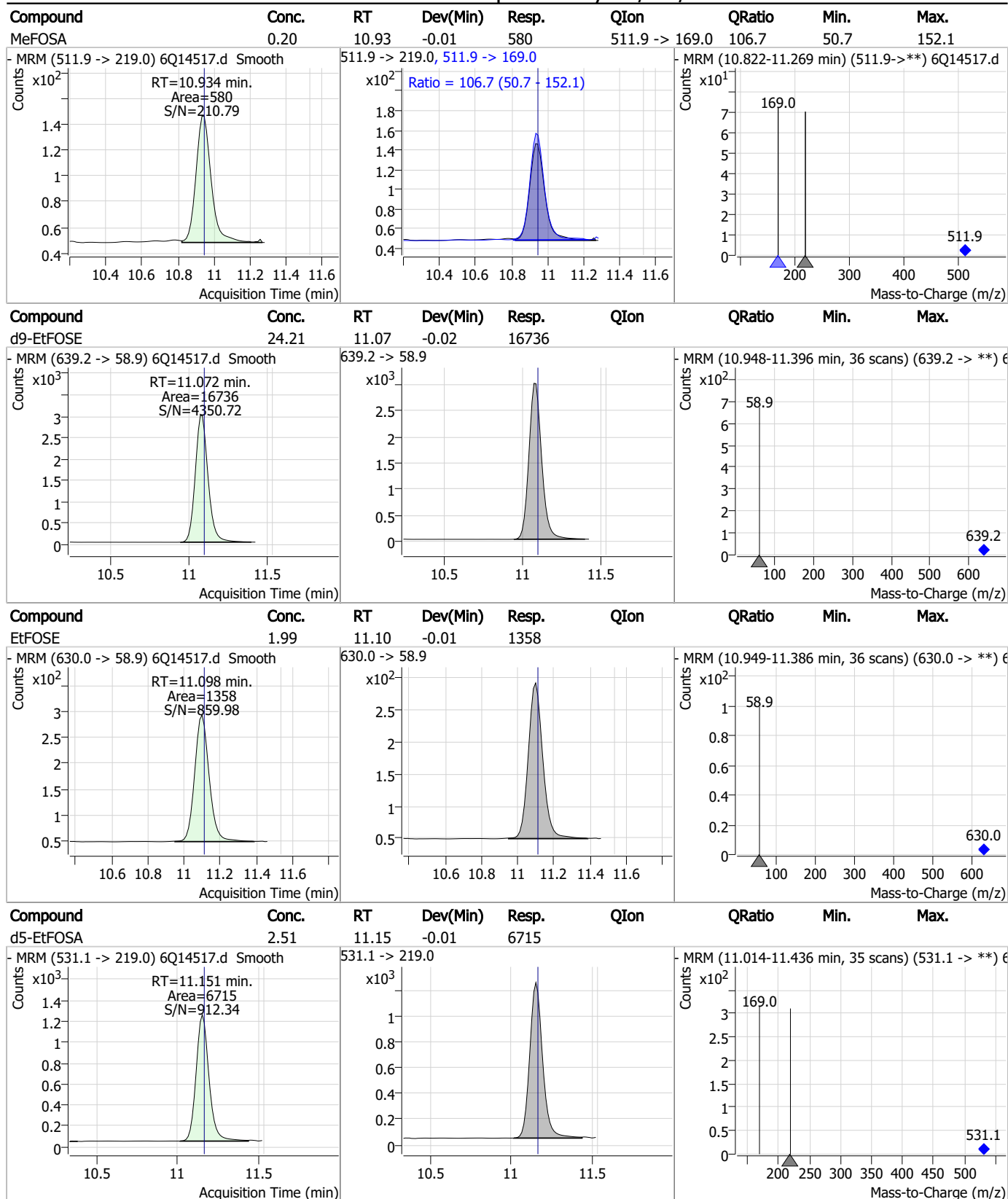
Perfluorinated Compounds by LC/MS/MS



7.8.2

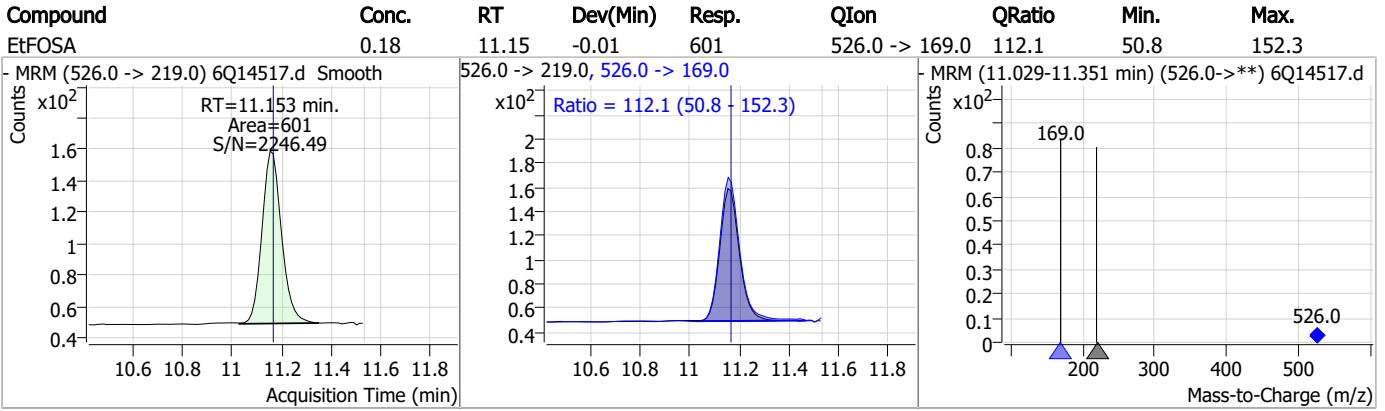
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Perfluorinated Compounds by LC/MS/MS



7.8.2
7

Perfluorinated Compounds by LC/MS/MS



7.8.2

7

Manual Integration Approval Summary

Sample Number: S6Q220-IC220 Method: EPA DRAFT 1633
Lab FileID: 6Q14517.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 13:00 Supervisor approved: 03/10/23 10:46 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.47	Split peak
MeFOSAA	2355-31-9		8.28	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.50	Split peak
Perfluorododecanoic acid	307-55-1		9.12	Split peak

7.8.2.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14518.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 1:14:08 PM
 Sample Name : ic220-2
 Vial : P1-A3
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.075	216.8 -> 171.9	78169	10.00 µg/L	0.000
M5-PFPeA	4.615	268.3 -> 223.0	38476	5.00 µg/L	0.000
M5-PFHxA	5.798	318.0 -> 273.0	33037	2.50 µg/L	-0.012
M4-PFHpA	6.668	367.1 -> 322.0	32038	2.50 µg/L	0.000
M8-PFOA	7.259	421.1 -> 376.0	54774	2.50 µg/L	0.000
M9-PFNA	7.764	472.1 -> 427.0	13489	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	13606	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	15124	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	20381	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	12142	1.25 µg/L	0.000
M8-FOSA	9.914	506.1 -> 77.8	16804	2.50 µg/L	-0.012
M3-PFBS	5.889	302.1 -> 79.9	13081	2.50 µg/L	-0.013
M3-PFHxS	7.486	402.1 -> 79.9	8343	2.50 µg/L	0.000
M8-PFOS	8.495	507.1 -> 79.9	7910	2.50 µg/L	-0.012
M2-4:2FTS	5.463	329.1 -> 80.9	1455	5.00 µg/L	-0.012
M2-6:2FTS	7.033	429.1 -> 80.9	2122	5.00 µg/L	0.000
M2-8:2FTS	8.007	529.1 -> 80.9	1927	5.00 µg/L	-0.012
M3-MeFOSAA	8.265	573.2 -> 419.0	19646	5.00 µg/L	0.000
M3-HFPO-DA	6.138	286.9 -> 168.9	15524	10.00 µg/L	-0.012
M5-EtFOSAA	8.460	589.2 -> 419.0	18192	5.00 µg/L	-0.012
M7-MeFOSE	10.851	623.2 -> 58.9	26677	25.00 µg/L	0.000
M9-EtFOSE	11.085	639.2 -> 58.9	17837	25.00 µg/L	-0.012
M5-EtFOSA	11.151	531.1 -> 219.0	6611	2.50 µg/L	-0.012
M3-MeFOSA	10.944	515.0 -> 219.0	5933	2.50 µg/L	0.000
13C4-PFOS	8.495	502.8 -> 79.9	8578	2.50 µg/L	0.000
13C3-PFBA	3.078	216.0 -> 172.0	33708	5.00 µg/L	0.000
18O2-PFHxS	7.485	403.0 -> 83.9	5879	2.50 µg/L	-0.012
13C4-PFOA	7.260	417.1 -> 372.0	63227	2.50 µg/L	0.000
13C2-PFDA	8.233	515.1 -> 470.1	17782	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	14099	1.25 µg/L	0.000
13C2-PFHxA	5.799	315.1 -> 270.0	33196	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.463	329.1 -> 80.9	1455	5.20 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C2-6:2FTS	7.033	429.1 -> 80.9	2122	5.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.3%		
13C2-8:2FTS	8.007	529.1 -> 80.9	1927	5.20 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C2-PFDoDA	9.117	615.1 -> 570.0	20381	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C2-PFTeDA	9.868	715.2 -> 670.0	12142	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C3-PFBS	5.889	302.1 -> 79.9	13081	2.55 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C3-PFHxS	7.486	402.1 -> 79.9	8343	2.48 µg/L	0.000

7.8.3
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 = 99.2%		
13C4-PFBA	3.075	216.8 -> 171.9	78169	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C4-PFHpA	6.668	367.1 -> 322.0	32038	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C5-PFHxA	5.798	318.0 -> 273.0	33037	2.43 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C5-PFPeA	4.615	268.3 -> 223.0	38476	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C6-PFDA	8.233	519.1 -> 474.1	13606	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C7-PFUnDA	8.687	570.0 -> 525.1	15124	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C8-FOSA	9.914	506.1 -> 77.8	16804	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C8-PFOA	7.259	421.1 -> 376.0	54774	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C8-PFOS	8.495	507.1 -> 79.9	7910	2.69 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C9-PFNA	7.764	472.1 -> 427.0	13489	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.3%		
d3-MeFOSAA	8.265	573.2 -> 419.0	19646	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C3-HFPO-DA	6.138	286.9 -> 168.9	15524	10.21 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
d3-MeFOSA	10.944	515.0 -> 219.0	5933	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.6%		
d5-EtFOSAA	8.460	589.2 -> 419.0	18192	4.96 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.2%		
d7-MeFOSE	10.851	623.2 -> 58.9	26677	26.49 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 105.9%		
d9-EtFOSE	11.085	639.2 -> 58.9	17837	25.55 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
d5-EtFOSA	11.151	531.1 -> 219.0	6611	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.9%		
Target Compounds					QValue
4:2FTS	5.476	327.1 -> 307.0	5681	1.73 µg/L	96
		327.1 -> 80.9	1509		
6:2FTS	7.034	427.1 -> 407.0	4870	1.53 µg/L	98
		427.1 -> 80.9	1114		
8:2FTS	8.008	527.1 -> 507.0	2767	1.80 µg/L	98
		527.1 -> 80.8	694		
EtFOSAA	8.474	584.2 -> 419.1	1494	0.49 µg/L	m 98
		584.2 -> 526.0	795		
FOSA	9.917	498.1 -> 77.9	3280	0.48 µg/L	97
		498.1 -> 478.0	90		
MeFOSAA	8.266	570.1 -> 419.0	1918	0.46 µg/L	m 99
		570.1 -> 483.0	356		
PFBA	3.082	212.8 -> 168.9	3855	1.80 µg/L	100
PFBS	5.890	298.7 -> 79.9	2016	0.37 µg/L	78
		298.7 -> 98.8	1105		
PFDA	8.233	512.9 -> 469.0	7266	0.42 µg/L	92
		512.9 -> 219.0	936		
PFDODA	9.117	613.1 -> 569.0	7699	0.46 µg/L	100
		613.1 -> 319.0	1069		
PFDS	9.368	599.0 -> 79.9	1088	0.40 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	576			
PFHpA	6.669	363.1 -> 319.0	9131	0.44	µg/L	97
		363.1 -> 169.0	1389			
PFHpS	8.016	449.0 -> 79.9	1471	0.39	µg/L	100
		449.0 -> 98.9	860			
PFHxA	5.801	313.0 -> 269.0	5771	0.44	µg/L	97
		313.0 -> 118.9	302			
PFHxS	7.487	398.7 -> 79.9	1876	0.46	µg/L	m 99
		398.7 -> 98.9	965			
PFNA	7.765	463.0 -> 419.0	4556	0.49	µg/L	99
		463.0 -> 219.0	972			
PFNS	8.948	548.8 -> 79.9	1727	0.45	µg/L	95
		548.8 -> 98.9	993			
PFOA	7.261	413.0 -> 369.0	13296	0.48	µg/L	99
		413.0 -> 169.0	1732			
PFOS	8.496	498.9 -> 79.9	1661	0.42	µg/L	m 92
		498.9 -> 98.8	951			
PFPeA	4.617	263.0 -> 219.0	8092	0.91	µg/L	100
PFPeS	6.845	349.1 -> 79.9	2248	0.47	µg/L	97
		349.1 -> 98.9	1070			
PFTeDA	9.869	713.1 -> 669.0	7034	0.46	µg/L	98
		713.1 -> 168.9	528			
PFTrDA	9.513	663.0 -> 619.0	7607	0.46	µg/L	100
		663.0 -> 168.9	733			
PFUnDA	8.687	563.1 -> 519.0	6409	0.44	µg/L	96
		563.1 -> 269.1	1073			
11CI-PF3OUdS	9.639	630.9 -> 450.9	14620	1.59	µg/L	94
		632.9 -> 452.9	4568			
9CI-PF3ONS	8.825	530.8 -> 351.0	26998	1.62	µg/L	94
		532.8 -> 353.0	9282			
ADONA	6.903	376.9 -> 250.9	59956	1.84	µg/L	96
		376.9 -> 84.8	12358			
HFPO-DA	6.139	284.9 -> 168.9	2701	1.74	µg/L	100
		284.9 -> 184.9	321			
3:3FTCA	4.001	241.0 -> 177.0	1100	2.42	µg/L	99
		241.0 -> 117.0	168			
5:3FTCA	6.394	341.0 -> 237.1	34968	12.20	µg/L	100
		341.0 -> 217.0	28956			
7:3FTCA	7.730	441.0 -> 316.9	15125	11.01	µg/L	71
		441.0 -> 336.9	31536			
EtFOSA	11.166	526.0 -> 219.0	1660	0.52	µg/L	90
		526.0 -> 169.0	1512			
EtFOSE	11.098	630.0 -> 58.9	3306	4.54	µg/L	100
MeFOSA	10.946	511.9 -> 219.0	1399	0.48	µg/L	100
		511.9 -> 169.0	1418			
MeFOSE	10.864	616.1 -> 58.9	4783	4.36	µg/L	100
PFDoDS	10.058	699.1 -> 79.9	743	0.46	µg/L	98
		699.1 -> 98.8	438			
NFDHA	5.681	295.0 -> 201.0	847	0.94	µg/L	100
		295.0 -> 84.9	337			
PFMBA	5.014	279.0 -> 85.1	2796	0.93	µg/L	100
PFMPA	3.704	229.0 -> 84.9	2385	0.91	µg/L	100
PFEESA	6.383	314.8 -> 134.9	15769	0.84	µg/L	98
		314.8 -> 82.9	339			

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

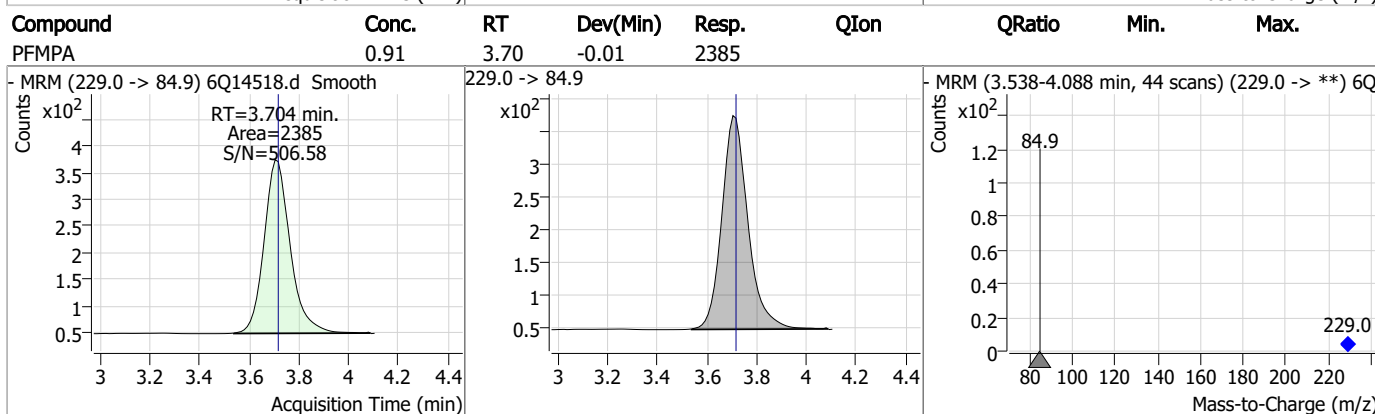
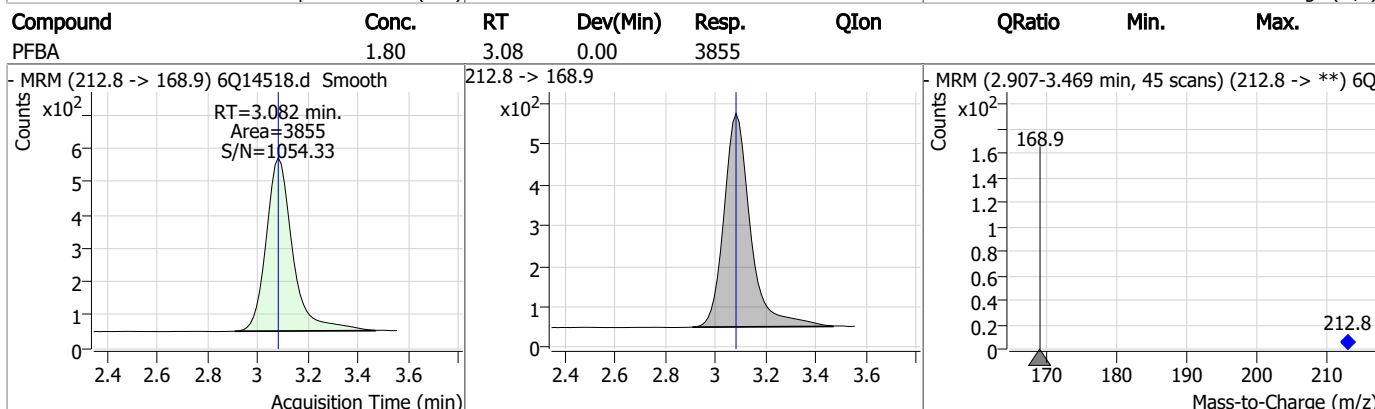
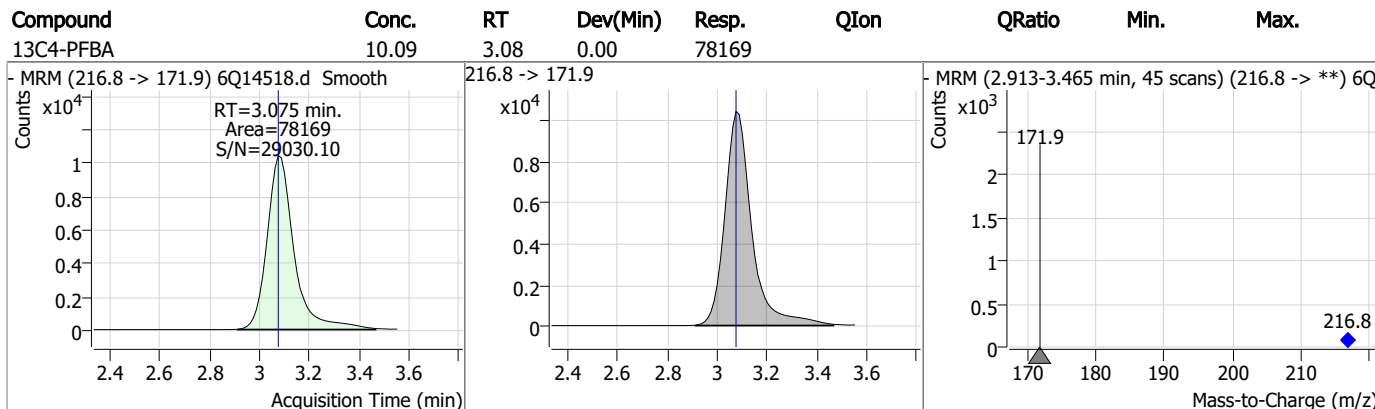
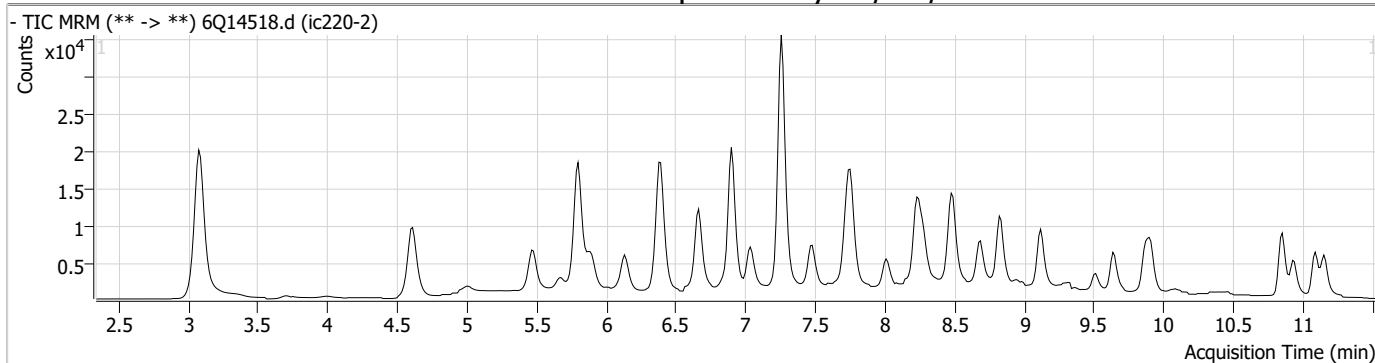
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.8.3

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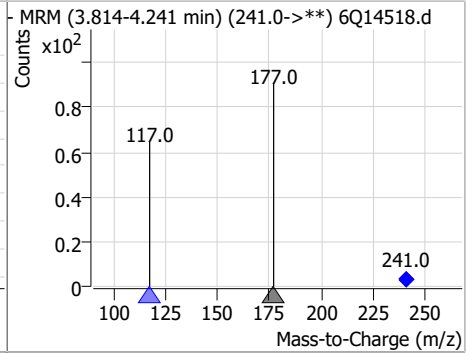
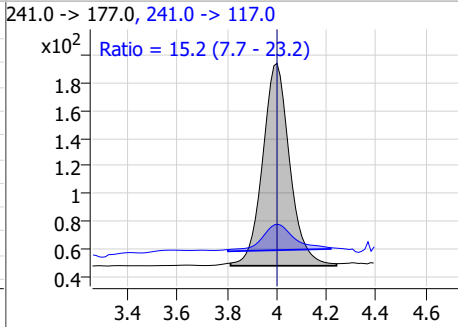
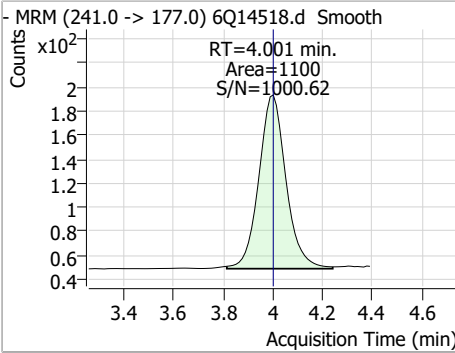
Perfluorinated Compounds by LC/MS/MS



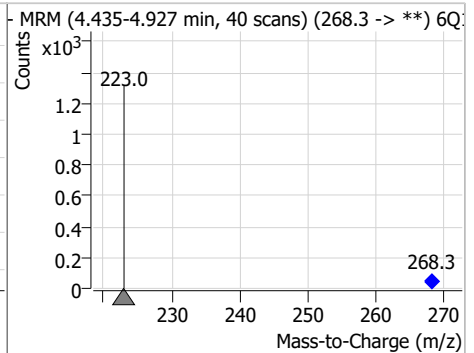
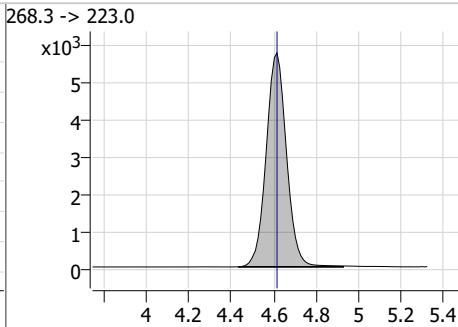
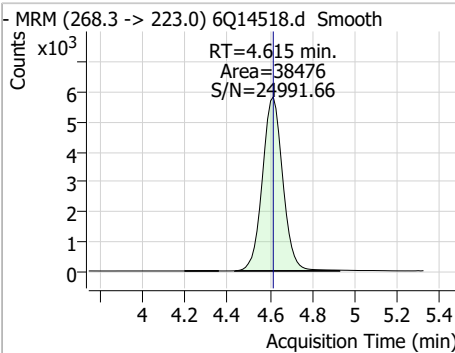
7.8.3
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Perfluorinated Compounds by LC/MS/MS

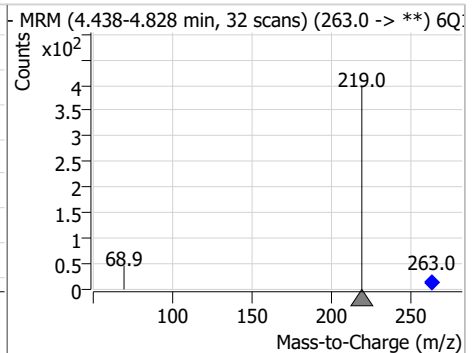
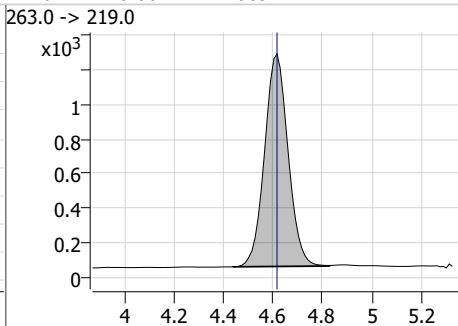
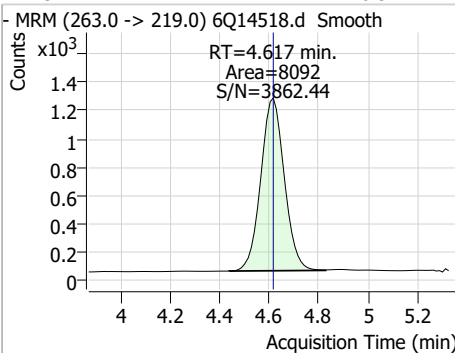
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	2.42	4.00	0.00	1100	241.0 -> 117.0	15.2	7.7	23.2



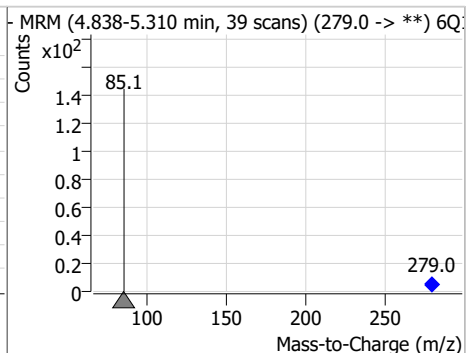
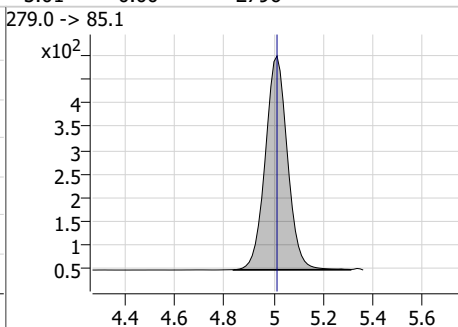
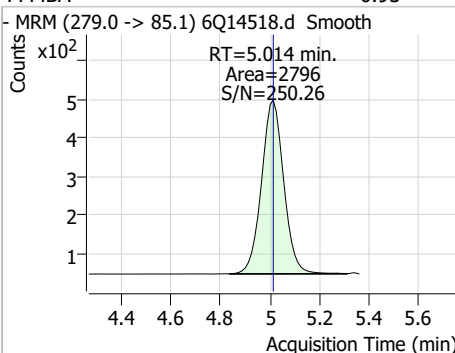
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.89	4.62	0.00	38476				



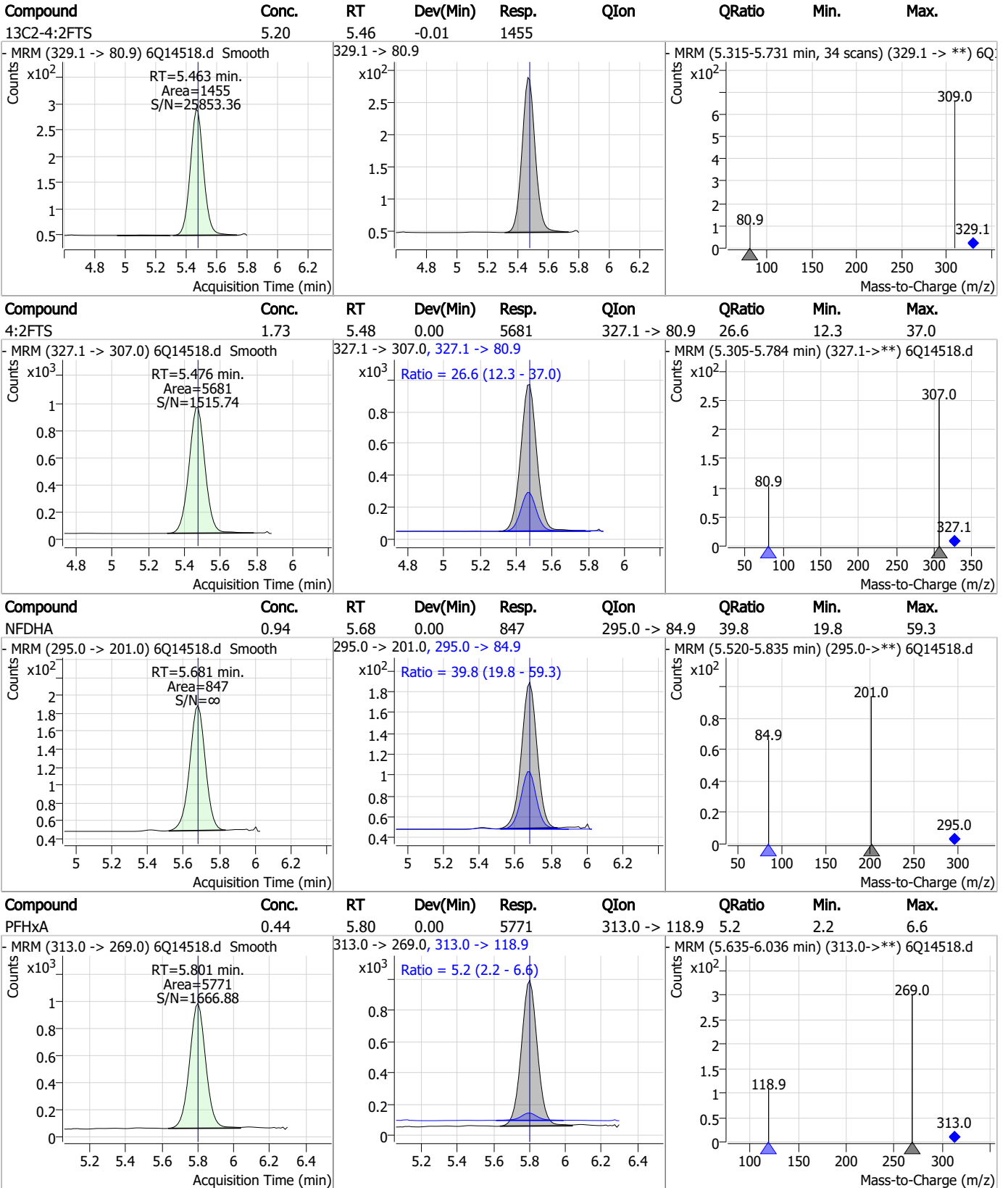
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.91	4.62	0.00	8092				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.93	5.01	0.00	2796				



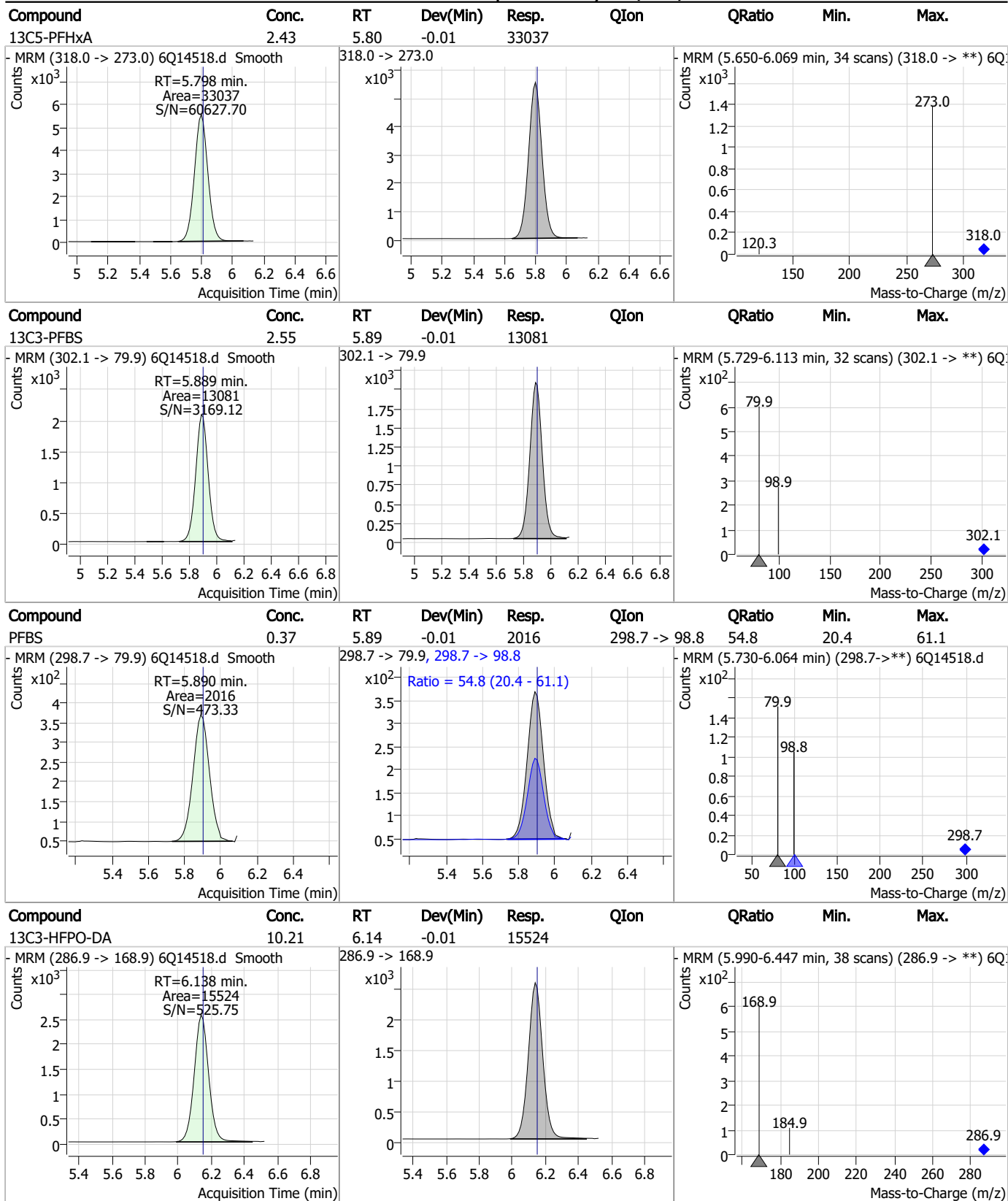
Perfluorinated Compounds by LC/MS/MS



7.8.3

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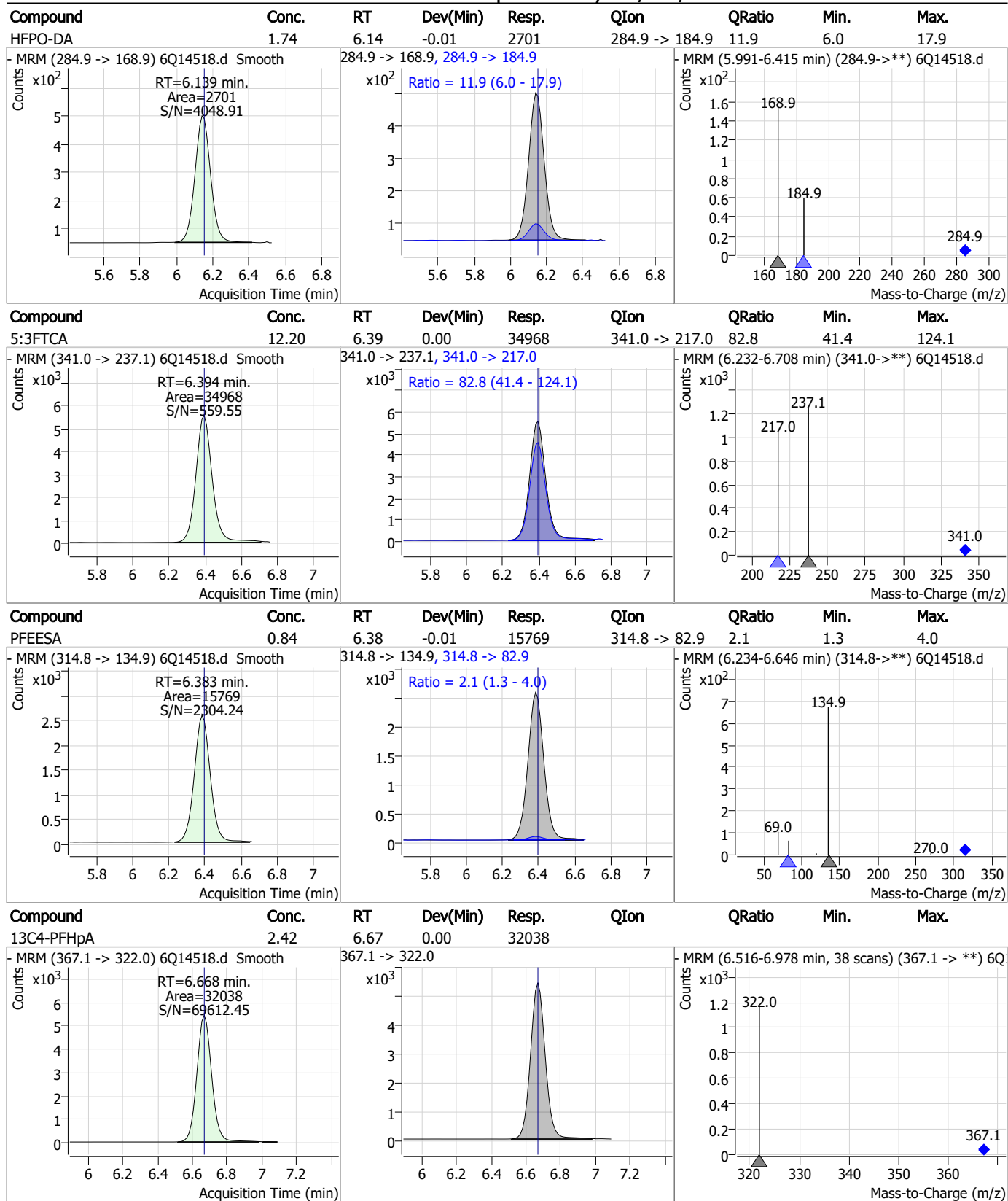
Perfluorinated Compounds by LC/MS/MS



7.8.3
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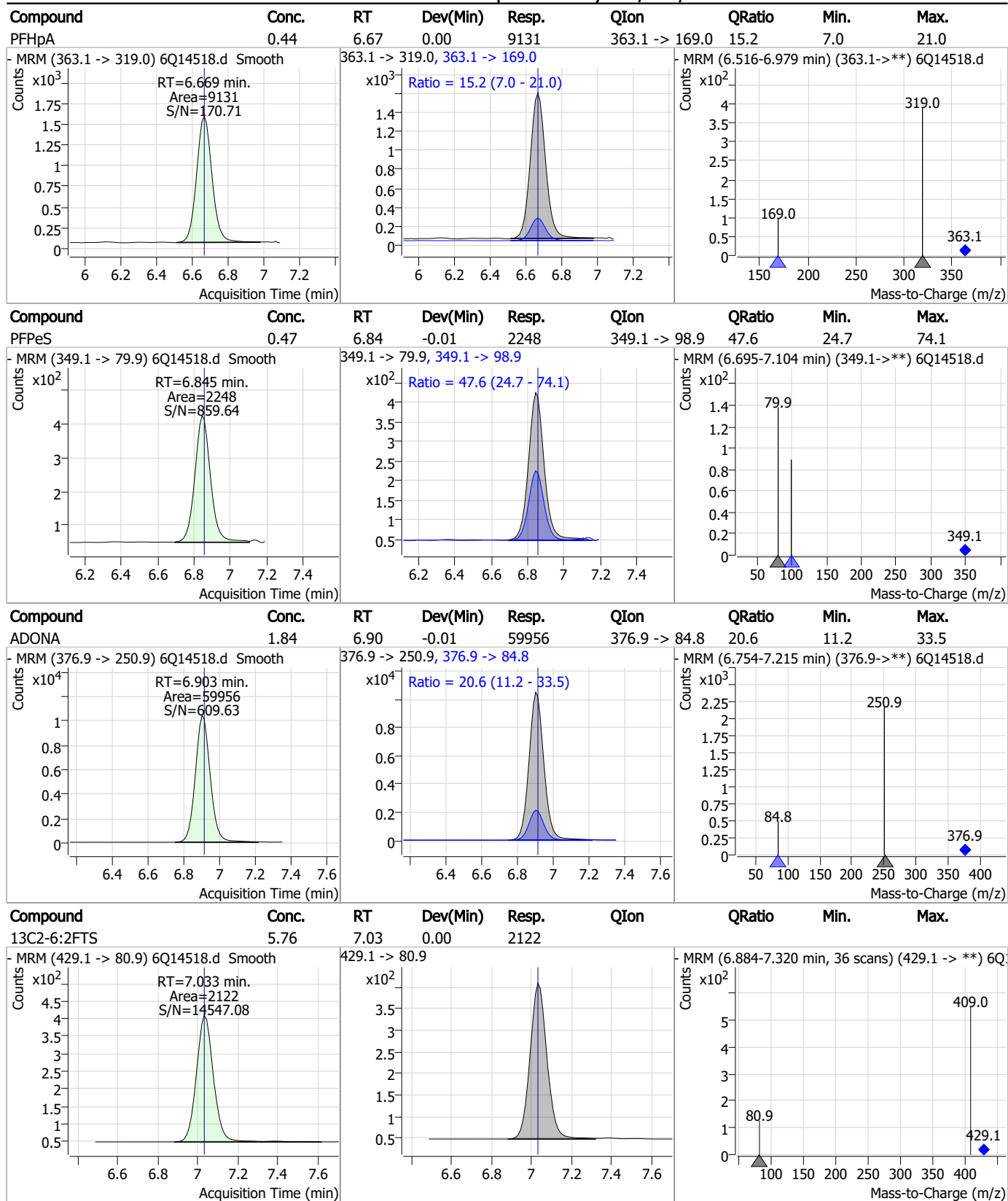
Perfluorinated Compounds by LC/MS/MS



7.8.3
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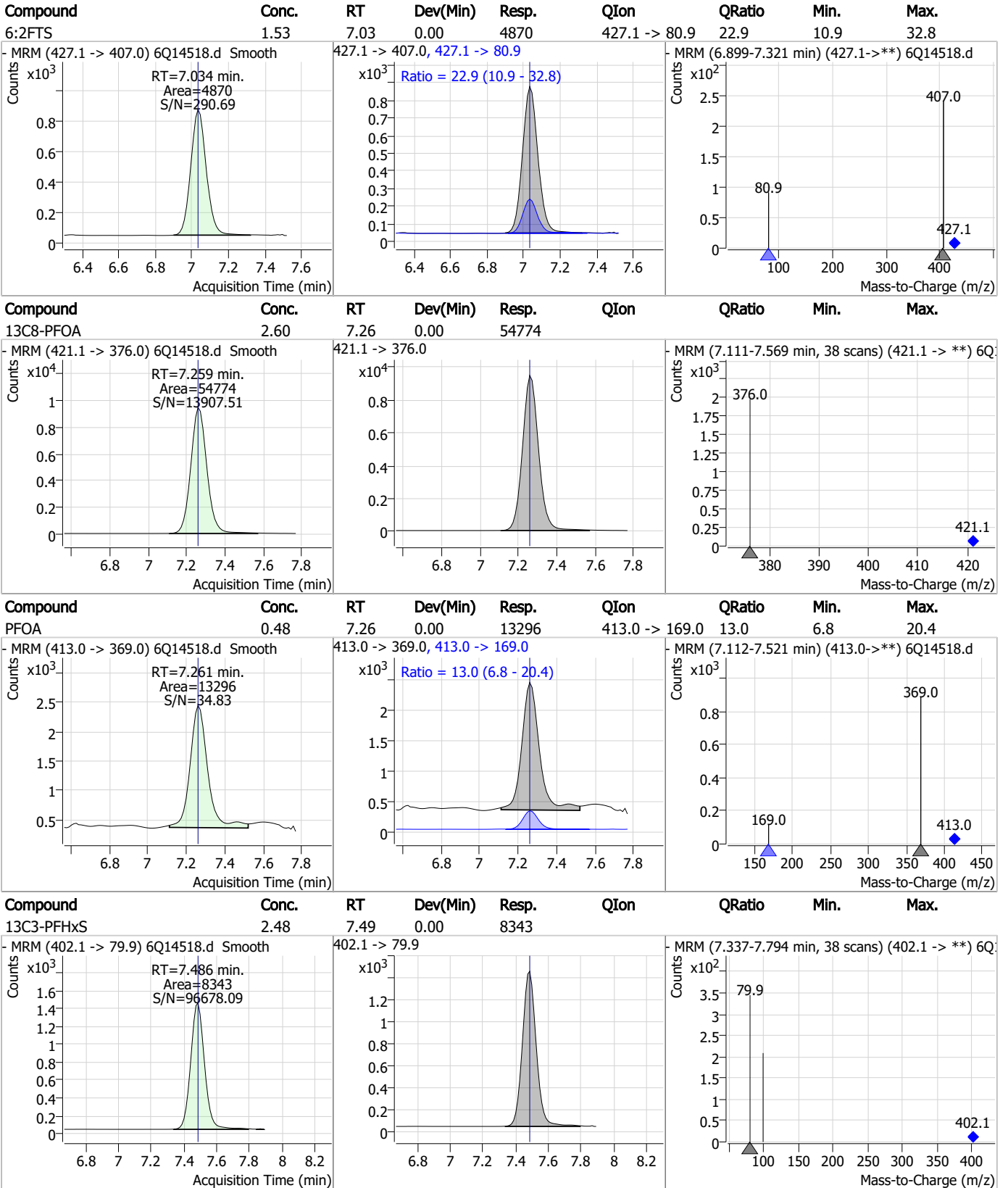
Perfluorinated Compounds by LC/MS/MS



7.8.3
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Perfluorinated Compounds by LC/MS/MS

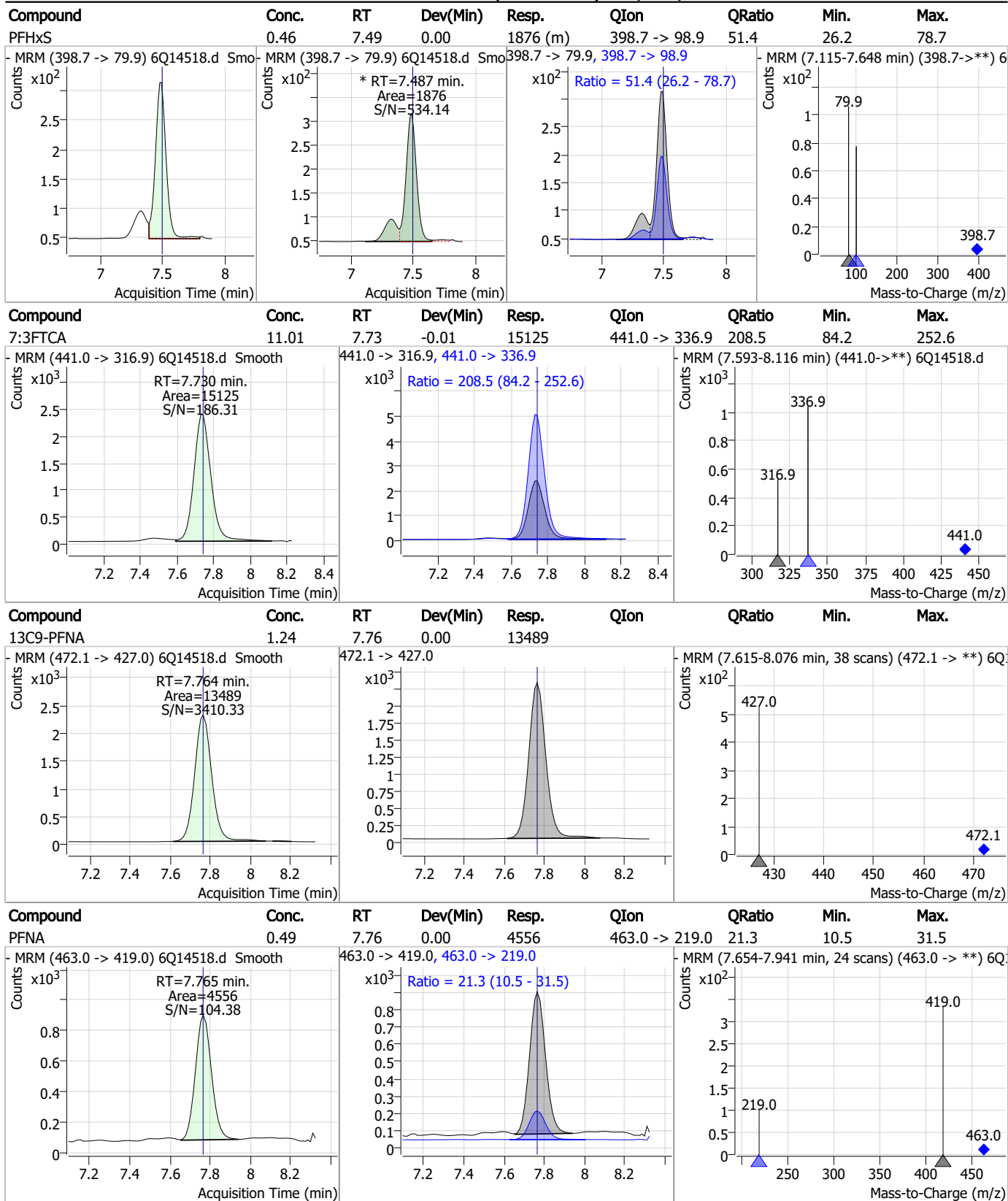


7.8.3

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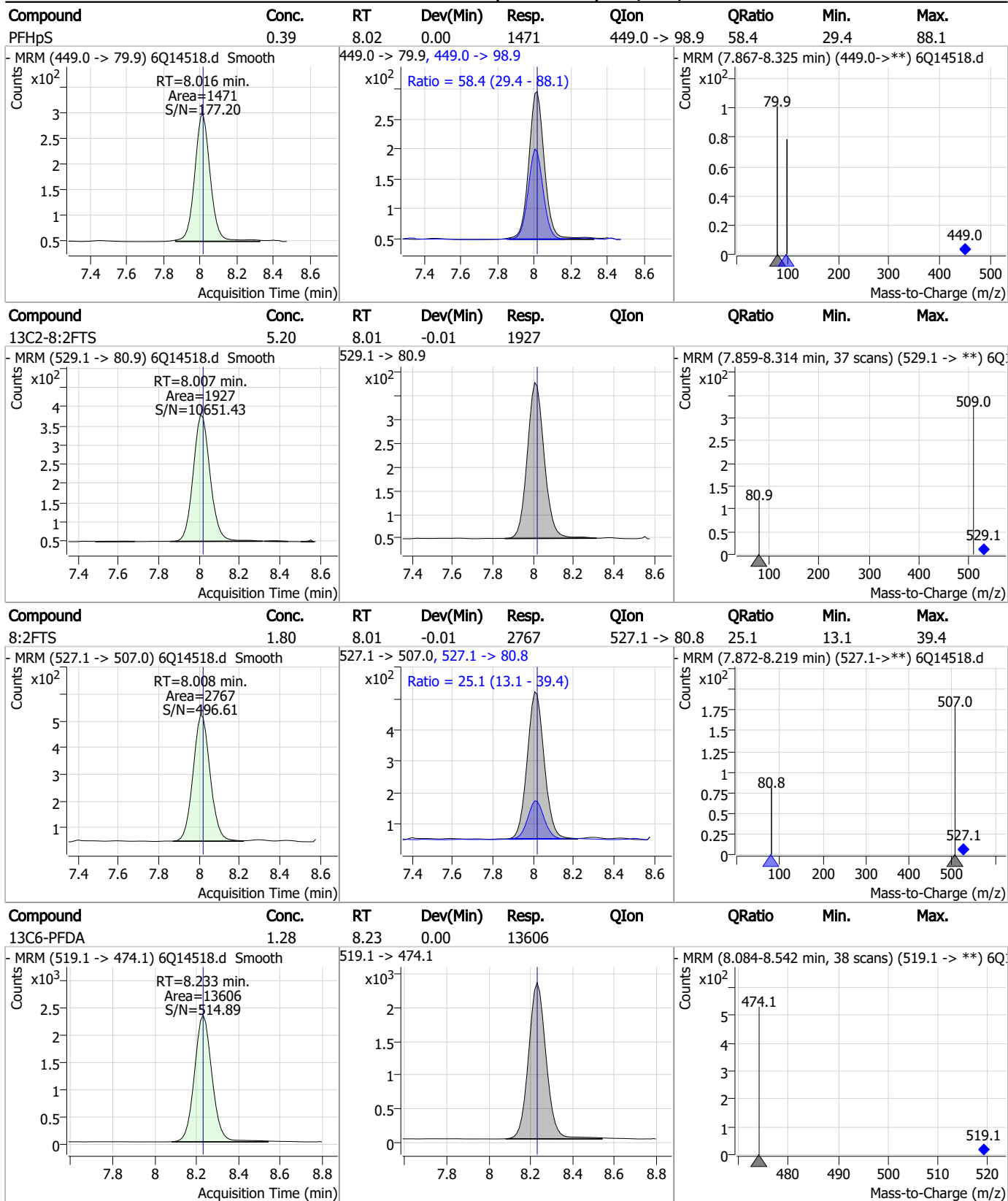


Perfluorinated Compounds by LC/MS/MS



7.8.3
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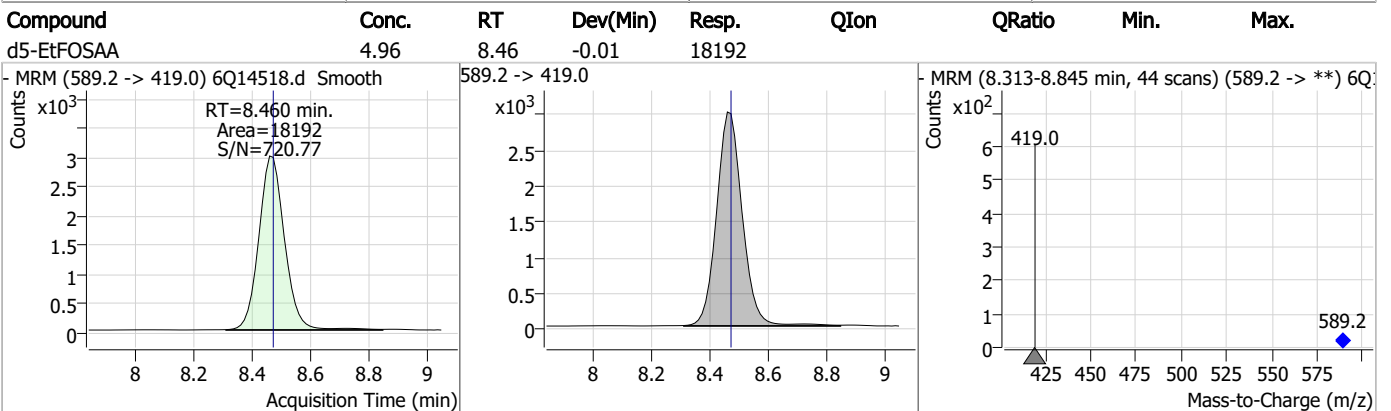
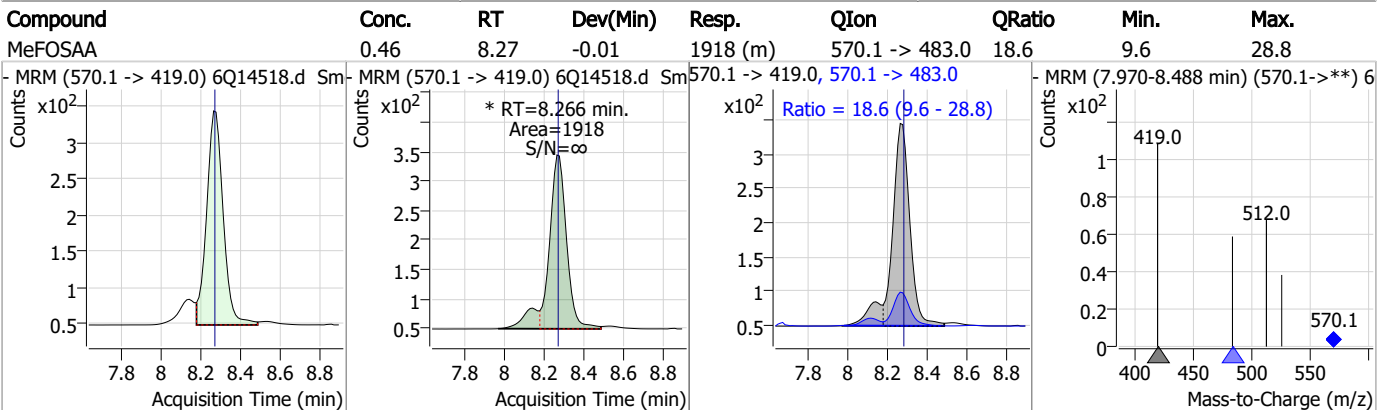
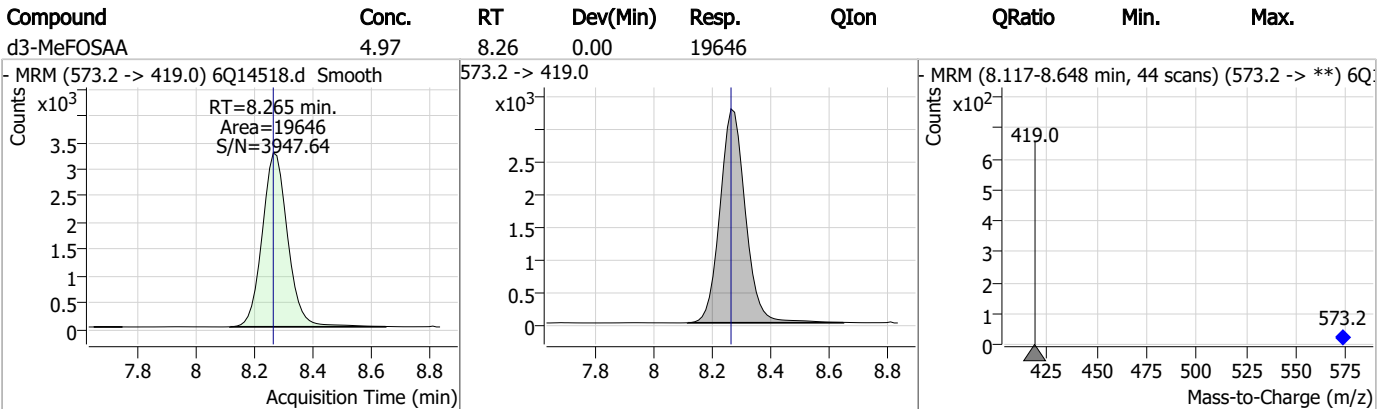
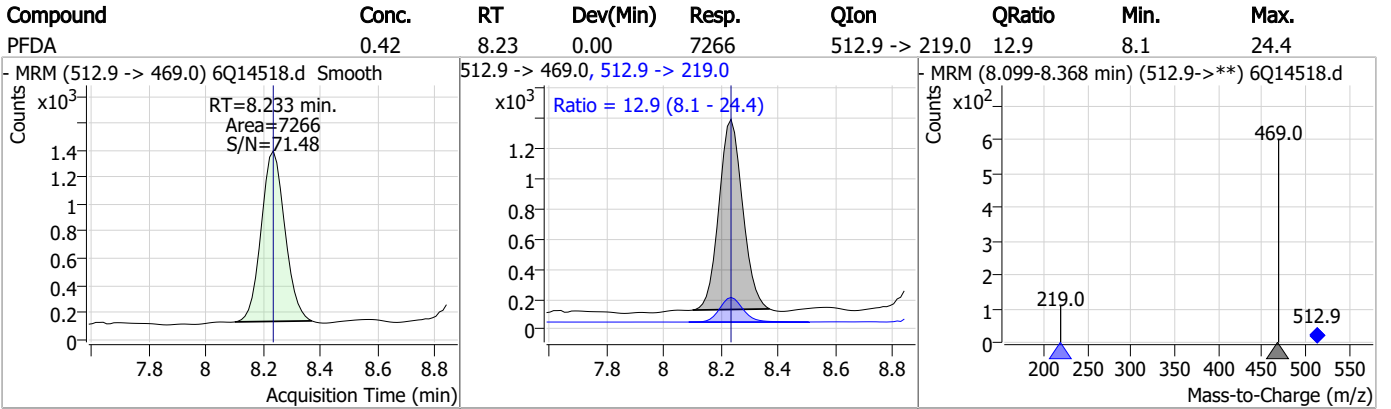
Perfluorinated Compounds by LC/MS/MS



7.8.3

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Perfluorinated Compounds by LC/MS/MS

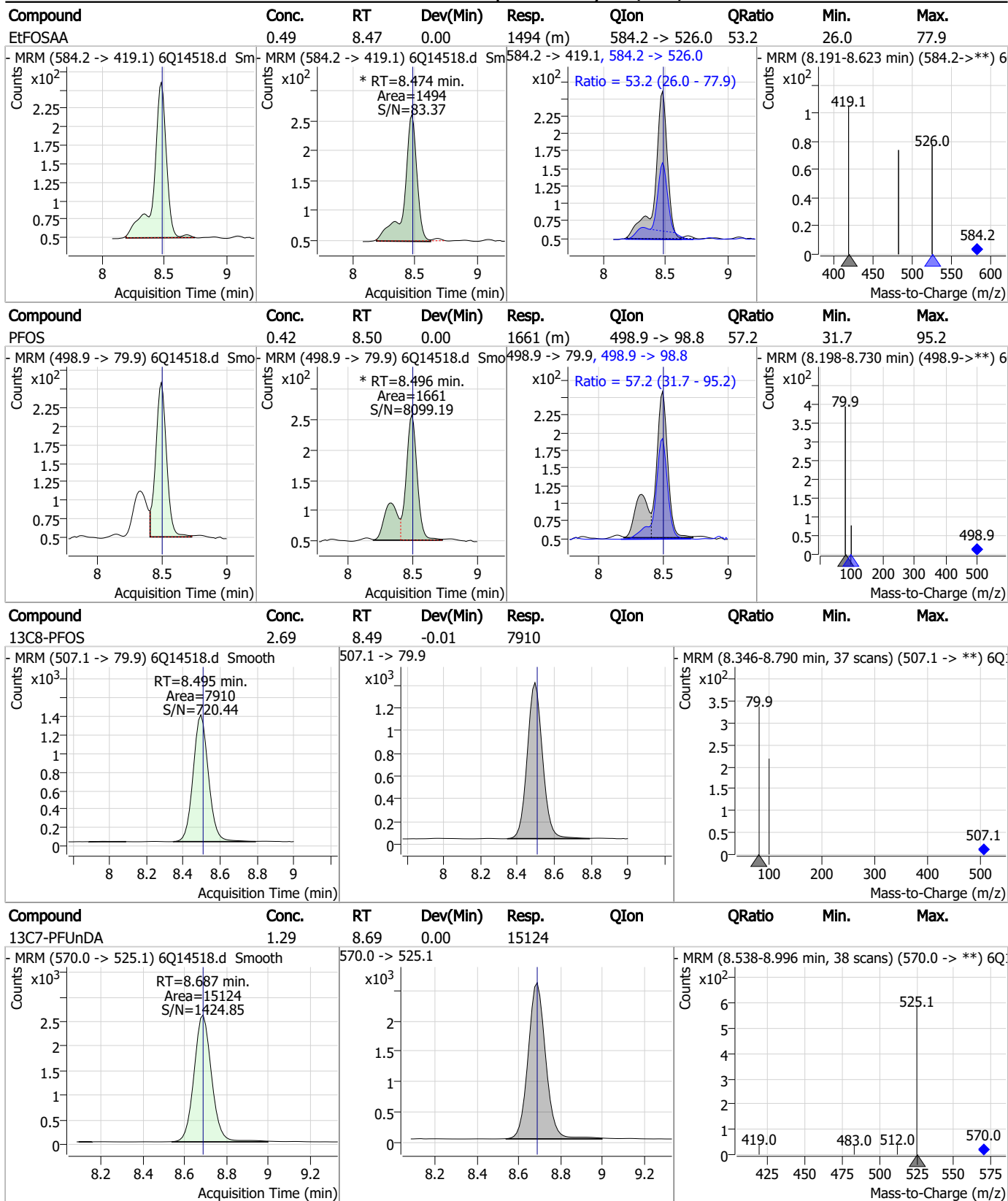


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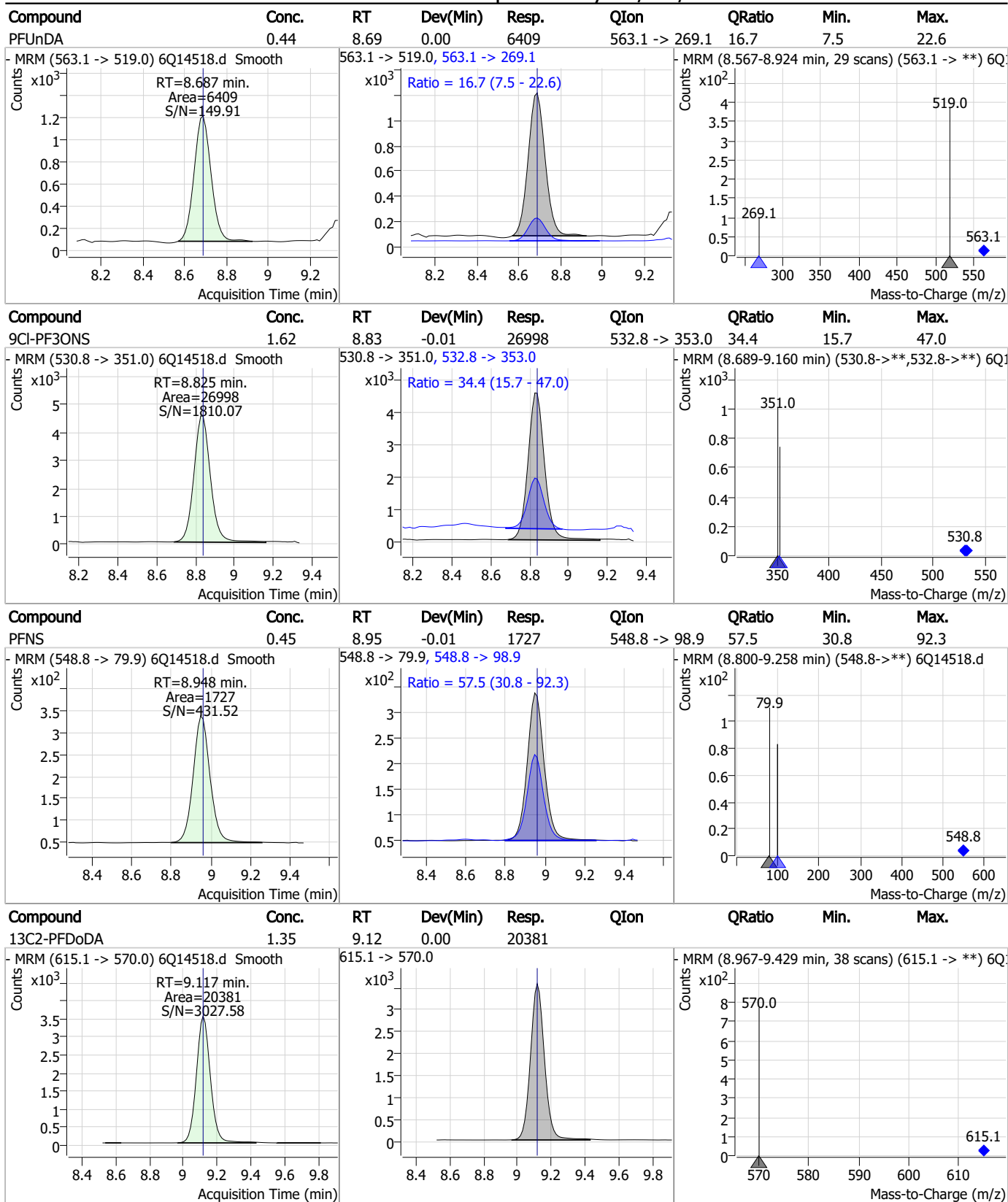


Perfluorinated Compounds by LC/MS/MS



7.8.3
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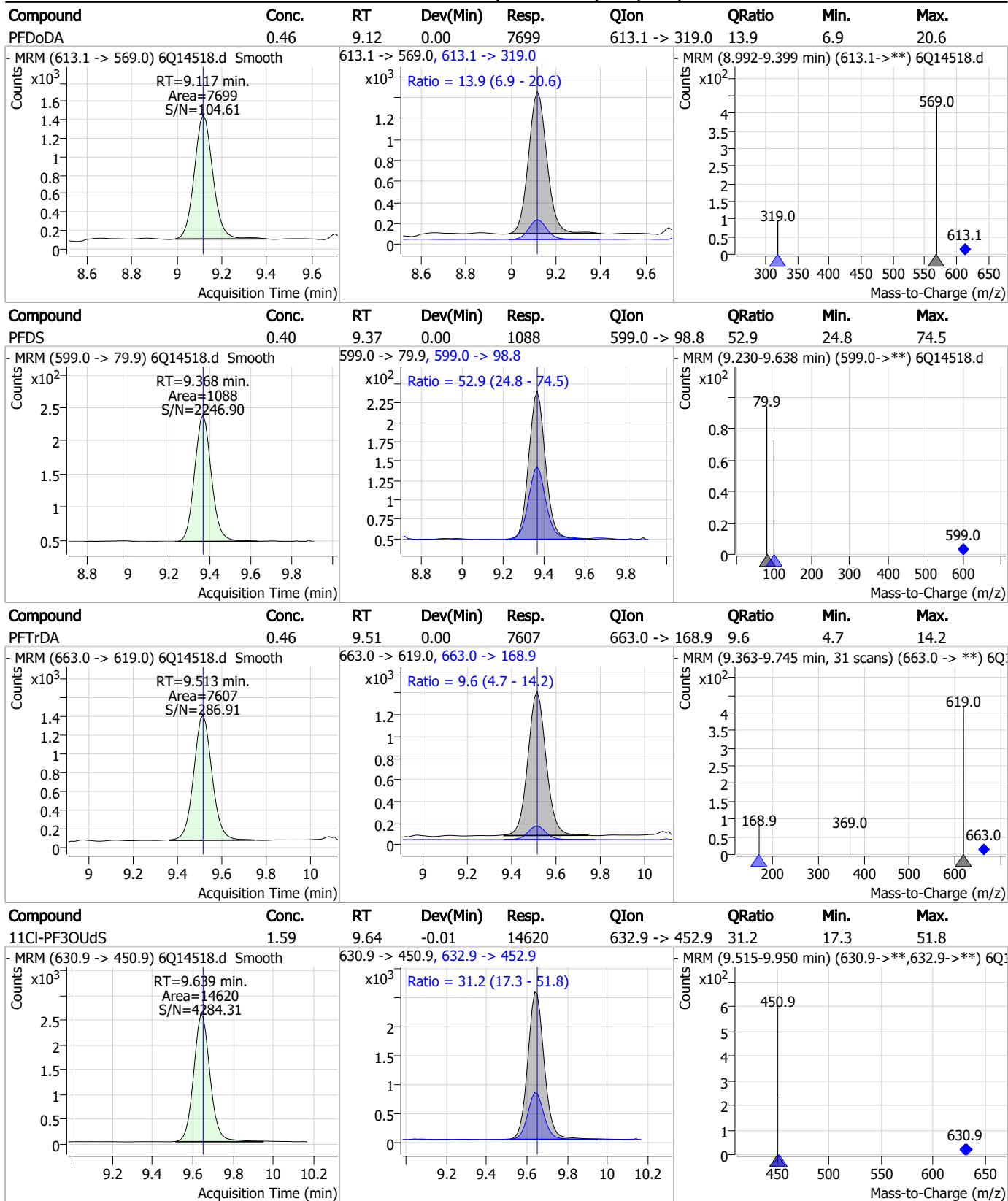
Perfluorinated Compounds by LC/MS/MS



7.8.3

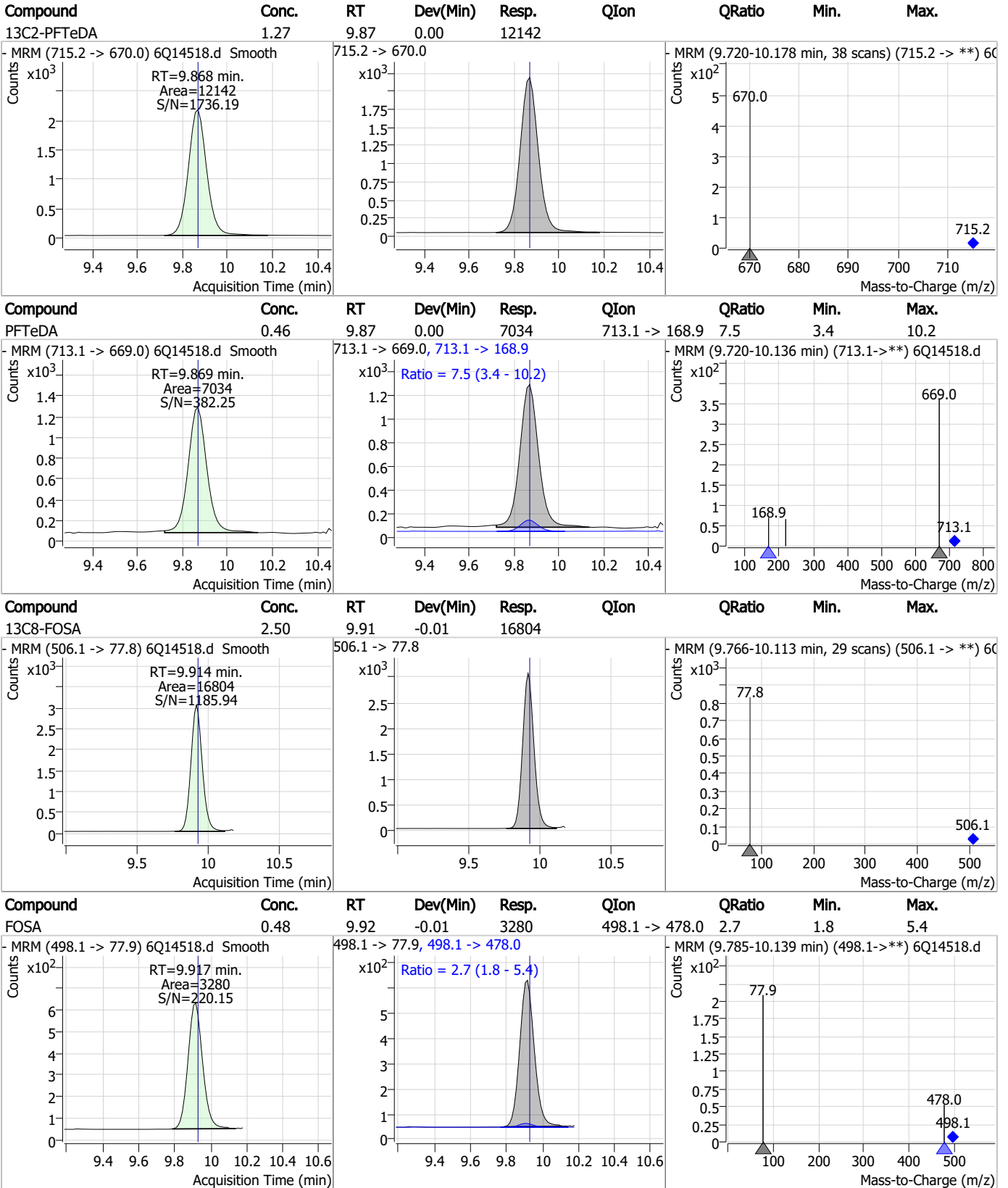
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Perfluorinated Compounds by LC/MS/MS



7.8.3
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Perfluorinated Compounds by LC/MS/MS

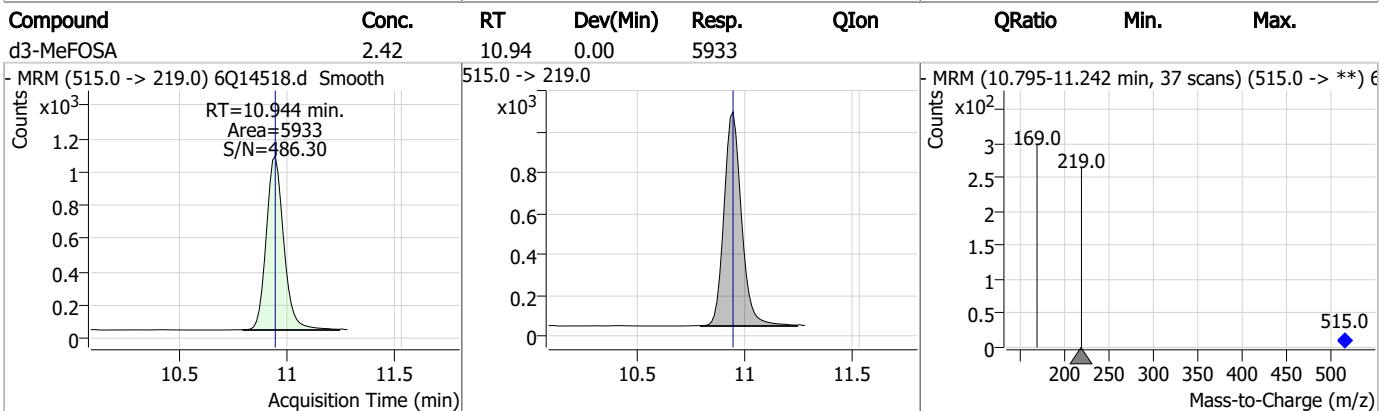
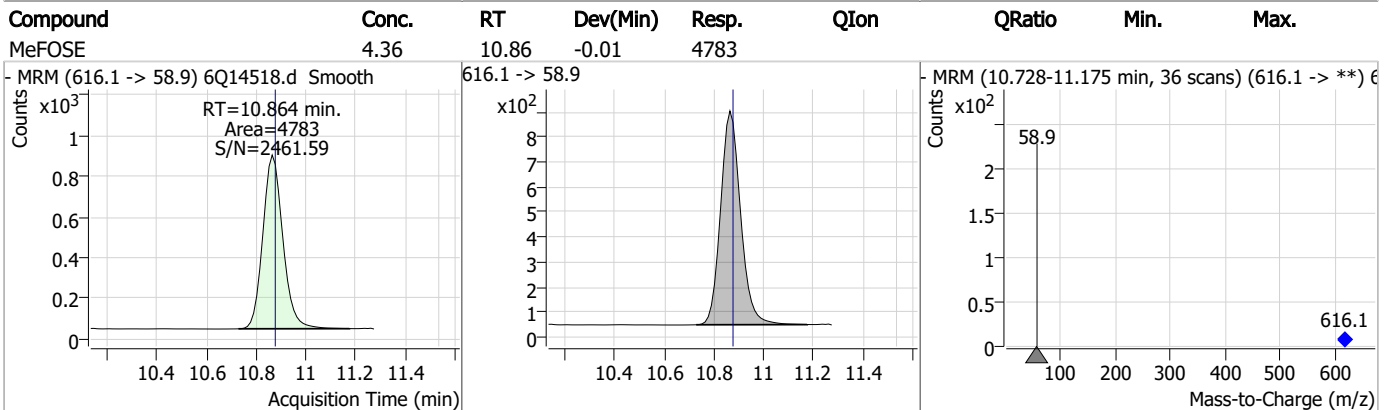
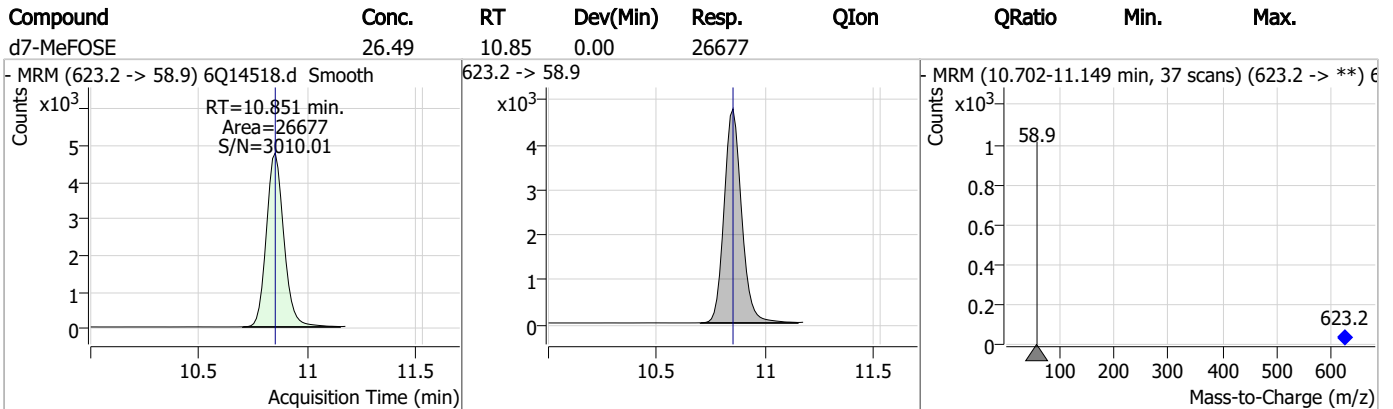
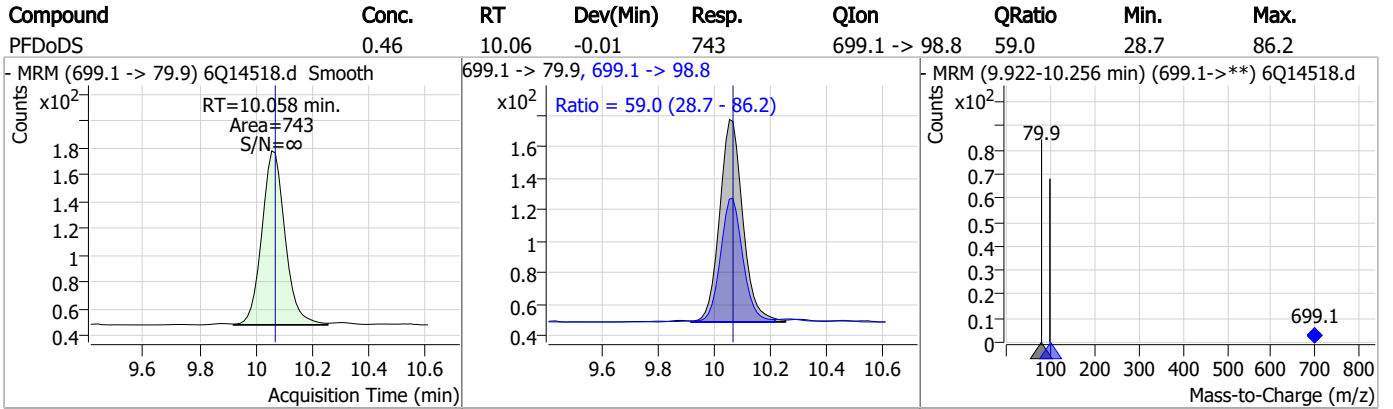


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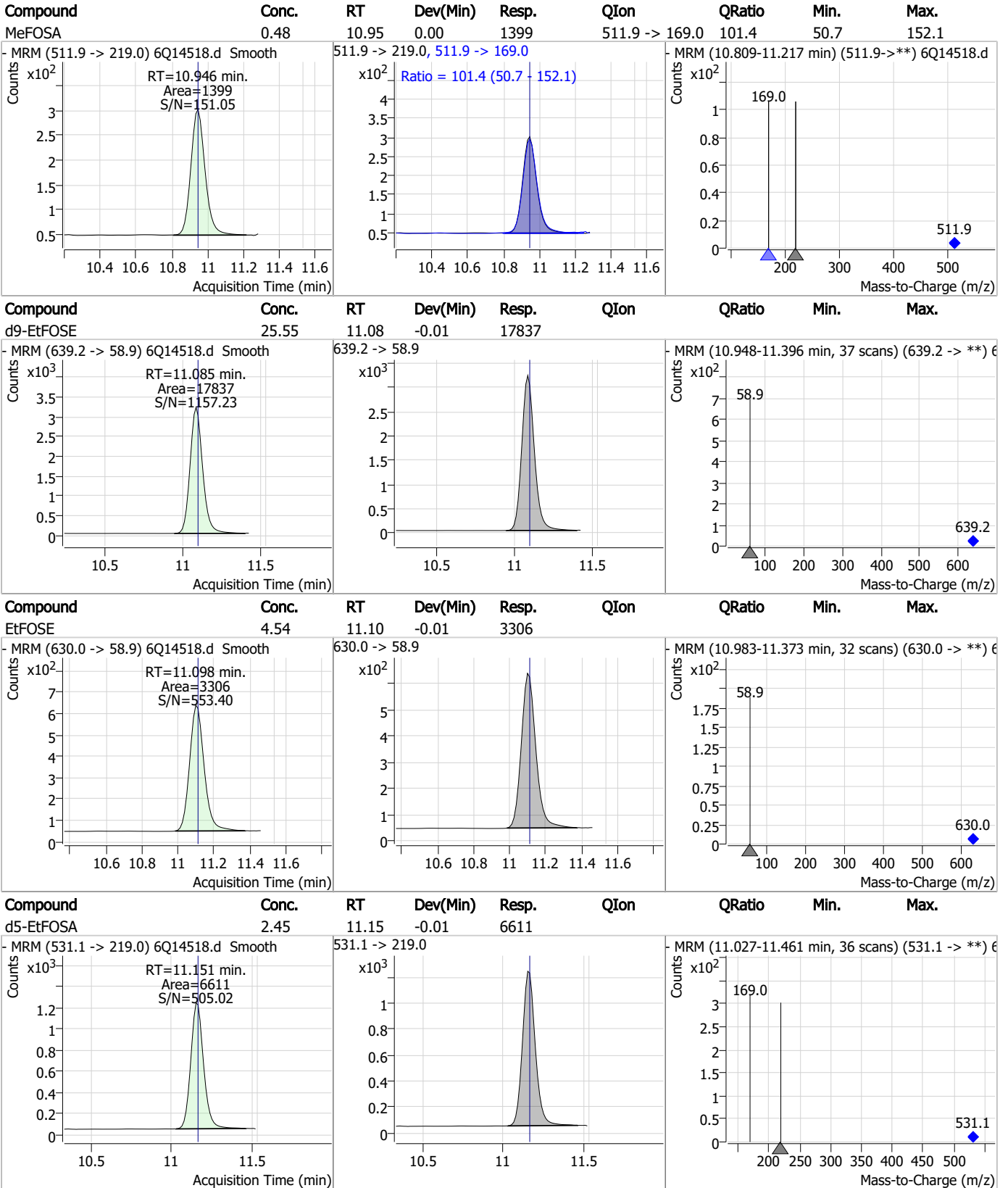
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

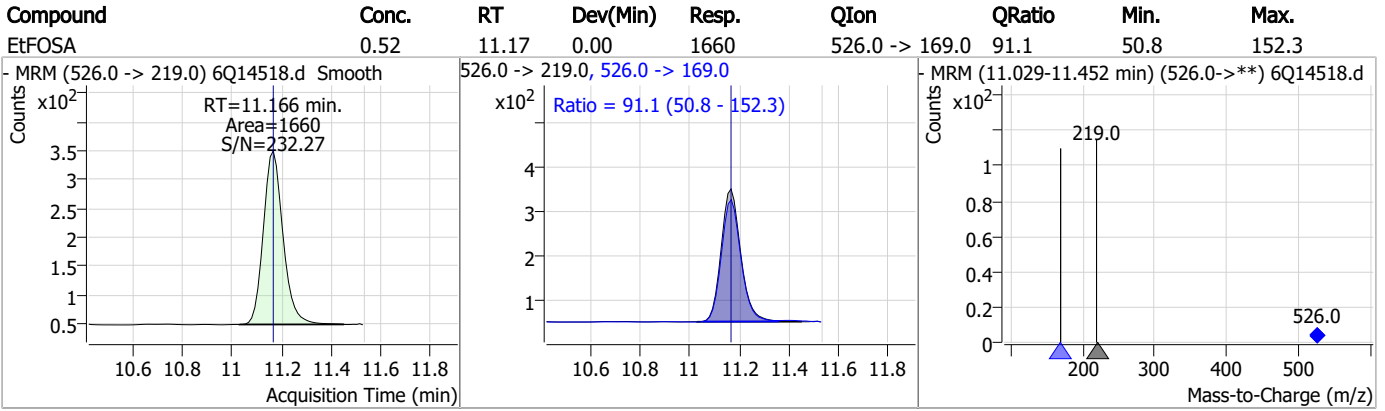


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Perfluorinated Compounds by LC/MS/MS



7.8.3

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Manual Integration Approval Summary

Sample Number: S6Q220-IC220 Method: EPA DRAFT 1633
Lab FileID: 6Q14518.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 13:14 Supervisor approved: 03/10/23 10:46 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.49	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.50	Split peak

7.8.3.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14519.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 1:28:07 PM
 Sample Name : ic220-3
 Vial : P1-A4
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.075	216.8 -> 171.9	78797	10.00 µg/L	0.000
M5-PFPeA	4.615	268.3 -> 223.0	38650	5.00 µg/L	0.000
M5-PFHxA	5.810	318.0 -> 273.0	32904	2.50 µg/L	0.000
M4-PFHpA	6.668	367.1 -> 322.0	32263	2.50 µg/L	0.000
M8-PFOA	7.272	421.1 -> 376.0	56426	2.50 µg/L	0.012
M9-PFNA	7.764	472.1 -> 427.0	14478	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	13076	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	14911	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	19759	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	11521	1.25 µg/L	0.000
M8-FOSA	9.914	506.1 -> 77.8	17035	2.50 µg/L	-0.012
M3-PFBS	5.901	302.1 -> 79.9	12583	2.50 µg/L	0.000
M3-PFHxS	7.486	402.1 -> 79.9	8456	2.50 µg/L	0.000
M8-PFOS	8.495	507.1 -> 79.9	7832	2.50 µg/L	-0.012
M2-4:2FTS	5.475	329.1 -> 80.9	1507	5.00 µg/L	0.000
M2-6:2FTS	7.046	429.1 -> 80.9	1900	5.00 µg/L	0.012
M2-8:2FTS	8.019	529.1 -> 80.9	1790	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	19380	5.00 µg/L	0.012
M3-HFPO-DA	6.151	286.9 -> 168.9	14895	10.00 µg/L	0.000
M5-EtFOSAA	8.473	589.2 -> 419.0	18085	5.00 µg/L	0.000
M7-MeFOSE	10.851	623.2 -> 58.9	25951	25.00 µg/L	0.000
M9-EtFOSE	11.085	639.2 -> 58.9	19494	25.00 µg/L	-0.012
M5-EtFOSA	11.164	531.1 -> 219.0	6737	2.50 µg/L	0.000
M3-MeFOSA	10.944	515.0 -> 219.0	6351	2.50 µg/L	0.000
13C4-PFOS	8.495	502.8 -> 79.9	8277	2.50 µg/L	0.000
13C3-PFBA	3.078	216.0 -> 172.0	33966	5.00 µg/L	0.000
18O2-PFHxS	7.498	403.0 -> 83.9	5817	2.50 µg/L	0.000
13C4-PFOA	7.272	417.1 -> 372.0	63037	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	18551	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	15342	1.25 µg/L	0.000
13C2-PFHxA	5.811	315.1 -> 270.0	32578	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.475	329.1 -> 80.9	1507	5.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C2-6:2FTS	7.046	429.1 -> 80.9	1900	5.22 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C2-8:2FTS	8.019	529.1 -> 80.9	1790	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C2-PFDoDA	9.117	615.1 -> 570.0	19759	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-PFTeDA	9.868	715.2 -> 670.0	11521	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.4%		
13C3-PFBS	5.901	302.1 -> 79.9	12583	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C3-PFHxS	7.486	402.1 -> 79.9	8456	2.54 µg/L	0.000

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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 = 101.6%		
13C4-PFBA	3.075	216.8 -> 171.9	78797	10.10 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C4-PFHpA	6.668	367.1 -> 322.0	32263	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C5-PFHxA	5.810	318.0 -> 273.0	32904	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C5-PFPeA	4.615	268.3 -> 223.0	38650	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C6-PFDA	8.233	519.1 -> 474.1	13076	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.2%		
13C7-PFUnDA	8.687	570.0 -> 525.1	14911	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C8-FOSA	9.914	506.1 -> 77.8	17035	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C8-PFOA	7.272	421.1 -> 376.0	56426	2.69 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.5%		
13C8-PFOS	8.495	507.1 -> 79.9	7832	2.76 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.5%		
13C9-PFNA	7.764	472.1 -> 427.0	14478	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.9%		
d3-MeFOSAA	8.277	573.2 -> 419.0	19380	5.08 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C3-HFPO-DA	6.151	286.9 -> 168.9	14895	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
d3-MeFOSA	10.944	515.0 -> 219.0	6351	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.2%		
d5-EtFOSAA	8.473	589.2 -> 419.0	18085	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
d7-MeFOSE	10.851	623.2 -> 58.9	25951	26.70 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 106.8%		
d9-EtFOSE	11.085	639.2 -> 58.9	19494	28.94 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 115.7%		
d5-EtFOSA	11.164	531.1 -> 219.0	6737	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.4%		
Target Compounds					QValue
4:2FTS	5.476	327.1 -> 307.0	15359	4.52 µg/L	94
		327.1 -> 80.9	4204		
6:2FTS	7.046	427.1 -> 407.0	14042	4.91 µg/L	99
		427.1 -> 80.9	3001		
8:2FTS	8.020	527.1 -> 507.0	7830	5.50 µg/L	94
		527.1 -> 80.8	2281		
EtFOSAA	8.474	584.2 -> 419.1	3447	1.13 µg/L	m 85
		584.2 -> 526.0	2151		
FOSA	9.917	498.1 -> 77.9	8498	1.22 µg/L	97
		498.1 -> 478.0	379		
MeFOSAA	8.278	570.1 -> 419.0	5439	1.33 µg/L	m 99
		570.1 -> 483.0	1013		
PFBA	3.082	212.8 -> 168.9	10357	4.79 µg/L	100
PFBS	5.902	298.7 -> 79.9	6024	1.14 µg/L	88
		298.7 -> 98.8	2891		
PFDA	8.233	512.9 -> 469.0	21259	1.27 µg/L	94
		512.9 -> 219.0	2892		
PFDODA	9.117	613.1 -> 569.0	19178	1.18 µg/L	97
		613.1 -> 319.0	2421		
PFDS	9.368	599.0 -> 79.9	3127	1.17 µg/L	94

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1691			
PFHpA	6.681	363.1 -> 319.0	27044	1.31	µg/L	97
		363.1 -> 169.0	3479			
PFHpS	8.016	449.0 -> 79.9	4158	1.12	µg/L	92
		449.0 -> 98.9	2186			
PFHxA	5.813	313.0 -> 269.0	16921	1.29	µg/L	100
		313.0 -> 118.9	745			
PFHxS	7.487	398.7 -> 79.9	4667	1.13	µg/L	m 96
		398.7 -> 98.9	2321			
PFNA	7.765	463.0 -> 419.0	12663	1.27	µg/L	92
		463.0 -> 219.0	2163			
PFNS	8.961	548.8 -> 79.9	4430	1.17	µg/L	85
		548.8 -> 98.9	2231			
PFOA	7.273	413.0 -> 369.0	32913	1.17	µg/L	100
		413.0 -> 169.0	4542			
PFOS	8.496	498.9 -> 79.9	4389	1.13	µg/L	m 89
		498.9 -> 98.8	2416			
PFPeA	4.617	263.0 -> 219.0	22287	2.48	µg/L	100
PFPeS	6.857	349.1 -> 79.9	5945	1.22	µg/L	100
		349.1 -> 98.9	2931			
PFTeDA	9.869	713.1 -> 669.0	17661	1.23	µg/L	99
		713.1 -> 168.9	1251			
PFTrDA	9.513	663.0 -> 619.0	22404	1.38	µg/L	96
		663.0 -> 168.9	1777			
PFUnDA	8.687	563.1 -> 519.0	18924	1.31	µg/L	99
		563.1 -> 269.1	2748			
11CI-PF3OUdS	9.639	630.9 -> 450.9	43302	4.92	µg/L	95
		632.9 -> 452.9	13690			
9CI-PF3ONS	8.838	530.8 -> 351.0	74683	4.67	µg/L	96
		532.8 -> 353.0	21866			
ADONA	6.916	376.9 -> 250.9	144402	4.62	µg/L	97
		376.9 -> 84.8	34608			
HFPO-DA	6.152	284.9 -> 168.9	7009	4.71	µg/L	94
		284.9 -> 184.9	1005			
3:3FTCA	4.001	241.0 -> 177.0	2782	6.09	µg/L	100
		241.0 -> 117.0	428			
5:3FTCA	6.394	341.0 -> 237.1	90286	31.64	µg/L	100
		341.0 -> 217.0	74532			
7:3FTCA	7.742	441.0 -> 316.9	41435	30.27	µg/L	83
		441.0 -> 336.9	79437			
EtFOSA	11.166	526.0 -> 219.0	4019	1.23	µg/L	100
		526.0 -> 169.0	4078			
EtFOSE	11.098	630.0 -> 58.9	8940	11.23	µg/L	100
MeFOSA	10.946	511.9 -> 219.0	3368	1.08	µg/L	87
		511.9 -> 169.0	3859			
MeFOSE	10.864	616.1 -> 58.9	13494	12.66	µg/L	100
PFDoDS	10.058	699.1 -> 79.9	1734	1.08	µg/L	90
		699.1 -> 98.8	1128			
NFDHA	5.681	295.0 -> 201.0	2309	2.57	µg/L	99
		295.0 -> 84.9	935			
PFMBA	5.014	279.0 -> 85.1	7053	2.34	µg/L	100
PFMPA	3.717	229.0 -> 84.9	6288	2.39	µg/L	100
PFEESA	6.396	314.8 -> 134.9	43354	2.31	µg/L	100
		314.8 -> 82.9	1133			

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

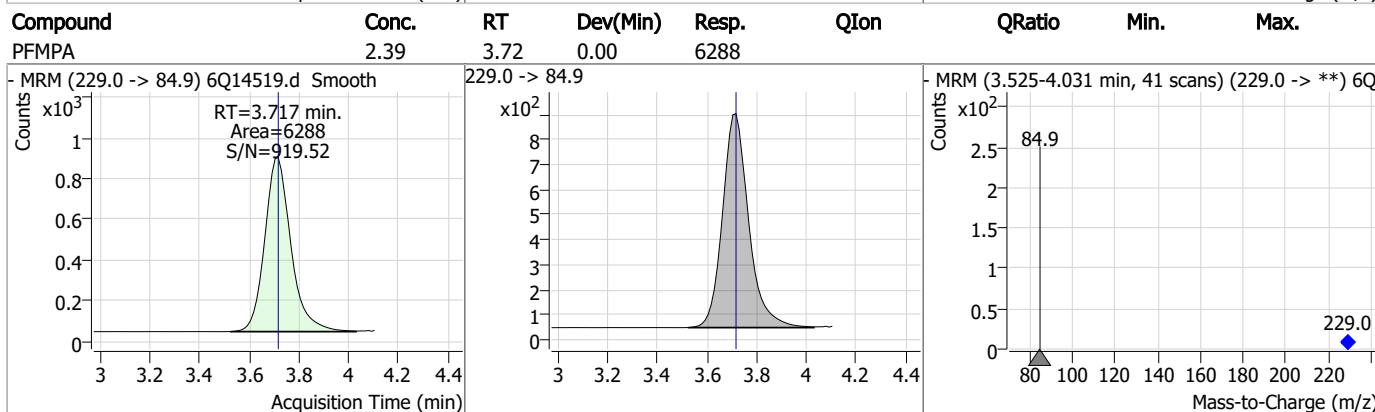
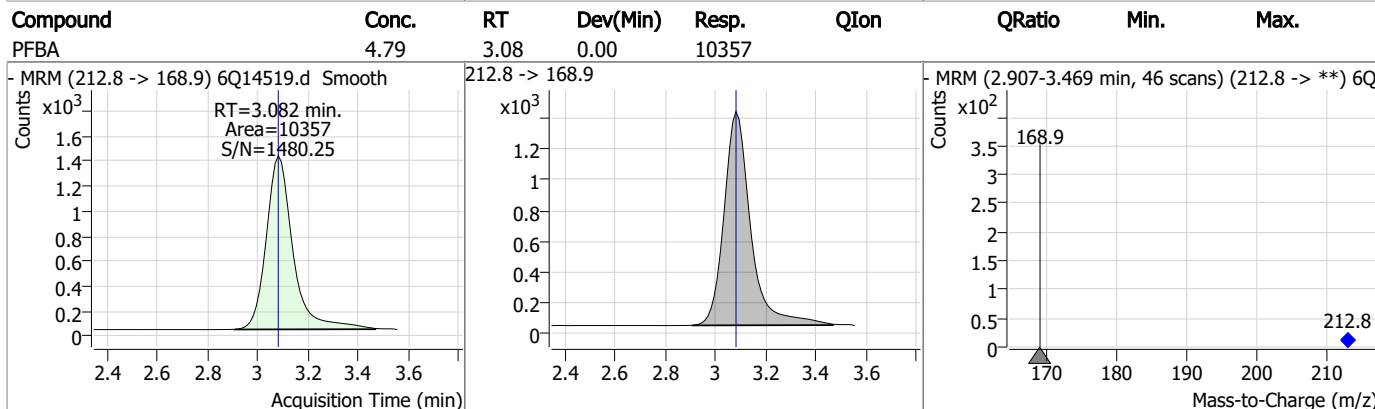
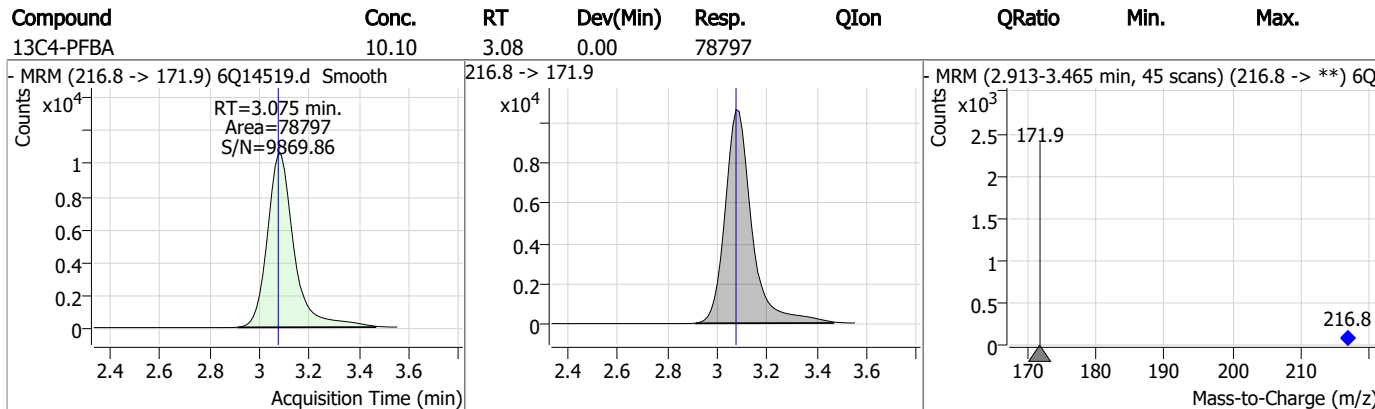
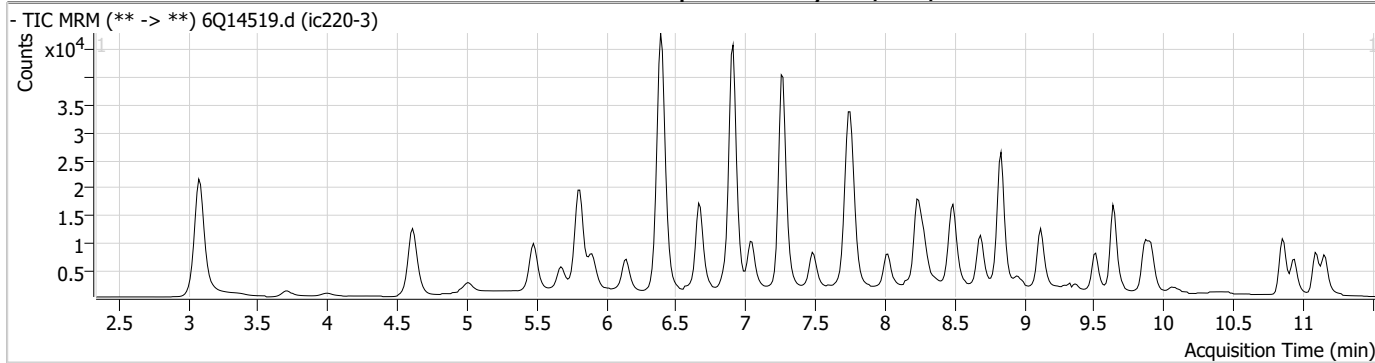
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.8.4

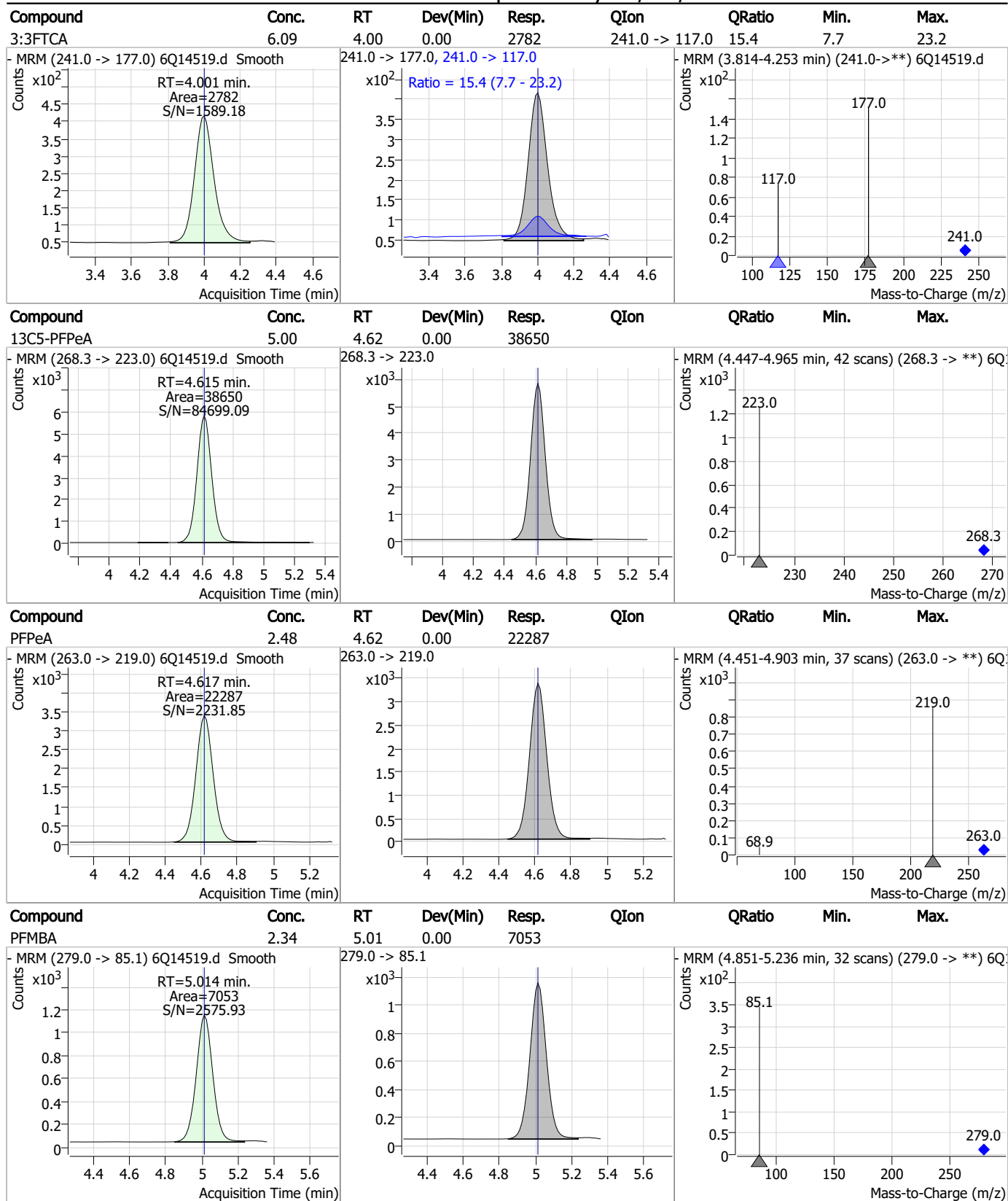
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Perfluorinated Compounds by LC/MS/MS



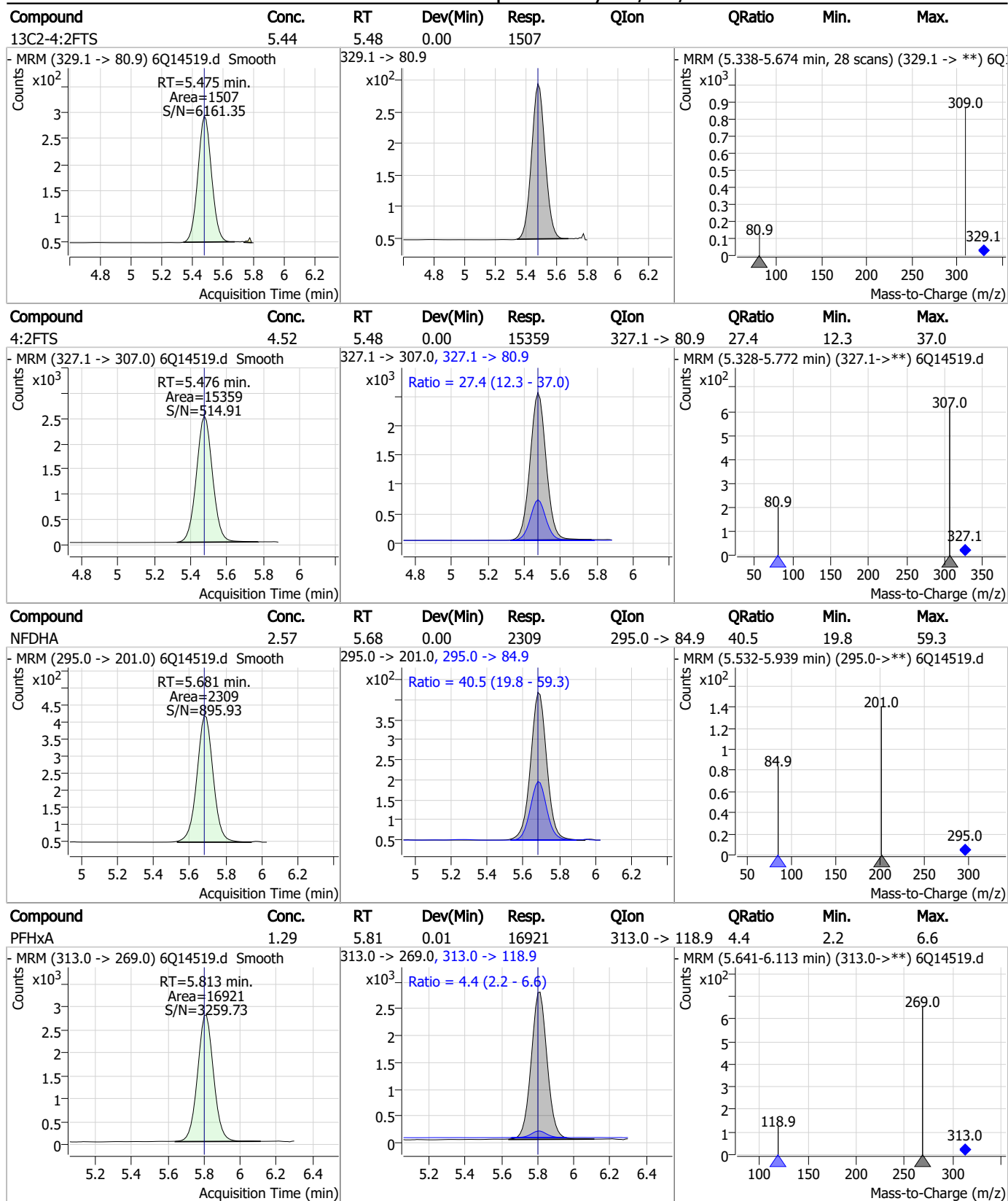
7.8.4
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Perfluorinated Compounds by LC/MS/MS



7.8.4
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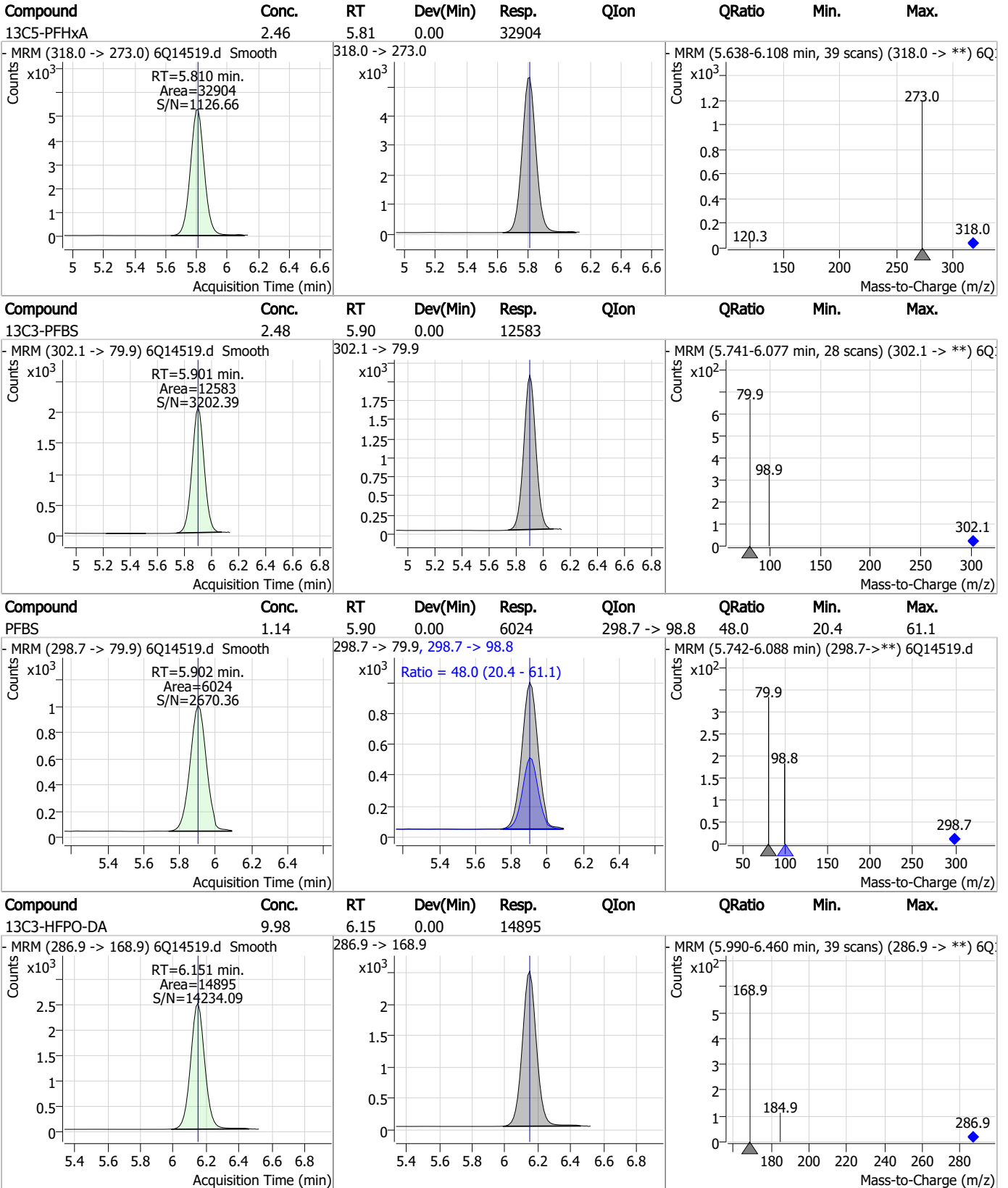
Perfluorinated Compounds by LC/MS/MS



7.8.4

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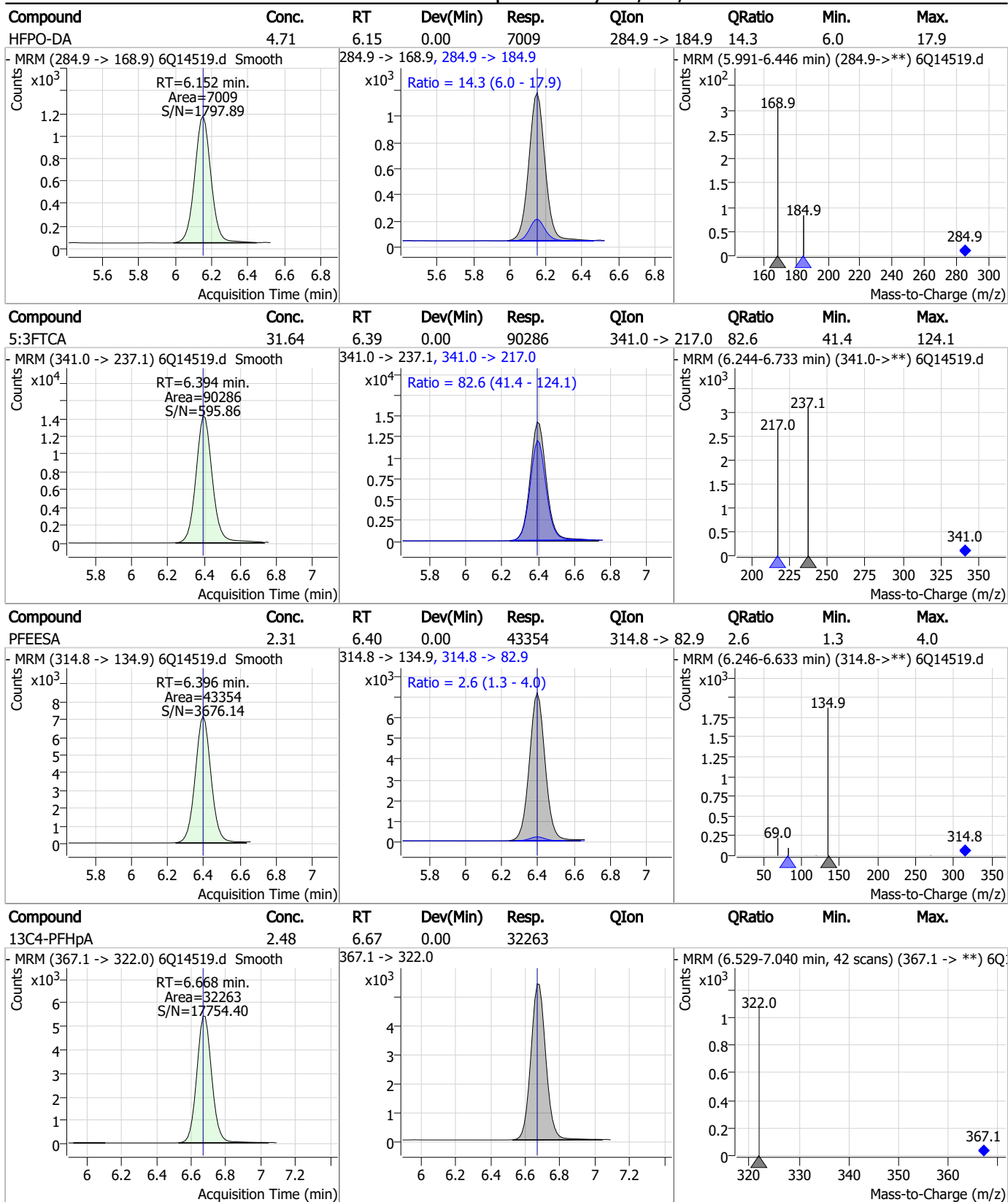
Perfluorinated Compounds by LC/MS/MS



7.8.4

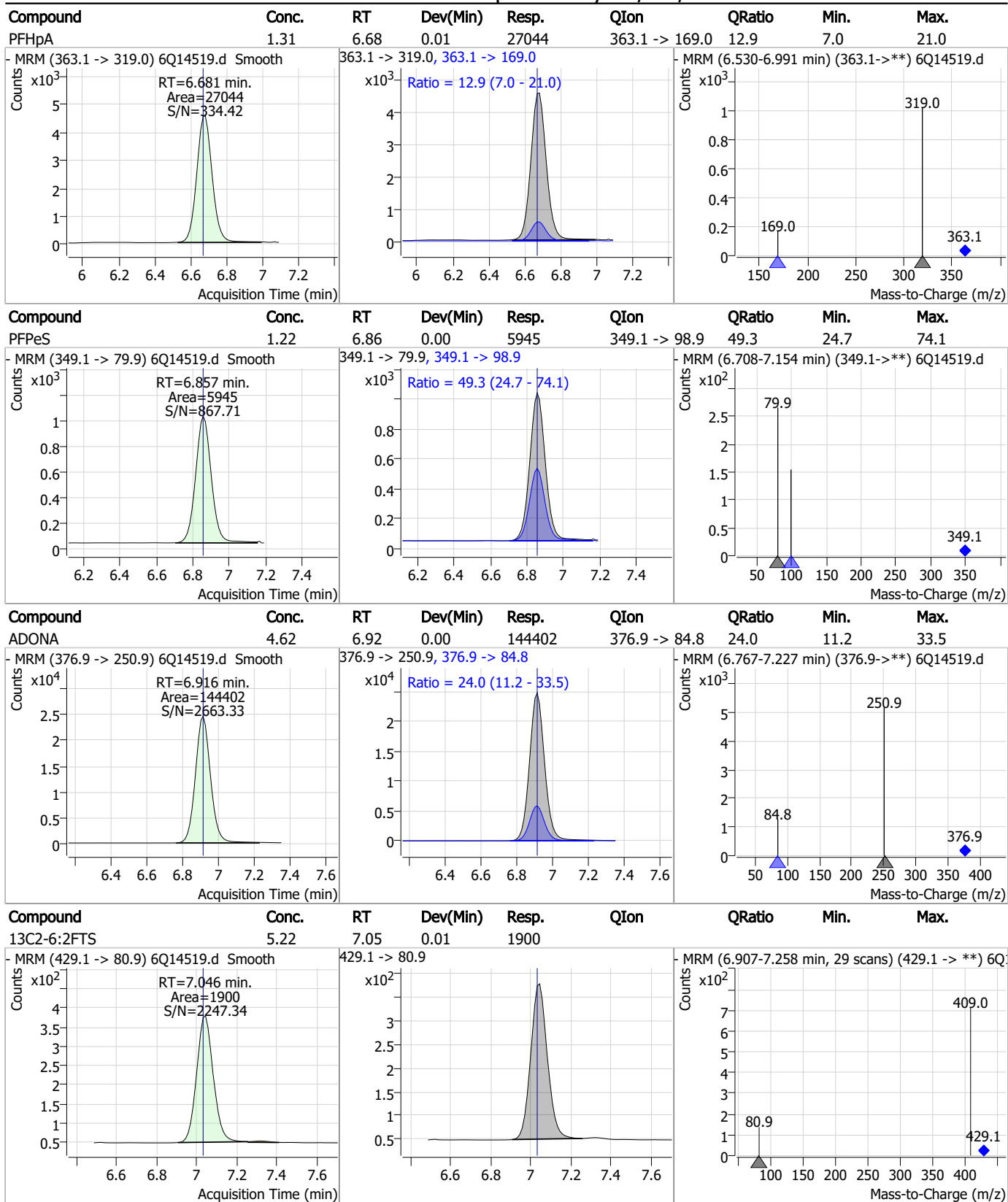
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Perfluorinated Compounds by LC/MS/MS



7.8.4
7

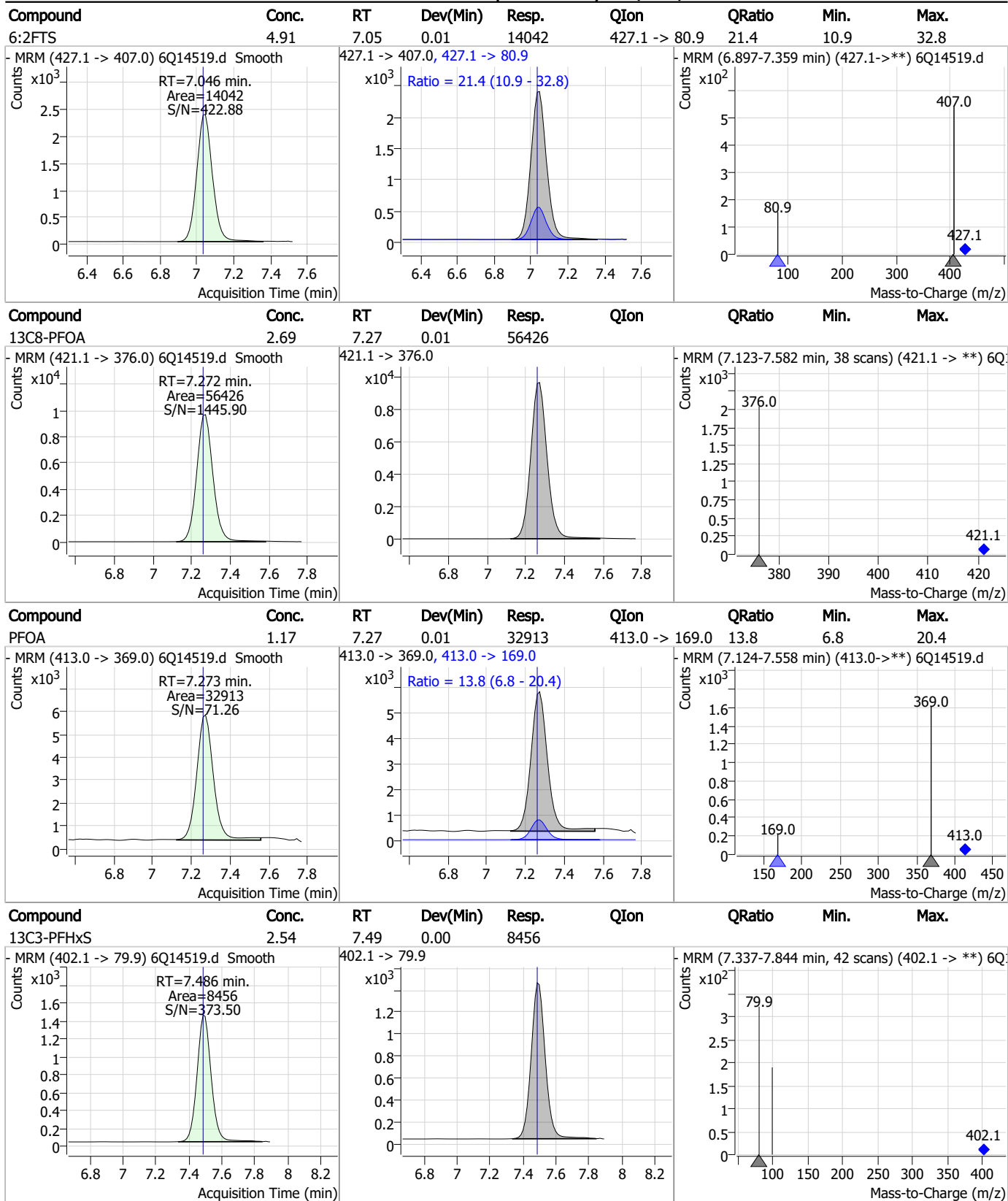
Perfluorinated Compounds by LC/MS/MS



7.8.4

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Perfluorinated Compounds by LC/MS/MS

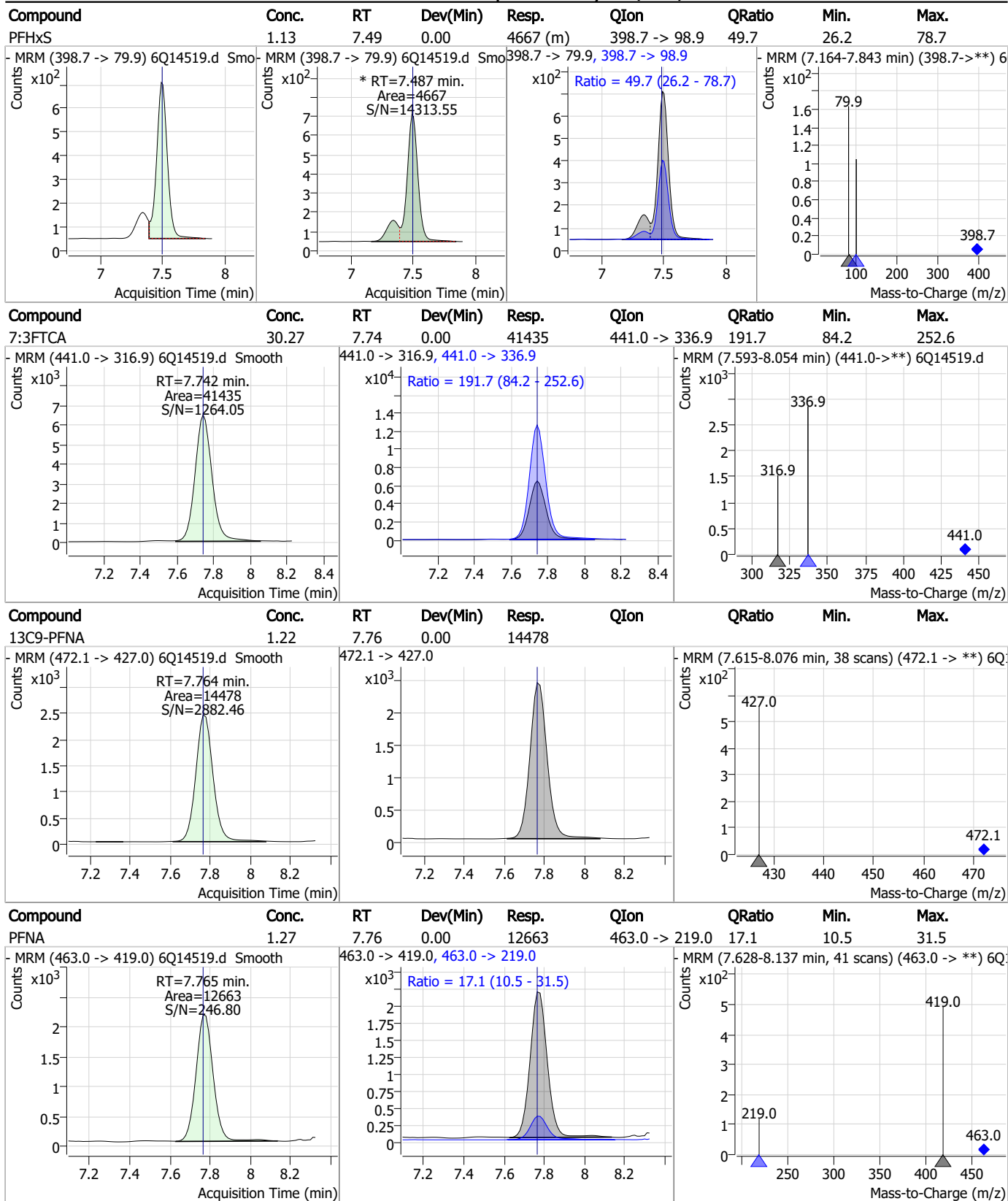


7.8.4

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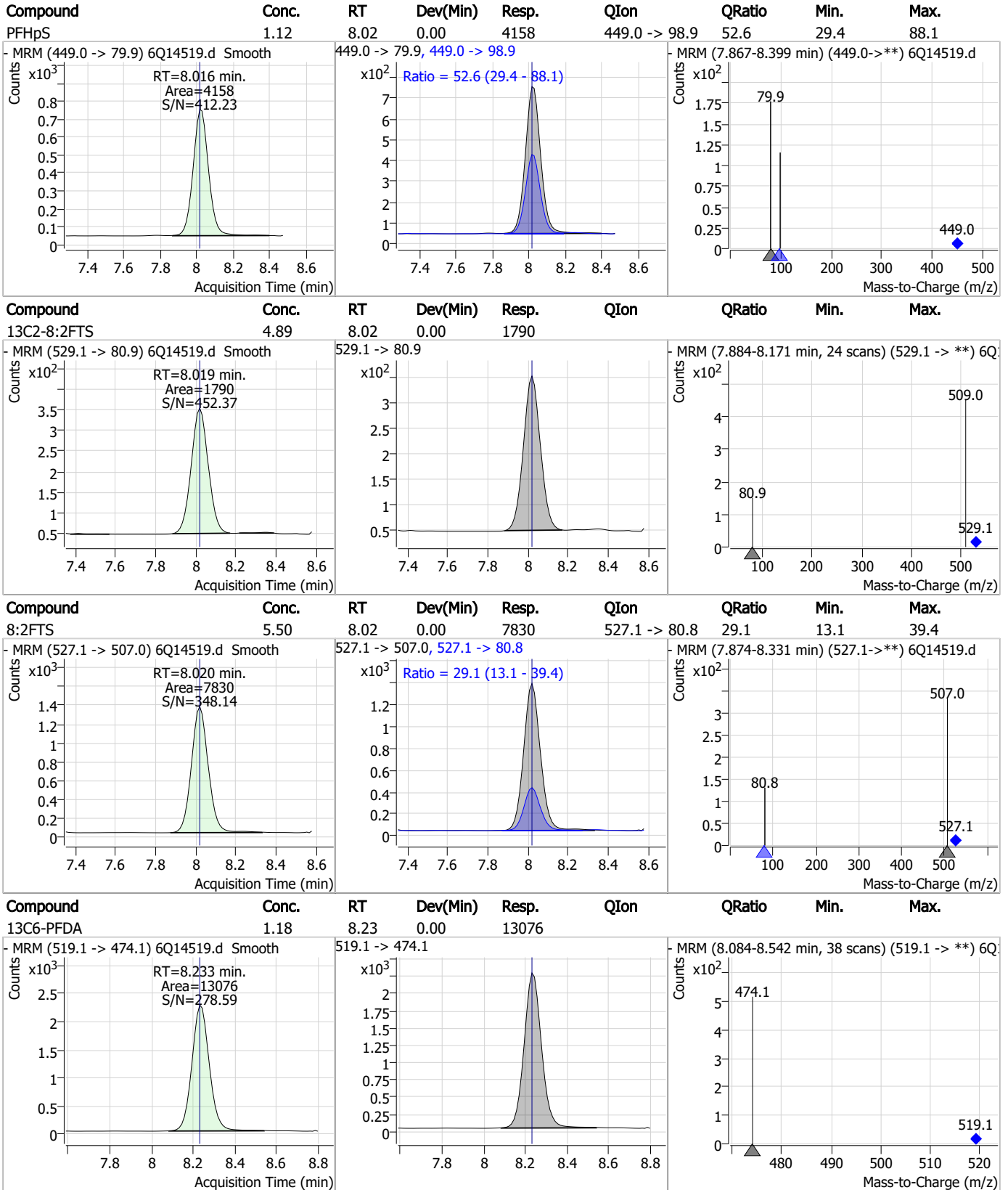


Perfluorinated Compounds by LC/MS/MS



7.8.4

Perfluorinated Compounds by LC/MS/MS

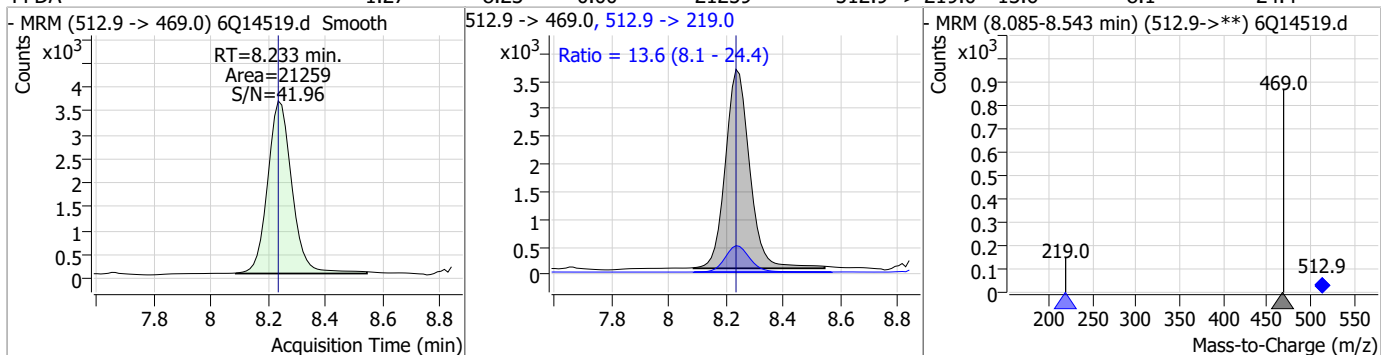


7.8.4

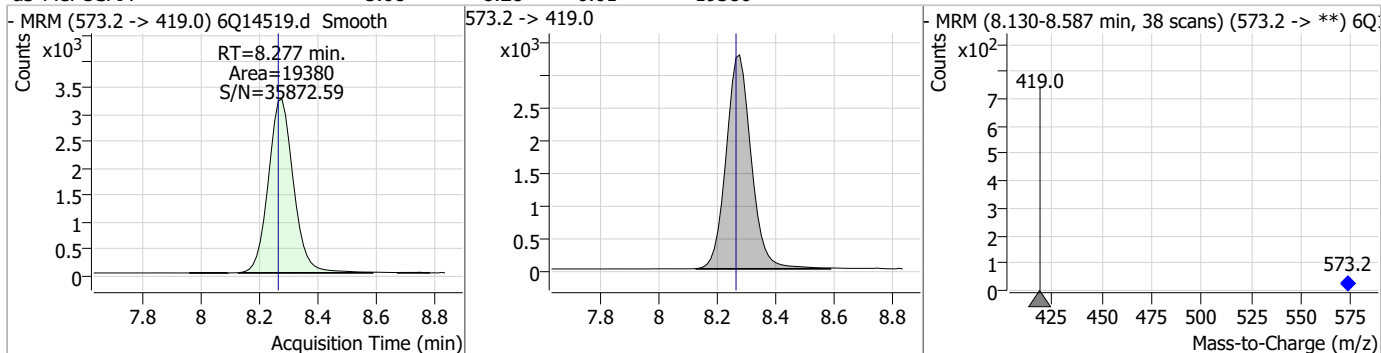
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Perfluorinated Compounds by LC/MS/MS

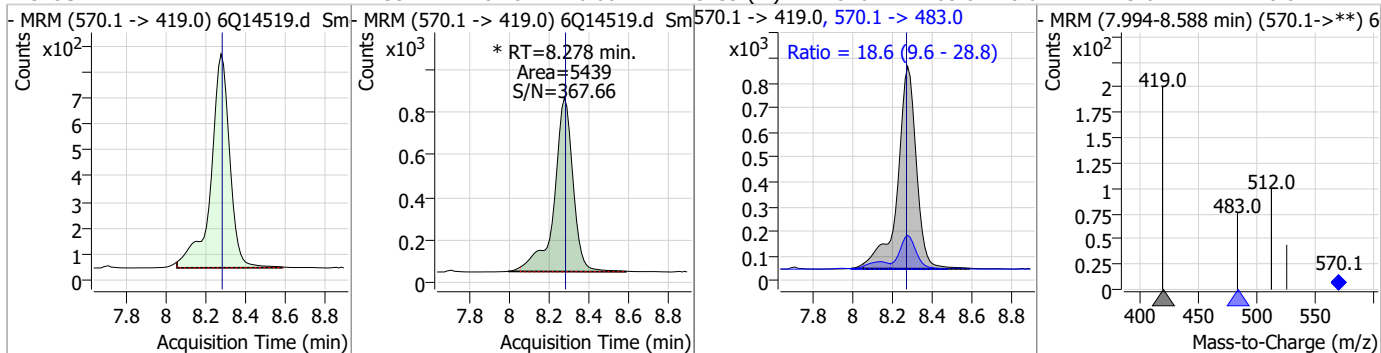
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.27	8.23	0.00	21259	512.9 -> 219.0	13.6	8.1	24.4



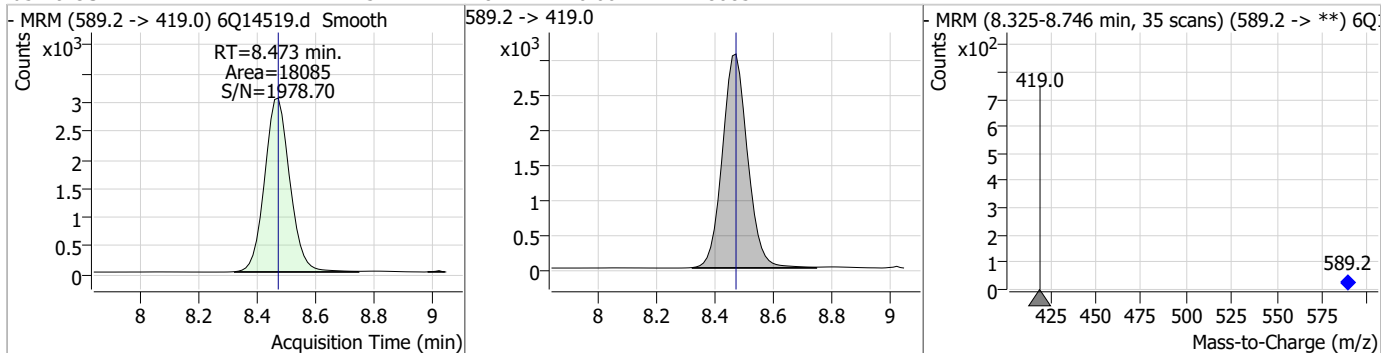
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.08	8.28	0.01	19380				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.33	8.28	0.00	5439 (m)	570.1 -> 483.0	18.6	9.6	28.8



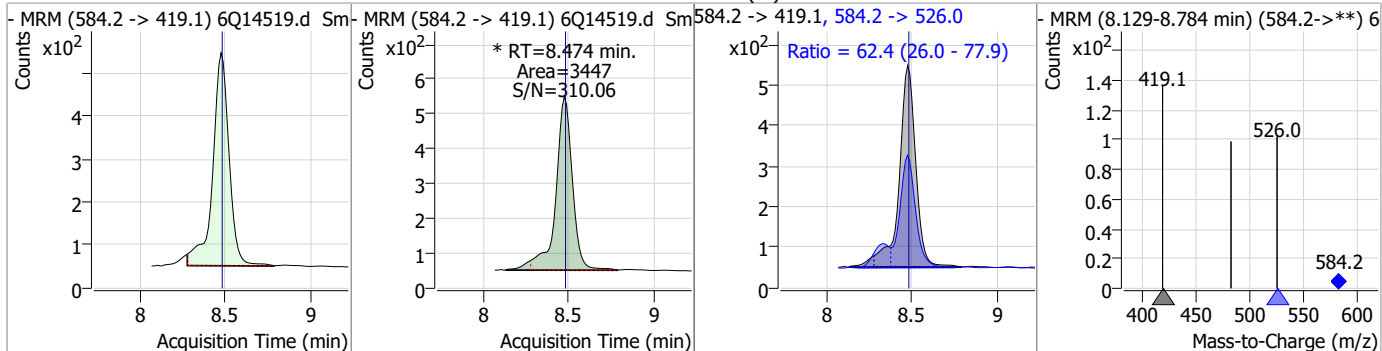
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.11	8.47	0.00	18085				



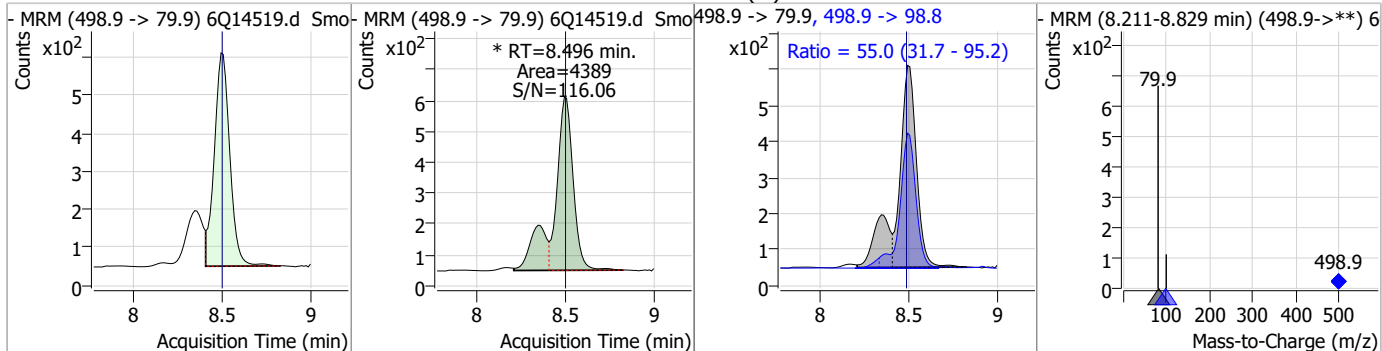
7.8.4
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Perfluorinated Compounds by LC/MS/MS

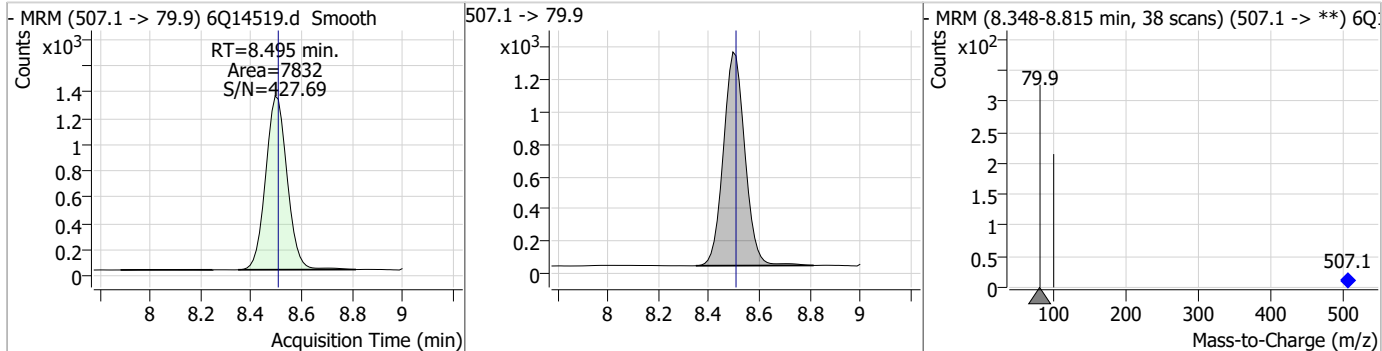
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.13	8.47	0.00	3447 (m)	584.2 -> 526.0	62.4	26.0	77.9



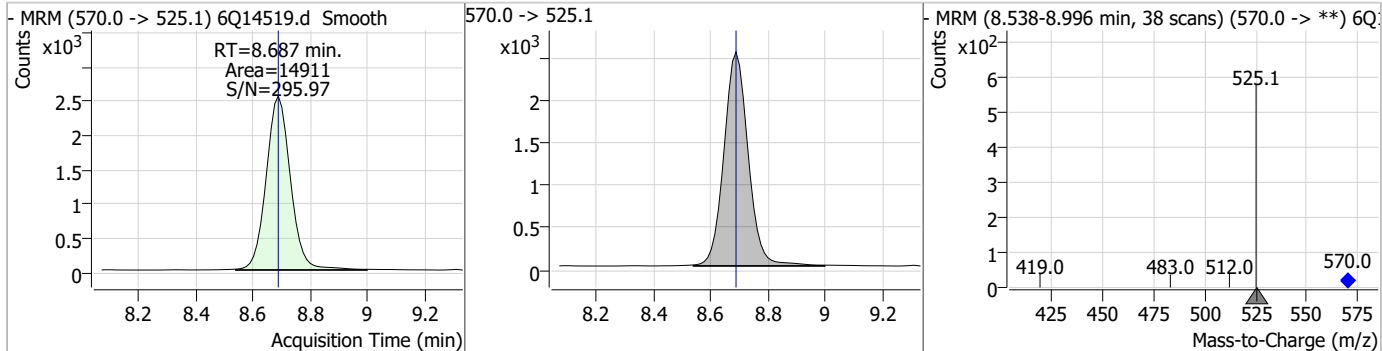
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.13	8.50	0.00	4389 (m)	498.9 -> 98.8	55.0	31.7	95.2



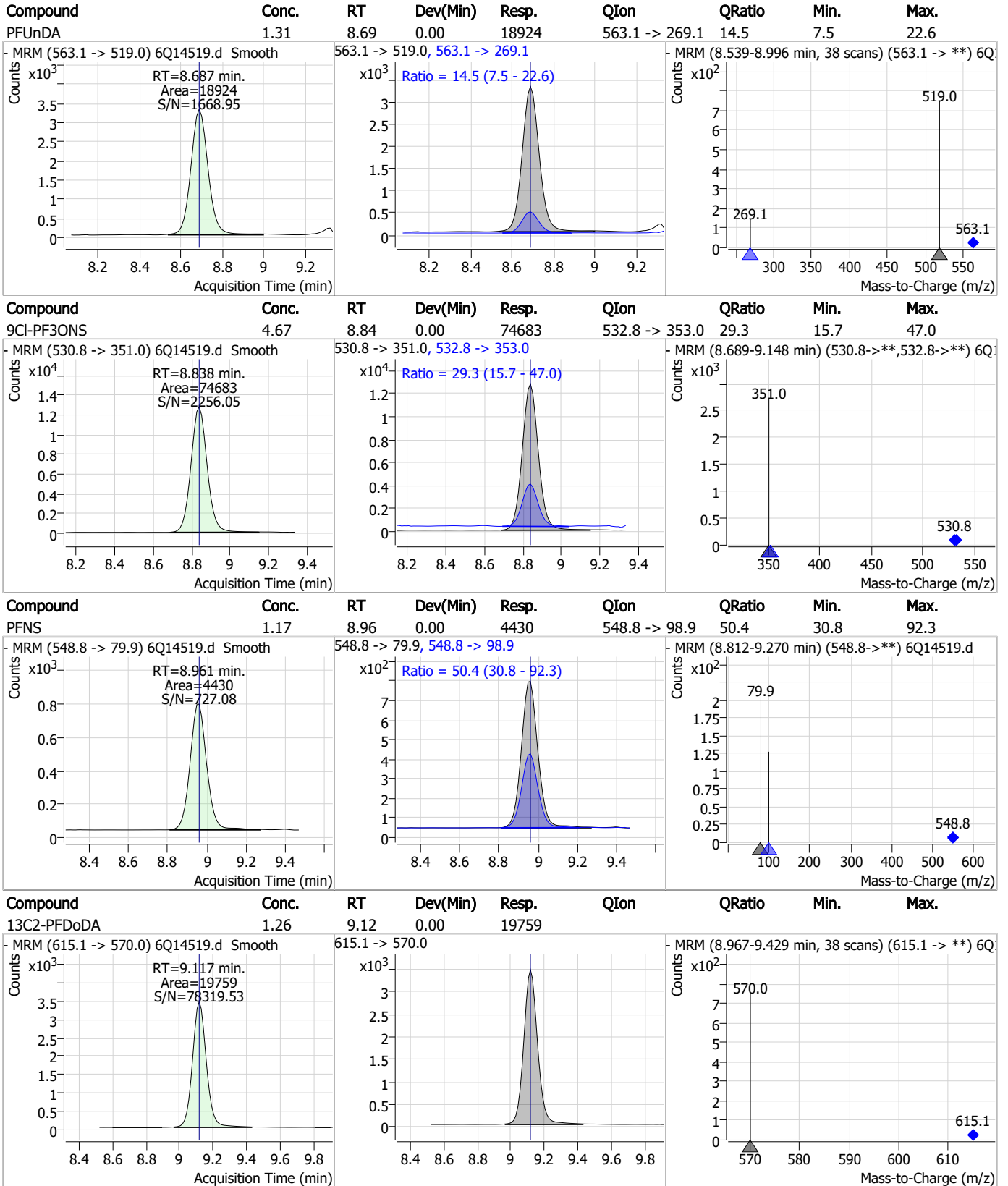
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.76	8.49	-0.01	7832				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.22	8.69	0.00	14911				



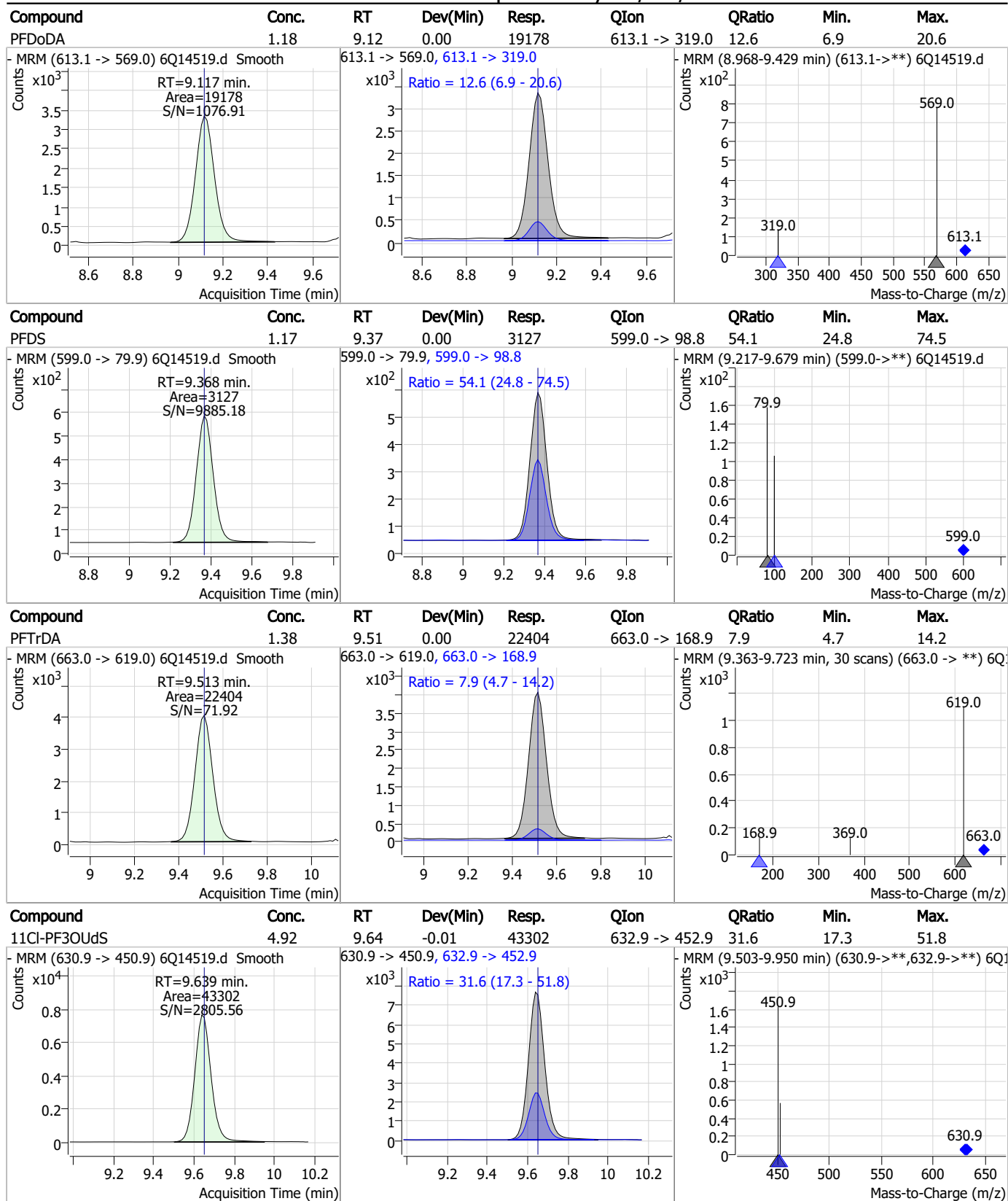
Perfluorinated Compounds by LC/MS/MS



7.8.4

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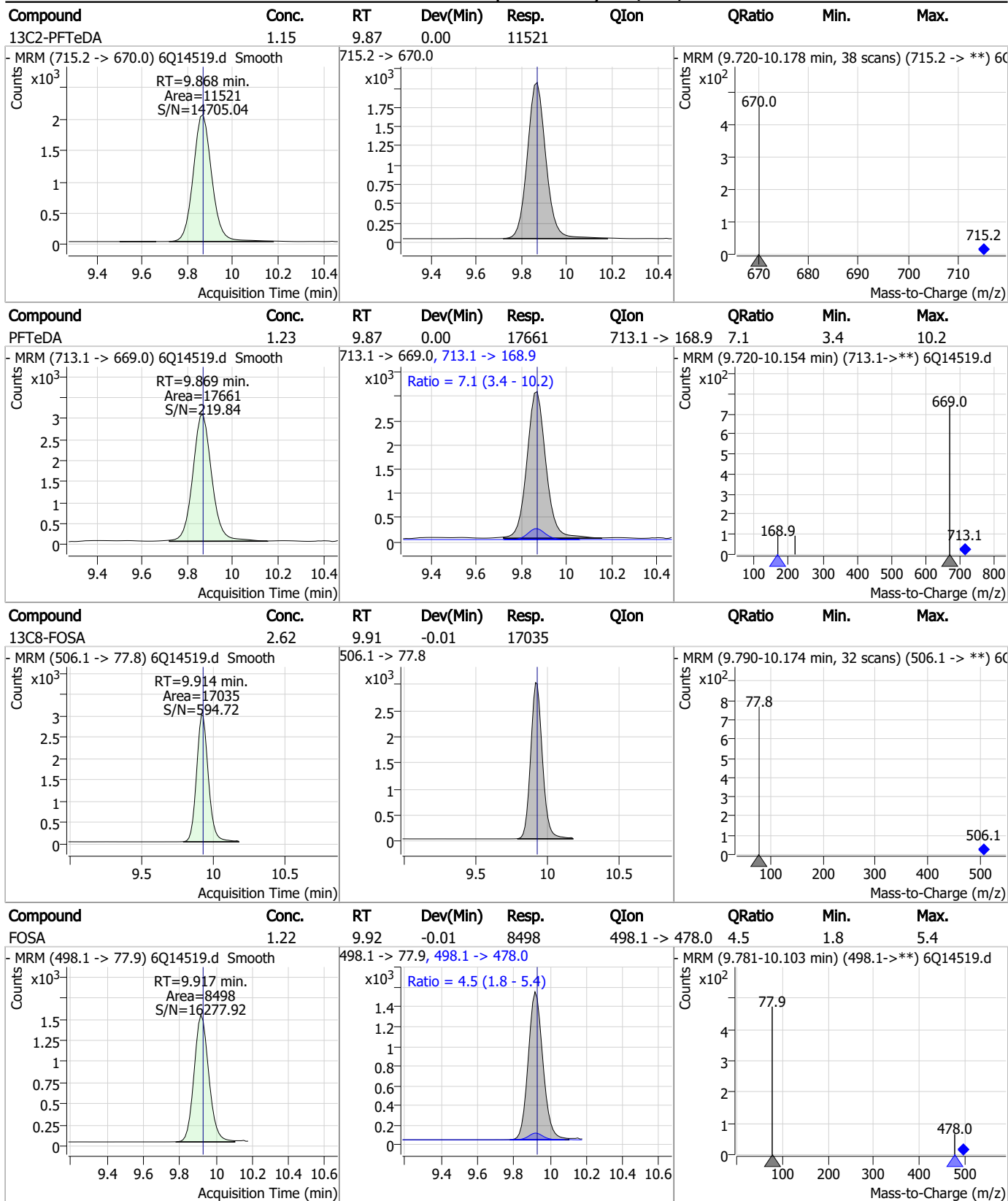
Perfluorinated Compounds by LC/MS/MS



7.8.4

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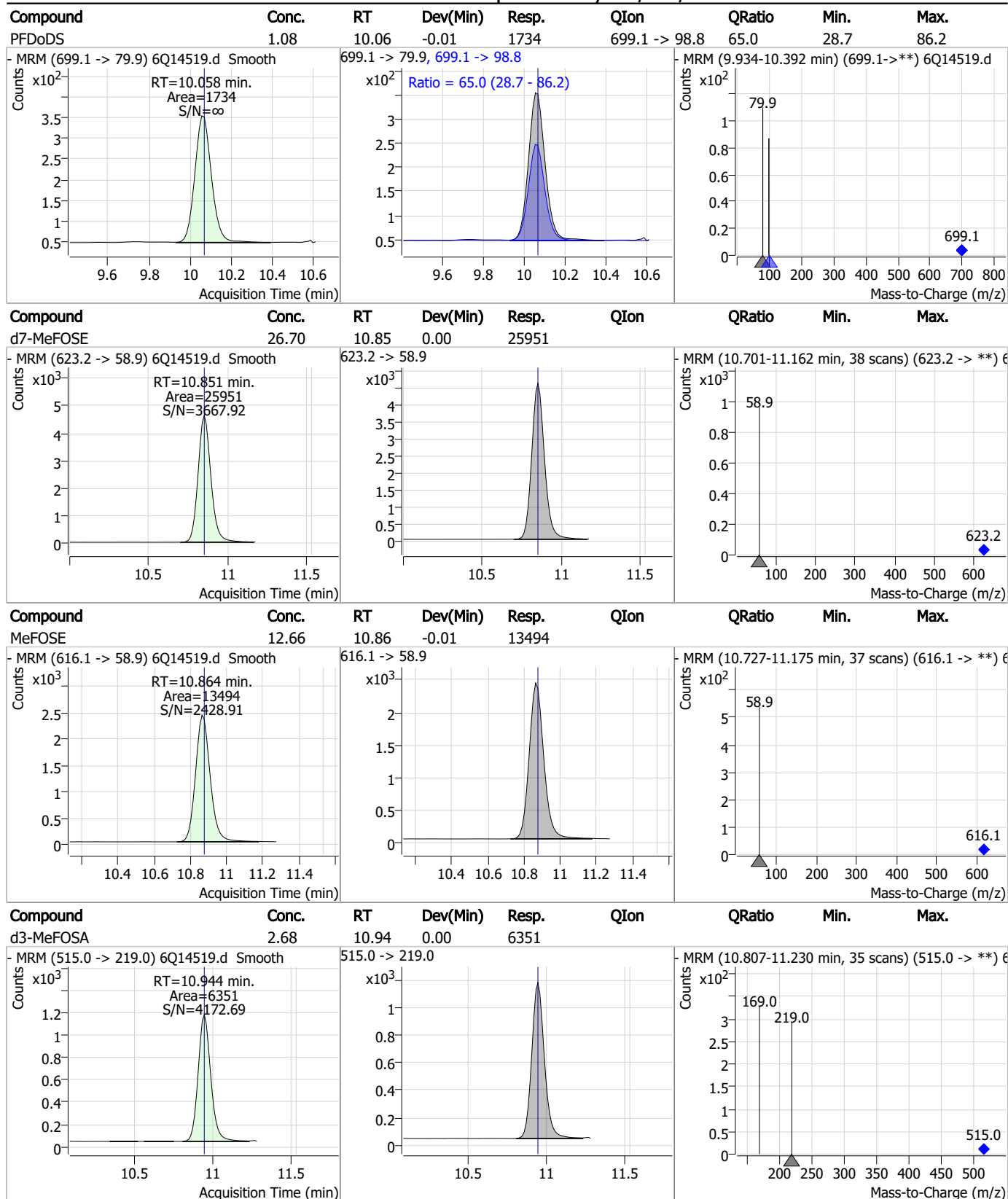
Perfluorinated Compounds by LC/MS/MS



7.8.4
7



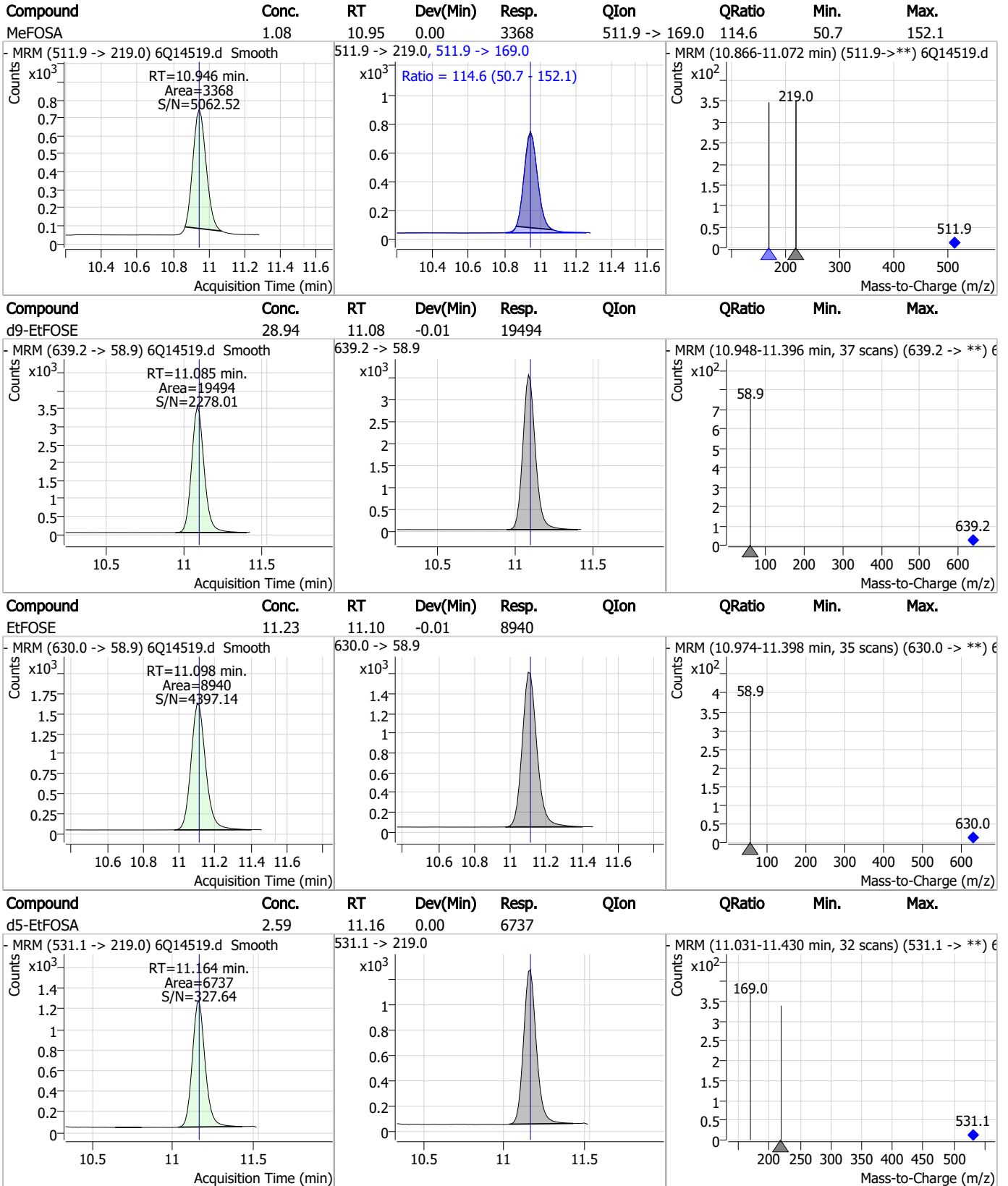
Perfluorinated Compounds by LC/MS/MS



7.8.4

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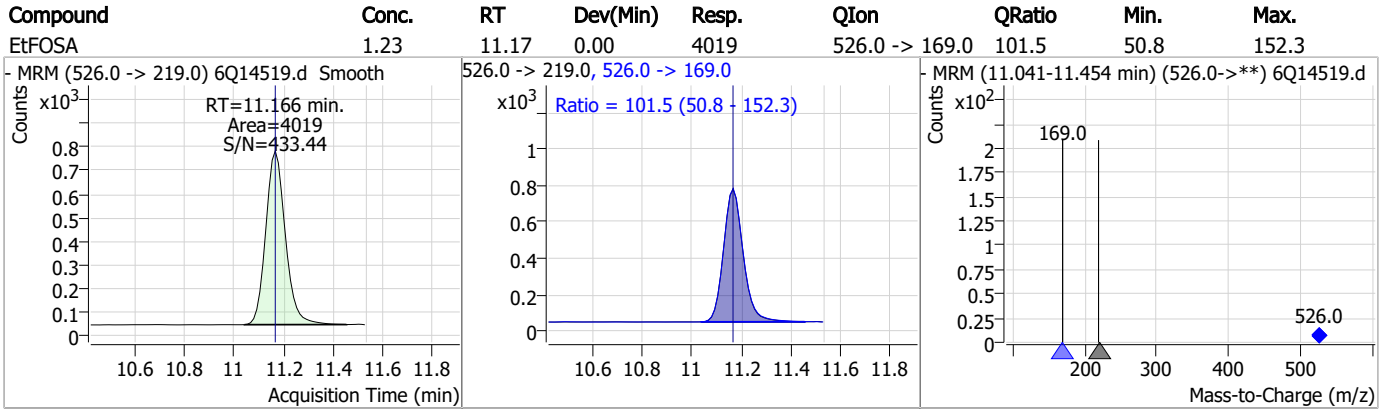
Perfluorinated Compounds by LC/MS/MS



7.8.4

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Perfluorinated Compounds by LC/MS/MS



7.8.4

7

Manual Integration Approval Summary

Sample Number: S6Q220-IC220 Method: EPA DRAFT 1633
Lab FileID: 6Q14519.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 13:28 Supervisor approved: 03/10/23 10:46 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.49	Split peak
MeFOSAA	2355-31-9		8.28	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.50	Split peak

7.8.4.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 03/10/23 10:46

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14520.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 1:42:05 PM
 Sample Name : icc220-4
 Vial : P1-A5
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.075	216.8 -> 171.9	79046	10.00 µg/L	0.000
M5-PFPeA	4.615	268.3 -> 223.0	39477	5.00 µg/L	0.000
M5-PFHxA	5.810	318.0 -> 273.0	34545	2.50 µg/L	0.000
M4-PFHpA	6.668	367.1 -> 322.0	33660	2.50 µg/L	0.000
M8-PFOA	7.259	421.1 -> 376.0	57715	2.50 µg/L	0.000
M9-PFNA	7.764	472.1 -> 427.0	13948	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	13976	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	15758	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	18353	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	11562	1.25 µg/L	0.000
M8-FOSA	9.926	506.1 -> 77.8	17084	2.50 µg/L	0.000
M3-PFBS	5.901	302.1 -> 79.9	13684	2.50 µg/L	0.000
M3-PFHxS	7.486	402.1 -> 79.9	8839	2.50 µg/L	0.000
M8-PFOS	8.507	507.1 -> 79.9	7340	2.50 µg/L	0.000
M2-4:2FTS	5.475	329.1 -> 80.9	1607	5.00 µg/L	0.000
M2-6:2FTS	7.033	429.1 -> 80.9	1948	5.00 µg/L	0.000
M2-8:2FTS	8.019	529.1 -> 80.9	1861	5.00 µg/L	0.000
M3-MeFOSAA	8.265	573.2 -> 419.0	19009	5.00 µg/L	0.000
M3-HFPO-DA	6.151	286.9 -> 168.9	14986	10.00 µg/L	0.000
M5-EtFOSAA	8.473	589.2 -> 419.0	19592	5.00 µg/L	0.000
M7-MeFOSE	10.851	623.2 -> 58.9	25206	25.00 µg/L	0.000
M9-EtFOSE	11.097	639.2 -> 58.9	18152	25.00 µg/L	0.000
M5-EtFOSA	11.164	531.1 -> 219.0	7124	2.50 µg/L	0.000
M3-MeFOSA	10.944	515.0 -> 219.0	5969	2.50 µg/L	0.000
13C4-PFOS	8.495	502.8 -> 79.9	8845	2.50 µg/L	0.000
13C3-PFBA	3.078	216.0 -> 172.0	34438	5.00 µg/L	0.000
18O2-PFHxS	7.498	403.0 -> 83.9	5963	2.50 µg/L	0.000
13C4-PFOA	7.260	417.1 -> 372.0	65869	2.50 µg/L	0.000
13C2-PFDA	8.233	515.1 -> 470.1	16747	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	15080	1.25 µg/L	0.000
13C2-PFHxA	5.799	315.1 -> 270.0	32363	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.475	329.1 -> 80.9	1607	5.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.2%		
13C2-6:2FTS	7.033	429.1 -> 80.9	1948	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C2-8:2FTS	8.019	529.1 -> 80.9	1861	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-PFDoDA	9.117	615.1 -> 570.0	18353	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C2-PFTeDA	9.868	715.2 -> 670.0	11562	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C3-PFBS	5.901	302.1 -> 79.9	13684	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C3-PFHxS	7.486	402.1 -> 79.9	8839	2.59 µg/L	0.000

7.8.5
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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 = 103.6%		
13C4-PFBA	3.075	216.8 -> 171.9	79046	9.99 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C4-PFHpA	6.668	367.1 -> 322.0	33660	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C5-PFHxA	5.810	318.0 -> 273.0	34545	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C5-PFPeA	4.615	268.3 -> 223.0	39477	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C6-PFDA	8.233	519.1 -> 474.1	13976	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.5%		
13C7-PFUnDA	8.687	570.0 -> 525.1	15758	1.43 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 114.6%		
13C8-FOSA	9.926	506.1 -> 77.8	17084	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C8-PFOA	7.259	421.1 -> 376.0	57715	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C8-PFOS	8.507	507.1 -> 79.9	7340	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C9-PFNA	7.764	472.1 -> 427.0	13948	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.0%		
d3-MeFOSAA	8.265	573.2 -> 419.0	19009	4.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.3%		
13C3-HFPO-DA	6.151	286.9 -> 168.9	14986	10.11 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.1%		
d3-MeFOSA	10.944	515.0 -> 219.0	5969	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.3%		
d5-EtFOSAA	8.473	589.2 -> 419.0	19592	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.6%		
d7-MeFOSE	10.851	623.2 -> 58.9	25206	24.27 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.1%		
d9-EtFOSE	11.097	639.2 -> 58.9	18152	25.22 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
d5-EtFOSA	11.164	531.1 -> 219.0	7124	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.4%		
Target Compounds					QValue
4:2FTS	5.476	327.1 -> 307.0	30035	8.28 µg/L	100
		327.1 -> 80.9	7403		
6:2FTS	7.034	427.1 -> 407.0	26007	8.87 µg/L	100
		427.1 -> 80.9	5693		
8:2FTS	8.020	527.1 -> 507.0	14159	9.56 µg/L	100
		527.1 -> 80.8	3721		
EtFOSAA	8.474	584.2 -> 419.1	8016	2.43 µg/L	m 100
		584.2 -> 526.0	4164		
FOSA	9.930	498.1 -> 77.9	17314	2.48 µg/L	100
		498.1 -> 478.0	628		
MeFOSAA	8.278	570.1 -> 419.0	9313	2.31 µg/L	m 100
		570.1 -> 483.0	1788		
PFBA	3.082	212.8 -> 168.9	19798	9.13 µg/L	100
PFBS	5.902	298.7 -> 79.9	11946	2.08 µg/L	100
		298.7 -> 98.8	4868		
PFDA	8.233	512.9 -> 469.0	38546	2.15 µg/L	100
		512.9 -> 219.0	6276		
PFDODA	9.117	613.1 -> 569.0	34315	2.28 µg/L	100
		613.1 -> 319.0	4715		
PFDS	9.368	599.0 -> 79.9	5720	2.29 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.669	599.0 -> 98.8	2842	2.24	µg/L	100
		363.1 -> 319.0	48371			
PFHpS	8.016	363.1 -> 169.0	6776	2.26	µg/L	100
		449.0 -> 79.9	7835			
PFHxA	5.801	449.0 -> 98.9	4599	2.11	µg/L	100
		313.0 -> 269.0	28940			
PFHxS	7.487	313.0 -> 118.9	1266	2.07	µg/L	100
		398.7 -> 79.9	8916			
PFNA	7.765	398.7 -> 98.9	4675	2.41	µg/L	100
		463.0 -> 419.0	23255			
PFNS	8.961	463.0 -> 219.0	4883	2.15	µg/L	100
		548.8 -> 79.9	7637			
PFOA	7.261	548.8 -> 98.9	4698	2.12	µg/L	100
		413.0 -> 369.0	61354			
PFOS	8.496	413.0 -> 169.0	8356	2.24	µg/L	100
		498.9 -> 79.9	8151			
PFPeA	4.617	498.9 -> 98.8	5171	4.54	µg/L	100
		263.0 -> 219.0	41617			
PFPeS	6.857	349.1 -> 79.9	11245	2.20	µg/L	100
		349.1 -> 98.9	5556			
PFTeDA	9.869	713.1 -> 669.0	34480	2.39	µg/L	100
		713.1 -> 168.9	2348			
PFTrDA	9.513	663.0 -> 619.0	35947	2.39	µg/L	100
		663.0 -> 168.9	3413			
PFUnDA	8.687	563.1 -> 519.0	33615	2.20	µg/L	100
		563.1 -> 269.1	5059			
11CI-PF3OUdS	9.651	630.9 -> 450.9	76854	8.68	µg/L	100
		632.9 -> 452.9	26518			
9CI-PF3ONS	8.838	530.8 -> 351.0	149155	9.27	µg/L	100
		532.8 -> 353.0	46741			
ADONA	6.916	376.9 -> 250.9	288882	9.18	µg/L	100
		376.9 -> 84.8	64583			
HFPO-DA	6.152	284.9 -> 168.9	13876	9.27	µg/L	100
		284.9 -> 184.9	1652			
3:3FTCA	4.001	241.0 -> 177.0	5121	10.98	µg/L	100
		241.0 -> 117.0	791			
5:3FTCA	6.394	341.0 -> 237.1	176490	58.91	µg/L	100
		341.0 -> 217.0	146025			
7:3FTCA	7.742	441.0 -> 316.9	83826	58.33	µg/L	100
		441.0 -> 336.9	141161			
EtFOSA	11.166	526.0 -> 219.0	7472	2.16	µg/L	100
		526.0 -> 169.0	7587			
EtFOSE	11.111	630.0 -> 58.9	17298	23.33	µg/L	100
		511.9 -> 219.0	6969			
MeFOSA	10.946	511.9 -> 169.0	7068	2.37	µg/L	100
		616.1 -> 58.9	24244			
MeFOSE	10.877	699.1 -> 79.9	3433	23.42	µg/L	100
		699.1 -> 98.8	1974			
PFDoDS	10.070	295.0 -> 201.0	4400	2.27	µg/L	100
		295.0 -> 84.9	1740			
NFDHA	5.681	279.0 -> 85.1	13987	4.66	µg/L	100
		229.0 -> 84.9	12035			
PFMBA	5.014	314.8 -> 134.9	80525	4.48	µg/L	100
		314.8 -> 82.9	2161			
PFMPA	3.717			4.08	µg/L	100
PFEESA	6.396			4.08	µg/L	100

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

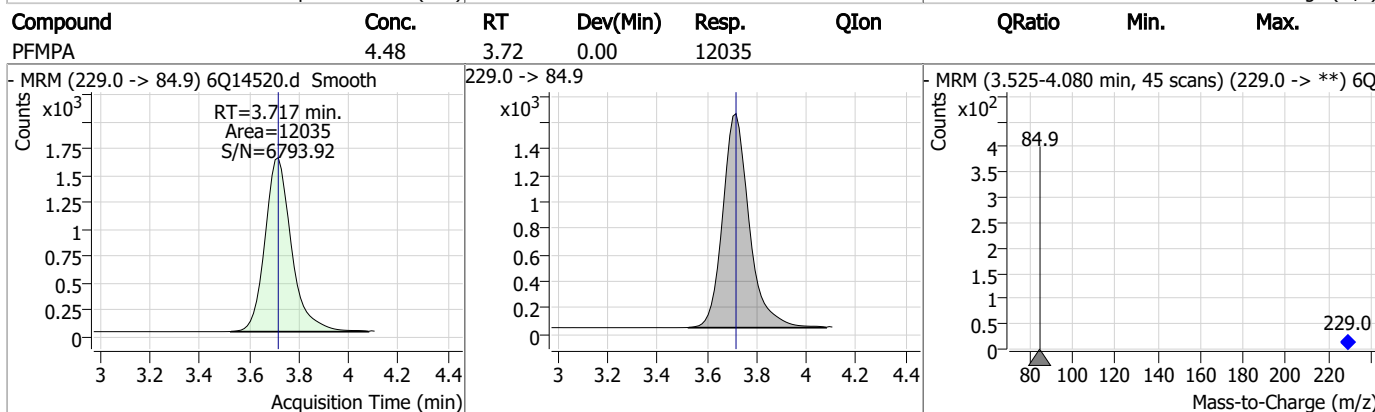
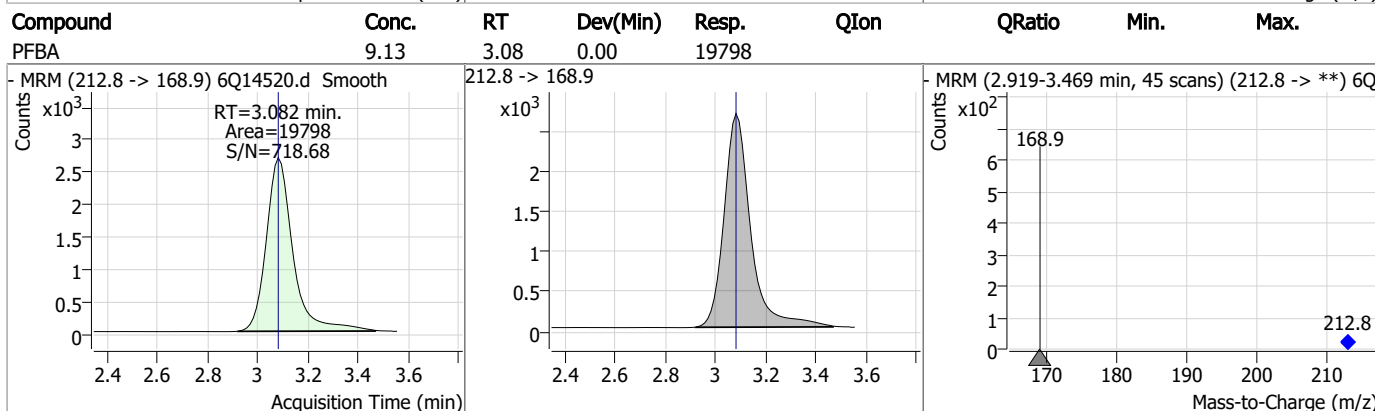
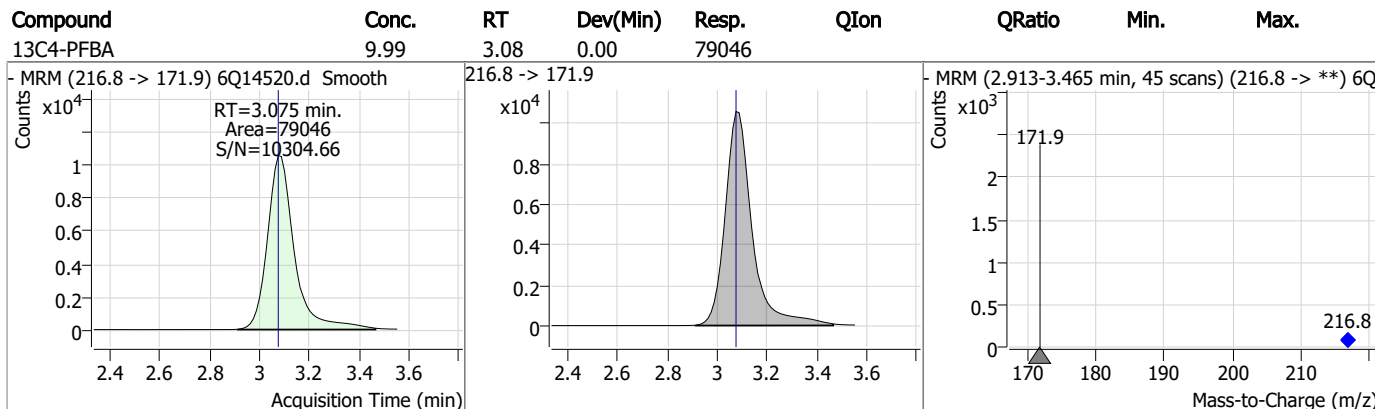
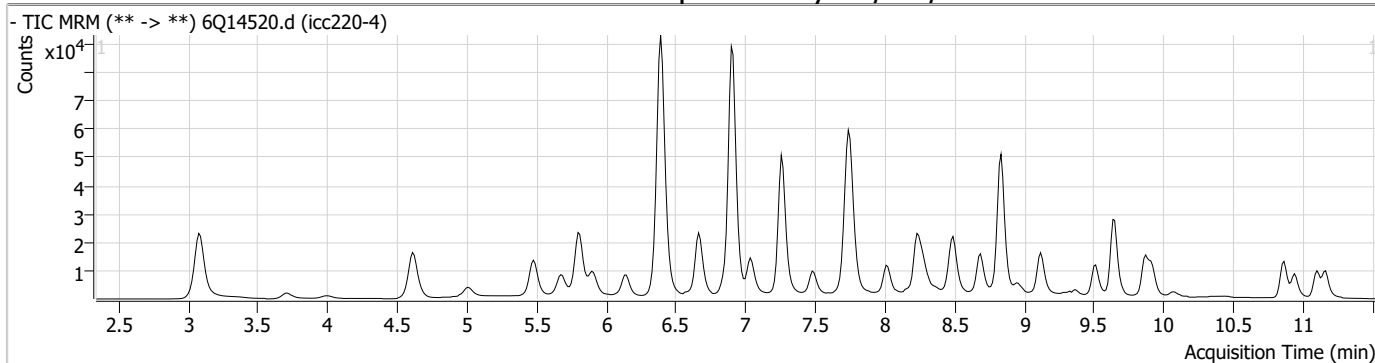
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.8.5

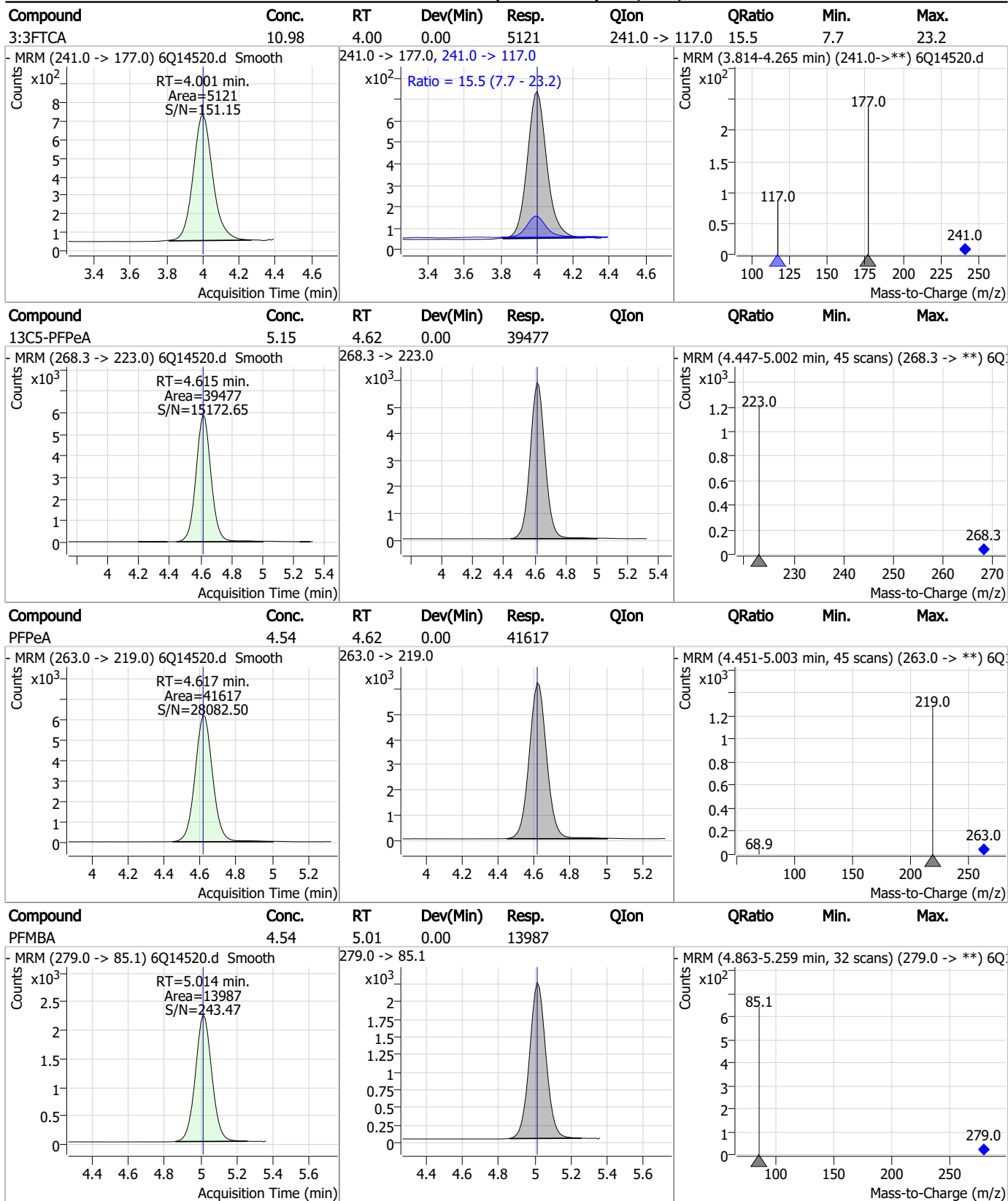
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Perfluorinated Compounds by LC/MS/MS



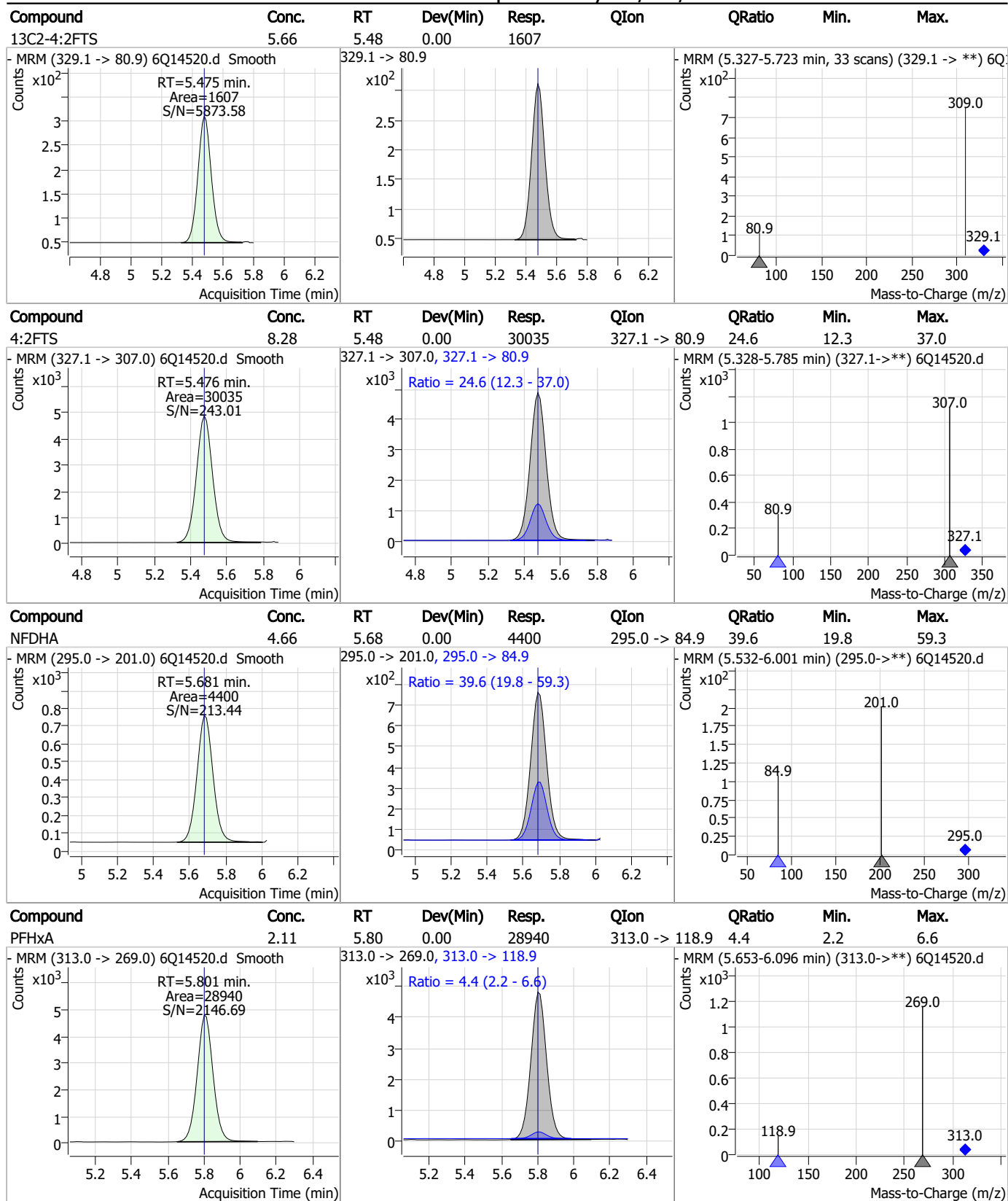
7.8.5
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Perfluorinated Compounds by LC/MS/MS



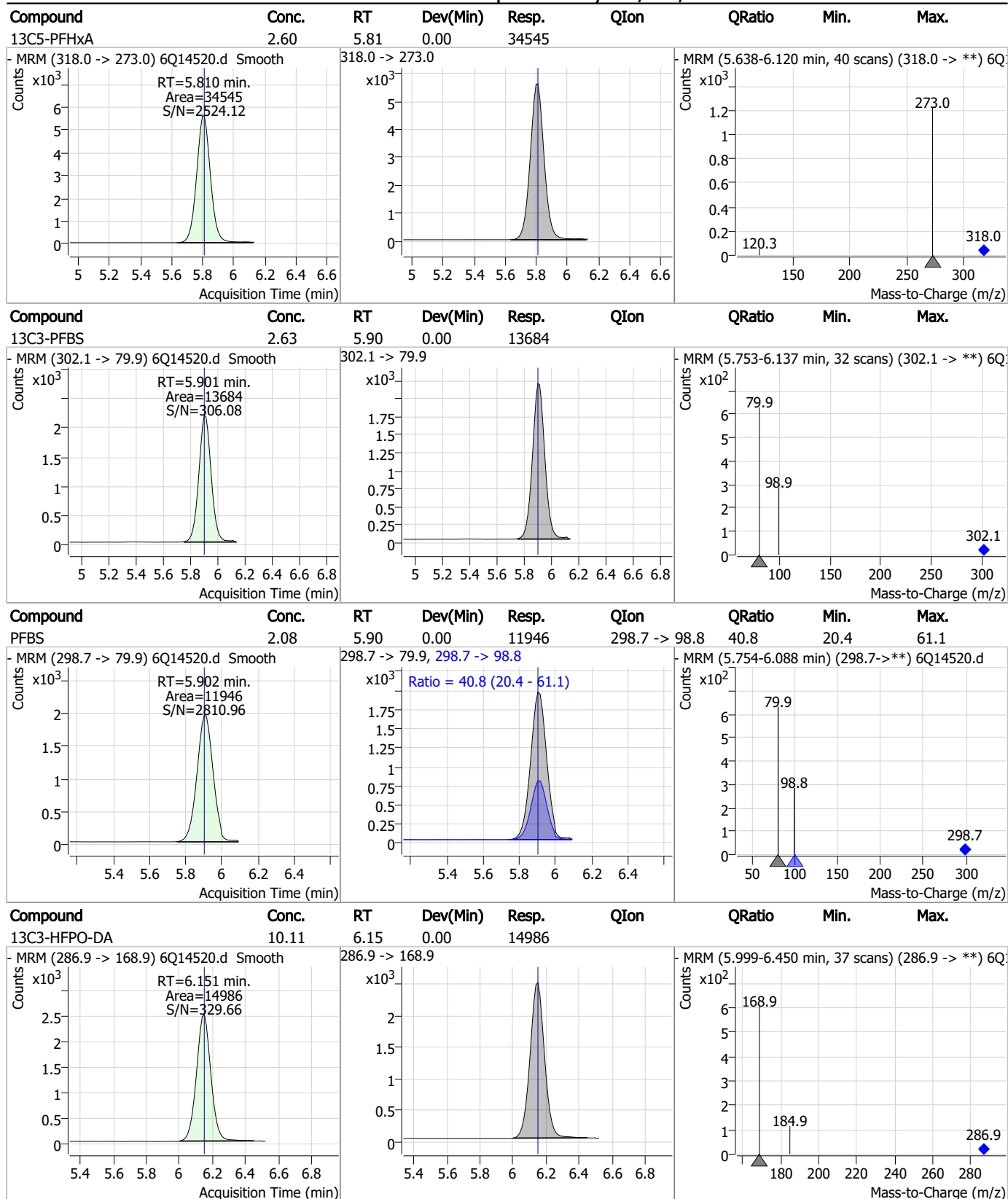
7.8.5
7

Perfluorinated Compounds by LC/MS/MS



7.8.5
7

Perfluorinated Compounds by LC/MS/MS

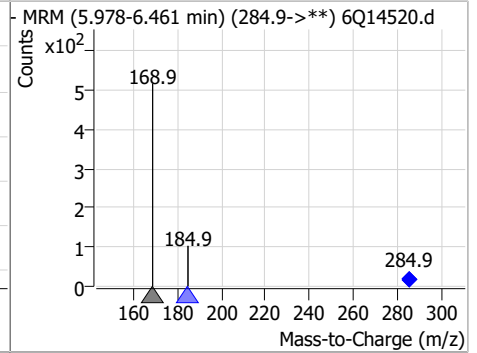
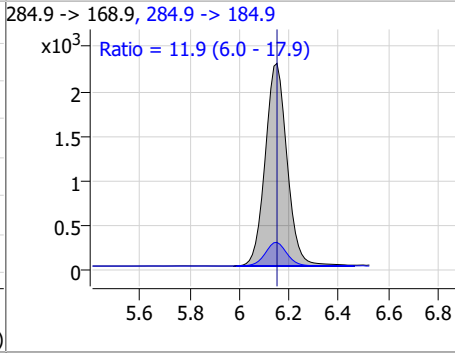
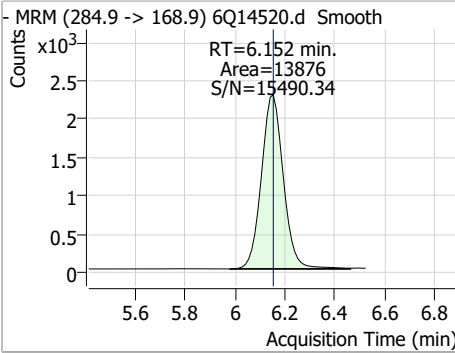


7.8.5
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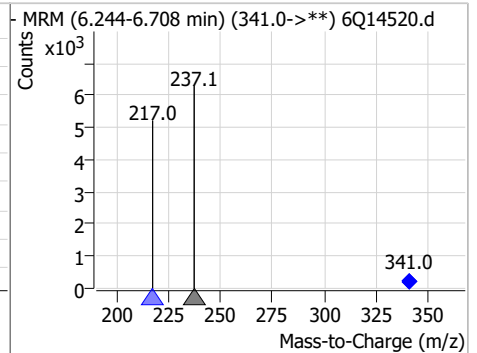
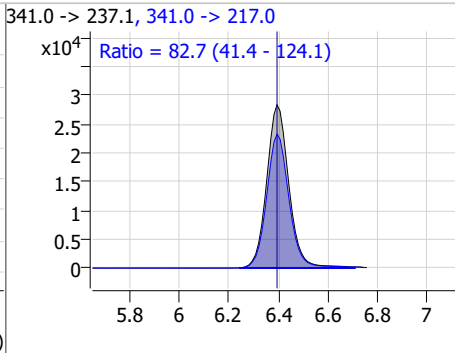
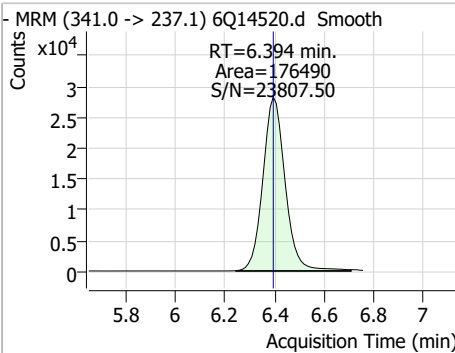


Perfluorinated Compounds by LC/MS/MS

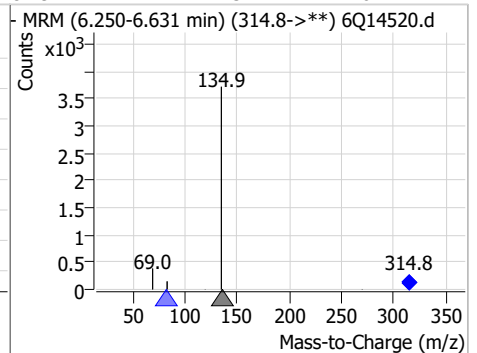
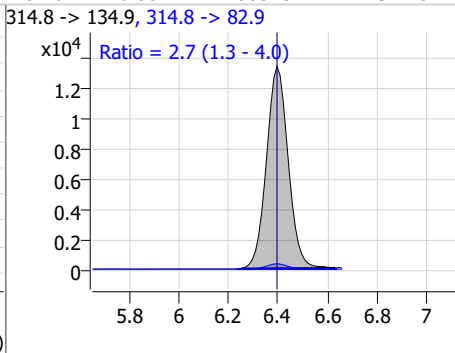
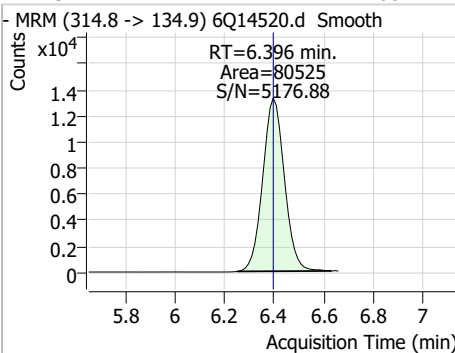
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.27	6.15	0.00	13876	284.9 -> 184.9	11.9	6.0	17.9



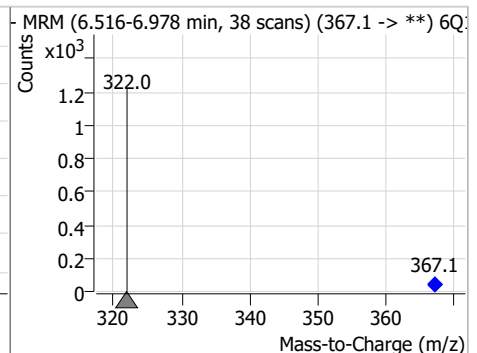
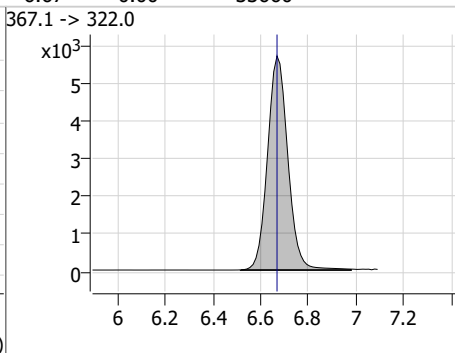
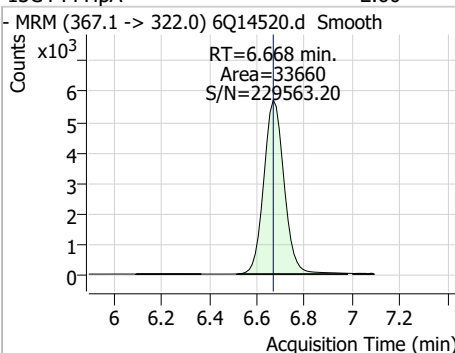
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	58.91	6.39	0.00	176490	341.0 -> 217.0	82.7	41.4	124.1



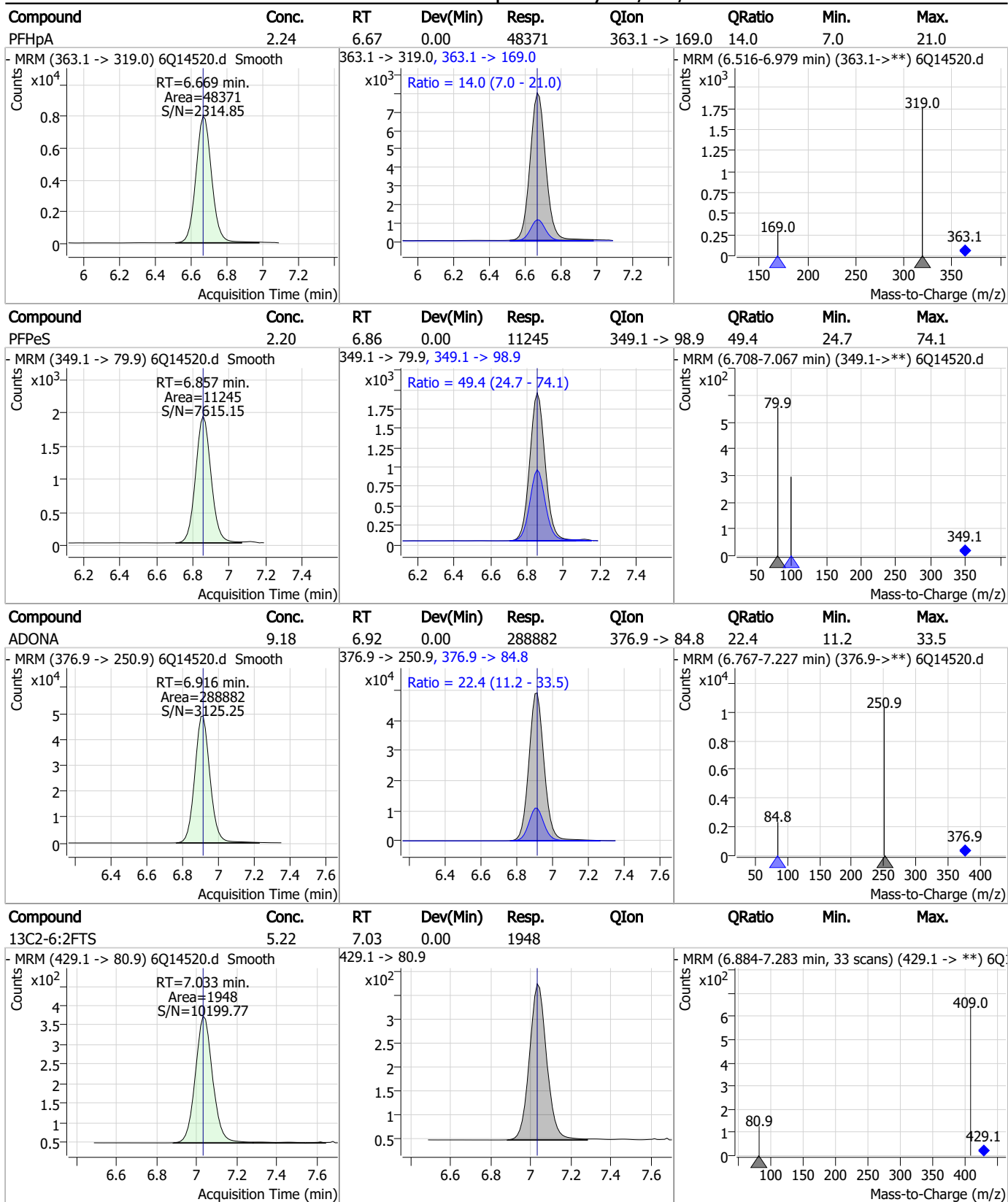
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.08	6.40	0.00	80525	314.8 -> 82.9	2.7	1.3	4.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.60	6.67	0.00	33660	367.1 -> 322.0			

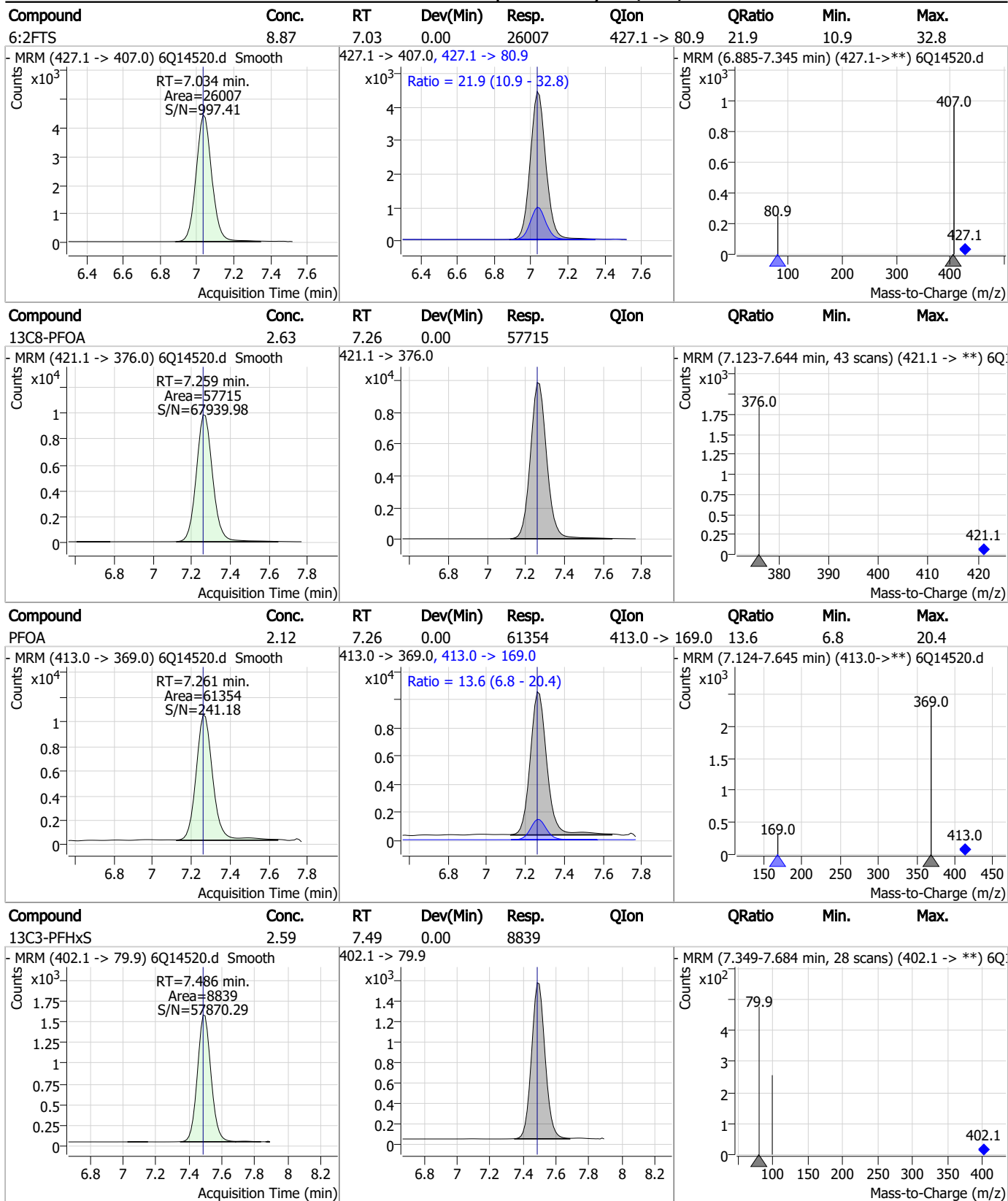


Perfluorinated Compounds by LC/MS/MS



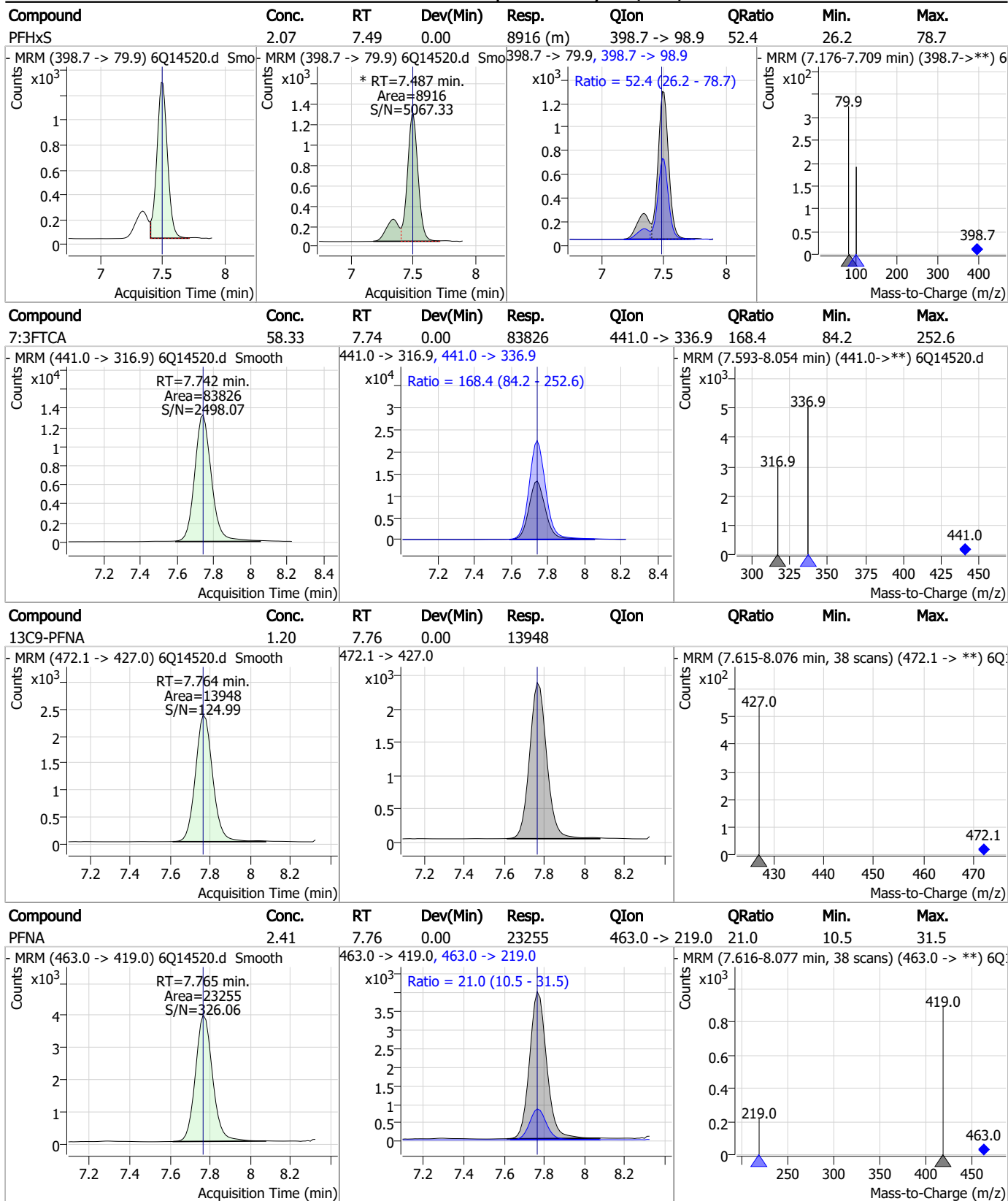
7.8.5
7

Perfluorinated Compounds by LC/MS/MS



7.8.5

Perfluorinated Compounds by LC/MS/MS



7.8.5
7

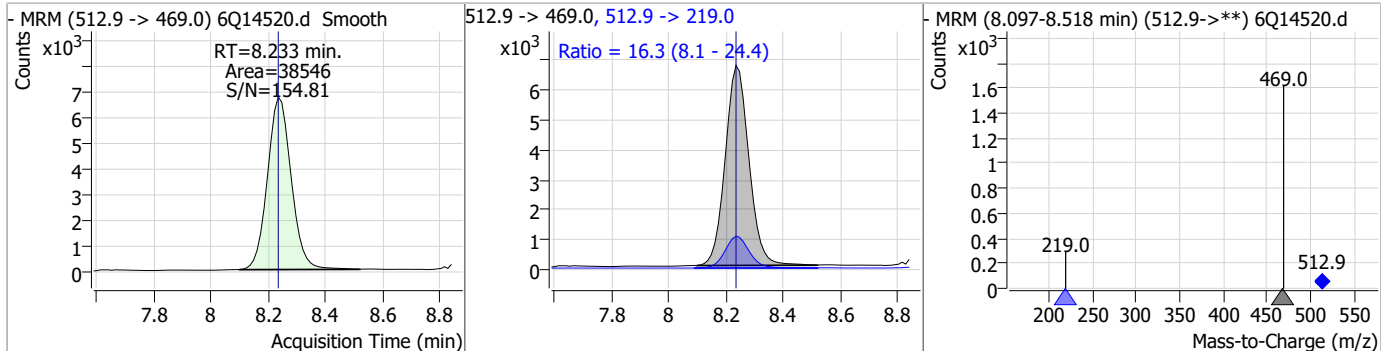
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.26	8.02	0.00	7835	449.0 -> 98.9	58.7	29.4	88.1
13C2-8:2FTS	4.96	8.02	0.00	1861	529.1 -> 80.9			
8:2FTS	9.56	8.02	0.00	14159	527.1 -> 80.8	26.3	13.1	39.4
13C6-PFDA	1.39	8.23	0.00	13976	519.1 -> 474.1			

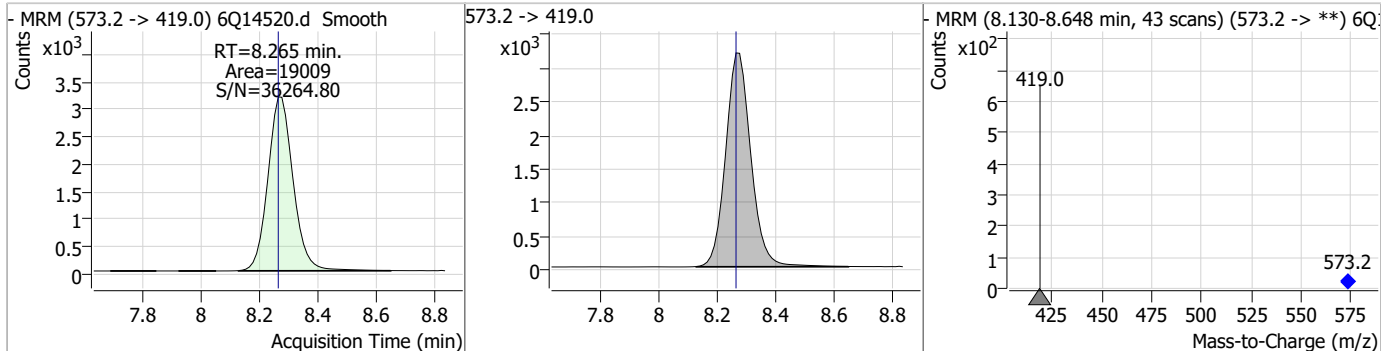
7.8.5
7

Perfluorinated Compounds by LC/MS/MS

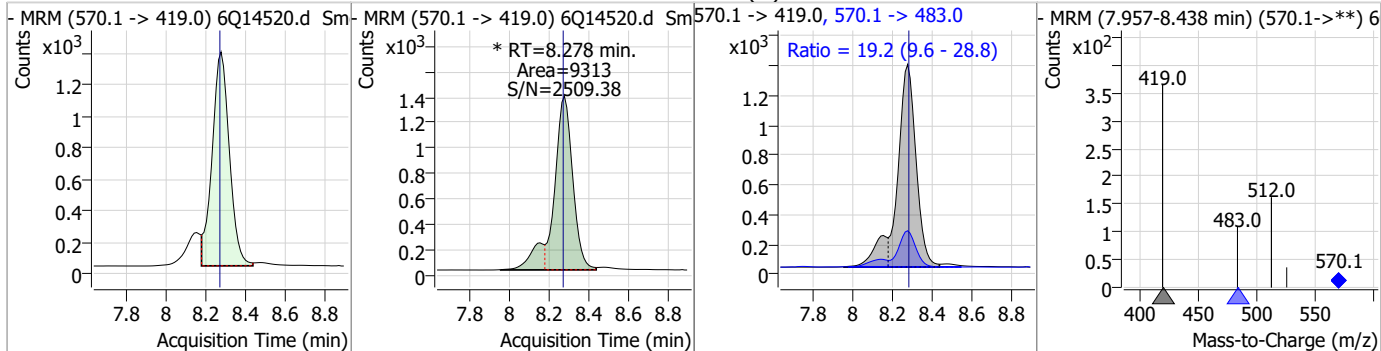
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.15	8.23	0.00	38546	512.9 -> 219.0	16.3	8.1	24.4



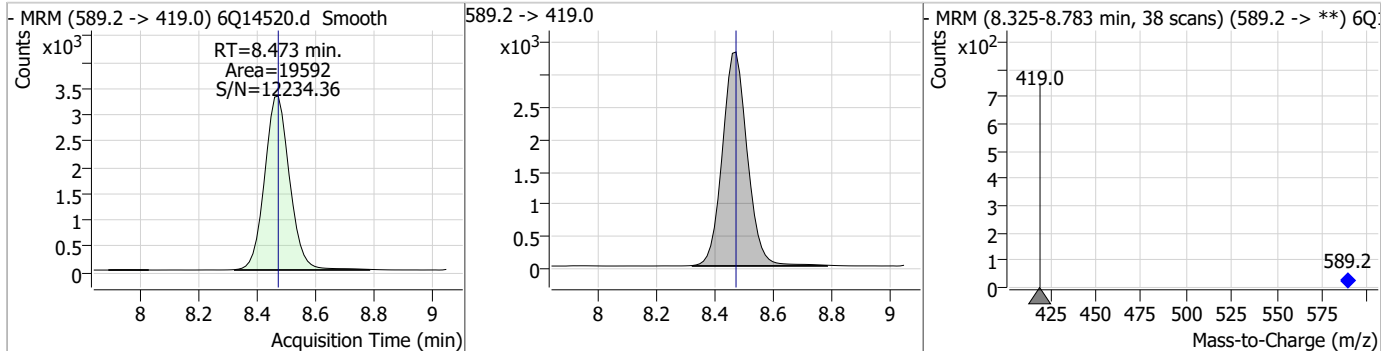
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.67	8.26	0.00	19009				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.31	8.28	0.00	9313 (m)	570.1 -> 483.0	19.2	9.6	28.8



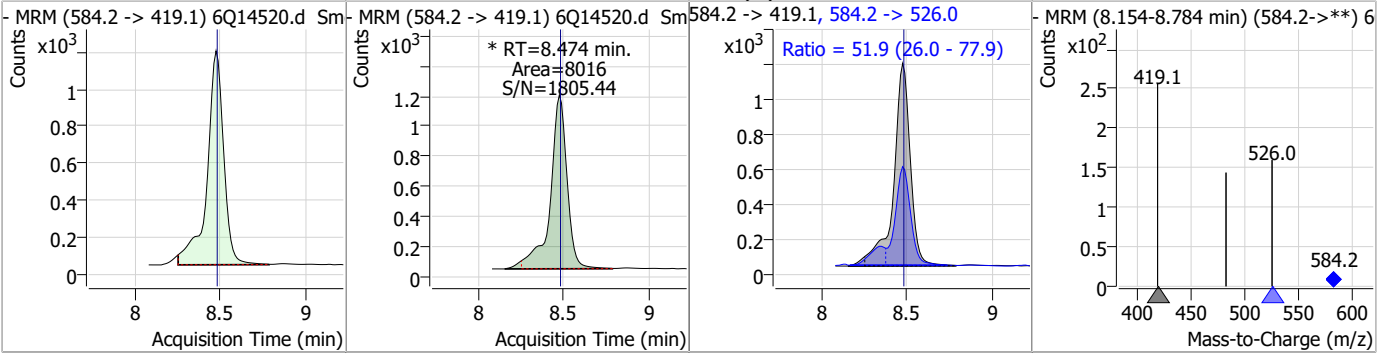
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.18	8.47	0.00	19592				



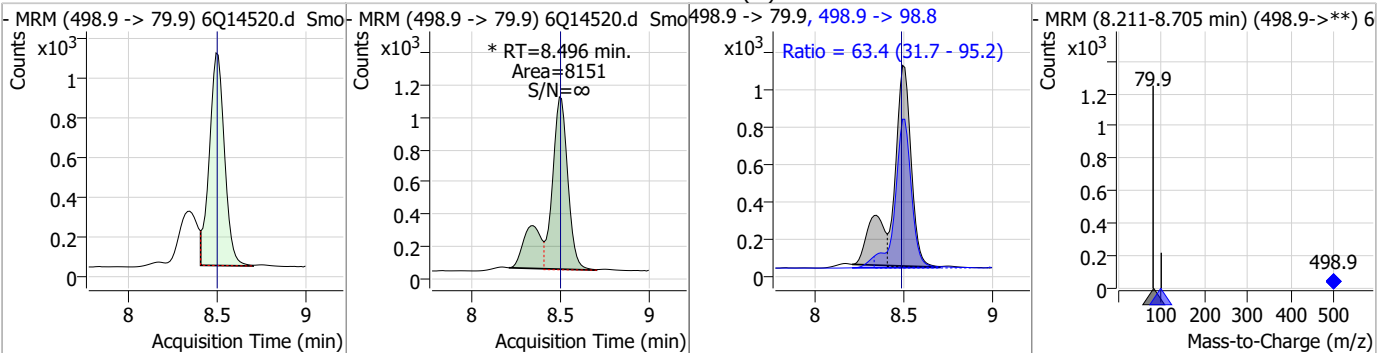
7.8.5
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Perfluorinated Compounds by LC/MS/MS

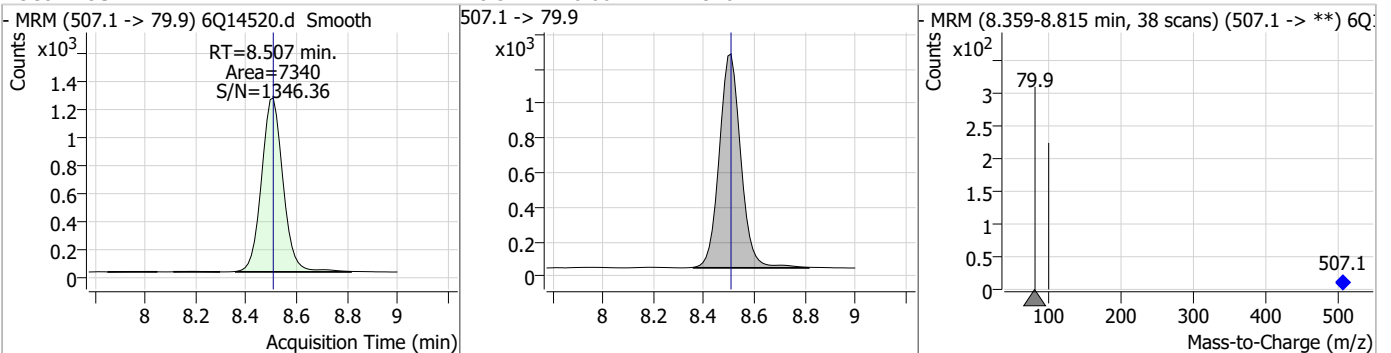
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.43	8.47	0.00	8016 (m)	584.2 -> 526.0	51.9	26.0	77.9



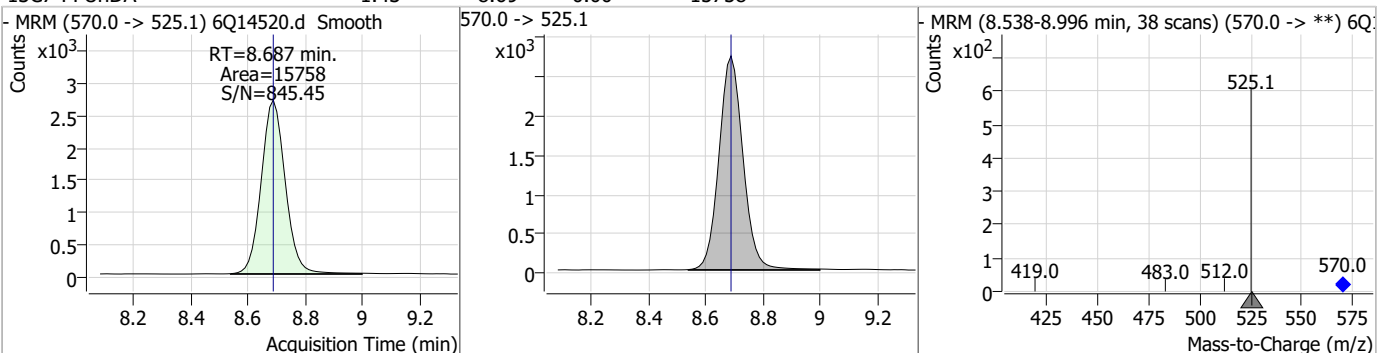
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.24	8.50	0.00	8151 (m)	498.9 -> 98.8	63.4	31.7	95.2



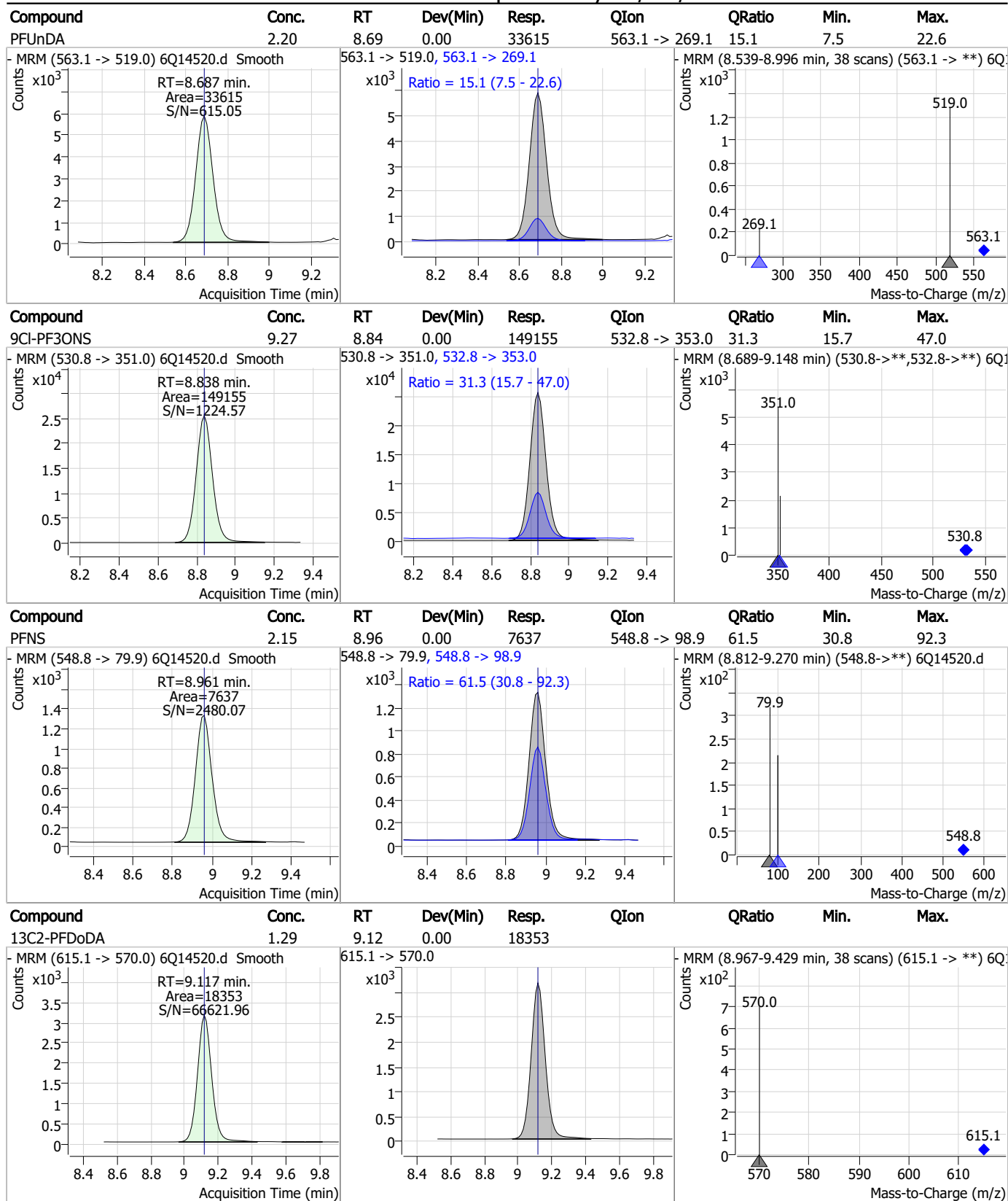
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.42	8.51	0.00	7340				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.43	8.69	0.00	15758				

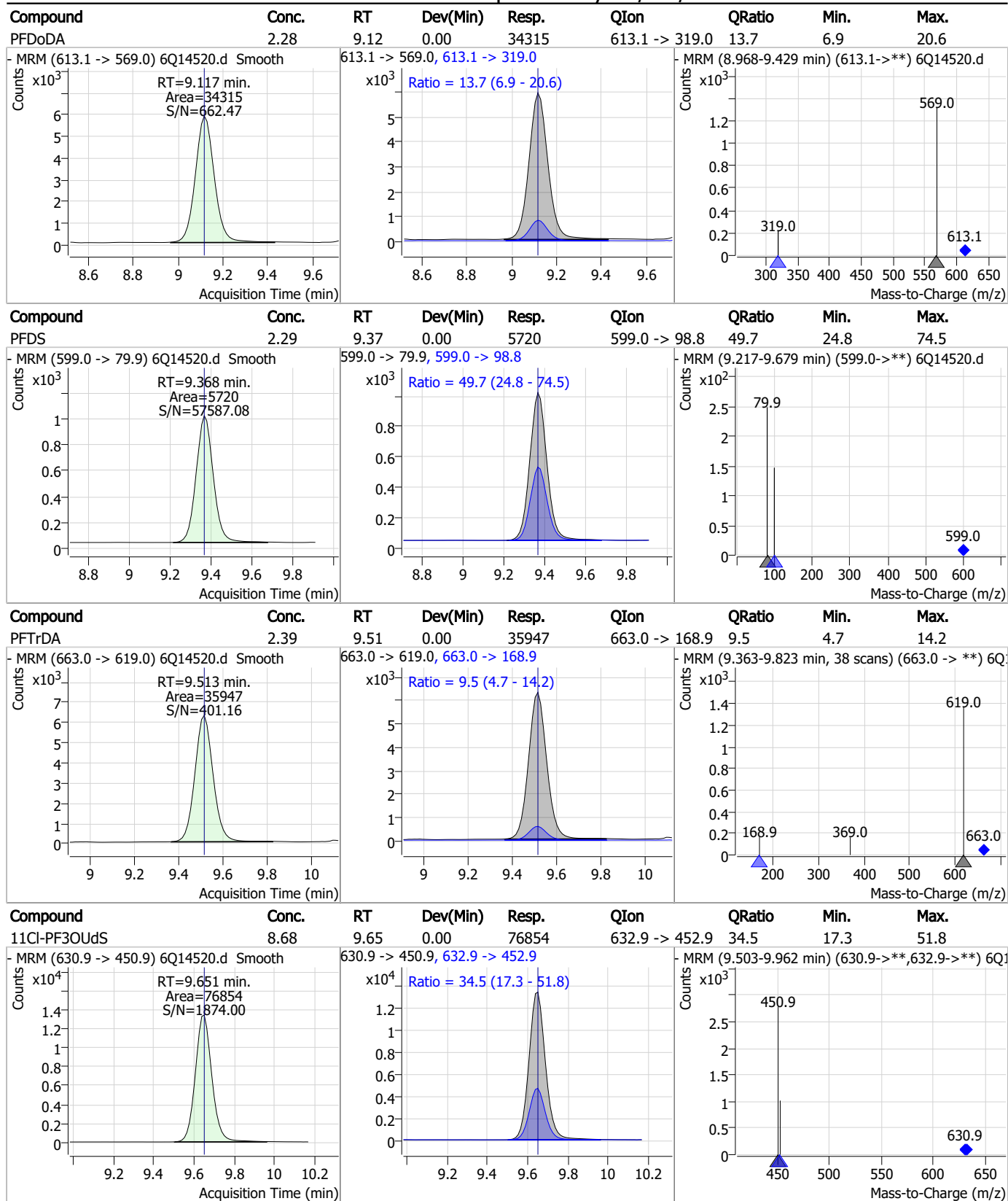


Perfluorinated Compounds by LC/MS/MS



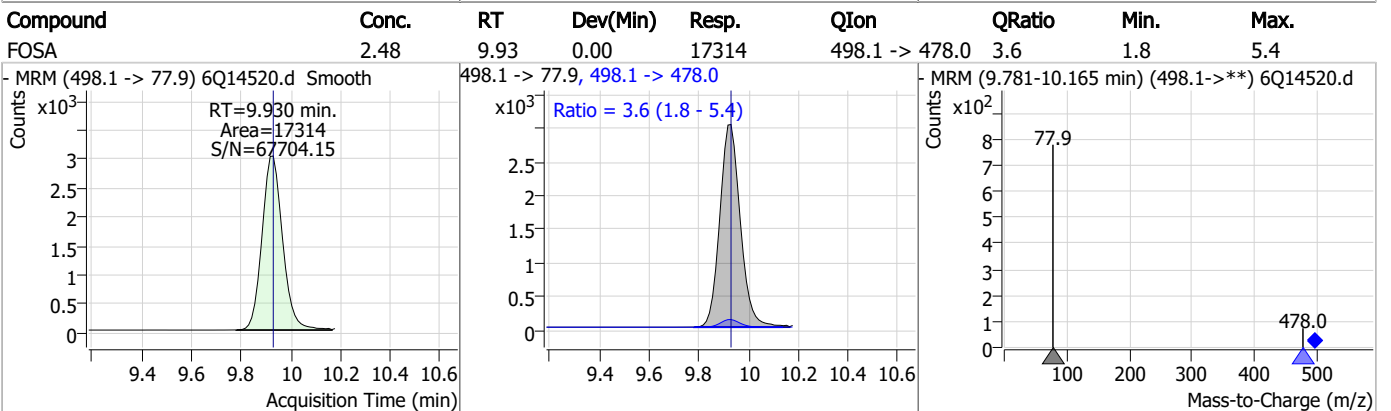
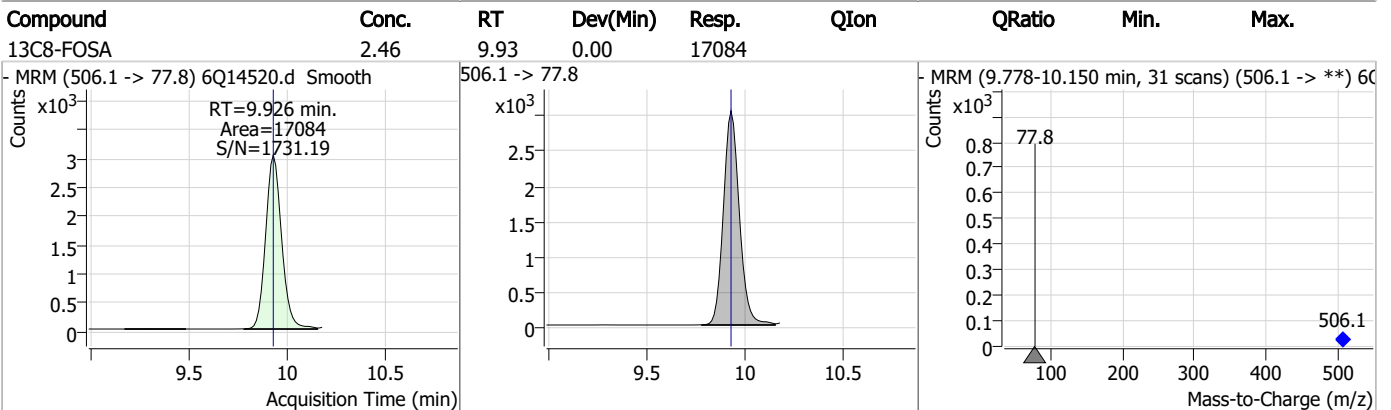
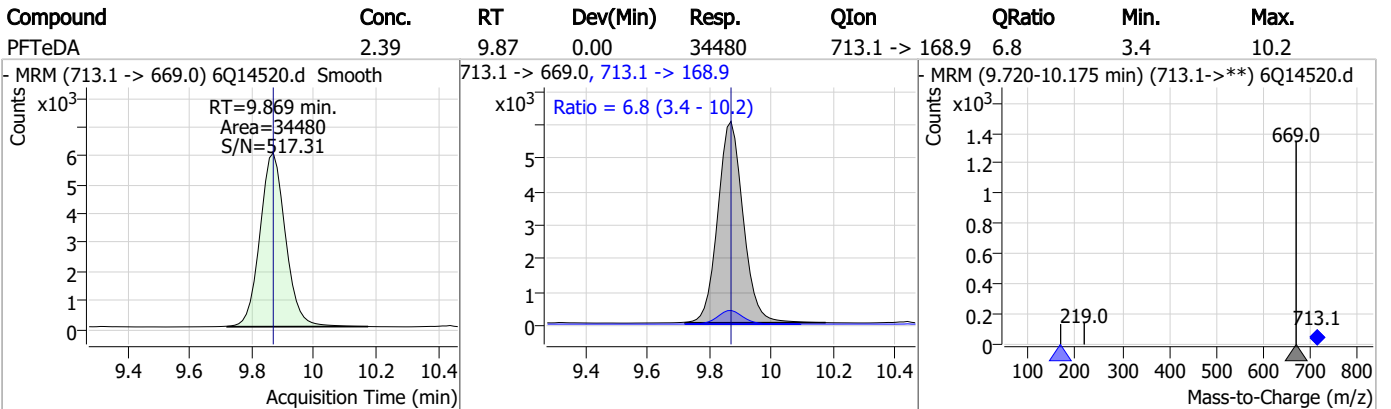
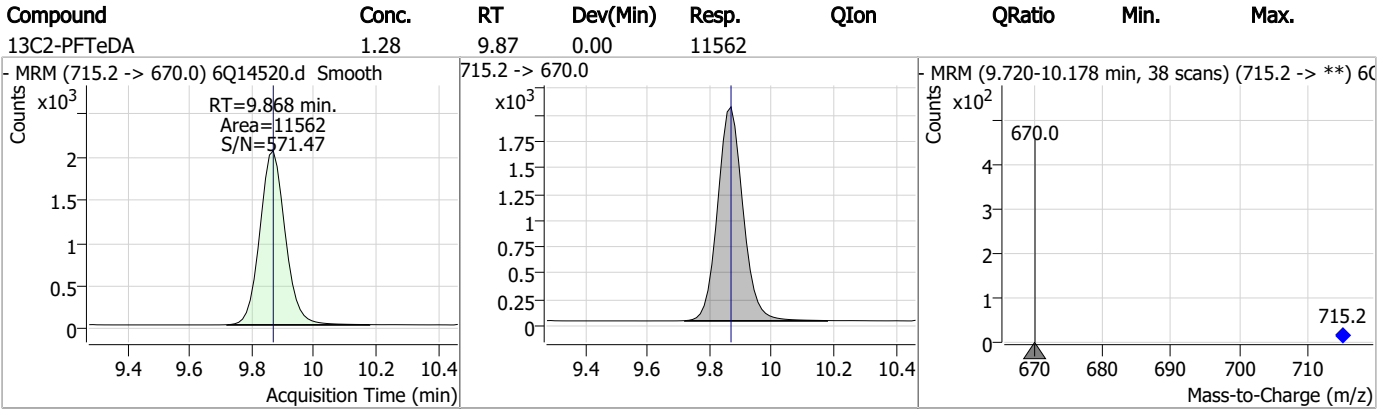
7.8.5
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Perfluorinated Compounds by LC/MS/MS



7.8.5
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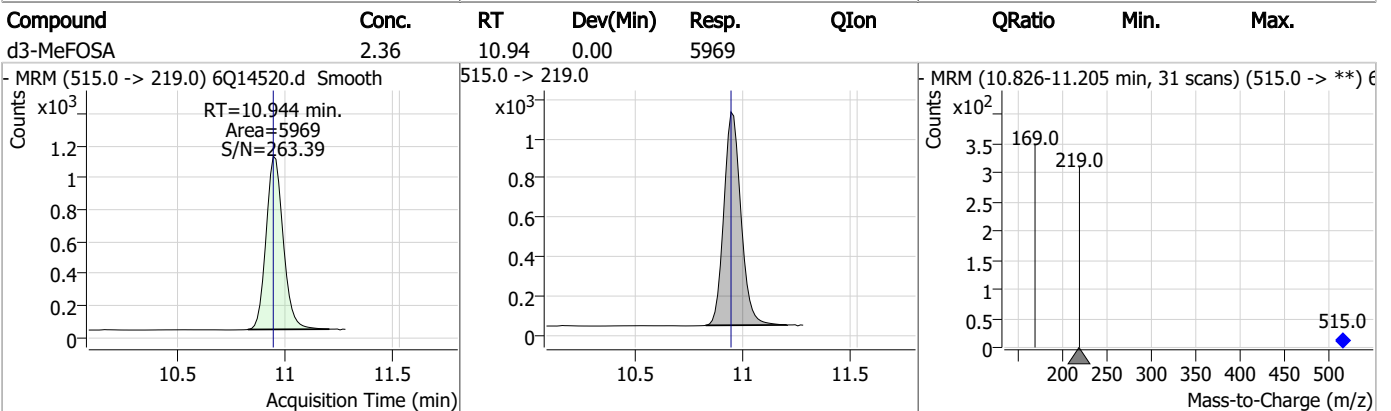
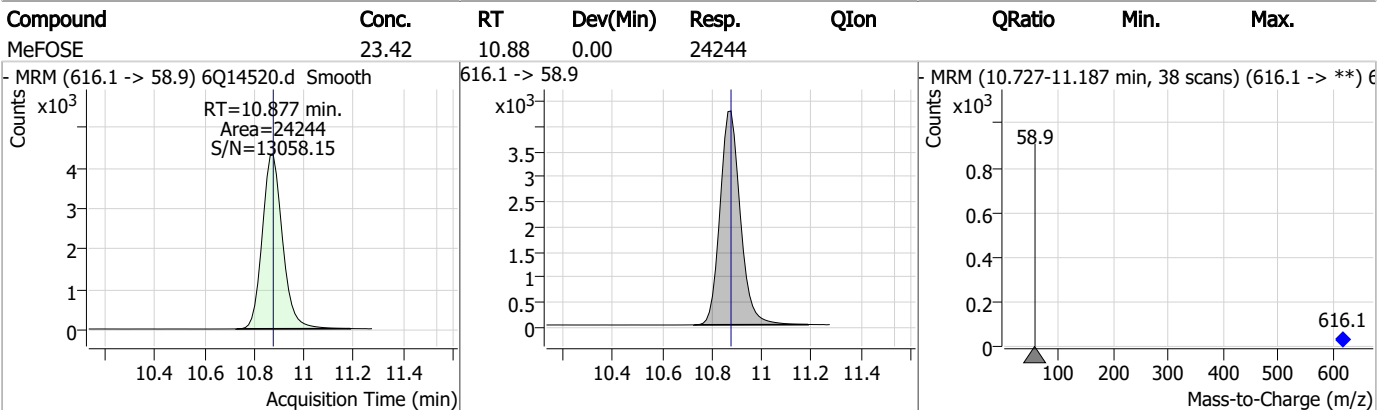
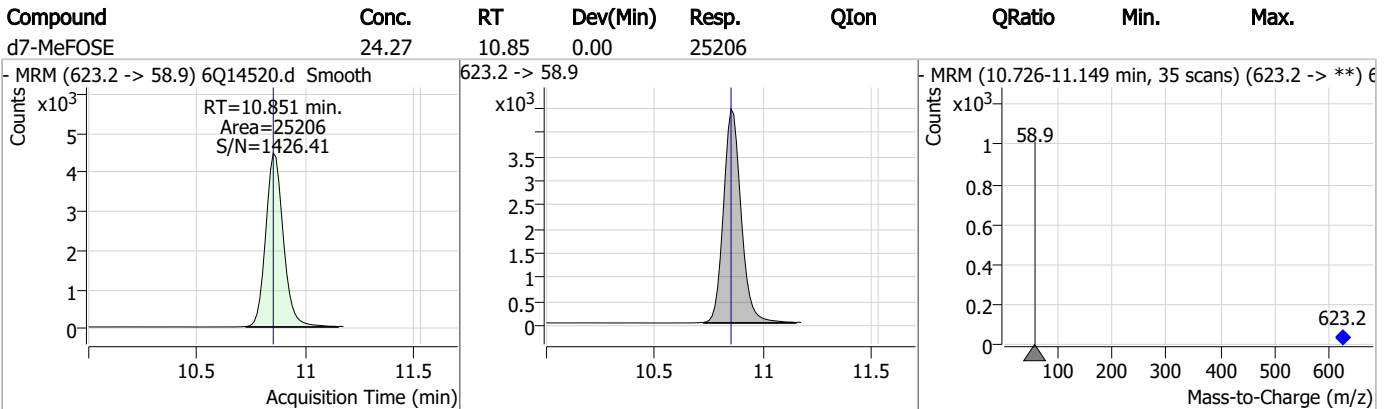
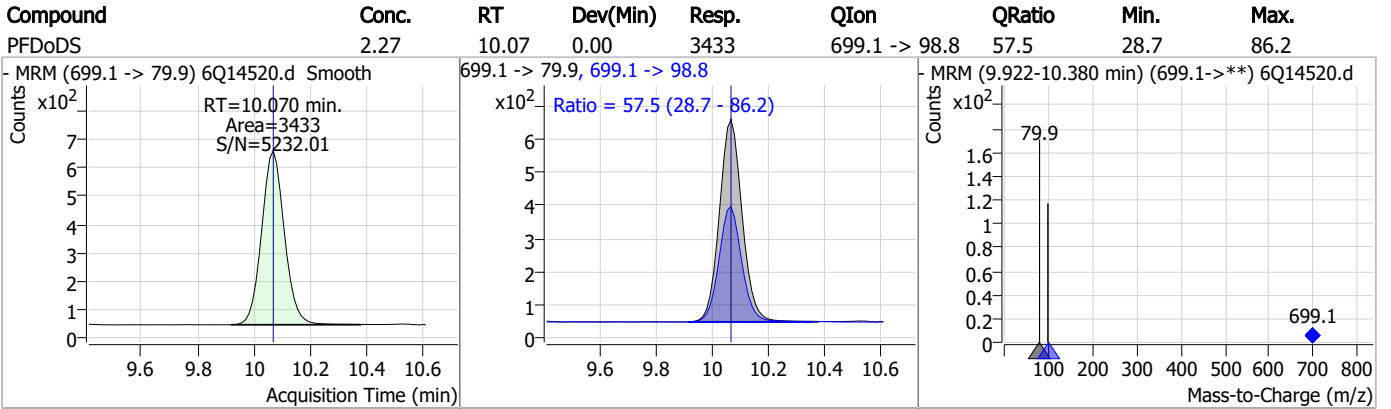
Perfluorinated Compounds by LC/MS/MS



7.8.5

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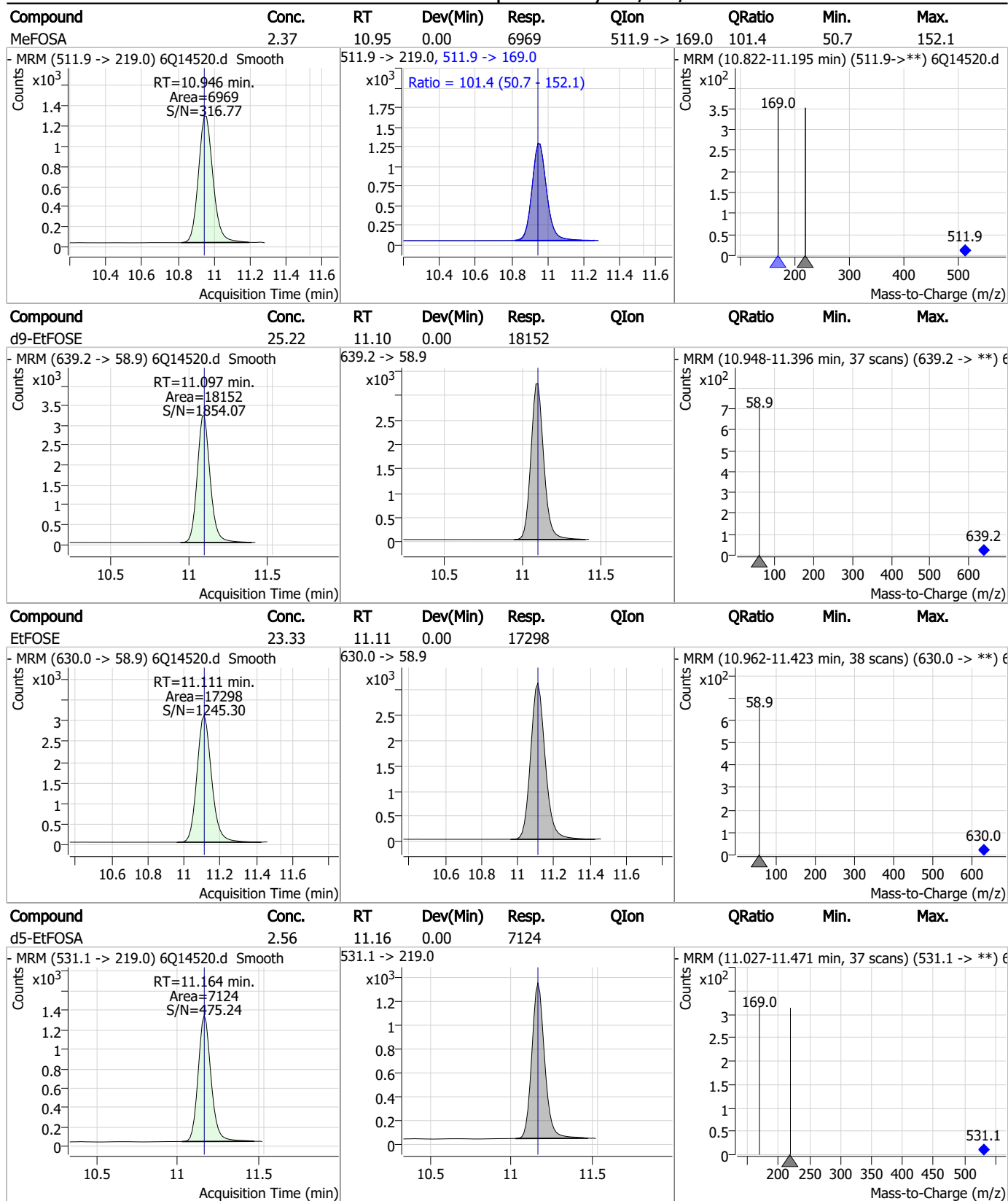
Perfluorinated Compounds by LC/MS/MS



7.8.5

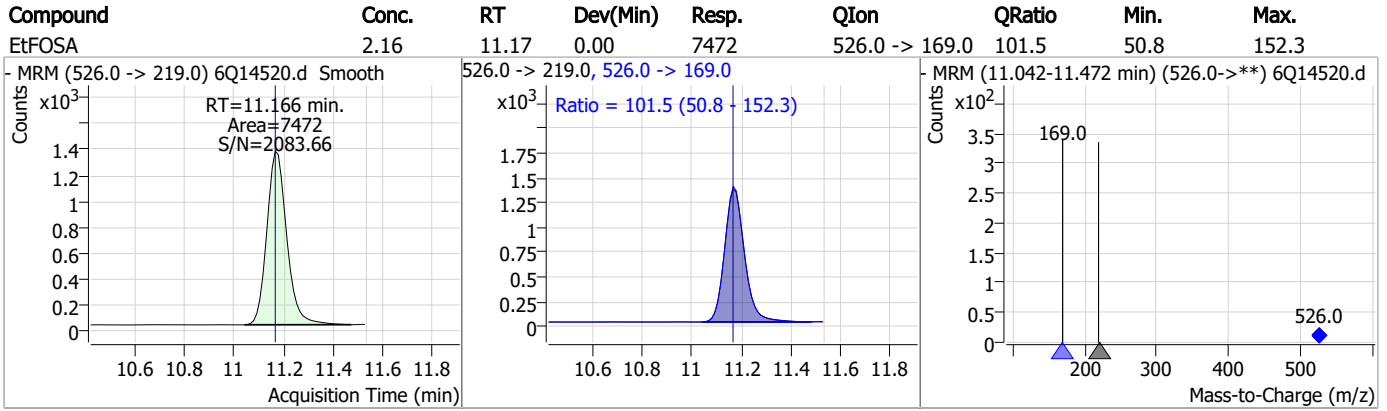
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Perfluorinated Compounds by LC/MS/MS



7.8.5
7

Perfluorinated Compounds by LC/MS/MS



7.8.5

7

Manual Integration Approval Summary

Sample Number: S6Q220-ICC220 Method: EPA DRAFT 1633
Lab FileID: 6Q14520.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 13:42 Supervisor approved: 03/10/23 10:46 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.49	Split peak
MeFOSAA	2355-31-9		8.28	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.50	Split peak

7.8.5.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 03/10/23 10:46

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14521.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 1:56:08 PM
 Sample Name : ic220-5
 Vial : P1-A6
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.088	216.8 -> 171.9	76960	10.00 µg/L	0.012
M5-PFPeA	4.615	268.3 -> 223.0	37731	5.00 µg/L	0.000
M5-PFHxA	5.798	318.0 -> 273.0	32628	2.50 µg/L	-0.012
M4-PFHpA	6.668	367.1 -> 322.0	31746	2.50 µg/L	0.000
M8-PFOA	7.259	421.1 -> 376.0	53238	2.50 µg/L	0.000
M9-PFNA	7.764	472.1 -> 427.0	14015	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	14308	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	15204	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	18835	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	11983	1.25 µg/L	0.000
M8-FOSA	9.926	506.1 -> 77.8	16584	2.50 µg/L	0.000
M3-PFBS	5.914	302.1 -> 79.9	12614	2.50 µg/L	0.012
M3-PFHxS	7.498	402.1 -> 79.9	8036	2.50 µg/L	0.012
M8-PFOS	8.507	507.1 -> 79.9	7396	2.50 µg/L	0.000
M2-4:2FTS	5.475	329.1 -> 80.9	1497	5.00 µg/L	0.000
M2-6:2FTS	7.033	429.1 -> 80.9	1890	5.00 µg/L	0.000
M2-8:2FTS	8.019	529.1 -> 80.9	2013	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	19437	5.00 µg/L	0.012
M3-HFPO-DA	6.151	286.9 -> 168.9	14693	10.00 µg/L	0.000
M5-EtFOSAA	8.473	589.2 -> 419.0	17828	5.00 µg/L	0.000
M7-MeFOSE	10.863	623.2 -> 58.9	24801	25.00 µg/L	0.012
M9-EtFOSE	11.097	639.2 -> 58.9	17865	25.00 µg/L	0.000
M5-EtFOSA	11.164	531.1 -> 219.0	6321	2.50 µg/L	0.000
M3-MeFOSA	10.956	515.0 -> 219.0	6245	2.50 µg/L	0.012
13C4-PFOS	8.508	502.8 -> 79.9	9074	2.50 µg/L	0.012
13C3-PFBA	3.091	216.0 -> 172.0	33939	5.00 µg/L	0.012
18O2-PFHxS	7.498	403.0 -> 83.9	6037	2.50 µg/L	0.000
13C4-PFOA	7.260	417.1 -> 372.0	63860	2.50 µg/L	0.000
13C2-PFDA	8.233	515.1 -> 470.1	18111	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	14915	1.25 µg/L	0.000
13C2-PFHxA	5.799	315.1 -> 270.0	30873	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.475	329.1 -> 80.9	1497	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C2-6:2FTS	7.033	429.1 -> 80.9	1890	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C2-8:2FTS	8.019	529.1 -> 80.9	2013	5.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C2-PFDoDA	9.117	615.1 -> 570.0	18835	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C2-PFTeDA	9.868	715.2 -> 670.0	11983	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C3-PFBS	5.914	302.1 -> 79.9	12614	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C3-PFHxS	7.498	402.1 -> 79.9	8036	2.33 µg/L	0.012

7.8.6
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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 = 93.1%		
13C4-PFBA	3.088	216.8 -> 171.9	76960	9.87 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C4-PFHpA	6.668	367.1 -> 322.0	31746	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C5-PFHxA	5.798	318.0 -> 273.0	32628	2.58 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C5-PFPeA	4.615	268.3 -> 223.0	37731	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C6-PFDA	8.233	519.1 -> 474.1	14308	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C7-PFUnDA	8.687	570.0 -> 525.1	15204	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C8-FOSA	9.926	506.1 -> 77.8	16584	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C8-PFOA	7.259	421.1 -> 376.0	53238	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C8-PFOS	8.507	507.1 -> 79.9	7396	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.2%		
13C9-PFNA	7.764	472.1 -> 427.0	14015	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.5%		
d3-MeFOSAA	8.277	573.2 -> 419.0	19437	4.65 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.0%		
13C3-HFPO-DA	6.151	286.9 -> 168.9	14693	10.39 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
d3-MeFOSA	10.956	515.0 -> 219.0	6245	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.2%		
d5-EtFOSAA	8.473	589.2 -> 419.0	17828	4.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.9%		
d7-MeFOSE	10.863	623.2 -> 58.9	24801	23.28 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 93.1%		
d9-EtFOSE	11.097	639.2 -> 58.9	17865	24.19 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 96.8%		
d5-EtFOSA	11.164	531.1 -> 219.0	6321	2.21 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 88.5%		
Target Compounds					QValue
4:2FTS	5.476	327.1 -> 307.0	62827	18.59 µg/L	99
		327.1 -> 80.9	15755		
6:2FTS	7.034	427.1 -> 407.0	56598	19.91 µg/L	97
		427.1 -> 80.9	11462		
8:2FTS	8.008	527.1 -> 507.0	30600	19.09 µg/L	99
		527.1 -> 80.8	7931		
EtFOSAA	8.474	584.2 -> 419.1	16415	5.47 µg/L	m 98
		584.2 -> 526.0	8257		
FOSA	9.929	498.1 -> 77.9	33357	4.91 µg/L	99
		498.1 -> 478.0	1090		
MeFOSAA	8.278	570.1 -> 419.0	21091	5.12 µg/L	m 98
		570.1 -> 483.0	3868		
PFBA	3.082	212.8 -> 168.9	42279	20.03 µg/L	100
PFBS	5.914	298.7 -> 79.9	24641	4.66 µg/L	93
		298.7 -> 98.8	11101		
PFDA	8.233	512.9 -> 469.0	93385	5.08 µg/L	91
		512.9 -> 219.0	11553		
PFDODA	9.117	613.1 -> 569.0	76819	4.97 µg/L	97
		613.1 -> 319.0	9636		
PFDS	9.368	599.0 -> 79.9	11978	4.77 µg/L	96

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	6285			
PFHpA	6.669	363.1 -> 319.0	101577	4.99	µg/L	99
		363.1 -> 169.0	14463			
PFHpS	8.016	449.0 -> 79.9	16763	4.80	µg/L	91
		449.0 -> 98.9	8699			
PFHxA	5.801	313.0 -> 269.0	67352	5.20	µg/L	100
		313.0 -> 118.9	2893			
PFHxS	7.499	398.7 -> 79.9	18393	4.69	µg/L	m 100
		398.7 -> 98.9	9701			
PFNA	7.765	463.0 -> 419.0	49715	5.13	µg/L	98
		463.0 -> 219.0	9971			
PFNS	8.961	548.8 -> 79.9	17476	4.88	µg/L	91
		548.8 -> 98.9	9534			
PFOA	7.261	413.0 -> 369.0	133051	4.99	µg/L	100
		413.0 -> 169.0	18086			
PFOS	8.508	498.9 -> 79.9	17440	4.75	µg/L	m 95
		498.9 -> 98.8	10320			
PFPeA	4.629	263.0 -> 219.0	90062	10.27	µg/L	100
PFPeS	6.857	349.1 -> 79.9	22804	4.91	µg/L	96
		349.1 -> 98.9	11914			
PFTeDA	9.869	713.1 -> 669.0	71874	4.81	µg/L	98
		713.1 -> 168.9	5366			
PFTrDA	9.513	663.0 -> 619.0	77283	5.01	µg/L	97
		663.0 -> 168.9	6624			
PFUnDA	8.687	563.1 -> 519.0	69628	4.72	µg/L	99
		563.1 -> 269.1	10910			
11CI-PF3OUdS	9.651	630.9 -> 450.9	164778	18.99	µg/L	99
		632.9 -> 452.9	55649			
9CI-PF3ONS	8.838	530.8 -> 351.0	297587	18.87	µg/L	95
		532.8 -> 353.0	102000			
ADONA	6.916	376.9 -> 250.9	599199	19.42	µg/L	99
		376.9 -> 84.8	137499			
HFPO-DA	6.152	284.9 -> 168.9	30890	21.04	µg/L	99
		284.9 -> 184.9	3588			
3:3FTCA	4.001	241.0 -> 177.0	11052	24.80	µg/L	97
		241.0 -> 117.0	1596			
5:3FTCA	6.394	341.0 -> 237.1	361344	127.70	µg/L	93
		341.0 -> 217.0	319940			
7:3FTCA	7.742	441.0 -> 316.9	173723	127.99	µg/L	87
		441.0 -> 336.9	323009			
EtFOSA	11.178	526.0 -> 219.0	16188	5.28	µg/L	98
		526.0 -> 169.0	16794			
EtFOSE	11.111	630.0 -> 58.9	36222	49.64	µg/L	100
MeFOSA	10.958	511.9 -> 219.0	15196	4.94	µg/L	100
		511.9 -> 169.0	15413			
MeFOSE	10.877	616.1 -> 58.9	50766	49.83	µg/L	100
PFDoDS	10.070	699.1 -> 79.9	7043	4.63	µg/L	90
		699.1 -> 98.8	4589			
NFDHA	5.681	295.0 -> 201.0	9547	10.71	µg/L	100
		295.0 -> 84.9	3791			
PFMBA	5.014	279.0 -> 85.1	28919	9.82	µg/L	100
PFMPA	3.717	229.0 -> 84.9	25475	9.93	µg/L	100
PFEESA	6.396	314.8 -> 134.9	166388	8.93	µg/L	100
		314.8 -> 82.9	4705			

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

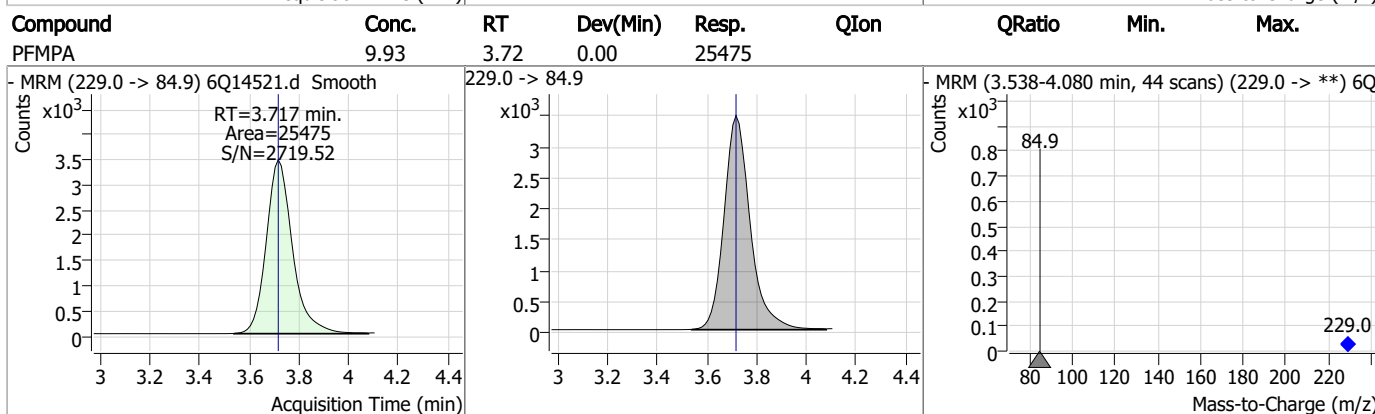
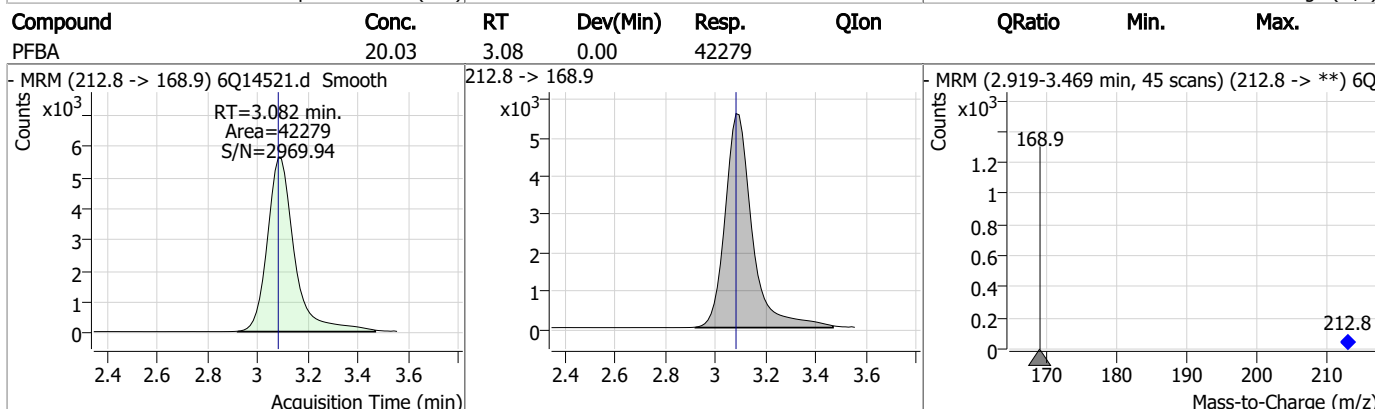
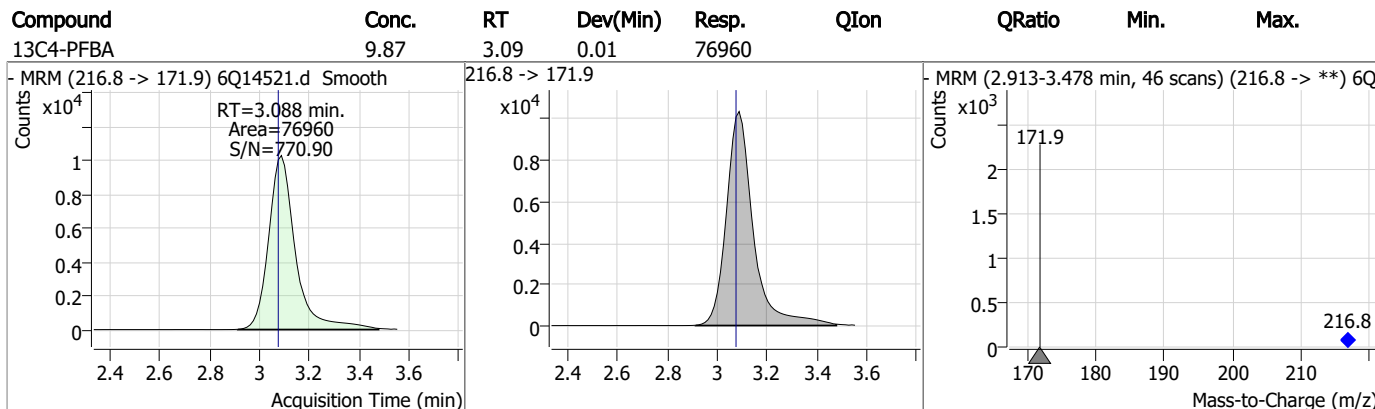
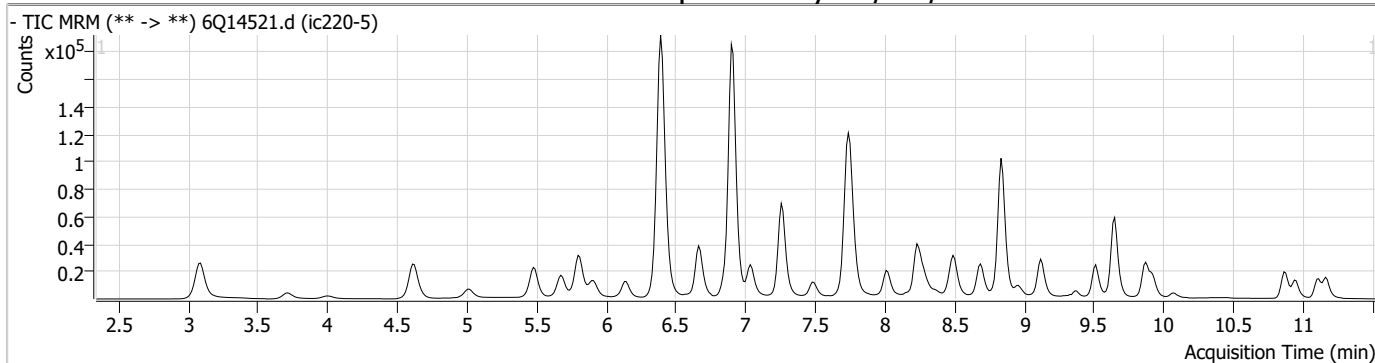
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.8.6

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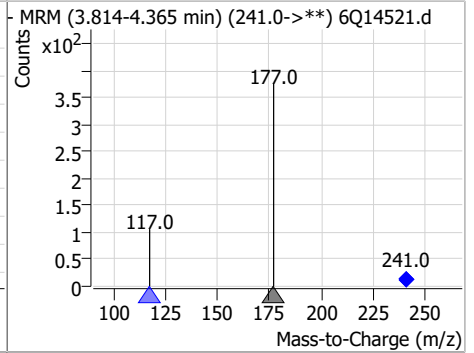
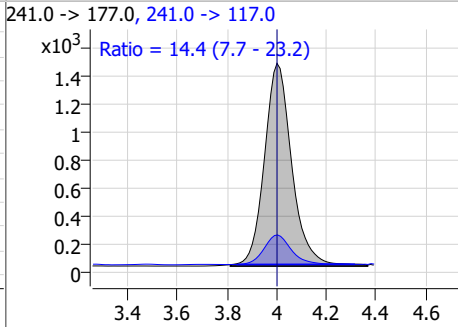
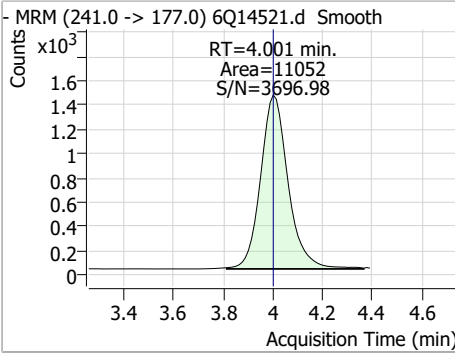
Perfluorinated Compounds by LC/MS/MS



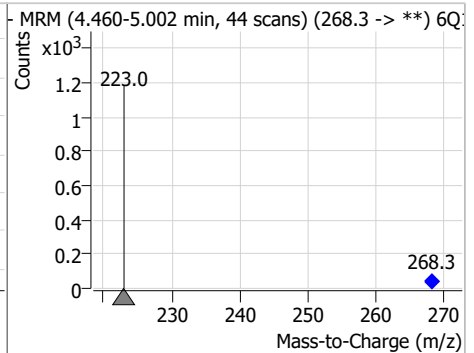
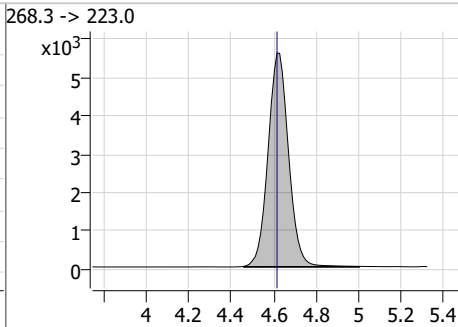
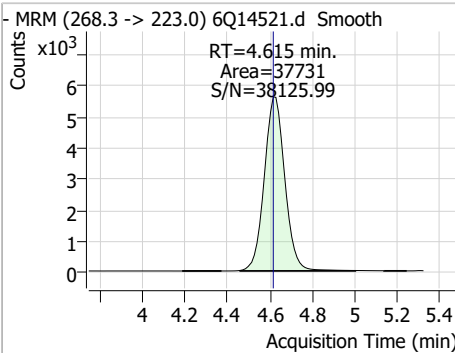
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Perfluorinated Compounds by LC/MS/MS

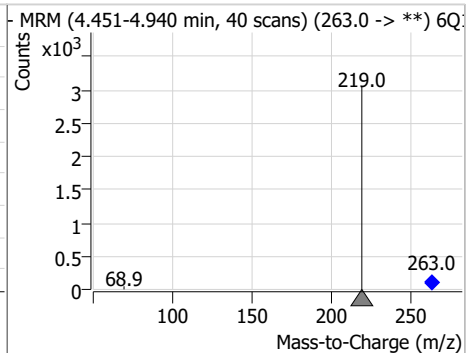
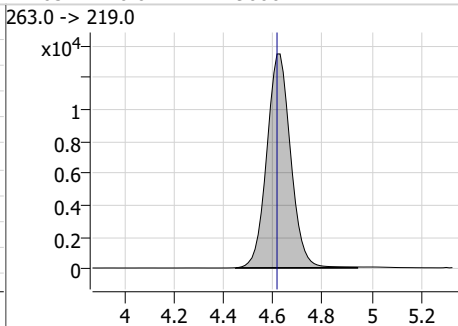
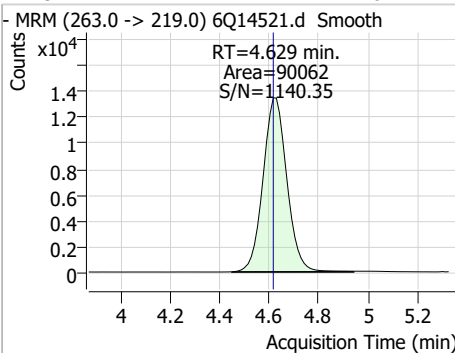
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	24.80	4.00	0.00	11052	241.0 -> 117.0	14.4	7.7	23.2



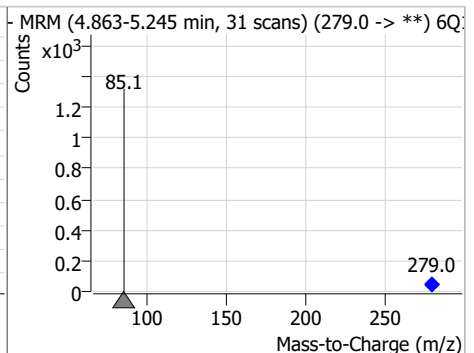
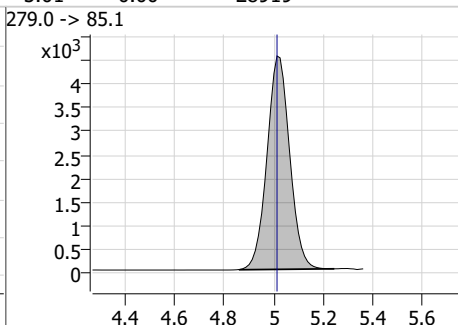
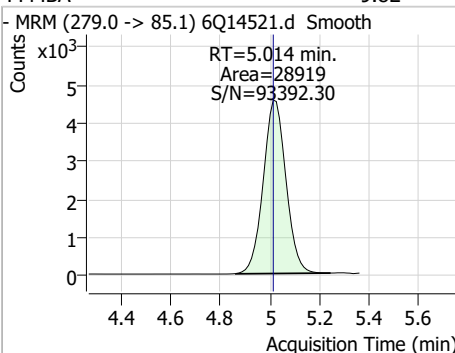
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.15	4.62	0.00	37731				



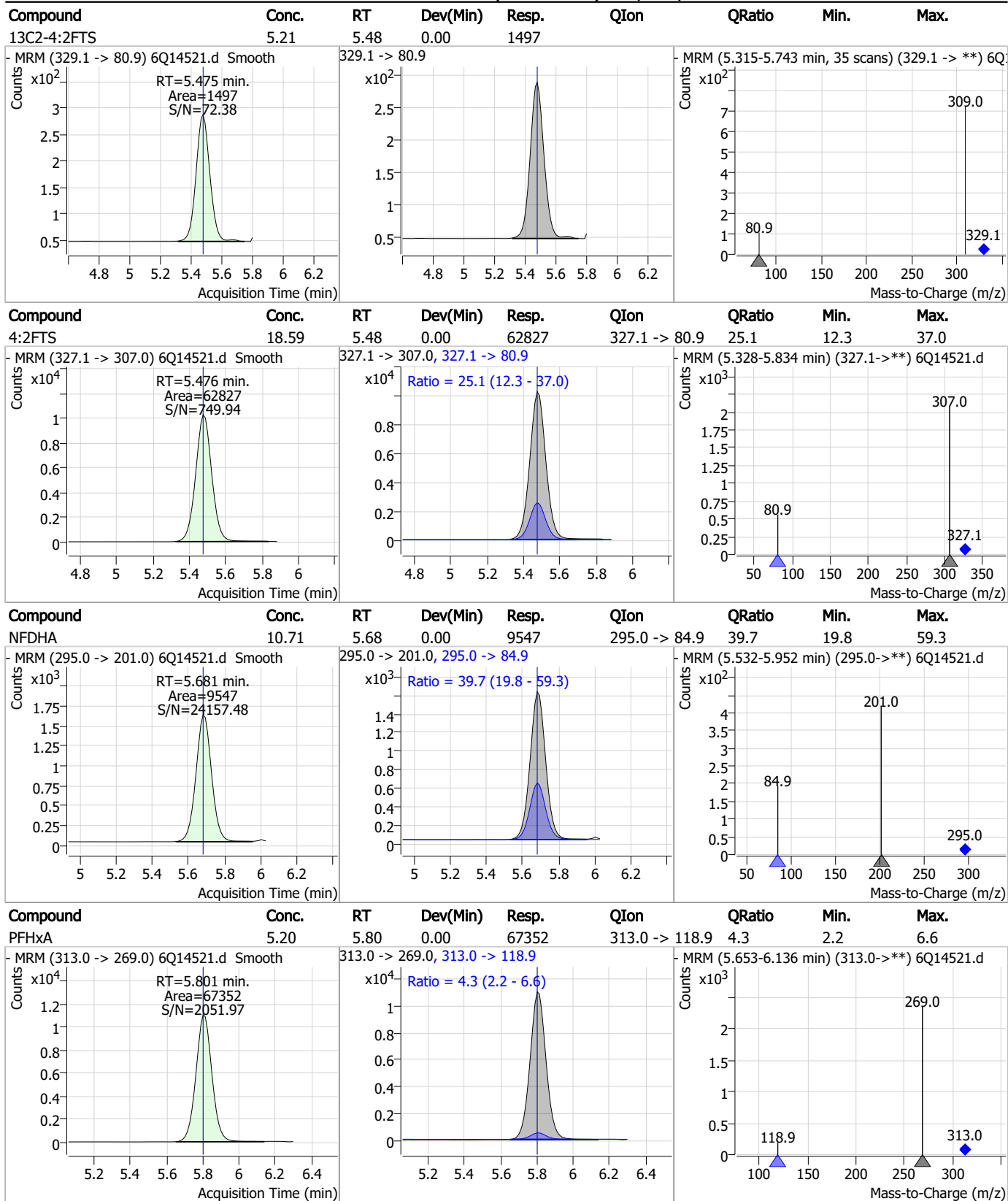
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	10.27	4.63	0.01	90062				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	9.82	5.01	0.00	28919				

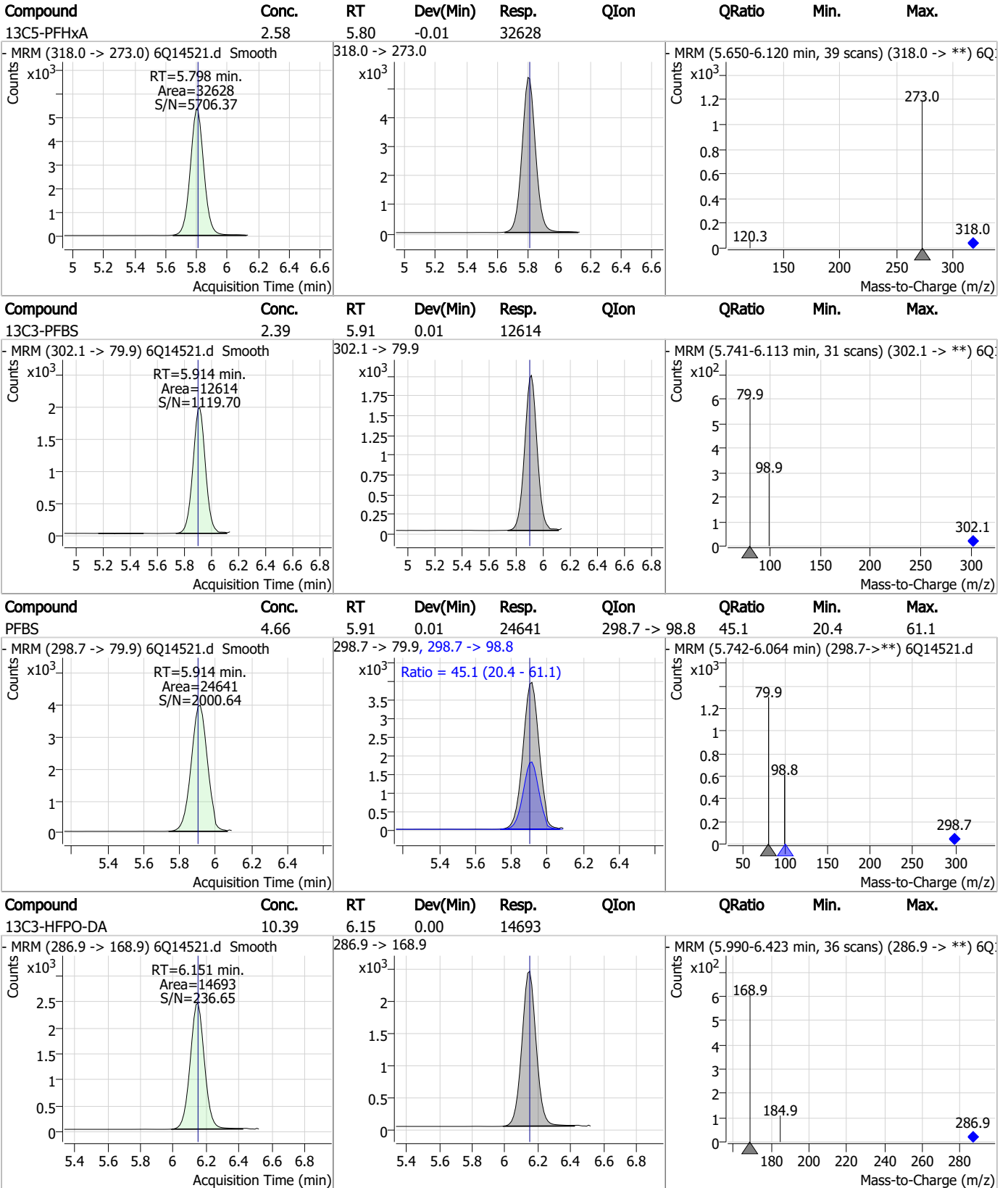


Perfluorinated Compounds by LC/MS/MS



7.8.6
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Perfluorinated Compounds by LC/MS/MS

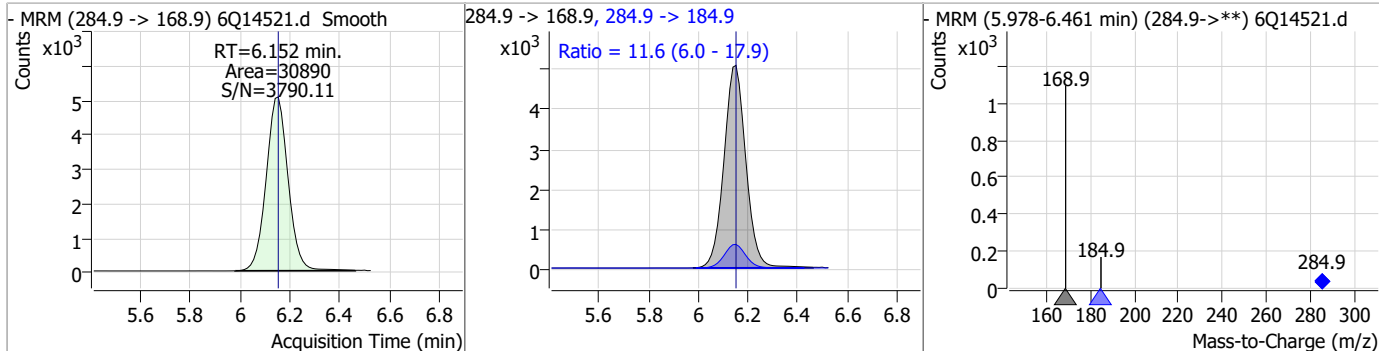


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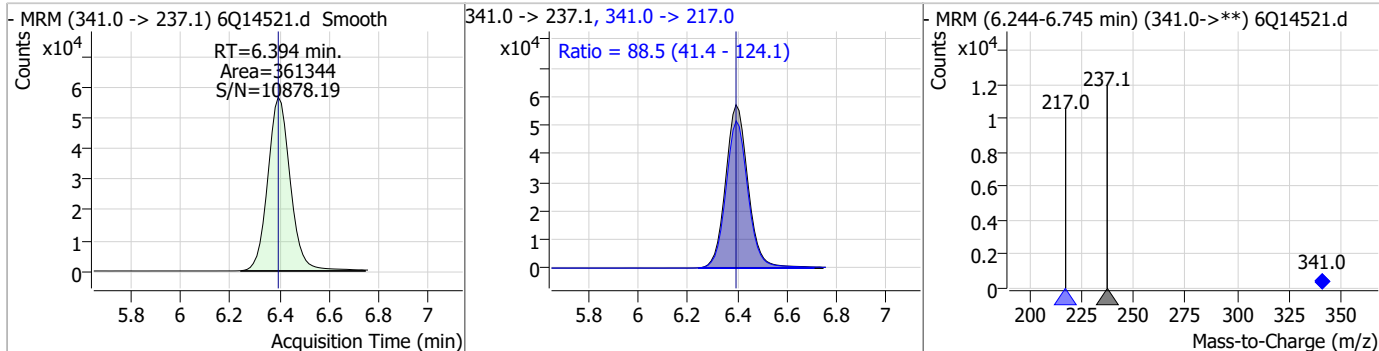
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Perfluorinated Compounds by LC/MS/MS

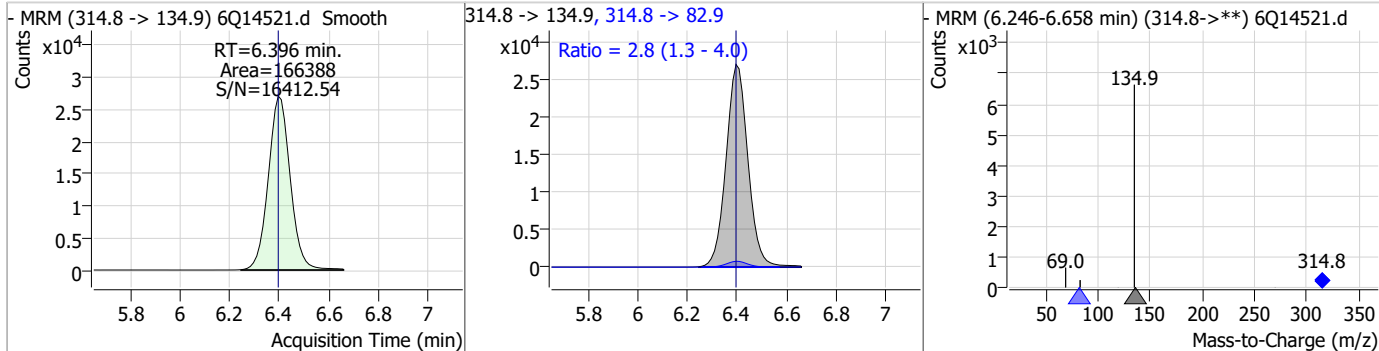
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	21.04	6.15	0.00	30890	284.9 -> 184.9	11.6	6.0	17.9



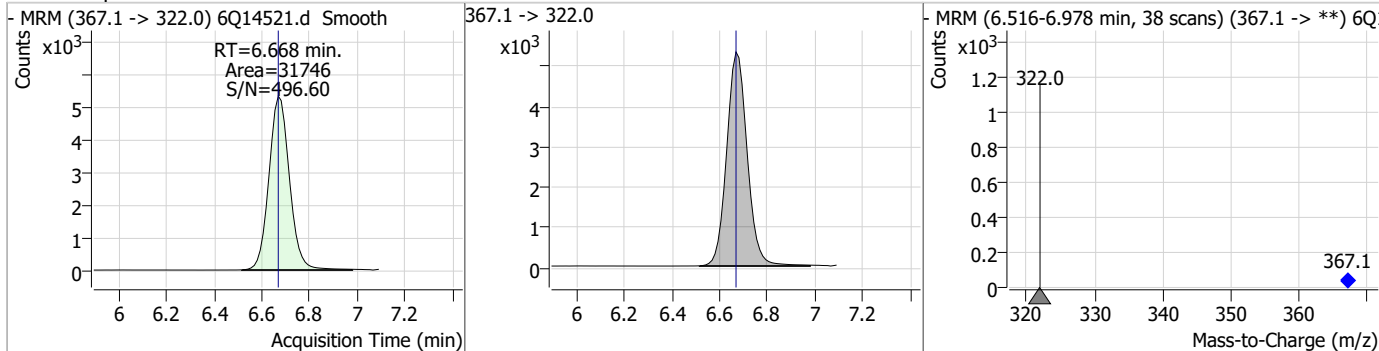
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	127.70	6.39	0.00	361344	341.0 -> 217.0	88.5	41.4	124.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	8.93	6.40	0.00	166388	314.8 -> 82.9	2.8	1.3	4.0

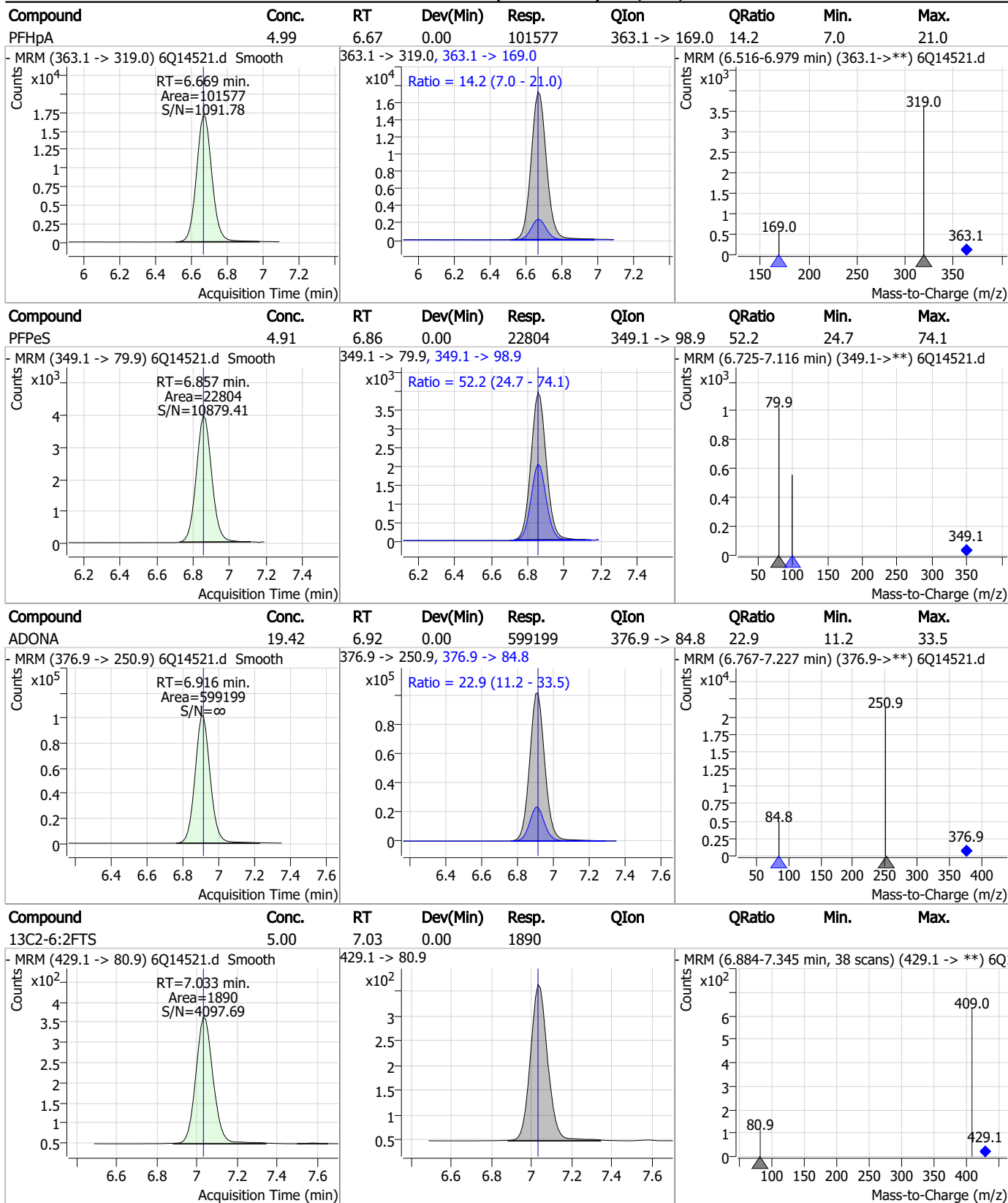


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.57	6.67	0.00	31746	367.1 -> 322.0			



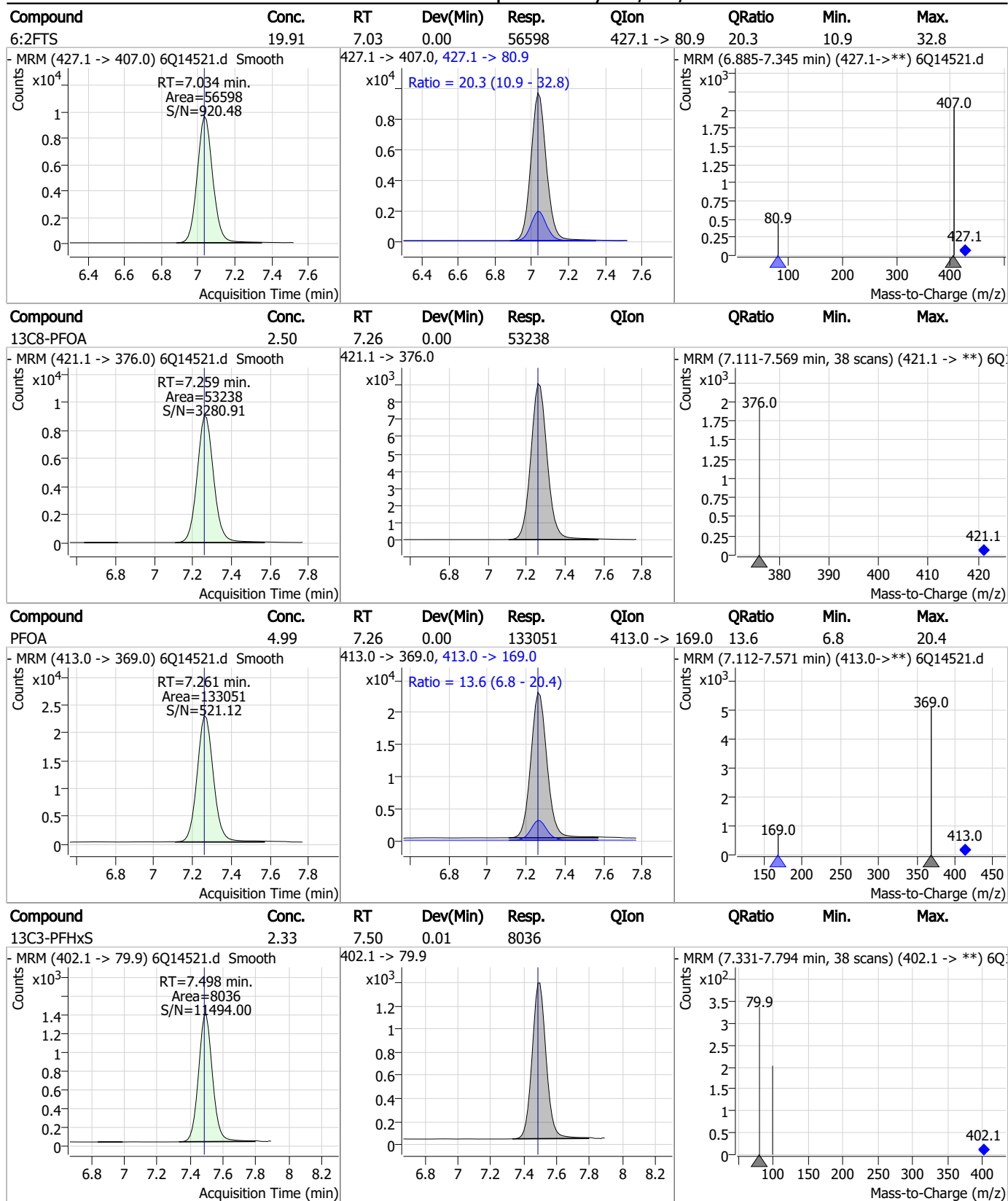
7.8.6
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

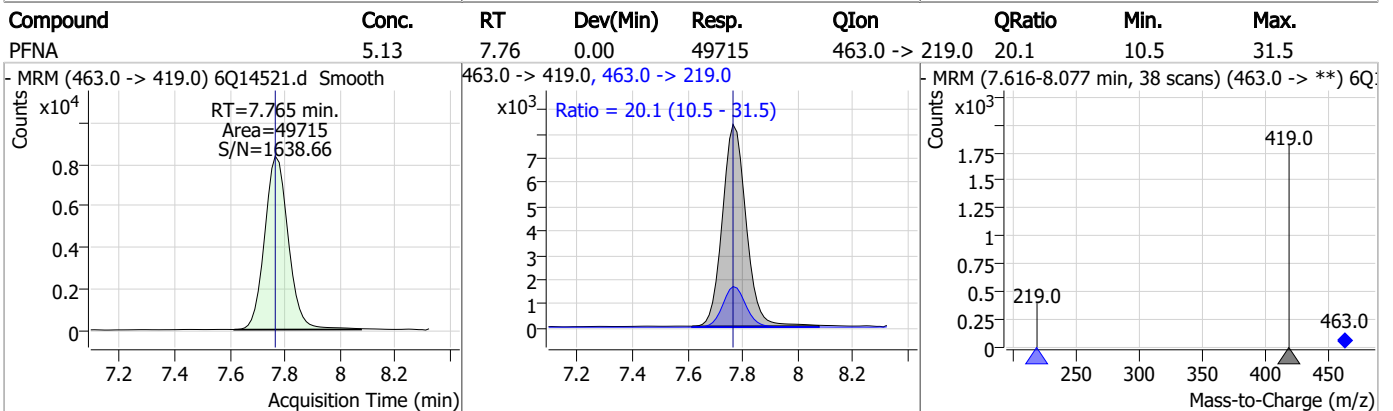
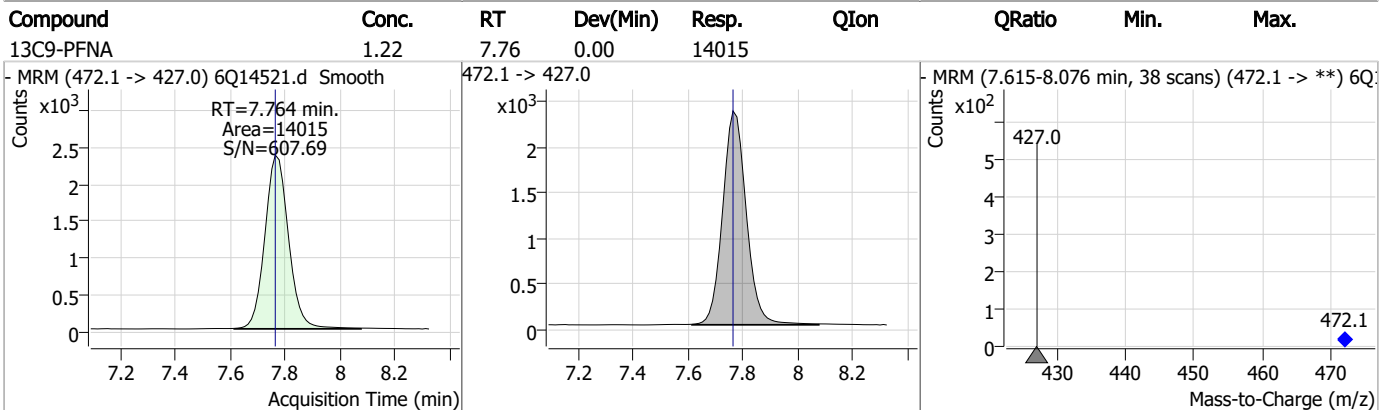
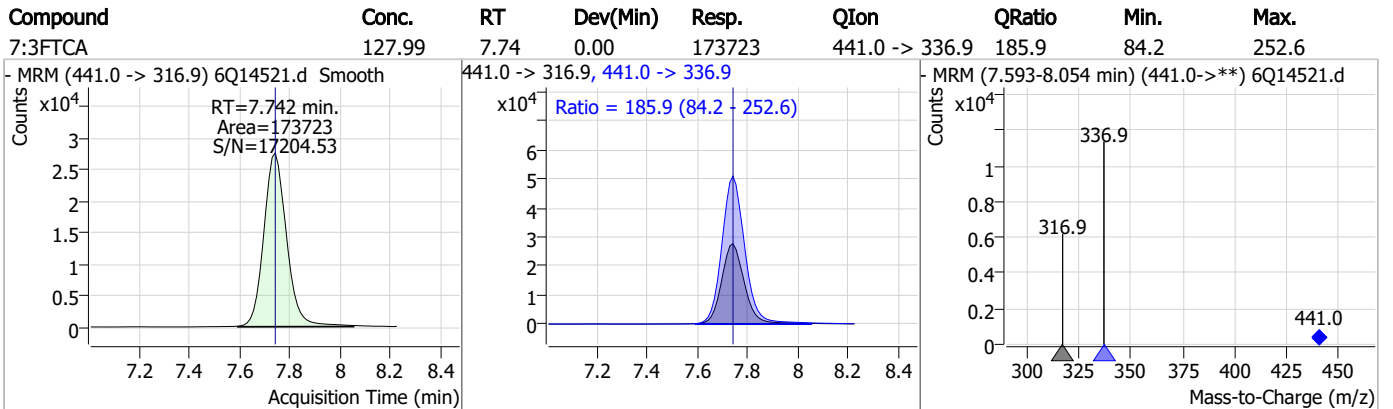
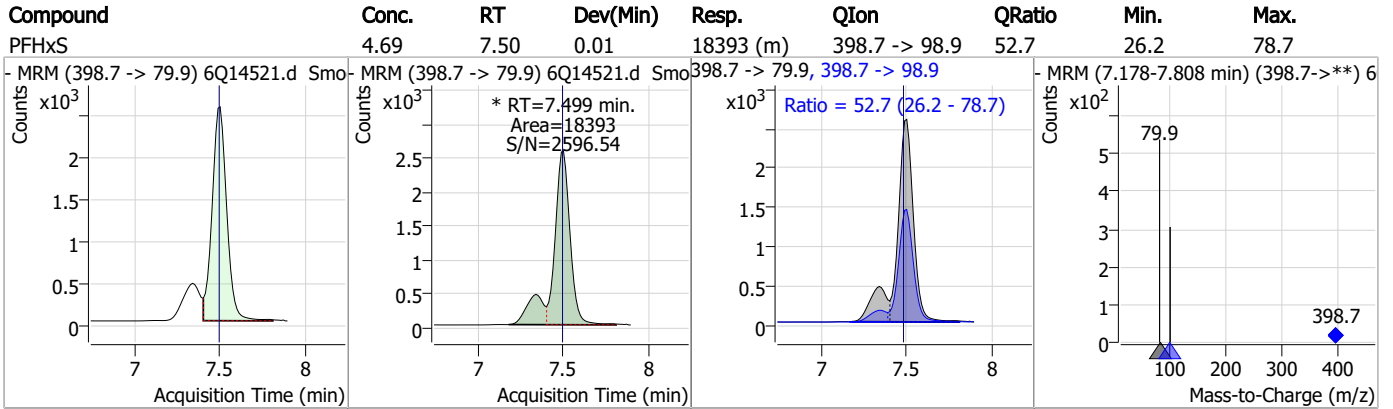


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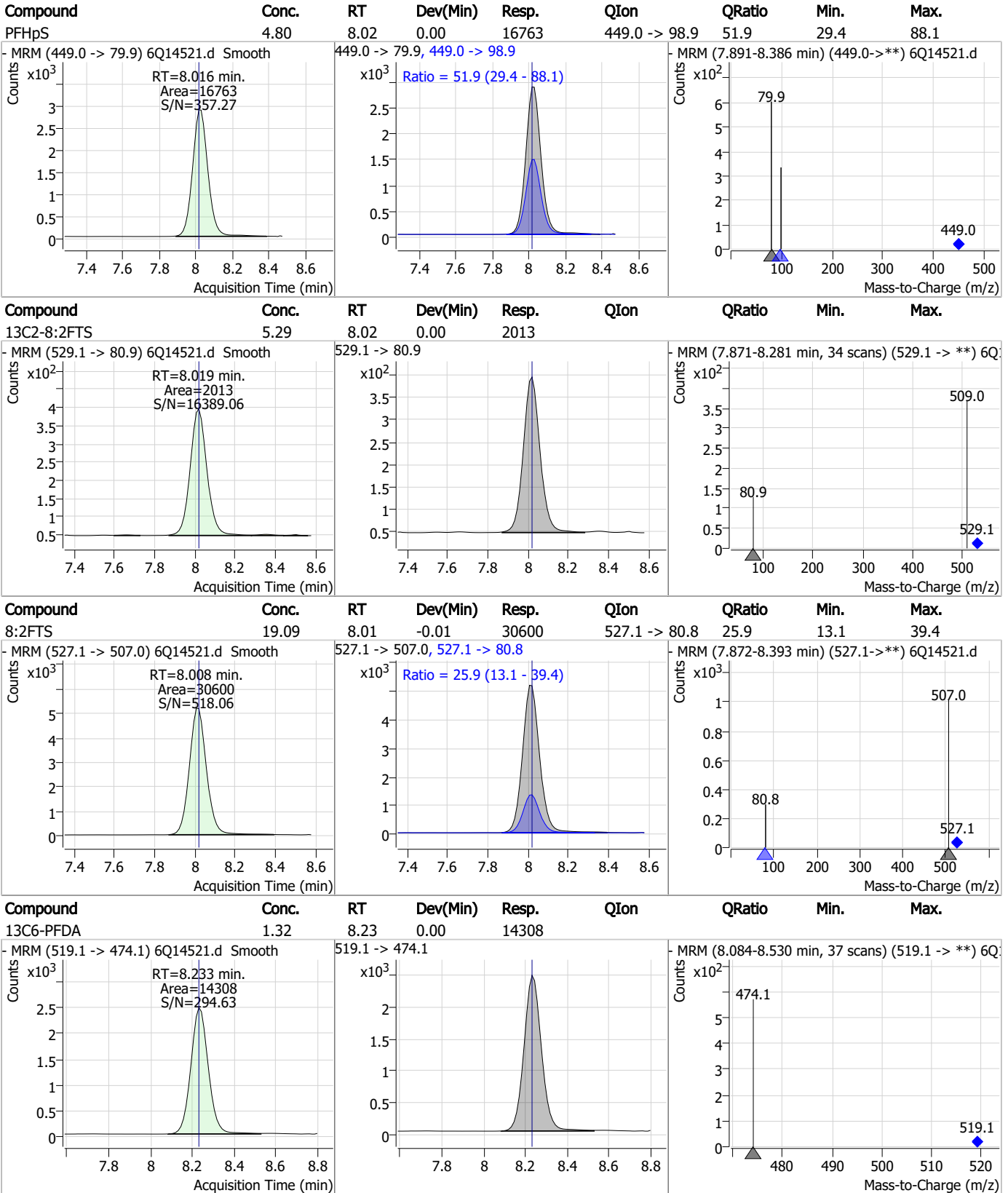
Perfluorinated Compounds by LC/MS/MS



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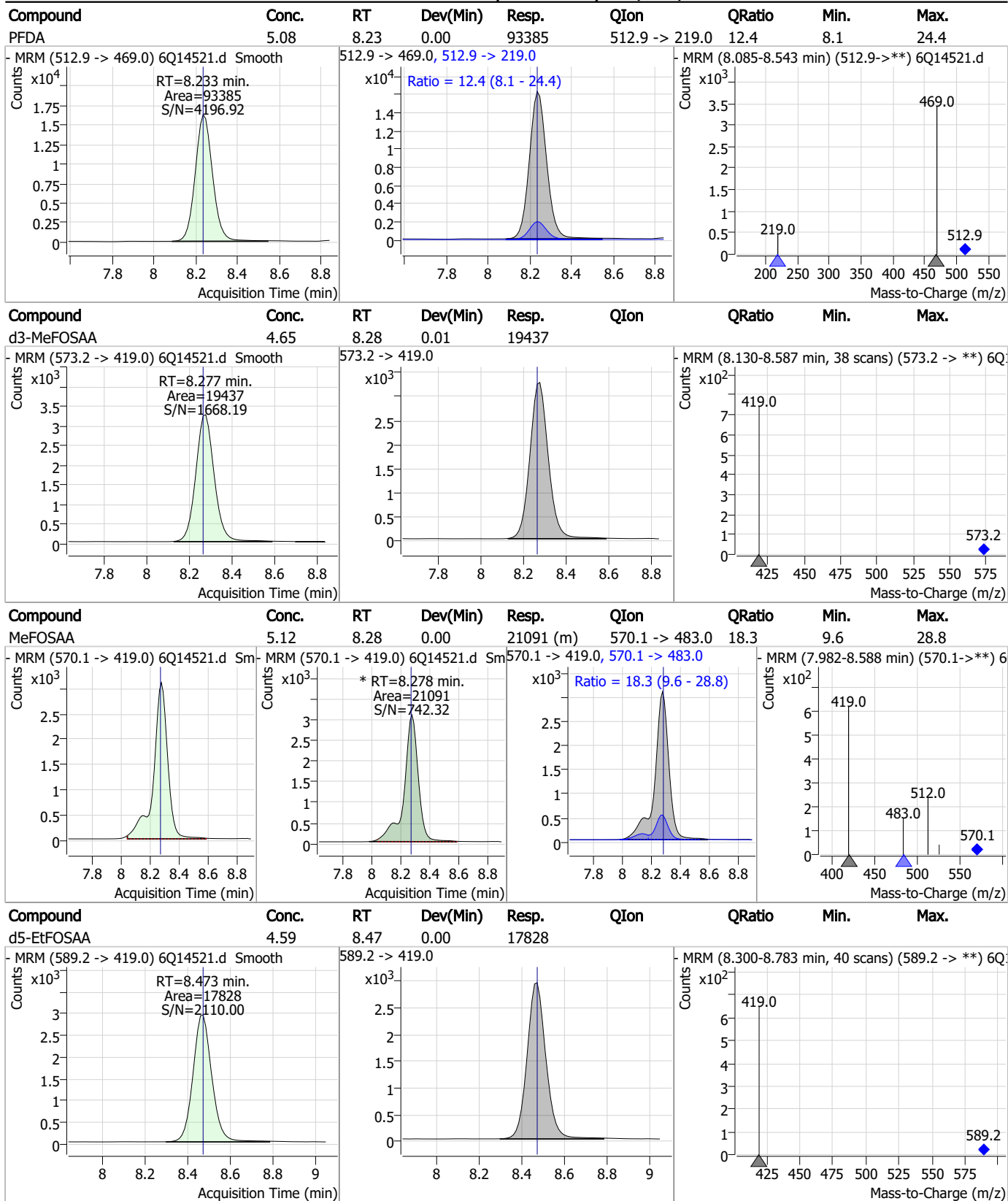
Perfluorinated Compounds by LC/MS/MS



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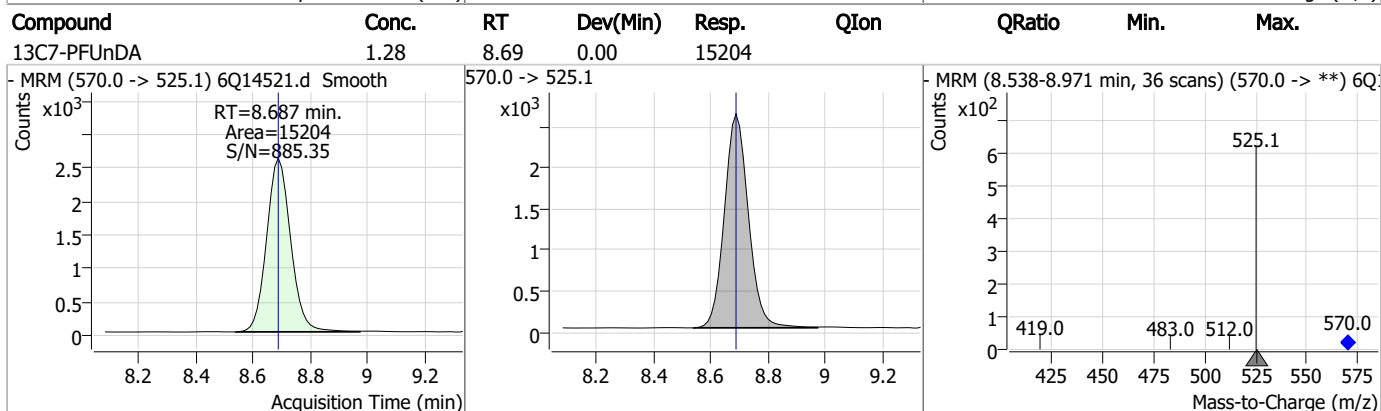
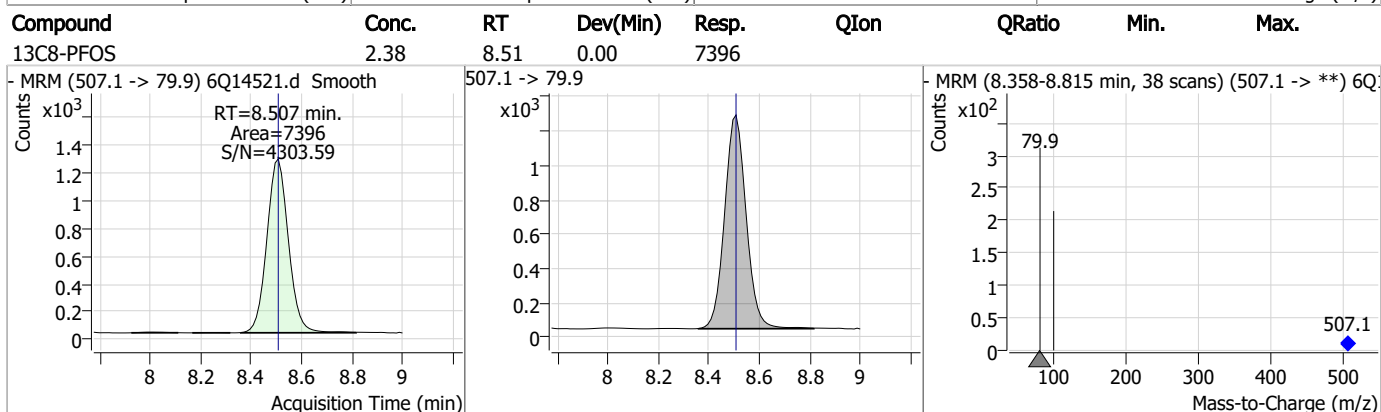
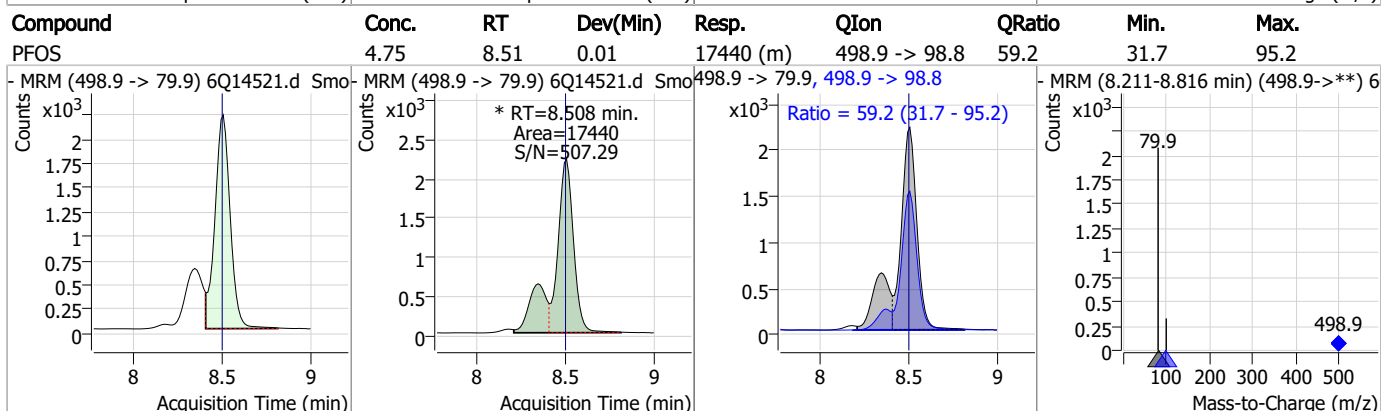
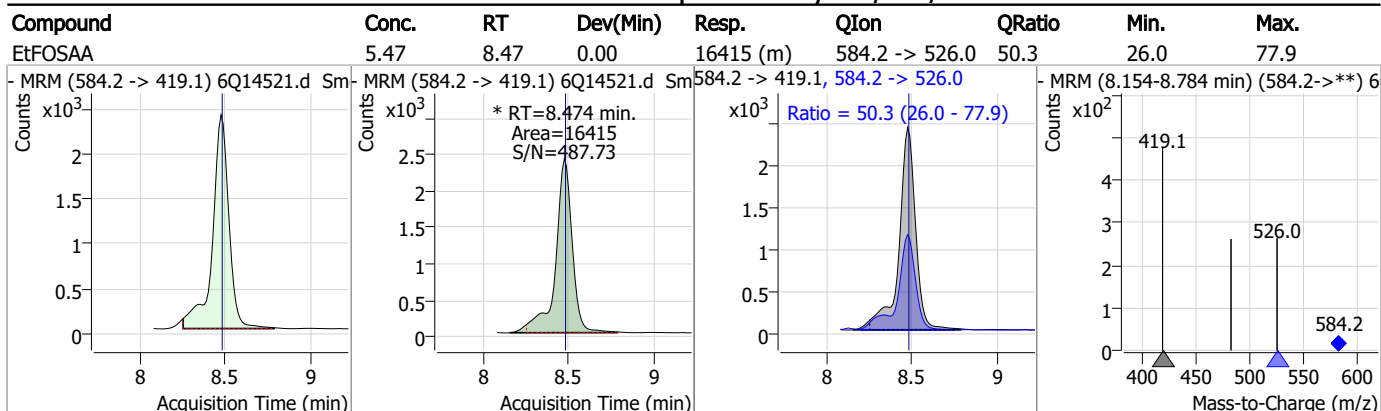
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Perfluorinated Compounds by LC/MS/MS

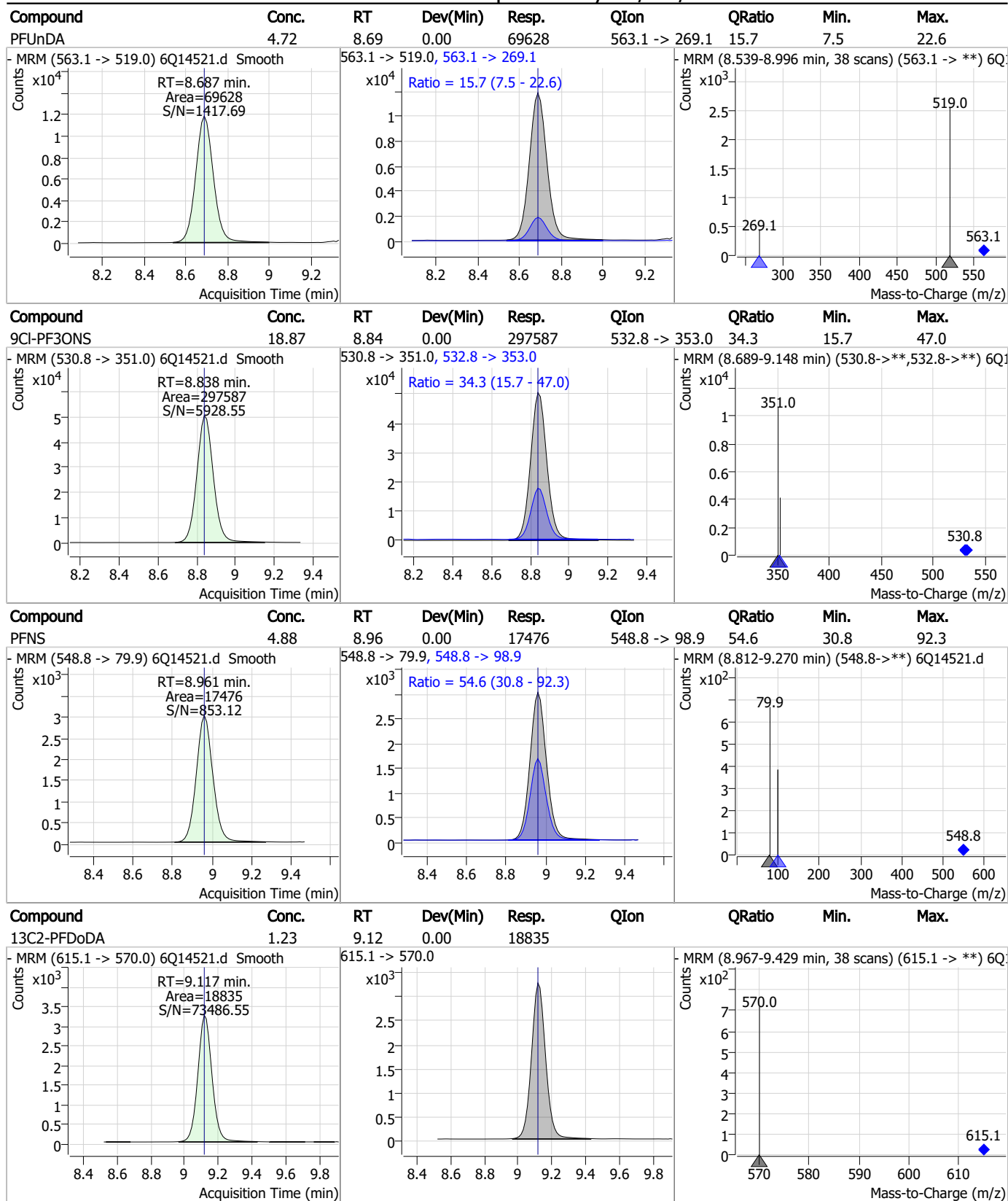


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Perfluorinated Compounds by LC/MS/MS



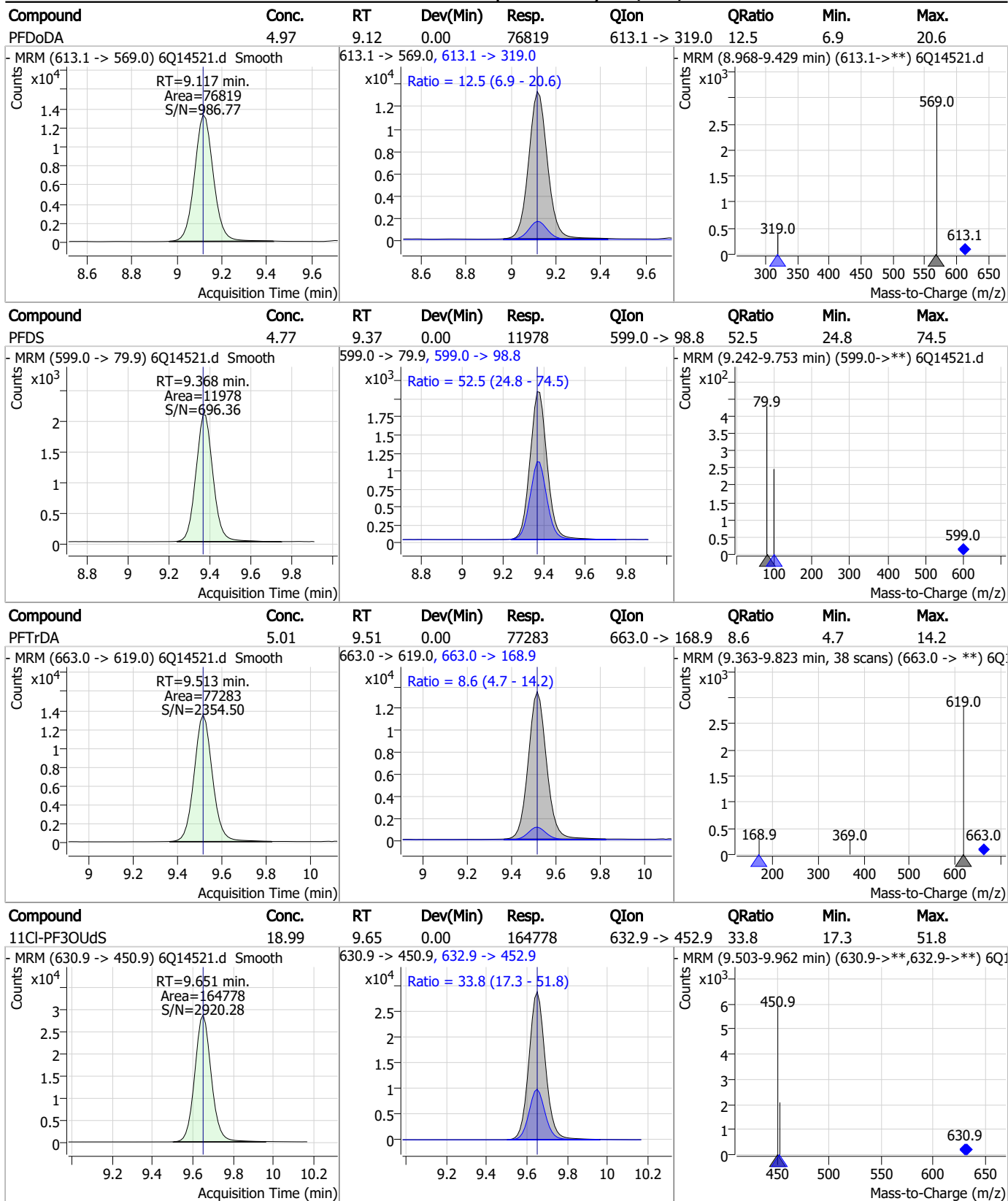
Perfluorinated Compounds by LC/MS/MS



7.8.6
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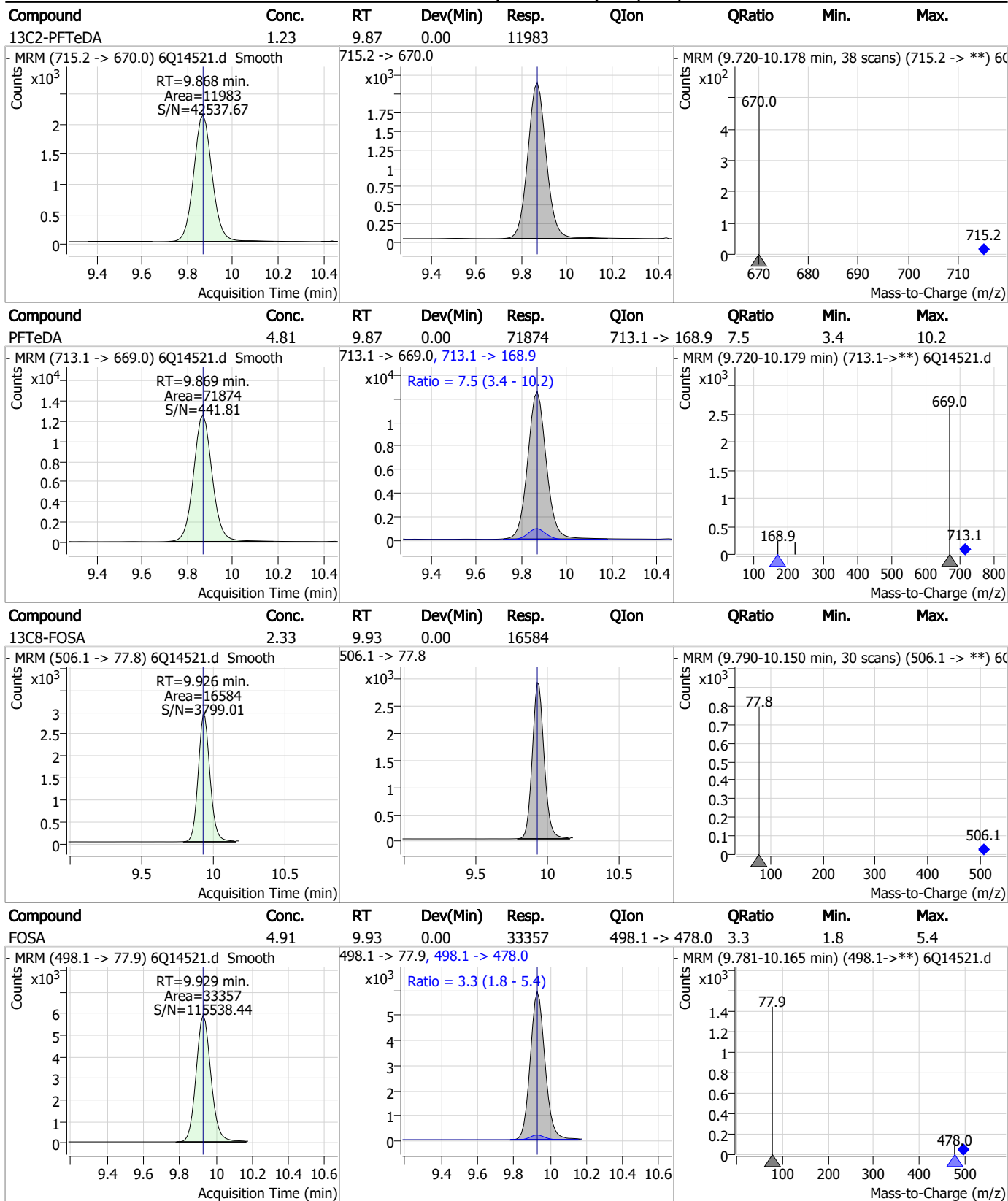


Perfluorinated Compounds by LC/MS/MS



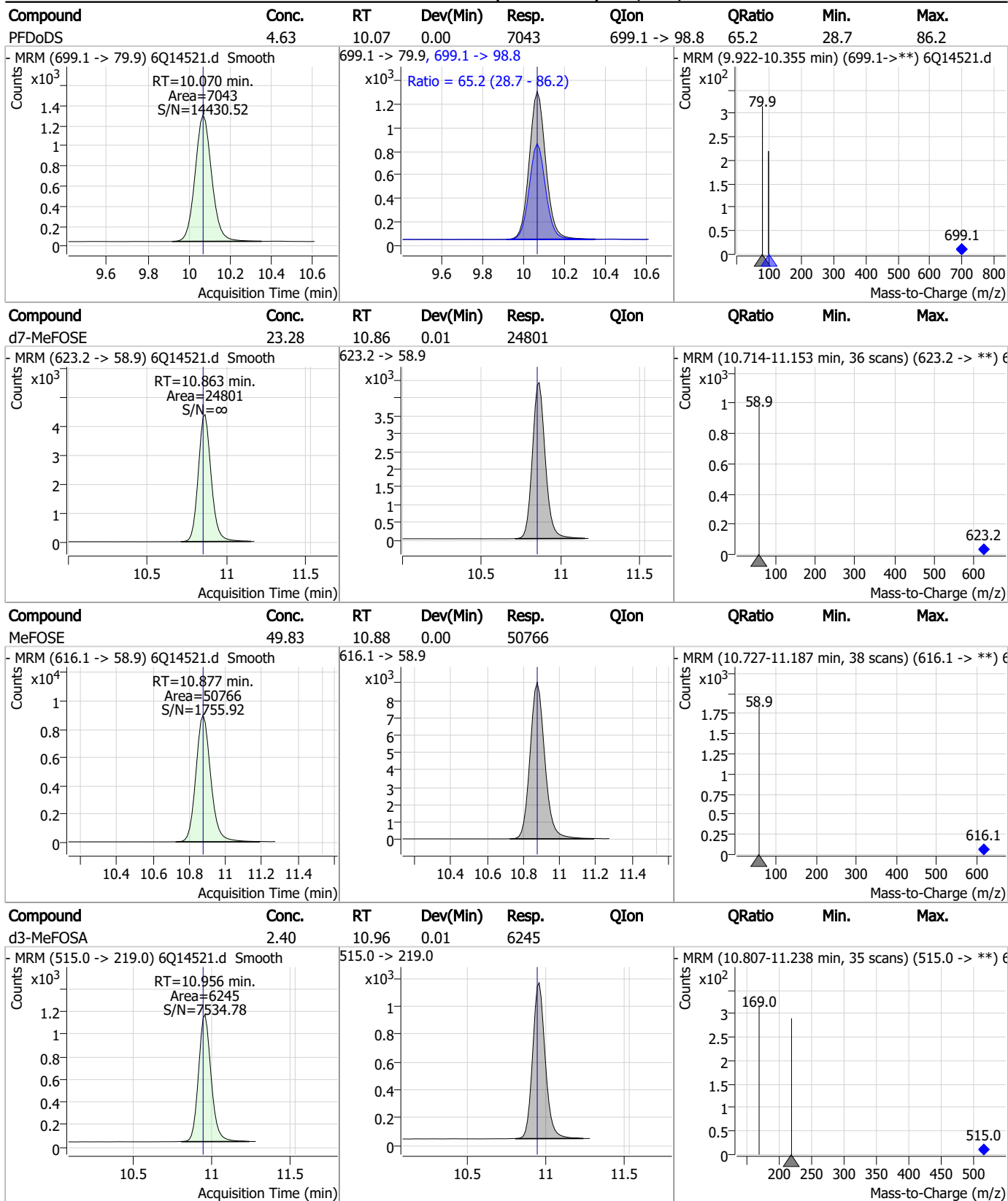
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Perfluorinated Compounds by LC/MS/MS



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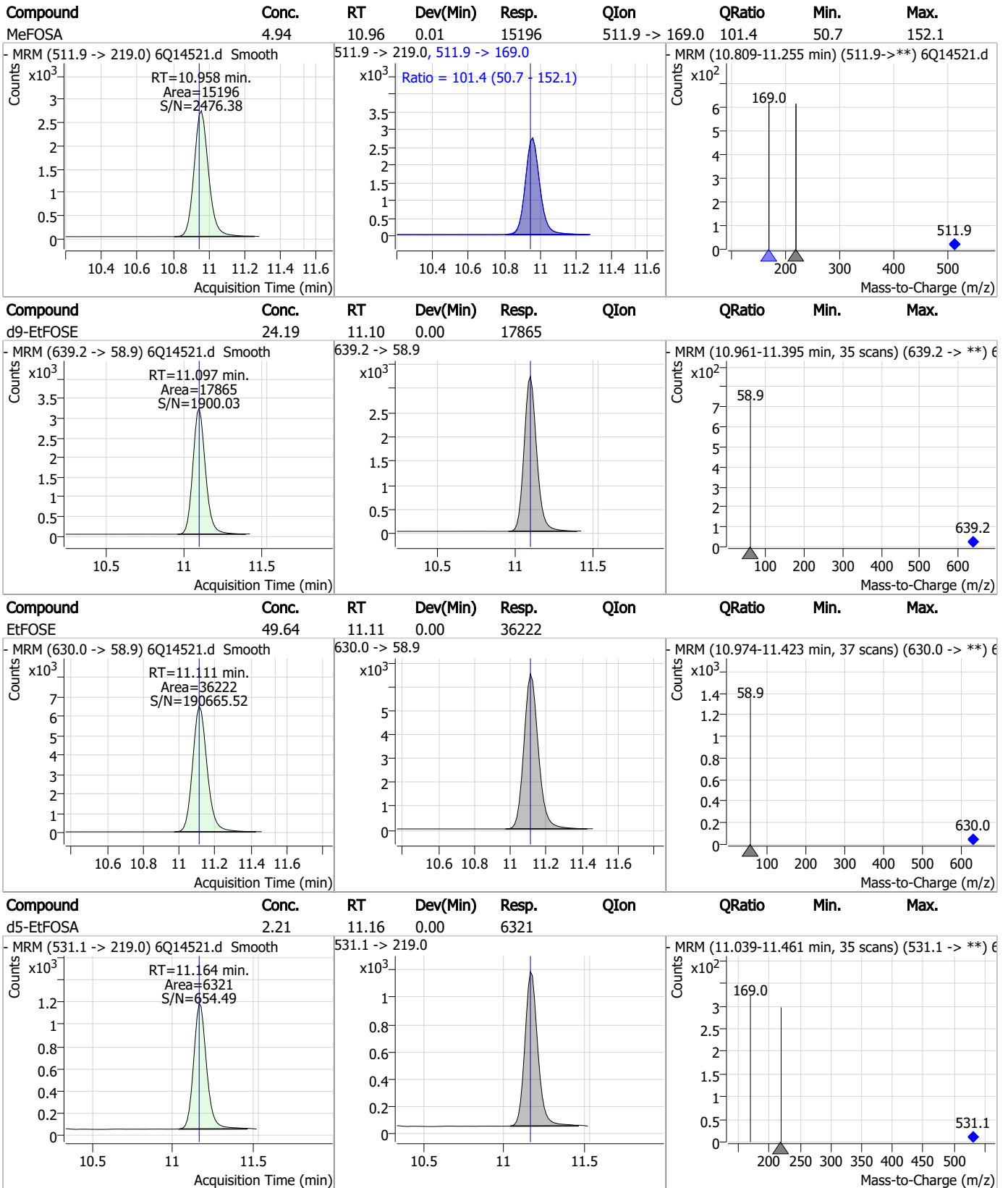
Perfluorinated Compounds by LC/MS/MS



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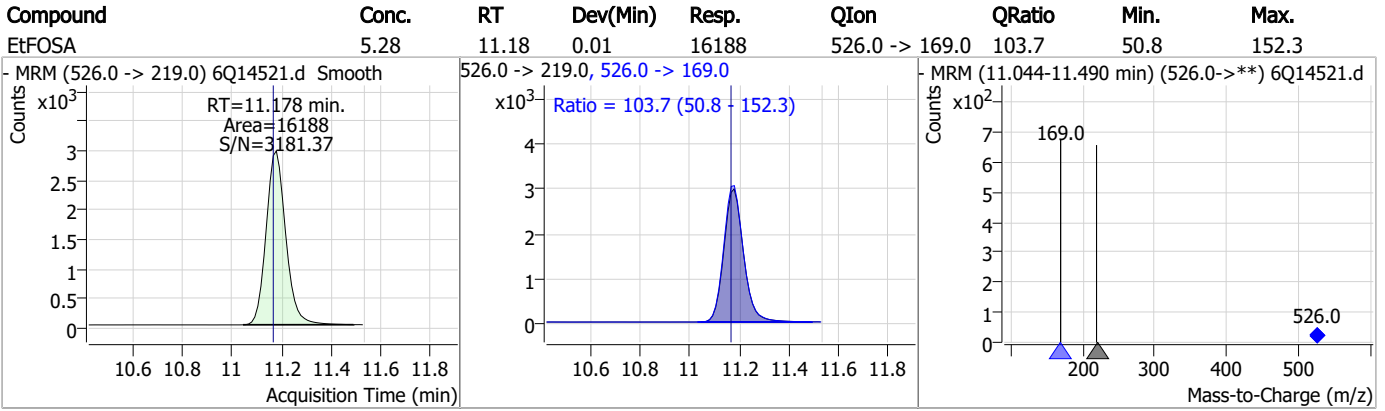
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.8.6

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Manual Integration Approval Summary

Sample Number: S6Q220-IC220 Method: EPA DRAFT 1633
Lab FileID: 6Q14521.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 13:56 Supervisor approved: 03/10/23 10:46 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.50	Split peak
MeFOSAA	2355-31-9		8.28	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.51	Split peak

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 03/10/23 10:46

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14522.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 2:10:07 PM
 Sample Name : ic220-6
 Vial : P1-A7
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.088	216.8 -> 171.9	73900	10.00 µg/L	0.012
M5-PFPeA	4.628	268.3 -> 223.0	36917	5.00 µg/L	0.012
M5-PFHxA	5.810	318.0 -> 273.0	30847	2.50 µg/L	0.000
M4-PFHpA	6.680	367.1 -> 322.0	32239	2.50 µg/L	0.012
M8-PFOA	7.272	421.1 -> 376.0	49244	2.50 µg/L	0.012
M9-PFNA	7.764	472.1 -> 427.0	14007	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	13126	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	14262	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	18051	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	12020	1.25 µg/L	0.000
M8-FOSA	9.926	506.1 -> 77.8	15792	2.50 µg/L	0.000
M3-PFBS	5.926	302.1 -> 79.9	12498	2.50 µg/L	0.025
M3-PFHxS	7.498	402.1 -> 79.9	8174	2.50 µg/L	0.012
M8-PFOS	8.507	507.1 -> 79.9	6962	2.50 µg/L	0.000
M2-4:2FTS	5.488	329.1 -> 80.9	1321	5.00 µg/L	0.012
M2-6:2FTS	7.033	429.1 -> 80.9	1755	5.00 µg/L	0.000
M2-8:2FTS	8.019	529.1 -> 80.9	1715	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	20057	5.00 µg/L	0.012
M3-HFPO-DA	6.151	286.9 -> 168.9	13539	10.00 µg/L	0.000
M5-EtFOSAA	8.473	589.2 -> 419.0	17650	5.00 µg/L	0.000
M7-MeFOSE	10.863	623.2 -> 58.9	24348	25.00 µg/L	0.012
M9-EtFOSE	11.097	639.2 -> 58.9	17375	25.00 µg/L	0.000
M5-EtFOSA	11.164	531.1 -> 219.0	6634	2.50 µg/L	0.000
M3-MeFOSA	10.956	515.0 -> 219.0	5612	2.50 µg/L	0.012
13C4-PFOS	8.508	502.8 -> 79.9	8031	2.50 µg/L	0.012
13C3-PFBA	3.091	216.0 -> 172.0	32318	5.00 µg/L	0.012
18O2-PFHxS	7.498	403.0 -> 83.9	5622	2.50 µg/L	0.000
13C4-PFOA	7.272	417.1 -> 372.0	65215	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	19156	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	13103	1.25 µg/L	0.000
13C2-PFHxA	5.811	315.1 -> 270.0	31084	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.488	329.1 -> 80.9	1321	4.93 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C2-6:2FTS	7.033	429.1 -> 80.9	1755	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-8:2FTS	8.019	529.1 -> 80.9	1715	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C2-PFDoDA	9.117	615.1 -> 570.0	18051	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.0%		
13C2-PFTeDA	9.868	715.2 -> 670.0	12020	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.3%		
13C3-PFBS	5.926	302.1 -> 79.9	12498	2.55 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C3-PFHxS	7.498	402.1 -> 79.9	8174	2.54 µg/L	0.012

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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 = 101.7%	
13C4-PFBA	3.088	216.8 -> 171.9	73900	9.95 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.680	367.1 -> 322.0	32239	2.60 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C5-PFHxA	5.810	318.0 -> 273.0	30847	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C5-PFPeA	4.628	268.3 -> 223.0	36917	5.01 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C6-PFDA	8.233	519.1 -> 474.1	13126	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.5%	
13C7-PFUnDA	8.687	570.0 -> 525.1	14262	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.7%	
13C8-FOSA	9.926	506.1 -> 77.8	15792	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C8-PFOA	7.272	421.1 -> 376.0	49244	2.27 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.7%	
13C8-PFOS	8.507	507.1 -> 79.9	6962	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C9-PFNA	7.764	472.1 -> 427.0	14007	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.9%	
d3-MeFOSAA	8.277	573.2 -> 419.0	20057	5.42 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C3-HFPO-DA	6.151	286.9 -> 168.9	13539	9.51 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
d3-MeFOSA	10.956	515.0 -> 219.0	5612	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
d5-EtFOSAA	8.473	589.2 -> 419.0	17650	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
d7-MeFOSE	10.863	623.2 -> 58.9	24348	25.82 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
d9-EtFOSE	11.097	639.2 -> 58.9	17375	26.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
d5-EtFOSA	11.164	531.1 -> 219.0	6634	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
Target Compounds					QValue
4:2FTS	5.488	327.1 -> 307.0	155517	52.16 µg/L	98
		327.1 -> 80.9	40092		
6:2FTS	7.034	427.1 -> 407.0	138196	52.33 µg/L	98
		427.1 -> 80.9	28628		
8:2FTS	8.008	527.1 -> 507.0	73497	53.82 µg/L	98
		527.1 -> 80.8	20156		
EtFOSAA	8.474	584.2 -> 419.1	42495	14.31 µg/L	m 94
		584.2 -> 526.0	20373		
FOSA	9.930	498.1 -> 77.9	91788	14.20 µg/L	99
		498.1 -> 478.0	3143		
MeFOSAA	8.278	570.1 -> 419.0	54319	12.79 µg/L	m 99
		570.1 -> 483.0	10688		
PFBA	3.094	212.8 -> 168.9	112115	55.31 µg/L	100
PFBS	5.914	298.7 -> 79.9	63724	12.16 µg/L	92
		298.7 -> 98.8	29313		
PFDA	8.233	512.9 -> 469.0	243372	14.43 µg/L	89
		512.9 -> 219.0	28146		
PFDoDA	9.117	613.1 -> 569.0	204360	13.80 µg/L	98
		613.1 -> 319.0	26527		
PFDS	9.368	599.0 -> 79.9	30752	13.00 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	16372			
PFHpA	6.681	363.1 -> 319.0	276047	13.34	µg/L	99
		363.1 -> 169.0	37638			
PFHpS	8.028	449.0 -> 79.9	42314	12.88	µg/L	95
		449.0 -> 98.9	23175			
PFHxA	5.813	313.0 -> 269.0	172108	14.05	µg/L	100
		313.0 -> 118.9	7410			
PFHxS	7.499	398.7 -> 79.9	47345	11.86	µg/L	m 98
		398.7 -> 98.9	25613			
PFNA	7.765	463.0 -> 419.0	128032	13.23	µg/L	99
		463.0 -> 219.0	27439			
PFNS	8.961	548.8 -> 79.9	44944	13.34	µg/L	90
		548.8 -> 98.9	24229			
PFOA	7.261	413.0 -> 369.0	349485	14.18	µg/L	100
		413.0 -> 169.0	47435			
PFOS	8.508	498.9 -> 79.9	43973	12.73	µg/L	m 97
		498.9 -> 98.8	28929			
PFPeA	4.629	263.0 -> 219.0	233167	27.18	µg/L	100
PFPeS	6.869	349.1 -> 79.9	62538	13.25	µg/L	98
		349.1 -> 98.9	30225			
PFTeDA	9.869	713.1 -> 669.0	209960	14.00	µg/L	100
		713.1 -> 168.9	14068			
PFTrDA	9.513	663.0 -> 619.0	195396	13.22	µg/L	98
		663.0 -> 168.9	17264			
PFUnDA	8.687	563.1 -> 519.0	188096	13.60	µg/L	97
		563.1 -> 269.1	30940			
11Cl-PF3OUdS	9.651	630.9 -> 450.9	438613	54.86	µg/L	94
		632.9 -> 452.9	135357			
9Cl-PF3ONS	8.838	530.8 -> 351.0	831001	57.19	µg/L	98
		532.8 -> 353.0	250337			
ADONA	6.916	376.9 -> 250.9	1521959	53.54	µg/L	99
		376.9 -> 84.8	351053			
HFPO-DA	6.152	284.9 -> 168.9	79391	58.70	µg/L	99
		284.9 -> 184.9	9812			
3:3FTCA	4.001	241.0 -> 177.0	28744	65.92	µg/L	97
		241.0 -> 117.0	4067			
5:3FTCA	6.407	341.0 -> 237.1	950486	355.29	µg/L	97
		341.0 -> 217.0	809930			
7:3FTCA	7.742	441.0 -> 316.9	459031	357.71	µg/L	93
		441.0 -> 336.9	814209			
EtFOSA	11.178	526.0 -> 219.0	43239	13.43	µg/L	97
		526.0 -> 169.0	45263			
EtFOSE	11.111	630.0 -> 58.9	95725	134.88	µg/L	100
MeFOSA	10.958	511.9 -> 219.0	41593	15.05	µg/L	97
		511.9 -> 169.0	40752			
MeFOSE	10.877	616.1 -> 58.9	142099	142.08	µg/L	100
PFDoS	10.070	699.1 -> 79.9	19098	13.33	µg/L	94
		699.1 -> 98.8	11807			
NFDHA	5.693	295.0 -> 201.0	23639	28.04	µg/L	100
		295.0 -> 84.9	9386			
PFMBA	5.026	279.0 -> 85.1	79893	27.73	µg/L	100
PFMPA	3.717	229.0 -> 84.9	68209	27.17	µg/L	100
PFEESA	6.408	314.8 -> 134.9	442239	25.12	µg/L	100
		314.8 -> 82.9	11225			

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

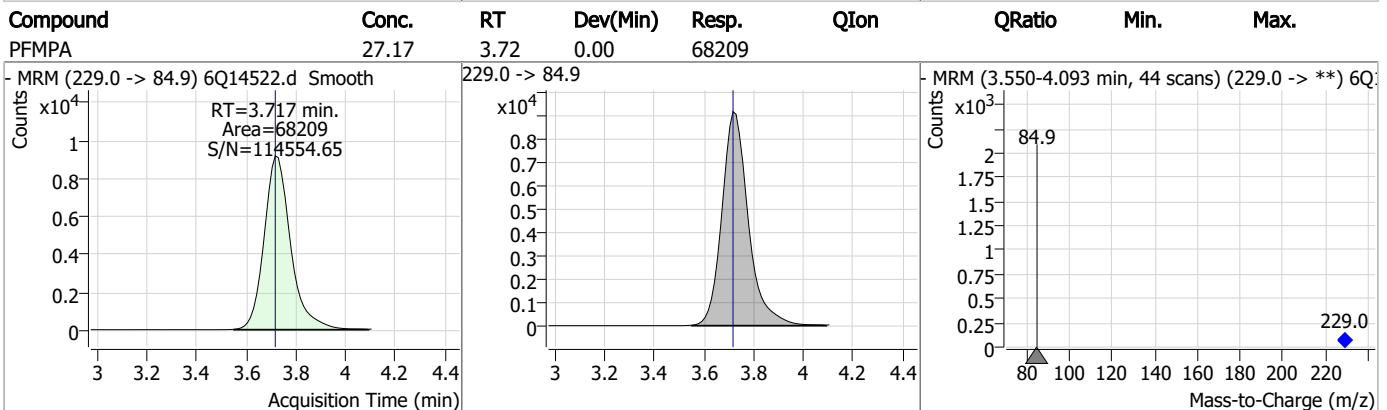
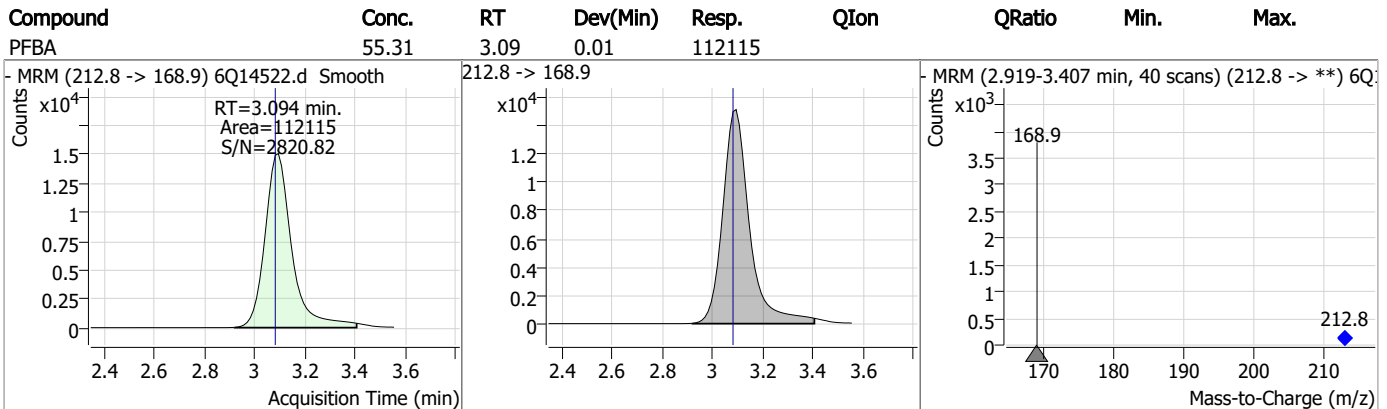
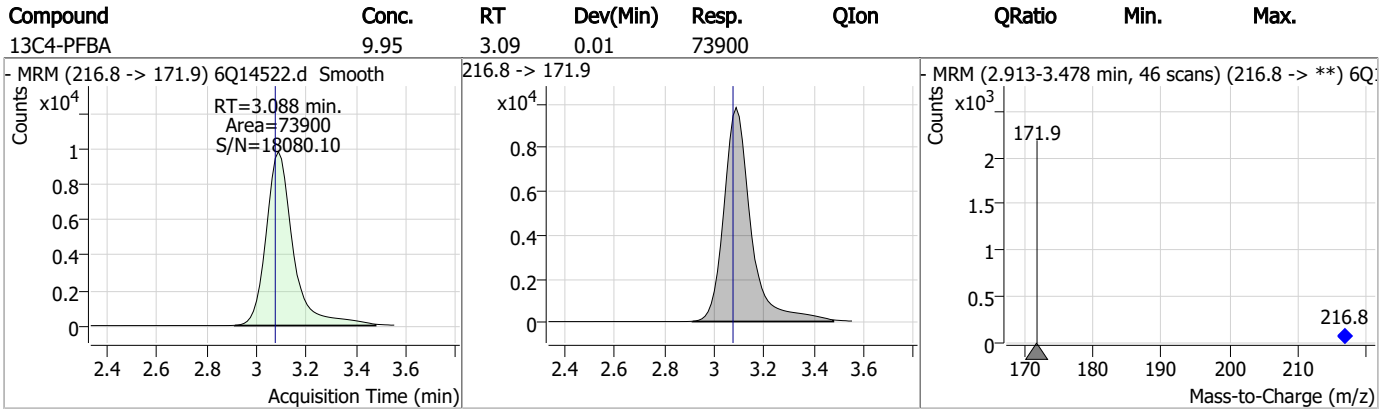
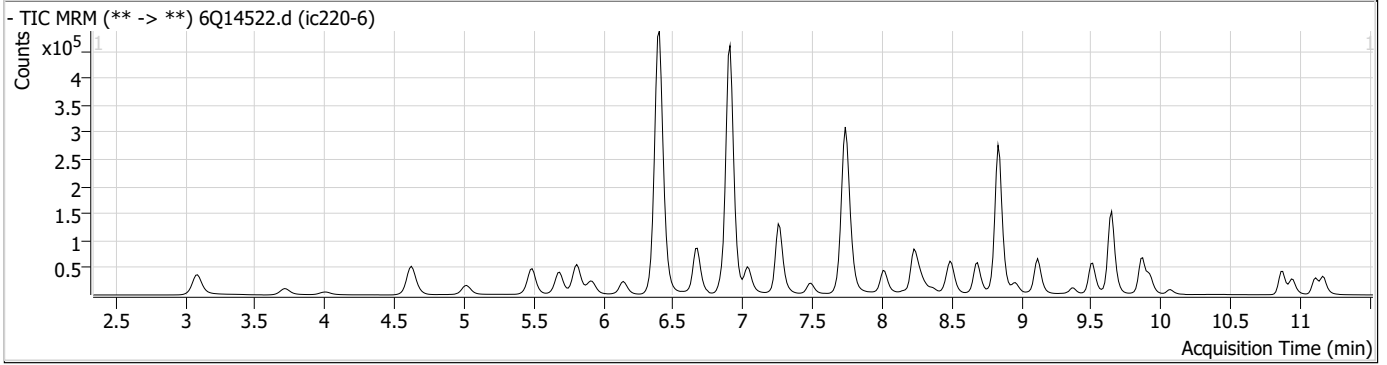
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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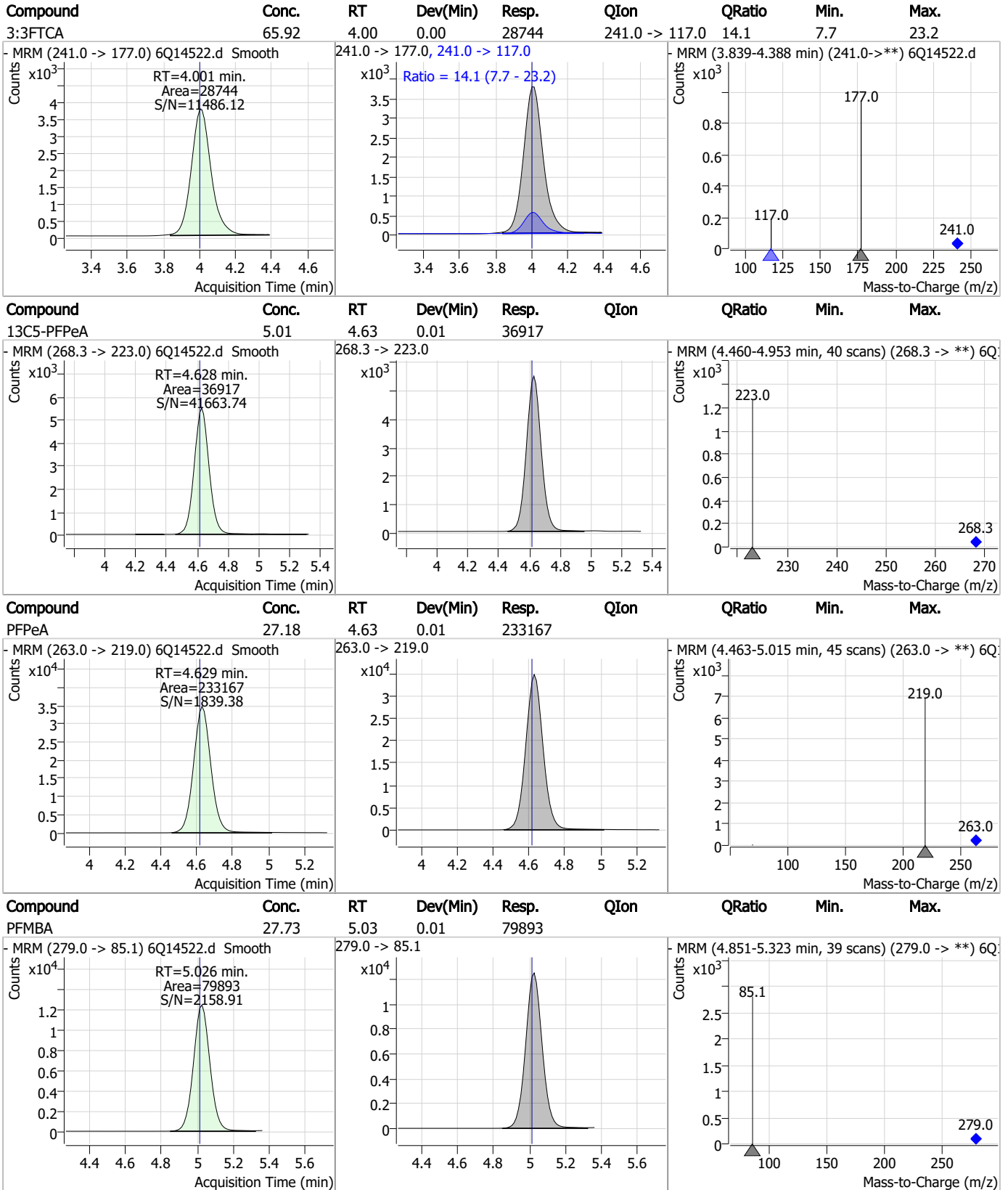
7.8.7

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Perfluorinated Compounds by LC/MS/MS



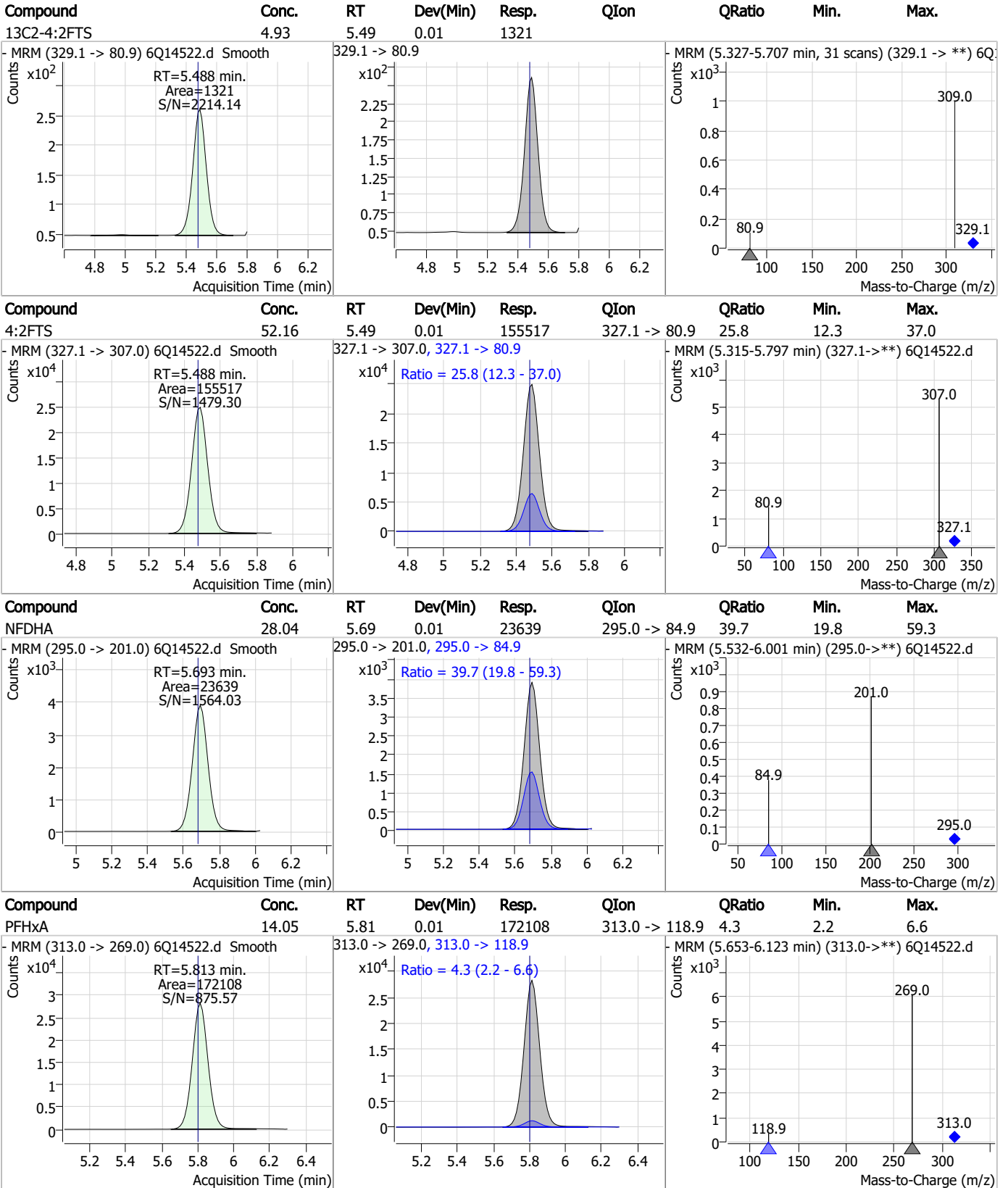
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

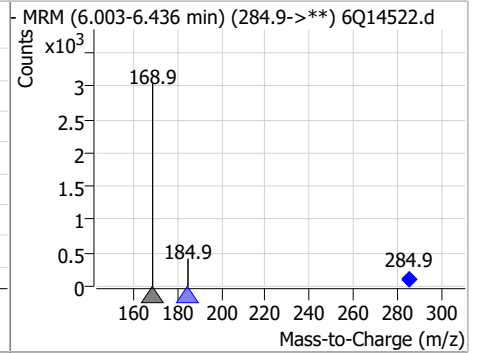
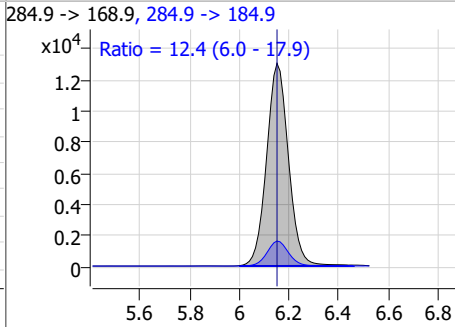
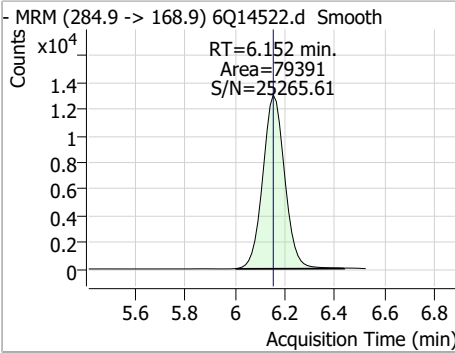
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.42	5.81	0.00	30847				
13C3-PFBS	2.55	5.93	0.02	12498				
PFBS	12.16	5.91	0.01	63724	298.7 -> 98.8	46.0	20.4	61.1
13C3-HFPO-DA	9.51	6.15	0.00	13539				

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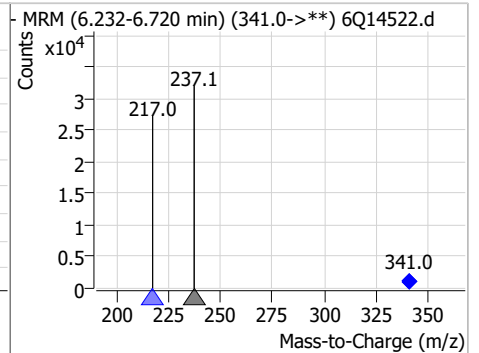
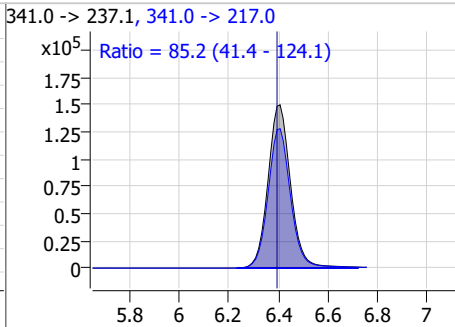
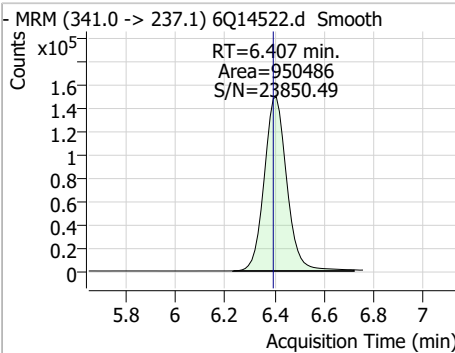
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Perfluorinated Compounds by LC/MS/MS

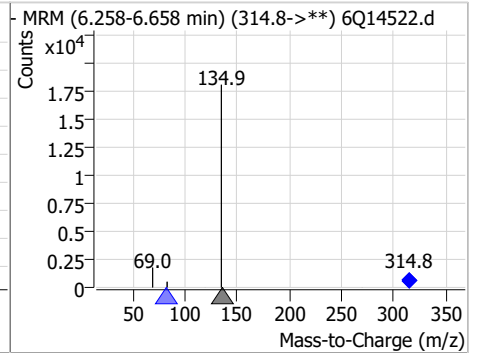
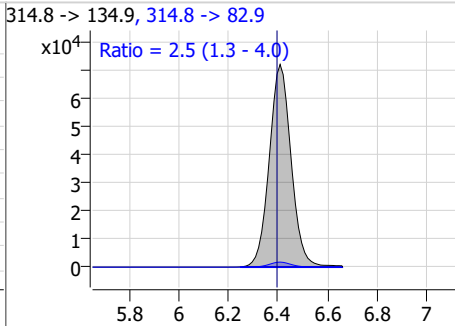
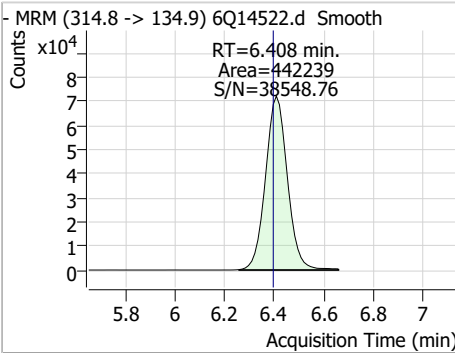
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	58.70	6.15	0.00	79391	284.9 -> 184.9	12.4	6.0	17.9



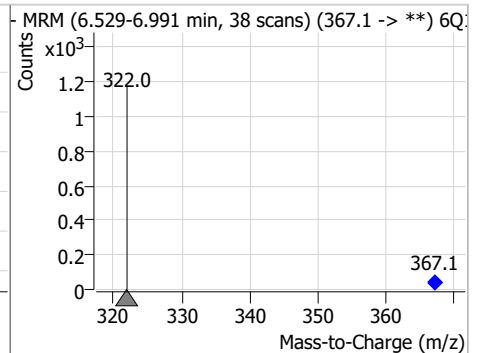
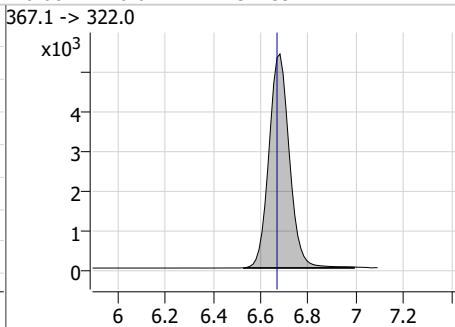
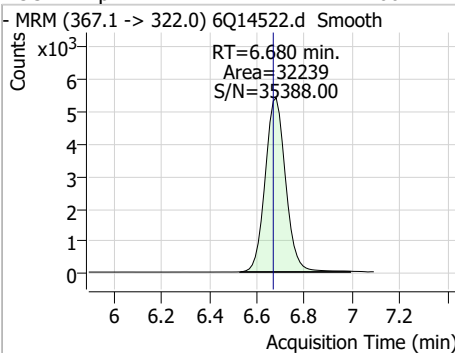
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	355.29	6.41	0.01	950486	341.0 -> 217.0	85.2	41.4	124.1



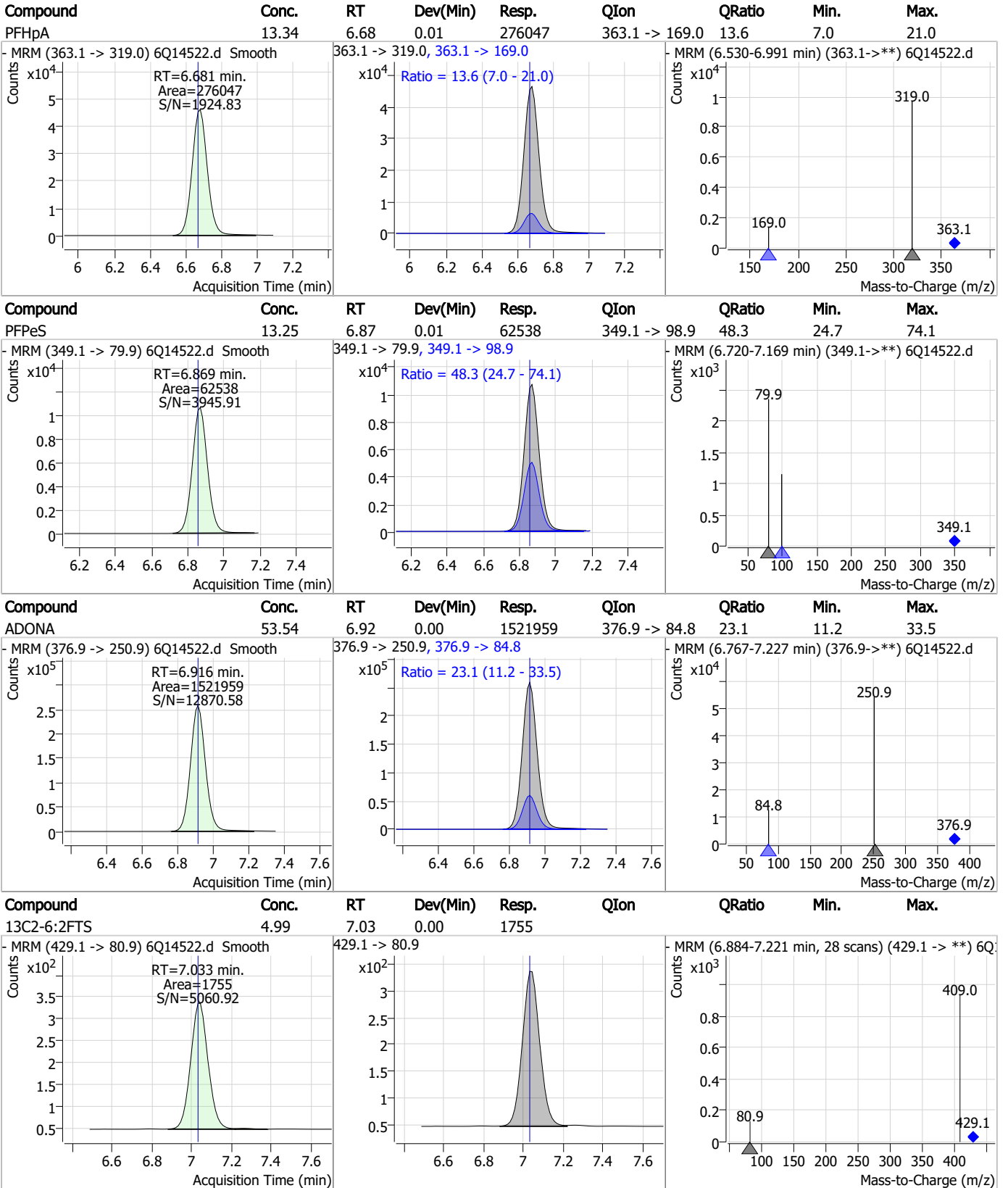
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	25.12	6.41	0.01	442239	314.8 -> 82.9	2.5	1.3	4.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.60	6.68	0.01	32239	367.1 -> 322.0			



Perfluorinated Compounds by LC/MS/MS

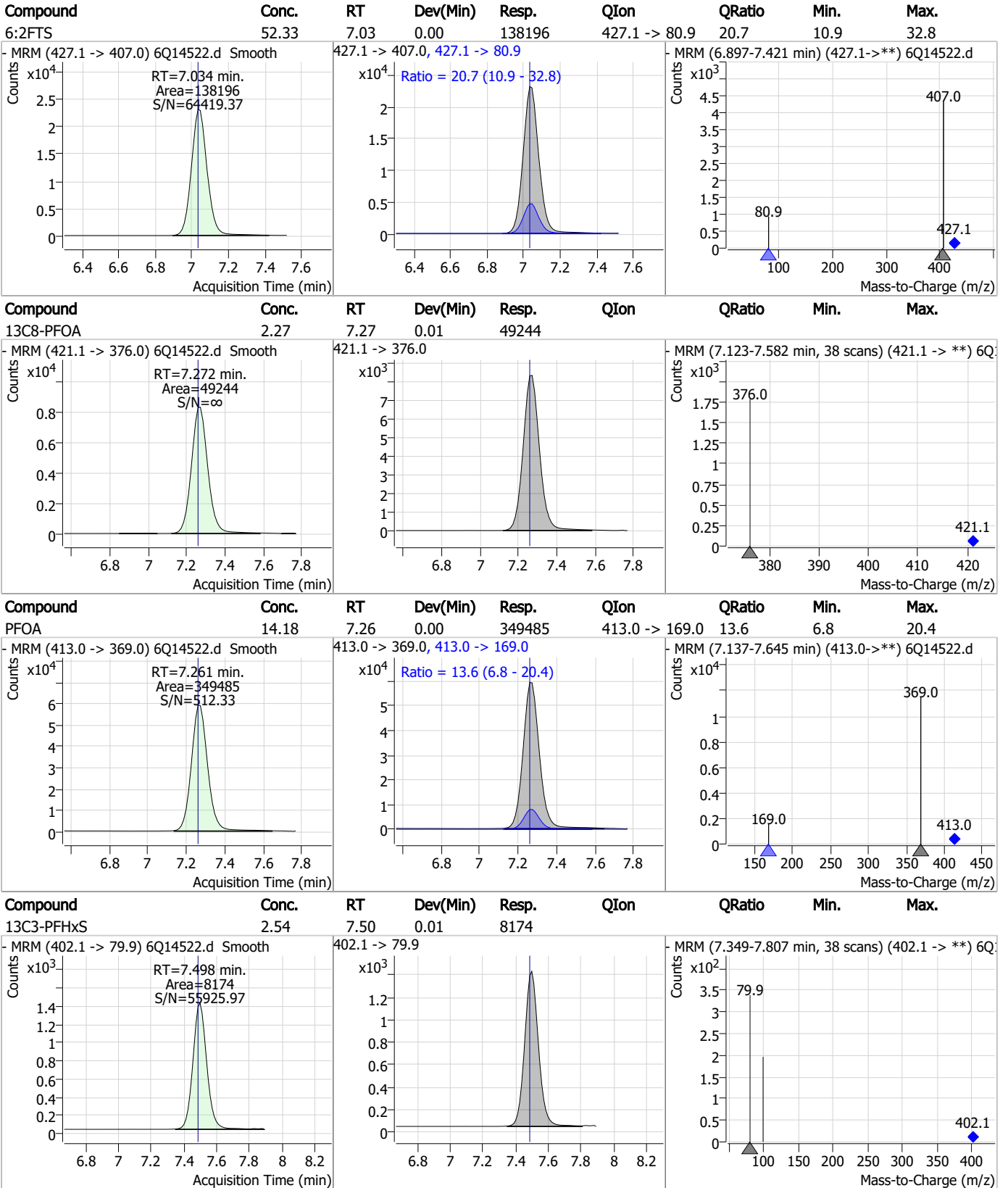


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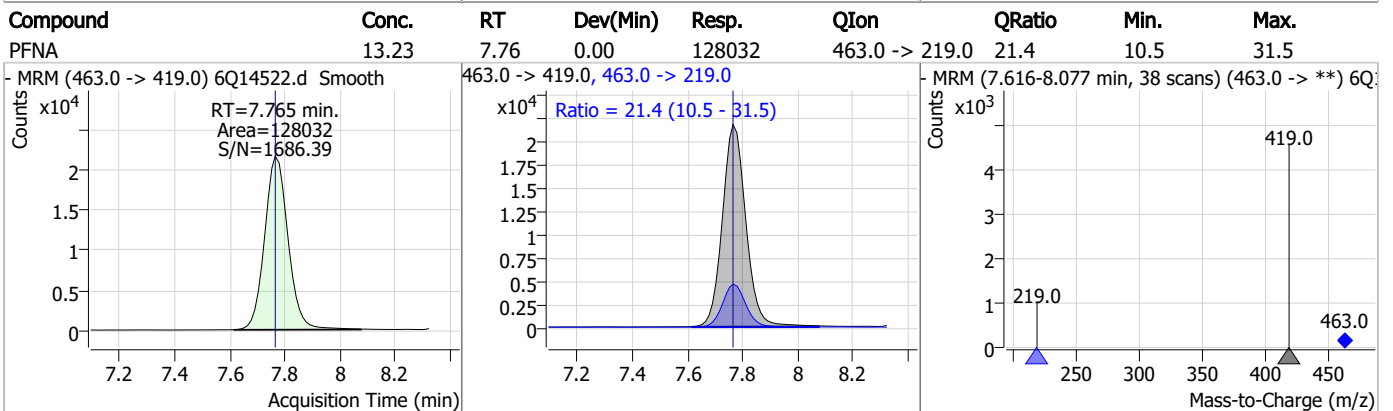
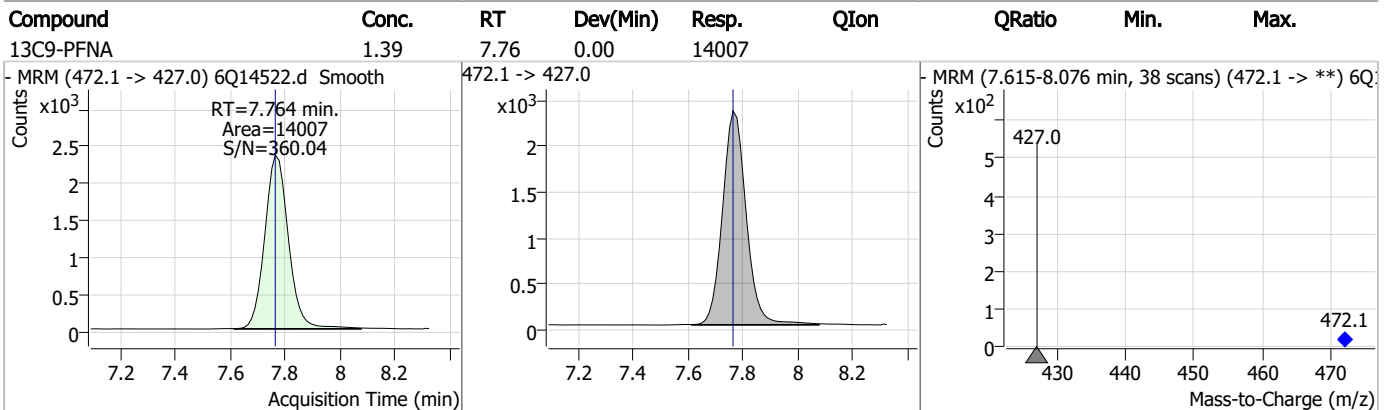
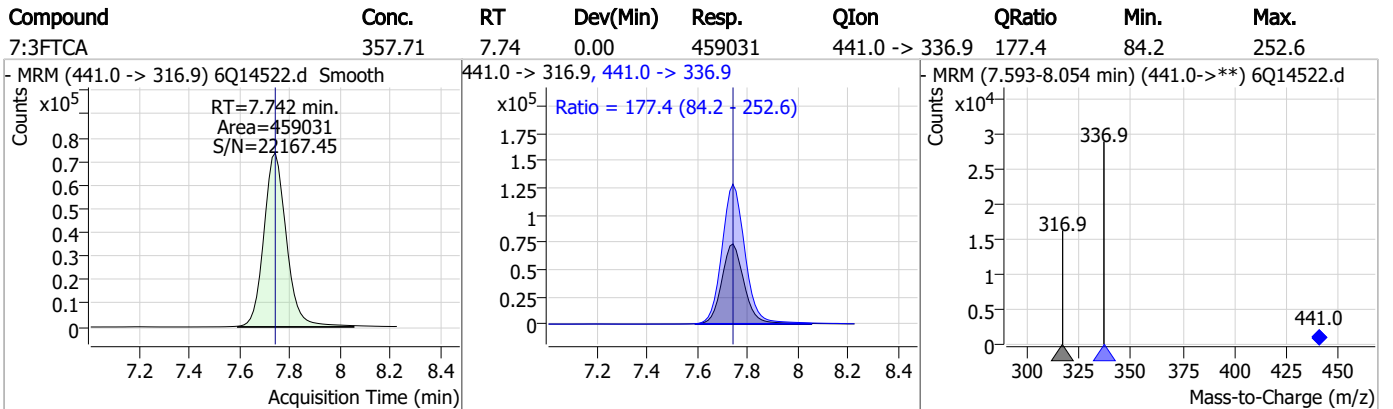
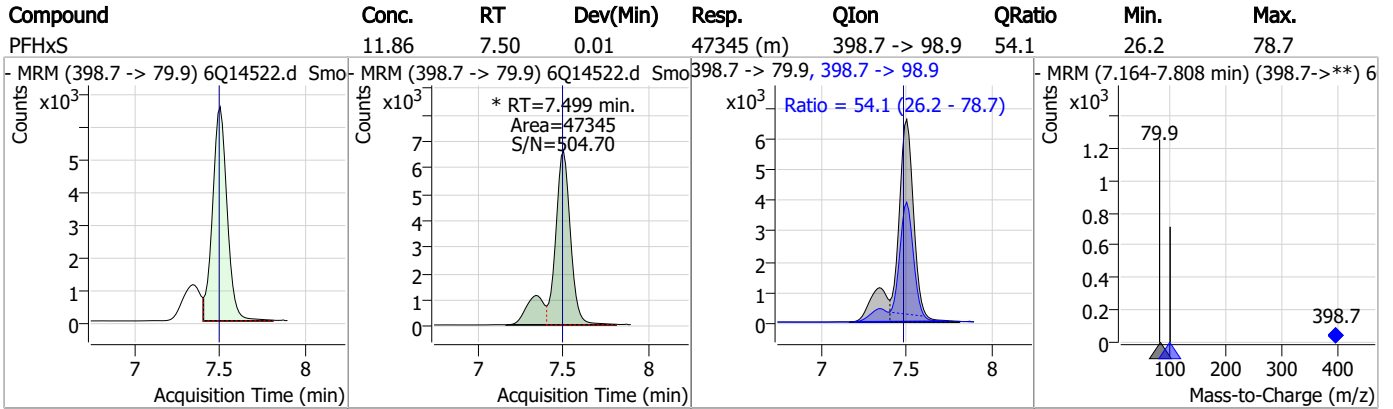
Perfluorinated Compounds by LC/MS/MS



7.8.7

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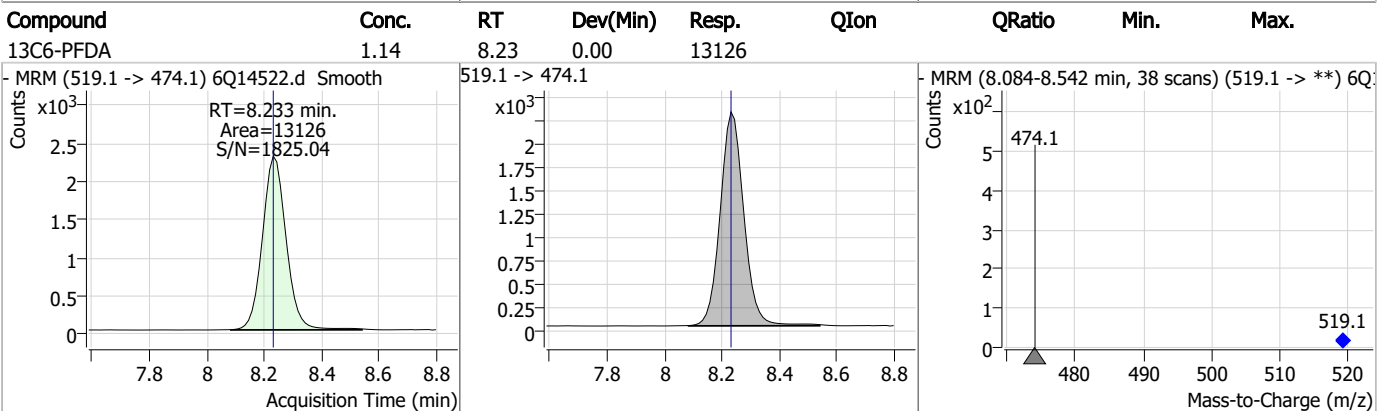
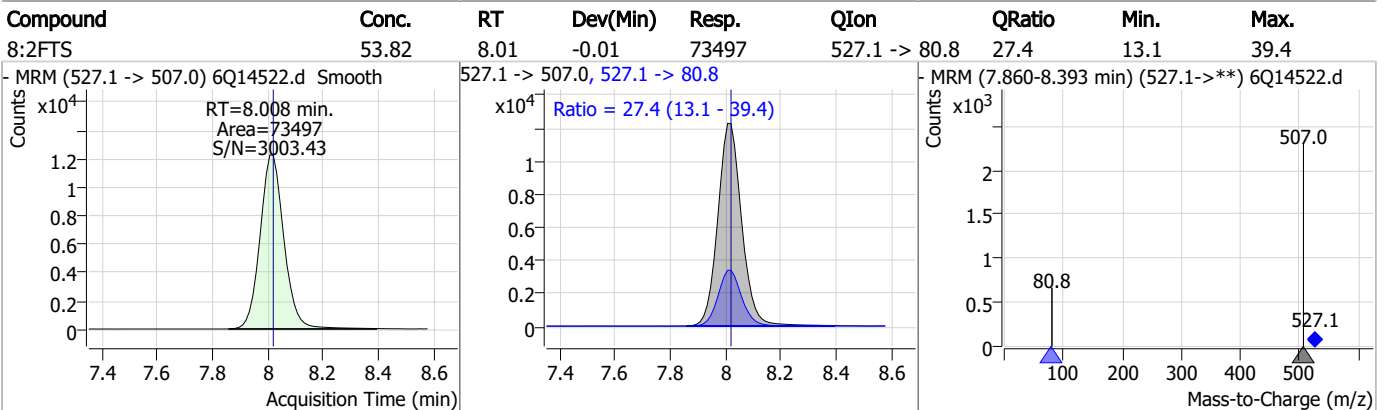
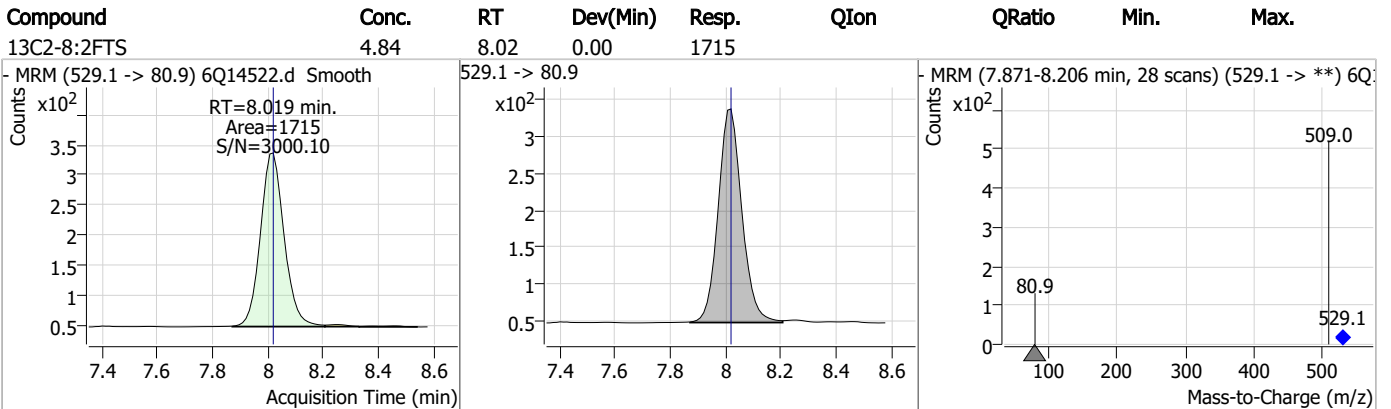
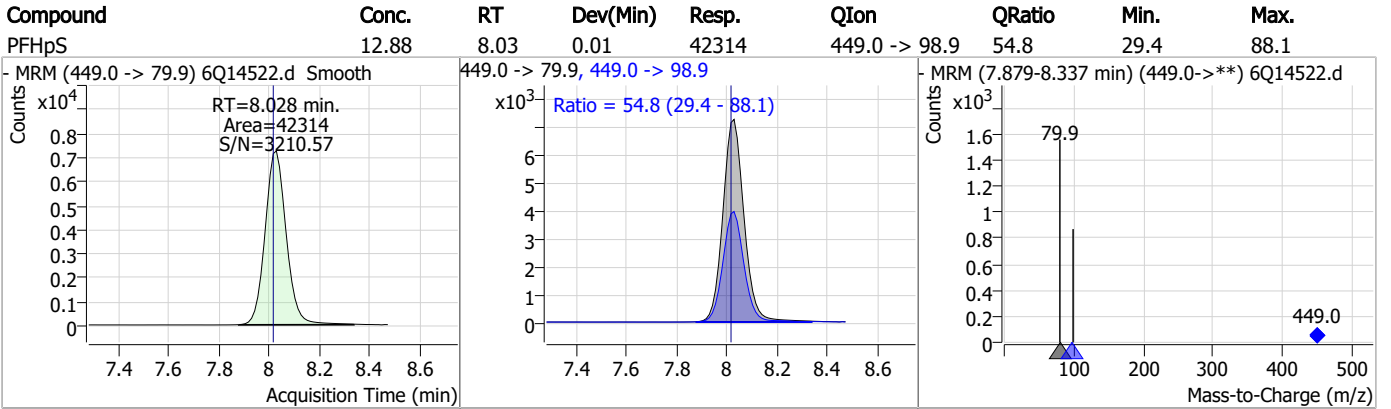
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

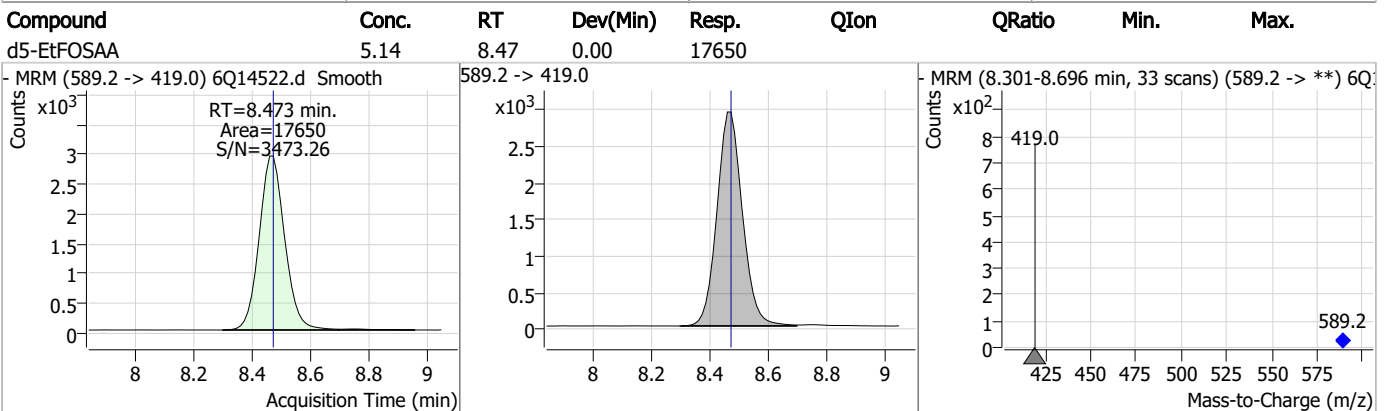
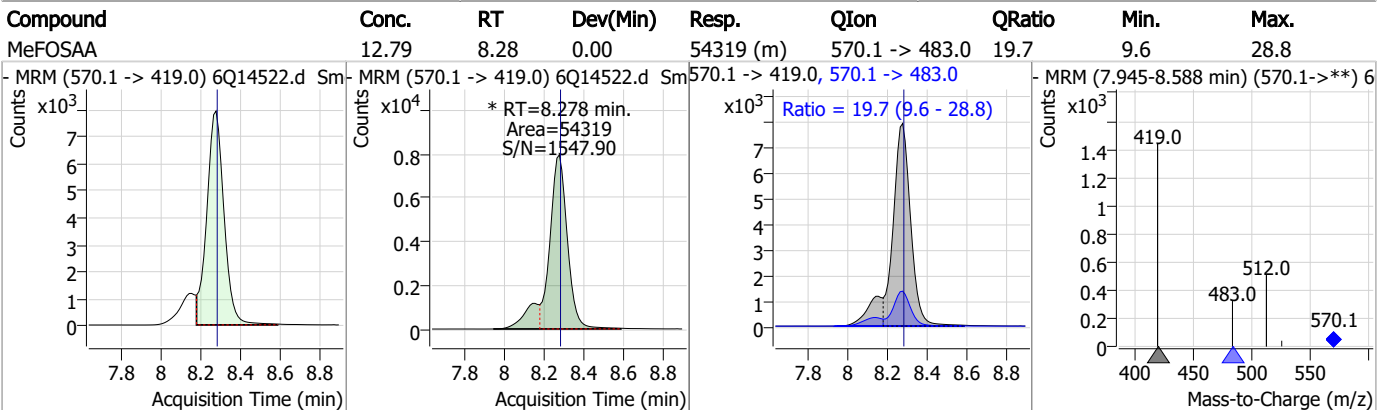
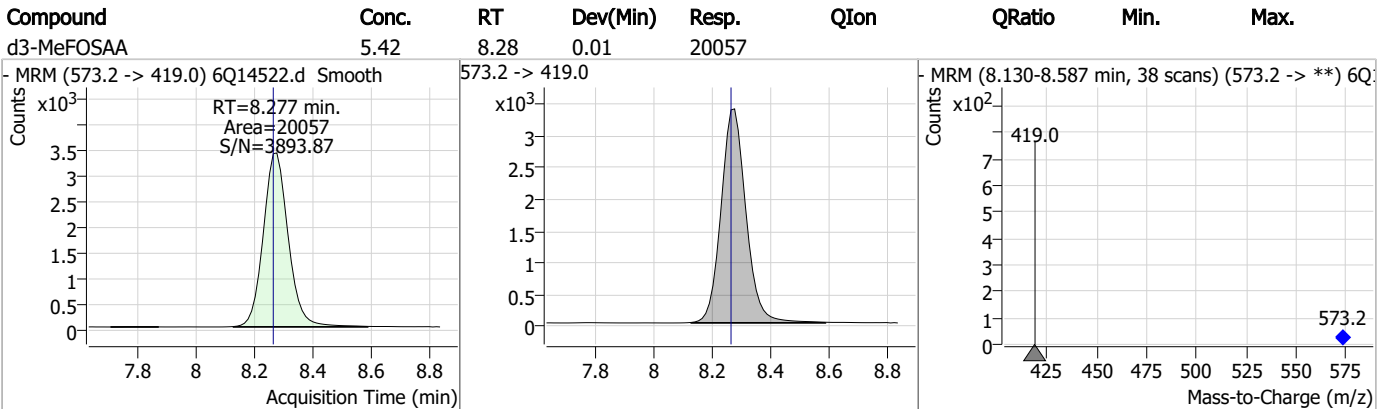
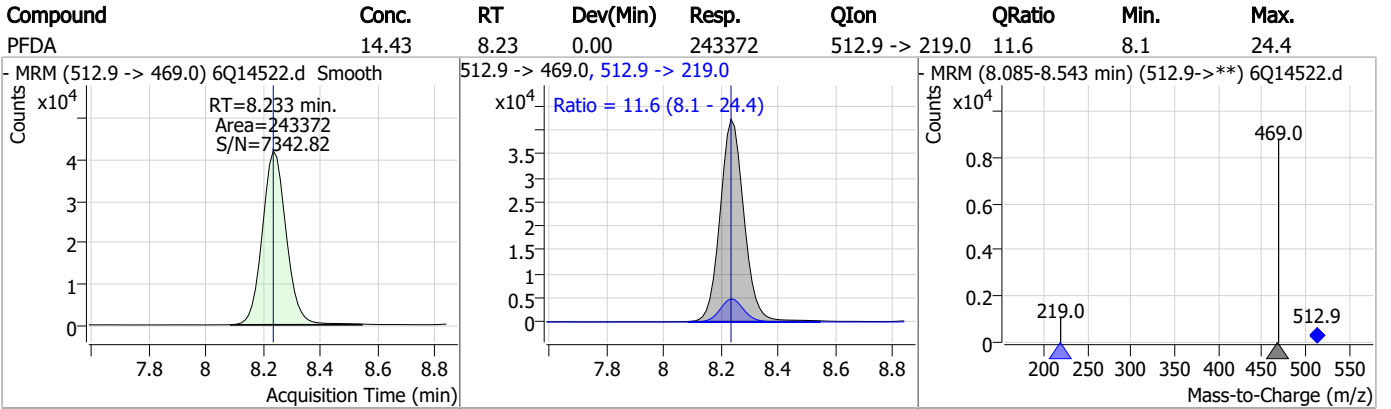


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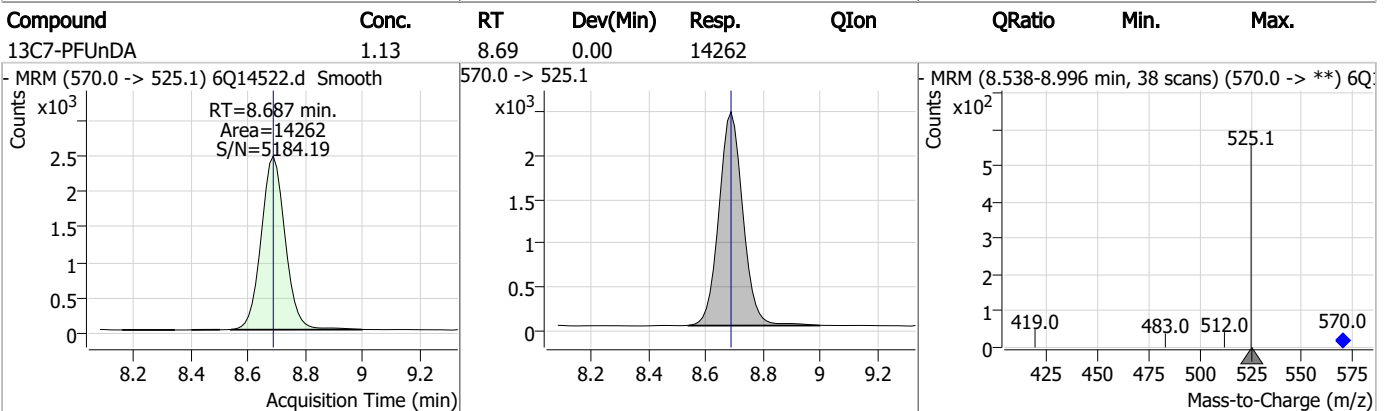
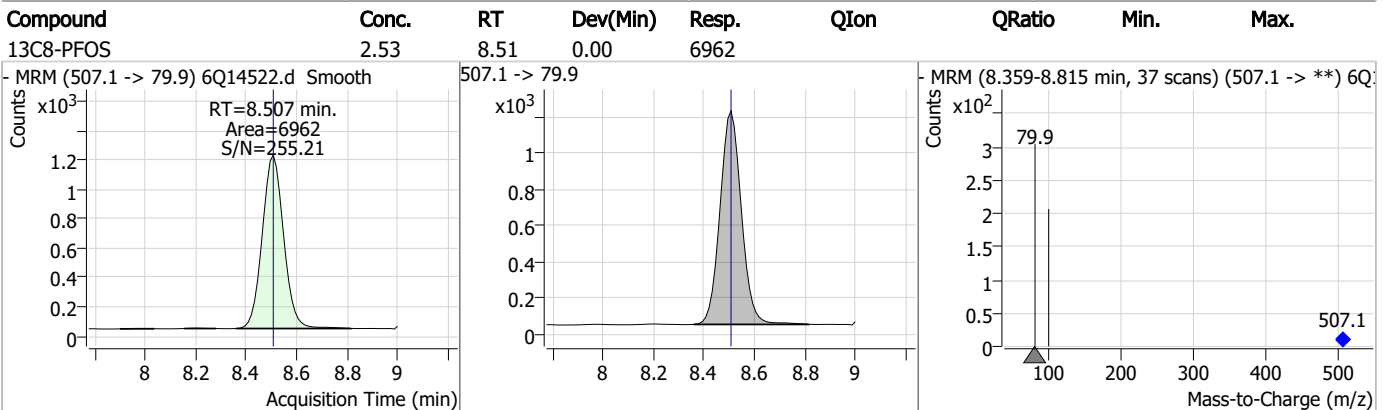
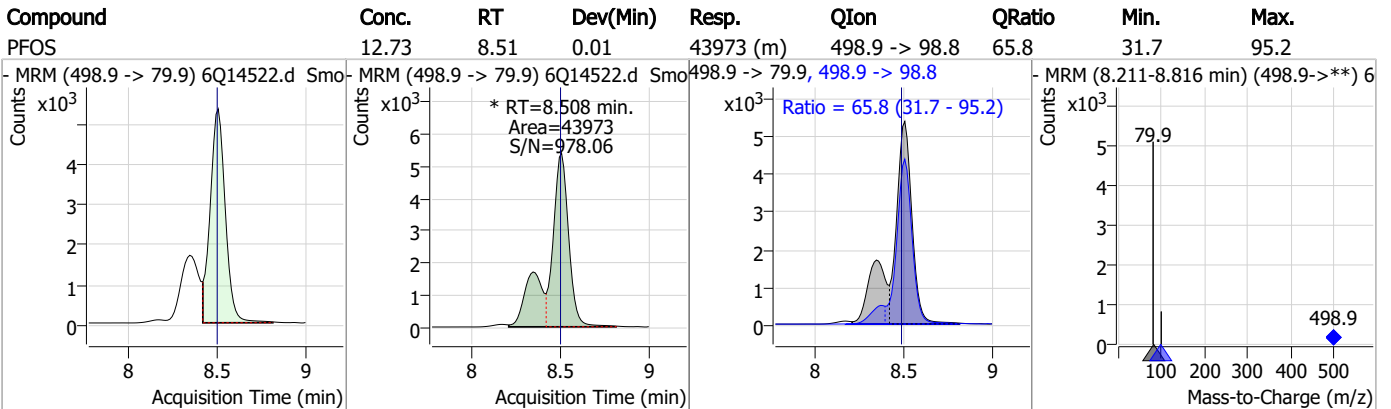
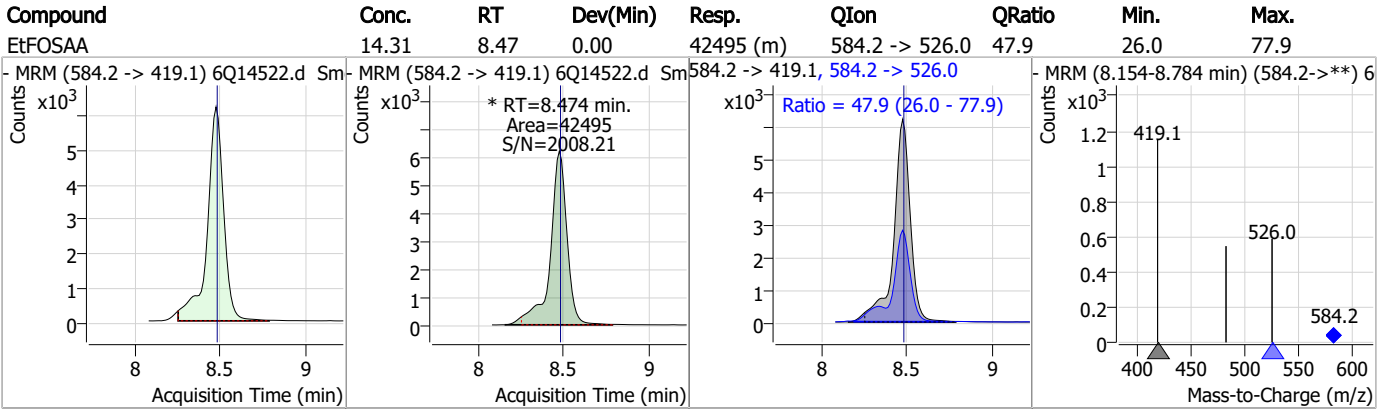
Perfluorinated Compounds by LC/MS/MS



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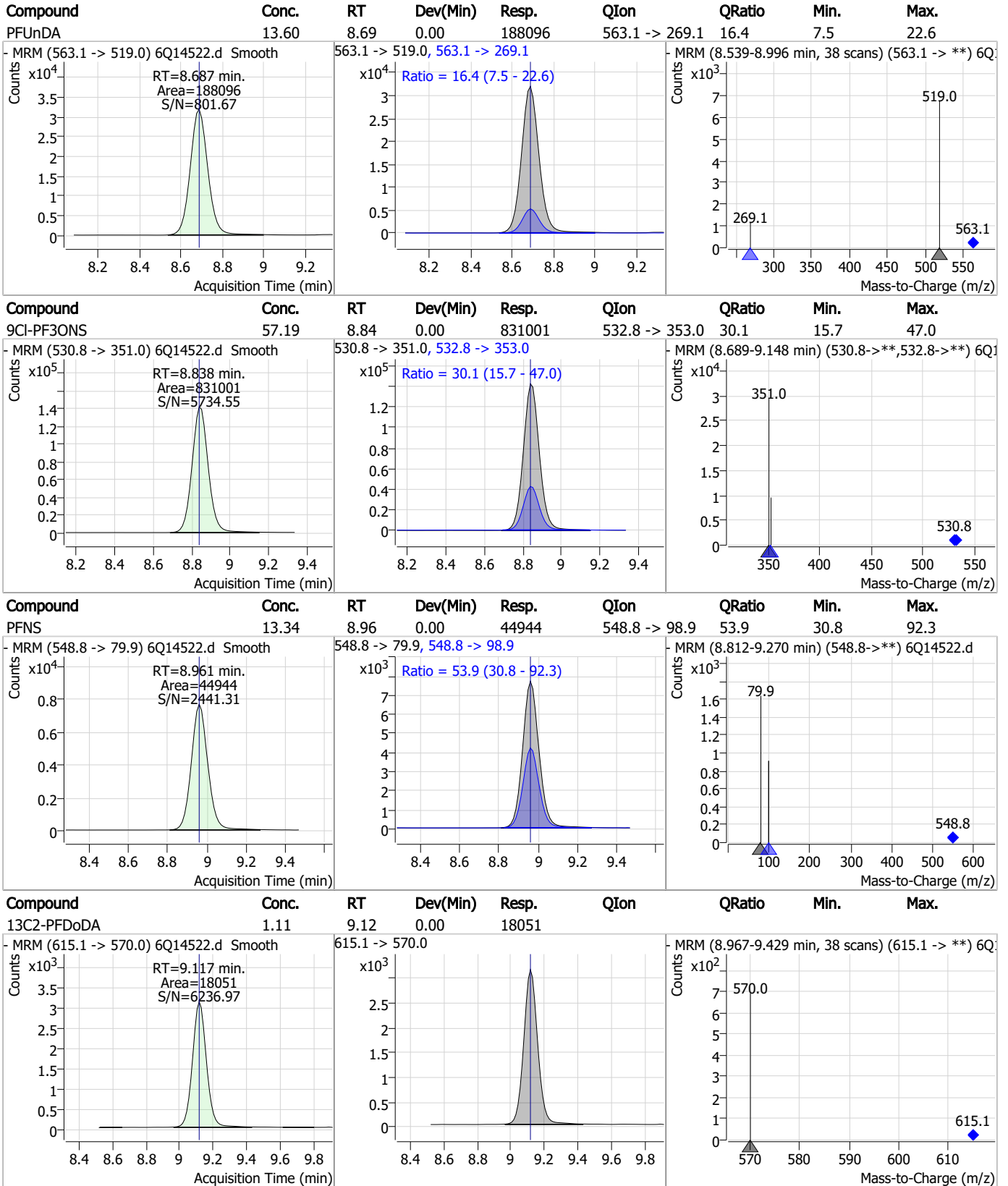
Perfluorinated Compounds by LC/MS/MS



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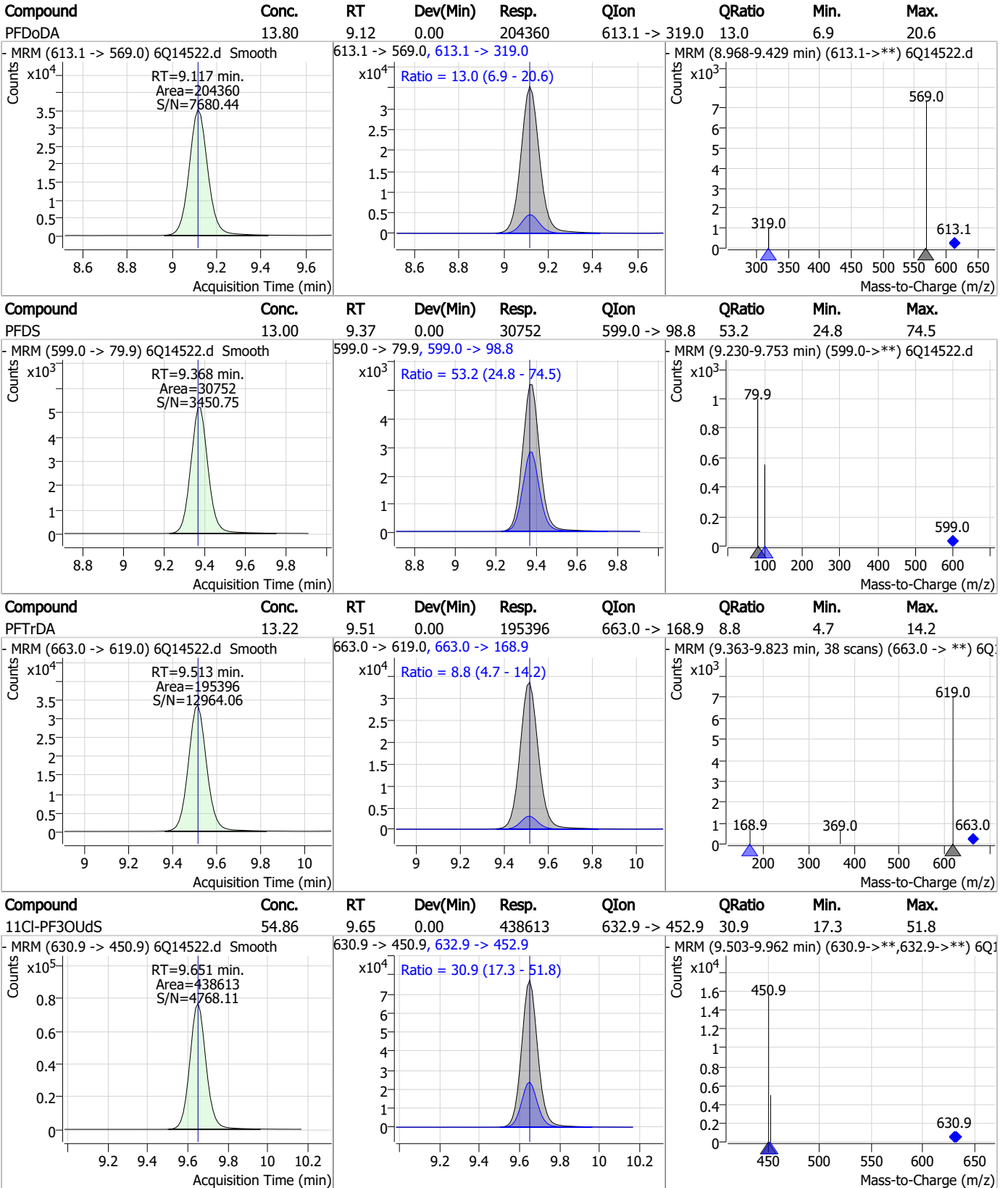
Perfluorinated Compounds by LC/MS/MS



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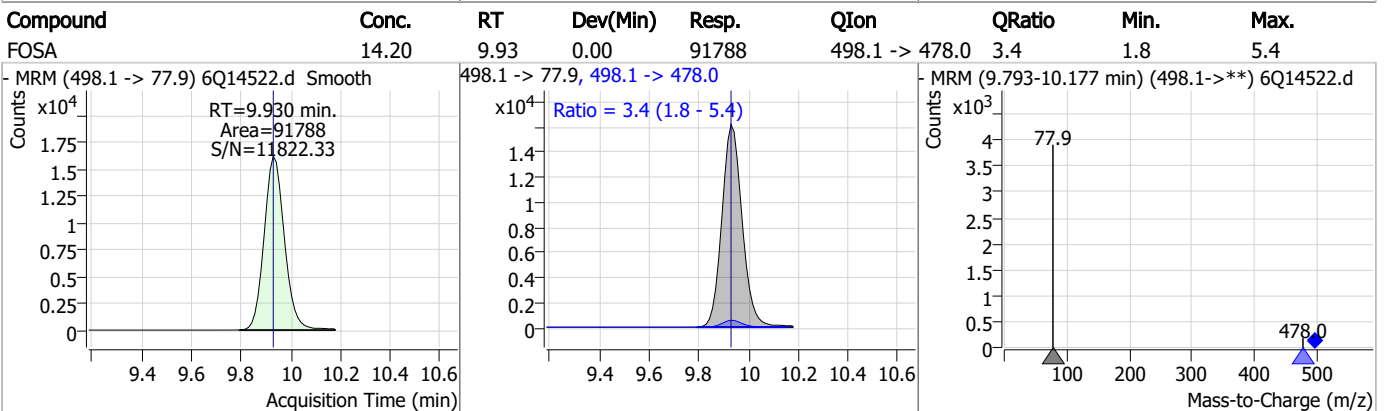
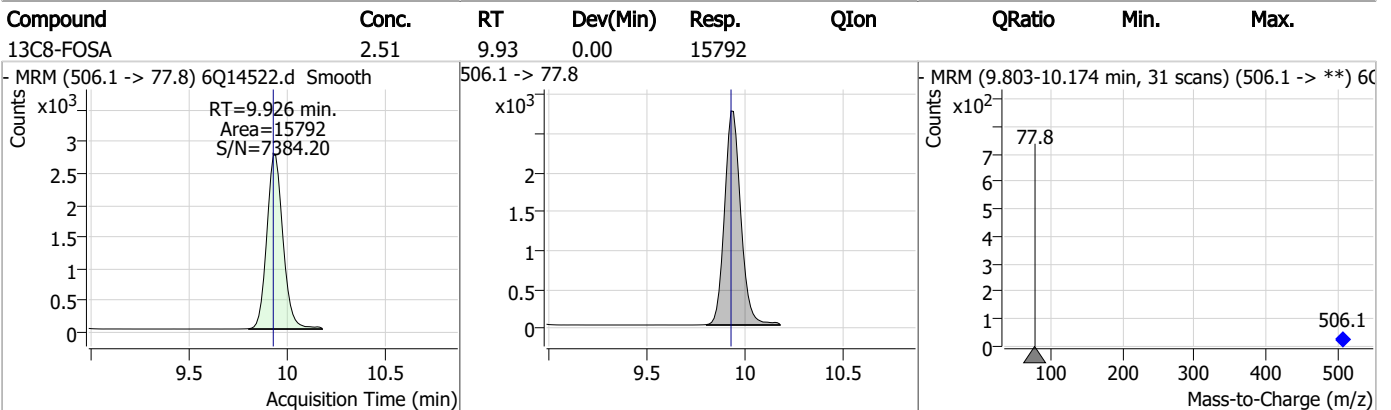
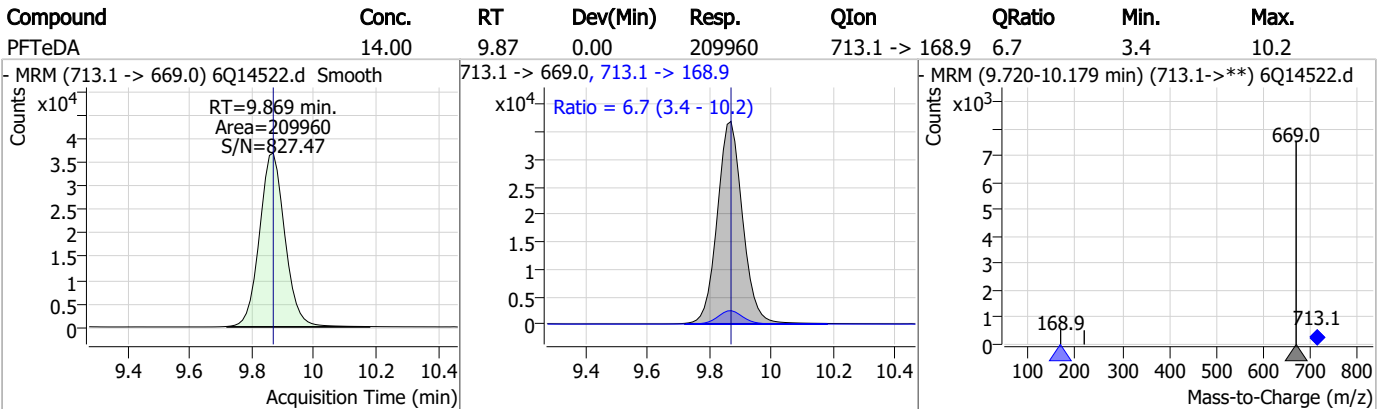
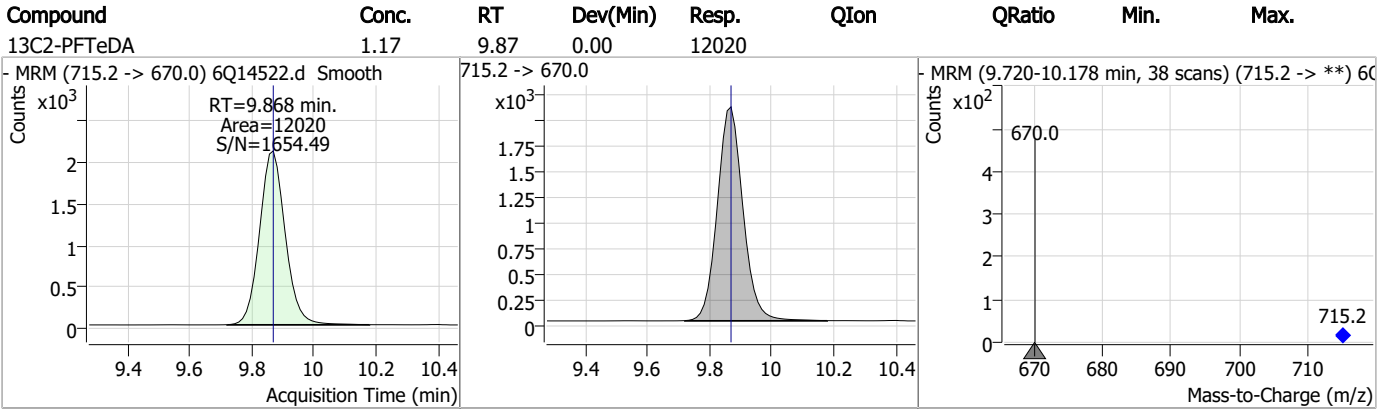
Perfluorinated Compounds by LC/MS/MS



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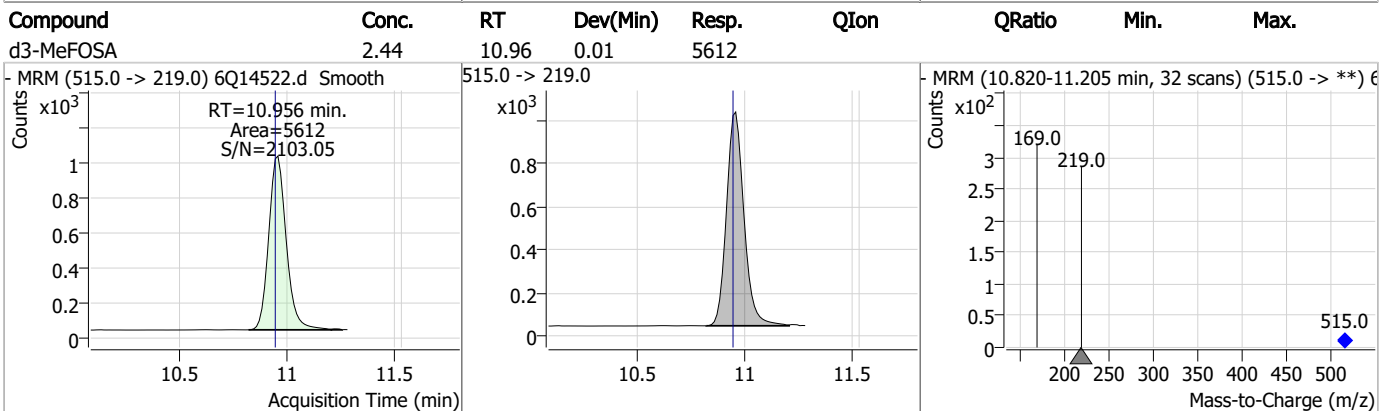
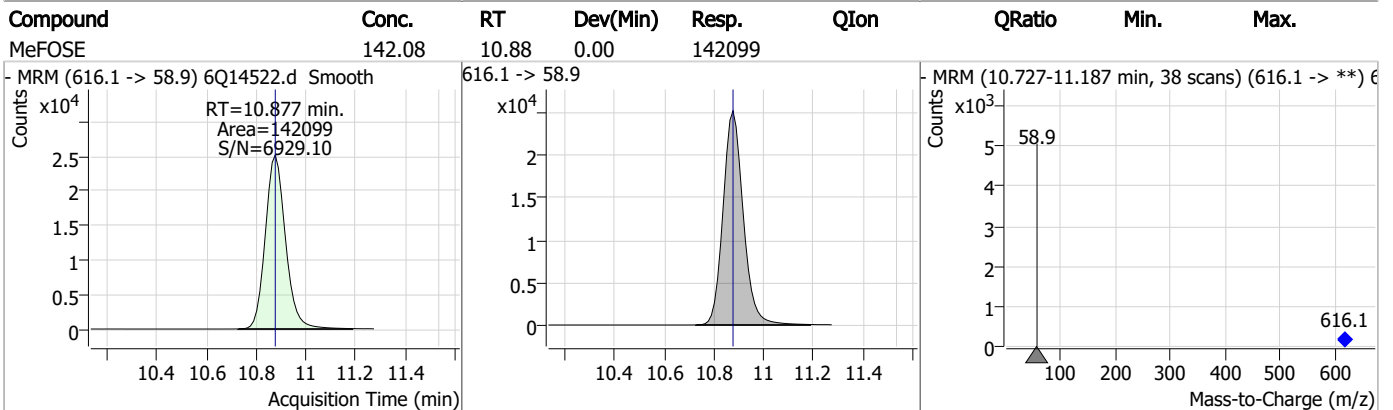
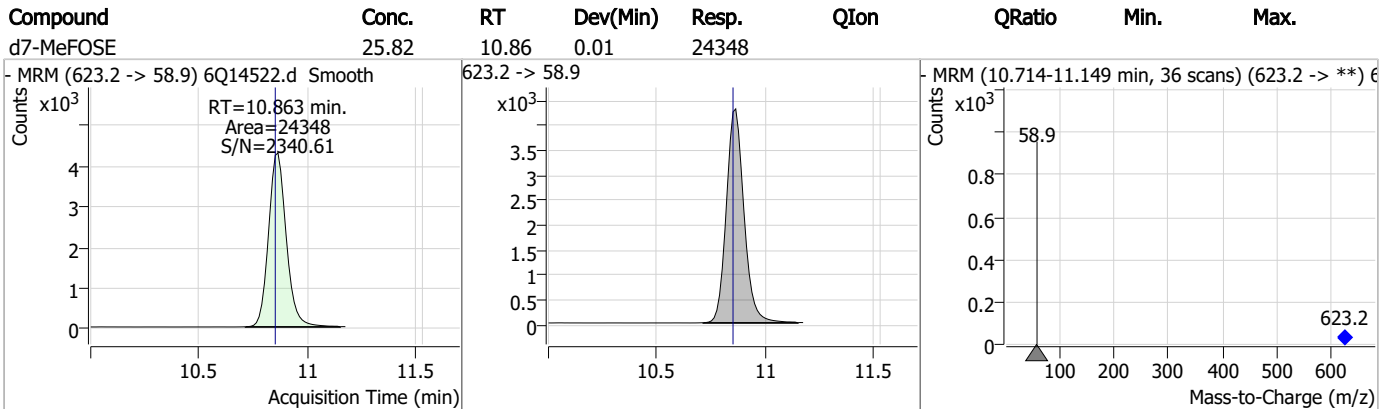
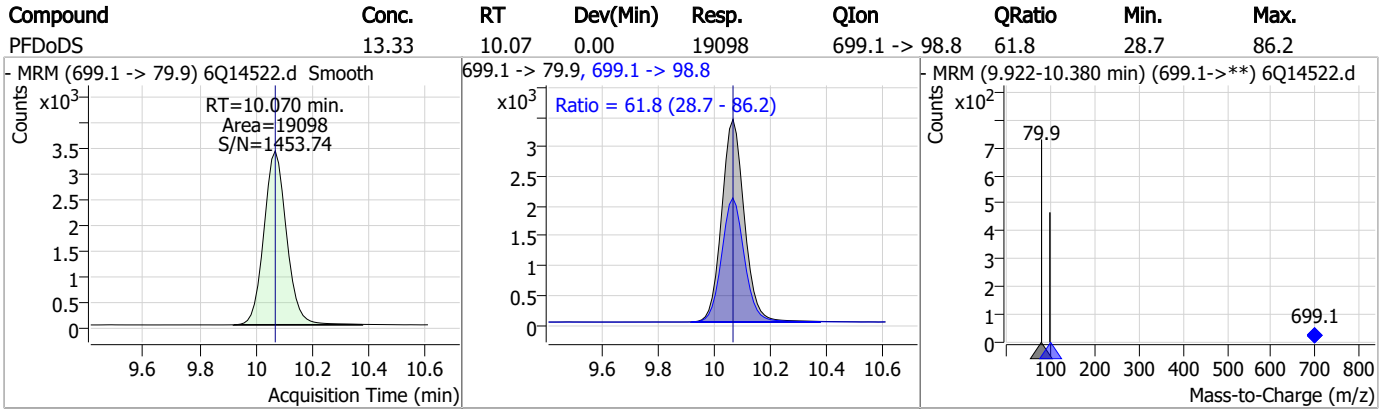
Perfluorinated Compounds by LC/MS/MS



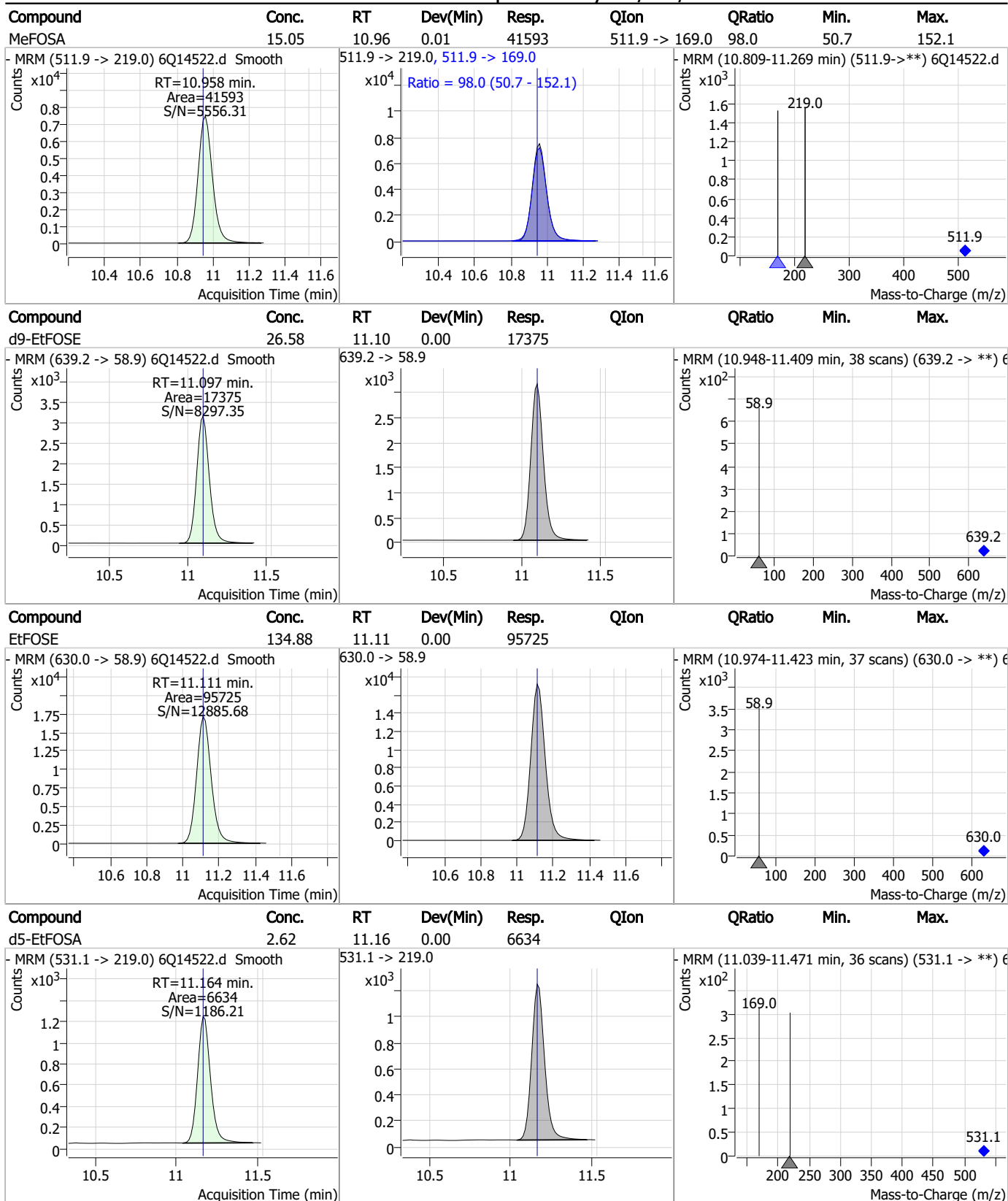
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Perfluorinated Compounds by LC/MS/MS

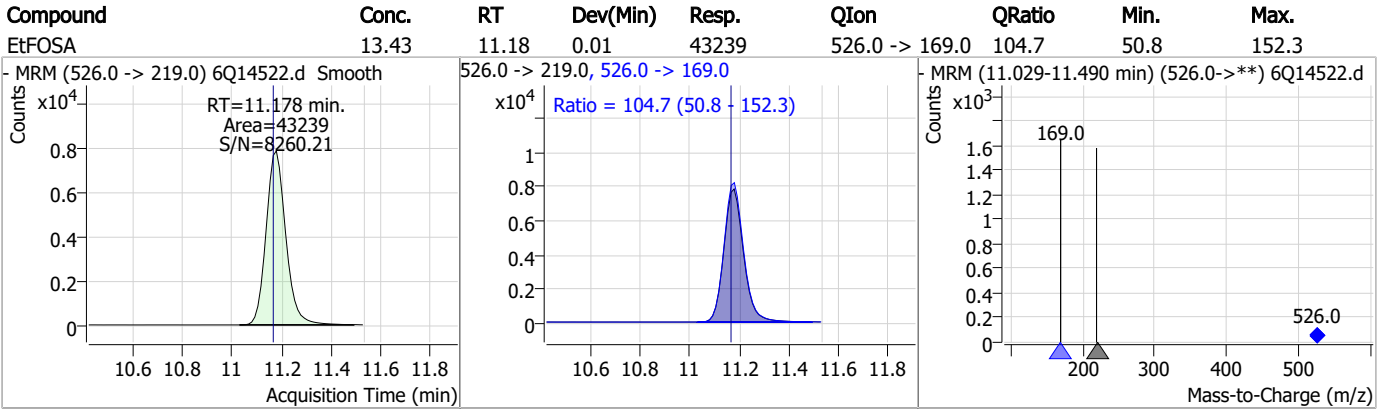


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.8.7

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Manual Integration Approval Summary

Sample Number: S6Q220-IC220 Method: EPA DRAFT 1633
Lab FileID: 6Q14522.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 14:10 Supervisor approved: 03/10/23 10:46 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.50	Split peak
MeFOSAA	2355-31-9		8.28	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.51	Split peak

7.8.7.1

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 03/10/23 10:46

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14523.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 2:24:06 PM
 Sample Name : ic220-7
 Vial : P1-A8
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.088	216.8 -> 171.9	70358	10.00 µg/L	0.012
M5-PFPeA	4.628	268.3 -> 223.0	34737	5.00 µg/L	0.012
M5-PFHxA	5.810	318.0 -> 273.0	32351	2.50 µg/L	0.000
M4-PFHpA	6.680	367.1 -> 322.0	29382	2.50 µg/L	0.012
M8-PFOA	7.272	421.1 -> 376.0	49271	2.50 µg/L	0.012
M9-PFNA	7.764	472.1 -> 427.0	13672	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	12245	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	12776	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	16910	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	12442	1.25 µg/L	0.000
M8-FOSA	9.938	506.1 -> 77.8	15145	2.50 µg/L	0.012
M3-PFBS	5.926	302.1 -> 79.9	11721	2.50 µg/L	0.025
M3-PFHxS	7.498	402.1 -> 79.9	7987	2.50 µg/L	0.012
M8-PFOS	8.507	507.1 -> 79.9	6860	2.50 µg/L	0.000
M2-4:2FTS	5.488	329.1 -> 80.9	1207	5.00 µg/L	0.012
M2-6:2FTS	7.033	429.1 -> 80.9	1678	5.00 µg/L	0.000
M2-8:2FTS	8.019	529.1 -> 80.9	1548	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	18587	5.00 µg/L	0.012
M3-HFPO-DA	6.151	286.9 -> 168.9	14070	10.00 µg/L	0.000
M5-EtFOSAA	8.473	589.2 -> 419.0	17268	5.00 µg/L	0.000
M7-MeFOSE	10.863	623.2 -> 58.9	22330	25.00 µg/L	0.012
M9-EtFOSE	11.097	639.2 -> 58.9	15763	25.00 µg/L	0.000
M5-EtFOSA	11.176	531.1 -> 219.0	6430	2.50 µg/L	0.012
M3-MeFOSA	10.956	515.0 -> 219.0	5588	2.50 µg/L	0.012
13C4-PFOS	8.508	502.8 -> 79.9	8901	2.50 µg/L	0.012
13C3-PFBA	3.091	216.0 -> 172.0	30872	5.00 µg/L	0.012
18O2-PFHxS	7.498	403.0 -> 83.9	5781	2.50 µg/L	0.000
13C4-PFOA	7.272	417.1 -> 372.0	60204	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	16661	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	14889	1.25 µg/L	0.000
13C2-PFHxA	5.811	315.1 -> 270.0	29855	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.488	329.1 -> 80.9	1207	4.38 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.7%		
13C2-6:2FTS	7.033	429.1 -> 80.9	1678	4.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.7%		
13C2-8:2FTS	8.019	529.1 -> 80.9	1548	4.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.0%		
13C2-PFDoDA	9.117	615.1 -> 570.0	16910	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C2-PFTeDA	9.868	715.2 -> 670.0	12442	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.1%		
13C3-PFBS	5.926	302.1 -> 79.9	11721	2.32 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.0%		
13C3-PFHxS	7.498	402.1 -> 79.9	7987	2.41 µg/L	0.012

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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 = 96.6%		
13C4-PFBA	3.088	216.8 -> 171.9	70358	9.92 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C4-PFHpA	6.680	367.1 -> 322.0	29382	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C5-PFHxA	5.810	318.0 -> 273.0	32351	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C5-PFPeA	4.628	268.3 -> 223.0	34737	4.91 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C6-PFDA	8.233	519.1 -> 474.1	12245	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C7-PFUnDA	8.687	570.0 -> 525.1	12776	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.4%		
13C8-FOSA	9.938	506.1 -> 77.8	15145	2.17 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 86.7%		
13C8-PFOA	7.272	421.1 -> 376.0	49271	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C8-PFOS	8.507	507.1 -> 79.9	6860	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.0%		
13C9-PFNA	7.764	472.1 -> 427.0	13672	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.3%		
d3-MeFOSAA	8.277	573.2 -> 419.0	18587	4.53 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.7%		
13C3-HFPO-DA	6.151	286.9 -> 168.9	14070	10.29 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.9%		
d3-MeFOSA	10.956	515.0 -> 219.0	5588	2.19 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 87.7%		
d5-EtFOSAA	8.473	589.2 -> 419.0	17268	4.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.7%		
d7-MeFOSE	10.863	623.2 -> 58.9	22330	21.37 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 85.5%		
d9-EtFOSE	11.097	639.2 -> 58.9	15763	21.76 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 87.0%		
d5-EtFOSA	11.176	531.1 -> 219.0	6430	2.30 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.8%		
Target Compounds					QValue
4:2FTS	5.488	327.1 -> 307.0	259674	95.34 µg/L	100
		327.1 -> 80.9	63945		
6:2FTS	7.046	427.1 -> 407.0	240505	95.27 µg/L	99
		427.1 -> 80.9	51691		
8:2FTS	8.020	527.1 -> 507.0	118320	96.00 µg/L	97
		527.1 -> 80.8	32835		
EtFOSAA	8.474	584.2 -> 419.1	78563	27.05 µg/L	m 95
		584.2 -> 526.0	43797		
FOSA	9.942	498.1 -> 77.9	166463	26.84 µg/L	100
		498.1 -> 478.0	5993		
MeFOSAA	8.278	570.1 -> 419.0	97250	24.70 µg/L	99
		570.1 -> 483.0	18196		
PFBA	3.094	212.8 -> 168.9	212910	110.32 µg/L	100
PFBS	5.927	298.7 -> 79.9	118193	24.05 µg/L	91
		298.7 -> 98.8	54722		
PFDA	8.233	512.9 -> 469.0	432961	27.52 µg/L	94
		512.9 -> 219.0	59075		
PFDoDA	9.117	613.1 -> 569.0	384292	27.70 µg/L	98
		613.1 -> 319.0	49303		
PFDS	9.381	599.0 -> 79.9	59243	25.41 µg/L	93

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	32249			
PFHpA	6.681	363.1 -> 319.0	496102	26.31	µg/L	98
		363.1 -> 169.0	73425			
PFHpS	8.028	449.0 -> 79.9	82413	25.46	µg/L	95
		449.0 -> 98.9	45157			
PFHxA	5.825	313.0 -> 269.0	321342	25.01	µg/L	99
		313.0 -> 118.9	13504			
PFHxS	7.499	398.7 -> 79.9	93533	23.97	µg/L	m 98
		398.7 -> 98.9	47436			
PFNA	7.765	463.0 -> 419.0	226416	23.97	µg/L	98
		463.0 -> 219.0	45881			
PFNS	8.961	548.8 -> 79.9	85999	25.91	µg/L	90
		548.8 -> 98.9	46463			
PFOA	7.273	413.0 -> 369.0	640044	25.95	µg/L	99
		413.0 -> 169.0	88633			
PFOS	8.508	498.9 -> 79.9	77095	22.65	µg/L	m 97
		498.9 -> 98.8	50489			
PFPeA	4.629	263.0 -> 219.0	443108	54.90	µg/L	100
PFPeS	6.869	349.1 -> 79.9	109702	23.78	µg/L	96
		349.1 -> 98.9	56863			
PFTeDA	9.869	713.1 -> 669.0	384371	24.76	µg/L	99
		713.1 -> 168.9	26814			
PFTrDA	9.513	663.0 -> 619.0	360564	26.04	µg/L	98
		663.0 -> 168.9	31153			
PFUnDA	8.687	563.1 -> 519.0	374119	30.19	µg/L	99
		563.1 -> 269.1	54253			
11CI-PF3OUdS	9.651	630.9 -> 450.9	804087	96.78	µg/L	95
		632.9 -> 452.9	256035			
9CI-PF3ONS	8.851	530.8 -> 351.0	1445917	95.75	µg/L	98
		532.8 -> 353.0	471161			
ADONA	6.916	376.9 -> 250.9	2607899	88.28	µg/L	99
		376.9 -> 84.8	596744			
HFPO-DA	6.164	284.9 -> 168.9	148753	105.82	µg/L	99
		284.9 -> 184.9	17211			
3:3FTCA	4.014	241.0 -> 177.0	53972	131.54	µg/L	98
		241.0 -> 117.0	7850			
5:3FTCA	6.407	341.0 -> 237.1	1694080	603.80	µg/L	95
		341.0 -> 217.0	1470363			
7:3FTCA	7.742	441.0 -> 316.9	872482	648.29	µg/L	95
		441.0 -> 336.9	1533618			
EtFOSA	11.178	526.0 -> 219.0	78654	25.20	µg/L	96
		526.0 -> 169.0	83115			
EtFOSE	11.111	630.0 -> 58.9	176759	274.52	µg/L	100
MeFOSA	10.958	511.9 -> 219.0	74949	27.24	µg/L	99
		511.9 -> 169.0	76832			
MeFOSE	10.877	616.1 -> 58.9	250781	273.42	µg/L	100
PFDoDS	10.070	699.1 -> 79.9	35537	25.17	µg/L	93
		699.1 -> 98.8	22161			
NFDHA	5.693	295.0 -> 201.0	43503	49.20	µg/L	100
		295.0 -> 84.9	17199			
PFMBA	5.026	279.0 -> 85.1	144578	53.32	µg/L	100
PFMPA	3.729	229.0 -> 84.9	128404	54.36	µg/L	100
PFEESA	6.408	314.8 -> 134.9	812989	44.03	µg/L	99
		314.8 -> 82.9	20213			

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

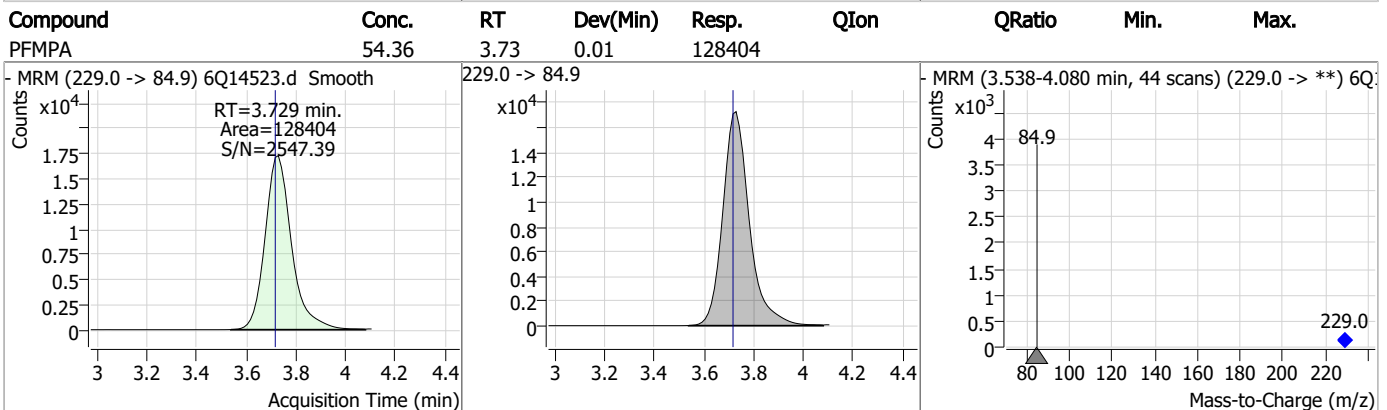
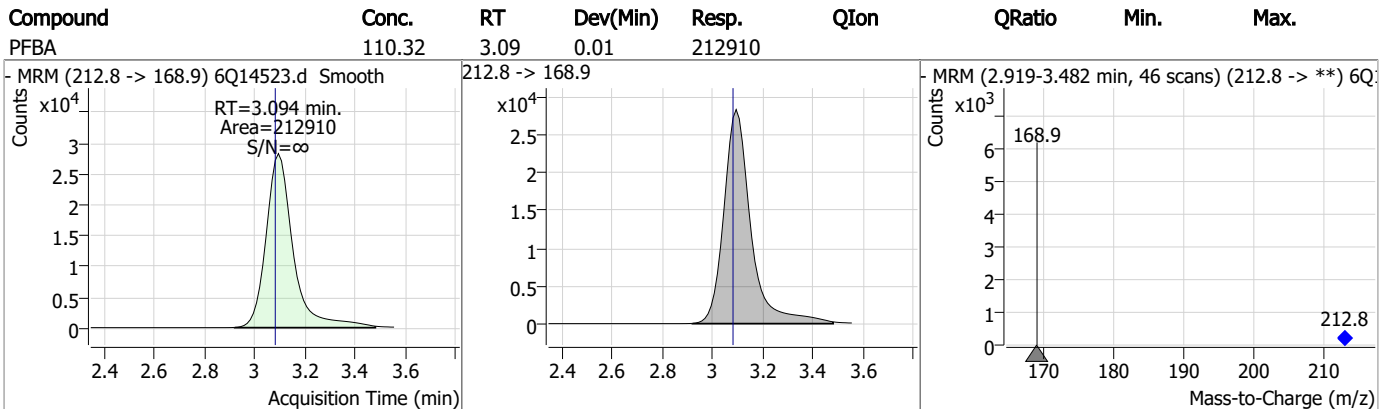
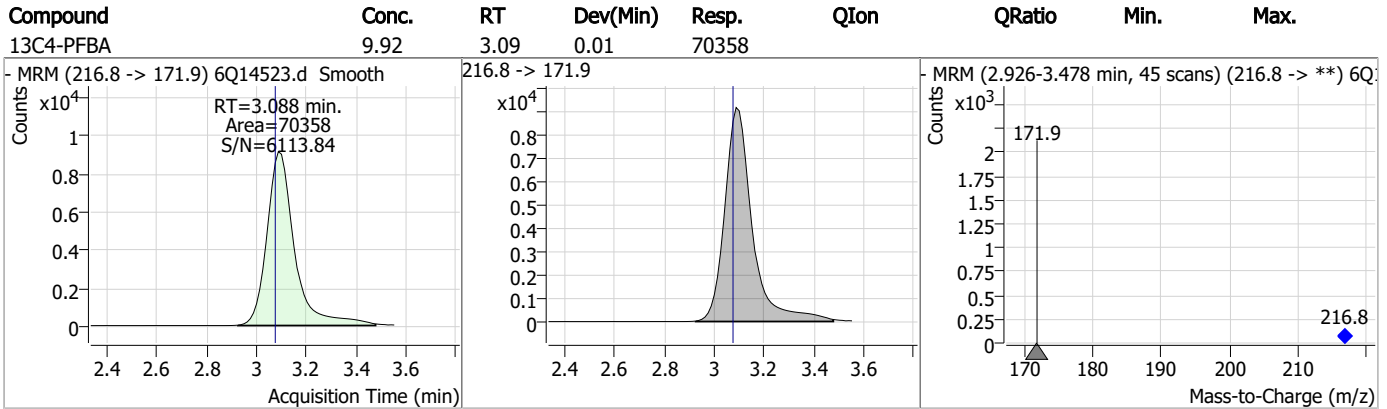
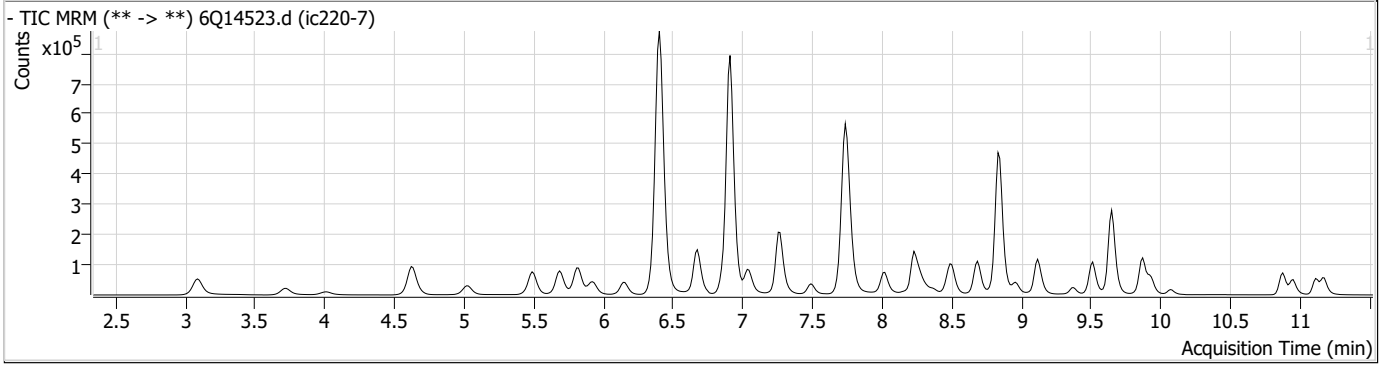
Perfluorinated Compounds by LC/MS/MS

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

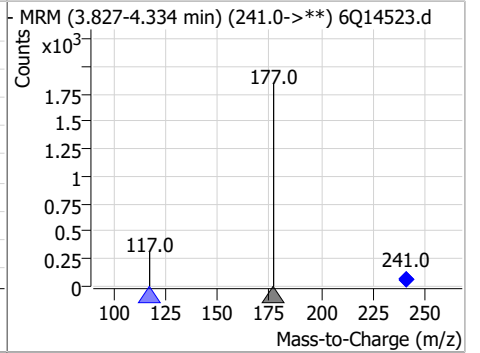
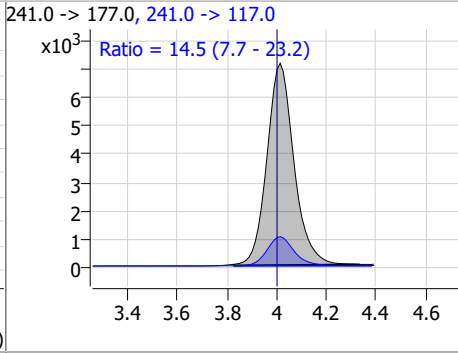
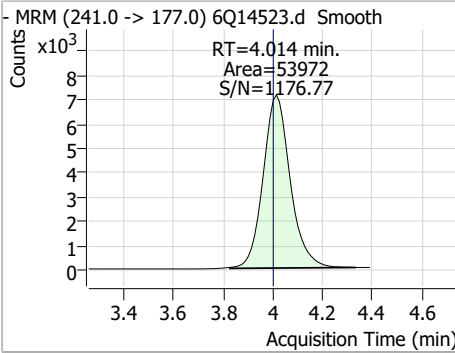


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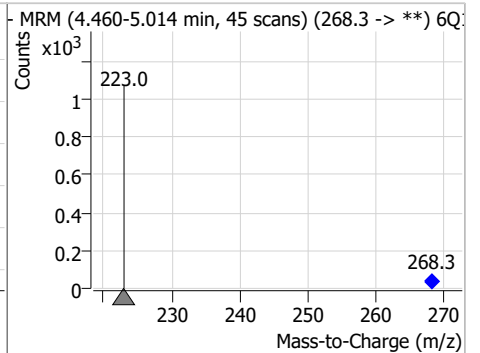
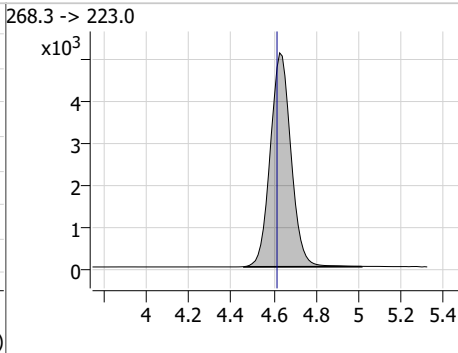
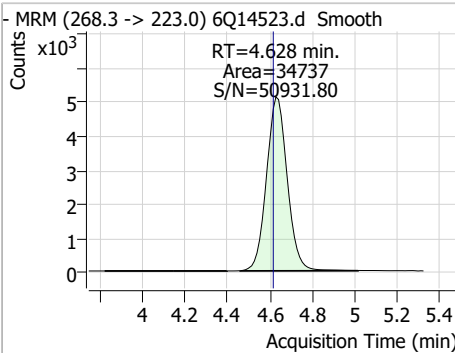
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Perfluorinated Compounds by LC/MS/MS

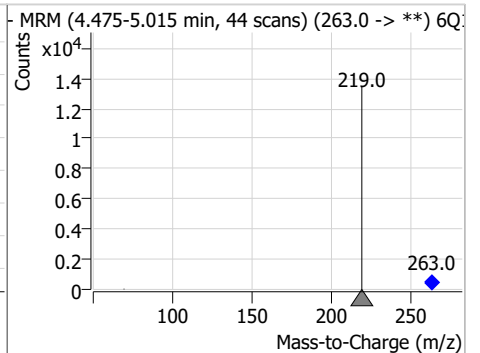
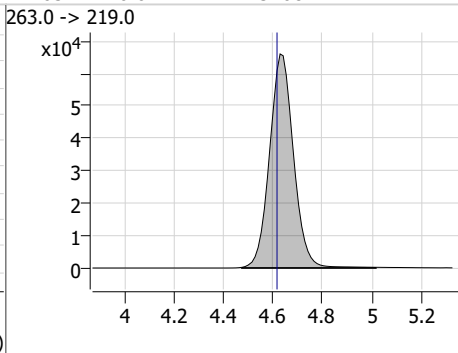
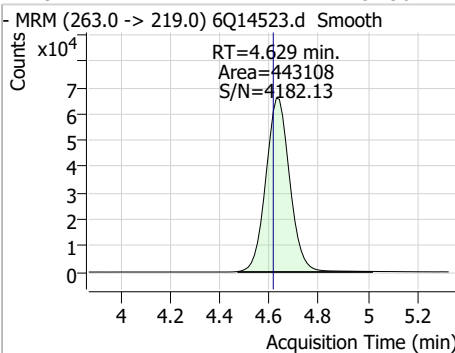
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	131.54	4.01	0.01	53972	241.0 -> 117.0	14.5	7.7	23.2



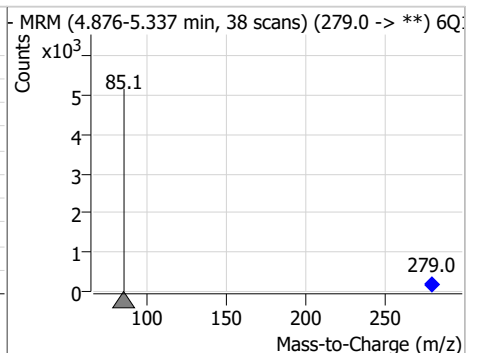
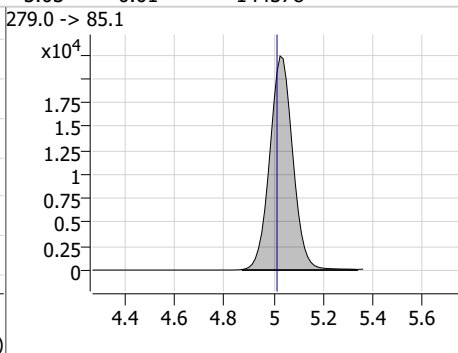
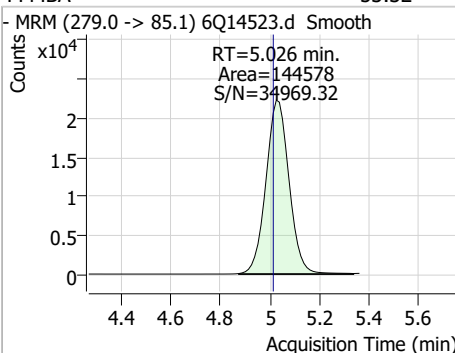
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.91	4.63	0.01	34737				



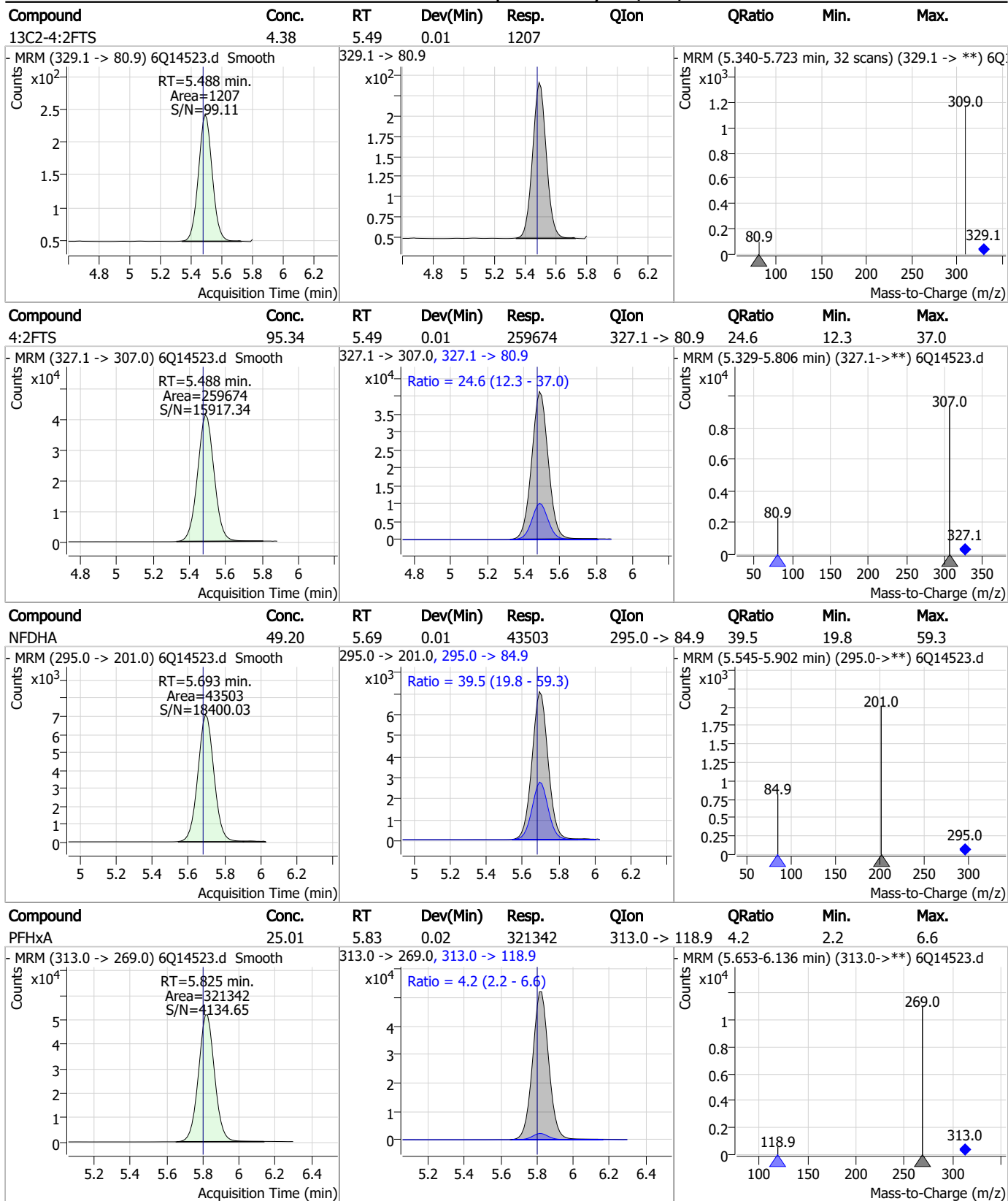
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	54.90	4.63	0.01	443108				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	53.32	5.03	0.01	144578				

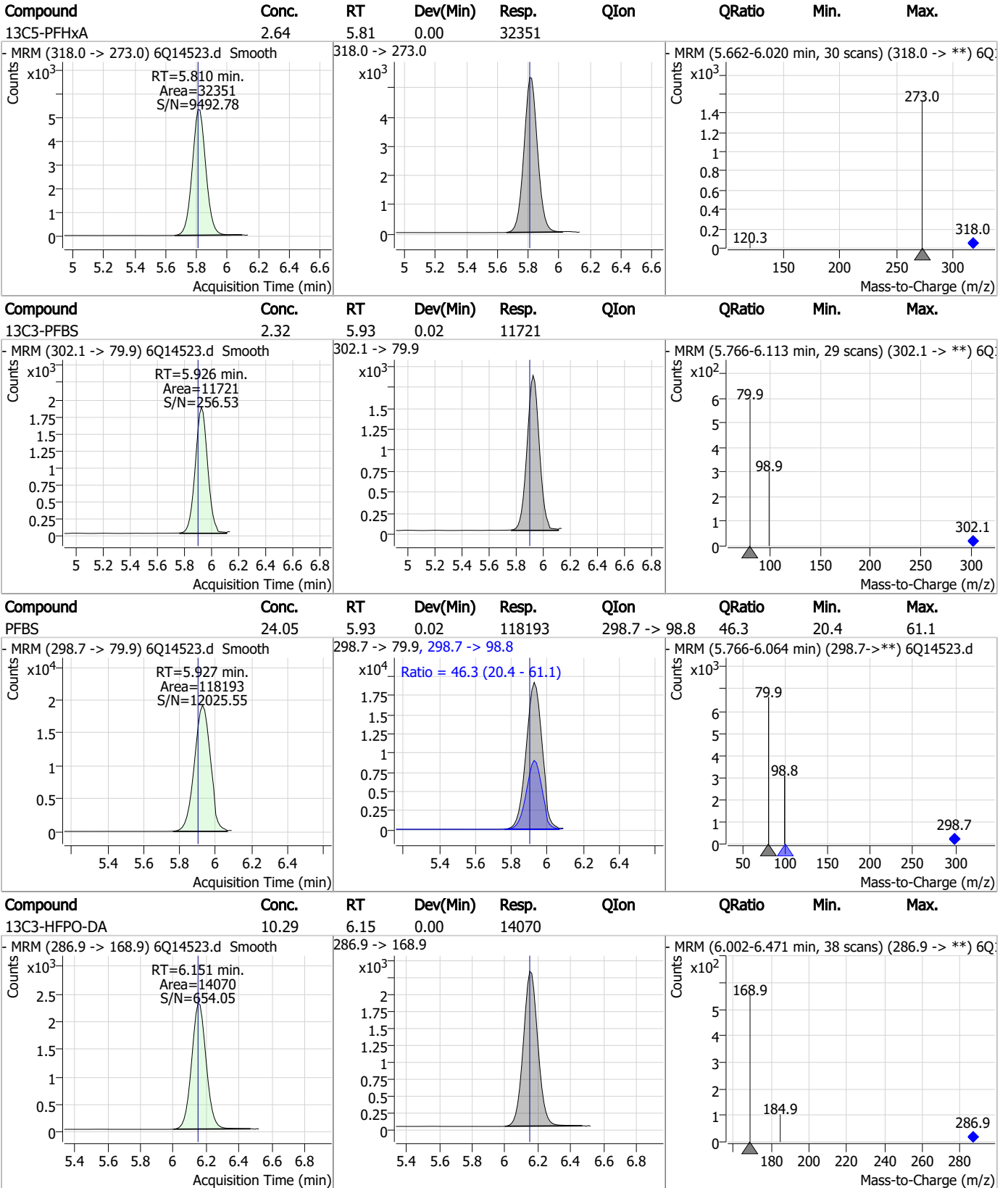


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



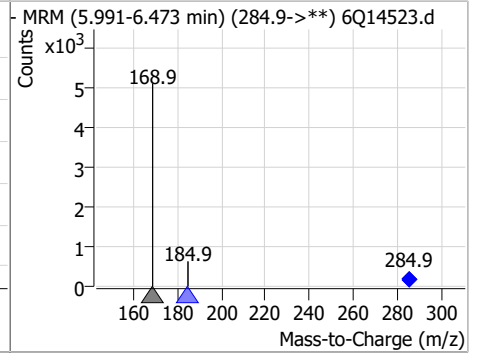
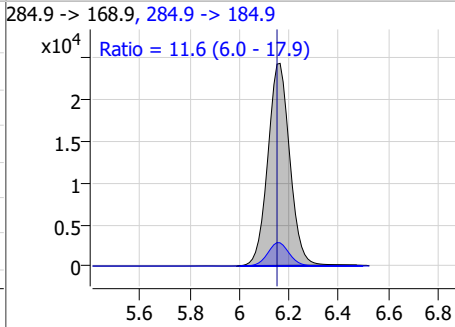
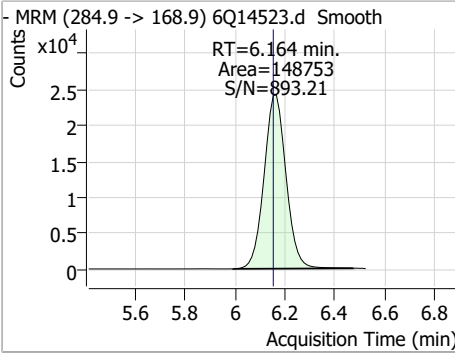
7.8.8

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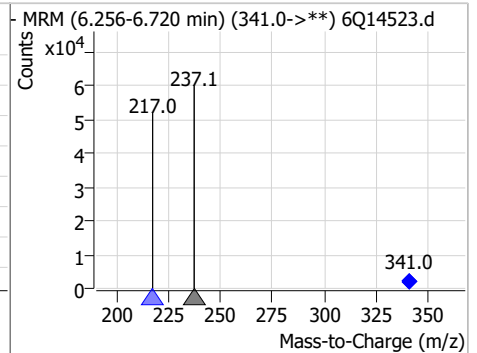
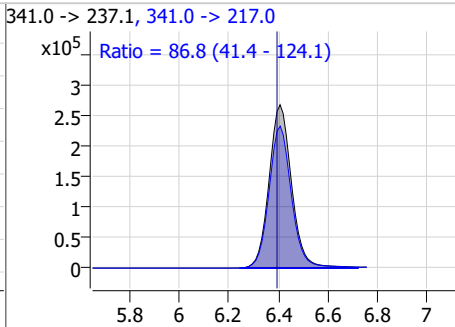
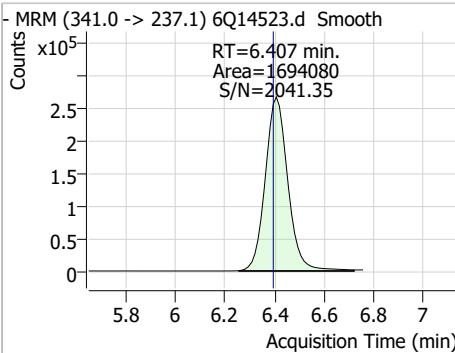


Perfluorinated Compounds by LC/MS/MS

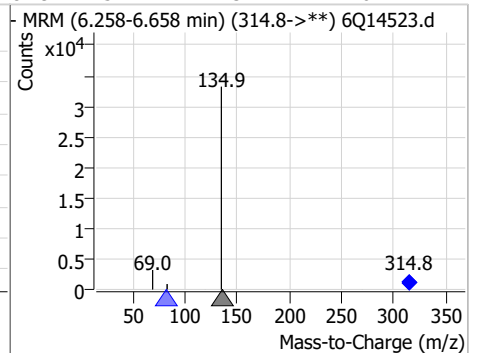
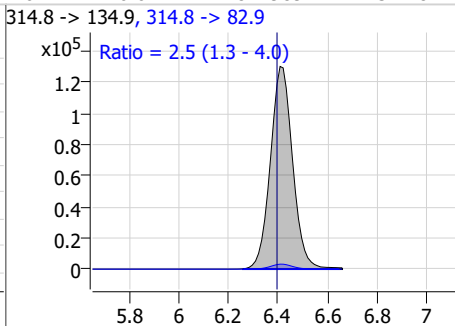
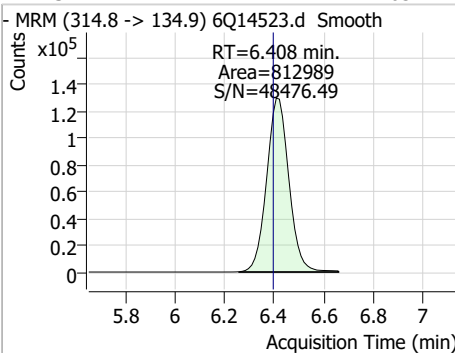
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	105.82	6.16	0.01	148753	284.9 -> 184.9	11.6	6.0	17.9



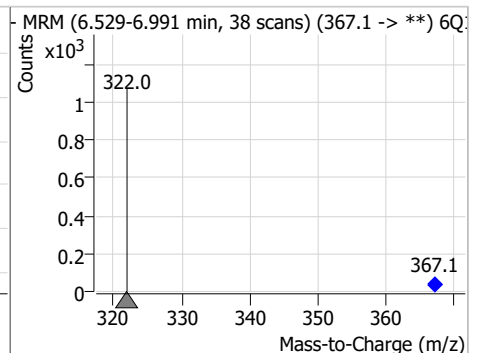
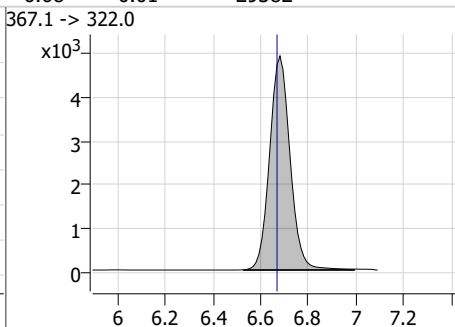
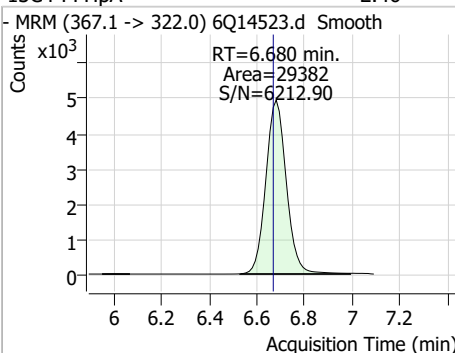
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	603.80	6.41	0.01	1694080	341.0 -> 217.0	86.8	41.4	124.1



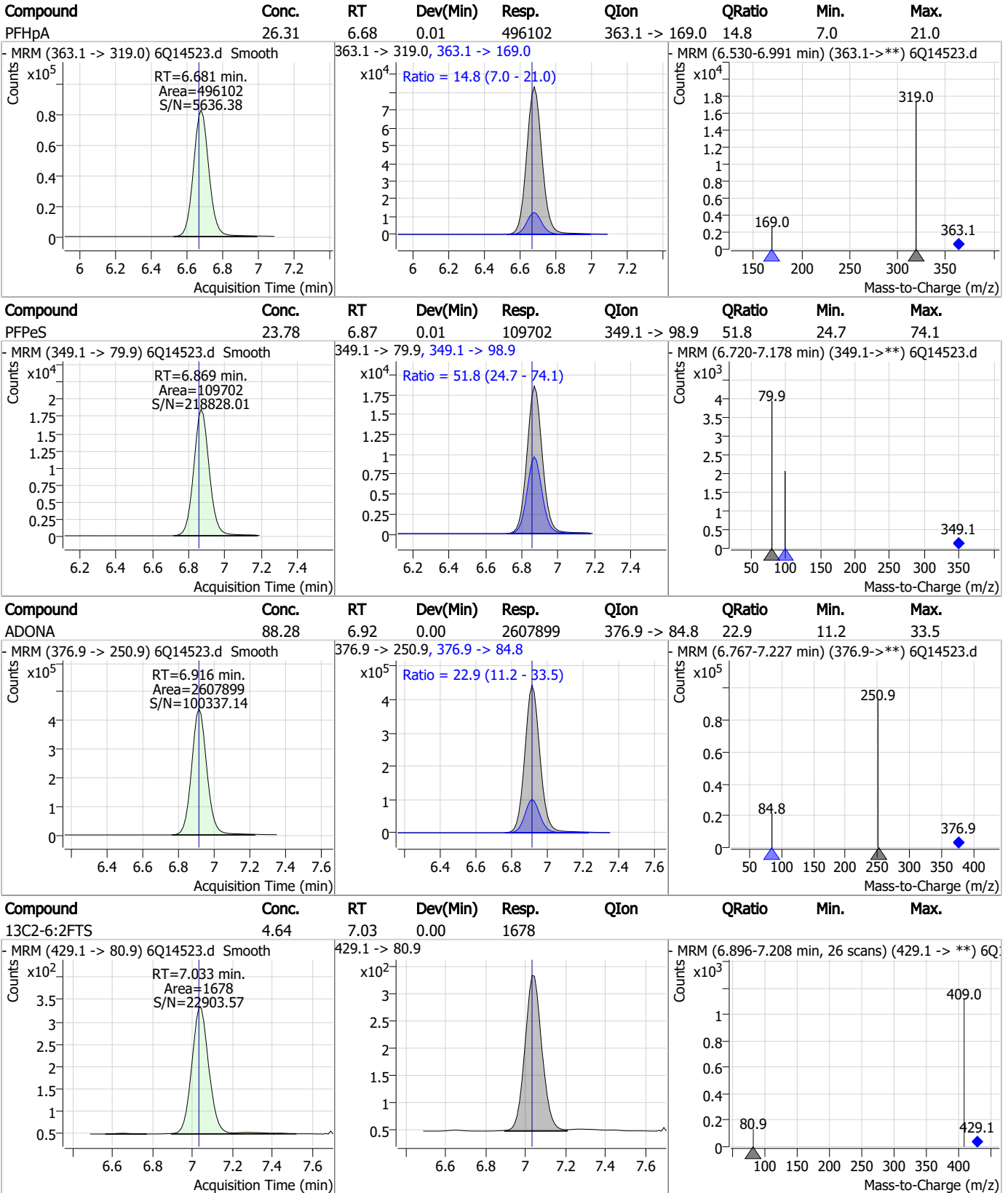
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	44.03	6.41	0.01	812989	314.8 -> 82.9	2.5	1.3	4.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.46	6.68	0.01	29382	367.1 -> 322.0			



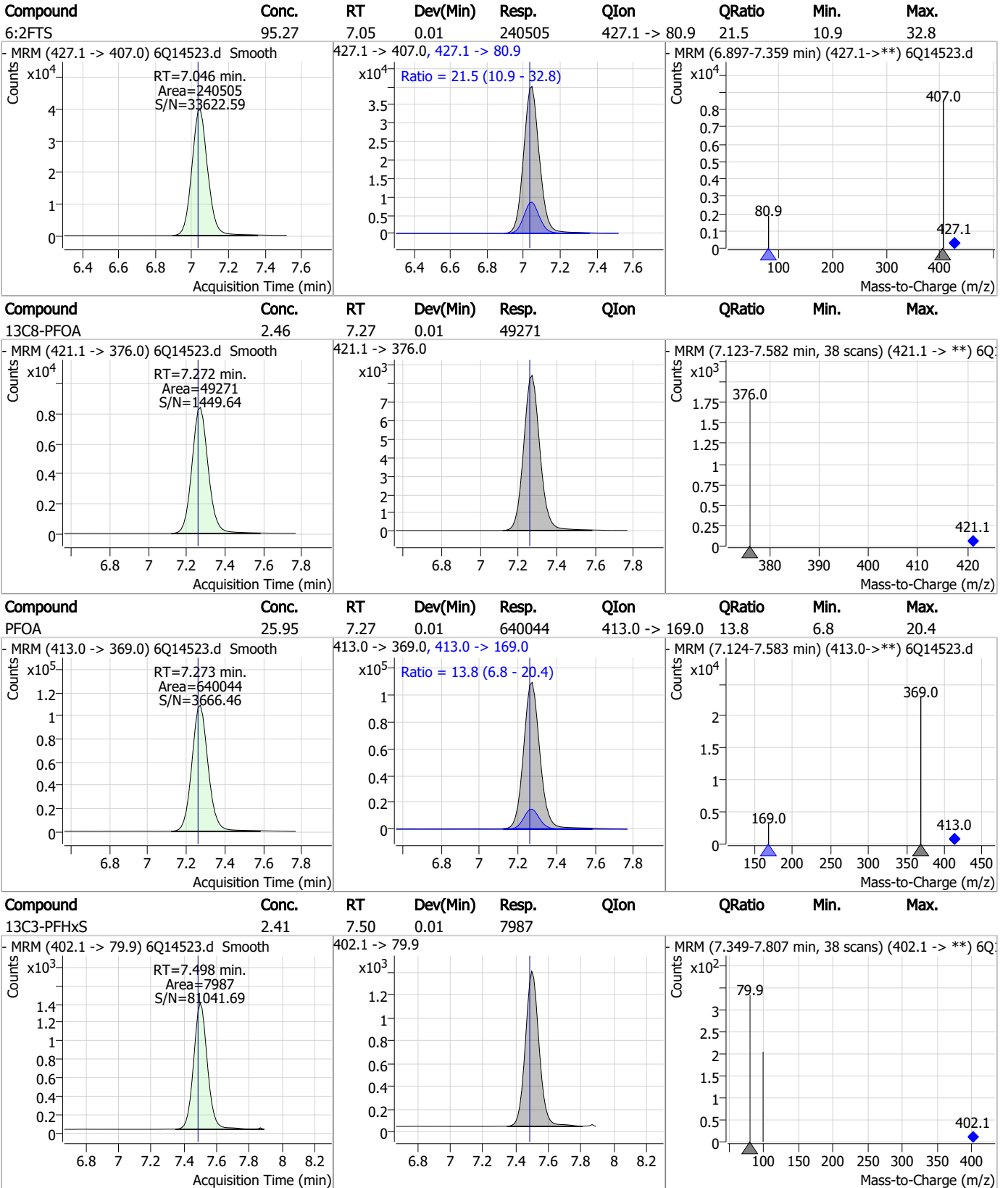
Perfluorinated Compounds by LC/MS/MS



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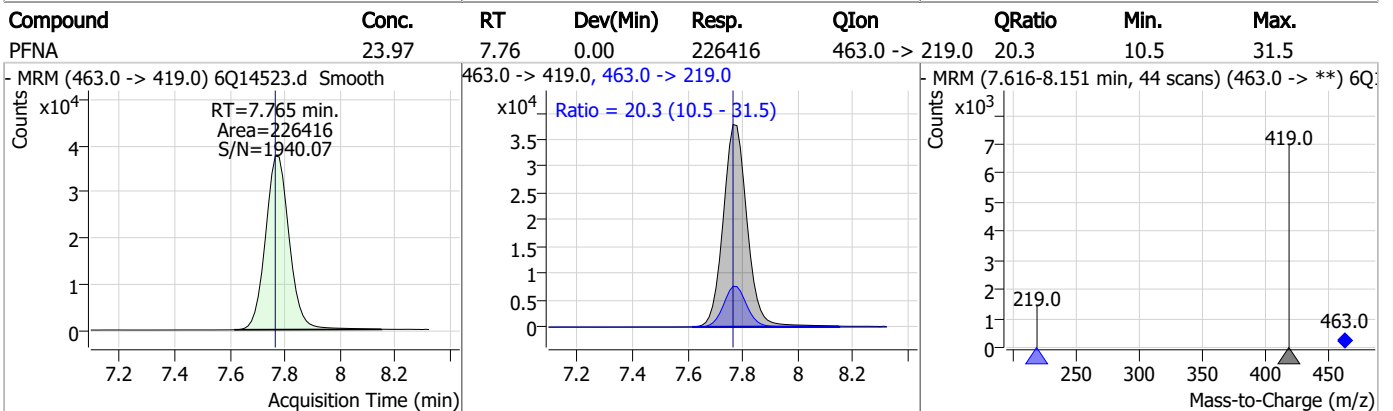
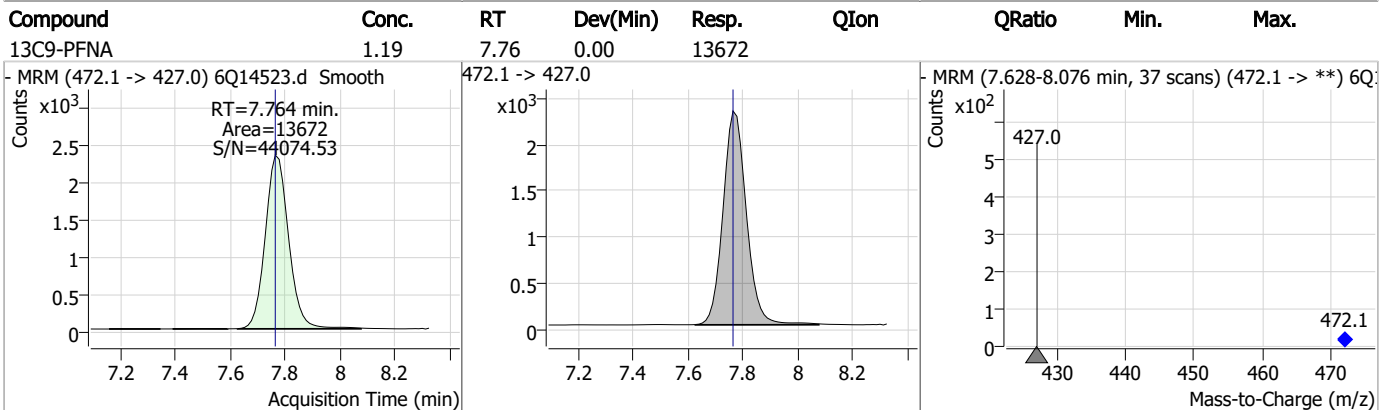
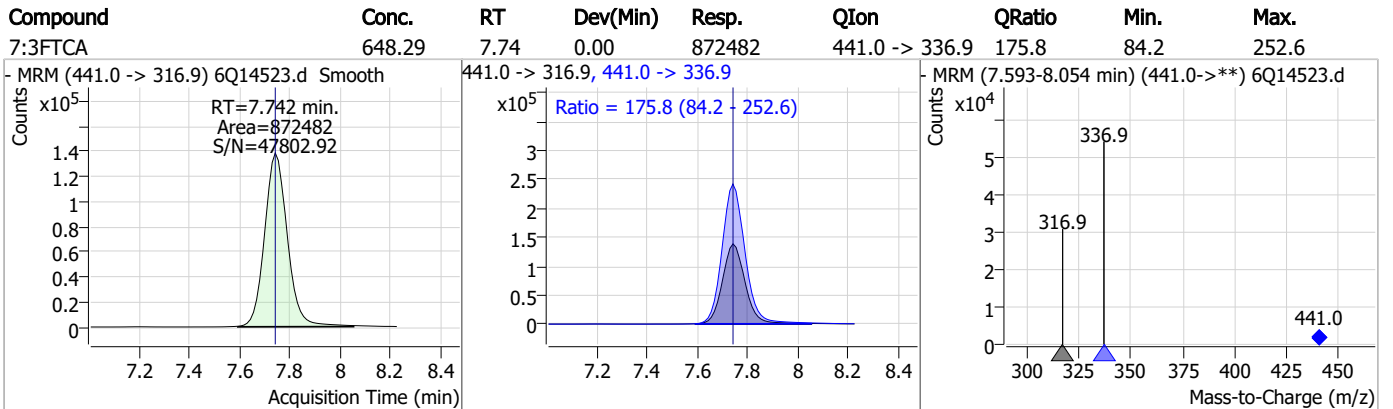
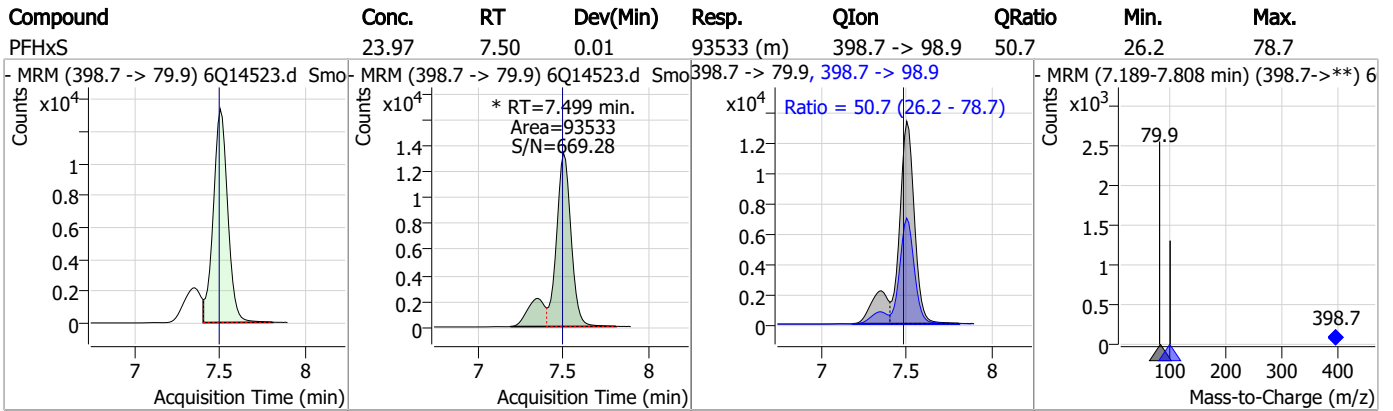
Perfluorinated Compounds by LC/MS/MS



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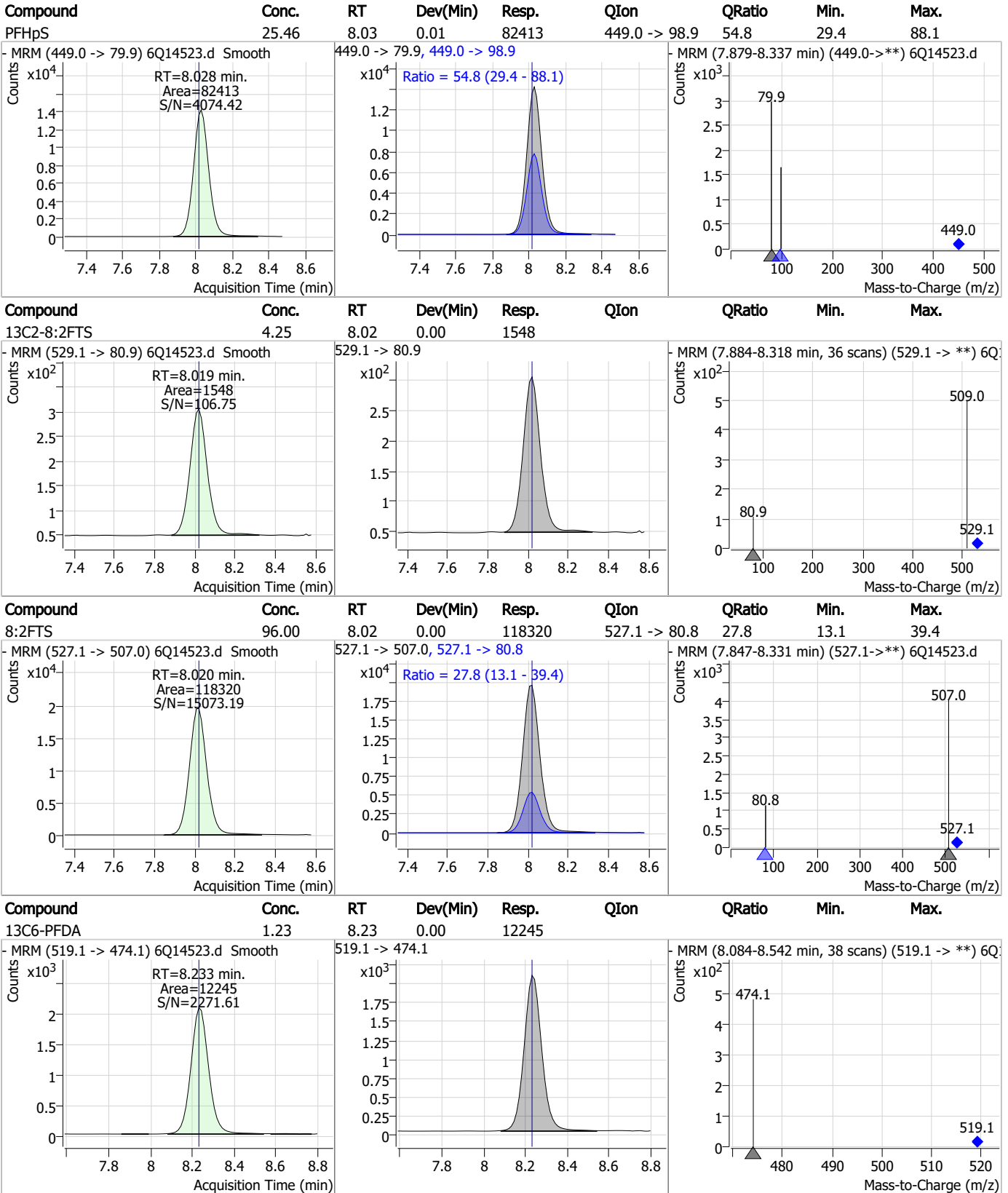
Perfluorinated Compounds by LC/MS/MS



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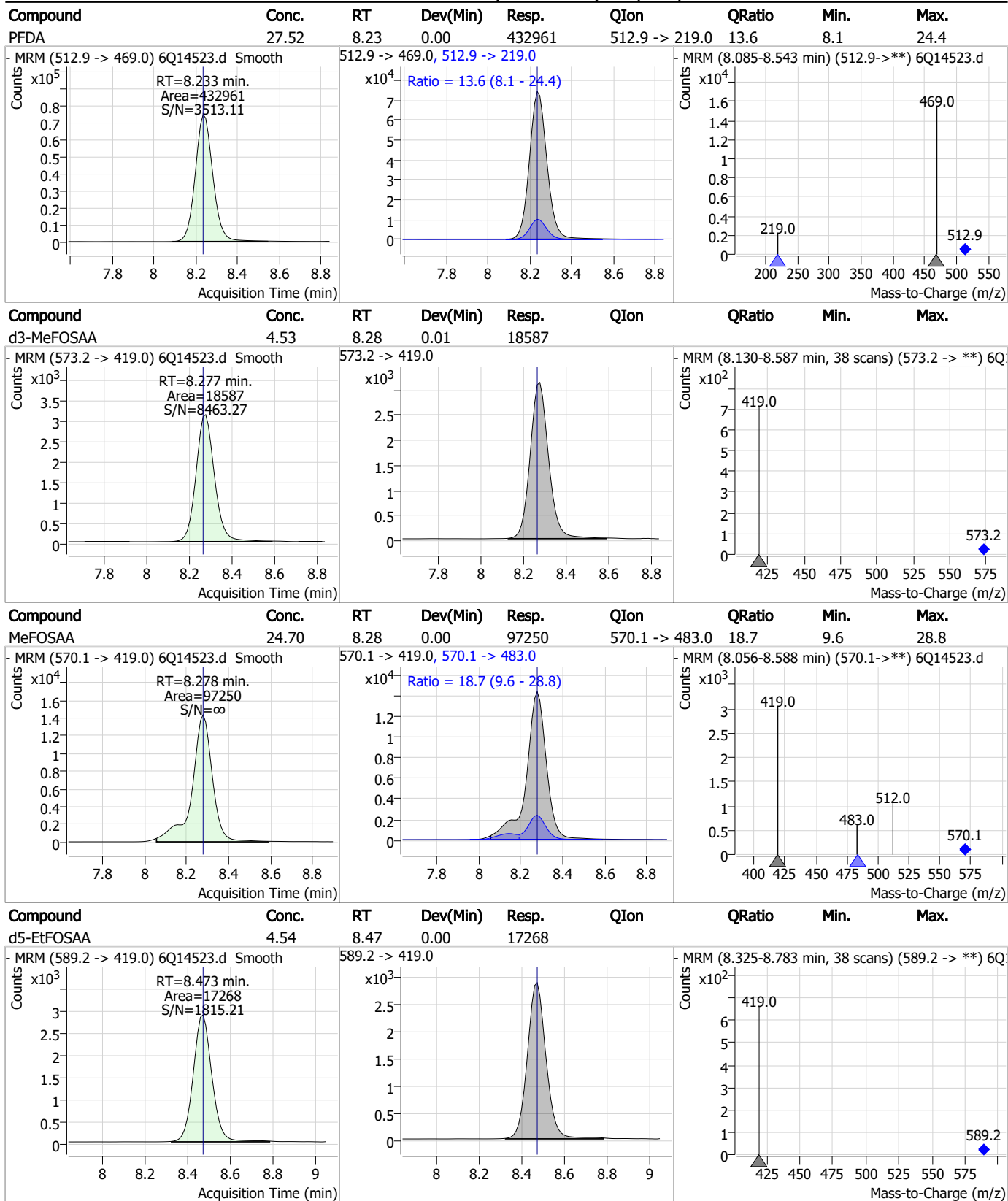
Perfluorinated Compounds by LC/MS/MS



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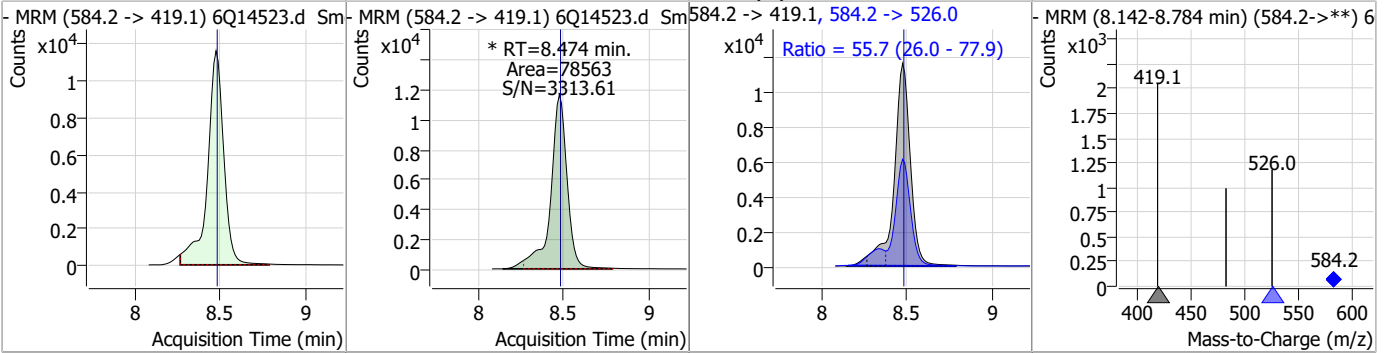
Perfluorinated Compounds by LC/MS/MS



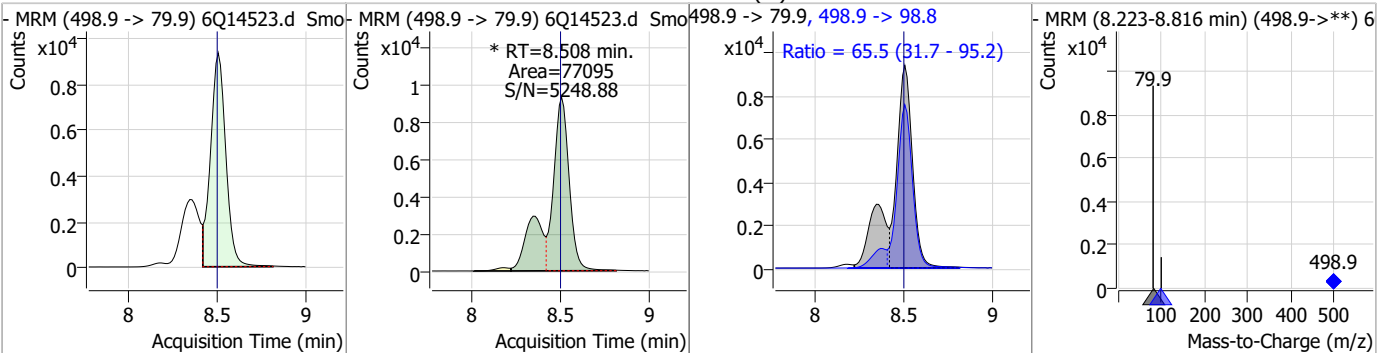
7.8.8

Perfluorinated Compounds by LC/MS/MS

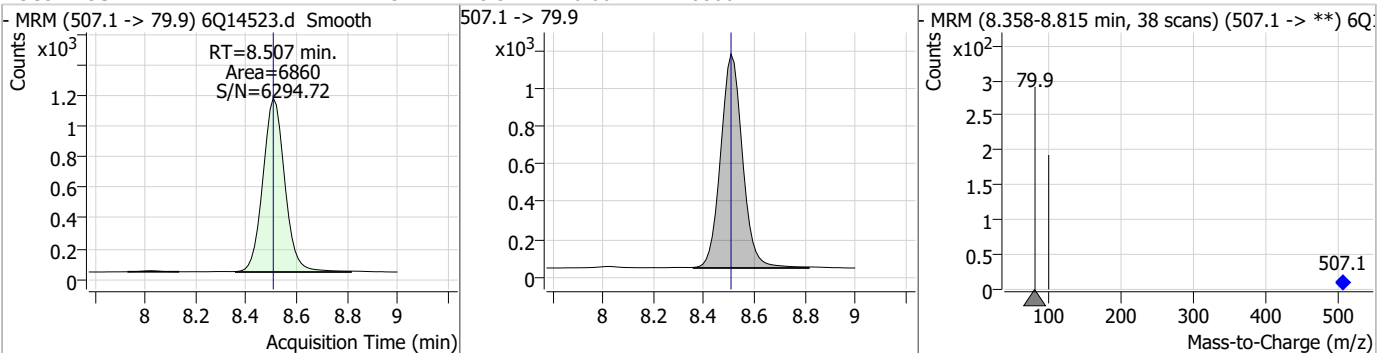
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	27.05	8.47	0.00	78563 (m)	584.2 -> 526.0	55.7	26.0	77.9



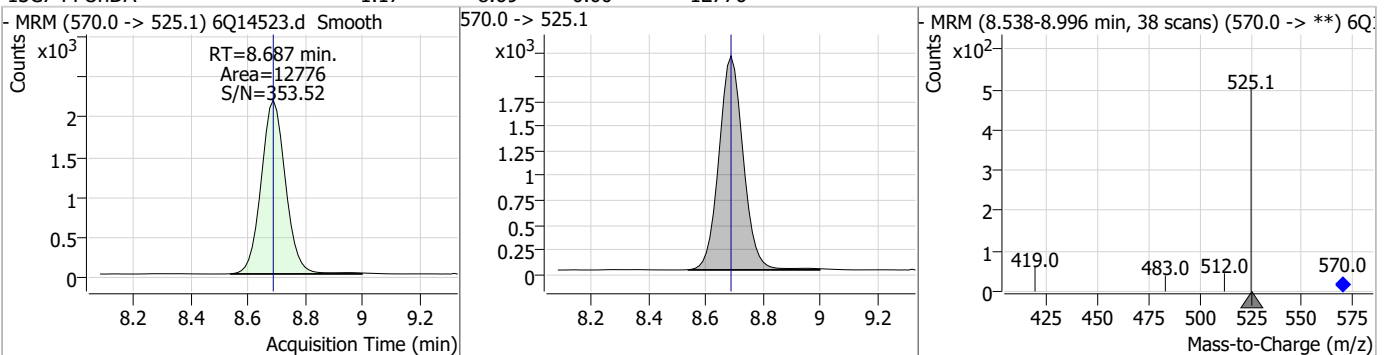
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	22.65	8.51	0.01	77095 (m)	498.9 -> 98.8	65.5	31.7	95.2



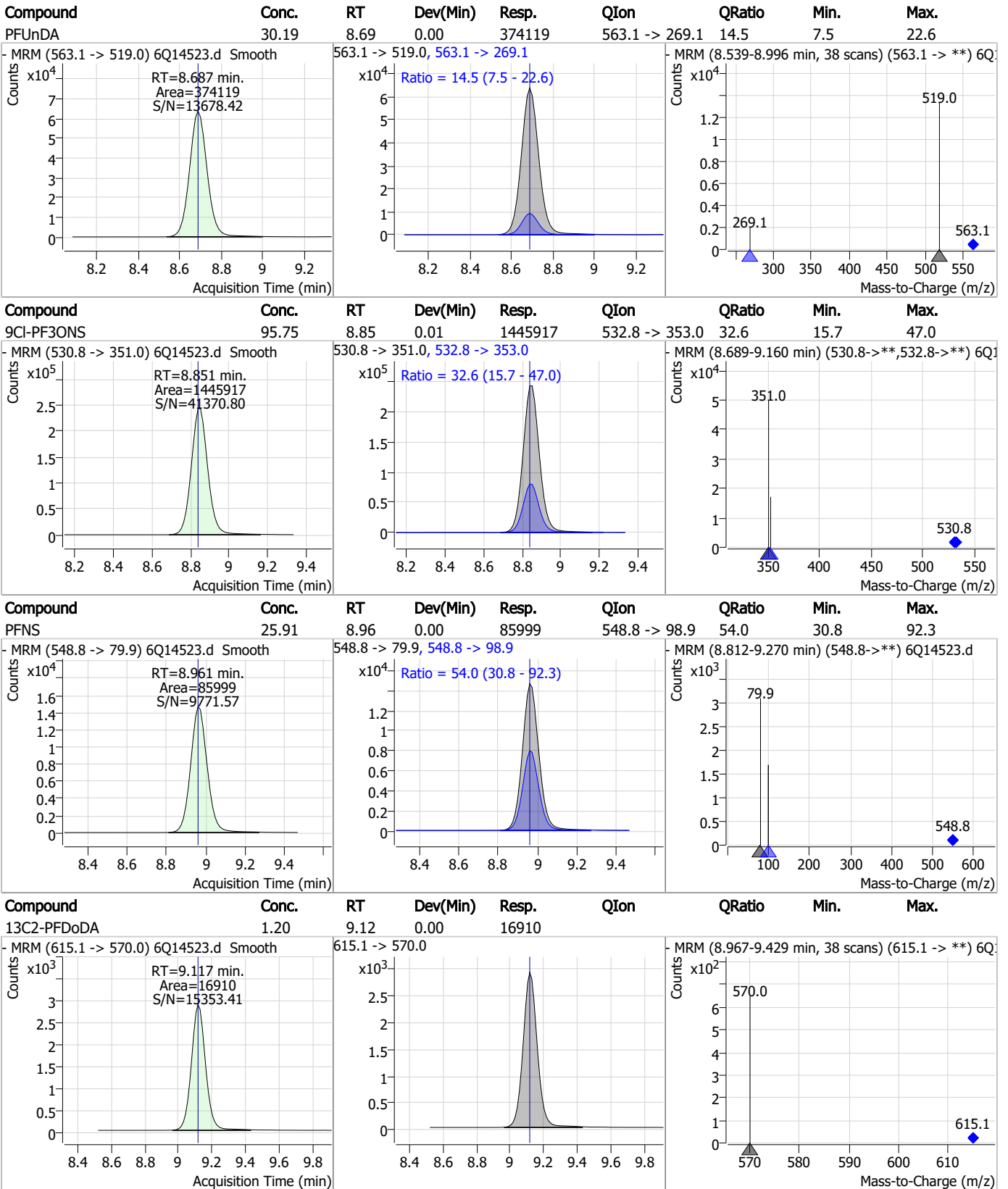
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.25	8.51	0.00	6860				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.17	8.69	0.00	12776				



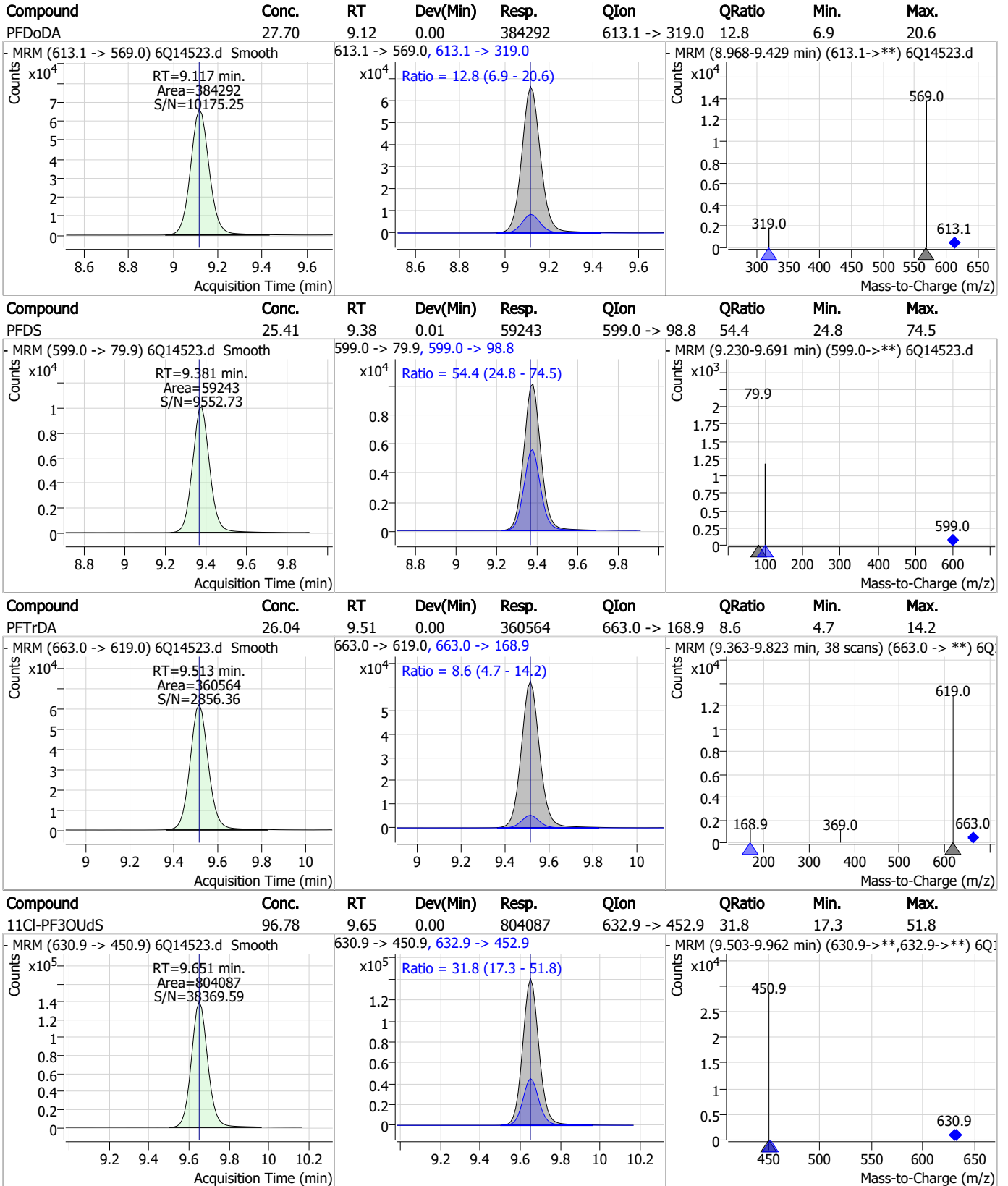
Perfluorinated Compounds by LC/MS/MS



7.8.8

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Perfluorinated Compounds by LC/MS/MS



7.8.8

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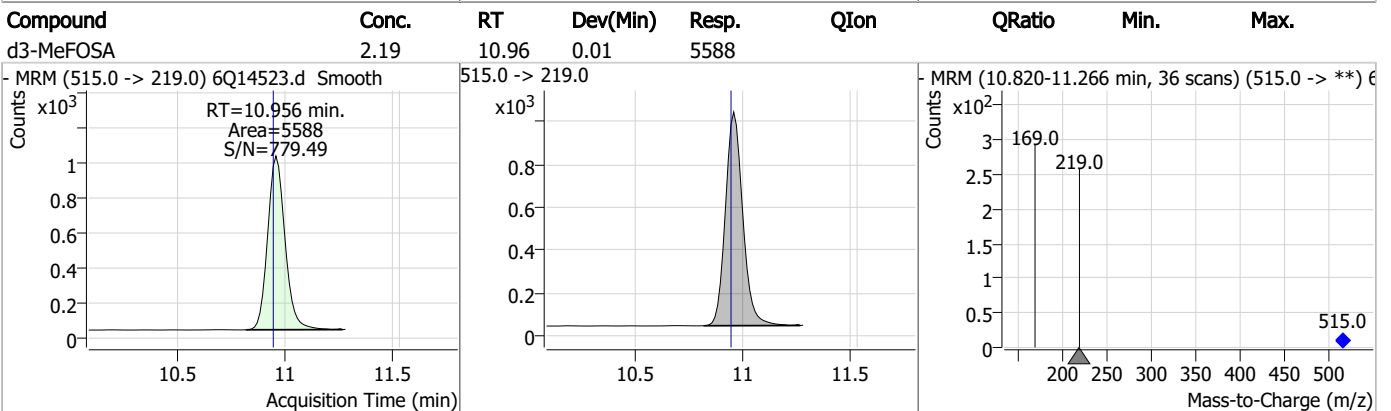
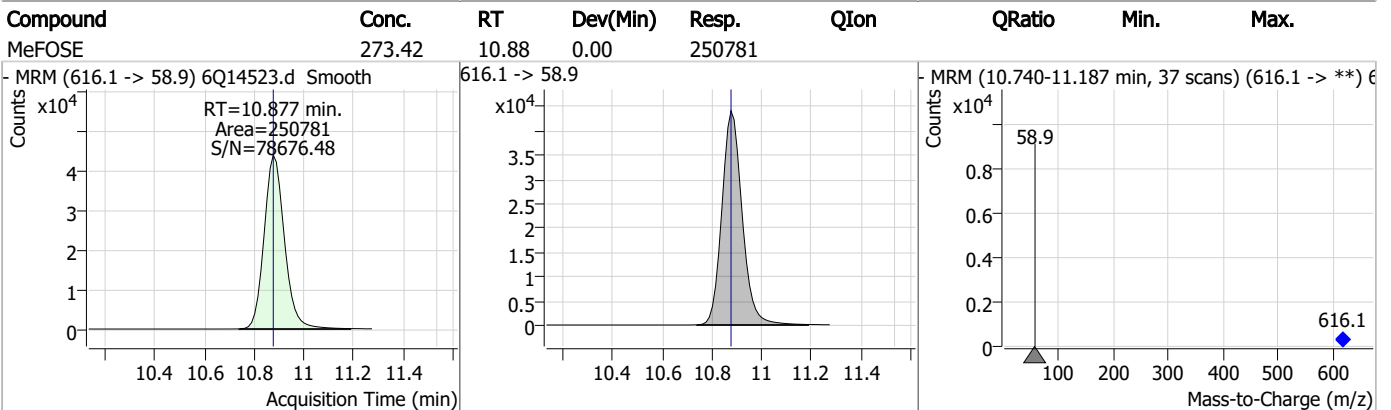
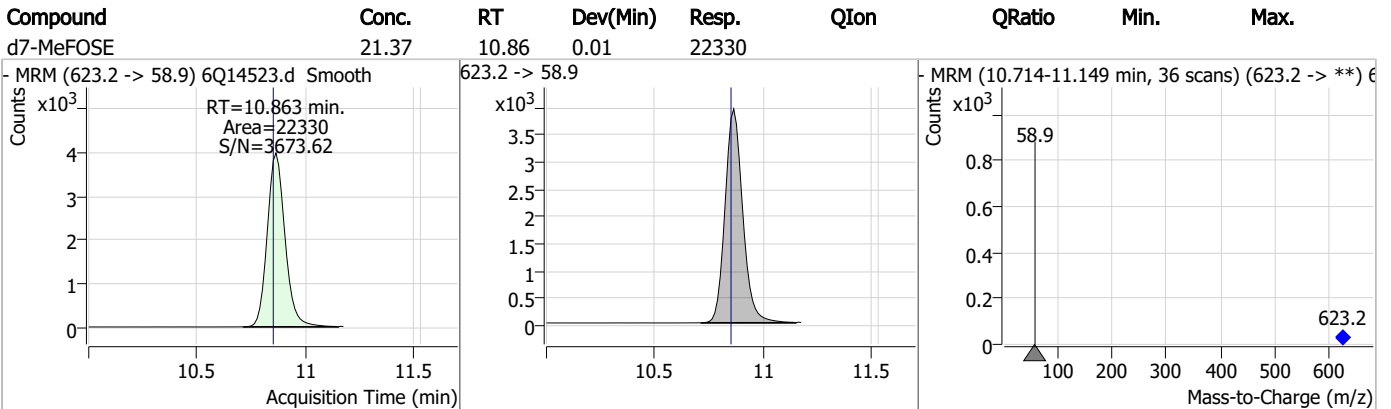
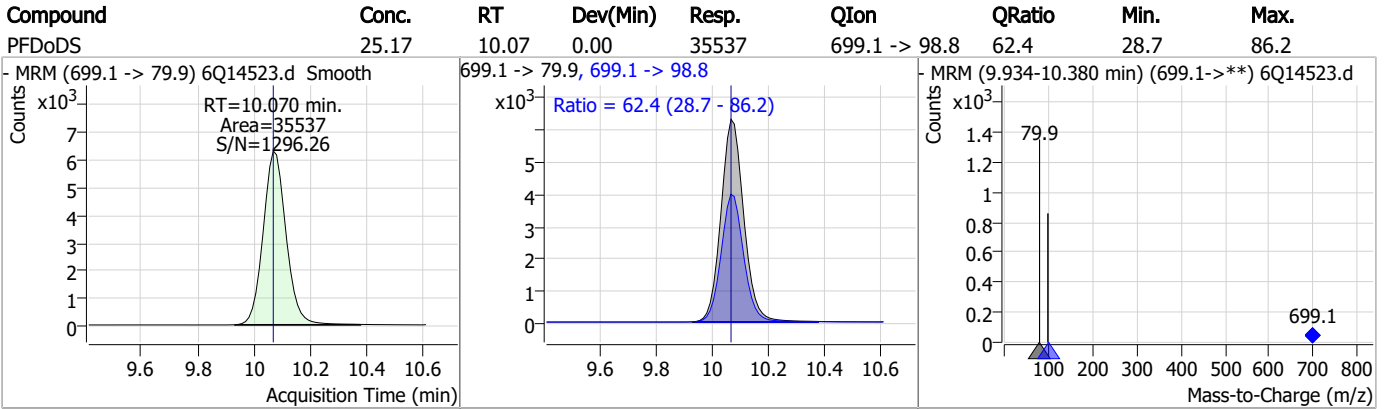


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.39	9.87	0.00	12442				
PFTeDA	24.76	9.87	0.00	384371	713.1 ->	168.9	7.0	3.4
13C8-FOSA	2.17	9.94	0.01	15145				
FOSA	26.84	9.94	0.01	166463	498.1 ->	478.0	3.6	1.8

7.8.8
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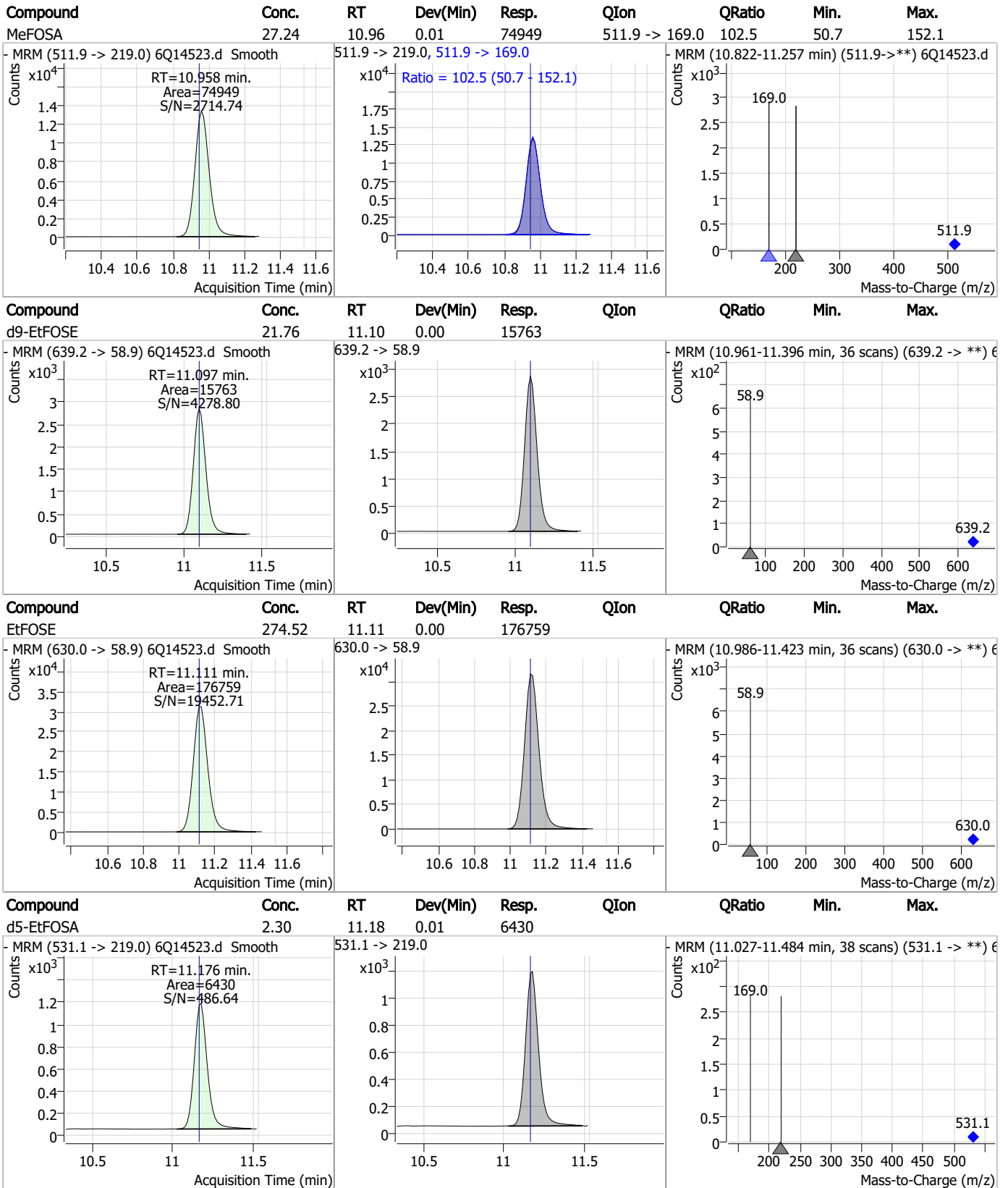
Perfluorinated Compounds by LC/MS/MS



7.8.8

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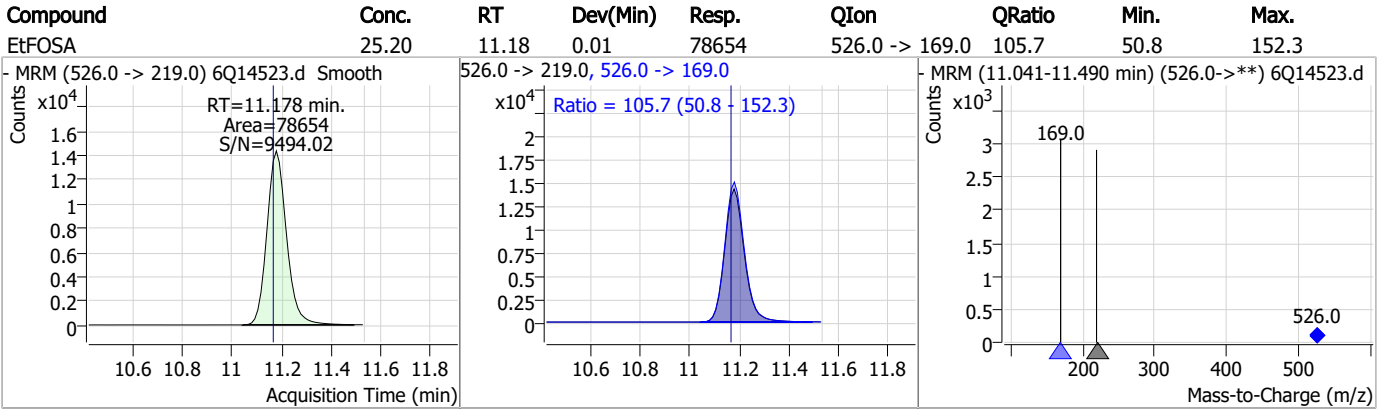
Perfluorinated Compounds by LC/MS/MS



7.8.8

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Perfluorinated Compounds by LC/MS/MS



7.8.8

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Manual Integration Approval Summary

Sample Number: S6Q220-IC220 Method: EPA DRAFT 1633
Lab FileID: 6Q14523.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 14:24 Supervisor approved: 03/10/23 10:46 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.50	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.51	Split peak

7.8.8.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14524.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 2:38:06 PM
 Sample Name : ic220-8
 Vial : P1-A9
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.100	216.8 -> 171.9	65928	10.00 µg/L	0.025
M5-PFPeA	4.628	268.3 -> 223.0	33586	5.00 µg/L	0.012
M5-PFHxA	5.810	318.0 -> 273.0	29492	2.50 µg/L	0.000
M4-PFHpA	6.680	367.1 -> 322.0	29266	2.50 µg/L	0.012
M8-PFOA	7.272	421.1 -> 376.0	46714	2.50 µg/L	0.012
M9-PFNA	7.764	472.1 -> 427.0	13355	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	12234	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	13666	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	18224	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	12511	1.25 µg/L	0.000
M8-FOSA	9.938	506.1 -> 77.8	16306	2.50 µg/L	0.012
M3-PFBS	5.926	302.1 -> 79.9	11979	2.50 µg/L	0.025
M3-PFHxS	7.498	402.1 -> 79.9	8052	2.50 µg/L	0.012
M8-PFOS	8.507	507.1 -> 79.9	6671	2.50 µg/L	0.000
M2-4:2FTS	5.488	329.1 -> 80.9	1030	5.00 µg/L	0.012
M2-6:2FTS	7.033	429.1 -> 80.9	1502	5.00 µg/L	0.000
M2-8:2FTS	8.019	529.1 -> 80.9	1606	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	17999	5.00 µg/L	0.012
M3-HFPO-DA	6.151	286.9 -> 168.9	12612	10.00 µg/L	0.000
M5-EtFOSAA	8.473	589.2 -> 419.0	16263	5.00 µg/L	0.000
M7-MeFOSE	10.863	623.2 -> 58.9	22366	25.00 µg/L	0.012
M9-EtFOSE	11.097	639.2 -> 58.9	13321	25.00 µg/L	0.000
M5-EtFOSA	11.176	531.1 -> 219.0	6038	2.50 µg/L	0.012
M3-MeFOSA	10.956	515.0 -> 219.0	6081	2.50 µg/L	0.012
13C4-PFOS	8.508	502.8 -> 79.9	6947	2.50 µg/L	0.012
13C3-PFBA	3.103	216.0 -> 172.0	28355	5.00 µg/L	0.025
18O2-PFHxS	7.498	403.0 -> 83.9	5370	2.50 µg/L	0.000
13C4-PFOA	7.272	417.1 -> 372.0	57569	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	17166	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	13307	1.25 µg/L	0.000
13C2-PFHxA	5.811	315.1 -> 270.0	28628	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.488	329.1 -> 80.9	1030	4.03 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 80.5%		
13C2-6:2FTS	7.033	429.1 -> 80.9	1502	4.47 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.4%		
13C2-8:2FTS	8.019	529.1 -> 80.9	1606	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.9%		
13C2-PFDoDA	9.117	615.1 -> 570.0	18224	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C2-PFTeDA	9.868	715.2 -> 670.0	12511	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C3-PFBS	5.926	302.1 -> 79.9	11979	2.56 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C3-PFHxS	7.498	402.1 -> 79.9	8052	2.62 µg/L	0.012

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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 = 104.8%	
13C4-PFBA	3.100	216.8 -> 171.9	65928	10.12 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C4-PFHpA	6.680	367.1 -> 322.0	29266	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFHxA	5.810	318.0 -> 273.0	29492	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C5-PFPeA	4.628	268.3 -> 223.0	33586	4.95 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C6-PFDA	8.233	519.1 -> 474.1	12234	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C7-PFUnDA	8.687	570.0 -> 525.1	13666	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C8-FOSA	9.938	506.1 -> 77.8	16306	2.99 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.6%	
13C8-PFOA	7.272	421.1 -> 376.0	46714	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C8-PFOS	8.507	507.1 -> 79.9	6671	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.1%	
13C9-PFNA	7.764	472.1 -> 427.0	13355	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.1%	
d3-MeFOSAA	8.277	573.2 -> 419.0	17999	5.63 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.5%	
13C3-HFPO-DA	6.151	286.9 -> 168.9	12612	9.62 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
d3-MeFOSA	10.956	515.0 -> 219.0	6081	3.06 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 122.3%	
d5-EtFOSAA	8.473	589.2 -> 419.0	16263	5.47 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.5%	
d7-MeFOSE	10.863	623.2 -> 58.9	22366	27.42 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 109.7%	
d9-EtFOSE	11.097	639.2 -> 58.9	13321	23.56 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.2%	
d5-EtFOSA	11.176	531.1 -> 219.0	6038	2.76 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.5%	
Target Compounds					QValue
4:2FTS	5.488	327.1 -> 307.0	562687	242.11 µg/L	98
		327.1 -> 80.9	134129		
6:2FTS	7.046	427.1 -> 407.0	460206	203.59 µg/L	99
		427.1 -> 80.9	99050		
8:2FTS	8.020	527.1 -> 507.0	244375	191.15 µg/L	98
		527.1 -> 80.8	61266		
EtFOSAA	8.474	584.2 -> 419.1	174199	63.69 µg/L	m 96
		584.2 -> 526.0	95176		
FOSA	9.942	498.1 -> 77.9	398482	59.68 µg/L	100
		498.1 -> 478.0	14101		
MeFOSAA	8.278	570.1 -> 419.0	238345	62.52 µg/L	96
		570.1 -> 483.0	41378		
PFBA	3.106	212.8 -> 168.9	472246	261.15 µg/L	100
PFBS	5.927	298.7 -> 79.9	284115	56.57 µg/L	93
		298.7 -> 98.8	128454		
PFDA	8.233	512.9 -> 469.0	994653	63.28 µg/L	95
		512.9 -> 219.0	140303		
PFDoDA	9.117	613.1 -> 569.0	900374	60.21 µg/L	97
		613.1 -> 319.0	111462		
PFDS	9.381	599.0 -> 79.9	136750	60.31 µg/L	97

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	70896			
PFHpA	6.681	363.1 -> 319.0	1152198	61.35	µg/L	99
		363.1 -> 169.0	167648			
PFHpS	8.028	449.0 -> 79.9	175951	55.89	µg/L	98
		449.0 -> 98.9	105463			
PFHxA	5.813	313.0 -> 269.0	765602	65.36	µg/L	99
		313.0 -> 118.9	29952			
PFHxS	7.499	398.7 -> 79.9	211005	53.65	µg/L	m 98
		398.7 -> 98.9	113913			
PFNA	7.779	463.0 -> 419.0	542111	58.75	µg/L	100
		463.0 -> 219.0	112958			
PFNS	8.961	548.8 -> 79.9	193190	59.86	µg/L	93
		548.8 -> 98.9	108797			
PFOA	7.273	413.0 -> 369.0	1398461	59.79	µg/L	97
		413.0 -> 169.0	208814			
PFOS	8.508	498.9 -> 79.9	183732	55.50	µg/L	m 90
		498.9 -> 98.8	130544			
PFPeA	4.629	263.0 -> 219.0	1004307	128.69	µg/L	100
PFPeS	6.869	349.1 -> 79.9	253960	54.62	µg/L	99
		349.1 -> 98.9	127506			
PFTeDA	9.869	713.1 -> 669.0	965402	61.85	µg/L	100
		713.1 -> 168.9	65550			
PFTrDA	9.513	663.0 -> 619.0	826148	55.36	µg/L	98
		663.0 -> 168.9	71419			
PFUnDA	8.687	563.1 -> 519.0	822365	62.04	µg/L	100
		563.1 -> 269.1	125766			
11CI-PF3OUdS	9.651	630.9 -> 450.9	1785698	239.77	µg/L	98
		632.9 -> 452.9	592196			
9CI-PF3ONS	8.838	530.8 -> 351.0	3153007	232.95	µg/L	99
		532.8 -> 353.0	1000284			
ADONA	6.916	376.9 -> 250.9	6220012	234.91	µg/L	97
		376.9 -> 84.8	1305913			
HFPO-DA	6.152	284.9 -> 168.9	329597	261.59	µg/L	99
		284.9 -> 184.9	38446			
3:3FTCA	4.026	241.0 -> 177.0	134240	338.38	µg/L	97
		241.0 -> 117.0	19101			
5:3FTCA	6.407	341.0 -> 237.1	3656868	1429.75	µg/L	91
		341.0 -> 217.0	3305031			
7:3FTCA	7.742	441.0 -> 316.9	1926155	1569.98	µg/L	92
		441.0 -> 336.9	3441700			
EtFOSA	11.178	526.0 -> 219.0	194009	66.20	µg/L	96
		526.0 -> 169.0	188236			
EtFOSE	11.123	630.0 -> 58.9	373385	686.21	µg/L	100
MeFOSA	10.958	511.9 -> 219.0	179691	60.01	µg/L	99
		511.9 -> 169.0	179942			
MeFOSE	10.877	616.1 -> 58.9	545552	593.83	µg/L	100
PFDoDS	10.070	699.1 -> 79.9	83446	60.78	µg/L	93
		699.1 -> 98.8	52507			
NFDHA	5.693	295.0 -> 201.0	95172	118.07	µg/L	91
		295.0 -> 84.9	42875			
PFMBA	5.026	279.0 -> 85.1	336644	128.42	µg/L	100
PFMPA	3.729	229.0 -> 84.9	307959	134.85	µg/L	100
PFEESA	6.408	314.8 -> 134.9	1842328	109.45	µg/L	99
		314.8 -> 82.9	46210			

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



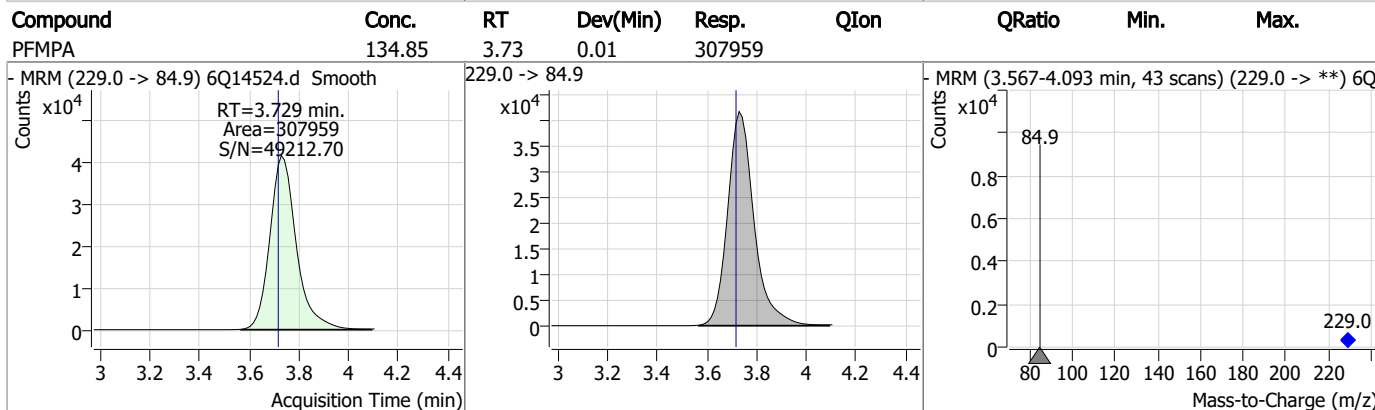
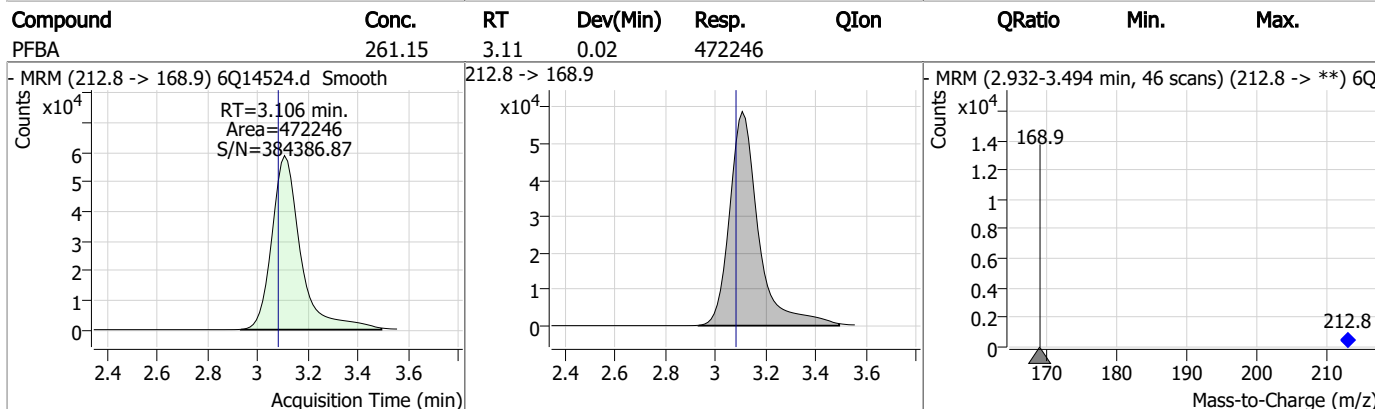
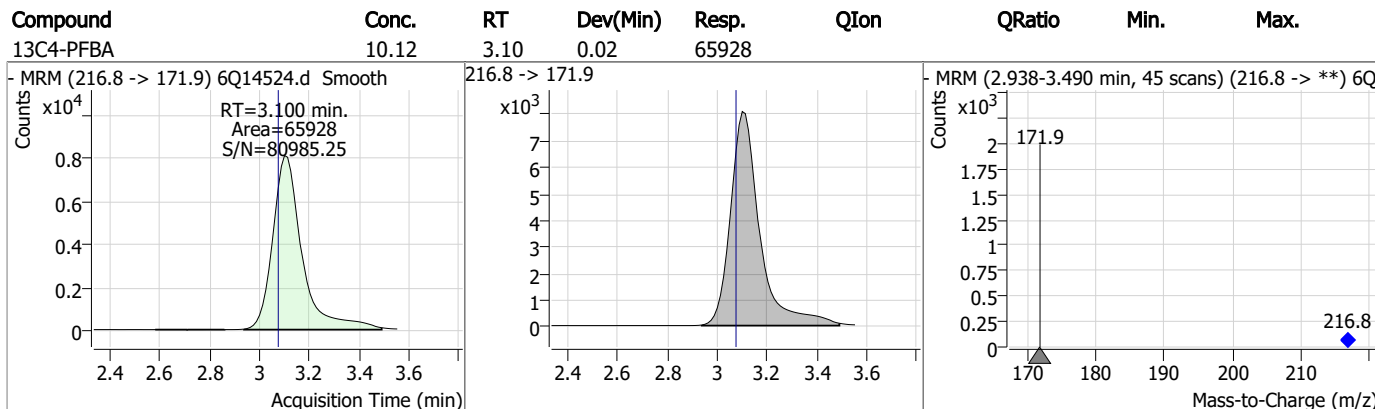
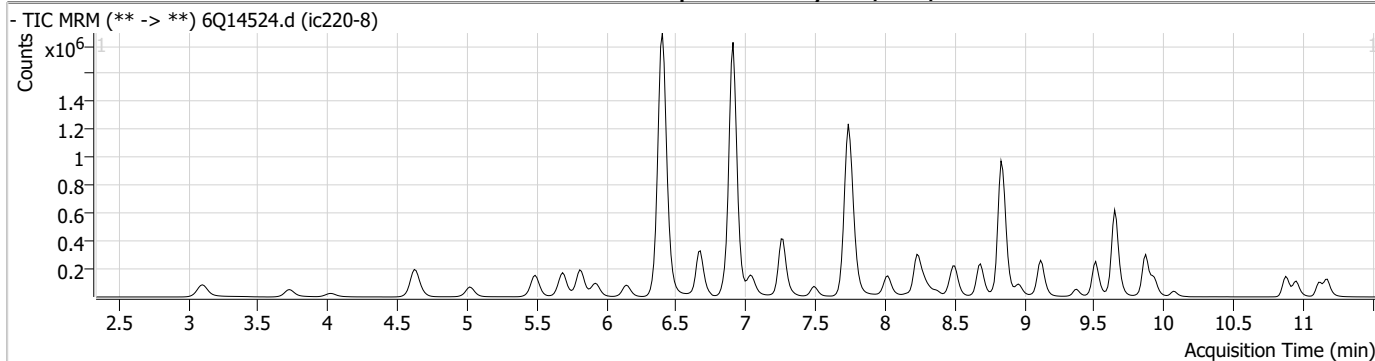
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.8.9

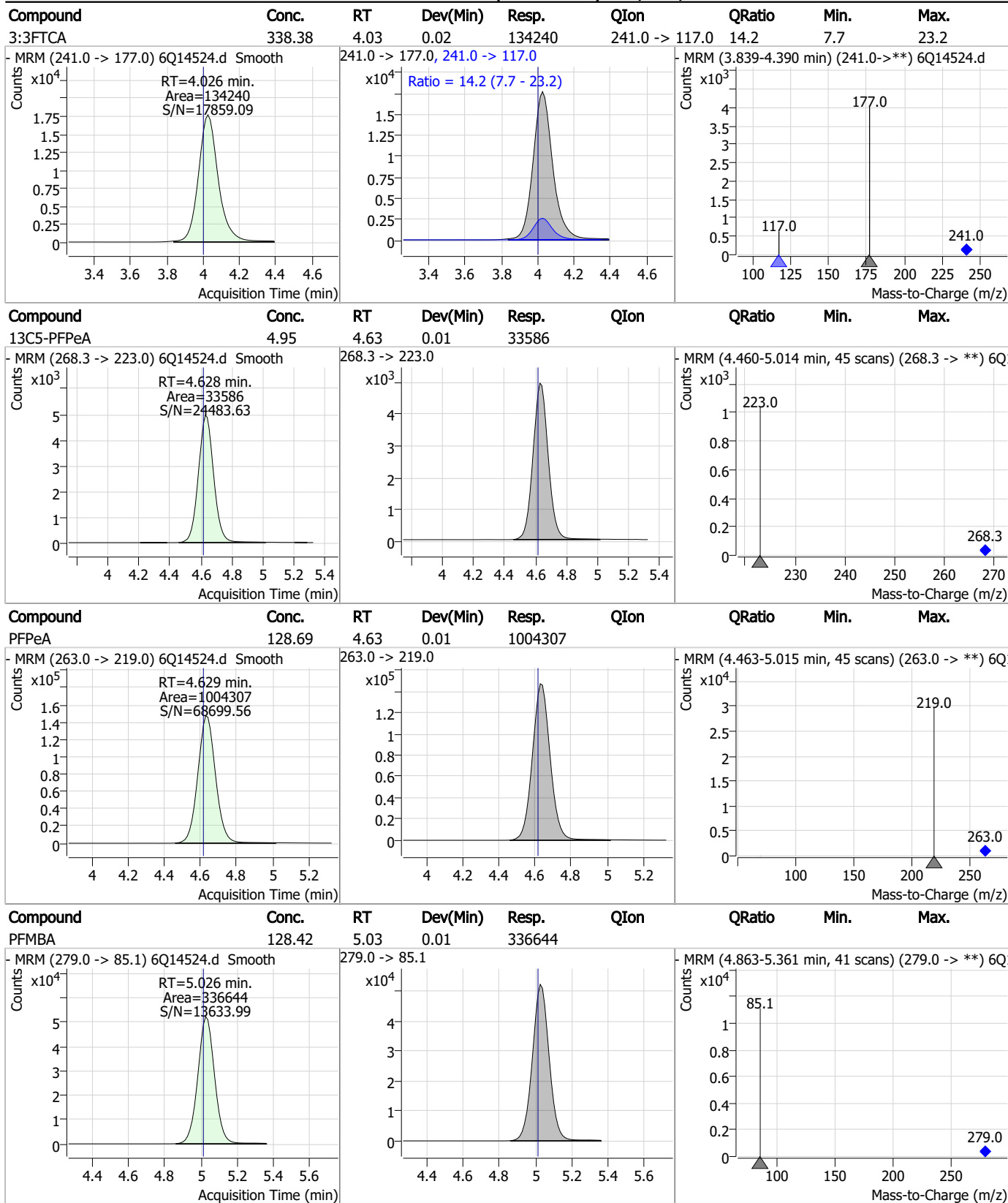
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Perfluorinated Compounds by LC/MS/MS



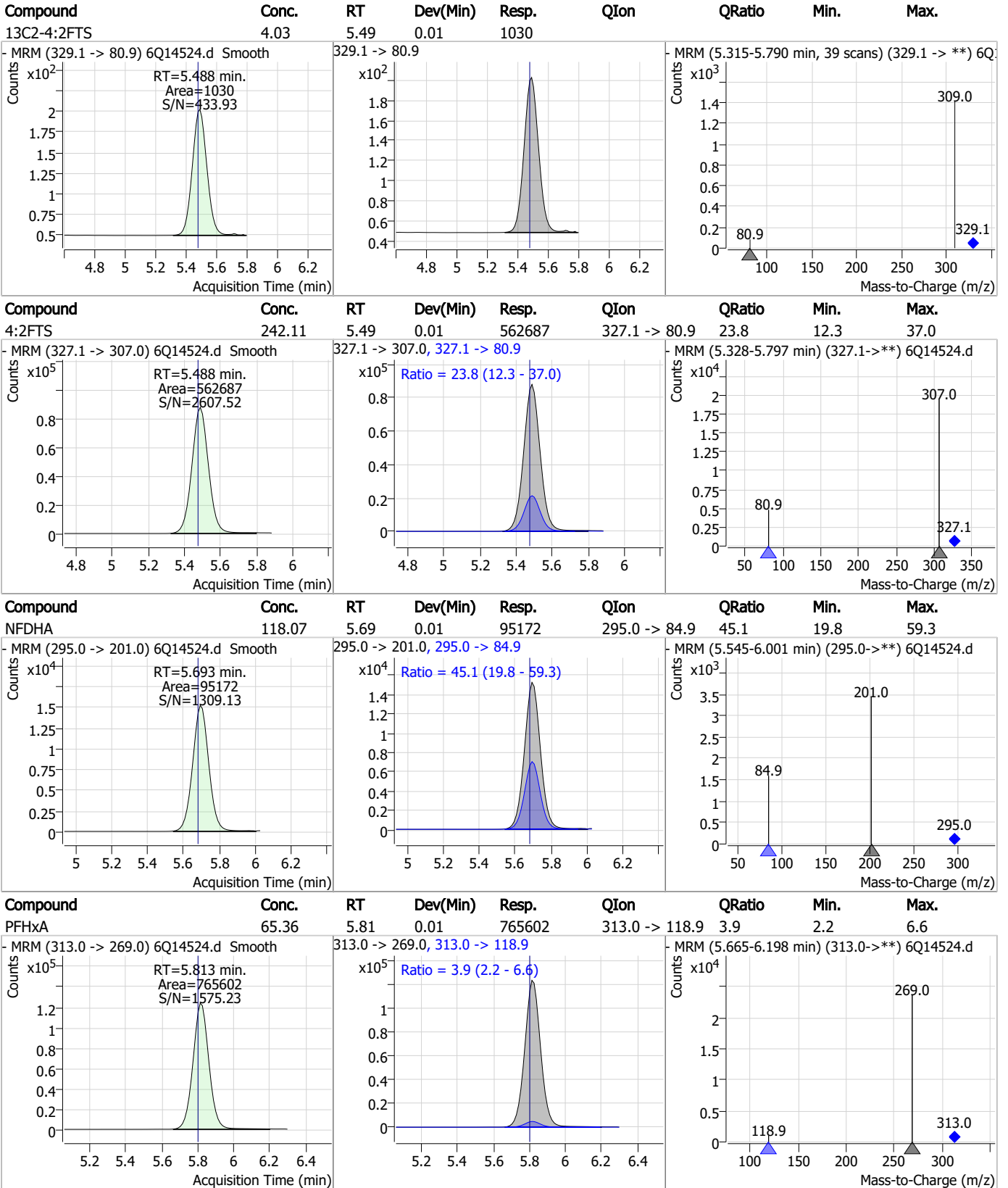
7.8.9

Perfluorinated Compounds by LC/MS/MS



7.8.9
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Perfluorinated Compounds by LC/MS/MS



7.8.9

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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.81	0.00	29492				
13C3-PFBS	2.56	5.93	0.02	11979				
PFBS	56.57	5.93	0.02	284115	298.7 -> 98.8	45.2	20.4	61.1
13C3-HFPO-DA	9.62	6.15	0.00	12612				

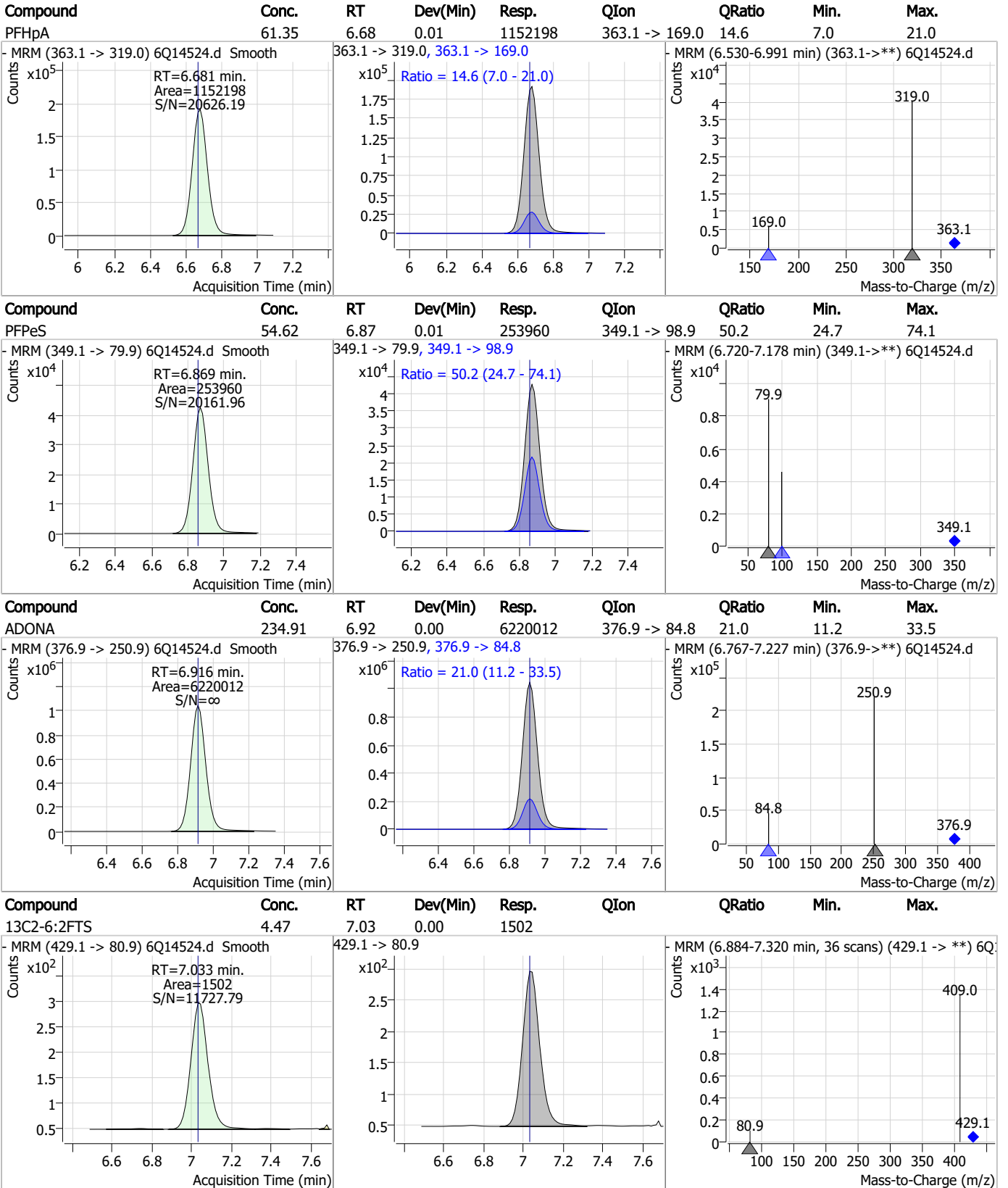
7.8.9
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	261.59	6.15	0.00	329597	284.9 -> 184.9	11.7	6.0	17.9
5:3FTCA	1429.75	6.41	0.01	3656868	341.0 -> 217.0	90.4	41.4	124.1
PFEESA	109.45	6.41	0.01	1842328	314.8 -> 82.9	2.5	1.3	4.0
13C4-PFHpA	2.56	6.68	0.01	29266	367.1 -> 322.0	-	-	-

7.8.9
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Perfluorinated Compounds by LC/MS/MS

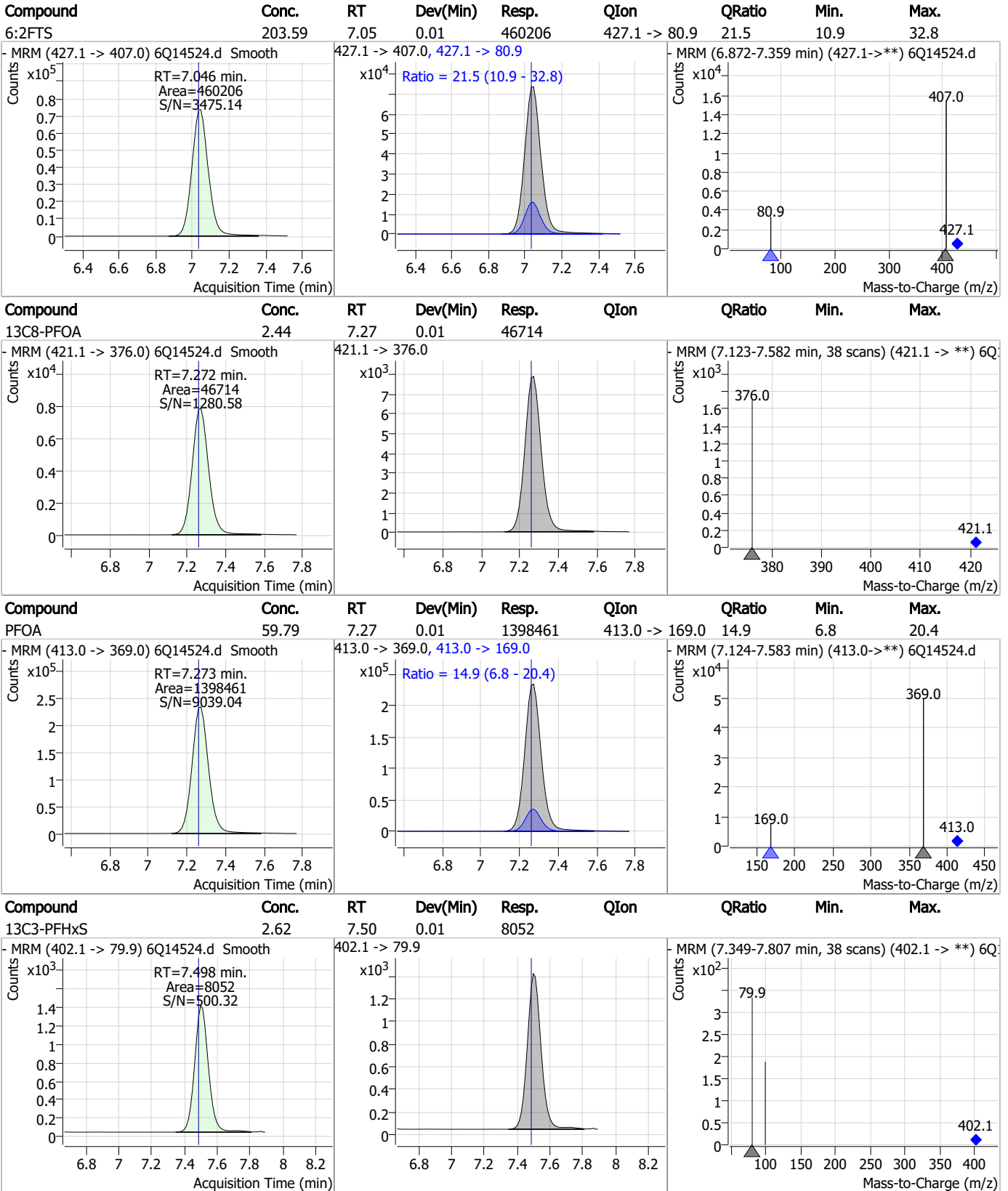


7.8.9

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Perfluorinated Compounds by LC/MS/MS



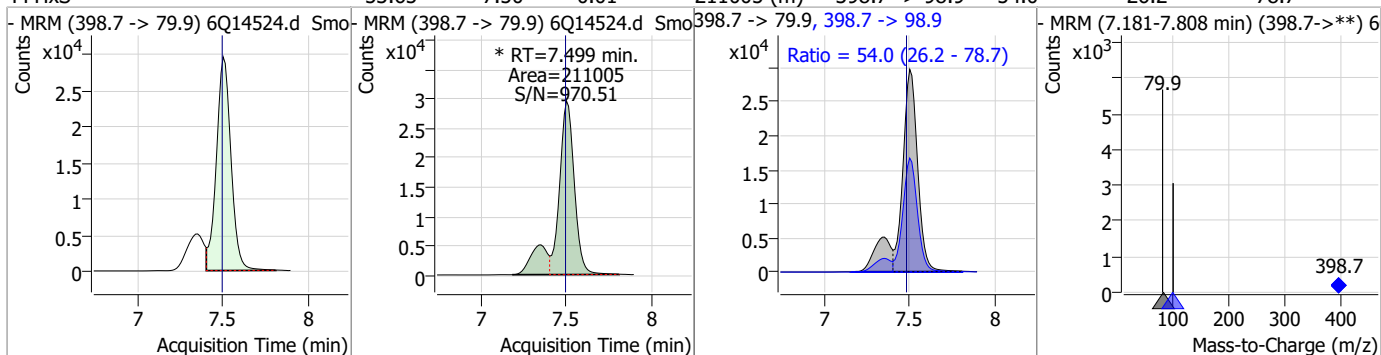
7.8.9

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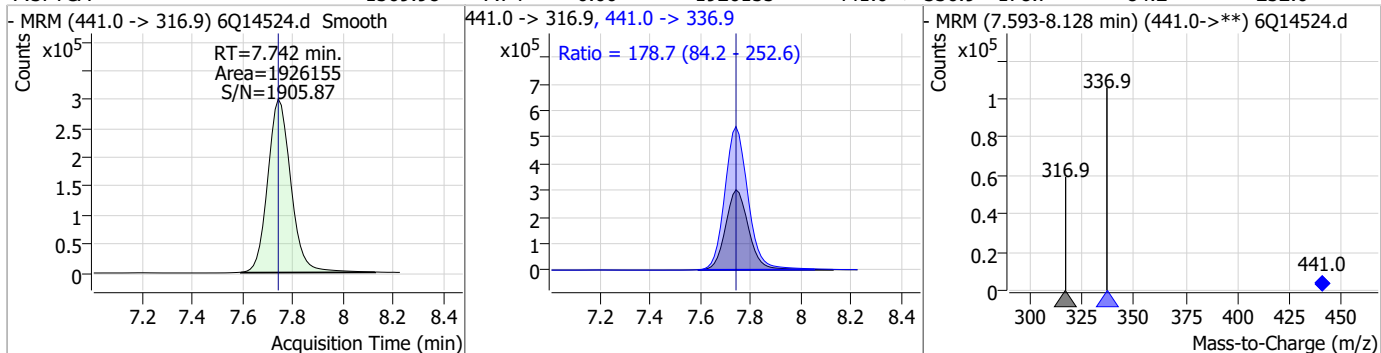


Perfluorinated Compounds by LC/MS/MS

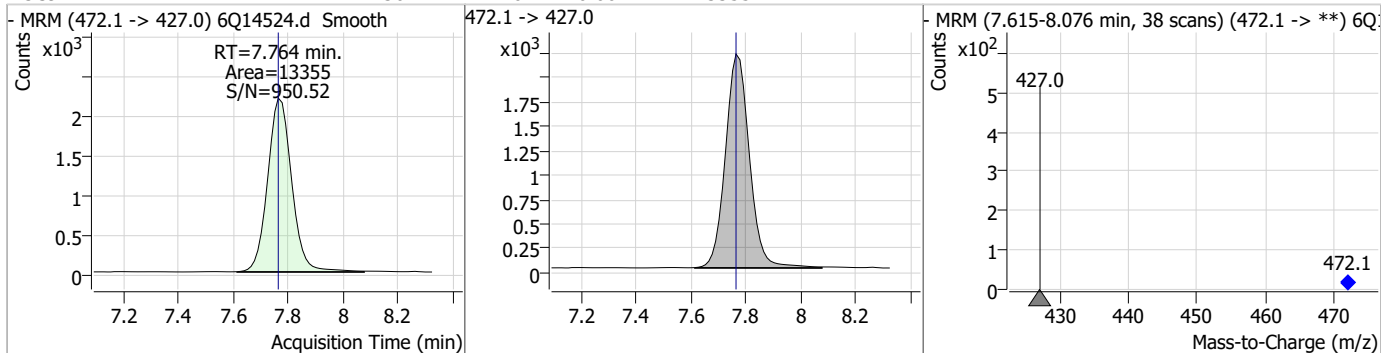
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	53.65	7.50	0.01	211005 (m)	398.7 -> 98.9	54.0	26.2	78.7



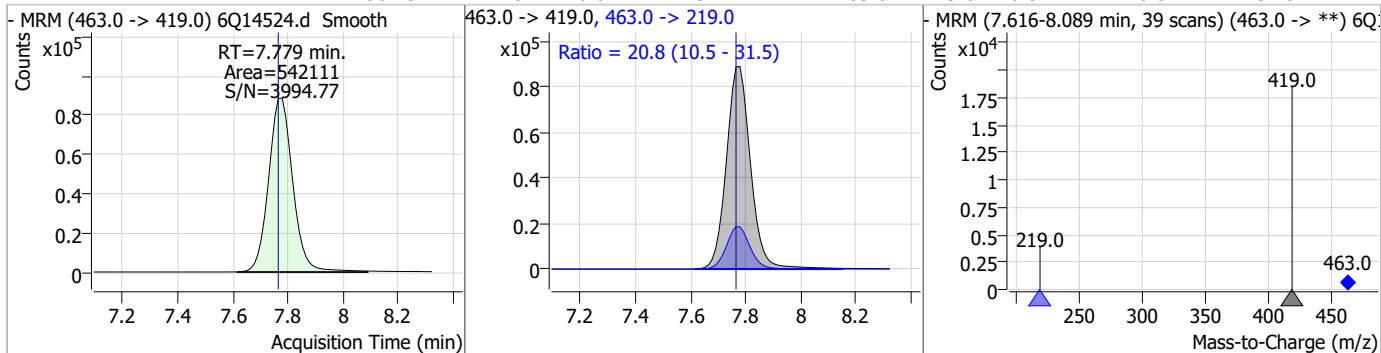
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	1569.98	7.74	0.00	1926155	441.0 -> 336.9	178.7	84.2	252.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.30	7.76	0.00	13355	472.1 -> 427.0			

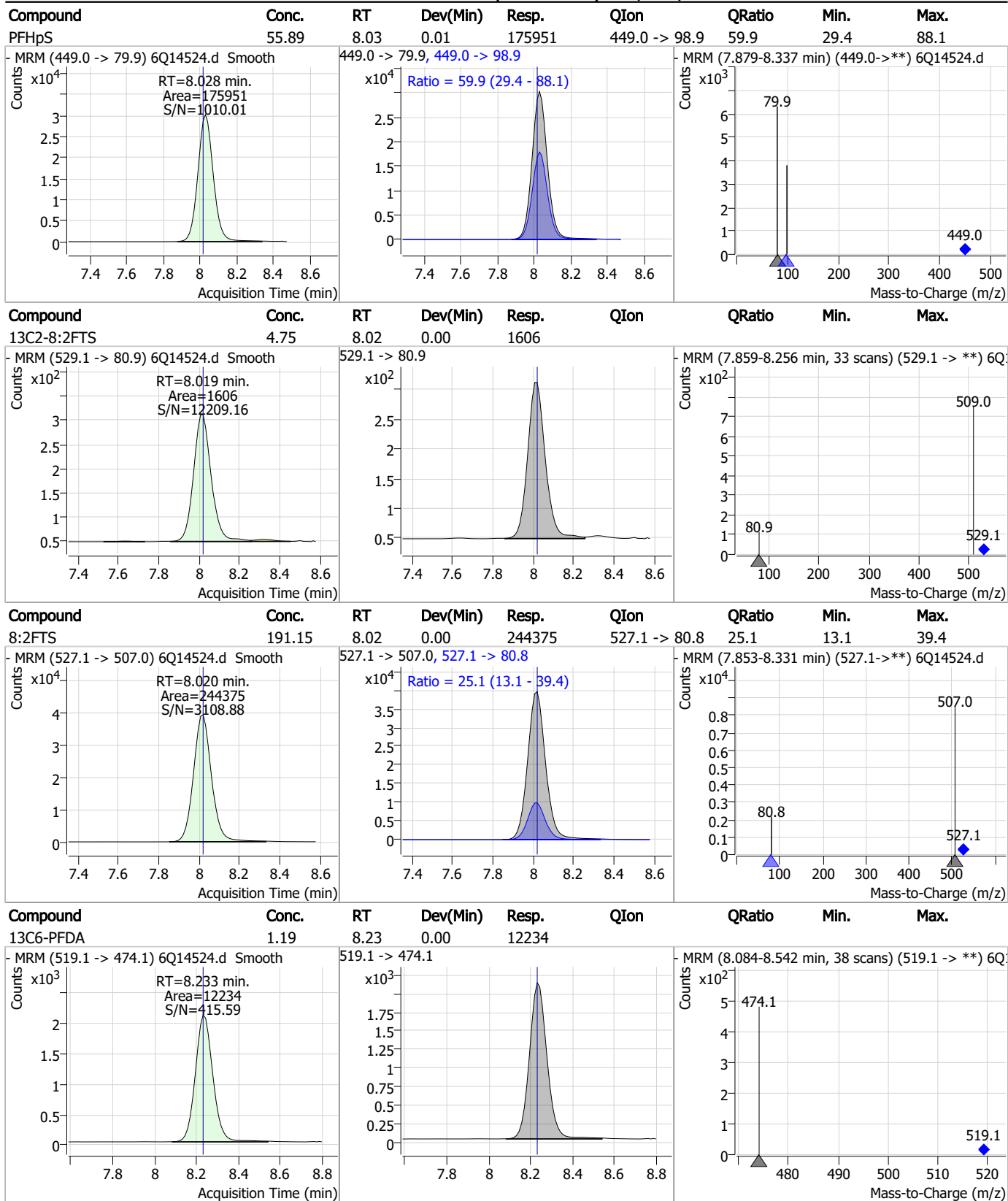


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	58.75	7.78	0.01	542111	463.0 -> 219.0	20.8	10.5	31.5



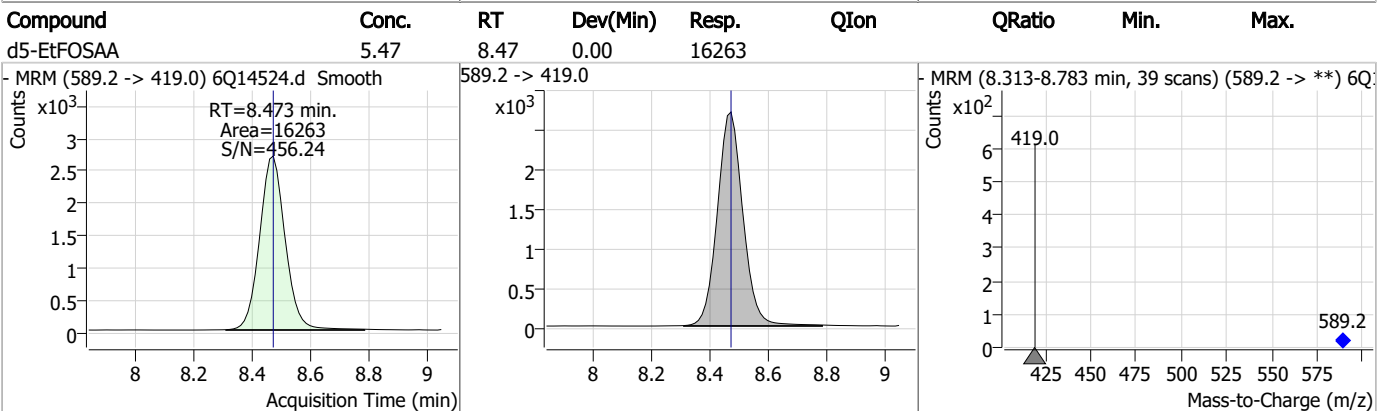
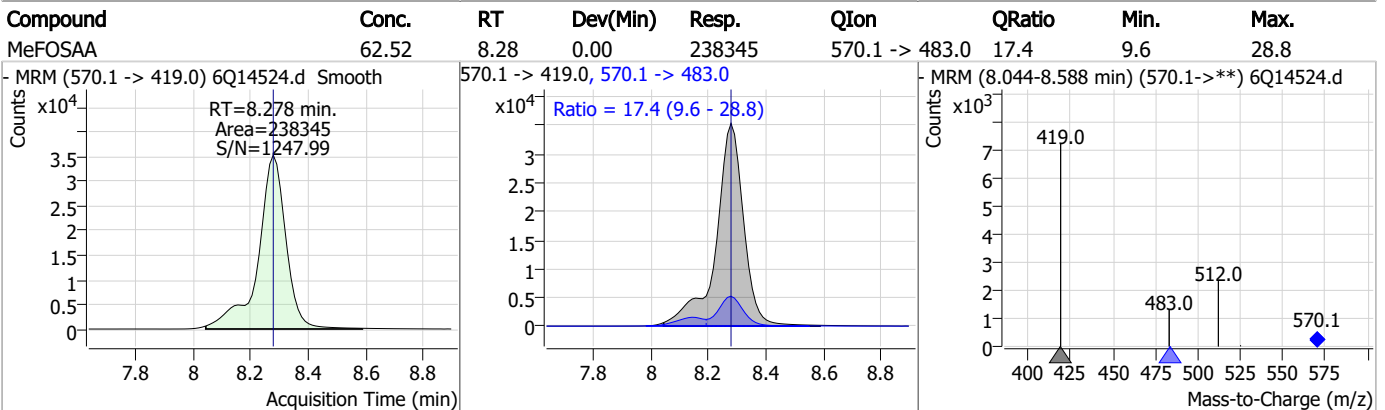
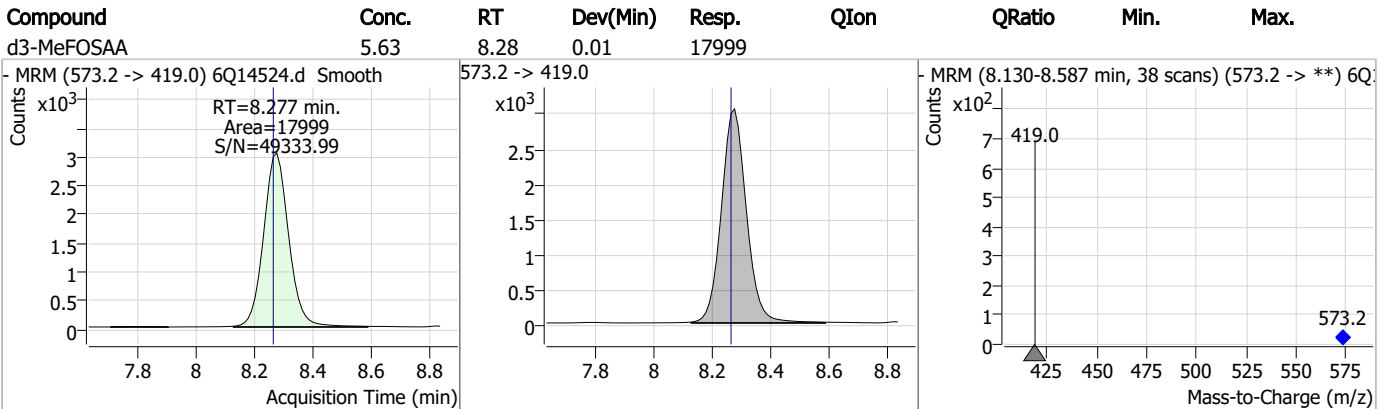
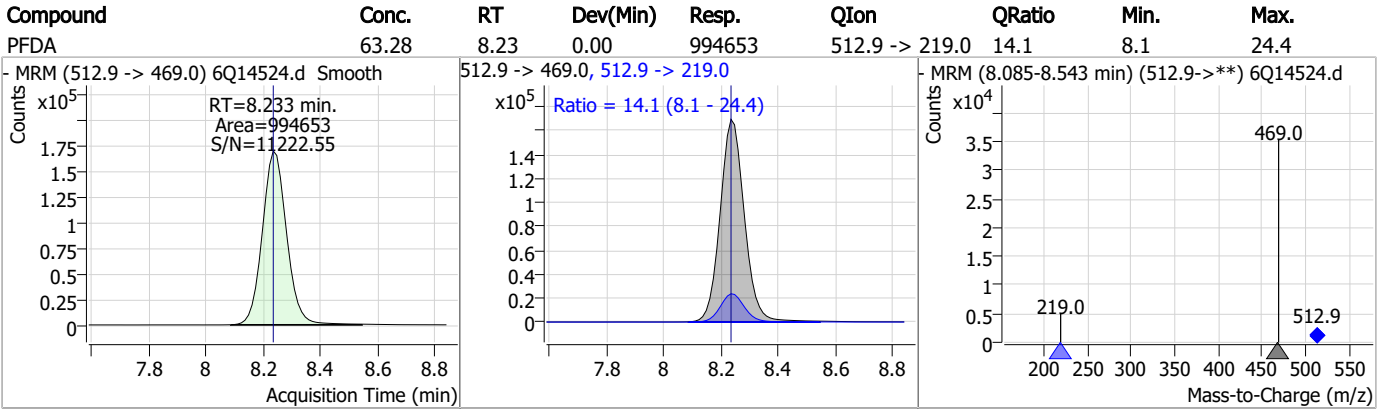
7.8.9

Perfluorinated Compounds by LC/MS/MS



7.8.9

Perfluorinated Compounds by LC/MS/MS

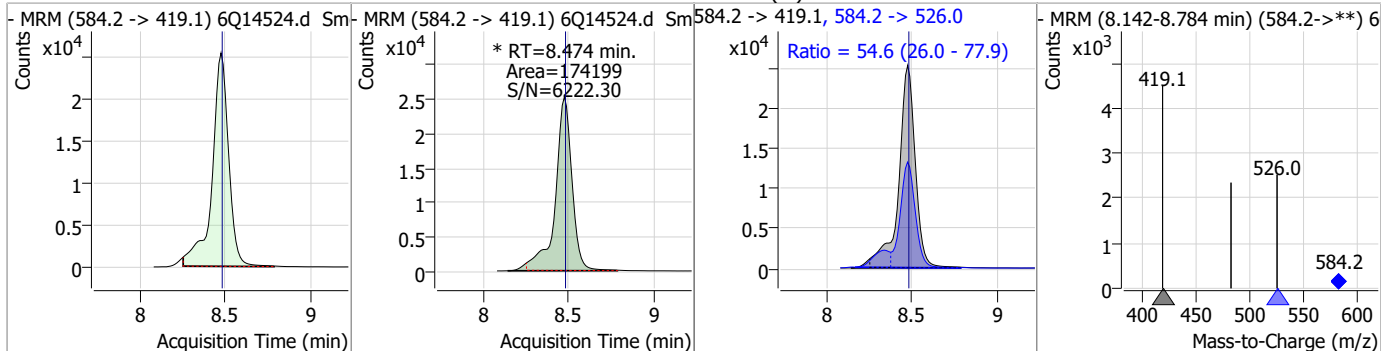


7.8.9

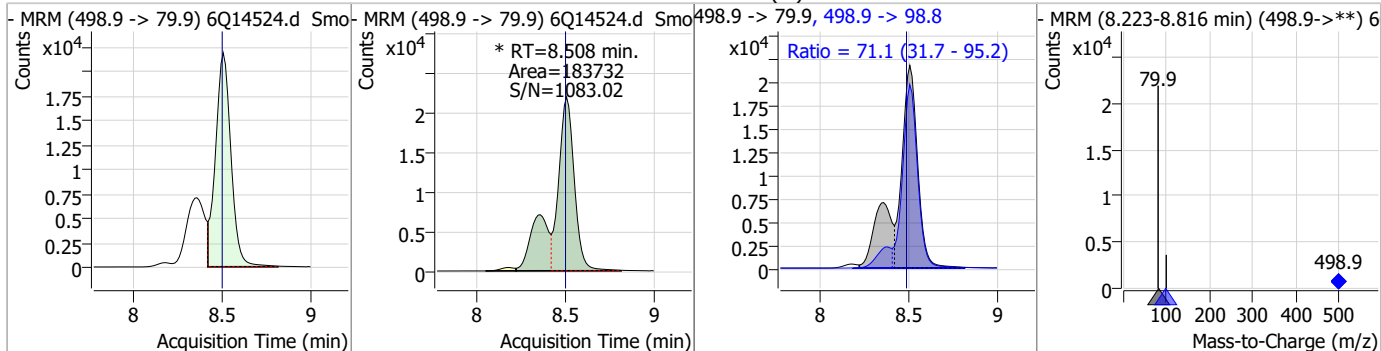
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Perfluorinated Compounds by LC/MS/MS

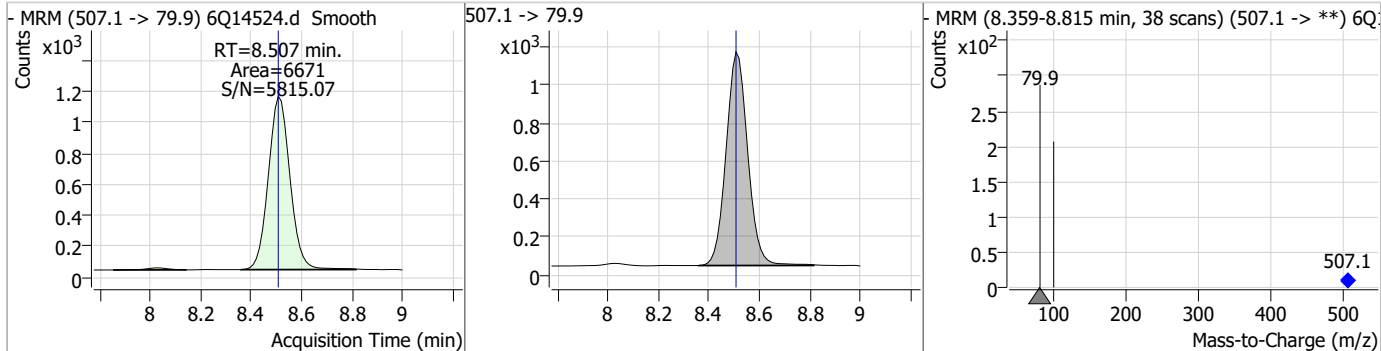
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	63.69	8.47	0.00	174199 (m)	584.2 -> 526.0	54.6	26.0	77.9



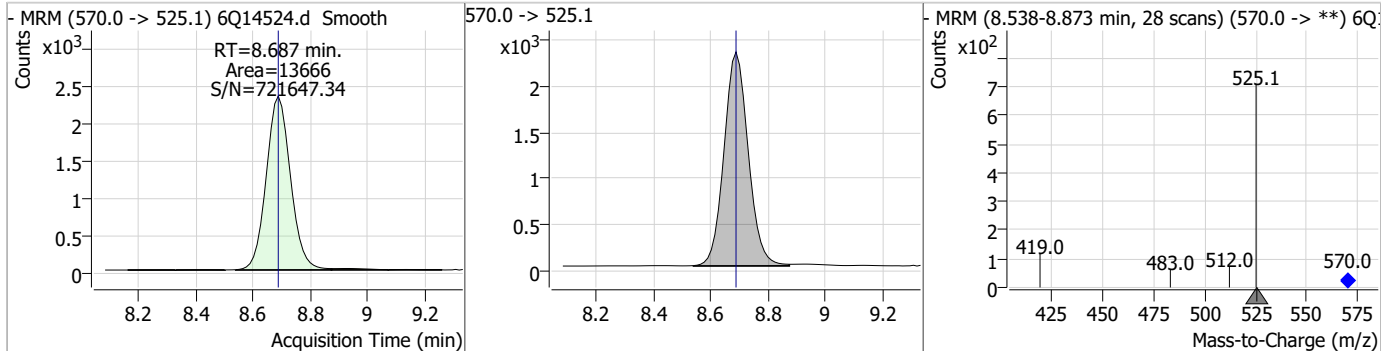
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	55.50	8.51	0.01	183732 (m)	498.9 -> 98.8	71.1	31.7	95.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.80	8.51	0.00	6671				

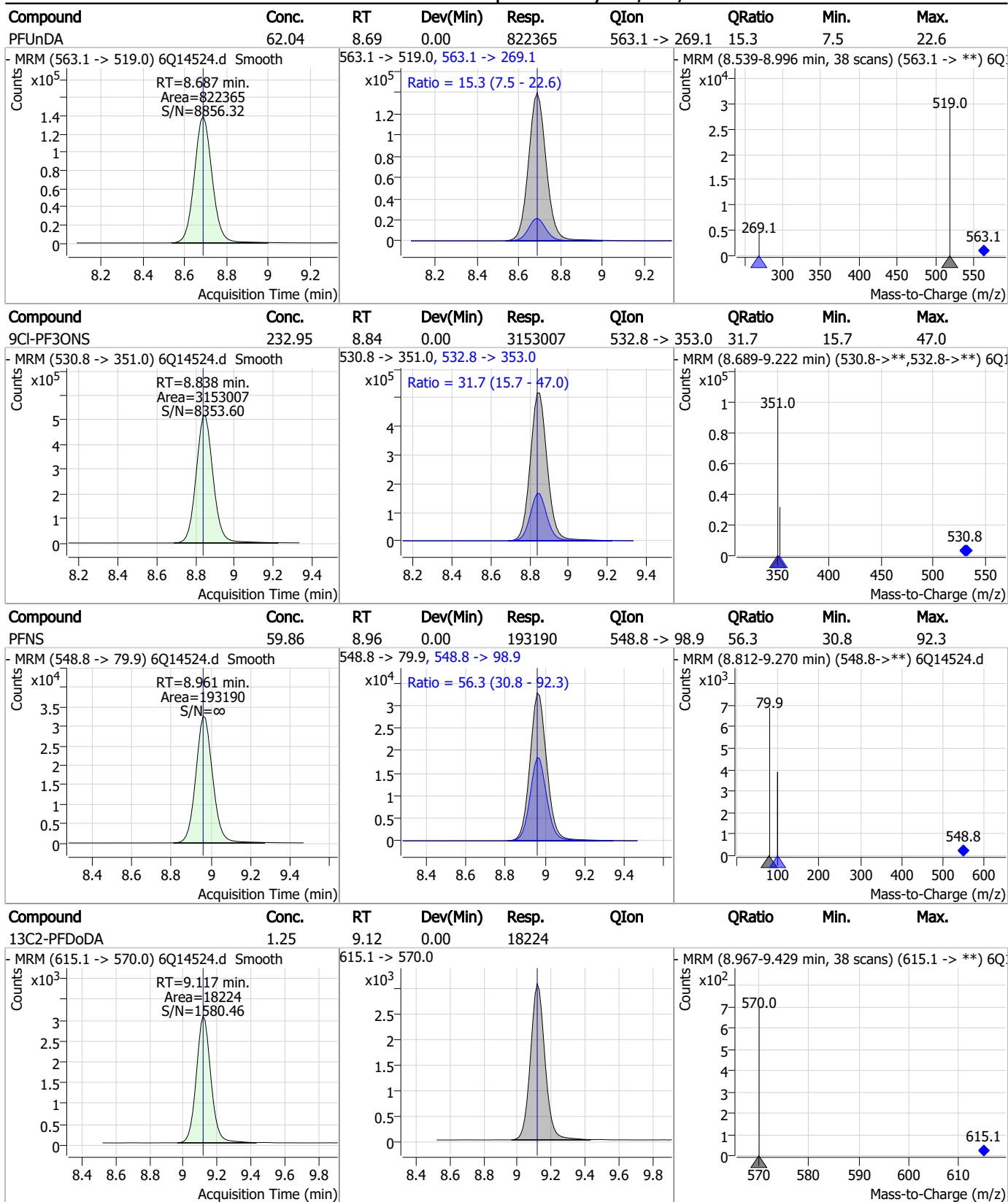


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.21	8.69	0.00	13666				



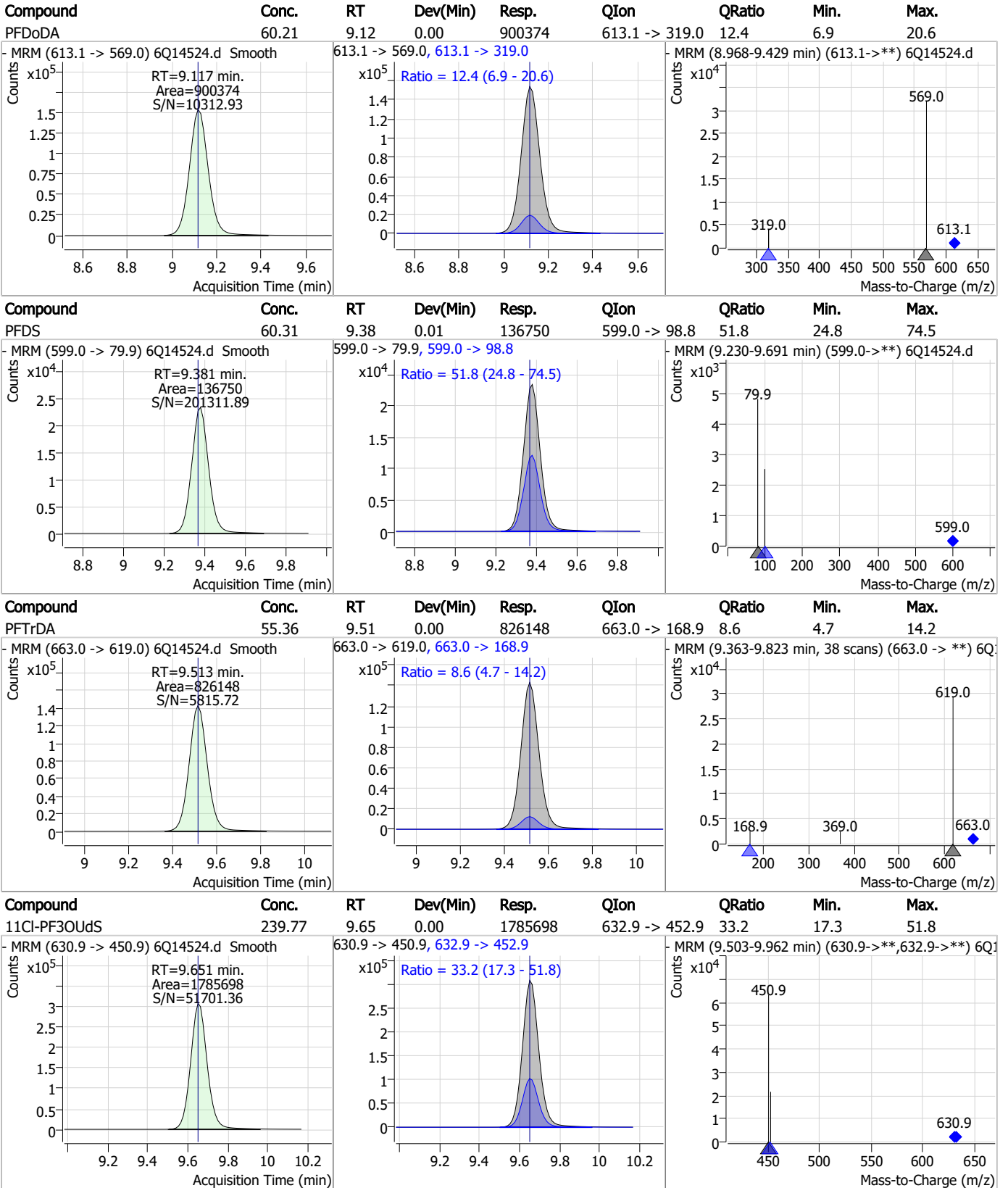
7.8.9
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Perfluorinated Compounds by LC/MS/MS



7.8.9
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Perfluorinated Compounds by LC/MS/MS

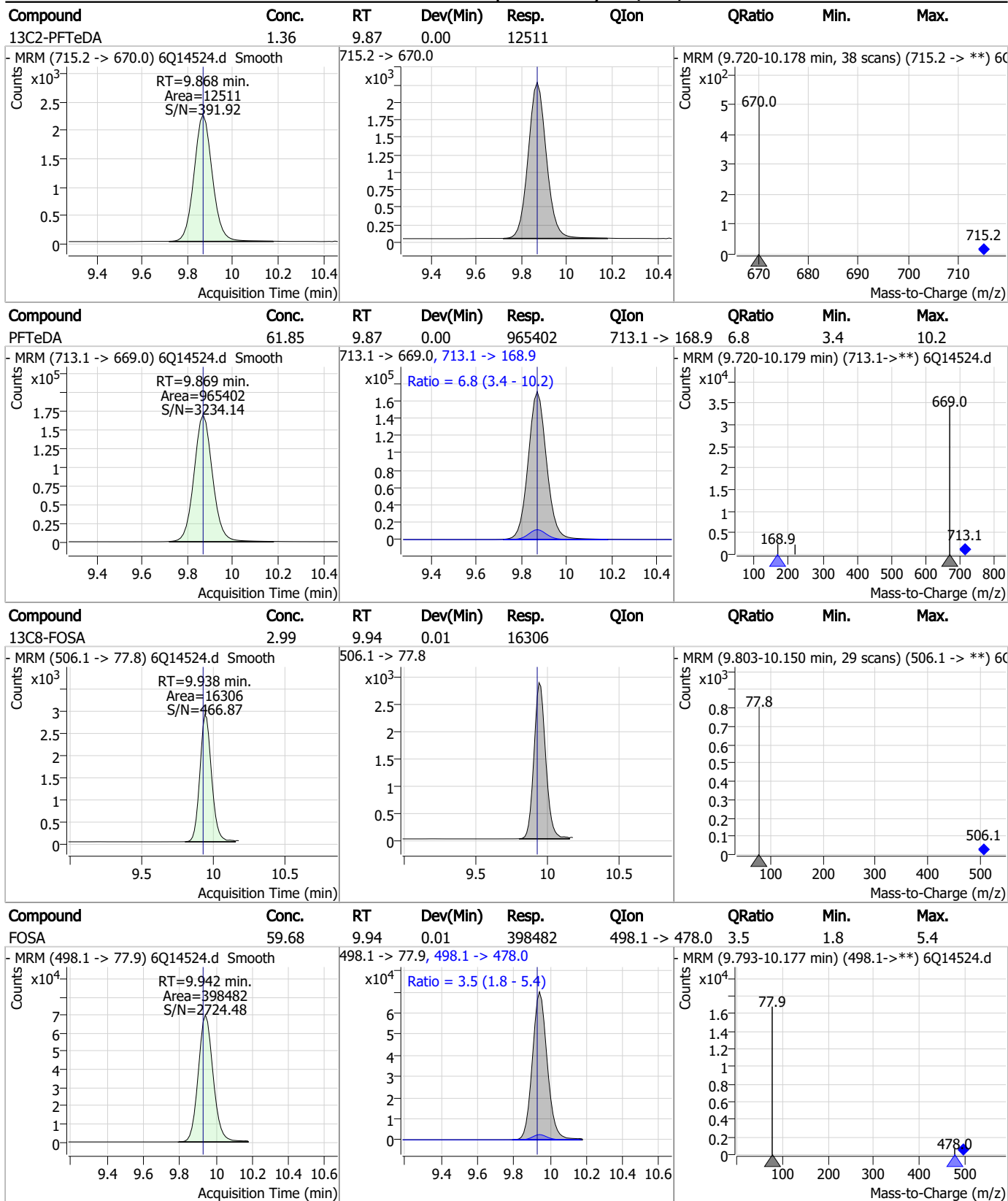


7.8.9

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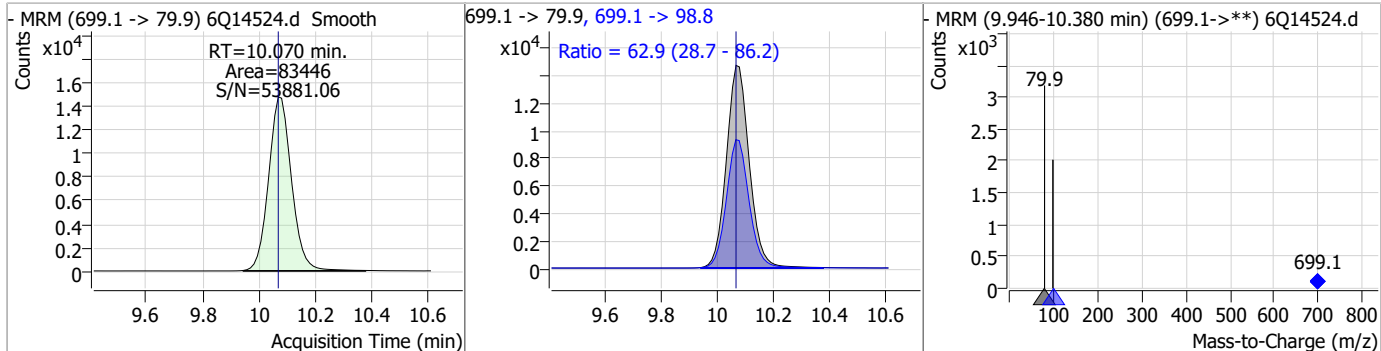
Perfluorinated Compounds by LC/MS/MS



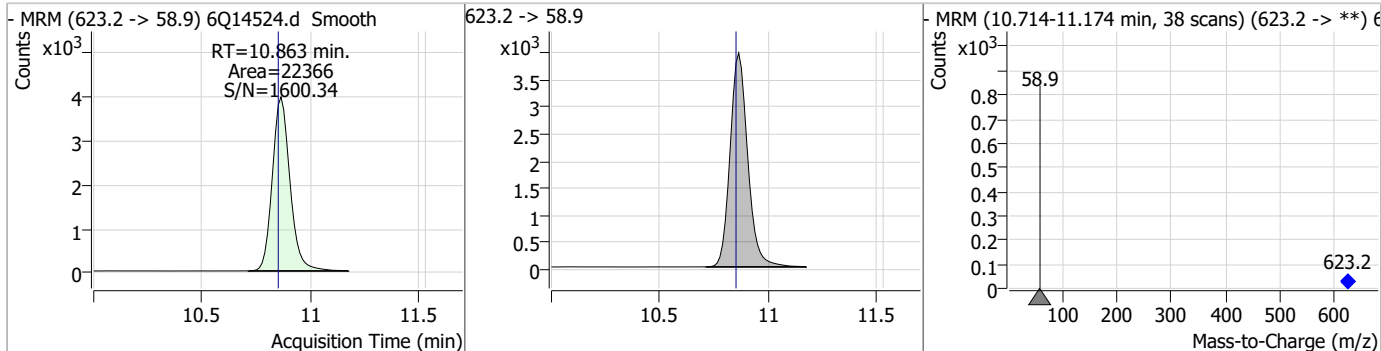
7.8.9
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Perfluorinated Compounds by LC/MS/MS

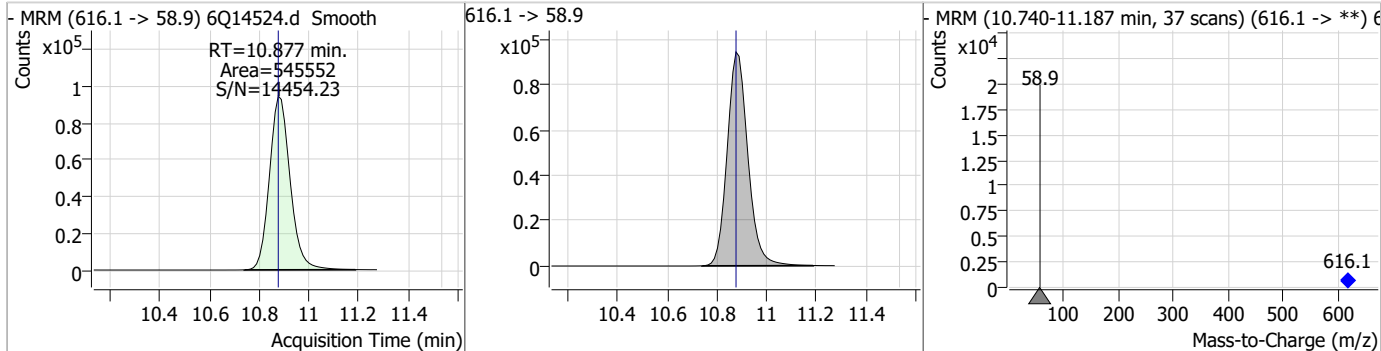
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	60.78	10.07	0.00	83446	699.1 -> 98.8	62.9	28.7	86.2



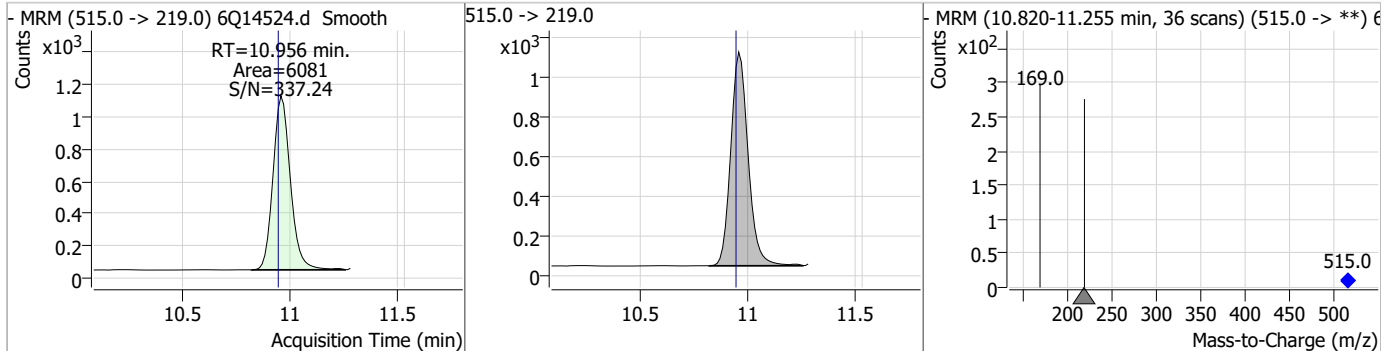
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.42	10.86	0.01	22366				



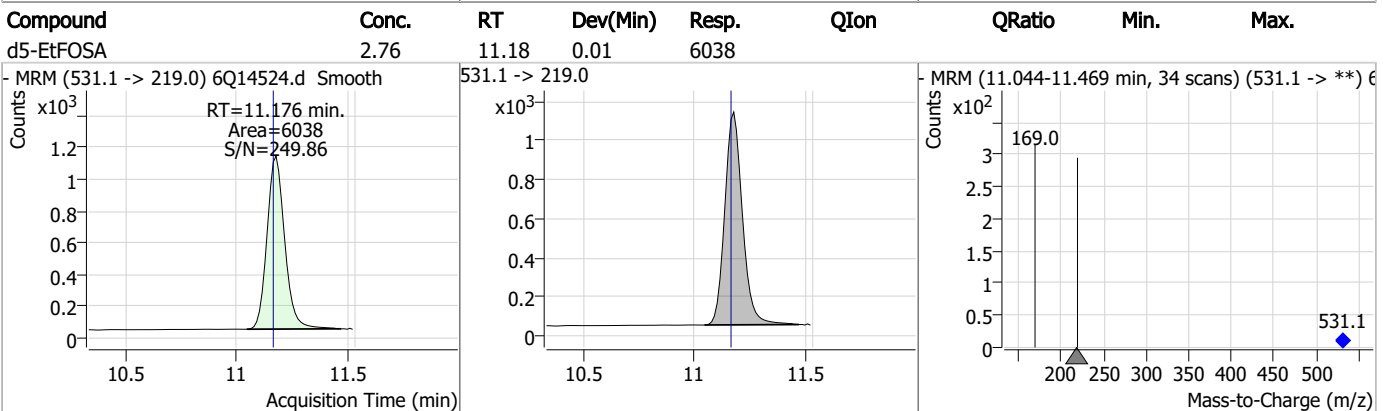
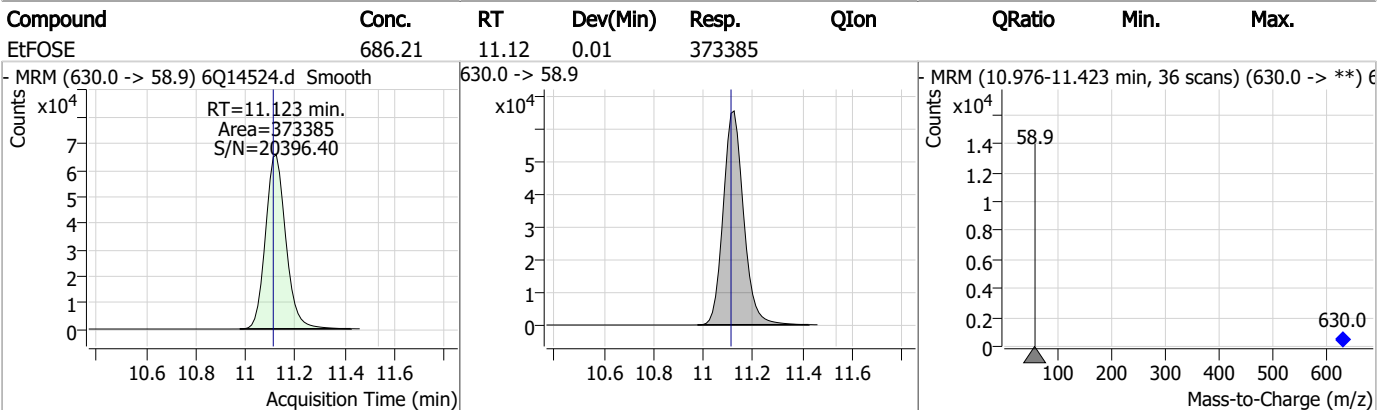
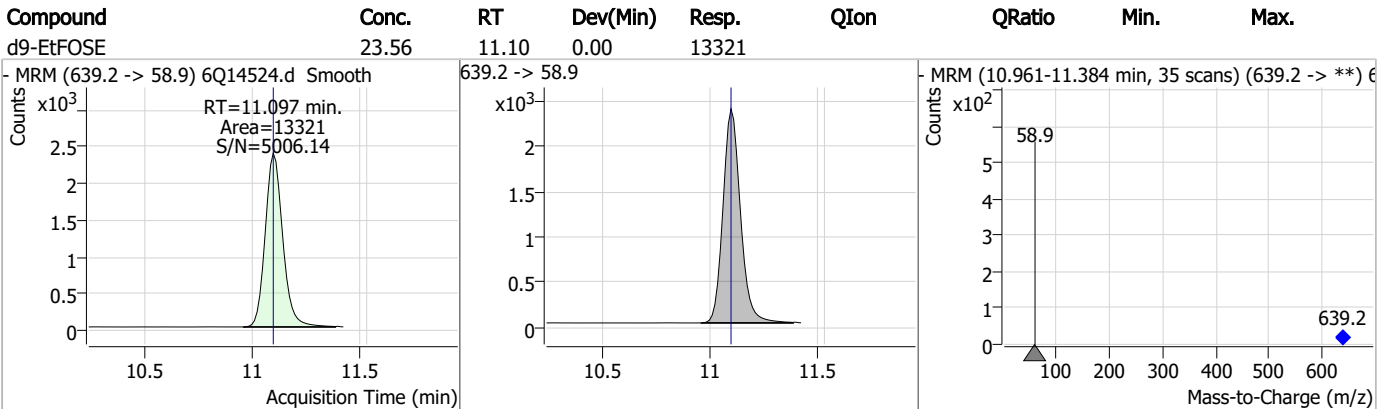
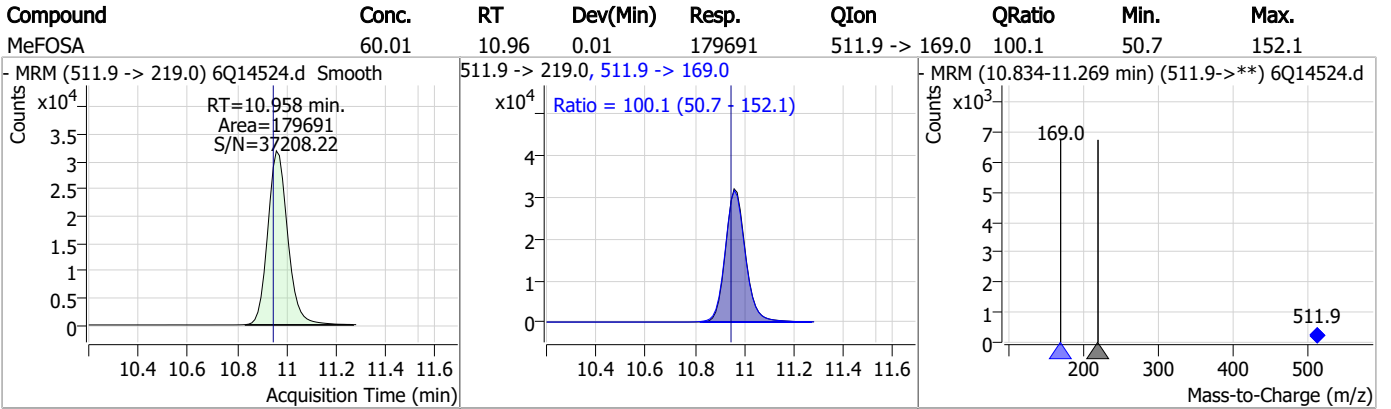
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	593.83	10.88	0.00	545552				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	3.06	10.96	0.01	6081				



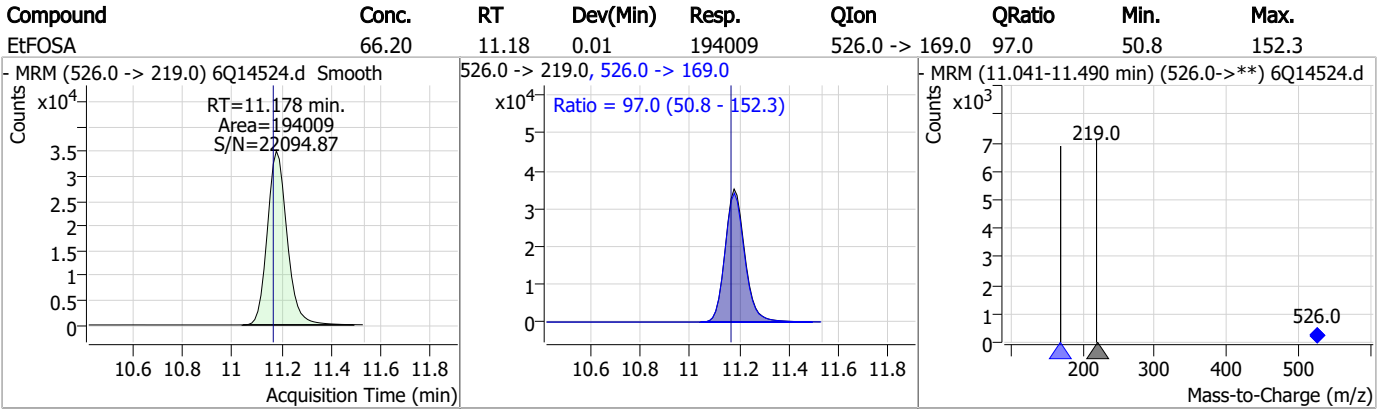
Perfluorinated Compounds by LC/MS/MS



7.8.9

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Perfluorinated Compounds by LC/MS/MS



7.8.9

7

Manual Integration Approval Summary

Sample Number: S6Q220-IC220 Method: EPA DRAFT 1633
Lab FileID: 6Q14524.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 14:38 Supervisor approved: 03/10/23 10:46 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.50	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.51	Split peak

7.8.9.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14526.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 3:06:04 PM
 Sample Name : icv220-4
 Vial : P1-B1
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.088	216.8 -> 171.9	76208	10.00 µg/L	0.012
M5-PFPeA	4.640	268.3 -> 223.0	37524	5.00 µg/L	0.025
M5-PFHxA	5.822	318.0 -> 273.0	32739	2.50 µg/L	0.012
M4-PFHpA	6.680	367.1 -> 322.0	32399	2.50 µg/L	0.012
M8-PFOA	7.272	421.1 -> 376.0	52762	2.50 µg/L	0.012
M9-PFNA	7.764	472.1 -> 427.0	12995	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	12614	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	15174	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	17414	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	13395	1.25 µg/L	0.000
M8-FOSA	9.951	506.1 -> 77.8	16634	2.50 µg/L	0.025
M3-PFBS	5.938	302.1 -> 79.9	12756	2.50 µg/L	0.037
M3-PFHxS	7.511	402.1 -> 79.9	8408	2.50 µg/L	0.025
M8-PFOS	8.507	507.1 -> 79.9	7736	2.50 µg/L	0.000
M2-4:2FTS	5.500	329.1 -> 80.9	1542	5.00 µg/L	0.025
M2-6:2FTS	7.046	429.1 -> 80.9	1966	5.00 µg/L	0.012
M2-8:2FTS	8.019	529.1 -> 80.9	1723	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	20688	5.00 µg/L	0.012
M3-HFPO-DA	6.163	286.9 -> 168.9	14621	10.00 µg/L	0.012
M5-EtFOSAA	8.473	589.2 -> 419.0	17865	5.00 µg/L	0.000
M7-MeFOSE	10.863	623.2 -> 58.9	25185	25.00 µg/L	0.012
M9-EtFOSE	11.097	639.2 -> 58.9	16931	25.00 µg/L	0.000
M5-EtFOSA	11.176	531.1 -> 219.0	6548	2.50 µg/L	0.012
M3-MeFOSA	10.956	515.0 -> 219.0	5718	2.50 µg/L	0.012
13C4-PFOS	8.508	502.8 -> 79.9	8239	2.50 µg/L	0.012
13C3-PFBA	3.091	216.0 -> 172.0	33129	5.00 µg/L	0.012
18O2-PFHxS	7.510	403.0 -> 83.9	5540	2.50 µg/L	0.012
13C4-PFOA	7.272	417.1 -> 372.0	61303	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	18270	1.25 µg/L	0.000
13C5-PFNA	7.779	468.0 -> 423.0	14297	1.25 µg/L	0.014
13C2-PFHxA	5.823	315.1 -> 270.0	31319	2.50 µg/L	0.024
System Monitoring Compounds					
13C2-4:2FTS	5.500	329.1 -> 80.9	1542	5.85 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.9%		
13C2-6:2FTS	7.046	429.1 -> 80.9	1966	5.67 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.3%		
13C2-8:2FTS	8.019	529.1 -> 80.9	1723	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C2-PFDoDA	9.117	615.1 -> 570.0	17414	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.0%		
13C2-PFTeDA	9.868	715.2 -> 670.0	13395	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.0%		
13C3-PFBS	5.938	302.1 -> 79.9	12756	2.64 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C3-PFHxS	7.511	402.1 -> 79.9	8408	2.65 µg/L	0.025

7.8.10
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C4-PFBA	3.088	216.8 -> 171.9	76208	10.01 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.680	367.1 -> 322.0	32399	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFHxA	5.822	318.0 -> 273.0	32739	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFPeA	4.640	268.3 -> 223.0	37524	5.05 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C6-PFDA	8.233	519.1 -> 474.1	12614	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C7-PFUnDA	8.687	570.0 -> 525.1	15174	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-FOSA	9.951	506.1 -> 77.8	16634	2.57 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C8-PFOA	7.272	421.1 -> 376.0	52762	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C8-PFOS	8.507	507.1 -> 79.9	7736	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C9-PFNA	7.764	472.1 -> 427.0	12995	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.3%	
d3-MeFOSAA	8.277	573.2 -> 419.0	20688	5.45 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C3-HFPO-DA	6.163	286.9 -> 168.9	14621	10.19 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d3-MeFOSA	10.956	515.0 -> 219.0	5718	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
d5-EtFOSAA	8.473	589.2 -> 419.0	17865	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
d7-MeFOSE	10.863	623.2 -> 58.9	25185	26.04 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
d9-EtFOSE	11.097	639.2 -> 58.9	16931	25.25 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d5-EtFOSA	11.176	531.1 -> 219.0	6548	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
Target Compounds					QValue
4:2FTS	5.500	327.1 -> 307.0	32451	9.32 µg/L	99
		327.1 -> 80.9	8127		
6:2FTS	7.046	427.1 -> 407.0	30417	10.28 µg/L	97
		427.1 -> 80.9	6188		
8:2FTS	8.020	527.1 -> 507.0	16616	12.12 µg/L	97
		527.1 -> 80.8	4102		
EtFOSAA	8.474	584.2 -> 419.1	7370	2.45 µg/L	m 99
		584.2 -> 526.0	3875		
FOSA	9.942	498.1 -> 77.9	16685	2.45 µg/L	99
		498.1 -> 478.0	677		
MeFOSAA	8.278	570.1 -> 419.0	10602	2.42 µg/L	m 95
		570.1 -> 483.0	1794		
PFBA	3.094	212.8 -> 168.9	20665	9.89 µg/L	100
PFBS	5.939	298.7 -> 79.9	12085	2.26 µg/L	98
		298.7 -> 98.8	5079		
PFDA	8.233	512.9 -> 469.0	43425	2.68 µg/L	93
		512.9 -> 219.0	5734		
PFDODA	9.117	613.1 -> 569.0	36401	2.55 µg/L	99
		613.1 -> 319.0	4802		
PFDS	9.381	599.0 -> 79.9	5543	2.11 µg/L	88

7.8.10
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3197			
PFHpA	6.681	363.1 -> 319.0	51126	2.46	µg/L	99
		363.1 -> 169.0	6972			
PFHpS	8.028	449.0 -> 79.9	8015	2.20	µg/L	98
		449.0 -> 98.9	4795			
PFHxA	5.825	313.0 -> 269.0	31731	2.44	µg/L	100
		313.0 -> 118.9	1389			
PFHxS	7.512	398.7 -> 79.9	8771	2.14	µg/L	m 95
		398.7 -> 98.9	4892			
PFNA	7.779	463.0 -> 419.0	22537	2.51	µg/L	98
		463.0 -> 219.0	4954			
PFNS	8.961	548.8 -> 79.9	8045	2.15	µg/L	99
		548.8 -> 98.9	4880			
PFOA	7.273	413.0 -> 369.0	64271	2.43	µg/L	99
		413.0 -> 169.0	8931			
PFOS	8.508	498.9 -> 79.9	8719	2.27	µg/L	m 96
		498.9 -> 98.8	5245			
PFPeA	4.642	263.0 -> 219.0	43537	4.99	µg/L	100
PFPeS	6.882	349.1 -> 79.9	11113	2.29	µg/L	97
		349.1 -> 98.9	5682			
PFTeDA	9.869	713.1 -> 669.0	41893	2.51	µg/L	98
		713.1 -> 168.9	3087			
PFTrDA	9.513	663.0 -> 619.0	35397	2.48	µg/L	98
		663.0 -> 168.9	3157			
PFUnDA	8.687	563.1 -> 519.0	36420	2.47	µg/L	99
		563.1 -> 269.1	5370			
11CI-PF3OUdS	9.651	630.9 -> 450.9	84070	9.74	µg/L	94
		632.9 -> 452.9	25901			
9CI-PF3ONS	8.851	530.8 -> 351.0	154538	9.85	µg/L	97
		532.8 -> 353.0	45783			
ADONA	6.928	376.9 -> 250.9	299032	9.74	µg/L	99
		376.9 -> 84.8	65721			
HFPO-DA	6.164	284.9 -> 168.9	14138	9.68	µg/L	99
		284.9 -> 184.9	1636			
3:3FTCA	4.014	241.0 -> 177.0	5511	12.43	µg/L	100
		241.0 -> 117.0	858			
5:3FTCA	6.419	341.0 -> 237.1	179684	63.28	µg/L	98
		341.0 -> 217.0	151437			
7:3FTCA	7.755	441.0 -> 316.9	89616	65.80	µg/L	97
		441.0 -> 336.9	154129			
EtFOSA	11.178	526.0 -> 219.0	7993	2.51	µg/L	95
		526.0 -> 169.0	7746			
EtFOSE	11.123	630.0 -> 58.9	17167	24.82	µg/L	100
MeFOSA	10.958	511.9 -> 219.0	7657	2.72	µg/L	98
		511.9 -> 169.0	7624			
MeFOSE	10.889	616.1 -> 58.9	24357	23.54	µg/L	100
PFDoDS	10.082	699.1 -> 79.9	3734	2.35	µg/L	94
		699.1 -> 98.8	2325			
NFDHA	5.705	295.0 -> 201.0	4460	4.98	µg/L	93
		295.0 -> 84.9	1963			
PFMBA	5.039	279.0 -> 85.1	14201	4.85	µg/L	100
PFMPA	3.729	229.0 -> 84.9	12427	4.87	µg/L	100
PFEESA	6.420	314.8 -> 134.9	85002	4.55	µg/L	99
		314.8 -> 82.9	2061			

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

7.8.10
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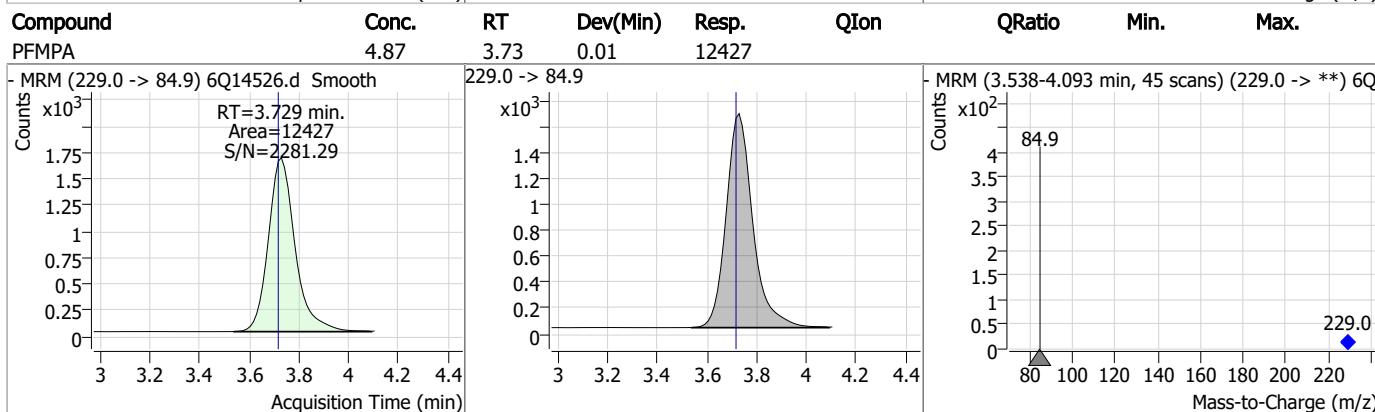
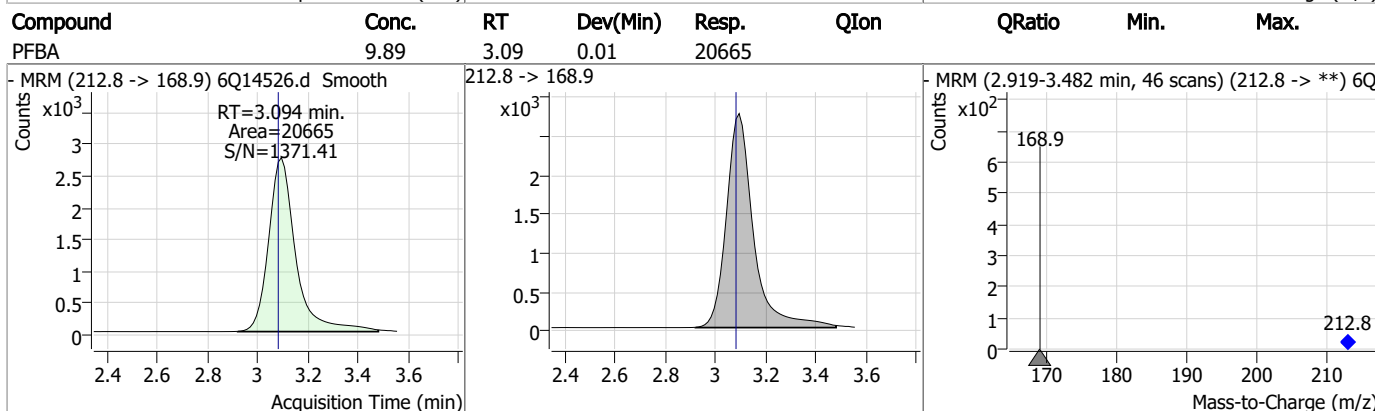
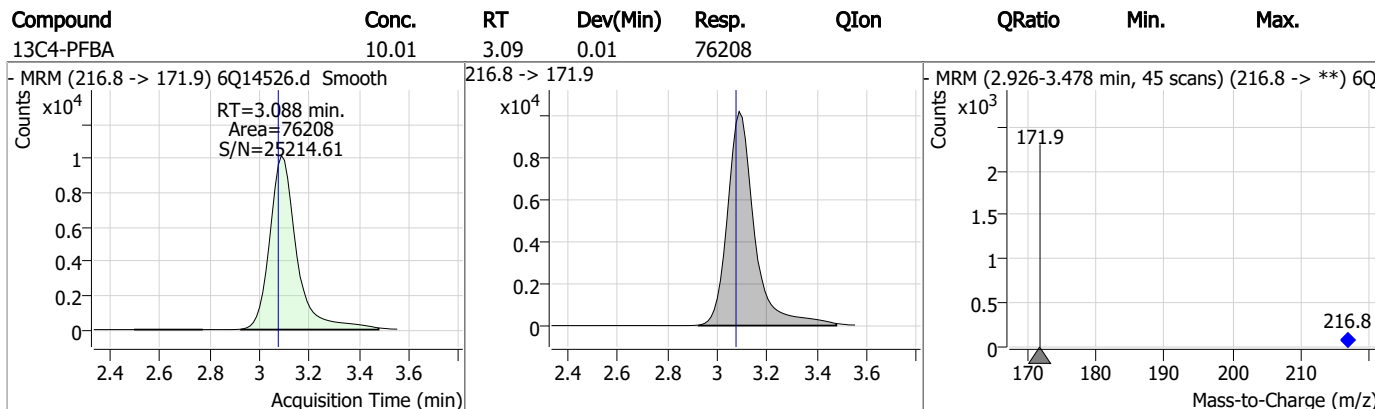
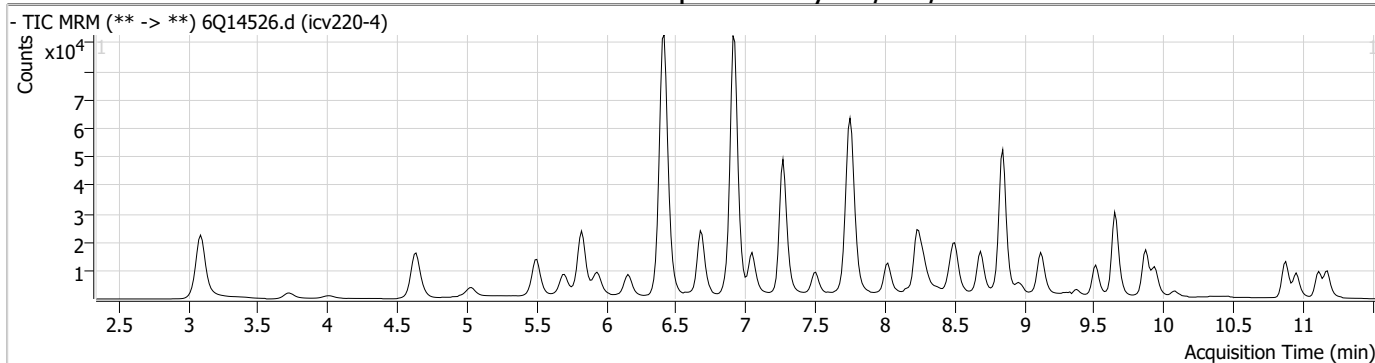
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.8.10

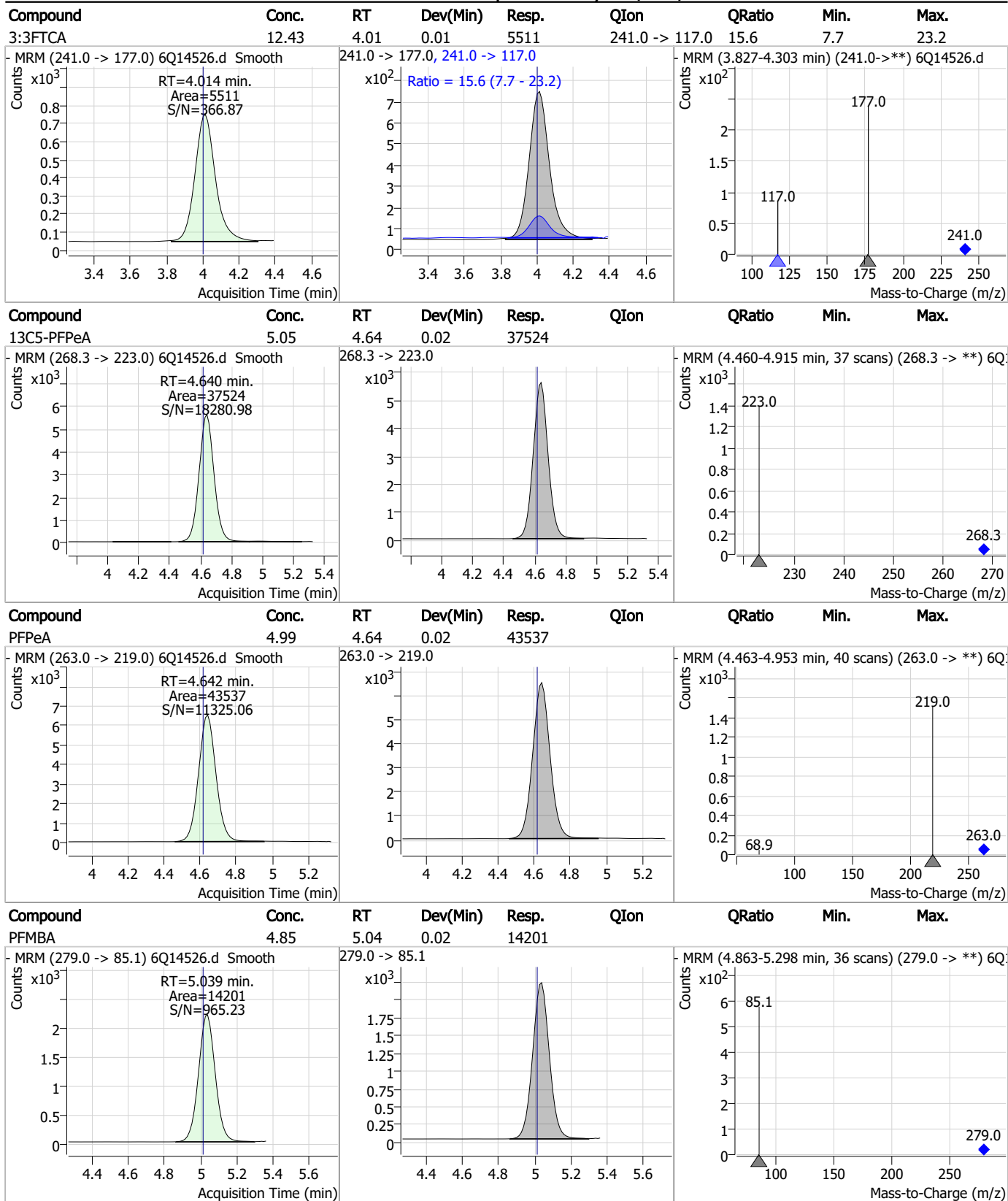
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Perfluorinated Compounds by LC/MS/MS



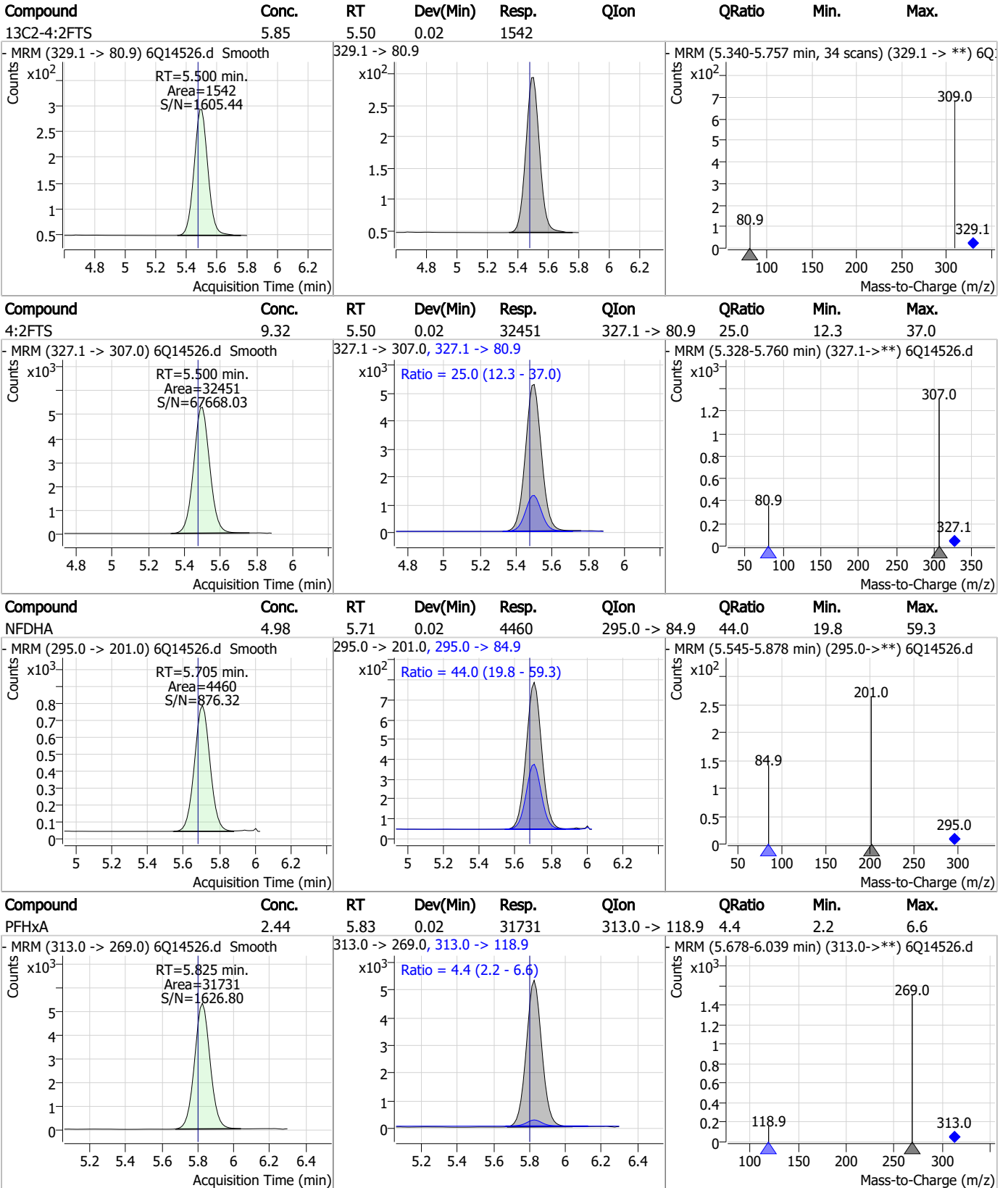
7.8.10
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Perfluorinated Compounds by LC/MS/MS



7.8.10 7

Perfluorinated Compounds by LC/MS/MS



7.8.10 7



Perfluorinated Compounds by LC/MS/MS

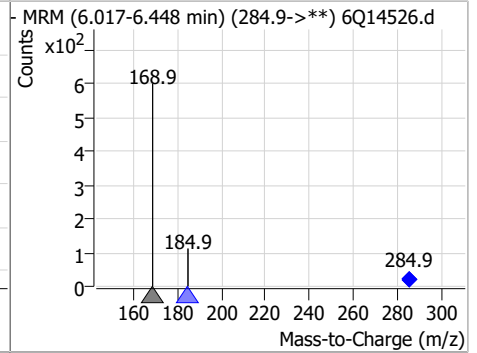
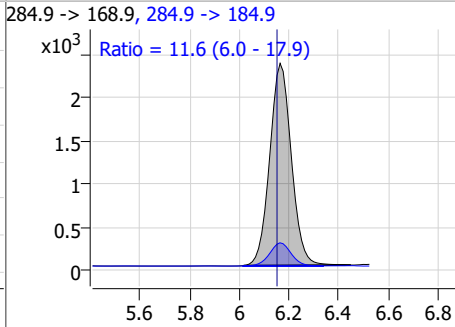
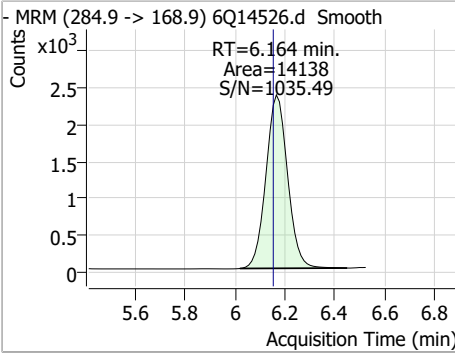
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.55	5.82	0.01	32739				
- MRM (318.0 -> 273.0) 6Q14526.d Smooth Counts x10 ³ RT=5.822 min. Area=32739 S/N=65526.40 Acquisition Time (min)			318.0 -> 273.0 x10 ³ Acquisition Time (min)		- MRM (5.675-6.045 min, 31 scans) (318.0 -> **) 6Q Counts x10 ³ 273.0 120.3 318.0 Mass-to-Charge (m/z)			
13C3-PFBS	2.64	5.94	0.04	12756				
- MRM (302.1 -> 79.9) 6Q14526.d Smooth Counts x10 ³ RT=5.938 min. Area=12756 S/N=2585.63 Acquisition Time (min)			302.1 -> 79.9 x10 ³ Acquisition Time (min)		- MRM (5.778-6.125 min, 29 scans) (302.1 -> **) 6Q Counts x10 ² 79.9 98.9 302.1 Mass-to-Charge (m/z)			
PFBS	2.26	5.94	0.04	12085	298.7 -> 98.8	42.0	20.4	61.1
- MRM (298.7 -> 79.9) 6Q14526.d Smooth Counts x10 ³ RT=5.939 min. Area=12085 S/N=4583.42 Acquisition Time (min)			298.7 -> 79.9, 298.7 -> 98.8 x10 ³ Ratio = 42.0 (20.4 - 61.1) Acquisition Time (min)		- MRM (5.766-6.075 min) (298.7->**) 6Q14526.d Counts x10 ² 79.9 98.8 298.7 Mass-to-Charge (m/z)			
13C3-HFPO-DA	10.19	6.16	0.01	14621				
- MRM (286.9 -> 168.9) 6Q14526.d Smooth Counts x10 ³ RT=6.163 min. Area=14621 S/N=∞ Acquisition Time (min)			286.9 -> 168.9 x10 ³ Acquisition Time (min)		- MRM (6.015-6.471 min, 37 scans) (286.9 -> **) 6Q Counts x10 ² 168.9 184.9 286.9 Mass-to-Charge (m/z)			

7.8.10 7

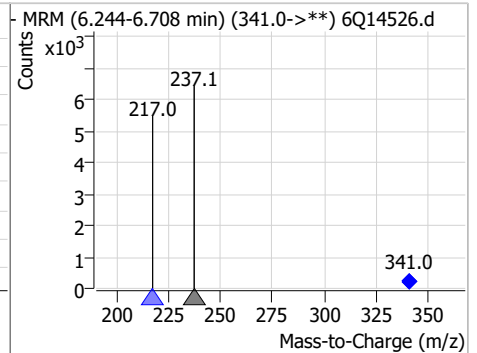
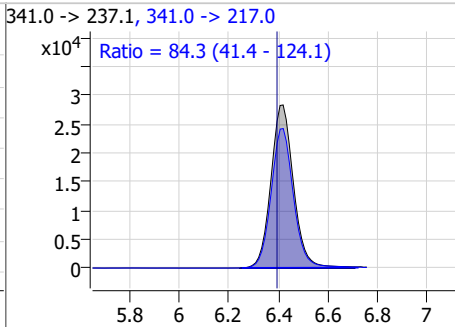
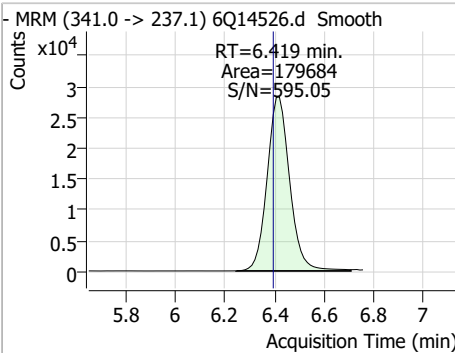


Perfluorinated Compounds by LC/MS/MS

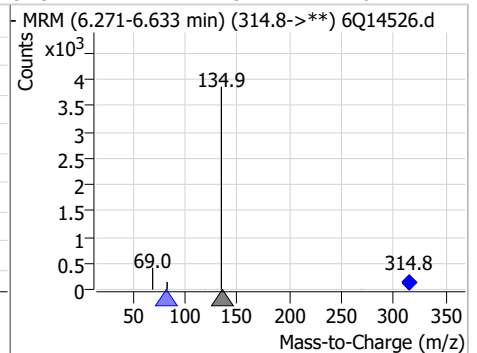
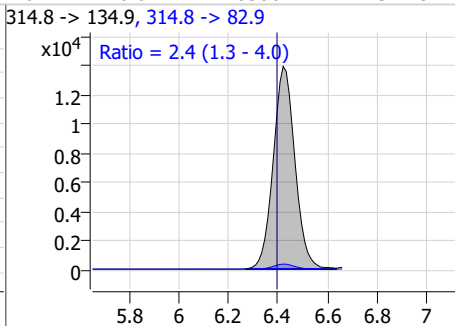
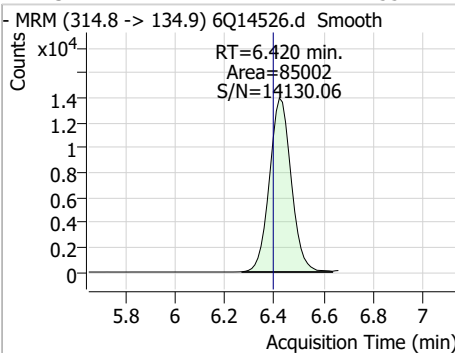
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.68	6.16	0.01	14138	284.9 -> 184.9	11.6	6.0	17.9



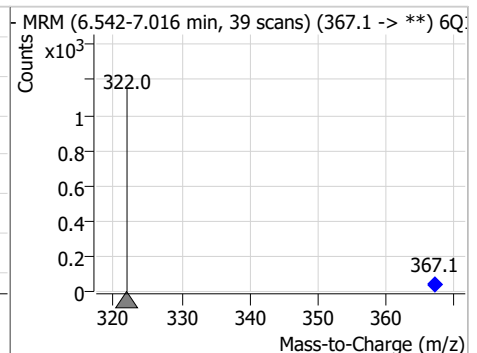
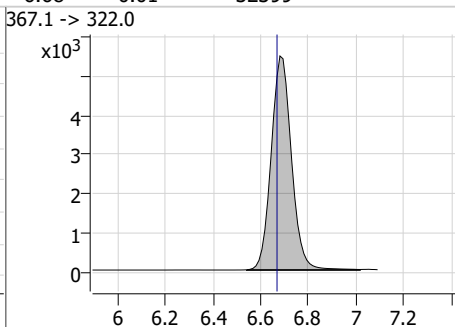
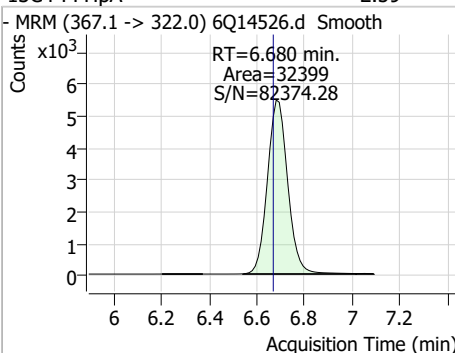
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	63.28	6.42	0.02	179684	341.0 -> 217.0	84.3	41.4	124.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.55	6.42	0.02	85002	314.8 -> 82.9	2.4	1.3	4.0

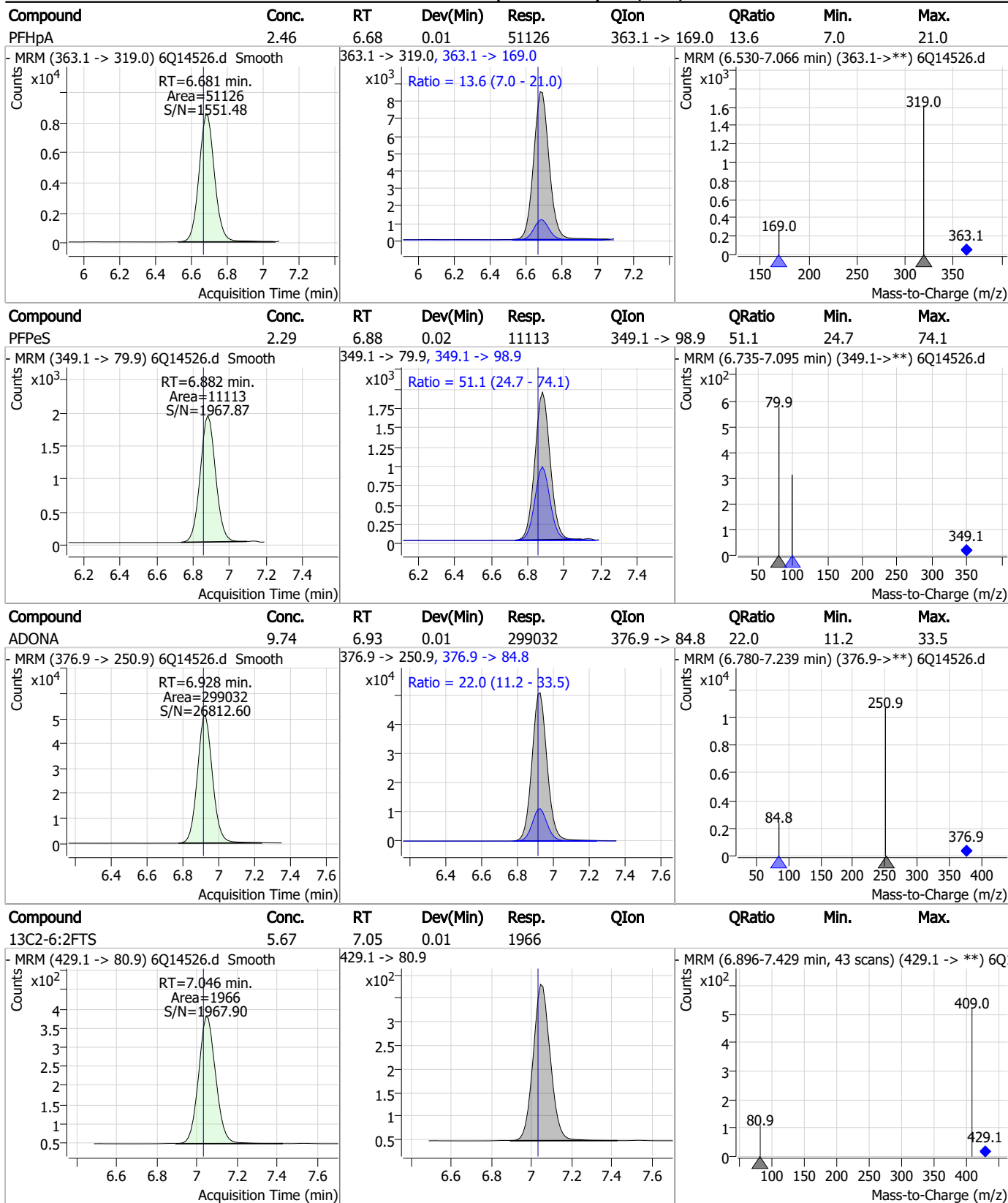


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.59	6.68	0.01	32399	367.1 -> 322.0			



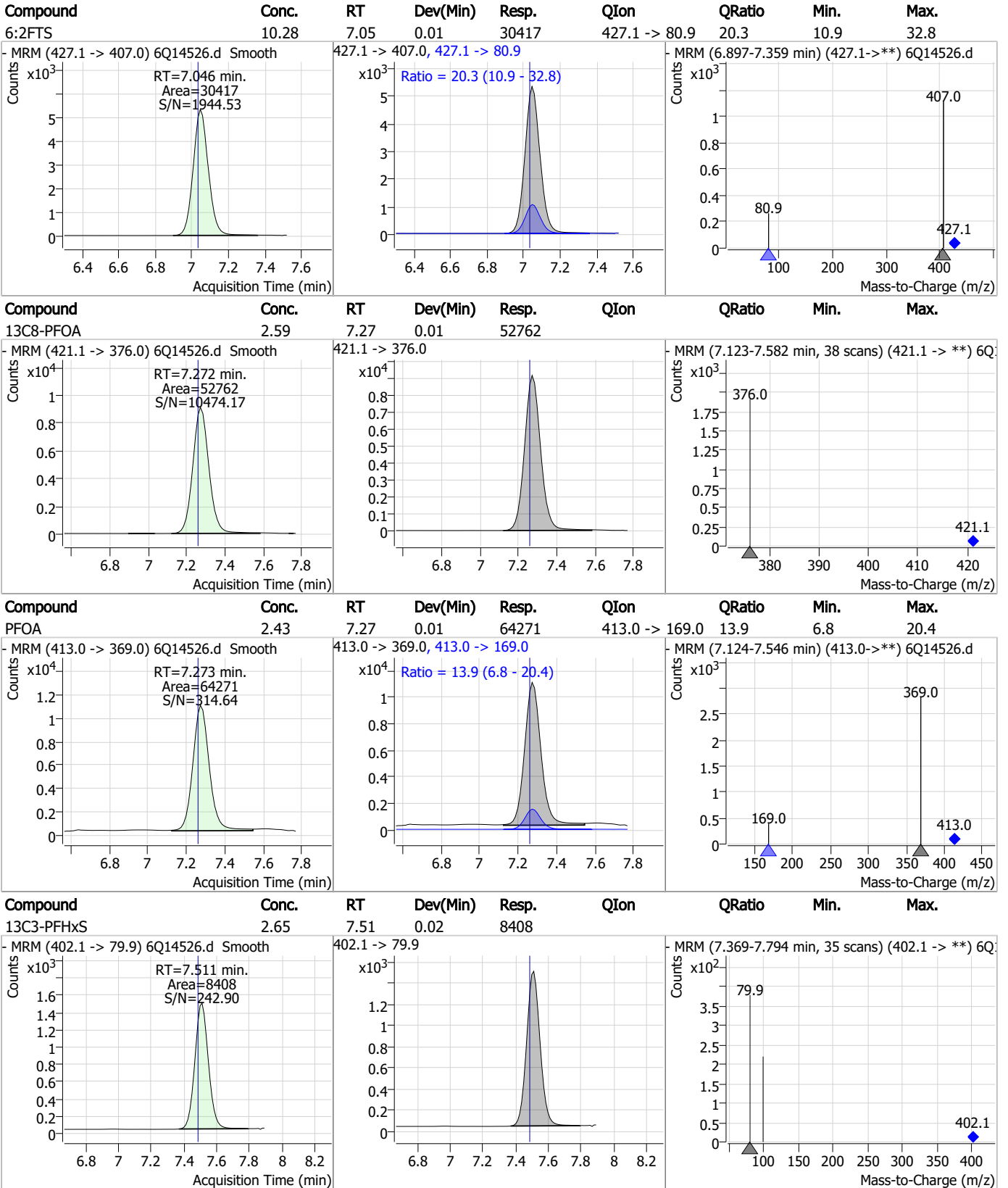
7.8.10 7

Perfluorinated Compounds by LC/MS/MS



7.8.10 7

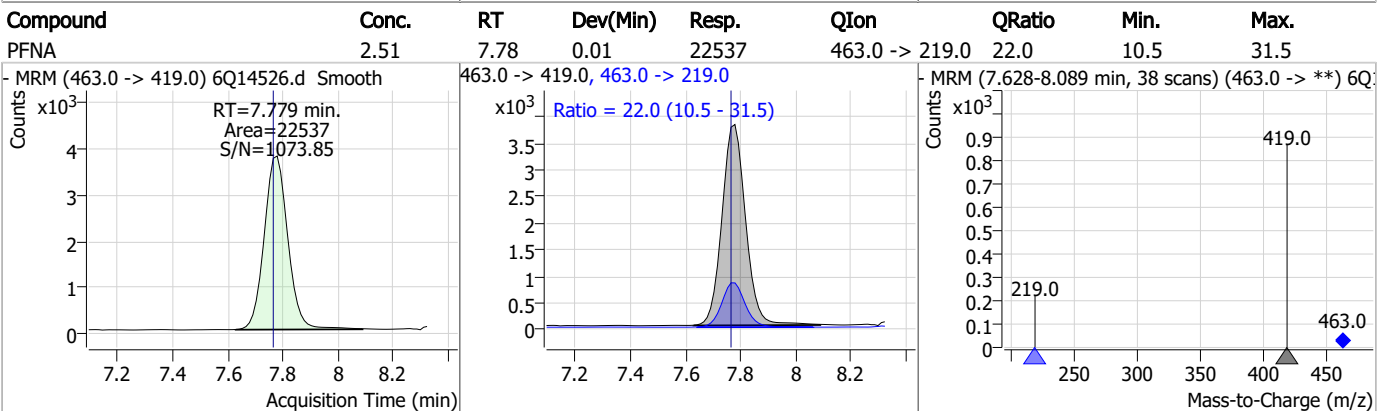
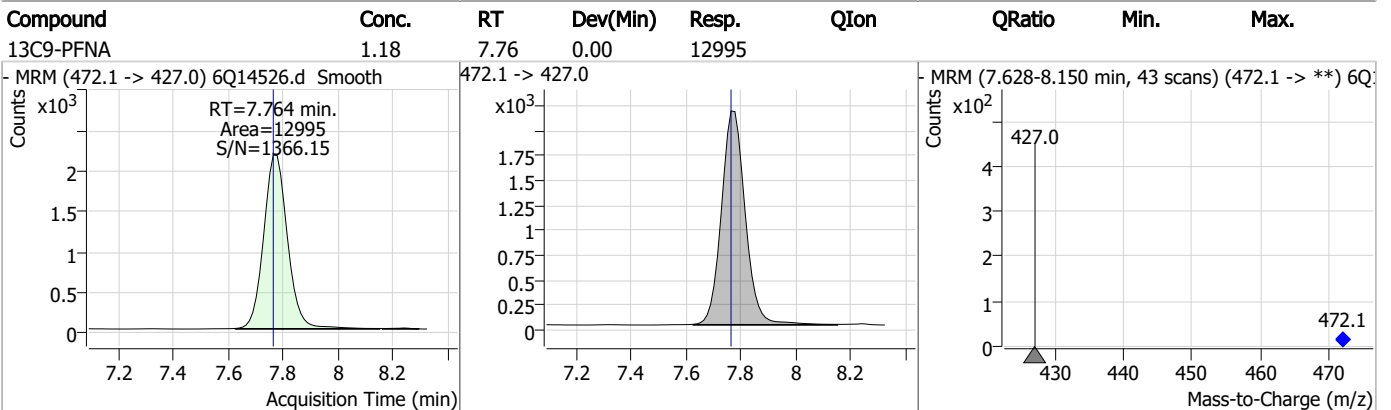
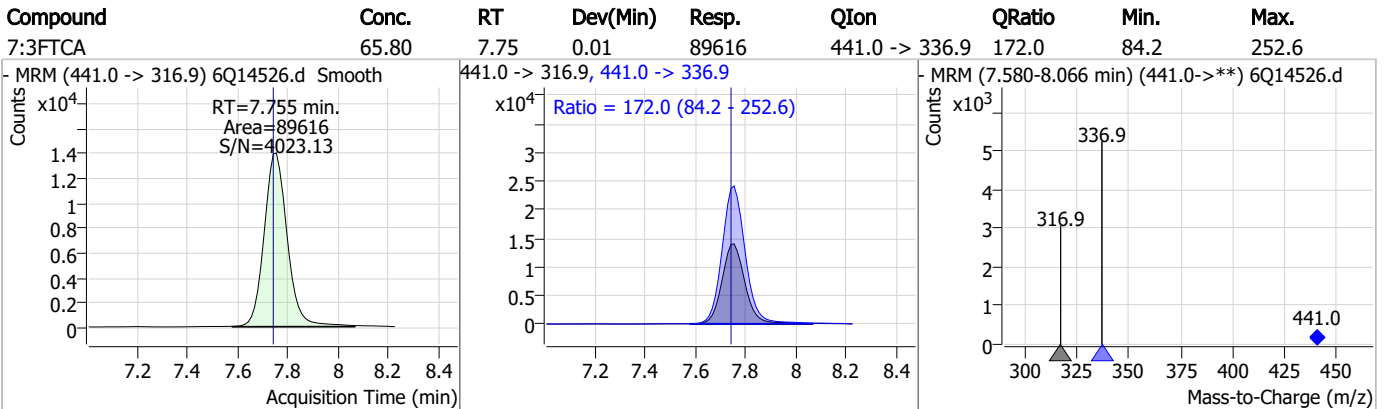
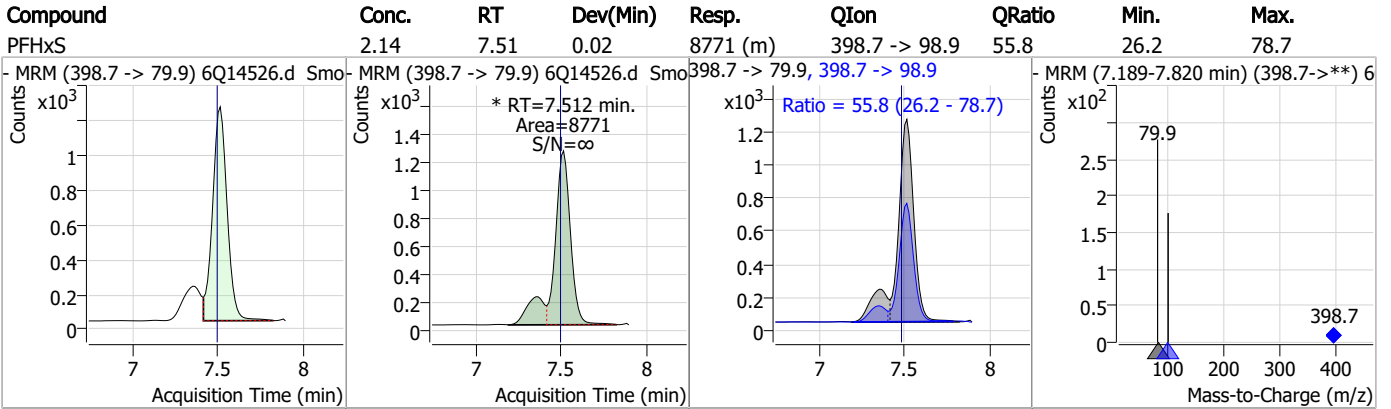
Perfluorinated Compounds by LC/MS/MS



7.8.10 7

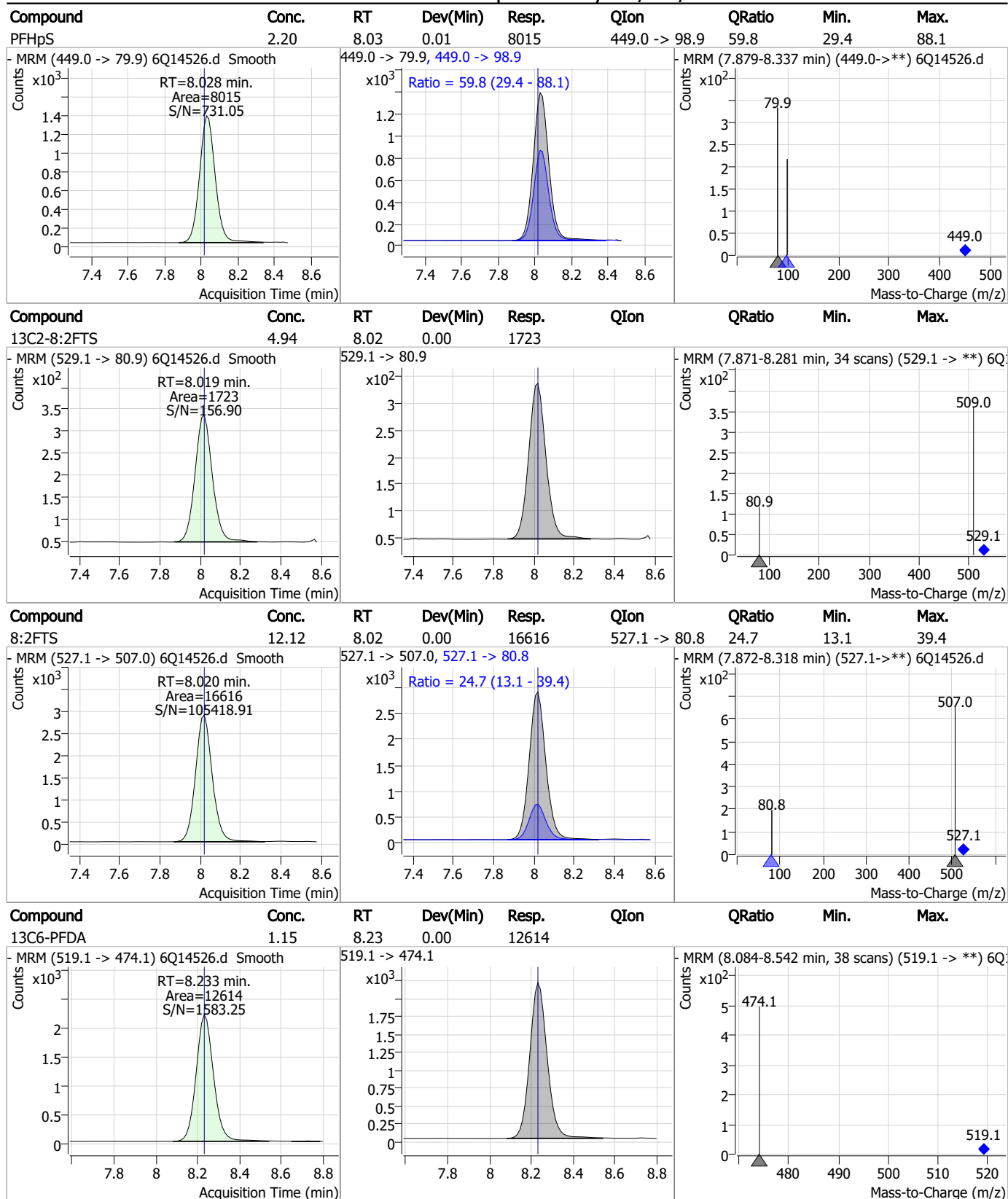


Perfluorinated Compounds by LC/MS/MS



7.8.10 7

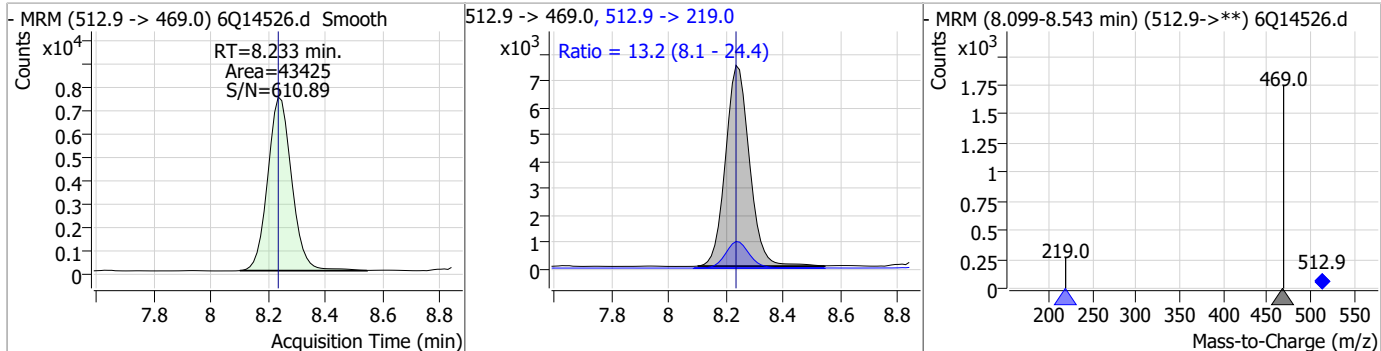
Perfluorinated Compounds by LC/MS/MS



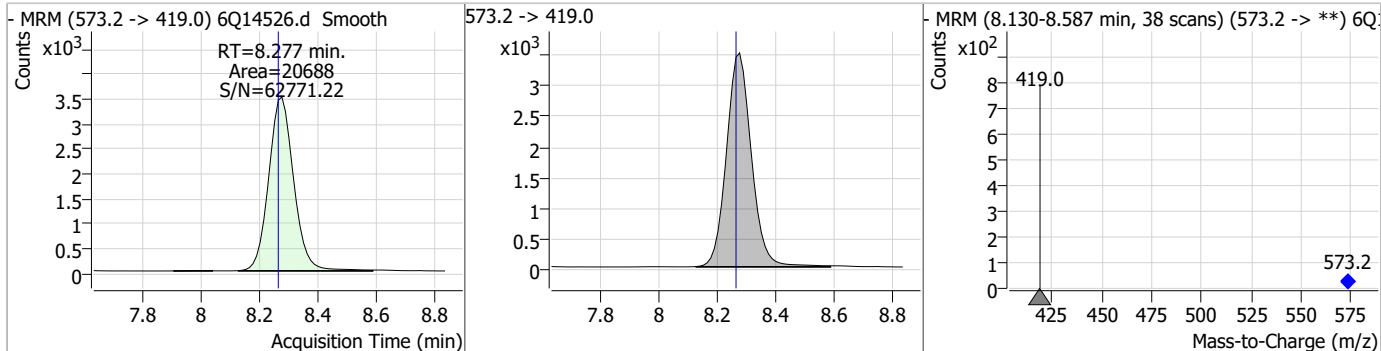
7.8.10 7

Perfluorinated Compounds by LC/MS/MS

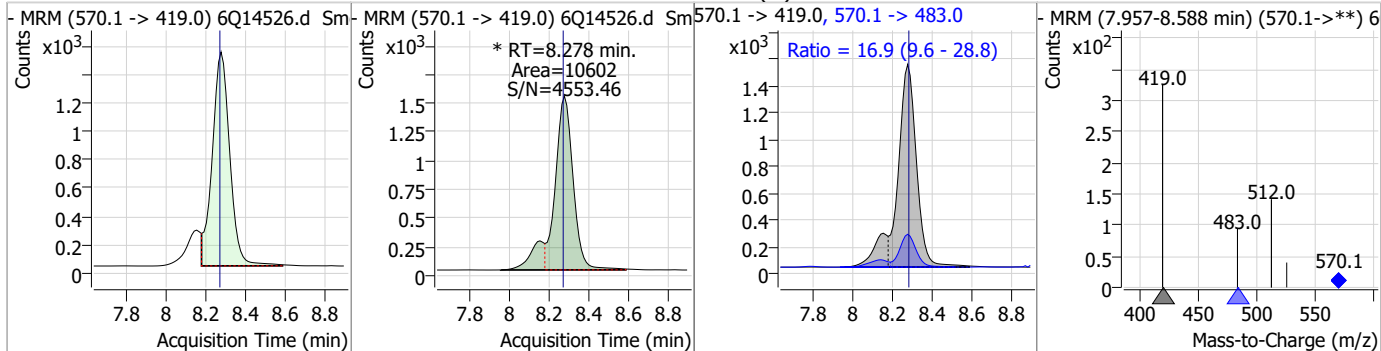
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.68	8.23	0.00	43425	512.9 -> 219.0	13.2	8.1	24.4



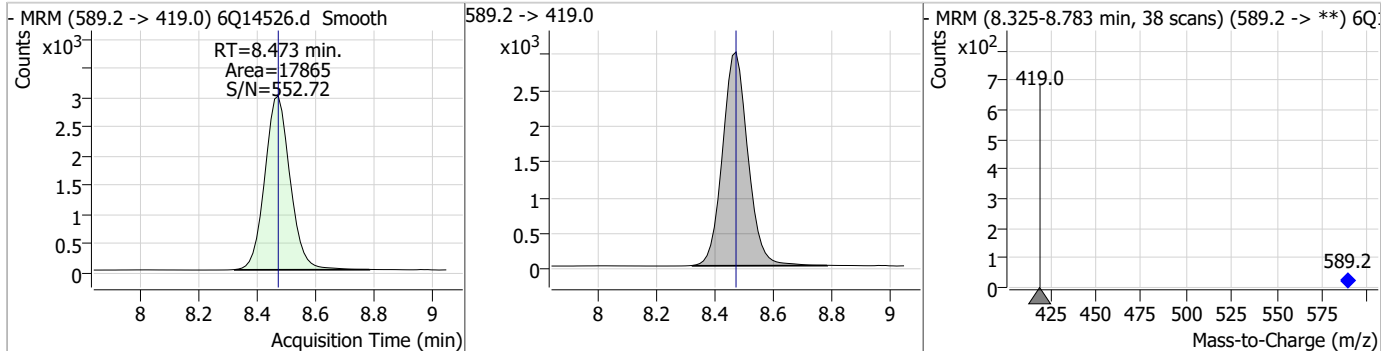
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.45	8.28	0.01	20688				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.42	8.28	0.00	10602 (m)	570.1 -> 483.0	16.9	9.6	28.8

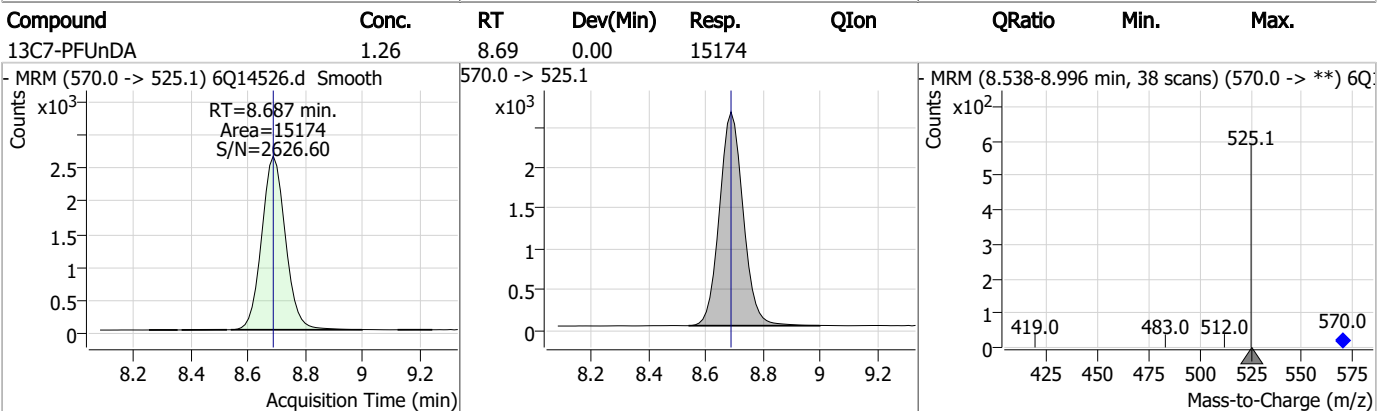
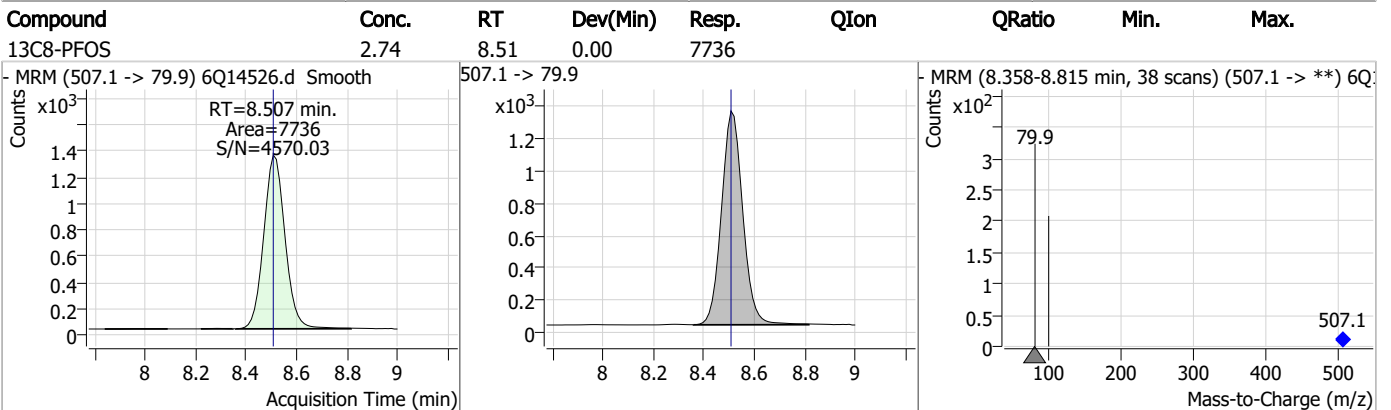
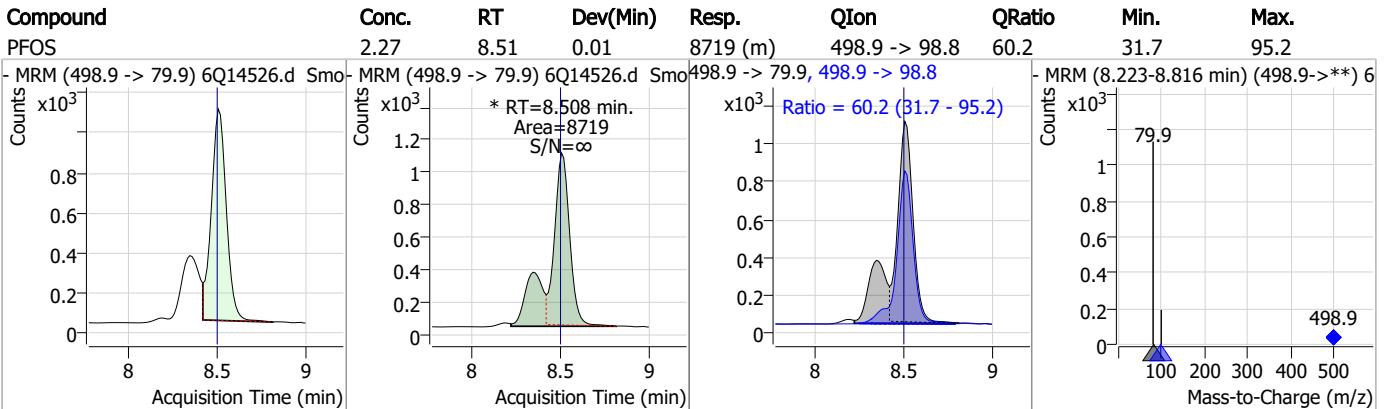
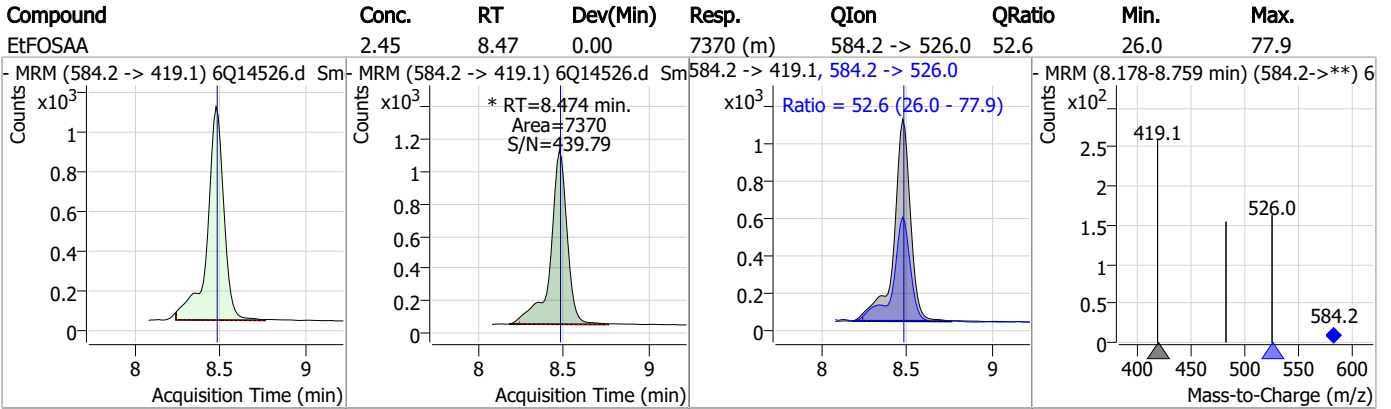


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.07	8.47	0.00	17865				



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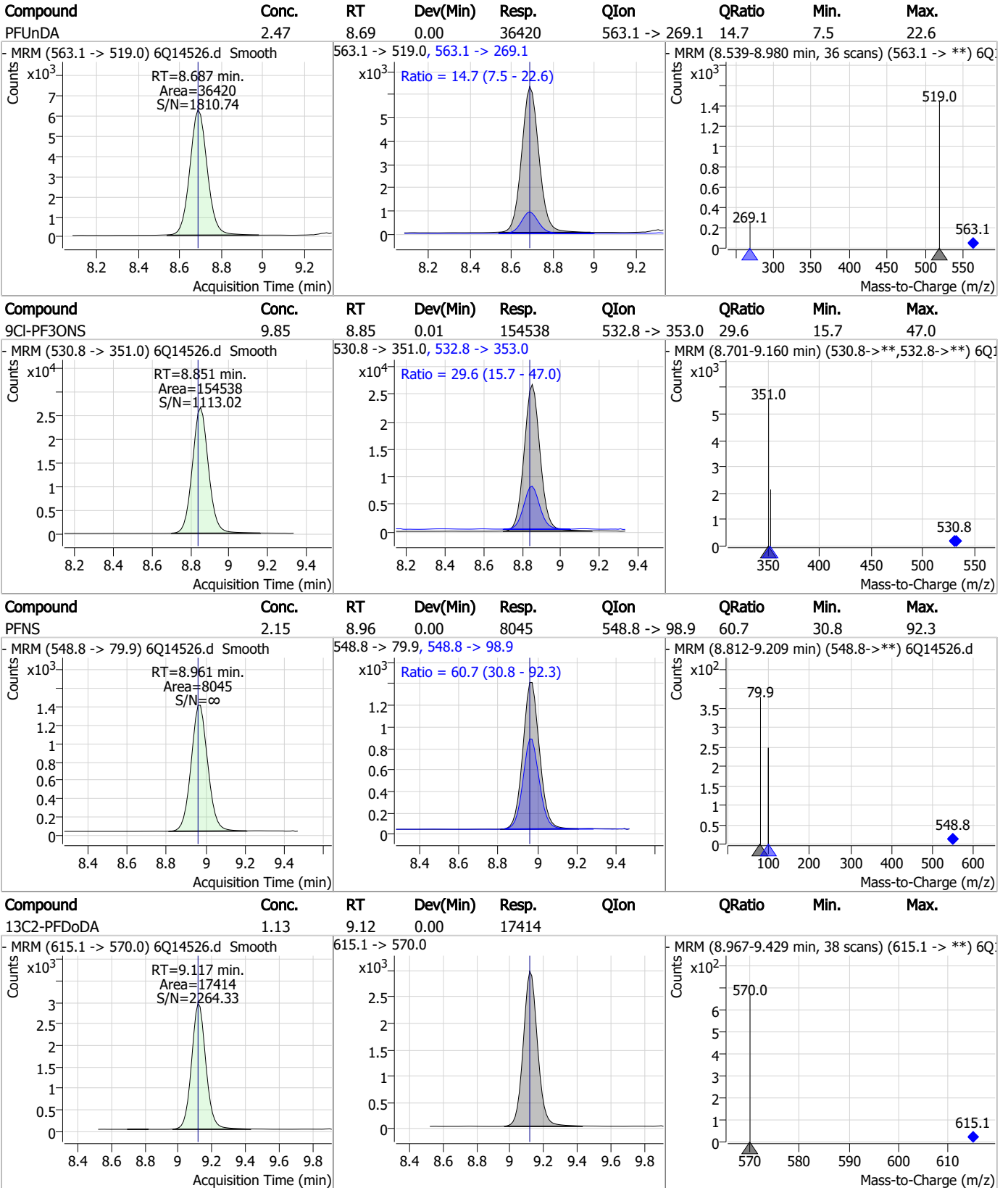
Perfluorinated Compounds by LC/MS/MS



7.8.10 7



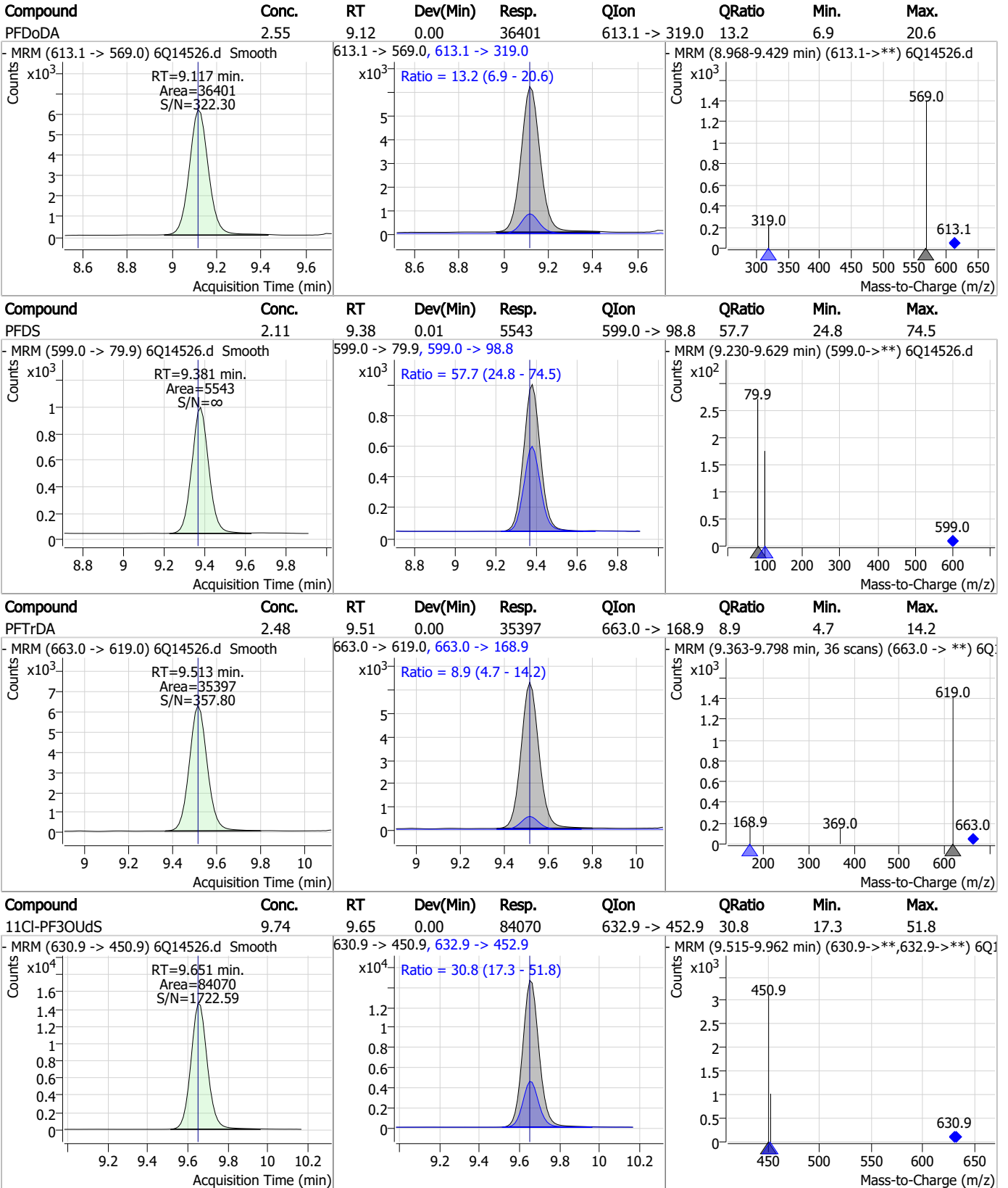
Perfluorinated Compounds by LC/MS/MS



7.8.10 7



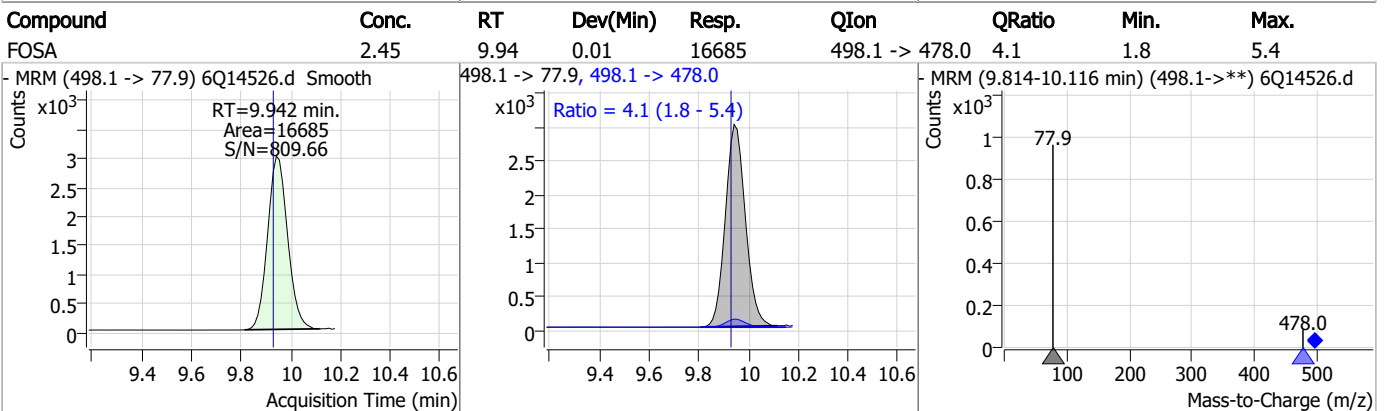
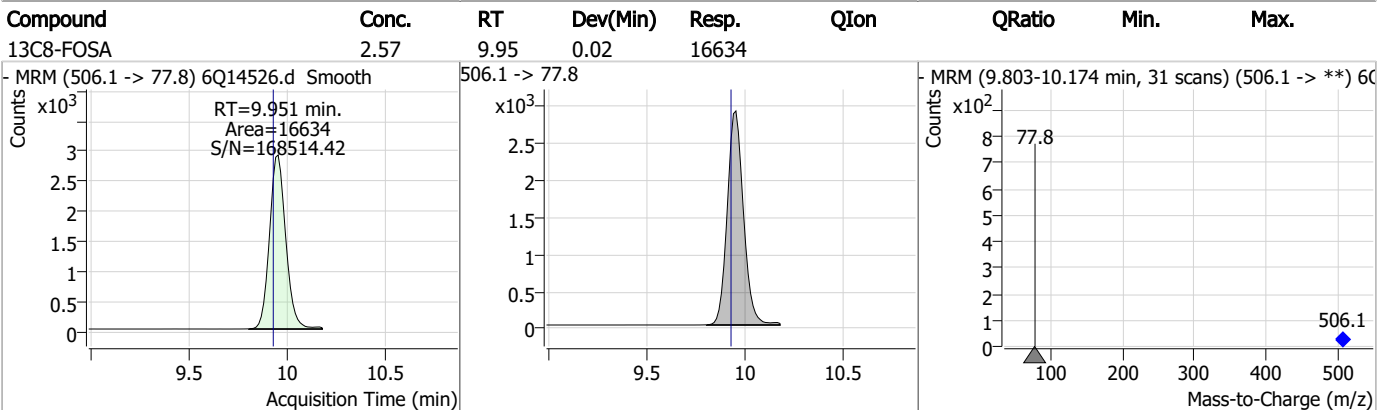
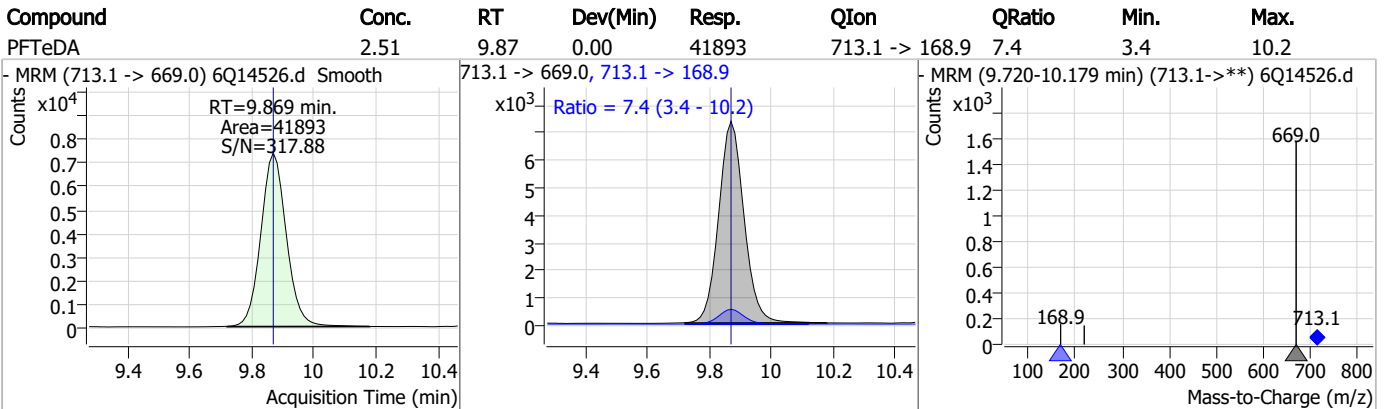
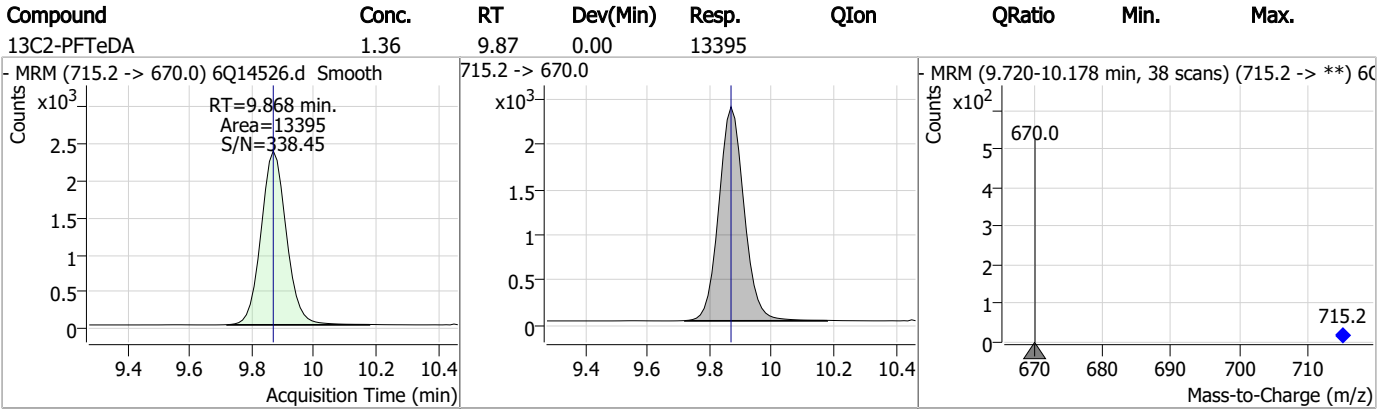
Perfluorinated Compounds by LC/MS/MS



7.8.10 7



Perfluorinated Compounds by LC/MS/MS

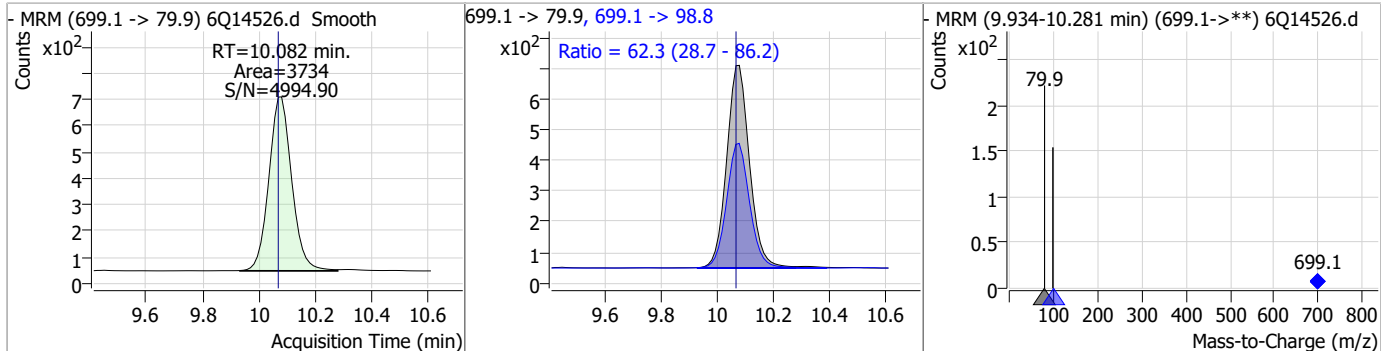


7.8.10 7

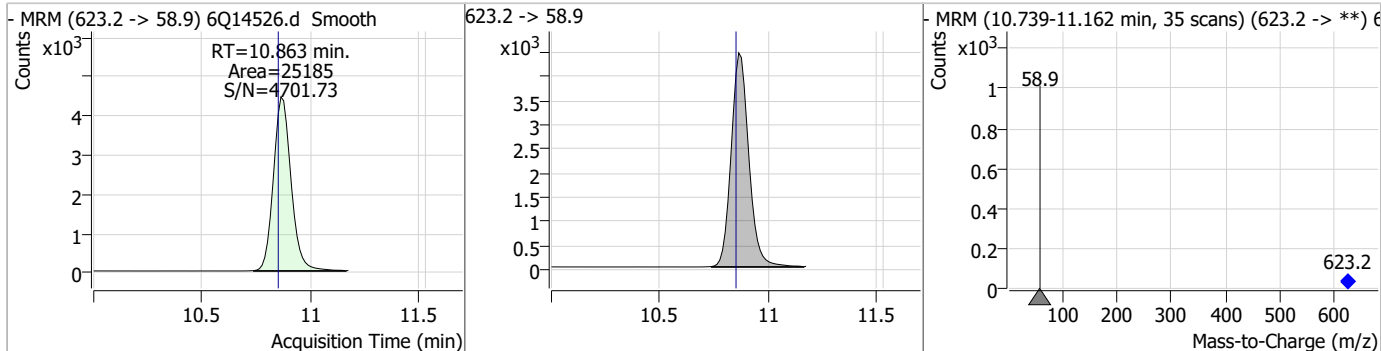


Perfluorinated Compounds by LC/MS/MS

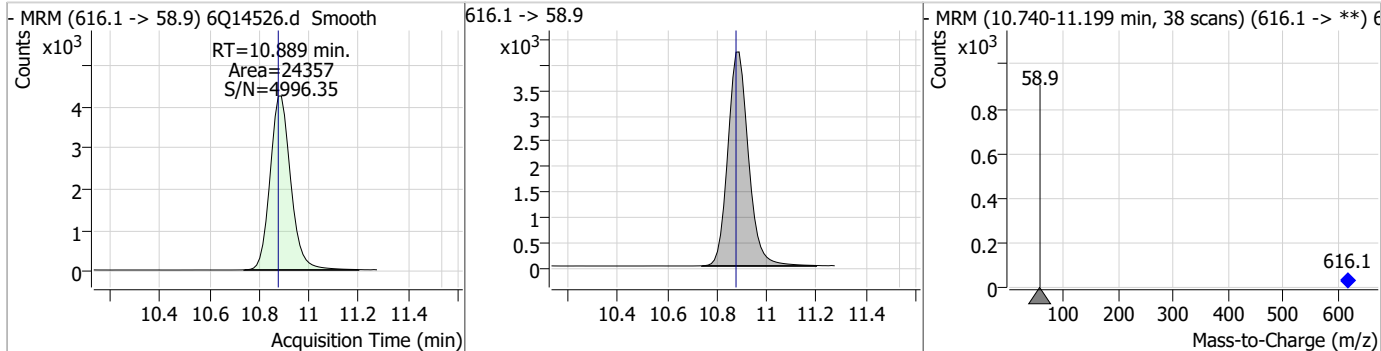
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	2.35	10.08	0.01	3734	699.1 -> 98.8	62.3	28.7	86.2



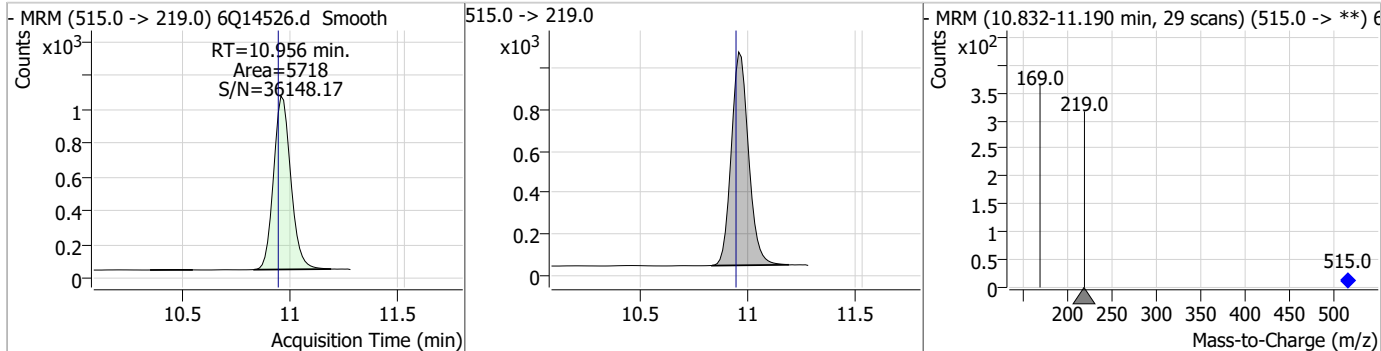
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.04	10.86	0.01	25185	623.2 -> 58.9	623.2 -> 58.9		



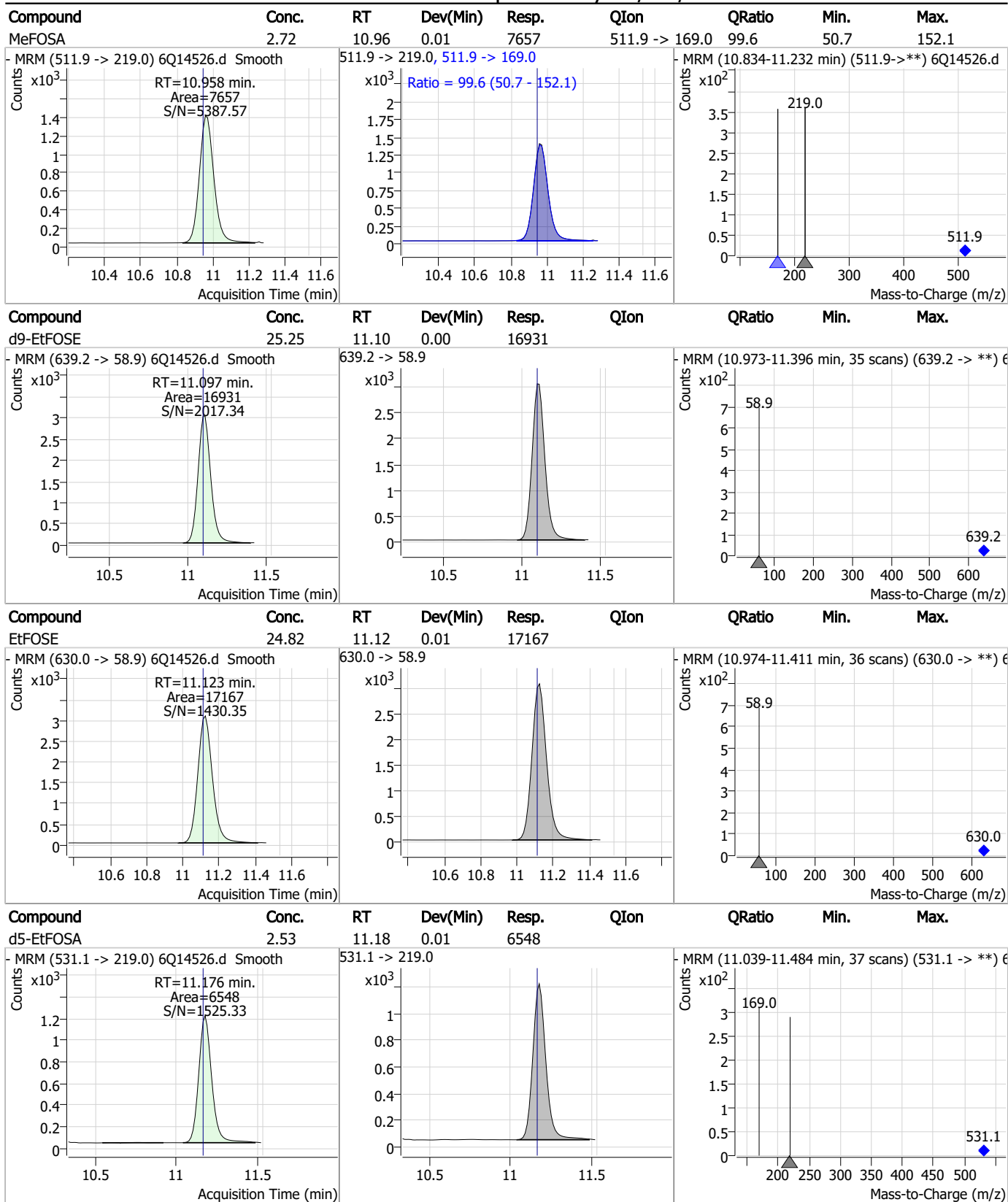
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	23.54	10.89	0.01	24357	616.1 -> 58.9	616.1 -> 58.9		



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.42	10.96	0.01	5718	515.0 -> 219.0	515.0 -> 219.0		



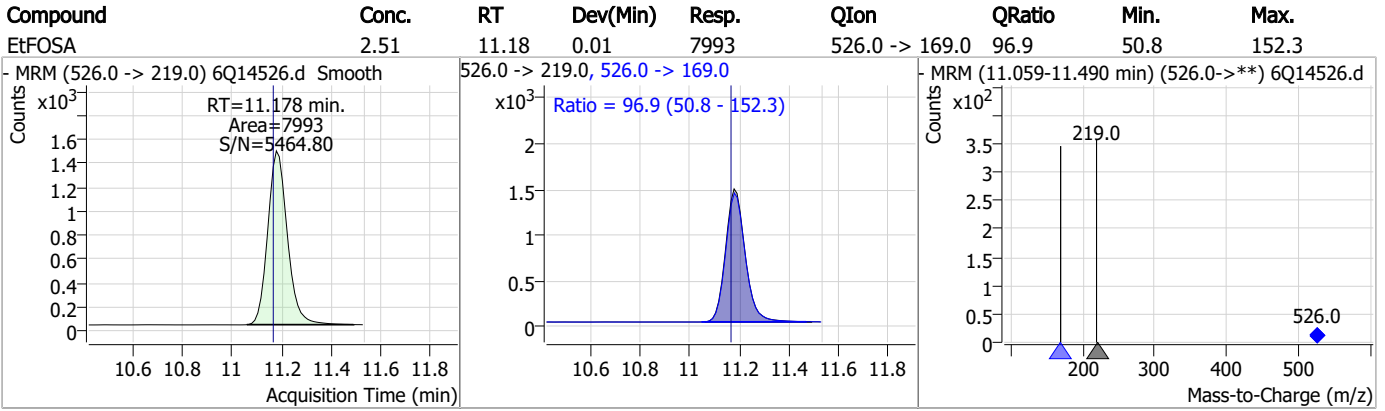
Perfluorinated Compounds by LC/MS/MS



7.8.10

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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q220-ICV220 Method: EPA DRAFT 1633
Lab FileID: 6Q14526.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 15:06 Supervisor approved: 03/10/23 10:46 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.51	Split peak
MeFOSAA	2355-31-9		8.28	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.51	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14527.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 3:20:03 PM
 Sample Name : icv220-20
 Vial : P1-B2
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.100	216.8 -> 171.9	75594	10.00 µg/L	0.025
M5-PFPeA	4.640	268.3 -> 223.0	36556	5.00 µg/L	0.025
M5-PFHxA	5.822	318.0 -> 273.0	30795	2.50 µg/L	0.012
M4-PFHpA	6.680	367.1 -> 322.0	31359	2.50 µg/L	0.012
M8-PFOA	7.272	421.1 -> 376.0	49633	2.50 µg/L	0.012
M9-PFNA	7.764	472.1 -> 427.0	13253	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	12647	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	15017	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	17692	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	12208	1.25 µg/L	0.000
M8-FOSA	9.951	506.1 -> 77.8	17656	2.50 µg/L	0.025
M3-PFBS	5.938	302.1 -> 79.9	12484	2.50 µg/L	0.037
M3-PFHxS	7.498	402.1 -> 79.9	7702	2.50 µg/L	0.012
M8-PFOS	8.507	507.1 -> 79.9	7188	2.50 µg/L	0.000
M2-4:2FTS	5.500	329.1 -> 80.9	1330	5.00 µg/L	0.025
M2-6:2FTS	7.046	429.1 -> 80.9	2027	5.00 µg/L	0.012
M2-8:2FTS	8.007	529.1 -> 80.9	1622	5.00 µg/L	-0.012
M3-MeFOSAA	8.265	573.2 -> 419.0	18067	5.00 µg/L	0.000
M3-HFPO-DA	6.163	286.9 -> 168.9	13797	10.00 µg/L	0.012
M5-EtFOSAA	8.460	589.2 -> 419.0	18443	5.00 µg/L	-0.012
M7-MeFOSE	10.863	623.2 -> 58.9	23847	25.00 µg/L	0.012
M9-EtFOSE	11.110	639.2 -> 58.9	16427	25.00 µg/L	0.012
M5-EtFOSA	11.176	531.1 -> 219.0	6552	2.50 µg/L	0.012
M3-MeFOSA	10.956	515.0 -> 219.0	6054	2.50 µg/L	0.012
13C4-PFOS	8.508	502.8 -> 79.9	8651	2.50 µg/L	0.012
13C3-PFBA	3.103	216.0 -> 172.0	32418	5.00 µg/L	0.025
18O2-PFHxS	7.498	403.0 -> 83.9	5280	2.50 µg/L	0.000
13C4-PFOA	7.272	417.1 -> 372.0	58806	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	18301	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	12928	1.25 µg/L	0.000
13C2-PFHxA	5.823	315.1 -> 270.0	29913	2.50 µg/L	0.024

System Monitoring Compounds

13C2-4:2FTS	5.500	329.1 -> 80.9	1330	5.29 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C2-6:2FTS	7.046	429.1 -> 80.9	2027	6.13 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.6%		
13C2-8:2FTS	8.007	529.1 -> 80.9	1622	4.88 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C2-PFDoDA	9.117	615.1 -> 570.0	17692	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.3%		
13C2-PFTeDA	9.868	715.2 -> 670.0	12208	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C3-PFBS	5.938	302.1 -> 79.9	12484	2.71 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C3-PFHxS	7.498	402.1 -> 79.9	7702	2.55 µg/L	0.012

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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 = 102.0%	
13C4-PFBA	3.100	216.8 -> 171.9	75594	10.15 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C4-PFHpA	6.680	367.1 -> 322.0	31359	2.63 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C5-PFHxA	5.822	318.0 -> 273.0	30795	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFPeA	4.640	268.3 -> 223.0	36556	5.15 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C6-PFDA	8.233	519.1 -> 474.1	12647	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.3%	
13C7-PFUnDA	8.687	570.0 -> 525.1	15017	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C8-FOSA	9.951	506.1 -> 77.8	17656	2.90 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C8-PFOA	7.272	421.1 -> 376.0	49633	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C8-PFOS	8.507	507.1 -> 79.9	7188	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C9-PFNA	7.764	472.1 -> 427.0	13253	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.4%	
d3-MeFOSAA	8.265	573.2 -> 419.0	18067	4.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.7%	
13C3-HFPO-DA	6.163	286.9 -> 168.9	13797	10.07 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
d3-MeFOSA	10.956	515.0 -> 219.0	6054	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
d5-EtFOSAA	8.460	589.2 -> 419.0	18443	4.98 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
d7-MeFOSE	10.863	623.2 -> 58.9	23847	23.48 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
d9-EtFOSE	11.110	639.2 -> 58.9	16427	23.33 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
d5-EtFOSA	11.176	531.1 -> 219.0	6552	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
Target Compounds					QValue
4:2FTS	5.500	327.1 -> 307.0	67833	22.60 µg/L	100
		327.1 -> 80.9	16680		
6:2FTS	7.046	427.1 -> 407.0	56307	18.46 µg/L	98
		427.1 -> 80.9	12783		
8:2FTS	8.008	527.1 -> 507.0	29089	22.53 µg/L	95
		527.1 -> 80.8	8353		
EtFOSAA	8.474	584.2 -> 419.1	57274	18.46 µg/L	m 96
		584.2 -> 526.0	31315		
FOSA	9.942	498.1 -> 77.9	146213	20.23 µg/L	99
		498.1 -> 478.0	4855		
MeFOSAA	8.278	570.1 -> 419.0	82058	21.44 µg/L	93
		570.1 -> 483.0	13263		
PFBA	3.106	212.8 -> 168.9	40631	19.60 µg/L	100
PFBS	5.939	298.7 -> 79.9	107751	20.59 µg/L	94
		298.7 -> 98.8	47822		
PFDA	8.233	512.9 -> 469.0	334466	20.58 µg/L	97
		512.9 -> 219.0	50069		
PFDoDA	9.117	613.1 -> 569.0	275146	18.95 µg/L	95
		613.1 -> 319.0	31748		
PFDS	9.381	599.0 -> 79.9	47301	19.36 µg/L	89

7.8.11
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.681	599.0 -> 98.8	27084	20.42	µg/L	99
		363.1 -> 319.0	410984			
PFHpS	8.028	363.1 -> 169.0	55830	19.55	µg/L	98
		449.0 -> 79.9	66314			
PFHxA	5.825	449.0 -> 98.9	37885	21.62	µg/L	99
		313.0 -> 269.0	264441			
PFHxS	7.499	313.0 -> 118.9	10834	22.11	µg/L	m
		398.7 -> 79.9	83183			
PFNA	7.765	398.7 -> 98.9	43043	23.14	µg/L	98
		463.0 -> 419.0	211923			
PFNS	8.961	463.0 -> 219.0	42637	20.15	µg/L	91
		548.8 -> 79.9	70073			
PFOA	7.273	548.8 -> 98.9	38219	19.68	µg/L	99
		413.0 -> 369.0	489004			
PFOS	8.508	413.0 -> 169.0	67513	16.89	µg/L	m
		498.9 -> 79.9	60258			
PFPeA	4.642	498.9 -> 98.8	36328	22.04	µg/L	100
		263.0 -> 219.0	187182			
PFPeS	6.882	349.1 -> 79.9	98429	22.13	µg/L	96
		349.1 -> 98.9	51127			
PFTeDA	9.869	713.1 -> 669.0	328918	21.60	µg/L	98
		713.1 -> 168.9	24984			
PFTrDA	9.513	663.0 -> 619.0	248609	17.16	µg/L	98
		663.0 -> 168.9	21719			
PFUnDA	8.687	563.1 -> 519.0	273528	18.78	µg/L	96
		563.1 -> 269.1	36926			
11CI-PF3OUdS	9.651	630.9 -> 450.9	185390	22.75	µg/L	93
		632.9 -> 452.9	56271			
9CI-PF3ONS	8.851	530.8 -> 351.0	334130	22.56	µg/L	100
		532.8 -> 353.0	105392			
ADONA	6.916	376.9 -> 250.9	634049	21.89	µg/L	97
		376.9 -> 84.8	150066			
HFPO-DA	6.164	284.9 -> 168.9	30262	21.95	µg/L	99
		284.9 -> 184.9	3508			
3:3FTCA	4.026	241.0 -> 177.0	8233	19.07	µg/L	99
		241.0 -> 117.0	1309			
5:3FTCA	6.419	341.0 -> 237.1	58219	21.80	µg/L	97
		341.0 -> 217.0	49557			
7:3FTCA	7.742	441.0 -> 316.9	27518	21.48	µg/L	98
		441.0 -> 336.9	47002			
EtFOSA	11.178	526.0 -> 219.0	63051	19.82	µg/L	93
		526.0 -> 169.0	59510			
EtFOSE	11.123	630.0 -> 58.9	64722	96.46	µg/L	100
		511.9 -> 219.0	56828			
MeFOSA	10.971	511.9 -> 169.0	57884	19.07	µg/L	100
		616.1 -> 58.9	94184			
MeFOSE	10.889	699.1 -> 79.9	26844	96.15	µg/L	100
		699.1 -> 98.8	15644			
PFDoDS	10.082	295.0 -> 201.0	16974	18.15	µg/L	99
		295.0 -> 84.9	7693			
NFDHA	5.705	279.0 -> 85.1	57651	20.21	µg/L	100
		229.0 -> 84.9	50534			
PFMBA	3.742	314.8 -> 134.9	341610	20.33	µg/L	100
		314.8 -> 82.9	8381			
PFEESA	6.420			19.44	µg/L	99

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

7.8.11
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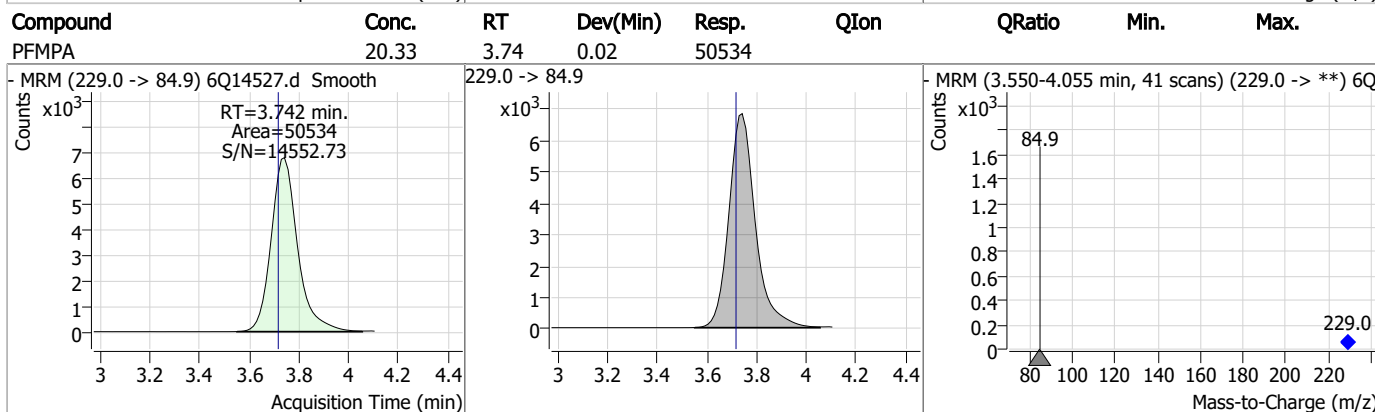
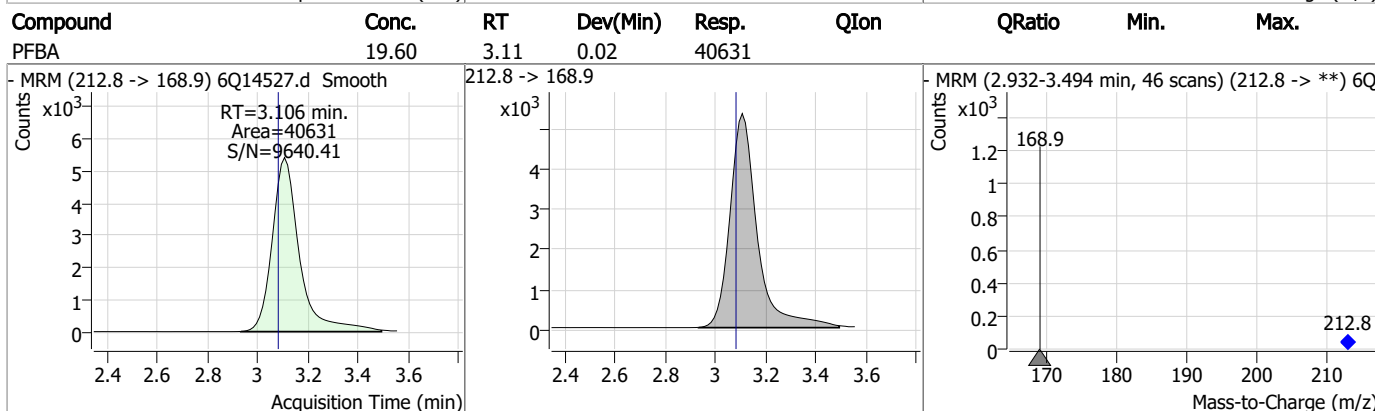
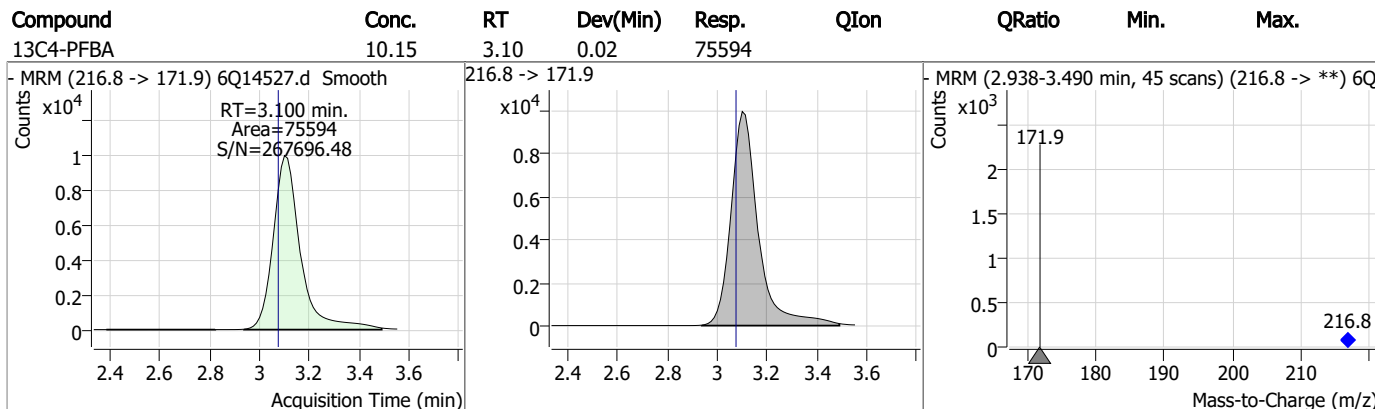
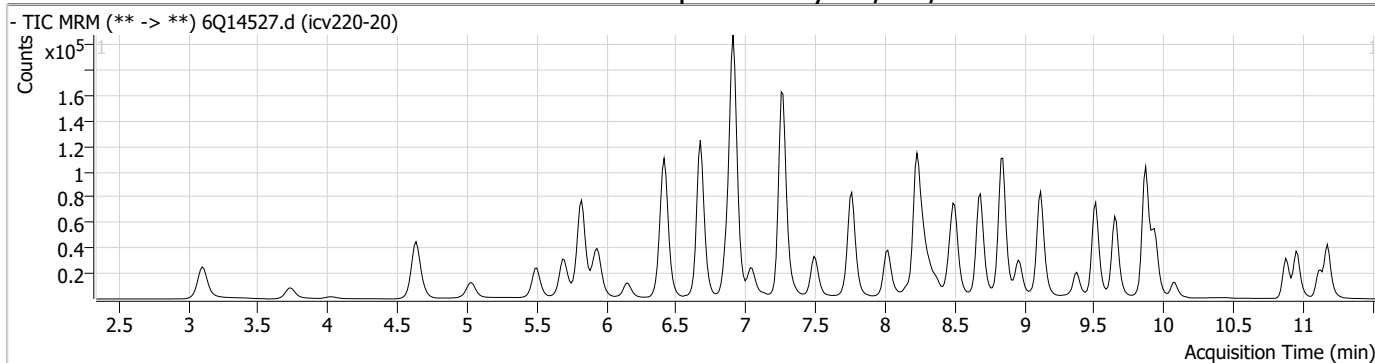
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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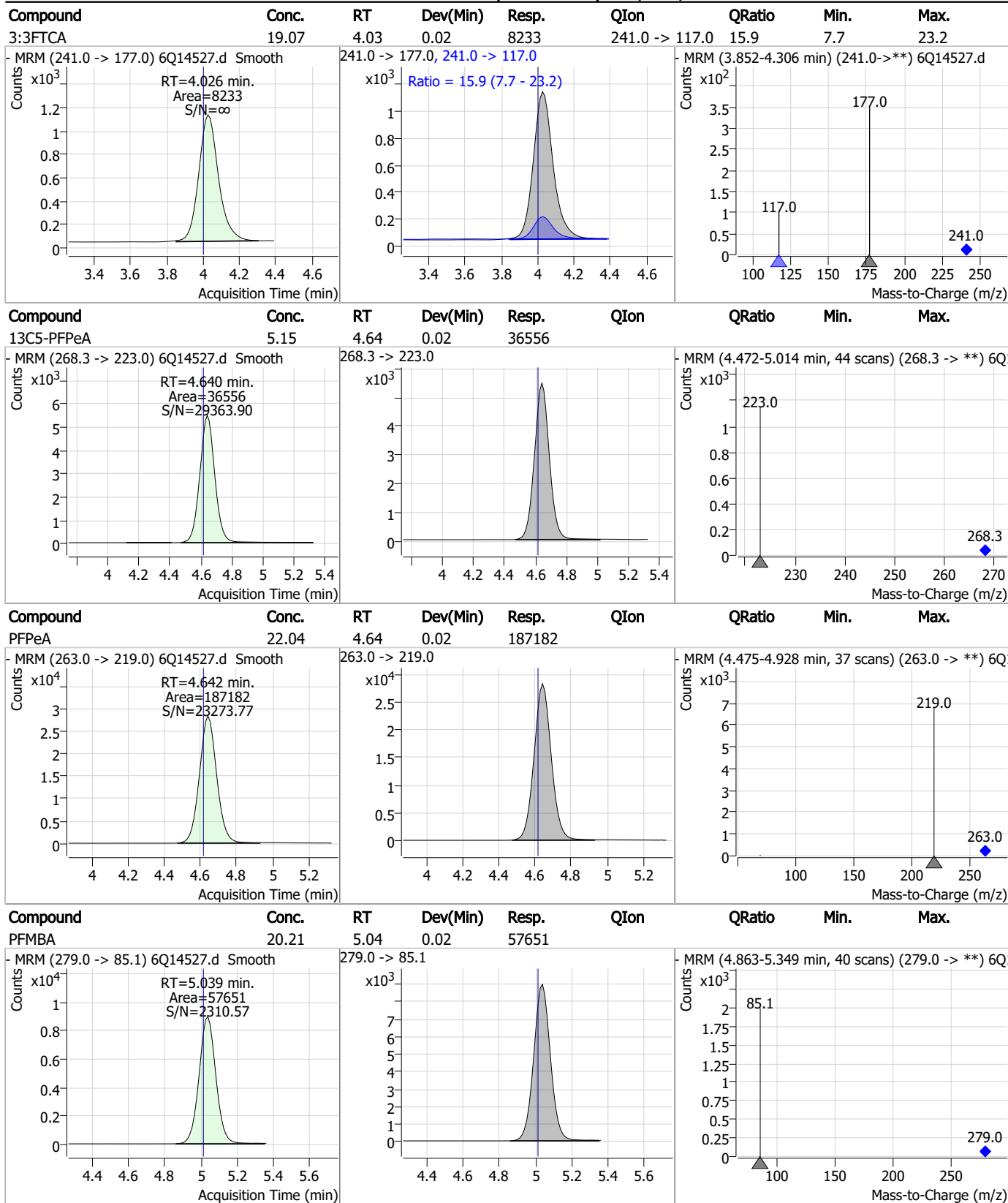
7.8.11

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Perfluorinated Compounds by LC/MS/MS



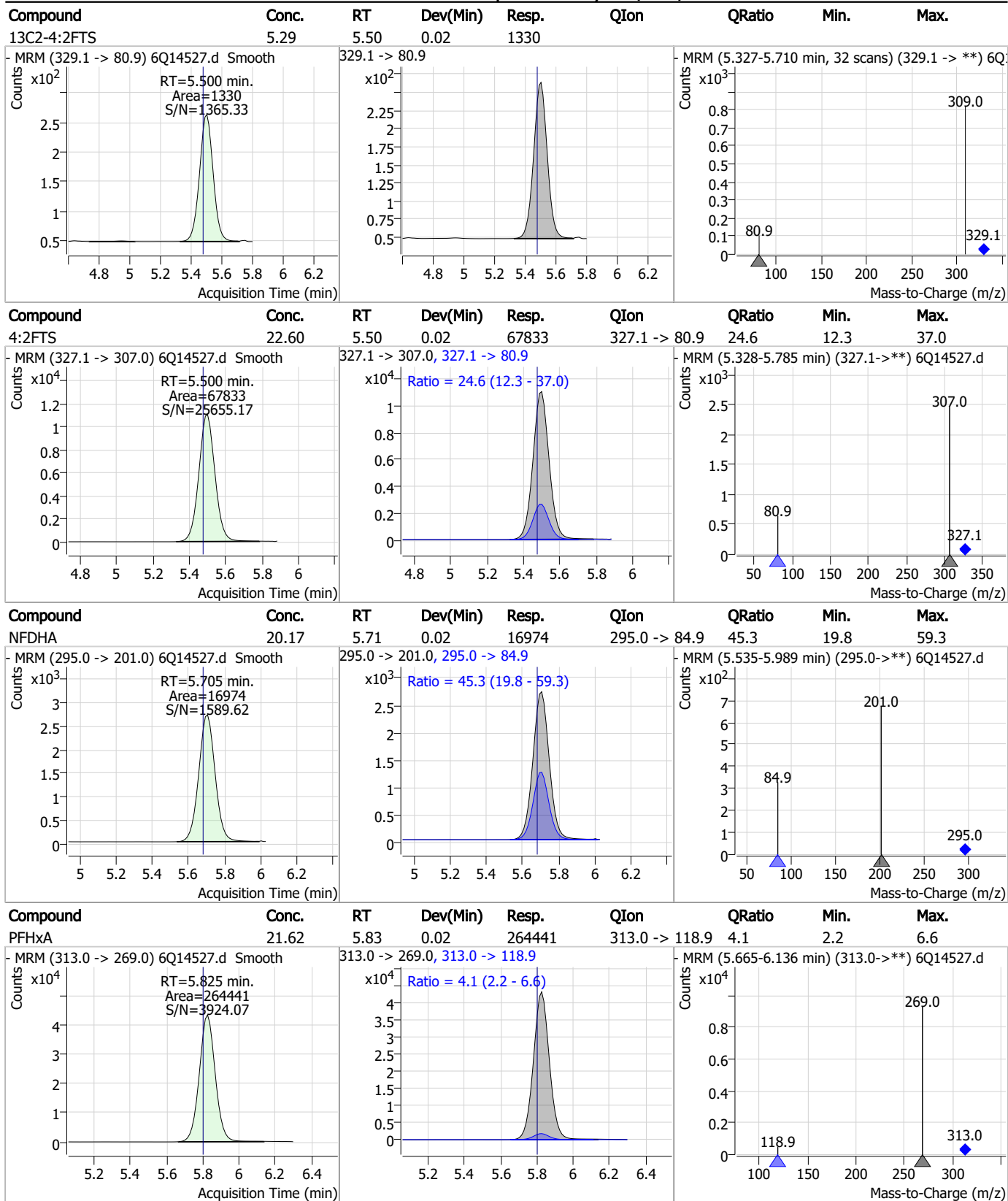
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.8.11

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Perfluorinated Compounds by LC/MS/MS

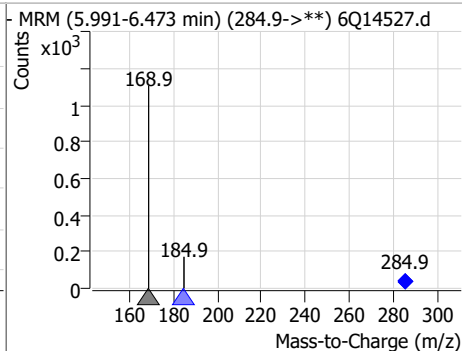
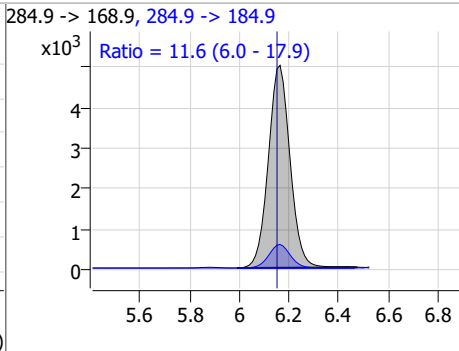
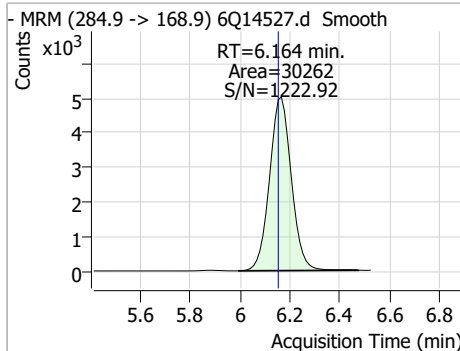
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.82	0.01	30795				
- MRM (318.0 -> 273.0) 6Q14527.d Smooth Counts x10 ³ RT=5.822 min. Area=30795 S/N=714.90 Acquisition Time (min)			318.0 -> 273.0 Counts x10 ³ Acquisition Time (min)			- MRM (5.662-6.132 min, 39 scans) (318.0 -> **) 6Q Counts x10 ³ 273.0 120.3 318.0 Mass-to-Charge (m/z)		
13C3-PFBS	2.71	5.94	0.04	12484				
- MRM (302.1 -> 79.9) 6Q14527.d Smooth Counts x10 ³ RT=5.938 min. Area=12484 S/N=1091.48 Acquisition Time (min)			302.1 -> 79.9 Counts x10 ³ Acquisition Time (min)			- MRM (5.782-6.105 min, 26 scans) (302.1 -> **) 6Q Counts x10 ² 79.9 98.9 302.1 Mass-to-Charge (m/z)		
PFBS	20.59	5.94	0.04	107751	298.7 -> 98.8	44.4	20.4	61.1
- MRM (298.7 -> 79.9) 6Q14527.d Smooth Counts x10 ⁴ RT=5.939 min. Area=107751 S/N=8123.85 Acquisition Time (min)			298.7 -> 79.9, 298.7 -> 98.8 Counts x10 ⁴ Ratio = 44.4 (20.4 - 61.1) Acquisition Time (min)			- MRM (5.766-6.088 min) (298.7->**) 6Q14527.d Counts x10 ³ 79.9 98.8 298.7 Mass-to-Charge (m/z)		
13C3-HFPO-DA	10.07	6.16	0.01	13797				
- MRM (286.9 -> 168.9) 6Q14527.d Smooth Counts x10 ³ RT=6.163 min. Area=13797 S/N=666.16 Acquisition Time (min)			286.9 -> 168.9 Counts x10 ³ Acquisition Time (min)			- MRM (6.008-6.472 min, 38 scans) (286.9 -> **) 6Q Counts x10 ² 168.9 184.9 286.9 Mass-to-Charge (m/z)		

7.8.11

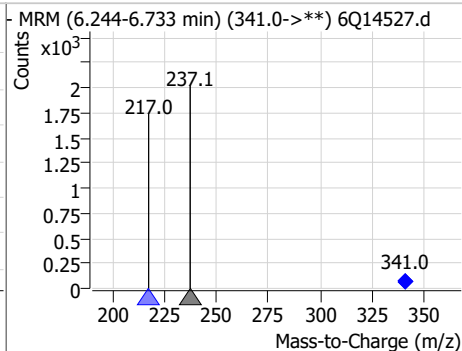
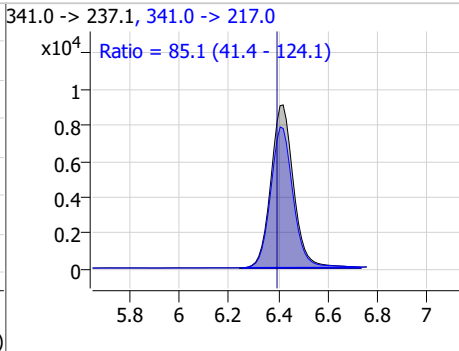
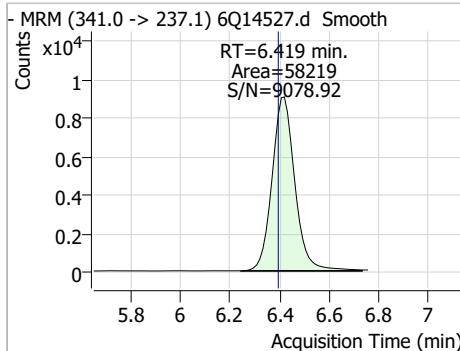
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Perfluorinated Compounds by LC/MS/MS

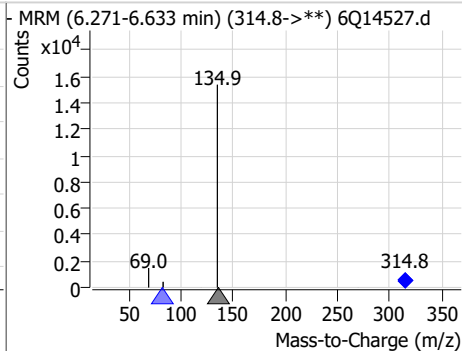
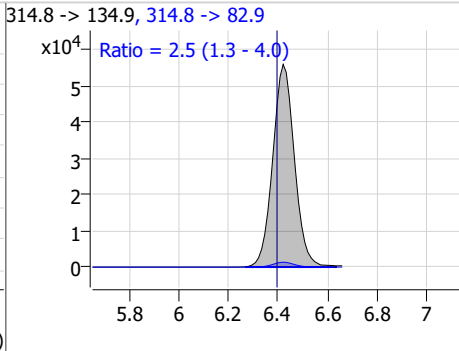
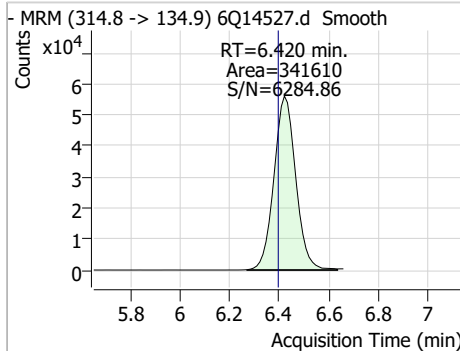
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	21.95	6.16	0.01	30262	284.9 -> 184.9	11.6	6.0	17.9



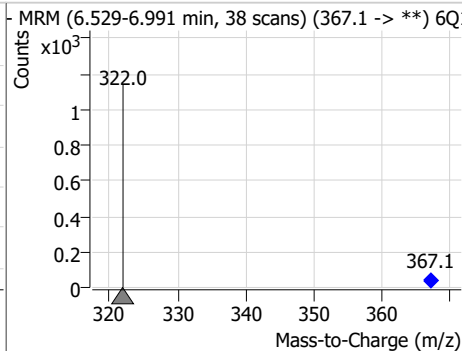
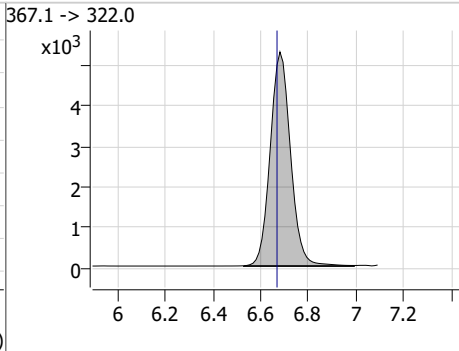
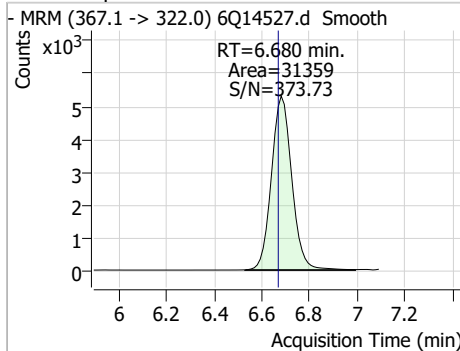
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	21.80	6.42	0.02	58219	341.0 -> 217.0	85.1	41.4	124.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	19.44	6.42	0.02	341610	314.8 -> 82.9	2.5	1.3	4.0

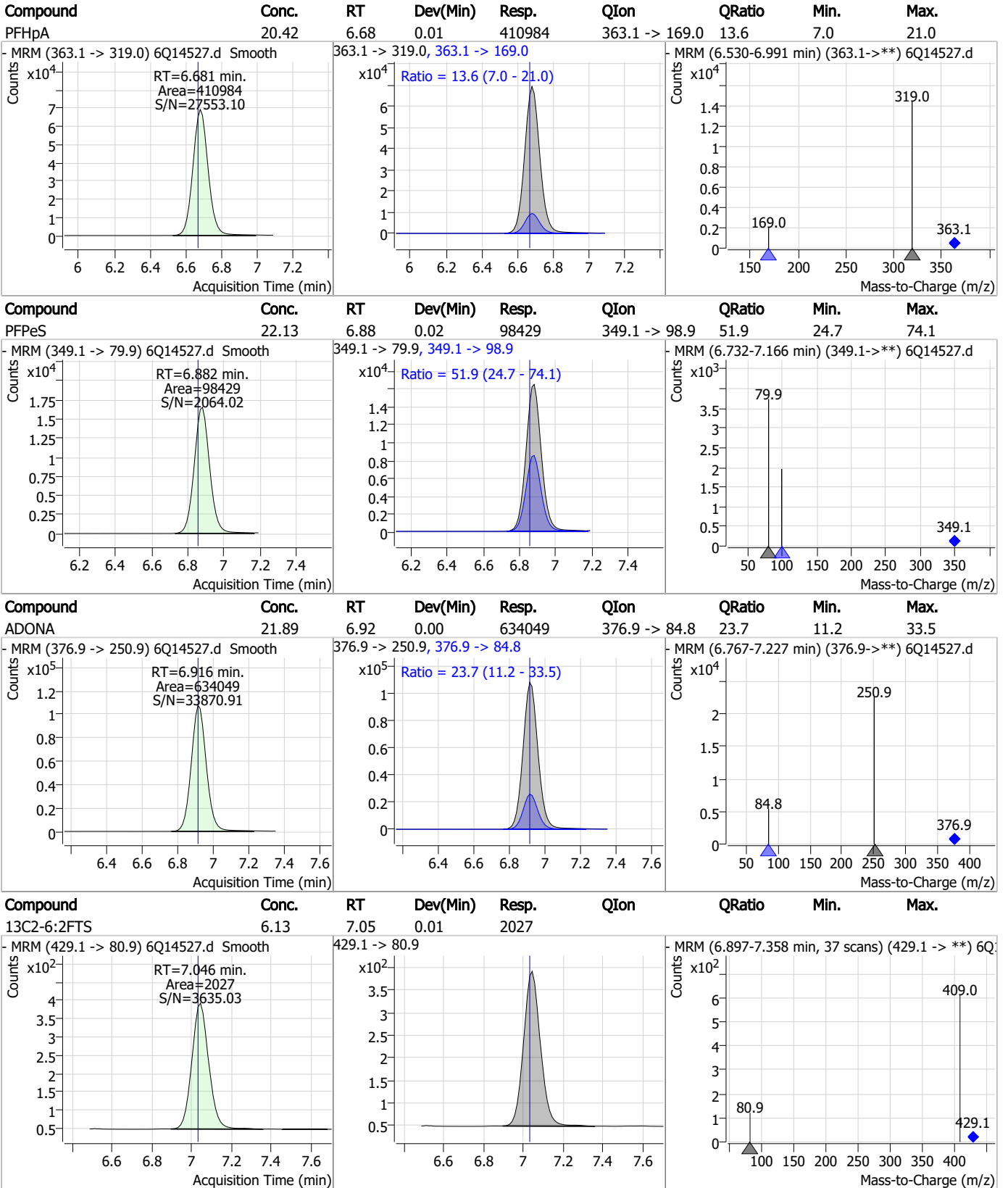


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.63	6.68	0.01	31359	367.1 -> 322.0			



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Perfluorinated Compounds by LC/MS/MS

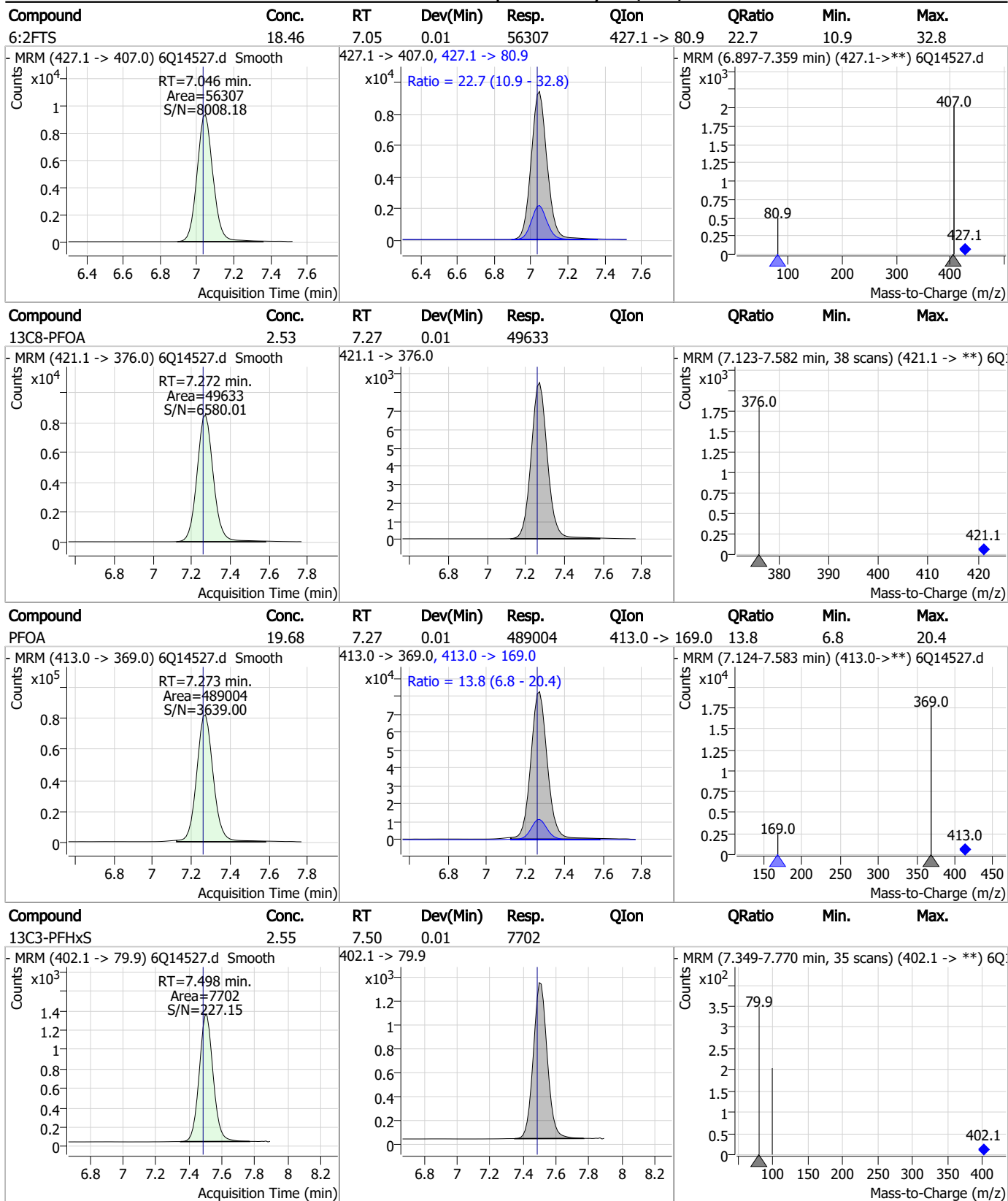


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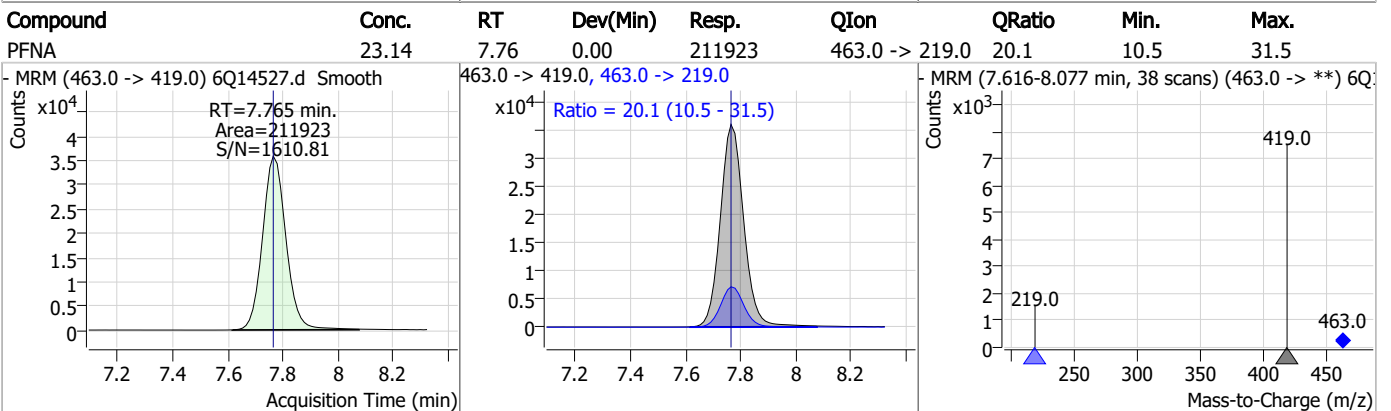
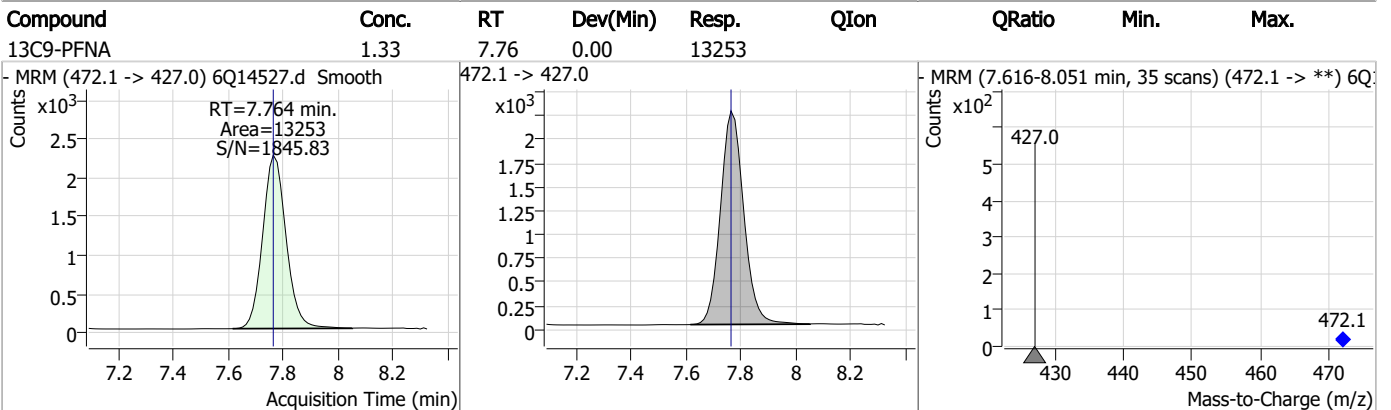
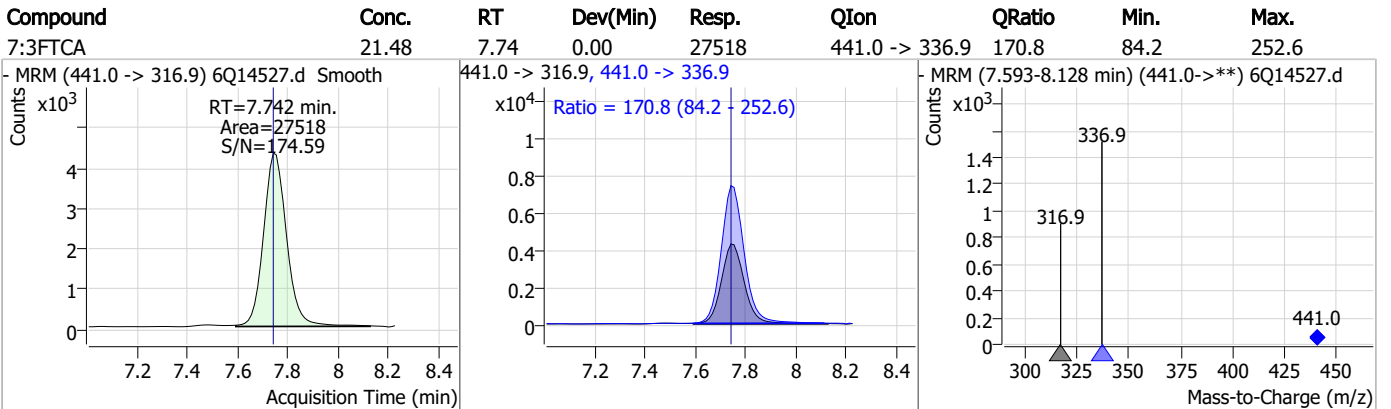
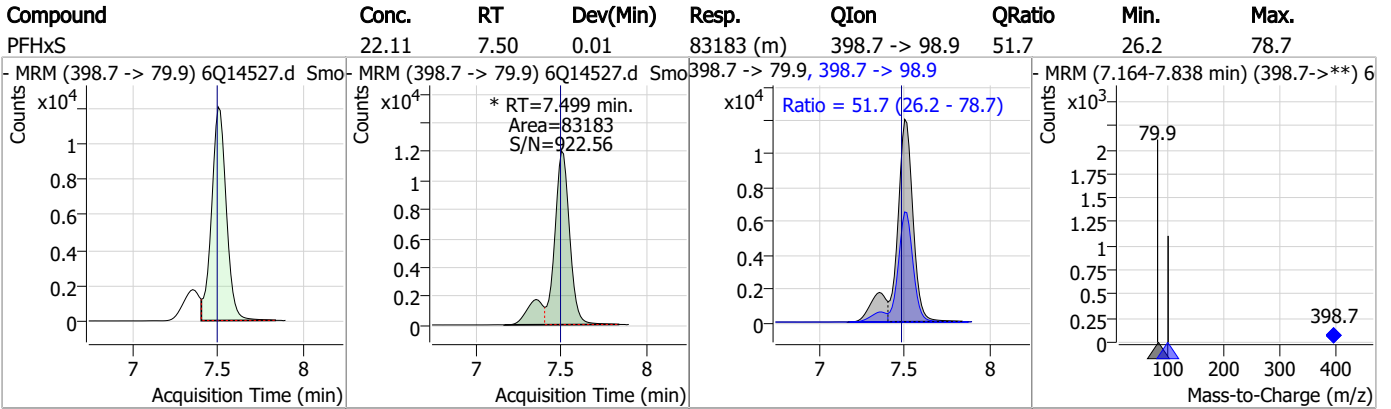
Perfluorinated Compounds by LC/MS/MS



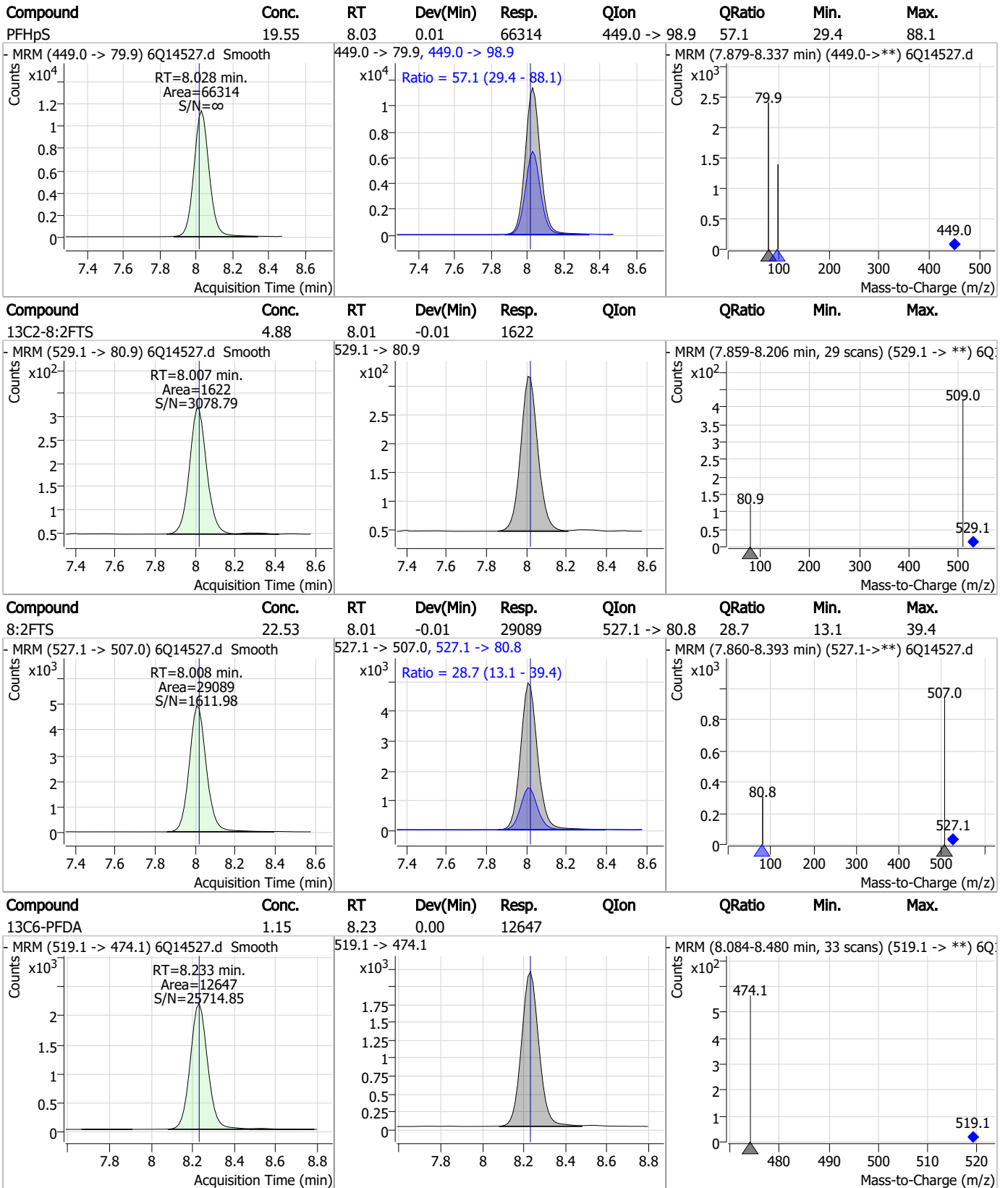
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Perfluorinated Compounds by LC/MS/MS



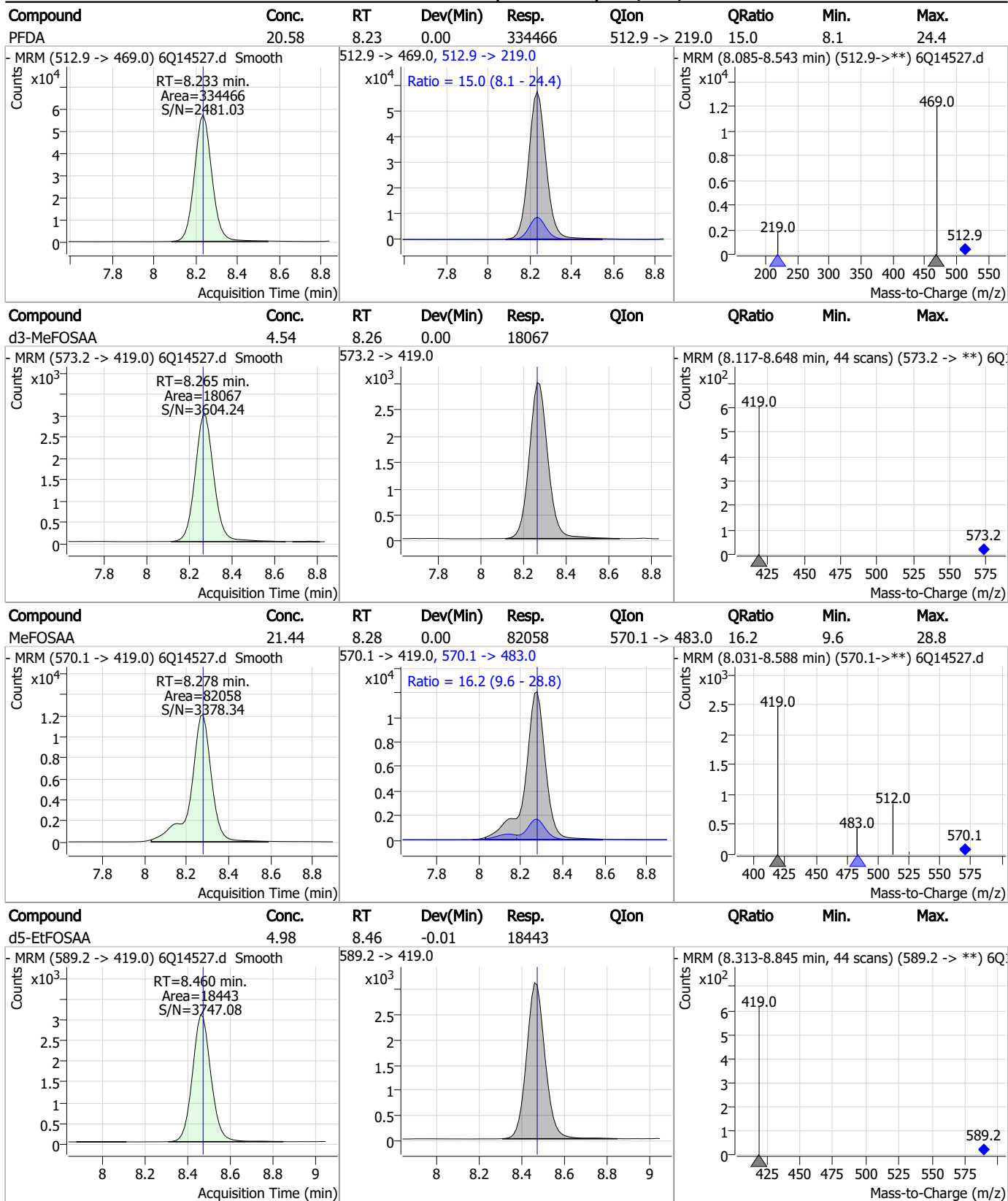
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

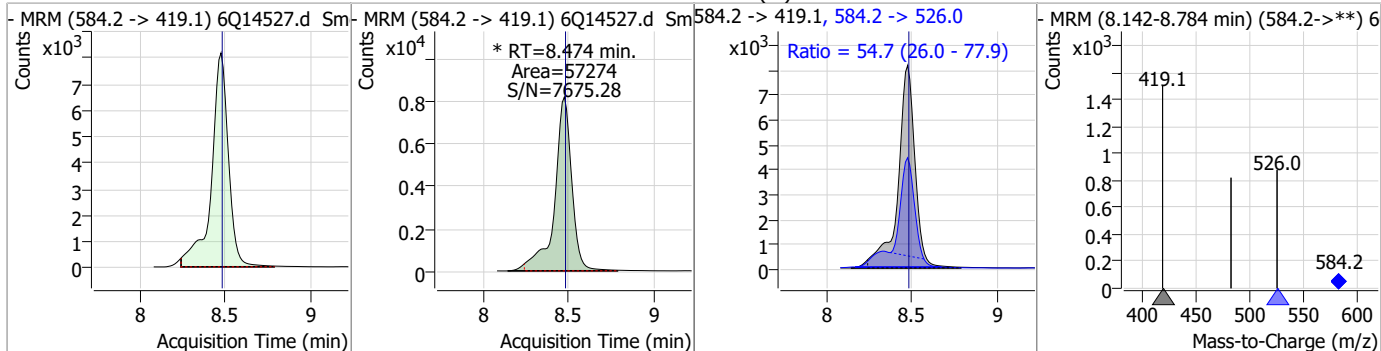


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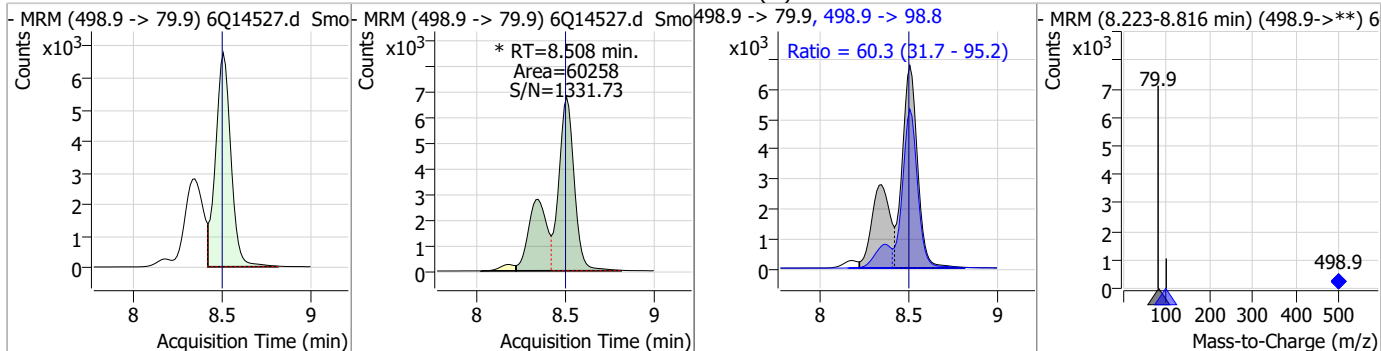


Perfluorinated Compounds by LC/MS/MS

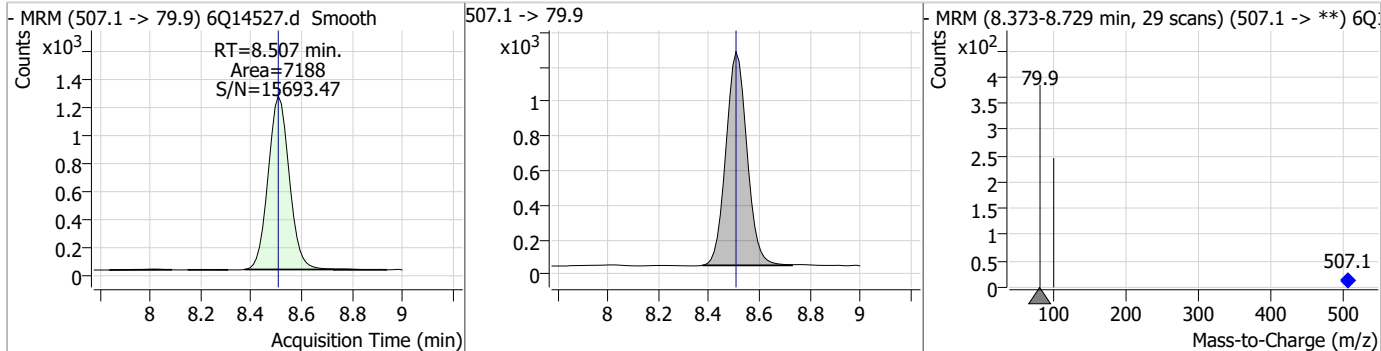
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	18.46	8.47	0.00	57274 (m)	584.2 -> 526.0	54.7	26.0	77.9



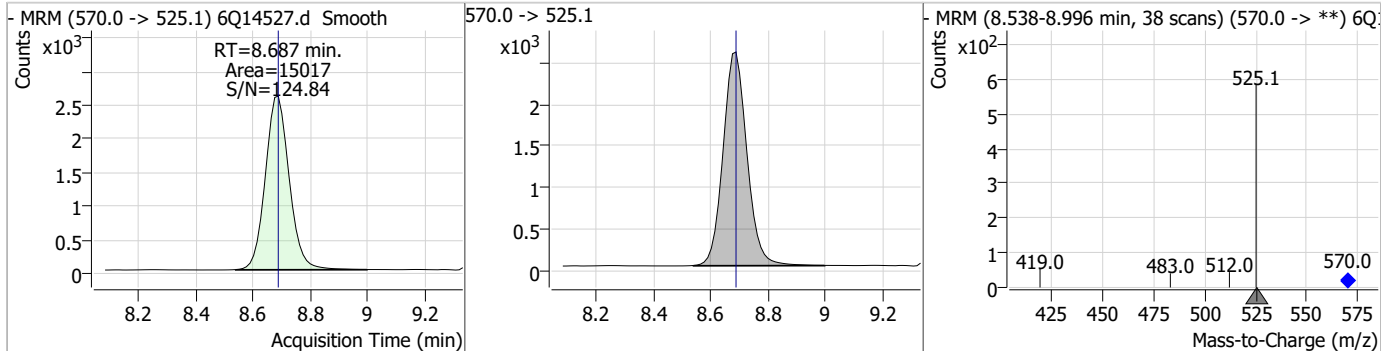
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	16.89	8.51	0.01	60258 (m)	498.9 -> 98.8	60.3	31.7	95.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.43	8.51	0.00	7188				

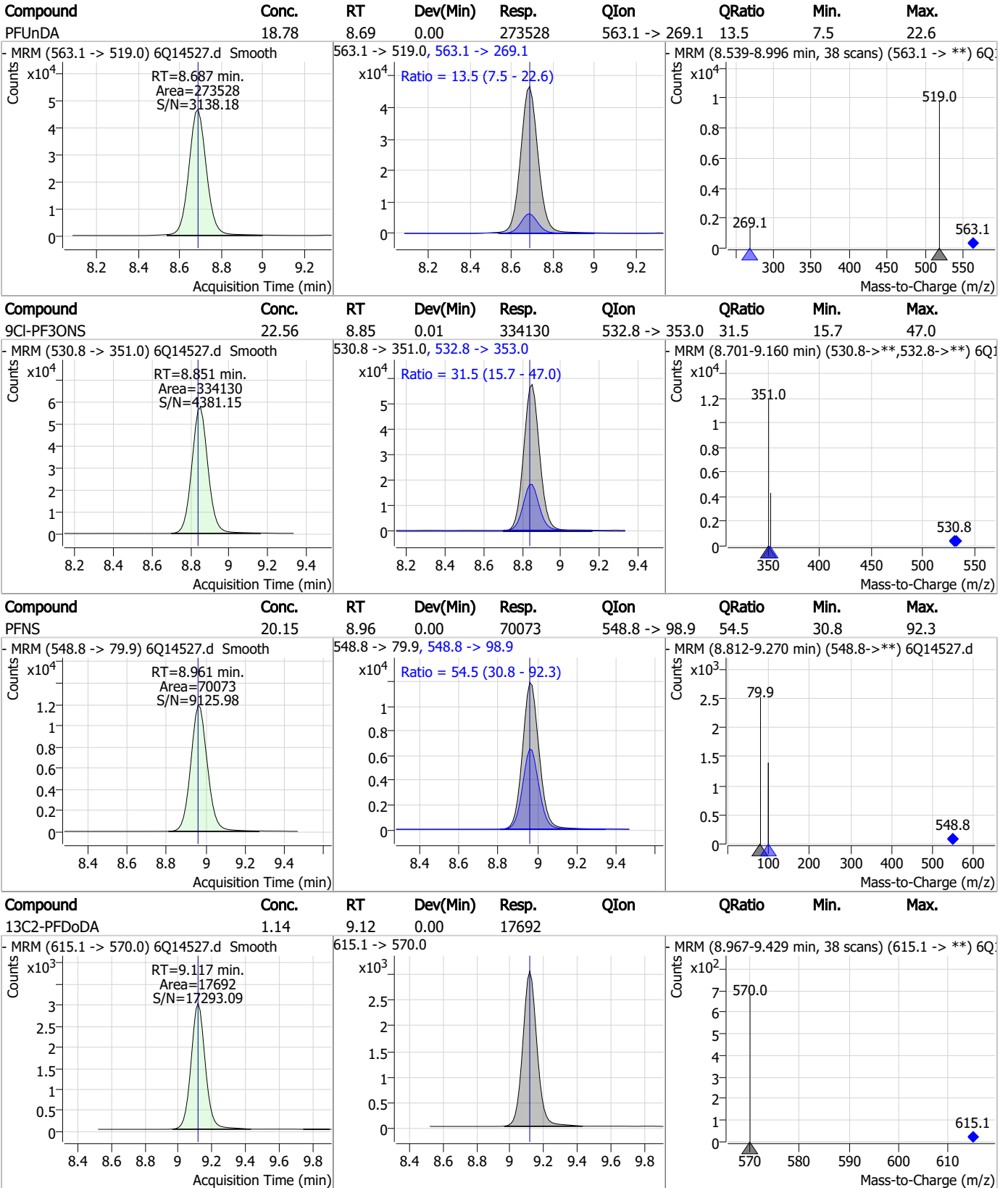


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.25	8.69	0.00	15017				



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Perfluorinated Compounds by LC/MS/MS

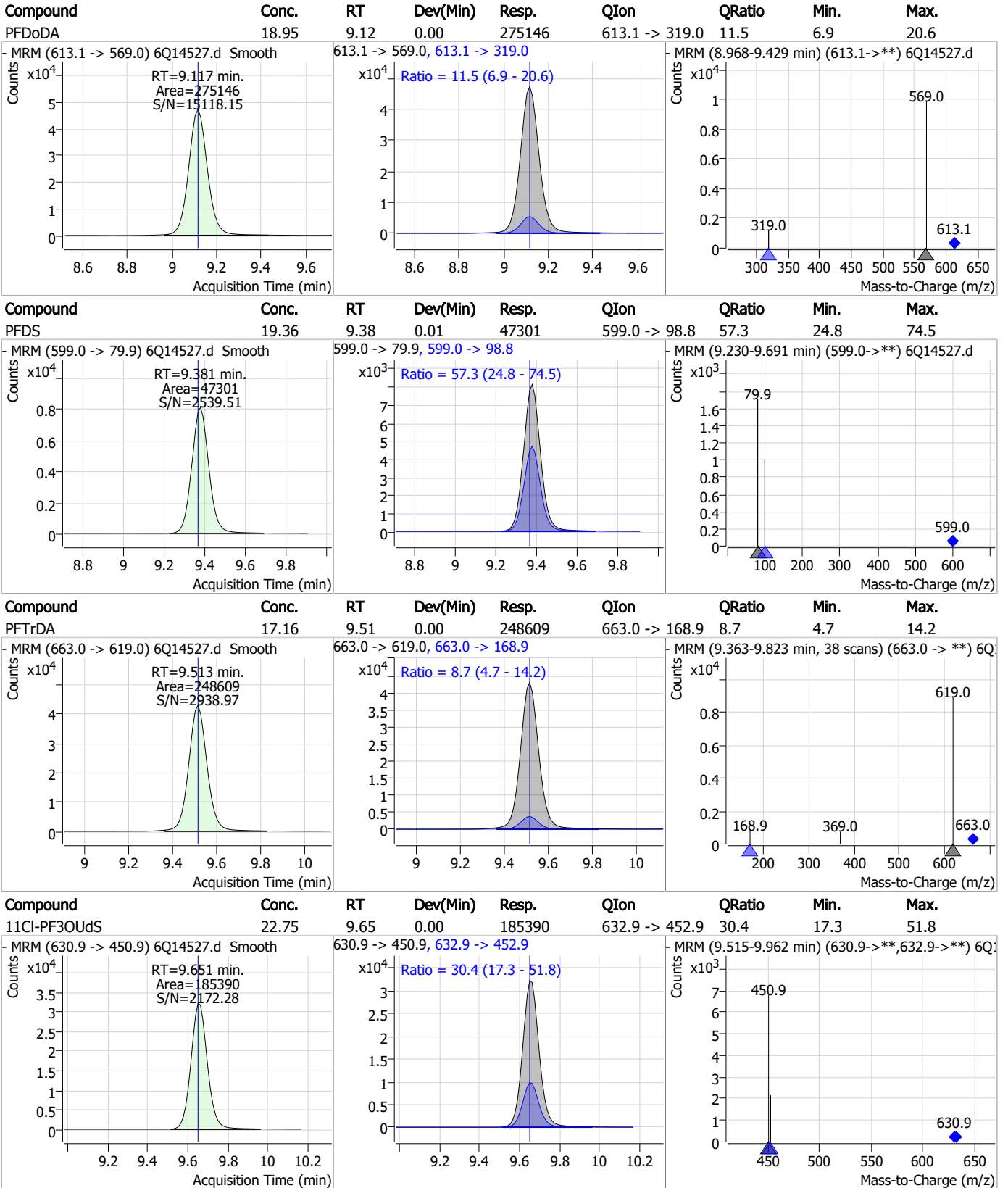


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Perfluorinated Compounds by LC/MS/MS

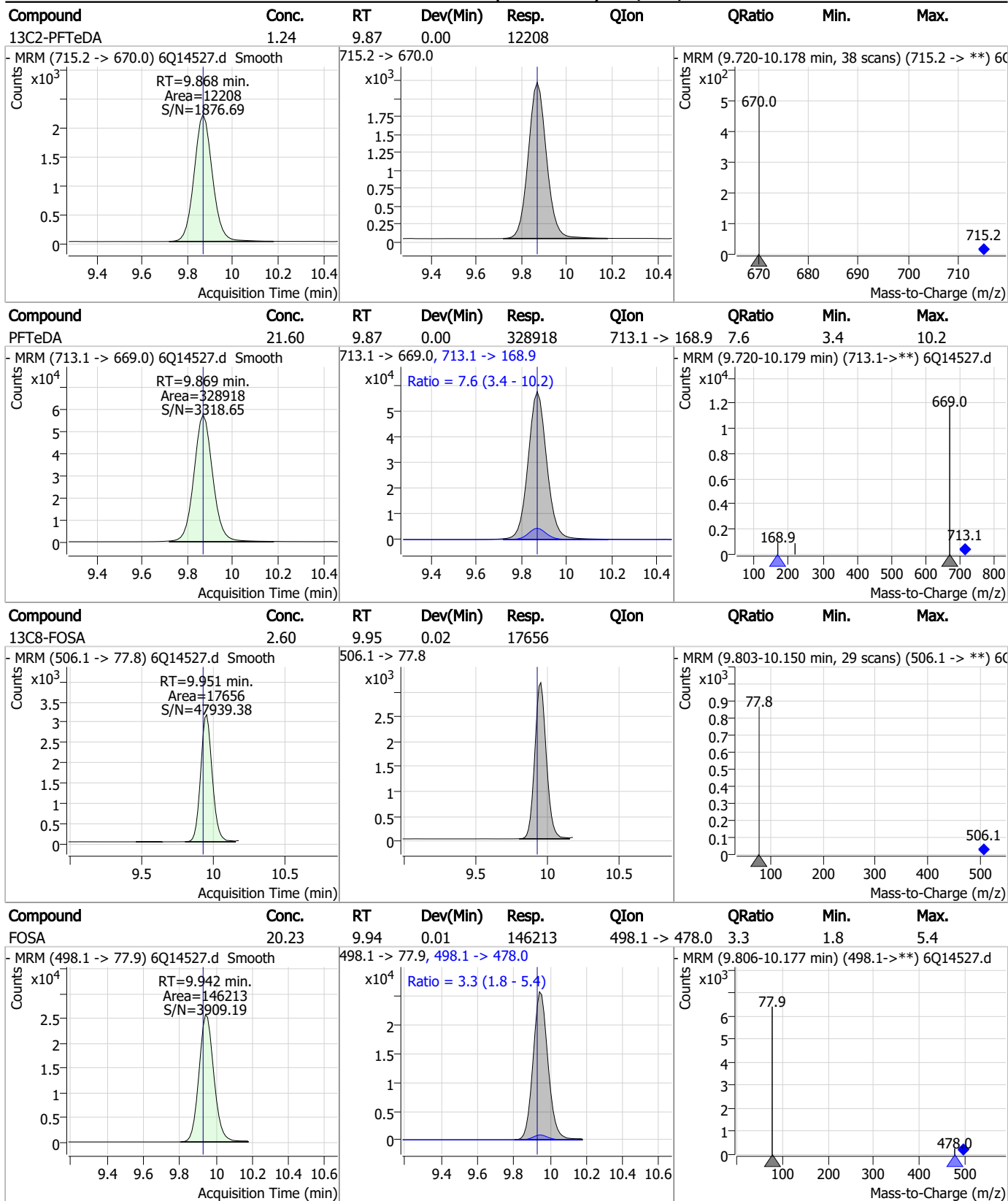


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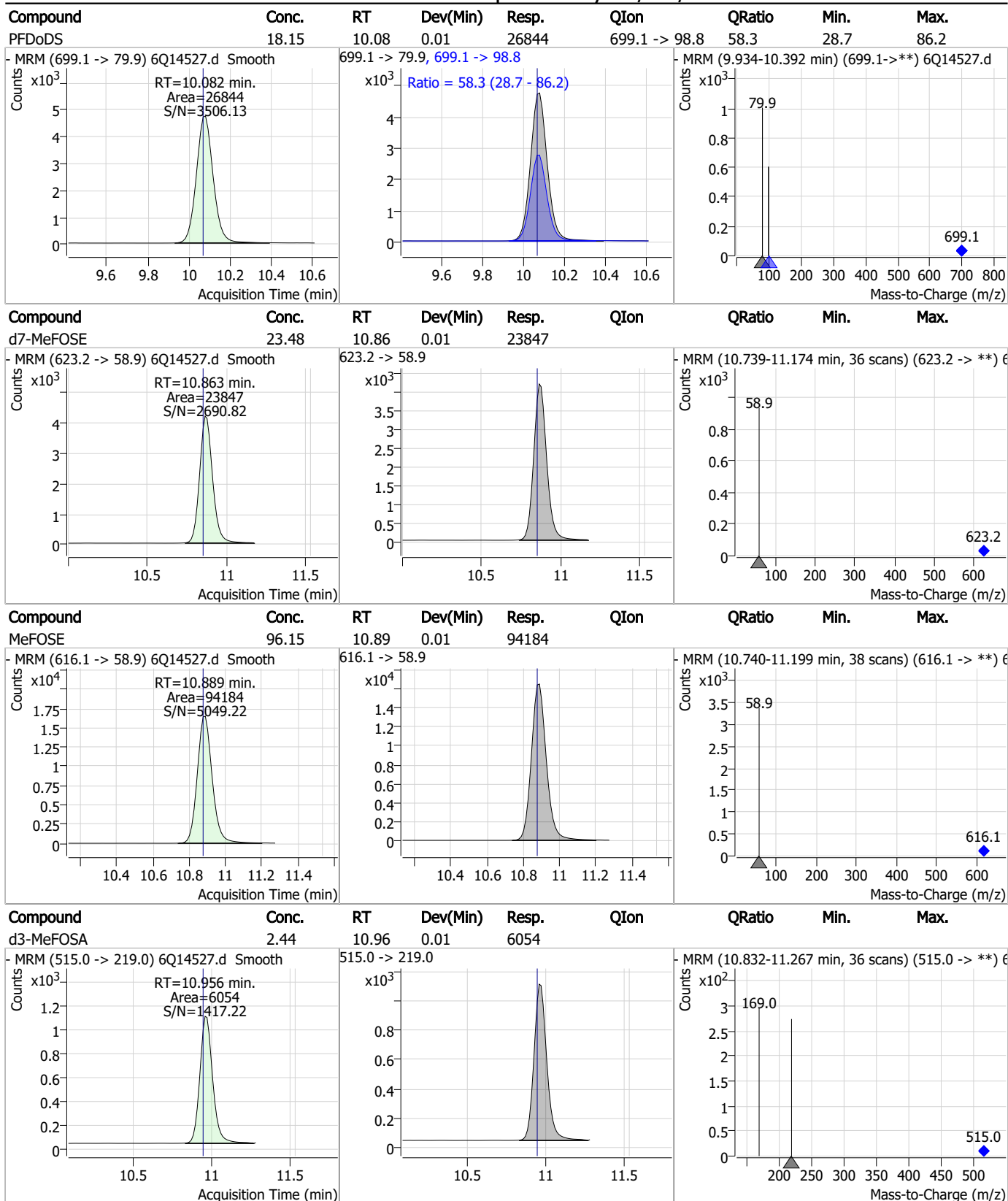
Perfluorinated Compounds by LC/MS/MS



7.8.11

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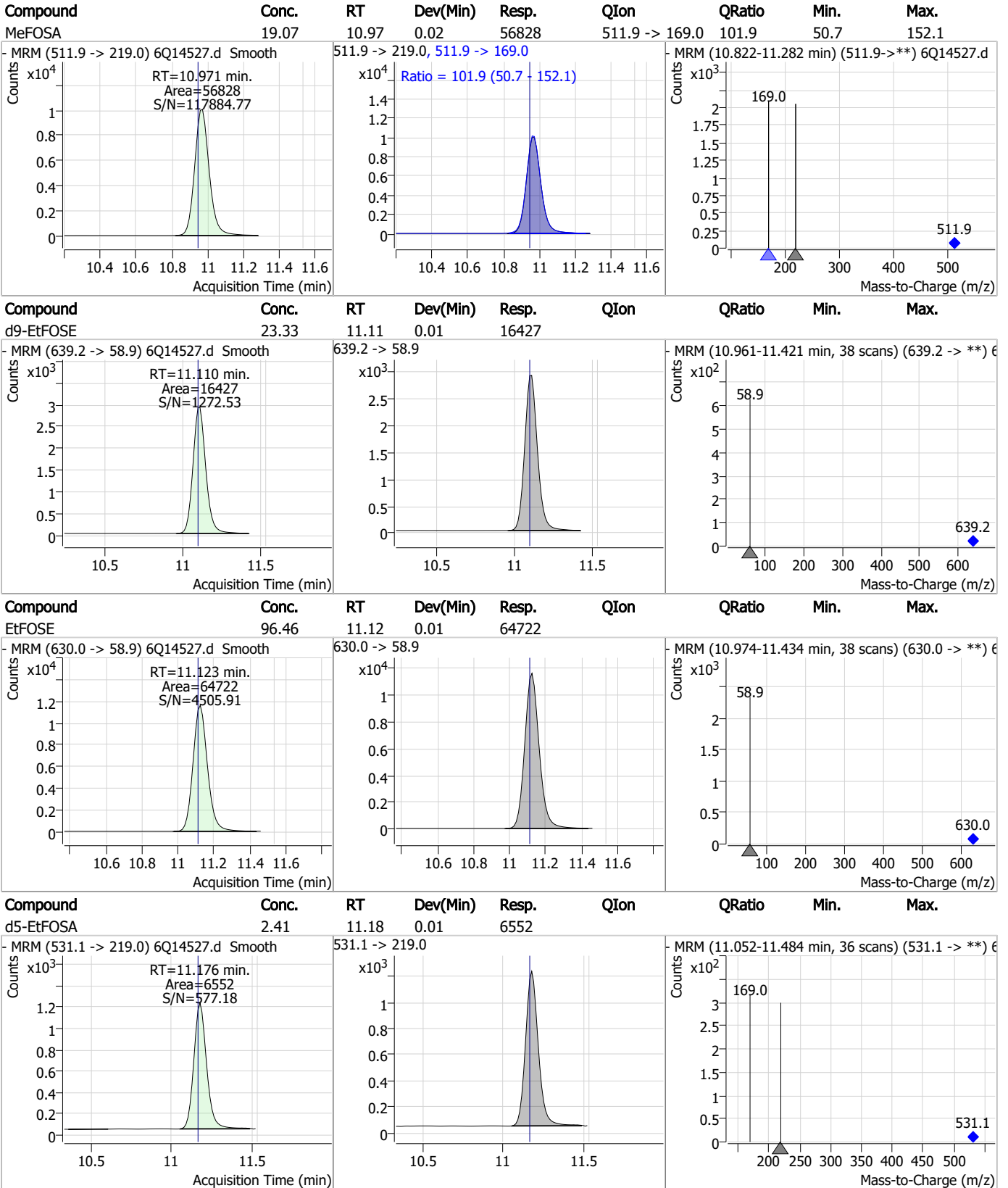
Perfluorinated Compounds by LC/MS/MS



7.8.11

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Perfluorinated Compounds by LC/MS/MS

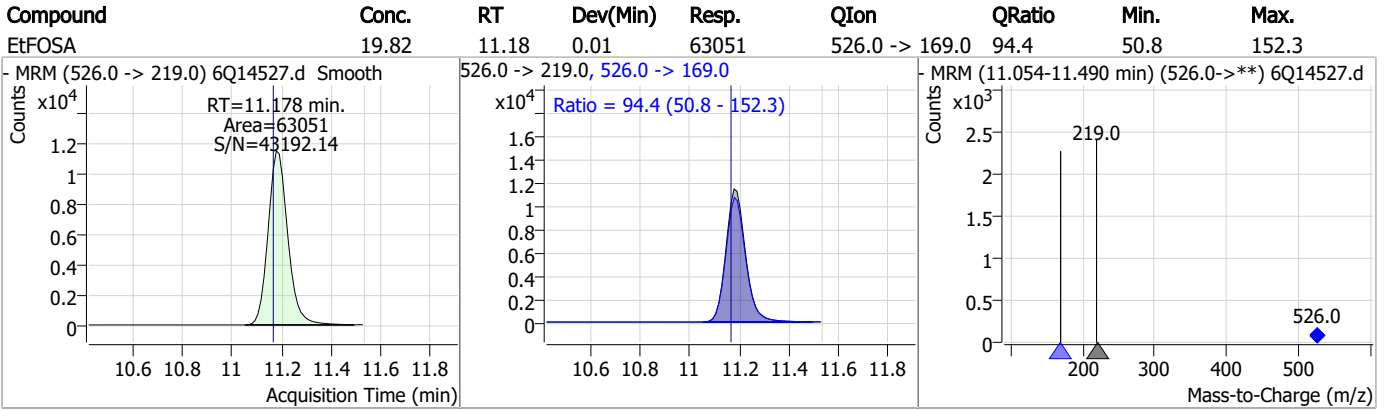


7.8.11

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Perfluorinated Compounds by LC/MS/MS



7.8.11

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Manual Integration Approval Summary

Sample Number: S6Q220-ICV220 Method: EPA DRAFT 1633
Lab FileID: 6Q14527.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 15:20 Supervisor approved: 03/10/23 10:46 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.50	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.51	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14528.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 3:34:02 PM
 Sample Name : cc220-4
 Vial : P1-A5
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.088	216.8 -> 171.9	76149	10.00 µg/L	0.012
M5-PFPeA	4.640	268.3 -> 223.0	37753	5.00 µg/L	0.025
M5-PFHxA	5.810	318.0 -> 273.0	33866	2.50 µg/L	0.000
M4-PFHpA	6.680	367.1 -> 322.0	32552	2.50 µg/L	0.012
M8-PFOA	7.259	421.1 -> 376.0	55948	2.50 µg/L	0.000
M9-PFNA	7.764	472.1 -> 427.0	14926	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	14141	1.25 µg/L	0.000
M7-PFUnDA	8.674	570.0 -> 525.1	16088	1.25 µg/L	-0.012
M2-PFDoDA	9.117	615.1 -> 570.0	18662	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	13666	1.25 µg/L	0.000
M8-FOSA	9.951	506.1 -> 77.8	17323	2.50 µg/L	0.025
M3-PFBS	5.938	302.1 -> 79.9	13064	2.50 µg/L	0.037
M3-PFHxS	7.498	402.1 -> 79.9	8227	2.50 µg/L	0.012
M8-PFOS	8.507	507.1 -> 79.9	7538	2.50 µg/L	0.000
M2-4:2FTS	5.488	329.1 -> 80.9	1441	5.00 µg/L	0.012
M2-6:2FTS	7.033	429.1 -> 80.9	1963	5.00 µg/L	0.000
M2-8:2FTS	8.007	529.1 -> 80.9	1930	5.00 µg/L	-0.012
M3-MeFOSAA	8.265	573.2 -> 419.0	19528	5.00 µg/L	0.000
M3-HFPO-DA	6.151	286.9 -> 168.9	14113	10.00 µg/L	0.000
M5-EtFOSAA	8.460	589.2 -> 419.0	18322	5.00 µg/L	-0.012
M7-MeFOSE	10.863	623.2 -> 58.9	25511	25.00 µg/L	0.012
M9-EtFOSE	11.110	639.2 -> 58.9	17102	25.00 µg/L	0.012
M5-EtFOSA	11.176	531.1 -> 219.0	6524	2.50 µg/L	0.012
M3-MeFOSA	10.956	515.0 -> 219.0	6239	2.50 µg/L	0.012
13C4-PFOS	8.508	502.8 -> 79.9	8669	2.50 µg/L	0.012
13C3-PFBA	3.091	216.0 -> 172.0	33145	5.00 µg/L	0.012
18O2-PFHxS	7.498	403.0 -> 83.9	5456	2.50 µg/L	0.000
13C4-PFOA	7.260	417.1 -> 372.0	63854	2.50 µg/L	0.000
13C2-PFDA	8.233	515.1 -> 470.1	20053	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	15675	1.25 µg/L	0.000
13C2-PFHxA	5.811	315.1 -> 270.0	33114	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.488	329.1 -> 80.9	1441	5.55 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.9%		
13C2-6:2FTS	7.033	429.1 -> 80.9	1963	5.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.9%		
13C2-8:2FTS	8.007	529.1 -> 80.9	1930	5.62 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.3%		
13C2-PFDoDA	9.117	615.1 -> 570.0	18662	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.9%		
13C2-PFTeDA	9.868	715.2 -> 670.0	13666	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C3-PFBS	5.938	302.1 -> 79.9	13064	2.74 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.8%		
13C3-PFHxS	7.498	402.1 -> 79.9	8227	2.64 µg/L	0.012

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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 = 105.4%	
13C4-PFBA	3.088	216.8 -> 171.9	76149	10.00 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.680	367.1 -> 322.0	32552	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C5-PFHxA	5.810	318.0 -> 273.0	33866	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C5-PFPeA	4.640	268.3 -> 223.0	37753	4.81 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C6-PFDA	8.233	519.1 -> 474.1	14141	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C7-PFUnDA	8.674	570.0 -> 525.1	16088	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C8-FOSA	9.951	506.1 -> 77.8	17323	2.55 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C8-PFOA	7.259	421.1 -> 376.0	55948	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C8-PFOS	8.507	507.1 -> 79.9	7538	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C9-PFNA	7.764	472.1 -> 427.0	14926	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.8%	
d3-MeFOSAA	8.265	573.2 -> 419.0	19528	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C3-HFPO-DA	6.151	286.9 -> 168.9	14113	9.30 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
d3-MeFOSA	10.956	515.0 -> 219.0	6239	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
d5-EtFOSAA	8.460	589.2 -> 419.0	18322	4.94 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
d7-MeFOSE	10.863	623.2 -> 58.9	25511	25.06 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
d9-EtFOSE	11.110	639.2 -> 58.9	17102	24.24 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
d5-EtFOSA	11.176	531.1 -> 219.0	6524	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%	
Target Compounds					QValue
4:2FTS	5.488	327.1 -> 307.0	30930	9.51 µg/L	98
		327.1 -> 80.9	7985		
6:2FTS	7.034	427.1 -> 407.0	27307	9.25 µg/L	100
		427.1 -> 80.9	5976		
8:2FTS	8.008	527.1 -> 507.0	14230	9.26 µg/L	96
		527.1 -> 80.8	3467		
EtFOSAA	8.474	584.2 -> 419.1	6939	2.25 µg/L	m 94
		584.2 -> 526.0	3915		
FOSA	9.942	498.1 -> 77.9	16494	2.33 µg/L	100
		498.1 -> 478.0	583		
MeFOSAA	8.266	570.1 -> 419.0	9304	2.25 µg/L	m 96
		570.1 -> 483.0	1622		
PFBA	3.094	212.8 -> 168.9	19245	9.21 µg/L	100
PFBS	5.939	298.7 -> 79.9	10990	2.01 µg/L	96
		298.7 -> 98.8	4784		
PFDA	8.233	512.9 -> 469.0	43267	2.38 µg/L	91
		512.9 -> 219.0	5400		
PFDODA	9.117	613.1 -> 569.0	35523	2.32 µg/L	96
		613.1 -> 319.0	4270		
PFDS	9.381	599.0 -> 79.9	5514	2.15 µg/L	93

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3007			
PFHpA	6.681	363.1 -> 319.0	45411	2.17	µg/L	94
		363.1 -> 169.0	7374			
PFHpS	8.028	449.0 -> 79.9	7826	2.20	µg/L	96
		449.0 -> 98.9	4349			
PFHxA	5.825	313.0 -> 269.0	31577	2.35	µg/L	100
		313.0 -> 118.9	1365			
PFHxS	7.499	398.7 -> 79.9	8062	2.01	µg/L	m 92
		398.7 -> 98.9	4672			
PFNA	7.765	463.0 -> 419.0	22583	2.19	µg/L	99
		463.0 -> 219.0	4652			
PFNS	8.961	548.8 -> 79.9	7730	2.12	µg/L	93
		548.8 -> 98.9	4337			
PFOA	7.261	413.0 -> 369.0	61358	2.19	µg/L	100
		413.0 -> 169.0	8241			
PFOS	8.508	498.9 -> 79.9	8087	2.16	µg/L	m 97
		498.9 -> 98.8	4952			
PFPeA	4.642	263.0 -> 219.0	40784	4.65	µg/L	100
PFPeS	6.869	349.1 -> 79.9	10568	2.22	µg/L	97
		349.1 -> 98.9	5405			
PFTeDA	9.869	713.1 -> 669.0	38688	2.27	µg/L	99
		713.1 -> 168.9	2784			
PFTrDA	9.513	663.0 -> 619.0	33390	2.19	µg/L	98
		663.0 -> 168.9	2916			
PFUnDA	8.687	563.1 -> 519.0	33005	2.12	µg/L	100
		563.1 -> 269.1	4975			
11CI-PF3OUdS	9.651	630.9 -> 450.9	83685	10.04	µg/L	89
		632.9 -> 452.9	23765			
9CI-PF3ONS	8.838	530.8 -> 351.0	136008	8.98	µg/L	96
		532.8 -> 353.0	45307			
ADONA	6.916	376.9 -> 250.9	271068	9.15	µg/L	97
		376.9 -> 84.8	65179			
HFPO-DA	6.152	284.9 -> 168.9	13616	9.66	µg/L	97
		284.9 -> 184.9	1801			
3:3FTCA	4.014	241.0 -> 177.0	4906	11.00	µg/L	97
		241.0 -> 117.0	705			
5:3FTCA	6.407	341.0 -> 237.1	172830	58.84	µg/L	98
		341.0 -> 217.0	145263			
7:3FTCA	7.742	441.0 -> 316.9	88028	62.48	µg/L	94
		441.0 -> 336.9	141576			
EtFOSA	11.178	526.0 -> 219.0	7734	2.44	µg/L	99
		526.0 -> 169.0	7780			
EtFOSE	11.123	630.0 -> 58.9	17193	24.61	µg/L	100
MeFOSA	10.971	511.9 -> 219.0	6941	2.26	µg/L	94
		511.9 -> 169.0	7429			
MeFOSE	10.889	616.1 -> 58.9	24364	23.25	µg/L	100
PFDoDS	10.082	699.1 -> 79.9	3513	2.26	µg/L	98
		699.1 -> 98.8	2059			
NFDHA	5.693	295.0 -> 201.0	4024	4.35	µg/L	91
		295.0 -> 84.9	1818			
PFMBA	5.026	279.0 -> 85.1	13359	4.53	µg/L	100
PFMPA	3.729	229.0 -> 84.9	11285	4.40	µg/L	100
PFEESA	6.420	314.8 -> 134.9	79260	4.10	µg/L	99
		314.8 -> 82.9	1946			

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

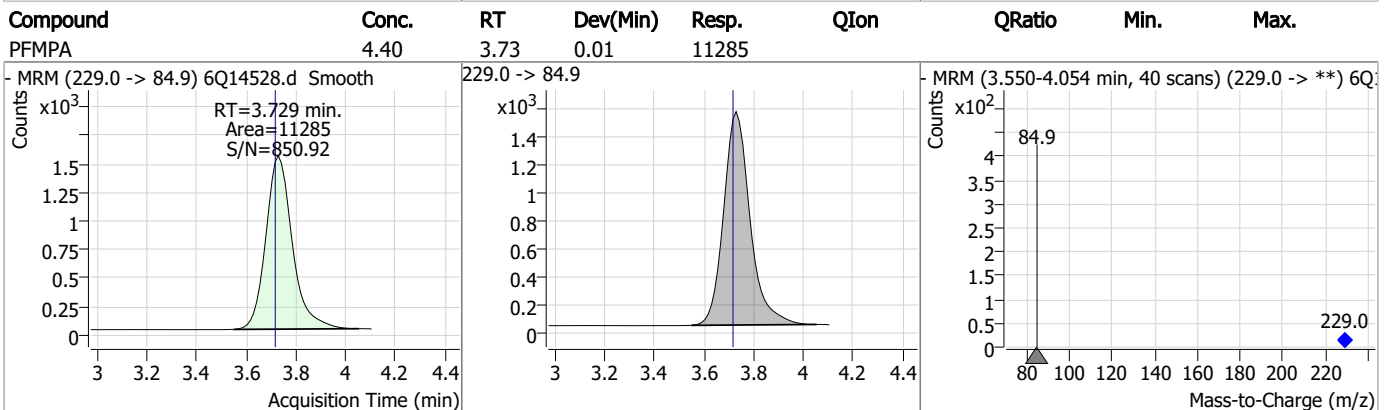
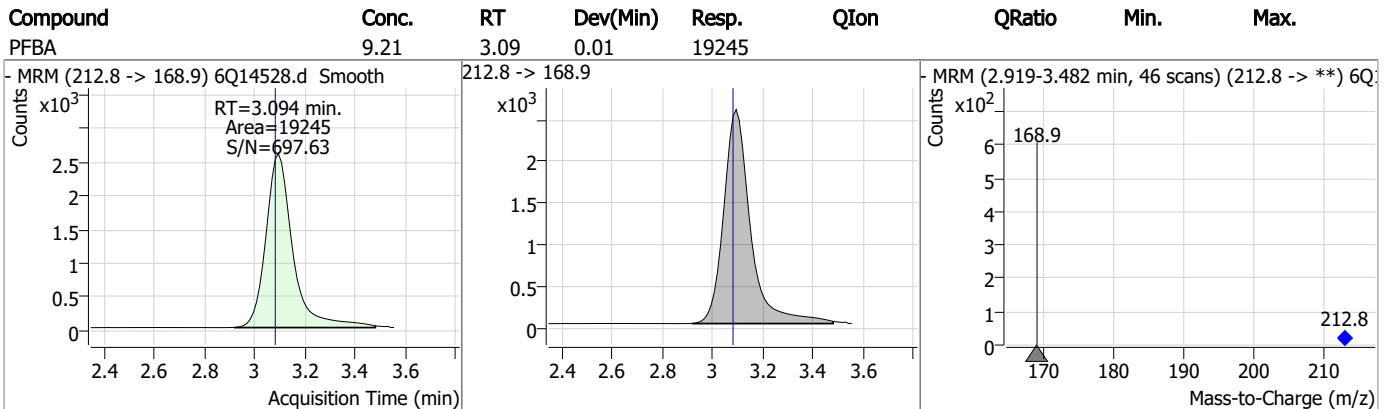
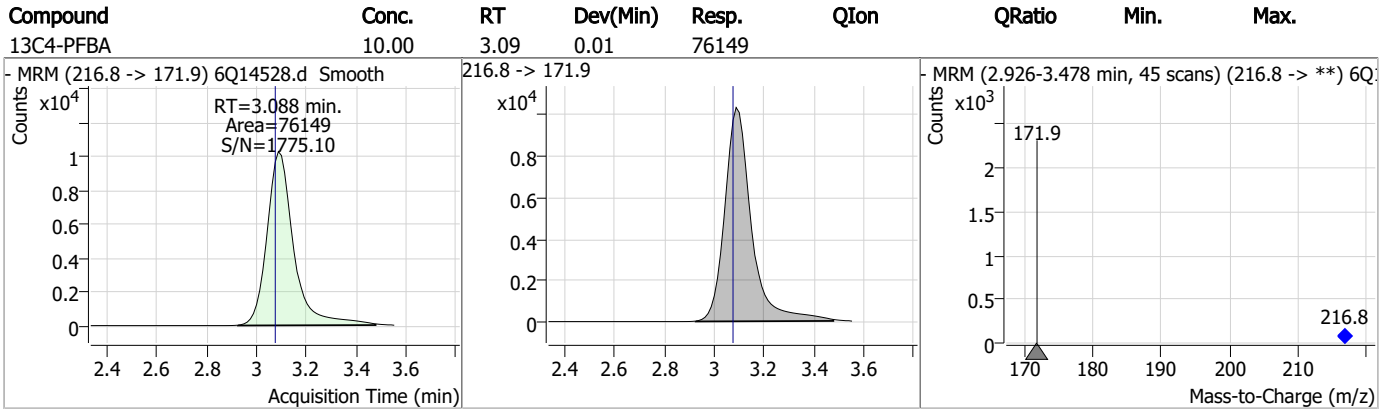
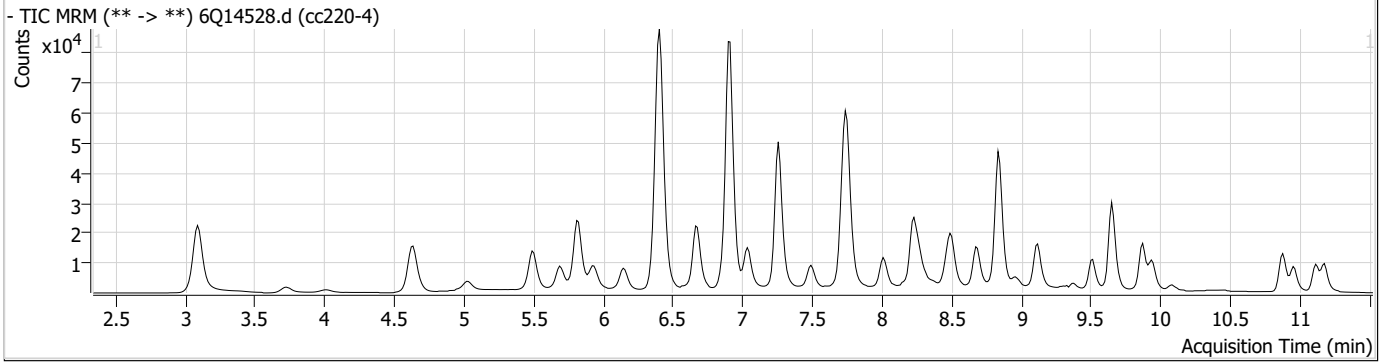
7.8.12
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Perfluorinated Compounds by LC/MS/MS

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

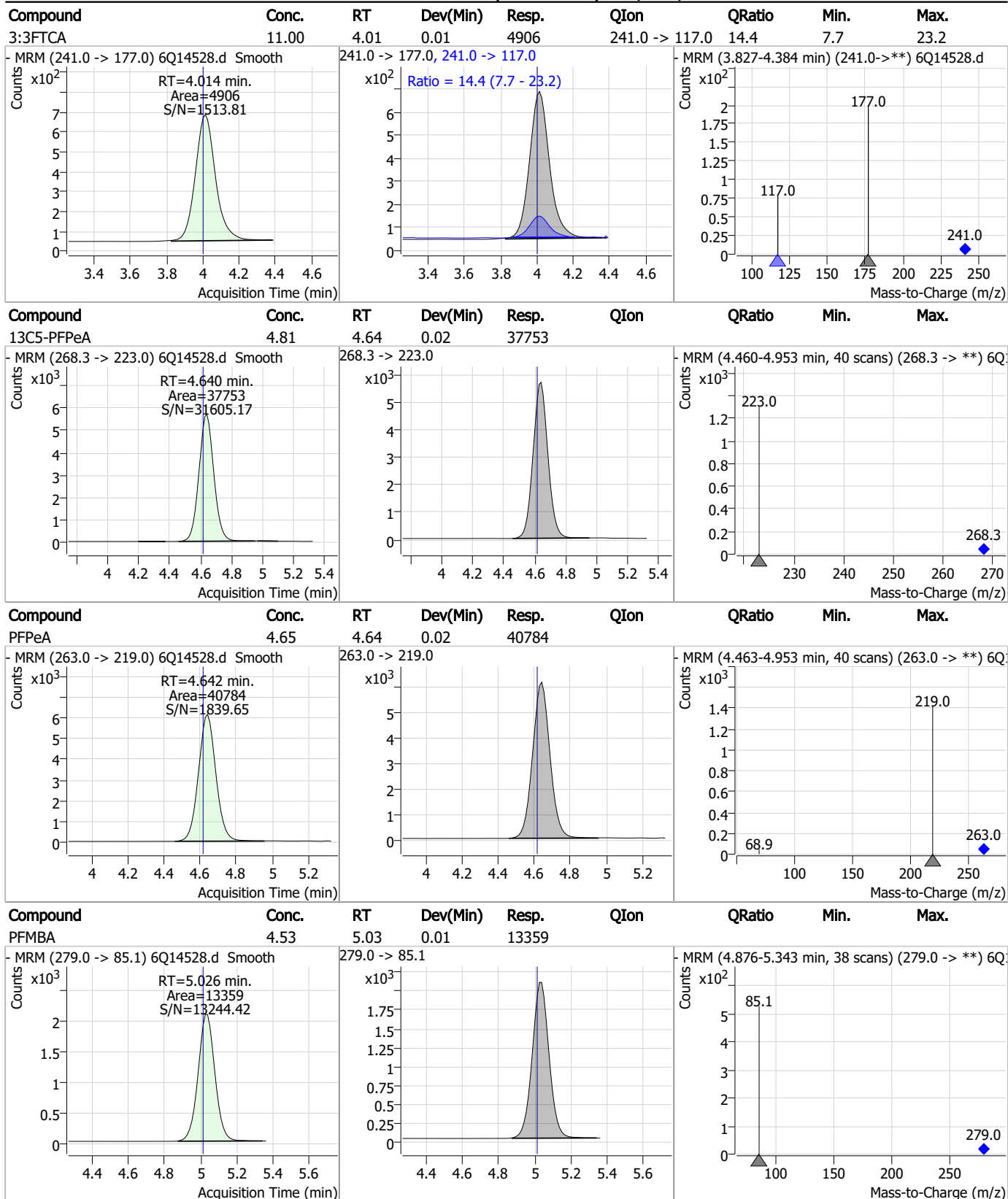


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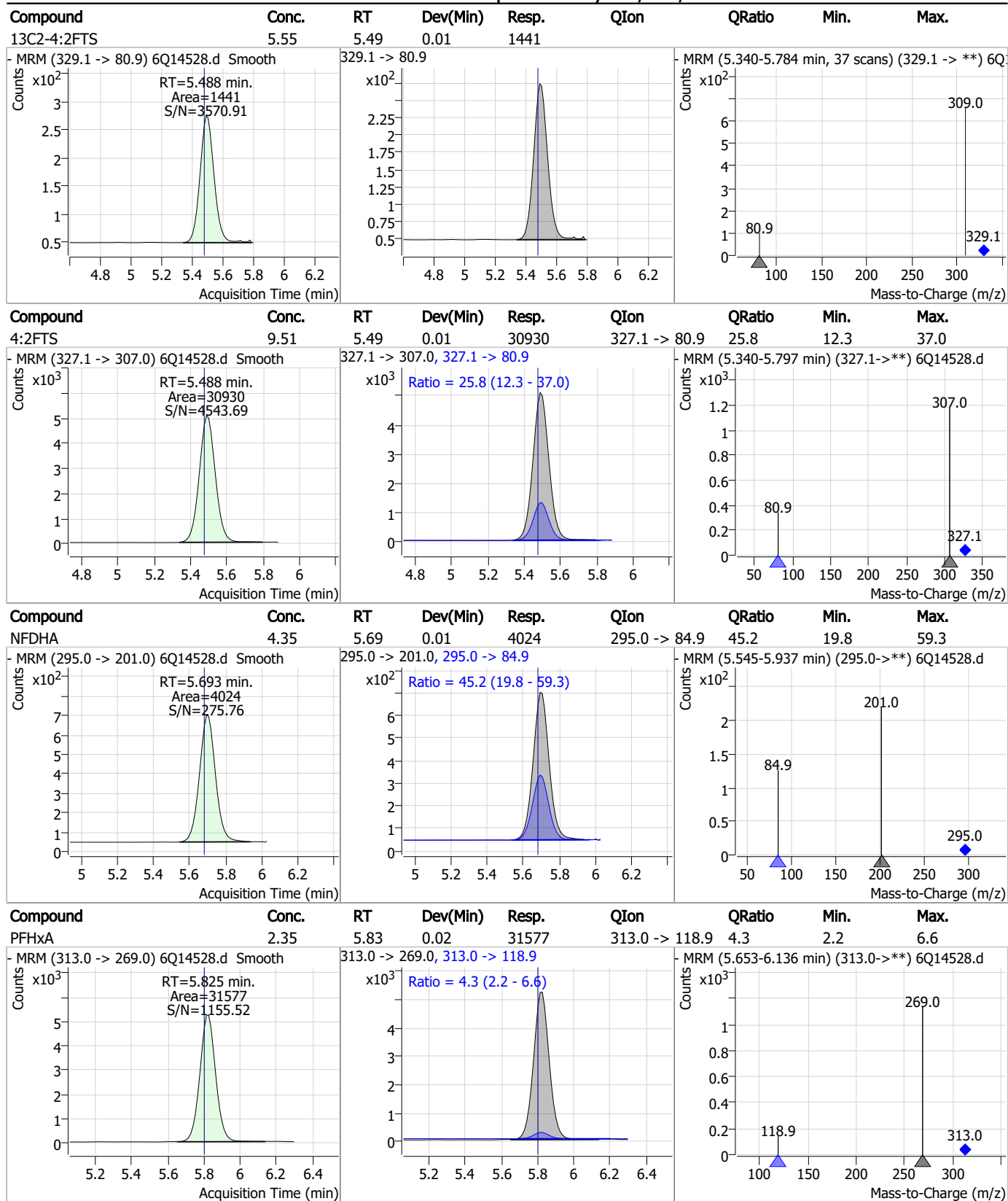
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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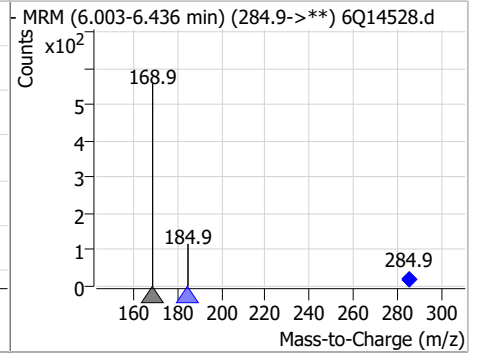
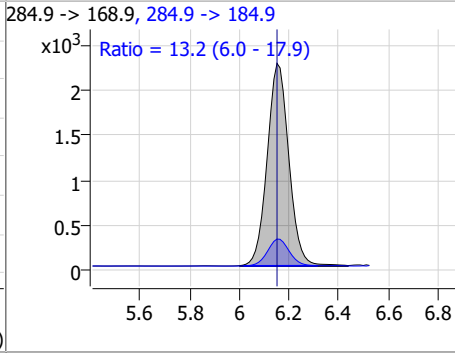
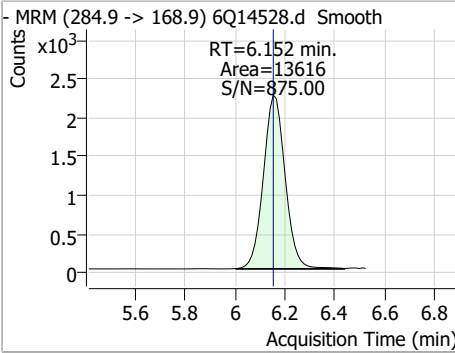
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.49	5.81	0.00	33866				
- MRM (318.0 -> 273.0) 6Q14528.d Smooth Counts x10 ³ RT=5.810 min. Area=33866 S/N=1864.19 Acquisition Time (min)			318.0 -> 273.0 x10 ³ Acquisition Time (min)			- MRM (5.662-6.045 min, 32 scans) (318.0 -> **) 6Q14528.d Counts x10 ³ 273.0 120.3 318.0 Mass-to-Charge (m/z)		
13C3-PFBS	2.74	5.94	0.04	13064				
- MRM (302.1 -> 79.9) 6Q14528.d Smooth Counts x10 ³ RT=5.938 min. Area=13064 S/N=9035.16 Acquisition Time (min)			302.1 -> 79.9 x10 ³ Acquisition Time (min)			- MRM (5.766-6.125 min, 30 scans) (302.1 -> **) 6Q14528.d Counts x10 ² 79.9 98.9 302.1 Mass-to-Charge (m/z)		
PFBS	2.01	5.94	0.04	10990	298.7 -> 98.8	43.5	20.4	61.1
- MRM (298.7 -> 79.9) 6Q14528.d Smooth Counts x10 ³ RT=5.939 min. Area=10990 S/N=2061.09 Acquisition Time (min)			298.7 -> 79.9, 298.7 -> 98.8 x10 ³ Ratio = 43.5 (20.4 - 61.1) Acquisition Time (min)			- MRM (5.766-6.076 min) (298.7->**) 6Q14528.d Counts x10 ² 79.9 98.8 298.7 Mass-to-Charge (m/z)		
13C3-HFPO-DA	9.30	6.15	0.00	14113				
- MRM (286.9 -> 168.9) 6Q14528.d Smooth Counts x10 ³ RT=6.151 min. Area=14113 S/N=73279.81 Acquisition Time (min)			286.9 -> 168.9 x10 ³ Acquisition Time (min)			- MRM (6.002-6.361 min, 30 scans) (286.9 -> **) 6Q14528.d Counts x10 ² 168.9 184.9 286.9 Mass-to-Charge (m/z)		

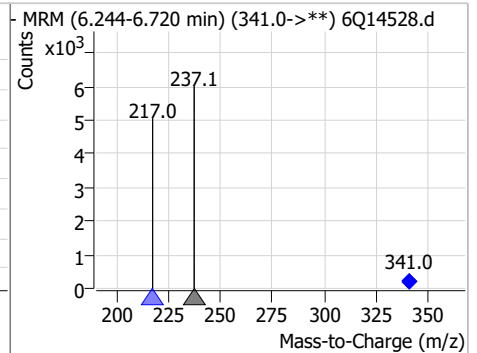
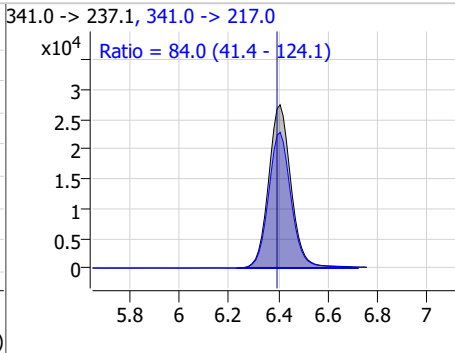
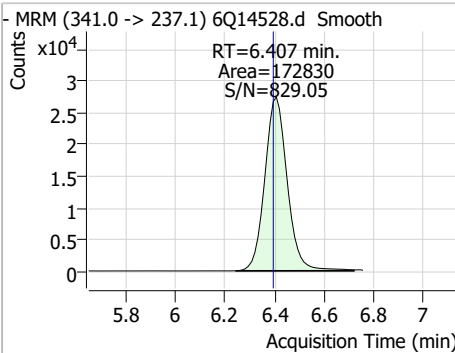
7.8.12 7

Perfluorinated Compounds by LC/MS/MS

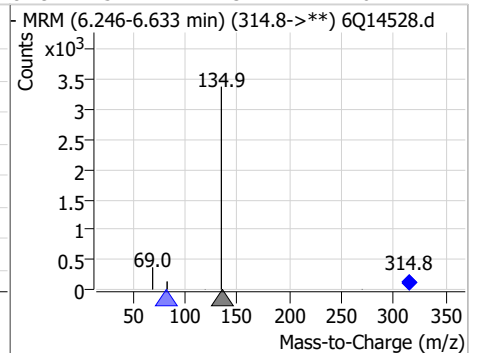
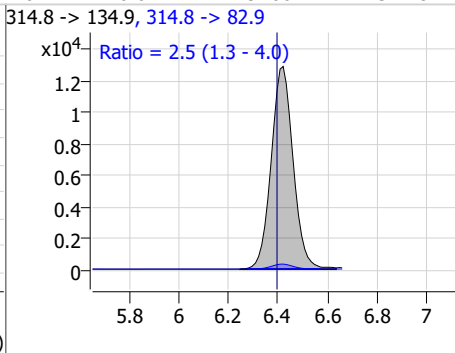
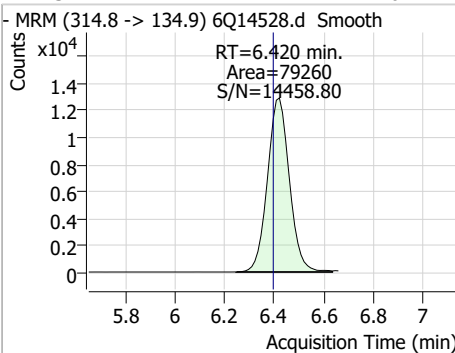
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.66	6.15	0.00	13616	284.9 -> 184.9	13.2	6.0	17.9



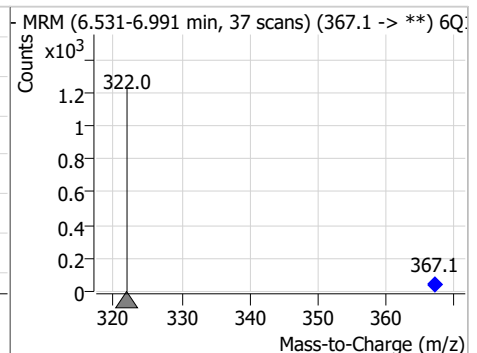
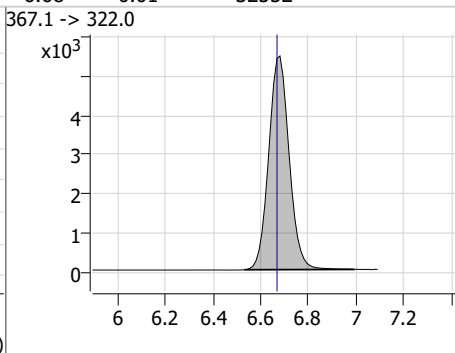
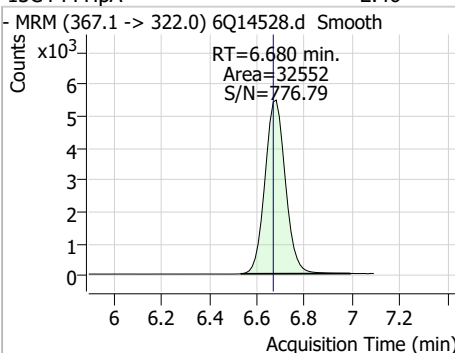
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	58.84	6.41	0.01	172830	341.0 -> 217.0	84.0	41.4	124.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.10	6.42	0.02	79260	314.8 -> 82.9	2.5	1.3	4.0

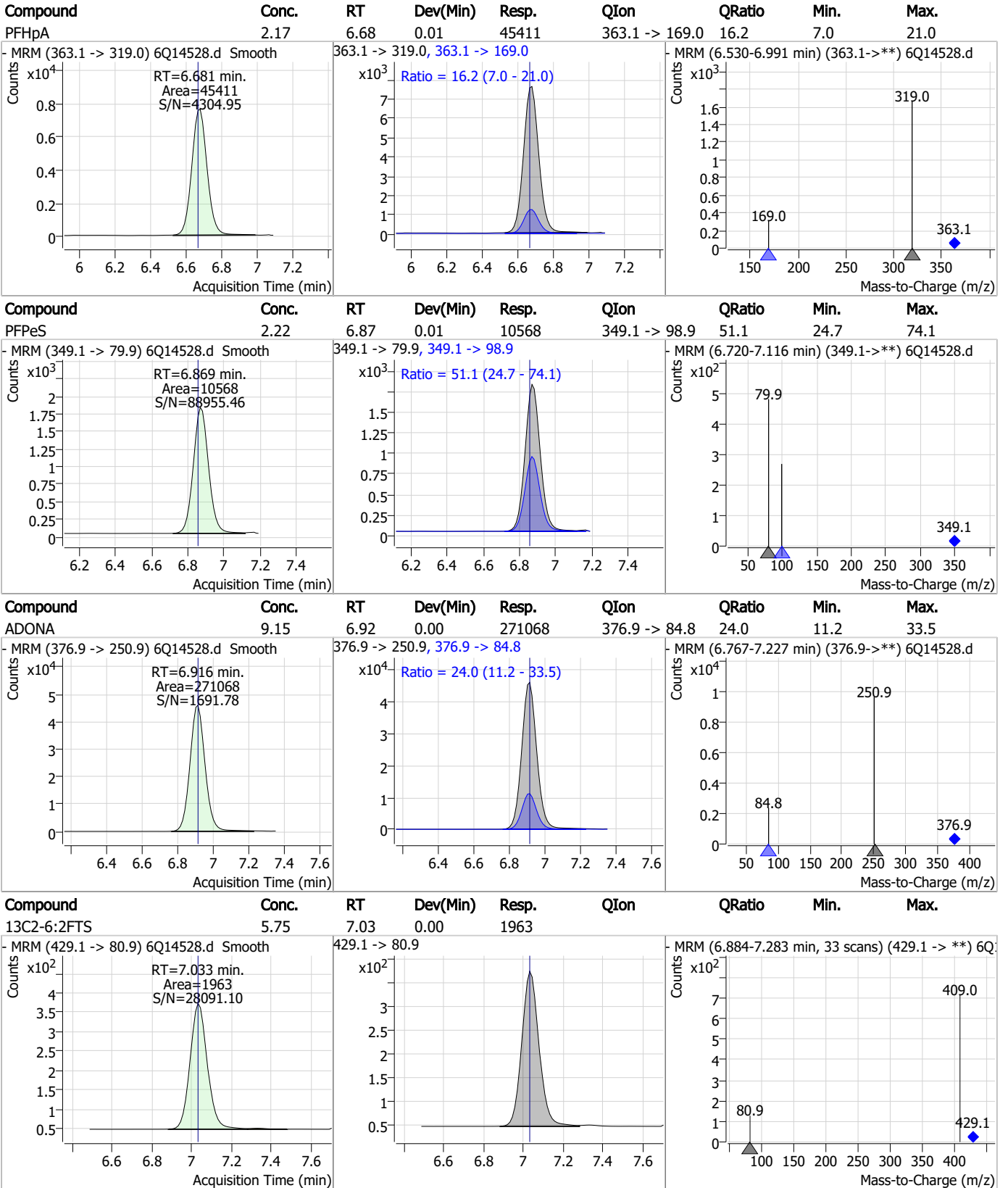


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.46	6.68	0.01	32552	367.1 -> 322.0			



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Perfluorinated Compounds by LC/MS/MS

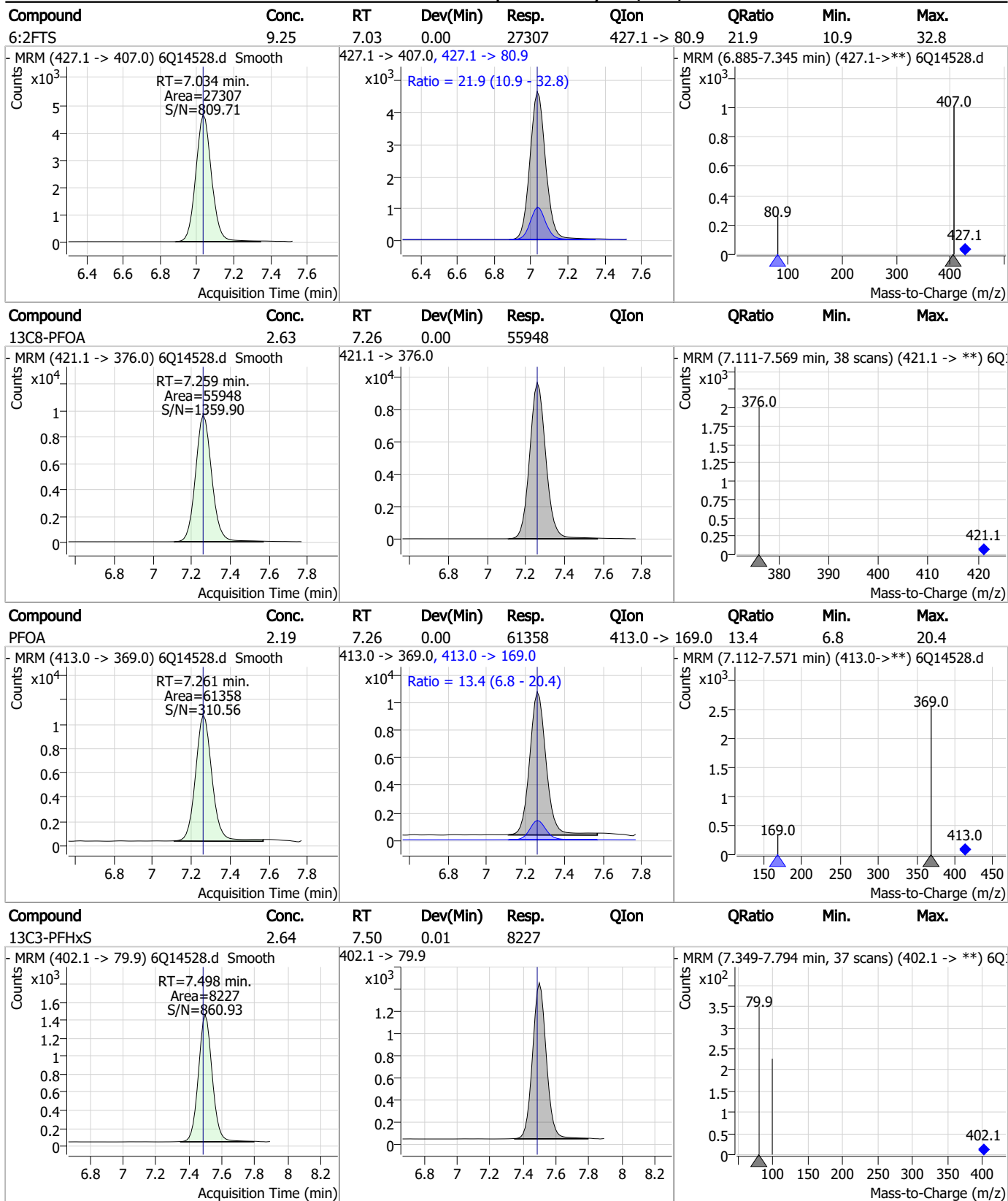


7.8.12

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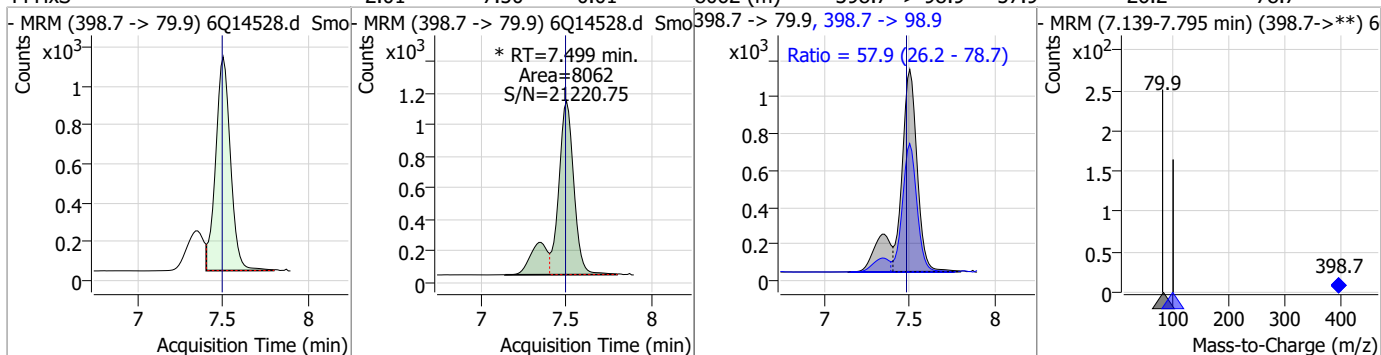
Perfluorinated Compounds by LC/MS/MS



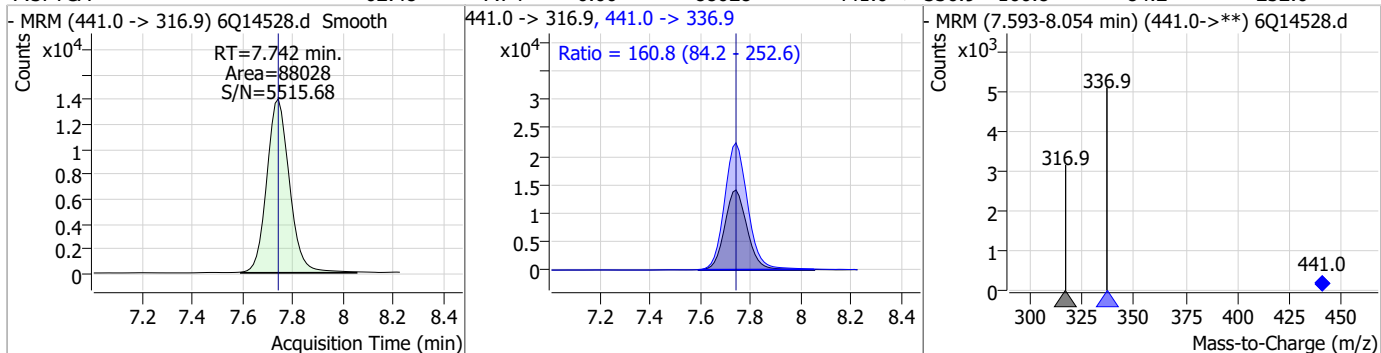
7.8.12
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Perfluorinated Compounds by LC/MS/MS

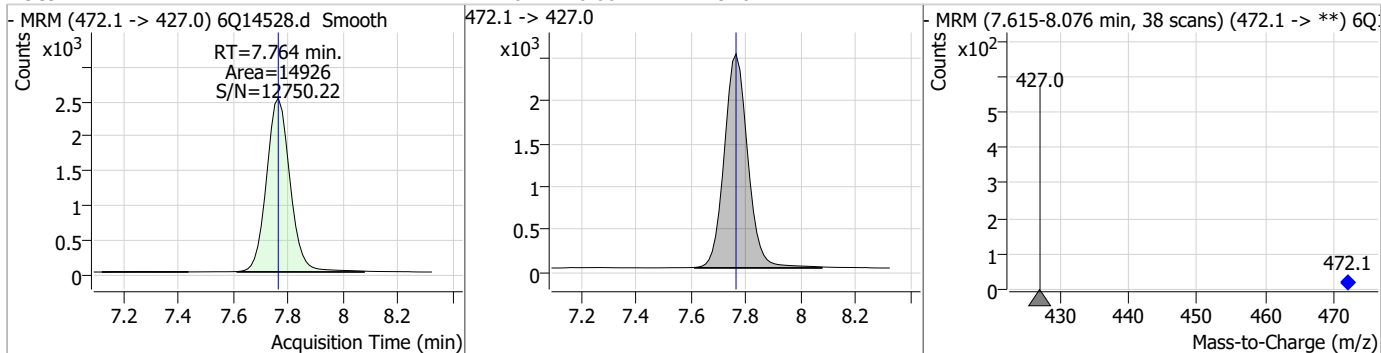
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.01	7.50	0.01	8062 (m)	398.7 -> 98.9	57.9	26.2	78.7



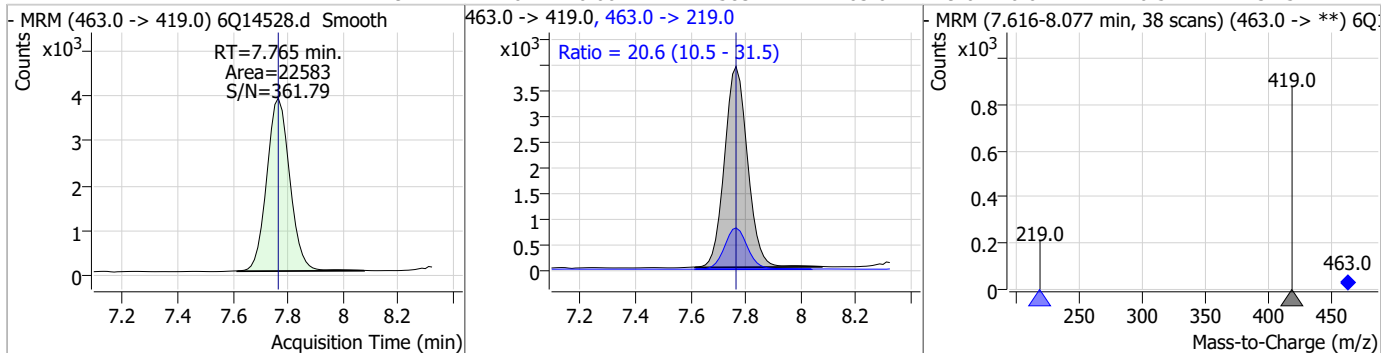
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	62.48	7.74	0.00	88028	441.0 -> 336.9	160.8	84.2	252.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.24	7.76	0.00	14926	472.1 -> 427.0			

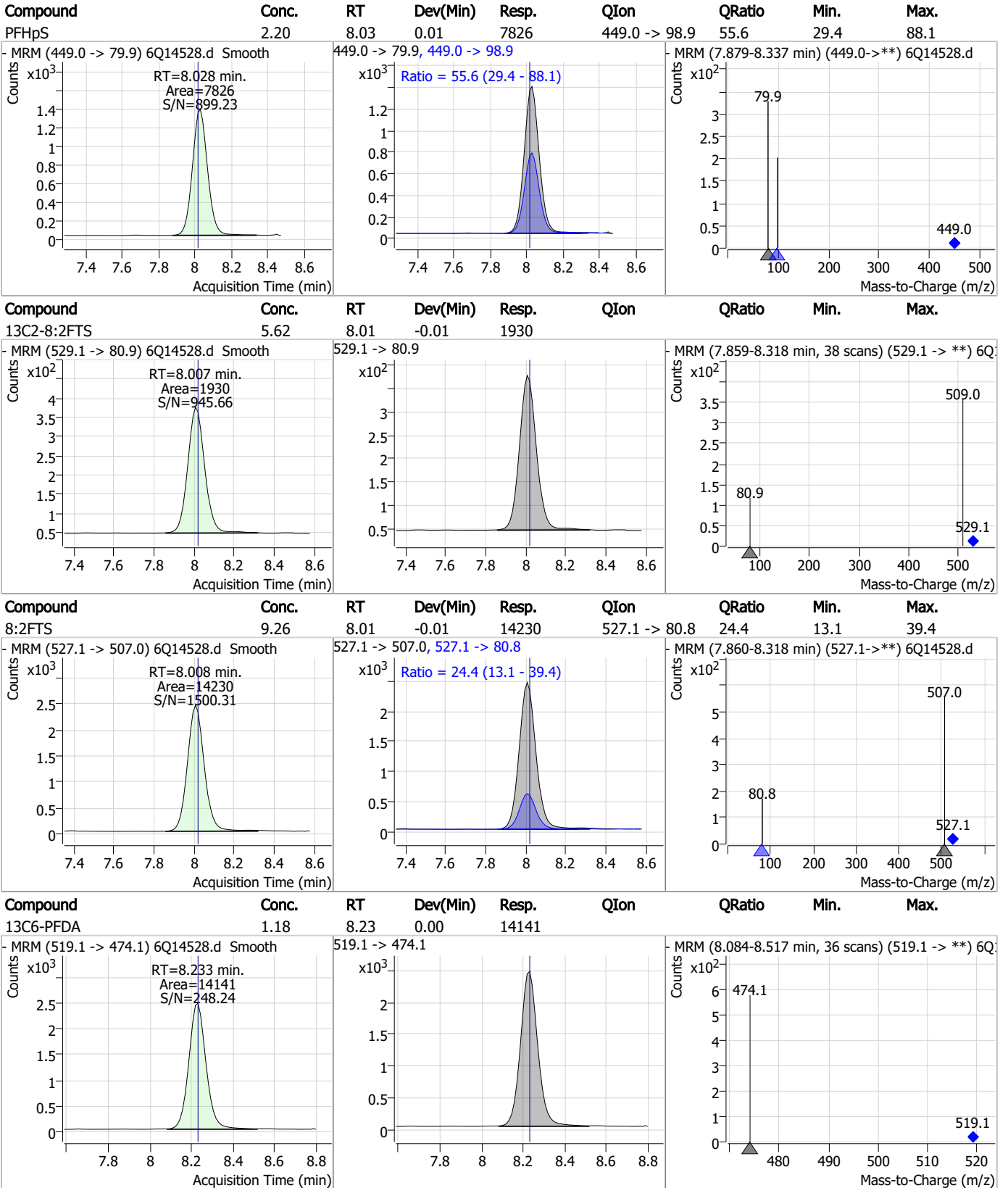


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.19	7.76	0.00	22583	463.0 -> 219.0	20.6	10.5	31.5



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Perfluorinated Compounds by LC/MS/MS

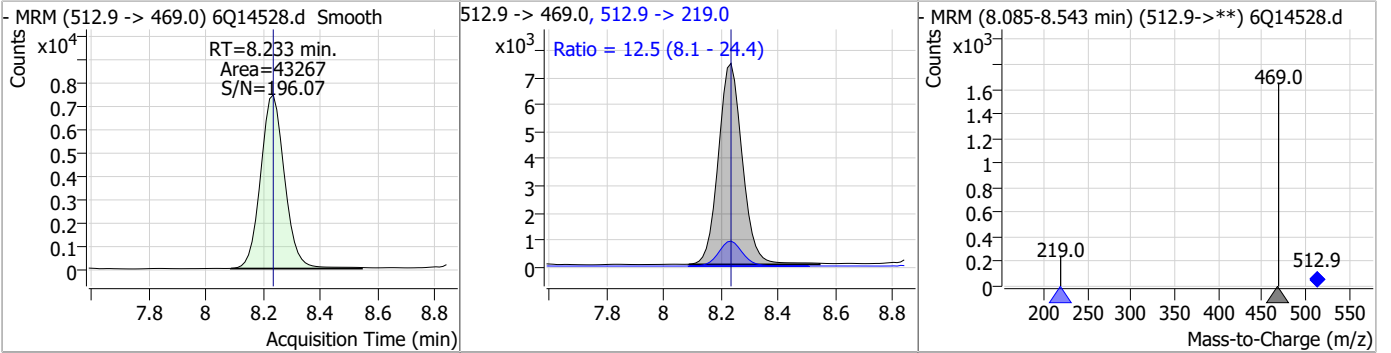


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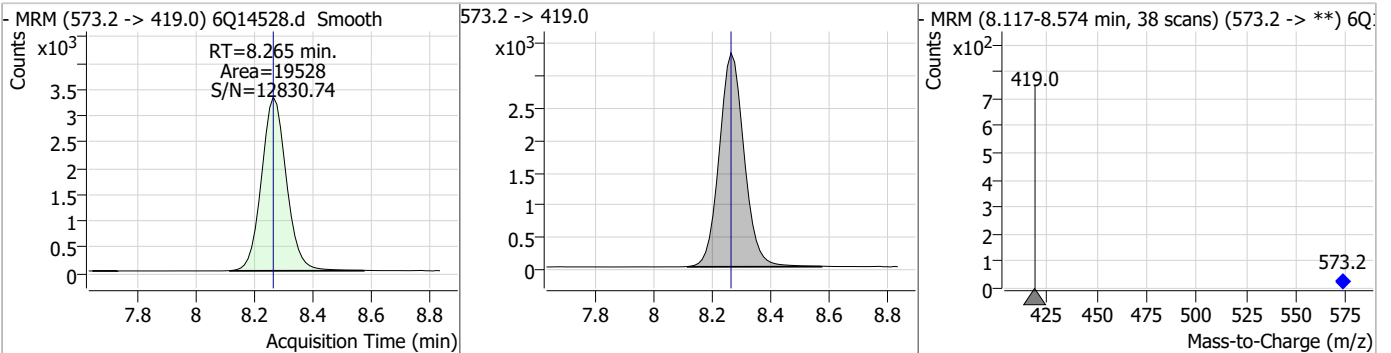
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Perfluorinated Compounds by LC/MS/MS

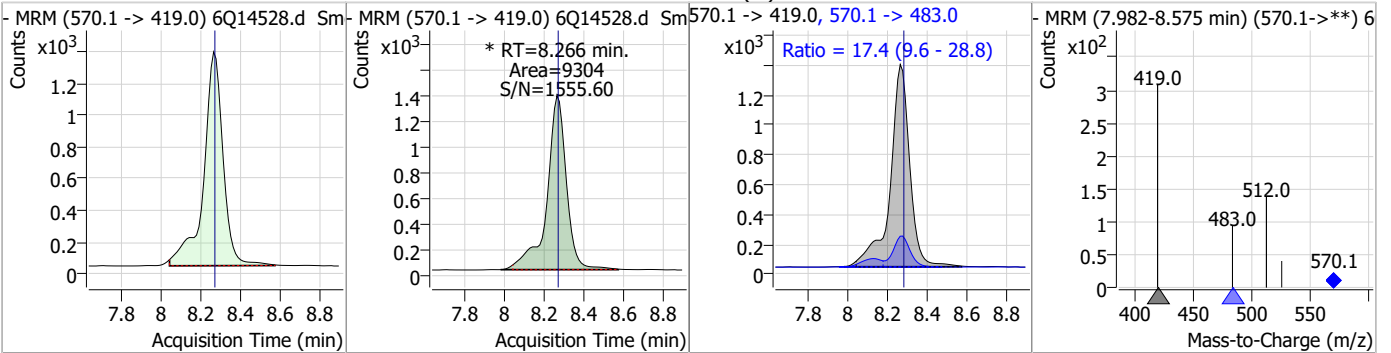
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.38	8.23	0.00	43267	512.9 -> 219.0	12.5	8.1	24.4



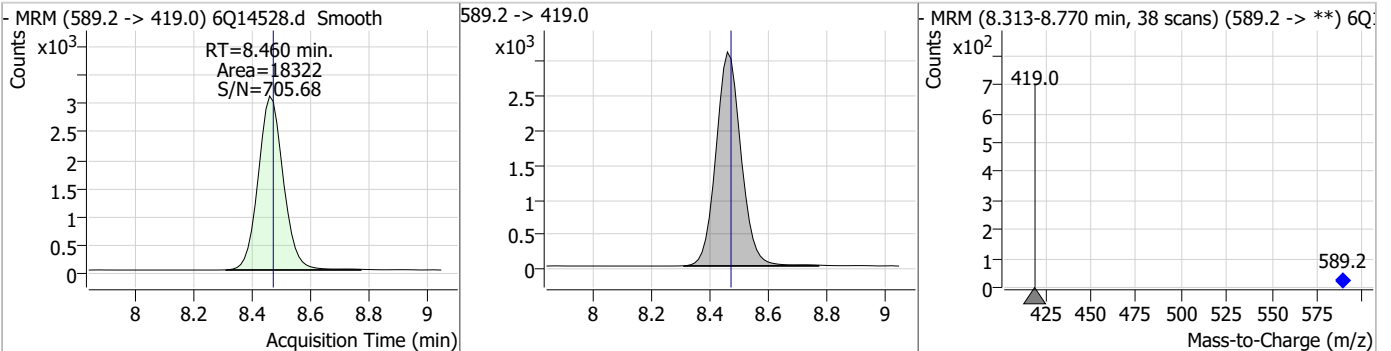
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.89	8.26	0.00	19528				



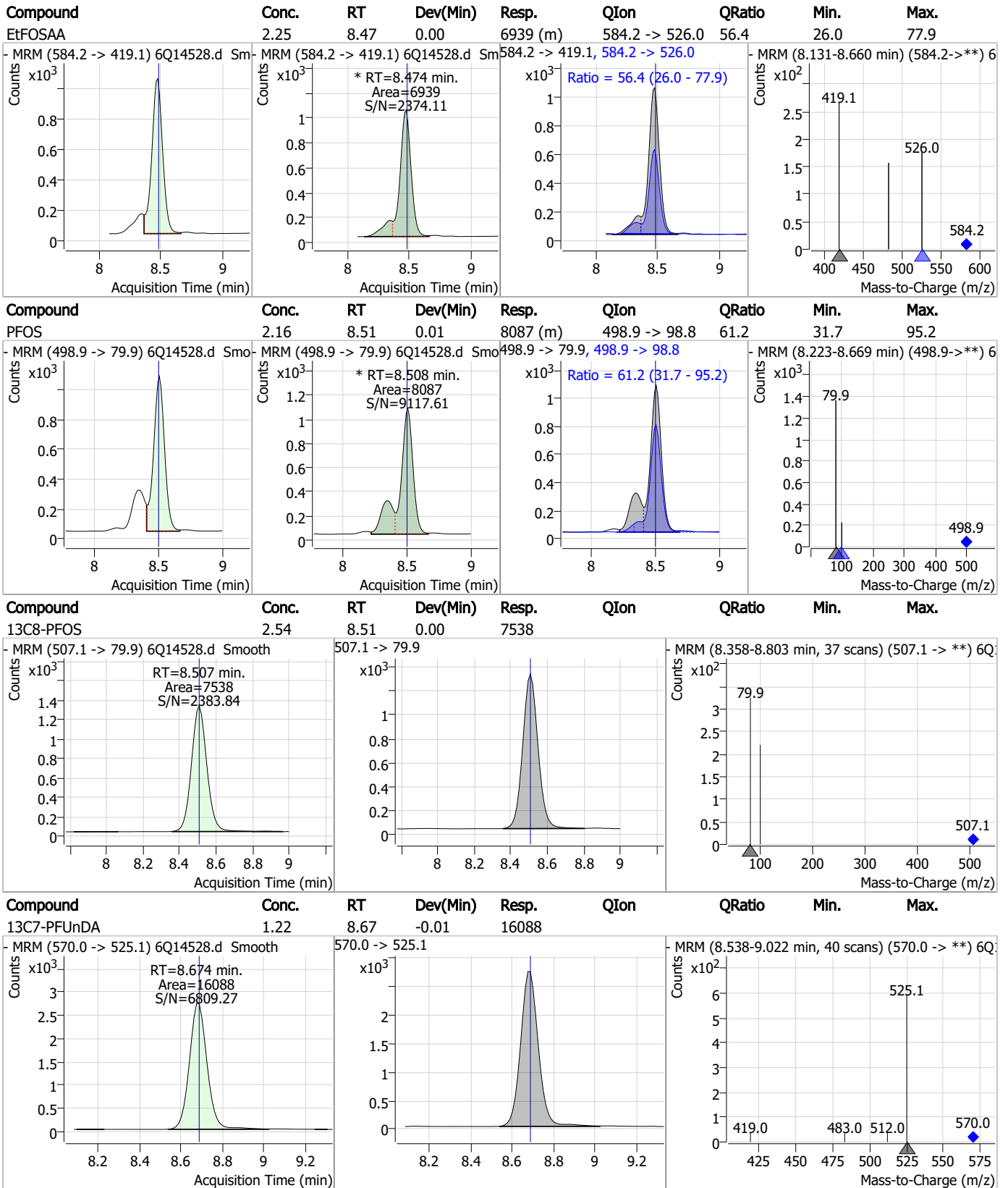
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.25	8.27	-0.01	9304 (m)	570.1 -> 483.0	17.4	9.6	28.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.94	8.46	-0.01	18322				

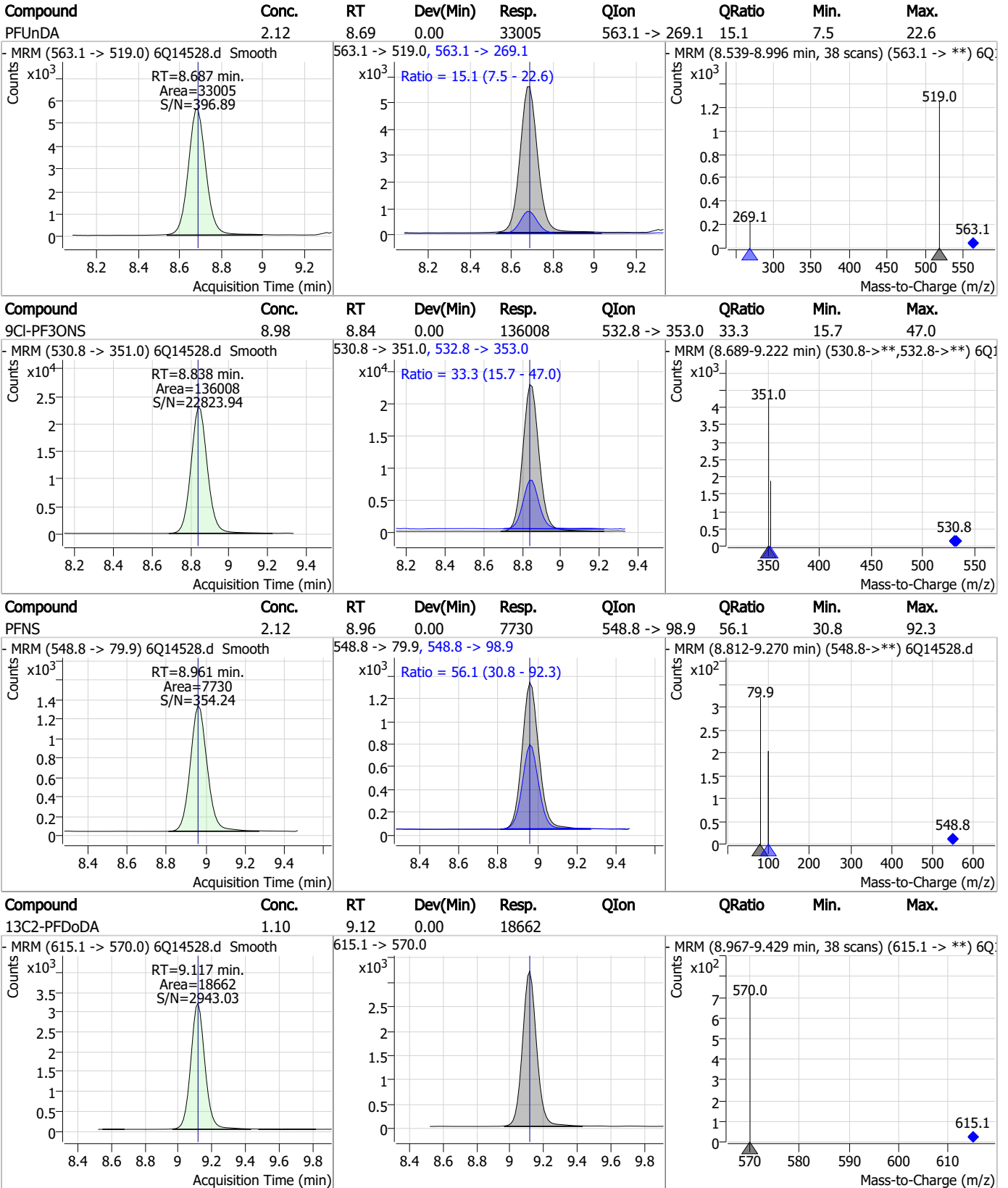


Perfluorinated Compounds by LC/MS/MS



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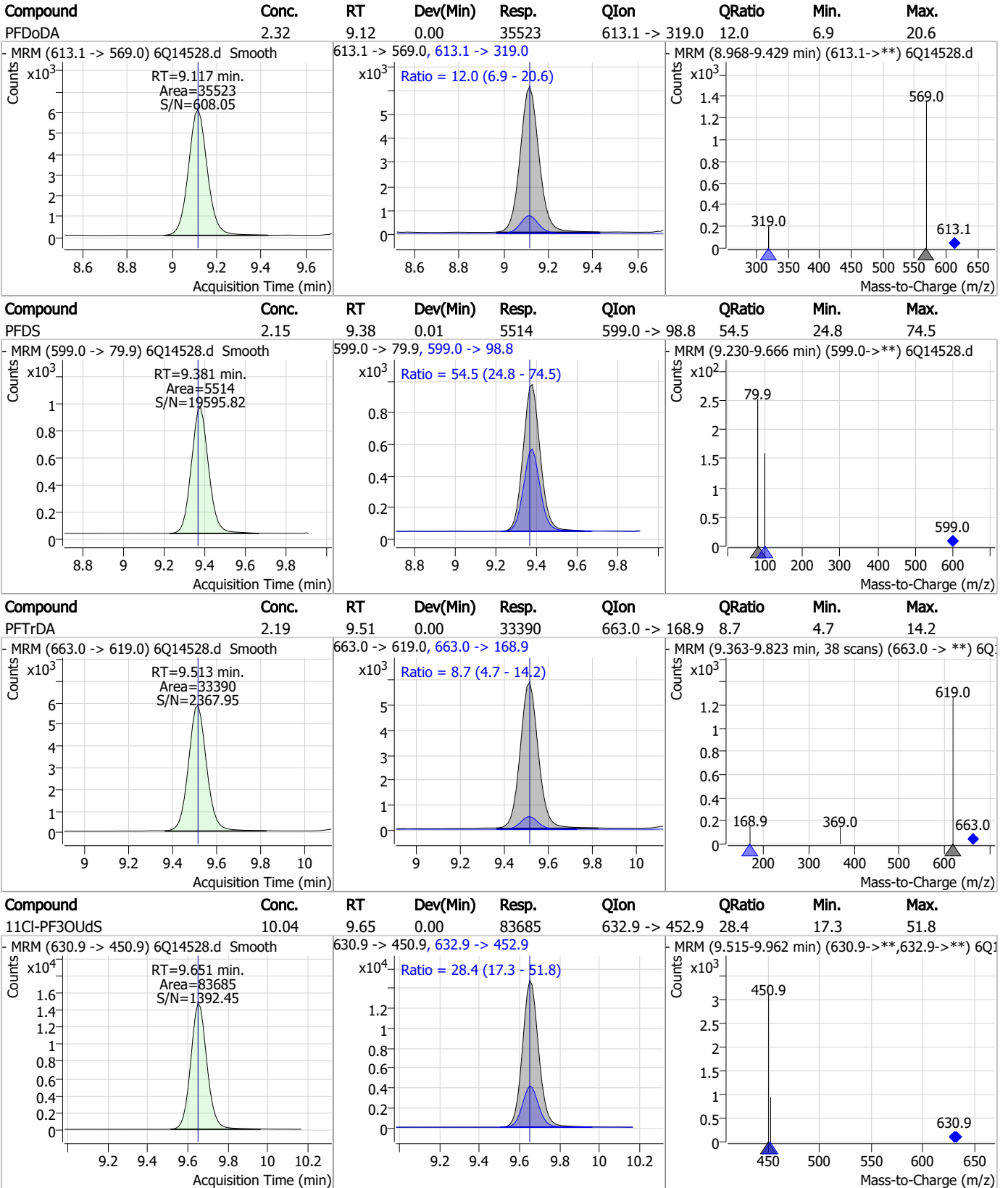
Perfluorinated Compounds by LC/MS/MS



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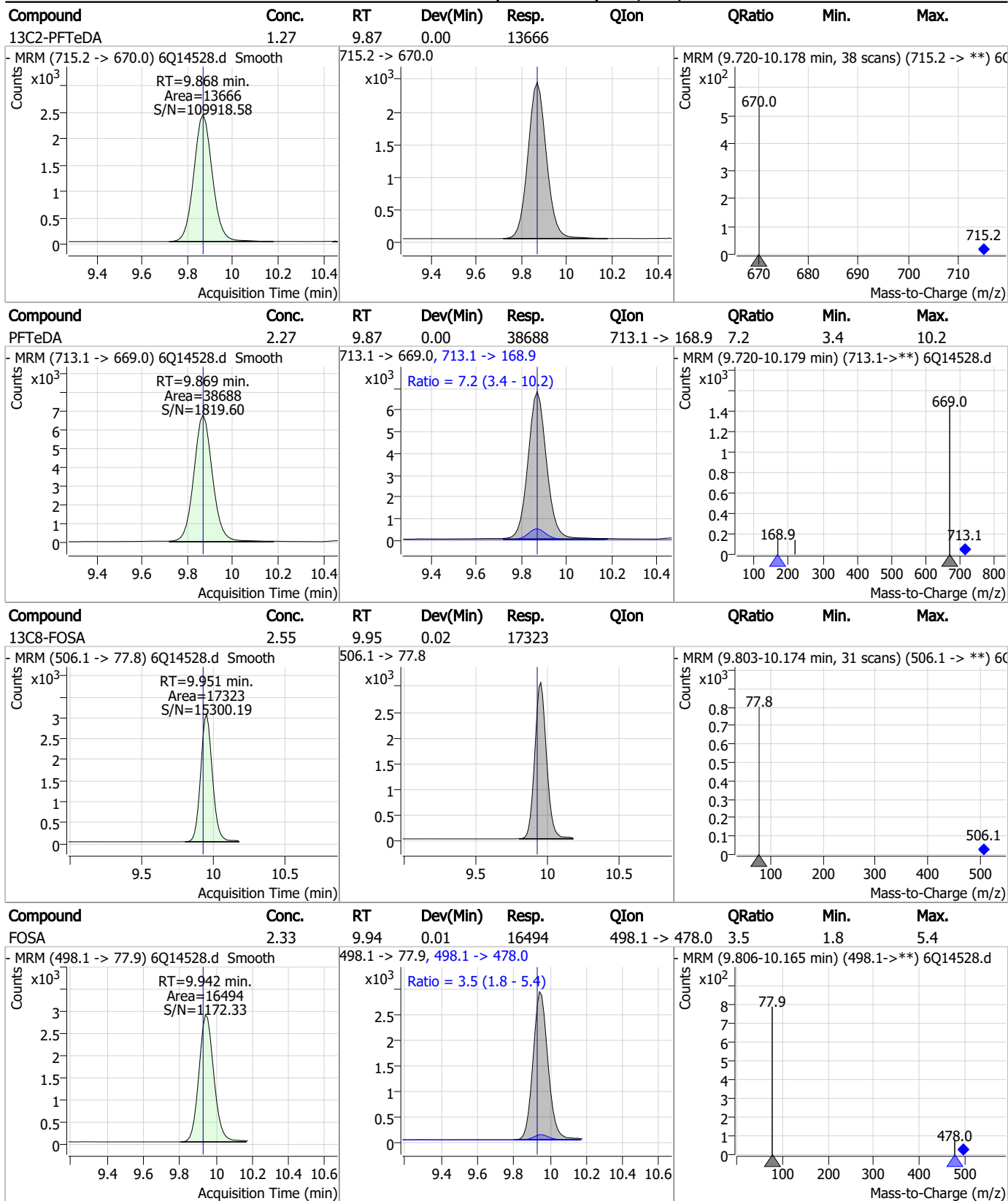
Perfluorinated Compounds by LC/MS/MS



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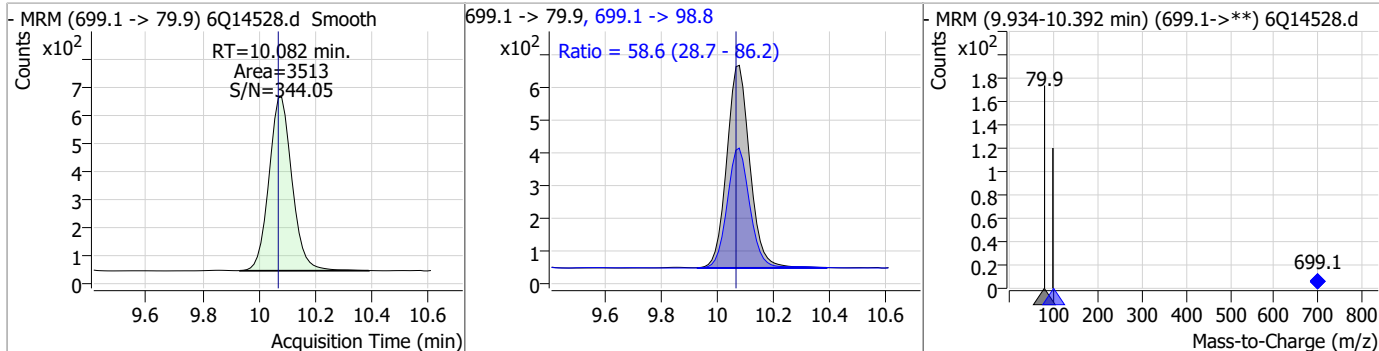
Perfluorinated Compounds by LC/MS/MS



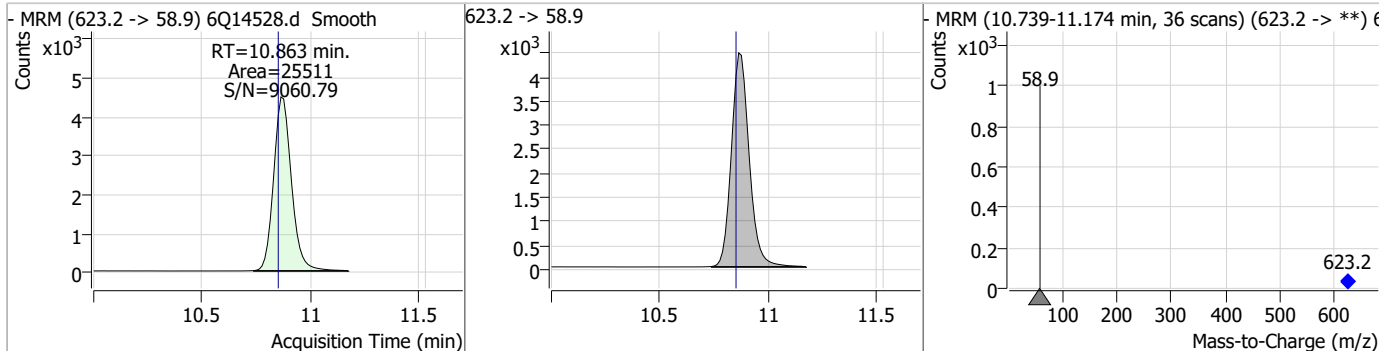
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Perfluorinated Compounds by LC/MS/MS

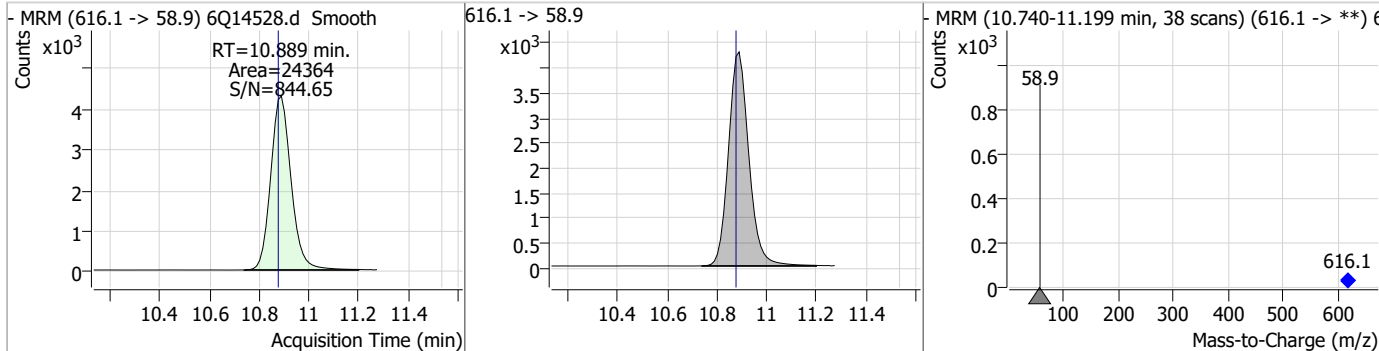
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.26	10.08	0.01	3513	699.1 -> 98.8	58.6	28.7	86.2



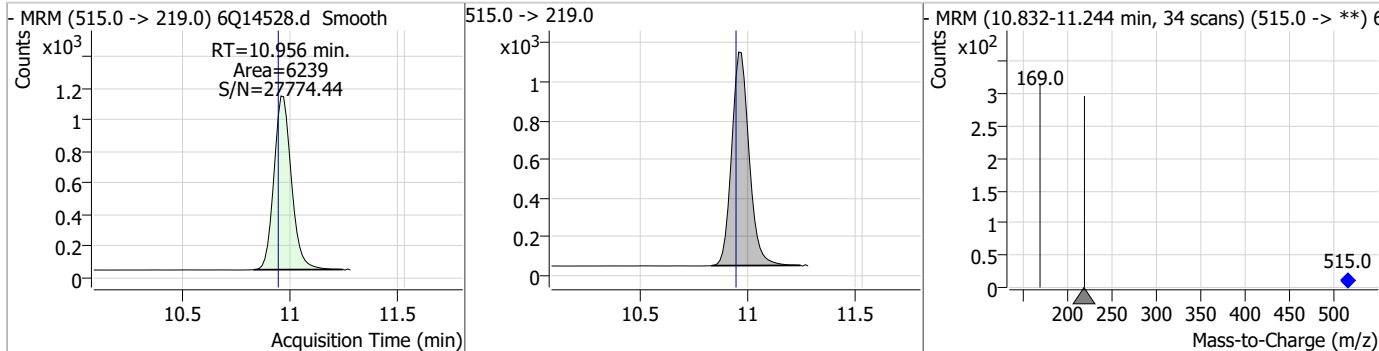
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.06	10.86	0.01	25511				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	23.25	10.89	0.01	24364				

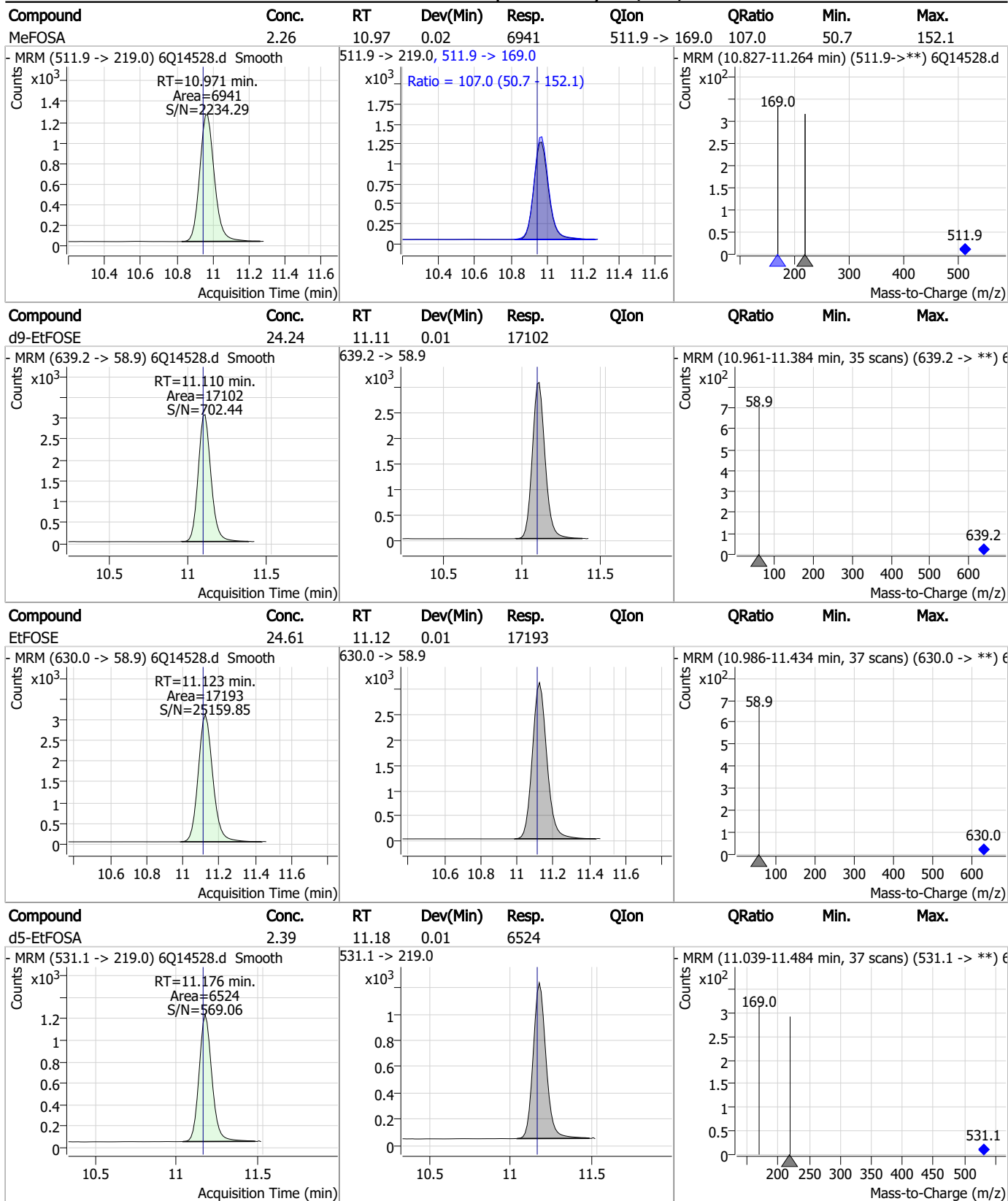


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.51	10.96	0.01	6239				



7.8.12
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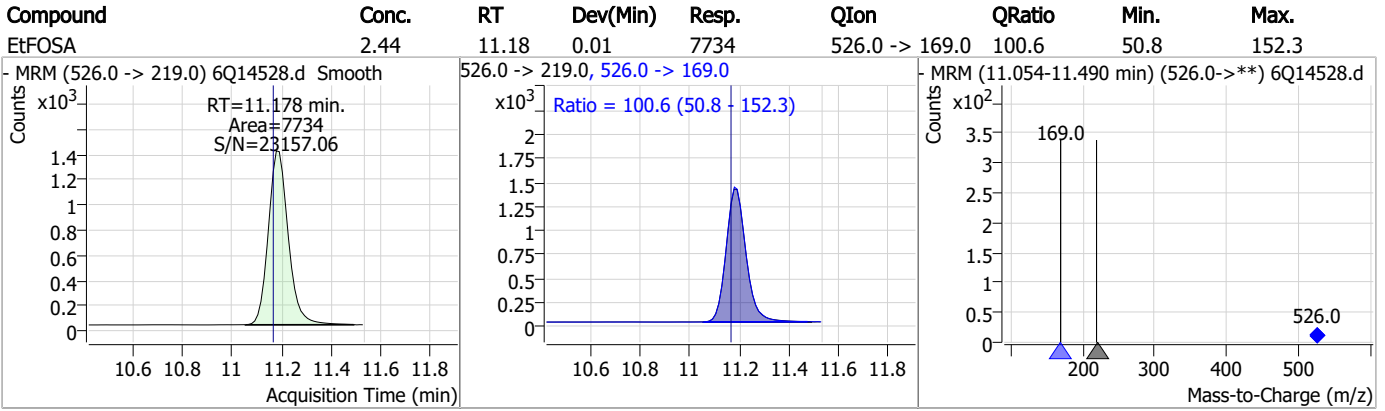
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q220-CC220 Method: EPA DRAFT 1633
Lab FileID: 6Q14528.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 15:34 Supervisor approved: 03/10/23 10:46 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.50	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.51	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14529.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 3:48:00 PM
 Sample Name : cc220-1.0LL
 Vial : P1-A2
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.088	216.8 -> 171.9	73719	10.00 µg/L	0.012
M5-PFPeA	4.640	268.3 -> 223.0	36784	5.00 µg/L	0.025
M5-PFHxA	5.822	318.0 -> 273.0	31881	2.50 µg/L	0.012
M4-PFHpA	6.680	367.1 -> 322.0	30279	2.50 µg/L	0.012
M8-PFOA	7.272	421.1 -> 376.0	52180	2.50 µg/L	0.012
M9-PFNA	7.764	472.1 -> 427.0	13038	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	13168	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	13250	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	17368	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	12237	1.25 µg/L	0.000
M8-FOSA	9.951	506.1 -> 77.8	16724	2.50 µg/L	0.025
M3-PFBS	5.938	302.1 -> 79.9	11713	2.50 µg/L	0.037
M3-PFHxS	7.511	402.1 -> 79.9	8053	2.50 µg/L	0.025
M8-PFOS	8.507	507.1 -> 79.9	7403	2.50 µg/L	0.000
M2-4:2FTS	5.500	329.1 -> 80.9	1552	5.00 µg/L	0.025
M2-6:2FTS	7.046	429.1 -> 80.9	2054	5.00 µg/L	0.012
M2-8:2FTS	8.019	529.1 -> 80.9	1867	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	19197	5.00 µg/L	0.012
M3-HFPO-DA	6.163	286.9 -> 168.9	14081	10.00 µg/L	0.012
M5-EtFOSAA	8.473	589.2 -> 419.0	16815	5.00 µg/L	0.000
M7-MeFOSE	10.863	623.2 -> 58.9	24406	25.00 µg/L	0.012
M9-EtFOSE	11.097	639.2 -> 58.9	17913	25.00 µg/L	0.000
M5-EtFOSA	11.176	531.1 -> 219.0	6610	2.50 µg/L	0.012
M3-MeFOSA	10.956	515.0 -> 219.0	5697	2.50 µg/L	0.012
13C4-PFOS	8.508	502.8 -> 79.9	8453	2.50 µg/L	0.012
13C3-PFBA	3.091	216.0 -> 172.0	31930	5.00 µg/L	0.012
18O2-PFHxS	7.510	403.0 -> 83.9	5797	2.50 µg/L	0.012
13C4-PFOA	7.272	417.1 -> 372.0	65012	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	17637	1.25 µg/L	0.000
13C5-PFNA	7.779	468.0 -> 423.0	14399	1.25 µg/L	0.014
13C2-PFHxA	5.823	315.1 -> 270.0	30464	2.50 µg/L	0.024
System Monitoring Compounds					
13C2-4:2FTS	5.500	329.1 -> 80.9	1552	5.62 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.4%		
13C2-6:2FTS	7.046	429.1 -> 80.9	2054	5.66 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.2%		
13C2-8:2FTS	8.019	529.1 -> 80.9	1867	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C2-PFDoDA	9.117	615.1 -> 570.0	17368	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.0%		
13C2-PFTeDA	9.868	715.2 -> 670.0	12237	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C3-PFBS	5.938	302.1 -> 79.9	11713	2.32 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.6%		
13C3-PFHxS	7.511	402.1 -> 79.9	8053	2.43 µg/L	0.025

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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 = 97.1%	
13C4-PFBA	3.088	216.8 -> 171.9	73719	10.05 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFHpA	6.680	367.1 -> 322.0	30279	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C5-PFHxA	5.822	318.0 -> 273.0	31881	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C5-PFPeA	4.640	268.3 -> 223.0	36784	5.09 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C6-PFDA	8.233	519.1 -> 474.1	13168	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C7-PFUnDA	8.687	570.0 -> 525.1	13250	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.5%	
13C8-FOSA	9.951	506.1 -> 77.8	16724	2.52 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C8-PFOA	7.272	421.1 -> 376.0	52180	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C8-PFOS	8.507	507.1 -> 79.9	7403	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C9-PFNA	7.764	472.1 -> 427.0	13038	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.0%	
d3-MeFOSAA	8.277	573.2 -> 419.0	19197	4.93 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C3-HFPO-DA	6.163	286.9 -> 168.9	14081	10.09 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
d3-MeFOSA	10.956	515.0 -> 219.0	5697	2.35 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.2%	
d5-EtFOSAA	8.473	589.2 -> 419.0	16815	4.65 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
d7-MeFOSE	10.863	623.2 -> 58.9	24406	24.59 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
d9-EtFOSE	11.097	639.2 -> 58.9	17913	26.04 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
d5-EtFOSA	11.176	531.1 -> 219.0	6610	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
Target Compounds					QValue
4:2FTS	5.500	327.1 -> 307.0	2420	0.69 µg/L	94
		327.1 -> 80.9	668		
6:2FTS	7.046	427.1 -> 407.0	2256	0.73 µg/L	98
		427.1 -> 80.9	478		
8:2FTS	8.020	527.1 -> 507.0	1330	0.90 µg/L	97
		527.1 -> 80.8	368		
EtFOSAA	8.474	584.2 -> 419.1	622	0.22 µg/L	m 92
		584.2 -> 526.0	360		
FOSA	9.942	498.1 -> 77.9	1480	0.22 µg/L	97
		498.1 -> 478.0	66		
MeFOSAA	8.278	570.1 -> 419.0	851	0.21 µg/L	m 84
		570.1 -> 483.0	104		
PFBA	3.094	212.8 -> 168.9	1580	0.78 µg/L	100
PFBS	5.939	298.7 -> 79.9	841	0.17 µg/L	80
		298.7 -> 98.8	446		
PFDA	8.233	512.9 -> 469.0	3357	0.20 µg/L	98
		512.9 -> 219.0	513		
PFDODA	9.117	613.1 -> 569.0	2922	0.21 µg/L	93
		613.1 -> 319.0	321		
PFDS	9.381	599.0 -> 79.9	471	0.19 µg/L	94

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.681	599.0 -> 98.8	254	0.20	µg/L	96
		363.1 -> 319.0	3821			
PFHpS	8.028	363.1 -> 169.0	592	0.17	µg/L	90
		449.0 -> 79.9	600			
PFHxA	5.825	449.0 -> 98.9	397	0.21	µg/L	97
		313.0 -> 269.0	2652			
PFHxS	7.512	313.0 -> 118.9	91	0.17	µg/L	#m
		398.7 -> 79.9	670			
PFNA	7.765	398.7 -> 98.9	544	0.20	µg/L	91
		463.0 -> 419.0	1760			
PFNS	8.973	463.0 -> 219.0	299	0.19	µg/L	95
		548.8 -> 79.9	670			
PFOA	7.273	548.8 -> 98.9	386	0.22	µg/L	99
		413.0 -> 369.0	5662			
PFOS	8.508	413.0 -> 169.0	742	0.17	µg/L	m
		498.9 -> 79.9	629			
PFPeA	4.642	498.9 -> 98.8	388	0.40	µg/L	100
		263.0 -> 219.0	3392			
PFPeS	6.882	349.1 -> 79.9	880	0.19	µg/L	94
		349.1 -> 98.9	397			
PFTeDA	9.869	713.1 -> 669.0	3357	0.22	µg/L	100
		713.1 -> 168.9	223			
PFTrDA	9.501	663.0 -> 619.0	2818	0.20	µg/L	97
		663.0 -> 168.9	241			
PFUnDA	8.687	563.1 -> 519.0	2894	0.23	µg/L	98
		563.1 -> 269.1	416			
11Cl-PF3OUdS	9.651	630.9 -> 450.9	5855	0.70	µg/L	94
		632.9 -> 452.9	1824			
9Cl-PF3ONS	8.851	530.8 -> 351.0	11225	0.74	µg/L	95
		532.8 -> 353.0	3813			
ADONA	6.928	376.9 -> 250.9	23252	0.79	µg/L	99
		376.9 -> 84.8	5050			
HFPO-DA	6.164	284.9 -> 168.9	1179	0.84	µg/L	100
		284.9 -> 184.9	139			
3:3FTCA	4.014	241.0 -> 177.0	417	0.96	µg/L	#
		241.0 -> 117.0	110			
5:3FTCA	6.407	341.0 -> 237.1	14399	5.21	µg/L	98
		341.0 -> 217.0	11607			
7:3FTCA	7.755	441.0 -> 316.9	6535	4.93	µg/L	91
		441.0 -> 336.9	11763			
EtFOSA	11.178	526.0 -> 219.0	683	0.21	µg/L	92
		526.0 -> 169.0	636			
EtFOSE	11.123	630.0 -> 58.9	1328	1.82	µg/L	100
		511.9 -> 219.0	655			
MeFOSA	10.971	511.9 -> 169.0	624	0.23	µg/L	94
		616.1 -> 58.9	1976			
MeFOSE	10.889	699.1 -> 79.9	277	1.97	µg/L	100
		699.1 -> 98.8	179			
PFDoDS	10.082	295.0 -> 201.0	307	0.18	µg/L	91
		295.0 -> 84.9	128			
NFDHA	5.705	279.0 -> 85.1	1150	0.35	µg/L	97
		229.0 -> 84.9	983			
PFMBA	5.039	314.8 -> 134.9	6148	0.40	µg/L	100
		314.8 -> 82.9	138			
PFMPA	3.729			0.39	µg/L	100
PFEESA	6.420			0.34	µg/L	99

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

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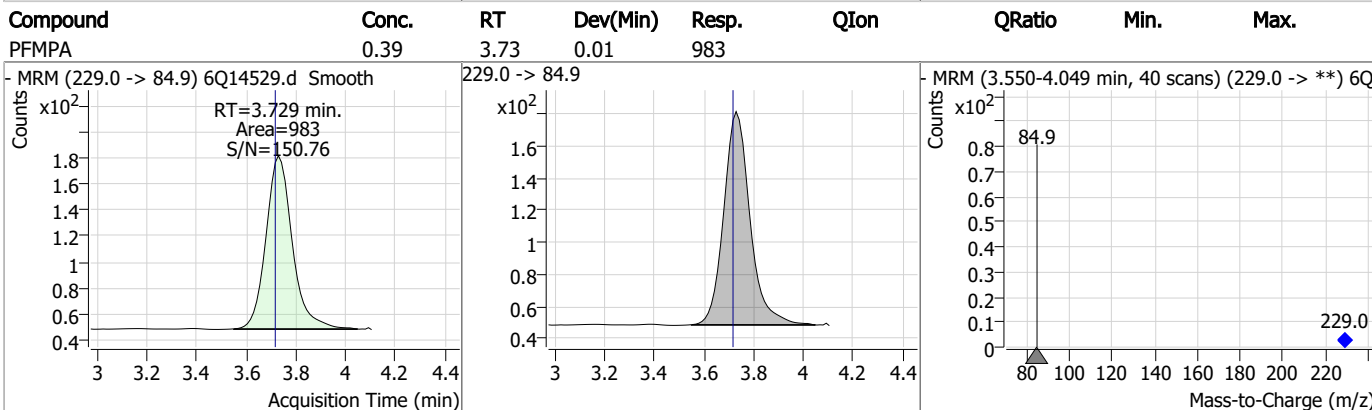
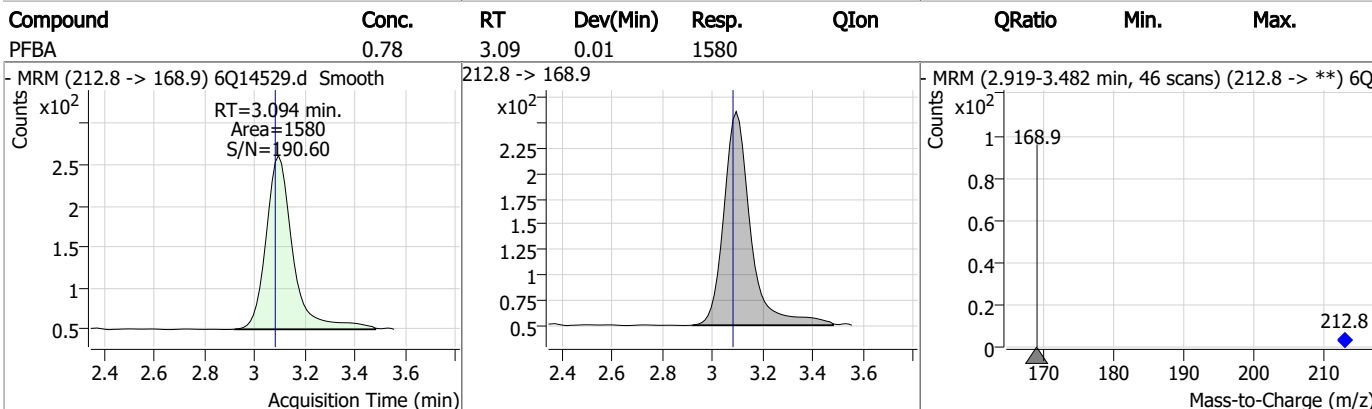
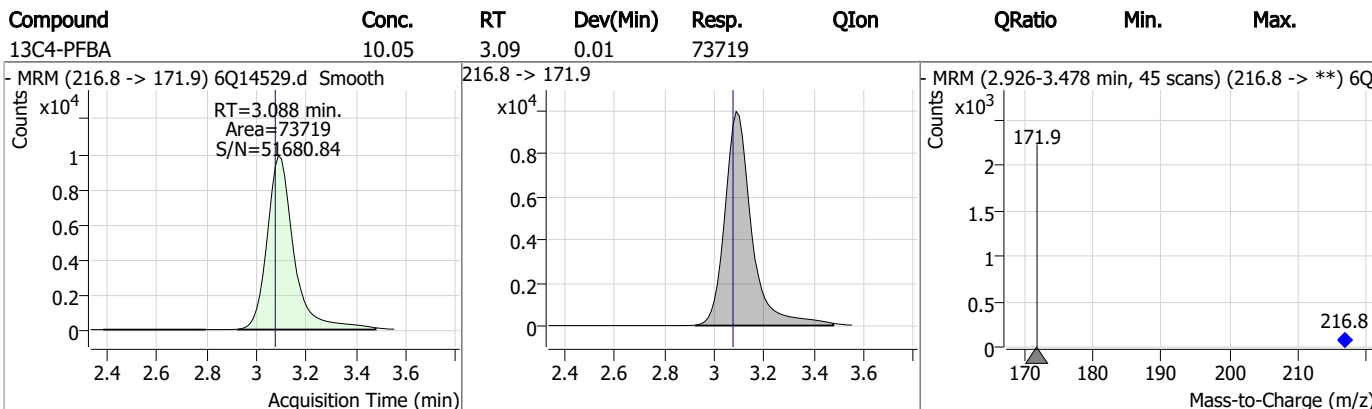
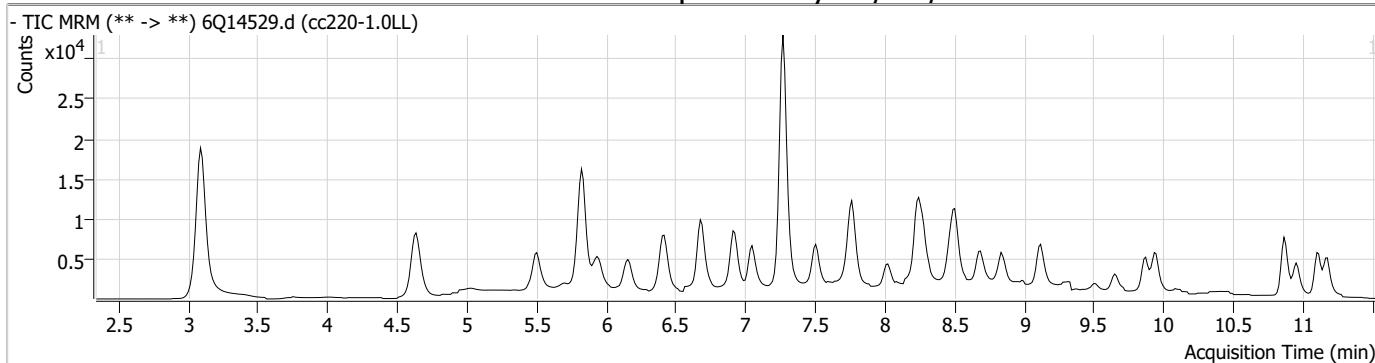
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.8.13

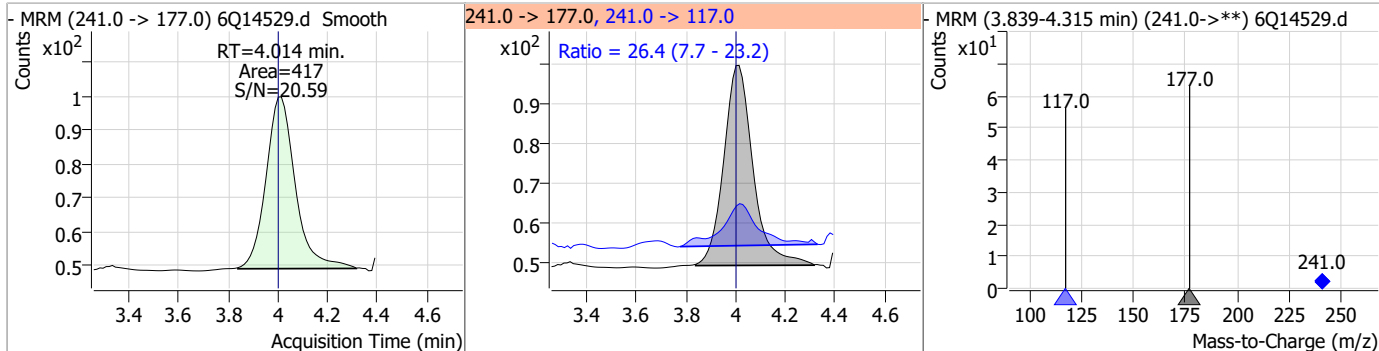
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Perfluorinated Compounds by LC/MS/MS

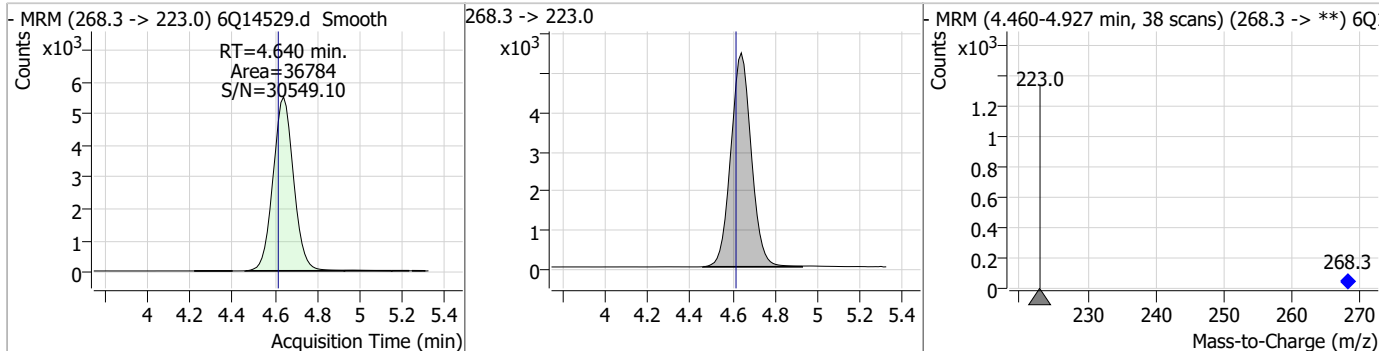


Perfluorinated Compounds by LC/MS/MS

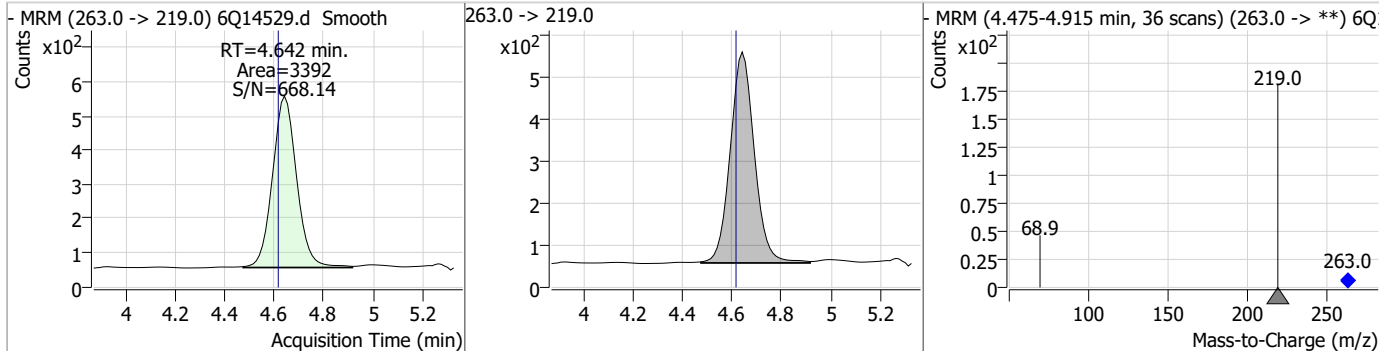
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	0.96	4.01	0.01	417	241.0 -> 117.0	26.4	7.7	23.2



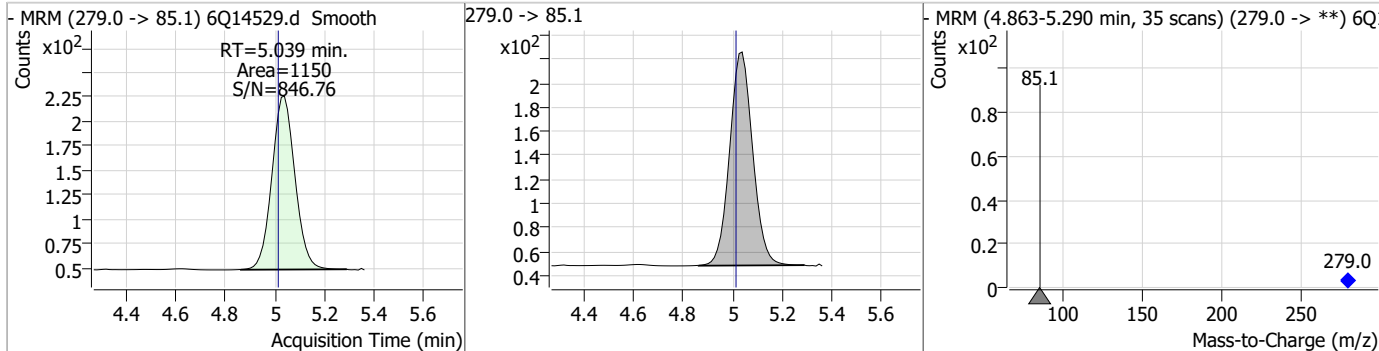
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.09	4.64	0.02	36784				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.40	4.64	0.02	3392				

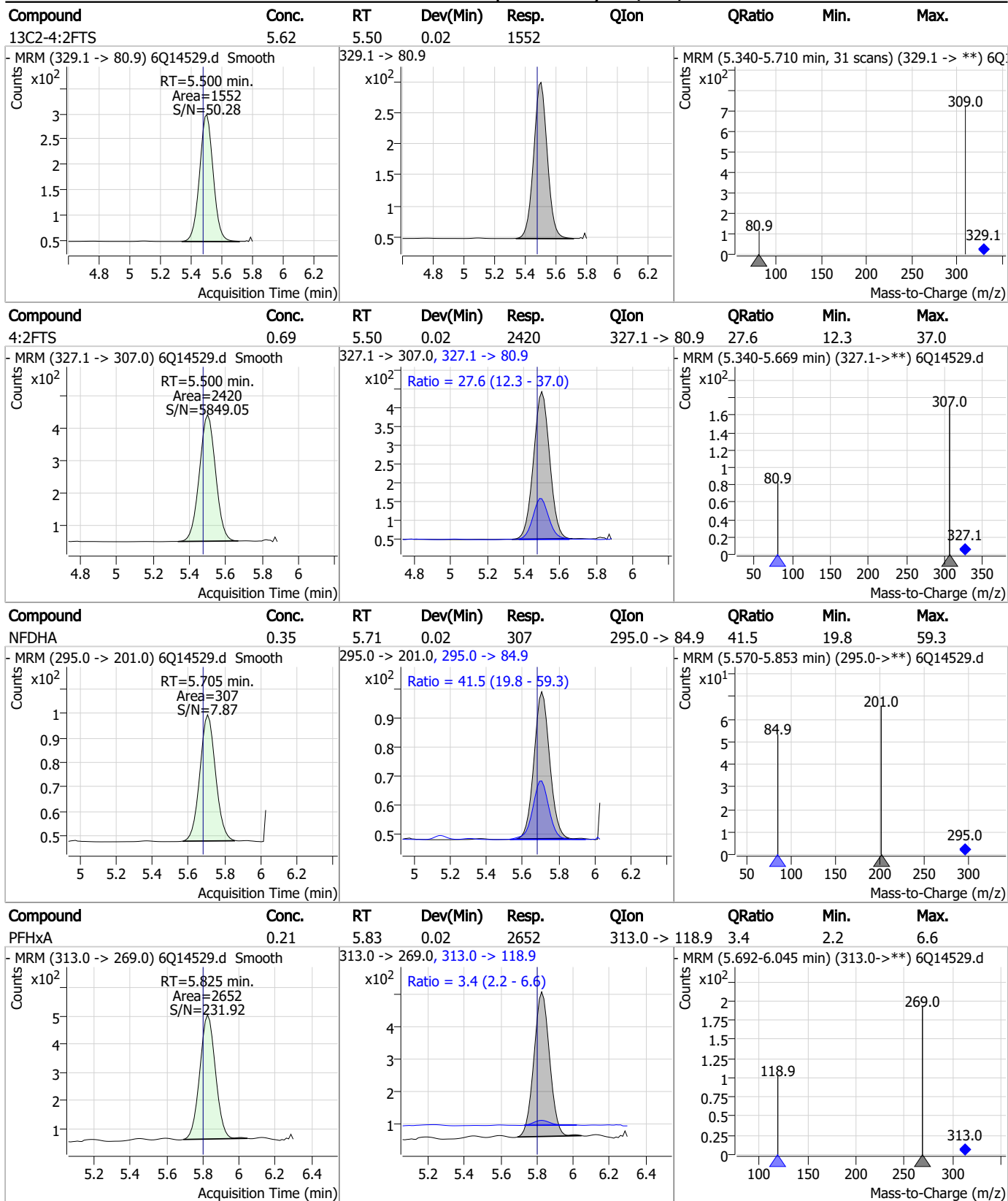


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.40	5.04	0.02	1150				



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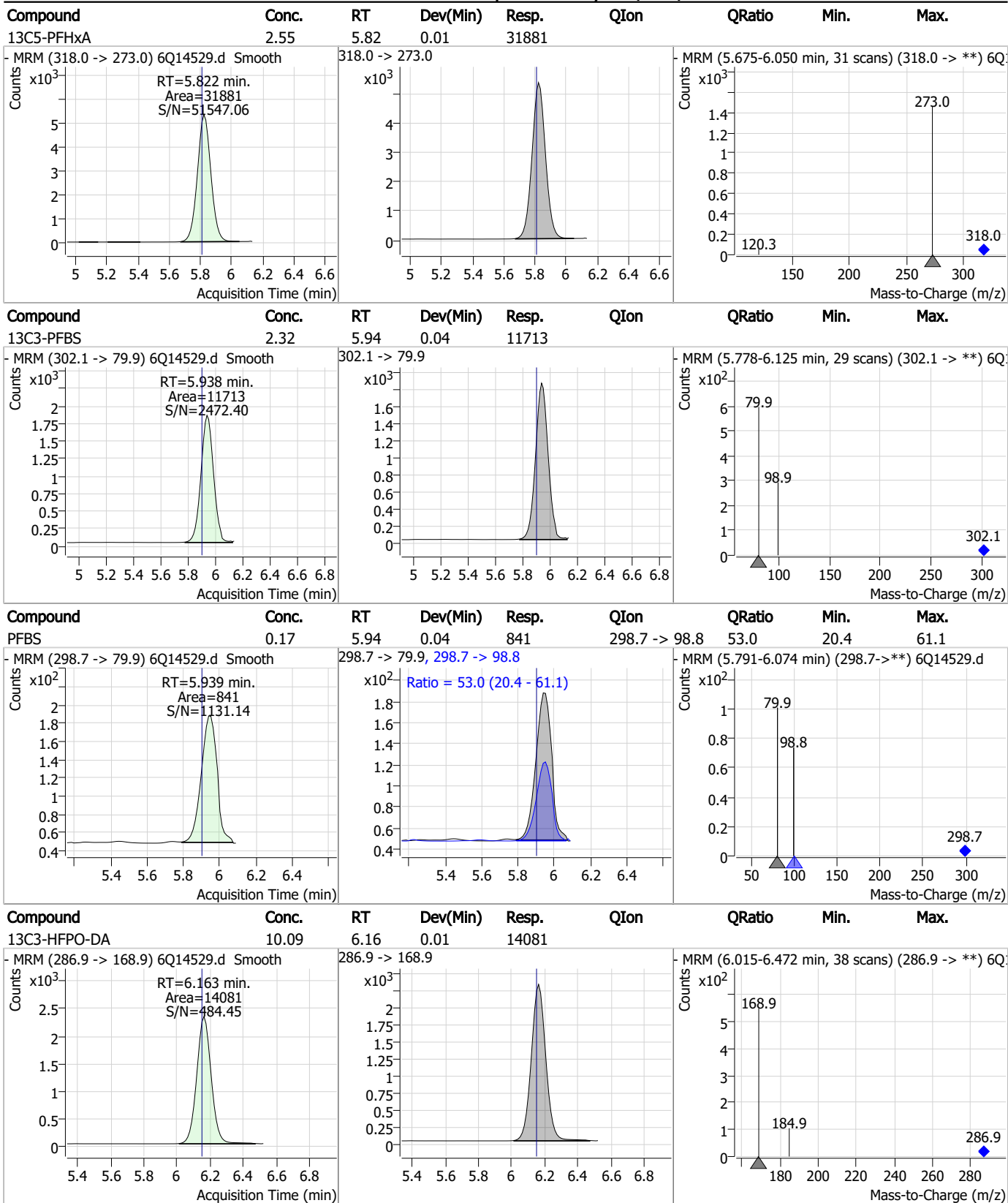
Perfluorinated Compounds by LC/MS/MS



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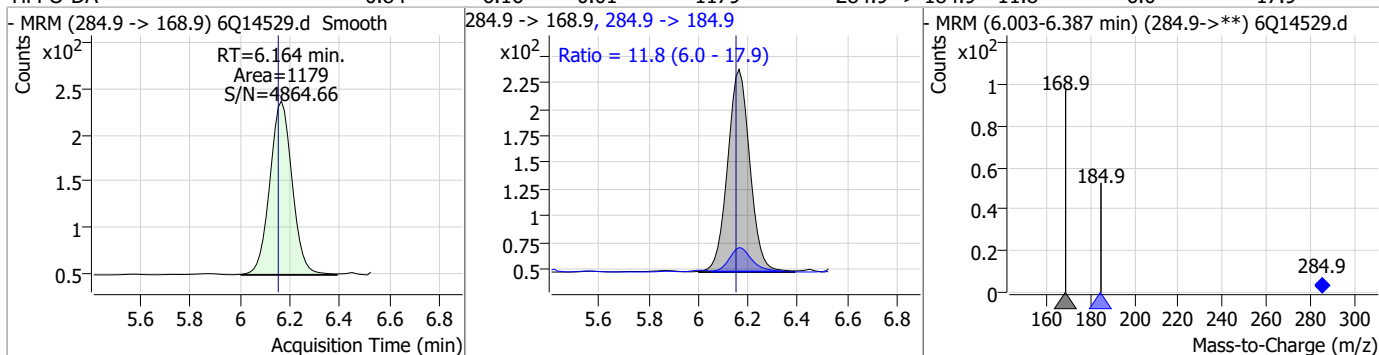
Perfluorinated Compounds by LC/MS/MS



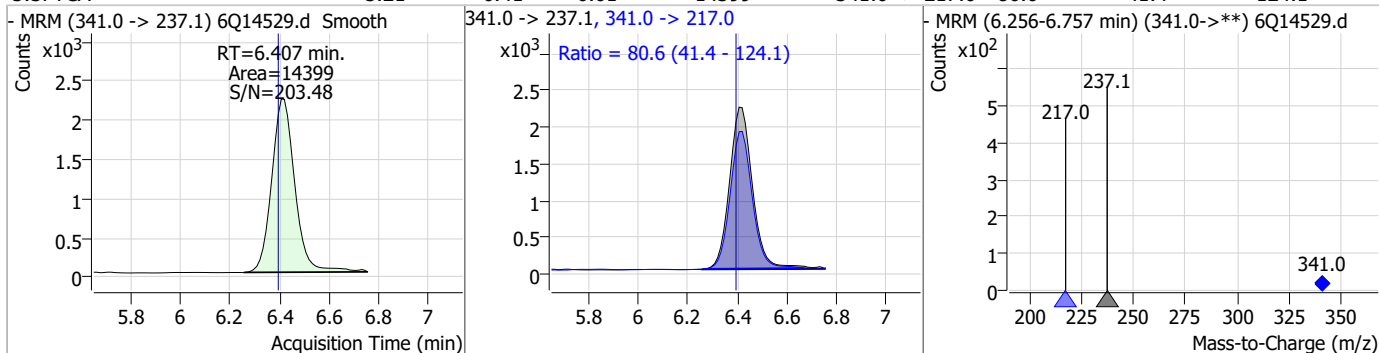
7.8.13 7

Perfluorinated Compounds by LC/MS/MS

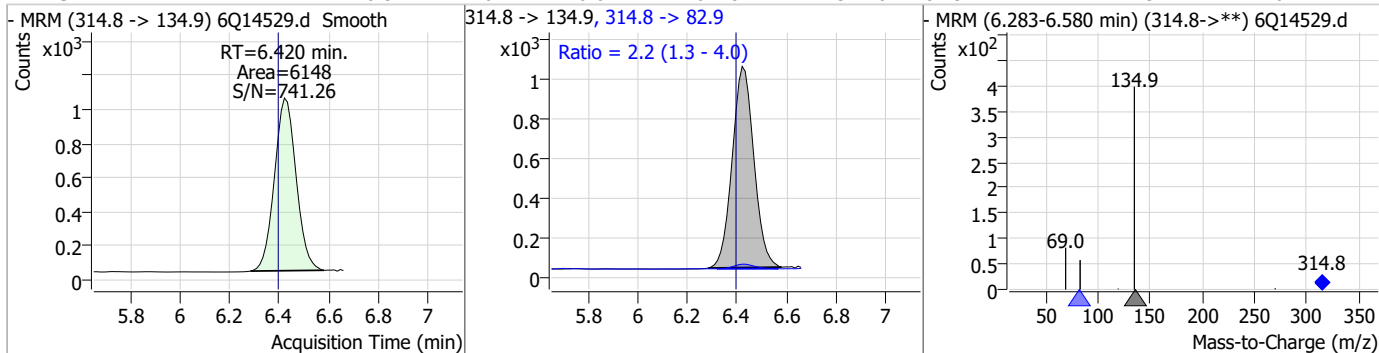
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.84	6.16	0.01	1179	284.9 -> 184.9	11.8	6.0	17.9



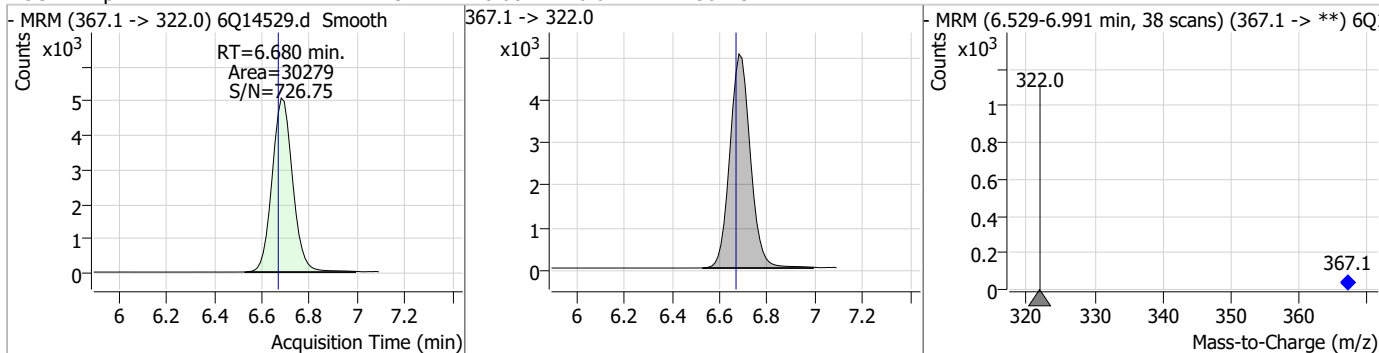
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	5.21	6.41	0.01	14399	341.0 -> 217.0	80.6	41.4	124.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.34	6.42	0.02	6148	314.8 -> 82.9	2.2	1.3	4.0

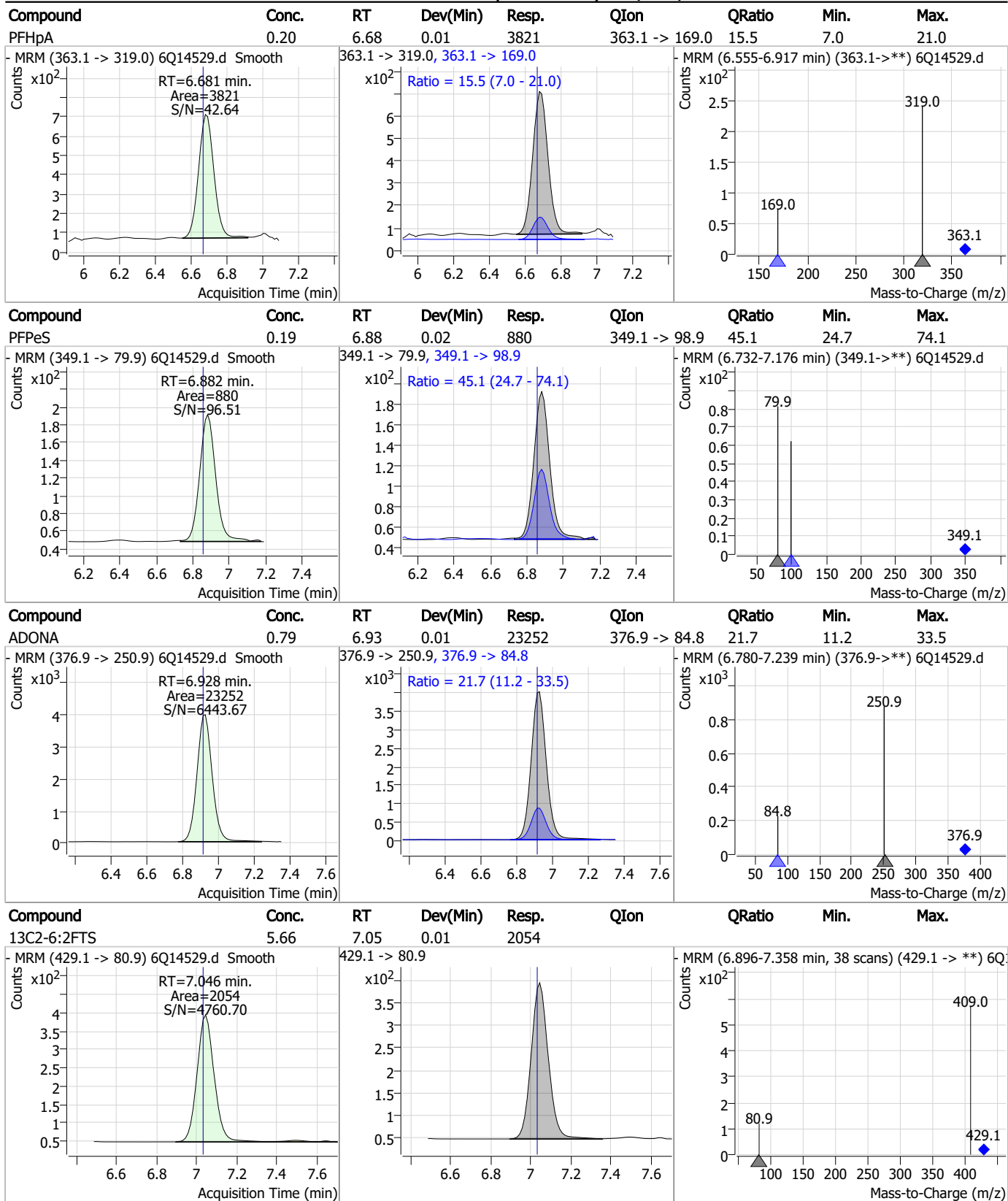


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.49	6.68	0.01	30279	367.1 -> 322.0			



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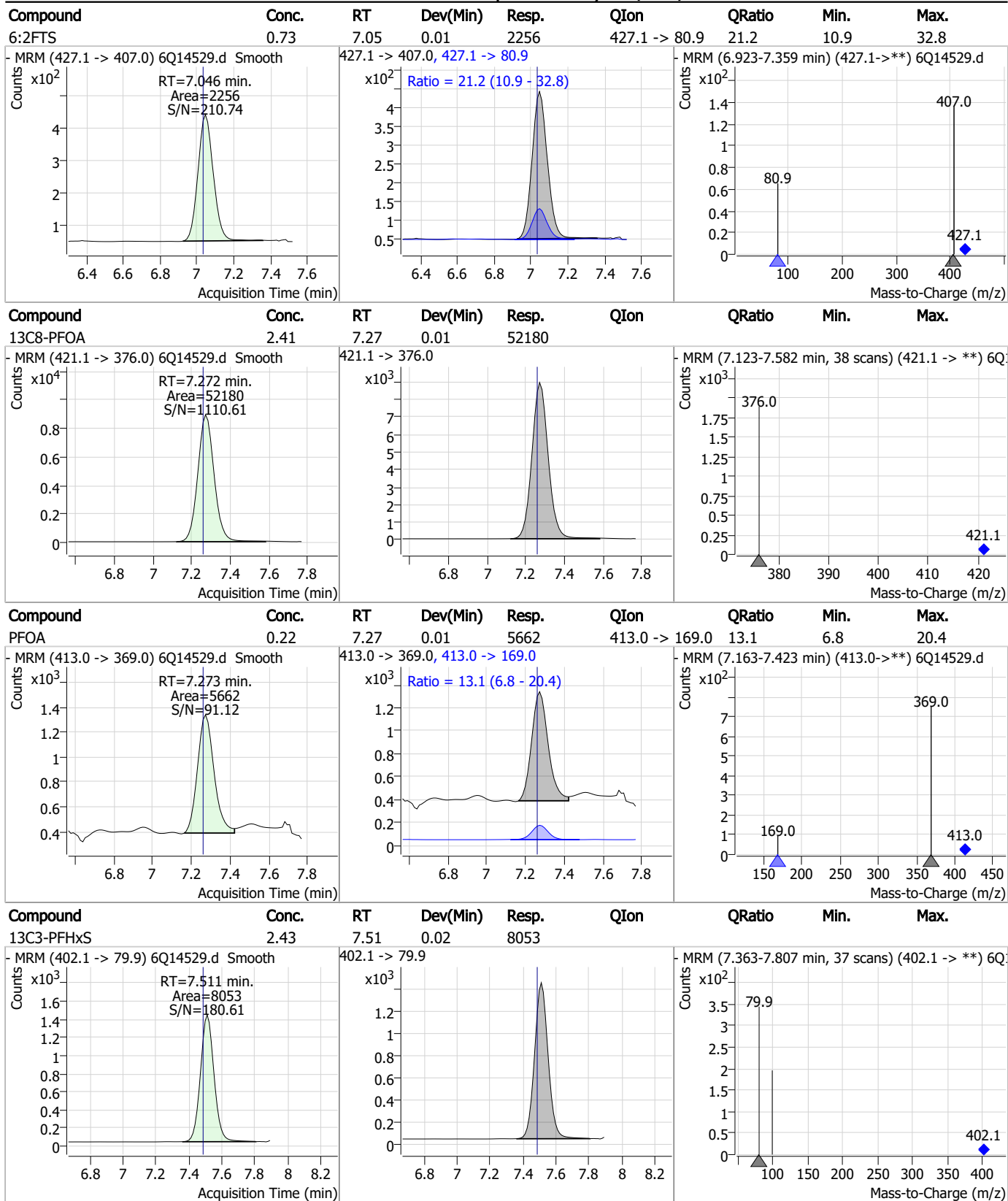
Perfluorinated Compounds by LC/MS/MS



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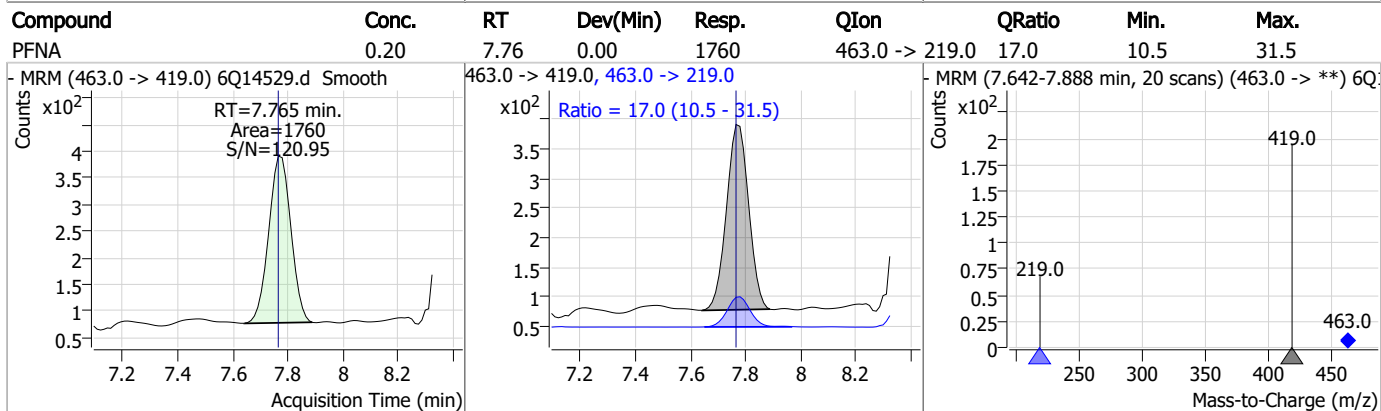
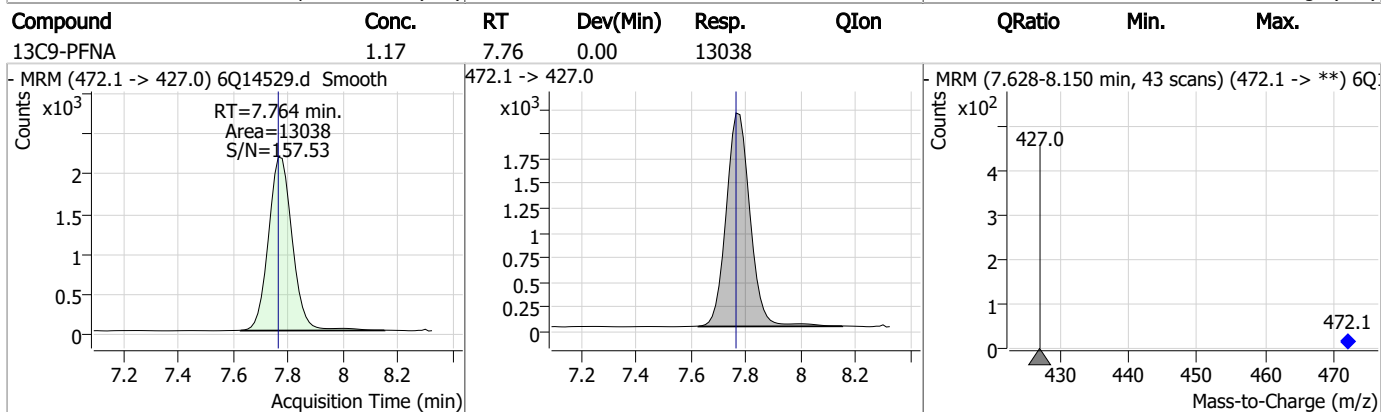
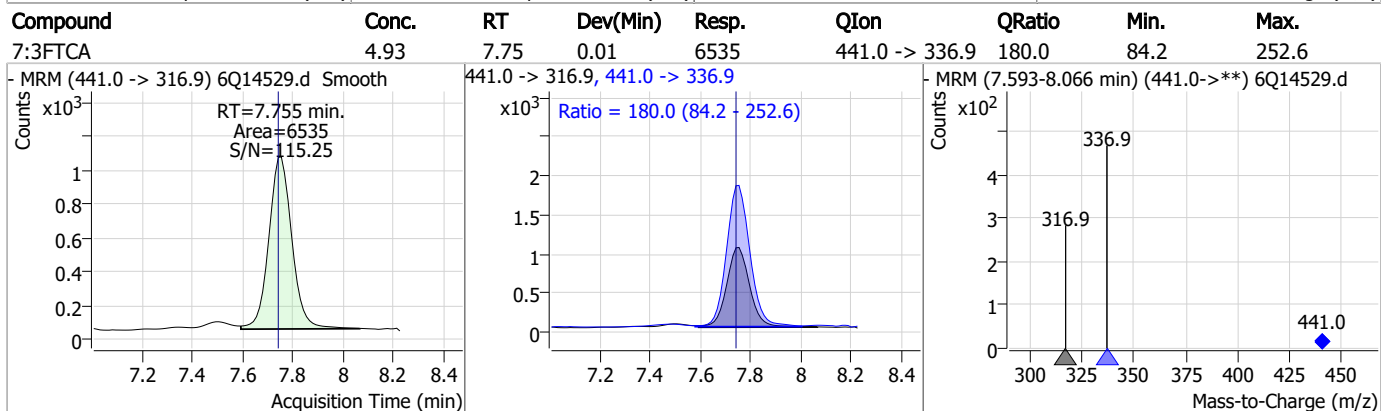
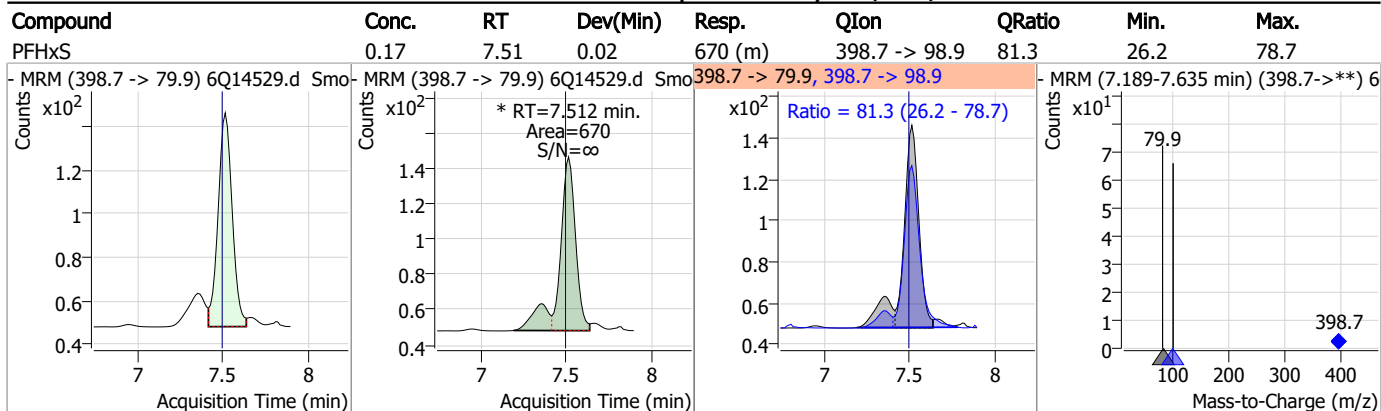
Perfluorinated Compounds by LC/MS/MS



7.8.13

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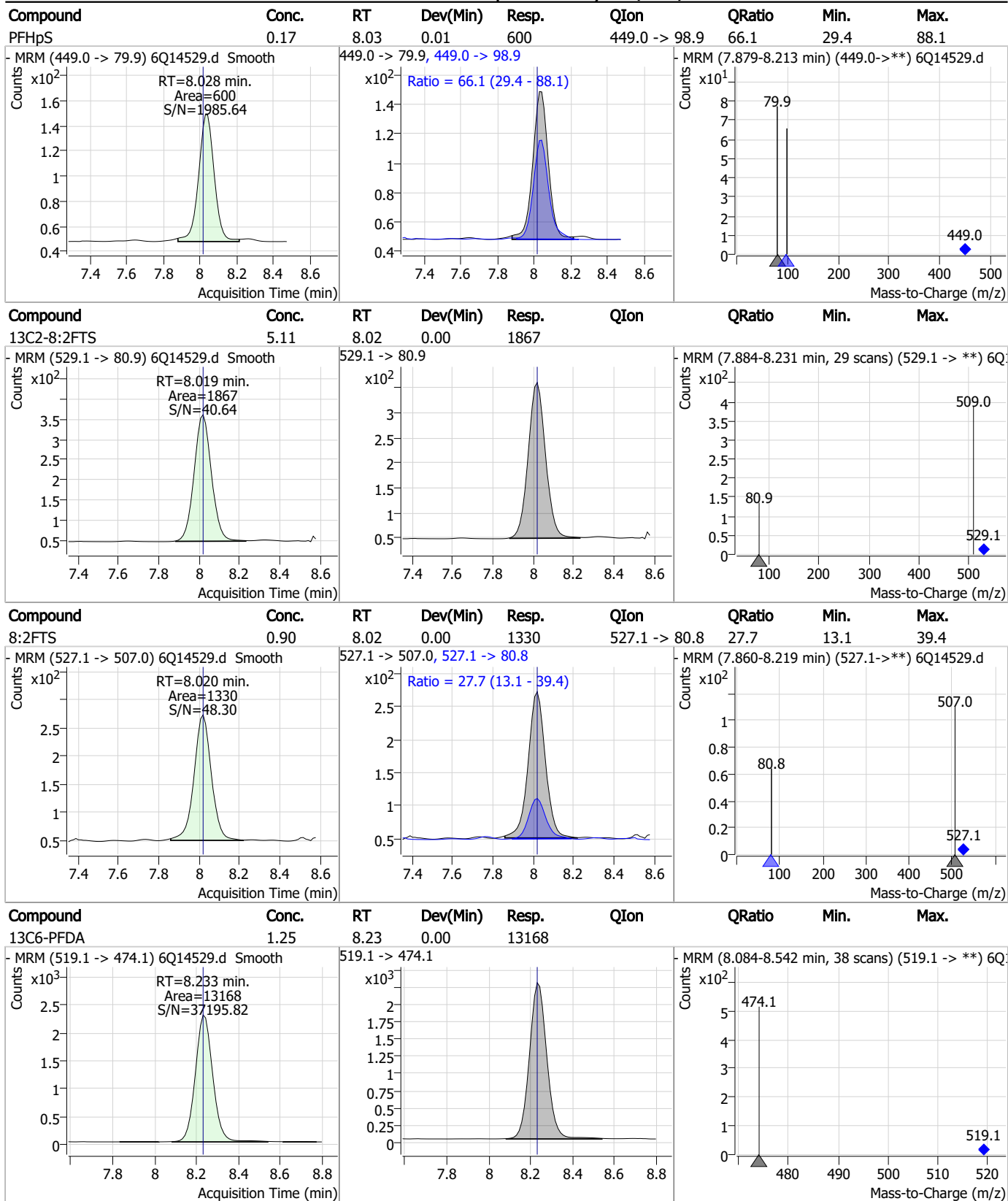
Perfluorinated Compounds by LC/MS/MS



7.8.13
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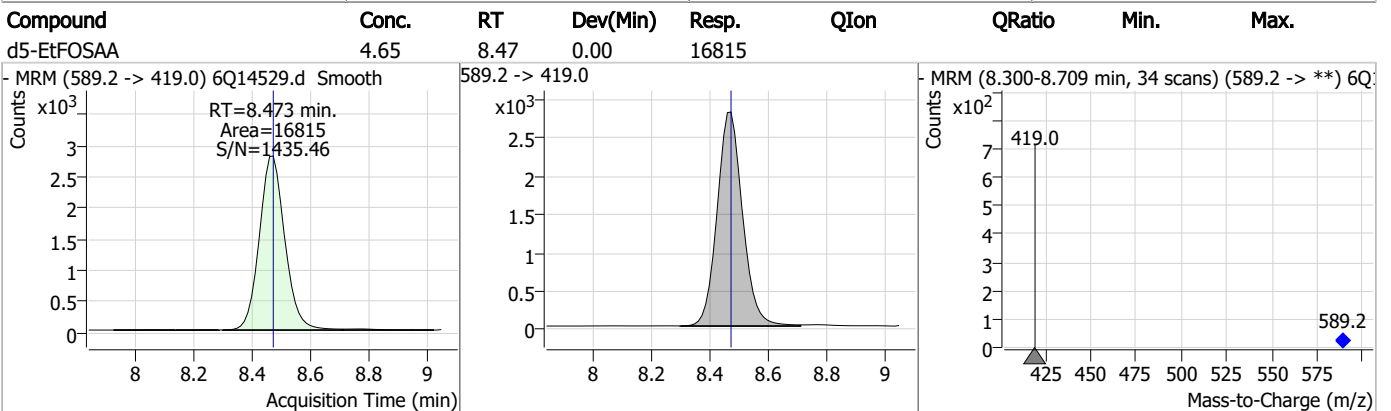
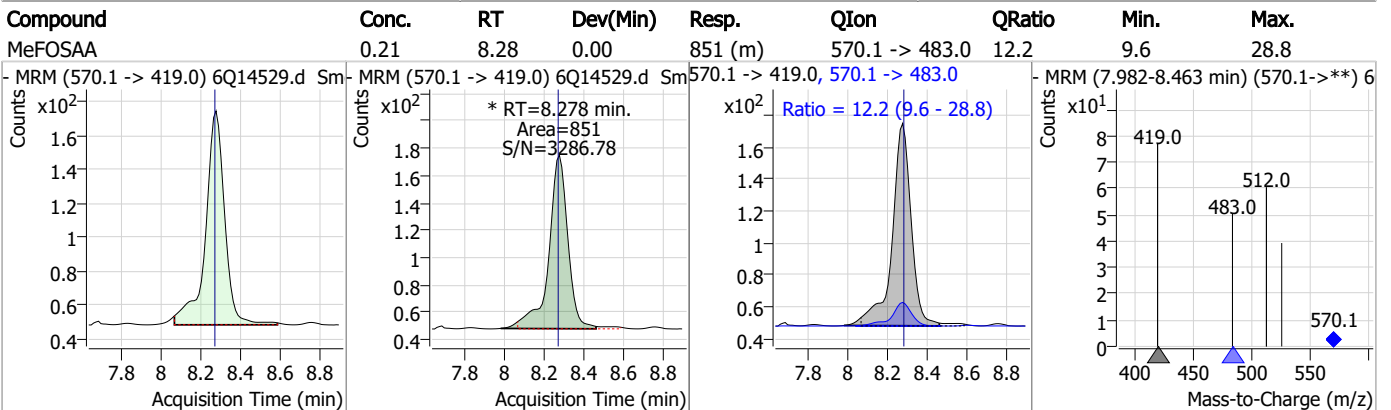
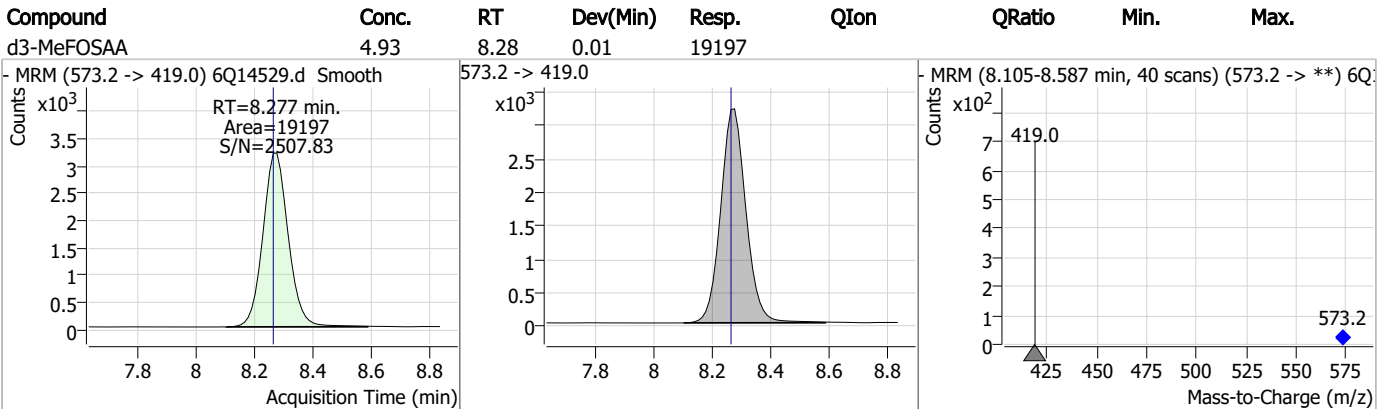
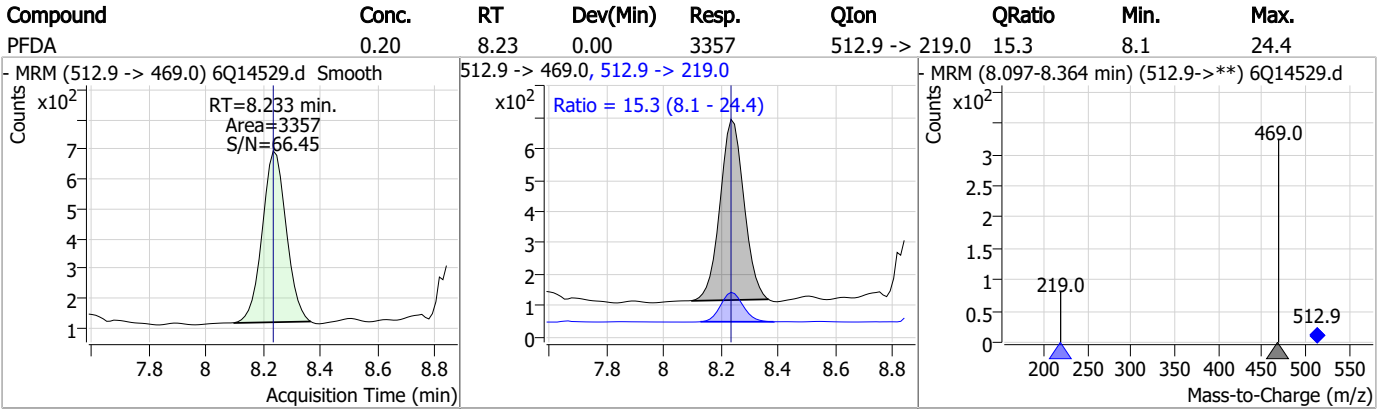


Perfluorinated Compounds by LC/MS/MS



7.8.13 7

Perfluorinated Compounds by LC/MS/MS

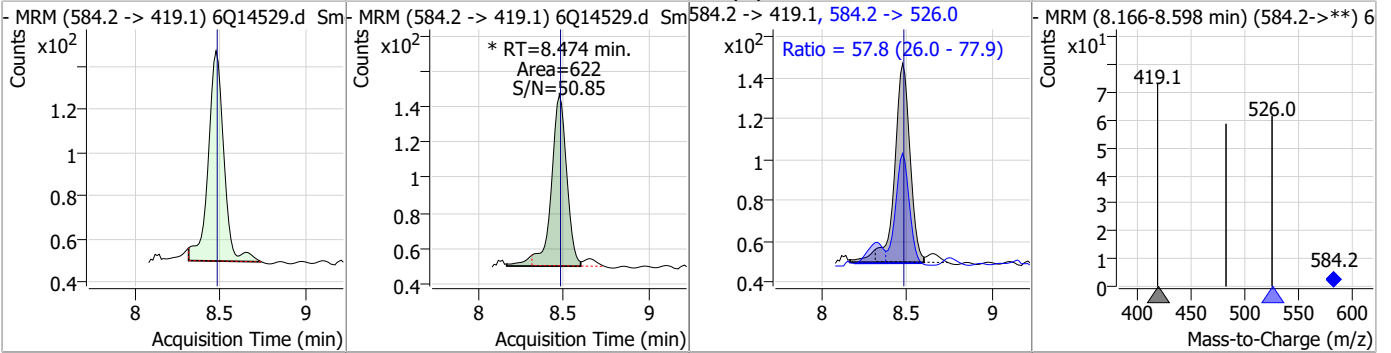


7.8.13

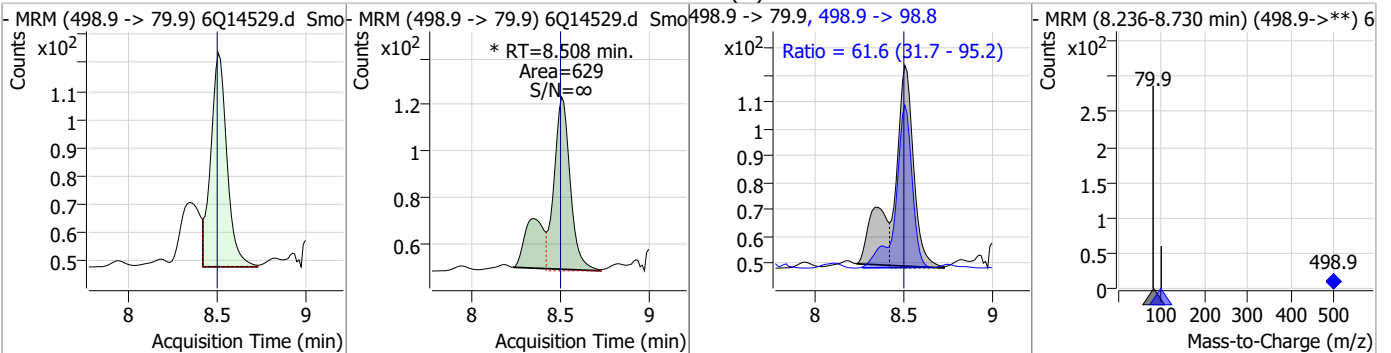
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Perfluorinated Compounds by LC/MS/MS

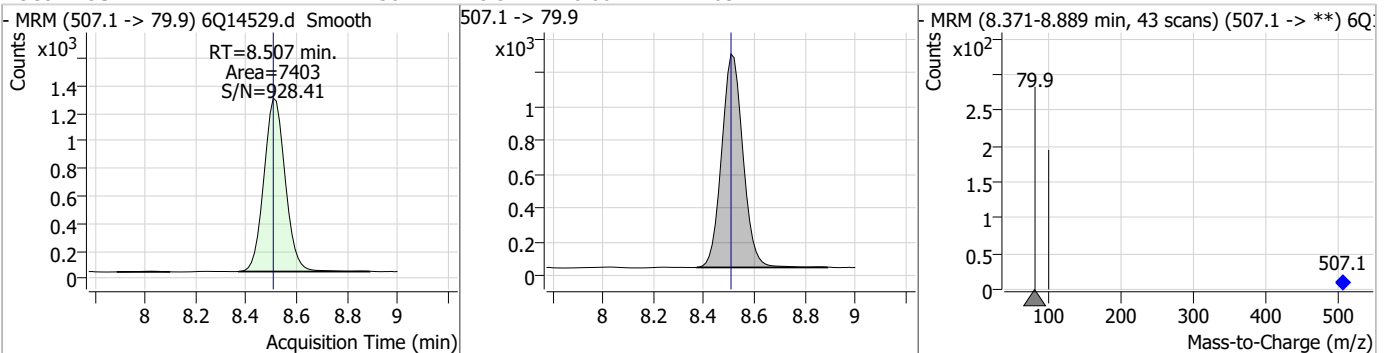
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.22	8.47	0.00	622 (m)	584.2 -> 526.0	57.8	26.0	77.9



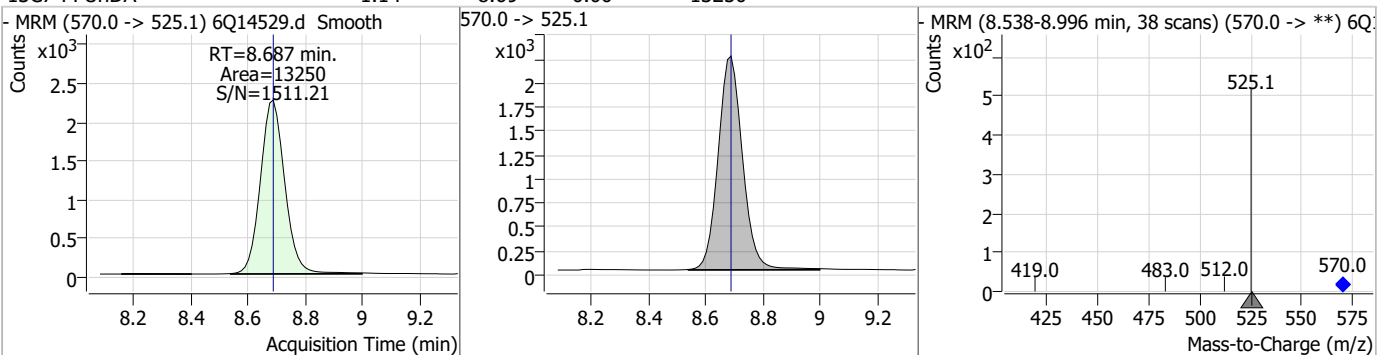
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.17	8.51	0.01	629 (m)	498.9 -> 98.8	61.6	31.7	95.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.56	8.51	0.00	7403				

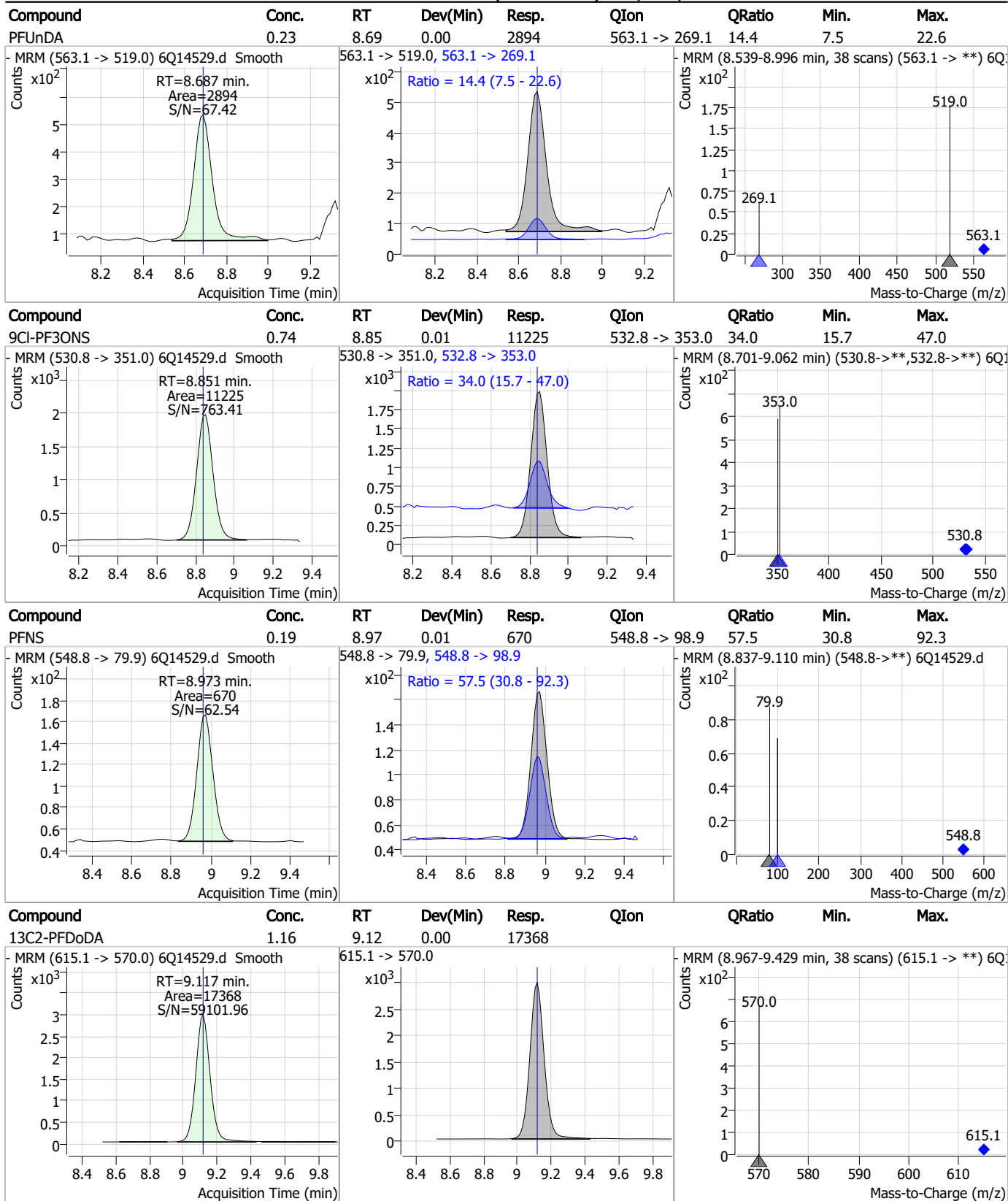


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.14	8.69	0.00	13250				



7.8.13
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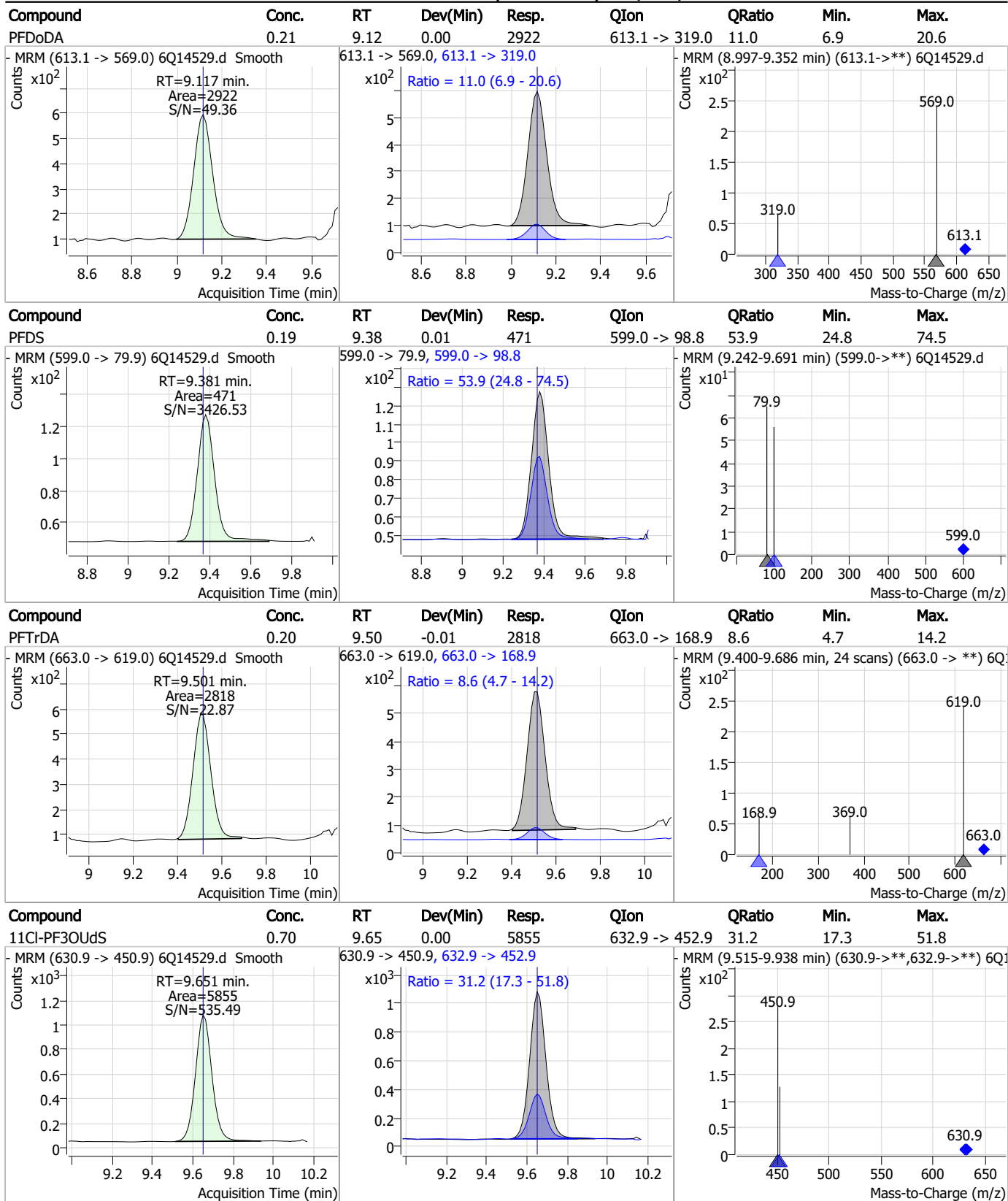
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

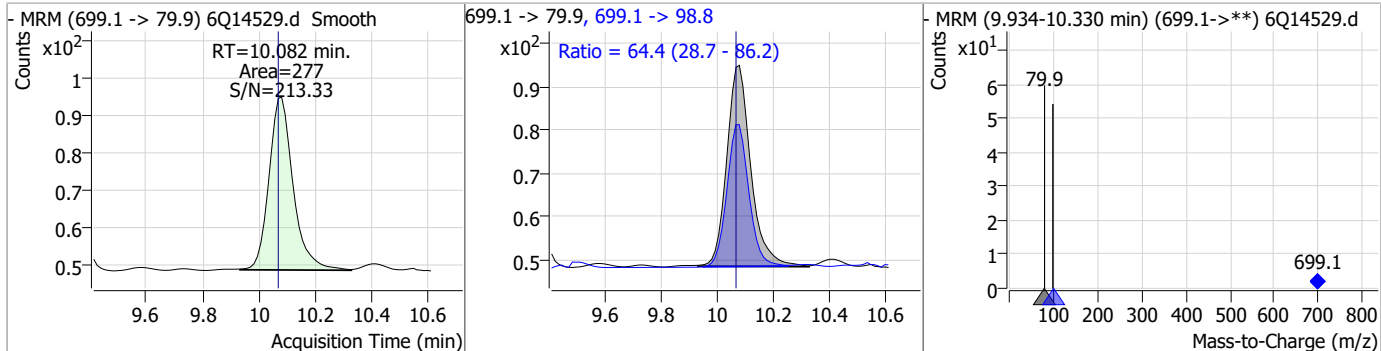
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.29	9.87	0.00	12237				
PFTeDA	0.22	9.87	0.00	3357	713.1 ->	168.9	6.6	3.4 10.2
13C8-FOSA	2.52	9.95	0.02	16724				
FOSA	0.22	9.94	0.01	1480	498.1 ->	478.0	4.5	1.8 5.4

7.8.13

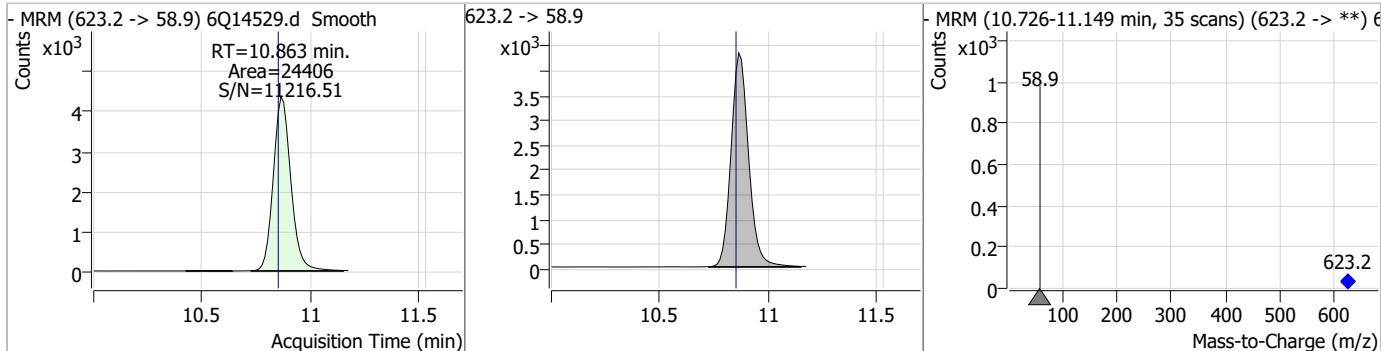
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Perfluorinated Compounds by LC/MS/MS

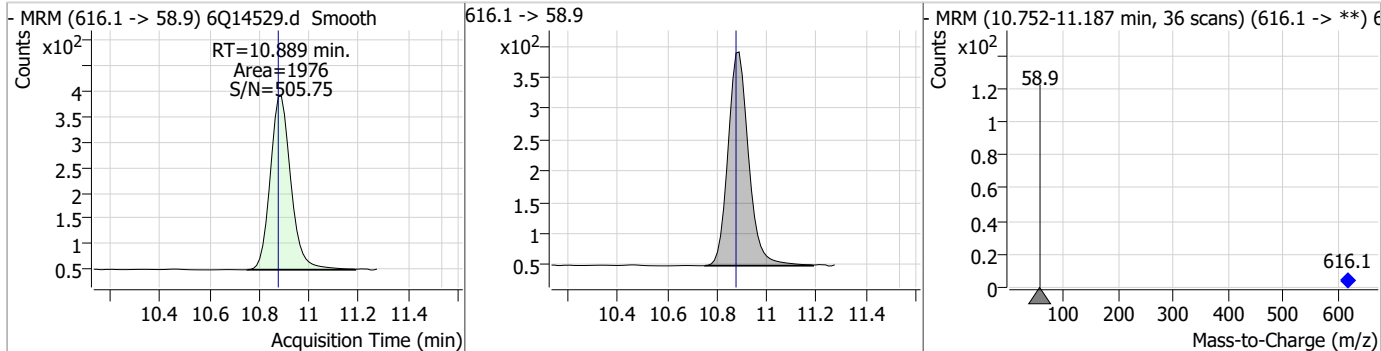
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.18	10.08	0.01	277	699.1 -> 98.8	64.4	28.7	86.2



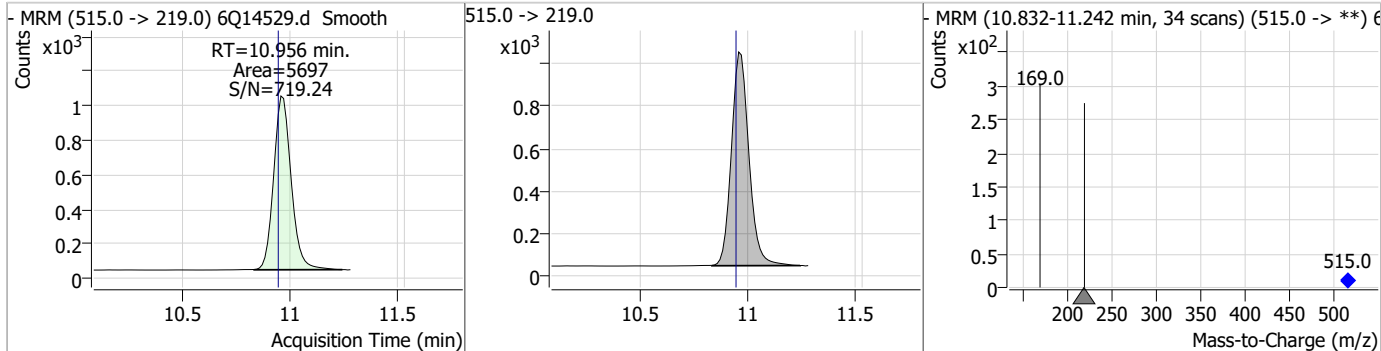
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.59	10.86	0.01	24406				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.97	10.89	0.01	1976				

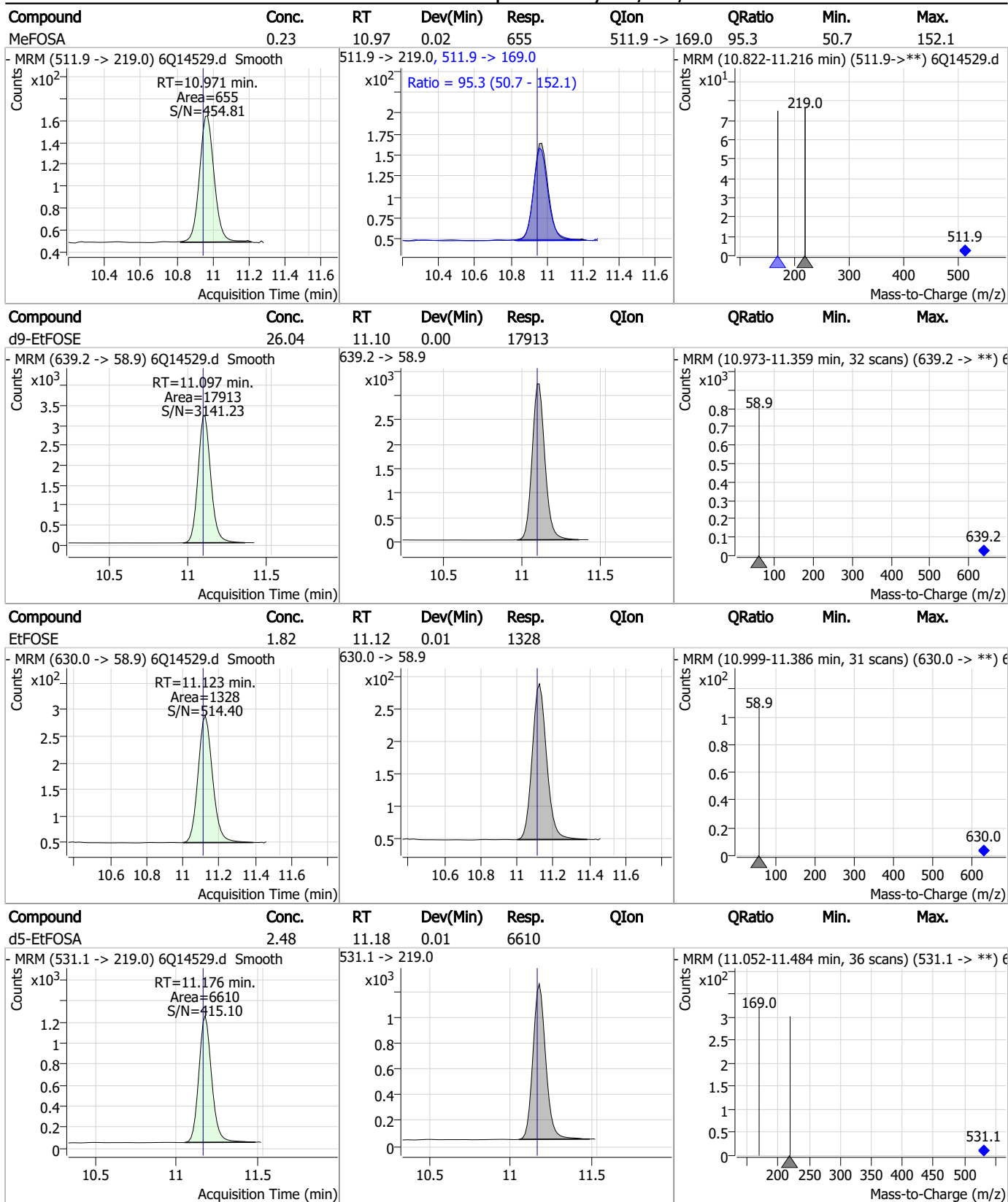


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.35	10.96	0.01	5697				



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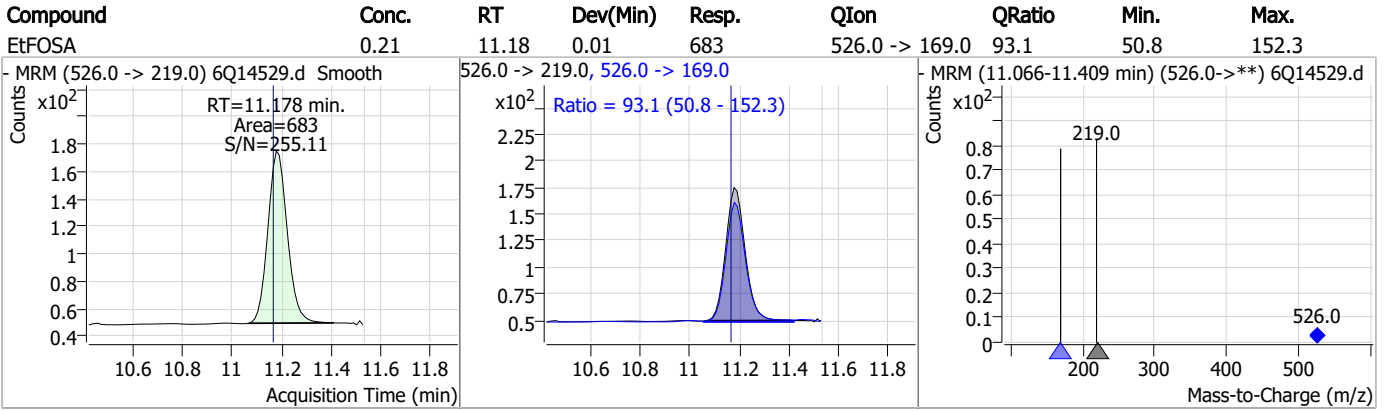
Perfluorinated Compounds by LC/MS/MS



7.8.13

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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q220-CC220
Lab FileID: 6Q14529.D
Injection Time: 03/08/23 15:48

Method: EPA DRAFT 1633
Analyst approved: 03/09/23 11:25 Martha Valls
Supervisor approved: 03/10/23 10:46 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.51	Split peak
MeFOSAA	2355-31-9		8.28	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.51	Split peak

7.8.13.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14540.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 6:21:55 PM
 Sample Name : cc220-4
 Vial : P1-A5
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.100	216.8 -> 171.9	76581	10.00 µg/L	0.025
M5-PFPeA	4.640	268.3 -> 223.0	37817	5.00 µg/L	0.025
M5-PFHxA	5.822	318.0 -> 273.0	33837	2.50 µg/L	0.012
M4-PFHpA	6.680	367.1 -> 322.0	33738	2.50 µg/L	0.012
M8-PFOA	7.272	421.1 -> 376.0	55120	2.50 µg/L	0.012
M9-PFNA	7.764	472.1 -> 427.0	14049	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	14272	1.25 µg/L	0.000
M7-PFUnDA	8.674	570.0 -> 525.1	14988	1.25 µg/L	-0.012
M2-PFDoDA	9.117	615.1 -> 570.0	18816	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	12537	1.25 µg/L	0.000
M8-FOSA	9.951	506.1 -> 77.8	18516	2.50 µg/L	0.025
M3-PFBS	5.951	302.1 -> 79.9	13016	2.50 µg/L	0.049
M3-PFHxS	7.511	402.1 -> 79.9	8334	2.50 µg/L	0.025
M8-PFOS	8.507	507.1 -> 79.9	7833	2.50 µg/L	0.000
M2-4:2FTS	5.500	329.1 -> 80.9	1657	5.00 µg/L	0.025
M2-6:2FTS	7.046	429.1 -> 80.9	2023	5.00 µg/L	0.012
M2-8:2FTS	8.007	529.1 -> 80.9	2166	5.00 µg/L	-0.012
M3-MeFOSAA	8.265	573.2 -> 419.0	21110	5.00 µg/L	0.000
M3-HFPO-DA	6.163	286.9 -> 168.9	14645	10.00 µg/L	0.012
M5-EtFOSAA	8.460	589.2 -> 419.0	19134	5.00 µg/L	-0.012
M7-MeFOSE	10.876	623.2 -> 58.9	26116	25.00 µg/L	0.025
M9-EtFOSE	11.110	639.2 -> 58.9	17013	25.00 µg/L	0.012
M5-EtFOSA	11.176	531.1 -> 219.0	6833	2.50 µg/L	0.012
M3-MeFOSA	10.969	515.0 -> 219.0	6065	2.50 µg/L	0.025
13C4-PFOS	8.508	502.8 -> 79.9	8821	2.50 µg/L	0.012
13C3-PFBA	3.091	216.0 -> 172.0	33207	5.00 µg/L	0.012
18O2-PFHxS	7.510	403.0 -> 83.9	5881	2.50 µg/L	0.012
13C4-PFOA	7.272	417.1 -> 372.0	66058	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	17904	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	14217	1.25 µg/L	0.000
13C2-PFHxA	5.823	315.1 -> 270.0	33003	2.50 µg/L	0.024
System Monitoring Compounds					
13C2-4:2FTS	5.500	329.1 -> 80.9	1657	5.92 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.4%		
13C2-6:2FTS	7.046	429.1 -> 80.9	2023	5.49 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.9%		
13C2-8:2FTS	8.007	529.1 -> 80.9	2166	5.85 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.9%		
13C2-PFDoDA	9.117	615.1 -> 570.0	18816	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C2-PFTeDA	9.868	715.2 -> 670.0	12537	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C3-PFBS	5.951	302.1 -> 79.9	13016	2.54 µg/L	0.049
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C3-PFHxS	7.511	402.1 -> 79.9	8334	2.48 µg/L	0.025

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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 = 99.1%	
13C4-PFBA	3.100	216.8 -> 171.9	76581	10.04 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C4-PFHpA	6.680	367.1 -> 322.0	33738	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFHxA	5.822	318.0 -> 273.0	33837	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C5-PFPeA	4.640	268.3 -> 223.0	37817	4.83 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C6-PFDA	8.233	519.1 -> 474.1	14272	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C7-PFUnDA	8.674	570.0 -> 525.1	14988	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C8-FOSA	9.951	506.1 -> 77.8	18516	2.67 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C8-PFOA	7.272	421.1 -> 376.0	55120	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C8-PFOS	8.507	507.1 -> 79.9	7833	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C9-PFNA	7.764	472.1 -> 427.0	14049	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%	
d3-MeFOSAA	8.265	573.2 -> 419.0	21110	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C3-HFPO-DA	6.163	286.9 -> 168.9	14645	9.69 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.9%	
d3-MeFOSA	10.969	515.0 -> 219.0	6065	2.40 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
d5-EtFOSAA	8.460	589.2 -> 419.0	19134	5.07 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
d7-MeFOSE	10.876	623.2 -> 58.9	26116	25.22 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
d9-EtFOSE	11.110	639.2 -> 58.9	17013	23.70 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.8%	
d5-EtFOSA	11.176	531.1 -> 219.0	6833	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
Target Compounds					QValue
4:2FTS	5.500	327.1 -> 307.0	31530	8.43 µg/L	97
		327.1 -> 80.9	8187		
6:2FTS	7.046	427.1 -> 407.0	26959	8.86 µg/L	98
		427.1 -> 80.9	6174		
8:2FTS	8.008	527.1 -> 507.0	14537	8.43 µg/L	97
		527.1 -> 80.8	4039		
EtFOSAA	8.474	584.2 -> 419.1	7476	2.32 µg/L	m 92
		584.2 -> 526.0	4307		
FOSA	9.954	498.1 -> 77.9	17731	2.34 µg/L	100
		498.1 -> 478.0	645		
MeFOSAA	8.266	570.1 -> 419.0	9765	2.18 µg/L	100
		570.1 -> 483.0	1854		
PFBA	3.094	212.8 -> 168.9	19448	9.26 µg/L	100
PFBS	5.951	298.7 -> 79.9	10354	1.90 µg/L	89
		298.7 -> 98.8	4909		
PFDA	8.233	512.9 -> 469.0	40612	2.21 µg/L	95
		512.9 -> 219.0	5701		
PFDoDA	9.117	613.1 -> 569.0	35867	2.32 µg/L	97
		613.1 -> 319.0	4412		
PFDS	9.381	599.0 -> 79.9	5495	2.06 µg/L	95

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.681	599.0 -> 98.8	2901	2.15	µg/L	95
		363.1 -> 319.0	46598			
PFHpS	8.028	363.1 -> 169.0	7471	2.00	µg/L	98
		449.0 -> 79.9	7393			
PFHxA	5.825	449.0 -> 98.9	4466	2.28	µg/L	99
		313.0 -> 269.0	30615			
PFHxS	7.512	313.0 -> 118.9	1275	2.12	µg/L	91
		398.7 -> 79.9	8619			
PFNA	7.765	398.7 -> 98.9	5068	2.39	µg/L	98
		463.0 -> 419.0	23164			
PFNS	8.973	463.0 -> 219.0	4680	2.26	µg/L	88
		548.8 -> 79.9	8569			
PFOA	7.273	548.8 -> 98.9	4476	2.21	µg/L	99
		413.0 -> 369.0	61059			
PFOS	8.508	413.0 -> 169.0	8086	2.12	µg/L	92
		498.9 -> 79.9	8249			
PFPeA	4.642	498.9 -> 98.8	4730	4.73	µg/L	100
		263.0 -> 219.0	41568			
PFPeS	6.882	349.1 -> 79.9	11562	2.40	µg/L	99
		349.1 -> 98.9	5781			
PFTeDA	9.869	713.1 -> 669.0	36636	2.34	µg/L	99
		713.1 -> 168.9	2381			
PFTrDA	9.513	663.0 -> 619.0	33288	2.16	µg/L	99
		663.0 -> 168.9	3097			
PFUnDA	8.687	563.1 -> 519.0	37279	2.56	µg/L	97
		563.1 -> 269.1	5182			
11Cl-PF3OUdS	9.664	630.9 -> 450.9	77123	8.92	µg/L	92
		632.9 -> 452.9	23127			
9Cl-PF3ONS	8.851	530.8 -> 351.0	148357	9.44	µg/L	99
		532.8 -> 353.0	47586			
ADONA	6.916	376.9 -> 250.9	294892	9.59	µg/L	99
		376.9 -> 84.8	64167			
HFPO-DA	6.164	284.9 -> 168.9	13477	9.21	µg/L	98
		284.9 -> 184.9	1722			
3:3FTCA	4.014	241.0 -> 177.0	5138	11.50	µg/L	99
		241.0 -> 117.0	783			
5:3FTCA	6.419	341.0 -> 237.1	174921	59.61	µg/L	98
		341.0 -> 217.0	147788			
7:3FTCA	7.742	441.0 -> 316.9	87668	62.28	µg/L	98
		441.0 -> 336.9	150503			
EtFOSA	11.190	526.0 -> 219.0	7395	2.23	µg/L	100
		526.0 -> 169.0	7522			
EtFOSE	11.123	630.0 -> 58.9	16058	23.11	µg/L	100
		511.9 -> 219.0	7133			
MeFOSA	10.971	511.9 -> 169.0	7089	2.39	µg/L	98
		616.1 -> 58.9	24711			
MeFOSE	10.889	699.1 -> 79.9	3475	23.04	µg/L	100
		699.1 -> 98.8	1961			
PFDoDS	10.082	295.0 -> 201.0	4000	2.16	µg/L	99
		295.0 -> 84.9	1886			
NFDHA	5.705	279.0 -> 85.1	13343	4.32	µg/L	88
		229.0 -> 84.9	11489			
PFMBA	5.039	314.8 -> 134.9	80426	4.47	µg/L	100
		314.8 -> 82.9	1695			
PFMPA	3.729			4.16	µg/L	98
PFEESA	6.433					

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

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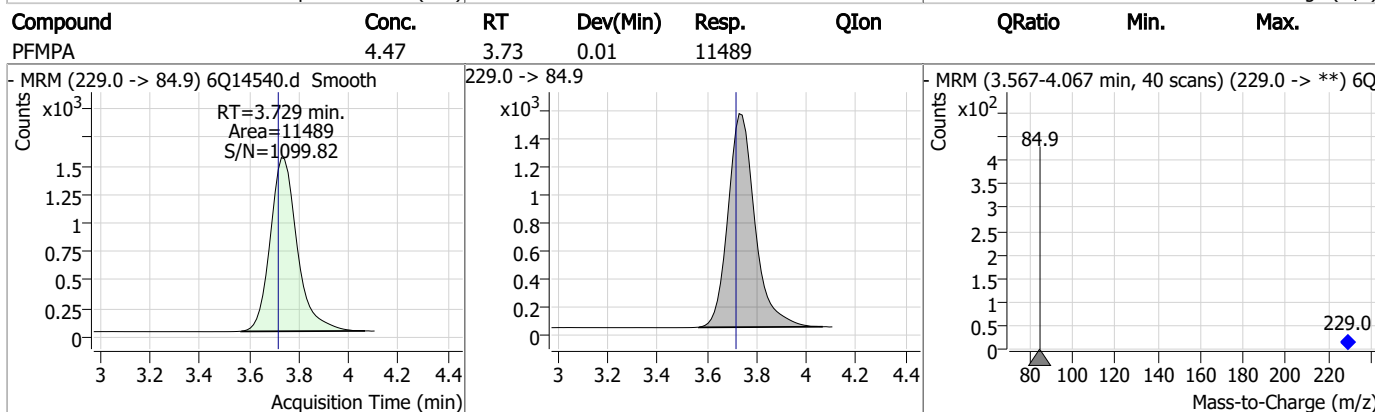
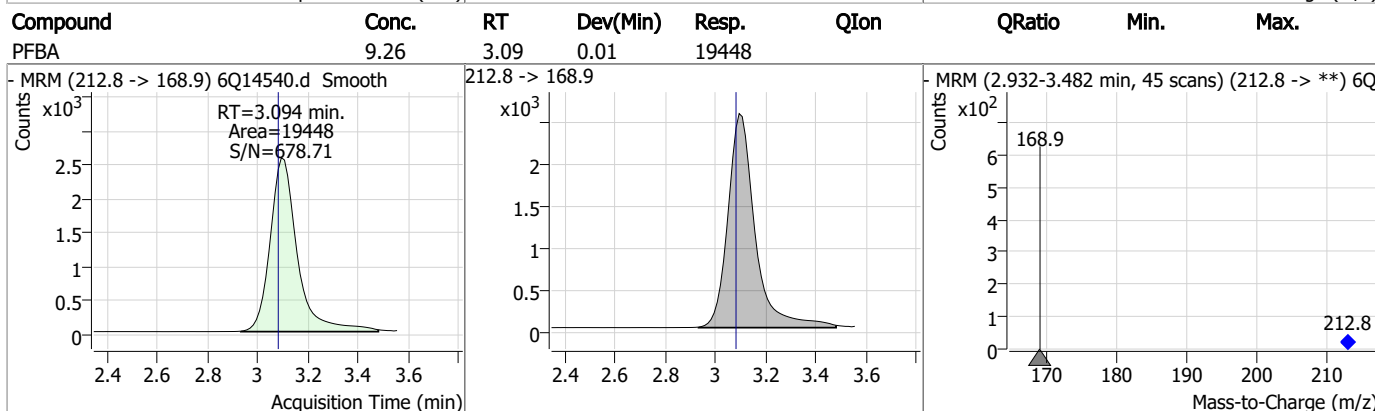
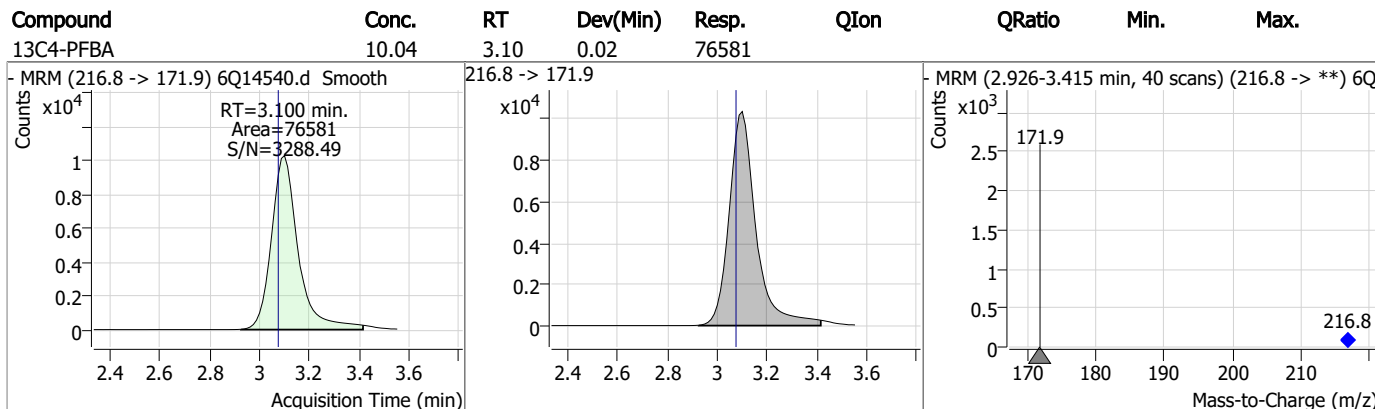
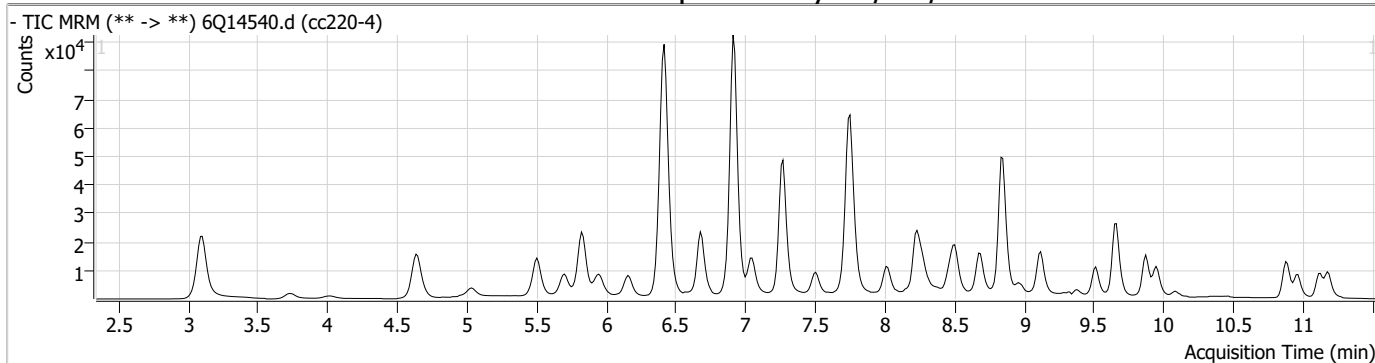
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.8.14

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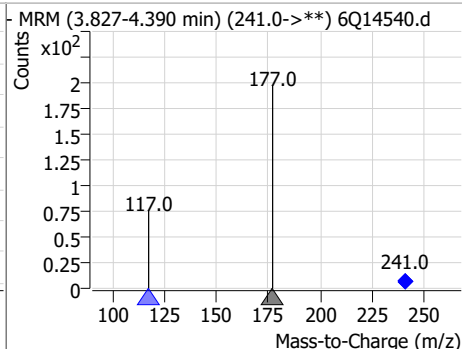
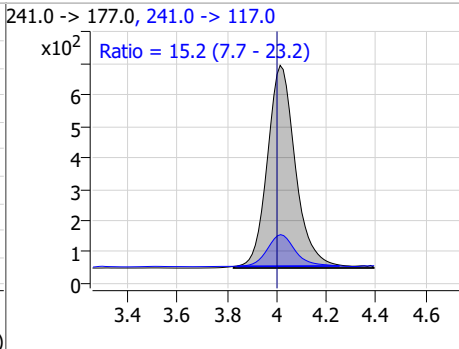
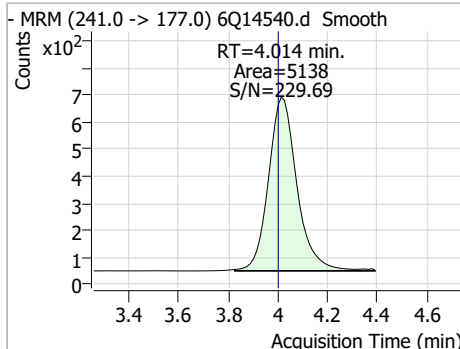
Perfluorinated Compounds by LC/MS/MS



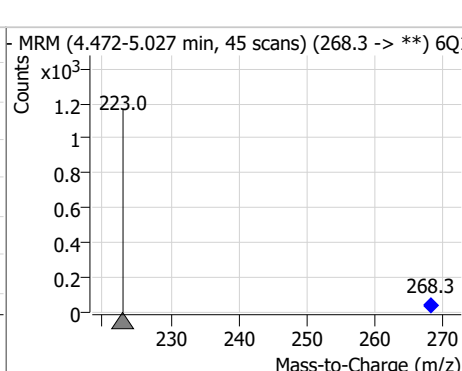
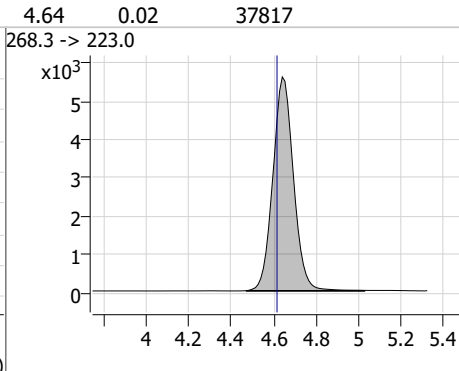
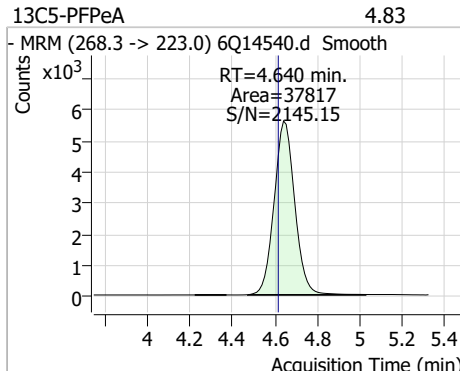
7.8.14
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Perfluorinated Compounds by LC/MS/MS

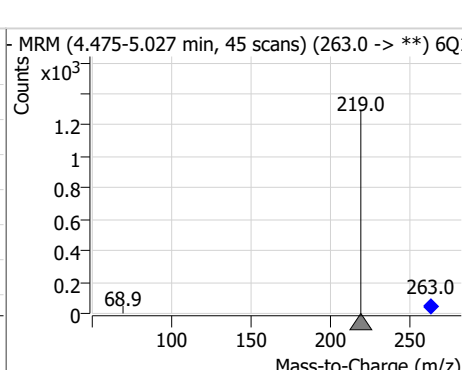
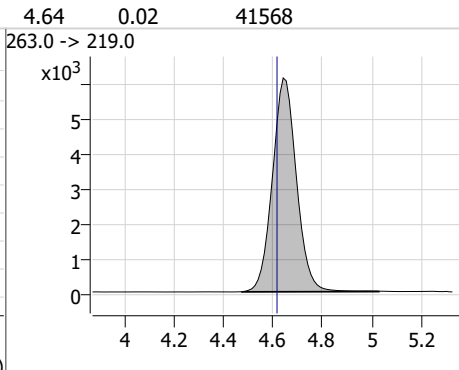
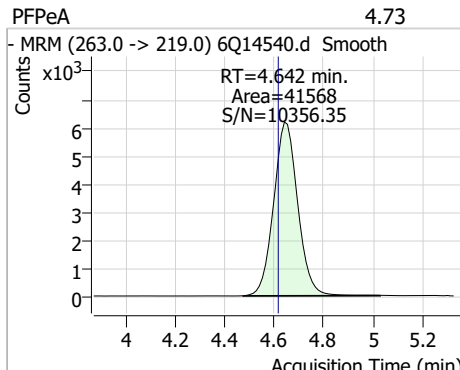
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.50	4.01	0.01	5138	241.0 -> 117.0	15.2	7.7	23.2



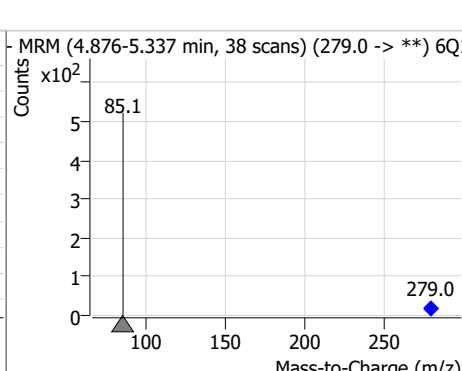
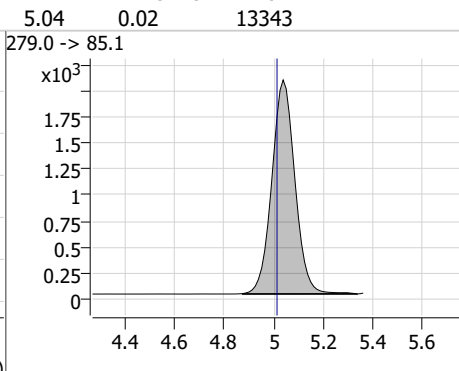
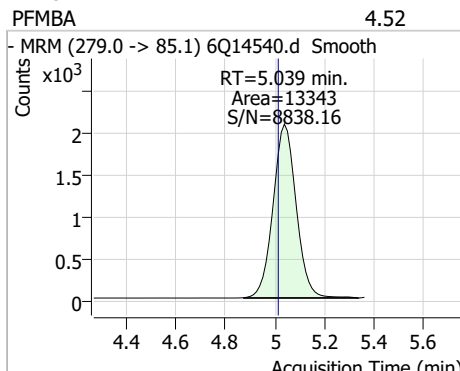
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.83	4.64	0.02	37817				



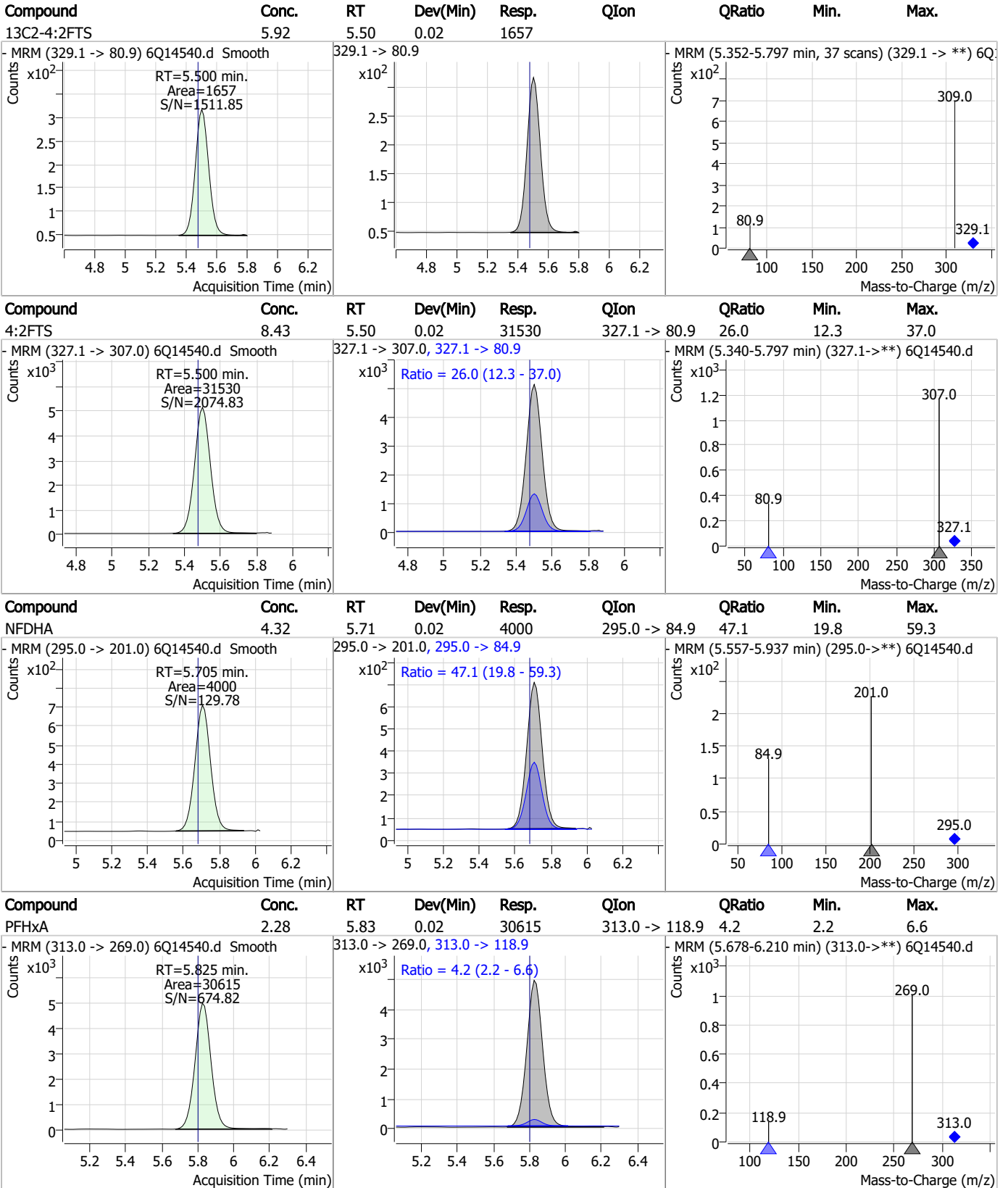
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.73	4.64	0.02	41568				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.52	5.04	0.02	13343				



Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

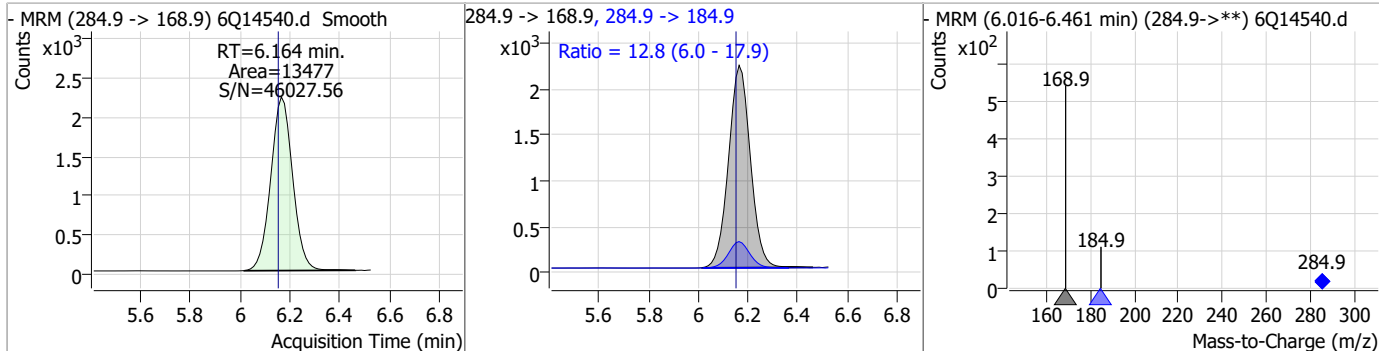
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.50	5.82	0.01	33837				
- MRM (318.0 -> 273.0) 6Q14540.d Smooth Counts x10 ³ RT=5.822 min. Area=33837 S/N=24577.46 Acquisition Time (min)			318.0 -> 273.0 x10 ³ Acquisition Time (min)		- MRM (5.675-6.045 min, 31 scans) (318.0 -> **) 6Q Counts x10 ³ 273.0 120.3 318.0 Mass-to-Charge (m/z)			
13C3-PFBS	2.54	5.95	0.05	13016				
- MRM (302.1 -> 79.9) 6Q14540.d Smooth Counts x10 ³ RT=5.951 min. Area=13016 S/N=2049.14 Acquisition Time (min)			302.1 -> 79.9 x10 ³ Acquisition Time (min)		- MRM (5.790-6.113 min, 27 scans) (302.1 -> **) 6Q Counts x10 ² 79.9 98.9 302.1 Mass-to-Charge (m/z)			
PFBS	1.90	5.95	0.05	10354	298.7 -> 98.8	47.4	20.4	61.1
- MRM (298.7 -> 79.9) 6Q14540.d Smooth Counts x10 ³ RT=5.951 min. Area=10354 S/N=13248.28 Acquisition Time (min)			298.7 -> 79.9, 298.7 -> 98.8 x10 ³ Ratio = 47.4 (20.4 - 61.1) Acquisition Time (min)		- MRM (5.779-6.076 min) (298.7->**) 6Q14540.d Counts x10 ² 79.9 98.8 298.7 Mass-to-Charge (m/z)			
13C3-HFPO-DA	9.69	6.16	0.01	14645				
- MRM (286.9 -> 168.9) 6Q14540.d Smooth Counts x10 ³ RT=6.163 min. Area=14645 S/N=3501.03 Acquisition Time (min)			286.9 -> 168.9 x10 ³ Acquisition Time (min)		- MRM (6.015-6.460 min, 37 scans) (286.9 -> **) 6Q Counts x10 ² 168.9 184.9 286.9 Mass-to-Charge (m/z)			

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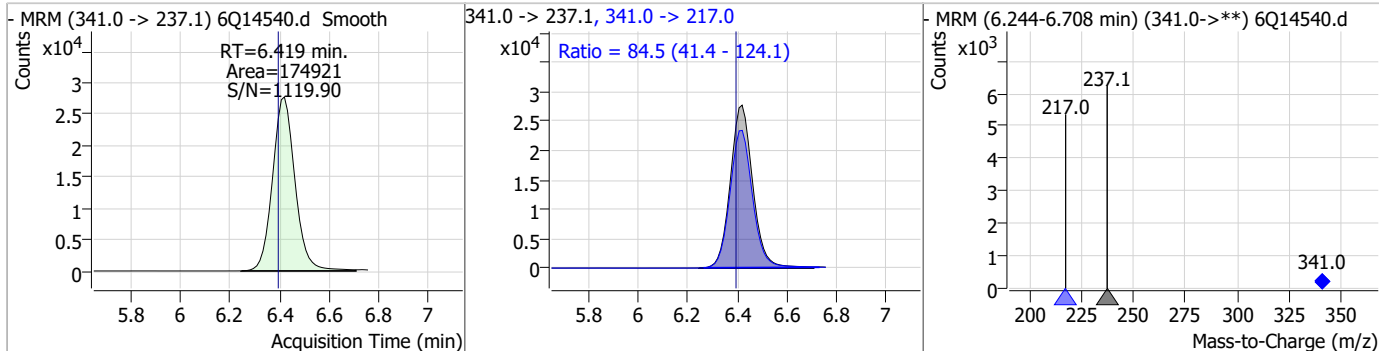


Perfluorinated Compounds by LC/MS/MS

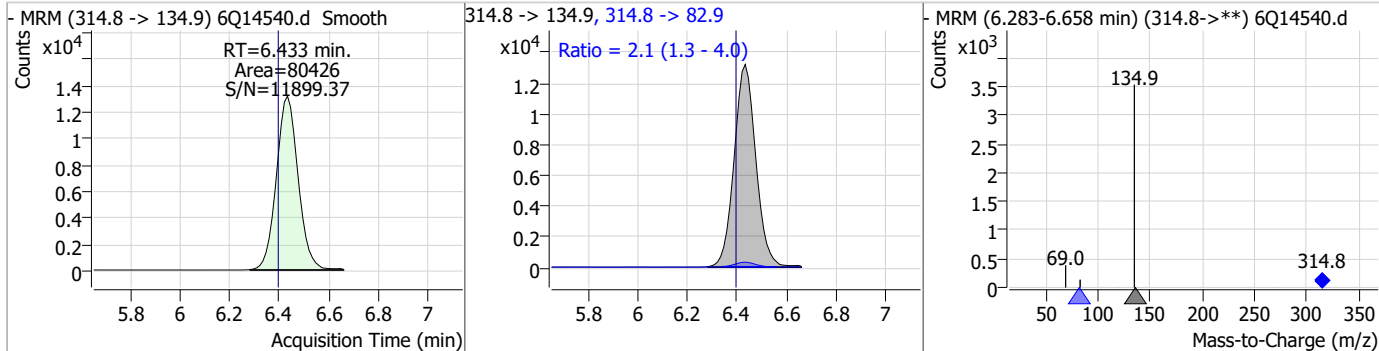
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.21	6.16	0.01	13477	284.9 -> 184.9	12.8	6.0	17.9



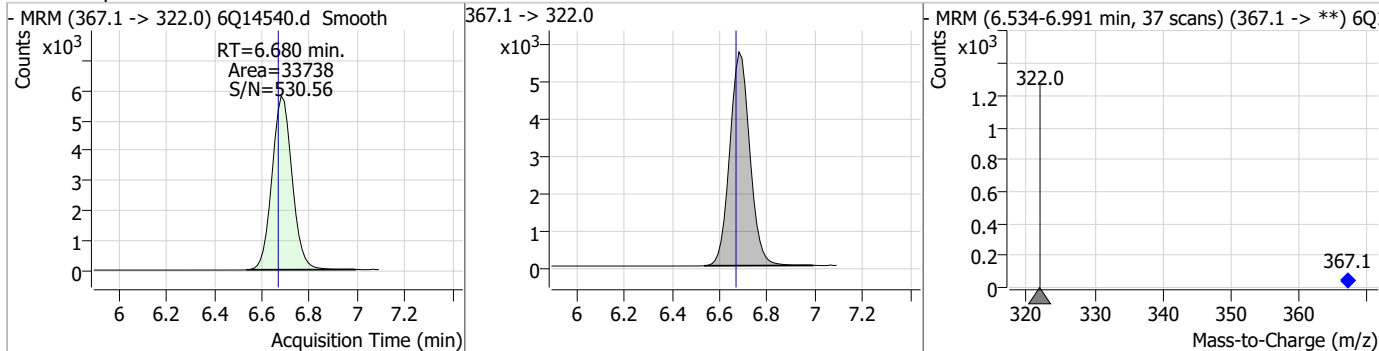
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	59.61	6.42	0.02	174921	341.0 -> 217.0	84.5	41.4	124.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.16	6.43	0.04	80426	314.8 -> 82.9	2.1	1.3	4.0

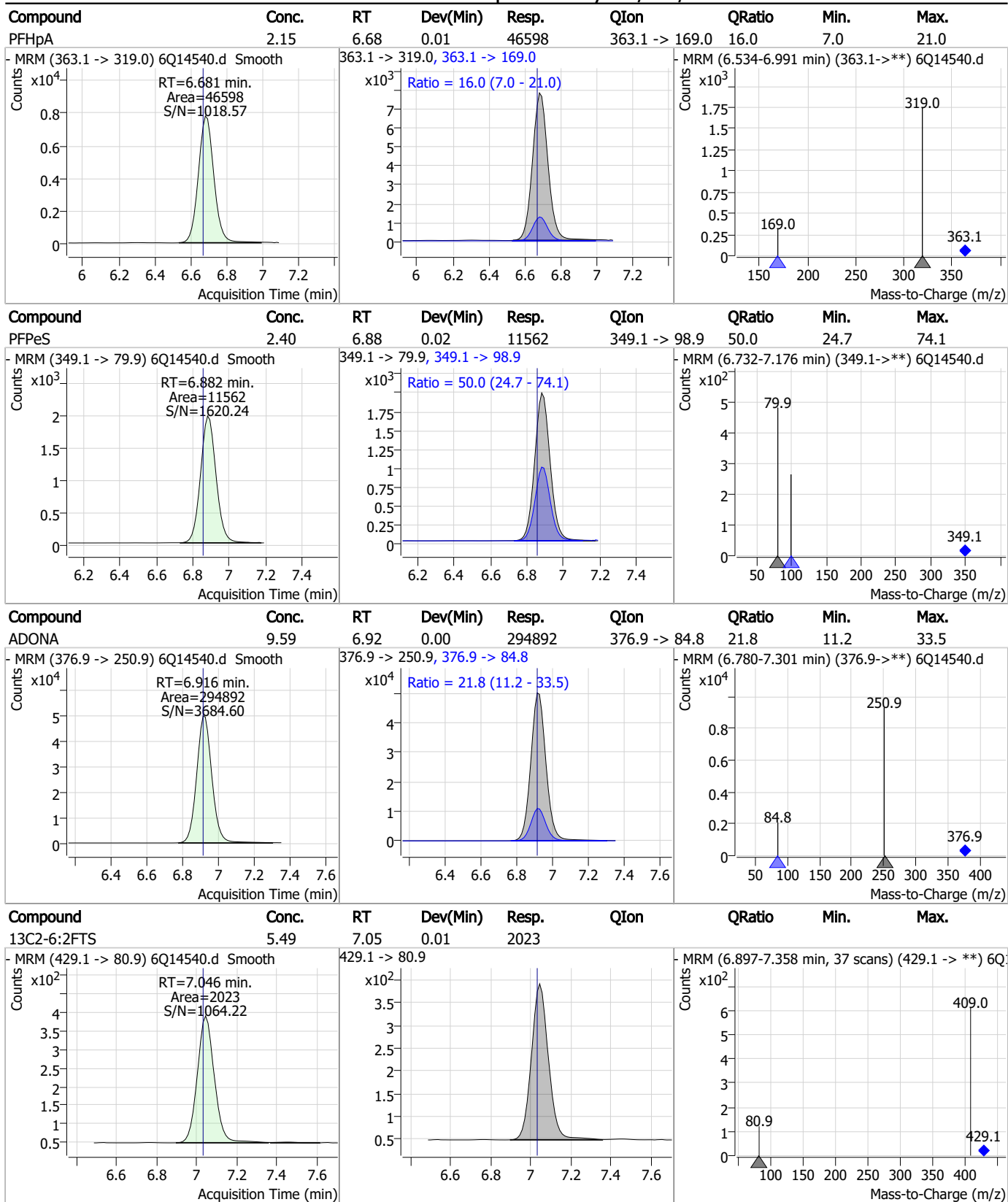


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.56	6.68	0.01	33738	367.1 -> 322.0			



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Perfluorinated Compounds by LC/MS/MS

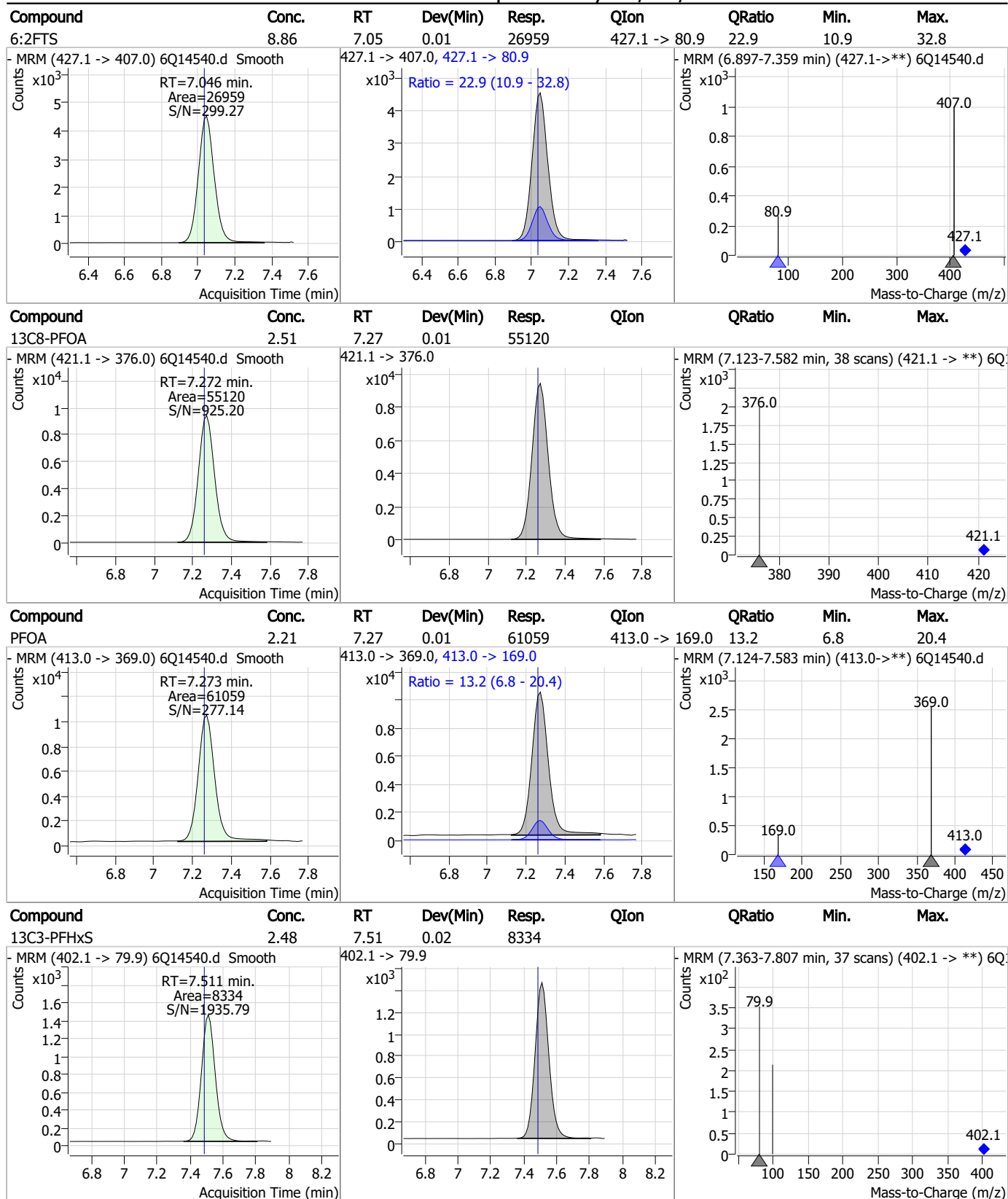


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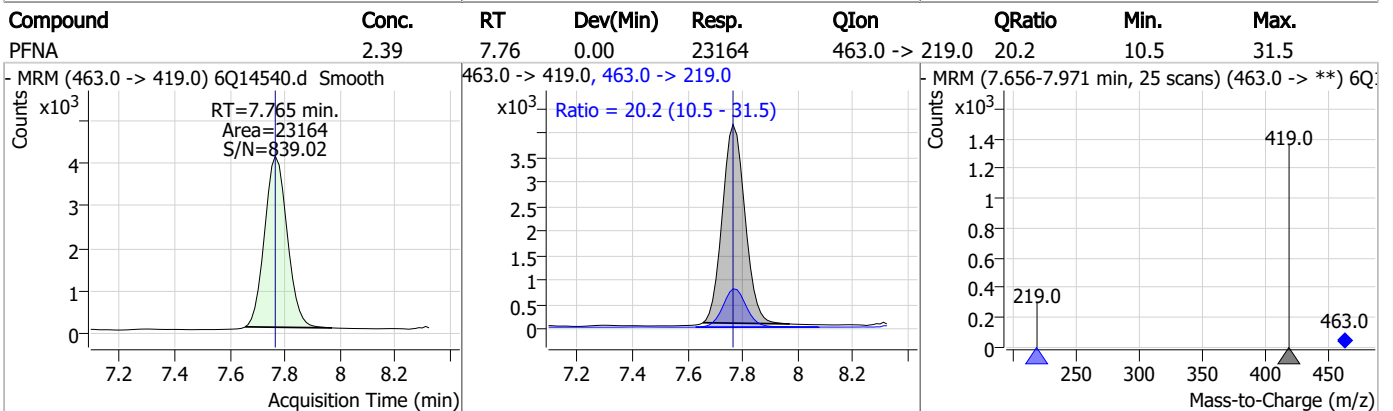
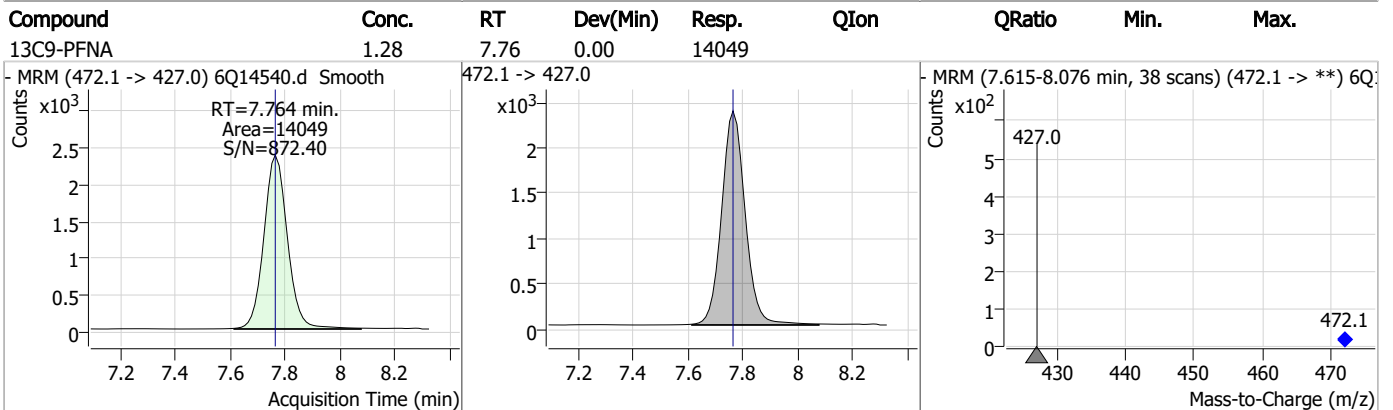
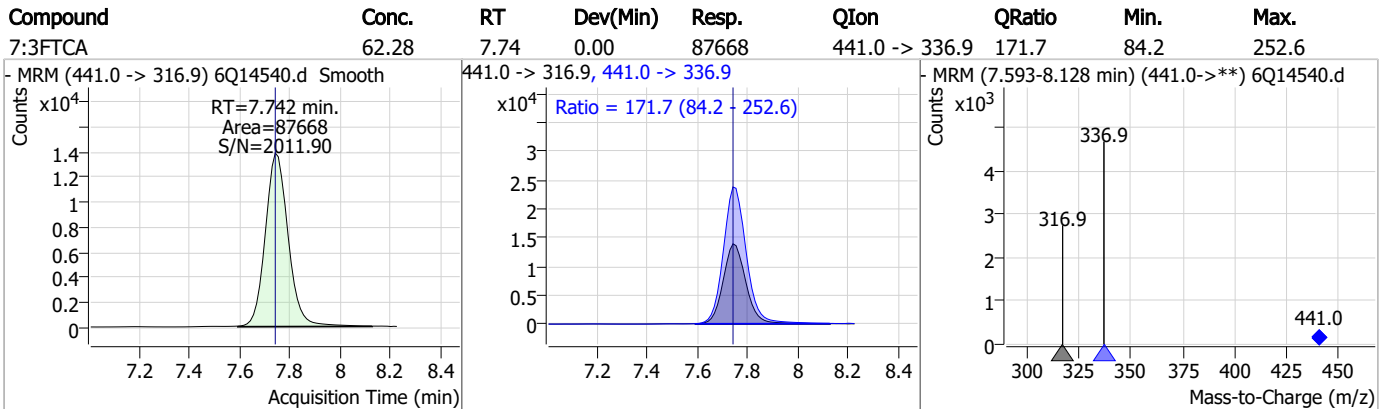
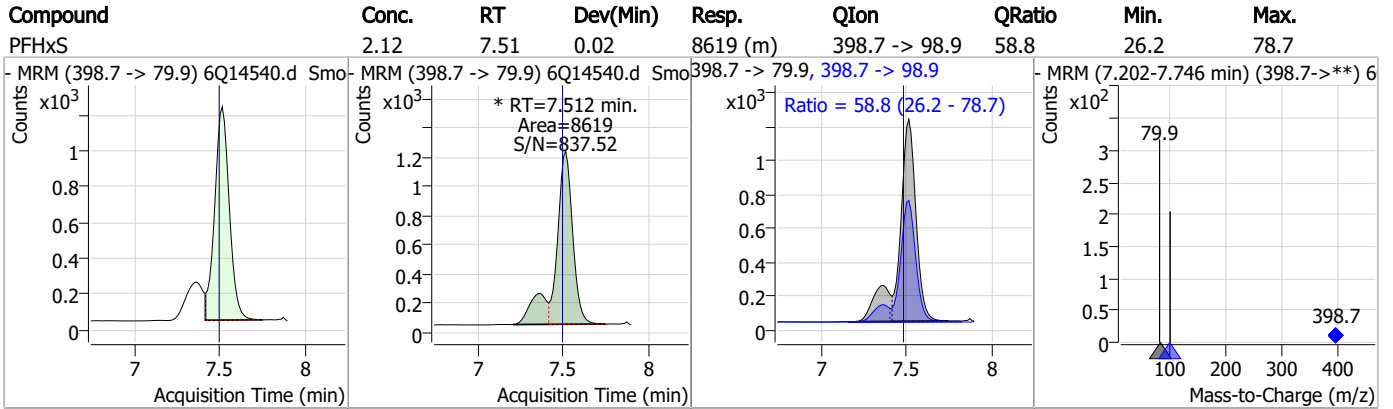
Perfluorinated Compounds by LC/MS/MS



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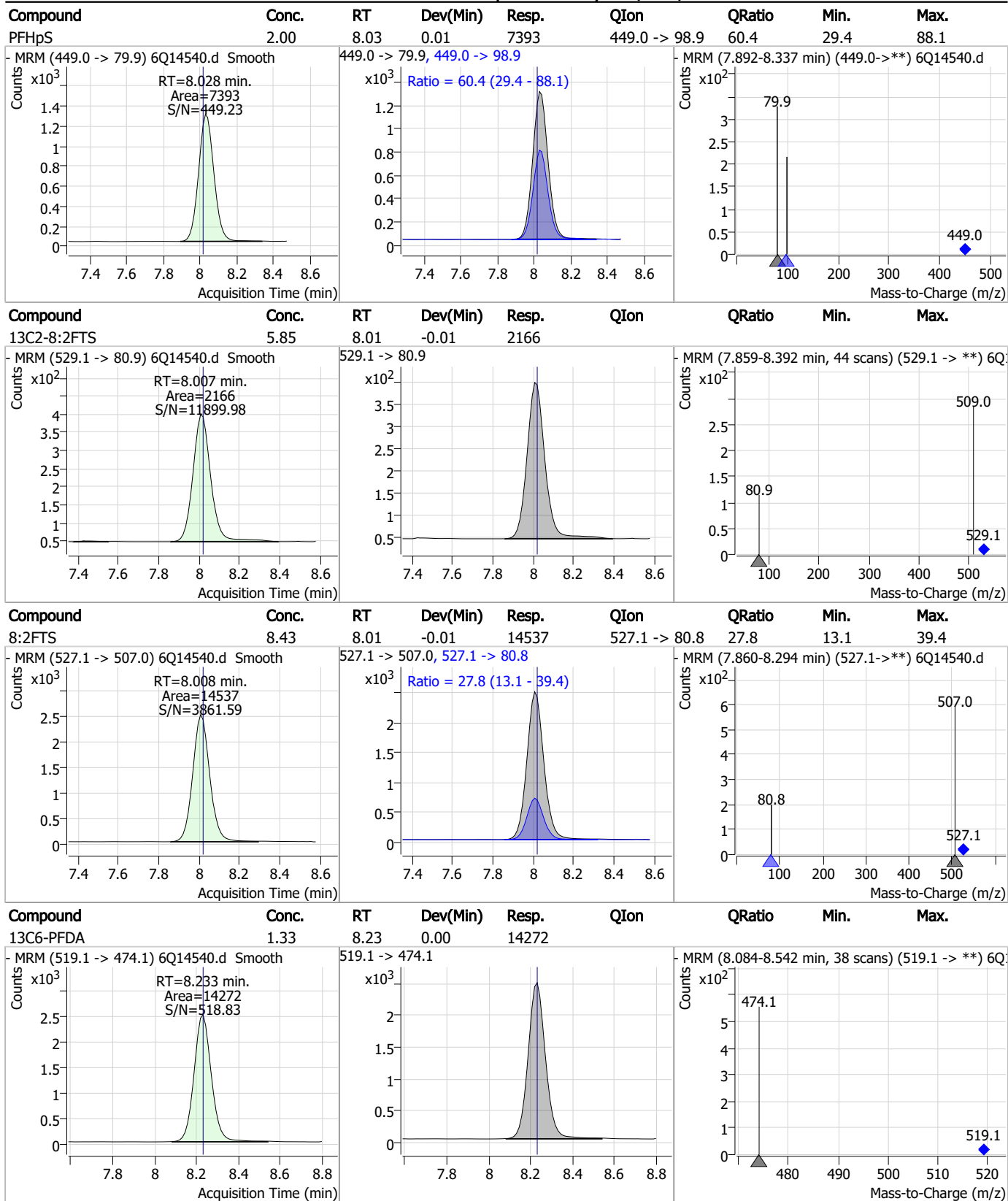
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Perfluorinated Compounds by LC/MS/MS



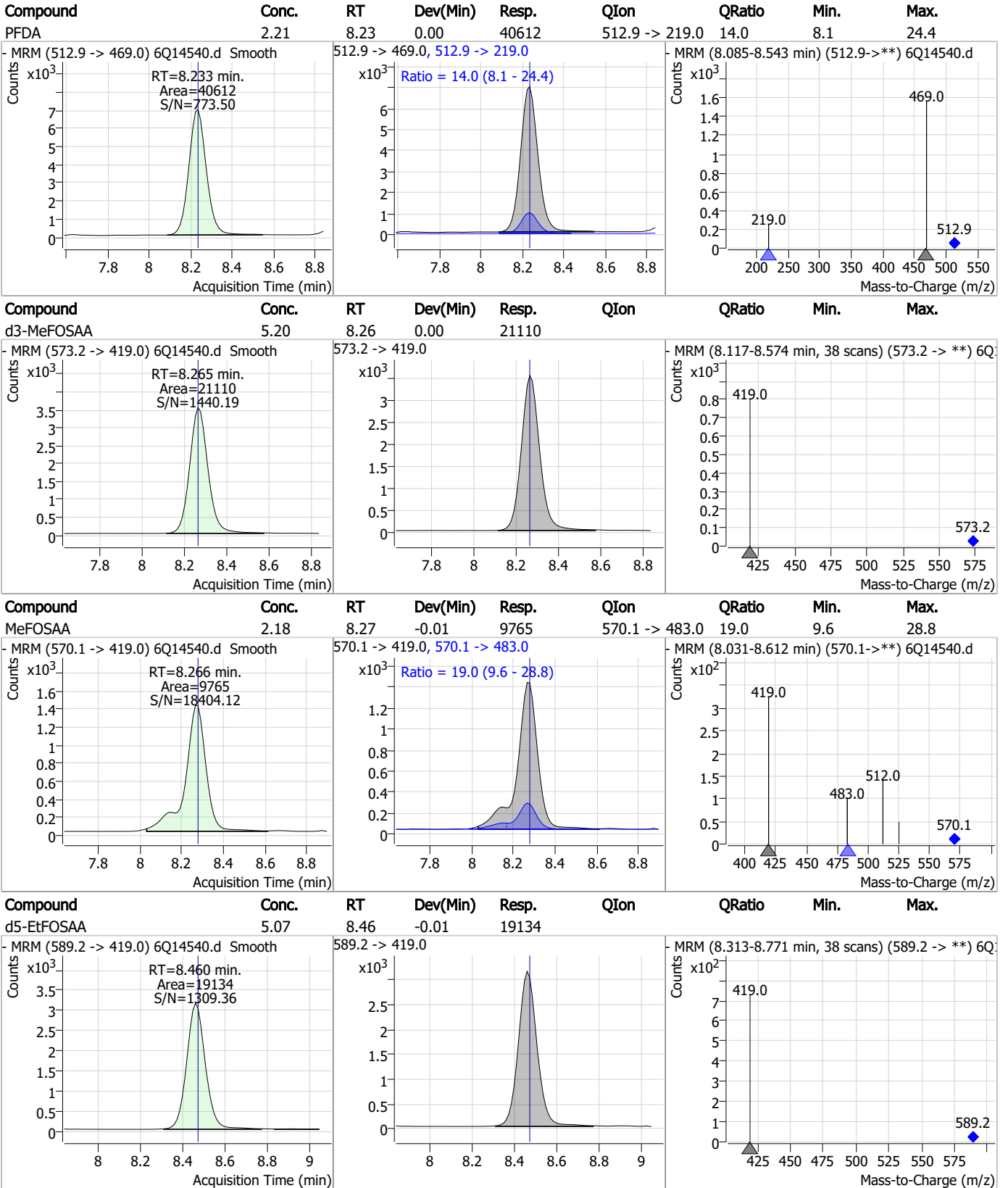
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Perfluorinated Compounds by LC/MS/MS



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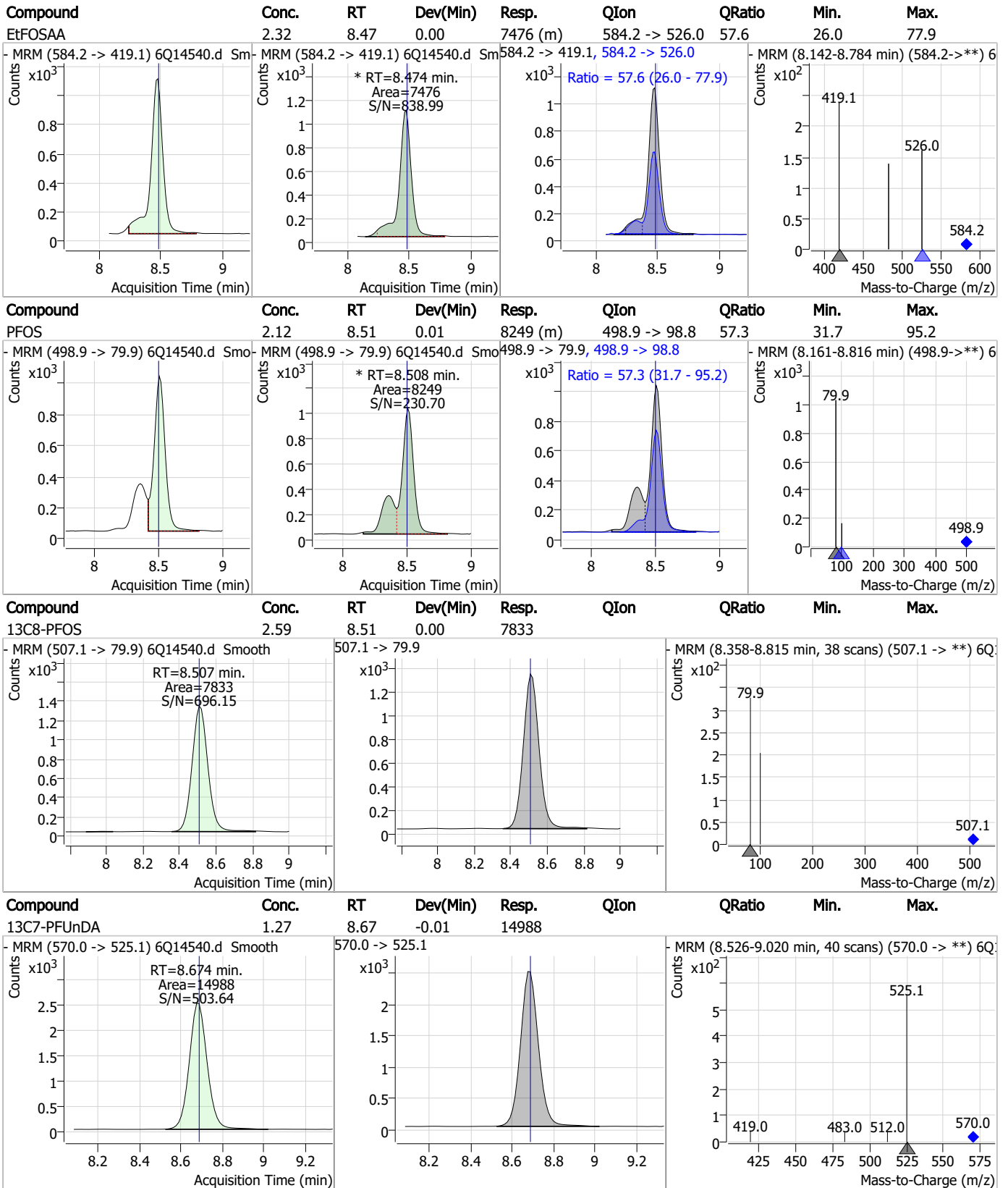
Perfluorinated Compounds by LC/MS/MS



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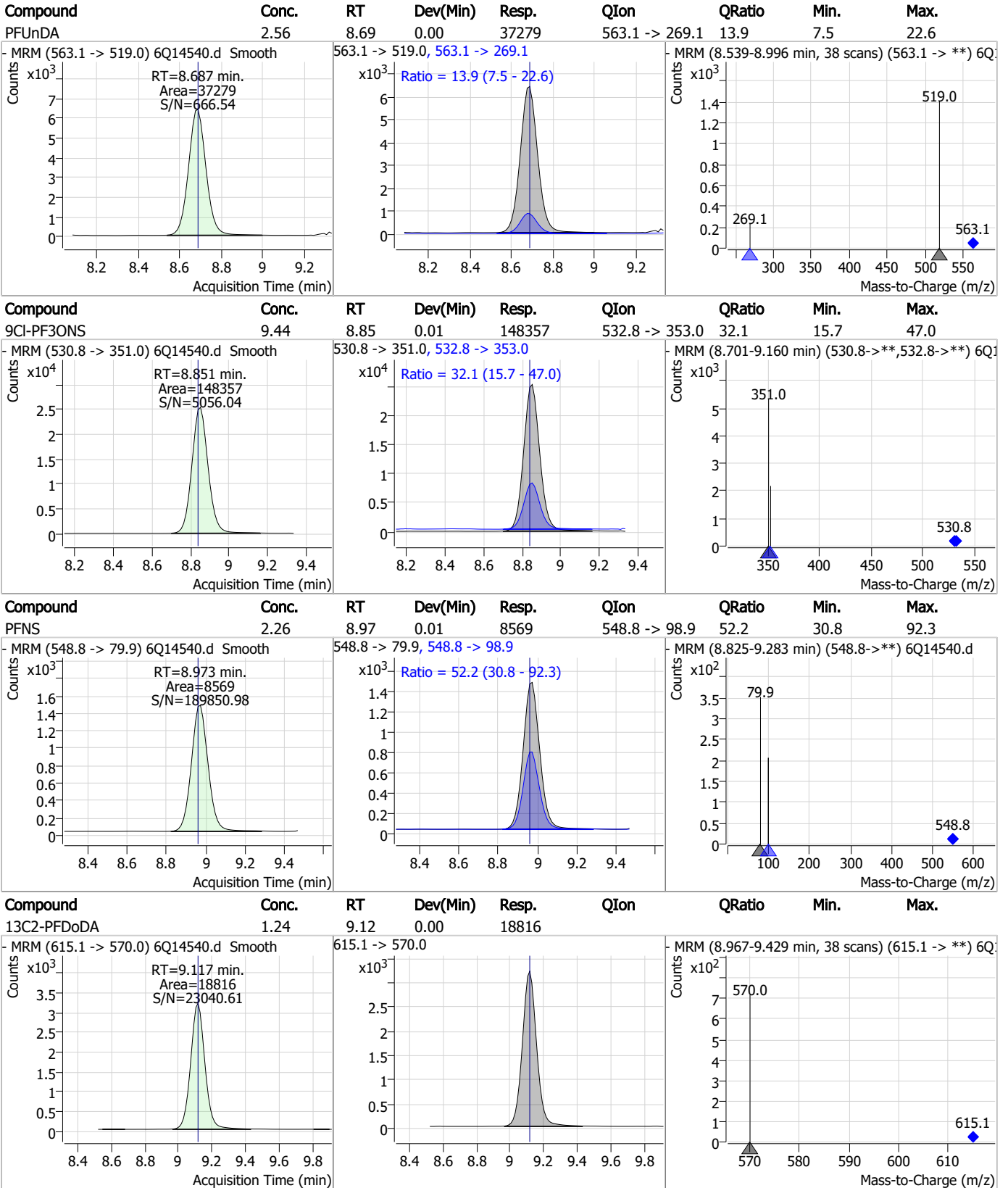
Perfluorinated Compounds by LC/MS/MS



7.8.14 7



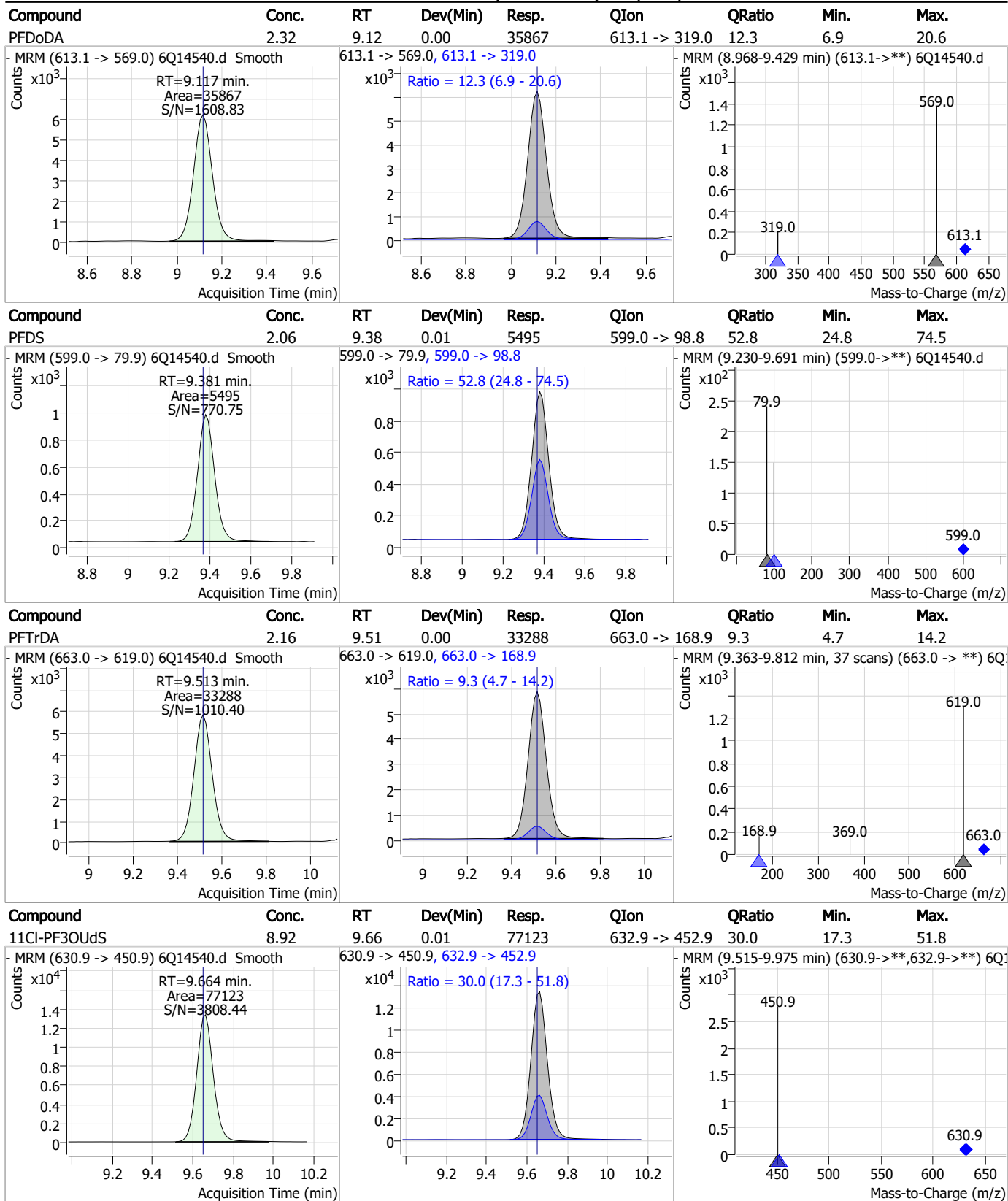
Perfluorinated Compounds by LC/MS/MS



7.8.14 7

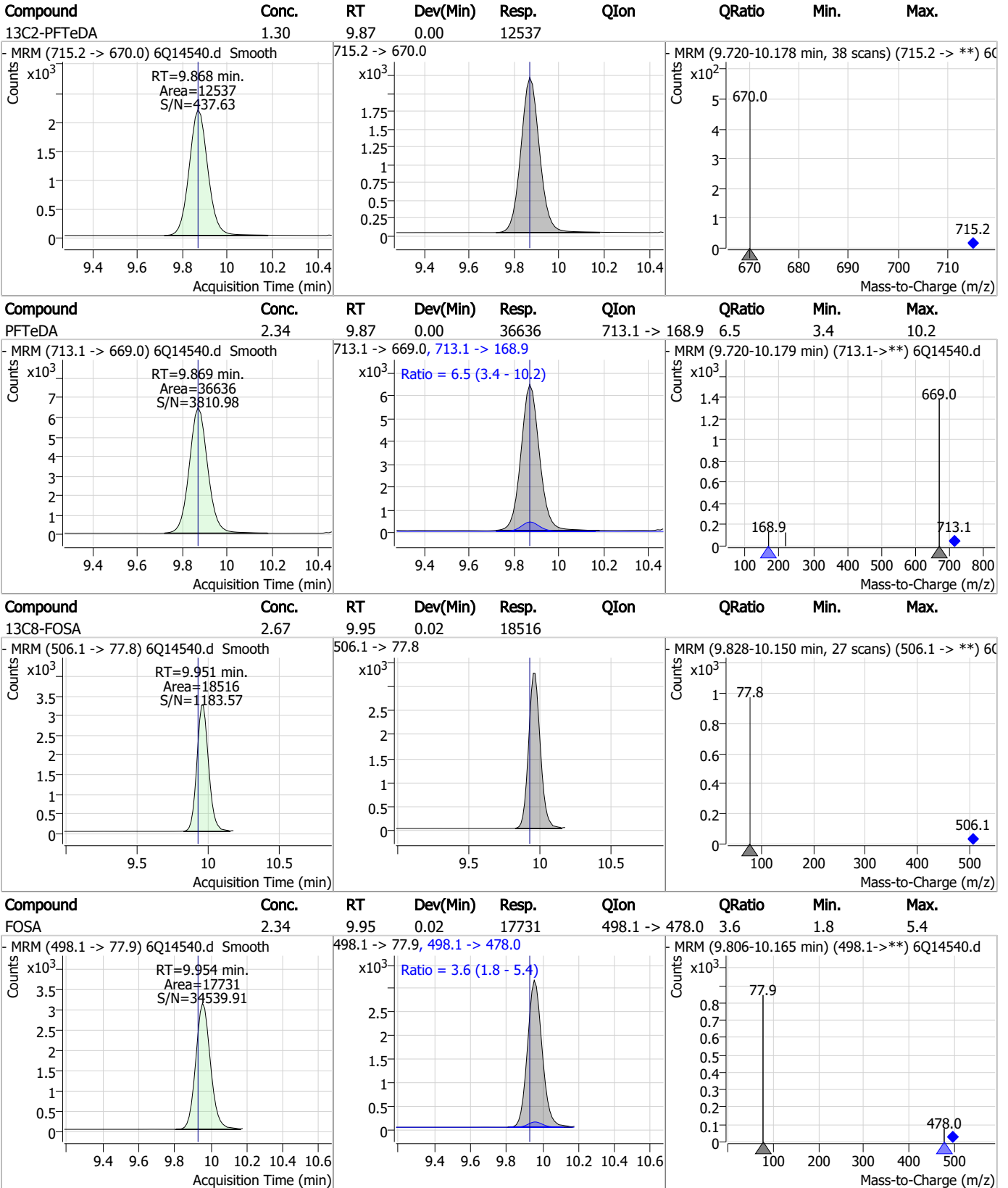


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

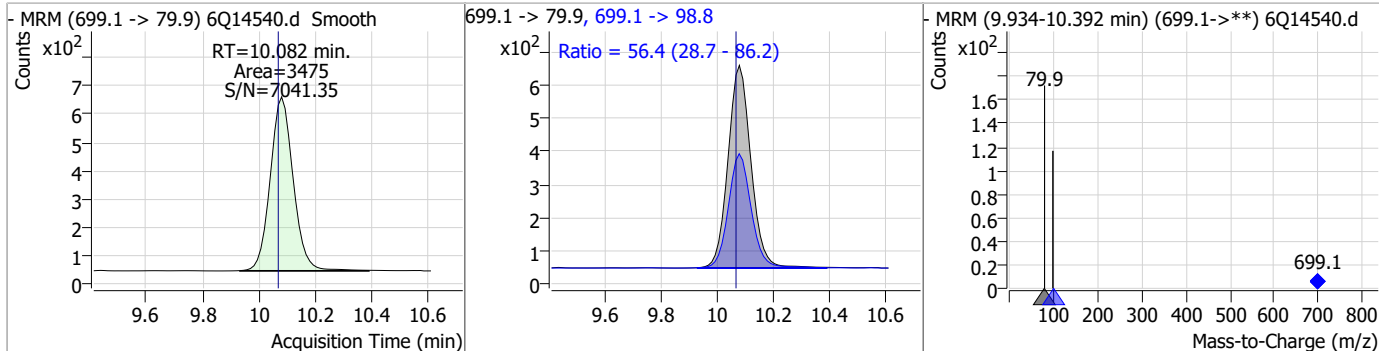


7.8.14 7

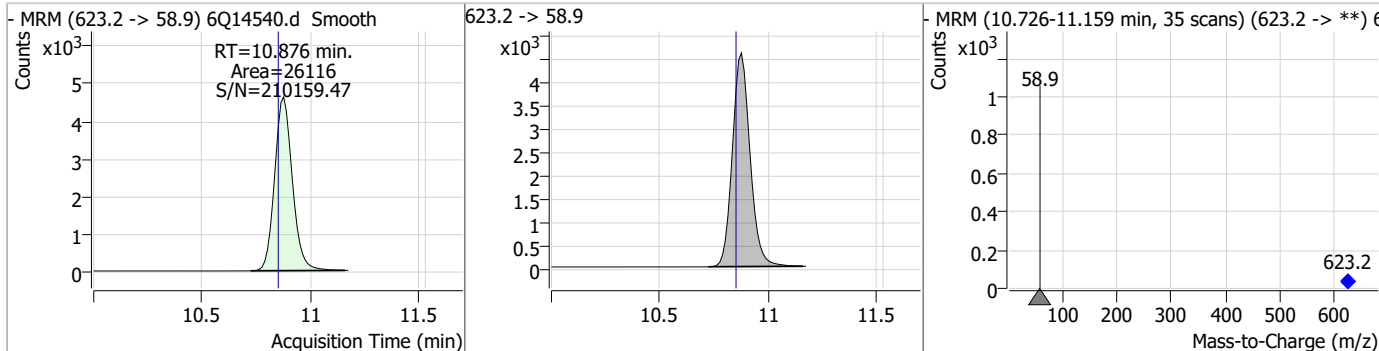


Perfluorinated Compounds by LC/MS/MS

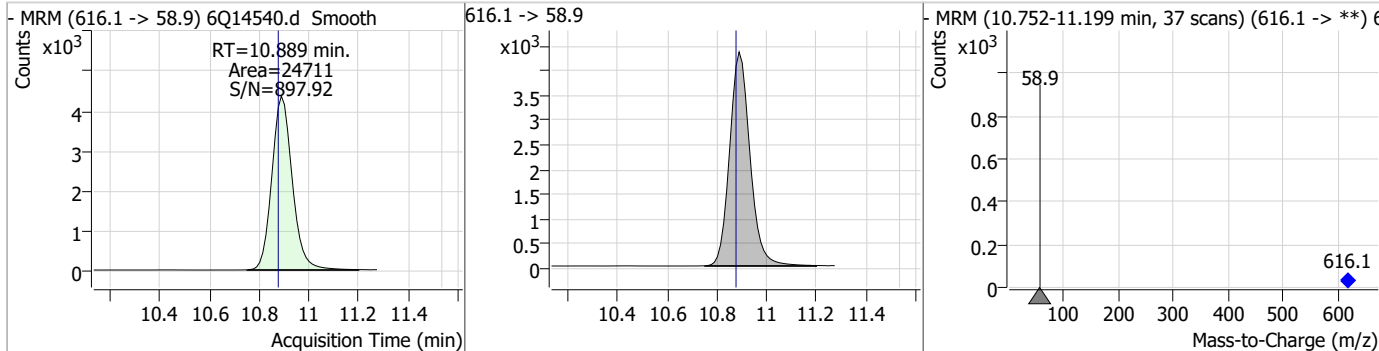
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.16	10.08	0.01	3475	699.1 -> 98.8	56.4	28.7	86.2



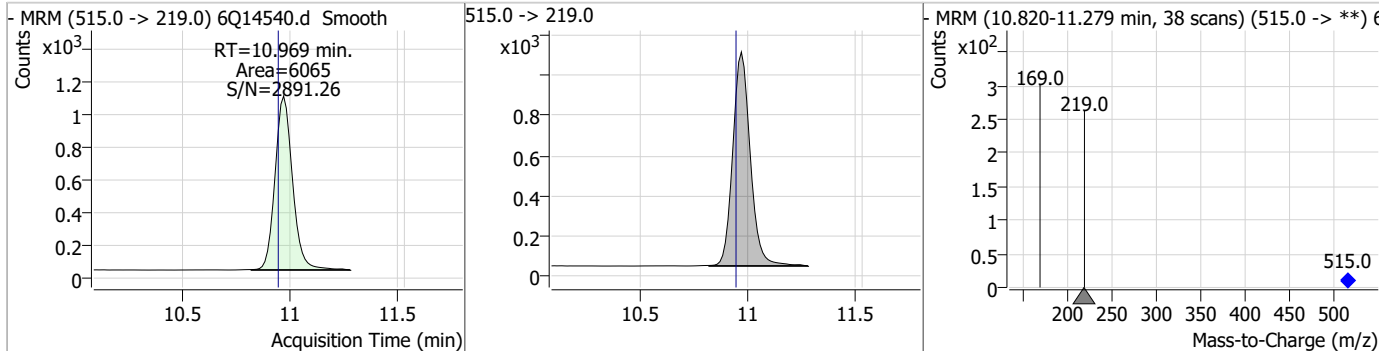
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.22	10.88	0.02	26116				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	23.04	10.89	0.01	24711				

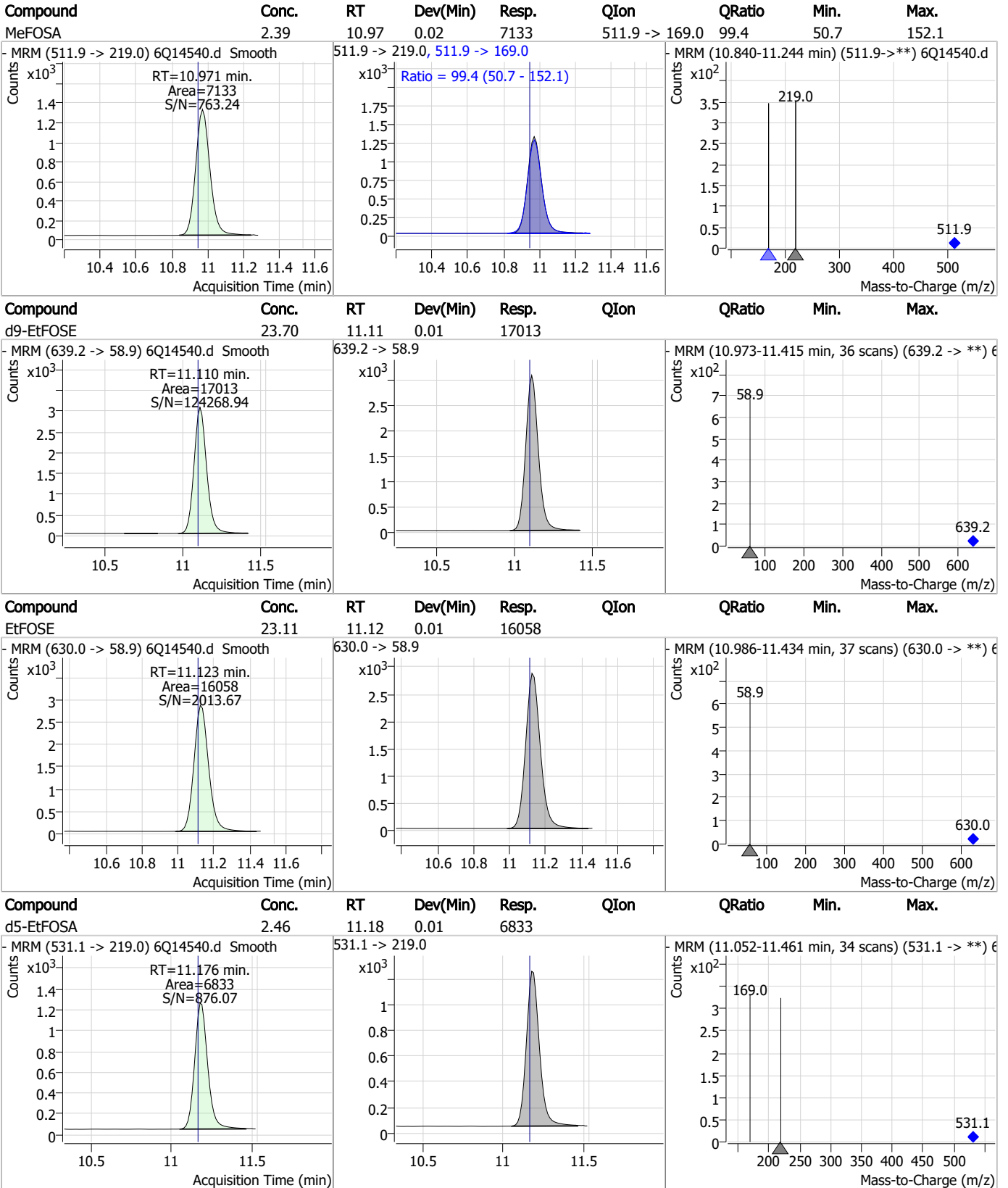


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.40	10.97	0.02	6065				



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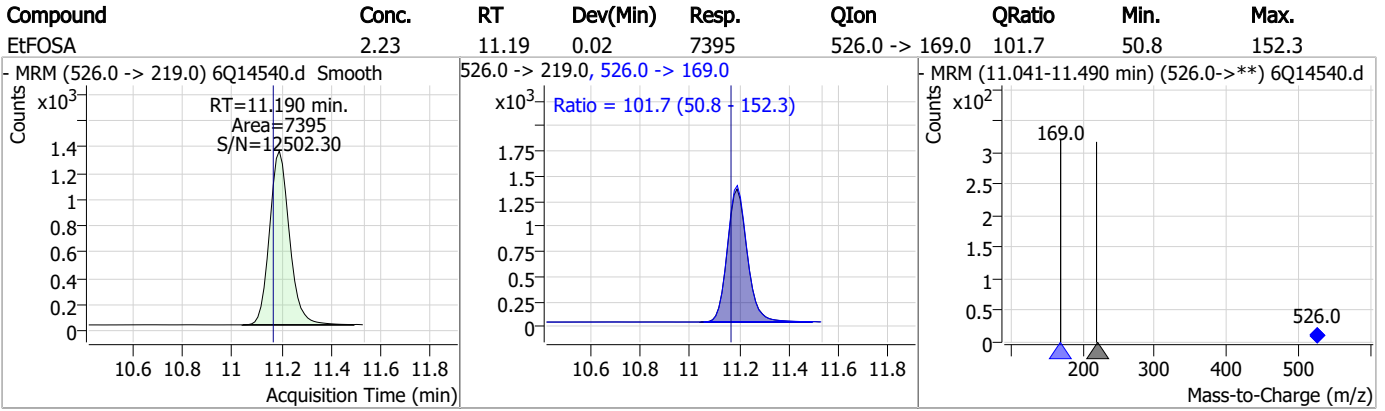
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q220-CC220 Method: EPA DRAFT 1633
Lab FileID: 6Q14540.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 18:21 Supervisor approved: 03/10/23 10:46 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.51	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.51	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14552.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 9:09:49 PM
 Sample Name : cc220-4
 Vial : P1-A5
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.100	216.8 -> 171.9	77449	10.00 µg/L	0.025
M5-PFPeA	4.653	268.3 -> 223.0	38106	5.00 µg/L	0.037
M5-PFHxA	5.822	318.0 -> 273.0	32913	2.50 µg/L	0.012
M4-PFHpA	6.680	367.1 -> 322.0	32706	2.50 µg/L	0.012
M8-PFOA	7.272	421.1 -> 376.0	54868	2.50 µg/L	0.012
M9-PFNA	7.764	472.1 -> 427.0	13960	1.25 µg/L	0.000
M6-PFDA	8.233	519.1 -> 474.1	12998	1.25 µg/L	0.000
M7-PFUnDA	8.674	570.0 -> 525.1	15167	1.25 µg/L	-0.012
M2-PFDoDA	9.117	615.1 -> 570.0	17609	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	12069	1.25 µg/L	0.000
M8-FOSA	9.951	506.1 -> 77.8	17175	2.50 µg/L	0.025
M3-PFBS	5.951	302.1 -> 79.9	13134	2.50 µg/L	0.049
M3-PFHxS	7.511	402.1 -> 79.9	8538	2.50 µg/L	0.025
M8-PFOS	8.507	507.1 -> 79.9	7534	2.50 µg/L	0.000
M2-4:2FTS	5.500	329.1 -> 80.9	1628	5.00 µg/L	0.025
M2-6:2FTS	7.046	429.1 -> 80.9	1998	5.00 µg/L	0.012
M2-8:2FTS	8.007	529.1 -> 80.9	2077	5.00 µg/L	-0.012
M3-MeFOSAA	8.265	573.2 -> 419.0	20587	5.00 µg/L	0.000
M3-HFPO-DA	6.163	286.9 -> 168.9	15482	10.00 µg/L	0.012
M5-EtFOSAA	8.460	589.2 -> 419.0	18472	5.00 µg/L	-0.012
M7-MeFOSE	10.876	623.2 -> 58.9	23521	25.00 µg/L	0.025
M9-EtFOSE	11.110	639.2 -> 58.9	16632	25.00 µg/L	0.012
M5-EtFOSA	11.176	531.1 -> 219.0	6492	2.50 µg/L	0.012
M3-MeFOSA	10.969	515.0 -> 219.0	6127	2.50 µg/L	0.025
13C4-PFOS	8.508	502.8 -> 79.9	8913	2.50 µg/L	0.012
13C3-PFBA	3.103	216.0 -> 172.0	33280	5.00 µg/L	0.025
18O2-PFHxS	7.510	403.0 -> 83.9	6030	2.50 µg/L	0.012
13C4-PFOA	7.272	417.1 -> 372.0	62343	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	18089	1.25 µg/L	0.000
13C5-PFNA	7.765	468.0 -> 423.0	14501	1.25 µg/L	0.000
13C2-PFHxA	5.823	315.1 -> 270.0	33503	2.50 µg/L	0.024
System Monitoring Compounds					
13C2-4:2FTS	5.500	329.1 -> 80.9	1628	5.67 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.4%		
13C2-6:2FTS	7.046	429.1 -> 80.9	1998	5.29 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C2-8:2FTS	8.007	529.1 -> 80.9	2077	5.47 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.4%		
13C2-PFDoDA	9.117	615.1 -> 570.0	17609	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C2-PFTeDA	9.868	715.2 -> 670.0	12069	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C3-PFBS	5.951	302.1 -> 79.9	13134	2.50 µg/L	0.049
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C3-PFHxS	7.511	402.1 -> 79.9	8538	2.47 µg/L	0.025

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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 = 99.0%		
13C4-PFBA	3.100	216.8 -> 171.9	77449	10.13 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C4-PFHpA	6.680	367.1 -> 322.0	32706	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C5-PFHxA	5.822	318.0 -> 273.0	32913	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C5-PFPeA	4.653	268.3 -> 223.0	38106	4.80 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C6-PFDA	8.233	519.1 -> 474.1	12998	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C7-PFUnDA	8.674	570.0 -> 525.1	15167	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C8-FOSA	9.951	506.1 -> 77.8	17175	2.46 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C8-PFOA	7.272	421.1 -> 376.0	54868	2.64 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C8-PFOS	8.507	507.1 -> 79.9	7534	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C9-PFNA	7.764	472.1 -> 427.0	13960	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.9%		
d3-MeFOSAA	8.265	573.2 -> 419.0	20587	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C3-HFPO-DA	6.163	286.9 -> 168.9	15482	10.09 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
d3-MeFOSA	10.969	515.0 -> 219.0	6127	2.40 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.1%		
d5-EtFOSAA	8.460	589.2 -> 419.0	18472	4.85 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.9%		
d7-MeFOSE	10.876	623.2 -> 58.9	23521	22.48 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 89.9%		
d9-EtFOSE	11.110	639.2 -> 58.9	16632	22.93 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 91.7%		
d5-EtFOSA	11.176	531.1 -> 219.0	6492	2.31 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.6%		
Target Compounds					QValue
4:2FTS	5.500	327.1 -> 307.0	31750	8.64 µg/L	98
		327.1 -> 80.9	8138		
6:2FTS	7.046	427.1 -> 407.0	28024	9.32 µg/L	100
		427.1 -> 80.9	6140		
8:2FTS	8.008	527.1 -> 507.0	14577	8.82 µg/L	98
		527.1 -> 80.8	3718		
EtFOSAA	8.474	584.2 -> 419.1	7387	2.38 µg/L	94
		584.2 -> 526.0	4169	m	
FOSA	9.954	498.1 -> 77.9	16158	2.30 µg/L	98
		498.1 -> 478.0	679		
MeFOSAA	8.266	570.1 -> 419.0	9217	2.11 µg/L	97
		570.1 -> 483.0	1901		
PFBA	3.094	212.8 -> 168.9	19695	9.27 µg/L	100
PFBS	5.951	298.7 -> 79.9	10700	1.94 µg/L	89
		298.7 -> 98.8	5069		
PFDA	8.233	512.9 -> 469.0	40006	2.40 µg/L	93
		512.9 -> 219.0	5248		
PFDoDA	9.117	613.1 -> 569.0	37616	2.60 µg/L	96
		613.1 -> 319.0	4577		
PFDS	9.381	599.0 -> 79.9	5387	2.10 µg/L	93

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.681	599.0 -> 98.8	2938	2.30	µg/L	97
		363.1 -> 319.0	48213			
PFHpS	8.028	363.1 -> 169.0	7428	2.08	µg/L	99
		449.0 -> 79.9	7383			
PFHxA	5.825	449.0 -> 98.9	4287	2.32	µg/L	100
		313.0 -> 269.0	30323			
PFHxS	7.512	313.0 -> 118.9	1288	2.08	µg/L	98
		398.7 -> 79.9	8687			
PFNA	7.765	398.7 -> 98.9	4676	2.23	µg/L	99
		463.0 -> 419.0	21493			
PFNS	8.973	463.0 -> 219.0	4418	2.22	µg/L	94
		548.8 -> 79.9	8100			
PFOA	7.273	548.8 -> 98.9	4622	2.14	µg/L	98
		413.0 -> 369.0	58800			
PFOS	8.508	413.0 -> 169.0	8537	2.09	µg/L	98
		498.9 -> 79.9	7817			
PFPeA	4.654	498.9 -> 98.8	5061	4.68	µg/L	100
		263.0 -> 219.0	41477			
PFPeS	6.882	349.1 -> 79.9	10558	2.14	µg/L	91
		349.1 -> 98.9	5855			
PFTeDA	9.869	713.1 -> 669.0	33877	2.25	µg/L	98
		713.1 -> 168.9	2550			
PFTrDA	9.513	663.0 -> 619.0	35316	2.45	µg/L	97
		663.0 -> 168.9	2935			
PFUnDA	8.687	563.1 -> 519.0	37175	2.53	µg/L	99
		563.1 -> 269.1	5456			
11CI-PF3OUdS	9.664	630.9 -> 450.9	74055	8.10	µg/L	95
		632.9 -> 452.9	23380			
9CI-PF3ONS	8.851	530.8 -> 351.0	143111	8.61	µg/L	99
		532.8 -> 353.0	45623			
ADONA	6.916	376.9 -> 250.9	296586	9.12	µg/L	99
		376.9 -> 84.8	67438			
HFPO-DA	6.164	284.9 -> 168.9	13862	8.96	µg/L	99
		284.9 -> 184.9	1609			
3:3FTCA	4.014	241.0 -> 177.0	5190	11.53	µg/L	97
		241.0 -> 117.0	746			
5:3FTCA	6.419	341.0 -> 237.1	177158	62.06	µg/L	99
		341.0 -> 217.0	145506			
7:3FTCA	7.742	441.0 -> 316.9	87152	63.65	µg/L	84
		441.0 -> 336.9	165385			
EtFOSA	11.190	526.0 -> 219.0	7494	2.38	µg/L	99
		526.0 -> 169.0	7531			
EtFOSE	11.123	630.0 -> 58.9	16161	23.79	µg/L	100
		511.9 -> 219.0	7168			
MeFOSA	10.971	511.9 -> 169.0	7472	2.38	µg/L	97
		616.1 -> 58.9	24687			
MeFOSE	10.889	699.1 -> 79.9	3470	25.55	µg/L	100
		699.1 -> 98.8	2275			
PFDoDS	10.082	295.0 -> 201.0	4044	2.24	µg/L	89
		295.0 -> 84.9	1956			
NFDHA	5.705	279.0 -> 85.1	13005	4.50	µg/L	86
		229.0 -> 84.9	11674			
PFMBA	5.039	314.8 -> 134.9	79597	4.37	µg/L	100
		314.8 -> 82.9	2113			
PFMPA	3.742			4.51	µg/L	100
PFEESA	6.433			4.24	µg/L	100

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

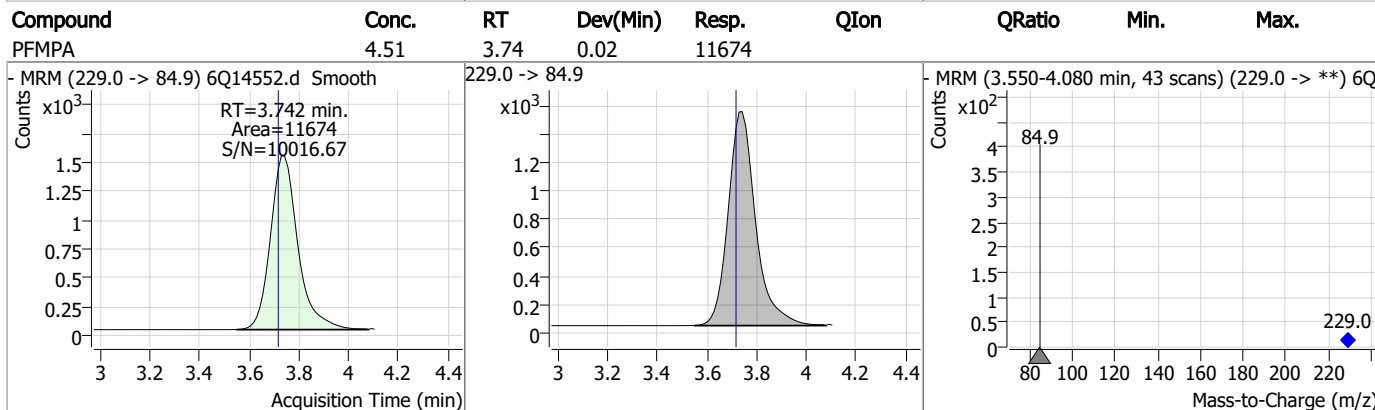
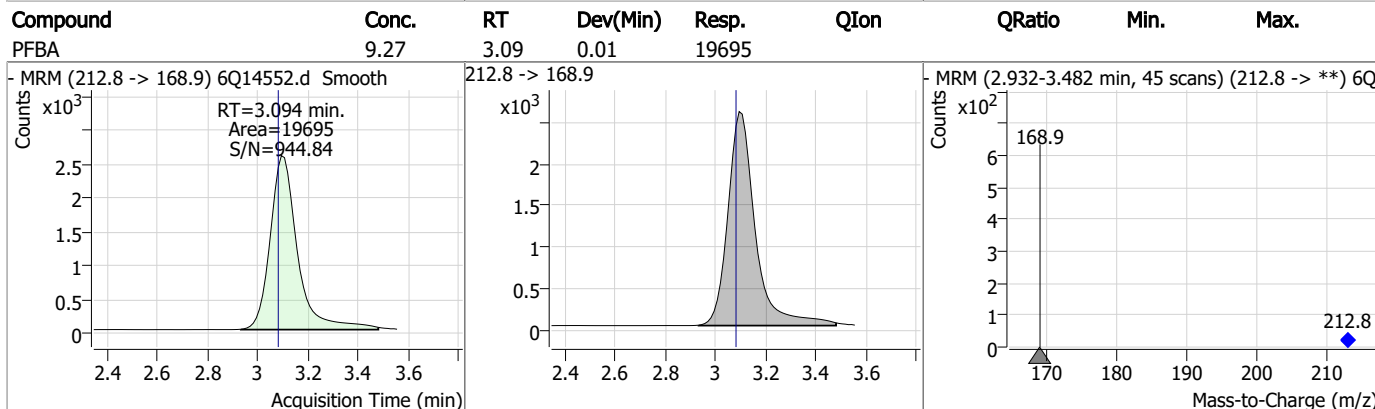
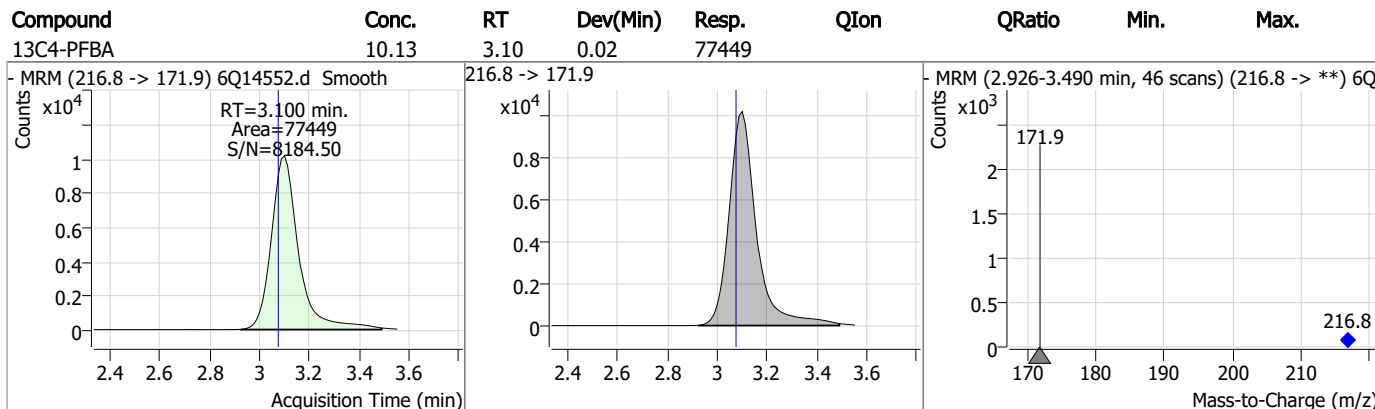
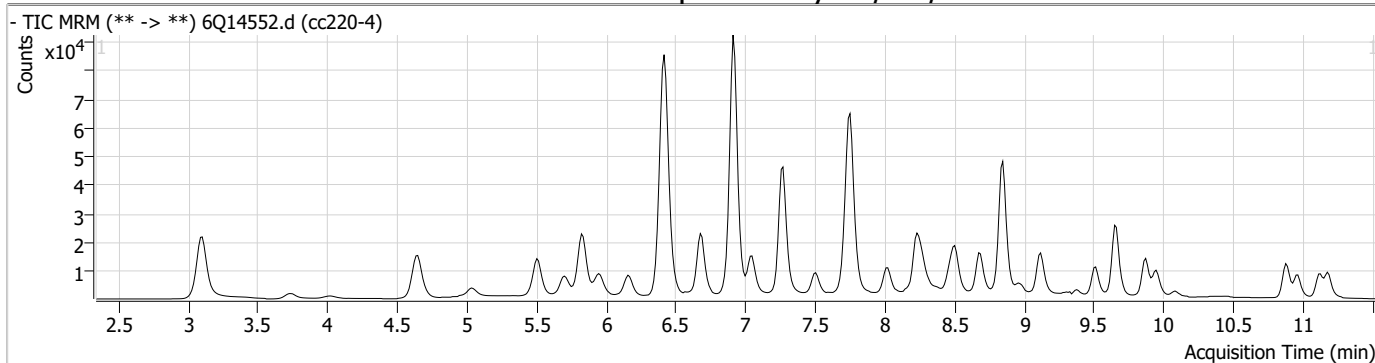
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.8.15

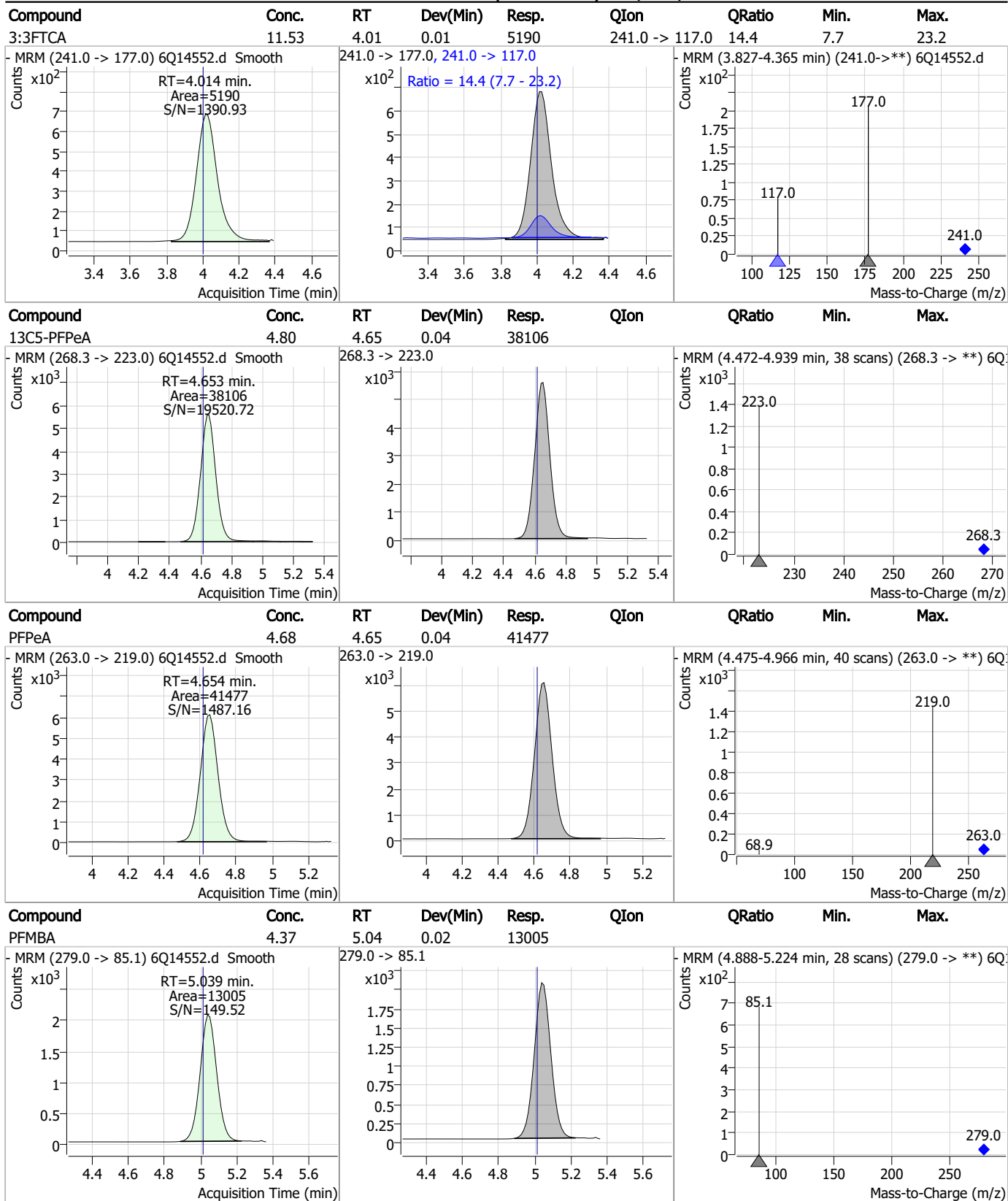
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Perfluorinated Compounds by LC/MS/MS



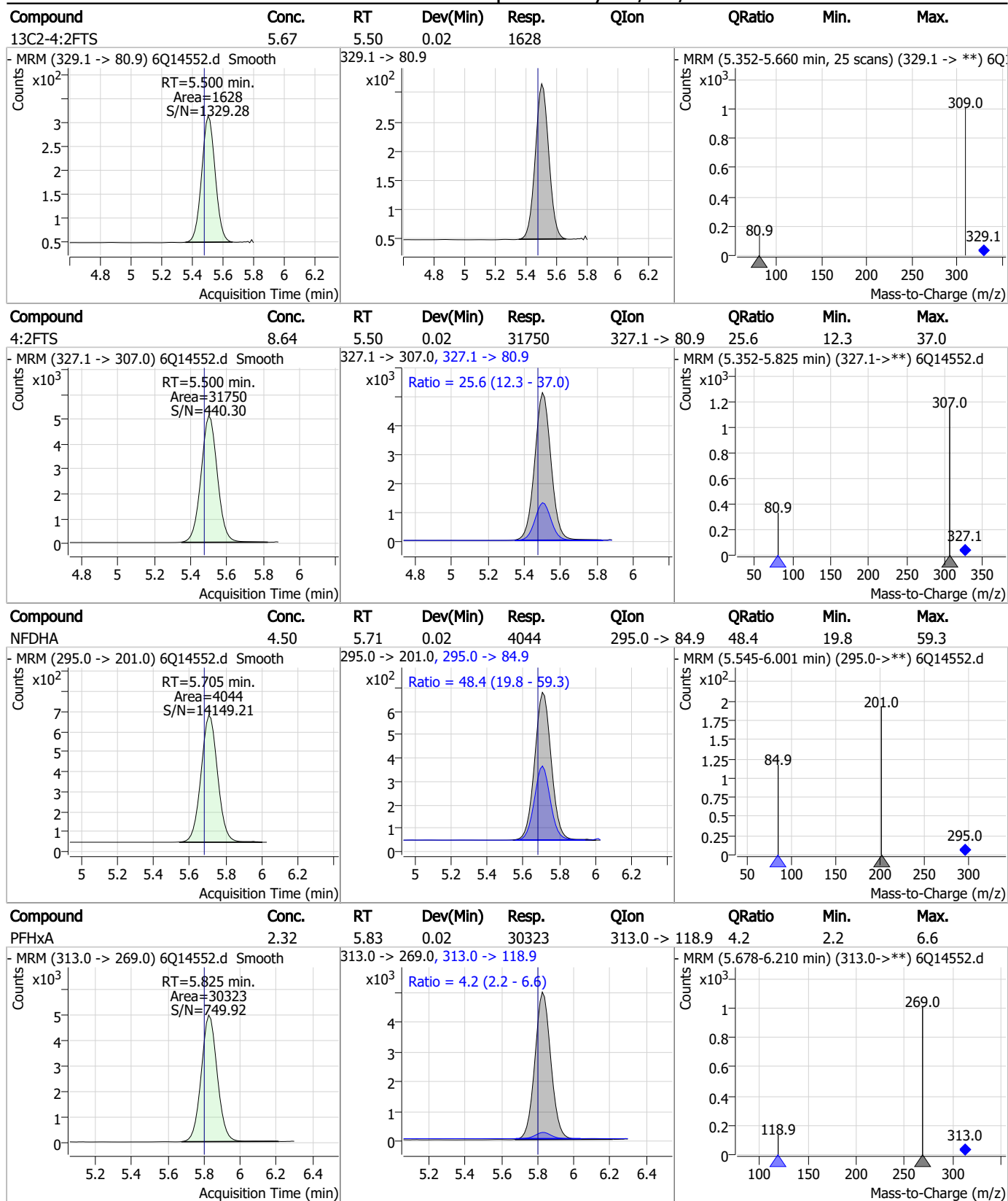
7.8.15
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.8.15

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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.40	5.82	0.01	32913				
13C3-PFBS	2.50	5.95	0.05	13134				
PFBS	1.94	5.95	0.05	10700	298.7 -> 98.8	47.4	20.4	61.1
13C3-HFPO-DA	10.09	6.16	0.01	15482				

7.8.15 7

Perfluorinated Compounds by LC/MS/MS

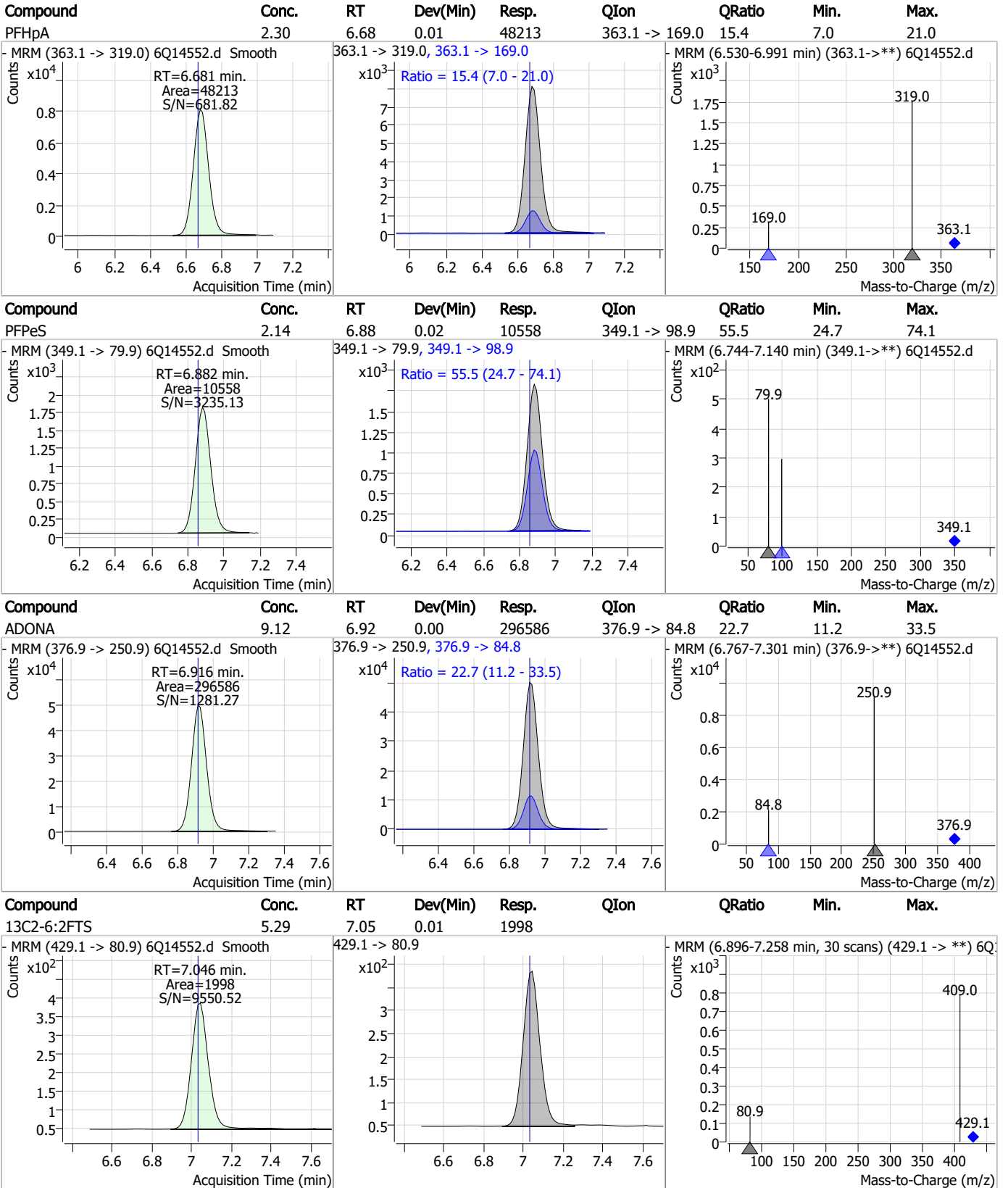
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	8.96	6.16	0.01	13862	284.9 -> 184.9	11.6	6.0	17.9
5:3FTCA	62.06	6.42	0.02	177158	341.0 -> 217.0	82.1	41.4	124.1
PFEESA	4.24	6.43	0.04	79597	314.8 -> 82.9	2.7	1.3	4.0
13C4-PFHpA	2.44	6.68	0.01	32706	367.1 -> 322.0	-	-	-

7.8.15

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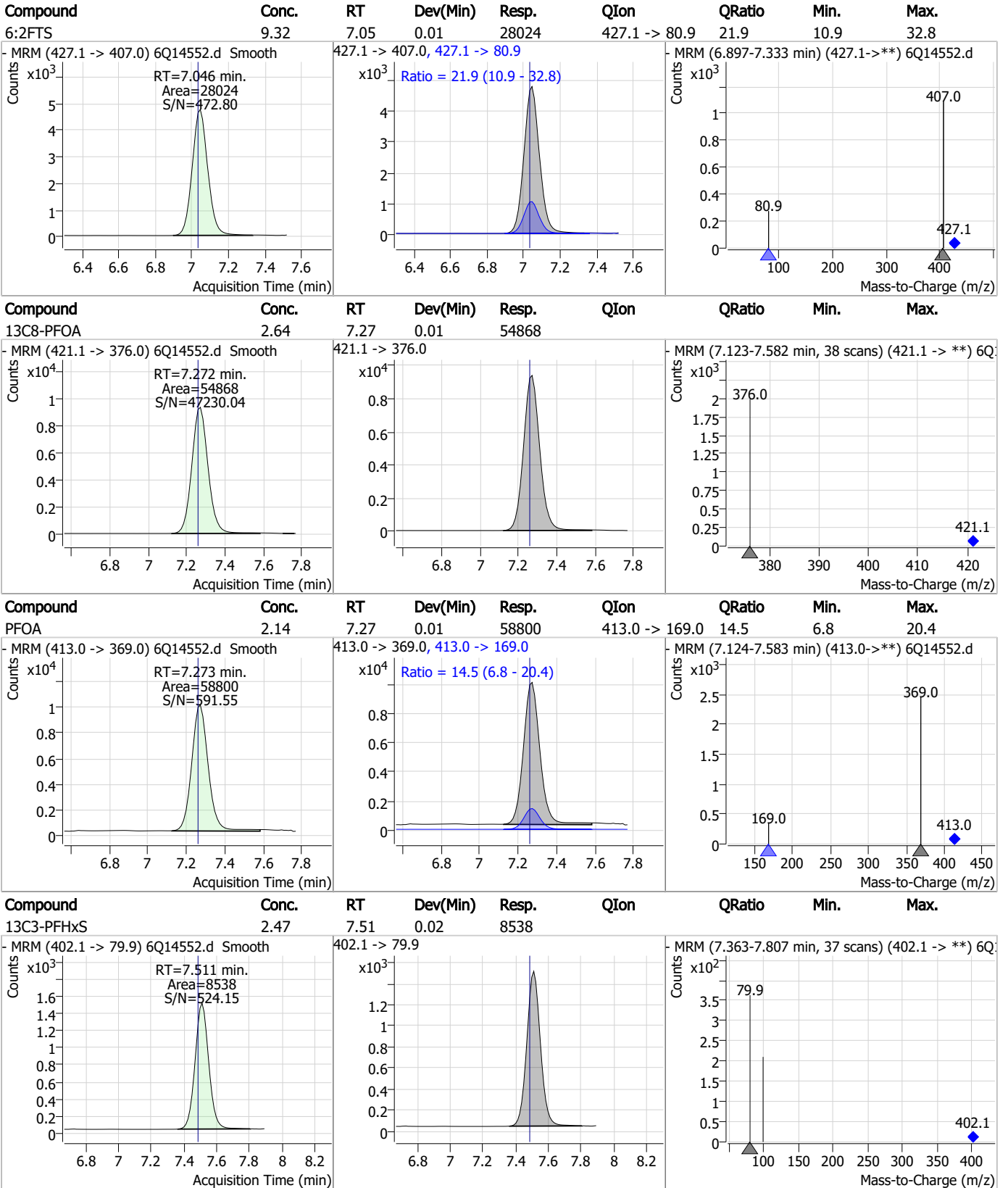
Perfluorinated Compounds by LC/MS/MS



7.8.15

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Perfluorinated Compounds by LC/MS/MS



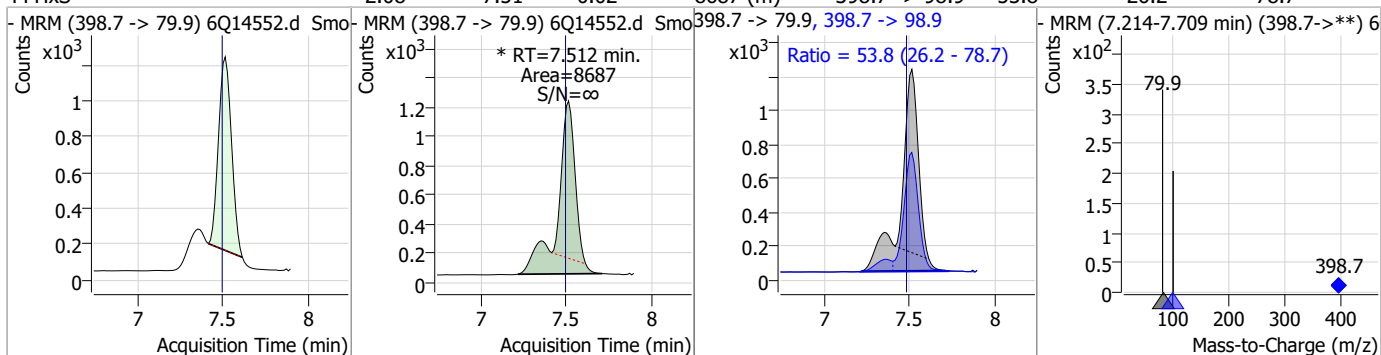
7.8.15

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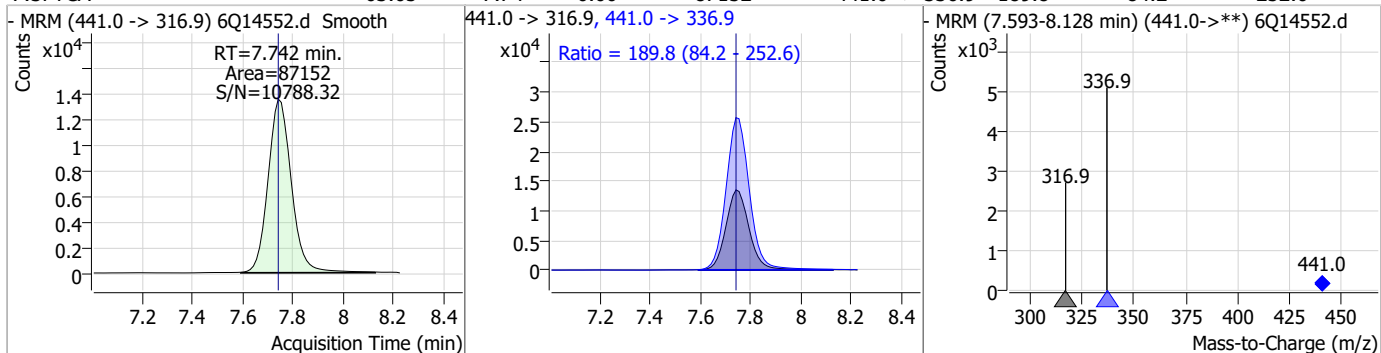


Perfluorinated Compounds by LC/MS/MS

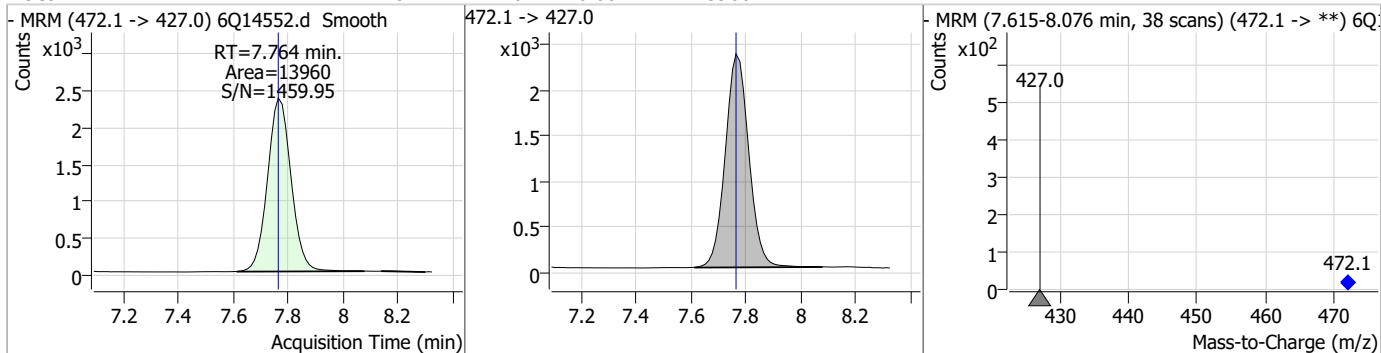
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.08	7.51	0.02	8687 (m)	398.7 -> 98.9	53.8	26.2	78.7



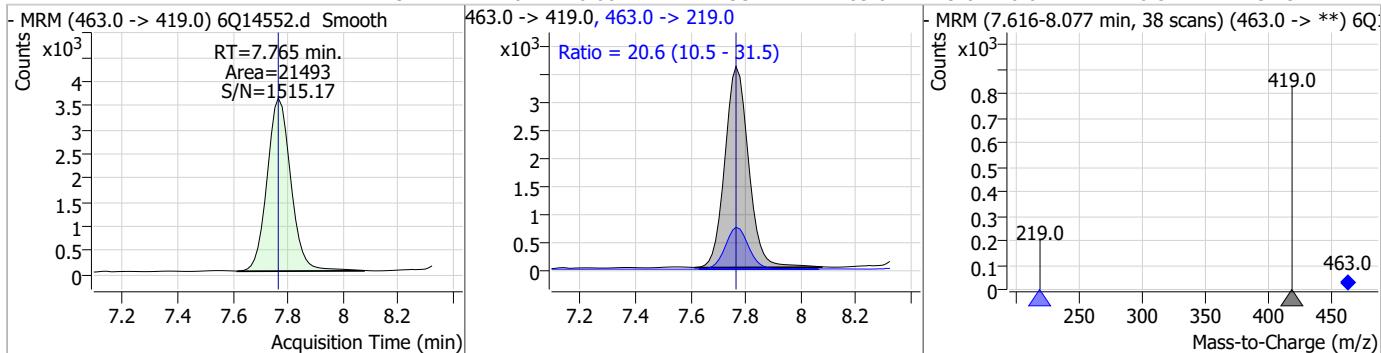
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	63.65	7.74	0.00	87152	441.0 -> 336.9	189.8	84.2	252.6



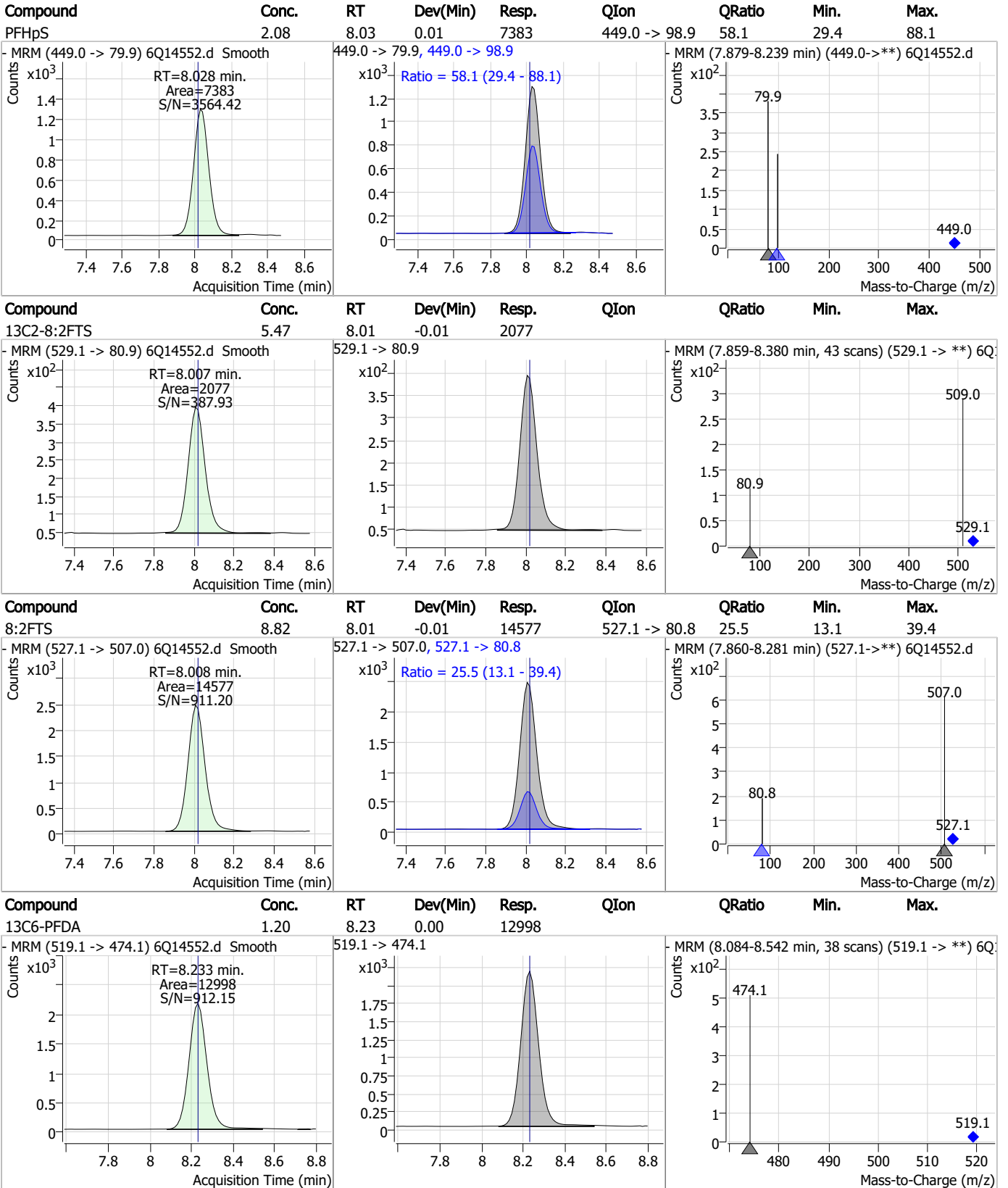
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.25	7.76	0.00	13960	472.1 -> 427.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.23	7.76	0.00	21493	463.0 -> 219.0	20.6	10.5	31.5



Perfluorinated Compounds by LC/MS/MS

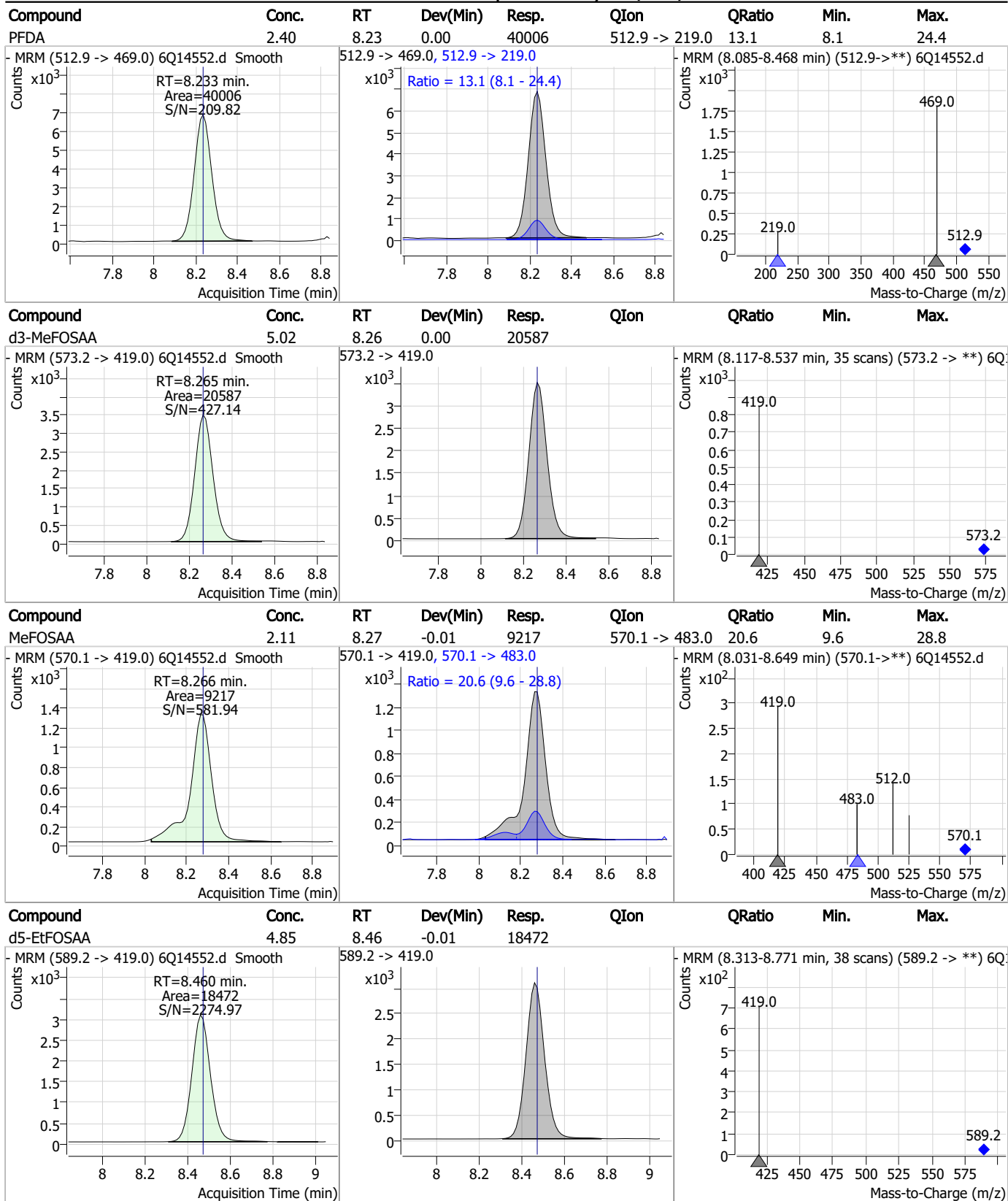


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Perfluorinated Compounds by LC/MS/MS



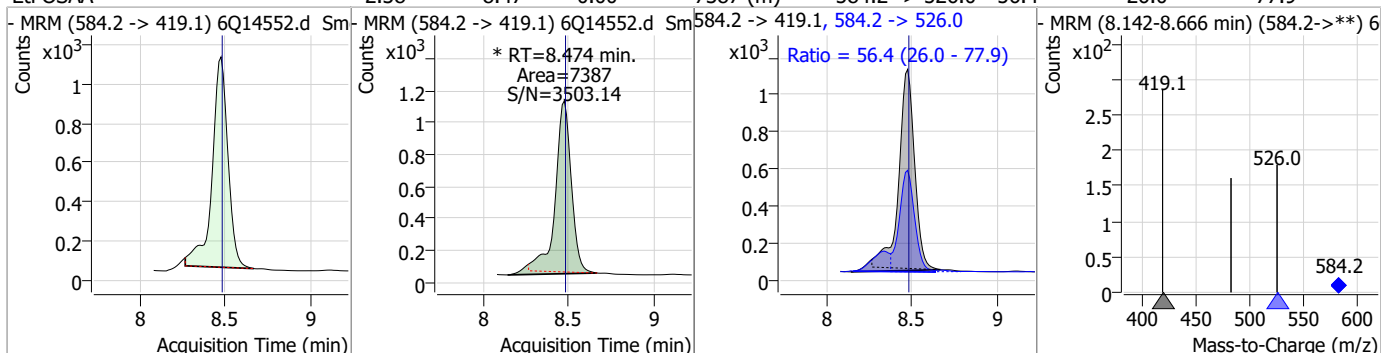
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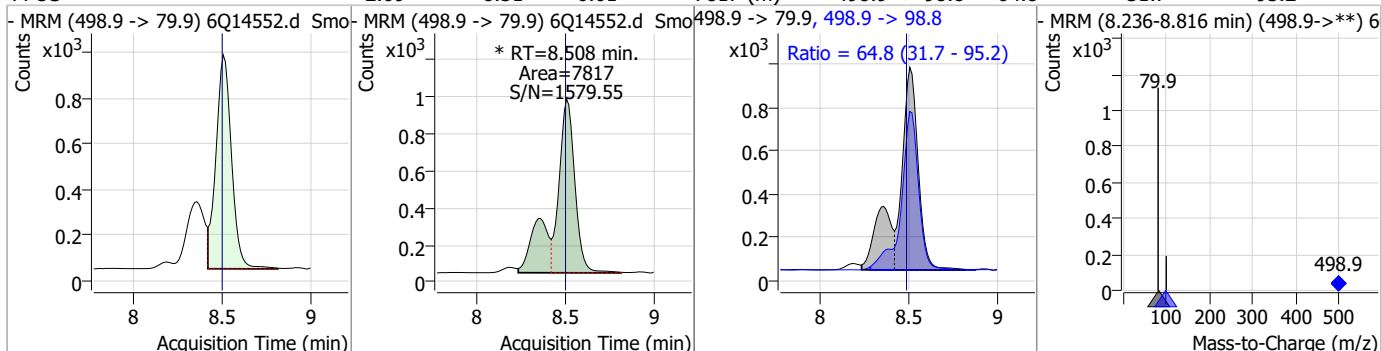


Perfluorinated Compounds by LC/MS/MS

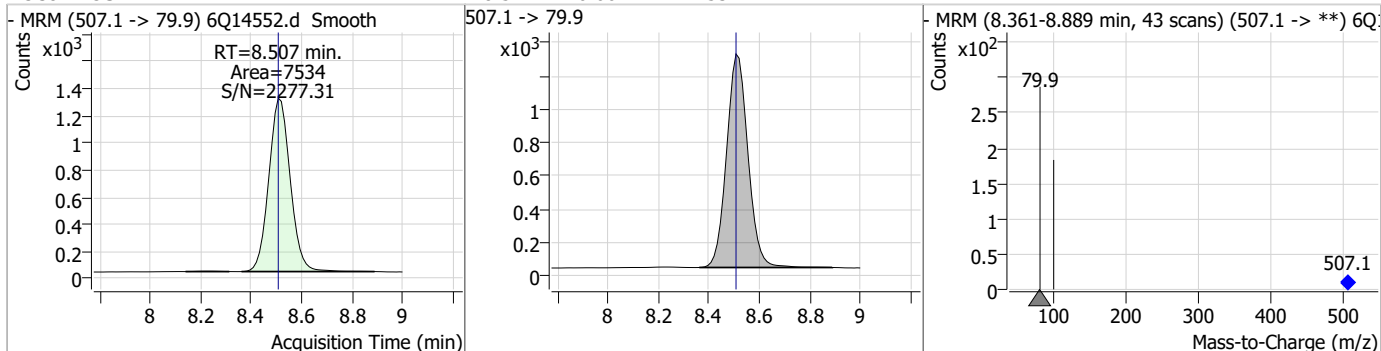
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.38	8.47	0.00	7387 (m)	584.2 -> 526.0	56.4	26.0	77.9



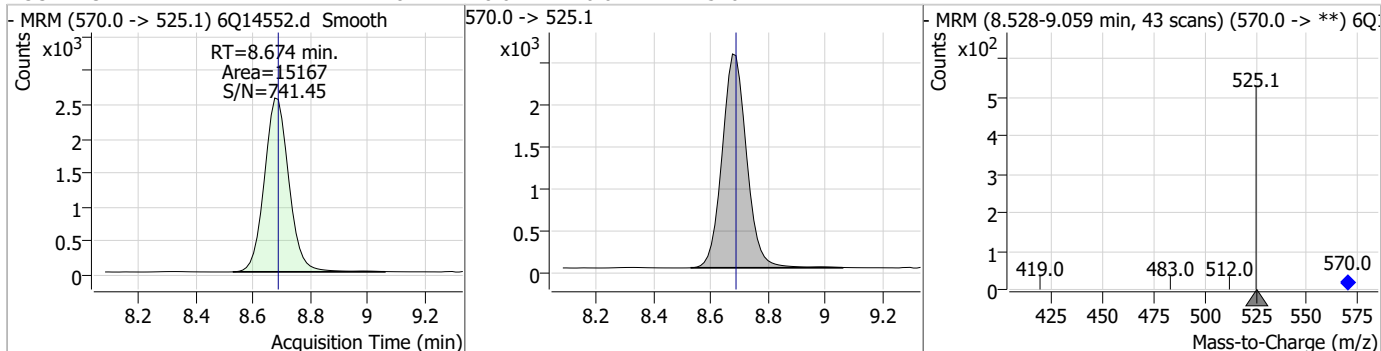
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.09	8.51	0.01	7817 (m)	498.9 -> 98.8	64.8	31.7	95.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.47	8.51	0.00	7534				

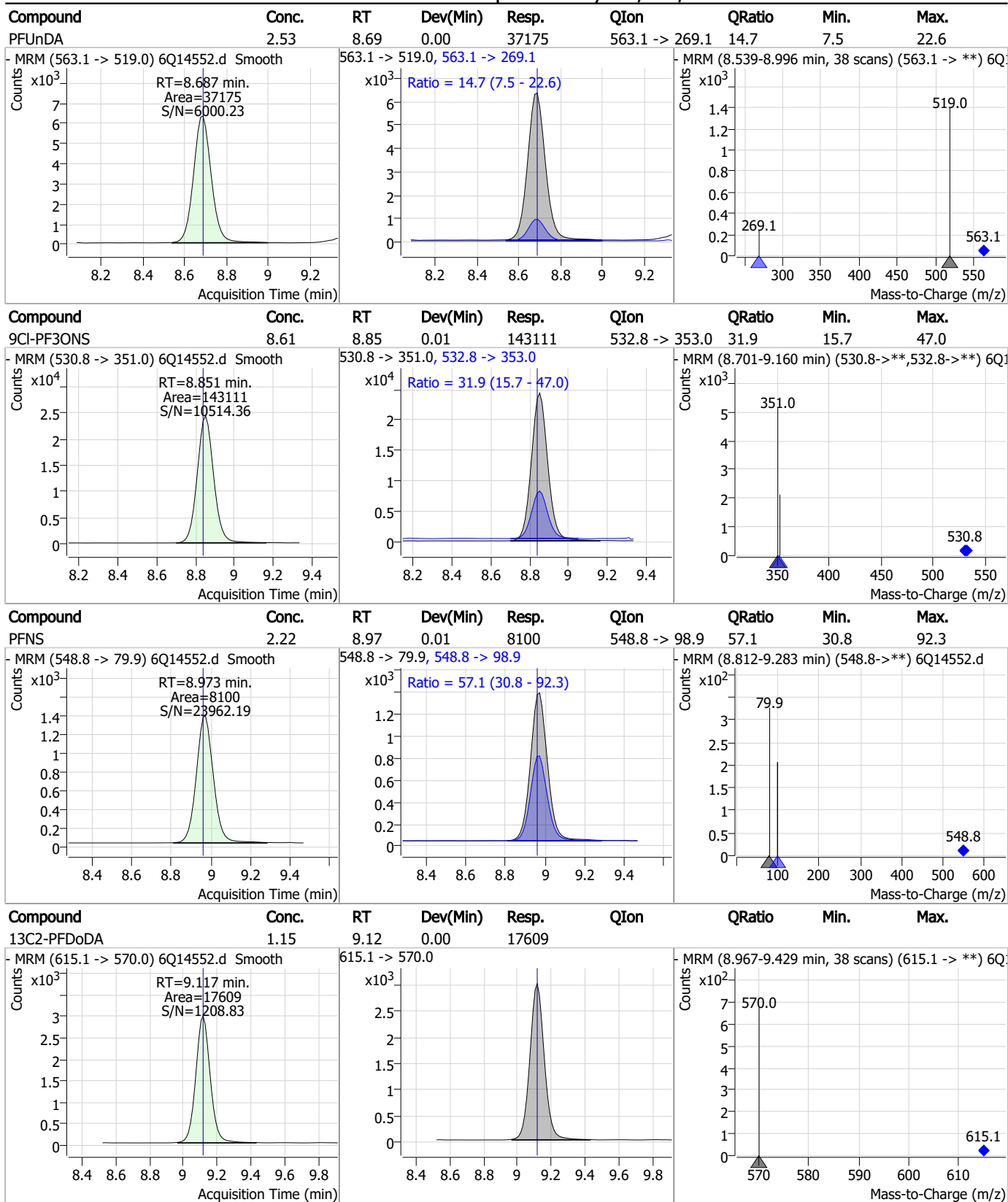


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.28	8.67	-0.01	15167				



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Perfluorinated Compounds by LC/MS/MS



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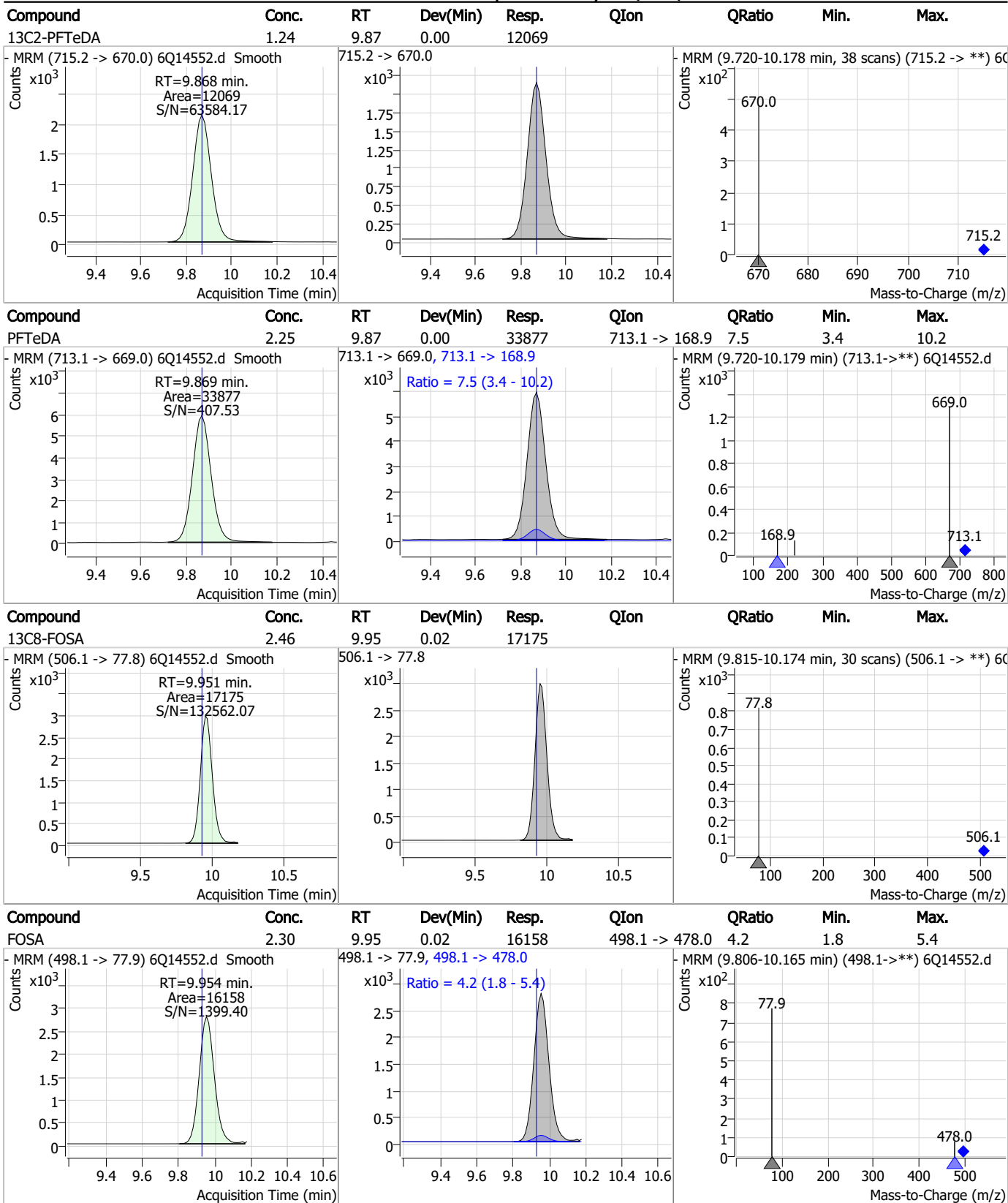
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.60	9.12	0.00	37616	613.1 -> 319.0	12.2	6.9	20.6
PFDS	2.10	9.38	0.01	5387	599.0 -> 98.8	54.5	24.8	74.5
PFTrDA	2.45	9.51	0.00	35316	663.0 -> 168.9	8.3	4.7	14.2
11Cl-PF3OUds	8.10	9.66	0.01	74055	632.9 -> 452.9	31.6	17.3	51.8

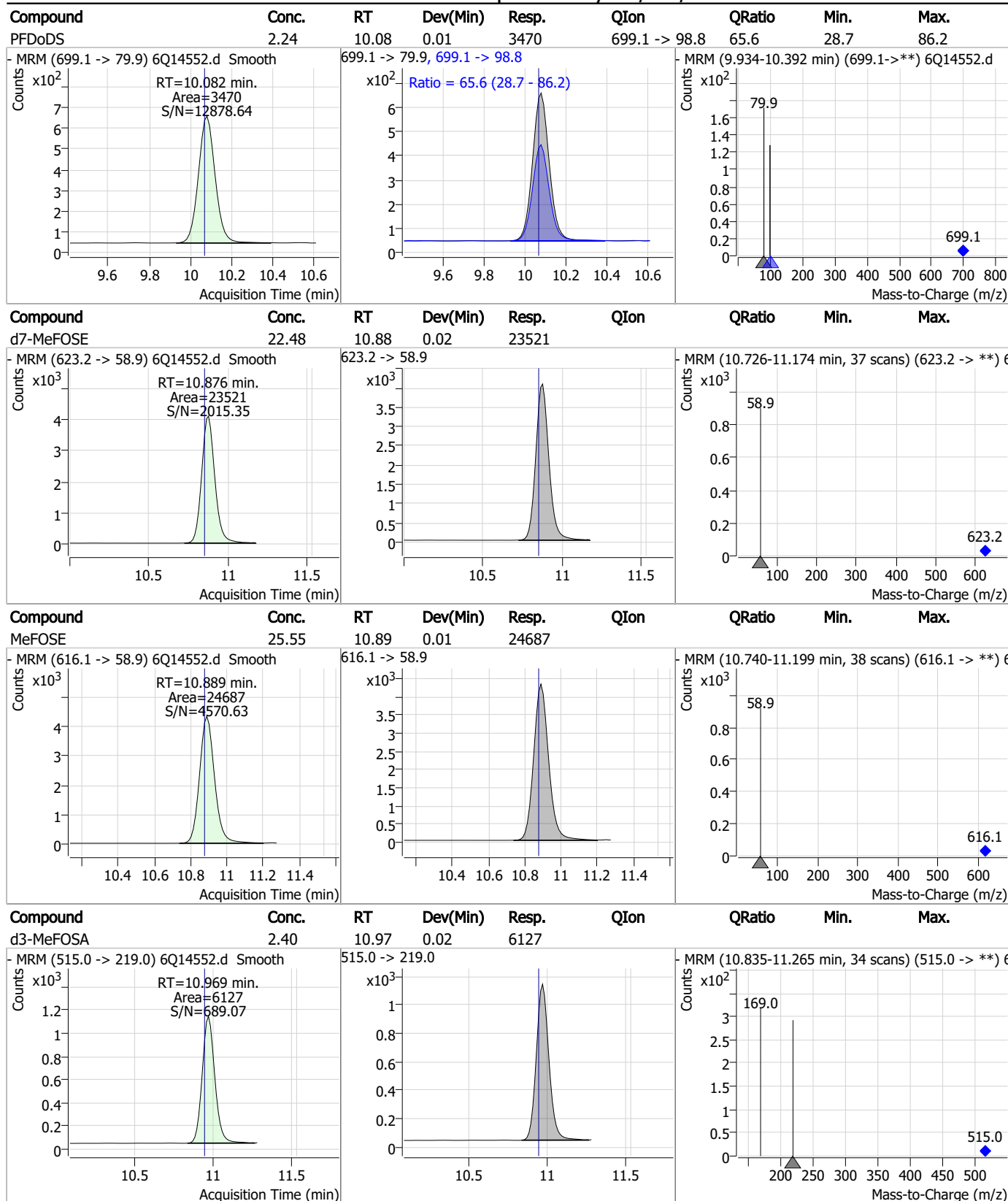
7.8.15 7

Perfluorinated Compounds by LC/MS/MS



7.8.15
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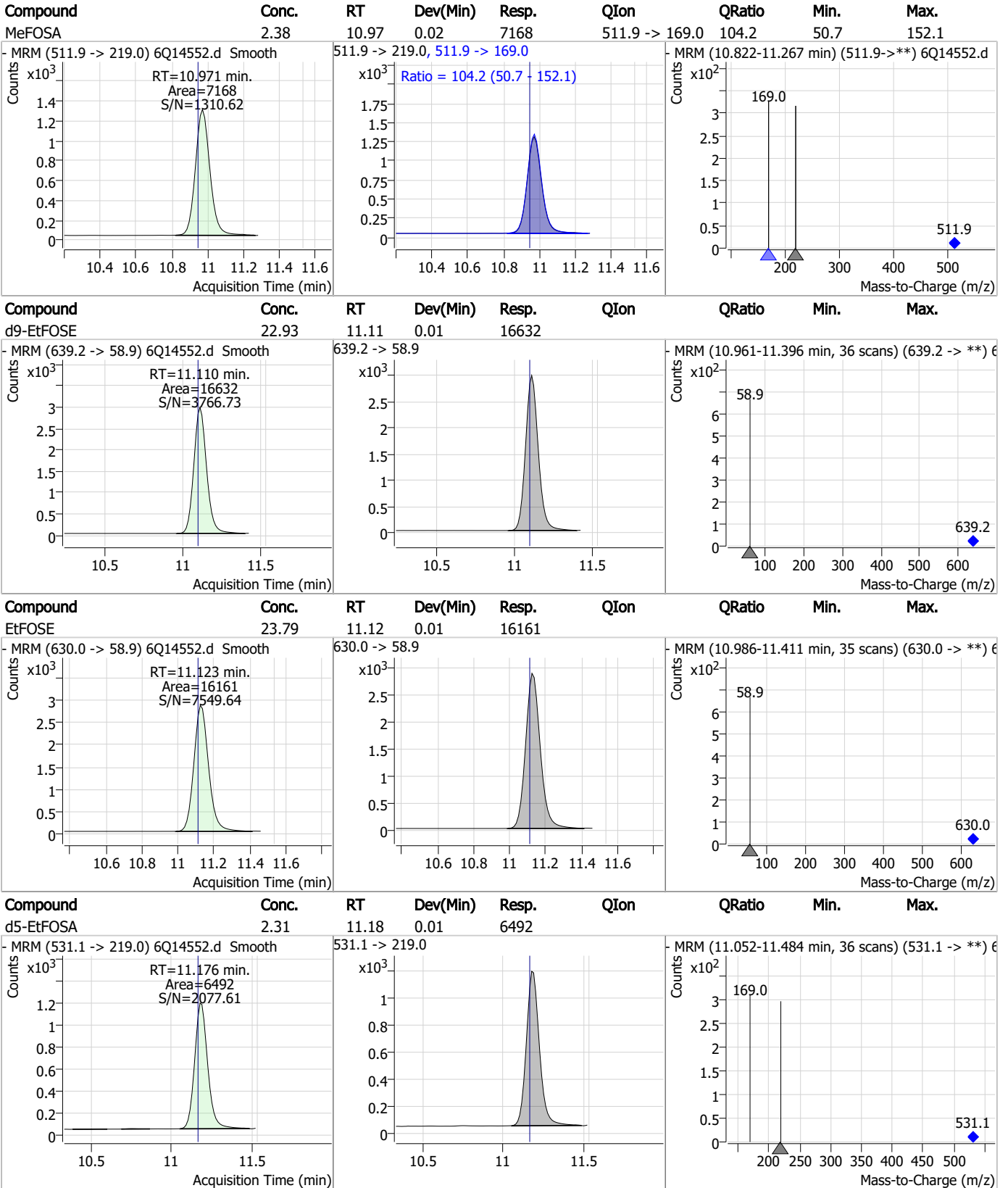
Perfluorinated Compounds by LC/MS/MS



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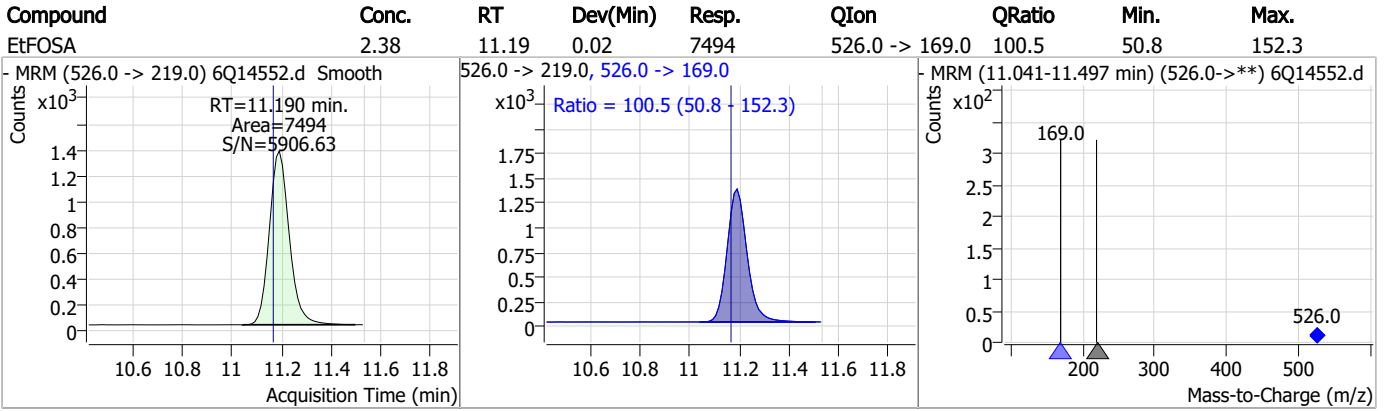
Perfluorinated Compounds by LC/MS/MS



7.8.15 7



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q220-CC220 Method: EPA DRAFT 1633
Lab FileID: 6Q14552.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 21:09 Supervisor approved: 03/10/23 10:46 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.51	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.51	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14559.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/8/2023 10:47:41 PM
 Sample Name : cc220-4
 Vial : P1-A5
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q220.batch.bin
 Sample Information : OP95462,S6Q220,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.088	216.8 -> 171.9	78270	10.00 µg/L	0.012
M5-PFPeA	4.640	268.3 -> 223.0	39159	5.00 µg/L	0.025
M5-PFHxA	5.822	318.0 -> 273.0	33711	2.50 µg/L	0.012
M4-PFHpA	6.693	367.1 -> 322.0	34526	2.50 µg/L	0.025
M8-PFOA	7.272	421.1 -> 376.0	54122	2.50 µg/L	0.012
M9-PFNA	7.779	472.1 -> 427.0	14238	1.25 µg/L	0.014
M6-PFDA	8.233	519.1 -> 474.1	14498	1.25 µg/L	0.000
M7-PFUnDA	8.687	570.0 -> 525.1	15724	1.25 µg/L	0.000
M2-PFDoDA	9.117	615.1 -> 570.0	19142	1.25 µg/L	0.000
M2-PFTeDA	9.868	715.2 -> 670.0	11733	1.25 µg/L	0.000
M8-FOSA	9.963	506.1 -> 77.8	16913	2.50 µg/L	0.037
M3-PFBS	5.951	302.1 -> 79.9	13623	2.50 µg/L	0.049
M3-PFHxS	7.511	402.1 -> 79.9	8343	2.50 µg/L	0.025
M8-PFOS	8.519	507.1 -> 79.9	7745	2.50 µg/L	0.012
M2-4:2FTS	5.500	329.1 -> 80.9	1543	5.00 µg/L	0.025
M2-6:2FTS	7.046	429.1 -> 80.9	2298	5.00 µg/L	0.012
M2-8:2FTS	8.019	529.1 -> 80.9	2194	5.00 µg/L	0.000
M3-MeFOSAA	8.277	573.2 -> 419.0	19431	5.00 µg/L	0.012
M3-HFPO-DA	6.163	286.9 -> 168.9	14787	10.00 µg/L	0.012
M5-EtFOSAA	8.473	589.2 -> 419.0	20504	5.00 µg/L	0.000
M7-MeFOSE	10.876	623.2 -> 58.9	24408	25.00 µg/L	0.025
M9-EtFOSE	11.110	639.2 -> 58.9	16268	25.00 µg/L	0.012
M5-EtFOSA	11.188	531.1 -> 219.0	6691	2.50 µg/L	0.024
M3-MeFOSA	10.969	515.0 -> 219.0	6214	2.50 µg/L	0.025
13C4-PFOS	8.520	502.8 -> 79.9	8460	2.50 µg/L	0.025
13C3-PFBA	3.091	216.0 -> 172.0	33850	5.00 µg/L	0.012
18O2-PFHxS	7.510	403.0 -> 83.9	5881	2.50 µg/L	0.012
13C4-PFOA	7.272	417.1 -> 372.0	62419	2.50 µg/L	0.012
13C2-PFDA	8.233	515.1 -> 470.1	19500	1.25 µg/L	0.000
13C5-PFNA	7.779	468.0 -> 423.0	14874	1.25 µg/L	0.014
13C2-PFHxA	5.823	315.1 -> 270.0	33327	2.50 µg/L	0.024
System Monitoring Compounds					
13C2-4:2FTS	5.500	329.1 -> 80.9	1543	5.51 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C2-6:2FTS	7.046	429.1 -> 80.9	2298	6.24 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.8%		
13C2-8:2FTS	8.019	529.1 -> 80.9	2194	5.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.5%		
13C2-PFDoDA	9.117	615.1 -> 570.0	19142	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.7%		
13C2-PFTeDA	9.868	715.2 -> 670.0	11733	1.12 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.5%		
13C3-PFBS	5.951	302.1 -> 79.9	13623	2.66 µg/L	0.049
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C3-PFHxS	7.511	402.1 -> 79.9	8343	2.48 µg/L	0.025

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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 = 99.2%	
13C4-PFBA	3.088	216.8 -> 171.9	78270	10.06 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.693	367.1 -> 322.0	34526	2.59 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C5-PFHxA	5.822	318.0 -> 273.0	33711	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C5-PFPeA	4.640	268.3 -> 223.0	39159	4.96 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C6-PFDA	8.233	519.1 -> 474.1	14498	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C7-PFUnDA	8.687	570.0 -> 525.1	15724	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-FOSA	9.963	506.1 -> 77.8	16913	2.55 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-PFOA	7.272	421.1 -> 376.0	54122	2.60 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C8-PFOS	8.519	507.1 -> 79.9	7745	2.67 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C9-PFNA	7.779	472.1 -> 427.0	14238	1.24 µg/L	0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
d3-MeFOSAA	8.277	573.2 -> 419.0	19431	4.99 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C3-HFPO-DA	6.163	286.9 -> 168.9	14787	9.68 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
d3-MeFOSA	10.969	515.0 -> 219.0	6214	2.57 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
d5-EtFOSAA	8.473	589.2 -> 419.0	20504	5.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.3%	
d7-MeFOSE	10.876	623.2 -> 58.9	24408	24.57 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
d9-EtFOSE	11.110	639.2 -> 58.9	16268	23.63 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
d5-EtFOSA	11.188	531.1 -> 219.0	6691	2.51 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
Target Compounds					QValue
4:2FTS	5.500	327.1 -> 307.0	32588	9.36 µg/L	98
		327.1 -> 80.9	7691		
6:2FTS	7.046	427.1 -> 407.0	28007	8.10 µg/L	99
		427.1 -> 80.9	6248		
8:2FTS	8.020	527.1 -> 507.0	15001	8.59 µg/L	99
		527.1 -> 80.8	3987		
EtFOSAA	8.474	584.2 -> 419.1	7678	2.23 µg/L	m 99
		584.2 -> 526.0	4034		
FOSA	9.954	498.1 -> 77.9	15577	2.25 µg/L	99
		498.1 -> 478.0	629		
MeFOSAA	8.278	570.1 -> 419.0	10359	2.52 µg/L	99
		570.1 -> 483.0	2020		
PFBA	3.094	212.8 -> 168.9	20041	9.33 µg/L	100
PFBS	5.951	298.7 -> 79.9	11140	1.95 µg/L	96
		298.7 -> 98.8	4814		
PFDA	8.233	512.9 -> 469.0	38663	2.08 µg/L	94
		512.9 -> 219.0	5298		
PFDoDA	9.117	613.1 -> 569.0	37417	2.38 µg/L	98
		613.1 -> 319.0	4786		
PFDS	9.381	599.0 -> 79.9	5804	2.20 µg/L	96

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.694	599.0 -> 98.8	2745	2.11	µg/L	95
		363.1 -> 319.0	46664			
PFHpS	8.041	363.1 -> 169.0	7483	2.05	µg/L	97
		449.0 -> 79.9	7493			
PFHxA	5.825	449.0 -> 98.9	4234	2.24	µg/L	100
		313.0 -> 269.0	30033			
PFHxS	7.512	313.0 -> 118.9	1314	2.06	µg/L	96
		398.7 -> 79.9	8414			
PFNA	7.779	398.7 -> 98.9	4626	2.49	µg/L	99
		463.0 -> 419.0	24510			
PFNS	8.973	463.0 -> 219.0	5259	2.24	µg/L	88
		548.8 -> 79.9	8405			
PFOA	7.273	548.8 -> 98.9	4409	2.17	µg/L	99
		413.0 -> 369.0	58844			
PFOS	8.521	413.0 -> 169.0	8211	2.11	µg/L	95
		498.9 -> 79.9	8091			
PFPeA	4.642	498.9 -> 98.8	4822	4.65	µg/L	100
		263.0 -> 219.0	42349			
PFPeS	6.894	349.1 -> 79.9	10752	2.23	µg/L	98
		349.1 -> 98.9	5495			
PFTeDA	9.869	713.1 -> 669.0	36776	2.51	µg/L	99
		713.1 -> 168.9	2590			
PFTrDA	9.513	663.0 -> 619.0	34802	2.22	µg/L	97
		663.0 -> 168.9	2881			
PFUnDA	8.687	563.1 -> 519.0	37272	2.44	µg/L	97
		563.1 -> 269.1	5152			
11CI-PF3OUdS	9.664	630.9 -> 450.9	74752	8.56	µg/L	97
		632.9 -> 452.9	24316			
9CI-PF3ONS	8.851	530.8 -> 351.0	155326	9.79	µg/L	93
		532.8 -> 353.0	42281			
ADONA	6.928	376.9 -> 250.9	273206	8.80	µg/L	96
		376.9 -> 84.8	66029			
HFPO-DA	6.164	284.9 -> 168.9	14009	9.48	µg/L	98
		284.9 -> 184.9	1799			
3:3FTCA	4.014	241.0 -> 177.0	5236	11.32	µg/L	99
		241.0 -> 117.0	793			
5:3FTCA	6.419	341.0 -> 237.1	178077	60.91	µg/L	99
		341.0 -> 217.0	145032			
7:3FTCA	7.755	441.0 -> 316.9	81485	58.10	µg/L	86
		441.0 -> 336.9	153041			
EtFOSA	11.190	526.0 -> 219.0	7633	2.35	µg/L	92
		526.0 -> 169.0	7135			
EtFOSE	11.123	630.0 -> 58.9	15661	23.57	µg/L	100
		511.9 -> 219.0	6881			
MeFOSA	10.971	511.9 -> 169.0	7518	2.25	µg/L	92
		616.1 -> 58.9	24317			
MeFOSE	10.889	699.1 -> 79.9	3719	24.25	µg/L	100
		699.1 -> 98.8	2062			
PFDoDS	10.082	295.0 -> 201.0	4389	2.33	µg/L	97
		295.0 -> 84.9	1808			
NFDHA	5.705	279.0 -> 85.1	13143	4.76	µg/L	97
		229.0 -> 84.9	12043			
PFMBA	5.039	314.8 -> 134.9	80698	4.30	µg/L	100
PFMPA	3.729	314.8 -> 82.9	2046	4.52	µg/L	100
PFEESA	6.433			4.19	µg/L	100

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

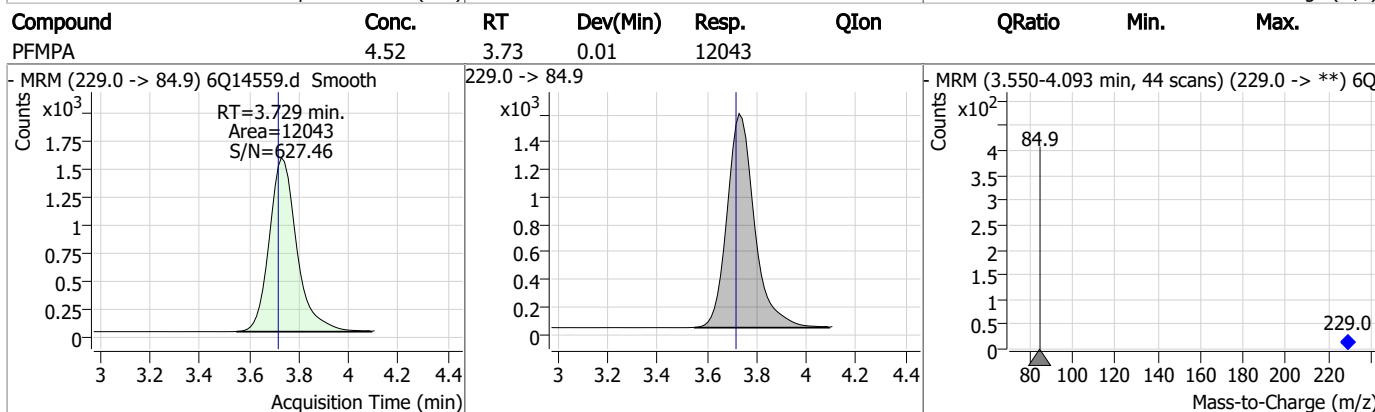
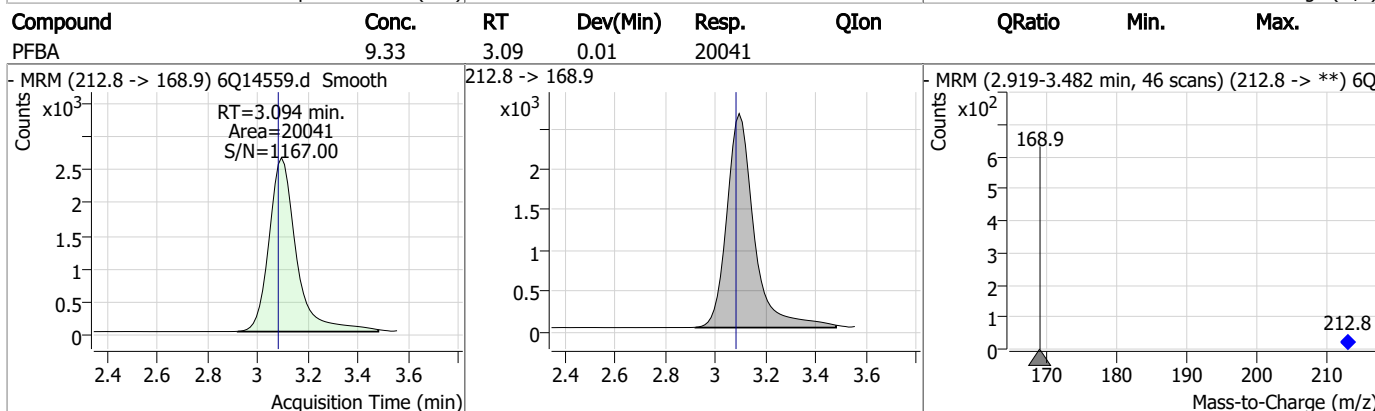
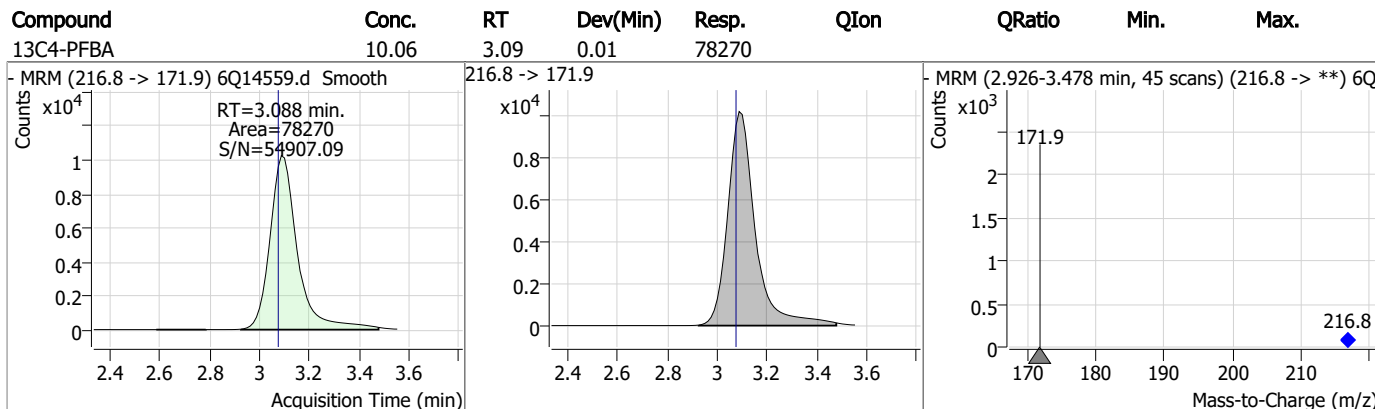
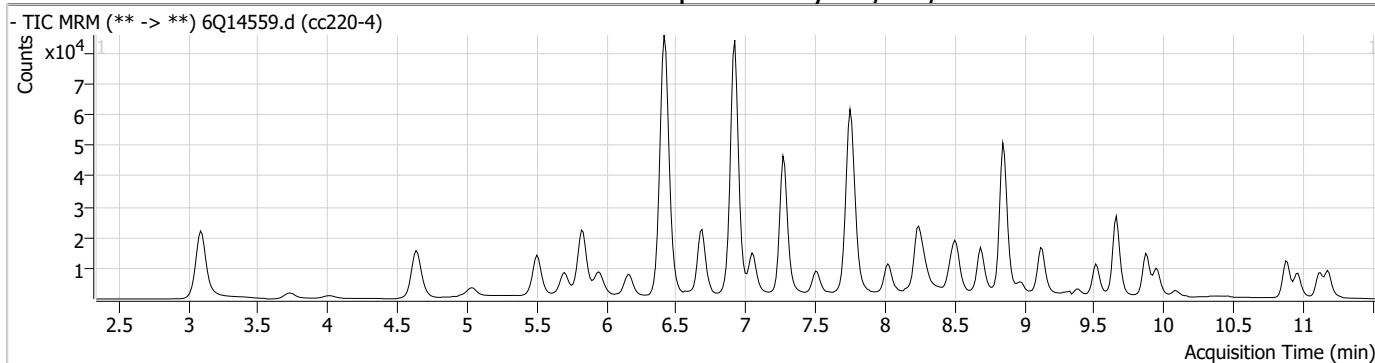
7.8.16
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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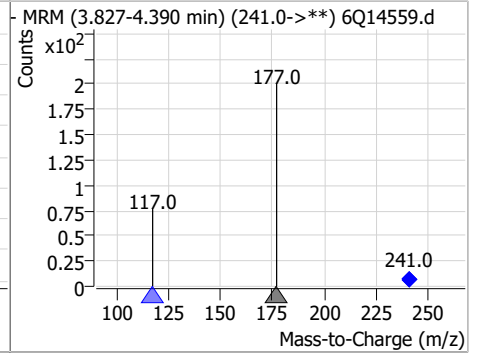
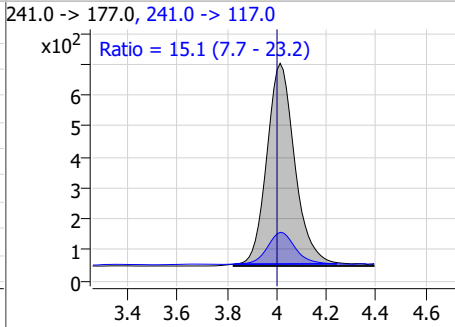
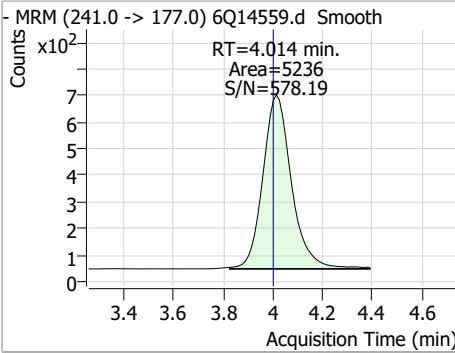
7.8.16
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Perfluorinated Compounds by LC/MS/MS

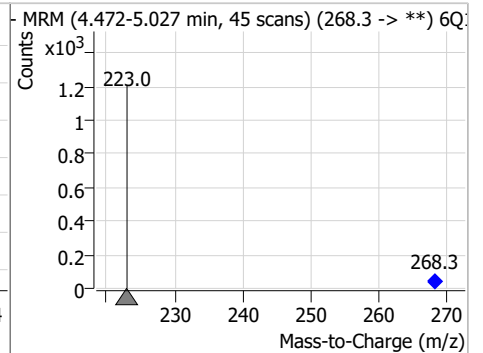
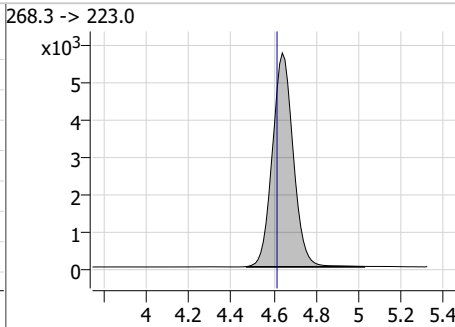
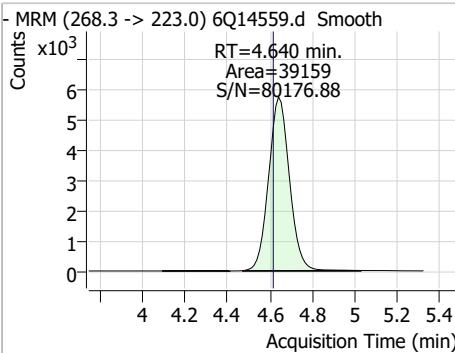


Perfluorinated Compounds by LC/MS/MS

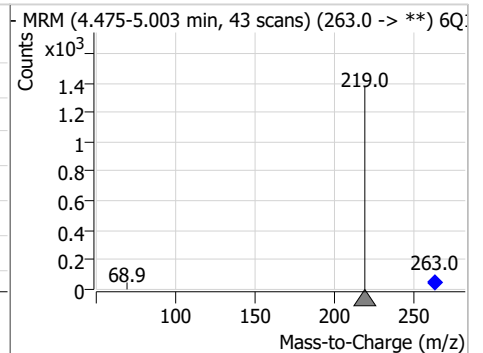
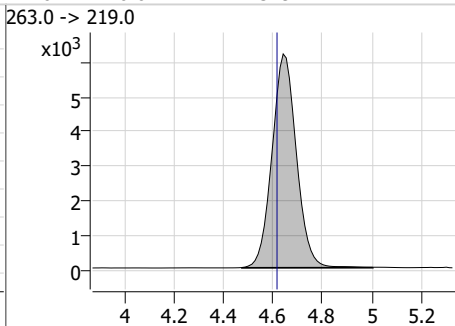
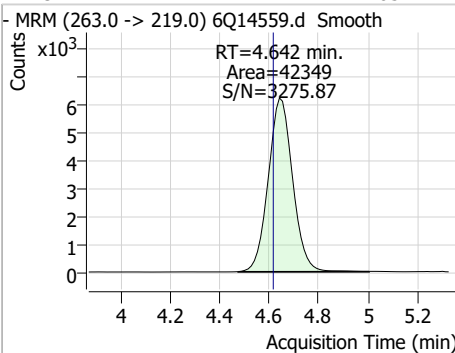
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.32	4.01	0.01	5236	241.0 -> 117.0	15.1	7.7	23.2



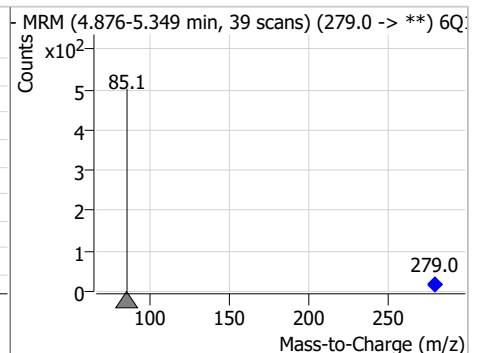
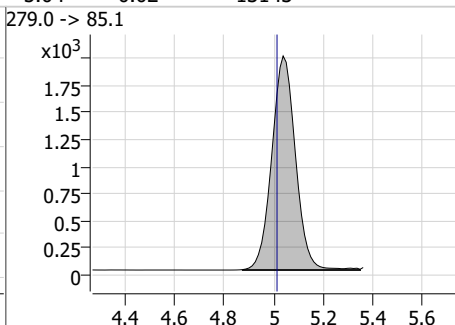
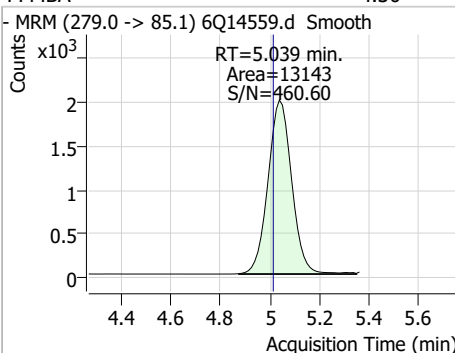
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.96	4.64	0.02	39159				



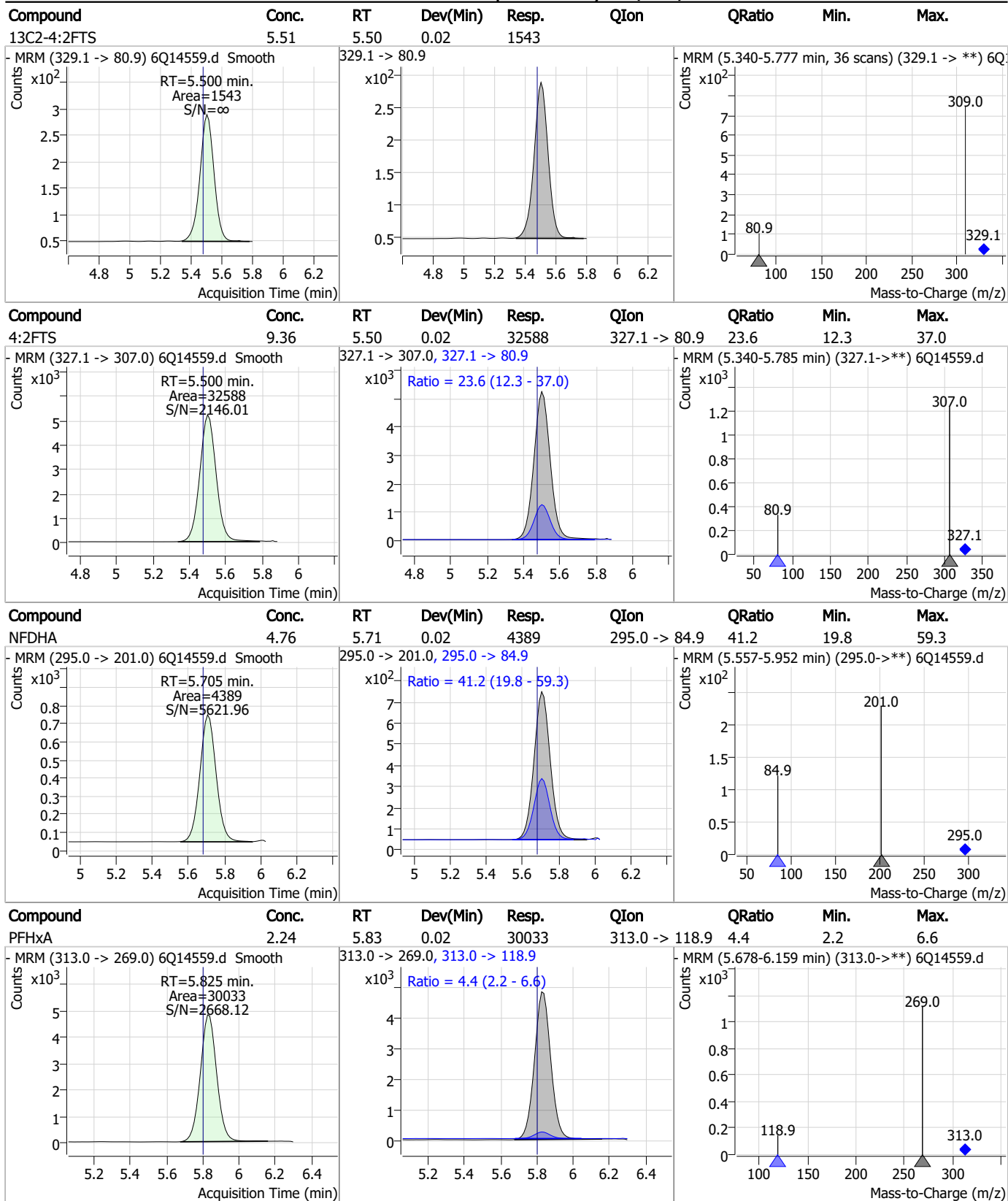
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.65	4.64	0.02	42349				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.30	5.04	0.02	13143				



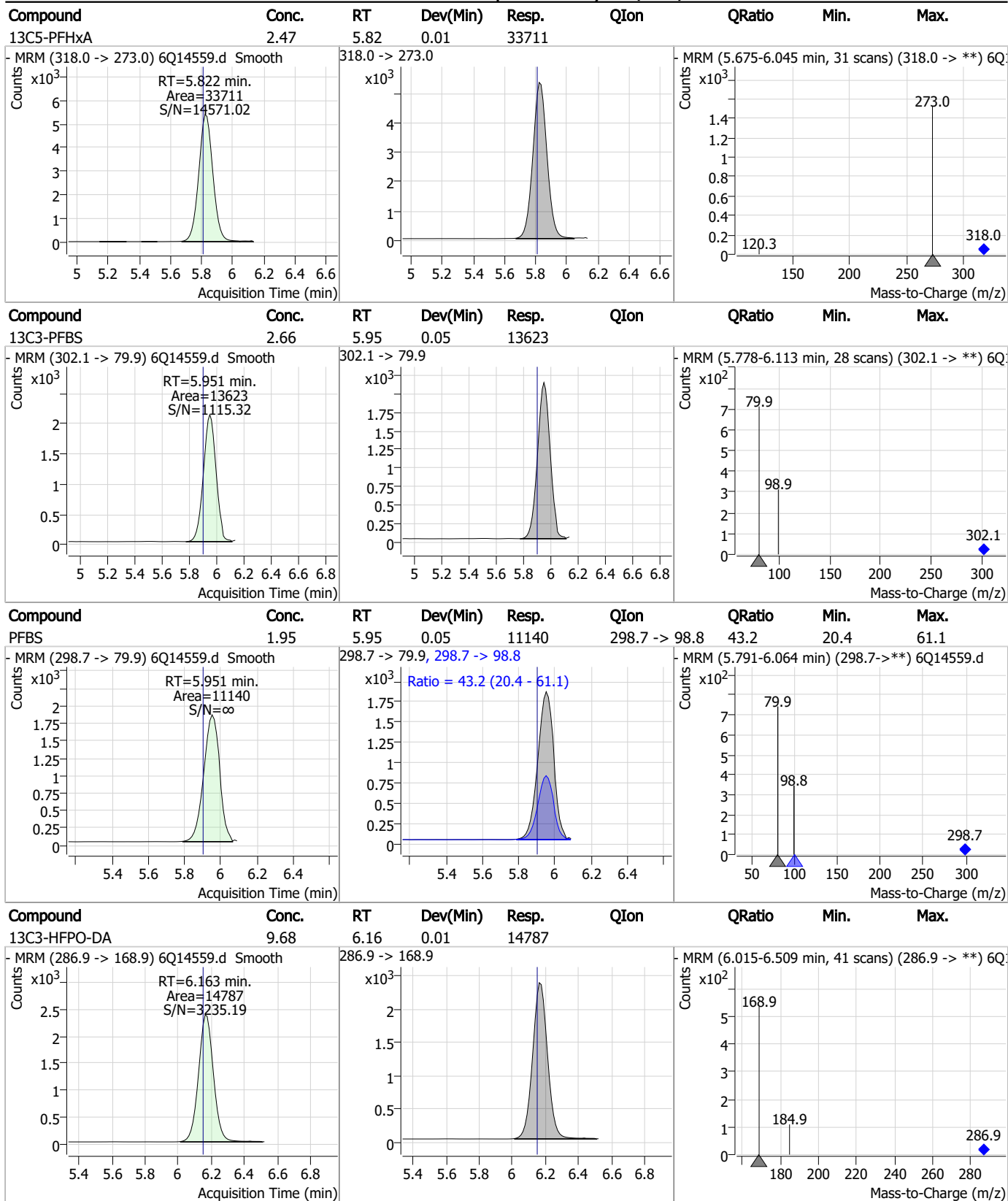
Perfluorinated Compounds by LC/MS/MS



7.8.16

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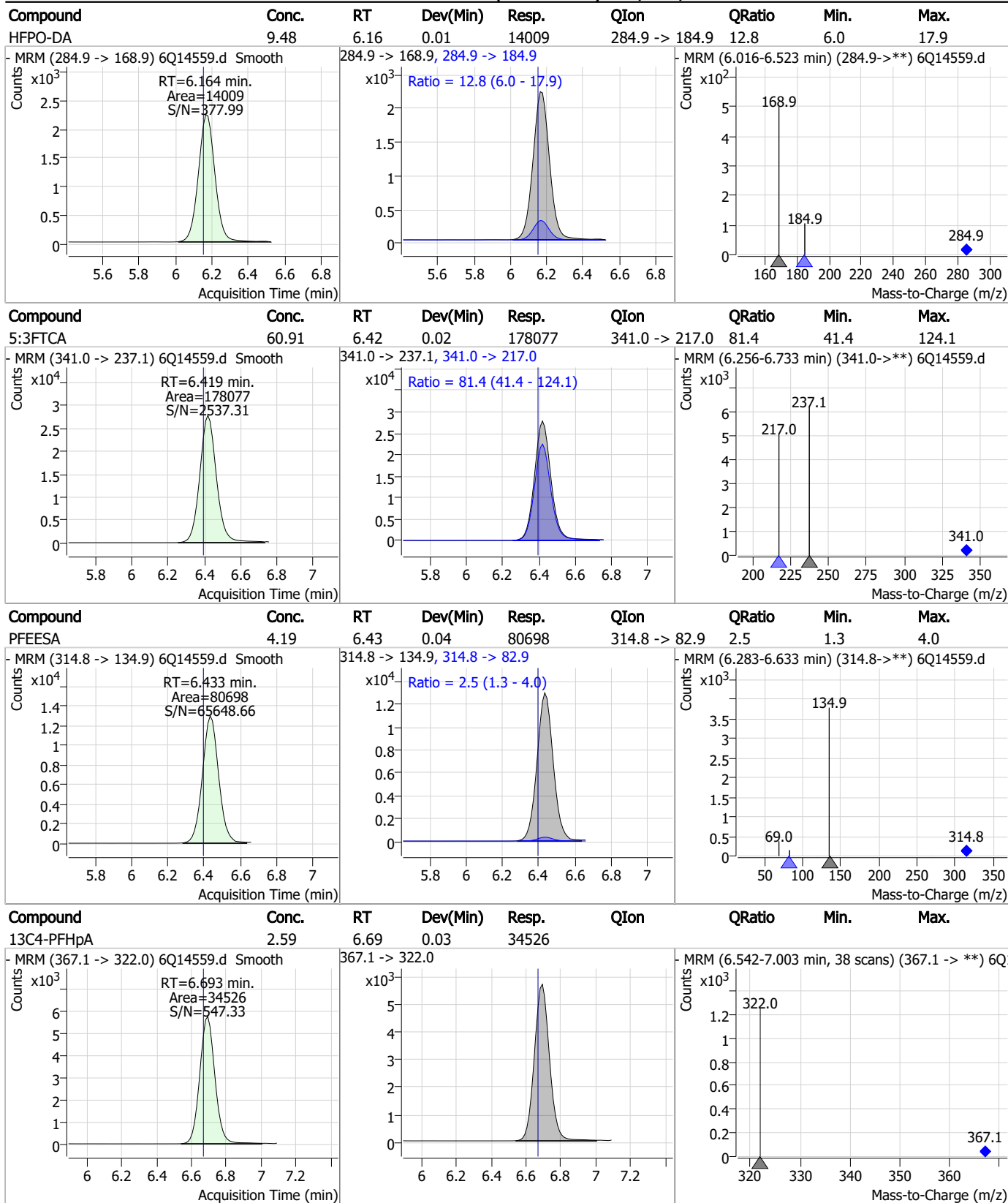
Perfluorinated Compounds by LC/MS/MS



7.8.16 7

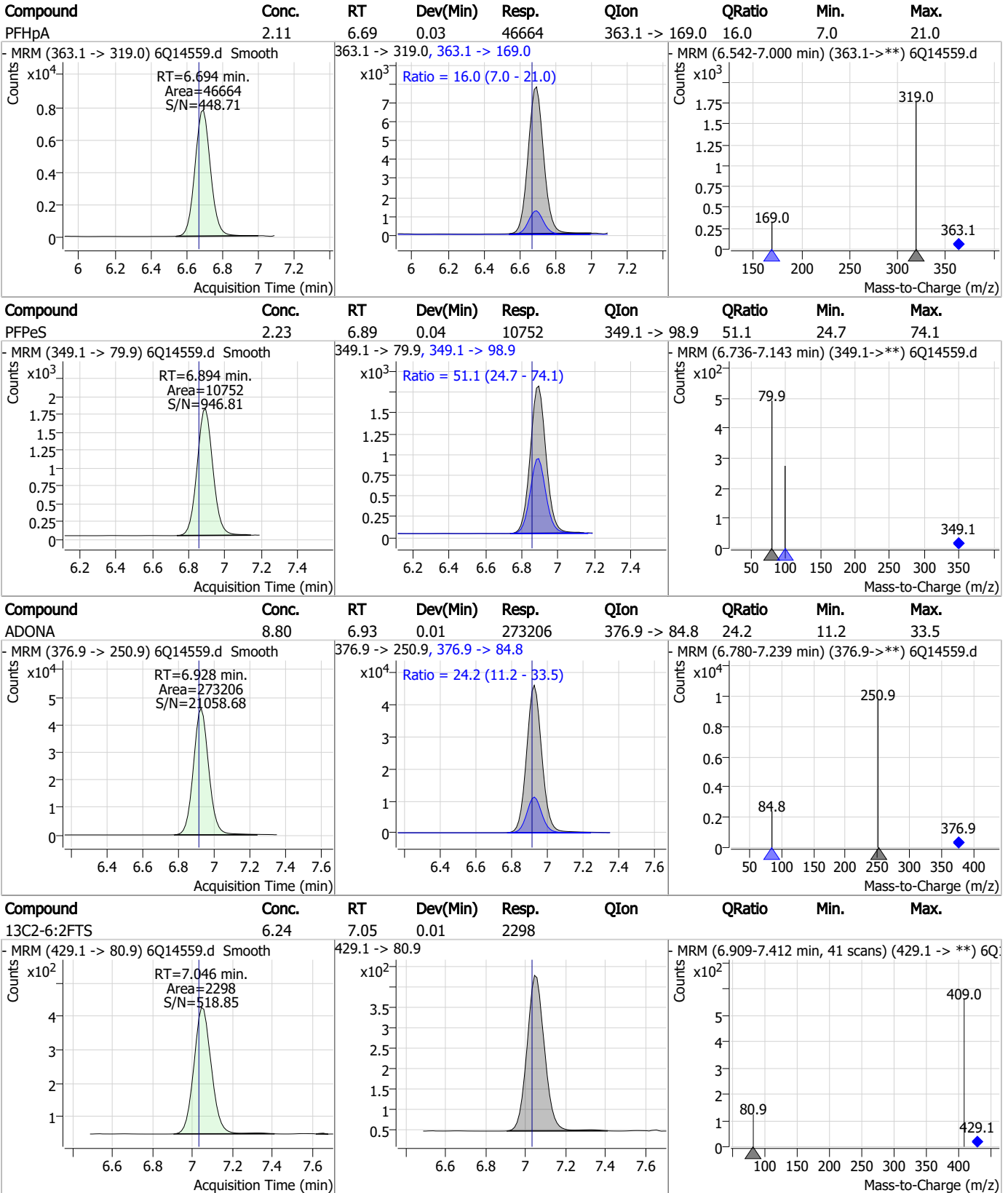


Perfluorinated Compounds by LC/MS/MS



7.8.16
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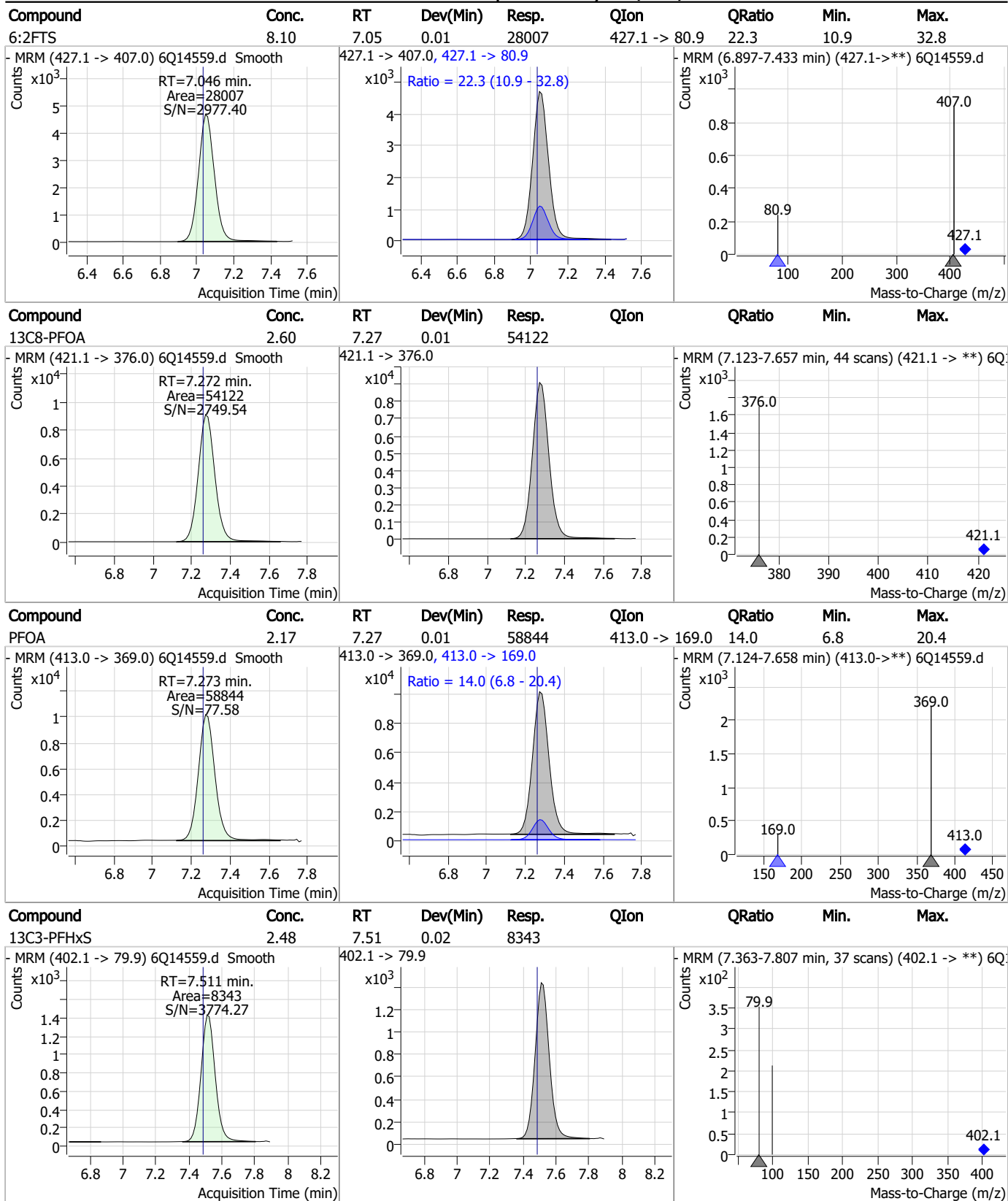
Perfluorinated Compounds by LC/MS/MS



7.8.16 7



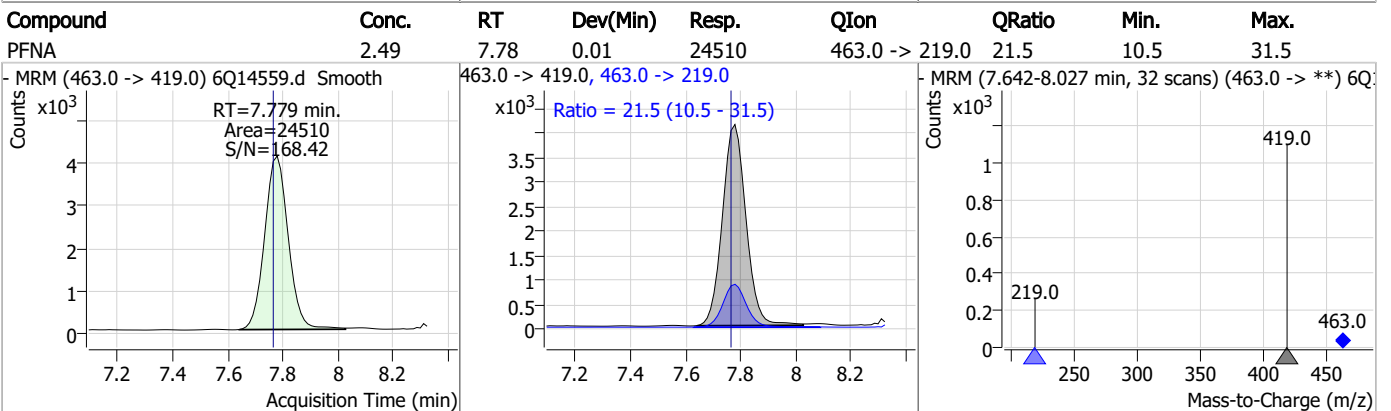
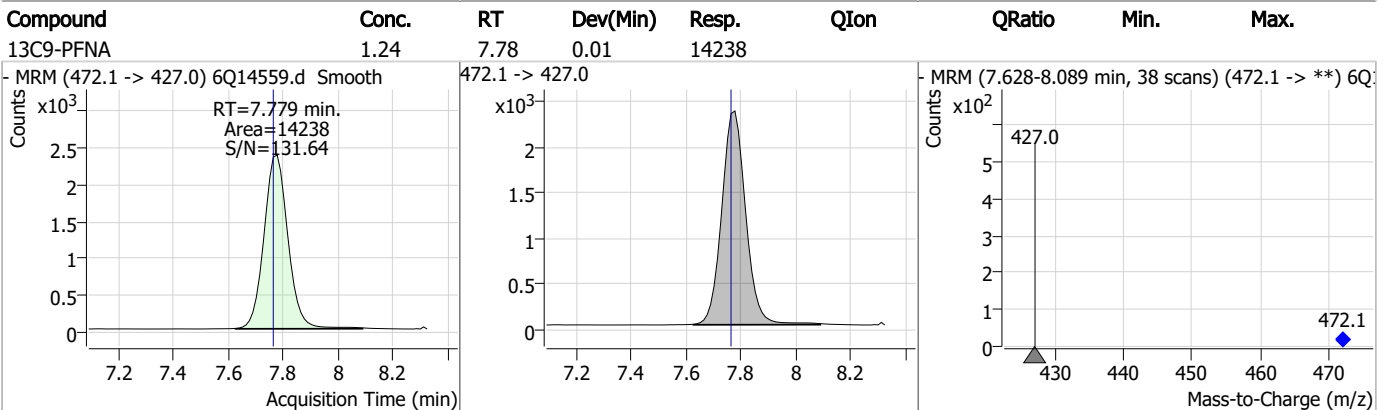
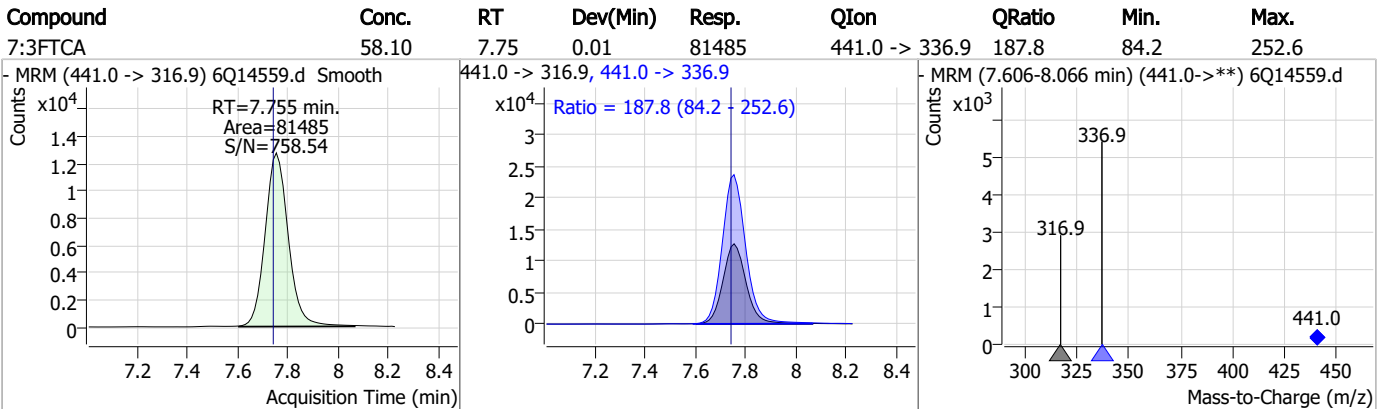
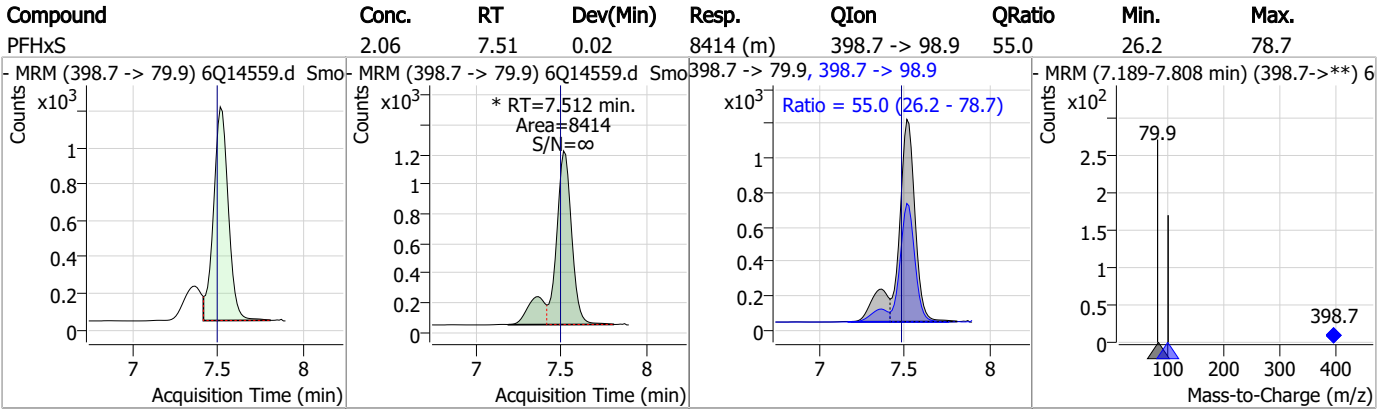
Perfluorinated Compounds by LC/MS/MS



7.8.16

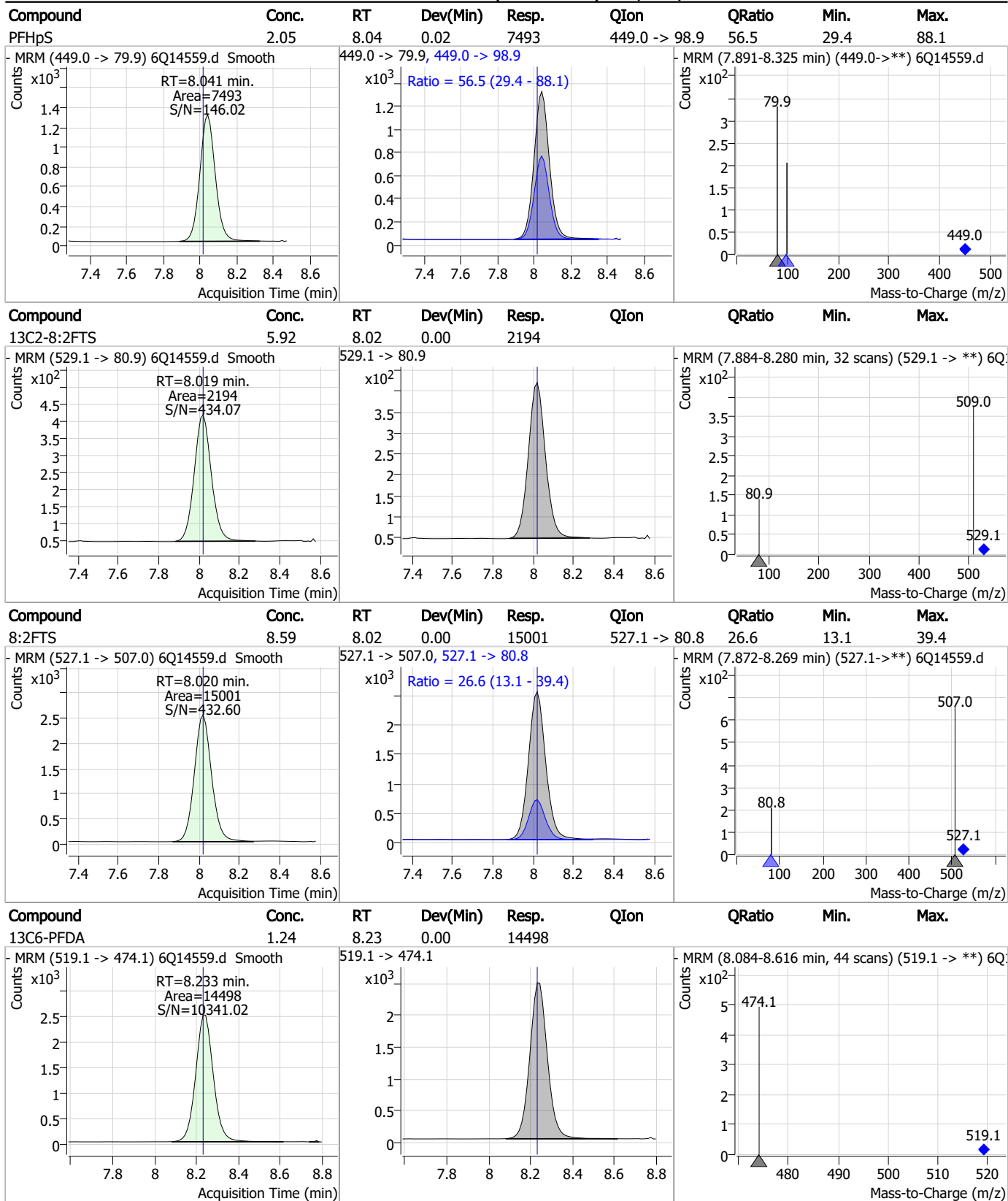
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Perfluorinated Compounds by LC/MS/MS



7.8.16 7

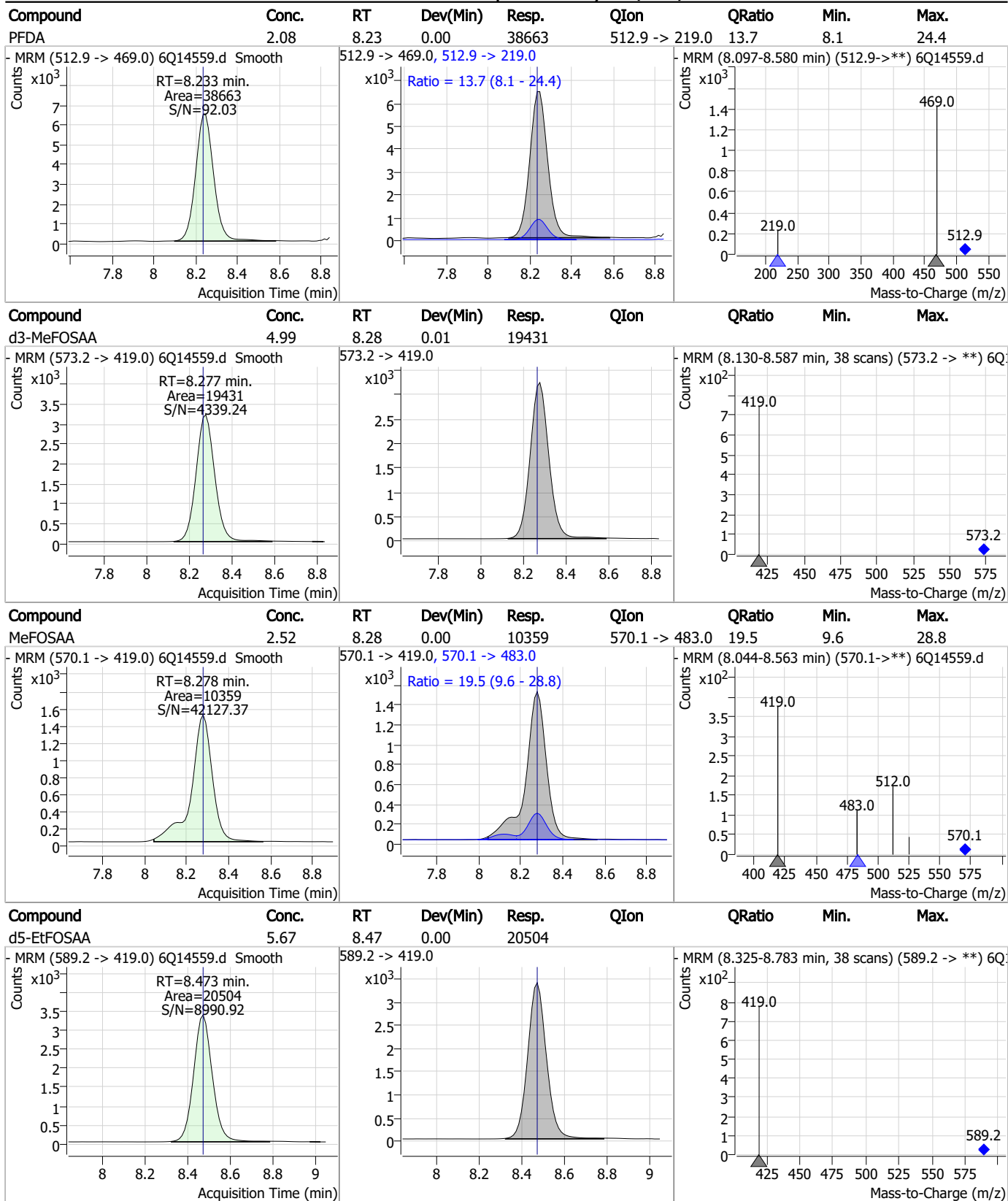
Perfluorinated Compounds by LC/MS/MS



7.8.16 7



Perfluorinated Compounds by LC/MS/MS

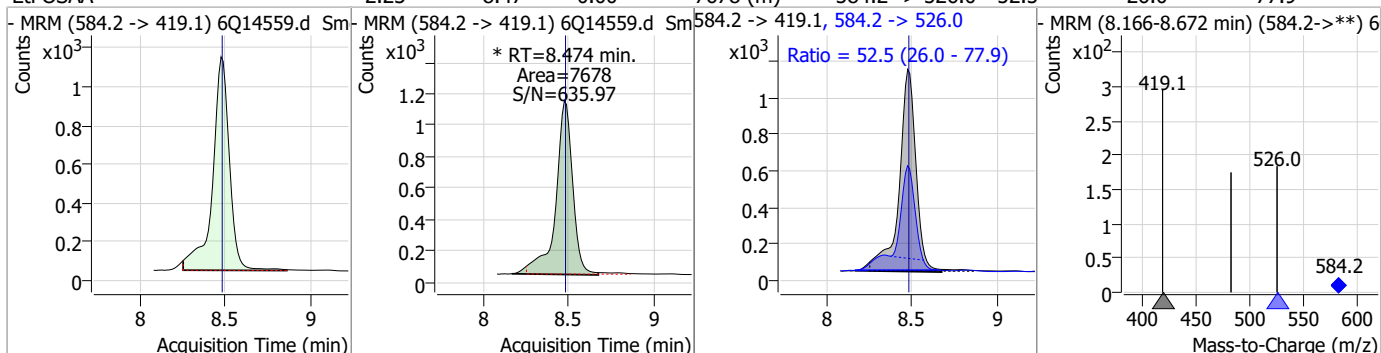


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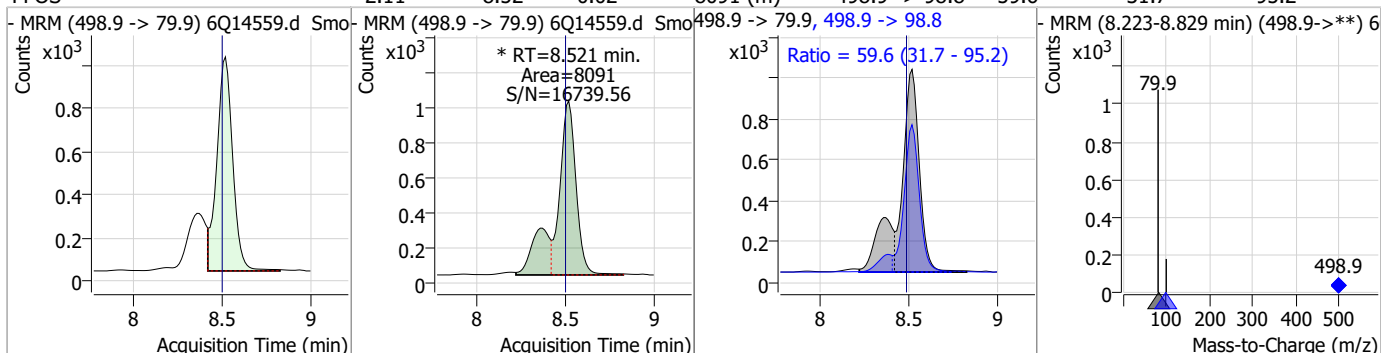
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Perfluorinated Compounds by LC/MS/MS

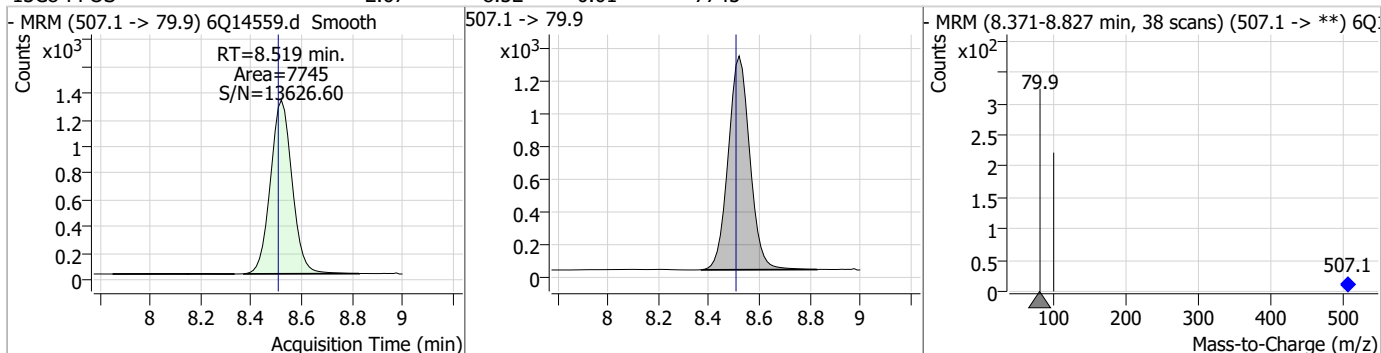
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.23	8.47	0.00	7678 (m)	584.2 -> 526.0	52.5	26.0	77.9



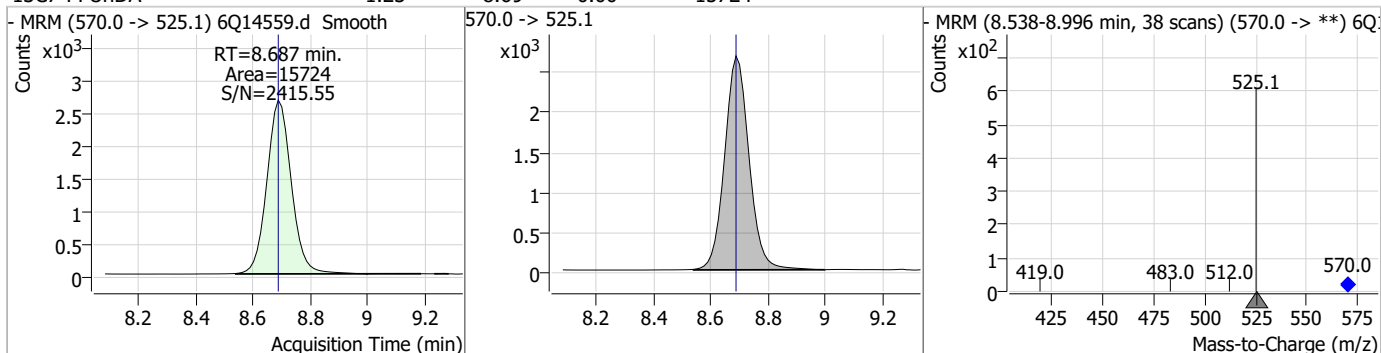
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.11	8.52	0.02	8091 (m)	498.9 -> 98.8	59.6	31.7	95.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.67	8.52	0.01	7745				

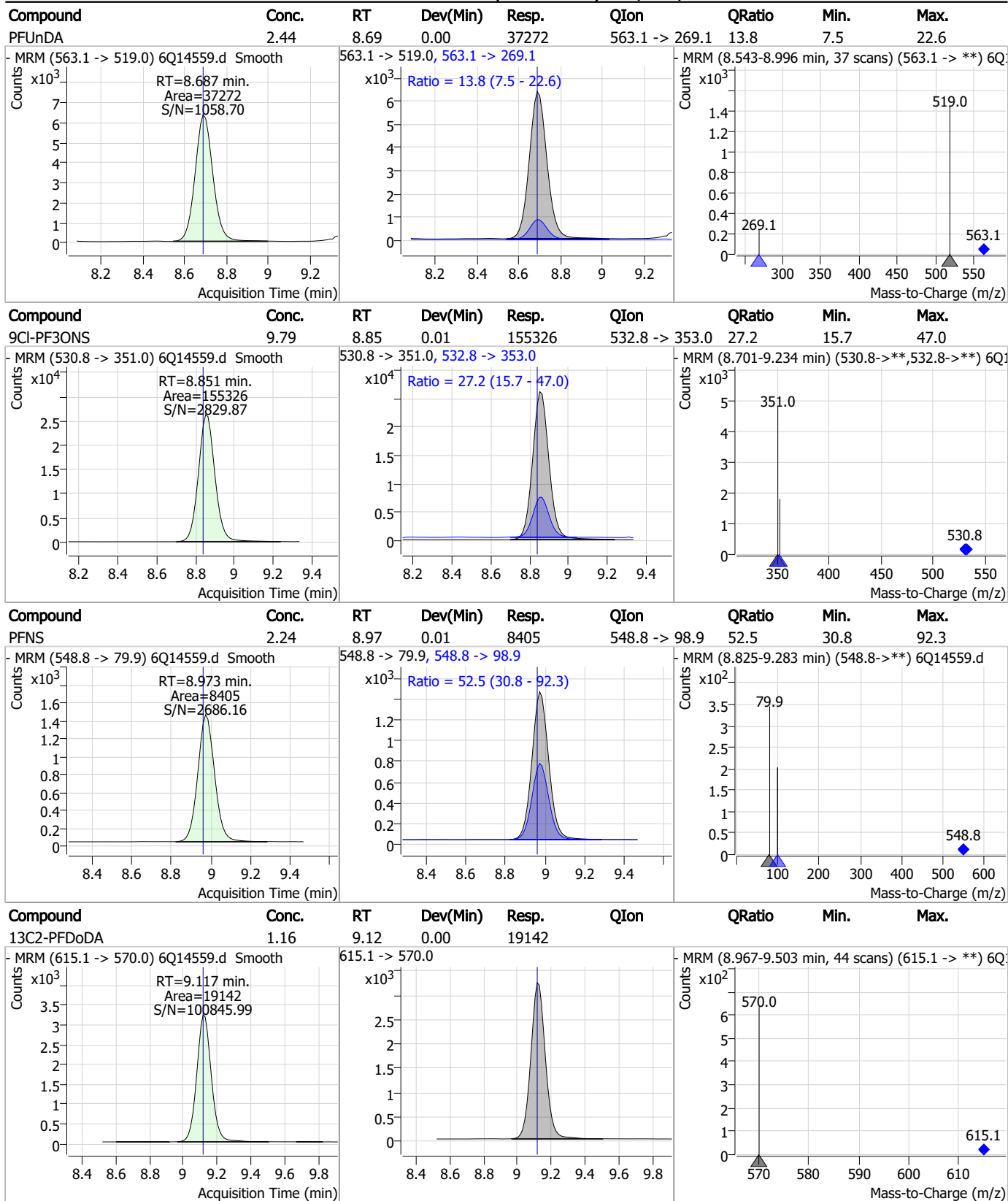


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.23	8.69	0.00	15724				



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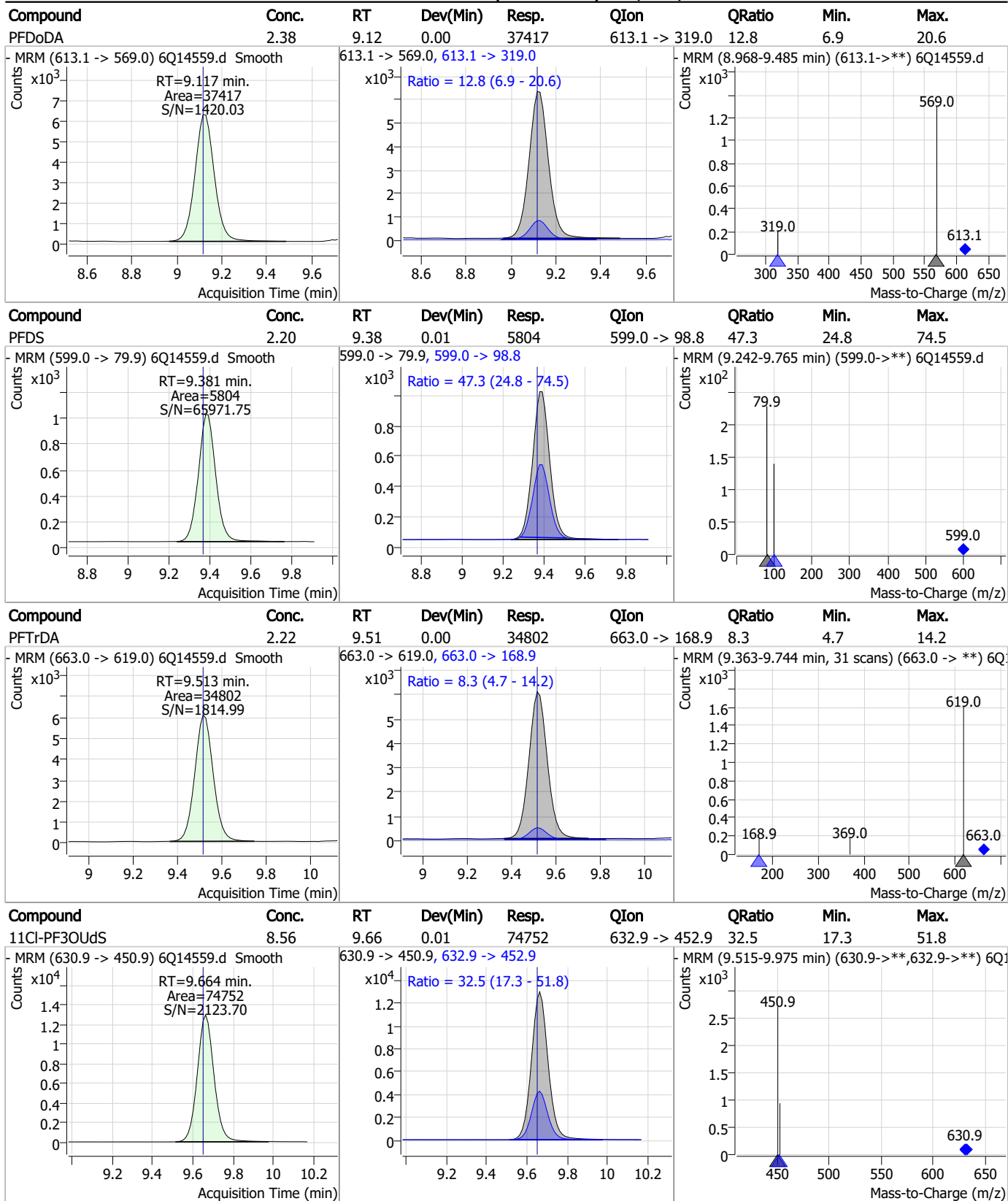
Perfluorinated Compounds by LC/MS/MS



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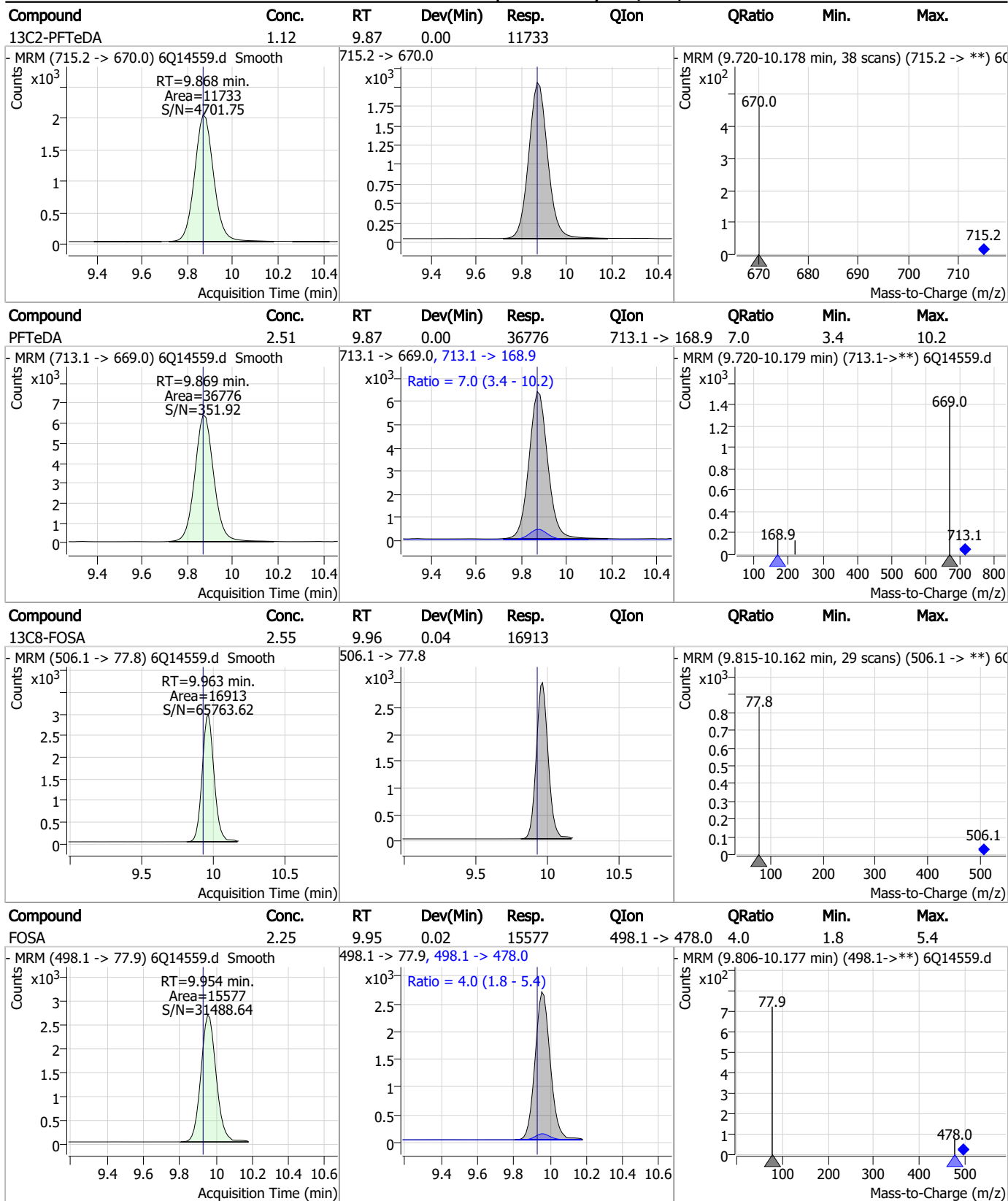
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

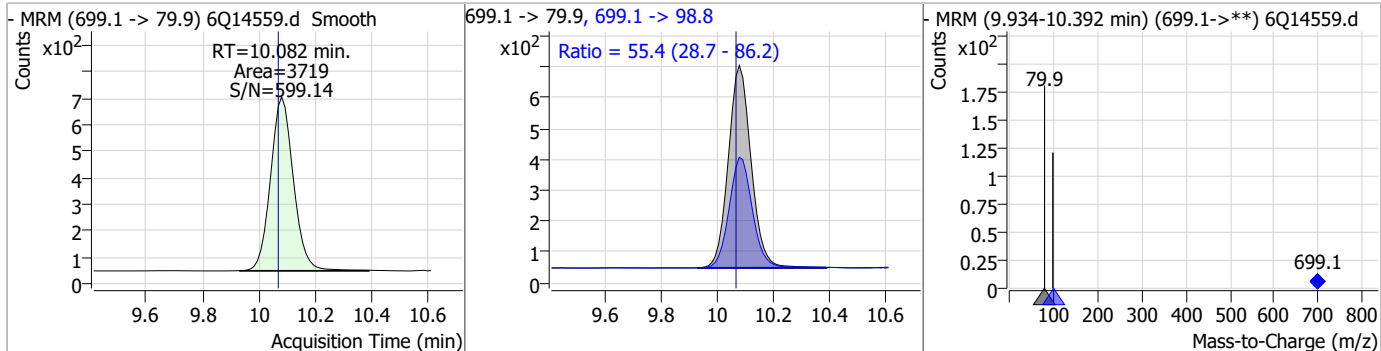


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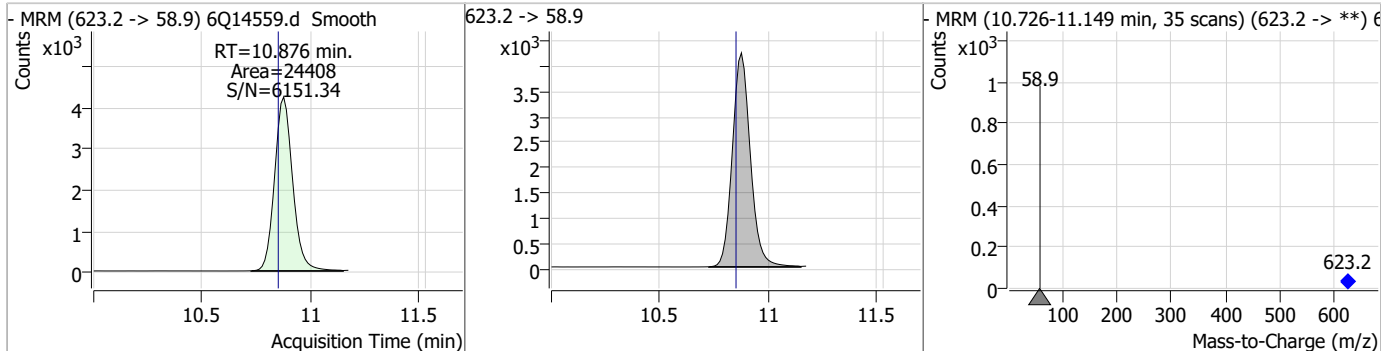
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Perfluorinated Compounds by LC/MS/MS

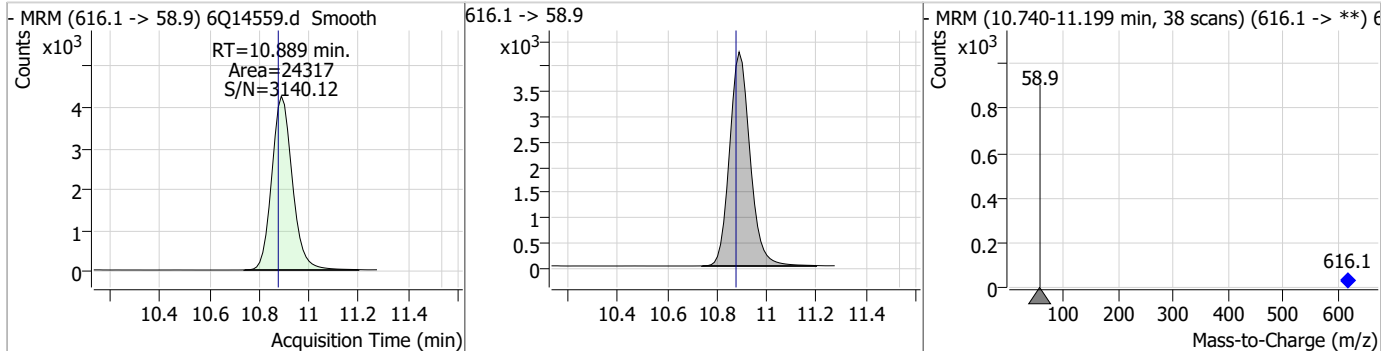
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.33	10.08	0.01	3719	699.1 -> 98.8	55.4	28.7	86.2



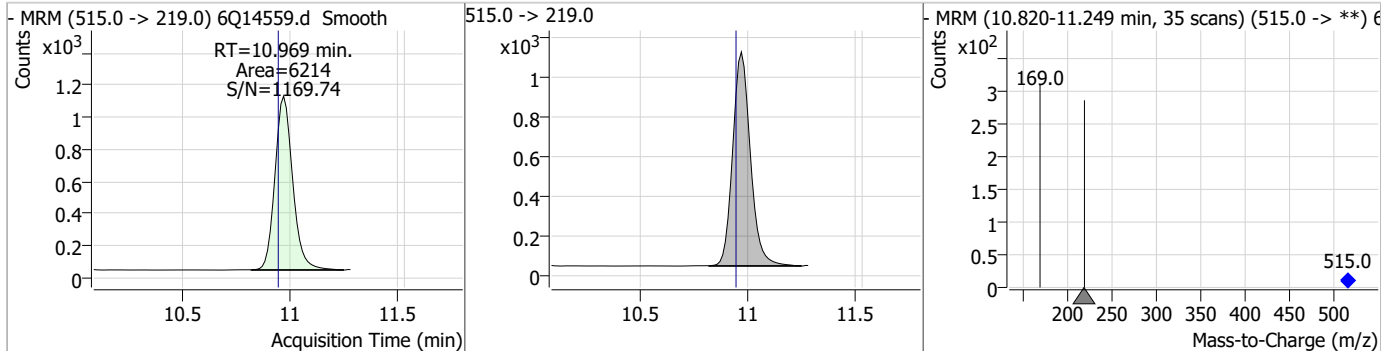
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.57	10.88	0.02	24408				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	24.25	10.89	0.01	24317				

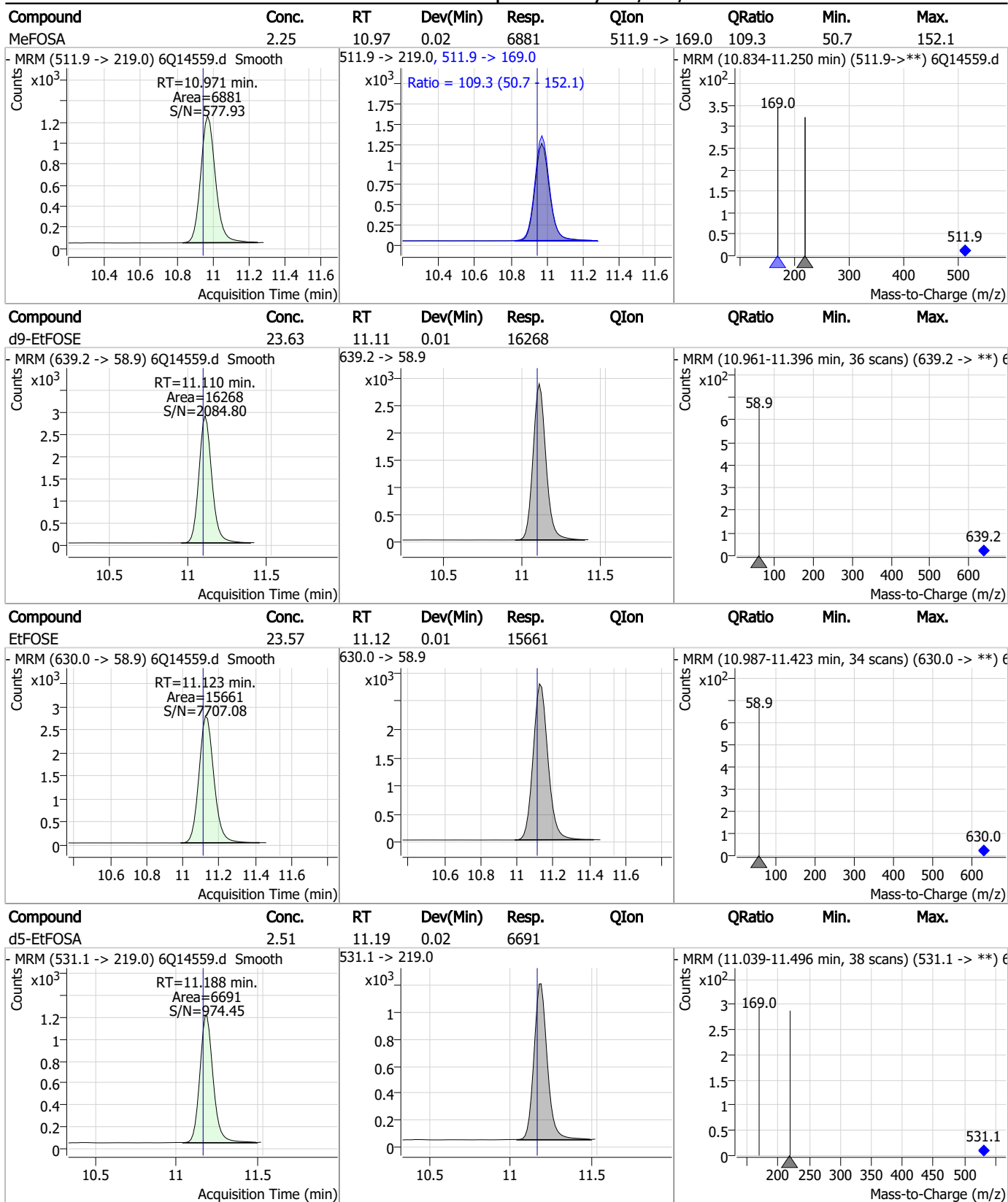


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.57	10.97	0.02	6214				



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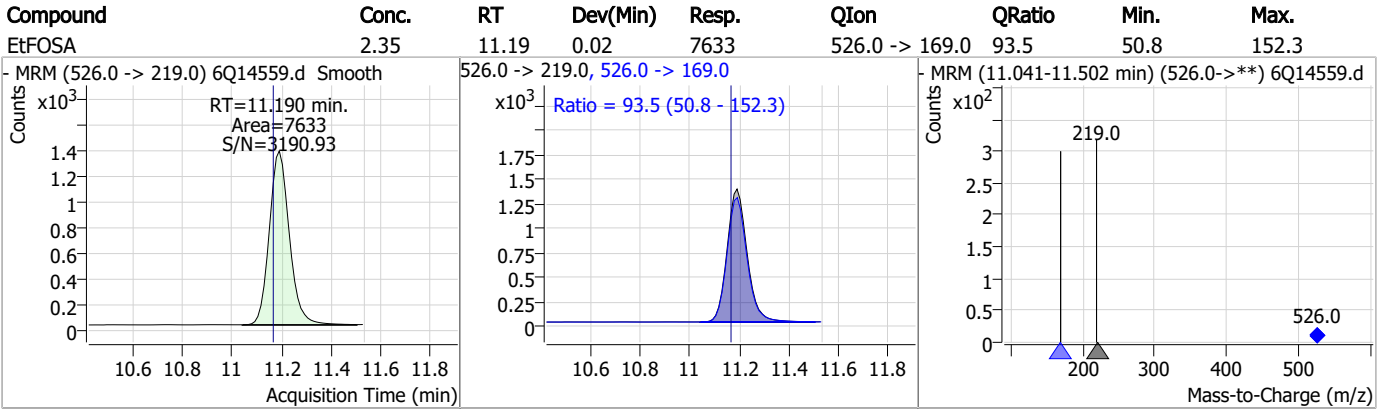
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q220-CC220 Method: EPA DRAFT 1633
Lab FileID: 6Q14559.D Analyst approved: 03/09/23 11:25 Martha Valls
Injection Time: 03/08/23 22:47 Supervisor approved: 03/10/23 10:46 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.51	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.52	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14619.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/9/2023 1:09:46 PM
 Sample Name : cc220-4
 Vial : P1-A5
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q221.batch.bin
 Sample Information : OP95772,S6Q221,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	76065	10.00 µg/L	0.022
M5-PFPeA	4.647	268.3 -> 223.0	37735	5.00 µg/L	0.032
M5-PFHxA	5.828	318.0 -> 273.0	33477	2.50 µg/L	0.018
M4-PFHpA	6.682	367.1 -> 322.0	32702	2.50 µg/L	0.014
M8-PFOA	7.261	421.1 -> 376.0	54463	2.50 µg/L	0.002
M9-PFNA	7.767	472.1 -> 427.0	15097	1.25 µg/L	0.003
M6-PFDA	8.222	519.1 -> 474.1	14393	1.25 µg/L	-0.011
M7-PFUnDA	8.676	570.0 -> 525.1	15219	1.25 µg/L	-0.011
M2-PFDoDA	9.106	615.1 -> 570.0	19159	1.25 µg/L	-0.010
M2-PFTeDA	9.871	715.2 -> 670.0	13055	1.25 µg/L	0.003
M8-FOSA	9.954	506.1 -> 77.8	17552	2.50 µg/L	0.028
M3-PFBS	5.943	302.1 -> 79.9	13221	2.50 µg/L	0.042
M3-PFHxS	7.501	402.1 -> 79.9	9176	2.50 µg/L	0.015
M8-PFOS	8.509	507.1 -> 79.9	7831	2.50 µg/L	0.002
M2-4:2FTS	5.505	329.1 -> 80.9	1573	5.00 µg/L	0.029
M2-6:2FTS	7.036	429.1 -> 80.9	2136	5.00 µg/L	0.002
M2-8:2FTS	8.011	529.1 -> 80.9	2413	5.00 µg/L	-0.009
M3-MeFOSAA	8.267	573.2 -> 419.0	19222	5.00 µg/L	0.002
M3-HFPO-DA	6.155	286.9 -> 168.9	15039	10.00 µg/L	0.005
M5-EtFOSAA	8.463	589.2 -> 419.0	18927	5.00 µg/L	-0.010
M7-MeFOSE	10.878	623.2 -> 58.9	24375	25.00 µg/L	0.027
M9-EtFOSE	11.112	639.2 -> 58.9	17735	25.00 µg/L	0.015
M5-EtFOSA	11.190	531.1 -> 219.0	7075	2.50 µg/L	0.026
M3-MeFOSA	10.970	515.0 -> 219.0	5714	2.50 µg/L	0.026
13C4-PFOS	8.509	502.8 -> 79.9	9316	2.50 µg/L	0.014
13C3-PFBA	3.089	216.0 -> 172.0	32569	5.00 µg/L	0.010
18O2-PFHxS	7.500	403.0 -> 83.9	5539	2.50 µg/L	0.002
13C4-PFOA	7.262	417.1 -> 372.0	65981	2.50 µg/L	0.002
13C2-PFDA	8.222	515.1 -> 470.1	19740	1.25 µg/L	-0.011
13C5-PFNA	7.768	468.0 -> 423.0	15976	1.25 µg/L	0.003
13C2-PFHxA	5.829	315.1 -> 270.0	32297	2.50 µg/L	0.030
System Monitoring Compounds					
13C2-4:2FTS	5.505	329.1 -> 80.9	1573	5.96 µg/L	0.029
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.3%		
13C2-6:2FTS	7.036	429.1 -> 80.9	2136	6.16 µg/L	0.002
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.2%		
13C2-8:2FTS	8.011	529.1 -> 80.9	2340	6.71 µg/L	m -0.009
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 134.1%		
13C2-PFDoDA	9.106	615.1 -> 570.0	19159	1.15 µg/L	-0.010
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.7%		
13C2-PFTeDA	9.871	715.2 -> 670.0	13055	1.23 µg/L	0.003
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C3-PFBS	5.943	302.1 -> 79.9	13221	2.74 µg/L	0.042
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.4%		
13C3-PFHxS	7.501	402.1 -> 79.9	9176	2.90 µg/L	0.015

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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 = 115.8%	
13C4-PFBA	3.097	216.8 -> 171.9	76065	10.16 µg/L	0.022
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C4-PFHpA	6.682	367.1 -> 322.0	32702	2.54 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C5-PFHxA	5.828	318.0 -> 273.0	33477	2.53 µg/L	0.018
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C5-PFPeA	4.647	268.3 -> 223.0	37735	4.93 µg/L	0.032
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C6-PFDA	8.222	519.1 -> 474.1	14393	1.22 µg/L	-0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C7-PFUnDA	8.676	570.0 -> 525.1	15219	1.17 µg/L	-0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C8-FOSA	9.954	506.1 -> 77.8	17552	2.40 µg/L	0.028
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C8-PFOA	7.261	421.1 -> 376.0	54463	2.48 µg/L	0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOS	8.509	507.1 -> 79.9	7831	2.45 µg/L	0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C9-PFNA	7.767	472.1 -> 427.0	15097	1.23 µg/L	0.003
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.1%	
d3-MeFOSAA	8.267	573.2 -> 419.0	19222	4.48 µg/L	0.002
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.6%	
13C3-HFPO-DA	6.155	286.9 -> 168.9	15039	10.16 µg/L	0.005
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
d3-MeFOSA	10.970	515.0 -> 219.0	5714	2.14 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.7%	
d5-EtFOSAA	8.463	589.2 -> 419.0	18927	4.75 µg/L	-0.010
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.0%	
d7-MeFOSE	10.878	623.2 -> 58.9	24375	22.28 µg/L	0.027
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.1%	
d9-EtFOSE	11.112	639.2 -> 58.9	17735	23.39 µg/L	0.015
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.6%	
d5-EtFOSA	11.190	531.1 -> 219.0	7075	2.41 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
Target Compounds					QValue
4:2FTS	5.505	327.1 -> 307.0	33361	9.40 µg/L	98
		327.1 -> 80.9	7923		
6:2FTS	7.036	427.1 -> 407.0	28800	8.96 µg/L	98
		427.1 -> 80.9	6093		
8:2FTS	8.011	527.1 -> 507.0	16321	8.49 µg/L	95
		527.1 -> 80.8	3854		
EtFOSAA	8.464	584.2 -> 419.1	8025	2.52 µg/L	99
		584.2 -> 526.0	4126		
FOSA	9.957	498.1 -> 77.9	16531	2.30 µg/L	98
		498.1 -> 478.0	688		
MeFOSAA	8.268	570.1 -> 419.0	10524	2.59 µg/L	99
		570.1 -> 483.0	1973		
PFBA	3.093	212.8 -> 168.9	19045	9.13 µg/L	100
PFBS	5.944	298.7 -> 79.9	12320	2.22 µg/L	95
		298.7 -> 98.8	5439		
PFDA	8.223	512.9 -> 469.0	40214	2.17 µg/L	93
		512.9 -> 219.0	5322		
PFDODA	9.107	613.1 -> 569.0	37871	2.41 µg/L	94
		613.1 -> 319.0	4196		
PFDS	9.371	599.0 -> 79.9	5446	2.05 µg/L	88

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.682	599.0 -> 98.8	3154	2.34	µg/L	99
		363.1 -> 319.0	49186			
PFHpS	8.030	363.1 -> 169.0	7002	1.97	µg/L	99
		449.0 -> 79.9	7266			
PFHxA	5.831	449.0 -> 98.9	4311	2.32	µg/L	100
		313.0 -> 269.0	30891			
PFHxS	7.502	313.0 -> 118.9	1398	2.03	µg/L	98
		398.7 -> 79.9	9092			
PFNA	7.756	398.7 -> 98.9	4895	2.38	µg/L	97
		463.0 -> 419.0	24806			
PFNS	8.963	463.0 -> 219.0	4843	2.11	µg/L	93
		548.8 -> 79.9	8007			
PFOA	7.263	548.8 -> 98.9	4478	2.24	µg/L	100
		413.0 -> 369.0	61011			
PFOS	8.510	413.0 -> 169.0	8379	1.97	µg/L	99
		498.9 -> 79.9	7658			
PFPeA	4.650	498.9 -> 98.8	4933	4.66	µg/L	100
		263.0 -> 219.0	40902			
PFPeS	6.883	349.1 -> 79.9	10962	2.07	µg/L	94
		349.1 -> 98.9	5846			
PFTeDA	9.859	713.1 -> 669.0	34413	2.11	µg/L	98
		713.1 -> 168.9	2597			
PFTrDA	9.503	663.0 -> 619.0	35562	2.27	µg/L	96
		663.0 -> 168.9	2919			
PFUnDA	8.677	563.1 -> 519.0	35309	2.39	µg/L	99
		563.1 -> 269.1	5188			
11CI-PF3OUdS	9.654	630.9 -> 450.9	83564	9.41	µg/L	92
		632.9 -> 452.9	24941			
9CI-PF3ONS	8.839	530.8 -> 351.0	144405	8.95	µg/L	99
		532.8 -> 353.0	44364			
ADONA	6.918	376.9 -> 250.9	283918	8.99	µg/L	98
		376.9 -> 84.8	65895			
HFPO-DA	6.156	284.9 -> 168.9	14163	9.43	µg/L	99
		284.9 -> 184.9	1752			
3:3FTCA	4.013	241.0 -> 177.0	5053	11.34	µg/L	96
		241.0 -> 117.0	703			
5:3FTCA	6.409	341.0 -> 237.1	168066	57.89	µg/L	95
		341.0 -> 217.0	145950			
7:3FTCA	7.745	441.0 -> 316.9	77865	55.91	µg/L	74
		441.0 -> 336.9	158612			
EtFOSA	11.192	526.0 -> 219.0	7562	2.20	µg/L	99
		526.0 -> 169.0	7570			
EtFOSE	11.126	630.0 -> 58.9	16899	23.33	µg/L	100
		511.9 -> 219.0	7204			
MeFOSA	10.972	511.9 -> 169.0	7620	2.56	µg/L	96
		616.1 -> 58.9	24347			
MeFOSE	10.891	699.1 -> 79.9	3413	24.32	µg/L	100
		699.1 -> 98.8	2138			
PFDoDS	10.073	295.0 -> 201.0	4195	4.58	µg/L	93
		295.0 -> 84.9	1830			
NFDHA	5.697	279.0 -> 85.1	13477	4.58	µg/L	100
		229.0 -> 84.9	11394			
PFMBA	3.729	314.8 -> 134.9	82618	4.44	µg/L	100
		314.8 -> 82.9	1998			
PFEESA	6.424			4.32	µg/L	99

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



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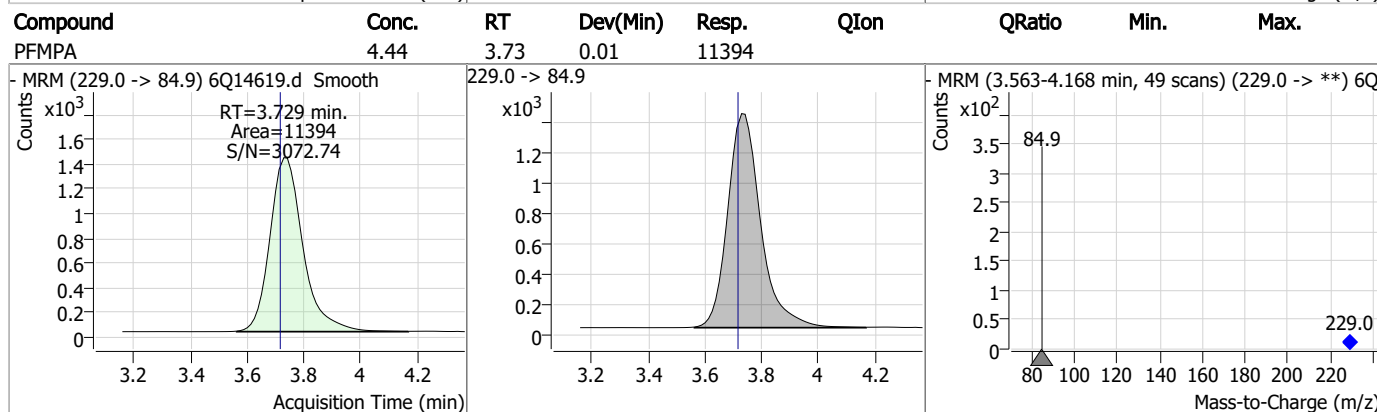
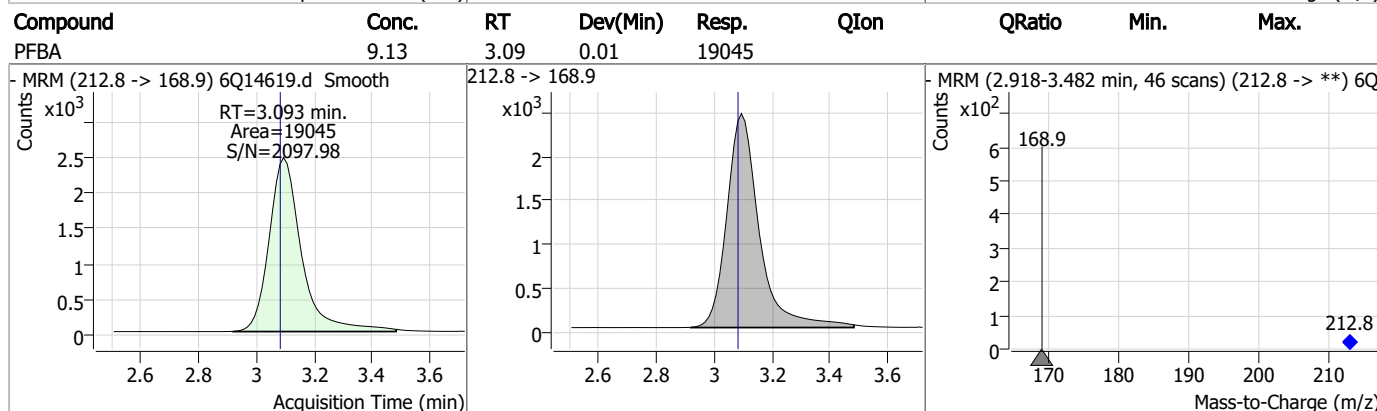
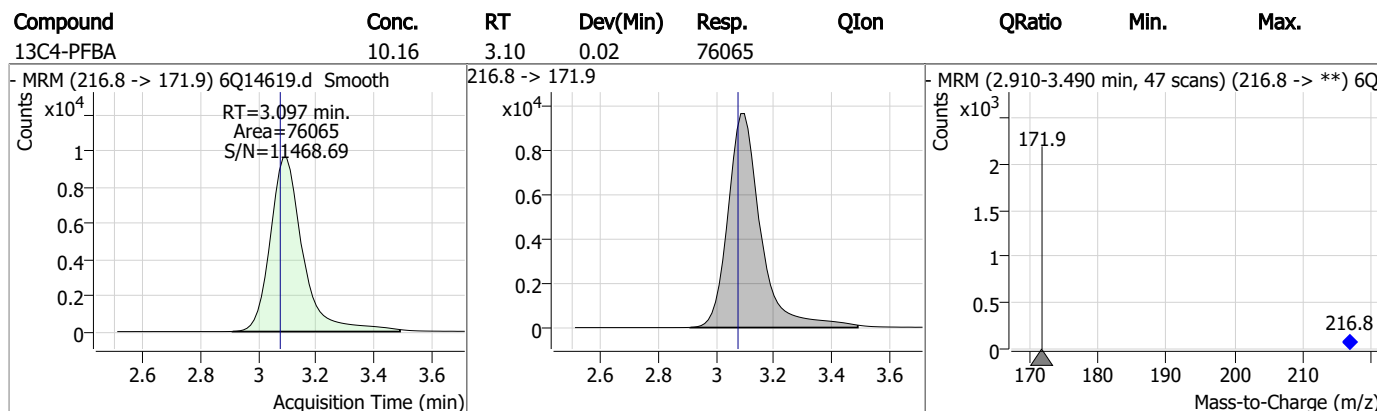
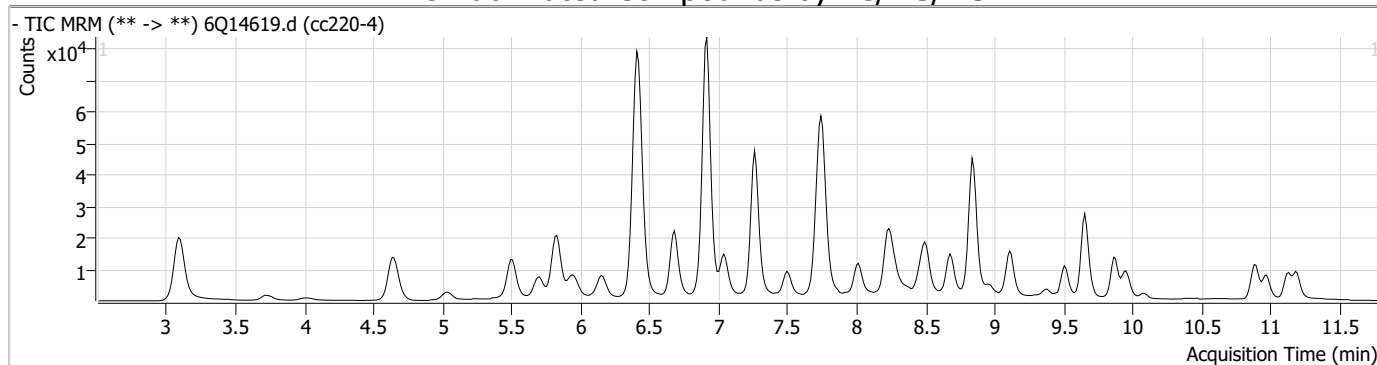
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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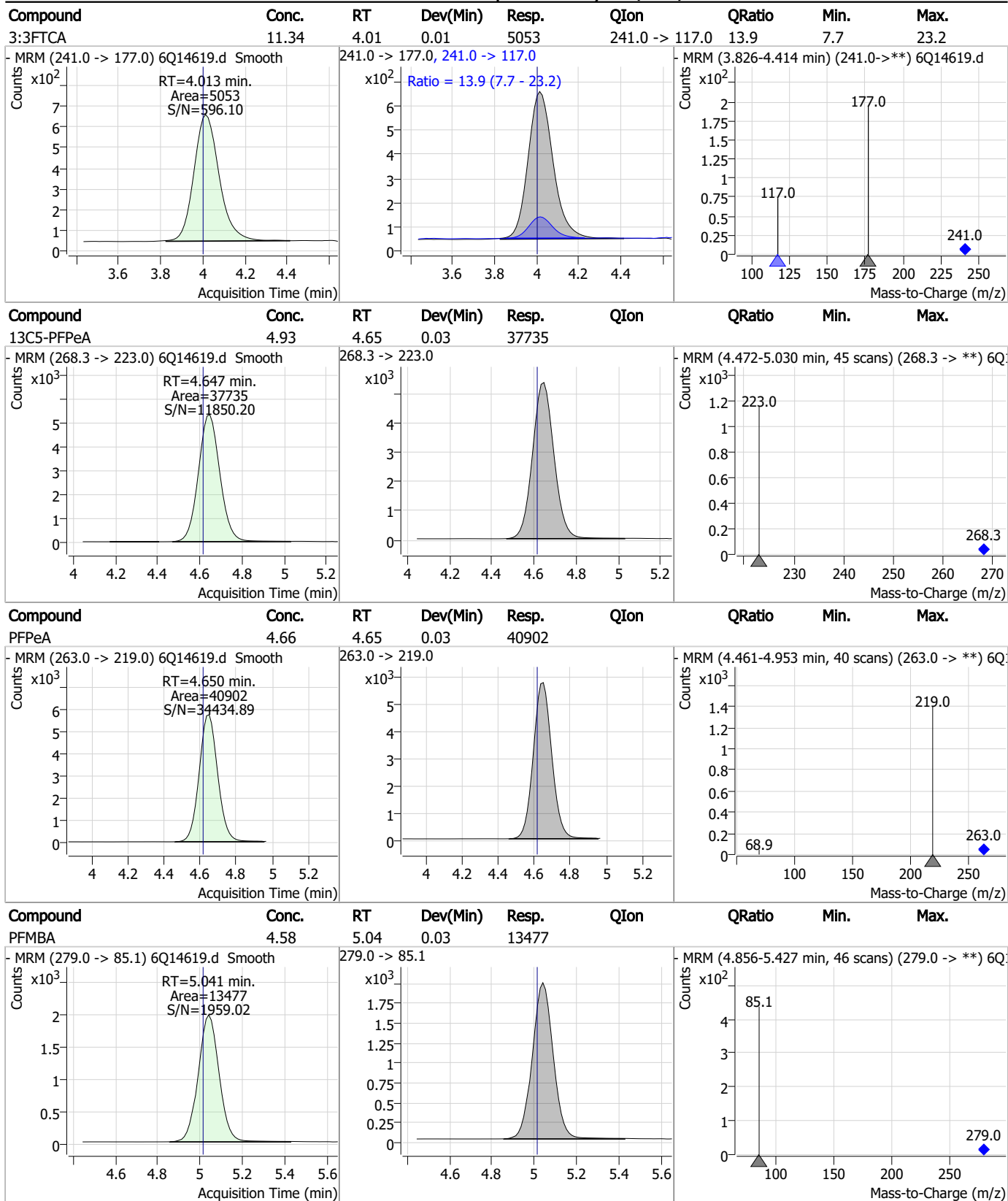
7.8.17

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Perfluorinated Compounds by LC/MS/MS

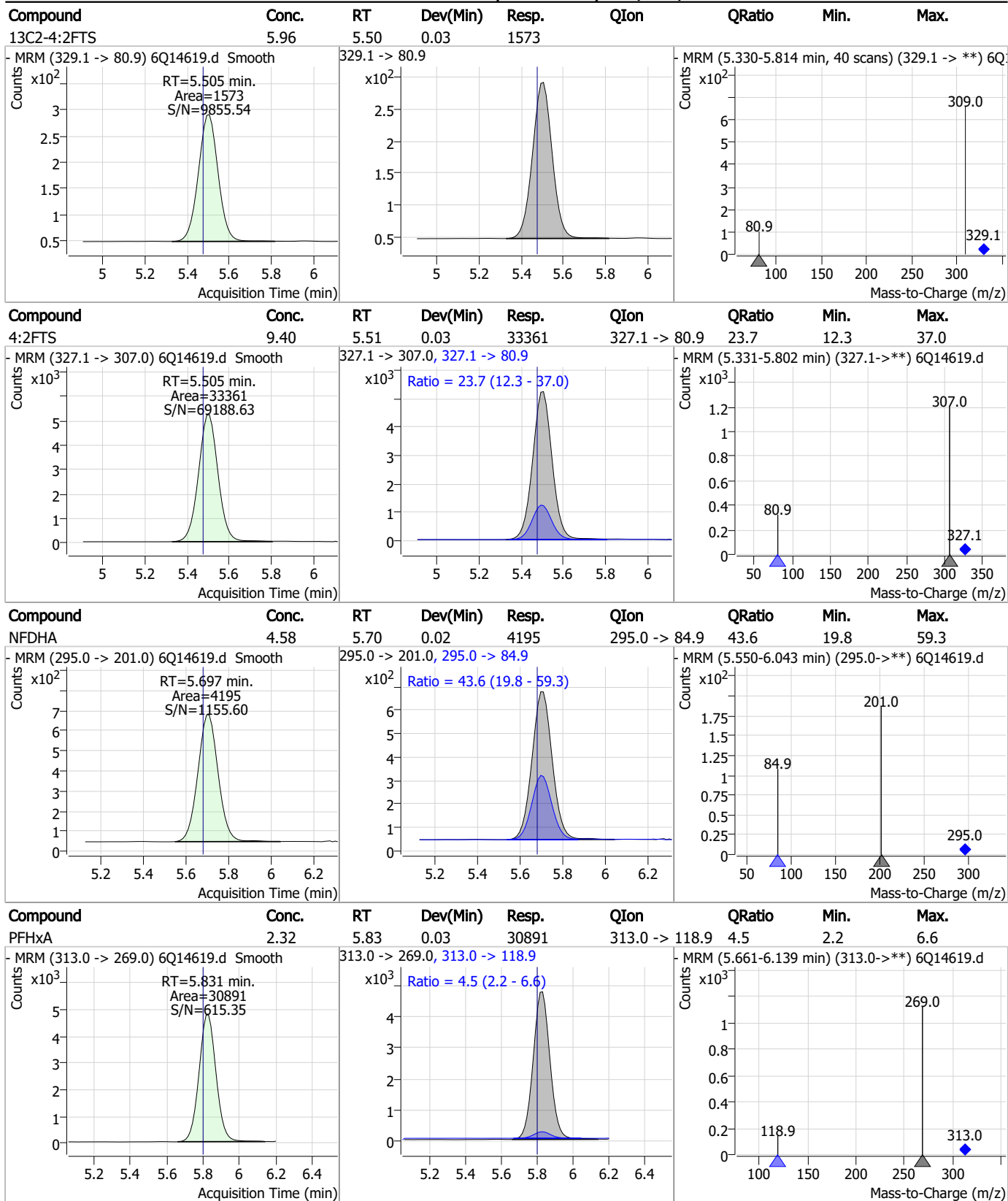


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

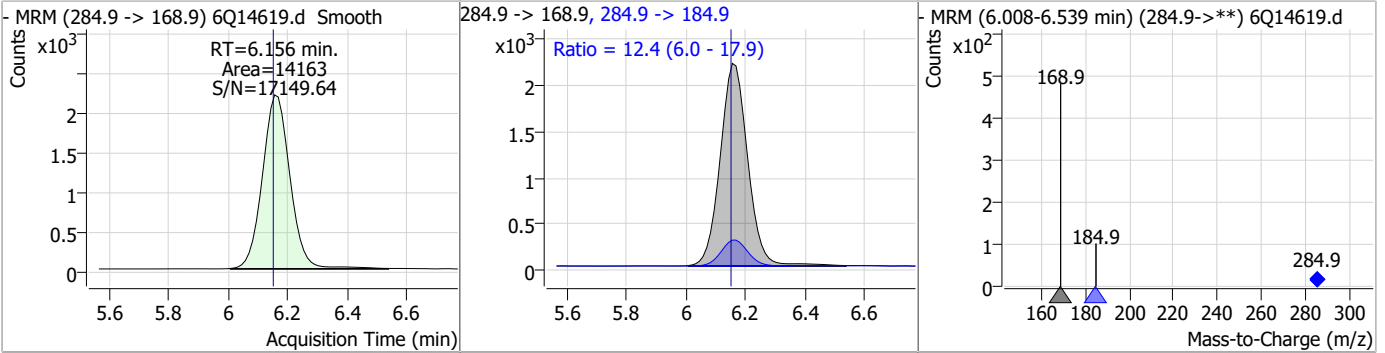
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.53	5.83	0.02	33477				
- MRM (318.0 -> 273.0) 6Q14619.d Smooth Counts x10 ³ RT=5.828 min. Area=33477 S/N=1968.65 Acquisition Time (min)			318.0 -> 273.0 Counts x10 ³ Acquisition Time (min)			- MRM (5.655-6.075 min, 35 scans) (318.0 -> **) 6Q14619.d Counts x10 ³ 273.0 120.3 318.0 Mass-to-Charge (m/z)		
13C3-PFBS	2.74	5.94	0.04	13221				
- MRM (302.1 -> 79.9) 6Q14619.d Smooth Counts x10 ³ RT=5.943 min. Area=13221 S/N=638.90 Acquisition Time (min)			302.1 -> 79.9 Counts x10 ³ Acquisition Time (min)			- MRM (5.782-6.251 min, 39 scans) (302.1 -> **) 6Q14619.d Counts x10 ² 79.9 98.9 302.1 Mass-to-Charge (m/z)		
PFBS	2.22	5.94	0.04	12320	298.7 -> 98.8	44.1	20.4	61.1
- MRM (298.7 -> 79.9) 6Q14619.d Smooth Counts x10 ³ RT=5.944 min. Area=12320 S/N=13348.16 Acquisition Time (min)			298.7 -> 79.9, 298.7 -> 98.8 Counts x10 ³ Ratio = 44.1 (20.4 - 61.1) Acquisition Time (min)			- MRM (5.783-6.328 min) (298.7->**) 6Q14619.d Counts x10 ² 79.9 98.8 298.7 Mass-to-Charge (m/z)		
13C3-HFPO-DA	10.16	6.16	0.00	15039				
- MRM (286.9 -> 168.9) 6Q14619.d Smooth Counts x10 ³ RT=6.155 min. Area=15039 S/N=3116.62 Acquisition Time (min)			286.9 -> 168.9 Counts x10 ³ Acquisition Time (min)			- MRM (6.008-6.538 min, 44 scans) (286.9 -> **) 6Q14619.d Counts x10 ² 168.9 184.9 286.9 Mass-to-Charge (m/z)		

7.8.17

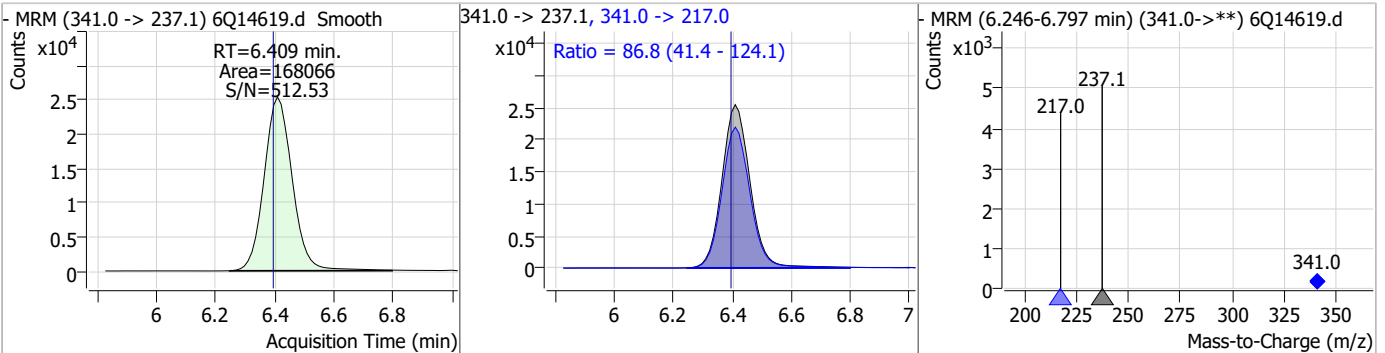


Perfluorinated Compounds by LC/MS/MS

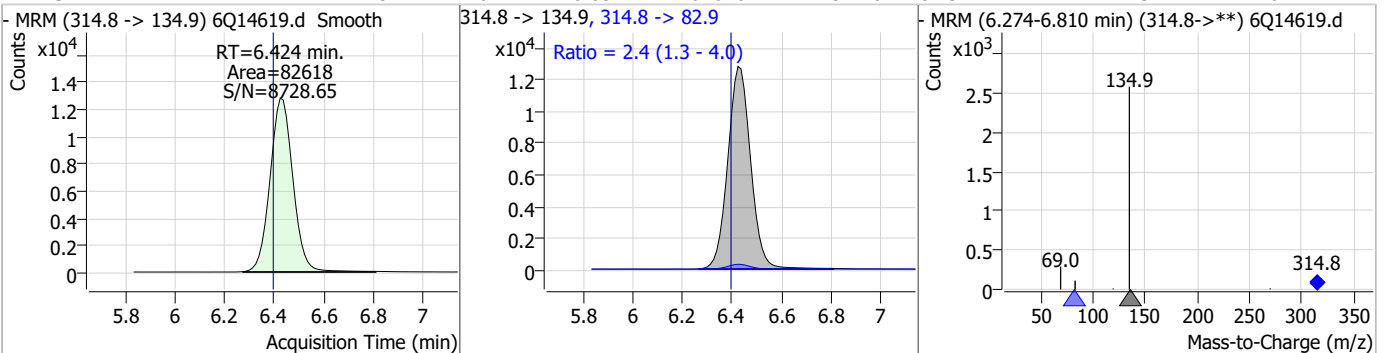
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.43	6.16	0.00	14163	284.9 -> 184.9	12.4	6.0	17.9



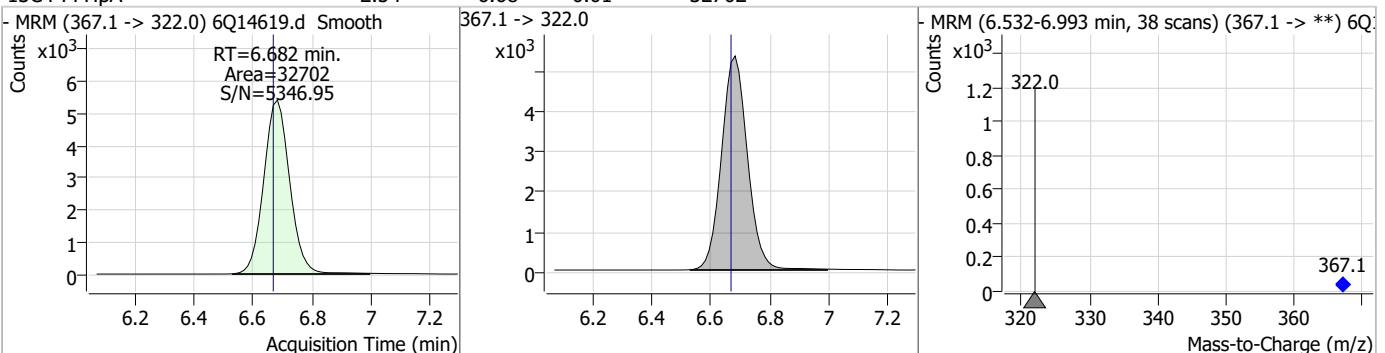
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	57.89	6.41	0.01	168066	341.0 -> 217.0	86.8	41.4	124.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.32	6.42	0.03	82618	314.8 -> 82.9	2.4	1.3	4.0

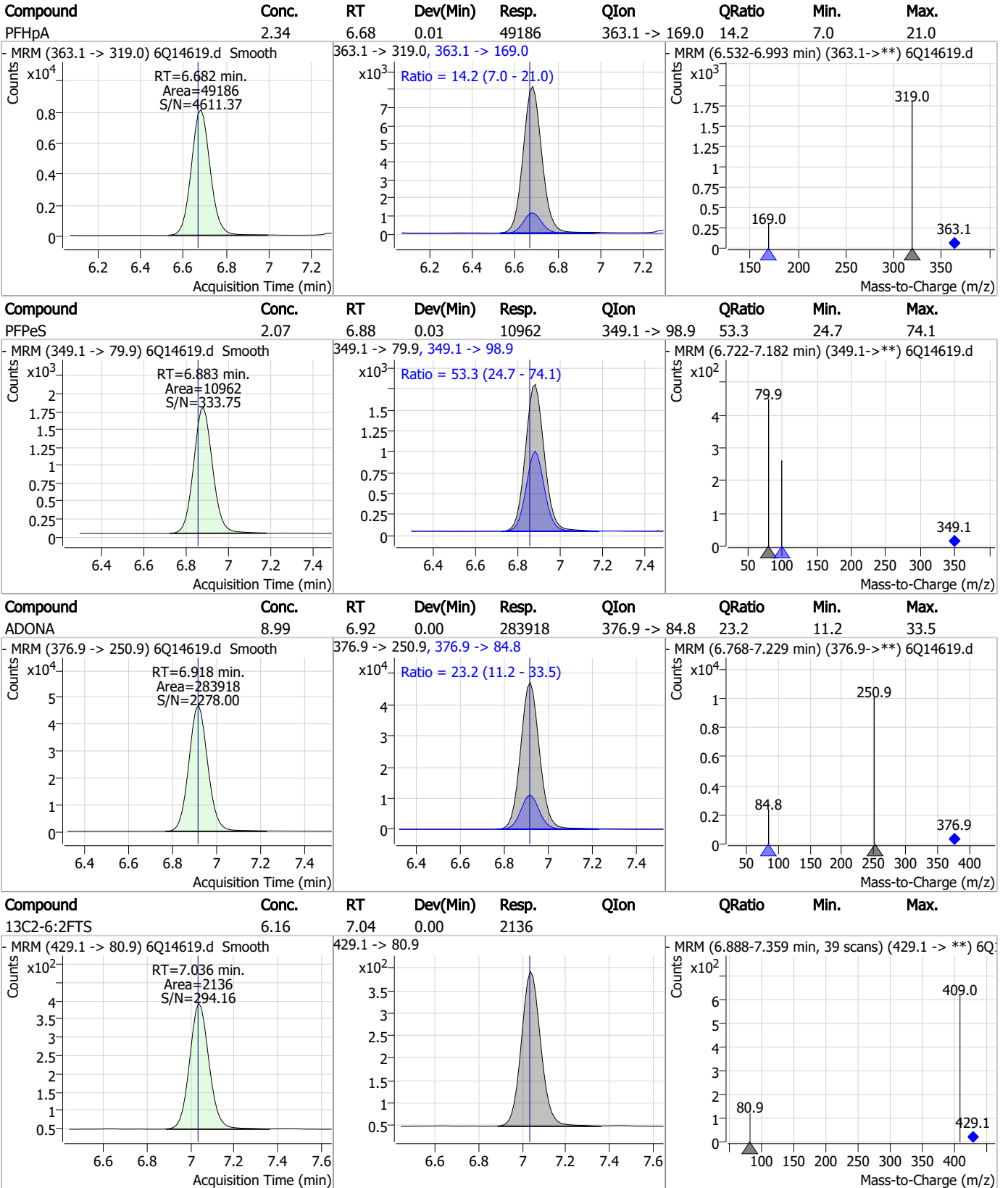


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.54	6.68	0.01	32702	367.1 -> 322.0			



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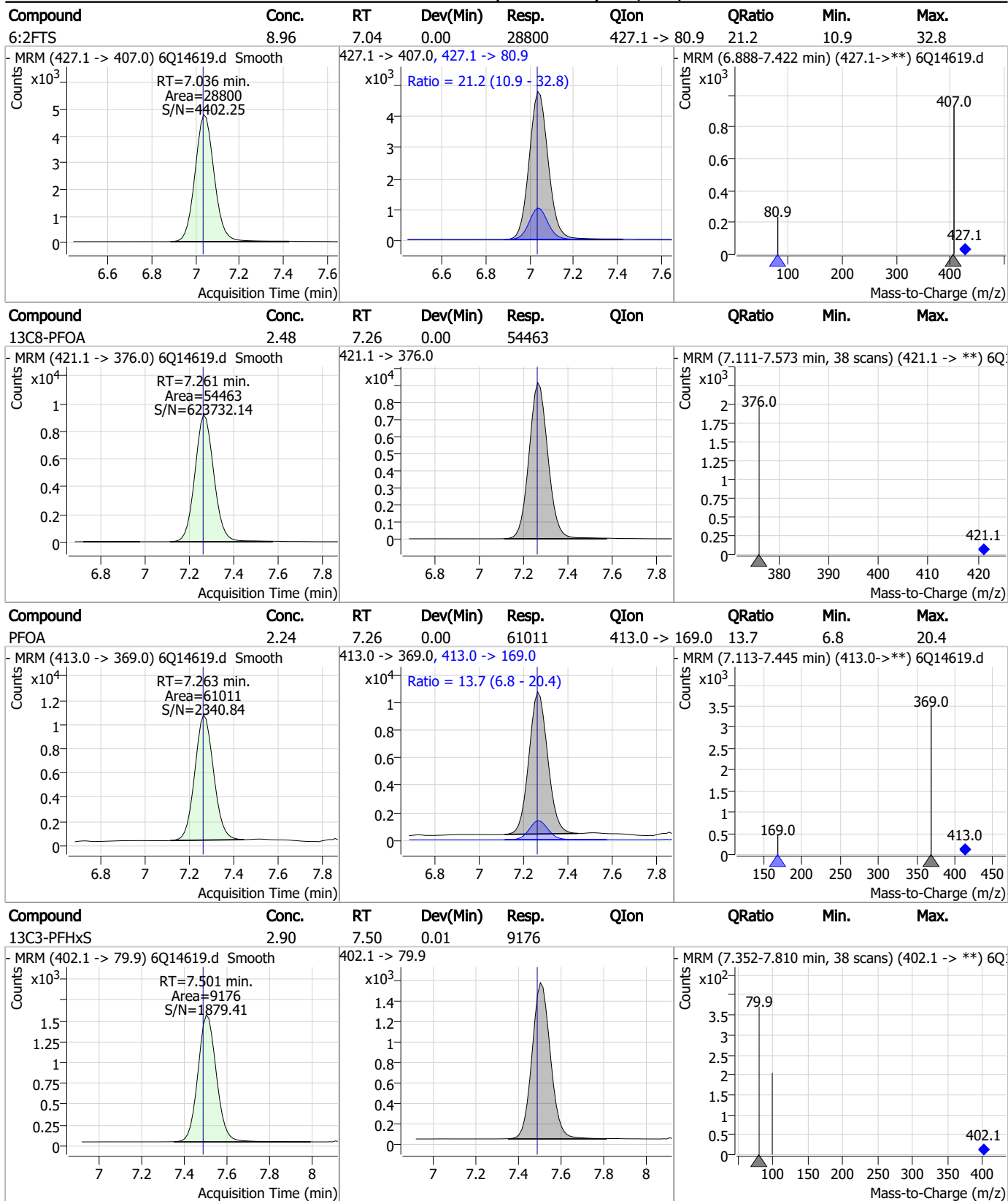
Perfluorinated Compounds by LC/MS/MS



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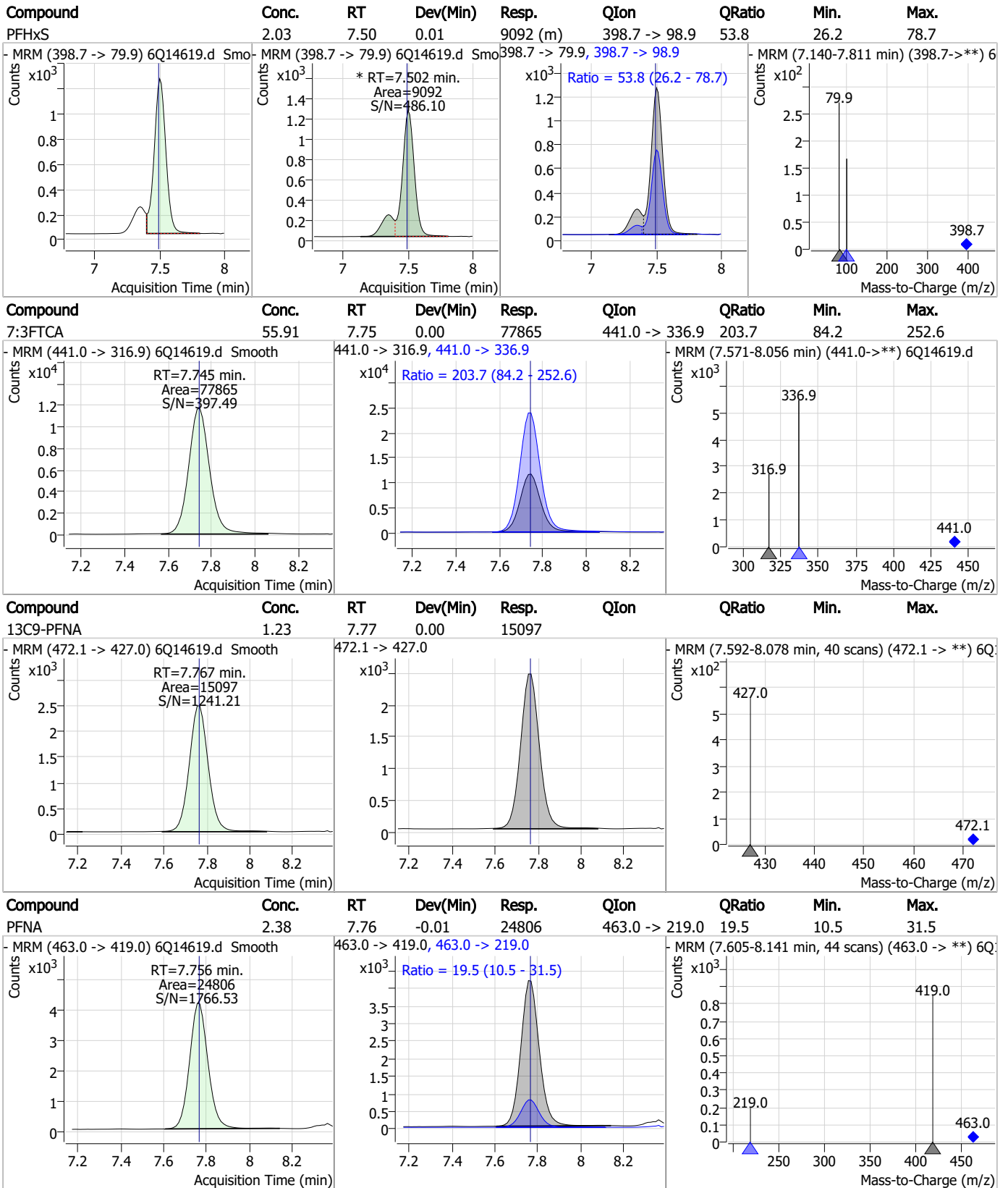
Perfluorinated Compounds by LC/MS/MS



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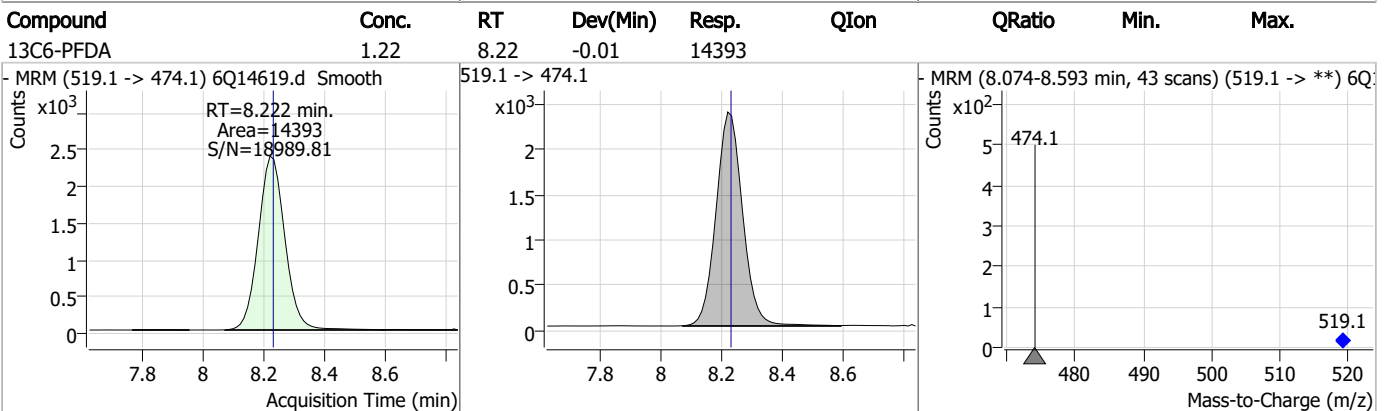
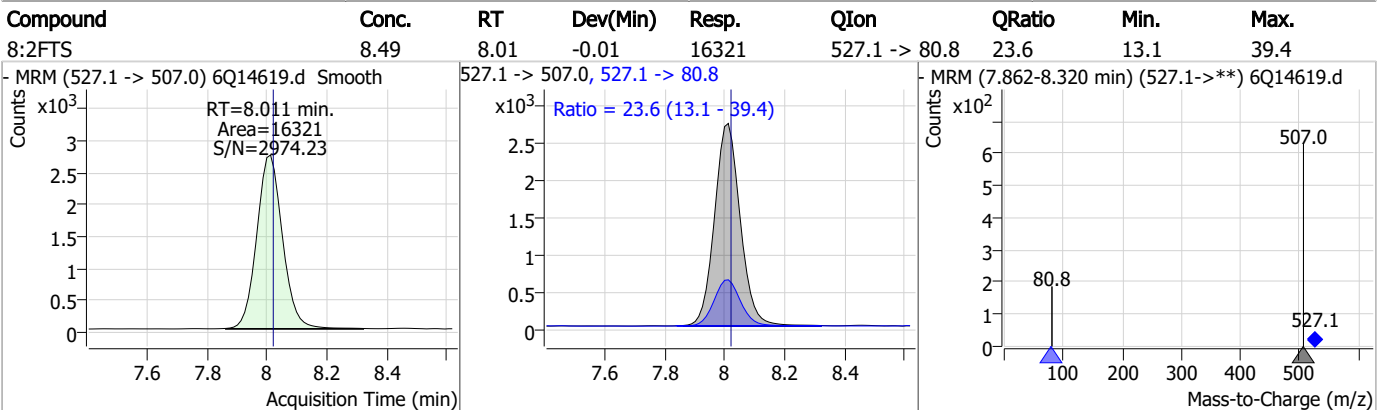
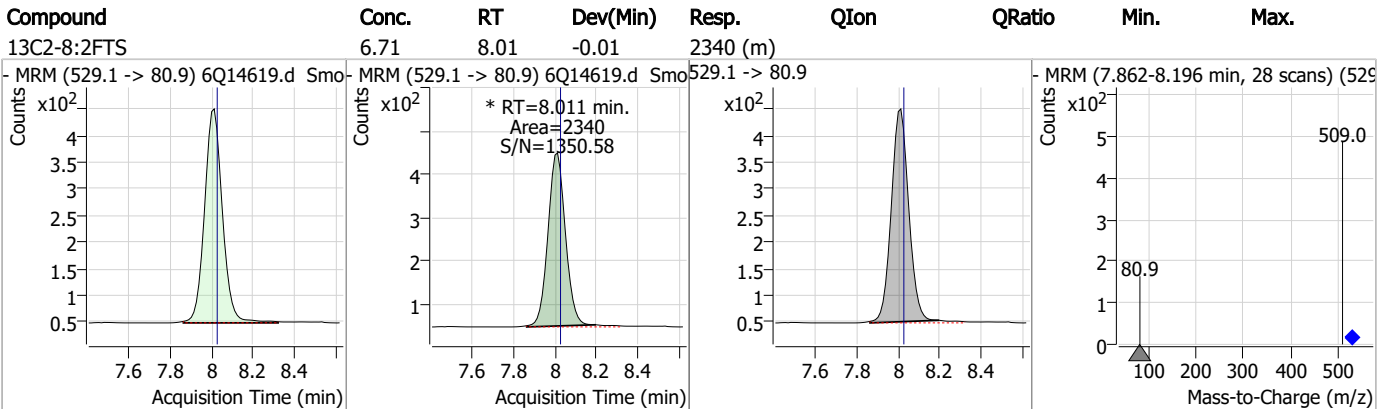
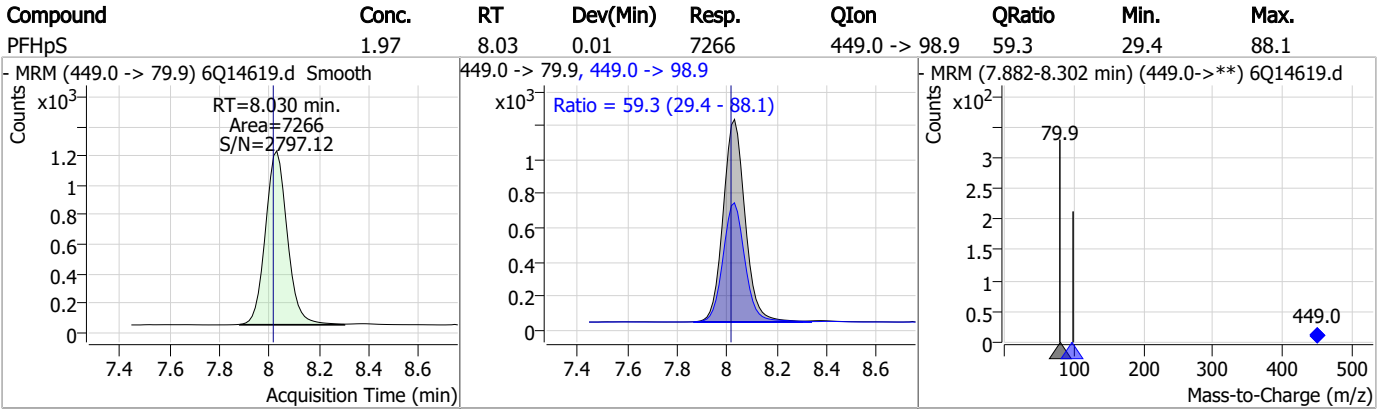
Perfluorinated Compounds by LC/MS/MS



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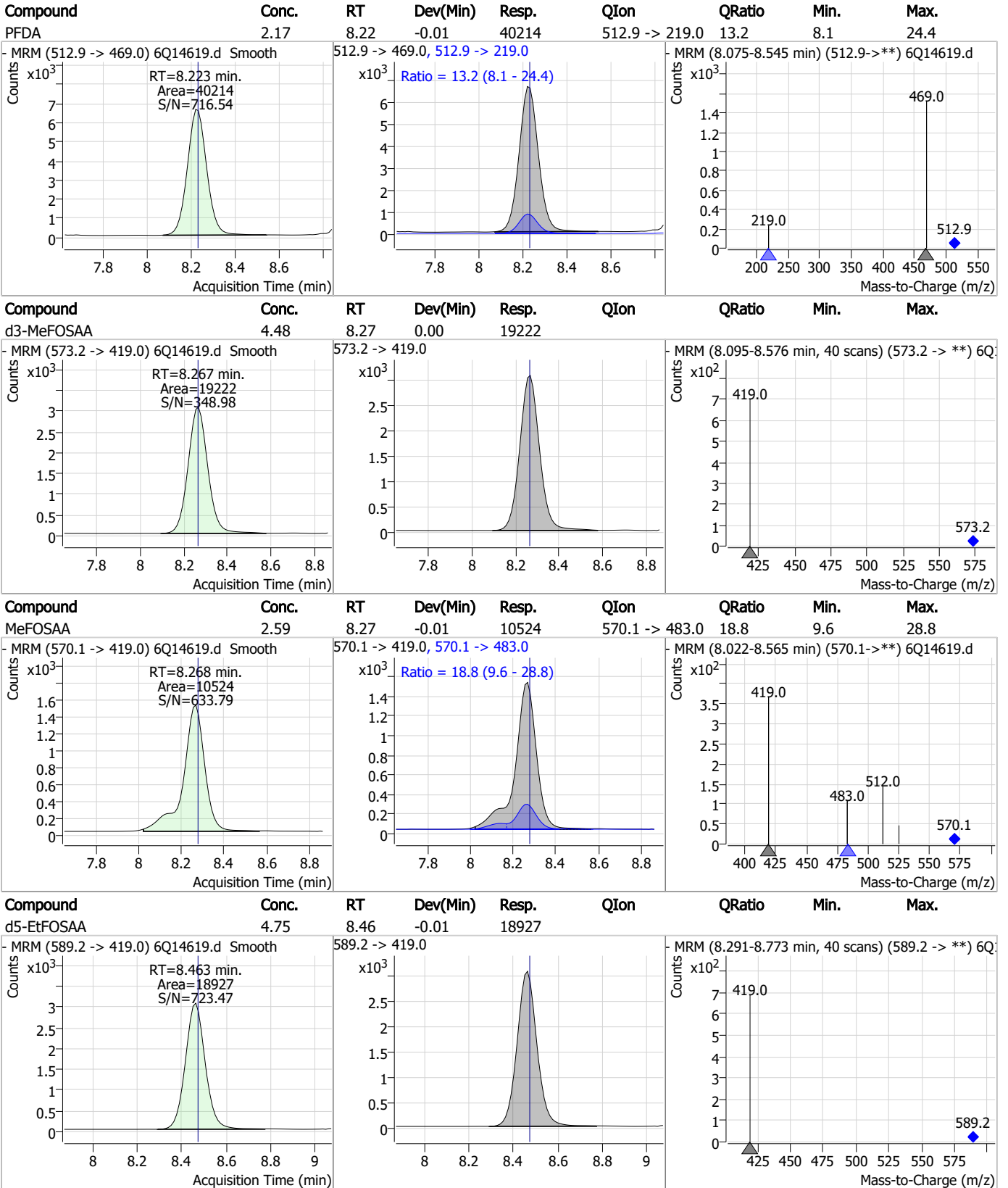


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

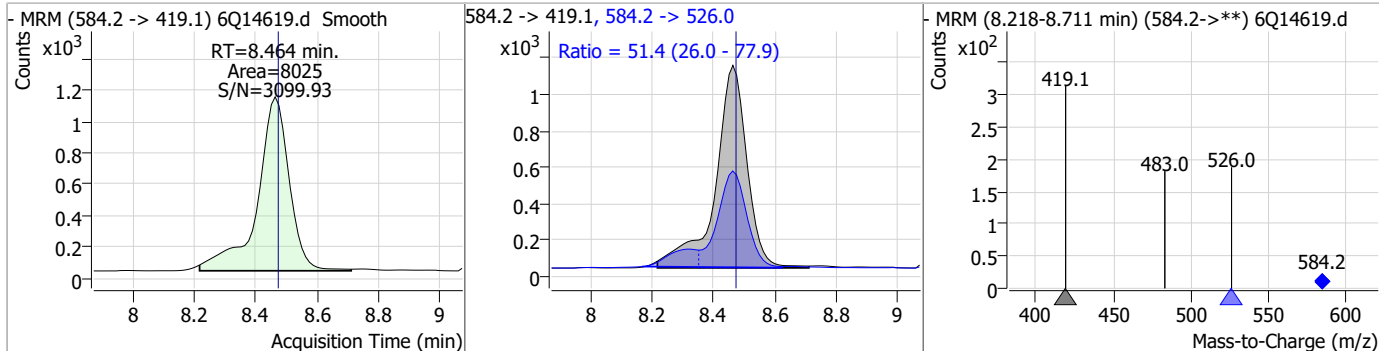


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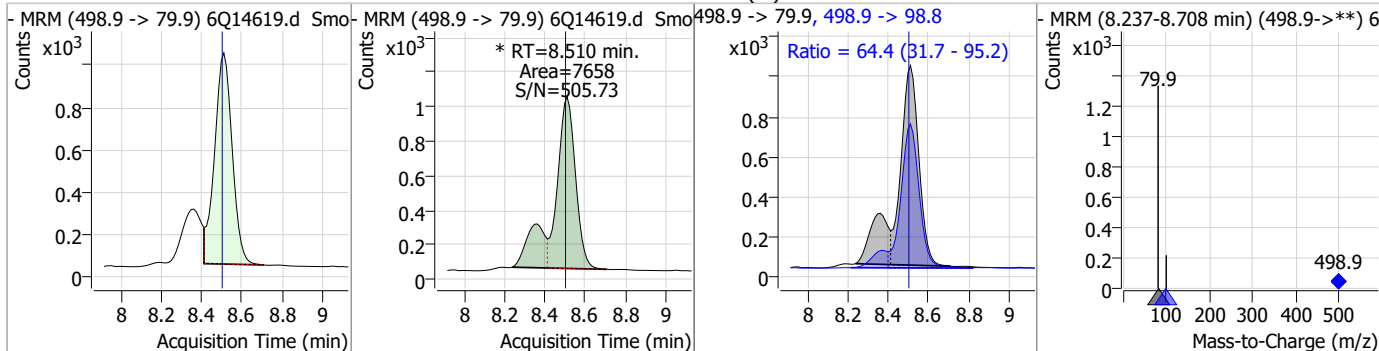


Perfluorinated Compounds by LC/MS/MS

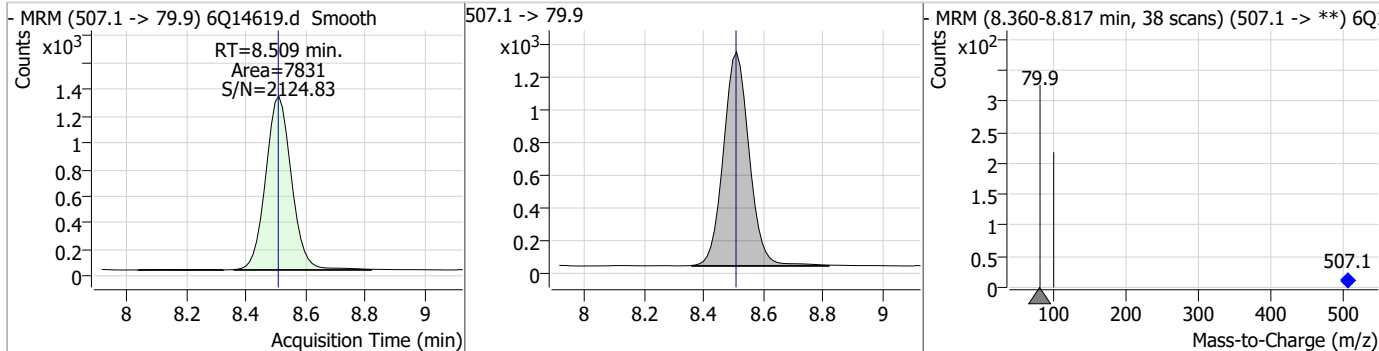
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.52	8.46	-0.01	8025	584.2 -> 526.0	51.4	26.0	77.9



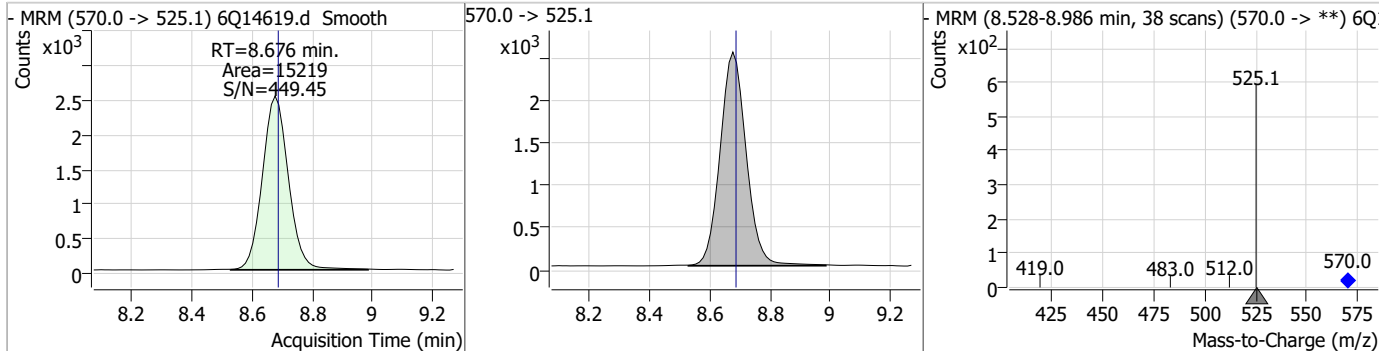
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.97	8.51	0.01	7658 (m)	498.9 -> 98.8	64.4	31.7	95.2



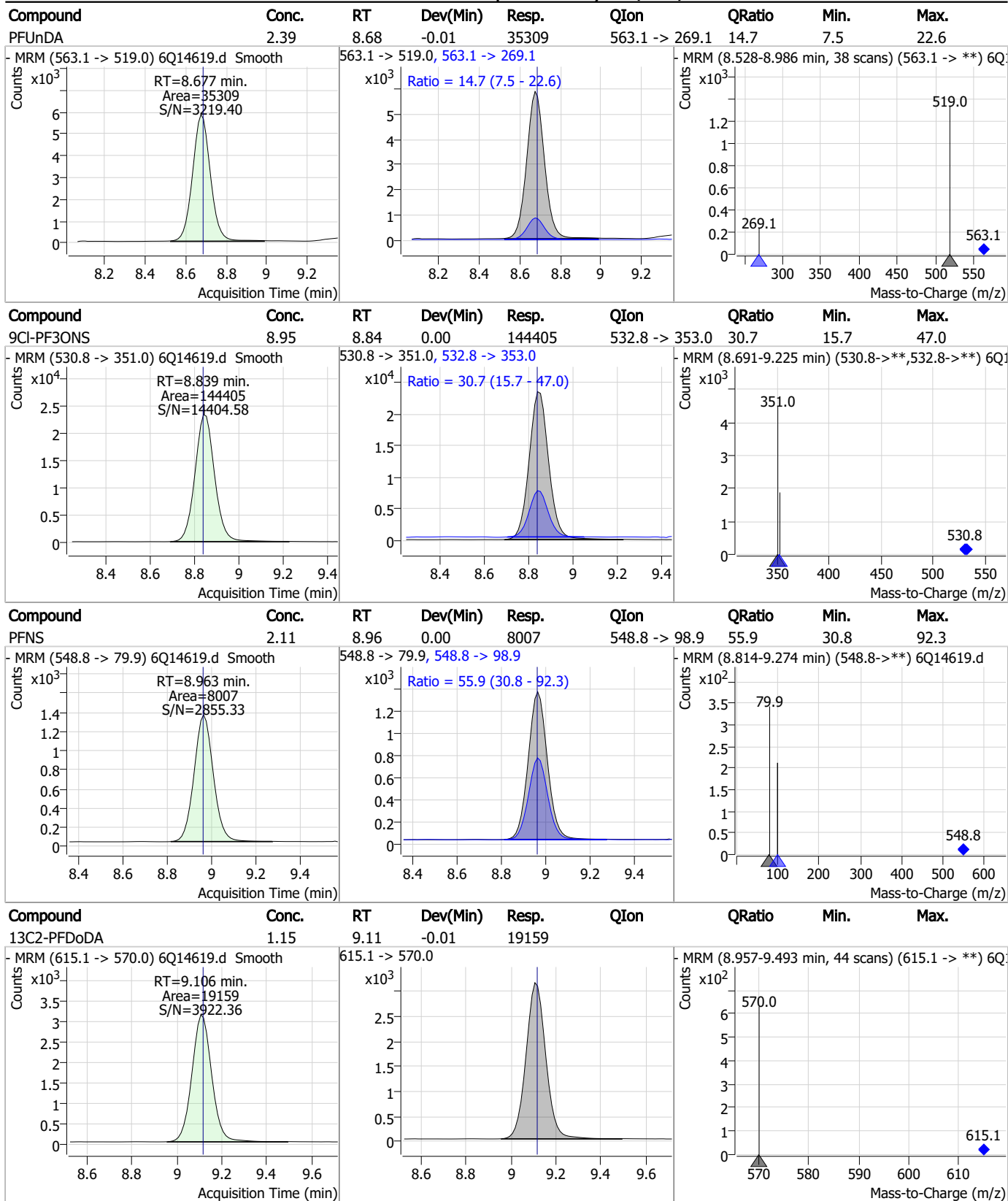
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.45	8.51	0.00	7831				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.17	8.68	-0.01	15219				



Perfluorinated Compounds by LC/MS/MS

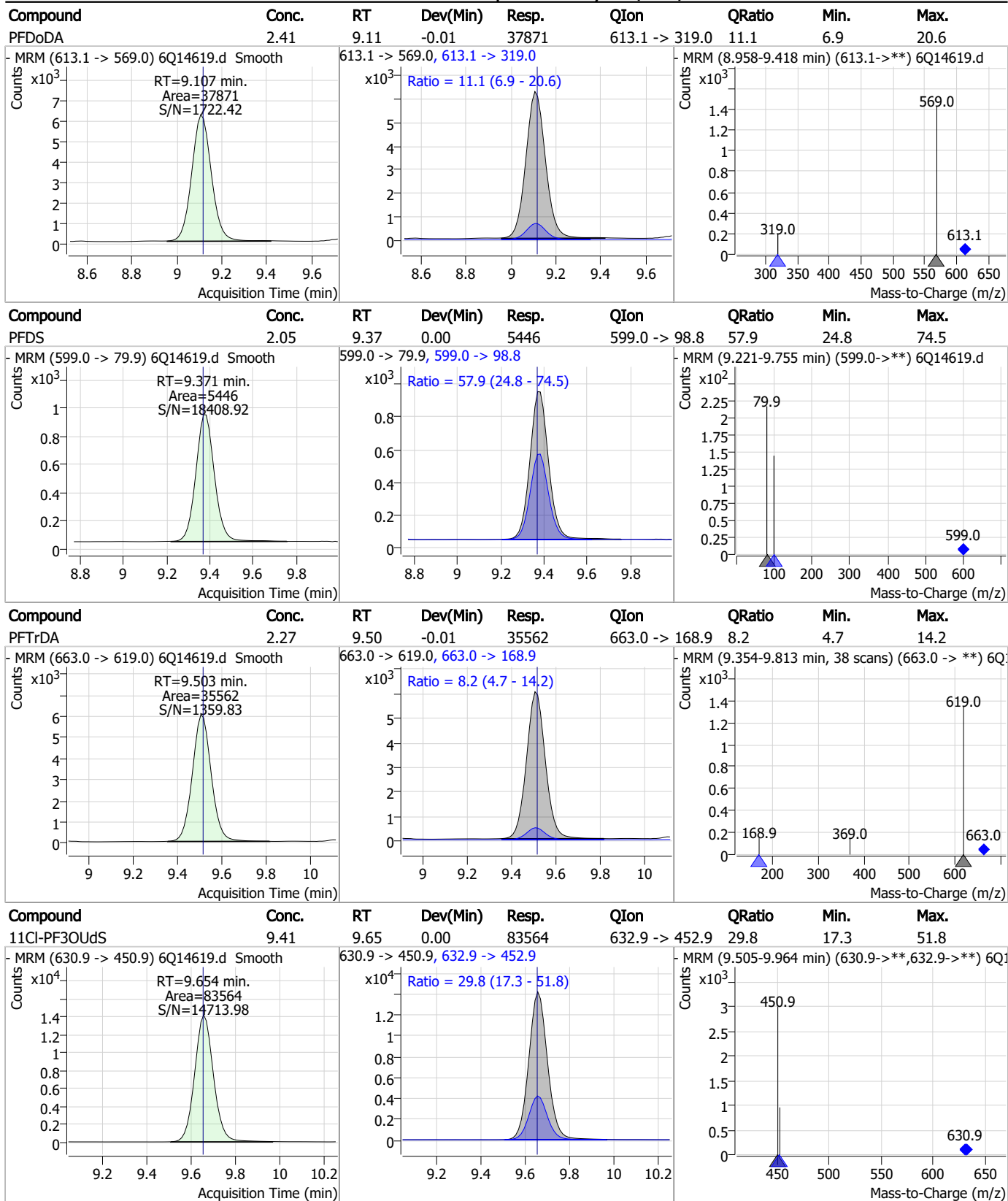


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Perfluorinated Compounds by LC/MS/MS



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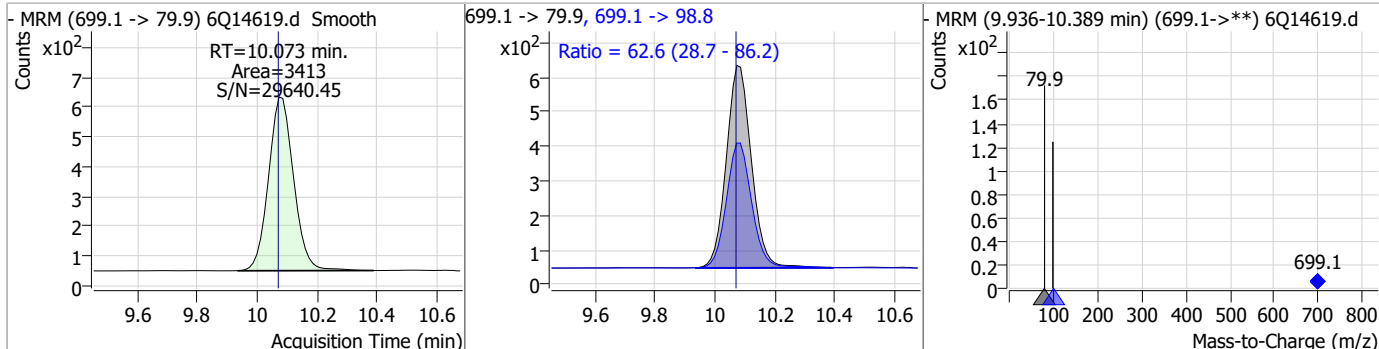
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.23	9.87	0.00	13055				
PFTeDA	2.11	9.86	-0.01	34413	713.1 -> 168.9	7.5	3.4	10.2
13C8-FOSA	2.40	9.95	0.03	17552				
FOSA	2.30	9.96	0.03	16531	498.1 -> 478.0	4.2	1.8	5.4

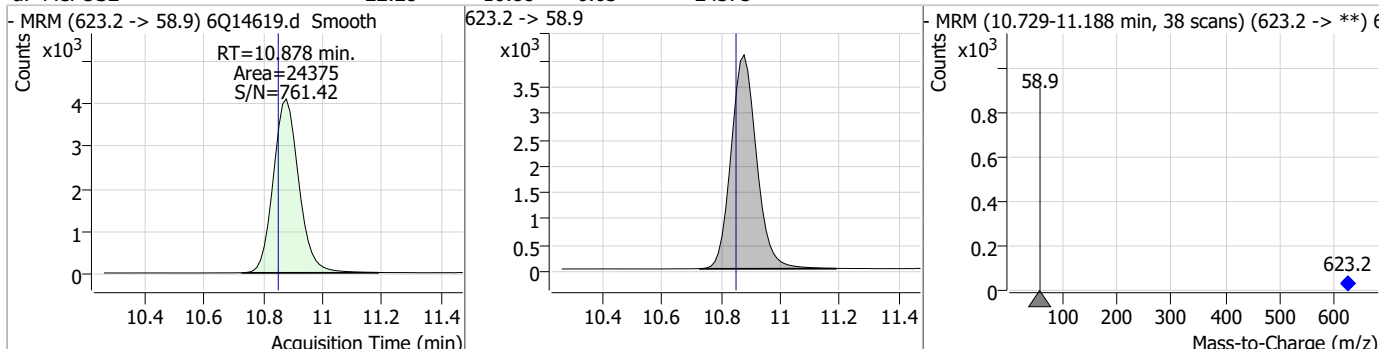
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Perfluorinated Compounds by LC/MS/MS

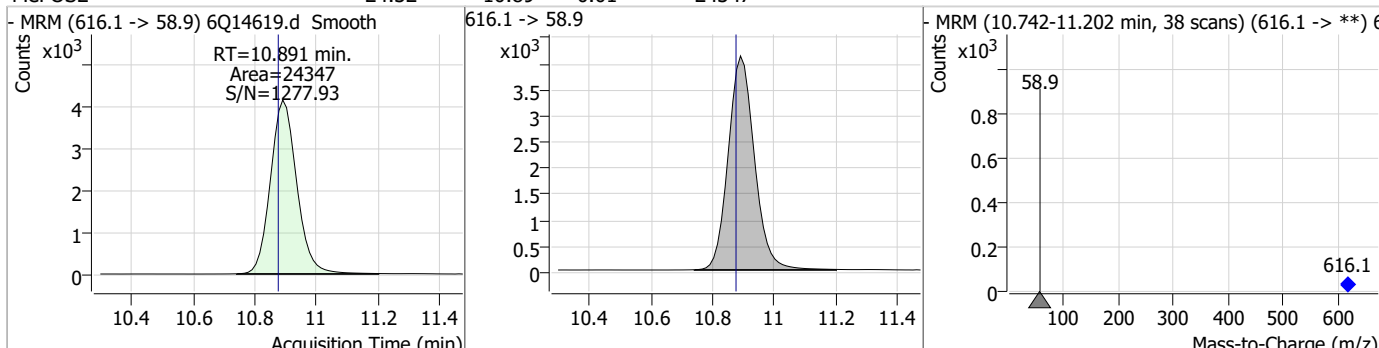
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.12	10.07	0.00	3413	699.1 -> 98.8	62.6	28.7	86.2



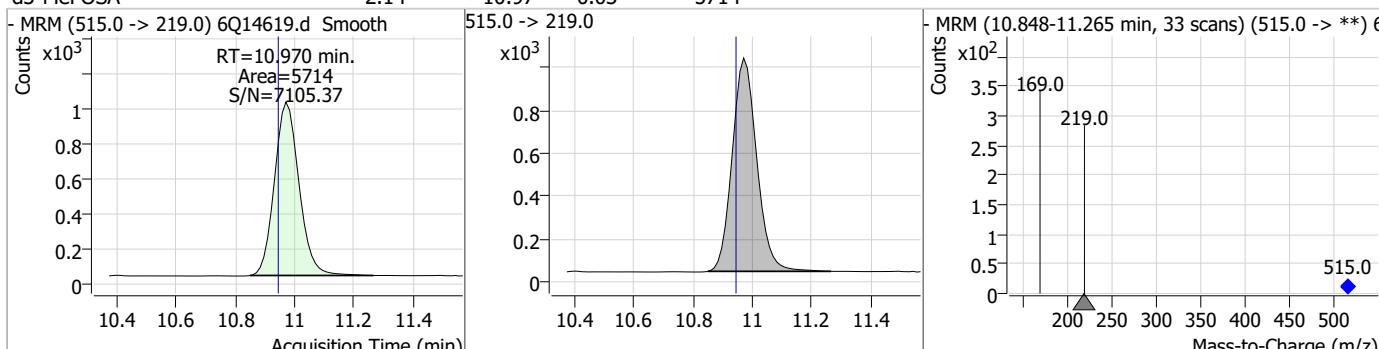
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.28	10.88	0.03	24375				



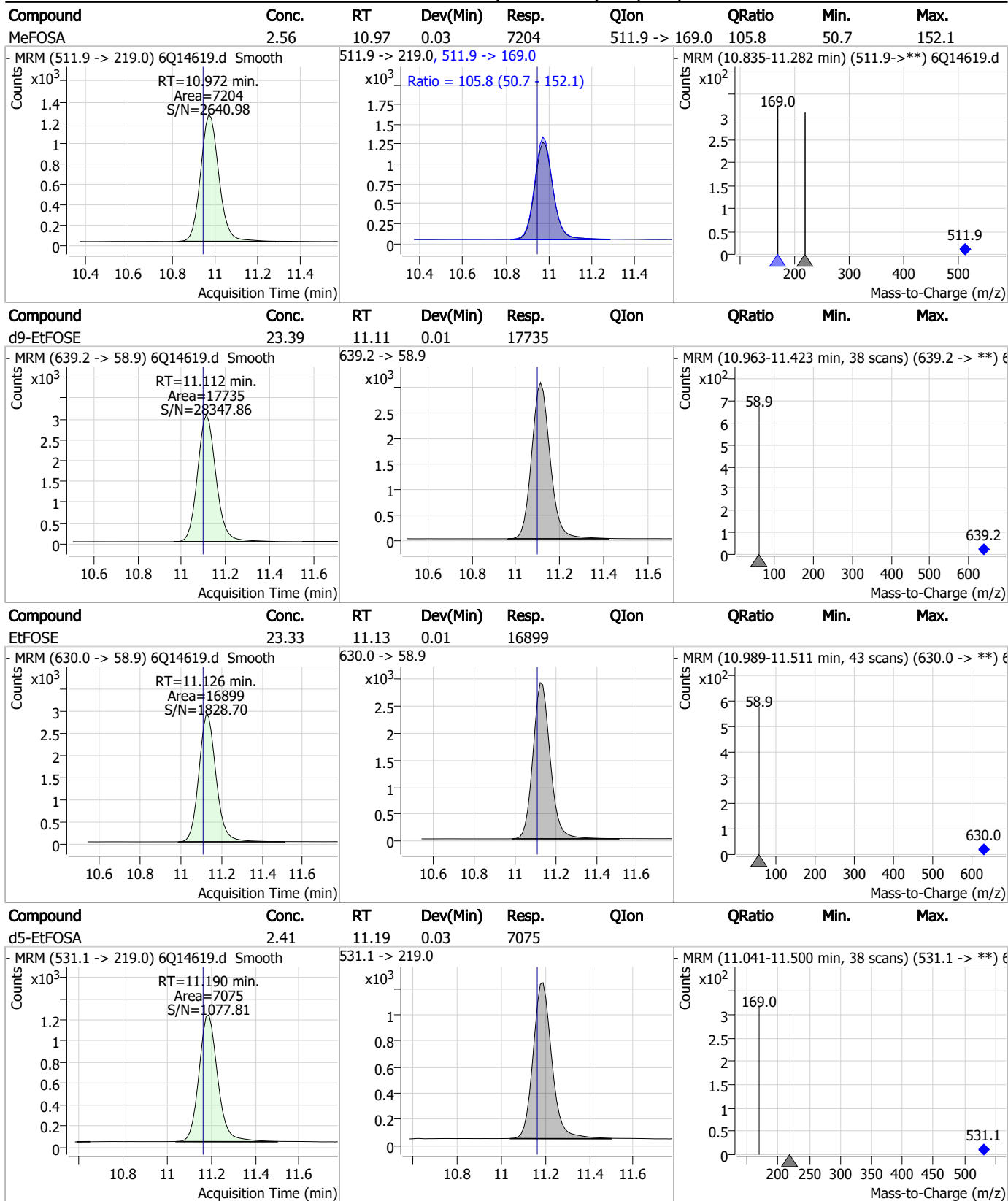
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	24.32	10.89	0.01	24347				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.14	10.97	0.03	5714				

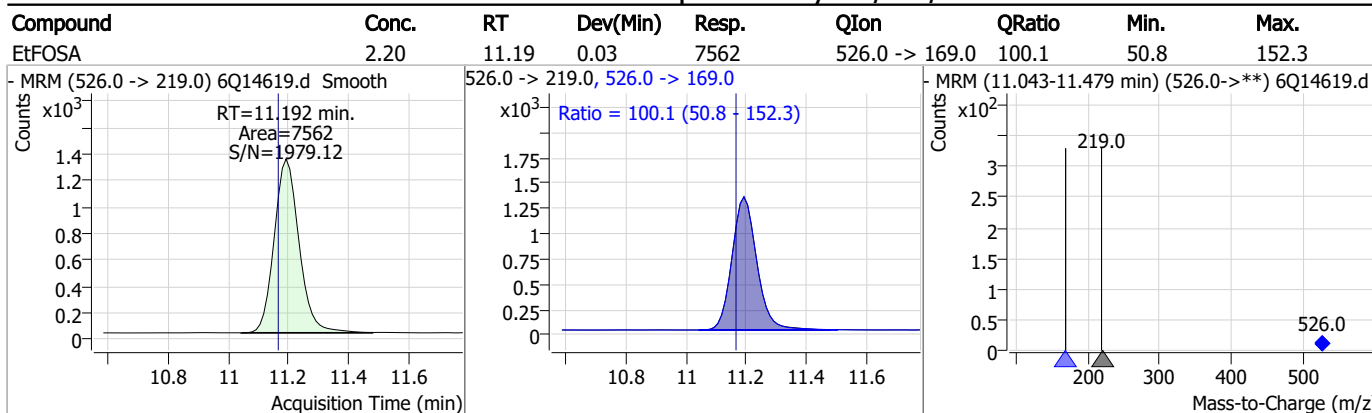


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q221-CC220 Method: EPA DRAFT 1633
Lab FileID: 6Q14619.D Analyst approved: 03/10/23 10:37 Anna Ludwig
Injection Time: 03/09/23 13:09 Supervisor approved: 03/10/23 14:34 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.50	Split peak
13C2-8:2FTS			8.01	Poor instrument integration
Perfluorooctanesulfonic acid	1763-23-1		8.51	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14620.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/9/2023 1:30:22 PM
 Sample Name : cc220-1.0LL
 Vial : P1-A2
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q221.batch.bin
 Sample Information : OP95772,S6Q221,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.122	216.8 -> 171.9	69720	10.00 µg/L	0.047
M5-PFPeA	4.660	268.3 -> 223.0	35733	5.00 µg/L	0.044
M5-PFHxA	5.828	318.0 -> 273.0	31234	2.50 µg/L	0.018
M4-PFHpA	6.682	367.1 -> 322.0	30755	2.50 µg/L	0.014
M8-PFOA	7.274	421.1 -> 376.0	51797	2.50 µg/L	0.014
M9-PFNA	7.767	472.1 -> 427.0	12134	1.25 µg/L	0.003
M6-PFDA	8.234	519.1 -> 474.1	13391	1.25 µg/L	0.002
M7-PFUnDA	8.689	570.0 -> 525.1	14085	1.25 µg/L	0.002
M2-PFDoDA	9.119	615.1 -> 570.0	17380	1.25 µg/L	0.002
M2-PFTeDA	9.871	715.2 -> 670.0	12037	1.25 µg/L	0.003
M8-FOSA	9.966	506.1 -> 77.8	17239	2.50 µg/L	0.040
M3-PFBS	5.956	302.1 -> 79.9	12987	2.50 µg/L	0.055
M3-PFHxS	7.513	402.1 -> 79.9	7705	2.50 µg/L	0.027
M8-PFOS	8.521	507.1 -> 79.9	7669	2.50 µg/L	0.014
M2-4:2FTS	5.505	329.1 -> 80.9	1554	5.00 µg/L	0.029
M2-6:2FTS	7.048	429.1 -> 80.9	1856	5.00 µg/L	0.015
M2-8:2FTS	8.011	529.1 -> 80.9	2216	5.00 µg/L	-0.009
M3-MeFOSAA	8.267	573.2 -> 419.0	18701	5.00 µg/L	0.002
M3-HFPO-DA	6.168	286.9 -> 168.9	14256	10.00 µg/L	0.017
M5-EtFOSAA	8.475	589.2 -> 419.0	18655	5.00 µg/L	0.002
M7-MeFOSE	10.878	623.2 -> 58.9	23984	25.00 µg/L	0.027
M9-EtFOSE	11.112	639.2 -> 58.9	16634	25.00 µg/L	0.015
M5-EtFOSA	11.190	531.1 -> 219.0	6771	2.50 µg/L	0.026
M3-MeFOSA	10.970	515.0 -> 219.0	6052	2.50 µg/L	0.026
13C4-PFOS	8.522	502.8 -> 79.9	8326	2.50 µg/L	0.026
13C3-PFBA	3.126	216.0 -> 172.0	30505	5.00 µg/L	0.048
18O2-PFHxS	7.512	403.0 -> 83.9	5402	2.50 µg/L	0.015
13C4-PFOA	7.274	417.1 -> 372.0	62008	2.50 µg/L	0.014
13C2-PFDA	8.235	515.1 -> 470.1	18607	1.25 µg/L	0.002
13C5-PFNA	7.768	468.0 -> 423.0	12575	1.25 µg/L	0.003
13C2-PFHxA	5.829	315.1 -> 270.0	30579	2.50 µg/L	0.030
System Monitoring Compounds					
13C2-4:2FTS	5.505	329.1 -> 80.9	1554	6.04 µg/L	0.029
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.8%		
13C2-6:2FTS	7.048	429.1 -> 80.9	1856	5.49 µg/L	0.015
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.8%		
13C2-8:2FTS	8.011	529.1 -> 80.9	2179	6.40 µg/L	m -0.009
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.1%		
13C2-PFDoDA	9.119	615.1 -> 570.0	17380	1.10 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.2%		
13C2-PFTeDA	9.871	715.2 -> 670.0	12037	1.20 µg/L	0.003
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C3-PFBS	5.956	302.1 -> 79.9	12987	2.76 µg/L	0.055
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C3-PFHxS	7.513	402.1 -> 79.9	7705	2.49 µg/L	0.027

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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 = 99.7%	
13C4-PFBA	3.122	216.8 -> 171.9	69720	9.95 µg/L	0.047
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.682	367.1 -> 322.0	30755	2.52 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C5-PFHxA	5.828	318.0 -> 273.0	31234	2.49 µg/L	0.018
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C5-PFPeA	4.660	268.3 -> 223.0	35733	4.93 µg/L	0.044
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C6-PFDA	8.234	519.1 -> 474.1	13391	1.20 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C7-PFUnDA	8.689	570.0 -> 525.1	14085	1.15 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C8-FOSA	9.966	506.1 -> 77.8	17239	2.64 µg/L	0.040
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C8-PFOA	7.274	421.1 -> 376.0	51797	2.51 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C8-PFOS	8.521	507.1 -> 79.9	7669	2.69 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C9-PFNA	7.767	472.1 -> 427.0	12134	1.25 µg/L	0.003
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.1%	
d3-MeFOSAA	8.267	573.2 -> 419.0	18701	4.88 µg/L	0.002
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C3-HFPO-DA	6.168	286.9 -> 168.9	14256	10.18 µg/L	0.017
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
d3-MeFOSA	10.970	515.0 -> 219.0	6052	2.54 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
d5-EtFOSAA	8.475	589.2 -> 419.0	18655	5.24 µg/L	0.002
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
d7-MeFOSE	10.878	623.2 -> 58.9	23984	24.54 µg/L	0.027
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
d9-EtFOSE	11.112	639.2 -> 58.9	16634	24.55 µg/L	0.015
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d5-EtFOSA	11.190	531.1 -> 219.0	6771	2.58 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
Target Compounds					QValue
4:2FTS	5.505	327.1 -> 307.0	2549	0.73 µg/L	97
		327.1 -> 80.9	661		
6:2FTS	7.048	427.1 -> 407.0	2108	0.75 µg/L	92
		427.1 -> 80.9	545		
8:2FTS	8.011	527.1 -> 507.0	1142	0.65 µg/L	93
		527.1 -> 80.8	259		
EtFOSAA	8.476	584.2 -> 419.1	615	0.20 µg/L	m 81
		584.2 -> 526.0	400		
FOSA	9.957	498.1 -> 77.9	1435	0.20 µg/L	98
		498.1 -> 478.0	63		
MeFOSAA	8.281	570.1 -> 419.0	926	0.23 µg/L	89
		570.1 -> 483.0	224		
PFBA	3.131	212.8 -> 168.9	1449	0.76 µg/L	100
PFBS	5.957	298.7 -> 79.9	1046	0.19 µg/L	94
		298.7 -> 98.8	465		
PFDA	8.235	512.9 -> 469.0	2848	0.17 µg/L	94
		512.9 -> 219.0	533		
PFDODA	9.119	613.1 -> 569.0	2820	0.20 µg/L	97
		613.1 -> 319.0	423		
PFDS	9.383	599.0 -> 79.9	550	0.21 µg/L	97

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.695	599.0 -> 98.8	260	0.20	µg/L	98
		363.1 -> 319.0	3877			
PFHpS	8.030	363.1 -> 169.0	575	0.16	µg/L	98
		449.0 -> 79.9	591			
PFHxA	5.831	449.0 -> 98.9	337	0.21	µg/L	96
		313.0 -> 269.0	2559			
PFHxS	7.514	313.0 -> 118.9	146	0.19	µg/L	m
		398.7 -> 79.9	725			
PFNA	7.768	398.7 -> 98.9	394	0.19	µg/L	95
		463.0 -> 419.0	1598			
PFNS	8.975	463.0 -> 219.0	301	0.17	µg/L	87
		548.8 -> 79.9	631			
PFOA	7.275	548.8 -> 98.9	327	0.19	µg/L	m
		413.0 -> 369.0	5036			
PFOS	8.522	413.0 -> 169.0	687	0.20	µg/L	m
		498.9 -> 79.9	768			
PFPeA	4.663	498.9 -> 98.8	442	0.41	µg/L	100
		263.0 -> 219.0	3428			
PFPeS	6.883	349.1 -> 79.9	890	0.20	µg/L	97
		349.1 -> 98.9	458			
PFTeDA	9.871	713.1 -> 669.0	3369	0.22	µg/L	99
		713.1 -> 168.9	242			
PFTrDA	9.515	663.0 -> 619.0	2499	0.18	µg/L	98
		663.0 -> 168.9	253			
PFUnDA	8.689	563.1 -> 519.0	2932	0.21	µg/L	98
		563.1 -> 269.1	421			
11Cl-PF3OUdS	9.654	630.9 -> 450.9	6644	0.79	µg/L	88
		632.9 -> 452.9	1815			
9Cl-PF3ONS	8.853	530.8 -> 351.0	11048	0.72	µg/L	88
		532.8 -> 353.0	4177			
ADONA	6.930	376.9 -> 250.9	22856	0.76	µg/L	99
		376.9 -> 84.8	5027			
HFPO-DA	6.169	284.9 -> 168.9	1075	0.75	µg/L	95
		284.9 -> 184.9	148			
3:3FTCA	4.064	241.0 -> 177.0	425	1.01	µg/L	99
		241.0 -> 117.0	64			
5:3FTCA	6.421	341.0 -> 237.1	14543	5.37	µg/L	92
		341.0 -> 217.0	13092			
7:3FTCA	7.758	441.0 -> 316.9	6312	4.86	µg/L	90
		441.0 -> 336.9	9753			
EtFOSA	11.192	526.0 -> 219.0	690	0.21	µg/L	97
		526.0 -> 169.0	677			
EtFOSE	11.126	630.0 -> 58.9	1413	2.08	µg/L	100
		511.9 -> 219.0	574			
MeFOSA	10.972	511.9 -> 169.0	623	0.19	µg/L	93
		616.1 -> 58.9	2075			
MeFOSE	10.891	699.1 -> 79.9	284	2.11	µg/L	100
		699.1 -> 98.8	180			
PFDoDS	10.085	295.0 -> 201.0	334	0.18	µg/L	92
		295.0 -> 84.9	137			
NFDHA	5.722	279.0 -> 85.1	1077	0.39	µg/L	100
		229.0 -> 84.9	961			
PFMBA	3.769	314.8 -> 134.9	6610	0.40	µg/L	100
		314.8 -> 82.9	174			
PFEEESA	6.436			0.37	µg/L	100

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

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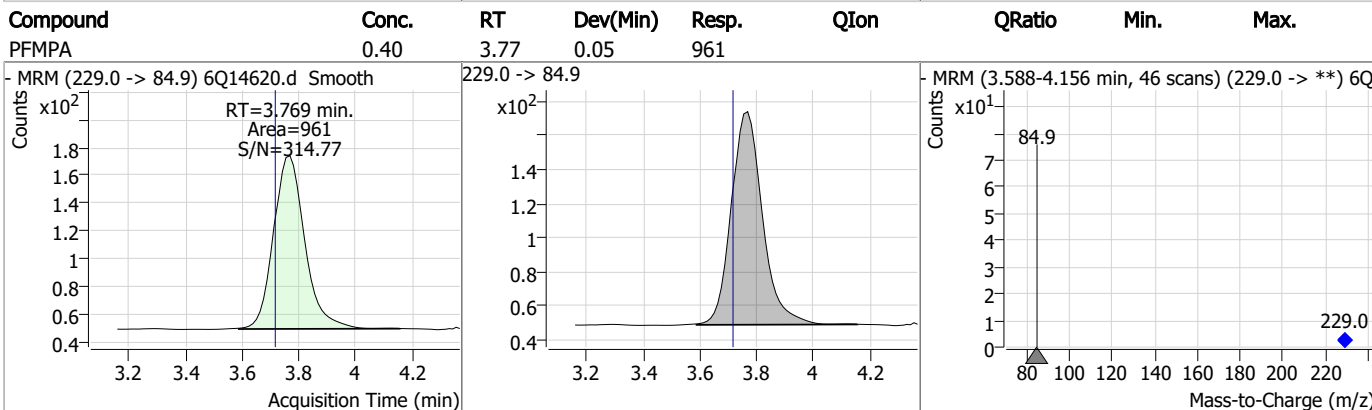
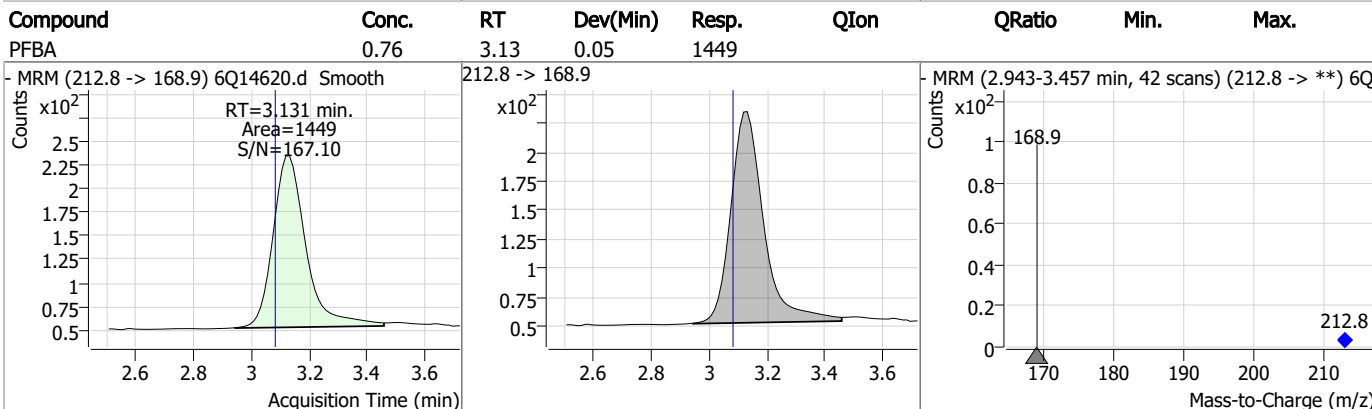
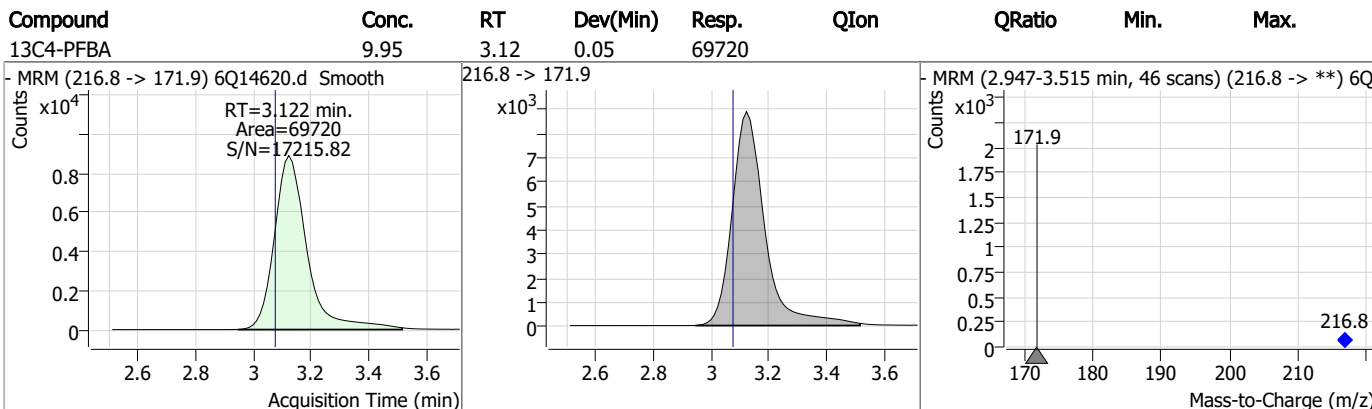
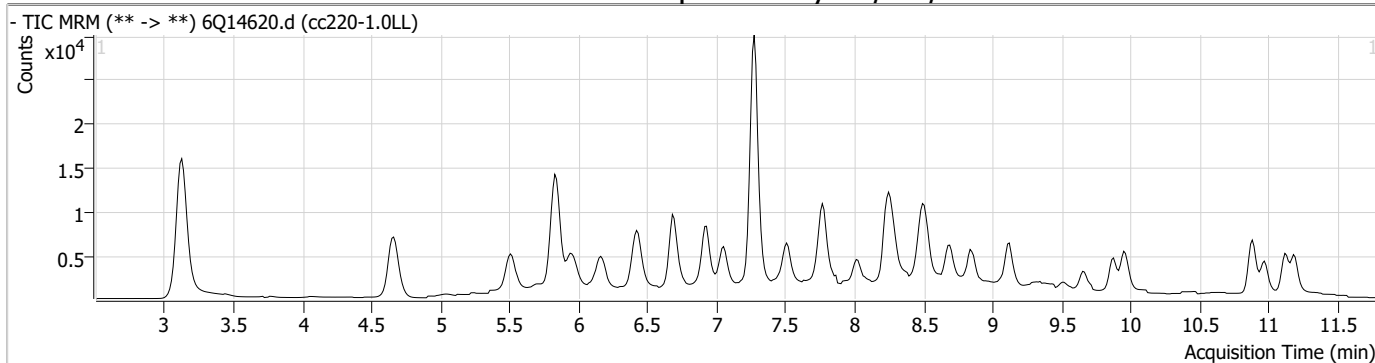
Perfluorinated Compounds by LC/MS/MS

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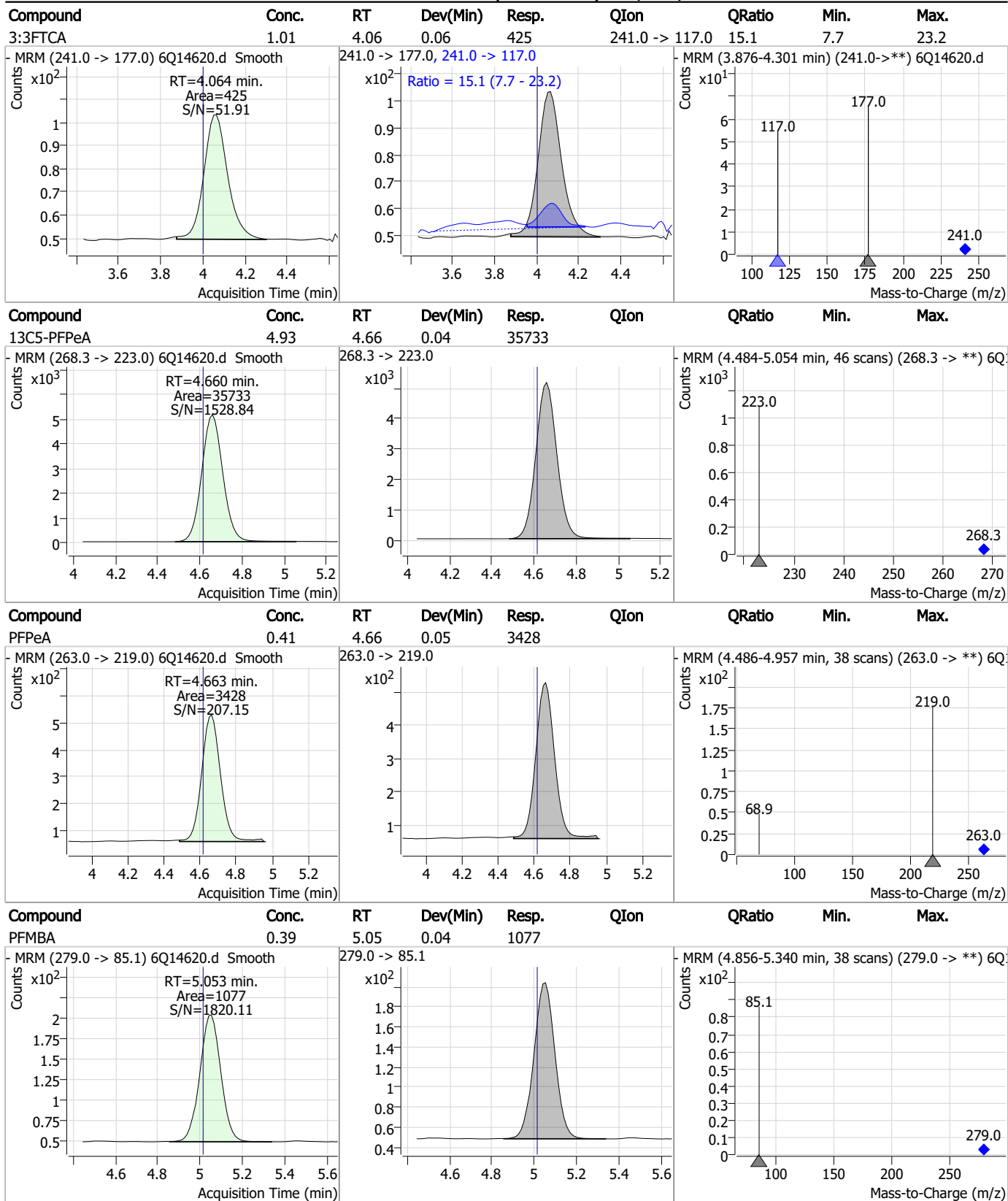
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Perfluorinated Compounds by LC/MS/MS



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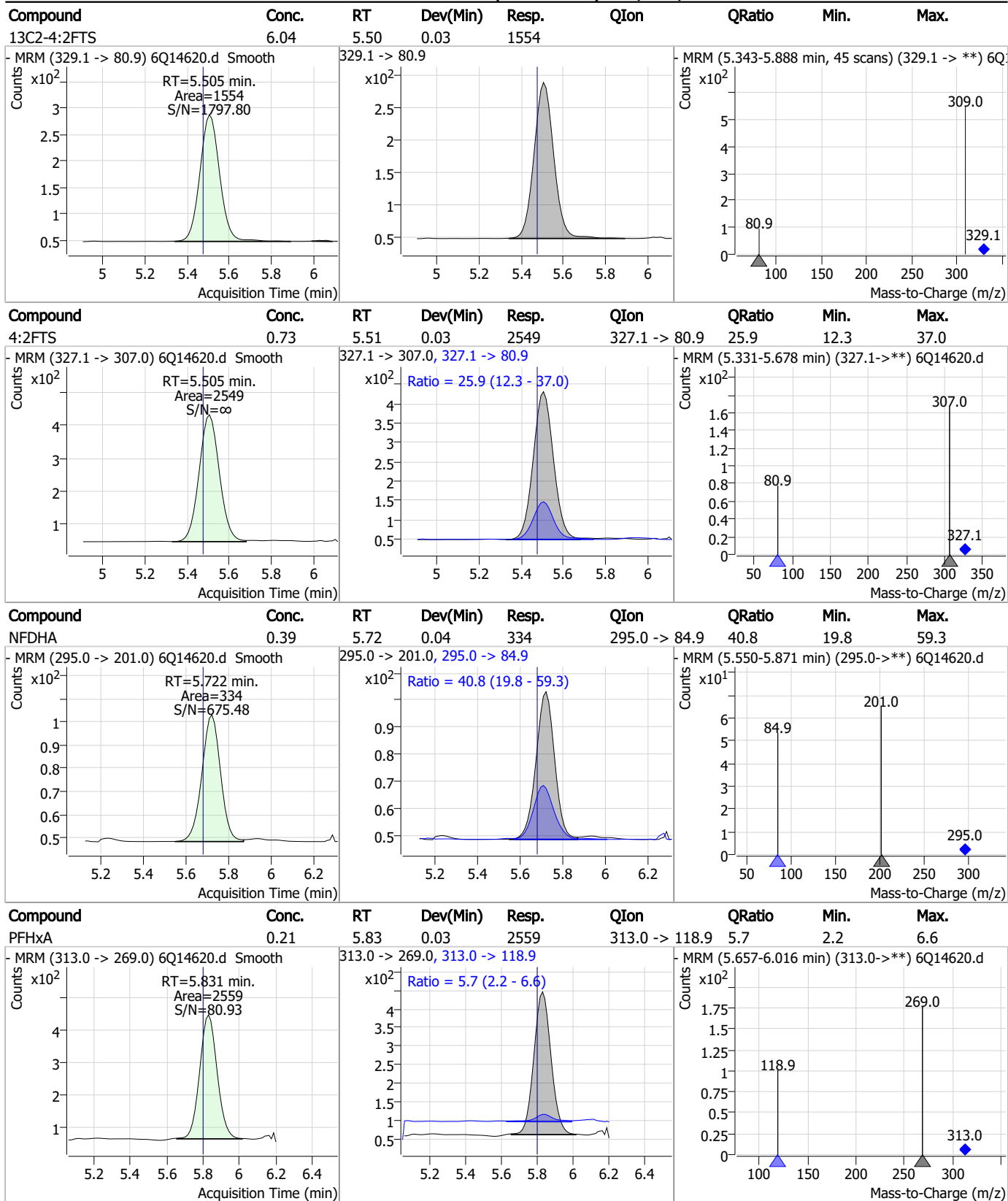
Perfluorinated Compounds by LC/MS/MS



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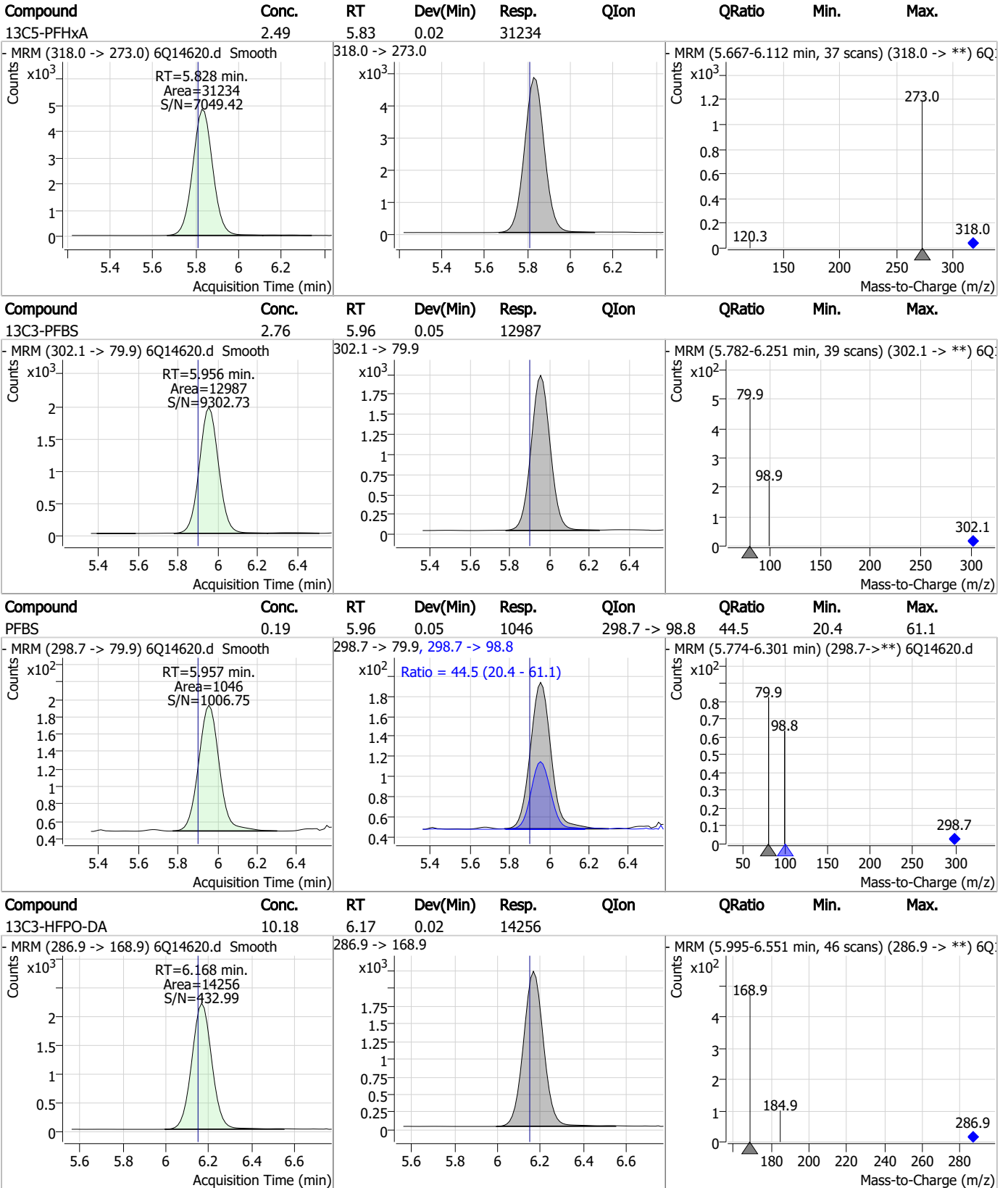
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

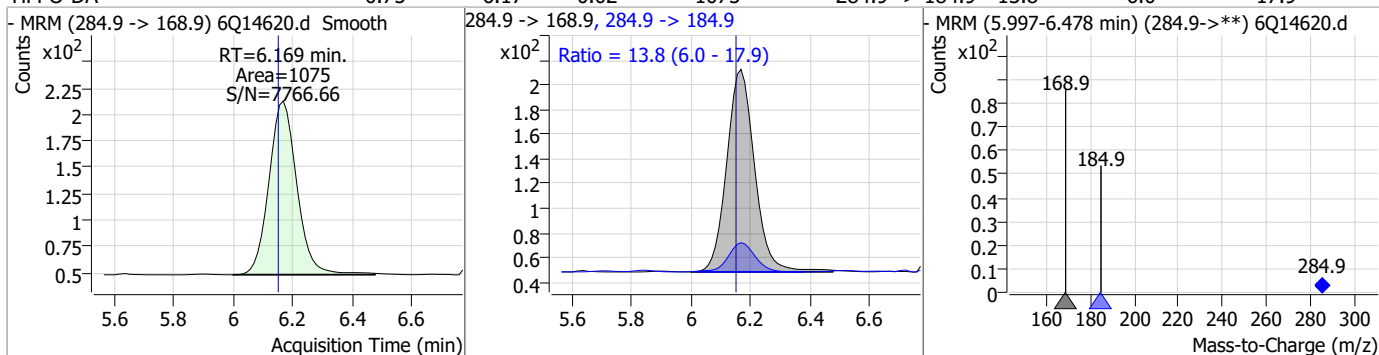


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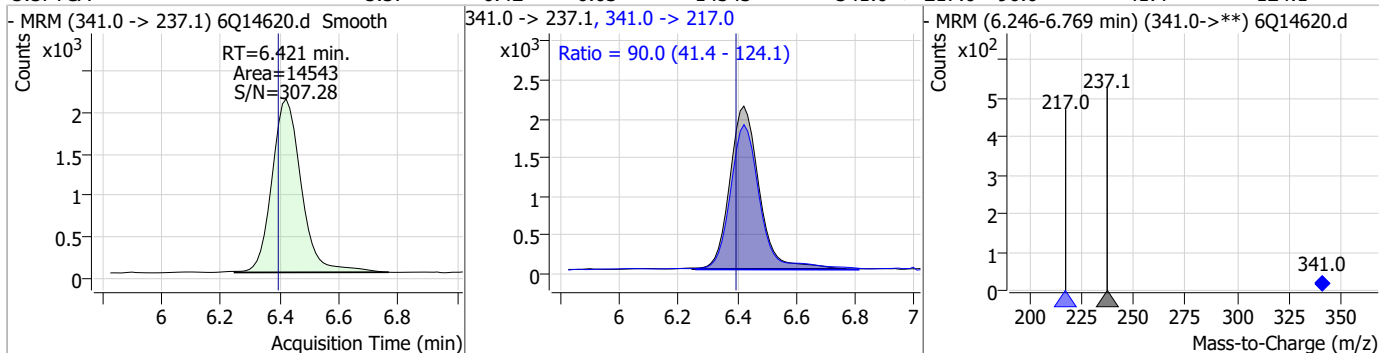


Perfluorinated Compounds by LC/MS/MS

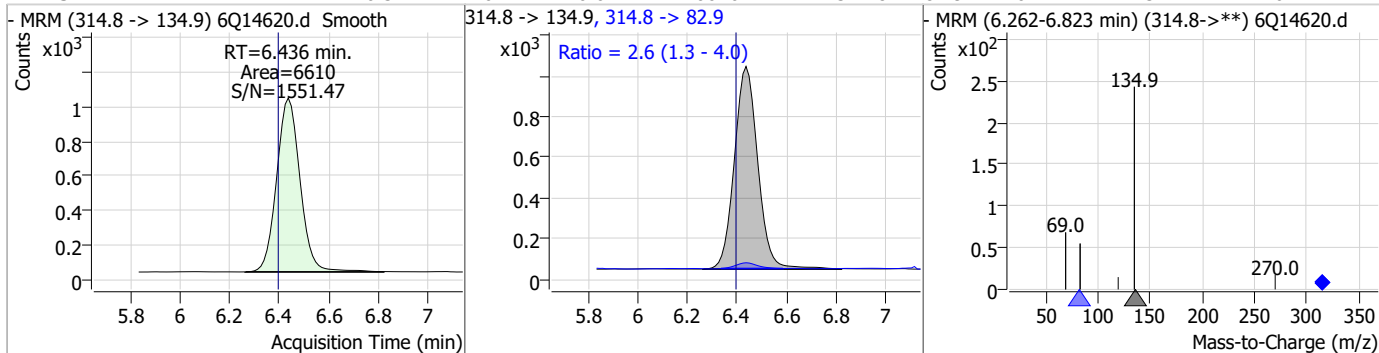
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.75	6.17	0.02	1075	284.9 -> 184.9	13.8	6.0	17.9



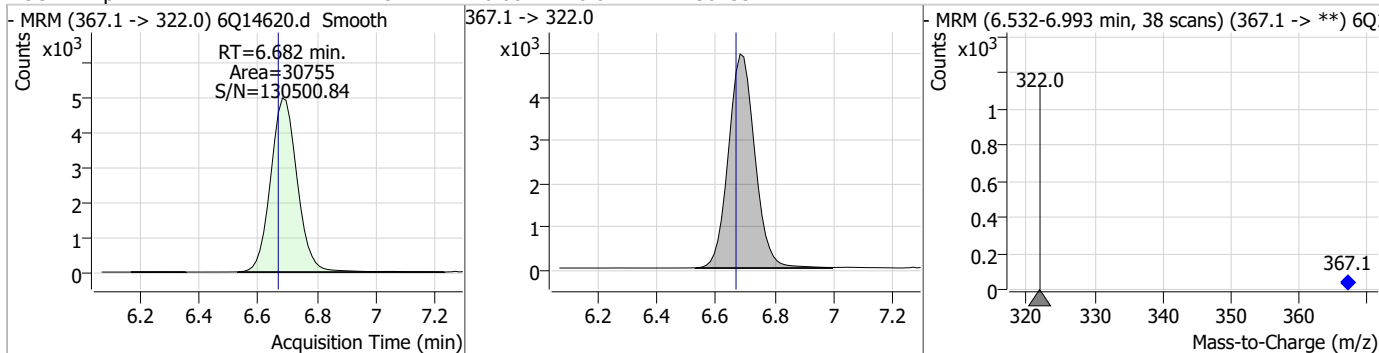
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	5.37	6.42	0.03	14543	341.0 -> 217.0	90.0	41.4	124.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.37	6.44	0.04	6610	314.8 -> 82.9	2.6	1.3	4.0

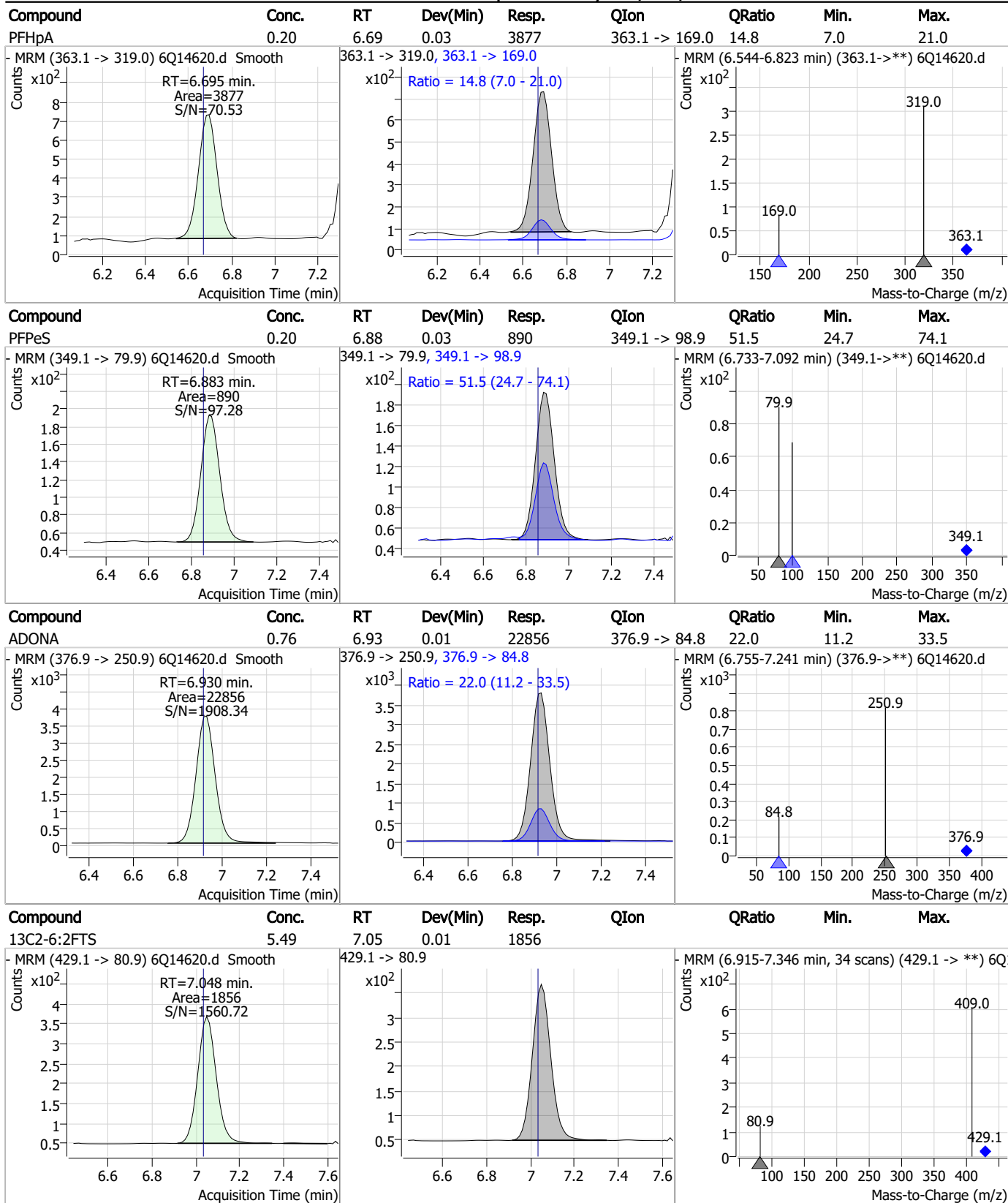


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.52	6.68	0.01	30755	367.1 -> 322.0			



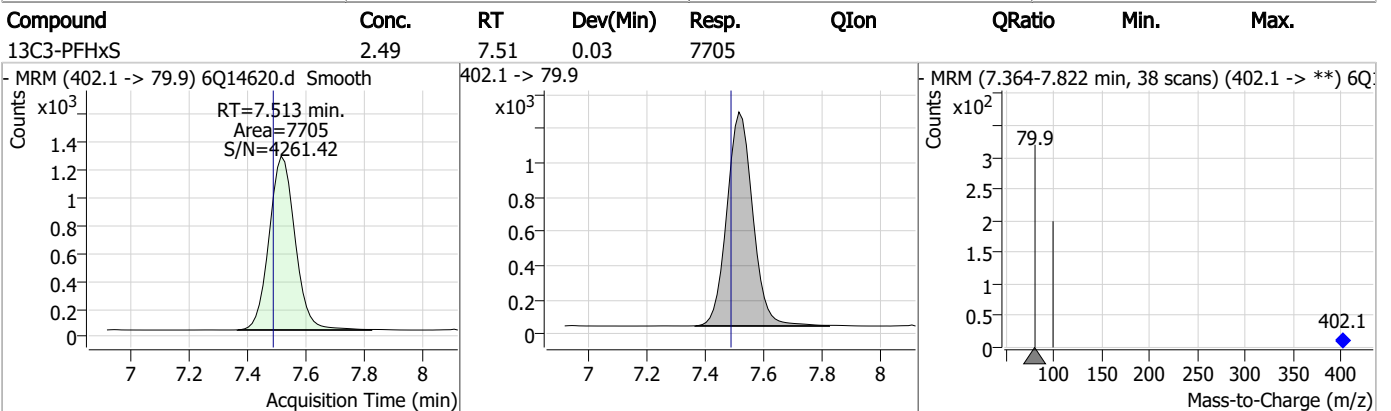
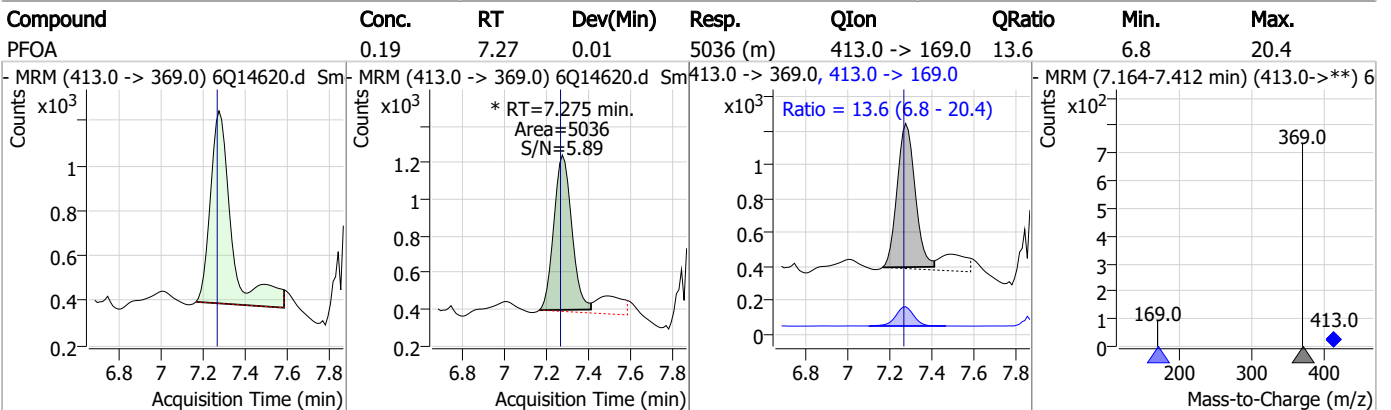
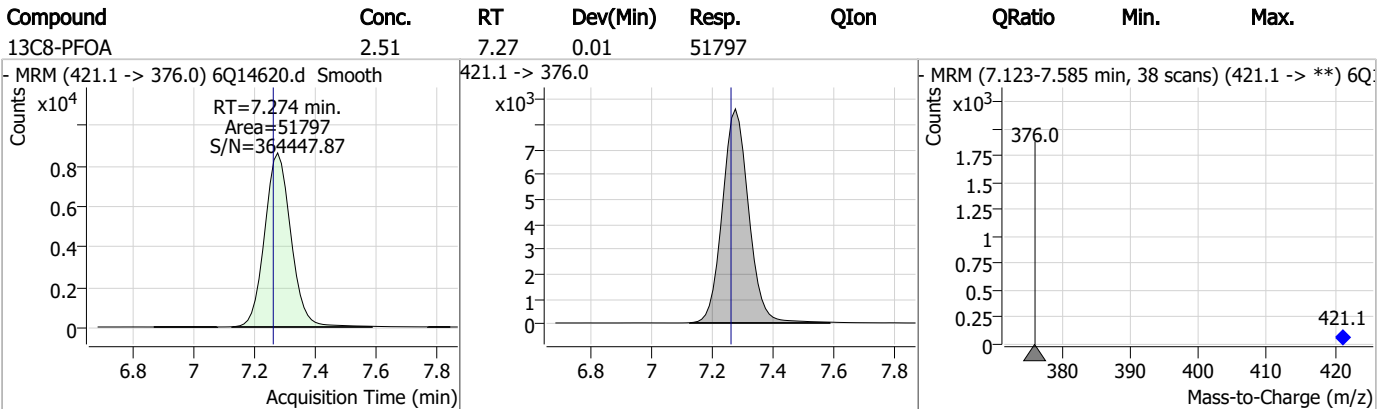
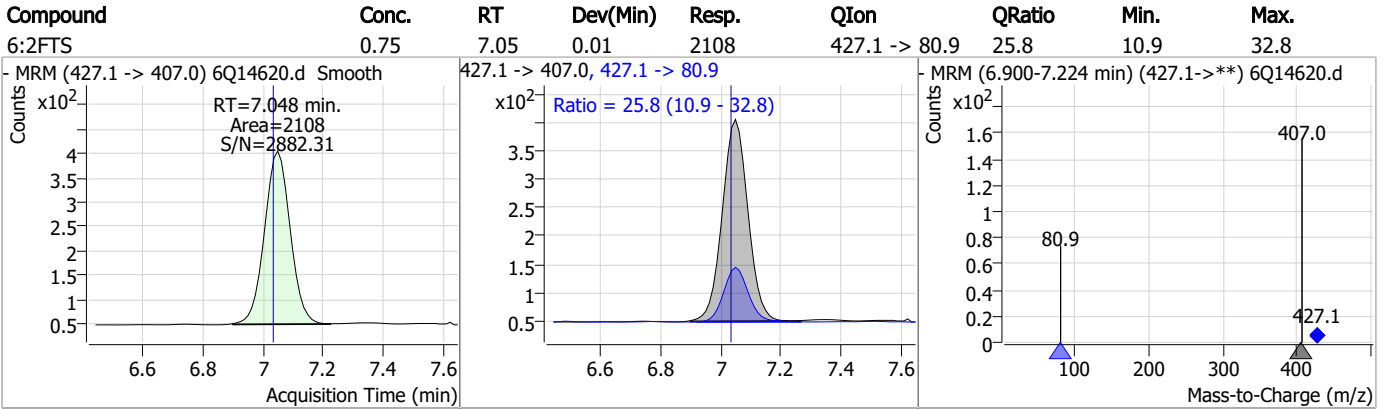
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Perfluorinated Compounds by LC/MS/MS



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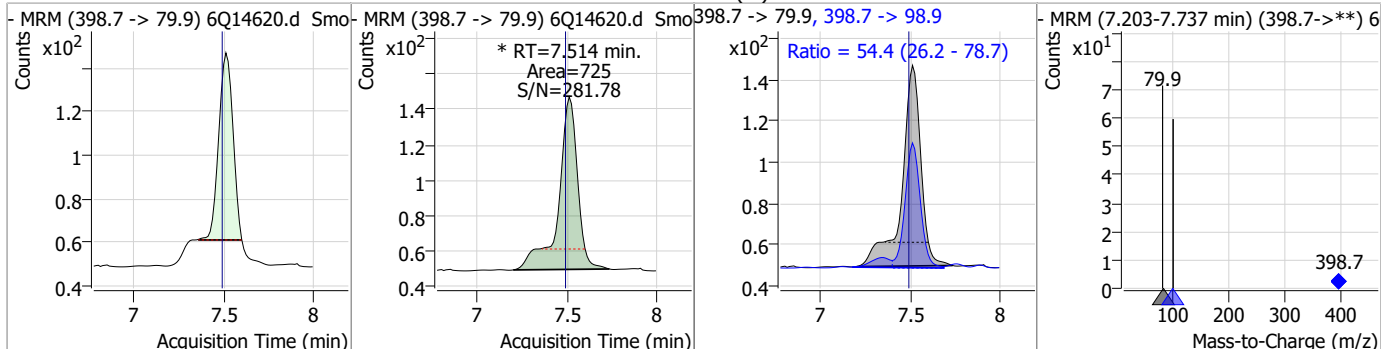
Perfluorinated Compounds by LC/MS/MS



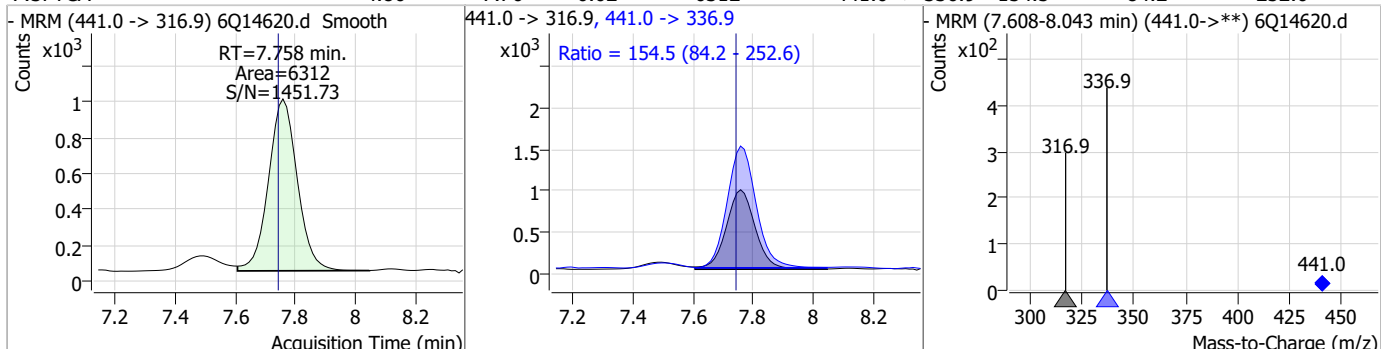
7.8.18 7

Perfluorinated Compounds by LC/MS/MS

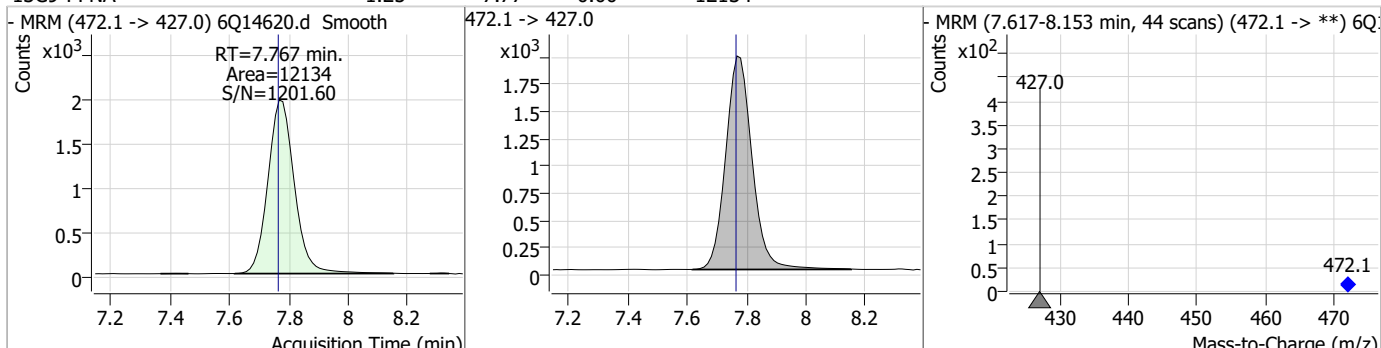
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.19	7.51	0.03	725 (m)	398.7 -> 98.9	54.4	26.2	78.7



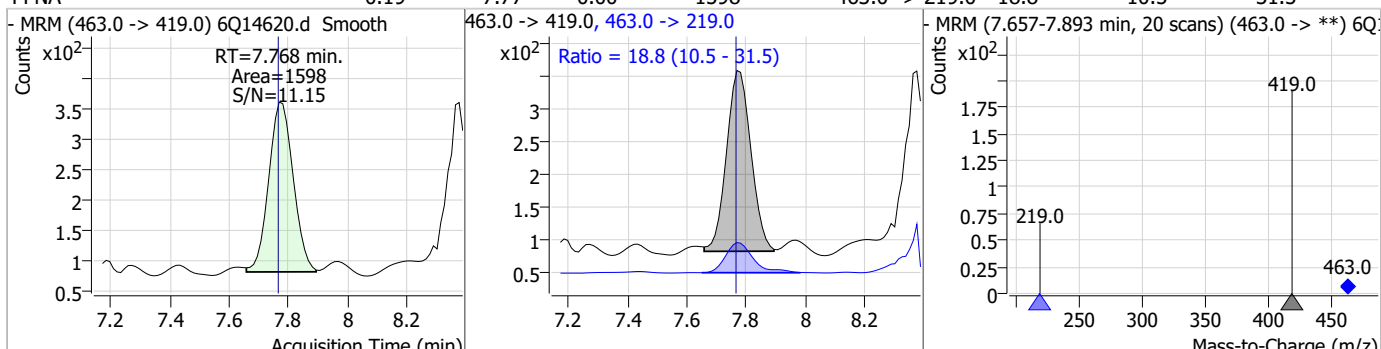
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	4.86	7.76	0.02	6312	441.0 -> 336.9	154.5	84.2	252.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.25	7.77	0.00	12134				

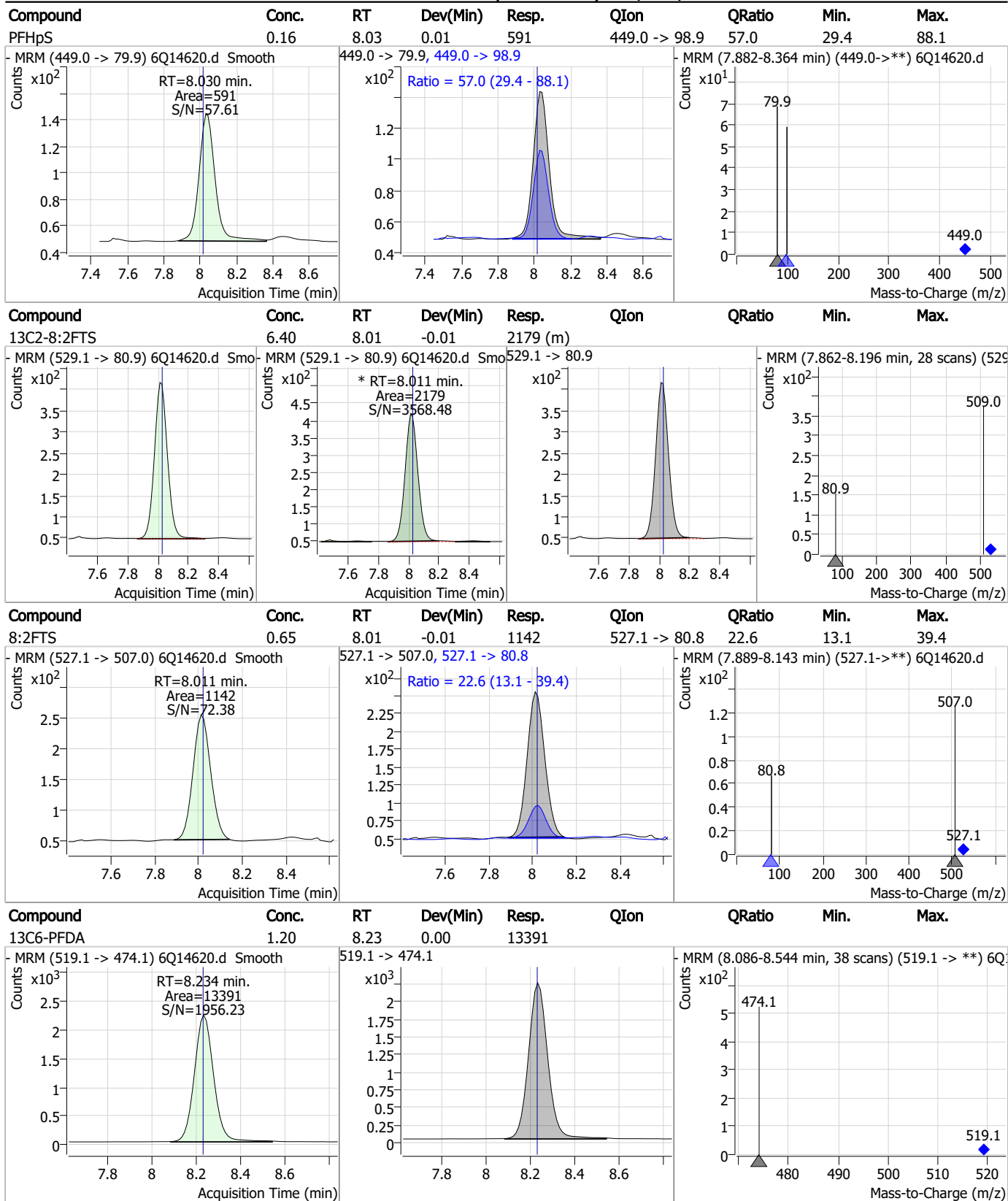


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.19	7.77	0.00	1598	463.0 -> 219.0	18.8	10.5	31.5



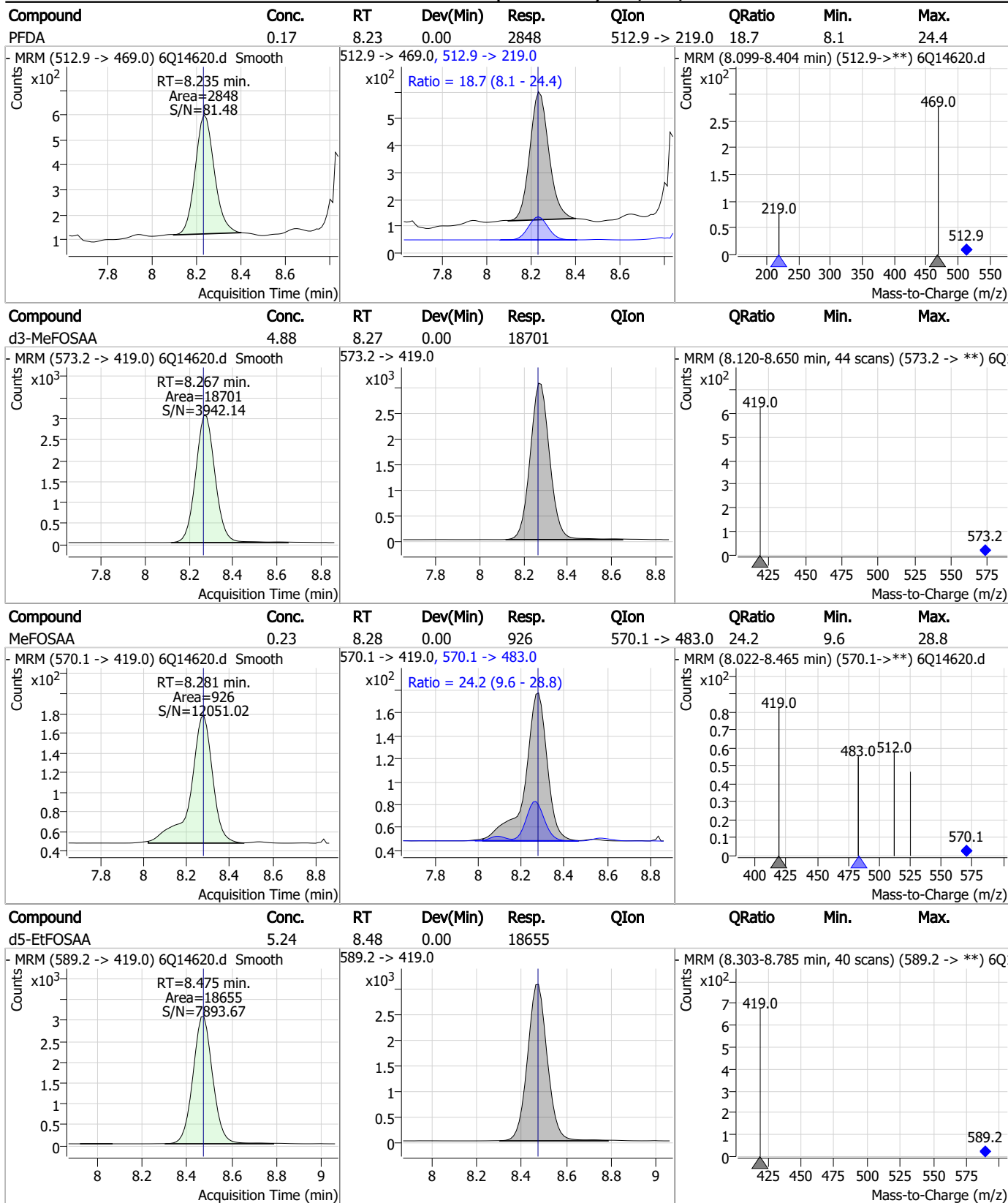
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Perfluorinated Compounds by LC/MS/MS



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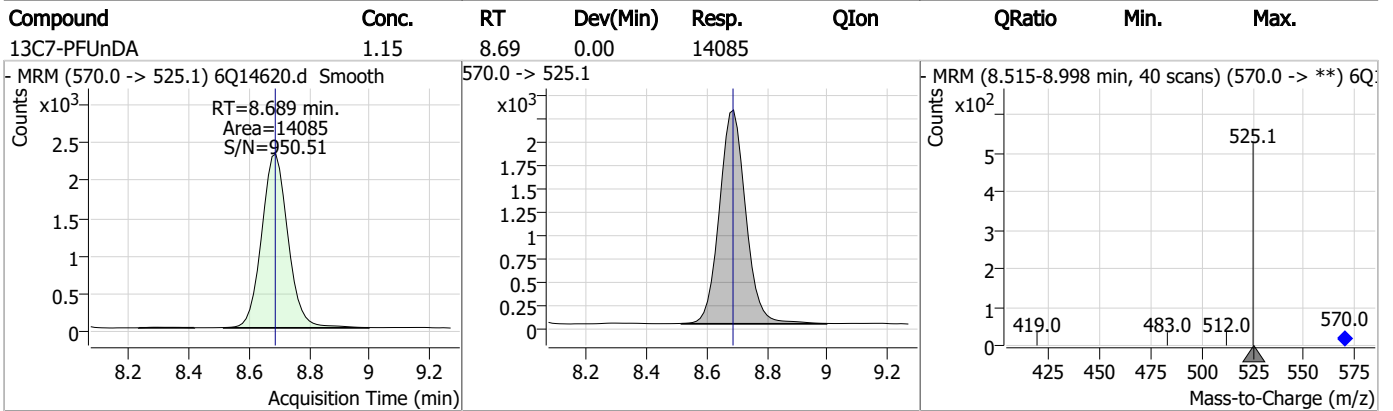
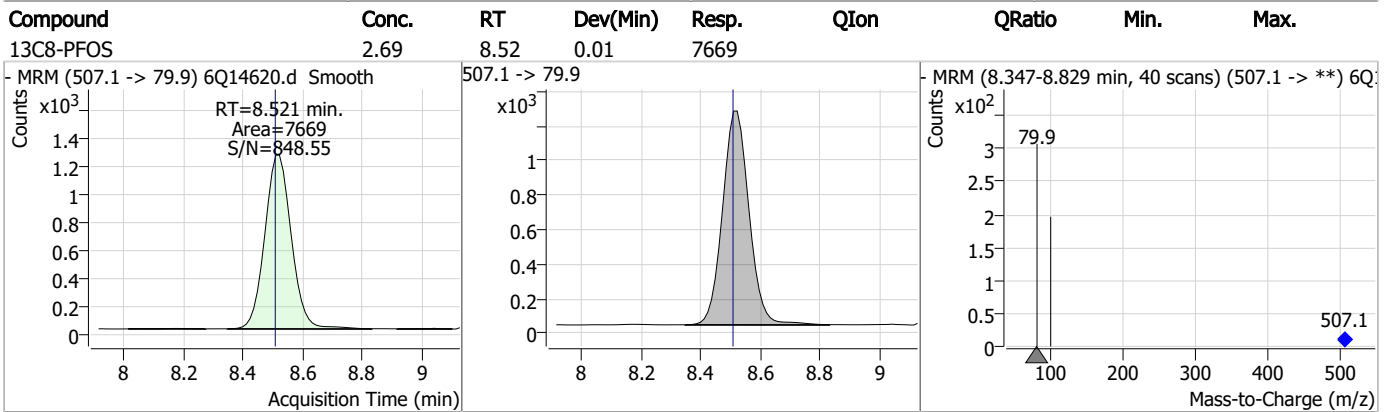
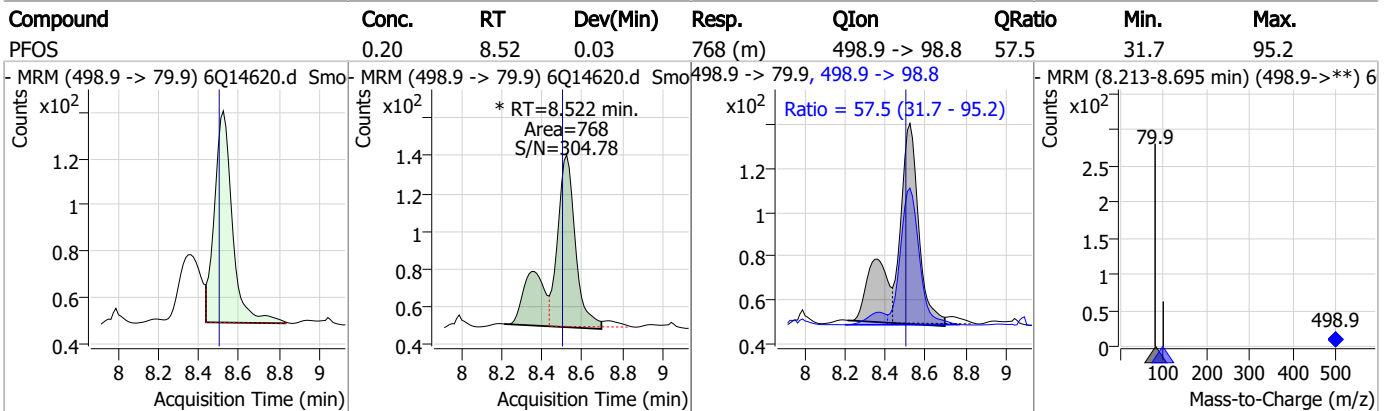
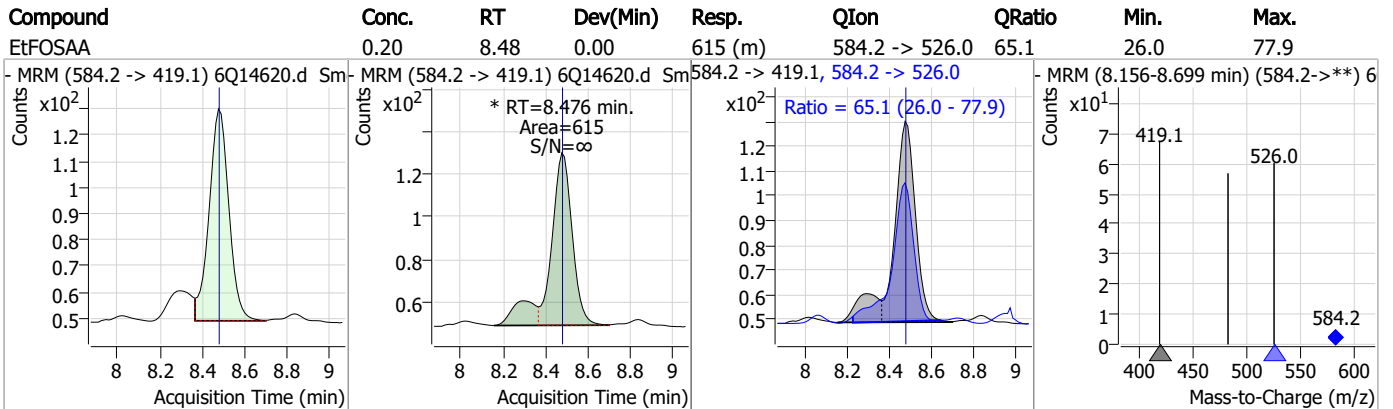
Perfluorinated Compounds by LC/MS/MS



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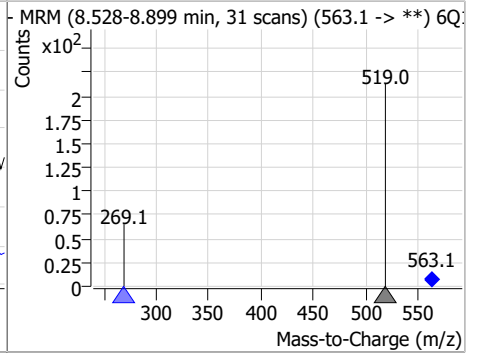
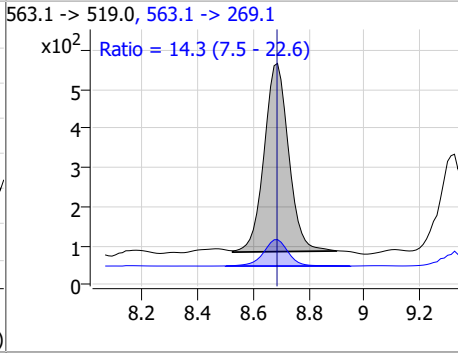
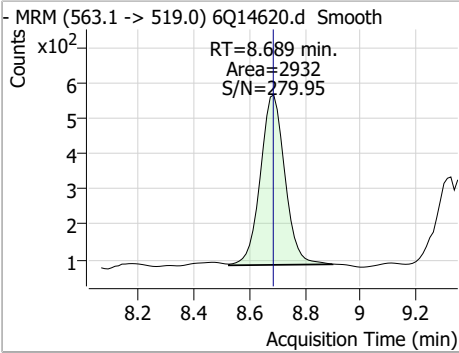
Perfluorinated Compounds by LC/MS/MS



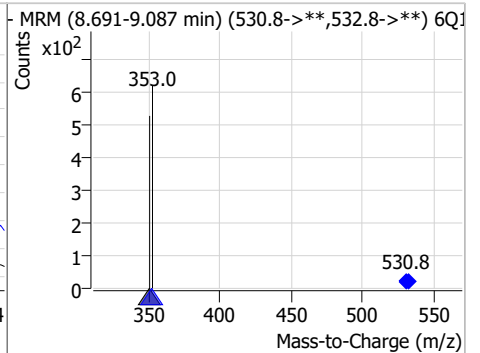
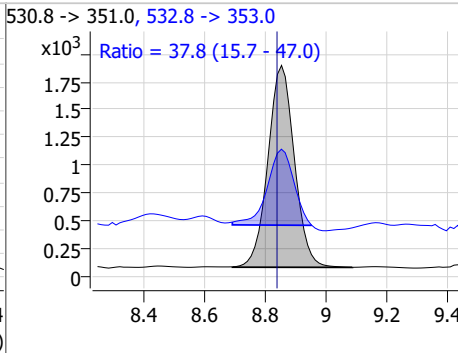
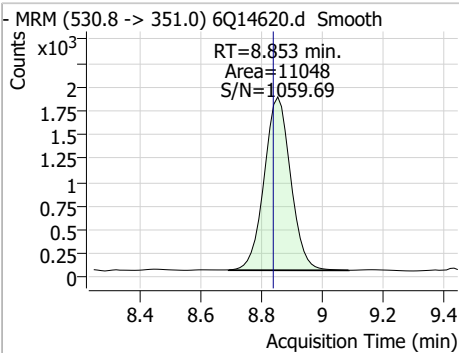
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Perfluorinated Compounds by LC/MS/MS

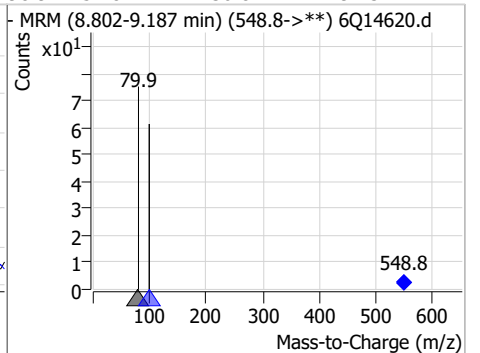
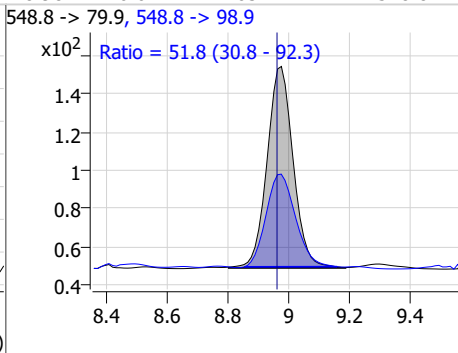
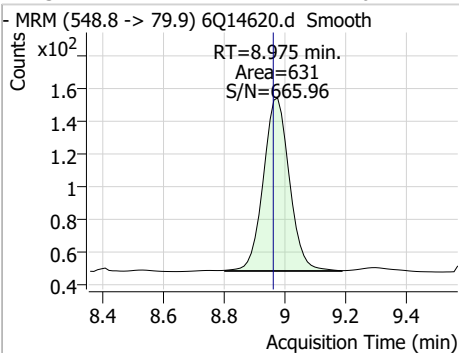
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.21	8.69	0.00	2932	563.1 -> 269.1	14.3	7.5	22.6



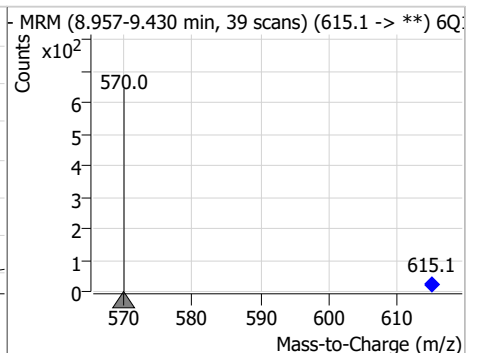
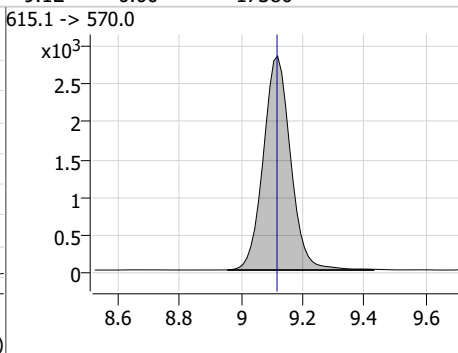
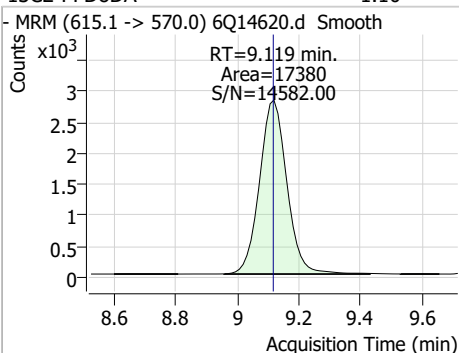
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	0.72	8.85	0.01	11048	532.8 -> 353.0	37.8	15.7	47.0



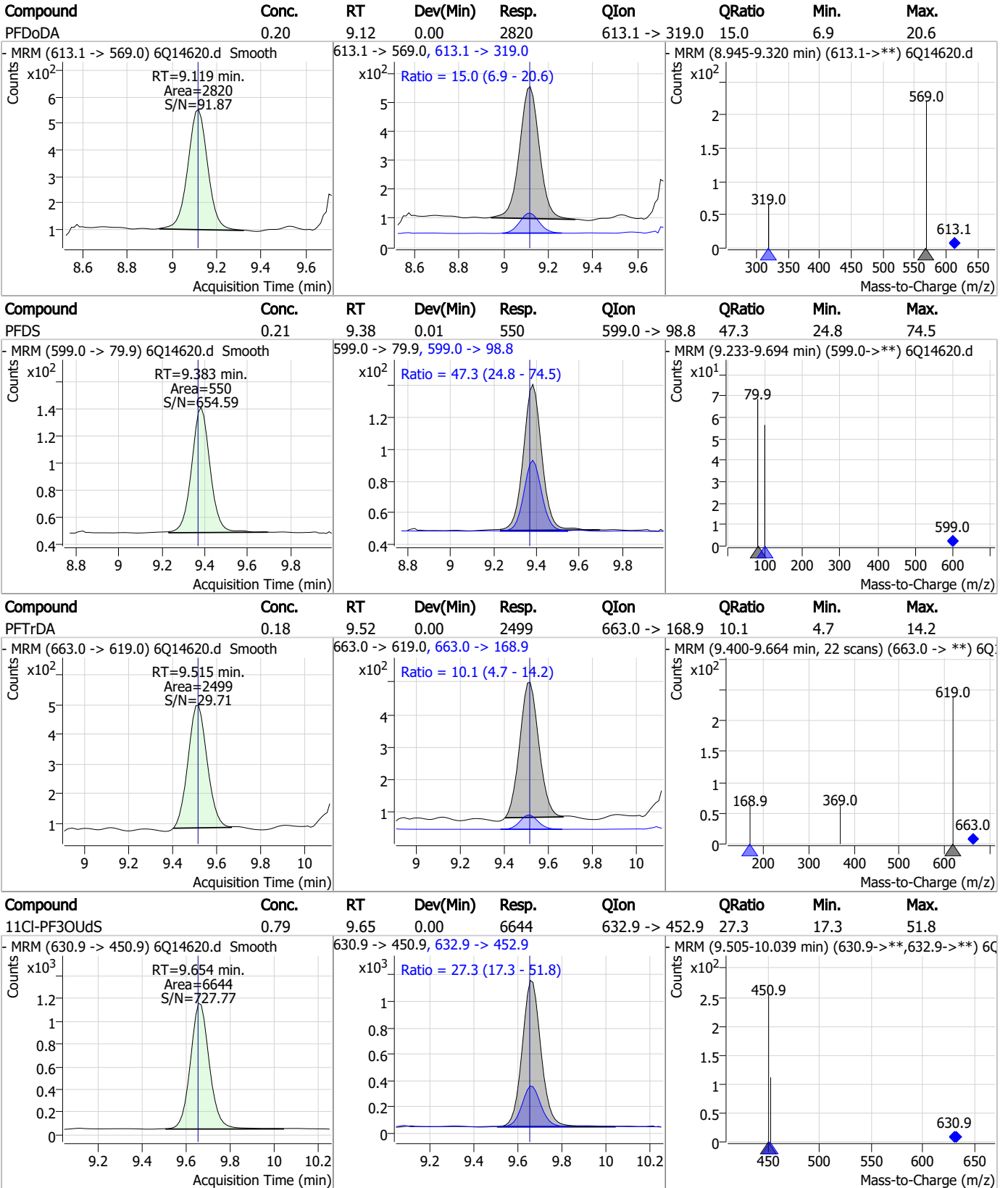
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.17	8.98	0.01	631	548.8 -> 98.9	51.8	30.8	92.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.10	9.12	0.00	17380	615.1 -> 570.0			



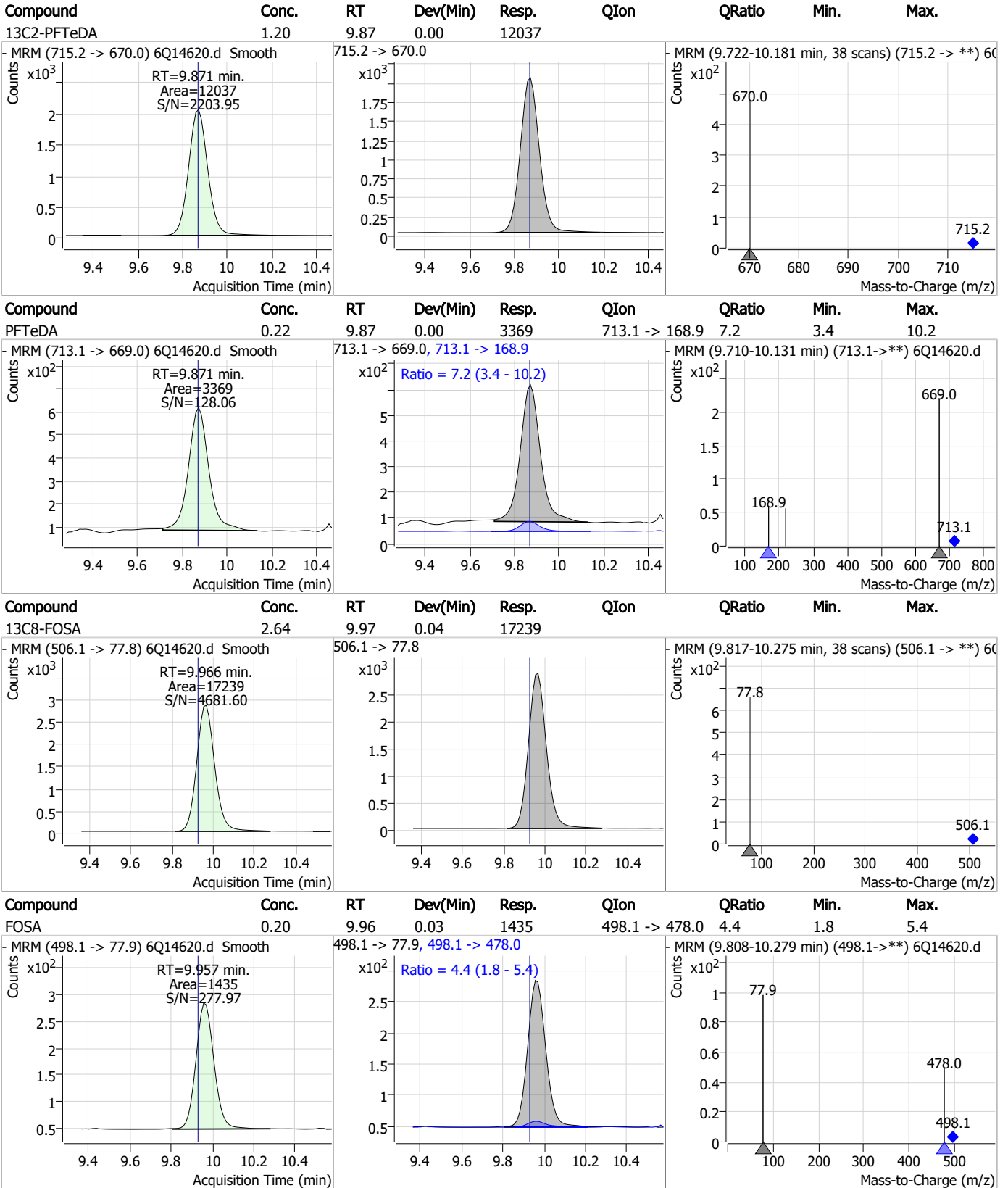
Perfluorinated Compounds by LC/MS/MS



7.8.18 7



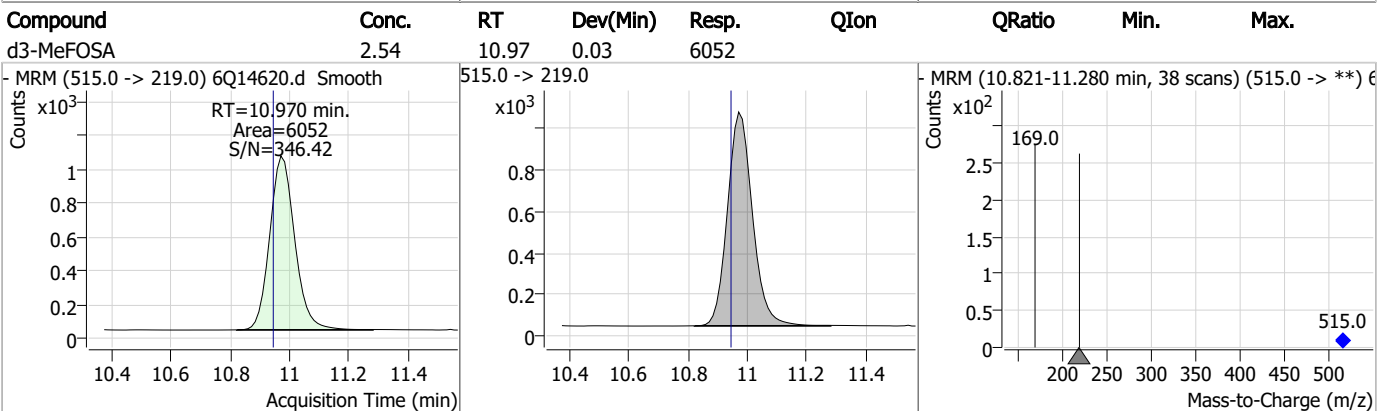
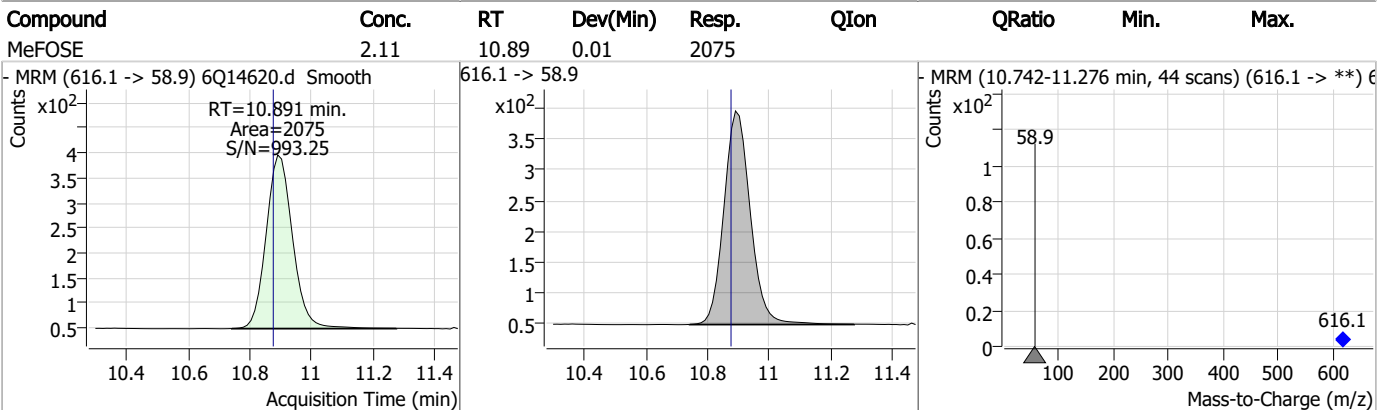
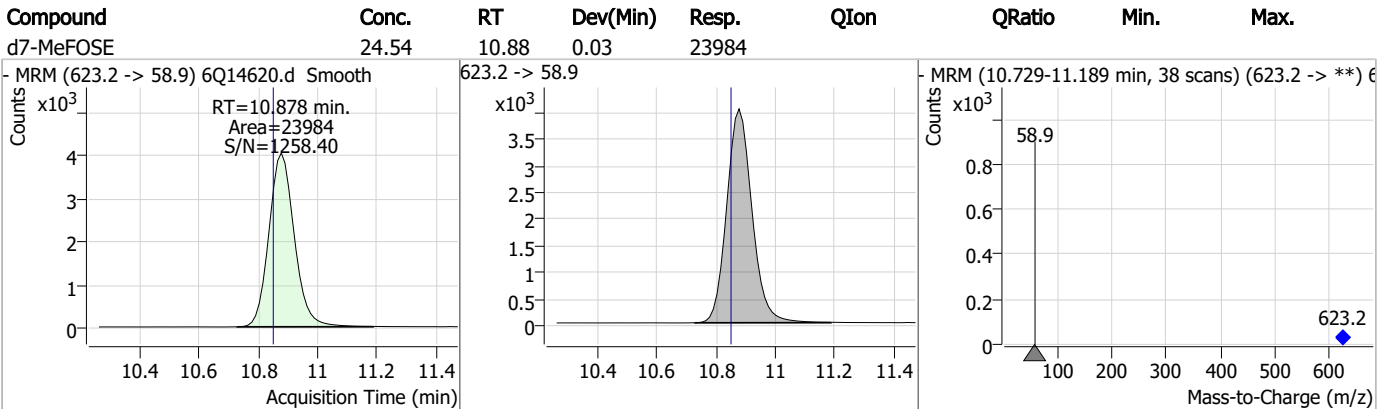
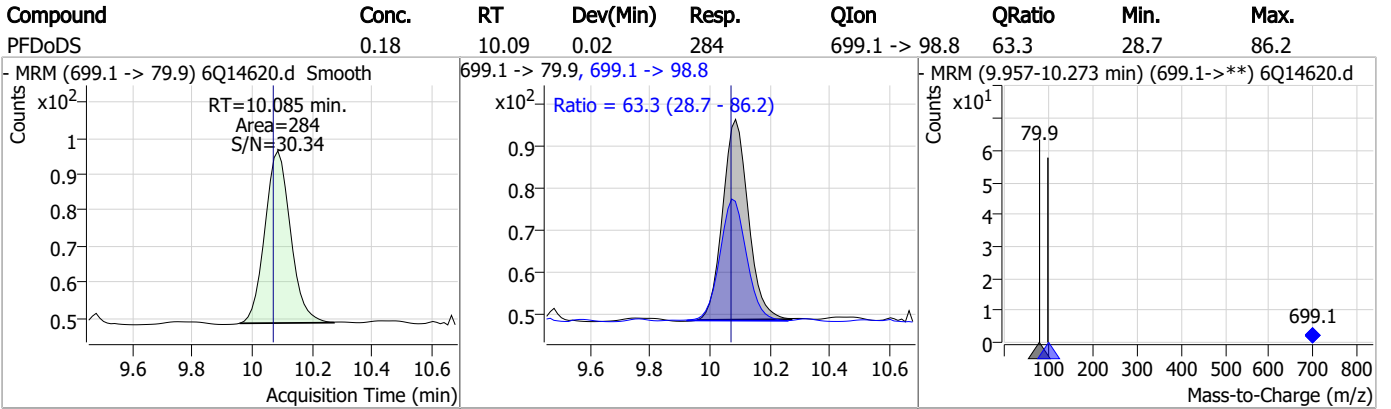
Perfluorinated Compounds by LC/MS/MS



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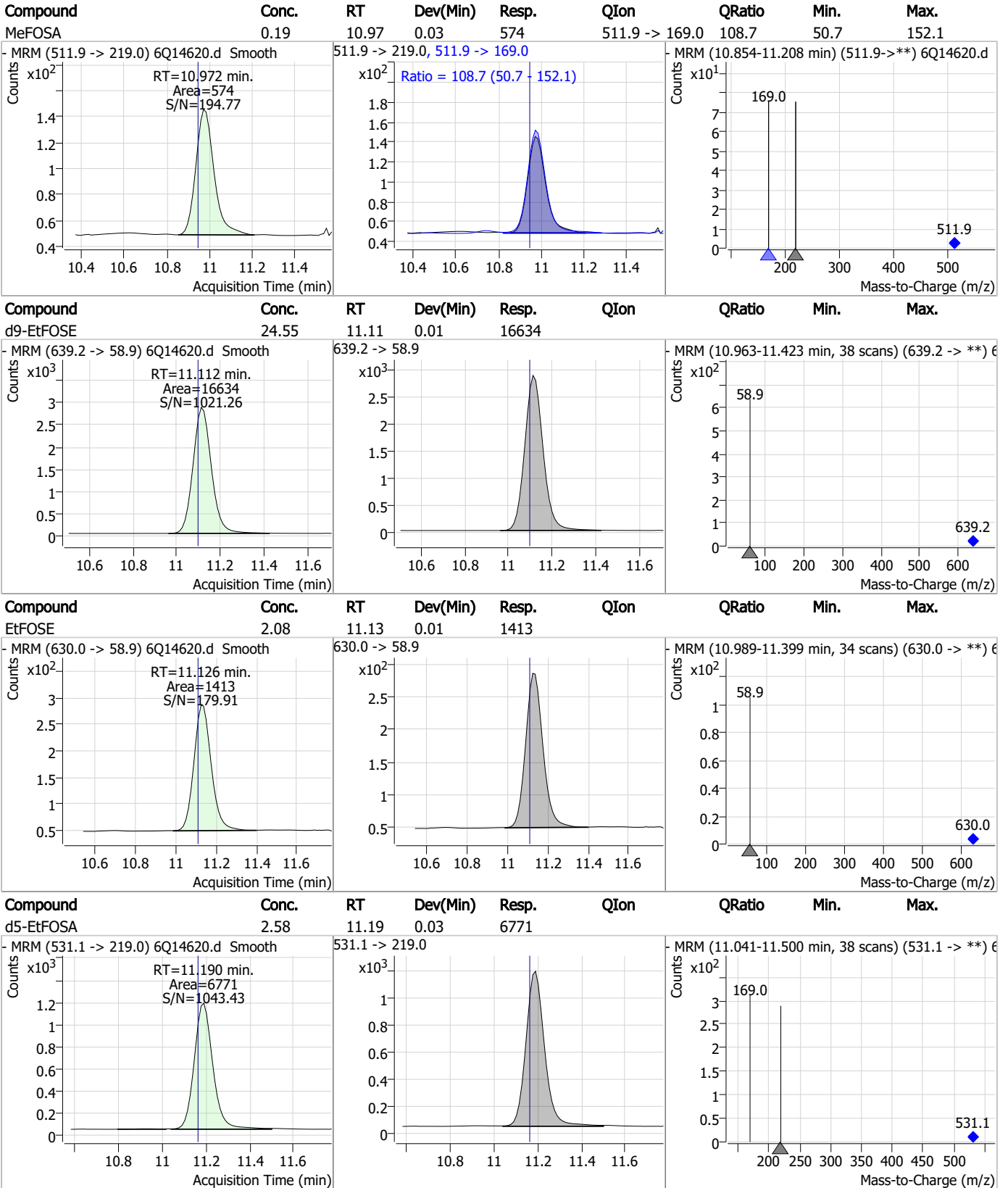


Perfluorinated Compounds by LC/MS/MS



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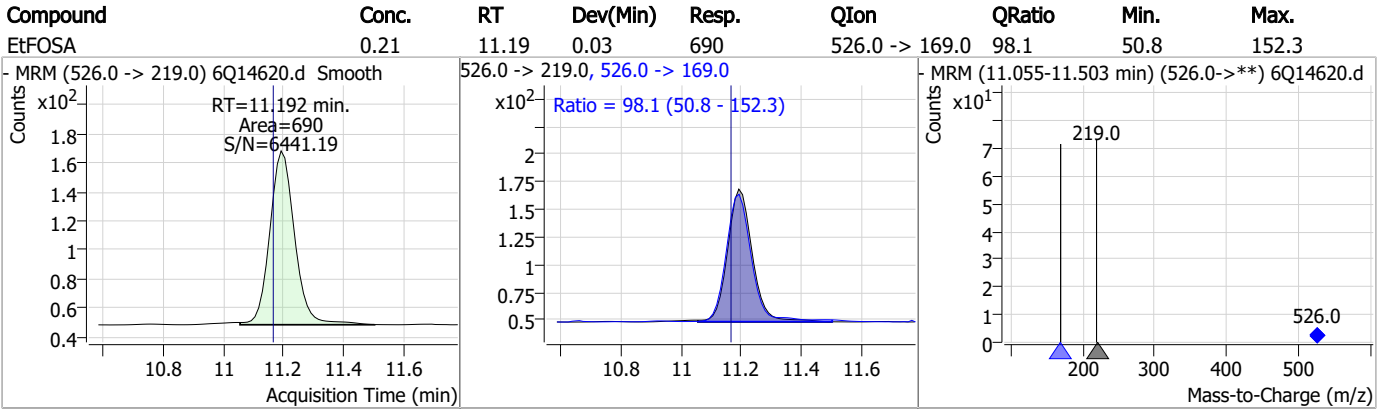
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q221-CC220 Method: EPA DRAFT 1633
Lab FileID: 6Q14620.D Analyst approved: 03/10/23 10:37 Anna Ludwig
Injection Time: 03/09/23 13:30 Supervisor approved: 03/10/23 14:34 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.28	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.51	Split peak
13C2-8:2FTS			8.01	Poor instrument integration
EtFOSAA	2991-50-6		8.48	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.52	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14631.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/9/2023 4:04:16 PM
 Sample Name : cc220-4
 Vial : P1-A5
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q221.batch.bin
 Sample Information : OP95772,S6Q221,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	75159	10.00 µg/L	0.022
M5-PFPeA	4.634	268.3 -> 223.0	38128	5.00 µg/L	0.018
M5-PFHxA	5.815	318.0 -> 273.0	33529	2.50 µg/L	0.005
M4-PFHpA	6.682	367.1 -> 322.0	32988	2.50 µg/L	0.014
M8-PFOA	7.274	421.1 -> 376.0	51645	2.50 µg/L	0.014
M9-PFNA	7.767	472.1 -> 427.0	15401	1.25 µg/L	0.003
M6-PFDA	8.234	519.1 -> 474.1	14162	1.25 µg/L	0.002
M7-PFUnDA	8.689	570.0 -> 525.1	15806	1.25 µg/L	0.002
M2-PFDoDA	9.119	615.1 -> 570.0	18533	1.25 µg/L	0.002
M2-PFTeDA	9.871	715.2 -> 670.0	11944	1.25 µg/L	0.003
M8-FOSA	9.966	506.1 -> 77.8	18264	2.50 µg/L	0.040
M3-PFBS	5.943	302.1 -> 79.9	13532	2.50 µg/L	0.042
M3-PFHxS	7.513	402.1 -> 79.9	7971	2.50 µg/L	0.027
M8-PFOS	8.509	507.1 -> 79.9	7752	2.50 µg/L	0.002
M2-4:2FTS	5.493	329.1 -> 80.9	1556	5.00 µg/L	0.017
M2-6:2FTS	7.048	429.1 -> 80.9	2079	5.00 µg/L	0.015
M2-8:2FTS	8.011	529.1 -> 80.9	2142	5.00 µg/L	-0.009
M3-MeFOSAA	8.267	573.2 -> 419.0	20728	5.00 µg/L	0.002
M3-HFPO-DA	6.155	286.9 -> 168.9	13990	10.00 µg/L	0.005
M5-EtFOSAA	8.463	589.2 -> 419.0	20202	5.00 µg/L	-0.010
M7-MeFOSE	10.878	623.2 -> 58.9	24004	25.00 µg/L	0.027
M9-EtFOSE	11.112	639.2 -> 58.9	16751	25.00 µg/L	0.015
M5-EtFOSA	11.190	531.1 -> 219.0	6585	2.50 µg/L	0.026
M3-MeFOSA	10.970	515.0 -> 219.0	6281	2.50 µg/L	0.026
13C4-PFOS	8.509	502.8 -> 79.9	9355	2.50 µg/L	0.014
13C3-PFBA	3.089	216.0 -> 172.0	32817	5.00 µg/L	0.010
18O2-PFHxS	7.512	403.0 -> 83.9	5832	2.50 µg/L	0.015
13C4-PFOA	7.274	417.1 -> 372.0	65477	2.50 µg/L	0.014
13C2-PFDA	8.235	515.1 -> 470.1	19741	1.25 µg/L	0.002
13C5-PFNA	7.768	468.0 -> 423.0	15236	1.25 µg/L	0.003
13C2-PFHxA	5.829	315.1 -> 270.0	31955	2.50 µg/L	0.030
System Monitoring Compounds					
13C2-4:2FTS	5.493	329.1 -> 80.9	1556	5.60 µg/L	0.017
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.1%		
13C2-6:2FTS	7.048	429.1 -> 80.9	2079	5.69 µg/L	0.015
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.9%		
13C2-8:2FTS	8.011	529.1 -> 80.9	2142	5.83 µg/L	-0.009
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.6%		
13C2-PFDoDA	9.119	615.1 -> 570.0	18533	1.11 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.7%		
13C2-PFTeDA	9.871	715.2 -> 670.0	11944	1.12 µg/L	0.003
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.0%		
13C3-PFBS	5.943	302.1 -> 79.9	13532	2.66 µg/L	0.042
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C3-PFHxS	7.513	402.1 -> 79.9	7971	2.39 µg/L	0.027

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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 = 95.5%		
13C4-PFBA	3.097	216.8 -> 171.9	75159	9.97 µg/L	0.022
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C4-PFHpA	6.682	367.1 -> 322.0	32988	2.59 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.4%		
13C5-PFHxA	5.815	318.0 -> 273.0	33529	2.56 µg/L	0.005
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C5-PFPeA	4.634	268.3 -> 223.0	38128	5.03 µg/L	0.018
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C6-PFDA	8.234	519.1 -> 474.1	14162	1.20 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C7-PFUnDA	8.689	570.0 -> 525.1	15806	1.22 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C8-FOSA	9.966	506.1 -> 77.8	18264	2.49 µg/L	0.040
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C8-PFOA	7.274	421.1 -> 376.0	51645	2.37 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C8-PFOS	8.509	507.1 -> 79.9	7752	2.42 µg/L	0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C9-PFNA	7.767	472.1 -> 427.0	15401	1.31 µg/L	0.003
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.9%		
d3-MeFOSAA	8.267	573.2 -> 419.0	20728	4.81 µg/L	0.002
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C3-HFPO-DA	6.155	286.9 -> 168.9	13990	9.56 µg/L	0.005
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 95.6%		
d3-MeFOSA	10.970	515.0 -> 219.0	6281	2.35 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.8%		
d5-EtFOSAA	8.463	589.2 -> 419.0	20202	5.05 µg/L	-0.010
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
d7-MeFOSE	10.878	623.2 -> 58.9	24004	21.85 µg/L	0.027
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 87.4%		
d9-EtFOSE	11.112	639.2 -> 58.9	16751	22.00 µg/L	0.015
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 88.0%		
d5-EtFOSA	11.190	531.1 -> 219.0	6585	2.24 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 89.5%		
Target Compounds					QValue
4:2FTS	5.493	327.1 -> 307.0	33961	9.67 µg/L	97
		327.1 -> 80.9	7823		
6:2FTS	7.048	427.1 -> 407.0	30315	9.69 µg/L	98
		427.1 -> 80.9	6310		
8:2FTS	8.011	527.1 -> 507.0	15877	9.31 µg/L	98
		527.1 -> 80.8	3985		
EtFOSAA	8.476	584.2 -> 419.1	8249	2.43 µg/L	97
		584.2 -> 526.0	4483		
FOSA	9.957	498.1 -> 77.9	16167	2.16 µg/L	98
		498.1 -> 478.0	685		
MeFOSAA	8.268	570.1 -> 419.0	11056	2.52 µg/L	95
		570.1 -> 483.0	1851		
PFBA	3.093	212.8 -> 168.9	19050	9.24 µg/L	100
PFBS	5.944	298.7 -> 79.9	11974	2.11 µg/L	96
		298.7 -> 98.8	5147		
PFDA	8.235	512.9 -> 469.0	39265	2.16 µg/L	95
		512.9 -> 219.0	5579		
PFDODA	9.119	613.1 -> 569.0	37768	2.48 µg/L	97
		613.1 -> 319.0	4712		
PFDS	9.383	599.0 -> 79.9	5624	2.13 µg/L	100

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.682	599.0 -> 98.8	2808	2.18	µg/L	95
		363.1 -> 319.0	46197			
PFHpS	8.043	363.1 -> 169.0	7323	2.04	µg/L	100
		449.0 -> 79.9	7472			
PFHxA	5.817	449.0 -> 98.9	4370	2.30	µg/L	99
		313.0 -> 269.0	30666			
PFHxS	7.514	313.0 -> 118.9	1249	2.21	µg/L	96
		398.7 -> 79.9	8616			
PFNA	7.768	398.7 -> 98.9	4736	2.11	µg/L	99
		463.0 -> 419.0	22499			
PFNS	8.975	463.0 -> 219.0	4575	2.16	µg/L	89
		548.8 -> 79.9	8090			
PFOA	7.275	548.8 -> 98.9	4282	2.38	µg/L	98
		413.0 -> 369.0	61628			
PFOS	8.510	413.0 -> 169.0	8929	2.06	µg/L	97
		498.9 -> 79.9	7943			
PFPeA	4.636	498.9 -> 98.8	4840	4.56	µg/L	100
		263.0 -> 219.0	40413			
PFPeS	6.883	349.1 -> 79.9	11905	2.59	µg/L	95
		349.1 -> 98.9	5463			
PFTeDA	9.872	713.1 -> 669.0	36011	2.42	µg/L	100
		713.1 -> 168.9	2394			
PFTrDA	9.515	663.0 -> 619.0	35540	2.34	µg/L	97
		663.0 -> 168.9	2921			
PFUnDA	8.689	563.1 -> 519.0	34152	2.23	µg/L	97
		563.1 -> 269.1	5540			
11CI-PF3OUdS	9.666	630.9 -> 450.9	81029	9.81	µg/L	92
		632.9 -> 452.9	24305			
9CI-PF3ONS	8.853	530.8 -> 351.0	137979	9.19	µg/L	100
		532.8 -> 353.0	43474			
ADONA	6.918	376.9 -> 250.9	283077	9.64	µg/L	99
		376.9 -> 84.8	64481			
HFPO-DA	6.156	284.9 -> 168.9	14249	10.19	µg/L	98
		284.9 -> 184.9	1817			
3:3FTCA	4.013	241.0 -> 177.0	5014	11.13	µg/L	100
		241.0 -> 117.0	769			
5:3FTCA	6.409	341.0 -> 237.1	165513	56.92	µg/L	92
		341.0 -> 217.0	149100			
7:3FTCA	7.745	441.0 -> 316.9	85649	61.41	µg/L	95
		441.0 -> 336.9	150244			
EtFOSA	11.192	526.0 -> 219.0	7430	2.32	µg/L	98
		526.0 -> 169.0	7662			
EtFOSE	11.126	630.0 -> 58.9	16154	23.61	µg/L	100
		511.9 -> 219.0	6851			
MeFOSA	10.972	511.9 -> 169.0	7817	2.22	µg/L	87
		616.1 -> 58.9	25283			
MeFOSE	10.891	699.1 -> 79.9	3276	25.64	µg/L	100
		699.1 -> 98.8	2200			
PFDoDS	10.085	295.0 -> 201.0	4120	2.05	µg/L	87
		295.0 -> 84.9	1728			
NFDHA	5.697	279.0 -> 85.1	13403	4.50	µg/L	100
		229.0 -> 84.9	11593			
PFMBA	5.041	314.8 -> 134.9	80970	4.47	µg/L	100
		314.8 -> 82.9	2043			
PFMPA	3.729			4.23	µg/L	99
PFEESA	6.424			4.23	µg/L	99

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

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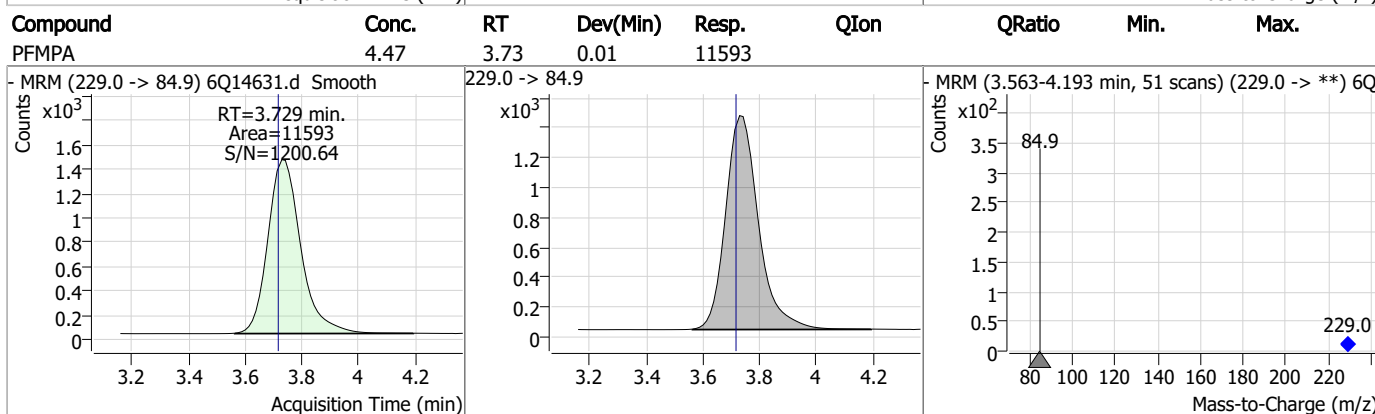
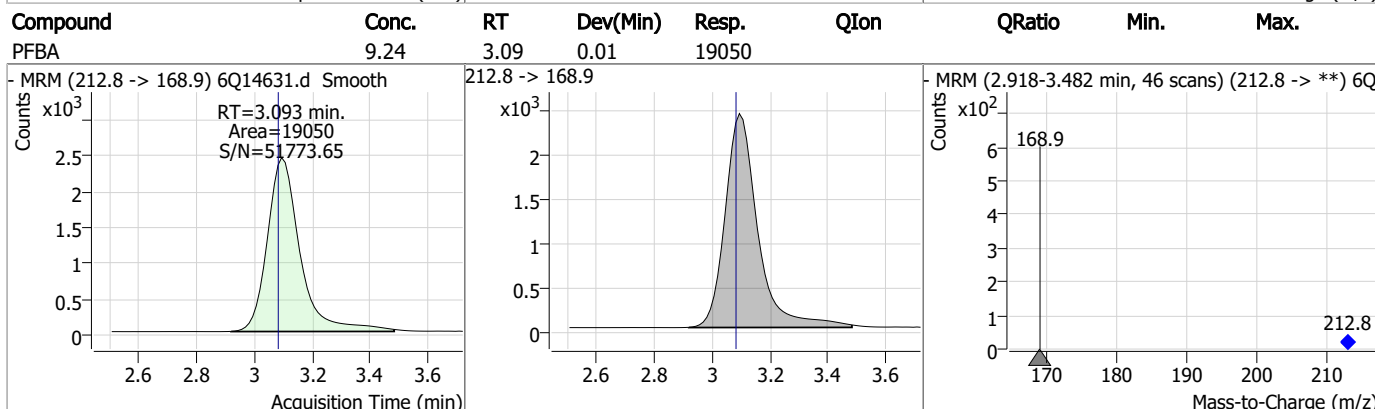
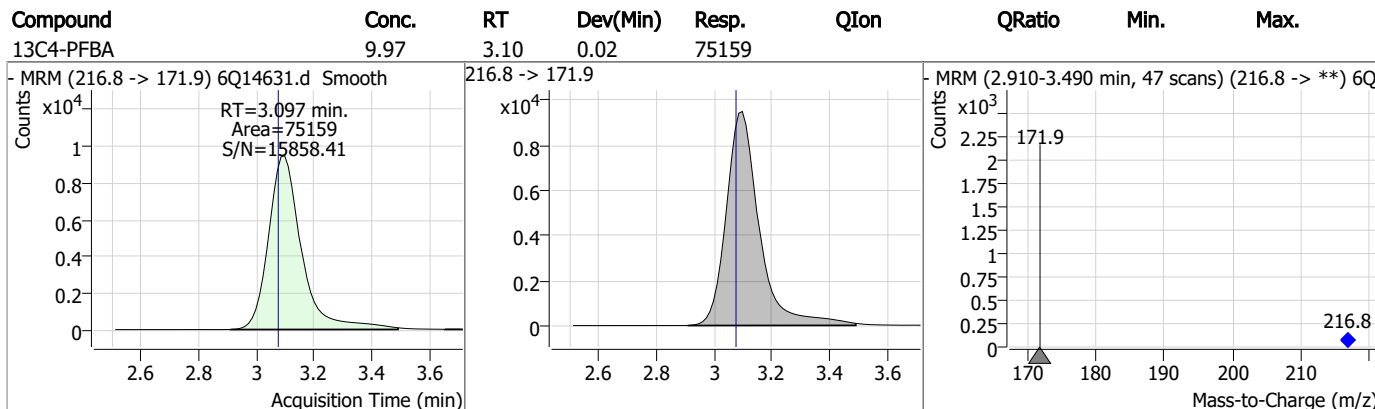
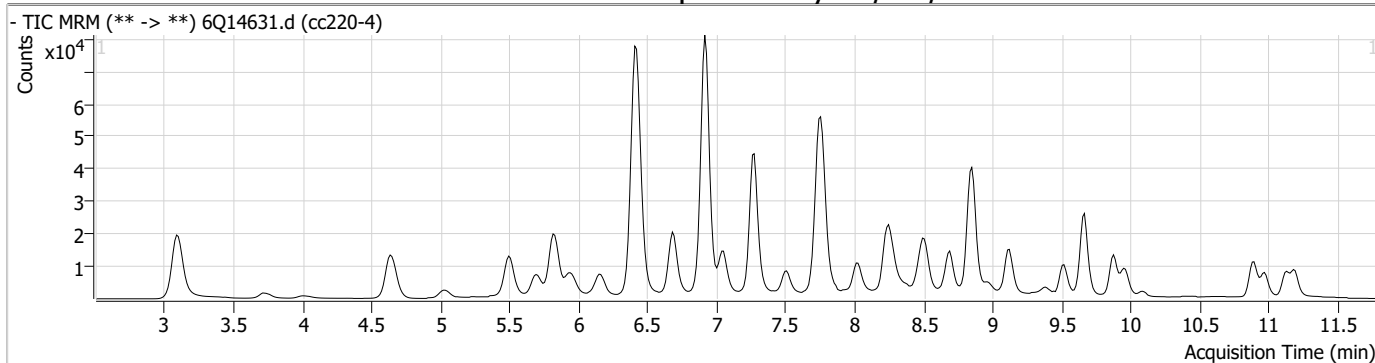
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.8.19

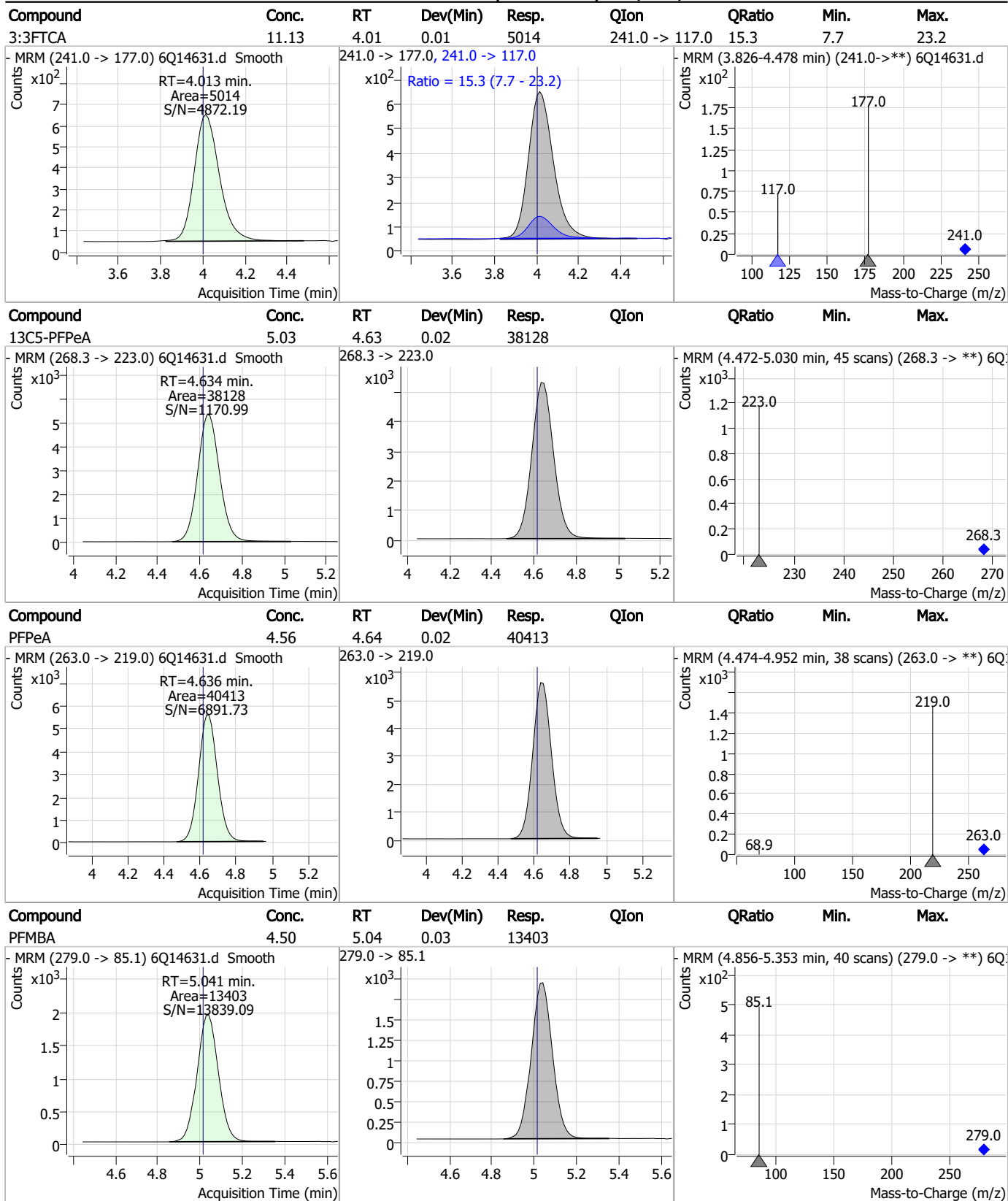
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Perfluorinated Compounds by LC/MS/MS



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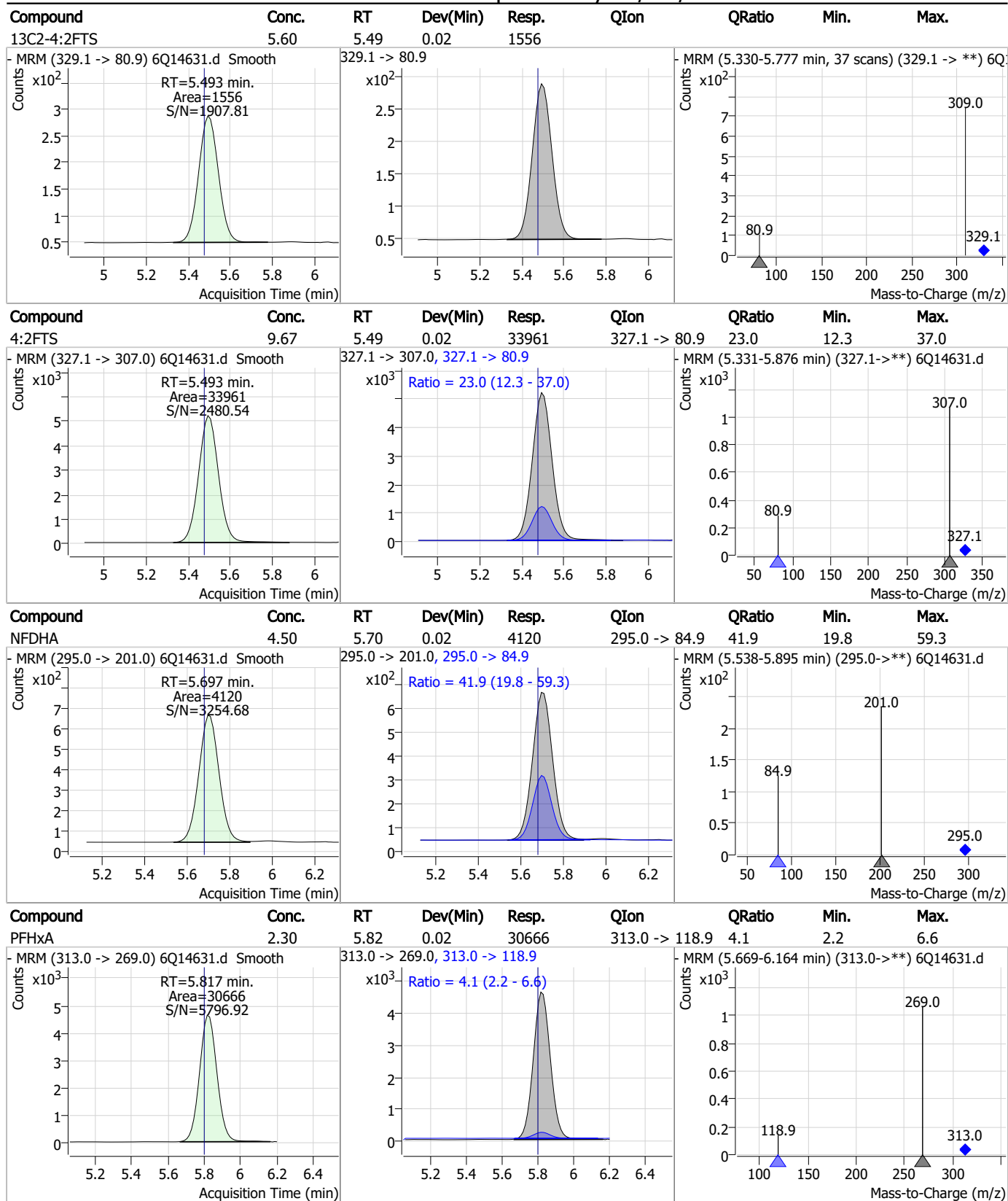
Perfluorinated Compounds by LC/MS/MS



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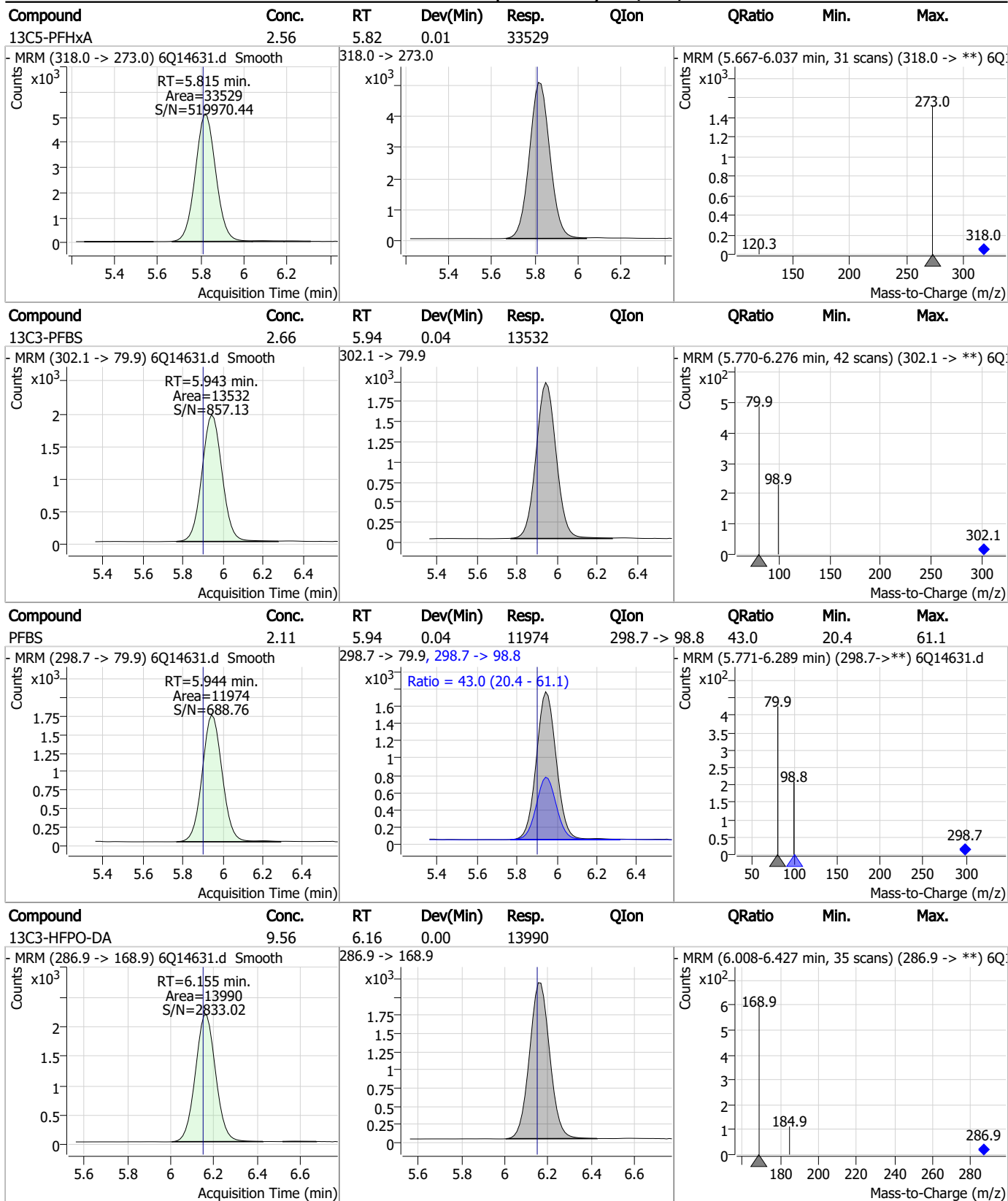
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

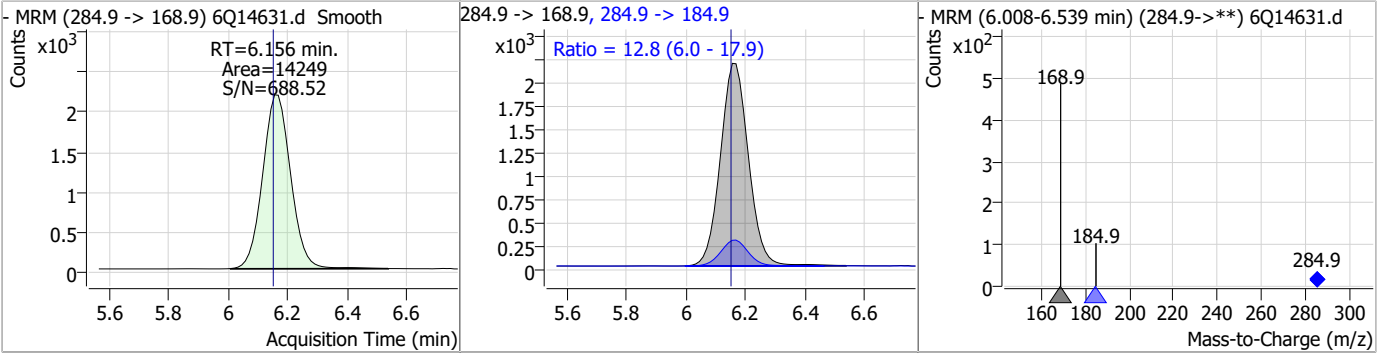


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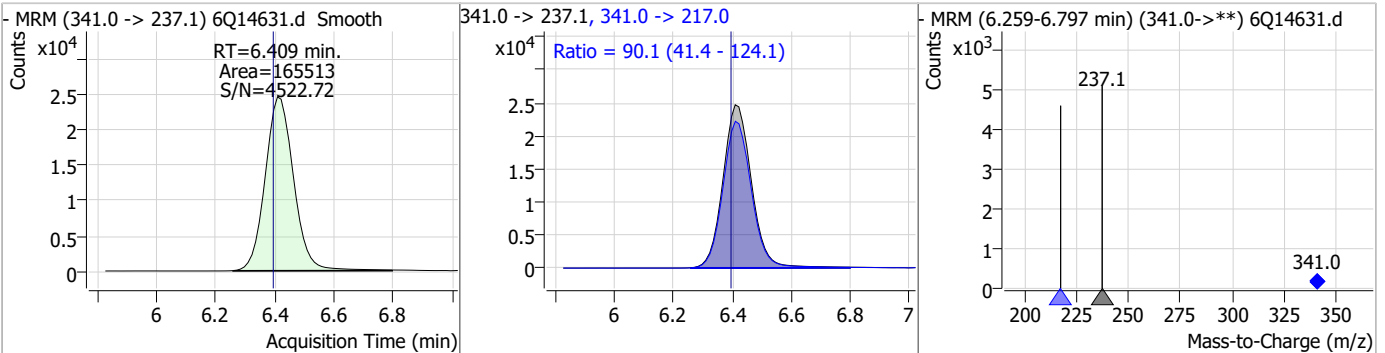


Perfluorinated Compounds by LC/MS/MS

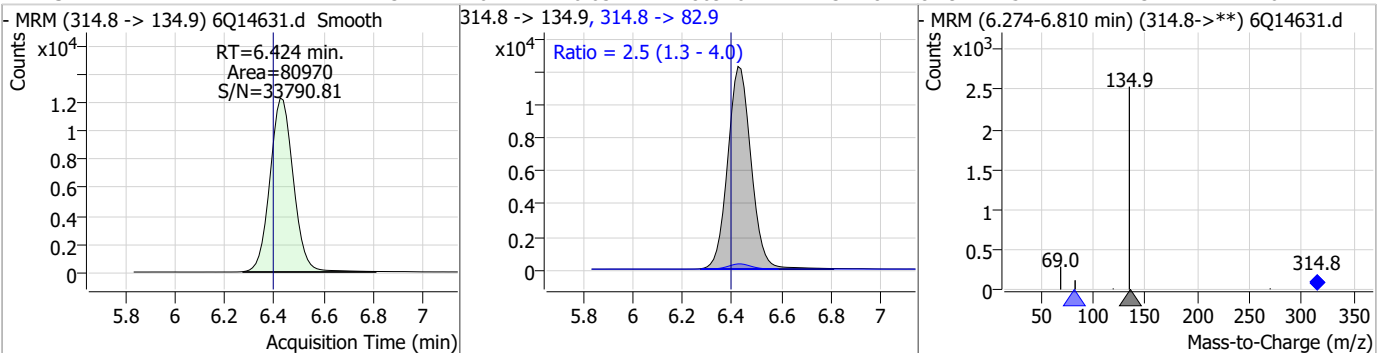
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.19	6.16	0.00	14249	284.9 -> 184.9	12.8	6.0	17.9



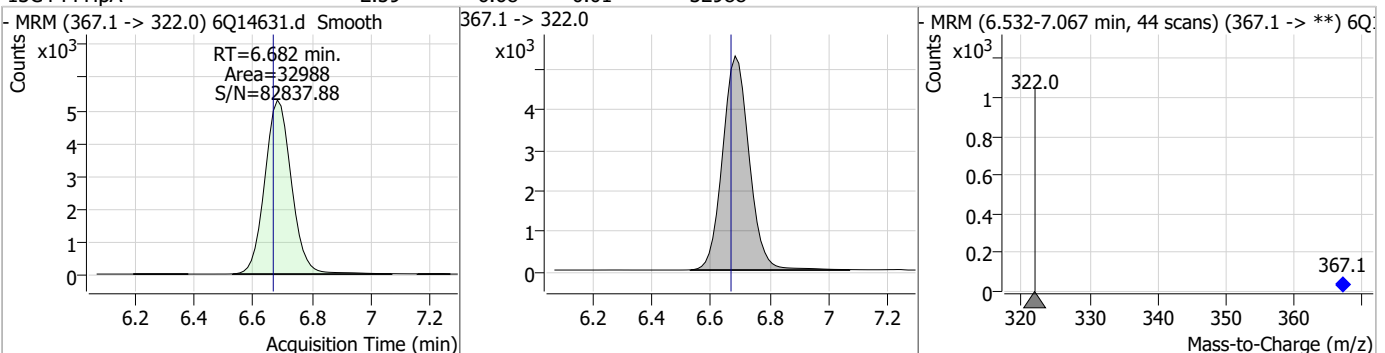
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	56.92	6.41	0.01	165513	341.0 -> 217.0	90.1	41.4	124.1



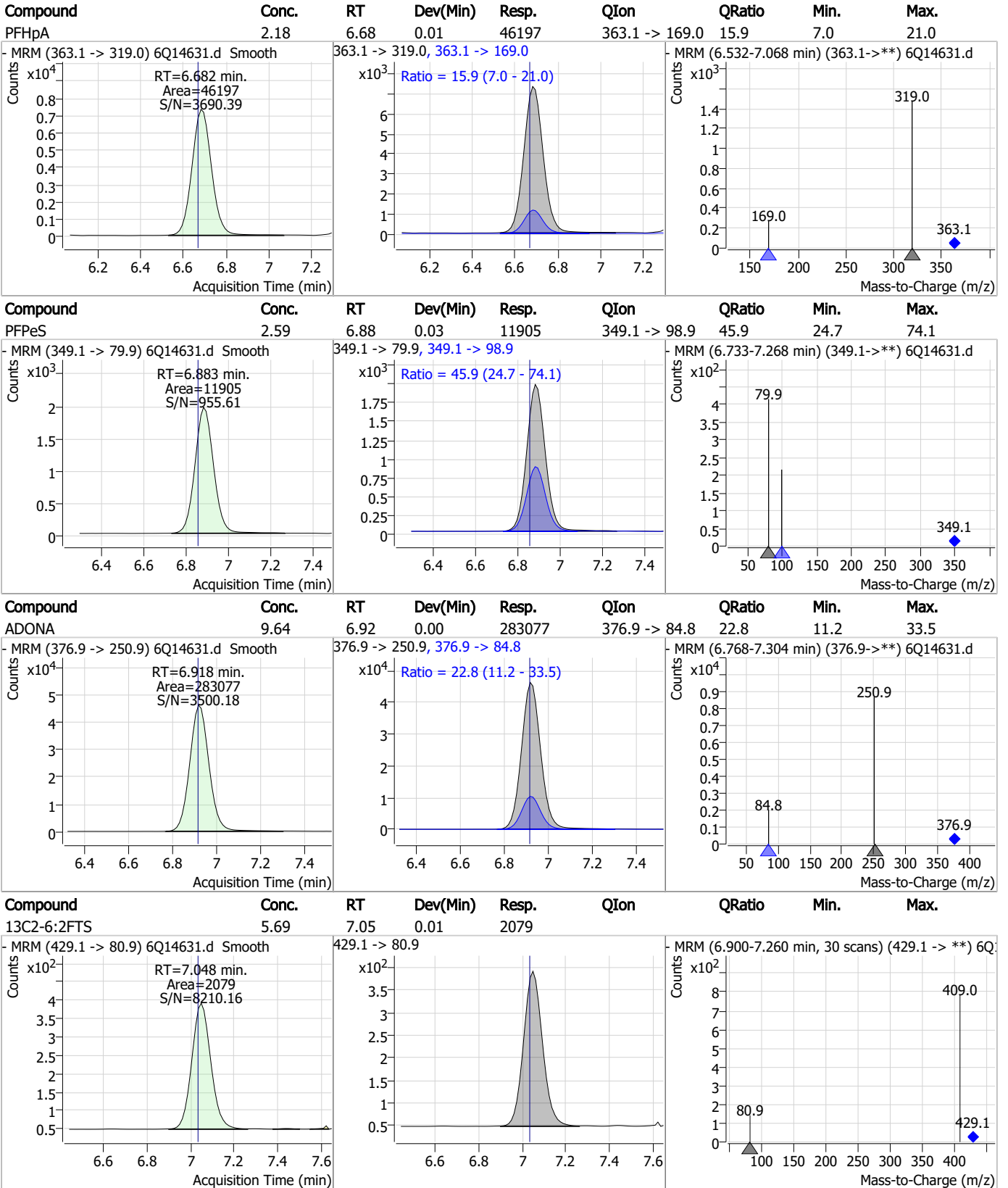
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.23	6.42	0.03	80970	314.8 -> 82.9	2.5	1.3	4.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.59	6.68	0.01	32988	367.1 -> 322.0	-	-	-



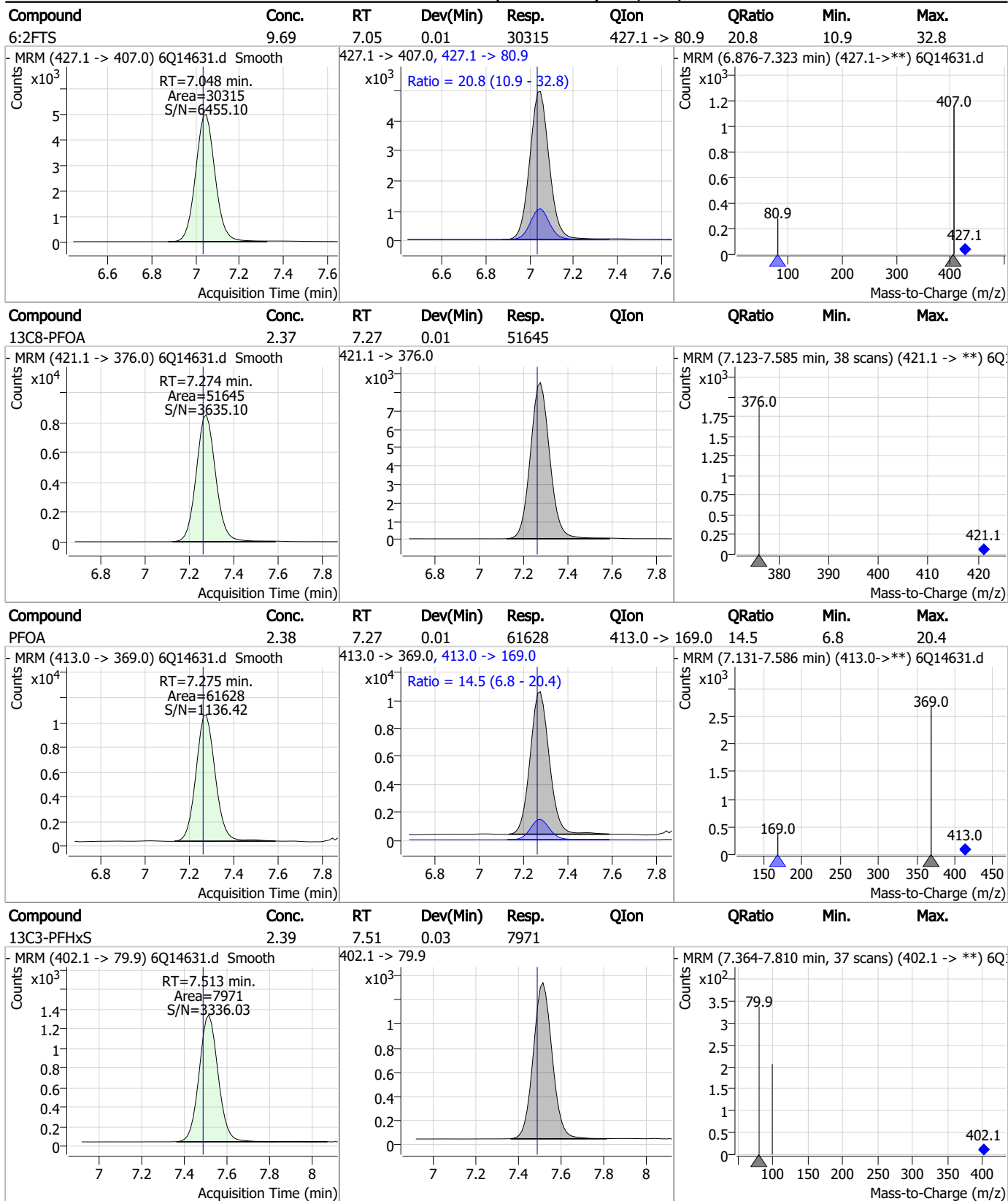
Perfluorinated Compounds by LC/MS/MS



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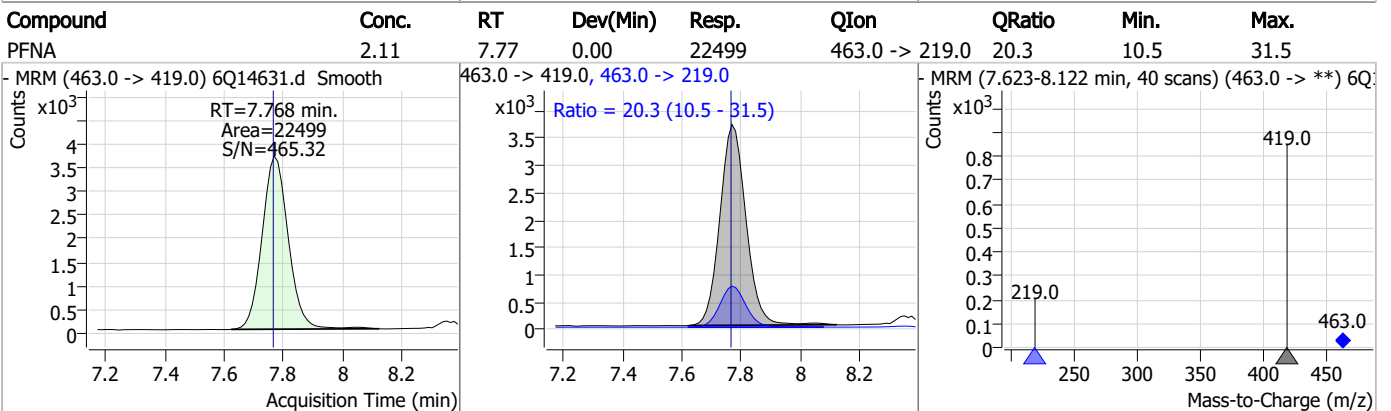
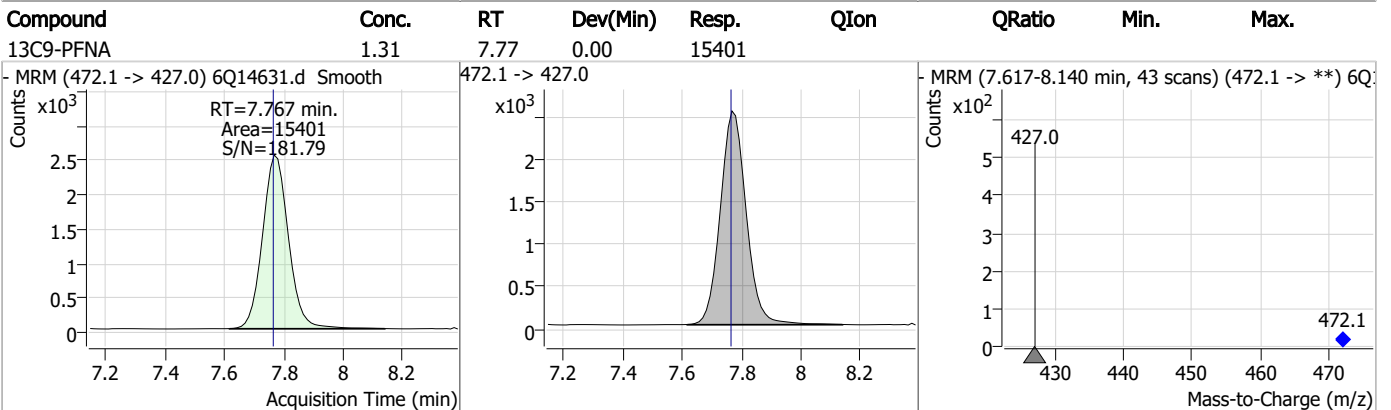
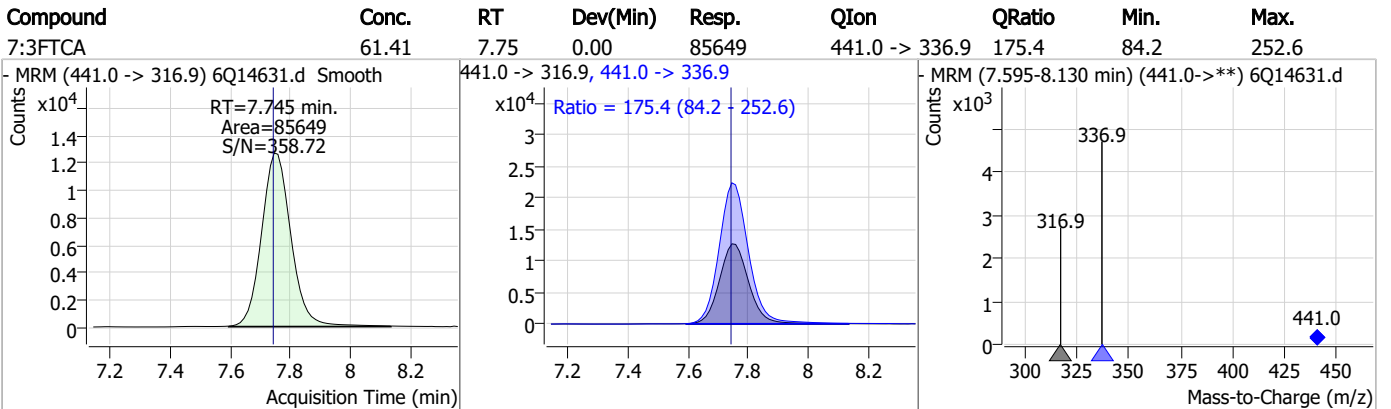
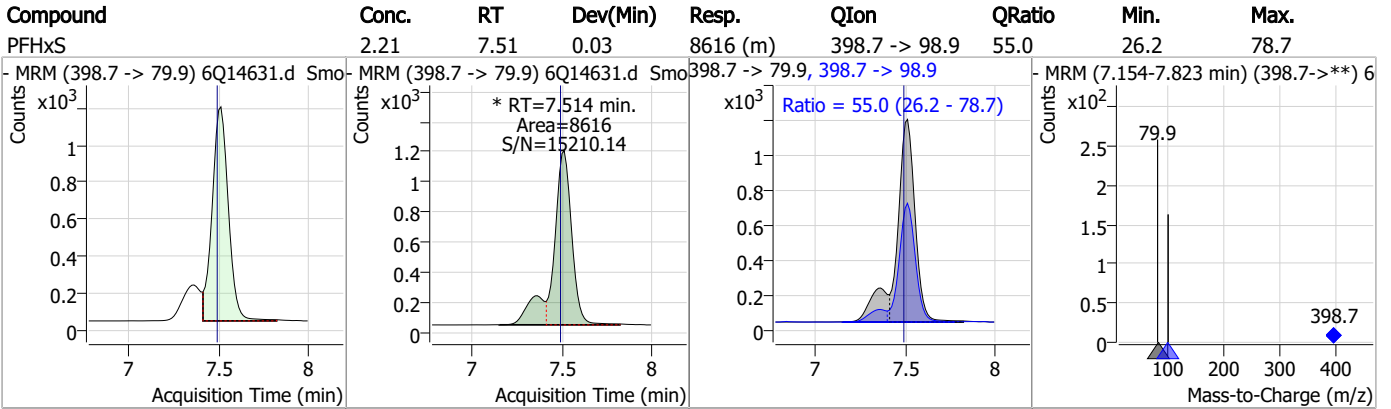


Perfluorinated Compounds by LC/MS/MS



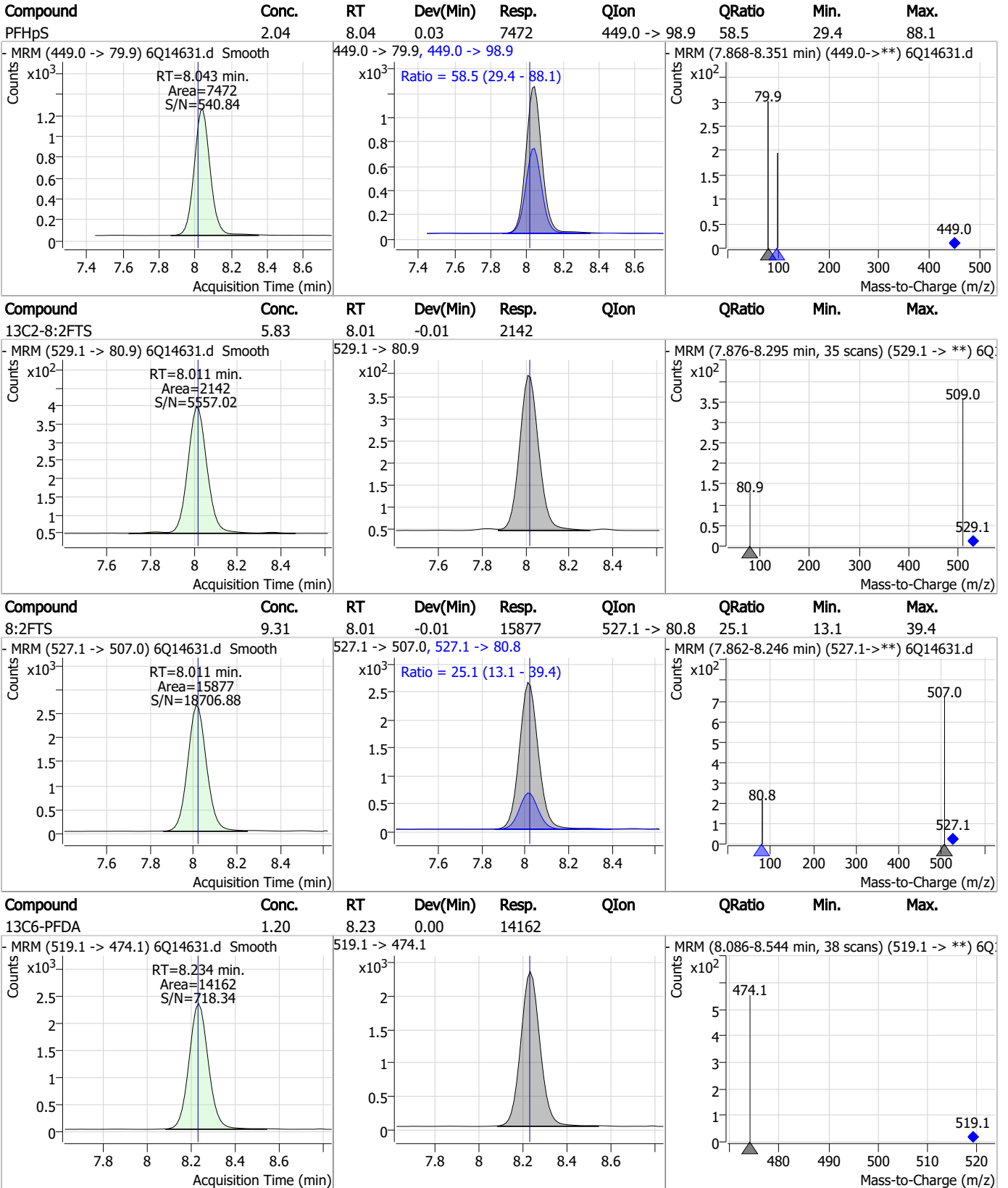
7.8.19 7

Perfluorinated Compounds by LC/MS/MS



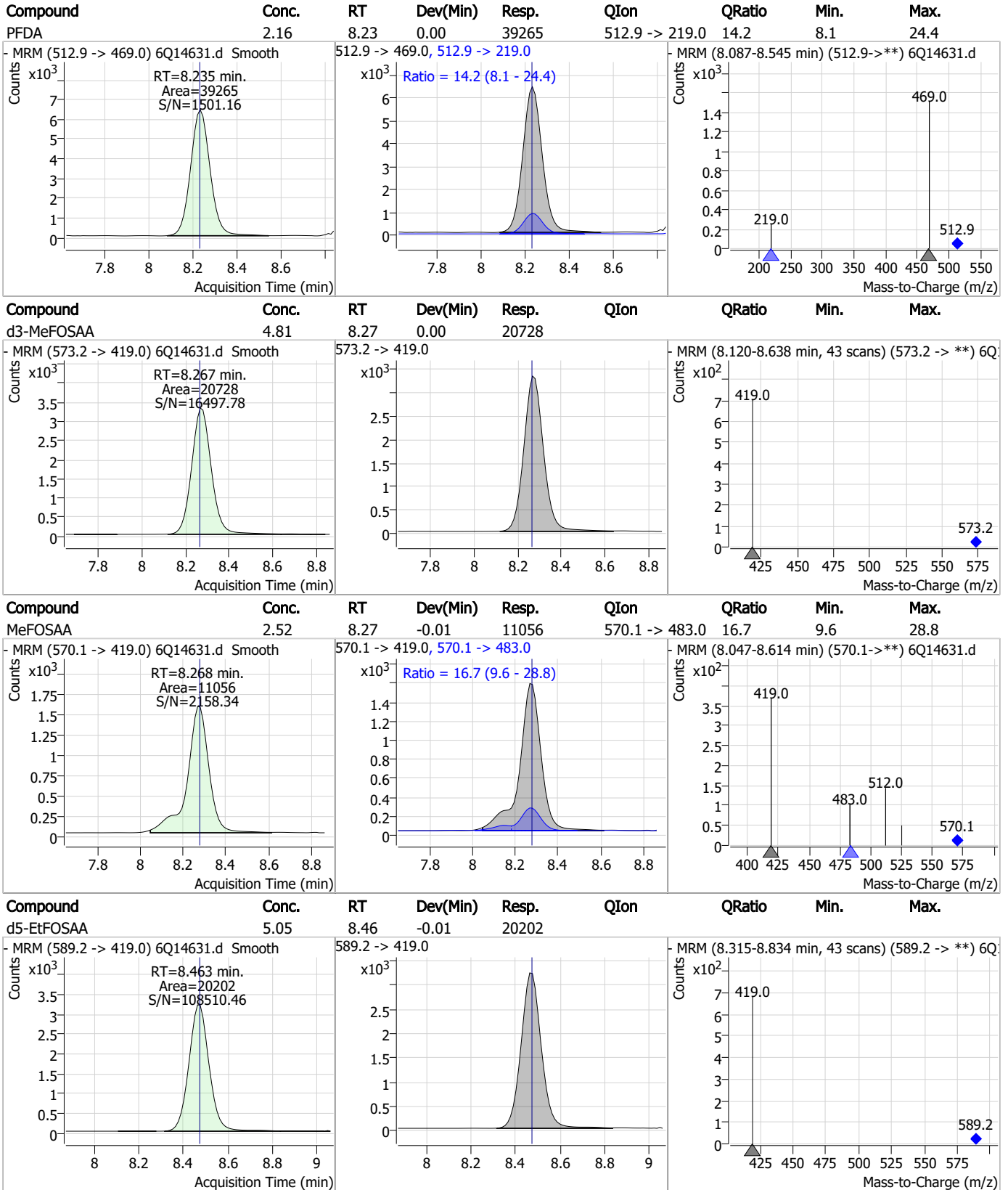
7.8.19 7

Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

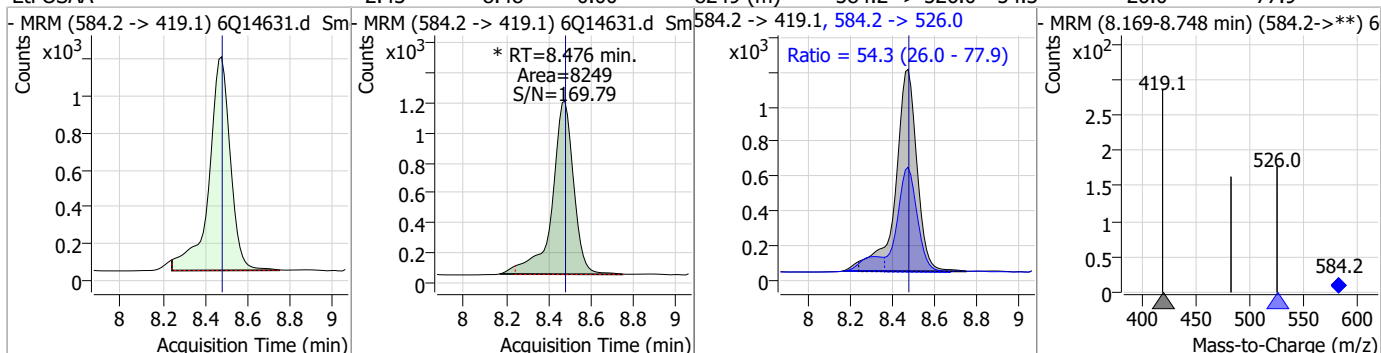


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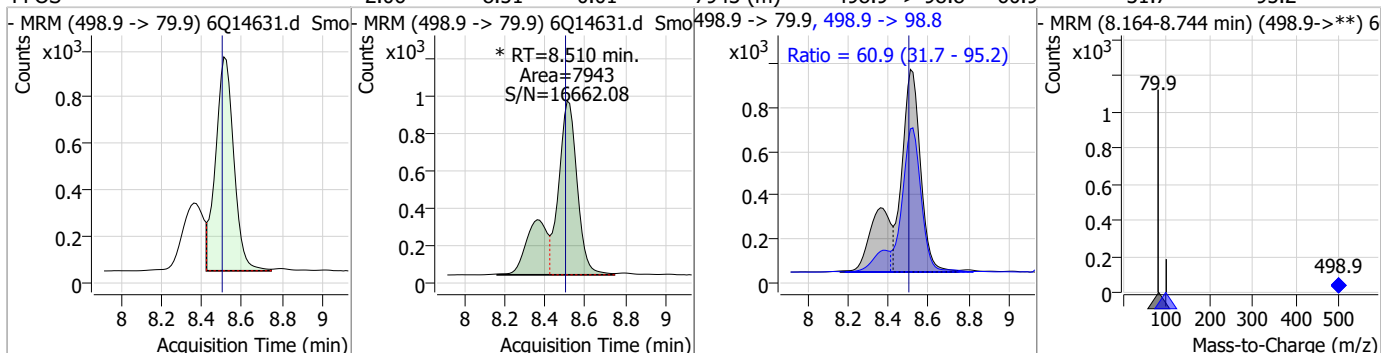


Perfluorinated Compounds by LC/MS/MS

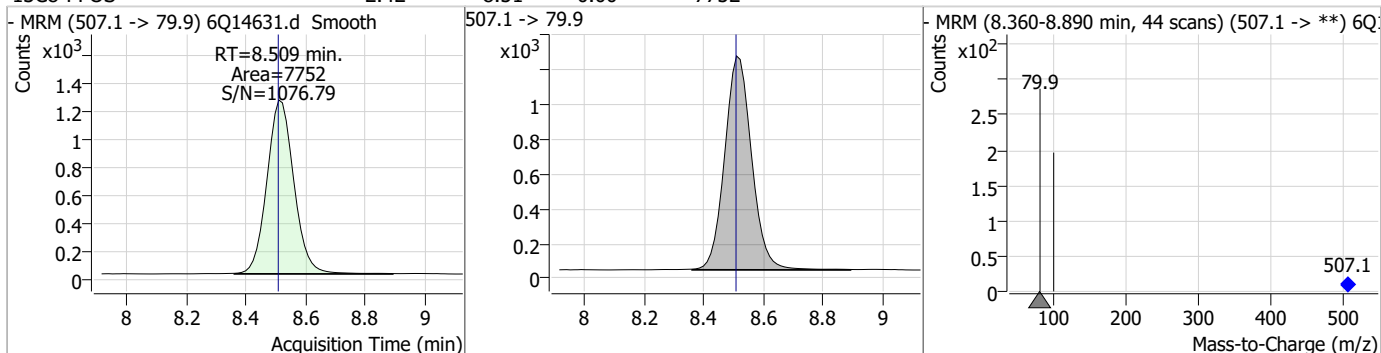
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.43	8.48	0.00	8249 (m)	584.2 -> 526.0	54.3	26.0	77.9



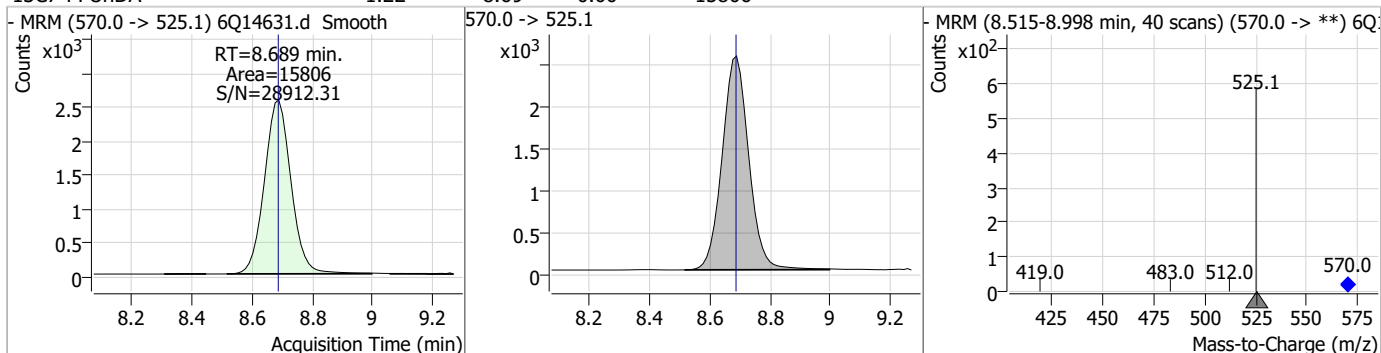
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.06	8.51	0.01	7943 (m)	498.9 -> 98.8	60.9	31.7	95.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.42	8.51	0.00	7752				

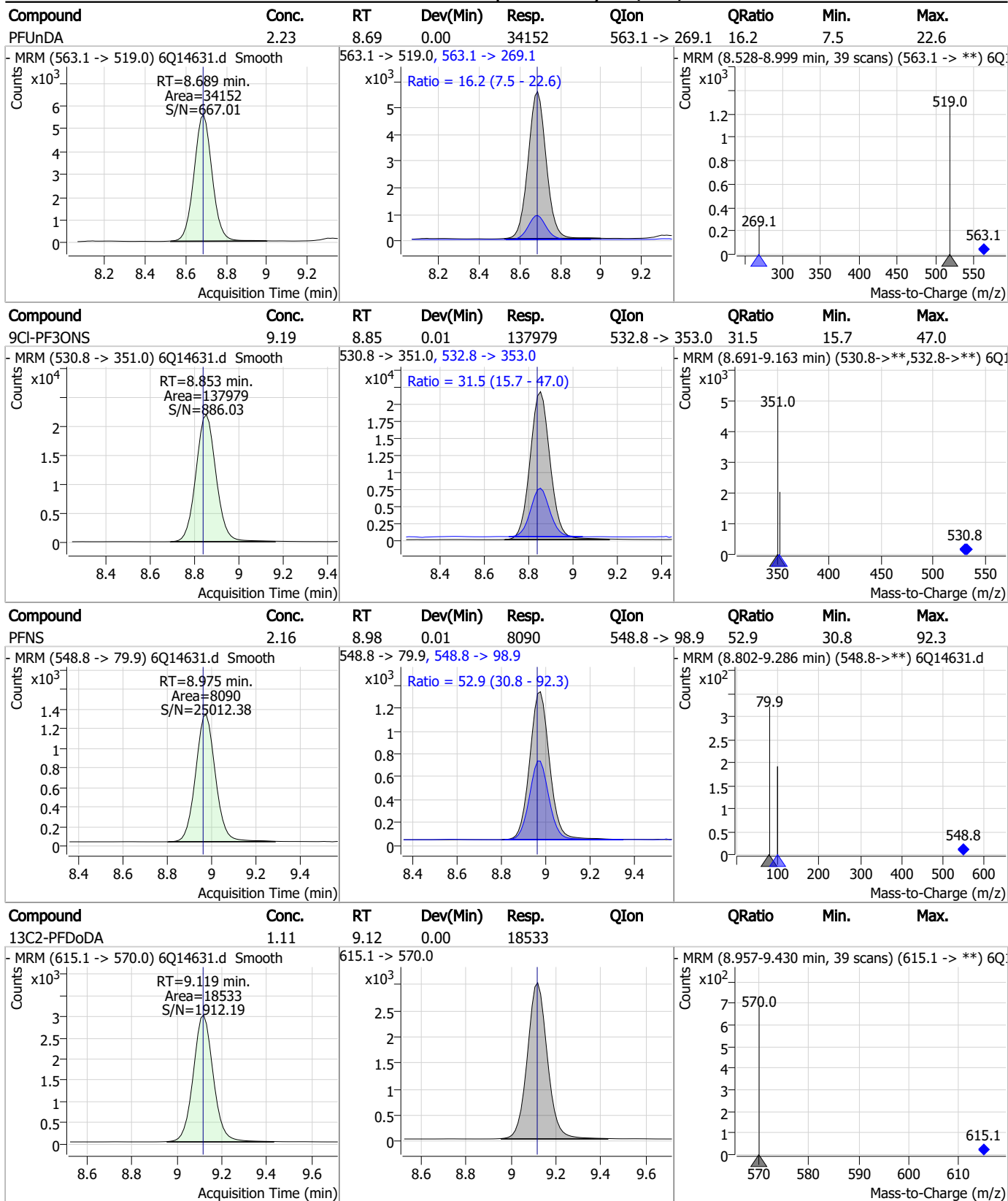


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.22	8.69	0.00	15806				



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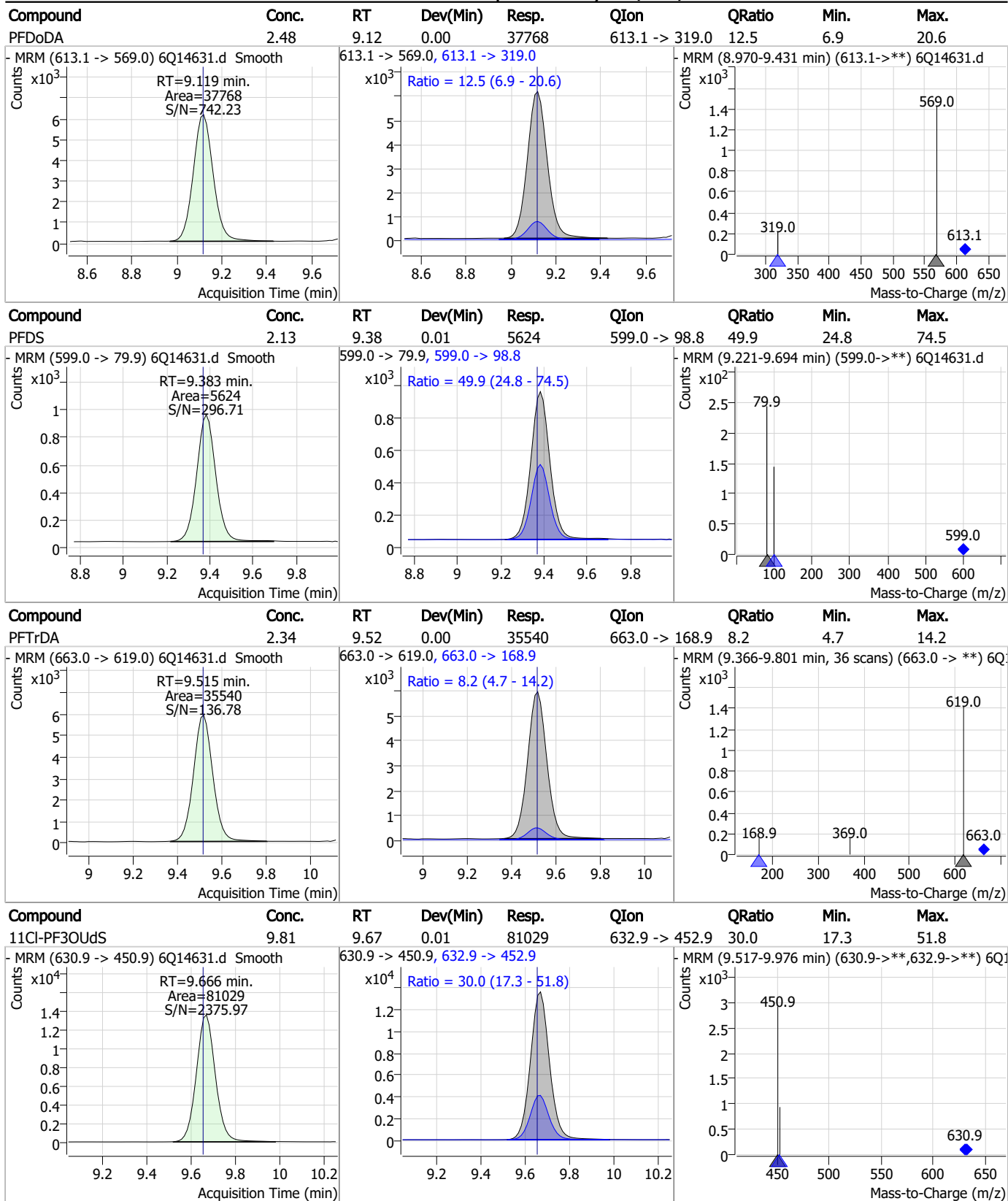
Perfluorinated Compounds by LC/MS/MS



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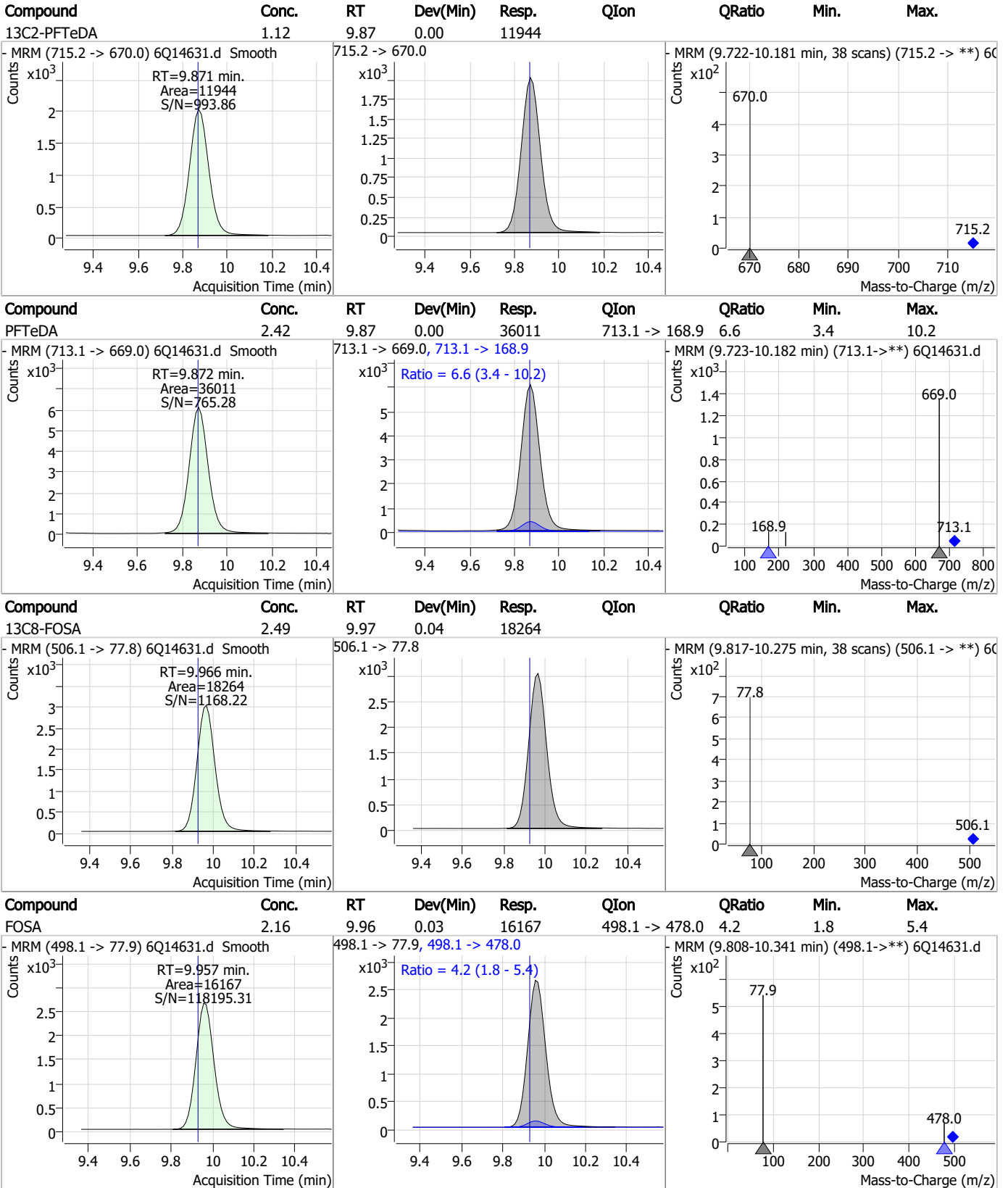
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

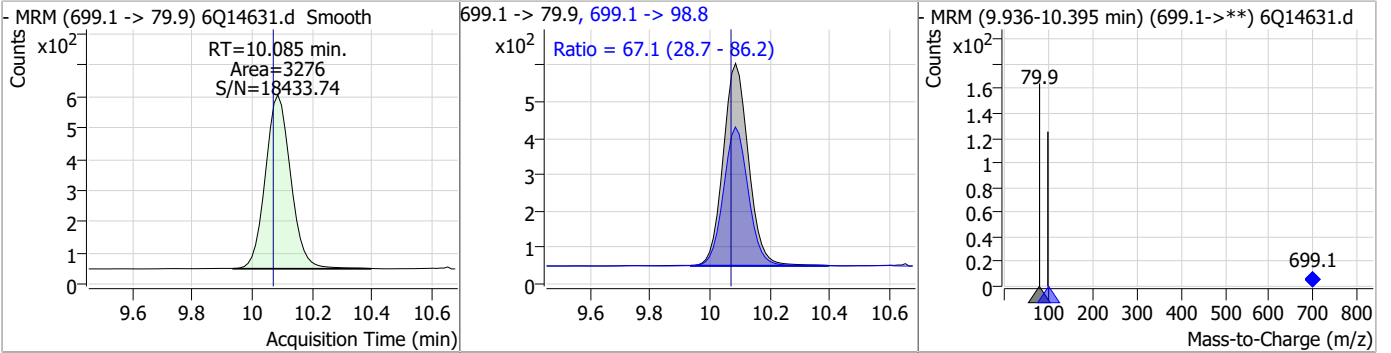


7.8.19 7

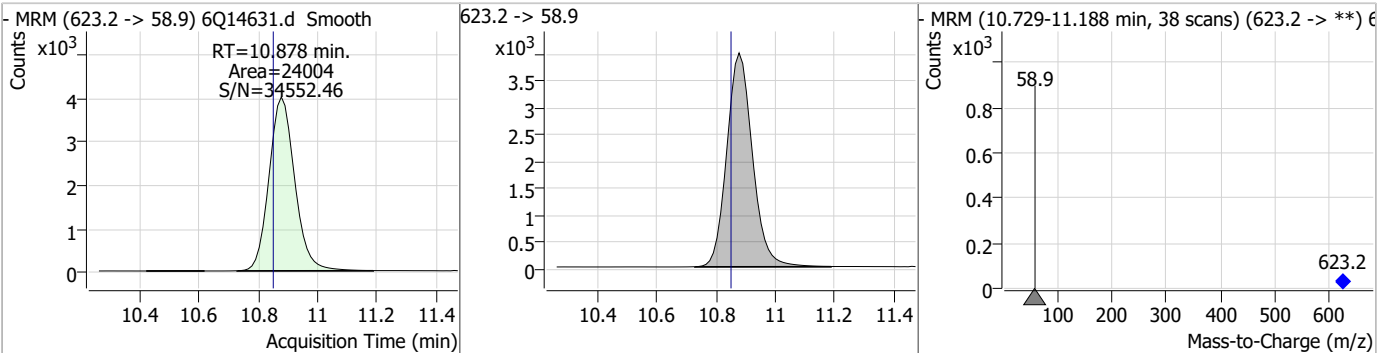


Perfluorinated Compounds by LC/MS/MS

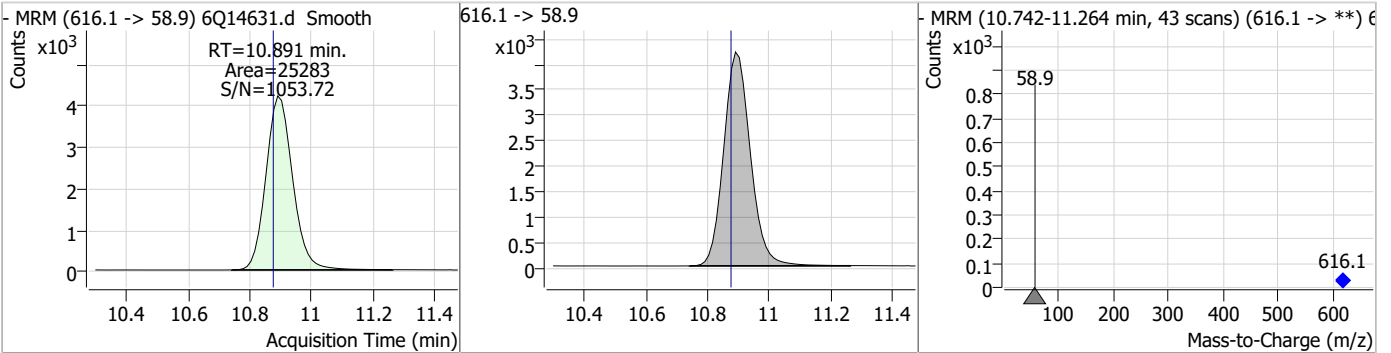
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.05	10.09	0.02	3276	699.1 -> 98.8	67.1	28.7	86.2



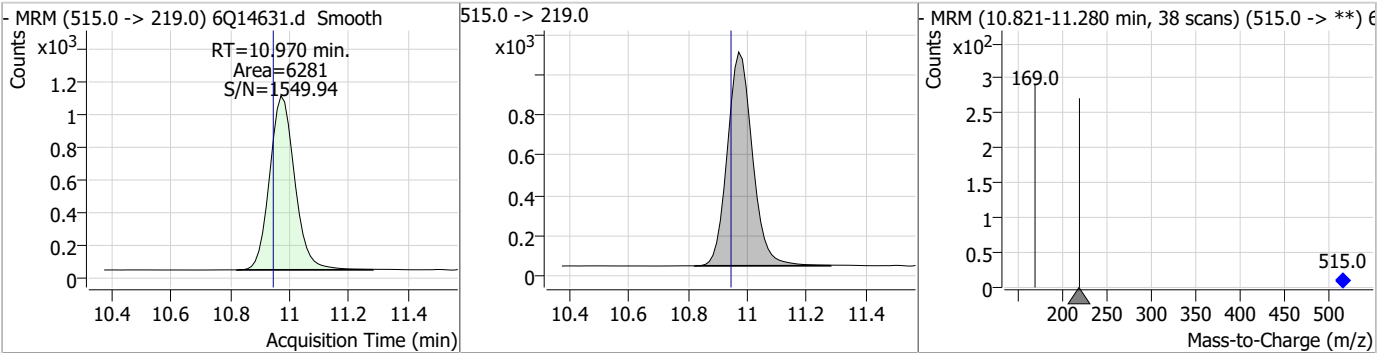
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.85	10.88	0.03	24004				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	25.64	10.89	0.01	25283				

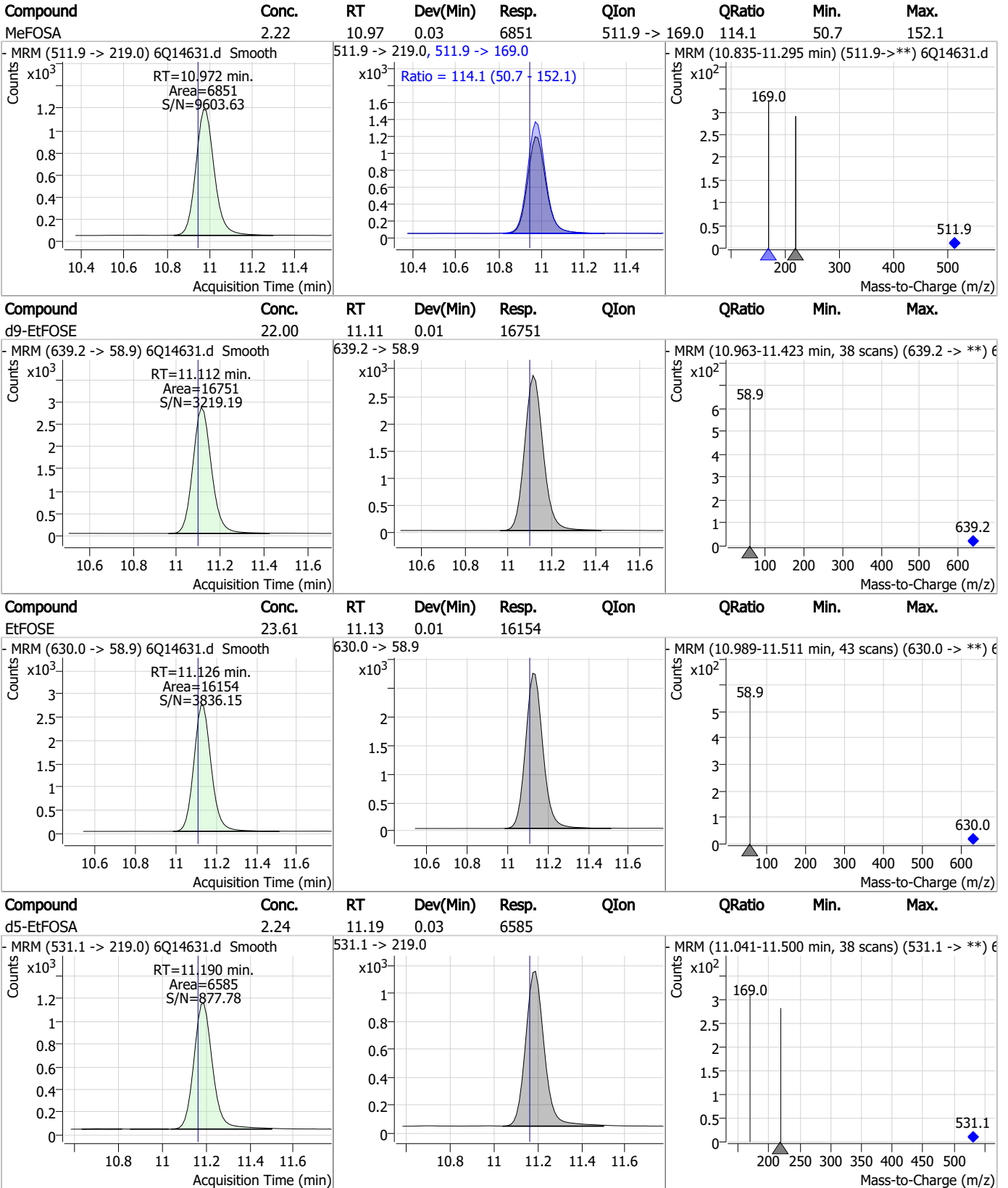


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.35	10.97	0.03	6281				



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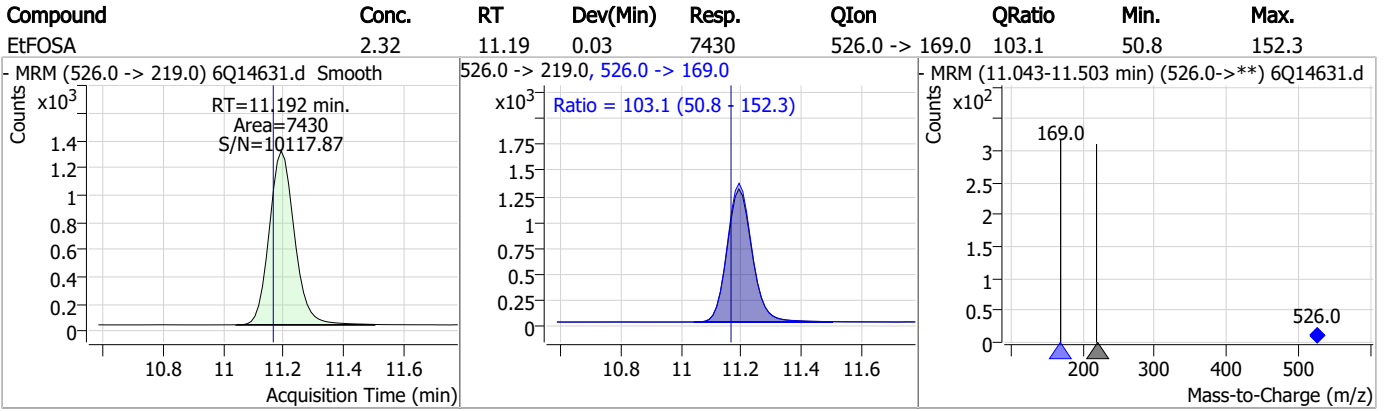
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q221-CC220 Method: EPA DRAFT 1633
Lab FileID: 6Q14631.D Analyst approved: 03/10/23 10:37 Anna Ludwig
Injection Time: 03/09/23 16:04 Supervisor approved: 03/10/23 14:34 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.51	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.51	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14643.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/9/2023 7:07:06 PM
 Sample Name : cc220-4
 Vial : P1-A5
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q221.batch.bin
 Sample Information : OP95772,S6Q221,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	75613	10.00 µg/L	0.022
M5-PFPeA	4.647	268.3 -> 223.0	37862	5.00 µg/L	0.032
M5-PFHxA	5.828	318.0 -> 273.0	32279	2.50 µg/L	0.018
M4-PFHpA	6.694	367.1 -> 322.0	33011	2.50 µg/L	0.026
M8-PFOA	7.274	421.1 -> 376.0	55103	2.50 µg/L	0.014
M9-PFNA	7.780	472.1 -> 427.0	15095	1.25 µg/L	0.015
M6-PFDA	8.247	519.1 -> 474.1	13275	1.25 µg/L	0.014
M7-PFUnDA	8.689	570.0 -> 525.1	15316	1.25 µg/L	0.002
M2-PFDoDA	9.119	615.1 -> 570.0	19607	1.25 µg/L	0.002
M2-PFTeDA	9.871	715.2 -> 670.0	12888	1.25 µg/L	0.003
M8-FOSA	9.966	506.1 -> 77.8	17499	2.50 µg/L	0.040
M3-PFBS	5.956	302.1 -> 79.9	12559	2.50 µg/L	0.055
M3-PFHxS	7.525	402.1 -> 79.9	8683	2.50 µg/L	0.039
M8-PFOS	8.521	507.1 -> 79.9	7890	2.50 µg/L	0.014
M2-4:2FTS	5.505	329.1 -> 80.9	1632	5.00 µg/L	0.029
M2-6:2FTS	7.048	429.1 -> 80.9	2252	5.00 µg/L	0.015
M2-8:2FTS	8.023	529.1 -> 80.9	1957	5.00 µg/L	0.003
M3-MeFOSAA	8.280	573.2 -> 419.0	21898	5.00 µg/L	0.015
M3-HFPO-DA	6.168	286.9 -> 168.9	15083	10.00 µg/L	0.017
M5-EtFOSAA	8.475	589.2 -> 419.0	20437	5.00 µg/L	0.002
M7-MeFOSE	10.878	623.2 -> 58.9	23816	25.00 µg/L	0.027
M9-EtFOSE	11.112	639.2 -> 58.9	16297	25.00 µg/L	0.015
M5-EtFOSA	11.178	531.1 -> 219.0	6805	2.50 µg/L	0.014
M3-MeFOSA	10.970	515.0 -> 219.0	6043	2.50 µg/L	0.026
13C4-PFOS	8.522	502.8 -> 79.9	8779	2.50 µg/L	0.026
13C3-PFBA	3.089	216.0 -> 172.0	32860	5.00 µg/L	0.010
18O2-PFHxS	7.512	403.0 -> 83.9	6048	2.50 µg/L	0.015
13C4-PFOA	7.274	417.1 -> 372.0	67095	2.50 µg/L	0.014
13C2-PFDA	8.247	515.1 -> 470.1	19527	1.25 µg/L	0.014
13C5-PFNA	7.780	468.0 -> 423.0	15539	1.25 µg/L	0.015
13C2-PFHxA	5.829	315.1 -> 270.0	33620	2.50 µg/L	0.030
System Monitoring Compounds					
13C2-4:2FTS	5.505	329.1 -> 80.9	1632	5.67 µg/L	0.029
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.3%		
13C2-6:2FTS	7.048	429.1 -> 80.9	2252	5.95 µg/L	0.015
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.9%		
13C2-8:2FTS	8.023	529.1 -> 80.9	1957	5.14 µg/L	0.003
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C2-PFDoDA	9.119	615.1 -> 570.0	19607	1.19 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C2-PFTeDA	9.871	715.2 -> 670.0	12888	1.23 µg/L	0.003
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C3-PFBS	5.956	302.1 -> 79.9	12559	2.38 µg/L	0.055
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.2%		
13C3-PFHxS	7.525	402.1 -> 79.9	8683	2.51 µg/L	0.039

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C4-PFBA	3.097	216.8 -> 171.9	75613	10.01 µg/L	0.022
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.694	367.1 -> 322.0	33011	2.46 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C5-PFHxA	5.828	318.0 -> 273.0	32279	2.34 µg/L	0.018
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C5-PFPeA	4.647	268.3 -> 223.0	37862	4.75 µg/L	0.032
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C6-PFDA	8.247	519.1 -> 474.1	13275	1.14 µg/L	0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.8%	
13C7-PFUnDA	8.689	570.0 -> 525.1	15316	1.19 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C8-FOSA	9.966	506.1 -> 77.8	17499	2.54 µg/L	0.040
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C8-PFOA	7.274	421.1 -> 376.0	55103	2.47 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C8-PFOS	8.521	507.1 -> 79.9	7890	2.62 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C9-PFNA	7.780	472.1 -> 427.0	15095	1.26 µg/L	0.015
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.8%	
d3-MeFOSAA	8.280	573.2 -> 419.0	21898	5.42 µg/L	0.015
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C3-HFPO-DA	6.168	286.9 -> 168.9	15083	9.79 µg/L	0.017
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
d3-MeFOSA	10.970	515.0 -> 219.0	6043	2.40 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
d5-EtFOSAA	8.475	589.2 -> 419.0	20437	5.44 µg/L	0.002
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.9%	
d7-MeFOSE	10.878	623.2 -> 58.9	23816	23.11 µg/L	0.027
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.4%	
d9-EtFOSE	11.112	639.2 -> 58.9	16297	22.81 µg/L	0.015
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.2%	
d5-EtFOSA	11.178	531.1 -> 219.0	6805	2.46 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
Target Compounds					QValue
4:2FTS	5.505	327.1 -> 307.0	33709	9.15 µg/L	100
		327.1 -> 80.9	8308		
6:2FTS	7.048	427.1 -> 407.0	28071	8.28 µg/L	98
		427.1 -> 80.9	6383		
8:2FTS	8.023	527.1 -> 507.0	16671	10.70 µg/L	97
		527.1 -> 80.8	4099		
EtFOSAA	8.476	584.2 -> 419.1	8242	2.40 µg/L	100
		584.2 -> 526.0	4266		
FOSA	9.957	498.1 -> 77.9	16377	2.29 µg/L	99
		498.1 -> 478.0	552		
MeFOSAA	8.281	570.1 -> 419.0	10655	2.30 µg/L	93
		570.1 -> 483.0	1729		
PFBA	3.093	212.8 -> 168.9	19059	9.19 µg/L	100
PFBS	5.957	298.7 -> 79.9	11898	2.26 µg/L	86
		298.7 -> 98.8	5867		
PFDA	8.248	512.9 -> 469.0	39995	2.35 µg/L	95
		512.9 -> 219.0	5614		
PFDODA	9.119	613.1 -> 569.0	37926	2.36 µg/L	96
		613.1 -> 319.0	4619		
PFDS	9.383	599.0 -> 79.9	5373	2.00 µg/L	93

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.695	599.0 -> 98.8	2945	2.28	µg/L	99
		363.1 -> 319.0	48247			
PFHpS	8.043	363.1 -> 169.0	6485	2.03	µg/L	100
		449.0 -> 79.9	7572			
PFHxA	5.831	449.0 -> 98.9	4449	2.26	µg/L	99
		313.0 -> 269.0	29010			
PFHxS	7.526	313.0 -> 118.9	1208	2.02	µg/L	98
		398.7 -> 79.9	8575			
PFNA	7.780	398.7 -> 98.9	4604	2.46	µg/L	96
		463.0 -> 419.0	25611			
PFNS	8.975	463.0 -> 219.0	4851	2.07	µg/L	97
		548.8 -> 79.9	7889			
PFOA	7.275	548.8 -> 98.9	4675	2.29	µg/L	99
		413.0 -> 369.0	63093			
PFOS	8.522	413.0 -> 169.0	8330	2.15	µg/L	96
		498.9 -> 79.9	8431			
PFPeA	4.650	498.9 -> 98.8	5065	4.59	µg/L	100
		263.0 -> 219.0	40406			
PFPeS	6.895	349.1 -> 79.9	10560	2.11	µg/L	93
		349.1 -> 98.9	5740			
PFTeDA	9.872	713.1 -> 669.0	35530	2.21	µg/L	100
		713.1 -> 168.9	2441			
PFTrDA	9.515	663.0 -> 619.0	35003	2.18	µg/L	97
		663.0 -> 168.9	2921			
PFUnDA	8.689	563.1 -> 519.0	34551	2.33	µg/L	100
		563.1 -> 269.1	5223			
11CI-PF3OUdS	9.666	630.9 -> 450.9	84908	9.53	µg/L	90
		632.9 -> 452.9	24422			
9CI-PF3ONS	8.853	530.8 -> 351.0	143334	8.85	µg/L	96
		532.8 -> 353.0	48377			
ADONA	6.930	376.9 -> 250.9	283852	8.96	µg/L	100
		376.9 -> 84.8	63547			
HFPO-DA	6.169	284.9 -> 168.9	14351	9.52	µg/L	100
		284.9 -> 184.9	1714			
3:3FTCA	4.013	241.0 -> 177.0	5097	11.40	µg/L	98
		241.0 -> 117.0	739			
5:3FTCA	6.421	341.0 -> 237.1	168382	60.15	µg/L	94
		341.0 -> 217.0	148146			
7:3FTCA	7.758	441.0 -> 316.9	81437	60.65	µg/L	86
		441.0 -> 336.9	153085			
EtFOSA	11.192	526.0 -> 219.0	7553	2.29	µg/L	98
		526.0 -> 169.0	7795			
EtFOSE	11.126	630.0 -> 58.9	15603	23.44	µg/L	100
		511.9 -> 219.0	7018			
MeFOSA	10.972	511.9 -> 169.0	7467	2.36	µg/L	95
		616.1 -> 58.9	24088			
MeFOSE	10.891	699.1 -> 79.9	3358	24.62	µg/L	100
		699.1 -> 98.8	2047			
PFDoDS	10.085	295.0 -> 201.0	4054	2.07	µg/L	95
		295.0 -> 84.9	1897			
NFDHA	5.710	279.0 -> 85.1	13236	4.60	µg/L	88
		229.0 -> 84.9	11391			
PFMBA	5.041	279.0 -> 85.1	13236	4.48	µg/L	100
PFMPA	3.729	229.0 -> 84.9	11391	4.42	µg/L	100
PFEESA	6.436	314.8 -> 134.9	79324	4.31	µg/L	100
		314.8 -> 82.9	2071			

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

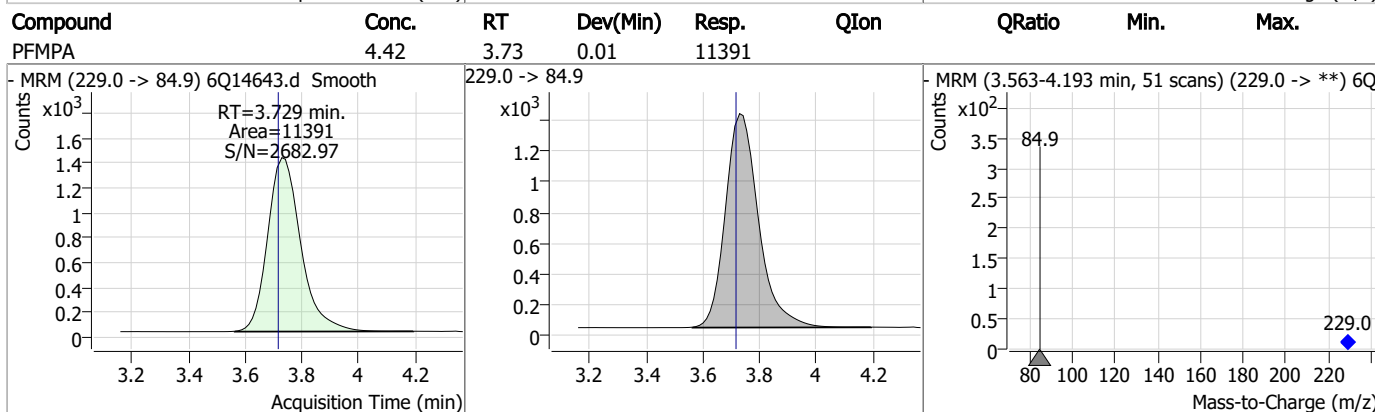
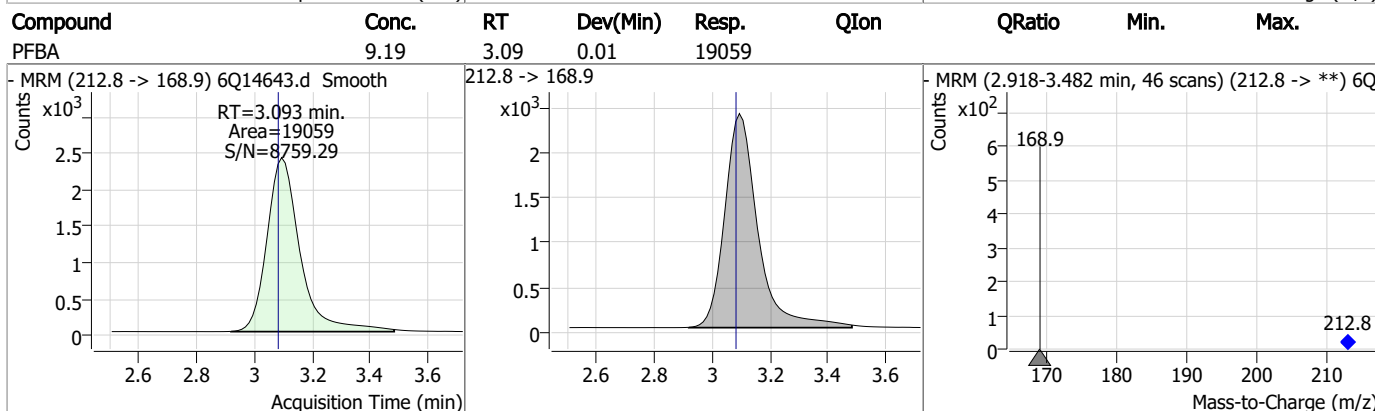
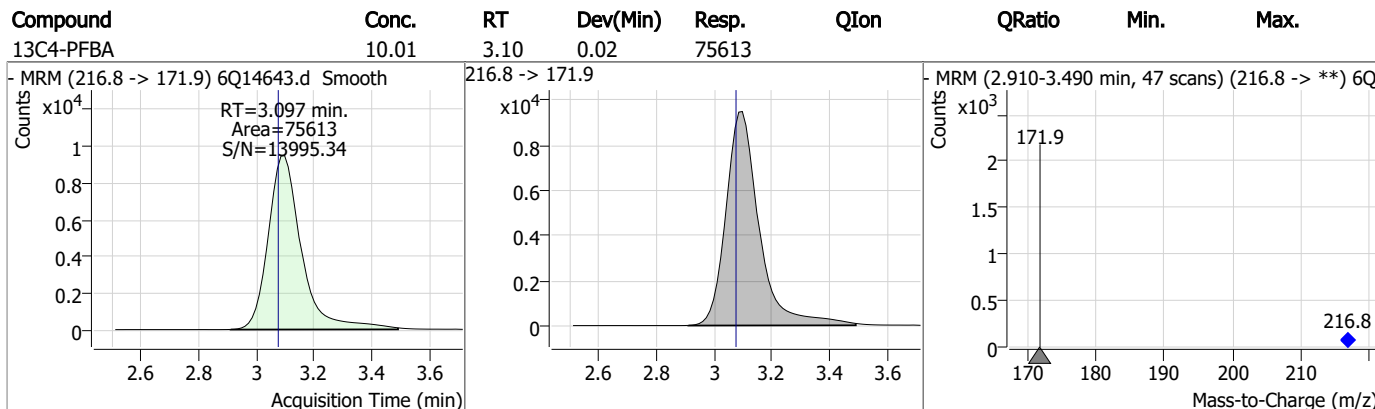
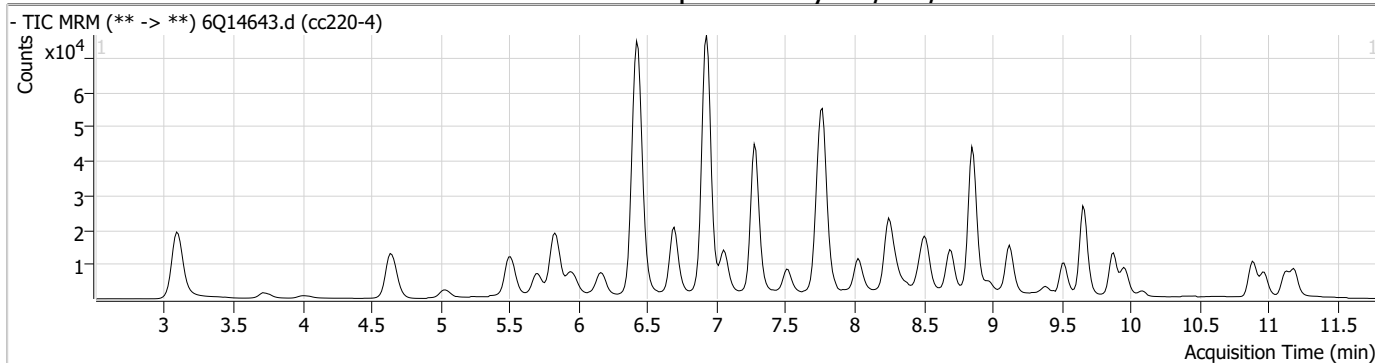
Perfluorinated Compounds by LC/MS/MS

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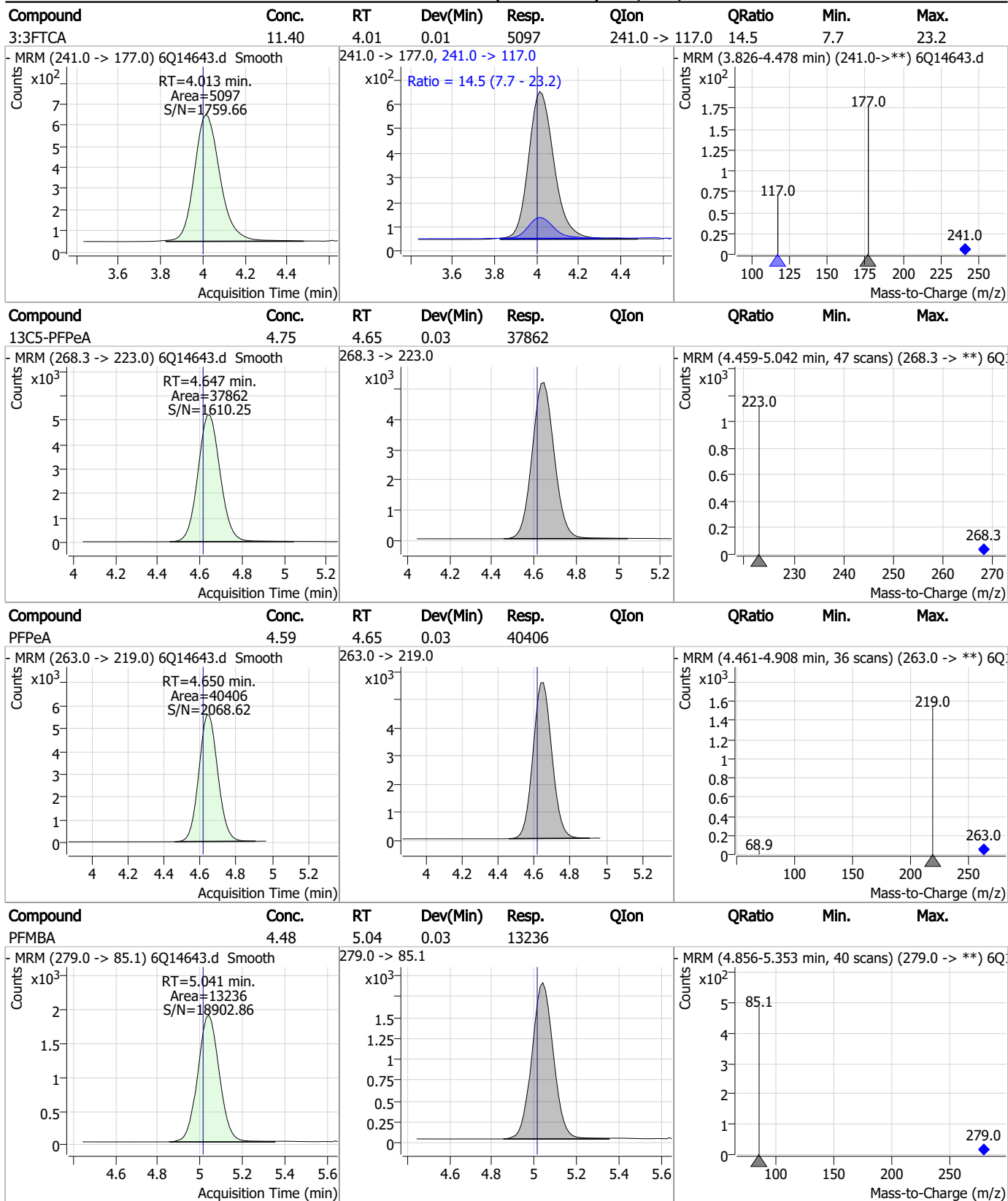
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Perfluorinated Compounds by LC/MS/MS



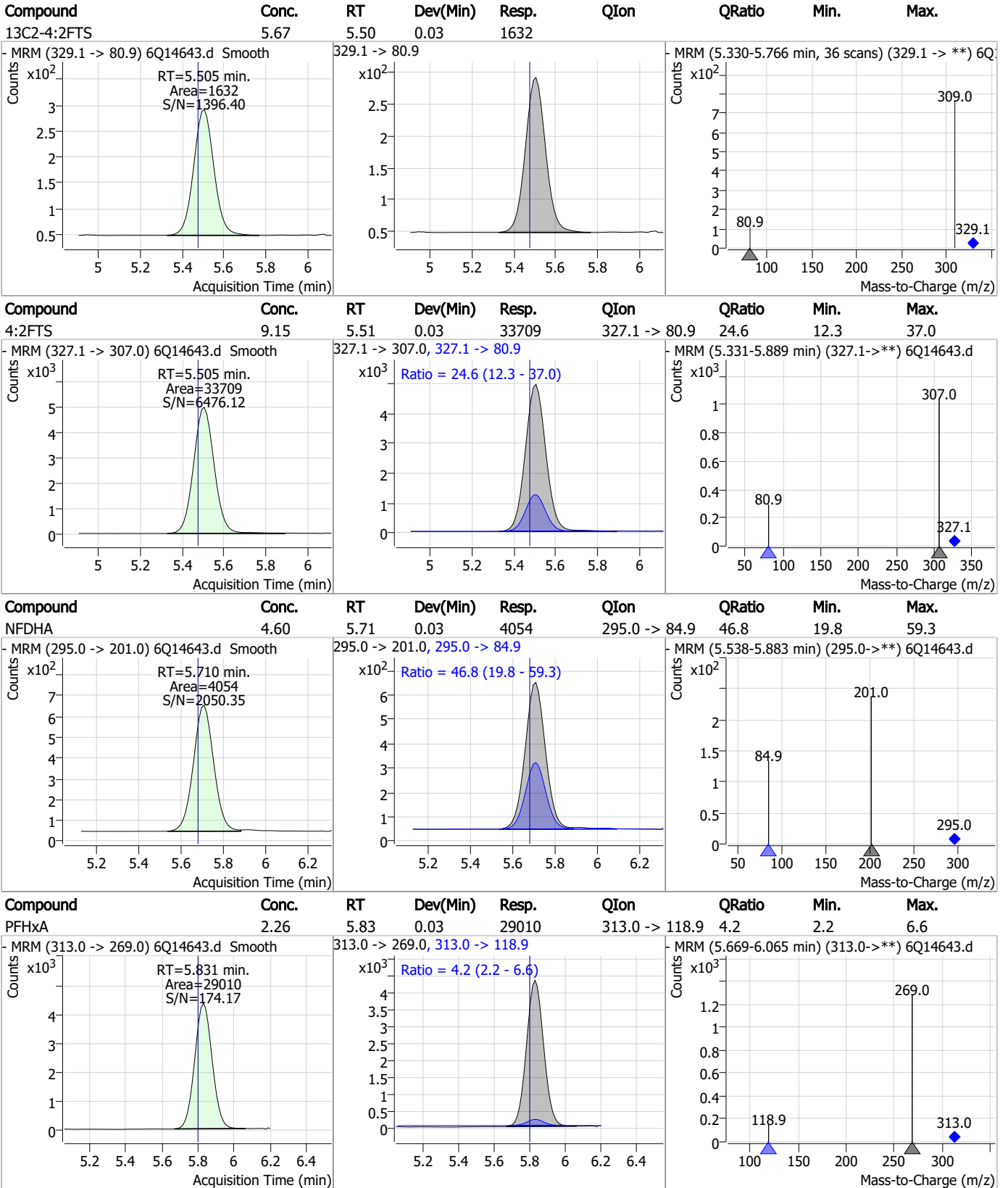
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

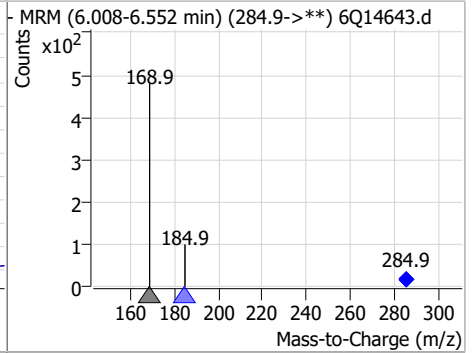
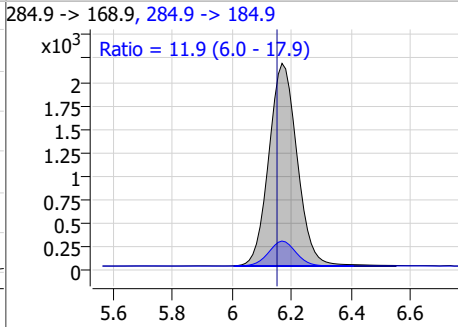
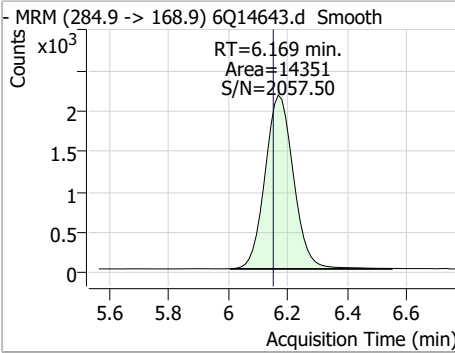
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.34	5.83	0.02	32279				
13C3-PFBS	2.38	5.96	0.05	12559				
PFBS	2.26	5.96	0.05	11898	298.7 -> 98.8	49.3	20.4	61.1
13C3-HFPO-DA	9.79	6.17	0.02	15083				

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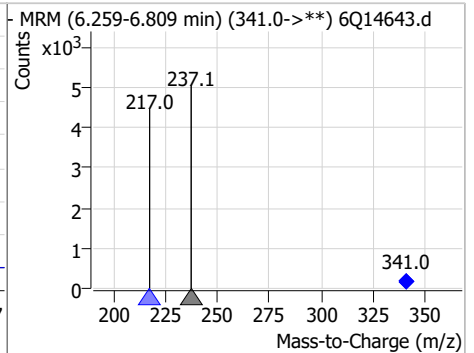
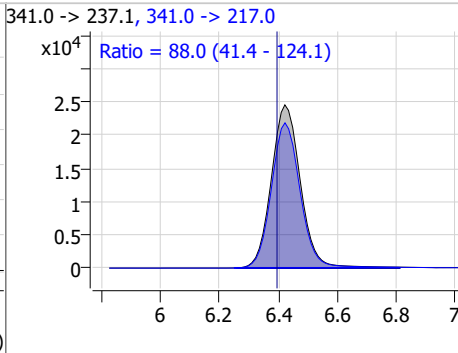
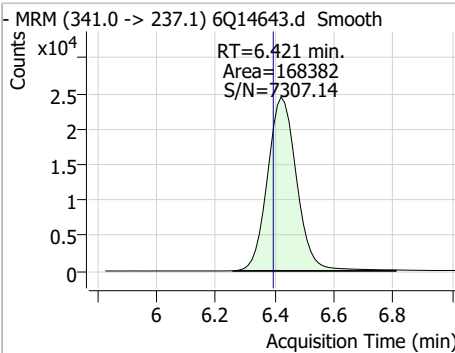


Perfluorinated Compounds by LC/MS/MS

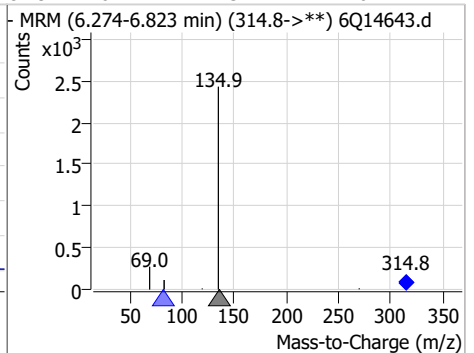
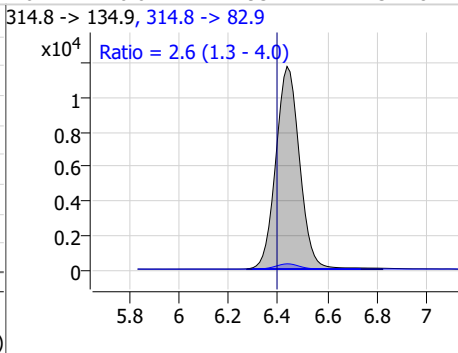
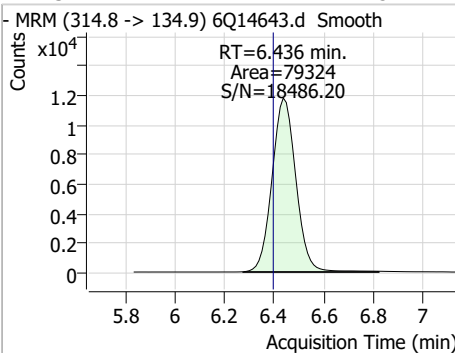
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.52	6.17	0.02	14351	284.9 -> 184.9	11.9	6.0	17.9



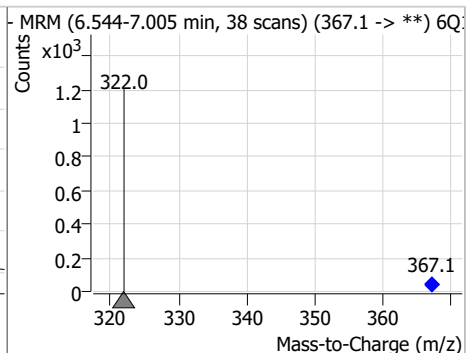
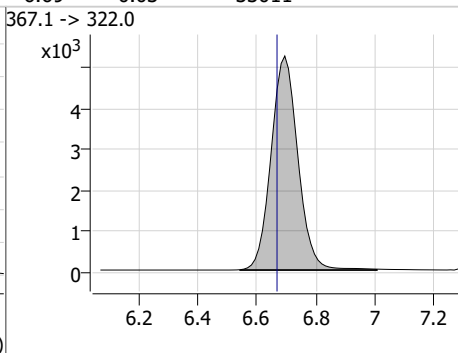
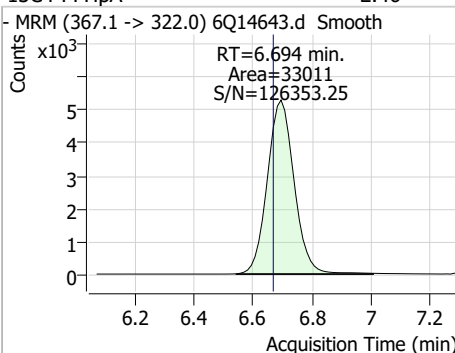
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	60.15	6.42	0.03	168382	341.0 -> 217.0	88.0	41.4	124.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.31	6.44	0.04	79324	314.8 -> 82.9	2.6	1.3	4.0

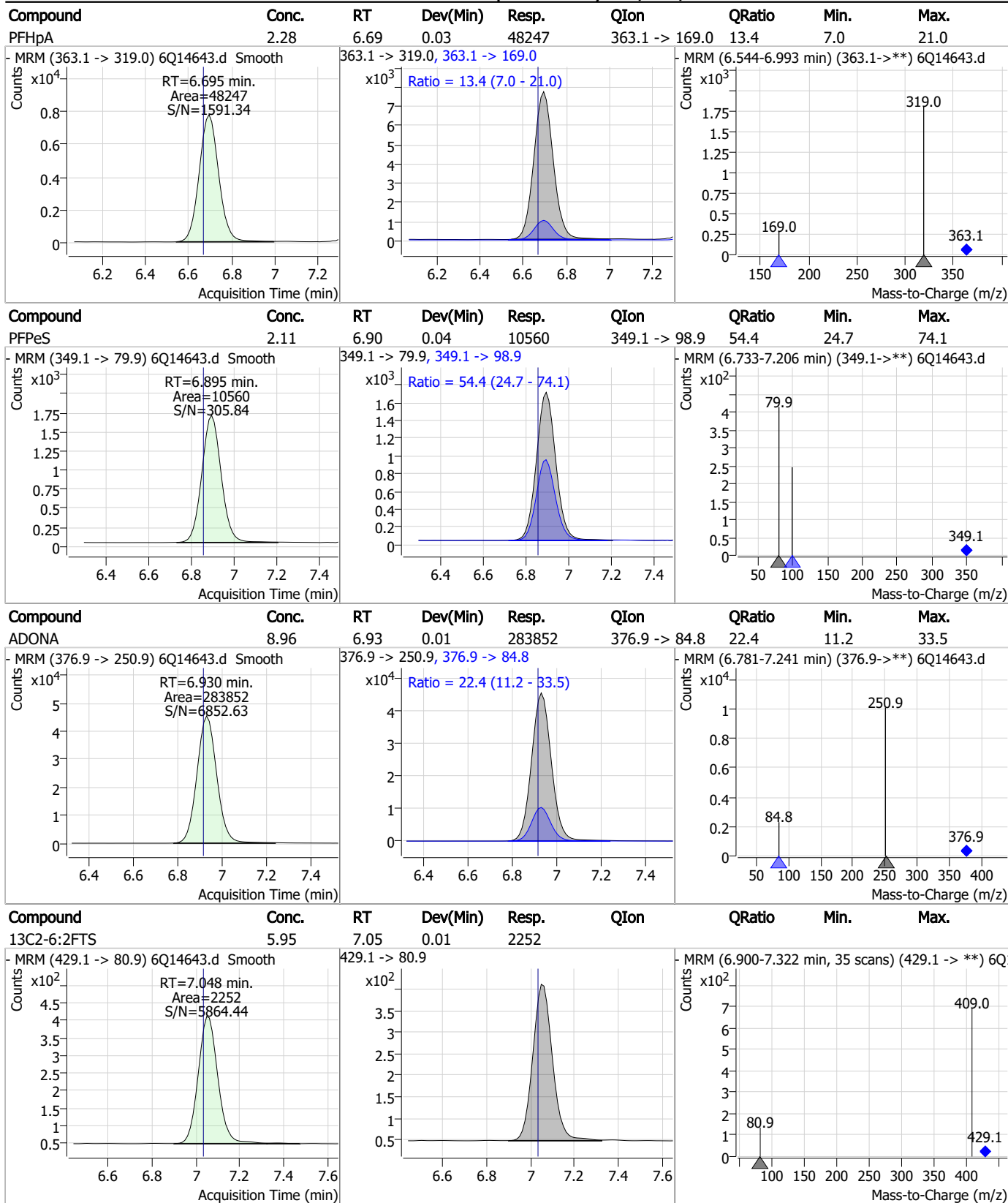


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.46	6.69	0.03	33011	367.1 -> 322.0			



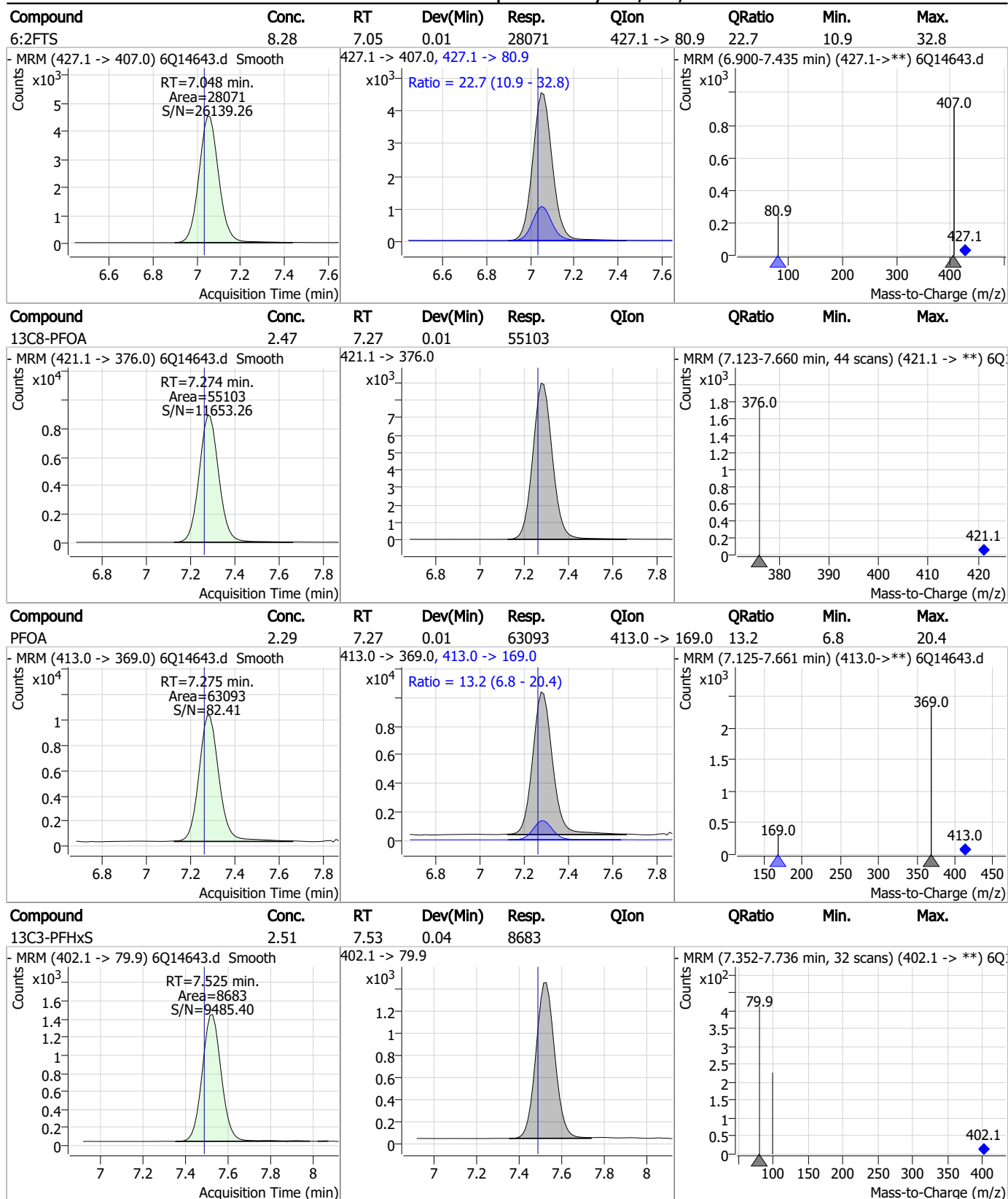
7.8.20 7

Perfluorinated Compounds by LC/MS/MS



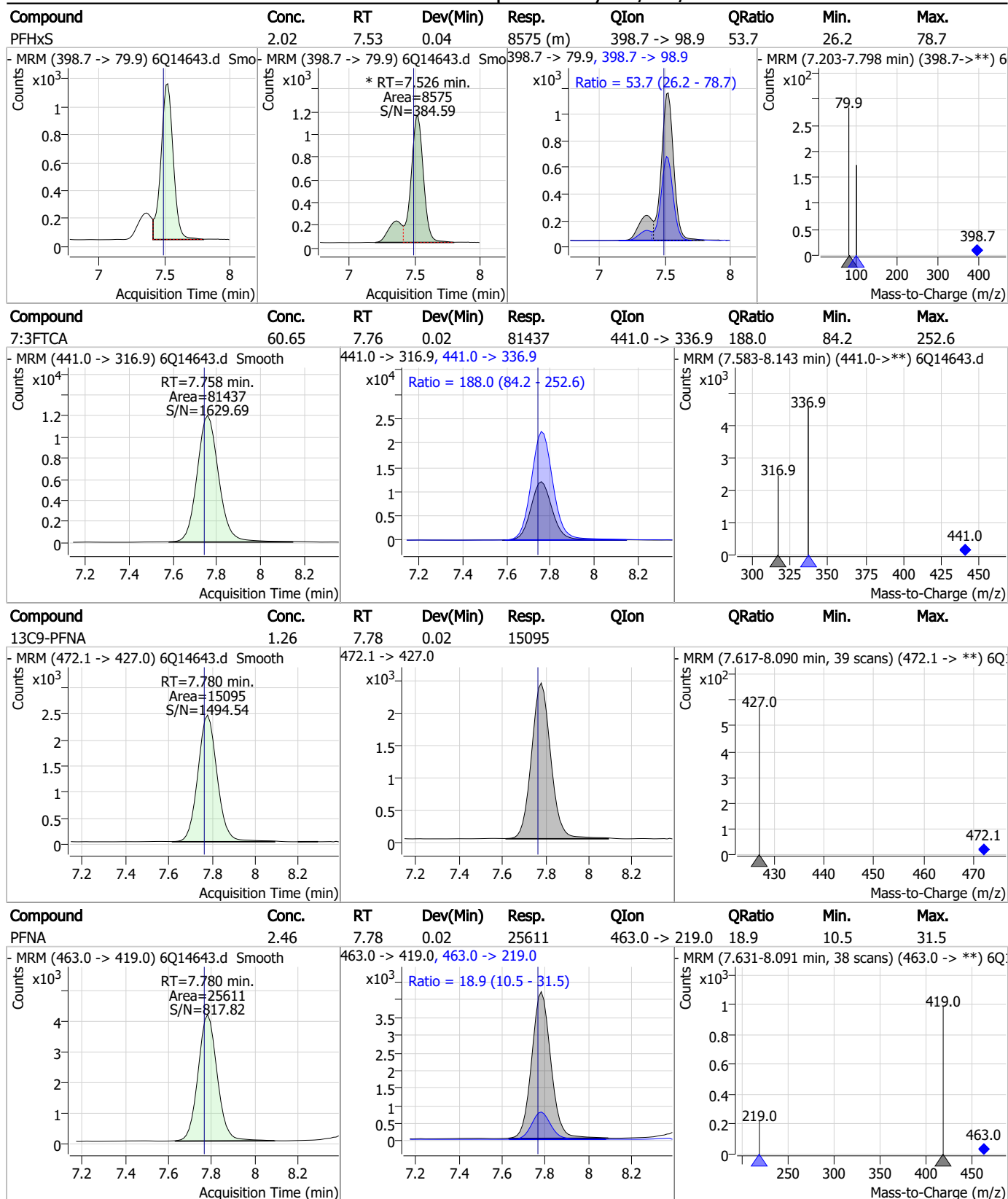
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Perfluorinated Compounds by LC/MS/MS



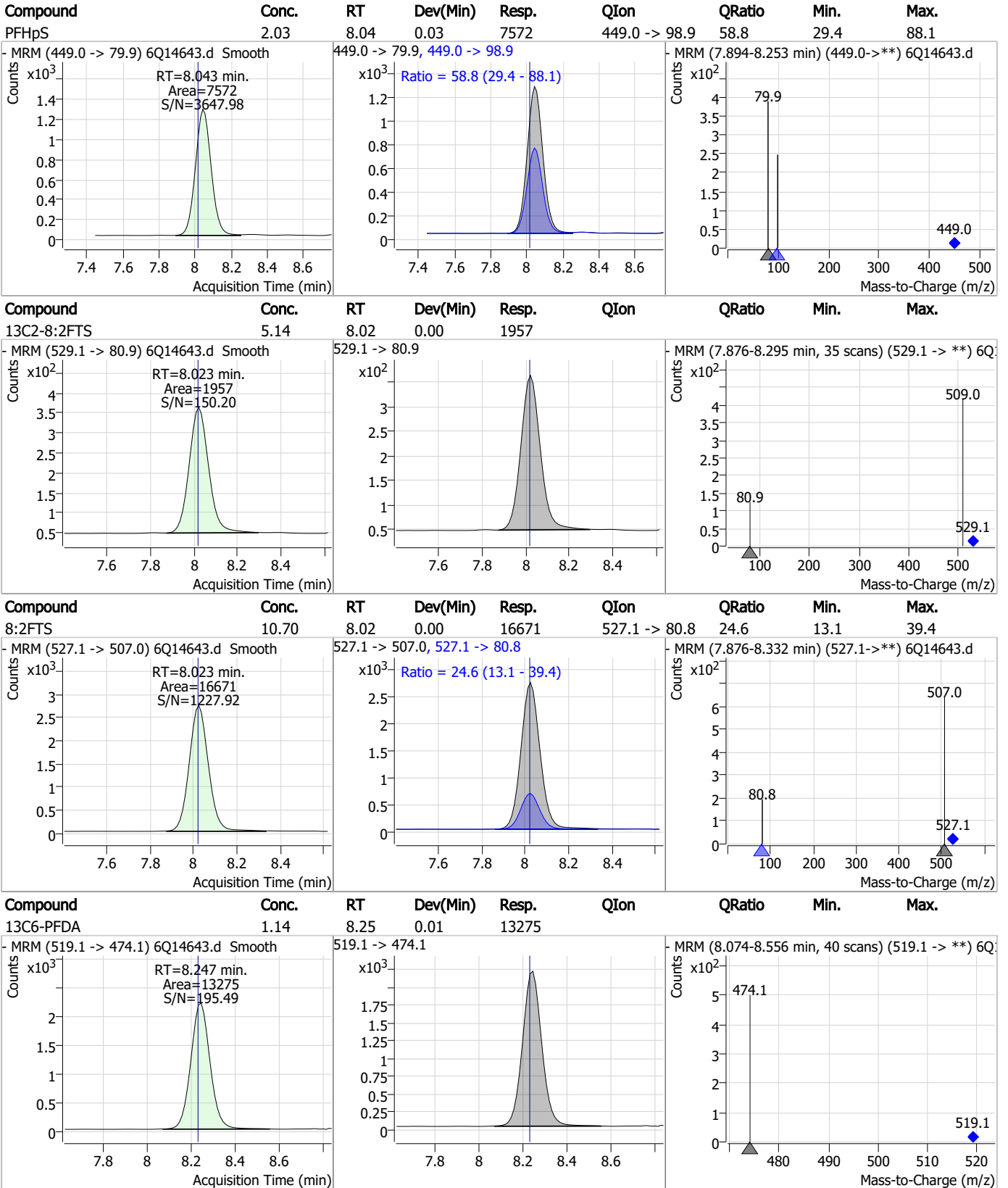
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Perfluorinated Compounds by LC/MS/MS



7.8.20 7

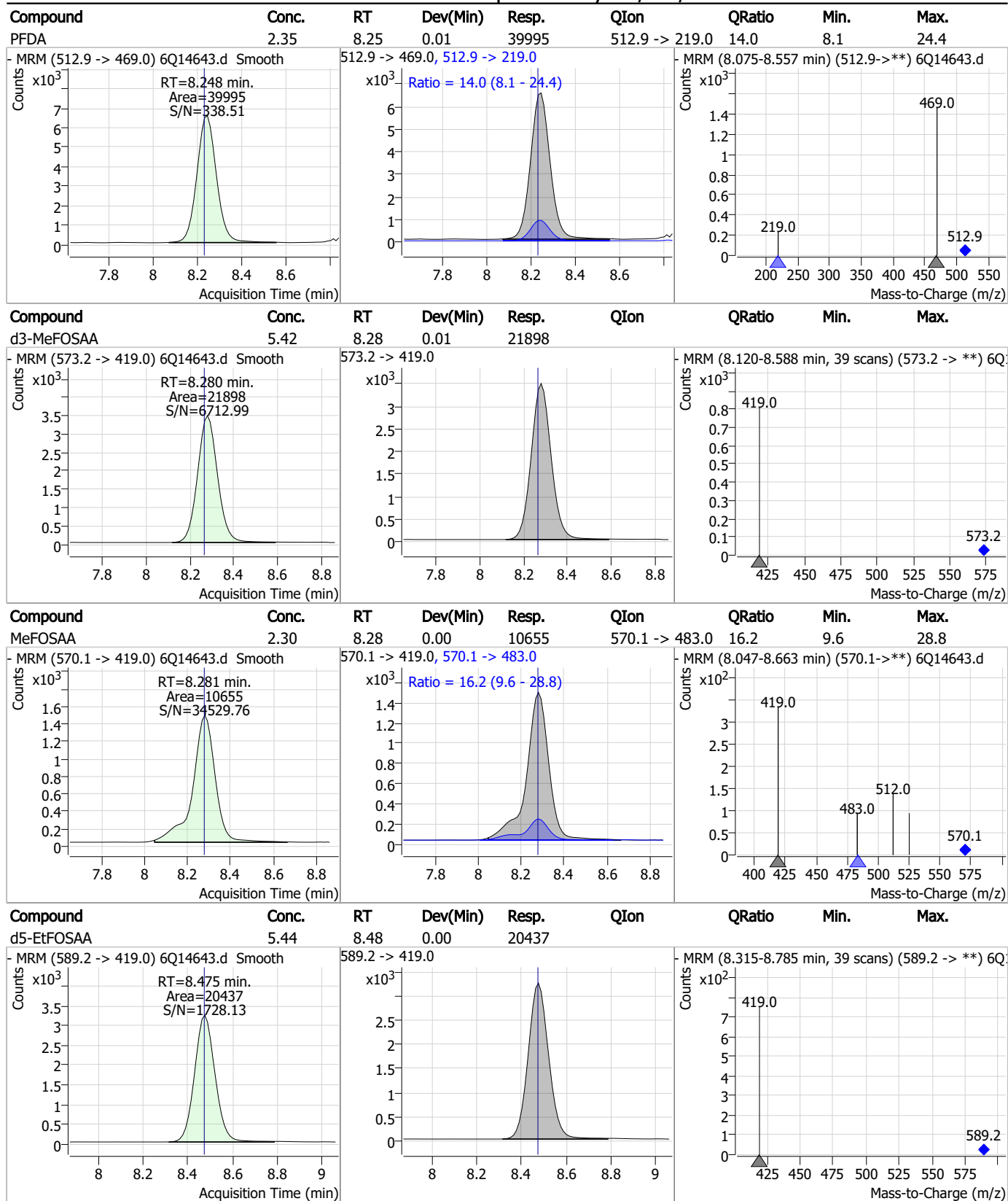
Perfluorinated Compounds by LC/MS/MS



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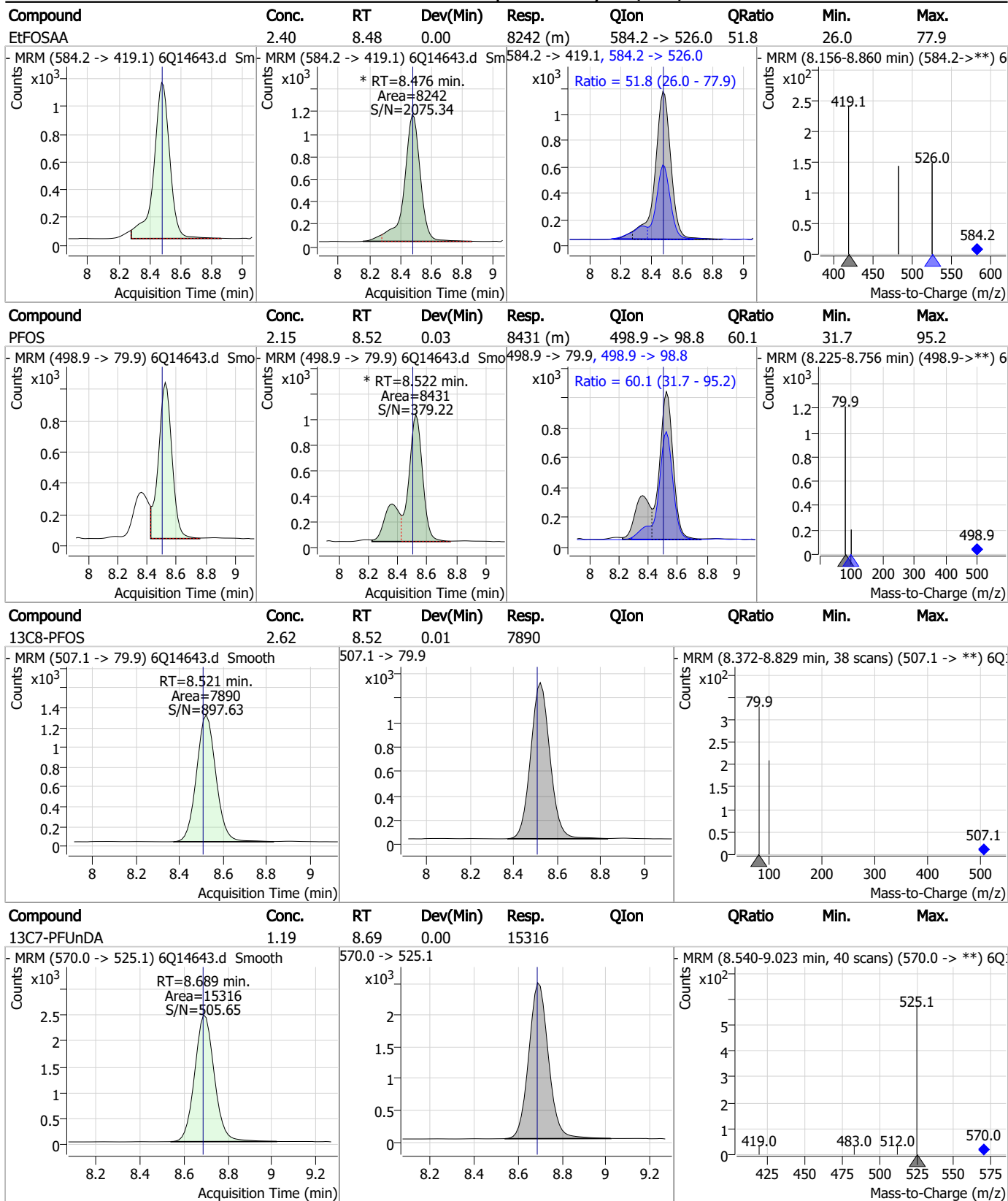
Perfluorinated Compounds by LC/MS/MS



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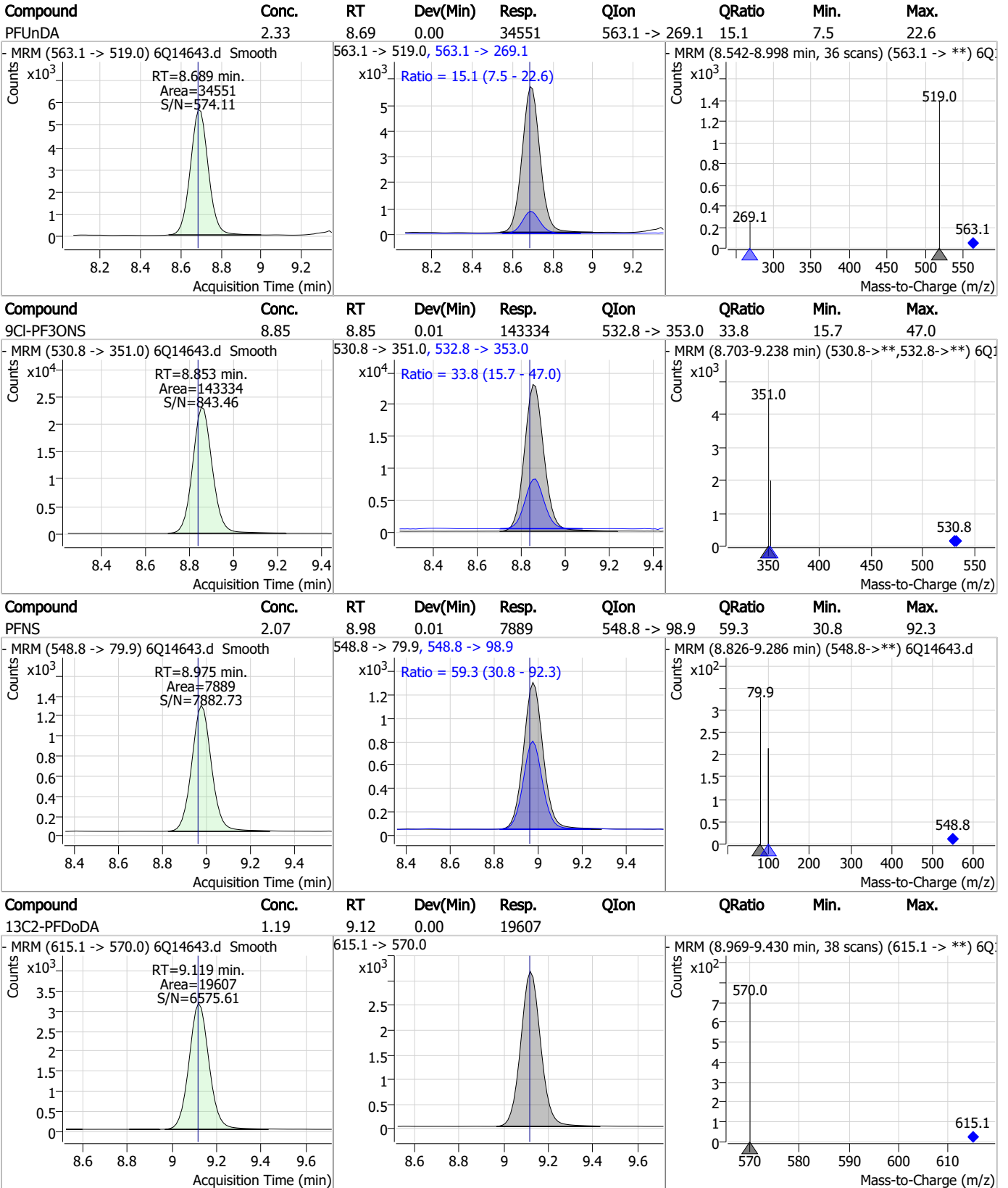
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Perfluorinated Compounds by LC/MS/MS



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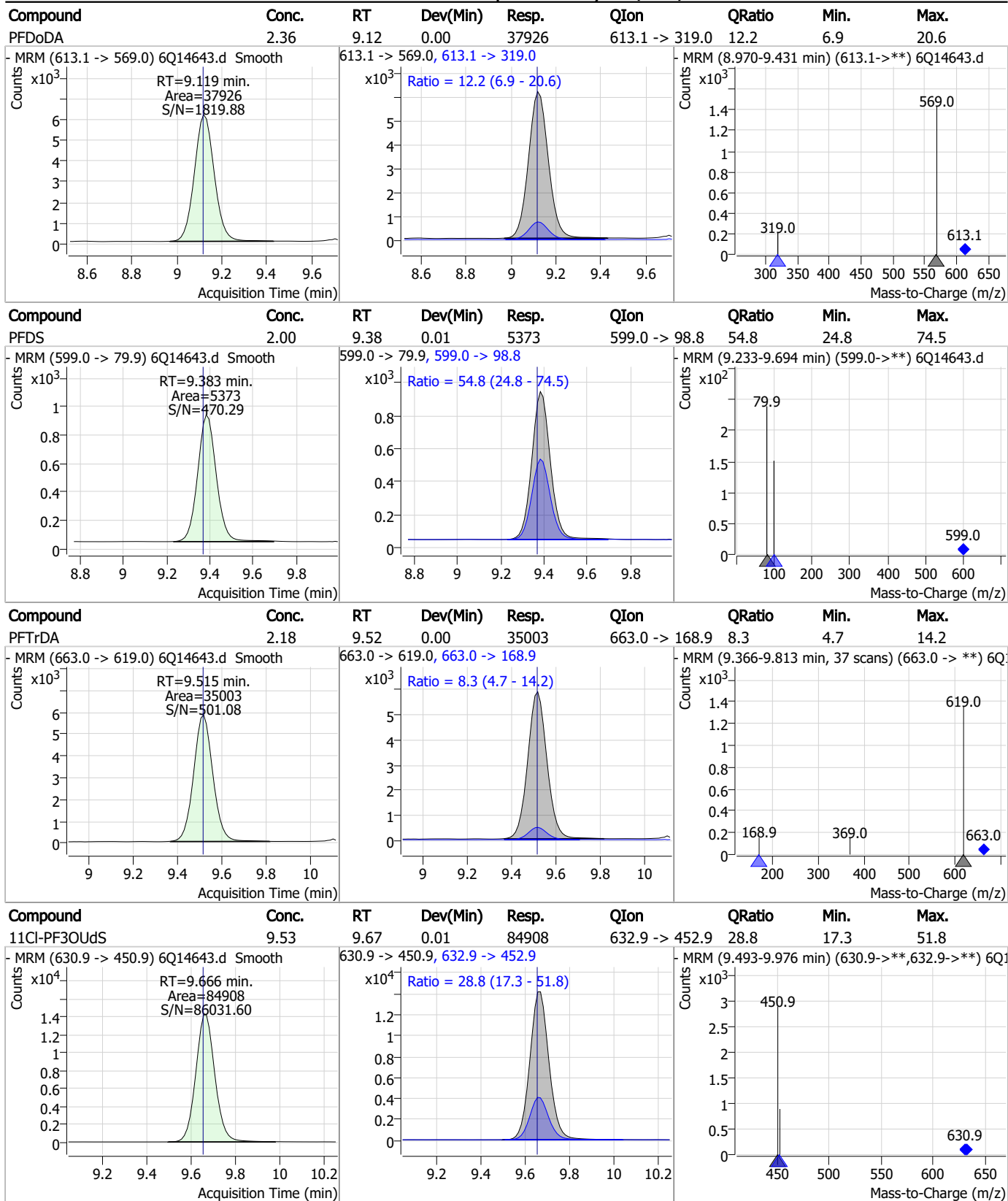
Perfluorinated Compounds by LC/MS/MS



7.8.20 7



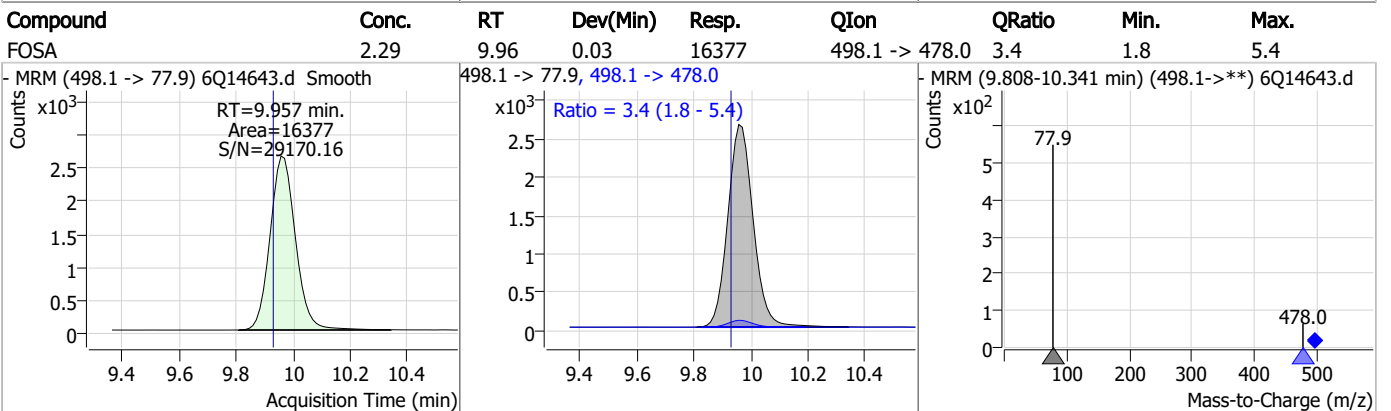
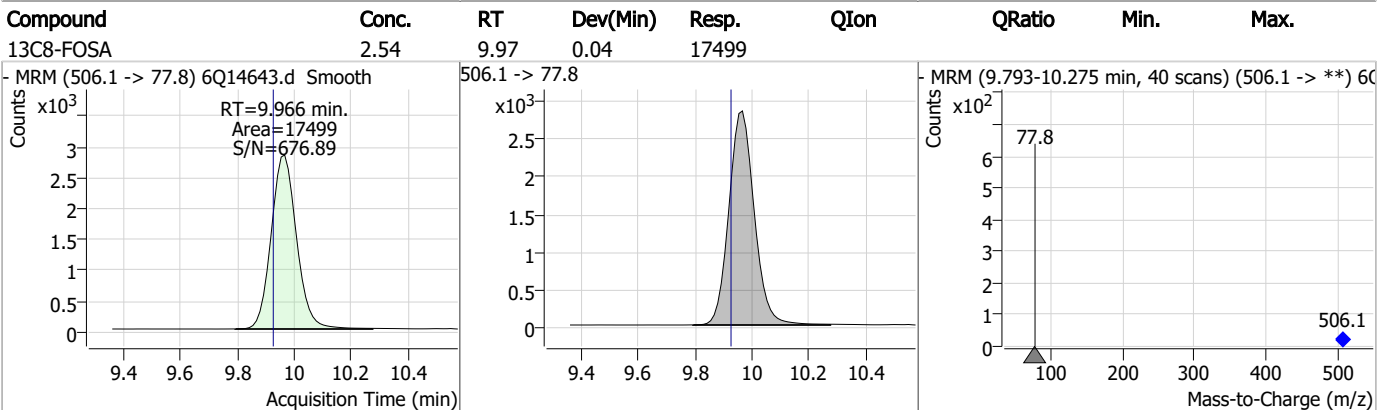
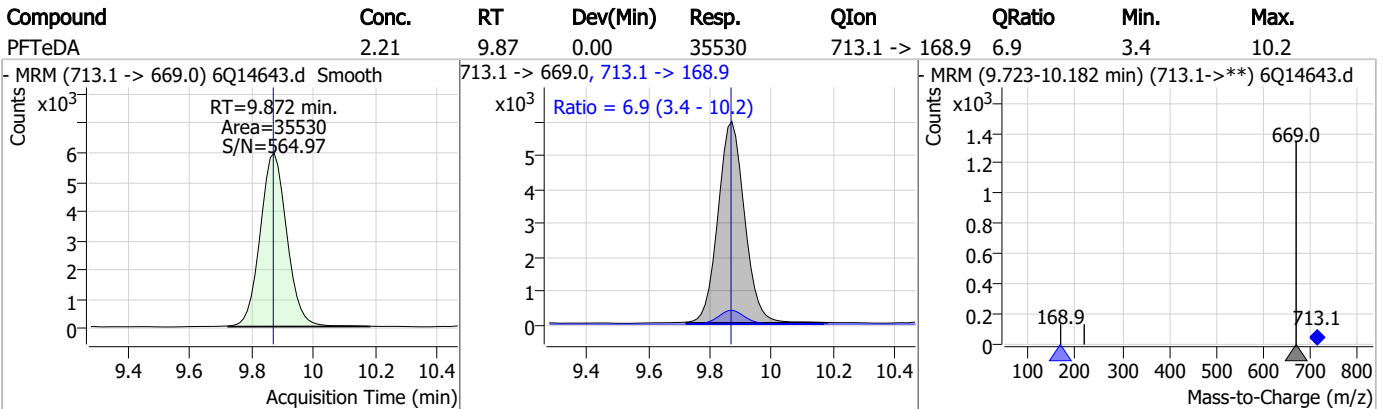
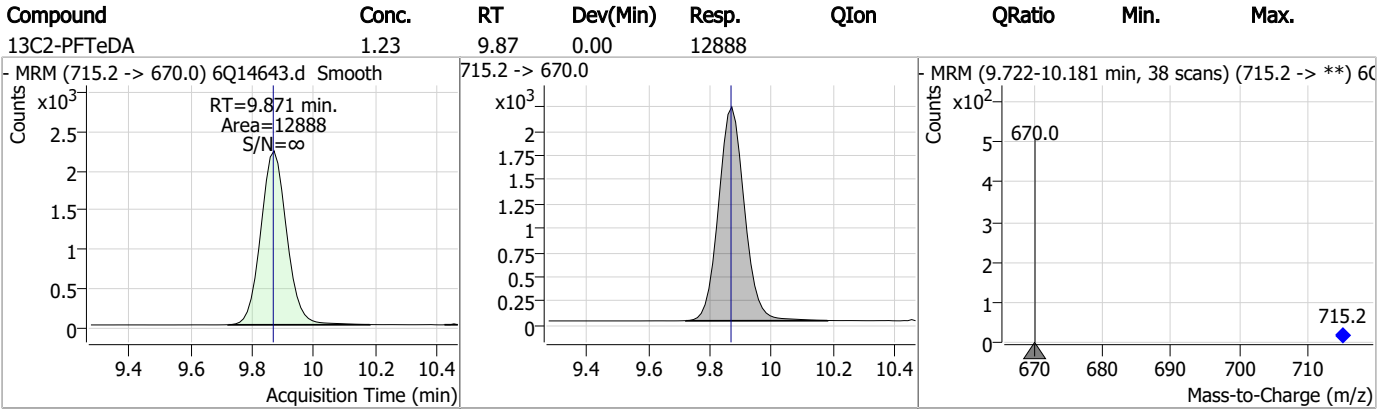
Perfluorinated Compounds by LC/MS/MS



7.8.20 7



Perfluorinated Compounds by LC/MS/MS

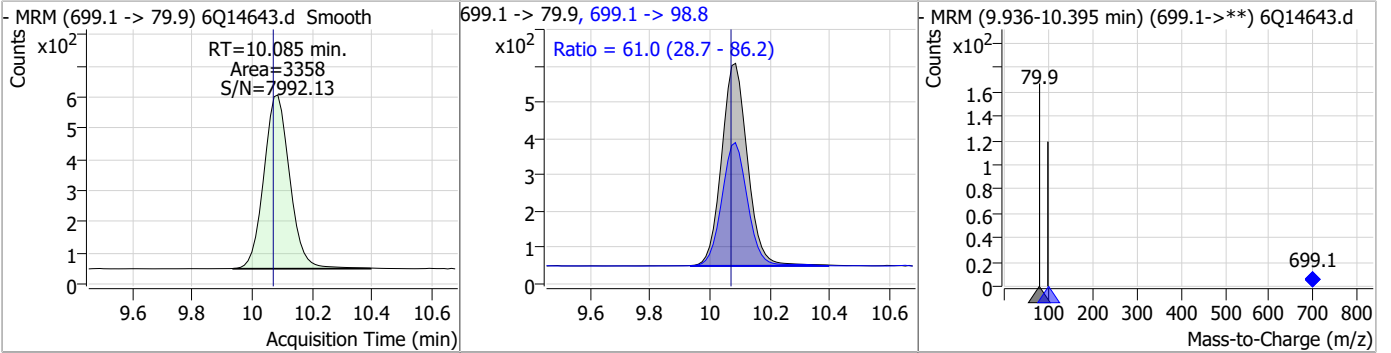


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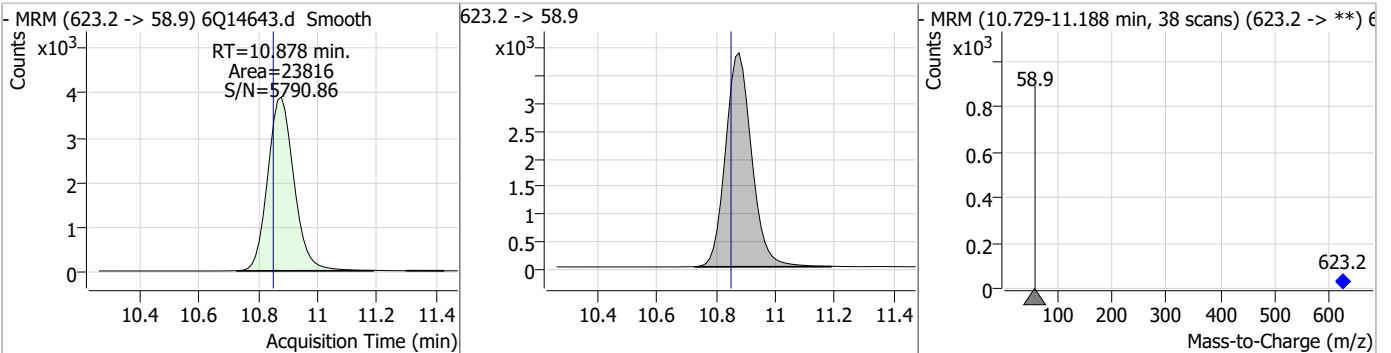


Perfluorinated Compounds by LC/MS/MS

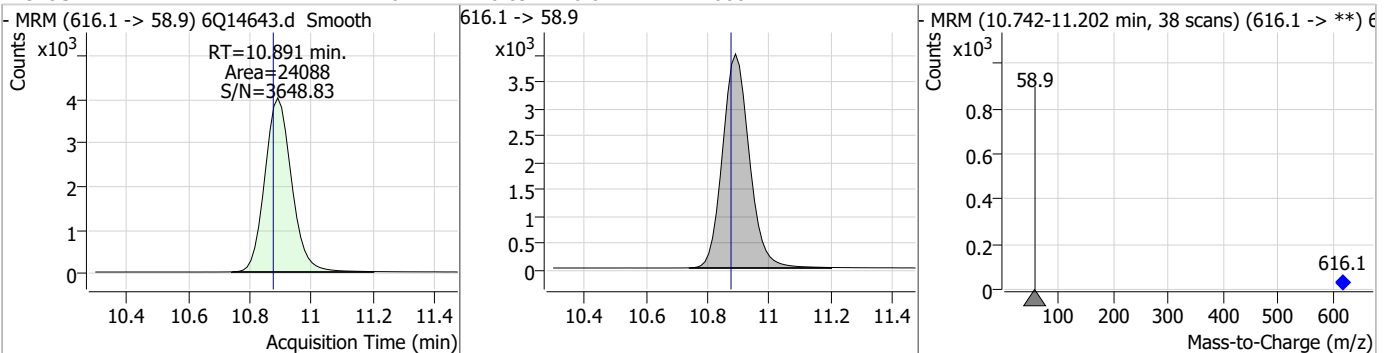
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	2.07	10.09	0.02	3358	699.1 -> 98.8	61.0	28.7	86.2



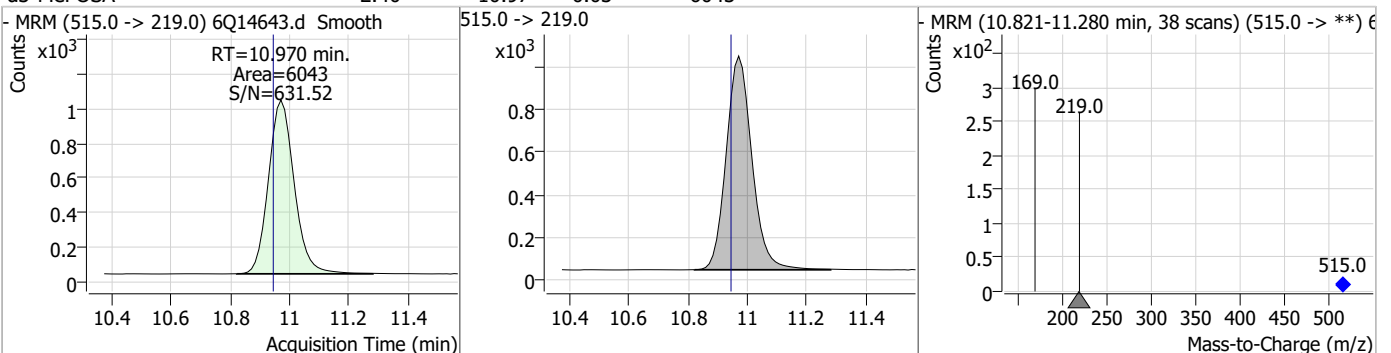
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.11	10.88	0.03	23816				



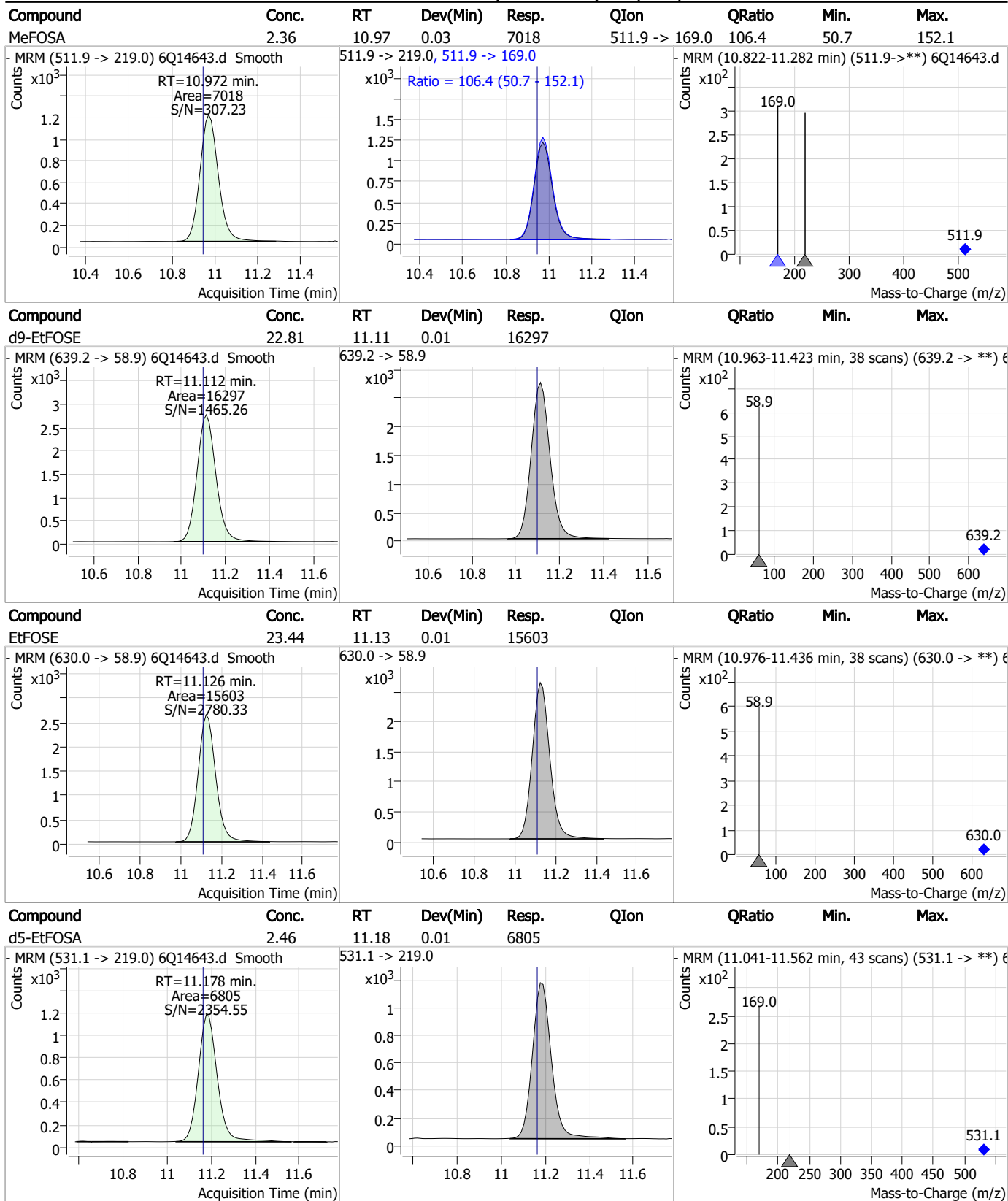
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	24.62	10.89	0.01	24088				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.40	10.97	0.03	6043				



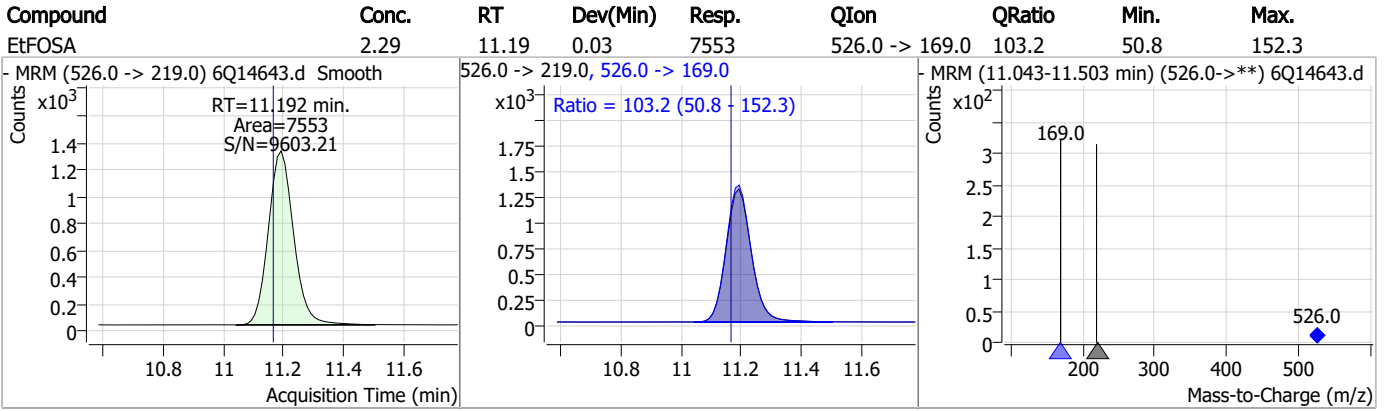
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q221-CC220 Method: EPA DRAFT 1633
Lab FileID: 6Q14643.D Analyst approved: 03/10/23 10:37 Anna Ludwig
Injection Time: 03/09/23 19:07 Supervisor approved: 03/10/23 14:34 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.53	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.52	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14652.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/9/2023 9:12:56 PM
 Sample Name : Ecc220-4
 Vial : P1-A5
 DA Method File : 1633_030823_S6Q220.quantmethod.xml
 Batch Name : s6q221.batch.bin
 Sample Information : OP95772,S6Q221,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	76307	10.00 µg/L	0.022
M5-PFPeA	4.647	268.3 -> 223.0	37495	5.00 µg/L	0.032
M5-PFHxA	5.828	318.0 -> 273.0	33269	2.50 µg/L	0.018
M4-PFHpA	6.694	367.1 -> 322.0	32487	2.50 µg/L	0.026
M8-PFOA	7.274	421.1 -> 376.0	57235	2.50 µg/L	0.014
M9-PFNA	7.767	472.1 -> 427.0	15572	1.25 µg/L	0.003
M6-PFDA	8.234	519.1 -> 474.1	13762	1.25 µg/L	0.002
M7-PFUnDA	8.689	570.0 -> 525.1	15733	1.25 µg/L	0.002
M2-PFDoDA	9.119	615.1 -> 570.0	18564	1.25 µg/L	0.002
M2-PFTeDA	9.858	715.2 -> 670.0	12704	1.25 µg/L	-0.010
M8-FOSA	9.954	506.1 -> 77.8	17895	2.50 µg/L	0.028
M3-PFBS	5.956	302.1 -> 79.9	12932	2.50 µg/L	0.055
M3-PFHxS	7.513	402.1 -> 79.9	8733	2.50 µg/L	0.027
M8-PFOS	8.521	507.1 -> 79.9	7992	2.50 µg/L	0.014
M2-4:2FTS	5.505	329.1 -> 80.9	1617	5.00 µg/L	0.029
M2-6:2FTS	7.048	429.1 -> 80.9	2255	5.00 µg/L	0.015
M2-8:2FTS	8.011	529.1 -> 80.9	2236	5.00 µg/L	-0.009
M3-MeFOSAA	8.267	573.2 -> 419.0	20328	5.00 µg/L	0.002
M3-HFPO-DA	6.168	286.9 -> 168.9	14663	10.00 µg/L	0.017
M5-EtFOSAA	8.463	589.2 -> 419.0	19603	5.00 µg/L	-0.010
M7-MeFOSE	10.866	623.2 -> 58.9	24723	25.00 µg/L	0.015
M9-EtFOSE	11.112	639.2 -> 58.9	17267	25.00 µg/L	0.015
M5-EtFOSA	11.178	531.1 -> 219.0	6934	2.50 µg/L	0.014
M3-MeFOSA	10.970	515.0 -> 219.0	6316	2.50 µg/L	0.026
13C4-PFOS	8.509	502.8 -> 79.9	9285	2.50 µg/L	0.014
13C3-PFBA	3.089	216.0 -> 172.0	33564	5.00 µg/L	0.010
18O2-PFHxS	7.512	403.0 -> 83.9	5784	2.50 µg/L	0.015
13C4-PFOA	7.274	417.1 -> 372.0	63539	2.50 µg/L	0.014
13C2-PFDA	8.235	515.1 -> 470.1	19911	1.25 µg/L	0.002
13C5-PFNA	7.768	468.0 -> 423.0	16292	1.25 µg/L	0.003
13C2-PFHxA	5.829	315.1 -> 270.0	32324	2.50 µg/L	0.030
System Monitoring Compounds					
13C2-4:2FTS	5.505	329.1 -> 80.9	1617	5.87 µg/L	0.029
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.4%		
13C2-6:2FTS	7.048	429.1 -> 80.9	2255	6.23 µg/L	0.015
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.5%		
13C2-8:2FTS	8.011	529.1 -> 80.9	2236	6.14 µg/L	-0.009
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.8%		
13C2-PFDoDA	9.119	615.1 -> 570.0	18564	1.10 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.0%		
13C2-PFTeDA	9.858	715.2 -> 670.0	12704	1.19 µg/L	-0.010
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.9%		
13C3-PFBS	5.956	302.1 -> 79.9	12932	2.56 µg/L	0.055
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C3-PFHxS	7.513	402.1 -> 79.9	8733	2.64 µg/L	0.027

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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 = 105.5%		
13C4-PFBA	3.097	216.8 -> 171.9	76307	9.89 µg/L	0.022
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C4-PFHpA	6.694	367.1 -> 322.0	32487	2.52 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C5-PFHxA	5.828	318.0 -> 273.0	33269	2.51 µg/L	0.018
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C5-PFPeA	4.647	268.3 -> 223.0	37495	4.89 µg/L	0.032
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C6-PFDA	8.234	519.1 -> 474.1	13762	1.15 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C7-PFUnDA	8.689	570.0 -> 525.1	15733	1.20 µg/L	0.002
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C8-FOSA	9.954	506.1 -> 77.8	17895	2.46 µg/L	0.028
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C8-PFOA	7.274	421.1 -> 376.0	57235	2.71 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C8-PFOS	8.521	507.1 -> 79.9	7992	2.51 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C9-PFNA	7.767	472.1 -> 427.0	15572	1.24 µg/L	0.003
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.2%		
d3-MeFOSAA	8.267	573.2 -> 419.0	20328	4.75 µg/L	0.002
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C3-HFPO-DA	6.168	286.9 -> 168.9	14663	9.90 µg/L	0.017
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
d3-MeFOSA	10.970	515.0 -> 219.0	6316	2.38 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.1%		
d5-EtFOSAA	8.463	589.2 -> 419.0	19603	4.94 µg/L	-0.010
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
d7-MeFOSE	10.866	623.2 -> 58.9	24723	22.68 µg/L	0.015
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 90.7%		
d9-EtFOSE	11.112	639.2 -> 58.9	17267	22.85 µg/L	0.015
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 91.4%		
d5-EtFOSA	11.178	531.1 -> 219.0	6934	2.37 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.9%		
Target Compounds					QValue
4:2FTS	5.505	327.1 -> 307.0	33431	9.16 µg/L	98
		327.1 -> 80.9	7970		
6:2FTS	7.048	427.1 -> 407.0	29015	8.55 µg/L	99
		427.1 -> 80.9	6242		
8:2FTS	8.023	527.1 -> 507.0	16857	9.47 µg/L	97
		527.1 -> 80.8	4144		
EtFOSAA	8.476	584.2 -> 419.1	7991	2.42 µg/L	100
		584.2 -> 526.0	4171	m	
FOSA	9.957	498.1 -> 77.9	16357	2.23 µg/L	99
		498.1 -> 478.0	660		
MeFOSAA	8.281	570.1 -> 419.0	11555	2.68 µg/L	96
		570.1 -> 483.0	2009		
PFBA	3.093	212.8 -> 168.9	19111	9.13 µg/L	100
PFBS	5.957	298.7 -> 79.9	11842	2.18 µg/L	92
		298.7 -> 98.8	5414		
PFDA	8.235	512.9 -> 469.0	41258	2.33 µg/L	97
		512.9 -> 219.0	6183		
PFDODA	9.119	613.1 -> 569.0	40685	2.67 µg/L	92
		613.1 -> 319.0	4320		
PFDS	9.383	599.0 -> 79.9	5683	2.09 µg/L	85

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.695	599.0 -> 98.8	3417	2.36	µg/L	98
		363.1 -> 319.0	49174			
PFHpS	8.043	363.1 -> 169.0	7216	2.06	µg/L	90
		449.0 -> 79.9	7757			
PFHxA	5.831	449.0 -> 98.9	3950	2.18	µg/L	99
		313.0 -> 269.0	28870			
PFHxS	7.514	313.0 -> 118.9	1322	2.03	µg/L	m
		398.7 -> 79.9	8646			
PFNA	7.780	398.7 -> 98.9	4955	2.28	µg/L	100
		463.0 -> 419.0	24566			
PFNS	8.963	463.0 -> 219.0	5168	2.17	µg/L	92
		548.8 -> 79.9	8379			
PFOA	7.275	548.8 -> 98.9	4661	2.24	µg/L	99
		413.0 -> 369.0	64195			
PFOS	8.510	413.0 -> 169.0	8444	2.07	µg/L	m
		498.9 -> 79.9	8196			
PFPeA	4.650	498.9 -> 98.8	5127	4.67	µg/L	100
		263.0 -> 219.0	40686			
PFPeS	6.895	349.1 -> 79.9	11558	2.29	µg/L	93
		349.1 -> 98.9	5175			
PFTeDA	9.859	713.1 -> 669.0	35874	2.26	µg/L	99
		713.1 -> 168.9	2541			
PFTrDA	9.503	663.0 -> 619.0	34441	2.27	µg/L	97
		663.0 -> 168.9	2900			
PFUnDA	8.689	563.1 -> 519.0	36450	2.39	µg/L	97
		563.1 -> 269.1	5104			
11CI-PF3OUdS	9.654	630.9 -> 450.9	82444	9.52	µg/L	91
		632.9 -> 452.9	24129			
9CI-PF3ONS	8.853	530.8 -> 351.0	138311	8.79	µg/L	99
		532.8 -> 353.0	44361			
ADONA	6.930	376.9 -> 250.9	284073	9.23	µg/L	99
		376.9 -> 84.8	65000			
HFPO-DA	6.169	284.9 -> 168.9	14214	9.70	µg/L	99
		284.9 -> 184.9	1769			
3:3FTCA	4.013	241.0 -> 177.0	4986	11.26	µg/L	99
		241.0 -> 117.0	758			
5:3FTCA	6.421	341.0 -> 237.1	162898	56.46	µg/L	91
		341.0 -> 217.0	148507			
7:3FTCA	7.758	441.0 -> 316.9	80852	58.42	µg/L	78
		441.0 -> 336.9	160524			
EtFOSA	11.192	526.0 -> 219.0	7507	2.23	µg/L	95
		526.0 -> 169.0	7238			
EtFOSE	11.126	630.0 -> 58.9	15833	22.45	µg/L	100
		511.9 -> 219.0	7046			
MeFOSA	10.972	511.9 -> 169.0	7380	2.27	µg/L	97
		616.1 -> 58.9	24031			
MeFOSE	10.891	699.1 -> 79.9	3575	23.66	µg/L	100
		699.1 -> 98.8	2083			
PFDoDS	10.073	295.0 -> 201.0	4304	2.17	µg/L	99
		295.0 -> 84.9	1885			
NFDHA	5.710	279.0 -> 85.1	13317	4.73	µg/L	93
		229.0 -> 84.9	11542			
PFMBA	5.041	314.8 -> 134.9	80973	4.55	µg/L	100
		314.8 -> 82.9	2135			
PFMPA	3.742			4.53	µg/L	100
PFEESA	6.436			4.26	µg/L	100

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

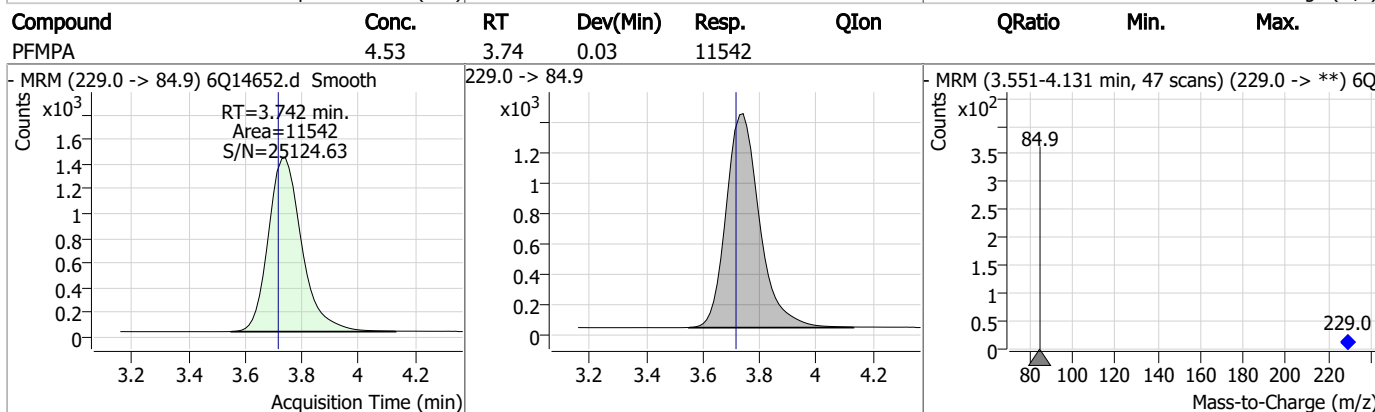
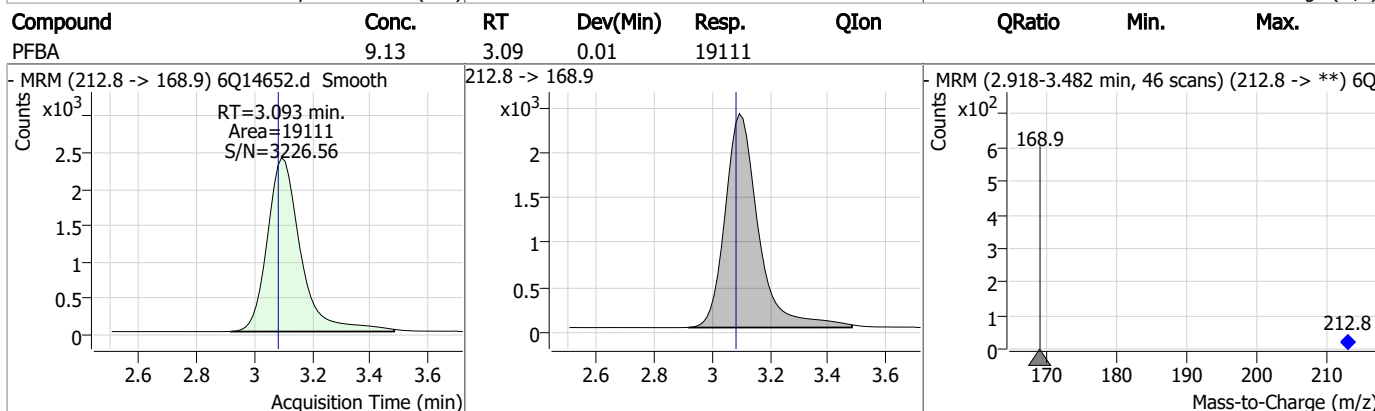
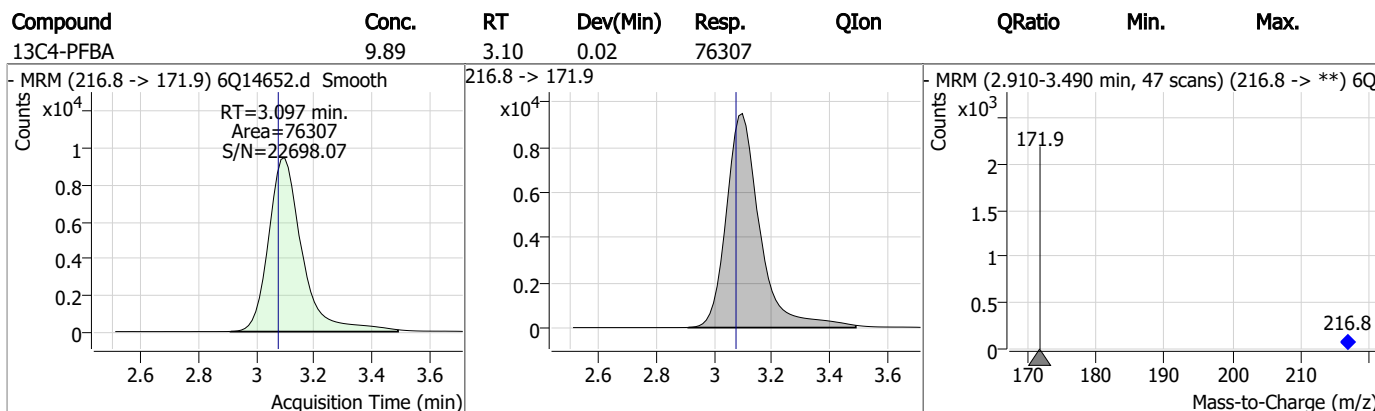
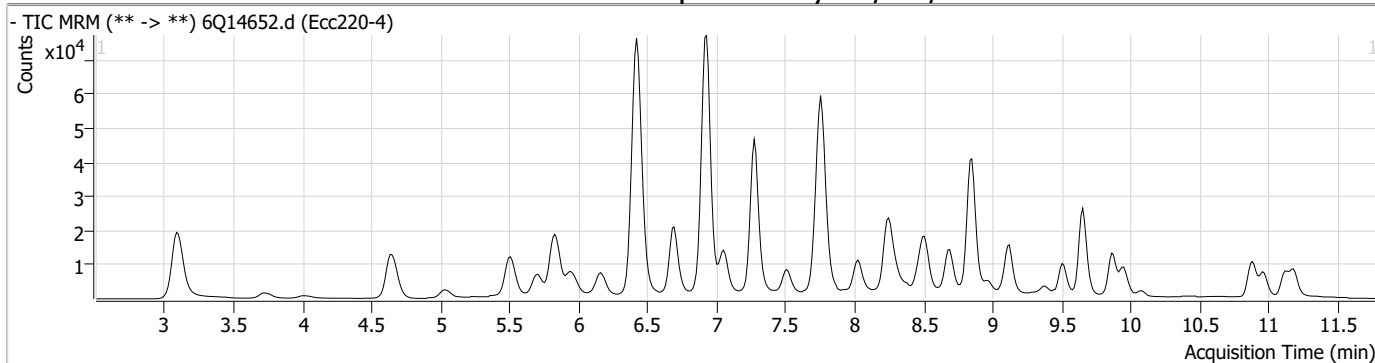
Perfluorinated Compounds by LC/MS/MS

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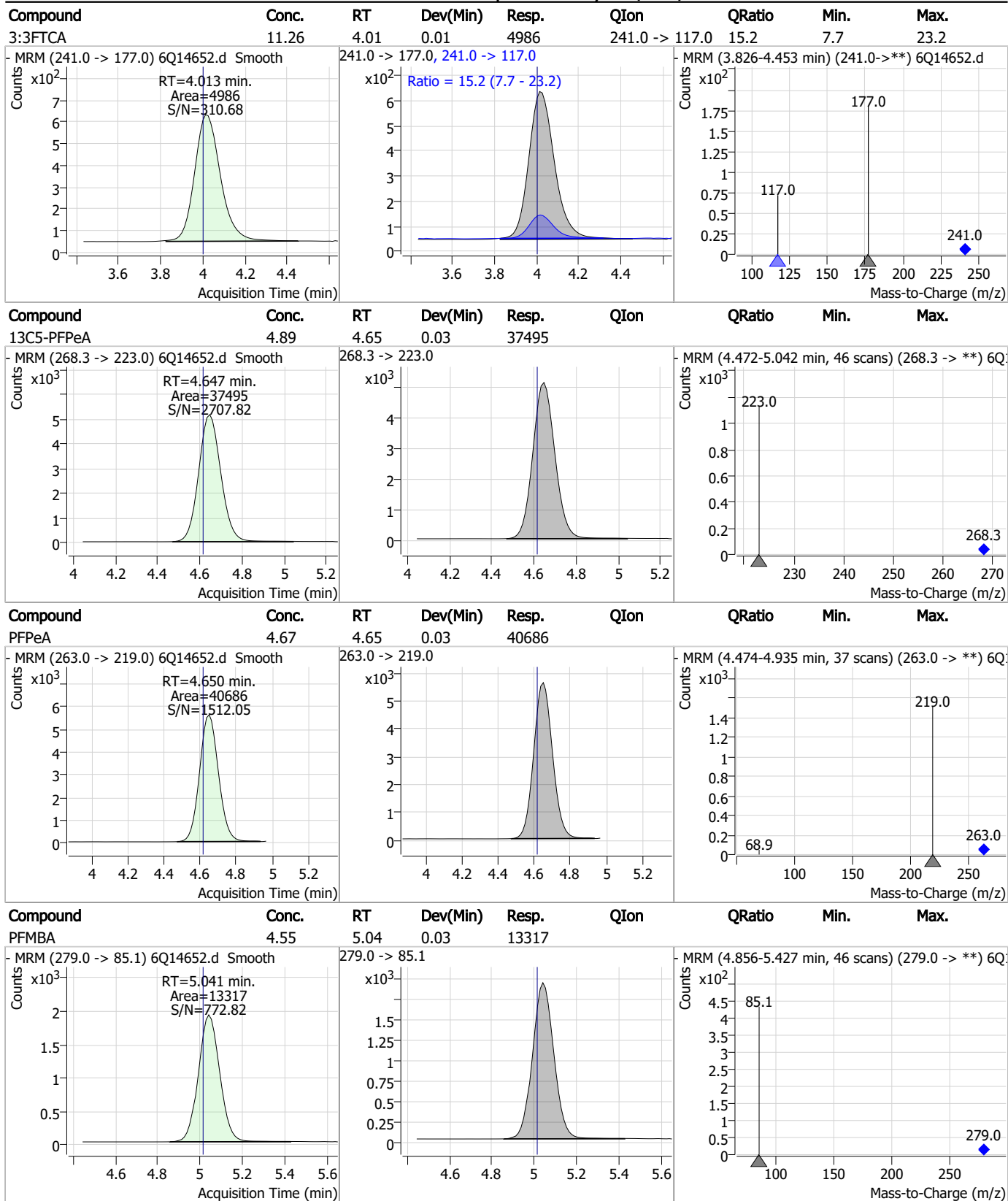
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Perfluorinated Compounds by LC/MS/MS



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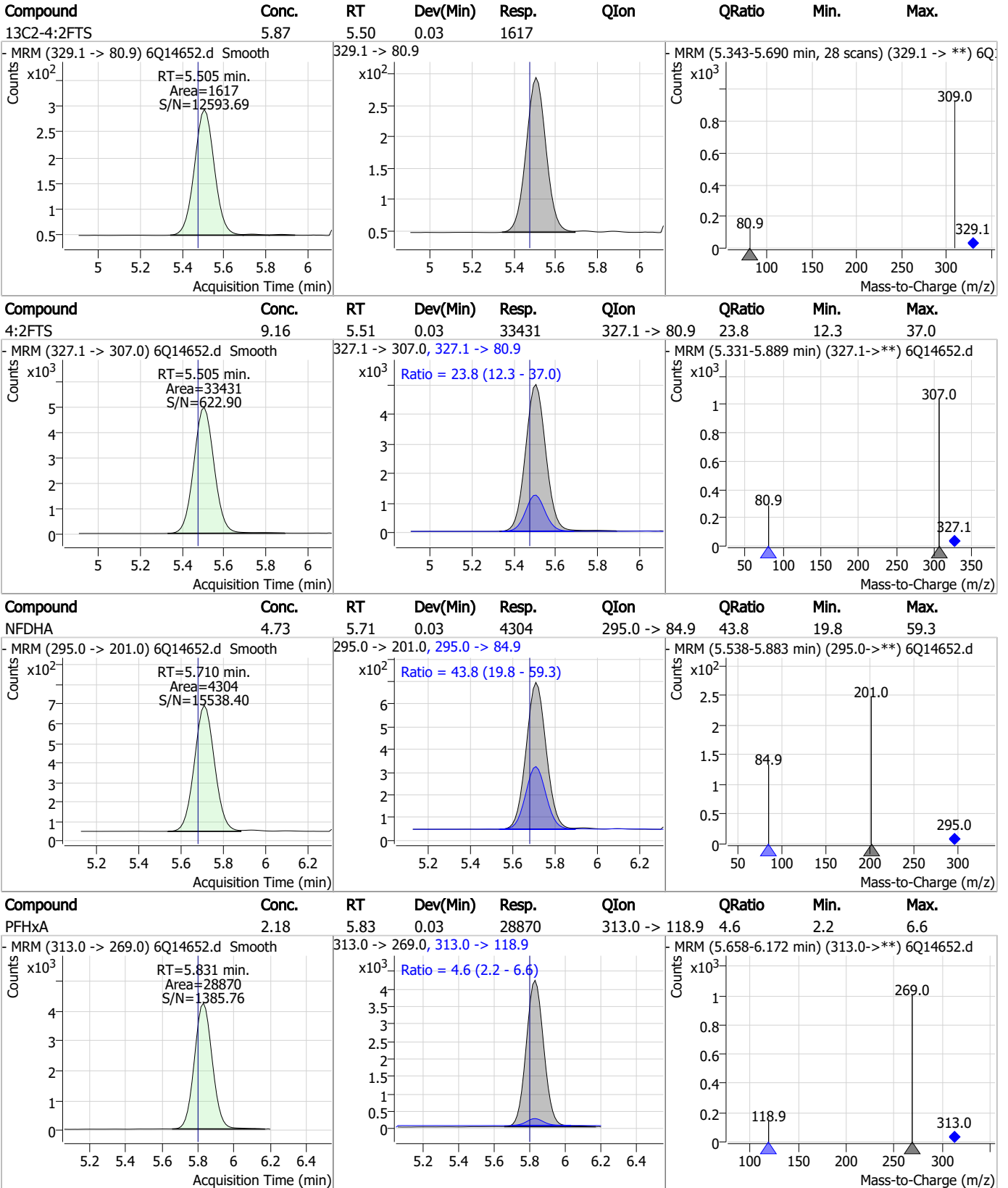
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

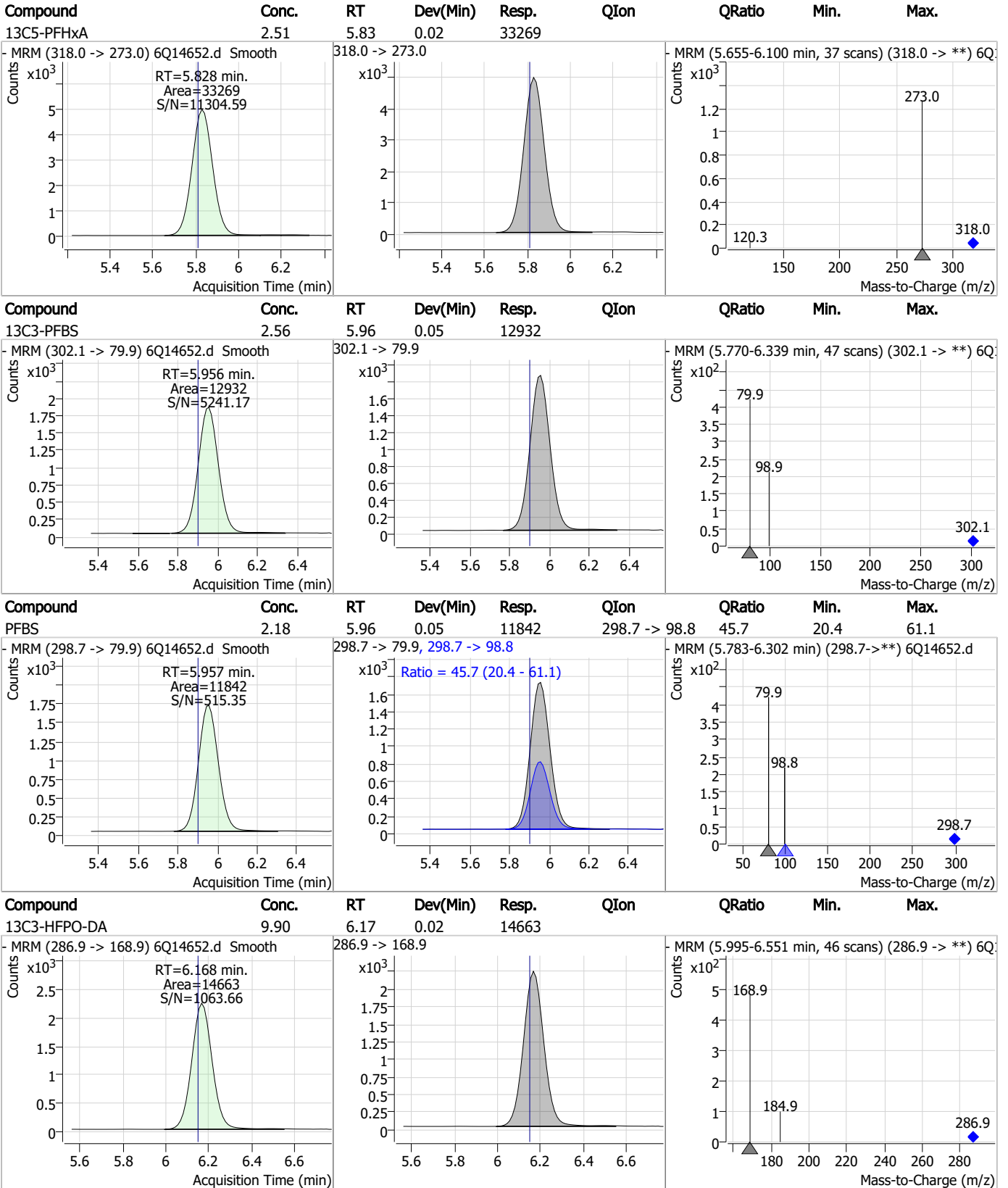


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Perfluorinated Compounds by LC/MS/MS

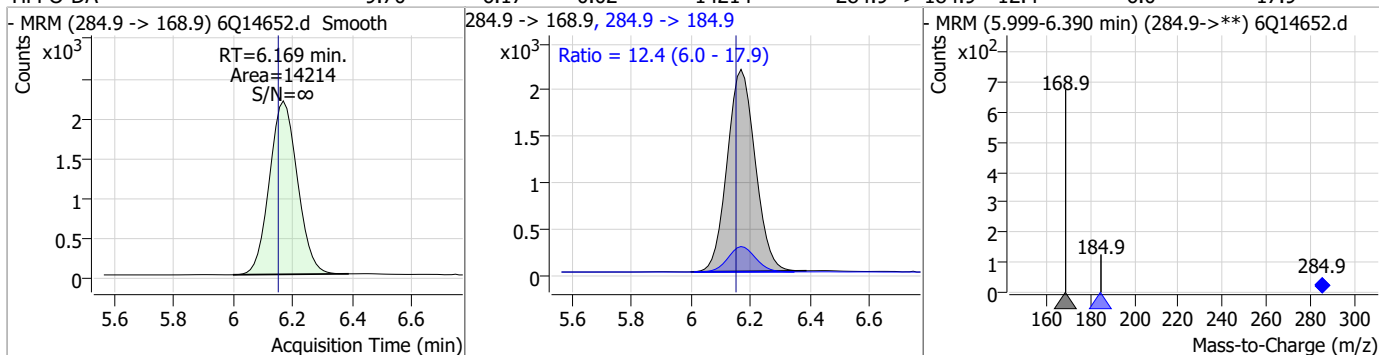


7.8.21 7

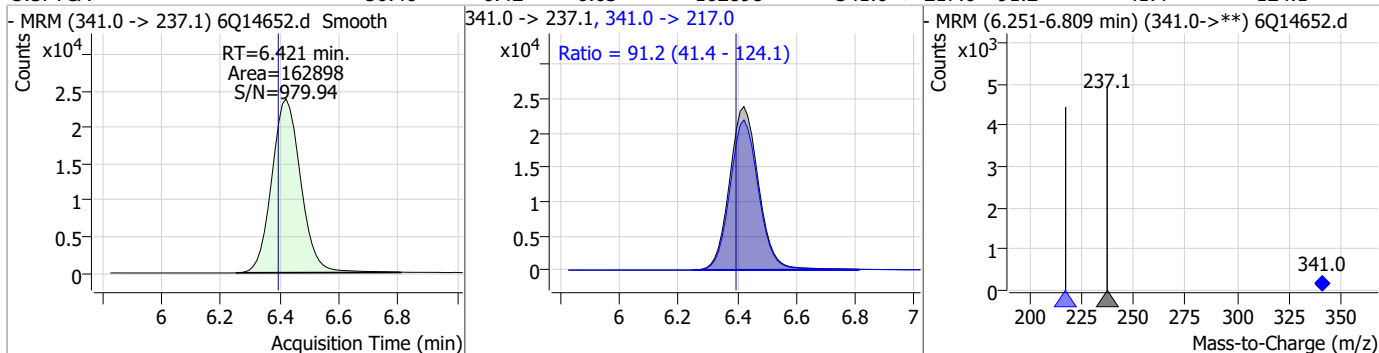


Perfluorinated Compounds by LC/MS/MS

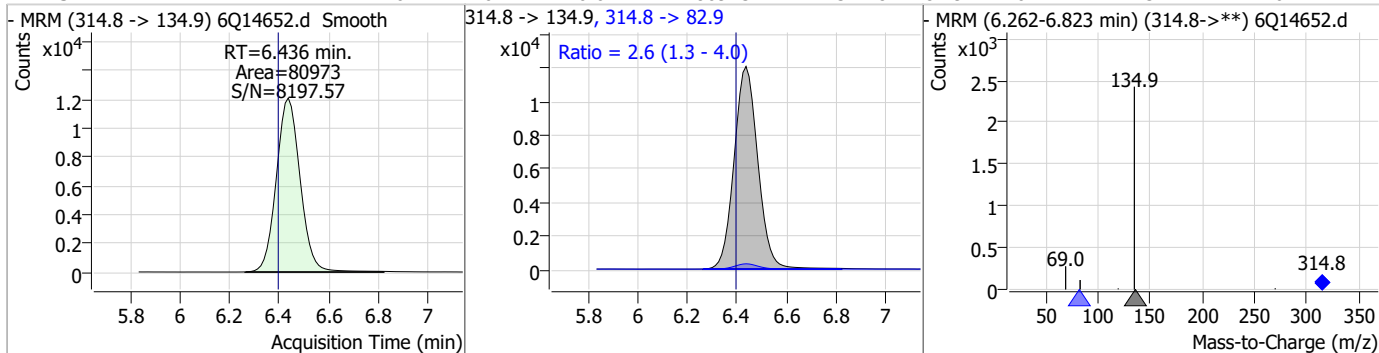
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.70	6.17	0.02	14214	284.9 -> 184.9	12.4	6.0	17.9



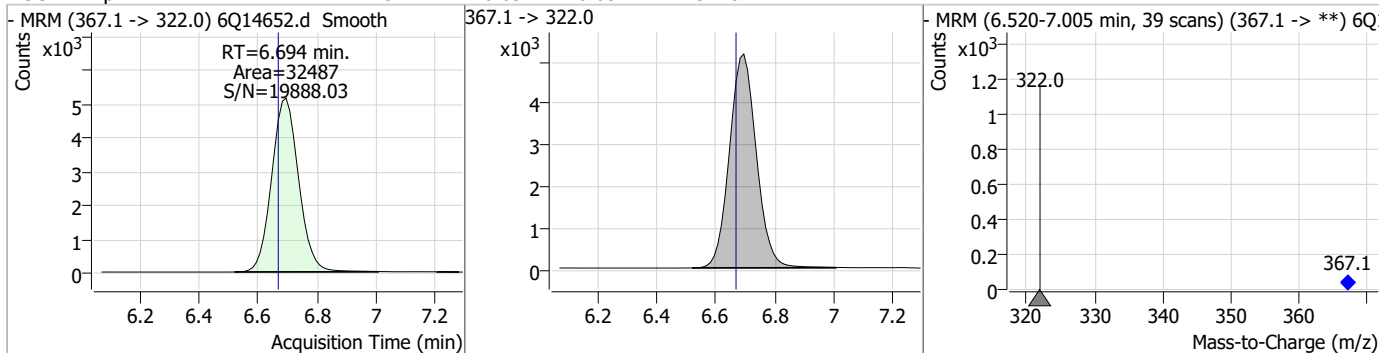
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	56.46	6.42	0.03	162898	341.0 -> 217.0	91.2	41.4	124.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.26	6.44	0.04	80973	314.8 -> 82.9	2.6	1.3	4.0

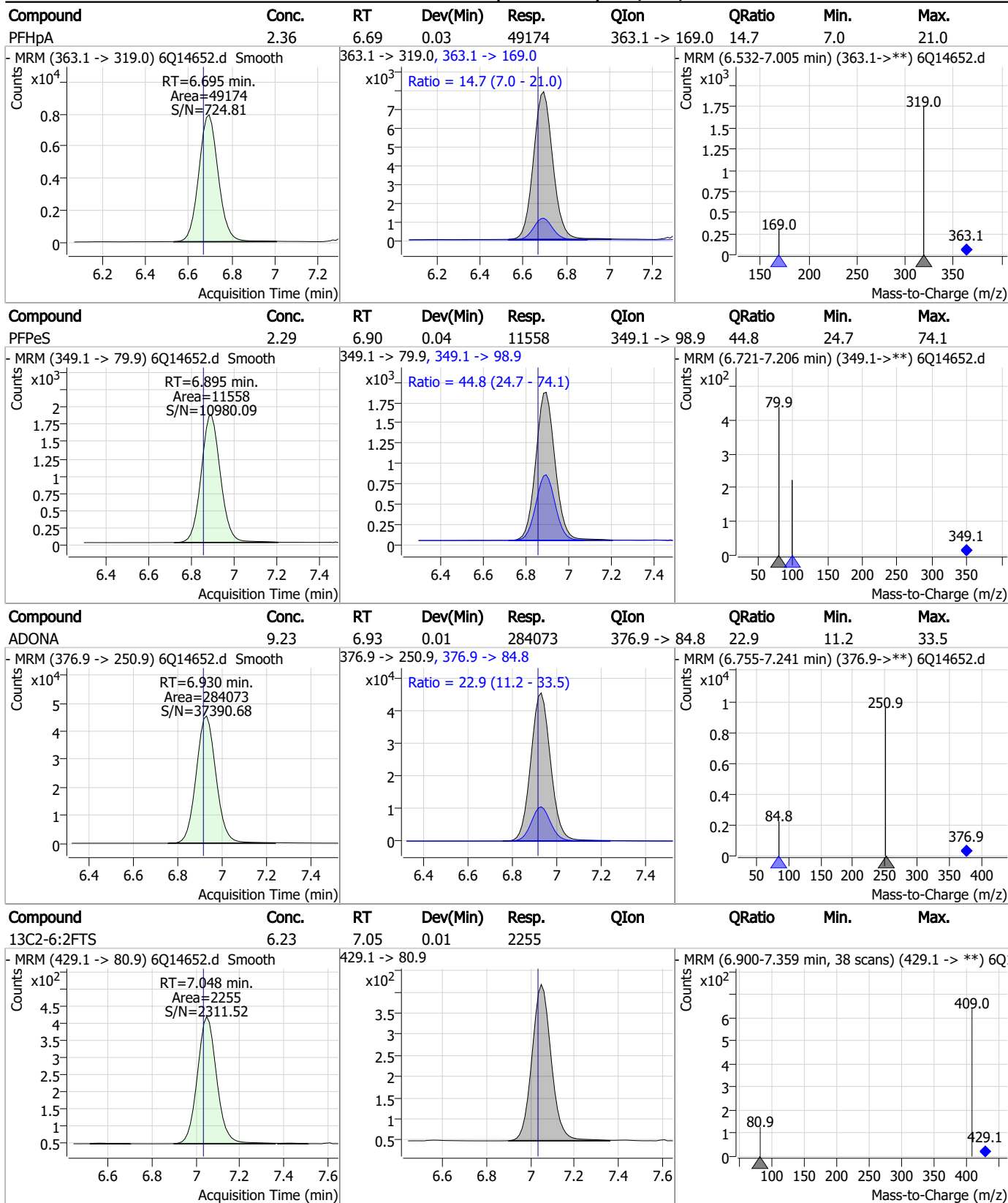


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.52	6.69	0.03	32487	367.1 -> 322.0			



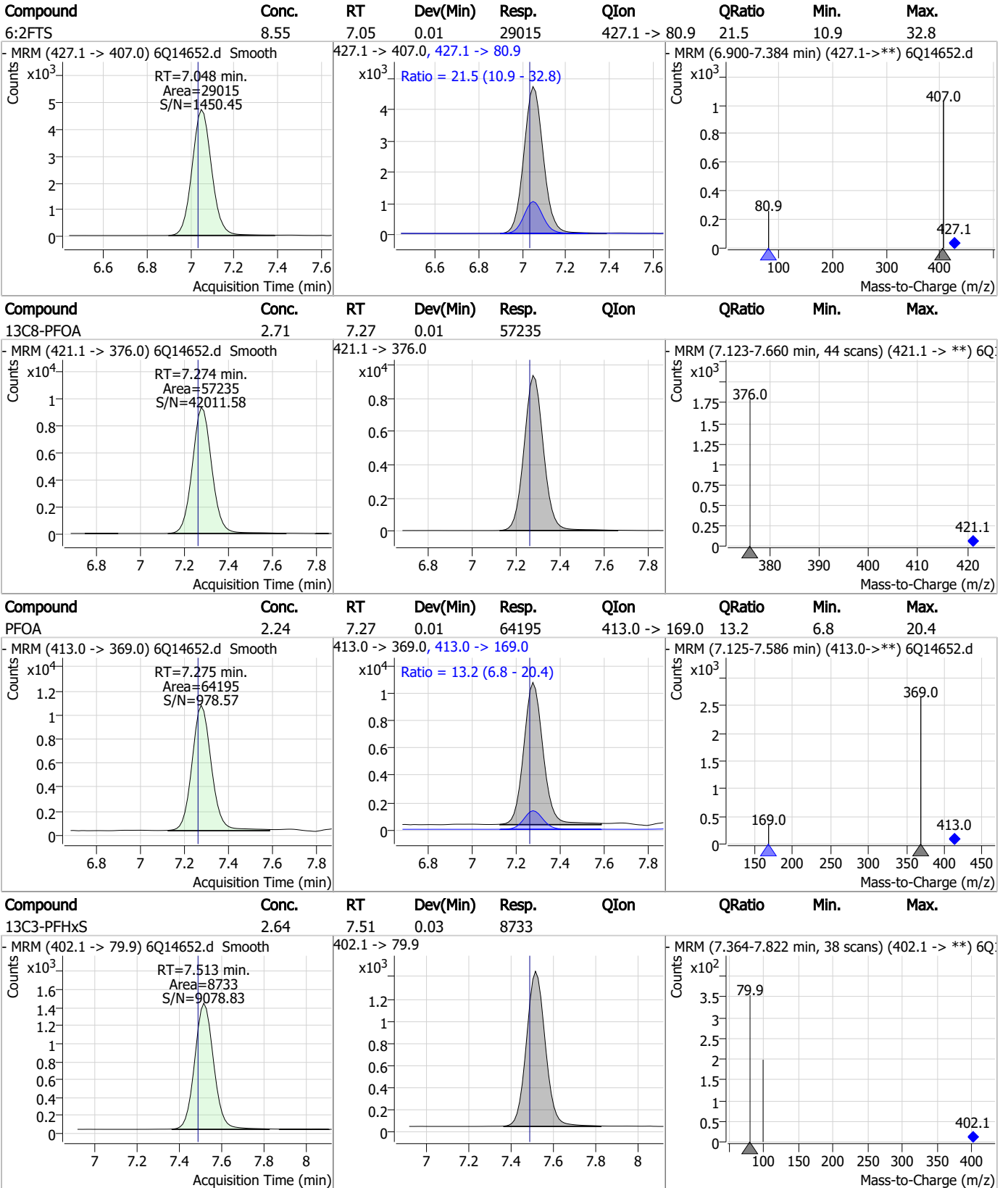
7.8.21 7

Perfluorinated Compounds by LC/MS/MS



7.8.21 7

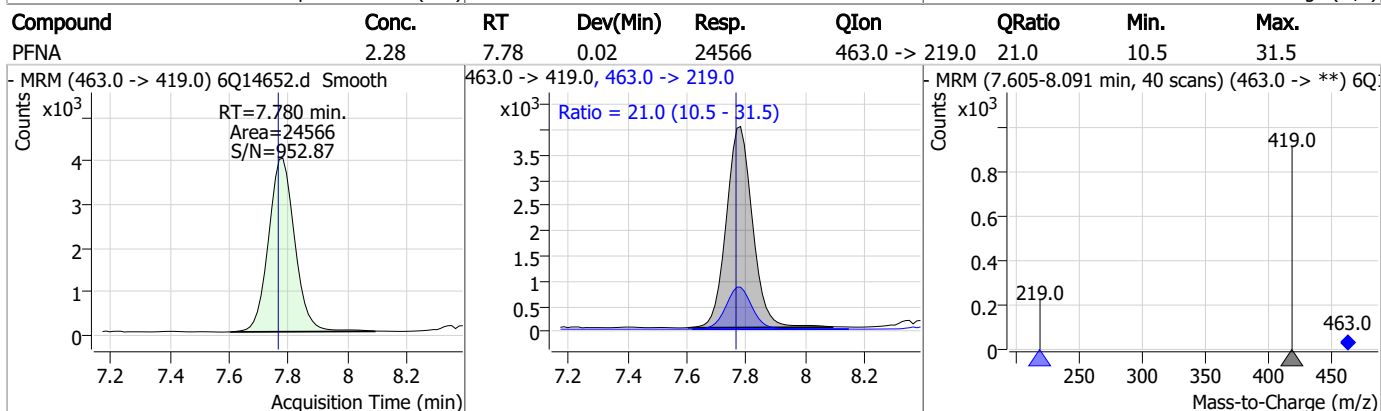
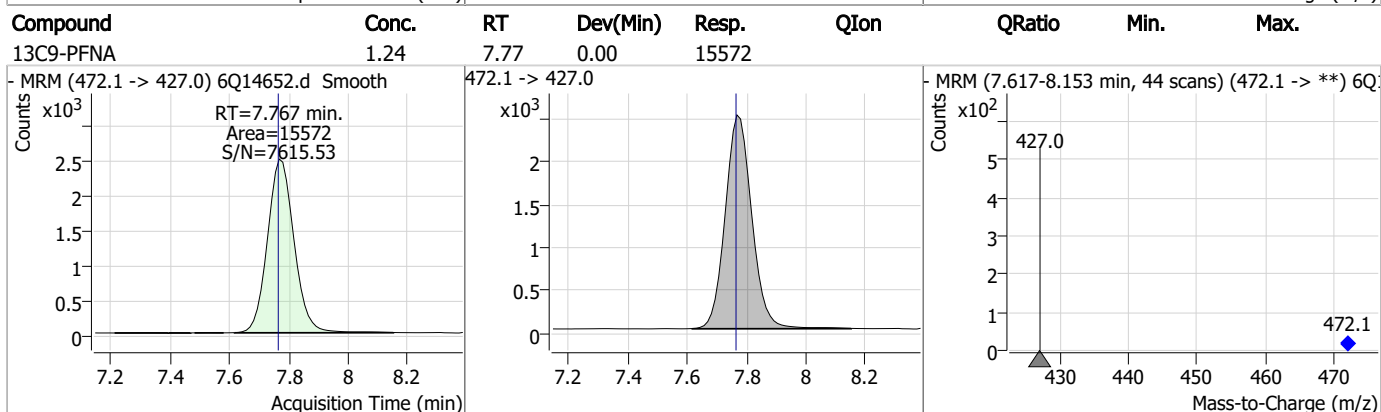
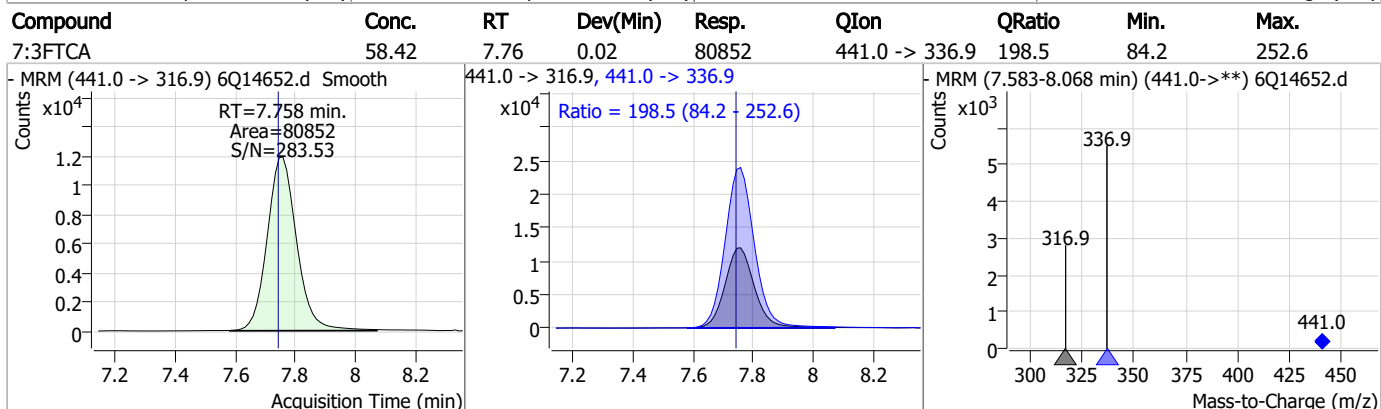
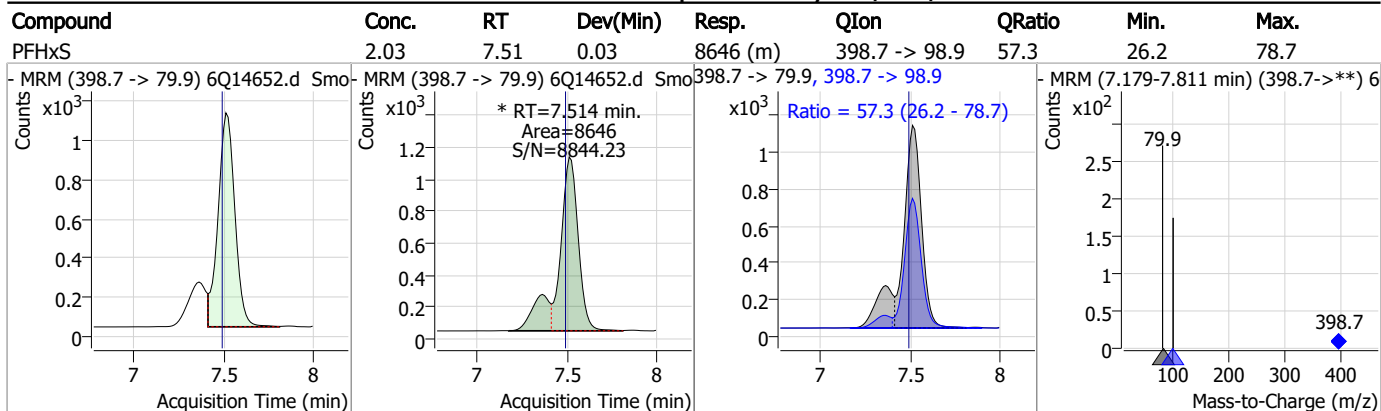
Perfluorinated Compounds by LC/MS/MS



7.8.21 7

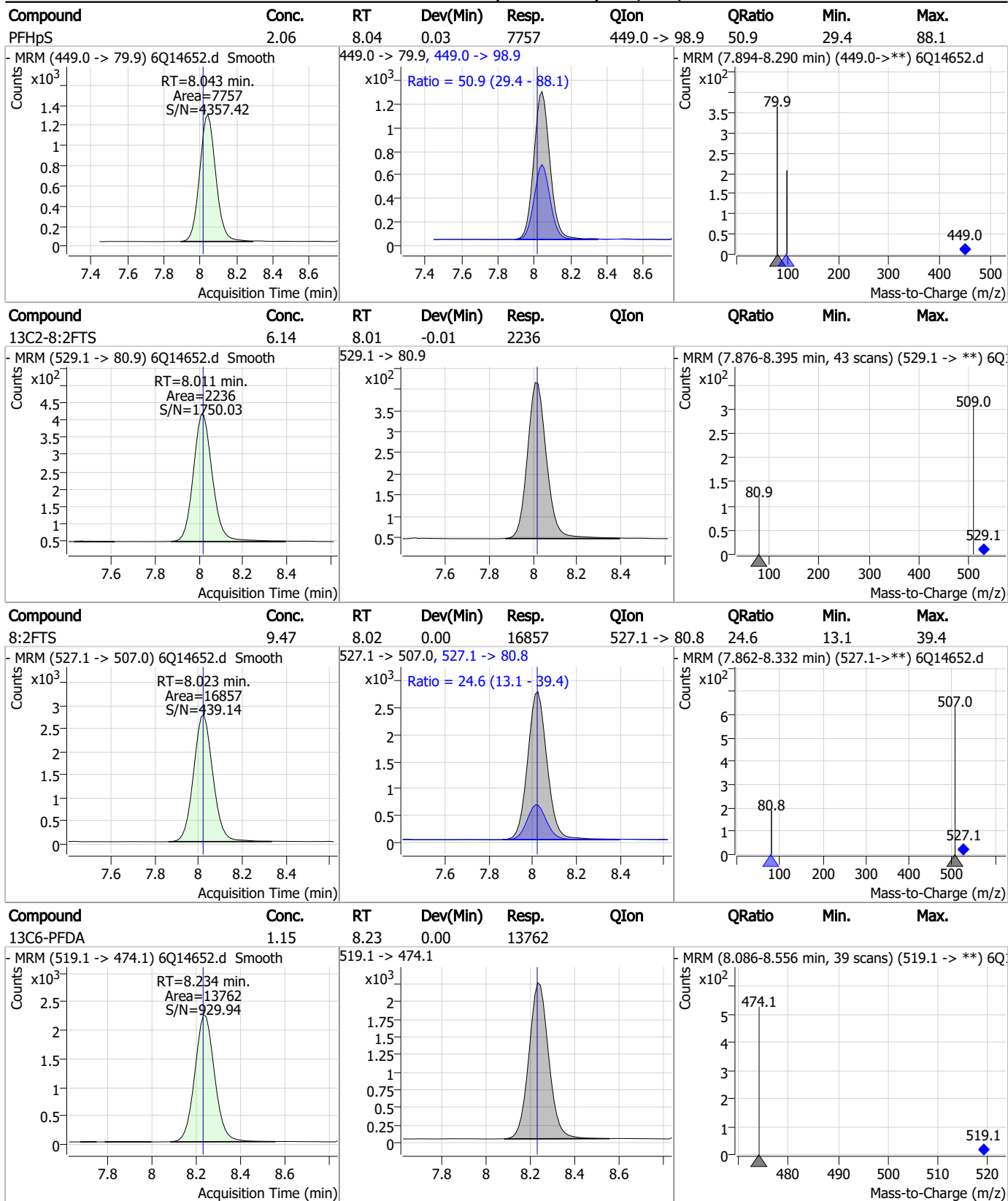


Perfluorinated Compounds by LC/MS/MS



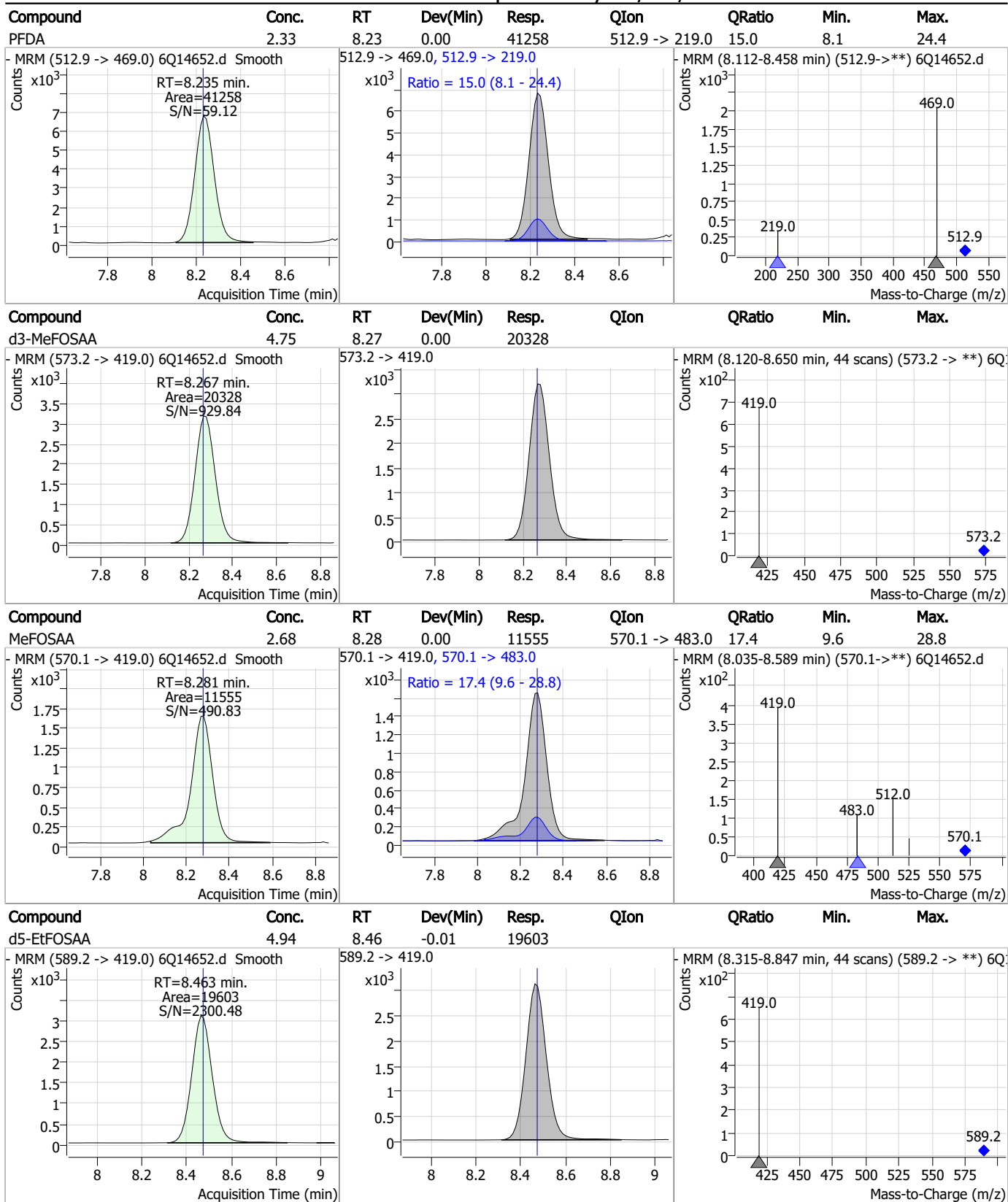
7.8.21 7

Perfluorinated Compounds by LC/MS/MS



7.8.21 7

Perfluorinated Compounds by LC/MS/MS

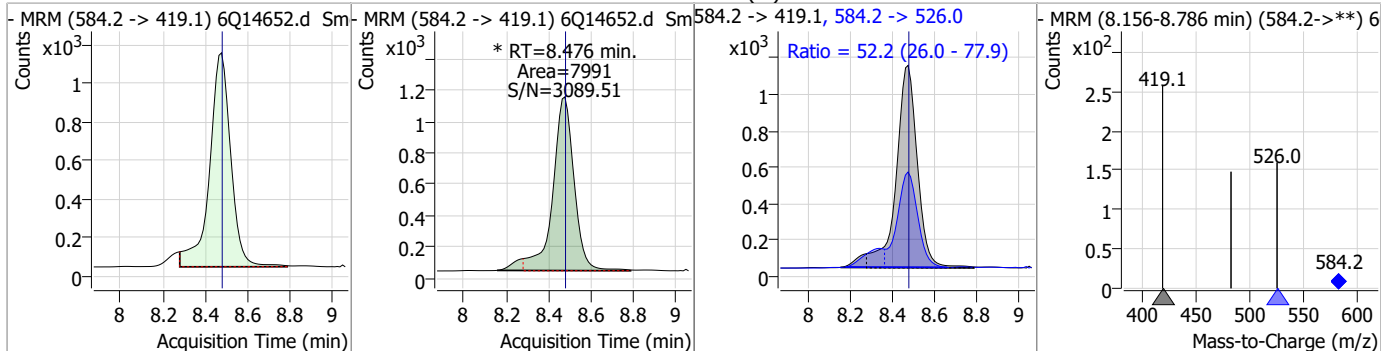


7.8.21

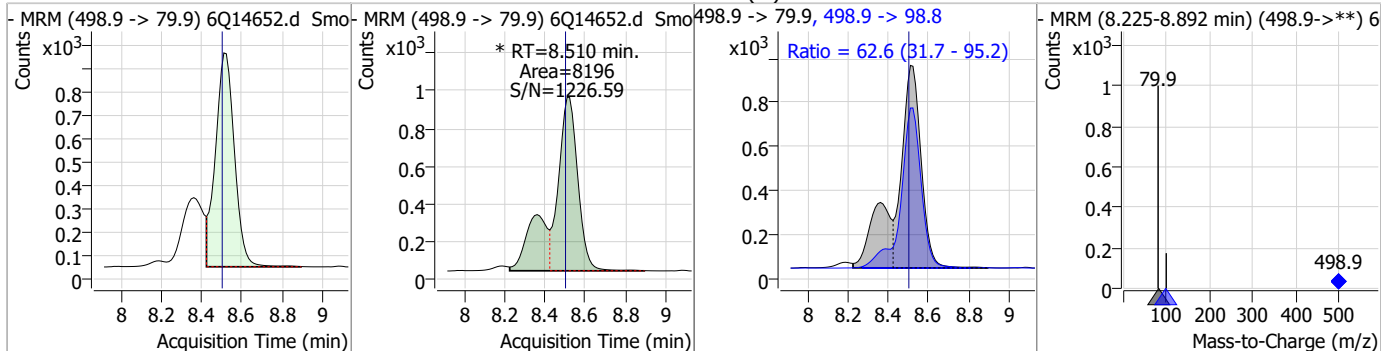
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Perfluorinated Compounds by LC/MS/MS

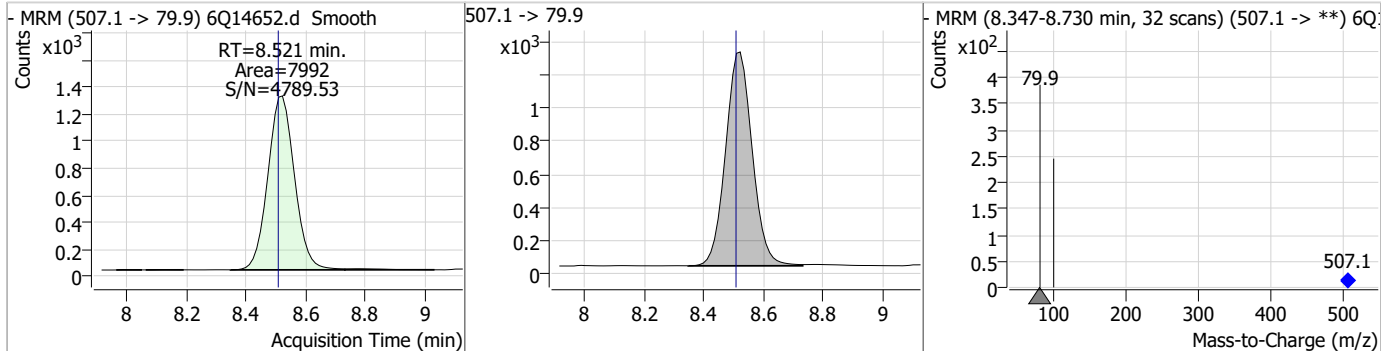
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.42	8.48	0.00	7991 (m)	584.2 -> 526.0	52.2	26.0	77.9



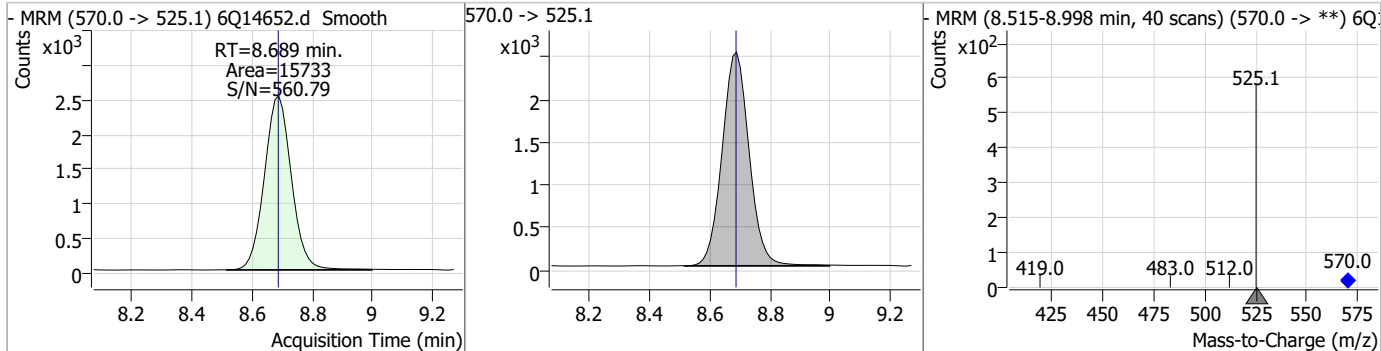
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.07	8.51	0.01	8196 (m)	498.9 -> 98.8	62.6	31.7	95.2



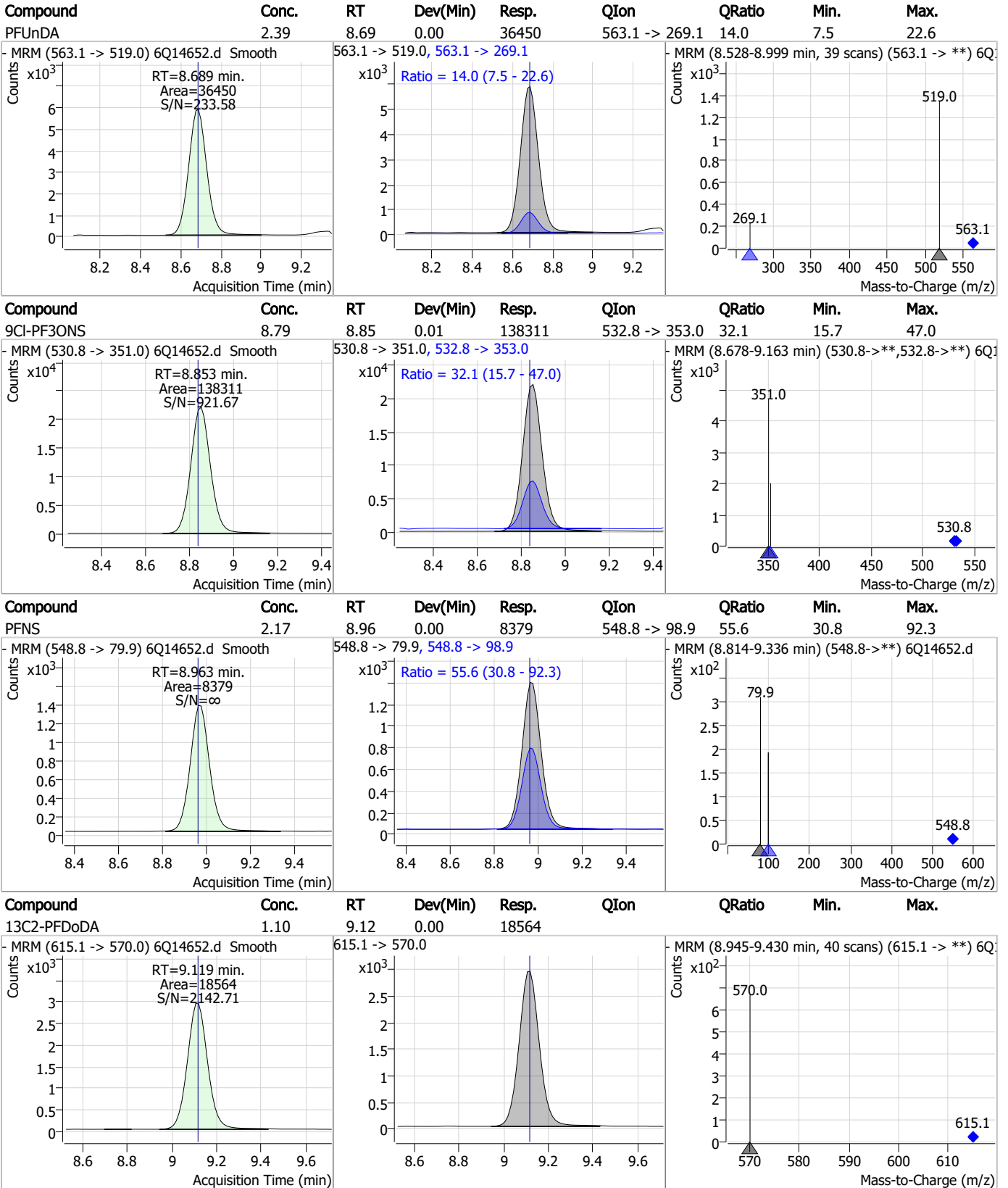
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.51	8.52	0.01	7992				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.20	8.69	0.00	15733				



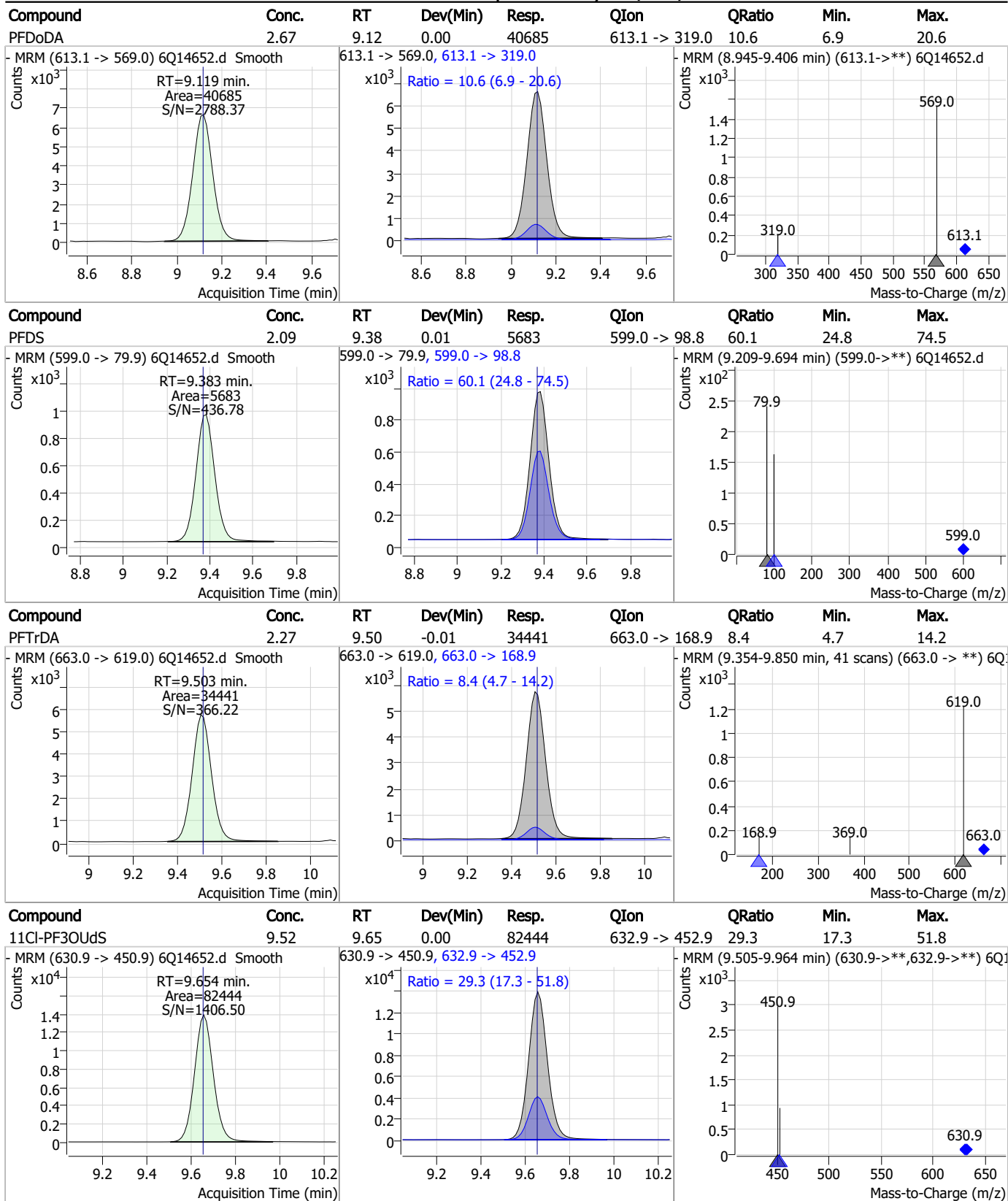
Perfluorinated Compounds by LC/MS/MS



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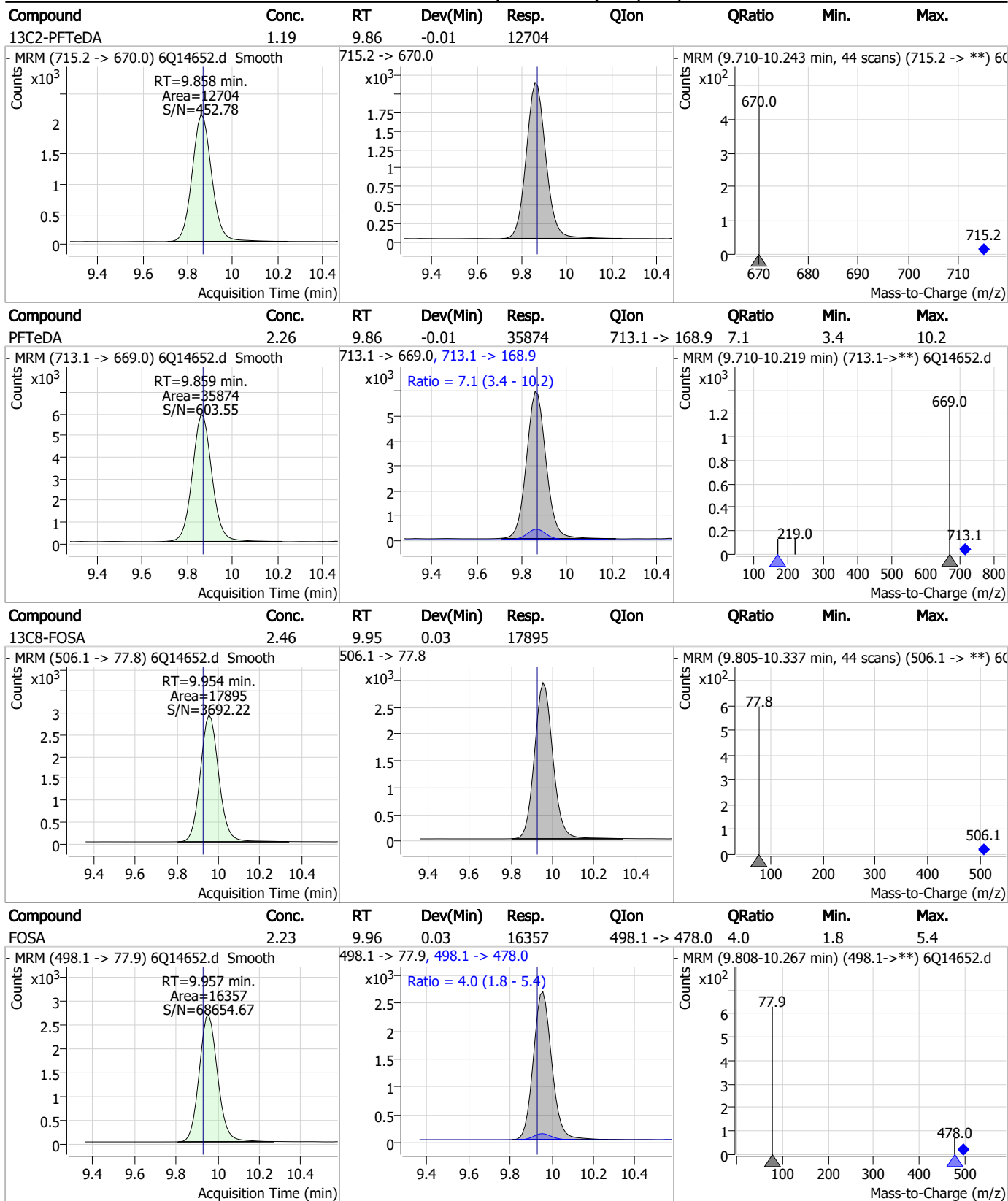
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

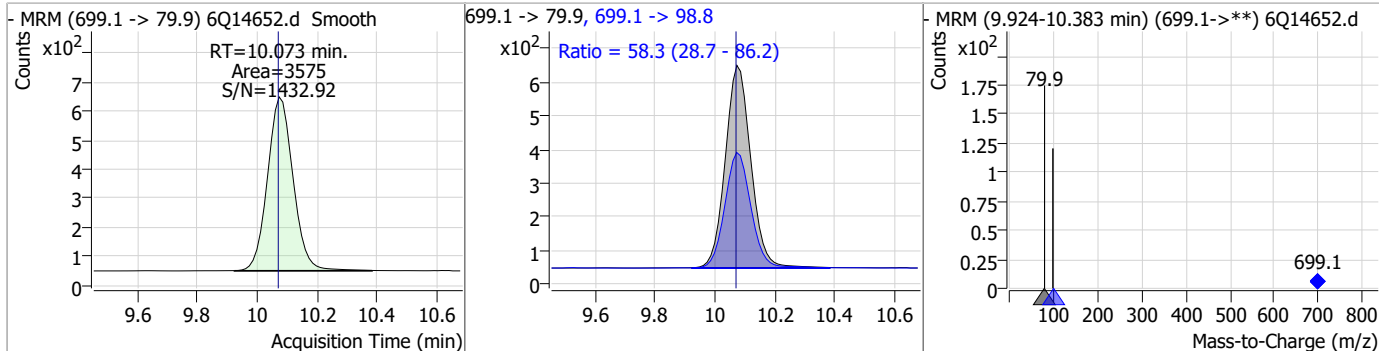


7.8.21

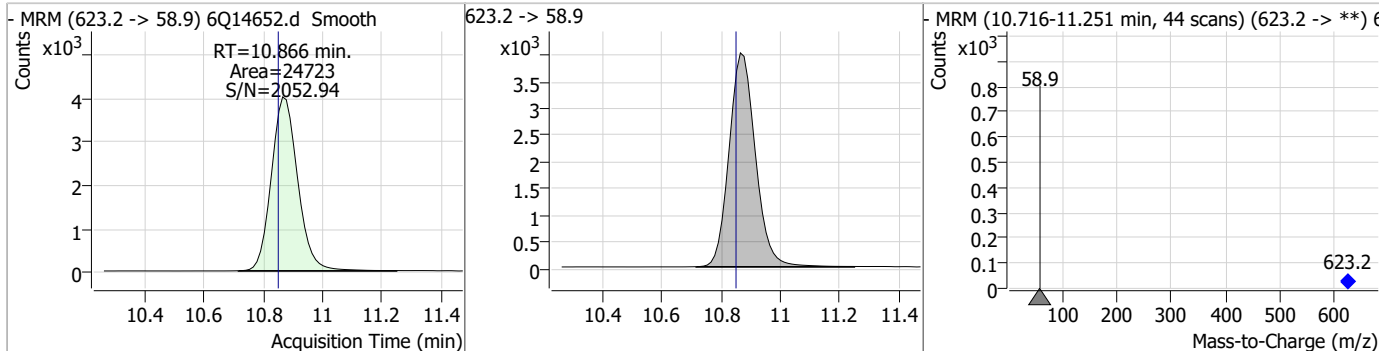
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Perfluorinated Compounds by LC/MS/MS

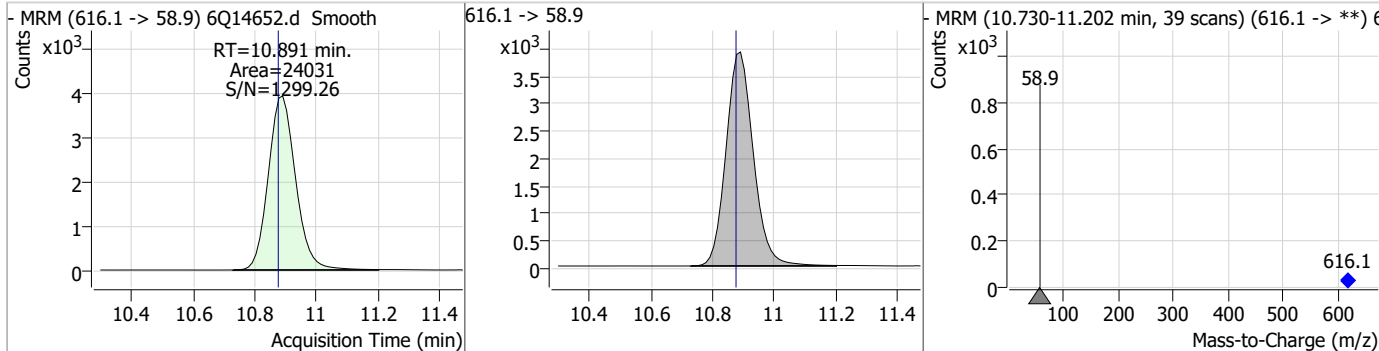
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.17	10.07	0.00	3575	699.1 -> 98.8	58.3	28.7	86.2



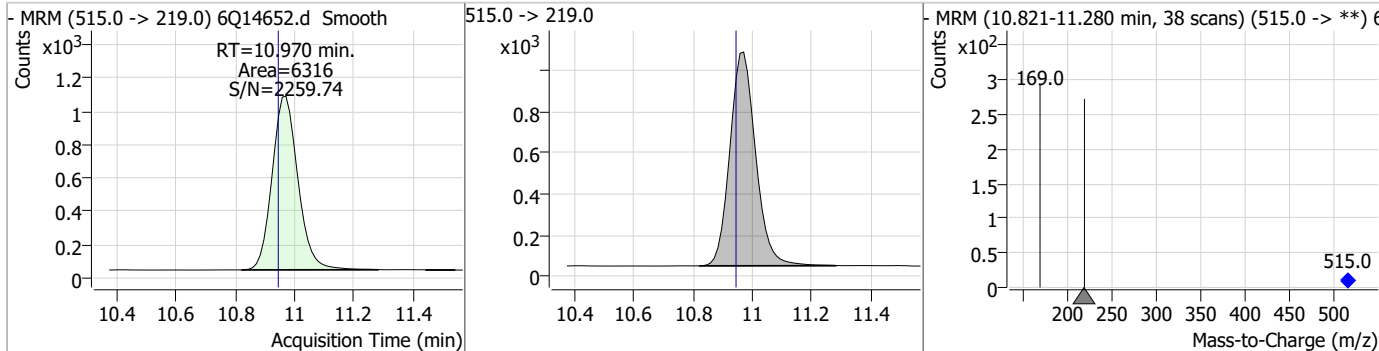
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.68	10.87	0.01	24723				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	23.66	10.89	0.01	24031				

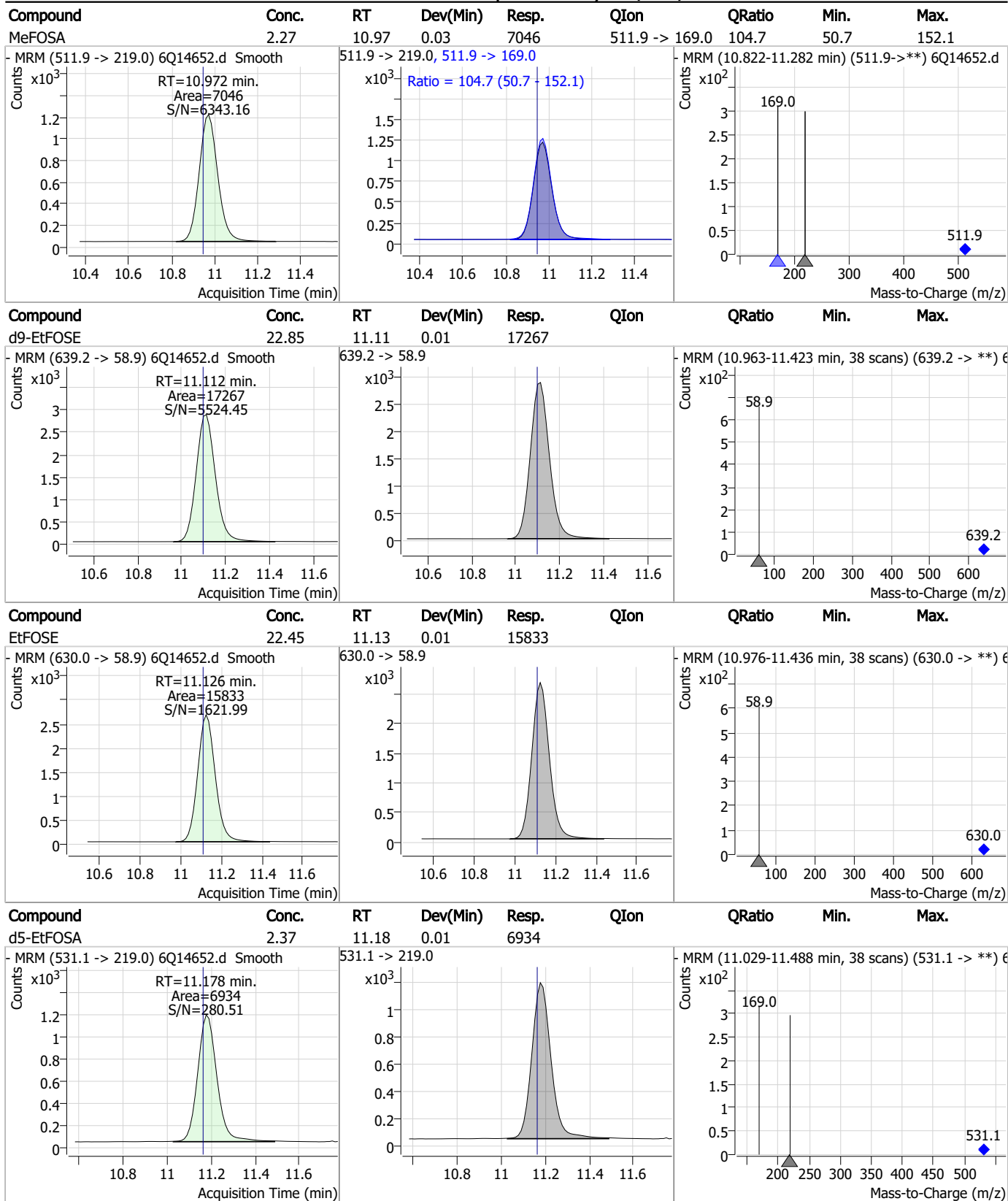


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.38	10.97	0.03	6316				



7.8.21
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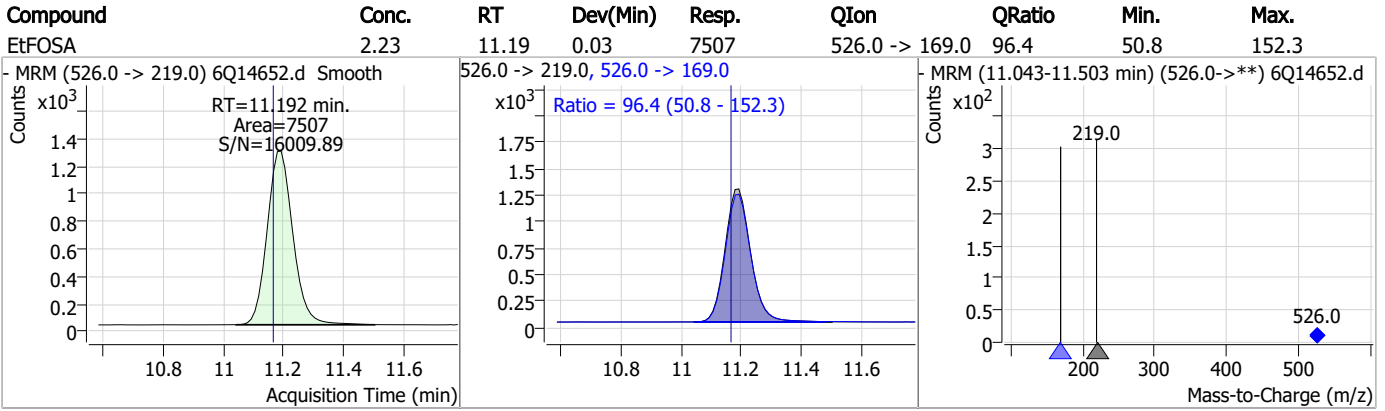
Perfluorinated Compounds by LC/MS/MS



7.8.21

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Perfluorinated Compounds by LC/MS/MS



7.8.21

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Manual Integration Approval Summary

Sample Number: S6Q221-ECC220 Method: EPA DRAFT 1633
Lab FileID: 6Q14652.D Analyst approved: 03/10/23 10:37 Anna Ludwig
Injection Time: 03/09/23 21:12 Supervisor approved: 03/10/23 14:34 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.51	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.51	Split peak

7.8.21.1

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SGS ORLANDO

DATE:	03/09/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_030823_S6Q220
CAL DATE:	03/08/23
ANALYST:	M. Valls
RUN BATCH:	S6Q220

ELUENT A LOT #:	AGN 220228
ELUENT B LOT #:	LCMS 2057
IC/CC STD LOT #:	LCMS 2083D
ICV STD LOT #:	LCMS 2073D/2071
ISTD/ID STD LOT #:	11384/11383

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q14512.d	P1-A1	CCB	1633full.m	Sample		OP95462,S6Q220,500,,,5.0,1,water	✓
2	6Q14513.d	P1-A1	CCB	1633full.m	Sample		OP95462,S6Q220,500,,,5.0,1,water	✓
3	6Q14514.d	P1-B3	RT TDCA	1633full.m	Sample		OP95462,S6Q220,500,,,5.0,1,water	✓
4	6Q14515.d	P1-B4	RT BR-LN	1633full.m	Sample		OP95462,S6Q220,500,,,5.0,1,water	✓
5	6Q14516.d	P1-A1	ic220-0	1633full.m	Sample		OP95462,S6Q220,500,,,5.0,1,water	✓
6	6Q14517.d	P1-A2	ic220-1	1633full.m	Calibration	1.6/500	OP95462,S6Q220,500,,,5.0,1,water	✓
7	6Q14518.d	P1-A3	ic220-2	1633full.m	Calibration	4/500	OP95462,S6Q220,500,,,5.0,1,water	✓
8	6Q14519.d	P1-A4	ic220-3	1633full.m	Calibration	10/500	OP95462,S6Q220,500,,,5.0,1,water	✓
9	6Q14520.d	P1-A5	ic220-4	1633full.m	Calibration	20/500	OP95462,S6Q220,500,,,5.0,1,water	✓
10	6Q14521.d	P1-A6	ic220-5	1633full.m	Calibration	40/500	OP95462,S6Q220,500,,,5.0,1,water	✓
11	6Q14522.d	P1-A7	ic220-6	1633full.m	Calibration	100/500	OP95462,S6Q220,500,,,5.0,1,water	✓
12	6Q14523.d	P1-A8	ic220-7	1633full.m	Calibration	200/500	OP95462,S6Q220,500,,,5.0,1,water	✓
13	6Q14524.d	P1-A9	ic220-8	1633full.m	Calibration	1x	OP95462,S6Q220,500,,,5.0,1,water	✓
14	6Q14525.d	P1-A1	IBLK	1633full.m	Sample		OP95462,S6Q220,500,,,5.0,1,water	✓
15	6Q14526.d	P1-B1	icv220-4	1633full.m	QC	20/500	OP95462,S6Q220,500,,,5.0,1,water	prepped by NG
16	6Q14527.d	P1-B2	icv220-20	1633full.m	QC	100/500	OP95462,S6Q220,500,,,5.0,1,water	✓
17	6Q14528.d	P1-A5	cc220-4	1633full.m	QC	20/500	OP95462,S6Q220,500,,,5.0,1,water	✓
18	6Q14529.d	P1-A2	cc220-1,0LL	1633full.m	QC	1.6/500	OP95462,S6Q220,500,,,5.0,1,water	✓
19	6Q14530.d	P2-A1	op95749-bs	1633full.m	Sample		OP95749,S6Q220,500,,,5.0,1,water	✓
20	6Q14531.d	P2-A2	op95749-llbs:2	1633full.m	Sample		OP95749,S6Q220,500,,,5.0,1,water	✓
21	6Q14532.d	P2-A3	op95749-mb	1633full.m	Sample		OP95749,S6Q220,500,,,5.0,1,water	✓
22	6Q14533.d	P2-A4	JD60806-4	1633full.m	Sample		OP95749,S6Q220,565,,,5.0,1,water	✓
23	6Q14534.d	P2-A5	JD60819-1	1633full.m	Sample		OP95749,S6Q220,520,,,5.0,1,water	✓
24	6Q14535.d	P2-A6	op95749-ms	1633full.m	Sample		OP95749,S6Q220,520,,,5.0,1,water	✓
25	6Q14536.d	P2-A7	JD60819-2	1633full.m	Sample		OP95749,S6Q220,520,,,5.0,1,water	✓
26	6Q14537.d	P2-A8	op95749-dup	1633full.m	Sample		OP95749,S6Q220,520,,,5.0,1,water	✓
27	6Q14538.d	P2-A9	JD60819-3	1633full.m	Sample		OP95749,S6Q220,565,,,5.0,1,water	✓
28	6Q14539.d	P2-B1	JD60906-4	1633full.m	Sample		OP95749,S6Q220,565,,,5.0,1,water	✓
29	6Q14540.d	P1-A5	cc220-4	1633full.m	QC	20/500	OP95462,S6Q220,500,,,5.0,1,water	✓
30	6Q14541.d	P1-A1	iccb	1633full.m	Sample		OP95462,S6Q220,500,,,5.0,1,water	✓
31	6Q14542.d	P2-B2	JD61010-1	1633full.m	Sample		OP95749,S6Q220,565,,,5.0,1,water	r11x for P1ba
32	6Q14543.d	P2-B3	JD61079-1Q	1633full.m	Sample		OP95749,S6Q220,500,,,5.0,1,water	✓
33	6Q14544.d	P2-B4	FC3074-7	1633full.m	Sample		OP95749,S6Q220,60,,,5.0,1,water	✓
34	6Q14545.d	P2-B5	FC3074-8	1633full.m	Sample		OP95749,S6Q220,60,,,5.0,1,water	✓
35	6Q14546.d	P2-B6	op95747-bs	1633full.m	Sample		OP95747,S6Q220,500,,,5.0,1,water	✓



LCMS6-6Q ANALYSIS LOG

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36	6Q14547.d	P2-B7	op95747-llbs:3	1633full.m	Sample	OP95747,S6Q220,500,,,5.0,1,,water	✓
37	6Q14548.d	P2-B8	op95747-mb	1633full.m	Sample	OP95747,S6Q220,500,,,5.0,1,,water	✓
38	6Q14549.d	P2-B9	FC3167-2	1633full.m	Sample	OP95747,S6Q220,530,,,5.0,1,,water	✓
39	6Q14550.d	P2-C1	FC3191-1	1633full.m	Sample	OP95747,S6Q220,560,,,5.0,1,,water	✓
40	6Q14551.d	P2-C2	FC3191-2	1633full.m	Sample	OP95747,S6Q220,530,,,5.0,1,,water	✓
41	6Q14552.d	P1-A5	cc220-4	1633full.m	QC	20/500	✓
42	6Q14553.d	P1-A1	iccb	1633full.m	Sample	OP95462,S6Q220,500,,,5.0,1,,water	✓
43	6Q14554.d	P2-C3	FC3191-3	1633full.m	Sample	OP95462,S6Q220,500,,,5.0,1,,water	✓
44	6Q14555.d	P2-C4	op95747-ms	1633full.m	Sample	OP95747,S6Q220,550,,,5.0,1,,water	✓
45	6Q14556.d	P2-C5	FC3191-4	1633full.m	Sample	OP95747,S6Q220,550,,,5.0,1,,water	✓
46	6Q14557.d	P2-C6	FC3191-5	1633full.m	Sample	OP95747,S6Q220,550,,,5.0,1,,water	✓
47	6Q14558.d	P2-C7	op95747-dup	1633full.m	Sample	OP95747,S6Q220,550,,,5.0,1,,water	✓
48	6Q14559.d	P1-A5	cc220-4	1633full.m	QC	20/500	✓
49	6Q14560.d	P1-A1	iccb	1633full.m	Sample	OP95462,S6Q220,500,,,5.0,1,,water	✓
50	6Q14561.d	P2-C8	MB1	1633full.m	Sample	OP95747,S6Q220,500,,,5.0,1,,water	Test only
51	6Q14562.d	P2-C9	MB2	1633full.m	Sample	OP95747,S6Q220,500,,,5.0,1,,water	Test only
52	6Q14563.d	P2-D1	BS1	1633full.m	Sample	OP95747,S6Q220,500,,,5.0,1,,water	↓
53	6Q14564.d	P2-D2	BS2	1633full.m	Sample	OP95747,S6Q220,500,,,5.0,1,,water	↓
54	6Q14565.d	P2-D3	BS3	1633full.m	Sample	OP95747,S6Q220,500,,,5.0,1,,water	↓
55	6Q14566.d	P2-D4	LLBS1.2	1633full.m	Sample	OP95747,S6Q220,500,,,5.0,1,,water	↓
56	6Q14567.d	P2-D5	LLBS2.2	1633full.m	Sample	OP95747,S6Q220,500,,,5.0,1,,water	↓
57	6Q14568.d	P2-D6	LLBS3.2	1633full.m	Sample	OP95747,S6Q220,500,,,5.0,1,,water	↓
58	6Q14569.d	P1-A5	cc220-4	1633full.m	QC	20/500	✓
59	6Q14570.d	P1-A2	cc220-1,0LL	1633full.m	QC	1.6/500	✓
60	6Q14571.d	P1-A1	iccb	1633full.m	Sample	OP95462,S6Q220,500,,,5.0,1,,water	✓
61	6Q14572.d	P3-A1	op95742-bs	1633full.m	Sample	OP95747,S6Q220,500,,,5.0,1,,soil	✓
62	6Q14573.d	P3-A2	op95742-llbs:2	1633full.m	Sample	OP95742,S6Q220,5.00,,,5.0,1,soil	✓
63	6Q14574.d	P3-A3	op95742-mb	1633full.m	Sample	OP95742,S6Q220,5.00,,,5.0,1,soil	✓
64	6Q14575.d	P3-A4	JD60806-1A	1633full.m	Sample	OP95742,S6Q220,5.05,,,5.0,1,soil	✓
65	6Q14576.d	P3-A5	JD60806-2A	1633full.m	Sample	OP95742,S6Q220,4.98,,,5.0,1,soil	✓
66	6Q14577.d	P3-A6	JD60806-3A	1633full.m	Sample	OP95742,S6Q220,5.00,,,5.0,1,soil	✓
67	6Q14578.d	P3-A7	JD60906-1A	1633full.m	Sample	OP95742,S6Q220,4.97,,,5.0,1,soil	✓
68	6Q14579.d	P3-A8	JD60906-2A	1633full.m	Sample	OP95742,S6Q220,4.96,,,5.0,1,soil	✓
69	6Q14580.d	P1-A5	cc220-4	1633full.m	QC	20/500	✓
70	6Q14581.d	P1-A1	iccb	1633full.m	Sample	OP95742,S6Q220,5.00,,,5.0,1,soil	✓
71	6Q14582.d	P3-A9	JD60906-3A	1633full.m	Sample	OP95742,S6Q220,4.95,,,5.0,1,soil	✓
72	6Q14583.d	P3-B1	op95742-ms	1633full.m	Sample	OP95742,S6Q220,4.95,,,5.0,1,soil	✓
73	6Q14584.d	P3-B2	op95742-msd	1633full.m	Sample	OP95742,S6Q220,4.99,,,5.0,1,soil	✓
74	6Q14585.d	P3-B3	op95743-bs	1633full.m	Sample	OP95743,S6Q220,5.00,,,5.0,1,soil	✓
75	6Q14586.d	P3-B4	op95743-llbs:2	1633full.m	Sample	OP95743,S6Q220,5.00,,,5.0,1,soil	✓
76	6Q14587.d	P3-B5	op95743-mb	1633full.m	Sample	OP95743,S6Q220,5.00,,,5.0,1,soil	✓
77	6Q14588.d	P3-B6	JD60940-1	1633full.m	Sample	OP95743,S6Q220,5.04,,,5.0,1,soil	✓
78	6Q14589.d	P3-B7	op95743-ms	1633full.m	Sample	OP95743,S6Q220,5.02,,,5.0,1,soil	✓

LCMS6-6Q ANALYSIS LOG

SGS ORLANDO

79	6Q14590.d	P3-B8	op95743-rmsd	1633full.m	Sample	OP95743,S6Q220,4.96,,5.0,1,soil	✓
80	6Q14591.d	P3-B9	JD60940-2	1633full.m	Sample	OP95743,S6Q220,5.01,,5.0,1,soil	Redo, teda fail low.
81	6Q14592.d	P1-A5	cc220-4	1633full.m	QC	OP95747,S6Q220,500,,,5.0,1,water	✓
82	6Q14593.d	P1-A1	iccb	1633full.m	Sample	OP95743,S6Q220,5.00,,5.0,1,soil	✓
83	6Q14594.d	P3-C1	JD60940-3	1633full.m	Sample	OP95743,S6Q220,4.96,,5.0,1,soil	✓
84	6Q14595.d	P3-C2	JD60940-4	1633full.m	Sample	OP95743,S6Q220,5.02,,5.0,1,soil	✓
85	6Q14596.d	P3-C3	JD60940-5	1633full.m	Sample	OP95743,S6Q220,5.01,,5.0,1,soil	✓
86	6Q14597.d	P3-C4	JD60940-6	1633full.m	Sample	OP95743,S6Q220,5.05,,5.0,1,soil	✓
87	6Q14598.d	P3-C5	JD60940-7	1633full.m	Sample	OP95743,S6Q220,4.97,,5.0,1,soil	✓
88	6Q14599.d	P3-C6	JD60940-8	1633full.m	Sample	OP95743,S6Q220,4.96,,5.0,1,soil	✓
89	6Q14600.d	P3-C7	JD60940-9	1633full.m	Sample	OP95743,S6Q220,4.96,,5.0,1,soil	✓
90	6Q14601.d	P3-C8	JD60940-10	1633full.m	Sample	OP95743,S6Q220,5.02,,5.0,1,soil	✓
91	6Q14602.d	P3-C9	JD60940-11	1633full.m	Sample	OP95743,S6Q220,4.95,,5.0,1,soil	✓
92	6Q14603.d	P3-D1	JD60940-12	1633full.m	Sample	OP95743,S6Q220,4.95,,5.0,1,soil	✓
93	6Q14604.d	P1-A5	cc220-4	1633full.m	QC	OP95747,S6Q220,500,,,5.0,1,water	✓
94	6Q14605.d	P1-A1	iccb	1633full.m	Sample	OP95743,S6Q220,5.00,,5.0,1,soil	✓
95	6Q14606.d	P3-D2	JD60940-13	1633full.m	Sample	OP95743,S6Q220,4.96,,5.0,1,soil	✓
96	6Q14607.d	P3-D3	JD60940-14	1633full.m	Sample	OP95743,S6Q220,4.99,,5.0,1,soil	✓
97	6Q14608.d	P3-D4	JD60940-15	1633full.m	Sample	OP95743,S6Q220,4.95,,5.0,1,soil	✓
98	6Q14609.d	P1-A5	ecc220-4	1633full.m	QC	OP95747,S6Q220,500,,,5.0,1,water	✓
99	6Q14610.d	P1-A1	iccb	1633full.m	Sample	OP95743,S6Q220,5.00,,5.0,1,soil	✓



SGS ORLANDO

DATE:	03/09/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_030823_S6Q220
CAL DATE:	03/08/23
ANALYST:	M. Valls AL
RUN BATCH:	S6Q221

ELUENT A LOT #:	ACN 220228
ELUENT B LOT #:	LCMS 2057
IC/CC STD LOT #:	LCMS 2083D
ICV STD LOT #:	LCMS 2073D/2071
ISTD/ID STD LOT #:	11384/11383

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q14611.d	P1-B1	set up rt	1633full.m	Sample		OP95772,S6Q221,500,,,5.0,1,water	ok
2	6Q14612.d	P1-B1	set up rt	1633full.m	Sample		OP95772,S6Q221,500,,,5.0,1,water	ok
3	6Q14613.d	P1-A1	CCB	1633full.m	Sample		OP95772,S6Q221,500,,,5.0,1,water	nd
4	6Q14614.d	P1-A1	CCB	1633full.m	Sample		OP95772,S6Q221,500,,,5.0,1,water	nd
5	6Q14615.d	P1-B3	RT TDCA	1633full.m	Sample		OP95772,S6Q221,500,,,5.0,1,water	pass
6	6Q14616.d	P1-B4	RT BR-LN	1633full.m	Sample		OP95772,S6Q221,500,,,5.0,1,water	pass
7	6Q14617.d	P1-A9	High Std	1633full.m	Sample		OP95772,S6Q221,500,,,5.0,1,water	pass
8	6Q14618.d	P1-A1	IBLK	1633full.m	Sample		OP95772,S6Q221,500,,,5.0,1,water	nd
9	6Q14619.d	P1-A5	cc220-4	1633full.m	QC	20/500	OP95772,S6Q221,500,,,5.0,1,water	pass
10	6Q14620.d	P1-A2	cc220-1,0LL	1633full.m	QC	1.6/500	OP95772,S6Q221,500,,,5.0,1,water	pass
11	6Q14621.d	P4-A1	op95772-bs	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	✓
12	6Q14622.d	P4-A2	op95772-llbs:2	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	✓
13	6Q14623.d	P4-A3	op95772-mb	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	✓
14	6Q14624.d	P4-A4	JD60059-15A	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	xh
15	6Q14625.d	P4-A5	JD60059-16A	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	xh
16	6Q14626.d	P4-A6	JD60059-17A	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	xh
17	6Q14627.d	P4-A7	JD60059-18A	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	xh
18	6Q14628.d	P4-A8	JD60059-19A	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	xh
19	6Q14629.d	P4-A9	JD60059-20A	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	xh
20	6Q14630.d	P4-B1	JD60059-22A	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	xh
21	6Q14631.d	P1-A5	cc220-4	1633full.m	QC	20/500	OP95772,S6Q221,500,,,5.0,1,water	pass
22	6Q14632.d	P1-A1	iccb	1633full.m	Sample		OP95772,S6Q221,500,,,5.0,1,water	nd
23	6Q14633.d	P4-B2	JD60059-23A	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	xh
24	6Q14634.d	P4-B3	JD60059-24A	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	xh
25	6Q14635.d	P4-B4	JD60059-25A	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	xh
26	6Q14636.d	P4-B5	JD60059-26A	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	OOH-✓
27	6Q14637.d	P4-B6	op95772-ms	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	✓
28	6Q14638.d	P4-B7	JD60059-27A	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	OOH-✓
29	6Q14639.d	P4-B8	op95772-dup1	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	✓
30	6Q14640.d	P4-B9	JD60059-29A	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	✓
31	6Q14641.d	P4-D2	op95772-dup2	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	✓
32	6Q14642.d	P4-C1	JD60059-31A	1633full.m	Sample		OP95772,S6Q221,60,,,5.0,1,water	xh
33	6Q14643.d	P1-A5	cc220-4	1633full.m	QC	20/500	OP95772,S6Q221,500,,,5.0,1,water	pass
34	6Q14644.d	P1-A1	iccb	1633full.m	Sample		OP95772,S6Q221,500,,,5.0,1,water	nd
35	6Q14645.d	P4-C2	op95791-bs	1633full.m	Sample		OP95791,S6Q221,500,,,5.0,1,water	✓

SGS ORLANDO LCMS6-6Q ANALYSIS LOG

36	6Q14646.d	P4-C3	op95791-llbs:3	1633full.m	Sample	OP95791,S6Q221,500,,,5.0,1,water	✓
37	6Q14647.d	P4-C4	op95791-mb	1633full.m	Sample	OP95791,S6Q221,500,,,5.0,1,water	✓
38	6Q14648.d	P4-C5	FC3167-1	1633full.m	Sample	OP95791,S6Q221,520,,,5.0,1,water	✓
39	6Q14649.d	P4-C6	op95791-ms	1633full.m	Sample	OP95791,S6Q221,530,,,5.0,1,water	✓
40	6Q14650.d	P4-D3	FC3191-3	1633full.m	Sample	100/500 OP95747,S6Q221,550,,,5.0,5,water	✓
41	6Q14651.d	P4-D4	JD60940-2	1633full.m	Sample	100/500 OP95743,S6Q221,5.01,,,5.0,5,SOIL	✓
42	6Q14652.d	P1-A5	Ecc220-4	1633full.m	QC	20/500 OP95772,S6Q221,500,,,5.0,1,water	pass
43	6Q14653.d	P1-A1	iccb	1633full.m	Sample	OP95772,S6Q221,500,,,5.0,1,water	nd

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 1987	40 List Std ADD-ON #1	10726A	10'2 FTS	Wilmington Labs	03/03/26	03/31/23	50ppm	80uL	4.0mL	1ppm	05/16/04 S747D	10/18/22	03/21/23	NS
		10840	FFDOS		07/01/26	10/18/23								
		10889	N-HROSA		08/03/26	08/12/23								
		10837	N-HROSA		08/12/26	08/12/23								
		10842	PFHDA	NS PFA	09/22/26	10/18/23								
		10841	PFODA		05/01/26	10/18/23								
		10684A	3:3FICA		11/12/25	03/21/23								
		10685A	PFPPA		11/11/25	08/12/23								
		10683A	7:3FICA		11/12/25	05/12/23								
		11117	PFECIS		10/14/26	06/12/23								
		10762B	PFEECA		05/12/25	10/18/23								
		10763B	PFSCHA		03/21/25	10/18/23								
		10764A	PFMPA		03/31/25	03/21/23								
		10768B	PFHDA 3:6 OFFHPA		03/31/25	10/18/23								
						10/18/22								

* 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 A 2009 B	PFC SPIKE	11483	PFADDD (28 comp)	Wellington Labs	08/05/27	11/08/23	1.0 ppm	2 mL	5 mL	400 ppb	95/MEOH 5/1.H2O	11/08/22	05/05/23	NS
		10839	N-ME-FOSEA-M		08/23/26	09/23/23	50 ppm	40 uL						NS
		11284	PBSA-1		11/10/26	06/23/23								NS
		11249	FHXSA-1		12/29/26	11/03/23								NS
		11332	PFECHS		03/28/27	10/18/23								NS
LCMS A-B 2010	(SPIKE) 1623 CAL. Std.	10855F	PFAC-MXH	Wellington Labs	09/14/26	11/04/23	1-4 ppm	250 uL	4 mL	90-5/125/1250 ppb	16033 Mix	11/04/22	05/10/23	NS
		10853E	PFAC-MXI		09/14/26	11/04/23	1-10 ppm	250 uL		62.5/625 ppb				NS
		10856I	PFAC-MXF		05/10/23	05/10/23	2 ppm	500 uL		250 ppb				NS
		10854E	PFAC-MXG		03/04/25	11/04/23	2 ppm	250 uL		125 ppb				NS
		10857D	PFAC-MXS		10/12/23	11/08/23	11-20 ppm	312 uL		210/1160 ppb				NS
LCMS 2011	(SPIKE) FULL List std.	11440	PROA-DON (28)	Absolute	08/05/27	10/24/23	1.0 ppm	400 uL	4.0 mL	100 ppb	95/MEOH 5/1.H2O	11/11/22	02/21/23	NS
		LCMS 1987	40 List ADDON #1			02/21/23	1.0 ppm	400 uL		100 ppb				NS
		LCMS 1986	40 List ADDON #2			01/18/23	1.0 ppm	400 uL		100 ppb				NS
		LCMS 2012	FOSE std.			05/11/23	50 ppm	400 uL		500 ppb				NS
LCMS 2012	FOSE std.	11376	N-ET-FOSE	Wellington Labs	05/13/27	09/19/23	50 ppm	200 uL	2.0 mL	5 ppm	95/MEOH 5/1.H2O	11/11/22	05/11/23	NS
		11376	N-ME-FOSE		05/13/27	09/19/23	50 ppm	200 uL						NS

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

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

11628 A-B
rec'd 01/26/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXJ
<u>LOT NUMBER:</u>	PFACMXJ0921
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/08/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/14/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/14/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
 Figure 1: LC/MS Data (SIR)
 Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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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


PFACMXJ0921 (1 of 5)
rev1

7.10.1

7

Table A: PFAC-MXJ; Components and Concentrations ($\mu\text{g}/\text{mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g}/\text{mL}$)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By: 
B.G. Chittim, General Manager

Date: 10/02/2021
(m/m/dd/yyyy)

11638
rec'd 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXH
<u>LOT NUMBER:</u>	PFACMXH0822
<u>SOLVENT(S):</u>	Methanol/Isopropanol (2%)/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/05/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	08/08/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	08/08/2027
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoules

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₅, C₇, C₈, 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 (FOSA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Table B: Isomeric Components and Percent Composition of 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

PFACMXH0822 (1 of 11)
rev0

7.10.1
7

Table A: PFAC-MXH; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFUdA	1000		24
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		23
N-methylperfluorooctanesulfonamidoacetic acid *	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: Σ branched isomers	240		17
N-ethylperfluorooctanesulfonamidoacetic acid *	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-butanedisulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentadisulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexadisulfonate *	PFHxSK: linear isomer	811	741	9
	PFHxSK: Σ branched isomers	189	173	8
Sodium perfluoro-1-heptadisulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctadisulfonate *	PFOSK: linear isomer	788	732	15
	PFOSK: Σ branched isomers	211	196	13
Sodium perfluoro-1-nonadisulfonate	L-PFNs	1000	962	19
Sodium perfluoro-1-decadisulfonate	L-PFDs	1000	965	25
Sodium perfluoro-1-dodecadisulfonate	L-PFDcS	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-perfluorodecane sulfonate	8:2FTS	4000	3840	16

* See Table B for percent composition of linear and branched N-MeFOSAA isomers.

* See Table C for percent composition of linear and branched N-EtFOSAA isomers.

* See Table D for percent composition of linear and branched PFHxSK isomers.

* 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: 08/09/2022
(mm/dd/yyyy)

11639
rec'd: 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXI

**Native Perfluorooctanesulfonamide
and Perfluorooctanesulfonamidoethanol
Solution/Mixture**

<u>PRODUCT CODE:</u>	PFAC-MXI
<u>LOT NUMBER:</u>	PFACMXI0921
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/08/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/14/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/14/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXI is a solution/mixture of two native perfluorooctanesulfonamides (FOSAs) and two native perfluorooctanesulfonamidoethanols (FOSEs). The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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

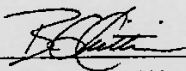
PFACMXI0921 (1 of 5)
rev0

7.10.1
7

Table A: PFAC-MXI; Components and Concentrations ($\mu\text{g/mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g/mL}$)	Peak Assignment in Figure 1
N-methylperfluoro-1-octanesulfonamide	N-MeFOSA	1.00	B
N-ethylperfluoro-1-octanesulfonamide	N-EtFOSA	1.00	D
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	N-MeFOSE	10.0	A
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	N-EtFOSE	10.0	C

Certified By:


 B.G. Chittim, General Manager

Date: 09/23/2021
(mm/dd/yyyy)

11640 A-B
rec'd: 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXF
LOT NUMBER: PFACMXF0122
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 01/10/2022
LAST TESTED: (mm/dd/yyyy) 01/11/2022
EXPIRY DATE: (mm/dd/yyyy) 01/11/2025
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

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

PFACMXF0122 (1 of 5)
rev0

7.10.1

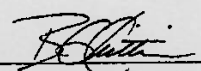
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Table A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By:


B.G. Chitrim, General Manager

Date: 01/12/2022
(mm/dd/yyyy)

11641
rec'd: 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

**Native Perfluoroalkyl Ether Carboxylic
Acids and Sulfonate Solution/Mixture**

7.10.1
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<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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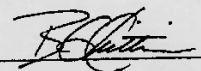
PFACMXG1122 (1 of 5)
rev0

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

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

* Concentrations have been rounded to three significant figures.

Certified By:


B.G. Chittim, General Manager

Date: 12/09/2022
(mm/dd/yyyy)

11642 A-B
rec'd: 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXJ
<u>LOT NUMBER:</u>	PFACMXJ0921
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/08/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/14/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/14/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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PFACMXJ0921 (1 of 5)
rev1

7.10.1

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Table A: PFAC-MXJ; Components and Concentrations ($\mu\text{g}/\text{mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g}/\text{mL}$)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By: 
 B.G. Chittim, General Manager

Date: 10/02/2021
(mm/dd/yyyy)

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PFACMX.0921 (3 of 5)
 rev1

11657 rec'd: 02/20/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXH
<u>LOT NUMBER:</u>	PFACMXH0822
<u>SOLVENT(S):</u>	Methanol/Isopropanol (2%)/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/05/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	08/08/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	08/08/2027
<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, C₈, 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 (FOSA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Table B: Isomeric Components and Percent Composition of 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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PFACMXH0822 (1 of 11)
rev0

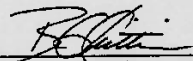
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Table A: PFAC-MXH; Components and Concentrations
(ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

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		24
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		23
N-methylperfluorooctanesulfonamidoacetic acid ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-ethylperfluorooctanesulfonamidoacetic acid ^b	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanedisulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentadisulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexadisulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptadisulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctadisulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonadisulfonate	L-PFNS	1000	962	19
Sodium perfluoro-1-decadisulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecadisulfonate	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-perfluorodecane sulfonate	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: 08/09/2022
(mm/dd/yyyy)

11658 rec'd:02/20/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXI

**Native Perfluorooctanesulfonamide
and Perfluorooctanesulfonamidoethanol
Solution/Mixture**

<u>PRODUCT CODE:</u>	PFAC-MXI
<u>LOT NUMBER:</u>	PFACMXI0921
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/08/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/14/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/14/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXI is a solution/mixture of two native perfluorooctanesulfonamides (FOSAs) and two native perfluorooctanesulfonamidoethanols (FOSEs). The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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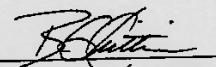
PFACMXI0921 (1 of 5)
rev0

7.10.1
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Table A: PFAC-MXI; Components and Concentrations ($\mu\text{g}/\text{mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g}/\text{mL}$)	Peak Assignment in Figure 1
N-methylperfluoro-1-octanesulfonamide	N-MeFOSA	1.00	B
N-ethylperfluoro-1-octanesulfonamide	N-EtFOSA	1.00	D
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	N-MeFOSE	10.0	A
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	N-EtFOSE	10.0	C

Certified By:


B.G. Chittim, General Manager

Date: 09/23/2021
(mm/dd/yyyy)

11659 A-B rec'd: 02/20/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS
Solution/Mixture

PRODUCT CODE:

PFAC-MXF

LOT NUMBER:

PFACMXF0122

SOLVENT(S):

Methanol / Water (<1%)

DATE PREPARED: (mm/dd/yyyy)

01/10/2022

LAST TESTED: (mm/dd/yyyy)

01/11/2022

EXPIRY DATE: (mm/dd/yyyy)

01/11/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

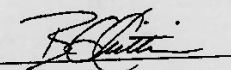
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Table A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		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: 
 B.G. Chittim, General Manager

Date: 01/12/2022
(mm/dd/yyyy)

11660 rec'd: 02/20/23



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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PFACMXG1122 (1 of 5)
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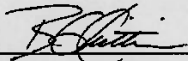
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Table A: PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))

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

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 12/09/2022
(mm/dd/yyyy)

11599
rec'd 01/10/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXH
<u>LOT NUMBER:</u>	PFACMXH0822
<u>SOLVENT(S):</u>	Methanol/Isopropanol (2%)/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/05/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	08/08/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	08/08/2027
<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, C₆, 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 (FOSA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Table B: Isomeric Components and Percent Composition of 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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PFACMXH0822 (1 of 11)
rev0

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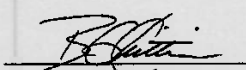
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Table A: PFAC-MXH; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

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		24
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		23
N-methylperfluorooctanesulfonamidoacetic acid ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-ethylperfluorooctanesulfonamidoacetic acid ^b	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1000	962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4000	3840	16

^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.
^b See Table C for percent composition of linear and branched N-EtFOSAA isomers.
^c See Table D for percent composition of linear and branched PFHxSK isomers.
^d See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 08/09/2022
(mm/dd/yyyy)

11600
rec'd 01/10/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXI

Native Perfluorooctanesulfonamide and Perfluorooctanesulfonamidoethanol Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXI
<u>LOT NUMBER:</u>	PFACMXI0921
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/08/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/14/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/14/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXI is a solution/mixture of two native perfluorooctanesulfonamides (FOSAs) and two native perfluorooctanesulfonamidoethanols (FOSEs). The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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

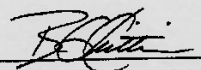
PFACMXI0921 (1 of 5)
rev0

7.10.1

7

Table A: PFAC-MXI; Components and Concentrations ($\mu\text{g}/\text{mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g}/\text{mL}$)	Peak Assignment in Figure 1
N-methylperfluoro-1-octanesulfonamide	N-MeFOSA	1.00	B
N-ethylperfluoro-1-octanesulfonamide	N-EtFOSA	1.00	D
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	N-MeFOSE	10.0	A
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	N-EtFOSE	10.0	C

Certified By: 
 B.G. Chittim, General Manager

Date: 09/23/2021
(mm/dd/yyyy)

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

PFACMXI0921 (3 of 5)
 rev0

7.10.1
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11602
rec'd 01/10/23



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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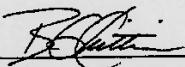
PFACMXG1122 (1 of 5)
revD

7.10.1
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-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 12/09/2022
(mm/dd/yyyy)

11618 A-B rec'd on 1/19/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXJ
<u>LOT NUMBER:</u>	PFACMXJ0921
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/08/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/14/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/14/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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

PFACMXJ0921 (1 of 5)
rev1

7.10.1

7

Table A: PFAC-MXJ; Components and Concentrations ($\mu\text{g/mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g/mL}$)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By: 
 B.G. Chittim, General Manager

Date: 10/02/2021
(mm/dd/yyyy)

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

PFACMXJ0921 (3 of 5)
 rev1

7.10.1
 7

11627 A-B
rec'd 01/26/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS
Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXF
<u>LOT NUMBER:</u>	PFACMXF0122
<u>SOLVENT(S):</u>	Methanol / Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	01/10/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	01/11/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	01/11/2025
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

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PFACMXF0122 (1 of 5)
rev0

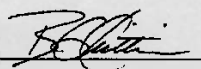
7.10.1
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Table A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By:


B.G. Chittim, General Manager

Date: 01/12/2022
(mm:dd/yyyy)

11640 A-B
re'd: 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXF
LOT NUMBER: PFACMXF0122
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 01/10/2022
LAST TESTED: (mm/dd/yyyy) 01/11/2022
EXPIRY DATE: (mm/dd/yyyy) 01/11/2025
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

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PFACMXF0122 (1 of 5)
rev0

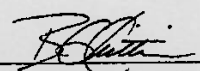
7.10.1

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Table A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-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: 01/12/2022
(mm/dd/yyyy)
 B.G. Chitrim, General Manager

10683A



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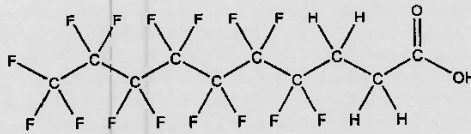
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FHpPA
COMPOUND: 3-Perfluoroheptyl propanoic acid

LOT NUMBER: FHpPA1020

STRUCTURE:

CAS #: 812-70-4



MOLECULAR FORMULA: C₁₀H₉F₁₅O₂
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/12/2020
EXPIRY DATE: (mm/dd/yyyy) 11/12/2025
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 442.12
SOLVENT(S): Methanol

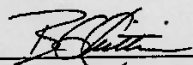
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: 
B.G. Chittim, General Manager

Date: 11/27/2020
(mm/dd/yyyy)

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Revision#:8, Revised 2020-09-10

FHpPA1020 (1 of 4)
rev0

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FPrPA

LOT NUMBER:

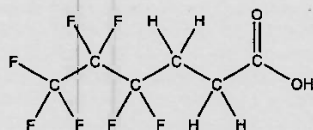
FPrPA1020

COMPOUND:

3-Perfluoropropyl propanoic acid

STRUCTURE:**CAS #:**

356-02-5

**MOLECULAR FORMULA:** $C_6H_5F_7O_2$ **MOLECULAR WEIGHT:**

242.09

CONCENTRATION: $50.0 \pm 2.5 \mu\text{g/mL}$ **SOLVENT(S):**

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/12/2020

EXPIRY DATE: (mm/dd/yyyy)

11/12/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid ($C_8H_5F_7O_2$) as an impurity determined by ^{19}F NMR.

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Certified By:

B.G. Chittim, General Manager

Date: 11/27/2020

(mm/dd/yyyy)

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10685A



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FPePA

LOT NUMBER:

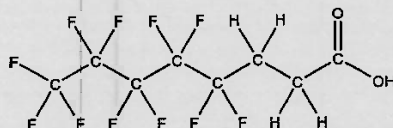
FPePA1120

COMPOUND:

3-Perfluoropentyl propanoic acid

STRUCTURE:**CAS #:**

914637-49-3

**MOLECULAR FORMULA:** $C_8H_5F_{11}O_2$ **MOLECULAR WEIGHT:**

342.11

CONCENTRATION: $50.0 \pm 2.5 \mu\text{g/mL}$ **SOLVENT(S):**

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/11/2020

EXPIRY DATE: (mm/dd/yyyy)

11/11/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

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Certified By:

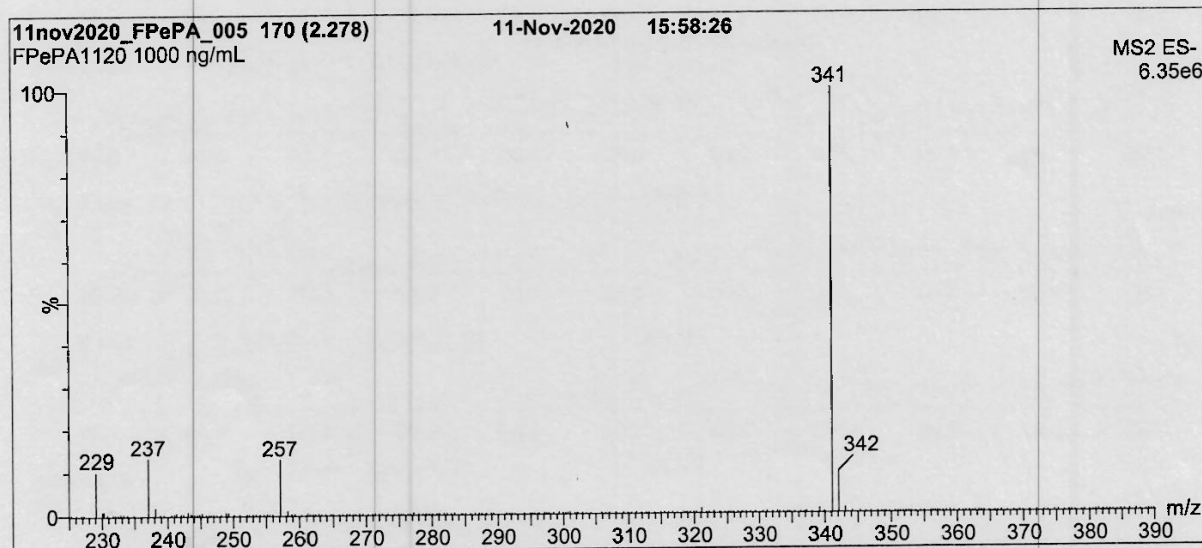
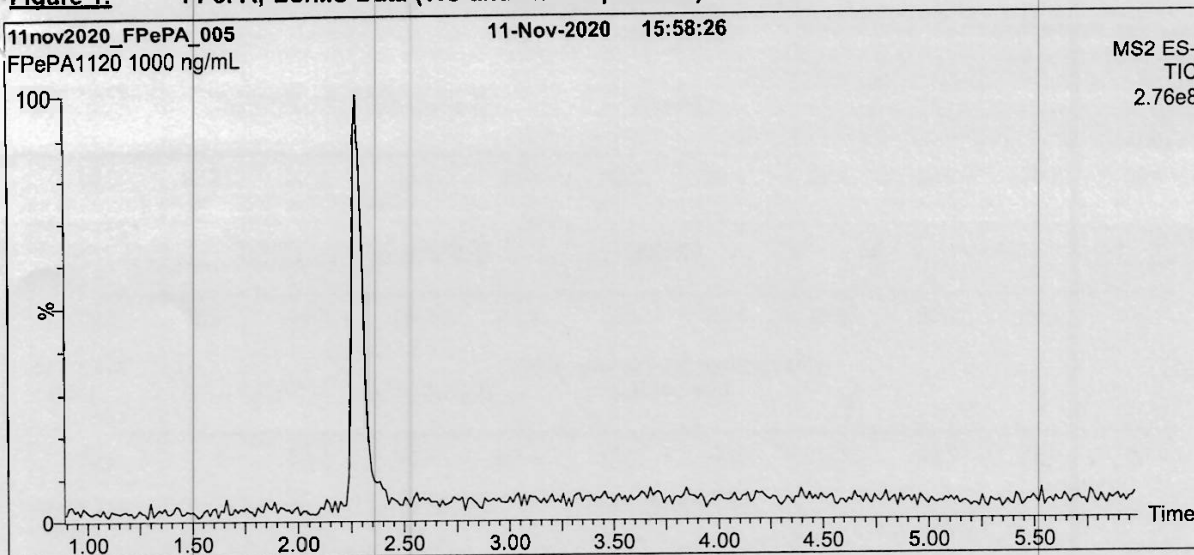
B.G. Chittim, General Manager

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 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) = 18.50
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

10726 A

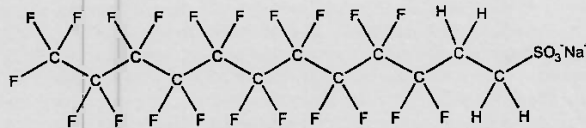


WELLINGTON LABORATORIES

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

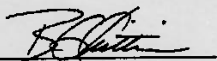
DOCUMENTATION/ DATA ATTACHED:

- 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)

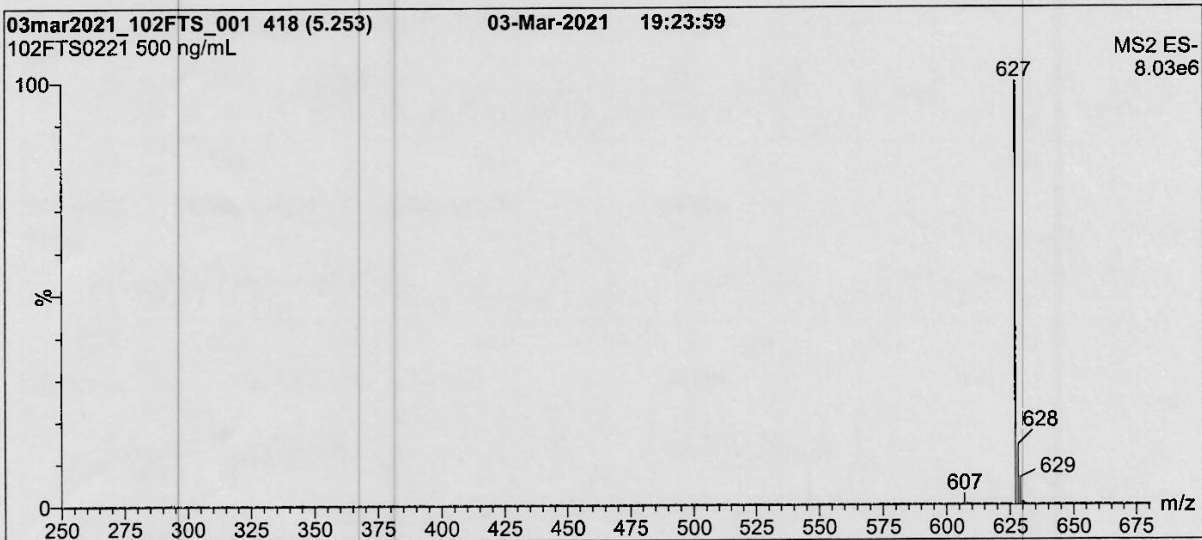
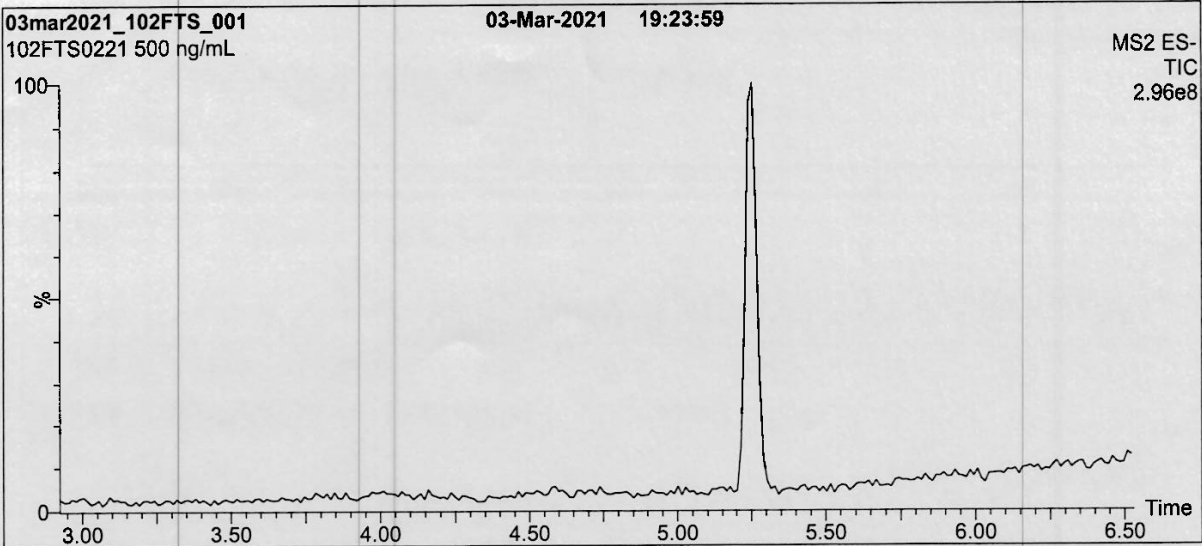
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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

7.10.1

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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



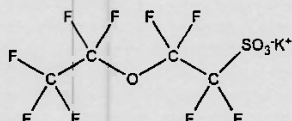
WELLINGTON LABORATORIES

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: C₄F₉SO₄K **MOLECULAR WEIGHT:** 354.19

CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol

44.6 ± 2.2 µg/ml (PFEESA acid)

44.5 ± 2.2 µg/ml (PFEESA anion)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 05/13/2020

EXPIRY DATE: (mm/dd/yyyy) 05/13/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

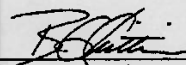
Figure 1: LC/MS Data (TIC and Mass Spectrum)

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 05/29/2020
(mm/dd/yyyy)

B.G. Chittim, General Manager

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Form#:27, Issued 2004-11-10
Revision#:7, Revised 2020-01-09

7.10.1

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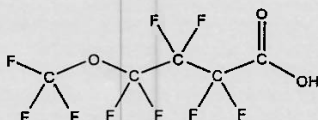
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

COMPOUND: Perfluoro-5-oxahexanoic acid

SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)

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



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

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

CHEMICAL PURITY: >98%

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

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

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

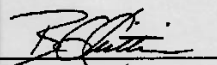
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 12/21/2020
(mm/dd/yyyy)

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

PF5OHxA0320 (1 of 4)
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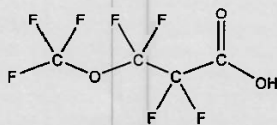
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF4OPeA *rec'd
WPH
8/20/21* **LOT NUMBER:** PF4OPeA0320

COMPOUND: Perfluoro-4-oxapentanoic acid

SYNONYM: Perfluoro-3-methoxypropanoic acid (PFMPA)

STRUCTURE: **CAS #:** 377-73-1



MOLECULAR FORMULA: C₄HF₇O₃ **MOLECULAR WEIGHT:** 230.04

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

CHEMICAL PURITY: >98%

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

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

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

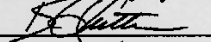
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 12/21/2020
(mm/dd/yyyy)

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10765 A-13



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

*rec'd
WPH
8/20/21*

LOT NUMBER:

36OPFHpA0320

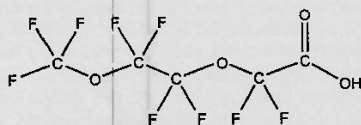
COMPOUND:

Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₉O₄

MOLECULAR WEIGHT:

296.04

CONCENTRATION:

50.0 ± 2.5 µg/ml

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/31/2020

EXPIRY DATE: (mm/dd/yyyy)

03/31/2025

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 05/27/2020
(mm/dd/yyyy)

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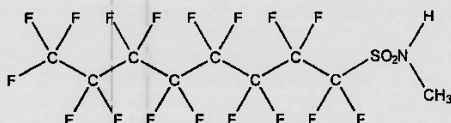
CERTIFICATE OF ANALYSIS DOCUMENTATION

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: C₈H₄F₁₇NO₂S
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

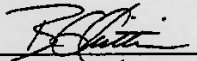
DOCUMENTATION/ DATA ATTACHED:

- 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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PRODUCT CODE:

N-EtFOSA-M

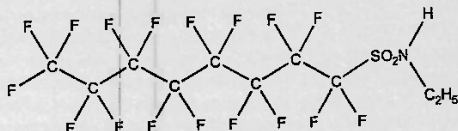
10837

LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:



CAS #: 4151-50-2

MOLECULAR FORMULA:

$C_{10}H_9F_{17}NO_2S$

MOLECULAR WEIGHT:

527.20

CONCENTRATION:

$50.0 \pm 2.5 \mu\text{g/mL}$

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/12/2021

EXPIRY DATE: (mm/dd/yyyy)

08/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

Date: 08/16/2021

(mm/dd/yyyy)

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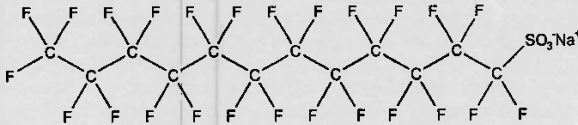
10840

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

LOT NUMBER: LPFDoS0721

STRUCTURE:

CAS #: 1260224-54-1



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

MOLECULAR WEIGHT: 722.14
SOLVENT(S): Methanol


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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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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PRODUCT CODE:

PFODA

10847 NS 01/18/23

LOT NUMBER:

PFODA0821

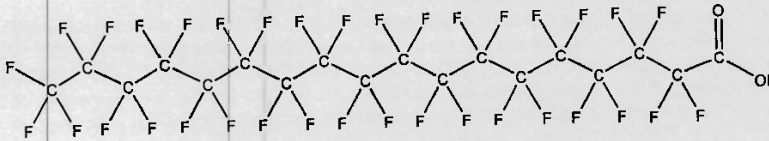
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

C₁₈H₃₅O₂

MOLECULAR WEIGHT:

914.14

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

09/03/2021

EXPIRY DATE: (mm/dd/yyyy)

09/03/2026

RECOMMENDED STORAGE:

Store ampoule at ambient temperature in a dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 09/28/2021

(mm/dd/yyyy)

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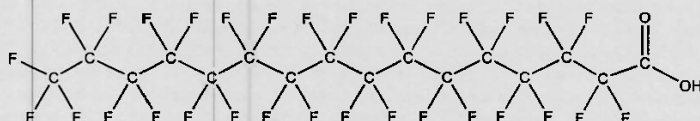
CERTIFICATE OF ANALYSIS DOCUMENTATION

10842 * NG 01/18/23

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0421

COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆HF₃₁O₂ **MOLECULAR WEIGHT:** 814.13
CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/07/2021
EXPIRY DATE: (mm/dd/yyyy) 05/07/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 05/25/2021
(mm/dd/yyyy)

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1117



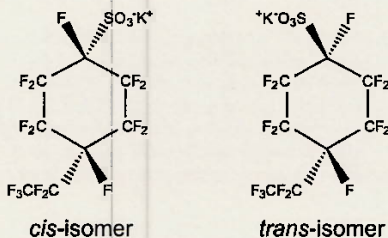
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

7.10.1
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PRODUCT CODE: PFECHS **LOT NUMBER:** PFECHS1021
COMPOUND: Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

STRUCTURE: **CAS #:** 335-24-0



MOLECULAR FORMULA: C₈F₁₆SO₃K **MOLECULAR WEIGHT:** 500.22
CONCENTRATION: 50.0 ± 2.5 µg/mL (K salt) **SOLVENT(S):** Methanol
 46.2 ± 2.3 µg/mL (PFECHS acid)
 46.1 ± 2.3 µg/mL (PFECHS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 10/14/2021
EXPIRY DATE: (mm/dd/yyyy) 10/14/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

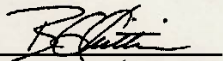
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 10/15/2021
 B.G. Chittim, General Manager (mm/dd/yyyy)

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

PFECHS1021 (1 of 4)
 rev0

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

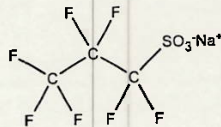
COMPOUND:

Sodium perfluoro-1-propanesulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₃F₇SO₃Na

MOLECULAR WEIGHT:

272.07

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)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/12/2021

EXPIRY DATE: (mm/dd/yyyy)

07/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

Date: 08/04/2021

(mm/dd/yyyy)

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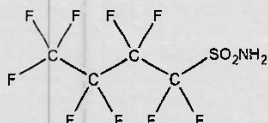
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FBSA-I
COMPOUND: Perfluoro-1-butanesulfonamide

LOT NUMBER: FBSA11211

STRUCTURE:

CAS #: 30334-69-1



MOLECULAR FORMULA: C₄H₂F₉NO₂S
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/10/2021
EXPIRY DATE: (mm/dd/yyyy) 11/10/2026
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 299.11
SOLVENT(S): Isopropanol

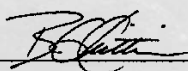
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: 
B.G. Chittim, General Manager

Date: 11/10/2021
(mm/dd/yyyy)

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Revision#: 9, Revised 2020-12-23

FBSA11211 (1 of 4)
rev0

7.10.1

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11225



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

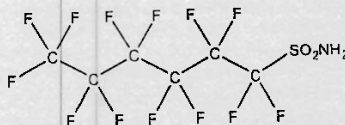
LOT NUMBER: FHxSA12211

COMPOUND:

Perfluoro-1-hexanesulfonamide

CAS #: 41997-13-1

STRUCTURE:



MOLECULAR FORMULA:

C₆H₂F₁₃NO₂S

MOLECULAR WEIGHT: 399.13

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S): Isopropanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

12/29/2021

EXPIRY DATE: (mm/dd/yyyy)

12/29/2026

RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

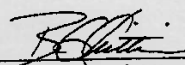
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:


B.G. Chittim, General Manager

Date: 01/10/2022
(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

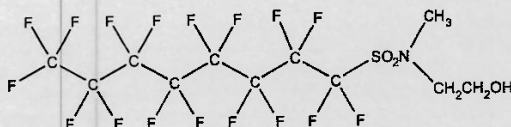
NMeFOSE0522M

COMPOUND:

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

STRUCTURE:**CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C₁₁H₈F₁₇NO₃S**MOLECULAR WEIGHT:**

557.22

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy)

05/13/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS Data (Full Scan and Mass Spectrum)

Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager
Date: 06/14/2022
(mm/dd/yyyy)

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11383 A-J



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CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-ES
LOT NUMBER: MPFACHIFES0822
SOLVENT(S): Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 07/20/2022
LAST TESTED: (mm/dd/yyyy) 08/02/2022
EXPIRY DATE: (mm/dd/yyyy) 08/02/2025
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄-C₁₂, C₁₄), three mass-labelled (¹³C) perfluoroalkanesulfonates (C₄, C₆, and C₈), three mass-labelled (one ¹³C and two ²H) perfluoro-1-octanesulfonamides, three mass-labelled (¹³C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (²H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (²H) 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.

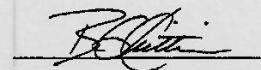
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

Table A: MPFAC-HIF-ES; Components and Concentrations
(ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))

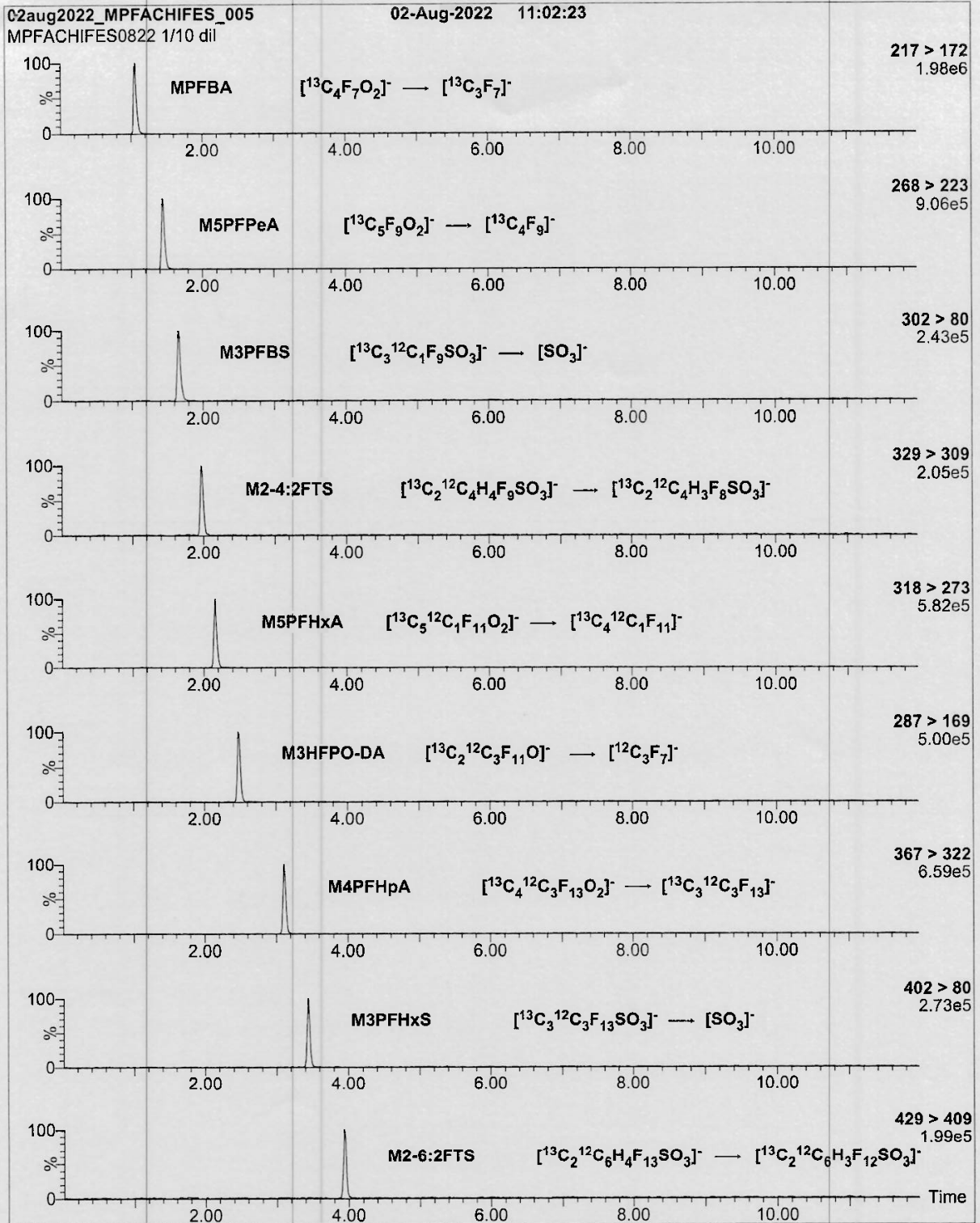
Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(¹³ C ₄)butanoic acid	MPFBA	2000		1
Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- ¹³ C ₅)hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- ¹³ C ₆)heptanoic acid	M4PFHpA	500		7
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	500		10
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₁₀)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₁₁)undecanoic acid	M7PFUdA	250		17
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	250		23
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		18
N-methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d ₅ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		24
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₃ -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₅ -ol	d9-N-EtFOSE	5000		22
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₃)propanoic acid	M3HFPO-DA	2000		6
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)decanesulfonate	M2-8:2FTS	1000	960	13

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 08/02/2022
(mm/dd/yyyy)

Figure 2: MPFAC-HIF-ES; LC/MS/MS Data (Selected MRM Transitions)



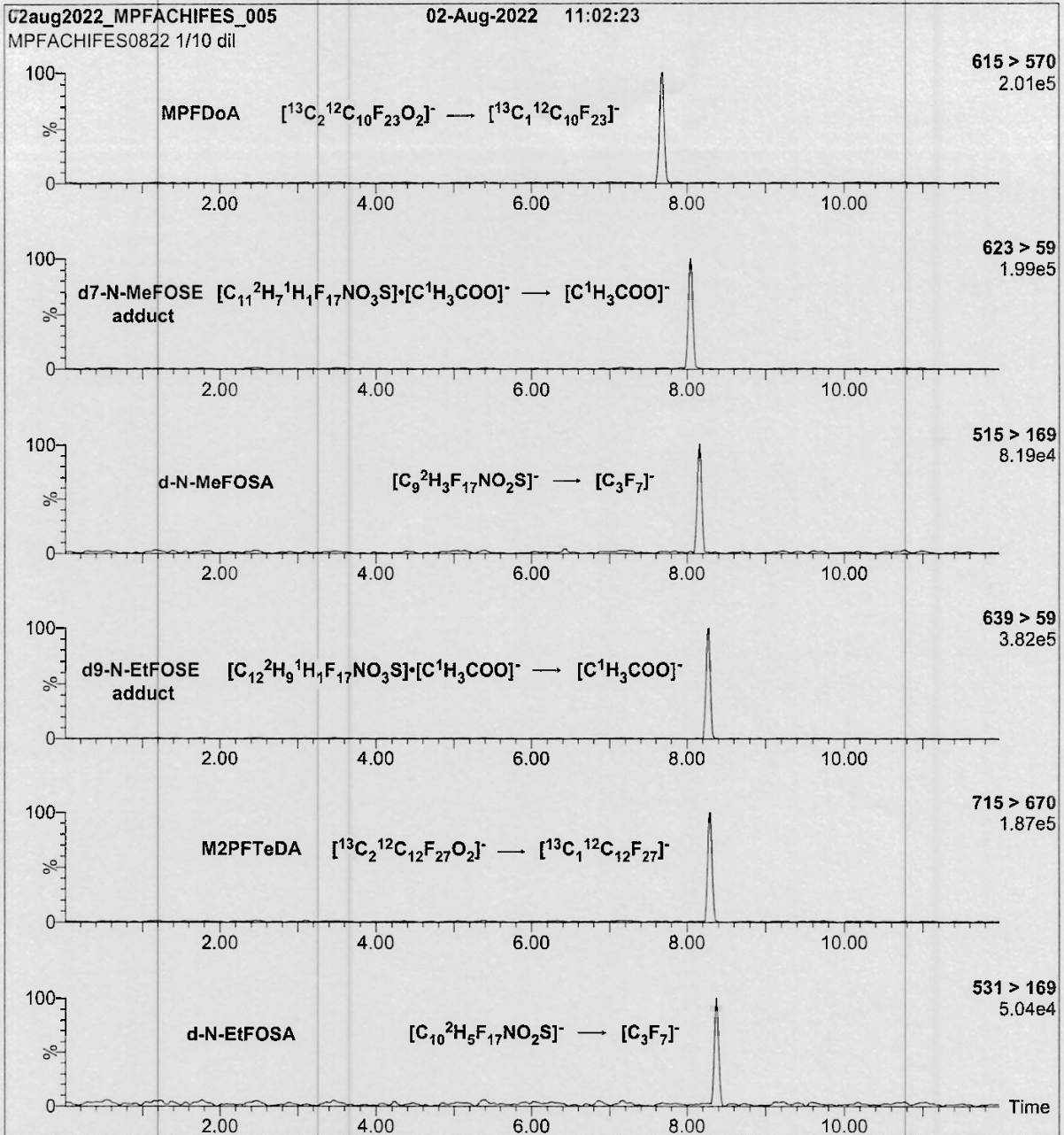
Form# 13, Issued 2004-11-10
 Revision#:9, Revised 2020-12-23

MPFACHIFES0822 (5 of 7)
 rev0

7.10.1

7

Figure 2: MPFAC-HIF-ES; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: On-column (MPFAC-HIF-ES)
 Mobile phase: Same as Figure 1
 Flow: 300 $\mu\text{L}/\text{min}$

MS Parameters:

Collision Gas (mbar) = 3.24e-3
 Collision Energy (eV) = 4-64 (variable)

11384 A-J



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

Mass-Labelled Perfluoroalkyl Substance
Injection Standard Solution/Mixture

<u>PRODUCT CODE:</u>	MPFAC-HIF-IS
<u>LOT NUMBER:</u>	MPFACHIFIS0921
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/07/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/07/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/07/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄, C₆, C₈-C₁₀) and two mass-labelled (¹⁸O and ¹³C) perfluoroalkanesulfonates (C₈ and C₉). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and mass-labelled perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of ≥99% per ¹³C or >94% per ¹⁸O.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

MPFACHIFIS0921 (1 of 5)
rev1


7.10.1

7

Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, ± 5% in methanol/water (<1%))

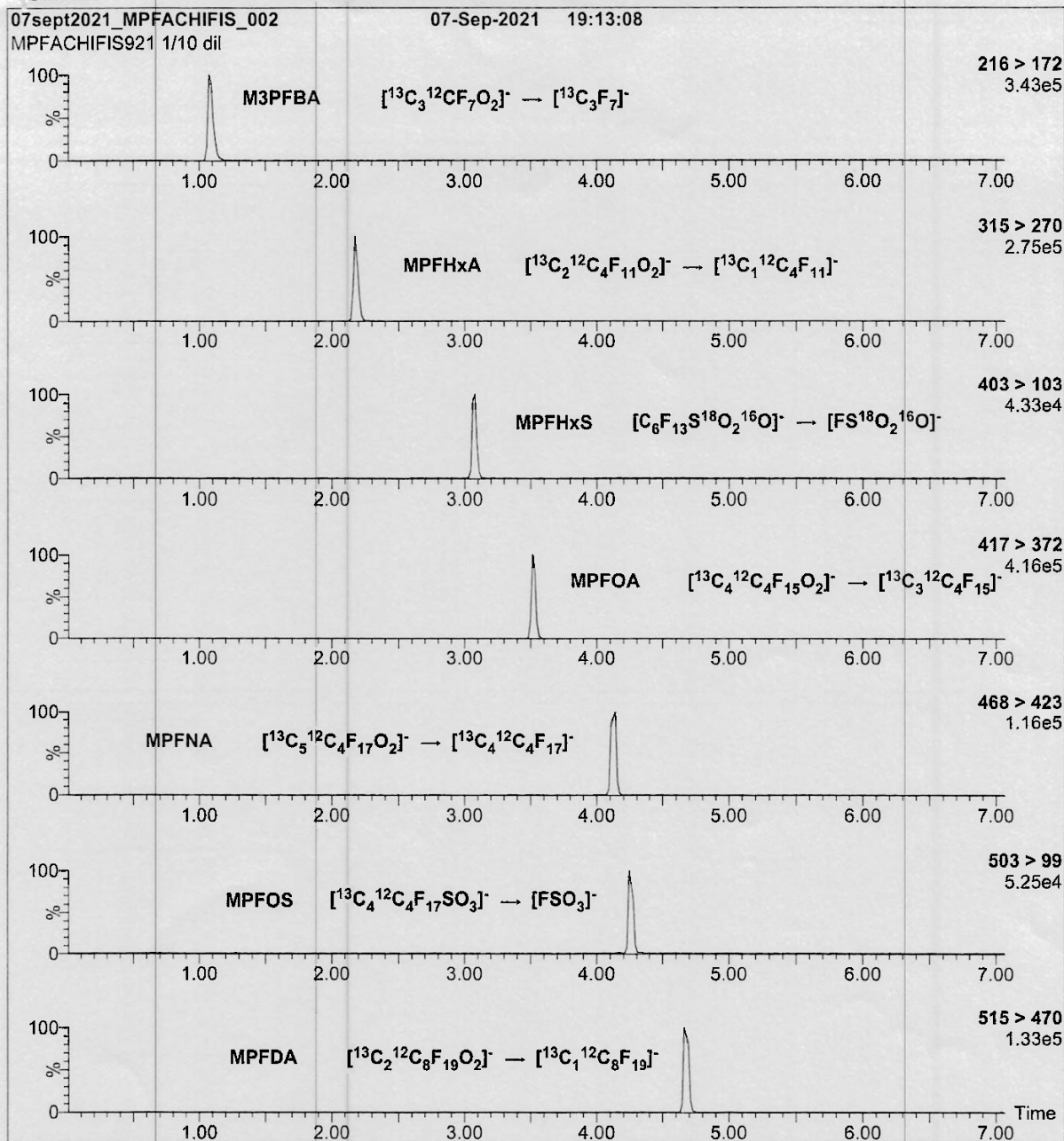
Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(2,3,4- ¹³ C ₃)butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- ¹³ C ₂)hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- ¹³ C ₄)octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- ¹³ C ₅)nonanoic acid	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: 10/13/2021
(mm/dd/yyyy)

Figure 2: MPFAC-HIF-IS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: On-column (MPFAC-HIF-IS)

Mobile phase: Same as Figure 1

Flow: 300 $\mu\text{L}/\text{min}$

MS Parameters:

Collision Gas (mbar) = 3.18e-3

Collision Energy (eV) = 4-64 (variable)



116060 rec'd 01/13/23

CERTIFIED WEIGHT REPORT

Part Number: **64029A**
Lot Number: **110922**
Description: **PFOA - DOD**
28 components
Expiration Date: **110927**
Recommended Storage: **Freezer (0 °C)**
Nominal Concentration (µg/mL): **1.0**
NIST Test ID#: **GUTB**

Solvent(s): **Methanol (1 mM KOH)**
2-Propanol

Lot# **102722 (98%)**
32500 (2%)

SE-05 Balance Uncertainty
0.012 Peak Uncertainty

Formulated By: <i>Prashant Chauhan</i>	110922
Prashant Chauhan	DATE
Reviewed By: <i>Pedro L. Rantas</i>	110922
Pedro L. Rantas	DATE

Volume(s) shown below were combined and diluted to: **100.0**
Note: All assigned values are amine concentrations.

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.)		
									Free Acid CAS#	OSHA PEL (TWA)	LOSO
1. Perfluoro-n-butanoic acid (PFBA)	99542	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid (PFPeA)	99543	050222	0.02	2.00	0.017	50.3	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid (PFHxA)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid (PFHpA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (br-PFOA)*	99202	080522	0.02	2.00	0.017	50.2	1.00	0.02	335-67-1 (L)	N/A	ip-rat 189mg/kg
6. Perfluorononanoic acid (PFNA)	99200	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1	N/A	N/A
7. Perfluorodecanoic acid (PFDA)	99195	110922	0.02	2.00	0.017	50.0	1.00	0.02	335-76-2	N/A	ori-rat 57mg/kg
8. Perfluoroundecanoic acid (PFUnA)	99205	071522	0.02	2.00	0.017	50.2	1.00	0.02	2058-94-8	N/A	N/A
9. Perfluorododecanoic acid (PFDoA)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid (PFTriDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid (PFTeDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	376-06-7	N/A	N/A
12. Perfluoro-1-octanesulfonamide (FOSA)	3677	FOSA03221	0.02	2.00	0.017	50.0	1.00	0.05	754-91-6	N/A	N/A
13. N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A
14. N-Ethylperfluorooctanesulfonamidoacetic acid (br-NEFOSAA)*	4163	brNEFOSAA1121	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
15. Perfluorobutanesulfonic acid (PFBS)	99194	080522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	032422	0.02	2.00	0.017	50.1	1.00	0.02	2706-91-4	N/A	N/A
17. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	071522	0.02	2.00	0.017	50.2	1.00	0.02	355-46-4 (L)	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid (PFHpS)	3672	LPFHpS0822	0.021	2.10	0.017	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201	033022	0.02	2.00	0.017	50.1	1.00	0.02	1763-23-1 (L)	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LPFNS1021	0.021	2.10	0.017	48.0	1.01	0.05	68259-12-1	N/A	N/A
21. Perfluoro-1-decanesulfonic acid (PFDS)	3671	LPFDS0222	0.021	2.10	0.017	48.2	1.01	0.05	335-77-3	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	65271	080522	0.02	2.00	0.017	50.2	1.00	0.05	757124-72-4	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272	071522	0.02	2.00	0.017	50.2	1.00	0.05	27619-67-2	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	3662	82FTS0822	0.021	2.10	0.017	47.9	1.01	0.05	39108-34-4	N/A	N/A
25. 2-(Heptafluoropropyl)-2,3,3,3-tetrafluoropropionic acid (HFPO-DA)	99666	080522	0.02	2.00	0.017	50.1	1.00	0.02	13252-13-6	N/A	N/A
26. 11-Chlorooctadecafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	4165	11ClPF3OUdS0522	0.021	2.12	0.017	47.1	1.00	0.05	763051-92-9	N/A	N/A
27. 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	4164	9ClPF3ONS0522	0.021	2.14	0.017	46.6	1.00	0.05	756426-58-1	N/A	N/A
Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA0922	0.021	2.12	0.017	47.1	1.00	0.05	919005-14-4	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	080522	0.02	2.00	0.004	49.6	0.99	0.010	335-67-1 (L)	N/A	ip-rat 189mg/kg
Perfluorooctanoic acid (branched isomer)*	99202	080522	0.02	2.00	0.004	0.6	0.01	0.001	335-67-1 (L)	N/A	ip-rat 189mg/kg
Perfluorohexanesulfonic acid (linear)*	99198	071522	0.02	2.00	0.017	44.2	0.88	0.02	355-46-4 (L)	N/A	N/A
Perfluorohexanesulfonic acid (branched isomer)*	99198	071522	0.02	2.00	0.017	6.0	0.12	0.0021	355-46-4 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (linear)*	99201	033022	0.02	2.00	0.017	38.1	0.76	0.02	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	7.5	0.15	0.003	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	4.0	0.08	0.002	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	0.5	0.010	0.0002	1763-23-1 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	36.0	0.72	0.04	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	6.5	0.13	0.011	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	5.0	0.10	0.005	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	2.5	0.05	0.0009	2355-31-9 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEFOSAA1121	0.02	2.00	0.017	36.6	0.73	0.04	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	7.7	0.15	0.009	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	5.3	0.11	0.005	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	0.4	0.007	0.0006	2991-50-6 (L)	N/A	N/A

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

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.

*The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
 *Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
 *Standards are certified (±) 0.5% of the stated value, unless otherwise stated.
 *All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
 *Uncertainty References: Taylor, B.N. and Kaye, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 03/06/23 09:00
Started (mm/dd/yy 24:00)

Method: EPA 1633 Draft (QSM)

Date/Time: 03/07/23 12:00
Finished (mm/dd/yy 24:00)

Balance ID: -

Batch#: OP95747 Ext. By: GH

Conc. By: - Viald By: LR

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount (ul)	Spike Amount (ul)	Final Volume (ml)	Manifold ID	Comments
OP 95747 MB		500	7	N/A	25		S	E	
OP 95747 BS		500	7						
OP 95747 LLBS		500	7			200			
FC 3167-2	2	530	6			80			
FC 3191-1	2	560	6						
↓	2	530	6						
↓	3	550	7						
↓	4	550	6						
↓	5	550	6	N/A	25		S	E	
OP FC 3191-3MS	3	550	7	N/A	25	200	S	E	
OP MSD									
OP FC 3191-5DUP	3	550	6	N/A	25		S	E	

Comments:

EIS (SURR) ID: 11650A-C Conc: 250-5000 ng/ml^h Exp. Date: 02/23/24 Inj. By: GH Ver. By: CM
 SPIKE.1 ID: LEMS 2073C Conc: VARIOUS Exp. Date: 03/22/23 Inj. By: GH Ver. By: CM
 SPIKE.2 ID: Conc: Exp. Date: Inj. By: Ver. By:
 NIS (ISTD) ID: 11615F-H Conc: 250-1000 ng/ml Exp. Date: 02-24-24 Inj. By: LR Ver. By: MV

TurboVap Temp (Therm ID): - N-Evap Temp (Therm ID): -
 Observed Temp °C: - Carr. Temp °C: - Observed Temp °C: - Carr. Temp °C: -

Methanol Lot # 224231 1% NH4OH MeOH PF302 SPE Lot # S23-000772
 Water Lot# OP95448 0.3M Formic Acid PF290 Syringe filter Lot # -
 Acetic Acid# 194003 3% NH4OH Sol - pH paper Lot# 215322
 0.1M Formic PF296 5% Formic Acid - Carbon Lot# 160898

Relinquished By: *Yatimella Hachet*
 Accepted By: *JR*

Date: 03/06/23
 Date: 03/07/23

7.11.1 7