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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC5194

Sampling Date: 04/12/23



Report to:

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Total number of pages in report: 1153



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: FC5194

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC5194-1	04/12/23	10:10 CP	04/13/23	AQ	Ground Water	AF-RHMW16-WGN01LF-2304W2
FC5194-2	04/12/23	10:15 MY	04/13/23	AQ	Ground Water	AF-RHMW02-WGN01LF-2304W2
FC5194-3	04/12/23	12:35 MY	04/13/23	AQ	Ground Water	AF-RHMW03-WGN01LF-2304W2

SAMPLE DELIVERY GROUP CASE NARRATIVE

2

Client: AECOM, INC.

Job No: FC5194

Site: N6274223F0104 RH Fire Suppression System

Report Date: 4/21/2023 3:46:21 PM

On 04/13/2023, 3 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 4.1 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC5194 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: OP96403

Sample(s) FC5194-1MS, FC5194-2DUP were used as the QC samples indicated.

Blank Spike Recovery(s) for Perfluoroheptanoic acid, Perfluorohexanesulfonic acid, Perfluorohexanoic acid, Perfluorooctanoic acid are outside control limits.

Sample(s) FC5194-2 have surrogates outside control limits.

FC5194-1 for Perfluoroheptanoic acid: Associated Low Level BS outside of control limits high, sample was ND.

FC5194-1 for Perfluorohexanesulfonic acid: Associated Low Level BS outside of control limits high, sample was ND.

FC5194-1 for Perfluorohexanoic acid: Associated Low Level BS outside of control limits high, sample was ND.

FC5194-1 for Perfluorooctanoic acid: Associated Low Level BS outside of control limits high, sample was ND.

FC5194-2 for Perfluoroheptanesulfonic acid: Associated Low Level BS outside of control limits high, sample was ND.

FC5194-2 for Perfluorohexanoic acid: Associated Low Level BS outside of control limits high.

FC5194-2: Insufficient sample for re-extraction.

FC5194-3: Confirmation run.

Matrix: AQ

Batch ID: OP96494

OP96494-BS: Insufficient sample for MS/MSD.

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: FC5194
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 04/12/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC5194-1 AF-RHMW16-WGN01LF-2304W2

No hits reported in this sample.

FC5194-2 AF-RHMW02-WGN01LF-2304W2

Perfluorohexanoic acid ^a	0.46 J	4.5	0.89	ng/l	EPA DRAFT 1633
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FC5194-3 AF-RHMW03-WGN01LF-2304W2

Perfluoropentanoic acid	2.4 J	9.8	2.0	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.6 J	4.9	0.98	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	1.5 J	4.9	0.98	ng/l	EPA DRAFT 1633
6:2 Fluorotelomer sulfonate	10.1 J	20	7.8	ng/l	EPA DRAFT 1633

(a) Insufficient sample for re-extraction. Associated Low Level BS outside of control limits high.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW16-WGN01LF-2304W2		
Lab Sample ID:	FC5194-1	Date Sampled:	04/12/23
Matrix:	AQ - Ground Water	Date Received:	04/13/23
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	4Q43159.D	1	04/18/23 13:50	MV	04/14/23 10:00	OP96403	S4Q624
Run #2							

Run #	Initial Volume	Final Volume
Run #1	510 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	3.9 U	20	3.9	1.9	ng/l	
2706-90-3	Perfluoropentanoic acid	2.0 U	9.8	2.0	0.92	ng/l	
307-24-4	Perfluorohexanoic acid ^a	0.98 U	4.9	0.98	0.49	ng/l	
375-85-9	Perfluoroheptanoic acid ^a	0.98 U	4.9	0.98	0.49	ng/l	
335-67-1	Perfluorooctanoic acid ^a	0.98 U	4.9	0.98	0.49	ng/l	
375-95-1	Perfluorononanoic acid	2.0 U	4.9	2.0	0.60	ng/l	
335-76-2	Perfluorodecanoic acid	0.98 U	4.9	0.98	0.49	ng/l	
2058-94-8	Perfluoroundecanoic acid	2.0 U	4.9	2.0	0.59	ng/l	
307-55-1	Perfluorododecanoic acid	2.0 U	4.9	2.0	0.59	ng/l	
72629-94-8	Perfluorotridecanoic acid	2.0 U	4.9	2.0	0.82	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.98 U	4.9	0.98	0.49	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.98 U	4.9	0.98	0.49	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.9 U	4.9	3.9	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid ^a	2.0 U	4.9	2.0	0.69	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.98 U	4.9	0.98	0.49	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	2.0 U	4.9	2.0	0.53	ng/l	
68259-12-1	Perfluorononanesulfonic acid	2.0 U	4.9	2.0	0.56	ng/l	
335-77-3	Perfluorodecanesulfonic acid	2.0 U	4.9	2.0	0.63	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.9 U	4.9	3.9	1.1	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.8 U	20	7.8	3.2	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.8 U	20	7.8	3.4	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.8 U	20	7.8	4.0	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	2.0 U	4.9	2.0	0.66	ng/l	
31506-32-8	MeFOSA	2.0 U	4.9	2.0	0.98	ng/l	
4151-50-2	EtFOSA	2.0 U	4.9	2.0	0.98	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW16-WGN01LF-2304W2		Date Sampled:	04/12/23
Lab Sample ID:	FC5194-1		Date Received:	04/13/23
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	3.9 U	4.9	3.9	0.98	ng/l	
2991-50-6	EtFOSAA	3.9 U	4.9	3.9	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.8 U	49	9.8	4.3	ng/l	
1691-99-2	EtFOSE	20 U	49	20	7.3	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.9 U	20	3.9	0.98	ng/l	
919005-14-4	ADONA	3.9 U	20	3.9	1.8	ng/l	
377-73-1	PFMPA	2.0 U	9.8	2.0	0.98	ng/l	
863090-89-5	PFMBA	3.9 U	9.8	3.9	1.1	ng/l	
151772-58-6	NFDHA	3.9 U	9.8	3.9	1.2	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.9 U	20	3.9	1.4	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.9 U	20	3.9	1.7	ng/l	
113507-82-7	PFEESA	2.0 U	9.8	2.0	0.76	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.8 U	25	9.8	4.4	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	20 U	120	20	8.6	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	20 U	120	20	7.7	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	115%		20-150%
	13C5-PFPeA	113%		20-150%
	13C5-PFHxA	111%		20-150%
	13C4-PFHpA	115%		20-150%
	13C8-PFOA	111%		20-150%
	13C9-PFNA	103%		20-150%
	13C6-PFDA	109%		20-150%
	13C7-PFUnDA	97%		20-150%
	13C2-PFDoDA	87%		20-150%
	13C2-PFTeDA	72%		20-150%
	13C3-PFBS	111%		20-150%
	13C3-PFHxS	109%		20-150%

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

Report of Analysis

Client Sample ID: AF-RHMW16-WGN01LF-2304W2		Date Sampled: 04/12/23
Lab Sample ID: FC5194-1		Date Received: 04/13/23
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: EPA DRAFT 1633 EPA 1633 DRAFT		
Project: N6274223F0104 RH Fire Suppression System		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	99%		20-150%
	13C8-FOSA	87%		20-150%
	d3-MeFOSA	90%		20-150%
	d5-EtFOSA	87%		20-150%
	d3-MeFOSAA	98%		20-150%
	d5-EtFOSAA	106%		20-150%
	d7-MeFOSE	71%		20-150%
	d9-EtFOSE	69%		20-150%
	13C2-4:2FTS	131%		20-150%
	13C2-6:2FTS	136%		20-150%
	13C2-8:2FTS	113%		20-150%
	13C3-HFPO-DA	115%		20-150%

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

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-RHMW02-WGN01LF-2304W2		
Lab Sample ID:	FC5194-2	Date Sampled:	04/12/23
Matrix:	AQ - Ground Water	Date Received:	04/13/23
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 ^a	4Q43163.D	1	04/18/23 14:57	MV	04/14/23 10:00	OP96403	S4Q624
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 ^b	0.46	4.5	0.89	0.45	ng/l	J
375-85-9	Perfluoroheptanoic acid ^c	0.89 U	4.5	0.89	0.45	ng/l	
335-67-1	Perfluorooctanoic acid ^c	0.89 U	4.5	0.89	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	4.5	1.8	0.75	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.89 U	4.5	0.89	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	4.5	1.8	0.62	ng/l	
375-92-8	Perfluoroheptanesulfonic acid ^c	0.89 U	4.5	0.89	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	4.5	1.8	0.48	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	4.5	1.8	0.51	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	4.5	1.8	0.57	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.1 U	18	7.1	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.1 U	18	7.1	3.1	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.1 U	18	7.1	3.7	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	4.5	1.8	0.60	ng/l	
31506-32-8	MeFOSA	1.8 U	4.5	1.8	0.89	ng/l	
4151-50-2	EtFOSA	1.8 U	4.5	1.8	0.89	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW02-WGN01LF-2304W2		Date Sampled:	04/12/23
Lab Sample ID:	FC5194-2	Date Received:	04/13/23	
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	0.89	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	95%		20-150%
	13C5-PFPeA	89%		20-150%
	13C5-PFHxA	120%		20-150%
	13C4-PFHpA	128%		20-150%
	13C8-PFOA	120%		20-150%
	13C9-PFNA	119%		20-150%
	13C6-PFDA	127%		20-150%
	13C7-PFUnDA	120%		20-150%
	13C2-PFDoDA	108%		20-150%
	13C2-PFTeDA	88%		20-150%
	13C3-PFBS	112%		20-150%
	13C3-PFHxS	117%		20-150%

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

Report of Analysis

Client Sample ID:	AF-RHMW02-WGN01LF-2304W2		Date Sampled:	04/12/23
Lab Sample ID:	FC5194-2		Date Received:	04/13/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	117%		20-150%
	13C8-FOSA	94%		20-150%
	d3-MeFOSA	99%		20-150%
	d5-EtFOSA	99%		20-150%
	d3-MeFOSAA	108%		20-150%
	d5-EtFOSAA	111%		20-150%
	d7-MeFOSE	76%		20-150%
	d9-EtFOSE	75%		20-150%
	13C2-4:2FTS	156%		20-150%
	13C2-6:2FTS	110%		20-150%
	13C2-8:2FTS	100%		20-150%
	13C3-HFPO-DA	100%		20-150%

- (a) Insufficient sample for re-extraction.
- (b) Associated Low Level BS outside of control limits high.
- (c) Associated Low Level BS outside of control limits high, sample was ND.

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

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW03-WGN01LF-2304W2		
Lab Sample ID:	FC5194-3	Date Sampled:	04/12/23
Matrix:	AQ - Ground Water	Date Received:	04/13/23
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	4Q43361.D	1	04/21/23 00:01	MV	04/20/23 09:30	OP96494	S4Q626
Run #2 ^a	4Q43165.D	1	04/18/23 15:25	MV	04/14/23 10:00	OP96403	S4Q624

	Initial Volume	Final Volume
Run #1	510 ml	5.0 ml
Run #2	530 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	3.9 U	20	3.9	1.9	ng/l	
2706-90-3	Perfluoropentanoic acid	2.4	9.8	2.0	0.92	ng/l	J
307-24-4	Perfluorohexanoic acid	1.6	4.9	0.98	0.49	ng/l	J
375-85-9	Perfluoroheptanoic acid	1.5	4.9	0.98	0.49	ng/l	J
335-67-1	Perfluorooctanoic acid	0.98 U	4.9	0.98	0.49	ng/l	
375-95-1	Perfluorononanoic acid	2.0 U	4.9	2.0	0.60	ng/l	
335-76-2	Perfluorodecanoic acid	0.98 U	4.9	0.98	0.49	ng/l	
2058-94-8	Perfluoroundecanoic acid	2.0 U	4.9	2.0	0.59	ng/l	
307-55-1	Perfluorododecanoic acid	2.0 U	4.9	2.0	0.59	ng/l	
72629-94-8	Perfluorotridecanoic acid	2.0 U	4.9	2.0	0.82	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.98 U	4.9	0.98	0.49	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.98 U	4.9	0.98	0.49	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.9 U	4.9	3.9	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	2.0 U	4.9	2.0	0.69	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.98 U	4.9	0.98	0.49	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	2.0 U	4.9	2.0	0.53	ng/l	
68259-12-1	Perfluorononanesulfonic acid	2.0 U	4.9	2.0	0.56	ng/l	
335-77-3	Perfluorodecanesulfonic acid	2.0 U	4.9	2.0	0.63	ng/l	
79780-39-5	Perfluorododecanesulfonic acid	3.9 U	4.9	3.9	1.1	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.8 U	20	7.8	3.2	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	10.1	20	7.8	3.4	ng/l	J
39108-34-4	8:2 Fluorotelomer sulfonate	7.8 U	20	7.8	4.0	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	2.0 U	4.9	2.0	0.66	ng/l	
31506-32-8	MeFOSA	2.0 U	4.9	2.0	0.98	ng/l	
4151-50-2	EtFOSA	2.0 U	4.9	2.0	0.98	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW03-WGN01LF-2304W2	
Lab Sample ID:	FC5194-3	Date Sampled: 04/12/23
Matrix:	AQ - Ground Water	Date Received: 04/13/23
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	3.9 U	4.9	3.9	0.98	ng/l	
2991-50-6	EtFOSAA	3.9 U	4.9	3.9	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.8 U	49	9.8	4.3	ng/l	
1691-99-2	EtFOSE	20 U	49	20	7.3	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.9 U	20	3.9	0.98	ng/l	
919005-14-4	ADONA	3.9 U	20	3.9	1.8	ng/l	
377-73-1	PFMPA	2.0 U	9.8	2.0	0.98	ng/l	
863090-89-5	PFMBA	3.9 U	9.8	3.9	1.1	ng/l	
151772-58-6	NFDHA	3.9 U	9.8	3.9	1.2	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.9 U	20	3.9	1.4	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.9 U	20	3.9	1.7	ng/l	
113507-82-7	PFEESA	2.0 U	9.8	2.0	0.76	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.8 U	25	9.8	4.4	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	20 U	120	20	8.6	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	20 U	120	20	7.7	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	66%	108%	20-150%
	13C5-PFPeA	83%	107%	20-150%
	13C5-PFHxA	90%	109%	20-150%
	13C4-PFHpA	87%	111%	20-150%
	13C8-PFOA	86%	103%	20-150%
	13C9-PFNA	84%	100%	20-150%
	13C6-PFDA	86%	101%	20-150%
	13C7-PFUnDA	73%	91%	20-150%
	13C2-PFDoDA	60%	78%	20-150%
	13C2-PFTeDA	58%	53%	20-150%
	13C3-PFBS	102%	116%	20-150%
	13C3-PFHxS	92%	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-RHMW03-WGN01LF-2304W2		Date Sampled:	04/12/23
Lab Sample ID:	FC5194-3		Date Received:	04/13/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	80%	102%	20-150%
	13C8-FOSA	70%	83%	20-150%
	d3-MeFOSA	64%	88%	20-150%
	d5-EtFOSA	61%	90%	20-150%
	d3-MeFOSAA	83%	102%	20-150%
	d5-EtFOSAA	76%	97%	20-150%
	d7-MeFOSE	57%	70%	20-150%
	d9-EtFOSE	60%	73%	20-150%
	13C2-4:2FTS	90%	104%	20-150%
	13C2-6:2FTS	75%	94%	20-150%
	13C2-8:2FTS	71%	90%	20-150%
	13C3-HFPO-DA	77%	105%	20-150%

(a) Confirmation run.

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 Sample Receipt Summary

Job Number: FC5194

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 4/13/2023 3:00:00 PM

Delivery Method: United Cargo/Airspace

Airbill #'s: United Cargo AWB #: 016-02555781

Therm ID: IR 1;

Therm CF: -0.1;

of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (4.2);

Cooler Temps (Corrected) °C: Cooler 1: (4.1);

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 _____
 Test Strip Lot #s: pH 0-3 230320
 Residual Chlorine Test Strip Lot #: _____

Number of 5035 Field Kits: _____
 pH 10-12 25BDH07

Number of Lab Filtered Metals: _____
 Other: (Specify) pH 1.0 - 12.0 222221

Comments

SM001
Rev. Date 05/24/17

Technician: NATHANS

Date: 4/13/2023 3:00:00 PM

Reviewer: CD

Date: 4/17/2023

FC5194: Chain of Custody

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5.1
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QC Evaluation: DOD QSM5.x Limits

Job Number: FC5194
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 04/12/23

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 FC5194

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: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q624-IBLK	4Q43148.D	1	04/18/23	MV	n/a	n/a	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-1, FC5194-2

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	

Instrument Blank

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q624-IBLK	4Q43148.D	1	04/18/23	MV	n/a	n/a	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-1, FC5194-2

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	103% 20-150%
	13C5-PFPeA	98% 20-150%
	13C5-PFHxA	102% 20-150%
	13C4-PFHpA	104% 20-150%
	13C8-PFOA	101% 20-150%
	13C9-PFNA	98% 20-150%
	13C6-PFDA	103% 20-150%
	13C7-PFUnDA	101% 20-150%
	13C2-PFDoDA	98% 20-150%
	13C2-PFTeDA	91% 20-150%
	13C3-PFBS	104% 20-150%
	13C3-PFHxS	110% 20-150%
	13C8-PFOS	96% 20-150%
	13C8-FOSA	85% 20-150%
	d3-MeFOSA	97% 20-150%
	d5-EtFOSA	102% 20-150%
	d3-MeFOSAA	107% 20-150%
	d5-EtFOSAA	108% 20-150%
	d7-MeFOSE	80% 20-150%
	d9-EtFOSE	81% 20-150%
	13C2-4:2FTS	122% 20-150%
	13C2-6:2FTS	119% 20-150%
	13C2-8:2FTS	119% 20-150%
	13C3-HFPO-DA	103% 20-150%

Instrument Blank

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q626-IBLK	4Q43332.D	1	04/20/23	MV	n/a	n/a	S4Q626

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-3

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	

Instrument Blank

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q626-IBLK	4Q43332.D	1	04/20/23	MV	n/a	n/a	S4Q626

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-3

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	97% 20-150%
	13C5-PFPeA	100% 20-150%
	13C5-PFHxA	96% 20-150%
	13C4-PFHpA	98% 20-150%
	13C8-PFOA	98% 20-150%
	13C9-PFNA	106% 20-150%
	13C6-PFDA	101% 20-150%
	13C7-PFUnDA	95% 20-150%
	13C2-PFDoDA	100% 20-150%
	13C2-PFTeDA	92% 20-150%
	13C3-PFBS	96% 20-150%
	13C3-PFHxS	99% 20-150%
	13C8-PFOS	101% 20-150%
	13C8-FOSA	97% 20-150%
	d3-MeFOSA	98% 20-150%
	d5-EtFOSA	106% 20-150%
	d3-MeFOSAA	97% 20-150%
	d5-EtFOSAA	96% 20-150%
	d7-MeFOSE	100% 20-150%
	d9-EtFOSE	103% 20-150%
	13C2-4:2FTS	95% 20-150%
	13C2-6:2FTS	97% 20-150%
	13C2-8:2FTS	91% 20-150%
	13C3-HFPO-DA	90% 20-150%

Continuing Calibration Blank

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q624-ICCB	4Q43162.D	1	04/18/23	MV	n/a	n/a	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-2

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: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q624-ICCB	4Q43162.D	1	04/18/23	MV	n/a	n/a	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-2

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	103% 20-150%
	13C5-PFPeA	103% 20-150%
	13C5-PFHxA	101% 20-150%
	13C4-PFHpA	106% 20-150%
	13C8-PFOA	99% 20-150%
	13C9-PFNA	101% 20-150%
	13C6-PFDA	102% 20-150%
	13C7-PFUnDA	101% 20-150%
	13C2-PFDoDA	98% 20-150%
	13C2-PFTeDA	88% 20-150%
	13C3-PFBS	103% 20-150%
	13C3-PFHxS	103% 20-150%
	13C8-PFOS	100% 20-150%
	13C8-FOSA	86% 20-150%
	d3-MeFOSAA	111% 20-150%
	d5-EtFOSAA	111% 20-150%
	13C2-4:2FTS	123% 20-150%
	13C2-6:2FTS	116% 20-150%
	13C2-8:2FTS	117% 20-150%

Continuing Calibration Blank

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q626-ICCB	4Q43357.D	1	04/20/23	MV	n/a	n/a	S4Q626

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-3

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	

Continuing Calibration Blank

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q626-ICCB	4Q43357.D	1	04/20/23	MV	n/a	n/a	S4Q626

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-3

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	102% 20-150%
	13C5-PFPeA	96% 20-150%
	13C5-PFHxA	102% 20-150%
	13C4-PFHpA	99% 20-150%
	13C8-PFOA	98% 20-150%
	13C9-PFNA	101% 20-150%
	13C6-PFDA	97% 20-150%
	13C7-PFUnDA	97% 20-150%
	13C2-PFDoDA	94% 20-150%
	13C2-PFTeDA	92% 20-150%
	13C3-PFBS	98% 20-150%
	13C3-PFHxS	99% 20-150%
	13C8-PFOS	96% 20-150%
	13C8-FOSA	96% 20-150%
	d3-MeFOSA	96% 20-150%
	d5-EtFOSA	98% 20-150%
	d3-MeFOSAA	102% 20-150%
	d5-EtFOSAA	103% 20-150%
	d7-MeFOSE	102% 20-150%
	d9-EtFOSE	98% 20-150%
	13C2-4:2FTS	112% 20-150%
	13C2-6:2FTS	109% 20-150%
	13C2-8:2FTS	98% 20-150%
	13C3-HFPO-DA	90% 20-150%

Method Blank Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-MB	4Q43156.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-1, FC5194-2

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	0.00056	0.0050	0.00050	ug/l	J
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: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-MB	4Q43156.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-1, FC5194-2

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	109% 20-150%
	13C5-PFPeA	105% 20-150%
	13C5-PFHxA	106% 20-150%
	13C4-PFHpA	108% 20-150%
	13C8-PFOA	104% 20-150%
	13C9-PFNA	108% 20-150%
	13C6-PFDA	106% 20-150%
	13C7-PFUnDA	92% 20-150%
	13C2-PFDoDA	83% 20-150%
	13C2-PFTeDA	68% 20-150%
	13C3-PFBS	105% 20-150%
	13C3-PFHxS	107% 20-150%
	13C8-PFOS	103% 20-150%
	13C8-FOSA	77% 20-150%
	d3-MeFOSA	84% 20-150%
	d5-EtFOSA	80% 20-150%
	d3-MeFOSAA	108% 20-150%
	d5-EtFOSAA	98% 20-150%
	d7-MeFOSE	67% 20-150%
	d9-EtFOSE	66% 20-150%
	13C2-4:2FTS	129% 20-150%
	13C2-6:2FTS	124% 20-150%
	13C2-8:2FTS	108% 20-150%
	13C3-HFPO-DA	105% 20-150%

Method Blank Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96494-MB	4Q43360.D	1	04/20/23	MV	04/20/23	OP96494	S4Q626

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-3

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: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96494-MB	4Q43360.D	1	04/20/23	MV	04/20/23	OP96494	S4Q626

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-3

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	108% 20-150%
	13C5-PFPeA	99% 20-150%
	13C5-PFHxA	106% 20-150%
	13C4-PFHpA	102% 20-150%
	13C8-PFOA	103% 20-150%
	13C9-PFNA	106% 20-150%
	13C6-PFDA	108% 20-150%
	13C7-PFUnDA	106% 20-150%
	13C2-PFDoDA	91% 20-150%
	13C2-PFTeDA	79% 20-150%
	13C3-PFBS	105% 20-150%
	13C3-PFHxS	109% 20-150%
	13C8-PFOS	105% 20-150%
	13C8-FOSA	66% 20-150%
	d3-MeFOSA	62% 20-150%
	d5-EtFOSA	65% 20-150%
	d3-MeFOSAA	107% 20-150%
	d5-EtFOSAA	97% 20-150%
	d7-MeFOSE	57% 20-150%
	d9-EtFOSE	65% 20-150%
	13C2-4:2FTS	130% 20-150%
	13C2-6:2FTS	132% 20-150%
	13C2-8:2FTS	118% 20-150%
	13C3-HFPO-DA	95% 20-150%

Blank Spike Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-LLBS	4Q43155.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-1, FC5194-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0322	107	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0184	123	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0137	183*	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0115	153*	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0145	193*	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0078	104	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0080	107	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0086	115	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0074	99	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0069	92	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0079	105	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0076	114	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0091	129	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0154	225*	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0089	125	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0099	142	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0081	112	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0066	91	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0065	89	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0324	115	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0294	103	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0353	123	40-150
754-91-6	PFOSA	0.0075	0.0079	105	40-150
31506-32-8	MeFOSA	0.015	0.0151	101	40-150
4151-50-2	EtFOSA	0.015	0.0150	100	40-150
2355-31-9	MeFOSAA	0.0075	0.0069	92	40-150
2991-50-6	EtFOSAA	0.0075	0.0085	113	40-150
24448-09-7	MeFOSE	0.0375	0.0380	101	40-150
1691-99-2	EtFOSE	0.0375	0.0421	112	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0159	106	40-150
919005-14-4	ADONA	0.0142	0.0156	110	40-150
377-73-1	PFMPA	0.015	0.0164	109	40-150
863090-89-5	PFMBA	0.015	0.0162	108	40-150
151772-58-6	NFDHA	0.015	0.0167	111	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0146	104	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0143	101	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-LLBS	4Q43155.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-1, FC5194-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0140	105	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0361	96	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.200	107	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.193	103	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	124%	20-150%
	13C5-PFPeA	121%	20-150%
	13C5-PFHxA	122%	20-150%
	13C4-PFHpA	125%	20-150%
	13C8-PFOA	112%	20-150%
	13C9-PFNA	113%	20-150%
	13C6-PFDA	111%	20-150%
	13C7-PFUnDA	106%	20-150%
	13C2-PFDoDA	96%	20-150%
	13C2-PFTeDA	77%	20-150%
	13C3-PFBS	112%	20-150%
	13C3-PFHxS	116%	20-150%
	13C8-PFOS	116%	20-150%
	13C8-FOSA	89%	20-150%
	d3-MeFOSA	99%	20-150%
	d5-EtFOSA	99%	20-150%
	d3-MeFOSAA	112%	20-150%
	d5-EtFOSAA	115%	20-150%
	d7-MeFOSE	80%	20-150%
	d9-EtFOSE	79%	20-150%
	13C2-4:2FTS	129%	20-150%
	13C2-6:2FTS	131%	20-150%
	13C2-8:2FTS	111%	20-150%
	13C3-HFPO-DA	120%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96494-LLBS	4Q43359.D	1	04/20/23	MV	04/20/23	OP96494	S4Q626

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0338	113	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0186	124	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0086	115	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0085	113	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0102	136	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0081	108	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0095	127	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0092	123	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0091	121	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0085	113	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0087	116	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0076	114	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0087	123	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0085	124	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0096	134	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0097	139	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0073	101	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0086	119	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0077	106	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0354	126	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0341	120	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0357	124	40-150
754-91-6	PFOSA	0.0075	0.0089	119	40-150
31506-32-8	MeFOSA	0.015	0.0176	117	40-150
4151-50-2	EtFOSA	0.015	0.0181	121	40-150
2355-31-9	MeFOSAA	0.0075	0.0089	119	40-150
2991-50-6	EtFOSAA	0.0075	0.0085	113	40-150
24448-09-7	MeFOSE	0.0375	0.0354	94	40-150
1691-99-2	EtFOSE	0.0375	0.0419	112	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0175	117	40-150
919005-14-4	ADONA	0.0142	0.0190	134	40-150
377-73-1	PFMPA	0.015	0.0185	123	40-150
863090-89-5	PFMBA	0.015	0.0184	123	40-150
151772-58-6	NFDHA	0.015	0.0200	133	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0175	125	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0178	126	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96494-LLBS	4Q43359.D	1	04/20/23	MV	04/20/23	OP96494	S4Q626

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0152	114	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0395	105	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.200	107	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.203	108	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	104%	20-150%
	13C5-PFPeA	95%	20-150%
	13C5-PFHxA	101%	20-150%
	13C4-PFHpA	102%	20-150%
	13C8-PFOA	103%	20-150%
	13C9-PFNA	106%	20-150%
	13C6-PFDA	98%	20-150%
	13C7-PFUnDA	99%	20-150%
	13C2-PFDoDA	94%	20-150%
	13C2-PFTeDA	79%	20-150%
	13C3-PFBS	104%	20-150%
	13C3-PFHxS	105%	20-150%
	13C8-PFOS	90%	20-150%
	13C8-FOSA	64%	20-150%
	d3-MeFOSA	57%	20-150%
	d5-EtFOSA	59%	20-150%
	d3-MeFOSAA	100%	20-150%
	d5-EtFOSAA	99%	20-150%
	d7-MeFOSE	50%	20-150%
	d9-EtFOSE	57%	20-150%
	13C2-4:2FTS	119%	20-150%
	13C2-6:2FTS	121%	20-150%
	13C2-8:2FTS	108%	20-150%
	13C3-HFPO-DA	89%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-BS	4Q43154.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-1, FC5194-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.106	106	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0589	118	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0271	108	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0279	112	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0281	112	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0278	111	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0271	108	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0266	106	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0272	109	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0256	102	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0276	110	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0239	108	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0285	121	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0258	113	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0312	131	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0305	131	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0293	122	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0300	124	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0271	112	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.112	119	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.105	111	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.111	116	40-150
754-91-6	PFOSA	0.025	0.0293	117	40-150
31506-32-8	MeFOSA	0.05	0.0540	108	40-150
4151-50-2	EtFOSA	0.05	0.0530	106	40-150
2355-31-9	MeFOSAA	0.025	0.0260	104	40-150
2991-50-6	EtFOSAA	0.025	0.0286	114	40-150
24448-09-7	MeFOSE	0.125	0.141	113	40-150
1691-99-2	EtFOSE	0.125	0.138	110	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0598	120	40-150
919005-14-4	ADONA	0.0473	0.0579	123	40-150
377-73-1	PFMPA	0.05	0.0580	116	40-150
863090-89-5	PFMBA	0.05	0.0586	117	40-150
151772-58-6	NFDHA	0.05	0.0569	114	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0535	114	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0553	117	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-BS	4Q43154.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-1, FC5194-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0491	110	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.136	109	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.698	112	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.688	110	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	110%	20-150%
	13C5-PFPeA	104%	20-150%
	13C5-PFHxA	109%	20-150%
	13C4-PFHpA	109%	20-150%
	13C8-PFOA	103%	20-150%
	13C9-PFNA	104%	20-150%
	13C6-PFDA	107%	20-150%
	13C7-PFUnDA	103%	20-150%
	13C2-PFDoDA	97%	20-150%
	13C2-PFTeDA	79%	20-150%
	13C3-PFBS	107%	20-150%
	13C3-PFHxS	103%	20-150%
	13C8-PFOS	90%	20-150%
	13C8-FOSA	81%	20-150%
	d3-MeFOSA	89%	20-150%
	d5-EtFOSA	88%	20-150%
	d3-MeFOSAA	106%	20-150%
	d5-EtFOSAA	105%	20-150%
	d7-MeFOSE	73%	20-150%
	d9-EtFOSE	74%	20-150%
	13C2-4:2FTS	108%	20-150%
	13C2-6:2FTS	122%	20-150%
	13C2-8:2FTS	110%	20-150%
	13C3-HFPO-DA	105%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96494-BS ^a	4Q43358.D	1	04/20/23	MV	04/20/23	OP96494	S4Q626

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.113	113	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0602	120	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0278	111	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0285	114	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0313	125	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0261	104	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0301	120	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0280	112	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0283	113	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0283	113	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0269	108	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0259	117	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0271	115	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0251	110	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0289	121	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0273	118	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0272	113	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0270	112	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0239	99	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.110	117	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.116	122	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.129	134	40-150
754-91-6	PFOSA	0.025	0.0286	114	40-150
31506-32-8	MeFOSA	0.05	0.0587	117	40-150
4151-50-2	EtFOSA	0.05	0.0538	108	40-150
2355-31-9	MeFOSAA	0.025	0.0258	103	40-150
2991-50-6	EtFOSAA	0.025	0.0291	116	40-150
24448-09-7	MeFOSE	0.125	0.138	110	40-150
1691-99-2	EtFOSE	0.125	0.142	114	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0548	110	40-150
919005-14-4	ADONA	0.0473	0.0619	131	40-150
377-73-1	PFMPA	0.05	0.0328	66	40-150
863090-89-5	PFMBA	0.05	0.0592	118	40-150
151772-58-6	NFDHA	0.05	0.0604	121	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0566	121	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0566	120	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96494-BS ^a	4Q43358.D	1	04/20/23	MV	04/20/23	OP96494	S4Q626

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0482	108	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0774	62	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.672	108	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.661	106	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	33%	20-150%
	13C5-PFPeA	98%	20-150%
	13C5-PFHxA	108%	20-150%
	13C4-PFHpA	105%	20-150%
	13C8-PFOA	105%	20-150%
	13C9-PFNA	107%	20-150%
	13C6-PFDA	105%	20-150%
	13C7-PFUnDA	107%	20-150%
	13C2-PFDoDA	103%	20-150%
	13C2-PFTeDA	89%	20-150%
	13C3-PFBS	109%	20-150%
	13C3-PFHxS	113%	20-150%
	13C8-PFOS	96%	20-150%
	13C8-FOSA	71%	20-150%
	d3-MeFOSA	76%	20-150%
	d5-EtFOSA	80%	20-150%
	d3-MeFOSAA	108%	20-150%
	d5-EtFOSAA	108%	20-150%
	d7-MeFOSE	59%	20-150%
	d9-EtFOSE	64%	20-150%
	13C2-4:2FTS	121%	20-150%
	13C2-6:2FTS	119%	20-150%
	13C2-8:2FTS	99%	20-150%
	13C3-HFPO-DA	95%	20-150%

(a) Insufficient sample for MS/MSD.

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-MS	4Q43160.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624
FC5194-1	4Q43159.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-1, FC5194-2

CAS No.	Compound	FC5194-1 ug/l	Spike Q	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.020 U	0.098	0.109	111	40-150
2706-90-3	Perfluoropentanoic acid	0.0098 U	0.049	0.0595	121	40-150
307-24-4	Perfluorohexanoic acid	0.0049 U	0.0245	0.0297	121	40-150
375-85-9	Perfluoroheptanoic acid	0.0049 U	0.0245	0.0295	120	40-150
335-67-1	Perfluorooctanoic acid	0.0049 U	0.0245	0.0267	109	40-150
375-95-1	Perfluorononanoic acid	0.0049 U	0.0245	0.0286	117	40-150
335-76-2	Perfluorodecanoic acid	0.0049 U	0.0245	0.0282	115	40-150
2058-94-8	Perfluoroundecanoic acid	0.0049 U	0.0245	0.0281	115	40-150
307-55-1	Perfluorododecanoic acid	0.0049 U	0.0245	0.0292	119	40-150
72629-94-8	Perfluorotridecanoic acid	0.0049 U	0.0245	0.0272	111	40-150
376-06-7	Perfluorotetradecanoic acid	0.0049 U	0.0245	0.0276	113	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0049 U	0.0217	0.0269	124	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0049 U	0.0231	0.0305	132	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0049 U	0.0224	0.0258	115	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0049 U	0.0234	0.0288	123	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0049 U	0.0227	0.0262	115	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0049 U	0.0236	0.0261	111	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0049 U	0.0237	0.0242	102	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0049 U	0.0238	0.0241	101	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.020 U	0.0919	0.113	123	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.020 U	0.0931	0.108	116	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.020 U	0.0941	0.116	123	40-150
754-91-6	PFOSA	0.0049 U	0.0245	0.0288	118	40-150
31506-32-8	MeFOSA	0.0049 U	0.049	0.0557	114	40-150
4151-50-2	EtFOSA	0.0049 U	0.049	0.0556	113	40-150
2355-31-9	MeFOSAA	0.0049 U	0.0245	0.0268	109	40-150
2991-50-6	EtFOSAA	0.0049 U	0.0245	0.0292	119	40-150
24448-09-7	MeFOSE	0.049 U	0.123	0.144	118	40-150
1691-99-2	EtFOSE	0.049 U	0.123	0.140	114	40-150
13252-13-6	HFPO-DA (GenX)	0.020 U	0.049	0.0583	119	40-150
919005-14-4	ADONA	0.020 U	0.0463	0.0586	127	40-150
377-73-1	PFMPA	0.0098 U	0.049	0.0585	119	40-150
863090-89-5	PFMBA	0.0098 U	0.049	0.0579	118	40-150
151772-58-6	NFDHA	0.0098 U	0.049	0.0645	132	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.020 U	0.0458	0.0506	110	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.020 U	0.0463	0.0516	111	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-MS	4Q43160.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624
FC5194-1	4Q43159.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-1, FC5194-2

CAS No.	Compound	FC5194-1 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0098 U	0.0436	0.0527	121	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.025 U	0.123	0.135	110	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.12 U	0.613	0.741	121	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.12 U	0.613	0.723	118	40-150

CAS No.	ID Standard Recoveries	MS	FC5194-1	Limits
	13C4-PFBA	110%	115%	20-150%
	13C5-PFPeA	106%	113%	20-150%
	13C5-PFHxA	104%	111%	20-150%
	13C4-PFHpA	108%	115%	20-150%
	13C8-PFOA	109%	111%	20-150%
	13C9-PFNA	94%	103%	20-150%
	13C6-PFDA	110%	109%	20-150%
	13C7-PFUnDA	98%	97%	20-150%
	13C2-PFDoDA	91%	87%	20-150%
	13C2-PFTeDA	80%	72%	20-150%
	13C3-PFBS	102%	111%	20-150%
	13C3-PFHxS	103%	109%	20-150%
	13C8-PFOS	102%	99%	20-150%
	13C8-FOSA	86%	87%	20-150%
	d3-MeFOSA	91%	90%	20-150%
	d5-EtFOSA	94%	87%	20-150%
	d3-MeFOSAA	102%	98%	20-150%
	d5-EtFOSAA	102%	106%	20-150%
	d7-MeFOSE	73%	71%	20-150%
	d9-EtFOSE	73%	69%	20-150%
	13C2-4:2FTS	117%	131%	20-150%
	13C2-6:2FTS	124%	136%	20-150%
	13C2-8:2FTS	116%	113%	20-150%
	13C3-HFPO-DA	105%	115%	20-150%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-DUP	4Q43164.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624
FC5194-2 ^a	4Q43163.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-1, FC5194-2

CAS No.	Compound	FC5194-2 ug/l	DUP Q ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.018 U	ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0089 U	ND		nc	30
307-24-4	Perfluorohexanoic acid	0.00046 J	0.00052 J		12	30
375-85-9	Perfluoroheptanoic acid	0.0045 U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0045 U	ND		nc	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	0.018 U	ND		nc	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	0.0089 U	ND		nc	30
863090-89-5	PFMBA	0.0089 U	ND		nc	30
151772-58-6	NFDHA	0.0089 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: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-DUP	4Q43164.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624
FC5194-2 ^a	4Q43163.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5194-1, FC5194-2

CAS No.	Compound	FC5194-2 ug/l	DUP Q	ug/l	Q	RPD	Limits
113507-82-7	PFEESA	0.0089	U	ND		nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.022	U	ND		nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.11	U	ND		nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.11	U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC5194-2	Limits
	13C4-PFBA	88%	95%	20-150%
	13C5-PFPeA	85%	89%	20-150%
	13C5-PFHxA	111%	120%	20-150%
	13C4-PFHpA	119%	128%	20-150%
	13C8-PFOA	107%	120%	20-150%
	13C9-PFNA	104%	119%	20-150%
	13C6-PFDA	103%	127%	20-150%
	13C7-PFUnDA	104%	120%	20-150%
	13C2-PFDoDA	93%	108%	20-150%
	13C2-PFTeDA	74%	88%	20-150%
	13C3-PFBS	110%	112%	20-150%
	13C3-PFHxS	114%	117%	20-150%
	13C8-PFOS	107%	117%	20-150%
	13C8-FOSA	89%	94%	20-150%
	d3-MeFOSA	95%	99%	20-150%
	d5-EtFOSA	93%	99%	20-150%
	d3-MeFOSAA	104%	108%	20-150%
	d5-EtFOSAA	109%	111%	20-150%
	d7-MeFOSE	73%	76%	20-150%
	d9-EtFOSE	70%	75%	20-150%
	13C2-4:2FTS	119%	156%*	20-150%
	13C2-6:2FTS	113%	110%	20-150%
	13C2-8:2FTS	108%	100%	20-150%
	13C3-HFPO-DA	95%	100%	20-150%

(a) Insufficient sample for re-extraction.

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q624-CC621	Injection Date:	04/18/23
Lab File ID:	4Q43149.D	Injection Time:	11:26
Instrument ID:	GCMS4Q	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	67344	3.02	52056	5.66	44133	7.25	22333	7.81	17813	8.32
Check Std ^c	73315	2.97	51832	5.62	45562	7.21	23741	7.76	18679	8.27
Upper Limit ^d	134688	3.37	104112	6.02	88266	7.61	44666	8.16	35626	8.67
Lower Limit ^e	20203	2.57	15617	5.22	13240	6.81	6700	7.36	5344	7.87

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
ZZZZZZ	29429	2.93	43784	5.62	37726	7.21	17223	7.76	15225	8.25	1
ZZZZZZ	61680	2.99	48980	5.62	41040	7.21	16350	7.76	15620	8.27	10
ZZZZZZ	54370	2.99	38475	5.62	33335	7.21	15400	7.76	11225	8.27	5
OP96403-BS	60071	3.00	41068	5.63	36330	7.21	17955	7.76	14000	8.27	1
OP96403-LLBS	57388	3.08	36717	5.65	33259	7.23	16782	7.77	13310	8.27	1
OP96403-MB	61368	3.00	40808	5.62	36064	7.21	17607	7.76	14626	8.27	1
ZZZZZZ	58851	3.00	39279	5.62	34778	7.21	17289	7.76	12876	8.27	1
ZZZZZZ	57655	3.00	37678	5.62	33874	7.21	17154	7.76	12995	8.27	1
FC5194-1	58532	3.00	37514	5.62	33909	7.21	17093	7.76	13396	8.27	1
OP96403-MS	56698	3.00	37805	5.62	33659	7.21	17409	7.76	12396	8.25	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: S4Q621-ICC621 4Q42939.D 04/14/23 12:41. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1
6

Injection Standard Area Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q624-CC621	Injection Date:	04/18/23
Lab File ID:	4Q43149.D	Injection Time:	11:26
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	5630	7.35	11686	8.47
Check Std ^c	5988	7.32	12080	8.42
Upper Limit ^d	11260	7.72	23372	8.82
Lower Limit ^e	1689	6.92	3506	8.02

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
ZZZZZZ	4743	7.32	9204	8.41	1
ZZZZZZ	4360	7.30	10320	8.43	10
ZZZZZZ	3660	7.32	9965	8.42	5
OP96403-BS	4584	7.32	9488	8.42	1
OP96403-LLBS	4273	7.33	8468	8.43	1
OP96403-MB	4392	7.32	9384	8.42	1
ZZZZZZ	4297	7.32	9159	8.42	1
ZZZZZZ	4190	7.32	8820	8.42	1
FC5194-1	4166	7.32	9411	8.43	1
OP96403-MS	4095	7.32	8664	8.40	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q621-ICC621 4Q42939.D 04/14/23 12:41. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1
6

Injection Standard Area Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q624-CC621	Injection Date:	04/18/23
Lab File ID:	4Q43161.D	Injection Time:	14:29
Instrument ID:	GCMS4Q	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	67344	3.02	52056	5.66	44133	7.25	22333	7.81	17813	8.32
Check Std ^c	79564	3.07	53192	5.65	46011	7.21	23837	7.77	17318	8.27
Upper Limit ^d	134688	3.47	104112	6.05	88266	7.61	44666	8.17	35626	8.67
Lower Limit ^e	20203	2.67	15617	5.25	13240	6.81	6700	7.37	5344	7.87

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
S4Q624-ICCB	85940	2.97	59268	5.62	52922	7.21	27538	7.76	20294	8.27	1
FC5194-2 ^f	36316	2.99	36225	5.62	31137	7.21	15314	7.76	11882	8.27	1
OP96403-DUP	37761	2.99	37445	5.62	33249	7.21	16882	7.76	13541	8.27	1
FC5194-3 ^g	55756	2.99	37963	5.63	34325	7.21	17758	7.76	13843	8.27	1
FC5088-3	58365	3.00	39022	5.63	34300	7.21	17578	7.76	13865	8.27	1
OP96427-BS	54970	2.99	37325	5.63	33625	7.21	16477	7.77	13102	8.27	1
OP96427-LLBS	59288	2.99	38118	5.63	35752	7.21	17857	7.77	14225	8.28	1
OP96427-MB	54181	2.99	35889	5.63	32066	7.21	16470	7.77	12627	8.28	1
ZZZZZZ	54671	3.00	34992	5.63	32577	7.21	15911	7.77	12497	8.28	1
FC5252-2	55919	3.00	36999	5.63	33529	7.21	16520	7.77	12499	8.28	1
OP96427-MS	53038	3.00	34835	5.63	31292	7.21	15481	7.77	12270	8.28	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: S4Q621-ICC621 4Q42939.D 04/14/23 12:41. 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) Insufficient sample for re-extraction.
- (g) Confirmation run.

6.5.2
6

Injection Standard Area Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q624-CC621	Injection Date:	04/18/23
Lab File ID:	4Q43161.D	Injection Time:	14:29
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	5630	7.35	11686	8.47
Check Std ^c	5651	7.33	12210	8.43
Upper Limit ^d	11260	7.73	23372	8.83
Lower Limit ^e	1689	6.93	3506	8.03

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S4Q624-ICCB	6417	7.32	13327	8.42	1
FC5194-2 ^f	3991	7.32	8072	8.43	1
OP96403-DUP	4033	7.32	8733	8.42	1
FC5194-3 ^g	4244	7.32	9087	8.43	1
FC5088-3	4476	7.32	7256	8.40	1
OP96427-BS	4401	7.32	8308	8.43	1
OP96427-LLBS	4376	7.32	8997	8.43	1
OP96427-MB	3878	7.32	8658	8.43	1
ZZZZZZ	4122	7.32	8548	8.43	1
FC5252-2	3994	7.32	8877	8.43	1
OP96427-MS	3800	7.32	7841	8.43	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q621-ICC621 4Q42939.D 04/14/23 12:41. 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) Insufficient sample for re-extraction.
- (g) Confirmation run.

6.5.2
6

Injection Standard Area Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q626-CC625	Injection Date:	04/20/23
Lab File ID:	4Q43356.D	Injection Time:	22:51
Instrument ID:	GCMS4Q	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	64502	2.94	46252	5.58	47306	7.19	24417	7.73	19244	8.24
Check Std ^c	73824	2.94	50870	5.60	52420	7.19	26464	7.73	20790	8.24
Upper Limit ^d	129004	3.34	92504	6.00	94612	7.59	48834	8.13	38488	8.64
Lower Limit ^e	19351	2.54	13876	5.20	14192	6.79	7325	7.33	5773	7.84

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
S4Q626-ICCB	77899	2.95	53907	5.60	55527	7.19	28384	7.73	22654	8.24	1
OP96494-BS ^f	66471	2.98	43593	5.60	44822	7.19	23227	7.73	17459	8.24	1
OP96494-LLBS	67152	2.98	44720	5.60	44590	7.19	22625	7.75	17692	8.24	1
OP96494-MB	62310	2.98	41343	5.60	42870	7.19	21535	7.73	16217	8.24	1
FC5194-3	63110	2.98	44709	5.60	44740	7.19	23270	7.73	18275	8.24	1
ZZZZZZ	65092	2.98	43970	5.60	46446	7.19	23180	7.73	18956	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: S4Q625-ICC625 4Q43245.D 04/19/23 12:37. 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) Insufficient sample for MS/MSD.

6.5.3
6

Injection Standard Area Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q626-CC625	Injection Date:	04/20/23
Lab File ID:	4Q43356.D	Injection Time:	22:51
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	5092	7.29	10833	8.40
Check Std ^c	5183	7.29	12070	8.39
Upper Limit ^d	10184	7.69	21666	8.79
Lower Limit ^e	1528	6.89	3250	7.99

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S4Q626-ICCB	5910	7.29	12446	8.39	1
OP96494-BS ^f	4496	7.29	10539	8.40	1
OP96494-LLBS	4637	7.29	10743	8.40	1
OP96494-MB	4325	7.29	9622	8.39	1
FC5194-3	4519	7.29	10090	8.39	1
ZZZZZZ	4544	7.29	9450	8.38	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q625-ICC625 4Q43245.D 04/19/23 12:37. 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) Insufficient sample for MS/MSD.

6.5.3
6

TDCA Retention Time Check

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q621-RT	Injection Date:	04/14/23
Lab File ID:	4Q42933.D	Injection Time:	11:07
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.456	--	--
TDCA	6.947	1.509	1.000
TCDCA	6.798	1.658	1.000
TUDCA	5.966	2.490	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
S4Q621-IC621	4Q42935.D	04/14/23	11:35	00:28	Mass Calibration Verification
S4Q621-IC621	4Q42936.D	04/14/23	11:49	00:42	Initial cal 1
S4Q621-IC621	4Q42937.D	04/14/23	12:04	00:57	Initial cal 2
S4Q621-IC621	4Q42938.D	04/14/23	12:27	01:20	Initial cal 3
S4Q621-ICC621	4Q42939.D	04/14/23	12:41	01:34	Initial cal 4
S4Q621-IC621	4Q42940.D	04/14/23	12:55	01:48	Initial cal 5
S4Q621-IC621	4Q42941.D	04/14/23	13:09	02:02	Initial cal 6
S4Q621-IC621	4Q42942.D	04/14/23	13:23	02:16	Initial cal 7
S4Q621-IC621	4Q42943.D	04/14/23	13:37	02:30	Initial cal 8
S4Q621-IBLK	4Q42944.D	04/14/23	13:51	02:44	Instrument Blank
S4Q621-IBLK	4Q42944.D	04/14/23	13:51	02:44	Instrument Blank
S4Q621-ICV621	4Q42945.D	04/14/23	14:05	02:58	Initial cal verification 4
S4Q621-ICV621	4Q42946.D	04/14/23	14:19	03:12	Initial cal verification 20
S4Q621-CC621	4Q42947.D	04/14/23	14:57	03:50	Continuing cal 4
S4Q621-CC621	4Q42948.D	04/14/23	15:11	04:04	Continuing cal 1.0LL
S4Q621-CC621	4Q42954.D	04/14/23	16:36	05:29	Continuing cal 4
S4Q621-ICCB	4Q42955.D	04/14/23	16:50	05:43	Continuing Calibration Blank
S4Q621-CC621	4Q42966.D	04/14/23	19:24	08:17	Continuing cal 4
S4Q621-ICCB	4Q42967.D	04/14/23	19:38	08:31	Continuing Calibration Blank
S4Q621-CC621	4Q42978.D	04/14/23	22:13	11:06	Continuing cal 4
S4Q621-CC621	4Q42979.D	04/14/23	22:27	11:20	Continuing cal 1.0LL
S4Q621-ICCB	4Q42980.D	04/14/23	22:41	11:34	Continuing Calibration Blank
OP96297-BS	4Q42984.D	04/14/23	23:37	12:30	Blank Spike
OP96297-LLBS	4Q42985.D	04/14/23	23:52	12:45	Blank Spike
OP96297-MB	4Q42986.D	04/15/23	00:06	12:59	Method Blank
ZZZZZZ	4Q42987.D	04/15/23	00:20	13:13	(unrelated sample)
ZZZZZZ	4Q42988.D	04/15/23	00:34	13:27	(unrelated sample)
ZZZZZZ	4Q42989.D	04/15/23	00:48	13:41	(unrelated sample)
ZZZZZZ	4Q42990.D	04/15/23	01:02	13:55	(unrelated sample)
S4Q621-CC621	4Q42991.D	04/15/23	01:16	14:09	Continuing cal 4
S4Q621-ICCB	4Q42992.D	04/15/23	01:30	14:23	Continuing Calibration Blank
FC3790-5	4Q42993.D	04/15/23	01:44	14:37	(used for QC only; not part of job FC5194)
OP96297-MS	4Q42994.D	04/15/23	01:58	14:51	Matrix Spike
OP96297-MSD	4Q42995.D	04/15/23	02:12	15:05	Matrix Spike Duplicate

TDCA Retention Time Check

Job Number: FC5194
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-RT	Injection Date: 04/14/23
Lab File ID: 4Q42933.D	Injection Time: 11:07
Instrument ID: GCMS4Q	

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
FC3757-19	4Q42998.D	04/15/23	02:54	15:47	(used for QC only; not part of job FC5194)
OP96301-DUP	4Q42999.D	04/15/23	03:08	16:01	Duplicate
ZZZZZZ	4Q43000.D	04/15/23	03:22	16:15	(unrelated sample)
ZZZZZZ	4Q43001.D	04/15/23	03:36	16:29	(unrelated sample)
S4Q621-ECC621	4Q43002.D	04/15/23	03:50	16:43	Ending cal 4
S4Q621-ICCB	4Q43003.D	04/15/23	04:04	16:57	Continuing Calibration Blank

6.6.1

6

TDCA Retention Time Check

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q624-RT	Injection Date:	04/18/23
Lab File ID:	4Q43145.D	Injection Time:	10:28
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.431	--	--
TDCA	6.935	1.496	1.000
TCDCA	6.786	1.645	1.000
TUDCA	5.954	2.477	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
S4Q624-IBLK	4Q43148.D	04/18/23	11:12	00:44	Instrument Blank
S4Q624-IBLK	4Q43148.D	04/18/23	11:12	00:44	Instrument Blank
S4Q624-CC621	4Q43149.D	04/18/23	11:26	00:58	Continuing cal 4
S4Q624-CC621	4Q43150.D	04/18/23	11:40	01:12	Continuing cal 1.0LL
ZZZZZZ	4Q43151.D	04/18/23	11:54	01:26	(unrelated sample)
ZZZZZZ	4Q43152.D	04/18/23	12:08	01:40	(unrelated sample)
ZZZZZZ	4Q43153.D	04/18/23	12:22	01:54	(unrelated sample)
OP96403-BS	4Q43154.D	04/18/23	12:36	02:08	Blank Spike
OP96403-LLBS	4Q43155.D	04/18/23	12:54	02:26	Blank Spike
OP96403-MB	4Q43156.D	04/18/23	13:08	02:40	Method Blank
ZZZZZZ	4Q43157.D	04/18/23	13:22	02:54	(unrelated sample)
ZZZZZZ	4Q43158.D	04/18/23	13:36	03:08	(unrelated sample)
FC5194-1	4Q43159.D	04/18/23	13:50	03:22	AF-RHMW16-WGN01LF-2304W2
OP96403-MS	4Q43160.D	04/18/23	14:04	03:36	Matrix Spike
S4Q624-CC621	4Q43161.D	04/18/23	14:29	04:01	Continuing cal 4
S4Q624-ICCB	4Q43162.D	04/18/23	14:43	04:15	Continuing Calibration Blank
FC5194-2	4Q43163.D	04/18/23	14:57	04:29	AF-RHMW02-WGN01LF-2304W2
OP96403-DUP	4Q43164.D	04/18/23	15:11	04:43	Duplicate
FC5194-3	4Q43165.D	04/18/23	15:25	04:57	AF-RHMW03-WGN01LF-2304W2
FC5088-3	4Q43166.D	04/18/23	15:39	05:11	(used for QC only; not part of job FC5194)
OP96427-BS	4Q43167.D	04/18/23	15:53	05:25	Blank Spike
OP96427-LLBS	4Q43168.D	04/18/23	16:07	05:39	Blank Spike
OP96427-MB	4Q43169.D	04/18/23	16:21	05:53	Method Blank
ZZZZZZ	4Q43170.D	04/18/23	16:35	06:07	(unrelated sample)
FC5252-2	4Q43171.D	04/18/23	16:49	06:21	(used for QC only; not part of job FC5194)
OP96427-MS	4Q43172.D	04/18/23	17:03	06:35	Matrix Spike
S4Q624-CC621	4Q43173.D	04/18/23	17:17	06:49	Continuing cal 4
S4Q624-ICCB	4Q43174.D	04/18/23	17:32	07:04	Continuing Calibration Blank
FC5252-3	4Q43175.D	04/18/23	17:46	07:18	(used for QC only; not part of job FC5194)
OP96427-DUP	4Q43176.D	04/18/23	18:00	07:32	Duplicate
ZZZZZZ	4Q43177.D	04/18/23	18:14	07:46	(unrelated sample)
ZZZZZZ	4Q43178.D	04/18/23	18:28	08:00	(unrelated sample)
OP96386-BS	4Q43179.D	04/18/23	18:42	08:14	Blank Spike
OP96386-LLBS	4Q43180.D	04/18/23	18:56	08:28	Blank Spike

TDCA Retention Time Check

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q624-RT	Injection Date:	04/18/23
Lab File ID:	4Q43145.D	Injection Time:	10:28
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP96386-MB	4Q43181.D	04/18/23	19:10	08:42	Method Blank
ZZZZZZ	4Q43182.D	04/18/23	19:24	08:56	(unrelated sample)
ZZZZZZ	4Q43183.D	04/18/23	19:38	09:10	(unrelated sample)
S4Q624-CC621	4Q43184.D	04/18/23	19:52	09:24	Continuing cal 4
S4Q624-CC621	4Q43185.D	04/18/23	20:06	09:38	Continuing cal 1.0LL
S4Q624-ICCB	4Q43186.D	04/18/23	20:20	09:52	Continuing Calibration Blank
JD63151-3	4Q43187.D	04/18/23	20:34	10:06	(used for QC only; not part of job FC5194)
OP96386-MS	4Q43188.D	04/18/23	20:48	10:20	Matrix Spike
JD63151-4	4Q43189.D	04/18/23	21:02	10:34	(used for QC only; not part of job FC5194)
OP96386-DUP	4Q43190.D	04/18/23	21:17	10:49	Duplicate
ZZZZZZ	4Q43191.D	04/18/23	21:31	11:03	(unrelated sample)
ZZZZZZ	4Q43192.D	04/18/23	21:45	11:17	(unrelated sample)
ZZZZZZ	4Q43193.D	04/18/23	21:59	11:31	(unrelated sample)
ZZZZZZ	4Q43194.D	04/18/23	22:13	11:45	(unrelated sample)
ZZZZZZ	4Q43195.D	04/18/23	22:27	11:59	(unrelated sample)
S4Q624-CC621	4Q43196.D	04/18/23	22:41	12:13	Continuing cal 4
S4Q624-ICCB	4Q43197.D	04/18/23	22:55	12:27	Continuing Calibration Blank
ZZZZZZ	4Q43198.D	04/18/23	23:09	12:41	(unrelated sample)
ZZZZZZ	4Q43200.D	04/18/23	23:37	13:09	(unrelated sample)
ZZZZZZ	4Q43201.D	04/18/23	23:51	13:23	(unrelated sample)
ZZZZZZ	4Q43202.D	04/19/23	00:05	13:37	(unrelated sample)
ZZZZZZ	4Q43203.D	04/19/23	00:19	13:51	(unrelated sample)
S4Q624-CC621	4Q43204.D	04/19/23	00:33	14:05	Continuing cal 4
S4Q624-ICCB	4Q43205.D	04/19/23	00:47	14:19	Continuing Calibration Blank
S4Q624-ICCB	4Q43205.D	04/19/23	00:47	14:19	Continuing Calibration Blank
OP96364-BS	4Q43206.D	04/19/23	01:01	14:33	Blank Spike
OP96364-LLBS	4Q43207.D	04/19/23	01:16	14:48	Blank Spike
OP96364-MB	4Q43208.D	04/19/23	01:30	15:02	Method Blank
JD62946-1	4Q43209.D	04/19/23	01:44	15:16	(used for QC only; not part of job FC5194)
OP96364-MS	4Q43210.D	04/19/23	01:58	15:30	Matrix Spike
JD62924-1B	4Q43211.D	04/19/23	02:12	15:44	(used for QC only; not part of job FC5194)
OP96364-DUP	4Q43212.D	04/19/23	02:26	15:58	Duplicate
ZZZZZZ	4Q43213.D	04/19/23	02:40	16:12	(unrelated sample)
ZZZZZZ	4Q43214.D	04/19/23	02:54	16:26	(unrelated sample)
ZZZZZZ	4Q43215.D	04/19/23	03:08	16:40	(unrelated sample)
S4Q624-CC621	4Q43216.D	04/19/23	03:22	16:54	Continuing cal 4
S4Q624-ICCB	4Q43217.D	04/19/23	03:36	17:08	Continuing Calibration Blank
ZZZZZZ	4Q43218.D	04/19/23	03:50	17:22	(unrelated sample)
ZZZZZZ	4Q43219.D	04/19/23	04:04	17:36	(unrelated sample)
ZZZZZZ	4Q43220.D	04/19/23	04:18	17:50	(unrelated sample)
ZZZZZZ	4Q43221.D	04/19/23	04:32	18:04	(unrelated sample)
ZZZZZZ	4Q43222.D	04/19/23	04:46	18:18	(unrelated sample)
ZZZZZZ	4Q43223.D	04/19/23	05:00	18:32	(unrelated sample)
ZZZZZZ	4Q43224.D	04/19/23	05:15	18:47	(unrelated sample)

TDCA Retention Time Check

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q624-RT	Injection Date:	04/18/23
Lab File ID:	4Q43145.D	Injection Time:	10:28
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	4Q43225.D	04/19/23	05:29	19:01	(unrelated sample)
ZZZZZZ	4Q43226.D	04/19/23	05:43	19:15	(unrelated sample)
ZZZZZZ	4Q43227.D	04/19/23	05:57	19:29	(unrelated sample)
S4Q624-CC621	4Q43228.D	04/19/23	06:11	19:43	Continuing cal 4
S4Q624-CC621	4Q43229.D	04/19/23	06:25	19:57	Continuing cal 1.0LL
S4Q624-ICCB	4Q43230.D	04/19/23	06:39	20:11	Continuing Calibration Blank
ZZZZZZ	4Q43231.D	04/19/23	06:53	20:25	(unrelated sample)
ZZZZZZ	4Q43232.D	04/19/23	07:07	20:39	(unrelated sample)
ZZZZZZ	4Q43233.D	04/19/23	07:21	20:53	(unrelated sample)
ZZZZZZ	4Q43234.D	04/19/23	07:35	21:07	(unrelated sample)
S4Q624-ECC621	4Q43235.D	04/19/23	07:49	21:21	Ending cal 4
S4Q624-ICCB	4Q43236.D	04/19/23	08:03	21:35	Continuing Calibration Blank

6.6.2

6

TDCA Retention Time Check

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q625-RT	Injection Date:	04/19/23
Lab File ID:	4Q43239.D	Injection Time:	11:12
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.406	--	--
TDCA	6.909	1.497	1.000
TCDCA	6.748	1.658	1.000
TUDCA	5.917	2.489	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
S4Q625-IC625	4Q43241.D	04/19/23	11:40	00:28	Mass Calibration Verification
S4Q625-IC625	4Q43242.D	04/19/23	11:54	00:42	Initial cal 1
S4Q625-IC625	4Q43243.D	04/19/23	12:08	00:56	Initial cal 2
S4Q625-IC625	4Q43244.D	04/19/23	12:22	01:10	Initial cal 3
S4Q625-ICC625	4Q43245.D	04/19/23	12:37	01:25	Initial cal 4
S4Q625-IC625	4Q43246.D	04/19/23	12:51	01:39	Initial cal 5
S4Q625-IC625	4Q43247.D	04/19/23	13:05	01:53	Initial cal 6
S4Q625-IC625	4Q43248.D	04/19/23	13:19	02:07	Initial cal 7
S4Q625-IC625	4Q43249.D	04/19/23	13:33	02:21	Initial cal 8
S4Q625-IBLK	4Q43250.D	04/19/23	13:47	02:35	Instrument Blank
S4Q625-IBLK	4Q43250.D	04/19/23	13:47	02:35	Instrument Blank
S4Q625-ICV625	4Q43251.D	04/19/23	14:01	02:49	Initial cal verification 4
S4Q625-ICV625	4Q43252.D	04/19/23	14:15	03:03	Initial cal verification 20
S4Q625-CC625	4Q43253.D	04/19/23	14:29	03:17	Continuing cal 4
S4Q625-CC625	4Q43254.D	04/19/23	14:43	03:31	Continuing cal 1.0LL
OP96455-BS	4Q43255.D	04/19/23	15:00	03:48	Blank Spike
OP96455-LLBS	4Q43256.D	04/19/23	15:14	04:02	Blank Spike
OP96455-MB	4Q43257.D	04/19/23	15:29	04:17	Method Blank
ZZZZZZ	4Q43258.D	04/19/23	15:43	04:31	(unrelated sample)
ZZZZZZ	4Q43259.D	04/19/23	15:57	04:45	(unrelated sample)
ZZZZZZ	4Q43261.D	04/19/23	16:25	05:13	(unrelated sample)
ZZZZZZ	4Q43262.D	04/19/23	16:39	05:27	(unrelated sample)
ZZZZZZ	4Q43263.D	04/19/23	16:53	05:41	(unrelated sample)
S4Q625-CC625	4Q43264.D	04/19/23	17:08	05:56	Continuing cal 4
S4Q625-ICCB	4Q43265.D	04/19/23	17:22	06:10	Continuing Calibration Blank
OP96452-BS	4Q43266.D	04/19/23	17:36	06:24	Blank Spike
OP96452-LLBS	4Q43267.D	04/19/23	17:50	06:38	Blank Spike
OP96452-MB	4Q43268.D	04/19/23	18:04	06:52	Method Blank
ZZZZZZ	4Q43269.D	04/19/23	18:18	07:06	(unrelated sample)
ZZZZZZ	4Q43270.D	04/19/23	18:32	07:20	(unrelated sample)
ZZZZZZ	4Q43271.D	04/19/23	18:46	07:34	(unrelated sample)
ZZZZZZ	4Q43273.D	04/19/23	19:14	08:02	(unrelated sample)
ZZZZZZ	4Q43274.D	04/19/23	19:28	08:16	(unrelated sample)
ZZZZZZ	4Q43275.D	04/19/23	19:42	08:30	(unrelated sample)

TDCA Retention Time Check

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q625-RT	Injection Date:	04/19/23
Lab File ID:	4Q43239.D	Injection Time:	11:12
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S4Q625-CC625	4Q43276.D	04/19/23	19:56	08:44	Continuing cal 4
S4Q625-ICCB	4Q43277.D	04/19/23	20:10	08:58	Continuing Calibration Blank
ZZZZZZ	4Q43278.D	04/19/23	20:24	09:12	(unrelated sample)
ZZZZZZ	4Q43279.D	04/19/23	20:38	09:26	(unrelated sample)
ZZZZZZ	4Q43280.D	04/19/23	20:52	09:40	(unrelated sample)
ZZZZZZ	4Q43281.D	04/19/23	21:06	09:54	(unrelated sample)
S4Q625-CC625	4Q43282.D	04/19/23	21:21	10:09	Continuing cal 4
S4Q625-CC625	4Q43283.D	04/19/23	21:35	10:23	Continuing cal 1.0LL
S4Q625-ICCB	4Q43284.D	04/19/23	21:49	10:37	Continuing Calibration Blank
OP96429-BS	4Q43285.D	04/19/23	22:03	10:51	Blank Spike
OP96429-LLBS	4Q43286.D	04/19/23	22:17	11:05	Blank Spike
OP96429-MB	4Q43287.D	04/19/23	22:31	11:19	Method Blank
JD63290-1A	4Q43288.D	04/19/23	22:45	11:33	(used for QC only; not part of job FC5194)
OP96429-MS	4Q43289.D	04/19/23	22:59	11:47	Matrix Spike
JD63290-2A	4Q43290.D	04/19/23	23:13	12:01	(used for QC only; not part of job FC5194)
OP96429-DUP	4Q43291.D	04/19/23	23:27	12:15	Duplicate
ZZZZZZ	4Q43292.D	04/19/23	23:41	12:29	(unrelated sample)
ZZZZZZ	4Q43293.D	04/19/23	23:55	12:43	(unrelated sample)
S4Q625-CC625	4Q43294.D	04/20/23	00:09	12:57	Continuing cal 4
S4Q625-ICCB	4Q43295.D	04/20/23	00:23	13:11	Continuing Calibration Blank
OP96382-BS	4Q43296.D	04/20/23	00:37	13:25	Blank Spike
OP96382-LLBS	4Q43297.D	04/20/23	00:51	13:39	Blank Spike
OP96382-MB	4Q43298.D	04/20/23	01:05	13:53	Method Blank
ZZZZZZ	4Q43299.D	04/20/23	01:20	14:08	(unrelated sample)
ZZZZZZ	4Q43300.D	04/20/23	01:34	14:22	(unrelated sample)
ZZZZZZ	4Q43301.D	04/20/23	01:48	14:36	(unrelated sample)
ZZZZZZ	4Q43302.D	04/20/23	02:02	14:50	(unrelated sample)
ZZZZZZ	4Q43303.D	04/20/23	02:16	15:04	(unrelated sample)
ZZZZZZ	4Q43304.D	04/20/23	02:30	15:18	(unrelated sample)
ZZZZZZ	4Q43305.D	04/20/23	02:44	15:32	(unrelated sample)
S4Q625-CC625	4Q43306.D	04/20/23	02:58	15:46	Continuing cal 4
S4Q625-ICCB	4Q43307.D	04/20/23	03:12	16:00	Continuing Calibration Blank
ZZZZZZ	4Q43308.D	04/20/23	03:26	16:14	(unrelated sample)
ZZZZZZ	4Q43309.D	04/20/23	03:40	16:28	(unrelated sample)
ZZZZZZ	4Q43310.D	04/20/23	03:54	16:42	(unrelated sample)
ZZZZZZ	4Q43311.D	04/20/23	04:08	16:56	(unrelated sample)
ZZZZZZ	4Q43312.D	04/20/23	04:22	17:10	(unrelated sample)
ZZZZZZ	4Q43313.D	04/20/23	04:36	17:24	(unrelated sample)
ZZZZZZ	4Q43314.D	04/20/23	04:50	17:38	(unrelated sample)
FC3817-15	4Q43315.D	04/20/23	05:04	17:52	(used for QC only; not part of job FC5194)
OP96382-MS	4Q43316.D	04/20/23	05:18	18:06	Matrix Spike
OP96382-MSD	4Q43317.D	04/20/23	05:33	18:21	Matrix Spike Duplicate
S4Q625-CC625	4Q43318.D	04/20/23	05:47	18:35	Continuing cal 4
S4Q625-ICCB	4Q43319.D	04/20/23	06:01	18:49	Continuing Calibration Blank

6.6.3
6

TDCA Retention Time Check

Job Number: FC5194
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q625-RT	Injection Date:	04/19/23
Lab File ID:	4Q43239.D	Injection Time:	11:12
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	4Q43320.D	04/20/23	06:15	19:03	(unrelated sample)
ZZZZZZ	4Q43321.D	04/20/23	06:29	19:17	(unrelated sample)
S4Q625-ECC625	4Q43322.D	04/20/23	06:43	19:31	Ending cal 4
S4Q625-ICCB	4Q43323.D	04/20/23	06:57	19:45	Continuing Calibration Blank

6.6.3

6

TDCA Retention Time Check

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q626-RT	Injection Date:	04/20/23
Lab File ID:	4Q43329.D	Injection Time:	13:24
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.381	--	--
TDCA	6.885	1.496	1.000
TCDCA	6.735	1.646	1.000
TUDCA	5.892	2.489	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
S4Q626-IBLK	4Q43332.D	04/20/23	14:06	00:42	Instrument Blank
S4Q626-IBLK	4Q43332.D	04/20/23	14:06	00:42	Instrument Blank
S4Q626-CC625	4Q43333.D	04/20/23	14:20	00:56	Continuing cal 4
S4Q626-CC625	4Q43334.D	04/20/23	14:48	01:24	Continuing cal 1.0LL
ZZZZZZ	4Q43335.D	04/20/23	15:17	01:53	(unrelated sample)
ZZZZZZ	4Q43336.D	04/20/23	15:31	02:07	(unrelated sample)
ZZZZZZ	4Q43337.D	04/20/23	15:46	02:22	(unrelated sample)
ZZZZZZ	4Q43338.D	04/20/23	16:00	02:36	(unrelated sample)
ZZZZZZ	4Q43339.D	04/20/23	16:14	02:50	(unrelated sample)
ZZZZZZ	4Q43340.D	04/20/23	16:28	03:04	(unrelated sample)
ZZZZZZ	4Q43341.D	04/20/23	16:42	03:18	(unrelated sample)
ZZZZZZ	4Q43342.D	04/20/23	16:57	03:33	(unrelated sample)
S4Q626-CC625	4Q43344.D	04/20/23	20:02	06:38	Continuing cal 4
S4Q626-ICCB	4Q43345.D	04/20/23	20:16	06:52	Continuing Calibration Blank
ZZZZZZ	4Q43346.D	04/20/23	20:30	07:06	(unrelated sample)
FC3921-6	4Q43347.D	04/20/23	20:44	07:20	(used for QC only; not part of job FC5194)
ZZZZZZ	4Q43349.D	04/20/23	21:12	07:48	(unrelated sample)
ZZZZZZ	4Q43350.D	04/20/23	21:26	08:02	(unrelated sample)
ZZZZZZ	4Q43351.D	04/20/23	21:40	08:16	(unrelated sample)
ZZZZZZ	4Q43352.D	04/20/23	21:54	08:30	(unrelated sample)
ZZZZZZ	4Q43353.D	04/20/23	22:08	08:44	(unrelated sample)
ZZZZZZ	4Q43354.D	04/20/23	22:22	08:58	(unrelated sample)
ZZZZZZ	4Q43355.D	04/20/23	22:36	09:12	(unrelated sample)
S4Q626-CC625	4Q43356.D	04/20/23	22:51	09:27	Continuing cal 4
S4Q626-ICCB	4Q43357.D	04/20/23	23:05	09:41	Continuing Calibration Blank
OP96494-BS	4Q43358.D	04/20/23	23:19	09:55	Blank Spike
OP96494-LLBS	4Q43359.D	04/20/23	23:33	10:09	Blank Spike
OP96494-MB	4Q43360.D	04/20/23	23:47	10:23	Method Blank
FC5194-3	4Q43361.D	04/21/23	00:01	10:37	AF-RHMW03-WGN01LF-2304W2
ZZZZZZ	4Q43362.D	04/21/23	00:15	10:51	(unrelated sample)
S4Q626-CC625	4Q43363.D	04/21/23	00:29	11:05	Continuing cal 4
S4Q626-CC625	4Q43364.D	04/21/23	00:43	11:19	Continuing cal 1.0LL
S4Q626-ICCB	4Q43365.D	04/21/23	00:57	11:33	Continuing Calibration Blank
OP96383-BS	4Q43366.D	04/21/23	01:11	11:47	Blank Spike

TDCA Retention Time Check

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q626-RT	Injection Date:	04/20/23
Lab File ID:	4Q43329.D	Injection Time:	13:24
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP96383-LLBS	4Q43367.D	04/21/23	01:25	12:01	Blank Spike
OP96383-MB	4Q43368.D	04/21/23	01:39	12:15	Method Blank
ZZZZZZ	4Q43369.D	04/21/23	01:53	12:29	(unrelated sample)
FC3839-2	4Q43370.D	04/21/23	02:07	12:43	(used for QC only; not part of job FC5194)
OP96383-MS	4Q43371.D	04/21/23	02:21	12:57	Matrix Spike
OP96383-MSD	4Q43372.D	04/21/23	02:35	13:11	Matrix Spike Duplicate
ZZZZZZ	4Q43373.D	04/21/23	02:49	13:25	(unrelated sample)
ZZZZZZ	4Q43374.D	04/21/23	03:03	13:39	(unrelated sample)
ZZZZZZ	4Q43375.D	04/21/23	03:17	13:53	(unrelated sample)
S4Q626-CC625	4Q43376.D	04/21/23	03:31	14:07	Continuing cal 4
S4Q626-ICCB	4Q43377.D	04/21/23	03:45	14:21	Continuing Calibration Blank
ZZZZZZ	4Q43378.D	04/21/23	03:59	14:35	(unrelated sample)
ZZZZZZ	4Q43379.D	04/21/23	04:13	14:49	(unrelated sample)
ZZZZZZ	4Q43380.D	04/21/23	04:27	15:03	(unrelated sample)
ZZZZZZ	4Q43381.D	04/21/23	04:41	15:17	(unrelated sample)
ZZZZZZ	4Q43382.D	04/21/23	04:55	15:31	(unrelated sample)
ZZZZZZ	4Q43383.D	04/21/23	05:10	15:46	(unrelated sample)
ZZZZZZ	4Q43384.D	04/21/23	05:24	16:00	(unrelated sample)
ZZZZZZ	4Q43385.D	04/21/23	05:38	16:14	(unrelated sample)
ZZZZZZ	4Q43386.D	04/21/23	05:52	16:28	(unrelated sample)
ZZZZZZ	4Q43387.D	04/21/23	06:06	16:42	(unrelated sample)
S4Q626-CC625	4Q43388.D	04/21/23	06:20	16:56	Continuing cal 4
S4Q626-CC625	4Q43389.D	04/21/23	06:34	17:10	Continuing cal 1.0LL
S4Q626-ICCB	4Q43390.D	04/21/23	06:48	17:24	Continuing Calibration Blank
ZZZZZZ	4Q43391.D	04/21/23	07:02	17:38	(unrelated sample)
ZZZZZZ	4Q43392.D	04/21/23	07:16	17:52	(unrelated sample)
ZZZZZZ	4Q43393.D	04/21/23	07:30	18:06	(unrelated sample)
OP96426-BS	4Q43394.D	04/21/23	07:44	18:20	Blank Spike
OP96426-LLBS	4Q43395.D	04/21/23	07:58	18:34	Blank Spike
OP96426-MB	4Q43396.D	04/21/23	08:12	18:48	Method Blank
ZZZZZZ	4Q43397.D	04/21/23	08:26	19:02	(unrelated sample)
ZZZZZZ	4Q43398.D	04/21/23	08:40	19:16	(unrelated sample)
ZZZZZZ	4Q43399.D	04/21/23	08:54	19:30	(unrelated sample)
ZZZZZZ	4Q43400.D	04/21/23	09:08	19:44	(unrelated sample)
S4Q626-CC625	4Q43401.D	04/21/23	09:22	19:58	Continuing cal 4
S4Q626-ICCB	4Q43402.D	04/21/23	09:36	20:12	Continuing Calibration Blank
ZZZZZZ	4Q43403.D	04/21/23	09:50	20:26	(unrelated sample)
ZZZZZZ	4Q43404.D	04/21/23	10:05	20:41	(unrelated sample)
ZZZZZZ	4Q43405.D	04/21/23	10:19	20:55	(unrelated sample)
ZZZZZZ	4Q43406.D	04/21/23	10:33	21:09	(unrelated sample)
ZZZZZZ	4Q43407.D	04/21/23	10:47	21:23	(unrelated sample)
ZZZZZZ	4Q43408.D	04/21/23	11:01	21:37	(unrelated sample)
ZZZZZZ	4Q43409.D	04/21/23	11:15	21:51	(unrelated sample)
ZZZZZZ	4Q43410.D	04/21/23	11:29	22:05	(unrelated sample)

TDCA Retention Time Check

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q626-RT	Injection Date:	04/20/23
Lab File ID:	4Q43329.D	Injection Time:	13:24
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	4Q43411.D	04/21/23	11:44	22:20	(unrelated sample)
ZZZZZZ	4Q43412.D	04/21/23	11:58	22:34	(unrelated sample)
S4Q626-CC625	4Q43413.D	04/21/23	12:12	22:48	Continuing cal 4
S4Q626-ICCB	4Q43414.D	04/21/23	12:26	23:02	Continuing Calibration Blank
FC3922-15	4Q43415.D	04/21/23	12:40	23:16	(used for QC only; not part of job FC5194)
OP96426-MS	4Q43416.D	04/21/23	12:54	23:30	Matrix Spike
OP96426-MSD	4Q43417.D	04/21/23	13:08	23:44	Matrix Spike Duplicate
ZZZZZZ	4Q43418.D	04/21/23	13:22	23:58	(unrelated sample)
ZZZZZZ	4Q43419.D	04/21/23	13:36	24:12	(unrelated sample)
ZZZZZZ	4Q43420.D	04/21/23	13:50	24:26	(unrelated sample)
S4Q626-ECC625	4Q43421.D	04/21/23	14:04	24:40	Ending cal 4
S4Q626-ICCB	4Q43422.D	04/21/23	14:18	24:54	Continuing Calibration Blank

6.6.4

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Ion Ratio Summary

Job Number: FC5194
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q624	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios PFHxA
S4Q621-ICC621	4Q42939.D	3.2
FC5194-1	4Q43159.D	
FC5194-2	4Q43163.D	5.7
FC5194-3	4Q43165.D	

Ion Ratio Summary

Job Number: FC5194
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q626	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios			
		PFPeA	PFHxA	PFHpA	6:2FTS
S4Q625-ICC625	4Q43245.D	0	3.2	17.4	44.5
FC5194-3	4Q43361.D	0	2.9	15.6	33.2

6.7.2

6

Isotope Dilution Standard Recovery Summary

Job Number: FC5194
 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
FC5194-1	4Q43159.D	115	113	111	115	111	103	109	97
FC5194-2	4Q43163.D	95	89	120	128	120	119	127	120
FC5194-3	4Q43361.D	66	83	90	87	86	84	86	73
FC5194-3	4Q43165.D	108	107	109	111	103	100	101	91
OP96403-BS	4Q43154.D	110	104	109	109	103	104	107	103
OP96403-DUP	4Q43164.D	88	85	111	119	107	104	103	104
OP96403-LLBS	4Q43155.D	124	121	122	125	112	113	111	106
OP96403-MB	4Q43156.D	109	105	106	108	104	108	106	92
OP96403-MS	4Q43160.D	110	106	104	108	109	94	110	98
OP96494-BS	4Q43358.D	33	98	108	105	105	107	105	107
OP96494-LLBS	4Q43359.D	104	95	101	102	103	106	98	99
OP96494-MB	4Q43360.D	108	99	106	102	103	106	108	106
S4Q624-IBLK	4Q43148.D	103	98	102	104	101	98	103	101
S4Q624-ICCB	4Q43162.D	103	103	101	106	99	101	102	101
S4Q626-IBLK	4Q43332.D	97	100	96	98	98	106	101	95
S4Q626-ICCB	4Q43357.D	102	96	102	99	98	101	97	97

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

Isotope Dilution Standard Recovery Summary

Job Number: FC5194
 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
FC5194-1	4Q43159.D	87	72	111	109	99	87	90	87
FC5194-2	4Q43163.D	108	88	112	117	117	94	99	99
FC5194-3	4Q43361.D	60	58	102	92	80	70	64	61
FC5194-3	4Q43165.D	78	53	116	108	102	83	88	90
OP96403-BS	4Q43154.D	97	79	107	103	90	81	89	88
OP96403-DUP	4Q43164.D	93	74	110	114	107	89	95	93
OP96403-LLBS	4Q43155.D	96	77	112	116	116	89	99	99
OP96403-MB	4Q43156.D	83	68	105	107	103	77	84	80
OP96403-MS	4Q43160.D	91	80	102	103	102	86	91	94
OP96494-BS	4Q43358.D	103	89	109	113	96	71	76	80
OP96494-LLBS	4Q43359.D	94	79	104	105	90	64	57	59
OP96494-MB	4Q43360.D	91	79	105	109	105	66	62	65
S4Q624-IBLK	4Q43148.D	98	91	104	110	96	85	97	102
S4Q624-ICCB	4Q43162.D	98	88	103	103	100	86		
S4Q626-IBLK	4Q43332.D	100	92	96	99	101	97	98	106
S4Q626-ICCB	4Q43357.D	94	92	98	99	96	96	96	98

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

6.8.1
6

Isotope Dilution Standard Recovery Summary

Job Number: FC5194
 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
FC5194-1	4Q43159.D	98	106	71	69	131	136	113	115
FC5194-2	4Q43163.D	108	111	76	75	156*	110	100	100
FC5194-3	4Q43361.D	83	76	57	60	90	75	71	77
FC5194-3	4Q43165.D	102	97	70	73	104	94	90	105
OP96403-BS	4Q43154.D	106	105	73	74	108	122	110	105
OP96403-DUP	4Q43164.D	104	109	73	70	119	113	108	95
OP96403-LLBS	4Q43155.D	112	115	80	79	129	131	111	120
OP96403-MB	4Q43156.D	108	98	67	66	129	124	108	105
OP96403-MS	4Q43160.D	102	102	73	73	117	124	116	105
OP96494-BS	4Q43358.D	108	108	59	64	121	119	99	95
OP96494-LLBS	4Q43359.D	100	99	50	57	119	121	108	89
OP96494-MB	4Q43360.D	107	97	57	65	130	132	118	95
S4Q624-IBLK	4Q43148.D	107	108	80	81	122	119	119	103
S4Q624-ICCB	4Q43162.D	111	111			123	116	117	
S4Q626-IBLK	4Q43332.D	97	96	100	103	95	97	91	90
S4Q626-ICCB	4Q43357.D	102	103	102	98	112	109	98	90

Isotope Dilution Standards **Recovery Limits**

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

6.8.1
6

Initial Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICC621
 Lab FileID: 4Q42939.D

Initial Calibration Report

Method Path	D:\MassHunter\methods											
Method File	1633_041423_S4Q621.quantmethod.xml											
Batch Name	D:\MassHunter\Data\041423_1633_S4Q621\QuantResults\S4Q621.batch.bin											
Last Calib Update	4/16/2023 3:46:16 PM											
Level Name	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
1	D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d											
2	D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d											
3	D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d											
4	D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d											
5	D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d											
6	D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d											
7	D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d											
8	D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d											
Compound												
I M4-PFBA		Avg RF	0.2427	0.2070	0.2162	0.2239	0.2248	0.2239	0.2489	0.2396	0.2284	6.215
T PFBA												
I M5-PFPeA		Avg RF	0.4786	0.4346	0.4450	0.4524	0.4620	0.4746	0.5213	0.5179	0.4733	6.773
T PFMPA												
T 3:3FTCA		Avg RF	0.0415	0.0405	0.0416	0.0414	0.0428	0.0441	0.0496	0.0513	0.0441	9.285
T PFPeA		Avg RF	0.9811	0.8647	0.8930	0.9169	0.9349	0.9396	1.0399	1.0016	0.9465	6.131
T PFMBa		Avg RF	0.5500	0.4937	0.5214	0.5197	0.5302	0.5404	0.5964	0.5776	0.5412	6.120
I M5-PFHxA		Avg RF	0.0499	0.0474	0.0514	0.0516	0.0517	0.0503	0.0518	0.0439	0.0497	5.601
T NFDHA												
T PFHxA		Avg RF	0.7914	0.7041	0.7043	0.7146	0.7293	0.7284	0.7836	0.7648	0.7401	4.741
T PFEEa		Avg RF	0.6337	0.5711	0.5970	0.6005	0.6199	0.6261	0.6697	0.6530	0.6214	5.114
T 5:3FTCA		Avg RF	0.1041	0.0955	0.1005	0.1030	0.1050	0.1061	0.1120	0.1100	0.1045	4.974
T 7:3FTCA		Avg RF	0.0431	0.0403	0.0420	0.0424	0.0440	0.0426	0.0451	0.0432	0.0428	3.292
I M4-PFHpA		Avg RF	1.2331	1.1038	1.2217	1.1928	1.2406	1.2501	1.4179	1.3171	1.2471	7.327
T PFHpA												
I M8-PFOA		Avg RF	1.4659	1.0136	1.0891	1.0547	1.0821	1.1604	1.2604	1.2181	1.1680	12.537
T PFOA												
I M9-PFNA		Avg RF	0.7786	0.6522	0.6176	0.6101	0.6504	0.6327	0.7335	0.6704	0.6682	8.805
T PFNA												
I M6-PFDA		Avg RF	0.7587	0.6068	0.6721	0.7006	0.7164	0.6982	0.8097	0.7558	0.7148	8.624
T PFDA												
I M7-PFUnDA		Avg RF	0.8588	0.6928	0.6919	0.6409	0.6770	0.6611	0.7345	0.6991	0.7070	9.511
T PFUnDA												
I M2-PFDaDA												

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Initial Calibration Summary

Job Number: FC5194
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICC621
 Lab FileID: 4Q42939.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.8121	0.6982	0.7659	0.7910	0.7988	0.7871	0.8582	0.7944	0.7882	5.718
T PFTfDA	Avg RF	1.2104	0.9816	0.9927	1.0146	1.0134	0.9720	1.0363	0.9043	1.0157	8.675
I M2-PFTeDA	Avg RF	1.0733	0.9483	0.9814	0.9491	0.9831	0.9628	1.0262	0.9493	0.9842	4.529
T PFTeDA	Avg RF	0.8245	0.7537	0.7869	0.7941	0.8017	0.7739	0.8702	0.8348	0.8050	4.595
I M8-FOSA	Avg RF	0.8245	0.7537	0.7869	0.7941	0.8017	0.7739	0.8702	0.8348	0.8050	4.595
T FOSA	Avg RF	0.8245	0.7537	0.7869	0.7941	0.8017	0.7739	0.8702	0.8348	0.8050	4.595
I M3-PFBS	Avg RF	0.8776	0.9261	0.8830	0.9299	0.9206	0.9224	1.0417	0.9629	0.9330	5.525
T PFBS	Avg RF	0.8776	0.9261	0.8830	0.9299	0.9206	0.9224	1.0417	0.9629	0.9330	5.525
I M3-PFHxS	Avg RF	0.6671	0.6350	0.7010	0.7583	0.7488	0.7440	0.8143	0.7642	0.7291	7.936
T PFPeS	Avg RF	0.6671	0.6350	0.7010	0.7583	0.7488	0.7440	0.8143	0.7642	0.7291	7.936
T PFHxS	Avg RF	0.8976	0.8131	0.8230	0.8565	0.7667	0.8285	0.9423	0.9245	0.8565	7.053
I M8-PFOS	Avg RF	0.6863	0.5576	0.6391	0.5940	0.6382	0.6422	0.7150	0.7337	0.6508	9.097
T PFHpS	Avg RF	1.1227	0.8514	0.9697	0.9407	0.9379	0.9368	1.0115	1.0142	0.9731	8.144
T PFOs	Avg RF	0.3207	0.3424	0.3617	0.3744	0.3889	0.3834	0.4417	0.4647	0.3847	12.501
T PFNS	Avg RF	0.5445	0.5600	0.5479	0.5465	0.5513	0.5360	0.5936	0.5926	0.5590	3.950
T PFDS	Avg RF	0.4983	0.4559	0.4751	0.4650	0.4653	0.4671	0.5149	0.5248	0.4833	5.353
T PFDoDS	Avg RF	0.4983	0.4559	0.4751	0.4650	0.4653	0.4671	0.5149	0.5248	0.4833	5.353
I M2-4:2FTS	Avg RF	5.8406	6.0705	6.4792	6.0146	5.9261	6.3370	6.5003	6.6978	6.2333	5.005
T 4:2FTS	Avg RF	5.8406	6.0705	6.4792	6.0146	5.9261	6.3370	6.5003	6.6978	6.2333	5.005
I M2-6:2FTS	Avg RF	3.3584	3.0964	3.4480	3.5368	3.3618	3.2511	3.9534	3.3094	3.4144	7.437
T 6:2FTS	Avg RF	3.3584	3.0964	3.4480	3.5368	3.3618	3.2511	3.9534	3.3094	3.4144	7.437
I M2-8:2FTS	Avg RF	2.5302	2.2547	2.0644	2.3465	2.1716	2.1983	2.2282	2.1408	2.2418	6.375
T 8:2FTS	Avg RF	2.5302	2.2547	2.0644	2.3465	2.1716	2.1983	2.2282	2.1408	2.2418	6.375
I M3-MeFOSAA	Avg RF	0.8899	0.5923	0.6266	0.7083	0.6772	0.6010	0.6984	0.7184	0.6890	13.746
T MeFOSAA	Avg RF	0.8899	0.5923	0.6266	0.7083	0.6772	0.6010	0.6984	0.7184	0.6890	13.746
I M3-HFO-DA	Avg RF	0.8196	0.7572	0.7893	0.7826	0.7649	0.7709	0.8429	0.8128	0.7925	3.777
T HFPO-DA	Avg RF	0.8196	0.7572	0.7893	0.7826	0.7649	0.7709	0.8429	0.8128	0.7925	3.777
T ADONA	Avg RF	2.7559	2.7047	2.8906	2.9217	2.9059	2.9631	3.2293	2.9547	2.9157	5.390
T 9Cl-PF3ONS	Avg RF	2.7559	2.7047	2.8906	2.9217	2.9059	2.9631	3.2293	2.9547	2.9157	5.390
T 11Cl-PF3OUds	Avg RF	2.4661	2.4876	2.6028	2.7946	2.7007	2.6427	2.7043	2.4816	2.6101	4.681
I M5-EFOSAA	Avg RF	0.6858	0.7438	0.7701	0.7035	0.7350	0.7097	0.8026	0.8249	0.7469	6.574
T EFOSAA	Avg RF	0.6858	0.7438	0.7701	0.7035	0.7350	0.7097	0.8026	0.8249	0.7469	6.574
I M7-MeFOSE	Avg RF	0.9431	0.8564	0.8572	0.8388	0.8563	0.8414	0.9227	0.9131	0.8786	4.654
T MeFOSE	Avg RF	0.9431	0.8564	0.8572	0.8388	0.8563	0.8414	0.9227	0.9131	0.8786	4.654
I M9-EFOSE	Avg RF	0.8558	0.7172	0.7472	0.7421	0.7448	0.7425	0.8350	0.7797	0.7705	6.424
T EFOSE	Avg RF	0.8558	0.7172	0.7472	0.7421	0.7448	0.7425	0.8350	0.7797	0.7705	6.424

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Initial Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICC621
 Lab FileID: 4Q42939.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA											
T EtFOSA	Avg RF	0.8690	0.8589	0.8838	0.8346	0.8899	0.8912	0.9612	0.9380	0.8908	4.624
I M3-MeFOSA											
T MeFOSA	Avg RF	0.8676	0.7437	0.8189	0.8369	0.7724	0.7539	0.8636	0.8094	0.8083	5.901
I 13C4-PFOS											
S d3-MeFOSAA	Linear	0.7656	0.7552	0.8058	0.7481	0.6961	0.7058	0.7165	0.6975	0.7363	5.292
S 13C8-PFOS	Linear	0.9665	0.9710	1.0122	0.9463	0.9320	0.9528	0.9944	0.9787	0.9692	2.690
S d5-EFOSAA	Linear	0.6362	0.6101	0.6518	0.6515	0.5843	0.5543	0.5617	0.5384	0.5985	7.557
S 13C8-FOSA	Linear	1.5924	1.6717	1.9209	1.8649	1.6795	1.3840	1.4267	1.5403	1.6351	11.675
S d7-MeFOSE	Linear	0.6985	0.7316	0.7658	0.7577	0.6791	0.4960	0.5203	0.5092	0.6448	18.070
S d3-MeFOSA	Linear	0.8056	0.7664	0.7846	0.6930	0.7937	0.7565	0.7774	0.8145	0.7740	4.903
S d9-EFOSE	Linear	0.8600	0.8810	0.9400	0.8959	0.8211	0.6330	0.6253	0.6554	0.7890	16.441
S d5-EFOSA	Linear	0.8784	0.8130	0.8254	0.7902	0.8406	0.8016	0.8602	0.8806	0.8362	4.120
I 13C3-PFBA											
S 13C4-PFBA	Linear	0.8547	0.8631	0.8991	0.8708	0.8709	0.8702	0.8665	0.8704	0.8707	1.465
I 18O2-PFHxS											
S 13C2-4:2FTS	Linear	0.1665	0.1473	0.1509	0.1505	0.1436	0.1198	0.1178	0.0960	0.1365	16.929
S 13C3-PBBS	Linear	2.3414	2.1575	2.4161	2.3817	2.3603	2.3278	2.2517	2.1462	2.2978	4.429
S 13C2-6:2FTS	Linear	0.2519	0.2237	0.2069	0.1990	0.2052	0.1844	0.1524	0.1441	0.1960	18.129
S 13C3-PFHxS	Linear	1.4162	1.3623	1.3611	1.3717	1.4423	1.3622	1.3665	1.3866	1.3836	2.180
S 13C2-8:2FTS	Linear	0.3798	0.3419	0.3497	0.3347	0.3432	0.2910	0.2930	0.2468	0.3225	13.143
I 13C4-PFOA											
S 13C8-PFOA	Linear	0.8136	0.8339	0.8231	0.8276	0.8522	0.8054	0.8174	0.8125	0.8232	1.795
I 13C2-PFDA											
S 13C6-PFDA	Linear	1.0424	1.1469	1.1292	1.0956	1.0668	1.1154	1.1150	1.0824	1.0992	3.126
S 13C7-PFUDA	Linear	1.1992	1.2715	1.1954	1.2111	1.1941	1.1407	1.2168	1.1258	1.1943	3.788
S 13C2-PFDODA	Linear	1.5091	1.6410	1.5664	1.5468	1.5338	1.4540	1.5268	1.5352	1.5391	3.432
S 13C2-PFTeDA	Linear	1.1608	1.2839	1.2478	1.2605	1.2026	1.0896	1.1708	1.1672	1.1979	5.337
I 13C5-PFNA											
S 13C9-PFNA	Linear	0.9403	0.9513	0.9559	0.9014	0.8600	0.8799	0.8538	0.9434	0.9107	4.638
I 13C2-PFHxA											
S 13C5-PPeA	Linear	0.7463	0.7459	0.7392	0.7625	0.7447	0.7411	0.7093	0.7033	0.7365	2.713
S 13C5-PFHxA	Linear	1.1490	1.1564	1.1430	1.1831	1.1535	1.1507	1.1582	1.1472	1.1551	1.067
S 13C3-HPPO-DA	Linear	0.1789	0.1776	0.1669	0.1722	0.1761	0.1763	0.1776	0.1780	0.1755	2.284
S 13C4-PFHpA	Linear	0.5807	0.5853	0.5196	0.5926	0.5789	0.5762	0.5449	0.5636	0.5677	4.289

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

Initial Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICC621
 Lab FileID: 4Q42939.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PBBA	Linear	y = 0.870732 * x	
S 13C5-PFPeA	Linear	y = 0.736539 * x	
S 13C2-4:2FTS	Linear	y = 0.136547 * x	
S 13C3-PFBS	Linear	y = 2.297832 * x	
S 13C5-PFHxA	Linear	y = 1.155140 * x	
S 13C3-HFPO-DA	Linear	y = 0.175458 * x	
S 13C4-PFHpA	Linear	y = 0.567714 * x	
S 13C8-PFOA	Linear	y = 0.195959 * x	
S 13C3-PFHxS	Linear	y = 0.823219 * x	
S 13C9-PFNA	Linear	y = 1.383618 * x	
S 13C2-8:2FTS	Linear	y = 0.910745 * x	
S 13C6-PEDA	Linear	y = 0.322508 * x	
S d3-MeFOSAA	Linear	y = 1.099204 * x	
S 13C8-PFOS	Linear	y = 0.736329 * x	
S d5-EFOSAA	Linear	y = 0.969247 * x	
S 13C7-PFUInDA	Linear	y = 0.598531 * x	
S 13C2-PFDODA	Linear	y = 1.194332 * x	
S 13C8-FOSA	Linear	y = 1.539126 * x	
S 13C2-PFTeDA	Linear	y = 1.635055 * x	
S d7-MeFOSE	Linear	y = 1.197901 * x	
S d3-MeFOSA	Linear	y = 0.644769 * x	
S d9-EFOSE	Linear	y = 0.773967 * x	
S d5-EFOSA	Linear	y = 0.788968 * x	
S d5-EFOSA	Linear	y = 0.836240 * x	

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

Initial Calibration Verification

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICV621
 Lab FileID: 4Q42945.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041423_1633_S4Q621\s4q621.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q42945
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.602	-8.0	92.0
13C2-6:2FTS	5.000	4.830	-3.4	96.6
13C2-8:2FTS	5.000	4.651	-7.0	93.0
13C2-PFDoDA	1.250	1.134	-9.3	90.7
13C2-PFTeDA	1.250	1.096	-12.3	87.7
13C3-PFBS	2.500	2.645	5.8	105.8
13C3-PFHxS	2.500	2.634	5.4	105.4
13C4-PFBA	10.000	9.833	-1.7	98.3
13C4-PFHpA	2.500	2.485	-0.6	99.4
13C5-PFHxA	2.500	2.469	-1.2	98.8
13C5-PFPeA	5.000	4.983	-0.3	99.7
13C6-PFDA	1.250	1.213	-3.0	97.0
13C7-PFUnDA	1.250	1.188	-4.9	95.1
13C8-FOSA	2.500	2.084	-16.6	83.4
13C8-PFOA	2.500	2.510	0.4	100.4
13C8-PFOS	2.500	2.487	-0.5	99.5
13C9-PFNA	1.250	1.152	-7.8	92.2
4:2FTS	9.375	8.936	-4.7	95.3
6:2FTS	9.500	9.258	-2.5	97.5
8:2FTS	9.600	9.602	0.0	100.0
d3-MeFOSAA	5.000	4.659	-6.8	93.2
EtFOSAA	2.500	2.357	-5.7	94.3
FOSA	2.500	2.349	-6.1	93.9
MeFOSAA	2.500	2.297	-8.1	91.9
PFBA	10.000	9.441	-5.6	94.4
PFBS	2.218	2.110	-4.9	95.1
PFDA	2.500	2.342	-6.3	93.7
PFDoDA	2.500	2.423	-3.1	96.9
PFDS	2.413	2.279	-5.6	94.4
PFHpA	2.500	2.401	-4.0	96.0
PFHpS	2.383	2.262	-5.1	94.9
PFHxA	2.500	2.357	-5.7	94.3
PFHxS	2.285	2.016	-11.8	88.2
PFNA	2.500	2.435	-2.6	97.4
PFNS	2.405	2.240	-6.9	93.1
PFOA	2.500	2.201	-12.0	88.0
PFOS	2.320	2.225	-4.1	95.9

Initial Calibration Verification

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICV621
 Lab FileID: 4Q42945.D

PFPeA	5.000	4.734	-5.3	94.7
PFPeS	2.353	2.167	-7.9	92.1
PFTeDA	2.500	2.349	-6.0	94.0
PFTTrDA	2.500	2.365	-5.4	94.6
PFUnDA	2.500	2.168	-13.3	86.7
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	4.725	4.566	-3.4	96.6
13C3-HFPO-DA	10.000	10.258	2.6	102.6
9C1-PF3ONS	4.675	4.410	-5.7	94.3
ADONA	4.725	4.526	-4.2	95.8
HFPO-DA	5.000	4.604	-7.9	92.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.803	-5.4	94.6
5:3FTCA	62.400	60.149	-3.6	96.4
7:3FTCA	62.400	59.415	-4.8	95.2
d3-MeFOSA	2.500	2.349	-6.1	93.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.631	-7.4	92.6
EtFOSE	12.500	12.176	-2.6	97.4
MeFOSA	5.000	4.830	-3.4	96.6
MeFOSE	12.500	11.691	-6.5	93.5
PFDoDS	2.425	2.238	-7.7	92.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.435	-11.3	88.7
d7-MeFOSE	25.000	19.102	-23.6	76.4
d9-EtFOSE	25.000	19.723	-21.1	78.9
d5-EtFOSA	2.500	2.494	-0.2	99.8
NFDHA	5.000	4.658	-6.8	93.2
PFMBA	5.000	4.684	-6.3	93.7
PFMPA	5.000	4.657	-6.9	93.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.184	-6.0	94.0

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICV621
 Lab FileID: 4Q42946.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041423_1633_S4Q621\s4q621.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q42946
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.265	-14.7	85.3
13C2-6:2FTS	5.000	4.360	-12.8	87.2
13C2-8:2FTS	5.000	4.491	-10.2	89.8
13C2-PFDoDA	1.250	1.189	-4.9	95.1
13C2-PFTeDA	1.250	1.133	-9.3	90.7
13C3-PFBS	2.500	2.438	-2.5	97.5
13C3-PFHxS	2.500	2.423	-3.1	96.9
13C4-PFBA	10.000	9.899	-1.0	99.0
13C4-PFHpA	2.500	2.421	-3.2	96.8
13C5-PFHxA	2.500	2.513	0.5	100.5
13C5-PFPeA	5.000	5.044	0.9	100.9
13C6-PFDA	1.250	1.200	-4.0	96.0
13C7-PFUnDA	1.250	1.139	-8.9	91.1
13C8-FOSA	2.500	2.204	-11.9	88.1
13C8-PFOA	2.500	2.480	-0.8	99.2
13C8-PFOS	2.500	2.502	0.1	100.1
13C9-PFNA	1.250	1.177	-5.9	94.1
4:2FTS	20.000	24.072	20.4	120.4
6:2FTS	20.000	25.021	25.1	125.1
8:2FTS	20.000	23.430	17.2	117.2
d3-MeFOSAA	5.000	4.590	-8.2	91.8
EtFOSAA	20.000	22.420	12.1	112.1
FOSA	20.000	23.743	18.7	118.7
MeFOSAA	20.000	23.232	16.2	116.2
PFBA	20.000	21.795	9.0	109.0
PFBS	20.000	24.889	24.4	124.4
PFDA	20.000	24.397	22.0	122.0
PFDoDA	20.000	20.461	2.3	102.3
PFDS	20.000	23.268	16.3	116.3
PFHpA	20.000	23.841	19.2	119.2
PFHpS	20.000	23.617	18.1	118.1
PFHxA	20.000	23.396	17.0	117.0
PFHxS	20.000	24.686	23.4	123.4
PFNA	20.000	25.839	29.2	129.2
PFNS	20.000	24.907	24.5	124.5
PFOA	20.000	21.983	9.9	109.9
PFOS	20.000	20.139	0.7	100.7

Initial Calibration Verification

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICV621
 Lab FileID: 4Q42946.D

PFPeA	20.000	24.428	22.1	122.1
PFPeS	20.000	25.622	28.1	128.1
PFTeDA	20.000	23.790	19.0	119.0
PFTTrDA	20.000	19.059	-4.7	95.3
PFUnDA	20.000	22.357	11.8	111.8
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	23.484	17.4	117.4
13C3-HFPO-DA	10.000	10.101	1.0	101.0
9C1-PF3ONS	20.000	23.198	16.0	116.0
ADONA	20.000	22.550	12.8	112.8
HFPO-DA	20.000	21.684	8.4	108.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	22.292	11.5	111.5
5:3FTCA	20.000	23.885	19.4	119.4
7:3FTCA	20.000	21.005	5.0	105.0
d3-MeFOSA	2.500	2.423	-3.1	96.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	22.070	10.3	110.3
EtFOSE	100.000	120.820	20.8	120.8
MeFOSA	20.000	22.722	13.6	113.6
MeFOSE	100.000	113.926	13.9	113.9
PFDoDS	20.000	22.709	13.5	113.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.694	-6.1	93.9
d7-MeFOSE	25.000	19.924	-20.3	79.7
d9-EtFOSE	25.000	19.832	-20.7	79.3
d5-EtFOSA	2.500	2.639	5.6	105.6
NFDHA	20.000	22.891	14.5	114.5
PFMBA	20.000	23.563	17.8	117.8
PFMPA	20.000	23.282	16.4	116.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	20.704	3.5	103.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621
 Lab FileID: 4Q43149.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041823_1633_S4Q624\s4q624.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q43149
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.028	0.6	100.6
13C2-6:2FTS	5.000	5.872	17.4	117.4
13C2-8:2FTS	5.000	5.353	7.1	107.1
13C2-PFDoDA	1.250	1.185	-5.2	94.8
13C2-PFTeDA	1.250	1.079	-13.7	86.3
13C3-PFBS	2.500	2.468	-1.3	98.7
13C3-PFHxS	2.500	2.502	0.1	100.1
13C4-PFBA	10.000	10.294	2.9	102.9
13C4-PFHpA	2.500	2.722	8.9	108.9
13C5-PFHxA	2.500	2.574	2.9	102.9
13C5-PFPeA	5.000	5.043	0.9	100.9
13C6-PFDA	1.250	1.221	-2.3	97.7
13C7-PFUnDA	1.250	1.256	0.4	100.4
13C8-FOSA	2.500	2.086	-16.5	83.5
13C8-PFOA	2.500	2.513	0.5	100.5
13C8-PFOS	2.500	2.526	1.0	101.0
13C9-PFNA	1.250	1.241	-0.7	99.3
4:2FTS	9.375	8.366	-10.8	89.2
6:2FTS	9.500	7.660	-19.4	80.6
8:2FTS	9.600	8.811	-8.2	91.8
d3-MeFOSAA	5.000	5.339	6.8	106.8
EtFOSAA	2.500	2.168	-13.3	86.7
FOSA	2.500	2.084	-16.6	83.4
MeFOSAA	2.500	1.946	-22.2	77.8
PFBA	10.000	7.769	-22.3	77.7
PFBS	2.218	1.864	-16.0	84.0
PFDA	2.500	2.266	-9.4	90.6
PFDoDA	2.500	2.047	-18.1	81.9
PFDS	2.413	1.868	-22.6	77.4
PFHpA	2.500	2.049	-18.0	82.0
PFHpS	2.383	2.052	-13.9	86.1
PFHxA	2.500	2.061	-17.6	82.4
PFHxS	2.285	1.887	-17.4	82.6
PFNA	2.500	2.030	-18.8	81.2
PFNS	2.405	2.009	-16.5	83.5
PFOA	2.500	2.033	-18.7	81.3
PFOS	2.320	1.930	-16.8	83.2

Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621
 Lab FileID: 4Q43149.D

PFPeA	5.000	4.347	-13.1	86.9
PFPeS	2.353	1.965	-16.5	83.5
PFTeDA	2.500	2.055	-17.8	82.2
PFTTrDA	2.500	1.943	-22.3	77.7
PFUnDA	2.500	1.908	-23.7	76.3
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.920	4.1	104.1
13C3-HFPO-DA	10.000	10.470	4.7	104.7
9C1-PF3ONS	4.675	4.539	-2.9	97.1
ADONA	4.725	4.928	4.3	104.3
HFPO-DA	5.000	4.981	-0.4	99.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.944	3.7	103.7
5:3FTCA	62.400	65.408	4.8	104.8
7:3FTCA	62.400	63.944	2.5	102.5
d3-MeFOSA	2.500	2.544	1.8	101.8
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.227	4.5	104.5
EtFOSE	12.500	12.863	2.9	102.9
MeFOSA	5.000	4.906	-1.9	98.1
MeFOSE	12.500	12.279	-1.8	98.2
PFDoDS	2.425	1.862	-23.2	76.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.094	1.9	101.9
d7-MeFOSE	25.000	19.456	-22.2	77.8
d9-EtFOSE	25.000	19.914	-20.3	79.7
d5-EtFOSA	2.500	2.457	-1.7	98.3
NFDHA	5.000	5.627	12.5	112.5
PFMBA	5.000	5.149	3.0	103.0
PFMPA	5.000	5.229	4.6	104.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.482	0.7	100.7

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621
 Lab FileID: 4Q43150.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041823_1633_S4Q624\s4q624.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q43150
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.853	17.1	117.1
13C2-6:2FTS	5.000	5.988	19.8	119.8
13C2-8:2FTS	5.000	5.377	7.5	107.5
13C2-PFDoDA	1.250	1.173	-6.2	93.8
13C2-PFTeDA	1.250	1.117	-10.6	89.4
13C3-PFBS	2.500	2.424	-3.0	97.0
13C3-PFHxS	2.500	2.483	-0.7	99.3
13C4-PFBA	10.000	10.345	3.4	103.4
13C4-PFHpA	2.500	2.615	4.6	104.6
13C5-PFHxA	2.500	2.552	2.1	102.1
13C5-PFPeA	5.000	4.956	-0.9	99.1
13C6-PFDA	1.250	1.277	2.2	102.2
13C7-PFUnDA	1.250	1.269	1.6	101.6
13C8-FOSA	2.500	2.106	-15.8	84.2
13C8-PFOA	2.500	2.501	0.0	100.0
13C8-PFOS	2.500	2.656	6.2	106.2
13C9-PFNA	1.250	1.257	0.6	100.6
4:2FTS	0.750	0.761	1.5	101.5
6:2FTS	0.760	0.877	15.4	115.4
8:2FTS	0.768	0.749	-2.5	97.5
d3-MeFOSAA	5.000	5.238	4.8	104.8
EtFOSAA	0.200	0.193	-3.4	96.6
FOSA	0.200	0.234	16.8	116.8
MeFOSAA	0.200	0.141	-29.3	70.7
PFBA	0.800	0.769	-3.9	96.1
PFBS	0.177	0.188	6.2	106.2
PFDA	0.200	0.230	15.0	115.0
PFDoDA	0.200	0.192	-3.9	96.1
PFDS	0.193	0.170	-12.2	87.8
PFHpA	0.200	0.186	-6.9	93.1
PFHpS	0.191	0.192	0.6	100.6
PFHxA	0.200	0.212	6.0	106.0
PFHxS	0.183	0.180	-1.5	98.5
PFNA	0.200	0.242	21.1	121.1
PFNS	0.192	0.198	3.0	103.0
PFOA	0.200	0.240	20.1	120.1
PFOS	0.186	0.184	-1.2	98.8

Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621
 Lab FileID: 4Q43150.D

PFPeA	0.400	0.419	4.8	104.8
PFPeS	0.188	0.236	25.5	125.5
PFTeDA	0.200	0.159	-20.6	79.4
PFTTrDA	0.200	0.183	-8.6	91.4
PFUnDA	0.200	0.157	-21.5	78.5
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	0.378	0.414	9.5	109.5
13C3-HFPO-DA	10.000	10.277	2.8	102.8
9C1-PF3ONS	0.367	0.360	-2.0	98.0
ADONA	0.378	0.393	3.9	103.9
HFPO-DA	0.400	0.399	-0.3	99.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.182	18.4	118.4
5:3FTCA	4.992	5.315	6.5	106.5
7:3FTCA	4.992	4.935	-1.1	98.9
d3-MeFOSA	2.500	2.499	0.0	100.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.424	6.1	106.1
EtFOSE	1.000	0.944	-5.6	94.4
MeFOSA	0.400	0.422	5.5	105.5
MeFOSE	1.000	1.161	16.1	116.1
PFDoDS	0.194	0.221	13.8	113.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.520	10.4	110.4
d7-MeFOSE	25.000	19.476	-22.1	77.9
d9-EtFOSE	25.000	20.088	-19.6	80.4
d5-EtFOSA	2.500	2.554	2.2	102.2
NFDHA	0.400	0.397	-0.7	99.3
PFMBA	0.400	0.438	9.6	109.6
PFMPA	0.400	0.430	7.5	107.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.364	2.2	102.2

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621
 Lab FileID: 4Q43161.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041823_1633_S4Q624\s4q624.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q43161
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.654	13.1	113.1
13C2-6:2FTS	5.000	5.006	0.1	100.1
13C2-8:2FTS	5.000	4.947	-1.1	98.9
13C2-PFDoDA	1.250	1.233	-1.4	98.6
13C2-PFTeDA	1.250	1.120	-10.4	89.6
13C3-PFBS	2.500	2.568	2.7	102.7
13C3-PFHxS	2.500	2.673	6.9	106.9
13C4-PFBA	10.000	10.605	6.1	106.1
13C4-PFHpA	2.500	2.386	-4.6	95.4
13C5-PFHxA	2.500	2.523	0.9	100.9
13C5-PFPeA	5.000	5.055	1.1	101.1
13C6-PFDA	1.250	1.315	5.2	105.2
13C7-PFUnDA	1.250	1.270	1.6	101.6
13C8-FOSA	2.500	2.133	-14.7	85.3
13C8-PFOA	2.500	2.506	0.2	100.2
13C8-PFOS	2.500	2.536	1.4	101.4
13C9-PFNA	1.250	1.212	-3.0	97.0
4:2FTS	9.375	7.918	-15.5	84.5
6:2FTS	9.500	8.799	-7.4	92.6
8:2FTS	9.600	8.806	-8.3	91.7
d3-MeFOSAA	5.000	4.663	-6.7	93.3
EtFOSAA	2.500	2.006	-19.8	80.2
FOSA	2.500	2.073	-17.1	82.9
MeFOSAA	2.500	2.274	-9.0	91.0
PFBA	10.000	7.766	-22.3	77.7
PFBS	2.218	1.824	-17.8	82.2
PFDA	2.500	2.187	-12.5	87.5
PFDoDA	2.500	2.044	-18.2	81.8
PFDS	2.413	1.858	-23.0	77.0
PFHpA	2.500	2.117	-15.3	84.7
PFHpS	2.383	1.920	-19.4	80.6
PFHxA	2.500	2.054	-17.9	82.1
PFHxS	2.285	1.785	-21.9	78.1
PFNA	2.500	2.011	-19.6	80.4
PFNS	2.405	1.914	-20.4	79.6
PFOA	2.500	1.988	-20.5	79.5
PFOS	2.320	1.864	-19.6	80.4

Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621
 Lab FileID: 4Q43161.D

PFPeA	5.000	4.240	-15.2	84.8
PFPeS	2.353	1.773	-24.7	75.3
PFTeDA	2.500	2.046	-18.2	81.8
PFTTrDA	2.500	2.011	-19.6	80.4
PFUnDA	2.500	2.061	-17.6	82.4
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.995	5.7	105.7
13C3-HFPO-DA	10.000	9.804	-2.0	98.0
9C1-PF3ONS	4.675	4.666	-0.2	99.8
ADONA	4.725	4.808	1.8	101.8
HFPO-DA	5.000	4.658	-6.8	93.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.990	4.1	104.1
5:3FTCA	62.400	65.065	4.3	104.3
7:3FTCA	62.400	63.529	1.8	101.8
d3-MeFOSA	2.500	2.300	-8.0	92.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.122	2.4	102.4
EtFOSE	12.500	12.729	1.8	101.8
MeFOSA	5.000	5.084	1.7	101.7
MeFOSE	12.500	12.769	2.2	102.2
PFDODS	2.425	1.831	-24.5	75.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.923	-1.5	98.5
d7-MeFOSE	25.000	18.483	-26.1	73.9
d9-EtFOSE	25.000	18.424	-26.3	73.7
d5-EtFOSA	2.500	2.379	-4.8	95.2
NFDHA	5.000	4.990	-0.2	99.8
PFMBA	5.000	5.072	1.4	101.4
PFMPA	5.000	5.132	2.6	102.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.420	-0.7	99.3

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621
 Lab FileID: 4Q43173.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041823_1633_S4Q624\s4q624.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q43173
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.867	17.3	117.3
13C2-6:2FTS	5.000	5.682	13.6	113.6
13C2-8:2FTS	5.000	5.388	7.8	107.8
13C2-PFDoDA	1.250	1.209	-3.3	96.7
13C2-PFTeDA	1.250	1.090	-12.8	87.2
13C3-PFBS	2.500	2.673	6.9	106.9
13C3-PFHxS	2.500	2.653	6.1	106.1
13C4-PFBA	10.000	10.511	5.1	105.1
13C4-PFHpA	2.500	2.607	4.3	104.3
13C5-PFHxA	2.500	2.532	1.3	101.3
13C5-PFPeA	5.000	4.914	-1.7	98.3
13C6-PFDA	1.250	1.241	-0.7	99.3
13C7-PFUnDA	1.250	1.191	-4.7	95.3
13C8-FOSA	2.500	2.054	-17.8	82.2
13C8-PFOA	2.500	2.406	-3.8	96.2
13C8-PFOS	2.500	2.408	-3.7	96.3
13C9-PFNA	1.250	1.227	-1.8	98.2
4:2FTS	9.375	7.568	-19.3	80.7
6:2FTS	9.500	8.228	-13.4	86.6
8:2FTS	9.600	8.932	-7.0	93.0
d3-MeFOSAA	5.000	4.964	-0.7	99.3
EtFOSAA	2.500	2.094	-16.2	83.8
FOSA	2.500	2.111	-15.6	84.4
MeFOSAA	2.500	2.017	-19.3	80.7
PFBA	10.000	7.754	-22.5	77.5
PFBS	2.218	1.836	-17.2	82.8
PFDA	2.500	2.253	-9.9	90.1
PFDoDA	2.500	2.069	-17.2	82.8
PFDS	2.413	1.932	-19.9	80.1
PFHpA	2.500	2.085	-16.6	83.4
PFHpS	2.383	2.191	-8.1	91.9
PFHxA	2.500	2.001	-19.9	80.1
PFHxS	2.285	1.940	-15.1	84.9
PFNA	2.500	2.043	-18.3	81.7
PFNS	2.405	2.056	-14.5	85.5
PFOA	2.500	2.044	-18.2	81.8
PFOS	2.320	1.825	-21.3	78.7

Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621
 Lab FileID: 4Q43173.D

PFPeA	5.000	4.311	-13.8	86.2
PFPeS	2.353	2.094	-11.0	89.0
PFTeDA	2.500	2.004	-19.9	80.1
PFTTrDA	2.500	1.996	-20.1	79.9
PFUnDA	2.500	1.972	-21.1	78.9
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	4.725	5.252	11.1	111.1
13C3-HFPO-DA	10.000	9.827	-1.7	98.3
9C1-PF3ONS	4.675	4.734	1.3	101.3
ADONA	4.725	5.056	7.0	107.0
HFPO-DA	5.000	4.827	-3.5	96.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	13.472	8.0	108.0
5:3FTCA	62.400	66.087	5.9	105.9
7:3FTCA	62.400	64.503	3.4	103.4
d3-MeFOSA	2.500	2.350	-6.0	94.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.018	0.4	100.4
EtFOSE	12.500	13.028	4.2	104.2
MeFOSA	5.000	5.141	2.8	102.8
MeFOSE	12.500	12.391	-0.9	99.1
PFDODS	2.425	1.939	-20.0	80.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.213	4.3	104.3
d7-MeFOSE	25.000	18.630	-25.5	74.5
d9-EtFOSE	25.000	18.878	-24.5	75.5
d5-EtFOSA	2.500	2.408	-3.7	96.3
NFDHA	5.000	5.419	8.4	108.4
PFMBA	5.000	5.253	5.1	105.1
PFMPA	5.000	5.367	7.3	107.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.462	0.3	100.3

CC Criteria: +/- 30%

Initial Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q625-ICC625
 Lab FileID: 4Q43245.D

Initial Calibration Report

Method Path	D:\MassHunter\methods													
Method File	1633_041923_S4Q625.quantmethod.xml													
Batch Name	D:\MassHunter\Data\041923_1633_S4Q625\QuantResults\sq625.batch.bin													
Last Calib Update	4/20/2023 11:59:07 AM													
Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time	8	Avg RF	%RSD	7	6	5	4	3	2	1	
1	D:\MassHunter\Data\041923_1633_S4Q625\4Q43242.d	4/19/2023 11:54:48 AM	4/20/2023 11:59:07 AM	0.2556	0.2320	10.299	0.2524	0.2502	0.2427	0.2327	0.2270	0.2079	0.1876	0.1876
2	D:\MassHunter\Data\041923_1633_S4Q625\4Q43243.d	4/19/2023 12:08:50 PM	4/20/2023 11:59:07 AM	0.5520	0.5068	10.447	0.5529	0.5519	0.5317	0.5056	0.4875	0.4465	0.4177	0.4177
3	D:\MassHunter\Data\041923_1633_S4Q625\4Q43244.d	4/19/2023 12:22:56 PM	4/20/2023 11:59:07 AM	0.0546	0.0475	11.728	0.0519	0.0519	0.0484	0.0470	0.0457	0.0437	0.0370	0.0370
4	D:\MassHunter\Data\041923_1633_S4Q625\4Q43245.d	4/19/2023 12:37:00 PM	4/20/2023 11:59:07 AM	1.0710	0.9987	11.515	1.0900	1.1150	1.0658	1.0144	0.9663	0.8841	0.7829	0.7829
5	D:\MassHunter\Data\041923_1633_S4Q625\4Q43246.d	4/19/2023 12:51:03 PM	4/20/2023 11:59:07 AM	0.6098	0.5703	10.107	0.6173	0.6282	0.6013	0.5749	0.5600	0.5035	0.4674	0.4674
6	D:\MassHunter\Data\041923_1633_S4Q625\4Q43247.d	4/19/2023 1:05:07 PM	4/20/2023 11:59:07 AM	0.0387	0.0427	9.893	0.0433	0.0468	0.0443	0.0459	0.0423	0.0457	0.0343	0.0343
7	D:\MassHunter\Data\041923_1633_S4Q625\4Q43248.d	4/19/2023 1:19:10 PM	4/20/2023 11:59:07 AM	0.8695	0.7875	10.557	0.8603	0.8472	0.8339	0.7901	0.7508	0.7155	0.6323	0.6323
8	D:\MassHunter\Data\041923_1633_S4Q625\4Q43249.d	4/19/2023 1:33:14 PM	4/20/2023 11:59:07 AM	0.6997	0.6462	9.206	0.7084	0.6877	0.6740	0.6450	0.6236	0.5969	0.5339	0.5339
Compound														
I M4-PFBA														
T PFBA														
I M5-PFPeA														
T PFMPA														
T 3:3FTCA														
T PFPeA														
T PFMBA														
I M5-PFHxA														
T NFDHA														
T PFHxA														
T PFEEA														
T 5:3FTCA														
T 7:3FTCA														
I M4-PFHpA														
T PFHpA														
I M8-PFOA														
T PFOA														
I M9-PFNA														
T PFNA														
I M6-PFDA														
T PFDA														
I M7-PFUnDA														
T PFUnDA														
I M2-PFDdA														

Generated at 11:59 AM on 4/20/2023

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Initial Calibration Summary

Job Number: FC5194
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q625-ICC625
 Lab FileID: 4Q43245.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.6965	0.7386	0.8026	0.8691	0.8862	0.8781	0.8670	0.8431	0.8226	8.599
T PFTfDA	Avg RF	0.8869	0.9211	1.0384	1.0980	1.1265	1.1101	1.0487	0.9606	1.0238	8.862
I M2-PFTeDA	Avg RF	0.8140	0.9338	1.0070	1.0336	1.0618	1.1173	1.0958	1.0614	1.0156	9.757
T PFTeDA	Avg RF										
I M8-FOSA	Avg RF	0.7607	0.7323	0.8435	0.8492	0.8647	0.8828	0.9180	0.9126	0.8455	7.939
T FOSA	Avg RF										
I M3-PFBS	Avg RF	0.8445	0.9216	0.9534	0.9438	1.0020	1.1052	1.0972	1.0437	0.9889	9.133
T PFBS	Avg RF										
I M3-PFHxS	Avg RF	0.6181	0.6755	0.7689	0.7924	0.8568	0.8570	0.8882	0.8696	0.7908	12.468
T PFPeS	Avg RF	0.7298	0.8922	0.9146	0.8430	0.9560	0.9605	1.0001	1.0292	0.9157	10.444
T PFHxS	Avg RF										
I M8-PFOS	Avg RF	0.6337	0.6707	0.6609	0.7243	0.7393	0.7534	0.7423	0.8290	0.7192	8.675
T PFHpS	Avg RF	0.7512	0.8710	0.9339	0.9964	1.0481	0.9898	0.9927	1.0869	0.9587	11.105
T PFOS	Avg RF	0.4264	0.3385	0.4053	0.4535	0.4480	0.4549	0.4708	0.5454	0.4428	13.267
T PFNS	Avg RF	0.4245	0.5558	0.5832	0.6138	0.6202	0.6078	0.6067	0.6616	0.5842	12.196
T PFDS	Avg RF	0.4234	0.4690	0.5260	0.5534	0.5605	0.5415	0.5594	0.6127	0.5307	11.124
T PFDoDS	Avg RF										
I M2-4:2FTS	Avg RF	4.8050	6.0101	6.3455	6.6000	6.7863	6.6323	7.3290	6.6674	6.3970	11.633
T 4:2FTS	Avg RF										
I M2-6:2FTS	Avg RF	3.1171	3.4667	3.8907	3.8589	3.9086	3.9607	4.2175	4.1553	3.8219	9.503
T 6:2FTS	Avg RF										
I M2-8:2FTS	Avg RF	1.7317	2.2800	2.6072	2.7986	2.7866	2.6121	2.6996	2.2006	2.4646	14.976
T 8:2FTS	Avg RF										
I M3-MeFOSAA	Avg RF	0.5042	0.6117	0.7488	0.7191	0.7918	0.7684	0.7866	0.7768	0.7134	14.405
T MeFOSAA	Avg RF										
I M3-HFO-DA	Avg RF	0.6203	0.6707	0.8248	0.8410	0.8304	0.8426	0.8445	0.8454	0.7900	11.451
T HFPO-DA	Avg RF	5.8909	6.5329	7.1120	7.4309	7.7802	7.8381	7.4852	7.4299	7.1875	9.254
T ADONA	Avg RF	2.6924	2.7230	2.9916	3.1704	3.2920	3.3680	3.3079	3.2083	3.0942	8.536
T 9Cl-PF3ONS	Avg RF	2.4347	2.6524	2.9073	3.0603	3.1883	3.1218	2.9163	2.7663	2.8809	8.812
T 11Cl-PF3OUds	Avg RF										
I M5-EFOSAA	Avg RF	0.4999	0.6390	0.6985	0.7225	0.7804	0.8045	0.8532	0.9302	0.8890	16.547
T EFOSAA	Avg RF										
I M7-MeFOSE	Avg RF	0.6884	0.8302	0.8675	0.9171	0.9377	0.9647	0.9763	0.9302	0.8890	10.617
T MeFOSE	Avg RF										
I M9-EFOSE	Avg RF	0.6124	0.7324	0.7964	0.8048	0.8676	0.8737	0.8451	0.8448	0.7972	10.998
T EFOSE	Avg RF										

Generated at 11:59 AM on 4/20/2023

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Initial Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q625-ICC625
 Lab FileID: 4Q43245.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA											
T EtFOSA	Avg RF	0.7616	0.8541	0.8784	0.8884	1.0137	1.0312	1.0137	1.0217	0.9329	10.804
I M3-MeFOSA											
T MeFOSA	Avg RF	0.6505	0.7960	0.8194	0.8726	0.8937	0.9136	0.9162	0.8262	0.8360	10.456
I 13C4-PFOS											
S d3-MeFOSAA	Linear	0.8406	0.8313	0.8297	0.8364	0.8245	0.8292	0.8077	0.7685	0.8210	2.845
S 13C8-PFOS	Linear	1.0071	0.9476	0.9980	1.0128	1.0105	1.0477	1.0371	0.9272	0.9985	4.147
S d5-EFOSAA	Linear	0.7005	0.6724	0.7053	0.7183	0.7082	0.7136	0.6645	0.6354	0.6898	4.235
S 13C8-FOSA	Linear	1.7751	1.7323	1.8073	1.8260	1.8085	1.8457	1.8325	1.8748	1.8128	2.417
S d7-MeFOSE	Linear	0.7745	0.7893	0.7808	0.7780	0.7872	0.7681	0.7523	0.7051	0.7669	3.593
S d3-MeFOSA	Linear	0.9181	0.8895	0.9102	0.9390	0.9374	0.9440	0.9368	1.0189	0.9367	4.054
S d9-EFOSE	Linear	0.9962	0.9875	0.9912	1.0103	1.0152	0.9744	0.9708	0.9121	0.9822	3.287
S d5-EFOSA	Linear	1.0098	0.9670	0.9890	1.0323	0.9824	0.9943	1.0056	0.9827	0.9954	2.029
I 13C3-PFBA											
S 13C4-PFBA	Linear	0.9047	0.9066	0.8962	0.9048	0.9053	0.9040	0.8958	0.8891	0.9008	0.698
I 1802-PFHxS											
S 13C2-4:2FTS	Linear	0.1643	0.1503	0.1634	0.1533	0.1529	0.1518	0.1202	0.1177	0.1467	12.238
S 13C3-PBBS	Linear	2.4920	2.3166	2.3072	2.3751	2.3381	2.2668	2.1915	2.2368	2.3155	3.972
S 13C2-6:2FTS	Linear	0.2798	0.2497	0.2441	0.2497	0.2486	0.2336	0.1857	0.1570	0.2310	17.235
S 13C3-PFHxS	Linear	1.4862	1.3806	1.3608	1.4915	1.3958	1.4821	1.3834	1.4397	1.4275	3.769
S 13C2-8:2FTS	Linear	0.4932	0.4389	0.4483	0.4162	0.4044	0.4298	0.3569	0.3626	0.4188	10.728
I 13C4-PFOA											
S 13C8-PFOA	Linear	0.8624	0.8231	0.8554	0.8279	0.8344	0.8430	0.8023	0.8275	0.8345	2.284
I 13C2-PFDA											
S 13C6-PFDA	Linear	1.1056	1.0942	1.0924	1.0385	1.1698	1.0847	1.0495	1.0180	1.0816	4.362
S 13C7-PFUnDA	Linear	1.2215	1.1947	1.2110	1.2223	1.3510	1.1960	1.1271	1.0639	1.1984	6.893
S 13C2-PFDODA	Linear	1.4797	1.4568	1.4908	1.4735	1.6054	1.5117	1.4986	1.5562	1.5091	3.248
S 13C2-PFTEdA	Linear	1.1801	1.1907	1.1885	1.1736	1.3205	1.1880	1.1687	1.1978	1.2010	4.099
I 13C5-PFNA											
S 13C9-PFNA	Linear	0.8652	0.8626	0.8707	0.8611	0.8388	0.8999	0.8892	0.8978	0.8731	2.405
I 13C2-PFHxA											
S 13C5-PPeA	Linear	0.7802	0.7677	0.7778	0.7735	0.7448	0.7515	0.7755	0.7461	0.7646	1.936
S 13C5-PFHxA	Linear	1.1787	1.1517	1.1915	1.1805	1.1493	1.1863	1.1999	1.1612	1.1749	1.595
S 13C3-HPOD-A	Linear	0.1893	0.1912	0.1884	0.1850	0.1806	0.1903	0.1996	0.1929	0.1897	2.928
S 13C4-PFHpA	Linear	0.6384	0.6359	0.6460	0.6374	0.6141	0.6154	0.6283	0.5956	0.6264	2.674

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

Initial Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q625-ICC625
 Lab FileID: 4Q43245.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PBBA	Linear	y = 0.900814 * x	
S 13C5-PFPeA	Linear	y = 0.764631 * x	
S 13C2-4:2FTS	Linear	y = 0.146741 * x	
S 13C3-PFBS	Linear	y = 2.315520 * x	
S 13C5-PFHxA	Linear	y = 1.174903 * x	
S 13C3-HFPO-DA	Linear	y = 0.189657 * x	
S 13C4-PFHpA	Linear	y = 0.626400 * x	
S 13C2-6:2FTS	Linear	y = 0.231011 * x	
S 13C8-PFOA	Linear	y = 0.834503 * x	
S 13C3-PFHxS	Linear	y = 1.427529 * x	
S 13C9-PFNA	Linear	y = 0.873147 * x	
S 13C2-8:2FTS	Linear	y = 0.418786 * x	
S 13C6-PEDA	Linear	y = 1.081593 * x	
S d3-MeFOSAA	Linear	y = 0.820993 * x	
S 13C8-PFOS	Linear	y = 0.998507 * x	
S d5-EFOSAA	Linear	y = 0.689777 * x	
S 13C7-PFUInDA	Linear	y = 1.198429 * x	
S 13C2-PFDODA	Linear	y = 1.509094 * x	
S 13C8-FOSA	Linear	y = 1.812771 * x	
S 13C2-PFTeDA	Linear	y = 1.201004 * x	
S d7-MeFOSE	Linear	y = 0.766910 * x	
S d3-MeFOSA	Linear	y = 0.936732 * x	
S d9-EFOSE	Linear	y = 0.982205 * x	
S d5-EFOSA	Linear	y = 0.995397 * x	

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

Initial Calibration Verification

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q625-ICV625
 Lab FileID: 4Q43251.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041923_1633_S4Q625\s6q625.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041923_1633_S4Q625\4Q43242.d
 2:D:\MassHunter\Data\041923_1633_S4Q625\4Q43243.d
 3:D:\MassHunter\Data\041923_1633_S4Q625\4Q43244.d
 4:D:\MassHunter\Data\041923_1633_S4Q625\4Q43245.d
 5:D:\MassHunter\Data\041923_1633_S4Q625\4Q43246.d
 6:D:\MassHunter\Data\041923_1633_S4Q625\4Q43247.d
 7:D:\MassHunter\Data\041923_1633_S4Q625\4Q43248.d
 8:D:\MassHunter\Data\041923_1633_S4Q625\4Q43249.d

Data File: 4Q43251
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.724	14.5	114.5
13C2-6:2FTS	5.000	6.022	20.4	120.4
13C2-8:2FTS	5.000	5.405	8.1	108.1
13C2-PFDoDA	1.250	1.207	-3.4	96.6
13C2-PFTeDA	1.250	1.193	-4.6	95.4
13C3-PFBS	2.500	2.540	1.6	101.6
13C3-PFHxS	2.500	2.597	3.9	103.9
13C4-PFBA	10.000	9.907	-0.9	99.1
13C4-PFHpA	2.500	2.488	-0.5	99.5
13C5-PFHxA	2.500	2.499	0.0	100.0
13C5-PFPeA	5.000	5.156	3.1	103.1
13C6-PFDA	1.250	1.284	2.7	102.7
13C7-PFUnDA	1.250	1.231	-1.5	98.5
13C8-FOSA	2.500	2.578	3.1	103.1
13C8-PFOA	2.500	2.502	0.1	100.1
13C8-PFOS	2.500	2.561	2.5	102.5
13C9-PFNA	1.250	1.304	4.3	104.3
4:2FTS	9.375	9.592	2.3	102.3
6:2FTS	9.500	9.207	-3.1	96.9
8:2FTS	9.600	10.225	6.5	106.5
d3-MeFOSAA	5.000	5.349	7.0	107.0
EtFOSAA	2.500	2.662	6.5	106.5
FOSA	2.500	2.506	0.2	100.2
MeFOSAA	2.500	2.332	-6.7	93.3
PFBA	10.000	10.254	2.5	102.5
PFBS	2.218	2.301	3.7	103.7
PFDA	2.500	2.320	-7.2	92.8
PFDoDA	2.500	2.581	3.2	103.2
PFDS	2.413	2.346	-2.8	97.2
PFHpA	2.500	2.637	5.5	105.5
PFHpS	2.383	2.295	-3.7	96.3
PFHxA	2.500	2.562	2.5	102.5
PFHxS	2.285	2.325	1.7	101.7
PFNA	2.500	2.477	-0.9	99.1
PFNS	2.405	2.365	-1.7	98.3
PFOA	2.500	2.582	3.3	103.3
PFOS	2.320	2.381	2.6	102.6

Initial Calibration Verification

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q625-ICV625
 Lab FileID: 4Q43251.D

PFPeA	5.000	5.080	1.6	101.6
PFPeS	2.353	2.402	2.1	102.1
PFTeDA	2.500	2.594	3.8	103.8
PFTTrDA	2.500	2.631	5.2	105.2
PFUnDA	2.500	2.471	-1.2	98.8
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.902	3.7	103.7
13C3-HFPO-DA	10.000	10.072	0.7	100.7
9C1-PF3ONS	4.675	4.655	-0.4	99.6
ADONA	4.725	4.934	4.4	104.4
HFPO-DA	5.000	5.208	4.2	104.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.238	-1.9	98.1
5:3FTCA	62.400	65.711	5.3	105.3
7:3FTCA	62.400	65.367	4.8	104.8
d3-MeFOSA	2.500	2.445	-2.2	97.8
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.932	-1.4	98.6
EtFOSE	12.500	12.685	1.5	101.5
MeFOSA	5.000	5.209	4.2	104.2
MeFOSE	12.500	12.755	2.0	102.0
PFDoDS	2.425	2.470	1.8	101.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.299	6.0	106.0
d7-MeFOSE	25.000	25.544	2.2	102.2
d9-EtFOSE	25.000	25.559	2.2	102.2
d5-EtFOSA	2.500	2.630	5.2	105.2
NFDHA	5.000	5.764	15.3	115.3
PFMBA	5.000	5.001	0.0	100.0
PFMPA	5.000	4.954	-0.9	99.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.578	2.9	102.9

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q625-ICV625
 Lab FileID: 4Q43252.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041923_1633_S4Q625\s6q625.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041923_1633_S4Q625\4Q43242.d
 2:D:\MassHunter\Data\041923_1633_S4Q625\4Q43243.d
 3:D:\MassHunter\Data\041923_1633_S4Q625\4Q43244.d
 4:D:\MassHunter\Data\041923_1633_S4Q625\4Q43245.d
 5:D:\MassHunter\Data\041923_1633_S4Q625\4Q43246.d
 6:D:\MassHunter\Data\041923_1633_S4Q625\4Q43247.d
 7:D:\MassHunter\Data\041923_1633_S4Q625\4Q43248.d
 8:D:\MassHunter\Data\041923_1633_S4Q625\4Q43249.d

Data File: 4Q43252
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.423	8.5	108.5
13C2-6:2FTS	5.000	5.970	19.4	119.4
13C2-8:2FTS	5.000	5.667	13.3	113.3
13C2-PFDoDA	1.250	1.154	-7.7	92.3
13C2-PFTeDA	1.250	1.155	-7.6	92.4
13C3-PFBS	2.500	2.620	4.8	104.8
13C3-PFHxS	2.500	2.682	7.3	107.3
13C4-PFBA	10.000	9.949	-0.5	99.5
13C4-PFHpA	2.500	2.379	-4.9	95.1
13C5-PFHxA	2.500	2.424	-3.0	97.0
13C5-PFPeA	5.000	4.991	-0.2	99.8
13C6-PFDA	1.250	1.141	-8.8	91.2
13C7-PFUnDA	1.250	1.193	-4.6	95.4
13C8-FOSA	2.500	2.503	0.1	100.1
13C8-PFOA	2.500	2.533	1.3	101.3
13C8-PFOS	2.500	2.432	-2.7	97.3
13C9-PFNA	1.250	1.290	3.2	103.2
4:2FTS	20.000	22.731	13.7	113.7
6:2FTS	20.000	19.495	-2.5	97.5
8:2FTS	20.000	20.364	1.8	101.8
d3-MeFOSAA	5.000	4.820	-3.6	96.4
EtFOSAA	20.000	22.496	12.5	112.5
FOSA	20.000	20.942	4.7	104.7
MeFOSAA	20.000	19.794	-1.0	99.0
PFBA	20.000	19.854	-0.7	99.3
PFBS	20.000	22.051	10.3	110.3
PFDA	20.000	22.524	12.6	112.6
PFDoDA	20.000	18.538	-7.3	92.7
PFDS	20.000	20.788	3.9	103.9
PFHpA	20.000	21.059	5.3	105.3
PFHpS	20.000	20.851	4.3	104.3
PFHxA	20.000	22.090	10.5	110.5
PFHxS	20.000	21.608	8.0	108.0
PFNA	20.000	21.902	9.5	109.5
PFNS	20.000	20.914	4.6	104.6
PFOA	20.000	21.688	8.4	108.4
PFOS	20.000	18.422	-7.9	92.1

Initial Calibration Verification

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q625-ICV625
 Lab FileID: 4Q43252.D

PFPeA	20.000	22.194	11.0	111.0
PFPeS	20.000	22.306	11.5	111.5
PFTeDA	20.000	22.252	11.3	111.3
PFTTrDA	20.000	18.969	-5.2	94.8
PFUnDA	20.000	19.483	-2.6	97.4
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	21.562	7.8	107.8
13C3-HFPO-DA	10.000	9.742	-2.6	97.4
9C1-PF3ONS	20.000	20.620	3.1	103.1
ADONA	20.000	21.159	5.8	105.8
HFPO-DA	20.000	20.006	0.0	100.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	20.060	0.3	100.3
5:3FTCA	20.000	21.867	9.3	109.3
7:3FTCA	20.000	21.680	8.4	108.4
d3-MeFOSA	2.500	2.467	-1.3	98.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	20.709	3.5	103.5
EtFOSE	100.000	110.317	10.3	110.3
MeFOSA	20.000	20.550	2.8	102.8
MeFOSE	100.000	108.102	8.1	108.1
PFDoDS	20.000	19.990	0.0	100.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.807	-3.9	96.1
d7-MeFOSE	25.000	24.388	-2.4	97.6
d9-EtFOSE	25.000	23.831	-4.7	95.3
d5-EtFOSA	2.500	2.464	-1.4	98.6
NFDHA	20.000	21.835	9.2	109.2
PFMBA	20.000	21.163	5.8	105.8
PFMPA	20.000	21.123	5.6	105.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	20.000	18.814	-5.9	94.1

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q626-CC625
 Lab FileID: 4Q43334.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042023_1633_S4Q626\s4q626.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041923_1633_S4Q625\4Q43242.d
 2:D:\MassHunter\Data\041923_1633_S4Q625\4Q43243.d
 3:D:\MassHunter\Data\041923_1633_S4Q625\4Q43244.d
 4:D:\MassHunter\Data\041923_1633_S4Q625\4Q43245.d
 5:D:\MassHunter\Data\041923_1633_S4Q625\4Q43246.d
 6:D:\MassHunter\Data\041923_1633_S4Q625\4Q43247.d
 7:D:\MassHunter\Data\041923_1633_S4Q625\4Q43248.d
 8:D:\MassHunter\Data\041923_1633_S4Q625\4Q43249.d

Data File: 4Q43334
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.077	1.5	101.5
13C2-6:2FTS	5.000	4.494	-10.1	89.9
13C2-8:2FTS	5.000	4.468	-10.6	89.4
13C2-PFDoDA	1.250	1.224	-2.1	97.9
13C2-PFTeDA	1.250	1.202	-3.9	96.1
13C3-PFBS	2.500	2.500	0.0	100.0
13C3-PFHxS	2.500	2.525	1.0	101.0
13C4-PFBA	10.000	10.029	0.3	100.3
13C4-PFHpA	2.500	2.568	2.7	102.7
13C5-PFHxA	2.500	2.541	1.6	101.6
13C5-PFPeA	5.000	5.171	3.4	103.4
13C6-PFDA	1.250	1.251	0.1	100.1
13C7-PFUnDA	1.250	1.172	-6.2	93.8
13C8-FOSA	2.500	2.556	2.2	102.2
13C8-PFOA	2.500	2.514	0.6	100.6
13C8-PFOS	2.500	2.459	-1.6	98.4
13C9-PFNA	1.250	1.225	-2.0	98.0
4:2FTS	0.750	0.623	-17.0	83.0
6:2FTS	0.760	0.572	-24.7	75.3
8:2FTS	0.768	0.608	-20.9	79.1
d3-MeFOSAA	5.000	4.852	-3.0	97.0
EtFOSAA	0.200	0.182	-8.9	91.1
FOSA	0.200	0.164	-18.0	82.0
MeFOSAA	0.200	0.181	-9.4	90.6
PFBA	0.800	0.629	-21.4	78.6
PFBS	0.177	0.151	-14.9	85.1
PFDA	0.200	0.147	-26.5	73.5
PFDoDA	0.200	0.142	-29.2	70.8
PFDS	0.193	0.157	-18.7	81.3
PFHpA	0.200	0.147	-26.5	73.5
PFHpS	0.191	0.147	-23.2	76.8
PFHxA	0.200	0.164	-17.8	82.2
PFHxS	0.183	0.169	-7.8	92.2
PFNA	0.200	0.154	-22.8	77.2
PFNS	0.192	0.158	-17.5	82.5
PFOA	0.200	0.151	-24.5	75.5
PFOS	0.186	0.161	-13.3	86.7

Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q626-CC625
 Lab FileID: 4Q43334.D

PFPeA	0.400	0.321	-19.7	80.3
PFPeS	0.188	0.161	-14.3	85.7
PFTeDA	0.200	0.146	-27.0	73.0
PFTrDA	0.200	0.153	-23.4	76.6
PFUnDA	0.200	0.167	-16.6	83.4
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.306	-19.1	80.9
13C3-HFPO-DA	10.000	9.194	-8.1	91.9
9C1-PF3ONS	0.367	0.259	-29.6	70.4
ADONA	0.378	0.318	-15.8	84.2
HFPO-DA	0.400	0.286	-28.5	71.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.733	-26.6	73.4
5:3FTCA	4.992	3.861	-22.7	77.3
7:3FTCA	4.992	3.567	-28.5	71.5
d3-MeFOSA	2.500	2.457	-1.7	98.3
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.333	-16.6	83.4
EtFOSE	1.000	0.720	-28.0	72.0
MeFOSA	0.400	0.356	-11.0	89.0
MeFOSE	1.000	0.822	-17.8	82.2
PFDoDS	0.194	0.171	-11.6	88.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.600	-8.0	92.0
d7-MeFOSE	25.000	24.961	-0.2	99.8
d9-EtFOSE	25.000	25.460	1.8	101.8
d5-EtFOSA	2.500	2.580	3.2	103.2
NFDHA	0.400	0.297	-25.7	74.3
PFMBA	0.400	0.306	-23.4	76.6
PFMPA	0.400	0.309	-22.9	77.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.274	-23.0	77.0

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q626-CC625
 Lab FileID: 4Q43344.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042023_1633_S4Q626\s4q626.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041923_1633_S4Q625\4Q43242.d
 2:D:\MassHunter\Data\041923_1633_S4Q625\4Q43243.d
 3:D:\MassHunter\Data\041923_1633_S4Q625\4Q43244.d
 4:D:\MassHunter\Data\041923_1633_S4Q625\4Q43245.d
 5:D:\MassHunter\Data\041923_1633_S4Q625\4Q43246.d
 6:D:\MassHunter\Data\041923_1633_S4Q625\4Q43247.d
 7:D:\MassHunter\Data\041923_1633_S4Q625\4Q43248.d
 8:D:\MassHunter\Data\041923_1633_S4Q625\4Q43249.d

Data File: 4Q43344
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.439	8.8	108.8
13C2-6:2FTS	5.000	5.478	9.6	109.6
13C2-8:2FTS	5.000	4.420	-11.6	88.4
13C2-PFDoDA	1.250	1.232	-1.4	98.6
13C2-PFTeDA	1.250	1.184	-5.3	94.7
13C3-PFBS	2.500	2.422	-3.1	96.9
13C3-PFHxS	2.500	2.413	-3.5	96.5
13C4-PFBA	10.000	10.127	1.3	101.3
13C4-PFHpA	2.500	2.386	-4.6	95.4
13C5-PFHxA	2.500	2.432	-2.7	97.3
13C5-PFPeA	5.000	4.748	-5.0	95.0
13C6-PFDA	1.250	1.239	-0.9	99.1
13C7-PFUnDA	1.250	1.182	-5.4	94.6
13C8-FOSA	2.500	2.355	-5.8	94.2
13C8-PFOA	2.500	2.379	-4.9	95.1
13C8-PFOS	2.500	2.317	-7.3	92.7
13C9-PFNA	1.250	1.254	0.3	100.3
4:2FTS	9.375	9.145	-2.5	97.5
6:2FTS	9.500	8.981	-5.5	94.5
8:2FTS	9.600	11.170	16.4	116.4
d3-MeFOSAA	5.000	4.959	-0.8	99.2
EtFOSAA	2.500	2.585	3.4	103.4
FOSA	2.500	2.475	-1.0	99.0
MeFOSAA	2.500	2.519	0.8	100.8
PFBA	10.000	9.818	-1.8	98.2
PFBS	2.218	2.186	-1.5	98.5
PFDA	2.500	2.611	4.4	104.4
PFDoDA	2.500	2.540	1.6	101.6
PFDS	2.413	2.495	3.4	103.4
PFHpA	2.500	2.588	3.5	103.5
PFHpS	2.383	2.438	2.3	102.3
PFHxA	2.500	2.498	-0.1	99.9
PFHxS	2.285	2.296	0.5	100.5
PFNA	2.500	2.453	-1.9	98.1
PFNS	2.405	2.316	-3.7	96.3
PFOA	2.500	2.723	8.9	108.9
PFOS	2.320	2.446	5.4	105.4

Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q626-CC625
 Lab FileID: 4Q43344.D

PFPeA	5.000	5.146	2.9	102.9
PFPeS	2.353	2.505	6.5	106.5
PFTeDA	2.500	2.501	0.0	100.0
PFTTrDA	2.500	2.562	2.5	102.5
PFUnDA	2.500	2.639	5.5	105.5
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	5.117	8.3	108.3
13C3-HFPO-DA	10.000	8.869	-11.3	88.7
9C1-PF3ONS	4.675	5.110	9.3	109.3
ADONA	4.725	5.274	11.6	111.6
HFPO-DA	5.000	5.022	0.4	100.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.461	-0.2	99.8
5:3FTCA	62.400	64.121	2.8	102.8
7:3FTCA	62.400	62.223	-0.3	99.7
d3-MeFOSA	2.500	2.397	-4.1	95.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.062	1.2	101.2
EtFOSE	12.500	13.383	7.1	107.1
MeFOSA	5.000	4.929	-1.4	98.6
MeFOSE	12.500	12.706	1.6	101.6
PFDODS	2.425	2.516	3.7	103.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.898	-2.0	98.0
d7-MeFOSE	25.000	22.315	-10.7	89.3
d9-EtFOSE	25.000	22.605	-9.6	90.4
d5-EtFOSA	2.500	2.377	-4.9	95.1
NFDHA	5.000	5.491	9.8	109.8
PFMBA	5.000	5.089	1.8	101.8
PFMPA	5.000	5.050	1.0	101.0
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.415	-0.8	99.2

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q626-CC625
 Lab FileID: 4Q43356.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042023_1633_S4Q626\s4q626.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041923_1633_S4Q625\4Q43242.d
 2:D:\MassHunter\Data\041923_1633_S4Q625\4Q43243.d
 3:D:\MassHunter\Data\041923_1633_S4Q625\4Q43244.d
 4:D:\MassHunter\Data\041923_1633_S4Q625\4Q43245.d
 5:D:\MassHunter\Data\041923_1633_S4Q625\4Q43246.d
 6:D:\MassHunter\Data\041923_1633_S4Q625\4Q43247.d
 7:D:\MassHunter\Data\041923_1633_S4Q625\4Q43248.d
 8:D:\MassHunter\Data\041923_1633_S4Q625\4Q43249.d

Data File: 4Q43356
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.978	19.6	119.6
13C2-6:2FTS	5.000	5.845	16.9	116.9
13C2-8:2FTS	5.000	5.463	9.3	109.3
13C2-PFDoDA	1.250	1.214	-2.9	97.1
13C2-PFTeDA	1.250	1.151	-8.0	92.0
13C3-PFBS	2.500	2.629	5.2	105.2
13C3-PFHxS	2.500	2.655	6.2	106.2
13C4-PFBA	10.000	10.012	0.1	100.1
13C4-PFHpA	2.500	2.483	-0.7	99.3
13C5-PFHxA	2.500	2.562	2.5	102.5
13C5-PFPeA	5.000	4.841	-3.2	96.8
13C6-PFDA	1.250	1.269	1.6	101.6
13C7-PFUnDA	1.250	1.269	1.6	101.6
13C8-FOSA	2.500	2.308	-7.7	92.3
13C8-PFOA	2.500	2.477	-0.9	99.1
13C8-PFOS	2.500	2.332	-6.7	93.3
13C9-PFNA	1.250	1.260	0.8	100.8
4:2FTS	9.375	9.049	-3.5	96.5
6:2FTS	9.500	9.502	0.0	100.0
8:2FTS	9.600	9.584	-0.2	99.8
d3-MeFOSAA	5.000	5.111	2.2	102.2
EtFOSAA	2.500	2.666	6.6	106.6
FOSA	2.500	2.534	1.4	101.4
MeFOSAA	2.500	2.448	-2.1	97.9
PFBA	10.000	9.884	-1.2	98.8
PFBS	2.218	2.223	0.2	100.2
PFDA	2.500	2.493	-0.3	99.7
PFDoDA	2.500	2.598	3.9	103.9
PFDS	2.413	2.615	8.4	108.4
PFHpA	2.500	2.444	-2.2	97.8
PFHpS	2.383	2.540	6.6	106.6
PFHxA	2.500	2.417	-3.3	96.7
PFHxS	2.285	2.376	4.0	104.0
PFNA	2.500	2.319	-7.2	92.8
PFNS	2.405	2.478	3.1	103.1
PFOA	2.500	2.658	6.3	106.3
PFOS	2.320	2.365	2.0	102.0

Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q626-CC625
 Lab FileID: 4Q43356.D

PFPeA	5.000	5.265	5.3	105.3
PFPeS	2.353	2.296	-2.4	97.6
PFTeDA	2.500	2.568	2.7	102.7
PFTTrDA	2.500	2.674	7.0	107.0
PFUnDA	2.500	2.500	0.0	100.0
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	4.725	5.075	7.4	107.4
13C3-HFPO-DA	10.000	9.208	-7.9	92.1
9C1-PF3ONS	4.675	5.026	7.5	107.5
ADONA	4.725	5.267	11.5	111.5
HFPO-DA	5.000	5.080	1.6	101.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.404	-0.6	99.4
5:3FTCA	62.400	62.261	-0.2	99.8
7:3FTCA	62.400	58.507	-6.2	93.8
d3-MeFOSA	2.500	2.397	-4.1	95.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.206	4.1	104.1
EtFOSE	12.500	12.776	2.2	102.2
MeFOSA	5.000	5.001	0.0	100.0
MeFOSE	12.500	13.154	5.2	105.2
PFDoDS	2.425	2.352	-3.0	97.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.009	0.2	100.2
d7-MeFOSE	25.000	21.814	-12.7	87.3
d9-EtFOSE	25.000	22.821	-8.7	91.3
d5-EtFOSA	2.500	2.422	-3.1	96.9
NFDHA	5.000	5.447	8.9	108.9
PFMBA	5.000	5.111	2.2	102.2
PFMPA	5.000	5.126	2.5	102.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.388	-1.4	98.6

CC Criteria: +/- 30%

6.9.13

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Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q626-CC625
 Lab FileID: 4Q43363.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042023_1633_S4Q626\s4q626.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041923_1633_S4Q625\4Q43242.d
 2:D:\MassHunter\Data\041923_1633_S4Q625\4Q43243.d
 3:D:\MassHunter\Data\041923_1633_S4Q625\4Q43244.d
 4:D:\MassHunter\Data\041923_1633_S4Q625\4Q43245.d
 5:D:\MassHunter\Data\041923_1633_S4Q625\4Q43246.d
 6:D:\MassHunter\Data\041923_1633_S4Q625\4Q43247.d
 7:D:\MassHunter\Data\041923_1633_S4Q625\4Q43248.d
 8:D:\MassHunter\Data\041923_1633_S4Q625\4Q43249.d

Data File: 4Q43363
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.636	12.7	112.7
13C2-6:2FTS	5.000	5.590	11.8	111.8
13C2-8:2FTS	5.000	5.231	4.6	104.6
13C2-PFDoDA	1.250	1.280	2.4	102.4
13C2-PFTeDA	1.250	1.218	-2.6	97.4
13C3-PFBS	2.500	2.633	5.3	105.3
13C3-PFHxS	2.500	2.377	-4.9	95.1
13C4-PFBA	10.000	10.100	1.0	101.0
13C4-PFHpA	2.500	2.472	-1.1	98.9
13C5-PFHxA	2.500	2.534	1.4	101.4
13C5-PFPeA	5.000	4.884	-2.3	97.7
13C6-PFDA	1.250	1.341	7.3	107.3
13C7-PFUnDA	1.250	1.334	6.8	106.8
13C8-FOSA	2.500	2.343	-6.3	93.7
13C8-PFOA	2.500	2.446	-2.2	97.8
13C8-PFOS	2.500	2.410	-3.6	96.4
13C9-PFNA	1.250	1.376	10.1	110.1
4:2FTS	9.375	9.743	3.9	103.9
6:2FTS	9.500	10.303	8.4	108.4
8:2FTS	9.600	10.368	8.0	108.0
d3-MeFOSAA	5.000	5.089	1.8	101.8
EtFOSAA	2.500	2.656	6.2	106.2
FOSA	2.500	2.476	-0.9	99.1
MeFOSAA	2.500	2.436	-2.6	97.4
PFBA	10.000	9.815	-1.9	98.1
PFBS	2.218	2.285	3.0	103.0
PFDA	2.500	2.443	-2.3	97.7
PFDoDA	2.500	2.510	0.4	100.4
PFDS	2.413	2.413	0.0	100.0
PFHpA	2.500	2.568	2.7	102.7
PFHpS	2.383	2.535	6.4	106.4
PFHxA	2.500	2.424	-3.1	96.9
PFHxS	2.285	2.613	14.4	114.4
PFNA	2.500	2.456	-1.8	98.2
PFNS	2.405	2.467	2.6	102.6
PFOA	2.500	2.648	5.9	105.9
PFOS	2.320	2.571	10.8	110.8

Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q626-CC625
 Lab FileID: 4Q43363.D

PFPeA	5.000	5.269	5.4	105.4
PFPeS	2.353	2.788	18.5	118.5
PFTeDA	2.500	2.554	2.2	102.2
PFTTrDA	2.500	2.679	7.2	107.2
PFUnDA	2.500	2.307	-7.7	92.3
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	5.198	10.0	110.0
13C3-HFPO-DA	10.000	9.167	-8.3	91.7
9C1-PF3ONS	4.675	5.154	10.3	110.3
ADONA	4.725	5.320	12.6	112.6
HFPO-DA	5.000	5.148	3.0	103.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.612	1.1	101.1
5:3FTCA	62.400	62.501	0.2	100.2
7:3FTCA	62.400	61.615	-1.3	98.7
d3-MeFOSA	2.500	2.467	-1.3	98.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.096	1.9	101.9
EtFOSE	12.500	13.142	5.1	105.1
MeFOSA	5.000	4.889	-2.2	97.8
MeFOSE	12.500	11.994	-4.1	95.9
PFDoDS	2.425	2.454	1.2	101.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.250	5.0	105.0
d7-MeFOSE	25.000	22.732	-9.1	90.9
d9-EtFOSE	25.000	22.824	-8.7	91.3
d5-EtFOSA	2.500	2.417	-3.3	96.7
NFDHA	5.000	5.769	15.4	115.4
PFMBA	5.000	5.167	3.3	103.3
PFMPA	5.000	5.129	2.6	102.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.424	-0.6	99.4

CC Criteria: +/- 30%

6.9.14
6

Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q626-CC625
 Lab FileID: 4Q43364.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042023_1633_S4Q626\s4q626.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041923_1633_S4Q625\4Q43242.d
 2:D:\MassHunter\Data\041923_1633_S4Q625\4Q43243.d
 3:D:\MassHunter\Data\041923_1633_S4Q625\4Q43244.d
 4:D:\MassHunter\Data\041923_1633_S4Q625\4Q43245.d
 5:D:\MassHunter\Data\041923_1633_S4Q625\4Q43246.d
 6:D:\MassHunter\Data\041923_1633_S4Q625\4Q43247.d
 7:D:\MassHunter\Data\041923_1633_S4Q625\4Q43248.d
 8:D:\MassHunter\Data\041923_1633_S4Q625\4Q43249.d

Data File: 4Q43364
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.877	17.5	117.5
13C2-6:2FTS	5.000	5.857	17.1	117.1
13C2-8:2FTS	5.000	5.825	16.5	116.5
13C2-PFDoDA	1.250	1.216	-2.7	97.3
13C2-PFTeDA	1.250	1.126	-9.9	90.1
13C3-PFBS	2.500	2.674	7.0	107.0
13C3-PFHxS	2.500	2.599	4.0	104.0
13C4-PFBA	10.000	10.215	2.2	102.2
13C4-PFHpA	2.500	2.483	-0.7	99.3
13C5-PFHxA	2.500	2.509	0.4	100.4
13C5-PFPeA	5.000	4.779	-4.4	95.6
13C6-PFDA	1.250	1.265	1.2	101.2
13C7-PFUnDA	1.250	1.233	-1.3	98.7
13C8-FOSA	2.500	2.346	-6.2	93.8
13C8-PFOA	2.500	2.523	0.9	100.9
13C8-PFOS	2.500	2.321	-7.2	92.8
13C9-PFNA	1.250	1.326	6.1	106.1
4:2FTS	0.750	0.641	-14.5	85.5
6:2FTS	0.760	0.657	-13.6	86.4
8:2FTS	0.768	0.565	-26.5	73.5
d3-MeFOSAA	5.000	5.568	11.4	111.4
EtFOSAA	0.200	0.192	-3.8	96.2
FOSA	0.200	0.156	-21.9	78.1
MeFOSAA	0.200	0.141	-29.6	70.4
PFBA	0.800	0.631	-21.2	78.8
PFBS	0.177	0.160	-9.9	90.1
PFDA	0.200	0.177	-11.3	88.7
PFDoDA	0.200	0.156	-21.9	78.1
PFDS	0.193	0.195	0.9	100.9
PFHpA	0.200	0.165	-17.3	82.7
PFHpS	0.191	0.177	-7.5	92.5
PFHxA	0.200	0.160	-20.0	80.0
PFHxS	0.183	0.152	-16.8	83.2
PFNA	0.200	0.153	-23.5	76.5
PFNS	0.192	0.178	-7.1	92.9
PFOA	0.200	0.162	-19.0	81.0
PFOS	0.186	0.161	-13.2	86.8

Continuing Calibration Summary

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q626-CC625
 Lab FileID: 4Q43364.D

PFPeA	0.400	0.336	-16.1	83.9
PFPeS	0.188	0.158	-15.8	84.2
PFTeDA	0.200	0.200	0.2	100.2
PFTrDA	0.200	0.164	-18.0	82.0
PFUnDA	0.200	0.195	-2.3	97.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11Cl-PF3OUdS	0.378	0.335	-11.4	88.6
13C3-HFPO-DA	10.000	8.942	-10.6	89.4
9Cl-PF3ONS	0.367	0.334	-9.1	90.9
ADONA	0.378	0.331	-12.5	87.5
HFPO-DA	0.400	0.333	-16.7	83.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.757	-24.2	75.8
5:3FTCA	4.992	3.763	-24.6	75.4
7:3FTCA	4.992	3.901	-21.9	78.1
d3-MeFOSA	2.500	2.360	-5.6	94.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.331	-17.2	82.8
EtFOSE	1.000	0.845	-15.5	84.5
MeFOSA	0.400	0.353	-11.6	88.4
MeFOSE	1.000	0.733	-26.7	73.3
PFDoDS	0.194	0.160	-17.5	82.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.318	6.4	106.4
d7-MeFOSE	25.000	23.169	-7.3	92.7
d9-EtFOSE	25.000	23.831	-4.7	95.3
d5-EtFOSA	2.500	2.456	-1.8	98.2
NFDHA	0.400	0.394	-1.6	98.4
PFMBA	0.400	0.324	-19.0	81.0
PFMPA	0.400	0.330	-17.4	82.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.272	-23.7	76.3

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q621	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q621-RT	4Q42933.D	04/14/23 11:07	n/a	Retention Time Marker
S4Q621-RT	4Q42934.D	04/14/23 11:21	n/a	Retention Time Marker
S4Q621-IC621	4Q42935.D	04/14/23 11:35	n/a	Mass Calibration Verification
S4Q621-IC621	4Q42936.D	04/14/23 11:49	n/a	Initial cal 1
S4Q621-IC621	4Q42937.D	04/14/23 12:04	n/a	Initial cal 2
S4Q621-IC621	4Q42938.D	04/14/23 12:27	n/a	Initial cal 3
S4Q621-ICC621	4Q42939.D	04/14/23 12:41	n/a	Initial cal 4
S4Q621-IC621	4Q42940.D	04/14/23 12:55	n/a	Initial cal 5
S4Q621-IC621	4Q42941.D	04/14/23 13:09	n/a	Initial cal 6
S4Q621-IC621	4Q42942.D	04/14/23 13:23	n/a	Initial cal 7
S4Q621-IC621	4Q42943.D	04/14/23 13:37	n/a	Initial cal 8
S4Q621-IBLK	4Q42944.D	04/14/23 13:51	n/a	Instrument Blank
S4Q621-IBLK	4Q42944.D	04/14/23 13:51	n/a	Instrument Blank
S4Q621-ICV621	4Q42945.D	04/14/23 14:05	n/a	Initial cal verification 4
S4Q621-ICV621	4Q42946.D	04/14/23 14:19	n/a	Initial cal verification 20
S4Q621-CC621	4Q42947.D	04/14/23 14:57	n/a	Continuing cal 4
S4Q621-CC621	4Q42948.D	04/14/23 15:11	n/a	Continuing cal 1.0LL
S4Q621-CC621	4Q42954.D	04/14/23 16:36	n/a	Continuing cal 4
S4Q621-ICCB	4Q42955.D	04/14/23 16:50	n/a	Continuing Calibration Blank
S4Q621-CC621	4Q42966.D	04/14/23 19:24	n/a	Continuing cal 4
S4Q621-ICCB	4Q42967.D	04/14/23 19:38	n/a	Continuing Calibration Blank
S4Q621-CC621	4Q42978.D	04/14/23 22:13	n/a	Continuing cal 4
S4Q621-CC621	4Q42979.D	04/14/23 22:27	n/a	Continuing cal 1.0LL
S4Q621-ICCB	4Q42980.D	04/14/23 22:41	n/a	Continuing Calibration Blank
OP96297-BS	4Q42984.D	04/14/23 23:37	OP96297	Blank Spike
OP96297-LLBS	4Q42985.D	04/14/23 23:52	OP96297	Blank Spike
OP96297-MB	4Q42986.D	04/15/23 00:06	OP96297	Method Blank
ZZZZZZ	4Q42987.D	04/15/23 00:20	OP96297	(unrelated sample)
ZZZZZZ	4Q42988.D	04/15/23 00:34	OP96297	(unrelated sample)
ZZZZZZ	4Q42989.D	04/15/23 00:48	OP96297	(unrelated sample)
ZZZZZZ	4Q42990.D	04/15/23 01:02	OP96297	(unrelated sample)
S4Q621-CC621	4Q42991.D	04/15/23 01:16	n/a	Continuing cal 4
S4Q621-ICCB	4Q42992.D	04/15/23 01:30	n/a	Continuing Calibration Blank
FC3790-5	4Q42993.D	04/15/23 01:44	OP96297	(used for QC only; not part of job FC5194)
OP96297-MS	4Q42994.D	04/15/23 01:58	OP96297	Matrix Spike
OP96297-MSD	4Q42995.D	04/15/23 02:12	OP96297	Matrix Spike Duplicate
FC3757-19	4Q42998.D	04/15/23 02:54	OP96301	(used for QC only; not part of job FC5194)
OP96301-DUP	4Q42999.D	04/15/23 03:08	OP96301	Duplicate
ZZZZZZ	4Q43000.D	04/15/23 03:22	OP96323	(unrelated sample)
ZZZZZZ	4Q43001.D	04/15/23 03:36	OP96323	(unrelated sample)
S4Q621-ECC621	4Q43002.D	04/15/23 03:50	n/a	Ending cal 4
S4Q621-ICCB	4Q43003.D	04/15/23 04:04	n/a	Continuing Calibration Blank

Run Sequence Report

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q624	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q624-RT	4Q43145.D	04/18/23 10:28	n/a	Retention Time Marker
S4Q624-RT	4Q43146.D	04/18/23 10:44	n/a	Retention Time Marker
S4Q624-IBLK	4Q43148.D	04/18/23 11:12	n/a	Instrument Blank
S4Q624-IBLK	4Q43148.D	04/18/23 11:12	n/a	Instrument Blank
S4Q624-CC621	4Q43149.D	04/18/23 11:26	n/a	Continuing cal 4
S4Q624-CC621	4Q43150.D	04/18/23 11:40	n/a	Continuing cal 1.0LL
ZZZZZZ	4Q43151.D	04/18/23 11:54	OP96371	(unrelated sample)
ZZZZZZ	4Q43152.D	04/18/23 12:08	OP96371	(unrelated sample)
ZZZZZZ	4Q43153.D	04/18/23 12:22	OP96368	(unrelated sample)
OP96403-BS	4Q43154.D	04/18/23 12:36	OP96403	Blank Spike
OP96403-LLBS	4Q43155.D	04/18/23 12:54	OP96403	Blank Spike
OP96403-MB	4Q43156.D	04/18/23 13:08	OP96403	Method Blank
ZZZZZZ	4Q43157.D	04/18/23 13:22	OP96403	(unrelated sample)
ZZZZZZ	4Q43158.D	04/18/23 13:36	OP96403	(unrelated sample)
FC5194-1	4Q43159.D	04/18/23 13:50	OP96403	AF-RHMW16-WGN01LF-2304W2
OP96403-MS	4Q43160.D	04/18/23 14:04	OP96403	Matrix Spike
S4Q624-CC621	4Q43161.D	04/18/23 14:29	n/a	Continuing cal 4
S4Q624-ICCB	4Q43162.D	04/18/23 14:43	n/a	Continuing Calibration Blank
FC5194-2	4Q43163.D	04/18/23 14:57	OP96403	AF-RHMW02-WGN01LF-2304W2
OP96403-DUP	4Q43164.D	04/18/23 15:11	OP96403	Duplicate
FC5194-3	4Q43165.D	04/18/23 15:25	OP96403	AF-RHMW03-WGN01LF-2304W2
FC5088-3	4Q43166.D	04/18/23 15:39	OP96368	(used for QC only; not part of job FC5194)
OP96427-BS	4Q43167.D	04/18/23 15:53	OP96427	Blank Spike
OP96427-LLBS	4Q43168.D	04/18/23 16:07	OP96427	Blank Spike
OP96427-MB	4Q43169.D	04/18/23 16:21	OP96427	Method Blank
ZZZZZZ	4Q43170.D	04/18/23 16:35	OP96427	(unrelated sample)
FC5252-2	4Q43171.D	04/18/23 16:49	OP96427	(used for QC only; not part of job FC5194)
OP96427-MS	4Q43172.D	04/18/23 17:03	OP96427	Matrix Spike
S4Q624-CC621	4Q43173.D	04/18/23 17:17	n/a	Continuing cal 4
S4Q624-ICCB	4Q43174.D	04/18/23 17:32	n/a	Continuing Calibration Blank
FC5252-3	4Q43175.D	04/18/23 17:46	OP96427	(used for QC only; not part of job FC5194)
OP96427-DUP	4Q43176.D	04/18/23 18:00	OP96427	Duplicate
ZZZZZZ	4Q43177.D	04/18/23 18:14	OP96427	(unrelated sample)
ZZZZZZ	4Q43178.D	04/18/23 18:28	OP96427	(unrelated sample)
OP96386-BS	4Q43179.D	04/18/23 18:42	OP96386	Blank Spike
OP96386-LLBS	4Q43180.D	04/18/23 18:56	OP96386	Blank Spike
OP96386-MB	4Q43181.D	04/18/23 19:10	OP96386	Method Blank
ZZZZZZ	4Q43182.D	04/18/23 19:24	OP96386	(unrelated sample)
ZZZZZZ	4Q43183.D	04/18/23 19:38	OP96386	(unrelated sample)
S4Q624-CC621	4Q43184.D	04/18/23 19:52	n/a	Continuing cal 4
S4Q624-CC621	4Q43185.D	04/18/23 20:06	n/a	Continuing cal 1.0LL
S4Q624-ICCB	4Q43186.D	04/18/23 20:20	n/a	Continuing Calibration Blank
JD63151-3	4Q43187.D	04/18/23 20:34	OP96386	(used for QC only; not part of job FC5194)
OP96386-MS	4Q43188.D	04/18/23 20:48	OP96386	Matrix Spike
JD63151-4	4Q43189.D	04/18/23 21:02	OP96386	(used for QC only; not part of job FC5194)
OP96386-DUP	4Q43190.D	04/18/23 21:17	OP96386	Duplicate

Run Sequence Report

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q624	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	4Q43191.D	04/18/23 21:31	OP96386	(unrelated sample)
ZZZZZZ	4Q43192.D	04/18/23 21:45	OP96386	(unrelated sample)
ZZZZZZ	4Q43193.D	04/18/23 21:59	OP96386	(unrelated sample)
ZZZZZZ	4Q43194.D	04/18/23 22:13	OP96386	(unrelated sample)
ZZZZZZ	4Q43195.D	04/18/23 22:27	OP96386	(unrelated sample)
S4Q624-CC621	4Q43196.D	04/18/23 22:41	n/a	Continuing cal 4
S4Q624-ICCB	4Q43197.D	04/18/23 22:55	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43198.D	04/18/23 23:09	OP96386	(unrelated sample)
ZZZZZZ	4Q43200.D	04/18/23 23:37	OP96386	(unrelated sample)
ZZZZZZ	4Q43201.D	04/18/23 23:51	OP96386	(unrelated sample)
ZZZZZZ	4Q43202.D	04/19/23 00:05	OP96386	(unrelated sample)
ZZZZZZ	4Q43203.D	04/19/23 00:19	OP96386	(unrelated sample)
S4Q624-CC621	4Q43204.D	04/19/23 00:33	n/a	Continuing cal 4
S4Q624-ICCB	4Q43205.D	04/19/23 00:47	n/a	Continuing Calibration Blank
S4Q624-ICCB	4Q43205.D	04/19/23 00:47	n/a	Continuing Calibration Blank
OP96364-BS	4Q43206.D	04/19/23 01:01	OP96364	Blank Spike
OP96364-LLBS	4Q43207.D	04/19/23 01:16	OP96364	Blank Spike
OP96364-MB	4Q43208.D	04/19/23 01:30	OP96364	Method Blank
JD62946-1	4Q43209.D	04/19/23 01:44	OP96364	(used for QC only; not part of job FC5194)
OP96364-MS	4Q43210.D	04/19/23 01:58	OP96364	Matrix Spike
JD62924-1B	4Q43211.D	04/19/23 02:12	OP96364	(used for QC only; not part of job FC5194)
OP96364-DUP	4Q43212.D	04/19/23 02:26	OP96364	Duplicate
ZZZZZZ	4Q43213.D	04/19/23 02:40	OP96364	(unrelated sample)
ZZZZZZ	4Q43214.D	04/19/23 02:54	OP96364	(unrelated sample)
ZZZZZZ	4Q43215.D	04/19/23 03:08	OP96364	(unrelated sample)
S4Q624-CC621	4Q43216.D	04/19/23 03:22	n/a	Continuing cal 4
S4Q624-ICCB	4Q43217.D	04/19/23 03:36	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43218.D	04/19/23 03:50	OP96364	(unrelated sample)
ZZZZZZ	4Q43219.D	04/19/23 04:04	OP96364	(unrelated sample)
ZZZZZZ	4Q43220.D	04/19/23 04:18	OP96364	(unrelated sample)
ZZZZZZ	4Q43221.D	04/19/23 04:32	OP96364	(unrelated sample)
ZZZZZZ	4Q43222.D	04/19/23 04:46	OP96364	(unrelated sample)
ZZZZZZ	4Q43223.D	04/19/23 05:00	OP96364	(unrelated sample)
ZZZZZZ	4Q43224.D	04/19/23 05:15	OP96364	(unrelated sample)
ZZZZZZ	4Q43225.D	04/19/23 05:29	OP96364	(unrelated sample)
ZZZZZZ	4Q43226.D	04/19/23 05:43	OP96364	(unrelated sample)
ZZZZZZ	4Q43227.D	04/19/23 05:57	OP96364	(unrelated sample)
S4Q624-CC621	4Q43228.D	04/19/23 06:11	n/a	Continuing cal 4
S4Q624-CC621	4Q43229.D	04/19/23 06:25	n/a	Continuing cal 1.0LL
S4Q624-ICCB	4Q43230.D	04/19/23 06:39	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43231.D	04/19/23 06:53	OP96364	(unrelated sample)
ZZZZZZ	4Q43232.D	04/19/23 07:07	OP96364	(unrelated sample)
ZZZZZZ	4Q43233.D	04/19/23 07:21	OP96364	(unrelated sample)
ZZZZZZ	4Q43234.D	04/19/23 07:35	OP96364	(unrelated sample)
S4Q624-ECC621	4Q43235.D	04/19/23 07:49	n/a	Ending cal 4
S4Q624-ICCB	4Q43236.D	04/19/23 08:03	n/a	Continuing Calibration Blank

6-10-2
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Run Sequence Report

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q625	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q625-RT	4Q43239.D	04/19/23 11:12	n/a	Retention Time Marker
S4Q625-RT	4Q43240.D	04/19/23 11:26	n/a	Retention Time Marker
S4Q625-IC625	4Q43241.D	04/19/23 11:40	n/a	Mass Calibration Verification
S4Q625-IC625	4Q43242.D	04/19/23 11:54	n/a	Initial cal 1
S4Q625-IC625	4Q43243.D	04/19/23 12:08	n/a	Initial cal 2
S4Q625-IC625	4Q43244.D	04/19/23 12:22	n/a	Initial cal 3
S4Q625-ICC625	4Q43245.D	04/19/23 12:37	n/a	Initial cal 4
S4Q625-IC625	4Q43246.D	04/19/23 12:51	n/a	Initial cal 5
S4Q625-IC625	4Q43247.D	04/19/23 13:05	n/a	Initial cal 6
S4Q625-IC625	4Q43248.D	04/19/23 13:19	n/a	Initial cal 7
S4Q625-IC625	4Q43249.D	04/19/23 13:33	n/a	Initial cal 8
S4Q625-IBLK	4Q43250.D	04/19/23 13:47	n/a	Instrument Blank
S4Q625-IBLK	4Q43250.D	04/19/23 13:47	n/a	Instrument Blank
S4Q625-ICV625	4Q43251.D	04/19/23 14:01	n/a	Initial cal verification 4
S4Q625-ICV625	4Q43252.D	04/19/23 14:15	n/a	Initial cal verification 20
S4Q625-CC625	4Q43253.D	04/19/23 14:29	n/a	Continuing cal 4
S4Q625-CC625	4Q43254.D	04/19/23 14:43	n/a	Continuing cal 1.0LL
OP96455-BS	4Q43255.D	04/19/23 15:00	OP96455	Blank Spike
OP96455-LLBS	4Q43256.D	04/19/23 15:14	OP96455	Blank Spike
OP96455-MB	4Q43257.D	04/19/23 15:29	OP96455	Method Blank
ZZZZZZ	4Q43258.D	04/19/23 15:43	OP96455	(unrelated sample)
ZZZZZZ	4Q43259.D	04/19/23 15:57	OP96455	(unrelated sample)
ZZZZZZ	4Q43261.D	04/19/23 16:25	OP96455	(unrelated sample)
ZZZZZZ	4Q43262.D	04/19/23 16:39	OP96455	(unrelated sample)
ZZZZZZ	4Q43263.D	04/19/23 16:53	OP96455	(unrelated sample)
S4Q625-CC625	4Q43264.D	04/19/23 17:08	n/a	Continuing cal 4
S4Q625-ICCB	4Q43265.D	04/19/23 17:22	n/a	Continuing Calibration Blank
OP96452-BS	4Q43266.D	04/19/23 17:36	OP96452	Blank Spike
OP96452-LLBS	4Q43267.D	04/19/23 17:50	OP96452	Blank Spike
OP96452-MB	4Q43268.D	04/19/23 18:04	OP96452	Method Blank
ZZZZZZ	4Q43269.D	04/19/23 18:18	OP96452	(unrelated sample)
ZZZZZZ	4Q43270.D	04/19/23 18:32	OP96322	(unrelated sample)
ZZZZZZ	4Q43271.D	04/19/23 18:46	OP96322	(unrelated sample)
ZZZZZZ	4Q43273.D	04/19/23 19:14	OP96386	(unrelated sample)
ZZZZZZ	4Q43274.D	04/19/23 19:28	OP96386	(unrelated sample)
ZZZZZZ	4Q43275.D	04/19/23 19:42	OP96386	(unrelated sample)
S4Q625-CC625	4Q43276.D	04/19/23 19:56	n/a	Continuing cal 4
S4Q625-ICCB	4Q43277.D	04/19/23 20:10	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43278.D	04/19/23 20:24	OP96386	(unrelated sample)
ZZZZZZ	4Q43279.D	04/19/23 20:38	OP96386	(unrelated sample)
ZZZZZZ	4Q43280.D	04/19/23 20:52	OP96386	(unrelated sample)
ZZZZZZ	4Q43281.D	04/19/23 21:06	OP96386	(unrelated sample)
S4Q625-CC625	4Q43282.D	04/19/23 21:21	n/a	Continuing cal 4
S4Q625-CC625	4Q43283.D	04/19/23 21:35	n/a	Continuing cal 1.0LL
S4Q625-ICCB	4Q43284.D	04/19/23 21:49	n/a	Continuing Calibration Blank
OP96429-BS	4Q43285.D	04/19/23 22:03	OP96429	Blank Spike

Run Sequence Report

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q625	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
OP96429-LLBS	4Q43286.D	04/19/23 22:17	OP96429	Blank Spike
OP96429-MB	4Q43287.D	04/19/23 22:31	OP96429	Method Blank
JD63290-1A	4Q43288.D	04/19/23 22:45	OP96429	(used for QC only; not part of job FC5194)
OP96429-MS	4Q43289.D	04/19/23 22:59	OP96429	Matrix Spike
JD63290-2A	4Q43290.D	04/19/23 23:13	OP96429	(used for QC only; not part of job FC5194)
OP96429-DUP	4Q43291.D	04/19/23 23:27	OP96429	Duplicate
ZZZZZZ	4Q43292.D	04/19/23 23:41	OP96429	(unrelated sample)
ZZZZZZ	4Q43293.D	04/19/23 23:55	OP96429	(unrelated sample)
S4Q625-CC625	4Q43294.D	04/20/23 00:09	n/a	Continuing cal 4
S4Q625-ICCB	4Q43295.D	04/20/23 00:23	n/a	Continuing Calibration Blank
OP96382-BS	4Q43296.D	04/20/23 00:37	OP96382	Blank Spike
OP96382-LLBS	4Q43297.D	04/20/23 00:51	OP96382	Blank Spike
OP96382-MB	4Q43298.D	04/20/23 01:05	OP96382	Method Blank
ZZZZZZ	4Q43299.D	04/20/23 01:20	OP96382	(unrelated sample)
ZZZZZZ	4Q43300.D	04/20/23 01:34	OP96382	(unrelated sample)
ZZZZZZ	4Q43301.D	04/20/23 01:48	OP96382	(unrelated sample)
ZZZZZZ	4Q43302.D	04/20/23 02:02	OP96382	(unrelated sample)
ZZZZZZ	4Q43303.D	04/20/23 02:16	OP96382	(unrelated sample)
ZZZZZZ	4Q43304.D	04/20/23 02:30	OP96382	(unrelated sample)
ZZZZZZ	4Q43305.D	04/20/23 02:44	OP96382	(unrelated sample)
S4Q625-CC625	4Q43306.D	04/20/23 02:58	n/a	Continuing cal 4
S4Q625-ICCB	4Q43307.D	04/20/23 03:12	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43308.D	04/20/23 03:26	OP96382	(unrelated sample)
ZZZZZZ	4Q43309.D	04/20/23 03:40	OP96382	(unrelated sample)
ZZZZZZ	4Q43310.D	04/20/23 03:54	OP96382	(unrelated sample)
ZZZZZZ	4Q43311.D	04/20/23 04:08	OP96382	(unrelated sample)
ZZZZZZ	4Q43312.D	04/20/23 04:22	OP96382	(unrelated sample)
ZZZZZZ	4Q43313.D	04/20/23 04:36	OP96382	(unrelated sample)
ZZZZZZ	4Q43314.D	04/20/23 04:50	OP96382	(unrelated sample)
FC3817-15	4Q43315.D	04/20/23 05:04	OP96382	(used for QC only; not part of job FC5194)
OP96382-MS	4Q43316.D	04/20/23 05:18	OP96382	Matrix Spike
OP96382-MSD	4Q43317.D	04/20/23 05:33	OP96382	Matrix Spike Duplicate
S4Q625-CC625	4Q43318.D	04/20/23 05:47	n/a	Continuing cal 4
S4Q625-ICCB	4Q43319.D	04/20/23 06:01	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43320.D	04/20/23 06:15	OP96382	(unrelated sample)
ZZZZZZ	4Q43321.D	04/20/23 06:29	OP96382	(unrelated sample)
S4Q625-ECC625	4Q43322.D	04/20/23 06:43	n/a	Ending cal 4
S4Q625-ICCB	4Q43323.D	04/20/23 06:57	n/a	Continuing Calibration Blank

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Run Sequence Report

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q626	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q626-RT	4Q43329.D	04/20/23 13:24	n/a	Retention Time Marker
S4Q626-RT	4Q43330.D	04/20/23 13:38	n/a	Retention Time Marker
S4Q626-IBLK	4Q43332.D	04/20/23 14:06	n/a	Instrument Blank
S4Q626-IBLK	4Q43332.D	04/20/23 14:06	n/a	Instrument Blank
S4Q626-CC625	4Q43333.D	04/20/23 14:20	n/a	Continuing cal 4
S4Q626-CC625	4Q43334.D	04/20/23 14:48	n/a	Continuing cal 1.0LL
ZZZZZZ	4Q43335.D	04/20/23 15:17	OP96386	(unrelated sample)
ZZZZZZ	4Q43336.D	04/20/23 15:31	OP96382	(unrelated sample)
ZZZZZZ	4Q43337.D	04/20/23 15:46	OP96382	(unrelated sample)
ZZZZZZ	4Q43338.D	04/20/23 16:00	OP96382	(unrelated sample)
ZZZZZZ	4Q43339.D	04/20/23 16:14	OP96382	(unrelated sample)
ZZZZZZ	4Q43340.D	04/20/23 16:28	OP96382	(unrelated sample)
ZZZZZZ	4Q43341.D	04/20/23 16:42	OP96382	(unrelated sample)
ZZZZZZ	4Q43342.D	04/20/23 16:57	OP96382	(unrelated sample)
S4Q626-CC625	4Q43344.D	04/20/23 20:02	n/a	Continuing cal 4
S4Q626-ICCB	4Q43345.D	04/20/23 20:16	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43346.D	04/20/23 20:30	OP96411	(unrelated sample)
FC3921-6	4Q43347.D	04/20/23 20:44	OP96411	(used for QC only; not part of job FC5194)
ZZZZZZ	4Q43349.D	04/20/23 21:12	OP96411	(unrelated sample)
ZZZZZZ	4Q43350.D	04/20/23 21:26	OP96411	(unrelated sample)
ZZZZZZ	4Q43351.D	04/20/23 21:40	OP96411	(unrelated sample)
ZZZZZZ	4Q43352.D	04/20/23 21:54	OP96411	(unrelated sample)
ZZZZZZ	4Q43353.D	04/20/23 22:08	OP96411	(unrelated sample)
ZZZZZZ	4Q43354.D	04/20/23 22:22	OP96428	(unrelated sample)
ZZZZZZ	4Q43355.D	04/20/23 22:36	OP96428	(unrelated sample)
S4Q626-CC625	4Q43356.D	04/20/23 22:51	n/a	Continuing cal 4
S4Q626-ICCB	4Q43357.D	04/20/23 23:05	n/a	Continuing Calibration Blank
OP96494-BS	4Q43358.D	04/20/23 23:19	OP96494	Blank Spike
OP96494-LLBS	4Q43359.D	04/20/23 23:33	OP96494	Blank Spike
OP96494-MB	4Q43360.D	04/20/23 23:47	OP96494	Method Blank
FC5194-3	4Q43361.D	04/21/23 00:01	OP96494	AF-RHMW03-WGN01LF-2304W2
ZZZZZZ	4Q43362.D	04/21/23 00:15	OP96494	(unrelated sample)
S4Q626-CC625	4Q43363.D	04/21/23 00:29	n/a	Continuing cal 4
S4Q626-CC625	4Q43364.D	04/21/23 00:43	n/a	Continuing cal 1.0LL
S4Q626-ICCB	4Q43365.D	04/21/23 00:57	n/a	Continuing Calibration Blank
OP96383-BS	4Q43366.D	04/21/23 01:11	OP96383	Blank Spike
OP96383-LLBS	4Q43367.D	04/21/23 01:25	OP96383	Blank Spike
OP96383-MB	4Q43368.D	04/21/23 01:39	OP96383	Method Blank
ZZZZZZ	4Q43369.D	04/21/23 01:53	OP96383	(unrelated sample)
FC3839-2	4Q43370.D	04/21/23 02:07	OP96383	(used for QC only; not part of job FC5194)
OP96383-MS	4Q43371.D	04/21/23 02:21	OP96383	Matrix Spike
OP96383-MSD	4Q43372.D	04/21/23 02:35	OP96383	Matrix Spike Duplicate
ZZZZZZ	4Q43373.D	04/21/23 02:49	OP96383	(unrelated sample)
ZZZZZZ	4Q43374.D	04/21/23 03:03	OP96383	(unrelated sample)
ZZZZZZ	4Q43375.D	04/21/23 03:17	OP96383	(unrelated sample)
S4Q626-CC625	4Q43376.D	04/21/23 03:31	n/a	Continuing cal 4

Run Sequence Report

Job Number: FC5194
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q626	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q626-ICCB	4Q43377.D	04/21/23 03:45	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43378.D	04/21/23 03:59	OP96383	(unrelated sample)
ZZZZZZ	4Q43379.D	04/21/23 04:13	OP96383	(unrelated sample)
ZZZZZZ	4Q43380.D	04/21/23 04:27	OP96383	(unrelated sample)
ZZZZZZ	4Q43381.D	04/21/23 04:41	OP96383	(unrelated sample)
ZZZZZZ	4Q43382.D	04/21/23 04:55	OP96383	(unrelated sample)
ZZZZZZ	4Q43383.D	04/21/23 05:10	OP96383	(unrelated sample)
ZZZZZZ	4Q43384.D	04/21/23 05:24	OP96383	(unrelated sample)
ZZZZZZ	4Q43385.D	04/21/23 05:38	OP96383	(unrelated sample)
ZZZZZZ	4Q43386.D	04/21/23 05:52	OP96383	(unrelated sample)
ZZZZZZ	4Q43387.D	04/21/23 06:06	OP96383	(unrelated sample)
S4Q626-CC625	4Q43388.D	04/21/23 06:20	n/a	Continuing cal 4
S4Q626-CC625	4Q43389.D	04/21/23 06:34	n/a	Continuing cal 1.0LL
S4Q626-ICCB	4Q43390.D	04/21/23 06:48	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43391.D	04/21/23 07:02	OP96383	(unrelated sample)
ZZZZZZ	4Q43392.D	04/21/23 07:16	OP96383	(unrelated sample)
ZZZZZZ	4Q43393.D	04/21/23 07:30	OP96383	(unrelated sample)
OP96426-BS	4Q43394.D	04/21/23 07:44	OP96426	Blank Spike
OP96426-LLBS	4Q43395.D	04/21/23 07:58	OP96426	Blank Spike
OP96426-MB	4Q43396.D	04/21/23 08:12	OP96426	Method Blank
ZZZZZZ	4Q43397.D	04/21/23 08:26	OP96426	(unrelated sample)
ZZZZZZ	4Q43398.D	04/21/23 08:40	OP96426	(unrelated sample)
ZZZZZZ	4Q43399.D	04/21/23 08:54	OP96426	(unrelated sample)
ZZZZZZ	4Q43400.D	04/21/23 09:08	OP96426	(unrelated sample)
S4Q626-CC625	4Q43401.D	04/21/23 09:22	n/a	Continuing cal 4
S4Q626-ICCB	4Q43402.D	04/21/23 09:36	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43403.D	04/21/23 09:50	OP96426	(unrelated sample)
ZZZZZZ	4Q43404.D	04/21/23 10:05	OP96426	(unrelated sample)
ZZZZZZ	4Q43405.D	04/21/23 10:19	OP96426	(unrelated sample)
ZZZZZZ	4Q43406.D	04/21/23 10:33	OP96426	(unrelated sample)
ZZZZZZ	4Q43407.D	04/21/23 10:47	OP96426	(unrelated sample)
ZZZZZZ	4Q43408.D	04/21/23 11:01	OP96426	(unrelated sample)
ZZZZZZ	4Q43409.D	04/21/23 11:15	OP96426	(unrelated sample)
ZZZZZZ	4Q43410.D	04/21/23 11:29	OP96426	(unrelated sample)
ZZZZZZ	4Q43411.D	04/21/23 11:44	OP96426	(unrelated sample)
ZZZZZZ	4Q43412.D	04/21/23 11:58	OP96426	(unrelated sample)
S4Q626-CC625	4Q43413.D	04/21/23 12:12	n/a	Continuing cal 4
S4Q626-ICCB	4Q43414.D	04/21/23 12:26	n/a	Continuing Calibration Blank
FC3922-15	4Q43415.D	04/21/23 12:40	OP96426	(used for QC only; not part of job FC5194)
OP96426-MS	4Q43416.D	04/21/23 12:54	OP96426	Matrix Spike
OP96426-MSD	4Q43417.D	04/21/23 13:08	OP96426	Matrix Spike Duplicate
ZZZZZZ	4Q43418.D	04/21/23 13:22	OP96426	(unrelated sample)
ZZZZZZ	4Q43419.D	04/21/23 13:36	OP96426	(unrelated sample)
ZZZZZZ	4Q43420.D	04/21/23 13:50	OP96426	(unrelated sample)
S4Q626-ECC625	4Q43421.D	04/21/23 14:04	n/a	Ending cal 4
S4Q626-ICCB	4Q43422.D	04/21/23 14:18	n/a	Continuing Calibration Blank

6:10.4

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MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43159.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 1:50:50 PM
 Sample Name : FC5194-1
 Vial : P4-C6
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96403,S4q624,510,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.002	216.8 -> 171.9	117231	10.00 µg/L	0.041
M5-PFPeA	4.462	268.3 -> 223.0	62334	5.00 µg/L	0.012
M5-PFHxA	5.622	318.0 -> 273.0	48109	2.50 µg/L	0.000
M4-PFHpA	6.542	367.1 -> 322.0	24561	2.50 µg/L	-0.013
M8-PFOA	7.213	421.1 -> 376.0	30929	2.50 µg/L	0.000
M9-PFNA	7.758	472.1 -> 427.0	16111	1.25 µg/L	-0.001
M6-PFDA	8.265	519.1 -> 474.1	15998	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	15495	1.25 µg/L	-0.001
M2-PFDoDA	9.193	615.1 -> 570.0	17910	1.25 µg/L	-0.001
M2-PFTeDA	9.998	715.2 -> 670.0	11562	1.25 µg/L	0.011
M8-FOSA	9.845	506.1 -> 77.8	13393	2.50 µg/L	0.011
M3-PFBS	5.527	302.1 -> 79.9	10592	2.50 µg/L	0.000
M3-PFHxS	7.316	402.1 -> 79.9	6293	2.50 µg/L	-0.001
M8-PFOS	8.429	507.1 -> 79.9	9041	2.50 µg/L	0.012
M2-4:2FTS	5.310	329.1 -> 80.9	1491	5.00 µg/L	0.001
M2-6:2FTS	6.973	429.1 -> 80.9	2221	5.00 µg/L	-0.001
M2-8:2FTS	8.052	529.1 -> 80.9	3045	5.00 µg/L	-0.001
M3-MeFOSAA	8.323	573.2 -> 419.0	13605	5.00 µg/L	-0.001
M3-HFPO-DA	5.976	286.9 -> 168.9	30274	10.00 µg/L	-0.013
M5-EtFOSAA	8.545	589.2 -> 419.0	11906	5.00 µg/L	0.011
M7-MeFOSE	10.972	623.2 -> 58.9	43036	25.00 µg/L	-0.002
M9-EtFOSE	11.281	639.2 -> 58.9	51296	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	6875	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	6575	2.50 µg/L	-0.002
13C4-PFOS	8.430	502.8 -> 79.9	9411	2.50 µg/L	0.012
13C3-PFBA	3.005	216.0 -> 172.0	58532	5.00 µg/L	0.040
18O2-PFHxS	7.315	403.0 -> 83.9	4166	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	33909	2.50 µg/L	0.000
13C2-PFDA	8.265	515.1 -> 470.1	13396	1.25 µg/L	-0.001
13C5-PFNA	7.759	468.0 -> 423.0	17093	1.25 µg/L	-0.001
13C2-PFHxA	5.623	315.1 -> 270.0	37514	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.310	329.1 -> 80.9	1491	6.55 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 131.1%		
13C2-6:2FTS	6.973	429.1 -> 80.9	2221	6.80 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 136.0%		
13C2-8:2FTS	8.052	529.1 -> 80.9	3045	5.67 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.3%		
13C2-PFDoDA	9.193	615.1 -> 570.0	17910	1.09 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.9%		
13C2-PFTeDA	9.998	715.2 -> 670.0	11562	0.90 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 72.1%		
13C3-PFBS	5.527	302.1 -> 79.9	10592	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.6%		
13C3-PFHxS	7.316	402.1 -> 79.9	6293	2.73 µg/L	-0.001

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	3.002	216.8 -> 171.9	117231	11.50 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.0%	
13C4-PFHpA	6.542	367.1 -> 322.0	24561	2.88 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.3%	
13C5-PFHxA	5.622	318.0 -> 273.0	48109	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.0%	
13C5-PFPeA	4.462	268.3 -> 223.0	62334	5.64 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.8%	
13C6-PFDA	8.265	519.1 -> 474.1	15998	1.36 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.6%	
13C7-PFUnDA	8.747	570.0 -> 525.1	15495	1.21 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C8-FOSA	9.845	506.1 -> 77.8	13393	2.18 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.0%	
13C8-PFOA	7.213	421.1 -> 376.0	30929	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.8%	
13C8-PFOS	8.429	507.1 -> 79.9	9041	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C9-PFNA	7.758	472.1 -> 427.0	16111	1.29 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.5%	
d3-MeFOSAA	8.323	573.2 -> 419.0	13605	4.91 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C3-HFPO-DA	5.976	286.9 -> 168.9	30274	11.50 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.0%	
d3-MeFOSA	11.089	515.0 -> 219.0	6575	2.26 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.3%	
d5-EtFOSAA	8.545	589.2 -> 419.0	11906	5.28 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.7%	
d7-MeFOSE	10.972	623.2 -> 58.9	43036	17.73 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 70.9%	
d9-EtFOSE	11.281	639.2 -> 58.9	51296	17.27 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 69.1%	
d5-EtFOSA	11.373	531.1 -> 219.0	6875	2.18 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.4%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	9.632	613.1 -> 569.0	0	µg/L m	1
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

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

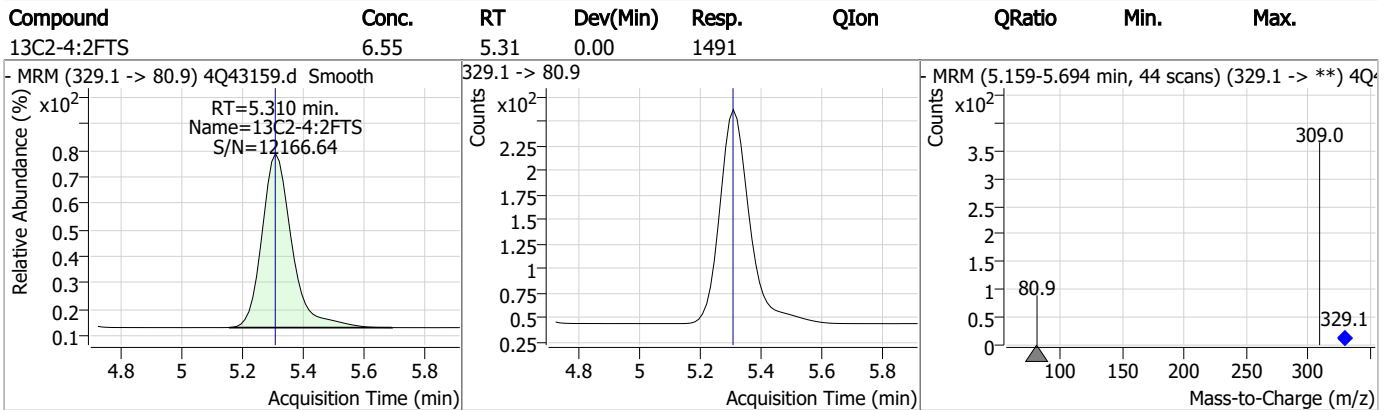
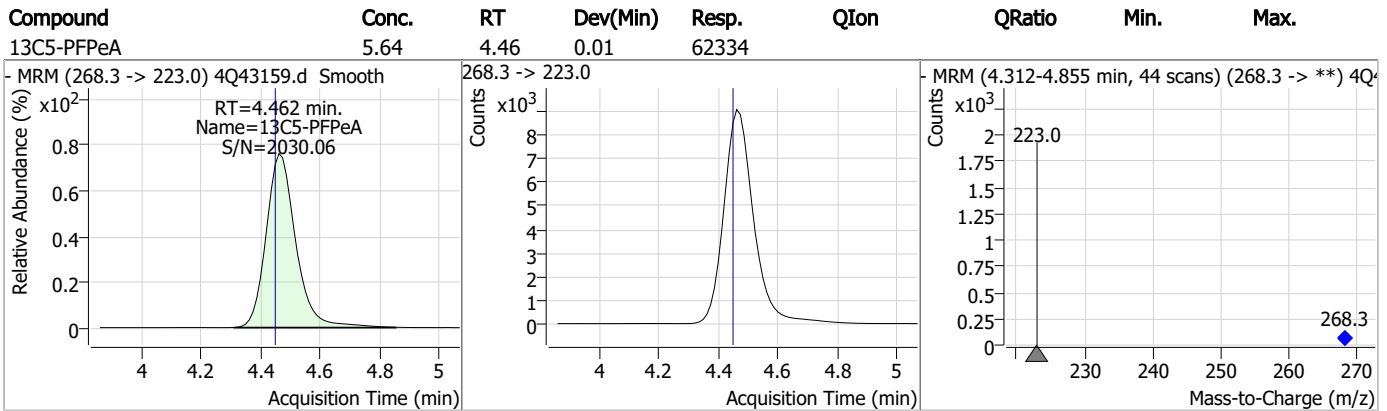
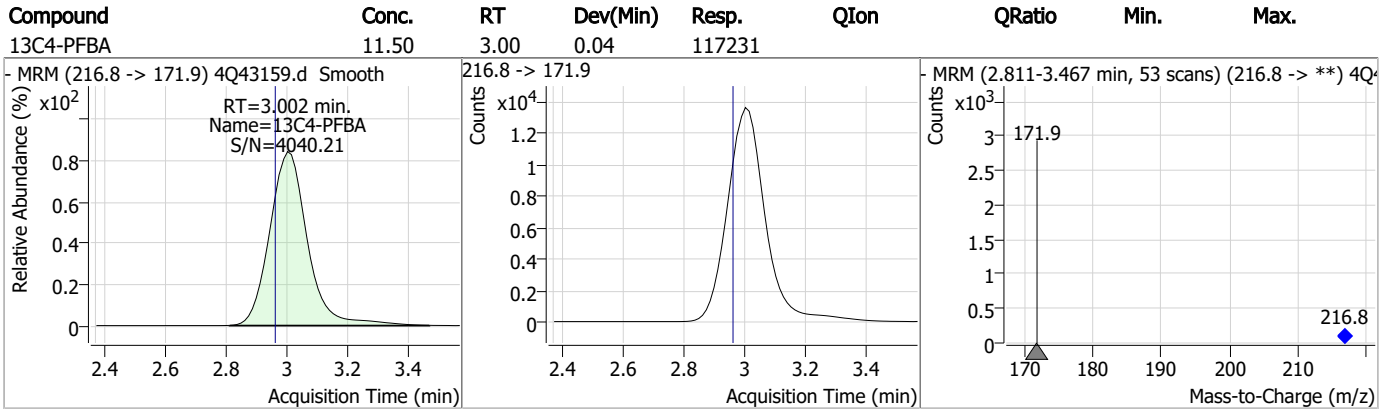
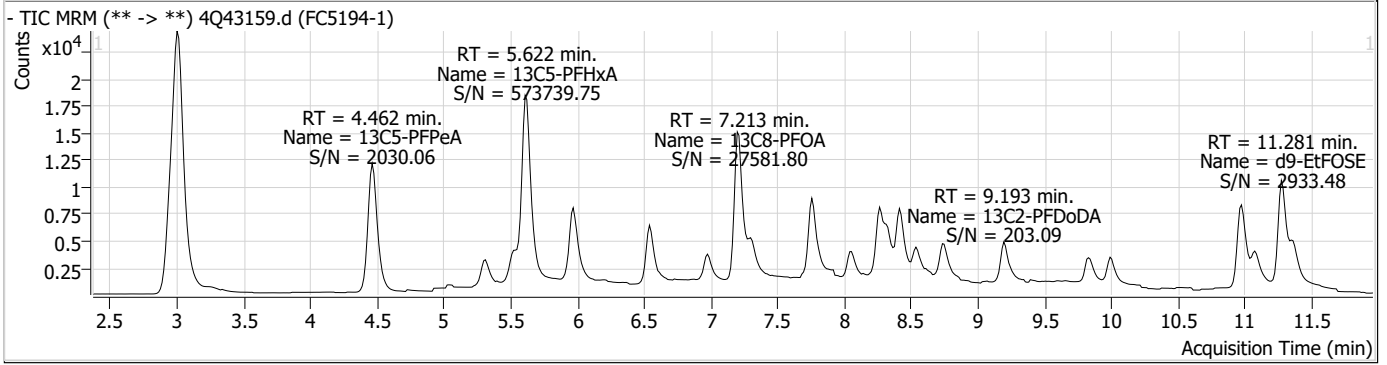
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

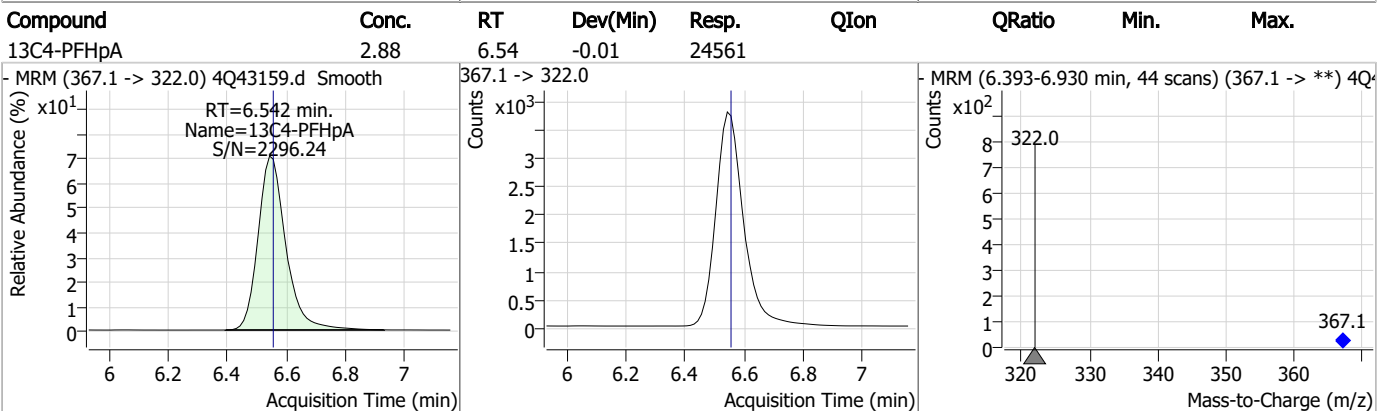
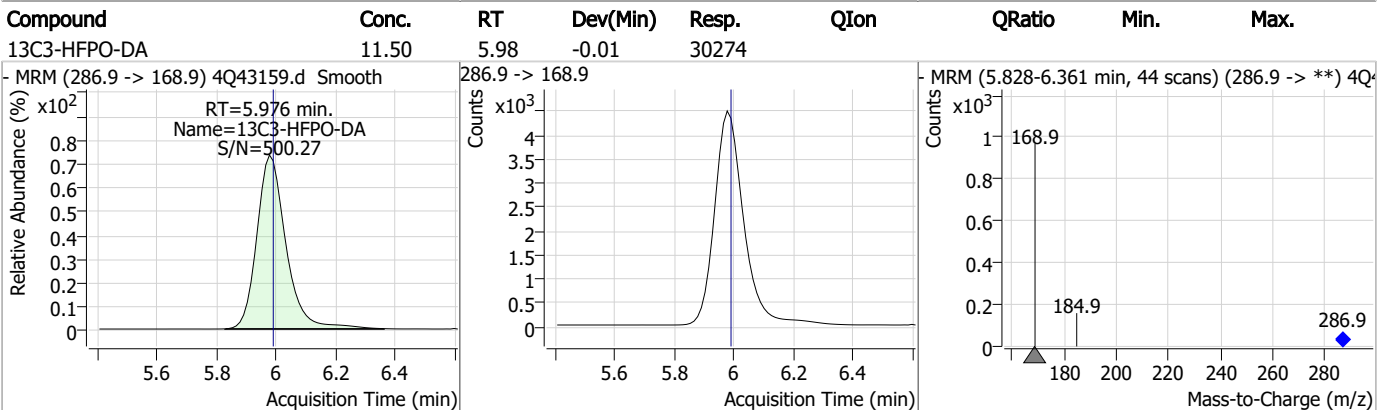
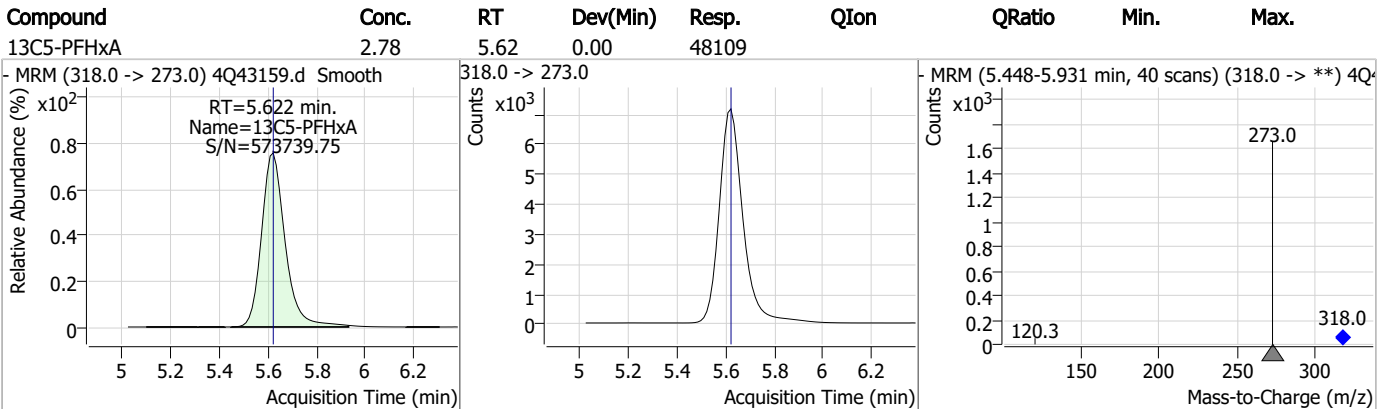
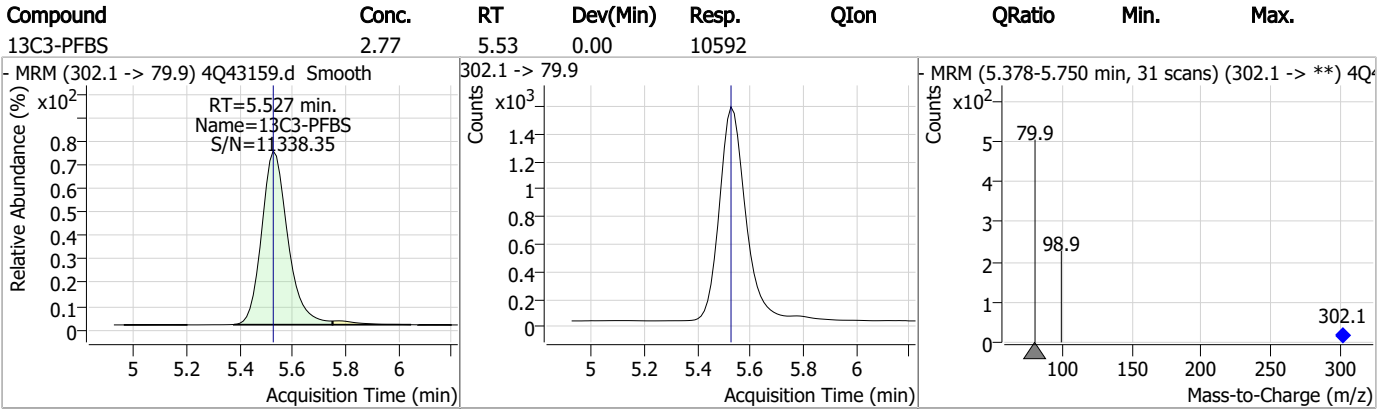
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.1.1
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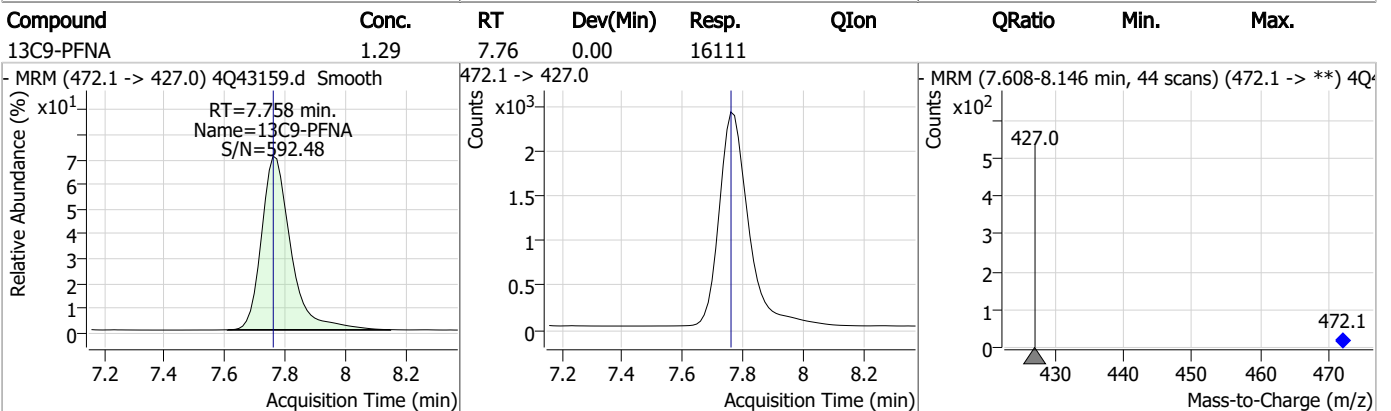
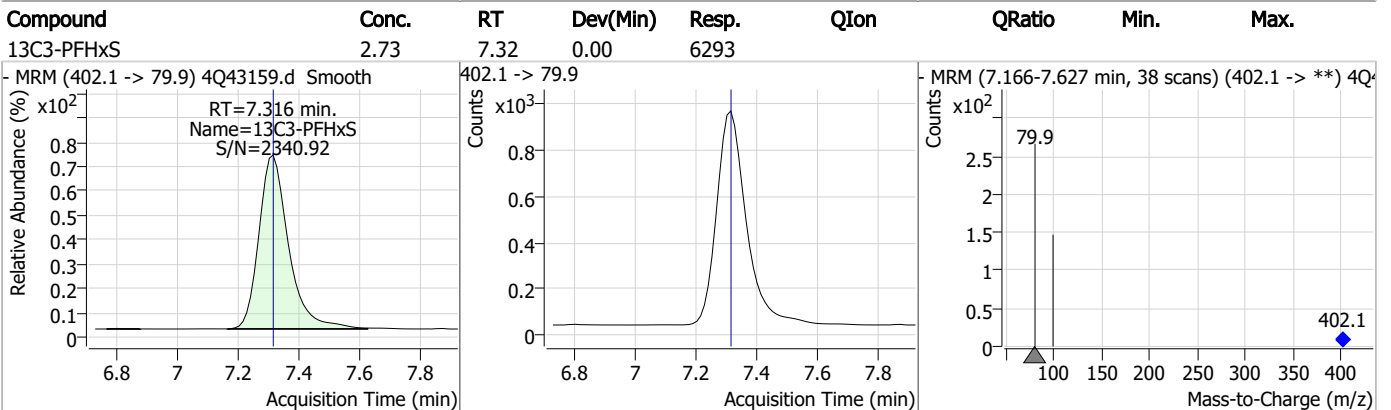
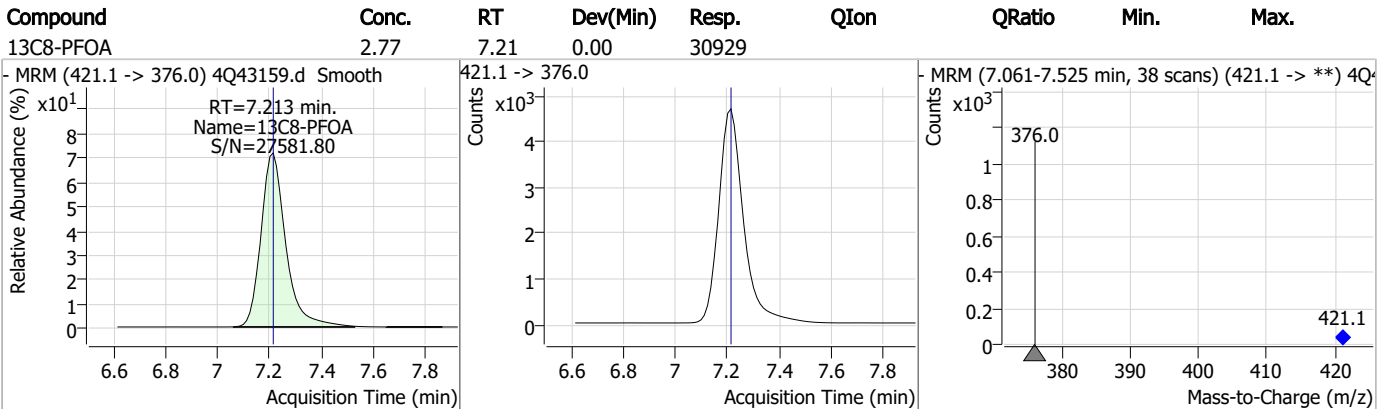
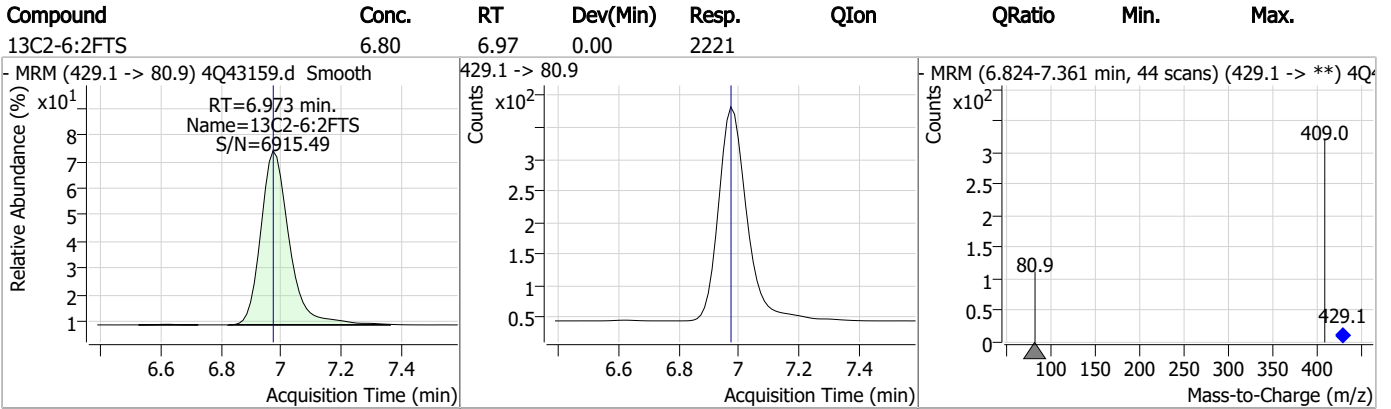
Perfluorinated Compounds by LC/MS/MS



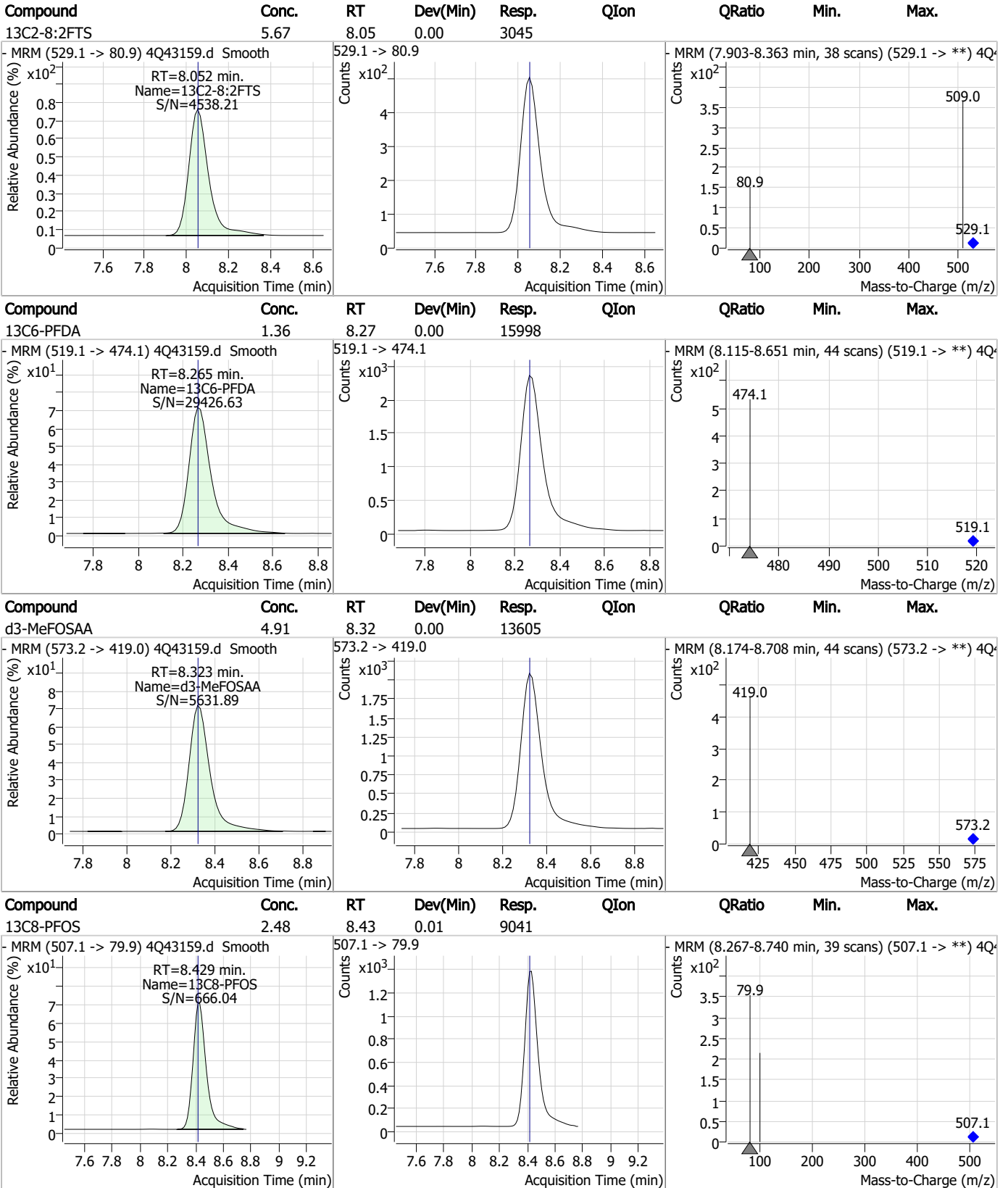
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

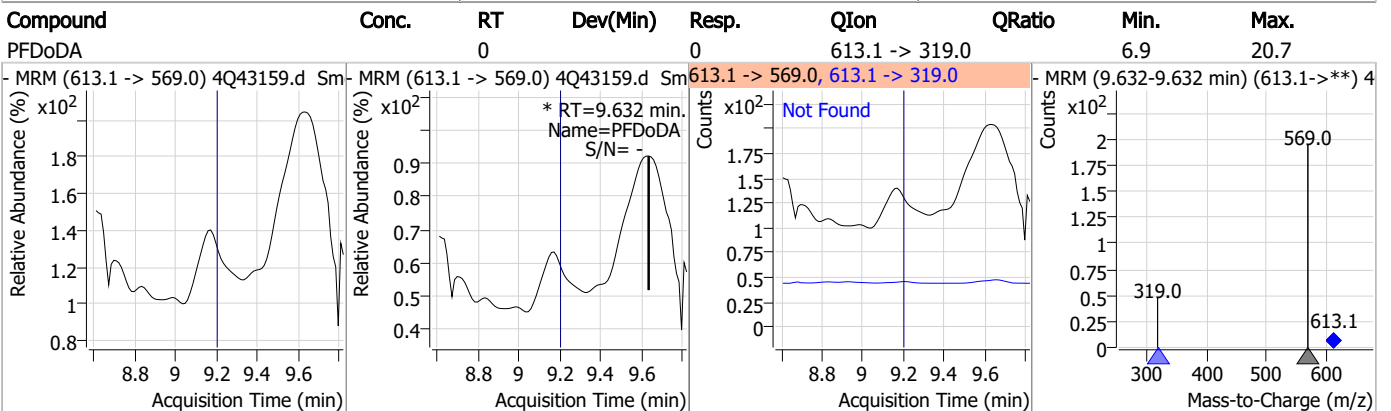
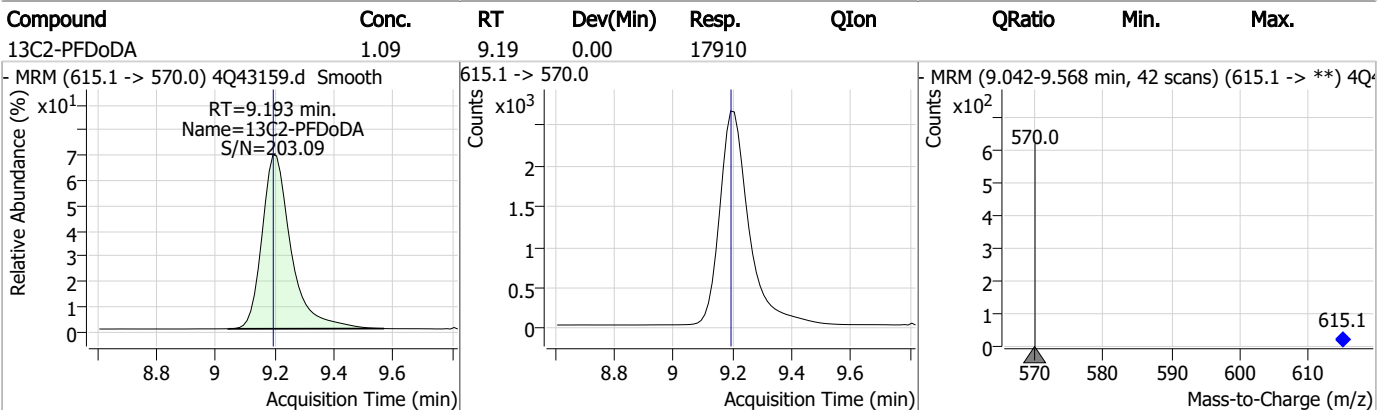
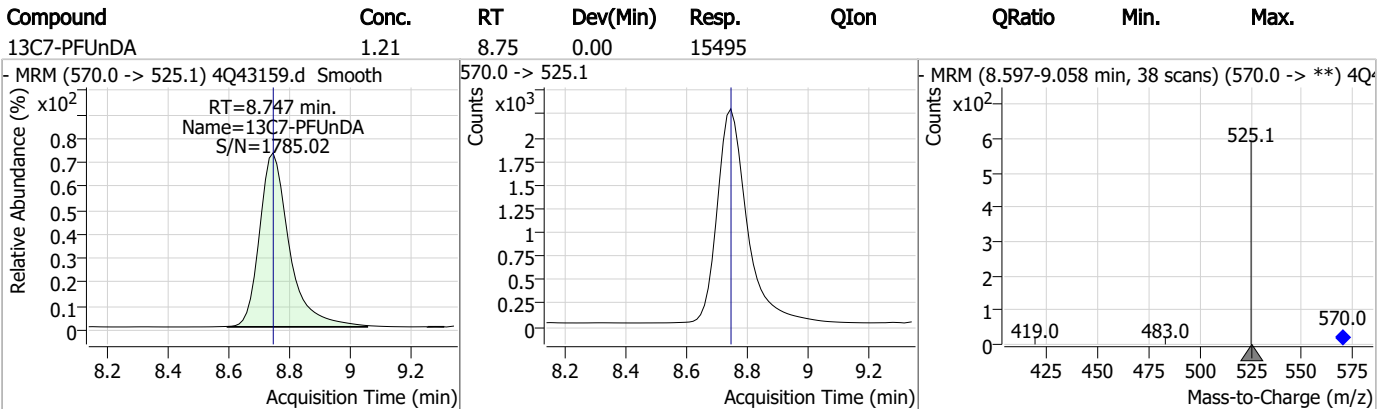
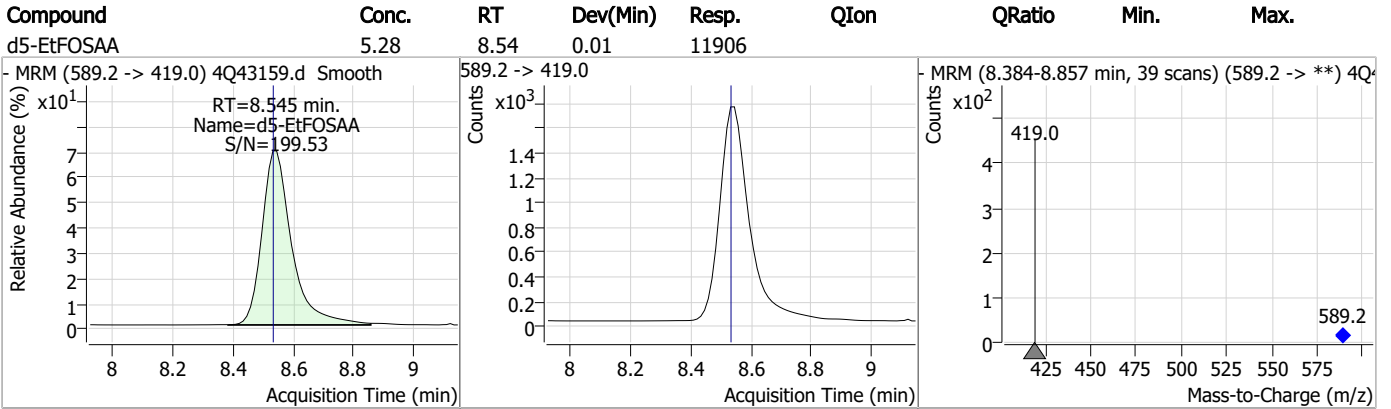


Perfluorinated Compounds by LC/MS/MS

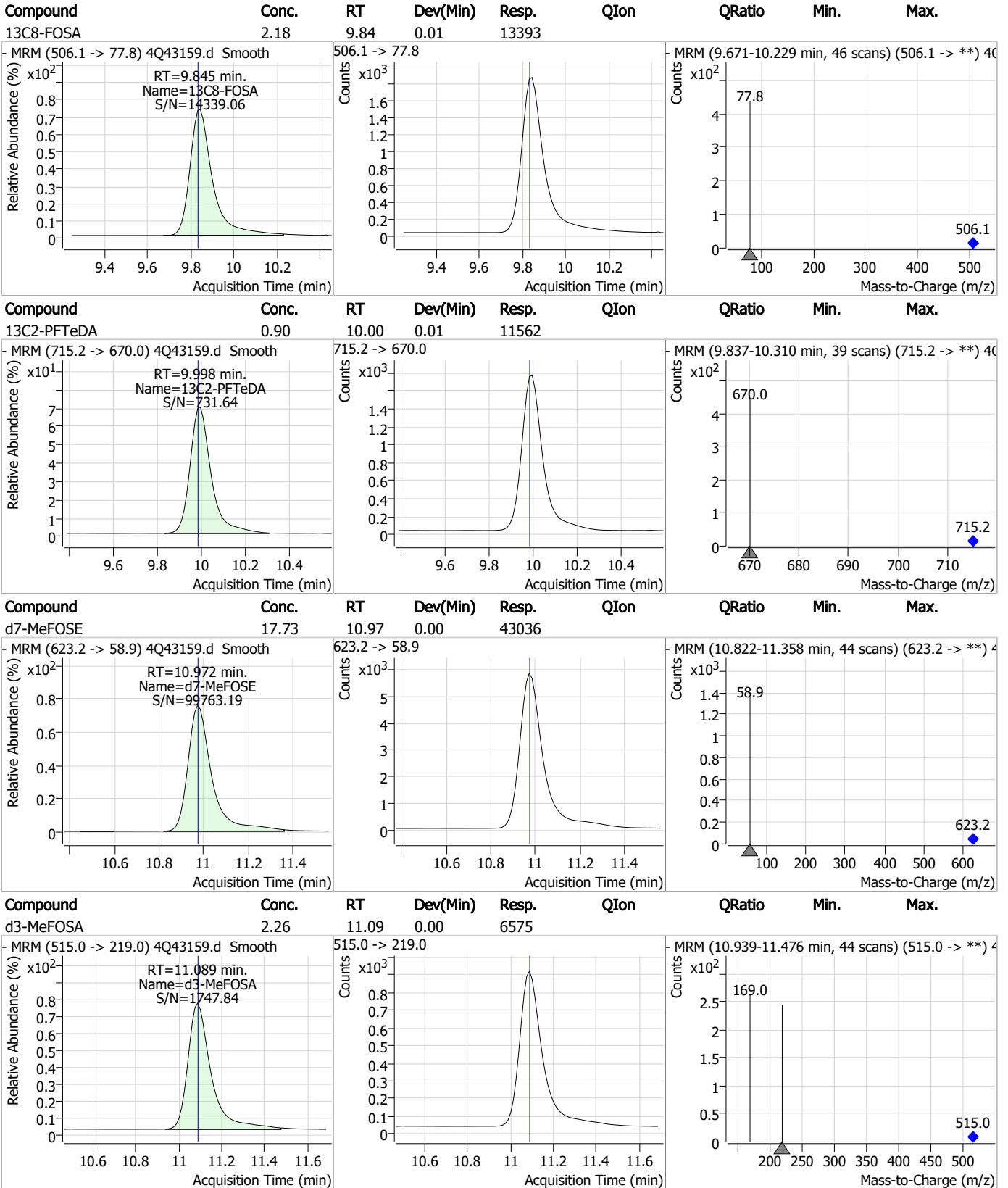


7.1.1
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Perfluorinated Compounds by LC/MS/MS



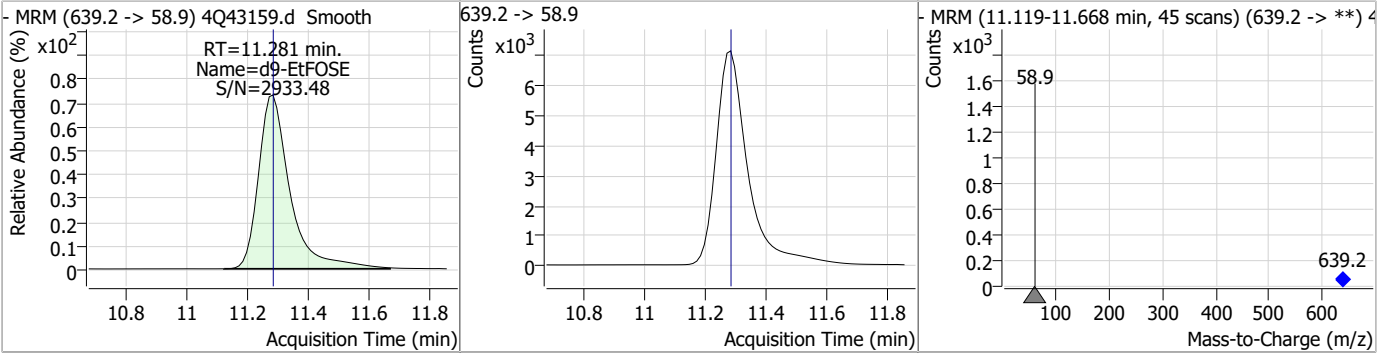
Perfluorinated Compounds by LC/MS/MS



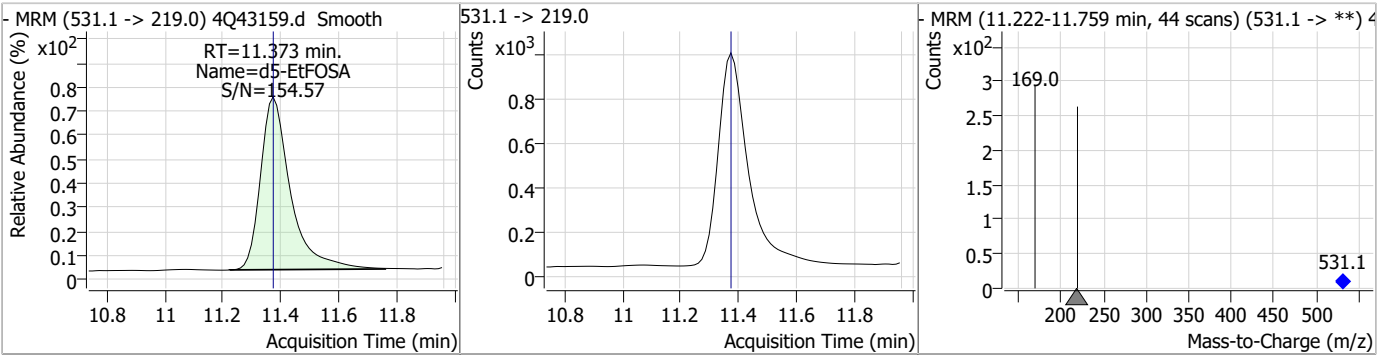
7.1.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	17.27	11.28	0.00	51296				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.18	11.37	0.00	6875				



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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43163.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 2:57:20 PM
 Sample Name : FC5194-2
 Vial : P4-C8
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96403,S4q624,560,,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.990	216.8 -> 171.9	60296	10.00 µg/L	0.028
M5-PFPeA	4.437	268.3 -> 223.0	47638	5.00 µg/L	-0.013
M5-PFHxA	5.622	318.0 -> 273.0	50296	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	26266	2.50 µg/L	0.000
M8-PFOA	7.213	421.1 -> 376.0	30639	2.50 µg/L	0.000
M9-PFNA	7.758	472.1 -> 427.0	16539	1.25 µg/L	-0.001
M6-PFDA	8.265	519.1 -> 474.1	16554	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	16961	1.25 µg/L	-0.001
M2-PFDoDA	9.193	615.1 -> 570.0	19709	1.25 µg/L	-0.001
M2-PFTeDA	9.998	715.2 -> 670.0	12544	1.25 µg/L	0.011
M8-FOSA	9.845	506.1 -> 77.8	12342	2.50 µg/L	0.011
M3-PFBS	5.527	302.1 -> 79.9	10304	2.50 µg/L	0.000
M3-PFHxS	7.316	402.1 -> 79.9	6473	2.50 µg/L	-0.001
M8-PFOS	8.429	507.1 -> 79.9	9171	2.50 µg/L	0.012
M2-4:2FTS	5.298	329.1 -> 80.9	1697	5.00 µg/L	-0.012
M2-6:2FTS	6.973	429.1 -> 80.9	1723	5.00 µg/L	-0.001
M2-8:2FTS	8.052	529.1 -> 80.9	2565	5.00 µg/L	-0.001
M3-MeFOSAA	8.335	573.2 -> 419.0	12893	5.00 µg/L	0.011
M3-HFPO-DA	5.976	286.9 -> 168.9	25476	10.00 µg/L	-0.013
M5-EtFOSAA	8.545	589.2 -> 419.0	10717	5.00 µg/L	0.011
M7-MeFOSE	10.972	623.2 -> 58.9	39737	25.00 µg/L	-0.002
M9-EtFOSE	11.281	639.2 -> 58.9	48061	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	6680	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	6195	2.50 µg/L	-0.002
13C4-PFOS	8.430	502.8 -> 79.9	8072	2.50 µg/L	0.012
13C3-PFBA	2.993	216.0 -> 172.0	36316	5.00 µg/L	0.027
18O2-PFHxS	7.315	403.0 -> 83.9	3991	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	31137	2.50 µg/L	0.000
13C2-PFDA	8.265	515.1 -> 470.1	11882	1.25 µg/L	-0.001
13C5-PFNA	7.759	468.0 -> 423.0	15314	1.25 µg/L	-0.001
13C2-PFHxA	5.623	315.1 -> 270.0	36225	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.298	329.1 -> 80.9	1697	7.79 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 155.7%		
13C2-6:2FTS	6.973	429.1 -> 80.9	1723	5.51 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.1%		
13C2-8:2FTS	8.052	529.1 -> 80.9	2565	4.98 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C2-PFDoDA	9.193	615.1 -> 570.0	19709	1.35 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.8%		
13C2-PFTeDA	9.998	715.2 -> 670.0	12544	1.10 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.1%		
13C3-PFBS	5.527	302.1 -> 79.9	10304	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.4%		
13C3-PFHxS	7.316	402.1 -> 79.9	6473	2.93 µg/L	-0.001

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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 = 117.2%		
13C4-PFBA	2.990	216.8 -> 171.9	60296	9.53	µg/L	0.028
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.3%		
13C4-PFHpA	6.555	367.1 -> 322.0	26266	3.19	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 127.7%		
13C5-PFHxA	5.622	318.0 -> 273.0	50296	3.00	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 120.2%		
13C5-PFPeA	4.437	268.3 -> 223.0	47638	4.46	µg/L	-0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.3%		
13C6-PFDA	8.265	519.1 -> 474.1	16554	1.58	µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 126.7%		
13C7-PFUnDA	8.747	570.0 -> 525.1	16961	1.49	µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 119.5%		
13C8-FOSA	9.845	506.1 -> 77.8	12342	2.34	µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%		
13C8-PFOA	7.213	421.1 -> 376.0	30639	2.99	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.5%		
13C8-PFOS	8.429	507.1 -> 79.9	9171	2.93	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 117.2%		
13C9-PFNA	7.758	472.1 -> 427.0	16539	1.48	µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 118.6%		
d3-MeFOSAA	8.335	573.2 -> 419.0	12893	5.42	µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.5%		
13C3-HFPO-DA	5.976	286.9 -> 168.9	25476	10.02	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%		
d3-MeFOSA	11.089	515.0 -> 219.0	6195	2.48	µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%		
d5-EtFOSAA	8.545	589.2 -> 419.0	10717	5.55	µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.9%		
d7-MeFOSE	10.972	623.2 -> 58.9	39737	19.09	µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.4%		
d9-EtFOSE	11.281	639.2 -> 58.9	48061	18.87	µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.5%		
d5-EtFOSA	11.373	531.1 -> 219.0	6680	2.47	µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%		

Target Compounds

QValue

4:2FTS	-	327.1 -> 307.0	-	N.D.		
		327.1 -> 80.9				
6:2FTS	-	427.1 -> 407.0	-	N.D.		
		427.1 -> 80.9				
8:2FTS	-	527.1 -> 507.0	-	N.D.		
		527.1 -> 80.8				
EtFOSAA	-	584.2 -> 419.1	-	N.D.		
		584.2 -> 526.0				
FOSA	-	498.1 -> 77.9	-	N.D.		
		498.1 -> 478.0				
MeFOSAA	-	570.1 -> 419.0	-	N.D.		
		570.1 -> 483.0				
PFBA	3.058	212.8 -> 168.9	0	µg/L	m	1
PFBS	-	298.7 -> 79.9	-	N.D.		
		298.7 -> 98.8				
PFDA	8.627	512.9 -> 469.0	0	µg/L	m	1
		512.9 -> 219.0	0			
PFDODA	-	613.1 -> 569.0	-	N.D.		
		613.1 -> 319.0				
PFDS	-	599.0 -> 79.9	-	N.D.		

7.12
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.017	599.0 -> 98.8				
		363.1 -> 319.0	0	µg/L	m	1
PFHpS	-	363.1 -> 169.0	0			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.612	449.0 -> 98.9				
		313.0 -> 269.0	760	0.05 µg/L	#m	92
PFHxS	-	313.0 -> 118.9	43			
		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	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	4.526	498.9 -> 98.8				
		263.0 -> 219.0	0	µg/L	m	1
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	3.723	241.0 -> 177.0	0	µg/L	m	1
		241.0 -> 117.0	0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	11.819	630.0 -> 58.9	0	µg/L	m	1
		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

7.1.2
7

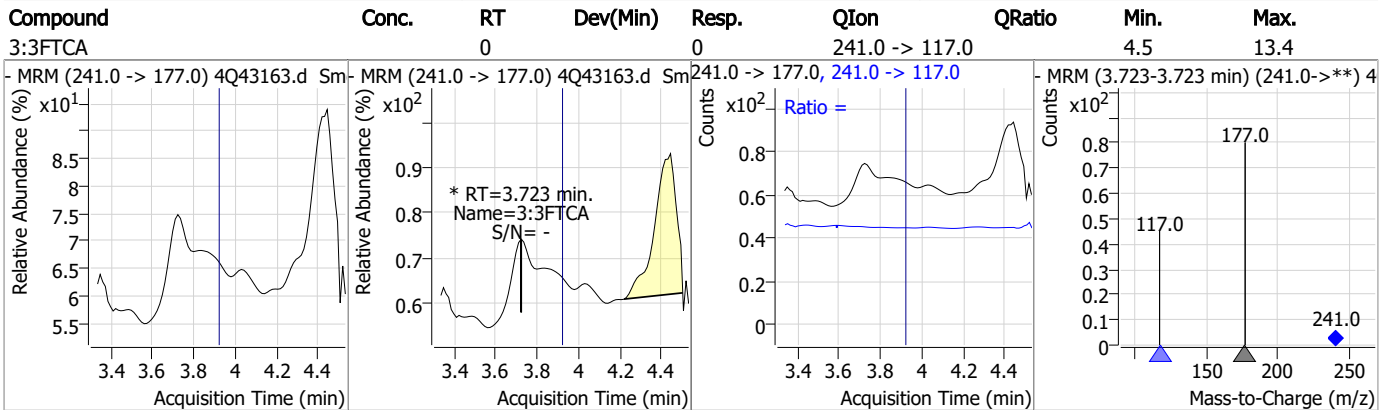
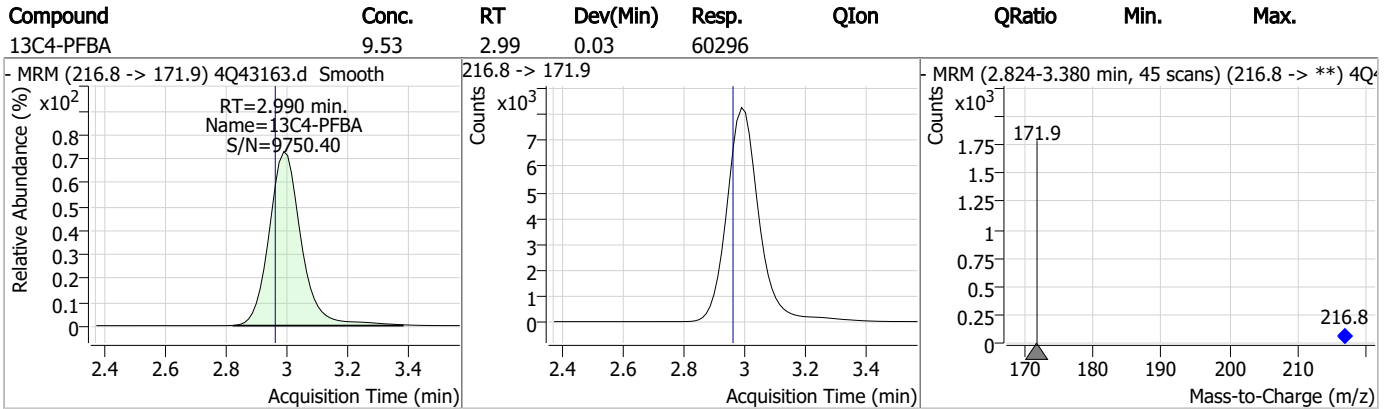
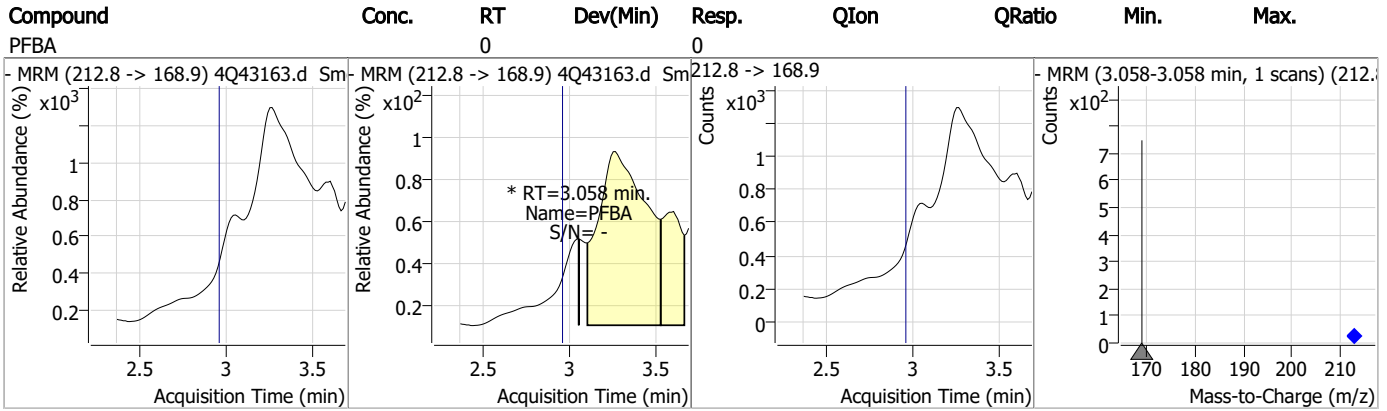
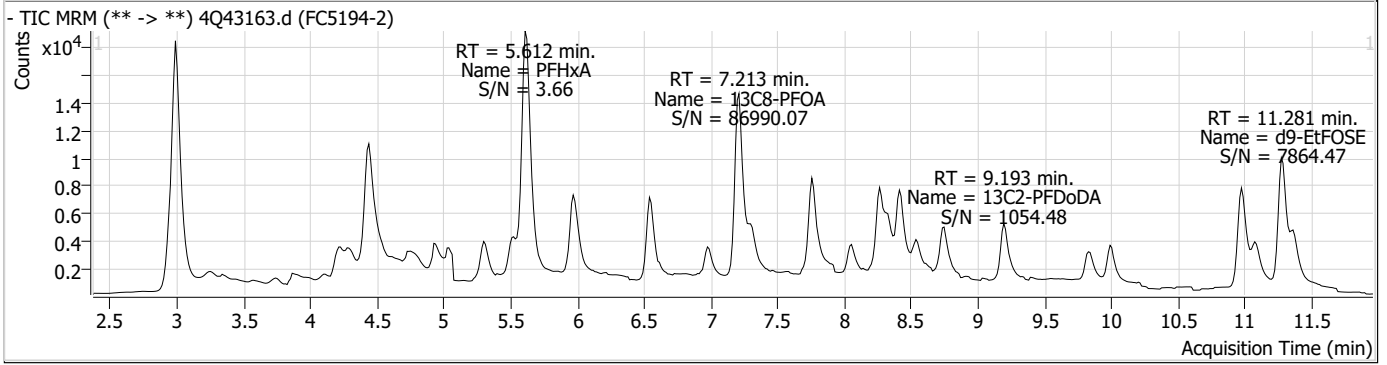
Perfluorinated Compounds by LC/MS/MS

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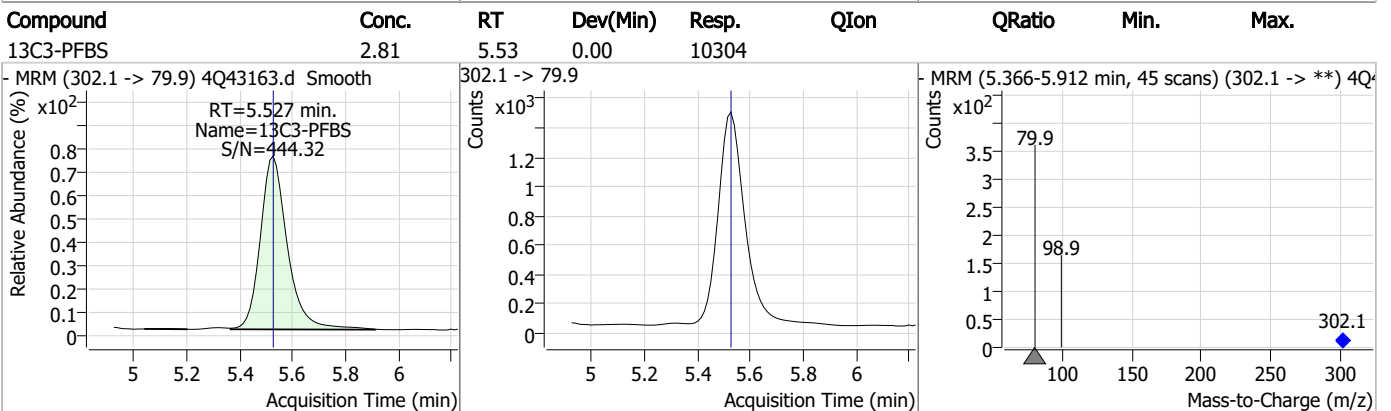
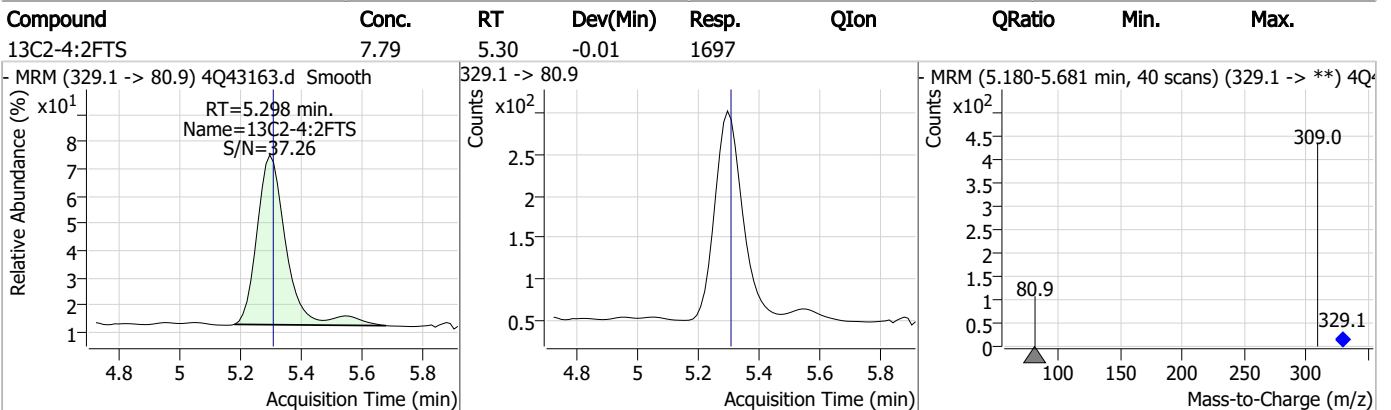
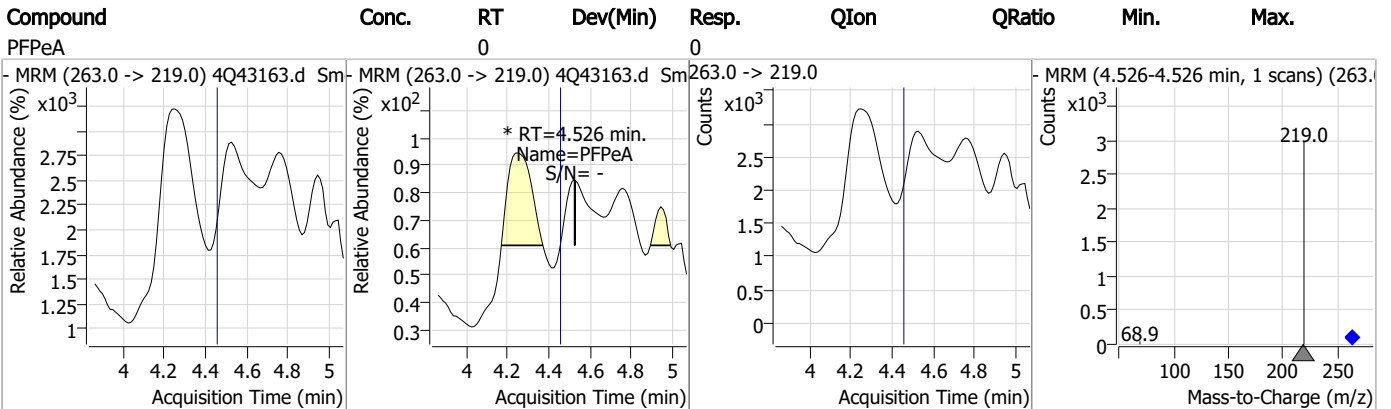
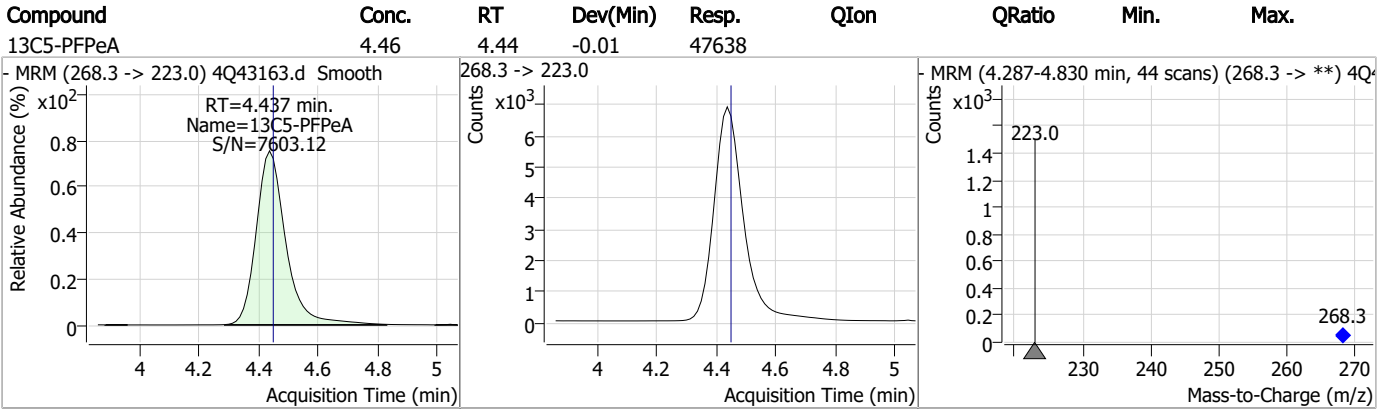
7.1.2

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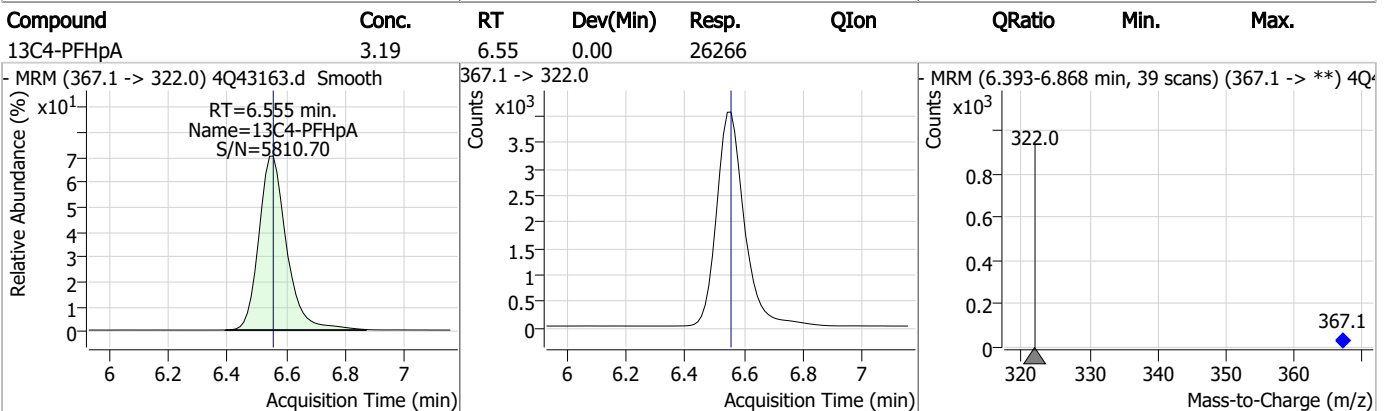
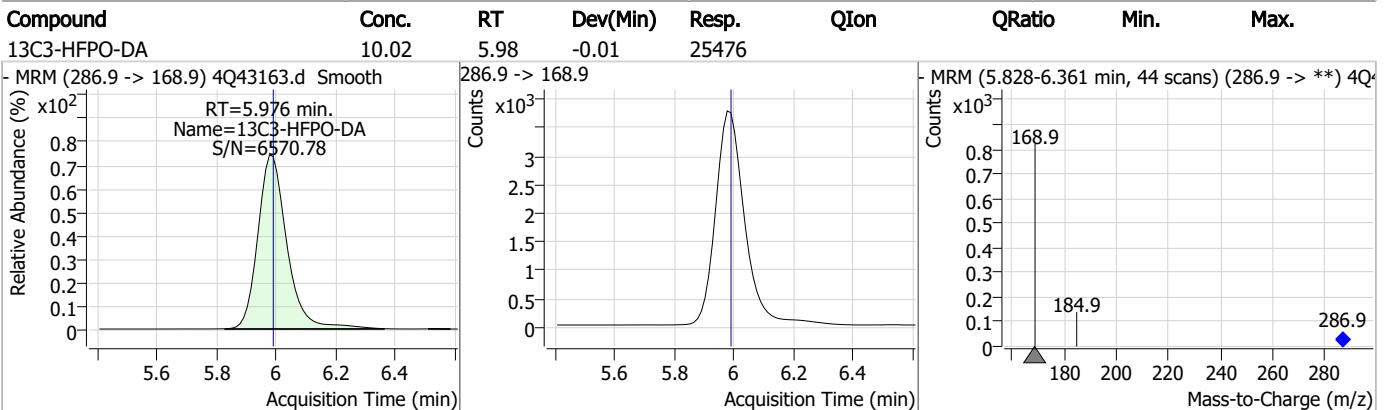
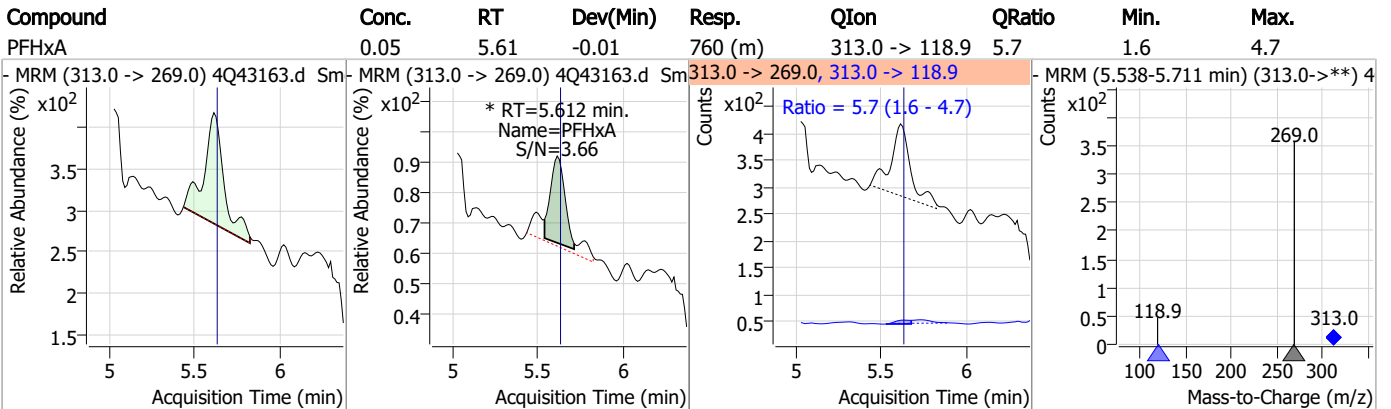
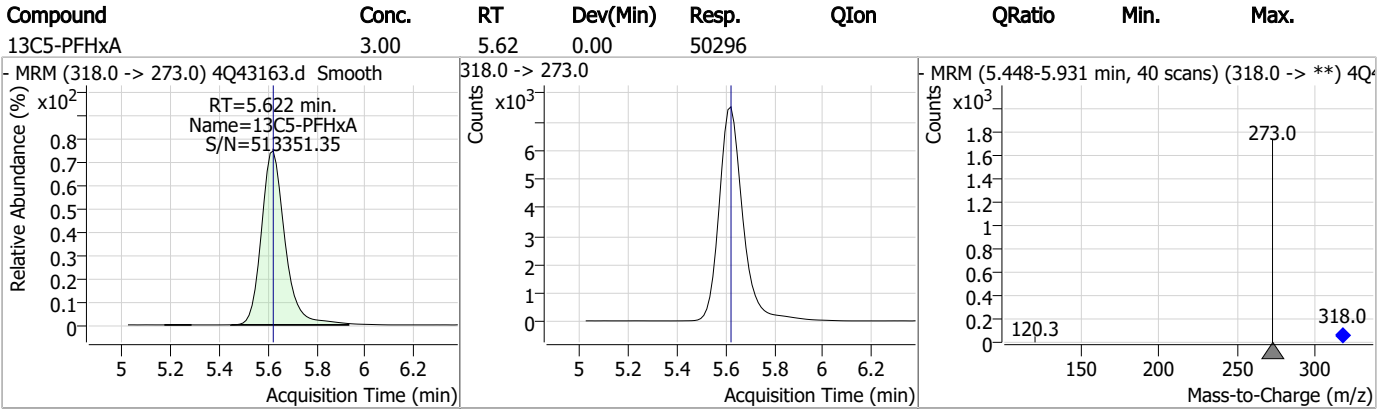
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



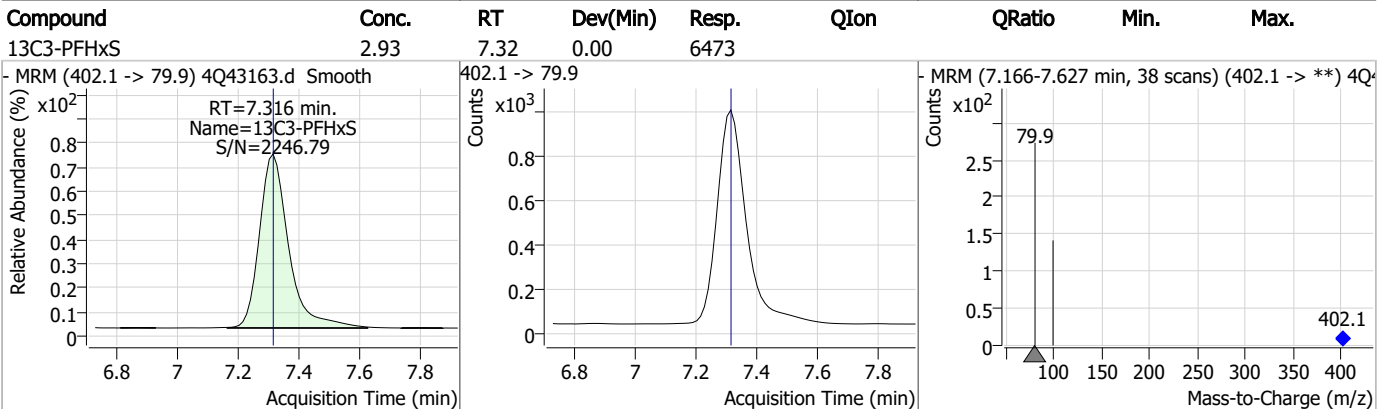
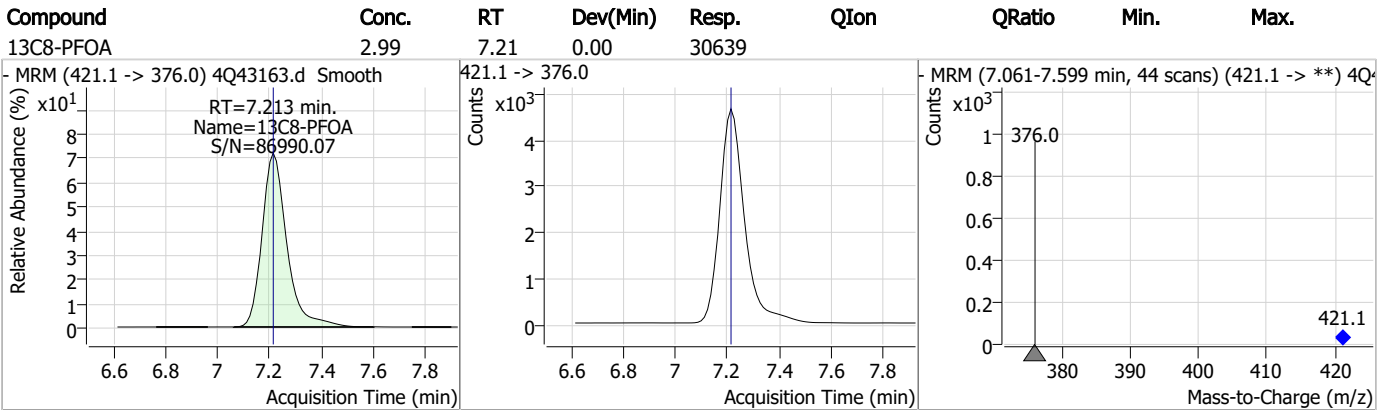
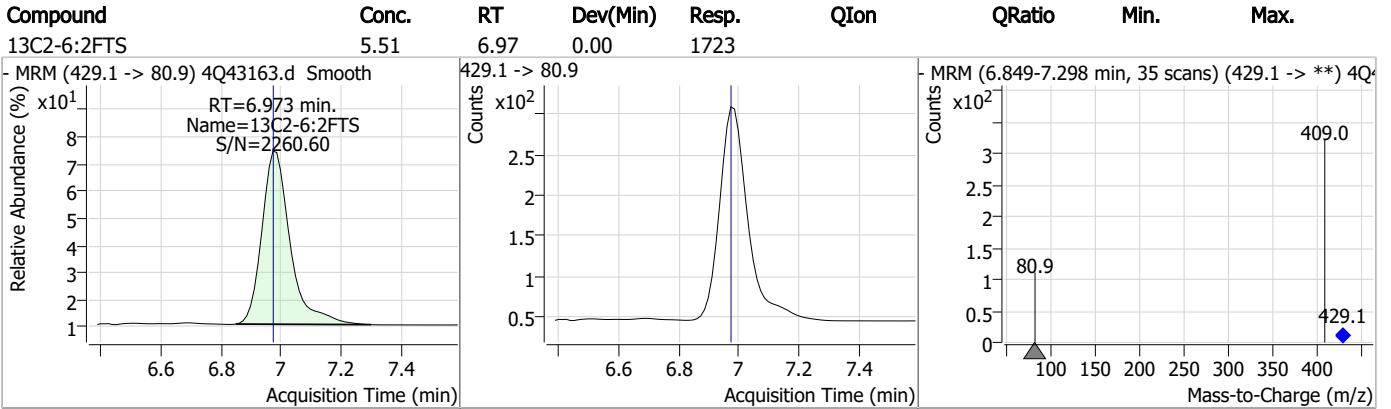
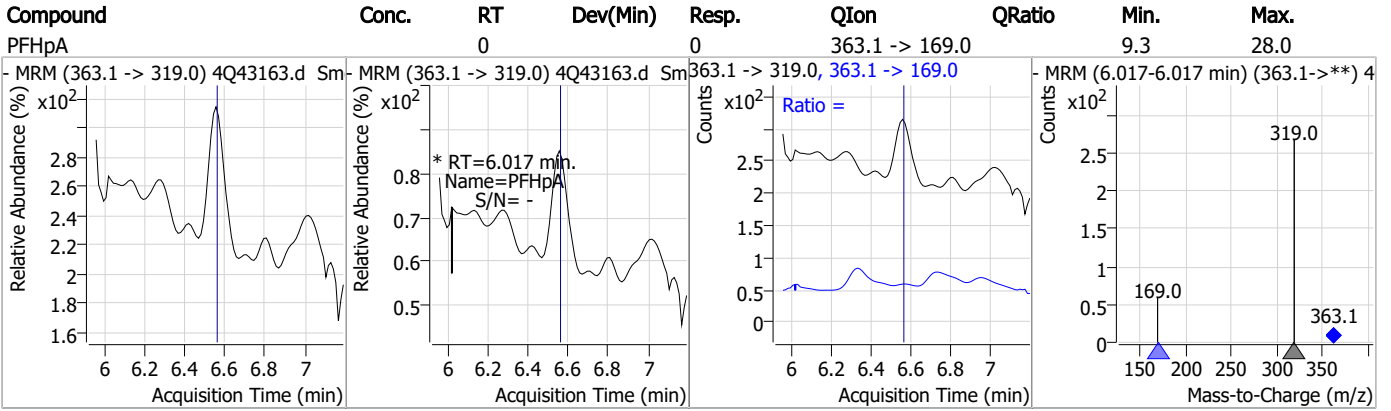
Perfluorinated Compounds by LC/MS/MS



7.1.2

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Perfluorinated Compounds by LC/MS/MS

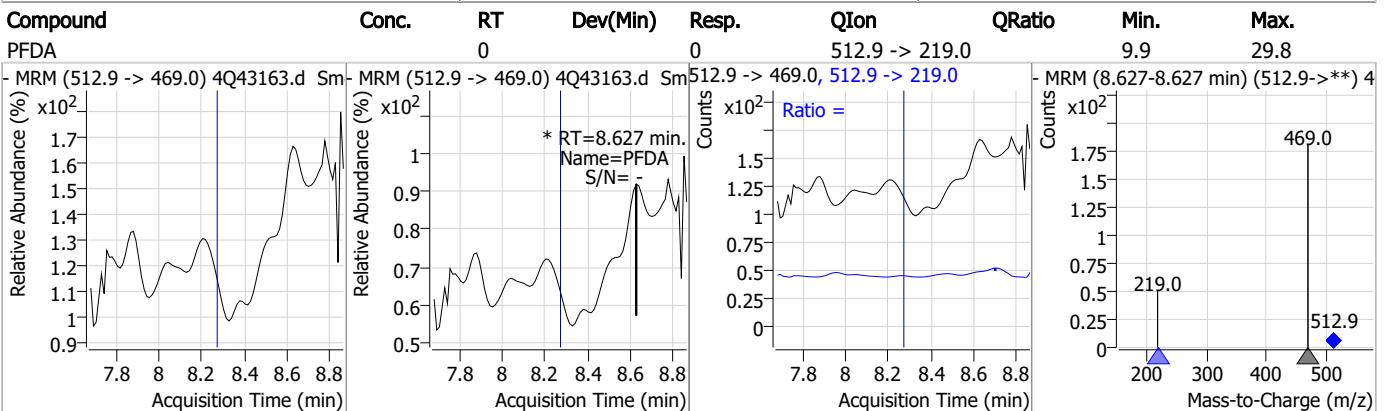
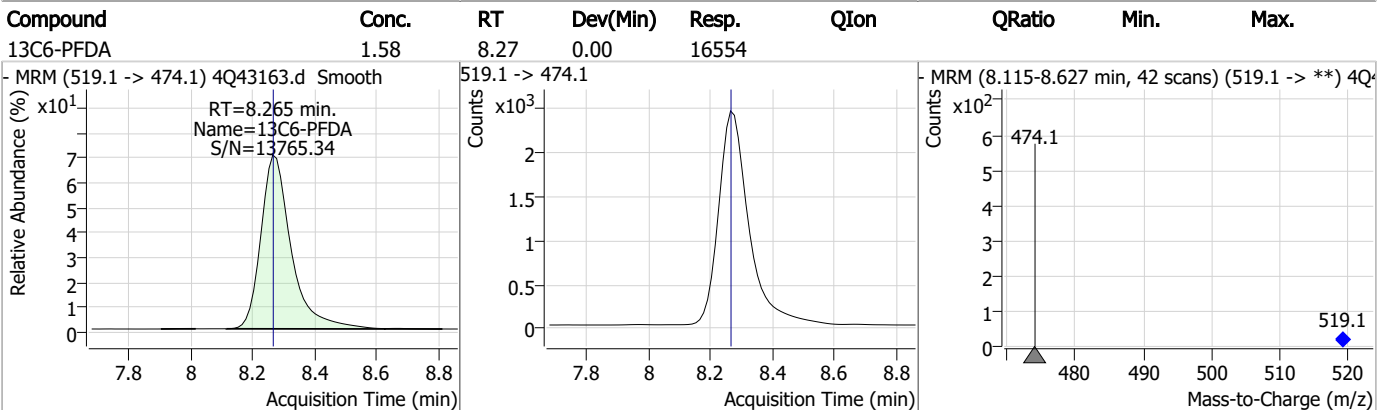
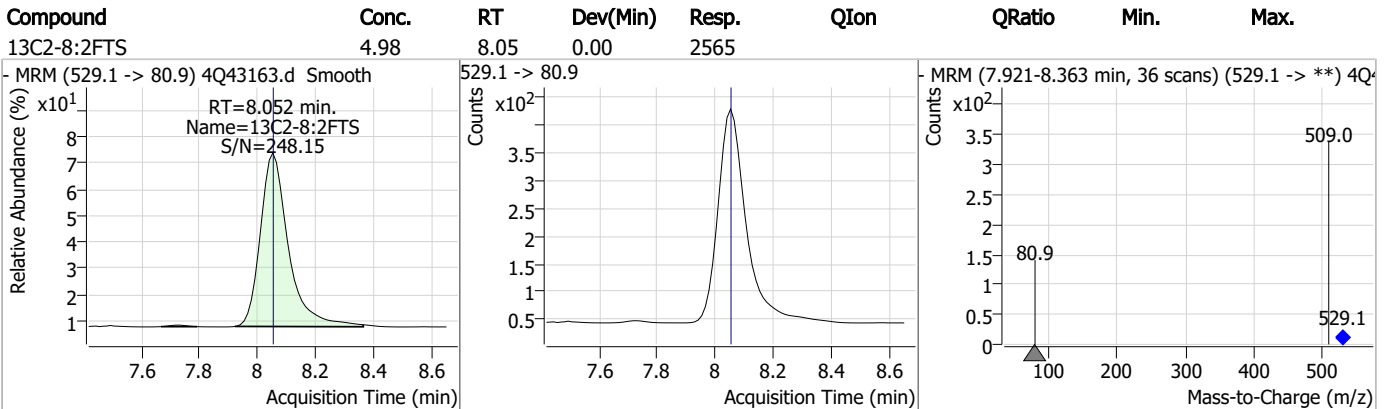
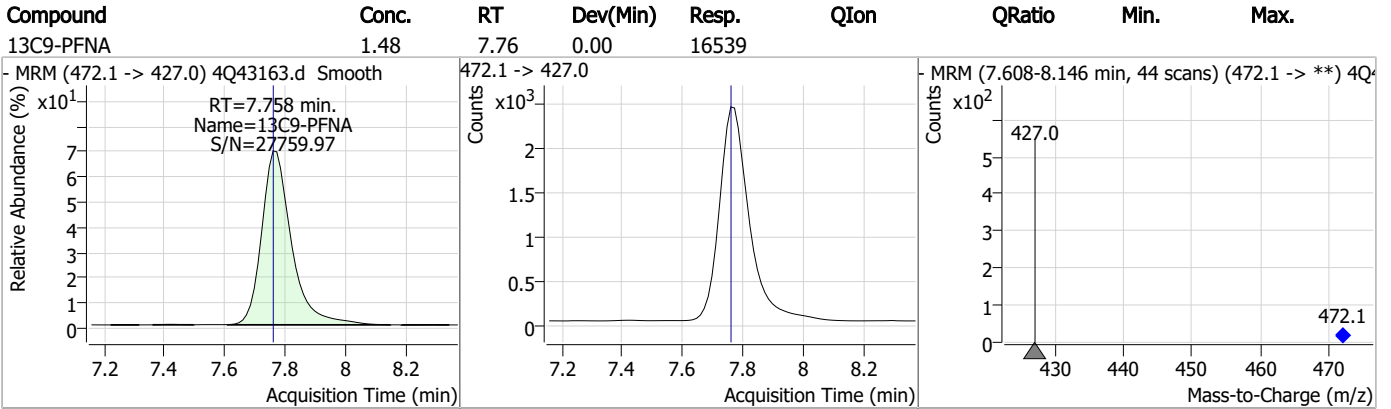


7.1.2

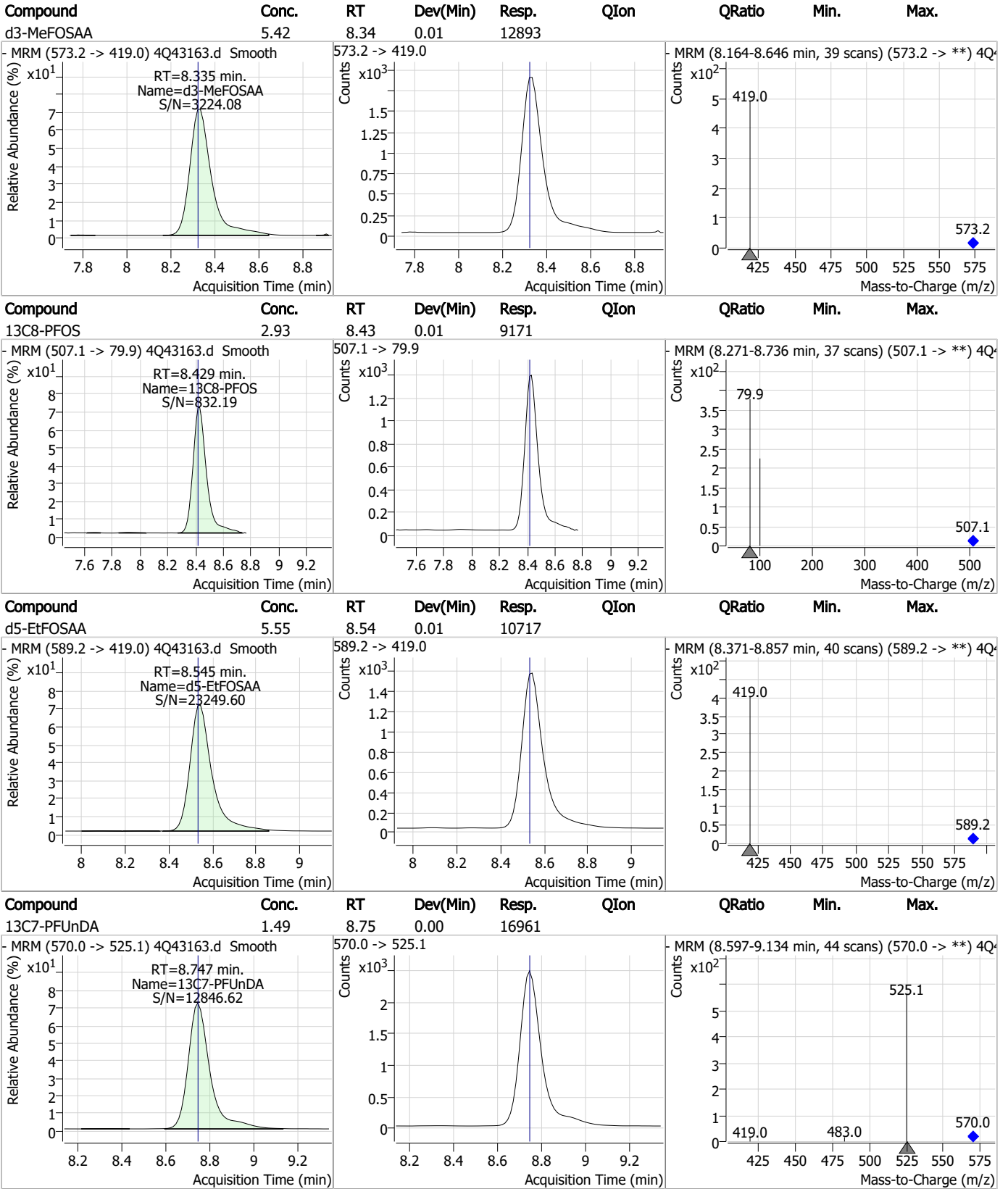
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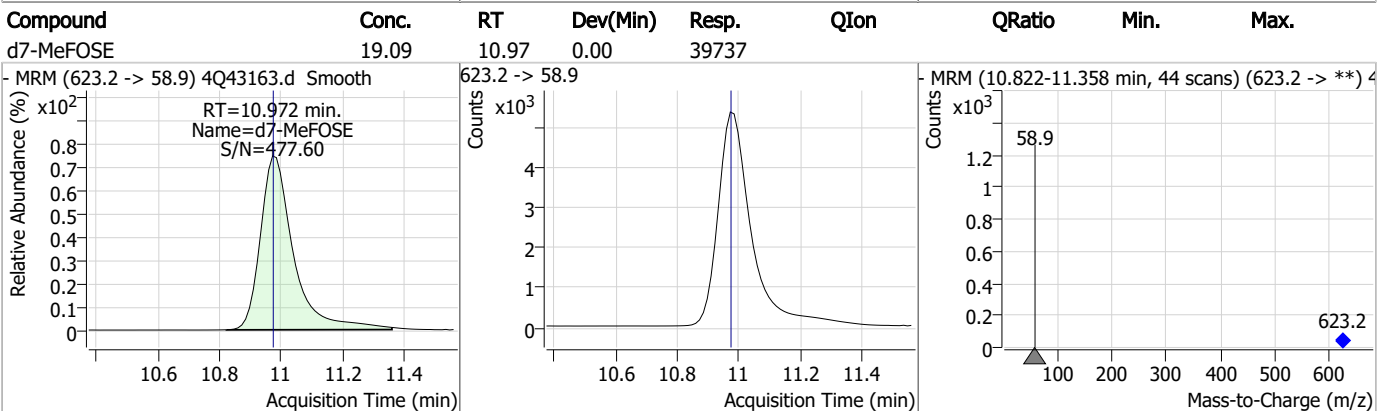
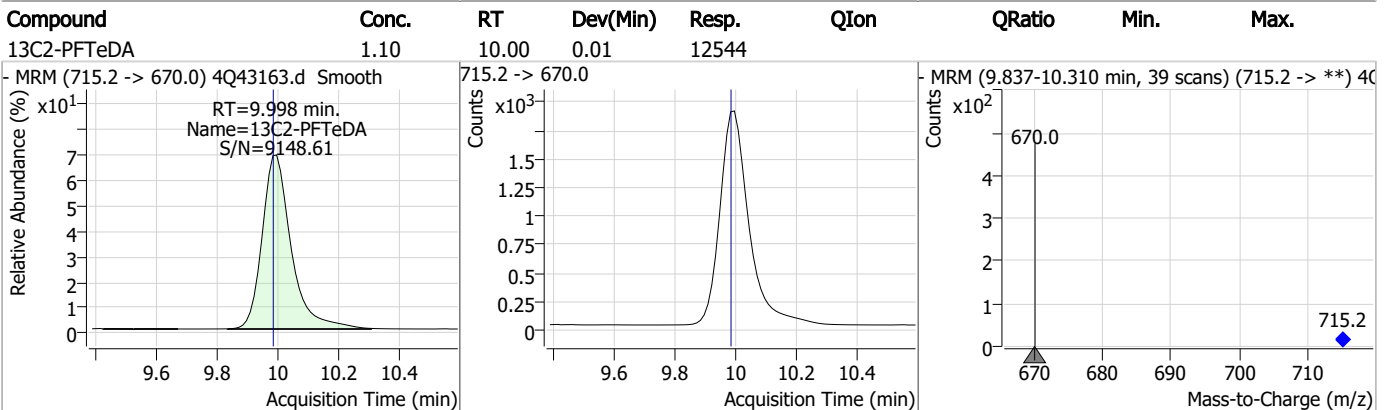
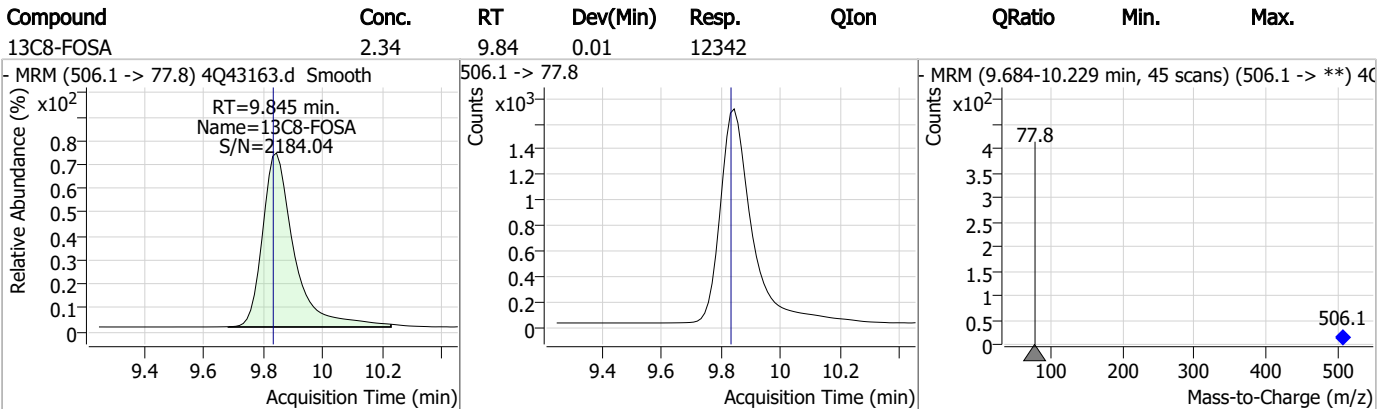
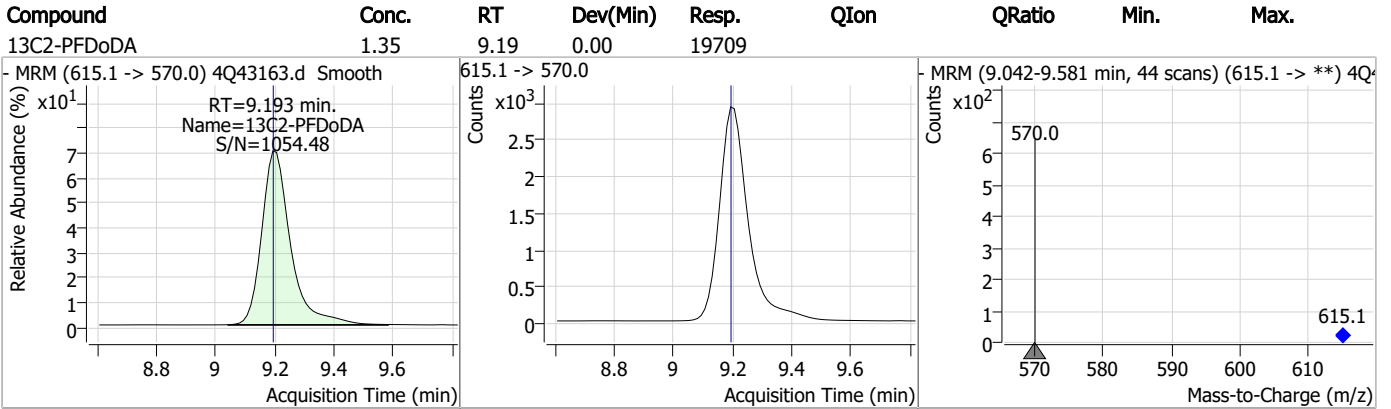
Perfluorinated Compounds by LC/MS/MS



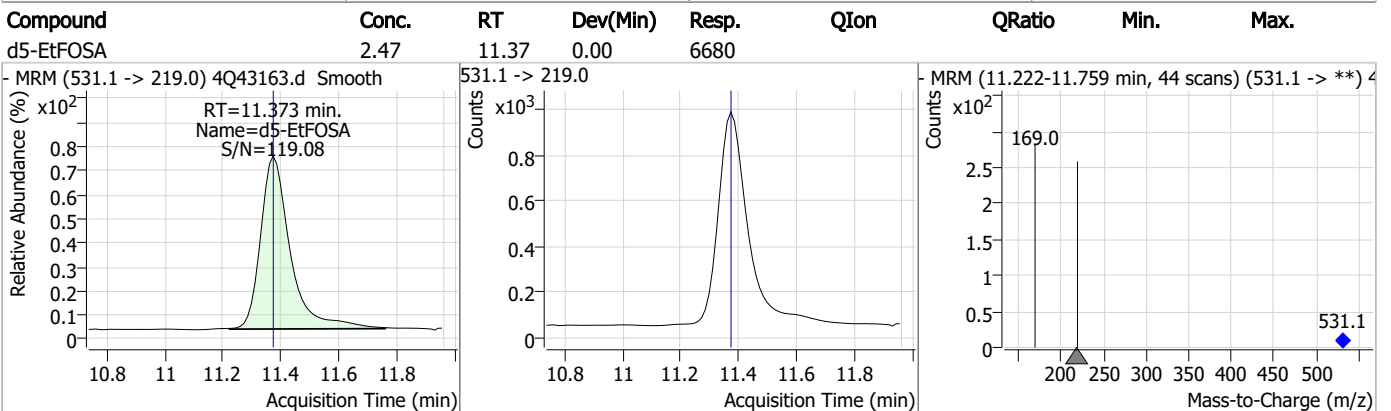
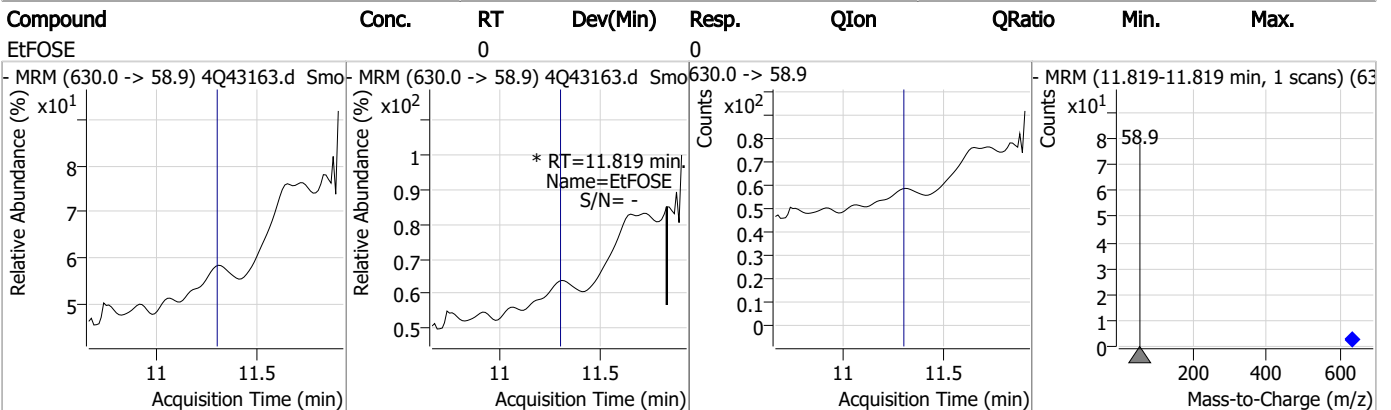
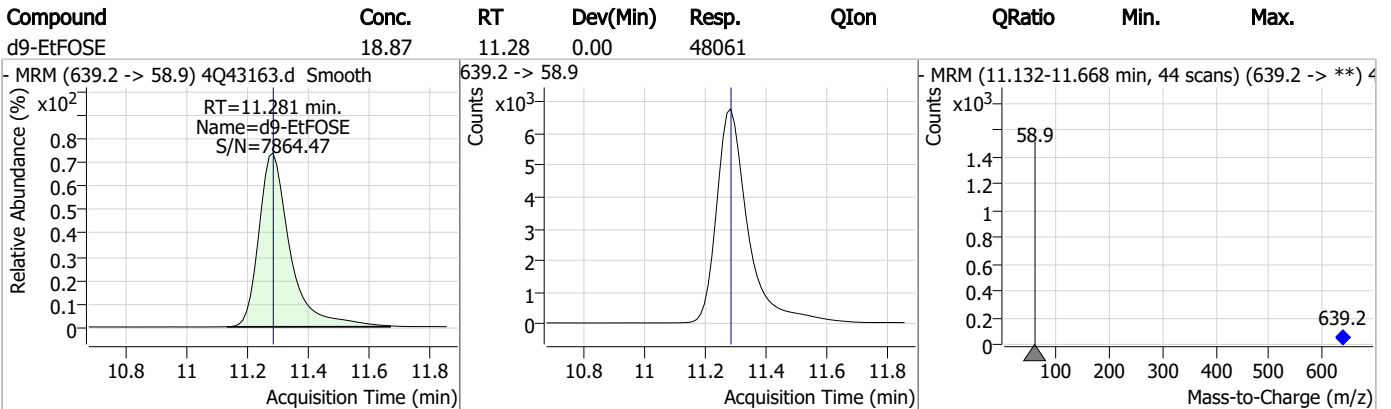
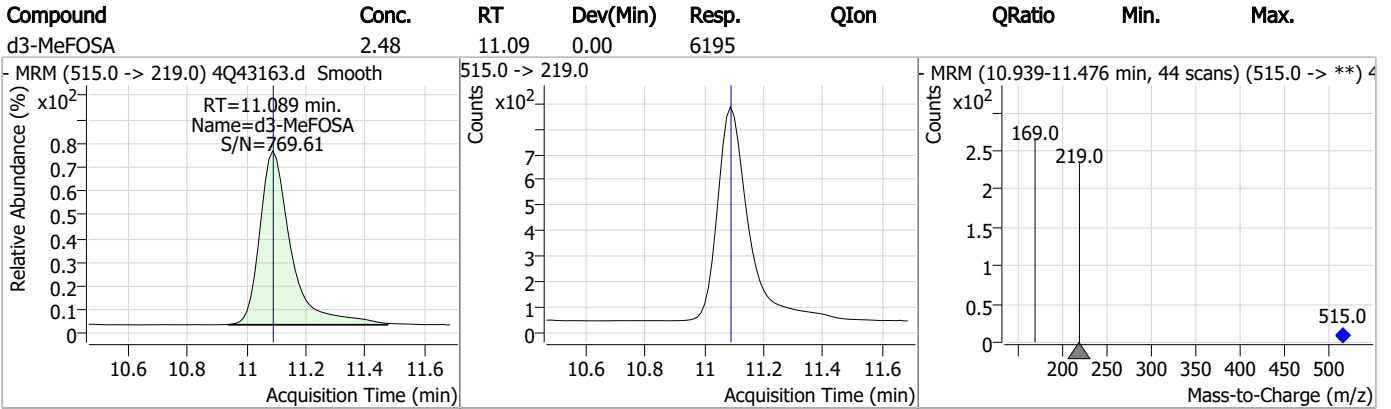
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: FC5194-2 Method: EPA DRAFT 1633
Lab FileID: 4Q43163.D Analyst approved: 04/19/23 17:31 Norman Farmer
Injection Time: 04/18/23 14:57 Supervisor approved: 04/19/23 17:32 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanoic acid	307-24-4		5.61	Poorly defined baseline

7.1.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43361.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/21/2023 12:01:11 AM
 Sample Name : fc5194-3
 Vial : P3-C5
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s4q626.batch.bin
 Sample Information : OP96494,S4q626,510,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.990	216.8 -> 171.9	74942	10.00 µg/L	0.053
M5-PFPeA	4.437	268.3 -> 223.0	56610	5.00 µg/L	0.025
M5-PFHxA	5.597	318.0 -> 273.0	47400	2.50 µg/L	0.012
M4-PFHpA	6.529	367.1 -> 322.0	24245	2.50 µg/L	0.012
M8-PFOA	7.188	421.1 -> 376.0	32096	2.50 µg/L	0.000
M9-PFNA	7.733	472.1 -> 427.0	16980	1.25 µg/L	0.000
M6-PFDA	8.240	519.1 -> 474.1	16900	1.25 µg/L	0.000
M7-PFUnDA	8.710	570.0 -> 525.1	16052	1.25 µg/L	-0.012
M2-PFDoDA	9.168	615.1 -> 570.0	16544	1.25 µg/L	-0.012
M2-PFTeDA	9.961	715.2 -> 670.0	12837	1.25 µg/L	-0.012
M8-FOSA	9.783	506.1 -> 77.8	12823	2.50 µg/L	0.000
M3-PFBS	5.514	302.1 -> 79.9	10650	2.50 µg/L	0.012
M3-PFHxS	7.291	402.1 -> 79.9	5940	2.50 µg/L	0.000
M8-PFOS	8.392	507.1 -> 79.9	8051	2.50 µg/L	0.000
M2-4:2FTS	5.285	329.1 -> 80.9	1196	5.00 µg/L	0.012
M2-6:2FTS	6.961	429.1 -> 80.9	1572	5.00 µg/L	0.012
M2-8:2FTS	8.027	529.1 -> 80.9	2695	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	13826	5.00 µg/L	0.000
M3-HFPO-DA	5.964	286.9 -> 168.9	25992	10.00 µg/L	0.013
M5-EtFOSAA	8.507	589.2 -> 419.0	10576	5.00 µg/L	0.000
M7-MeFOSE	10.947	623.2 -> 58.9	44428	25.00 µg/L	-0.012
M9-EtFOSE	11.256	639.2 -> 58.9	59495	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	6126	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	6067	2.50 µg/L	0.000
13C4-PFOS	8.393	502.8 -> 79.9	10090	2.50 µg/L	-0.012
13C3-PFBA	2.978	216.0 -> 172.0	63110	5.00 µg/L	0.037
18O2-PFHxS	7.290	403.0 -> 83.9	4519	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	44740	2.50 µg/L	0.000
13C2-PFDA	8.241	515.1 -> 470.1	18275	1.25 µg/L	0.000
13C5-PFNA	7.734	468.0 -> 423.0	23270	1.25 µg/L	0.000
13C2-PFHxA	5.598	315.1 -> 270.0	44709	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.285	329.1 -> 80.9	1196	4.51 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.2%		
13C2-6:2FTS	6.961	429.1 -> 80.9	1572	3.76 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 75.3%		
13C2-8:2FTS	8.027	529.1 -> 80.9	2695	3.56 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 71.2%		
13C2-PFDoDA	9.168	615.1 -> 570.0	16544	0.75 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 60.0%		
13C2-PFTeDA	9.961	715.2 -> 670.0	12837	0.73 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 58.5%		
13C3-PFBS	5.514	302.1 -> 79.9	10650	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C3-PFHxS	7.291	402.1 -> 79.9	5940	2.30 µg/L	0.000

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 = 92.1%		
13C4-PFBA	2.990	216.8 -> 171.9	74942	6.59	µg/L	0.053
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 65.9%		
13C4-PFHpA	6.529	367.1 -> 322.0	24245	2.16	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.6%		
13C5-PFHxA	5.597	318.0 -> 273.0	47400	2.26	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.2%		
13C5-PFPeA	4.437	268.3 -> 223.0	56610	4.14	µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 82.8%		
13C6-PFDA	8.240	519.1 -> 474.1	16900	1.07	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 85.5%		
13C7-PFUnDA	8.710	570.0 -> 525.1	16052	0.92	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 73.3%		
13C8-FOSA	9.783	506.1 -> 77.8	12823	1.75	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 70.1%		
13C8-PFOA	7.188	421.1 -> 376.0	32096	2.15	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.0%		
13C8-PFOS	8.392	507.1 -> 79.9	8051	2.00	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 79.9%		
13C9-PFNA	7.733	472.1 -> 427.0	16980	1.04	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 83.6%		
d3-MeFOSAA	8.298	573.2 -> 419.0	13826	4.17	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 83.5%		
13C3-HFPO-DA	5.964	286.9 -> 168.9	25992	7.66	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.6%		
d3-MeFOSA	11.064	515.0 -> 219.0	6067	1.60	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 64.2%		
d5-EtFOSAA	8.507	589.2 -> 419.0	10576	3.80	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 76.0%		
d7-MeFOSE	10.947	623.2 -> 58.9	44428	14.35	µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 57.4%		
d9-EtFOSE	11.256	639.2 -> 58.9	59495	15.01	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 60.0%		
d5-EtFOSA	11.360	531.1 -> 219.0	6126	1.52	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 61.0%		

Target Compounds

Compound	RT	Transition	Response	Conc.	Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.		
		327.1 -> 80.9				
6:2FTS	6.961	427.1 -> 407.0	1241	1.03	µg/L	83
		427.1 -> 80.9	412			
8:2FTS	-	527.1 -> 507.0	-	N.D.		
		527.1 -> 80.8				
EtFOSAA	-	584.2 -> 419.1	-	N.D.		
		584.2 -> 526.0				
FOSA	-	498.1 -> 77.9	-	N.D.		
		498.1 -> 478.0				
MeFOSAA	-	570.1 -> 419.0	-	N.D.		
		570.1 -> 483.0				
PFBA	-	212.8 -> 168.9	-	N.D.		
PFBS	5.305	298.7 -> 79.9	0	µg/L	m	1
		298.7 -> 98.8	0			
PFDA	8.577	512.9 -> 469.0	0	µg/L	m	1
		512.9 -> 219.0	0			
PFDODA	-	613.1 -> 569.0	-	N.D.		
		613.1 -> 319.0				
PFDS	-	599.0 -> 79.9	-	N.D.		



7.1.3

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.517	599.0 -> 98.8				
		363.1 -> 319.0	1983	0.16	µg/L	96
PFHpS	-	363.1 -> 169.0	309			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.600	449.0 -> 98.9				
		313.0 -> 269.0	2364	0.16	µg/L	m 99
PFHxS	-	313.0 -> 118.9	68			
		398.7 -> 79.9	-	N.D.		
PFNA	8.121	398.7 -> 98.9				
		463.0 -> 419.0	0		µg/L	m 1
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	4.439	498.9 -> 98.8				
		263.0 -> 219.0	2771	0.25	µg/L	m 100
PFPeS	6.531	349.1 -> 79.9	0		µg/L	m 1
		349.1 -> 98.9	0			
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
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	4.218	241.0 -> 177.0	0		µg/L	m 1
		241.0 -> 117.0	0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.1.3
7

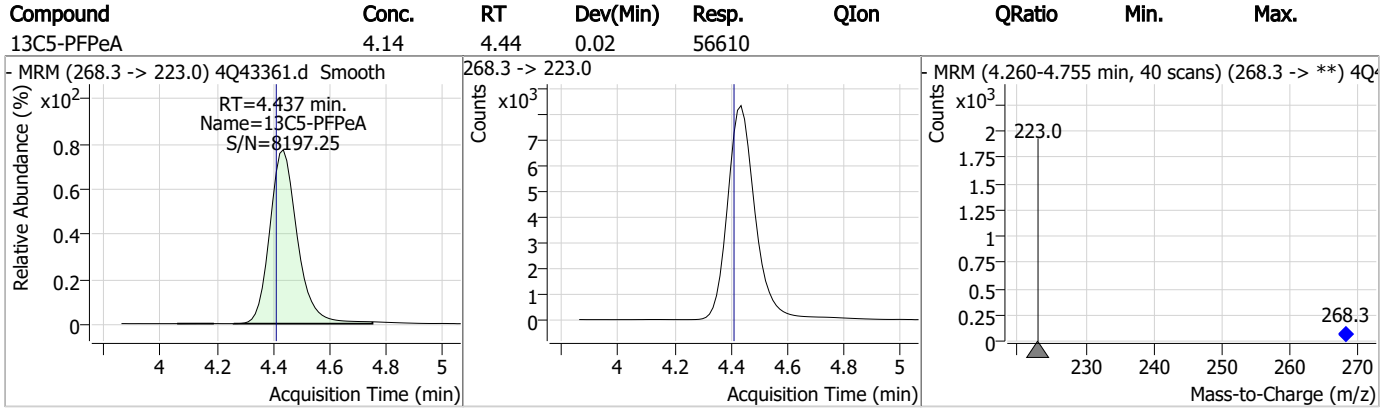
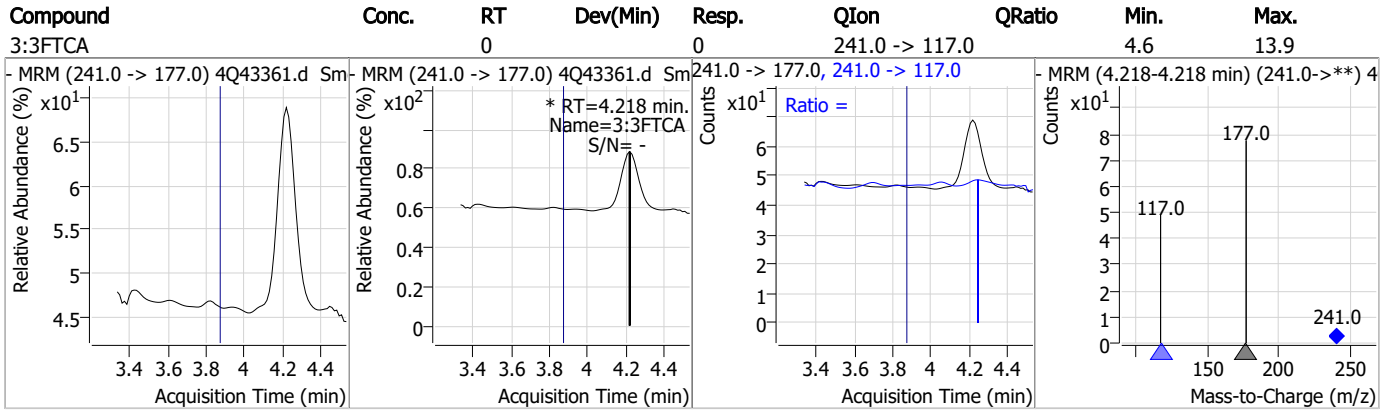
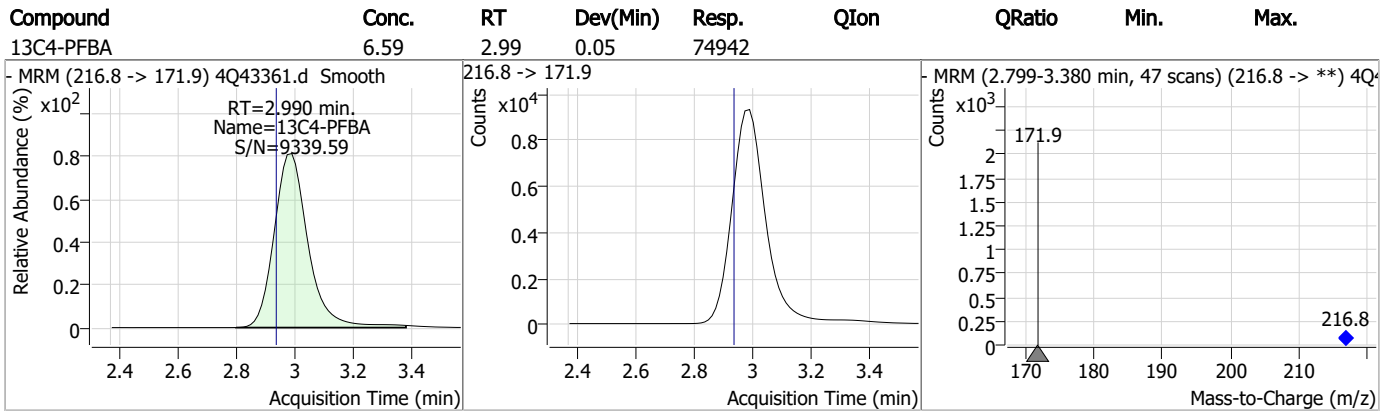
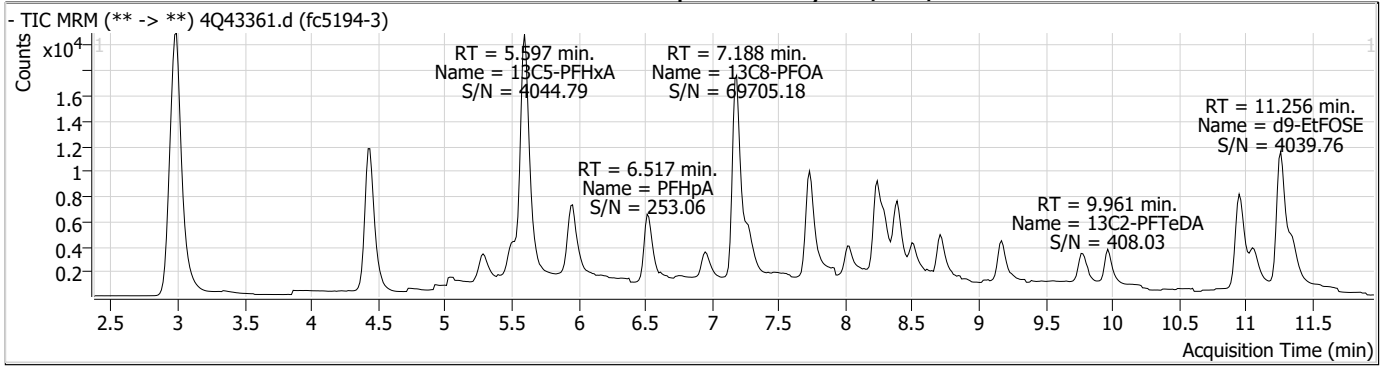
Perfluorinated Compounds by LC/MS/MS

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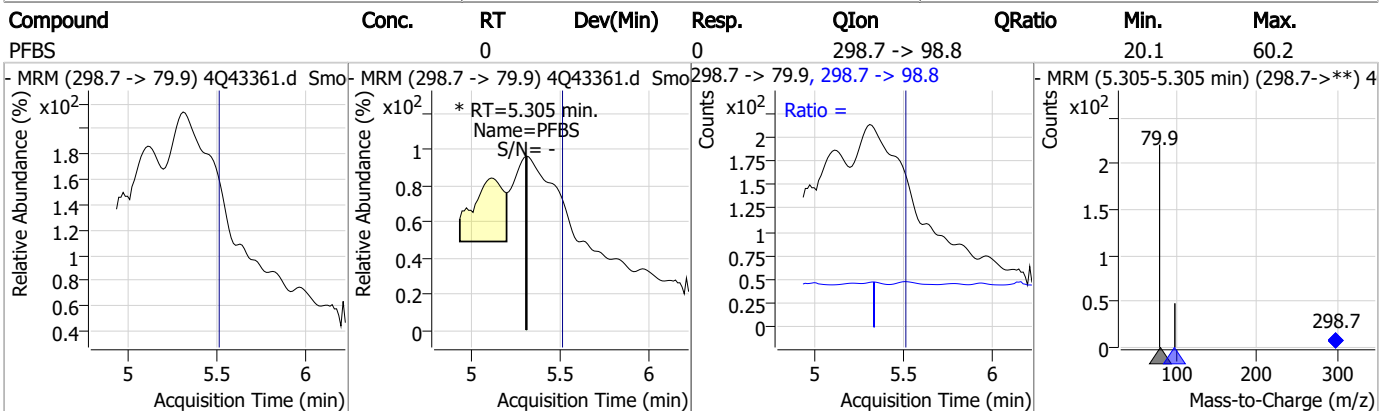
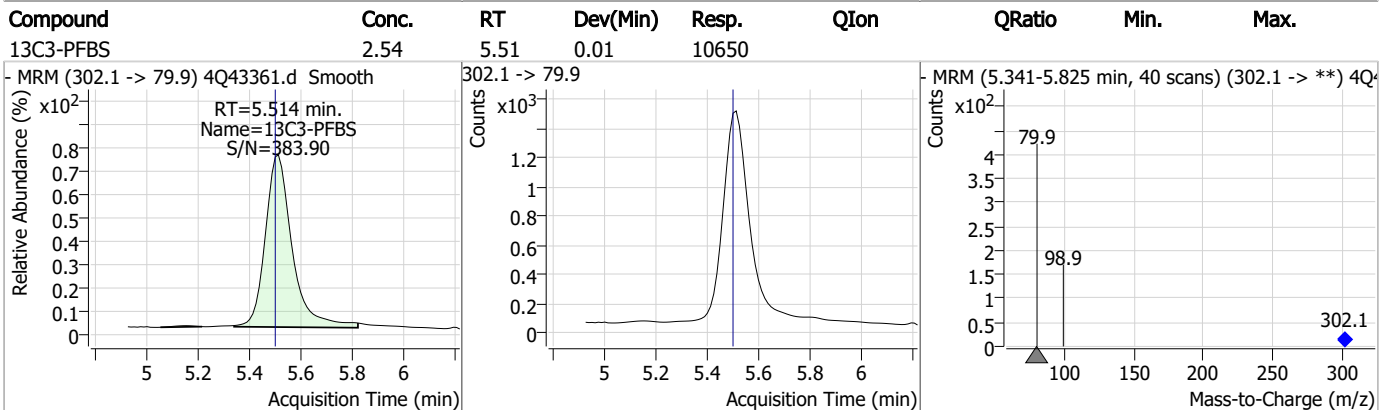
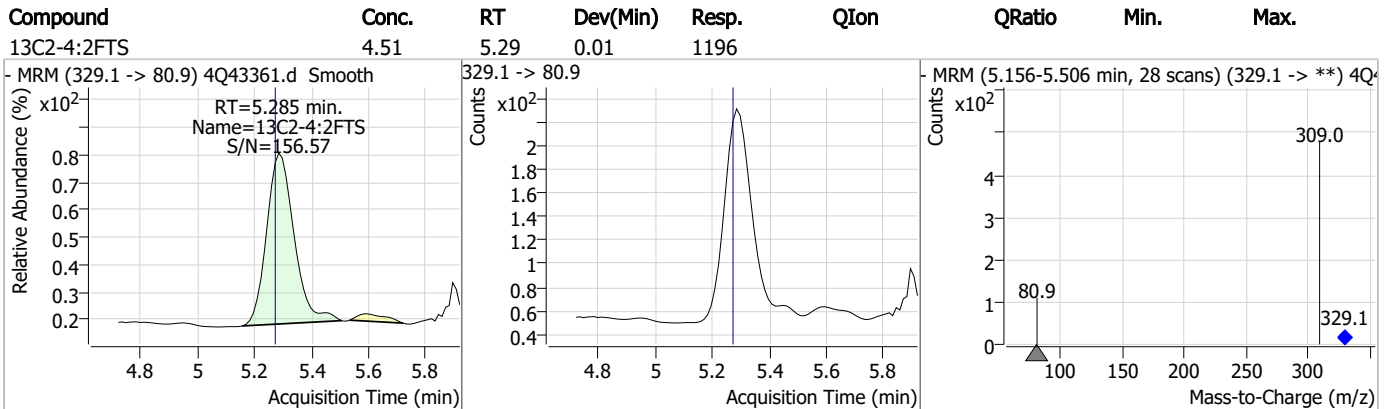
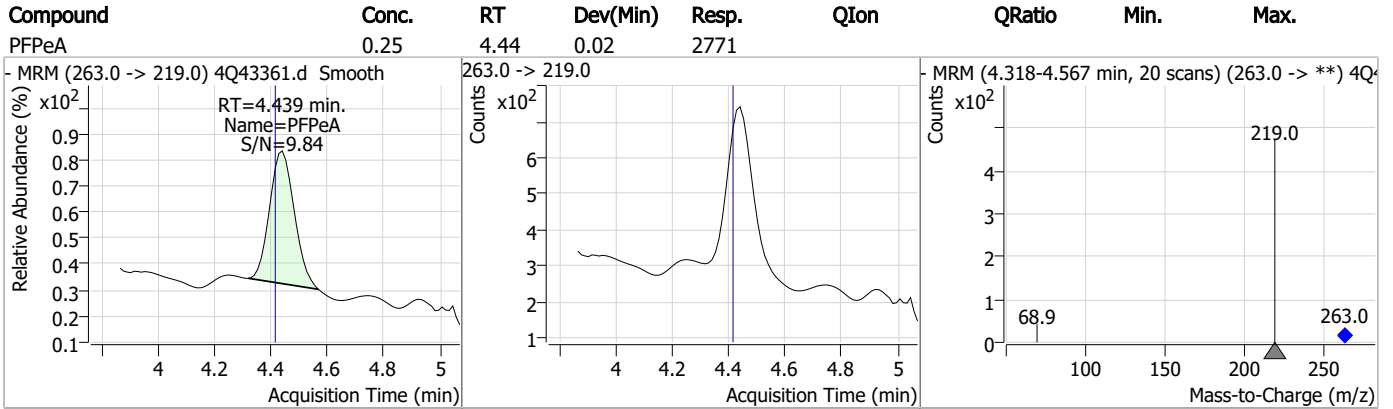


Perfluorinated Compounds by LC/MS/MS

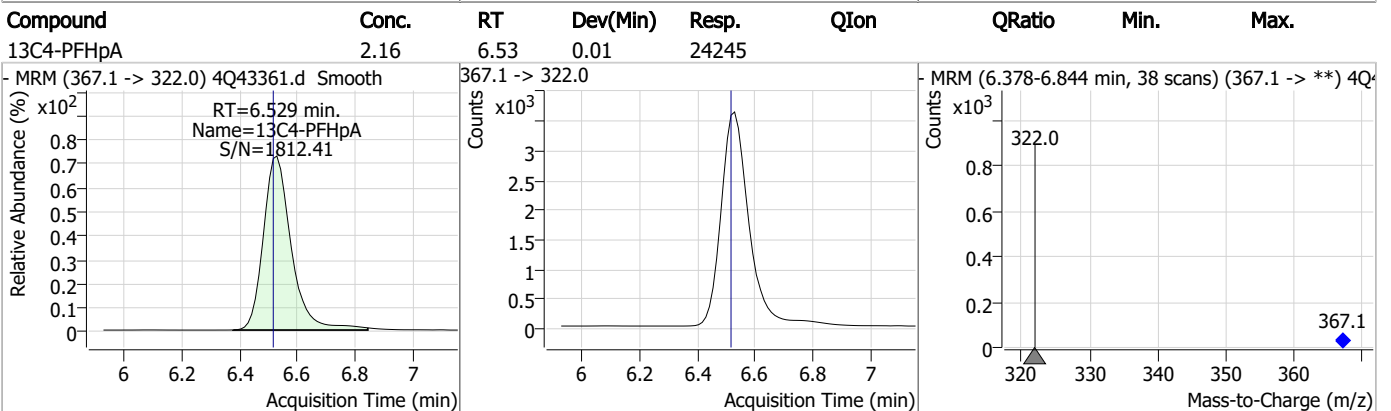
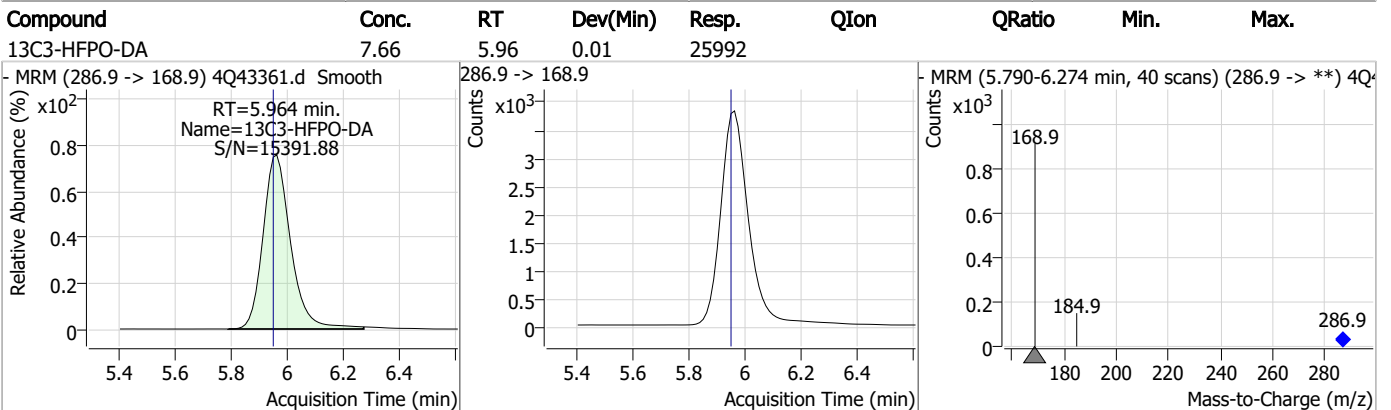
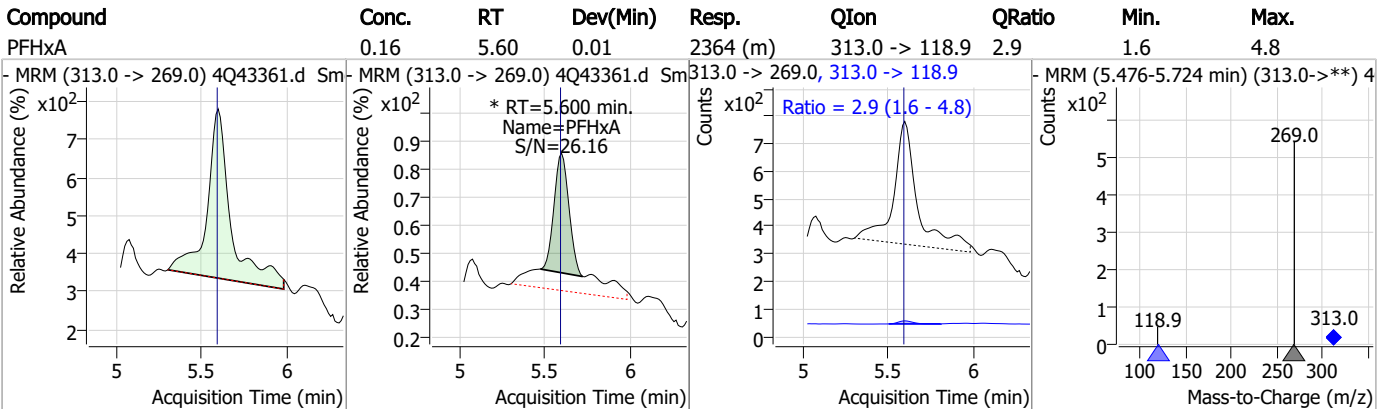
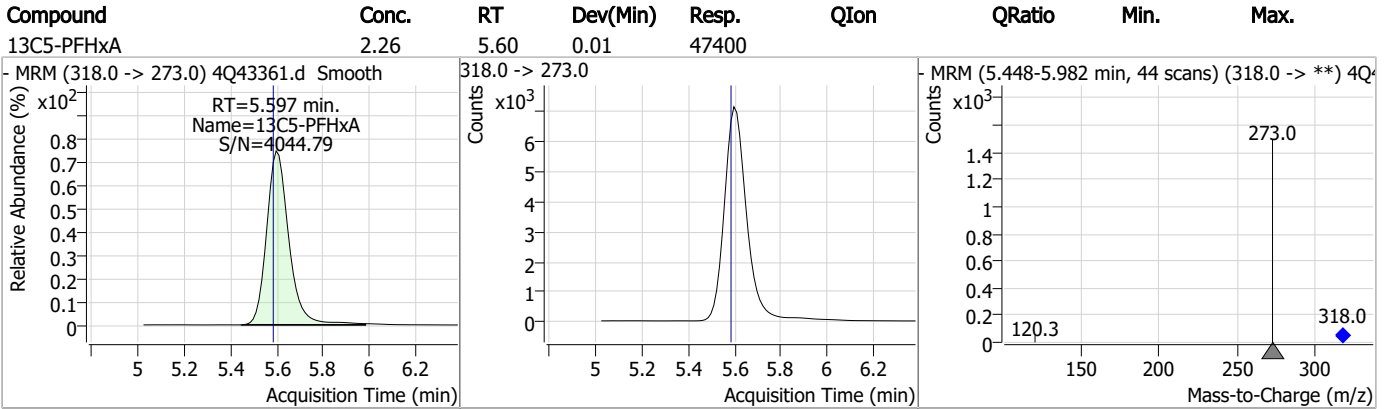


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Perfluorinated Compounds by LC/MS/MS

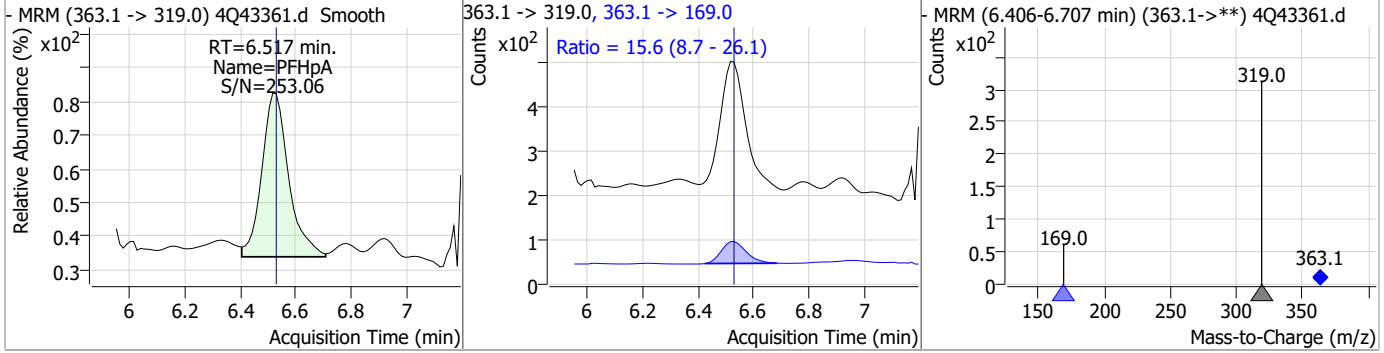


Perfluorinated Compounds by LC/MS/MS

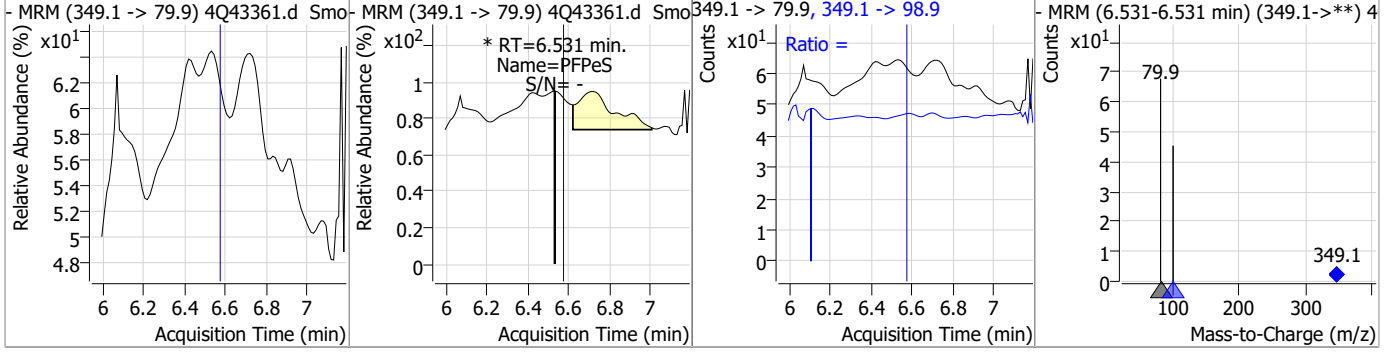


Perfluorinated Compounds by LC/MS/MS

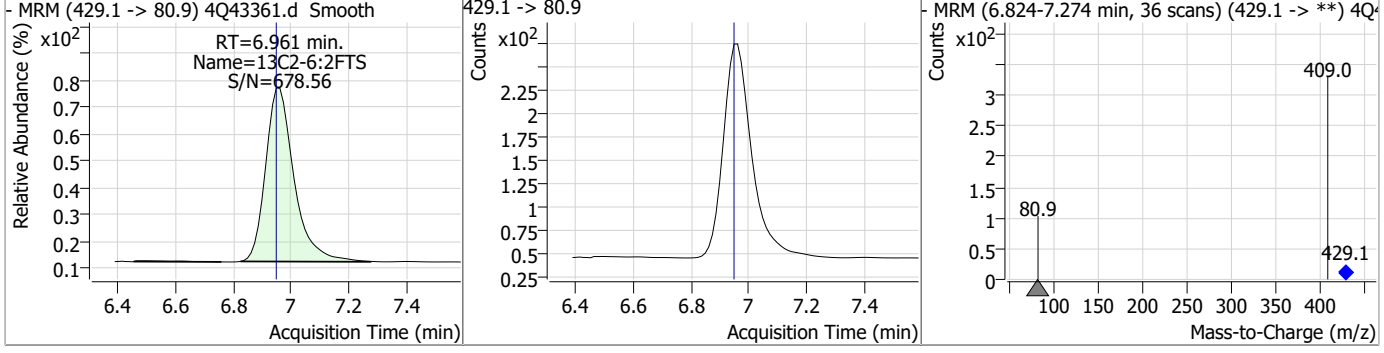
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.16	6.52	-0.01	1983	363.1 -> 169.0	15.6	8.7	26.1



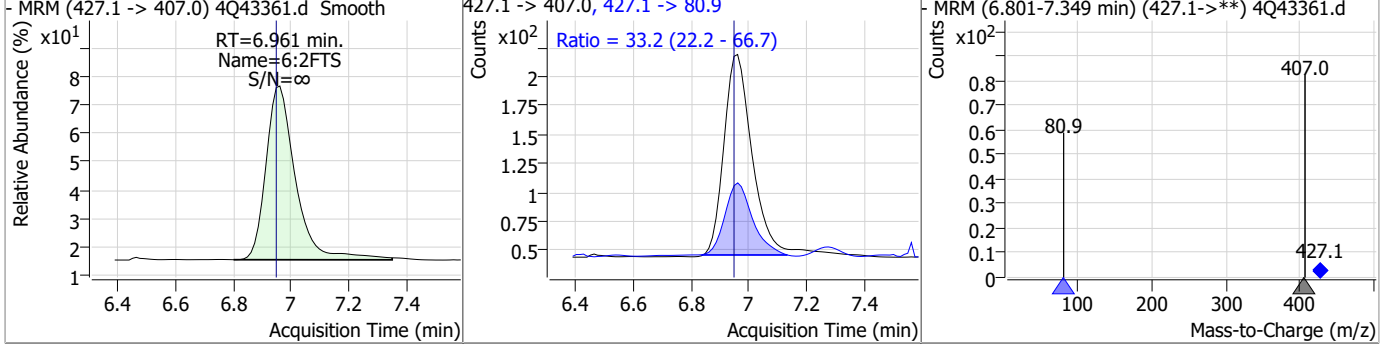
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0	0	0	0	349.1 -> 98.9		22.6	67.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	3.76	6.96	0.01	1572				

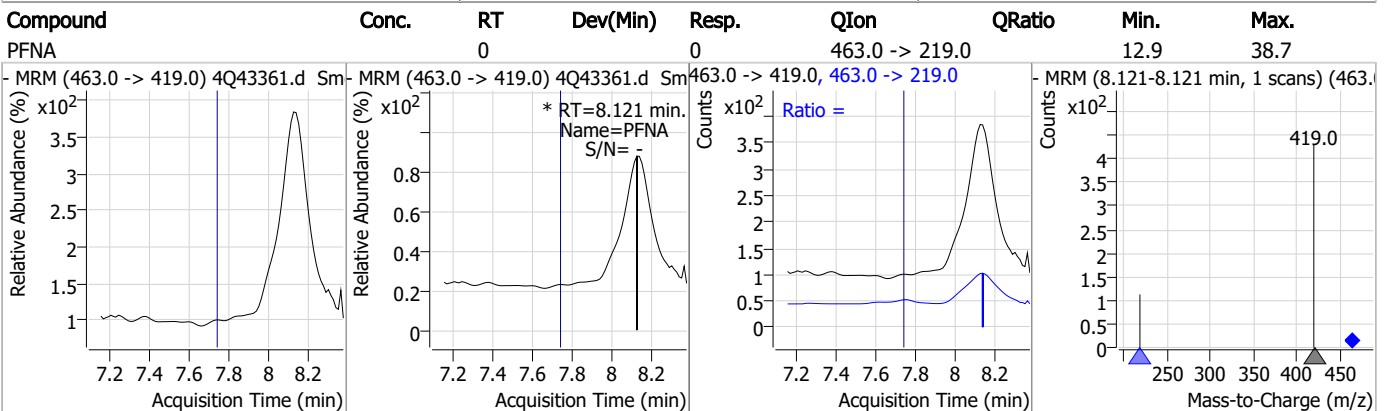
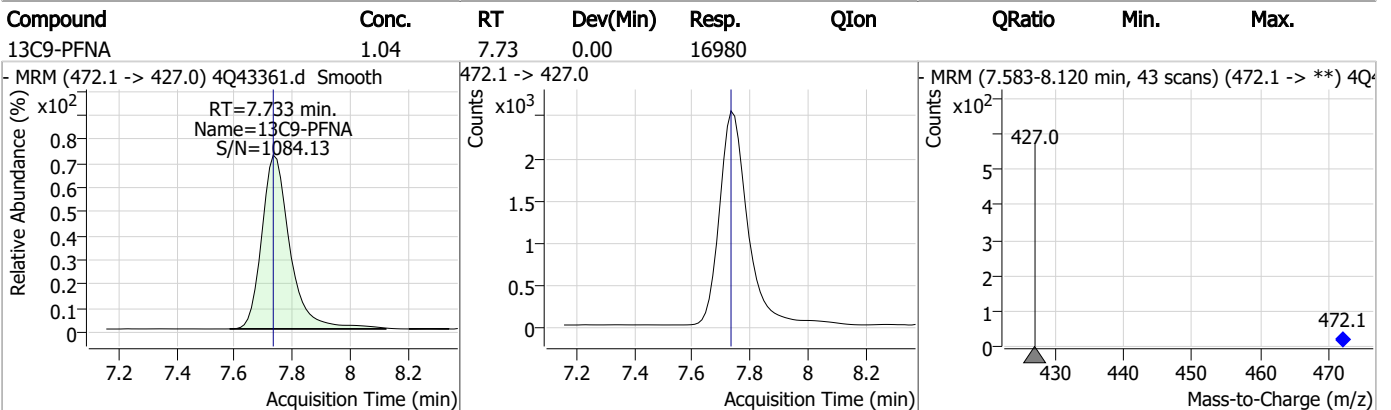
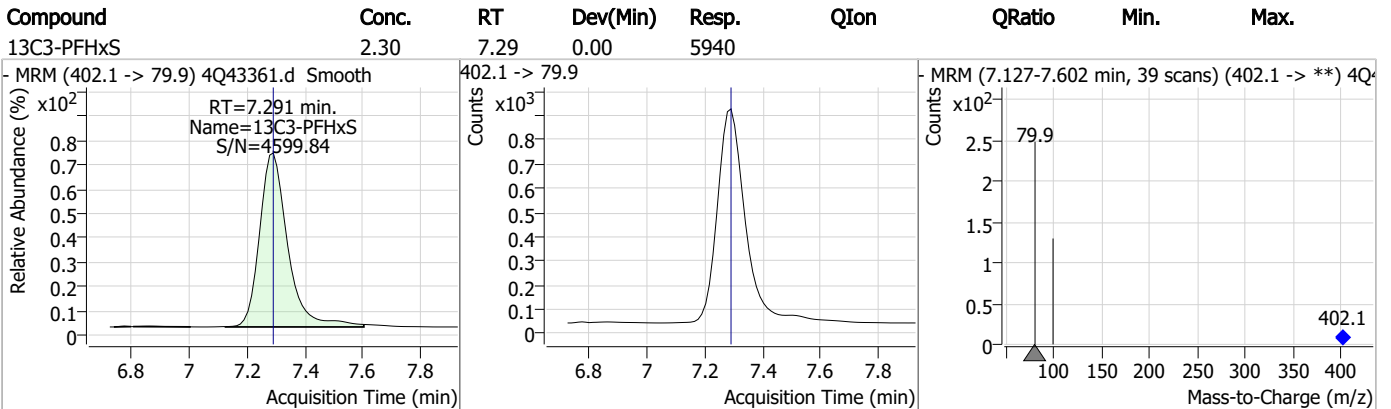
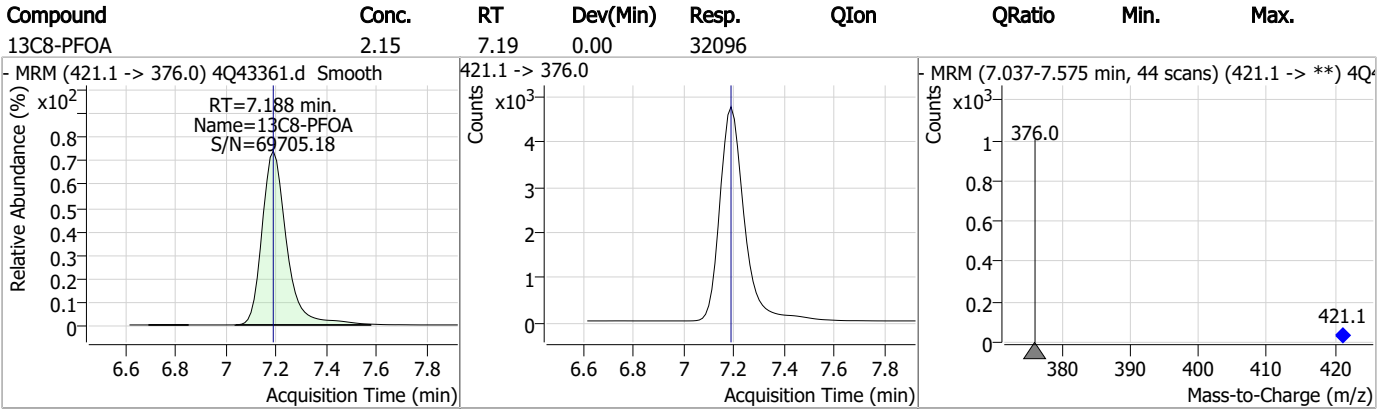


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.03	6.96	0.01	1241	427.1 -> 80.9	33.2	22.2	66.7

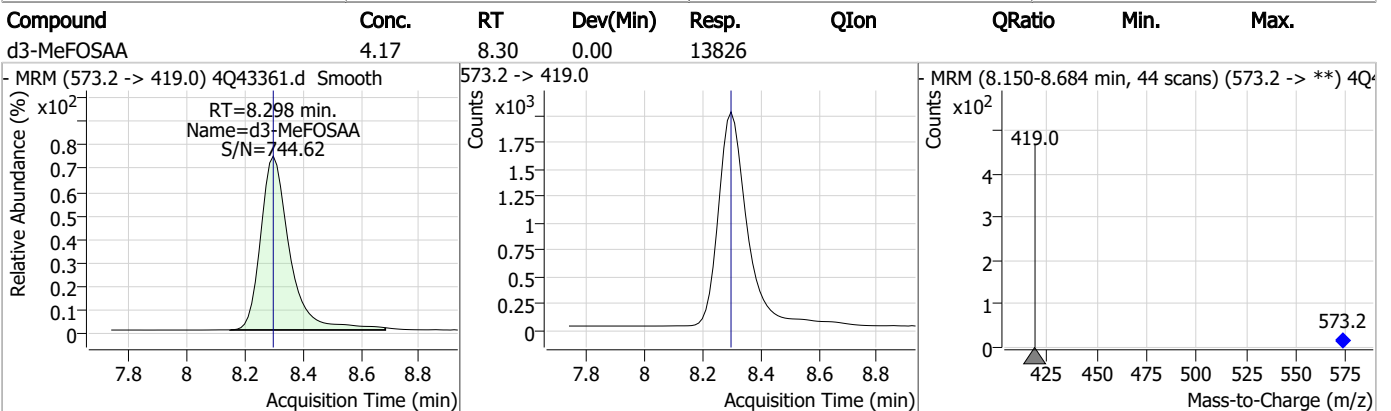
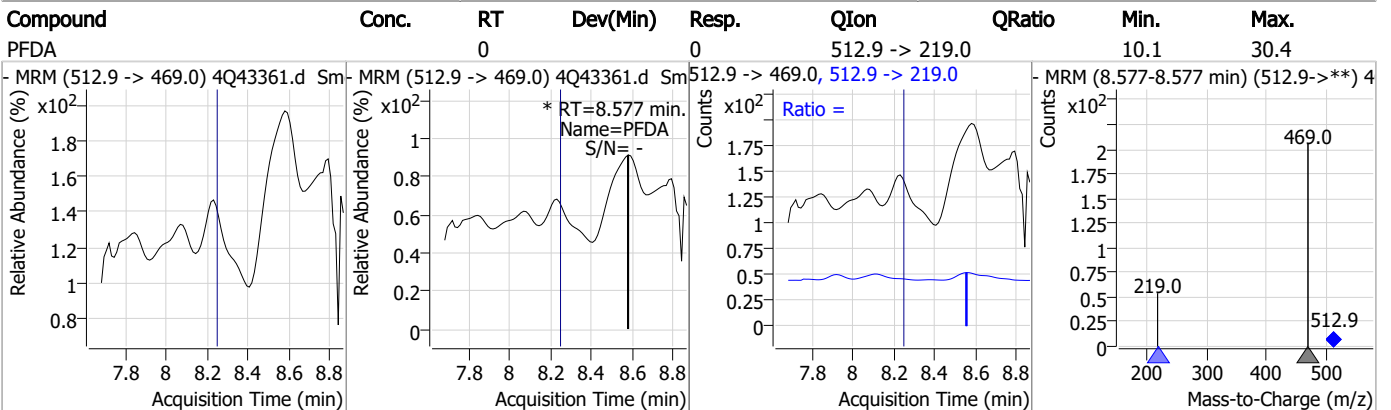
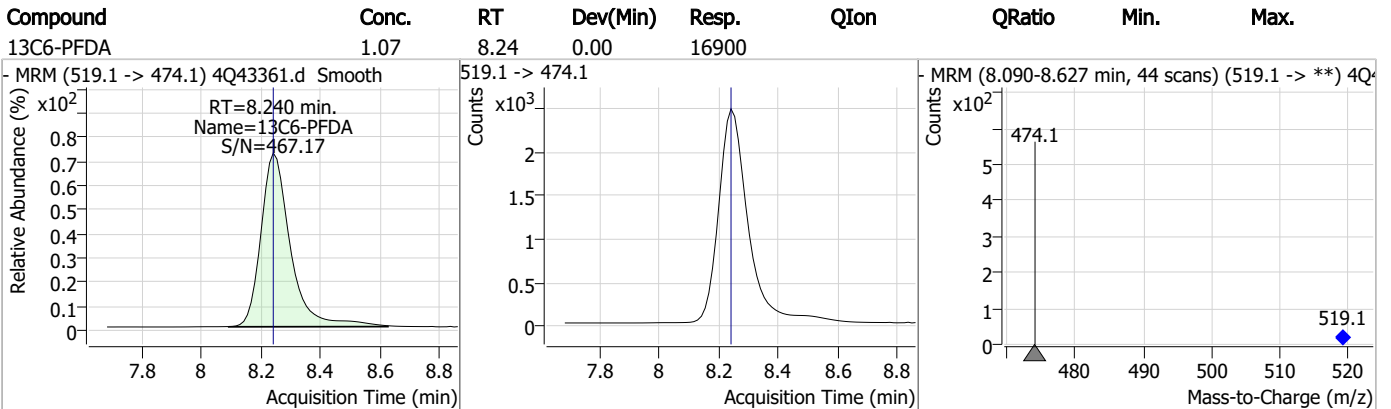
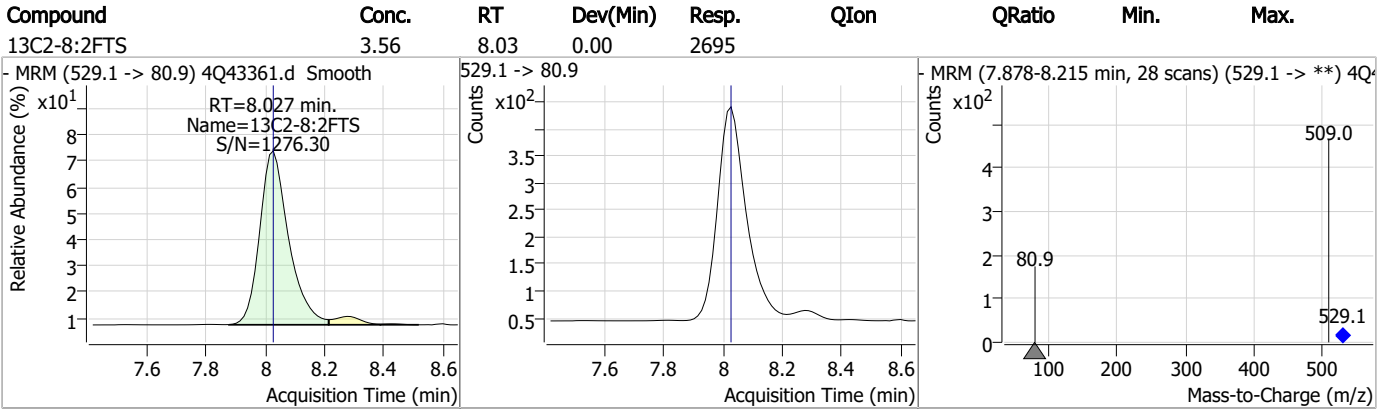


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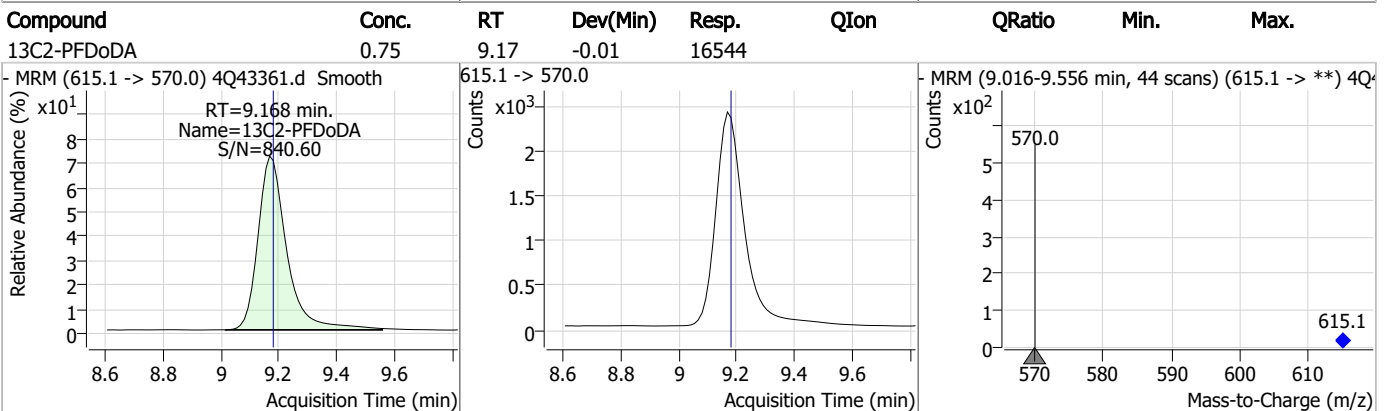
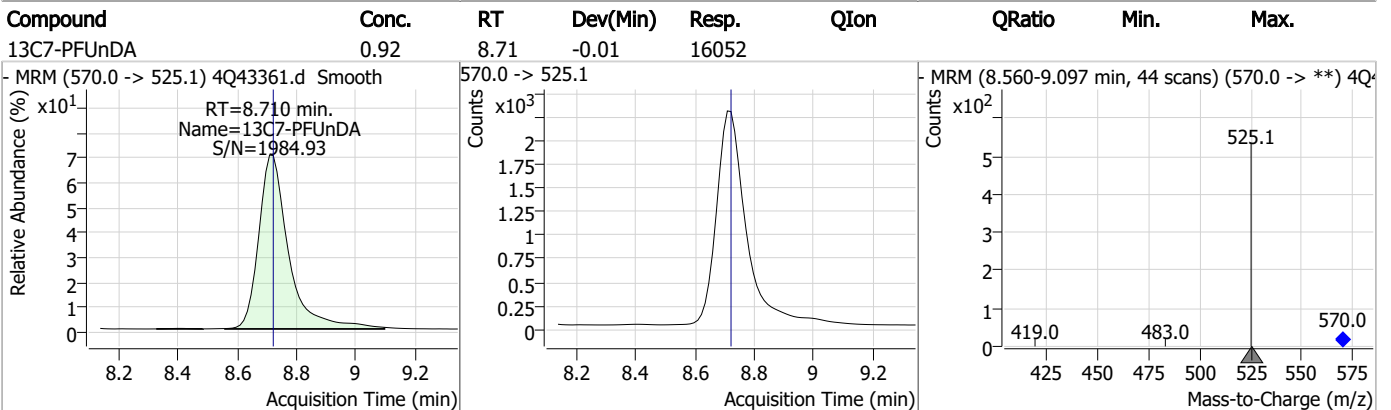
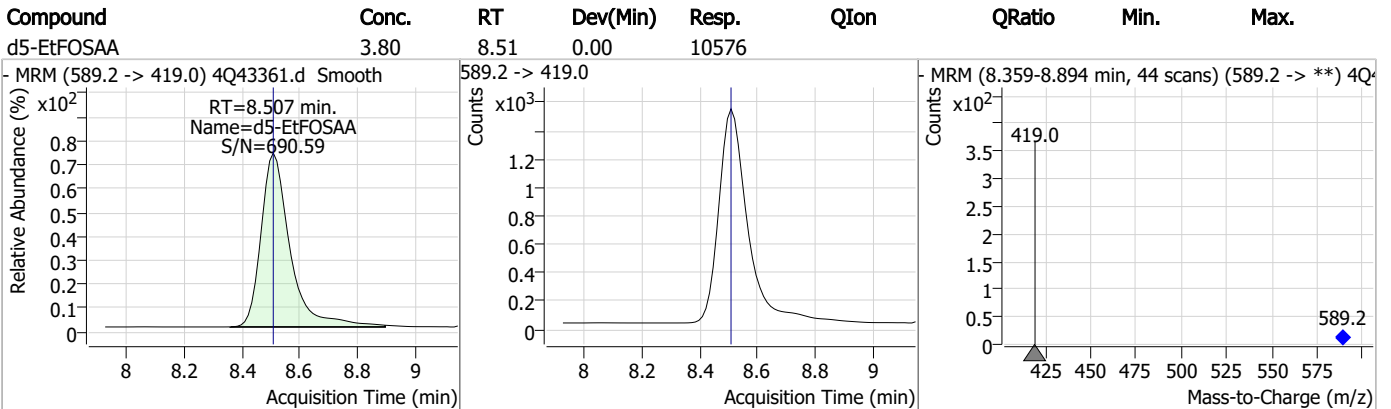
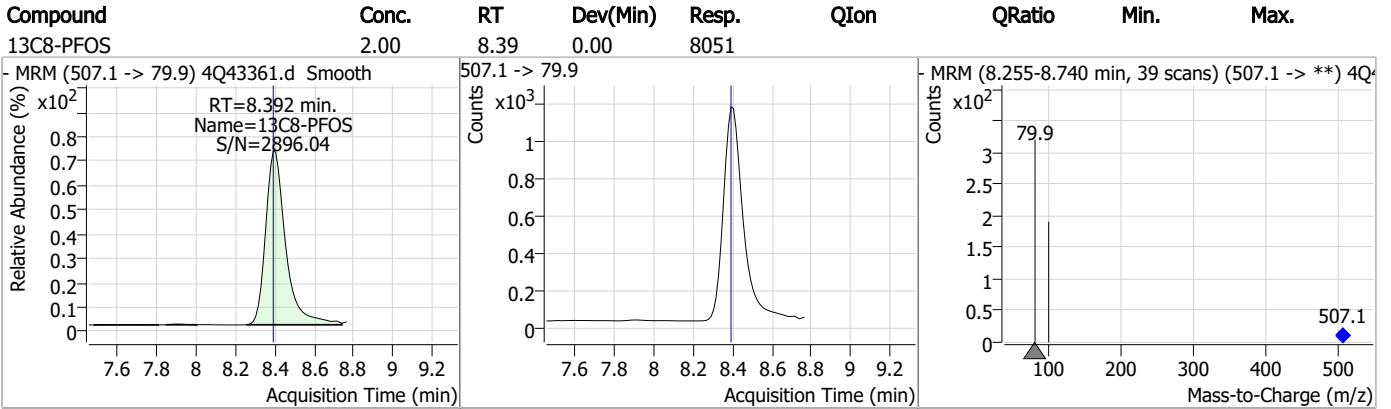
Perfluorinated Compounds by LC/MS/MS



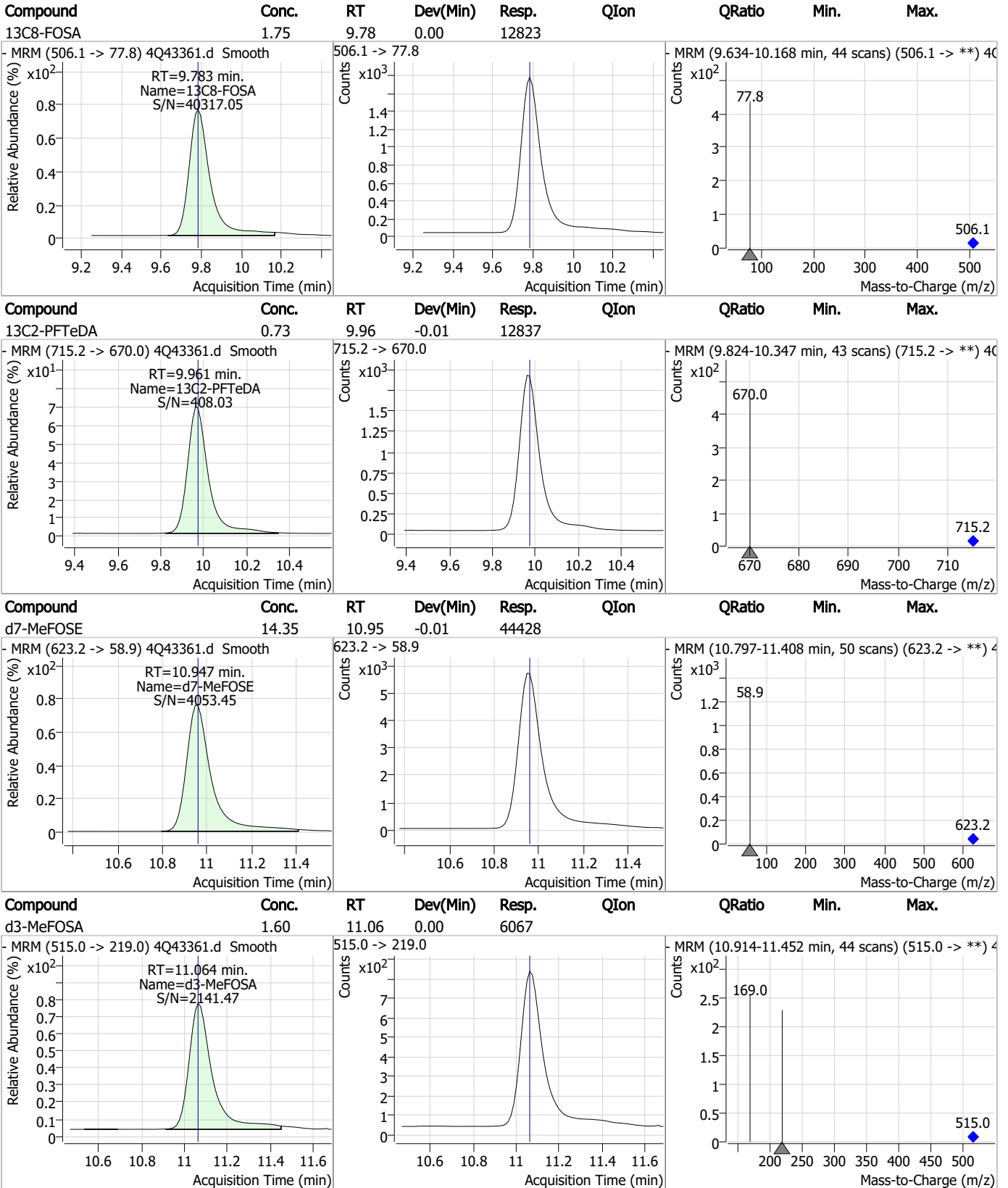
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

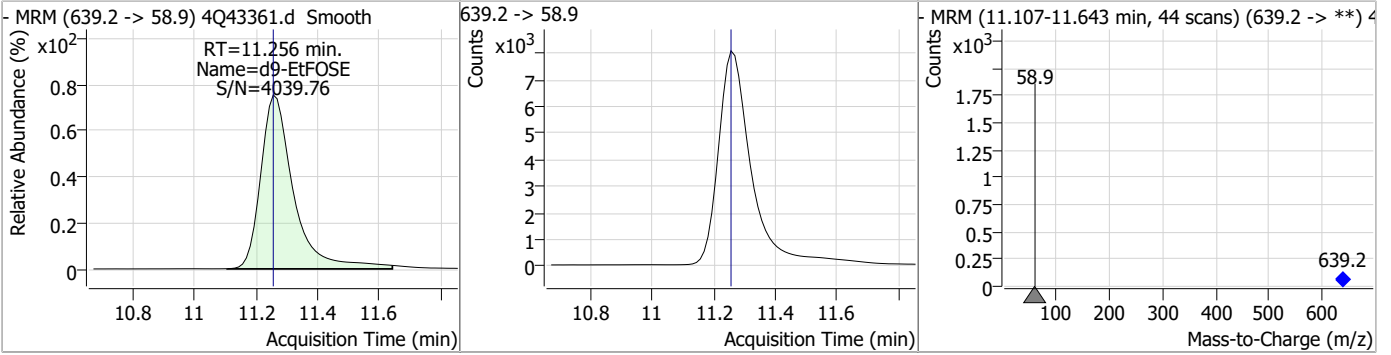


Perfluorinated Compounds by LC/MS/MS

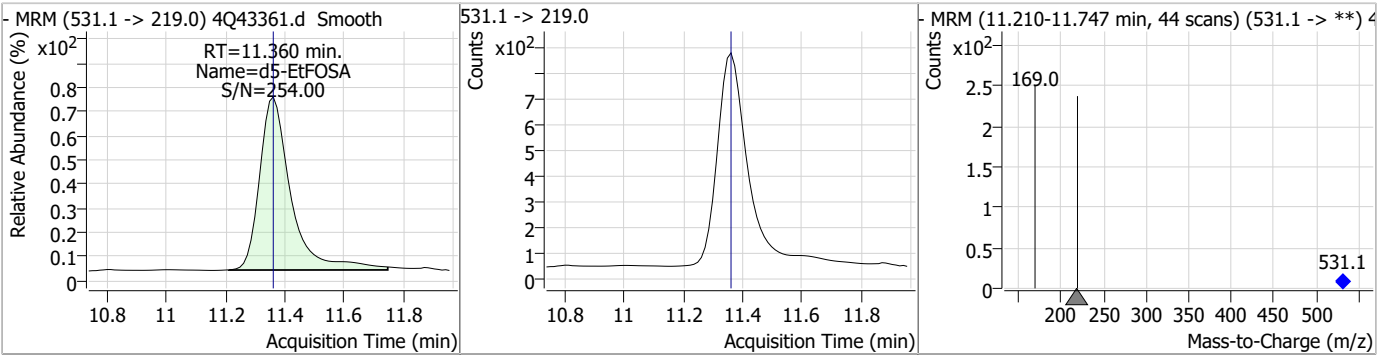


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	15.01	11.26	0.00	59495				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	1.52	11.36	0.00	6126				



7.1.3

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Manual Integration Approval Summary

Sample Number: FC5194-3 Method: EPA DRAFT 1633
Lab FileID: 4Q43361.D Analyst approved: 04/21/23 11:30 Natasha Gumtie
Injection Time: 04/21/23 00:01 Supervisor approved: 04/21/23 14:57 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanoic acid	307-24-4		5.60	Poor instrument integration

7.1.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43165.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 3:25:28 PM
 Sample Name : FC5194-3
 Vial : P4-D1
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96403,S4q624,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.002	216.8 -> 171.9	104528	10.00 µg/L	0.041
M5-PFPeA	4.449	268.3 -> 223.0	59826	5.00 µg/L	0.000
M5-PFHxA	5.634	318.0 -> 273.0	47739	2.50 µg/L	0.012
M4-PFHpA	6.555	367.1 -> 322.0	23857	2.50 µg/L	0.000
M8-PFOA	7.213	421.1 -> 376.0	28992	2.50 µg/L	0.000
M9-PFNA	7.758	472.1 -> 427.0	16250	1.25 µg/L	-0.001
M6-PFDA	8.265	519.1 -> 474.1	15415	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	14985	1.25 µg/L	-0.001
M2-PFDoDA	9.205	615.1 -> 570.0	16653	1.25 µg/L	0.011
M2-PFTeDA	9.998	715.2 -> 670.0	8779	1.25 µg/L	0.011
M8-FOSA	9.845	506.1 -> 77.8	12286	2.50 µg/L	0.011
M3-PFBS	5.539	302.1 -> 79.9	11303	2.50 µg/L	0.012
M3-PFHxS	7.316	402.1 -> 79.9	6354	2.50 µg/L	-0.001
M8-PFOS	8.429	507.1 -> 79.9	9005	2.50 µg/L	0.012
M2-4:2FTS	5.310	329.1 -> 80.9	1202	5.00 µg/L	0.001
M2-6:2FTS	6.973	429.1 -> 80.9	1568	5.00 µg/L	-0.001
M2-8:2FTS	8.052	529.1 -> 80.9	2463	5.00 µg/L	-0.001
M3-MeFOSAA	8.335	573.2 -> 419.0	13714	5.00 µg/L	0.011
M3-HFPO-DA	5.989	286.9 -> 168.9	28051	10.00 µg/L	0.000
M5-EtFOSAA	8.545	589.2 -> 419.0	10513	5.00 µg/L	0.011
M7-MeFOSE	10.984	623.2 -> 58.9	41209	25.00 µg/L	0.010
M9-EtFOSE	11.281	639.2 -> 58.9	52384	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	6863	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	6181	2.50 µg/L	-0.002
13C4-PFOS	8.430	502.8 -> 79.9	9087	2.50 µg/L	0.012
13C3-PFBA	2.993	216.0 -> 172.0	55756	5.00 µg/L	0.027
18O2-PFHxS	7.315	403.0 -> 83.9	4244	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	34325	2.50 µg/L	0.000
13C2-PFDA	8.265	515.1 -> 470.1	13843	1.25 µg/L	-0.001
13C5-PFNA	7.759	468.0 -> 423.0	17758	1.25 µg/L	-0.001
13C2-PFHxA	5.635	315.1 -> 270.0	37963	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.310	329.1 -> 80.9	1202	5.18 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C2-6:2FTS	6.973	429.1 -> 80.9	1568	4.71 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.3%		
13C2-8:2FTS	8.052	529.1 -> 80.9	2463	4.50 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.0%		
13C2-PFDoDA	9.205	615.1 -> 570.0	16653	0.98 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.2%		
13C2-PFTeDA	9.998	715.2 -> 670.0	8779	0.66 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 52.9%		
13C3-PFBS	5.539	302.1 -> 79.9	11303	2.90 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 115.9%		
13C3-PFHxS	7.316	402.1 -> 79.9	6354	2.71 µg/L	-0.001

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C4-PFBA	3.002	216.8 -> 171.9	104528	10.77 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C4-PFHpA	6.555	367.1 -> 322.0	23857	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.7%	
13C5-PFHxA	5.634	318.0 -> 273.0	47739	2.72 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C5-PFPeA	4.449	268.3 -> 223.0	59826	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C6-PFDA	8.265	519.1 -> 474.1	15415	1.27 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C7-PFUnDA	8.747	570.0 -> 525.1	14985	1.13 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.6%	
13C8-FOSA	9.845	506.1 -> 77.8	12286	2.07 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.7%	
13C8-PFOA	7.213	421.1 -> 376.0	28992	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C8-PFOS	8.429	507.1 -> 79.9	9005	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C9-PFNA	7.758	472.1 -> 427.0	16250	1.26 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.5%	
d3-MeFOSAA	8.335	573.2 -> 419.0	13714	5.12 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	28051	10.53 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
d3-MeFOSA	11.089	515.0 -> 219.0	6181	2.20 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.9%	
d5-EtFOSAA	8.545	589.2 -> 419.0	10513	4.83 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
d7-MeFOSE	10.984	623.2 -> 58.9	41209	17.58 µg/L	0.010
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 70.3%	
d9-EtFOSE	11.281	639.2 -> 58.9	52384	18.27 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.1%	
d5-EtFOSA	11.373	531.1 -> 219.0	6863	2.26 µg/L	-0.001
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	6.986	427.1 -> 407.0 427.1 -> 80.9	909 375	0.85 µg/L	94
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	3.008	212.8 -> 168.9	458	0.19 µg/L	100
PFBS	5.355	298.7 -> 79.9 298.7 -> 98.8	0 0	µg/L m	1
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	-	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	6.555	599.0 -> 98.8				
		363.1 -> 319.0	1940	0.16	µg/L	93
PFHpS	-	363.1 -> 169.0	300			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.625	449.0 -> 98.9				
		313.0 -> 269.0	2789	0.20	µg/L	100
PFHxS	-	313.0 -> 118.9	87			
		398.7 -> 79.9	-	N.D.		
PFNA	8.183	398.7 -> 98.9				
		463.0 -> 419.0	0		µg/L	m
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	4.452	498.9 -> 98.8				
		263.0 -> 219.0	3243	0.29	µg/L	100
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	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	4.230	241.0 -> 177.0	0		µg/L	m
		241.0 -> 117.0	0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	11.145	630.0 -> 58.9	0		µg/L	m
		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

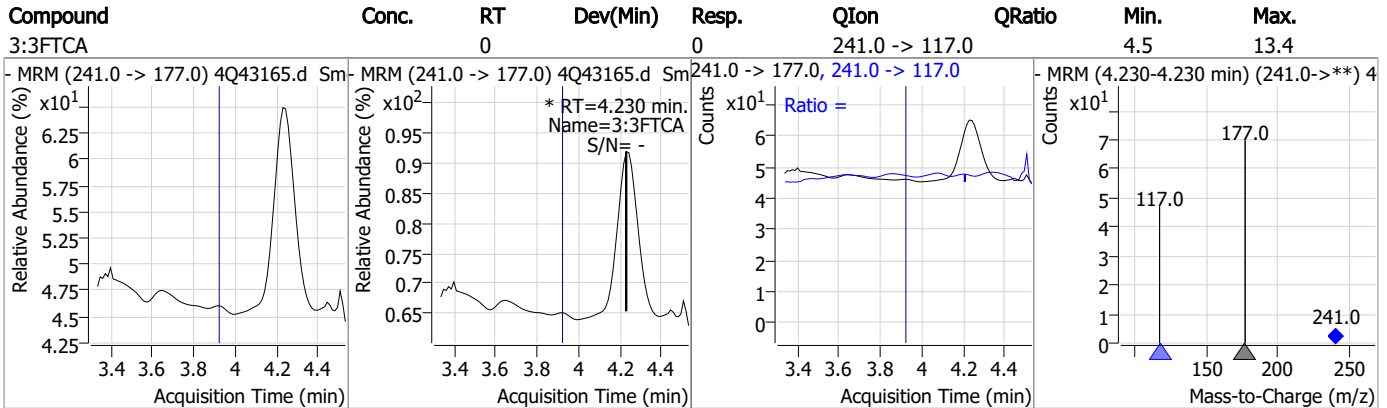
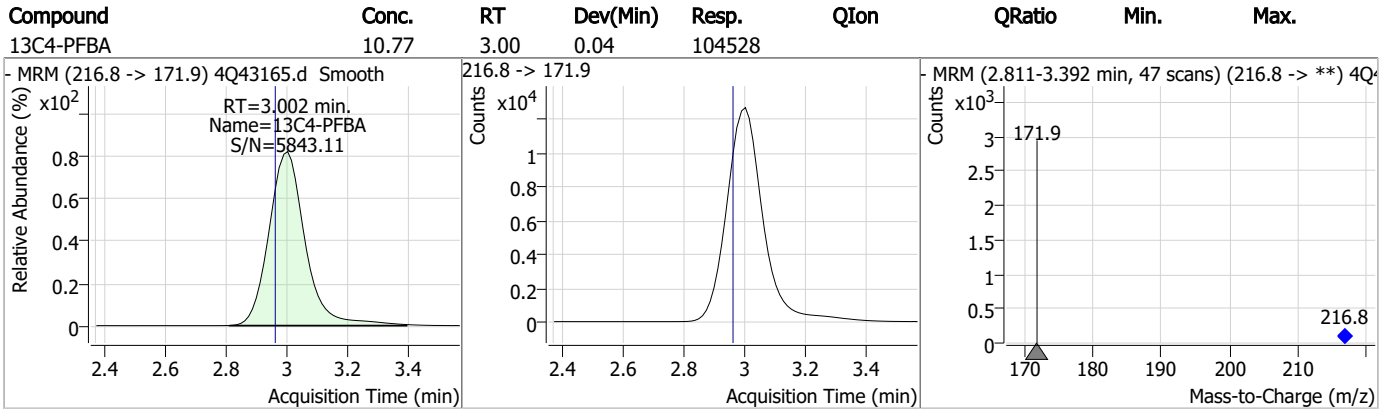
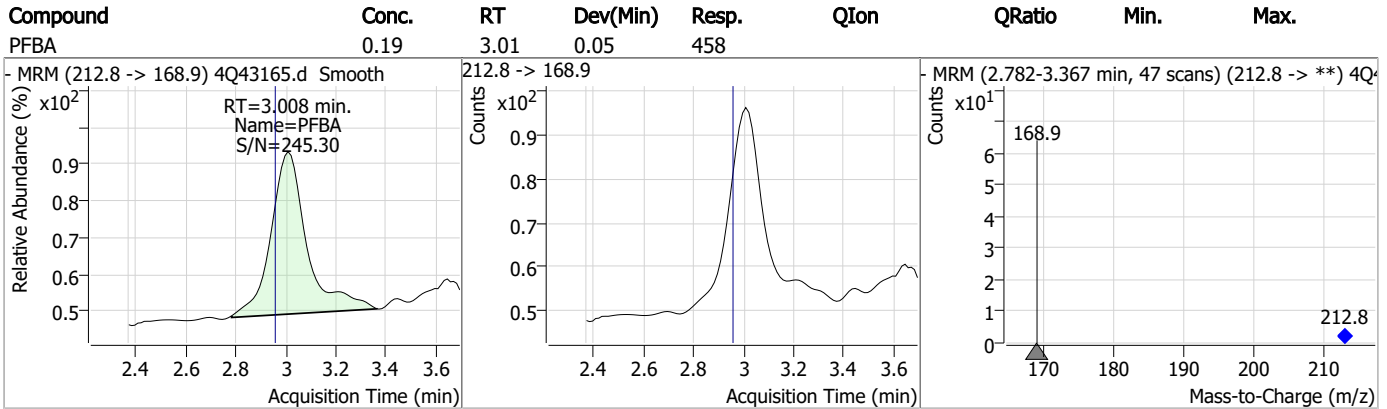
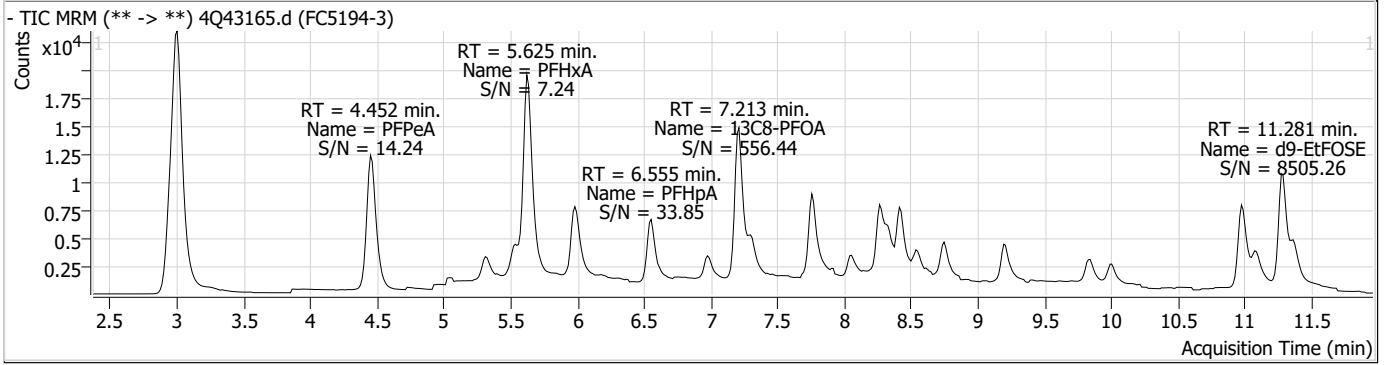
Perfluorinated Compounds by LC/MS/MS

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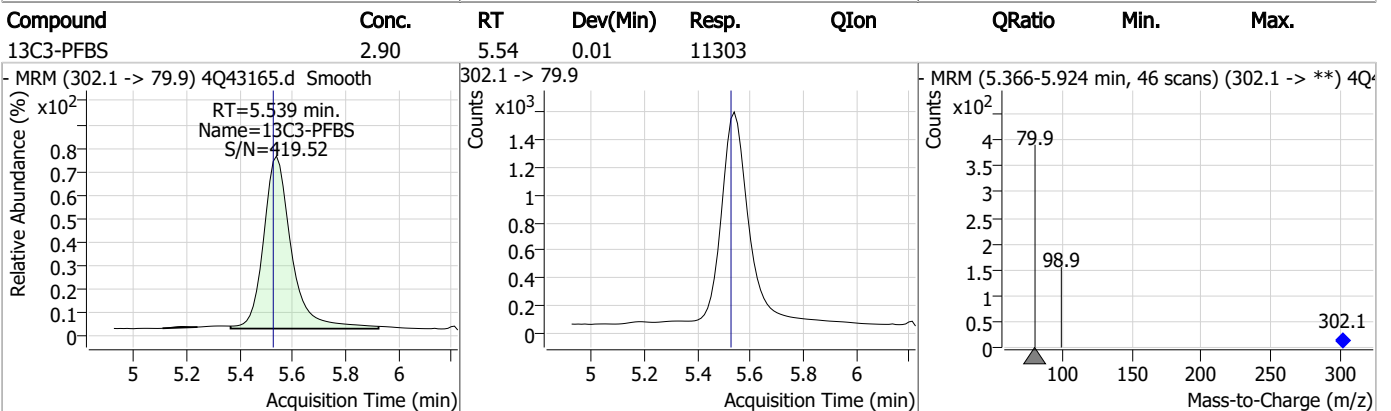
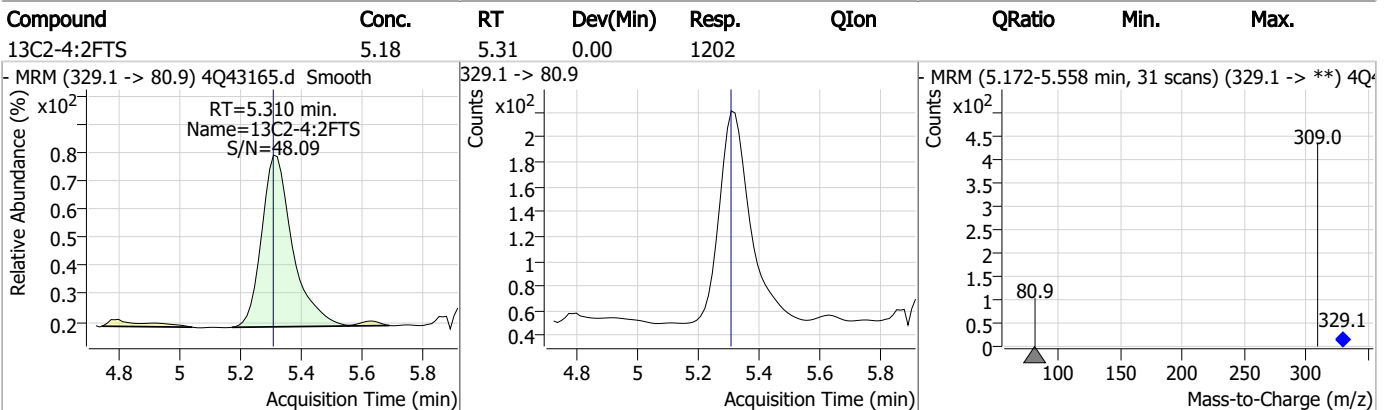
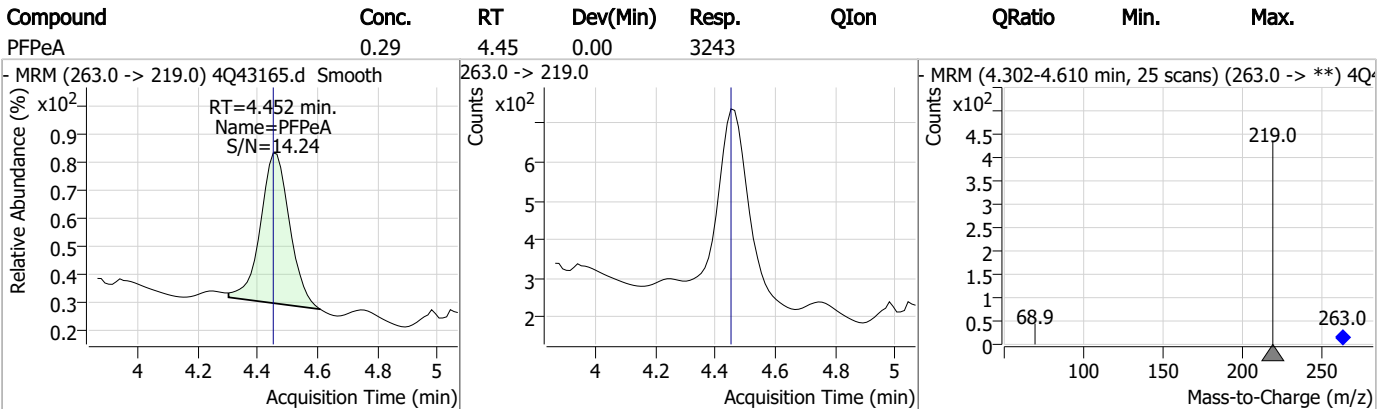
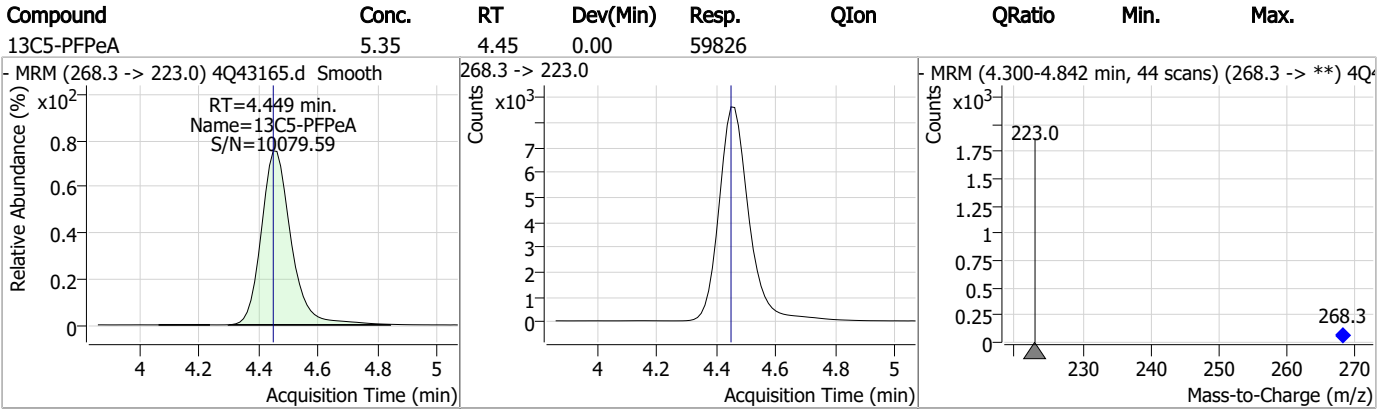
7.1.4
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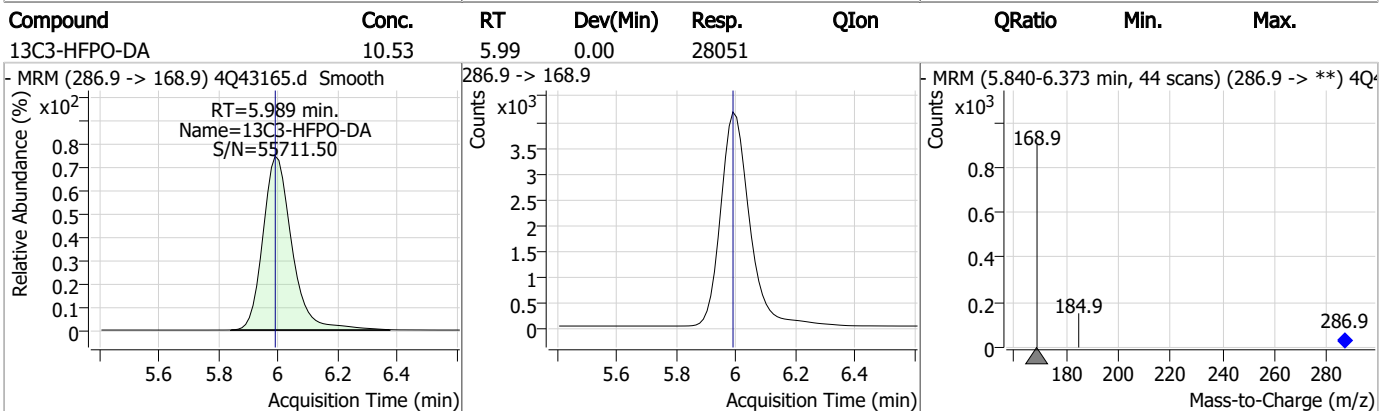
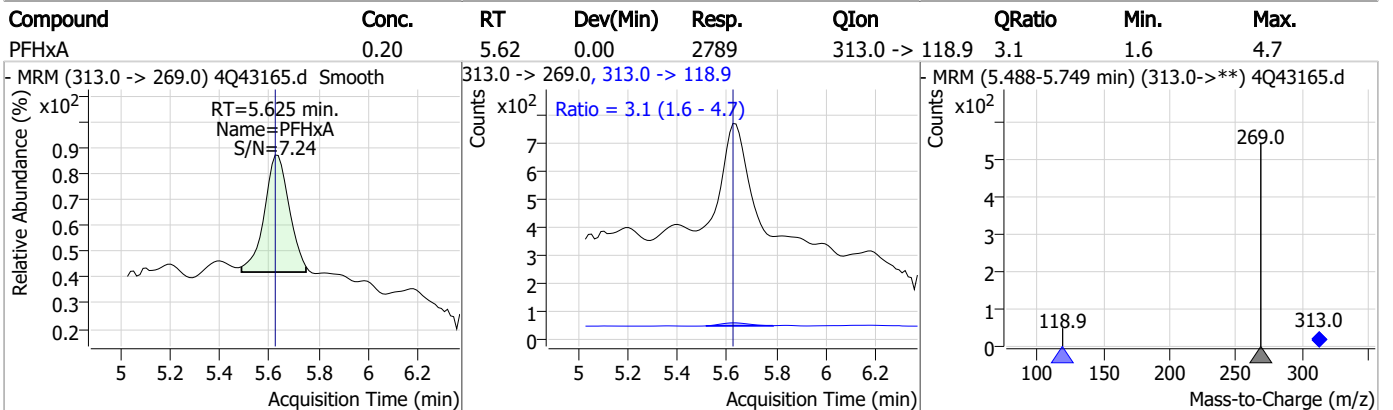
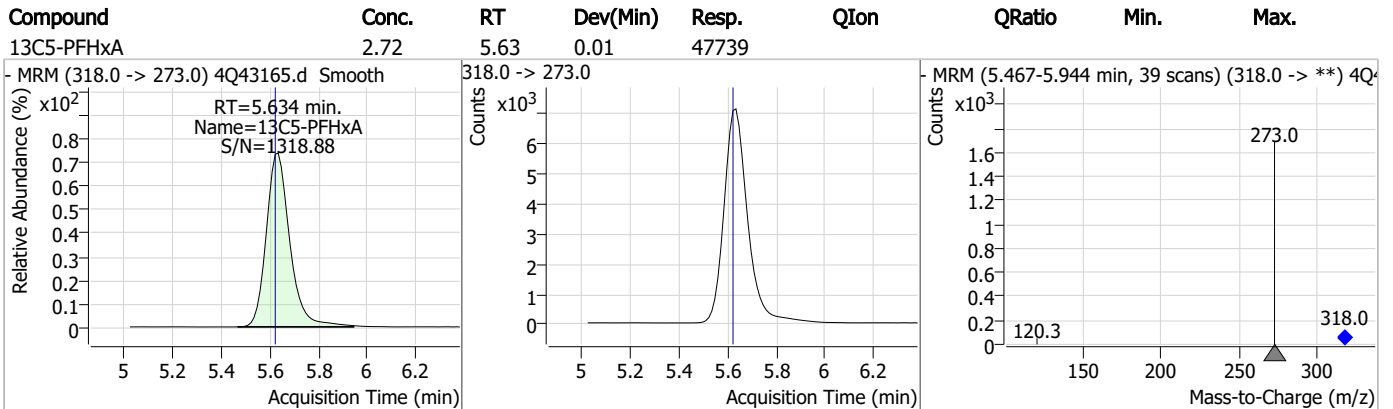
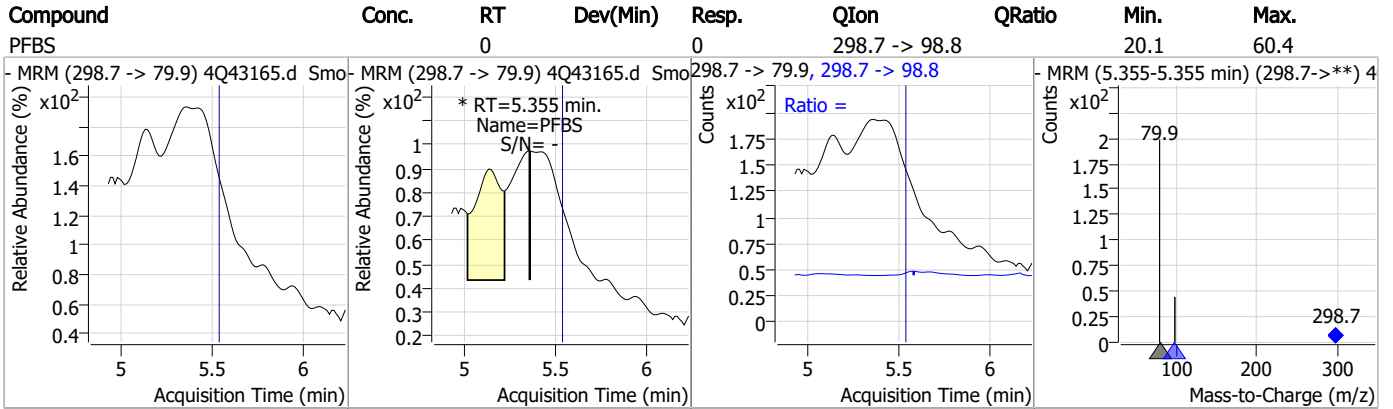
Perfluorinated Compounds by LC/MS/MS



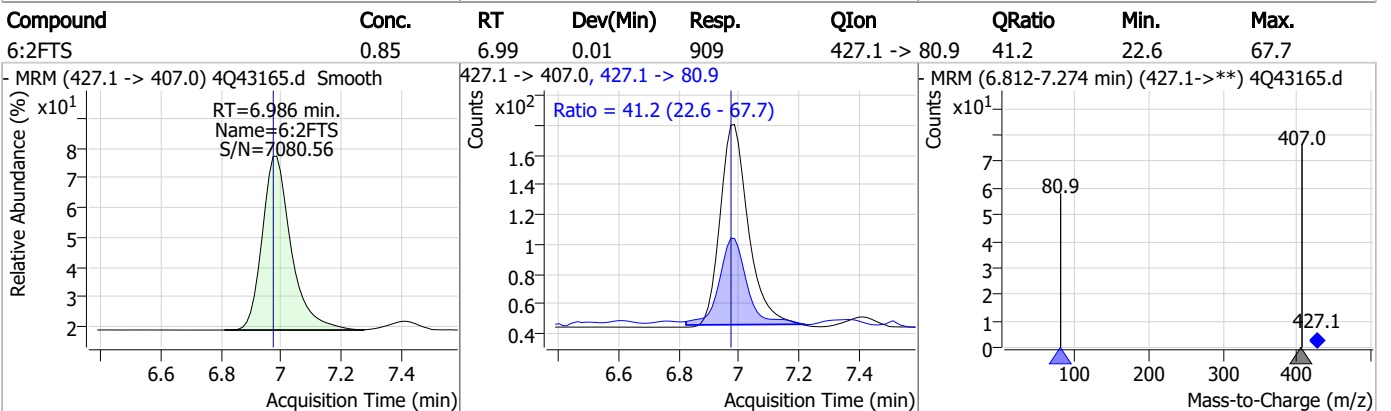
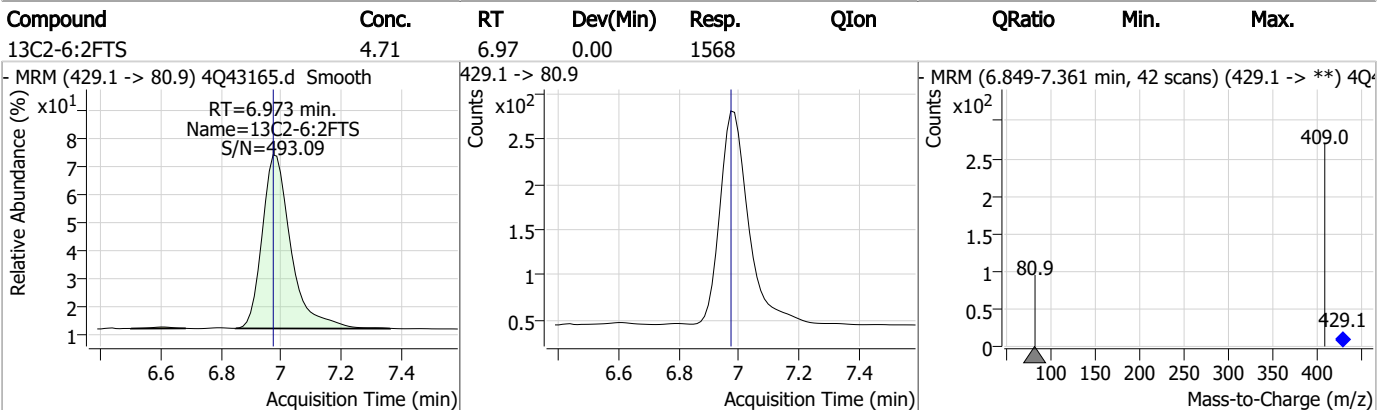
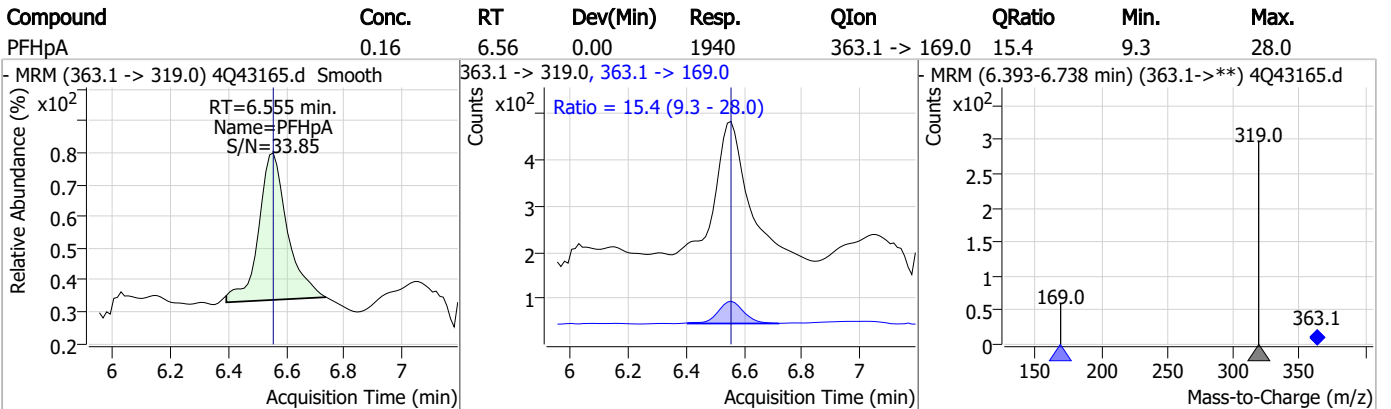
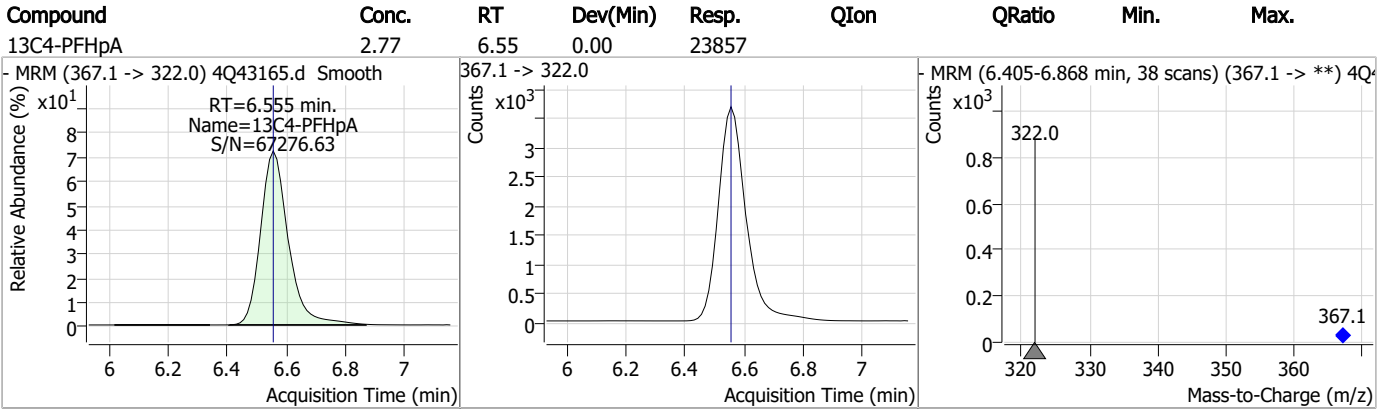
Perfluorinated Compounds by LC/MS/MS



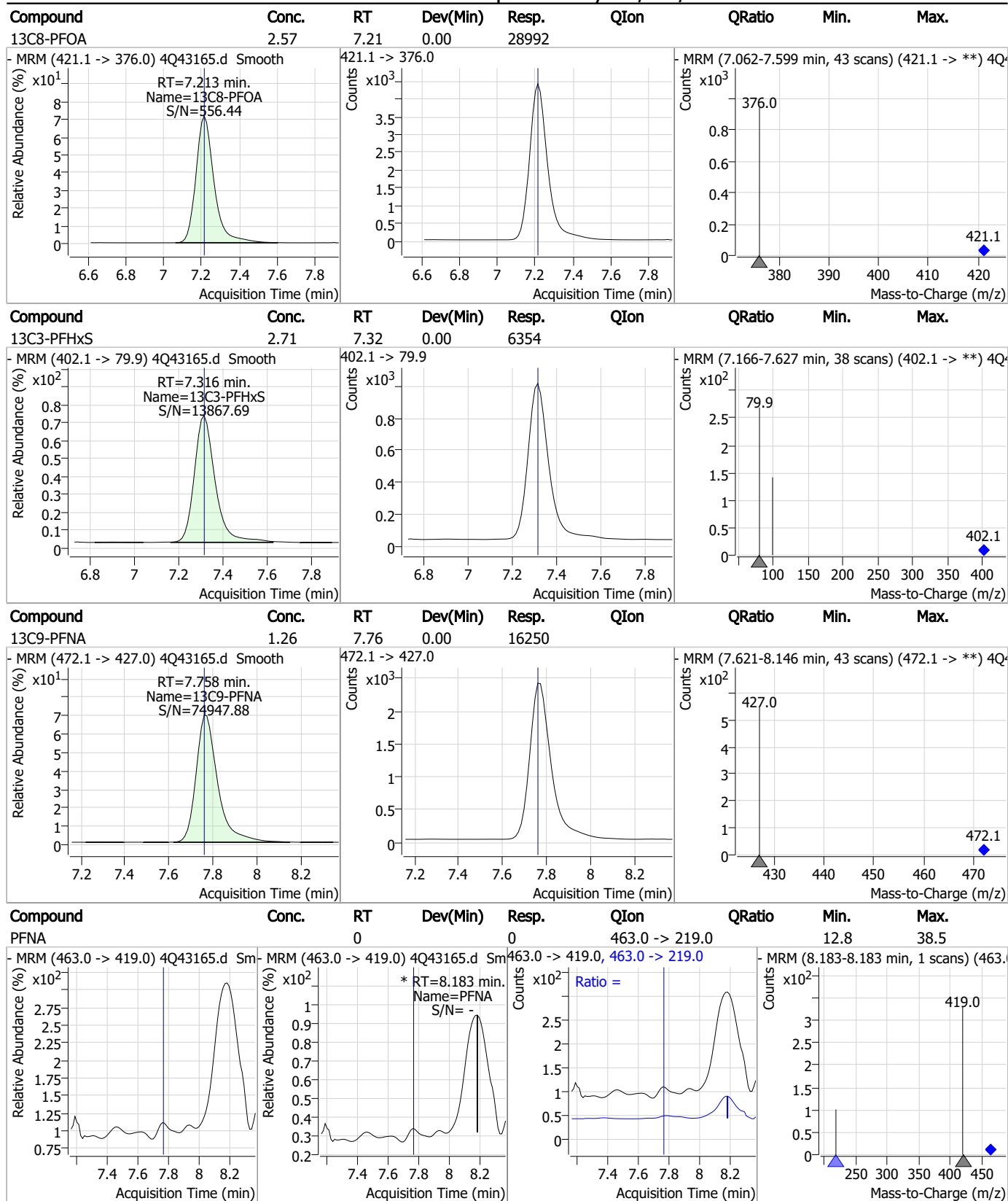
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

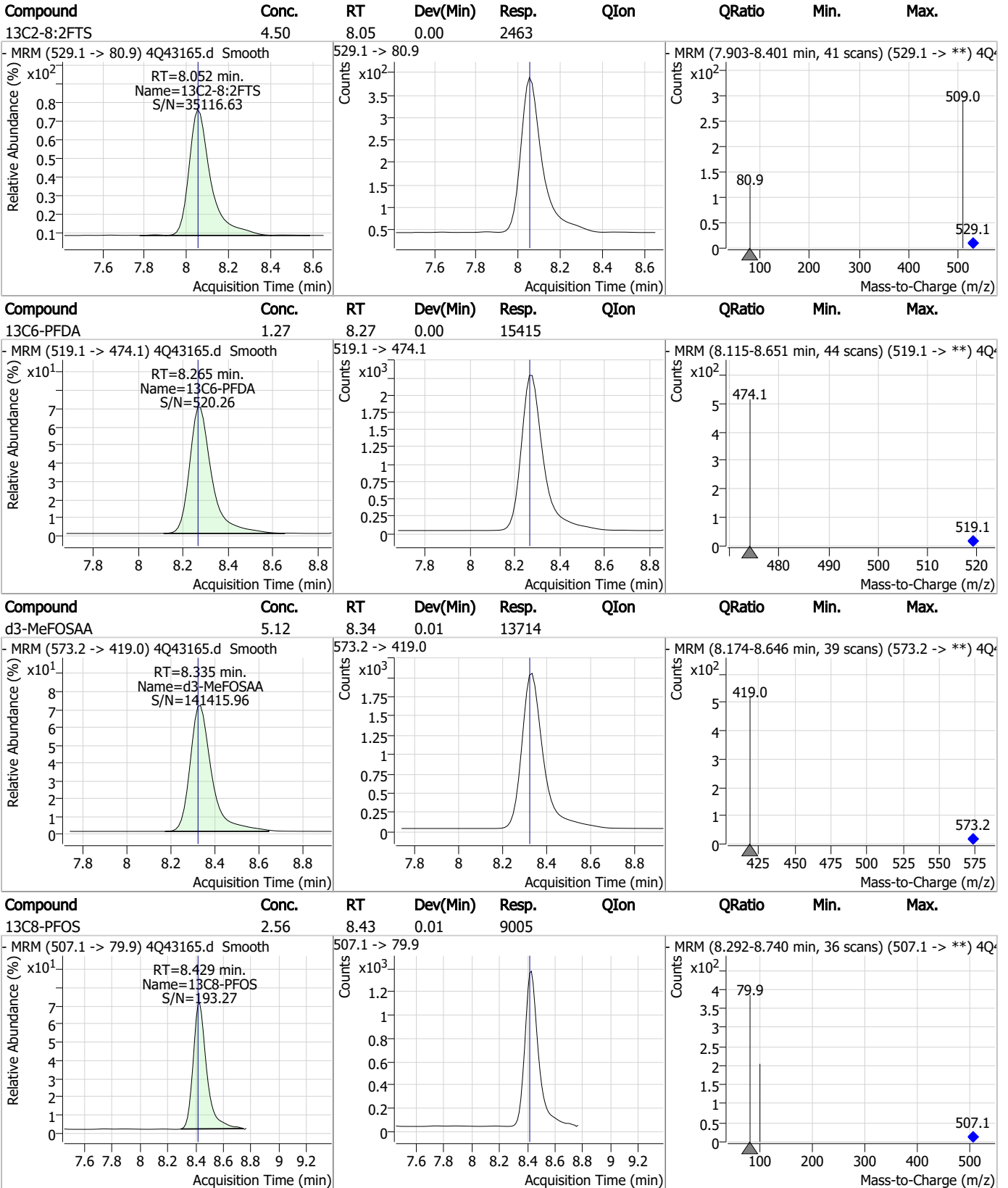


Perfluorinated Compounds by LC/MS/MS



7.1.4
7

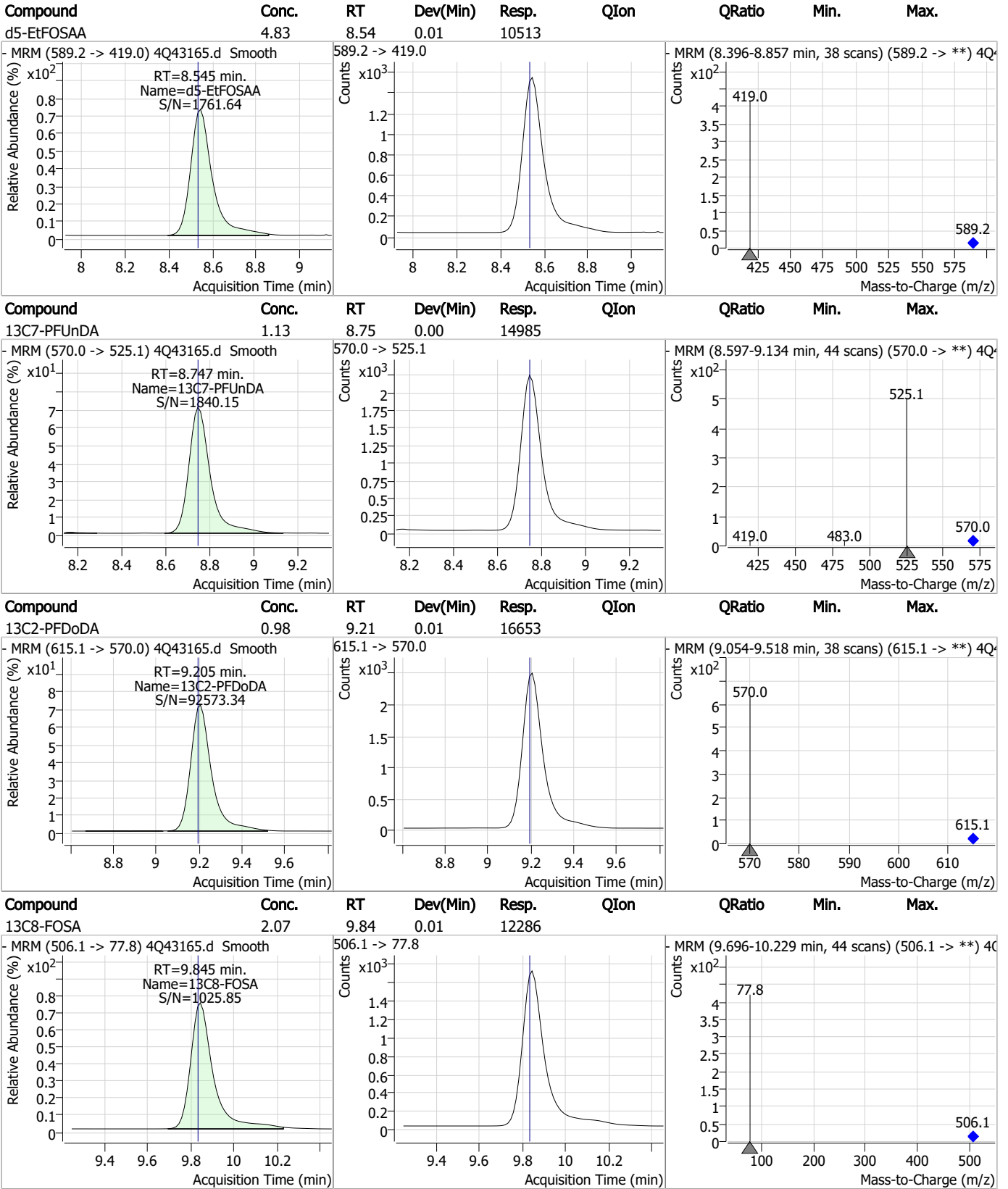
Perfluorinated Compounds by LC/MS/MS



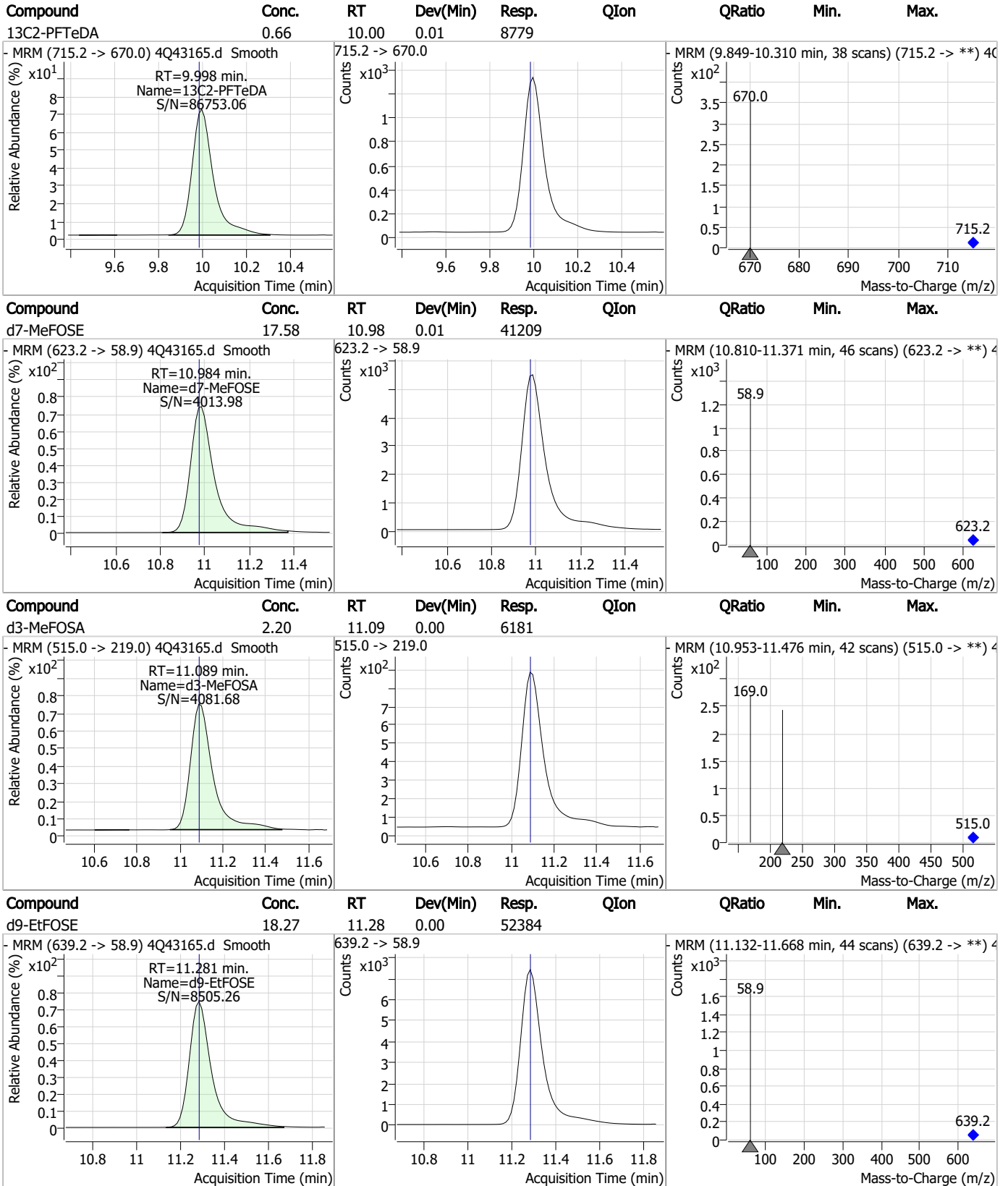
7.1.4

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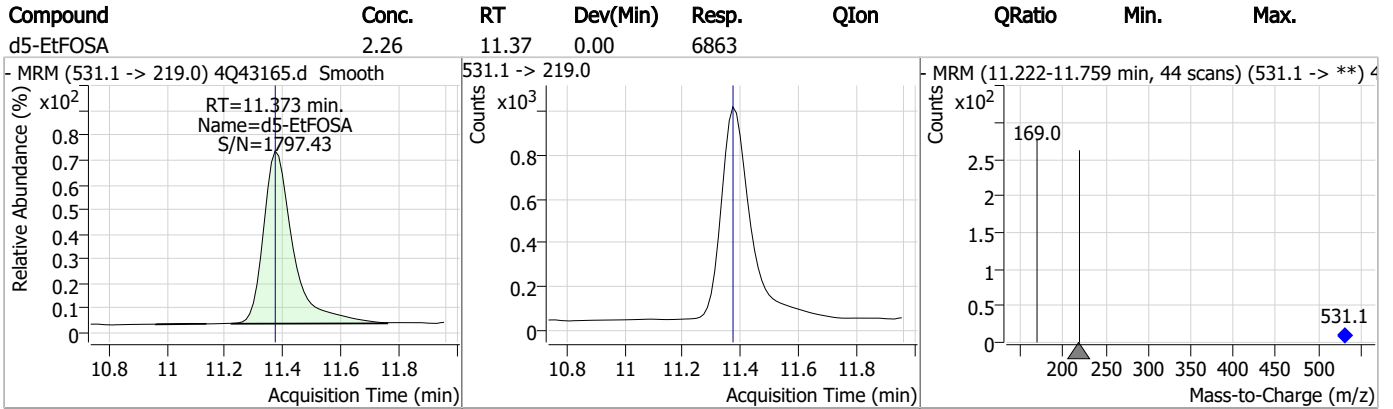
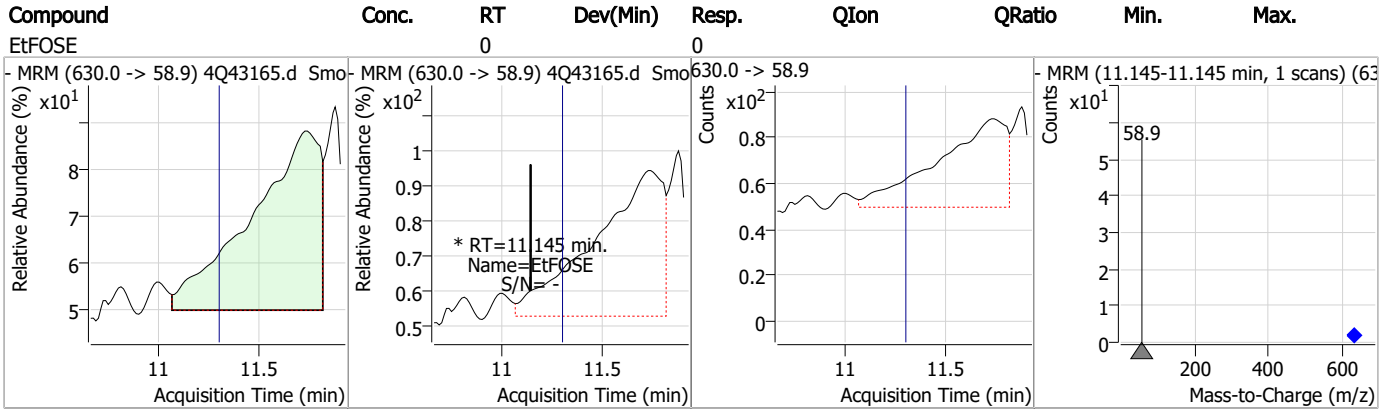
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.4

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43156.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 1:08:39 PM
 Sample Name : op96403-mb
 Vial : P4-C3
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96403,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.002	216.8 -> 171.9	116020	10.00 µg/L	0.041
M5-PFPeA	4.462	268.3 -> 223.0	63132	5.00 µg/L	0.012
M5-PFHxA	5.622	318.0 -> 273.0	50188	2.50 µg/L	0.000
M4-PFHpA	6.542	367.1 -> 322.0	25101	2.50 µg/L	-0.013
M8-PFOA	7.213	421.1 -> 376.0	30804	2.50 µg/L	0.000
M9-PFNA	7.758	472.1 -> 427.0	17334	1.25 µg/L	-0.001
M6-PFDA	8.265	519.1 -> 474.1	17031	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	16048	1.25 µg/L	-0.001
M2-PFDoDA	9.193	615.1 -> 570.0	18647	1.25 µg/L	-0.001
M2-PFTeDA	9.998	715.2 -> 670.0	11999	1.25 µg/L	0.011
M8-FOSA	9.845	506.1 -> 77.8	11866	2.50 µg/L	0.011
M3-PFBS	5.539	302.1 -> 79.9	10547	2.50 µg/L	0.012
M3-PFHxS	7.316	402.1 -> 79.9	6472	2.50 µg/L	-0.001
M8-PFOS	8.417	507.1 -> 79.9	9397	2.50 µg/L	0.000
M2-4:2FTS	5.310	329.1 -> 80.9	1543	5.00 µg/L	0.001
M2-6:2FTS	6.973	429.1 -> 80.9	2128	5.00 µg/L	-0.001
M2-8:2FTS	8.052	529.1 -> 80.9	3051	5.00 µg/L	-0.001
M3-MeFOSAA	8.323	573.2 -> 419.0	14869	5.00 µg/L	-0.001
M3-HFPO-DA	5.976	286.9 -> 168.9	30145	10.00 µg/L	-0.013
M5-EtFOSAA	8.532	589.2 -> 419.0	11015	5.00 µg/L	-0.001
M7-MeFOSE	10.972	623.2 -> 58.9	40558	25.00 µg/L	-0.002
M9-EtFOSE	11.281	639.2 -> 58.9	48904	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	6287	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	6072	2.50 µg/L	-0.002
13C4-PFOS	8.418	502.8 -> 79.9	9384	2.50 µg/L	0.000
13C3-PFBA	3.005	216.0 -> 172.0	61368	5.00 µg/L	0.040
18O2-PFHxS	7.315	403.0 -> 83.9	4392	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	36064	2.50 µg/L	0.000
13C2-PFDA	8.265	515.1 -> 470.1	14626	1.25 µg/L	-0.001
13C5-PFNA	7.759	468.0 -> 423.0	17607	1.25 µg/L	-0.001
13C2-PFHxA	5.623	315.1 -> 270.0	40808	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.310	329.1 -> 80.9	1543	6.43 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.6%		
13C2-6:2FTS	6.973	429.1 -> 80.9	2128	6.18 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.6%		
13C2-8:2FTS	8.052	529.1 -> 80.9	3051	5.39 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C2-PFDoDA	9.193	615.1 -> 570.0	18647	1.04 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 82.8%		
13C2-PFTeDA	9.998	715.2 -> 670.0	11999	0.86 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 68.5%		
13C3-PFBS	5.539	302.1 -> 79.9	10547	2.61 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C3-PFHxS	7.316	402.1 -> 79.9	6472	2.66 µg/L	-0.001

7.2.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C4-PFBA	3.002	216.8 -> 171.9	116020	10.86 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.6%	
13C4-PFHpA	6.542	367.1 -> 322.0	25101	2.71 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C5-PFHxA	5.622	318.0 -> 273.0	50188	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C5-PFPeA	4.462	268.3 -> 223.0	63132	5.25 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C6-PFDA	8.265	519.1 -> 474.1	17031	1.32 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C7-PFUnDA	8.747	570.0 -> 525.1	16048	1.15 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.9%	
13C8-FOSA	9.845	506.1 -> 77.8	11866	1.93 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.3%	
13C8-PFOA	7.213	421.1 -> 376.0	30804	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C8-PFOS	8.417	507.1 -> 79.9	9397	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C9-PFNA	7.758	472.1 -> 427.0	17334	1.35 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.1%	
d3-MeFOSAA	8.323	573.2 -> 419.0	14869	5.38 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C3-HFPO-DA	5.976	286.9 -> 168.9	30145	10.53 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
d3-MeFOSA	11.089	515.0 -> 219.0	6072	2.09 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.6%	
d5-EtFOSAA	8.532	589.2 -> 419.0	11015	4.90 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
d7-MeFOSE	10.972	623.2 -> 58.9	40558	16.76 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 67.0%	
d9-EtFOSE	11.281	639.2 -> 58.9	48904	16.51 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 66.1%	
d5-EtFOSA	11.373	531.1 -> 219.0	6287	2.00 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.1%	

7.2.1
7

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

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	5.625	449.0 -> 98.9	837	0.06 µg/L	#	91
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	50	N.D.		
		398.7 -> 79.9				
PFNA	8.183	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	0	N.D.		
		548.8 -> 79.9				
PFOA	-	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	11.656	630.0 -> 58.9	0	µg/L	m	1
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



7.2.1
7

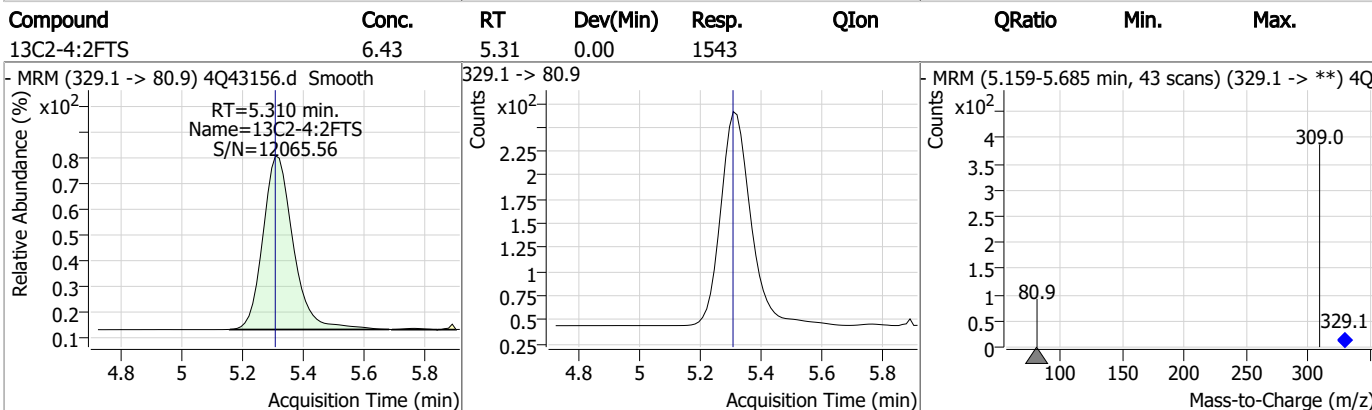
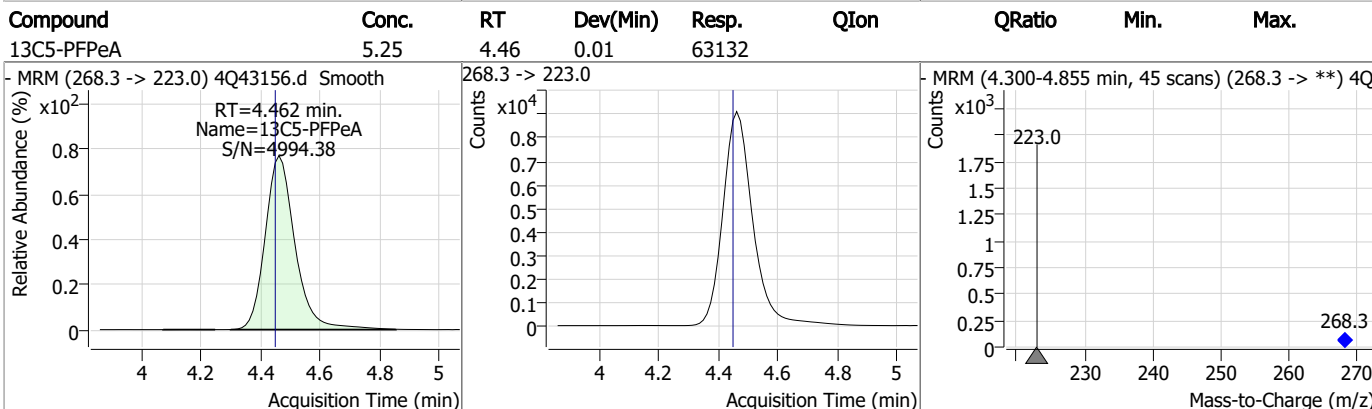
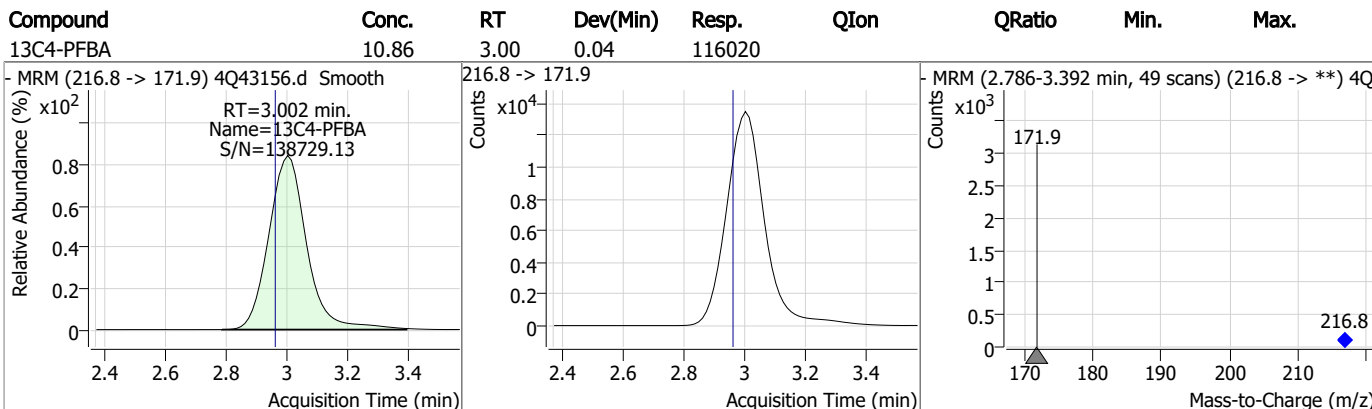
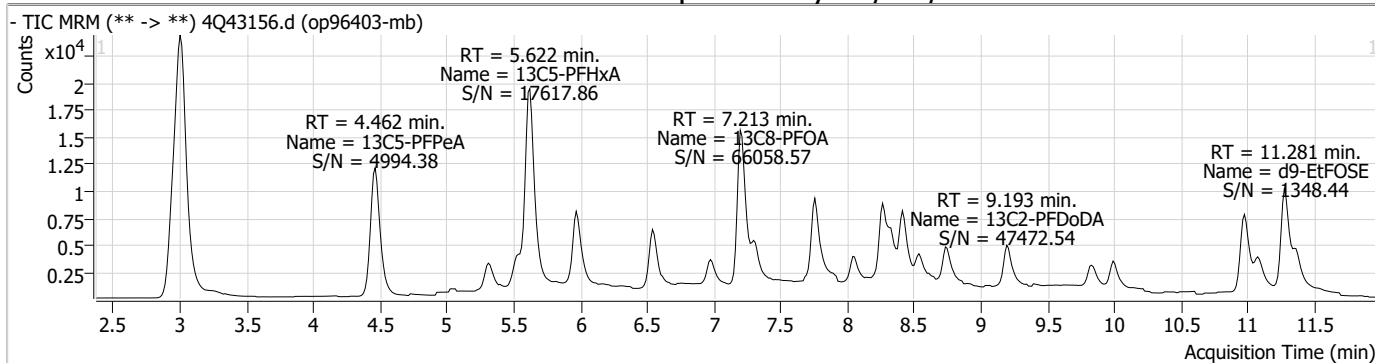
Perfluorinated Compounds by LC/MS/MS

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

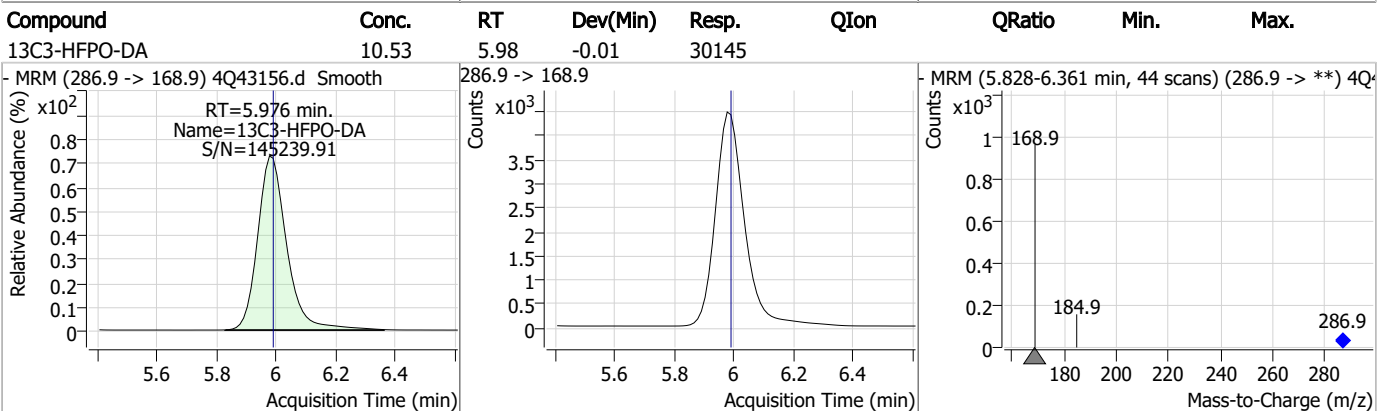
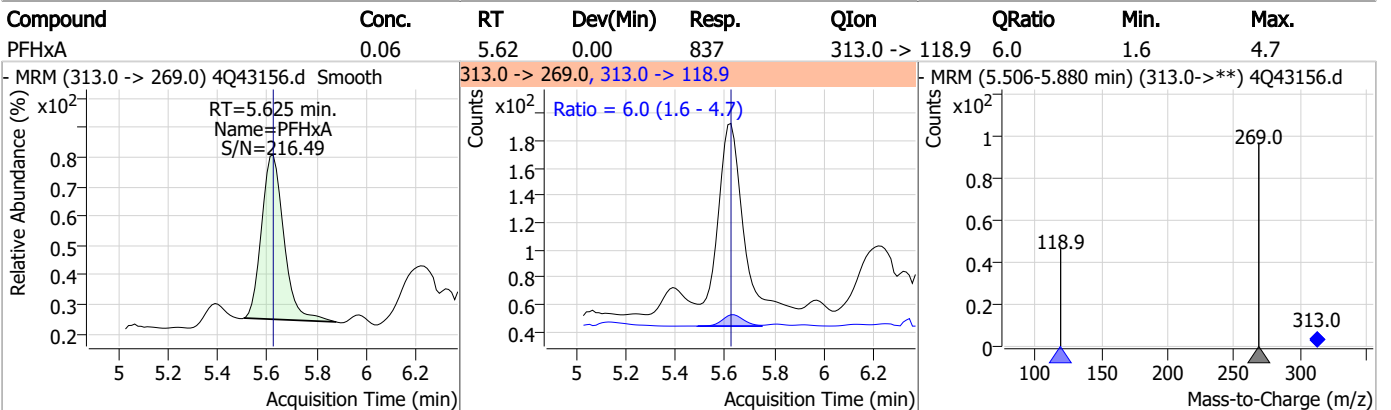
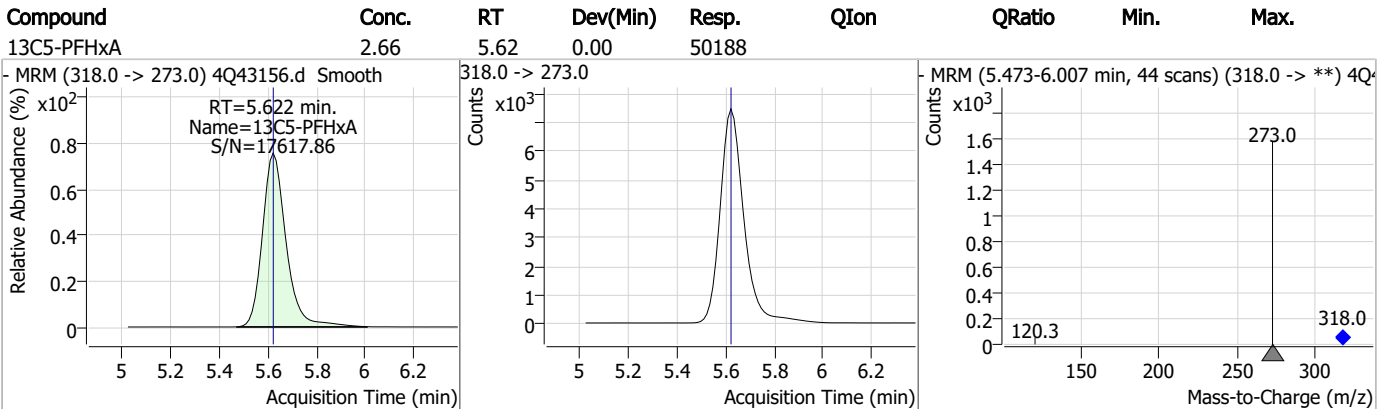
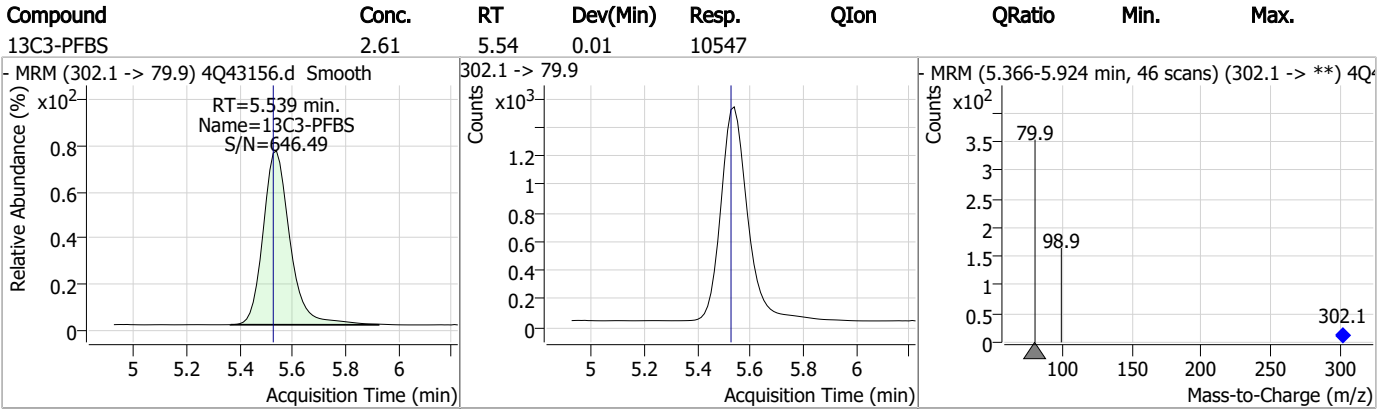
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Perfluorinated Compounds by LC/MS/MS

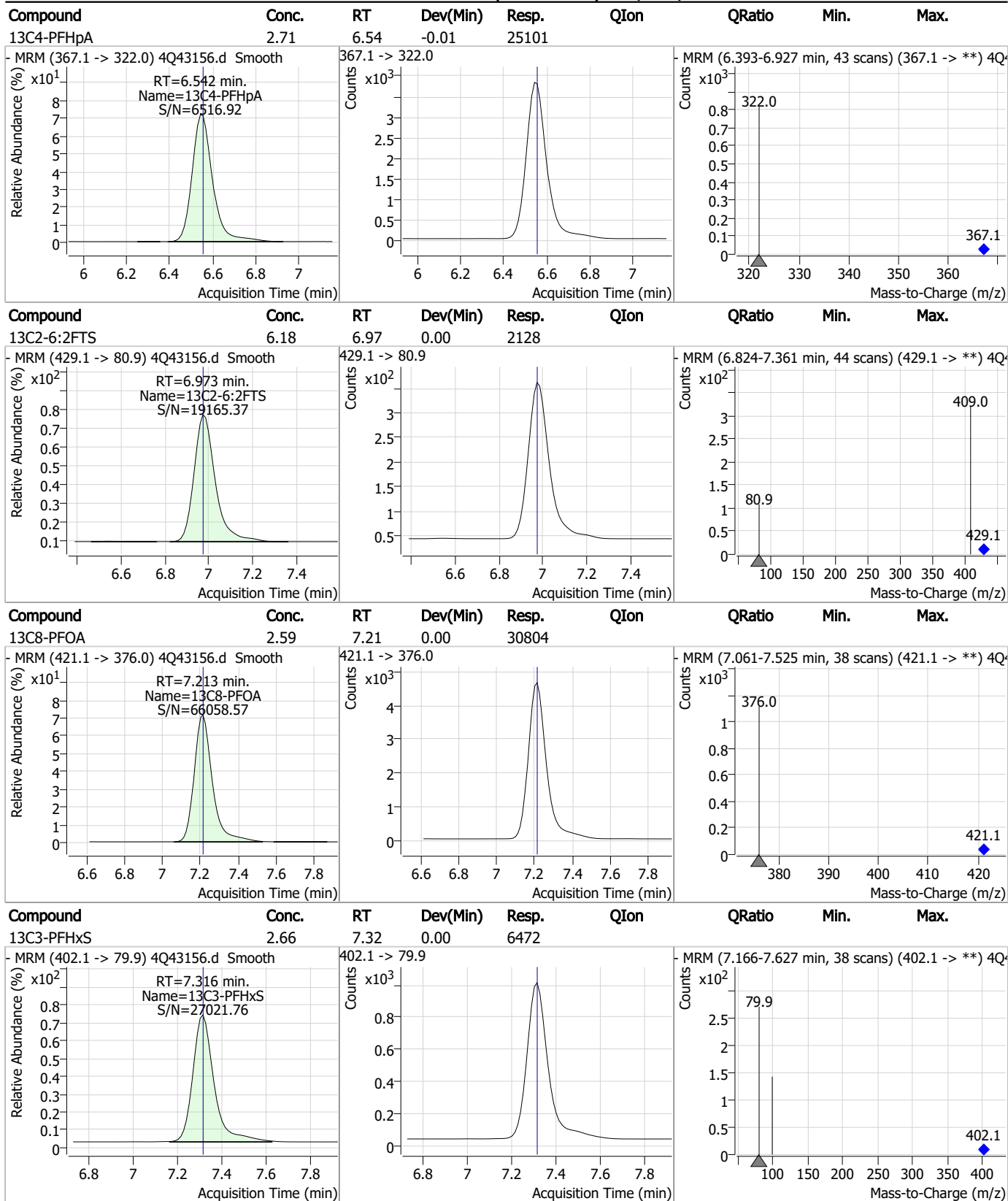


7.2.1
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Perfluorinated Compounds by LC/MS/MS

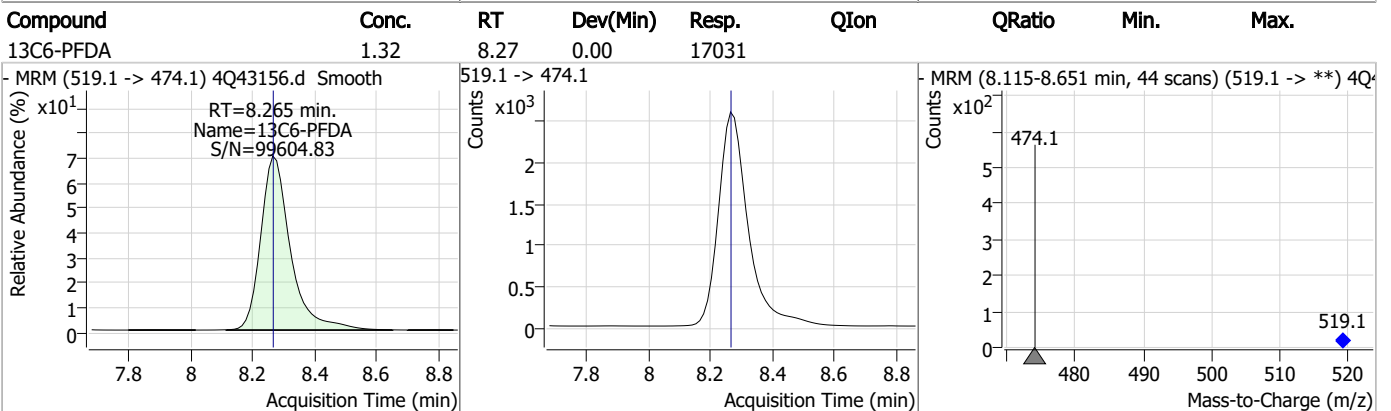
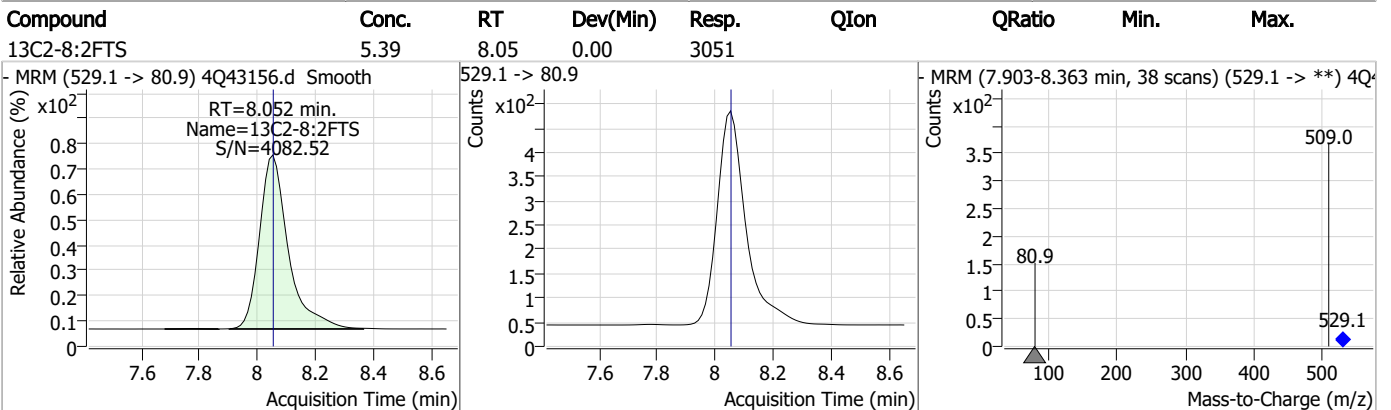
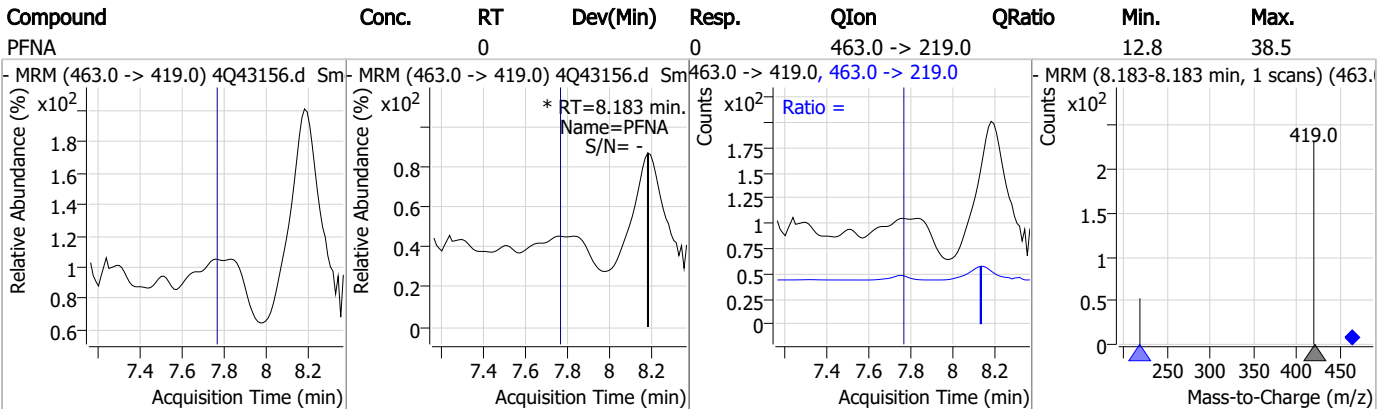
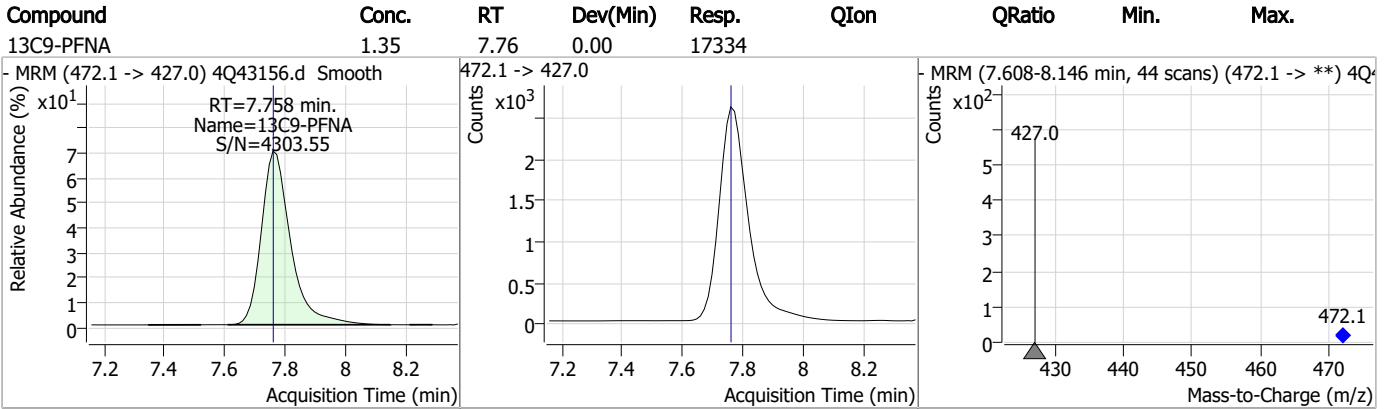


Perfluorinated Compounds by LC/MS/MS



7.2.1
7

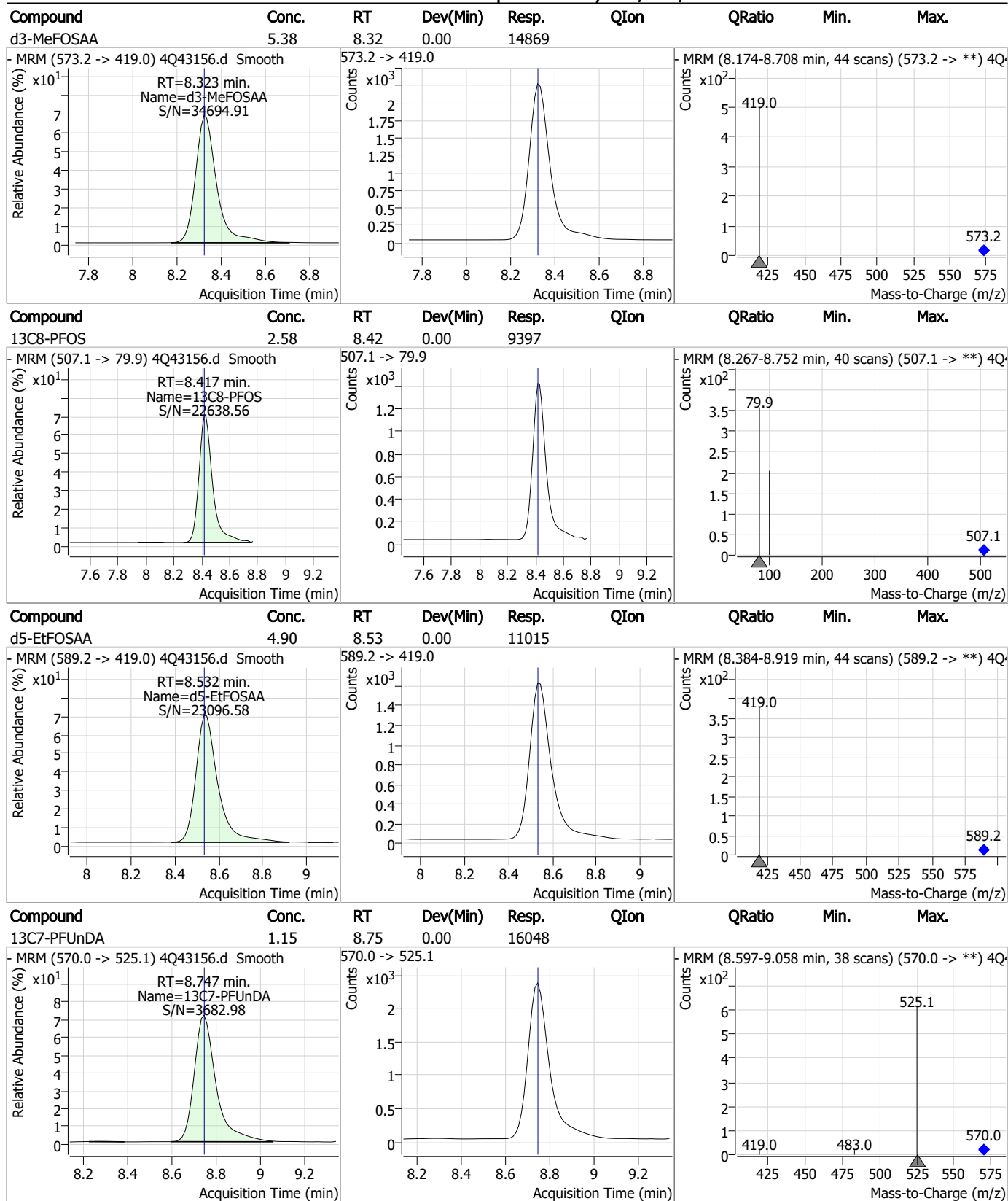
Perfluorinated Compounds by LC/MS/MS



7.2.1

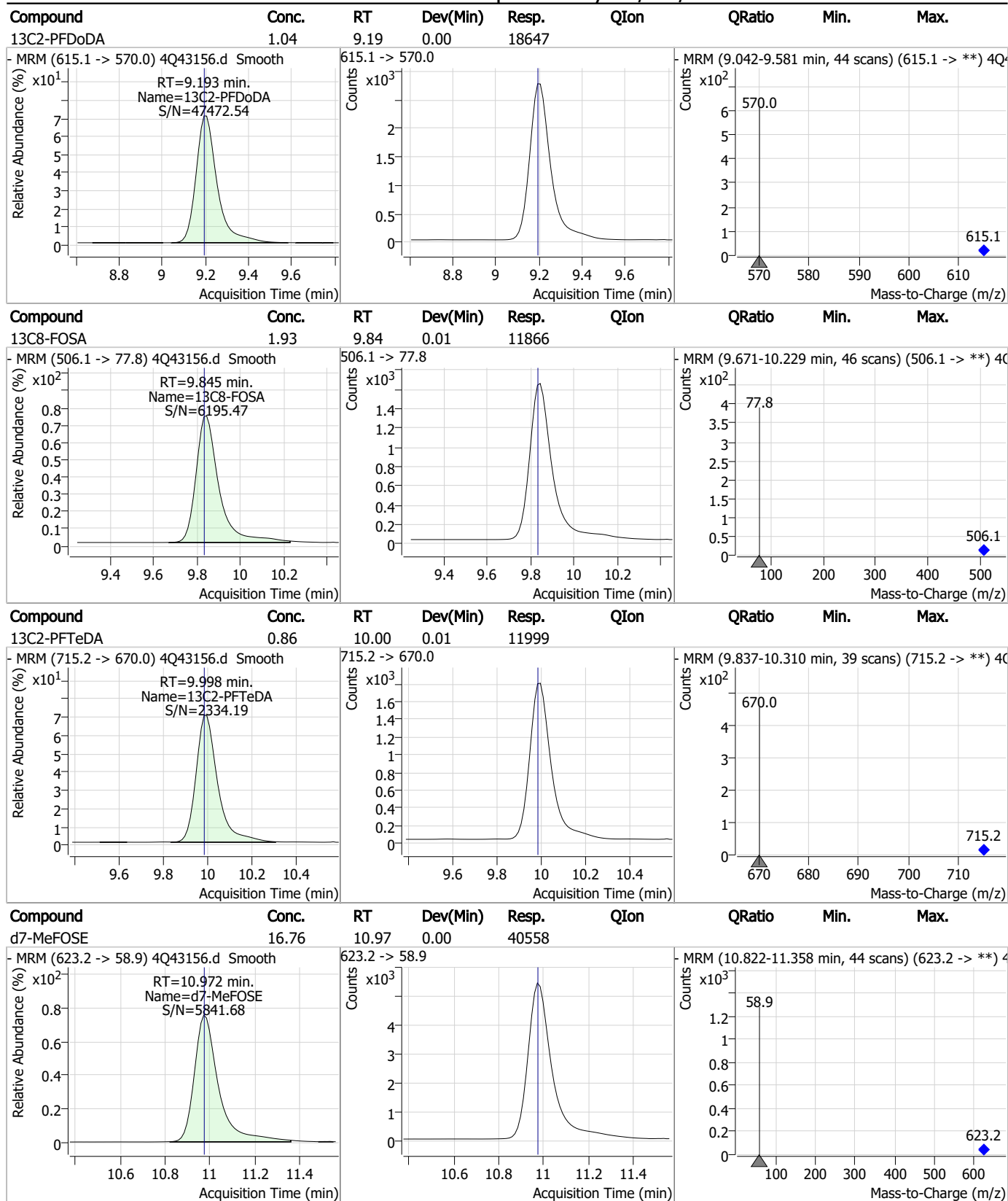
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Perfluorinated Compounds by LC/MS/MS



7.2.1
7

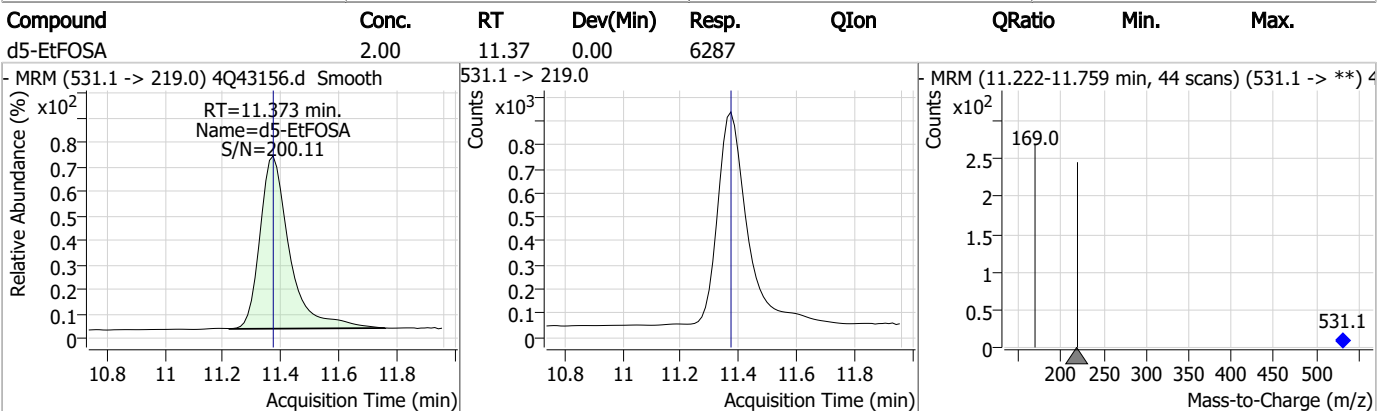
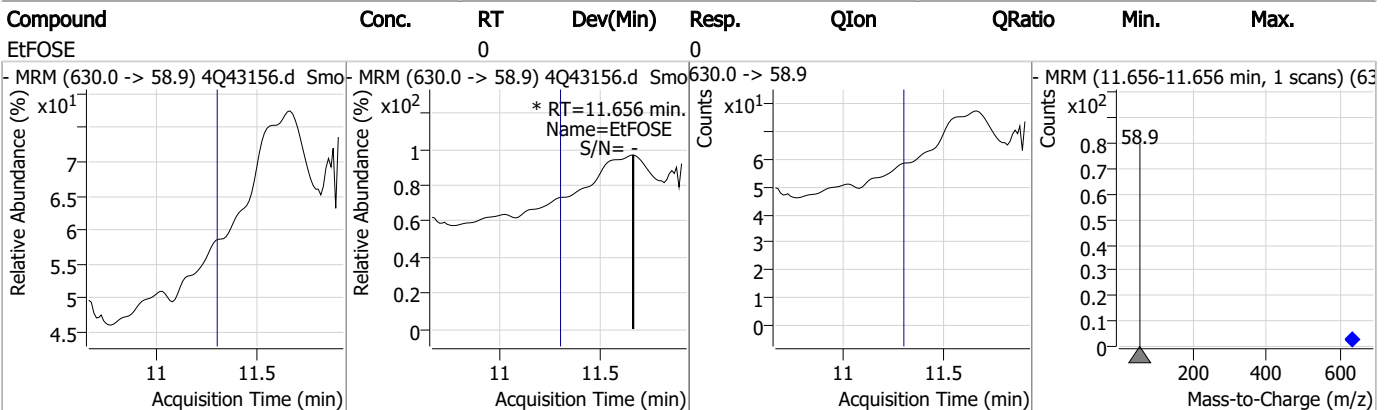
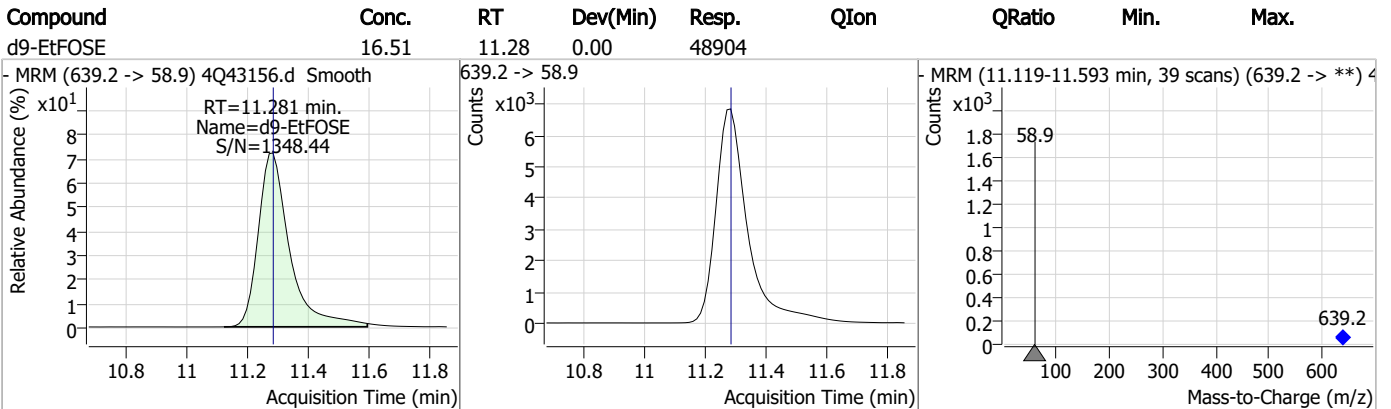
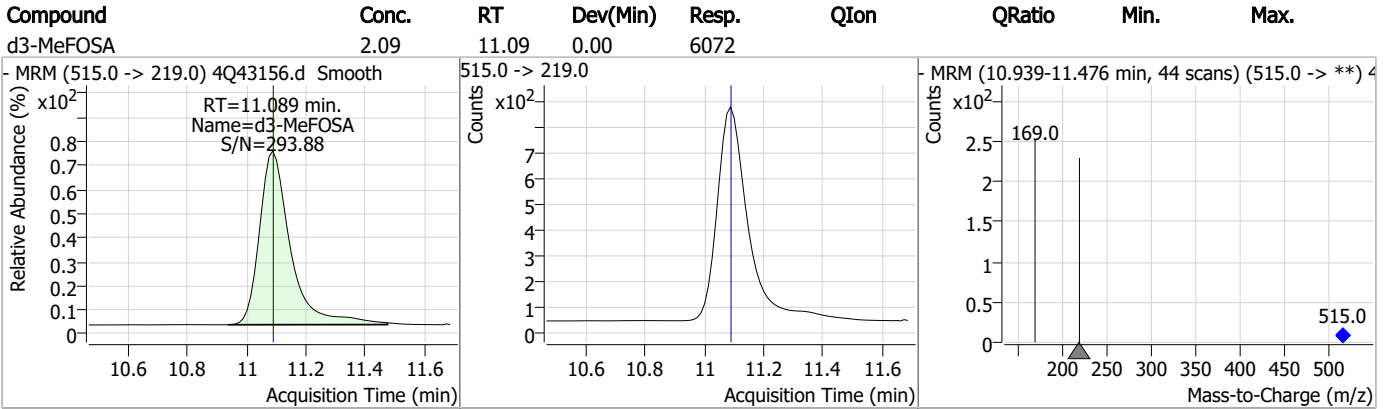
Perfluorinated Compounds by LC/MS/MS



7.2.1
7



Perfluorinated Compounds by LC/MS/MS



7.2.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43360.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/20/2023 11:47:10 PM
 Sample Name : op96494-mb
 Vial : P3-C4
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s4q626.batch.bin
 Sample Information : OP96494,S4q626,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.974	216.8 -> 171.9	120838	10.00 µg/L	0.037
M5-PFPeA	4.437	268.3 -> 223.0	62618	5.00 µg/L	0.025
M5-PFHxA	5.597	318.0 -> 273.0	51496	2.50 µg/L	0.012
M4-PFHpA	6.529	367.1 -> 322.0	26310	2.50 µg/L	0.012
M8-PFOA	7.188	421.1 -> 376.0	36944	2.50 µg/L	0.000
M9-PFNA	7.746	472.1 -> 427.0	19941	1.25 µg/L	0.013
M6-PFDA	8.240	519.1 -> 474.1	18900	1.25 µg/L	0.000
M7-PFUnDA	8.722	570.0 -> 525.1	20525	1.25 µg/L	0.000
M2-PFDoDA	9.168	615.1 -> 570.0	22249	1.25 µg/L	-0.012
M2-PFTeDA	9.974	715.2 -> 670.0	15416	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	11477	2.50 µg/L	0.000
M3-PFBS	5.514	302.1 -> 79.9	10522	2.50 µg/L	0.012
M3-PFHxS	7.291	402.1 -> 79.9	6742	2.50 µg/L	0.000
M8-PFOS	8.392	507.1 -> 79.9	10044	2.50 µg/L	0.000
M2-4:2FTS	5.285	329.1 -> 80.9	1645	5.00 µg/L	0.012
M2-6:2FTS	6.961	429.1 -> 80.9	2647	5.00 µg/L	0.012
M2-8:2FTS	8.027	529.1 -> 80.9	4274	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	16862	5.00 µg/L	0.000
M3-HFPO-DA	5.964	286.9 -> 168.9	29806	10.00 µg/L	0.013
M5-EtFOSAA	8.507	589.2 -> 419.0	12893	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	41714	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	61689	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	6237	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	5546	2.50 µg/L	0.000
13C4-PFOS	8.393	502.8 -> 79.9	9622	2.50 µg/L	-0.012
13C3-PFBA	2.978	216.0 -> 172.0	62310	5.00 µg/L	0.037
18O2-PFHxS	7.290	403.0 -> 83.9	4325	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	42870	2.50 µg/L	0.000
13C2-PFDA	8.241	515.1 -> 470.1	16217	1.25 µg/L	0.000
13C5-PFNA	7.734	468.0 -> 423.0	21535	1.25 µg/L	0.000
13C2-PFHxA	5.598	315.1 -> 270.0	41343	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.285	329.1 -> 80.9	1645	6.48 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.6%		
13C2-6:2FTS	6.961	429.1 -> 80.9	2647	6.62 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 132.5%		
13C2-8:2FTS	8.027	529.1 -> 80.9	4274	5.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.0%		
13C2-PFDoDA	9.168	615.1 -> 570.0	22249	1.14 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.9%		
13C2-PFTeDA	9.974	715.2 -> 670.0	15416	0.99 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 79.2%		
13C3-PFBS	5.514	302.1 -> 79.9	10522	2.63 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C3-PFHxS	7.291	402.1 -> 79.9	6742	2.73 µg/L	0.000

7.2.2
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C4-PFBA	2.974	216.8 -> 171.9	120838	10.76 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C4-PFHpA	6.529	367.1 -> 322.0	26310	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C5-PFHxA	5.597	318.0 -> 273.0	51496	2.65 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C5-PFPeA	4.437	268.3 -> 223.0	62618	4.95 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C6-PFDA	8.240	519.1 -> 474.1	18900	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.8%	
13C7-PFUnDA	8.722	570.0 -> 525.1	20525	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C8-FOSA	9.783	506.1 -> 77.8	11477	1.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 65.8%	
13C8-PFOA	7.188	421.1 -> 376.0	36944	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C8-PFOS	8.392	507.1 -> 79.9	10044	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C9-PFNA	7.746	472.1 -> 427.0	19941	1.33 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.1%	
d3-MeFOSAA	8.298	573.2 -> 419.0	16862	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C3-HFPO-DA	5.964	286.9 -> 168.9	29806	9.50 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.0%	
d3-MeFOSA	11.064	515.0 -> 219.0	5546	1.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 61.5%	
d5-EtFOSAA	8.507	589.2 -> 419.0	12893	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
d7-MeFOSE	10.959	623.2 -> 58.9	41714	14.13 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 56.5%	
d9-EtFOSE	11.256	639.2 -> 58.9	61689	16.32 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 65.3%	
d5-EtFOSA	11.360	531.1 -> 219.0	6237	1.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 65.1%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.565	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

7.2.2

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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	8.084	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	-	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	9.539	713.1 -> 669.0	0	µg/L	m	1
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.2
7

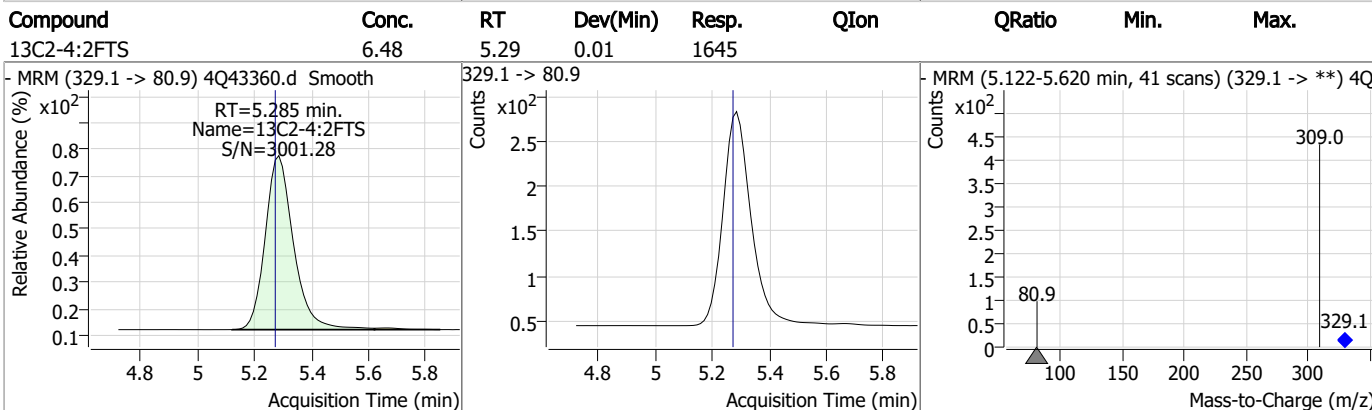
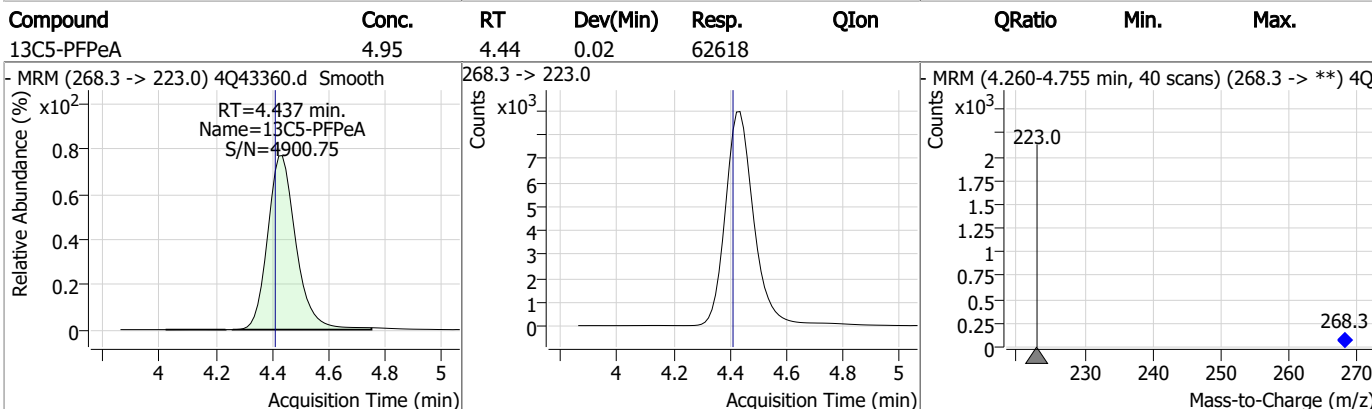
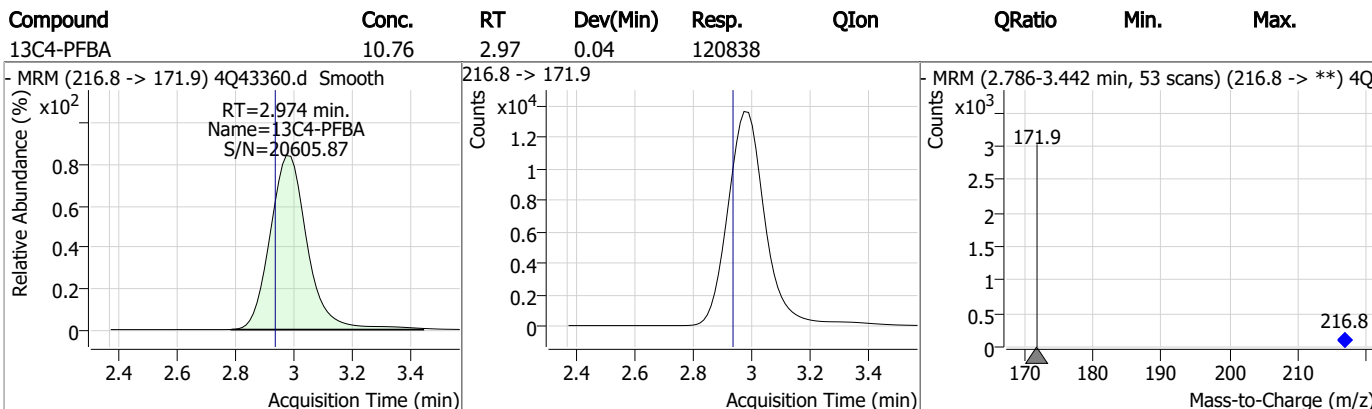
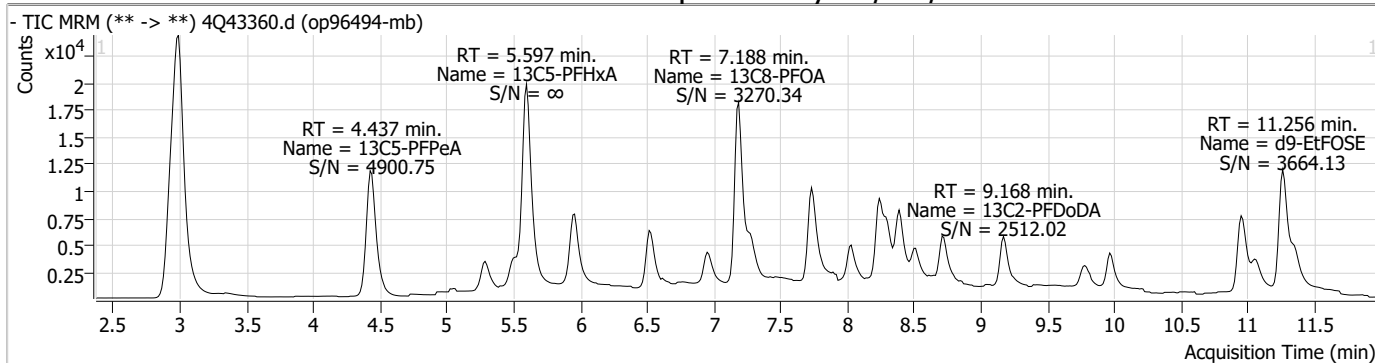
Perfluorinated Compounds by LC/MS/MS

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

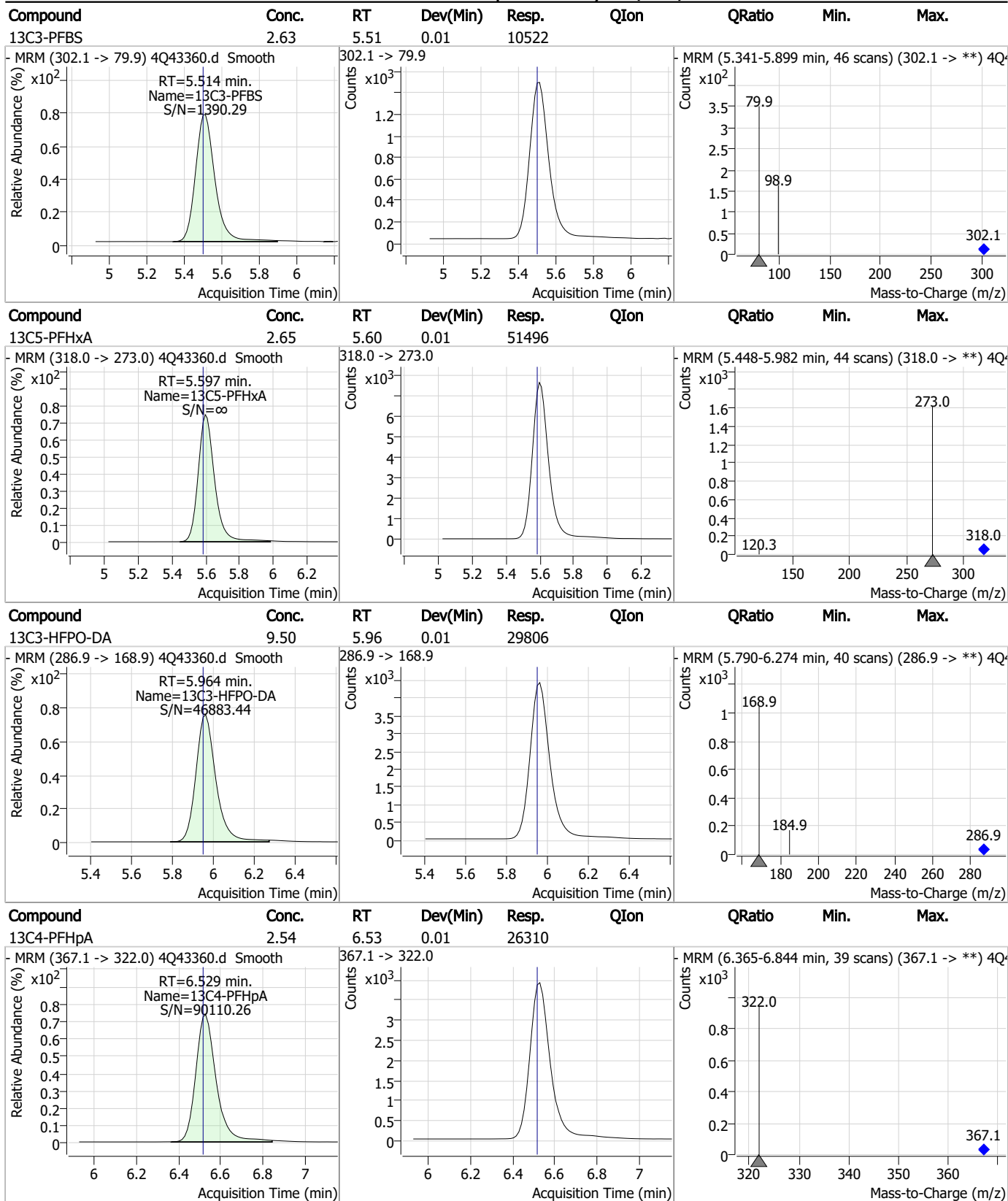
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Perfluorinated Compounds by LC/MS/MS



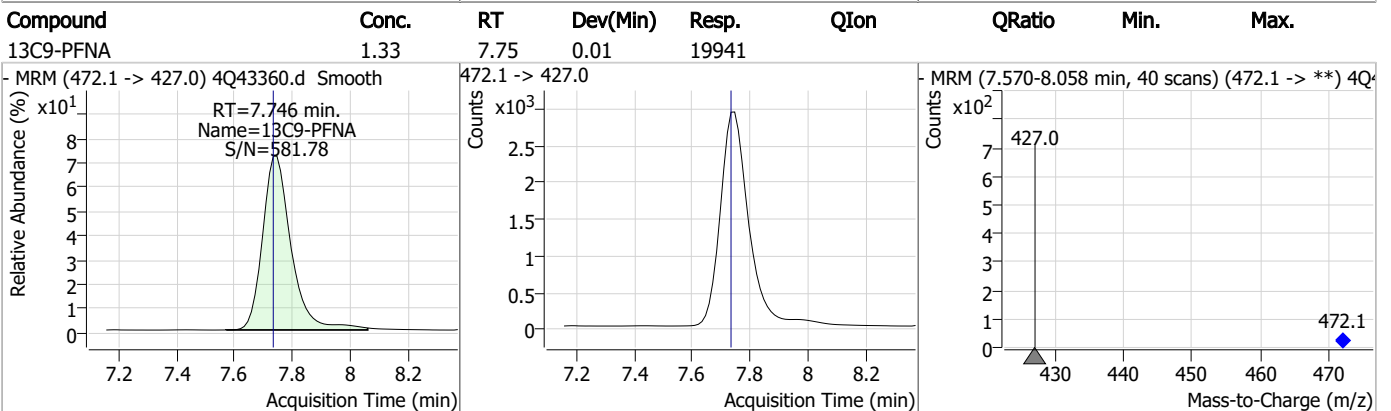
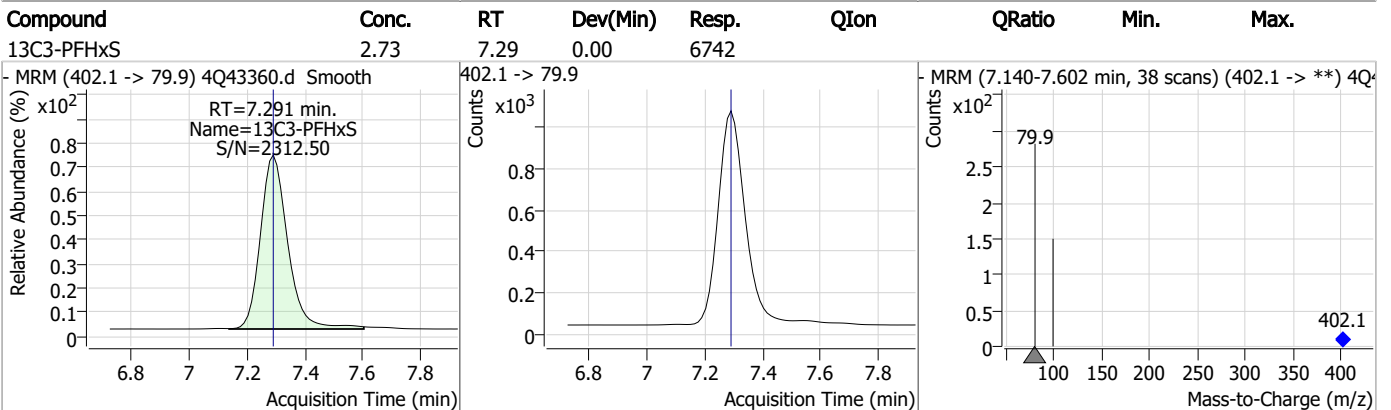
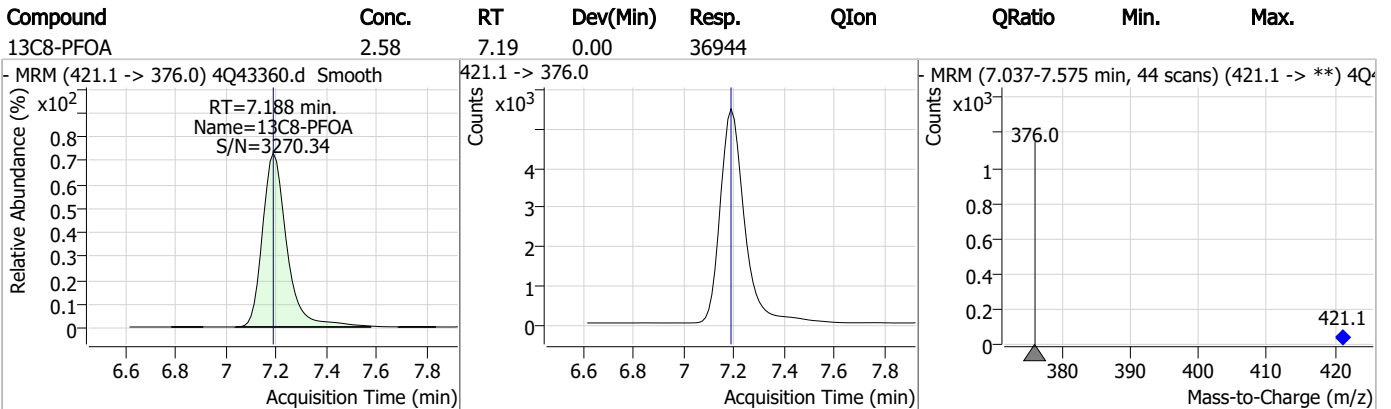
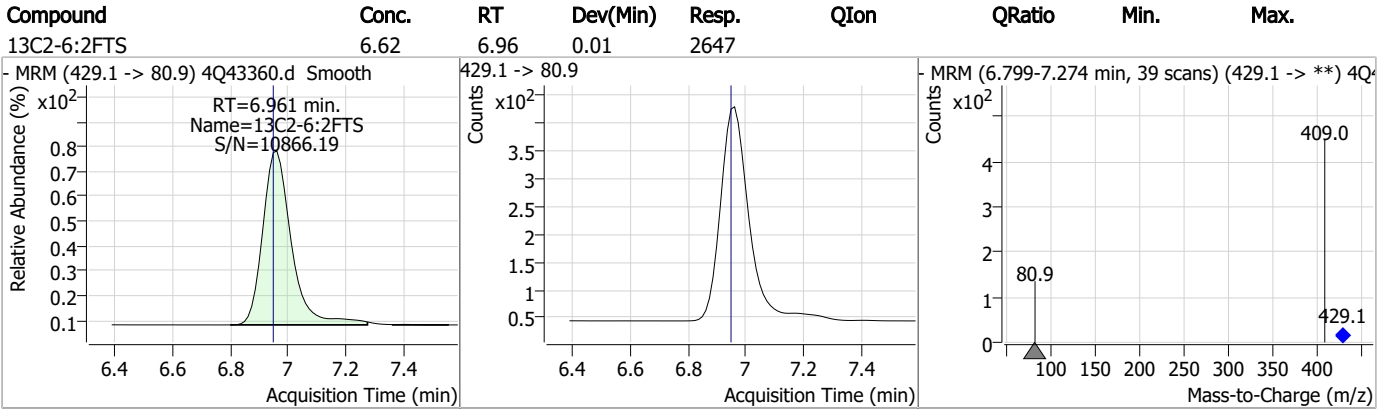
7.2.2
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Perfluorinated Compounds by LC/MS/MS

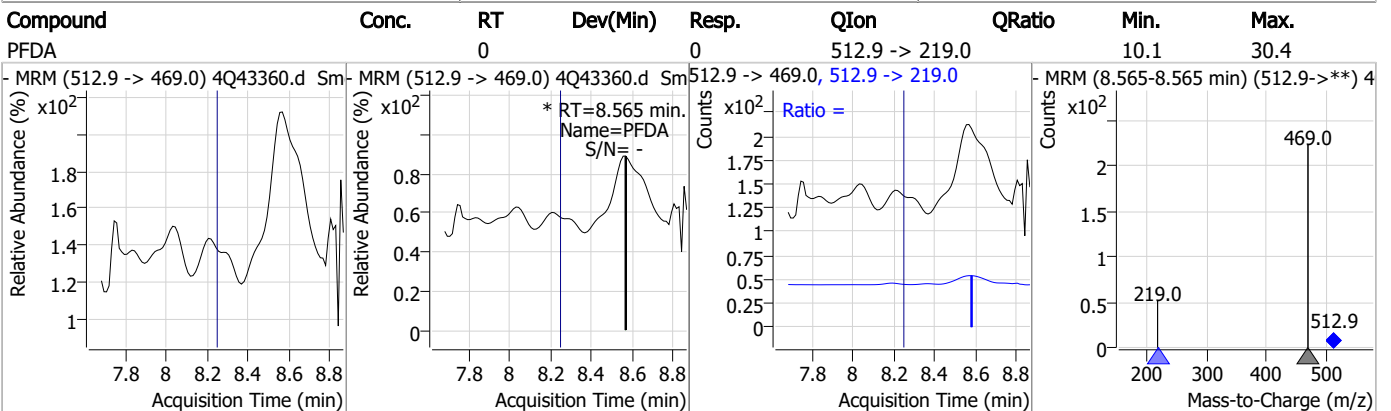
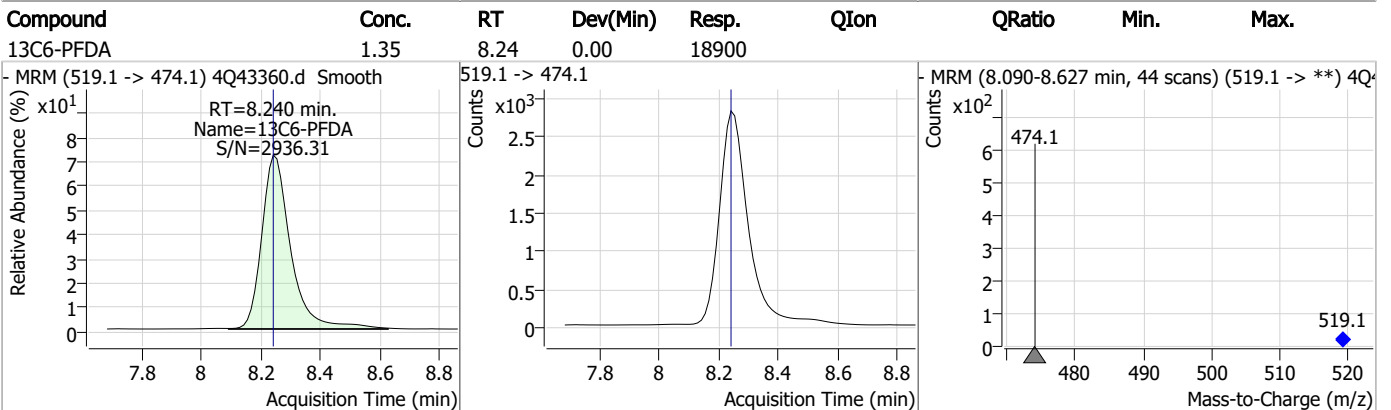
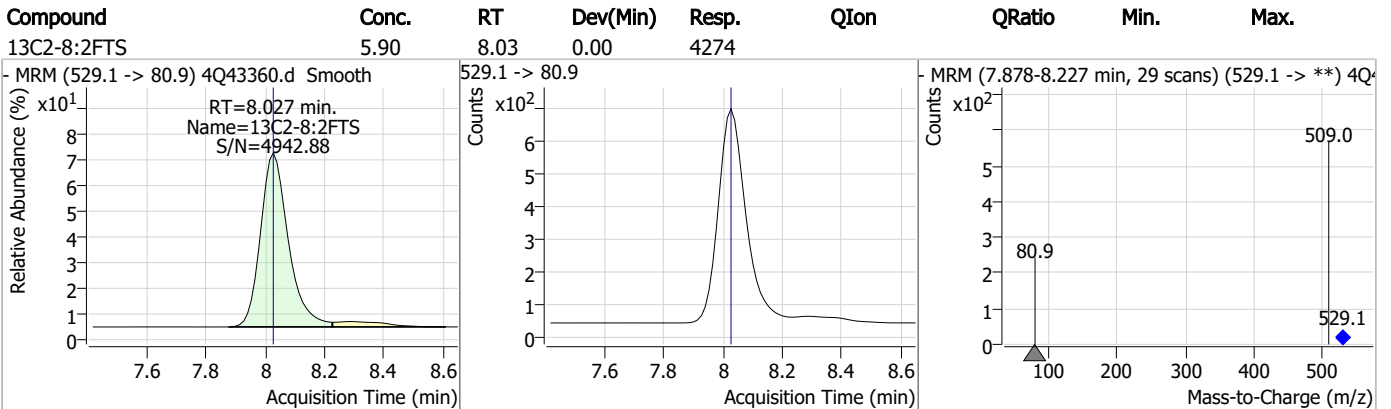
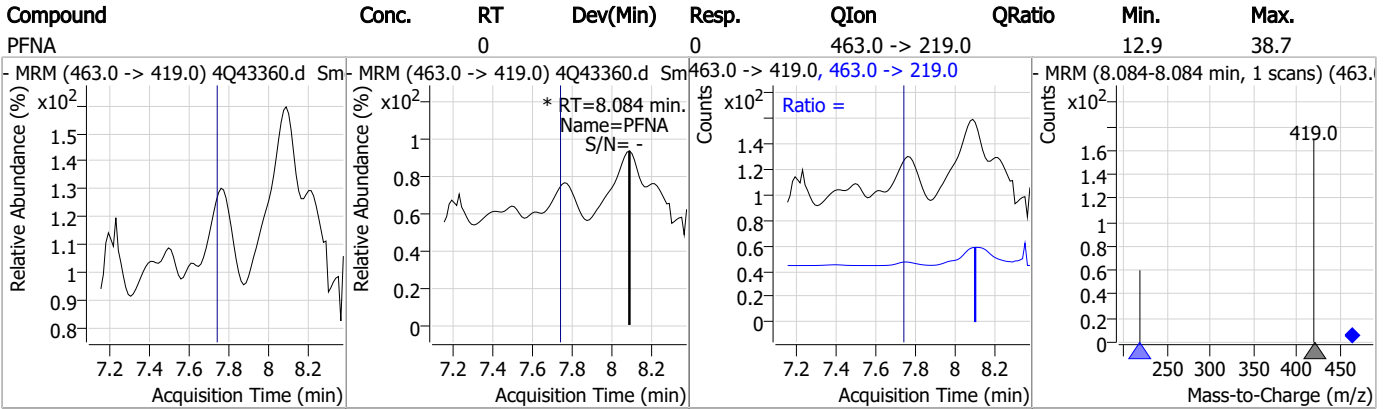


7.22
7

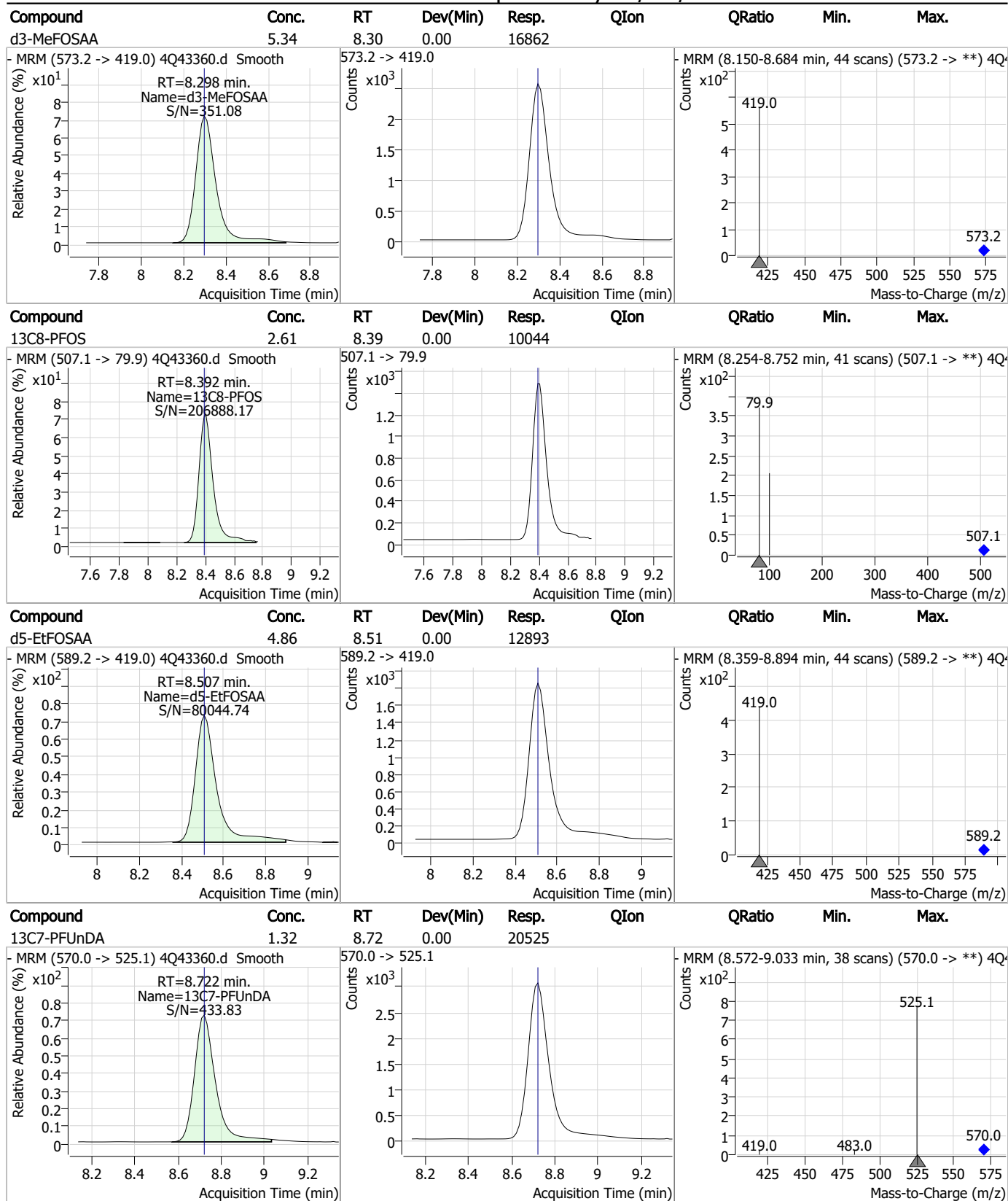
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

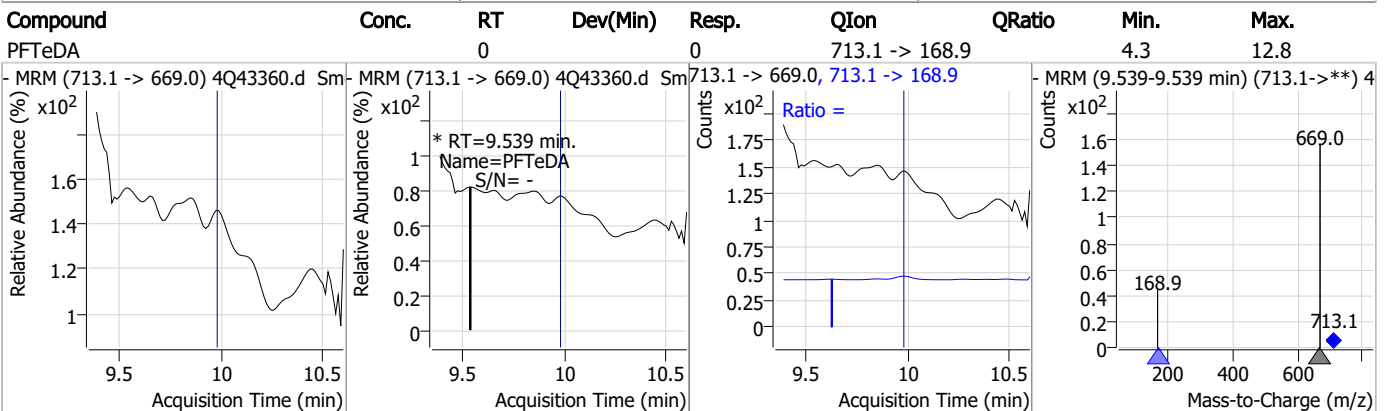
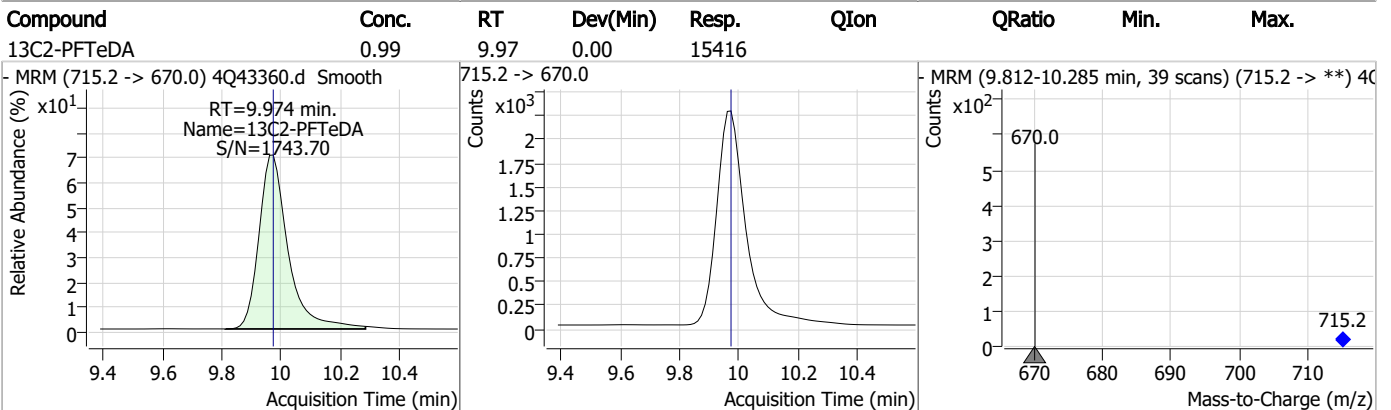
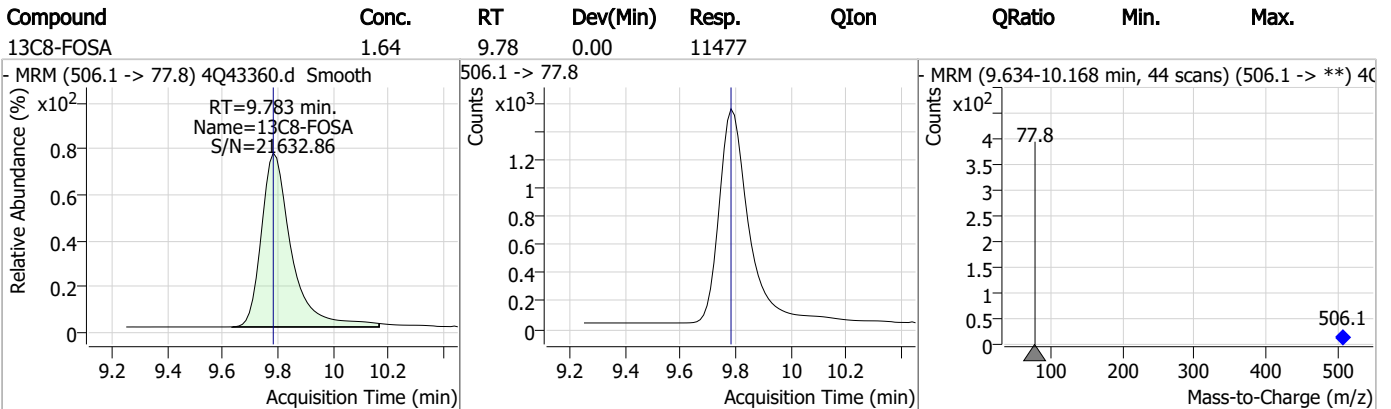
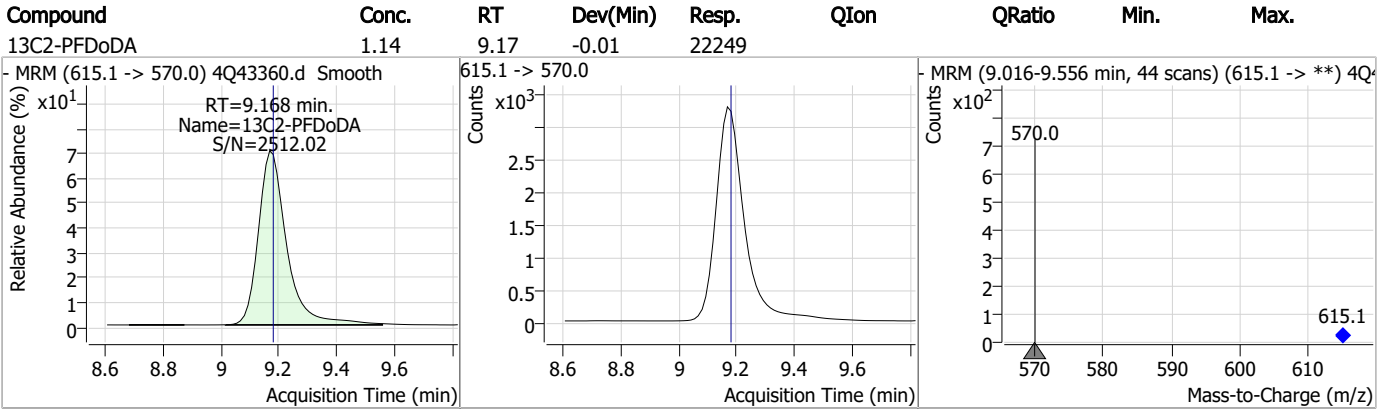


Perfluorinated Compounds by LC/MS/MS

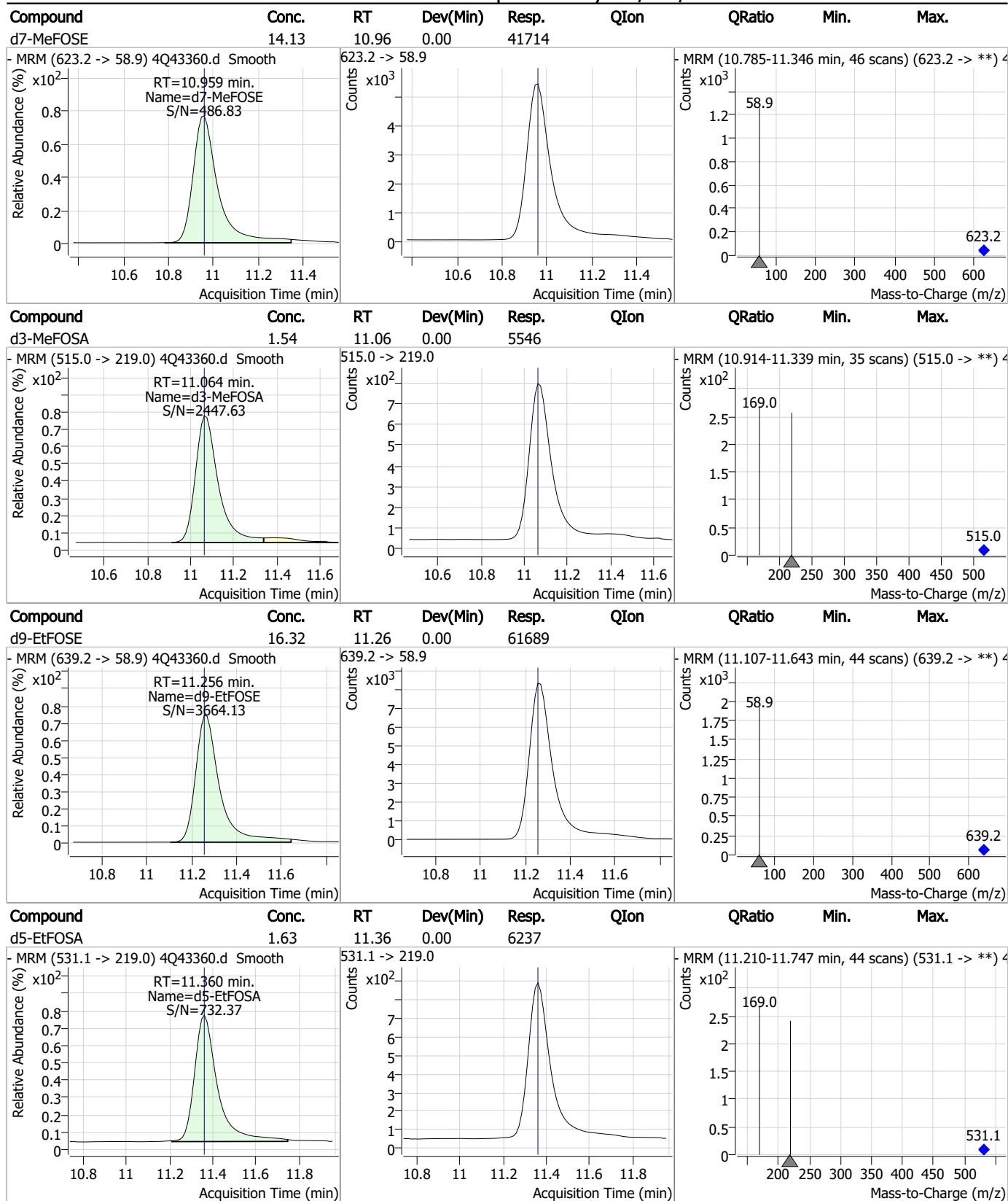


7.2.2
7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.2.2
7



Perfluorinated Compounds by LC/MS/MS

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 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 11:12:30 AM
 Sample Name : IBLK
 Vial : P1-A1
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96301,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.961	216.8 -> 171.9	151096	10.00 µg/L	0.000
M5-PFPeA	4.450	268.3 -> 223.0	87885	5.00 µg/L	0.000
M5-PFHxA	5.622	318.0 -> 273.0	71433	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	35751	2.50 µg/L	0.000
M8-PFOA	7.214	421.1 -> 376.0	44777	2.50 µg/L	0.000
M9-PFNA	7.759	472.1 -> 427.0	24454	1.25 µg/L	0.000
M6-PFDA	8.266	519.1 -> 474.1	22912	1.25 µg/L	0.000
M7-PFUnDA	8.748	570.0 -> 525.1	24384	1.25 µg/L	0.000
M2-PFDoDA	9.194	615.1 -> 570.0	30497	1.25 µg/L	0.000
M2-PFTeDA	10.000	715.2 -> 670.0	22128	1.25 µg/L	0.012
M8-FOSA	9.846	506.1 -> 77.8	18847	2.50 µg/L	0.012
M3-PFBS	5.539	302.1 -> 79.9	15290	2.50 µg/L	0.012
M3-PFHxS	7.317	402.1 -> 79.9	9715	2.50 µg/L	0.000
M8-PFOS	8.430	507.1 -> 79.9	12696	2.50 µg/L	0.012
M2-4:2FTS	5.309	329.1 -> 80.9	2121	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	2985	5.00 µg/L	0.000
M2-8:2FTS	8.054	529.1 -> 80.9	4883	5.00 µg/L	0.000
M3-MeFOSAA	8.324	573.2 -> 419.0	21520	5.00 µg/L	0.000
M3-HFPO-DA	5.989	286.9 -> 168.9	43779	10.00 µg/L	0.000
M5-EtFOSAA	8.533	589.2 -> 419.0	17533	5.00 µg/L	0.000
M7-MeFOSE	10.974	623.2 -> 58.9	70163	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	86488	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	11572	2.50 µg/L	0.000
M3-MeFOSA	11.090	515.0 -> 219.0	10204	2.50 µg/L	0.000
13C4-PFOS	8.430	502.8 -> 79.9	13612	2.50 µg/L	0.012
13C3-PFBA	2.966	216.0 -> 172.0	84520	5.00 µg/L	0.000
18O2-PFHxS	7.316	403.0 -> 83.9	6384	2.50 µg/L	0.000
13C4-PFOA	7.214	417.1 -> 372.0	53803	2.50 µg/L	0.000
13C2-PFDA	8.267	515.1 -> 470.1	20193	1.25 µg/L	0.000
13C5-PFNA	7.759	468.0 -> 423.0	27529	1.25 µg/L	0.000
13C2-PFHxA	5.623	315.1 -> 270.0	60627	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.309	329.1 -> 80.9	2121	6.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.7%		
13C2-6:2FTS	6.974	429.1 -> 80.9	2985	5.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.3%		
13C2-8:2FTS	8.054	529.1 -> 80.9	4883	5.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.6%		
13C2-PFDoDA	9.194	615.1 -> 570.0	30497	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-PFTeDA	10.000	715.2 -> 670.0	22128	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.5%		
13C3-PFBS	5.539	302.1 -> 79.9	15290	2.61 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C3-PFHxS	7.317	402.1 -> 79.9	9715	2.75 µg/L	0.000

7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.0%	
13C4-PFBA	2.961	216.8 -> 171.9	151096	10.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C4-PFHpA	6.555	367.1 -> 322.0	35751	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C5-PFHxA	5.622	318.0 -> 273.0	71433	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFPeA	4.450	268.3 -> 223.0	87885	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C6-PFDA	8.266	519.1 -> 474.1	22912	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C7-PFUnDA	8.748	570.0 -> 525.1	24384	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-FOSA	9.846	506.1 -> 77.8	18847	2.12 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.7%	
13C8-PFOA	7.214	421.1 -> 376.0	44777	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-PFOS	8.430	507.1 -> 79.9	12696	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C9-PFNA	7.759	472.1 -> 427.0	24454	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.5%	
d3-MeFOSAA	8.324	573.2 -> 419.0	21520	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	43779	10.29 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
d3-MeFOSA	11.090	515.0 -> 219.0	10204	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
d5-EtFOSAA	8.533	589.2 -> 419.0	17533	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.6%	
d7-MeFOSE	10.974	623.2 -> 58.9	70163	19.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.9%	
d9-EtFOSE	11.282	639.2 -> 58.9	86488	20.13 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.5%	
d5-EtFOSA	11.373	531.1 -> 219.0	11572	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	

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.	

7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	8.235	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	-	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

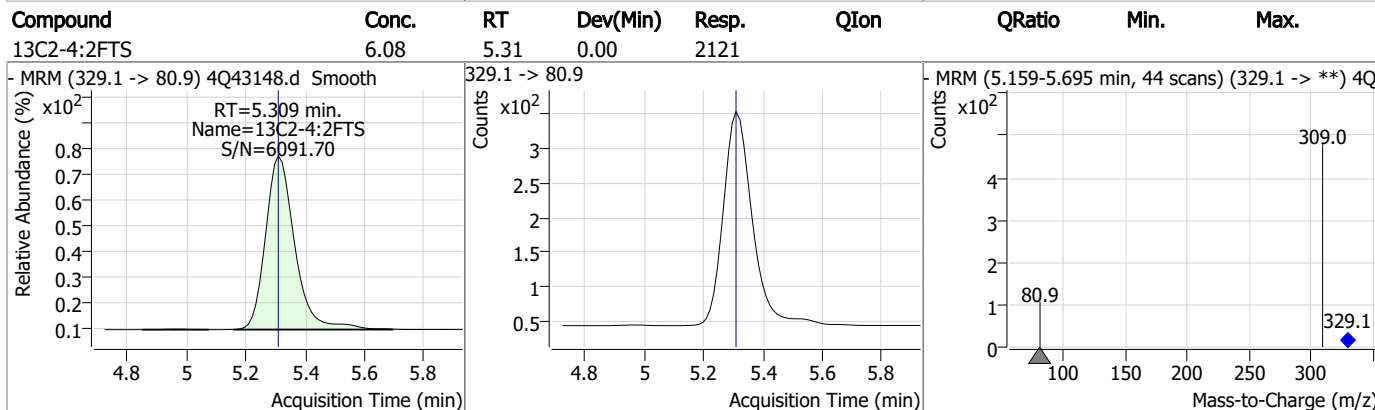
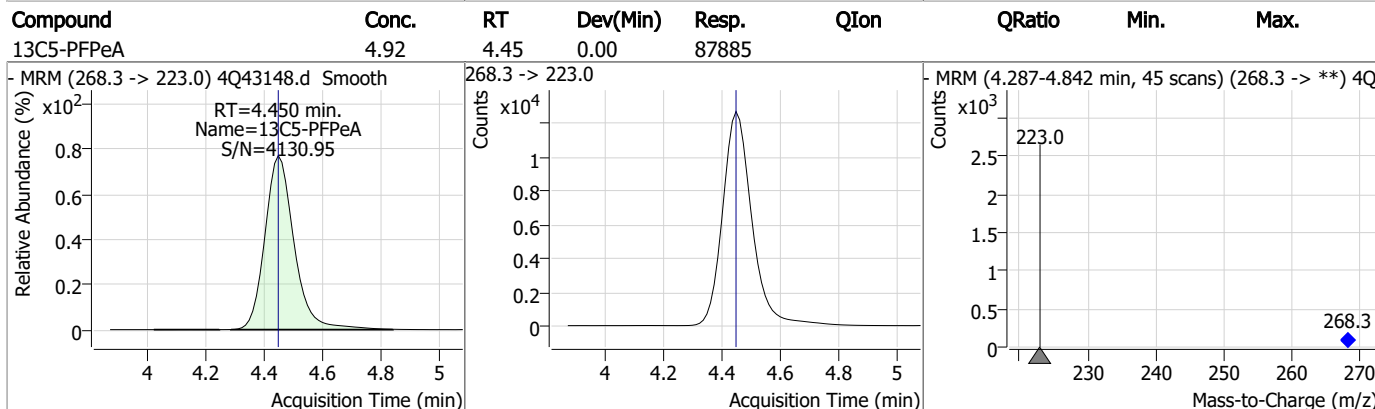
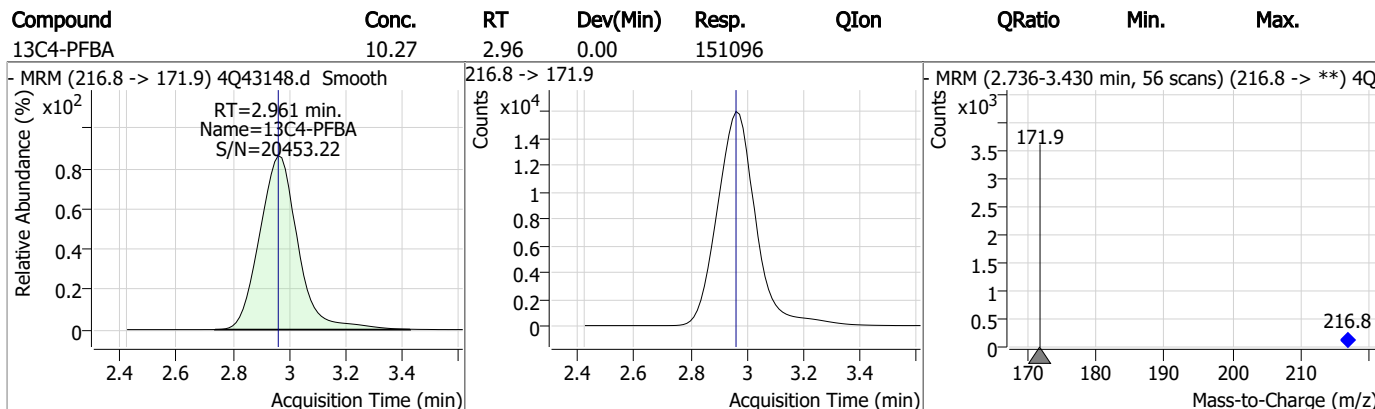
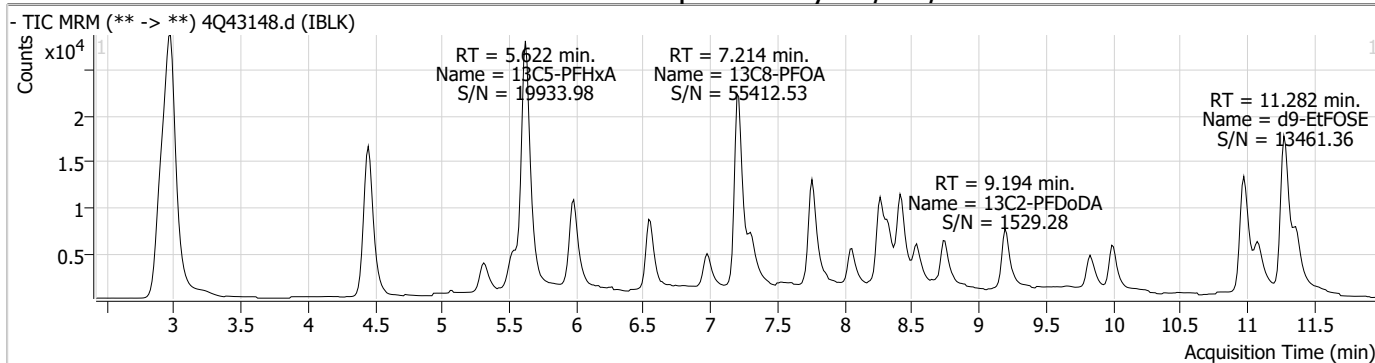
Perfluorinated Compounds by LC/MS/MS

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

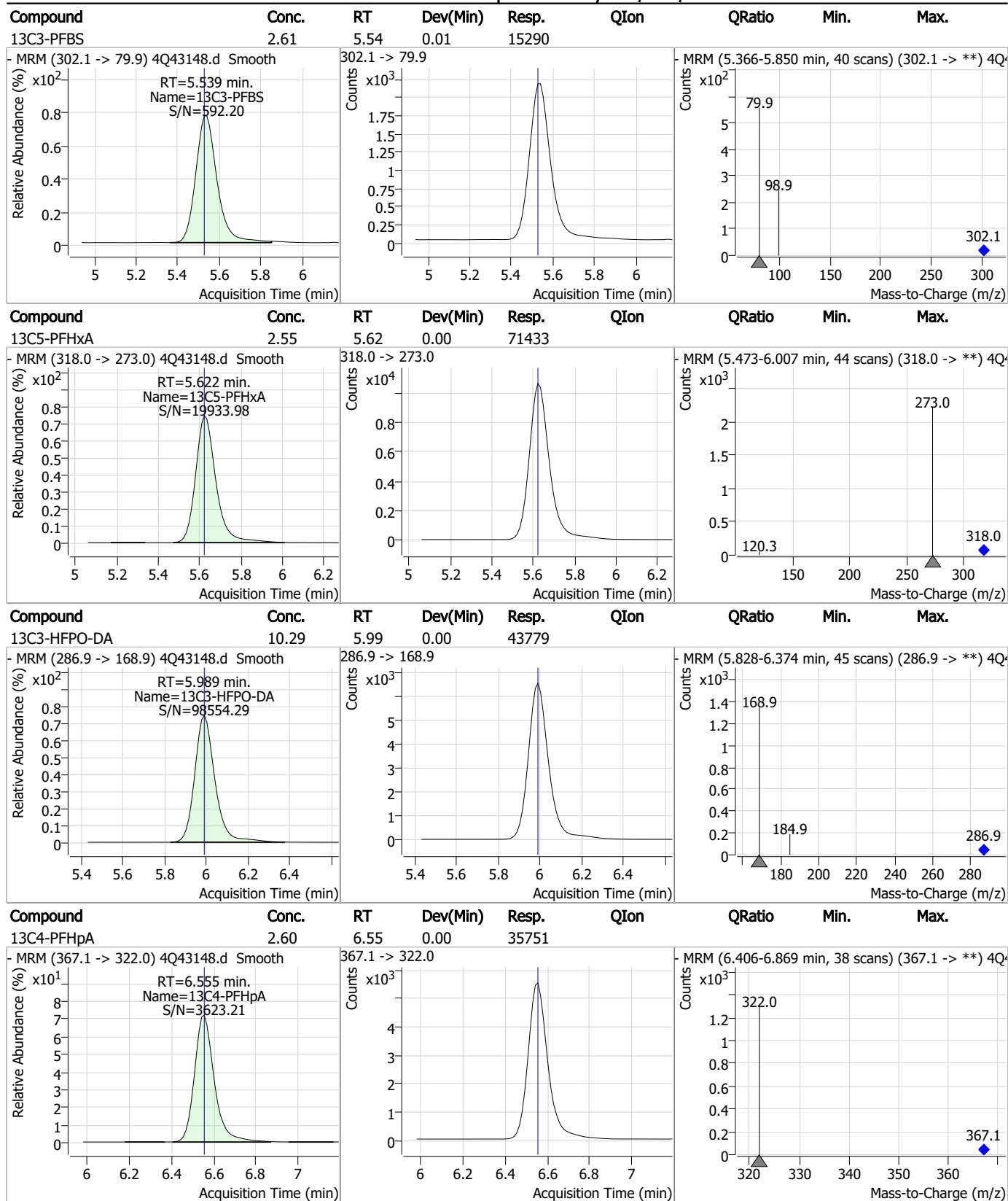
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Perfluorinated Compounds by LC/MS/MS



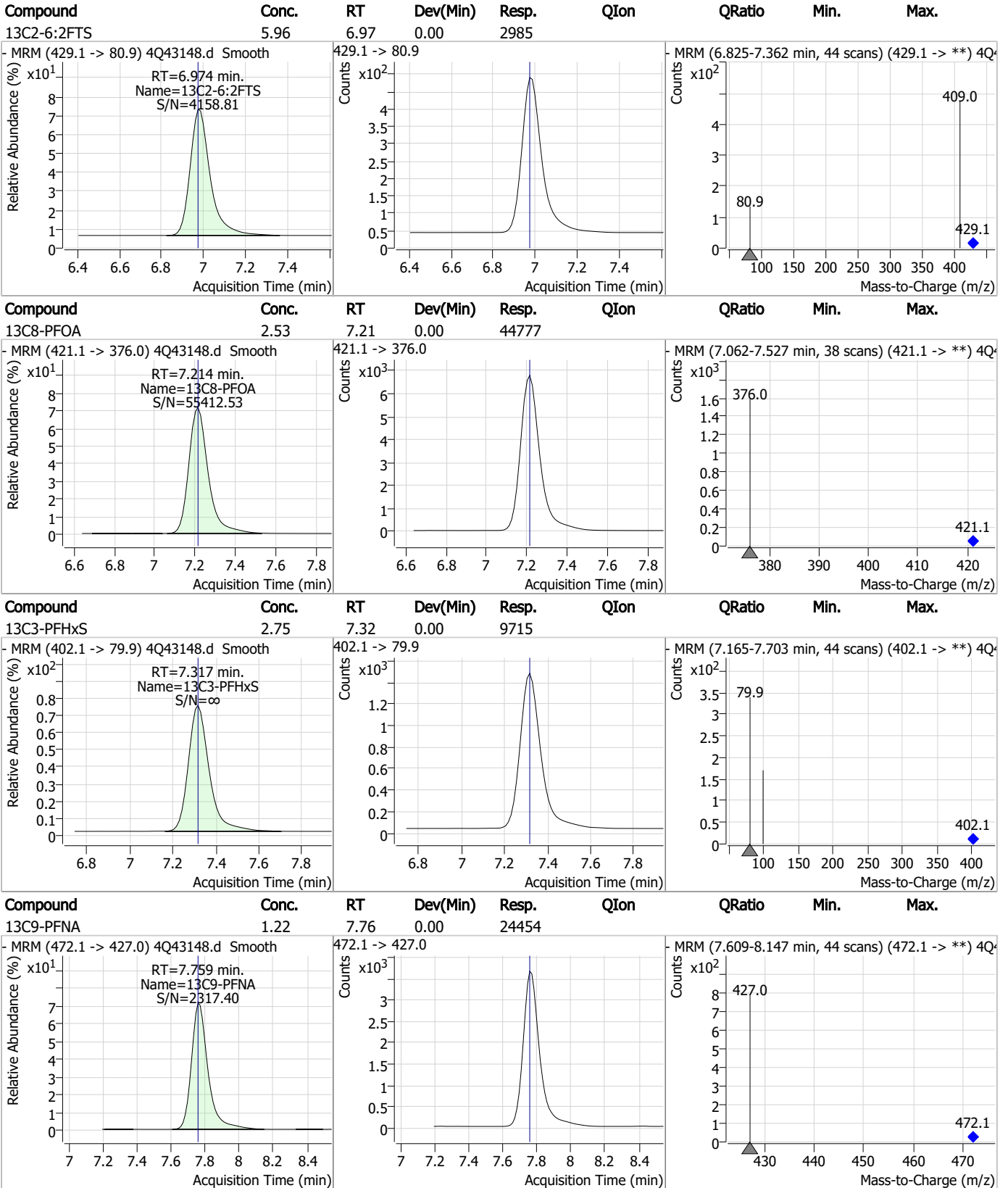
7.2.3
7

Perfluorinated Compounds by LC/MS/MS



7.2.3
7

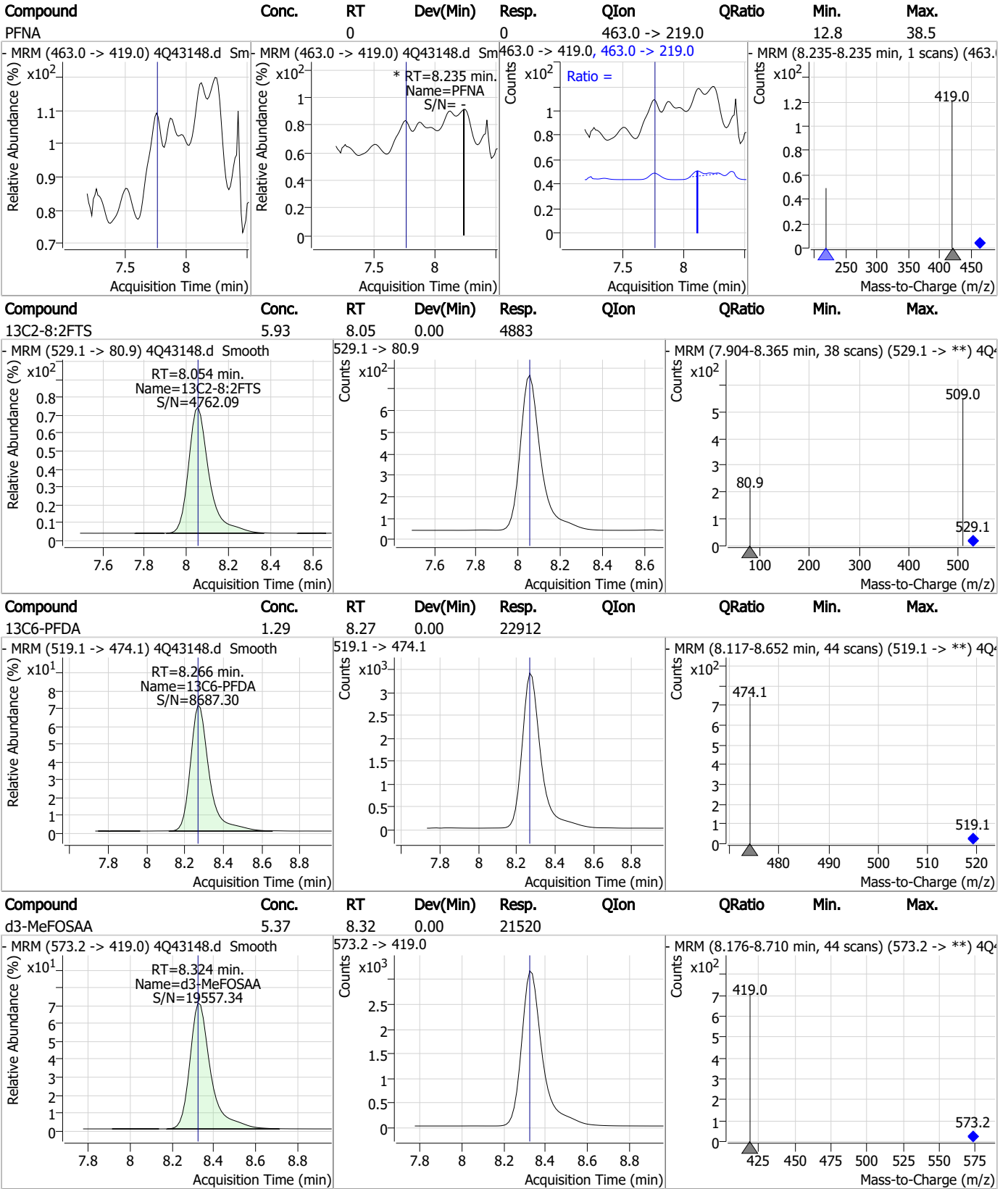
Perfluorinated Compounds by LC/MS/MS



7.2.3

7

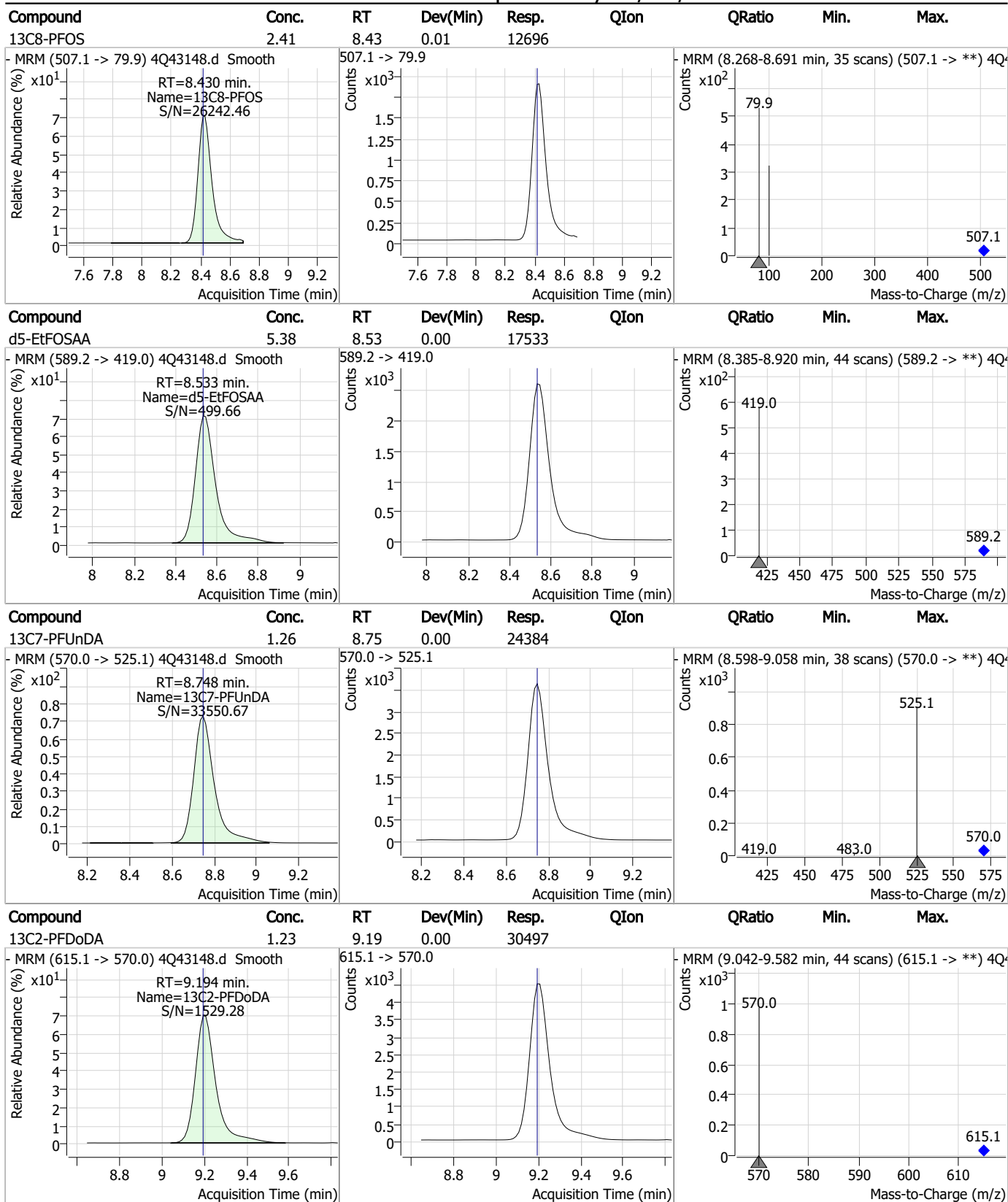
Perfluorinated Compounds by LC/MS/MS



7.2.3

7

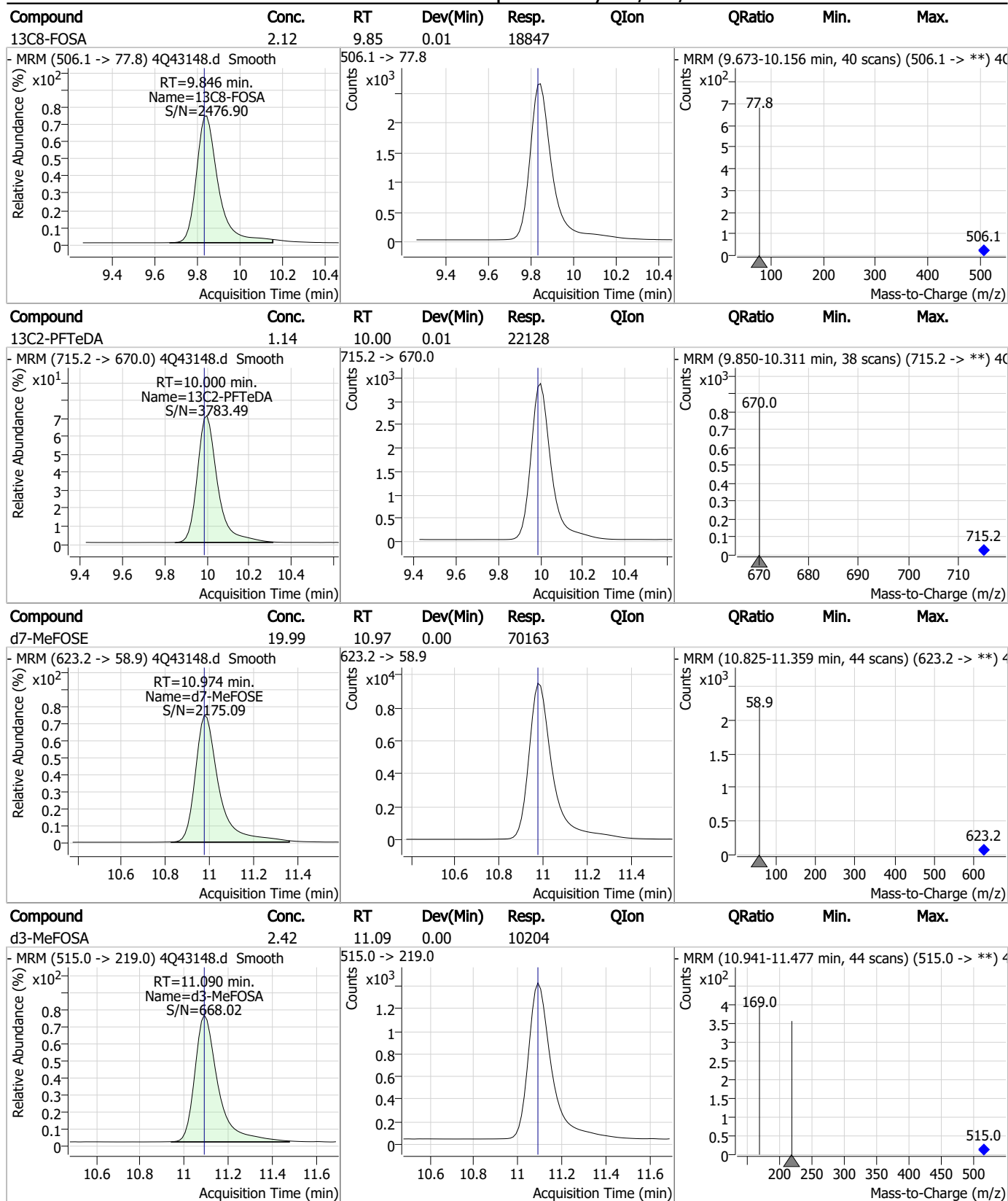
Perfluorinated Compounds by LC/MS/MS



7.2.3

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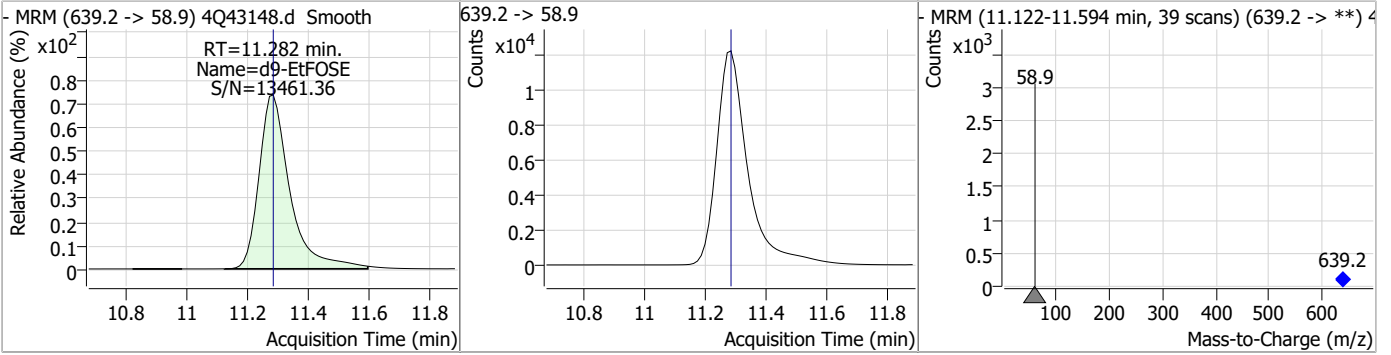
Perfluorinated Compounds by LC/MS/MS



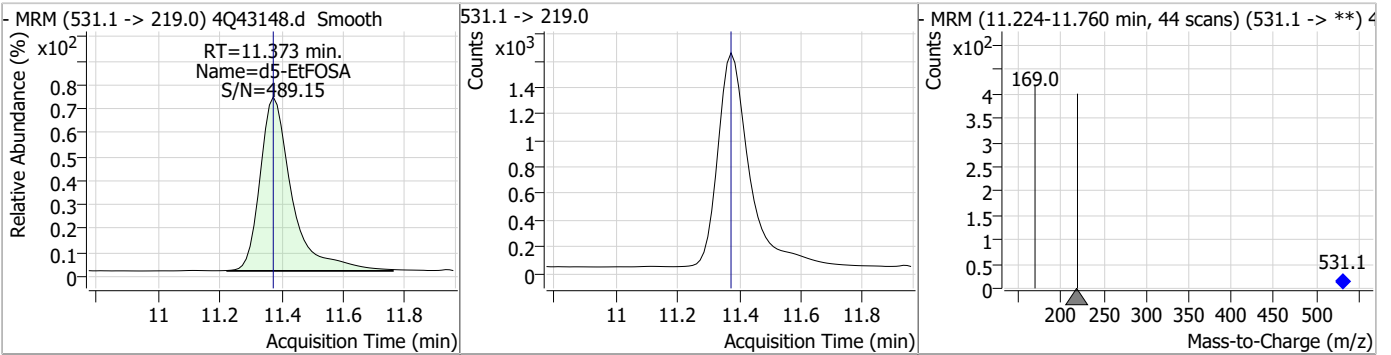
7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.13	11.28	0.00	86488				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.54	11.37	0.00	11572				



7.2.3

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43162.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 2:43:14 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96296,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.961	216.8 -> 171.9	154529	10.00 µg/L	0.000
M5-PFPeA	4.449	268.3 -> 223.0	90009	5.00 µg/L	0.000
M5-PFHxA	5.622	318.0 -> 273.0	69485	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	35825	2.50 µg/L	0.000
M8-PFOA	7.213	421.1 -> 376.0	43337	2.50 µg/L	0.000
M9-PFNA	7.758	472.1 -> 427.0	25294	1.25 µg/L	-0.001
M6-PFDA	8.265	519.1 -> 474.1	22662	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	24360	1.25 µg/L	-0.001
M2-PFDoDA	9.193	615.1 -> 570.0	30570	1.25 µg/L	-0.001
M2-PFTeDA	9.986	715.2 -> 670.0	21431	1.25 µg/L	-0.001
M8-FOSA	9.832	506.1 -> 77.8	18842	2.50 µg/L	-0.002
M3-PFBS	5.527	302.1 -> 79.9	15176	2.50 µg/L	0.000
M3-PFHxS	7.304	402.1 -> 79.9	9149	2.50 µg/L	-0.013
M8-PFOS	8.417	507.1 -> 79.9	12933	2.50 µg/L	0.000
M2-4:2FTS	5.310	329.1 -> 80.9	2157	5.00 µg/L	0.001
M2-6:2FTS	6.973	429.1 -> 80.9	2920	5.00 µg/L	-0.001
M2-8:2FTS	8.052	529.1 -> 80.9	4849	5.00 µg/L	-0.001
M3-MeFOSAA	8.323	573.2 -> 419.0	21758	5.00 µg/L	-0.001
M3-HFPO-DA	5.989	286.9 -> 168.9	42685	10.00 µg/L	0.000
M5-EtFOSAA	8.532	589.2 -> 419.0	17636	5.00 µg/L	-0.001
M7-MeFOSE	10.972	623.2 -> 58.9	67217	25.00 µg/L	-0.002
M9-EtFOSE	11.281	639.2 -> 58.9	80944	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	10868	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	10221	2.50 µg/L	-0.002
13C4-PFOS	8.418	502.8 -> 79.9	13327	2.50 µg/L	0.000
13C3-PFBA	2.966	216.0 -> 172.0	85940	5.00 µg/L	0.000
18O2-PFHxS	7.315	403.0 -> 83.9	6417	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	52922	2.50 µg/L	0.000
13C2-PFDA	8.265	515.1 -> 470.1	20294	1.25 µg/L	-0.001
13C5-PFNA	7.759	468.0 -> 423.0	27538	1.25 µg/L	-0.001
13C2-PFHxA	5.623	315.1 -> 270.0	59268	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.310	329.1 -> 80.9	2157	6.16 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.1%		
13C2-6:2FTS	6.973	429.1 -> 80.9	2920	5.80 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.1%		
13C2-8:2FTS	8.052	529.1 -> 80.9	4849	5.86 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.2%		
13C2-PFDoDA	9.193	615.1 -> 570.0	30570	1.22 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C2-PFTeDA	9.986	715.2 -> 670.0	21431	1.10 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.2%		
13C3-PFBS	5.527	302.1 -> 79.9	15176	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C3-PFHxS	7.304	402.1 -> 79.9	9149	2.58 µg/L	-0.013

7.2.4
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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 = 103.0%	
13C4-PFBA	2.961	216.8 -> 171.9	154529	10.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C4-PFHpA	6.555	367.1 -> 322.0	35825	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C5-PFHxA	5.622	318.0 -> 273.0	69485	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C5-PFPeA	4.449	268.3 -> 223.0	90009	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C6-PFDA	8.265	519.1 -> 474.1	22662	1.27 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C7-PFUnDA	8.747	570.0 -> 525.1	24360	1.26 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-FOSA	9.832	506.1 -> 77.8	18842	2.16 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.5%	
13C8-PFOA	7.213	421.1 -> 376.0	43337	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C8-PFOS	8.417	507.1 -> 79.9	12933	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C9-PFNA	7.758	472.1 -> 427.0	25294	1.26 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.9%	
d3-MeFOSAA	8.323	573.2 -> 419.0	21758	5.54 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.9%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	42685	10.26 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d3-MeFOSA	11.089	515.0 -> 219.0	10221	2.48 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
d5-EtFOSAA	8.532	589.2 -> 419.0	17636	5.53 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.5%	
d7-MeFOSE	10.972	623.2 -> 58.9	67217	19.56 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.2%	
d9-EtFOSE	11.281	639.2 -> 58.9	80944	19.25 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.0%	
d5-EtFOSA	11.373	531.1 -> 219.0	10868	2.44 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	

Target Compounds

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

7.2.4

7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	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

7.2.4
7

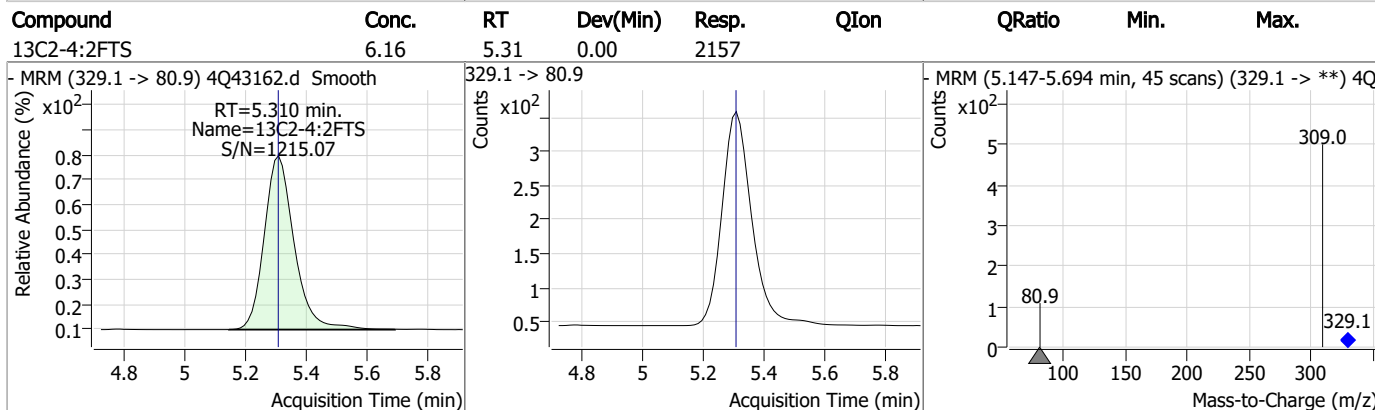
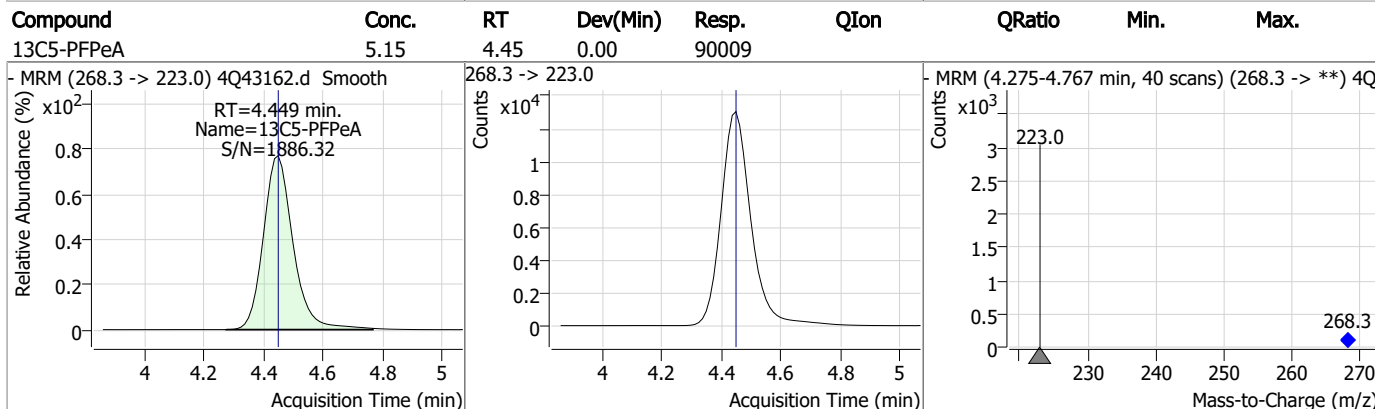
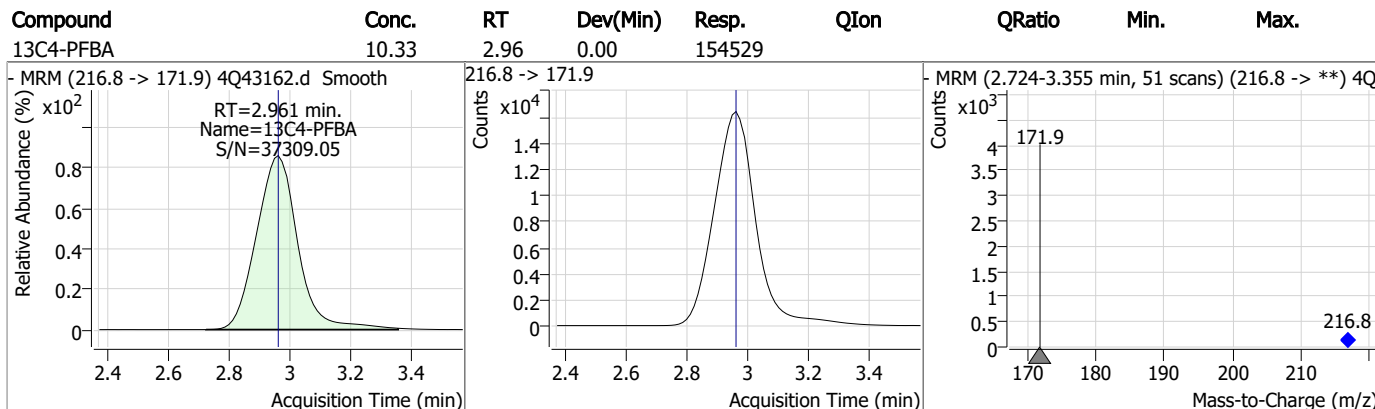
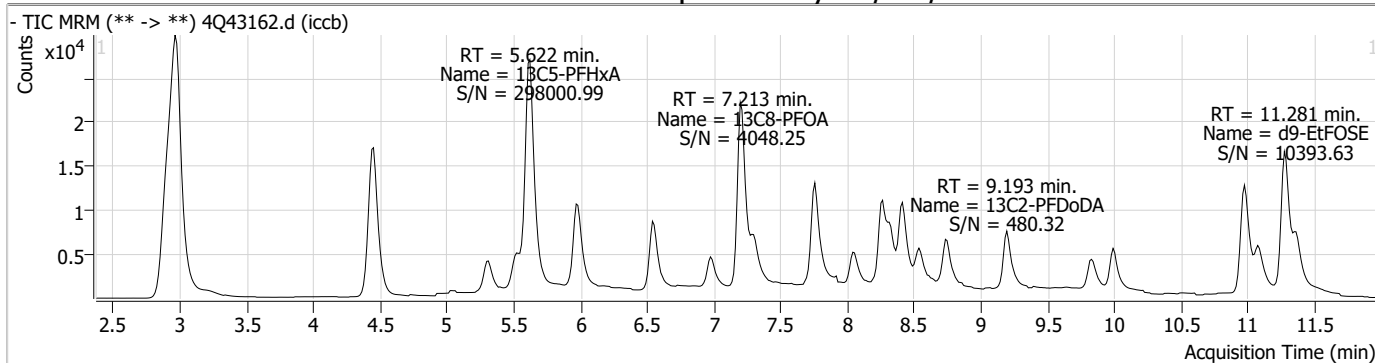
Perfluorinated Compounds by LC/MS/MS

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

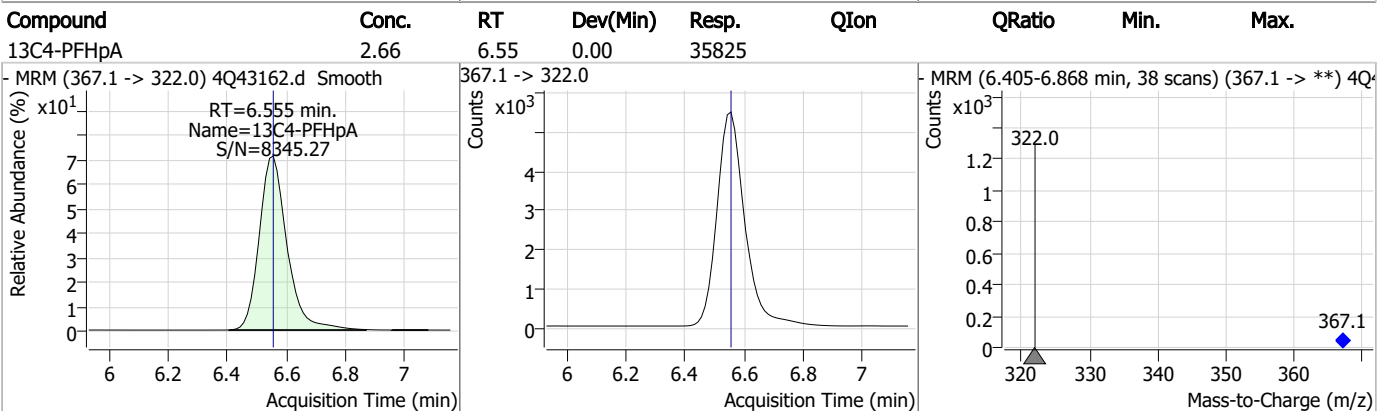
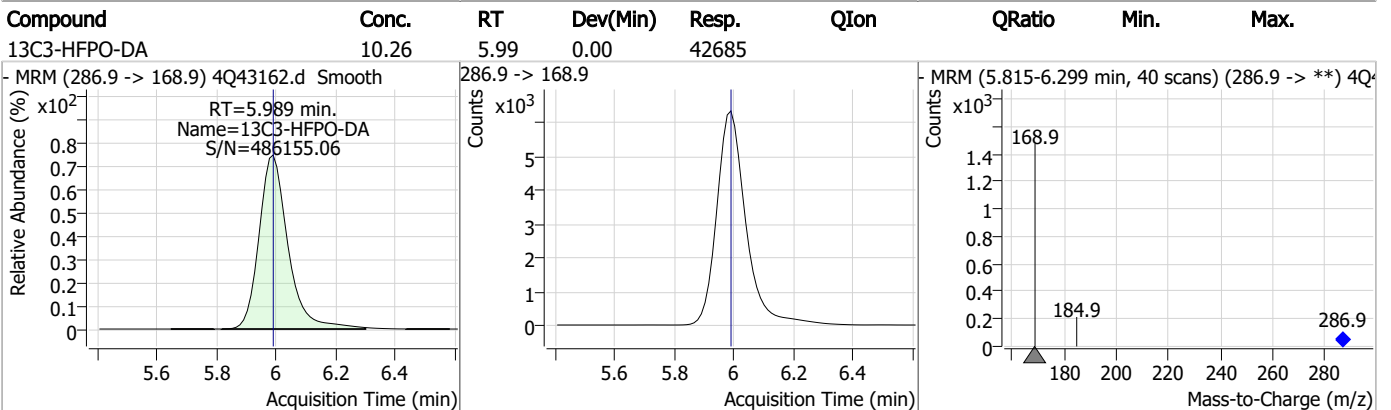
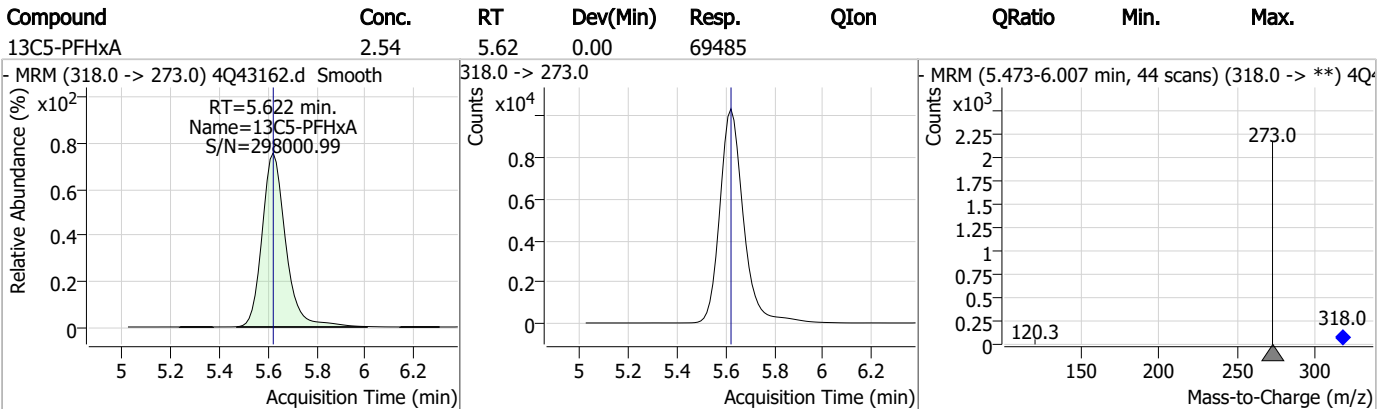
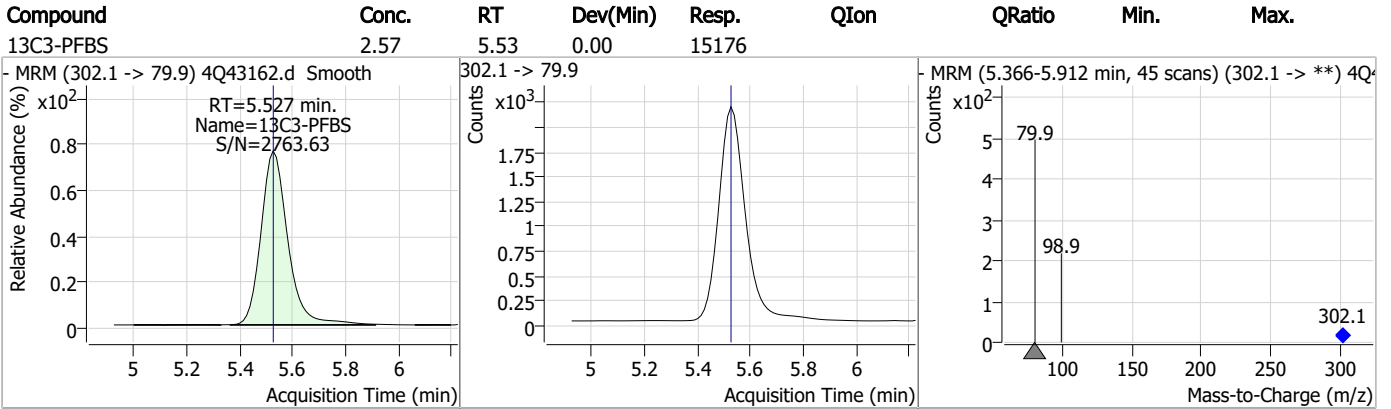
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Perfluorinated Compounds by LC/MS/MS

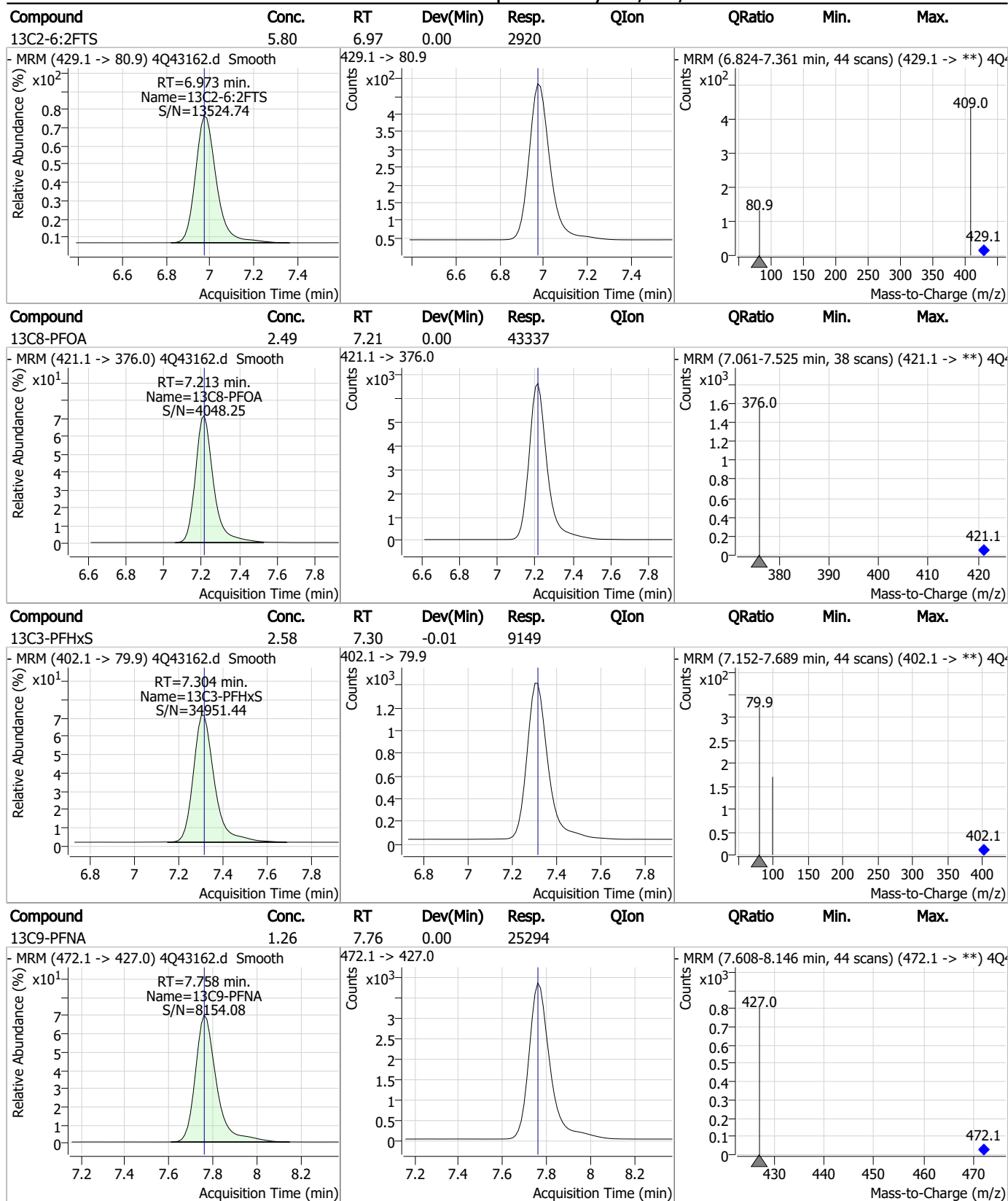


7.2.4
7

Perfluorinated Compounds by LC/MS/MS

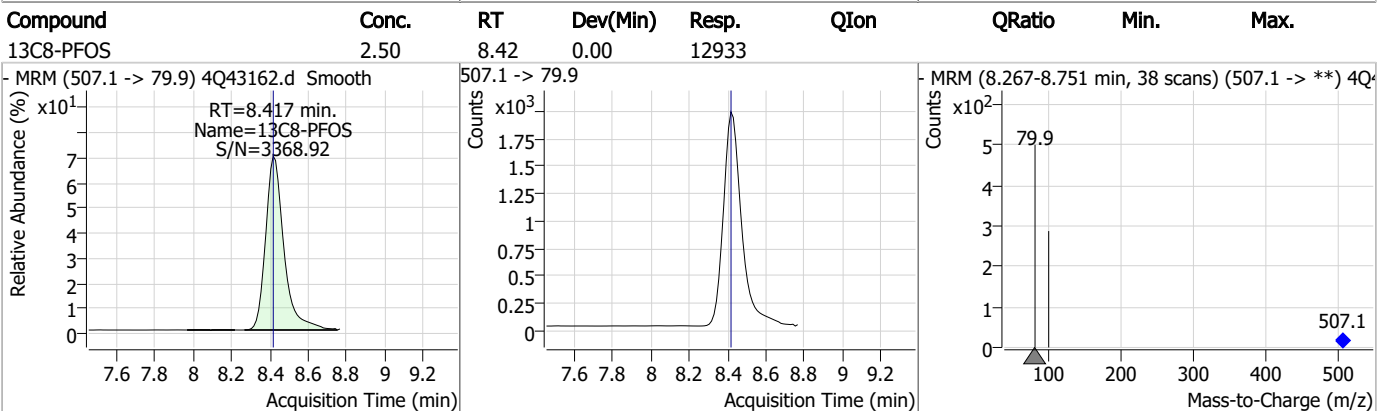
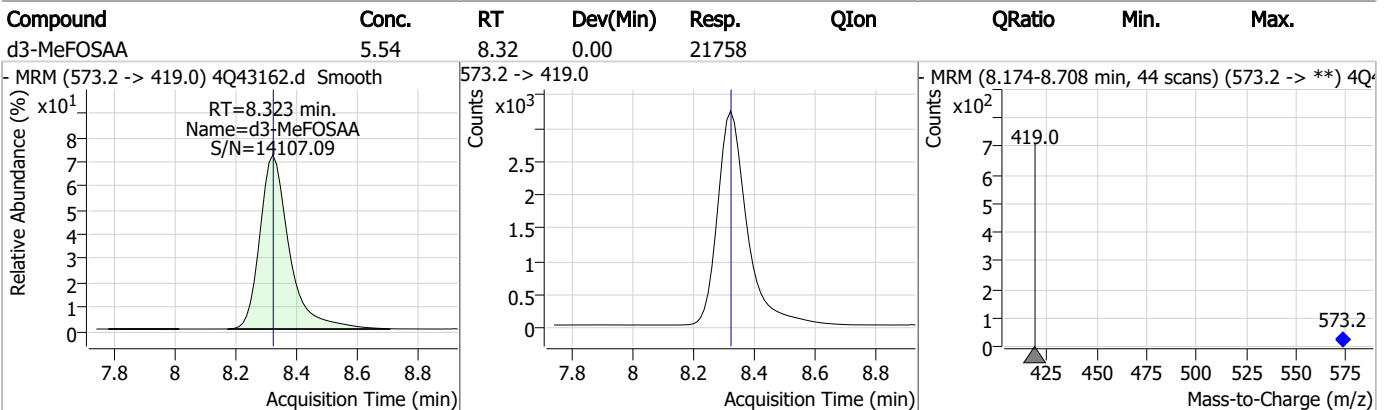
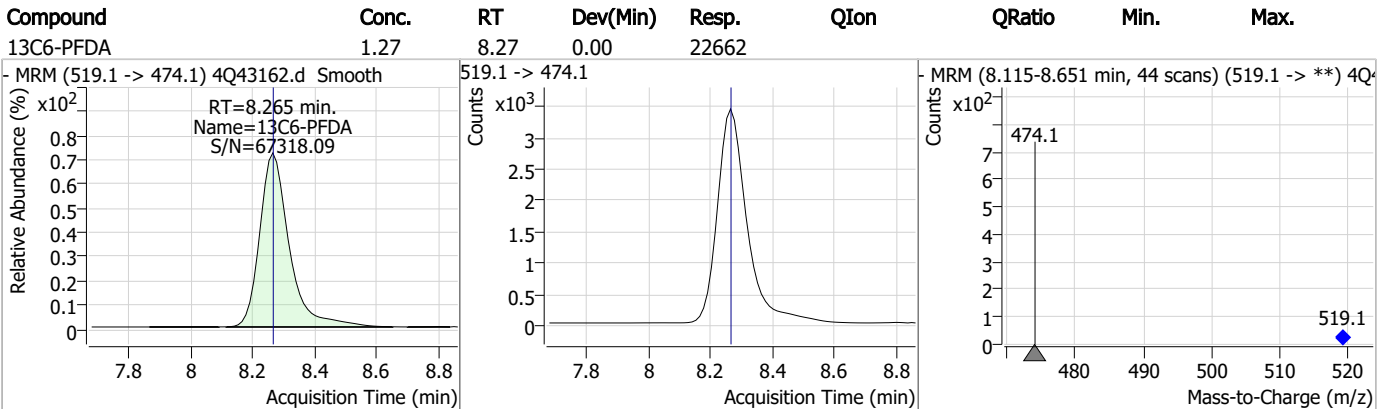
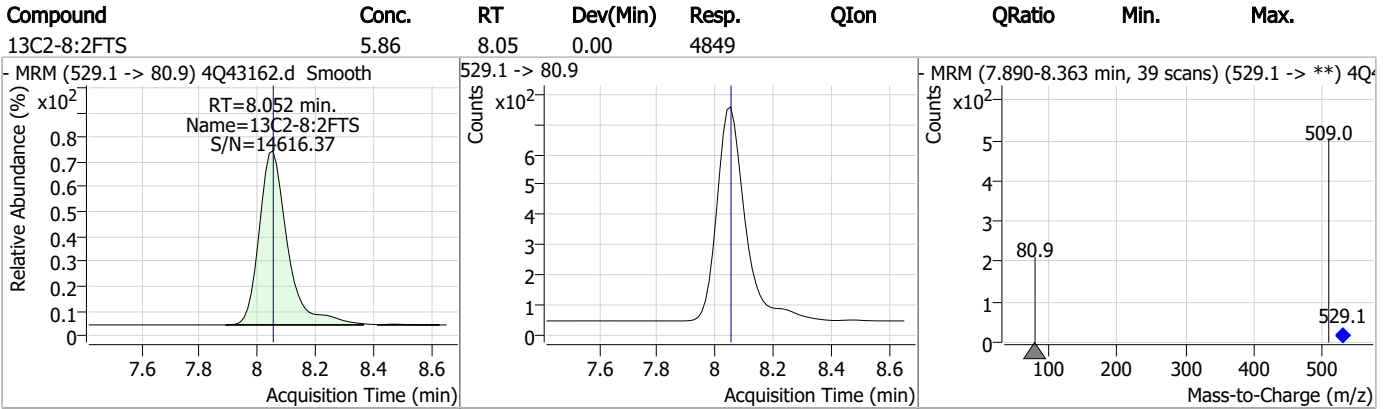


Perfluorinated Compounds by LC/MS/MS

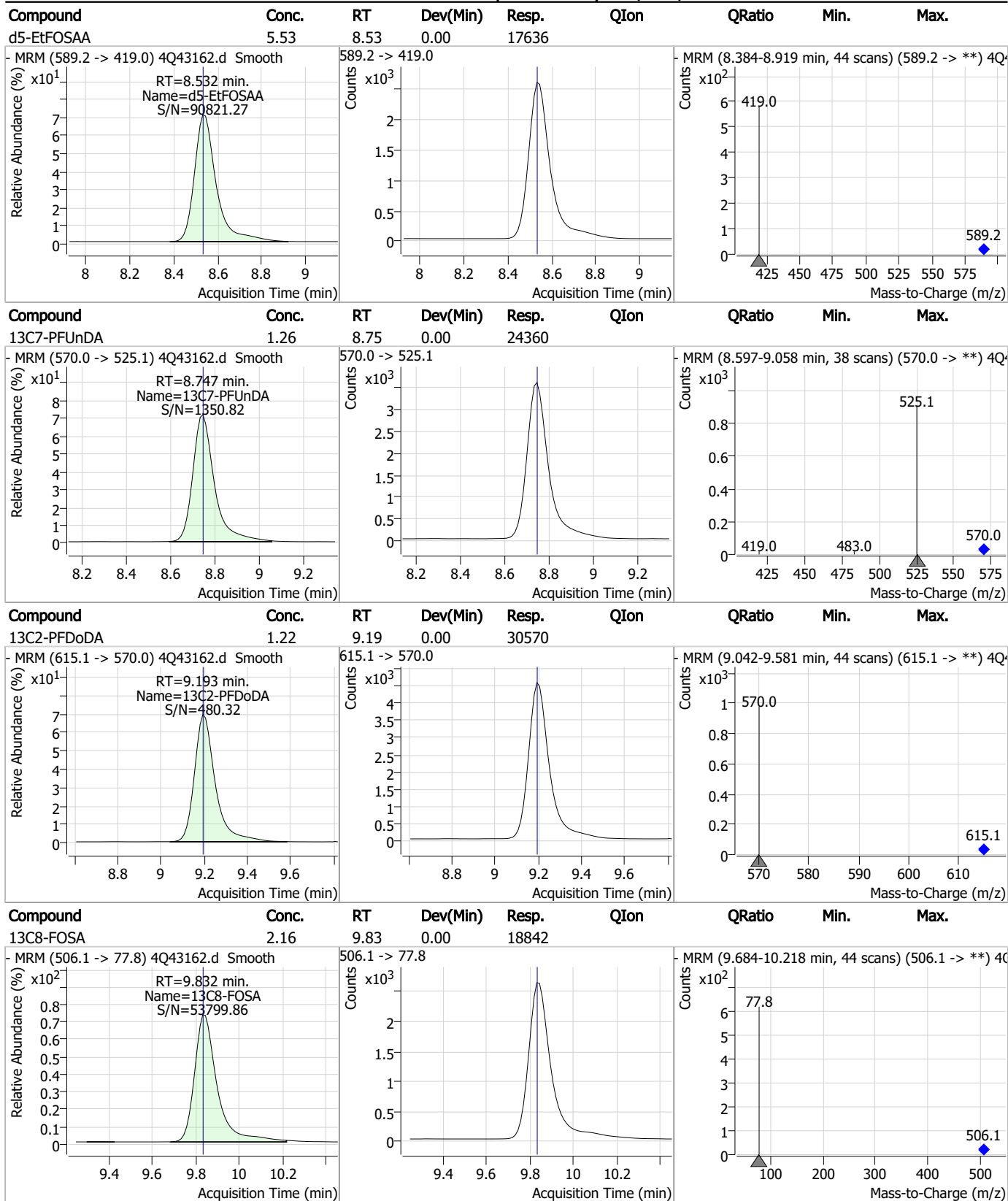


7.2.4
7

Perfluorinated Compounds by LC/MS/MS

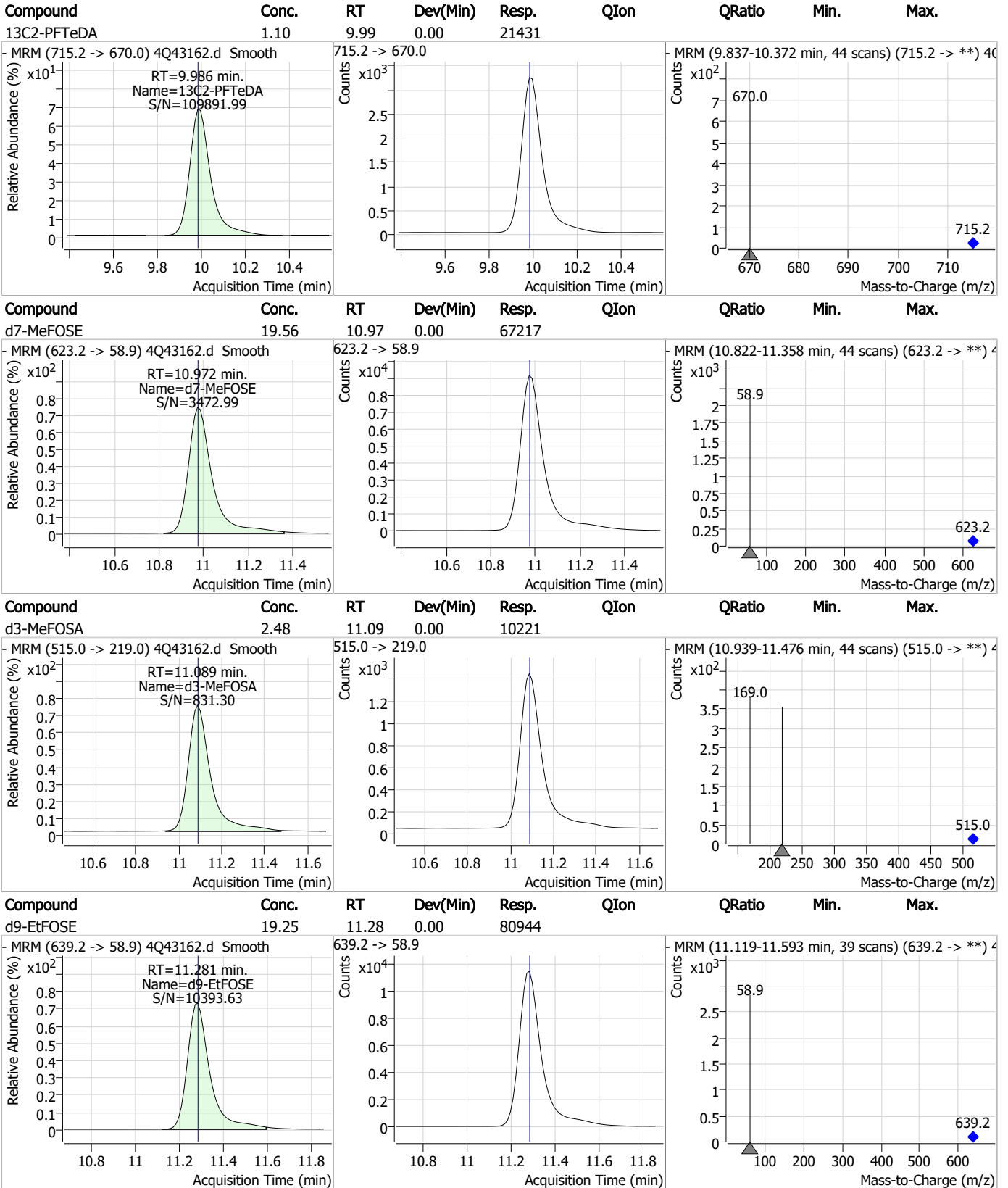


Perfluorinated Compounds by LC/MS/MS



7.2.4
7

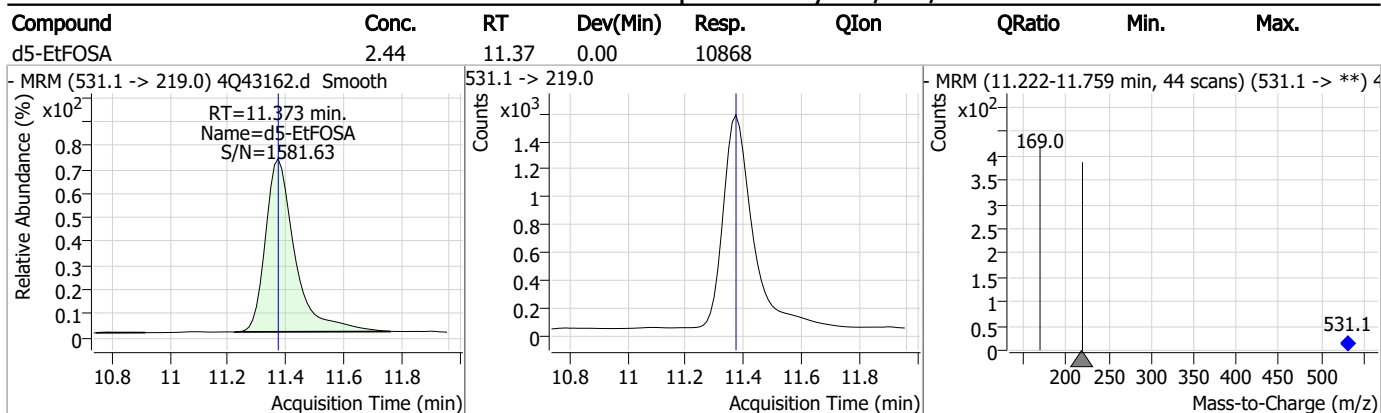
Perfluorinated Compounds by LC/MS/MS



7.2.4

7

Perfluorinated Compounds by LC/MS/MS



7.2.4

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43332.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/20/2023 2:06:30 PM
 Sample Name : IBLK
 Vial : P1-A1
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s4q626.batch.bin
 Sample Information : OP96301,S4q626,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	147254	10.00 µg/L	0.000
M5-PFPeA	4.412	268.3 -> 223.0	95718	5.00 µg/L	0.000
M5-PFHxA	5.584	318.0 -> 273.0	71018	2.50 µg/L	0.000
M4-PFHpA	6.517	367.1 -> 322.0	38664	2.50 µg/L	0.000
M8-PFOA	7.175	421.1 -> 376.0	53421	2.50 µg/L	-0.012
M9-PFNA	7.733	472.1 -> 427.0	28765	1.25 µg/L	0.000
M6-PFDA	8.240	519.1 -> 474.1	26856	1.25 µg/L	0.000
M7-PFUnDA	8.710	570.0 -> 525.1	27912	1.25 µg/L	-0.012
M2-PFDoDA	9.168	615.1 -> 570.0	36954	1.25 µg/L	-0.012
M2-PFTeDA	9.961	715.2 -> 670.0	27150	1.25 µg/L	-0.012
M8-FOSA	9.783	506.1 -> 77.8	24173	2.50 µg/L	0.000
M3-PFBS	5.490	302.1 -> 79.9	15127	2.50 µg/L	-0.012
M3-PFHxS	7.279	402.1 -> 79.9	9532	2.50 µg/L	-0.012
M8-PFOS	8.392	507.1 -> 79.9	13890	2.50 µg/L	0.000
M2-4:2FTS	5.273	329.1 -> 80.9	1899	5.00 µg/L	0.000
M2-6:2FTS	6.948	429.1 -> 80.9	3041	5.00 µg/L	0.000
M2-8:2FTS	8.015	529.1 -> 80.9	5178	5.00 µg/L	-0.012
M3-MeFOSAA	8.298	573.2 -> 419.0	22013	5.00 µg/L	0.000
M3-HFPO-DA	5.952	286.9 -> 168.9	42923	10.00 µg/L	0.000
M5-EtFOSAA	8.507	589.2 -> 419.0	18232	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	105376	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	139695	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	14616	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	12691	2.50 µg/L	0.000
13C4-PFOS	8.393	502.8 -> 79.9	13808	2.50 µg/L	-0.012
13C3-PFBA	2.928	216.0 -> 172.0	84495	5.00 µg/L	-0.013
18O2-PFHxS	7.278	403.0 -> 83.9	6777	2.50 µg/L	-0.012
13C4-PFOA	7.176	417.1 -> 372.0	65372	2.50 µg/L	-0.012
13C2-PFDA	8.241	515.1 -> 470.1	24596	1.25 µg/L	0.000
13C5-PFNA	7.734	468.0 -> 423.0	31012	1.25 µg/L	0.000
13C2-PFHxA	5.585	315.1 -> 270.0	62875	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.273	329.1 -> 80.9	1899	4.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C2-6:2FTS	6.948	429.1 -> 80.9	3041	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-8:2FTS	8.015	529.1 -> 80.9	5178	4.56 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.2%		
13C2-PFDoDA	9.168	615.1 -> 570.0	36954	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C2-PFTeDA	9.961	715.2 -> 670.0	27150	1.15 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C3-PFBS	5.490	302.1 -> 79.9	15127	2.41 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C3-PFHxS	7.279	402.1 -> 79.9	9532	2.46 µg/L	-0.012

7.2.5
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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 = 98.5%	
13C4-PFBA	2.936	216.8 -> 171.9	147254	9.67 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C4-PFHpA	6.517	367.1 -> 322.0	38664	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C5-PFHxA	5.584	318.0 -> 273.0	71018	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C5-PFPeA	4.412	268.3 -> 223.0	95718	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C6-PFDA	8.240	519.1 -> 474.1	26856	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C7-PFUnDA	8.710	570.0 -> 525.1	27912	1.18 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C8-FOSA	9.783	506.1 -> 77.8	24173	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C8-PFOA	7.175	421.1 -> 376.0	53421	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C8-PFOS	8.392	507.1 -> 79.9	13890	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C9-PFNA	7.733	472.1 -> 427.0	28765	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.2%	
d3-MeFOSAA	8.298	573.2 -> 419.0	22013	4.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C3-HFPO-DA	5.952	286.9 -> 168.9	42923	9.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.0%	
d3-MeFOSA	11.064	515.0 -> 219.0	12691	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
d5-EtFOSAA	8.507	589.2 -> 419.0	18232	4.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
d7-MeFOSE	10.959	623.2 -> 58.9	105376	24.88 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
d9-EtFOSE	11.256	639.2 -> 58.9	139695	25.75 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
d5-EtFOSA	11.360	531.1 -> 219.0	14616	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.3%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.590	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

7.25

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.944	599.0 -> 98.8				
		363.1 -> 319.0	0	µg/L	m	1
PFHpS	-	363.1 -> 169.0	0			
		449.0 -> 79.9	-	N.D.		
PFHxA	-	449.0 -> 98.9				
		313.0 -> 269.0	-	N.D.		
PFHxS	-	313.0 -> 118.9				
		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	7.613	548.8 -> 98.9				
		413.0 -> 369.0	0	µg/L	m	1
PFOS	-	413.0 -> 169.0	0			
		498.9 -> 79.9	-	N.D.		
PFPeA	-	498.9 -> 98.8				
		263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.5
7

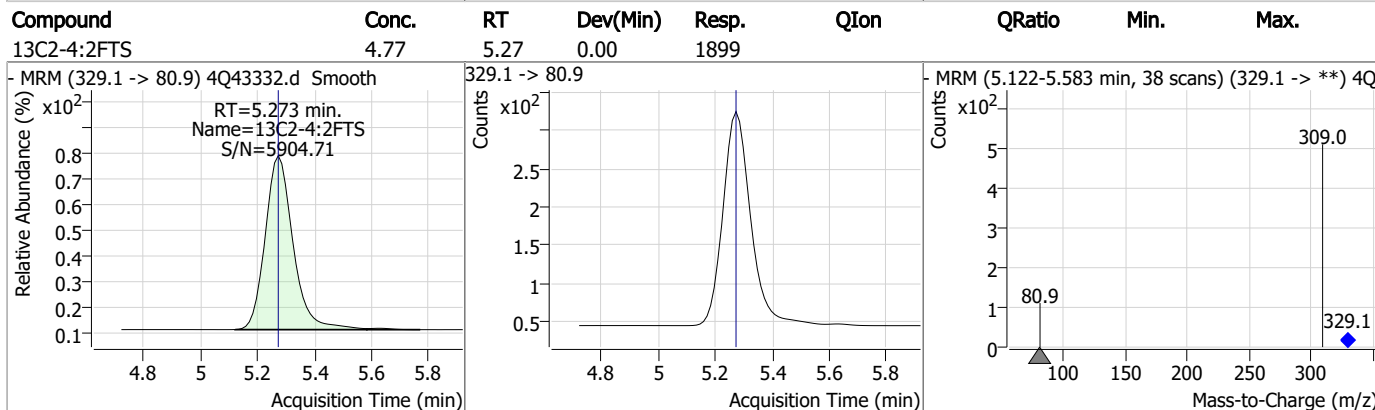
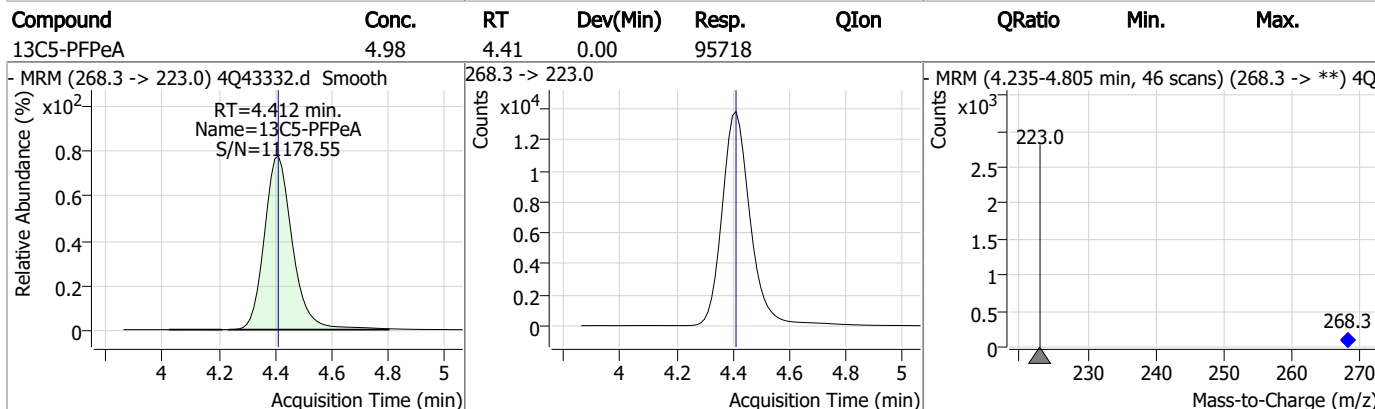
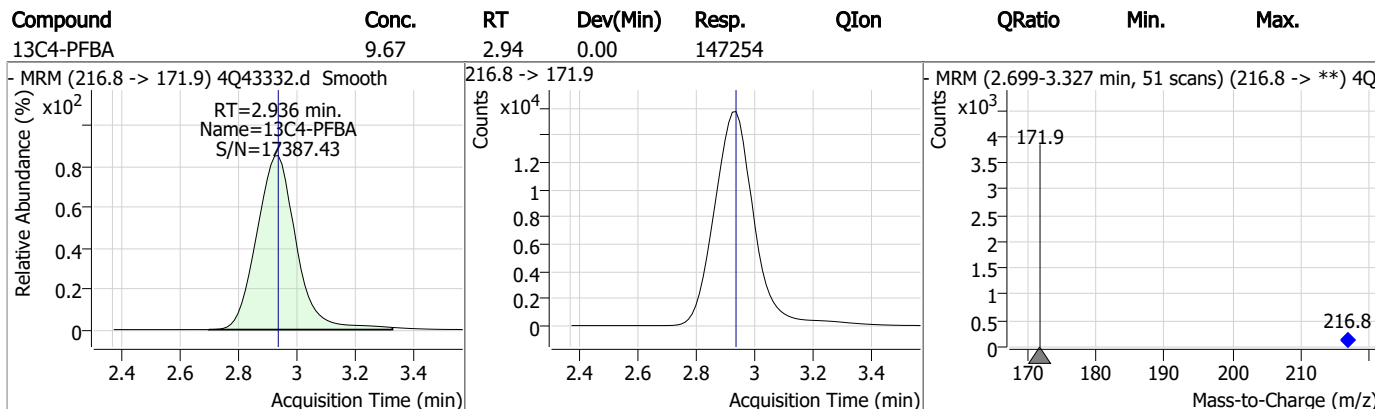
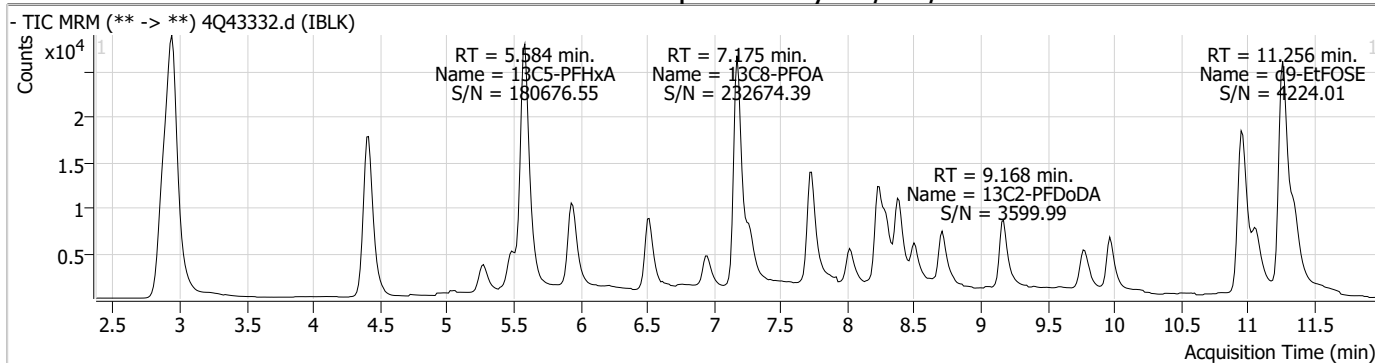
Perfluorinated Compounds by LC/MS/MS

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



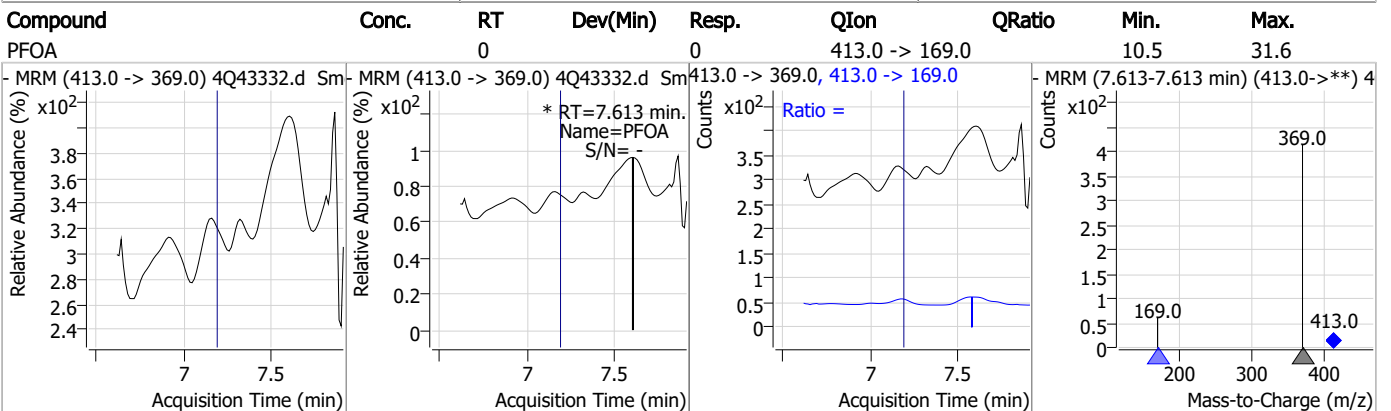
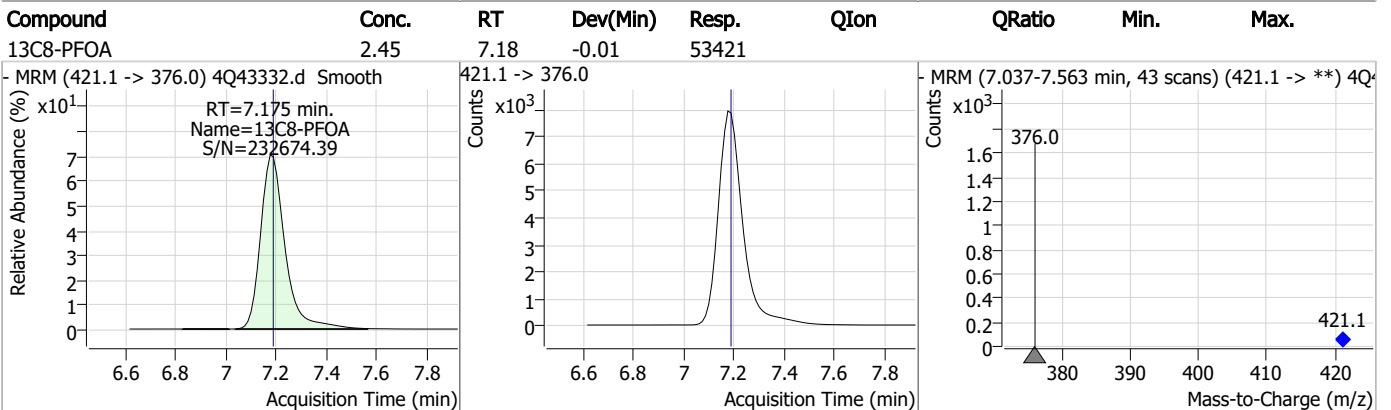
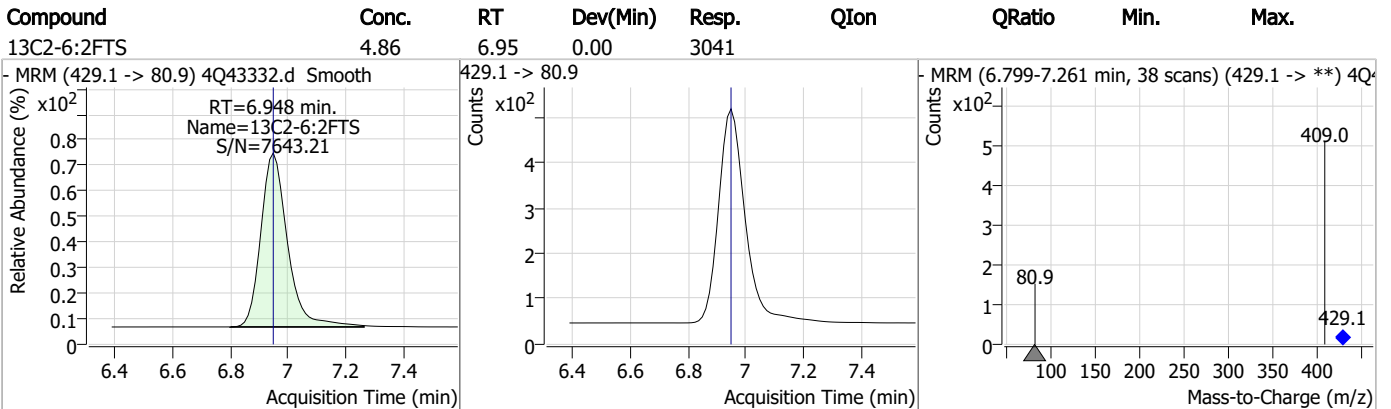
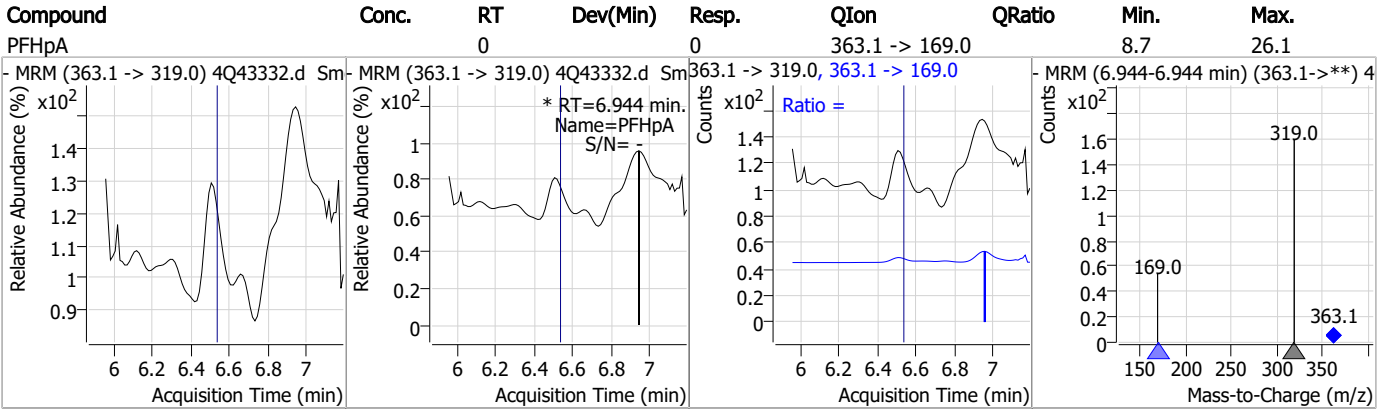
7.2.5
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Perfluorinated Compounds by LC/MS/MS

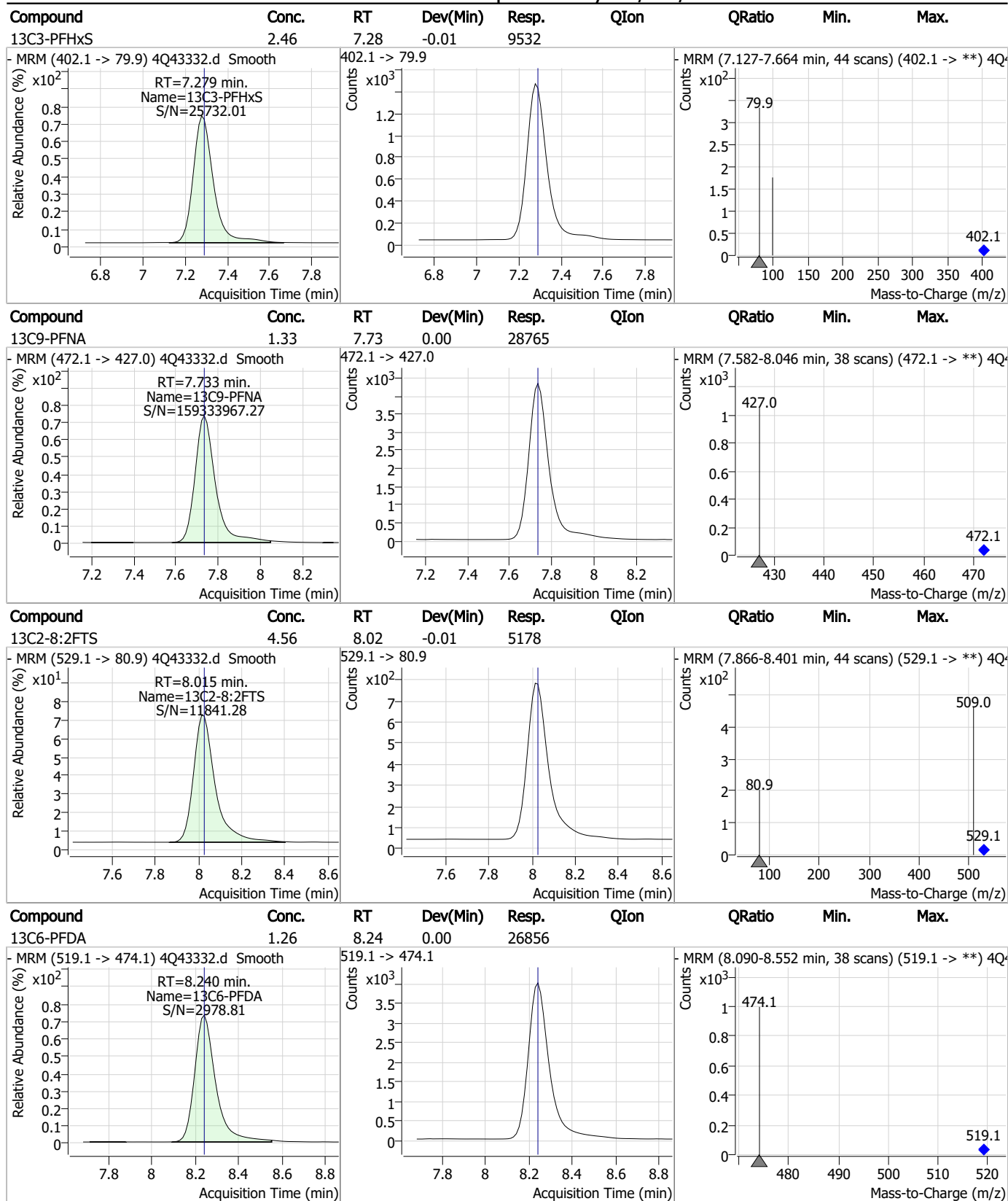
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.41	5.49	-0.01	15127				
13C5-PFHxA	2.40	5.58	0.00	71018				
13C3-HFPO-DA	9.00	5.95	0.00	42923				
13C4-PFHpA	2.45	6.52	0.00	38664				

7.25
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Perfluorinated Compounds by LC/MS/MS

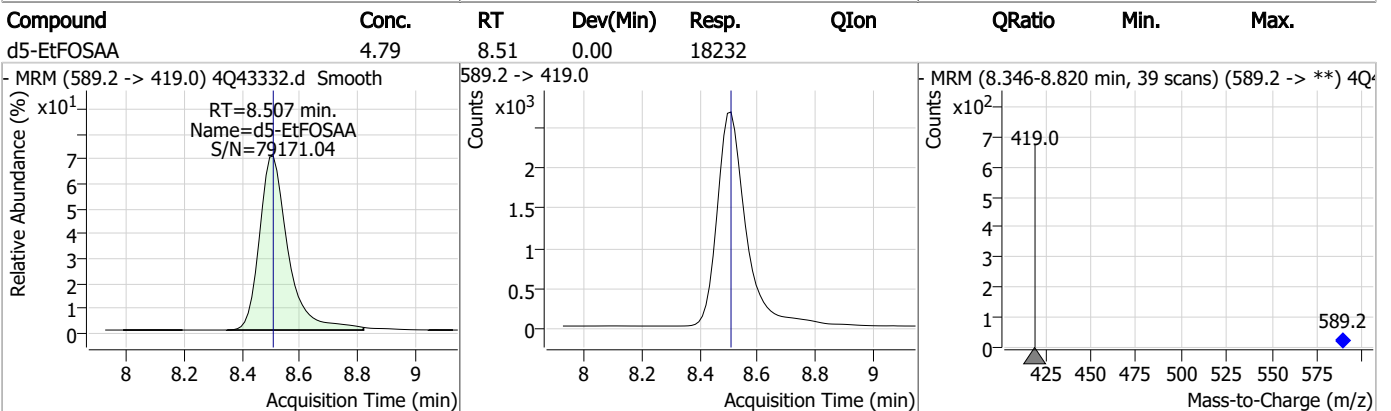
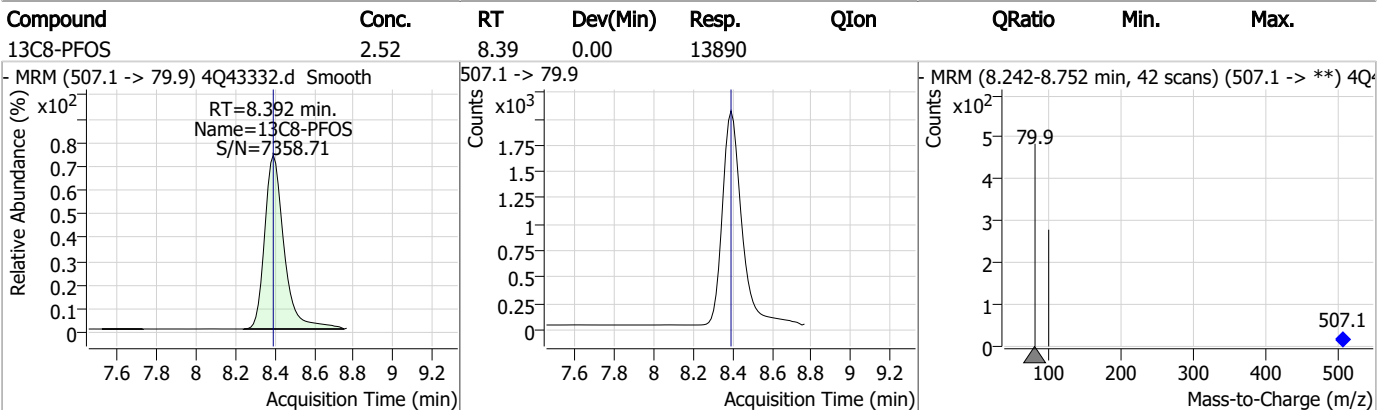
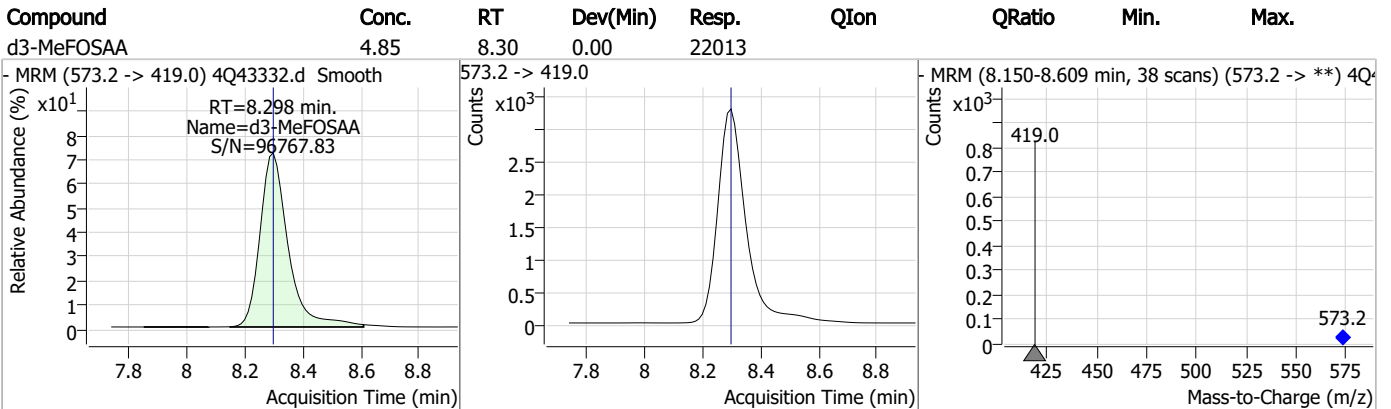
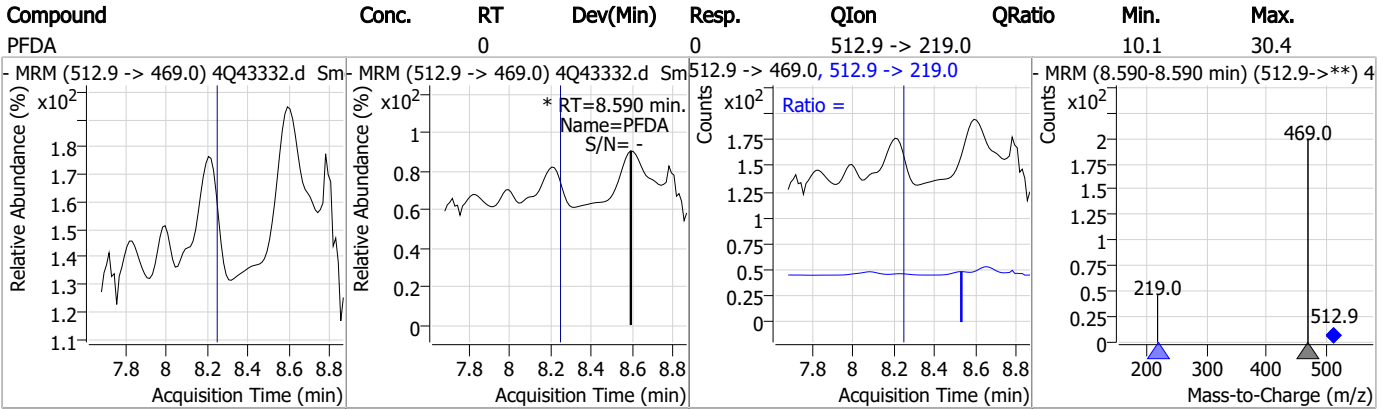


Perfluorinated Compounds by LC/MS/MS



7.25
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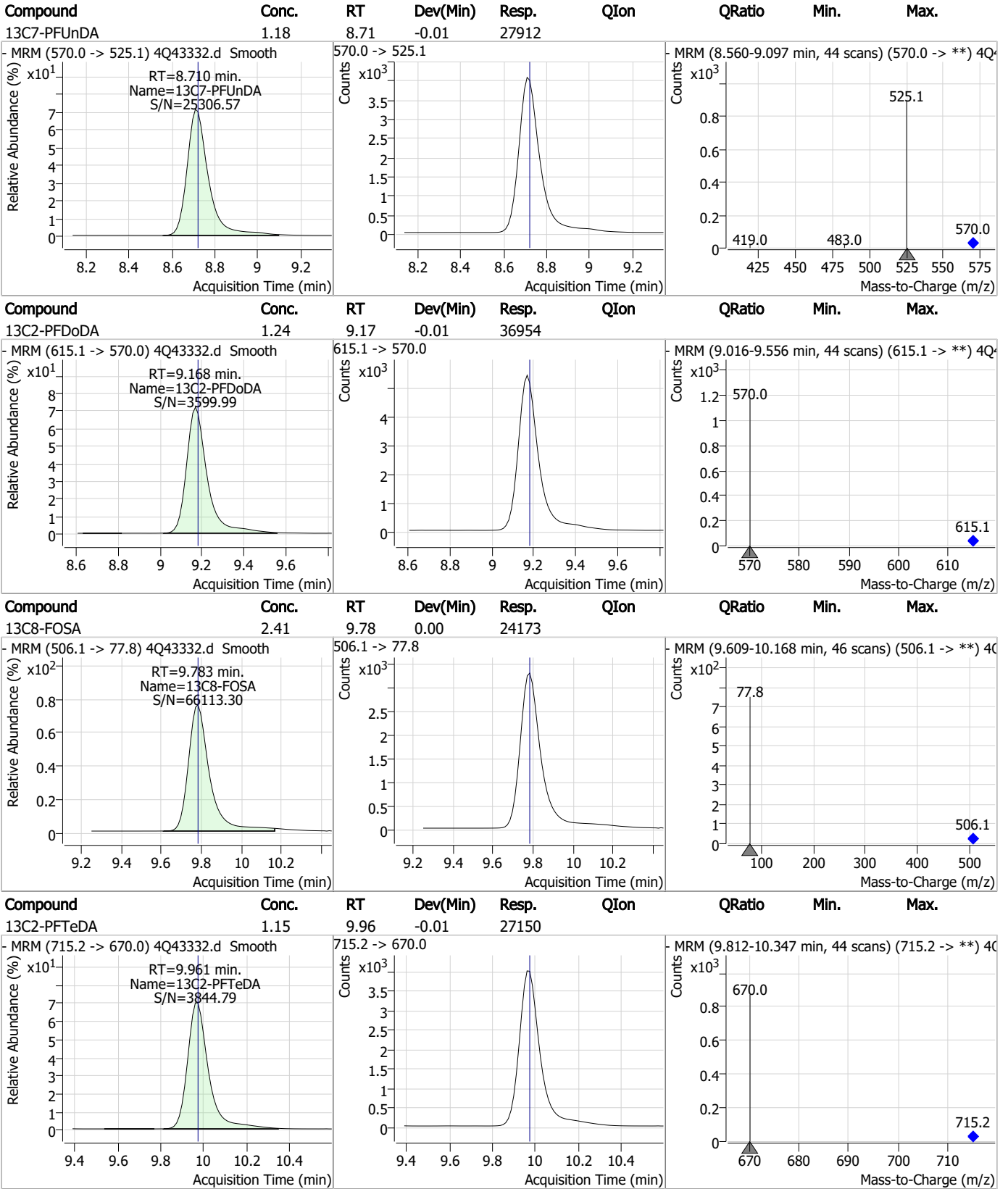
Perfluorinated Compounds by LC/MS/MS



7.25

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Perfluorinated Compounds by LC/MS/MS

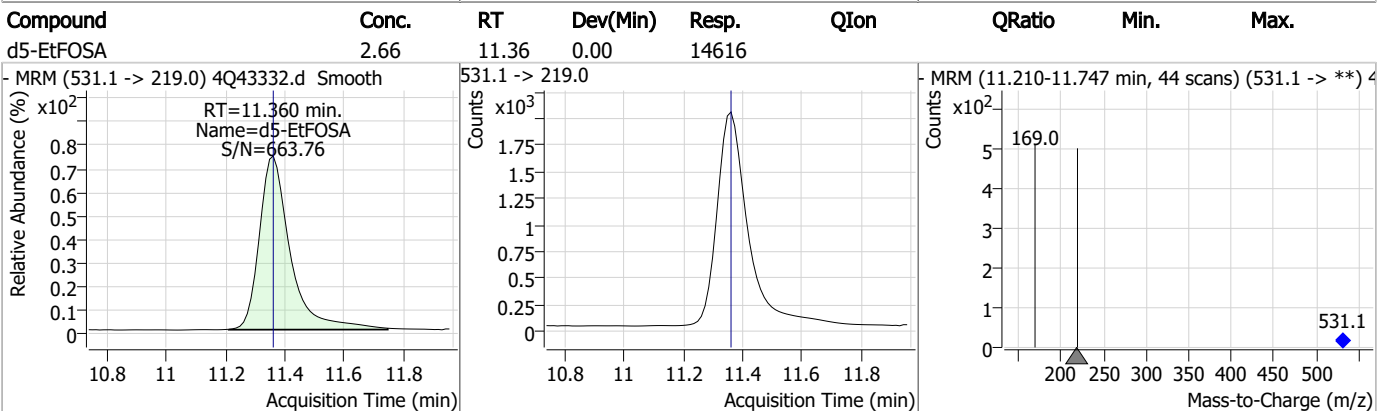
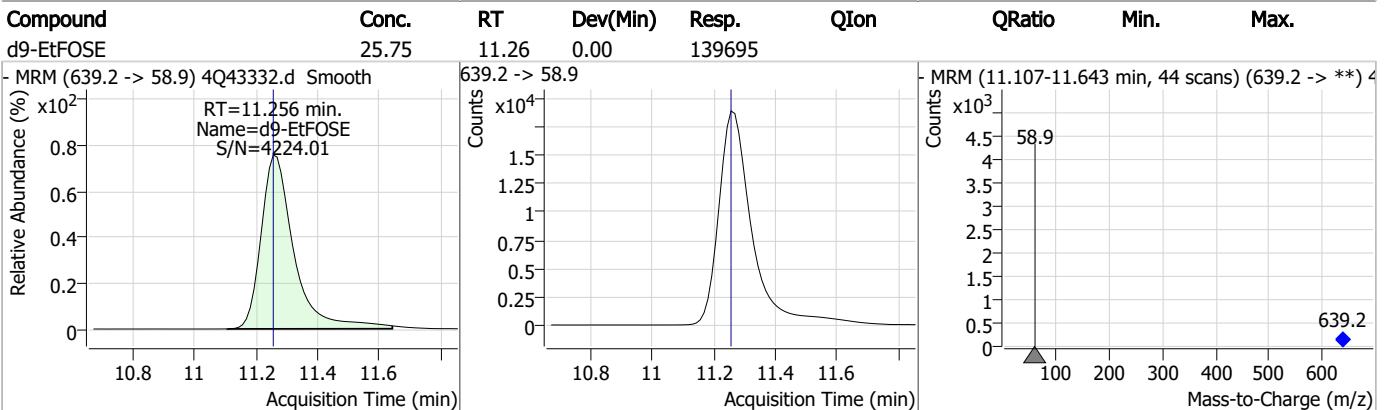
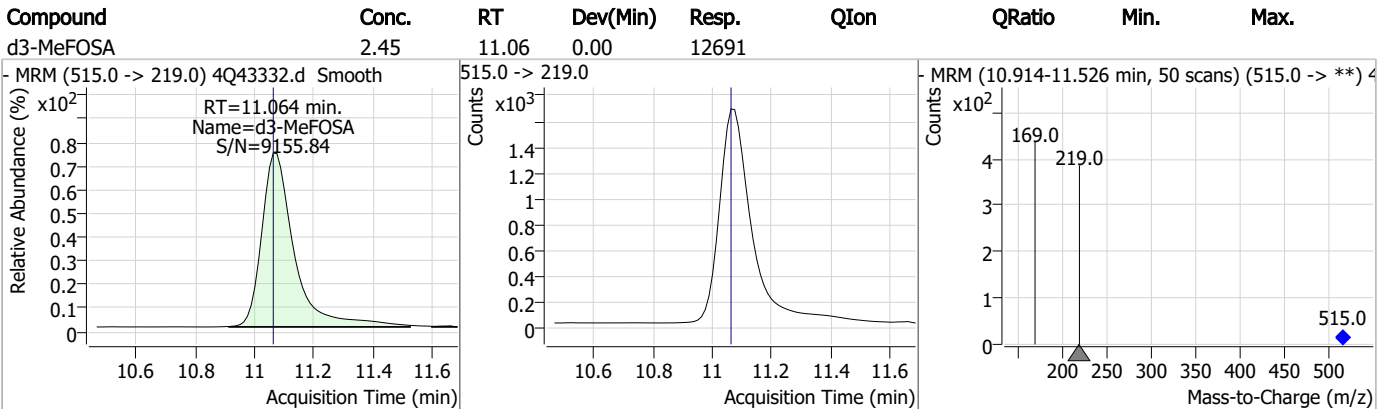
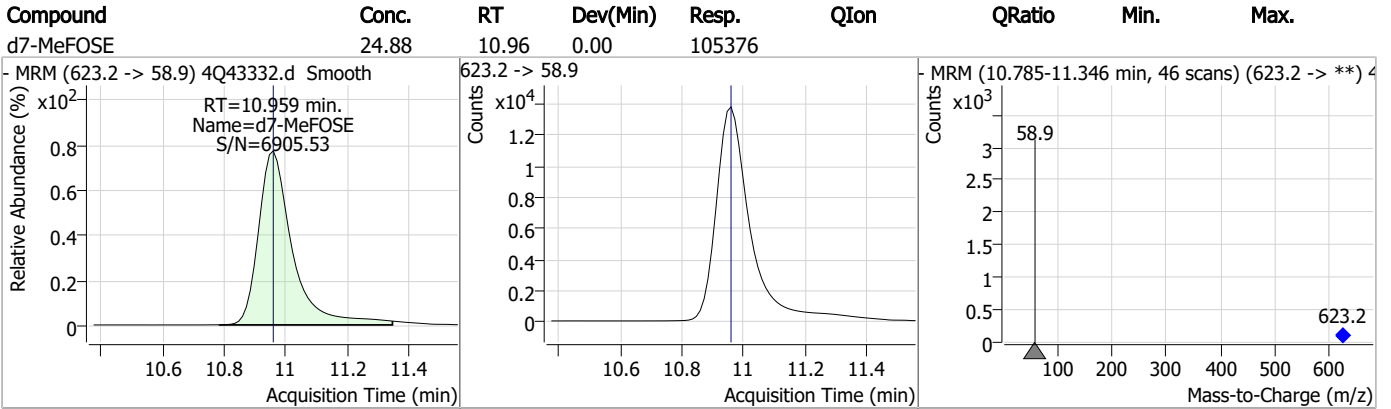


7.25

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43357.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/20/2023 11:05:03 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s4q626.batch.bin
 Sample Information : OP96301,S4q626,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.949	216.8 -> 171.9	143600	10.00 µg/L	0.012
M5-PFPeA	4.424	268.3 -> 223.0	78882	5.00 µg/L	0.012
M5-PFHxA	5.597	318.0 -> 273.0	64313	2.50 µg/L	0.012
M4-PFHpA	6.529	367.1 -> 322.0	33275	2.50 µg/L	0.012
M8-PFOA	7.188	421.1 -> 376.0	45385	2.50 µg/L	0.000
M9-PFNA	7.733	472.1 -> 427.0	25081	1.25 µg/L	0.000
M6-PFDA	8.240	519.1 -> 474.1	23693	1.25 µg/L	0.000
M7-PFUnDA	8.722	570.0 -> 525.1	26257	1.25 µg/L	0.000
M2-PFDoDA	9.168	615.1 -> 570.0	32273	1.25 µg/L	-0.012
M2-PFTeDA	9.974	715.2 -> 670.0	25036	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	21627	2.50 µg/L	0.000
M3-PFBS	5.502	302.1 -> 79.9	13366	2.50 µg/L	0.000
M3-PFHxS	7.291	402.1 -> 79.9	8365	2.50 µg/L	0.000
M8-PFOS	8.405	507.1 -> 79.9	11916	2.50 µg/L	0.012
M2-4:2FTS	5.285	329.1 -> 80.9	1935	5.00 µg/L	0.012
M2-6:2FTS	6.961	429.1 -> 80.9	2980	5.00 µg/L	0.012
M2-8:2FTS	8.027	529.1 -> 80.9	4836	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	20938	5.00 µg/L	0.000
M3-HFPO-DA	5.964	286.9 -> 168.9	36707	10.00 µg/L	0.013
M5-EtFOSAA	8.507	589.2 -> 419.0	17764	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	97339	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	119466	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	12136	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	11210	2.50 µg/L	0.000
13C4-PFOS	8.393	502.8 -> 79.9	12446	2.50 µg/L	-0.012
13C3-PFBA	2.953	216.0 -> 172.0	77899	5.00 µg/L	0.012
18O2-PFHxS	7.290	403.0 -> 83.9	5910	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	55527	2.50 µg/L	0.000
13C2-PFDA	8.241	515.1 -> 470.1	22654	1.25 µg/L	0.000
13C5-PFNA	7.734	468.0 -> 423.0	28384	1.25 µg/L	0.000
13C2-PFHxA	5.598	315.1 -> 270.0	53907	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.285	329.1 -> 80.9	1935	5.58 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.6%		
13C2-6:2FTS	6.961	429.1 -> 80.9	2980	5.46 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.1%		
13C2-8:2FTS	8.027	529.1 -> 80.9	4836	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C2-PFDoDA	9.168	615.1 -> 570.0	32273	1.18 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.4%		
13C2-PFTeDA	9.974	715.2 -> 670.0	25036	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C3-PFBS	5.502	302.1 -> 79.9	13366	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-PFHxS	7.291	402.1 -> 79.9	8365	2.48 µg/L	0.000

7.2.6
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFBA	2.949	216.8 -> 171.9	143600	10.23 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C4-PFHpA	6.529	367.1 -> 322.0	33275	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C5-PFHxA	5.597	318.0 -> 273.0	64313	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C5-PFPeA	4.424	268.3 -> 223.0	78882	4.78 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
13C6-PFDA	8.240	519.1 -> 474.1	23693	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C7-PFUnDA	8.722	570.0 -> 525.1	26257	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C8-FOSA	9.783	506.1 -> 77.8	21627	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C8-PFOA	7.188	421.1 -> 376.0	45385	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C8-PFOS	8.405	507.1 -> 79.9	11916	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C9-PFNA	7.733	472.1 -> 427.0	25081	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.2%	
d3-MeFOSAA	8.298	573.2 -> 419.0	20938	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C3-HFPO-DA	5.964	286.9 -> 168.9	36707	8.98 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.8%	
d3-MeFOSA	11.064	515.0 -> 219.0	11210	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
d5-EtFOSAA	8.507	589.2 -> 419.0	17764	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
d7-MeFOSE	10.959	623.2 -> 58.9	97339	25.49 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
d9-EtFOSE	11.256	639.2 -> 58.9	119466	24.43 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d5-EtFOSA	11.360	531.1 -> 219.0	12136	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	

7.2.6
7

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.229	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.530	599.0 -> 98.8				
		363.1 -> 319.0	0	µg/L	m	1
PFHpS	-	363.1 -> 169.0	0			
		449.0 -> 79.9	-	N.D.		
PFHxA	-	449.0 -> 98.9				
		313.0 -> 269.0	-	N.D.		
PFHxS	-	313.0 -> 118.9				
		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	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	-	498.9 -> 98.8				
		263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	9.452	713.1 -> 669.0	0	µg/L	m	1
		713.1 -> 168.9	0			
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		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

7.2.6
7

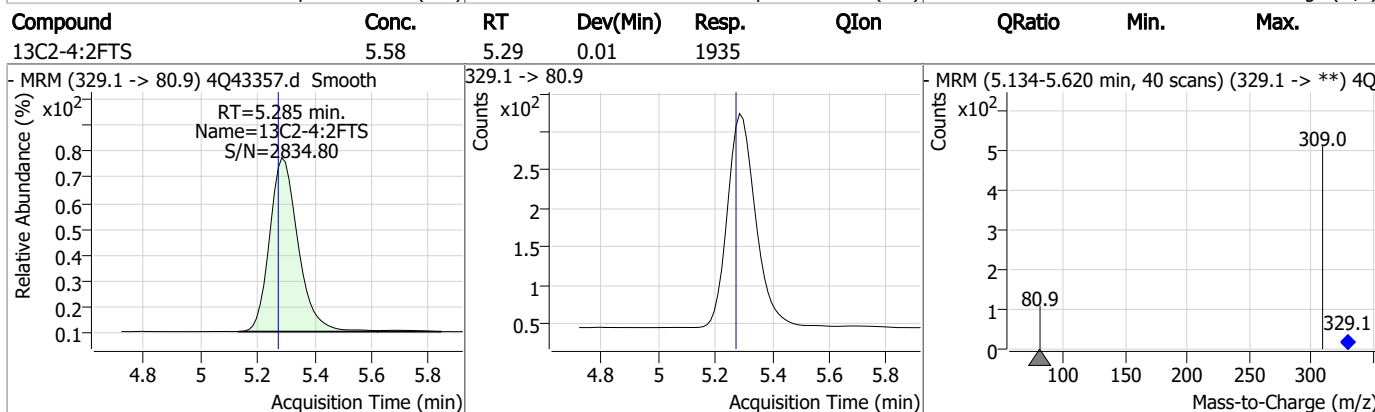
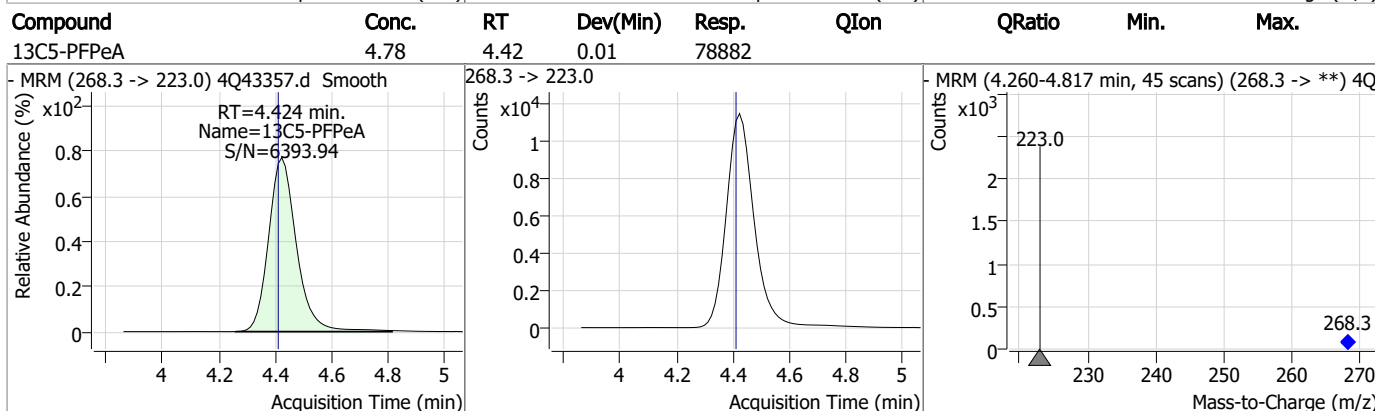
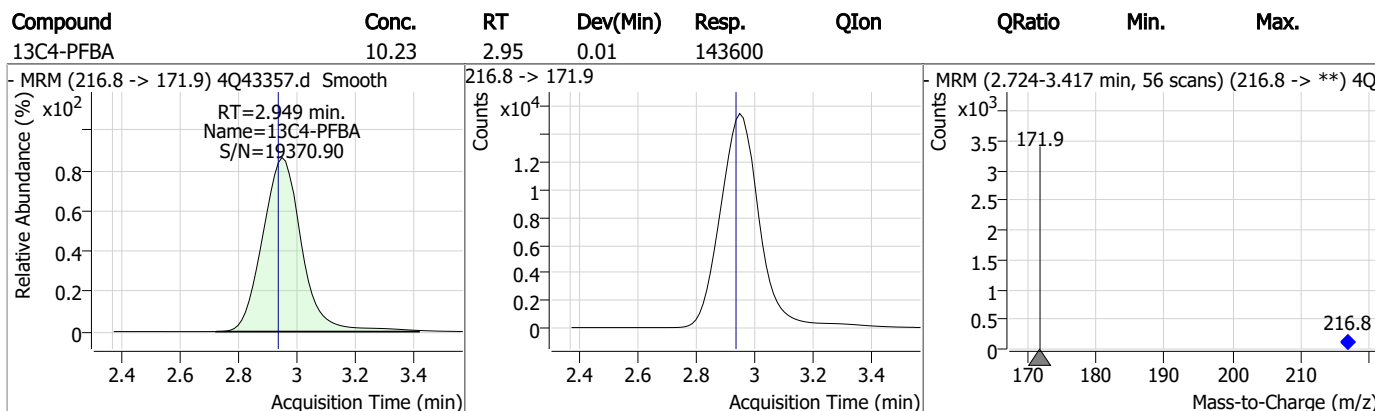
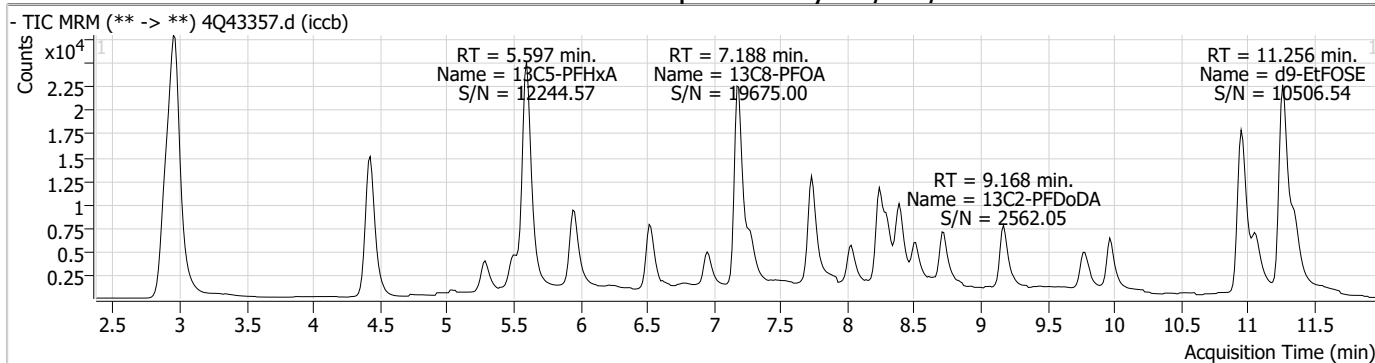
Perfluorinated Compounds by LC/MS/MS

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

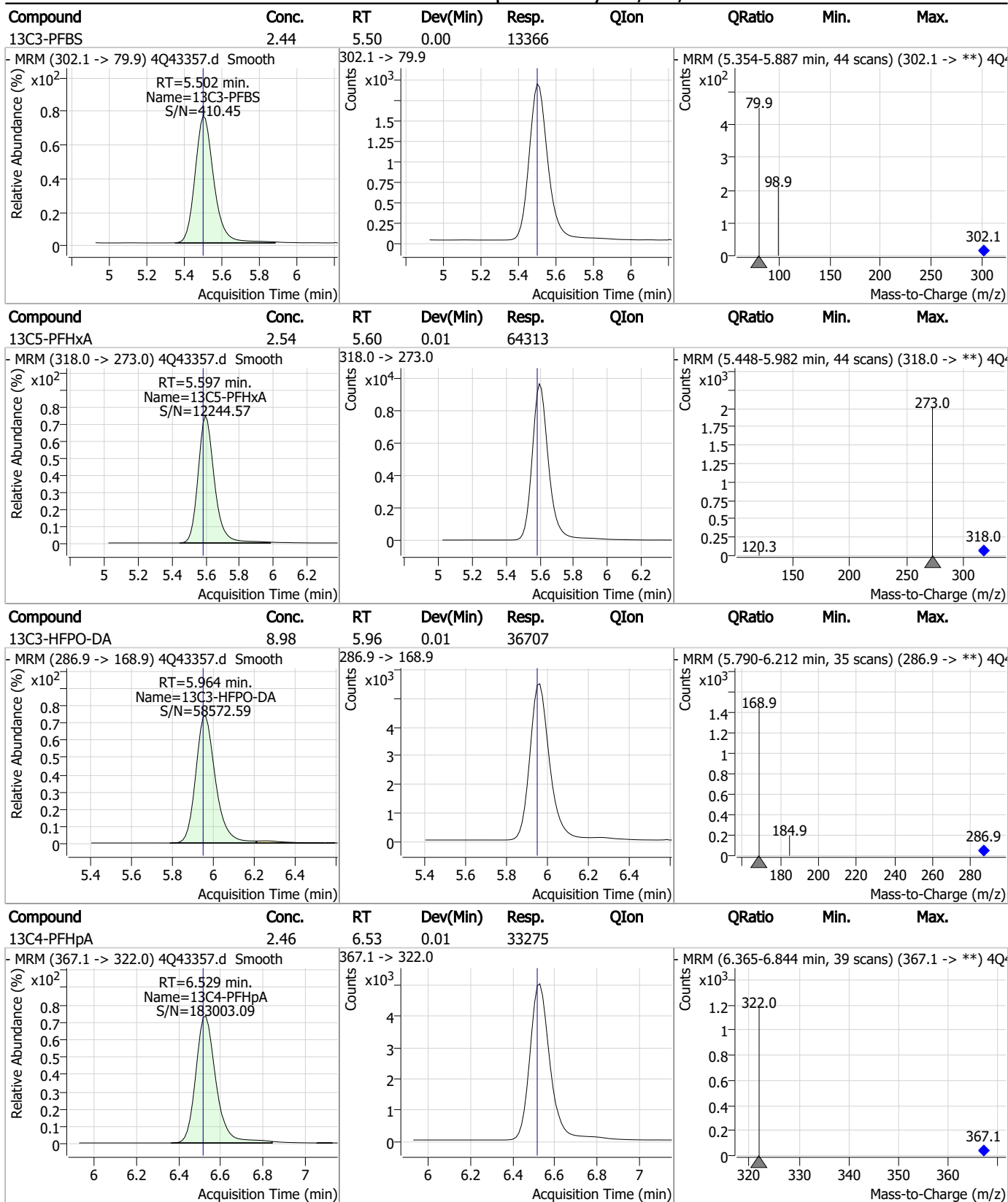
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Perfluorinated Compounds by LC/MS/MS



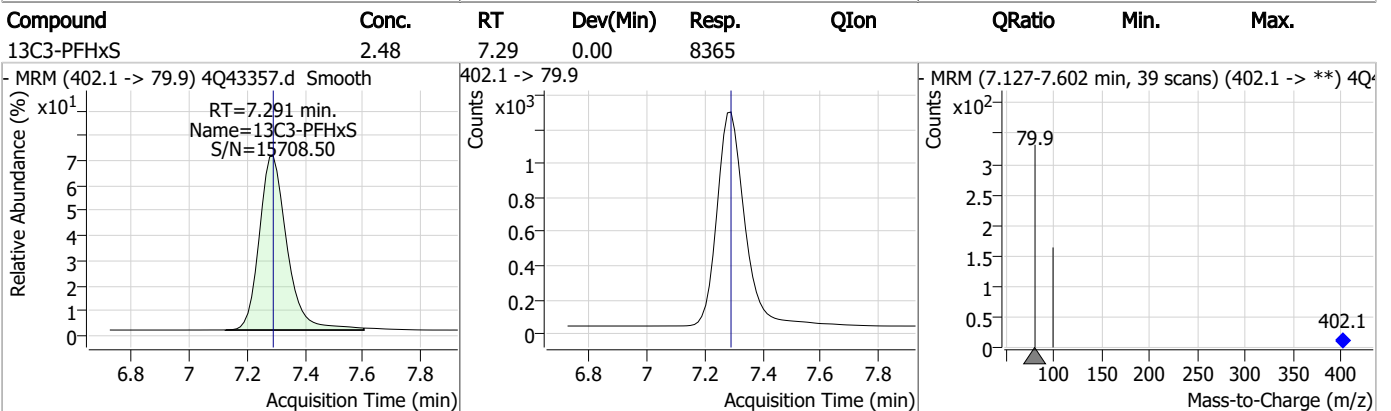
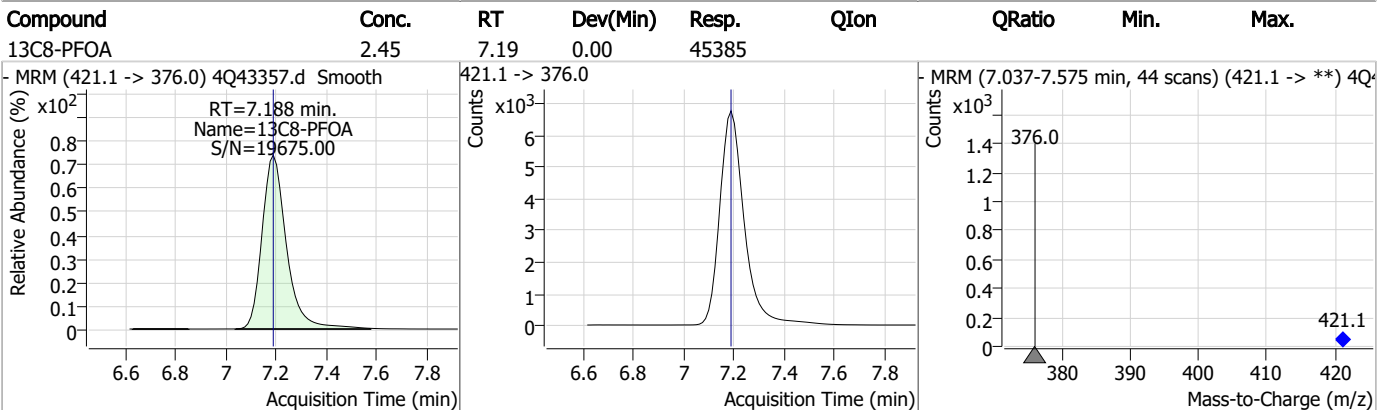
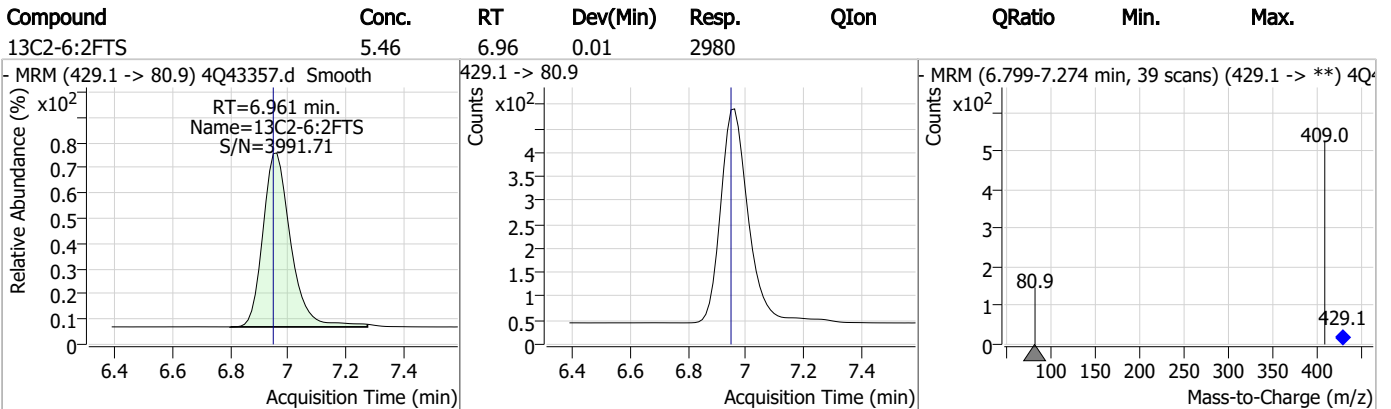
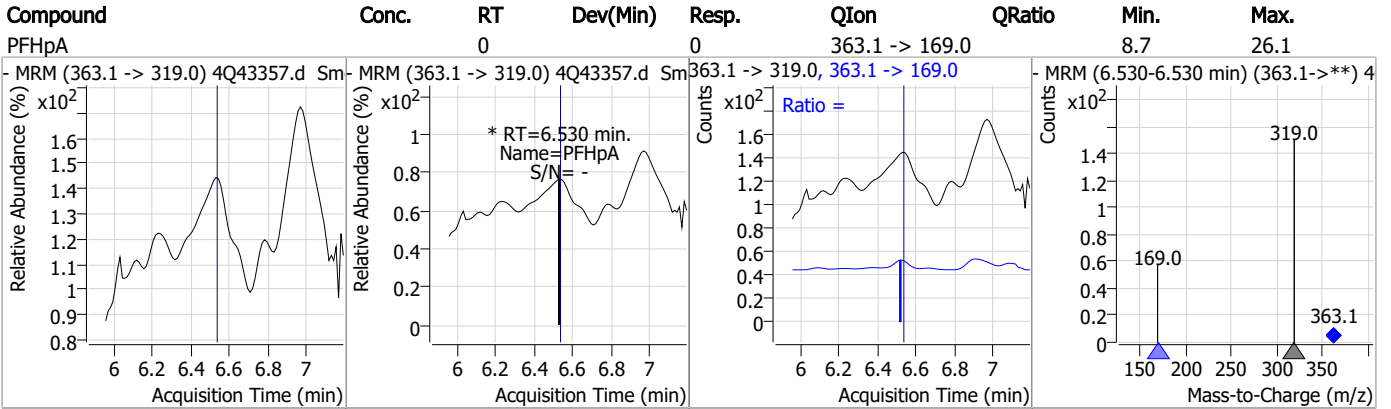
7.2.6
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Perfluorinated Compounds by LC/MS/MS

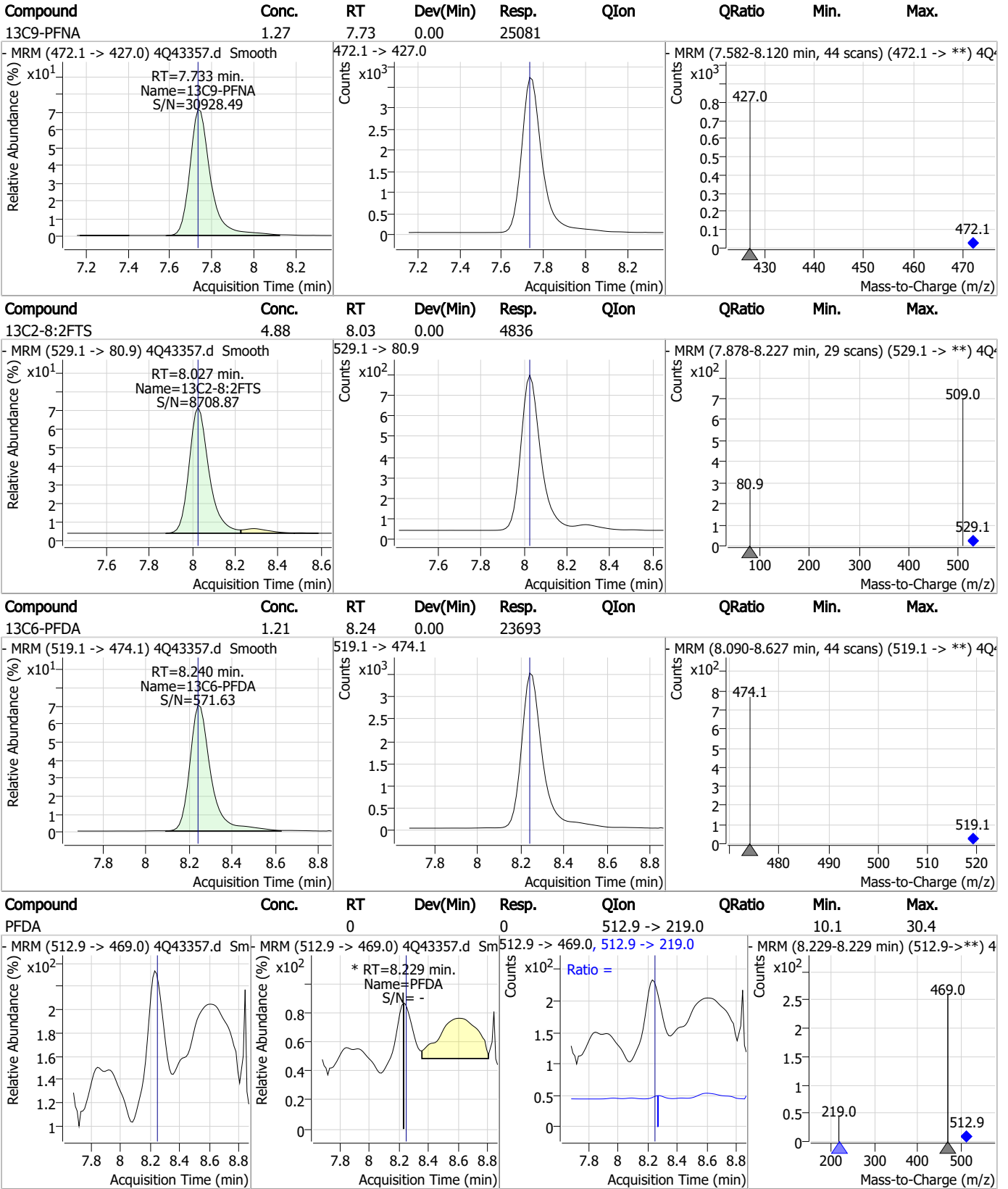


7.26
7

Perfluorinated Compounds by LC/MS/MS



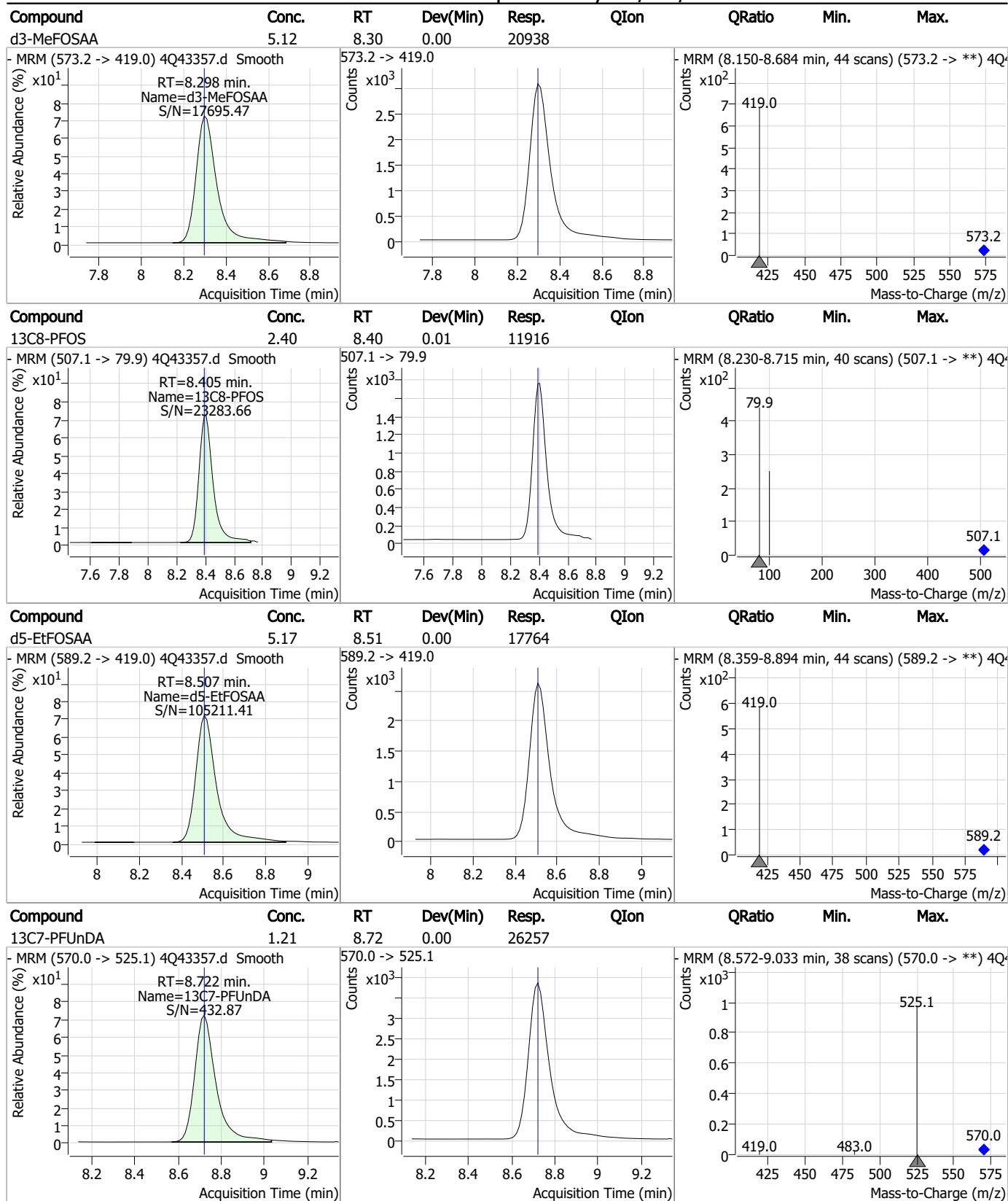
Perfluorinated Compounds by LC/MS/MS



7.2.6

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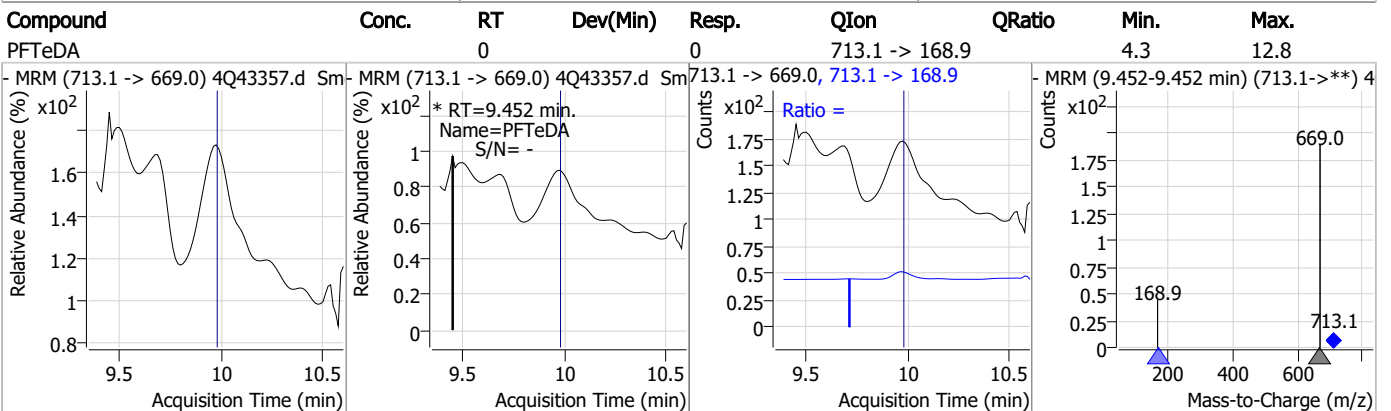
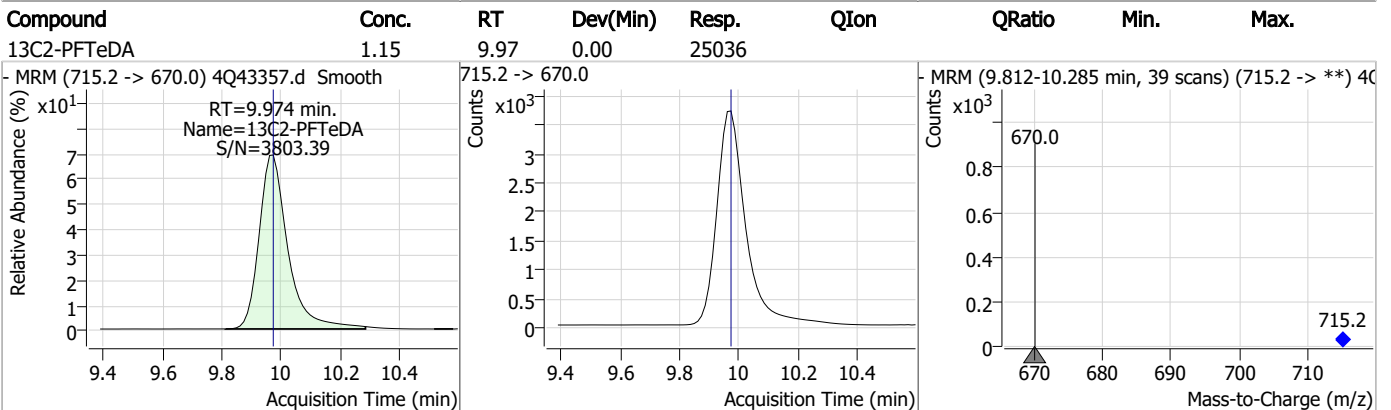
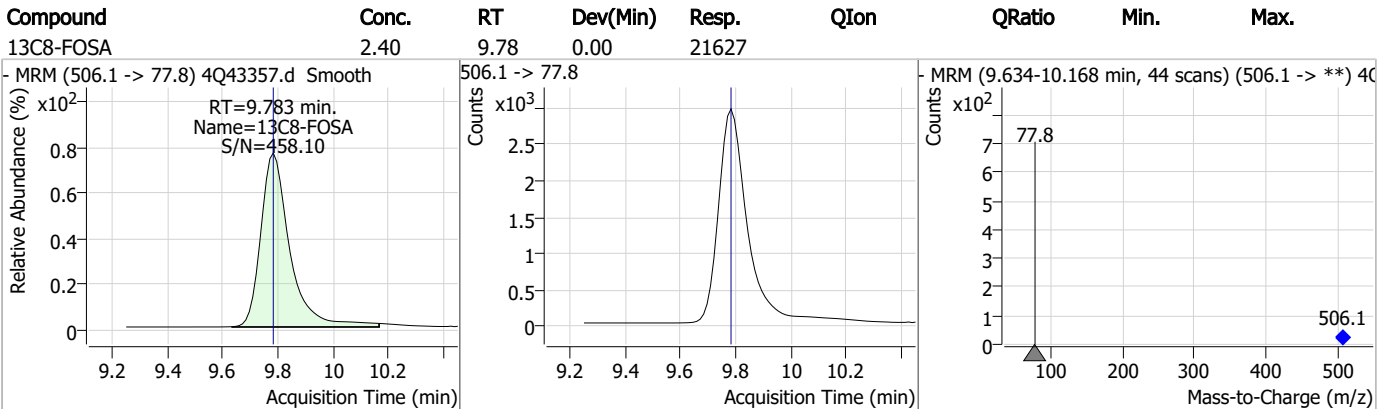
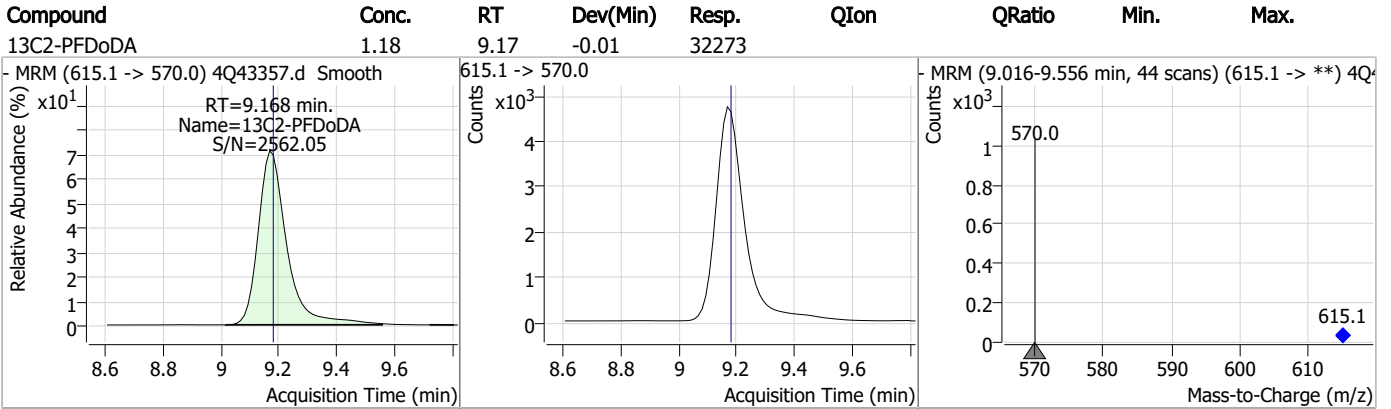
Perfluorinated Compounds by LC/MS/MS



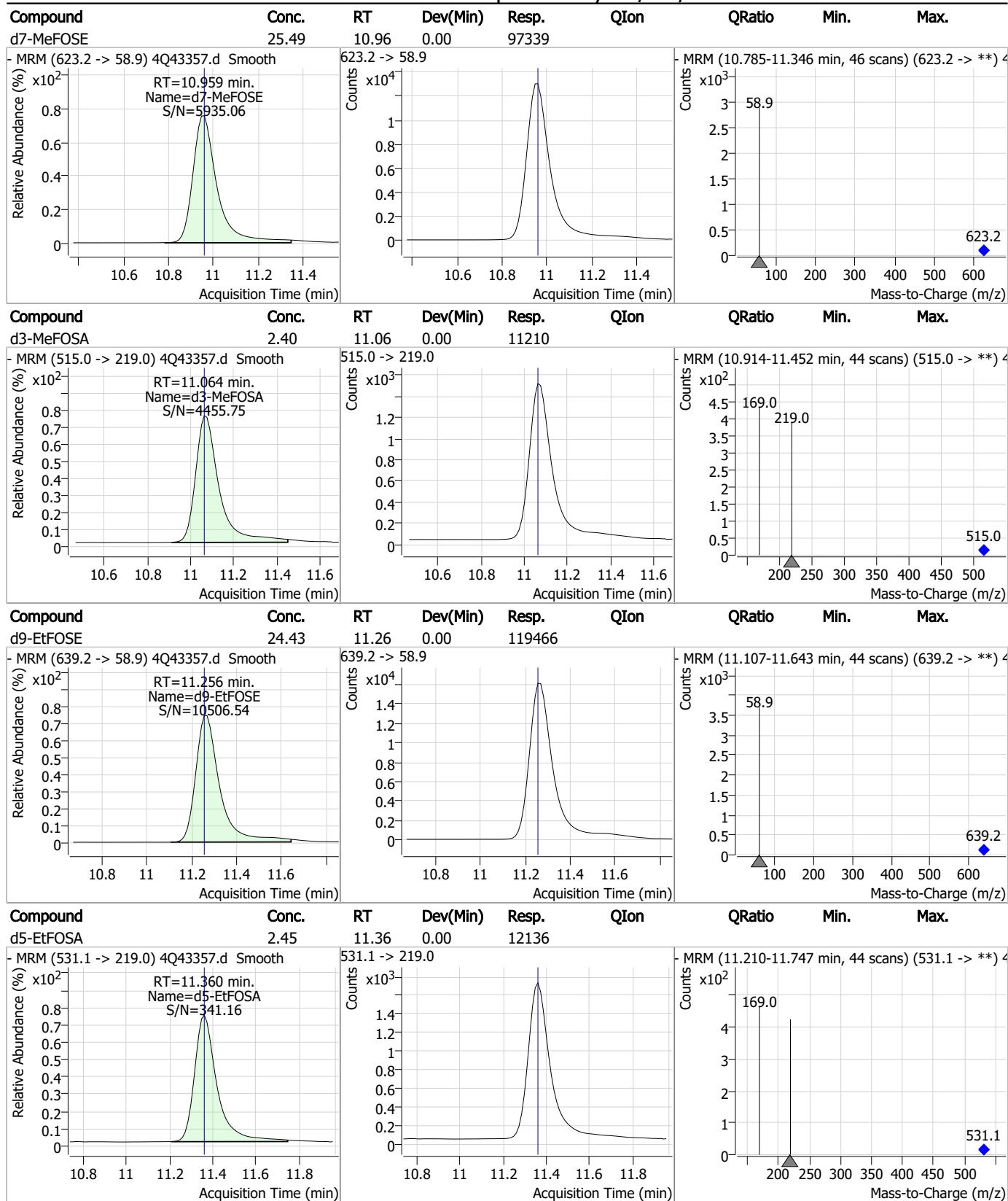
7.2.6
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.2.6
7

Perfluorinated Compounds by LC/MS/MS

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 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 12:36:48 PM
 Sample Name : op96403-bs
 Vial : P4-C1
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96403,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	115396	10.00 µg/L	0.038
M5-PFPeA	4.462	268.3 -> 223.0	62616	5.00 µg/L	0.012
M5-PFHxA	5.634	318.0 -> 273.0	51815	2.50 µg/L	0.012
M4-PFHpA	6.555	367.1 -> 322.0	25358	2.50 µg/L	0.000
M8-PFOA	7.214	421.1 -> 376.0	30703	2.50 µg/L	0.000
M9-PFNA	7.759	472.1 -> 427.0	16947	1.25 µg/L	0.000
M6-PFDA	8.266	519.1 -> 474.1	16528	1.25 µg/L	0.000
M7-PFUnDA	8.748	570.0 -> 525.1	17197	1.25 µg/L	0.000
M2-PFDoDA	9.194	615.1 -> 570.0	20937	1.25 µg/L	0.000
M2-PFTeDA	10.000	715.2 -> 670.0	13236	1.25 µg/L	0.012
M8-FOSA	9.846	506.1 -> 77.8	12523	2.50 µg/L	0.012
M3-PFBS	5.539	302.1 -> 79.9	11246	2.50 µg/L	0.012
M3-PFHxS	7.317	402.1 -> 79.9	6556	2.50 µg/L	0.000
M8-PFOS	8.417	507.1 -> 79.9	8310	2.50 µg/L	0.000
M2-4:2FTS	5.323	329.1 -> 80.9	1354	5.00 µg/L	0.014
M2-6:2FTS	6.974	429.1 -> 80.9	2196	5.00 µg/L	0.000
M2-8:2FTS	8.054	529.1 -> 80.9	3245	5.00 µg/L	0.000
M3-MeFOSAA	8.324	573.2 -> 419.0	14854	5.00 µg/L	0.000
M3-HFPO-DA	5.989	286.9 -> 168.9	30126	10.00 µg/L	0.000
M5-EtFOSAA	8.533	589.2 -> 419.0	11928	5.00 µg/L	0.000
M7-MeFOSE	10.974	623.2 -> 58.9	44430	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	55492	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	7005	2.50 µg/L	0.012
M3-MeFOSA	11.090	515.0 -> 219.0	6516	2.50 µg/L	0.000
13C4-PFOS	8.418	502.8 -> 79.9	9488	2.50 µg/L	0.000
13C3-PFBA	3.003	216.0 -> 172.0	60071	5.00 µg/L	0.037
18O2-PFHxS	7.316	403.0 -> 83.9	4584	2.50 µg/L	0.000
13C4-PFOA	7.214	417.1 -> 372.0	36330	2.50 µg/L	0.000
13C2-PFDA	8.267	515.1 -> 470.1	14000	1.25 µg/L	0.000
13C5-PFNA	7.759	468.0 -> 423.0	17955	1.25 µg/L	0.000
13C2-PFHxA	5.635	315.1 -> 270.0	41068	2.50 µg/L	0.012

System Monitoring Compounds

13C2-4:2FTS	5.323	329.1 -> 80.9	1354	5.41 µg/L	0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-6:2FTS	6.974	429.1 -> 80.9	2196	6.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.2%		
13C2-8:2FTS	8.054	529.1 -> 80.9	3245	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.8%		
13C2-PFDoDA	9.194	615.1 -> 570.0	20937	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C2-PFTeDA	10.000	715.2 -> 670.0	13236	0.99 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.9%		
13C3-PFBS	5.539	302.1 -> 79.9	11246	2.67 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C3-PFHxS	7.317	402.1 -> 79.9	6556	2.58 µg/L	0.000



7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C4-PFBA	2.999	216.8 -> 171.9	115396	11.03 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.3%	
13C4-PFHpA	6.555	367.1 -> 322.0	25358	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C5-PFHxA	5.634	318.0 -> 273.0	51815	2.73 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C5-PFPeA	4.462	268.3 -> 223.0	62616	5.18 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C6-PFDA	8.266	519.1 -> 474.1	16528	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C7-PFUnDA	8.748	570.0 -> 525.1	17197	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C8-FOSA	9.846	506.1 -> 77.8	12523	2.02 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.7%	
13C8-PFOA	7.214	421.1 -> 376.0	30703	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C8-PFOS	8.417	507.1 -> 79.9	8310	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.4%	
13C9-PFNA	7.759	472.1 -> 427.0	16947	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.6%	
d3-MeFOSAA	8.324	573.2 -> 419.0	14854	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	30126	10.45 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
d3-MeFOSA	11.090	515.0 -> 219.0	6516	2.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.7%	
d5-EtFOSAA	8.533	589.2 -> 419.0	11928	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
d7-MeFOSE	10.974	623.2 -> 58.9	44430	18.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 72.6%	
d9-EtFOSE	11.282	639.2 -> 58.9	55492	18.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.1%	
d5-EtFOSA	11.386	531.1 -> 219.0	7005	2.21 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.3%	
Target Compounds					QValue
4:2FTS	5.323	327.1 -> 307.0	18920	11.21 µg/L	97
		327.1 -> 80.9	8259		
6:2FTS	6.974	427.1 -> 407.0	15784	10.53 µg/L	99
		427.1 -> 80.9	7000		
8:2FTS	8.054	527.1 -> 507.0	16082	11.05 µg/L	97
		527.1 -> 80.8	6774		
EtFOSAA	8.547	584.2 -> 419.1	5089	2.86 µg/L	m 96
		584.2 -> 526.0	2530		
FOSA	9.837	498.1 -> 77.9	11808	2.93 µg/L	98
		498.1 -> 478.0	355		
MeFOSAA	8.325	570.1 -> 419.0	5319	2.60 µg/L	m 98
		570.1 -> 483.0	1263		
PFBA	3.007	212.8 -> 168.9	28001	10.63 µg/L	100
PFBS	5.540	298.7 -> 79.9	10022	2.39 µg/L	97
		298.7 -> 98.8	3846		
PFDA	8.267	512.9 -> 469.0	25627	2.71 µg/L	100
		512.9 -> 219.0	5128		
PFDoDA	9.195	613.1 -> 569.0	35910	2.72 µg/L	99
		613.1 -> 319.0	5097		
PFDS	9.358	599.0 -> 79.9	5575	3.00 µg/L	99

7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2701			
PFHpA	6.555	363.1 -> 319.0	35309	2.79	µg/L	98
		363.1 -> 169.0	6990			
PFHpS	7.900	449.0 -> 79.9	6753	3.12	µg/L	94
		449.0 -> 98.9	3286			
PFHxA	5.625	313.0 -> 269.0	41629	2.71	µg/L	100
		313.0 -> 118.9	1318			
PFHxS	7.318	398.7 -> 79.9	5791	2.58	µg/L	m 97
		398.7 -> 98.9	3096			
PFNA	7.760	463.0 -> 419.0	25184	2.78	µg/L	100
		463.0 -> 219.0	6413			
PFNS	8.912	548.8 -> 79.9	3753	2.93	µg/L	94
		548.8 -> 98.9	2172			
PFOA	7.215	413.0 -> 369.0	40310	2.81	µg/L	100
		413.0 -> 169.0	8505			
PFOS	8.419	498.9 -> 79.9	9857	3.05	µg/L	m 99
		498.9 -> 98.8	4586			
PFPeA	4.464	263.0 -> 219.0	69851	5.89	µg/L	100
PFPeS	6.595	349.1 -> 79.9	5454	2.85	µg/L	96
		349.1 -> 98.9	2305			
PFTeDA	10.000	713.1 -> 669.0	28808	2.76	µg/L	97
		713.1 -> 168.9	2297			
PFTrDA	9.617	663.0 -> 619.0	43522	2.56	µg/L	99
		663.0 -> 168.9	4203			
PFUnDA	8.748	563.1 -> 519.0	25881	2.66	µg/L	99
		563.1 -> 269.1	4966			
11CI-PF3OUdS	9.656	630.9 -> 450.9	43447	5.53	µg/L	99
		632.9 -> 452.9	13565			
9CI-PF3ONS	8.775	530.8 -> 351.0	46951	5.35	µg/L	99
		532.8 -> 353.0	14358			
ADONA	6.806	376.9 -> 250.9	104813	5.79	µg/L	98
		376.9 -> 84.8	28425			
HFPO-DA	5.990	284.9 -> 168.9	14284	5.98	µg/L	94
		284.9 -> 184.9	1554			
3:3FTCA	3.967	241.0 -> 177.0	7494	13.57	µg/L	98
		241.0 -> 117.0	722			
5:3FTCA	6.321	341.0 -> 237.1	151235	69.82	µg/L	99
		341.0 -> 217.0	106459			
7:3FTCA	7.762	441.0 -> 316.9	61043	68.76	µg/L	99
		441.0 -> 336.9	138416			
EtFOSA	11.388	526.0 -> 219.0	13224	5.30	µg/L	m 97
		526.0 -> 169.0	18226			
EtFOSE	11.295	630.0 -> 58.9	23619	13.81	µg/L	100
MeFOSA	11.092	511.9 -> 219.0	11378	5.40	µg/L	m 97
		511.9 -> 169.0	16923			
MeFOSE	11.000	616.1 -> 58.9	22007	14.09	µg/L	m 100
PFDoDS	10.140	699.1 -> 79.9	4348	2.71	µg/L	99
		699.1 -> 98.8	2632			
NFDHA	5.516	295.0 -> 201.0	5868	5.69	µg/L	99
		295.0 -> 84.9	1504			
PFMBA	4.866	279.0 -> 85.1	39691	5.86	µg/L	100
PFMPA	3.602	229.0 -> 84.9	34361	5.80	µg/L	100
PFEESA	6.071	314.8 -> 134.9	63205	4.91	µg/L	99
		314.8 -> 82.9	2260			

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

7.3.1
7

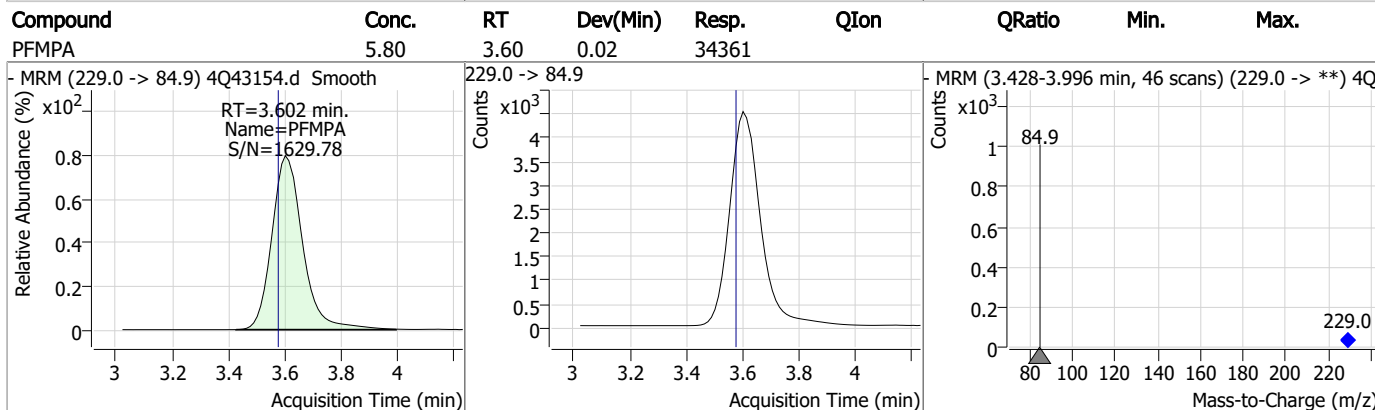
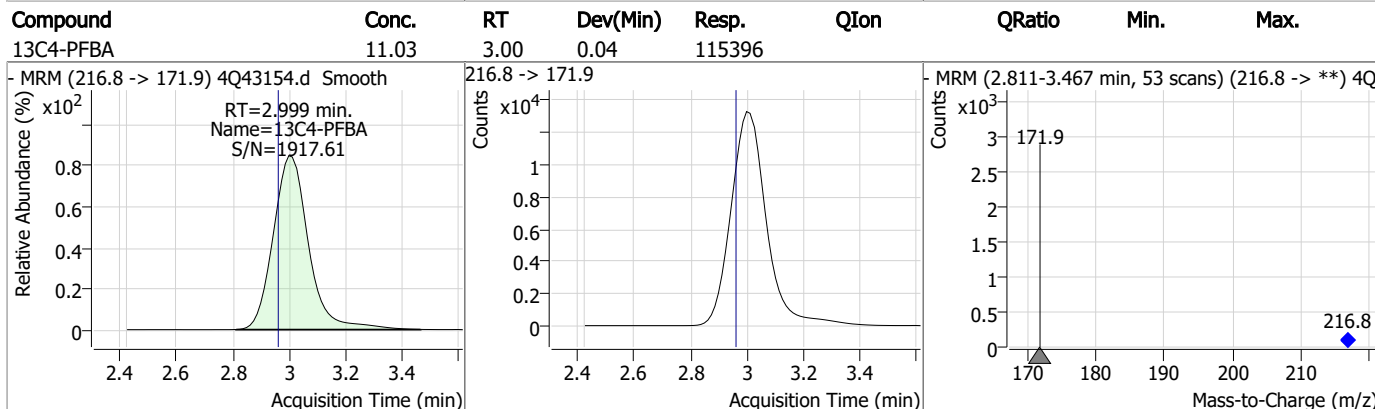
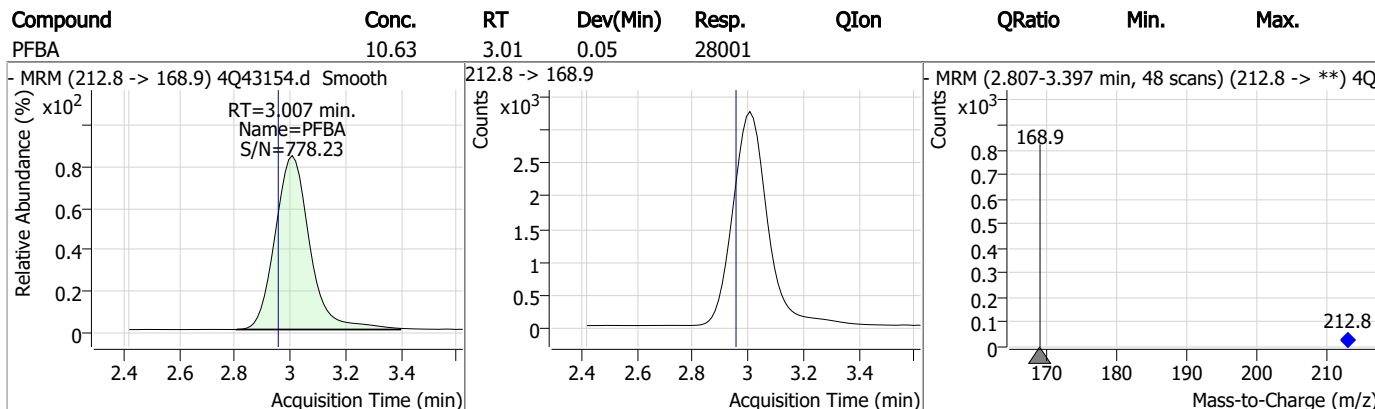
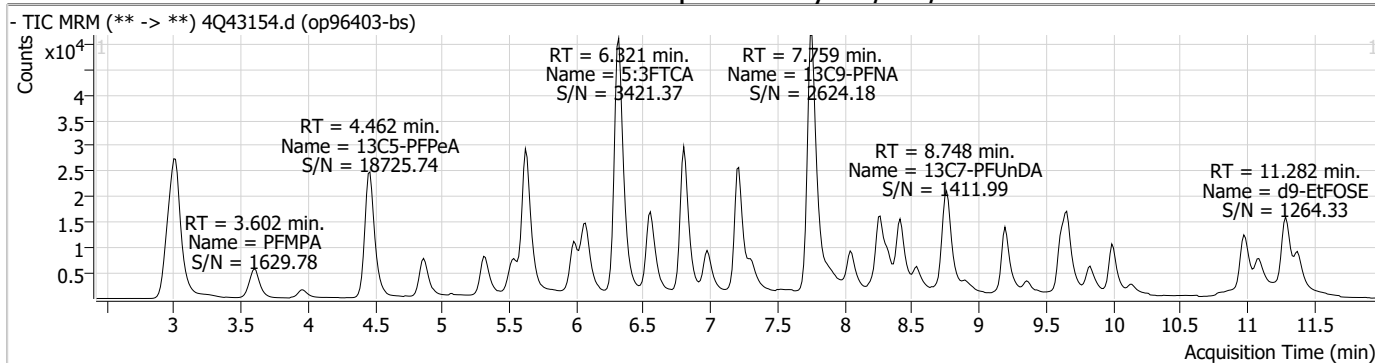
Perfluorinated Compounds by LC/MS/MS

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

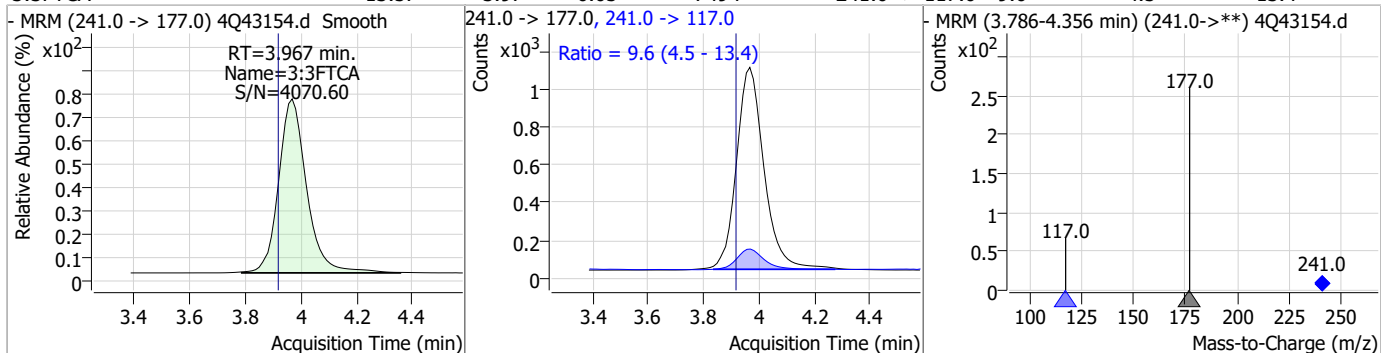
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Perfluorinated Compounds by LC/MS/MS

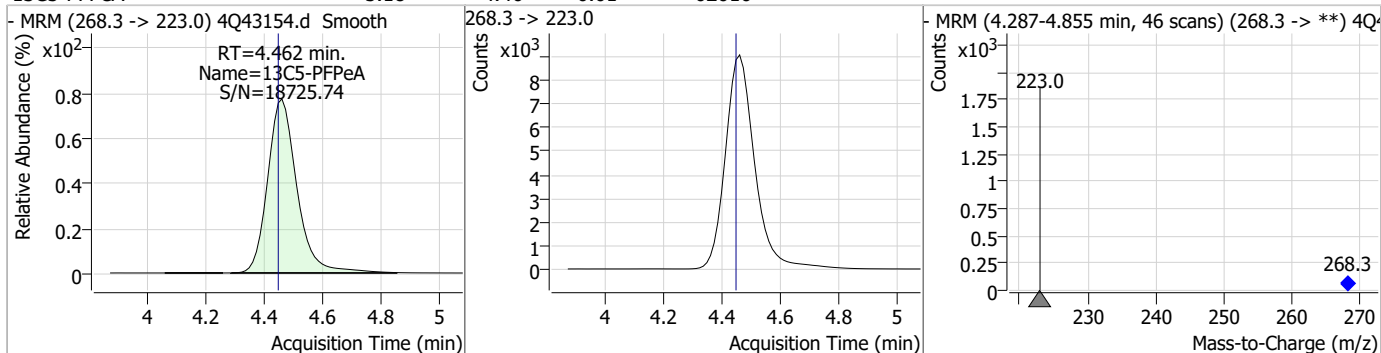


Perfluorinated Compounds by LC/MS/MS

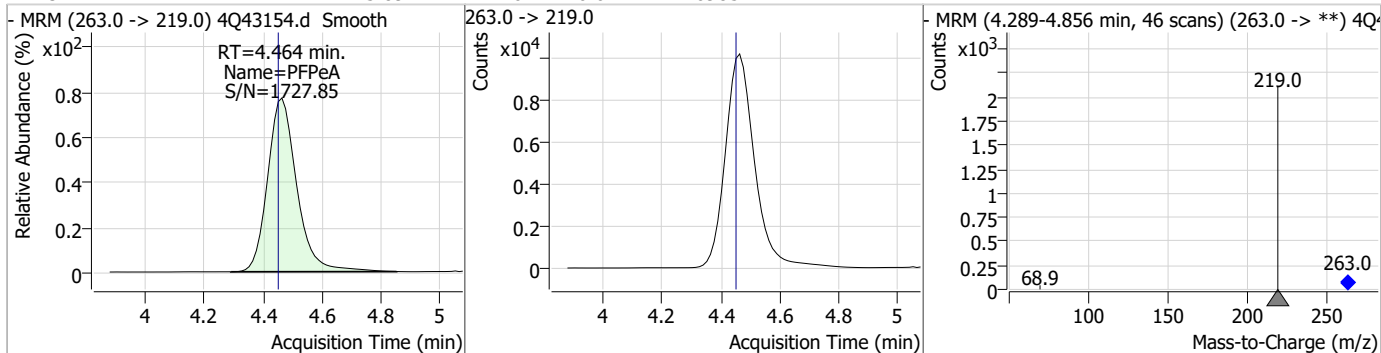
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	13.57	3.97	0.05	7494	241.0 -> 117.0	9.6	4.5	13.4



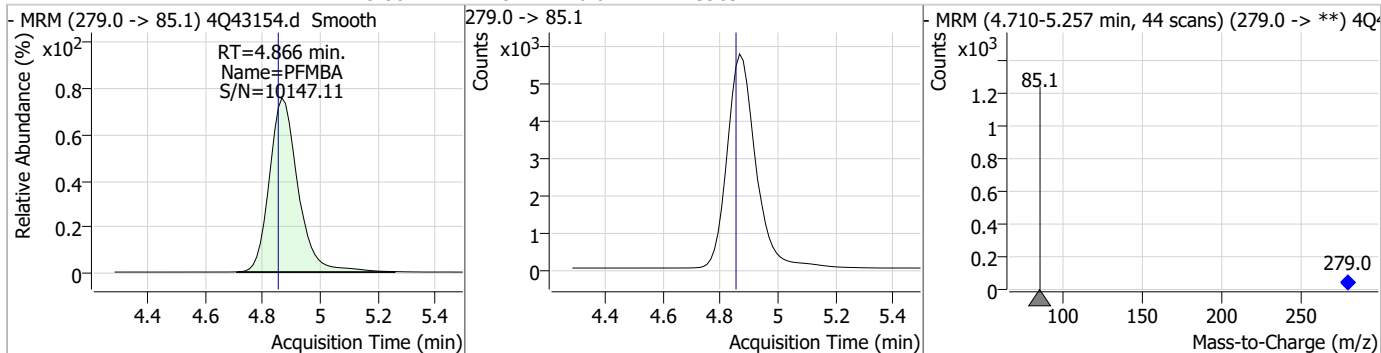
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.18	4.46	0.01	62616				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.89	4.46	0.01	69851				

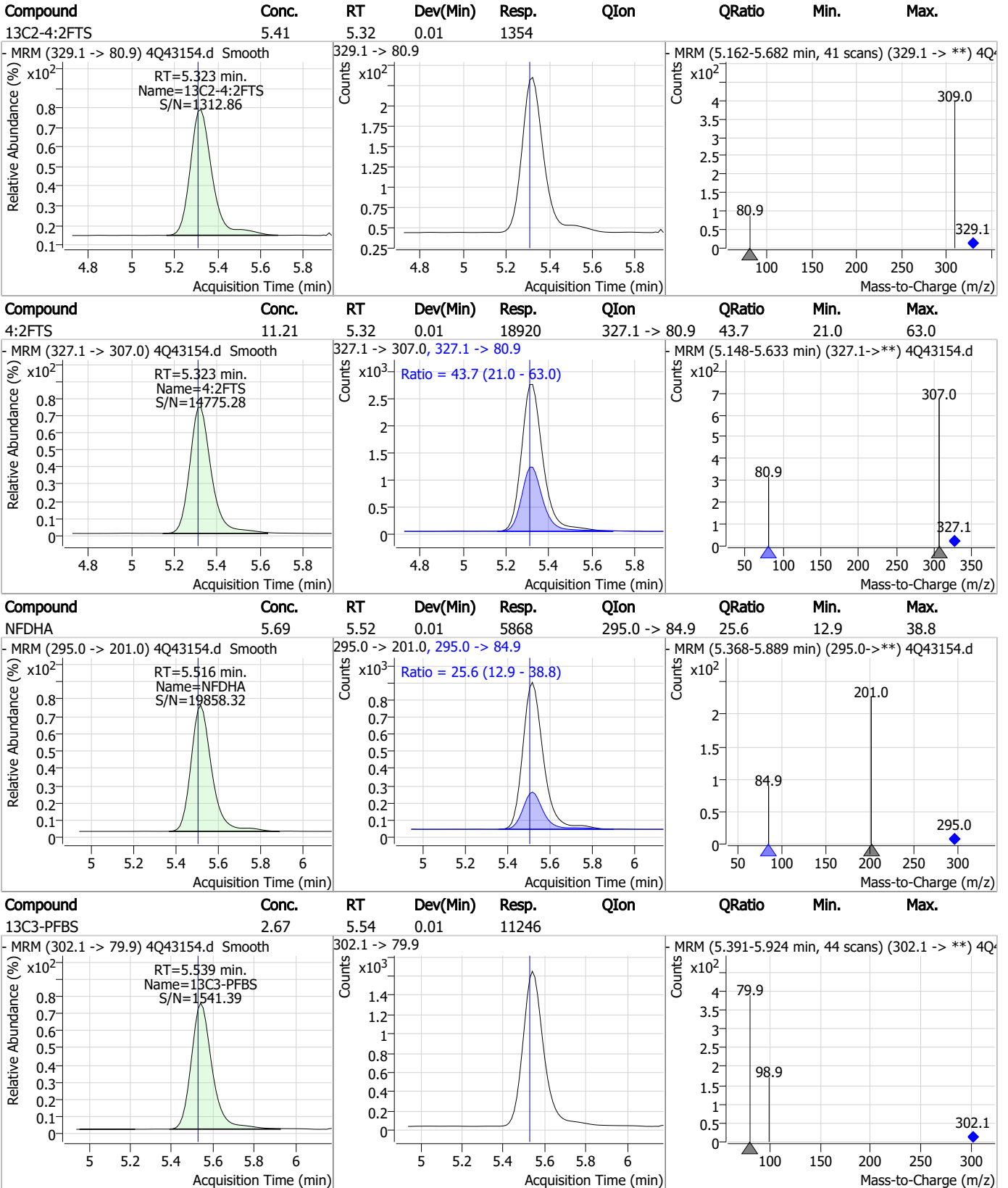


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.86	4.87	0.01	39691				



7.3.1
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Perfluorinated Compounds by LC/MS/MS

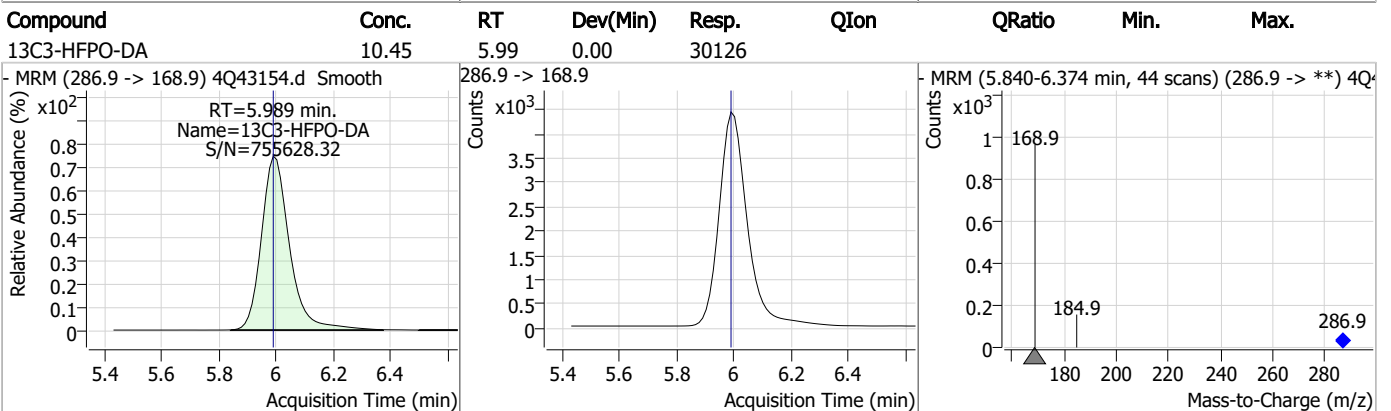
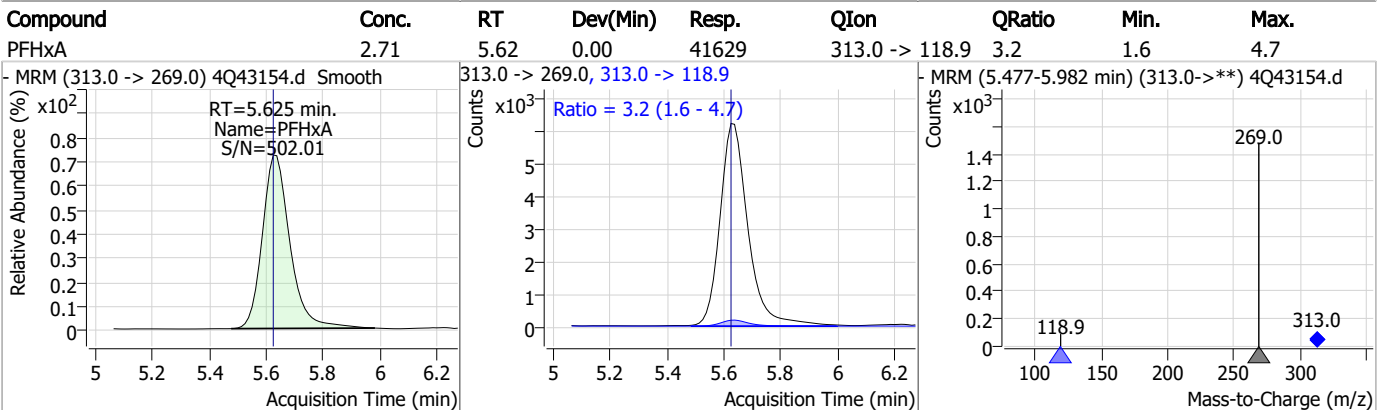
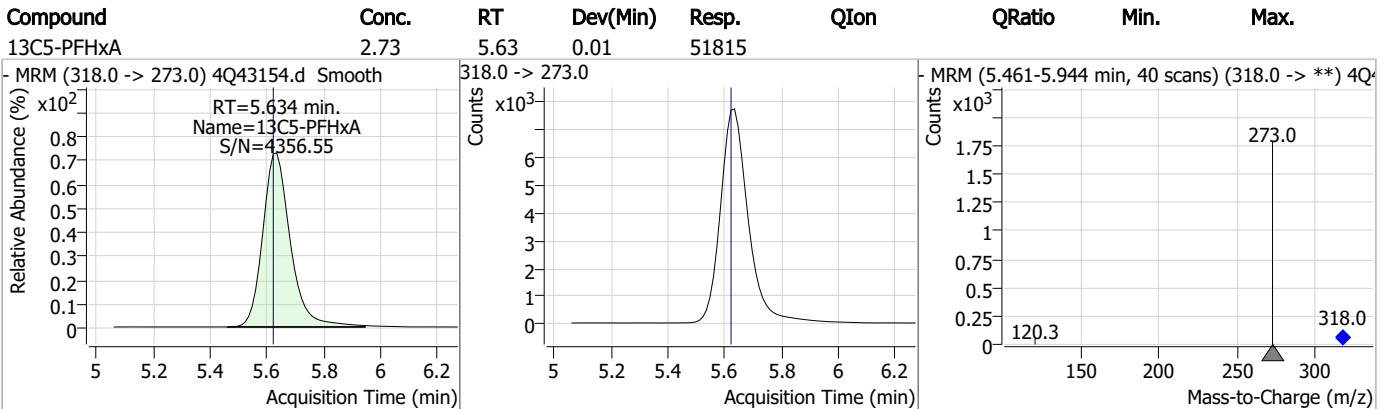
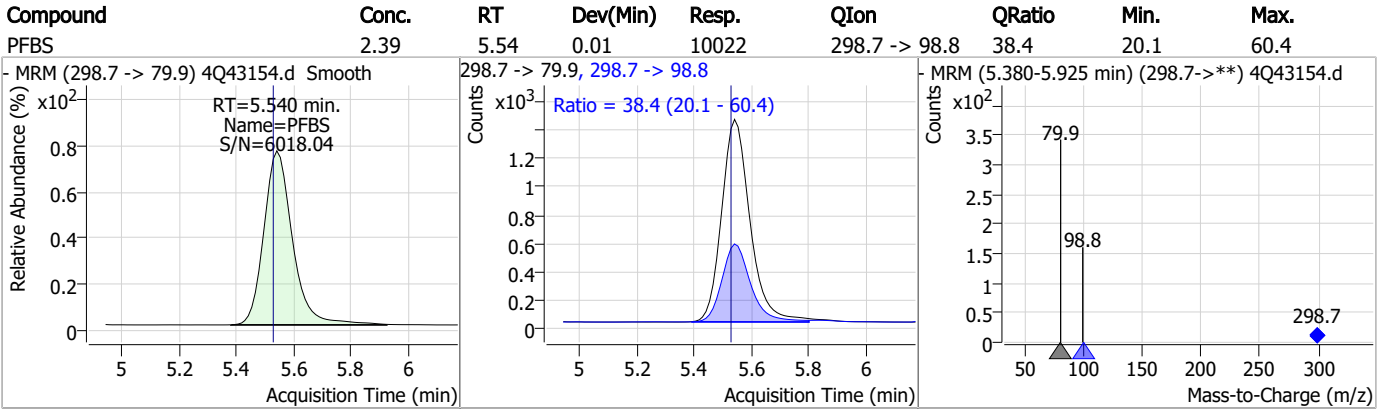


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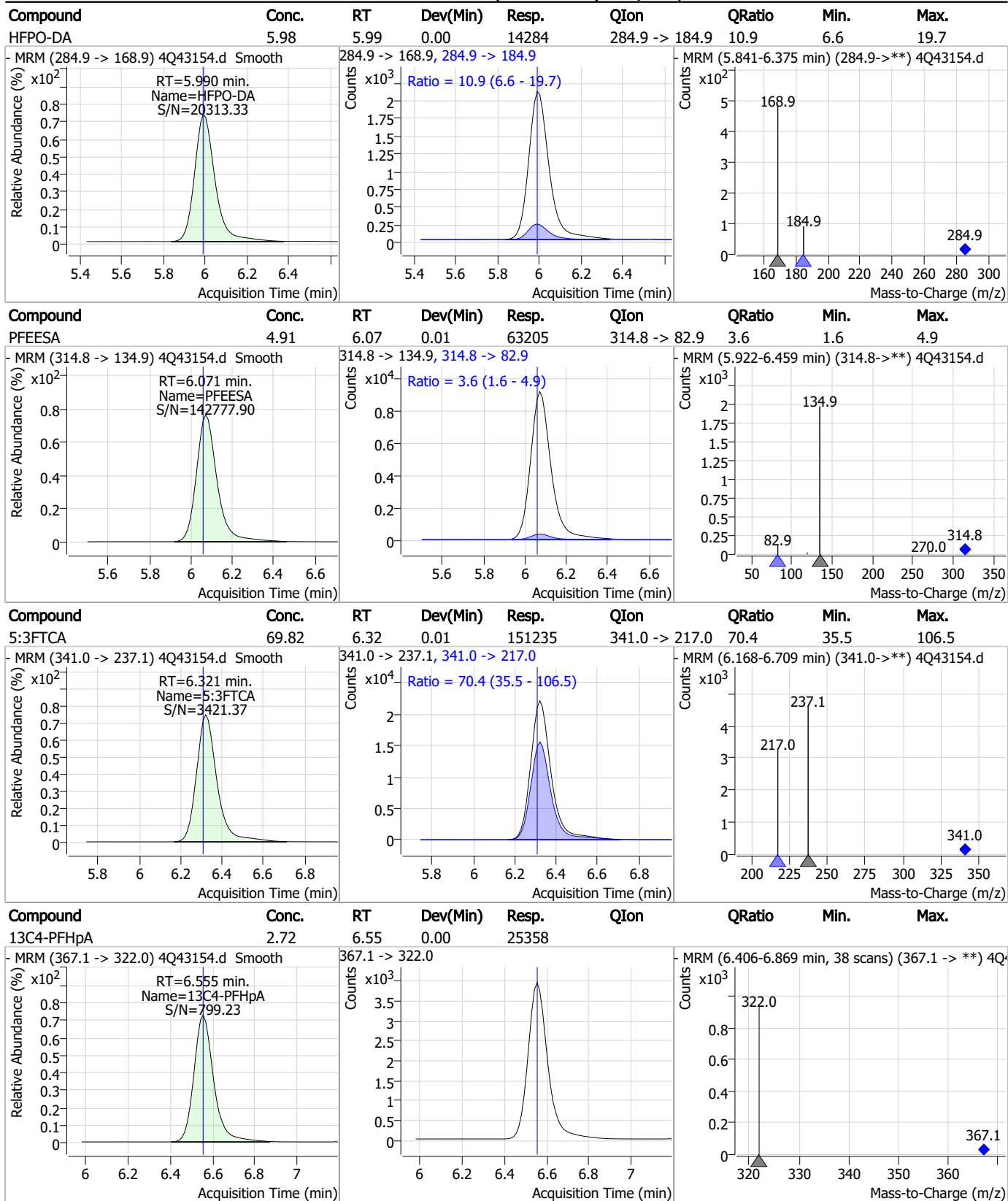
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Perfluorinated Compounds by LC/MS/MS

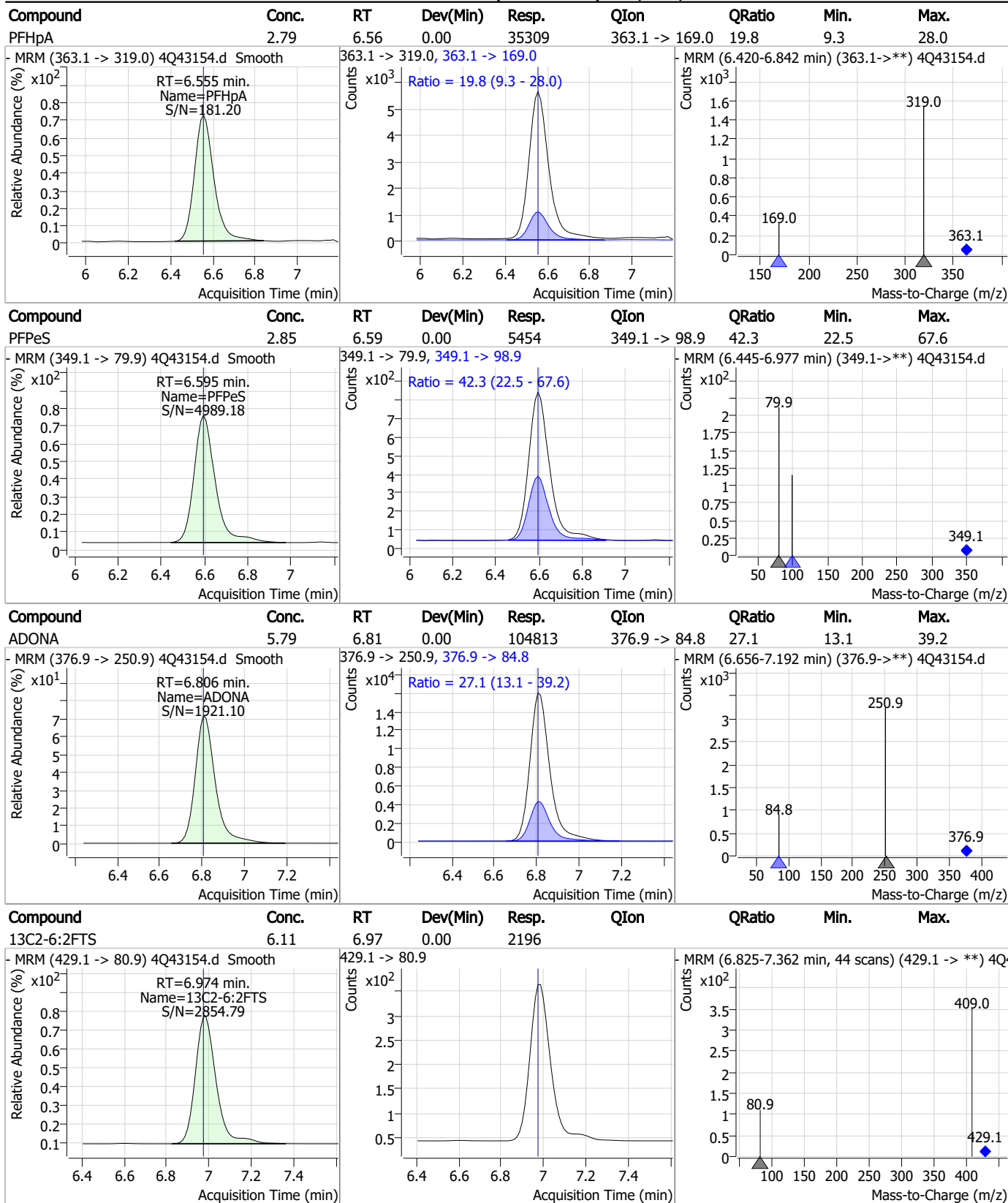


Perfluorinated Compounds by LC/MS/MS



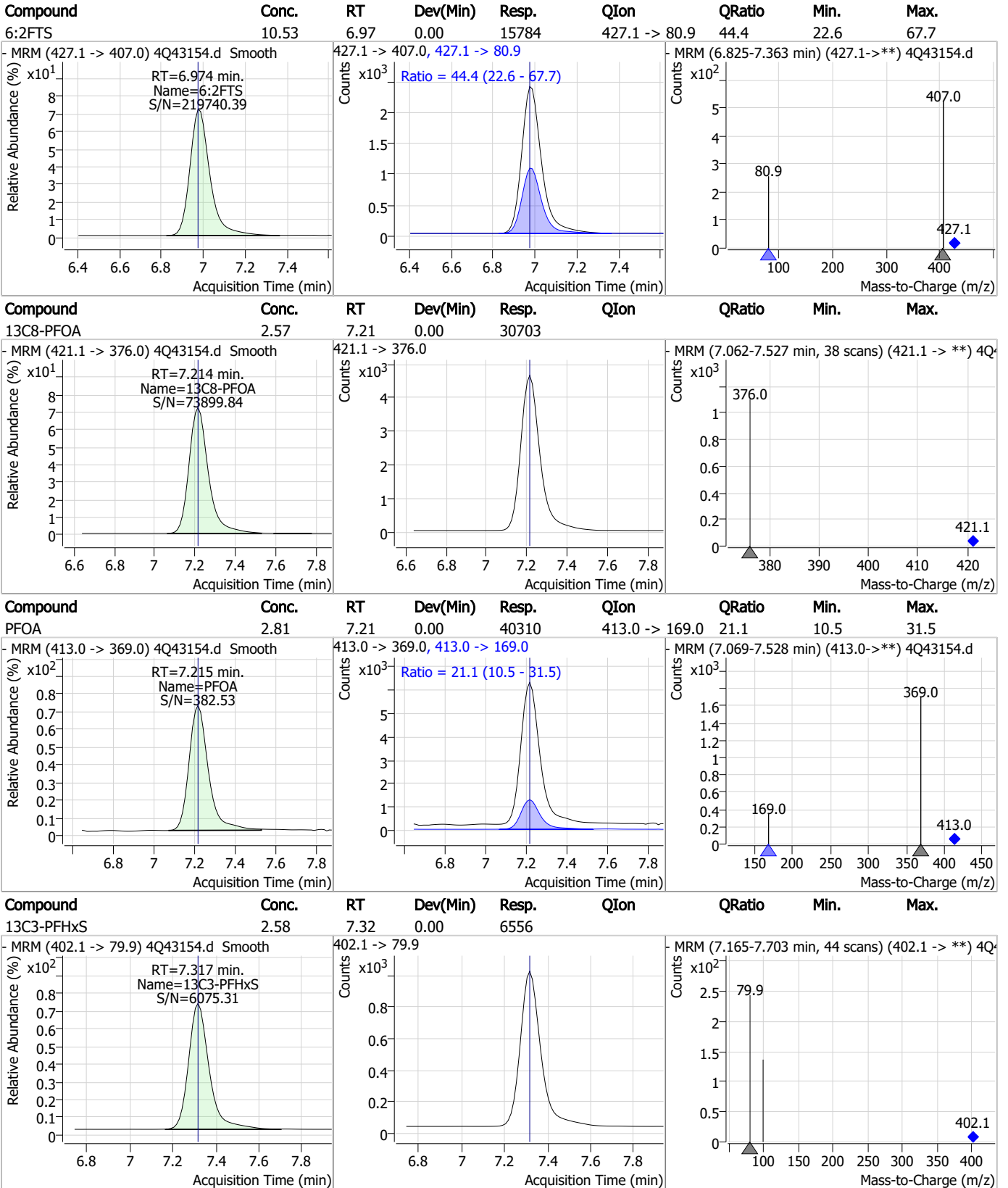
7.3.1
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Perfluorinated Compounds by LC/MS/MS



7.3.1
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Perfluorinated Compounds by LC/MS/MS

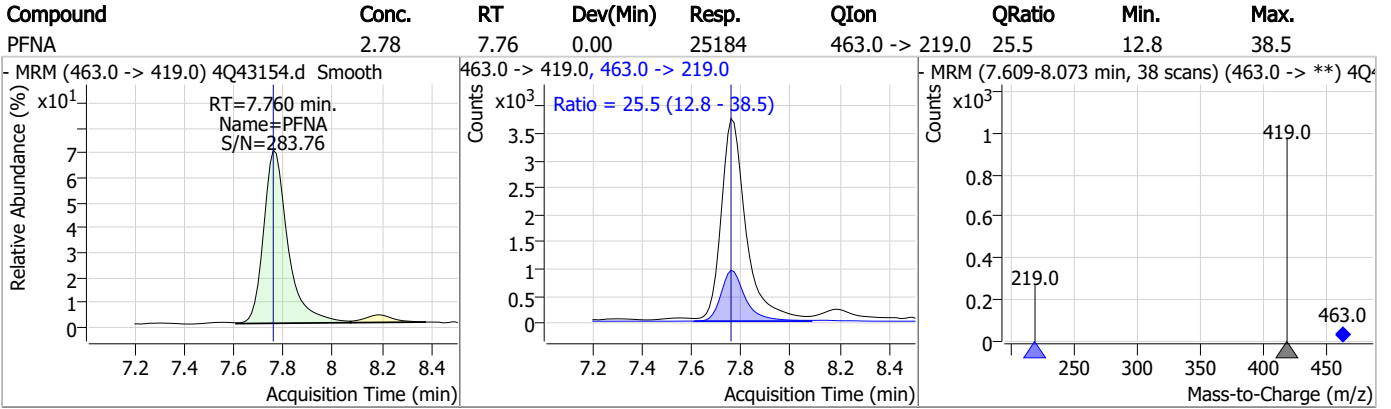
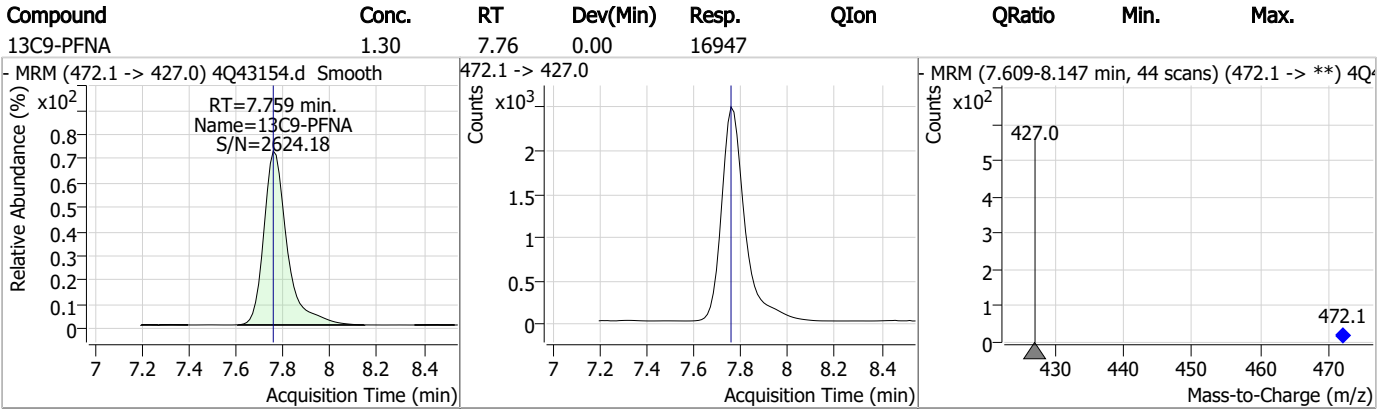
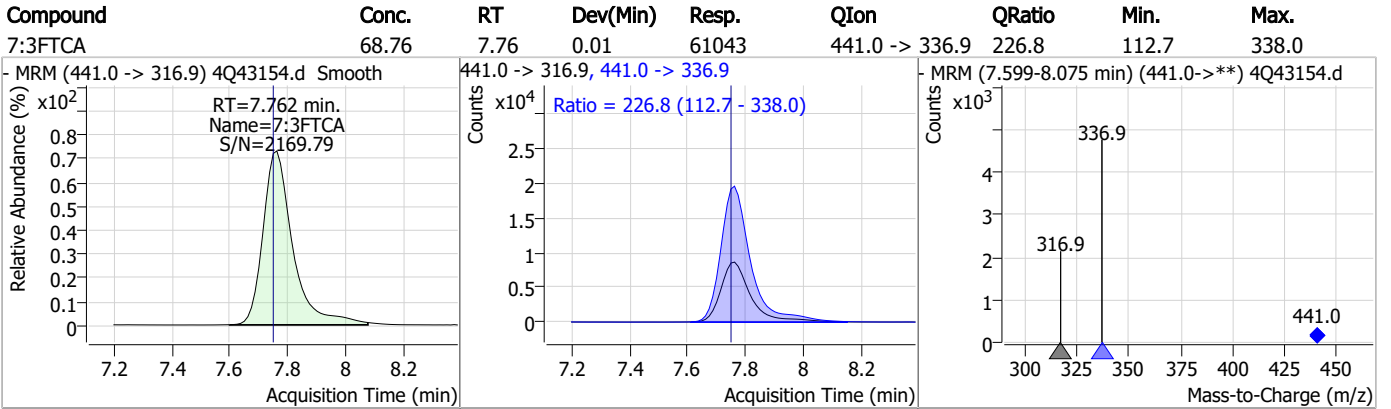
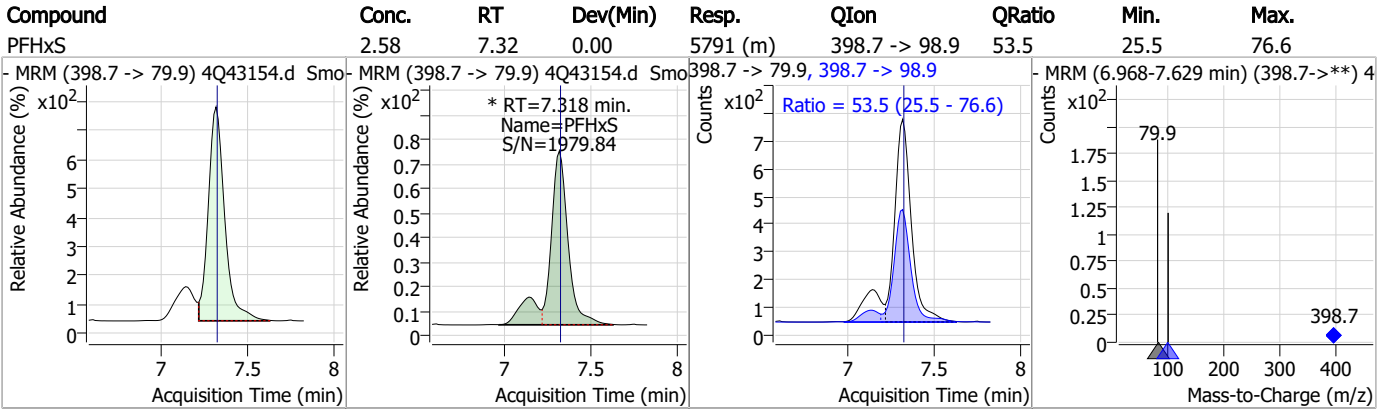


7.3.1

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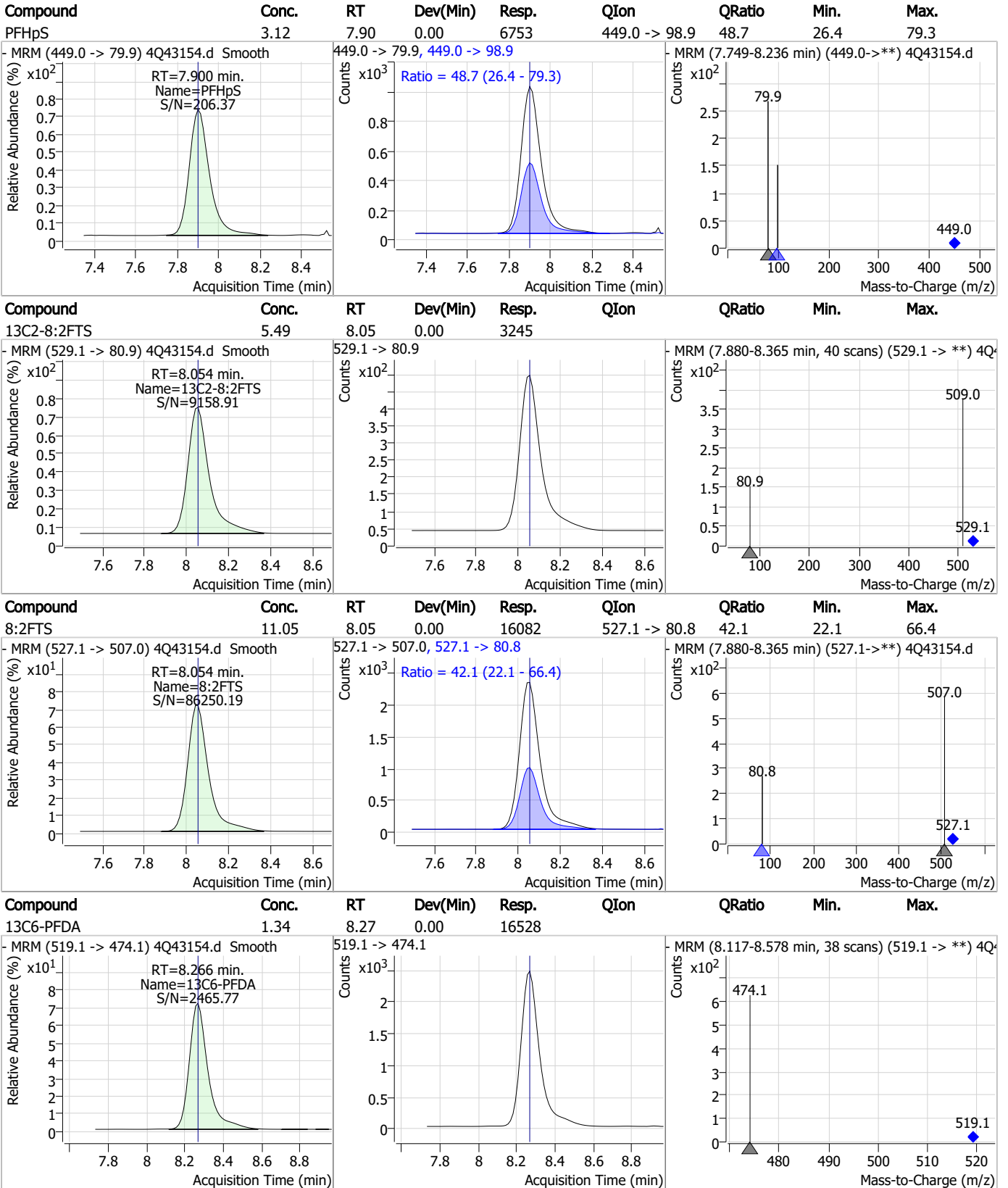
Perfluorinated Compounds by LC/MS/MS



7.3.1
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Perfluorinated Compounds by LC/MS/MS

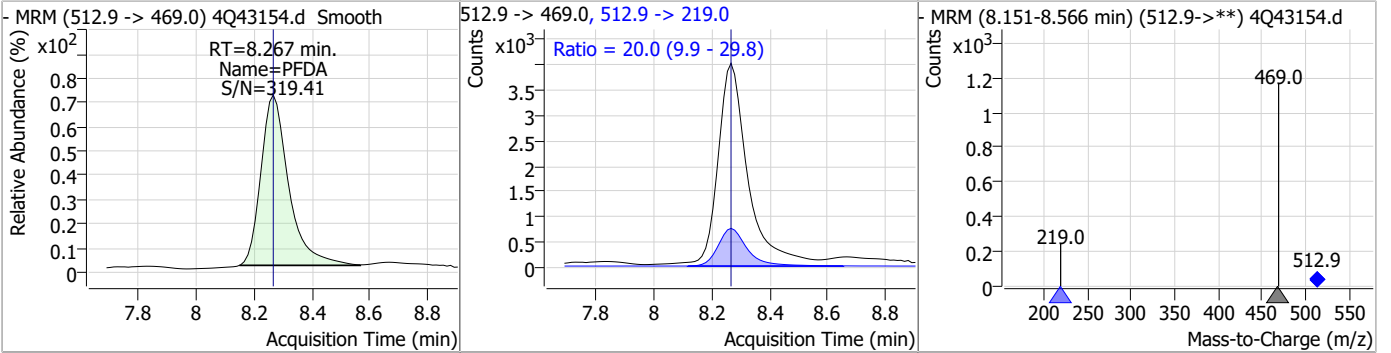


7.3.1

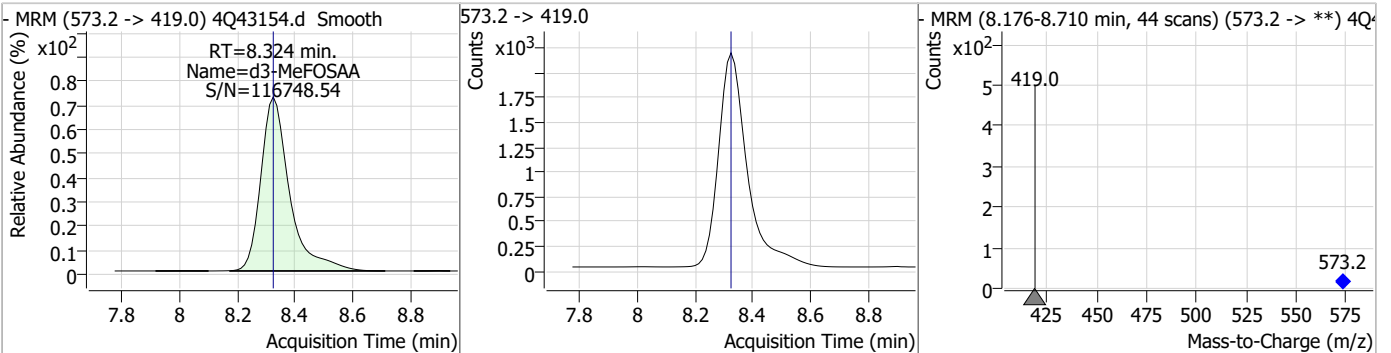
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Perfluorinated Compounds by LC/MS/MS

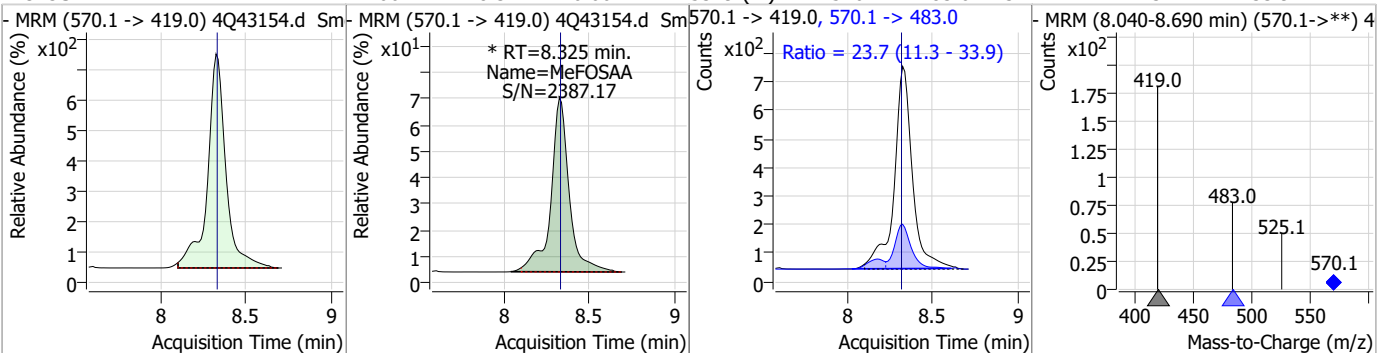
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.71	8.27	0.00	25627	512.9 -> 219.0	20.0	9.9	29.8



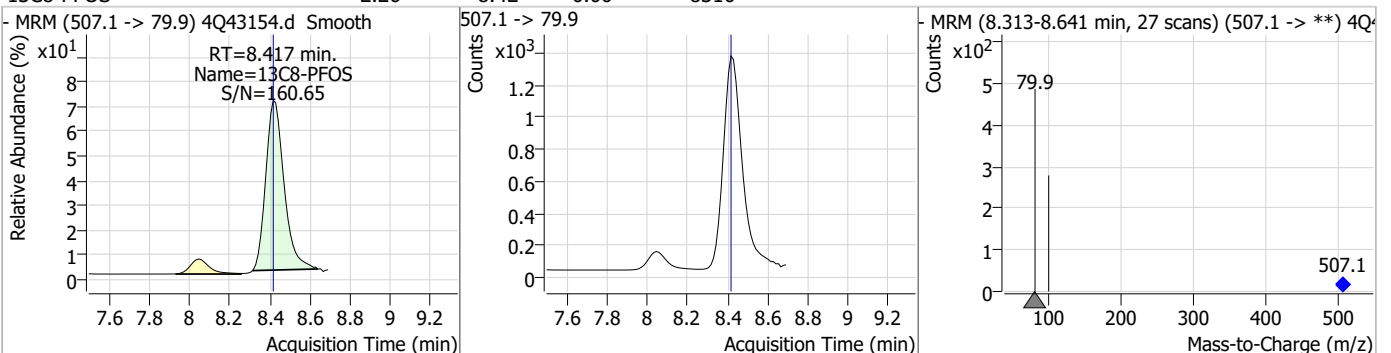
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.32	8.32	0.00	14854				



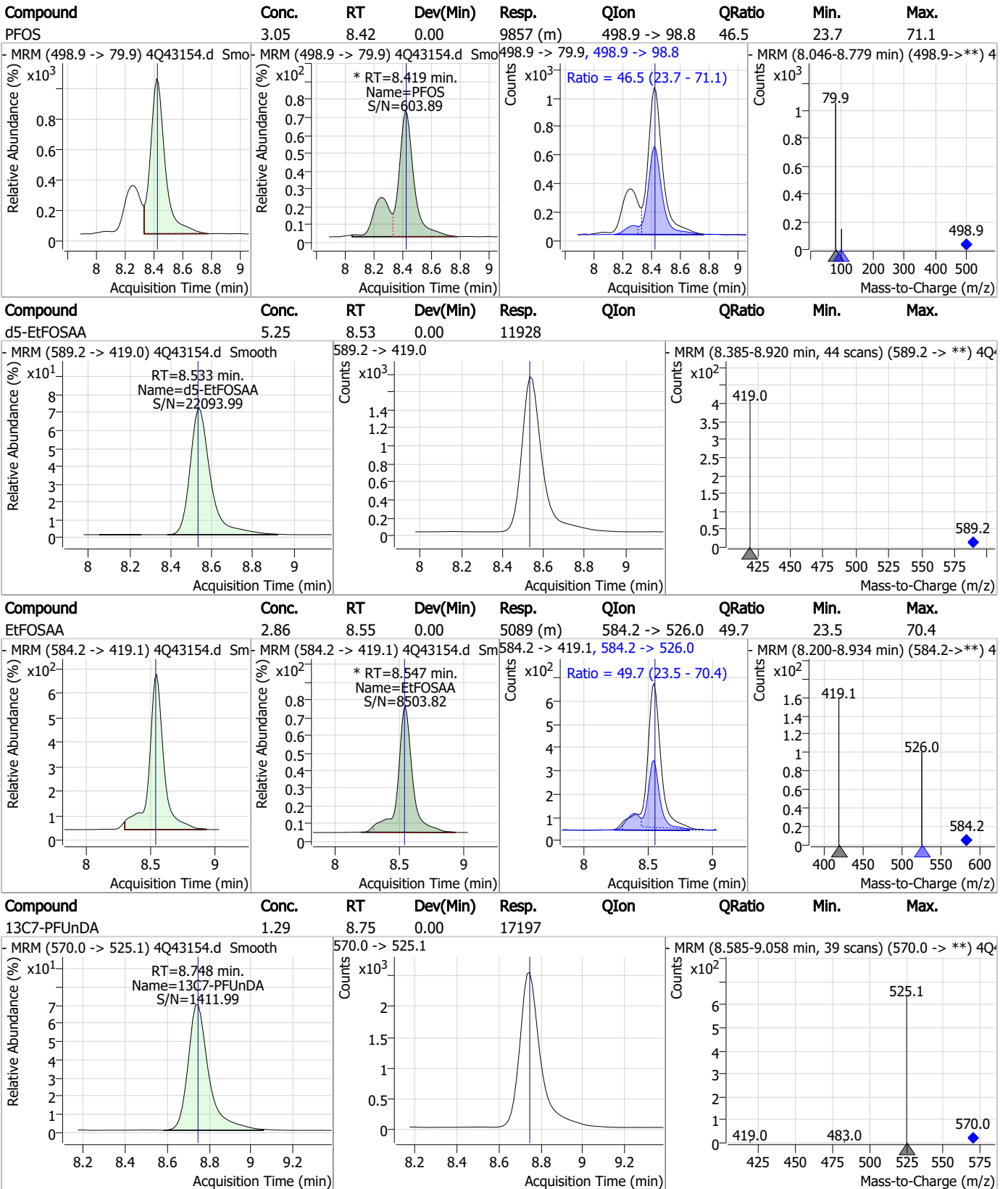
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.60	8.32	0.00	5319 (m)	570.1 -> 483.0	23.7	11.3	33.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.26	8.42	0.00	8310				



Perfluorinated Compounds by LC/MS/MS

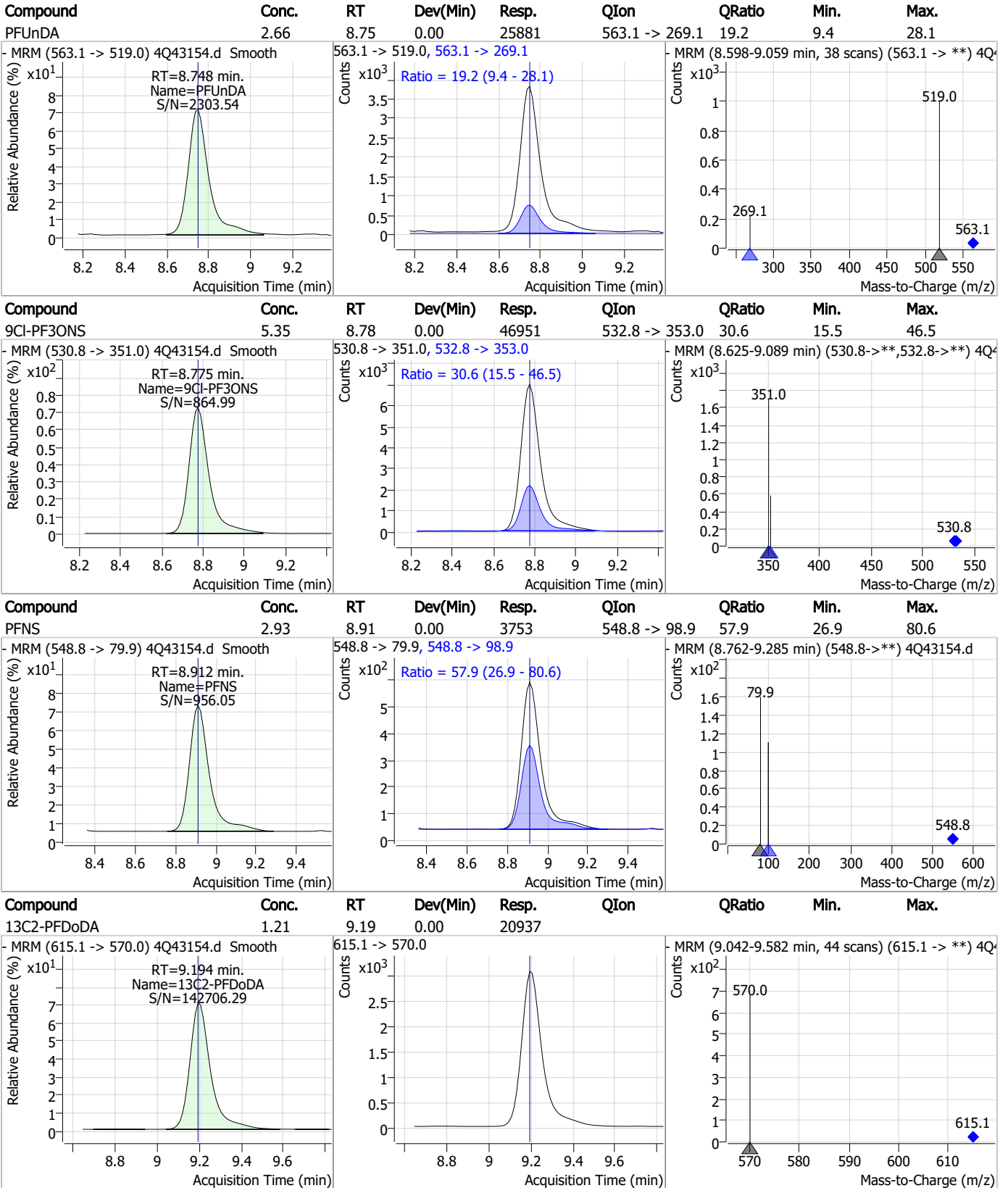


7.3.1

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Perfluorinated Compounds by LC/MS/MS

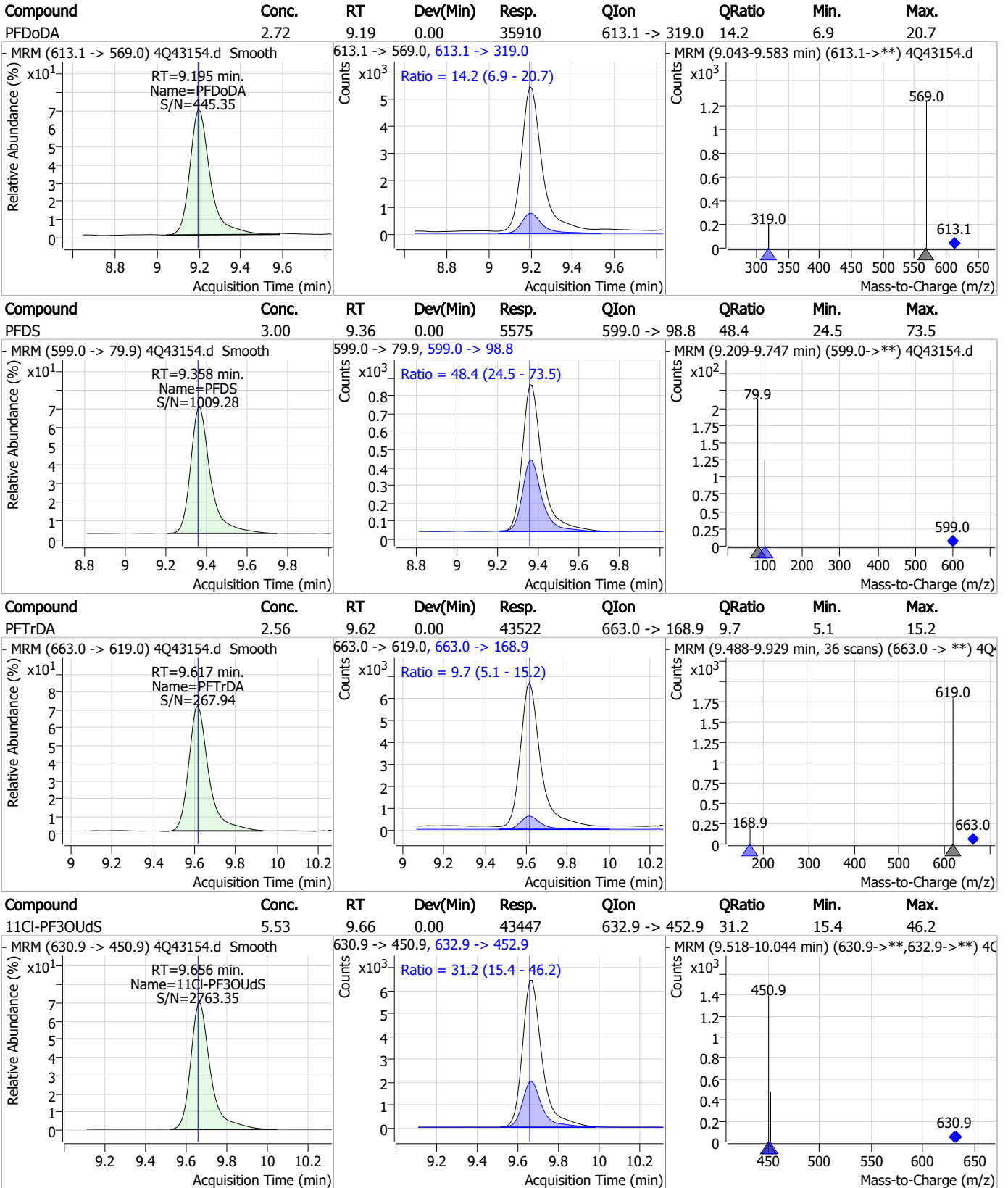


7.3.1

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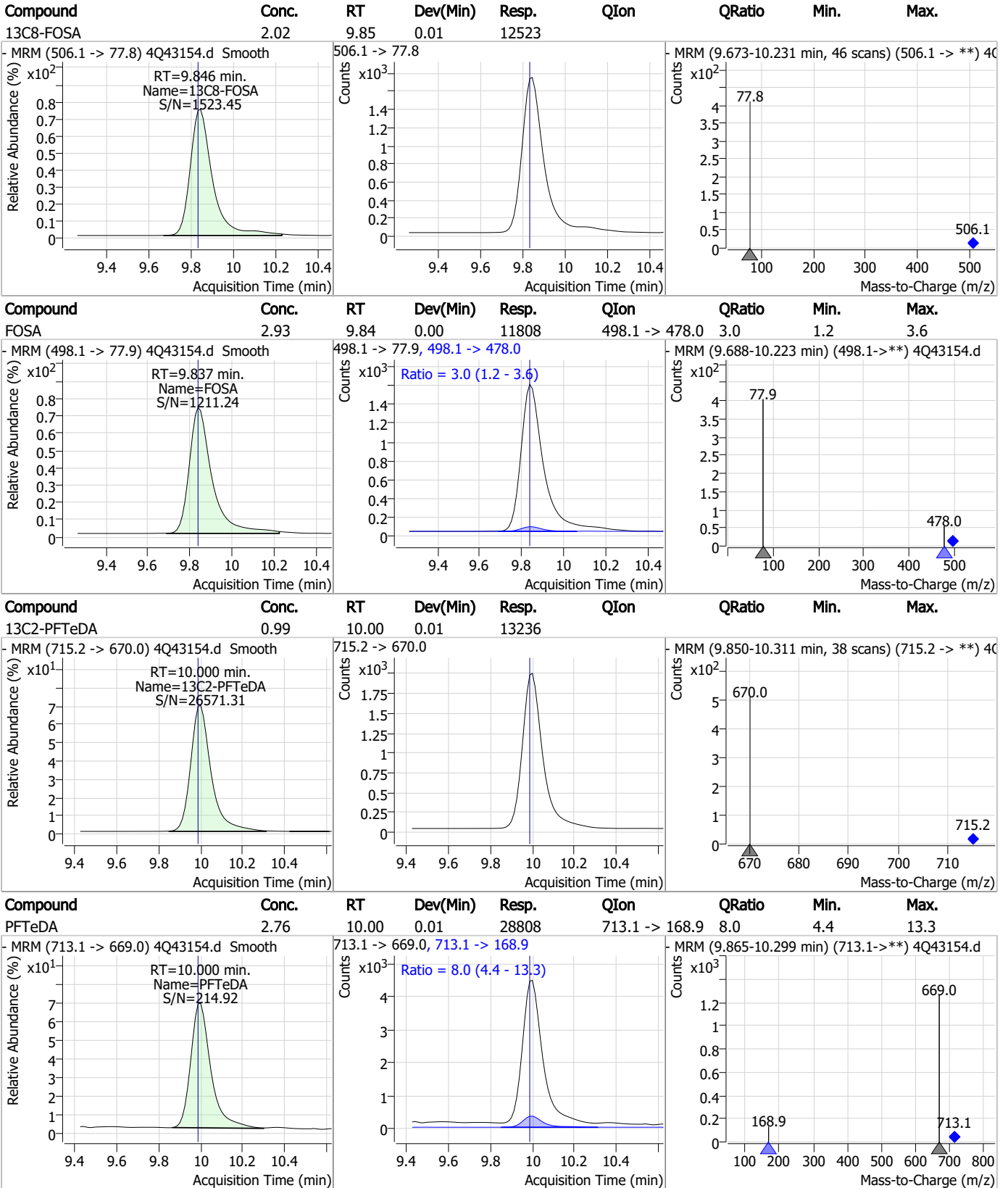
Perfluorinated Compounds by LC/MS/MS



7.3.1

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Perfluorinated Compounds by LC/MS/MS

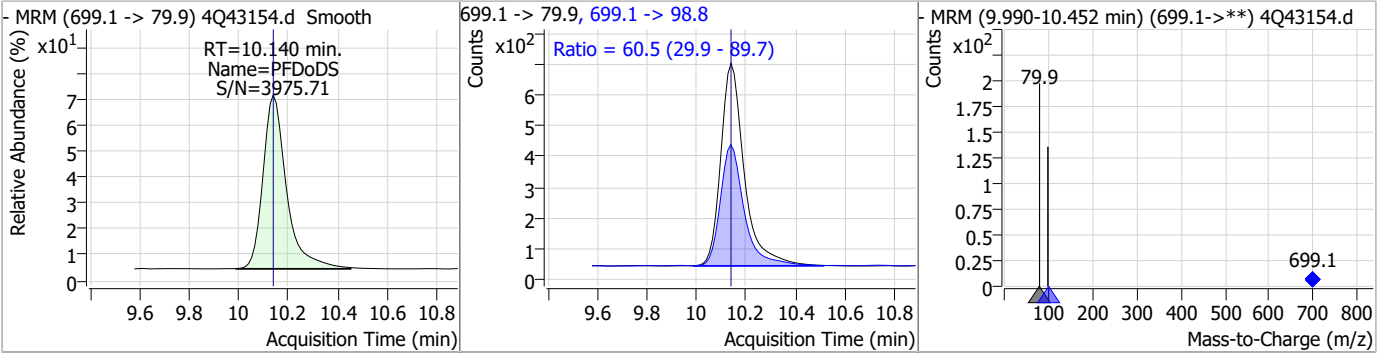


7.3.1

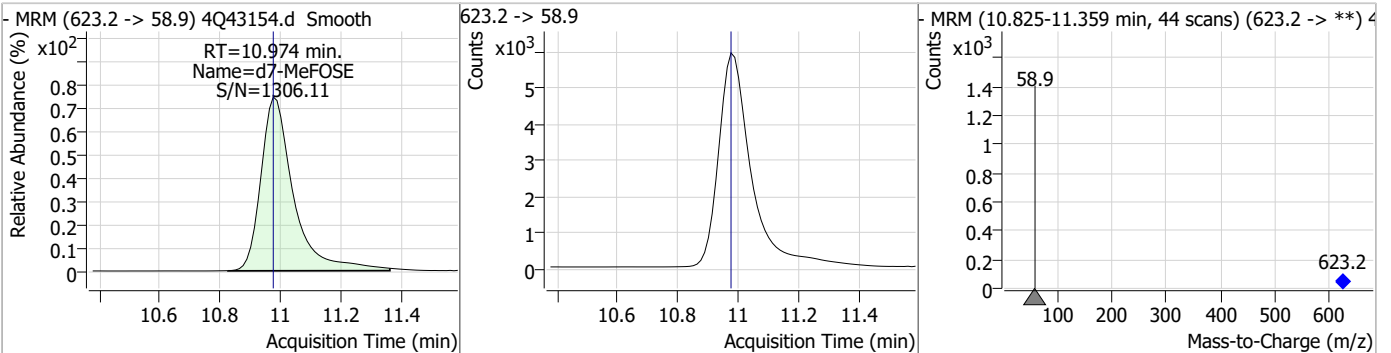
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Perfluorinated Compounds by LC/MS/MS

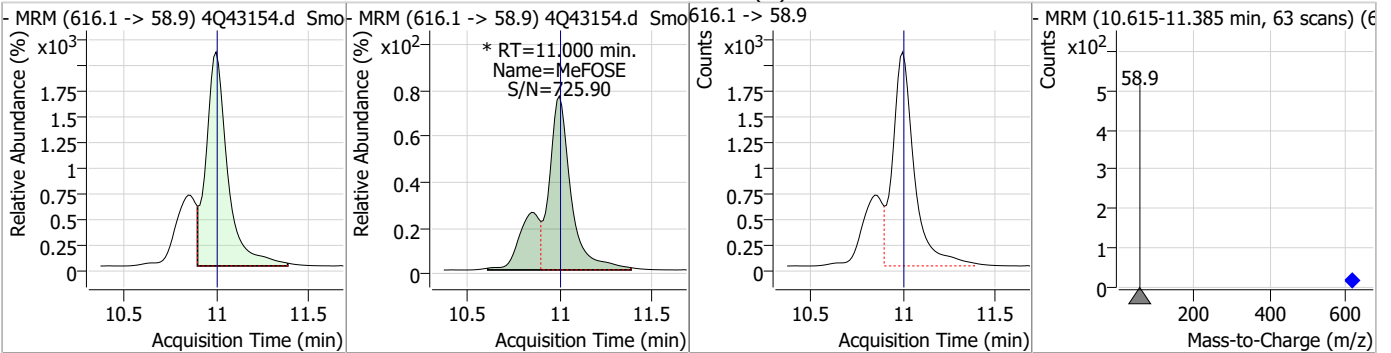
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.71	10.14	0.00	4348	699.1 -> 98.8	60.5	29.9	89.7



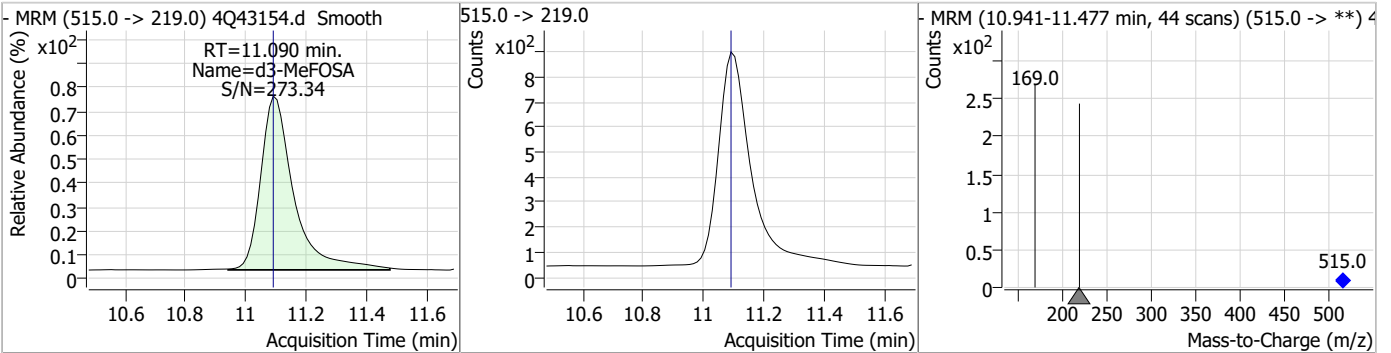
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	18.16	10.97	0.00	44430				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	14.09	11.00	0.00	22007 (m)				

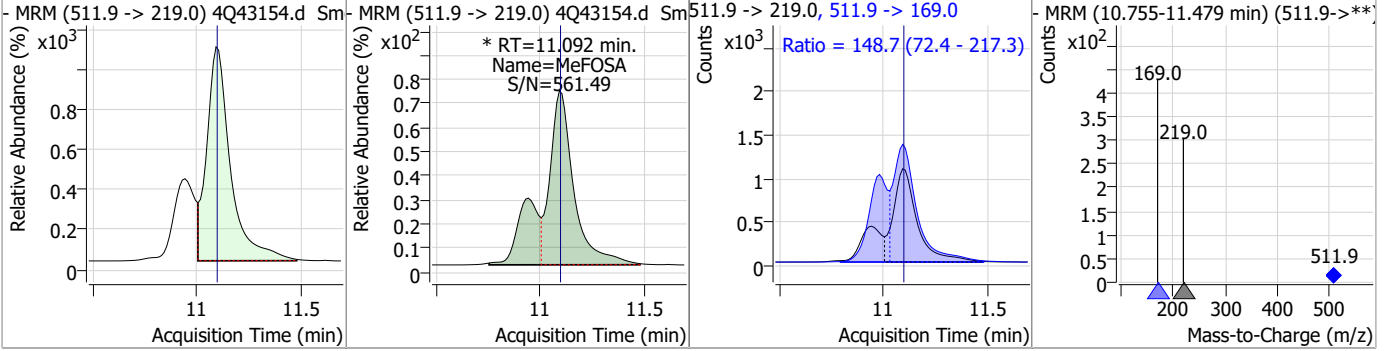


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.22	11.09	0.00	6516				

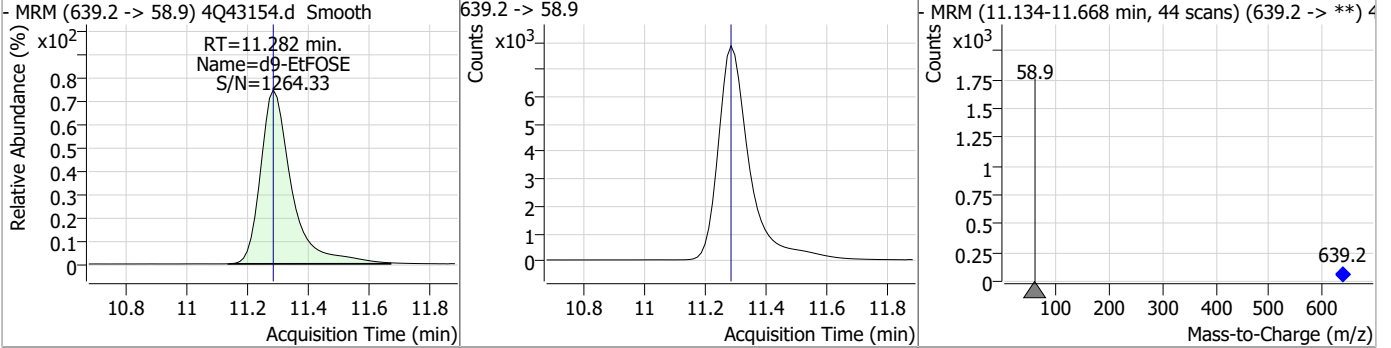


Perfluorinated Compounds by LC/MS/MS

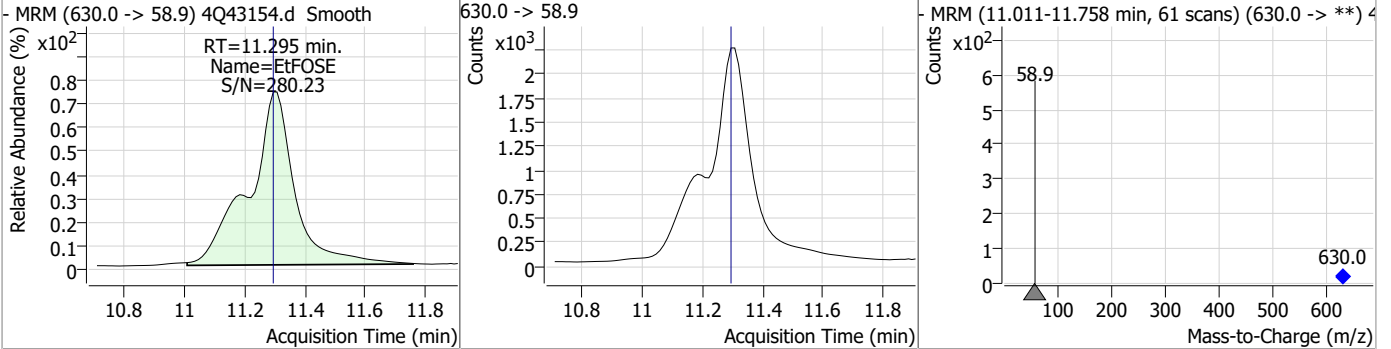
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.40	11.09	0.00	11378 (m)	511.9 -> 169.0	148.7	72.4	217.3



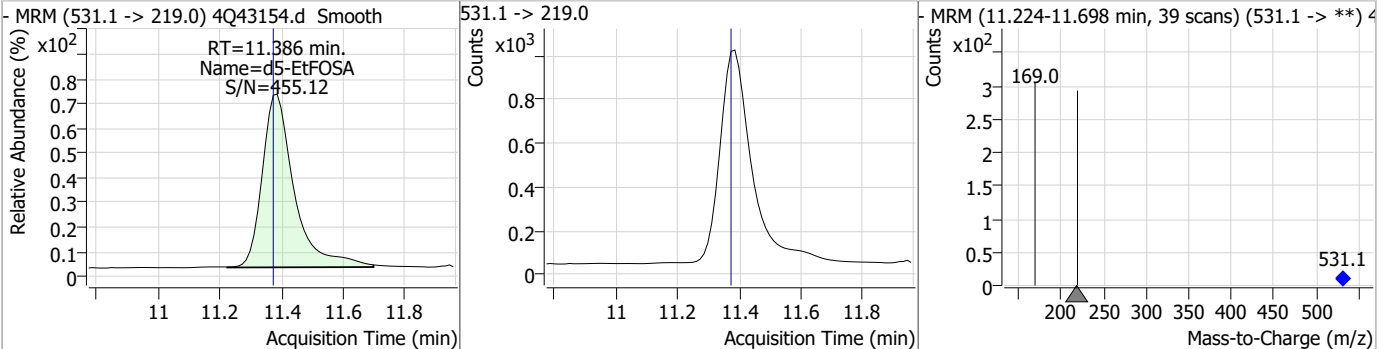
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	18.53	11.28	0.00	55492				



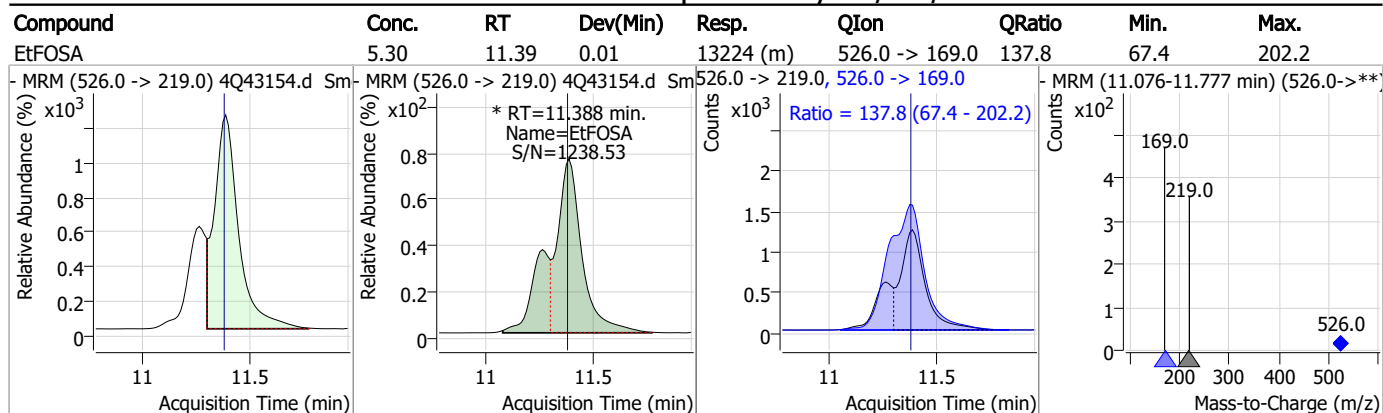
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	13.81	11.30	0.00	23619				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.21	11.39	0.01	7005				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: OP96403-BS Method: EPA DRAFT 1633
Lab FileID: 4Q43154.D Analyst approved: 04/19/23 13:20 Martha Valls
Injection Time: 04/18/23 12:36 Supervisor approved: 04/19/23 16:26 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
MeFOSAA	2355-31-9		8.32	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.42	Split peak
EtFOSAA	2991-50-6		8.55	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.39	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43155.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 12:54:37 PM
 Sample Name : op96403-llbs:3
 Vial : P4-C2
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96403,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.089	216.8 -> 171.9	123427	10.00 µg/L	0.128
M5-PFPeA	4.487	268.3 -> 223.0	65346	5.00 µg/L	0.037
M5-PFHxA	5.646	318.0 -> 273.0	51783	2.50 µg/L	0.024
M4-PFHpA	6.567	367.1 -> 322.0	25998	2.50 µg/L	0.012
M8-PFOA	7.226	421.1 -> 376.0	30752	2.50 µg/L	0.012
M9-PFNA	7.771	472.1 -> 427.0	17340	1.25 µg/L	0.012
M6-PFDA	8.265	519.1 -> 474.1	16293	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	16867	1.25 µg/L	-0.001
M2-PFDoDA	9.205	615.1 -> 570.0	19759	1.25 µg/L	0.011
M2-PFTeDA	9.998	715.2 -> 670.0	12217	1.25 µg/L	0.011
M8-FOSA	9.845	506.1 -> 77.8	12356	2.50 µg/L	0.011
M3-PFBS	5.564	302.1 -> 79.9	10980	2.50 µg/L	0.037
M3-PFHxS	7.329	402.1 -> 79.9	6873	2.50 µg/L	0.012
M8-PFOS	8.429	507.1 -> 79.9	9546	2.50 µg/L	0.012
M2-4:2FTS	5.335	329.1 -> 80.9	1501	5.00 µg/L	0.026
M2-6:2FTS	6.985	429.1 -> 80.9	2200	5.00 µg/L	0.012
M2-8:2FTS	8.052	529.1 -> 80.9	3056	5.00 µg/L	-0.001
M3-MeFOSAA	8.335	573.2 -> 419.0	13988	5.00 µg/L	0.011
M3-HFPO-DA	6.001	286.9 -> 168.9	30831	10.00 µg/L	0.012
M5-EtFOSAA	8.545	589.2 -> 419.0	11653	5.00 µg/L	0.011
M7-MeFOSE	10.972	623.2 -> 58.9	43761	25.00 µg/L	-0.002
M9-EtFOSE	11.281	639.2 -> 58.9	52707	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	7020	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	6517	2.50 µg/L	-0.002
13C4-PFOS	8.430	502.8 -> 79.9	8468	2.50 µg/L	0.012
13C3-PFBA	3.080	216.0 -> 172.0	57388	5.00 µg/L	0.115
18O2-PFHxS	7.328	403.0 -> 83.9	4273	2.50 µg/L	0.012
13C4-PFOA	7.226	417.1 -> 372.0	33259	2.50 µg/L	0.012
13C2-PFDA	8.265	515.1 -> 470.1	13310	1.25 µg/L	-0.001
13C5-PFNA	7.771	468.0 -> 423.0	16782	1.25 µg/L	0.012
13C2-PFHxA	5.647	315.1 -> 270.0	36717	2.50 µg/L	0.024
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1501	6.43 µg/L	0.026
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.7%		
13C2-6:2FTS	6.985	429.1 -> 80.9	2200	6.57 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 131.4%		
13C2-8:2FTS	8.052	529.1 -> 80.9	3056	5.54 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.9%		
13C2-PFDoDA	9.205	615.1 -> 570.0	19759	1.21 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C2-PFTeDA	9.998	715.2 -> 670.0	12217	0.96 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 76.6%		
13C3-PFBS	5.564	302.1 -> 79.9	10980	2.80 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C3-PFHxS	7.329	402.1 -> 79.9	6873	2.91 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 = 116.3%	
13C4-PFBA	3.089	216.8 -> 171.9	123427	12.35 µg/L	0.128
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 123.5%	
13C4-PFHpA	6.567	367.1 -> 322.0	25998	3.12 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 124.7%	
13C5-PFHxA	5.646	318.0 -> 273.0	51783	3.05 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 122.1%	
13C5-PFPeA	4.487	268.3 -> 223.0	65346	6.04 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 120.8%	
13C6-PFDA	8.265	519.1 -> 474.1	16293	1.39 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.4%	
13C7-PFUnDA	8.747	570.0 -> 525.1	16867	1.33 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C8-FOSA	9.845	506.1 -> 77.8	12356	2.23 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.2%	
13C8-PFOA	7.226	421.1 -> 376.0	30752	2.81 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.3%	
13C8-PFOS	8.429	507.1 -> 79.9	9546	2.91 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.3%	
13C9-PFNA	7.771	472.1 -> 427.0	17340	1.42 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.5%	
d3-MeFOSAA	8.335	573.2 -> 419.0	13988	5.61 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C3-HFPO-DA	6.001	286.9 -> 168.9	30831	11.96 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 119.6%	
d3-MeFOSA	11.089	515.0 -> 219.0	6517	2.49 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
d5-EtFOSAA	8.545	589.2 -> 419.0	11653	5.75 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.0%	
d7-MeFOSE	10.972	623.2 -> 58.9	43761	20.04 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.1%	
d9-EtFOSE	11.281	639.2 -> 58.9	52707	19.72 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.9%	
d5-EtFOSA	11.373	531.1 -> 219.0	7020	2.48 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	6057	3.24 µg/L	98
		327.1 -> 80.9	2473		
6:2FTS	6.986	427.1 -> 407.0	4414	2.94 µg/L	96
		427.1 -> 80.9	1869		
8:2FTS	8.053	527.1 -> 507.0	4841	3.53 µg/L	95
		527.1 -> 80.8	1986		
EtFOSAA	8.545	584.2 -> 419.1	1478	0.85 µg/L	m 87
		584.2 -> 526.0	825		
FOSA	9.848	498.1 -> 77.9	3136	0.79 µg/L	99
		498.1 -> 478.0	91		
MeFOSAA	8.336	570.1 -> 419.0	1329	0.69 µg/L	m 88
		570.1 -> 483.0	375		
PFBA	3.083	212.8 -> 168.9	9062	3.21 µg/L	100
PFBS	5.565	298.7 -> 79.9	3103	0.76 µg/L	98
		298.7 -> 98.8	1218		
PFDA	8.278	512.9 -> 469.0	7474	0.80 µg/L	99
		512.9 -> 219.0	1447		
PFDODA	9.206	613.1 -> 569.0	9274	0.74 µg/L	99
		613.1 -> 319.0	1302		
PFDS	9.369	599.0 -> 79.9	1419	0.66 µg/L	95

7.3.2
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.568	599.0 -> 98.8	744	1.15	µg/L	98
		363.1 -> 319.0	14957			
PFHpS	7.910	363.1 -> 169.0	2645	0.89	µg/L	94
		449.0 -> 79.9	2218			
PFHxA	5.649	449.0 -> 98.9	1073	1.37	µg/L	99
		313.0 -> 269.0	21028			
PFHxS	7.330	313.0 -> 118.9	613	1.54	µg/L	91
		398.7 -> 79.9	3624			
PFNA	7.771	398.7 -> 98.9	1629	0.78	µg/L	95
		463.0 -> 419.0	7226			
PFNS	8.911	463.0 -> 219.0	2043	0.81	µg/L	86
		548.8 -> 79.9	1187			
PFOA	7.215	548.8 -> 98.9	518	1.45	µg/L	95
		413.0 -> 369.0	20784			
PFOS	8.431	413.0 -> 169.0	4851	0.99	µg/L	97
		498.9 -> 79.9	3682			
PFPeA	4.489	498.9 -> 98.8	1680	1.84	µg/L	100
		263.0 -> 219.0	22699			
PFPeS	6.606	349.1 -> 79.9	1832	0.91	µg/L	99
		349.1 -> 98.9	841			
PFTeDA	9.999	713.1 -> 669.0	7588	0.79	µg/L	98
		713.1 -> 168.9	740			
PFTrDA	9.616	663.0 -> 619.0	11095	0.69	µg/L	100
		663.0 -> 168.9	1104			
PFUnDA	8.747	563.1 -> 519.0	8201	0.86	µg/L	97
		563.1 -> 269.1	1421			
11CI-PF3OUdS	9.668	630.9 -> 450.9	11471	1.43	µg/L	97
		632.9 -> 452.9	3352			
9CI-PF3ONS	8.775	530.8 -> 351.0	13151	1.46	µg/L	95
		532.8 -> 353.0	4458			
ADONA	6.818	376.9 -> 250.9	28874	1.56	µg/L	100
		376.9 -> 84.8	7548			
HFPO-DA	6.015	284.9 -> 168.9	3883	1.59	µg/L	99
		284.9 -> 184.9	517			
3:3FTCA	4.042	241.0 -> 177.0	2083	3.61	µg/L	97
		241.0 -> 117.0	207			
5:3FTCA	6.343	341.0 -> 237.1	43243	19.97	µg/L	98
		341.0 -> 217.0	31370			
7:3FTCA	7.773	441.0 -> 316.9	17100	19.27	µg/L	98
		441.0 -> 336.9	37990			
EtFOSA	11.375	526.0 -> 219.0	3750	1.50	µg/L	94
		526.0 -> 169.0	4795			
EtFOSE	11.295	630.0 -> 58.9	6833	4.21	µg/L	100
		511.9 -> 219.0	3180			
MeFOSA	11.090	511.9 -> 169.0	4654	1.51	µg/L	99
		616.1 -> 58.9	5847			
MeFOSE	10.997	699.1 -> 79.9	1196	3.80	µg/L	100
		699.1 -> 98.8	657			
PFDoDS	10.139	295.0 -> 201.0	1725	0.65	µg/L	94
		295.0 -> 84.9	374			
NFDHA	5.541	279.0 -> 85.1	11485	1.67	µg/L	92
		229.0 -> 84.9	10169			
PFMBA	4.891	314.8 -> 134.9	17964	1.64	µg/L	100
		314.8 -> 82.9	615			
PFMPA	3.653			1.40	µg/L	100
PFEESA	6.083					

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

7.3.2
7

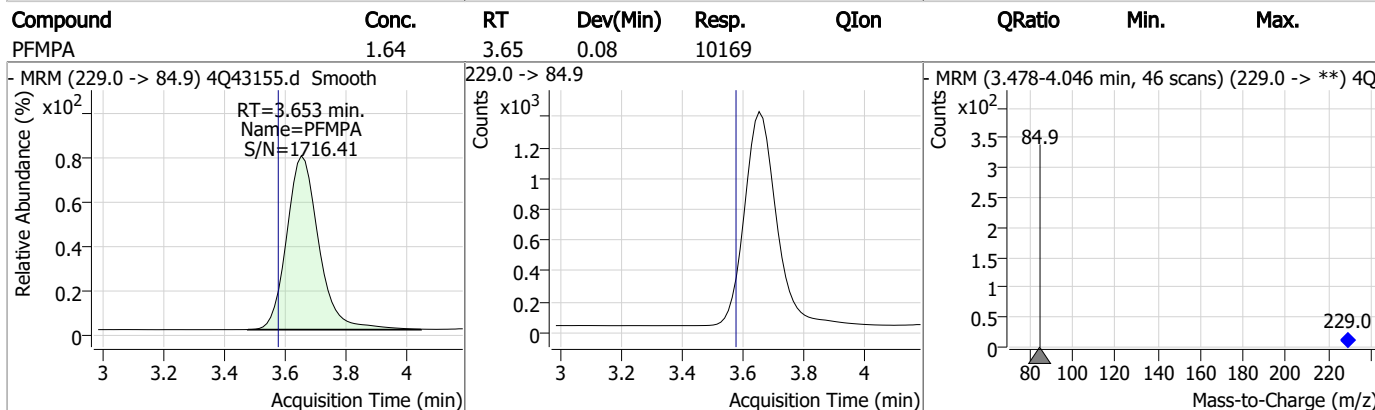
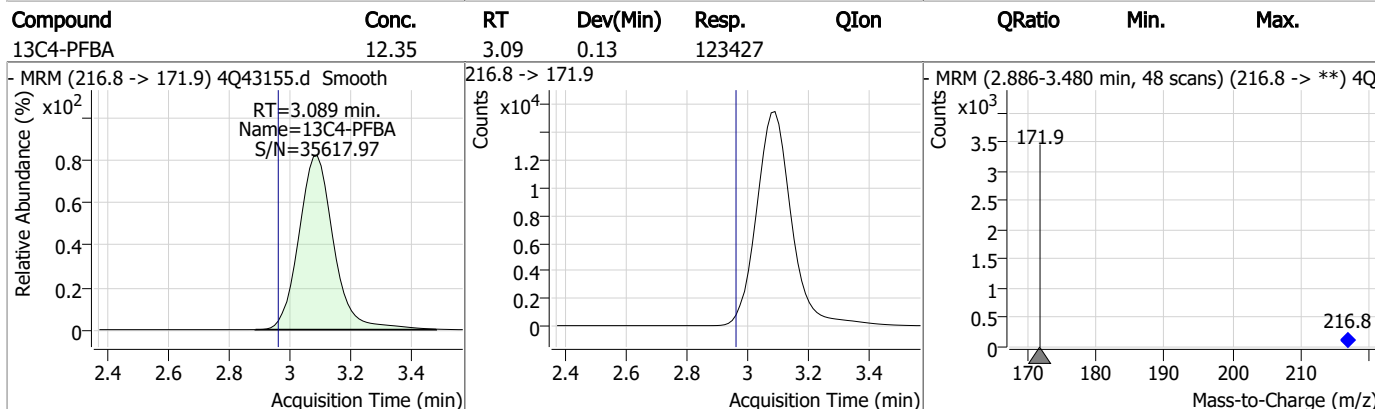
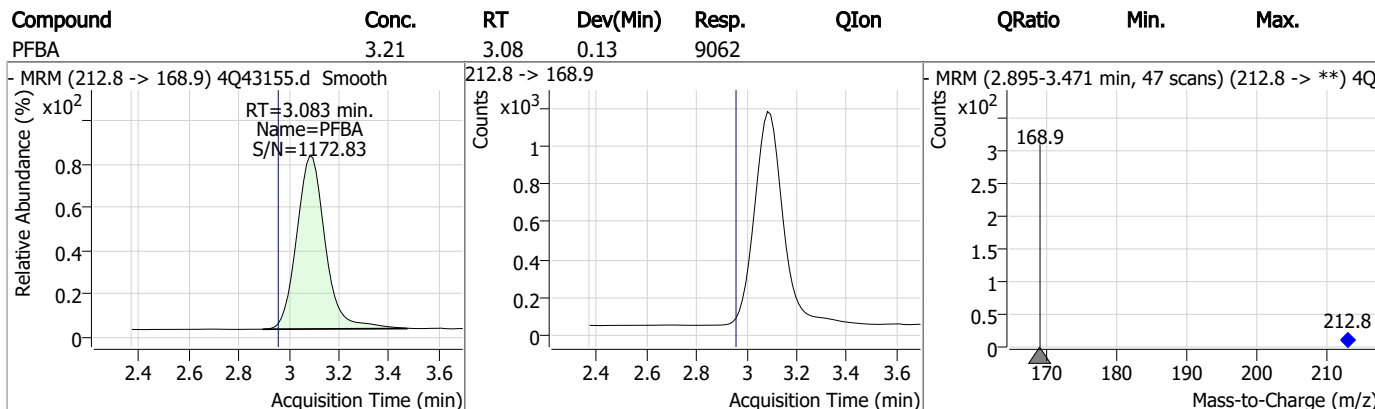
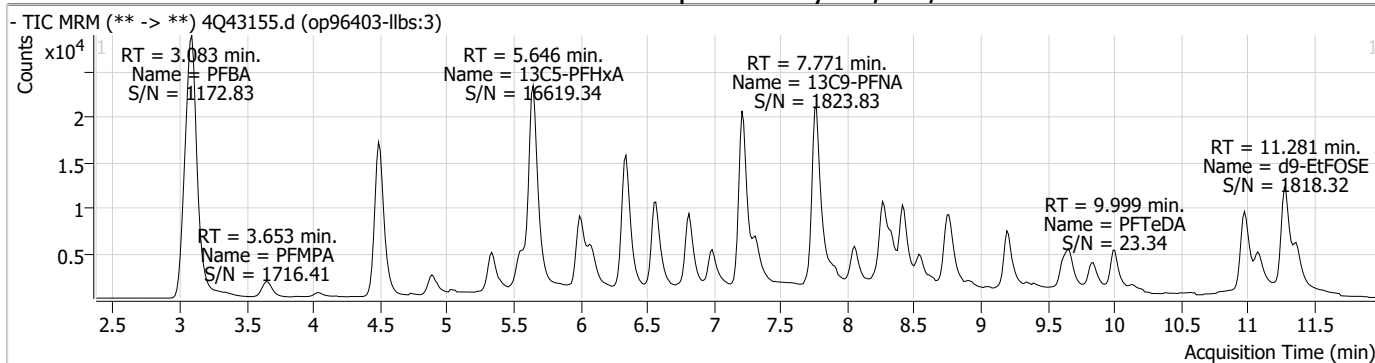
Perfluorinated Compounds by LC/MS/MS

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

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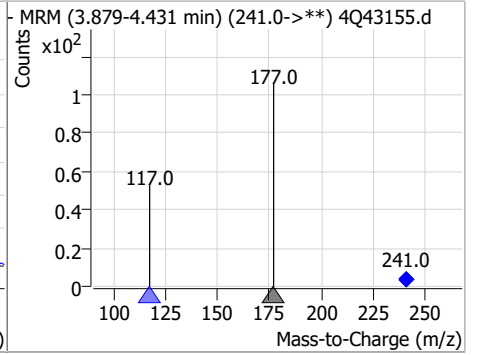
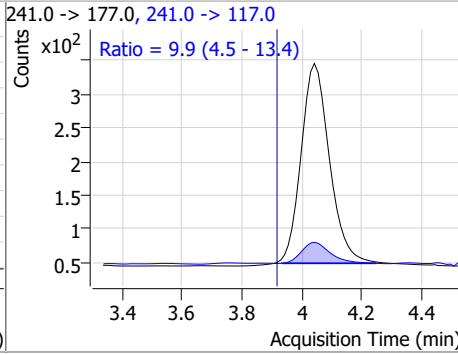
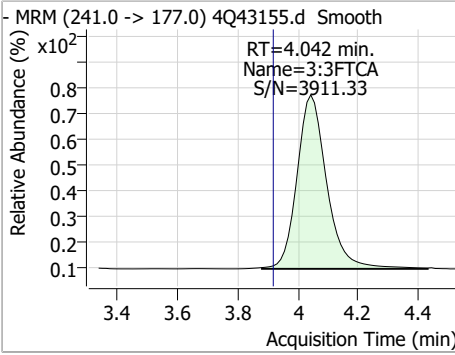
Perfluorinated Compounds by LC/MS/MS



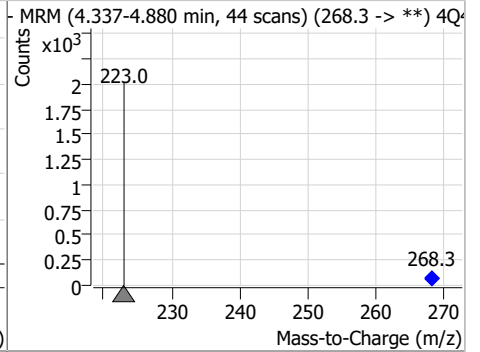
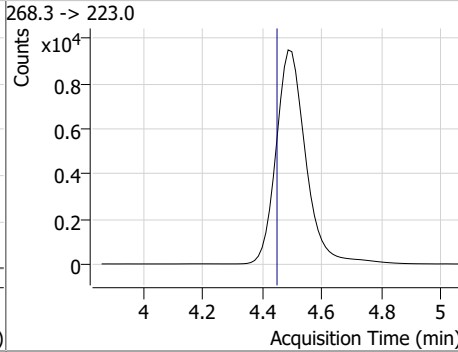
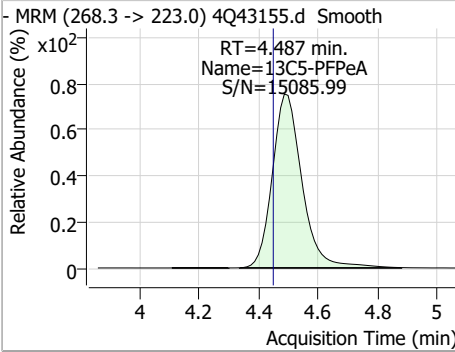
7.3.2
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Perfluorinated Compounds by LC/MS/MS

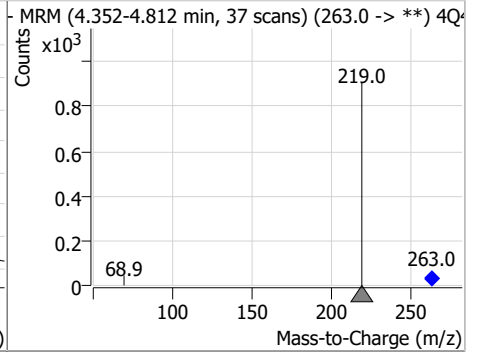
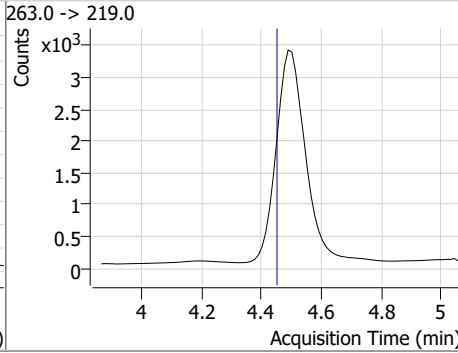
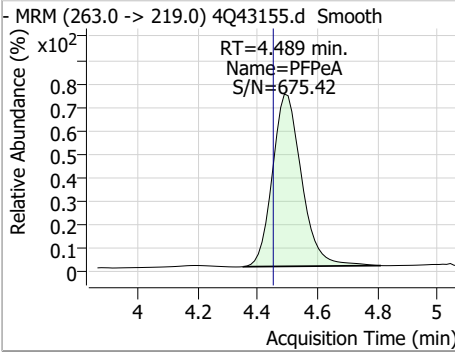
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	3.61	4.04	0.12	2083	241.0 -> 117.0	9.9	4.5	13.4



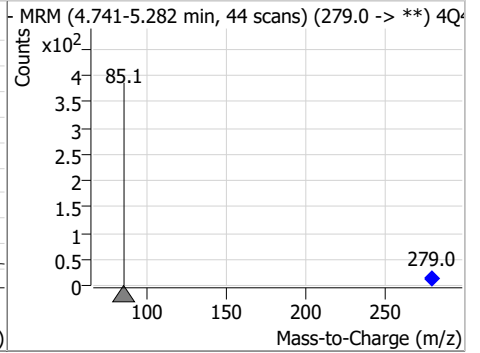
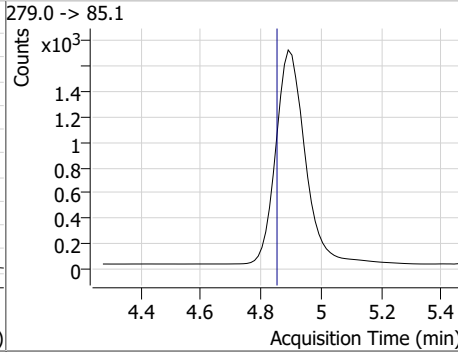
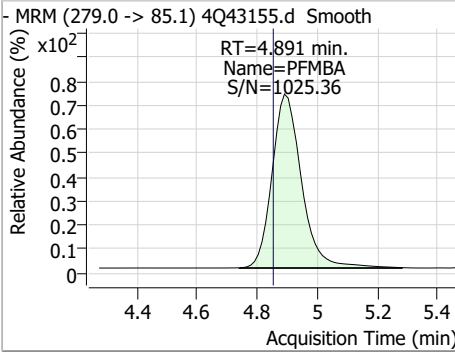
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	6.04	4.49	0.04	65346				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.84	4.49	0.04	22699				

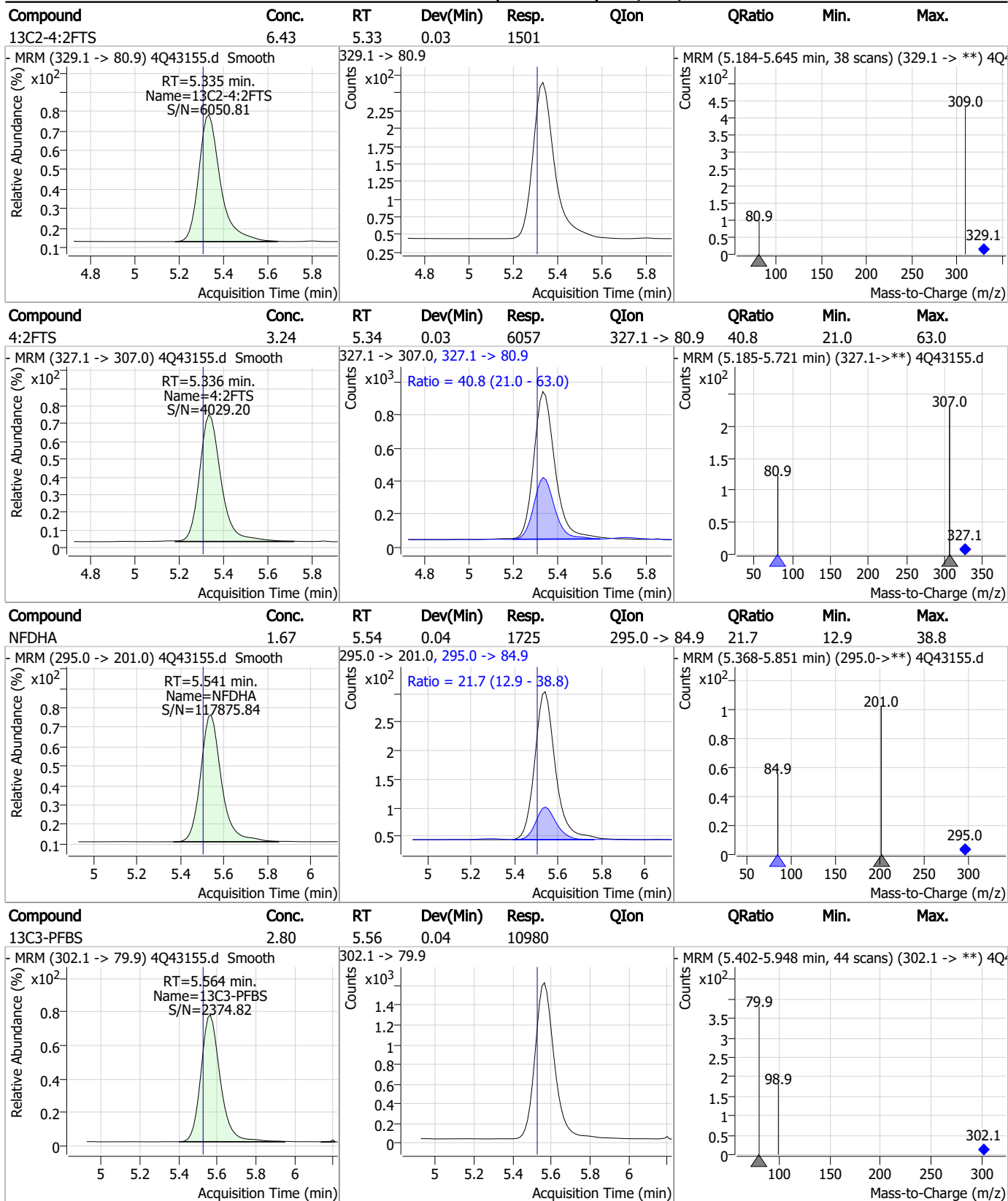


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	1.62	4.89	0.04	11485				



7.3.2
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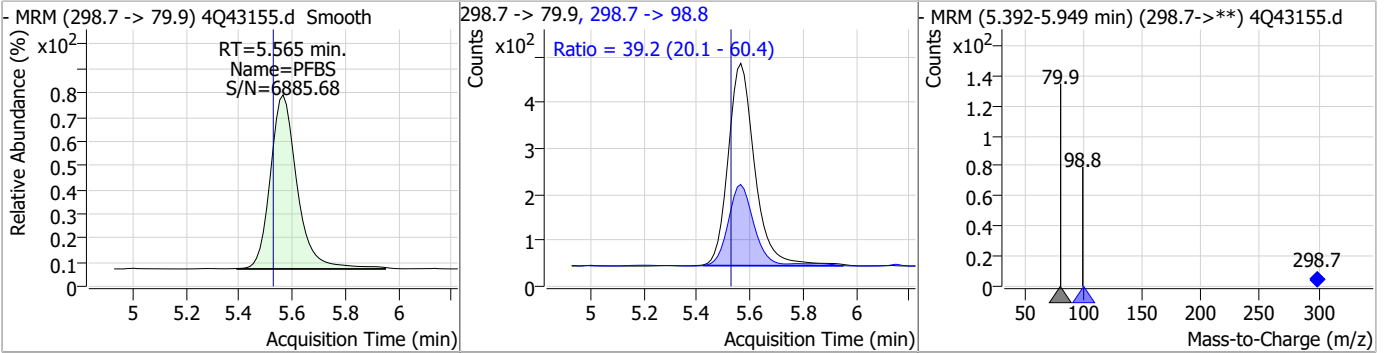
Perfluorinated Compounds by LC/MS/MS



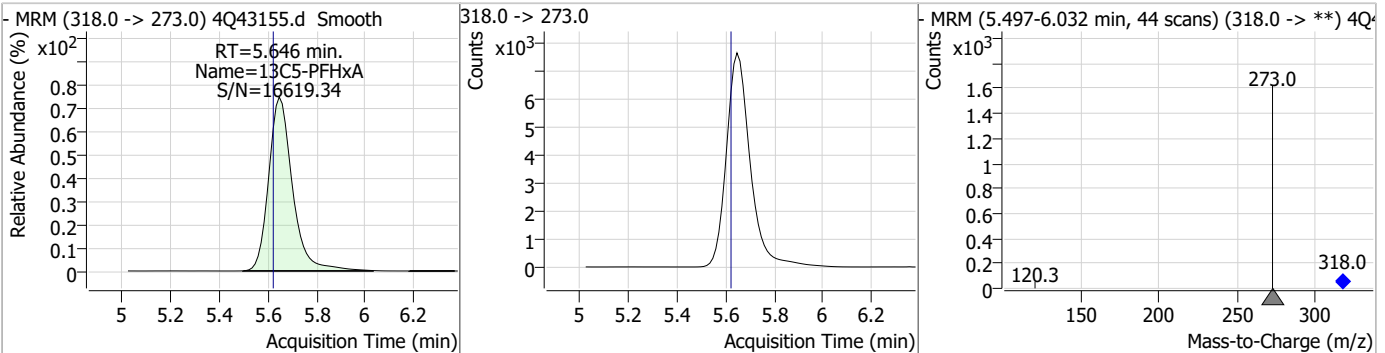
7.3.2
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Perfluorinated Compounds by LC/MS/MS

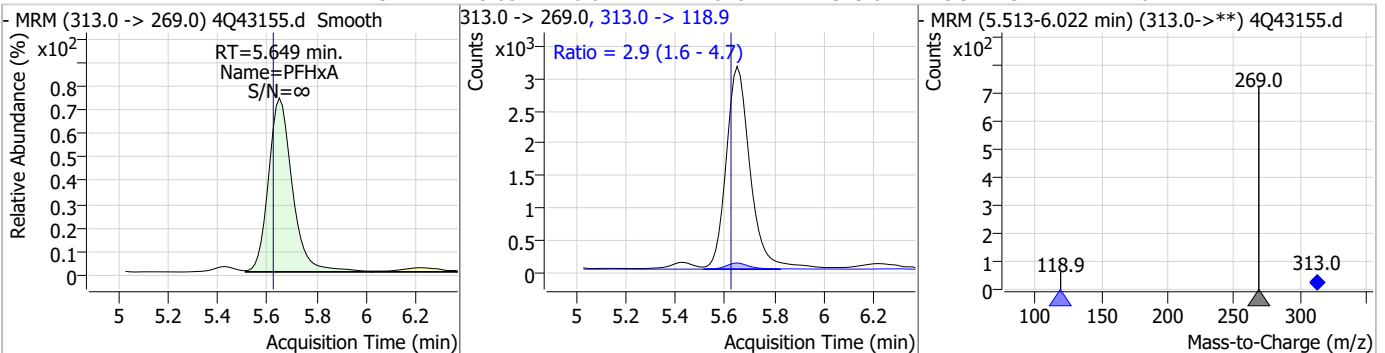
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.76	5.56	0.04	3103	298.7 -> 98.8	39.2	20.1	60.4



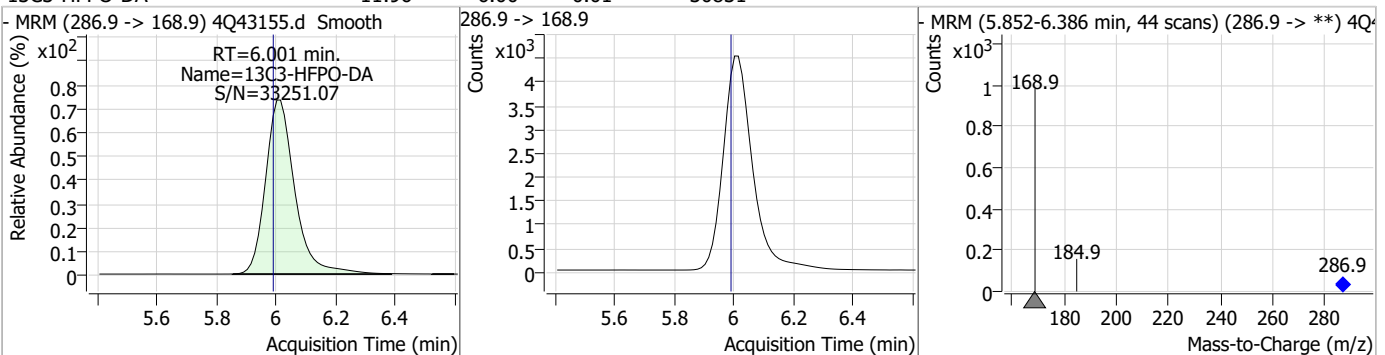
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	3.05	5.65	0.02	51783				



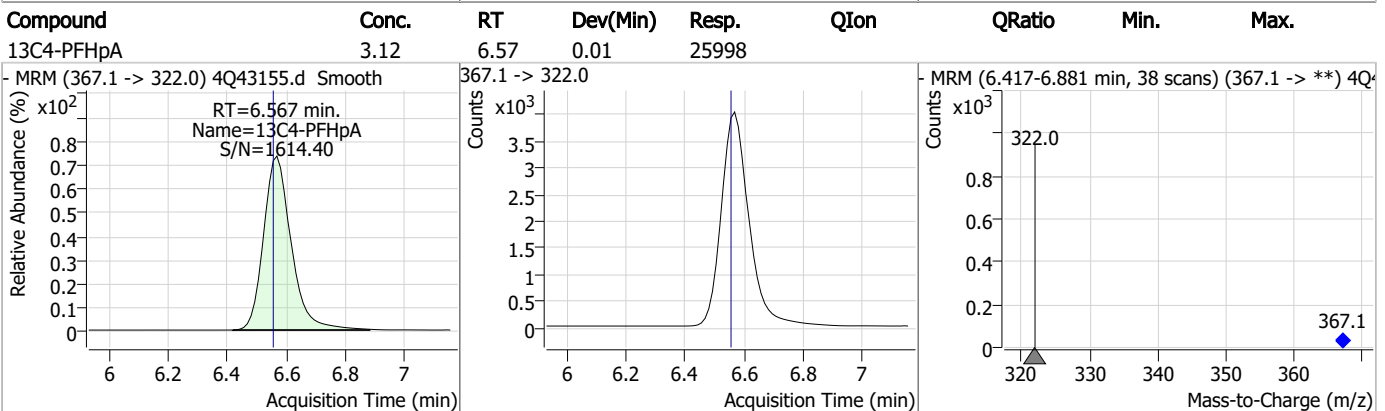
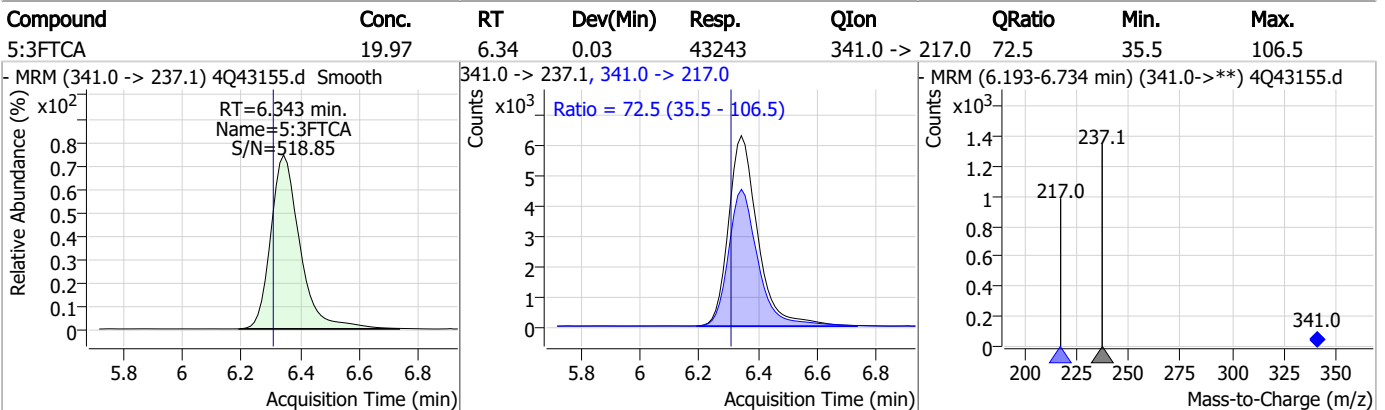
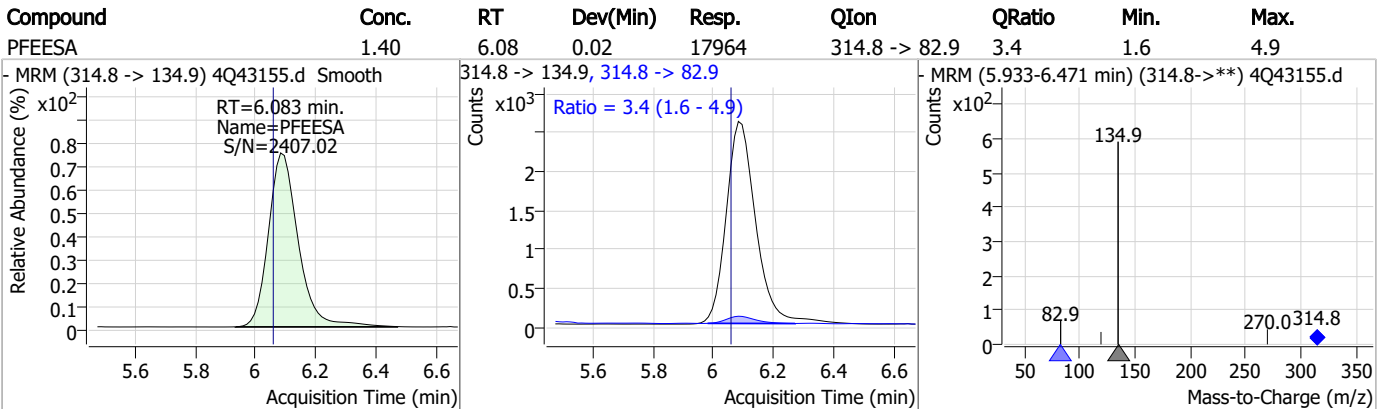
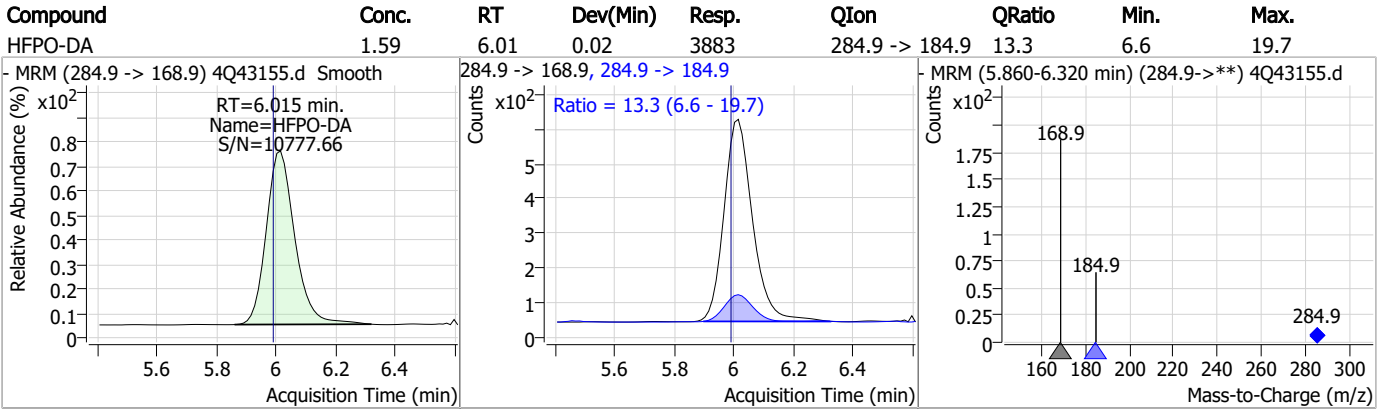
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.37	5.65	0.02	21028	313.0 -> 118.9	2.9	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.96	6.00	0.01	30831				



Perfluorinated Compounds by LC/MS/MS

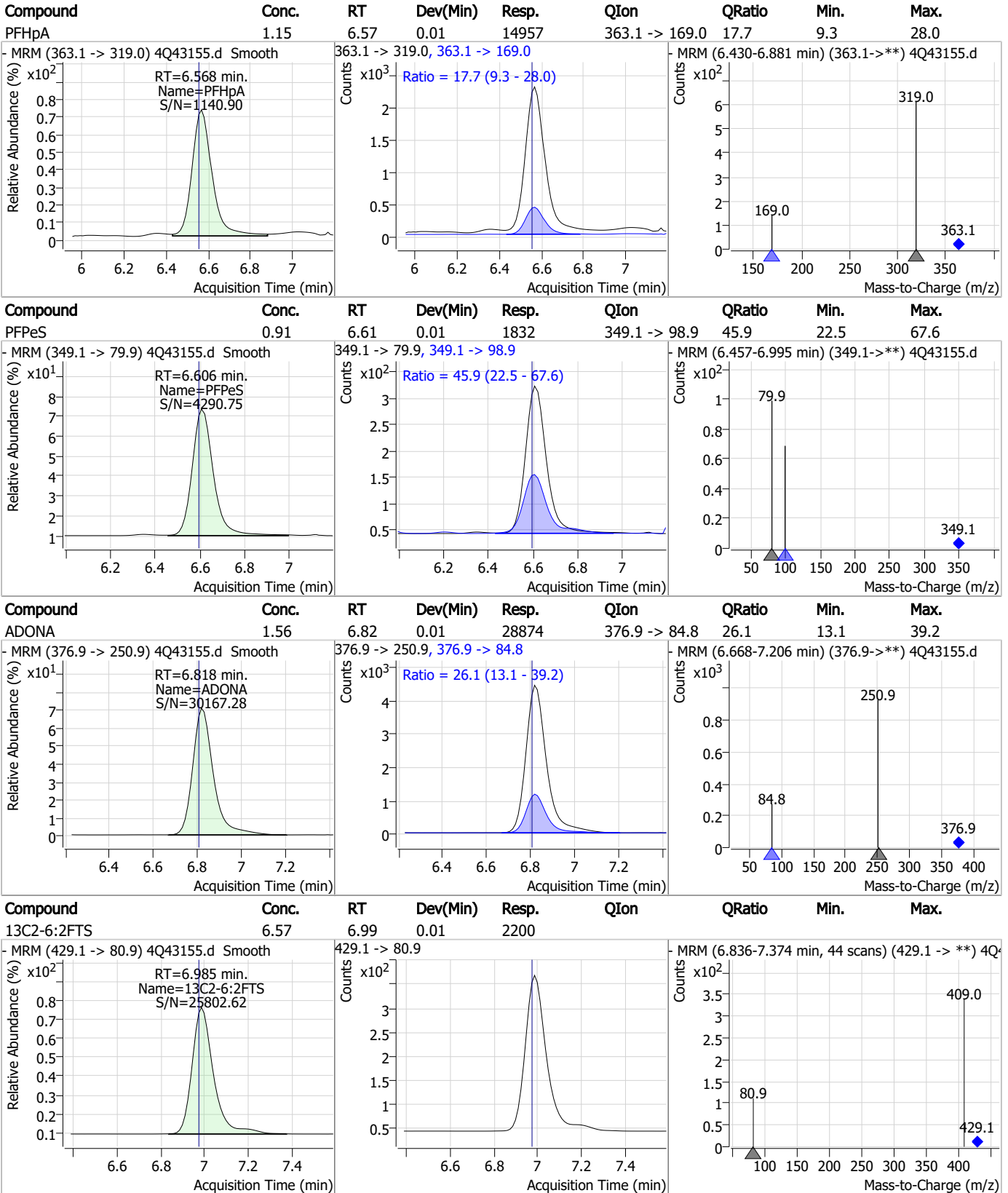


7.3.2

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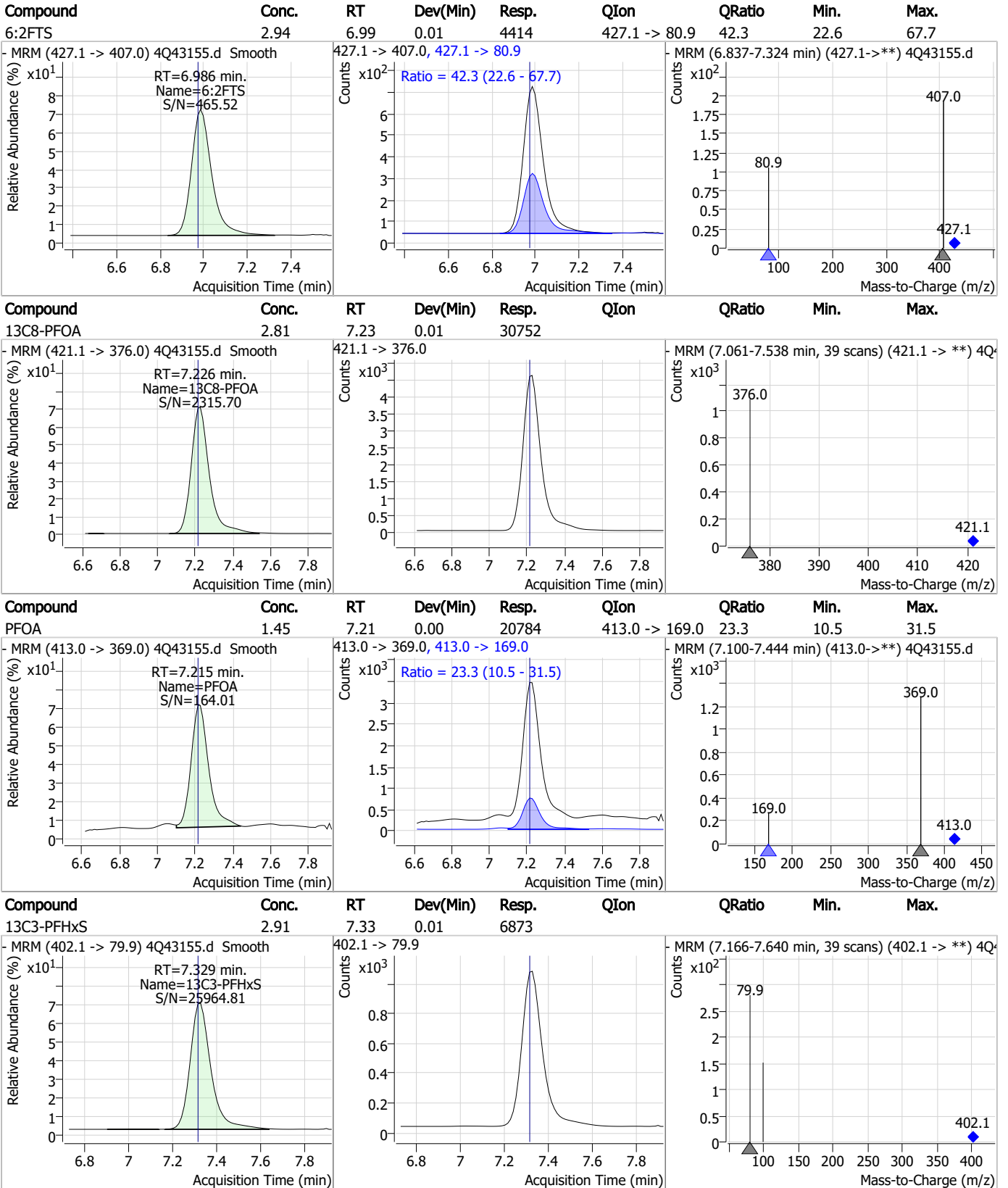
Perfluorinated Compounds by LC/MS/MS



7.3.2

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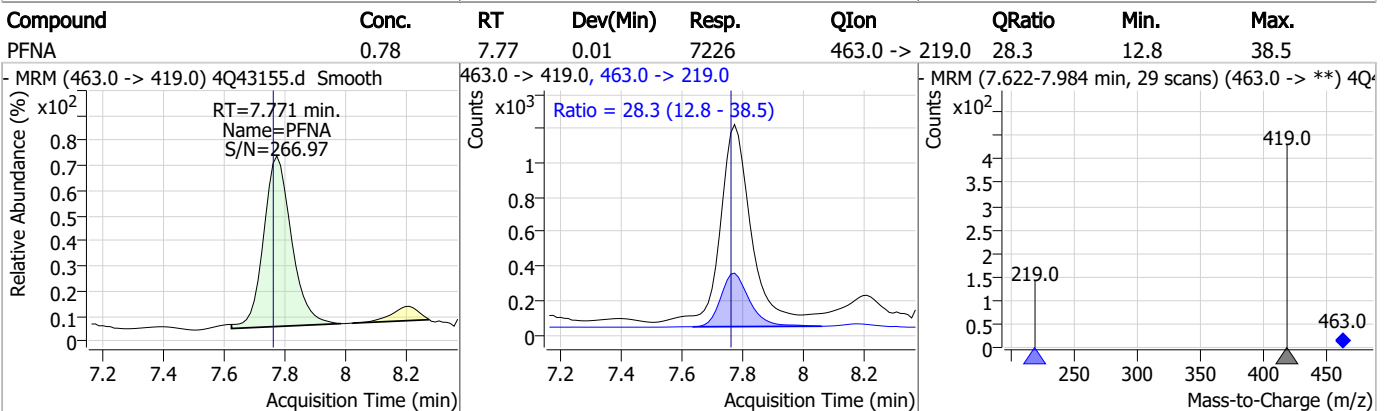
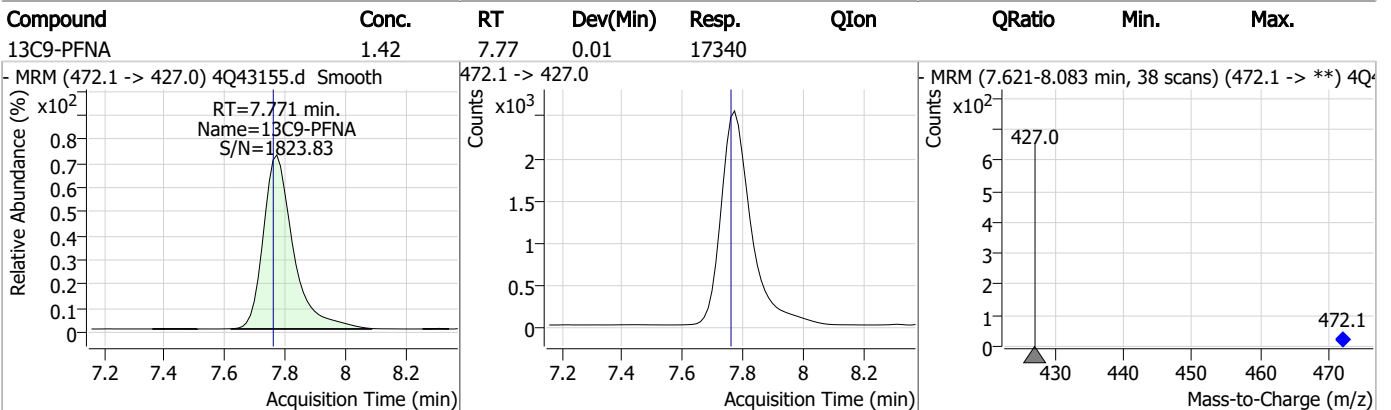
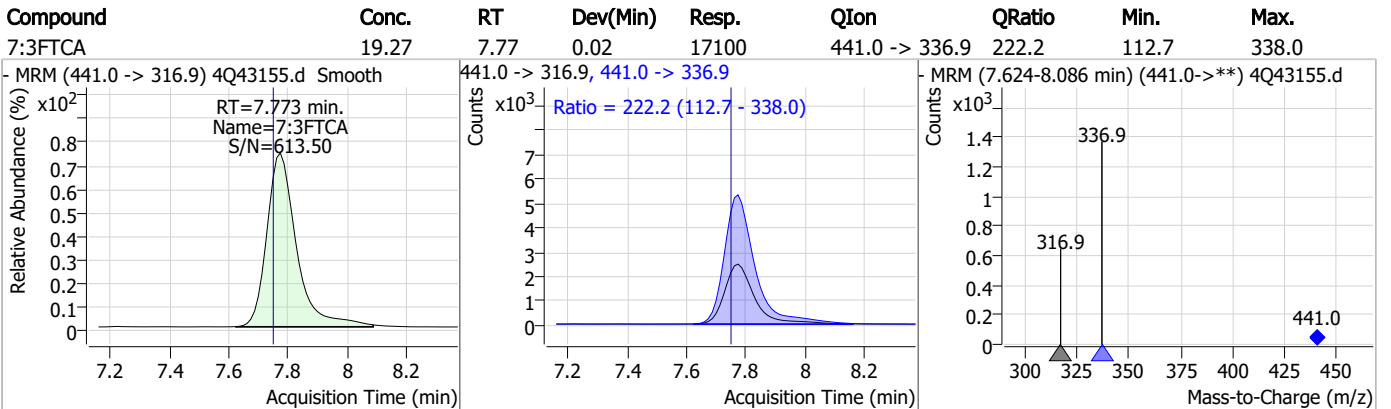
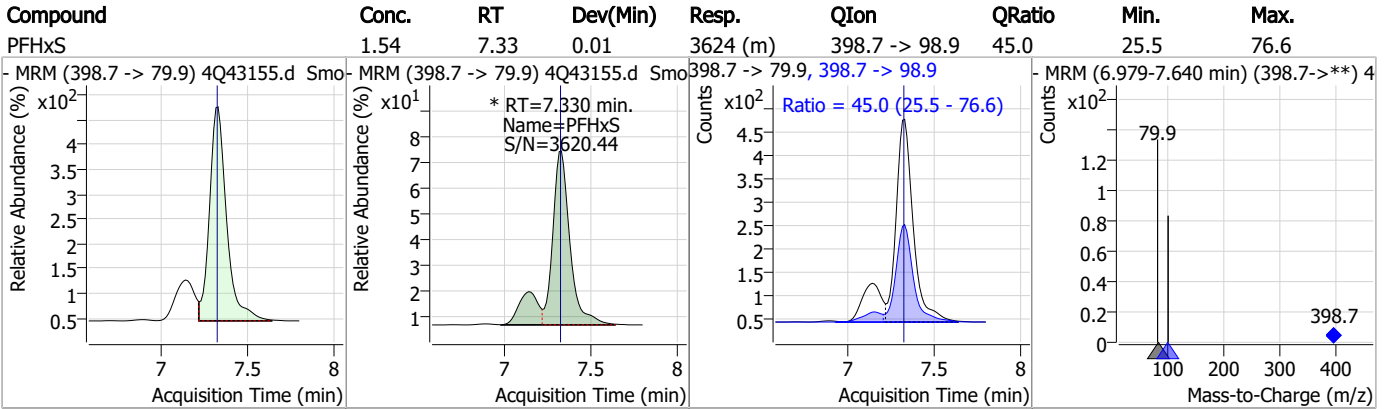
Perfluorinated Compounds by LC/MS/MS



7.3.2

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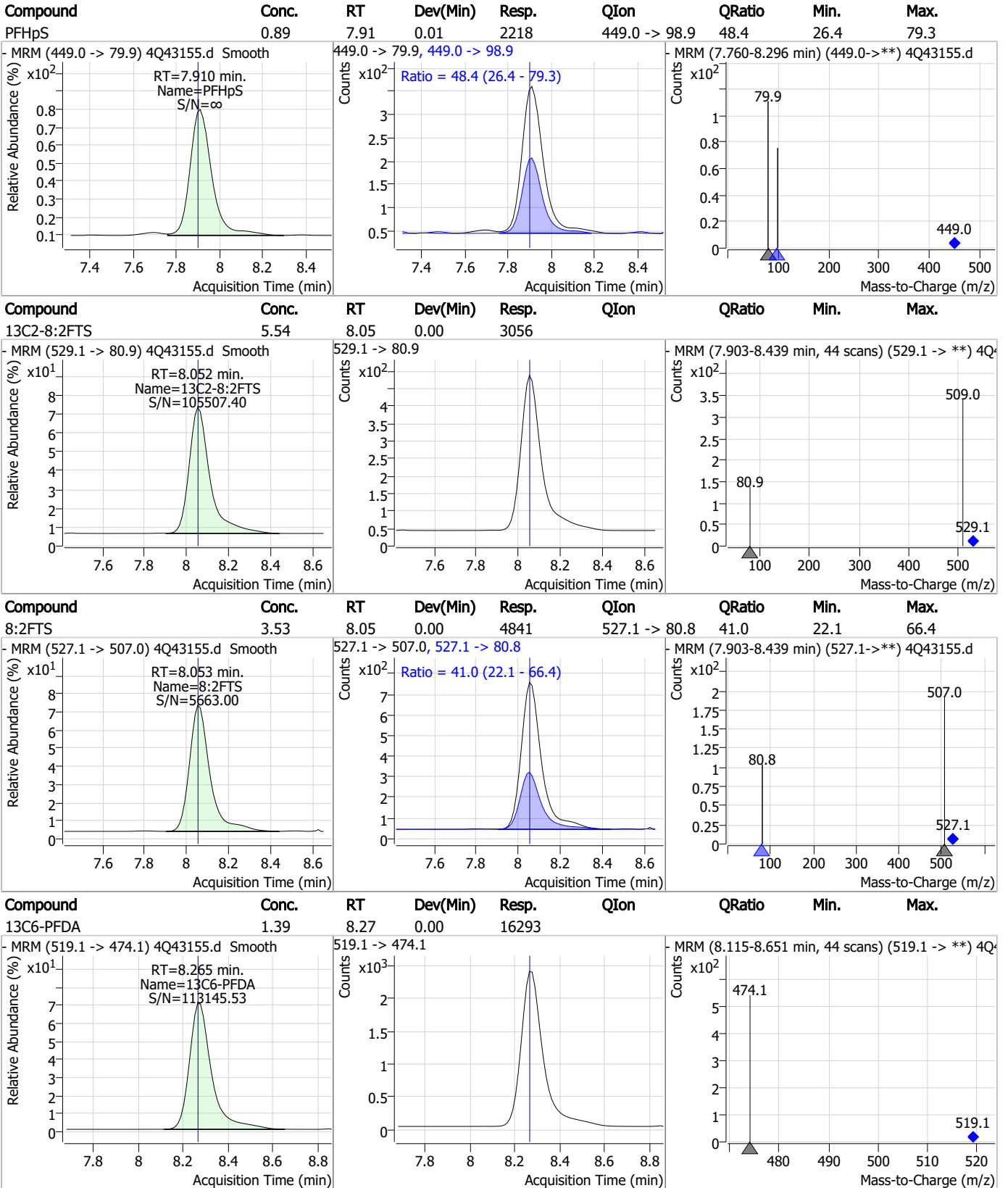
Perfluorinated Compounds by LC/MS/MS



7.3.2

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Perfluorinated Compounds by LC/MS/MS

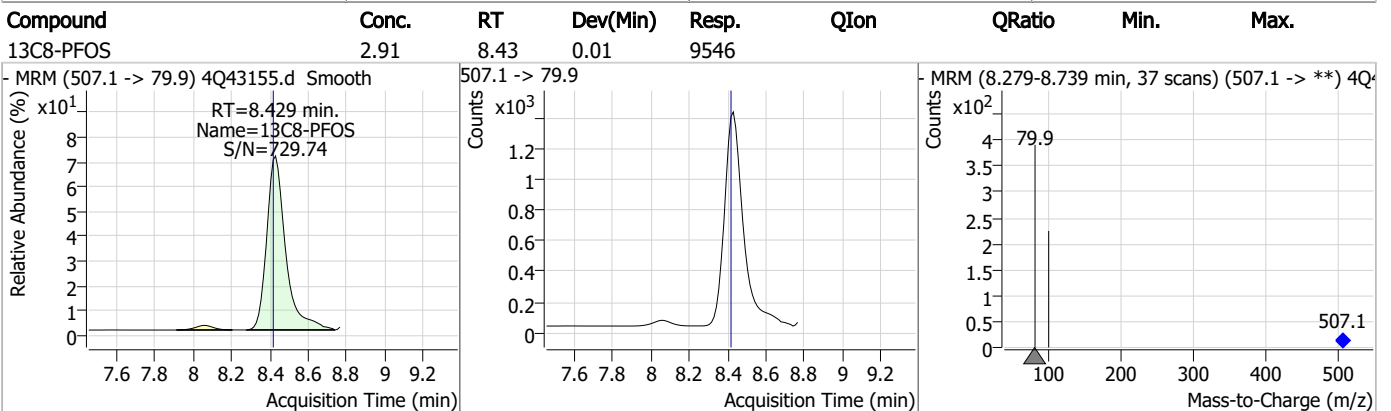
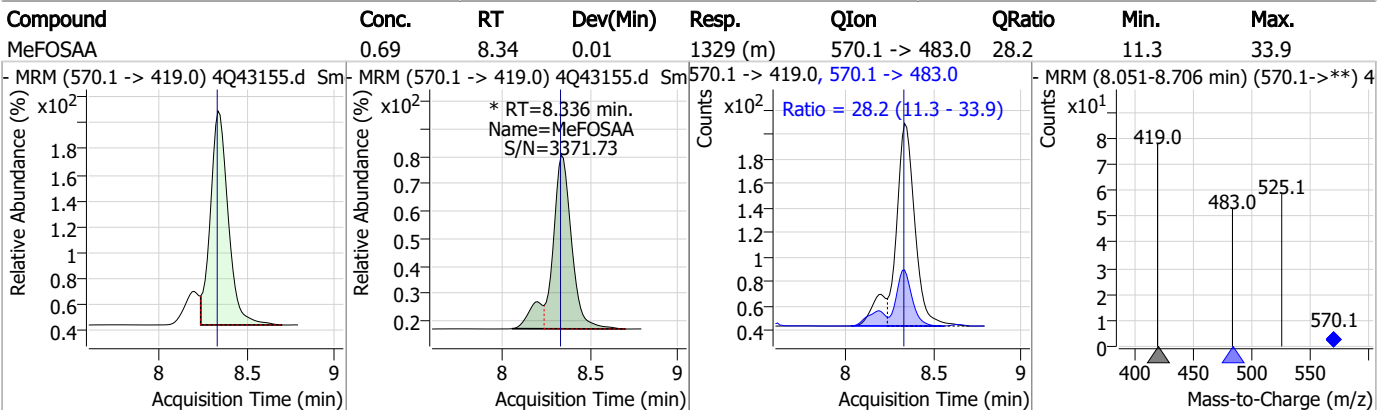
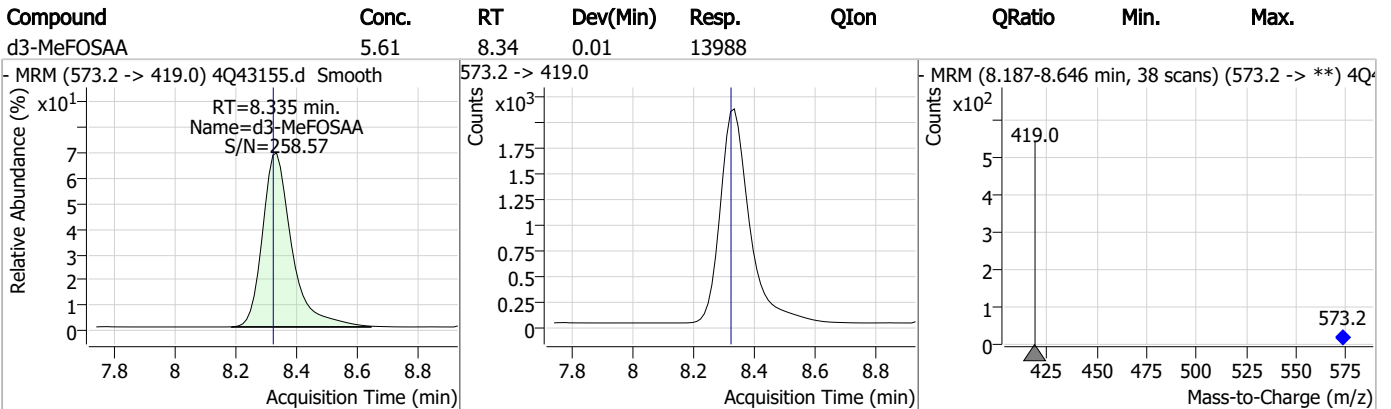
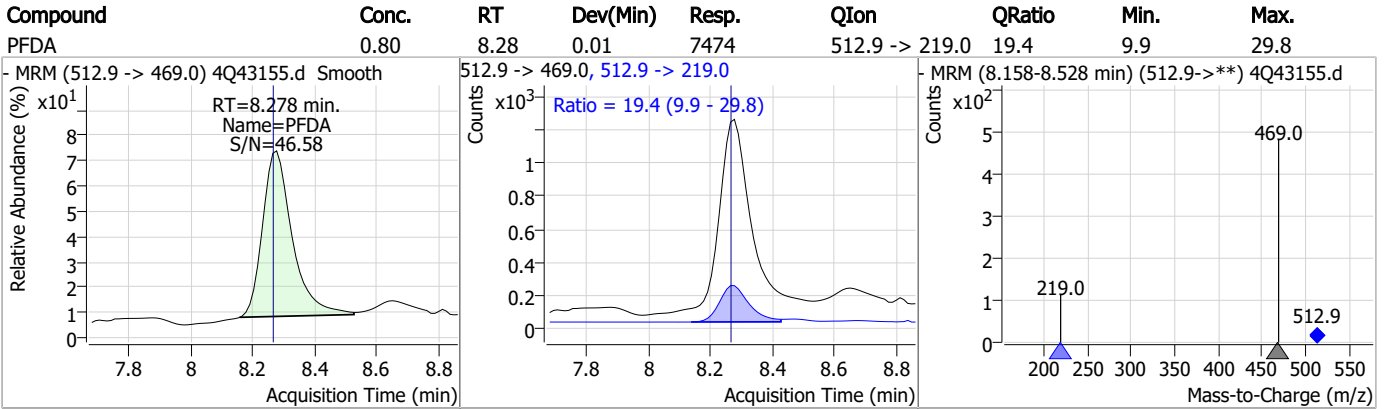


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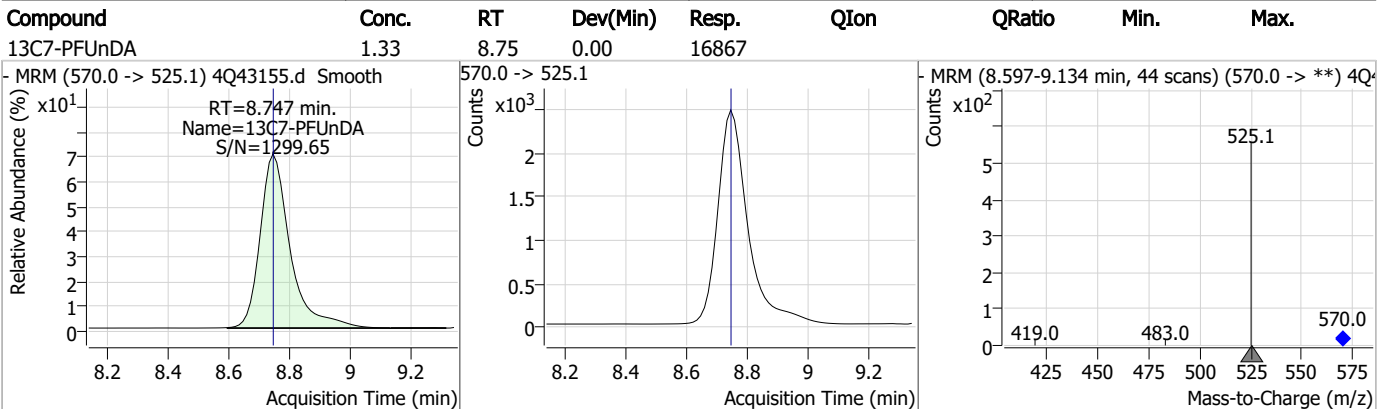
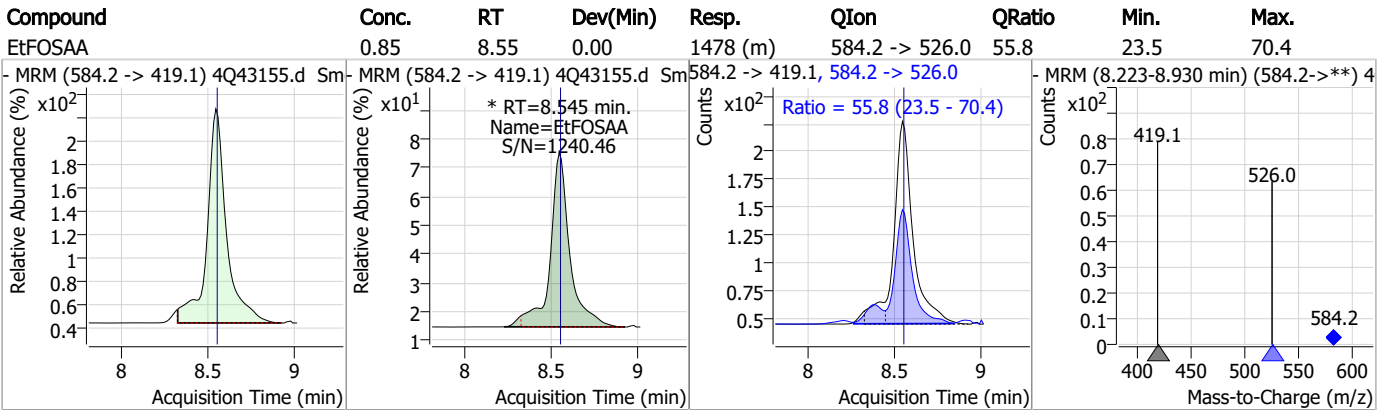
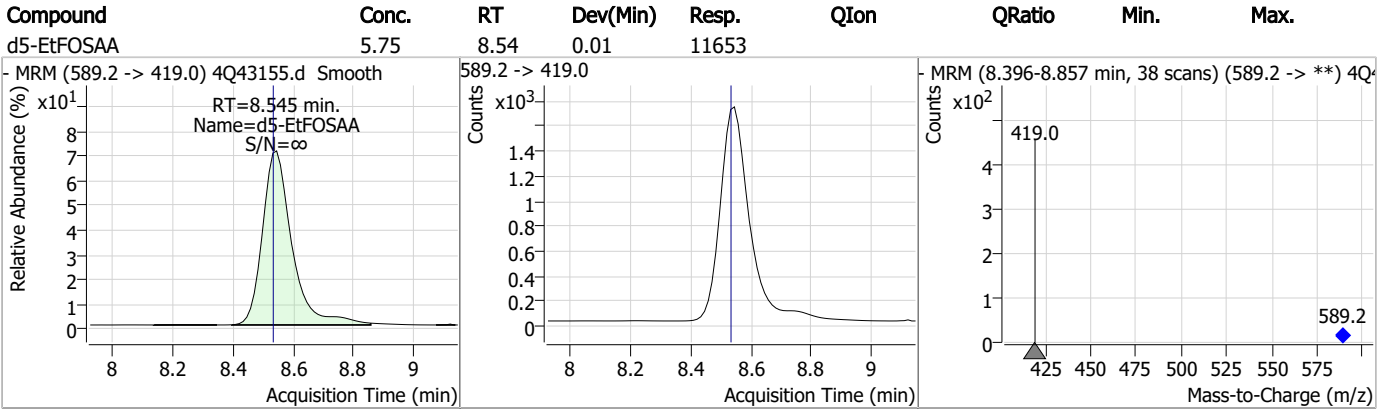
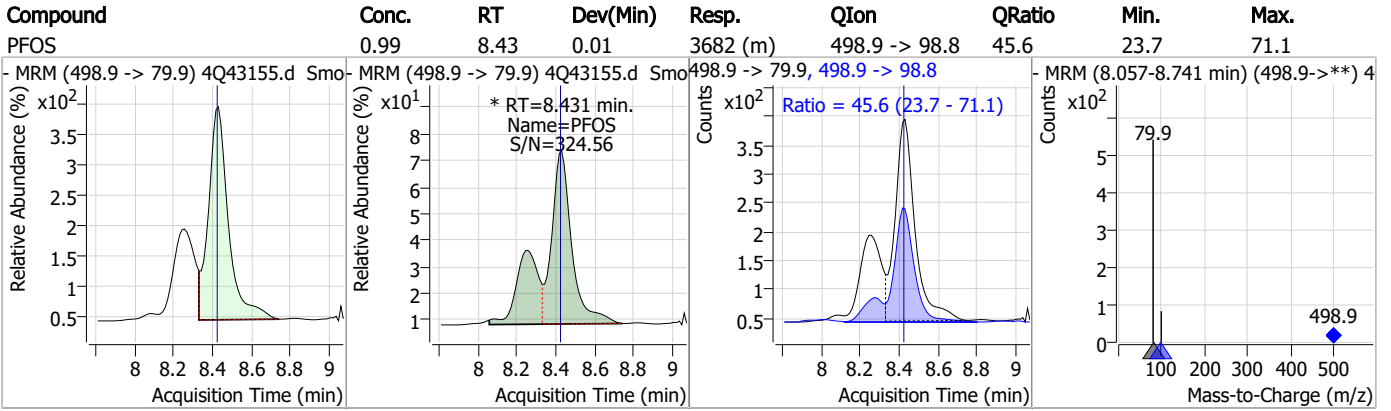
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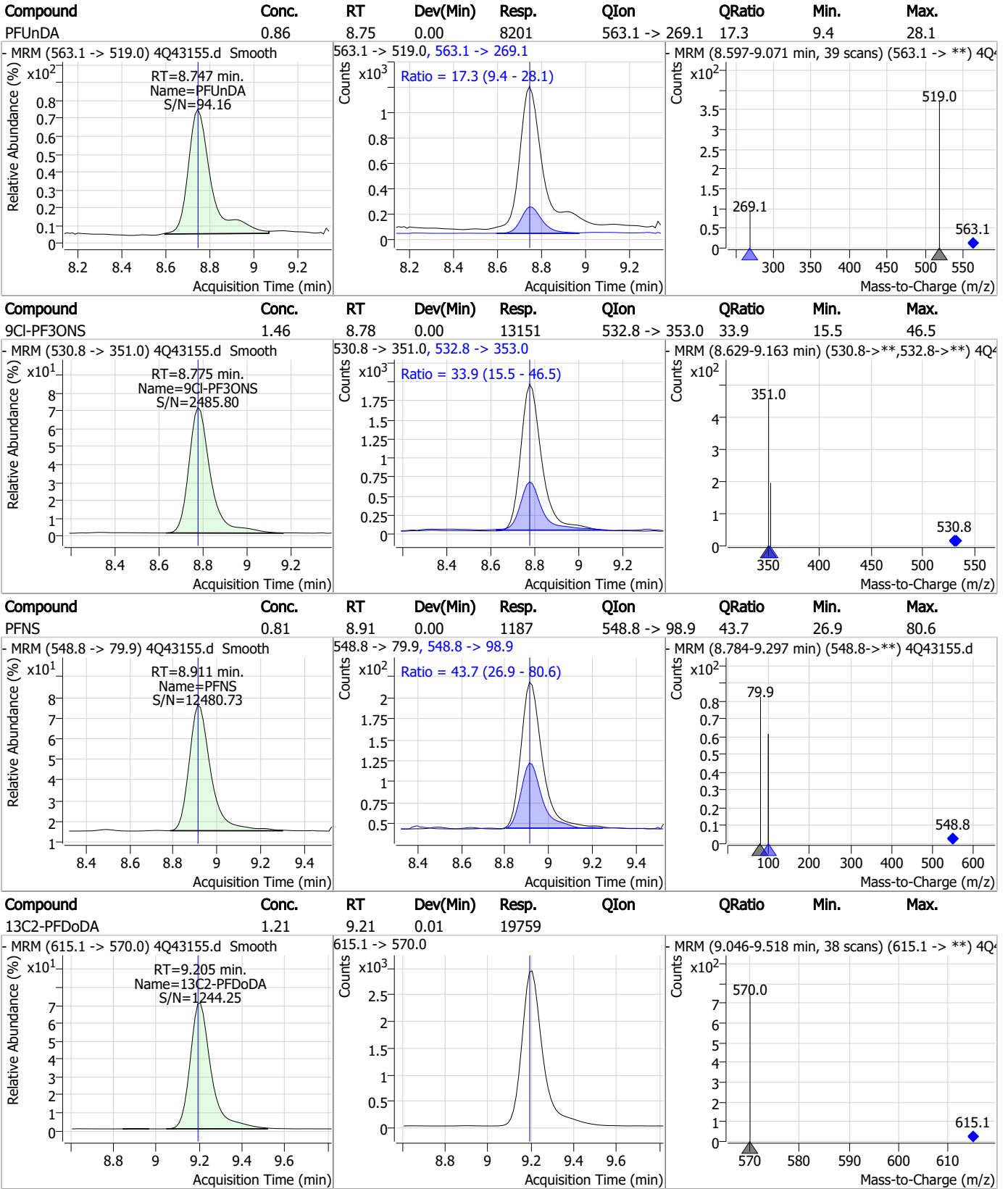
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

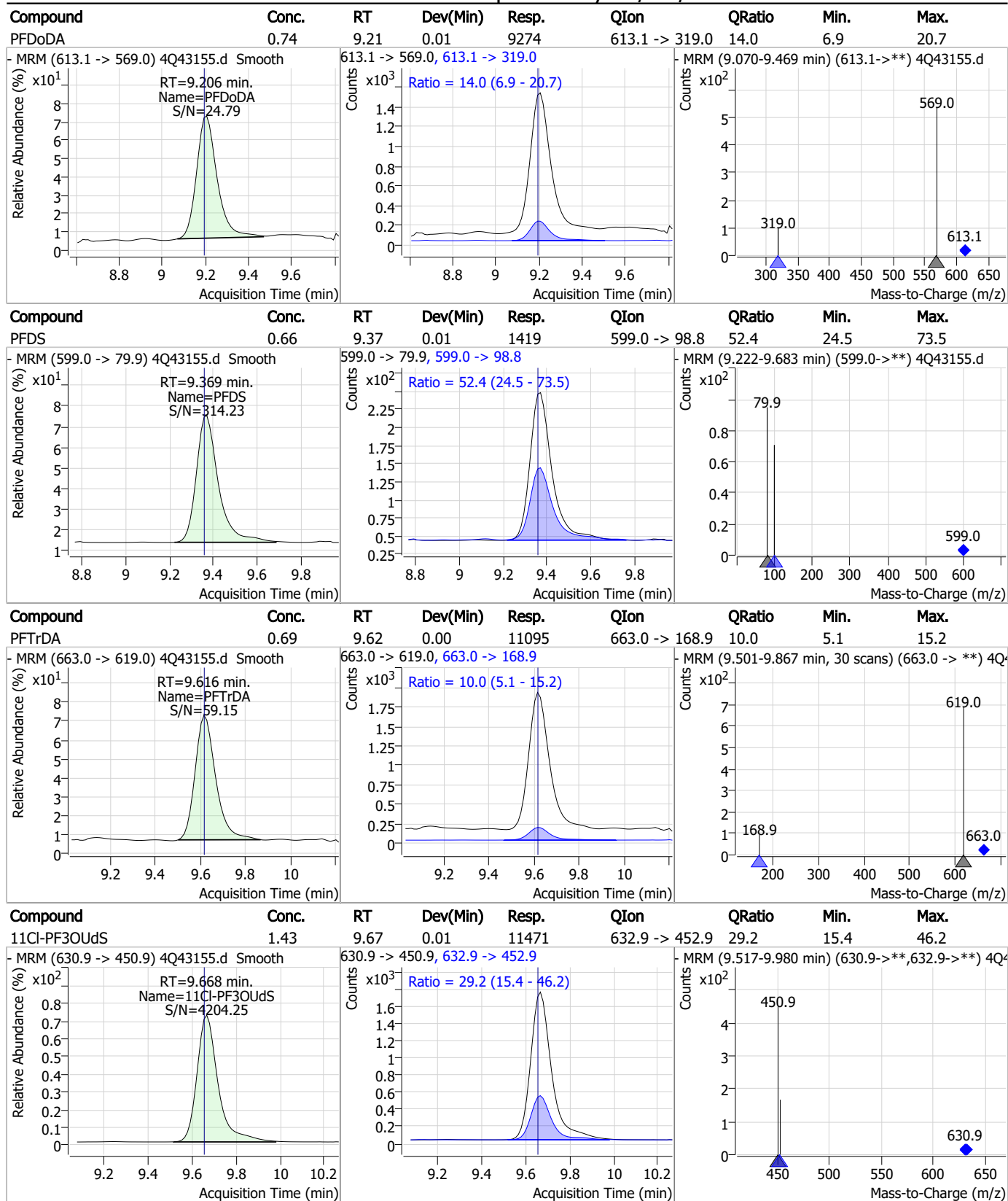


7.3.2

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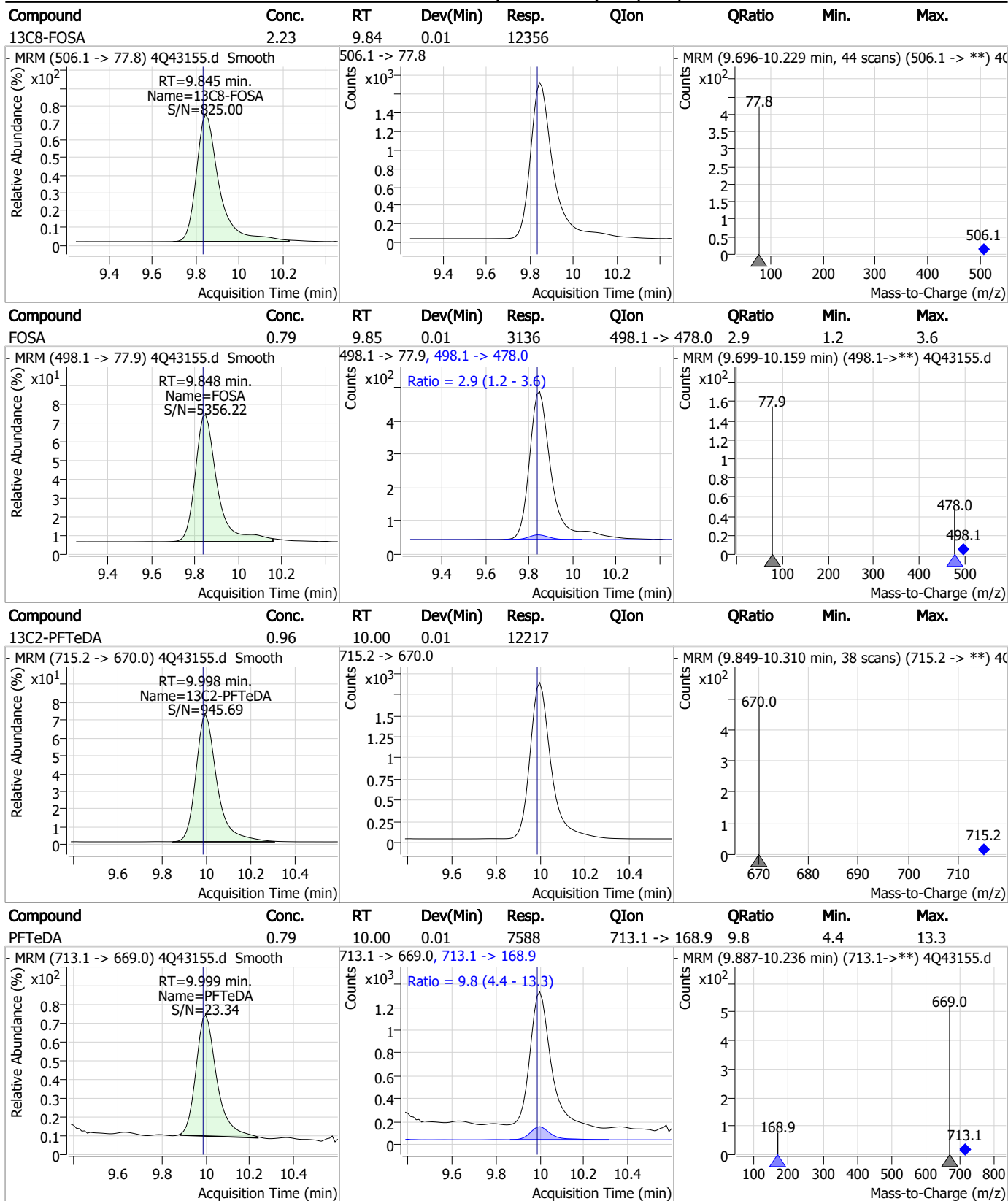


Perfluorinated Compounds by LC/MS/MS



7.3.2
7

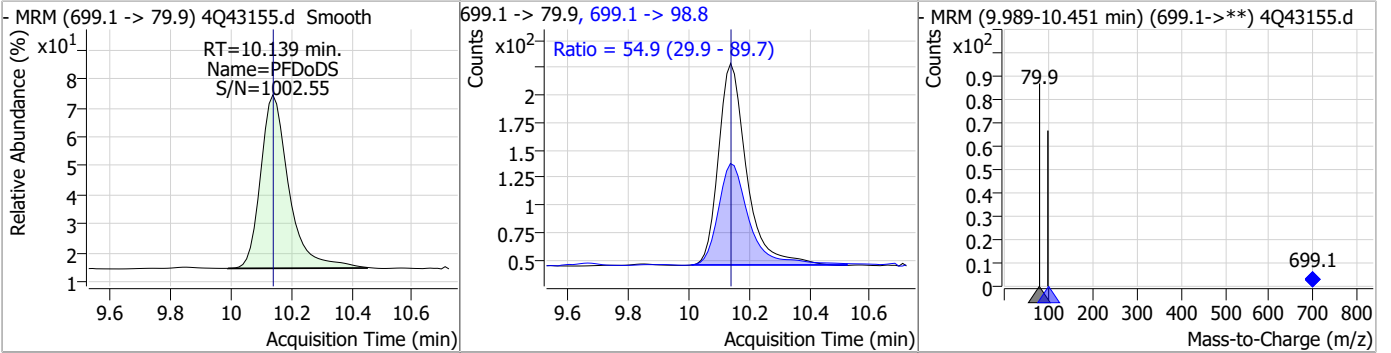
Perfluorinated Compounds by LC/MS/MS



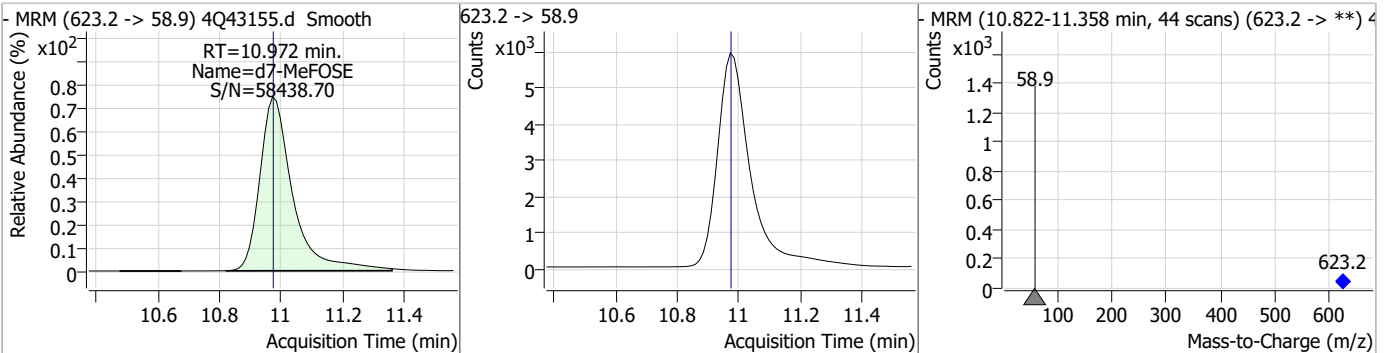
7.3.2
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Perfluorinated Compounds by LC/MS/MS

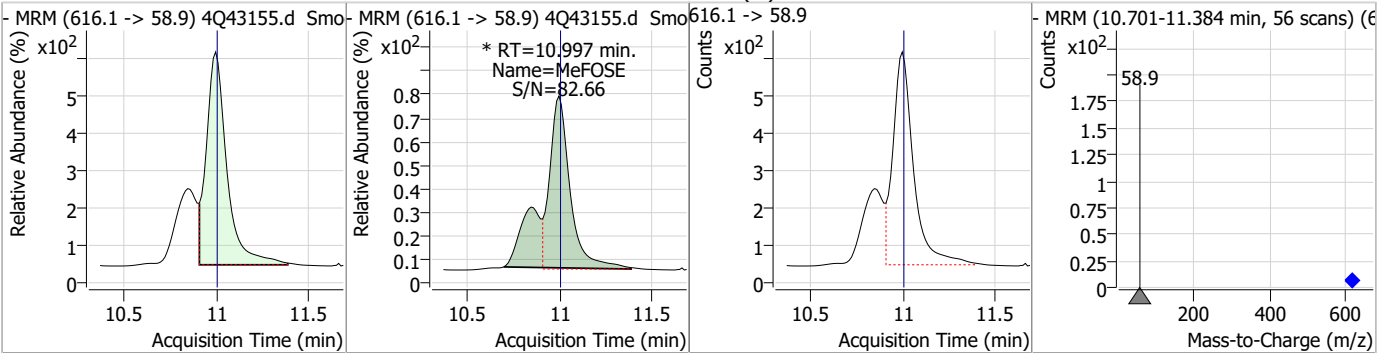
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.65	10.14	0.00	1196	699.1 -> 98.8	54.9	29.9	89.7



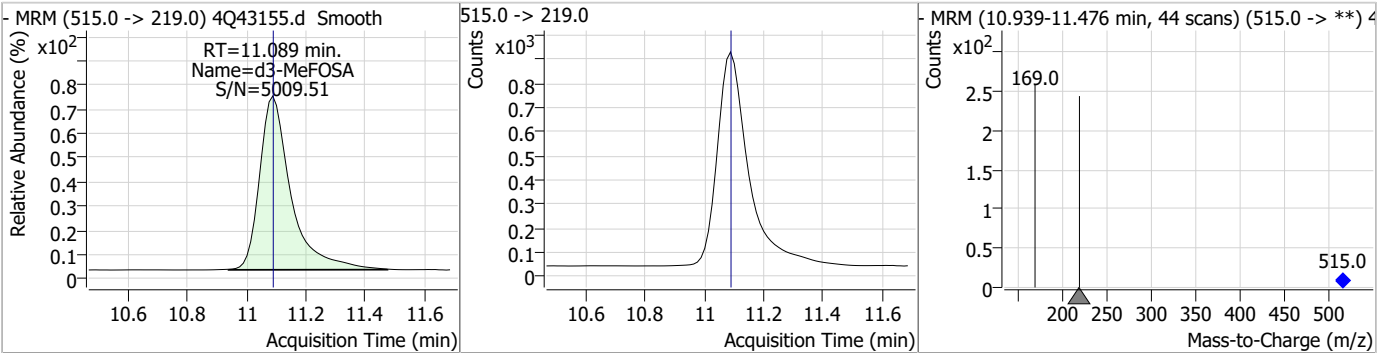
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.04	10.97	0.00	43761				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	3.80	11.00	0.00	5847 (m)				

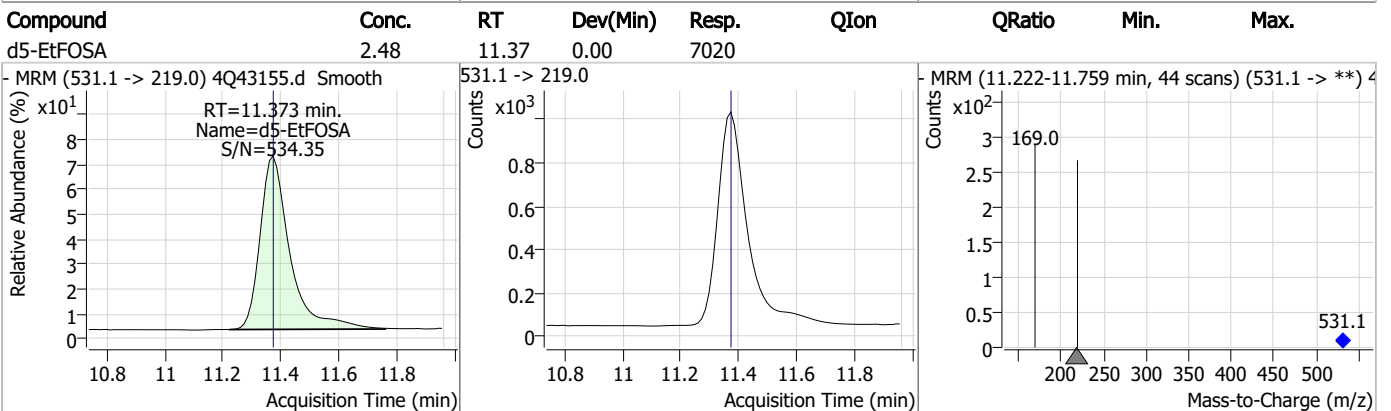
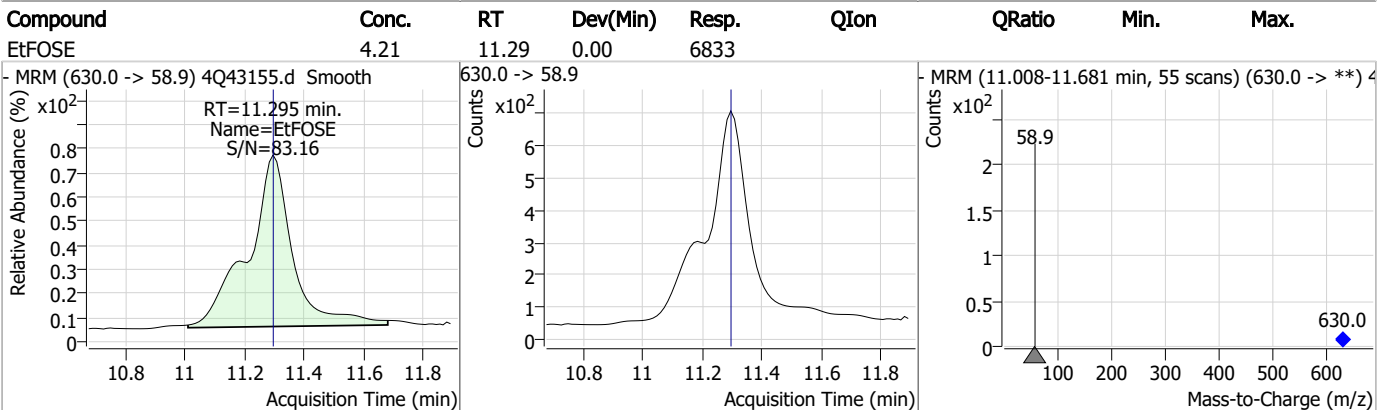
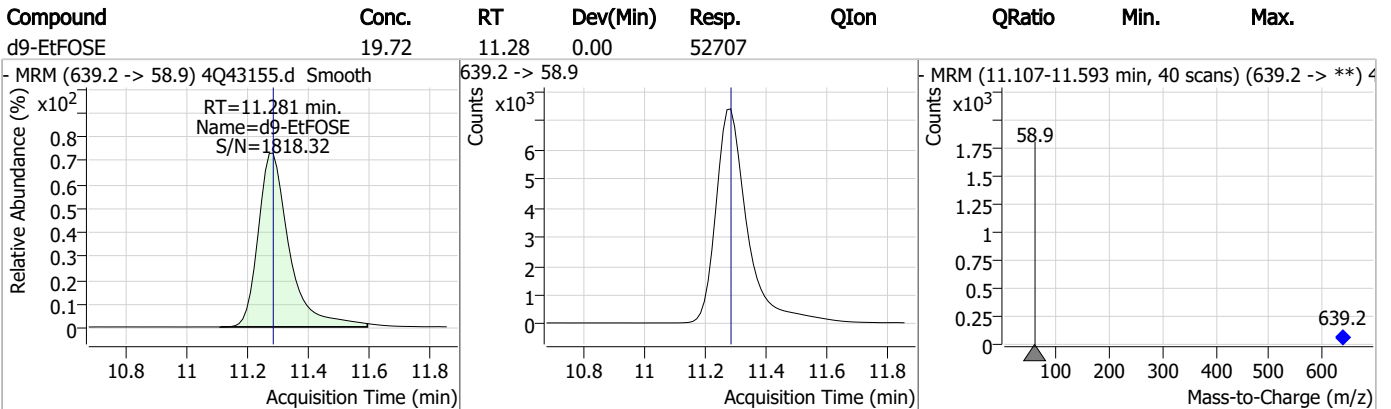
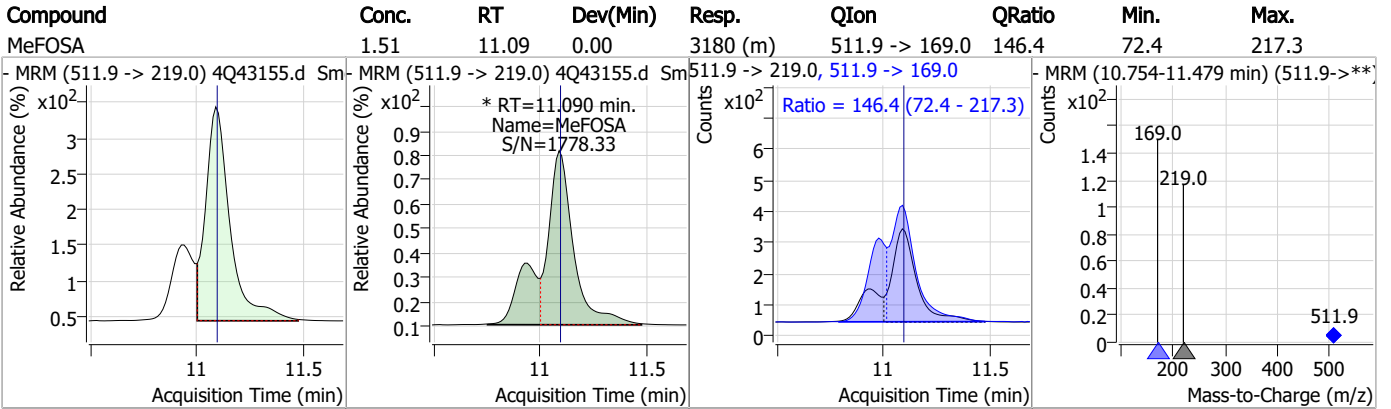


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.49	11.09	0.00	6517				



7.3.2
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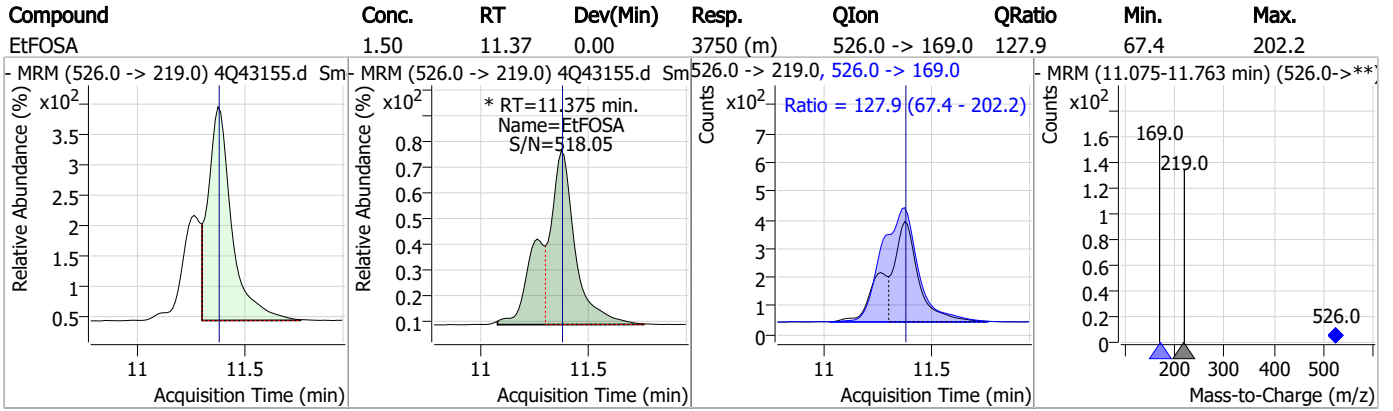
Perfluorinated Compounds by LC/MS/MS



7.3.2

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Perfluorinated Compounds by LC/MS/MS



7.3.2

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Manual Integration Approval Summary

Sample Number: OP96403-LLBS Method: EPA DRAFT 1633
Lab FileID: 4Q43155.D Analyst approved: 04/19/23 13:20 Martha Valls
Injection Time: 04/18/23 12:54 Supervisor approved: 04/19/23 17:03 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
MeFOSAA	2355-31-9		8.34	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak
EtFOSAA	2991-50-6		8.54	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.3.2.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43358.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/20/2023 11:19:07 PM
 Sample Name : op96494-bs
 Vial : P3-C2
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s4q626.batch.bin
 Sample Information : OP96494,S4q626,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.990	216.8 -> 171.9	39314	10.00 µg/L	0.053
M5-PFPeA	4.437	268.3 -> 223.0	65082	5.00 µg/L	0.025
M5-PFHxA	5.597	318.0 -> 273.0	55460	2.50 µg/L	0.012
M4-PFHpA	6.529	367.1 -> 322.0	28643	2.50 µg/L	0.012
M8-PFOA	7.188	421.1 -> 376.0	39391	2.50 µg/L	0.000
M9-PFNA	7.733	472.1 -> 427.0	21662	1.25 µg/L	0.000
M6-PFDA	8.240	519.1 -> 474.1	19833	1.25 µg/L	0.000
M7-PFUnDA	8.722	570.0 -> 525.1	22298	1.25 µg/L	0.000
M2-PFDoDA	9.168	615.1 -> 570.0	27009	1.25 µg/L	-0.012
M2-PFTeDA	9.974	715.2 -> 670.0	18655	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	13616	2.50 µg/L	0.000
M3-PFBS	5.514	302.1 -> 79.9	11381	2.50 µg/L	0.012
M3-PFHxS	7.291	402.1 -> 79.9	7224	2.50 µg/L	0.000
M8-PFOS	8.405	507.1 -> 79.9	10058	2.50 µg/L	0.012
M2-4:2FTS	5.285	329.1 -> 80.9	1603	5.00 µg/L	0.012
M2-6:2FTS	6.961	429.1 -> 80.9	2474	5.00 µg/L	0.012
M2-8:2FTS	8.027	529.1 -> 80.9	3717	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	18635	5.00 µg/L	0.000
M3-HFPO-DA	5.964	286.9 -> 168.9	31500	10.00 µg/L	0.013
M5-EtFOSAA	8.507	589.2 -> 419.0	15755	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	47746	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	66269	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	8408	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	7477	2.50 µg/L	0.000
13C4-PFOS	8.405	502.8 -> 79.9	10539	2.50 µg/L	0.000
13C3-PFBA	2.978	216.0 -> 172.0	66471	5.00 µg/L	0.037
18O2-PFHxS	7.290	403.0 -> 83.9	4496	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	44822	2.50 µg/L	0.000
13C2-PFDA	8.241	515.1 -> 470.1	17459	1.25 µg/L	0.000
13C5-PFNA	7.734	468.0 -> 423.0	23227	1.25 µg/L	0.000
13C2-PFHxA	5.598	315.1 -> 270.0	43593	2.50 µg/L	0.012

System Monitoring Compounds

13C2-4:2FTS	5.285	329.1 -> 80.9	1603	6.07 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.5%		
13C2-6:2FTS	6.961	429.1 -> 80.9	2474	5.96 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.1%		
13C2-8:2FTS	8.027	529.1 -> 80.9	3717	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C2-PFDoDA	9.168	615.1 -> 570.0	27009	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C2-PFTeDA	9.974	715.2 -> 670.0	18655	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.0%		
13C3-PFBS	5.514	302.1 -> 79.9	11381	2.73 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.3%		
13C3-PFHxS	7.291	402.1 -> 79.9	7224	2.81 µg/L	0.000

7.3.3
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 = 112.6%		
13C4-PFBA	2.990	216.8 -> 171.9	39314	3.28 µg/L	0.053
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 32.8%		
13C4-PFHpA	6.529	367.1 -> 322.0	28643	2.62 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C5-PFHxA	5.597	318.0 -> 273.0	55460	2.71 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.3%		
13C5-PFPeA	4.437	268.3 -> 223.0	65082	4.88 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C6-PFDA	8.240	519.1 -> 474.1	19833	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C7-PFUnDA	8.722	570.0 -> 525.1	22298	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C8-FOSA	9.783	506.1 -> 77.8	13616	1.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 71.3%		
13C8-PFOA	7.188	421.1 -> 376.0	39391	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C8-PFOS	8.405	507.1 -> 79.9	10058	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C9-PFNA	7.733	472.1 -> 427.0	21662	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.8%		
d3-MeFOSAA	8.298	573.2 -> 419.0	18635	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C3-HFPO-DA	5.964	286.9 -> 168.9	31500	9.53 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 95.3%		
d3-MeFOSA	11.064	515.0 -> 219.0	7477	1.89 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 75.7%		
d5-EtFOSAA	8.507	589.2 -> 419.0	15755	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.4%		
d7-MeFOSE	10.959	623.2 -> 58.9	47746	14.77 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 59.1%		
d9-EtFOSE	11.256	639.2 -> 58.9	66269	16.00 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 64.0%		
d5-EtFOSA	11.360	531.1 -> 219.0	8408	2.00 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 80.1%		
Target Compounds					QValue
4:2FTS	5.286	327.1 -> 307.0	22520	10.98 µg/L	98
		327.1 -> 80.9	9823		
6:2FTS	6.949	427.1 -> 407.0	21930	11.60 µg/L	96
		427.1 -> 80.9	9149		
8:2FTS	8.028	527.1 -> 507.0	23572	12.87 µg/L	97
		527.1 -> 80.8	9251		
EtFOSAA	8.521	584.2 -> 419.1	6540	2.91 µg/L	m 91
		584.2 -> 526.0	3048		
FOSA	9.786	498.1 -> 77.9	13157	2.86 µg/L	98
		498.1 -> 478.0	450		
MeFOSAA	8.311	570.1 -> 419.0	6848	2.58 µg/L	97
		570.1 -> 483.0	1468		
PFBA	2.982	212.8 -> 168.9	10284	11.28 µg/L	100
PFBS	5.515	298.7 -> 79.9	11660	2.59 µg/L	98
		298.7 -> 98.8	4536		
PFDA	8.241	512.9 -> 469.0	36584	3.01 µg/L	99
		512.9 -> 219.0	7168		
PFDoDA	9.169	613.1 -> 569.0	50223	2.83 µg/L	100
		613.1 -> 319.0	6809		
PFDS	9.331	599.0 -> 79.9	6351	2.70 µg/L	92

7.3.3
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.530	599.0 -> 98.8	3371	2.85	µg/L	98
		363.1 -> 319.0	42884			
PFHpS	7.873	363.1 -> 169.0	7924	2.89	µg/L	95
		449.0 -> 79.9	8366			
PFHxA	5.600	449.0 -> 98.9	4150	2.78	µg/L	99
		313.0 -> 269.0	48502			
PFHxS	7.292	313.0 -> 118.9	1414	2.51	µg/L	100
		398.7 -> 79.9	6646			
PFNA	7.747	398.7 -> 98.9	3627	2.61	µg/L	97
		463.0 -> 419.0	32257			
PFNS	8.886	463.0 -> 219.0	7884	2.72	µg/L	91
		548.8 -> 79.9	4845			
PFOA	7.189	548.8 -> 98.9	2537	3.13	µg/L	97
		413.0 -> 369.0	54959			
PFOS	8.406	413.0 -> 169.0	10731	2.73	µg/L	99
		498.9 -> 79.9	10543			
PFPeA	4.439	498.9 -> 98.8	5290	6.02	µg/L	100
		263.0 -> 219.0	78202			
PFPeS	6.569	349.1 -> 79.9	6182	2.71	µg/L	99
		349.1 -> 98.9	2745			
PFTeDA	9.974	713.1 -> 669.0	40750	2.69	µg/L	99
		713.1 -> 168.9	3628			
PFTrDA	9.591	663.0 -> 619.0	62680	2.83	µg/L	99
		663.0 -> 168.9	6066			
PFUnDA	8.722	563.1 -> 519.0	35350	2.80	µg/L	98
		563.1 -> 269.1	7500			
11CI-PF3OUdS	9.630	630.9 -> 450.9	51356	5.66	µg/L	99
		632.9 -> 452.9	15629			
9CI-PF3ONS	8.749	530.8 -> 351.0	55213	5.66	µg/L	99
		532.8 -> 353.0	16782			
ADONA	6.781	376.9 -> 250.9	140072	6.19	µg/L	99
		376.9 -> 84.8	37030			
HFPO-DA	5.965	284.9 -> 168.9	13630	5.48	µg/L	99
		284.9 -> 184.9	1592			
3:3FTCA	3.917	241.0 -> 177.0	4788	7.74	µg/L	99
		241.0 -> 117.0	462			
5:3FTCA	6.256	341.0 -> 237.1	175028	67.20	µg/L	98
		341.0 -> 217.0	122628			
7:3FTCA	7.699	441.0 -> 316.9	84053	66.14	µg/L	98
		441.0 -> 336.9	190531			
EtFOSA	11.362	526.0 -> 219.0	16883	5.38	µg/L	99
		526.0 -> 169.0	23742			
EtFOSE	11.282	630.0 -> 58.9	29913	14.16	µg/L	100
MeFOSA	11.065	511.9 -> 219.0	14673	5.87	µg/L	100
		511.9 -> 169.0	21240			
MeFOSE	10.973	616.1 -> 58.9	23410	13.79	µg/L	100
PFDoDS	10.114	699.1 -> 79.9	5093	2.39	µg/L	92
		699.1 -> 98.8	3031			
NFDHA	5.491	295.0 -> 201.0	5720	6.04	µg/L	93
		295.0 -> 84.9	1396			
PFMBA	4.841	279.0 -> 85.1	43979	5.92	µg/L	100
PFMPA	3.591	229.0 -> 84.9	21658	3.28	µg/L	100
PFEESA	6.034	314.8 -> 134.9	69088	4.82	µg/L	100
		314.8 -> 82.9	2358			

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

7.3.3
7

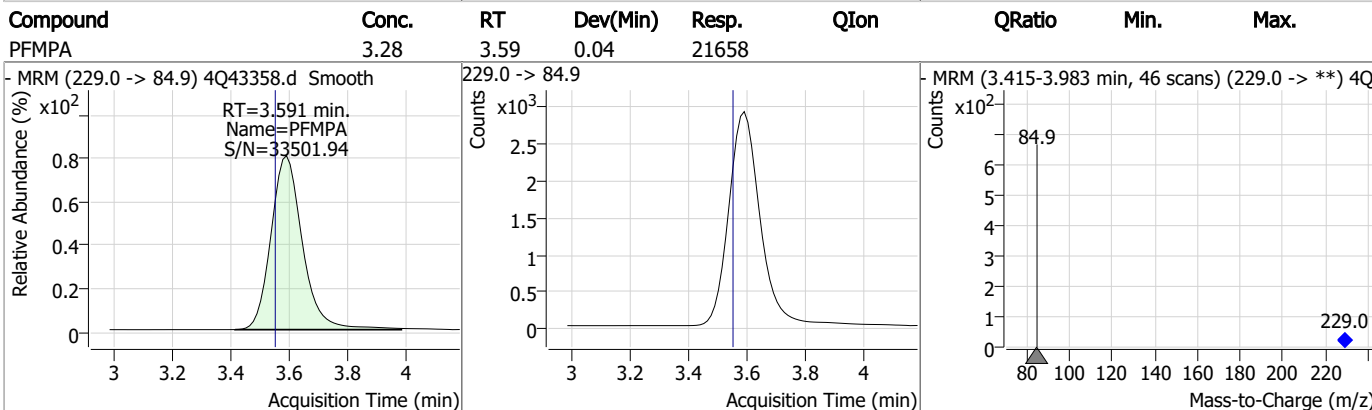
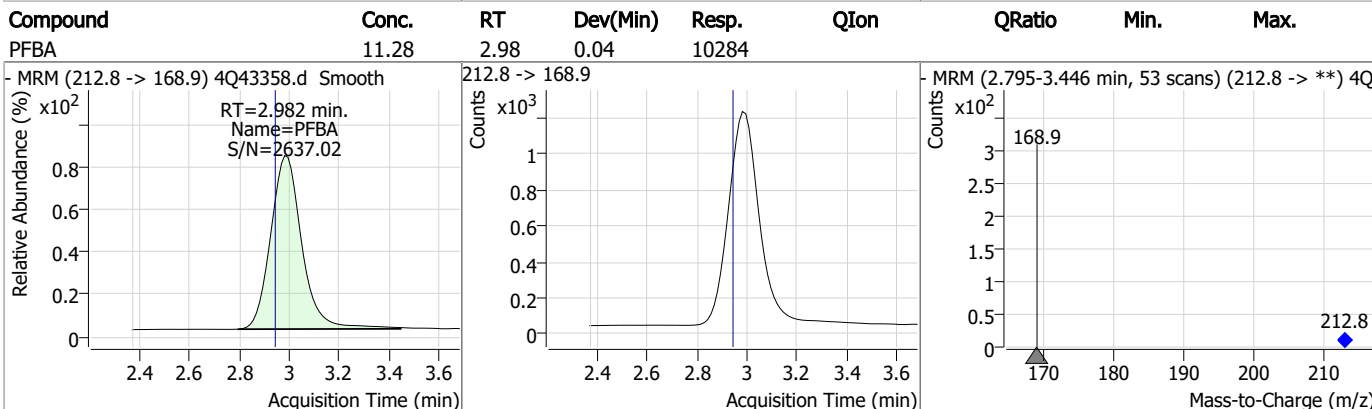
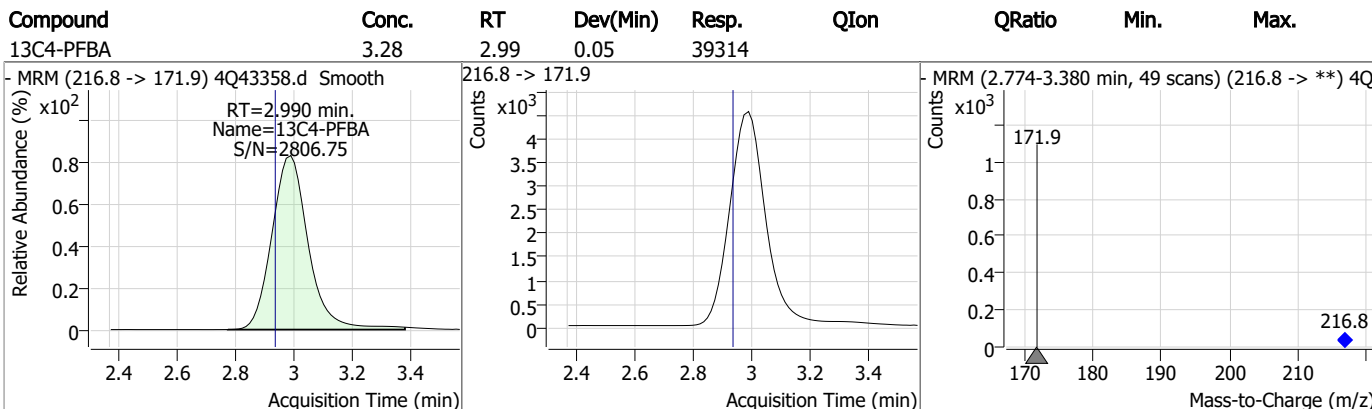
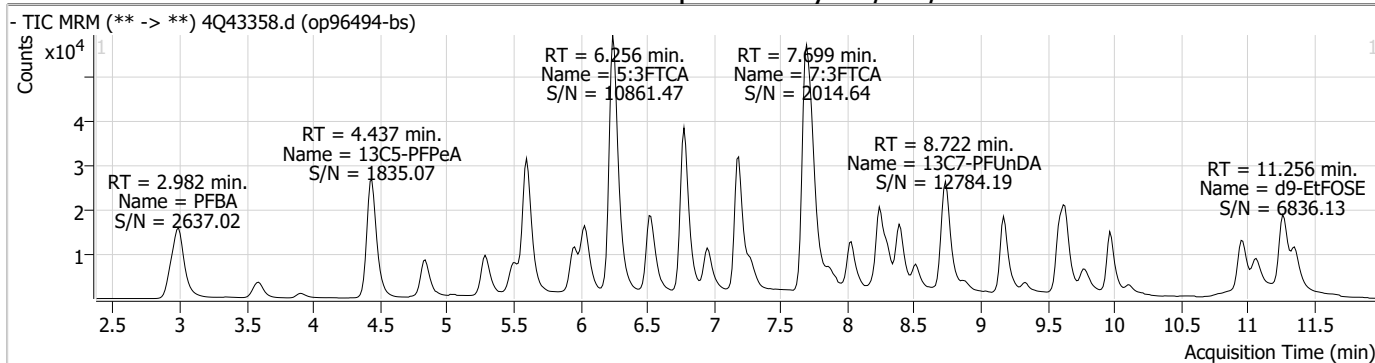
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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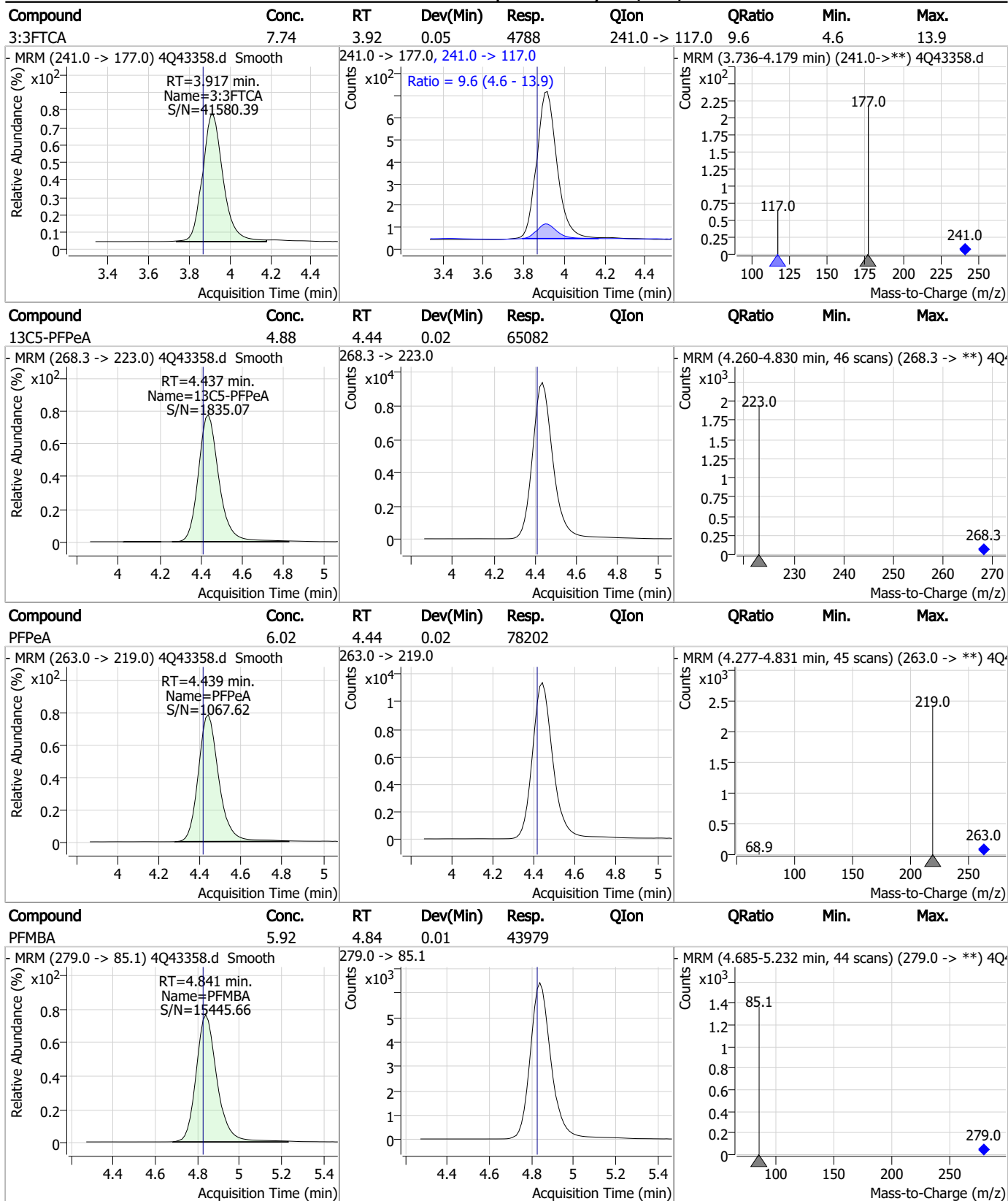
7.3.3

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Perfluorinated Compounds by LC/MS/MS

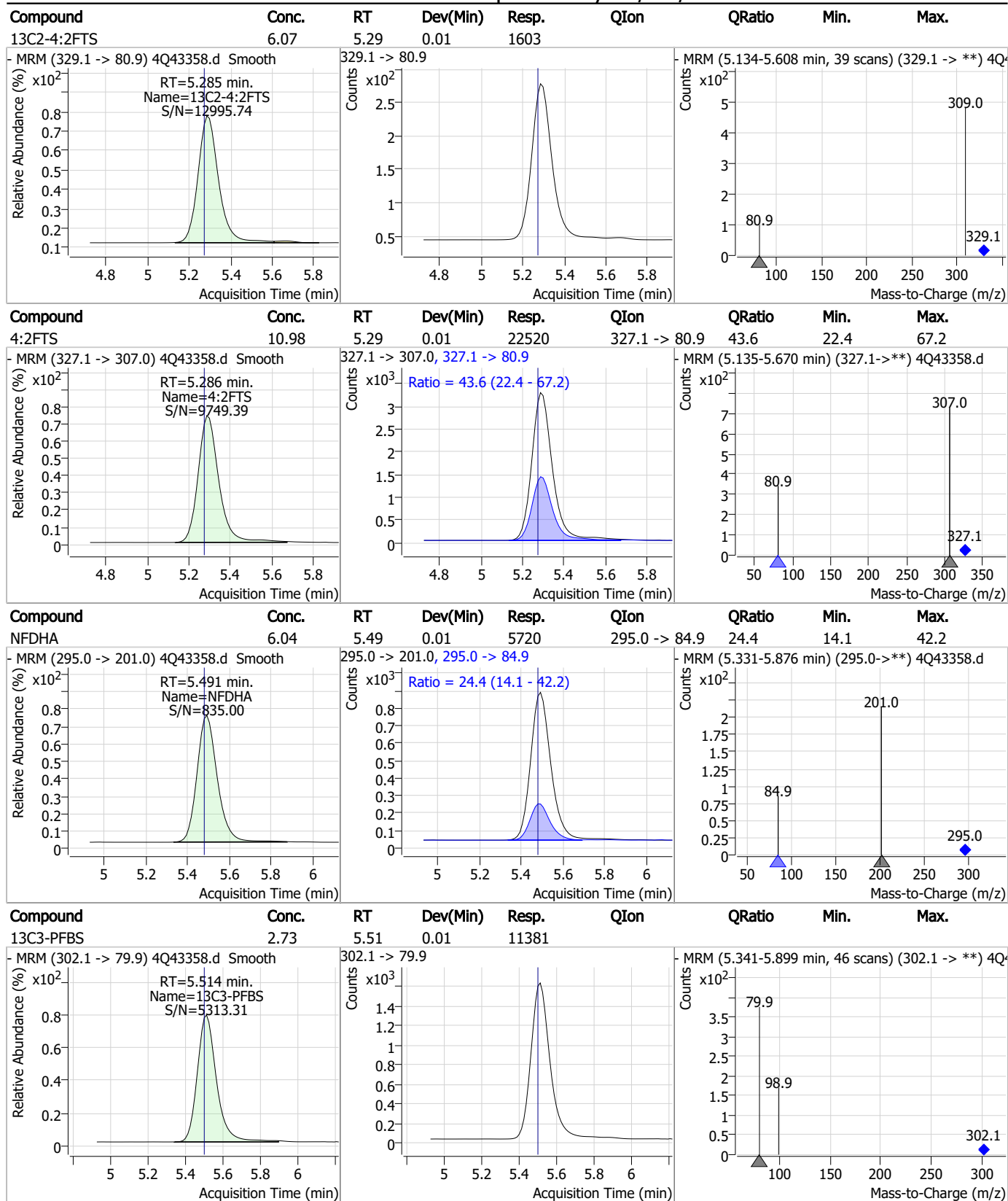


Perfluorinated Compounds by LC/MS/MS



7.3.3
7

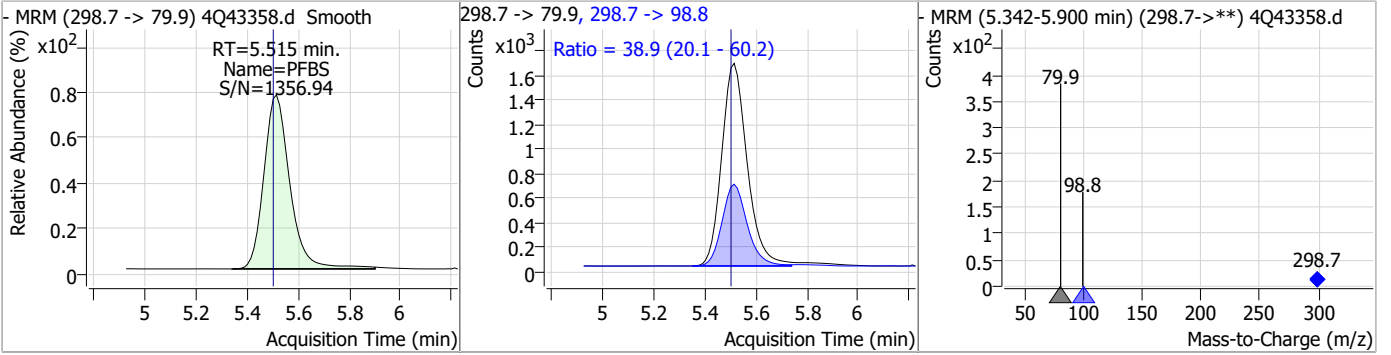
Perfluorinated Compounds by LC/MS/MS



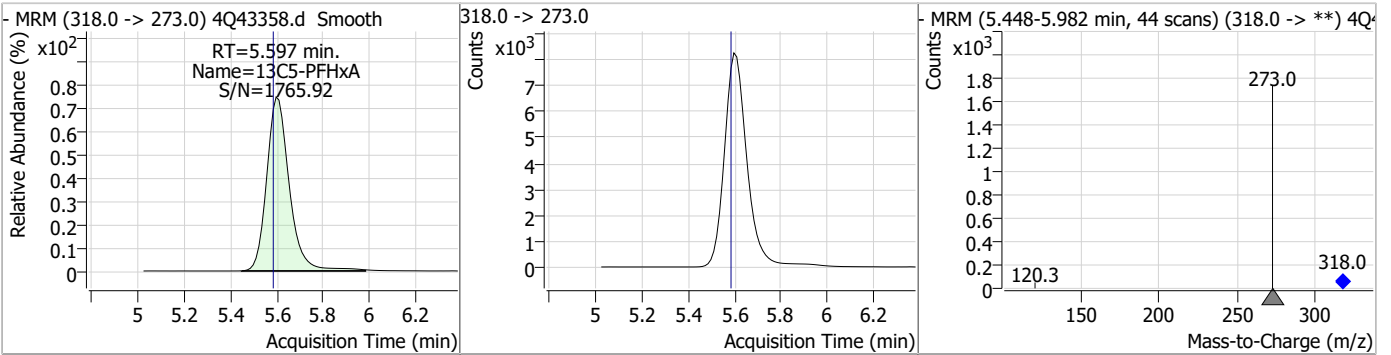
7.3.3
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Perfluorinated Compounds by LC/MS/MS

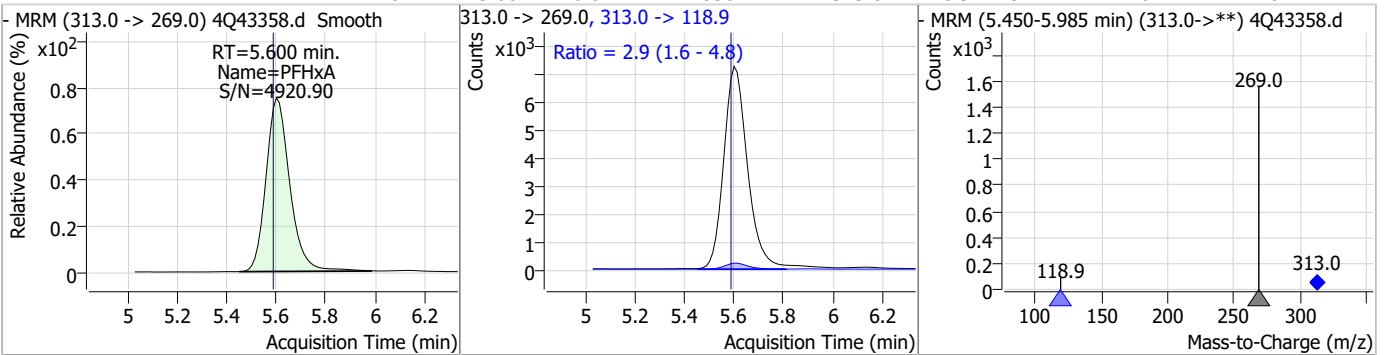
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.59	5.52	0.01	11660	298.7 -> 98.8	38.9	20.1	60.2



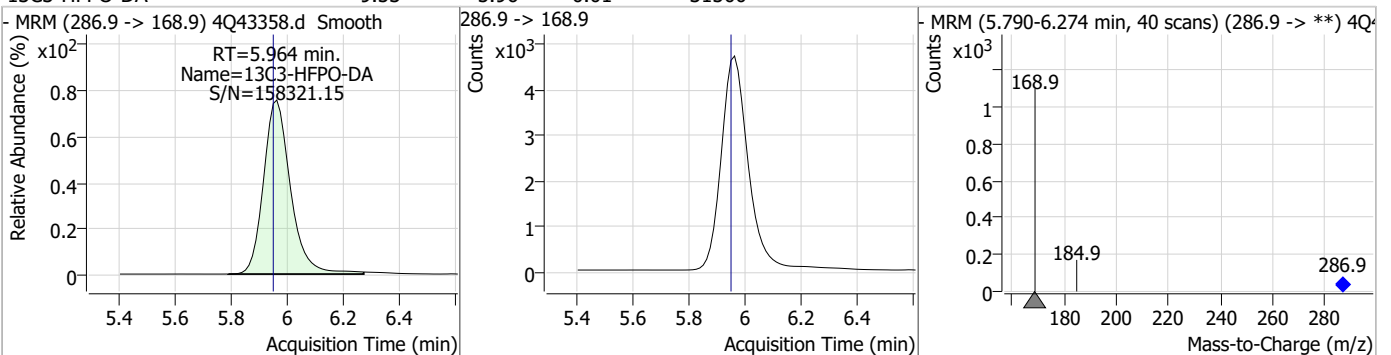
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.71	5.60	0.01	55460				



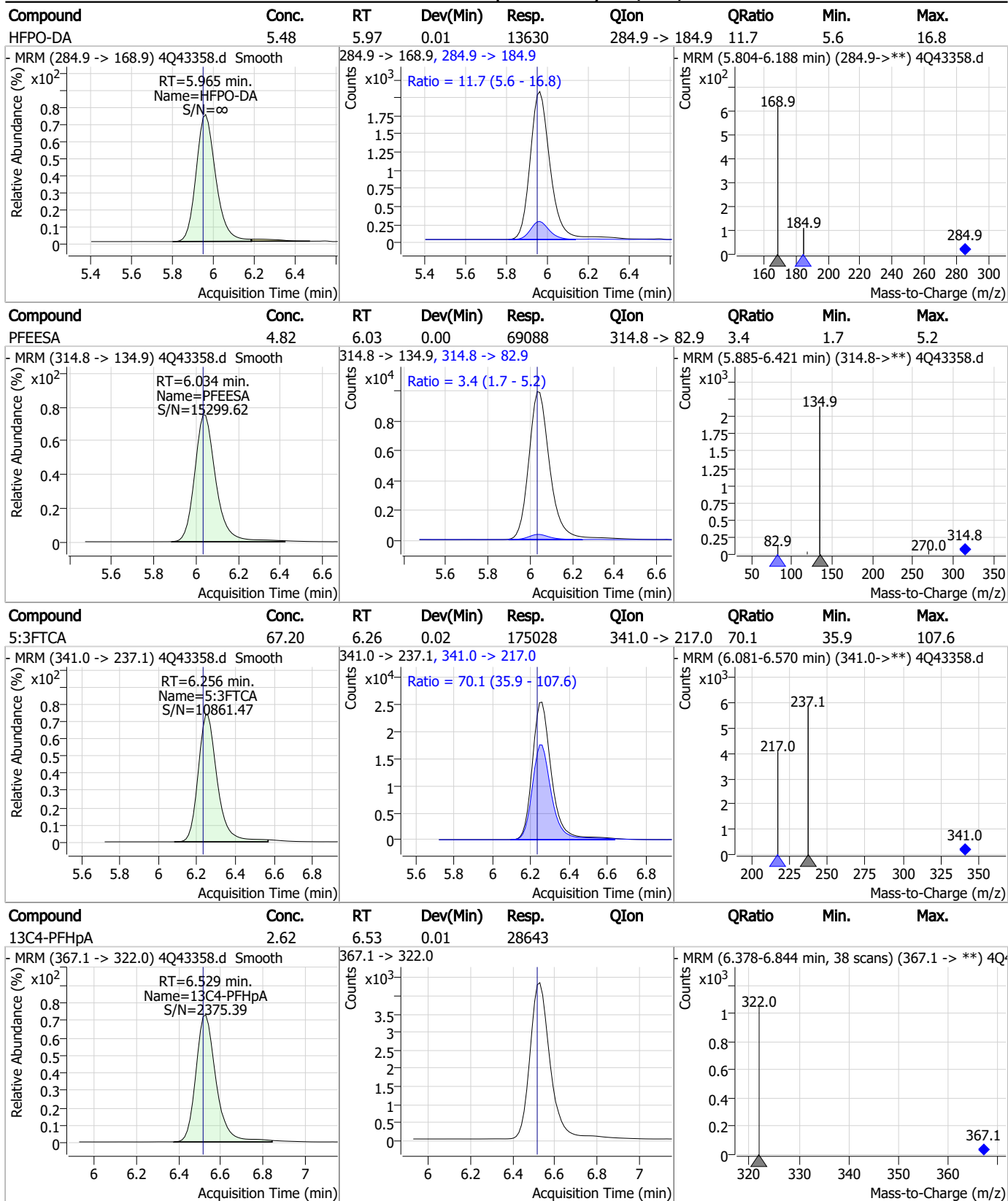
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.78	5.60	0.01	48502	313.0 -> 118.9	2.9	1.6	4.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.53	5.96	0.01	31500				

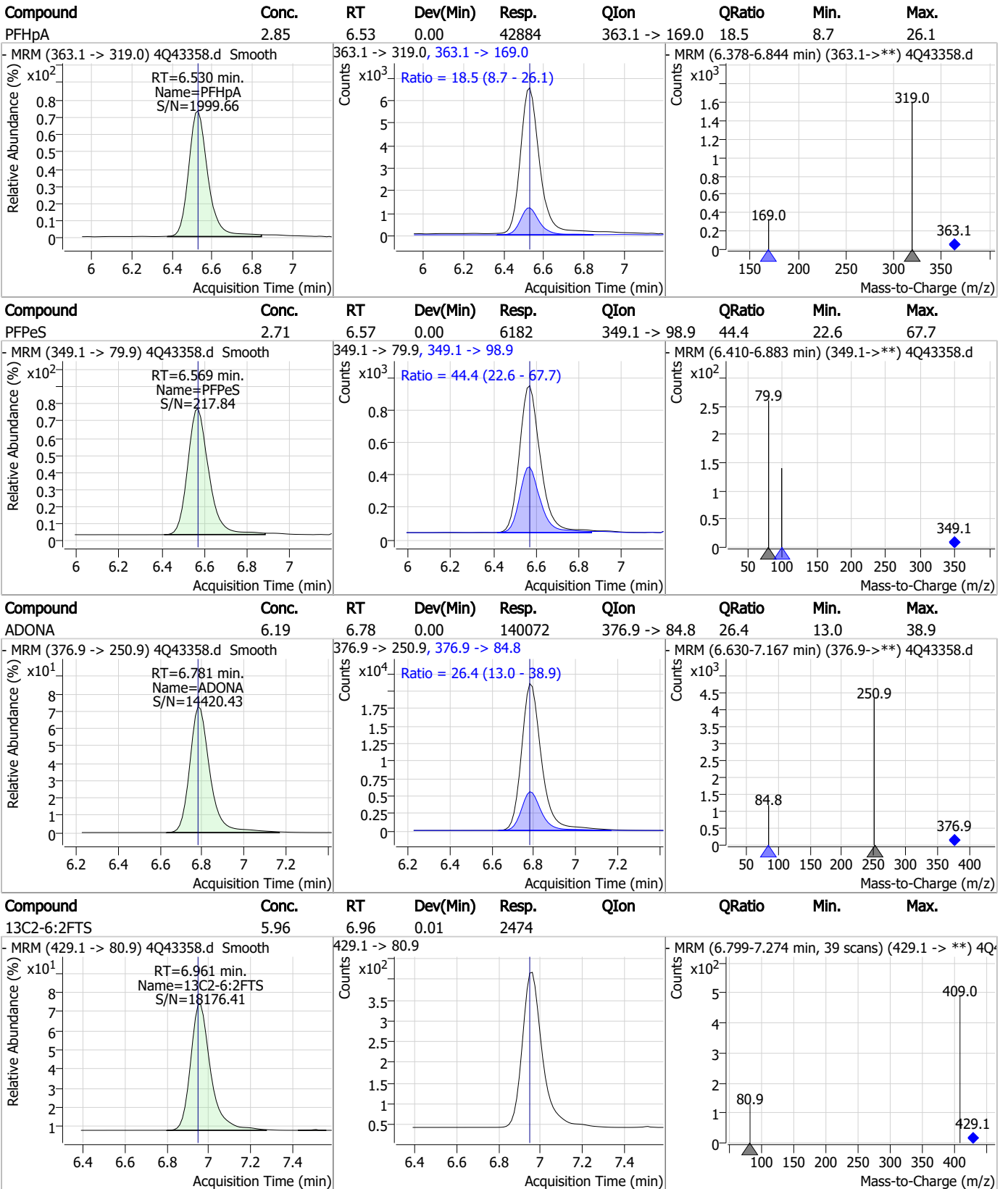


Perfluorinated Compounds by LC/MS/MS



7.3.3
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Perfluorinated Compounds by LC/MS/MS

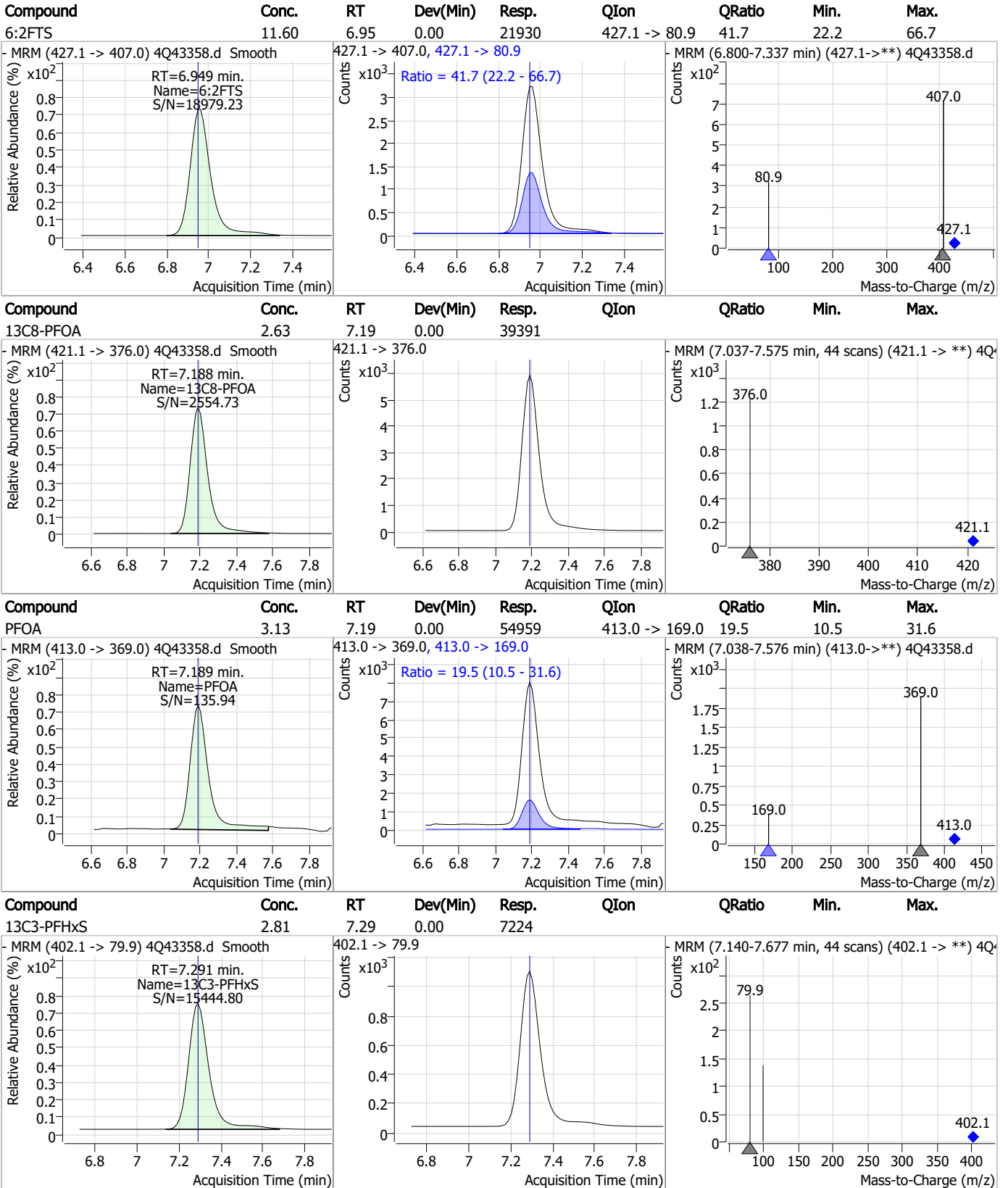


7.3.3

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Perfluorinated Compounds by LC/MS/MS

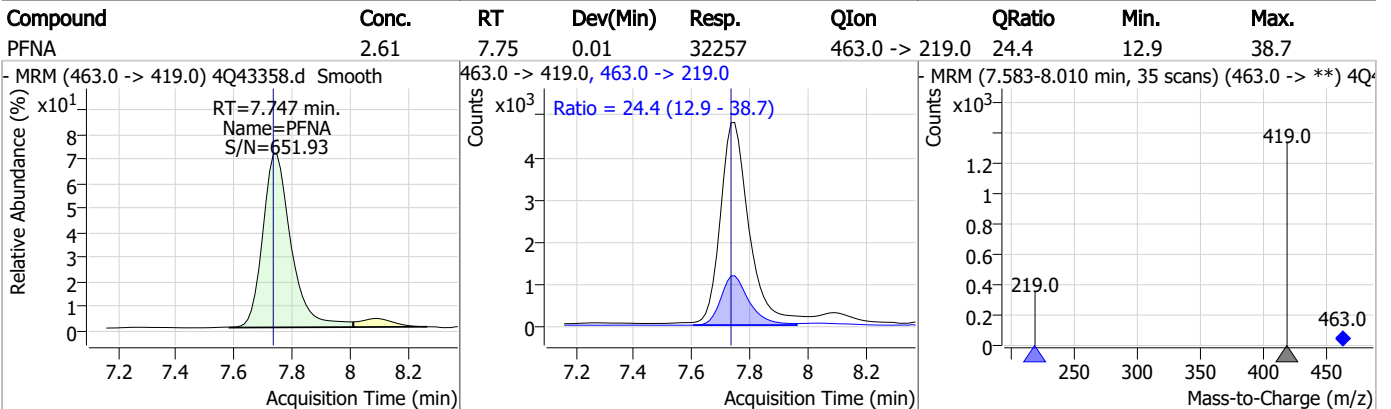
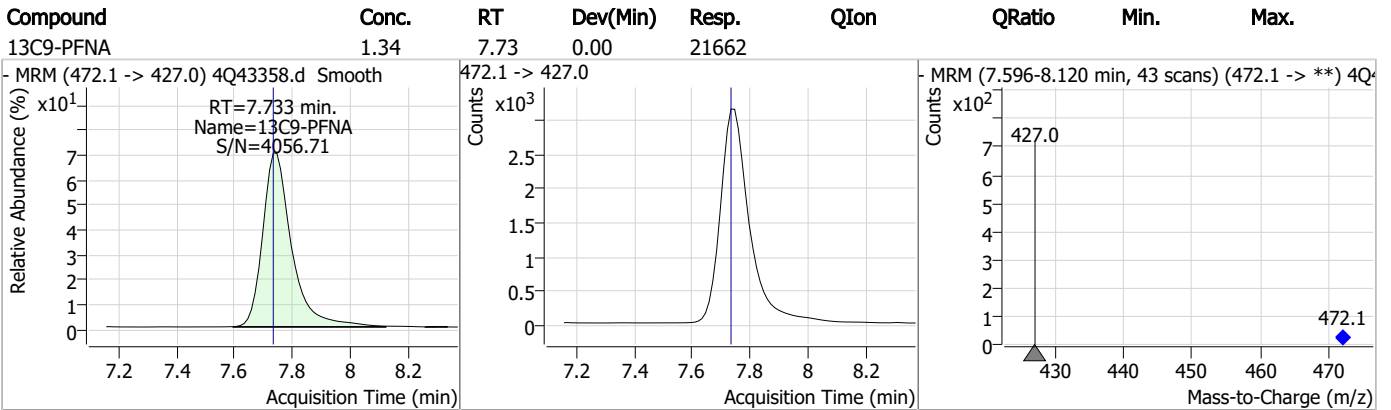
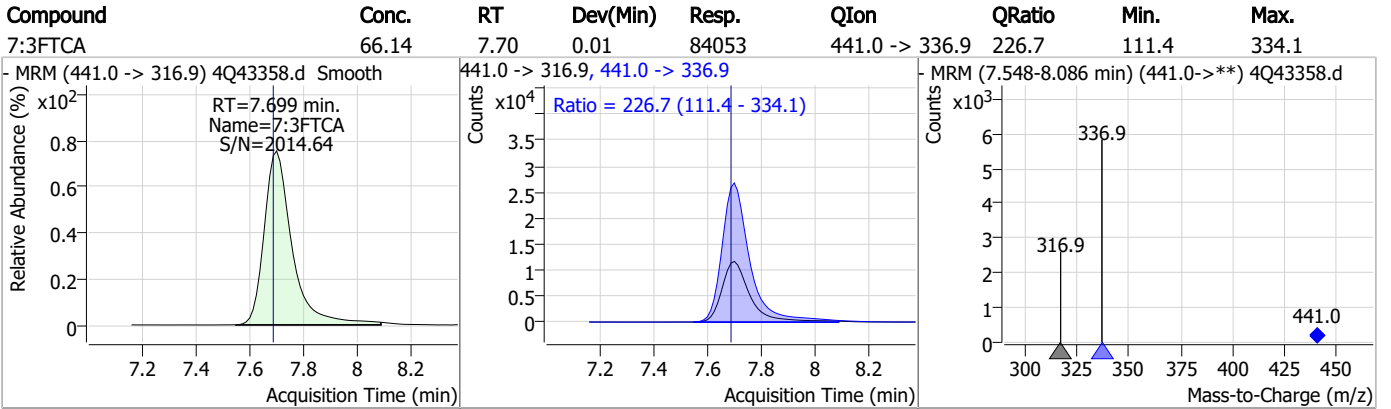
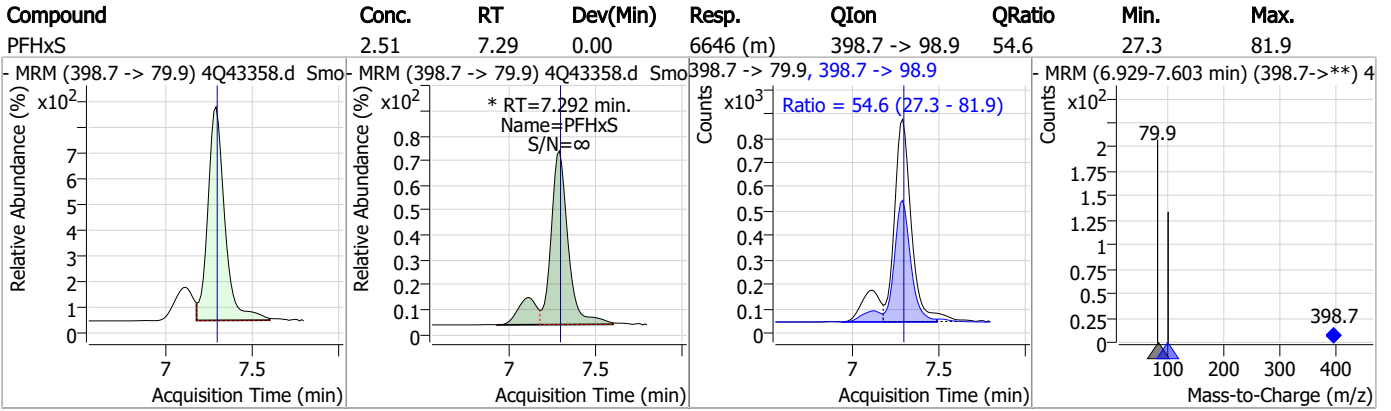


7.3.3

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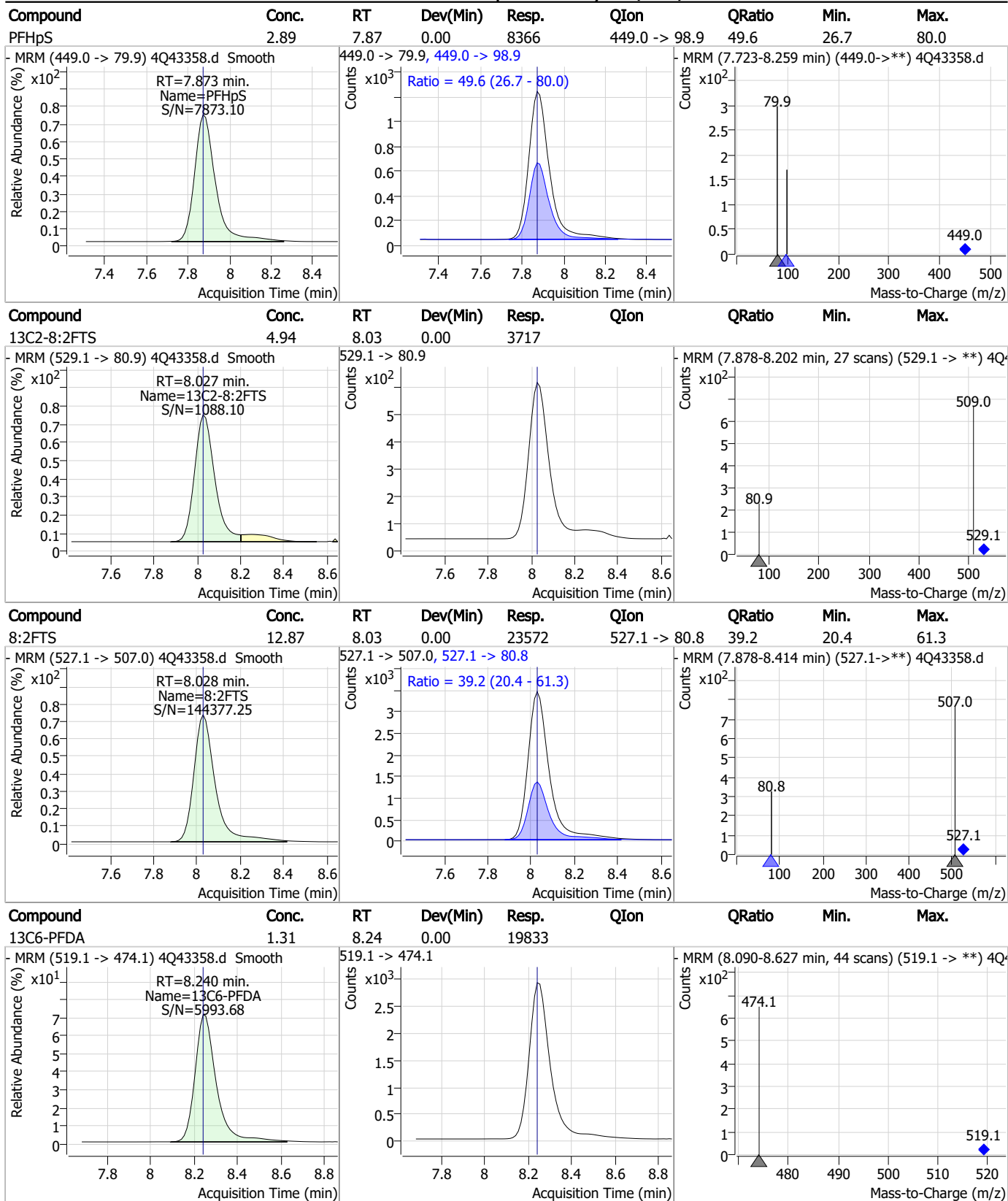
Perfluorinated Compounds by LC/MS/MS



7.3.3

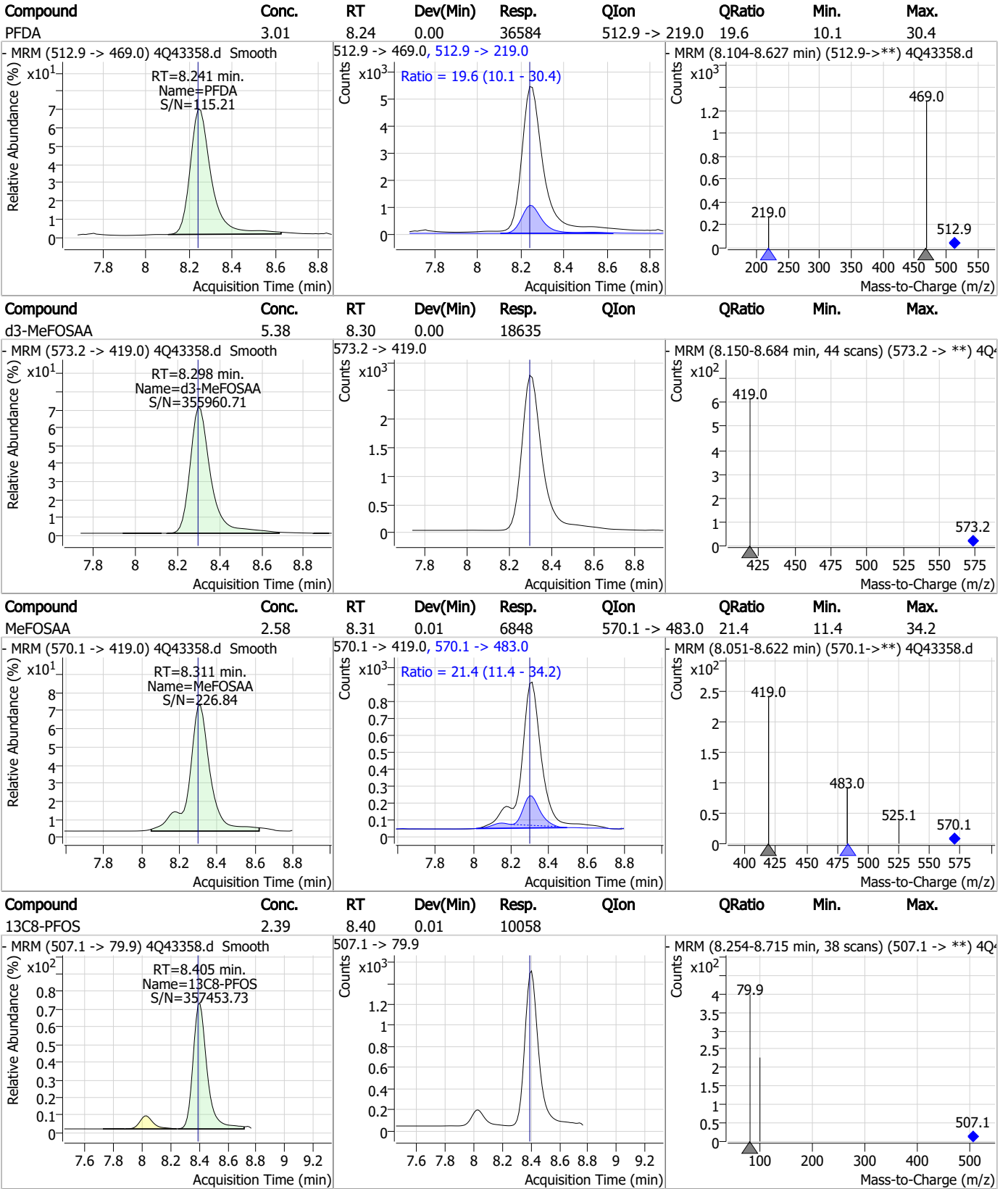
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Perfluorinated Compounds by LC/MS/MS



7.3.3
7

Perfluorinated Compounds by LC/MS/MS

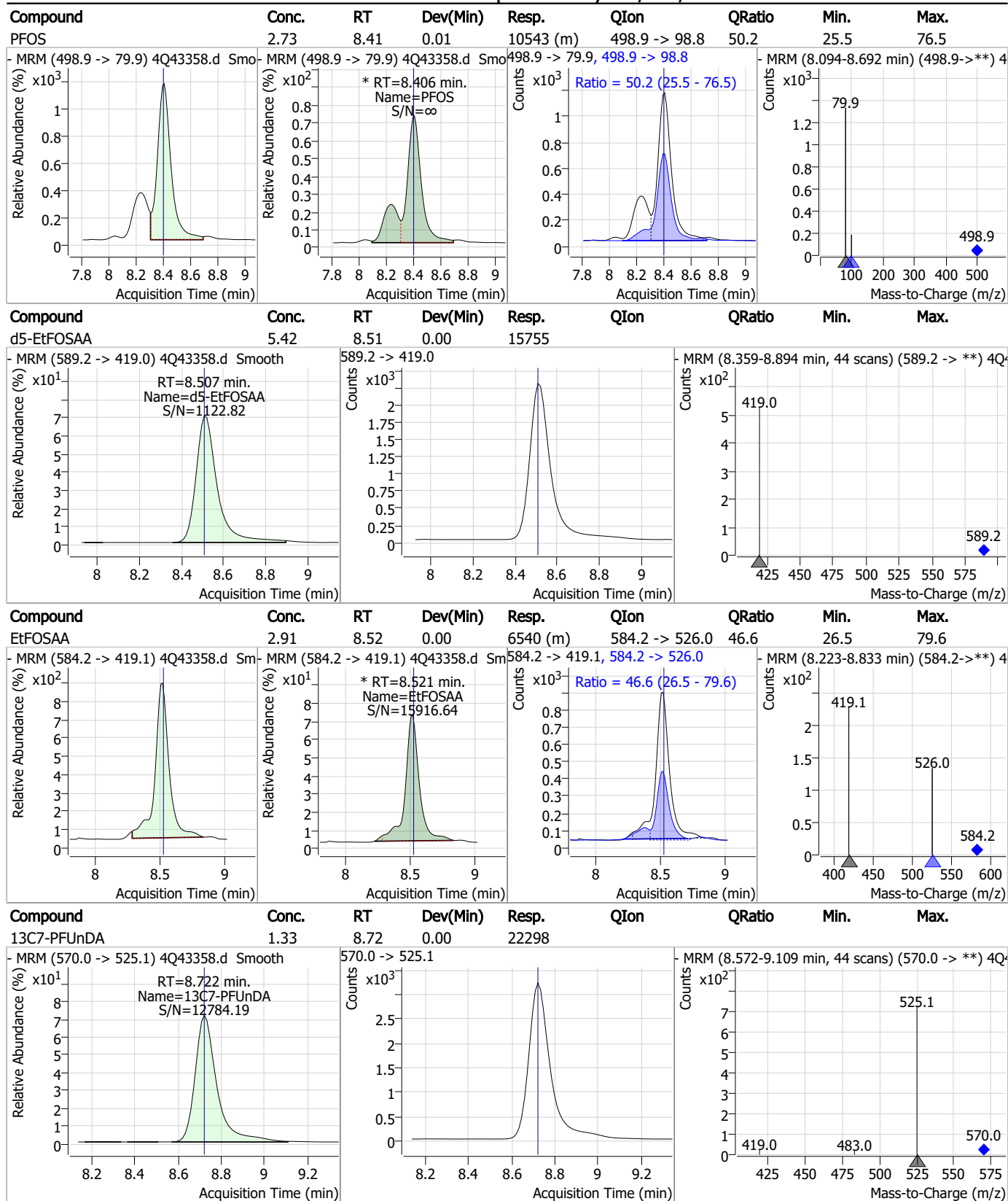


7.3.3

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Perfluorinated Compounds by LC/MS/MS

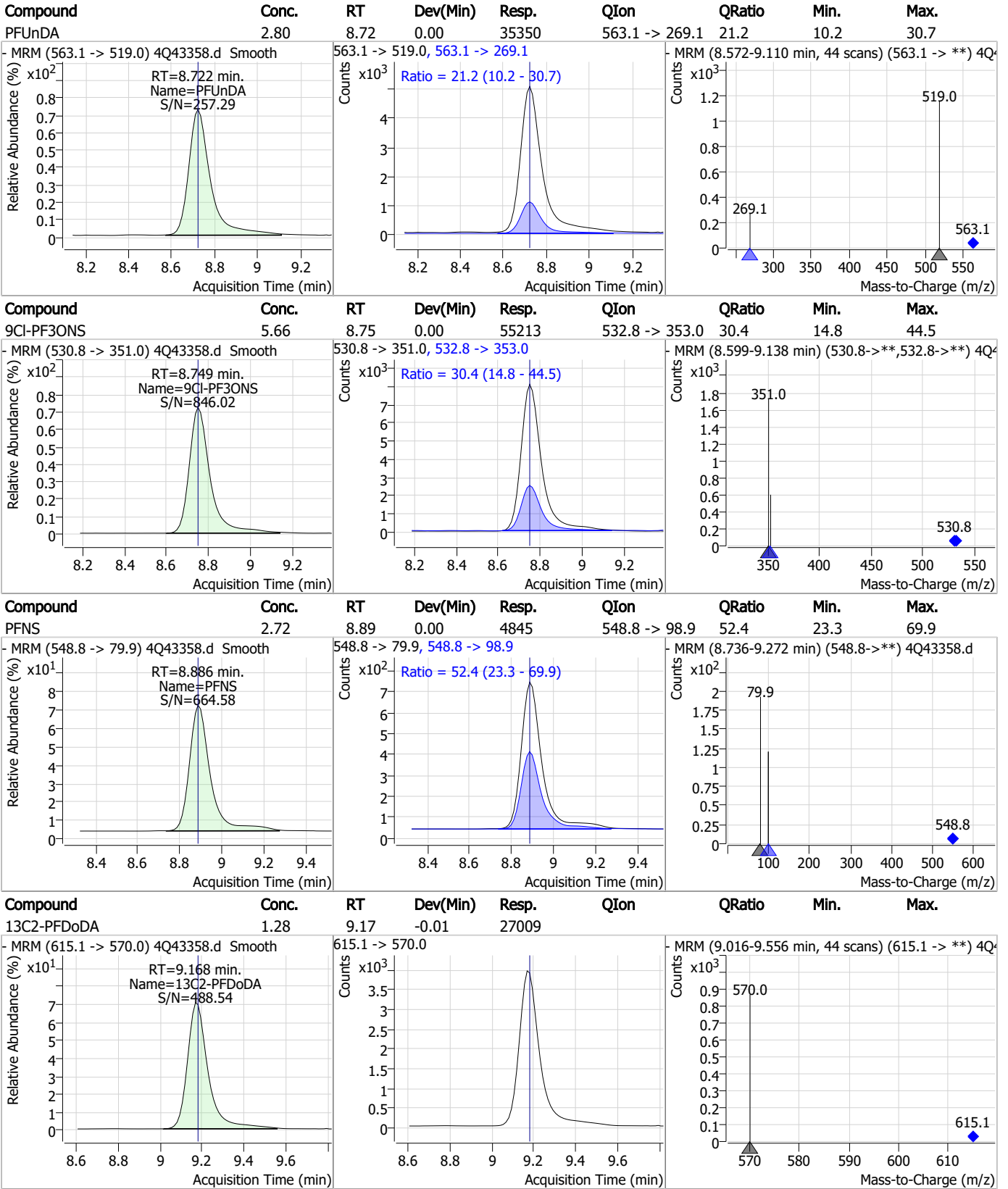


7.3.3

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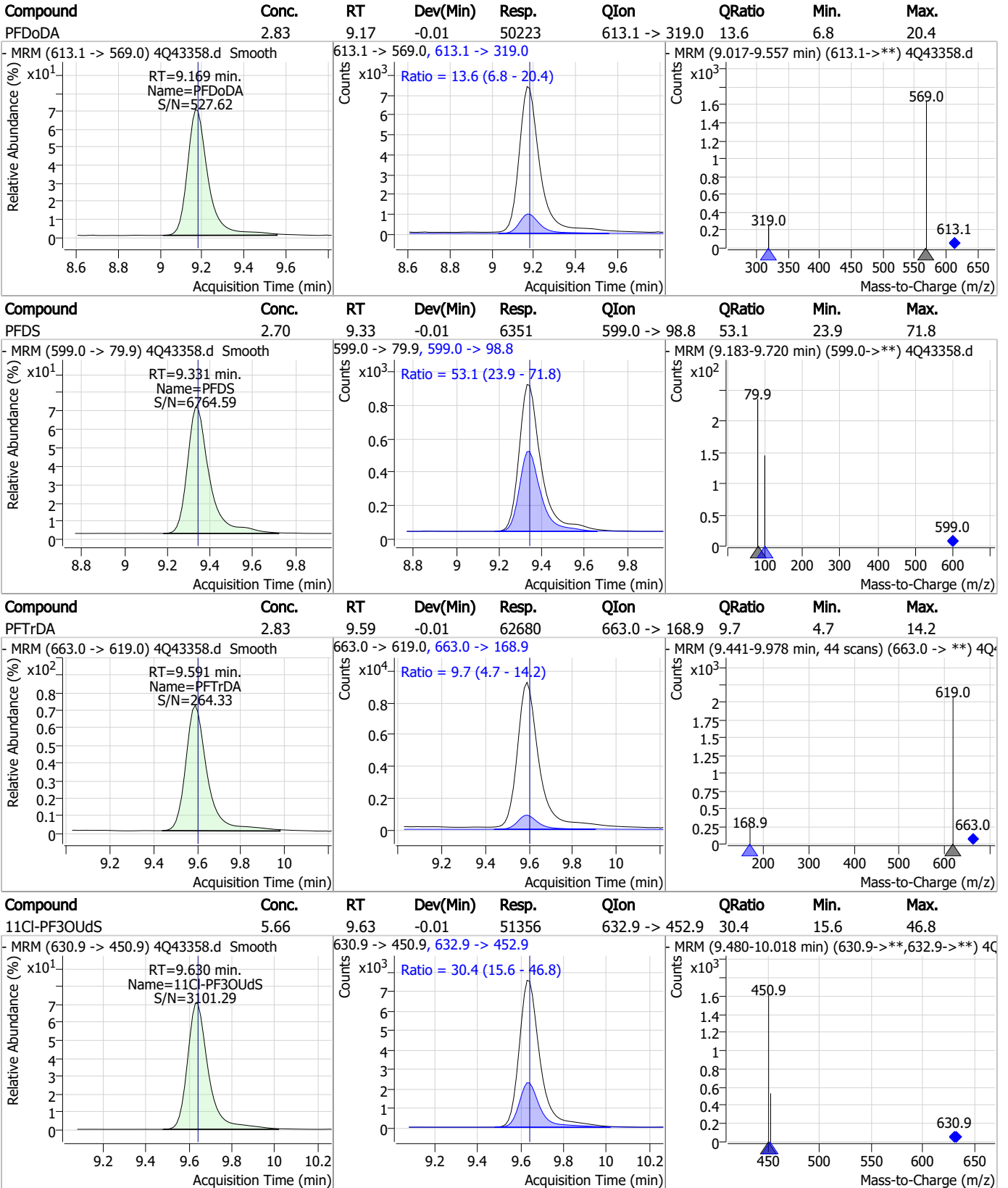
Perfluorinated Compounds by LC/MS/MS



7.3.3

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Perfluorinated Compounds by LC/MS/MS

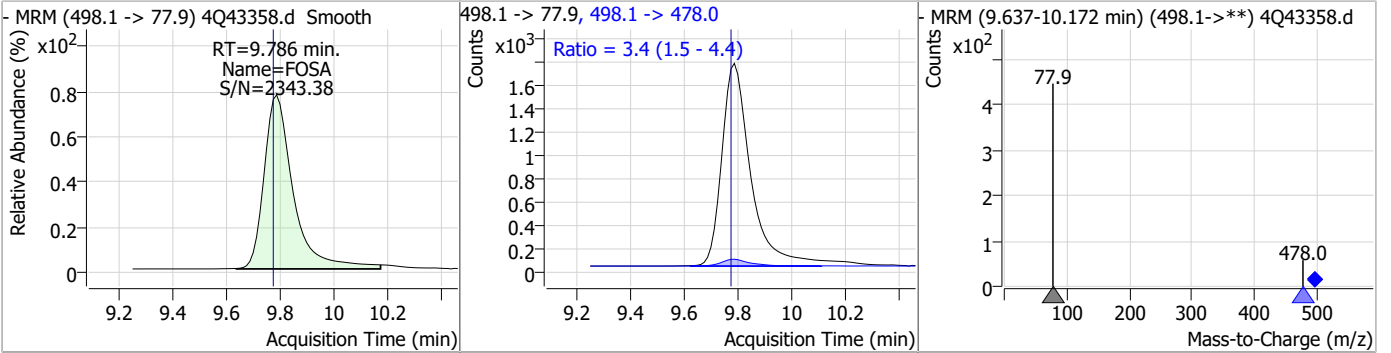


7.3.3
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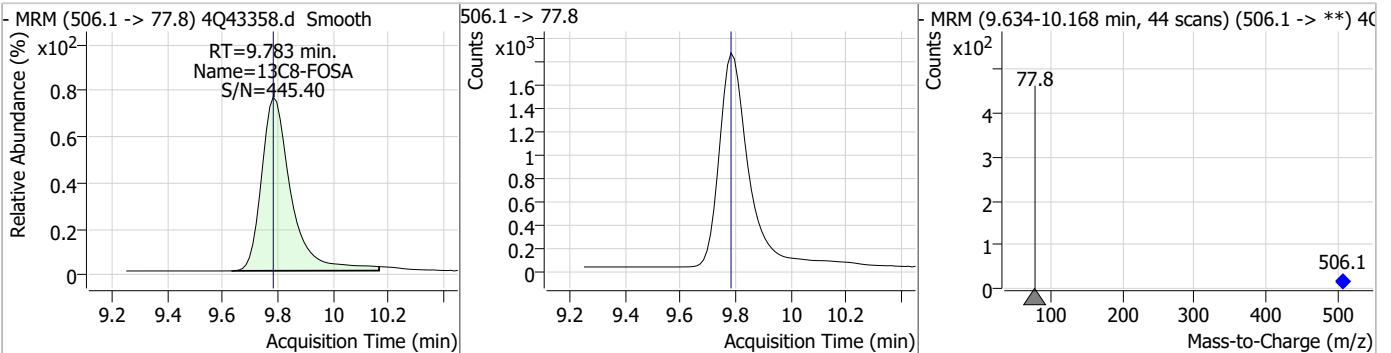


Perfluorinated Compounds by LC/MS/MS

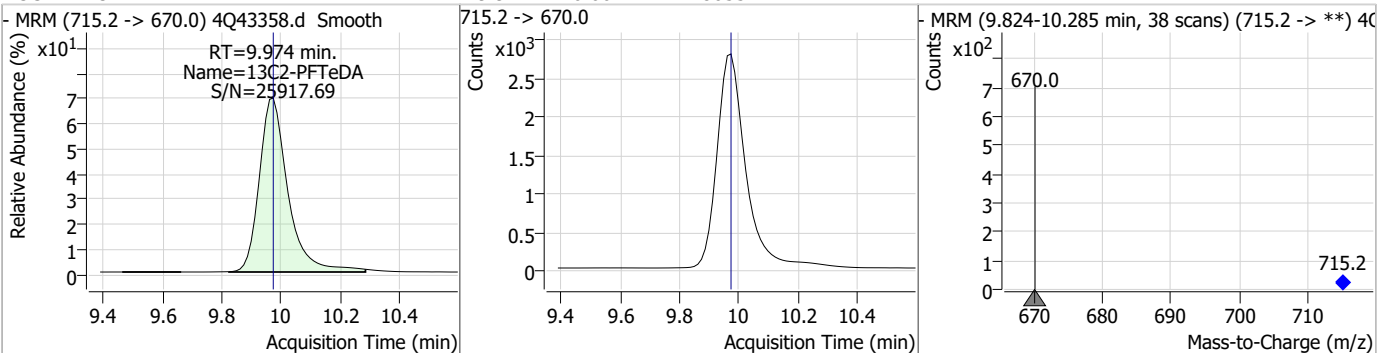
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.86	9.79	0.01	13157	498.1 -> 478.0	3.4	1.5	4.4



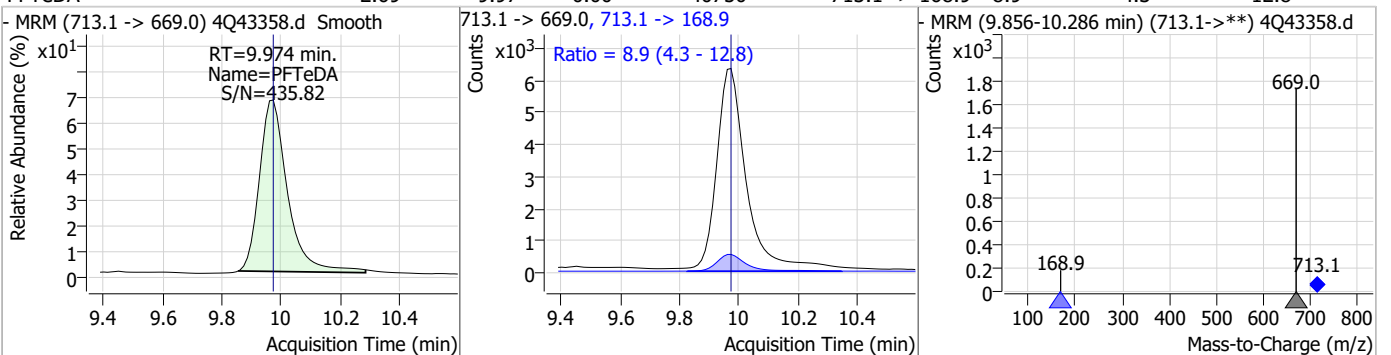
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	1.78	9.78	0.00	13616				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.11	9.97	0.00	18655				

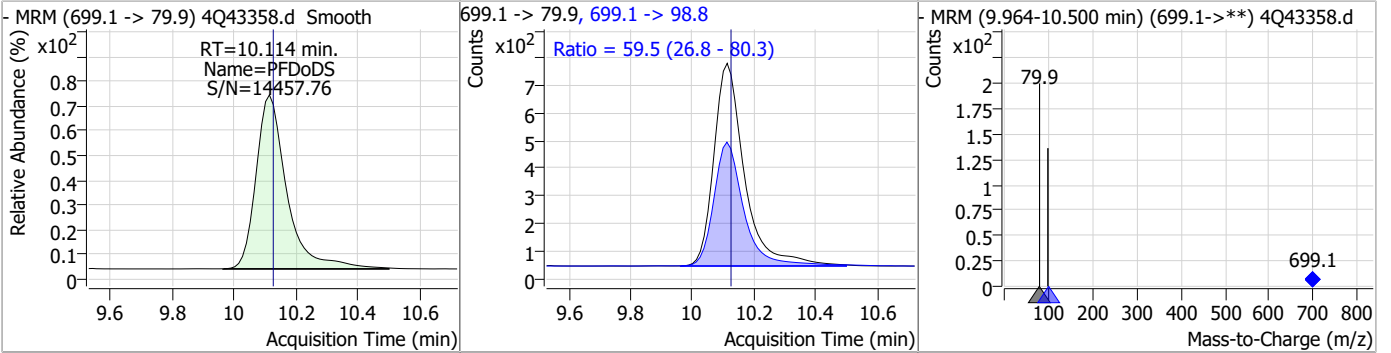


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.69	9.97	0.00	40750	713.1 -> 168.9	8.9	4.3	12.8

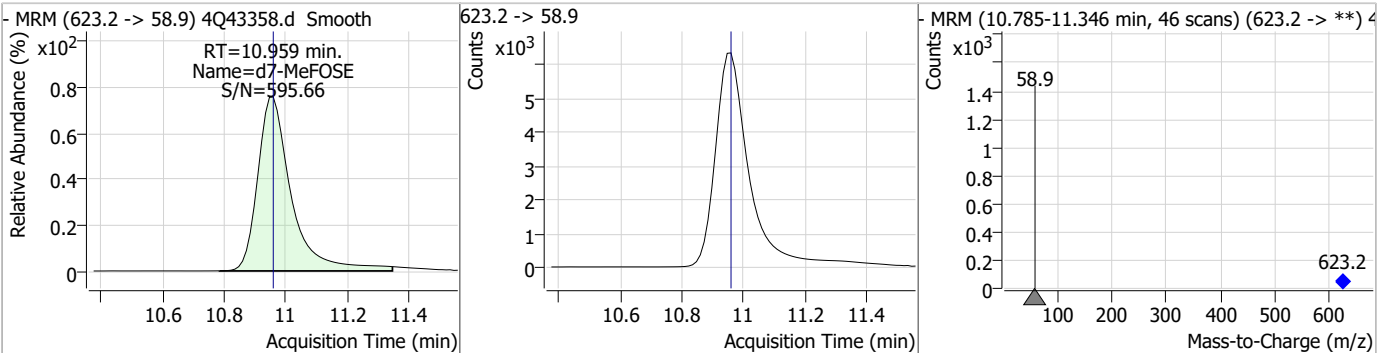


Perfluorinated Compounds by LC/MS/MS

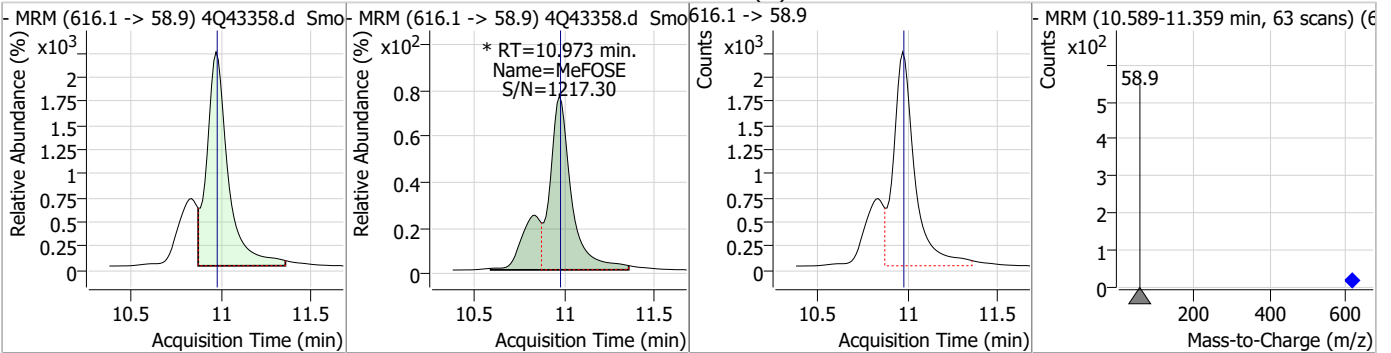
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.39	10.11	-0.01	5093	699.1 -> 98.8	59.5	26.8	80.3



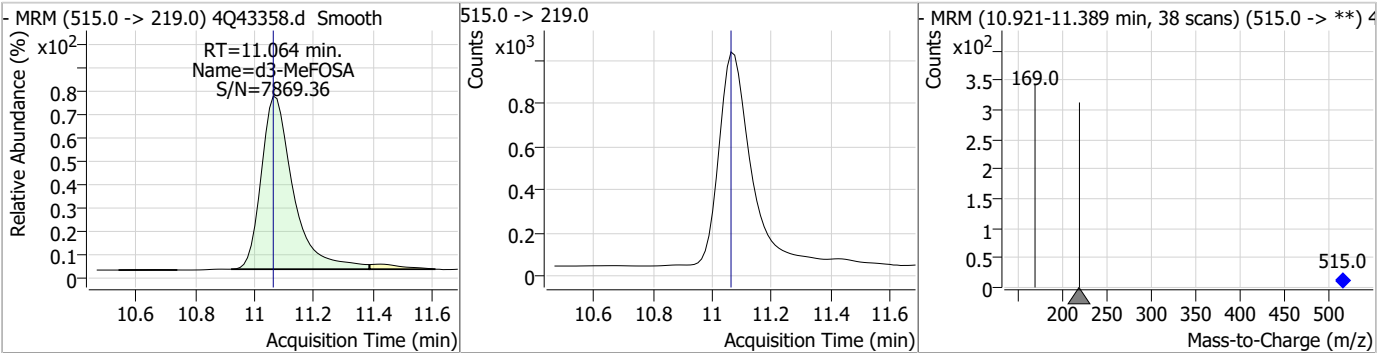
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	14.77	10.96	0.00	47746				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	13.79	10.97	0.00	23410 (m)				

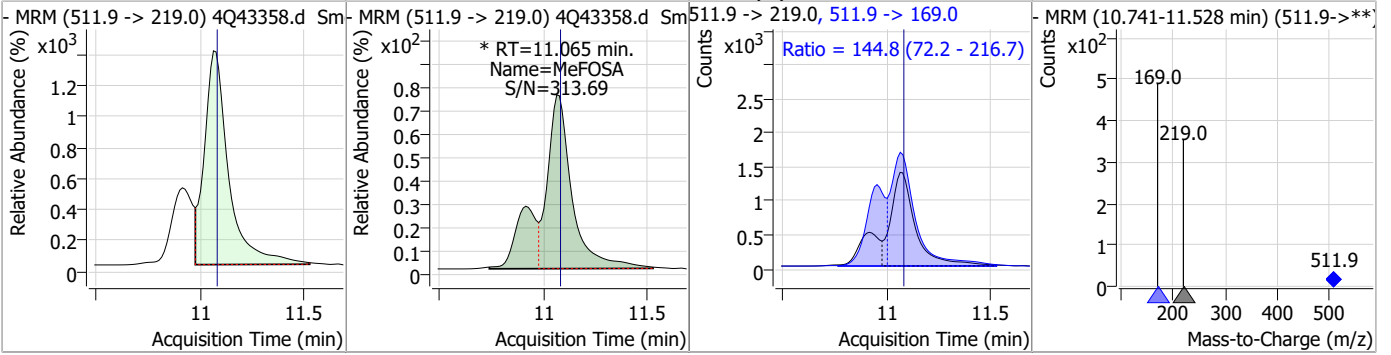


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.89	11.06	0.00	7477				

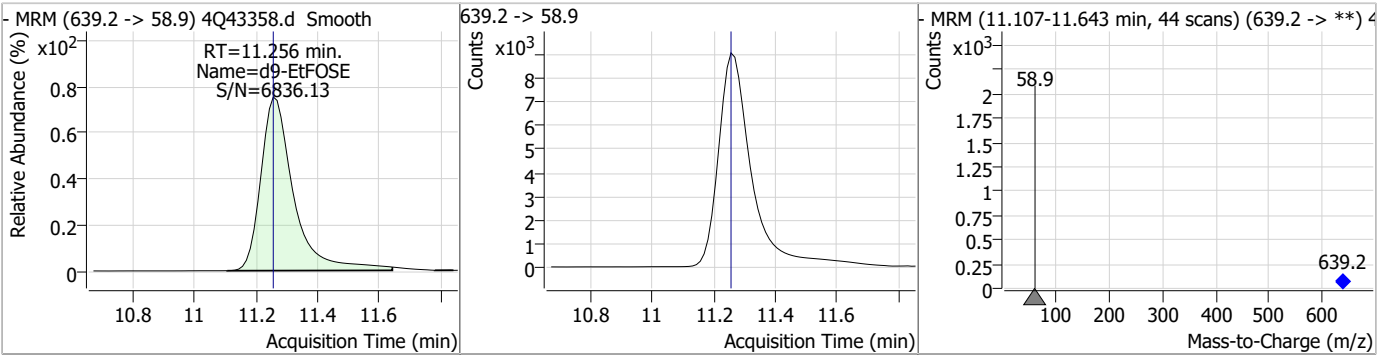


Perfluorinated Compounds by LC/MS/MS

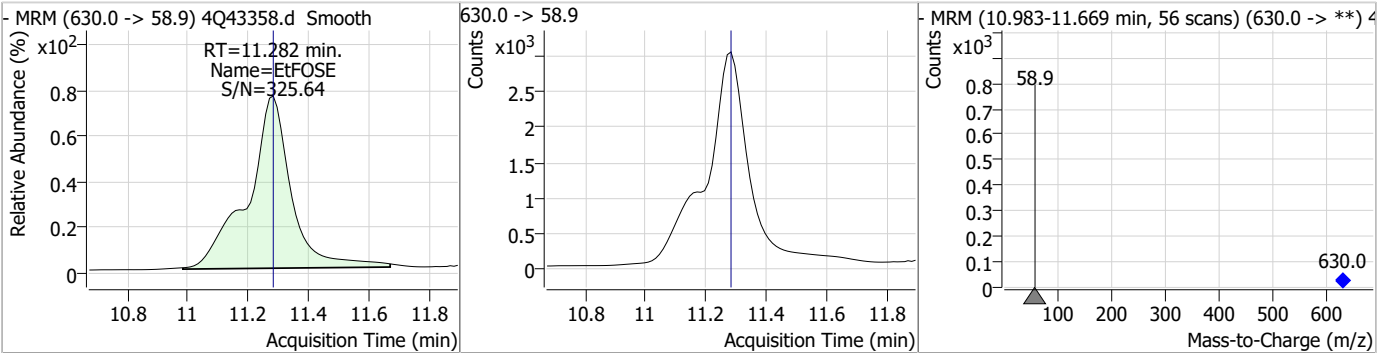
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.87	11.07	-0.01	14673 (m)	511.9 -> 169.0	144.8	72.2	216.7



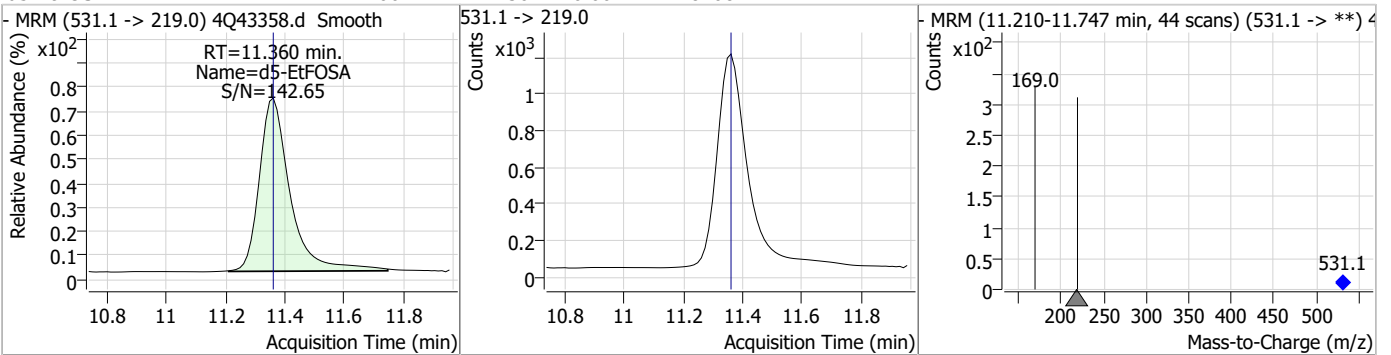
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	16.00	11.26	0.00	66269				



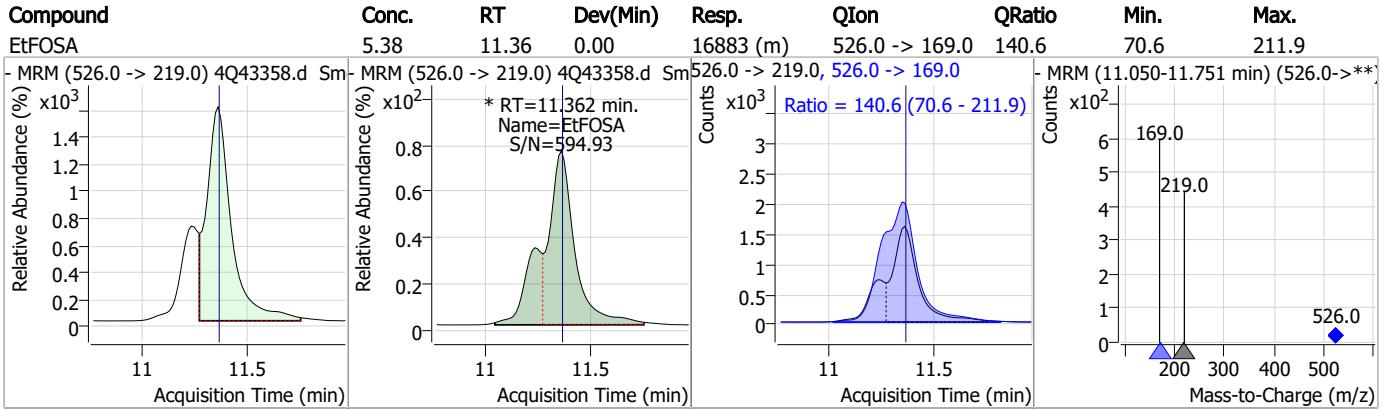
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	14.16	11.28	0.00	29913				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.00	11.36	0.00	8408				



Perfluorinated Compounds by LC/MS/MS



7.3.3

7

Manual Integration Approval Summary

Sample Number: OP96494-BS Method: EPA DRAFT 1633
Lab FileID: 4Q43358.D Analyst approved: 04/21/23 11:54 Natasha Gumtie
Injection Time: 04/20/23 23:19 Supervisor approved: 04/21/23 14:54 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.41	Split peak
EtFOSAA	2991-50-6		8.52	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.06	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.3.3.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43359.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/20/2023 11:33:08 PM
 Sample Name : op96494-llbs:3
 Vial : P3-C3
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s4q626.batch.bin
 Sample Information : OP96494,S4q626,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.990	216.8 -> 171.9	125489	10.00 µg/L	0.053
M5-PFPeA	4.437	268.3 -> 223.0	65199	5.00 µg/L	0.025
M5-PFHxA	5.597	318.0 -> 273.0	53086	2.50 µg/L	0.012
M4-PFHpA	6.529	367.1 -> 322.0	28436	2.50 µg/L	0.012
M8-PFOA	7.188	421.1 -> 376.0	38258	2.50 µg/L	0.000
M9-PFNA	7.746	472.1 -> 427.0	20863	1.25 µg/L	0.013
M6-PFDA	8.240	519.1 -> 474.1	18817	1.25 µg/L	0.000
M7-PFUnDA	8.722	570.0 -> 525.1	21085	1.25 µg/L	0.000
M2-PFDoDA	9.168	615.1 -> 570.0	25218	1.25 µg/L	-0.012
M2-PFTeDA	9.961	715.2 -> 670.0	16828	1.25 µg/L	-0.012
M8-FOSA	9.783	506.1 -> 77.8	12520	2.50 µg/L	0.000
M3-PFBS	5.514	302.1 -> 79.9	11138	2.50 µg/L	0.012
M3-PFHxS	7.291	402.1 -> 79.9	6933	2.50 µg/L	0.000
M8-PFOS	8.405	507.1 -> 79.9	9630	2.50 µg/L	0.012
M2-4:2FTS	5.285	329.1 -> 80.9	1614	5.00 µg/L	0.012
M2-6:2FTS	6.961	429.1 -> 80.9	2587	5.00 µg/L	0.012
M2-8:2FTS	8.027	529.1 -> 80.9	4199	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	17572	5.00 µg/L	0.000
M3-HFPO-DA	5.964	286.9 -> 168.9	30179	10.00 µg/L	0.013
M5-EtFOSAA	8.507	589.2 -> 419.0	14627	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	41534	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	60511	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	6330	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	5743	2.50 µg/L	0.000
13C4-PFOS	8.405	502.8 -> 79.9	10743	2.50 µg/L	0.000
13C3-PFBA	2.978	216.0 -> 172.0	67152	5.00 µg/L	0.037
18O2-PFHxS	7.290	403.0 -> 83.9	4637	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	44590	2.50 µg/L	0.000
13C2-PFDA	8.241	515.1 -> 470.1	17692	1.25 µg/L	0.000
13C5-PFNA	7.746	468.0 -> 423.0	22625	1.25 µg/L	0.013
13C2-PFHxA	5.598	315.1 -> 270.0	44720	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.285	329.1 -> 80.9	1614	5.93 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.6%		
13C2-6:2FTS	6.961	429.1 -> 80.9	2587	6.04 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.7%		
13C2-8:2FTS	8.027	529.1 -> 80.9	4199	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-PFDoDA	9.168	615.1 -> 570.0	25218	1.18 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.5%		
13C2-PFTeDA	9.961	715.2 -> 670.0	16828	0.99 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 79.2%		
13C3-PFBS	5.514	302.1 -> 79.9	11138	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C3-PFHxS	7.291	402.1 -> 79.9	6933	2.62 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 = 104.7%	
13C4-PFBA	2.990	216.8 -> 171.9	125489	10.37 µg/L	0.053
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C4-PFHpA	6.529	367.1 -> 322.0	28436	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C5-PFHxA	5.597	318.0 -> 273.0	53086	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C5-PFPeA	4.437	268.3 -> 223.0	65199	4.77 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C6-PFDA	8.240	519.1 -> 474.1	18817	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C7-PFUnDA	8.722	570.0 -> 525.1	21085	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C8-FOSA	9.783	506.1 -> 77.8	12520	1.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 64.3%	
13C8-PFOA	7.188	421.1 -> 376.0	38258	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C8-PFOS	8.405	507.1 -> 79.9	9630	2.24 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.8%	
13C9-PFNA	7.746	472.1 -> 427.0	20863	1.32 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.6%	
d3-MeFOSAA	8.298	573.2 -> 419.0	17572	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C3-HFPO-DA	5.964	286.9 -> 168.9	30179	8.90 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.0%	
d3-MeFOSA	11.064	515.0 -> 219.0	5743	1.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 57.1%	
d5-EtFOSAA	8.507	589.2 -> 419.0	14627	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
d7-MeFOSE	10.959	623.2 -> 58.9	41534	12.60 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 50.4%	
d9-EtFOSE	11.256	639.2 -> 58.9	60511	14.34 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 57.3%	
d5-EtFOSA	11.360	531.1 -> 219.0	6330	1.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 59.2%	
Target Compounds					QValue
4:2FTS	5.286	327.1 -> 307.0	7309	3.54 µg/L	92
		327.1 -> 80.9	2869		
6:2FTS	6.961	427.1 -> 407.0	6733	3.41 µg/L	90
		427.1 -> 80.9	2558		
8:2FTS	8.028	527.1 -> 507.0	7399	3.57 µg/L	99
		527.1 -> 80.8	2988		
EtFOSAA	8.521	584.2 -> 419.1	1786	0.85 µg/L	m 88
		584.2 -> 526.0	1098		
FOSA	9.786	498.1 -> 77.9	3772	0.89 µg/L	98
		498.1 -> 478.0	83		
MeFOSAA	8.299	570.1 -> 419.0	2236	0.89 µg/L	m 94
		570.1 -> 483.0	442		
PFBA	2.982	212.8 -> 168.9	9835	3.38 µg/L	100
PFBS	5.515	298.7 -> 79.9	3365	0.76 µg/L	100
		298.7 -> 98.8	1344		
PFDA	8.241	512.9 -> 469.0	11023	0.95 µg/L	96
		512.9 -> 219.0	2036		
PFDODA	9.169	613.1 -> 569.0	15116	0.91 µg/L	95
		613.1 -> 319.0	2336		
PFDS	9.344	599.0 -> 79.9	1941	0.86 µg/L	94

7.3.4
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.530	599.0 -> 98.8	855	0.85	µg/L	99
		363.1 -> 319.0	12664			
PFHpS	7.873	363.1 -> 169.0	2250	0.96	µg/L	82
		449.0 -> 79.9	2657			
PFHxA	5.600	449.0 -> 98.9	1076	0.86	µg/L	100
		313.0 -> 269.0	14352			
PFHxS	7.292	313.0 -> 118.9	478	0.85	µg/L	m
		398.7 -> 79.9	2149			
PFNA	7.747	398.7 -> 98.9	943	0.81	µg/L	98
		463.0 -> 419.0	9594			
PFNS	8.886	463.0 -> 219.0	2553	0.73	µg/L	79
		548.8 -> 79.9	1239			
PFOA	7.189	548.8 -> 98.9	752	1.02	µg/L	94
		413.0 -> 369.0	17343			
PFOS	8.406	413.0 -> 169.0	3151	0.97	µg/L	m
		498.9 -> 79.9	3592			
PFPeA	4.439	498.9 -> 98.8	1565	1.86	µg/L	100
		263.0 -> 219.0	24174			
PFPeS	6.569	349.1 -> 79.9	1898	0.87	µg/L	86
		349.1 -> 98.9	1026			
PFTeDA	9.962	713.1 -> 669.0	11886	0.87	µg/L	97
		713.1 -> 168.9	1127			
PFTrDA	9.591	663.0 -> 619.0	17594	0.85	µg/L	98
		663.0 -> 168.9	1767			
PFUnDA	8.722	563.1 -> 519.0	10999	0.92	µg/L	98
		563.1 -> 269.1	2133			
11Cl-PF3OUdS	9.630	630.9 -> 450.9	15445	1.78	µg/L	99
		632.9 -> 452.9	4697			
9Cl-PF3ONS	8.749	530.8 -> 351.0	16378	1.75	µg/L	96
		532.8 -> 353.0	4526			
ADONA	6.781	376.9 -> 250.9	41287	1.90	µg/L	98
		376.9 -> 84.8	11170			
HFPO-DA	5.965	284.9 -> 168.9	4181	1.75	µg/L	99
		284.9 -> 184.9	487			
3:3FTCA	3.917	241.0 -> 177.0	2450	3.95	µg/L	99
		241.0 -> 117.0	236			
5:3FTCA	6.256	341.0 -> 237.1	49775	19.97	µg/L	99
		341.0 -> 217.0	35406			
7:3FTCA	7.699	441.0 -> 316.9	24659	20.27	µg/L	96
		441.0 -> 336.9	56419			
EtFOSA	11.362	526.0 -> 219.0	4275	1.81	µg/L	m
		526.0 -> 169.0	5631			
EtFOSE	11.282	630.0 -> 58.9	8086	4.19	µg/L	100
		511.9 -> 219.0	3389			
MeFOSA	11.078	511.9 -> 169.0	5134	1.76	µg/L	m
		616.1 -> 58.9	5235			
MeFOSE	10.973	699.1 -> 79.9	1578	3.54	µg/L	m
		699.1 -> 98.8	905			
PFDoDS	10.114	295.0 -> 201.0	1815	2.00	µg/L	94
		295.0 -> 84.9	458			
NFDHA	5.491	279.0 -> 85.1	13650	1.84	µg/L	100
		229.0 -> 84.9	12258			
PFMBA	3.591	314.8 -> 134.9	20884	1.85	µg/L	100
		314.8 -> 82.9	836			
PFEESA	6.034			1.52	µg/L	98

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

7.3.4
7

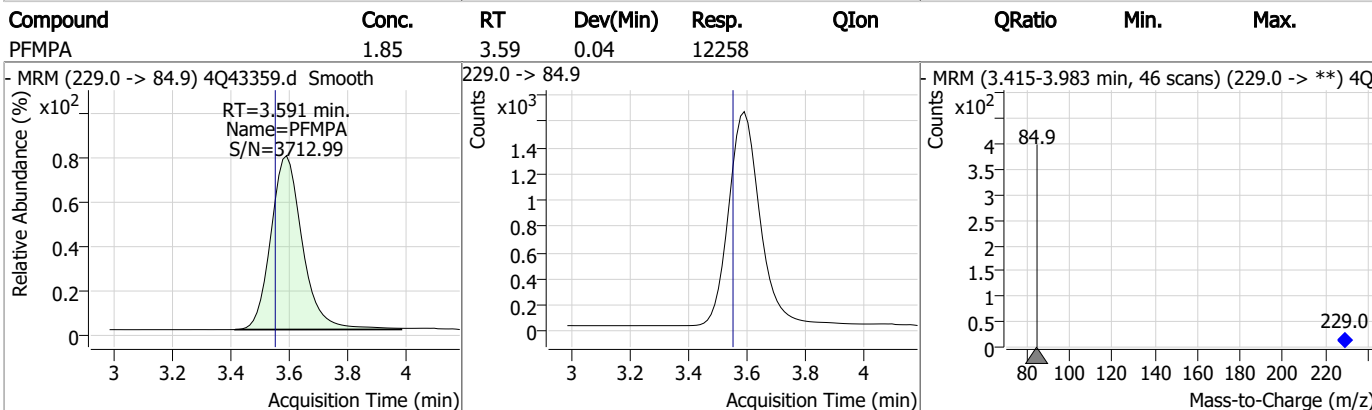
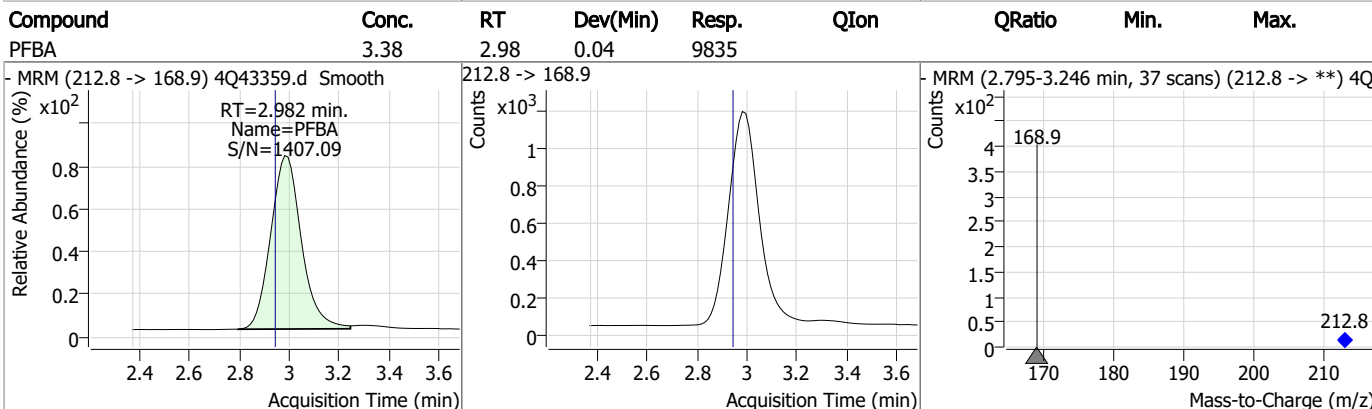
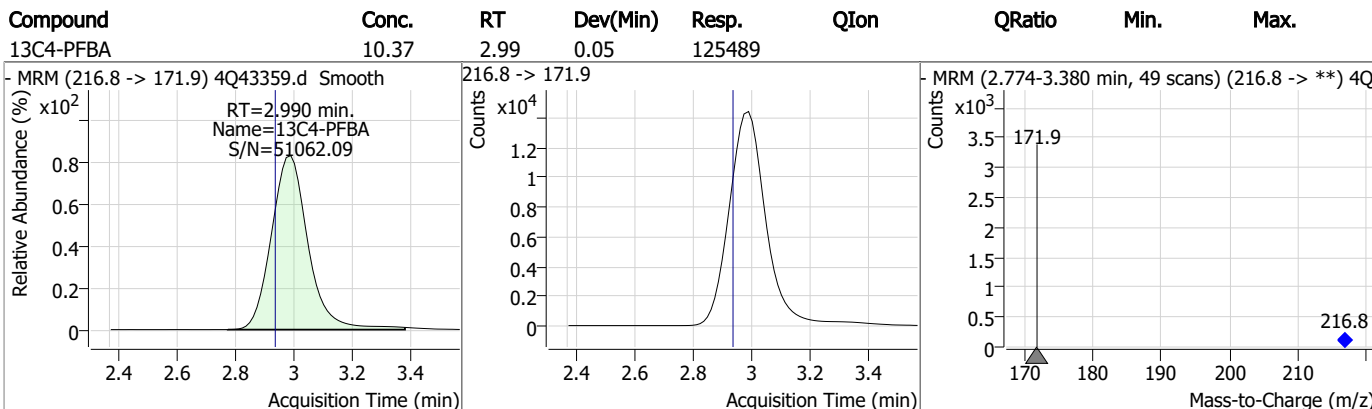
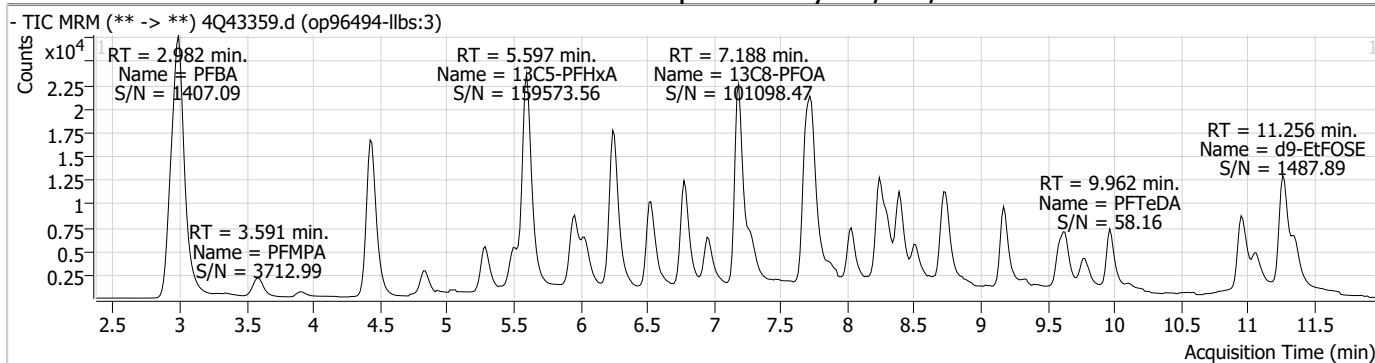
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.3.4

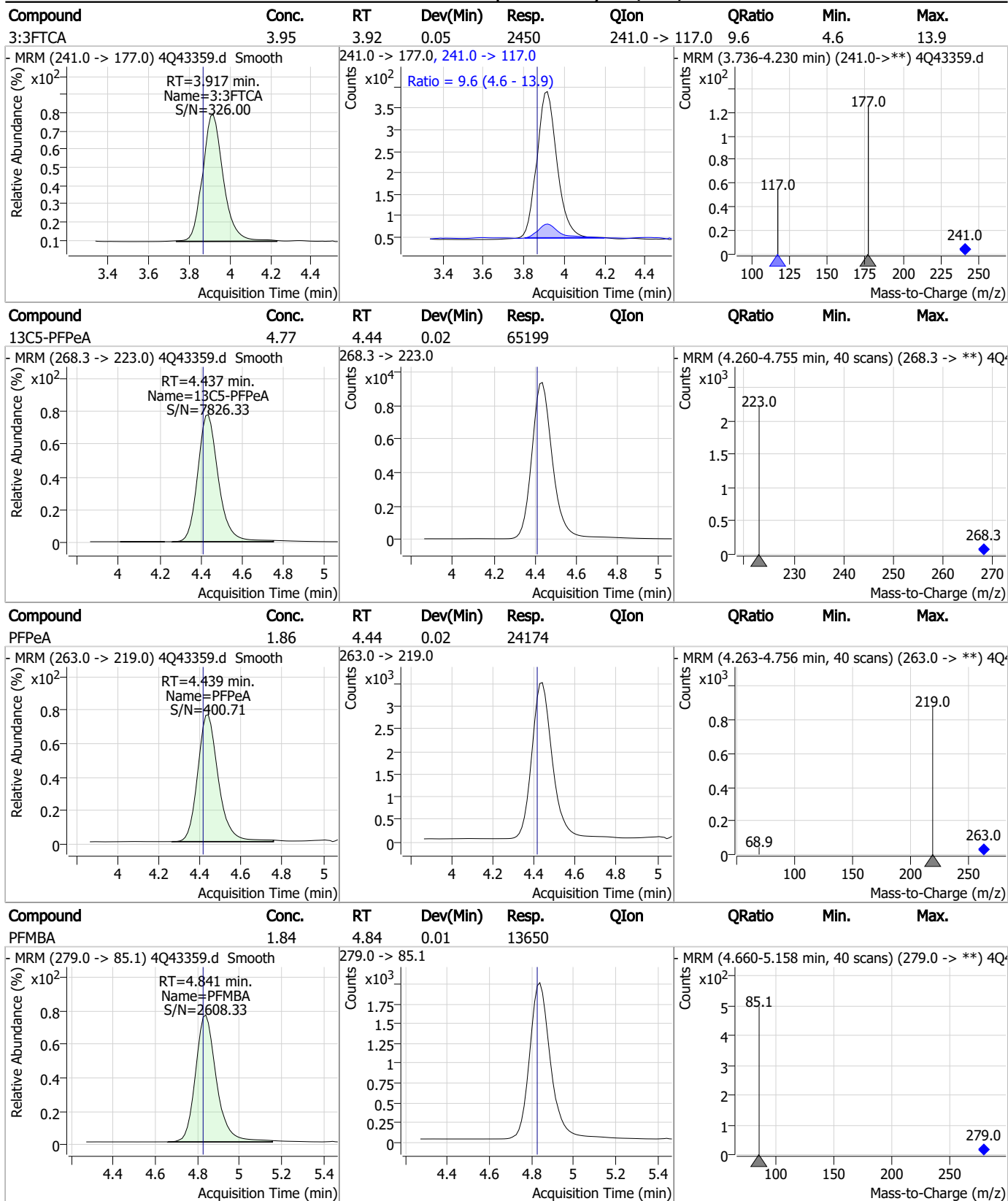
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Perfluorinated Compounds by LC/MS/MS



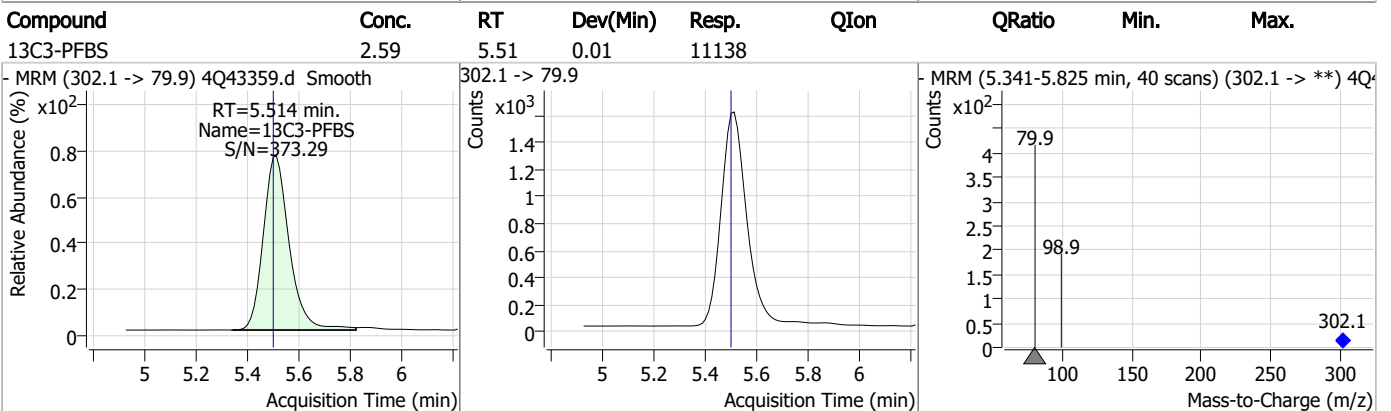
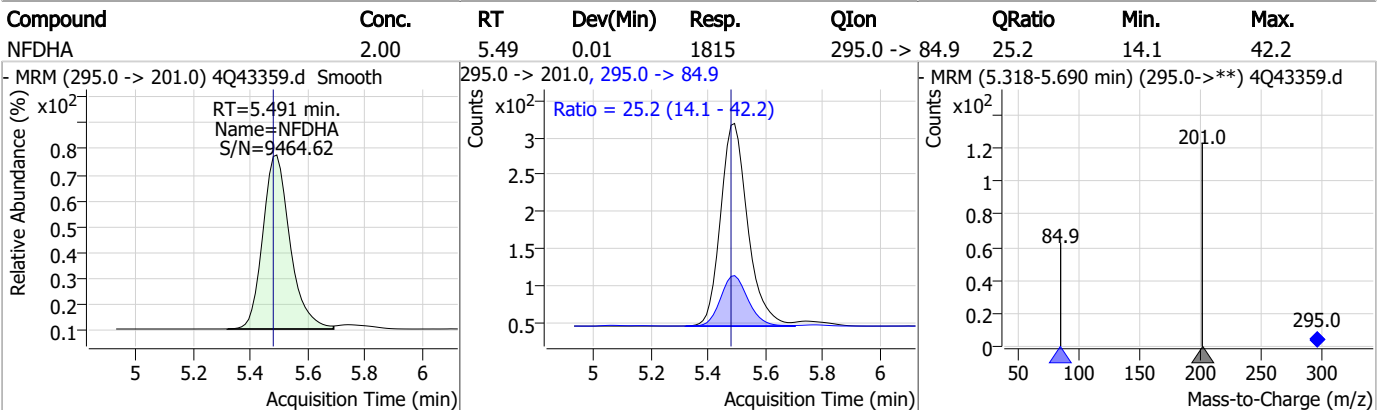
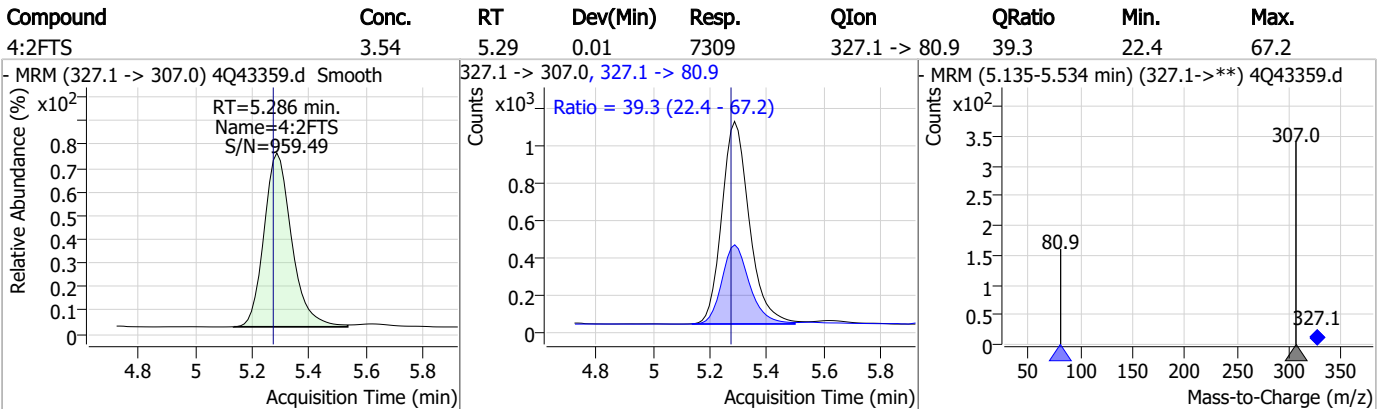
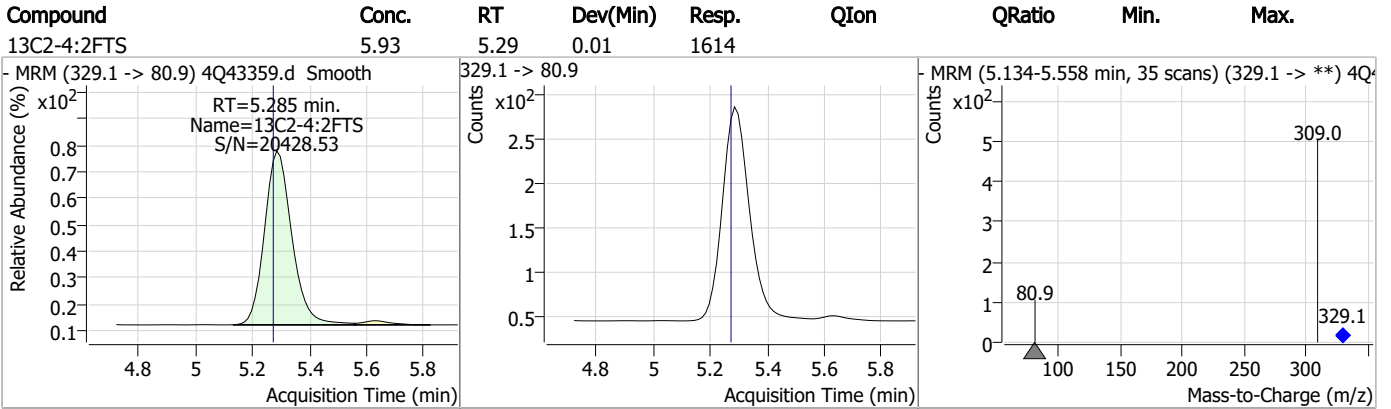
7.3.4
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Perfluorinated Compounds by LC/MS/MS



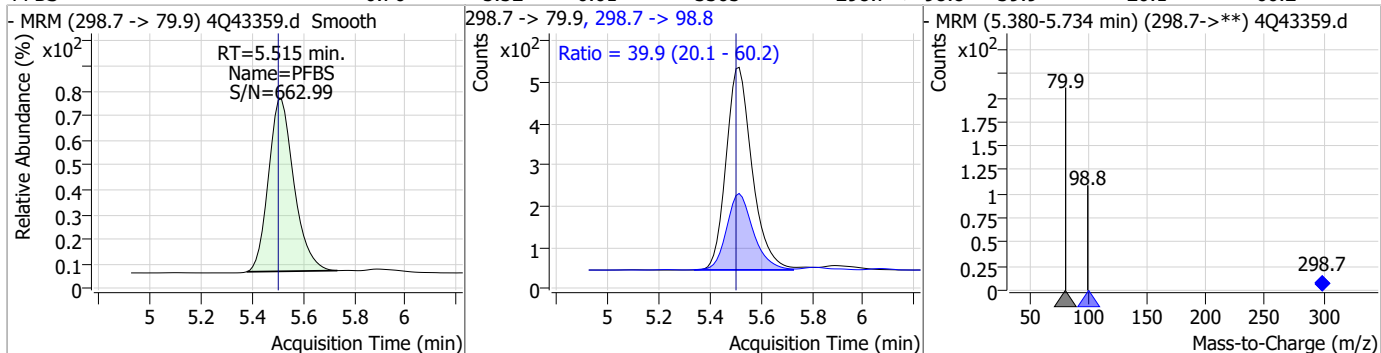
7.3.4
7

Perfluorinated Compounds by LC/MS/MS

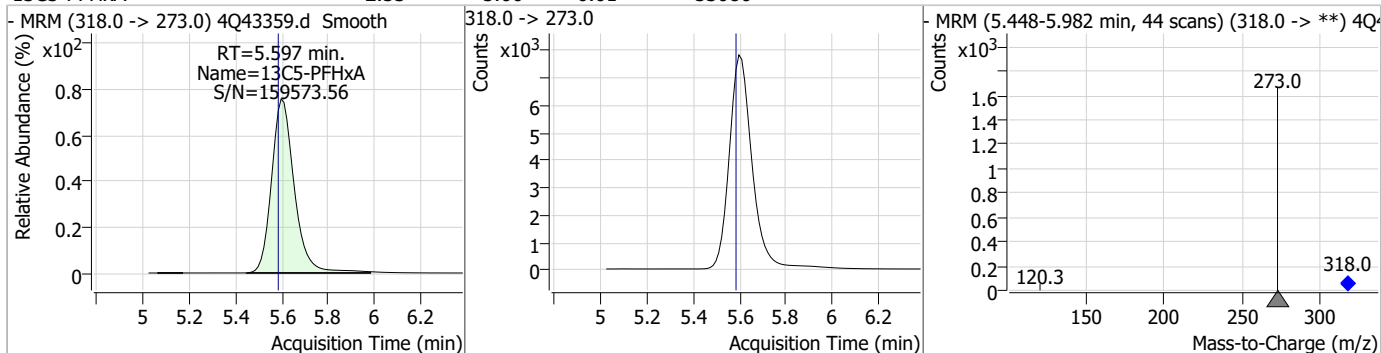


Perfluorinated Compounds by LC/MS/MS

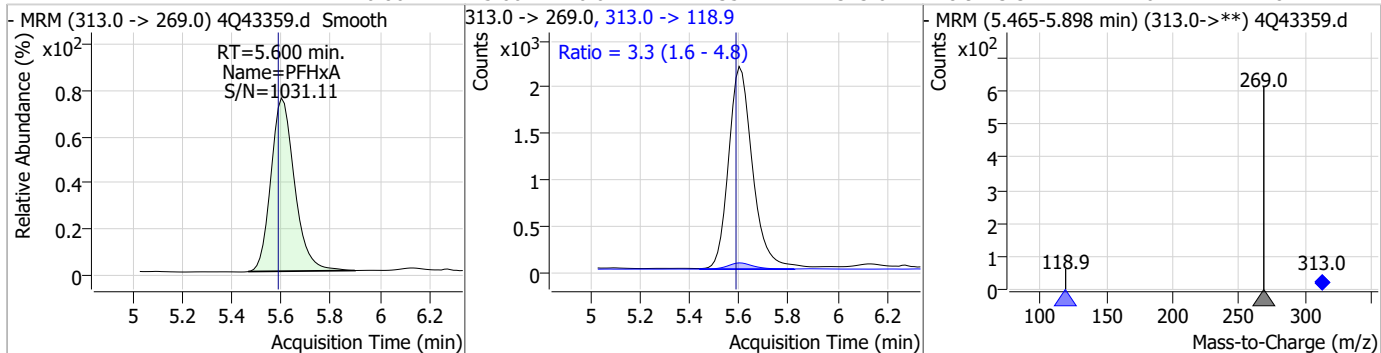
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.76	5.52	0.01	3365	298.7 -> 98.8	39.9	20.1	60.2



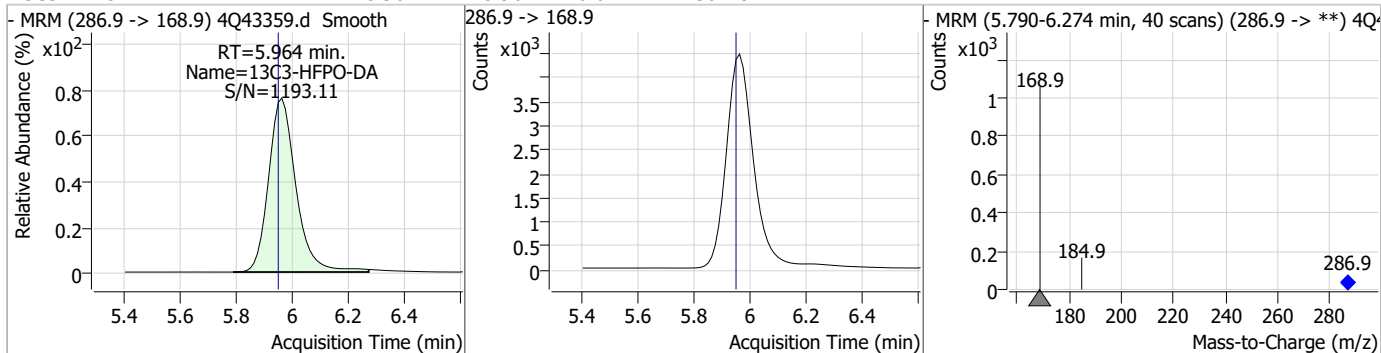
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.53	5.60	0.01	53086				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.86	5.60	0.01	14352	313.0 -> 118.9	3.3	1.6	4.8

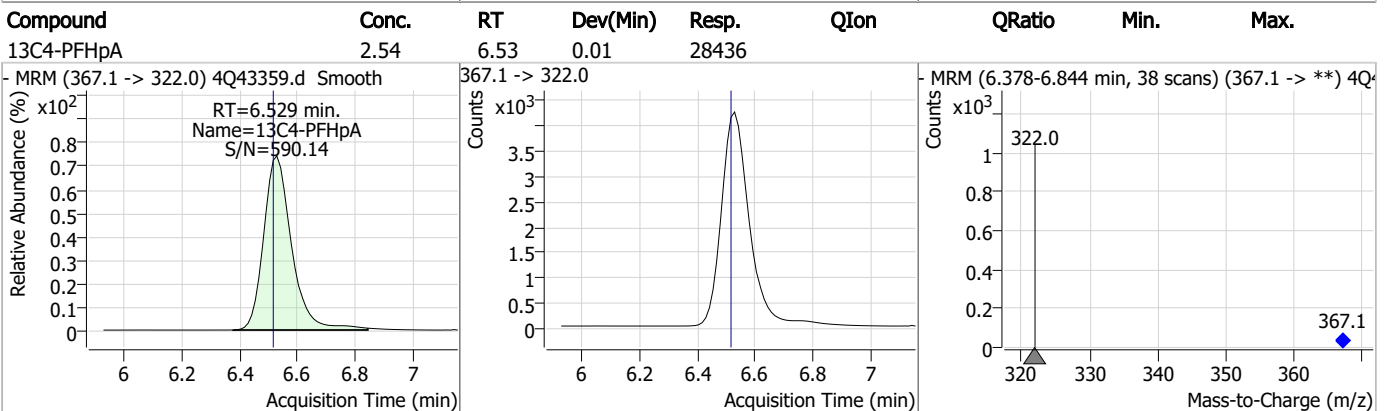
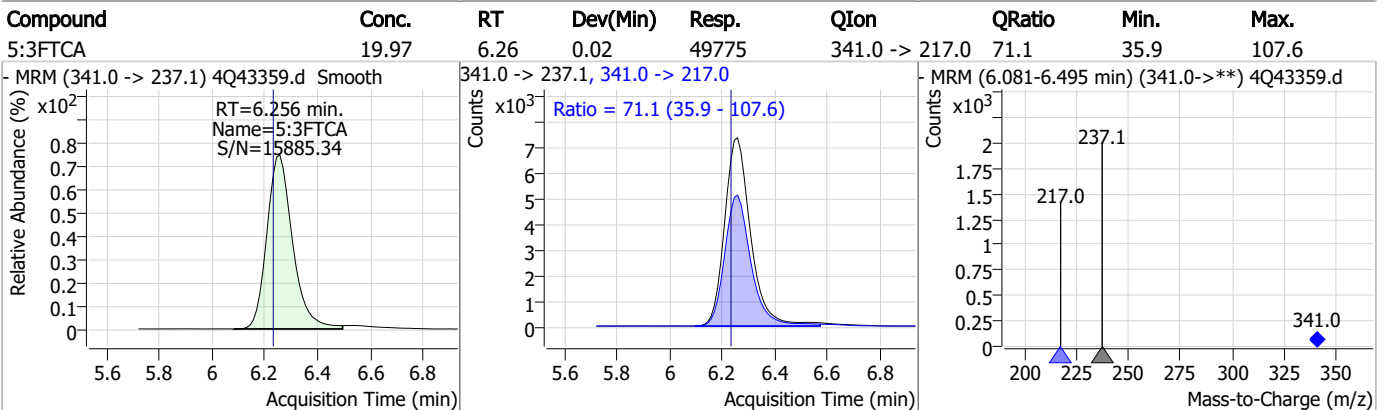
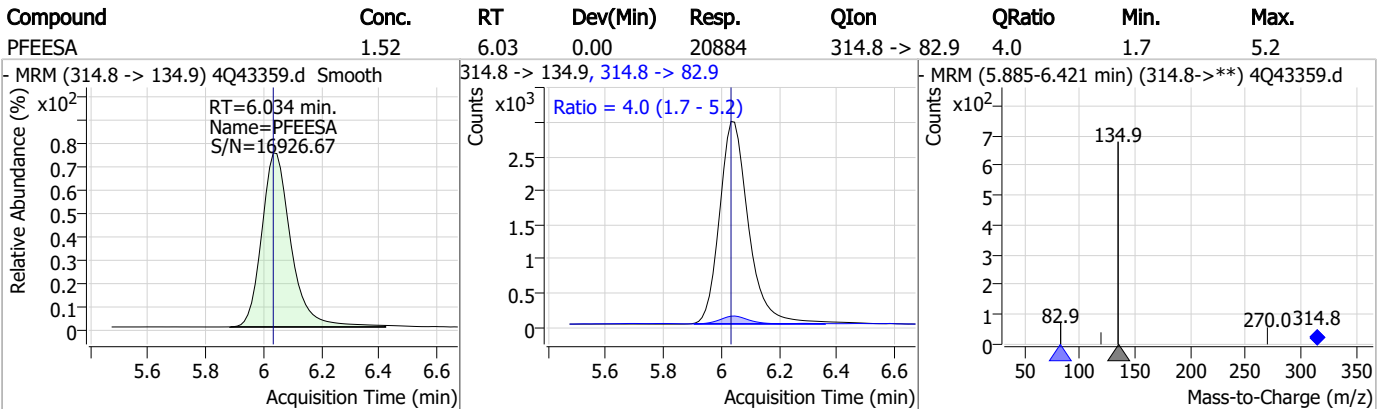
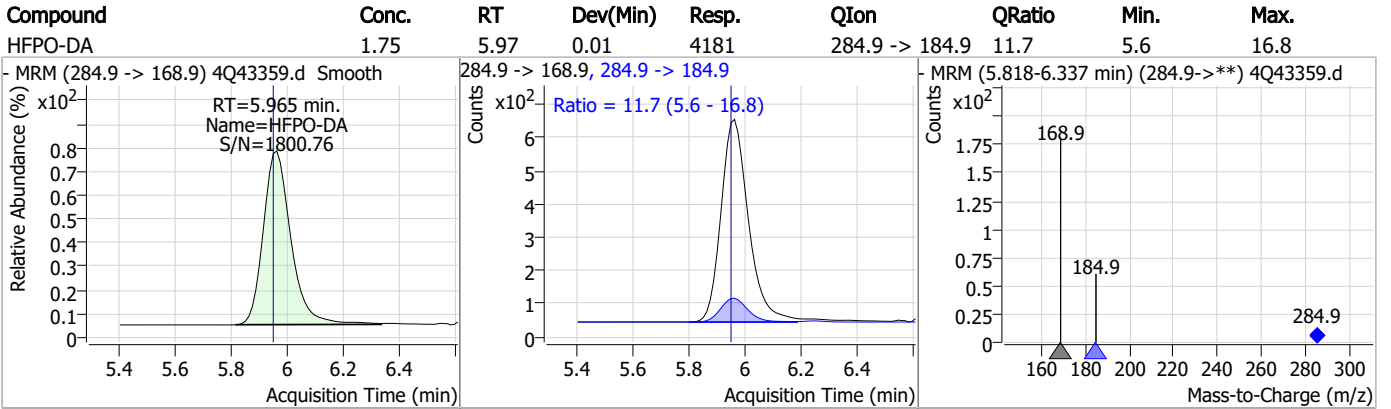


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.90	5.96	0.01	30179				



7.3.4
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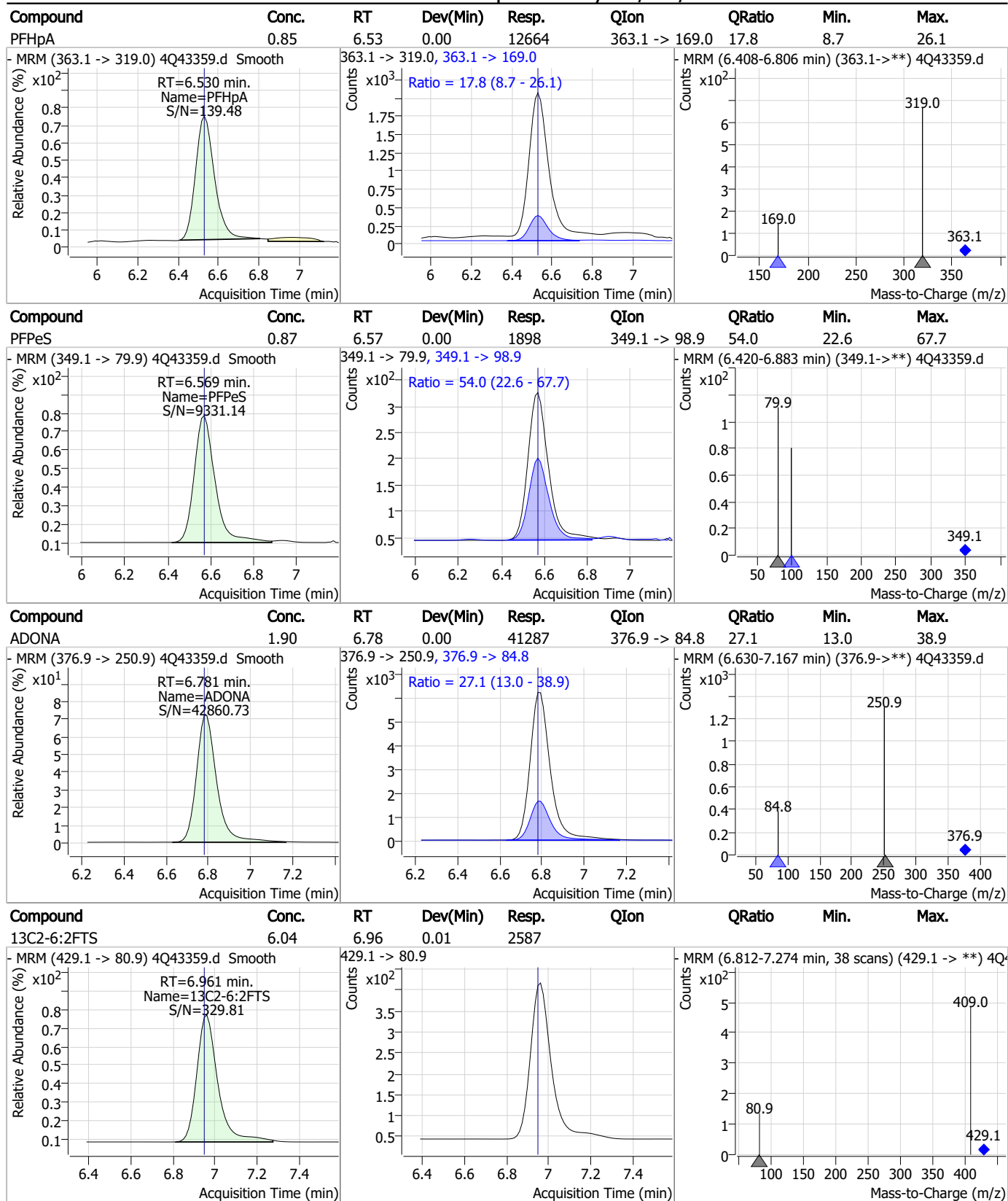
Perfluorinated Compounds by LC/MS/MS



7.3.4

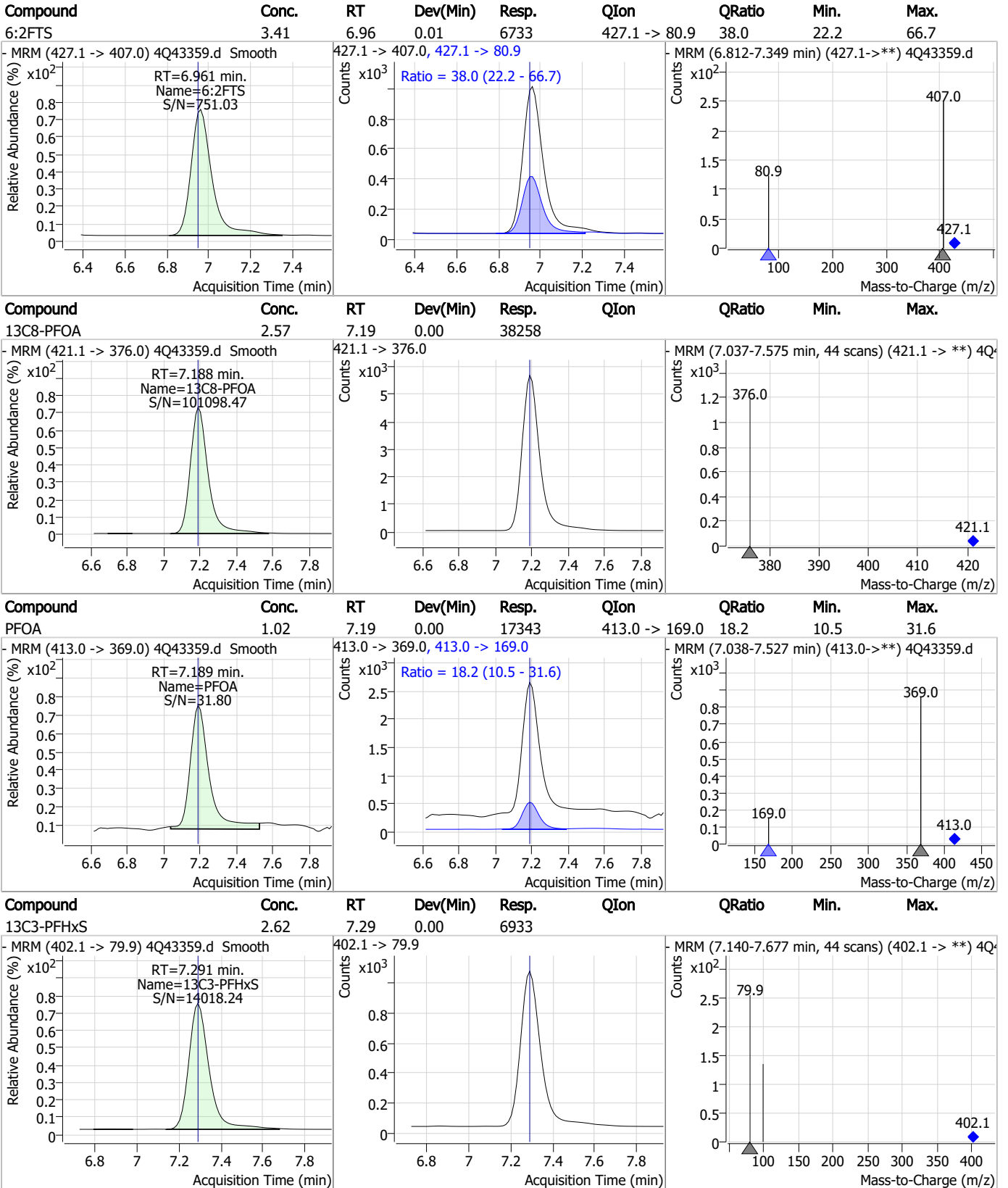
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Perfluorinated Compounds by LC/MS/MS



7.3.4
7

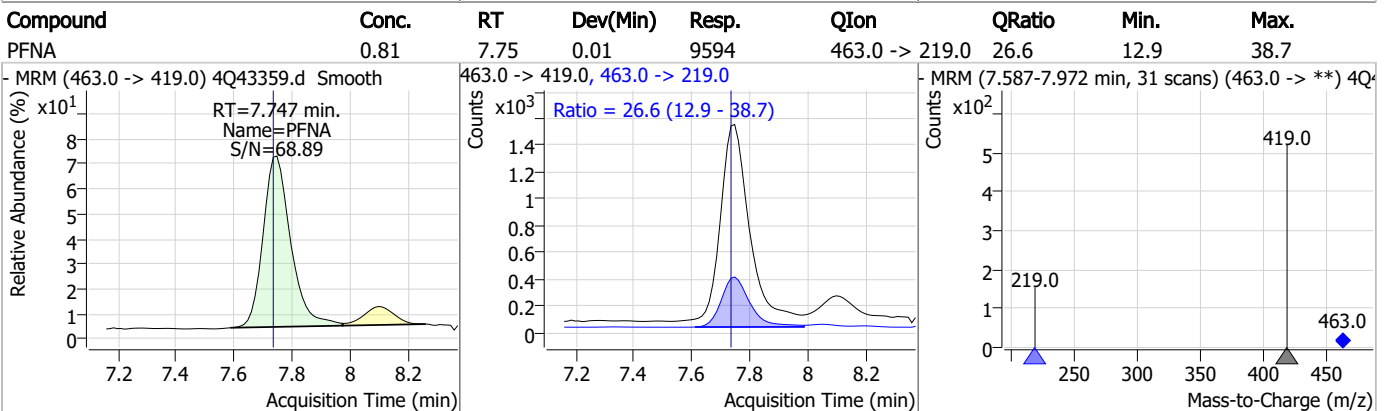
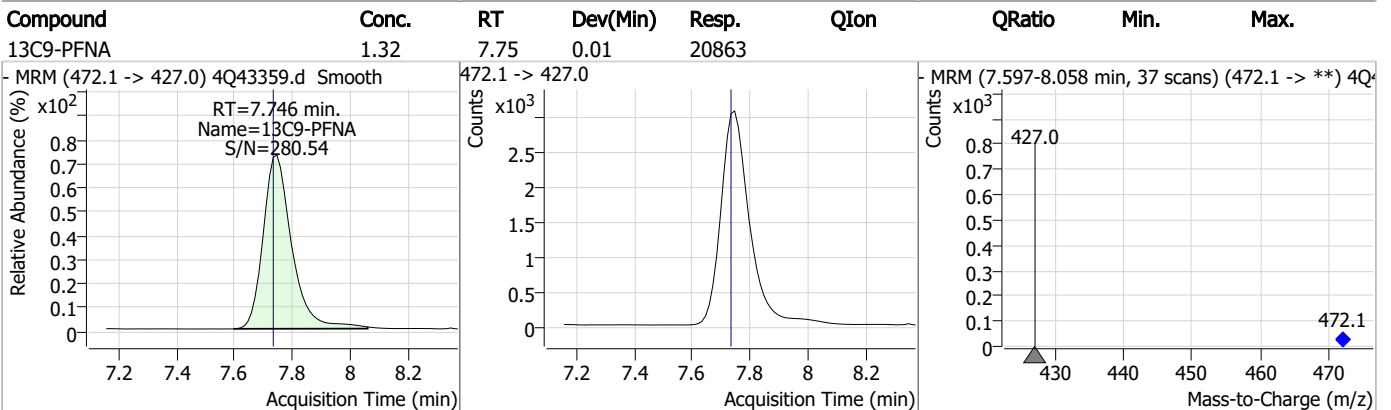
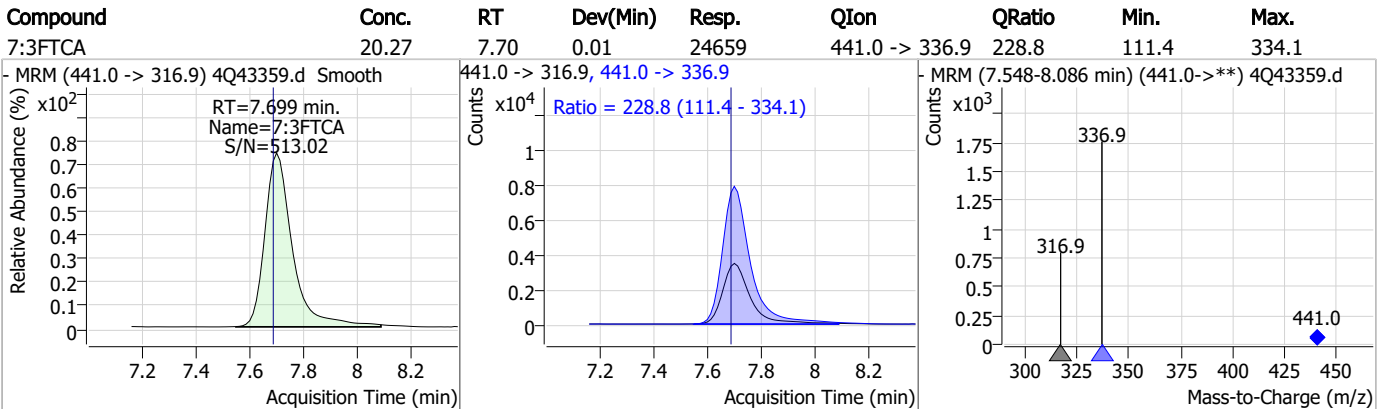
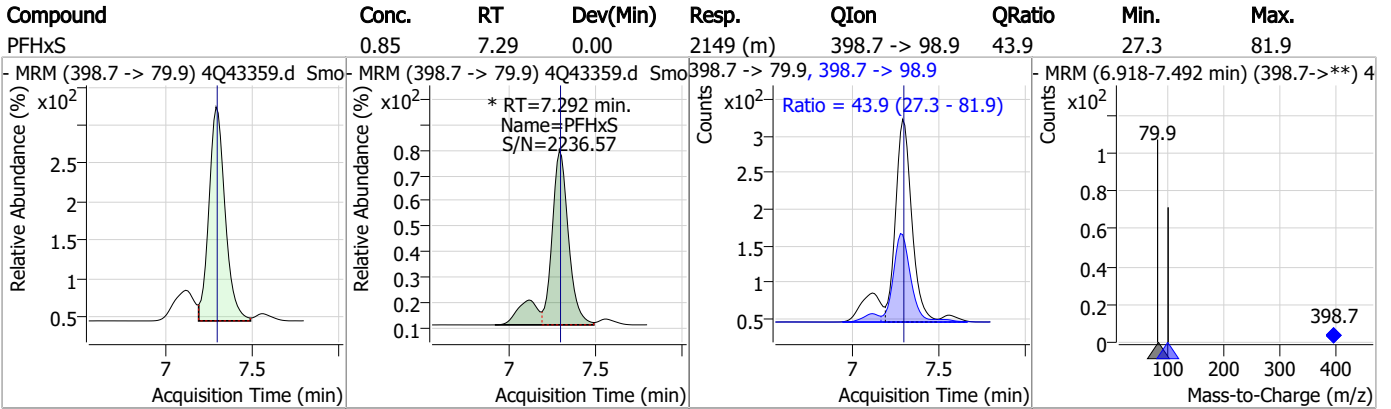
Perfluorinated Compounds by LC/MS/MS



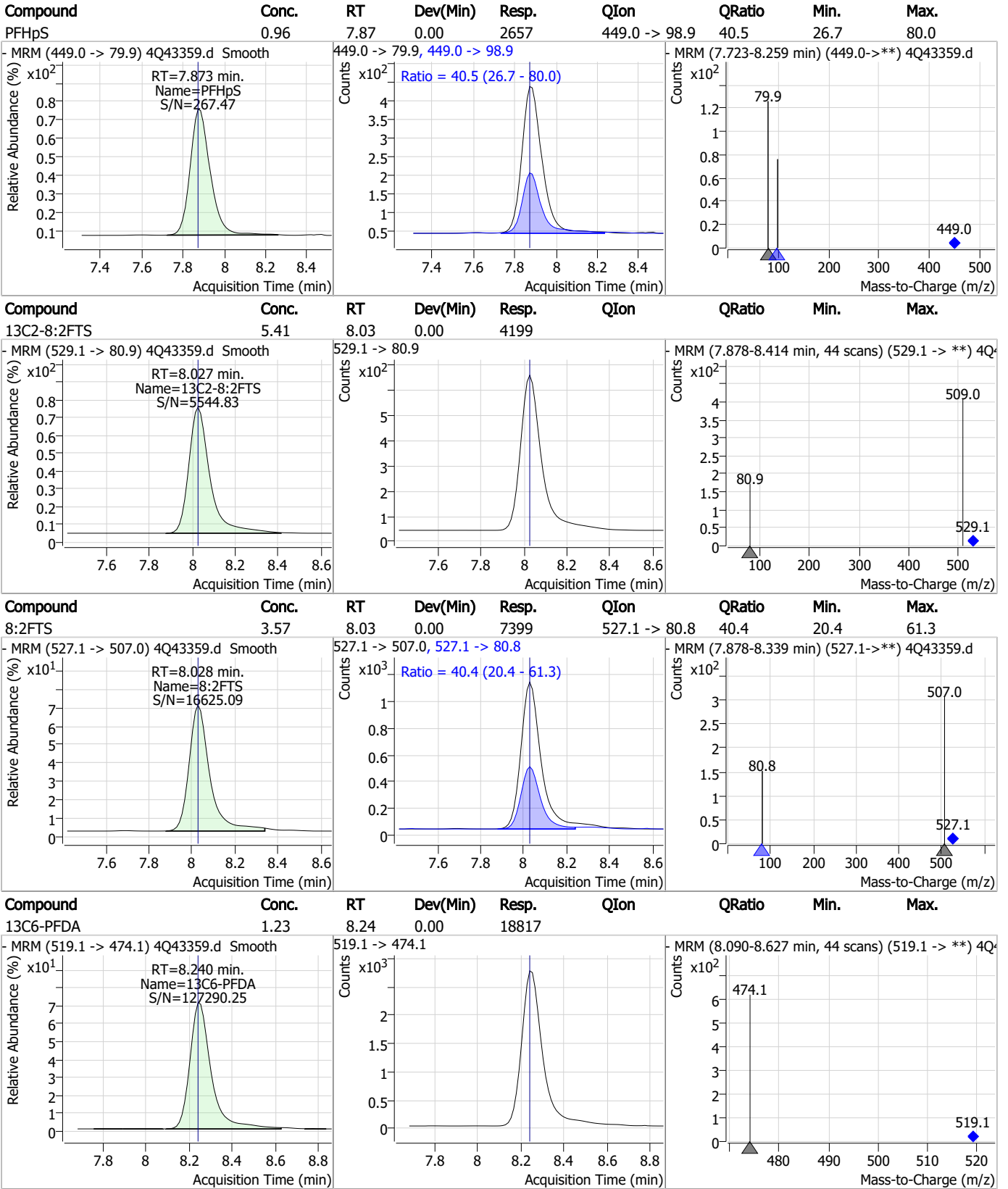
7.3.4

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Perfluorinated Compounds by LC/MS/MS



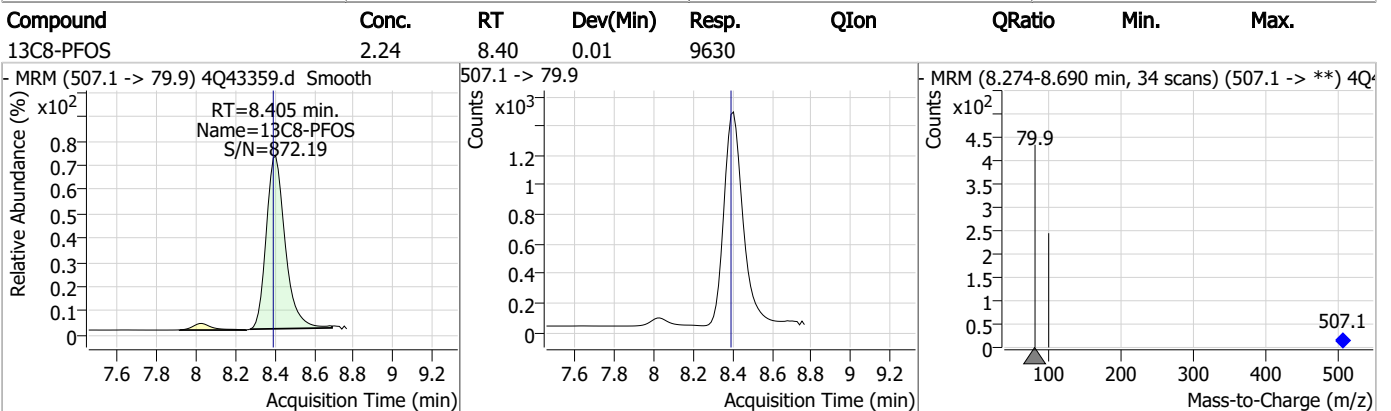
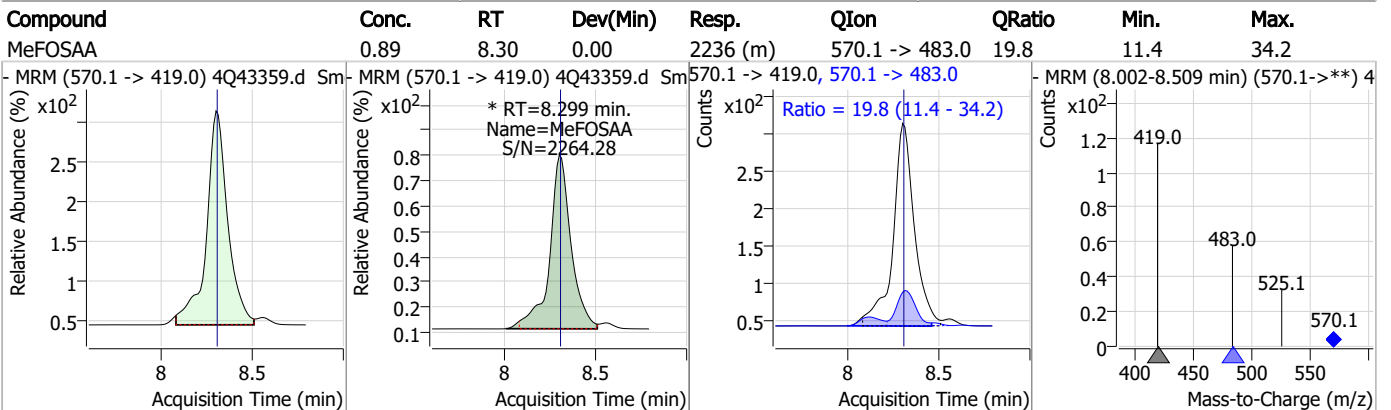
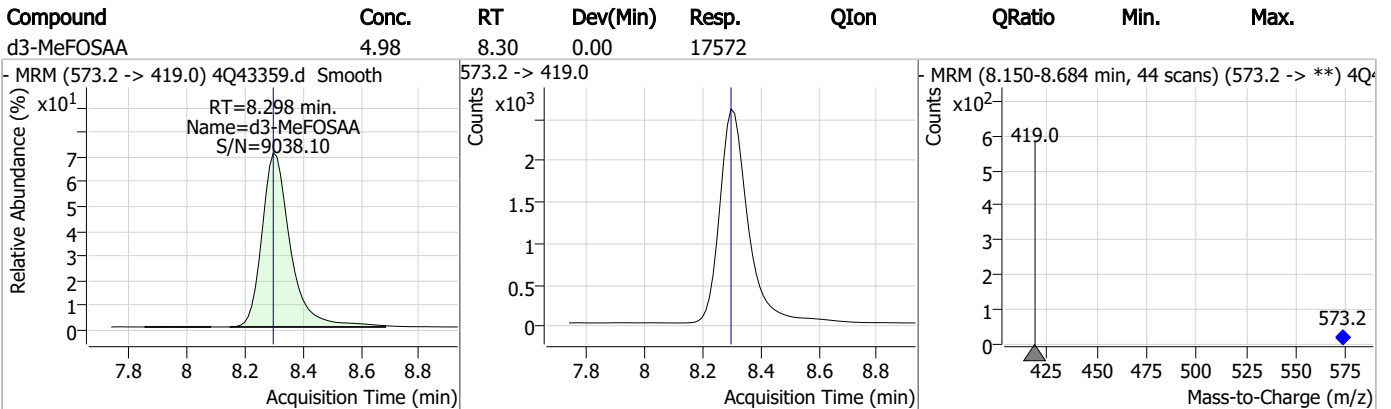
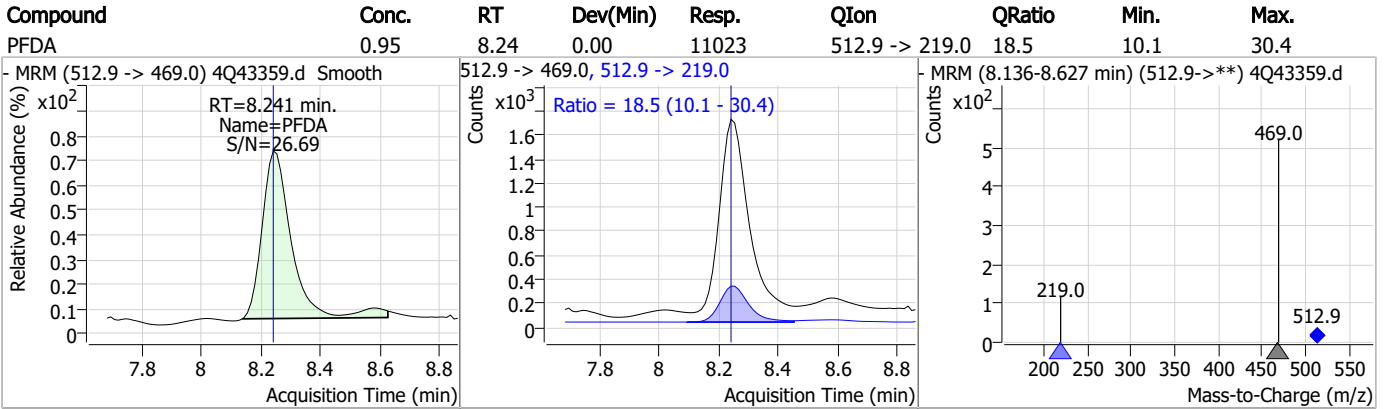
Perfluorinated Compounds by LC/MS/MS



7.3.4

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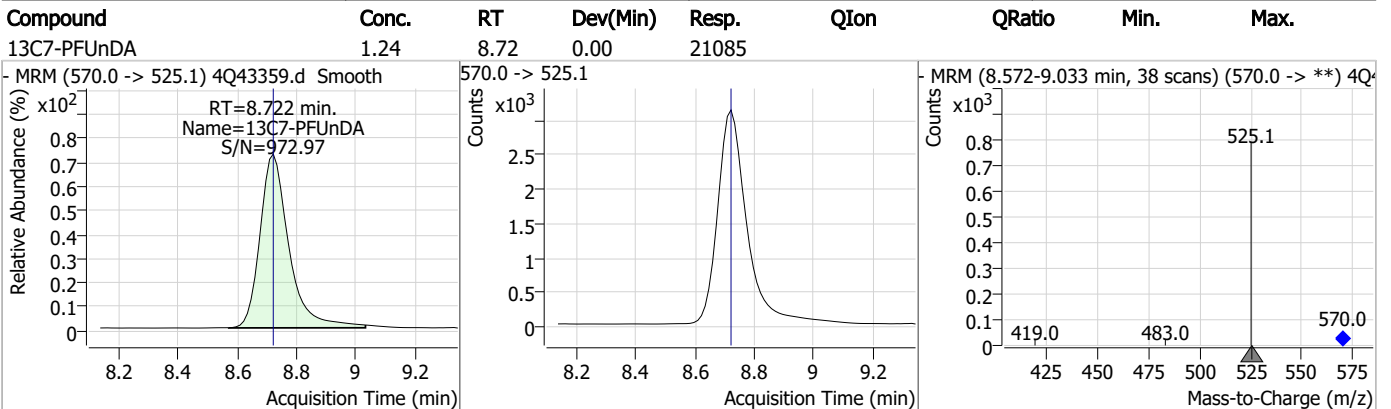
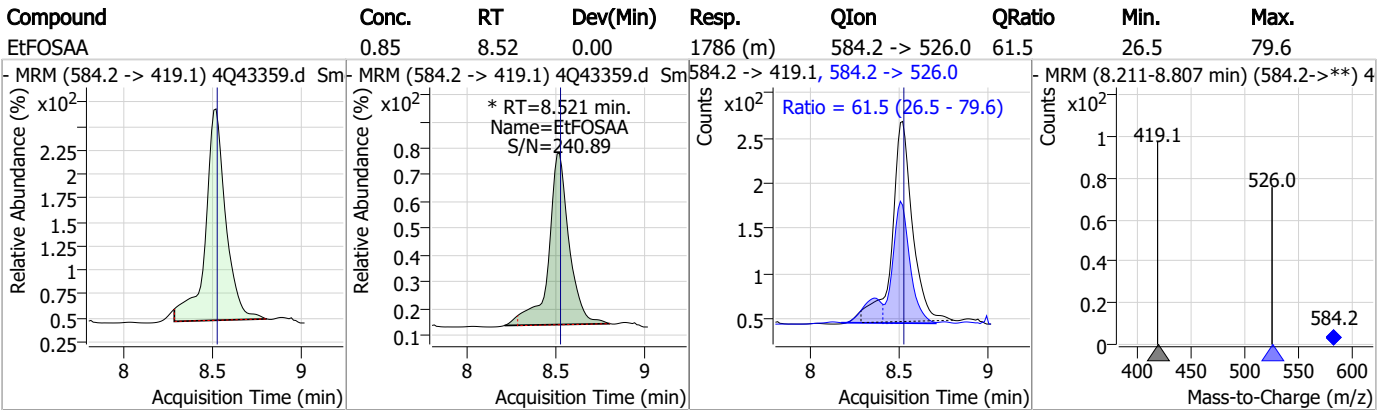
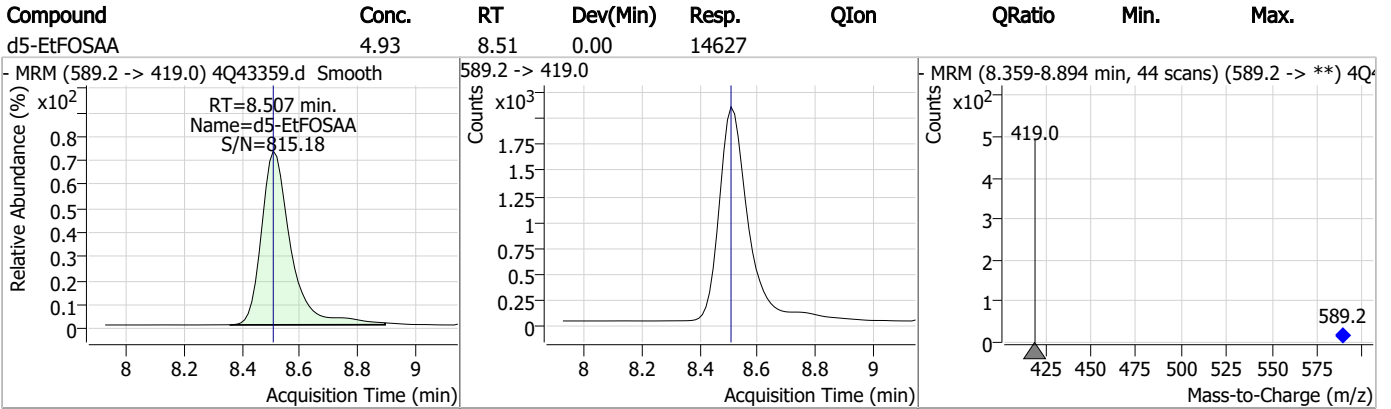
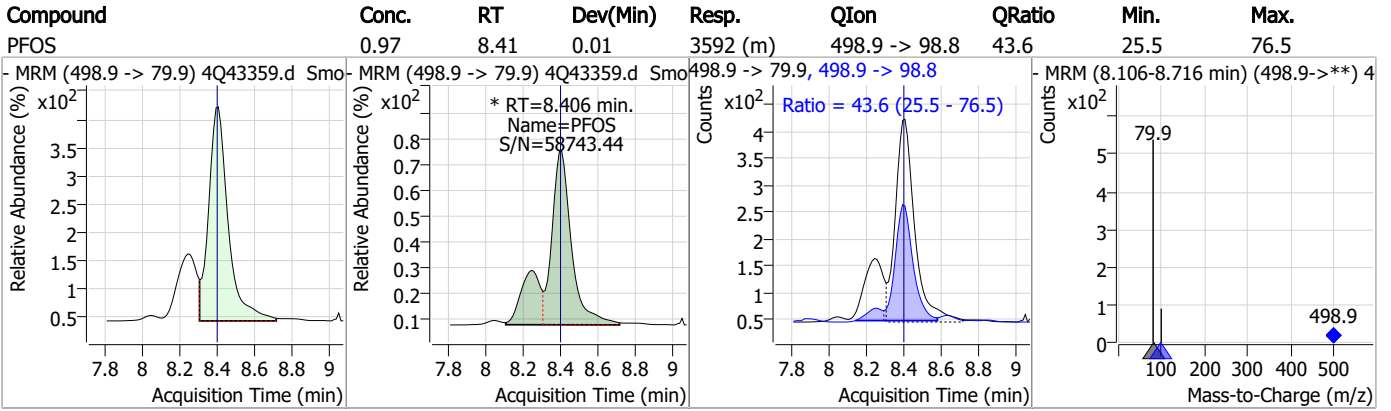
Perfluorinated Compounds by LC/MS/MS



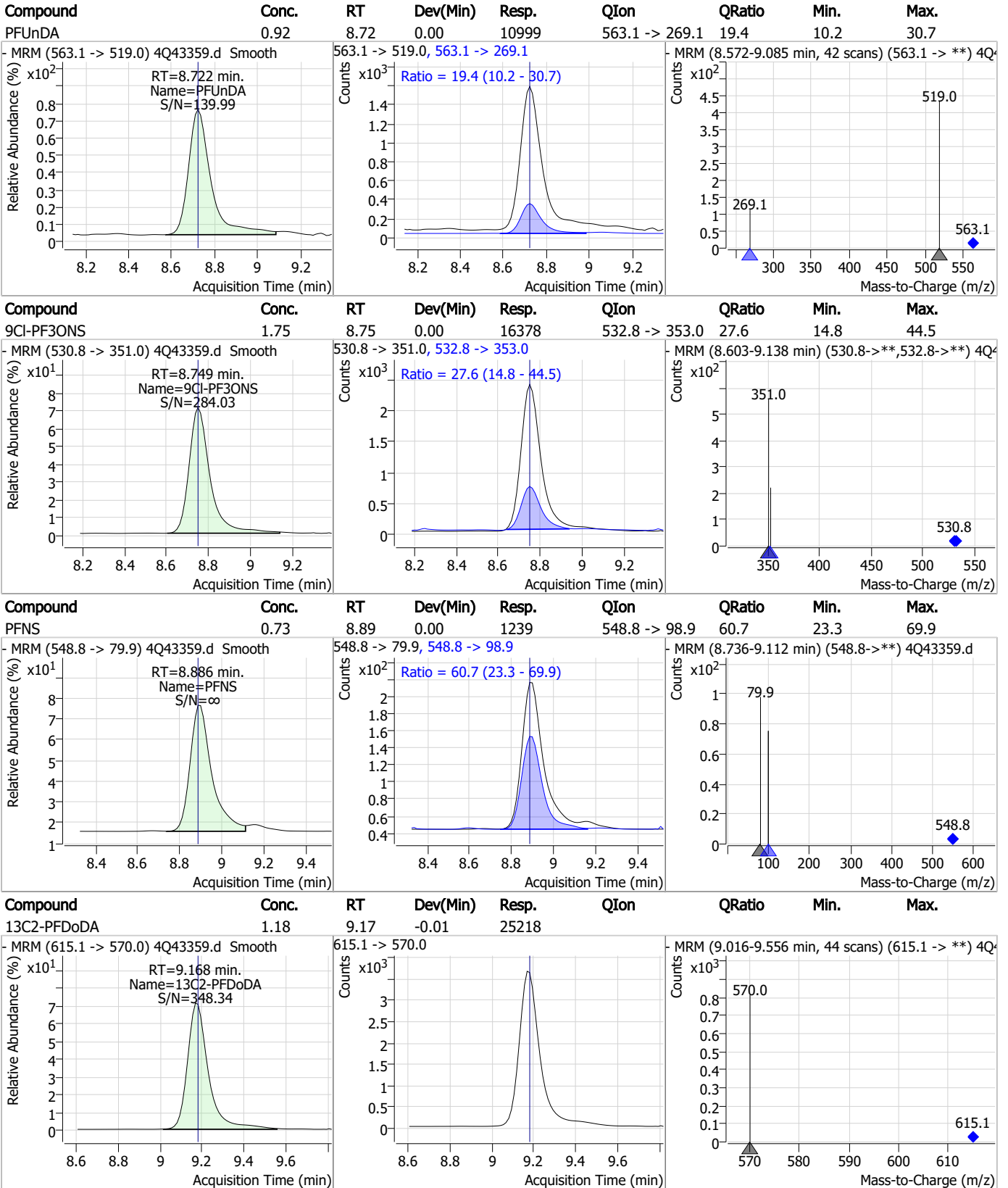
7.3.4

7

Perfluorinated Compounds by LC/MS/MS



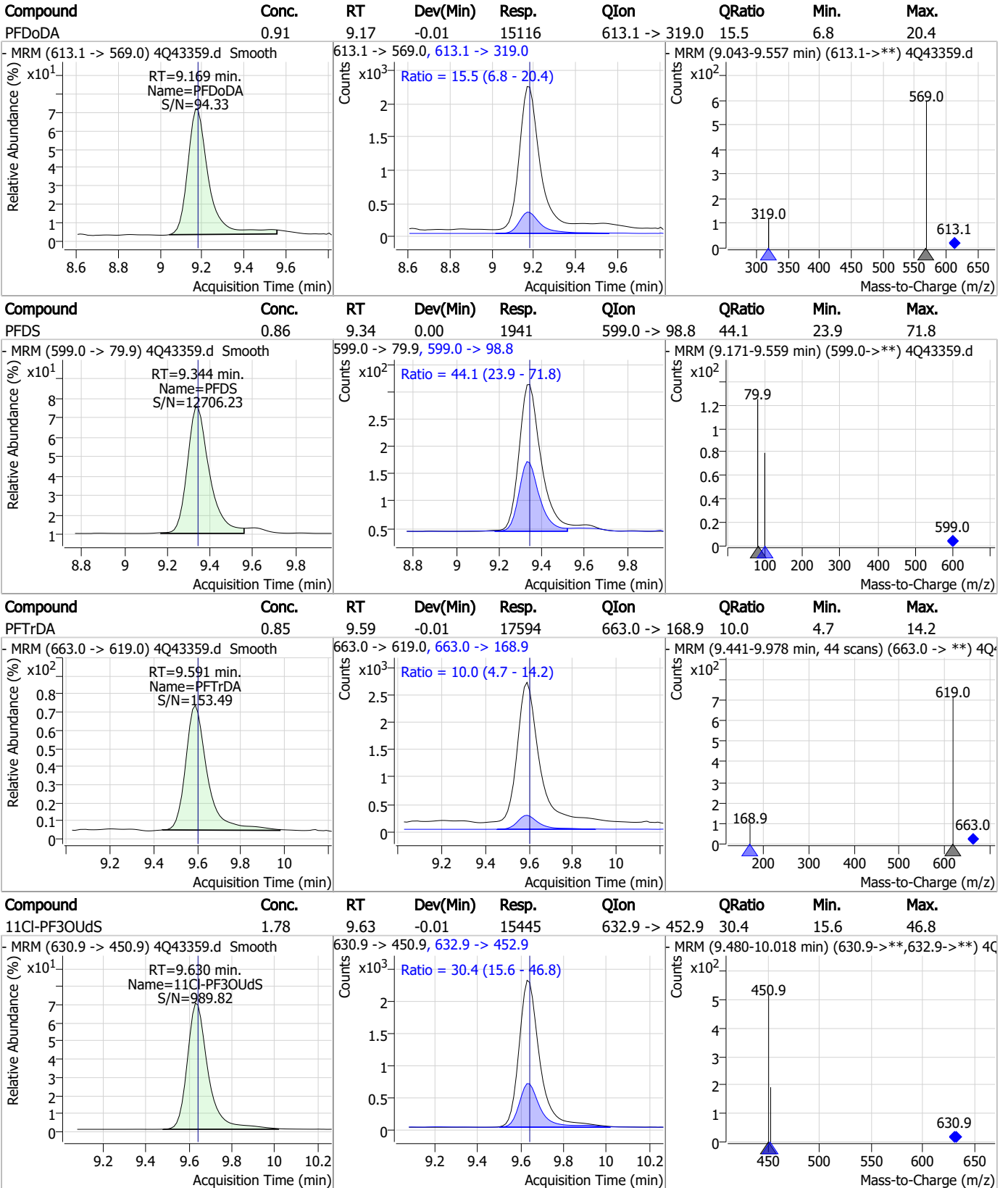
Perfluorinated Compounds by LC/MS/MS



7.3.4

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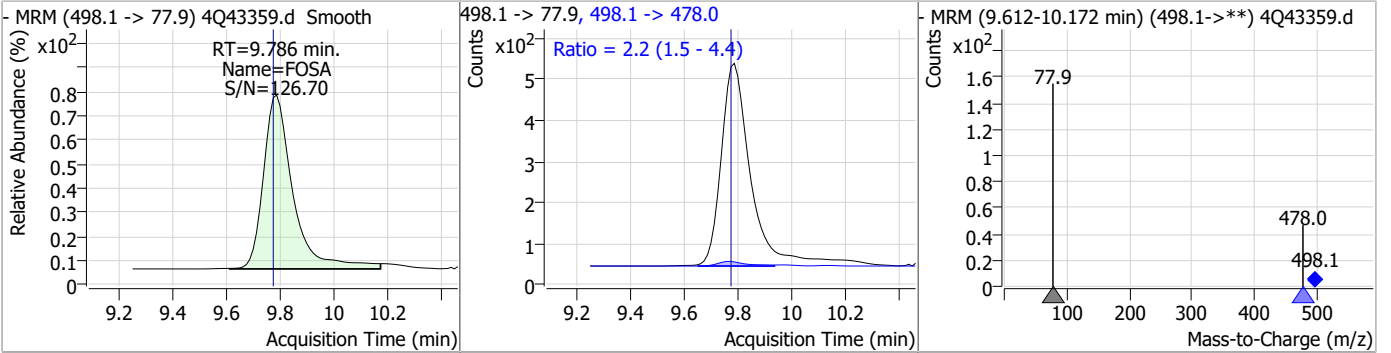
Perfluorinated Compounds by LC/MS/MS



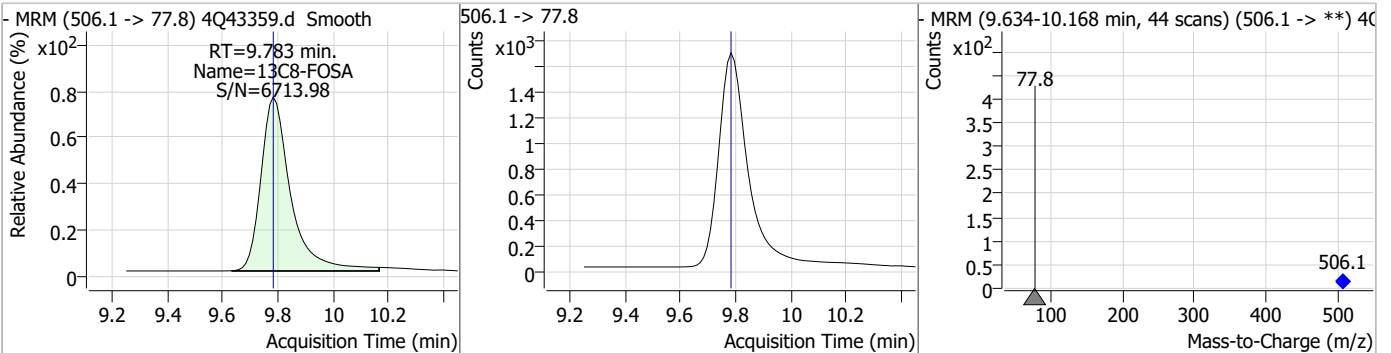
7.3.4 7

Perfluorinated Compounds by LC/MS/MS

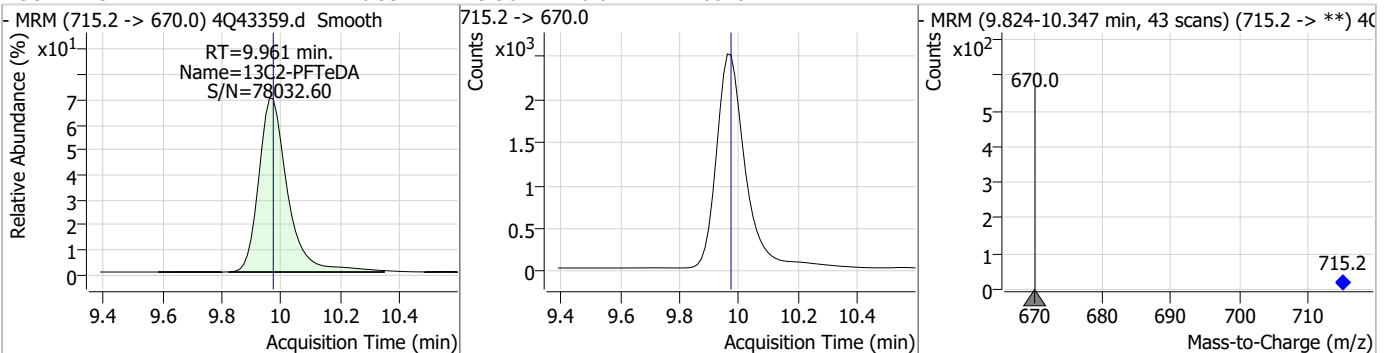
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.89	9.79	0.01	3772	498.1 -> 478.0	2.2	1.5	4.4



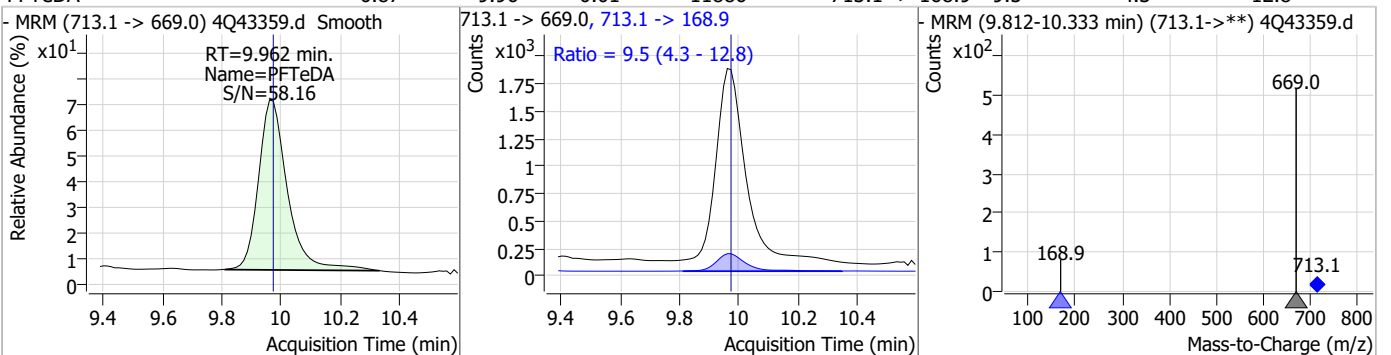
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	1.61	9.78	0.00	12520				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.99	9.96	-0.01	16828				

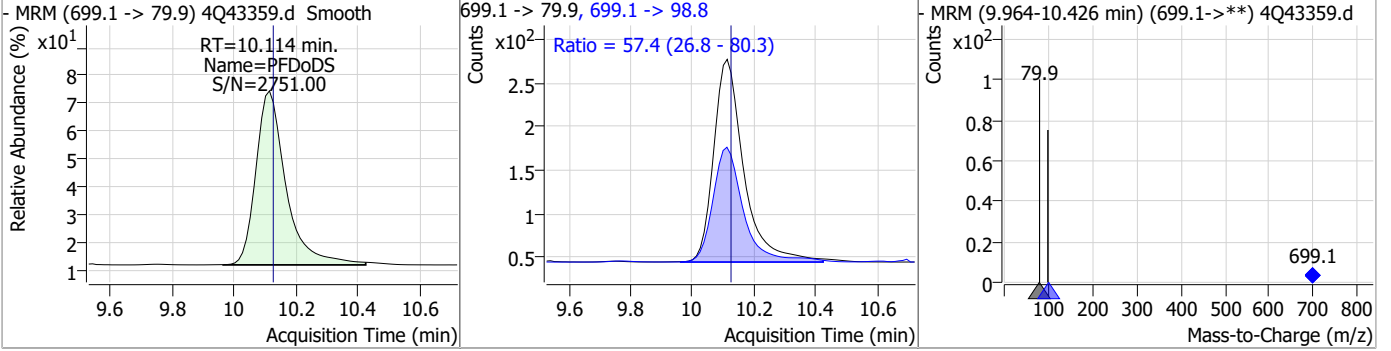


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.87	9.96	-0.01	11886	713.1 -> 168.9	9.5	4.3	12.8

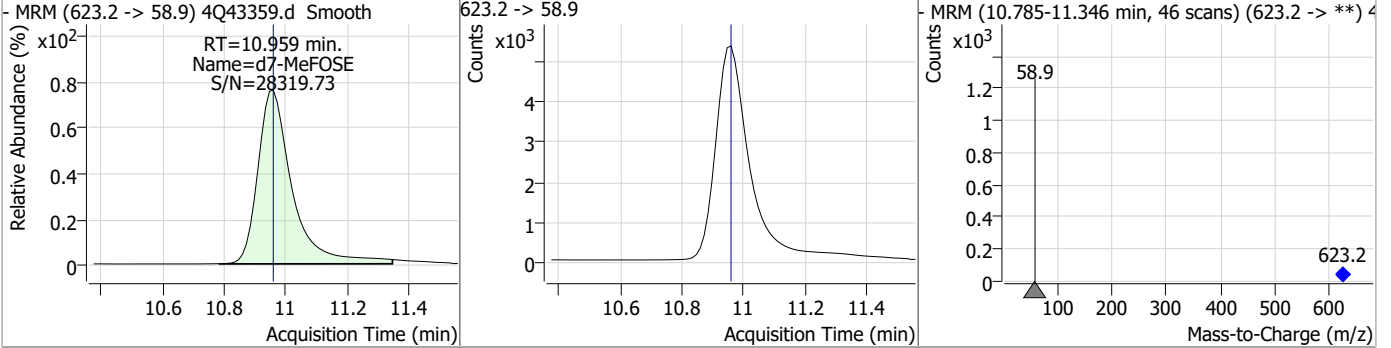


Perfluorinated Compounds by LC/MS/MS

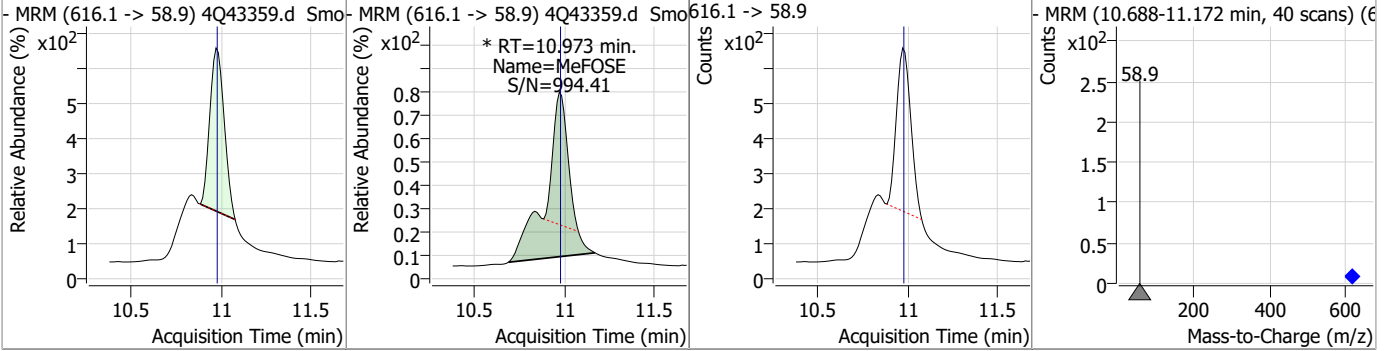
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.77	10.11	-0.01	1578	699.1 -> 98.8	57.4	26.8	80.3



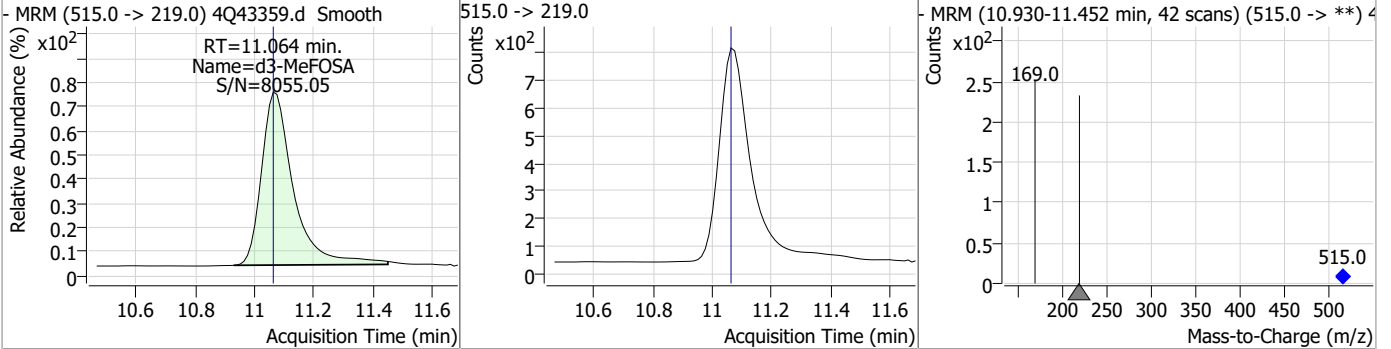
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	12.60	10.96	0.00	41534				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	3.54	10.97	0.00	5235 (m)				

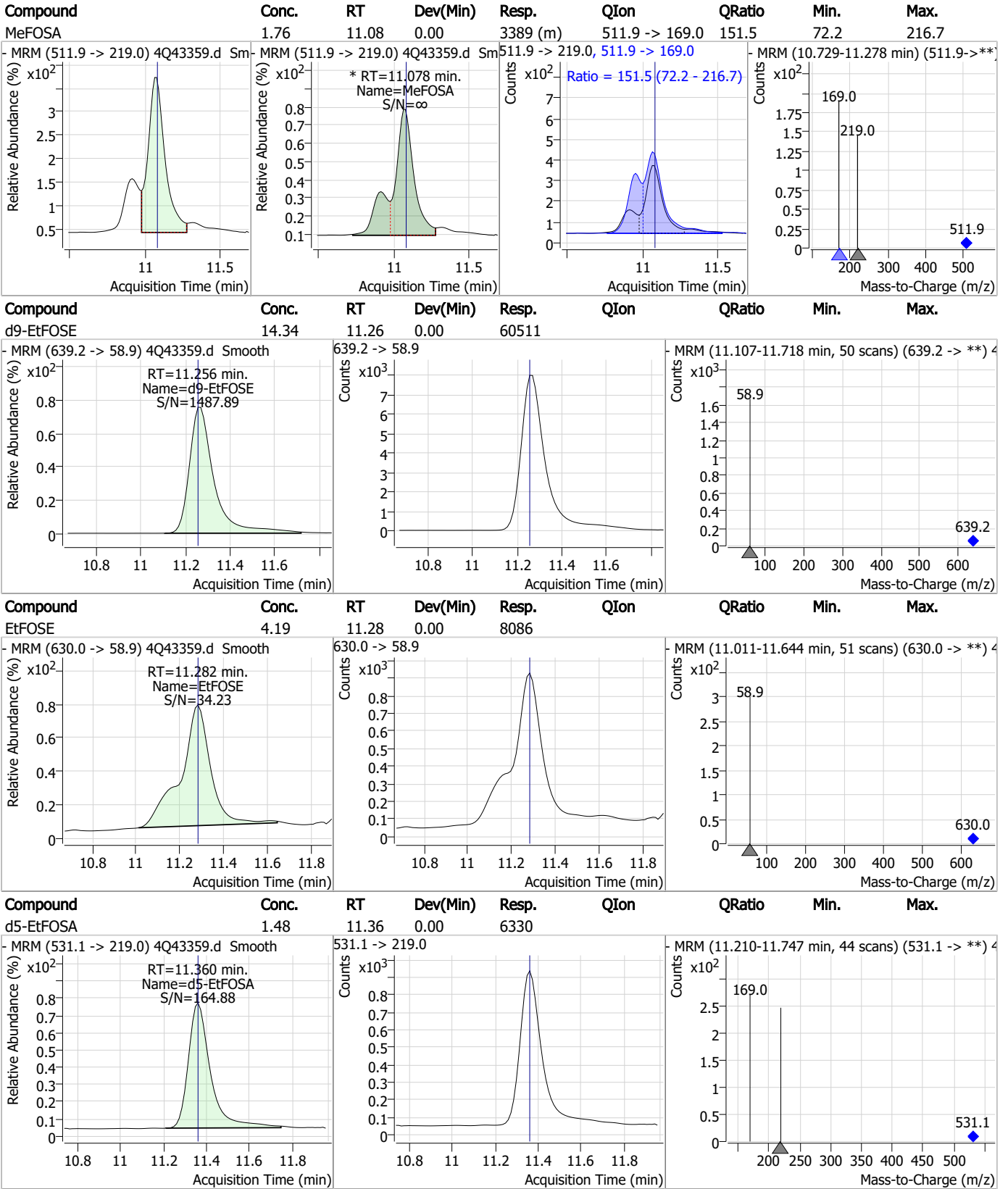


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.43	11.06	0.00	5743				



7.3.4
7

Perfluorinated Compounds by LC/MS/MS

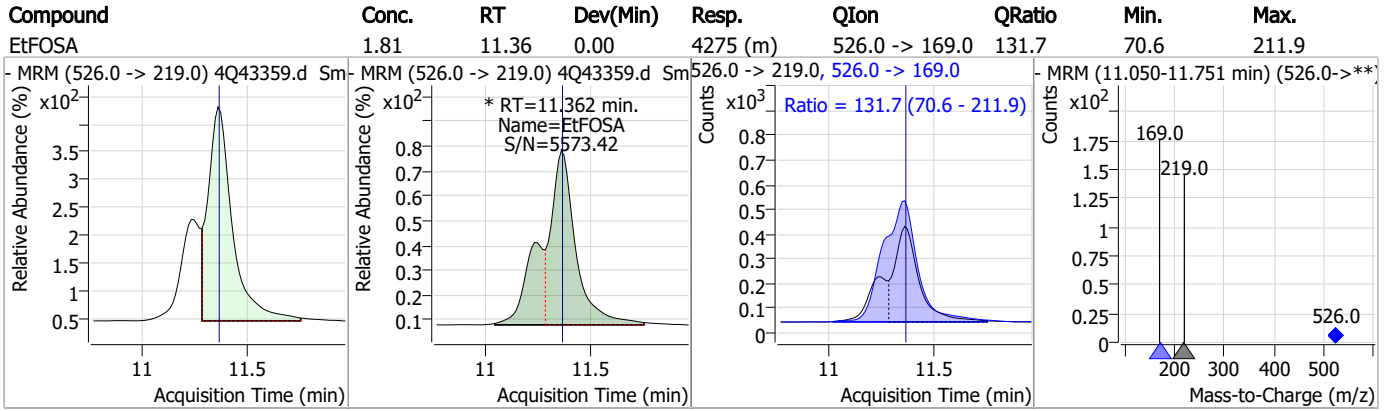


7.3.4

7



Perfluorinated Compounds by LC/MS/MS



7.3.4

7

Manual Integration Approval Summary

Sample Number: OP96494-LLBS Method: EPA DRAFT 1633
Lab FileID: 4Q43359.D Analyst approved: 04/21/23 11:54 Natasha Gumtie
Injection Time: 04/20/23 23:33 Supervisor approved: 04/21/23 14:54 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.41	Split peak
EtFOSAA	2991-50-6		8.52	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.3.4.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43160.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 2:04:52 PM
 Sample Name : op96403-ms
 Vial : P4-C7
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96403,S4q624,510,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.002	216.8 -> 171.9	108744	10.00 µg/L	0.041
M5-PFPeA	4.462	268.3 -> 223.0	59280	5.00 µg/L	0.012
M5-PFHxA	5.622	318.0 -> 273.0	45302	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	23156	2.50 µg/L	0.000
M8-PFOA	7.213	421.1 -> 376.0	30124	2.50 µg/L	0.000
M9-PFNA	7.758	472.1 -> 427.0	14975	1.25 µg/L	-0.001
M6-PFDA	8.253	519.1 -> 474.1	14966	1.25 µg/L	-0.014
M7-PFUnDA	8.734	570.0 -> 525.1	14574	1.25 µg/L	-0.013
M2-PFDoDA	9.193	615.1 -> 570.0	17356	1.25 µg/L	-0.001
M2-PFTeDA	9.986	715.2 -> 670.0	11935	1.25 µg/L	-0.001
M8-FOSA	9.832	506.1 -> 77.8	12195	2.50 µg/L	-0.002
M3-PFBS	5.539	302.1 -> 79.9	9641	2.50 µg/L	0.012
M3-PFHxS	7.316	402.1 -> 79.9	5858	2.50 µg/L	-0.001
M8-PFOS	8.405	507.1 -> 79.9	8582	2.50 µg/L	-0.013
M2-4:2FTS	5.310	329.1 -> 80.9	1310	5.00 µg/L	0.001
M2-6:2FTS	6.985	429.1 -> 80.9	1984	5.00 µg/L	0.012
M2-8:2FTS	8.040	529.1 -> 80.9	3067	5.00 µg/L	-0.014
M3-MeFOSAA	8.310	573.2 -> 419.0	13074	5.00 µg/L	-0.014
M3-HFPO-DA	5.989	286.9 -> 168.9	27987	10.00 µg/L	0.000
M5-EtFOSAA	8.520	589.2 -> 419.0	10617	5.00 µg/L	-0.014
M7-MeFOSE	10.972	623.2 -> 58.9	40771	25.00 µg/L	-0.002
M9-EtFOSE	11.269	639.2 -> 58.9	49658	25.00 µg/L	-0.013
M5-EtFOSA	11.373	531.1 -> 219.0	6786	2.50 µg/L	-0.001
M3-MeFOSA	11.076	515.0 -> 219.0	6094	2.50 µg/L	-0.014
13C4-PFOS	8.405	502.8 -> 79.9	8664	2.50 µg/L	-0.013
13C3-PFBA	3.005	216.0 -> 172.0	56698	5.00 µg/L	0.040
18O2-PFHxS	7.315	403.0 -> 83.9	4095	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	33659	2.50 µg/L	0.000
13C2-PFDA	8.253	515.1 -> 470.1	12396	1.25 µg/L	-0.014
13C5-PFNA	7.759	468.0 -> 423.0	17409	1.25 µg/L	-0.001
13C2-PFHxA	5.623	315.1 -> 270.0	37805	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.310	329.1 -> 80.9	1310	5.86 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.2%		
13C2-6:2FTS	6.985	429.1 -> 80.9	1984	6.18 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.6%		
13C2-8:2FTS	8.040	529.1 -> 80.9	3067	5.81 µg/L	-0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.1%		
13C2-PFDoDA	9.193	615.1 -> 570.0	17356	1.14 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.0%		
13C2-PFTeDA	9.986	715.2 -> 670.0	11935	1.00 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 80.4%		
13C3-PFBS	5.539	302.1 -> 79.9	9641	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C3-PFHxS	7.316	402.1 -> 79.9	5858	2.58 µg/L	-0.001

7.4.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C4-PFBA	3.002	216.8 -> 171.9	108744	11.01 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C4-PFHpA	6.555	367.1 -> 322.0	23156	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C5-PFHxA	5.622	318.0 -> 273.0	45302	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C5-PFPeA	4.462	268.3 -> 223.0	59280	5.32 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C6-PFDA	8.253	519.1 -> 474.1	14966	1.37 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C7-PFUnDA	8.734	570.0 -> 525.1	14574	1.23 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C8-FOSA	9.832	506.1 -> 77.8	12195	2.15 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.1%	
13C8-PFOA	7.213	421.1 -> 376.0	30124	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C8-PFOS	8.405	507.1 -> 79.9	8582	2.55 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C9-PFNA	7.758	472.1 -> 427.0	14975	1.18 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.4%	
d3-MeFOSAA	8.310	573.2 -> 419.0	13074	5.12 µg/L	-0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	27987	10.55 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
d3-MeFOSA	11.076	515.0 -> 219.0	6094	2.27 µg/L	-0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.9%	
d5-EtFOSAA	8.520	589.2 -> 419.0	10617	5.12 µg/L	-0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
d7-MeFOSE	10.972	623.2 -> 58.9	40771	18.25 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.0%	
d9-EtFOSE	11.269	639.2 -> 58.9	49658	18.16 µg/L	-0.013
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 72.6%	
d5-EtFOSA	11.373	531.1 -> 219.0	6786	2.34 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
Target Compounds					QValue
4:2FTS	5.311	327.1 -> 307.0	18832	11.53 µg/L	99
		327.1 -> 80.9	7987		
6:2FTS	6.974	427.1 -> 407.0	14922	11.01 µg/L	98
		427.1 -> 80.9	6512		
8:2FTS	8.040	527.1 -> 507.0	16241	11.81 µg/L	96
		527.1 -> 80.8	6794		
EtFOSAA	8.533	584.2 -> 419.1	4729	2.98 µg/L	99
		584.2 -> 526.0	2258		
FOSA	9.836	498.1 -> 77.9	11530	2.94 µg/L	99
		498.1 -> 478.0	334		
MeFOSAA	8.323	570.1 -> 419.0	4927	2.73 µg/L	97
		570.1 -> 483.0	1043		
PFBA	3.008	212.8 -> 168.9	27726	11.16 µg/L	100
PFBS	5.540	298.7 -> 79.9	9887	2.75 µg/L	99
		298.7 -> 98.8	3898		
PFDA	8.253	512.9 -> 469.0	24598	2.87 µg/L	99
		512.9 -> 219.0	4966		
PFDoDA	9.193	613.1 -> 569.0	32555	2.97 µg/L	97
		613.1 -> 319.0	4931		
PFDS	9.357	599.0 -> 79.9	4730	2.46 µg/L	99

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2349			
PFHpA	6.555	363.1 -> 319.0	34807	3.01	µg/L	99
		363.1 -> 169.0	6398			
PFHpS	7.897	449.0 -> 79.9	6552	2.93	µg/L	95
		449.0 -> 98.9	3236			
PFHxA	5.625	313.0 -> 269.0	40666	3.03	µg/L	99
		313.0 -> 118.9	1157			
PFHxS	7.317	398.7 -> 79.9	5290	2.64	µg/L	m 96
		398.7 -> 98.9	2863			
PFNA	7.759	463.0 -> 419.0	23355	2.92	µg/L	95
		463.0 -> 219.0	6586			
PFNS	8.899	548.8 -> 79.9	3516	2.66	µg/L	100
		548.8 -> 98.9	1890			
PFOA	7.215	413.0 -> 369.0	38342	2.72	µg/L	100
		413.0 -> 169.0	8042			
PFOS	8.406	498.9 -> 79.9	8941	2.68	µg/L	m 96
		498.9 -> 98.8	4489			
PFPeA	4.464	263.0 -> 219.0	68063	6.07	µg/L	100
PFPeS	6.594	349.1 -> 79.9	5307	3.11	µg/L	98
		349.1 -> 98.9	2321			
PFTeDA	9.987	713.1 -> 669.0	26473	2.82	µg/L	100
		713.1 -> 168.9	2351			
PFTrDA	9.604	663.0 -> 619.0	39176	2.78	µg/L	99
		663.0 -> 168.9	4033			
PFUnDA	8.735	563.1 -> 519.0	23655	2.87	µg/L	99
		563.1 -> 269.1	4531			
11CI-PF3OUdS	9.655	630.9 -> 450.9	38467	5.27	µg/L	100
		632.9 -> 452.9	11815			
9CI-PF3ONS	8.762	530.8 -> 351.0	42082	5.16	µg/L	100
		532.8 -> 353.0	12951			
ADONA	6.805	376.9 -> 250.9	100441	5.97	µg/L	98
		376.9 -> 84.8	27495			
HFPO-DA	5.990	284.9 -> 168.9	13179	5.94	µg/L	96
		284.9 -> 184.9	1521			
3:3FTCA	3.967	241.0 -> 177.0	7173	13.72	µg/L	100
		241.0 -> 117.0	641			
5:3FTCA	6.318	341.0 -> 237.1	143118	75.57	µg/L	100
		341.0 -> 217.0	101208			
7:3FTCA	7.761	441.0 -> 316.9	57240	73.75	µg/L	100
		441.0 -> 336.9	129341			
EtFOSA	11.375	526.0 -> 219.0	13709	5.67	µg/L	m 99
		526.0 -> 169.0	18679			
EtFOSE	11.295	630.0 -> 58.9	21868	14.29	µg/L	m 100
MeFOSA	11.078	511.9 -> 219.0	11189	5.68	µg/L	m 96
		511.9 -> 169.0	16795			
MeFOSE	10.985	616.1 -> 58.9	20976	14.64	µg/L	m 100
PFDoDS	10.126	699.1 -> 79.9	4082	2.46	µg/L	97
		699.1 -> 98.8	2348			
NFDHA	5.516	295.0 -> 201.0	5927	6.58	µg/L	96
		295.0 -> 84.9	1427			
PFMBA	4.866	279.0 -> 85.1	37887	5.91	µg/L	100
PFMPA	3.603	229.0 -> 84.9	33506	5.97	µg/L	100
PFEESA	6.059	314.8 -> 134.9	60522	5.38	µg/L	99
		314.8 -> 82.9	2240			

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

7.4.1
7

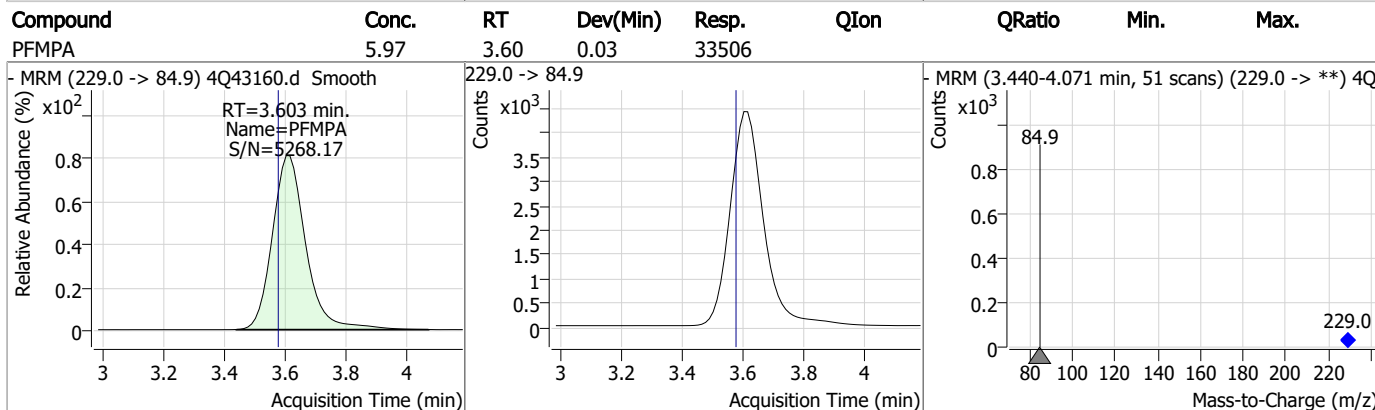
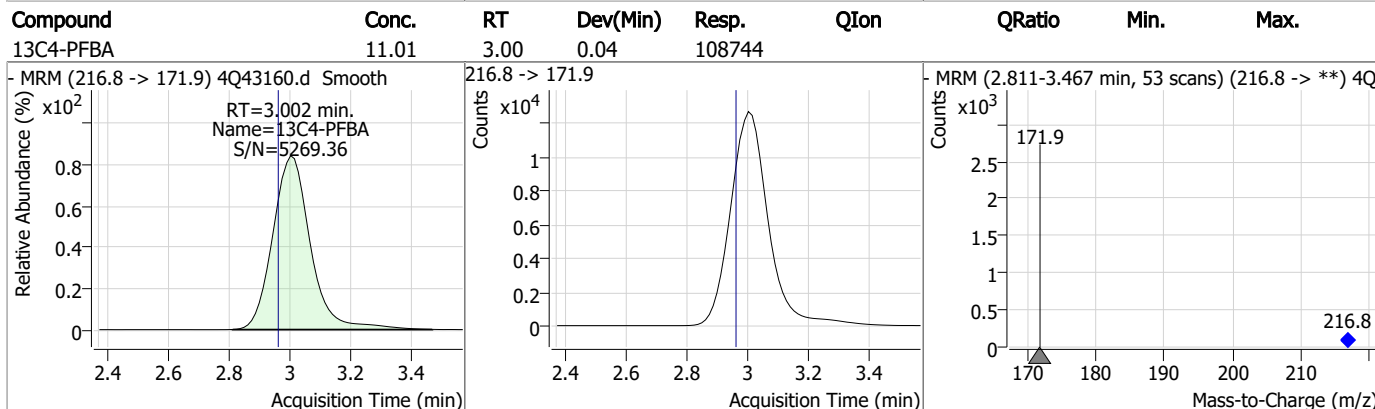
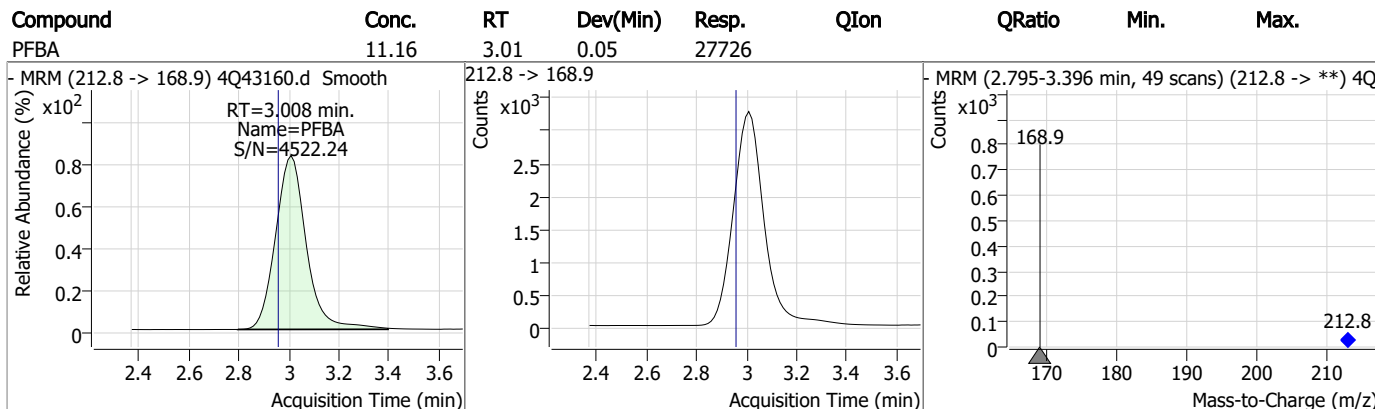
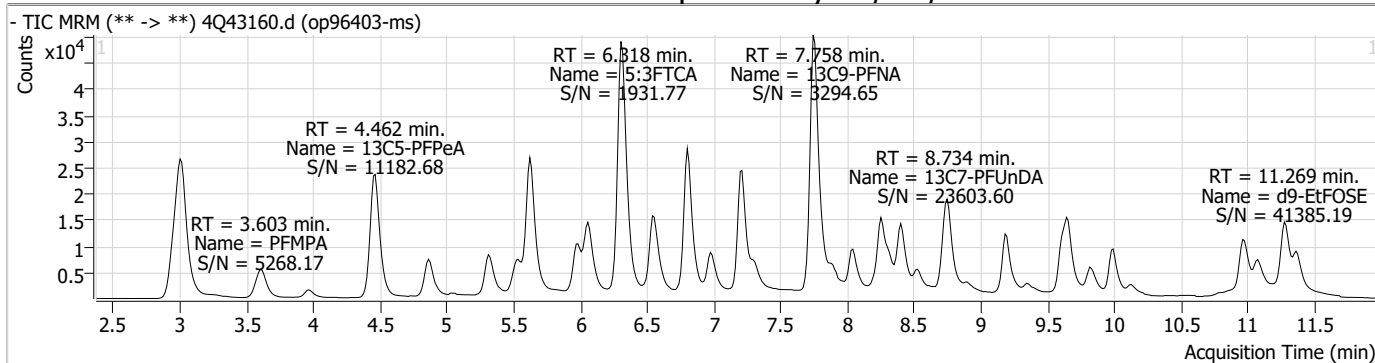
Perfluorinated Compounds by LC/MS/MS

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

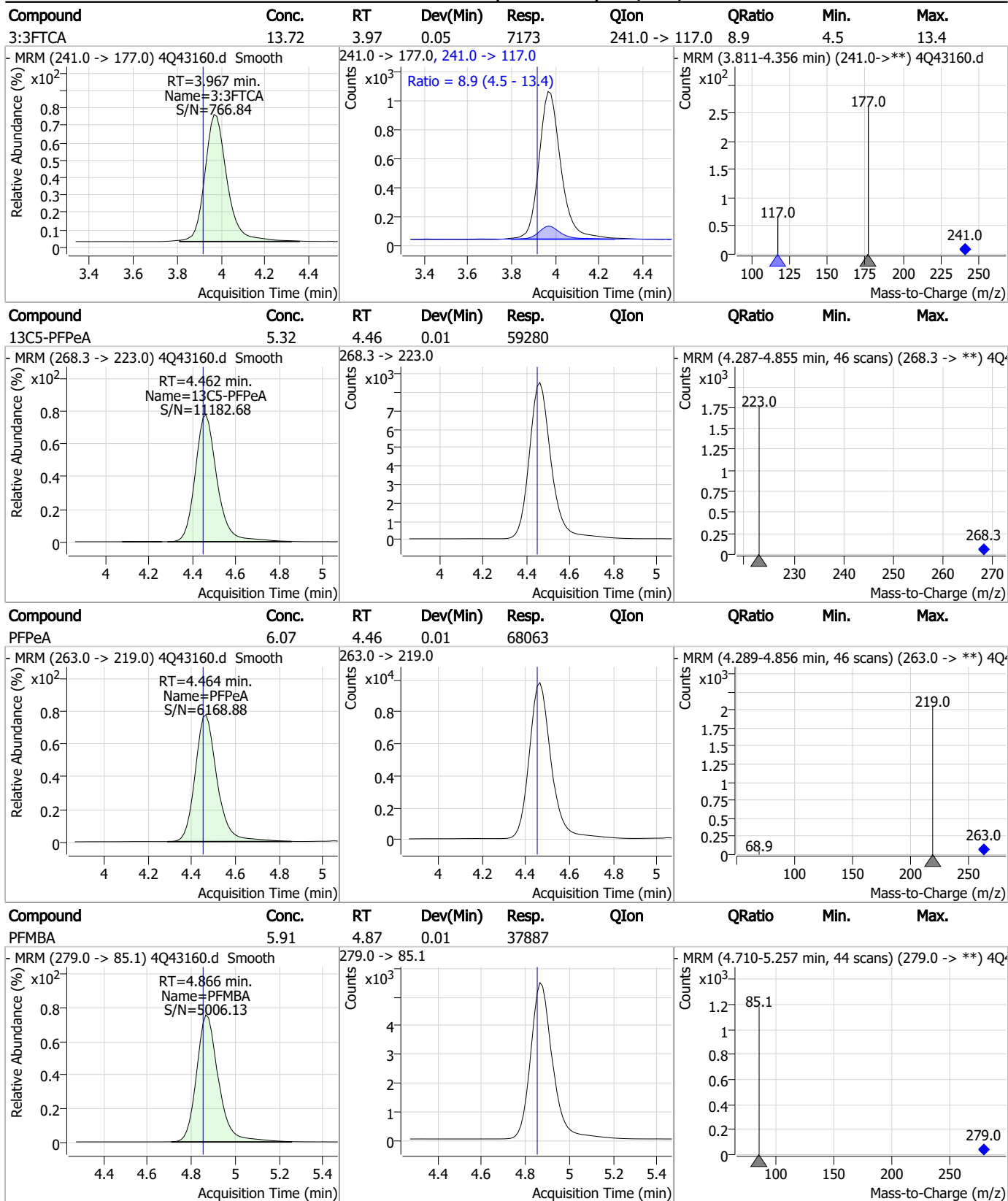
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Perfluorinated Compounds by LC/MS/MS



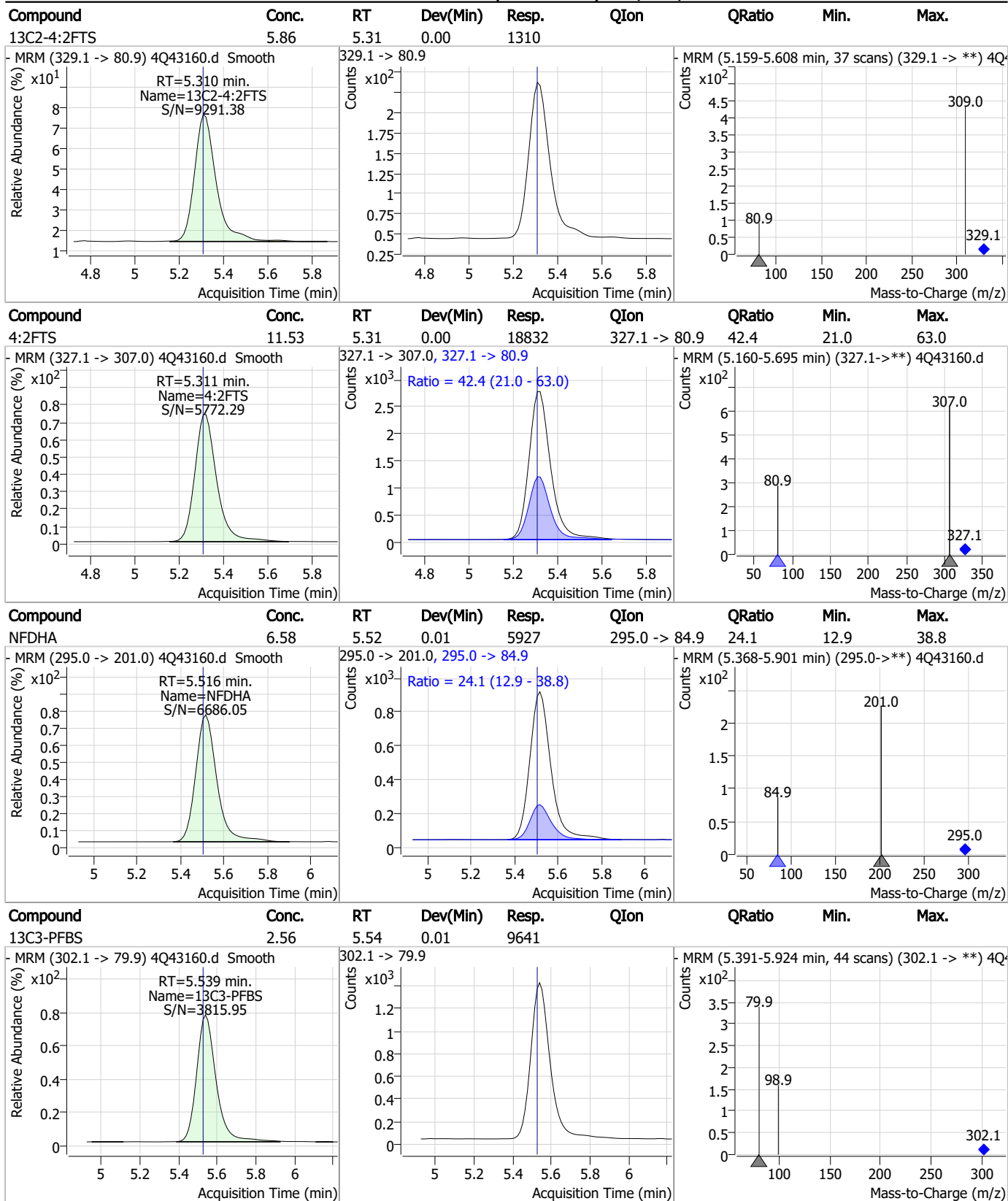
7.4.1
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Perfluorinated Compounds by LC/MS/MS



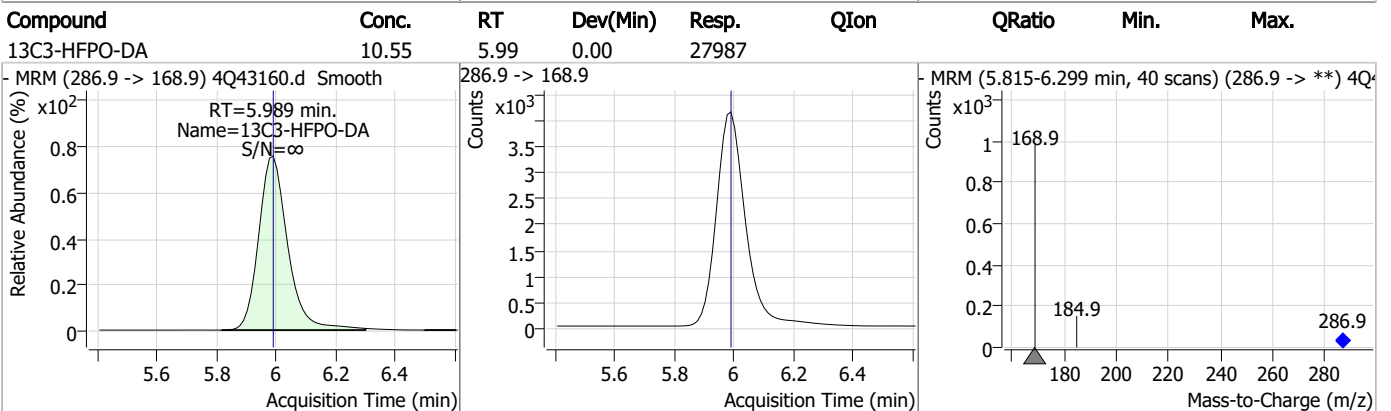
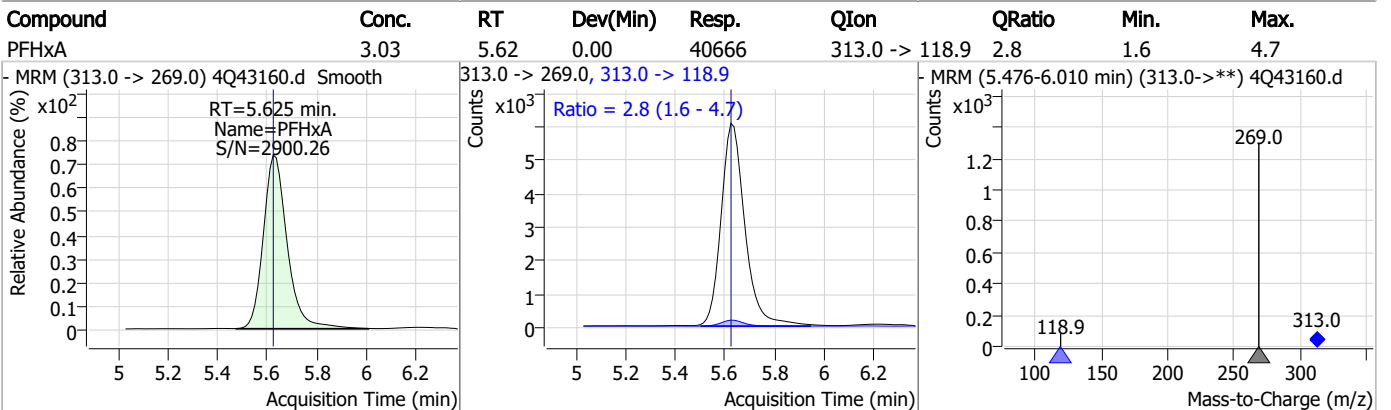
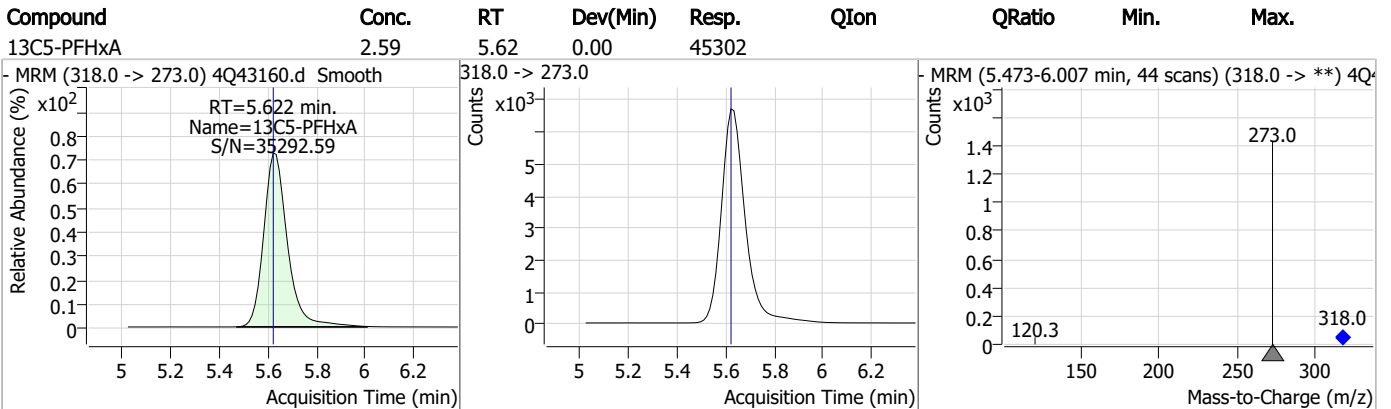
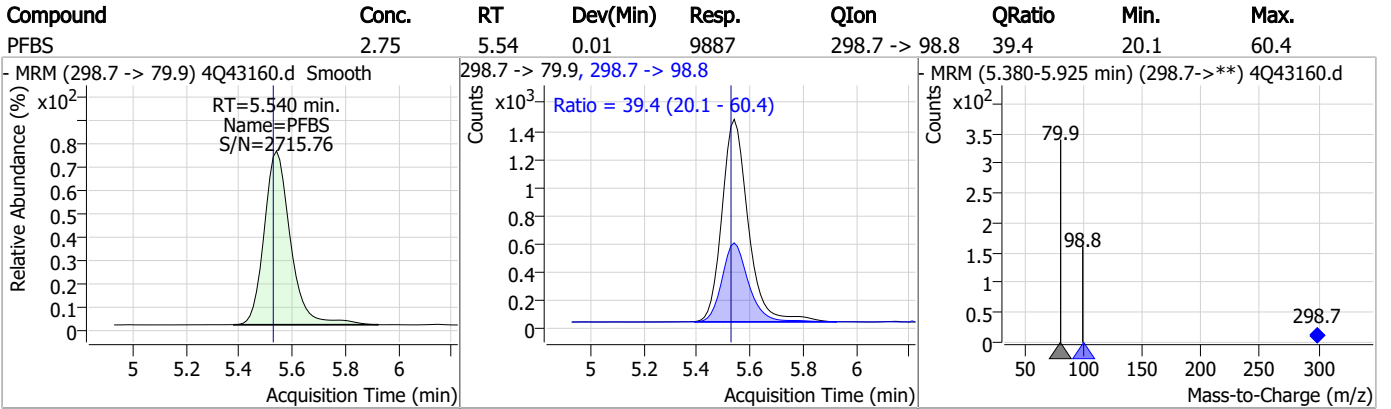
7.4.1
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Perfluorinated Compounds by LC/MS/MS

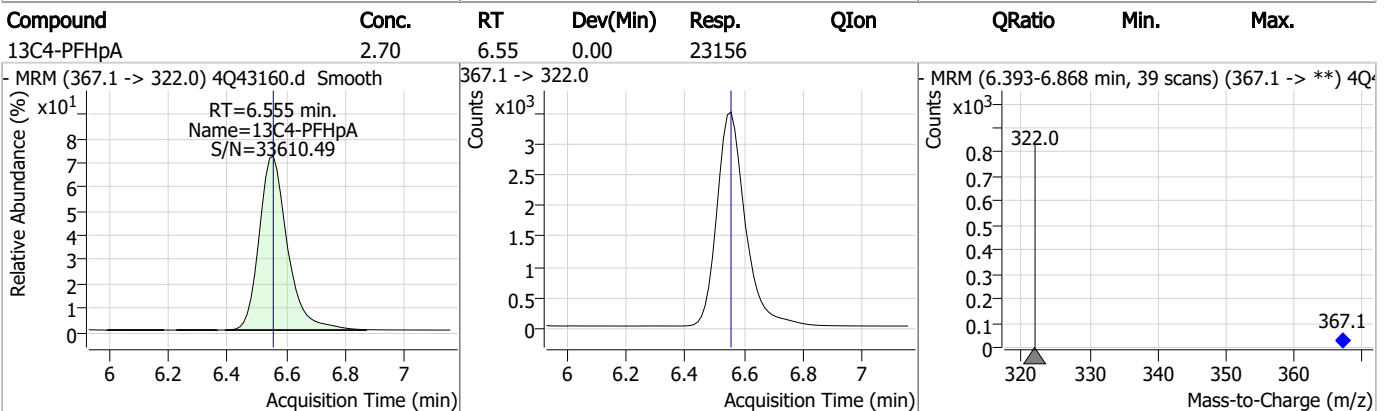
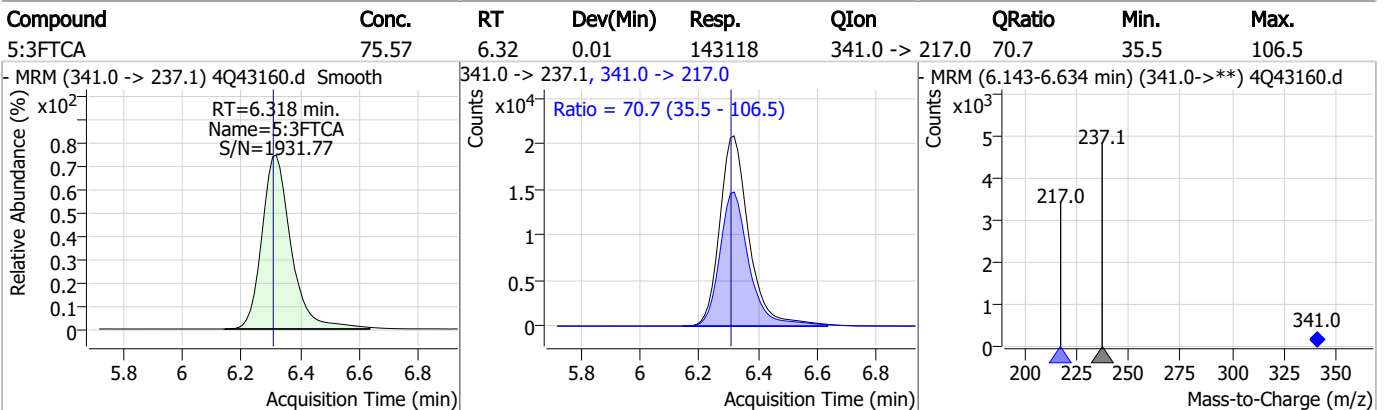
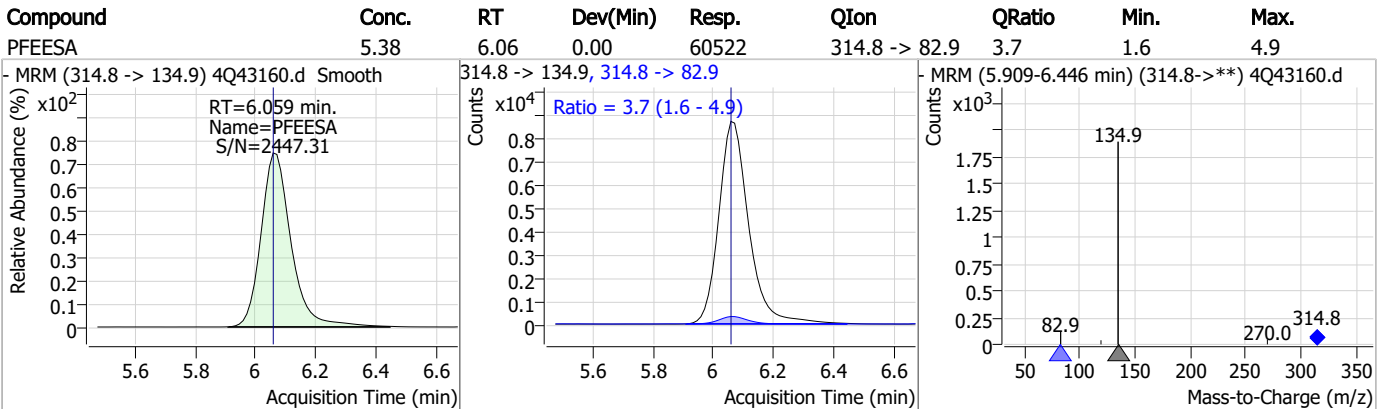
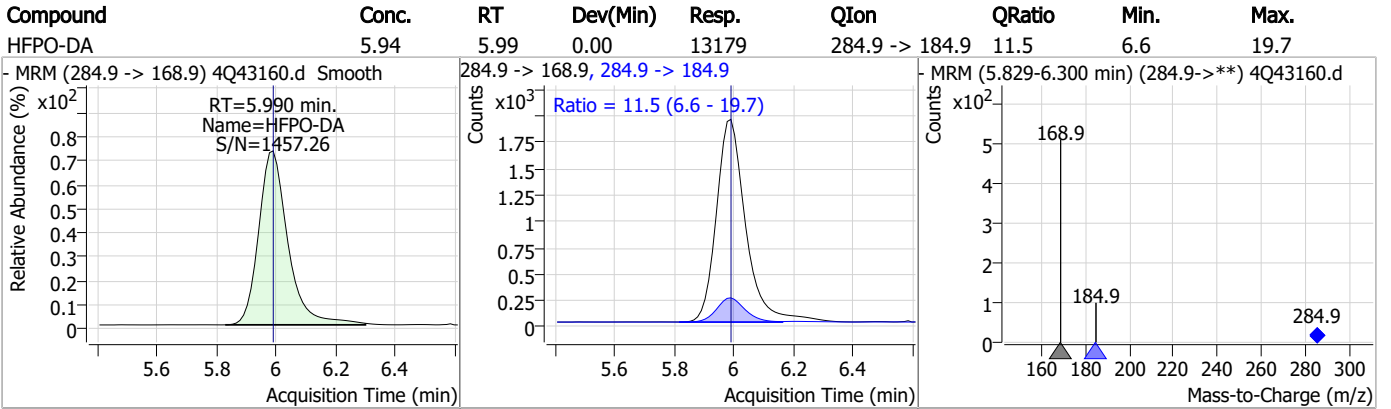


7.4.1
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Perfluorinated Compounds by LC/MS/MS



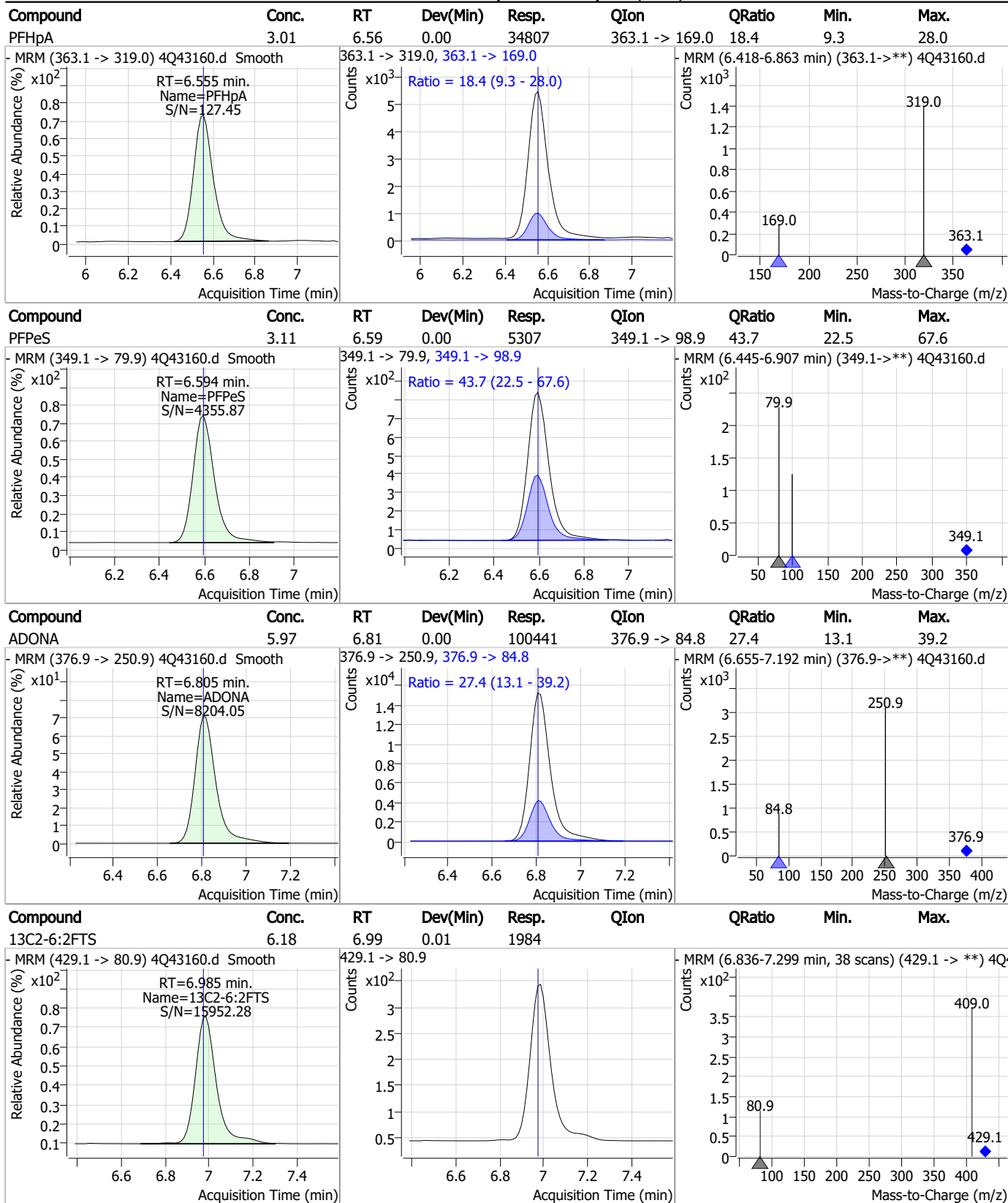
Perfluorinated Compounds by LC/MS/MS



7.4.1

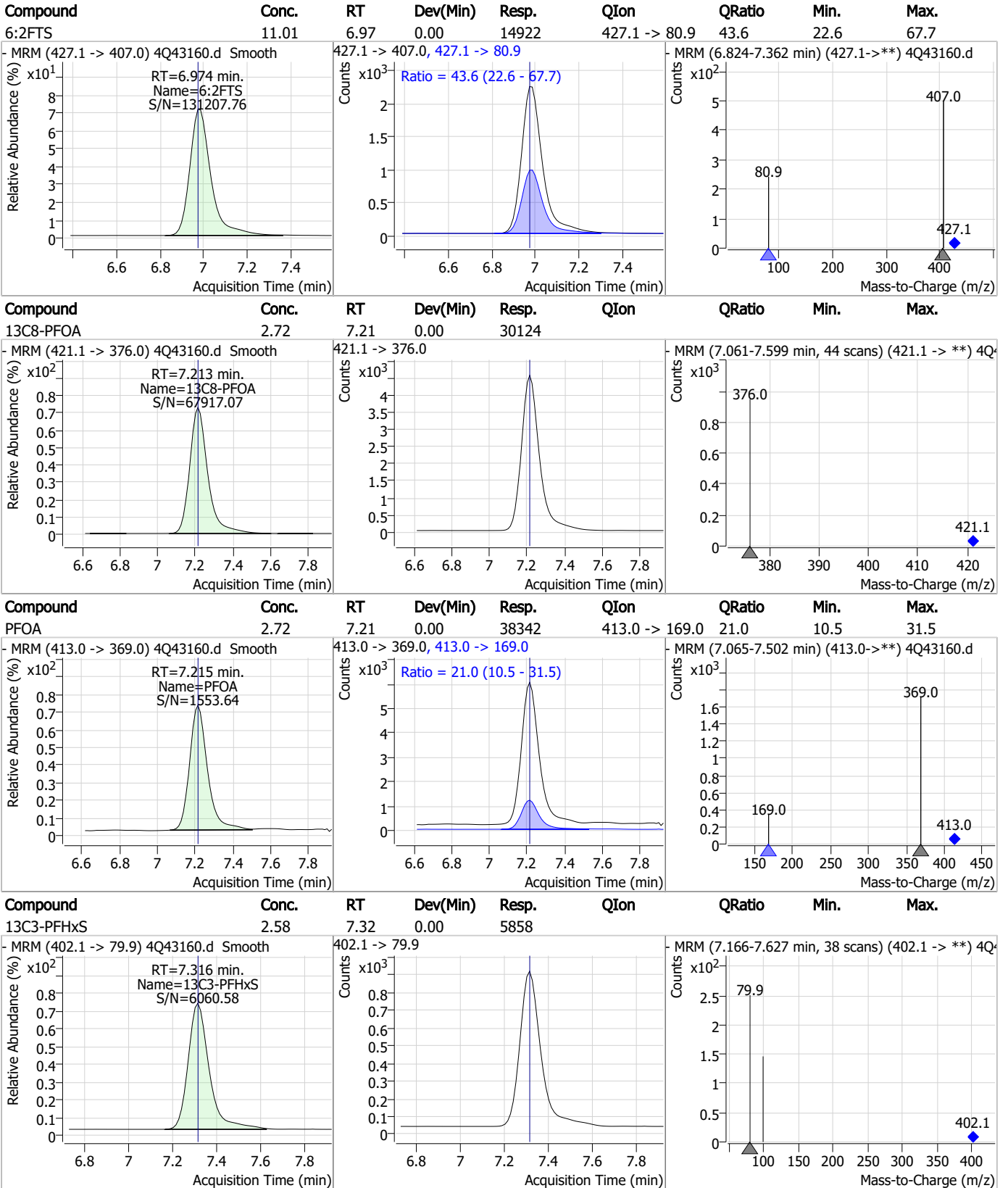
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Perfluorinated Compounds by LC/MS/MS



7.4.1
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Perfluorinated Compounds by LC/MS/MS

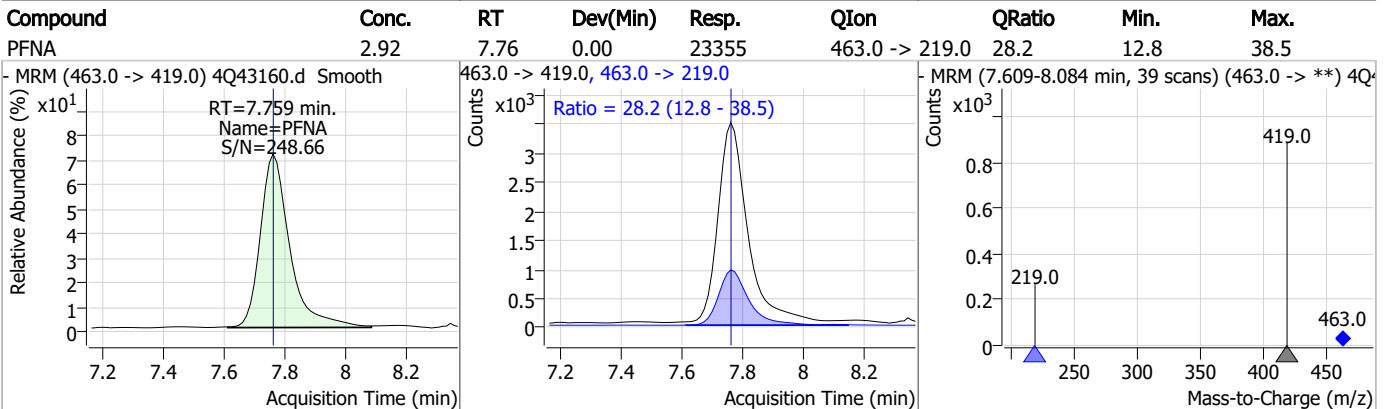
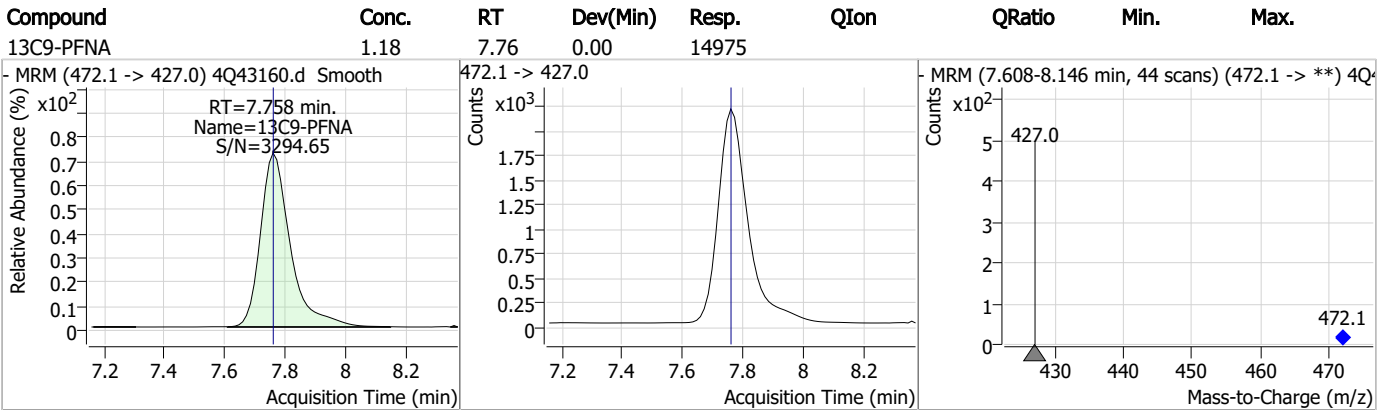
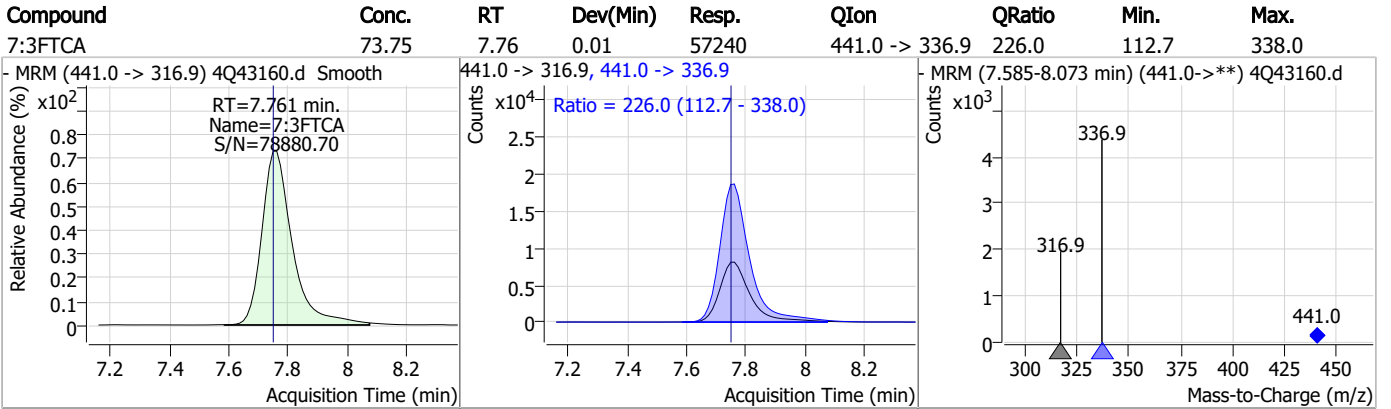
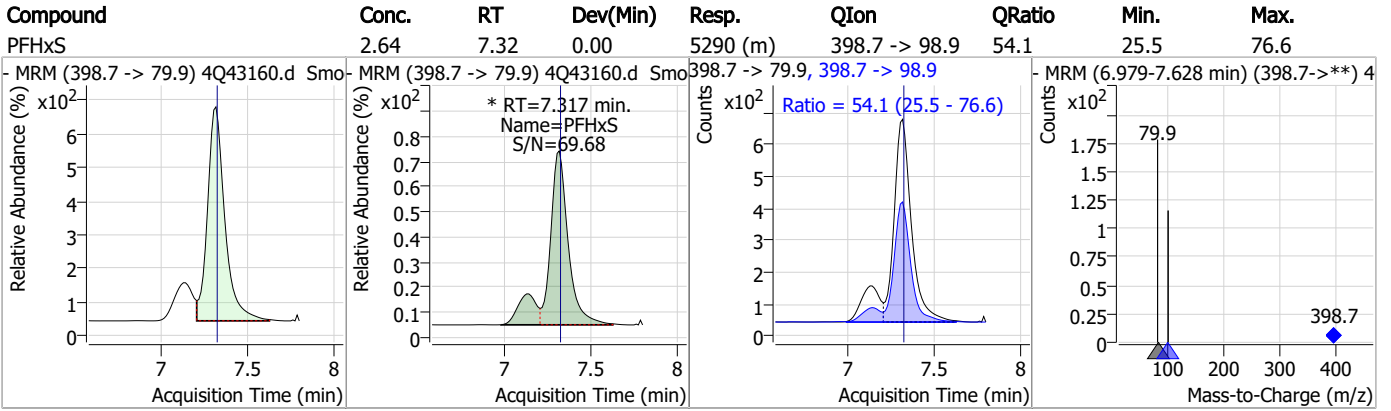


7.4.1

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Perfluorinated Compounds by LC/MS/MS

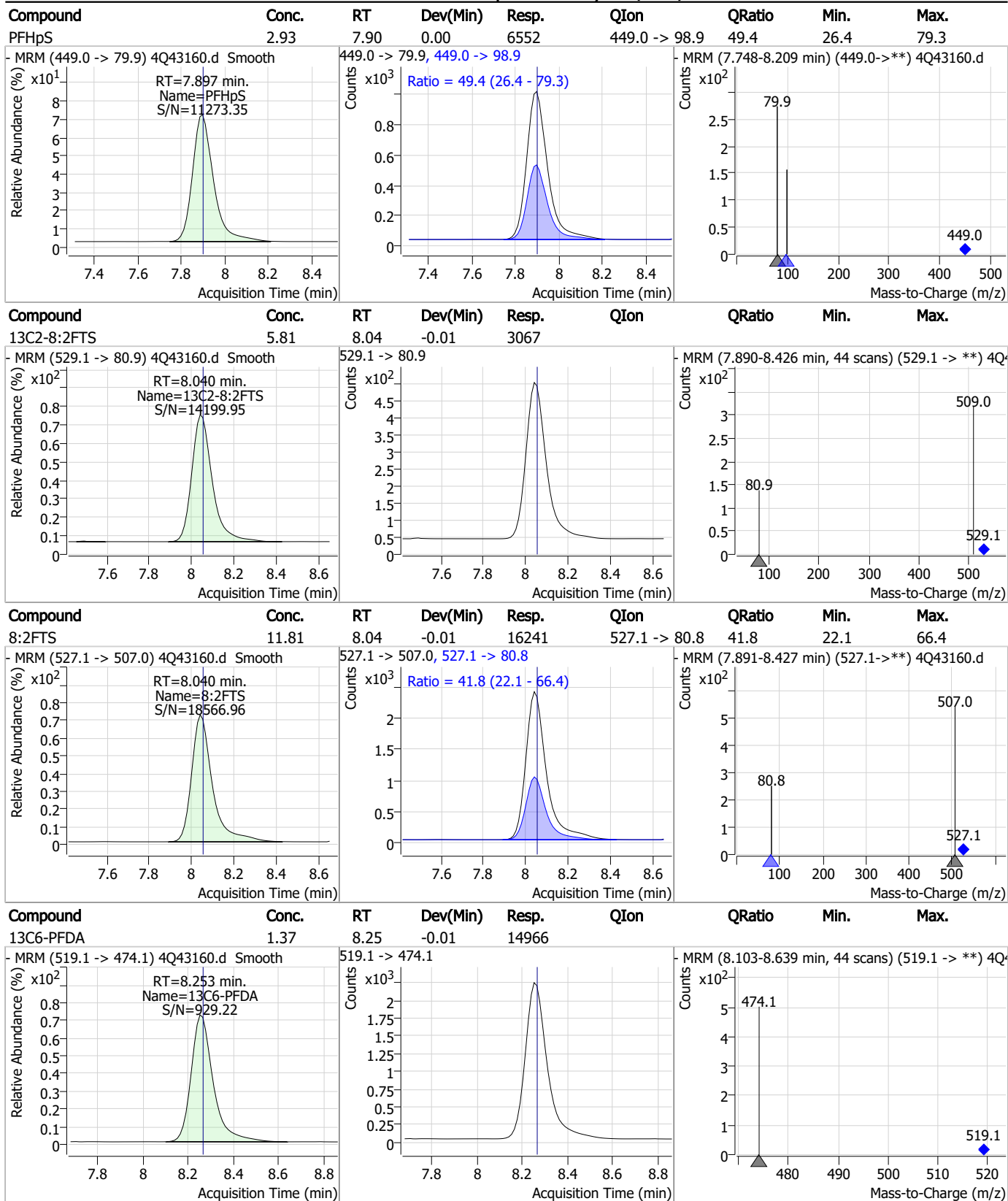


7.4.1

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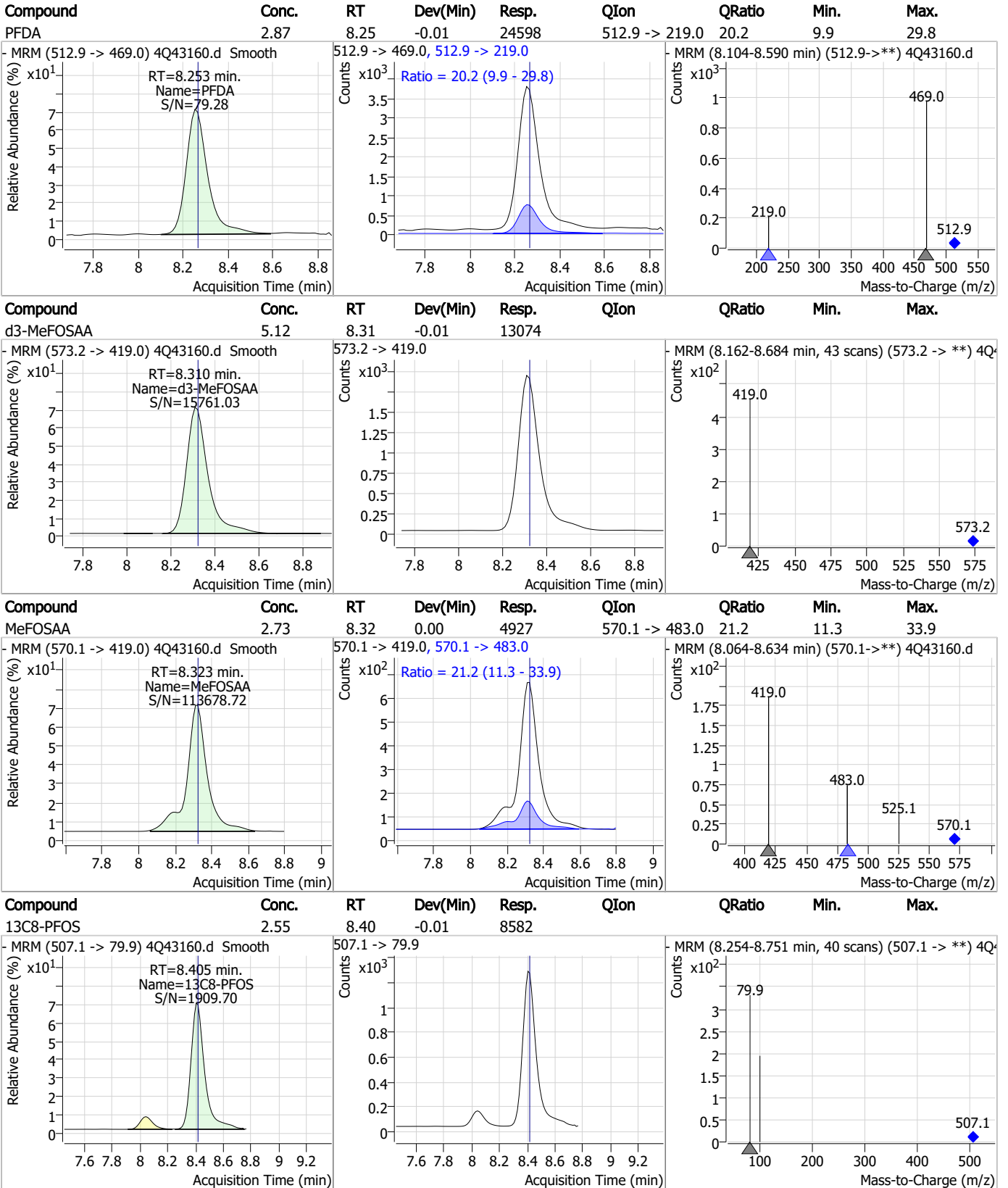


Perfluorinated Compounds by LC/MS/MS



7.4.1
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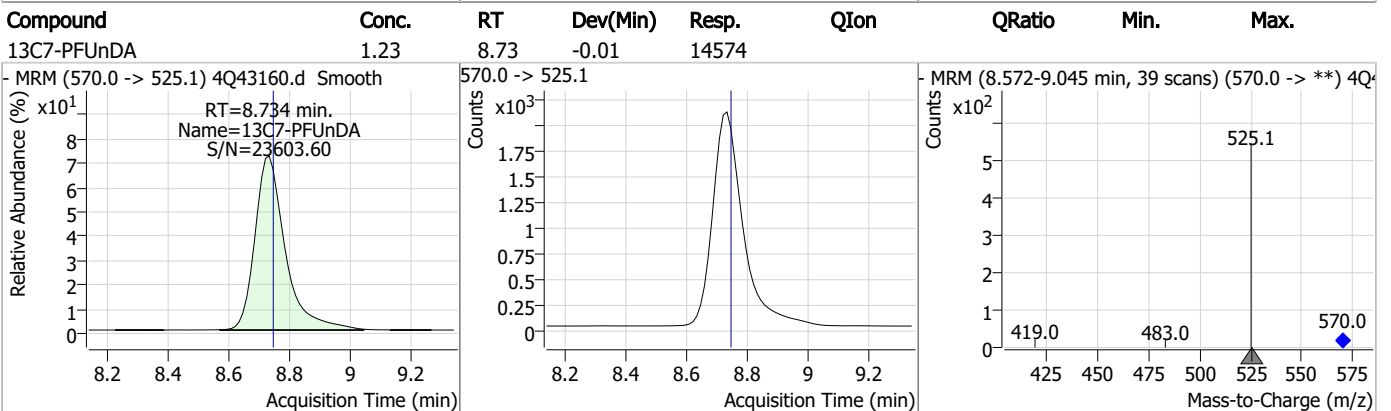
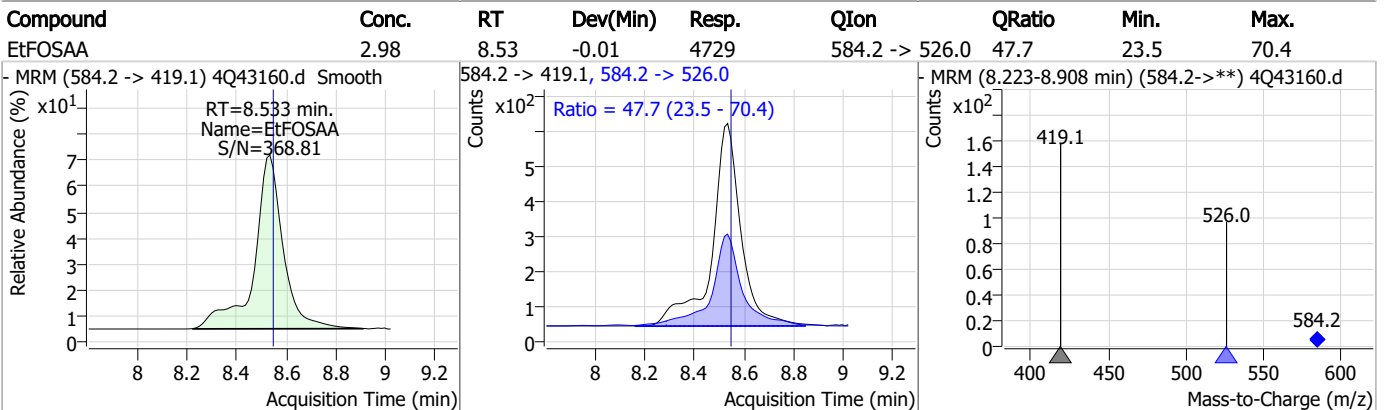
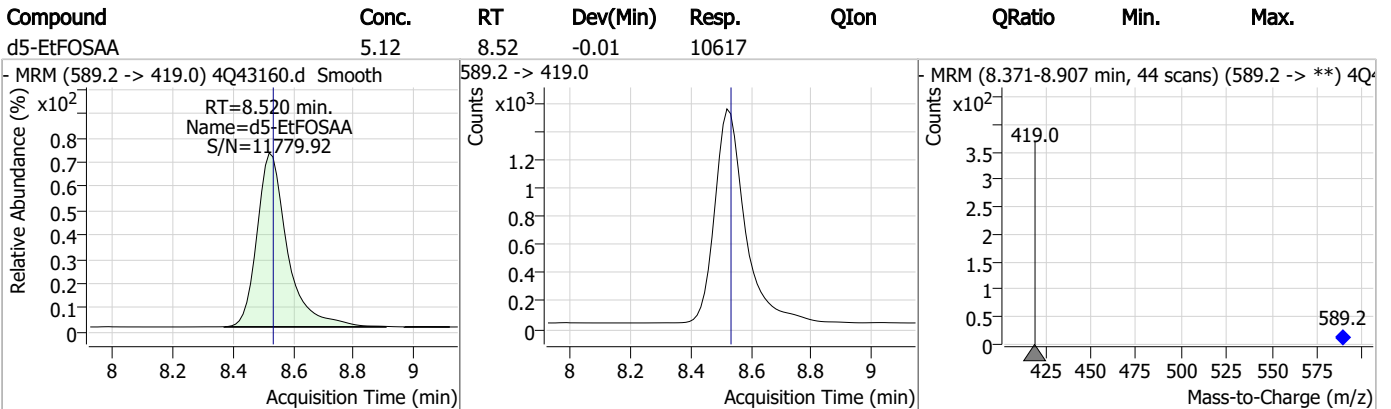
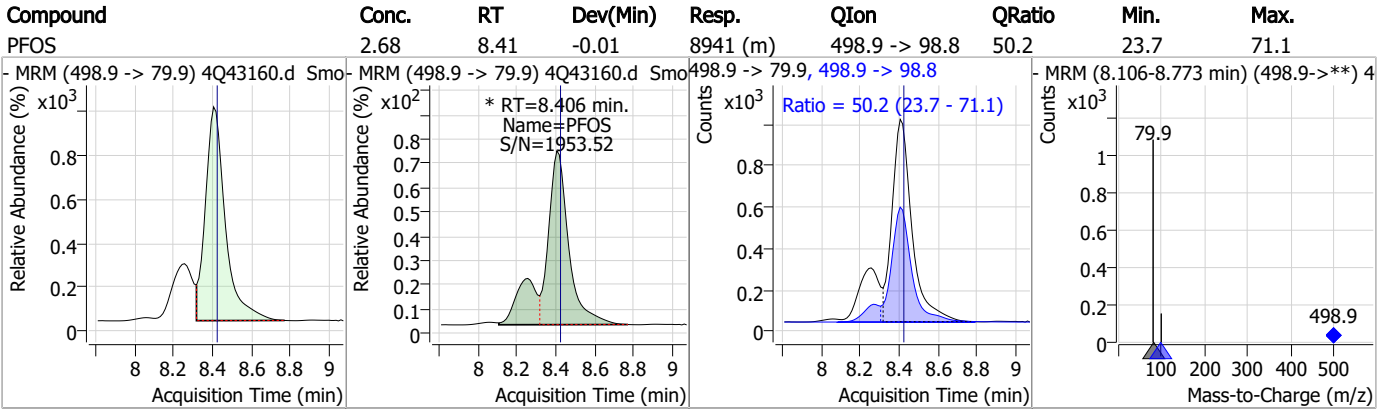
Perfluorinated Compounds by LC/MS/MS



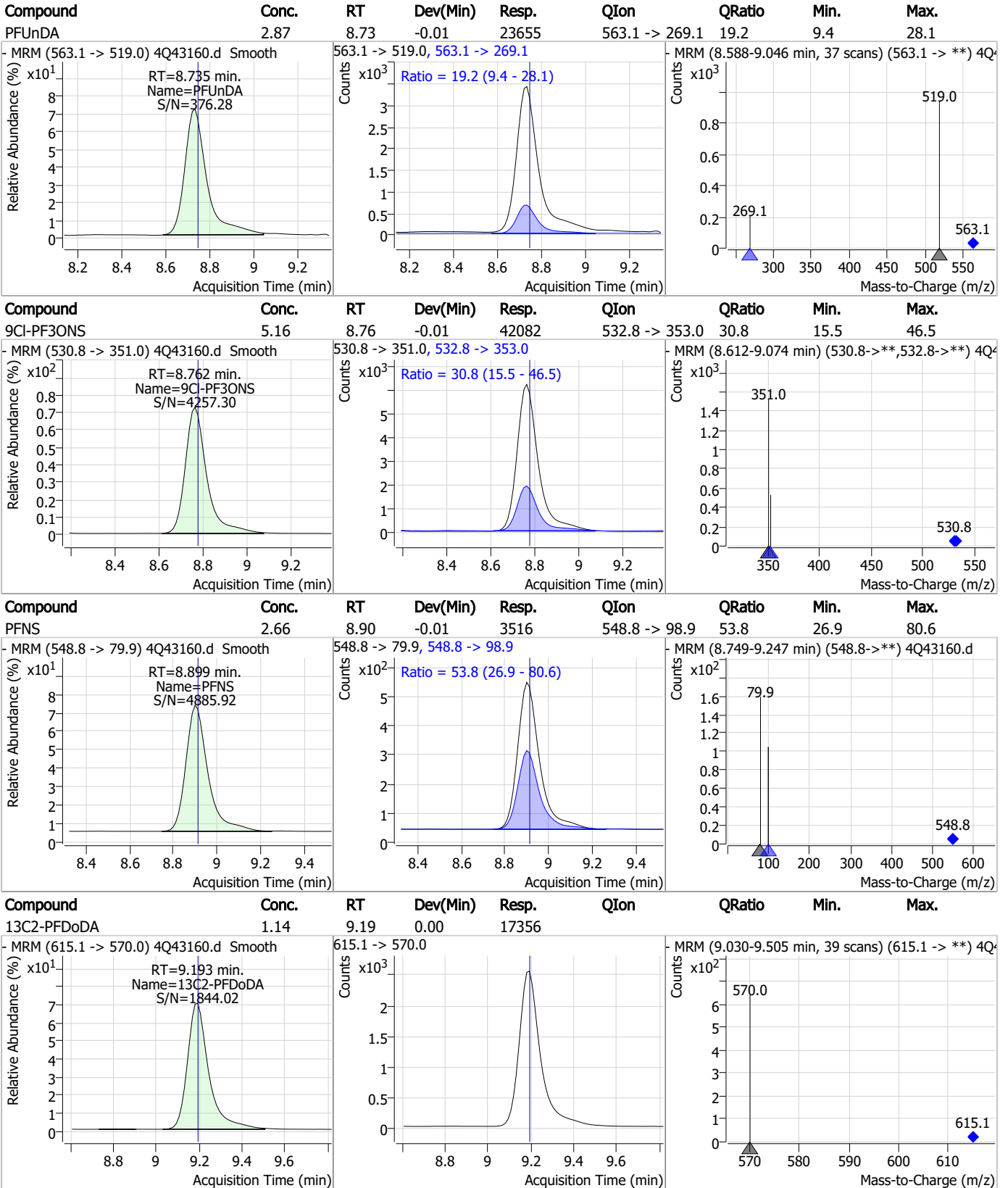
7.4.1

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Perfluorinated Compounds by LC/MS/MS



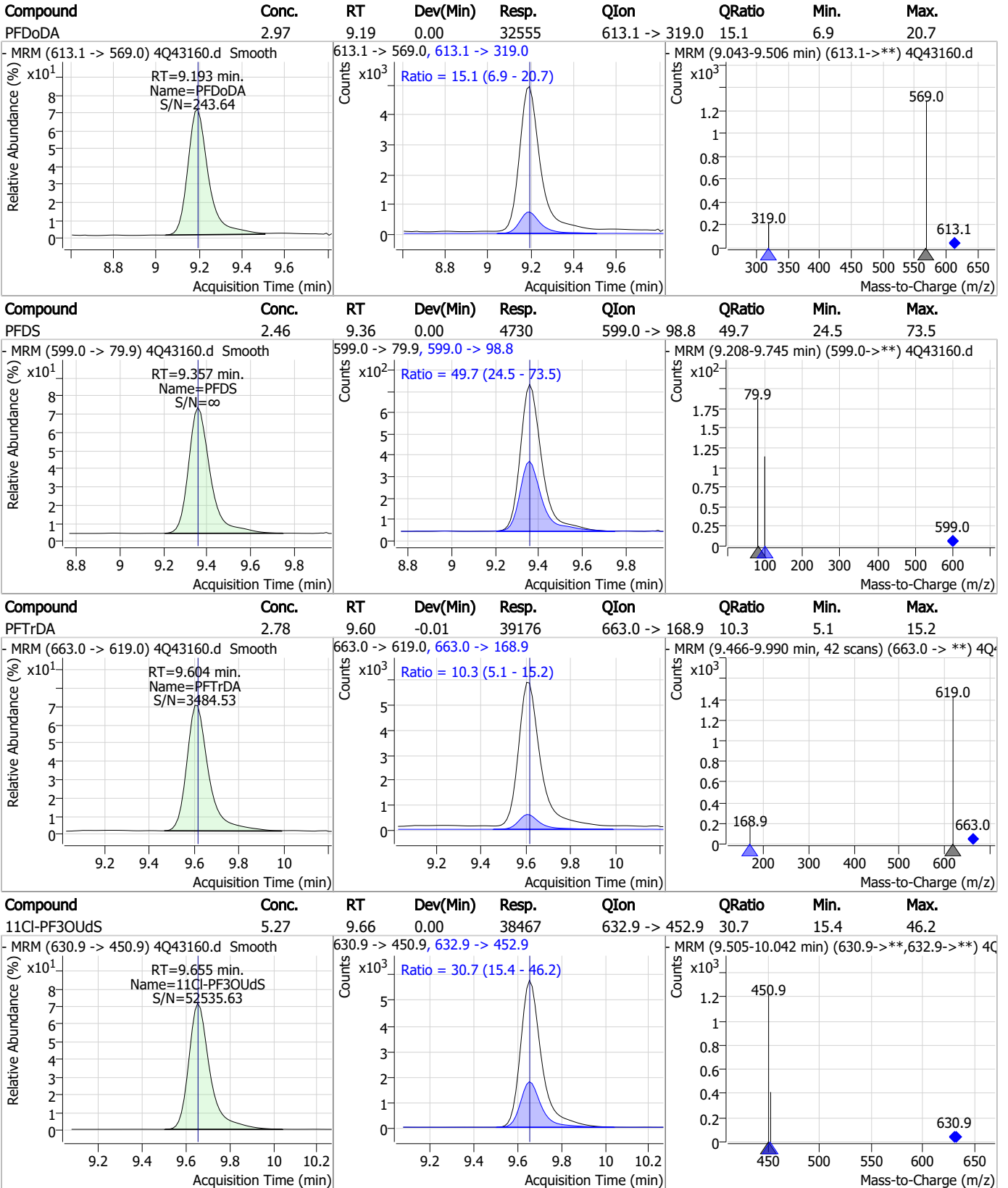
Perfluorinated Compounds by LC/MS/MS



7.4.1

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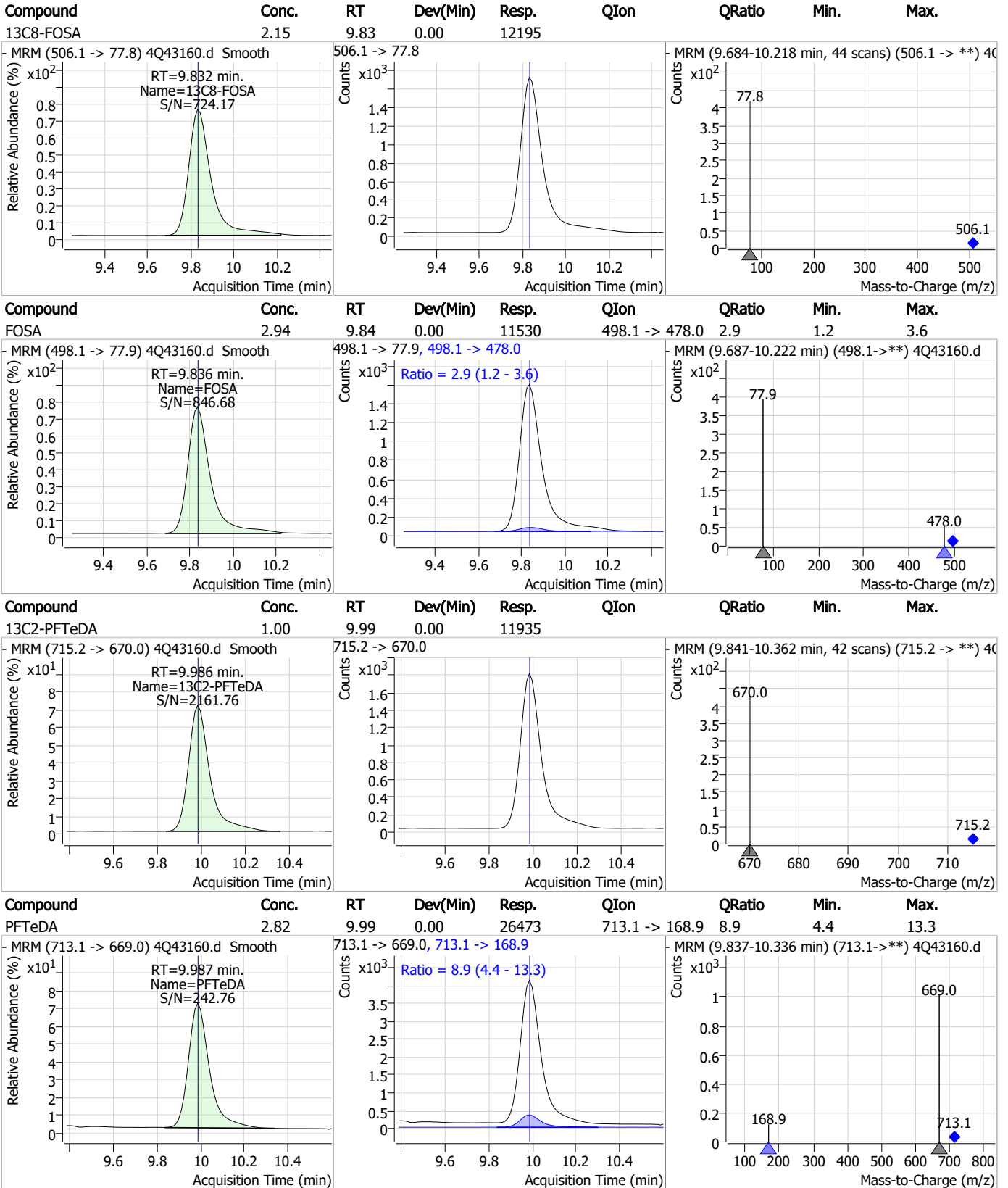
Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Perfluorinated Compounds by LC/MS/MS

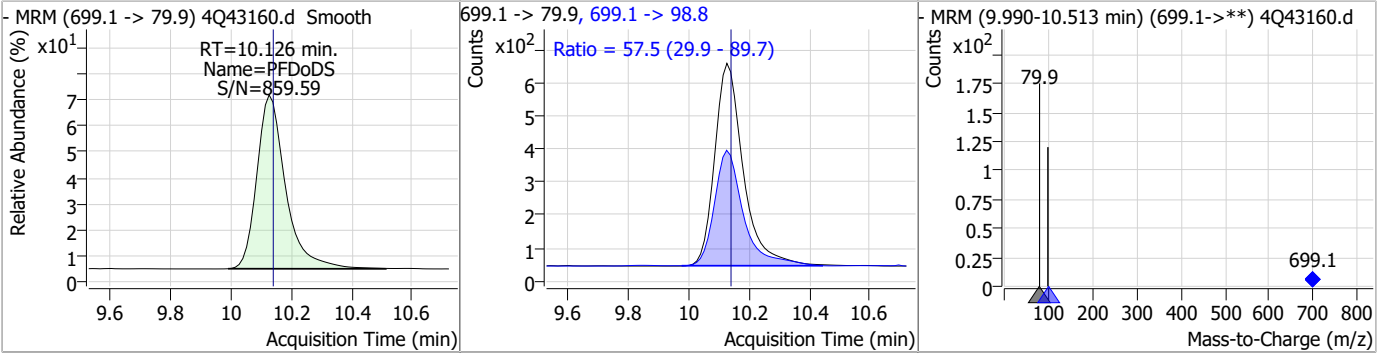


7.4.1

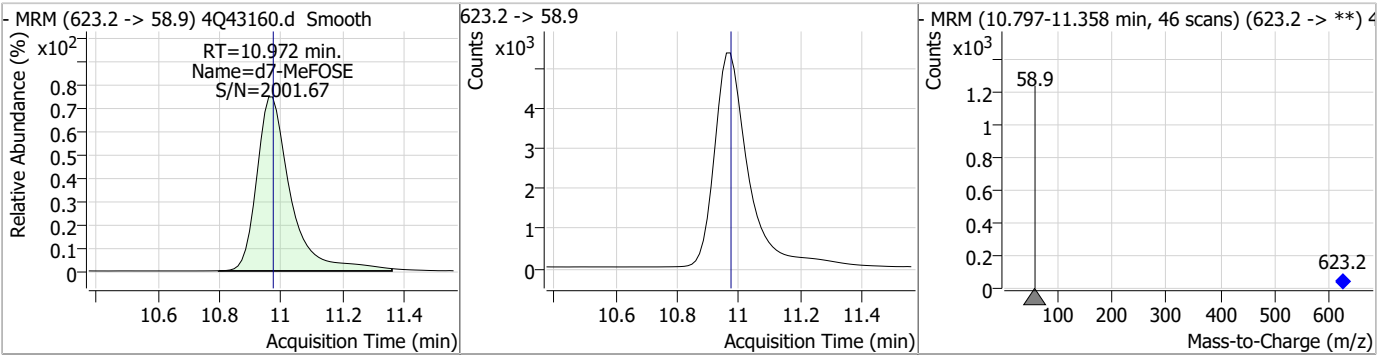
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Perfluorinated Compounds by LC/MS/MS

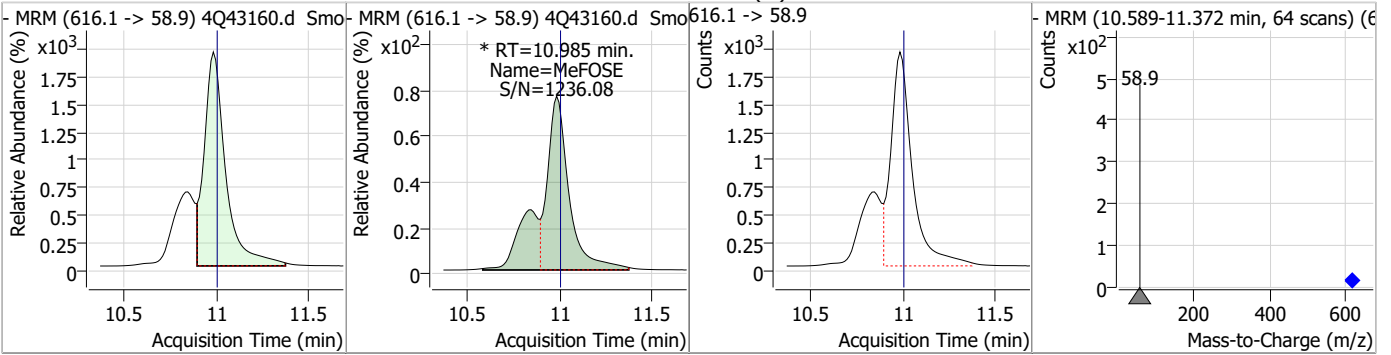
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PfDoDS	2.46	10.13	-0.01	4082	699.1 -> 98.8	57.5	29.9	89.7



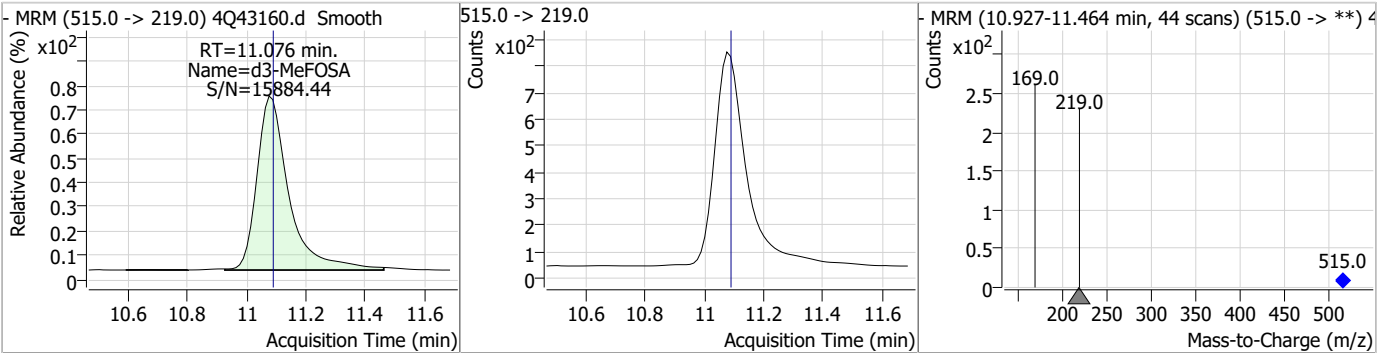
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	18.25	10.97	0.00	40771				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	14.64	10.99	-0.01	20976 (m)				

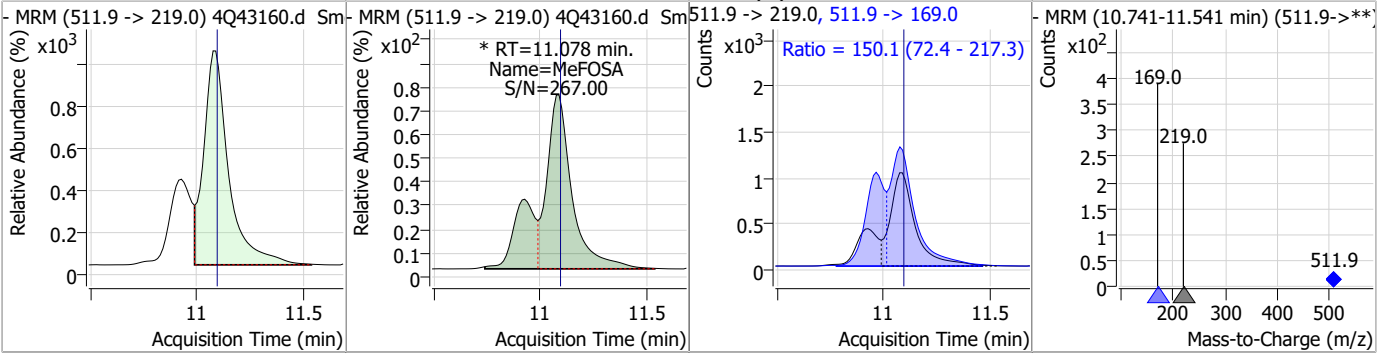


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.27	11.08	-0.01	6094				

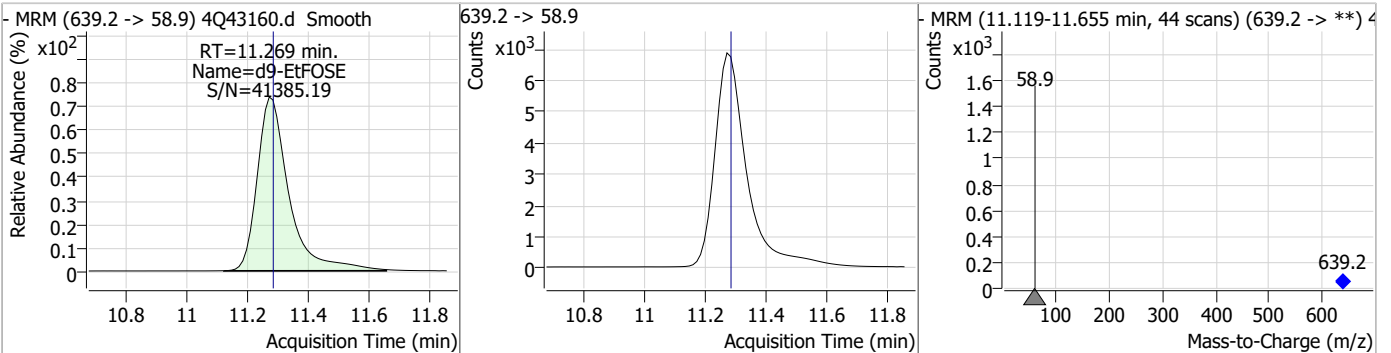


Perfluorinated Compounds by LC/MS/MS

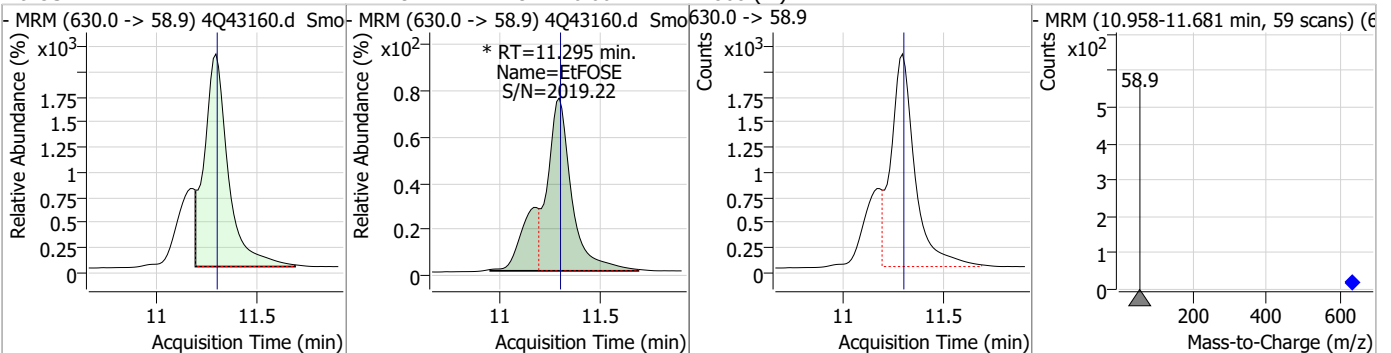
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.68	11.08	-0.01	11189 (m)	511.9 -> 169.0	150.1	72.4	217.3



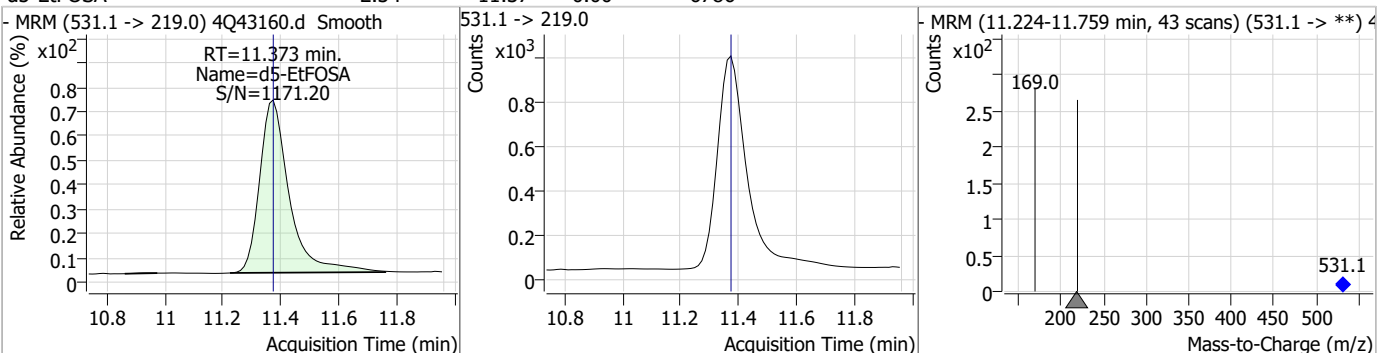
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	18.16	11.27	-0.01	49658				



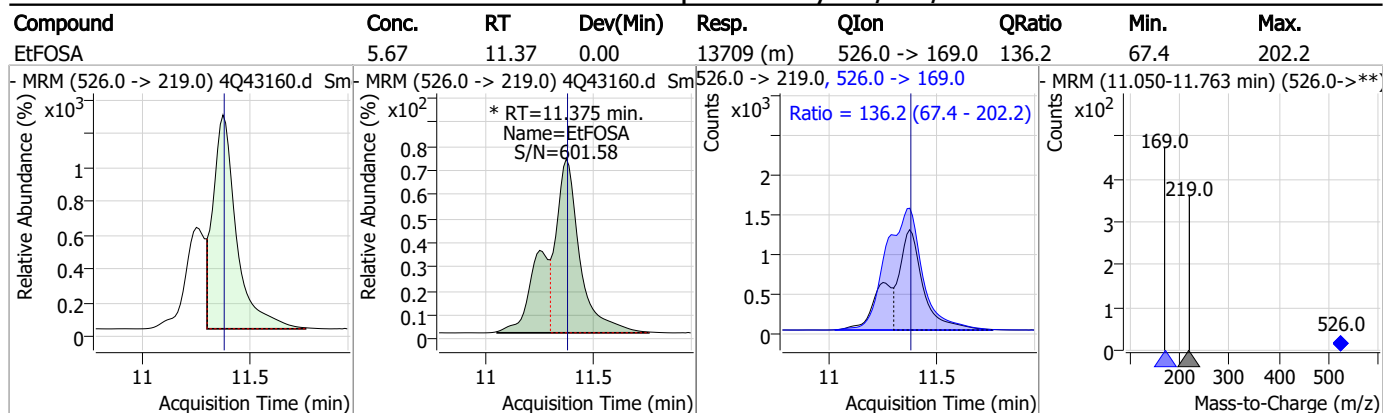
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	14.29	11.29	0.00	21868 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.34	11.37	0.00	6786				



Perfluorinated Compounds by LC/MS/MS



7.4.1

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Manual Integration Approval Summary

Sample Number: OP96403-MS Method: EPA DRAFT 1633
Lab FileID: 4Q43160.D Analyst approved: 04/19/23 14:12 Martha Valls
Injection Time: 04/18/23 14:04 Supervisor approved: 04/19/23 16:26 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.41	Split peak
MeFOSE	24448-09-7		10.98	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSE	1691-99-2		11.29	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.4.1.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43164.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 3:11:26 PM
 Sample Name : op96403-dup
 Vial : P4-C9
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96403,S4q624,570,,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.990	216.8 -> 171.9	57907	10.00 µg/L	0.028
M5-PFPeA	4.437	268.3 -> 223.0	46634	5.00 µg/L	-0.013
M5-PFHxA	5.622	318.0 -> 273.0	48124	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	25352	2.50 µg/L	0.000
M8-PFOA	7.213	421.1 -> 376.0	29361	2.50 µg/L	0.000
M9-PFNA	7.771	472.1 -> 427.0	15978	1.25 µg/L	0.012
M6-PFDA	8.265	519.1 -> 474.1	15315	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	16760	1.25 µg/L	-0.001
M2-PFDoDA	9.193	615.1 -> 570.0	19431	1.25 µg/L	-0.001
M2-PFTeDA	9.998	715.2 -> 670.0	11956	1.25 µg/L	0.011
M8-FOSA	9.845	506.1 -> 77.8	12754	2.50 µg/L	0.011
M3-PFBS	5.527	302.1 -> 79.9	10210	2.50 µg/L	0.000
M3-PFHxS	7.316	402.1 -> 79.9	6341	2.50 µg/L	-0.001
M8-PFOS	8.429	507.1 -> 79.9	9026	2.50 µg/L	0.012
M2-4:2FTS	5.298	329.1 -> 80.9	1314	5.00 µg/L	-0.012
M2-6:2FTS	6.973	429.1 -> 80.9	1790	5.00 µg/L	-0.001
M2-8:2FTS	8.052	529.1 -> 80.9	2816	5.00 µg/L	-0.001
M3-MeFOSAA	8.323	573.2 -> 419.0	13409	5.00 µg/L	-0.001
M3-HFPO-DA	5.989	286.9 -> 168.9	25020	10.00 µg/L	0.000
M5-EtFOSAA	8.545	589.2 -> 419.0	11433	5.00 µg/L	0.011
M7-MeFOSE	10.972	623.2 -> 58.9	41006	25.00 µg/L	-0.002
M9-EtFOSE	11.281	639.2 -> 58.9	48529	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	6775	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	6439	2.50 µg/L	-0.002
13C4-PFOS	8.418	502.8 -> 79.9	8733	2.50 µg/L	0.000
13C3-PFBA	2.993	216.0 -> 172.0	37761	5.00 µg/L	0.027
18O2-PFHxS	7.315	403.0 -> 83.9	4033	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	33249	2.50 µg/L	0.000
13C2-PFDA	8.265	515.1 -> 470.1	13541	1.25 µg/L	-0.001
13C5-PFNA	7.759	468.0 -> 423.0	16882	1.25 µg/L	-0.001
13C2-PFHxA	5.623	315.1 -> 270.0	37445	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.298	329.1 -> 80.9	1314	5.97 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.3%		
13C2-6:2FTS	6.973	429.1 -> 80.9	1790	5.66 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.2%		
13C2-8:2FTS	8.052	529.1 -> 80.9	2816	5.41 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.3%		
13C2-PFDoDA	9.193	615.1 -> 570.0	19431	1.17 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C2-PFTeDA	9.998	715.2 -> 670.0	11956	0.92 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 73.7%		
13C3-PFBS	5.527	302.1 -> 79.9	10210	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C3-PFHxS	7.316	402.1 -> 79.9	6341	2.84 µg/L	-0.001

7.5.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.6%	
13C4-PFBA	2.990	216.8 -> 171.9	57907	8.81 µg/L	0.028
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.1%	
13C4-PFHpA	6.555	367.1 -> 322.0	25352	2.98 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.3%	
13C5-PFHxA	5.622	318.0 -> 273.0	48124	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.3%	
13C5-PFPeA	4.437	268.3 -> 223.0	46634	4.23 µg/L	-0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 84.5%	
13C6-PFDA	8.265	519.1 -> 474.1	15315	1.29 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C7-PFUnDA	8.747	570.0 -> 525.1	16760	1.30 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C8-FOSA	9.845	506.1 -> 77.8	12754	2.23 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.3%	
13C8-PFOA	7.213	421.1 -> 376.0	29361	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.3%	
13C8-PFOS	8.429	507.1 -> 79.9	9026	2.67 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C9-PFNA	7.771	472.1 -> 427.0	15978	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.9%	
d3-MeFOSAA	8.323	573.2 -> 419.0	13409	5.21 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	25020	9.52 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
d3-MeFOSA	11.089	515.0 -> 219.0	6439	2.38 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
d5-EtFOSAA	8.545	589.2 -> 419.0	11433	5.47 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.4%	
d7-MeFOSE	10.972	623.2 -> 58.9	41006	18.21 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 72.8%	
d9-EtFOSE	11.281	639.2 -> 58.9	48529	17.61 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 70.4%	
d5-EtFOSA	11.373	531.1 -> 219.0	6775	2.32 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.8%	
Target Compounds					QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	3.046	212.8 -> 168.9	0	µg/L	1
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.	

7.5.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	5.625	449.0 -> 98.9	851	0.06 µg/L	#m	95
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	41	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	4.526	498.9 -> 98.8	0	µg/L	m	1
		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	4.230	241.0 -> 177.0	0	µg/L	m	1
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.5.1
7

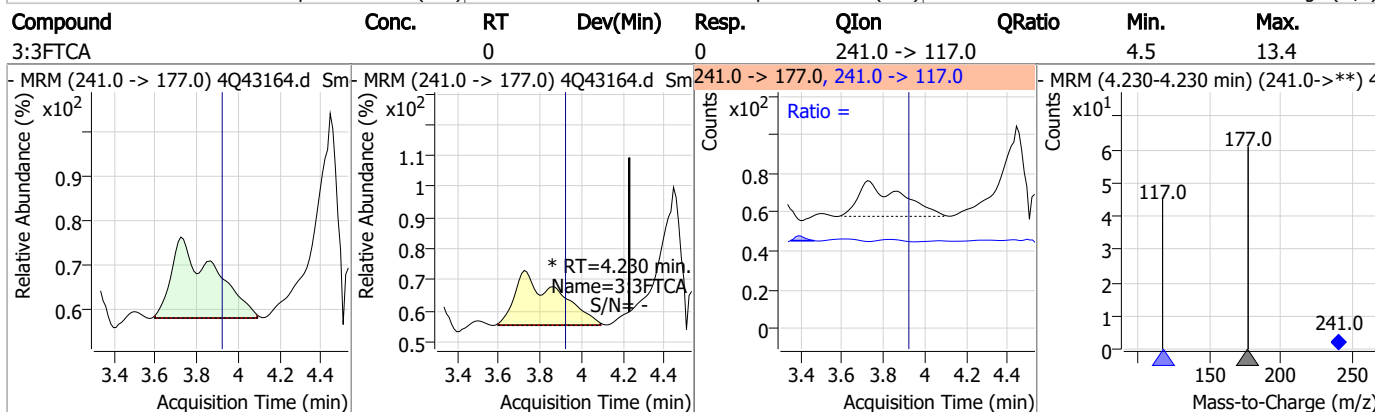
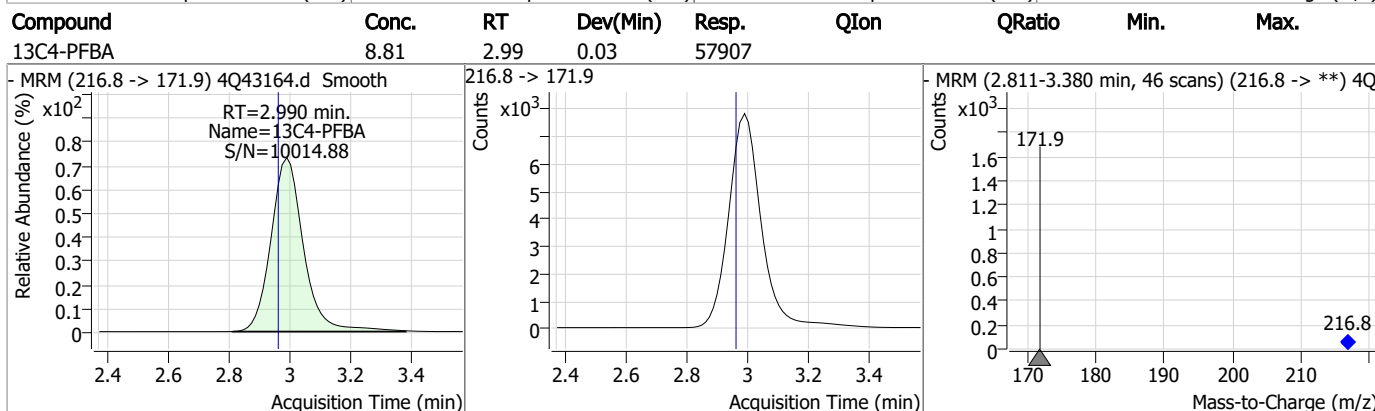
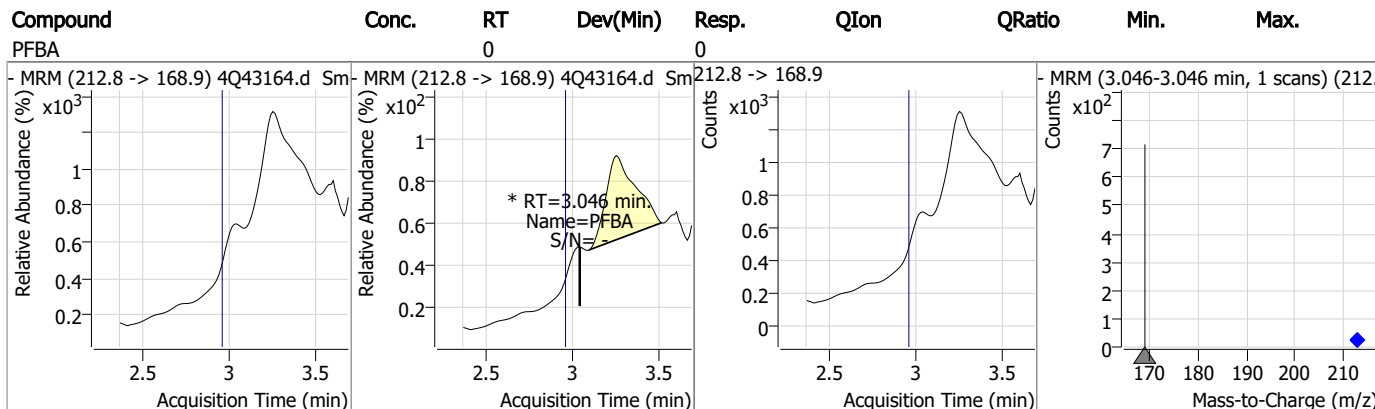
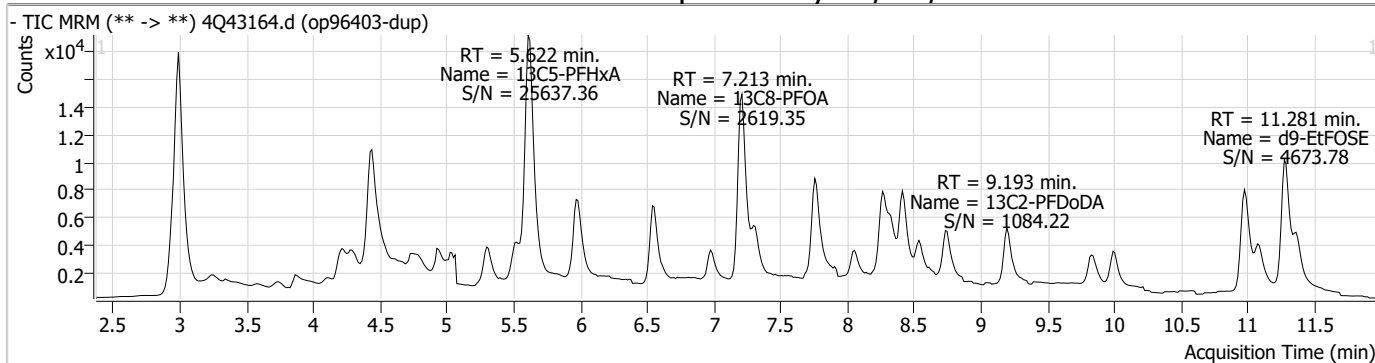
Perfluorinated Compounds by LC/MS/MS

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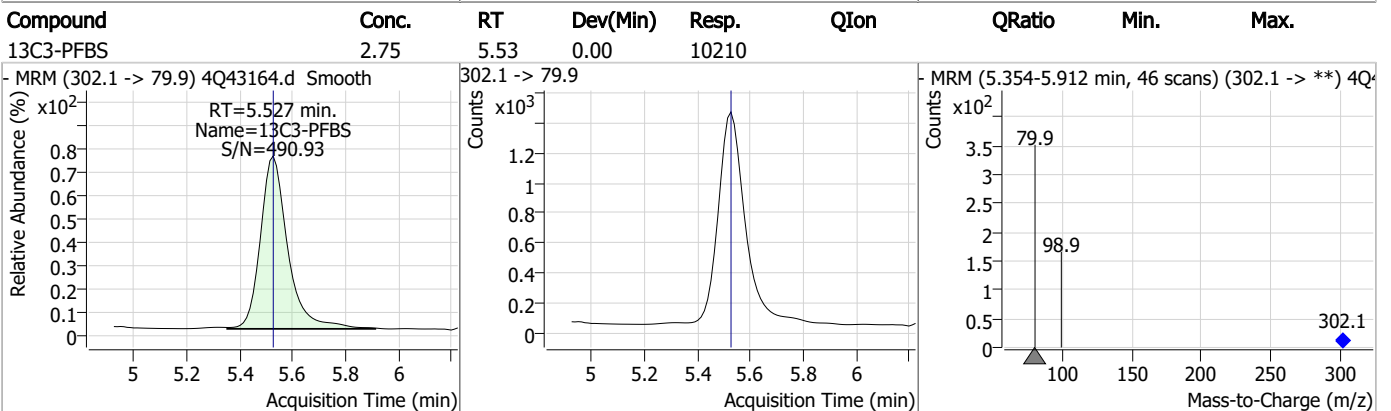
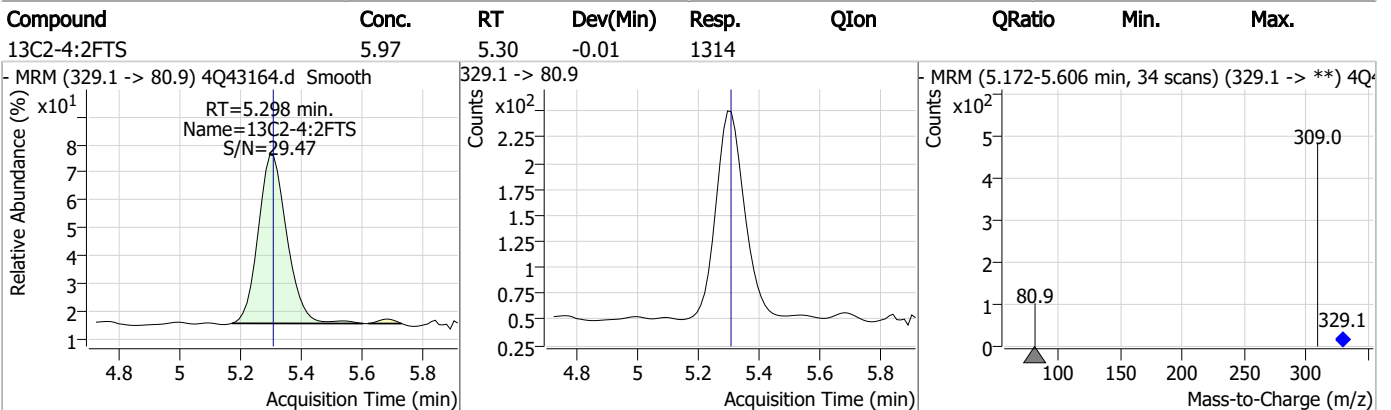
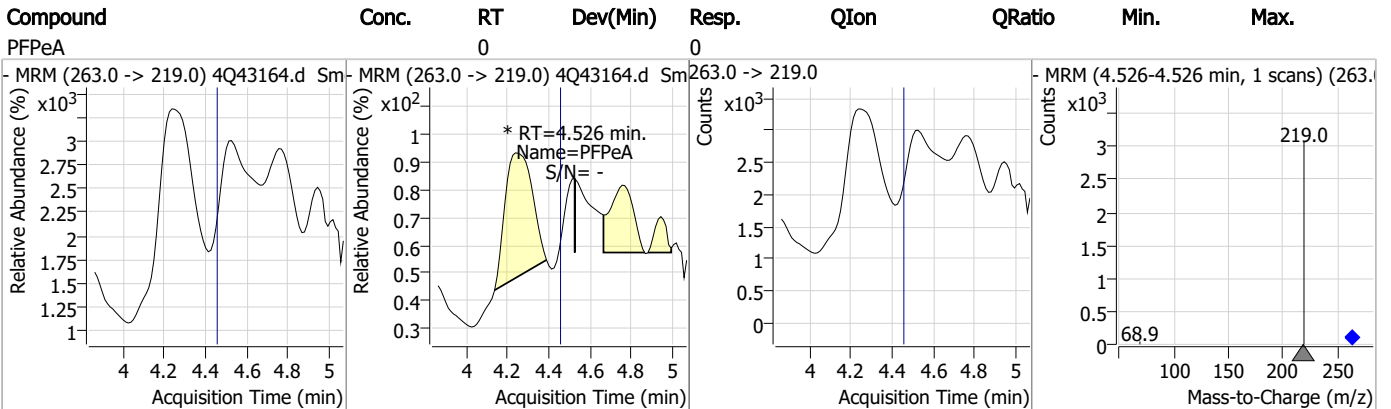
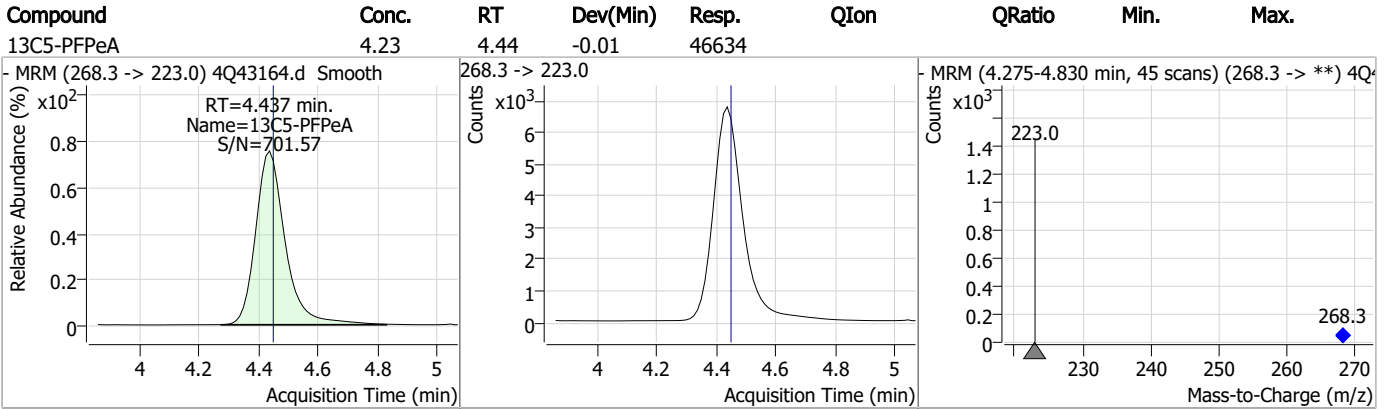
7.5.1

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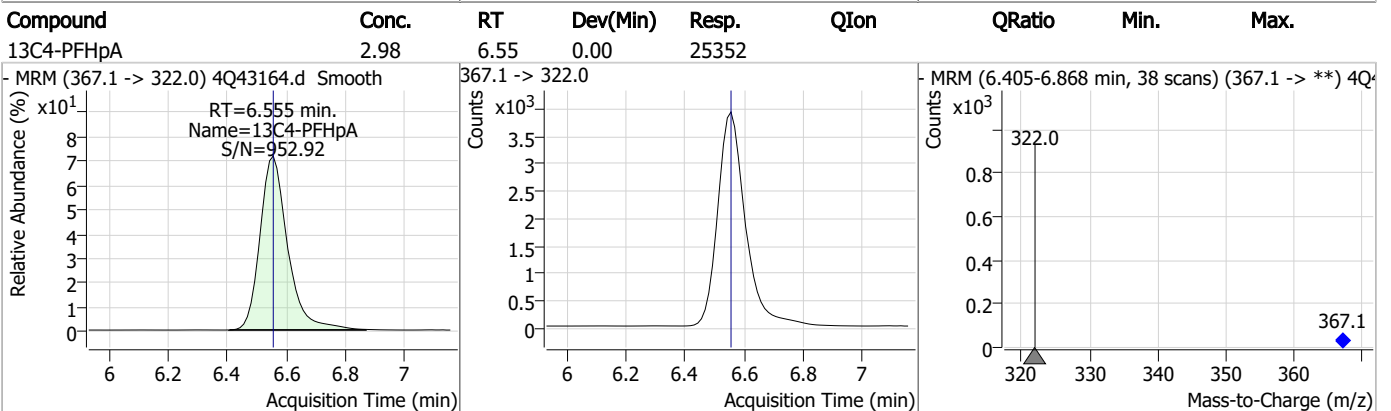
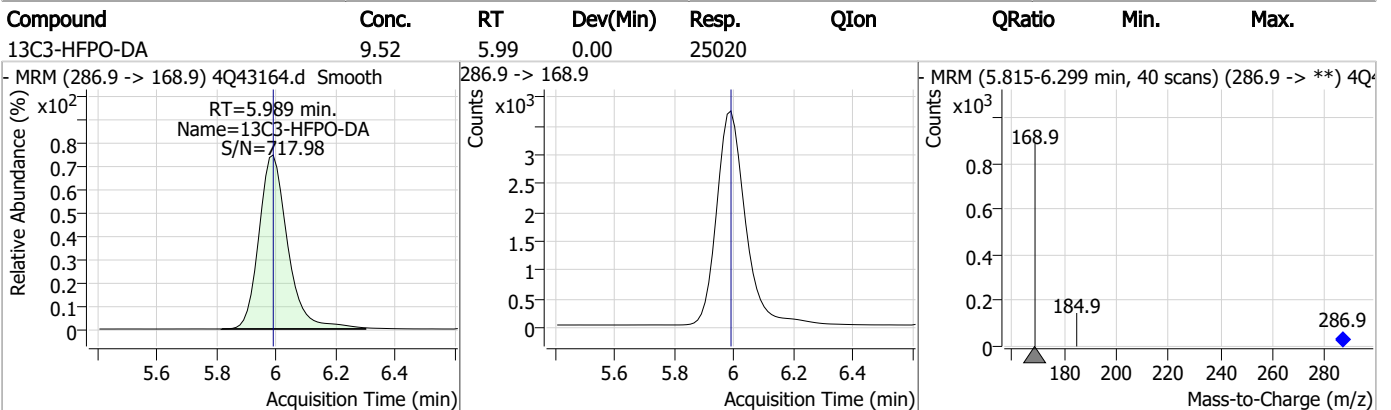
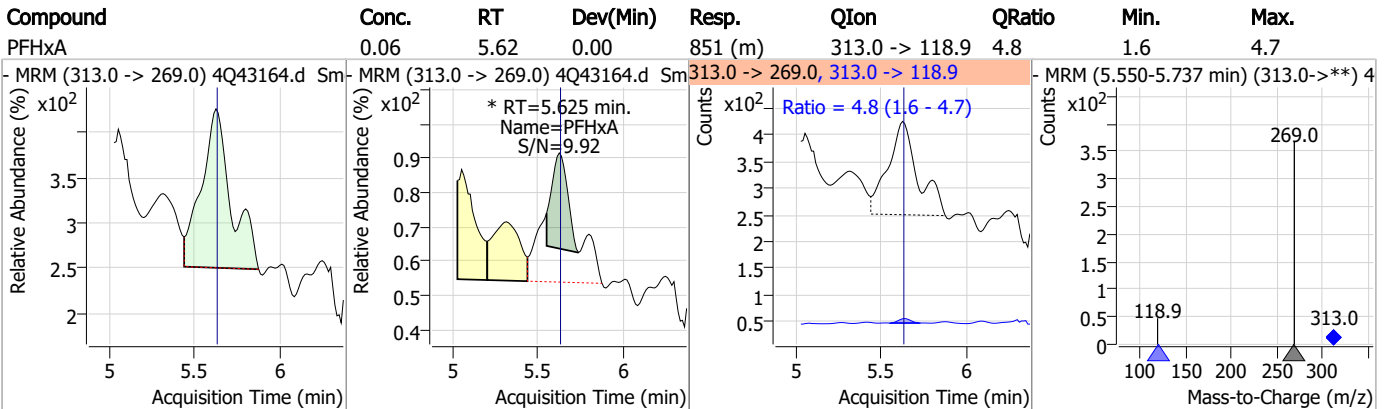
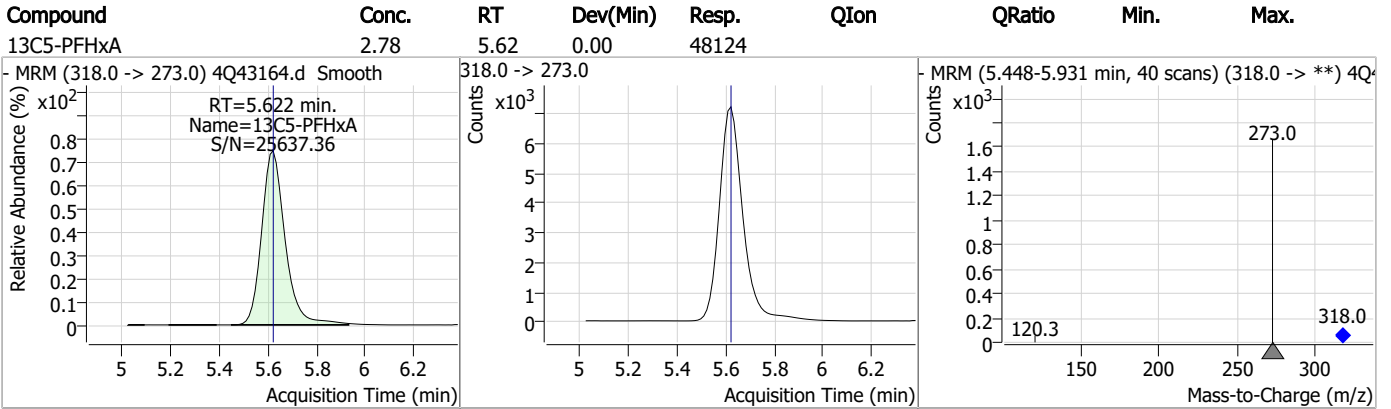
Perfluorinated Compounds by LC/MS/MS



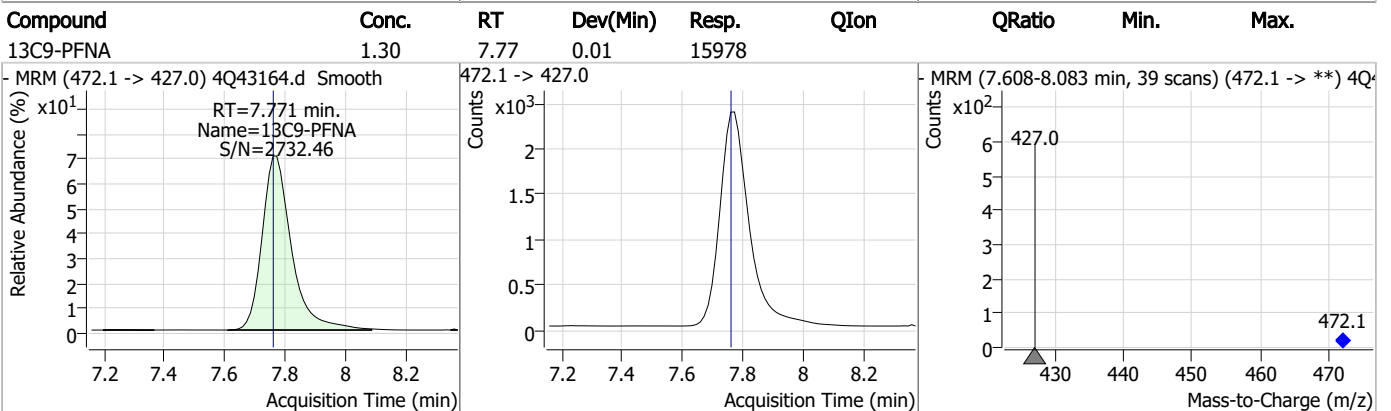
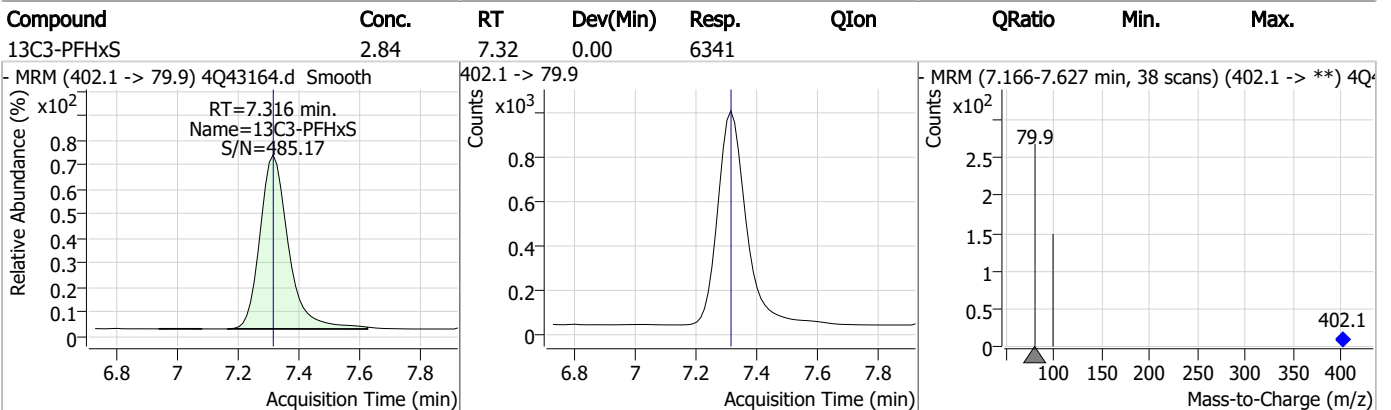
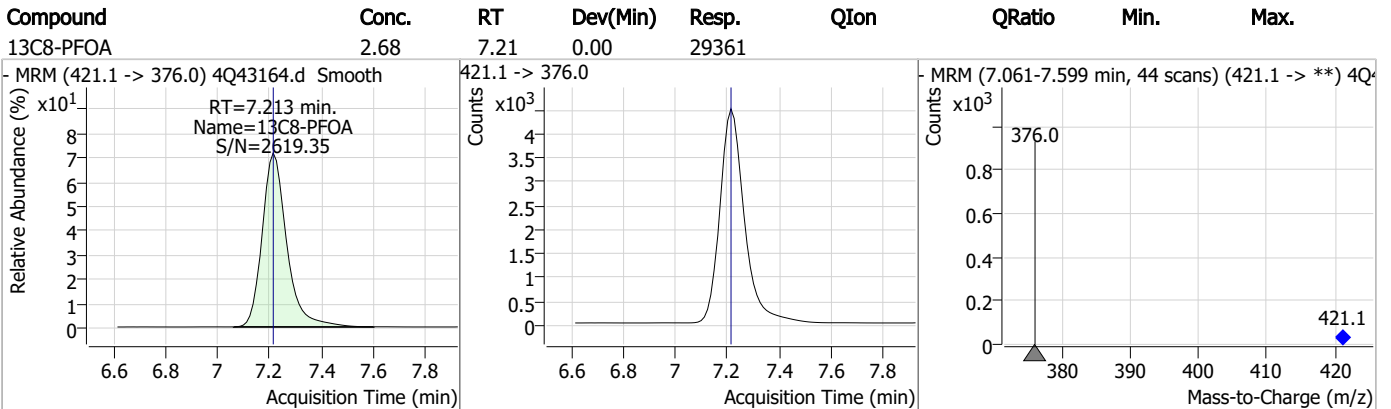
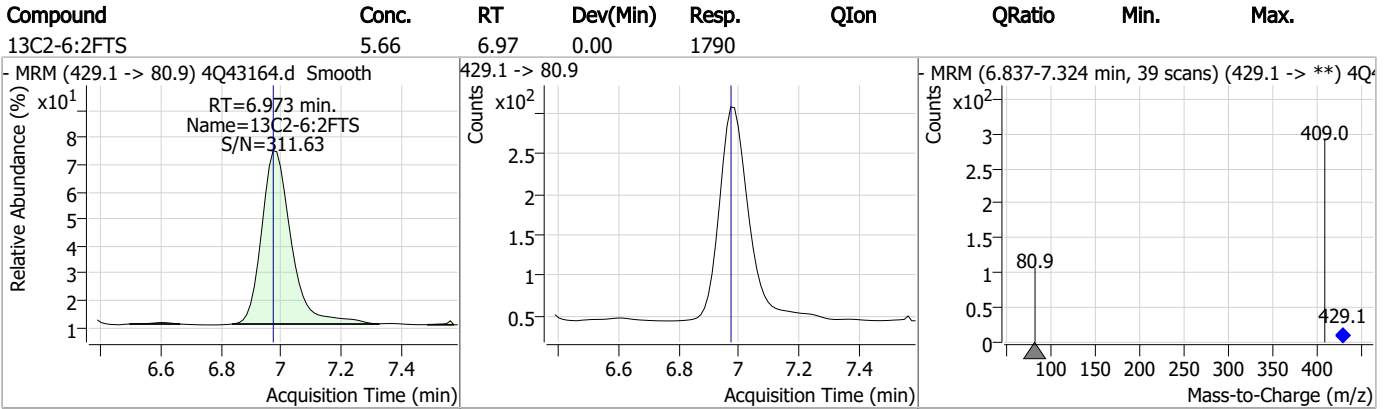
Perfluorinated Compounds by LC/MS/MS



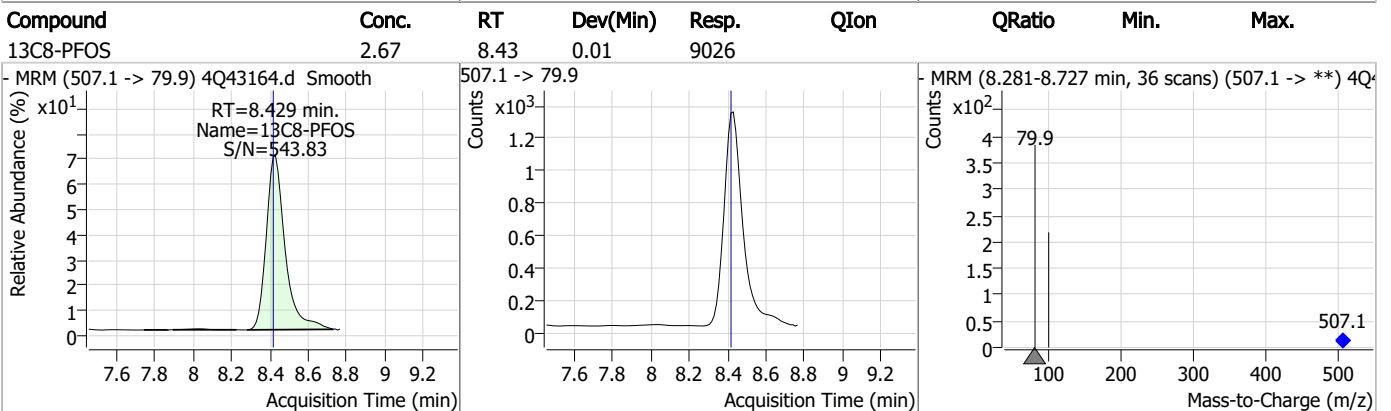
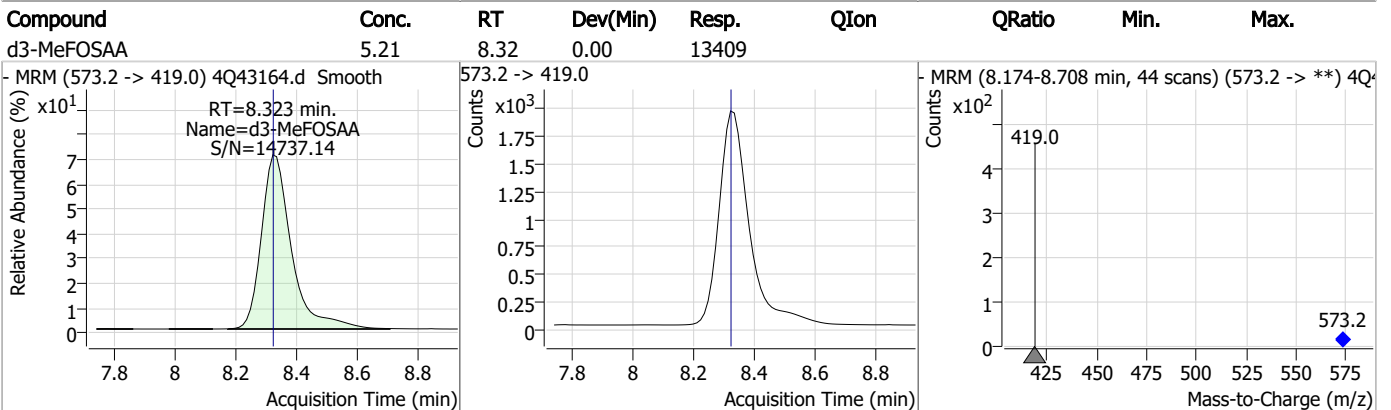
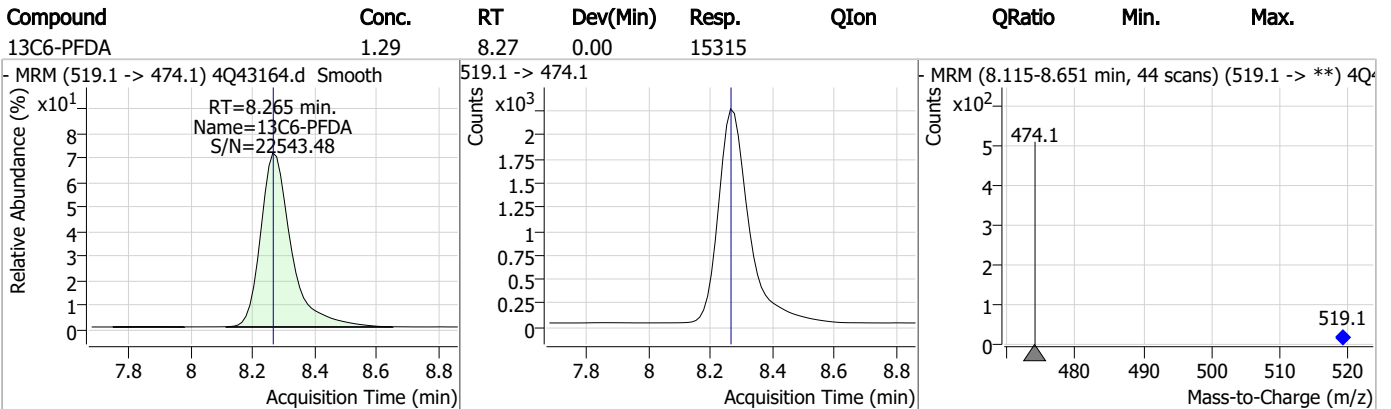
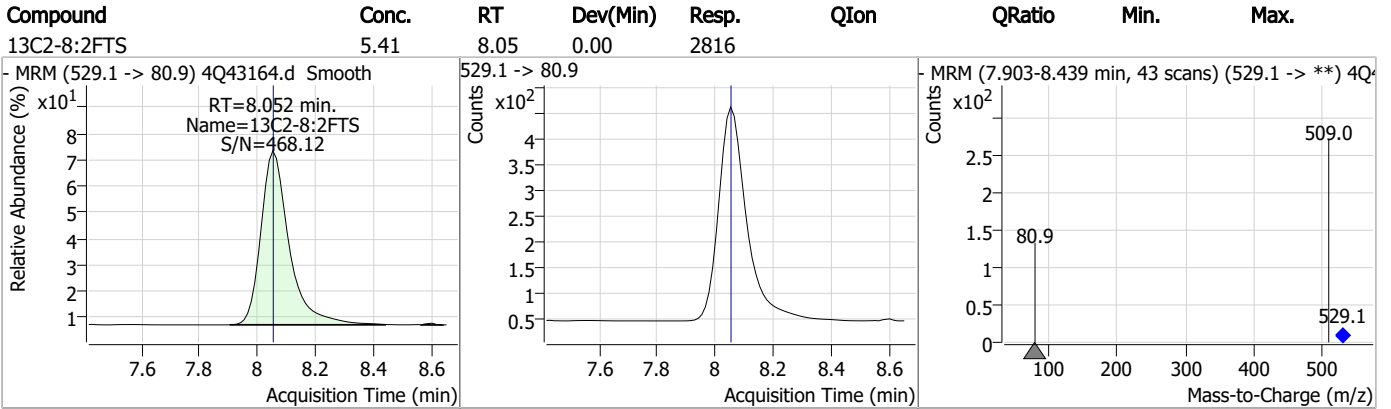
Perfluorinated Compounds by LC/MS/MS



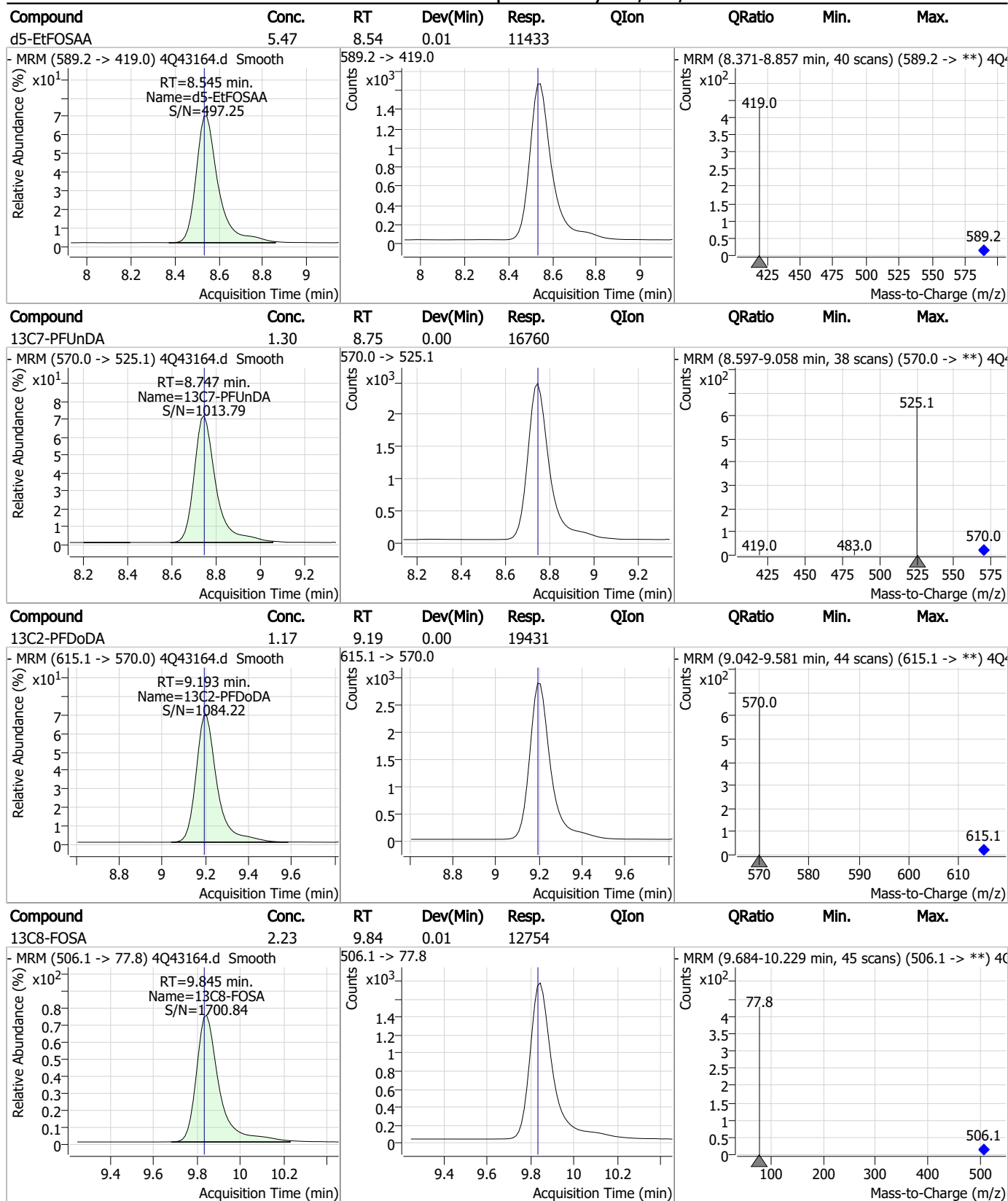
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



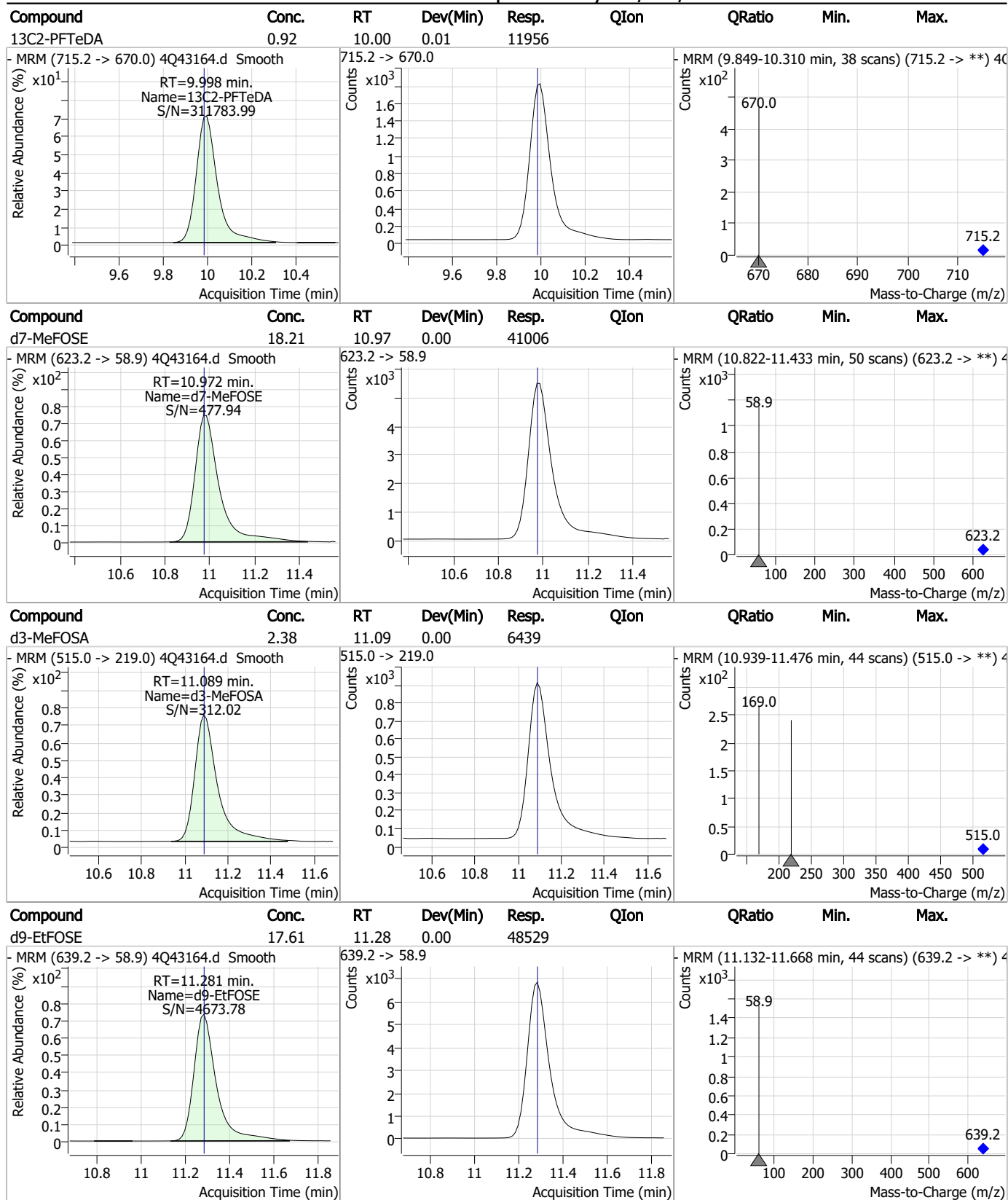
Perfluorinated Compounds by LC/MS/MS



7.5.1

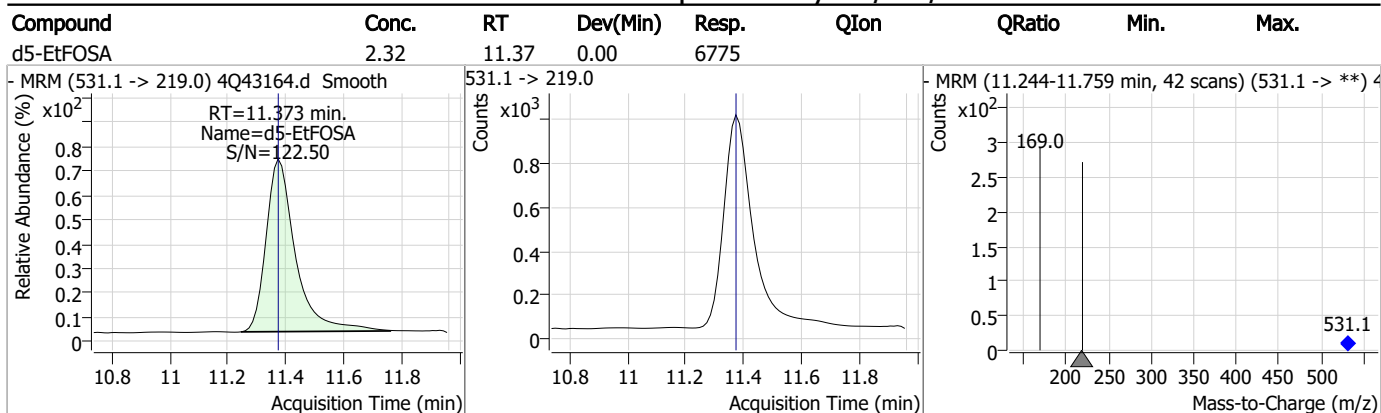
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Perfluorinated Compounds by LC/MS/MS



7.5.1
7

Perfluorinated Compounds by LC/MS/MS



7.5.1

7

Manual Integration Approval Summary

Sample Number: OP96403-DUP Method: EPA DRAFT 1633
Lab FileID: 4Q43164.D Analyst approved: 04/19/23 17:31 Norman Farmer
Injection Time: 04/18/23 15:11 Supervisor approved: 04/19/23 17:32 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanoic acid	307-24-4		5.62	Poorly defined baseline

7.5.1.1

7

Perfluorinated Compounds by LC/MS/MS

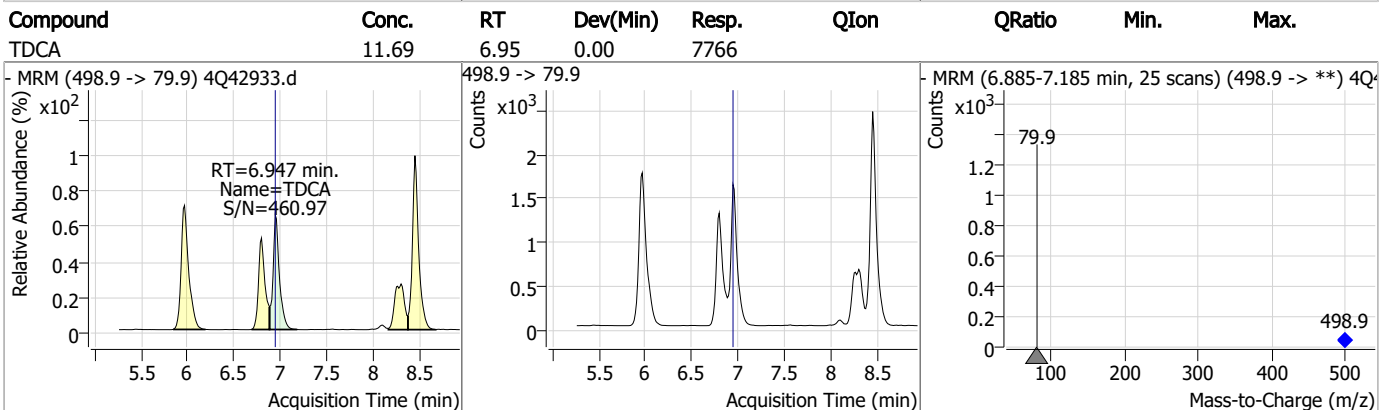
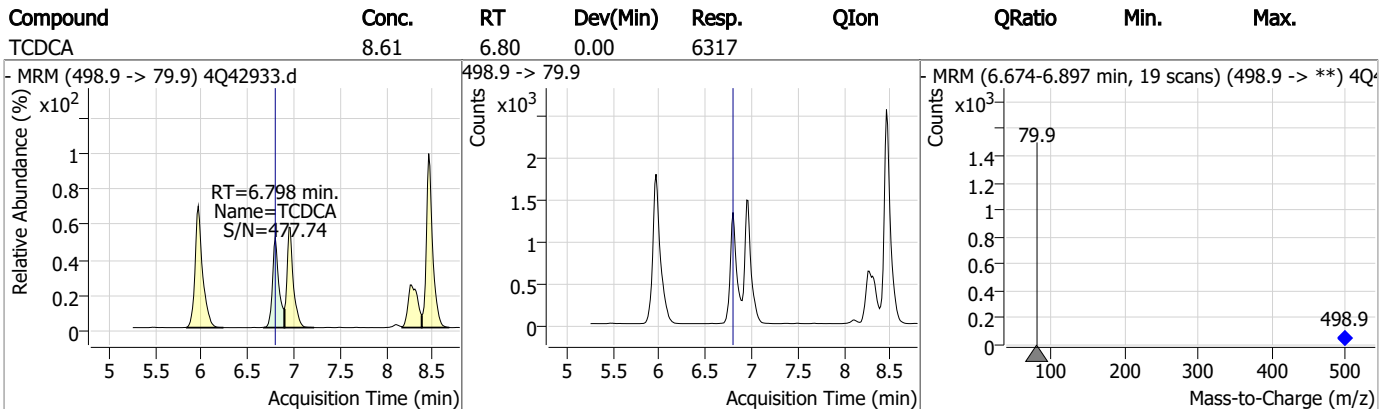
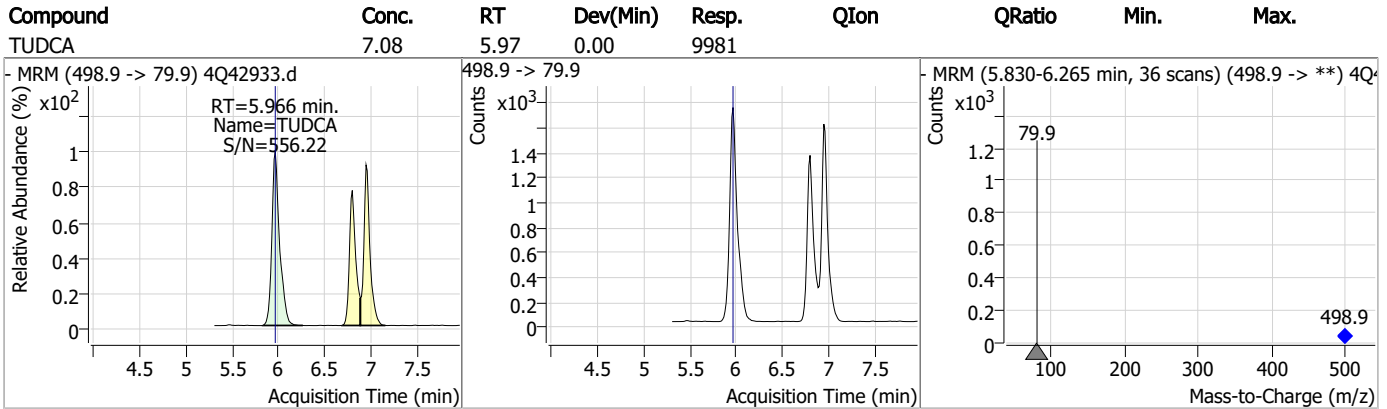
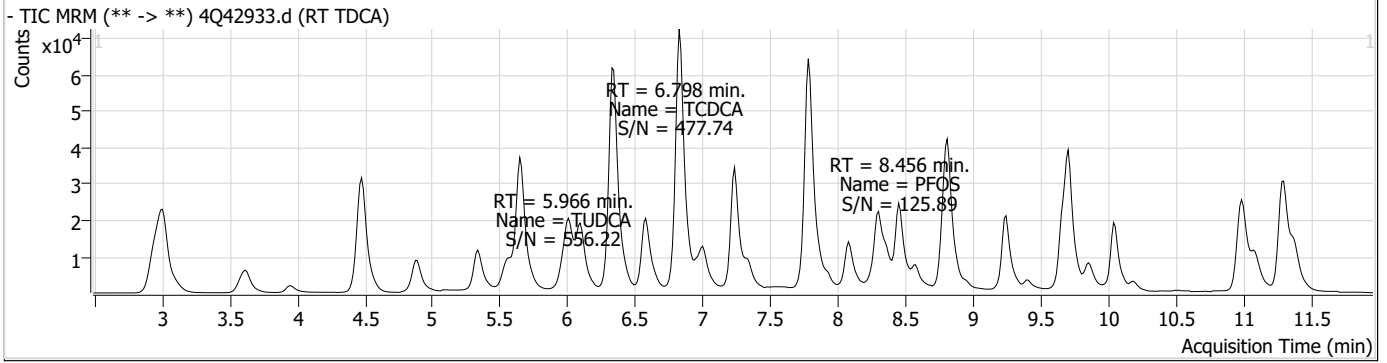
Data File : 4Q42933.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 11:07:46 AM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s4q621 TDCA.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)	QValue
Internal Standards						
M8-PFOS	8.467	507.1 -> 79.9	15897	2.50 µg/L	0.000	
13C4-PFOS	8.455	502.8 -> 79.9	16267	2.50 µg/L	0.000	
System Monitoring Compounds						
13C8-PFOS	8.467	507.1 -> 79.9	15897	2.48 µg/L	0.000	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.1%			
Target Compounds						
PFOS	8.456	498.9 -> 79.9 498.9 -> 98.8	16177 8244	2.98 µg/L	m	89
TCDCa	6.798	498.9 -> 79.9	6317	8.61 ng/ml		100
TDCA	6.947	498.9 -> 79.9	7766	11.69 ng/ml		100
TUDCA	5.966	498.9 -> 79.9	9981	7.08 ng/ml		100

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

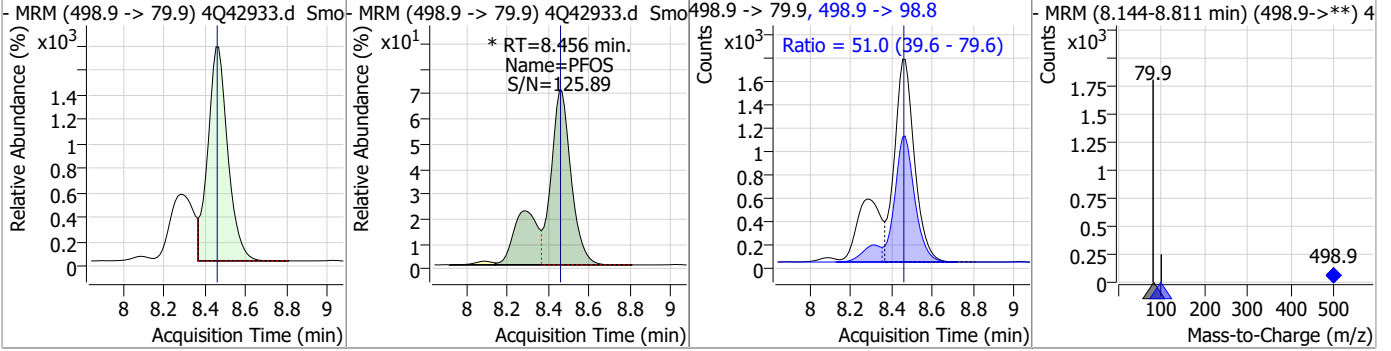
7.6.1
7

Perfluorinated Compounds by LC/MS/MS

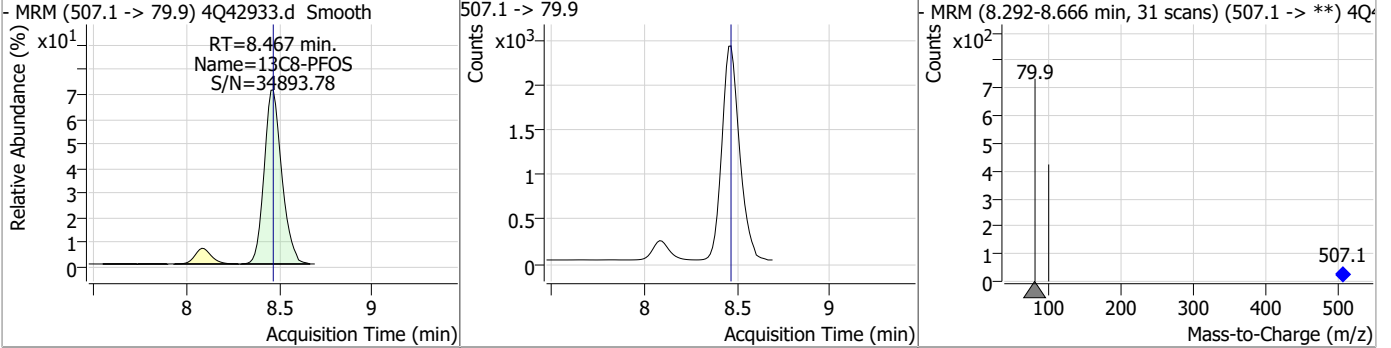


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.98	8.46	0.00	16177 (m)	498.9 -> 98.8	51.0	39.6	79.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.48	8.47	0.00	15897				



7.6.1
7

Manual Integration Approval Summary

Sample Number: S4Q621-RT Method: EPA DRAFT 1633
Lab FileID: 4Q42933.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 11:07 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.46	Split peak

7.6.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42934.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 11:21:49 AM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	92046	10.00 µg/L	0.000
M5-PFPeA	4.475	268.3 -> 223.0	74095	5.00 µg/L	0.000
M5-PFHxA	5.646	318.0 -> 273.0	56616	2.50 µg/L	0.000
M4-PFHpA	6.580	367.1 -> 322.0	28736	2.50 µg/L	0.000
M8-PFOA	7.237	421.1 -> 376.0	34976	2.50 µg/L	0.000
M9-PFNA	7.797	472.1 -> 427.0	20317	1.25 µg/L	0.000
M6-PFDA	8.303	519.1 -> 474.1	20288	1.25 µg/L	0.000
M7-PFUnDA	8.785	570.0 -> 525.1	19564	1.25 µg/L	0.000
M2-PFDoDA	9.243	615.1 -> 570.0	27933	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	20352	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	17843	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	12663	2.50 µg/L	0.000
M3-PFHxS	7.341	402.1 -> 79.9	7360	2.50 µg/L	0.000
M8-PFOS	8.467	507.1 -> 79.9	10515	2.50 µg/L	0.000
M2-4:2FTS	5.335	329.1 -> 80.9	1515	5.00 µg/L	0.000
M2-6:2FTS	6.998	429.1 -> 80.9	2178	5.00 µg/L	0.000
M2-8:2FTS	8.090	529.1 -> 80.9	4080	5.00 µg/L	0.000
M3-MeFOSAA	8.360	573.2 -> 419.0	16839	5.00 µg/L	0.000
M3-HFPO-DA	6.014	286.9 -> 168.9	36471	10.00 µg/L	0.000
M5-EtFOSAA	8.570	589.2 -> 419.0	13902	5.00 µg/L	0.000
M7-MeFOSE	10.985	623.2 -> 58.9	66941	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	85392	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	9291	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	8448	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	10411	2.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	56214	5.00 µg/L	0.000
18O2-PFHxS	7.340	403.0 -> 83.9	5465	2.50 µg/L	0.000
13C4-PFOA	7.237	417.1 -> 372.0	41449	2.50 µg/L	0.000
13C2-PFDA	8.303	515.1 -> 470.1	18081	1.25 µg/L	0.000
13C5-PFNA	7.797	468.0 -> 423.0	20749	1.25 µg/L	0.000
13C2-PFHxA	5.647	315.1 -> 270.0	50284	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1515	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-6:2FTS	6.998	429.1 -> 80.9	2178	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-8:2FTS	8.090	529.1 -> 80.9	4080	5.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.7%		
13C2-PFDoDA	9.243	615.1 -> 570.0	27933	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C2-PFTeDA	10.036	715.2 -> 670.0	20352	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C3-PFBS	5.564	302.1 -> 79.9	12663	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C3-PFHxS	7.341	402.1 -> 79.9	7360	2.43 µg/L	0.000

7.6.2
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C4-PFBA	2.999	216.8 -> 171.9	92046	9.40 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C4-PFHpA	6.580	367.1 -> 322.0	28736	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C5-PFHxA	5.646	318.0 -> 273.0	56616	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C5-PFPeA	4.475	268.3 -> 223.0	74095	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C6-PFDA	8.303	519.1 -> 474.1	20288	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C7-PFUnDA	8.785	570.0 -> 525.1	19564	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.6%		
13C8-FOSA	9.870	506.1 -> 77.8	17843	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C8-PFOA	7.237	421.1 -> 376.0	34976	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C8-PFOS	8.467	507.1 -> 79.9	10515	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C9-PFNA	7.797	472.1 -> 427.0	20317	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.5%		
d3-MeFOSAA	8.360	573.2 -> 419.0	16839	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.8%		
13C3-HFPO-DA	6.014	286.9 -> 168.9	36471	10.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 103.3%		
d3-MeFOSA	11.102	515.0 -> 219.0	8448	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.8%		
d5-EtFOSAA	8.570	589.2 -> 419.0	13902	5.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.6%		
d7-MeFOSE	10.985	623.2 -> 58.9	66941	24.93 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.7%		
d9-EtFOSE	11.282	639.2 -> 58.9	85392	25.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 104.0%		
d5-EtFOSA	11.386	531.1 -> 219.0	9291	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.7%		
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	108196	57.28 µg/L	100
		327.1 -> 80.9	43879		
6:2FTS	6.998	427.1 -> 407.0	88174	59.28 µg/L	100
		427.1 -> 80.9	37341		
8:2FTS	8.090	527.1 -> 507.0	104865	57.33 µg/L	100
		527.1 -> 80.8	41461		
EtFOSAA	8.583	584.2 -> 419.1	32283	15.55 µg/L	m 87
		584.2 -> 526.0	14863		
FOSA	9.861	498.1 -> 77.9	197227	34.33 µg/L	m 100
		498.1 -> 478.0	5443		
MeFOSAA	8.361	570.1 -> 419.0	35797	15.43 µg/L	m 90
		570.1 -> 483.0	7124		
PFBA	2.995	212.8 -> 168.9	131767	62.68 µg/L	100
PFBS	5.565	298.7 -> 79.9	59395	12.57 µg/L	100
		298.7 -> 98.8	22824		
PFDA	8.304	512.9 -> 469.0	161174	13.89 µg/L	100
		512.9 -> 219.0	31178		
PFDODA	9.244	613.1 -> 569.0	260313	14.78 µg/L	100
		613.1 -> 319.0	36532		
PFDS	9.409	599.0 -> 79.9	33829	14.39 µg/L	100

7.6.2

7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.580	599.0 -> 98.8	16401	15.43	µg/L	100
		363.1 -> 319.0	221231			
PFHpS	7.936	363.1 -> 169.0	38658	14.44	µg/L	100
		449.0 -> 79.9	39516			
PFHxA	5.649	449.0 -> 98.9	20540	15.04	µg/L	100
		313.0 -> 269.0	252130			
PFHxS	7.342	313.0 -> 118.9	7499	13.43	µg/L	m
		398.7 -> 79.9	33870			
PFNA	7.659	398.7 -> 98.9	16778	28.59	µg/L	m
		463.0 -> 419.0	310533			
PFNS	8.961	463.0 -> 219.0	81533	13.92	µg/L	100
		548.8 -> 79.9	22523			
PFOA	7.238	548.8 -> 98.9	11580	30.41	µg/L	m
		413.0 -> 369.0	496946			
PFOS	8.468	413.0 -> 169.0	103781	13.53	µg/L	m
		498.9 -> 79.9	55388			
PFPeA	4.477	498.9 -> 98.8	28068	28.83	µg/L	100
		263.0 -> 219.0	404422			
PFPeS	6.619	349.1 -> 79.9	30978	14.43	µg/L	100
		349.1 -> 98.9	13212			
PFTeDA	10.037	713.1 -> 669.0	247206	15.43	µg/L	100
		713.1 -> 168.9	19772			
PFTrDA	9.666	663.0 -> 619.0	317820	14.00	µg/L	100
		663.0 -> 168.9	30774			
PFUnDA	8.785	563.1 -> 519.0	171152	15.47	µg/L	100
		563.1 -> 269.1	33306			
11CI-PF3OUdS	9.705	630.9 -> 450.9	251859	26.46	µg/L	100
		632.9 -> 452.9	78861			
9CI-PF3ONS	8.825	530.8 -> 351.0	278388	26.18	µg/L	100
		532.8 -> 353.0	85497			
ADONA	6.831	376.9 -> 250.9	590183	26.94	µg/L	100
		376.9 -> 84.8	157955			
HFPO-DA	6.015	284.9 -> 168.9	81268	28.12	µg/L	100
		284.9 -> 184.9	10073			
3:3FTCA	3.954	241.0 -> 177.0	45444	69.54	µg/L	100
		241.0 -> 117.0	4355			
5:3FTCA	6.345	341.0 -> 237.1	875683	369.97	µg/L	100
		341.0 -> 217.0	624391			
7:3FTCA	7.786	441.0 -> 316.9	353074	363.99	µg/L	100
		441.0 -> 336.9	778578			
EtFOSA	11.388	526.0 -> 219.0	164350	49.64	µg/L	m
		526.0 -> 169.0	226245			
EtFOSE	11.308	630.0 -> 58.9	236589	89.89	µg/L	100
		511.9 -> 219.0	134898			
MeFOSA	11.103	511.9 -> 169.0	198920	49.39	µg/L	m
		616.1 -> 58.9	222770			
MeFOSE	10.998	699.1 -> 79.9	29364	94.69	µg/L	m
		699.1 -> 98.8	16601			
PFDoDS	10.189	295.0 -> 201.0	36076	14.45	µg/L	100
		295.0 -> 84.9	8931			
NFDHA	5.541	279.0 -> 85.1	231696	32.02	µg/L	100
		229.0 -> 84.9	196884			
PFMBA	4.878	314.8 -> 134.9	376485	28.07	µg/L	100
		314.8 -> 82.9	12821			
PFMPA	3.611			26.75	µg/L	100
PFEESA	6.096					

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

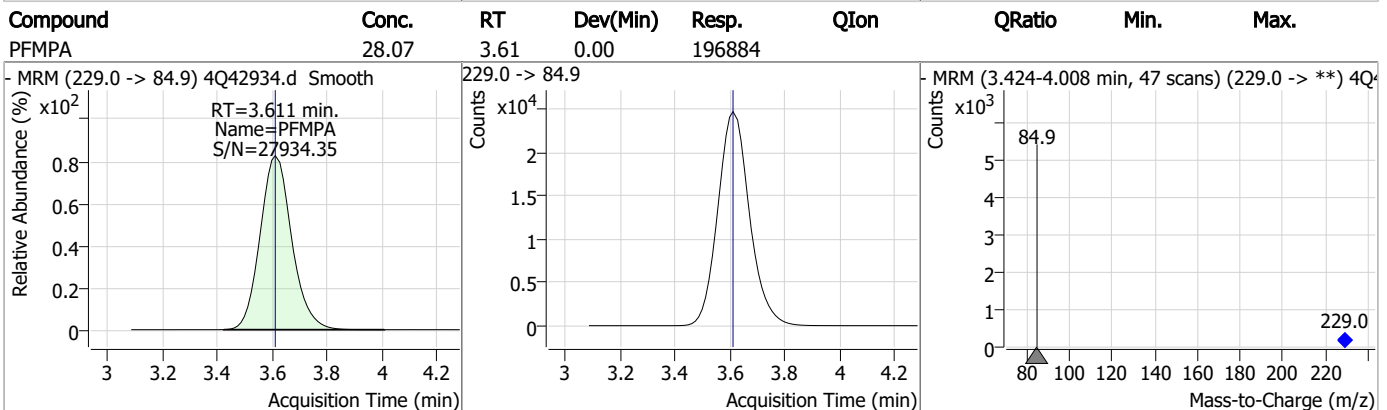
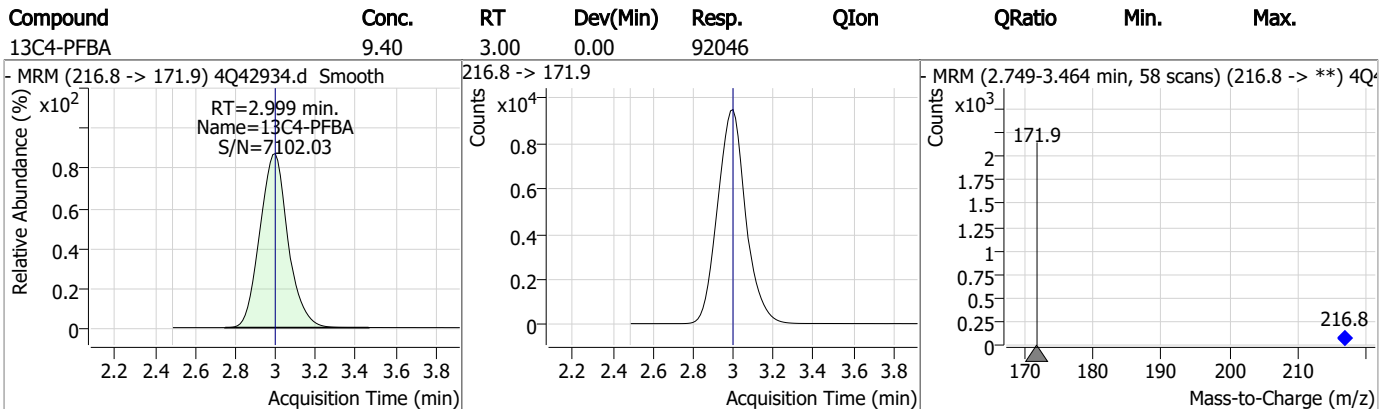
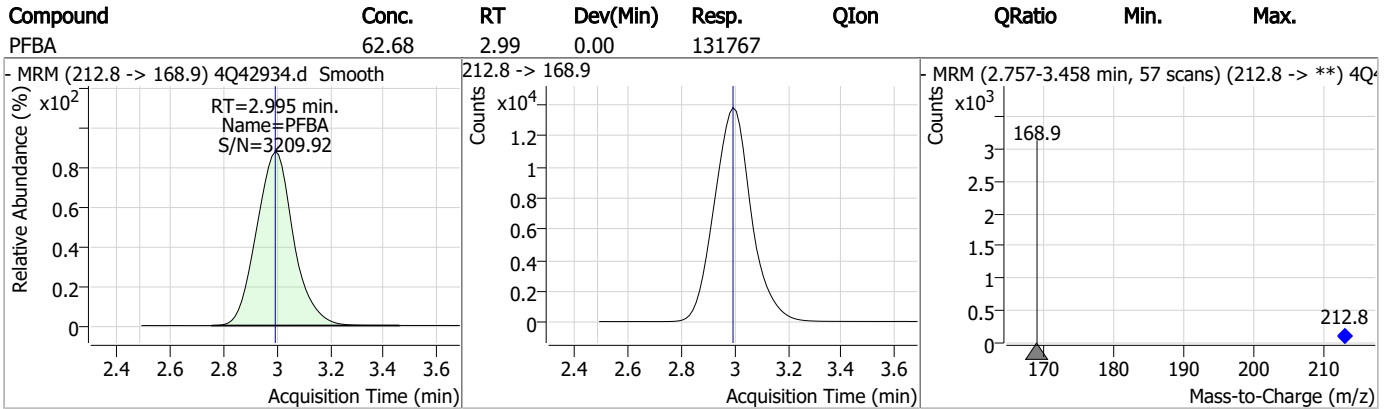
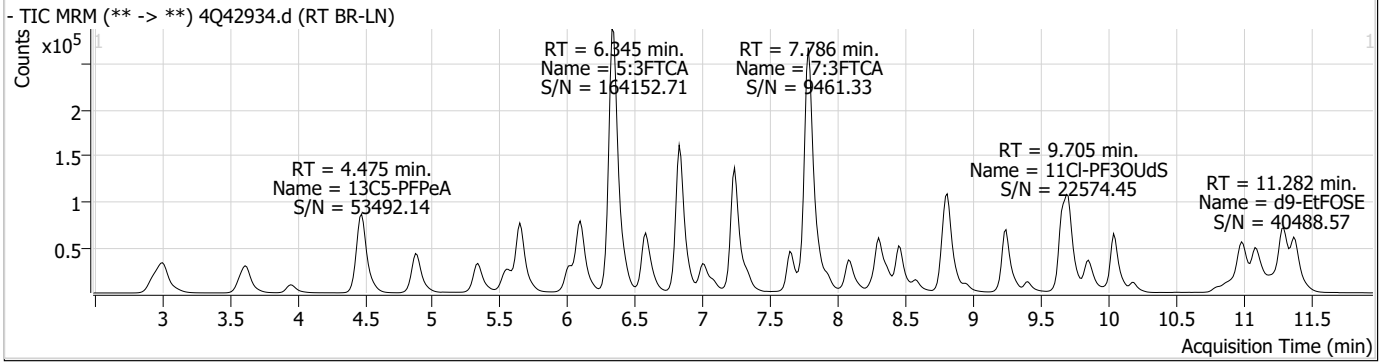
Perfluorinated Compounds by LC/MS/MS

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

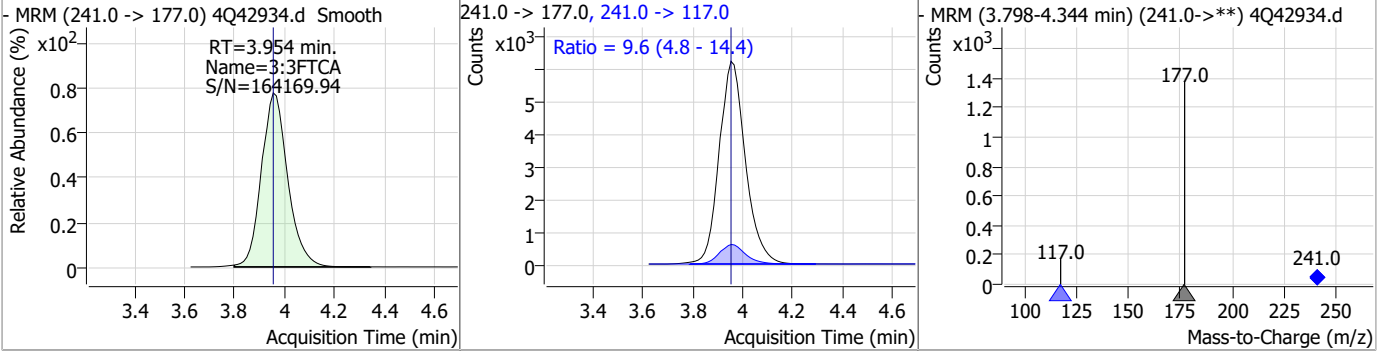
7

Perfluorinated Compounds by LC/MS/MS

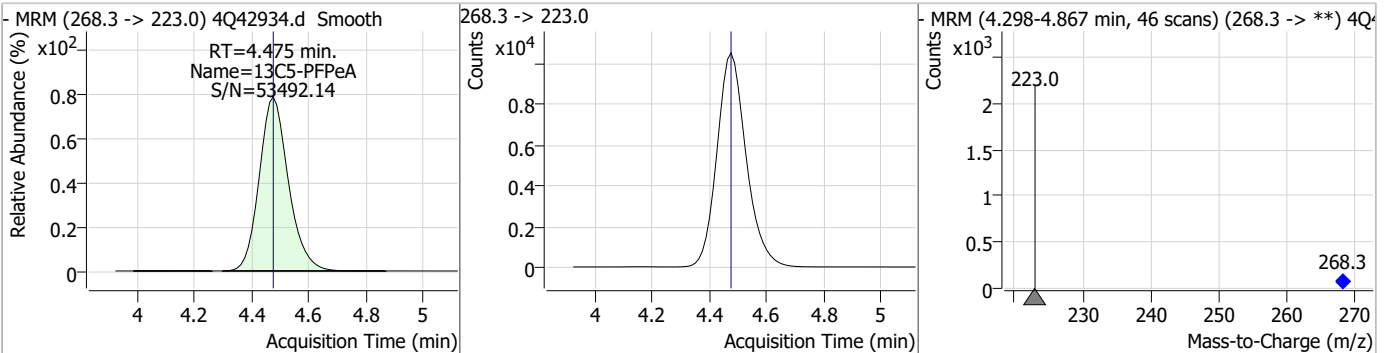


Perfluorinated Compounds by LC/MS/MS

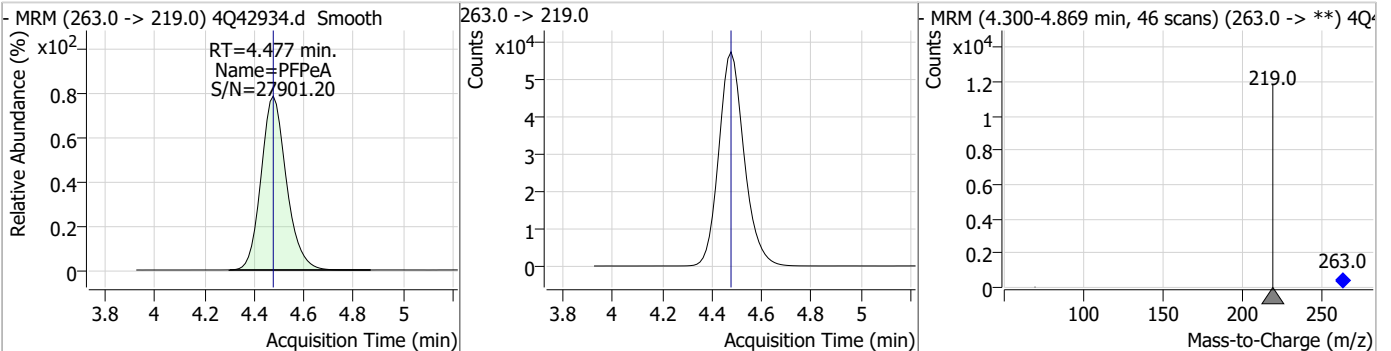
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	69.54	3.95	0.00	45444	241.0 -> 117.0	9.6	4.8	14.4



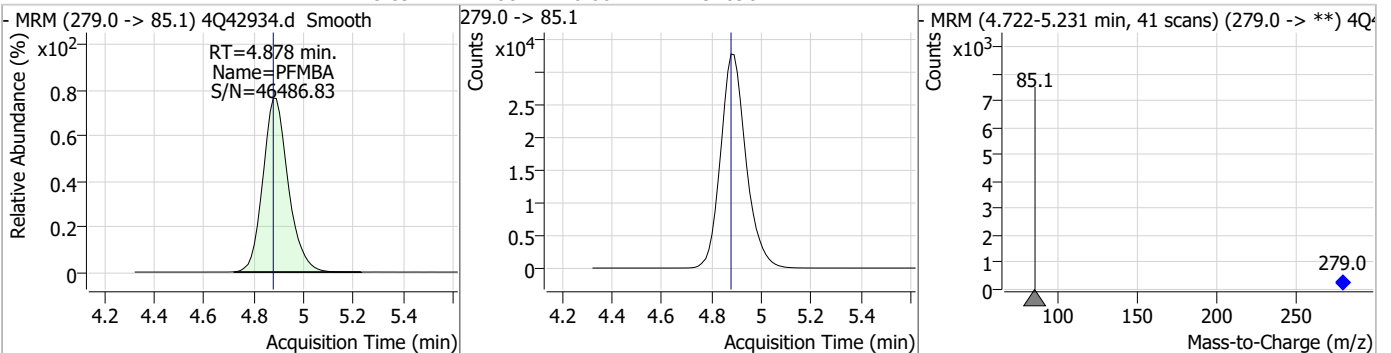
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.00	4.47	0.00	74095				



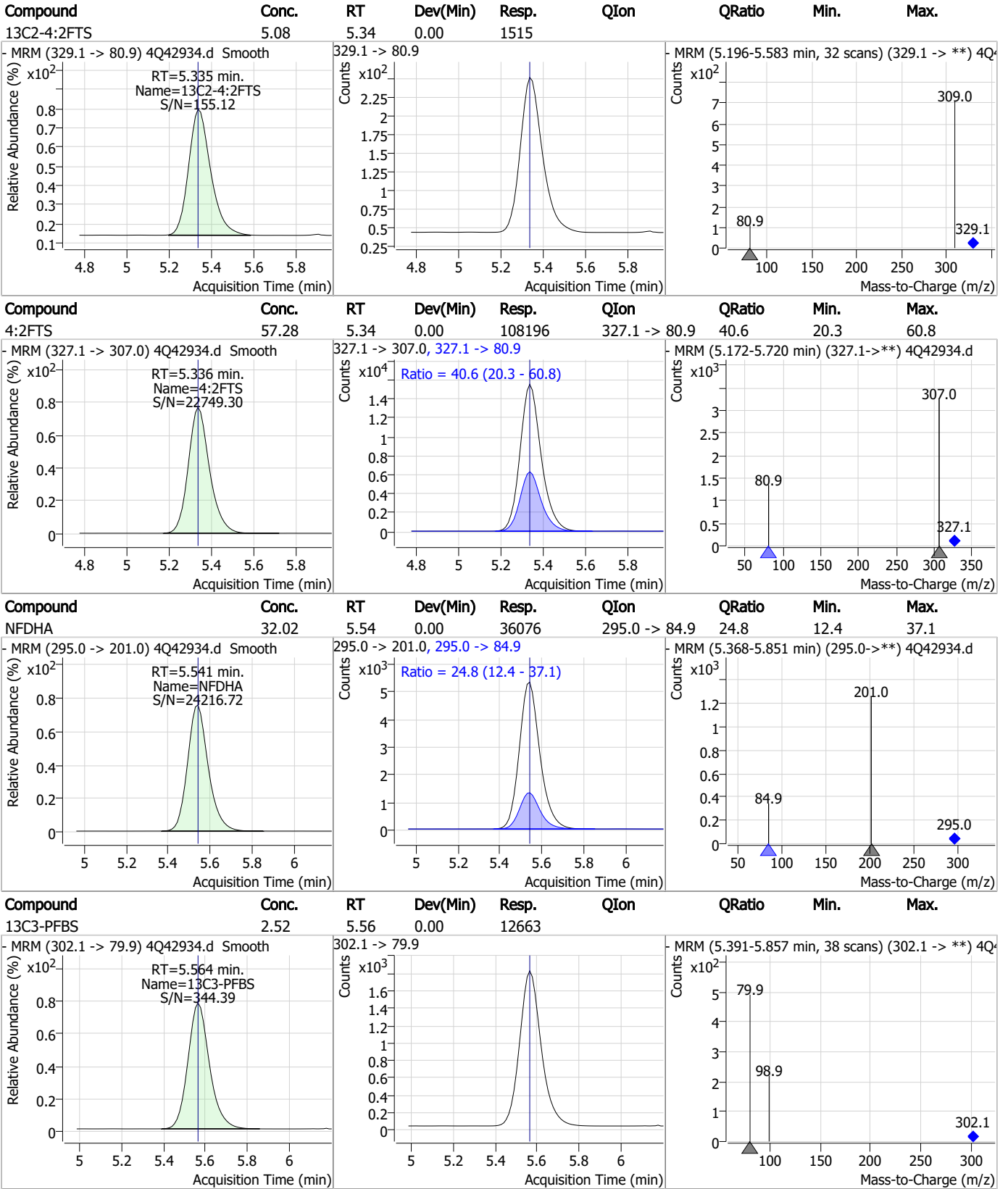
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	28.83	4.48	0.00	404422				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	28.89	4.88	0.00	231696				



Perfluorinated Compounds by LC/MS/MS

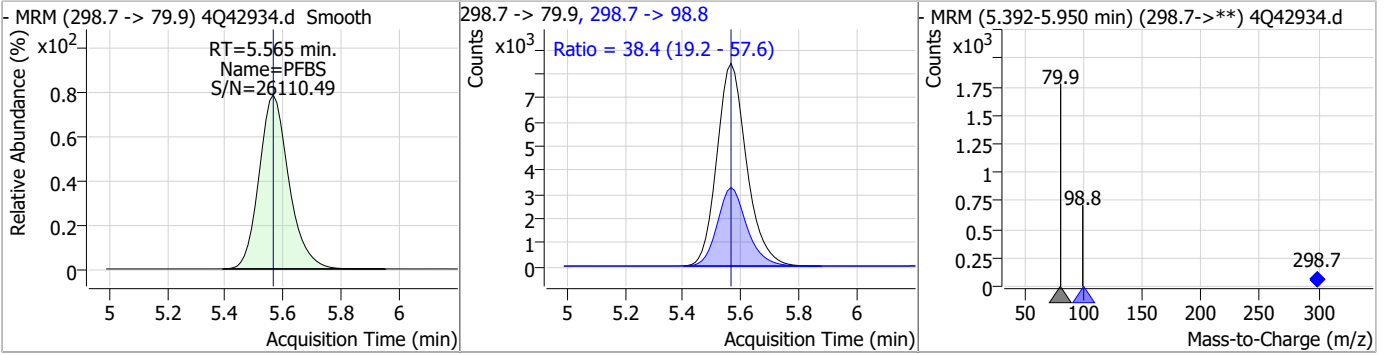


7.6.2

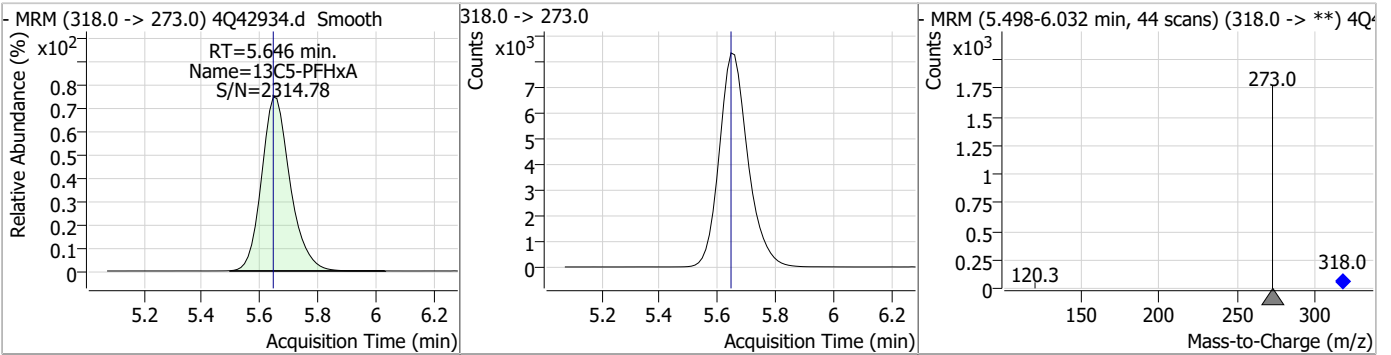
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Perfluorinated Compounds by LC/MS/MS

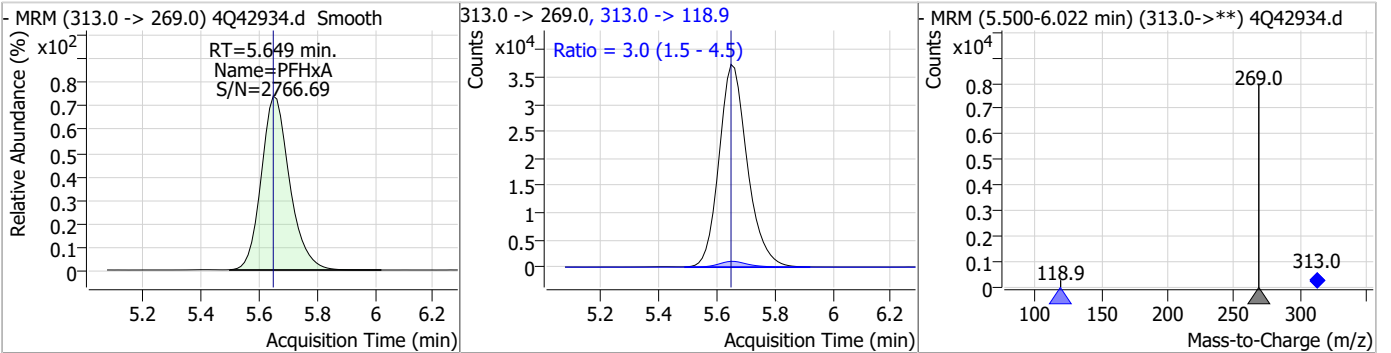
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	12.57	5.56	0.00	59395	298.7 -> 98.8	38.4	19.2	57.6



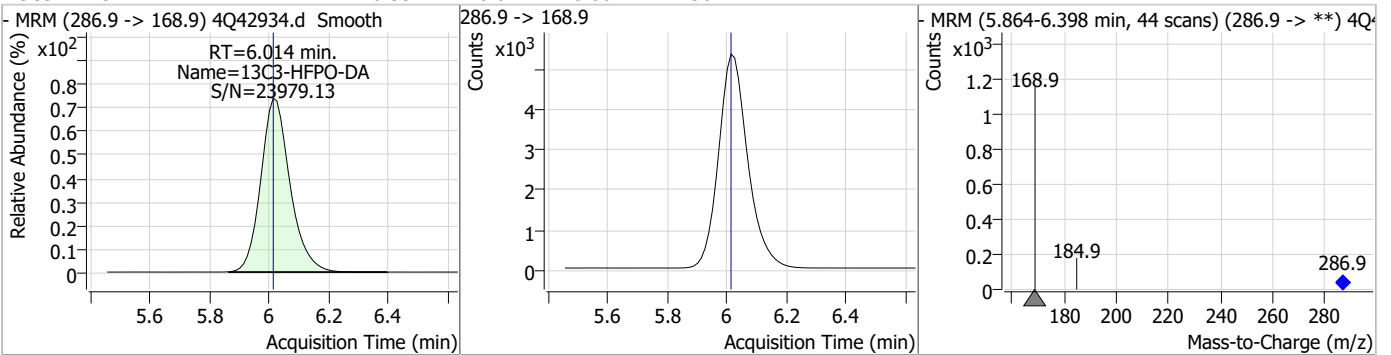
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.44	5.65	0.00	56616				



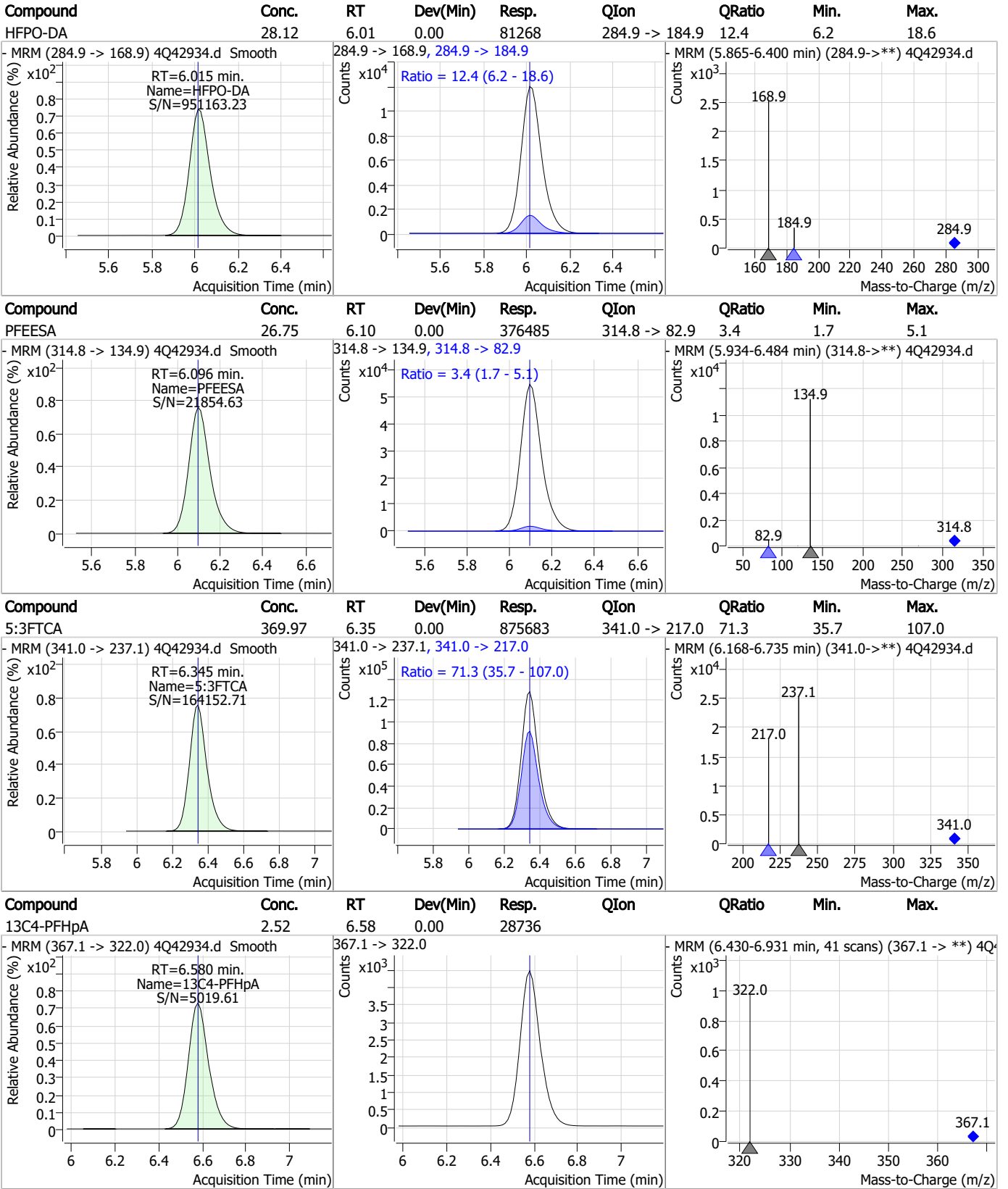
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	15.04	5.65	0.00	252130	313.0 -> 118.9	3.0	1.5	4.5



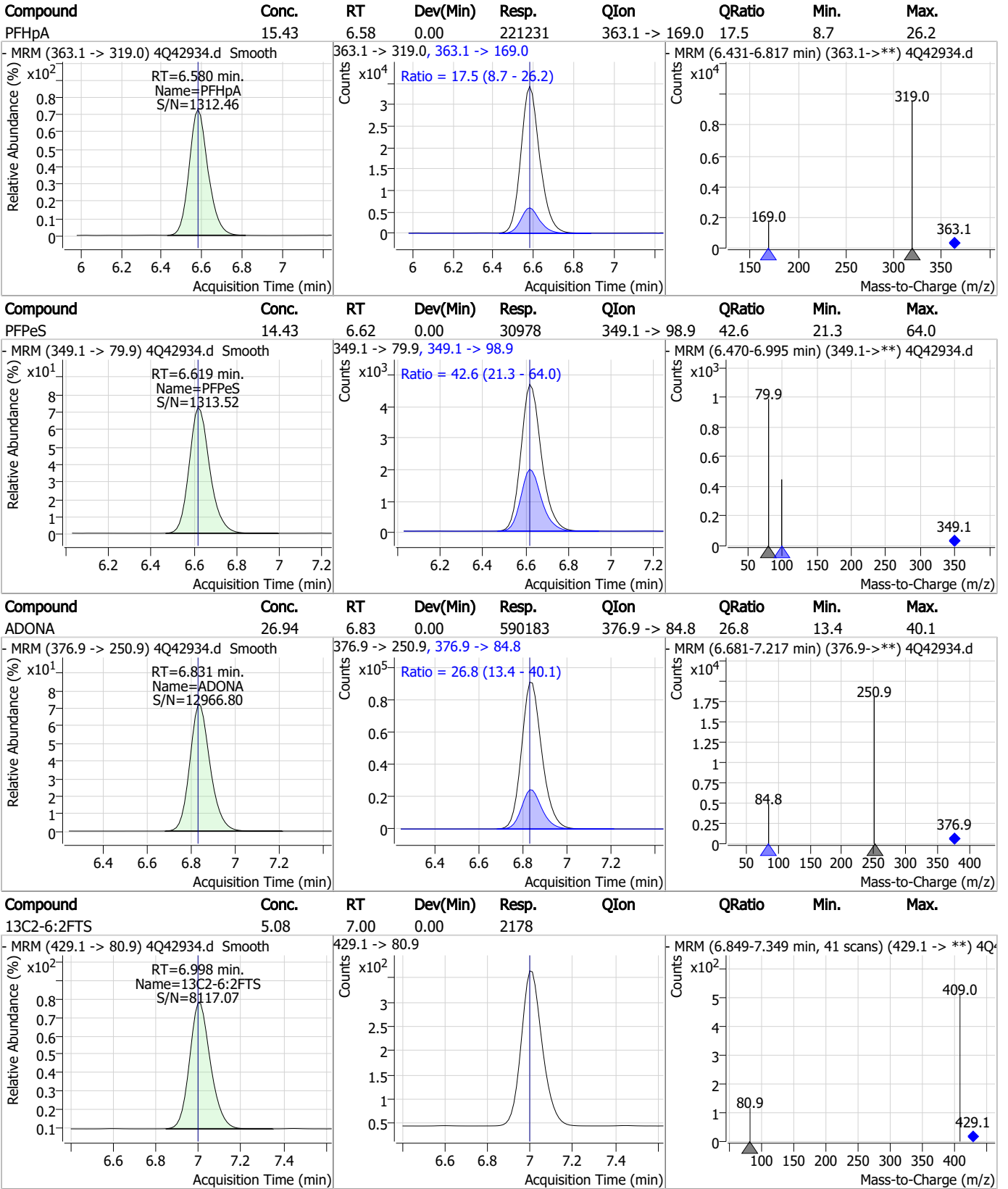
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.33	6.01	0.00	36471				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

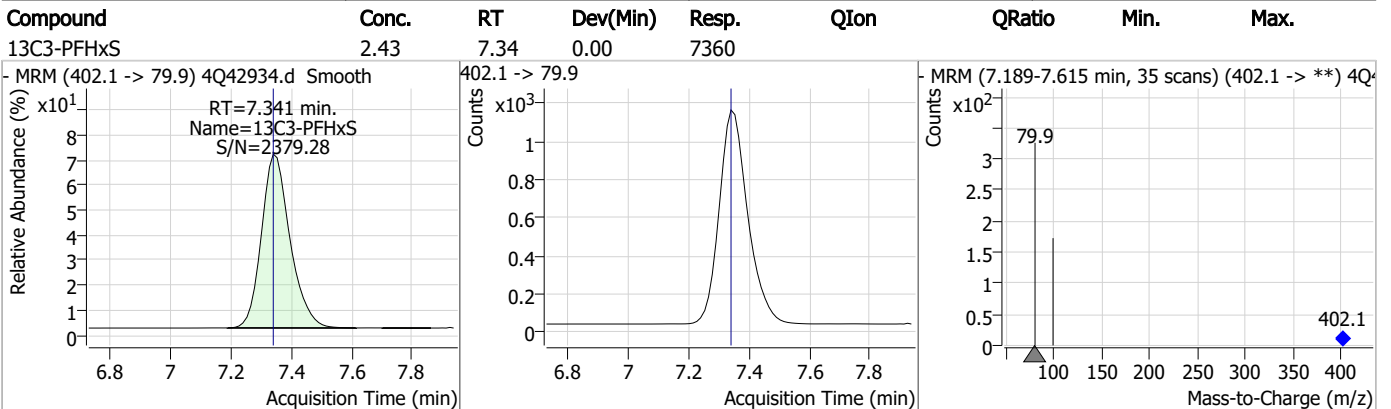
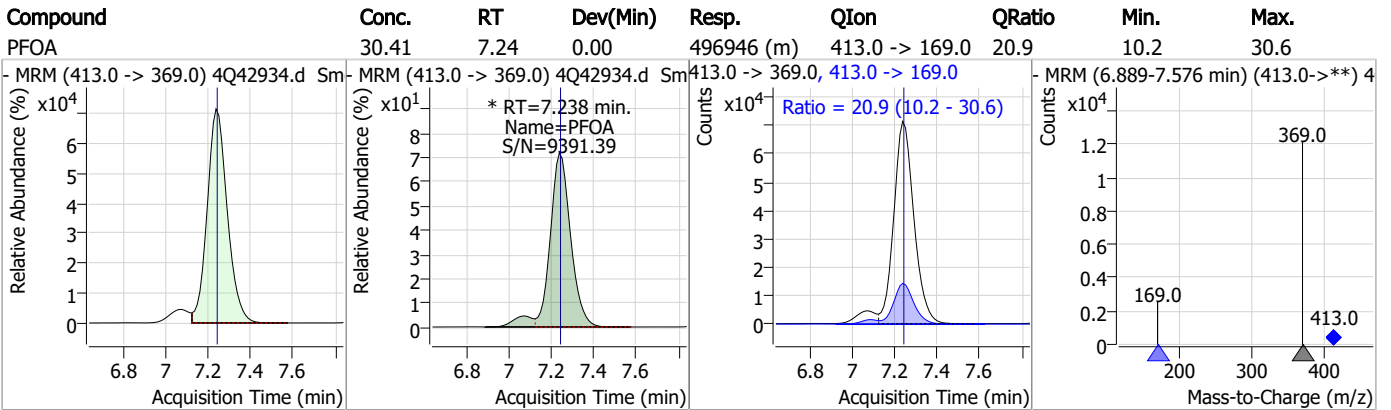
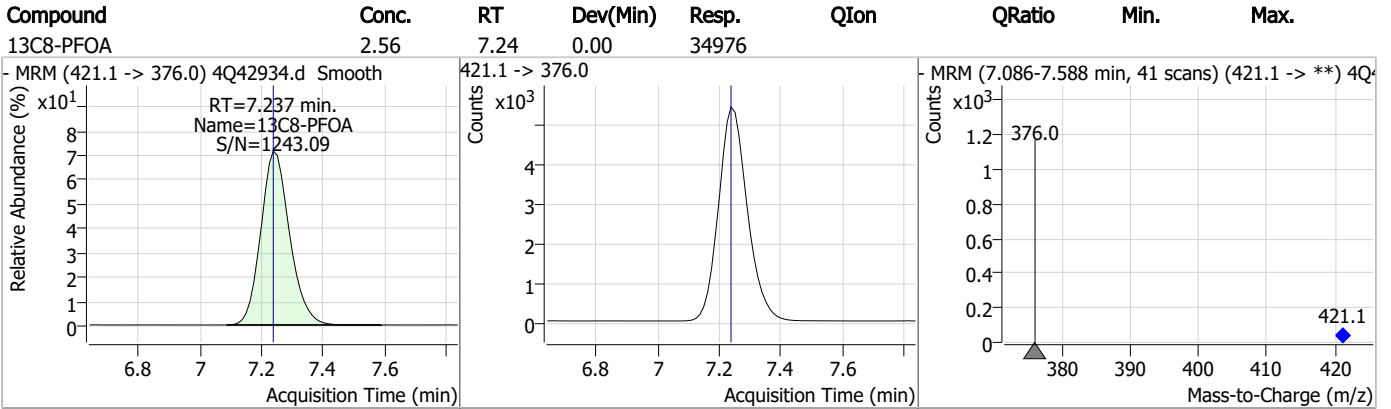
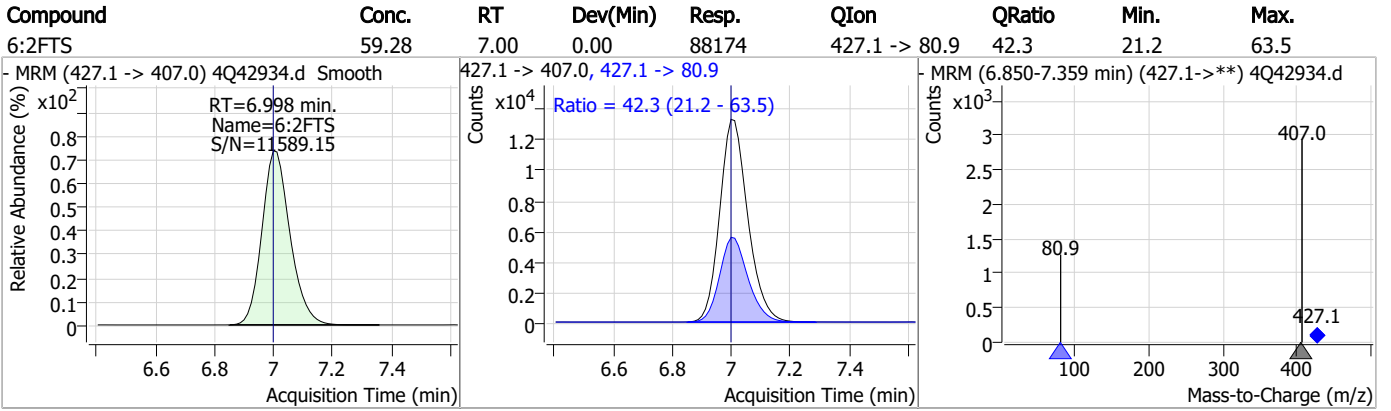


7.6.2

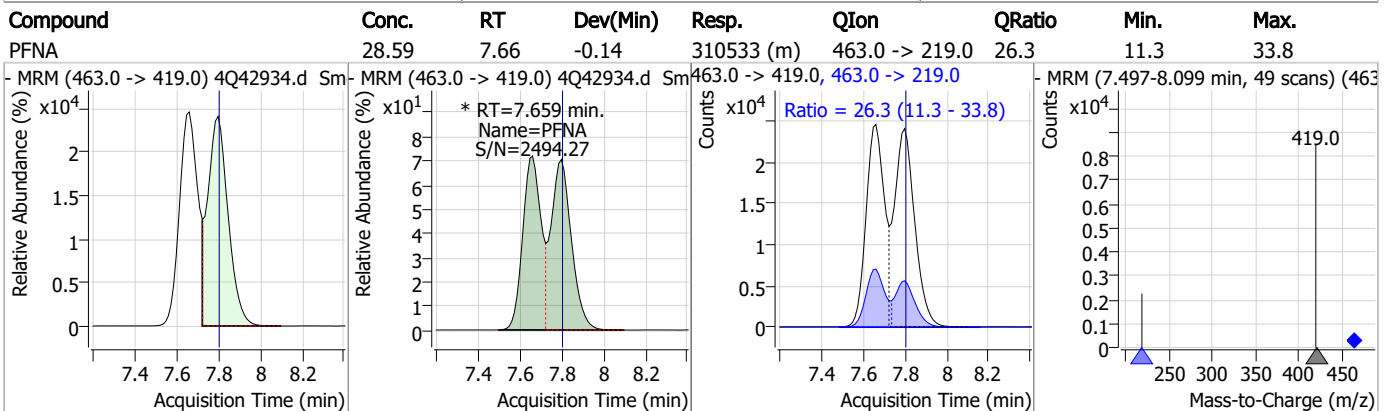
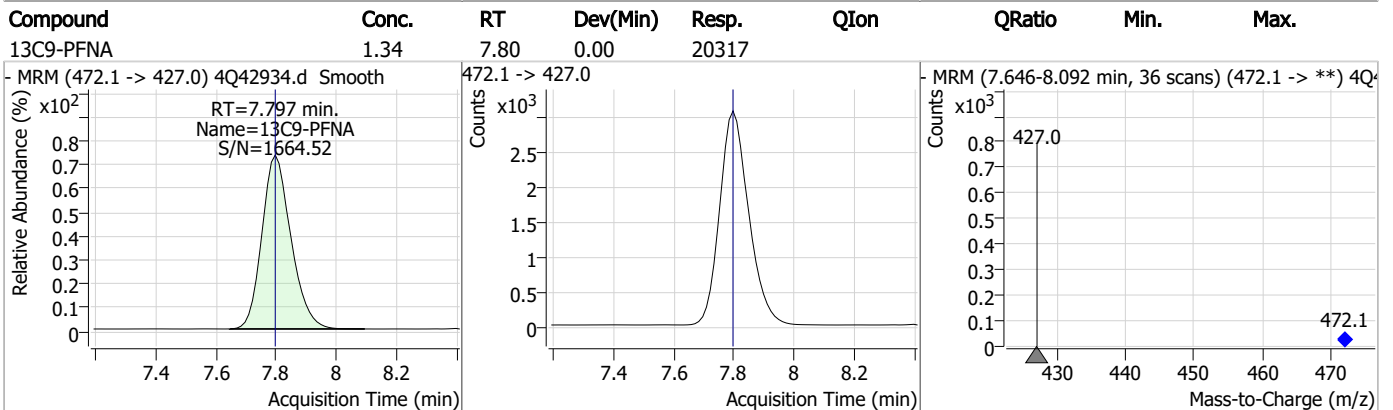
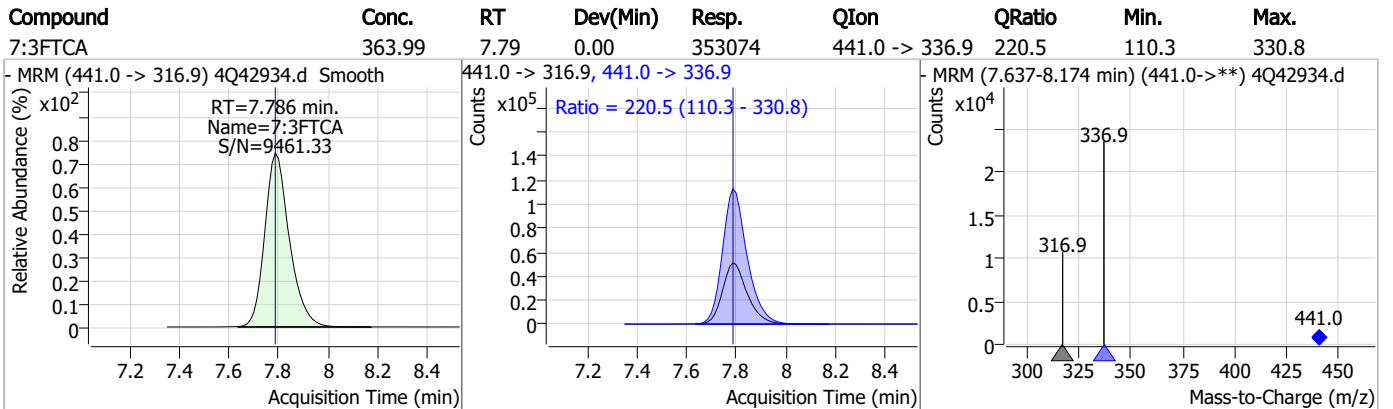
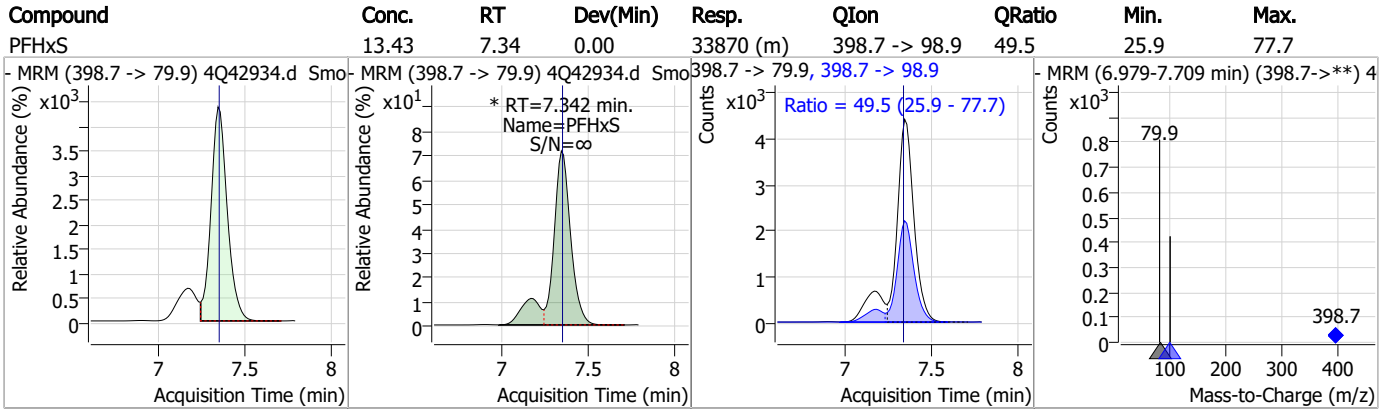
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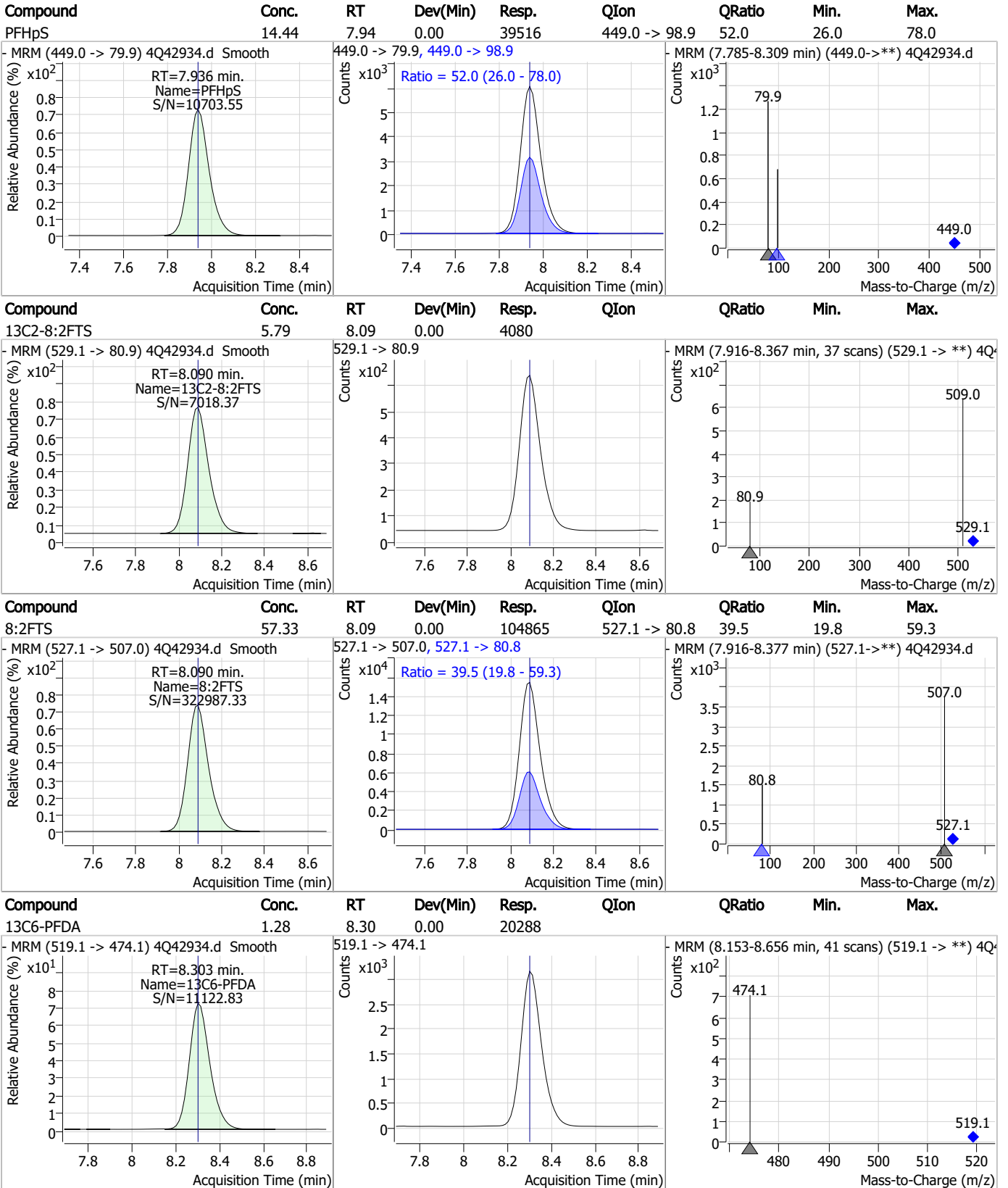
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



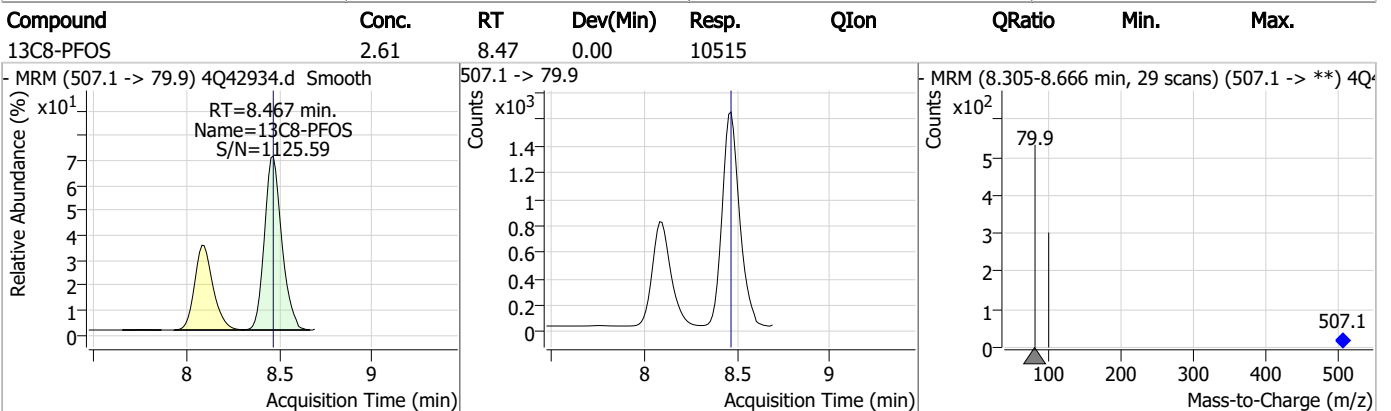
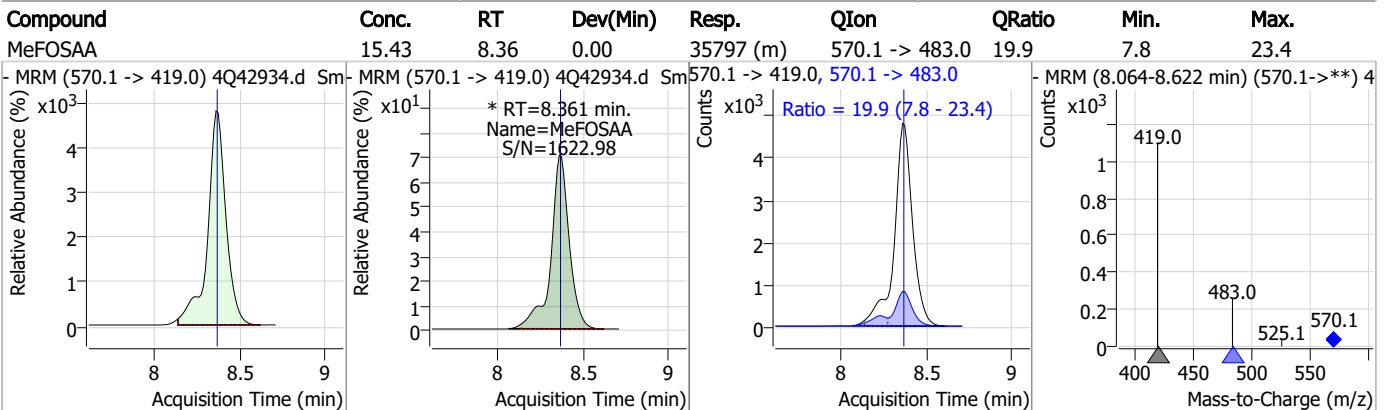
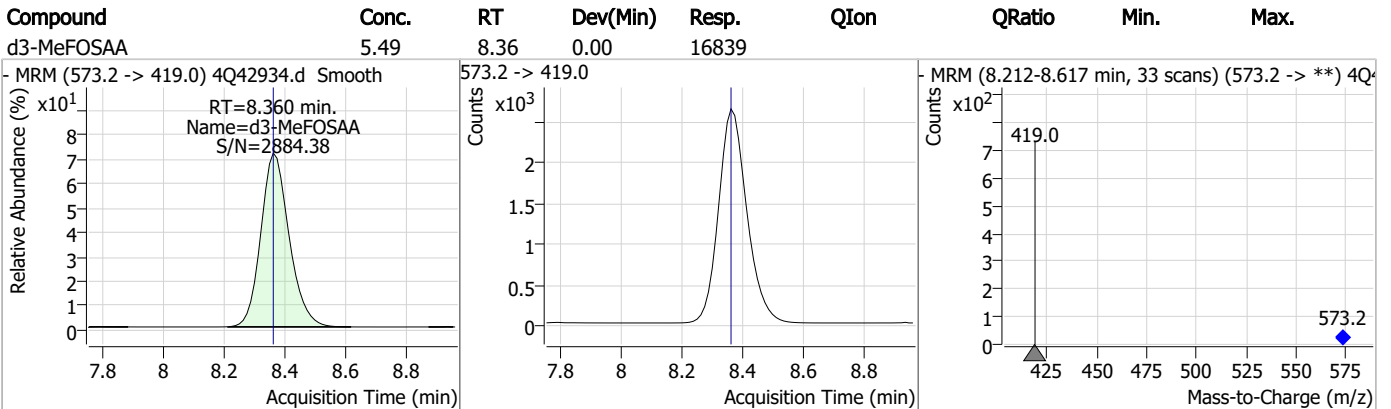
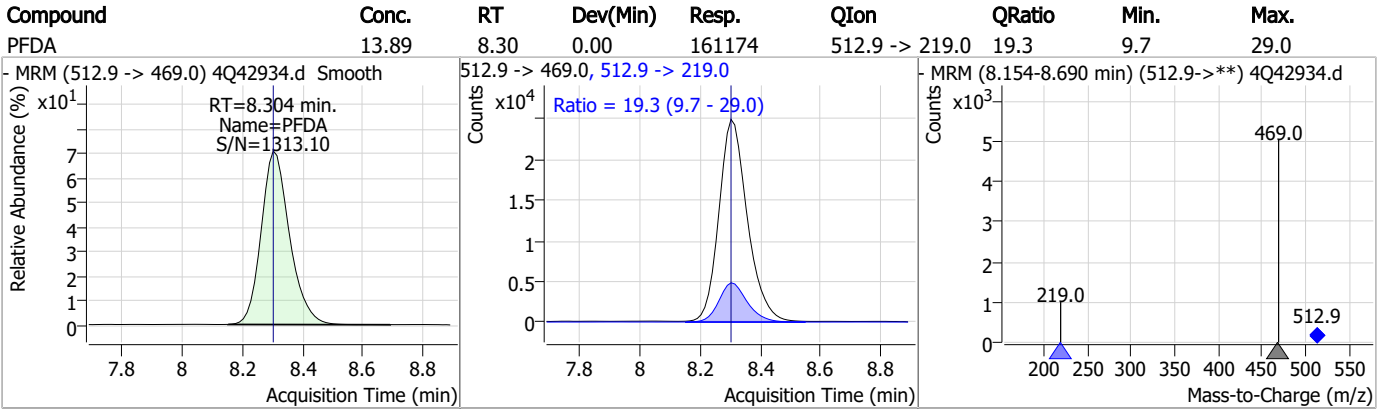
Perfluorinated Compounds by LC/MS/MS



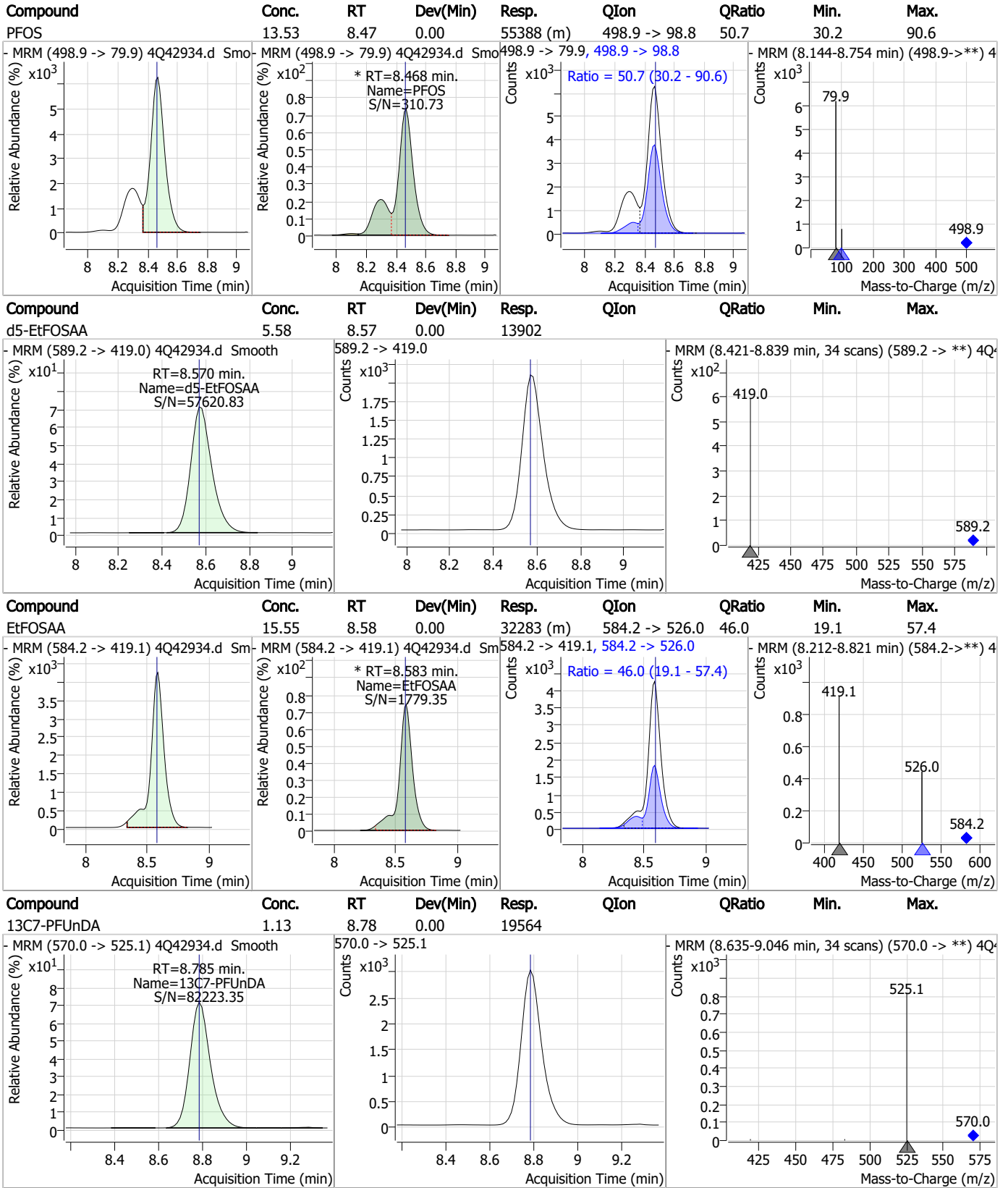
7.6.2

7

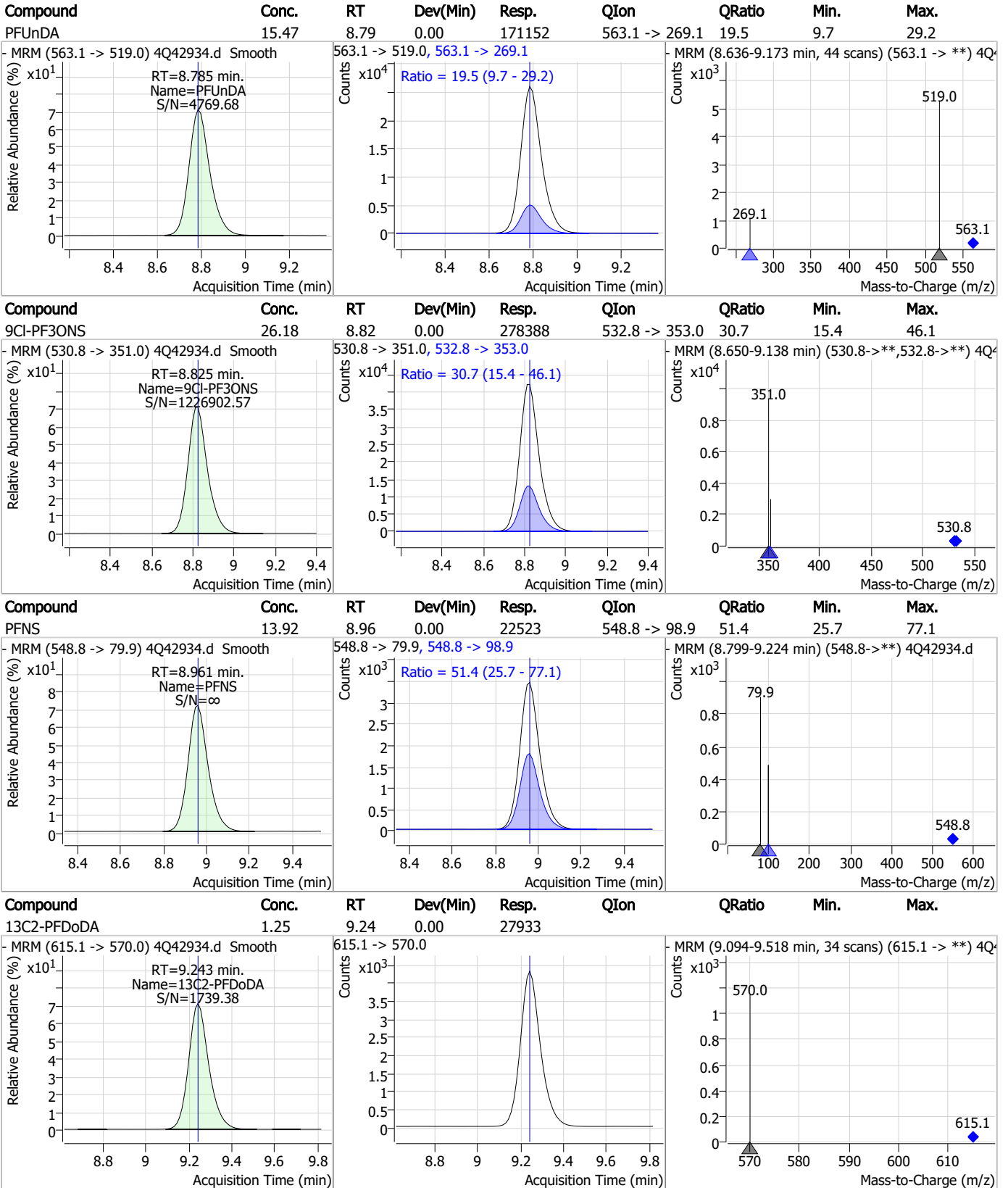
Perfluorinated Compounds by LC/MS/MS



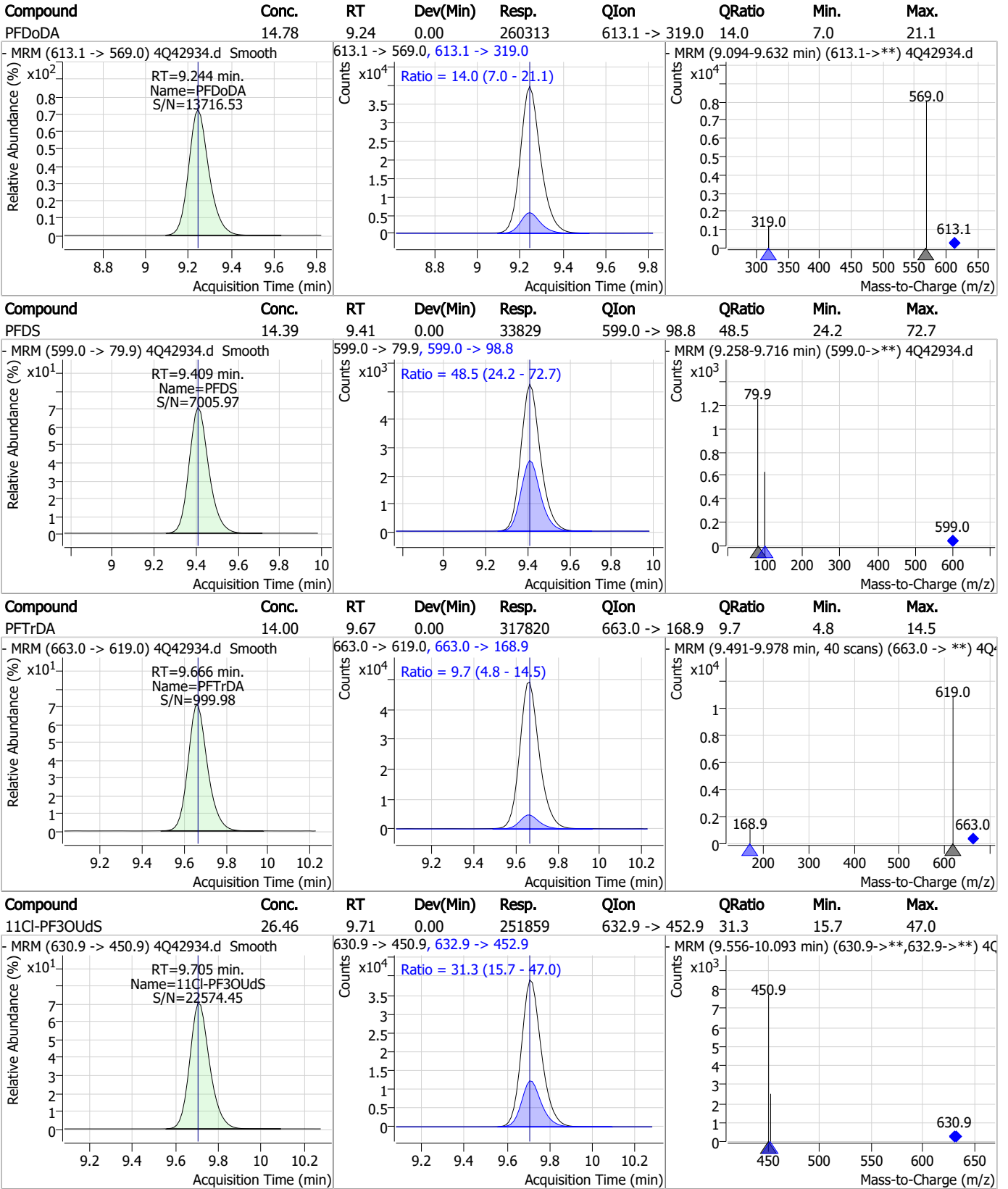
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

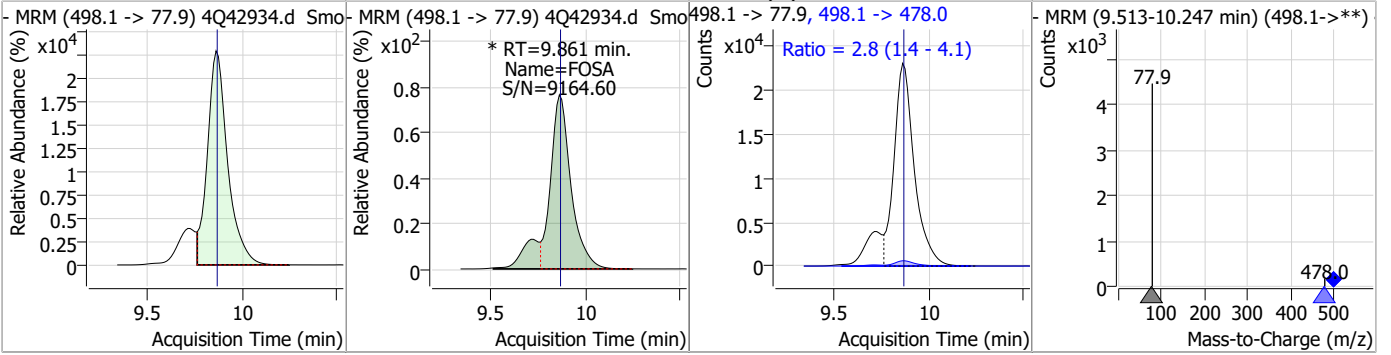


7.6.2

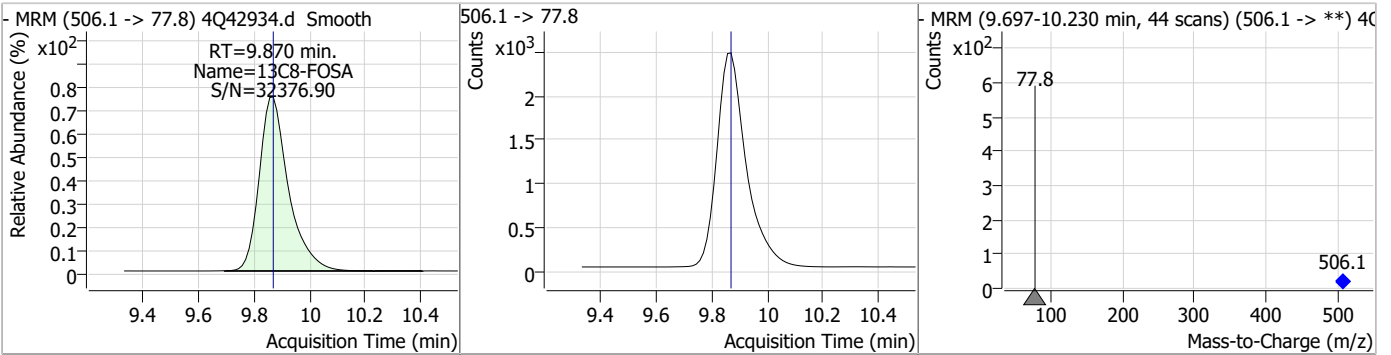
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Perfluorinated Compounds by LC/MS/MS

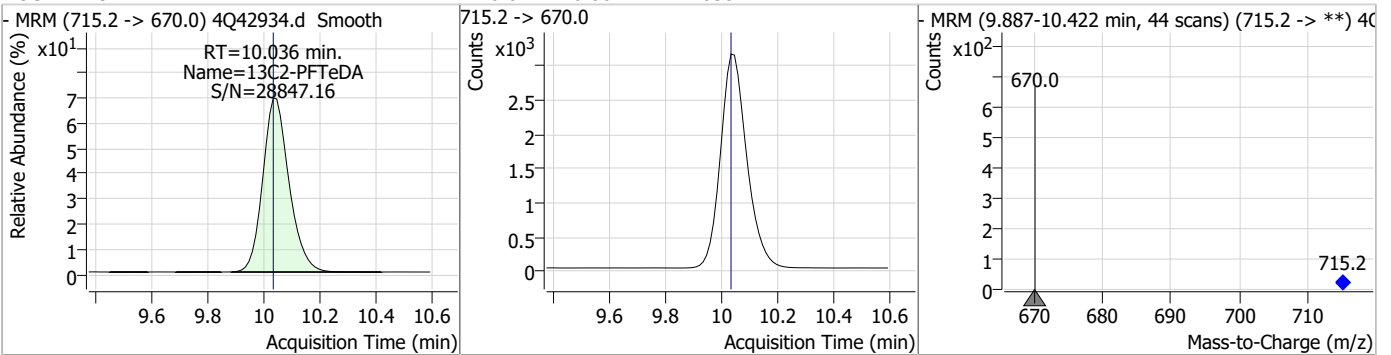
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	34.33	9.86	0.00	197227 (m)	498.1 -> 478.0	2.8	1.4	4.1



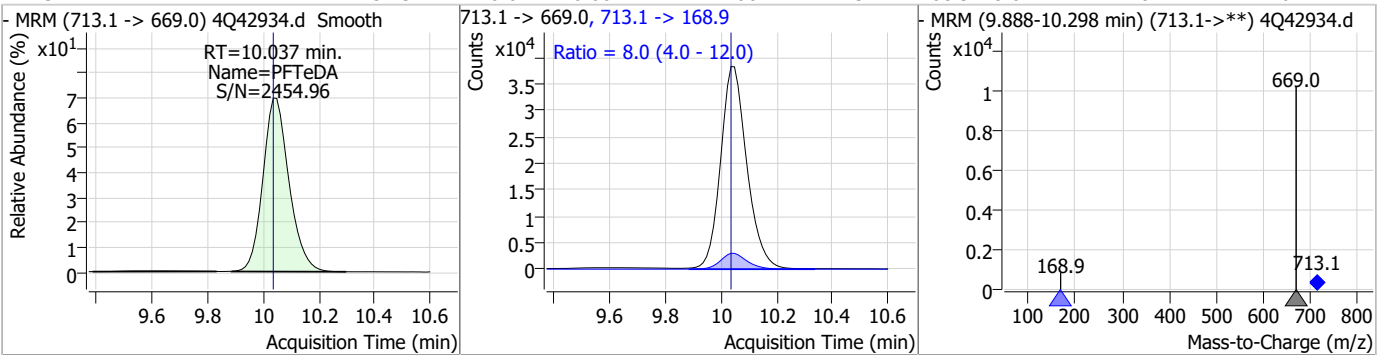
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.62	9.87	0.00	17843				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.17	10.04	0.00	20352				

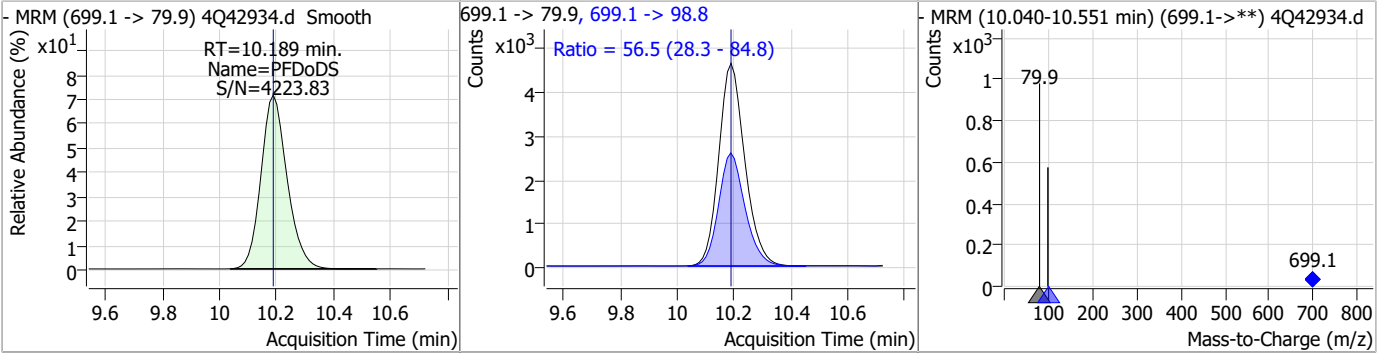


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	15.43	10.04	0.00	247206	713.1 -> 168.9	8.0	4.0	12.0

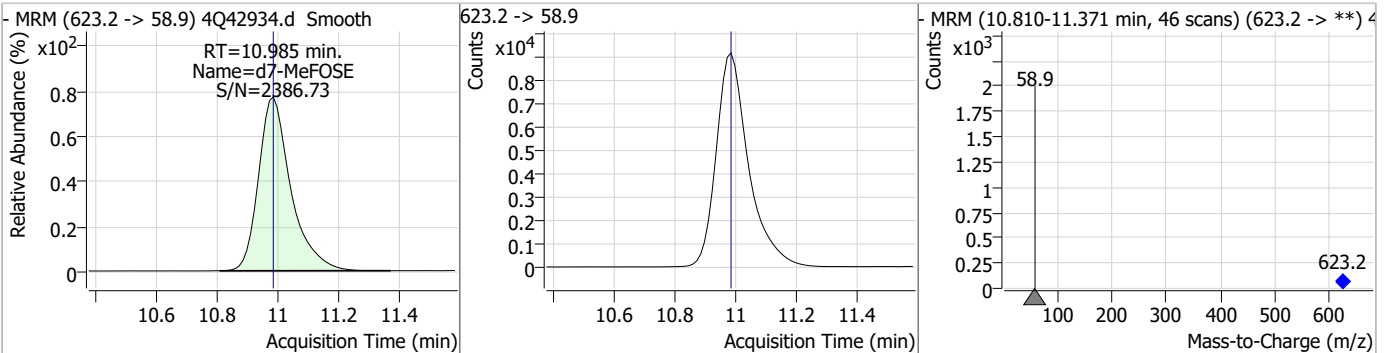


Perfluorinated Compounds by LC/MS/MS

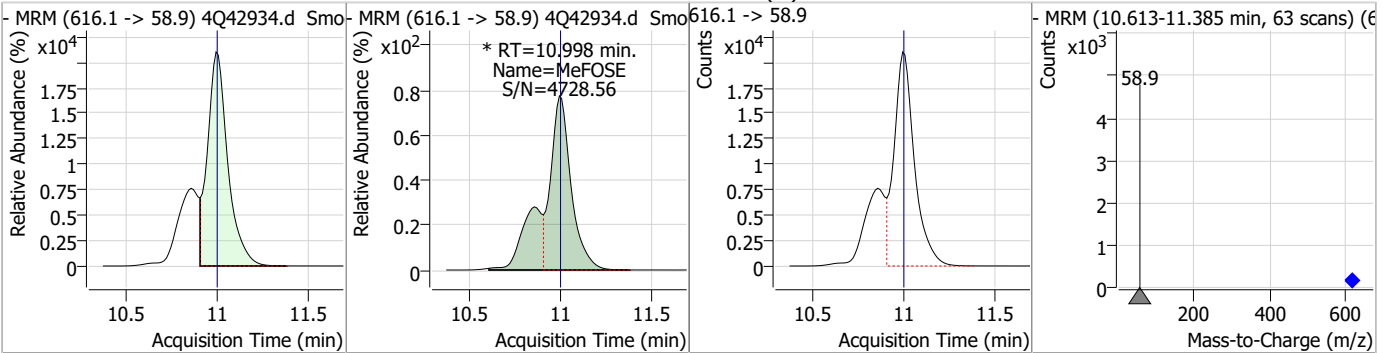
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	14.45	10.19	0.00	29364	699.1 -> 98.8	56.5	28.3	84.8



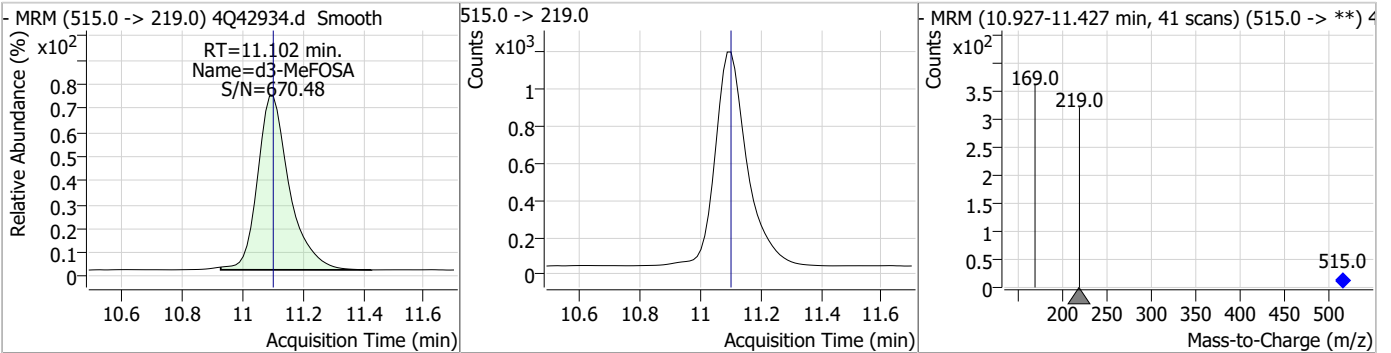
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.93	10.98	0.00	66941				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	94.69	11.00	0.00	222770 (m)				

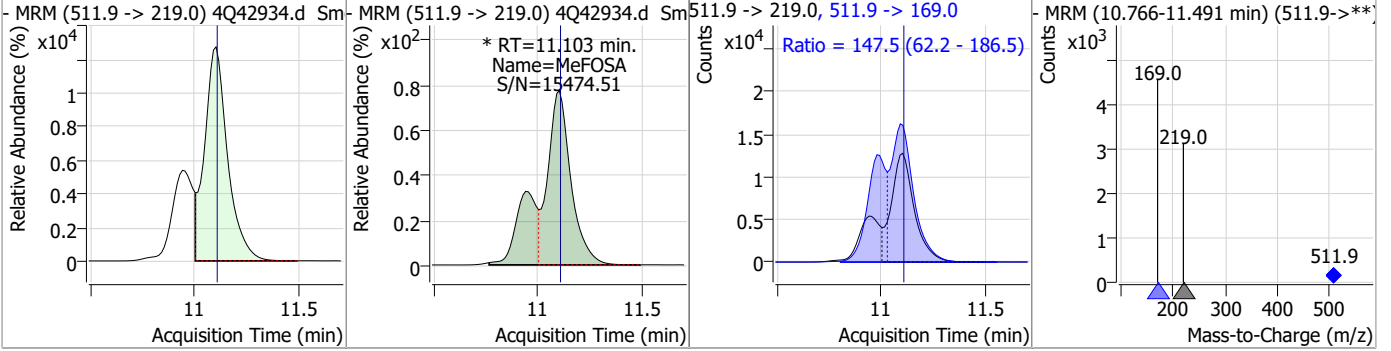


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.62	11.10	0.00	8448				

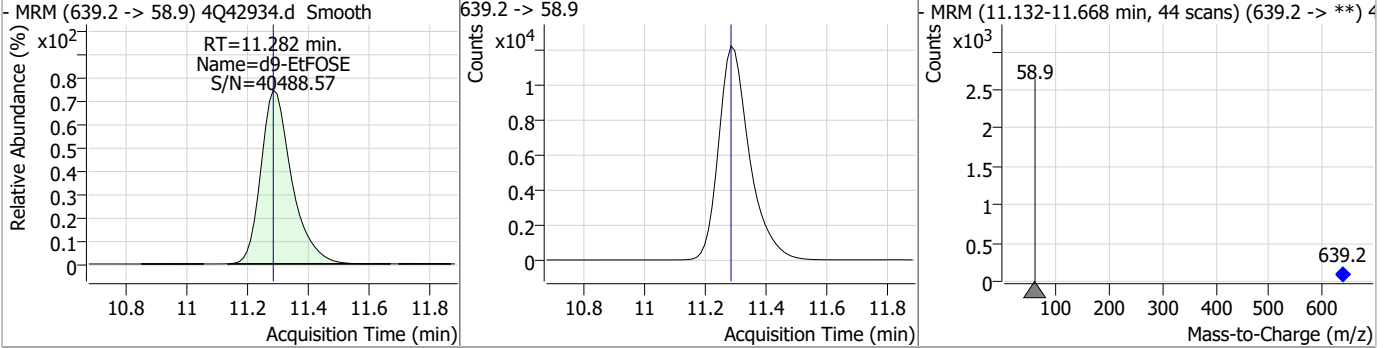


Perfluorinated Compounds by LC/MS/MS

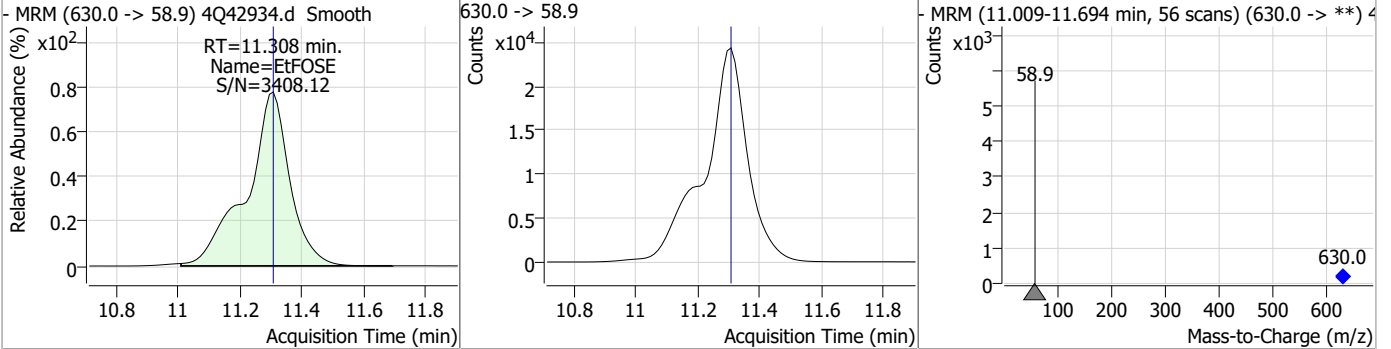
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	49.39	11.10	0.00	134898 (m)	511.9 -> 169.0	147.5	62.2	186.5



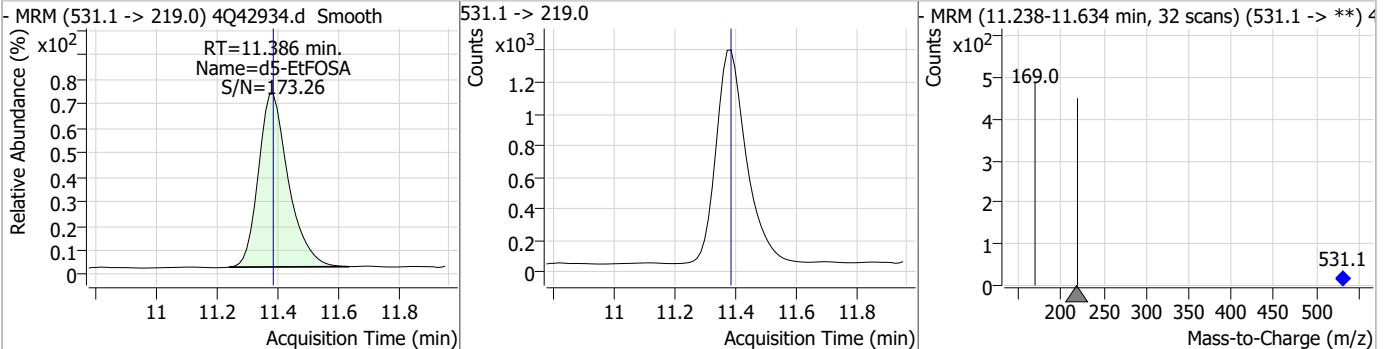
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.99	11.28	0.00	85392				



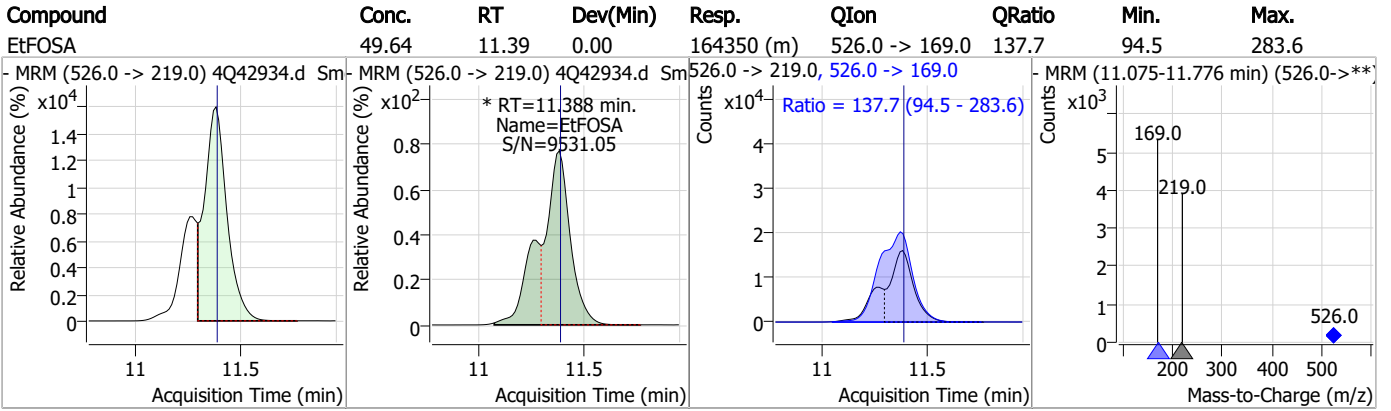
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	89.89	11.31	0.00	236589				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.67	11.39	0.00	9291				



Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S4Q621-RT Method: EPA DRAFT 1633
Lab FileID: 4Q42934.D Analyst approved: 04/17/23 14:53 Martha Valls
Injection Time: 04/14/23 11:21 Supervisor approved: 04/17/23 15:47 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.24	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.34	Split peak
Perfluorononanoic acid	375-95-1		7.66	Split peak
MeFOSAA	2355-31-9		8.36	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.58	Split peak
PFOSA	754-91-6		9.86	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.6.2.1
7

Perfluorinated Compounds by LC/MS/MS

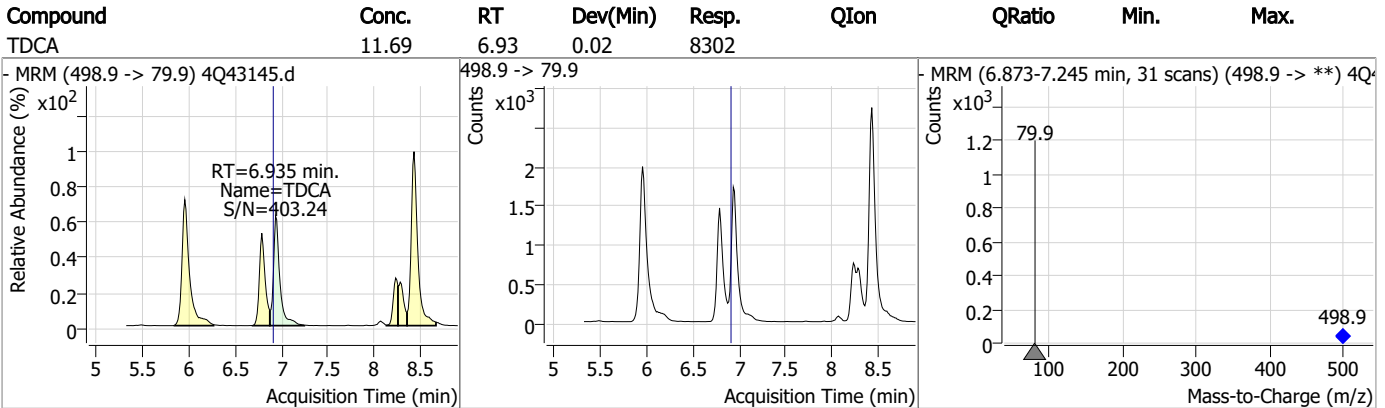
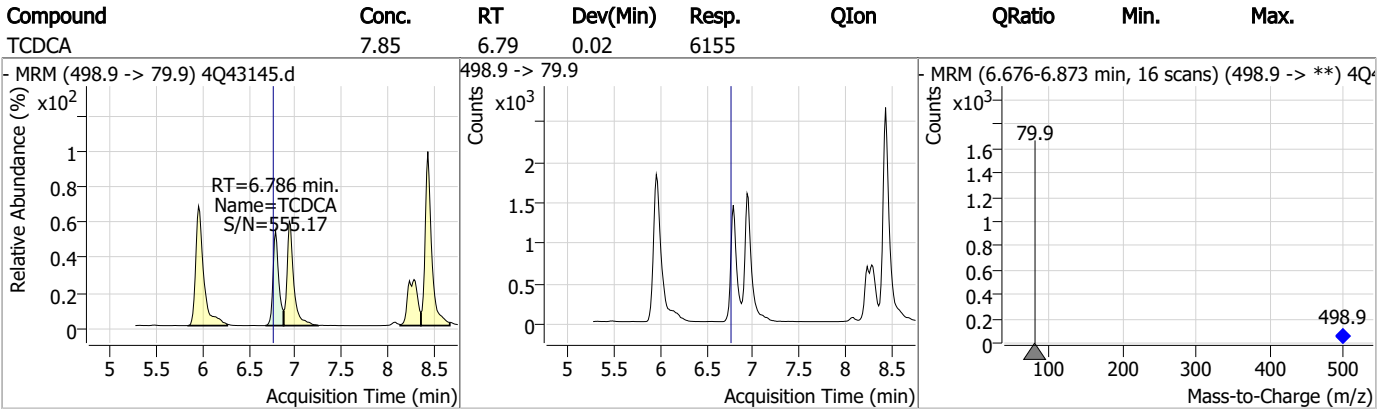
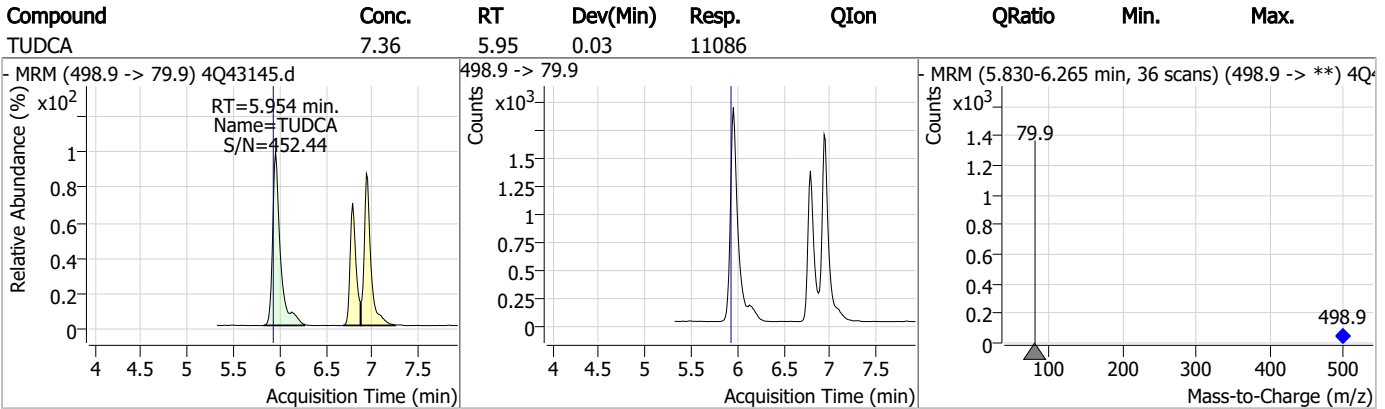
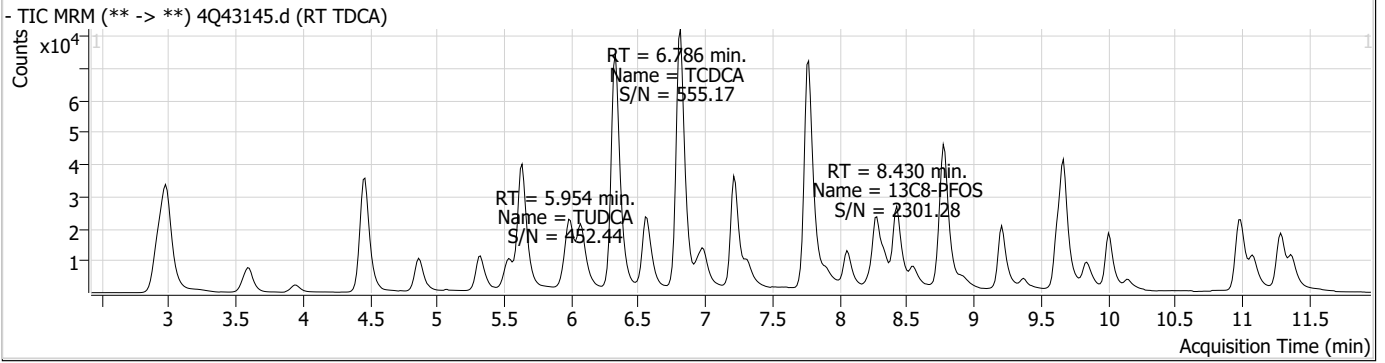
Data File : 4Q43145.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 10:28:42 AM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s4q624 TDCA.batch.bin
 Sample Information : OP96301,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.430	507.1 -> 79.9	16995	2.50	µg/L	0.025	
13C4-PFOS	8.430	502.8 -> 79.9	18423	2.50	µg/L	0.025	
System Monitoring Compounds							
13C8-PFOS	8.430	507.1 -> 79.9	16995	2.34	µg/L	0.025	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.6%				
Target Compounds							
PFOS	8.431	498.9 -> 79.9 498.9 -> 98.8	17687 8755	3.05	µg/L	m	87
TCDCa	6.786	498.9 -> 79.9	6155	7.85	ng/ml		100
TDCA	6.935	498.9 -> 79.9	8302	11.69	ng/ml		100
TUDCA	5.954	498.9 -> 79.9	11086	7.36	ng/ml		100

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

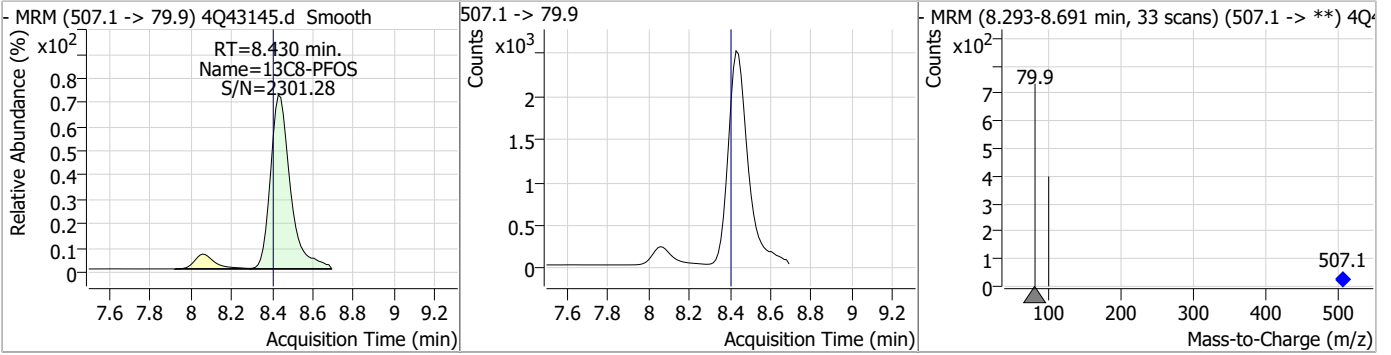
7.6.3
7

Perfluorinated Compounds by LC/MS/MS

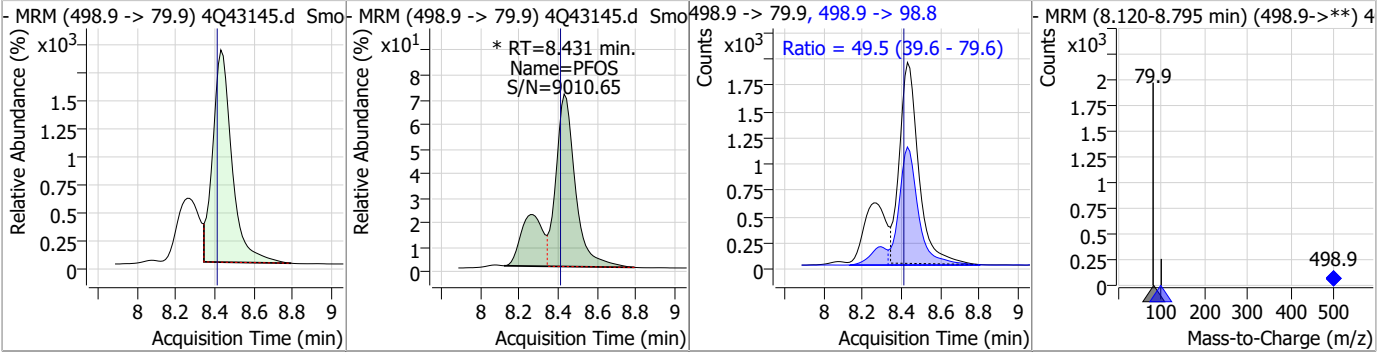


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.34	8.43	0.02	16995				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.05	8.43	0.02	17687 (m)	498.9 -> 98.8	49.5	39.6	79.6



7.6.3

7

Manual Integration Approval Summary

Sample Number: S4Q624-RT Method: EPA DRAFT 1633
Lab FileID: 4Q43145.D Analyst approved: 04/19/23 13:20 Martha Valls
Injection Time: 04/18/23 10:28 Supervisor approved: 04/19/23 16:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak

7.6.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43146.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 10:44:23 AM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96301,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.077	216.8 -> 171.9	149651	10.00 µg/L	0.116
M5-PFPeA	4.500	268.3 -> 223.0	81998	5.00 µg/L	0.050
M5-PFHxA	5.647	318.0 -> 273.0	67777	2.50 µg/L	0.025
M4-PFHpA	6.567	367.1 -> 322.0	32891	2.50 µg/L	0.012
M8-PFOA	7.214	421.1 -> 376.0	38836	2.50 µg/L	0.000
M9-PFNA	7.759	472.1 -> 427.0	21838	1.25 µg/L	0.000
M6-PFDA	8.266	519.1 -> 474.1	22150	1.25 µg/L	0.000
M7-PFUnDA	8.748	570.0 -> 525.1	21989	1.25 µg/L	0.000
M2-PFDoDA	9.194	615.1 -> 570.0	28804	1.25 µg/L	0.000
M2-PFTeDA	9.987	715.2 -> 670.0	20691	1.25 µg/L	0.000
M8-FOSA	9.846	506.1 -> 77.8	17622	2.50 µg/L	0.012
M3-PFBS	5.564	302.1 -> 79.9	14168	2.50 µg/L	0.037
M3-PFHxS	7.317	402.1 -> 79.9	8631	2.50 µg/L	0.000
M8-PFOS	8.430	507.1 -> 79.9	12015	2.50 µg/L	0.012
M2-4:2FTS	5.335	329.1 -> 80.9	1512	5.00 µg/L	0.026
M2-6:2FTS	6.986	429.1 -> 80.9	2466	5.00 µg/L	0.012
M2-8:2FTS	8.054	529.1 -> 80.9	3336	5.00 µg/L	0.000
M3-MeFOSAA	8.337	573.2 -> 419.0	19698	5.00 µg/L	0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	41985	10.00 µg/L	0.025
M5-EtFOSAA	8.546	589.2 -> 419.0	14872	5.00 µg/L	0.012
M7-MeFOSE	10.962	623.2 -> 58.9	60484	25.00 µg/L	-0.012
M9-EtFOSE	11.270	639.2 -> 58.9	73237	25.00 µg/L	-0.012
M5-EtFOSA	11.361	531.1 -> 219.0	9985	2.50 µg/L	-0.012
M3-MeFOSA	11.078	515.0 -> 219.0	9831	2.50 µg/L	-0.012
13C4-PFOS	8.430	502.8 -> 79.9	13452	2.50 µg/L	0.012
13C3-PFBA	3.068	216.0 -> 172.0	82316	5.00 µg/L	0.102
18O2-PFHxS	7.316	403.0 -> 83.9	6414	2.50 µg/L	0.000
13C4-PFOA	7.214	417.1 -> 372.0	47330	2.50 µg/L	0.000
13C2-PFDA	8.267	515.1 -> 470.1	19679	1.25 µg/L	0.000
13C5-PFNA	7.759	468.0 -> 423.0	26520	1.25 µg/L	0.000
13C2-PFHxA	5.648	315.1 -> 270.0	56143	2.50 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1512	4.31 µg/L	0.026
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.3%		
13C2-6:2FTS	6.986	429.1 -> 80.9	2466	4.90 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-8:2FTS	8.054	529.1 -> 80.9	3336	4.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 80.6%		
13C2-PFDoDA	9.194	615.1 -> 570.0	28804	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C2-PFTeDA	9.987	715.2 -> 670.0	20691	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.8%		
13C3-PFBS	5.564	302.1 -> 79.9	14168	2.40 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C3-PFHxS	7.317	402.1 -> 79.9	8631	2.43 µg/L	0.000

7.64
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C4-PFBA	3.077	216.8 -> 171.9	149651	10.44 µg/L	0.116
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C4-PFHpA	6.567	367.1 -> 322.0	32891	2.58 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C5-PFHxA	5.647	318.0 -> 273.0	67777	2.61 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C5-PFPeA	4.500	268.3 -> 223.0	81998	4.96 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C6-PFDA	8.266	519.1 -> 474.1	22150	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C7-PFUnDA	8.748	570.0 -> 525.1	21989	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C8-FOSA	9.846	506.1 -> 77.8	17622	2.00 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.1%	
13C8-PFOA	7.214	421.1 -> 376.0	38836	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C8-PFOS	8.430	507.1 -> 79.9	12015	2.30 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C9-PFNA	7.759	472.1 -> 427.0	21838	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.4%	
d3-MeFOSAA	8.337	573.2 -> 419.0	19698	4.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	41985	10.66 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.6%	
d3-MeFOSA	11.078	515.0 -> 219.0	9831	2.36 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%	
d5-EtFOSAA	8.546	589.2 -> 419.0	14872	4.62 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.4%	
d7-MeFOSE	10.962	623.2 -> 58.9	60484	17.43 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 69.7%	
d9-EtFOSE	11.270	639.2 -> 58.9	73237	17.25 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 69.0%	
d5-EtFOSA	11.361	531.1 -> 219.0	9985	2.22 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.8%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	114595	60.81 µg/L	99
		327.1 -> 80.9	49125		
6:2FTS	6.987	427.1 -> 407.0	93643	55.61 µg/L	95
		427.1 -> 80.9	39008		
8:2FTS	8.054	527.1 -> 507.0	104287	69.72 µg/L	92
		527.1 -> 80.8	40833		
EtFOSAA	8.547	584.2 -> 419.1	33807	15.22 µg/L	m 96
		584.2 -> 526.0	16690		
FOSA	9.837	498.1 -> 77.9	201325	35.48 µg/L	m 98
		498.1 -> 478.0	6219		
MeFOSAA	8.337	570.1 -> 419.0	37563	13.84 µg/L	m 95
		570.1 -> 483.0	7522		
PFBA	3.071	212.8 -> 168.9	194917	57.03 µg/L	100
PFBS	5.565	298.7 -> 79.9	70784	13.39 µg/L	97
		298.7 -> 98.8	27410		
PFDA	8.280	512.9 -> 469.0	186807	14.75 µg/L	100
		512.9 -> 219.0	36932		
PFDoDA	9.195	613.1 -> 569.0	269602	14.84 µg/L	100
		613.1 -> 319.0	36906		
PFDS	9.358	599.0 -> 79.9	37214	13.85 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.568	599.0 -> 98.8	18451	15.58	µg/L	97
		363.1 -> 319.0	255633			
PFHpS	7.900	363.1 -> 169.0	44754	14.72	µg/L	99
		449.0 -> 79.9	46038			
PFHxA	5.650	449.0 -> 98.9	24042	14.59	µg/L	100
		313.0 -> 269.0	292638			
PFHxS	7.318	313.0 -> 118.9	8857	13.86	µg/L	99
		398.7 -> 79.9	40977			
PFNA	7.760	398.7 -> 98.9	21208	30.36	µg/L	97
		463.0 -> 419.0	354375			
PFNS	8.912	463.0 -> 219.0	96245	14.77	µg/L	97
		548.8 -> 79.9	27318			
PFOA	7.215	548.8 -> 98.9	14091	32.54	µg/L	100
		413.0 -> 369.0	590455			
PFOS	8.431	413.0 -> 169.0	124740	13.62	µg/L	94
		498.9 -> 79.9	63694			
PFPeA	4.502	498.9 -> 98.8	32660	31.13	µg/L	100
		263.0 -> 219.0	483165			
PFPeS	6.607	349.1 -> 79.9	37019	14.71	µg/L	98
		349.1 -> 98.9	16135			
PFTeDA	9.988	713.1 -> 669.0	240358	14.75	µg/L	98
		713.1 -> 168.9	19888			
PFTrDA	9.617	663.0 -> 619.0	328020	14.02	µg/L	99
		663.0 -> 168.9	31920			
PFUnDA	8.748	563.1 -> 519.0	179540	14.44	µg/L	97
		563.1 -> 269.1	35803			
11CI-PF3OUdS	9.656	630.9 -> 450.9	297763	27.17	µg/L	100
		632.9 -> 452.9	91668			
9CI-PF3ONS	8.775	530.8 -> 351.0	336305	27.47	µg/L	98
		532.8 -> 353.0	101172			
ADONA	6.819	376.9 -> 250.9	703029	27.88	µg/L	98
		376.9 -> 84.8	191322			
HFPO-DA	6.015	284.9 -> 168.9	94429	28.38	µg/L	96
		284.9 -> 184.9	10847			
3:3FTCA	4.017	241.0 -> 177.0	56986	78.79	µg/L	100
		241.0 -> 117.0	5169			
5:3FTCA	6.345	341.0 -> 237.1	1071731	378.23	µg/L	99
		341.0 -> 217.0	756498			
7:3FTCA	7.762	441.0 -> 316.9	431974	372.00	µg/L	99
		441.0 -> 336.9	963154			
EtFOSA	11.375	526.0 -> 219.0	187347	52.66	µg/L	98
		526.0 -> 169.0	257662			
EtFOSE	11.283	630.0 -> 58.9	220857	97.84	µg/L	100
		511.9 -> 219.0	145538			
MeFOSA	11.079	511.9 -> 169.0	228894	45.79	µg/L	90
		616.1 -> 58.9	201715			
MeFOSE	10.987	699.1 -> 79.9	32431	94.89	µg/L	100
		699.1 -> 98.8	18350			
PFDoDS	10.140	295.0 -> 201.0	39606	13.96	µg/L	96
		295.0 -> 84.9	10060			
NFDHA	5.529	279.0 -> 85.1	276159	29.37	µg/L	99
		229.0 -> 84.9	244504			
PFMBA	4.891	314.8 -> 134.9	445492	31.12	µg/L	100
		314.8 -> 82.9	15002			
PFMPA	3.657			31.50	µg/L	100
PFEESA	6.084			26.45	µg/L	100

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

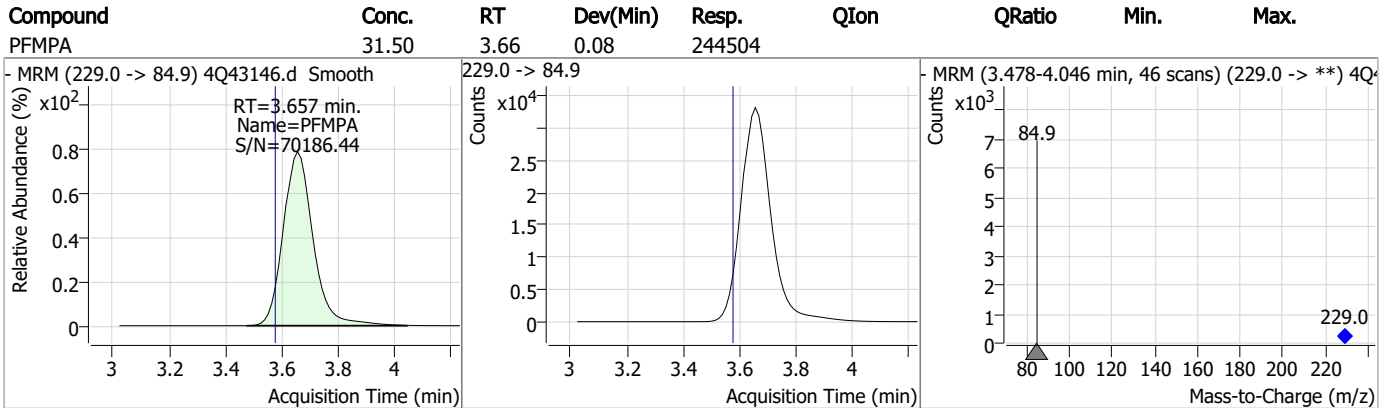
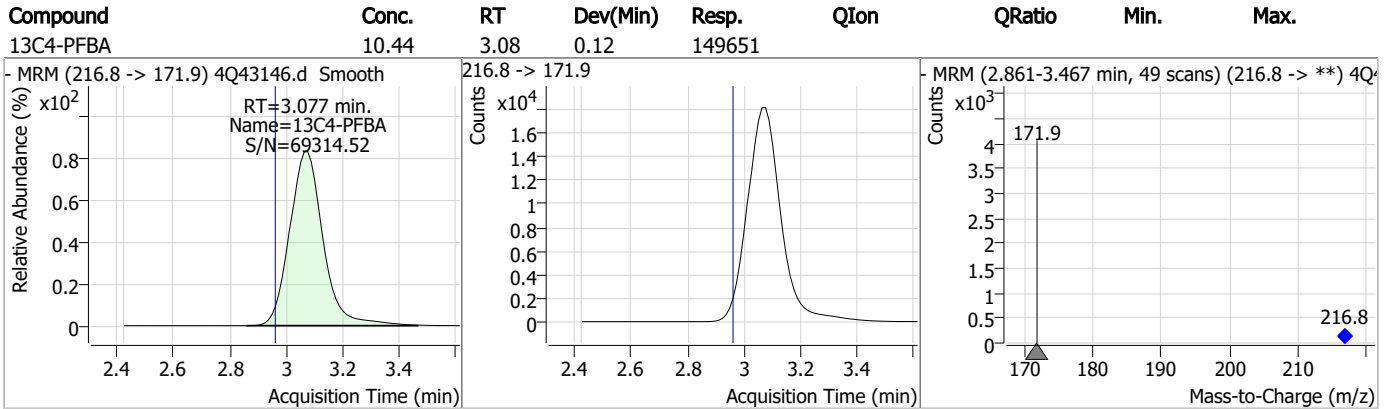
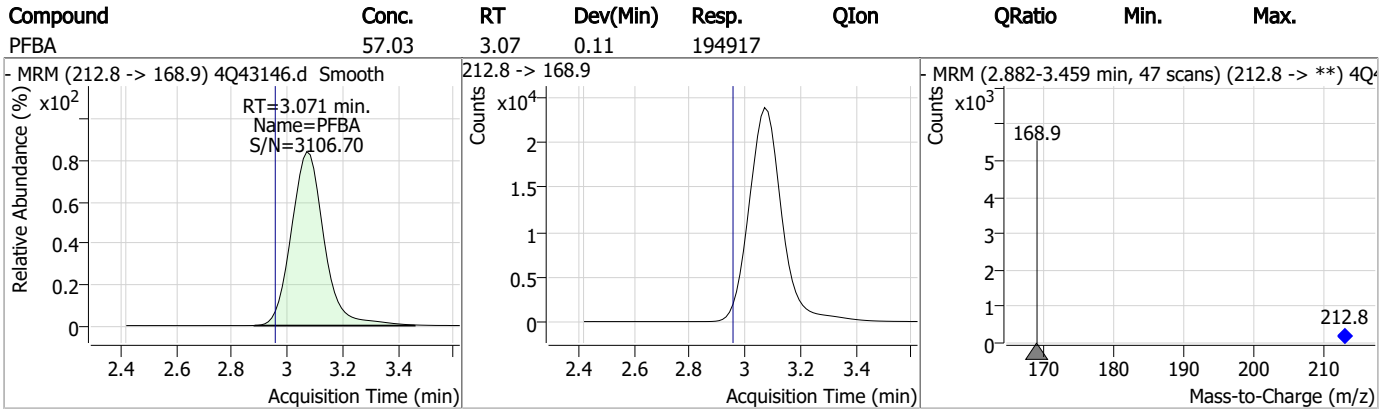
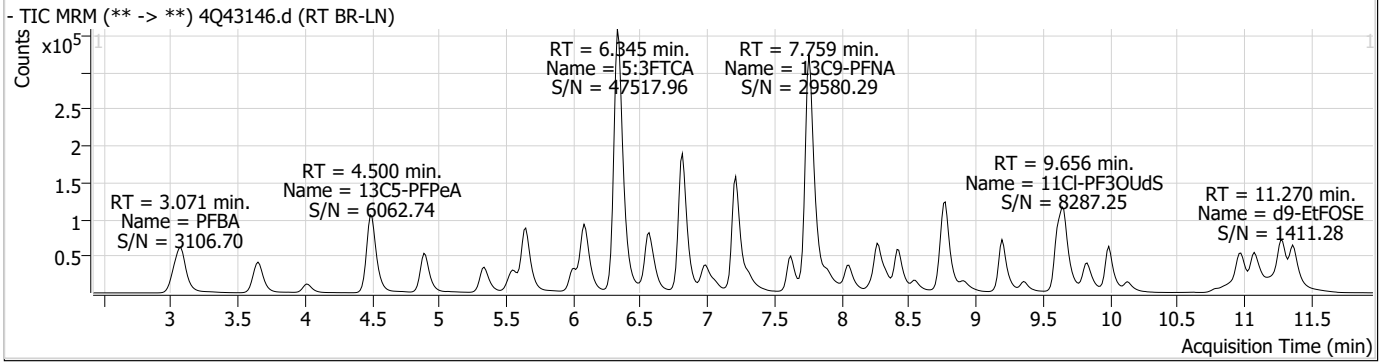
Perfluorinated Compounds by LC/MS/MS

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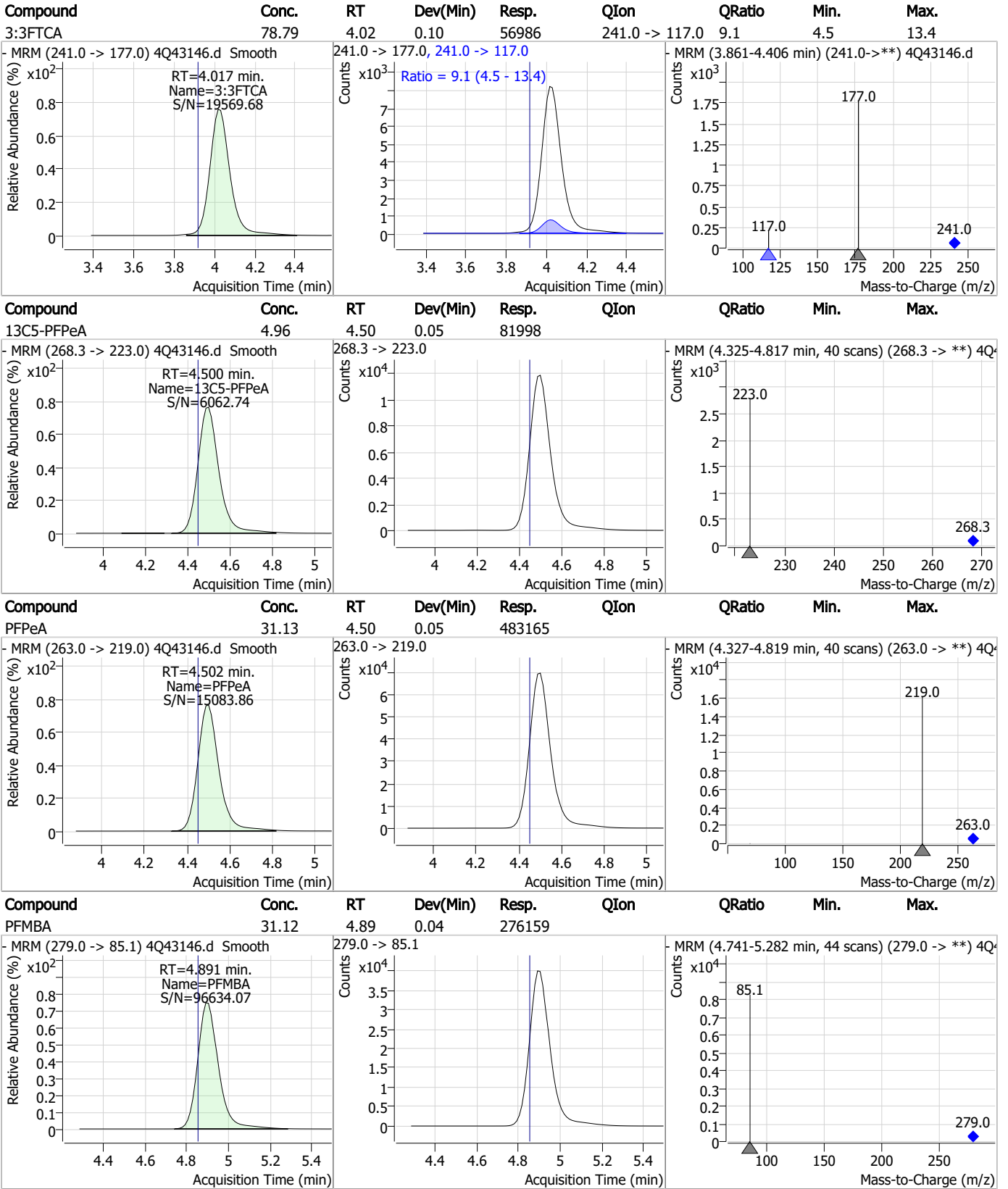
7.6.4

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Perfluorinated Compounds by LC/MS/MS



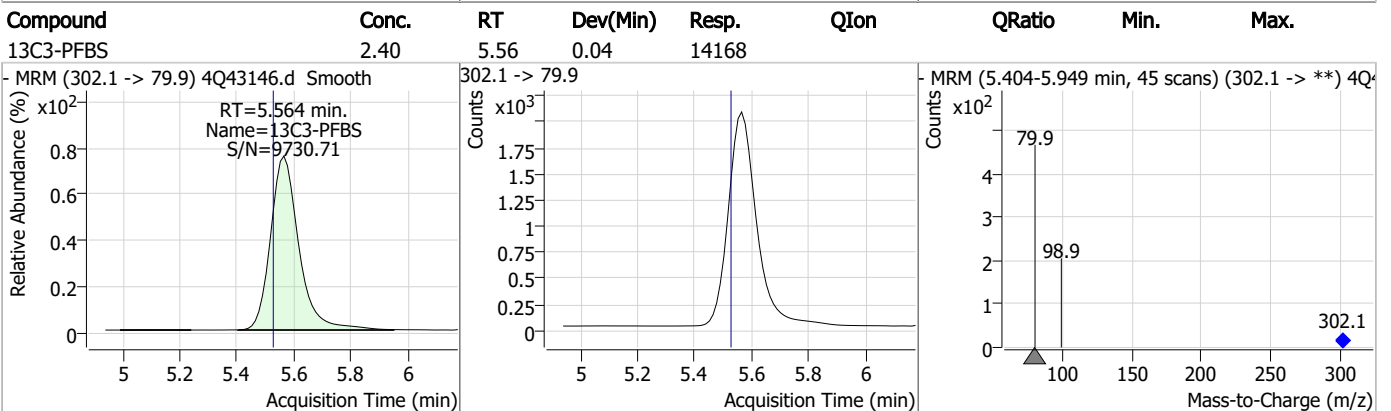
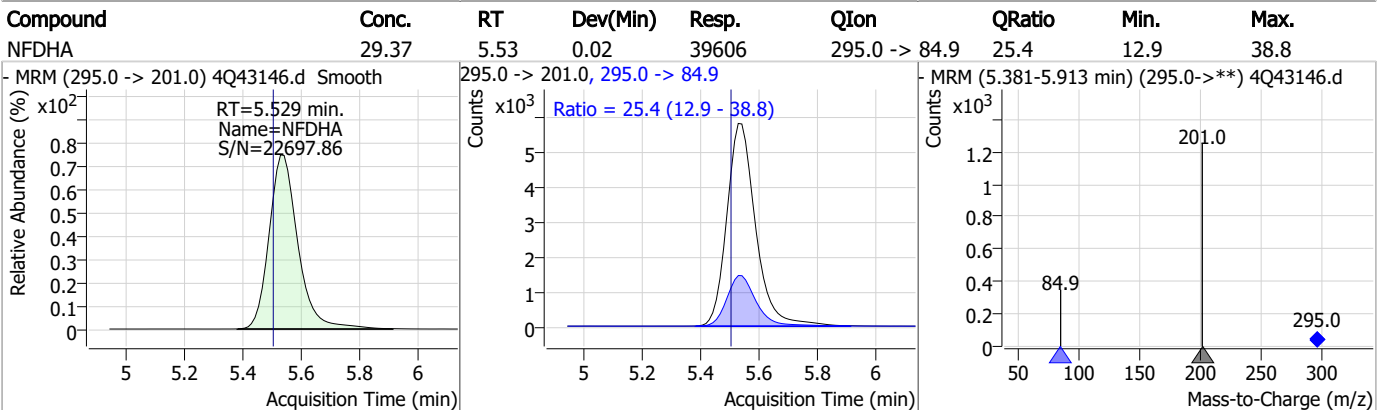
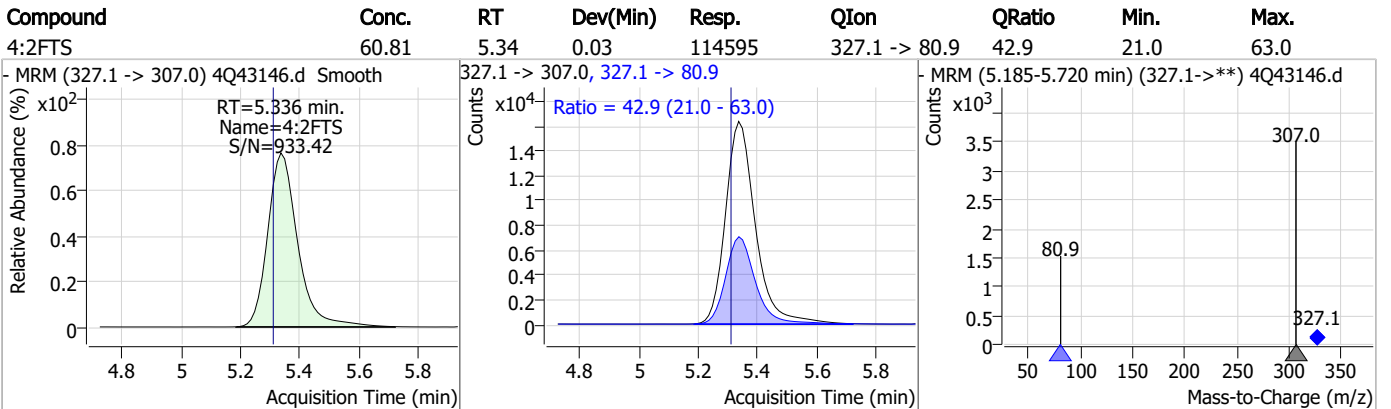
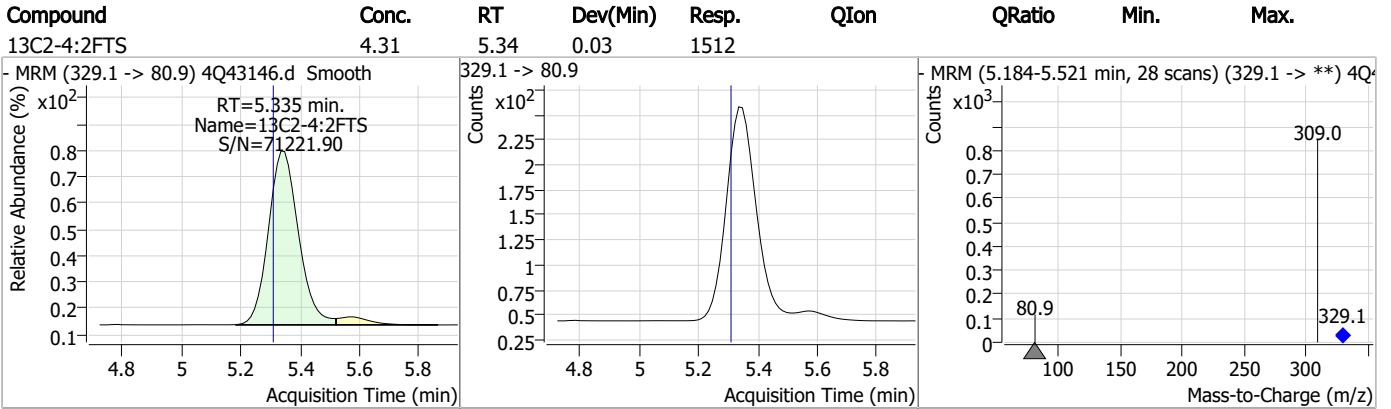
Perfluorinated Compounds by LC/MS/MS



7.6.4

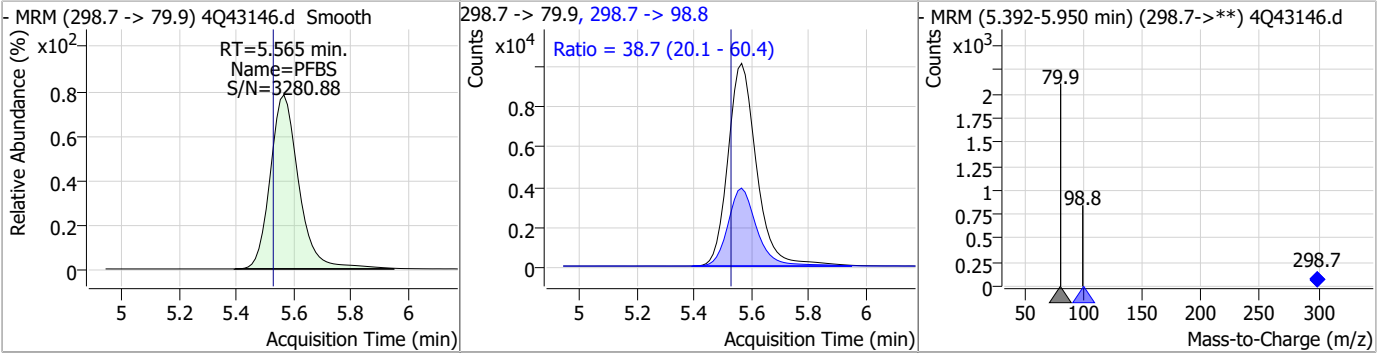
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Perfluorinated Compounds by LC/MS/MS

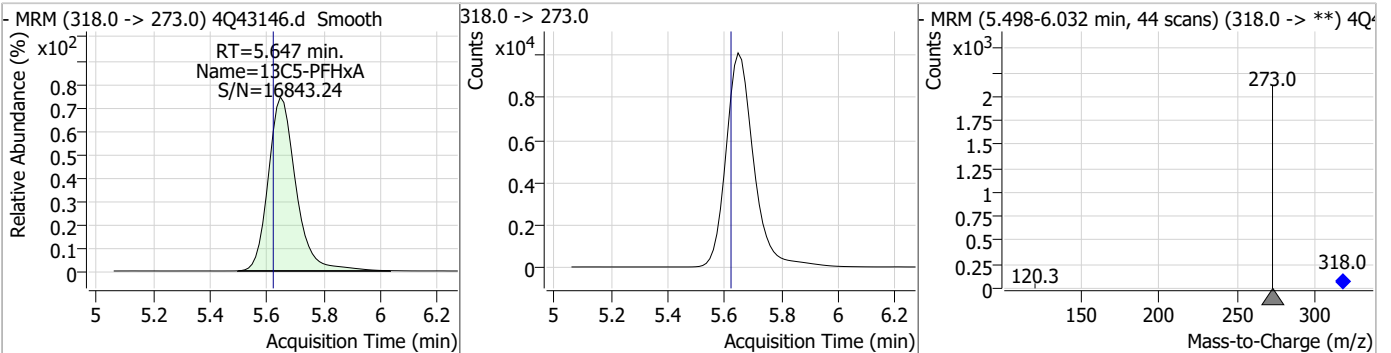


Perfluorinated Compounds by LC/MS/MS

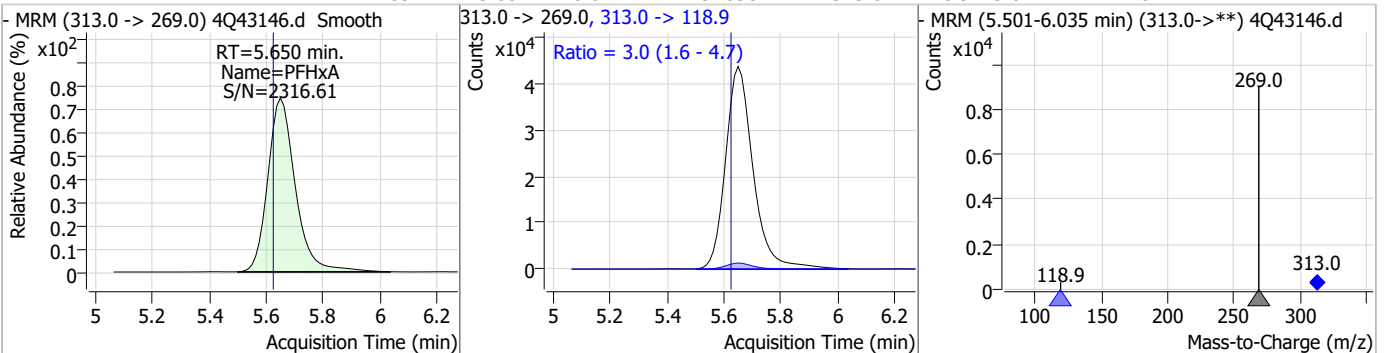
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	13.39	5.57	0.04	70784	298.7 -> 98.8	38.7	20.1	60.4



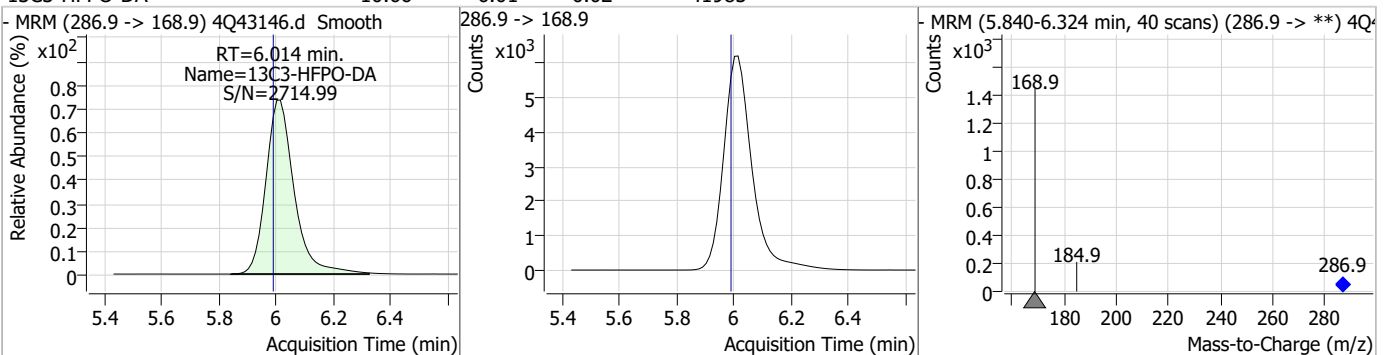
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.61	5.65	0.02	67777				



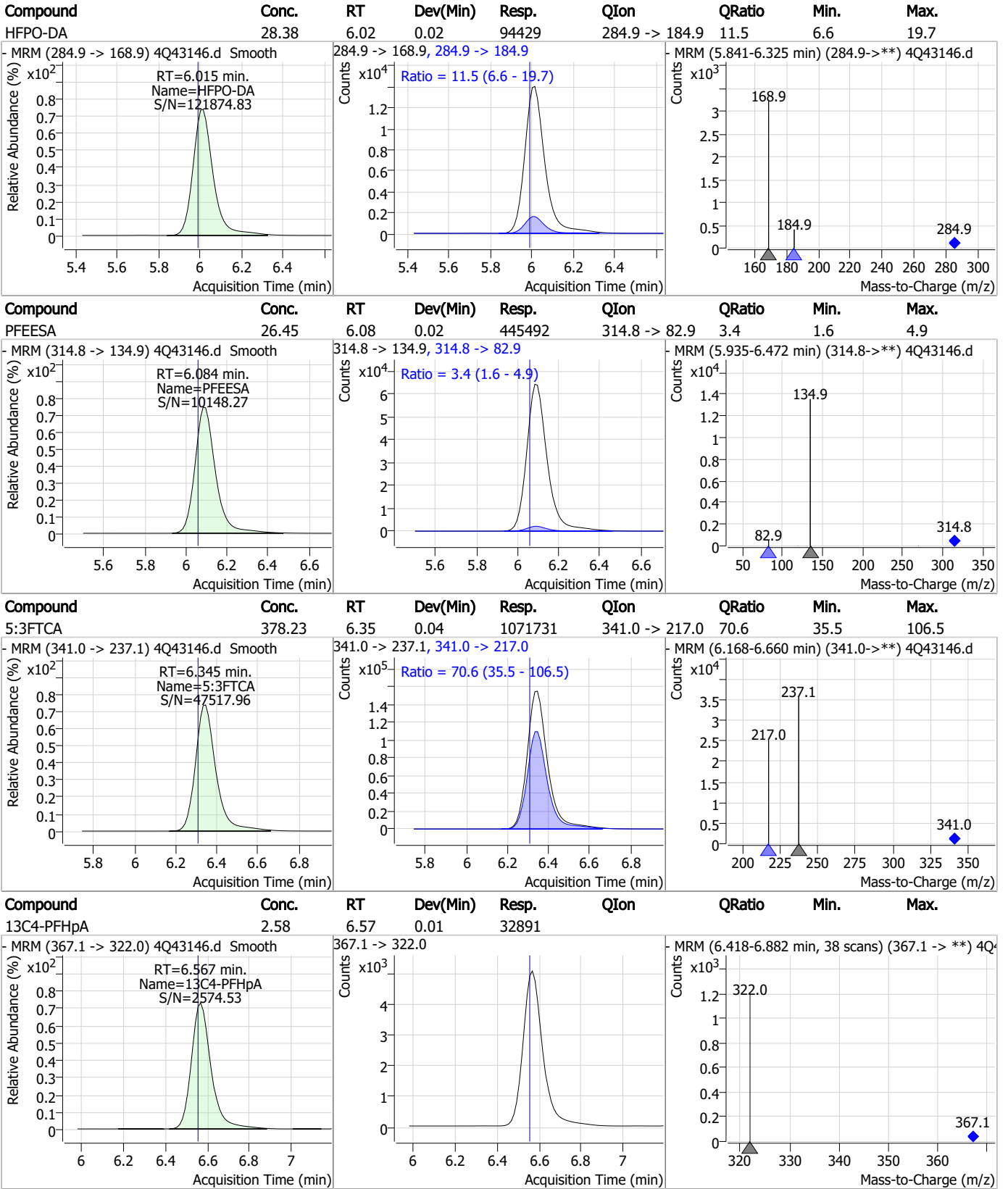
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	14.59	5.65	0.02	292638	313.0 -> 118.9	3.0	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.66	6.01	0.02	41985				



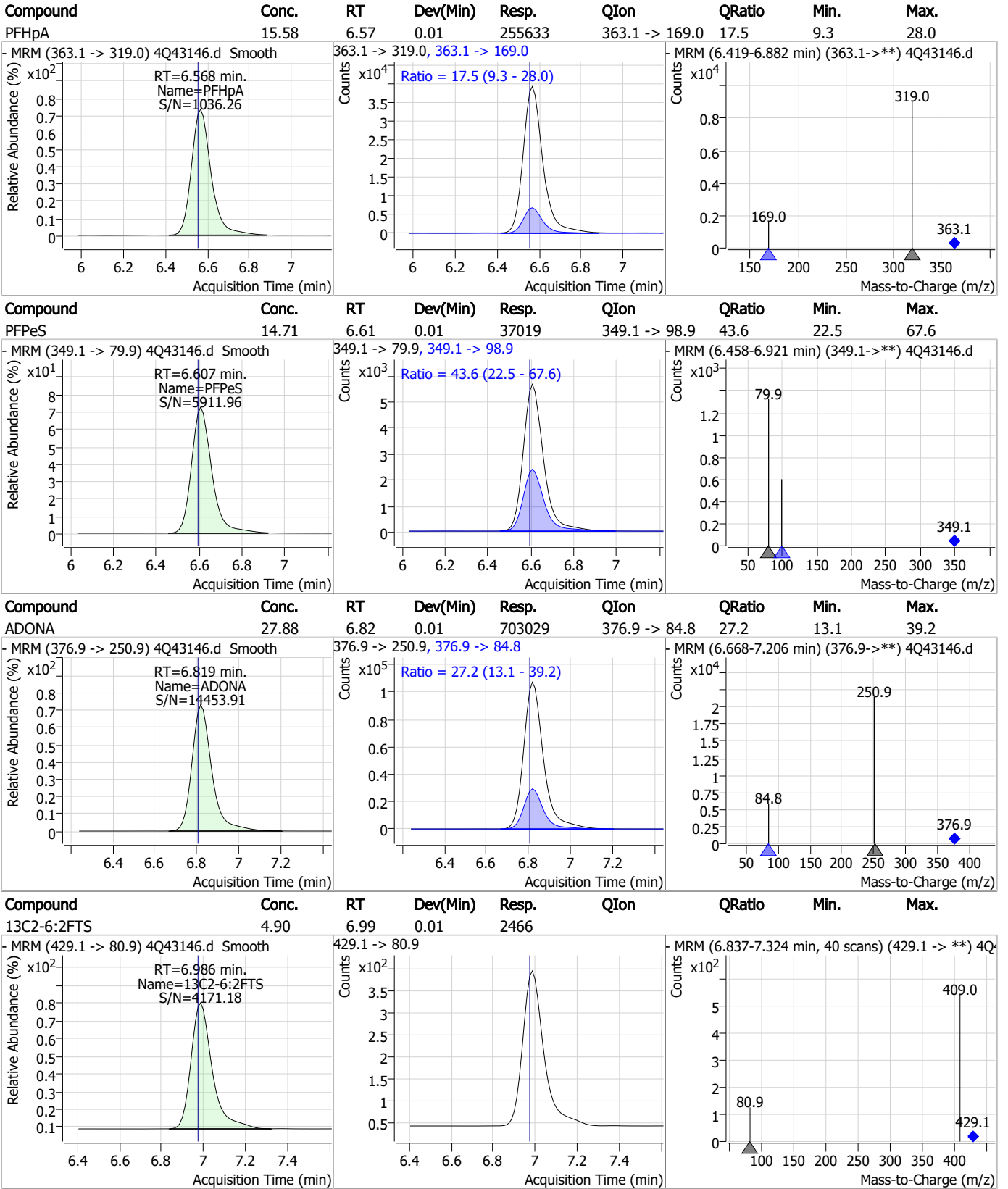
Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Perfluorinated Compounds by LC/MS/MS

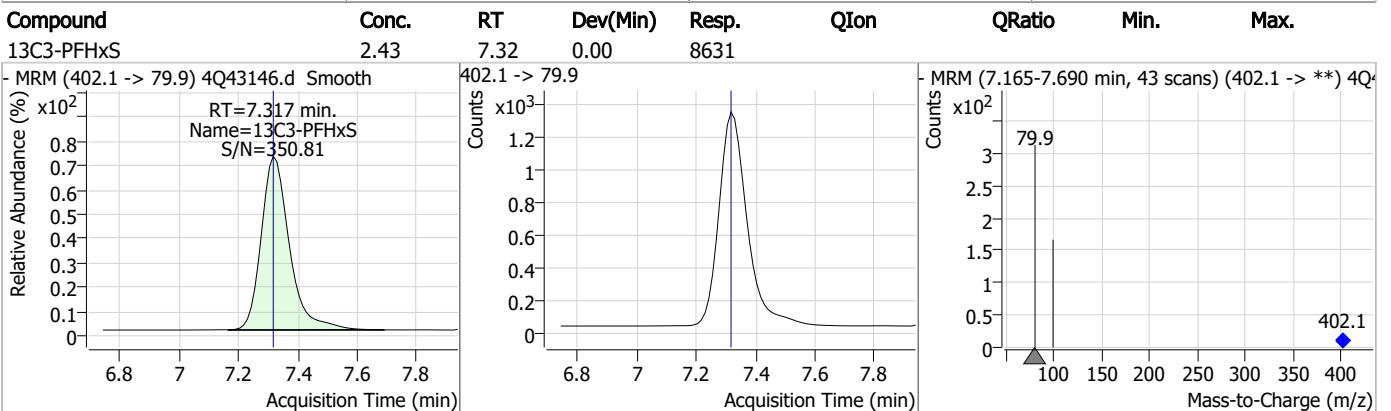
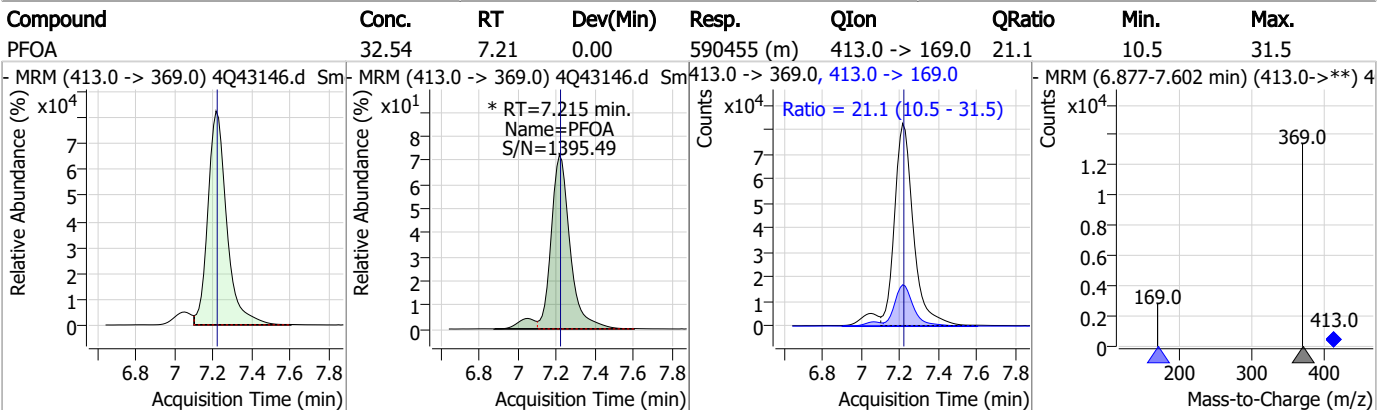
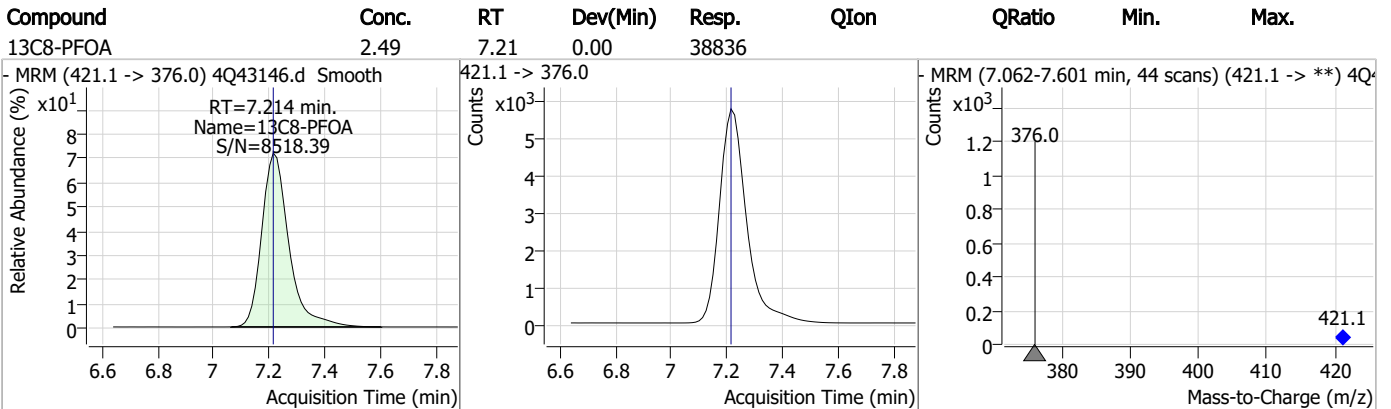
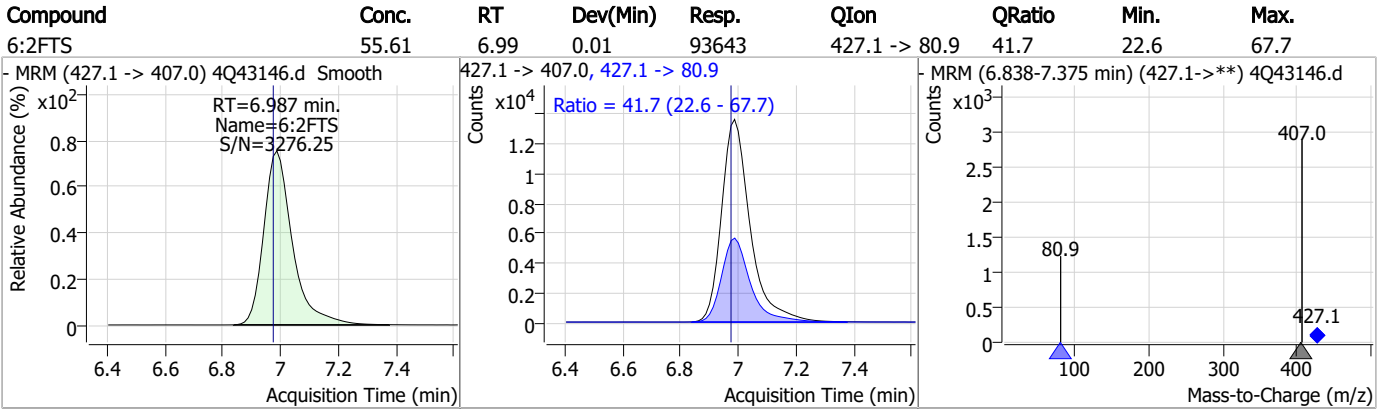


7.6.4

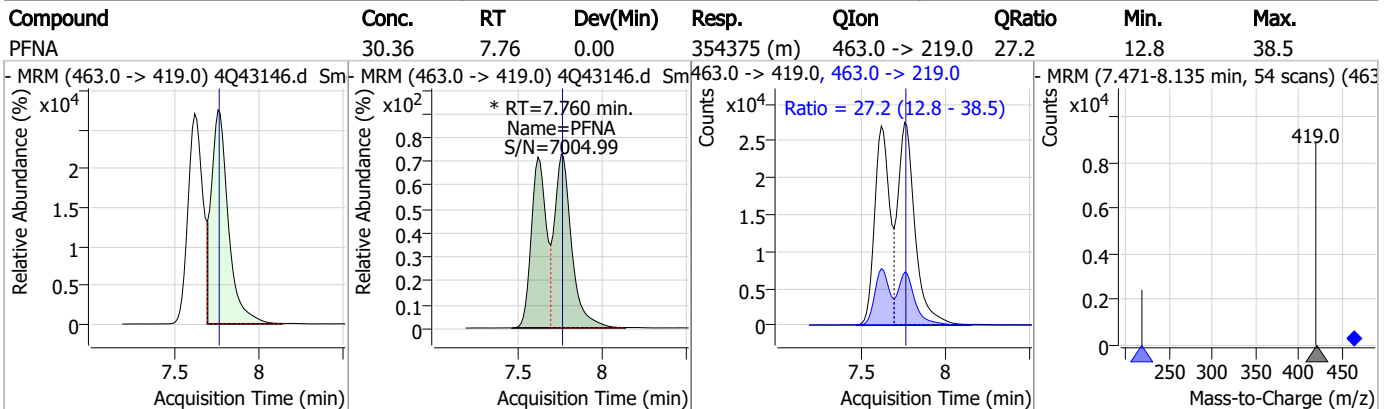
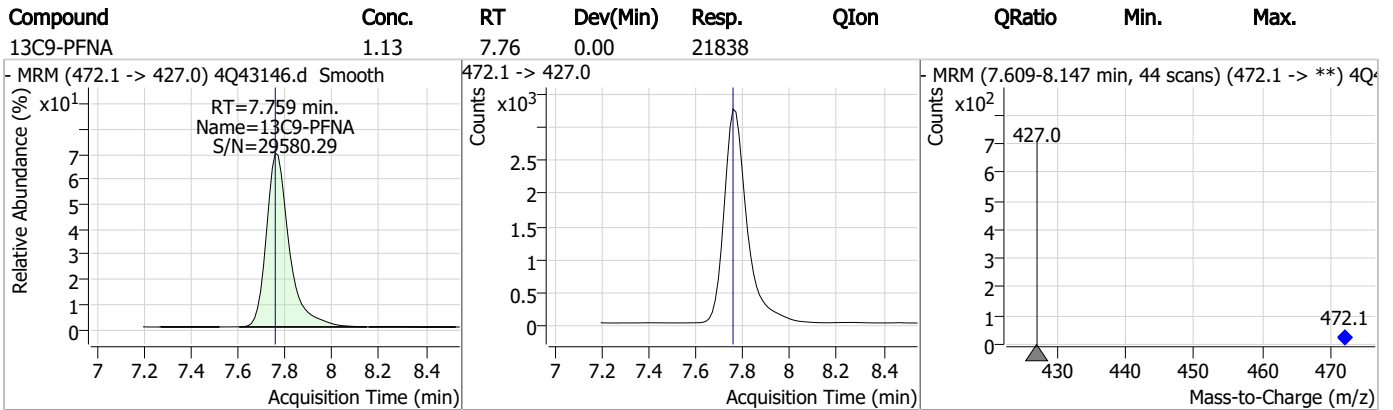
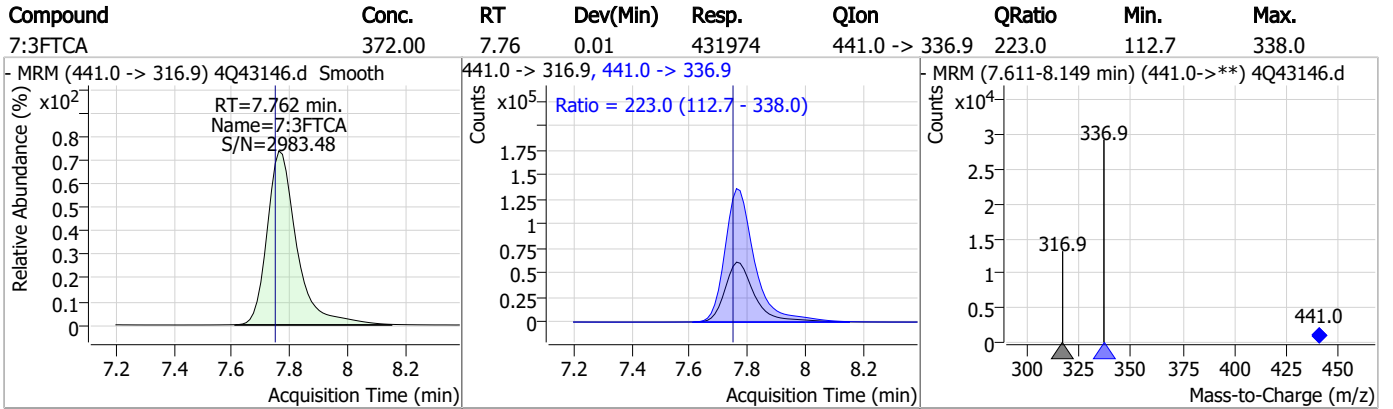
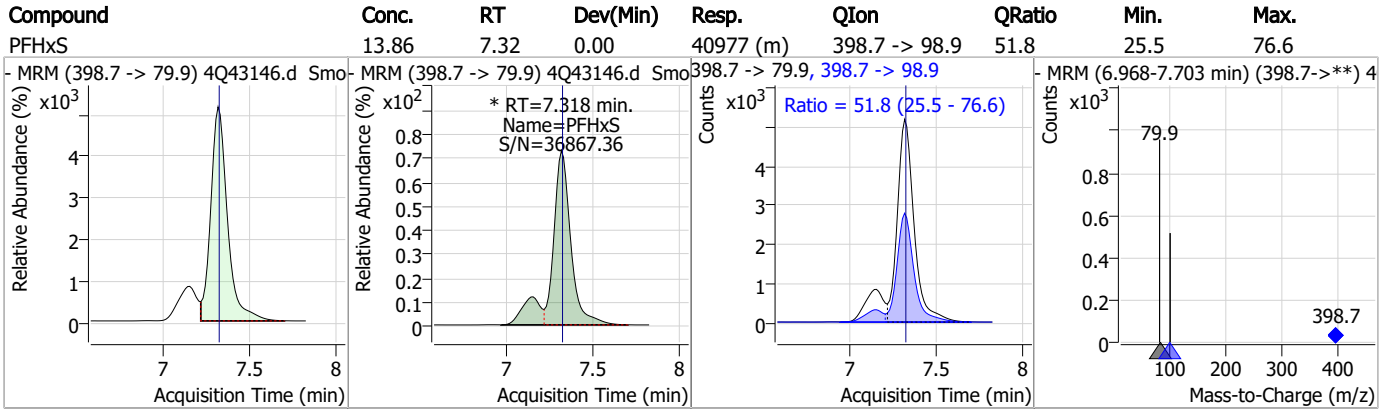
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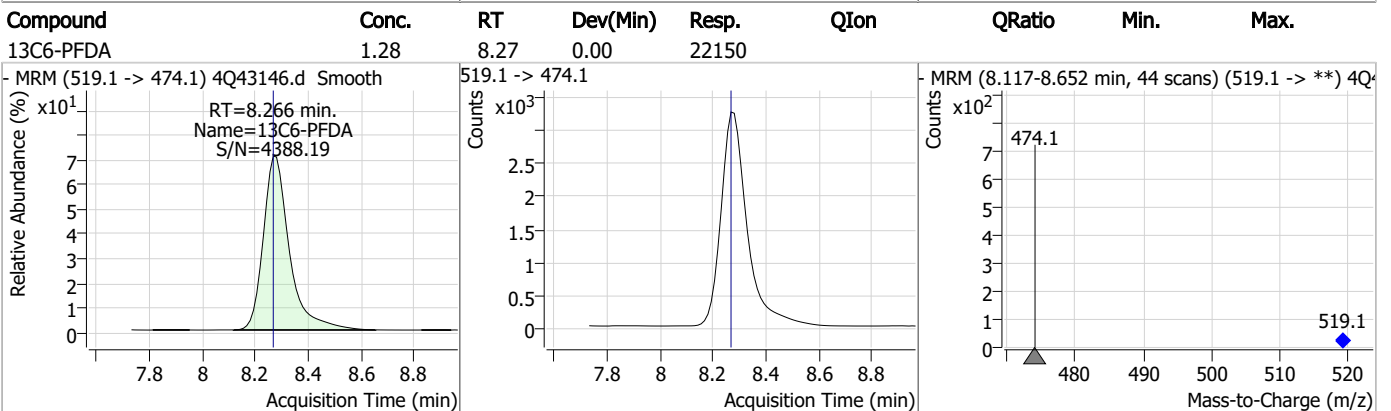
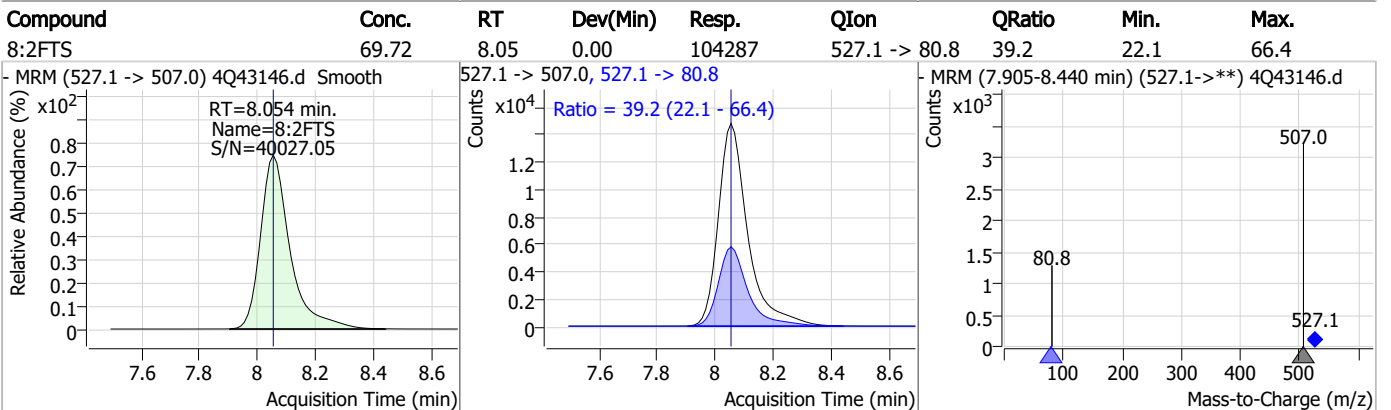
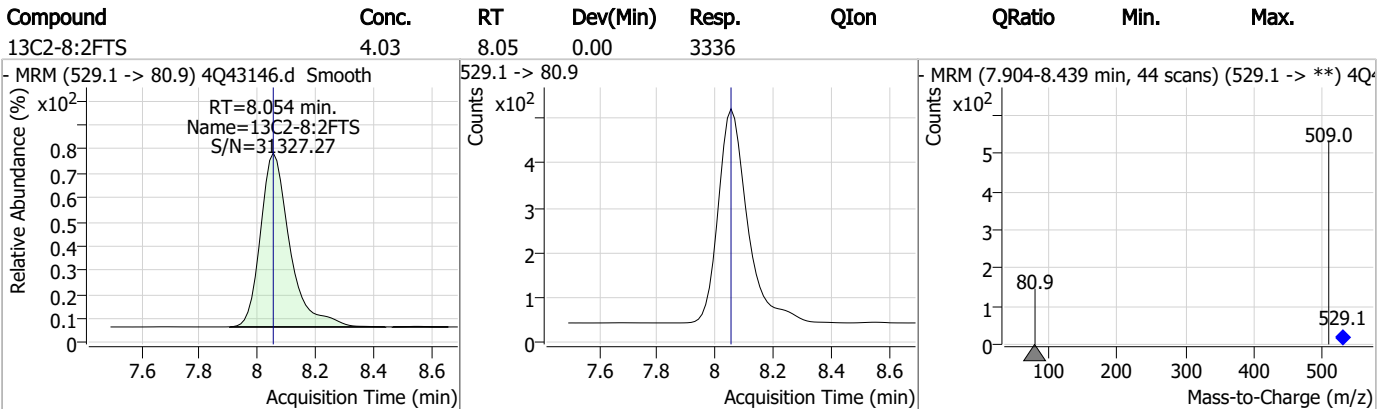
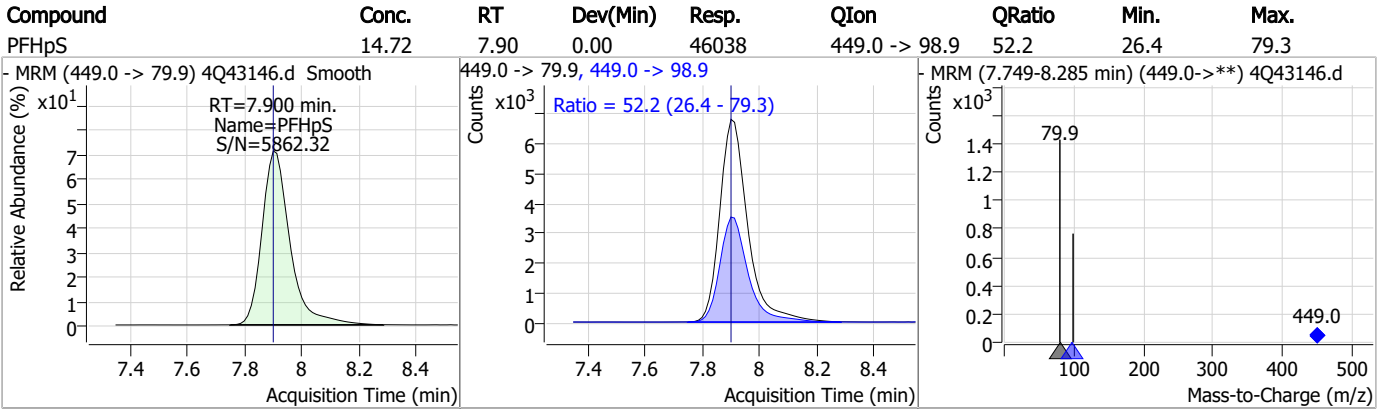
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

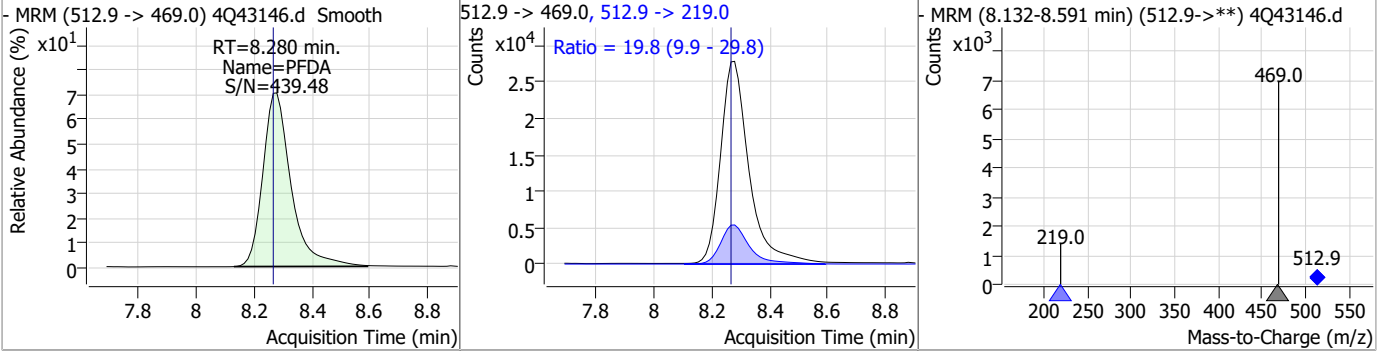


Perfluorinated Compounds by LC/MS/MS

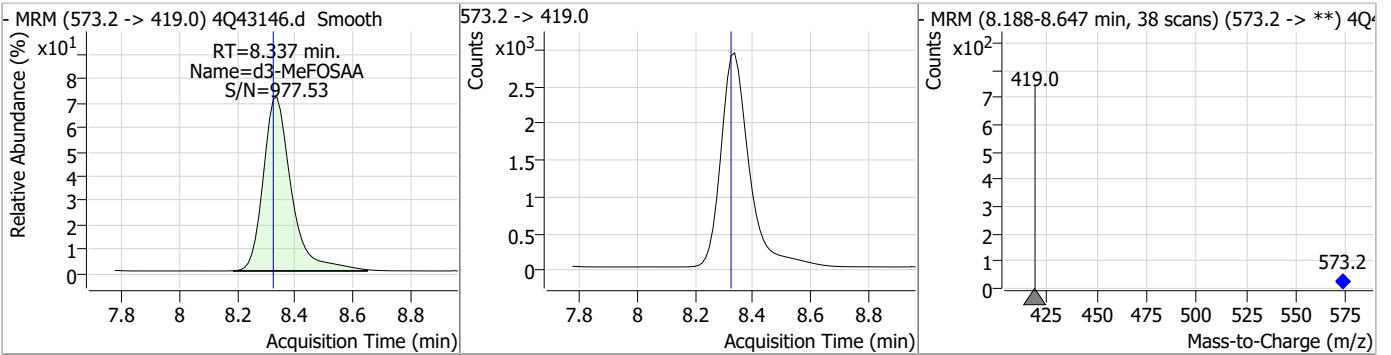


Perfluorinated Compounds by LC/MS/MS

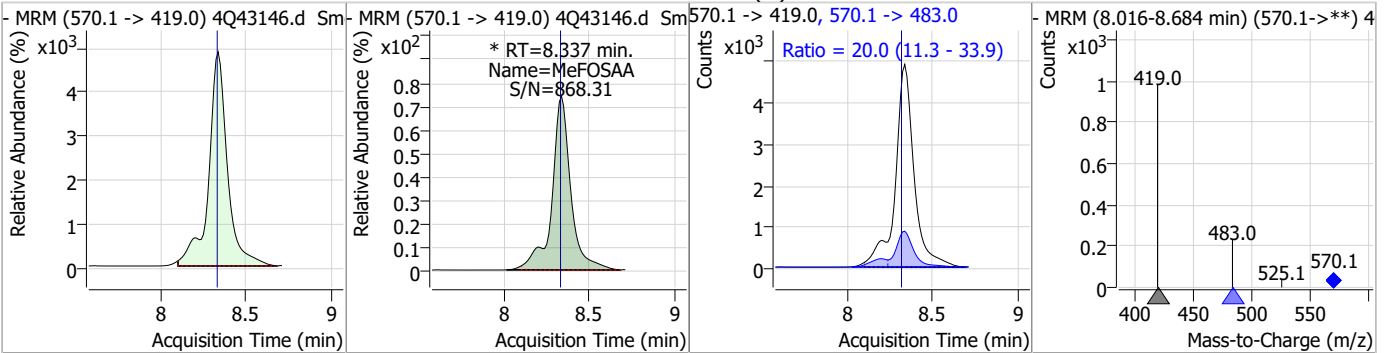
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	14.75	8.28	0.01	186807	512.9 -> 219.0	19.8	9.9	29.8



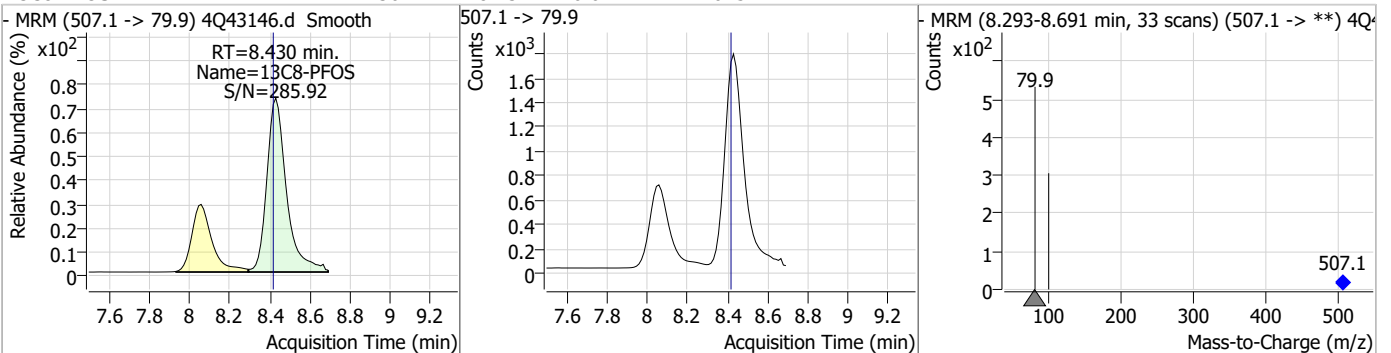
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.97	8.34	0.01	19698				



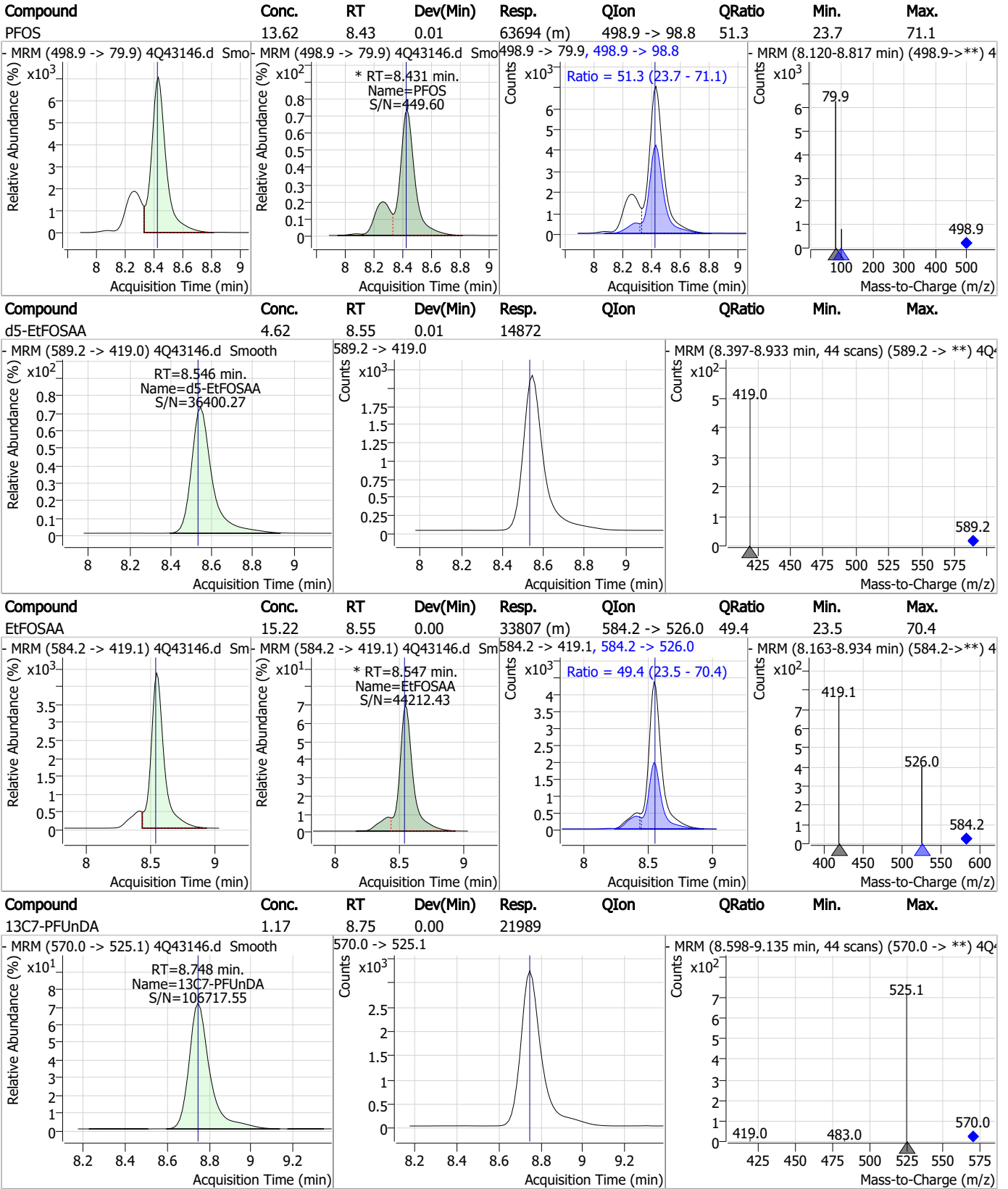
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	13.84	8.34	0.01	37563 (m)	570.1 -> 483.0	20.0	11.3	33.9



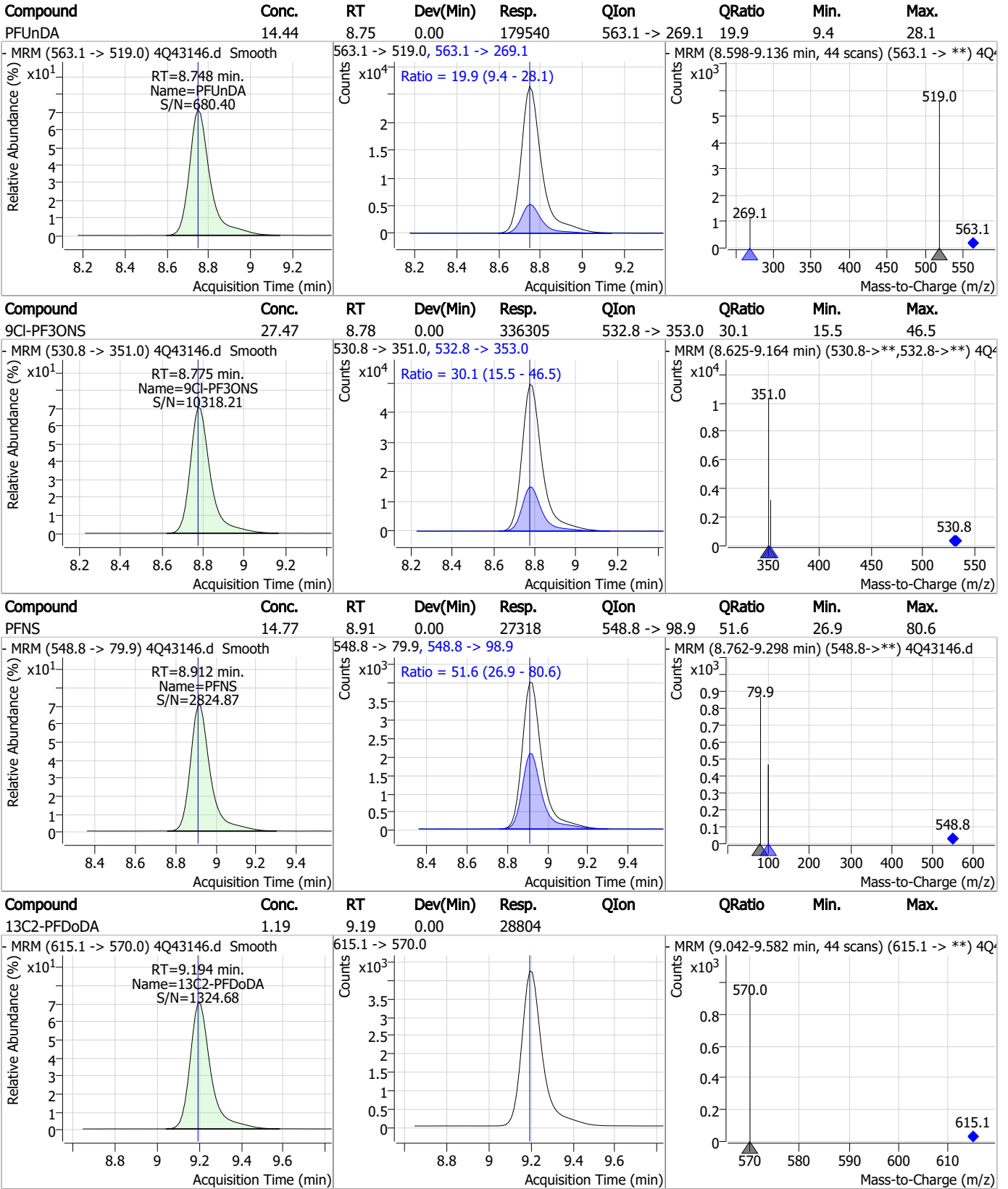
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.30	8.43	0.01	12015				



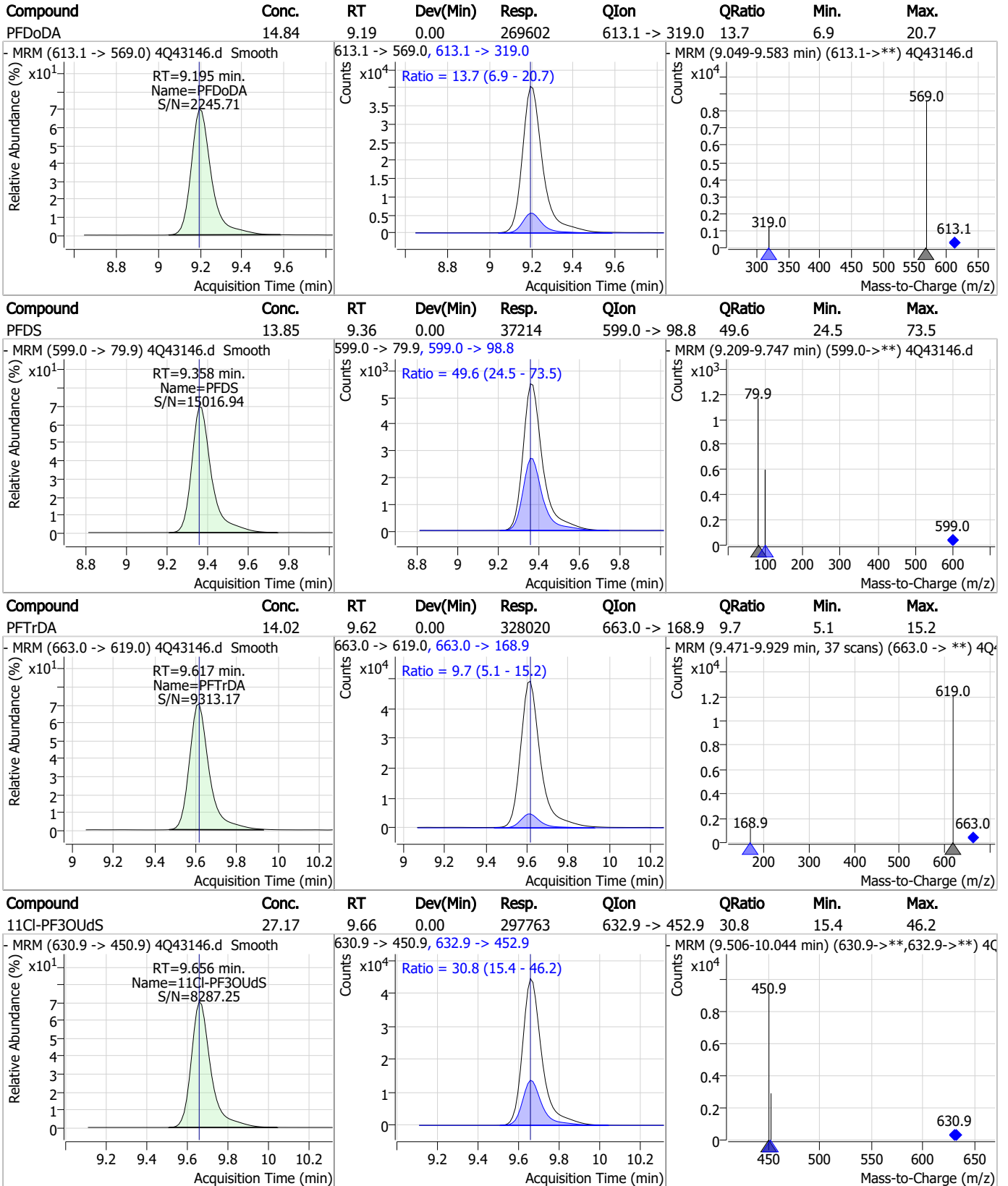
Perfluorinated Compounds by LC/MS/MS



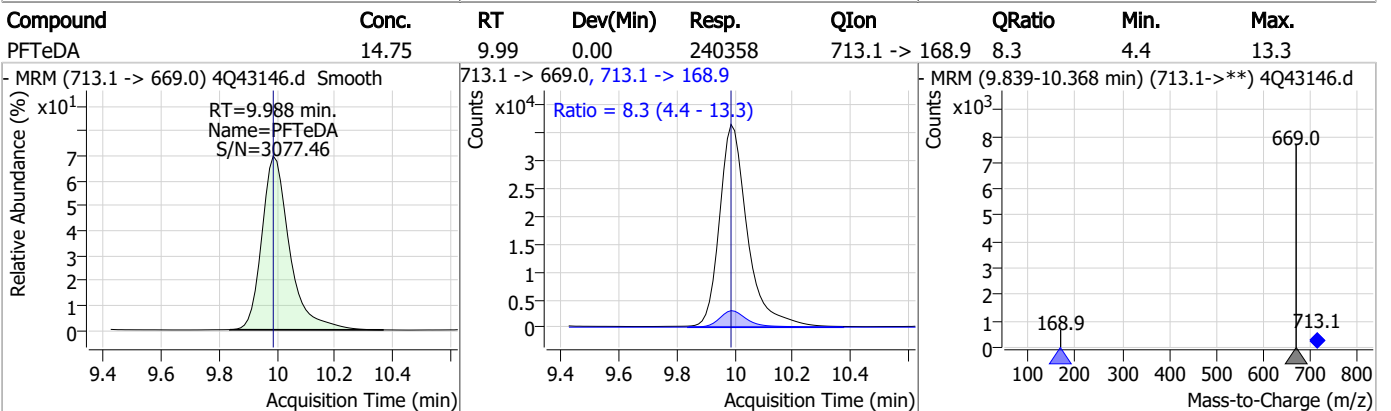
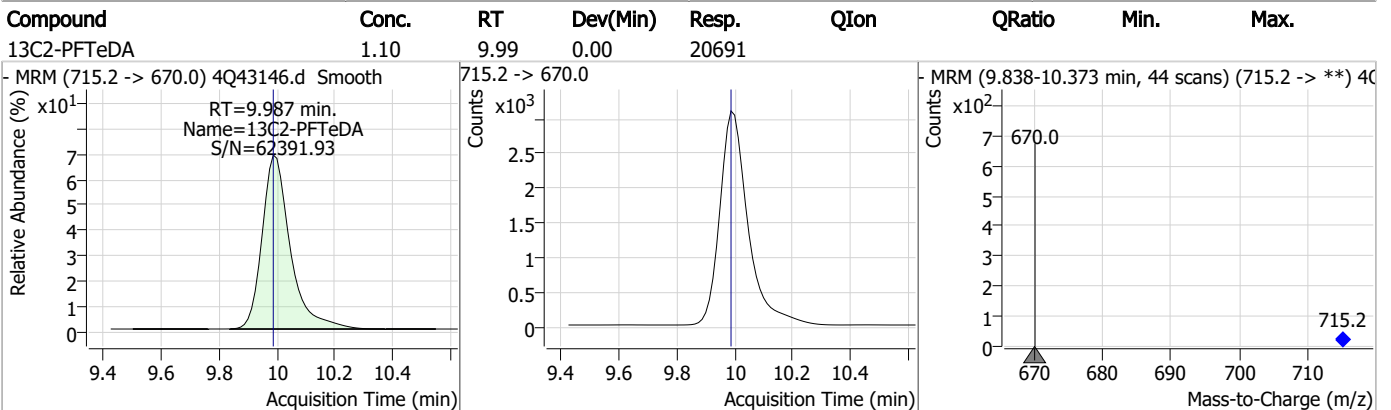
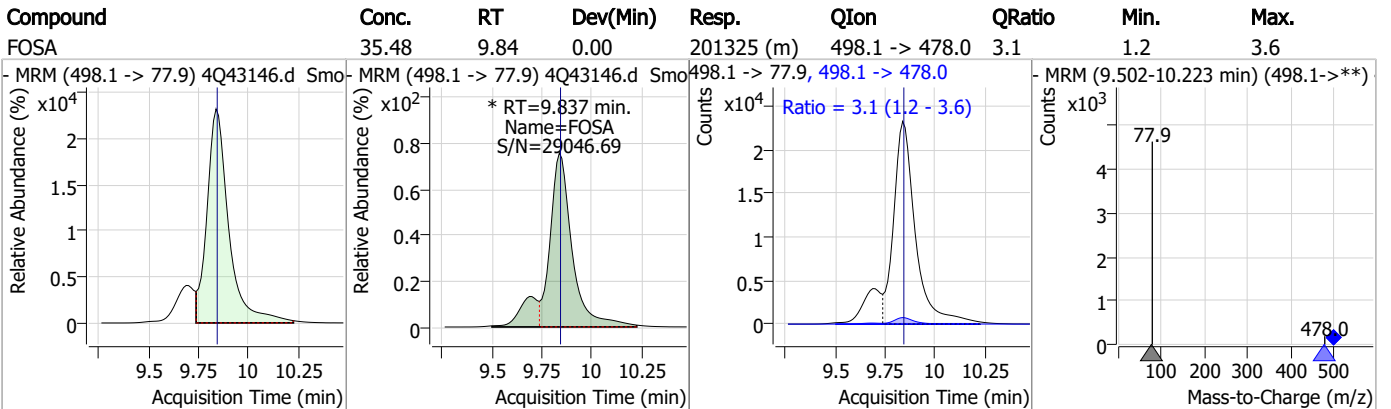
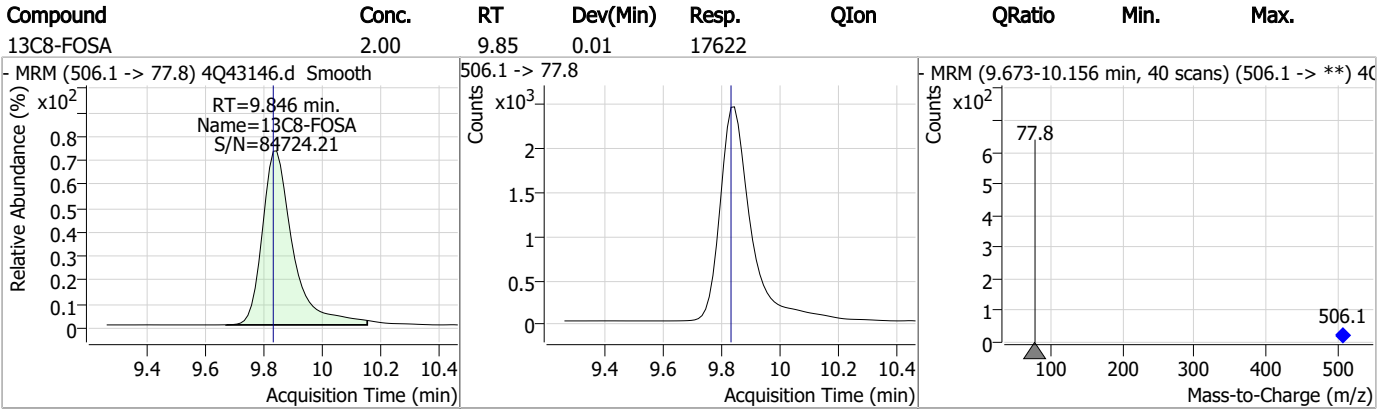
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

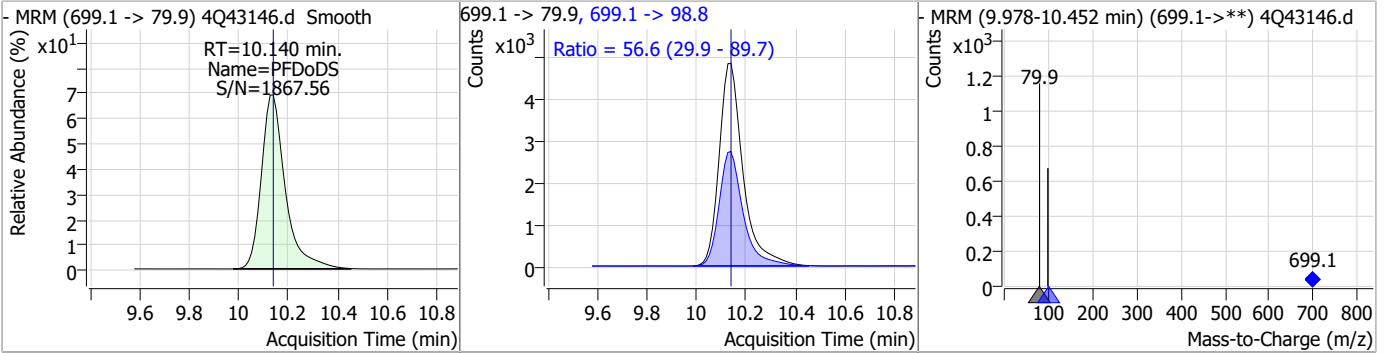


Perfluorinated Compounds by LC/MS/MS

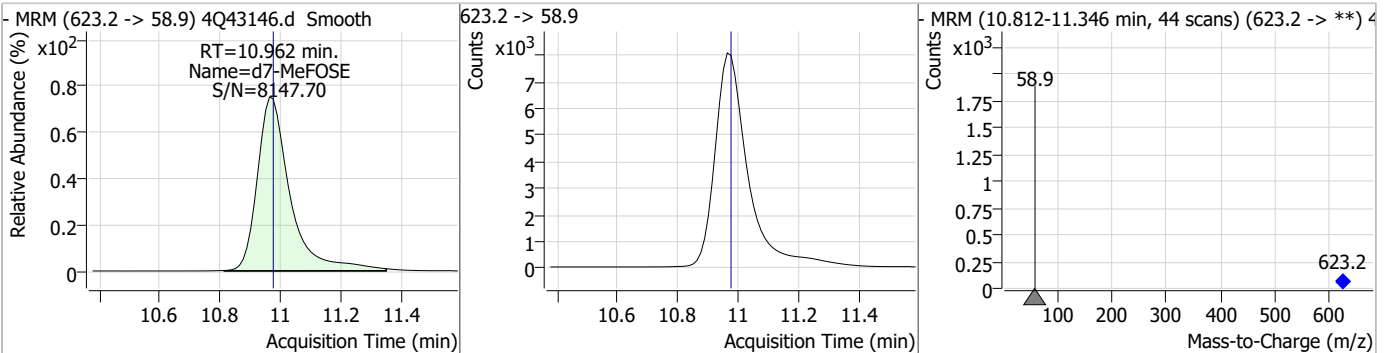


Perfluorinated Compounds by LC/MS/MS

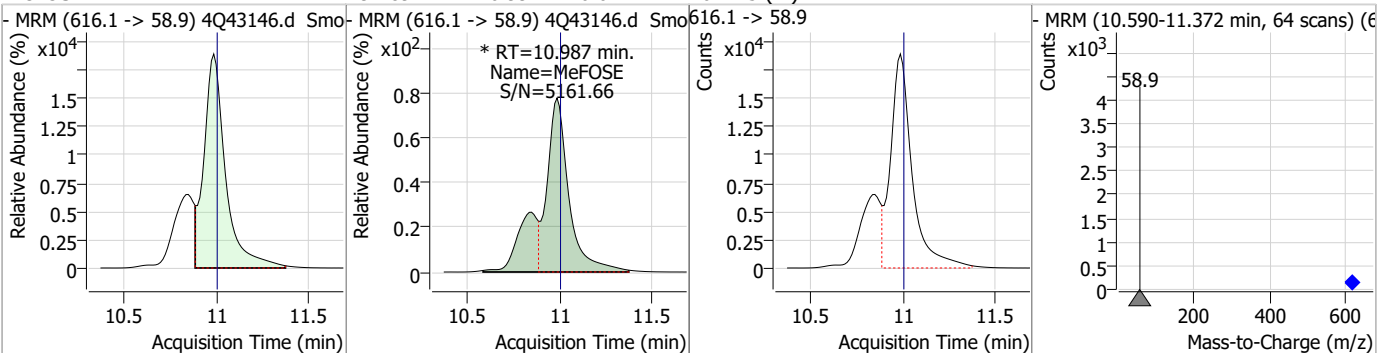
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	13.96	10.14	0.00	32431	699.1 -> 98.8	56.6	29.9	89.7



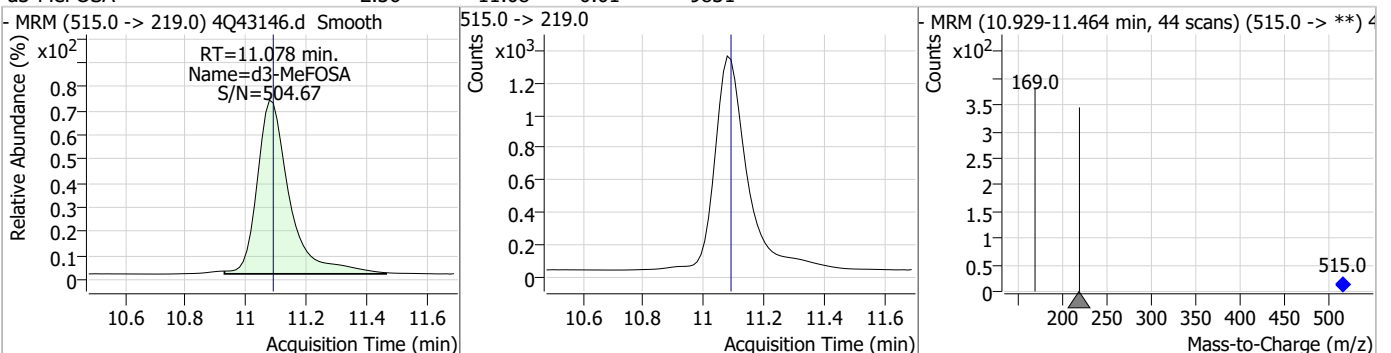
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	17.43	10.96	-0.01	60484				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	94.89	10.99	-0.01	201715 (m)				

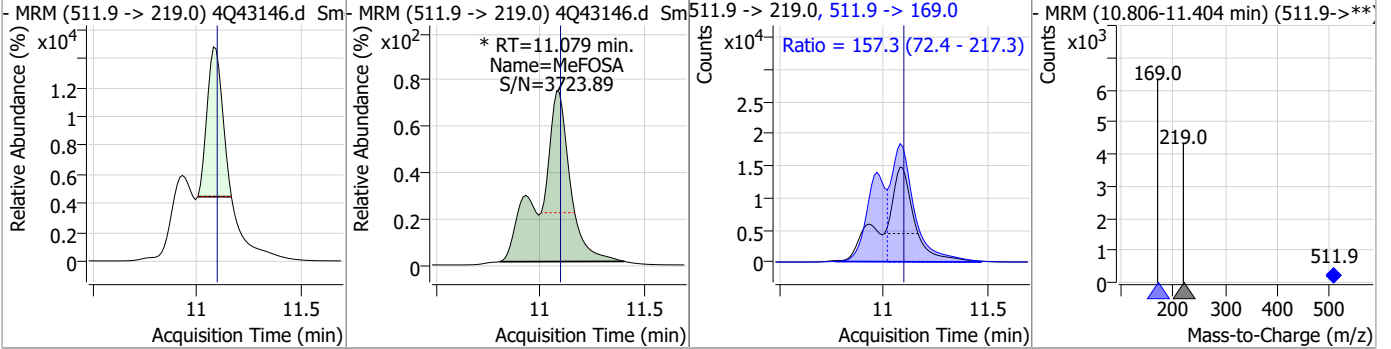


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.36	11.08	-0.01	9831				

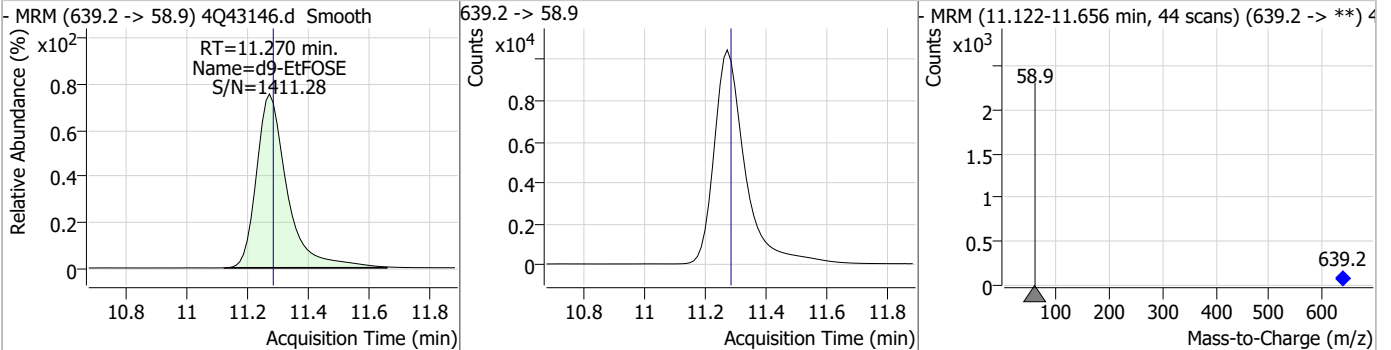


Perfluorinated Compounds by LC/MS/MS

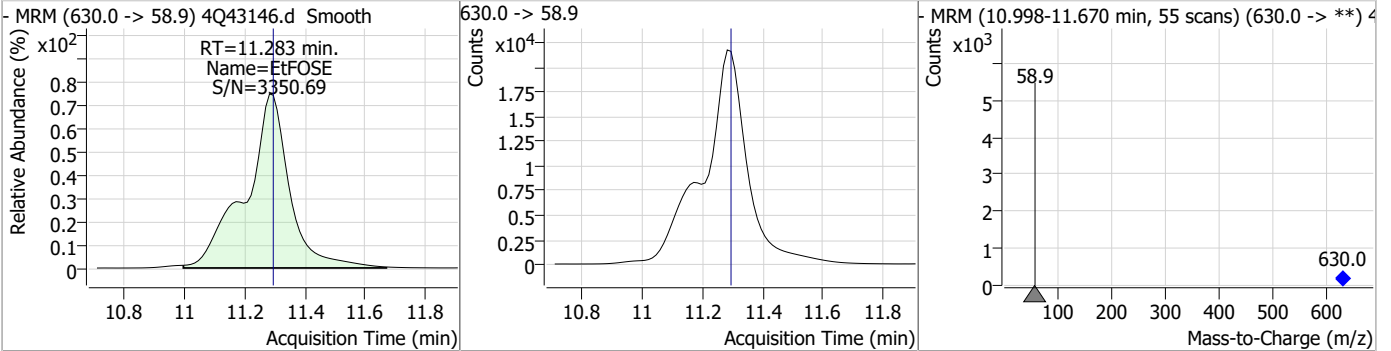
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	45.79	11.08	-0.01	145538 (m)	511.9 -> 169.0	157.3	72.4	217.3



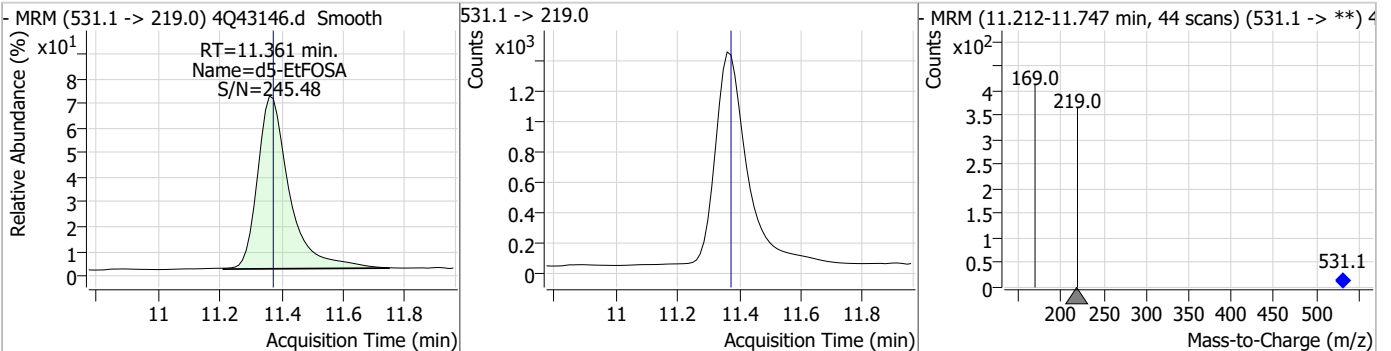
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	17.25	11.27	-0.01	73237				



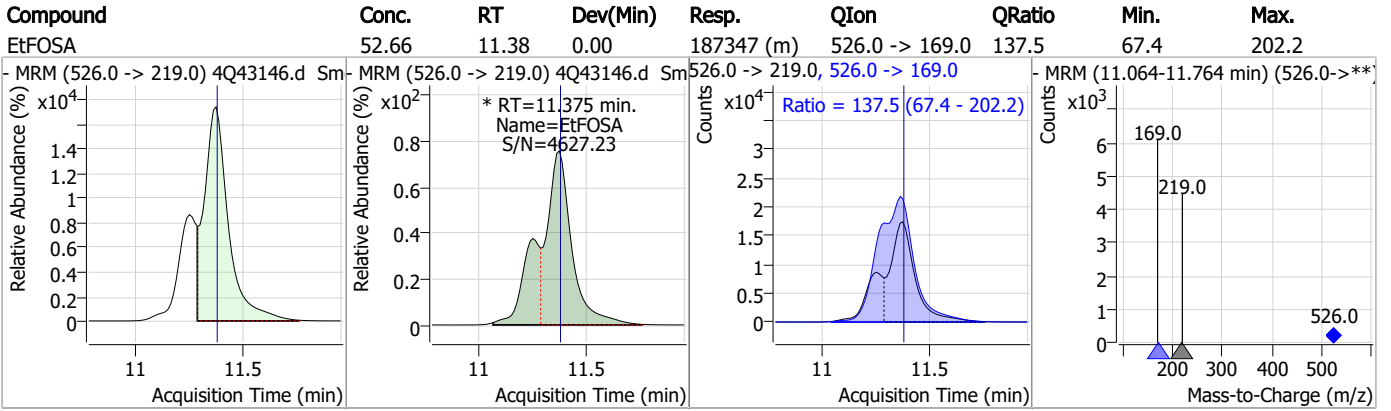
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	97.84	11.28	-0.01	220857				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.22	11.36	-0.01	9985				



Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Manual Integration Approval Summary

Sample Number: S4Q624-RT Method: EPA DRAFT 1633
Lab FileID: 4Q43146.D Analyst approved: 04/19/23 13:20 Martha Valls
Injection Time: 04/18/23 10:44 Supervisor approved: 04/19/23 16:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.21	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
Perfluorononanoic acid	375-95-1		7.76	Split peak
MeFOSAA	2355-31-9		8.34	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak
EtFOSAA	2991-50-6		8.55	Split peak
PFOSA	754-91-6		9.84	Split peak
MeFOSE	24448-09-7		10.99	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.6.4.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 04/21/23 12:28

Perfluorinated Compounds by LC/MS/MS

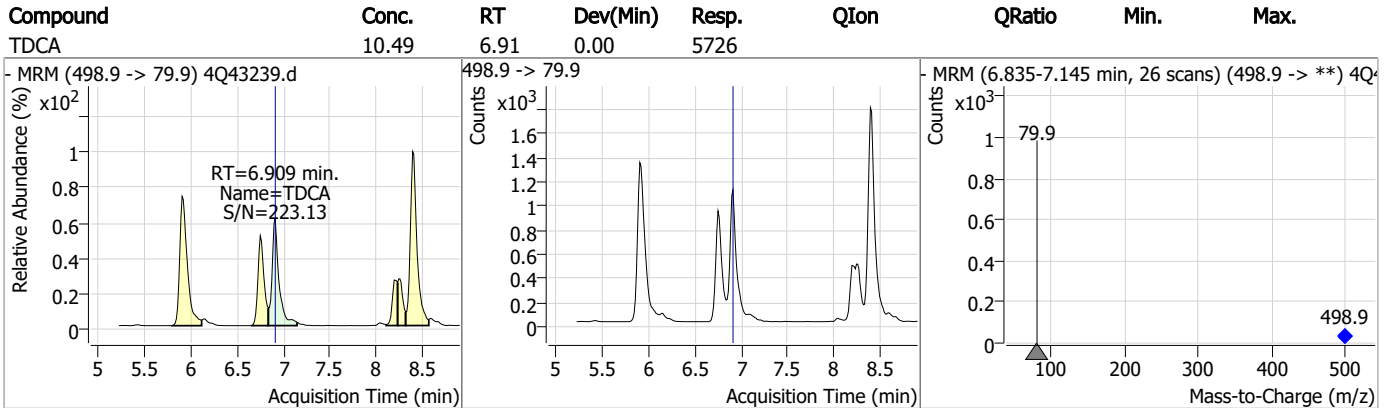
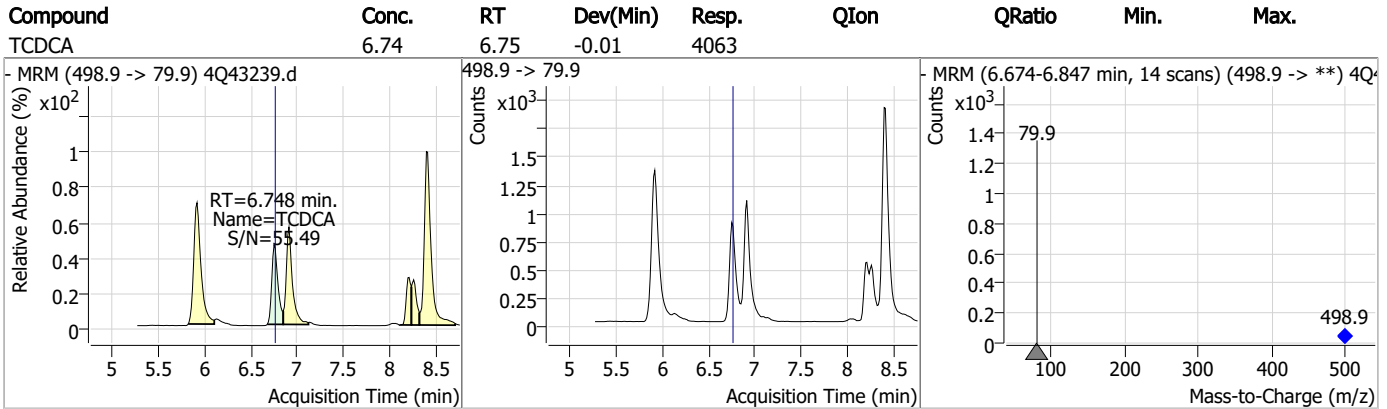
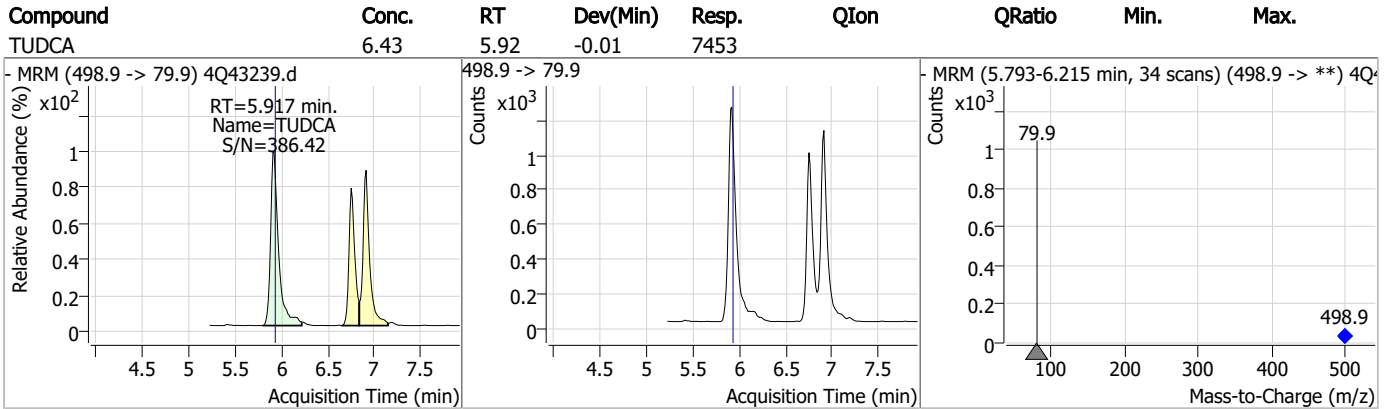
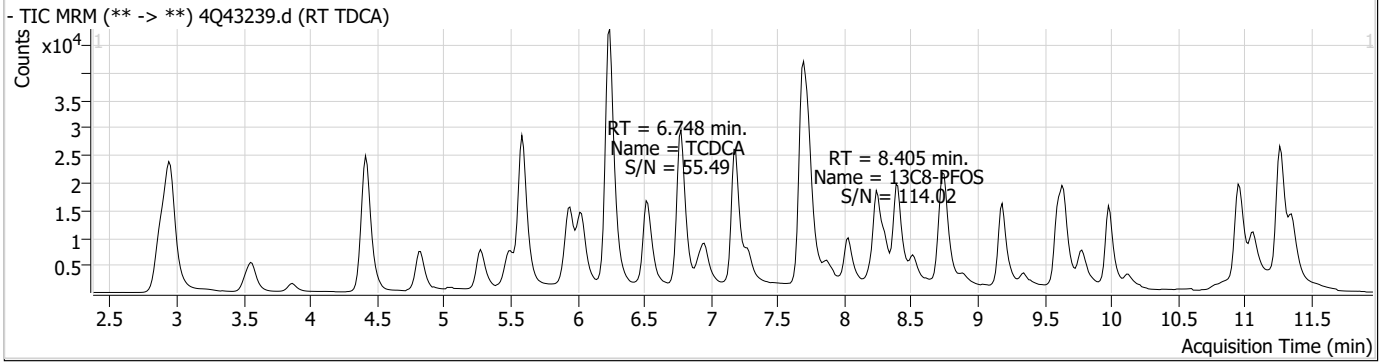
Data File : 4Q43239.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/19/2023 11:12:35 AM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s4q625_TDCA.batch.bin
 Sample Information : OP96301,S4q625,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)	QValue
Internal Standards						
M8-PFOS	8.405	507.1 -> 79.9	13065	2.50 µg/L	0.000	
13C4-PFOS	8.405	502.8 -> 79.9	14581	2.50 µg/L	0.000	
System Monitoring Compounds						
13C8-PFOS	8.405	507.1 -> 79.9	13065	2.27 µg/L	0.000	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.9%			
Target Compounds						
PFOS	8.406	498.9 -> 79.9 498.9 -> 98.8	12967 6132	2.90 µg/L	m	84
TCDCa	6.748	498.9 -> 79.9	4063	6.74 ng/ml		100
TDCA	6.909	498.9 -> 79.9	5726	10.49 ng/ml		100
TUDCA	5.917	498.9 -> 79.9	7453	6.43 ng/ml		100

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

7.6.5
7

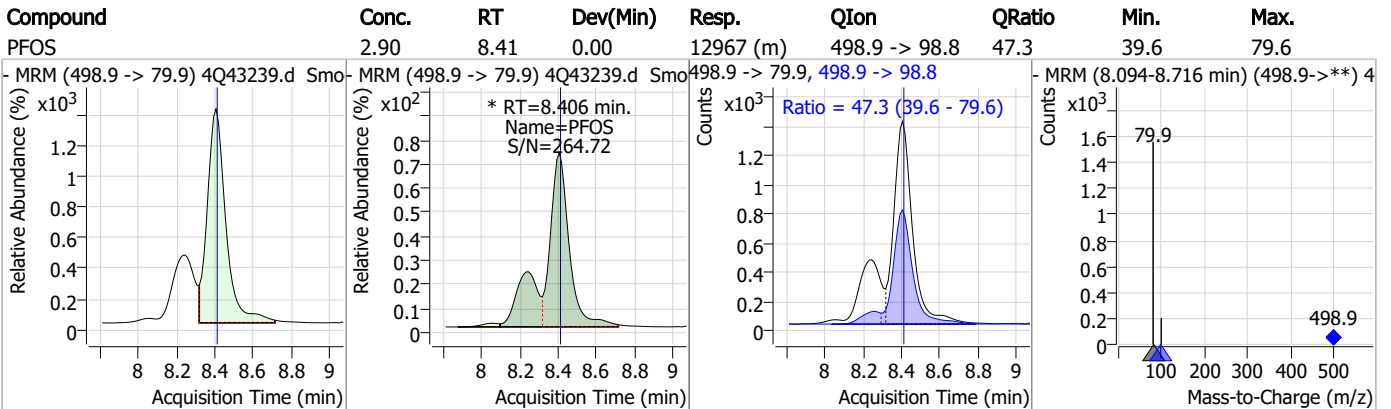
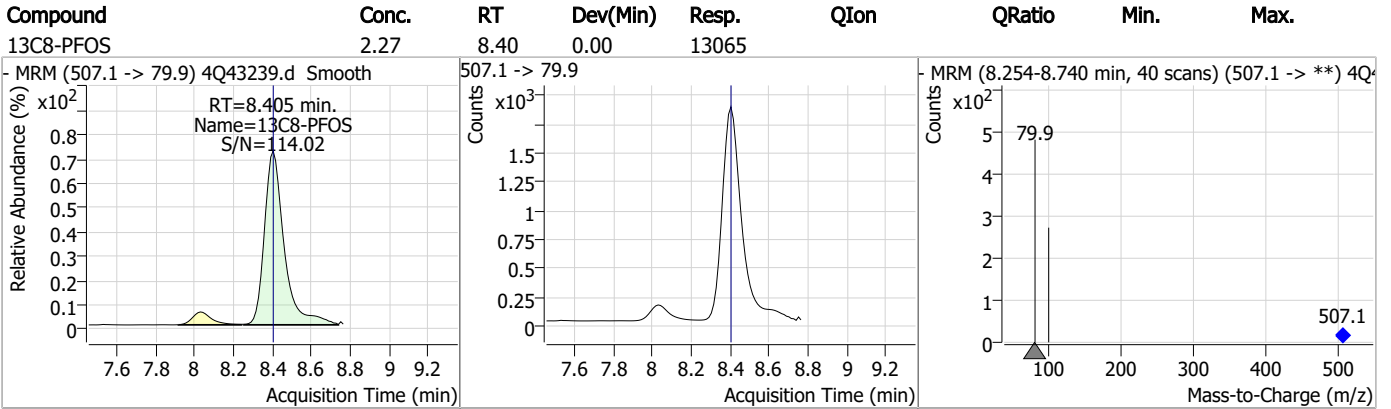
Perfluorinated Compounds by LC/MS/MS



7.6.5

7

Perfluorinated Compounds by LC/MS/MS



7.6.5

7



Manual Integration Approval Summary

Sample Number: S4Q625-RT Method: EPA DRAFT 1633
Lab FileID: 4Q43239.D Analyst approved: 04/20/23 14:17 Natasha Gumtie
Injection Time: 04/19/23 11:12 Supervisor approved: 04/21/23 12:28 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.41	Split peak

7.6.5.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43240.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/19/2023 11:26:40 AM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s6q625.batch.bin
 Sample Information : OP96301,S4q625,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.949	216.8 -> 171.9	108830	10.00 µg/L	0.012
M5-PFPeA	4.412	268.3 -> 223.0	65892	5.00 µg/L	0.000
M5-PFHxA	5.584	318.0 -> 273.0	49874	2.50 µg/L	0.000
M4-PFHpA	6.517	367.1 -> 322.0	26553	2.50 µg/L	0.000
M8-PFOA	7.188	421.1 -> 376.0	35217	2.50 µg/L	0.000
M9-PFNA	7.733	472.1 -> 427.0	20555	1.25 µg/L	0.000
M6-PFDA	8.240	519.1 -> 474.1	19239	1.25 µg/L	0.000
M7-PFUnDA	8.722	570.0 -> 525.1	21930	1.25 µg/L	0.000
M2-PFDoDA	9.180	615.1 -> 570.0	26103	1.25 µg/L	0.000
M2-PFTeDA	9.974	715.2 -> 670.0	22373	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	17700	2.50 µg/L	0.000
M3-PFBS	5.502	302.1 -> 79.9	11360	2.50 µg/L	0.000
M3-PFHxS	7.291	402.1 -> 79.9	6637	2.50 µg/L	0.000
M8-PFOS	8.392	507.1 -> 79.9	10181	2.50 µg/L	0.000
M2-4:2FTS	5.273	329.1 -> 80.9	1281	5.00 µg/L	0.000
M2-6:2FTS	6.948	429.1 -> 80.9	1994	5.00 µg/L	0.000
M2-8:2FTS	8.027	529.1 -> 80.9	3330	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	16870	5.00 µg/L	0.000
M3-HFPO-DA	5.952	286.9 -> 168.9	34042	10.00 µg/L	0.000
M5-EtFOSAA	8.507	589.2 -> 419.0	13267	5.00 µg/L	0.000
M7-MeFOSE	10.947	623.2 -> 58.9	73693	25.00 µg/L	-0.012
M9-EtFOSE	11.256	639.2 -> 58.9	94990	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	9936	2.50 µg/L	-0.012
M3-MeFOSA	11.064	515.0 -> 219.0	9471	2.50 µg/L	0.000
13C4-PFOS	8.393	502.8 -> 79.9	10164	2.50 µg/L	-0.012
13C3-PFBA	2.941	216.0 -> 172.0	60414	5.00 µg/L	0.000
18O2-PFHxS	7.290	403.0 -> 83.9	4813	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	42888	2.50 µg/L	0.000
13C2-PFDA	8.241	515.1 -> 470.1	18107	1.25 µg/L	0.000
13C5-PFNA	7.734	468.0 -> 423.0	24047	1.25 µg/L	0.000
13C2-PFHxA	5.585	315.1 -> 270.0	43382	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.273	329.1 -> 80.9	1281	4.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.7%		
13C2-6:2FTS	6.948	429.1 -> 80.9	1994	4.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.7%		
13C2-8:2FTS	8.027	529.1 -> 80.9	3330	4.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 82.6%		
13C2-PFDoDA	9.180	615.1 -> 570.0	26103	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C2-PFTeDA	9.974	715.2 -> 670.0	22373	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C3-PFBS	5.502	302.1 -> 79.9	11360	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C3-PFHxS	7.291	402.1 -> 79.9	6637	2.42 µg/L	0.000

7.6.6
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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 = 96.6%	
13C4-PFBA	2.949	216.8 -> 171.9	108830	10.00 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.517	367.1 -> 322.0	26553	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C5-PFHxA	5.584	318.0 -> 273.0	49874	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C5-PFPeA	4.412	268.3 -> 223.0	65892	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C6-PFDA	8.240	519.1 -> 474.1	19239	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C7-PFUnDA	8.722	570.0 -> 525.1	21930	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-FOSA	9.783	506.1 -> 77.8	17700	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C8-PFOA	7.188	421.1 -> 376.0	35217	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C8-PFOS	8.392	507.1 -> 79.9	10181	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C9-PFNA	7.733	472.1 -> 427.0	20555	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.9%	
d3-MeFOSAA	8.298	573.2 -> 419.0	16870	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C3-HFPO-DA	5.952	286.9 -> 168.9	34042	10.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
d3-MeFOSA	11.064	515.0 -> 219.0	9471	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
d5-EtFOSAA	8.507	589.2 -> 419.0	13267	4.73 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
d7-MeFOSE	10.947	623.2 -> 58.9	73693	23.64 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
d9-EtFOSE	11.256	639.2 -> 58.9	94990	23.79 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
d5-EtFOSA	11.348	531.1 -> 219.0	9936	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
Target Compounds					QValue
4:2FTS	5.273	327.1 -> 307.0	95398	58.21 µg/L	96
		327.1 -> 80.9	39983		
6:2FTS	6.949	427.1 -> 407.0	87073	57.12 µg/L	96
		427.1 -> 80.9	36423		
8:2FTS	8.028	527.1 -> 507.0	106962	65.16 µg/L	96
		527.1 -> 80.8	41240		
EtFOSAA	8.508	584.2 -> 419.1	31011	16.37 µg/L	m 94
		584.2 -> 526.0	15060		
FOSA	9.774	498.1 -> 77.9	202735	33.87 µg/L	m 100
		498.1 -> 478.0	5652		
MeFOSAA	8.299	570.1 -> 419.0	34500	14.33 µg/L	m 96
		570.1 -> 483.0	7225		
PFBA	2.945	212.8 -> 168.9	152804	60.52 µg/L	100
PFBS	5.490	298.7 -> 79.9	58020	12.91 µg/L	97
		298.7 -> 98.8	22190		
PFDA	8.241	512.9 -> 469.0	186177	15.77 µg/L	99
		512.9 -> 219.0	36797		
PFDoDA	9.181	613.1 -> 569.0	263185	15.32 µg/L	98
		613.1 -> 319.0	38267		
PFDS	9.344	599.0 -> 79.9	34553	14.52 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	17065			
PFHpA	6.517	363.1 -> 319.0	217083	15.55	µg/L	100
		363.1 -> 169.0	37559			
PFHpS	7.873	449.0 -> 79.9	40692	13.89	µg/L	98
		449.0 -> 98.9	21076			
PFHxA	5.587	313.0 -> 269.0	244480	15.56	µg/L	100
		313.0 -> 118.9	7889			
PFHxS	7.280	398.7 -> 79.9	33730	13.87	µg/L	m 95
		398.7 -> 98.9	17114			
PFNA	7.734	463.0 -> 419.0	327276	27.96	µg/L	m 98
		463.0 -> 219.0	87913			
PFNS	8.886	548.8 -> 79.9	25703	14.25	µg/L	93
		548.8 -> 98.9	13215			
PFOA	7.189	413.0 -> 369.0	504779	32.18	µg/L	m 99
		413.0 -> 169.0	108009			
PFOS	8.394	498.9 -> 79.9	54372	13.93	µg/L	m 99
		498.9 -> 98.8	27363			
PFPeA	4.414	263.0 -> 219.0	403270	30.64	µg/L	100
PFPeS	6.557	349.1 -> 79.9	31636	15.07	µg/L	97
		349.1 -> 98.9	13618			
PFTeDA	9.974	713.1 -> 669.0	270788	14.90	µg/L	99
		713.1 -> 168.9	21972			
PFTrDA	9.591	663.0 -> 619.0	339019	15.86	µg/L	99
		663.0 -> 168.9	32951			
PFUnDA	8.722	563.1 -> 519.0	178201	14.36	µg/L	98
		563.1 -> 269.1	35155			
11CI-PF3OUdS	9.643	630.9 -> 450.9	275249	28.07	µg/L	99
		632.9 -> 452.9	84165			
9CI-PF3ONS	8.749	530.8 -> 351.0	296507	28.15	µg/L	98
		532.8 -> 353.0	90882			
ADONA	6.781	376.9 -> 250.9	670429	27.40	µg/L	97
		376.9 -> 84.8	184311			
HFPO-DA	5.953	284.9 -> 168.9	81916	30.46	µg/L	97
		284.9 -> 184.9	9989			
3:3FTCA	3.867	241.0 -> 177.0	47009	75.02	µg/L	100
		241.0 -> 117.0	4352			
5:3FTCA	6.231	341.0 -> 237.1	899689	384.13	µg/L	100
		341.0 -> 217.0	643983			
7:3FTCA	7.686	441.0 -> 316.9	440886	385.77	µg/L	99
		441.0 -> 336.9	977716			
EtFOSA	11.362	526.0 -> 219.0	181897	49.06	µg/L	m 96
		526.0 -> 169.0	247539			
EtFOSE	11.270	630.0 -> 58.9	284233	93.84	µg/L	100
MeFOSA	11.065	511.9 -> 219.0	152907	48.28	µg/L	m 98
		511.9 -> 169.0	225148			
MeFOSE	10.973	616.1 -> 58.9	254519	97.12	µg/L	m 100
PFDoDS	10.126	699.1 -> 79.9	31232	14.45	µg/L	97
		699.1 -> 98.8	17404			
NFDHA	5.465	295.0 -> 201.0	26182	30.77	µg/L	95
		295.0 -> 84.9	6669			
PFMBA	4.816	279.0 -> 85.1	229201	30.50	µg/L	100
PFMPA	3.553	229.0 -> 84.9	204863	30.67	µg/L	100
PFEESA	6.034	314.8 -> 134.9	351885	27.30	µg/L	99
		314.8 -> 82.9	11578			

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

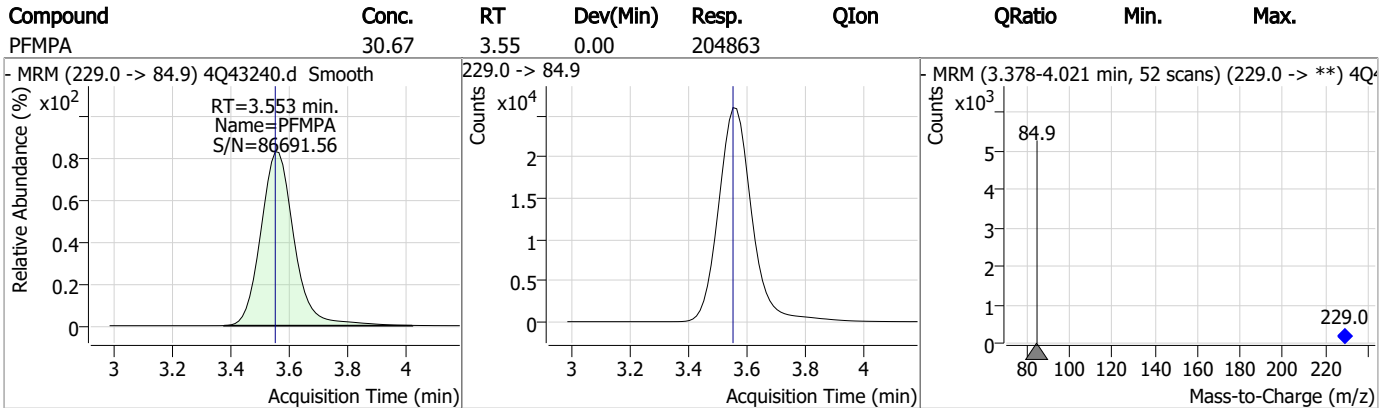
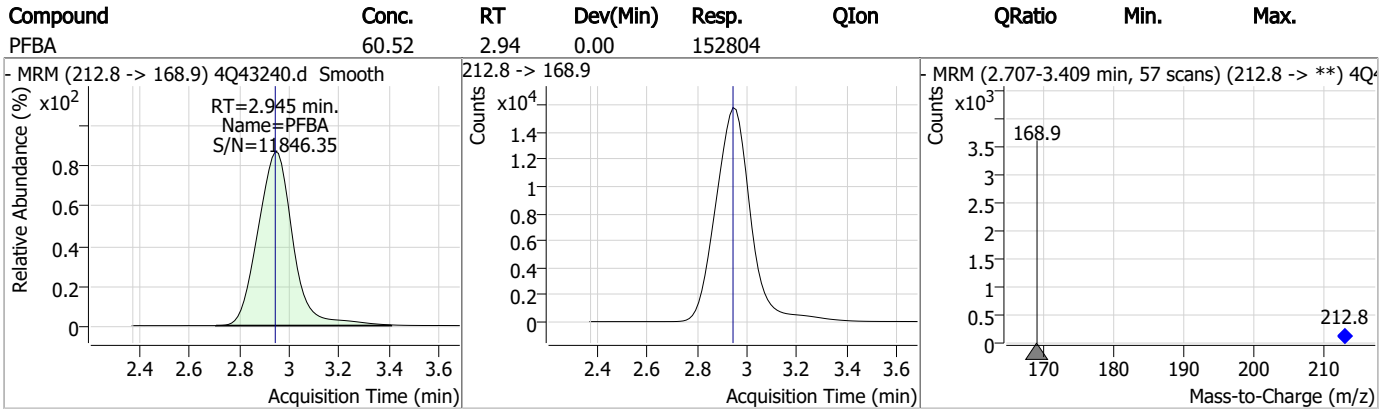
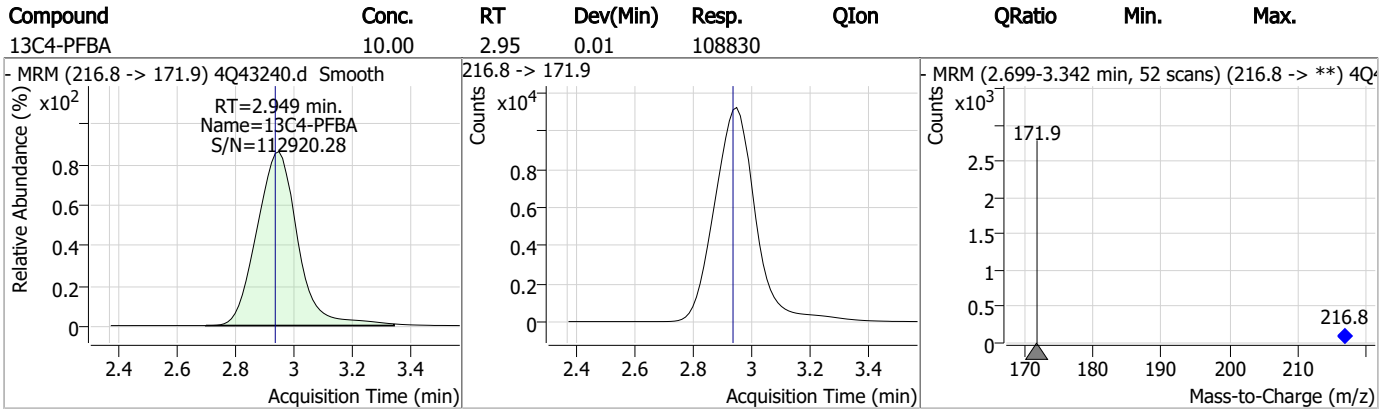
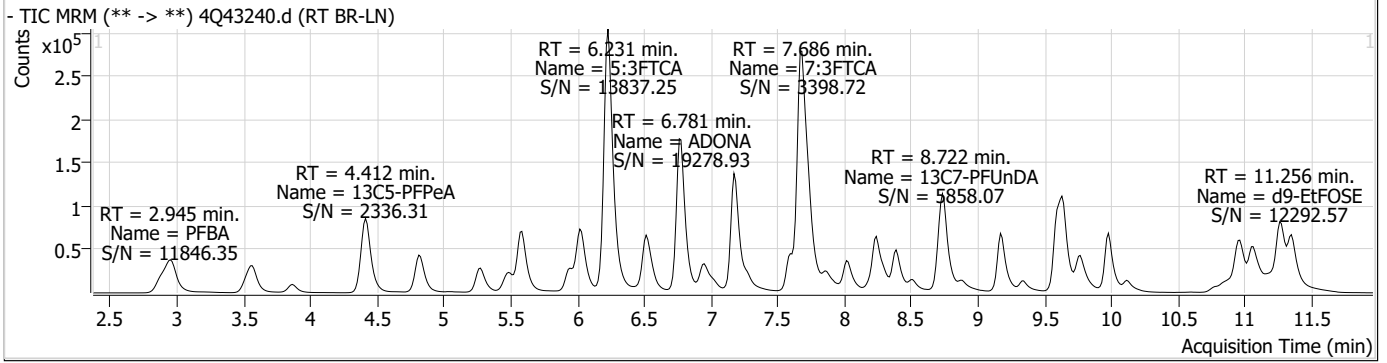
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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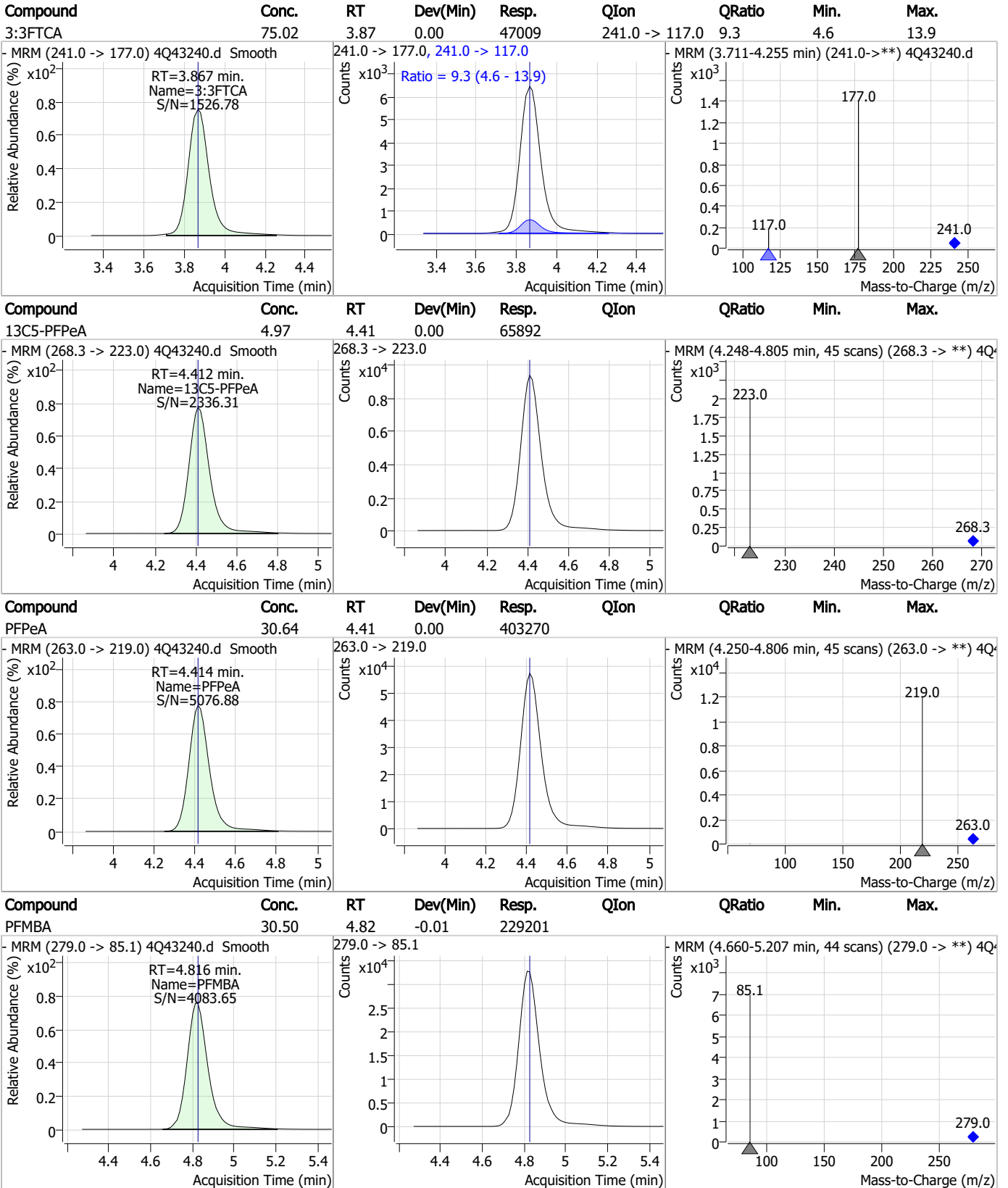
7.6.6

7

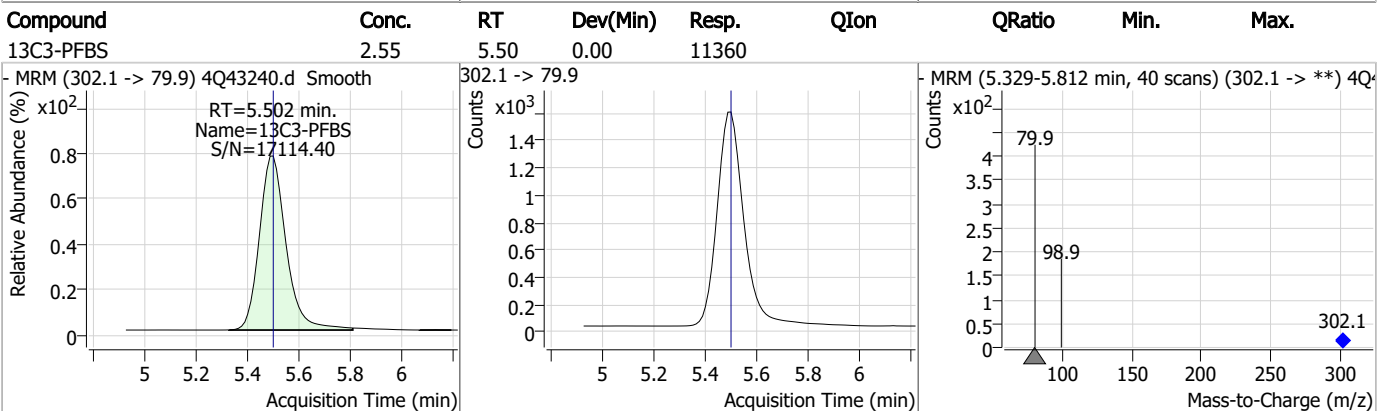
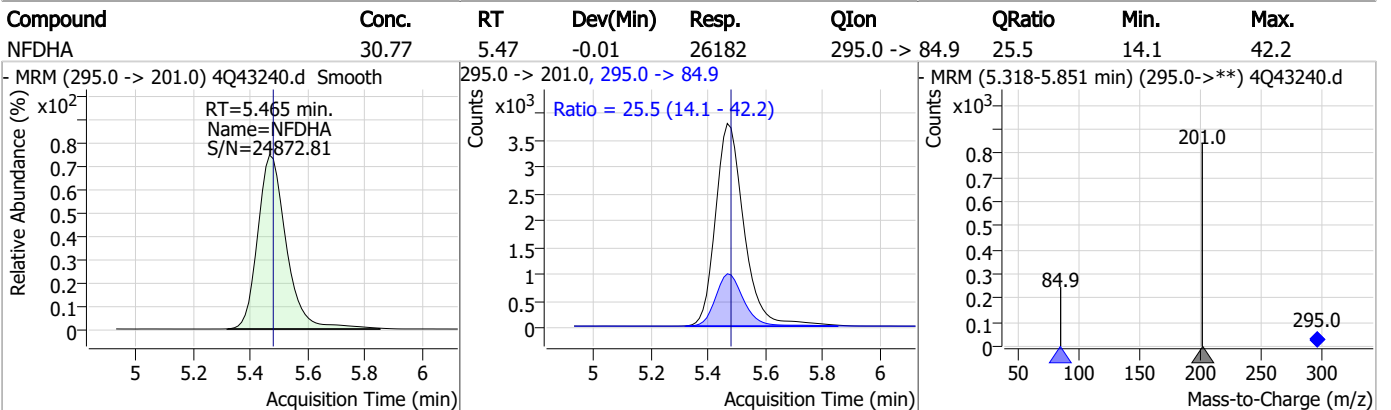
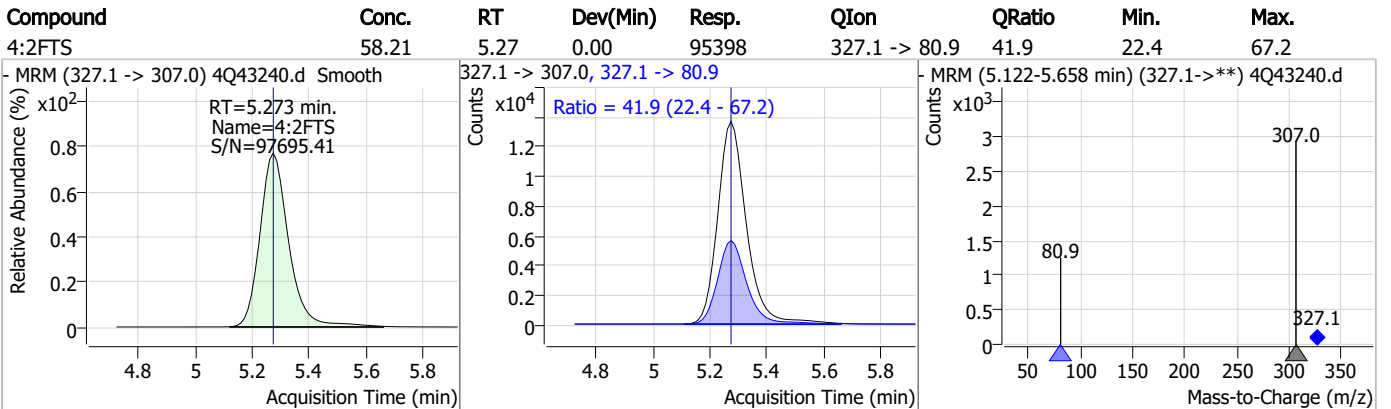
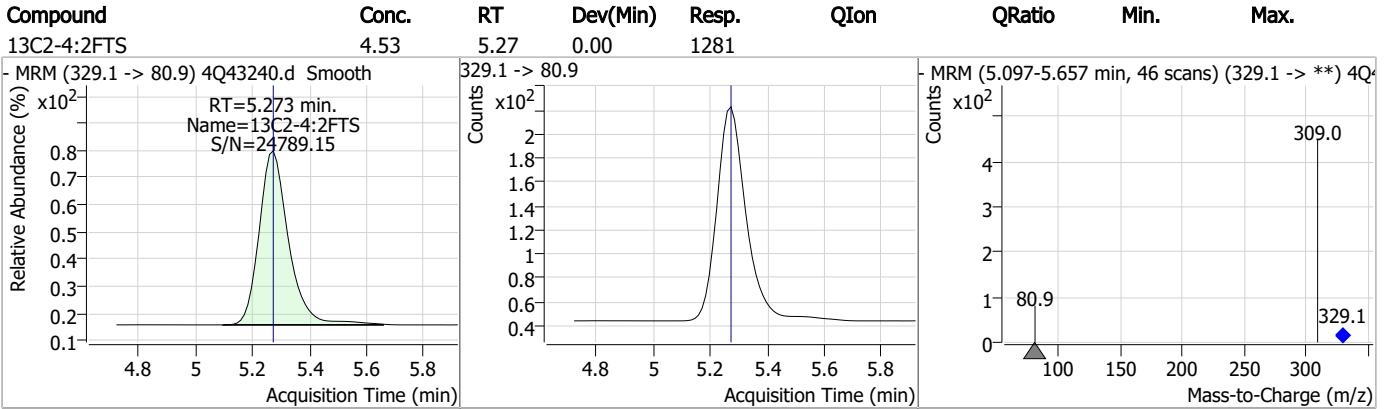
Perfluorinated Compounds by LC/MS/MS



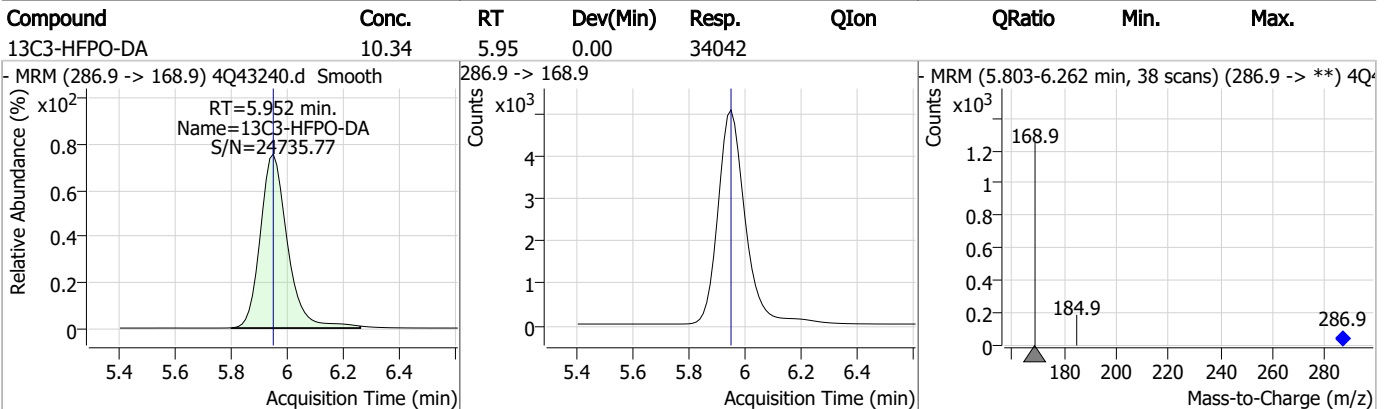
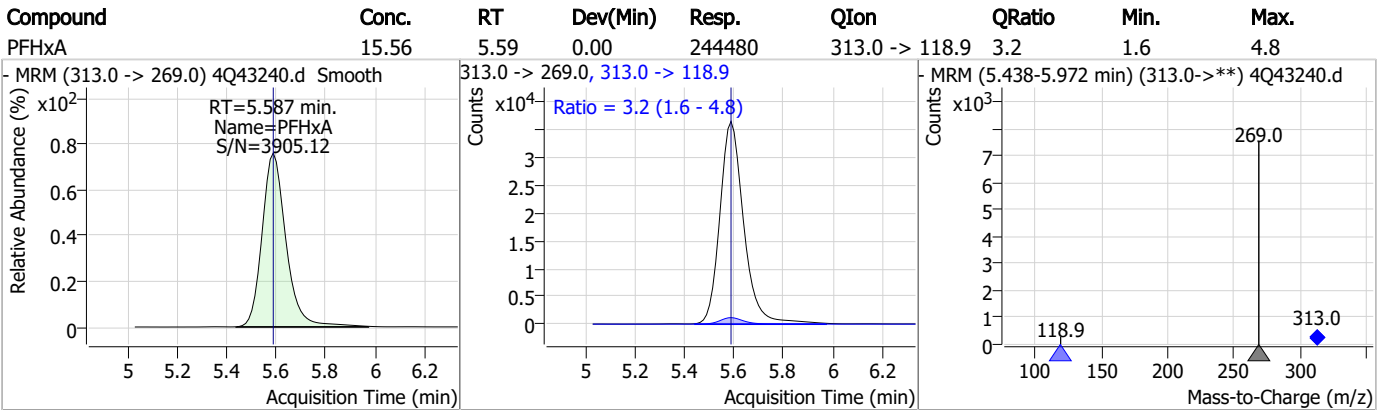
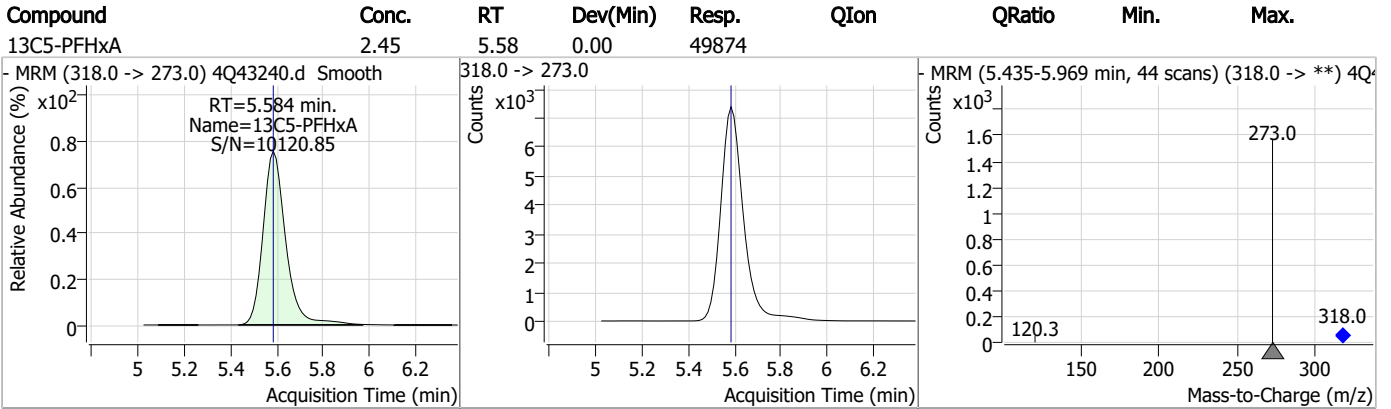
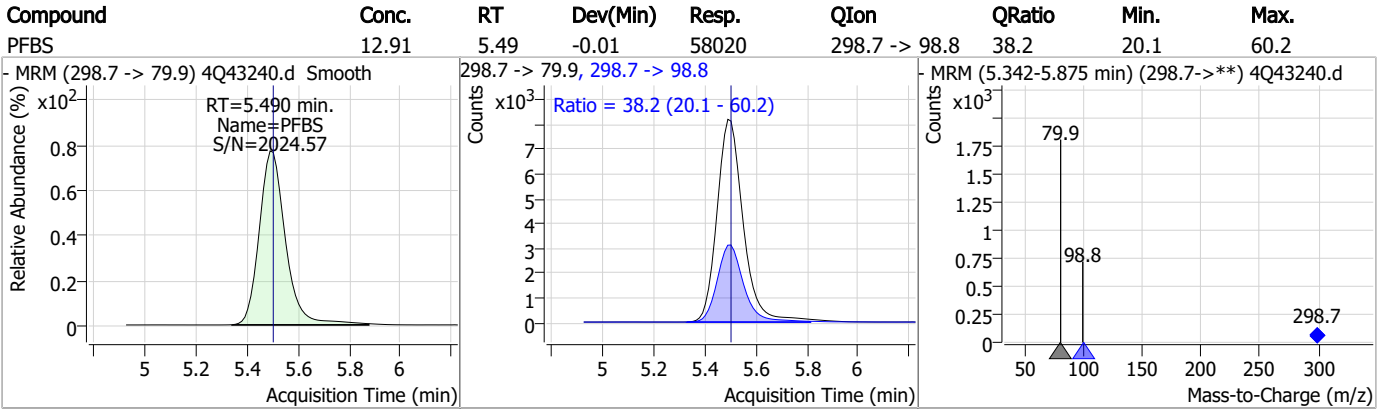
Perfluorinated Compounds by LC/MS/MS



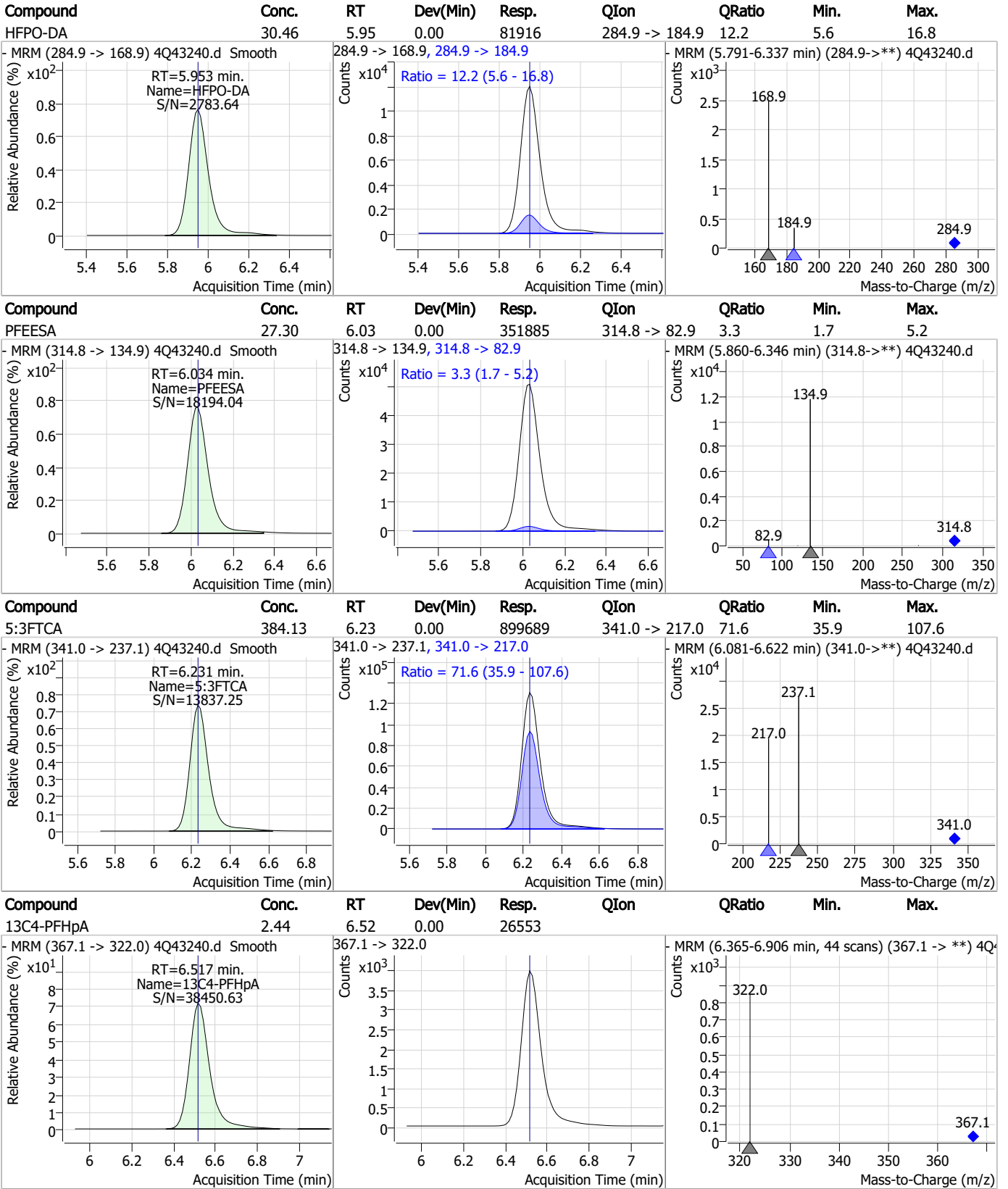
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

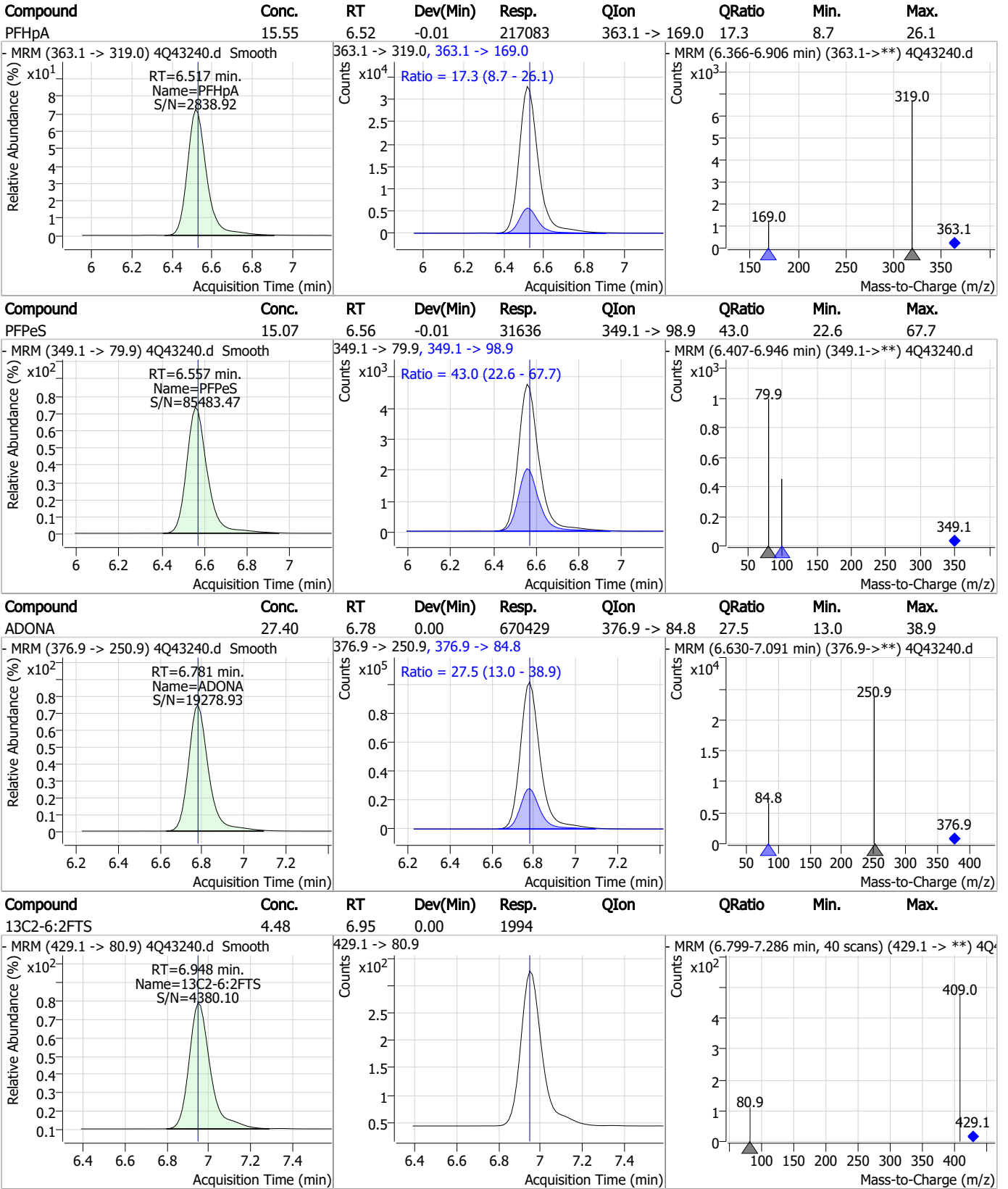


7.6.6

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Perfluorinated Compounds by LC/MS/MS

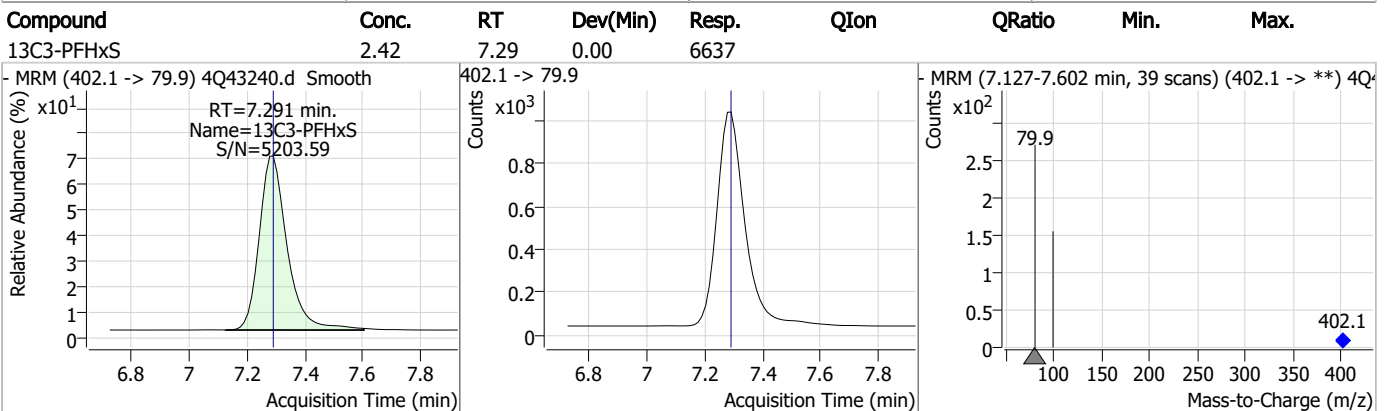
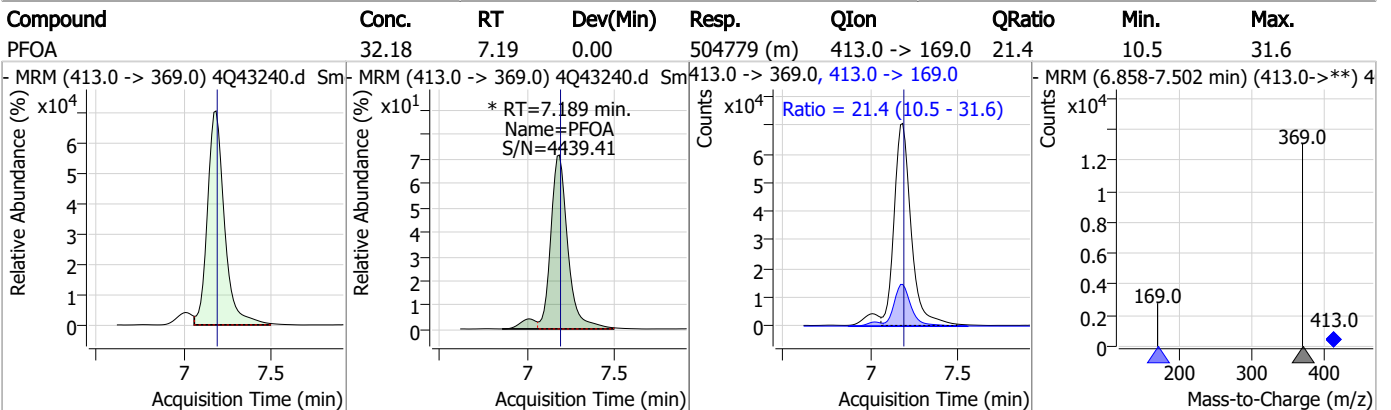
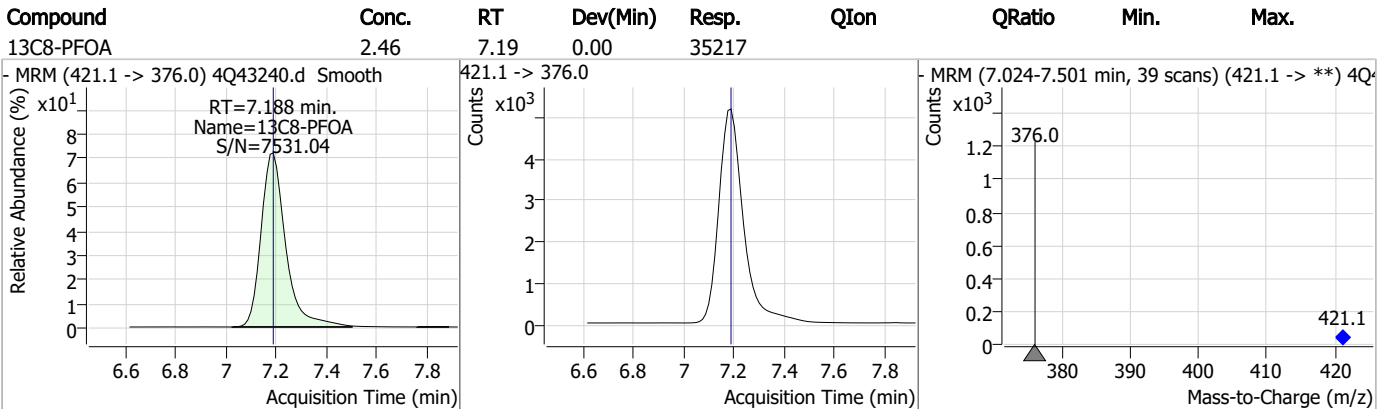
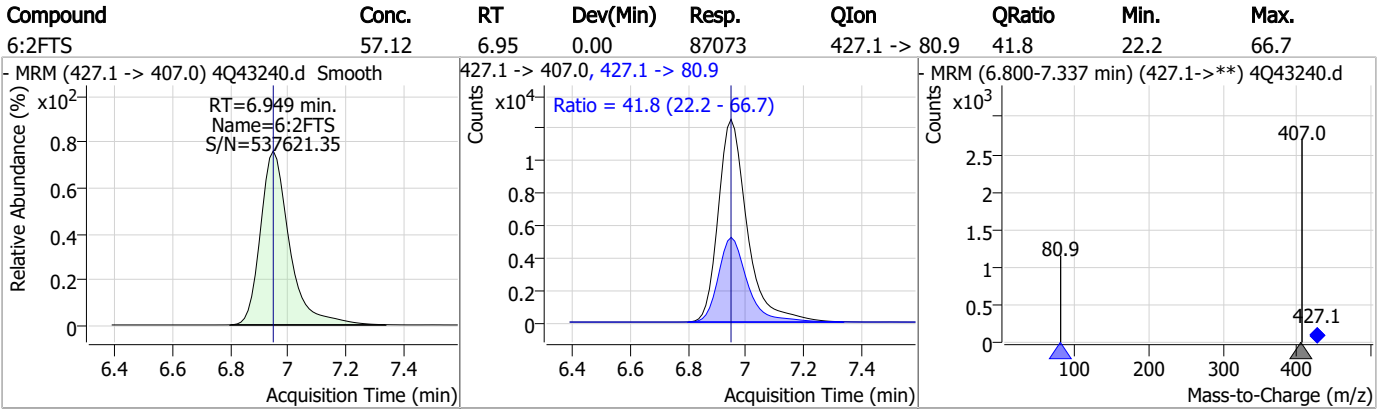


7.6.6

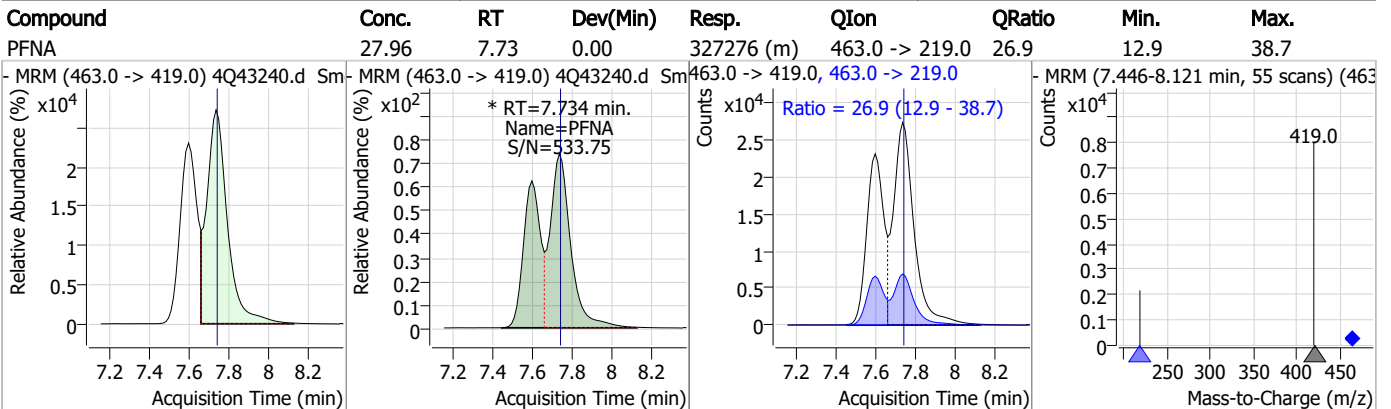
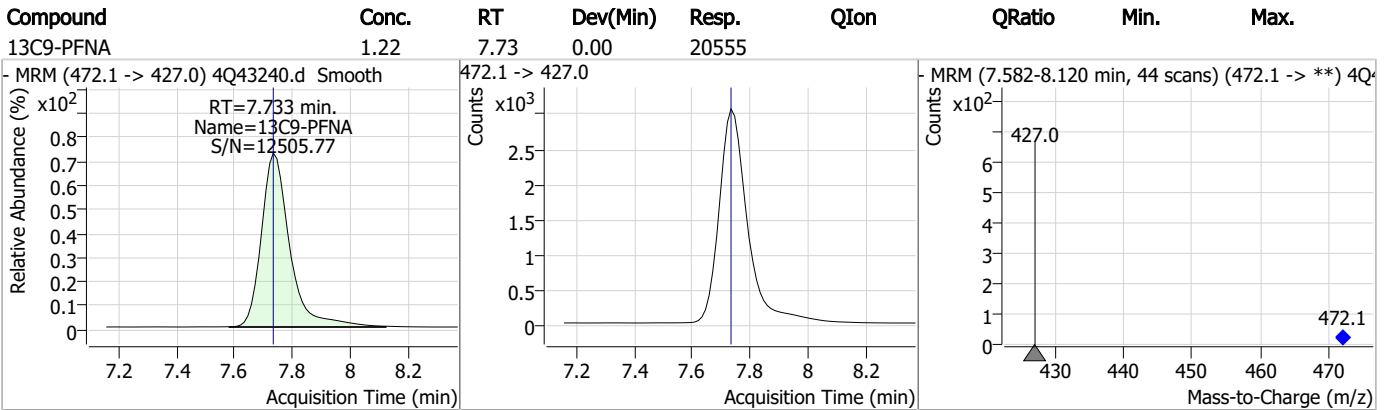
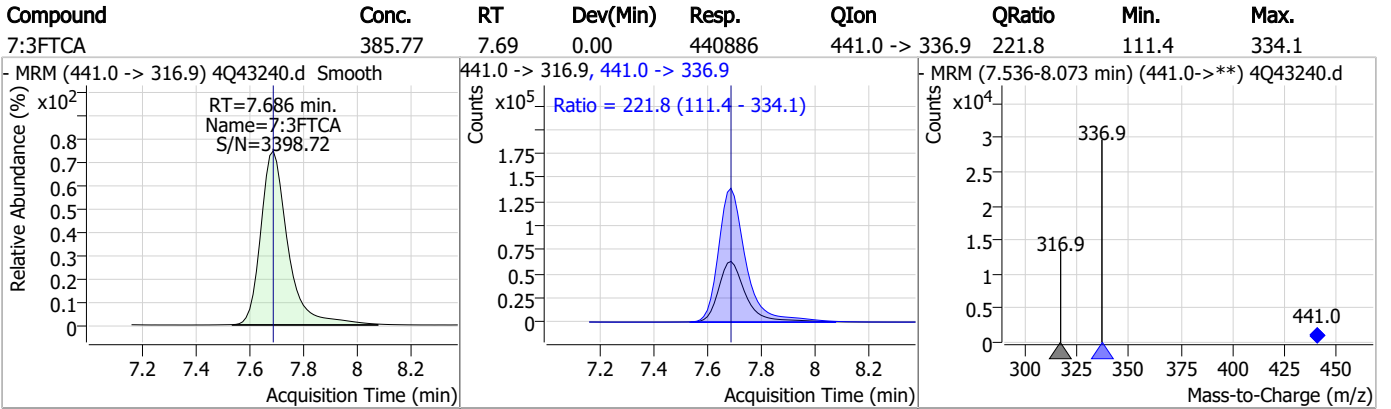
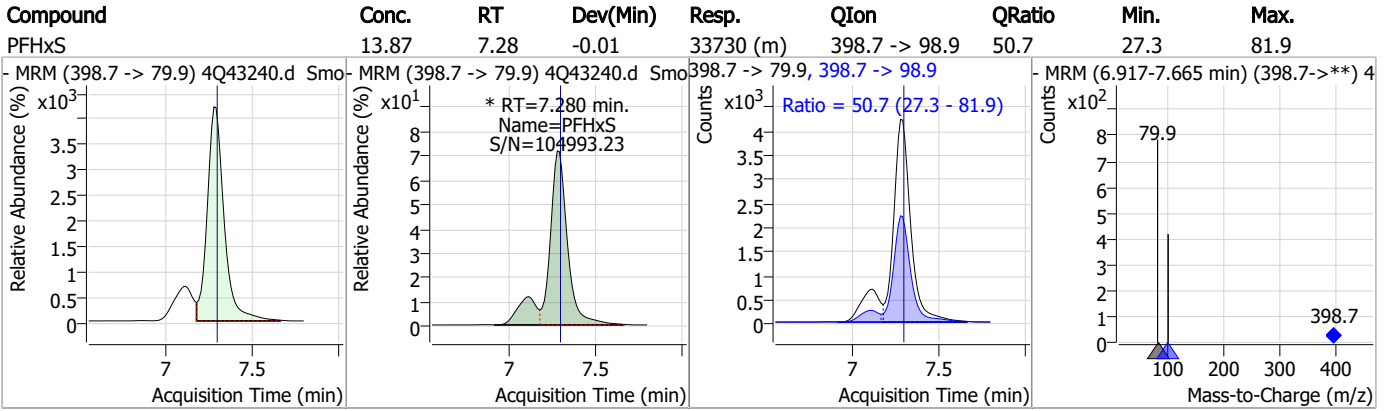
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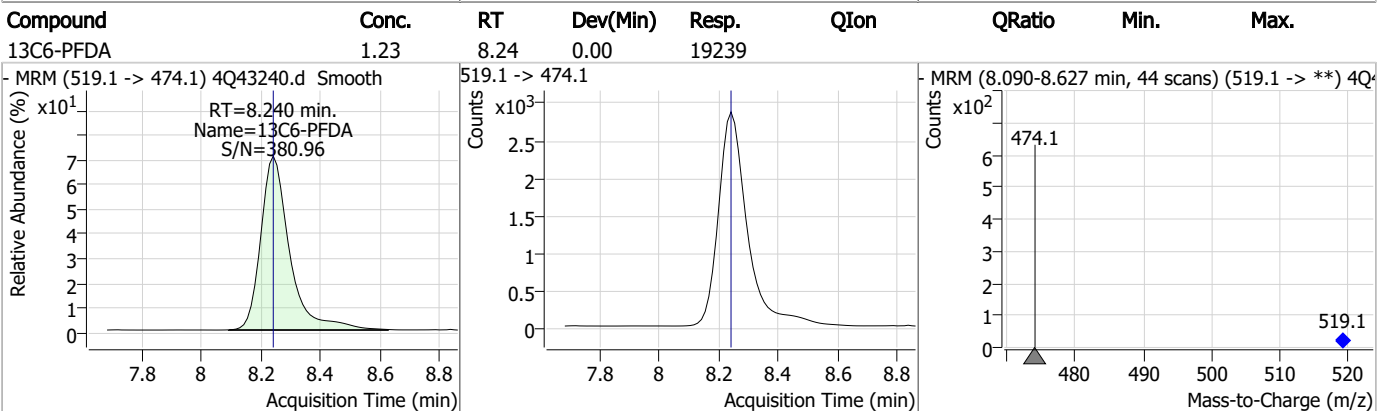
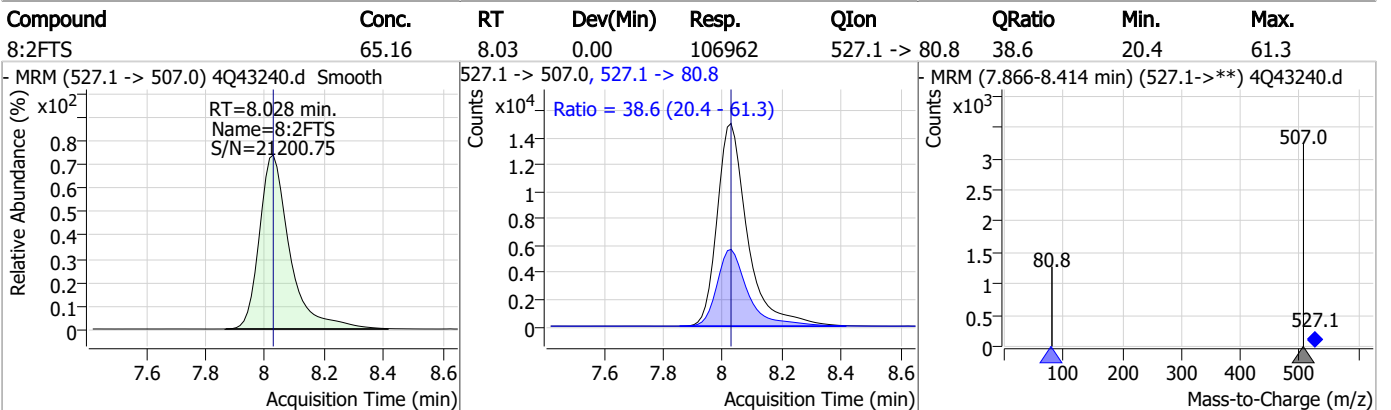
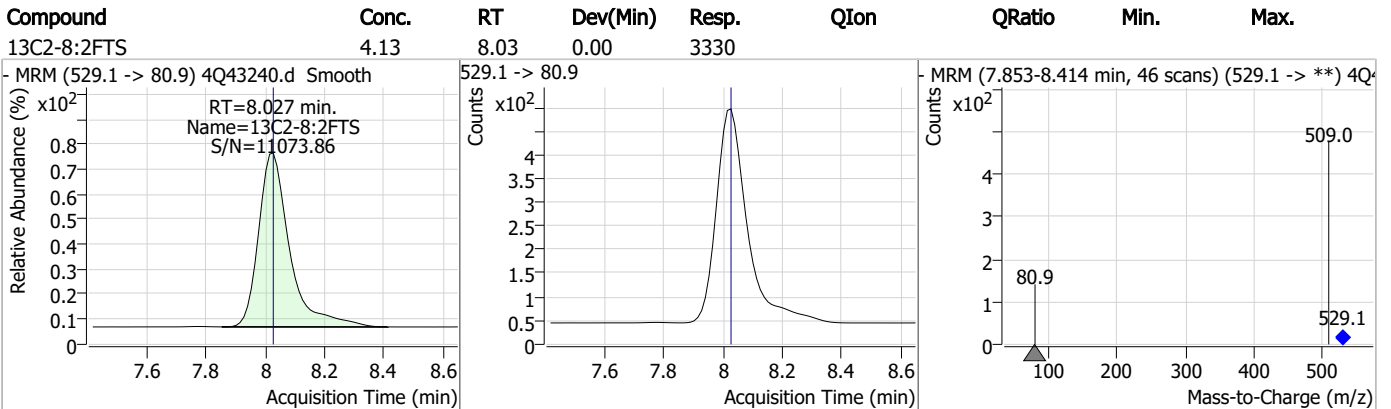
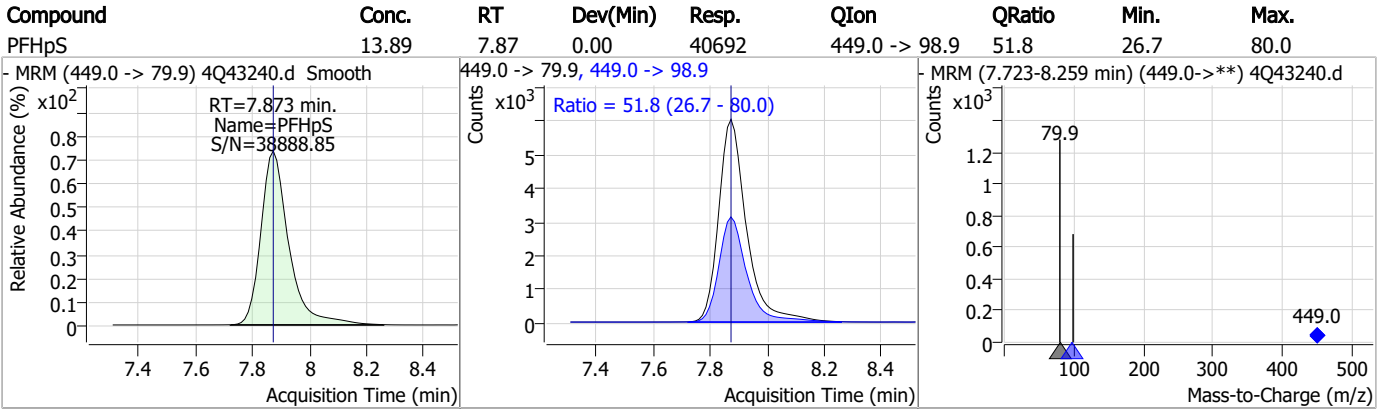
Perfluorinated Compounds by LC/MS/MS



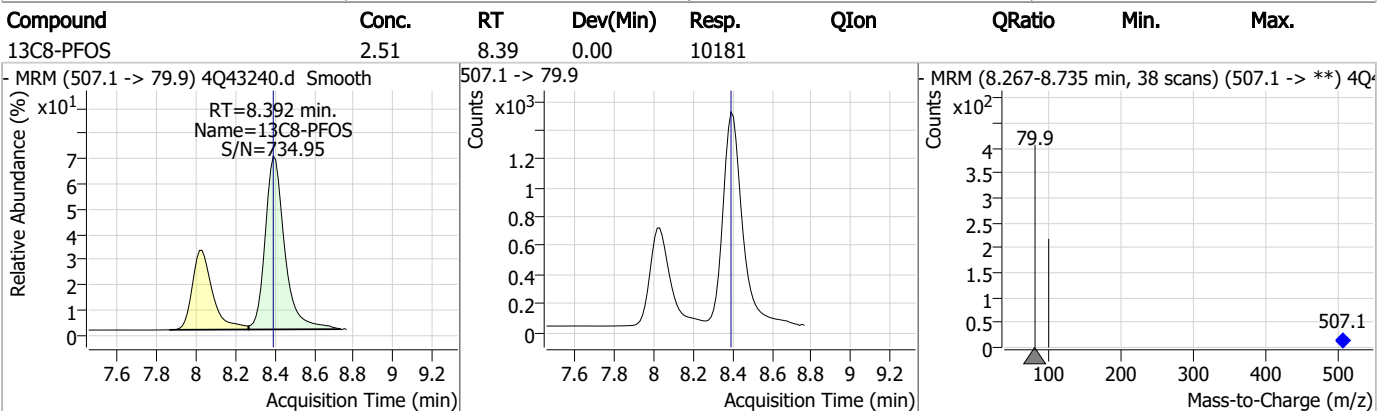
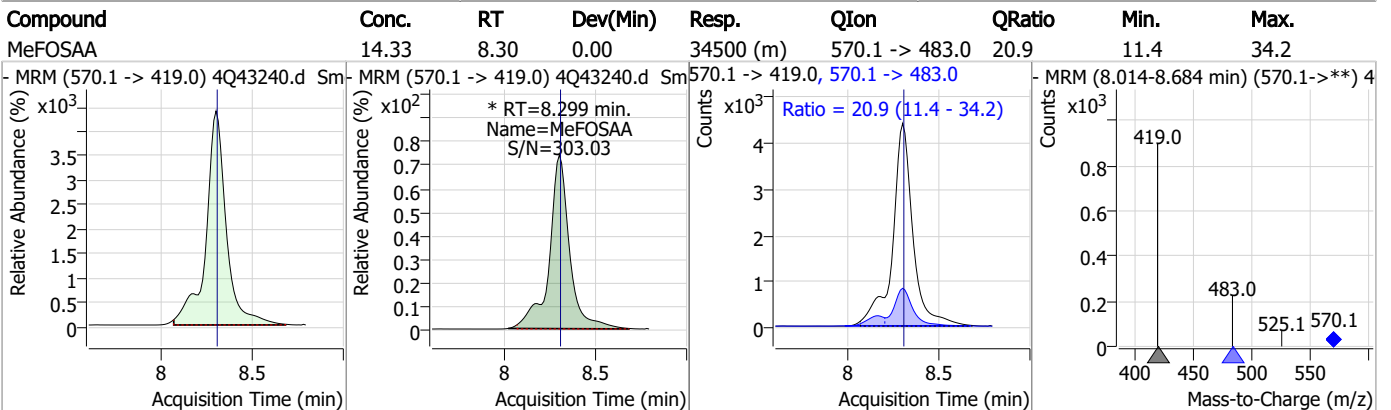
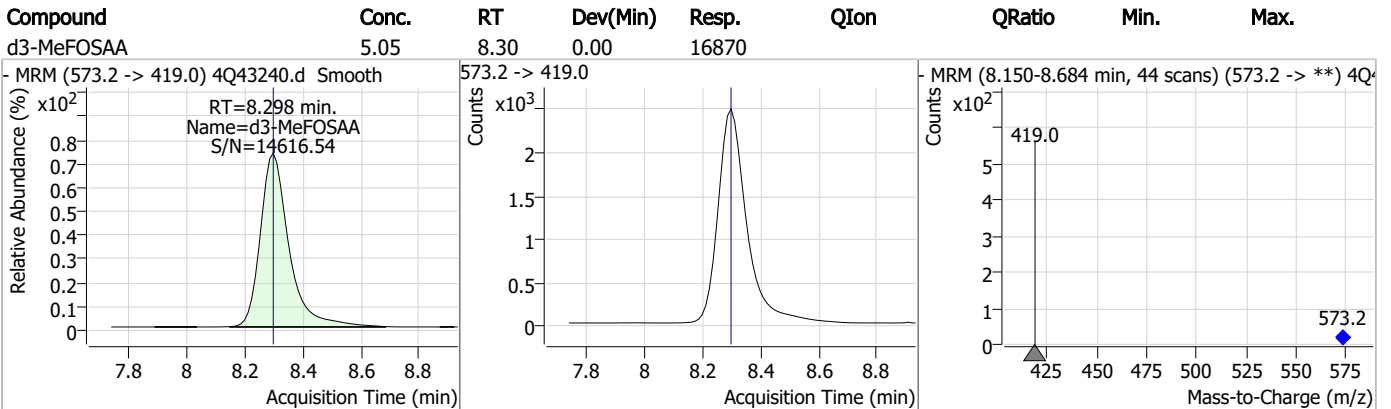
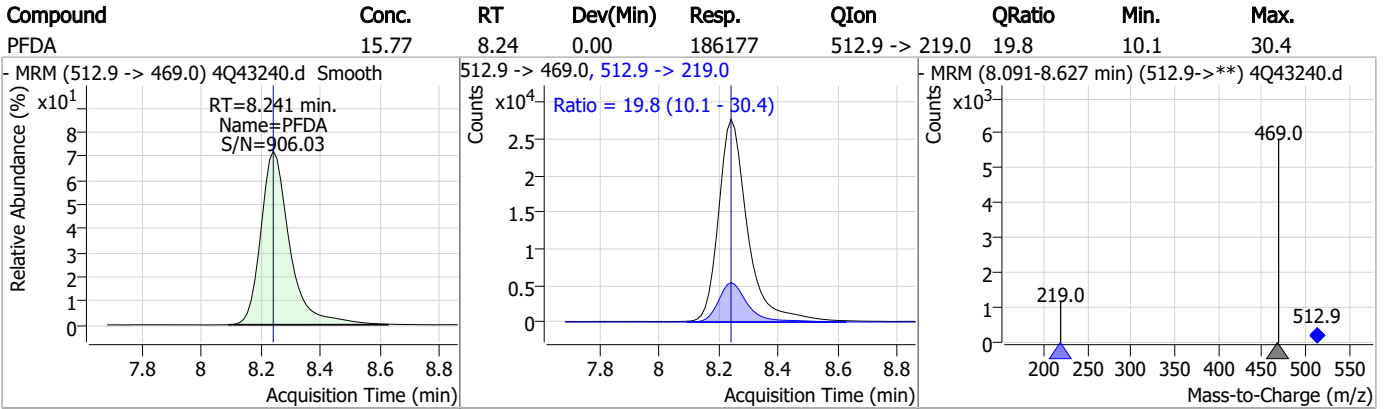
Perfluorinated Compounds by LC/MS/MS



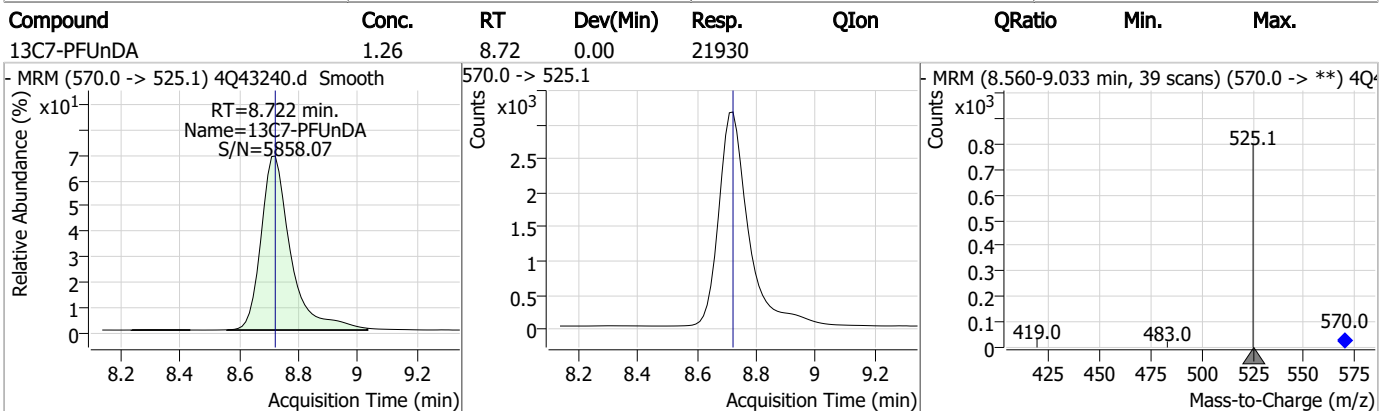
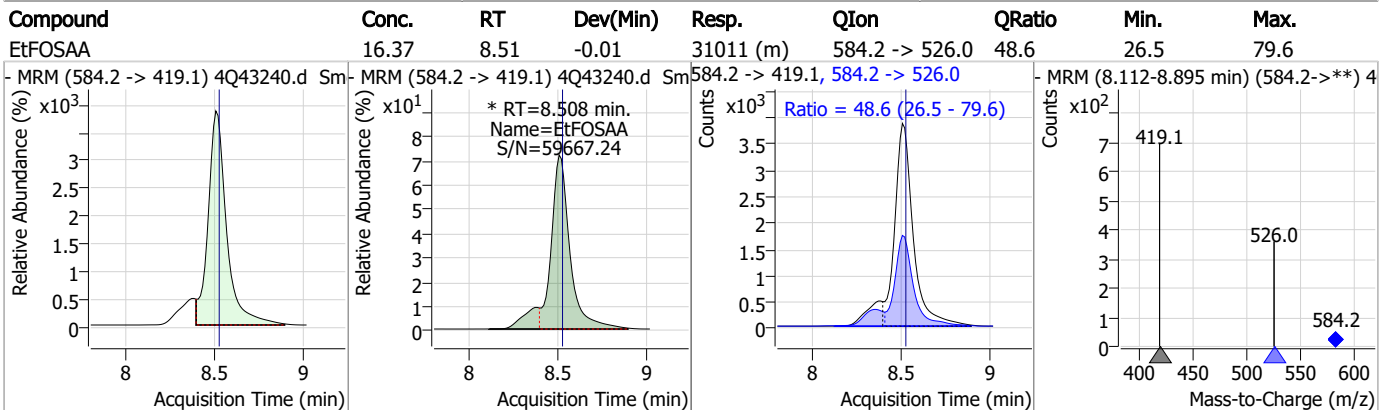
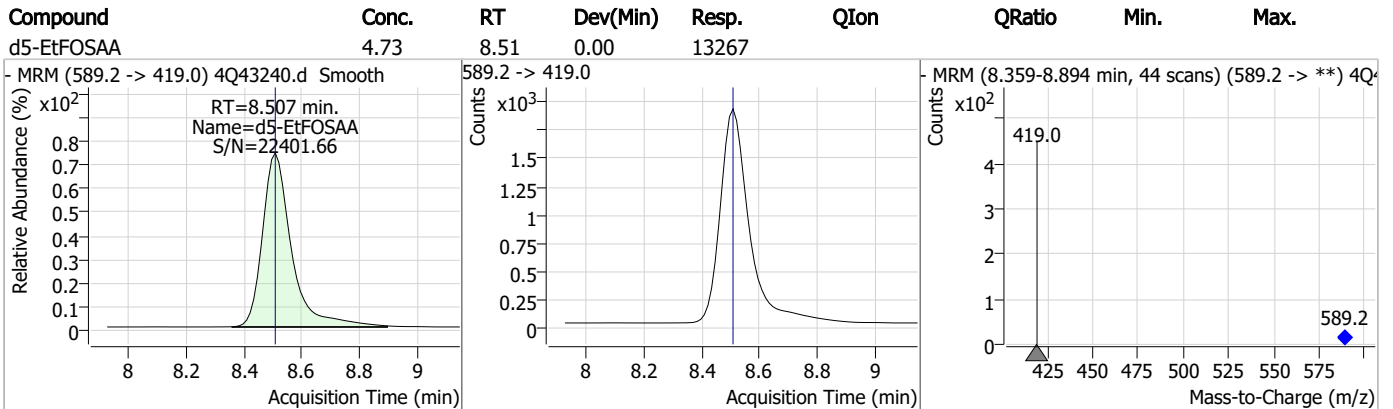
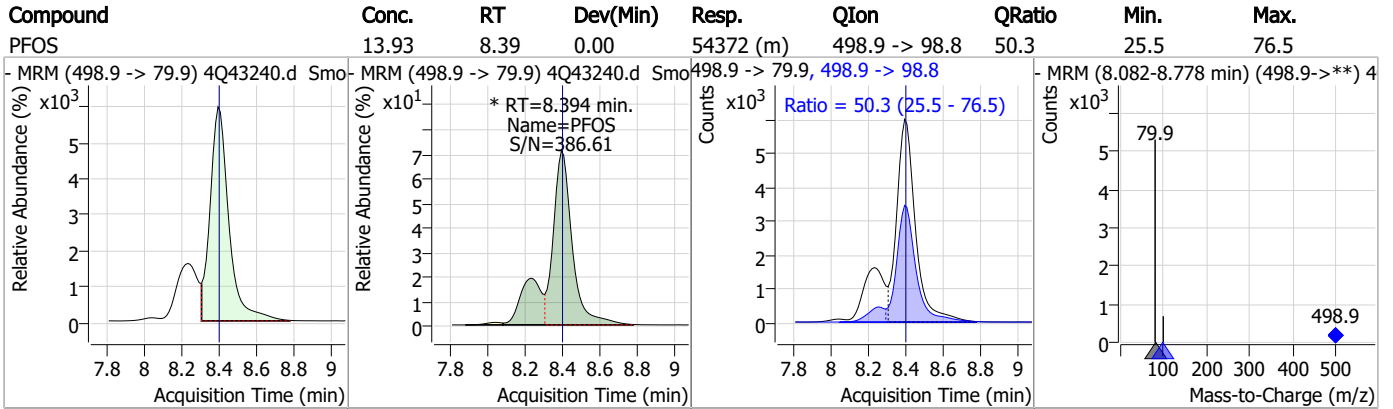
Perfluorinated Compounds by LC/MS/MS



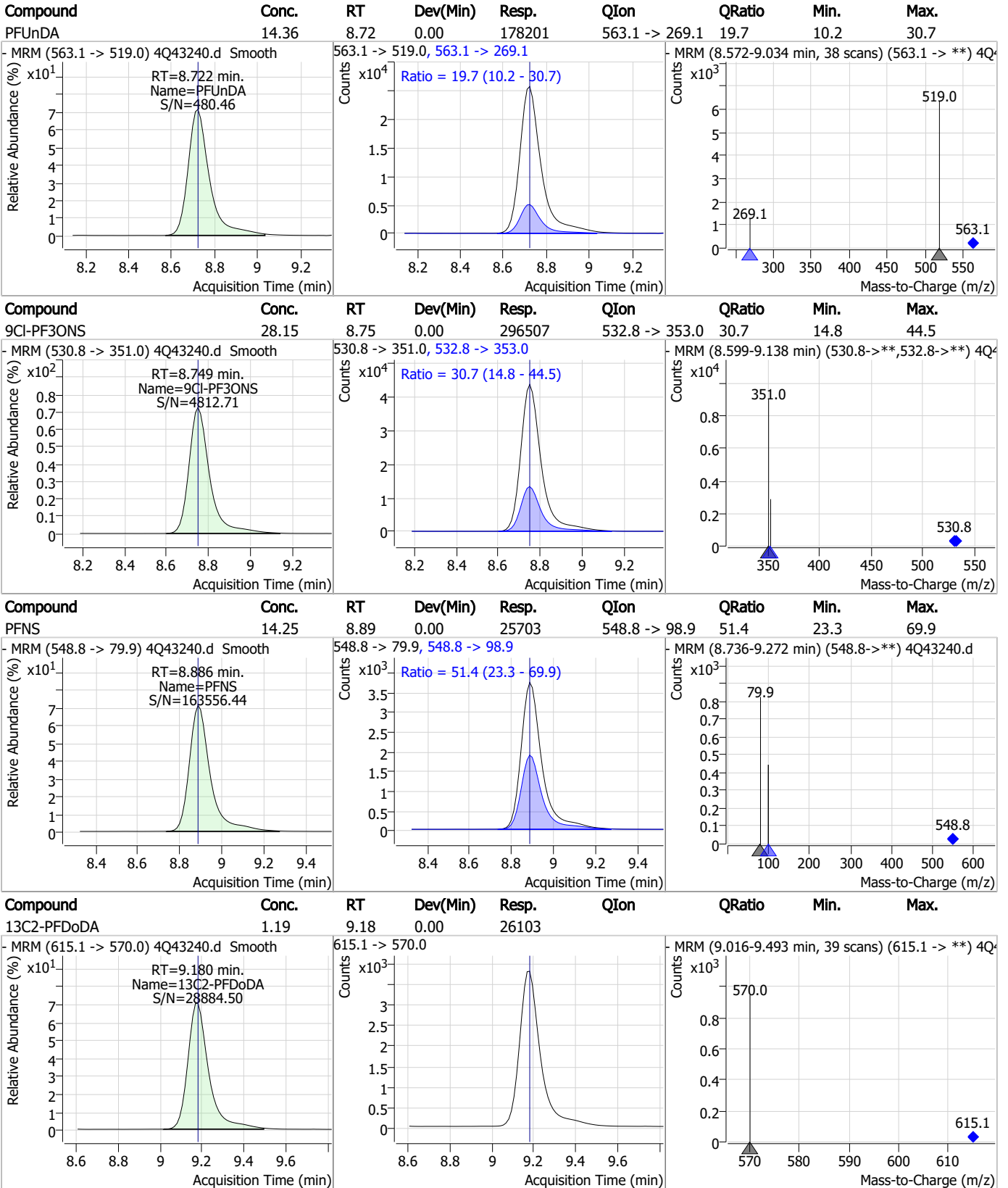
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	15.32	9.18	0.00	263185	613.1 -> 319.0	14.5	6.8	20.4
PFDS	14.52	9.34	0.00	34553	599.0 -> 98.8	49.4	23.9	71.8
PFTrDA	15.86	9.59	-0.01	339019	663.0 -> 168.9	9.7	4.7	14.2
11CI-PF3OUdS	28.07	9.64	0.00	275249	632.9 -> 452.9	30.6	15.6	46.8

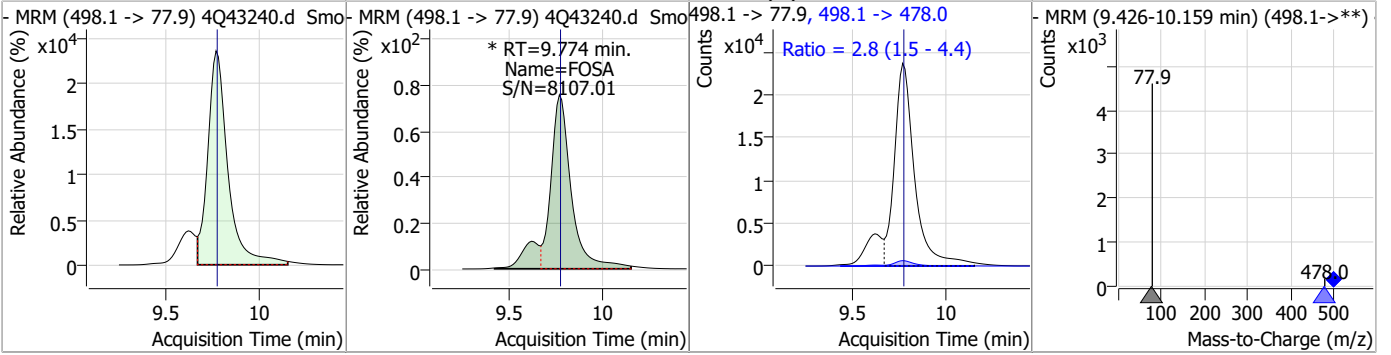
7.6.6

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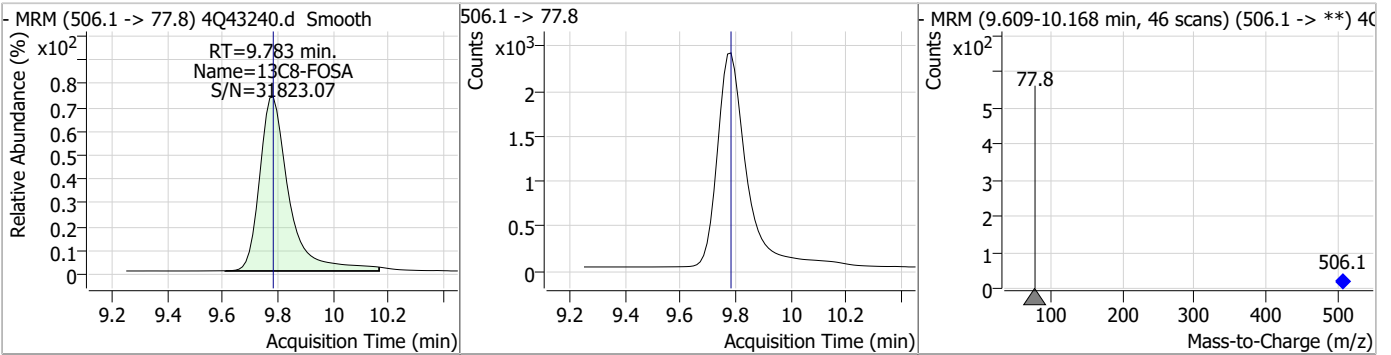


Perfluorinated Compounds by LC/MS/MS

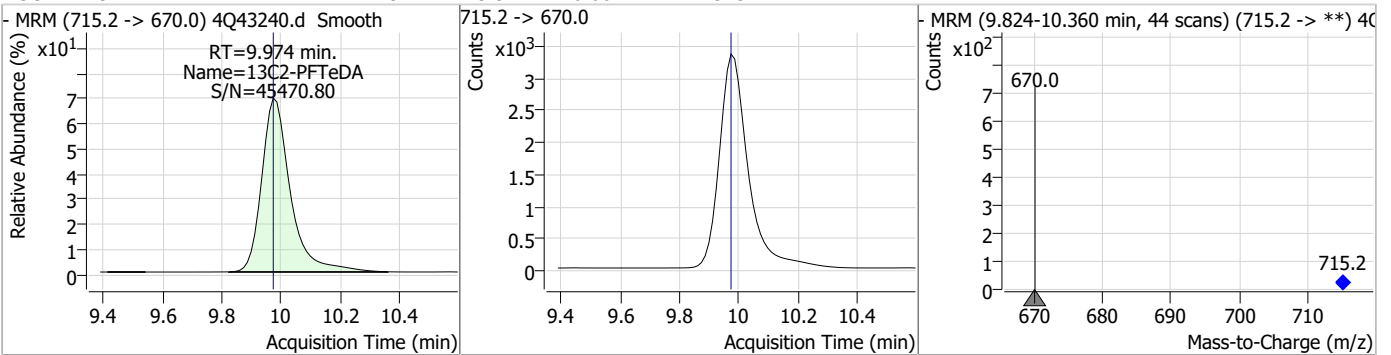
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	33.87	9.77	0.00	202735 (m)	498.1 -> 478.0	2.8	1.5	4.4



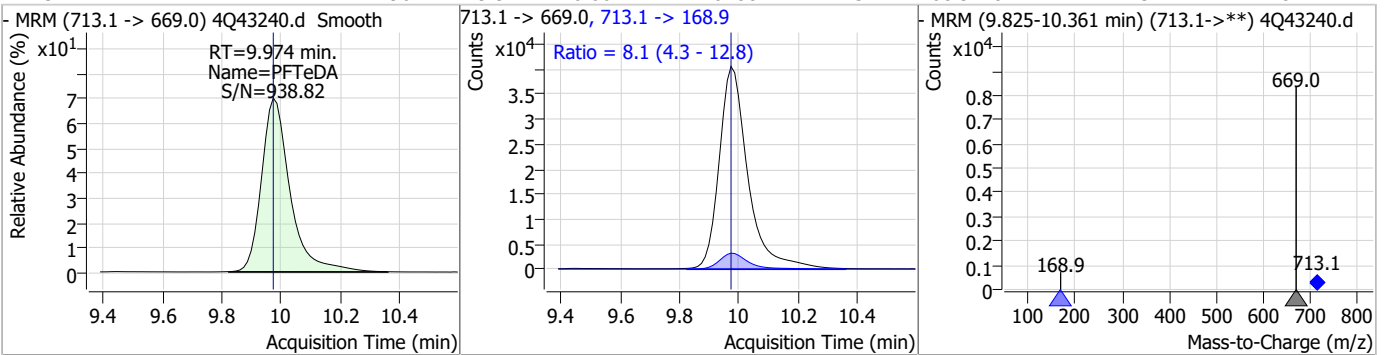
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
¹³ C8-FOSA	2.40	9.78	0.00	17700				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
¹³ C2-PFTeDA	1.29	9.97	0.00	22373				

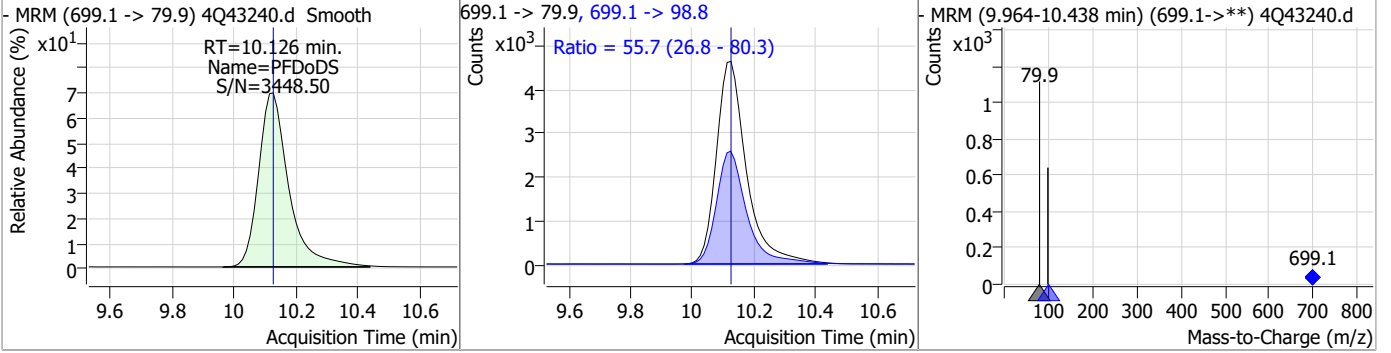


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	14.90	9.97	0.00	270788	713.1 -> 168.9	8.1	4.3	12.8

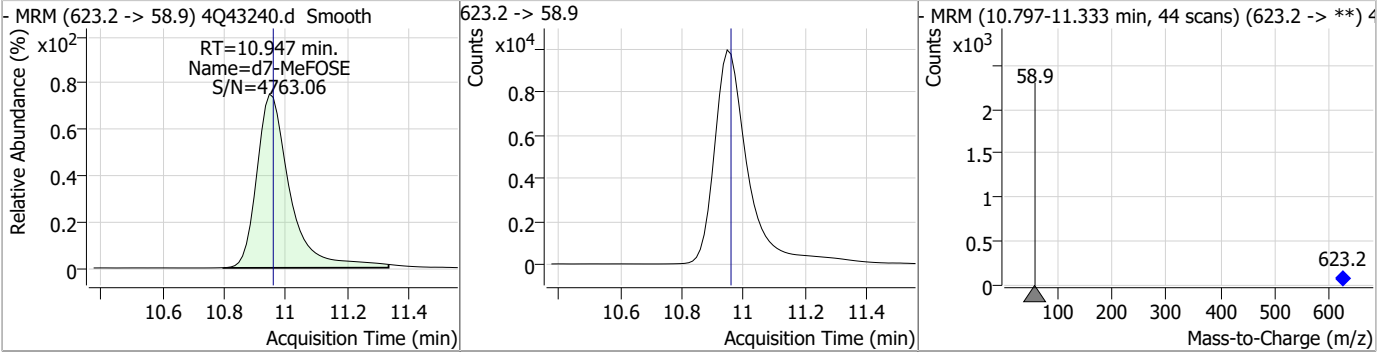


Perfluorinated Compounds by LC/MS/MS

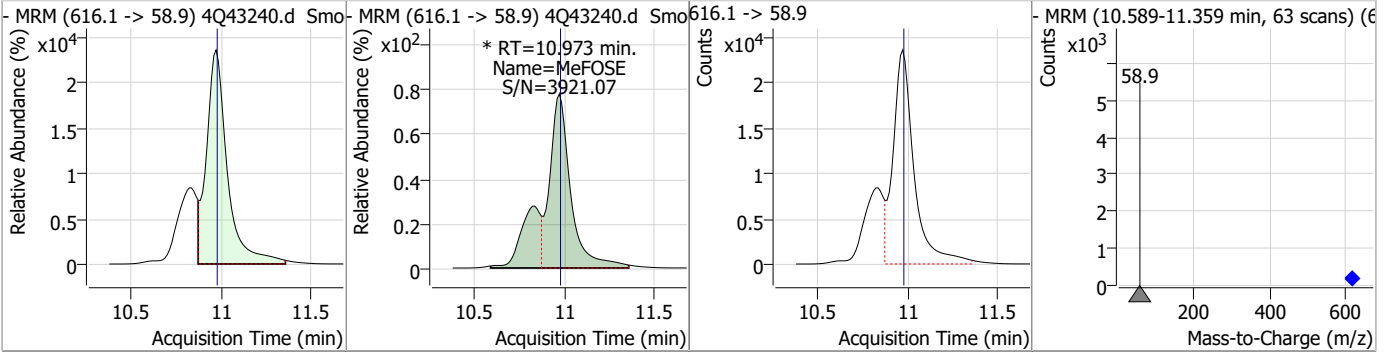
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	14.45	10.13	0.00	31232	699.1 -> 98.8	55.7	26.8	80.3



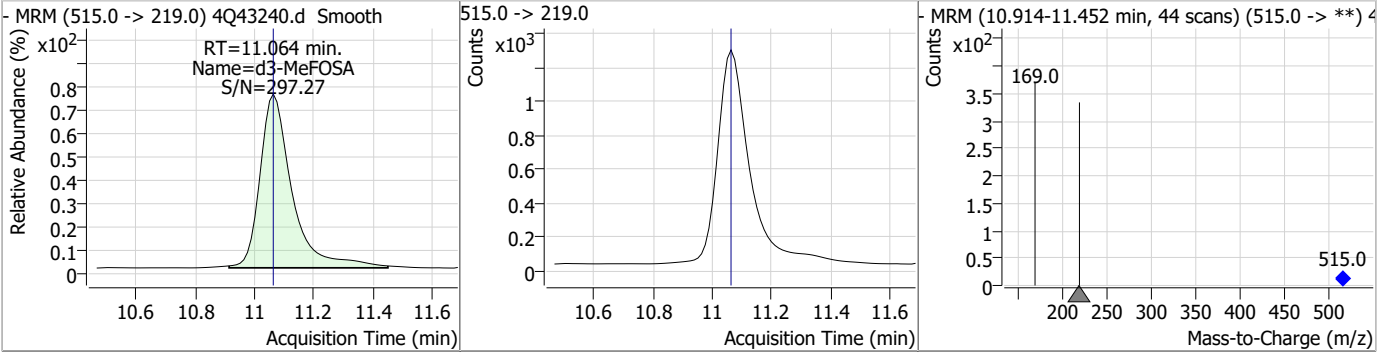
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.64	10.95	-0.01	73693				



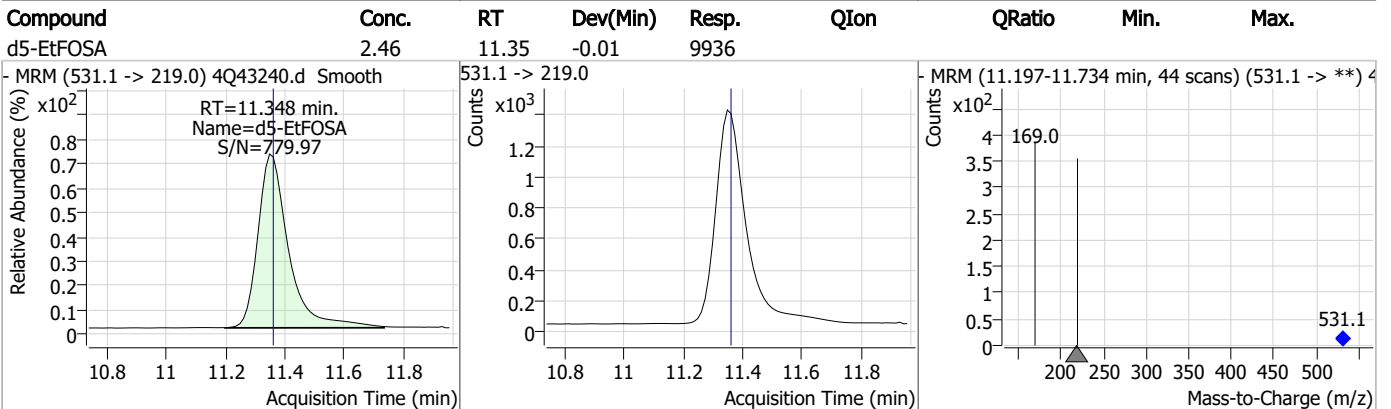
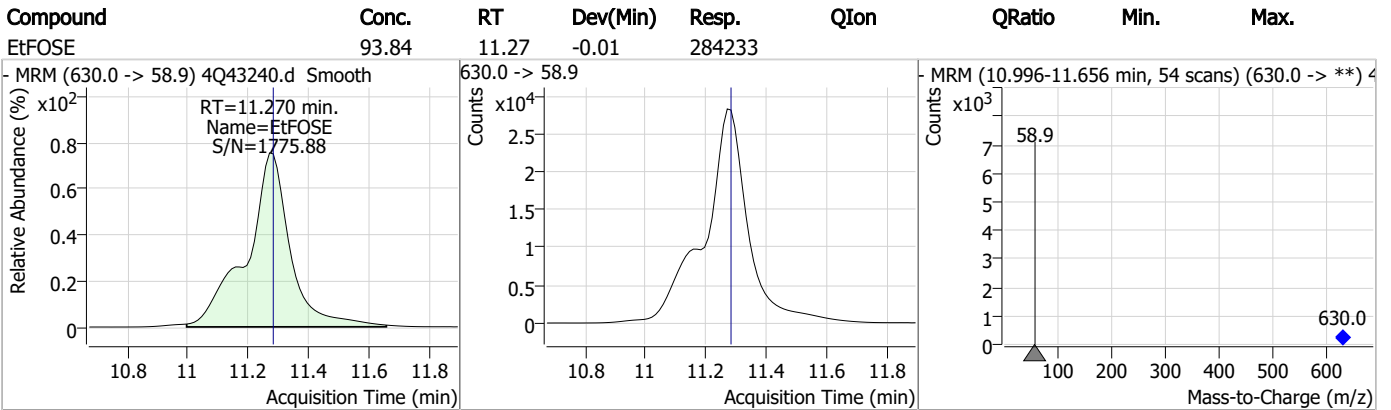
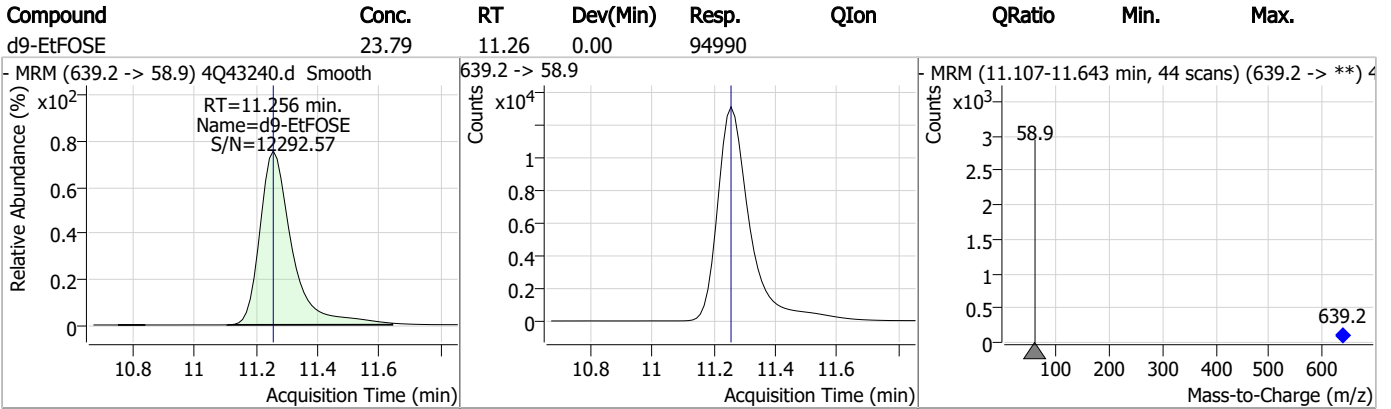
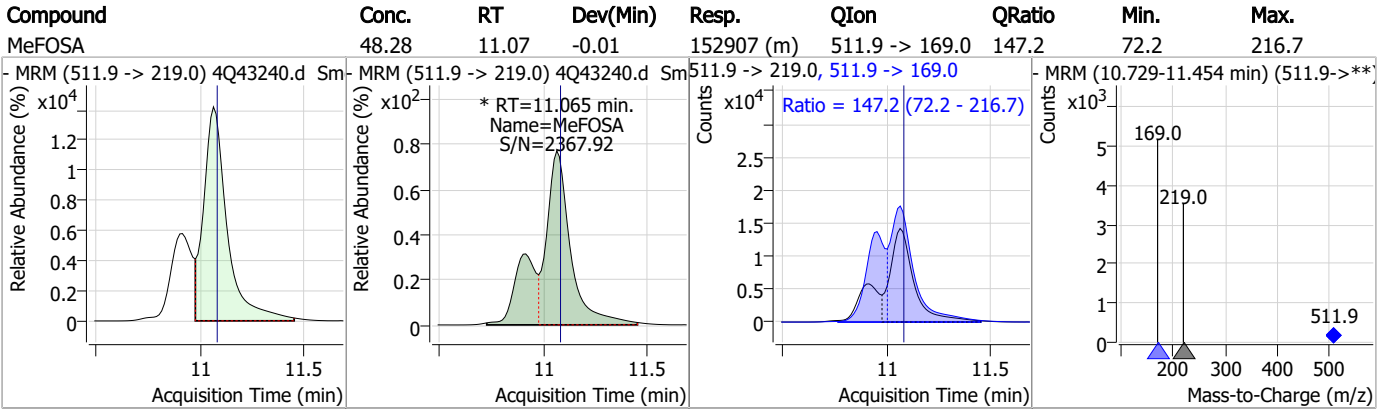
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	97.12	10.97	0.00	254519 (m)				



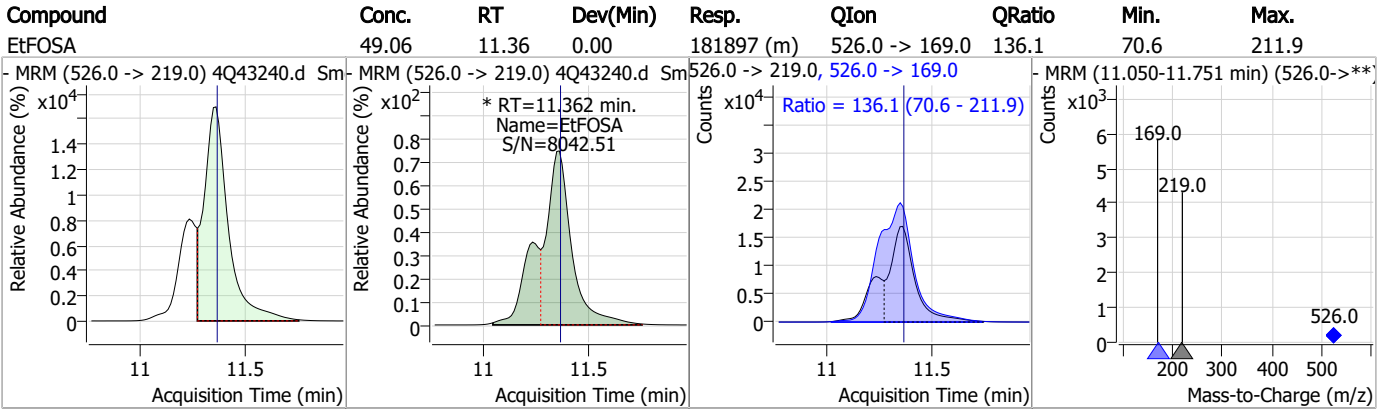
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.49	11.06	0.00	9471				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.6

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Manual Integration Approval Summary

Sample Number: S4Q625-RT Method: EPA DRAFT 1633
Lab FileID: 4Q43240.D Analyst approved: 04/20/23 14:17 Natasha Gumtie
Injection Time: 04/19/23 11:26 Supervisor approved: 04/21/23 12:28 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.19	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorononanoic acid	375-95-1		7.73	Split peak
MeFOSAA	2355-31-9		8.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.39	Split peak
EtFOSAA	2991-50-6		8.51	Split peak
PFOSA	754-91-6		9.77	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.06	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.6.6.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 04/21/23 14:03

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43329.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/20/2023 1:24:14 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s4q626_TDCA.batch.bin
 Sample Information : OP96301,S4q626,500,,,5.0,1,water

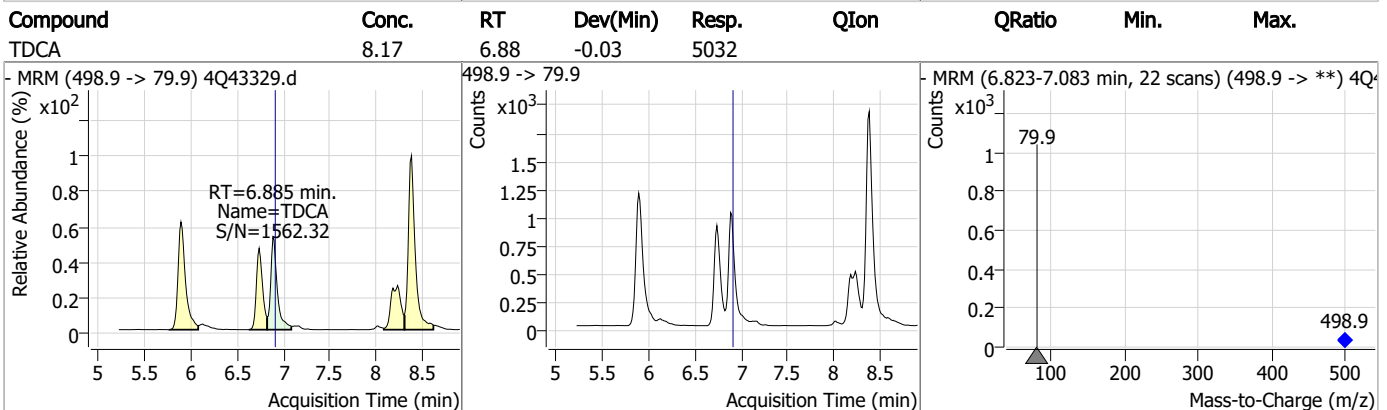
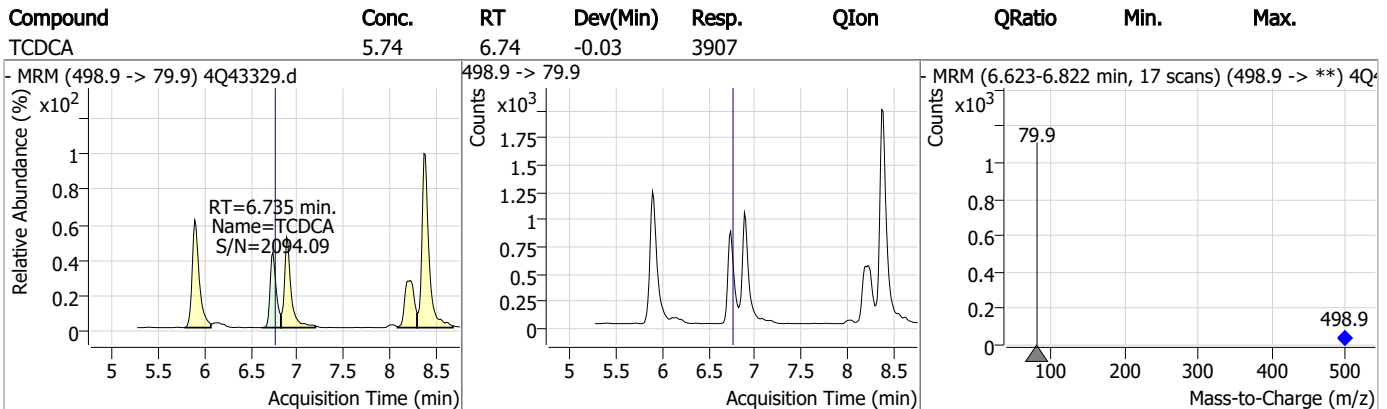
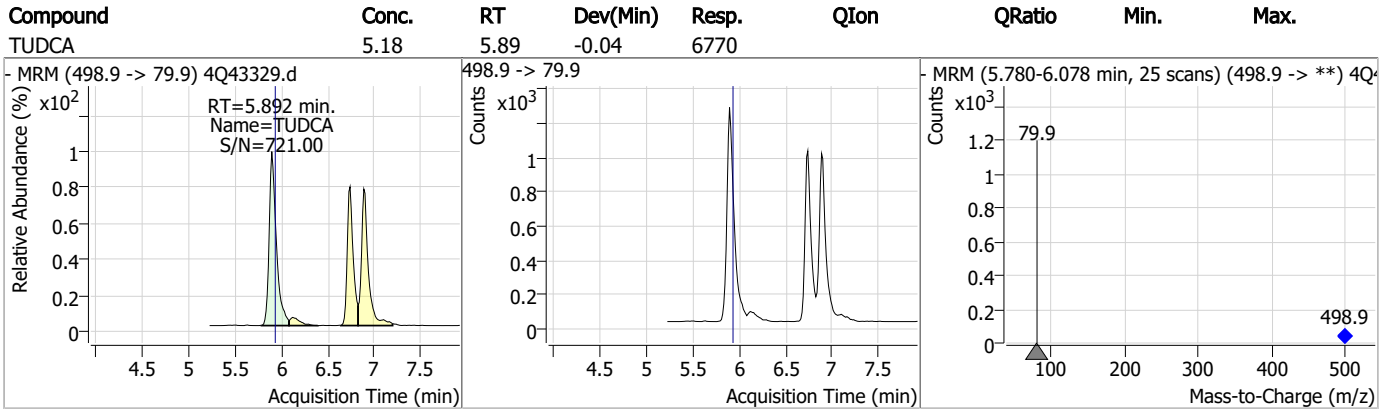
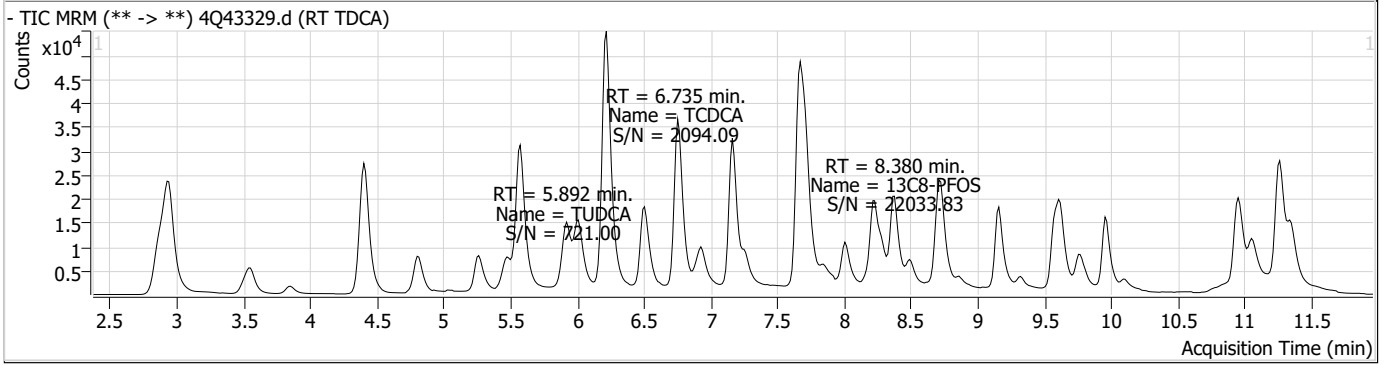
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.380	507.1 -> 79.9	14739	2.50	µg/L	-0.025	
13C4-PFOS	8.381	502.8 -> 79.9	14616	2.50	µg/L	-0.025	
System Monitoring Compounds							
13C8-PFOS	8.380	507.1 -> 79.9	14739	2.56	µg/L	-0.025	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.3%				
Target Compounds							
PFOS	8.381	498.9 -> 79.9 498.9 -> 98.8	14000 6587	2.78	µg/L m		83
TCDCa	6.735	498.9 -> 79.9	3907	5.74	ng/ml		100
TDCA	6.885	498.9 -> 79.9	5032	8.17	ng/ml		100
TUDCA	5.892	498.9 -> 79.9	6770	5.18	ng/ml		100

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

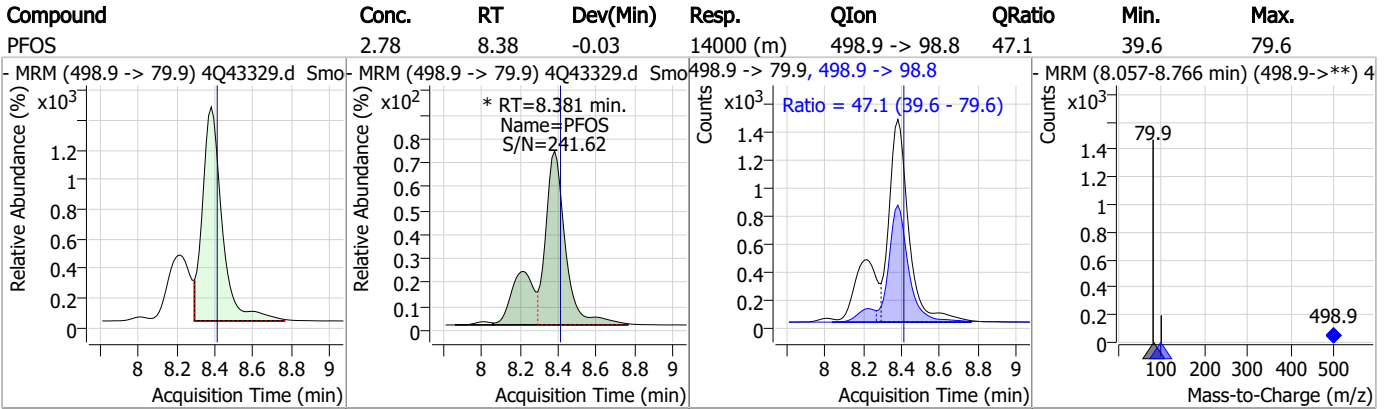
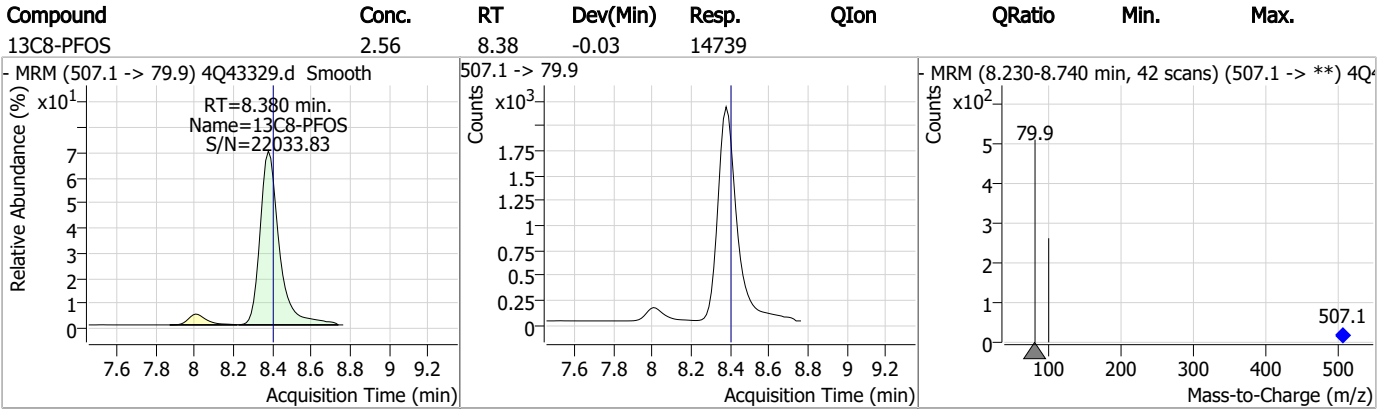
7.6.7
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.7
7



Manual Integration Approval Summary

Sample Number: S4Q626-RT Method: EPA DRAFT 1633
Lab FileID: 4Q43329.D Analyst approved: 04/21/23 11:13 Natasha Gumtie
Injection Time: 04/20/23 13:24 Supervisor approved: 04/21/23 14:03 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.38	Split peak

7.6.7.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43330.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/20/2023 1:38:18 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s4q626.batch.bin
 Sample Information : OP96301,S4q626,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	107089	10.00 µg/L	0.000
M5-PFPeA	4.400	268.3 -> 223.0	71818	5.00 µg/L	-0.012
M5-PFHxA	5.572	318.0 -> 273.0	53568	2.50 µg/L	-0.012
M4-PFHpA	6.504	367.1 -> 322.0	29425	2.50 µg/L	-0.012
M8-PFOA	7.175	421.1 -> 376.0	39245	2.50 µg/L	-0.012
M9-PFNA	7.721	472.1 -> 427.0	22246	1.25 µg/L	-0.012
M6-PFDA	8.228	519.1 -> 474.1	20300	1.25 µg/L	-0.012
M7-PFUnDA	8.710	570.0 -> 525.1	21117	1.25 µg/L	-0.012
M2-PFDoDA	9.155	615.1 -> 570.0	29067	1.25 µg/L	-0.025
M2-PFTeDA	9.961	715.2 -> 670.0	20507	1.25 µg/L	-0.012
M8-FOSA	9.771	506.1 -> 77.8	19327	2.50 µg/L	-0.012
M3-PFBS	5.490	302.1 -> 79.9	11604	2.50 µg/L	-0.012
M3-PFHxS	7.279	402.1 -> 79.9	7425	2.50 µg/L	-0.012
M8-PFOS	8.380	507.1 -> 79.9	10723	2.50 µg/L	-0.012
M2-4:2FTS	5.273	329.1 -> 80.9	1219	5.00 µg/L	0.000
M2-6:2FTS	6.936	429.1 -> 80.9	1977	5.00 µg/L	-0.012
M2-8:2FTS	8.015	529.1 -> 80.9	3276	5.00 µg/L	-0.012
M3-MeFOSAA	8.286	573.2 -> 419.0	16253	5.00 µg/L	-0.012
M3-HFPO-DA	5.939	286.9 -> 168.9	34567	10.00 µg/L	-0.012
M5-EtFOSAA	8.495	589.2 -> 419.0	13345	5.00 µg/L	-0.012
M7-MeFOSE	10.947	623.2 -> 58.9	76292	25.00 µg/L	-0.012
M9-EtFOSE	11.256	639.2 -> 58.9	97624	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	10729	2.50 µg/L	-0.012
M3-MeFOSA	11.064	515.0 -> 219.0	9784	2.50 µg/L	0.000
13C4-PFOS	8.381	502.8 -> 79.9	9872	2.50 µg/L	-0.025
13C3-PFBA	2.928	216.0 -> 172.0	61919	5.00 µg/L	-0.013
18O2-PFHxS	7.278	403.0 -> 83.9	5152	2.50 µg/L	-0.012
13C4-PFOA	7.176	417.1 -> 372.0	47219	2.50 µg/L	-0.012
13C2-PFDA	8.228	515.1 -> 470.1	19485	1.25 µg/L	-0.012
13C5-PFNA	7.721	468.0 -> 423.0	23414	1.25 µg/L	-0.012
13C2-PFHxA	5.573	315.1 -> 270.0	47589	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.273	329.1 -> 80.9	1219	4.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 80.6%		
13C2-6:2FTS	6.936	429.1 -> 80.9	1977	4.15 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 83.0%		
13C2-8:2FTS	8.015	529.1 -> 80.9	3276	3.80 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 75.9%		
13C2-PFDoDA	9.155	615.1 -> 570.0	29067	1.24 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C2-PFTeDA	9.961	715.2 -> 670.0	20507	1.10 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.6%		
13C3-PFBS	5.490	302.1 -> 79.9	11604	2.43 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C3-PFHxS	7.279	402.1 -> 79.9	7425	2.52 µg/L	-0.012

7.6.8
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C4-PFBA	2.936	216.8 -> 171.9	107089	9.60 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C4-PFHpA	6.504	367.1 -> 322.0	29425	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C5-PFHxA	5.572	318.0 -> 273.0	53568	2.40 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C5-PFPeA	4.400	268.3 -> 223.0	71818	4.93 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C6-PFDA	8.228	519.1 -> 474.1	20300	1.20 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C7-PFUnDA	8.710	570.0 -> 525.1	21117	1.13 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.4%	
13C8-FOSA	9.771	506.1 -> 77.8	19327	2.70 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C8-PFOA	7.175	421.1 -> 376.0	39245	2.49 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C8-PFOS	8.380	507.1 -> 79.9	10723	2.72 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C9-PFNA	7.721	472.1 -> 427.0	22246	1.36 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.8%	
d3-MeFOSAA	8.286	573.2 -> 419.0	16253	5.01 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C3-HFPO-DA	5.939	286.9 -> 168.9	34567	9.57 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
d3-MeFOSA	11.064	515.0 -> 219.0	9784	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.8%	
d5-EtFOSAA	8.495	589.2 -> 419.0	13345	4.90 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d7-MeFOSE	10.947	623.2 -> 58.9	76292	25.19 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
d9-EtFOSE	11.256	639.2 -> 58.9	97624	25.17 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
d5-EtFOSA	11.348	531.1 -> 219.0	10729	2.73 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.2%	
Target Compounds					QValue
4:2FTS	5.260	327.1 -> 307.0	96018	61.59 µg/L	95
		327.1 -> 80.9	39911		
6:2FTS	6.936	427.1 -> 407.0	83797	55.46 µg/L	95
		427.1 -> 80.9	34555		
8:2FTS	8.015	527.1 -> 507.0	95794	59.33 µg/L	98
		527.1 -> 80.8	37899		
EtFOSAA	8.496	584.2 -> 419.1	30359	15.93 µg/L	m 95
		584.2 -> 526.0	15135		
FOSA	9.774	498.1 -> 77.9	211464	32.35 µg/L	m 100
		498.1 -> 478.0	6140		
MeFOSAA	8.286	570.1 -> 419.0	34734	14.98 µg/L	m 95
		570.1 -> 483.0	7035		
PFBA	2.932	212.8 -> 168.9	152384	61.33 µg/L	100
PFBS	5.490	298.7 -> 79.9	59608	12.99 µg/L	98
		298.7 -> 98.8	23233		
PFDA	8.229	512.9 -> 469.0	183122	14.70 µg/L	99
		512.9 -> 219.0	35734		
PFDoDA	9.156	613.1 -> 569.0	278619	14.56 µg/L	99
		613.1 -> 319.0	38625		
PFDS	9.331	599.0 -> 79.9	35087	14.00 µg/L	100

7.6.8
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	16760			
PFHpA	6.505	363.1 -> 319.0	235617	15.23	µg/L	100
		363.1 -> 169.0	41264			
PFHpS	7.860	449.0 -> 79.9	42846	13.89	µg/L	95
		449.0 -> 98.9	21407			
PFHxA	5.575	313.0 -> 269.0	257680	15.27	µg/L	99
		313.0 -> 118.9	7669			
PFHxS	7.267	398.7 -> 79.9	35435	13.03	µg/L	m 97
		398.7 -> 98.9	18635			
PFNA	7.722	463.0 -> 419.0	327791	25.87	µg/L	m 99
		463.0 -> 219.0	86514			
PFNS	8.874	548.8 -> 79.9	25268	13.30	µg/L	92
		548.8 -> 98.9	13203			
PFOA	7.176	413.0 -> 369.0	536267	30.67	µg/L	m 99
		413.0 -> 169.0	114398			
PFOS	8.381	498.9 -> 79.9	57611	14.01	µg/L	m 98
		498.9 -> 98.8	28777			
PFPeA	4.402	263.0 -> 219.0	423469	29.52	µg/L	100
PFPeS	6.544	349.1 -> 79.9	33314	14.18	µg/L	99
		349.1 -> 98.9	14832			
PFTeDA	9.962	713.1 -> 669.0	265787	15.95	µg/L	99
		713.1 -> 168.9	21553			
PFTrDA	9.579	663.0 -> 619.0	331702	13.93	µg/L	99
		663.0 -> 168.9	32715			
PFUnDA	8.710	563.1 -> 519.0	183442	15.35	µg/L	98
		563.1 -> 269.1	36062			
11CI-PF3OUdS	9.630	630.9 -> 450.9	271888	27.30	µg/L	99
		632.9 -> 452.9	83349			
9CI-PF3ONS	8.737	530.8 -> 351.0	296946	27.76	µg/L	100
		532.8 -> 353.0	88246			
ADONA	6.768	376.9 -> 250.9	709410	28.55	µg/L	99
		376.9 -> 84.8	188929			
HFPO-DA	5.940	284.9 -> 168.9	82095	30.06	µg/L	97
		284.9 -> 184.9	10141			
3:3FTCA	3.848	241.0 -> 177.0	46378	67.91	µg/L	100
		241.0 -> 117.0	4337			
5:3FTCA	6.231	341.0 -> 237.1	931365	370.23	µg/L	100
		341.0 -> 217.0	664249			
7:3FTCA	7.673	441.0 -> 316.9	433570	353.20	µg/L	99
		441.0 -> 336.9	959561			
EtFOSA	11.362	526.0 -> 219.0	190809	47.66	µg/L	m 97
		526.0 -> 169.0	262273			
EtFOSE	11.282	630.0 -> 58.9	279534	89.80	µg/L	100
MeFOSA	11.065	511.9 -> 219.0	156501	47.83	µg/L	m 98
		511.9 -> 169.0	230542			
MeFOSE	10.973	616.1 -> 58.9	255234	94.08	µg/L	m 100
PFDoDS	10.101	699.1 -> 79.9	32376	14.22	µg/L	98
		699.1 -> 98.8	17727			
NFDHA	5.465	295.0 -> 201.0	30085	32.91	µg/L	95
		295.0 -> 84.9	7712			
PFMBA	4.816	279.0 -> 85.1	237521	29.00	µg/L	100
PFMPA	3.553	229.0 -> 84.9	207921	28.56	µg/L	100
PFEESA	6.021	314.8 -> 134.9	377945	27.30	µg/L	100
		314.8 -> 82.9	13051			

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

7.6.8
7

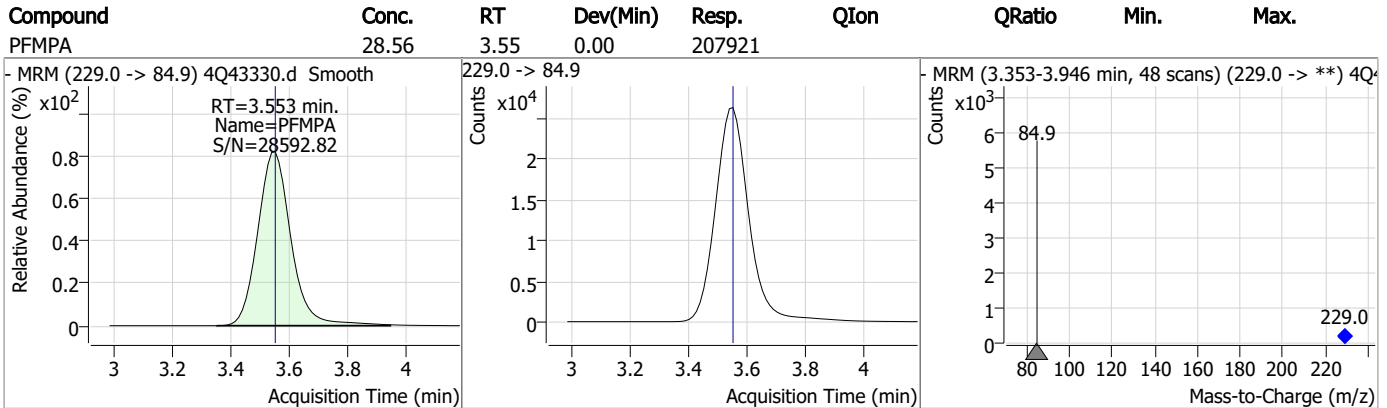
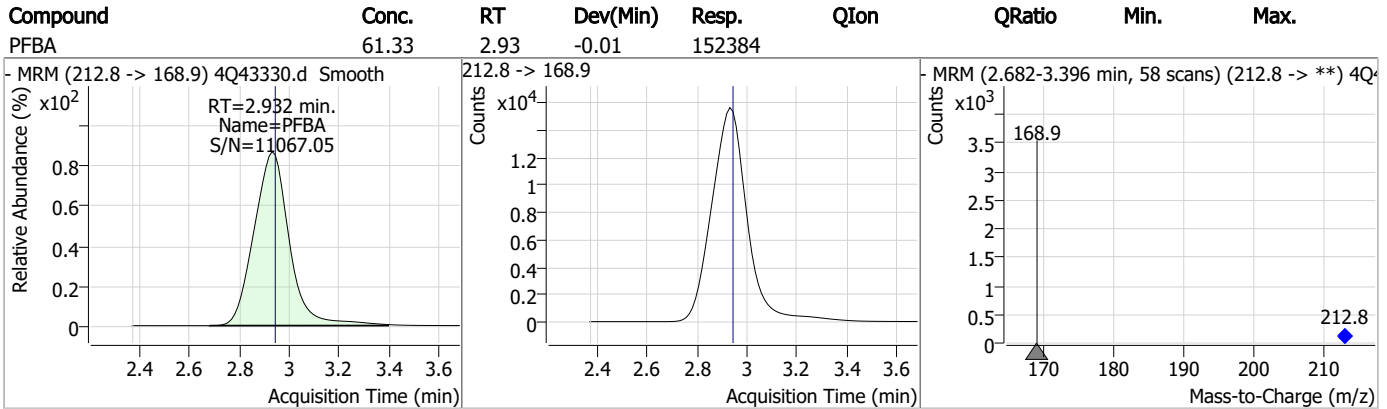
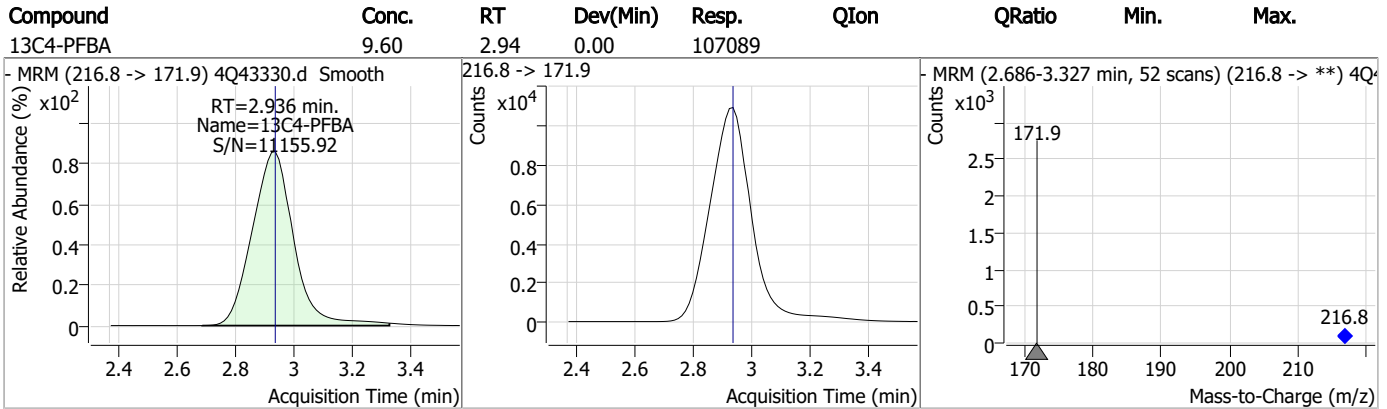
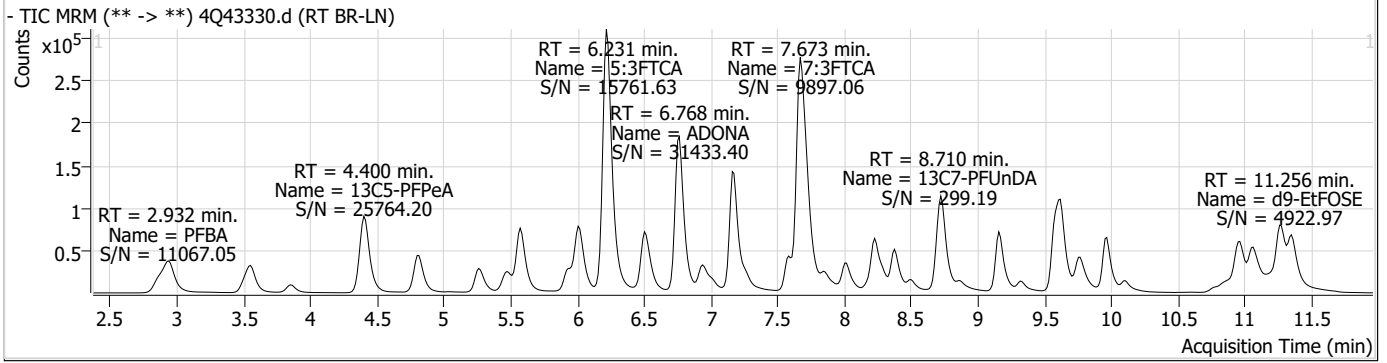
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.8

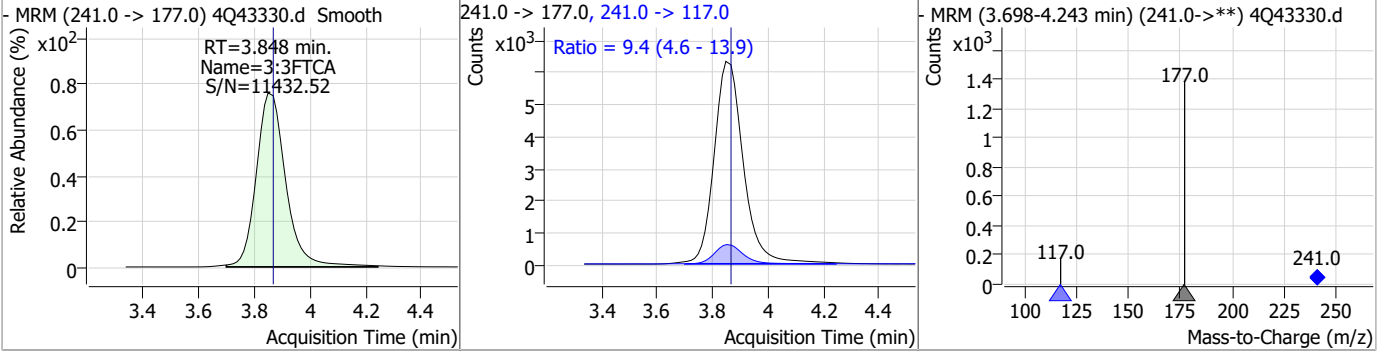
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Perfluorinated Compounds by LC/MS/MS

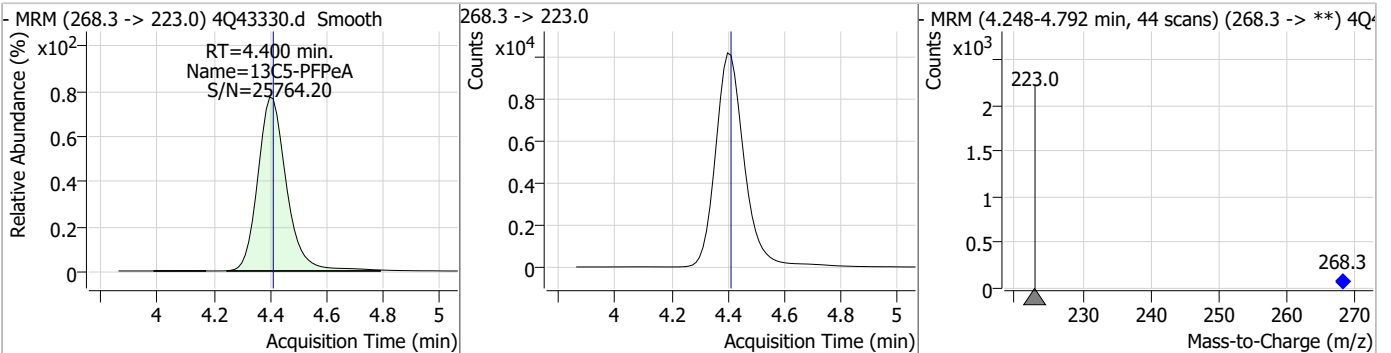


Perfluorinated Compounds by LC/MS/MS

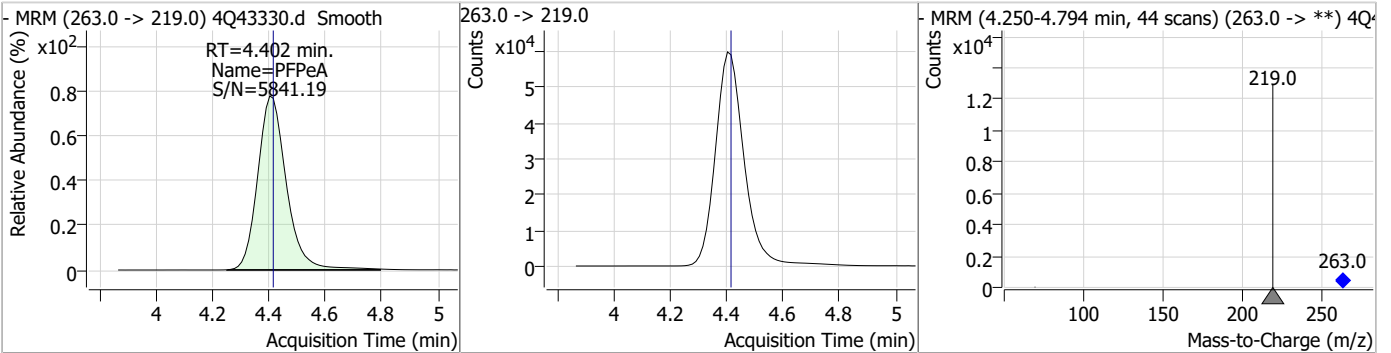
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	67.91	3.85	-0.02	46378	241.0 -> 117.0	9.4	4.6	13.9



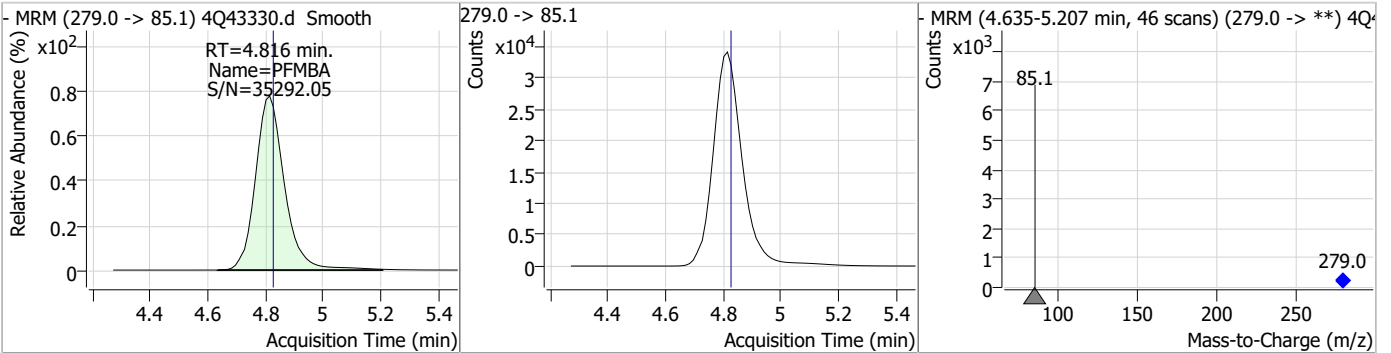
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.93	4.40	-0.01	71818				



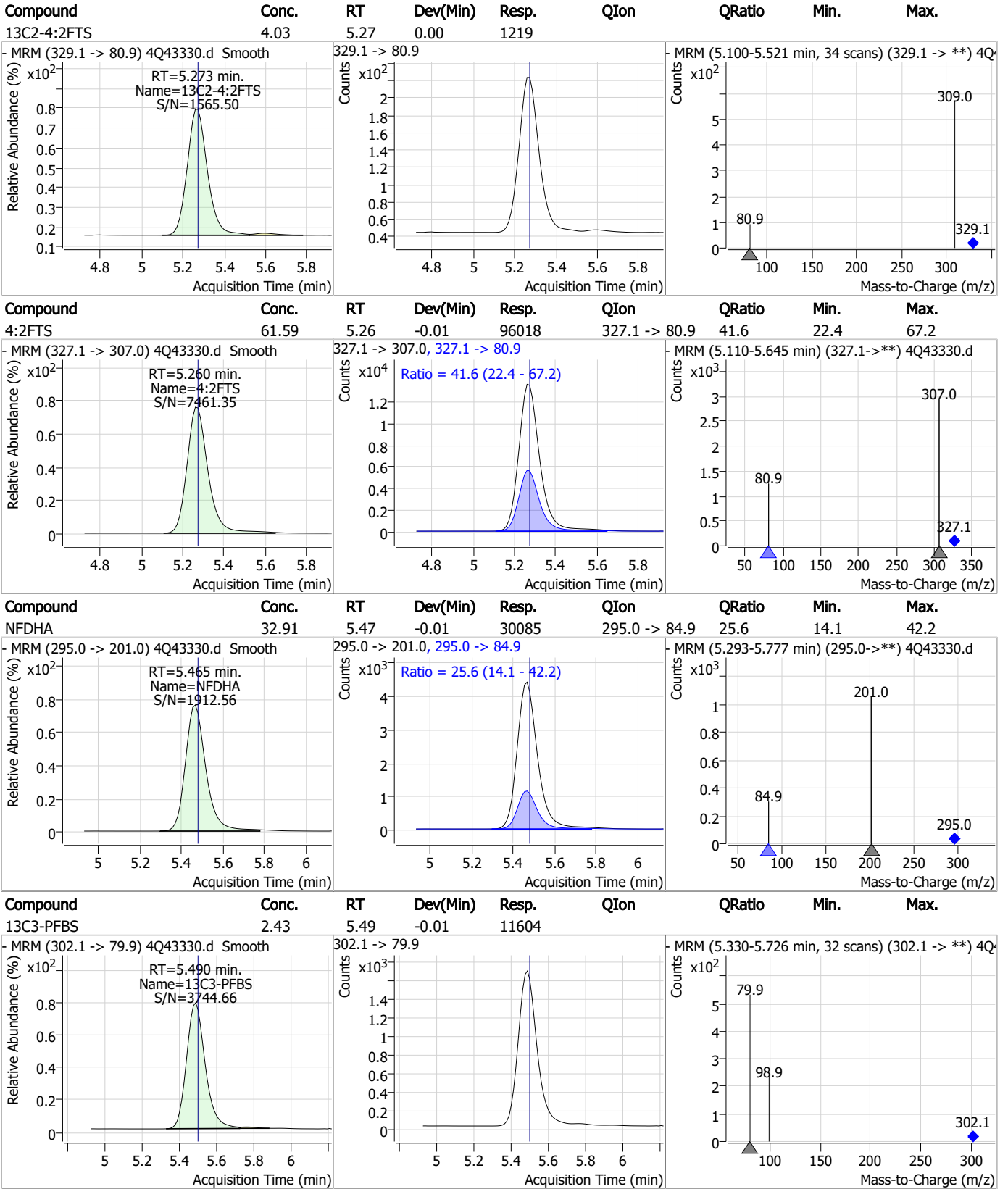
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	29.52	4.40	-0.01	423469				



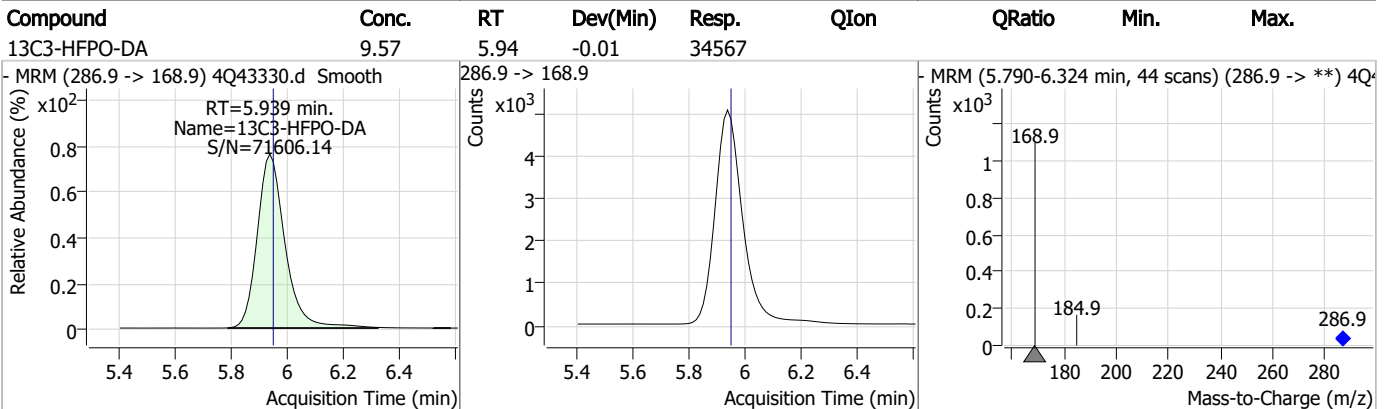
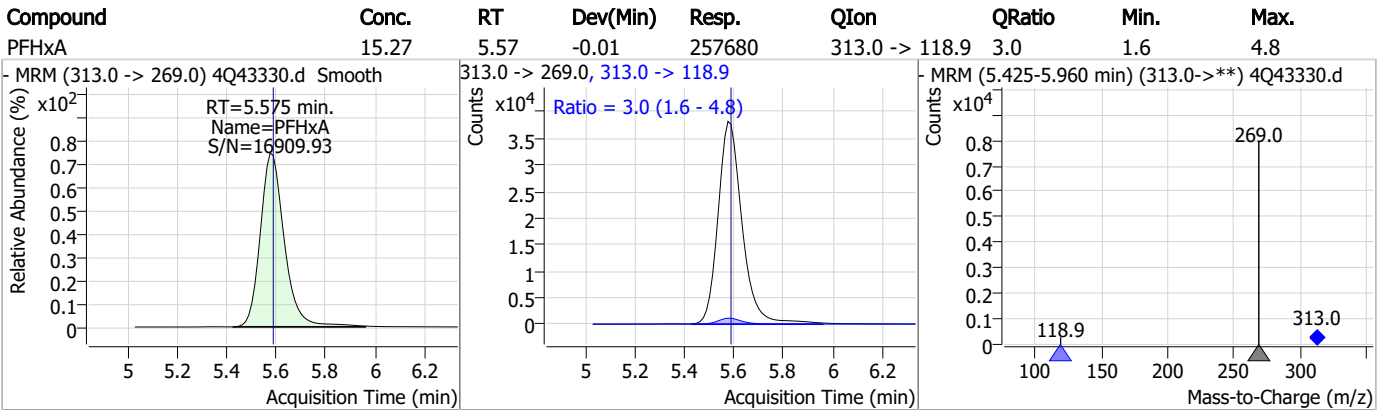
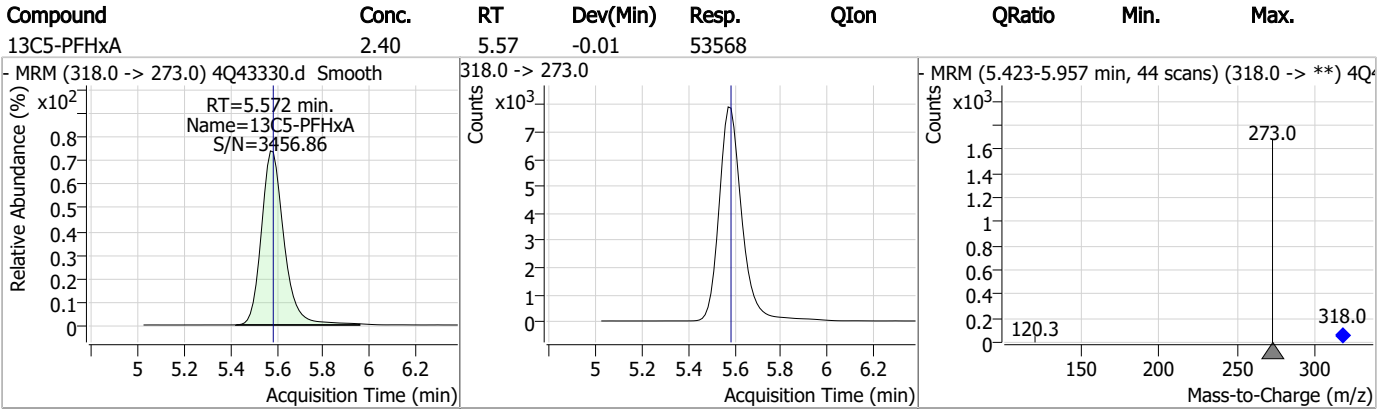
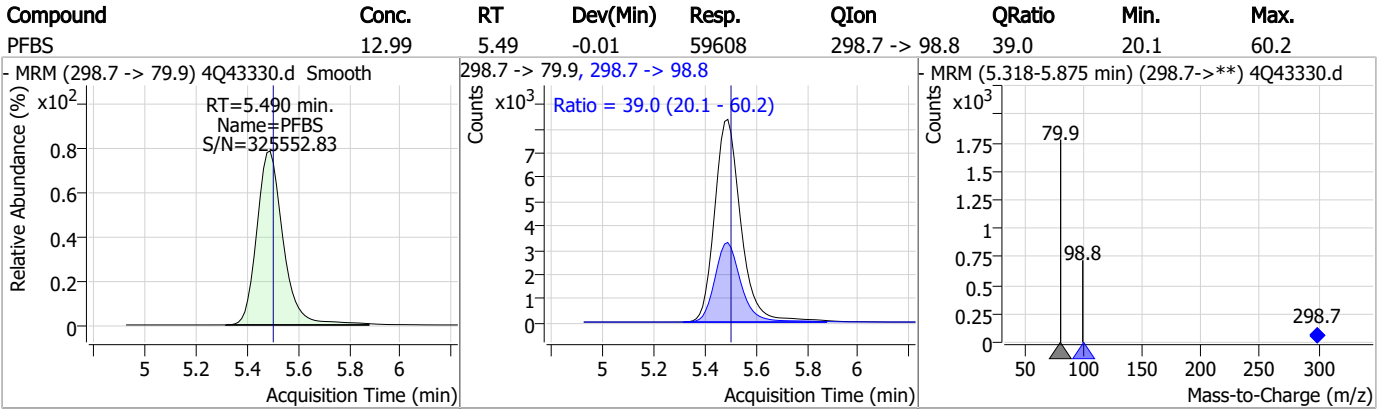
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	29.00	4.82	-0.01	237521				



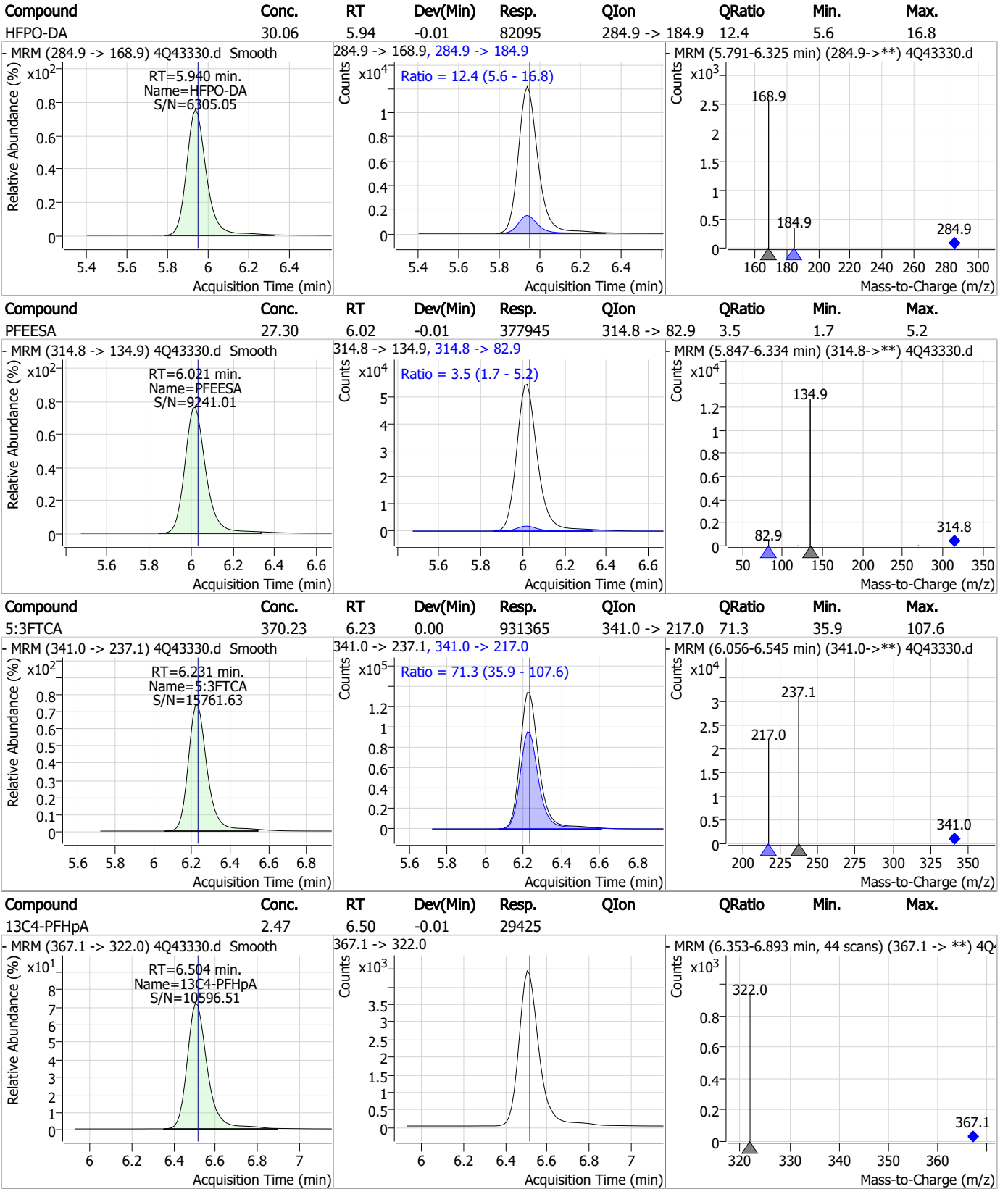
Perfluorinated Compounds by LC/MS/MS



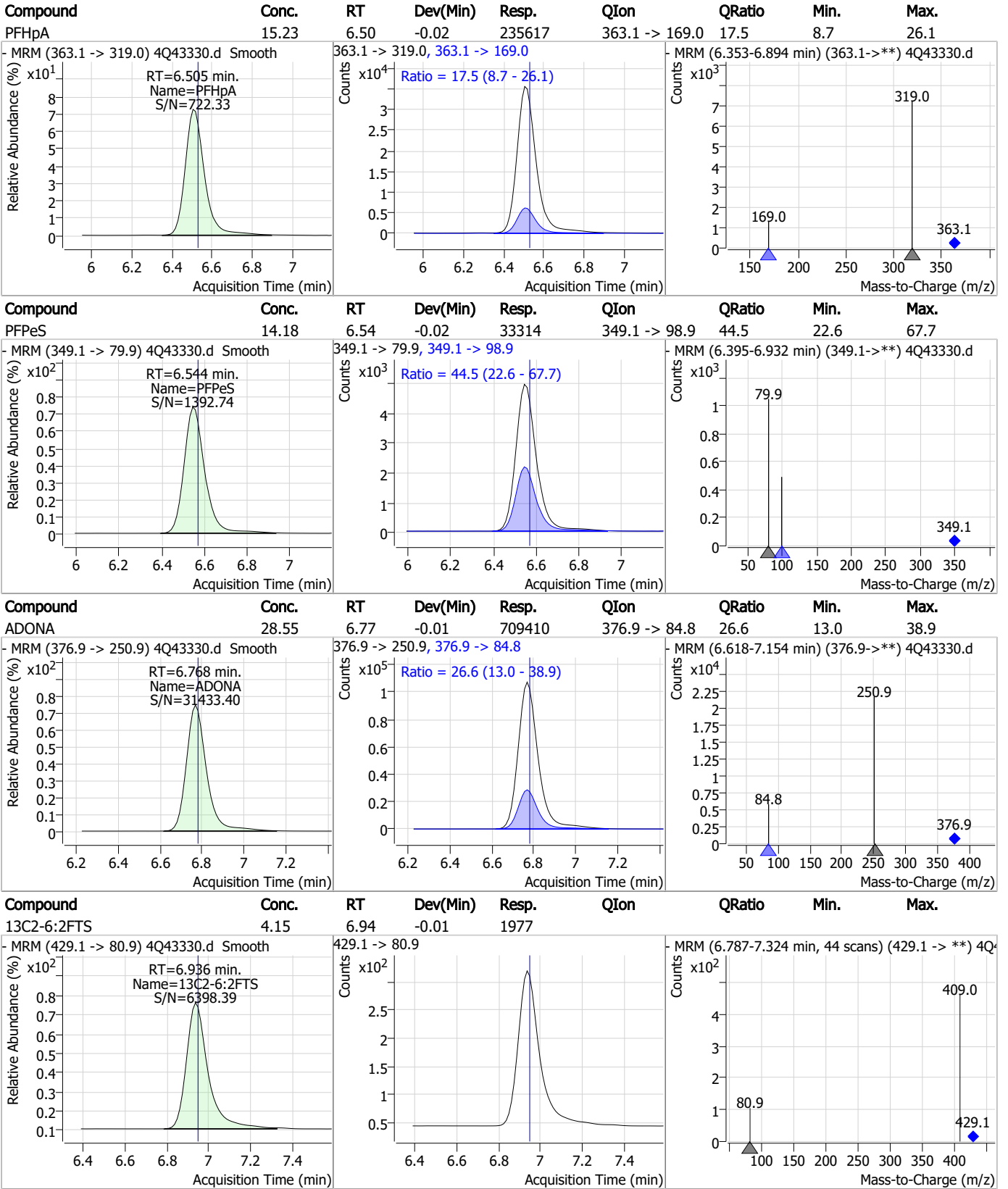
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

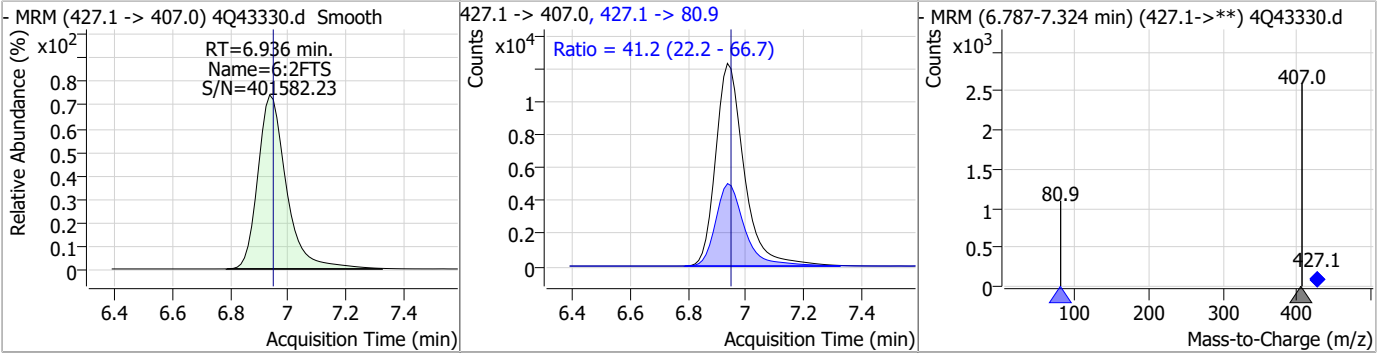


Perfluorinated Compounds by LC/MS/MS

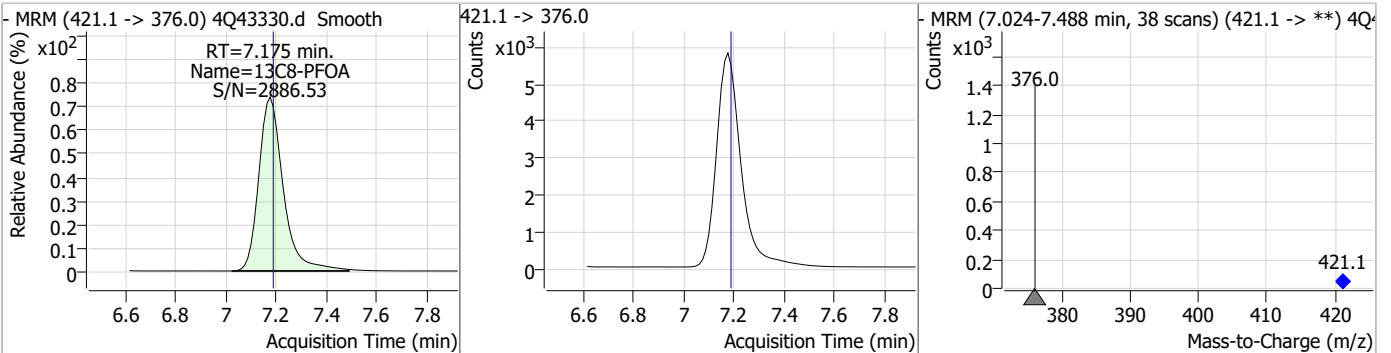


Perfluorinated Compounds by LC/MS/MS

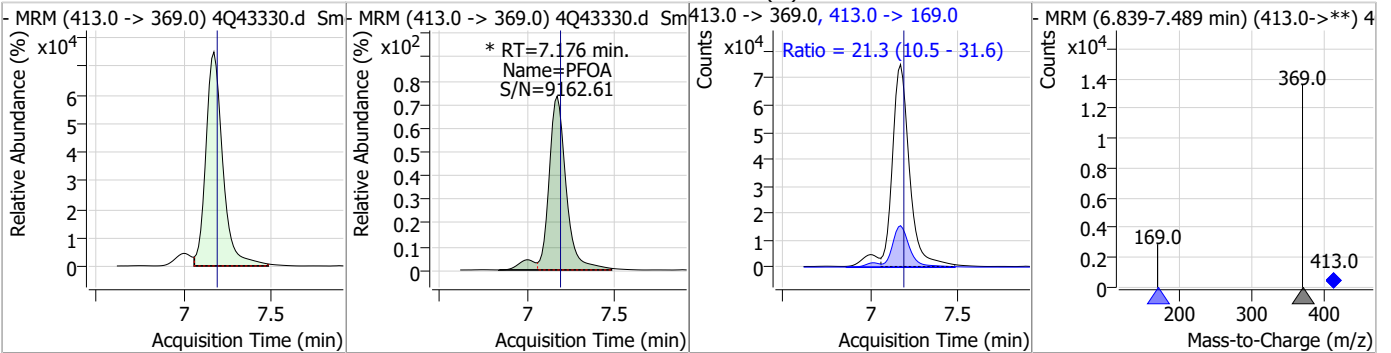
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	55.46	6.94	-0.01	83797	427.1 -> 80.9	41.2	22.2	66.7



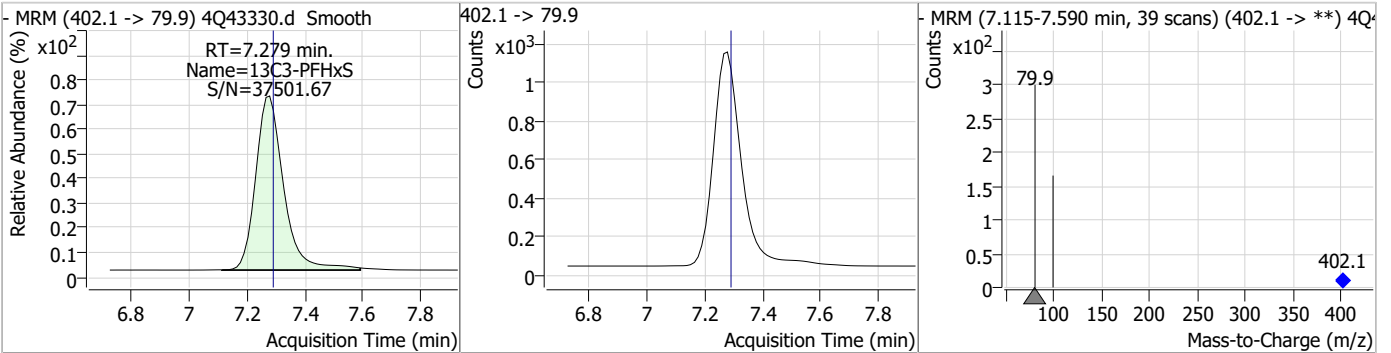
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.49	7.18	-0.01	39245	421.1 -> 376.0			



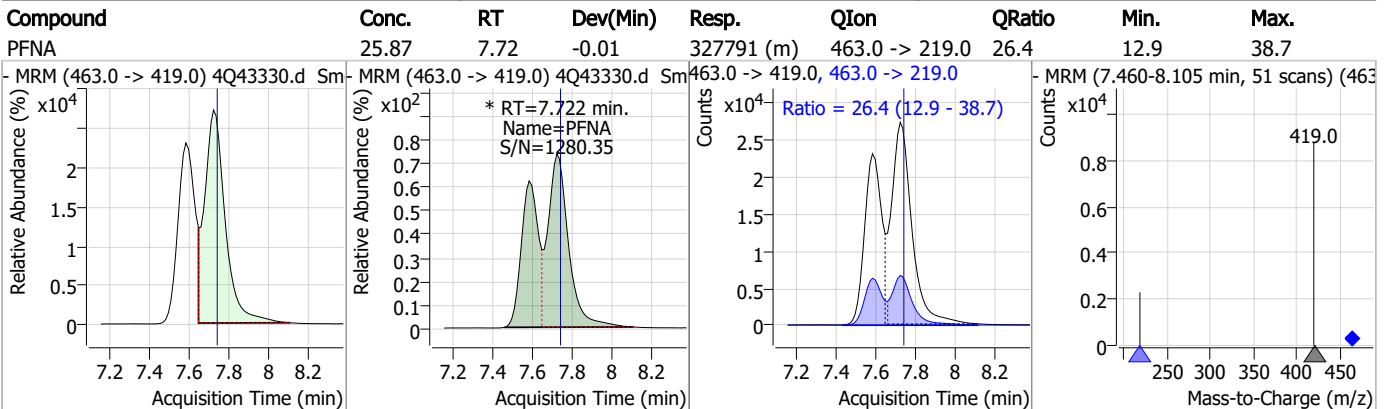
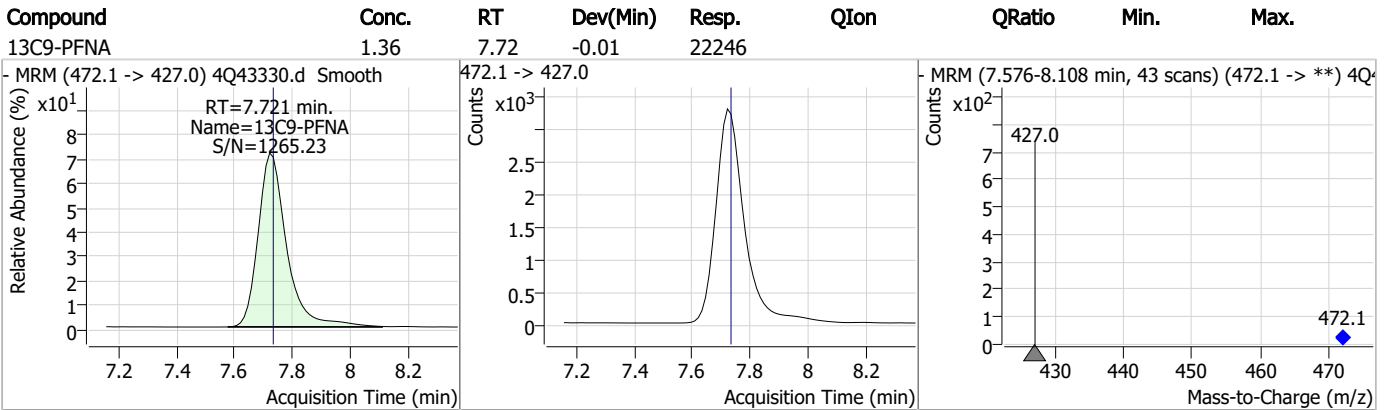
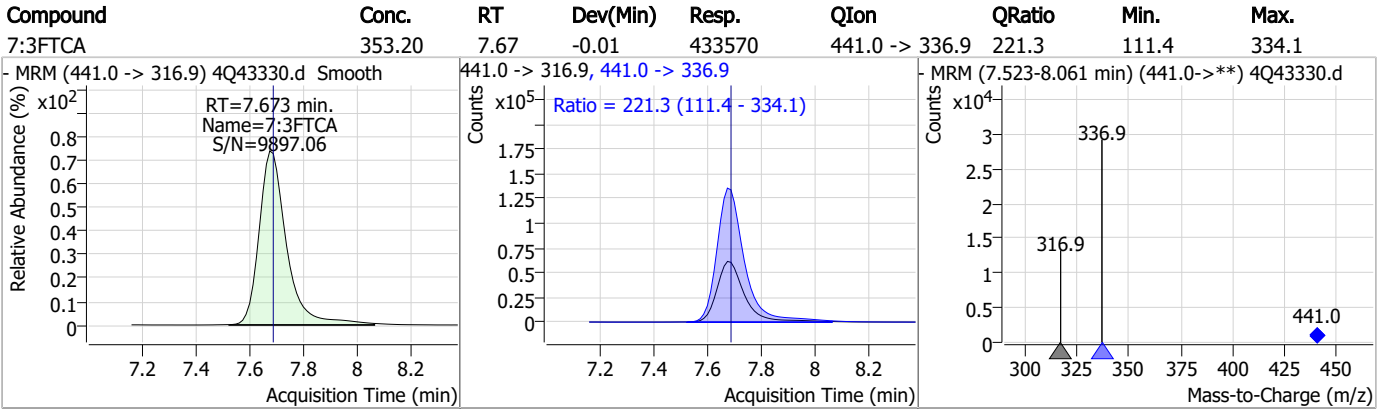
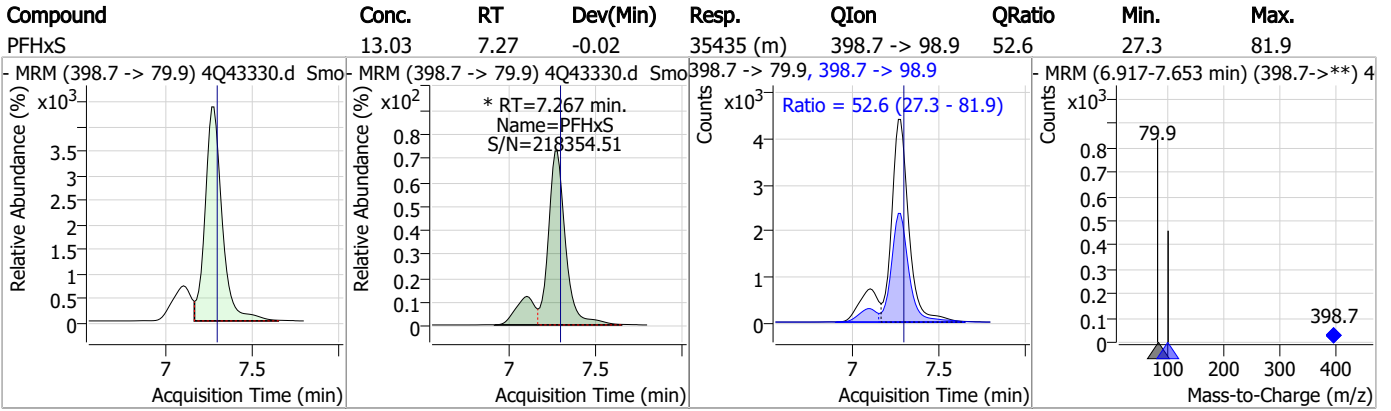
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	30.67	7.18	-0.01	536267 (m)	413.0 -> 169.0	21.3	10.5	31.6



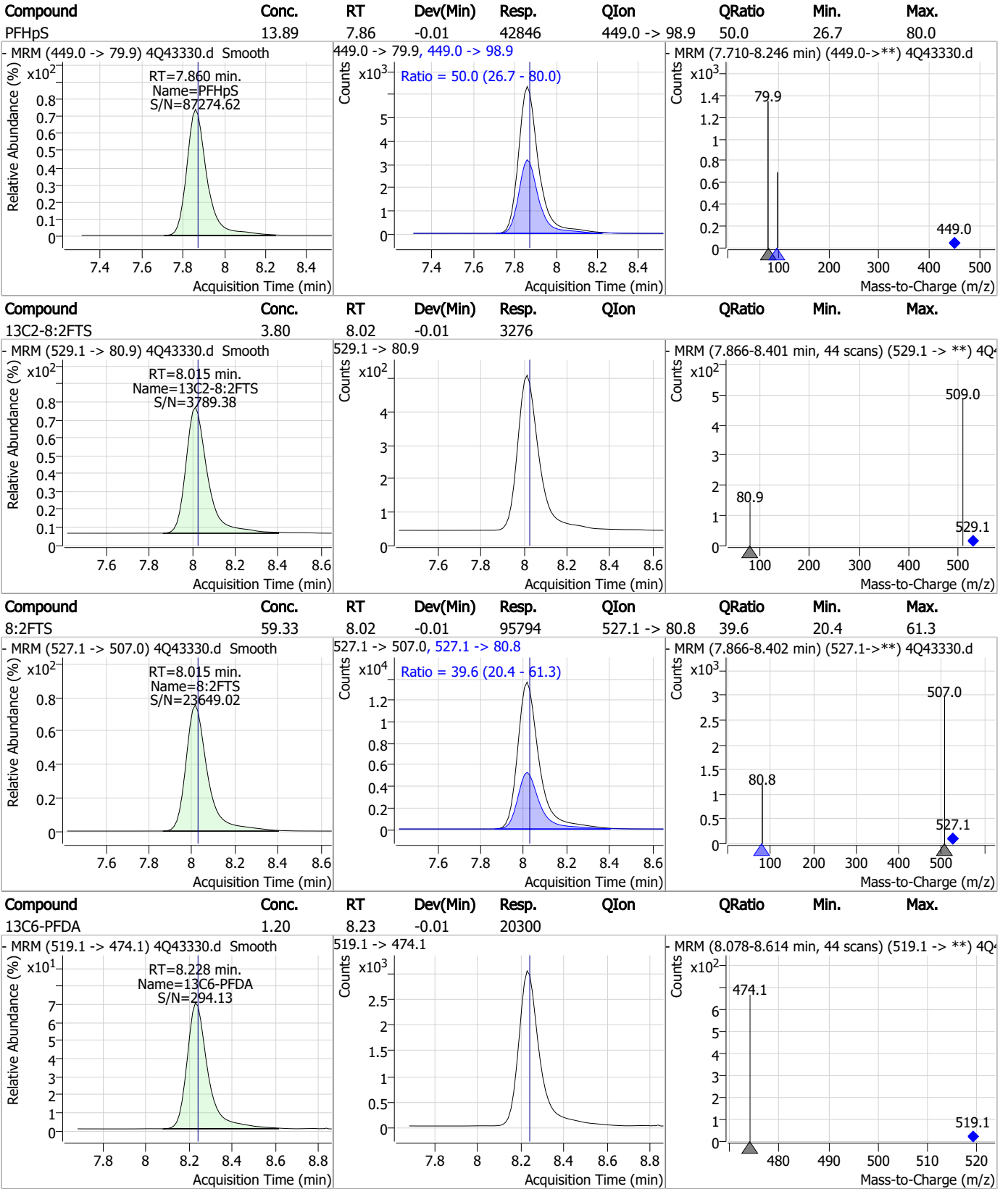
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.52	7.28	-0.01	7425	402.1 -> 79.9			



Perfluorinated Compounds by LC/MS/MS



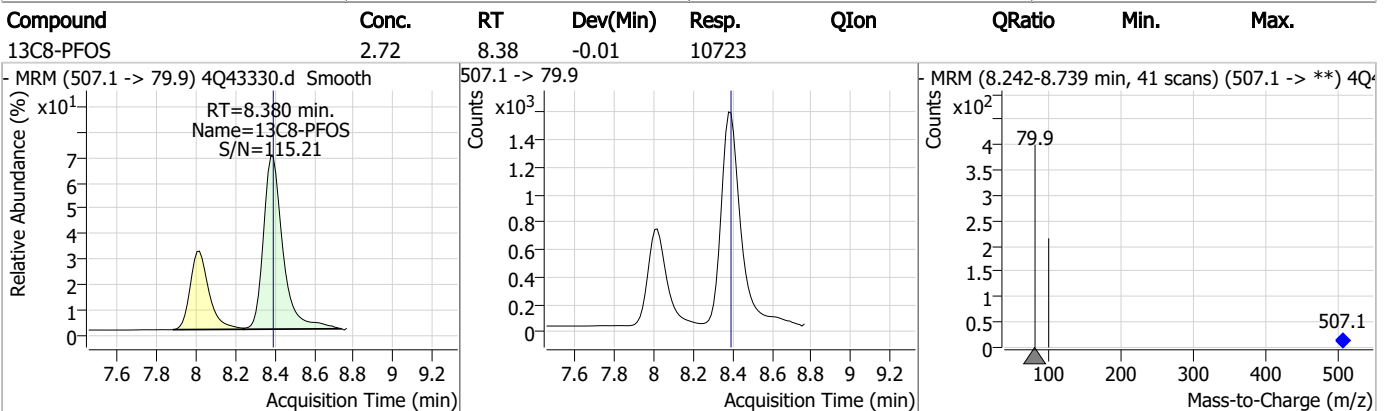
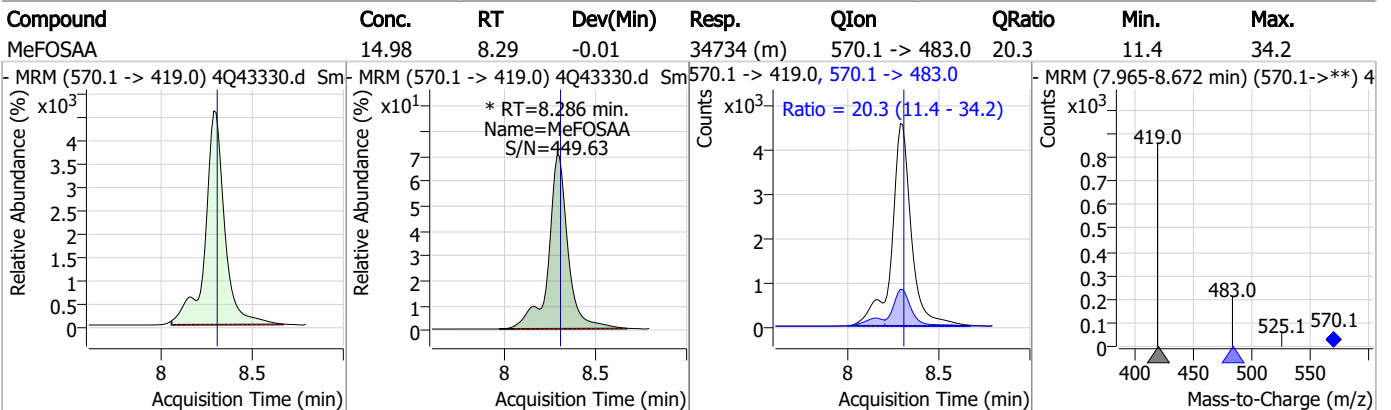
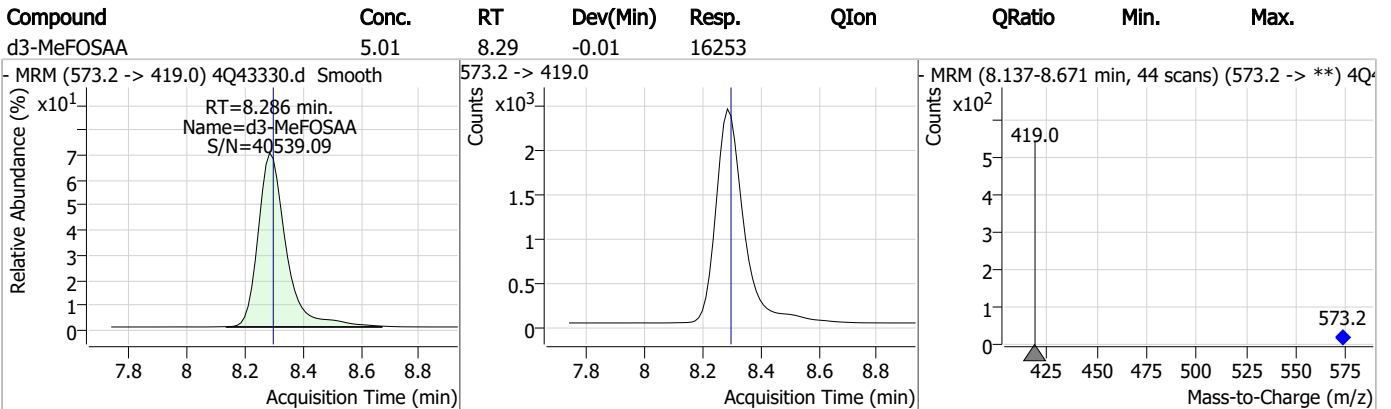
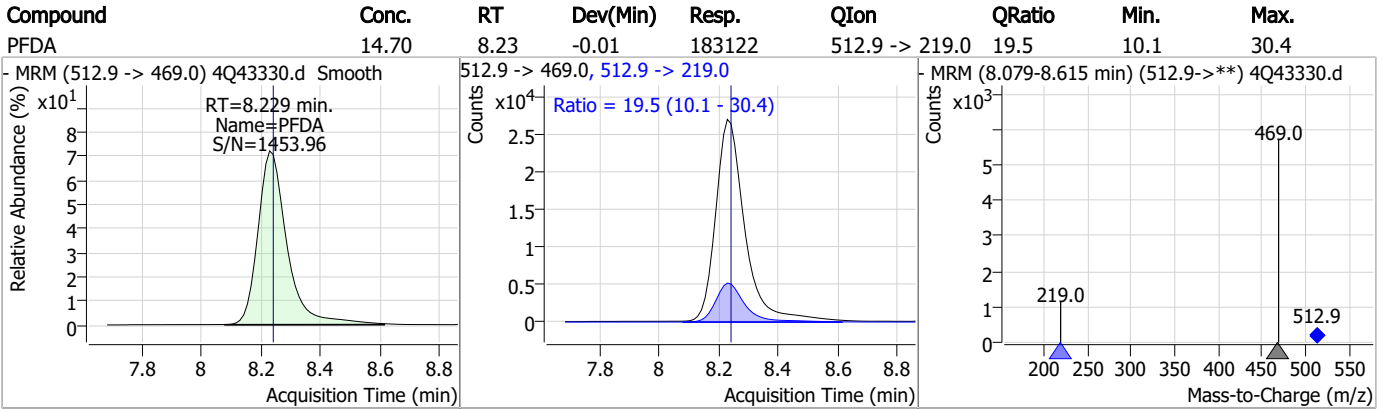
Perfluorinated Compounds by LC/MS/MS



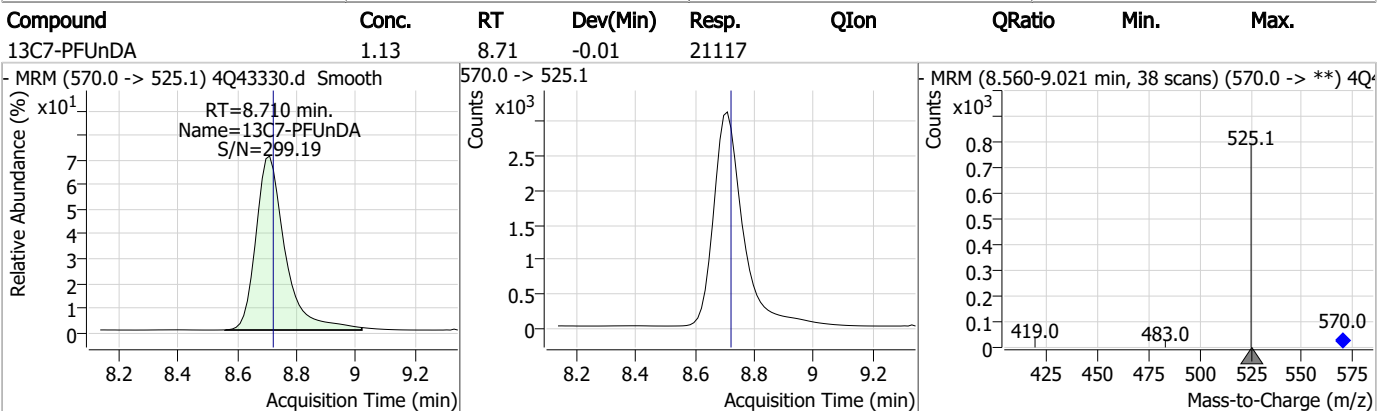
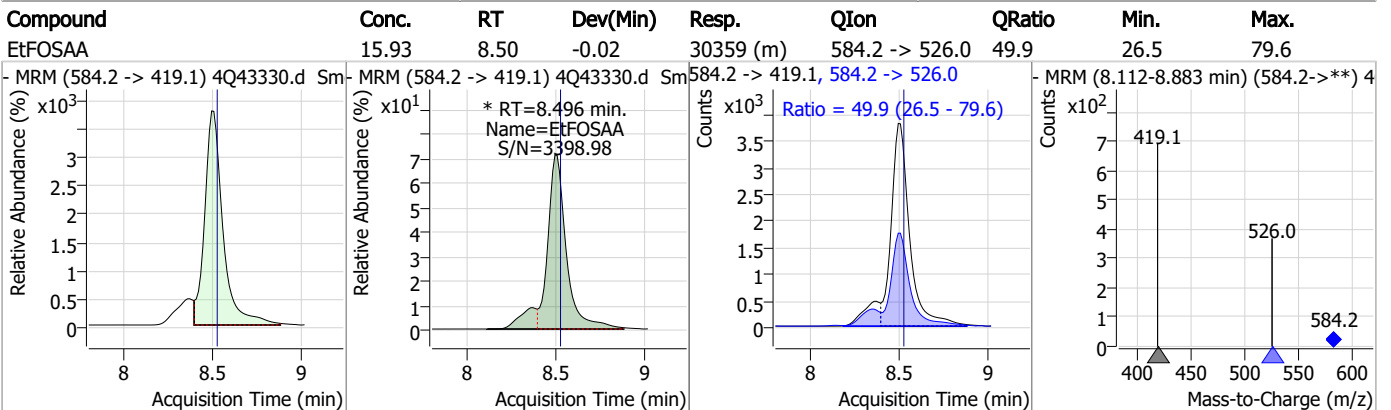
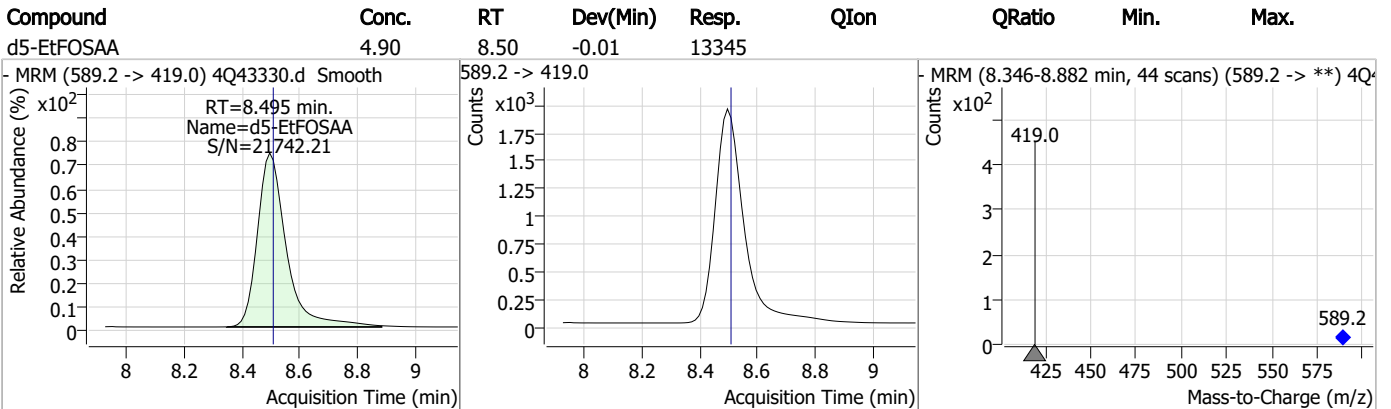
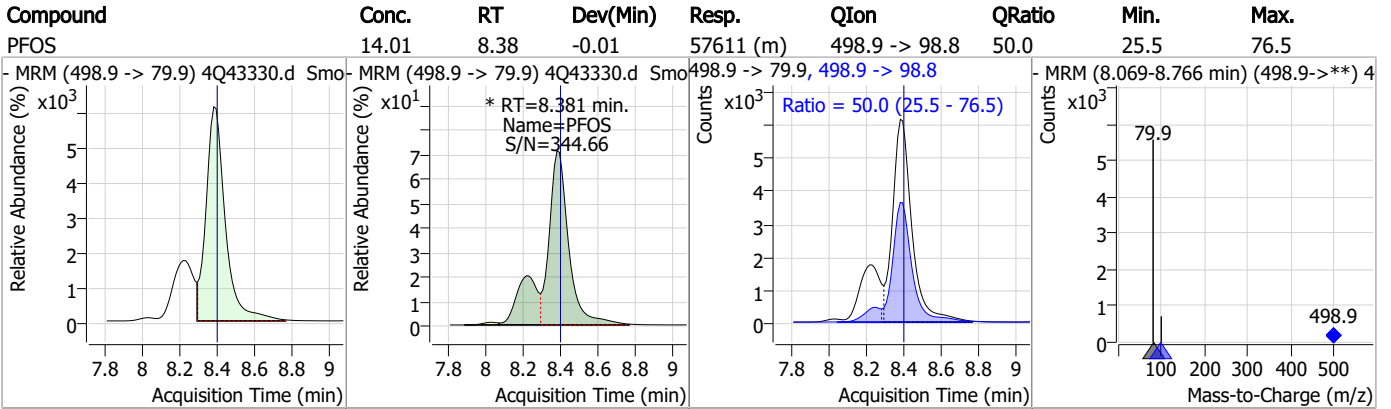
7.6.8

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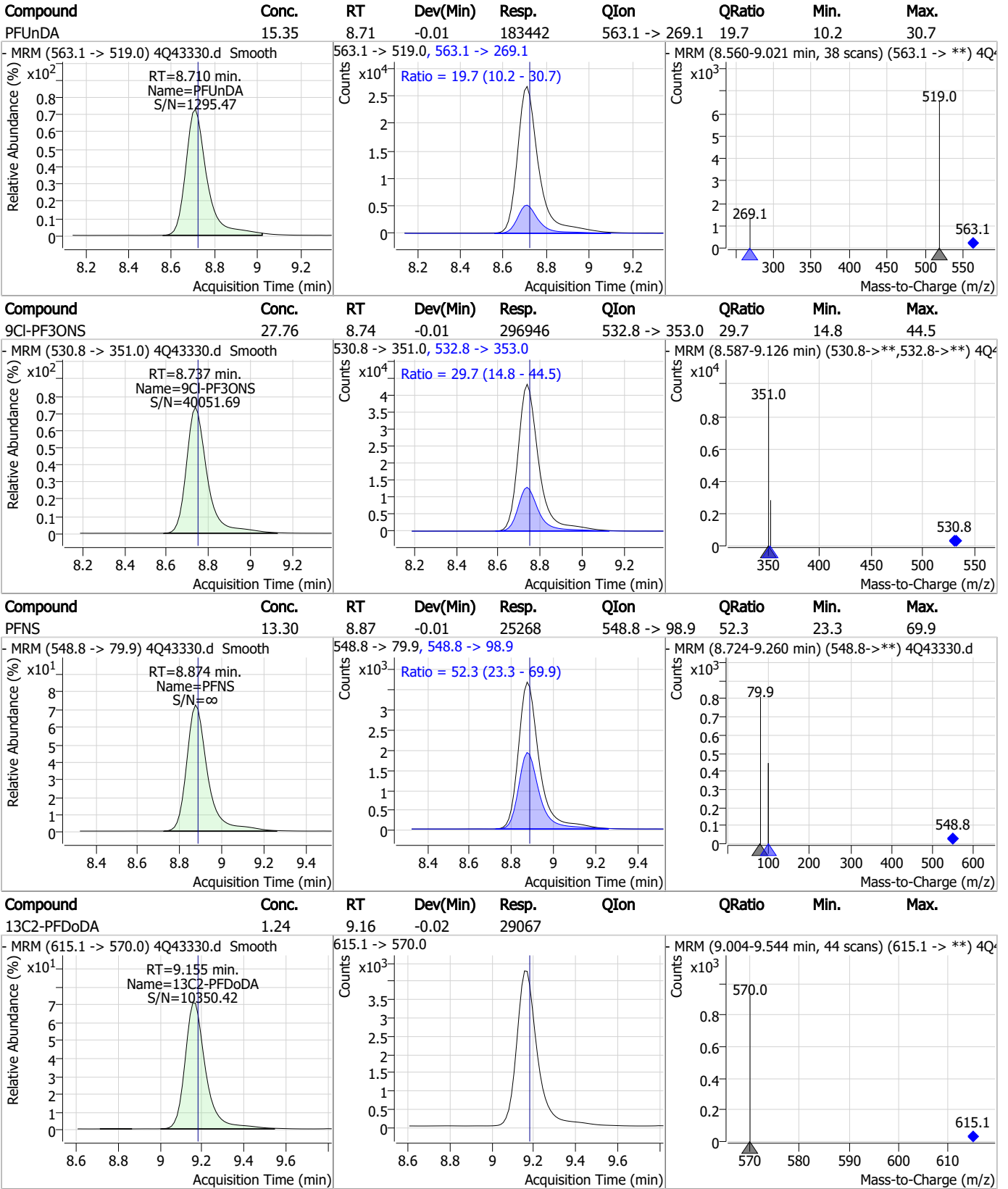
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



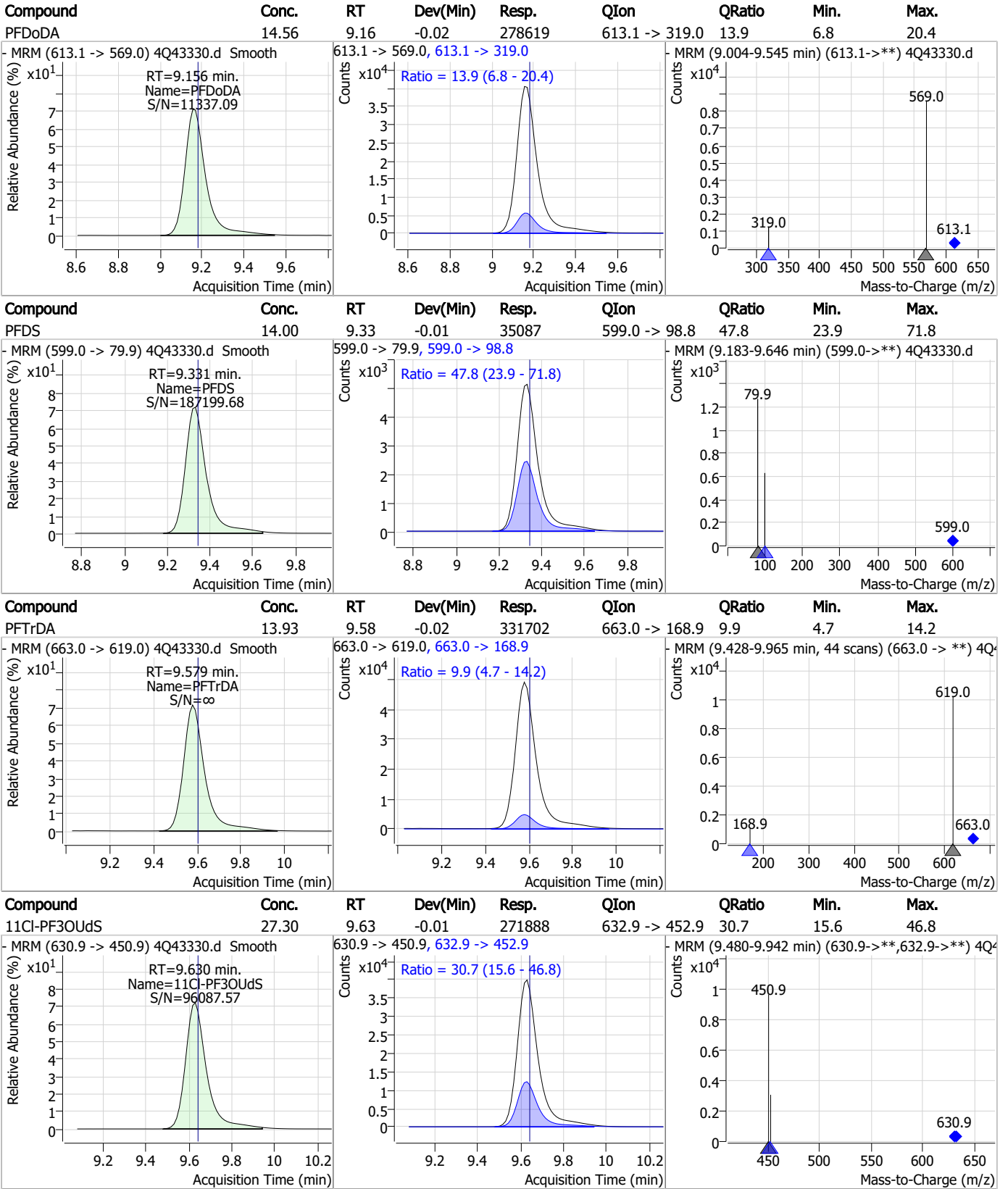
Perfluorinated Compounds by LC/MS/MS



7.6.8
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Perfluorinated Compounds by LC/MS/MS

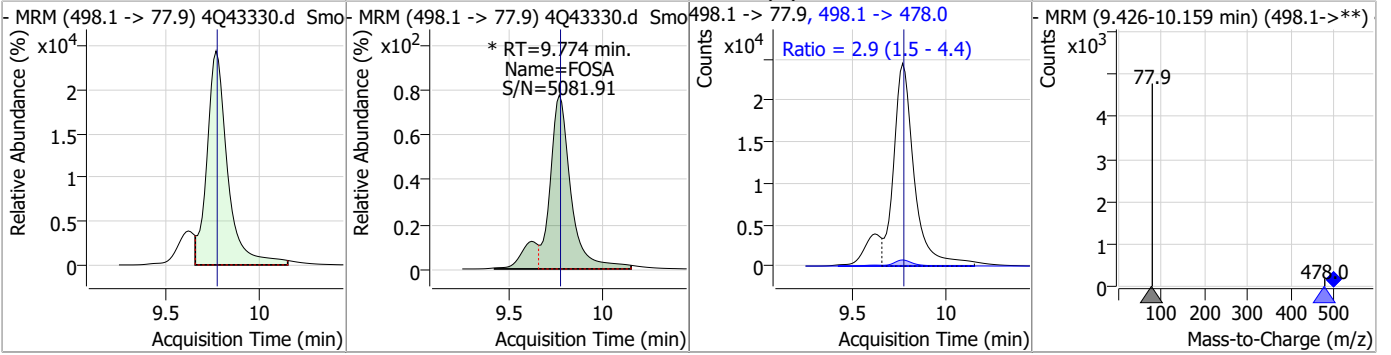


7.6.8
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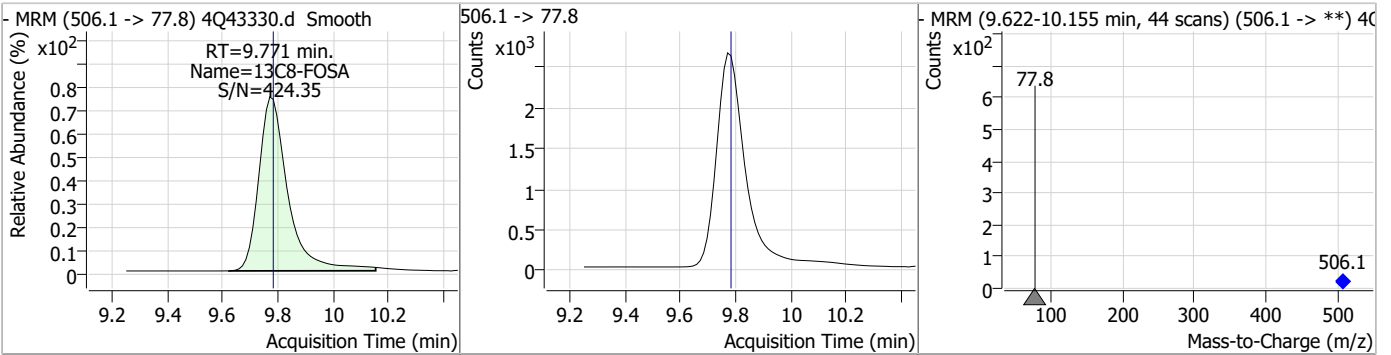


Perfluorinated Compounds by LC/MS/MS

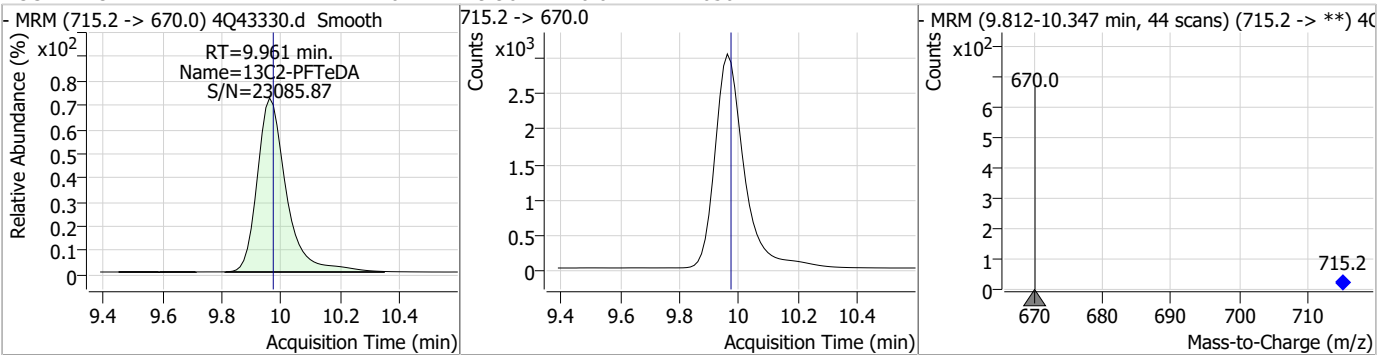
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	32.35	9.77	0.00	211464 (m)	498.1 -> 478.0	2.9	1.5	4.4



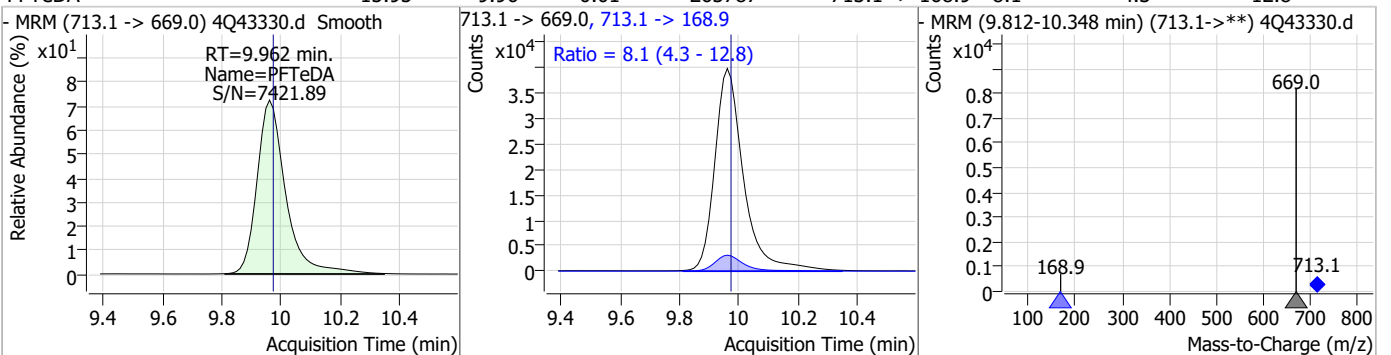
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.70	9.77	-0.01	19327				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.10	9.96	-0.01	20507				

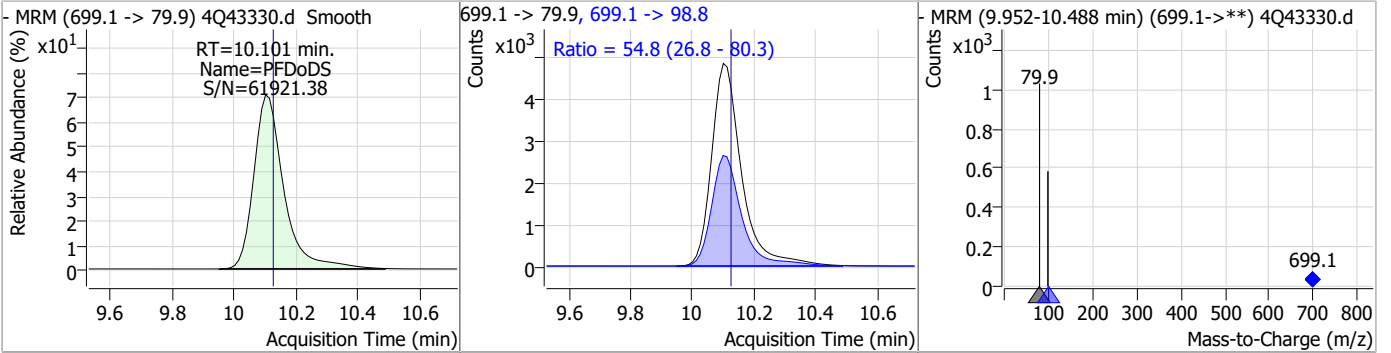


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	15.95	9.96	-0.01	265787	713.1 -> 168.9	8.1	4.3	12.8

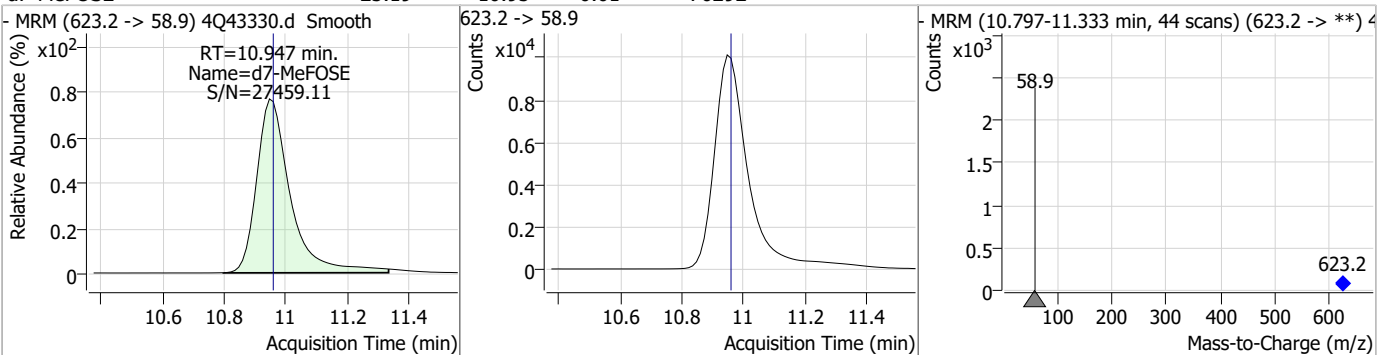


Perfluorinated Compounds by LC/MS/MS

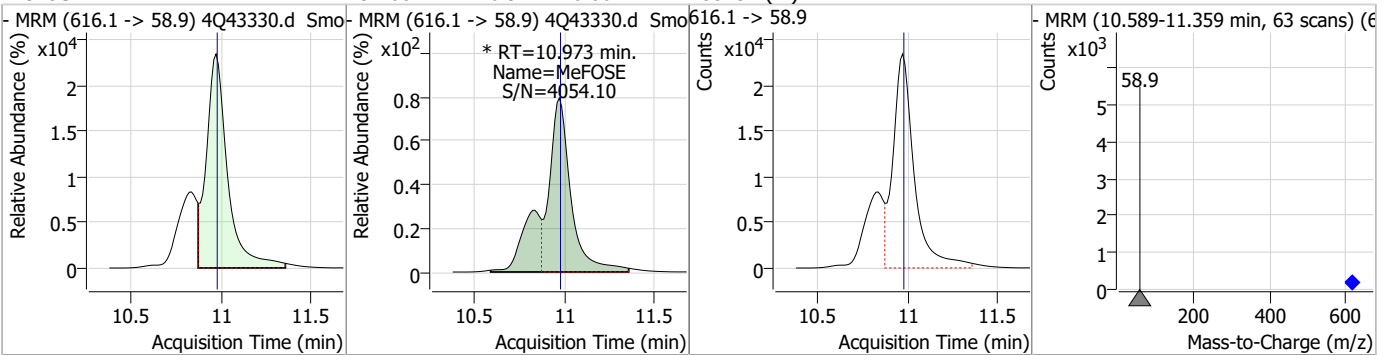
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	14.22	10.10	-0.02	32376	699.1 -> 98.8	54.8	26.8	80.3



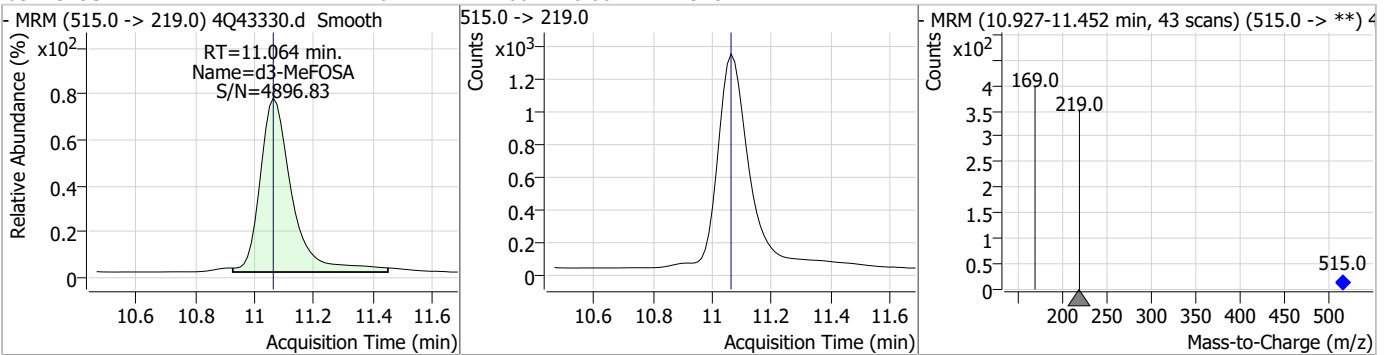
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.19	10.95	-0.01	76292				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	94.08	10.97	0.00	255234 (m)				

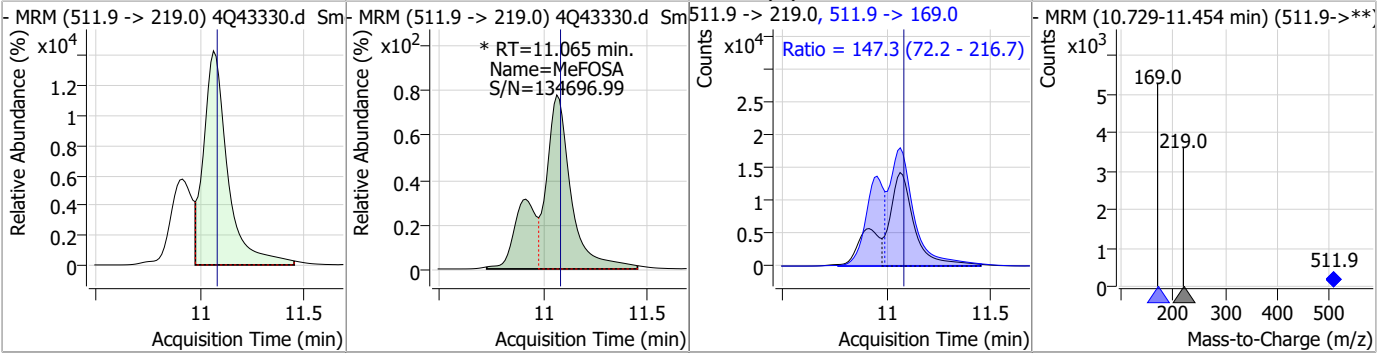


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.64	11.06	0.00	9784				

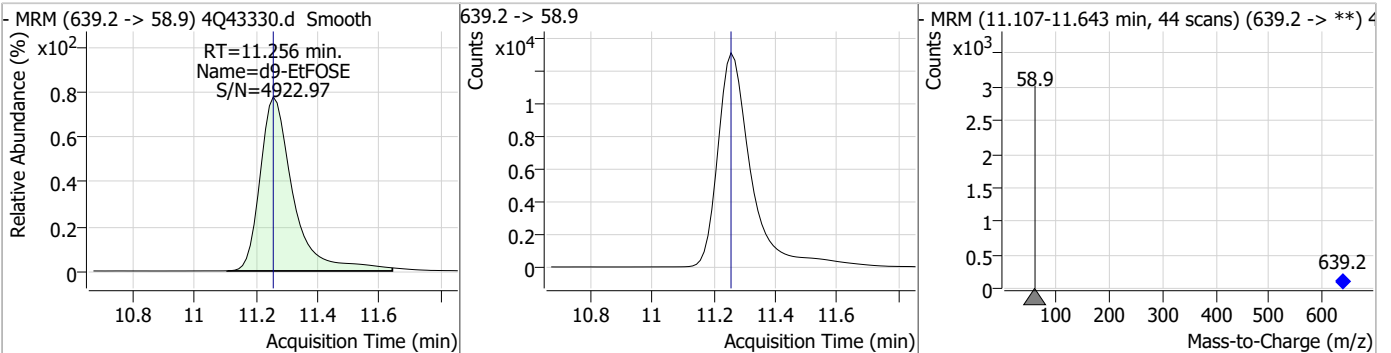


Perfluorinated Compounds by LC/MS/MS

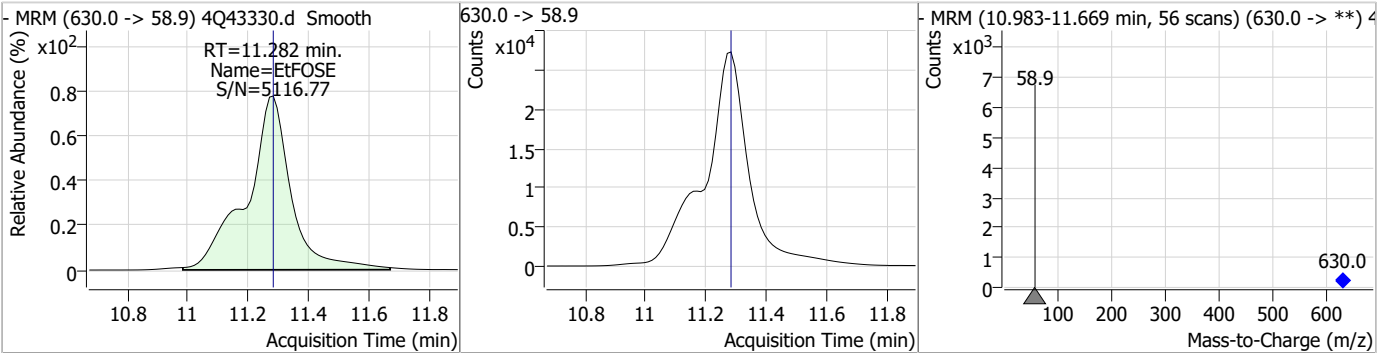
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	47.83	11.07	-0.01	156501 (m)	511.9 -> 169.0	147.3	72.2	216.7



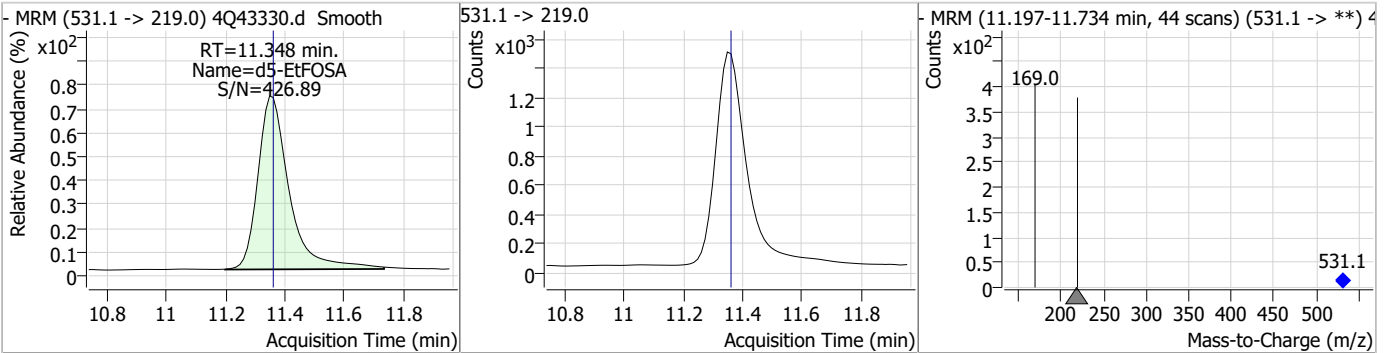
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.17	11.26	0.00	97624				



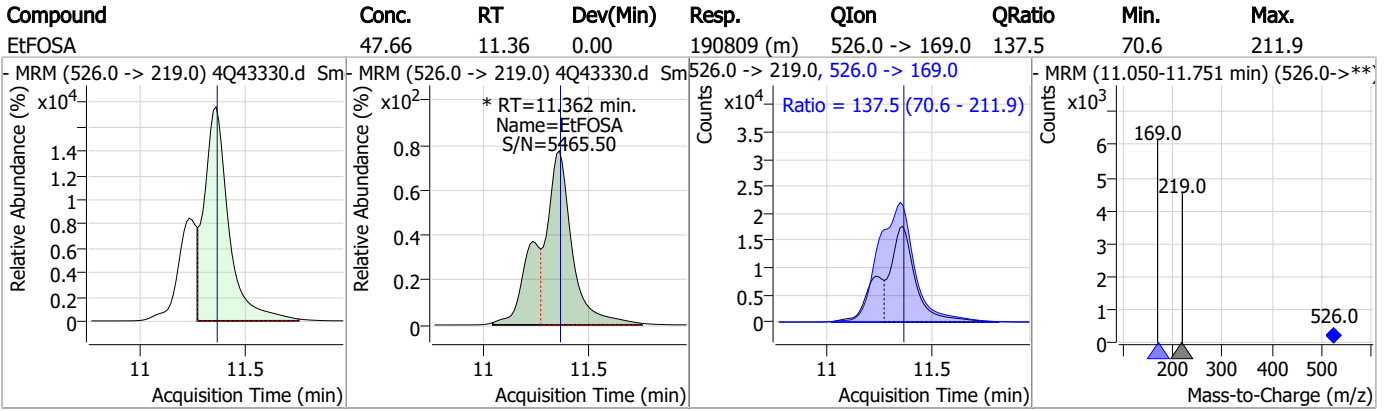
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	89.80	11.28	0.00	279534				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.73	11.35	-0.01	10729				



Perfluorinated Compounds by LC/MS/MS



7.6.8

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Manual Integration Approval Summary

Sample Number: S4Q626-RT Method: EPA DRAFT 1633
Lab FileID: 4Q43330.D Analyst approved: 04/21/23 11:13 Natasha Gumtie
Injection Time: 04/20/23 13:38 Supervisor approved: 04/21/23 14:03 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.18	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.27	Split peak
Perfluorononanoic acid	375-95-1		7.72	Split peak
MeFOSAA	2355-31-9		8.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.38	Split peak
EtFOSAA	2991-50-6		8.50	Split peak
PFOSA	754-91-6		9.77	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.06	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.68.1
7

QQQ Check Tune Report



Instrument Name LCMS4-Q
MS Model G6470A
MS Instrument Serial SG2004G105
Software_Firmware Version 10.0.142, FW: A.00.08.100
Tune Date & Time 10 April 2023 11:18:30
Data Path D:\MassHunter\Tune\QQQ\G6470A\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.62E+0 [R] (Torr); 3.48E-5 [H] (Torr)

Source Parameters

Parameter	Negative
Gas Temp (°C)	300
Gas Flow (l/min)	8
Nebulizer (psi)	15
Capillary (V)	4000
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	7

7.7.1

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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	112.99	0.00	Pass	0.70	0.66	-0.04	Pass	131498
302.00	302.02	0.02	Pass	0.70	0.67	-0.03	Pass	181863
601.98	602.05	0.07	Pass	0.70	0.68	-0.02	Pass	385148
1033.99	1034.06	0.07	Pass	0.70	0.68	-0.02	Pass	594104
1633.95	1633.99	0.04	Pass	0.70	0.67	-0.03	Pass	1150578
2233.91	2233.92	0.01	Pass	0.70	0.71	0.01	Pass	785740

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.08	0.08	Pass	0.70	0.60	-0.10	Pass	30294
112.99	112.98	-0.01	Pass	0.70	0.71	0.01	Pass	104967
302.00	302.00	0.00	Pass	0.70	0.68	-0.02	Pass	129052
601.98	601.93	-0.05	Pass	0.70	0.70	0.00	Pass	214015
1033.99	1033.89	-0.10	Pass	0.70	0.73	0.03	Pass	103123
1633.95	1633.75	-0.20	Pass	0.70	0.79	0.09	Pass	133334
2233.91	2233.61	-0.30	Pass	0.70	0.78	0.08	Pass	69357

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.01	0.02	Pass	1.20	1.18	-0.02	Pass	179323
302.00	302.00	0.00	Pass	1.20	1.41	0.21	Pass	240318
601.98	602.02	0.04	Pass	1.20	1.44	0.24	Pass	651863
1033.99	1034.03	0.04	Pass	1.20	1.50	0.30	Pass	1242281
1633.95	1633.96	0.01	Pass	1.20	1.33	0.13	Pass	3088977
2233.91	2233.88	-0.03	Pass	1.20	1.20	0.00	Pass	1794324

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.09	0.09	Pass	1.20	1.10	-0.10	Pass	40477
112.99	112.96	-0.03	Pass	1.20	1.21	0.01	Pass	147250
302.00	302.00	0.00	Pass	1.20	1.44	0.24	Pass	192249
601.98	601.99	0.01	Pass	1.20	1.51	0.31	Pass	419577
1033.99	1033.87	-0.12	Pass	1.20	1.55	0.35	Pass	220523
1633.95	1633.69	-0.26	Pass	1.20	1.54	0.34	Pass	377309
2233.91	2233.67	-0.24	Pass	1.20	1.38	0.18	Pass	259352

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.90	-0.09	Pass	2.50	2.48	-0.02	Pass	252983
302.00	302.01	0.01	Pass	2.50	2.74	0.24	Pass	302089
601.98	602.07	0.09	Pass	2.50	2.69	0.19	Pass	868943
1033.99	1034.04	0.05	Pass	2.50	2.73	0.23	Pass	2046121
1633.95	1633.96	0.01	Pass	2.50	2.59	0.09	Pass	6120042
2233.91	2233.80	-0.11	Pass	2.50	2.41	-0.09	Pass	4664111

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	2.36	-0.14	Pass	51400
112.99	112.98	-0.01	Pass	2.50	2.50	0.00	Pass	195155
302.00	301.99	-0.01	Pass	2.50	2.67	0.17	Pass	250730
601.98	601.96	-0.02	Pass	2.50	2.77	0.27	Pass	544063
1033.99	1033.87	-0.12	Pass	2.50	2.82	0.32	Pass	327135
1633.95	1633.74	-0.21	Pass	2.50	2.69	0.19	Pass	682574
2233.91	2233.64	-0.27	Pass	2.50	2.51	0.01	Pass	606196

7.7.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42936.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 11:49:59 AM
 Sample Name : ic621-1
 Vial : P1-A2
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.011	216.8 -> 171.9	98817	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	68363	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	52629	2.50 µg/L	0.012
M4-PFHpA	6.580	367.1 -> 322.0	26597	2.50 µg/L	0.000
M8-PFOA	7.250	421.1 -> 376.0	32978	2.50 µg/L	0.013
M9-PFNA	7.797	472.1 -> 427.0	18186	1.25 µg/L	0.000
M6-PFDA	8.315	519.1 -> 474.1	17072	1.25 µg/L	0.012
M7-PFUnDA	8.785	570.0 -> 525.1	19641	1.25 µg/L	0.000
M2-PFDoDA	9.243	615.1 -> 570.0	24715	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	19011	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	16781	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	11429	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	6913	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	10185	2.50 µg/L	0.000
M2-4:2FTS	5.335	329.1 -> 80.9	1625	5.00 µg/L	0.000
M2-6:2FTS	7.010	429.1 -> 80.9	2459	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3708	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	16135	5.00 µg/L	0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	32774	10.00 µg/L	0.000
M5-EtFOSAA	8.582	589.2 -> 419.0	13408	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	73605	25.00 µg/L	0.000
M9-EtFOSE	11.294	639.2 -> 58.9	90628	25.00 µg/L	0.012
M5-EtFOSA	11.386	531.1 -> 219.0	9256	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	8489	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	10538	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	57805	5.00 µg/L	0.025
18O2-PFHxS	7.353	403.0 -> 83.9	4881	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	40535	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	16378	1.25 µg/L	0.012
13C5-PFNA	7.797	468.0 -> 423.0	19341	1.25 µg/L	0.000
13C2-PFHxA	5.647	315.1 -> 270.0	45802	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1625	6.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.9%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2459	6.43 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.5%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3708	5.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.8%		
13C2-PFDoDA	9.243	615.1 -> 570.0	24715	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C2-PFTeDA	10.036	715.2 -> 670.0	19011	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C3-PFBS	5.564	302.1 -> 79.9	11429	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C3-PFHxS	7.354	402.1 -> 79.9	6913	2.56 µg/L	0.013

7.7.2
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C4-PFBA	3.011	216.8 -> 171.9	98817	9.82 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C4-PFHpA	6.580	367.1 -> 322.0	26597	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C5-PFHxA	5.659	318.0 -> 273.0	52629	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C5-PFPeA	4.475	268.3 -> 223.0	68363	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.315	519.1 -> 474.1	17072	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C7-PFUnDA	8.785	570.0 -> 525.1	19641	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C8-FOSA	9.870	506.1 -> 77.8	16781	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C8-PFOA	7.250	421.1 -> 376.0	32978	2.47 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-PFOS	8.467	507.1 -> 79.9	10185	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C9-PFNA	7.797	472.1 -> 427.0	18186	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
d3-MeFOSAA	8.373	573.2 -> 419.0	16135	5.20 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	32774	10.20 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
d3-MeFOSA	11.102	515.0 -> 219.0	8489	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
d5-EtFOSAA	8.582	589.2 -> 419.0	13408	5.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
d7-MeFOSE	10.985	623.2 -> 58.9	73605	27.08 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.3%	
d9-EtFOSE	11.294	639.2 -> 58.9	90628	27.25 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
d5-EtFOSA	11.386	531.1 -> 219.0	9256	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	1424	0.70 µg/L	93
		327.1 -> 80.9	640		
6:2FTS	7.011	427.1 -> 407.0	1255	0.75 µg/L	94
		427.1 -> 80.9	576		
8:2FTS	8.090	527.1 -> 507.0	1441	0.87 µg/L	94
		527.1 -> 80.8	519		
EtFOSAA	8.583	584.2 -> 419.1	368	0.18 µg/L	m 79
		584.2 -> 526.0	187		
FOSA	9.861	498.1 -> 77.9	1107	0.20 µg/L	97
		498.1 -> 478.0	40		
MeFOSAA	8.361	570.1 -> 419.0	574	0.26 µg/L	m 90
		570.1 -> 483.0	114		
PFBA	3.020	212.8 -> 168.9	1918	0.85 µg/L	100
PFBS	5.565	298.7 -> 79.9	710	0.17 µg/L	79
		298.7 -> 98.8	363		
PFDA	8.304	512.9 -> 469.0	2072	0.21 µg/L	95
		512.9 -> 219.0	448		
PFDODA	9.244	613.1 -> 569.0	3212	0.21 µg/L	98
		613.1 -> 319.0	422		
PFDS	9.409	599.0 -> 79.9	428	0.19 µg/L	90

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	236			
PFHpA	6.580	363.1 -> 319.0	2624	0.20	µg/L	94
		363.1 -> 169.0	534			
PFHpS	7.936	449.0 -> 79.9	534	0.20	µg/L	89
		449.0 -> 98.9	235			
PFHxA	5.662	313.0 -> 269.0	3332	0.21	µg/L	96
		313.0 -> 118.9	147			
PFHxS	7.355	398.7 -> 79.9	454	0.19	µg/L	m 85
		398.7 -> 98.9	188			
PFNA	7.797	463.0 -> 419.0	2266	0.23	µg/L	98
		463.0 -> 219.0	537			
PFNS	8.961	548.8 -> 79.9	251	0.16	µg/L	84
		548.8 -> 98.9	157			
PFOA	7.252	413.0 -> 369.0	3867	0.25	µg/L	91
		413.0 -> 169.0	622			
PFOS	8.456	498.9 -> 79.9	851	0.21	µg/L	90
		498.9 -> 98.8	450			
PFPeA	4.477	263.0 -> 219.0	5366	0.41	µg/L	100
PFPeS	6.619	349.1 -> 79.9	347	0.17	µg/L	78
		349.1 -> 98.9	196			
PFTeDA	10.037	713.1 -> 669.0	3265	0.22	µg/L	99
		713.1 -> 168.9	250			
PFTrDA	9.666	663.0 -> 619.0	4786	0.24	µg/L	96
		663.0 -> 168.9	390			
PFUnDA	8.785	563.1 -> 519.0	2699	0.24	µg/L	93
		563.1 -> 269.1	443			
11CI-PF3OUdS	9.705	630.9 -> 450.9	3055	0.36	µg/L	96
		632.9 -> 452.9	885			
9CI-PF3ONS	8.825	530.8 -> 351.0	3318	0.35	µg/L	97
		532.8 -> 353.0	971			
ADONA	6.843	376.9 -> 250.9	7365	0.37	µg/L	96
		376.9 -> 84.8	1815			
HFPO-DA	6.015	284.9 -> 168.9	1075	0.41	µg/L	89
		284.9 -> 184.9	180			
3:3FTCA	3.979	241.0 -> 177.0	567	0.94	µg/L	96
		241.0 -> 117.0	63			
5:3FTCA	6.345	341.0 -> 237.1	10936	4.97	µg/L	99
		341.0 -> 217.0	7750			
7:3FTCA	7.799	441.0 -> 316.9	4527	5.02	µg/L	98
		441.0 -> 336.9	10137			
EtFOSA	11.388	526.0 -> 219.0	1287	0.39	µg/L	73
		526.0 -> 169.0	1921			
EtFOSE	11.308	630.0 -> 58.9	3102	1.11	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	1178	0.43	µg/L	m 92
		511.9 -> 169.0	1569			
MeFOSE	10.998	616.1 -> 58.9	2777	1.07	µg/L	100
PFDoDS	10.189	699.1 -> 79.9	394	0.20	µg/L	99
		699.1 -> 98.8	225			
NFDHA	5.541	295.0 -> 201.0	420	0.40	µg/L	88
		295.0 -> 84.9	129			
PFMBA	4.891	279.0 -> 85.1	3008	0.41	µg/L	100
PFMPA	3.628	229.0 -> 84.9	2618	0.40	µg/L	100
PFEESA	6.096	314.8 -> 134.9	4749	0.36	µg/L	98
		314.8 -> 82.9	135			

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

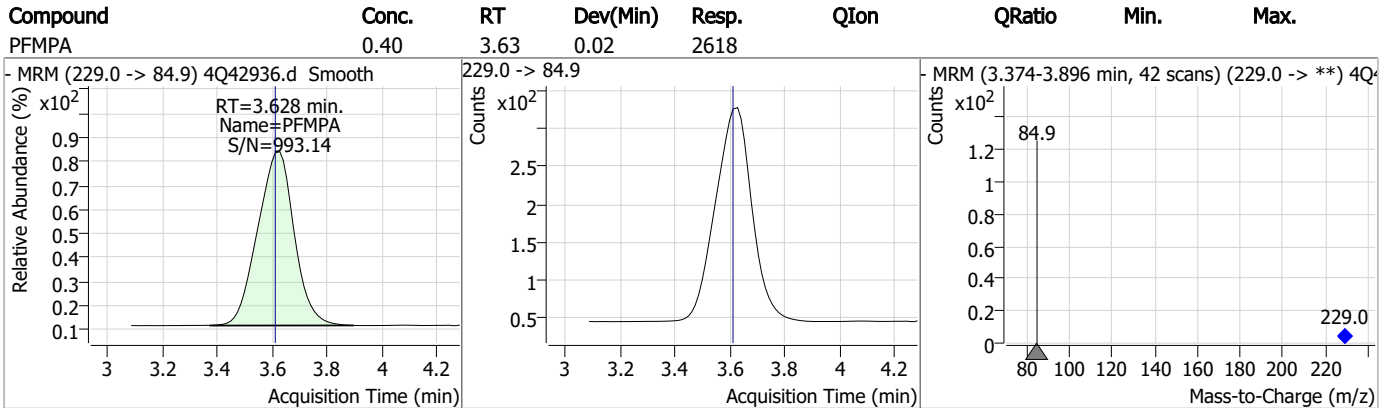
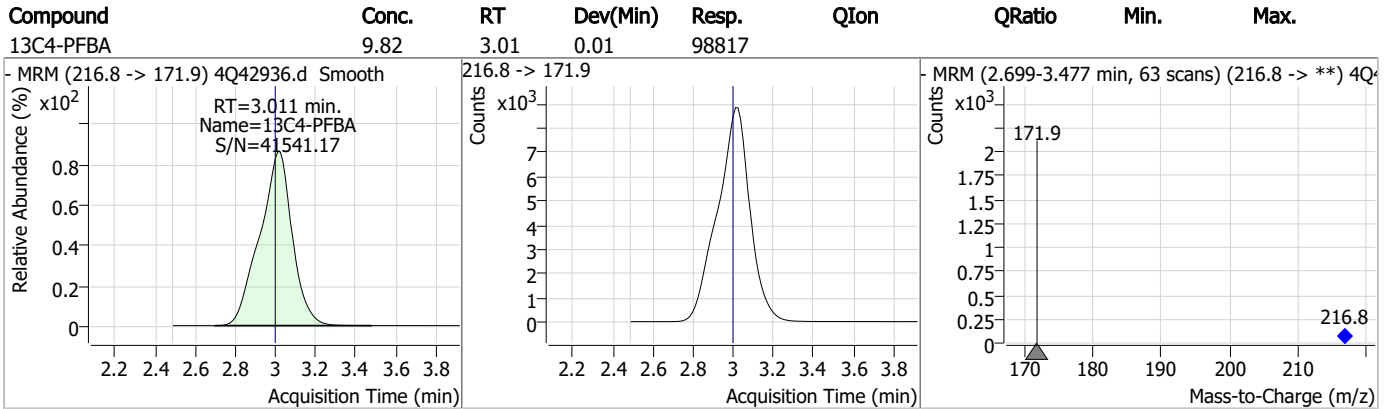
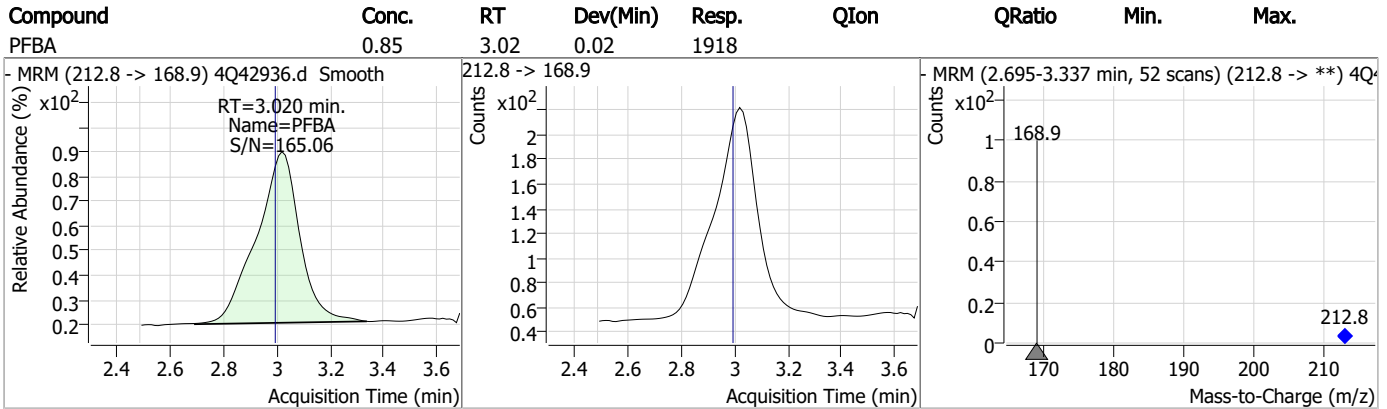
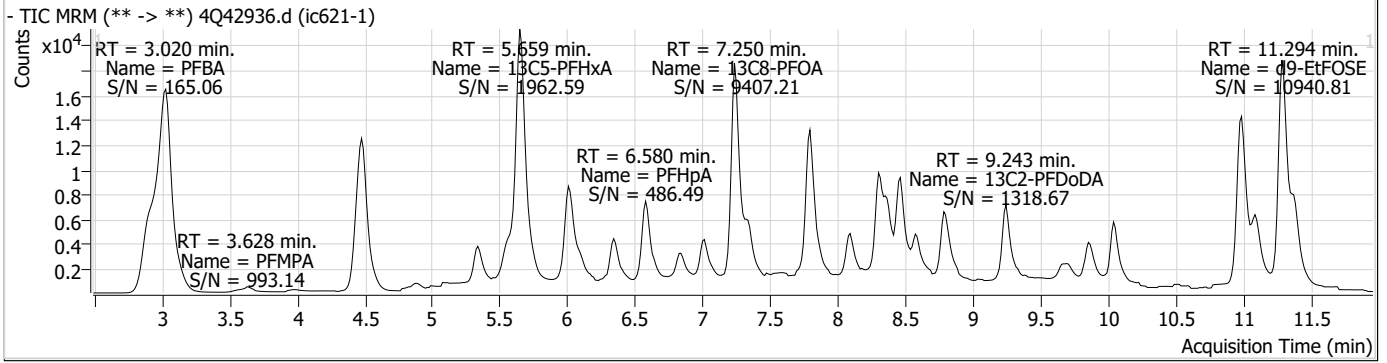
Perfluorinated Compounds by LC/MS/MS

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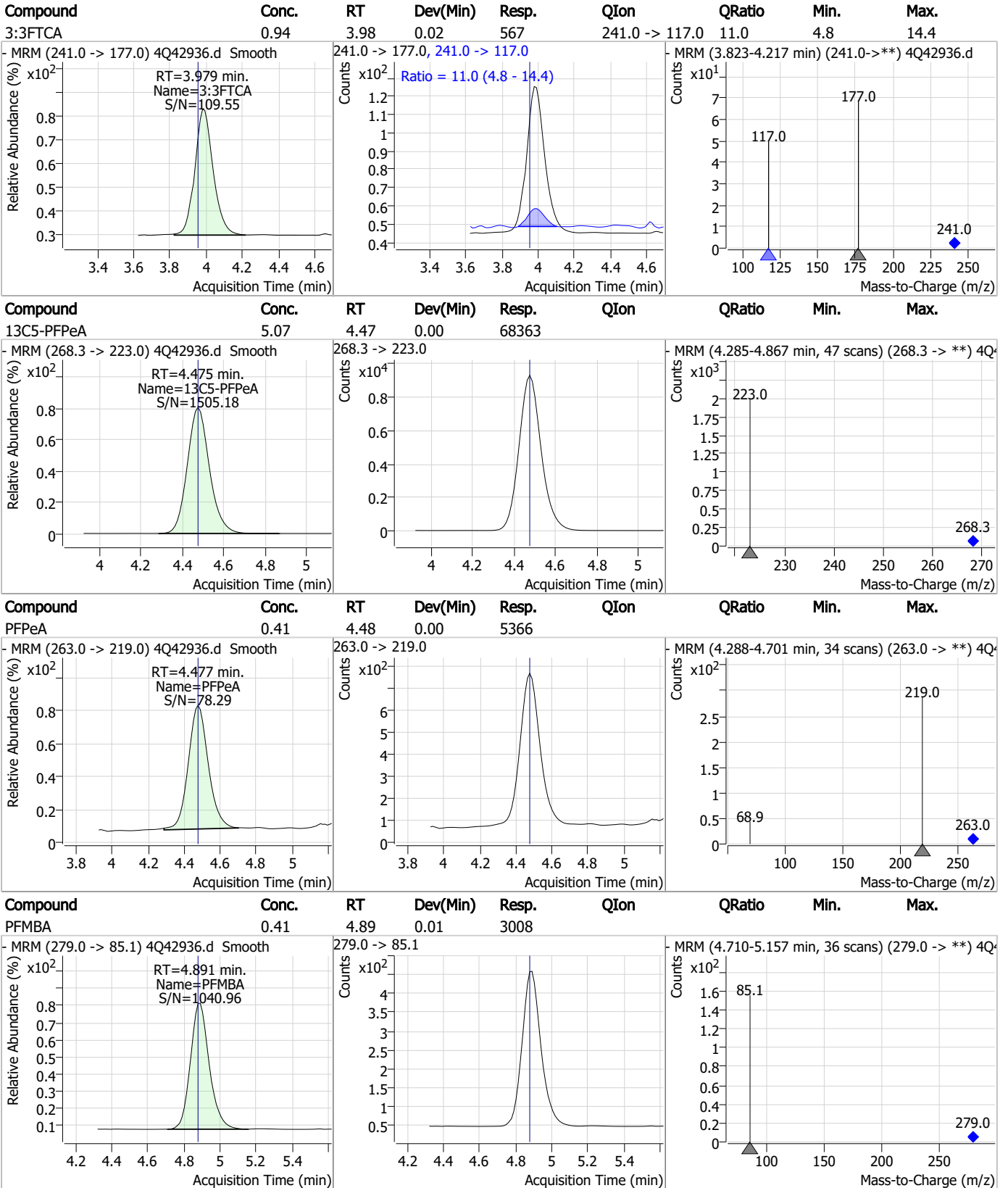
7.7.2
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

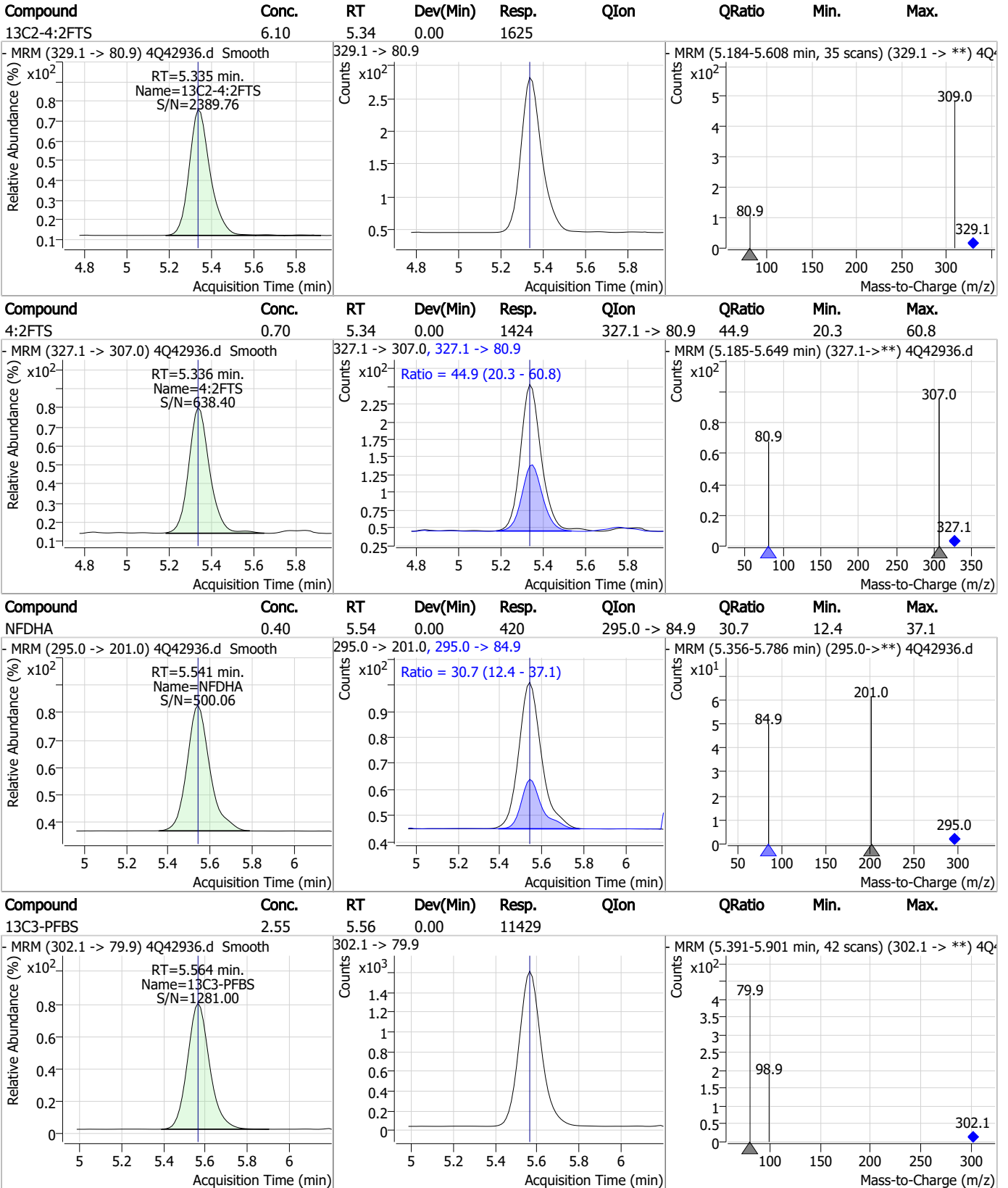


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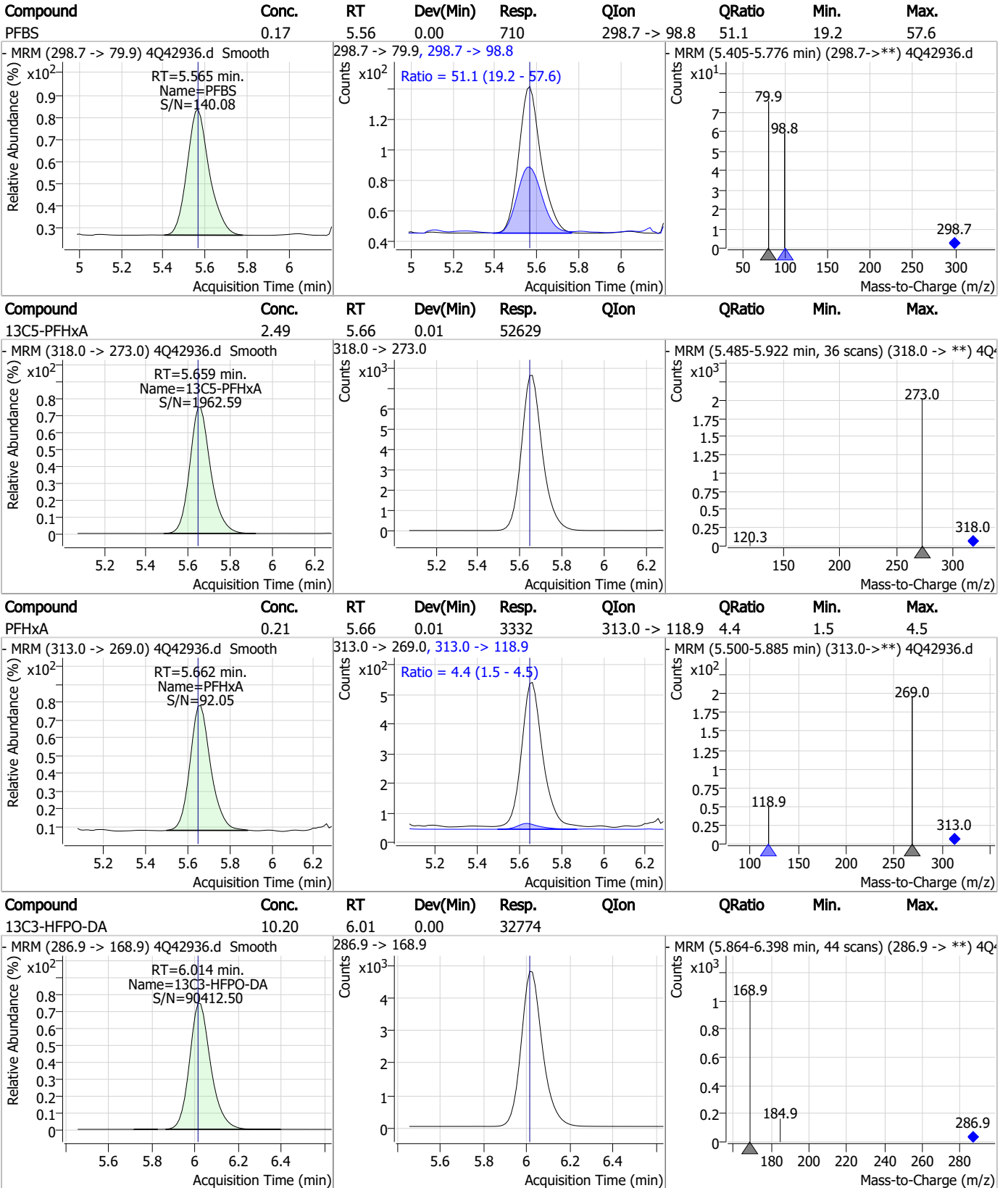
Perfluorinated Compounds by LC/MS/MS



7.7.2

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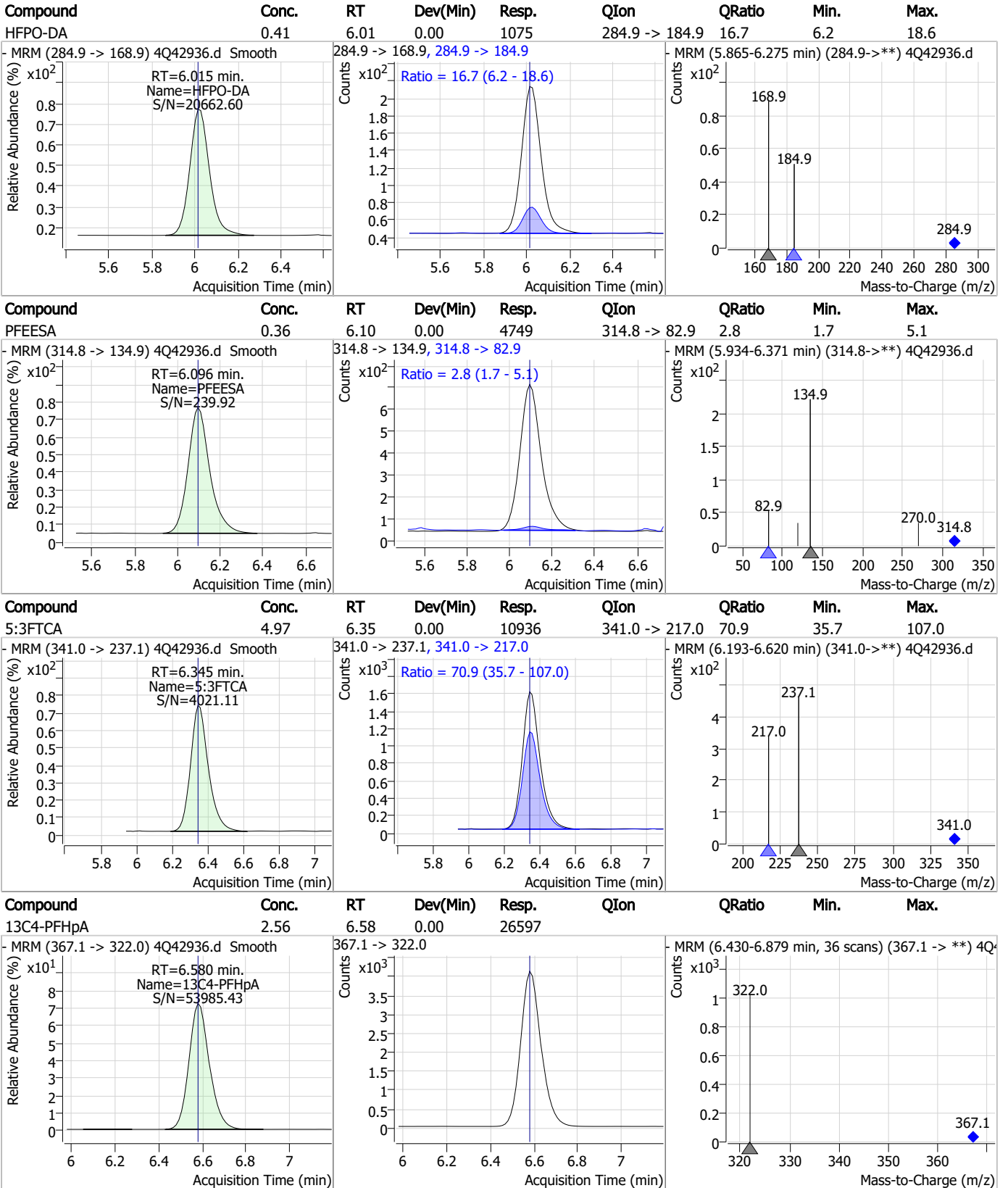
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7.7.2

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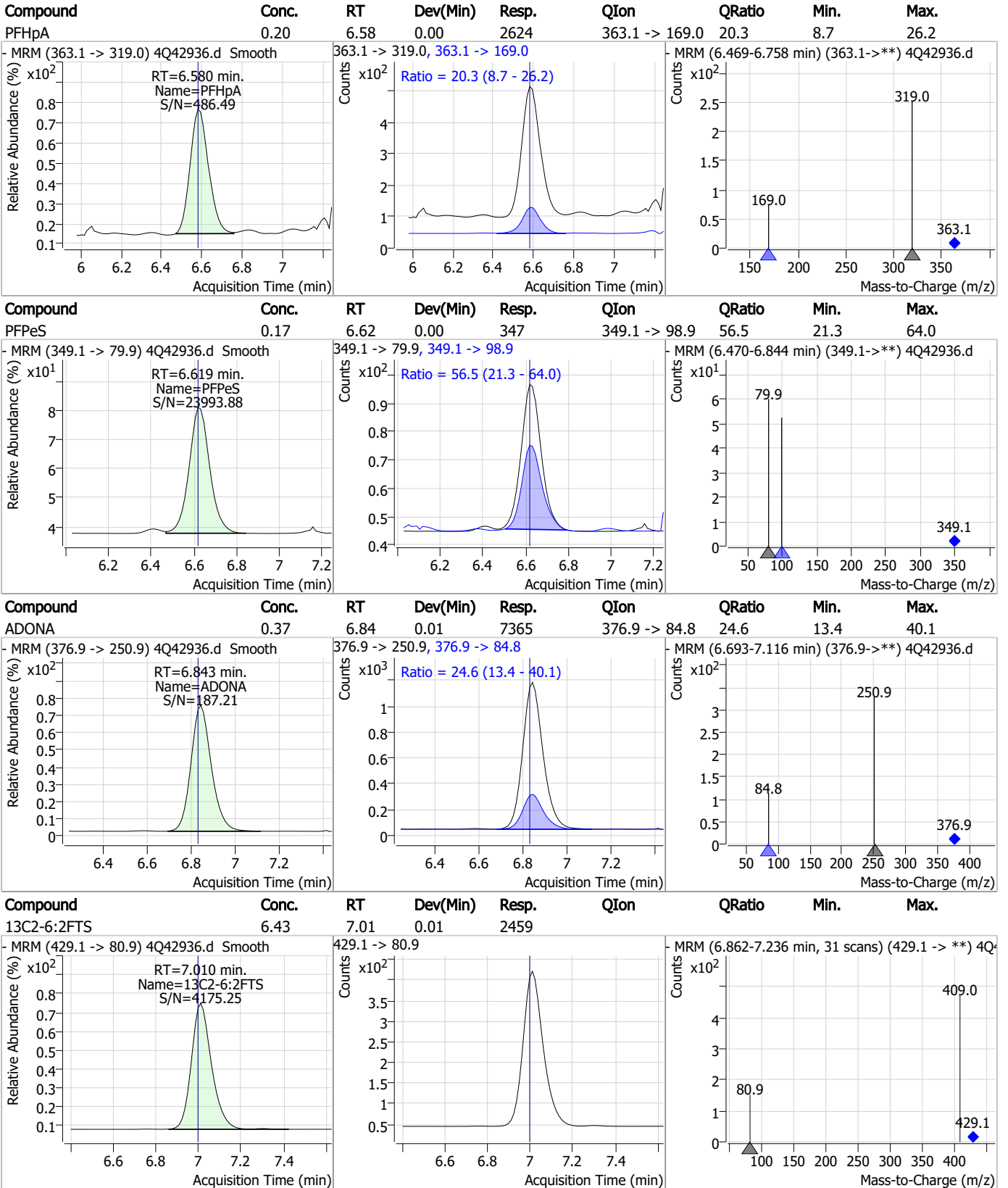
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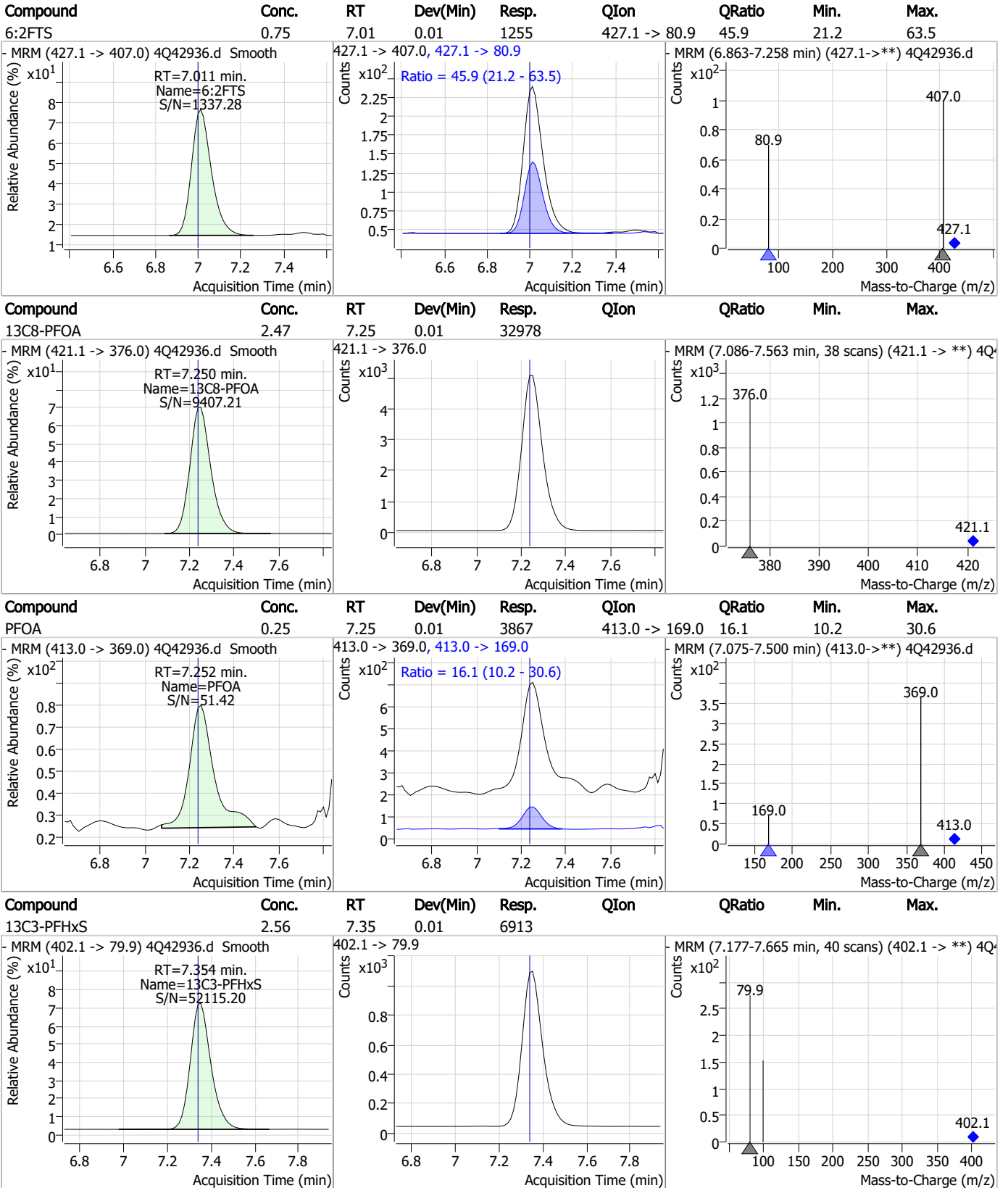
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

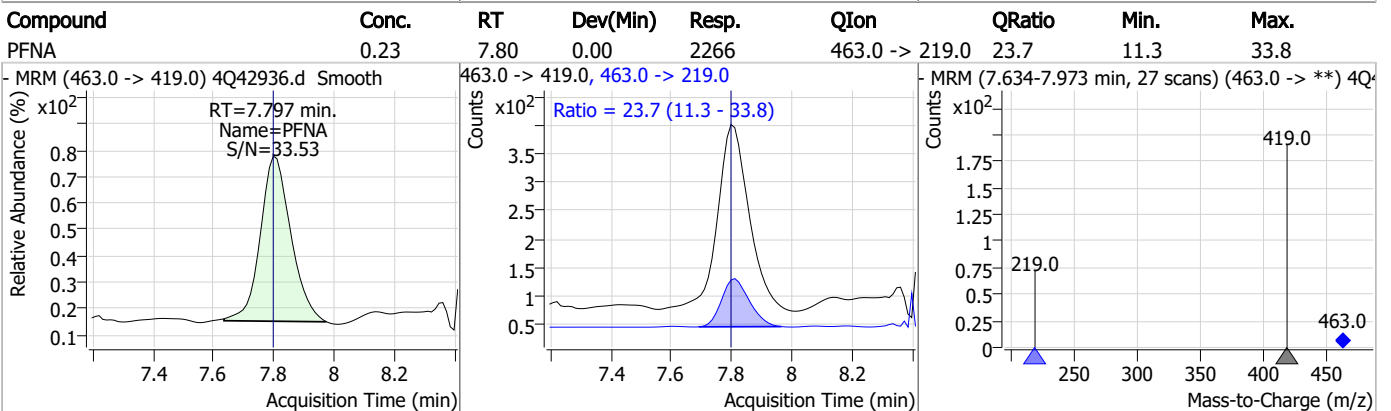
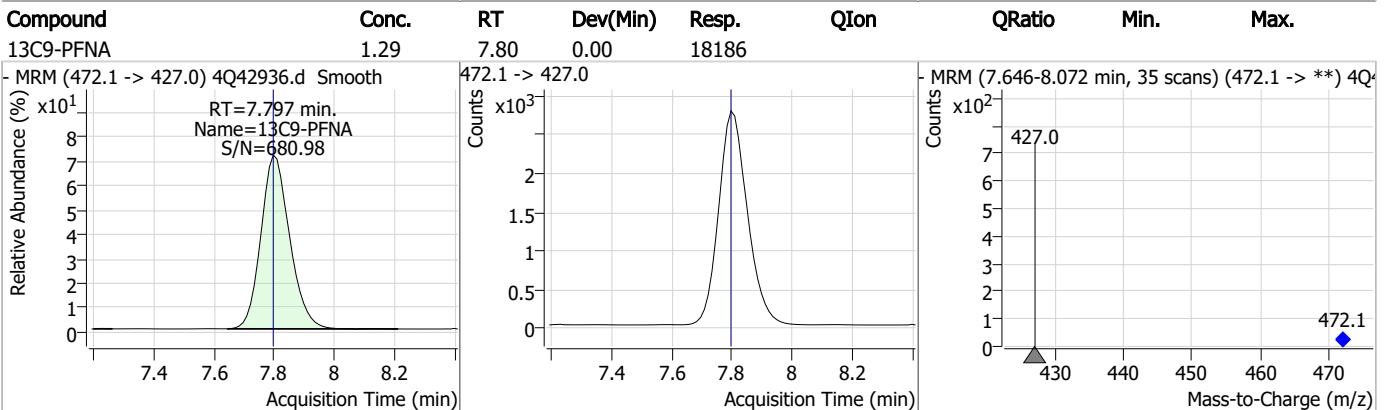
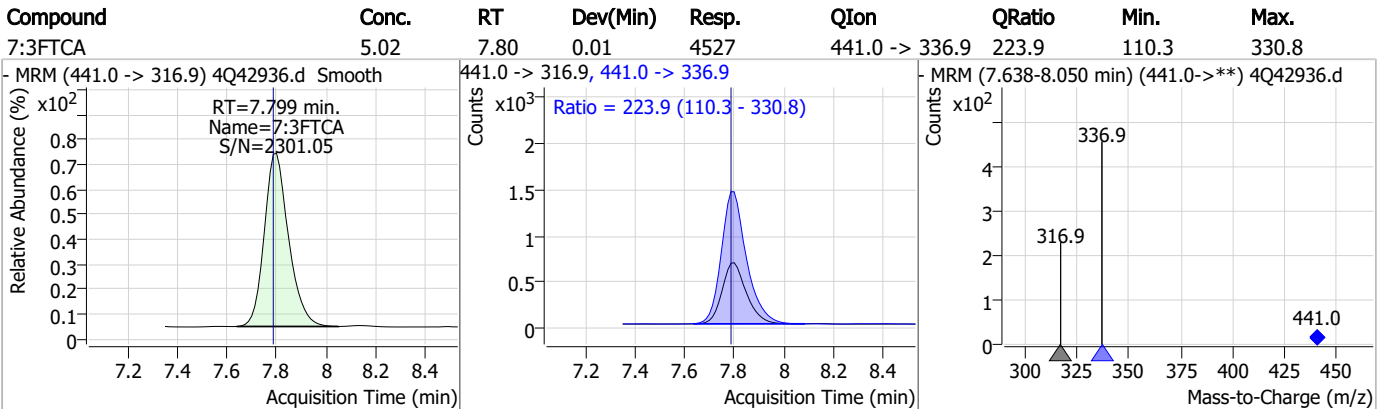
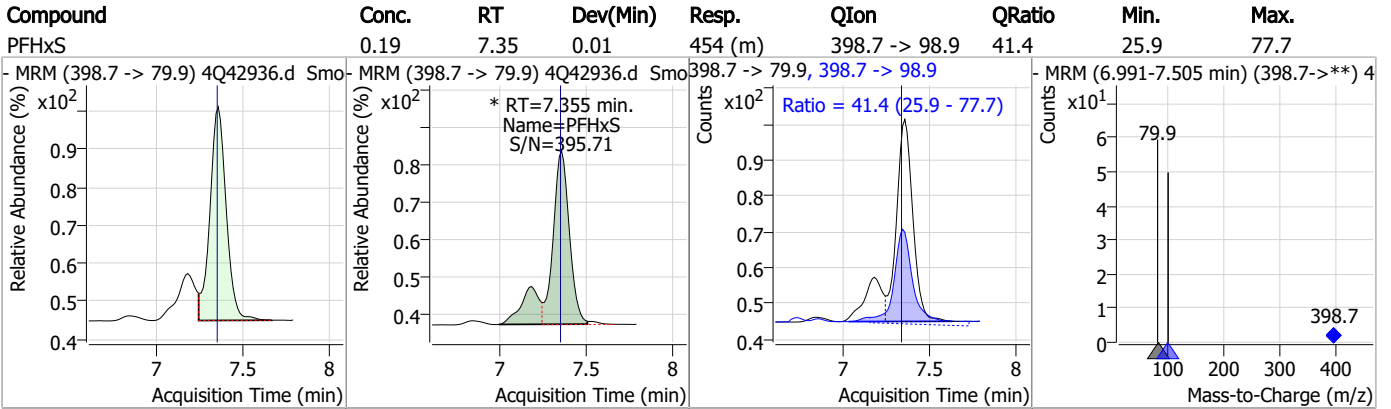


7.7.2

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Perfluorinated Compounds by LC/MS/MS

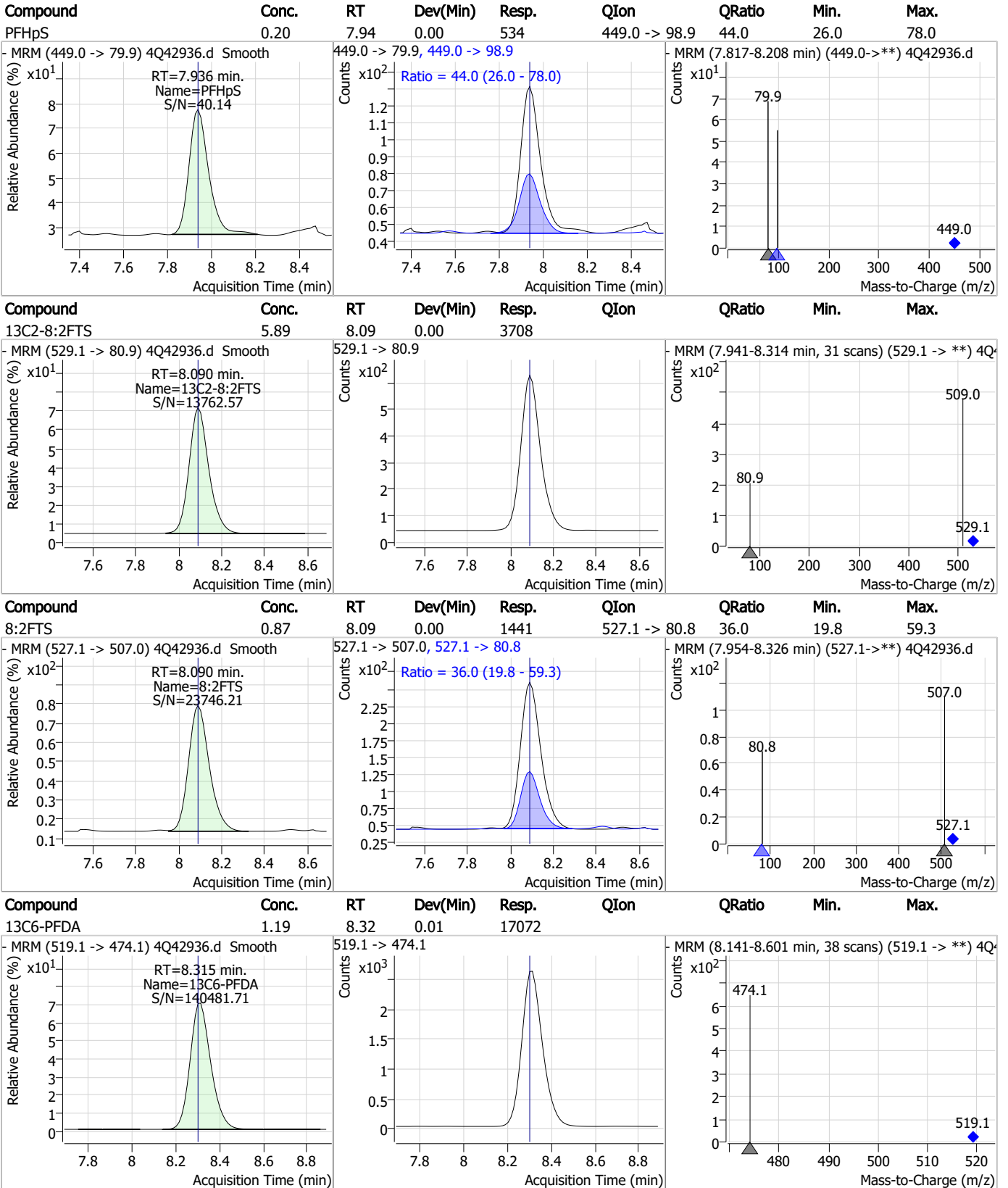


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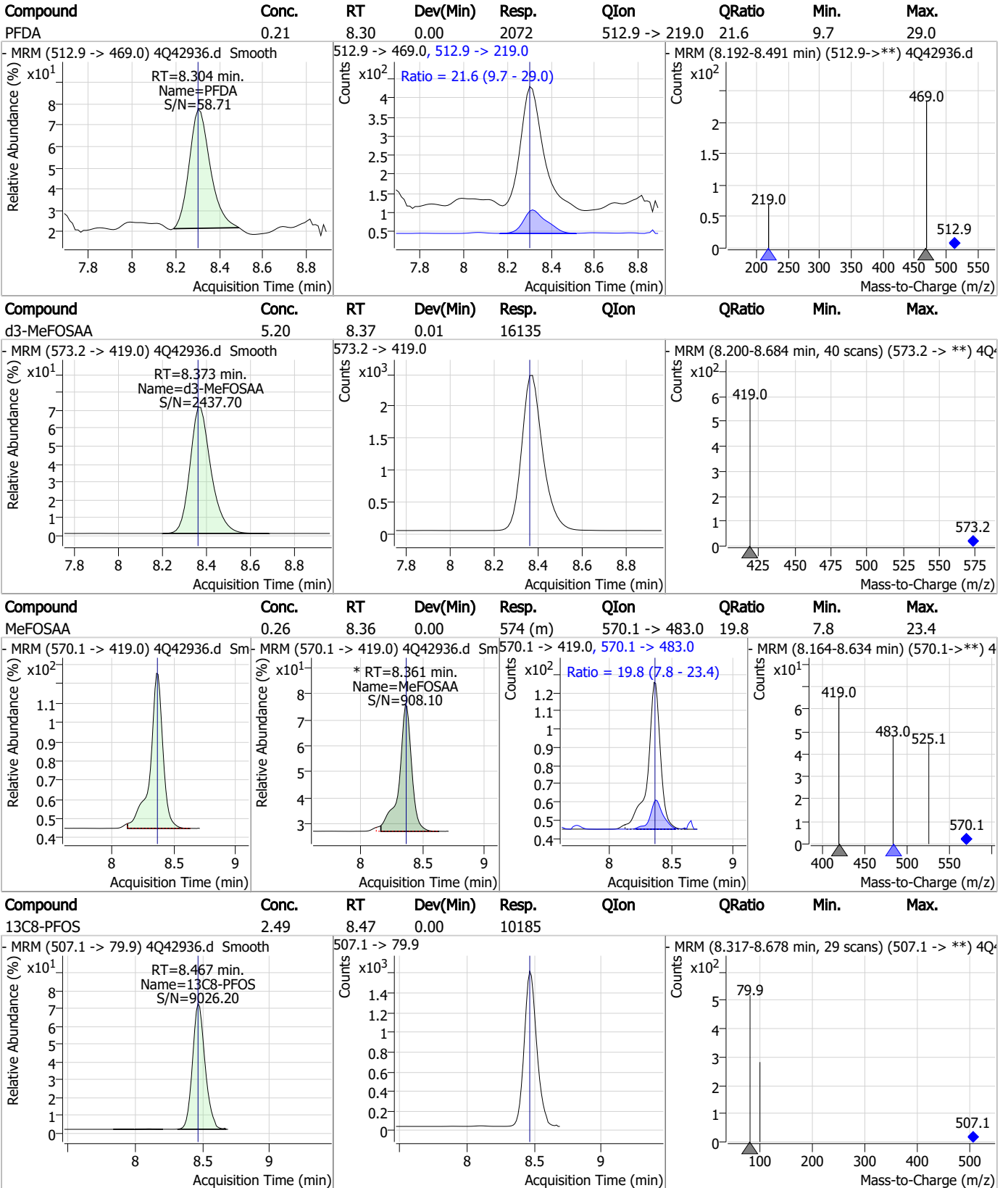


Perfluorinated Compounds by LC/MS/MS

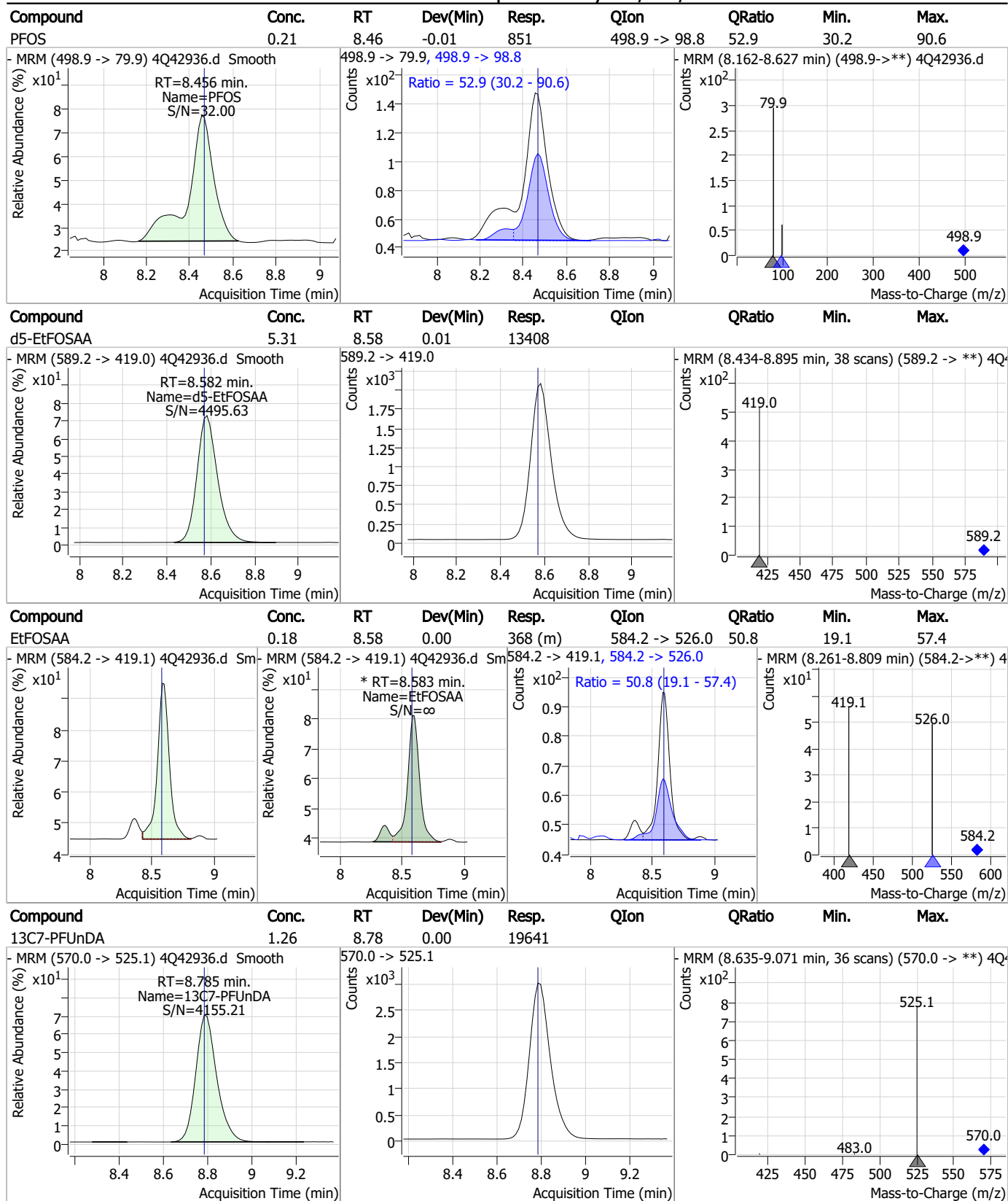


7.7.2
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Perfluorinated Compounds by LC/MS/MS



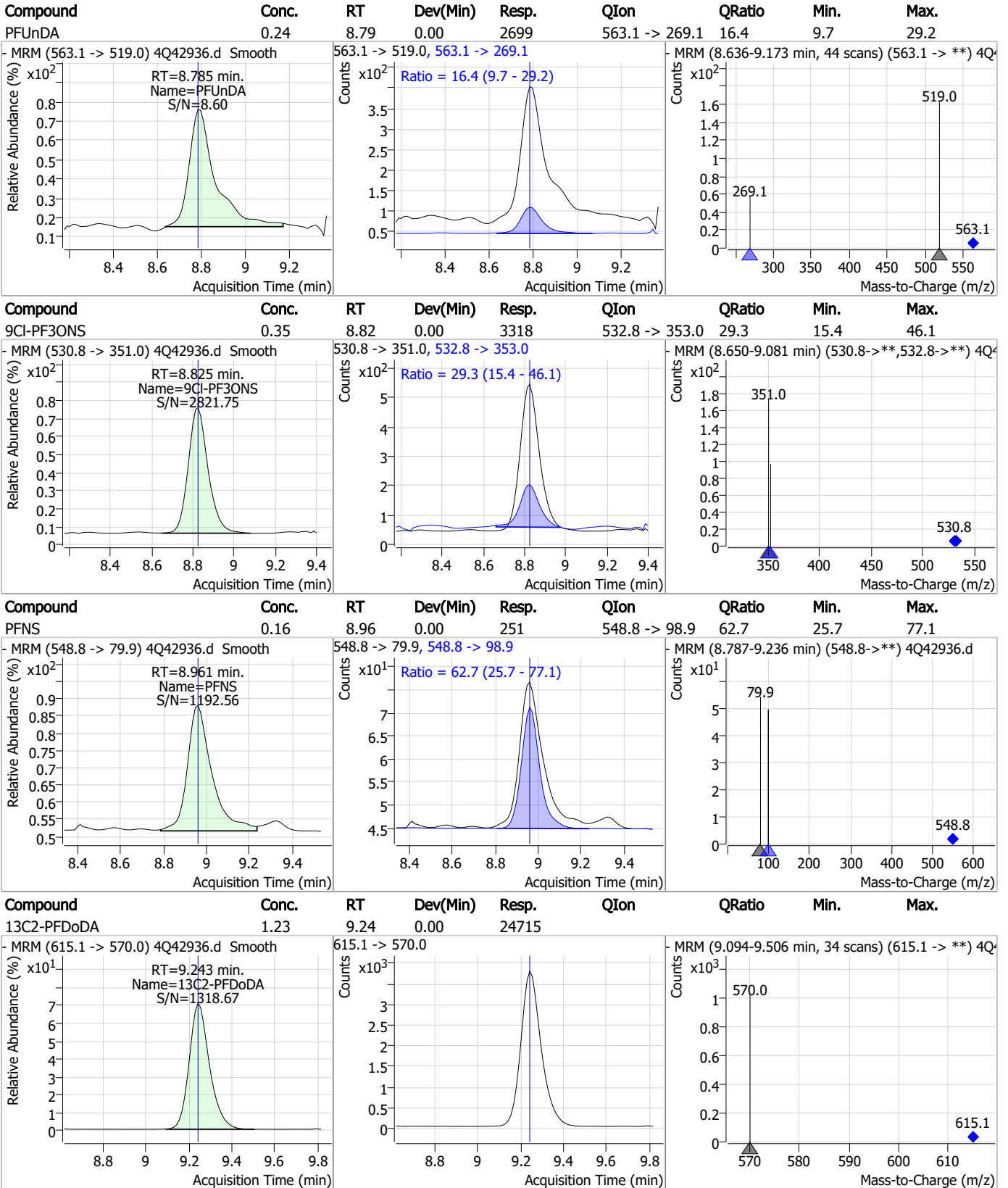
Perfluorinated Compounds by LC/MS/MS



7.7.2
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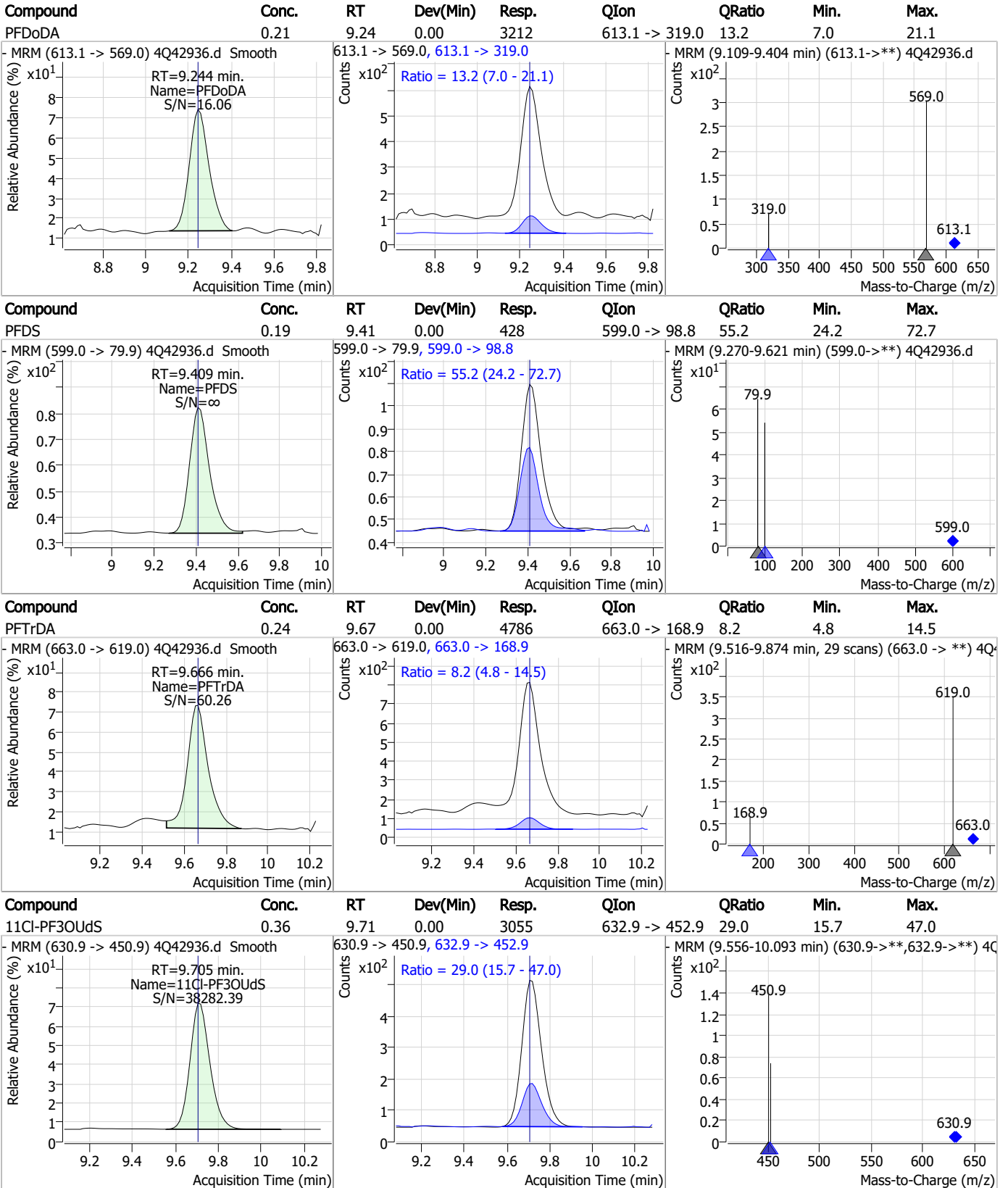
Perfluorinated Compounds by LC/MS/MS



7.7.2

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Perfluorinated Compounds by LC/MS/MS

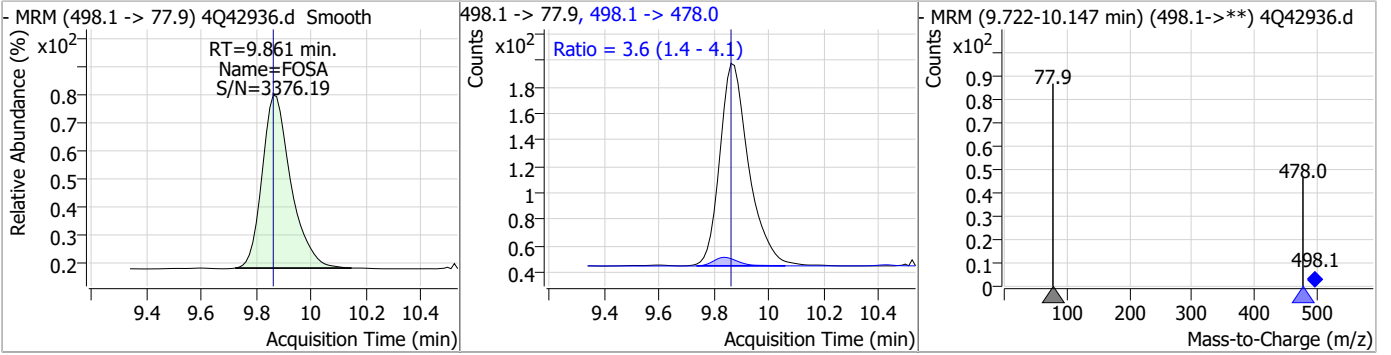


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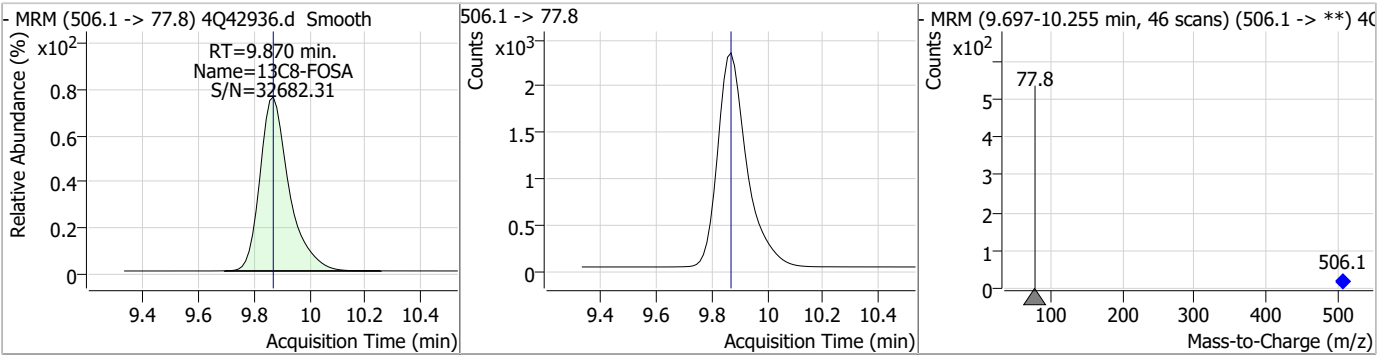
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Perfluorinated Compounds by LC/MS/MS

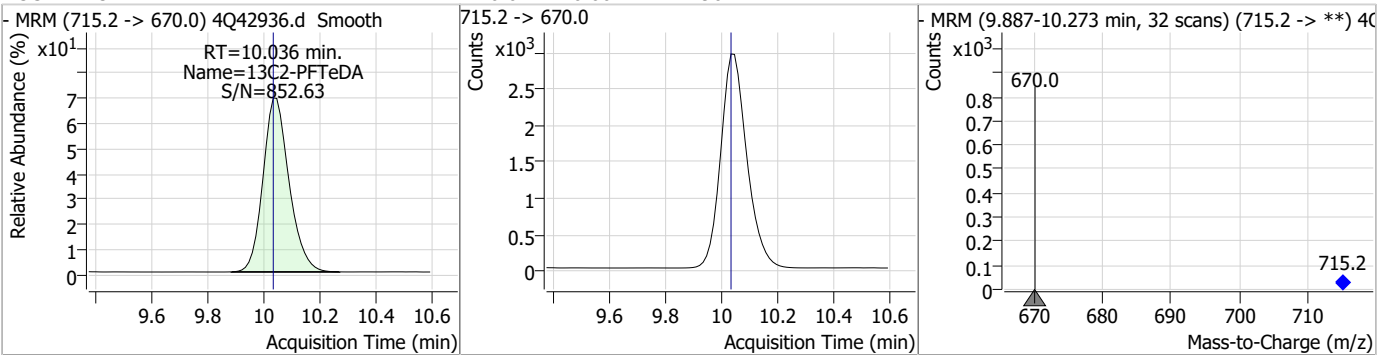
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.20	9.86	0.00	1107	498.1 -> 478.0	3.6	1.4	4.1



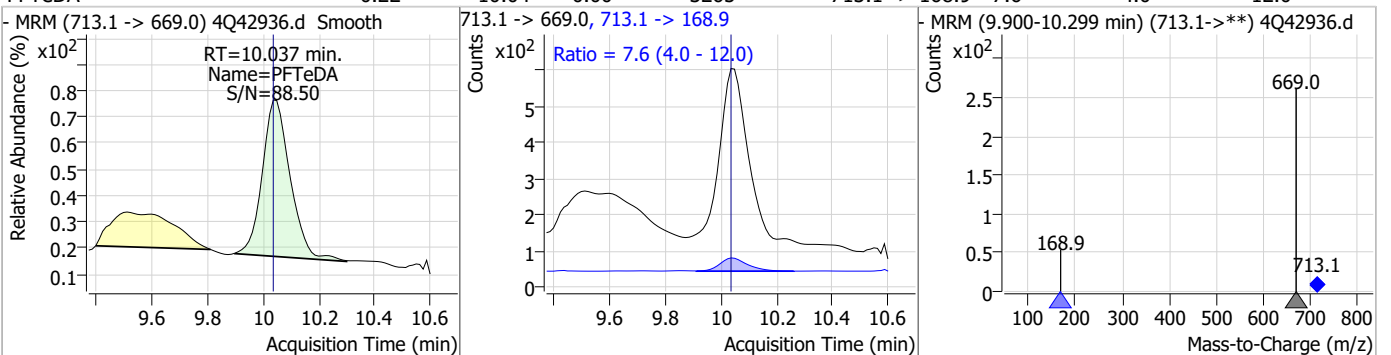
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.43	9.87	0.00	16781				



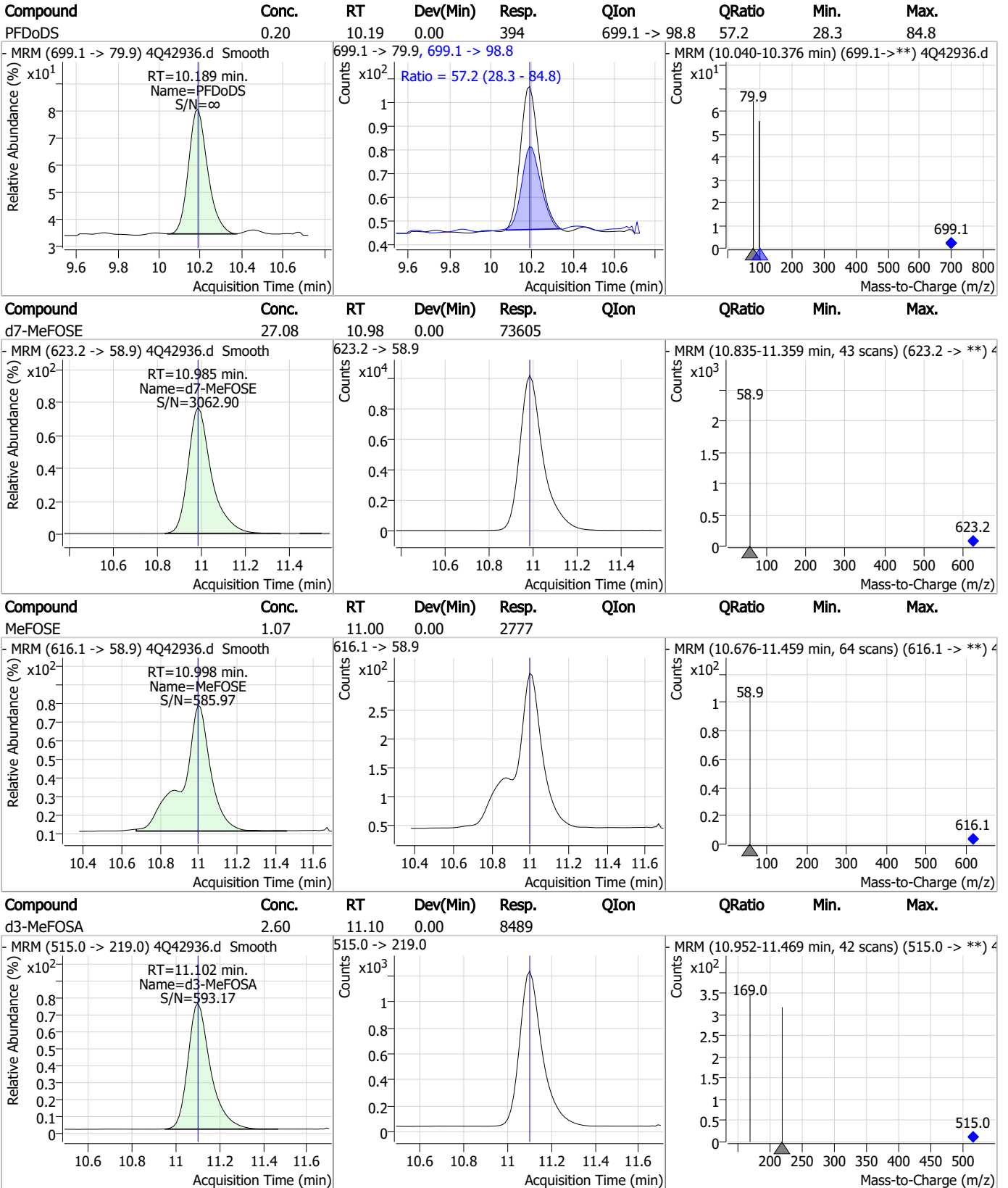
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	10.04	0.00	19011				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.22	10.04	0.00	3265	713.1 -> 168.9	7.6	4.0	12.0



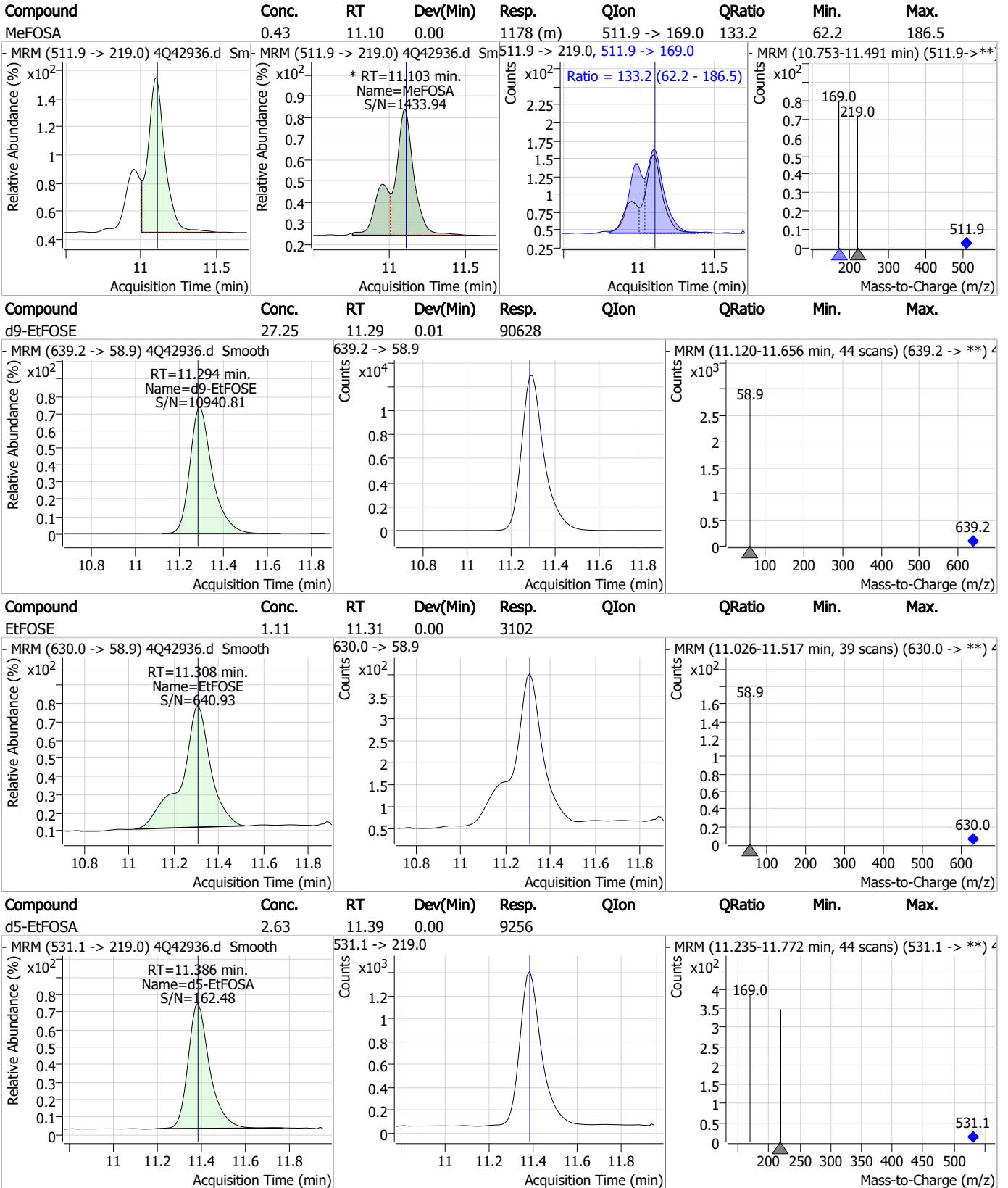
Perfluorinated Compounds by LC/MS/MS



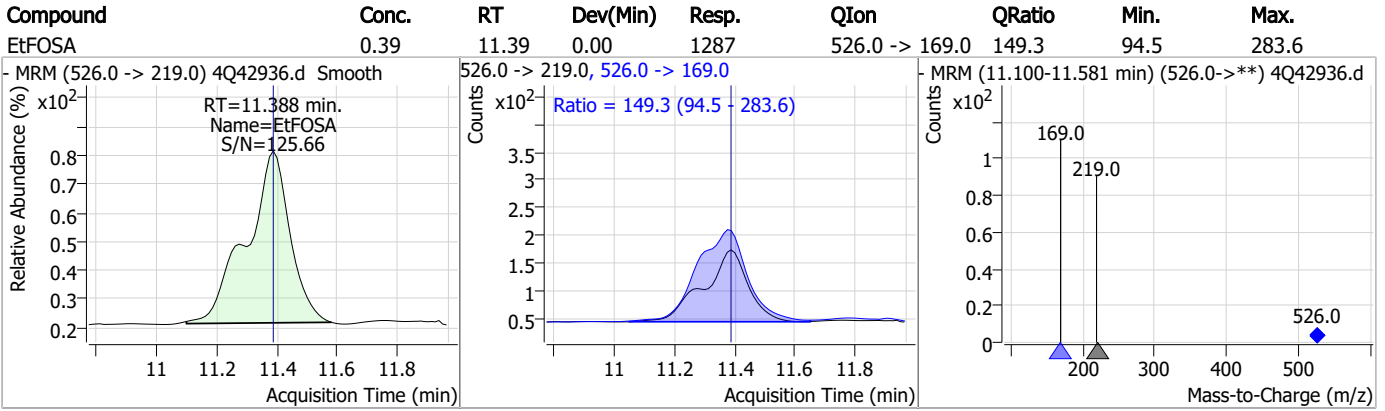
7.7.2

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.7.2

7

Manual Integration Approval Summary

Sample Number: S4Q621-IC621 Method: EPA DRAFT 1633
Lab FileID: 4Q42936.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 11:49 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.36	Split peak
EtFOSAA	2991-50-6		8.58	Split peak
MeFOSA	31506-32-8		11.10	Split peak

7.7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42937.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 12:04:03 PM
 Sample Name : ic621-2
 Vial : P1-A3
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.011	216.8 -> 171.9	118430	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	79249	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	61431	2.50 µg/L	0.012
M4-PFHpA	6.580	367.1 -> 322.0	31091	2.50 µg/L	0.000
M8-PFOA	7.250	421.1 -> 376.0	39202	2.50 µg/L	0.013
M9-PFNA	7.797	472.1 -> 427.0	21663	1.25 µg/L	0.000
M6-PFDA	8.315	519.1 -> 474.1	20734	1.25 µg/L	0.012
M7-PFUnDA	8.785	570.0 -> 525.1	22986	1.25 µg/L	0.000
M2-PFDoDA	9.243	615.1 -> 570.0	29666	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	23211	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	20720	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	13025	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	8224	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	12035	2.50 µg/L	0.000
M2-4:2FTS	5.335	329.1 -> 80.9	1779	5.00 µg/L	0.000
M2-6:2FTS	7.010	429.1 -> 80.9	2701	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	4128	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	18722	5.00 µg/L	0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	37746	10.00 µg/L	0.000
M5-EtFOSAA	8.582	589.2 -> 419.0	15123	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	90682	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	109200	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	10076	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	9499	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	12395	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	68609	5.00 µg/L	0.025
18O2-PFHxS	7.353	403.0 -> 83.9	6037	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	47008	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	18078	1.25 µg/L	0.012
13C5-PFNA	7.797	468.0 -> 423.0	22771	1.25 µg/L	0.000
13C2-PFHxA	5.660	315.1 -> 270.0	53124	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1779	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.9%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2701	5.71 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.2%		
13C2-8:2FTS	8.090	529.1 -> 80.9	4128	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-PFDoDA	9.243	615.1 -> 570.0	29666	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C2-PFTeDA	10.036	715.2 -> 670.0	23211	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C3-PFBS	5.564	302.1 -> 79.9	13025	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C3-PFHxS	7.354	402.1 -> 79.9	8224	2.46 µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C4-PFBA	3.011	216.8 -> 171.9	118430	9.91 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFHpA	6.580	367.1 -> 322.0	31091	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C5-PFHxA	5.659	318.0 -> 273.0	61431	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C5-PFPeA	4.475	268.3 -> 223.0	79249	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.315	519.1 -> 474.1	20734	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C7-PFUnDA	8.785	570.0 -> 525.1	22986	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C8-FOSA	9.870	506.1 -> 77.8	20720	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C8-PFOA	7.250	421.1 -> 376.0	39202	2.53 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C8-PFOS	8.467	507.1 -> 79.9	12035	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C9-PFNA	7.797	472.1 -> 427.0	21663	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.5%	
d3-MeFOSAA	8.373	573.2 -> 419.0	18722	5.13 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	37746	10.12 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
d3-MeFOSA	11.102	515.0 -> 219.0	9499	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
d5-EtFOSAA	8.582	589.2 -> 419.0	15123	5.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d7-MeFOSE	10.985	623.2 -> 58.9	90682	28.37 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 113.5%	
d9-EtFOSE	11.282	639.2 -> 58.9	109200	27.92 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 111.7%	
d5-EtFOSA	11.386	531.1 -> 219.0	10076	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	3240	1.46 µg/L	99
		327.1 -> 80.9	1290		
6:2FTS	7.011	427.1 -> 407.0	2543	1.38 µg/L	94
		427.1 -> 80.9	1172		
8:2FTS	8.090	527.1 -> 507.0	2859	1.54 µg/L	92
		527.1 -> 80.8	1271		
EtFOSAA	8.583	584.2 -> 419.1	900	0.40 µg/L	m 88
		584.2 -> 526.0	410		
FOSA	9.861	498.1 -> 77.9	2499	0.37 µg/L	99
		498.1 -> 478.0	72		
MeFOSAA	8.373	570.1 -> 419.0	887	0.34 µg/L	m 92
		570.1 -> 483.0	169		
PFBA	3.020	212.8 -> 168.9	3923	1.45 µg/L	100
PFBS	5.565	298.7 -> 79.9	1713	0.35 µg/L	99
		298.7 -> 98.8	667		
PFDA	8.316	512.9 -> 469.0	4026	0.34 µg/L	87
		512.9 -> 219.0	1019		
PFDODA	9.244	613.1 -> 569.0	6629	0.35 µg/L	97
		613.1 -> 319.0	1008		
PFDS	9.409	599.0 -> 79.9	1041	0.39 µg/L	100

7.7.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	501			
PFHpA	6.580	363.1 -> 319.0	5491	0.35	µg/L	91
		363.1 -> 169.0	1181			
PFHpS	7.936	449.0 -> 79.9	1023	0.33	µg/L	92
		449.0 -> 98.9	590			
PFHxA	5.649	313.0 -> 269.0	6920	0.38	µg/L	99
		313.0 -> 118.9	188			
PFHxS	7.342	398.7 -> 79.9	979	0.35	µg/L	m 92
		398.7 -> 98.9	451			
PFNA	7.797	463.0 -> 419.0	4521	0.39	µg/L	95
		463.0 -> 219.0	1118			
PFNS	8.961	548.8 -> 79.9	635	0.34	µg/L	94
		548.8 -> 98.9	300			
PFOA	7.252	413.0 -> 369.0	6358	0.35	µg/L	99
		413.0 -> 169.0	1268			
PFOS	8.468	498.9 -> 79.9	1521	0.32	µg/L	m 89
		498.9 -> 98.8	790			
PFPeA	4.477	263.0 -> 219.0	10964	0.73	µg/L	100
PFPeS	6.619	349.1 -> 79.9	785	0.33	µg/L	m 99
		349.1 -> 98.9	337			
PFTeDA	10.050	713.1 -> 669.0	7043	0.39	µg/L	99
		713.1 -> 168.9	601			
PFTrDA	9.666	663.0 -> 619.0	9319	0.39	µg/L	98
		663.0 -> 168.9	844			
PFUnDA	8.785	563.1 -> 519.0	5096	0.39	µg/L	99
		563.1 -> 269.1	1010			
11Cl-PF3OUdS	9.705	630.9 -> 450.9	7099	0.72	µg/L	100
		632.9 -> 452.9	2206			
9Cl-PF3ONS	8.825	530.8 -> 351.0	7636	0.69	µg/L	98
		532.8 -> 353.0	2441			
ADONA	6.843	376.9 -> 250.9	15703	0.69	µg/L	96
		376.9 -> 84.8	4533			
HFPO-DA	6.015	284.9 -> 168.9	2287	0.76	µg/L	93
		284.9 -> 184.9	347			
3:3FTCA	3.979	241.0 -> 177.0	1280	1.83	µg/L	97
		241.0 -> 117.0	138			
5:3FTCA	6.345	341.0 -> 237.1	23272	9.06	µg/L	97
		341.0 -> 217.0	17127			
7:3FTCA	7.799	441.0 -> 316.9	9824	9.33	µg/L	99
		441.0 -> 336.9	21874			
EtFOSA	11.388	526.0 -> 219.0	2770	0.77	µg/L	m 59
		526.0 -> 169.0	3589			
EtFOSE	11.308	630.0 -> 58.9	6266	1.86	µg/L	100
MeFOSA	11.091	511.9 -> 219.0	2261	0.74	µg/L	m 79
		511.9 -> 169.0	3344			
MeFOSE	10.998	616.1 -> 58.9	6213	1.95	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	852	0.37	µg/L	95
		699.1 -> 98.8	451			
NFDHA	5.541	295.0 -> 201.0	932	0.76	µg/L	94
		295.0 -> 84.9	259			
PFMBA	4.878	279.0 -> 85.1	6260	0.73	µg/L	100
PFMPA	3.611	229.0 -> 84.9	5511	0.73	µg/L	100
PFEESA	6.096	314.8 -> 134.9	9991	0.65	µg/L	99
		314.8 -> 82.9	378			

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

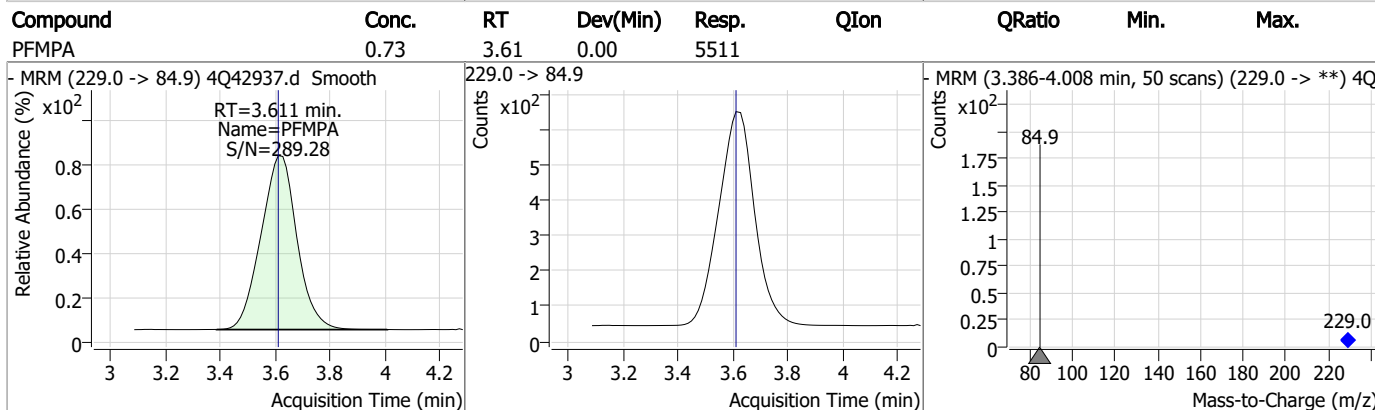
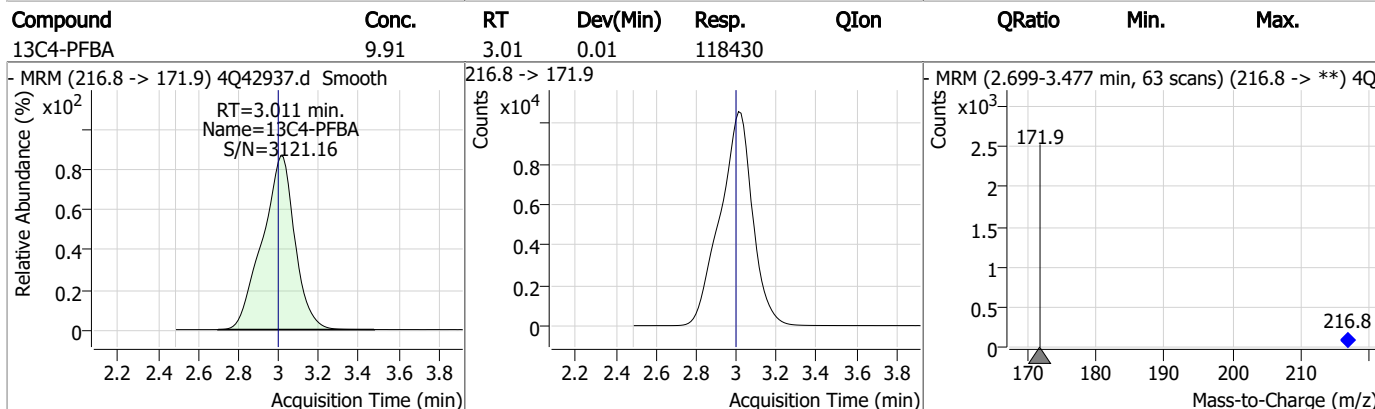
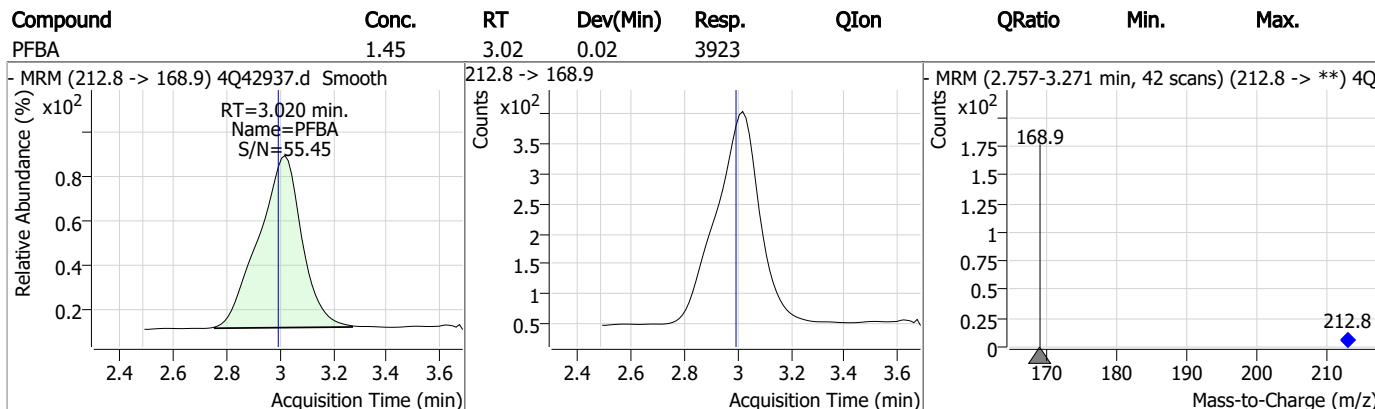
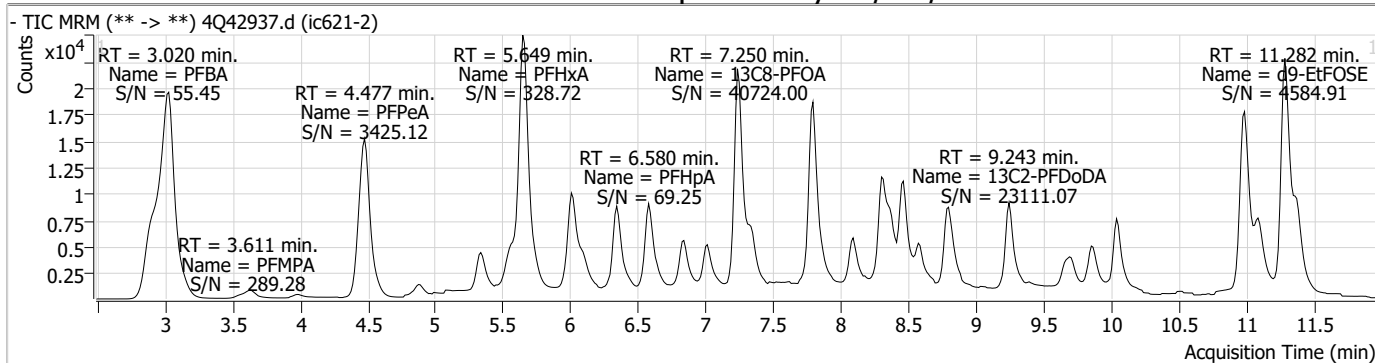
Perfluorinated Compounds by LC/MS/MS

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

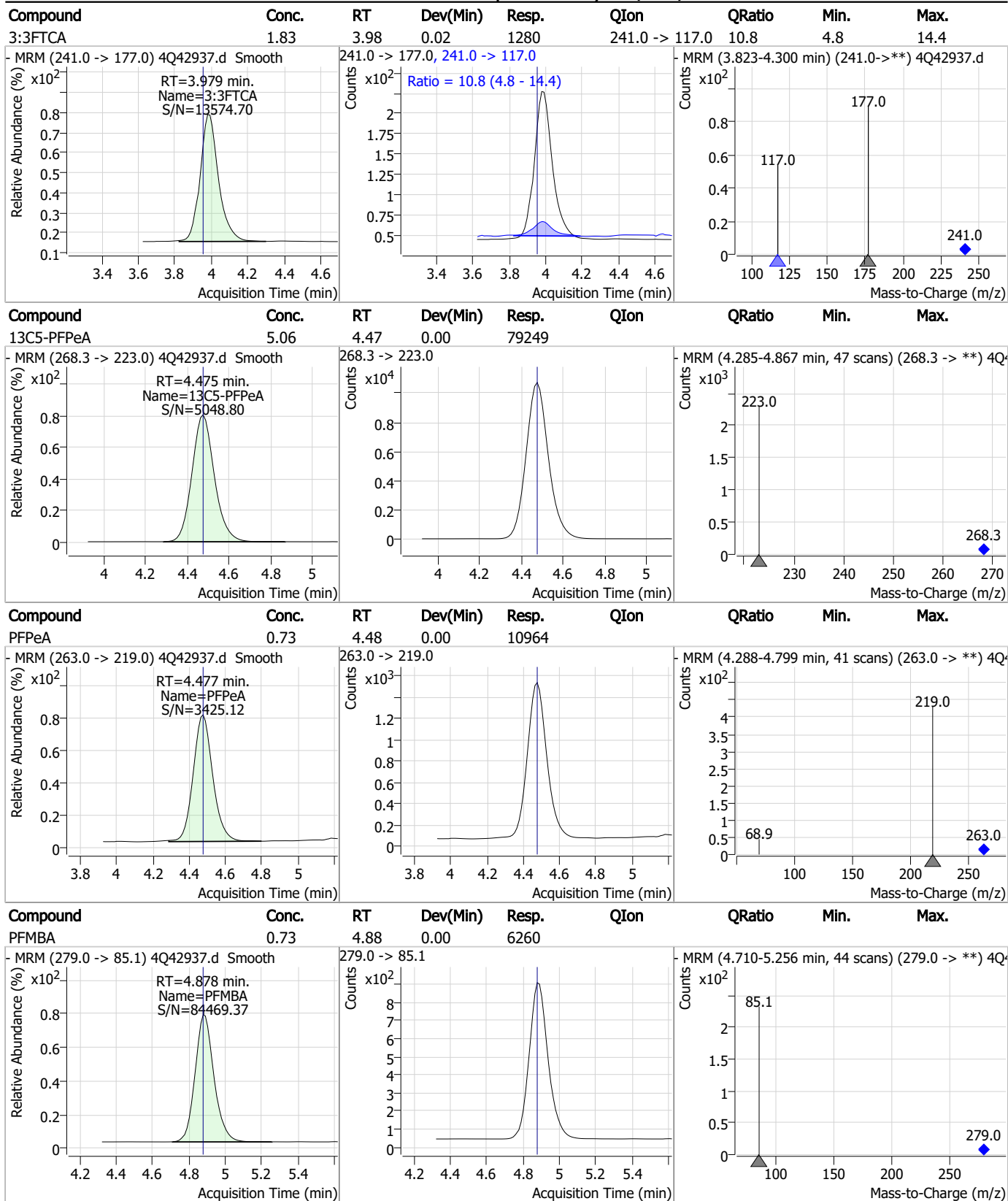
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Perfluorinated Compounds by LC/MS/MS



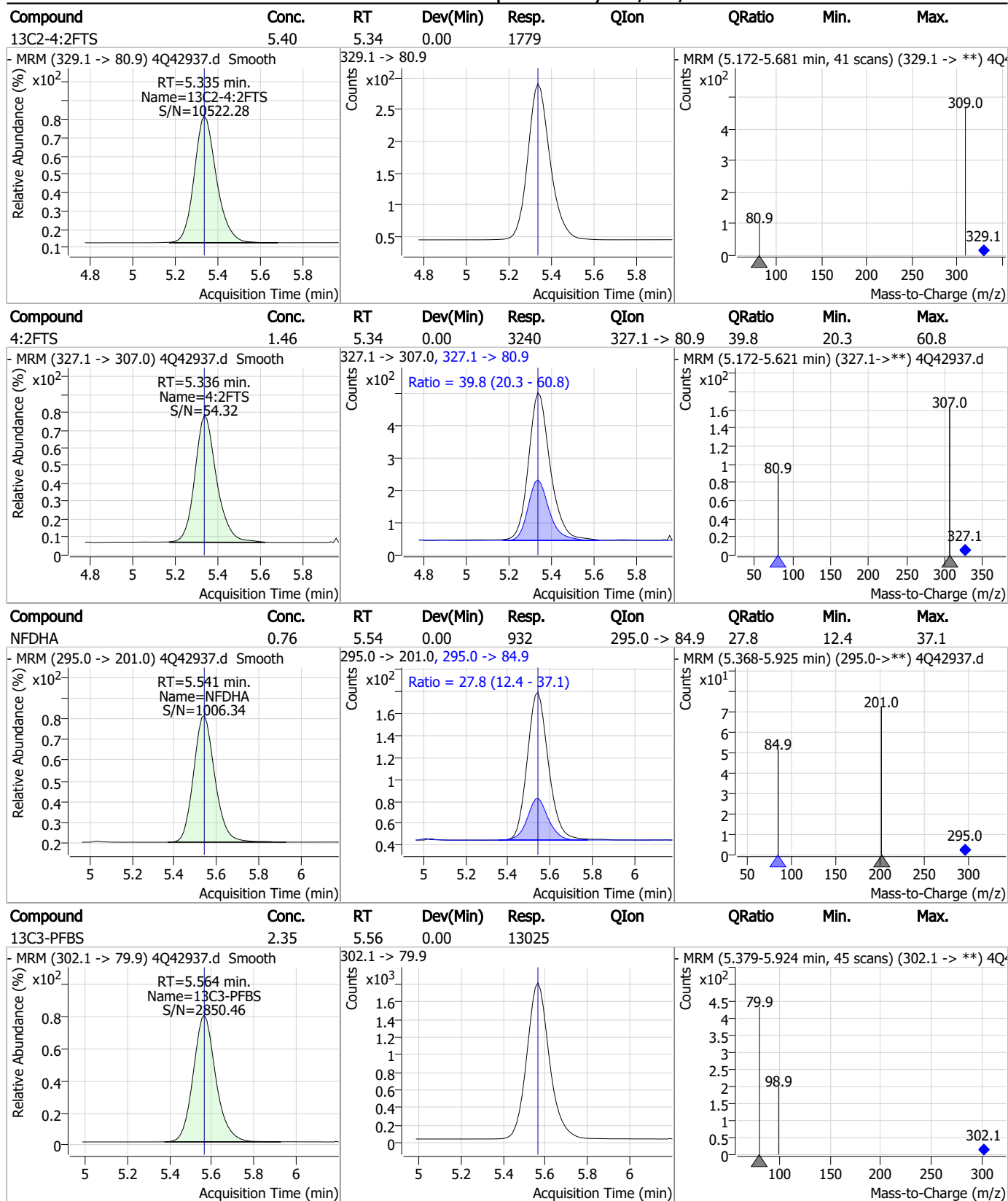
7.7.3
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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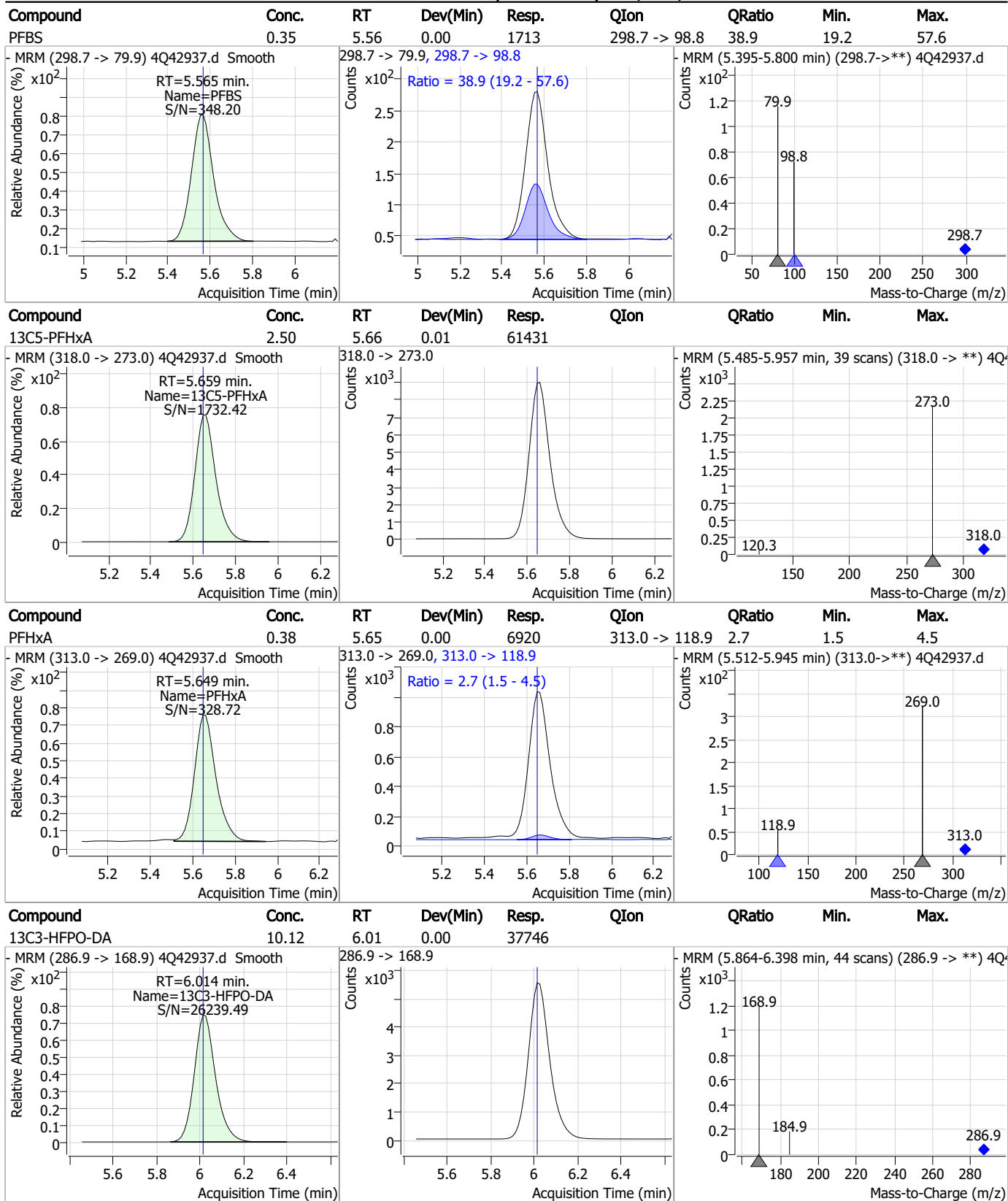
Perfluorinated Compounds by LC/MS/MS



7.7.3

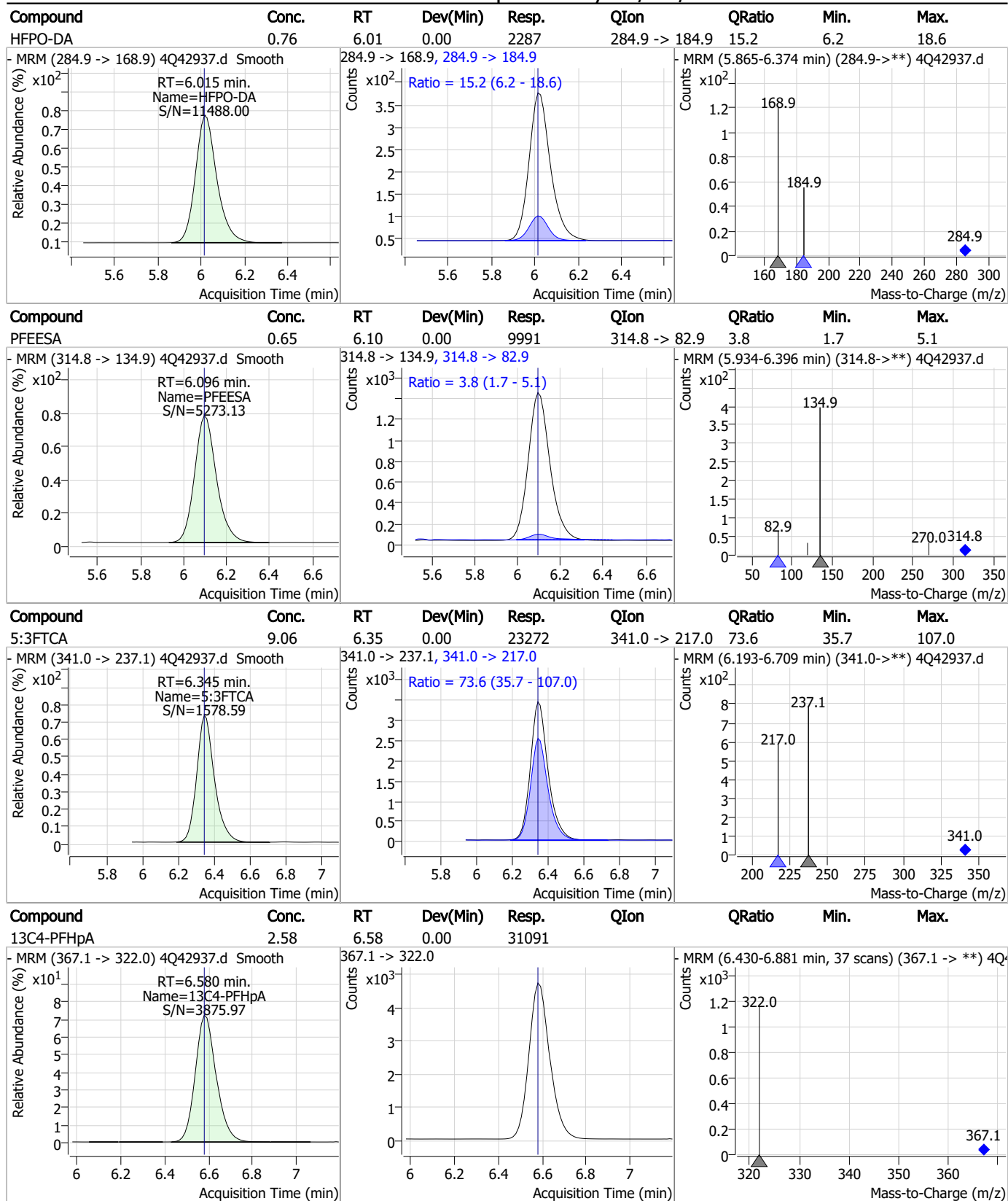
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Perfluorinated Compounds by LC/MS/MS



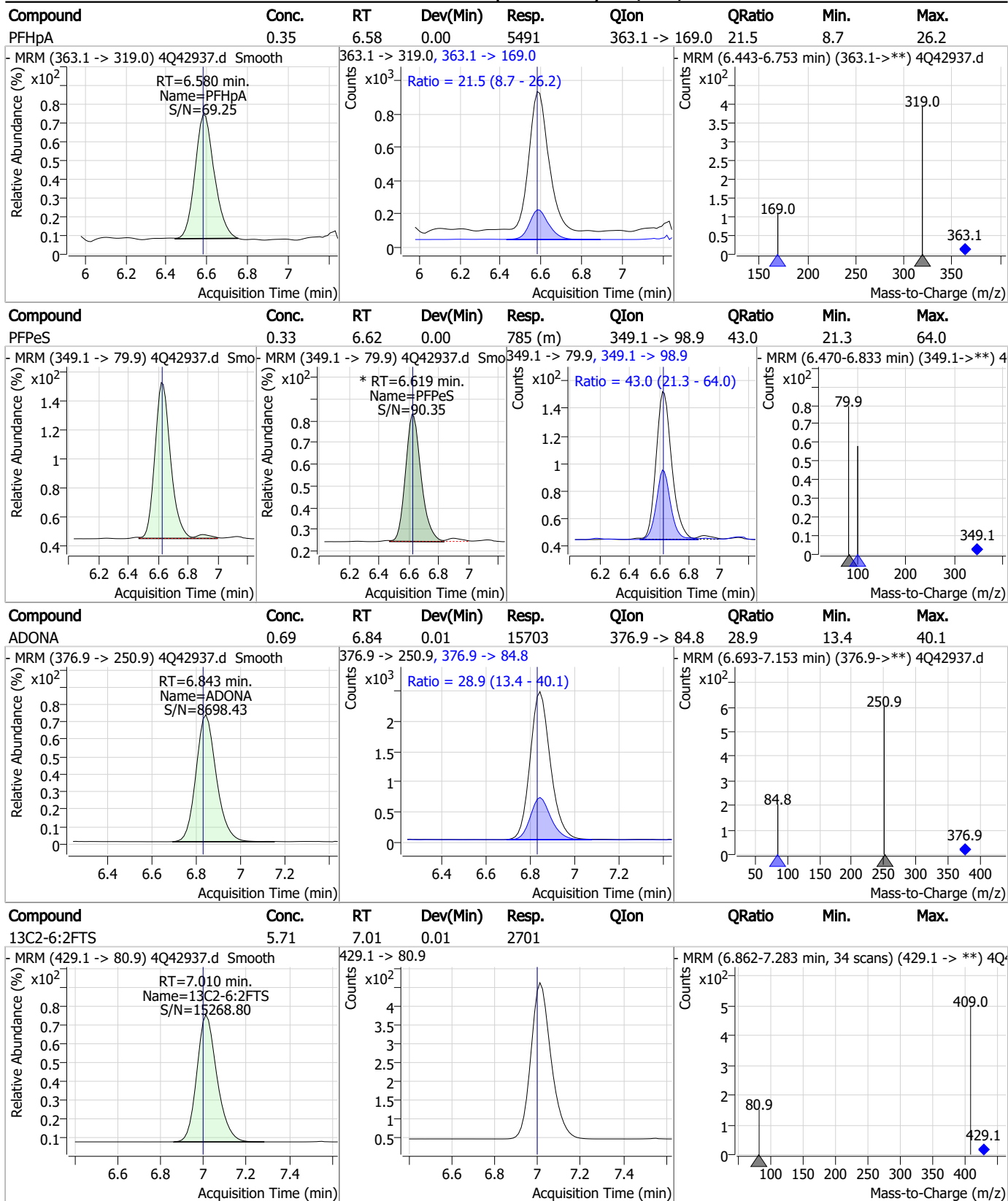
7.7.3
7

Perfluorinated Compounds by LC/MS/MS



7.7.3
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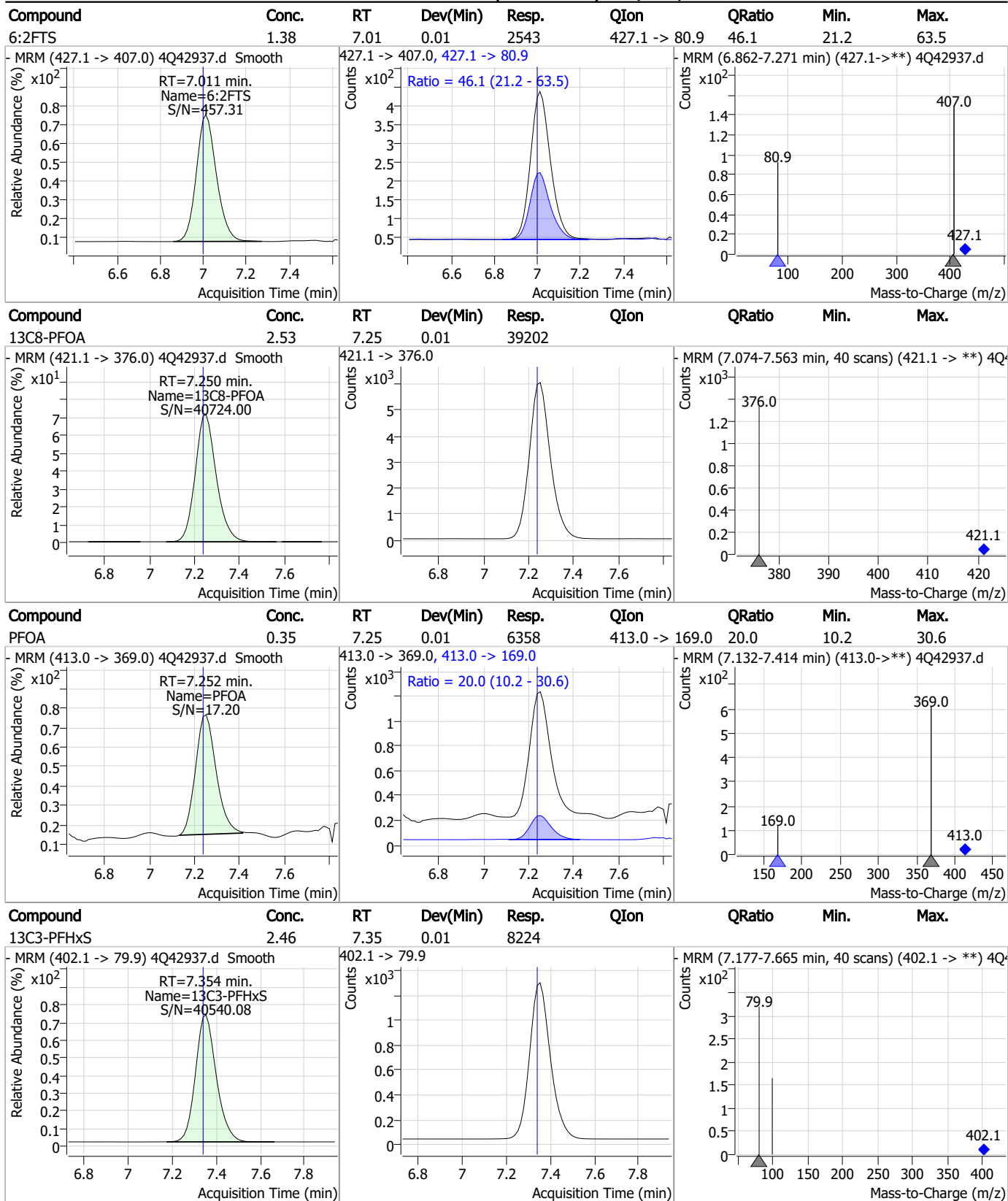
Perfluorinated Compounds by LC/MS/MS



7.7.3
7



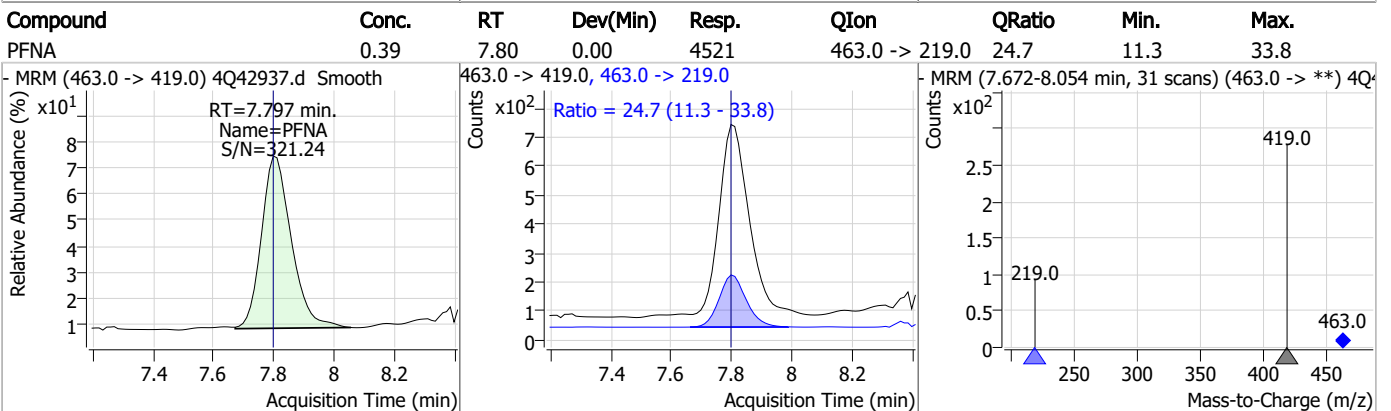
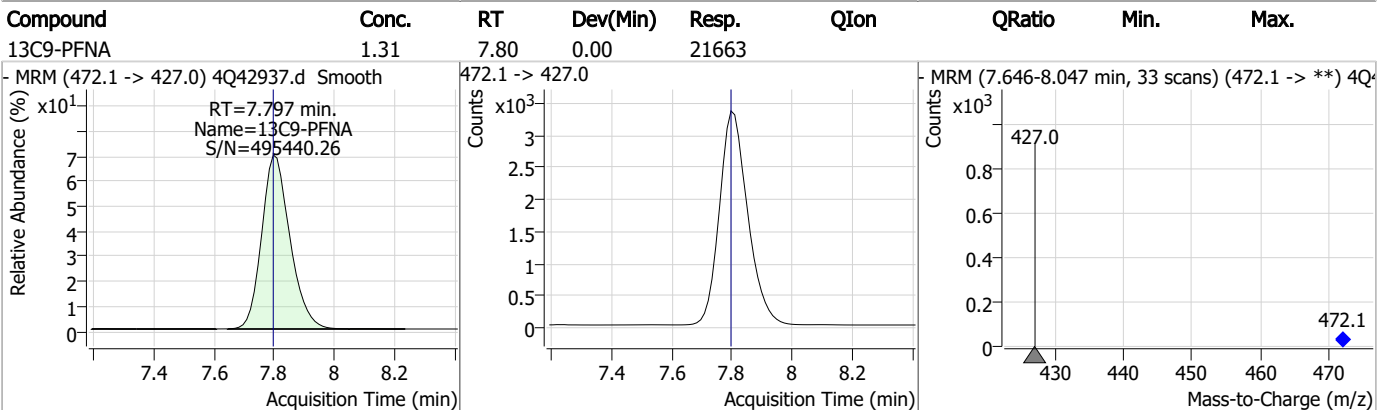
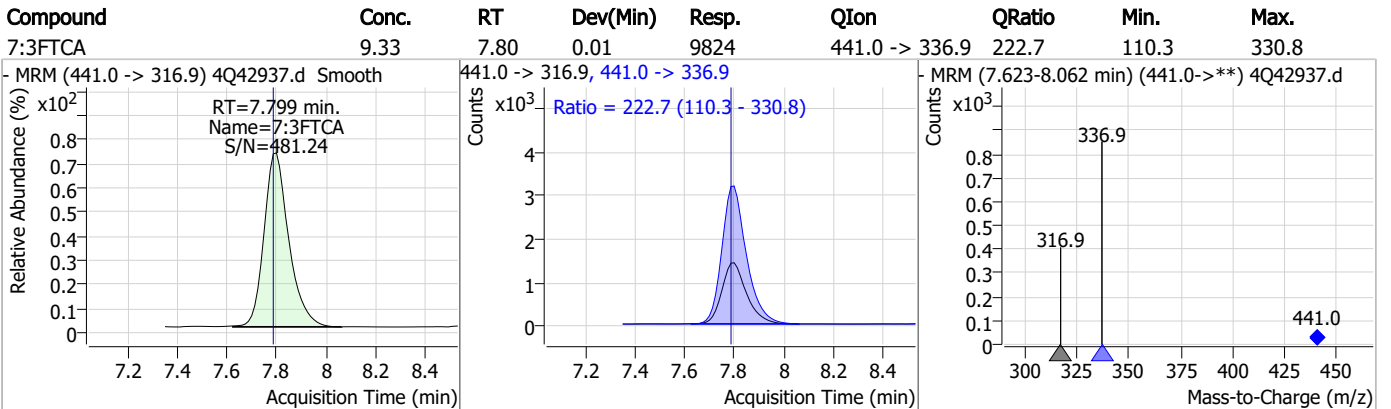
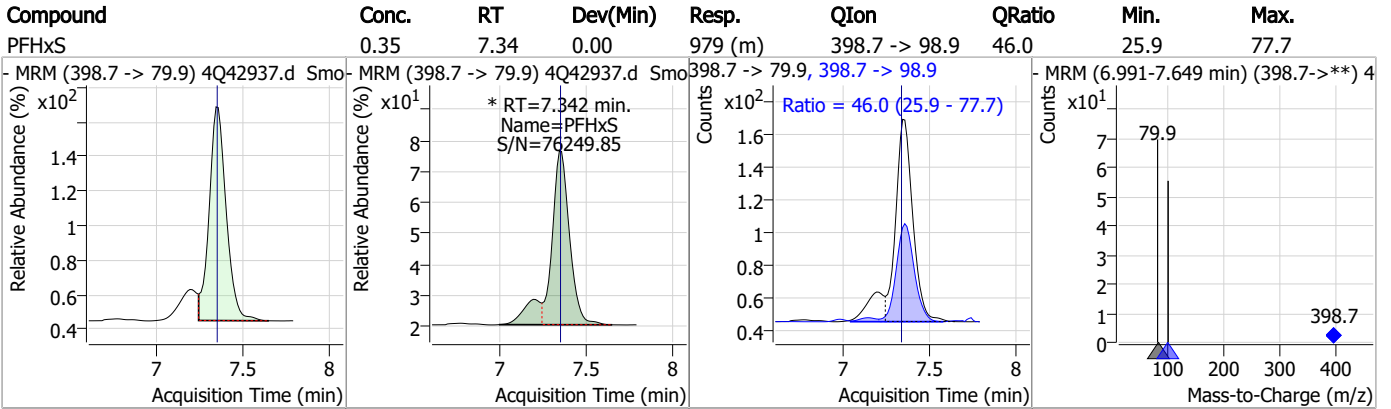
Perfluorinated Compounds by LC/MS/MS



7.7.3

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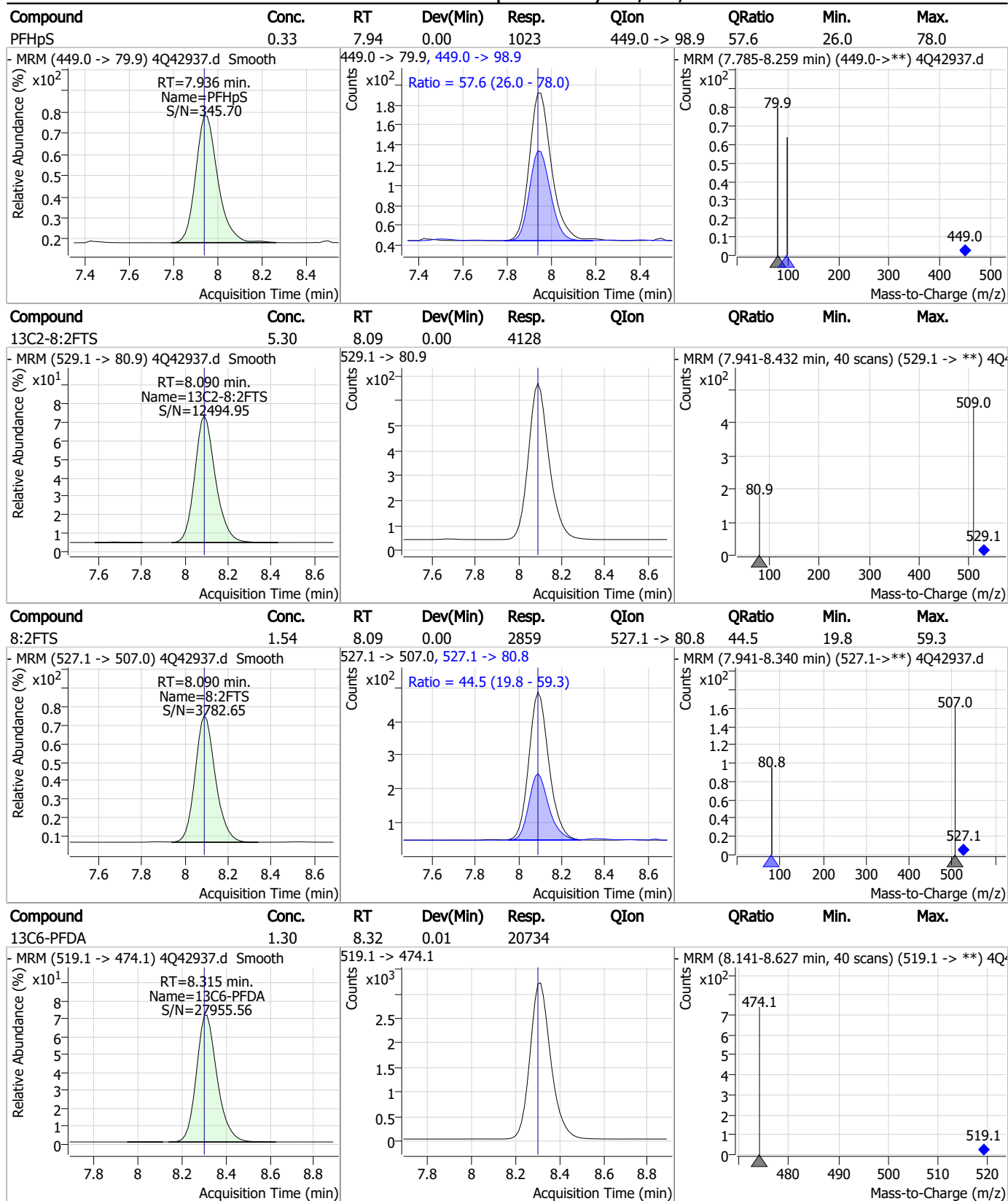
Perfluorinated Compounds by LC/MS/MS



7.7.3

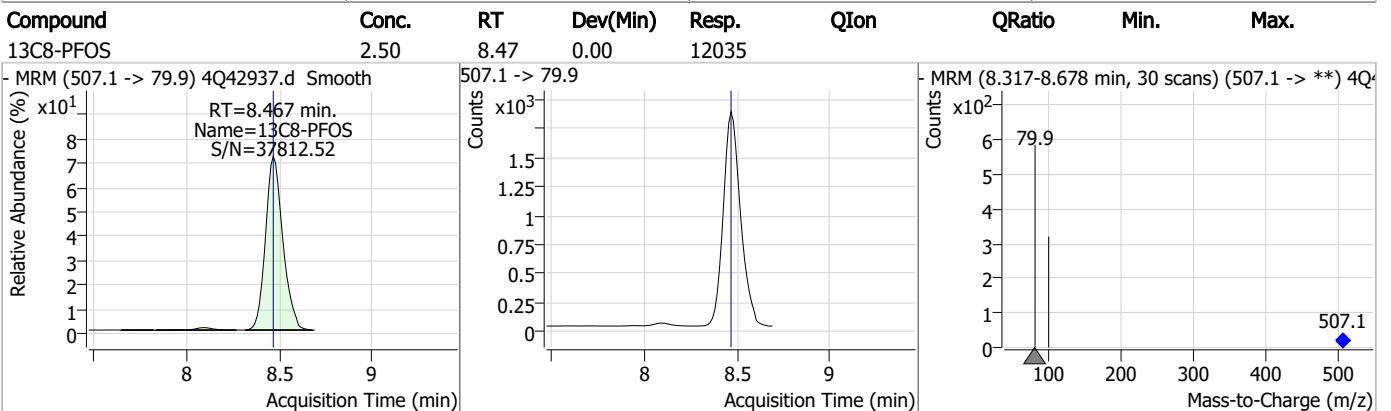
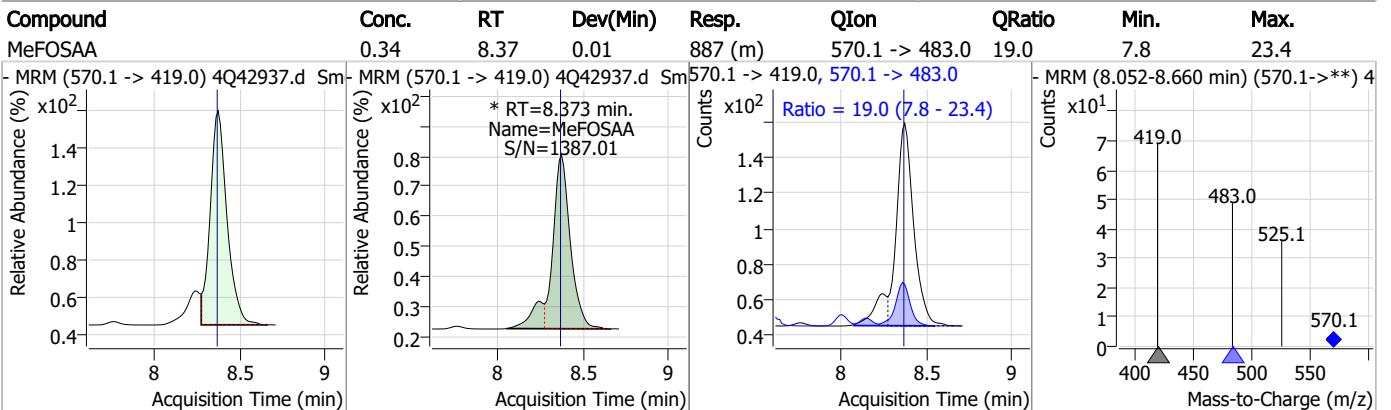
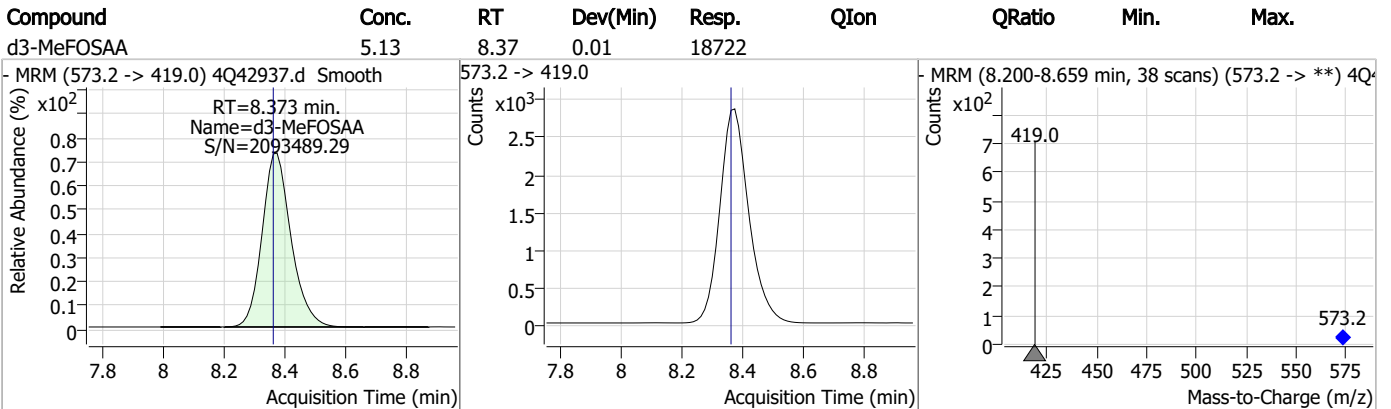
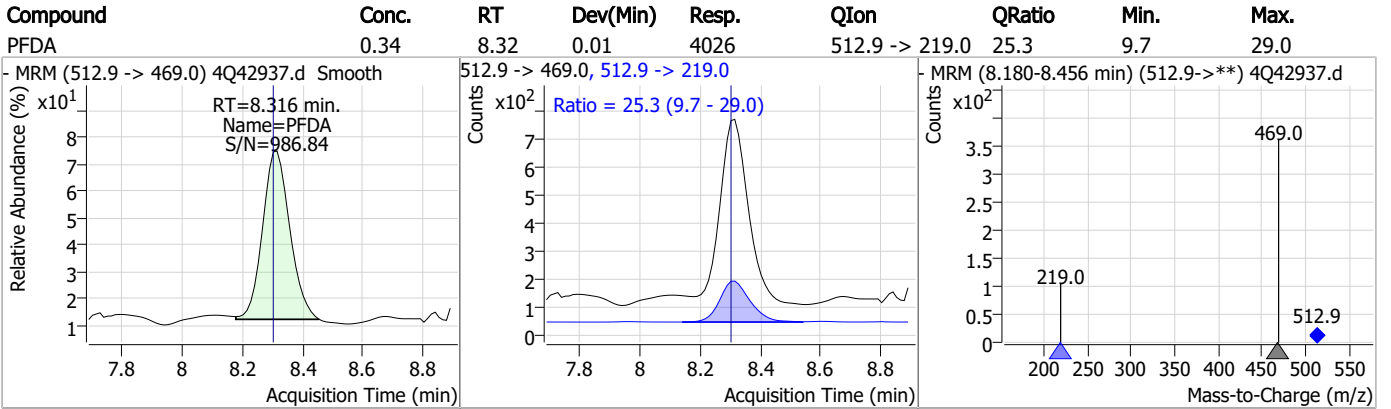
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Perfluorinated Compounds by LC/MS/MS



7.7.3
7

Perfluorinated Compounds by LC/MS/MS

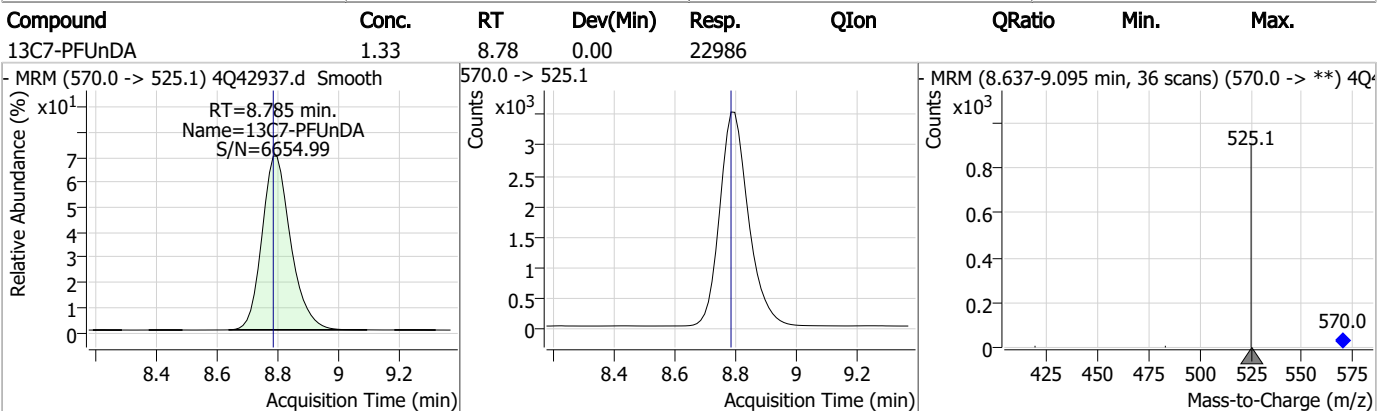
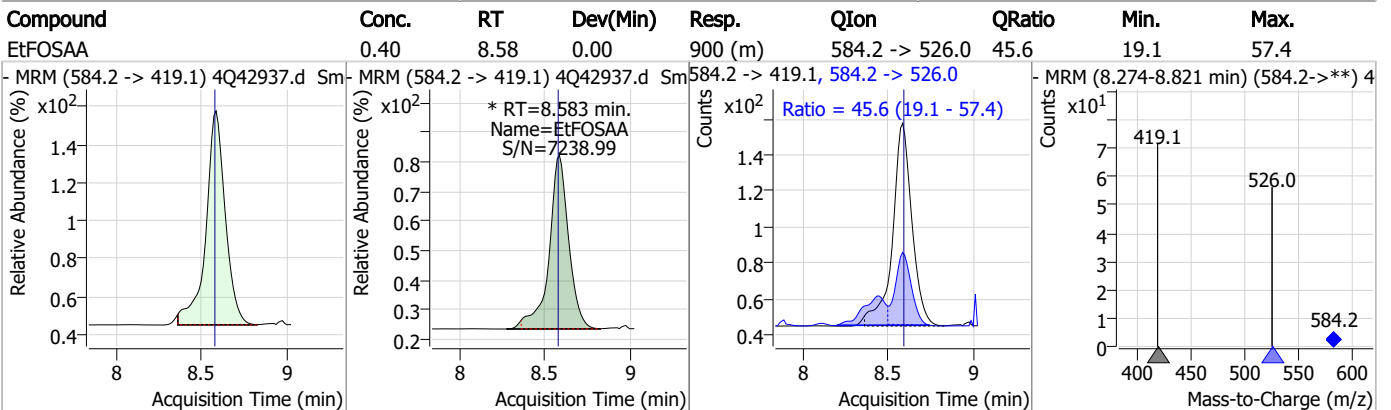
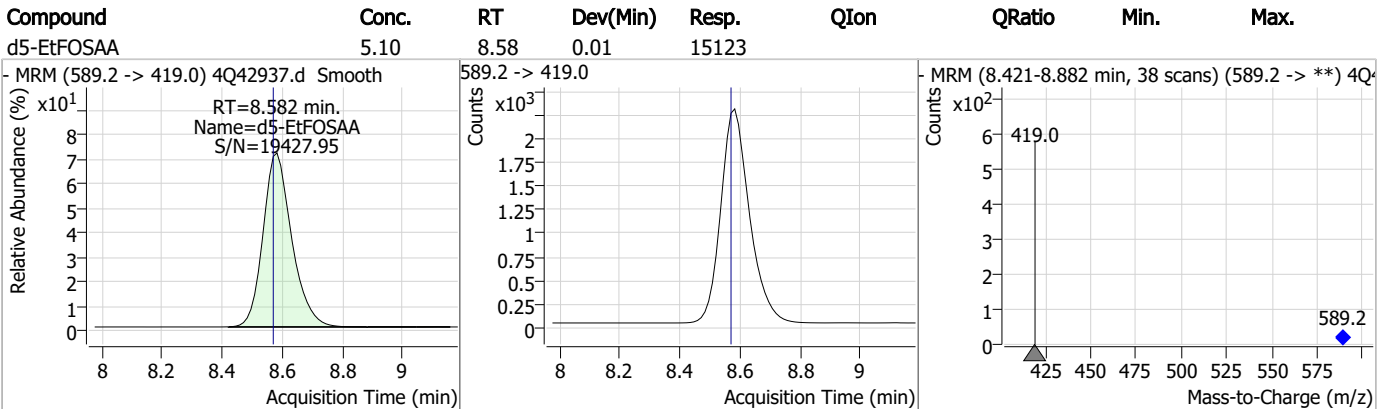
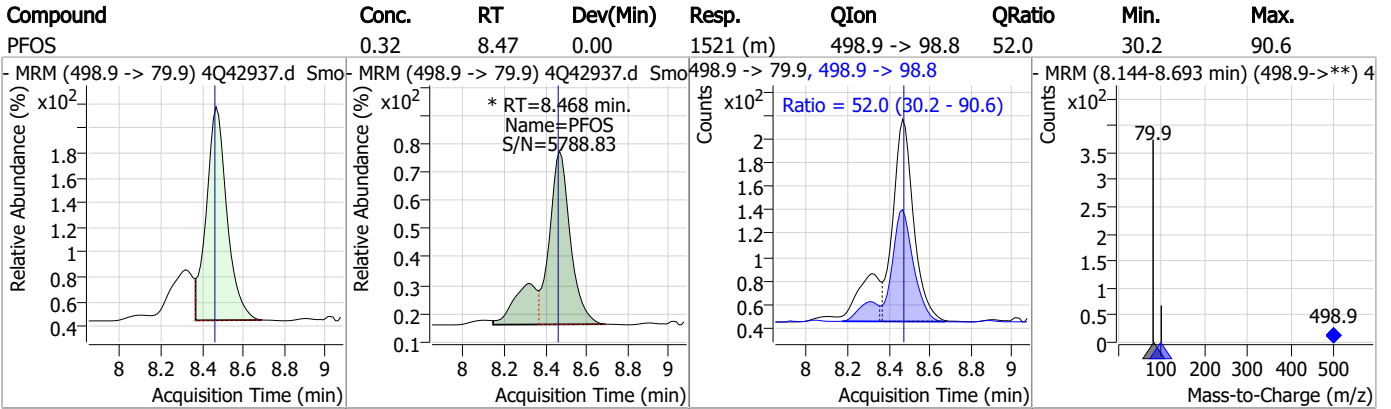


7.7.3

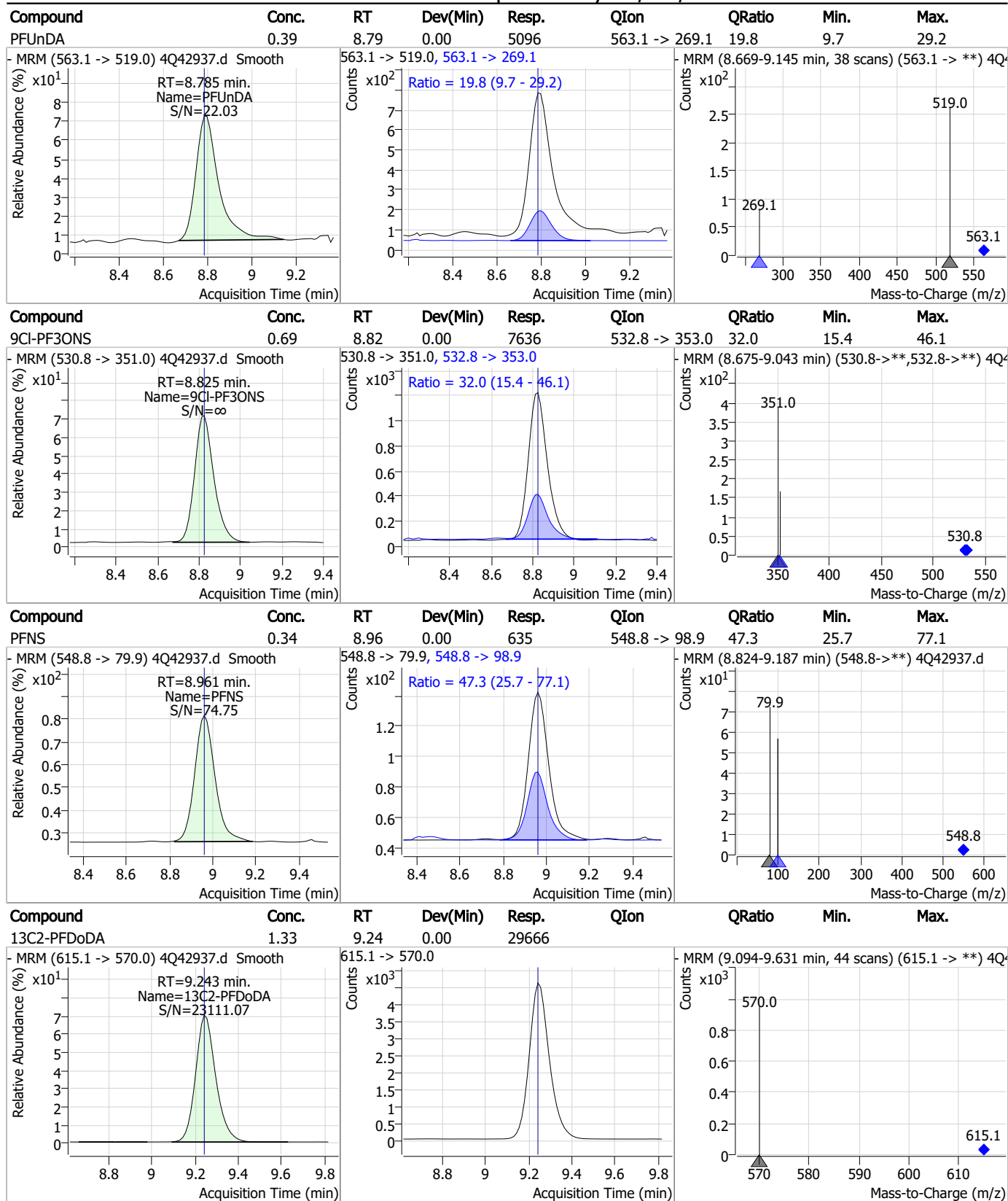
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Perfluorinated Compounds by LC/MS/MS



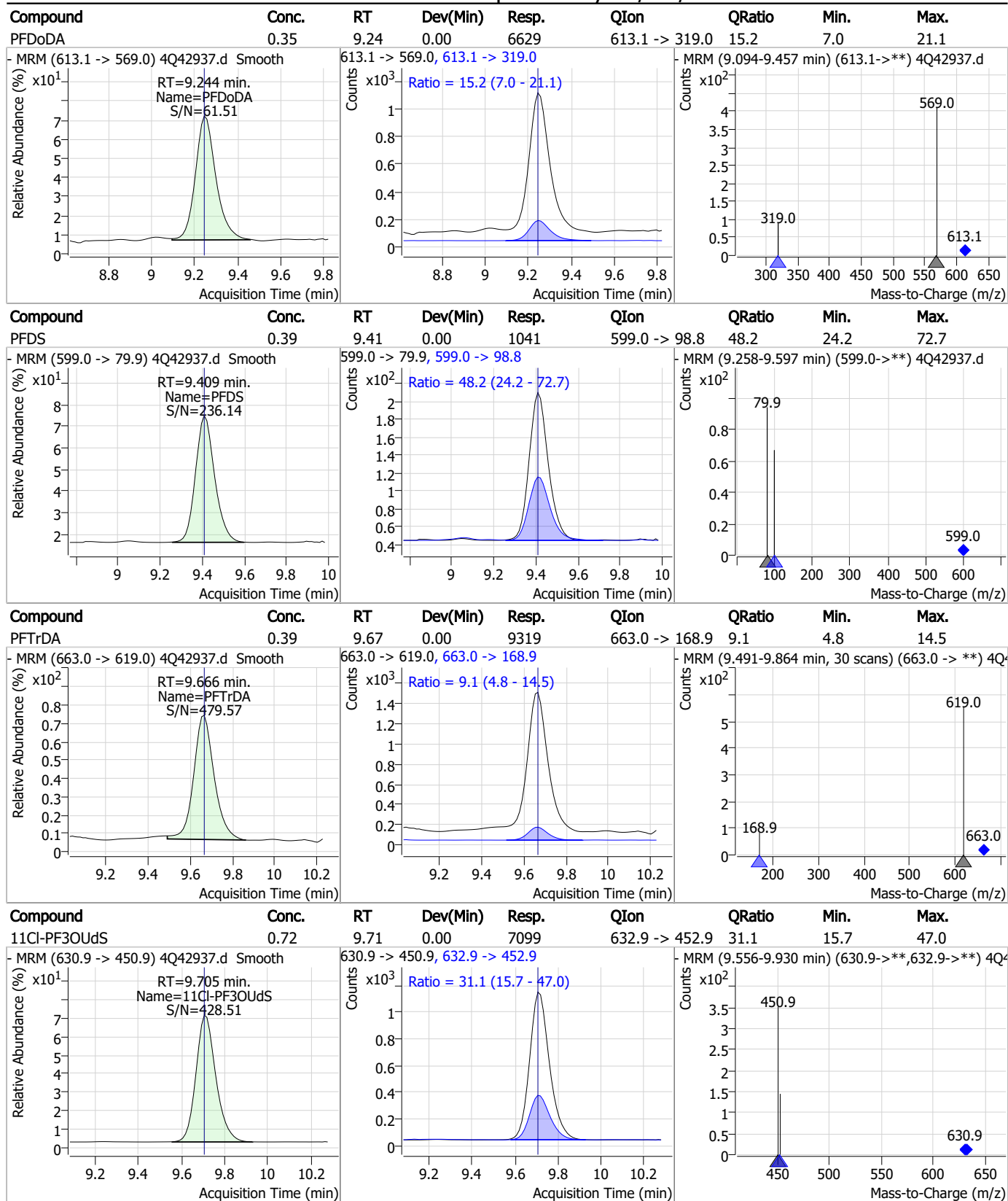
Perfluorinated Compounds by LC/MS/MS



7.7.3

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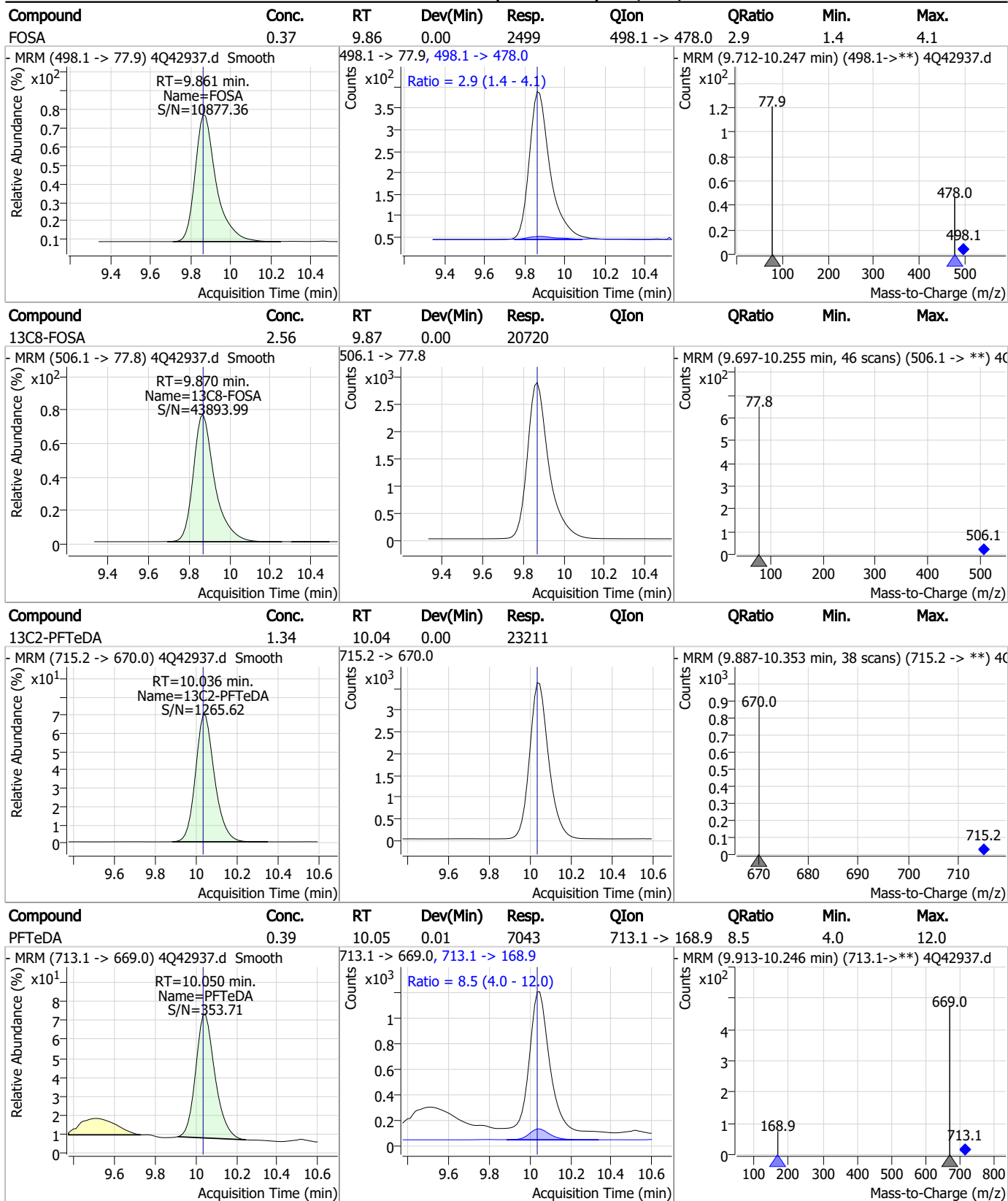
Perfluorinated Compounds by LC/MS/MS



7.7.3

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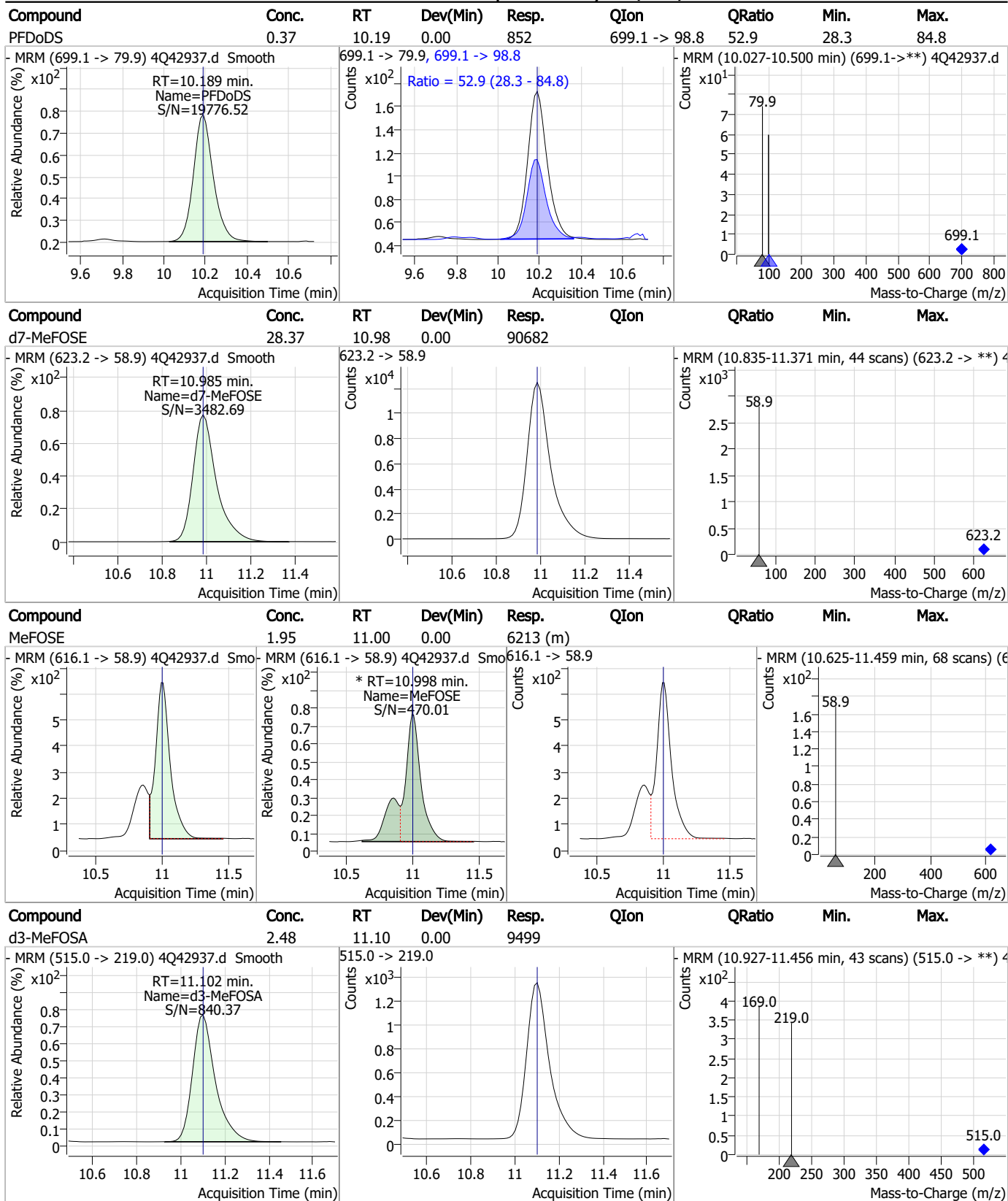
Perfluorinated Compounds by LC/MS/MS



7.7.3

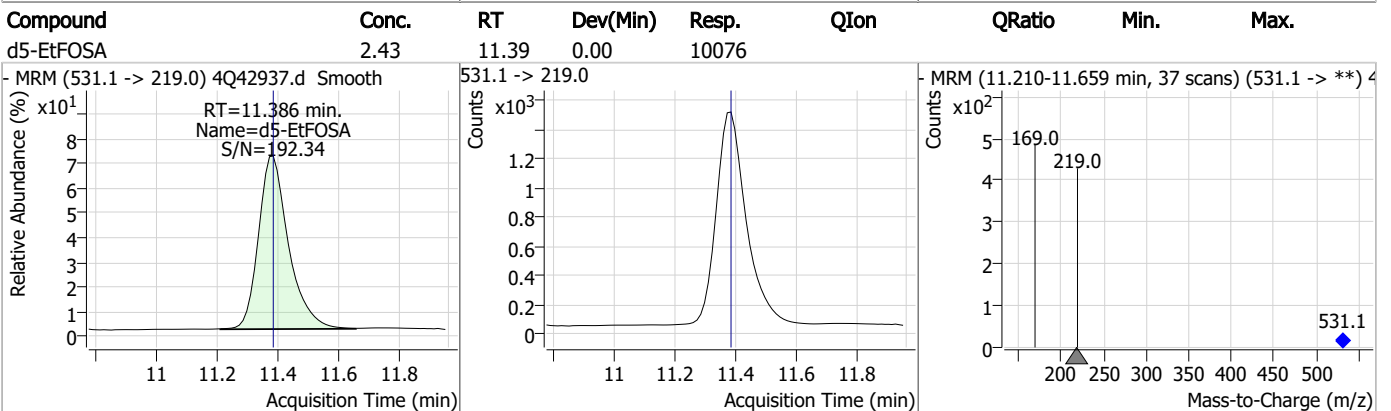
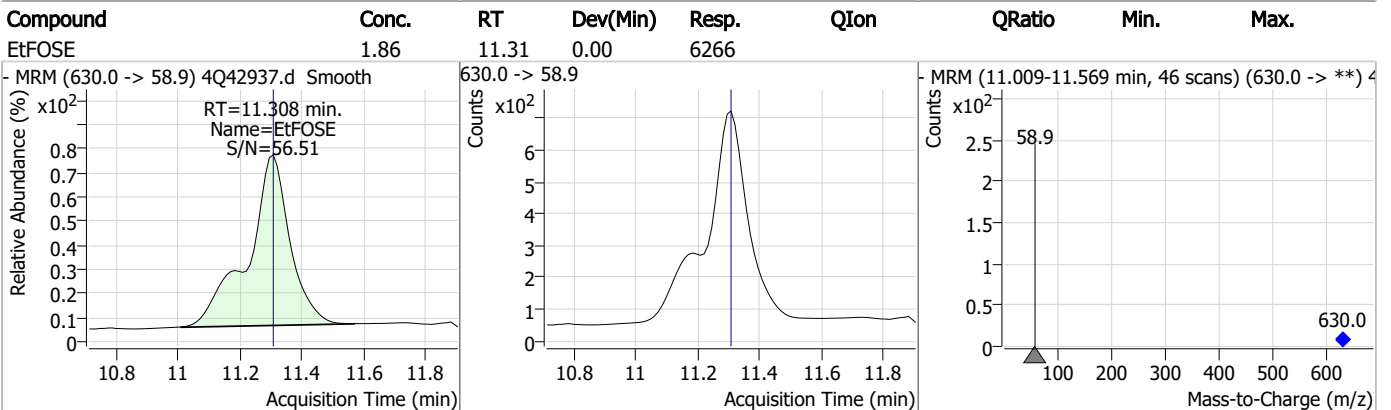
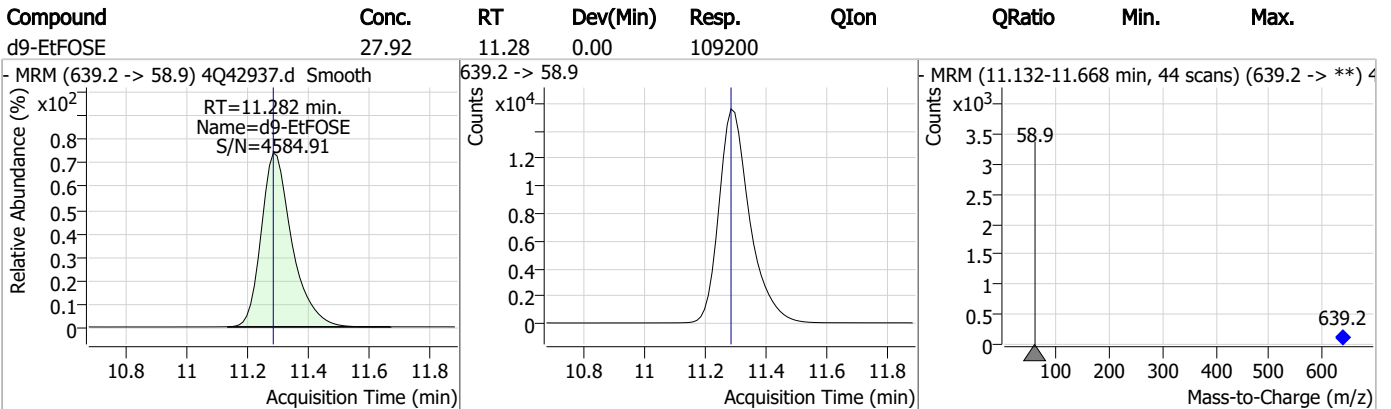
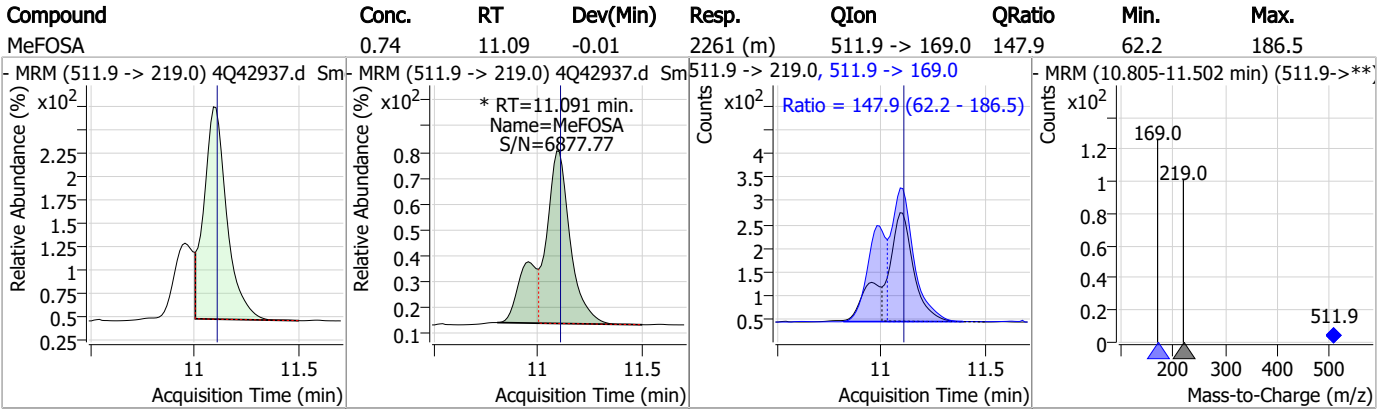
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Perfluorinated Compounds by LC/MS/MS



7.7.3
7

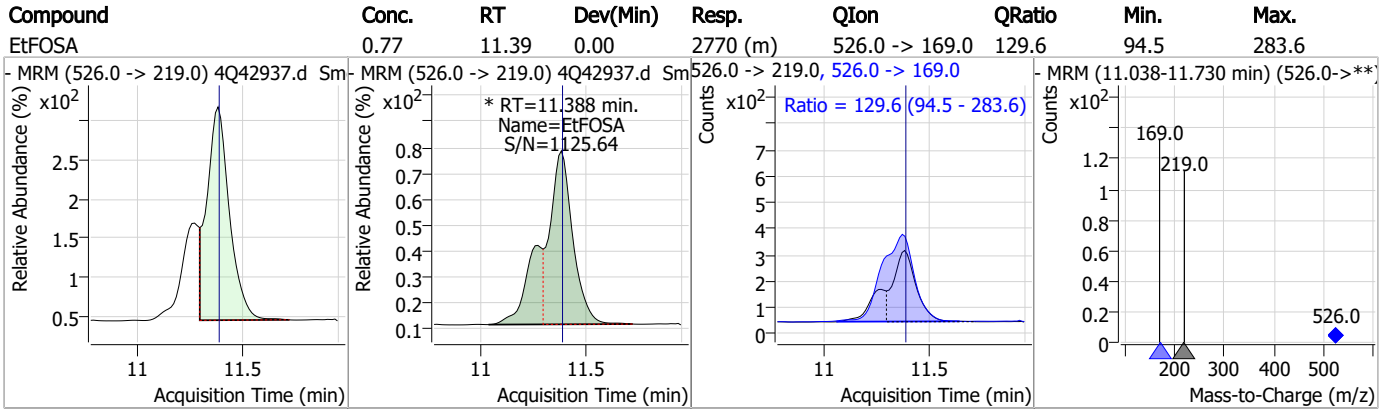
Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Manual Integration Approval Summary

Sample Number: S4Q621-IC621 Method: EPA DRAFT 1633
Lab FileID: 4Q42937.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 12:04 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoropentanesulfonic acid	2706-91-4		6.62	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.34	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.58	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42938.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 12:27:15 PM
 Sample Name : ic621-3
 Vial : P1-A4
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.114	216.8 -> 171.9	145141	10.00 µg/L	0.116
M5-PFPeA	4.525	268.3 -> 223.0	85658	5.00 µg/L	0.050
M5-PFHxA	5.684	318.0 -> 273.0	66221	2.50 µg/L	0.037
M4-PFHpA	6.605	367.1 -> 322.0	30104	2.50 µg/L	0.025
M8-PFOA	7.250	421.1 -> 376.0	40124	2.50 µg/L	0.013
M9-PFNA	7.809	472.1 -> 427.0	22828	1.25 µg/L	0.012
M6-PFDA	8.315	519.1 -> 474.1	22483	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	23802	1.25 µg/L	0.012
M2-PFDoDA	9.255	615.1 -> 570.0	31188	1.25 µg/L	0.012
M2-PFTeDA	10.049	715.2 -> 670.0	24845	1.25 µg/L	0.012
M8-FOSA	9.883	506.1 -> 77.8	23891	2.50 µg/L	0.012
M3-PFBS	5.601	302.1 -> 79.9	14615	2.50 µg/L	0.037
M3-PFHxS	7.354	402.1 -> 79.9	8233	2.50 µg/L	0.013
M8-PFOS	8.479	507.1 -> 79.9	12589	2.50 µg/L	0.012
M2-4:2FTS	5.372	329.1 -> 80.9	1825	5.00 µg/L	0.037
M2-6:2FTS	7.023	429.1 -> 80.9	2503	5.00 µg/L	0.025
M2-8:2FTS	8.102	529.1 -> 80.9	4231	5.00 µg/L	0.012
M3-MeFOSAA	8.373	573.2 -> 419.0	20044	5.00 µg/L	0.012
M3-HFPO-DA	6.051	286.9 -> 168.9	38681	10.00 µg/L	0.037
M5-EtFOSAA	8.582	589.2 -> 419.0	16212	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	95244	25.00 µg/L	0.000
M9-EtFOSE	11.294	639.2 -> 58.9	116911	25.00 µg/L	0.012
M5-EtFOSA	11.386	531.1 -> 219.0	10266	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	9758	2.50 µg/L	0.000
13C4-PFOS	8.480	502.8 -> 79.9	12437	2.50 µg/L	0.012
13C3-PFBA	3.105	216.0 -> 172.0	80712	5.00 µg/L	0.115
18O2-PFHxS	7.353	403.0 -> 83.9	6049	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	48748	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	19911	1.25 µg/L	0.012
13C5-PFNA	7.809	468.0 -> 423.0	23883	1.25 µg/L	0.012
13C2-PFHxA	5.685	315.1 -> 270.0	57939	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.372	329.1 -> 80.9	1825	5.52 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.5%		
13C2-6:2FTS	7.023	429.1 -> 80.9	2503	5.28 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C2-8:2FTS	8.102	529.1 -> 80.9	4231	5.42 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C2-PFDoDA	9.255	615.1 -> 570.0	31188	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C2-PFTeDA	10.049	715.2 -> 670.0	24845	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C3-PFBS	5.601	302.1 -> 79.9	14615	2.63 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C3-PFHxS	7.354	402.1 -> 79.9	8233	2.46 µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C4-PFBA	3.114	216.8 -> 171.9	145141	10.33 µg/L	0.116
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C4-PFHpA	6.605	367.1 -> 322.0	30104	2.29 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.5%		
13C5-PFHxA	5.684	318.0 -> 273.0	66221	2.47 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C5-PFPeA	4.525	268.3 -> 223.0	85658	5.02 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C6-PFDA	8.315	519.1 -> 474.1	22483	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C7-PFUnDA	8.797	570.0 -> 525.1	23802	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C8-FOSA	9.883	506.1 -> 77.8	23891	2.94 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 117.5%		
13C8-PFOA	7.250	421.1 -> 376.0	40124	2.50 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C8-PFOS	8.479	507.1 -> 79.9	12589	2.61 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C9-PFNA	7.809	472.1 -> 427.0	22828	1.31 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.0%		
d3-MeFOSAA	8.373	573.2 -> 419.0	20044	5.47 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.4%		
13C3-HFPO-DA	6.051	286.9 -> 168.9	38681	9.51 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
d3-MeFOSA	11.102	515.0 -> 219.0	9758	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.4%		
d5-EtFOSAA	8.582	589.2 -> 419.0	16212	5.44 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.9%		
d7-MeFOSE	10.985	623.2 -> 58.9	95244	29.69 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 118.8%		
d9-EtFOSE	11.294	639.2 -> 58.9	116911	29.79 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 119.1%		
d5-EtFOSA	11.386	531.1 -> 219.0	10266	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
Target Compounds					QValue
4:2FTS	5.373	327.1 -> 307.0	11088	4.87 µg/L	100
		327.1 -> 80.9	4495		
6:2FTS	7.023	427.1 -> 407.0	8199	4.80 µg/L	99
		427.1 -> 80.9	3545		
8:2FTS	8.103	527.1 -> 507.0	8385	4.42 µg/L	93
		527.1 -> 80.8	3686		
EtFOSAA	8.595	584.2 -> 419.1	3121	1.29 µg/L	m 88
		584.2 -> 526.0	1428		
FOSA	9.874	498.1 -> 77.9	9400	1.22 µg/L	99
		498.1 -> 478.0	283		
MeFOSAA	8.373	570.1 -> 419.0	3140	1.14 µg/L	92
		570.1 -> 483.0	602		
PFBA	3.108	212.8 -> 168.9	15687	4.73 µg/L	100
PFBS	5.590	298.7 -> 79.9	5725	1.05 µg/L	87
		298.7 -> 98.8	2633		
PFDA	8.316	512.9 -> 469.0	15110	1.18 µg/L	99
		512.9 -> 219.0	2839		
PFDODA	9.256	613.1 -> 569.0	23887	1.21 µg/L	100
		613.1 -> 319.0	3310		
PFDS	9.409	599.0 -> 79.9	3327	1.18 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1630			
PFHpA	6.605	363.1 -> 319.0	18390	1.22	µg/L	98
		363.1 -> 169.0	3362			
PFHpS	7.950	449.0 -> 79.9	3833	1.17	µg/L	97
		449.0 -> 98.9	1900			
PFHxA	5.686	313.0 -> 269.0	23319	1.19	µg/L	100
		313.0 -> 118.9	724			
PFHxS	7.355	398.7 -> 79.9	3098	1.10	µg/L	m 97
		398.7 -> 98.9	1660			
PFNA	7.810	463.0 -> 419.0	14099	1.16	µg/L	94
		463.0 -> 219.0	3594			
PFNS	8.961	548.8 -> 79.9	2191	1.13	µg/L	96
		548.8 -> 98.9	1191			
PFOA	7.252	413.0 -> 369.0	21849	1.17	µg/L	98
		413.0 -> 169.0	4651			
PFOS	8.480	498.9 -> 79.9	5664	1.16	µg/L	m 81
		498.9 -> 98.8	2596			
PFPeA	4.527	263.0 -> 219.0	38246	2.36	µg/L	100
PFPeS	6.646	349.1 -> 79.9	2715	1.13	µg/L	99
		349.1 -> 98.9	1179			
PFTeDA	10.050	713.1 -> 669.0	24383	1.25	µg/L	100
		713.1 -> 168.9	1949			
PFTrDA	9.666	663.0 -> 619.0	30959	1.22	µg/L	99
		663.0 -> 168.9	3065			
PFUnDA	8.798	563.1 -> 519.0	16468	1.22	µg/L	99
		563.1 -> 269.1	3143			
11CI-PF3OUdS	9.718	630.9 -> 450.9	23785	2.36	µg/L	98
		632.9 -> 452.9	7731			
9CI-PF3ONS	8.825	530.8 -> 351.0	26136	2.32	µg/L	96
		532.8 -> 353.0	7496			
ADONA	6.855	376.9 -> 250.9	54497	2.35	µg/L	100
		376.9 -> 84.8	14616			
HFPO-DA	6.052	284.9 -> 168.9	7632	2.49	µg/L	99
		284.9 -> 184.9	990			
3:3FTCA	4.092	241.0 -> 177.0	4451	5.89	µg/L	97
		241.0 -> 117.0	482			
5:3FTCA	6.382	341.0 -> 237.1	83027	29.99	µg/L	100
		341.0 -> 217.0	59146			
7:3FTCA	7.811	441.0 -> 316.9	34714	30.60	µg/L	98
		441.0 -> 336.9	75219			
EtFOSA	11.388	526.0 -> 219.0	9073	2.48	µg/L	65
		526.0 -> 169.0	12520			
EtFOSE	11.308	630.0 -> 58.9	21840	6.06	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	7991	2.53	µg/L	m 82
		511.9 -> 169.0	11604			
MeFOSE	11.010	616.1 -> 58.9	20412	6.10	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	2902	1.19	µg/L	94
		699.1 -> 98.8	1773			
NFDHA	5.565	295.0 -> 201.0	3405	2.58	µg/L	100
		295.0 -> 84.9	840			
PFMBA	4.928	279.0 -> 85.1	22330	2.41	µg/L	100
PFMPA	3.691	229.0 -> 84.9	19059	2.35	µg/L	100
PFEESA	6.121	314.8 -> 134.9	35188	2.14	µg/L	99
		314.8 -> 82.9	1273			

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

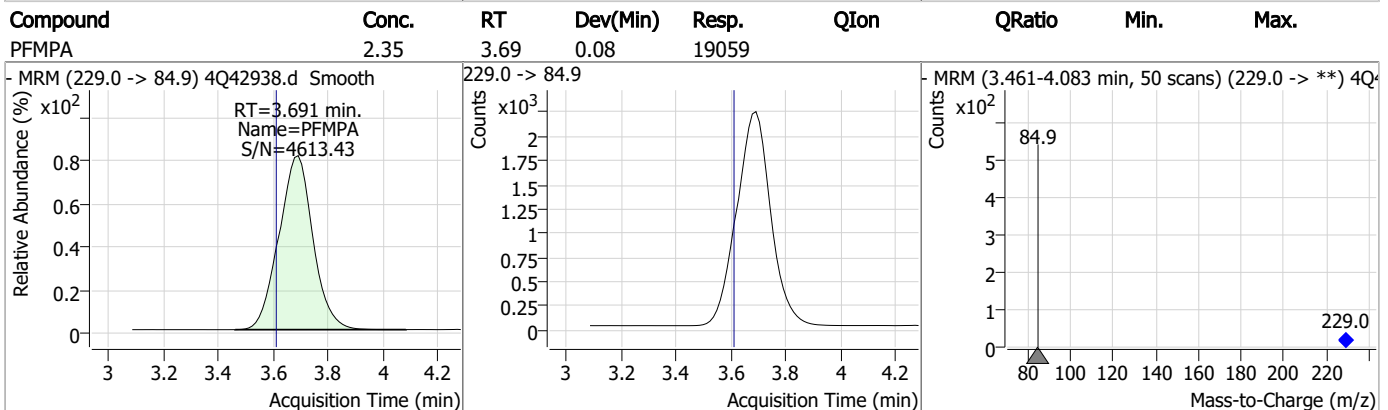
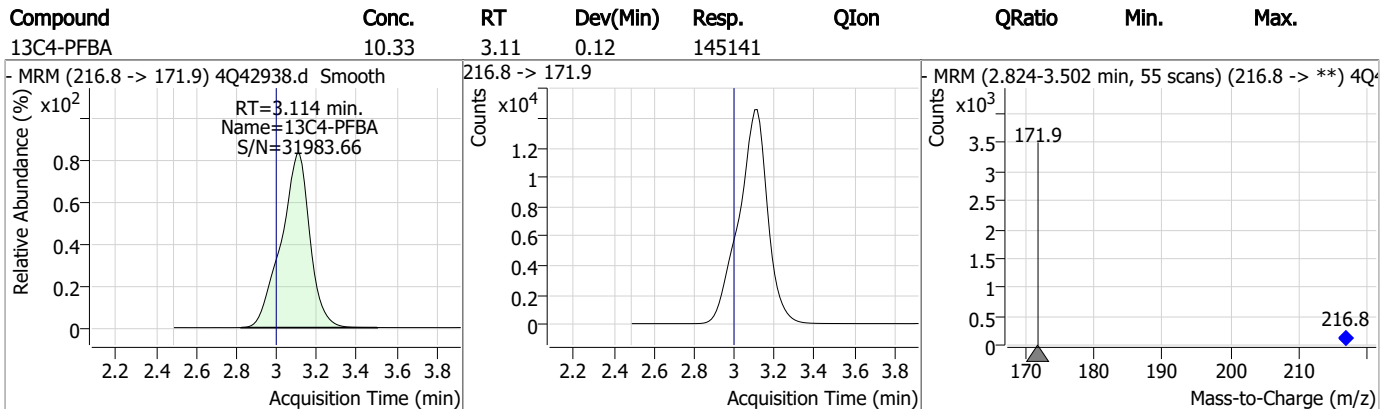
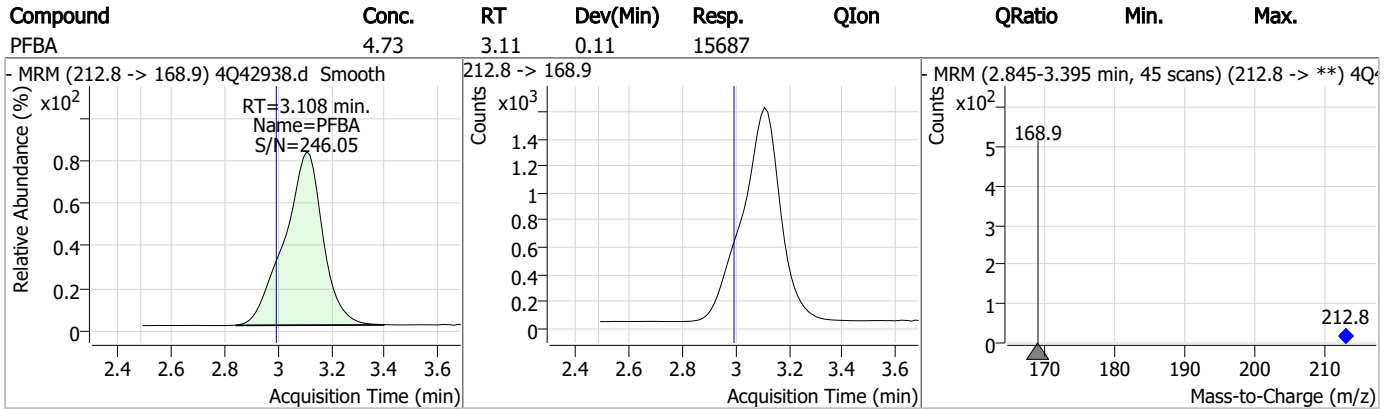
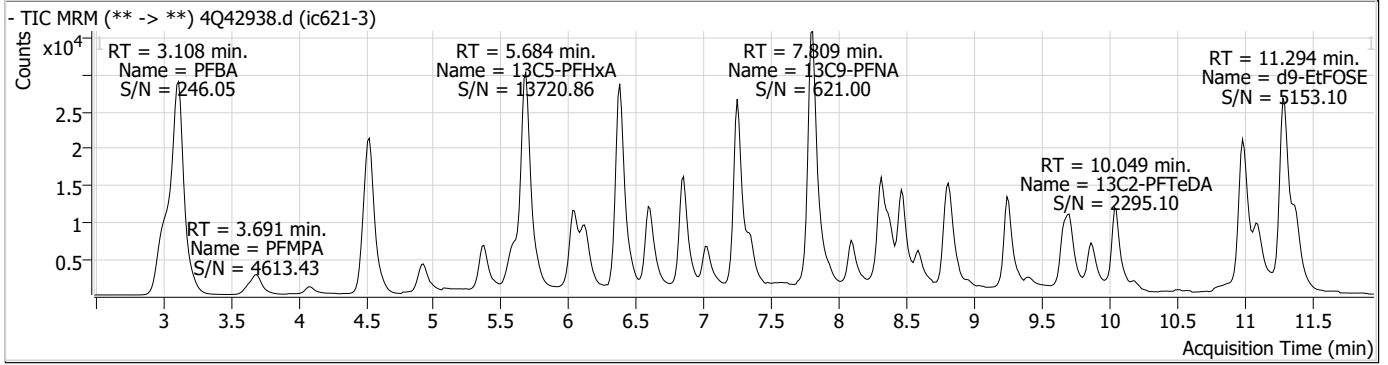
Perfluorinated Compounds by LC/MS/MS

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

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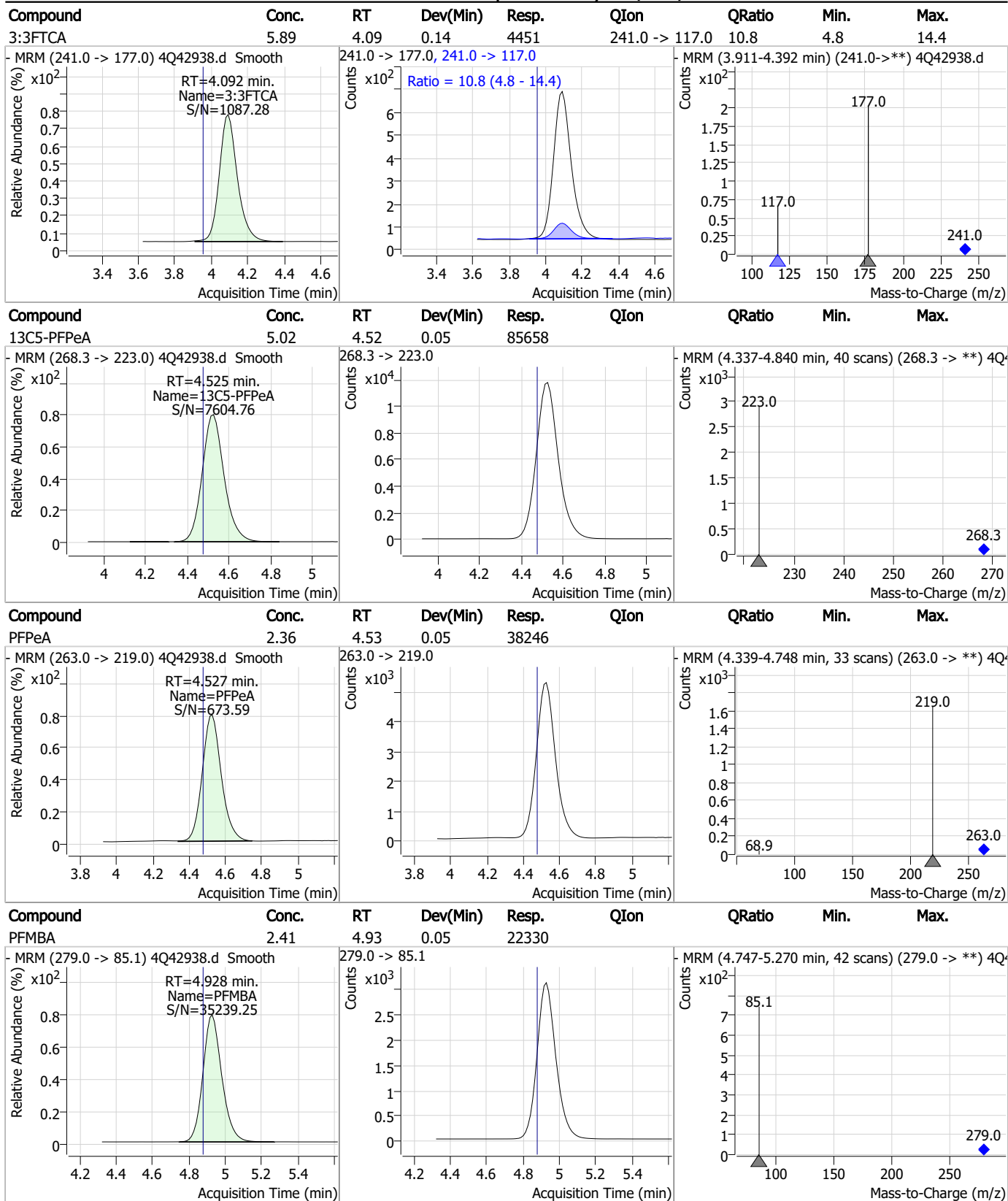
Perfluorinated Compounds by LC/MS/MS



7.7.4

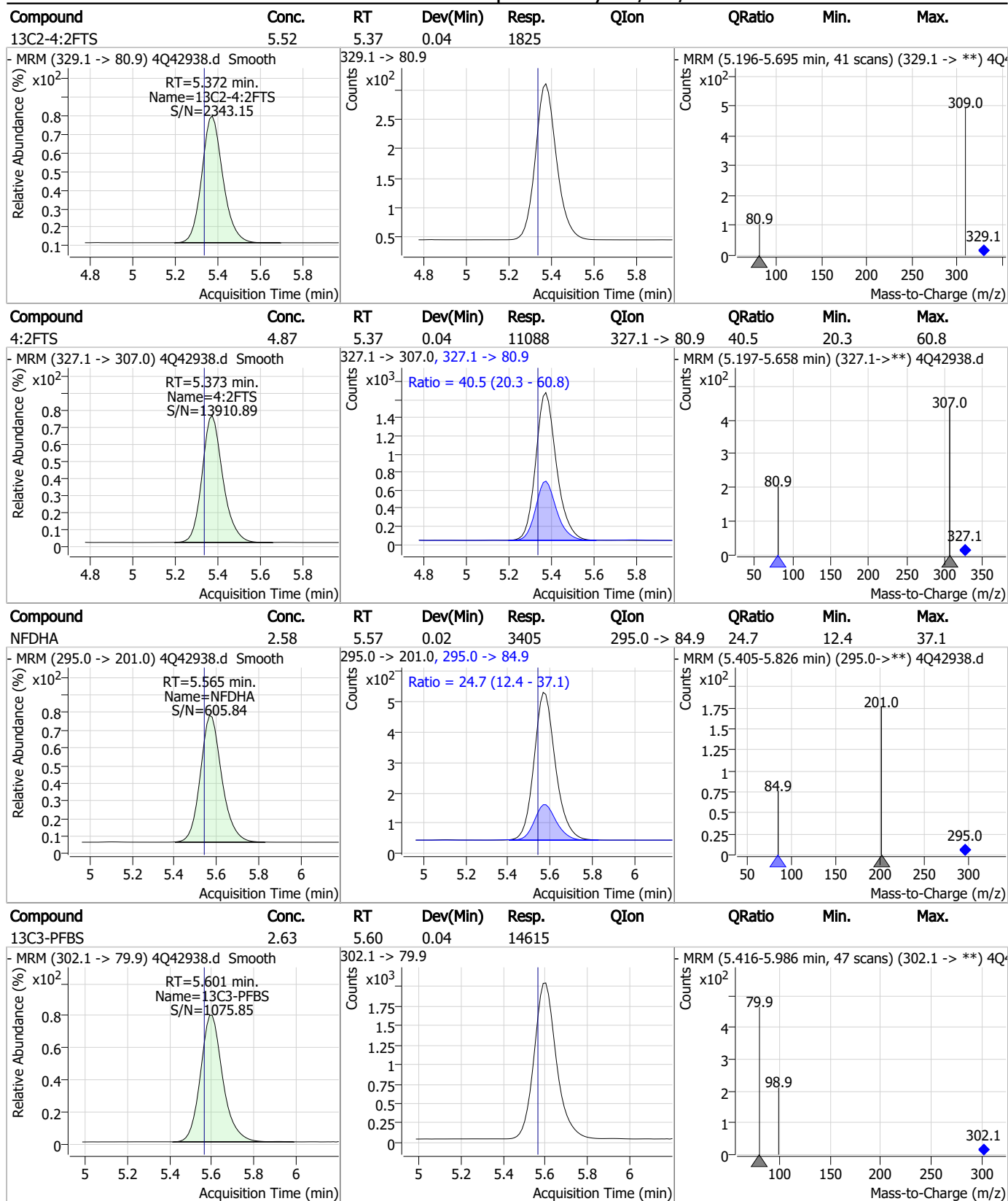
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Perfluorinated Compounds by LC/MS/MS



7.7.4
7

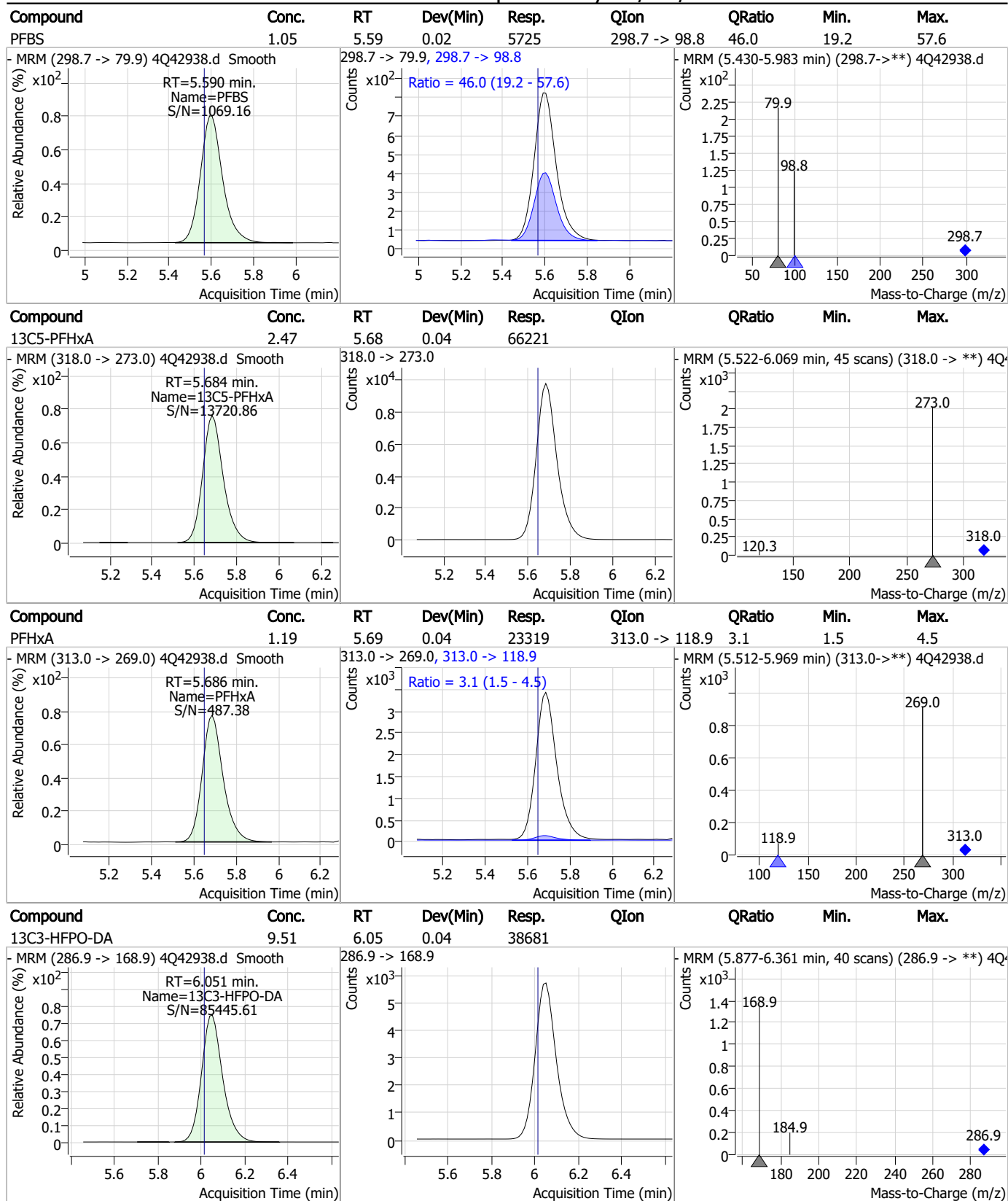
Perfluorinated Compounds by LC/MS/MS



7.7.4

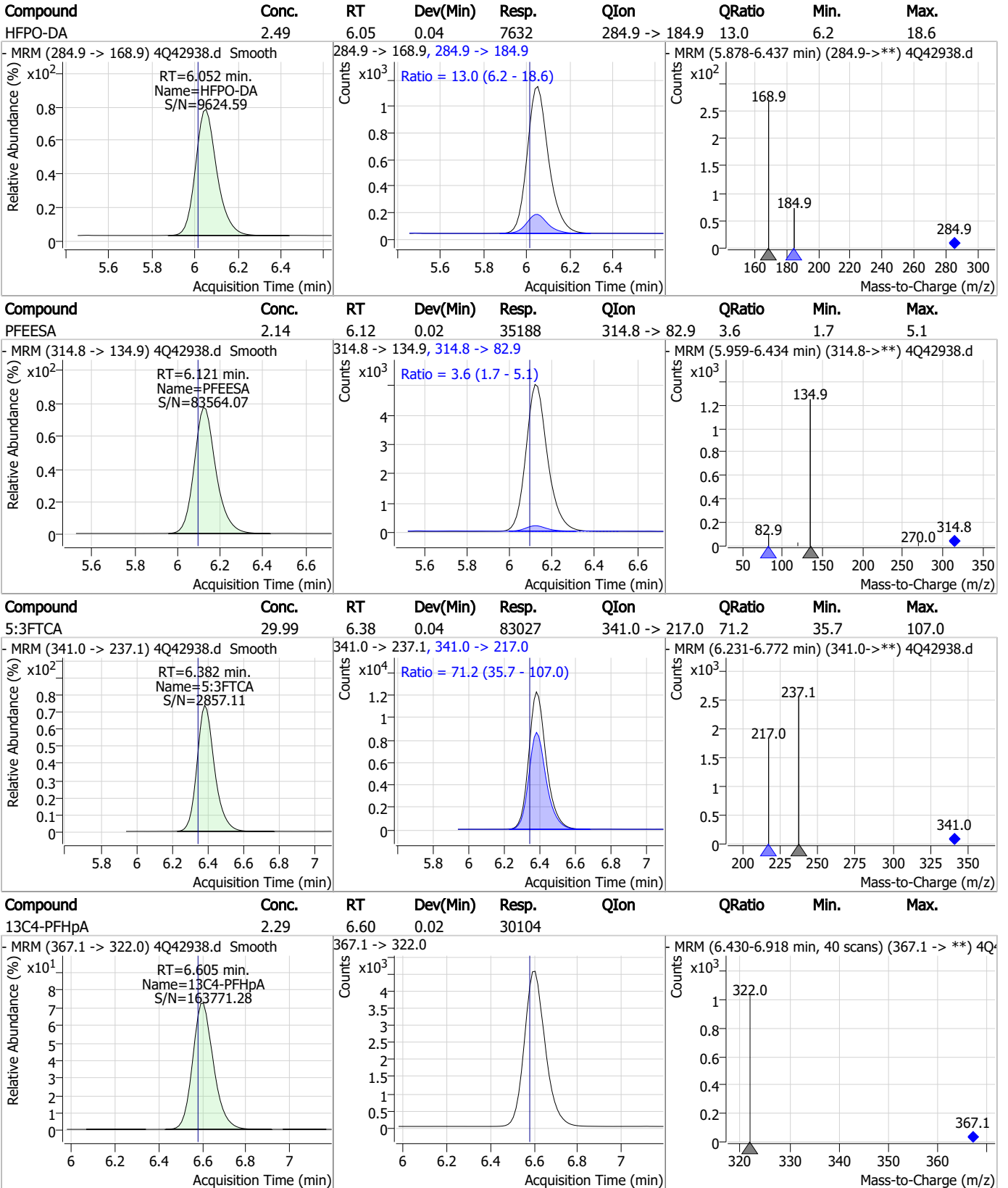
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Perfluorinated Compounds by LC/MS/MS



7.7.4
7

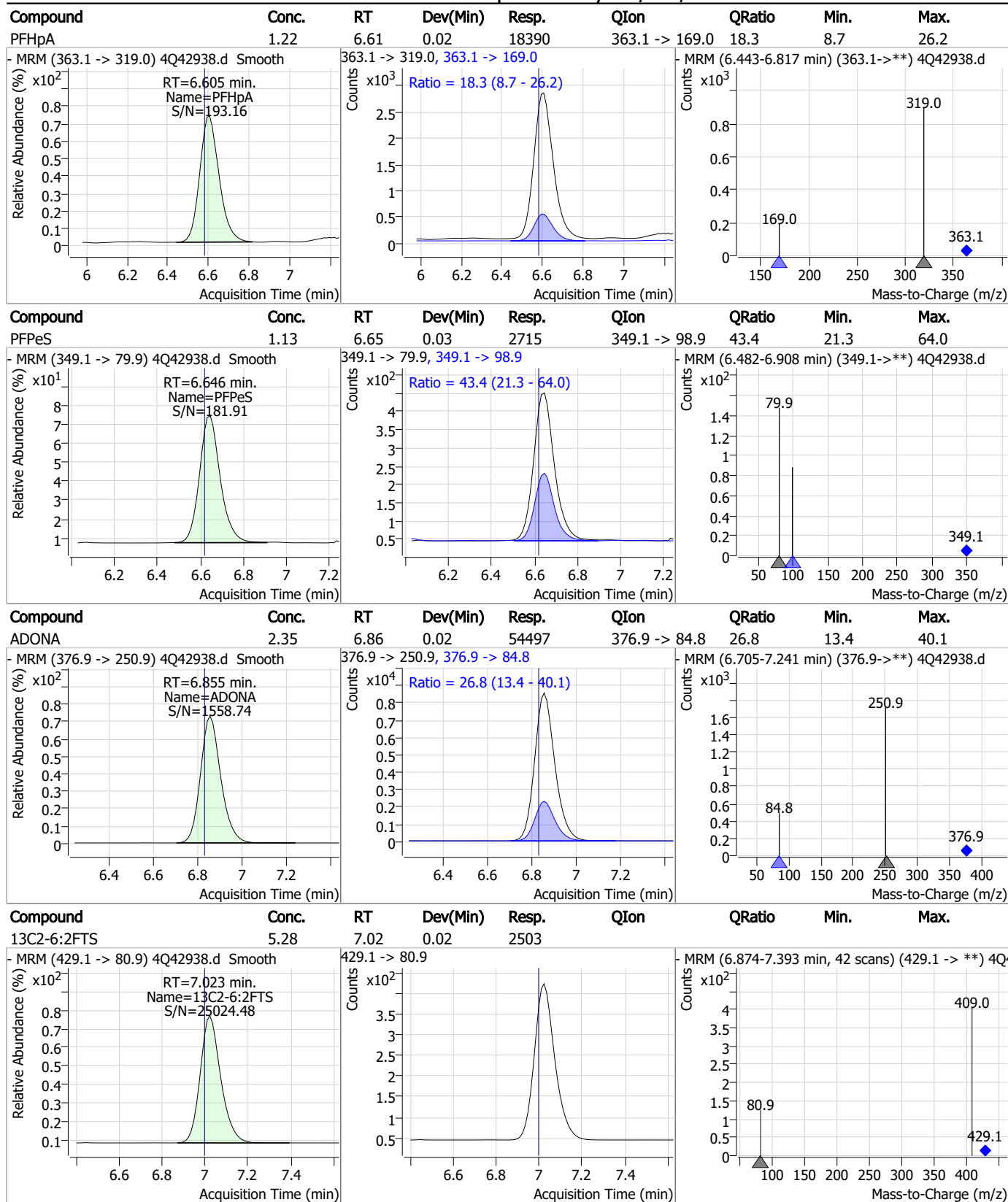
Perfluorinated Compounds by LC/MS/MS



7.7.4

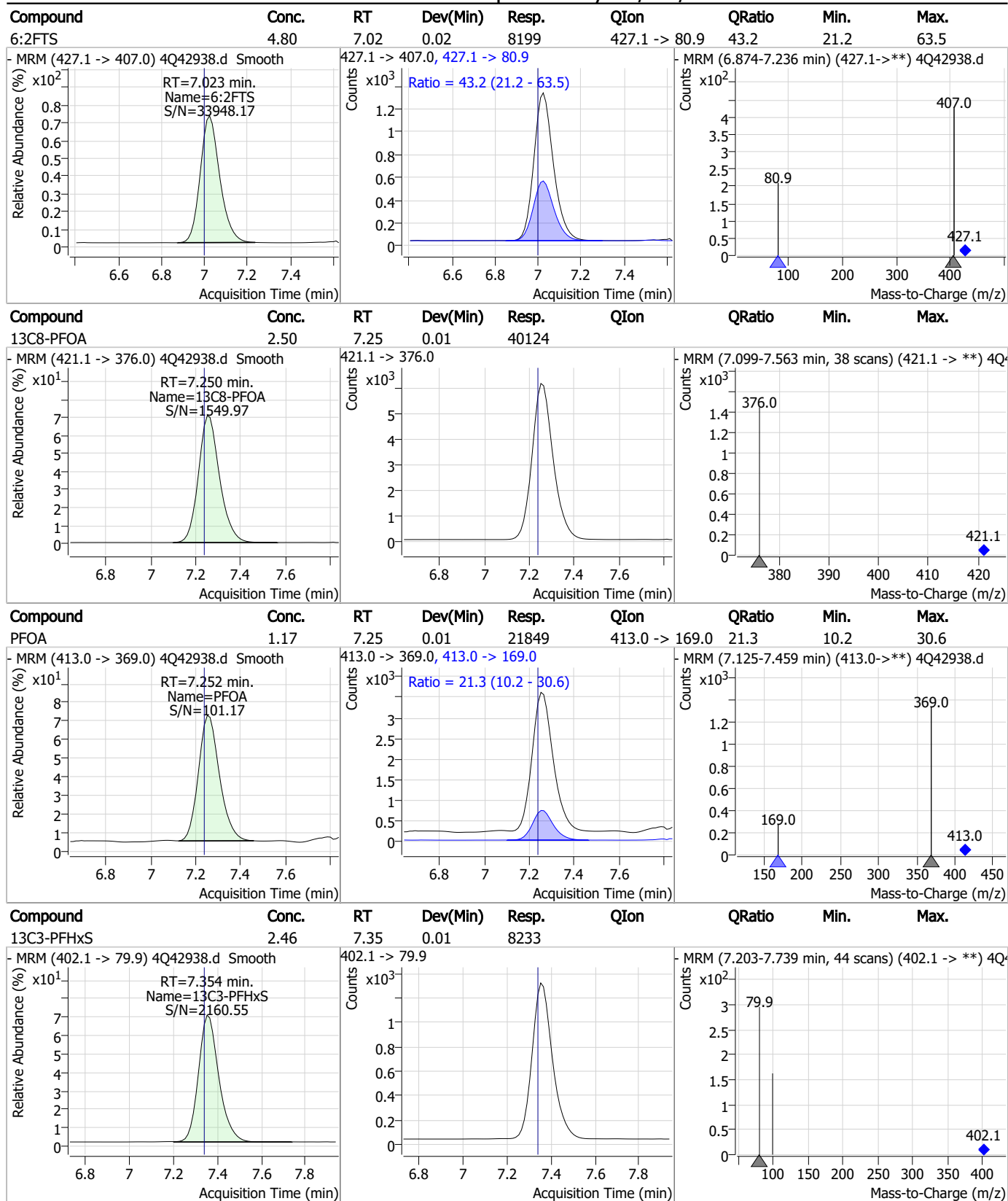
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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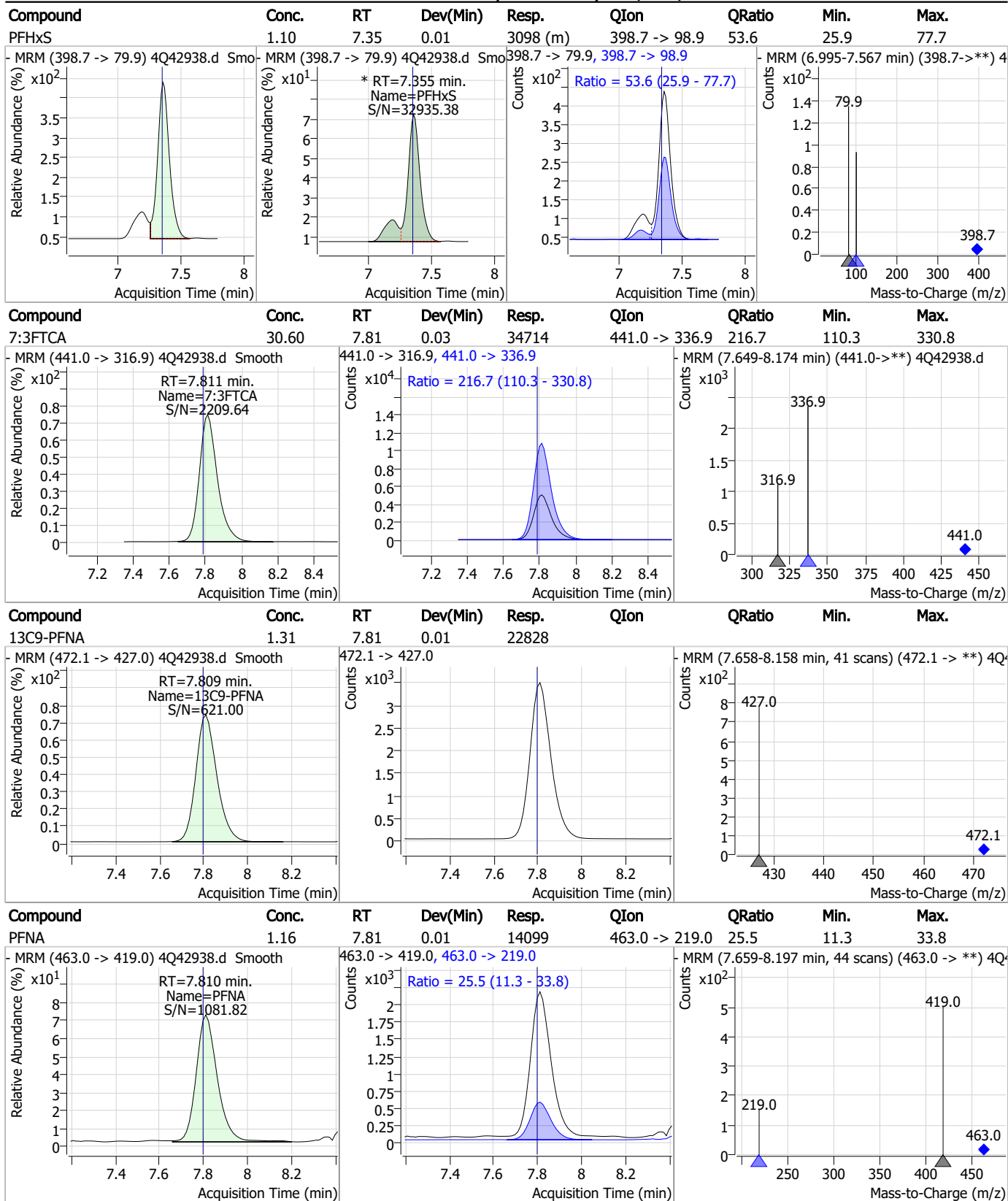
Perfluorinated Compounds by LC/MS/MS



7.7.4
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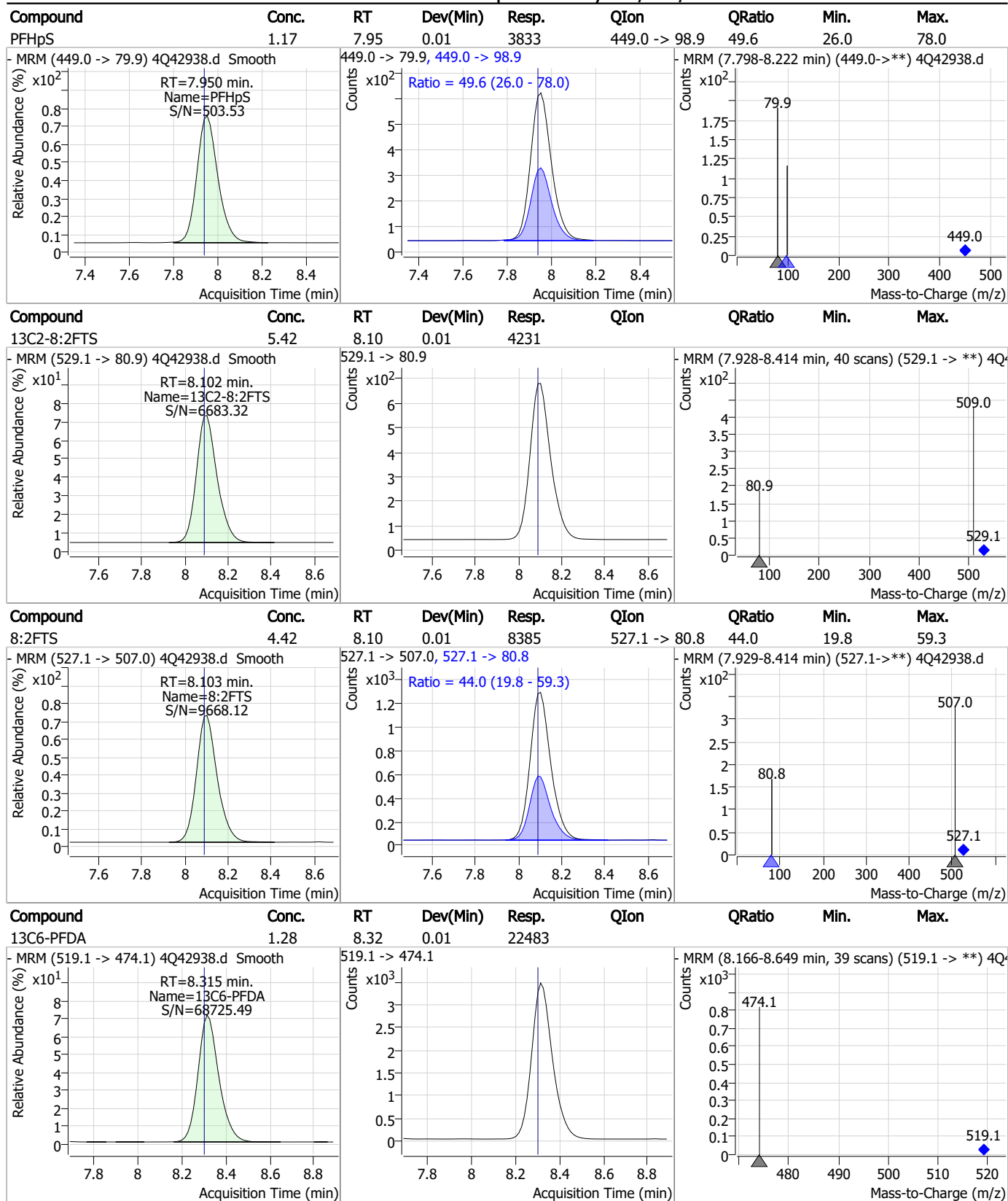


Perfluorinated Compounds by LC/MS/MS



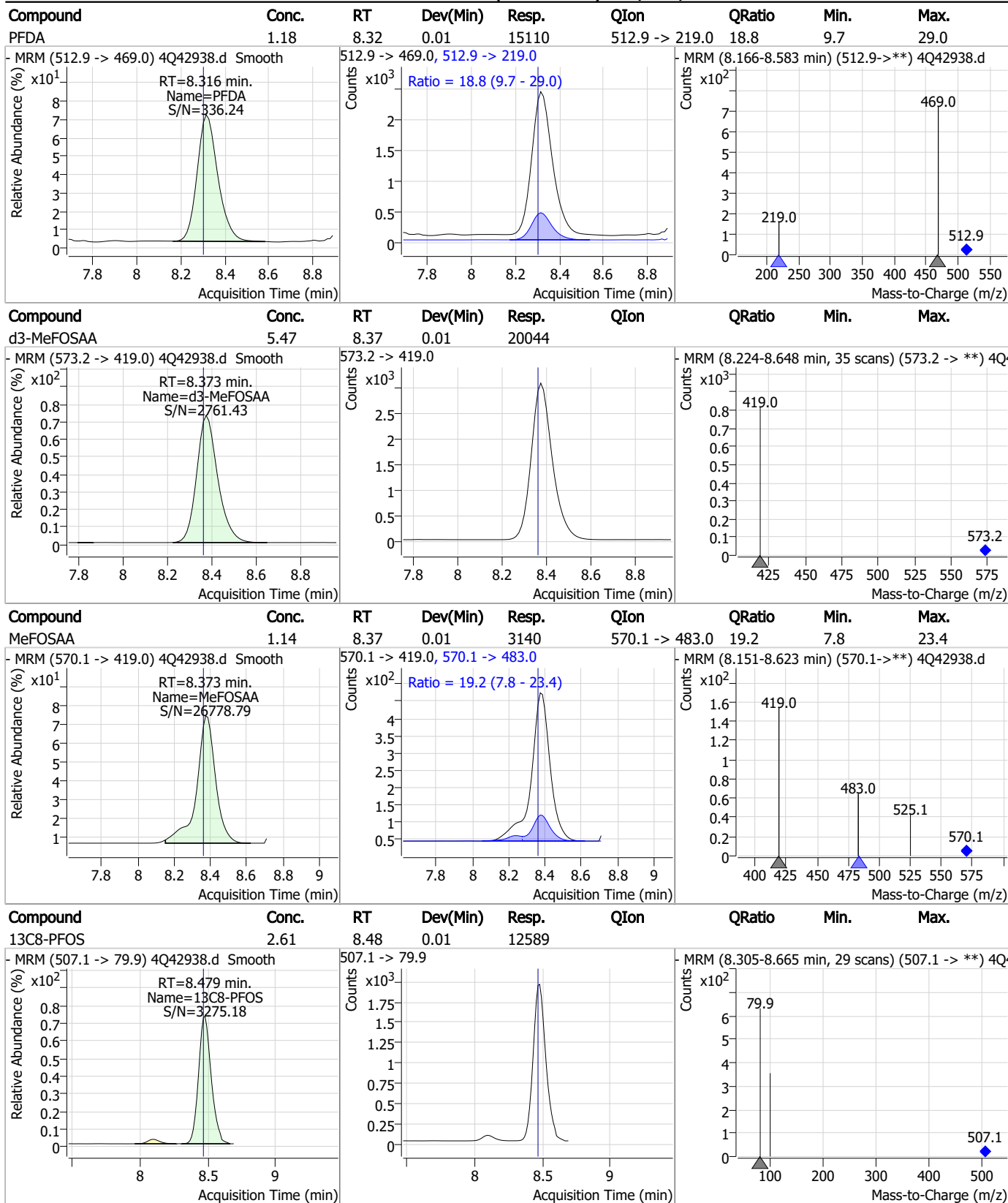
7.7.4
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Perfluorinated Compounds by LC/MS/MS



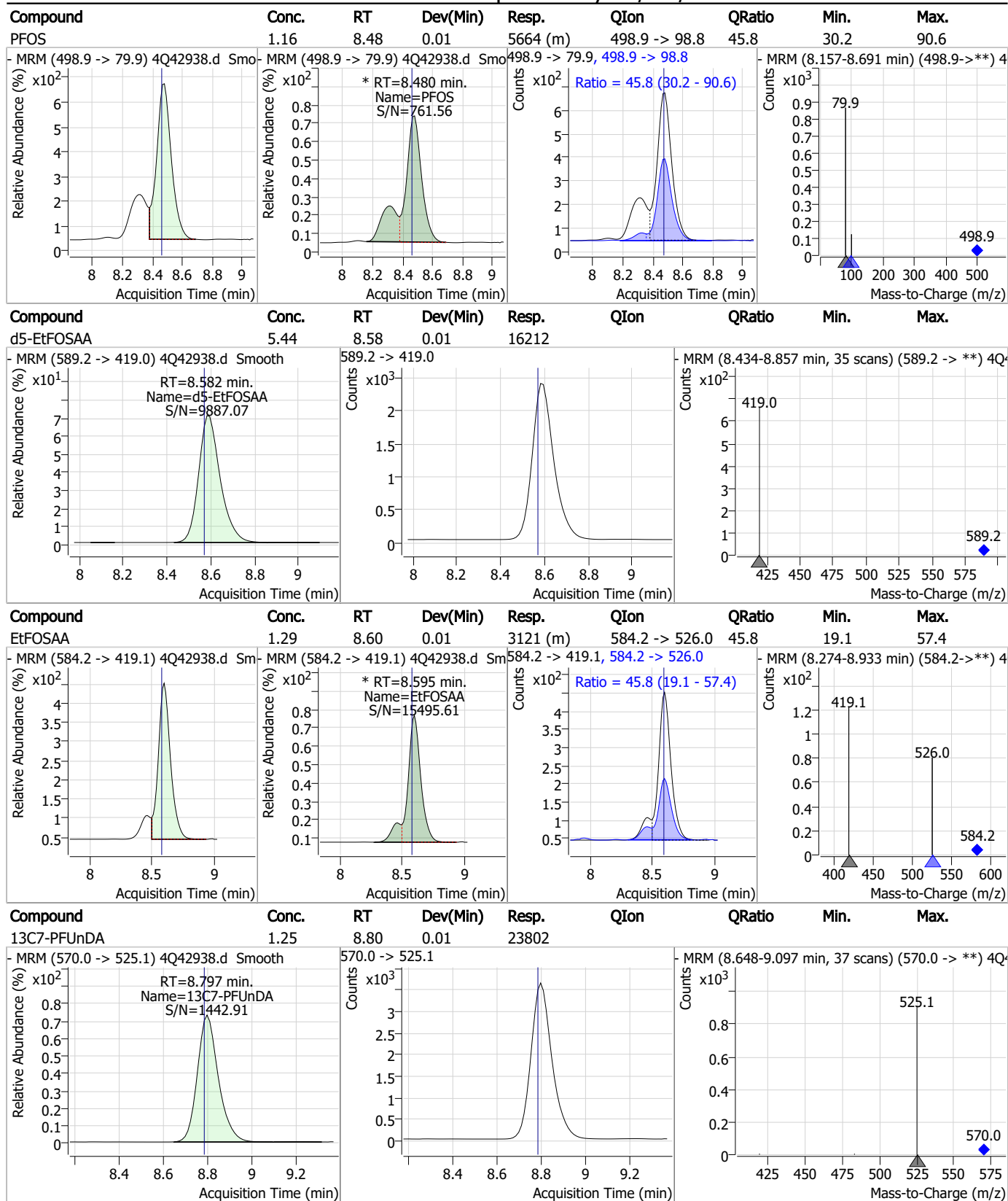
7.7.4
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Perfluorinated Compounds by LC/MS/MS



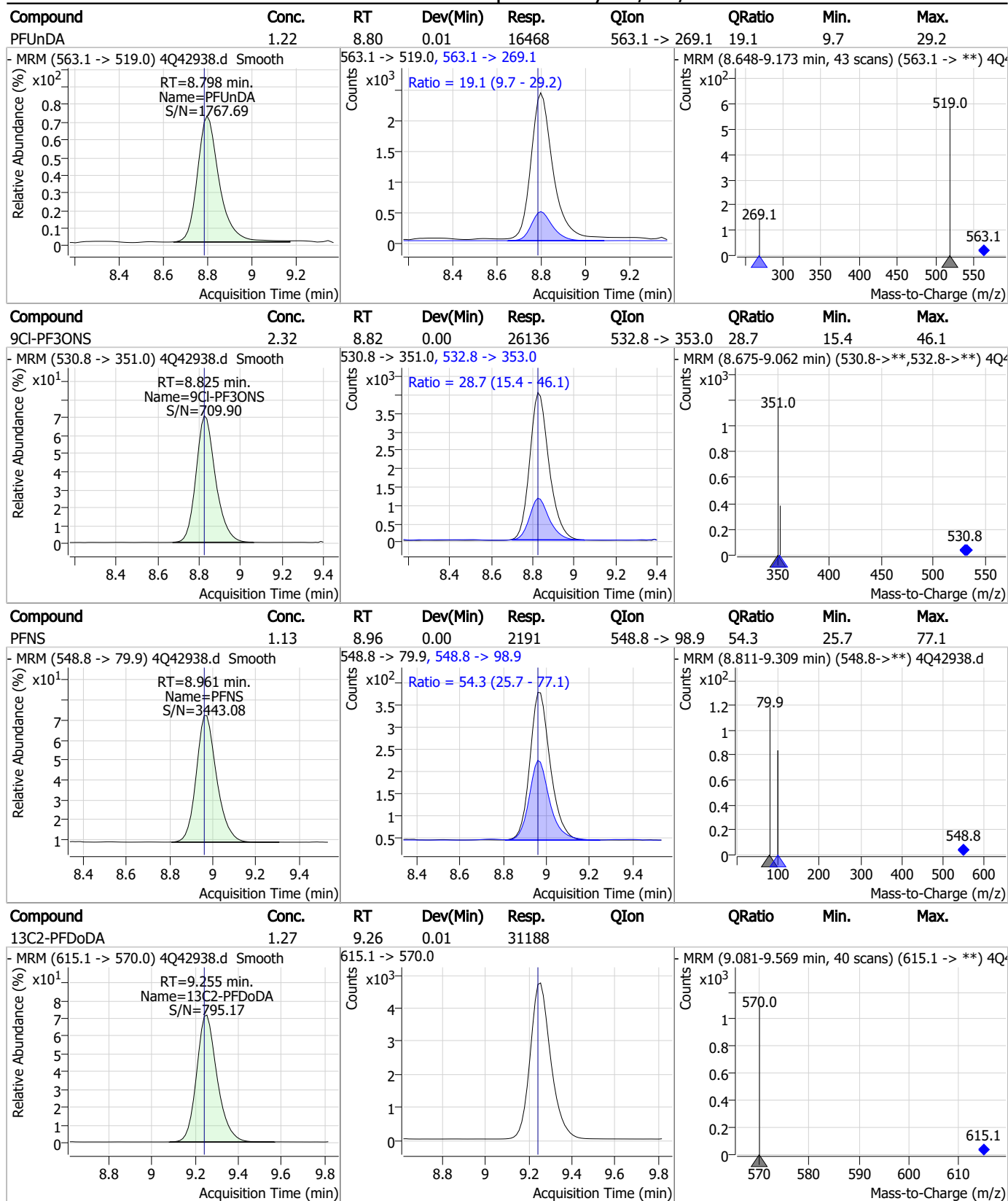
7.7.4
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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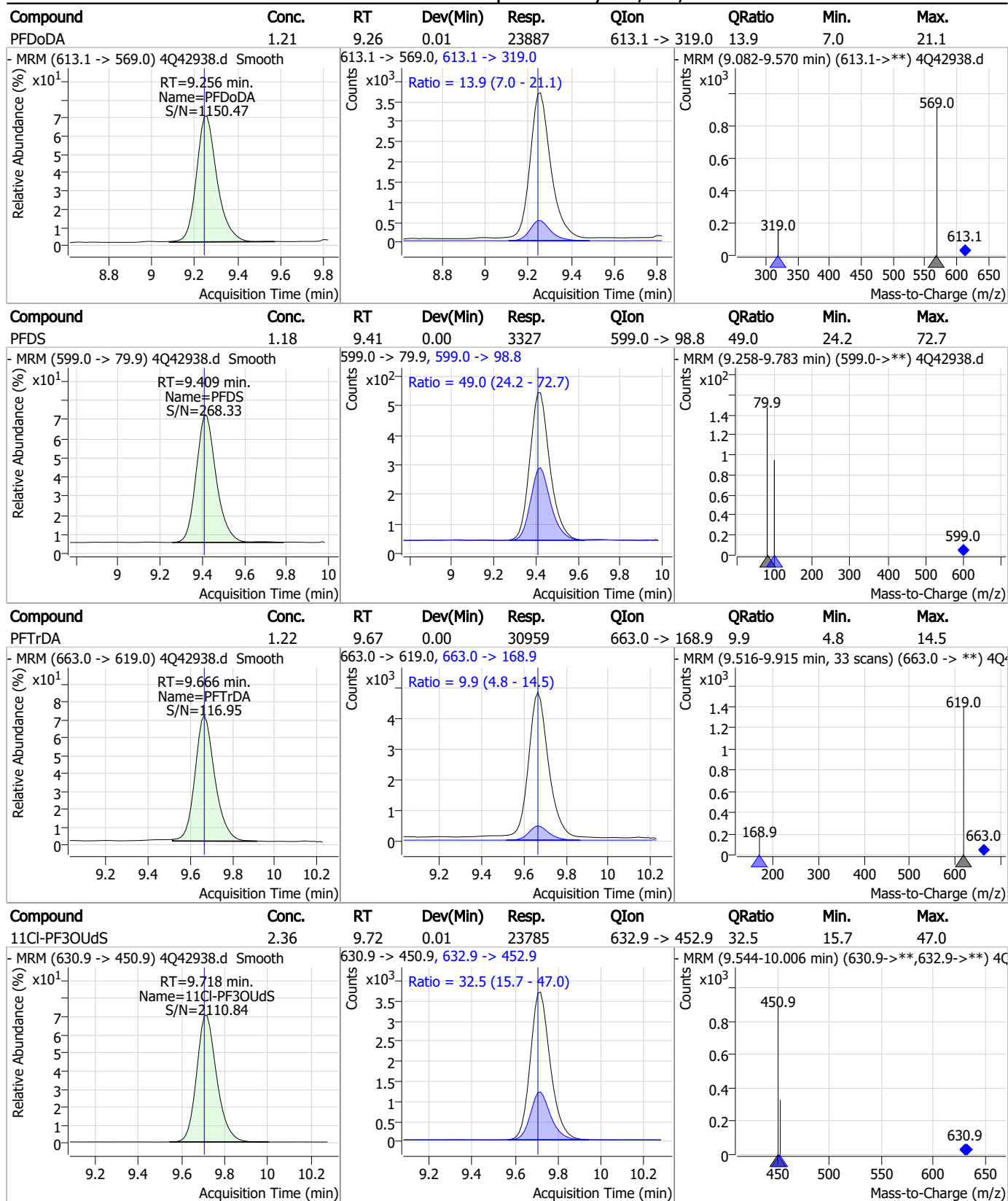
Perfluorinated Compounds by LC/MS/MS



7.7.4

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Perfluorinated Compounds by LC/MS/MS



7.7.4

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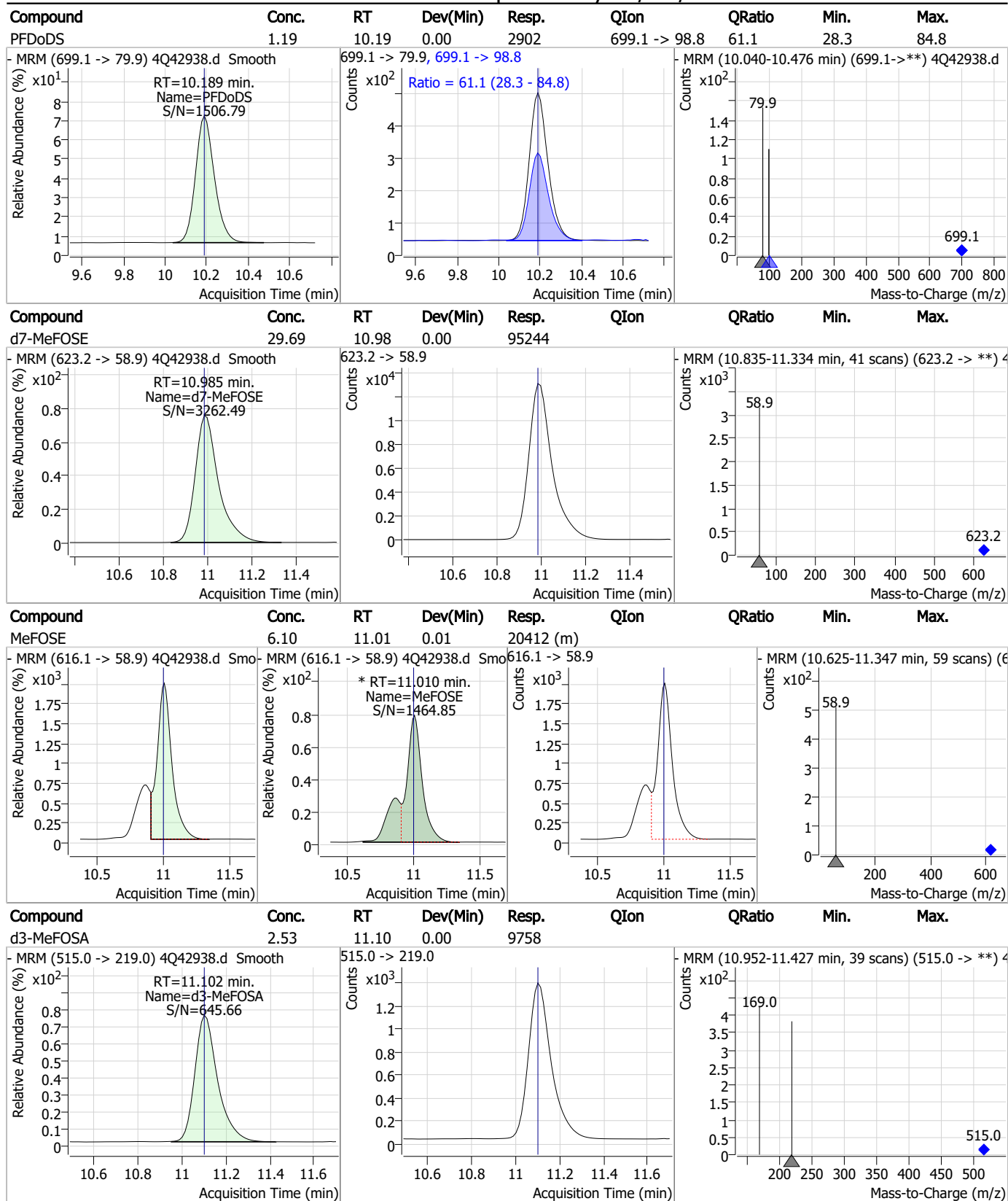
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.22	9.87	0.01	9400	498.1 -> 478.0	3.0	1.4	4.1
- MRM (498.1 -> 77.9) 4Q42938.d Smooth			498.1 -> 77.9, 498.1 -> 478.0		- MRM (9.725-10.222 min) (498.1->**) 4Q42938.d			
13C8-FOSA	2.94	9.88	0.01	23891				
- MRM (506.1 -> 77.8) 4Q42938.d Smooth			506.1 -> 77.8		- MRM (9.709-10.267 min, 46 scans) (506.1 -> **) 4Q42938.d			
13C2-PFTeDA	1.30	10.05	0.01	24845				
- MRM (715.2 -> 670.0) 4Q42938.d Smooth			715.2 -> 670.0		- MRM (9.899-10.360 min, 38 scans) (715.2 -> **) 4Q42938.d			
PFTeDA	1.25	10.05	0.01	24383	713.1 -> 168.9	8.0	4.0	12.0
- MRM (713.1 -> 669.0) 4Q42938.d Smooth			713.1 -> 669.0, 713.1 -> 168.9		- MRM (9.888-10.349 min) (713.1->**) 4Q42938.d			

7.7.4

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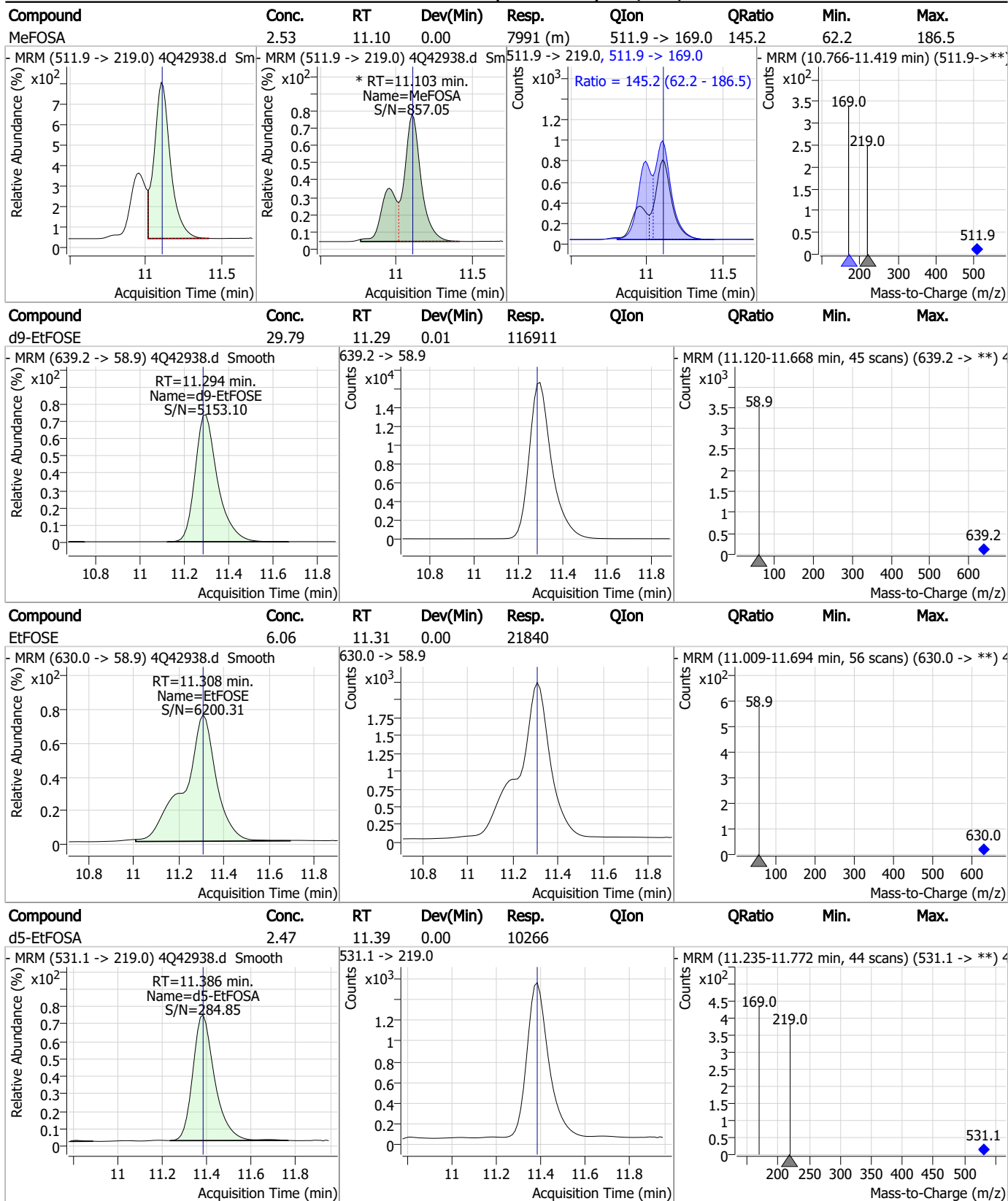
Perfluorinated Compounds by LC/MS/MS



7.7.4

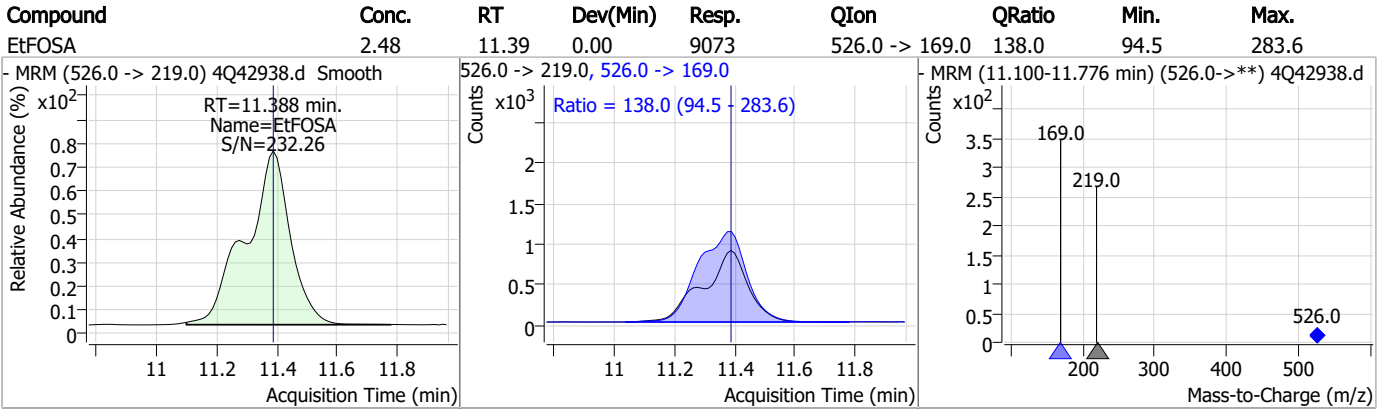
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Perfluorinated Compounds by LC/MS/MS



7.7.4
7

Perfluorinated Compounds by LC/MS/MS



7.7.4

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Manual Integration Approval Summary

Sample Number: S4Q621-IC621 Method: EPA DRAFT 1633
Lab FileID: 4Q42938.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 12:27 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.48	Split peak
EtFOSAA	2991-50-6		8.60	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak

7.7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42939.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 12:41:22 PM
 Sample Name : icc621-4
 Vial : P1-A5
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.011	216.8 -> 171.9	120375	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	80061	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	62115	2.50 µg/L	0.012
M4-PFHpA	6.580	367.1 -> 322.0	31115	2.50 µg/L	0.000
M8-PFOA	7.250	421.1 -> 376.0	37981	2.50 µg/L	0.013
M9-PFNA	7.797	472.1 -> 427.0	21026	1.25 µg/L	0.000
M6-PFDA	8.315	519.1 -> 474.1	21093	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	23316	1.25 µg/L	0.012
M2-PFDoDA	9.243	615.1 -> 570.0	29780	1.25 µg/L	0.000
M2-PFTeDA	10.049	715.2 -> 670.0	24267	1.25 µg/L	0.012
M8-FOSA	9.870	506.1 -> 77.8	23409	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	13467	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	7756	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	11879	2.50 µg/L	0.000
M2-4:2FTS	5.335	329.1 -> 80.9	1702	5.00 µg/L	0.000
M2-6:2FTS	7.010	429.1 -> 80.9	2251	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3785	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	18782	5.00 µg/L	0.012
M3-HFPO-DA	6.026	286.9 -> 168.9	36164	10.00 µg/L	0.012
M5-EtFOSAA	8.582	589.2 -> 419.0	16357	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	95106	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	112460	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	9919	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	8698	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	12553	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	69115	5.00 µg/L	0.025
18O2-PFHxS	7.353	403.0 -> 83.9	5654	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	45894	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	19253	1.25 µg/L	0.012
13C5-PFNA	7.809	468.0 -> 423.0	23326	1.25 µg/L	0.012
13C2-PFHxA	5.660	315.1 -> 270.0	52502	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1702	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2251	5.08 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3785	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C2-PFDoDA	9.243	615.1 -> 570.0	29780	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-PFTeDA	10.049	715.2 -> 670.0	24267	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C3-PFBS	5.564	302.1 -> 79.9	13467	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C3-PFHxS	7.354	402.1 -> 79.9	7756	2.48 µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFBA	3.011	216.8 -> 171.9	120375	10.00 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.580	367.1 -> 322.0	31115	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C5-PFHxA	5.659	318.0 -> 273.0	62115	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFPeA	4.475	268.3 -> 223.0	80061	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C6-PFDA	8.315	519.1 -> 474.1	21093	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C7-PFUnDA	8.797	570.0 -> 525.1	23316	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C8-FOSA	9.870	506.1 -> 77.8	23409	2.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.1%	
13C8-PFOA	7.250	421.1 -> 376.0	37981	2.51 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-PFOS	8.467	507.1 -> 79.9	11879	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C9-PFNA	7.797	472.1 -> 427.0	21026	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%	
d3-MeFOSAA	8.373	573.2 -> 419.0	18782	5.08 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	36164	9.81 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
d3-MeFOSA	11.102	515.0 -> 219.0	8698	2.24 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.5%	
d5-EtFOSAA	8.582	589.2 -> 419.0	16357	5.44 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.9%	
d7-MeFOSE	10.985	623.2 -> 58.9	95106	29.38 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 117.5%	
d9-EtFOSE	11.282	639.2 -> 58.9	112460	28.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 113.6%	
d5-EtFOSA	11.386	531.1 -> 219.0	9919	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.5%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	19194	9.05 µg/L	100
		327.1 -> 80.9	7773		
6:2FTS	7.011	427.1 -> 407.0	15124	9.84 µg/L	96
		427.1 -> 80.9	6737		
8:2FTS	8.090	527.1 -> 507.0	17053	10.05 µg/L	95
		527.1 -> 80.8	7291		
EtFOSAA	8.595	584.2 -> 419.1	5753	2.35 µg/L	m 86
		584.2 -> 526.0	2697		
FOSA	9.874	498.1 -> 77.9	18589	2.47 µg/L	99
		498.1 -> 478.0	553		
MeFOSAA	8.373	570.1 -> 419.0	6652	2.57 µg/L	m 97
		570.1 -> 483.0	940		
PFBA	3.020	212.8 -> 168.9	26946	9.80 µg/L	100
PFBS	5.565	298.7 -> 79.9	11111	2.21 µg/L	97
		298.7 -> 98.8	4474		
PFDA	8.316	512.9 -> 469.0	29554	2.45 µg/L	94
		512.9 -> 219.0	6510		
PFDoDA	9.244	613.1 -> 569.0	47114	2.51 µg/L	100
		613.1 -> 319.0	6566		
PFDS	9.421	599.0 -> 79.9	6265	2.36 µg/L	94

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3296			
PFHpA	6.593	363.1 -> 319.0	37116	2.39	µg/L	100
		363.1 -> 169.0	6516			
PFHpS	7.936	449.0 -> 79.9	6726	2.18	µg/L	96
		449.0 -> 98.9	3699			
PFHxA	5.662	313.0 -> 269.0	44388	2.41	µg/L	99
		313.0 -> 118.9	1413			
PFHxS	7.355	398.7 -> 79.9	6072	2.28	µg/L	m 93
		398.7 -> 98.9	2840			
PFNA	7.797	463.0 -> 419.0	25657	2.28	µg/L	94
		463.0 -> 219.0	6530			
PFNS	8.961	548.8 -> 79.9	4279	2.34	µg/L	98
		548.8 -> 98.9	2259			
PFOA	7.252	413.0 -> 369.0	40059	2.26	µg/L	99
		413.0 -> 169.0	8343			
PFOS	8.468	498.9 -> 79.9	10370	2.24	µg/L	m 87
		498.9 -> 98.8	5269			
PFPeA	4.477	263.0 -> 219.0	73408	4.84	µg/L	100
PFPeS	6.632	349.1 -> 79.9	5535	2.45	µg/L	98
		349.1 -> 98.9	2432			
PFTeDA	10.050	713.1 -> 669.0	46064	2.41	µg/L	98
		713.1 -> 168.9	4091			
PFTrDA	9.666	663.0 -> 619.0	60430	2.50	µg/L	100
		663.0 -> 168.9	5921			
PFUnDA	8.798	563.1 -> 519.0	29888	2.27	µg/L	98
		563.1 -> 269.1	6052			
11CI-PF3OUdS	9.718	630.9 -> 450.9	47754	5.06	µg/L	99
		632.9 -> 452.9	14653			
9CI-PF3ONS	8.825	530.8 -> 351.0	49397	4.68	µg/L	99
		532.8 -> 353.0	14813			
ADONA	6.843	376.9 -> 250.9	105995	4.88	µg/L	98
		376.9 -> 84.8	27486			
HFPO-DA	6.027	284.9 -> 168.9	14152	4.94	µg/L	99
		284.9 -> 184.9	1793			
3:3FTCA	3.992	241.0 -> 177.0	8279	11.72	µg/L	100
		241.0 -> 117.0	796			
5:3FTCA	6.357	341.0 -> 237.1	159751	61.52	µg/L	99
		341.0 -> 217.0	112343			
7:3FTCA	7.799	441.0 -> 316.9	65764	61.80	µg/L	98
		441.0 -> 336.9	147416			
EtFOSA	11.388	526.0 -> 219.0	16558	4.68	µg/L	m 65
		526.0 -> 169.0	22815			
EtFOSE	11.308	630.0 -> 58.9	41731	12.04	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	14559	5.18	µg/L	m 81
		511.9 -> 169.0	21314			
MeFOSE	11.010	616.1 -> 58.9	39887	11.93	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	5357	2.33	µg/L	100
		699.1 -> 98.8	3009			
NFDHA	5.541	295.0 -> 201.0	6406	5.18	µg/L	99
		295.0 -> 84.9	1609			
PFMBA	4.891	279.0 -> 85.1	41607	4.80	µg/L	100
PFMPA	3.628	229.0 -> 84.9	36216	4.78	µg/L	100
PFEESA	6.096	314.8 -> 134.9	66394	4.30	µg/L	100
		314.8 -> 82.9	2302			

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

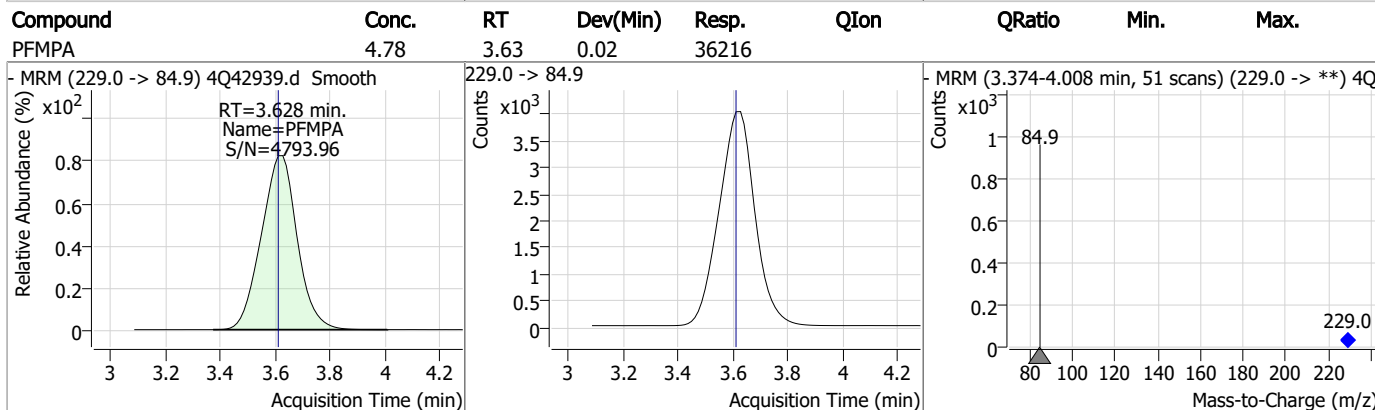
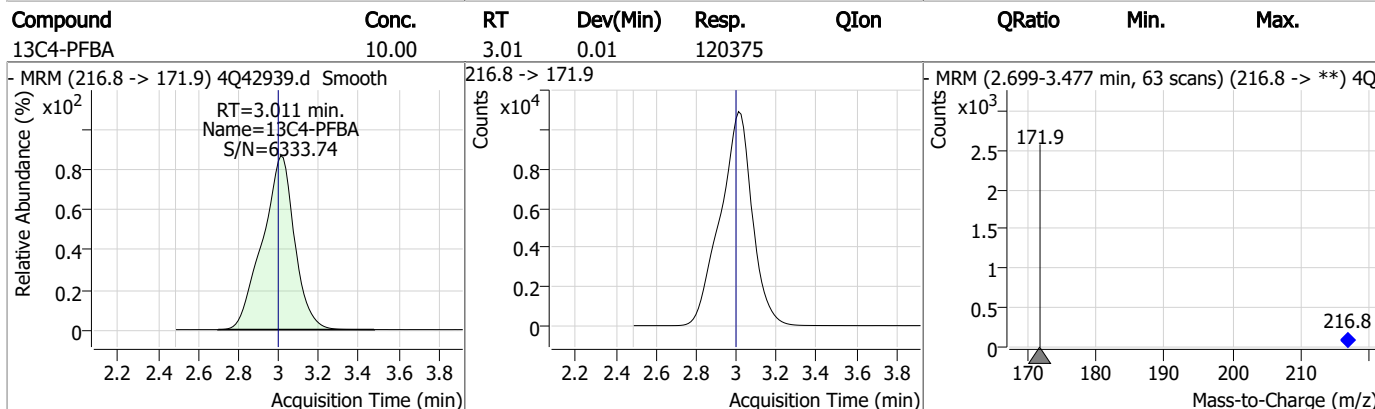
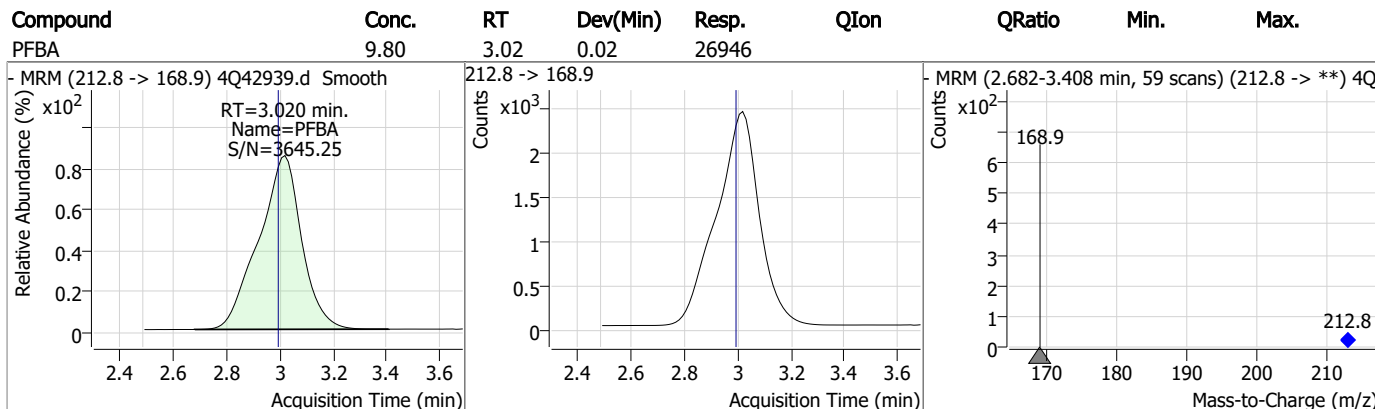
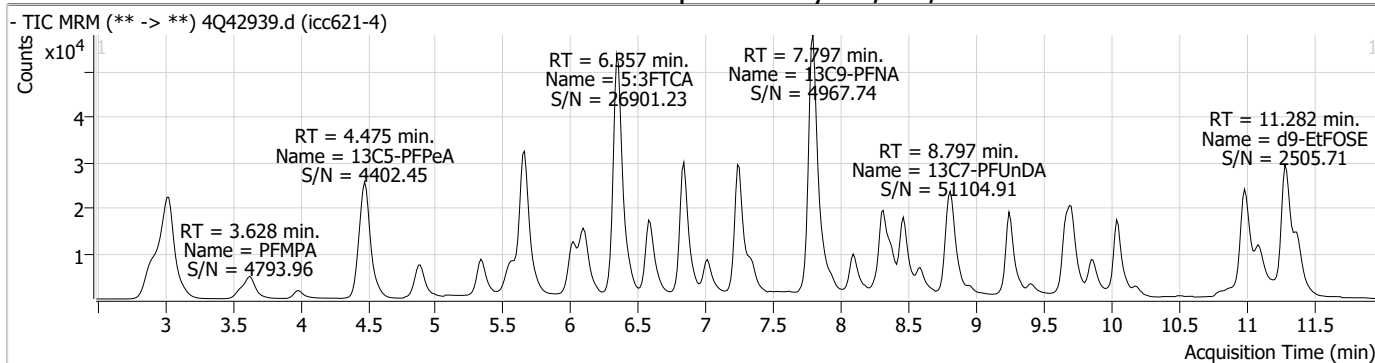
Perfluorinated Compounds by LC/MS/MS

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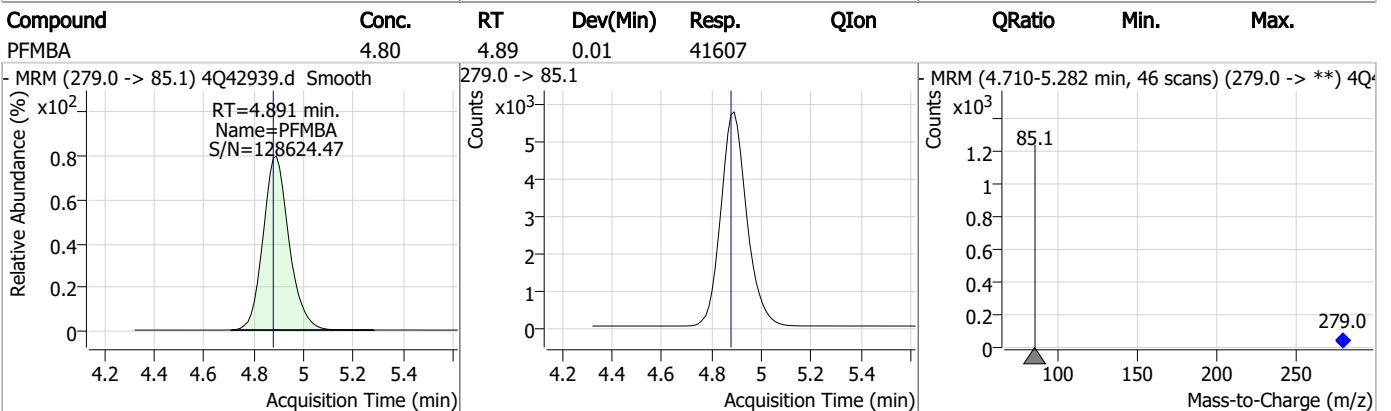
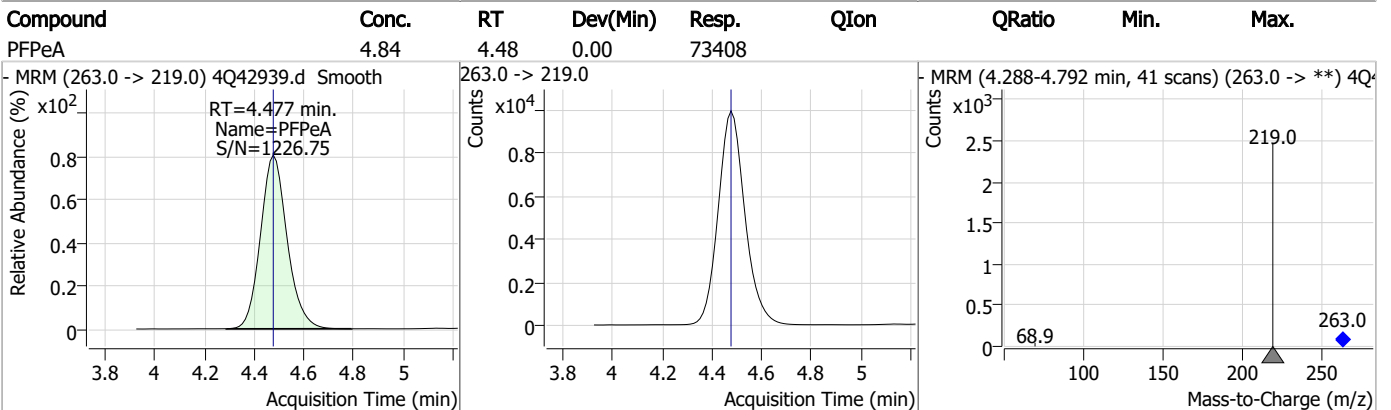
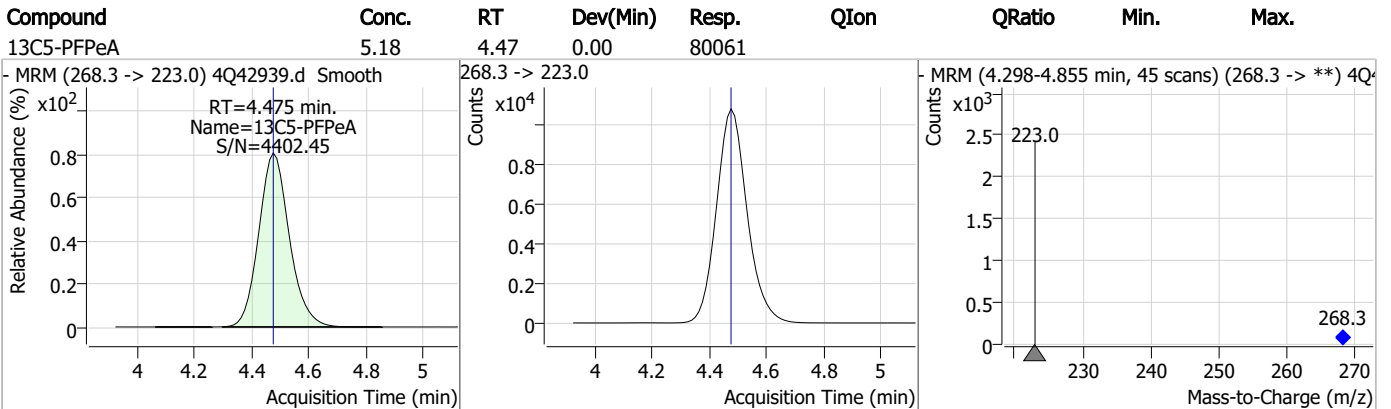
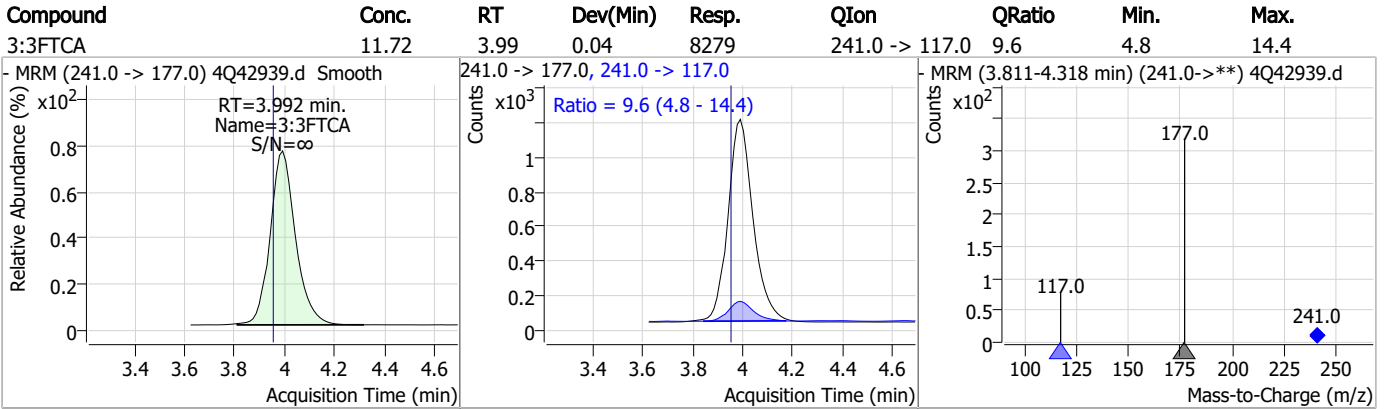
7.7.5

7

Perfluorinated Compounds by LC/MS/MS



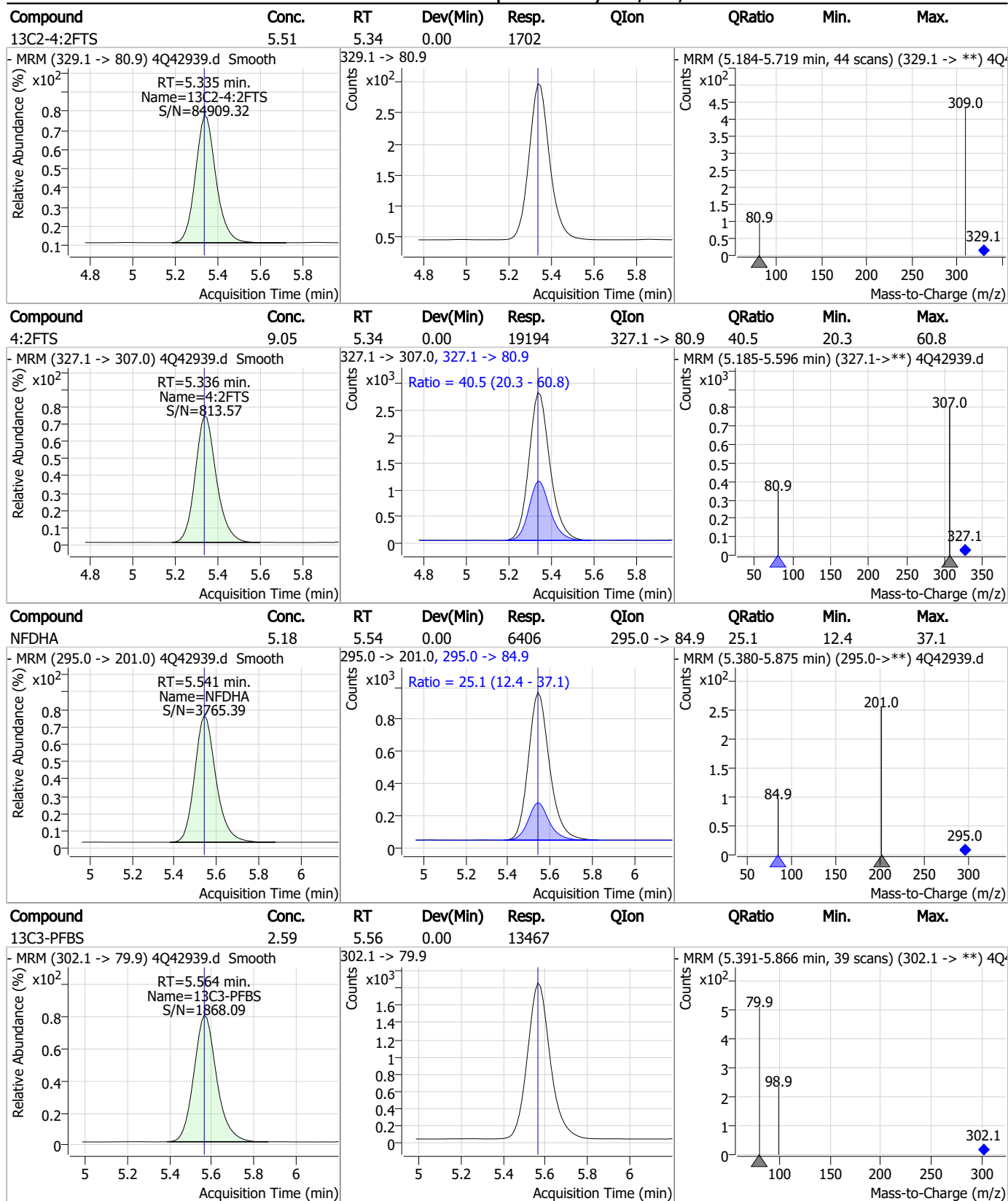
Perfluorinated Compounds by LC/MS/MS



7.7.5

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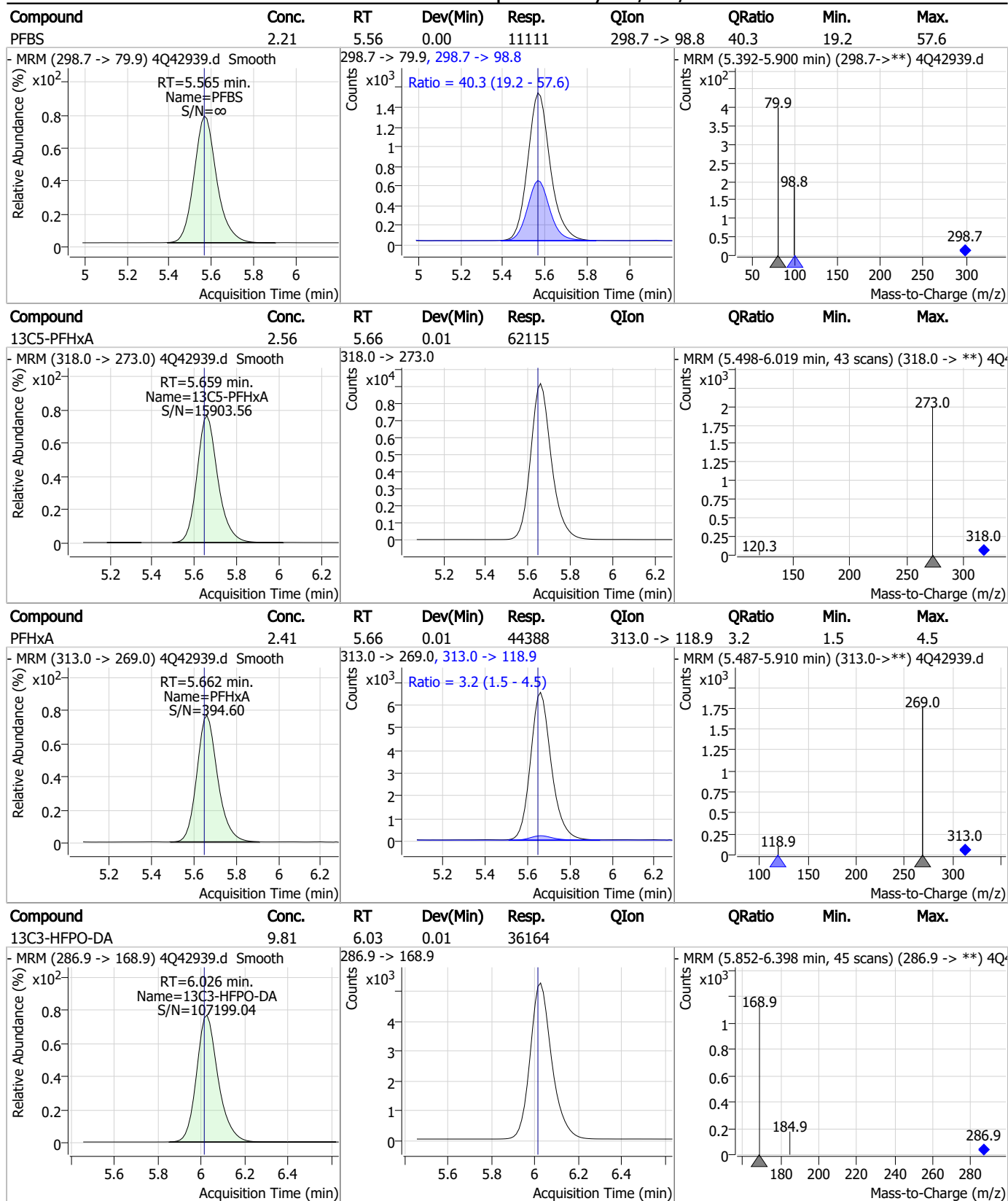
Perfluorinated Compounds by LC/MS/MS



7.7.5

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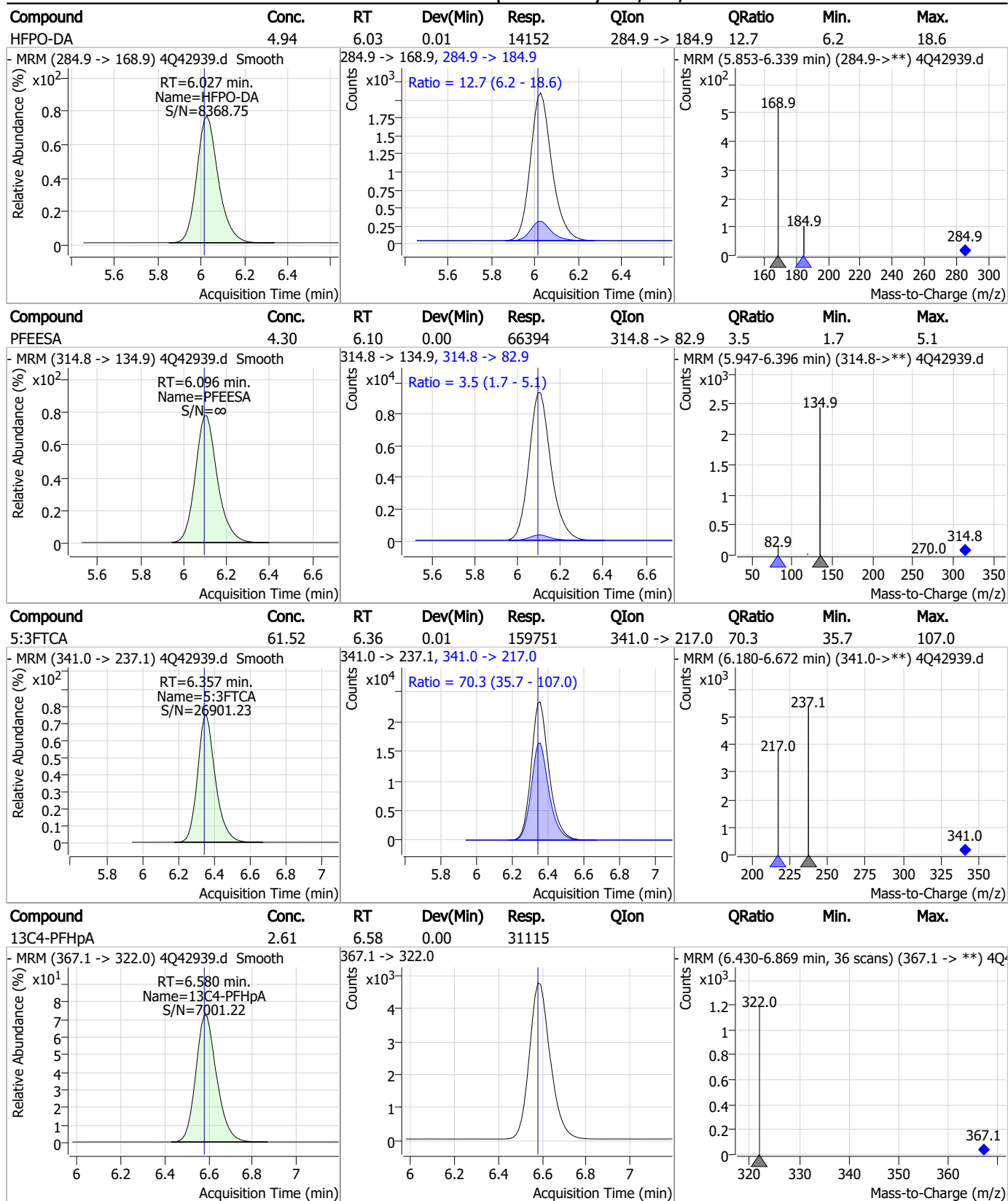
Perfluorinated Compounds by LC/MS/MS



7.7.5

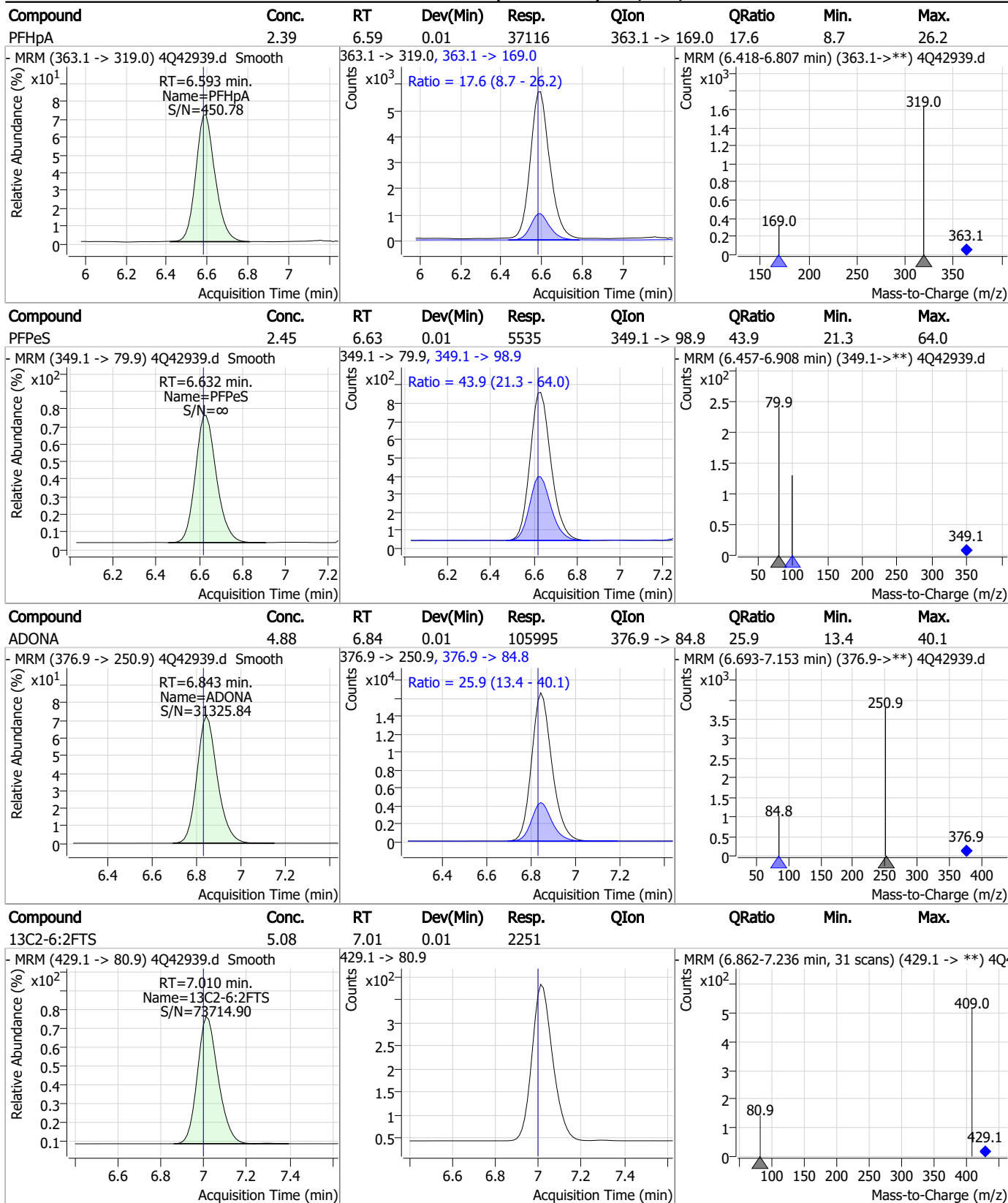
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Perfluorinated Compounds by LC/MS/MS



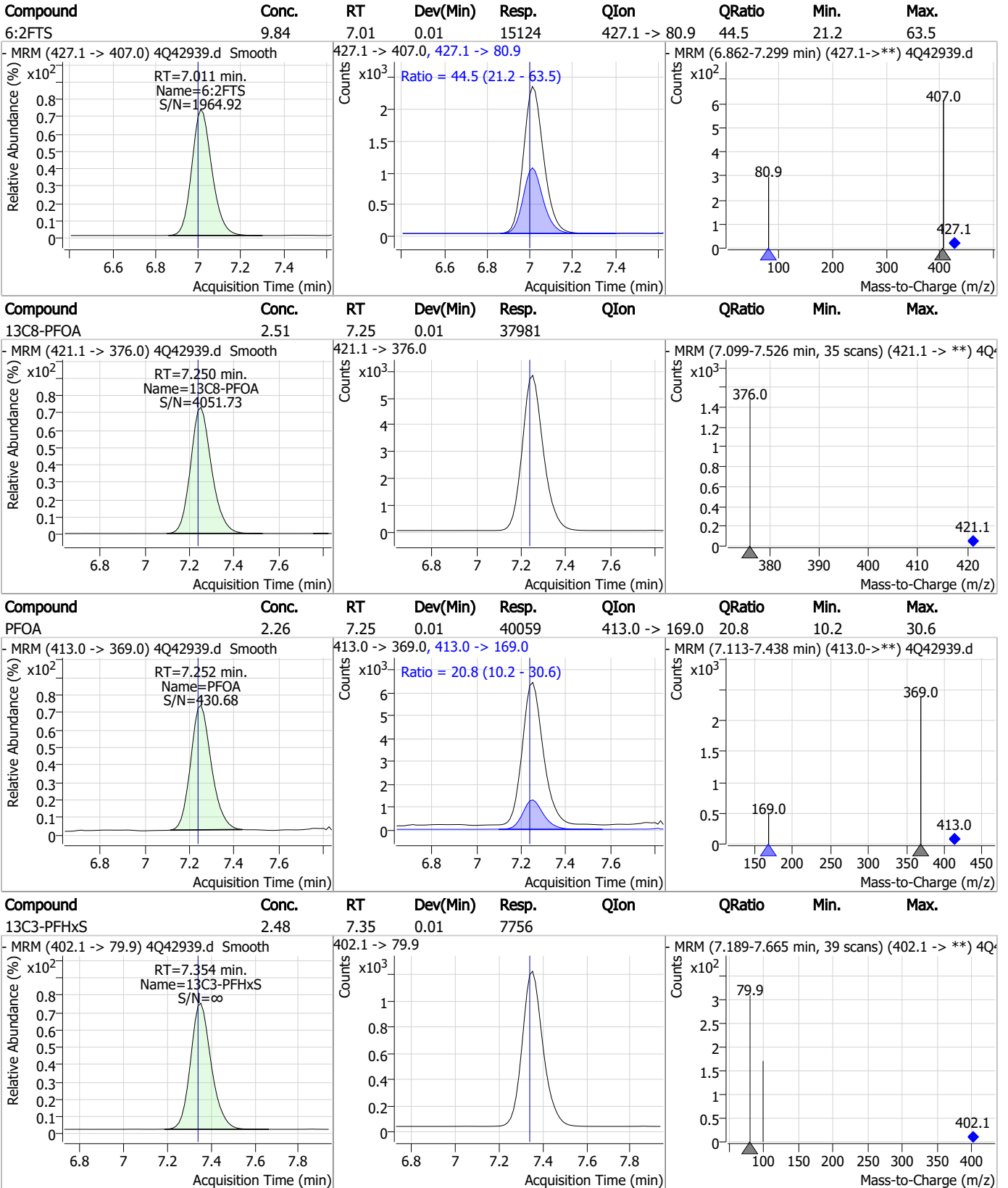
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Perfluorinated Compounds by LC/MS/MS

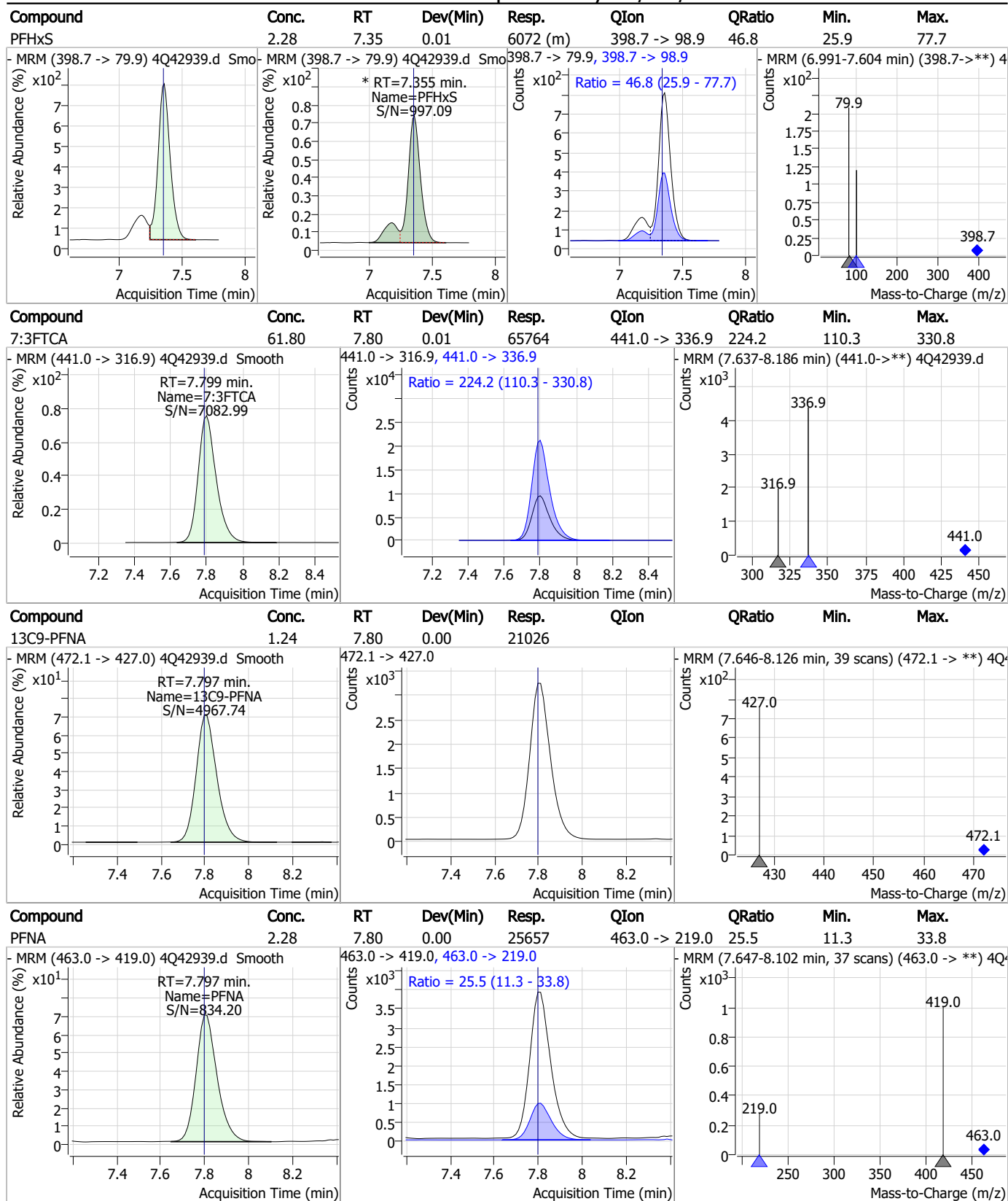


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Perfluorinated Compounds by LC/MS/MS

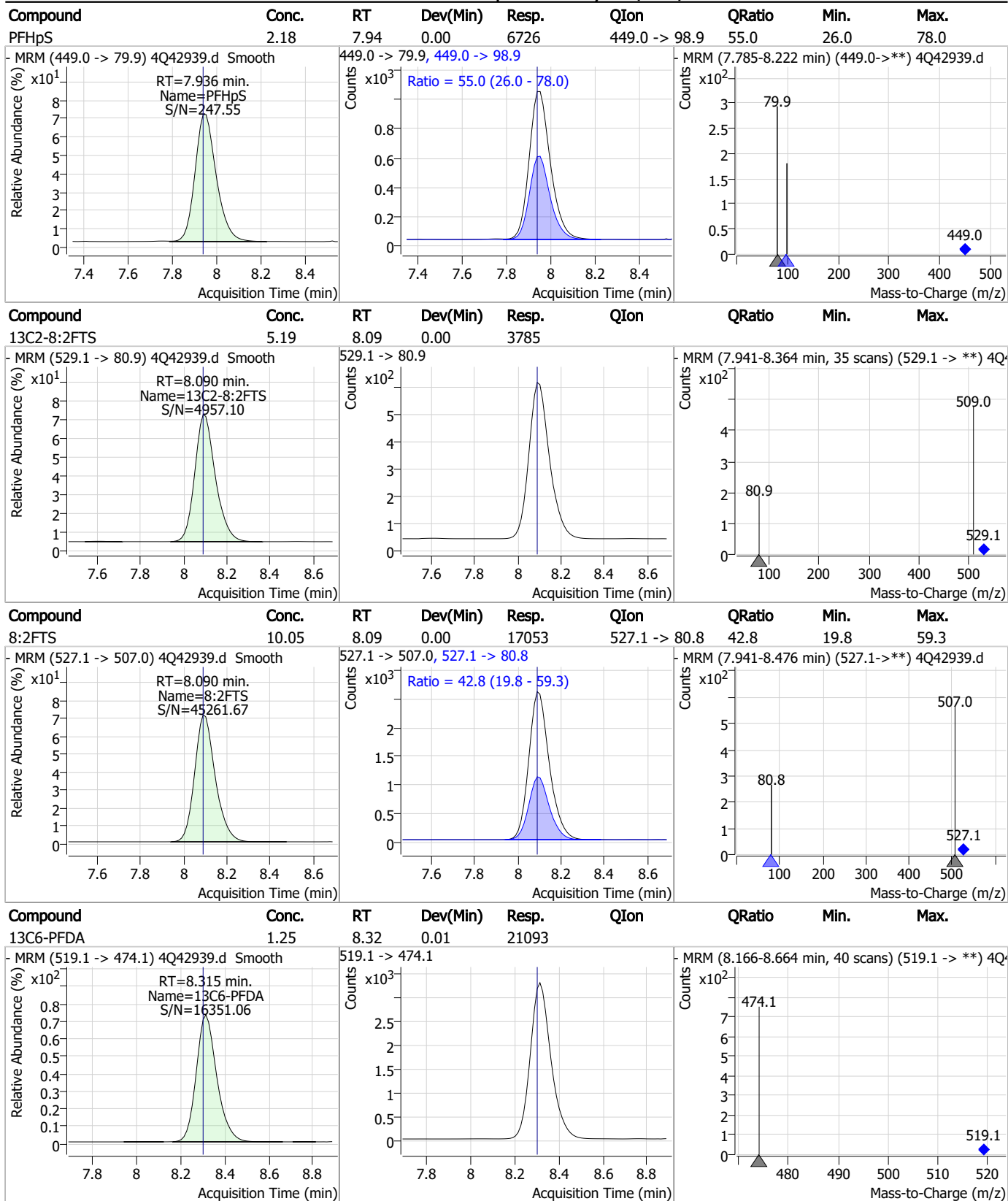


Perfluorinated Compounds by LC/MS/MS



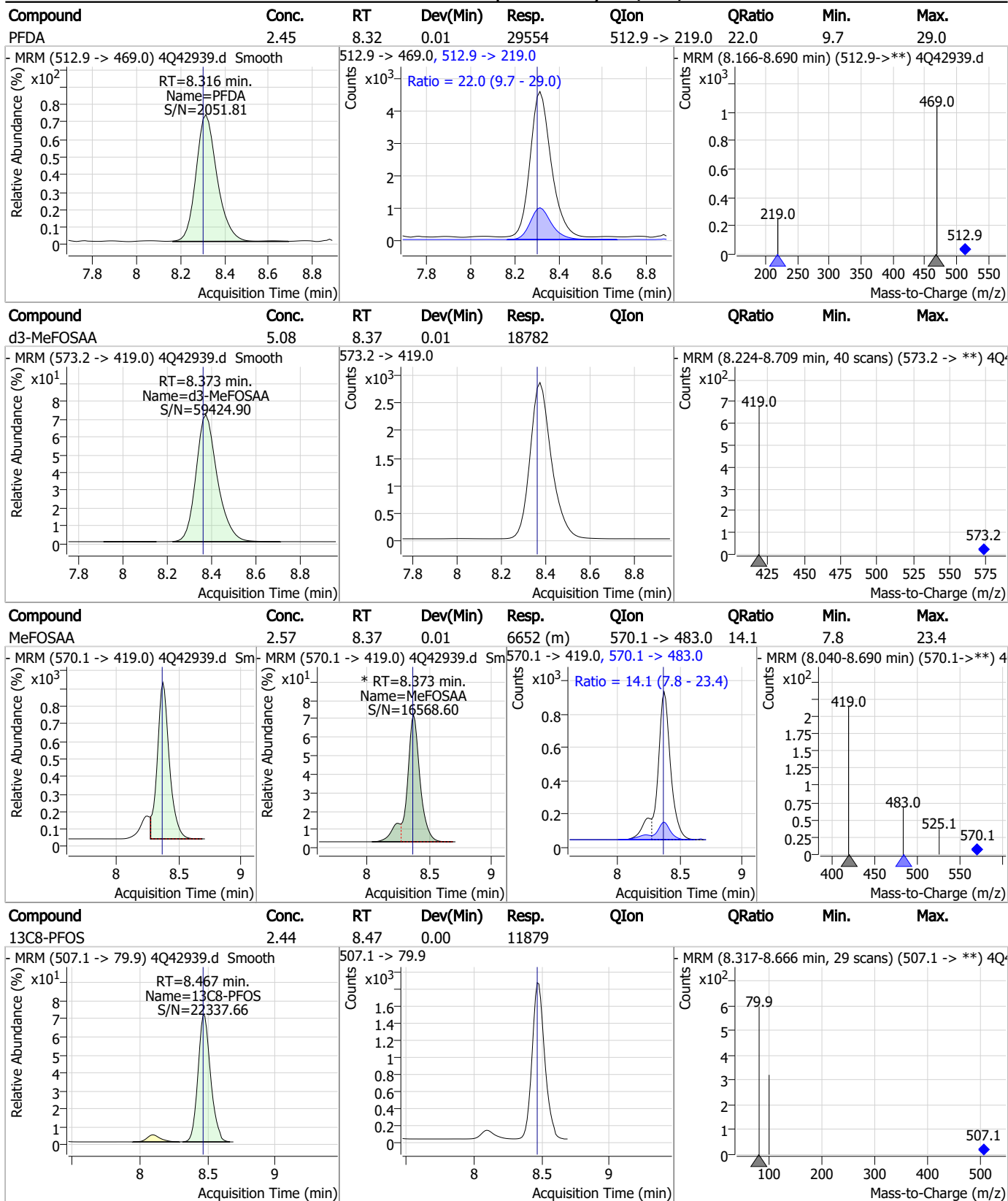
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Perfluorinated Compounds by LC/MS/MS



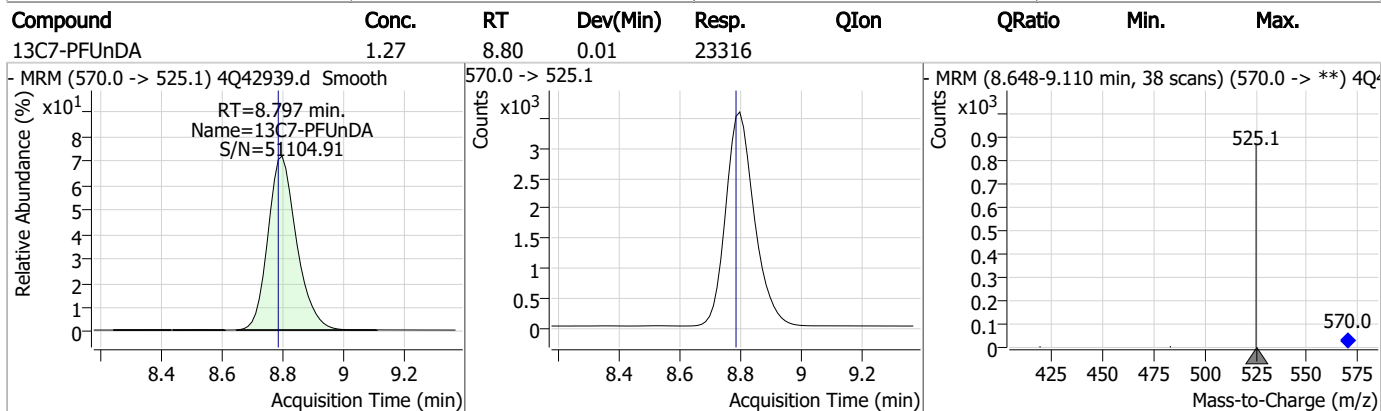
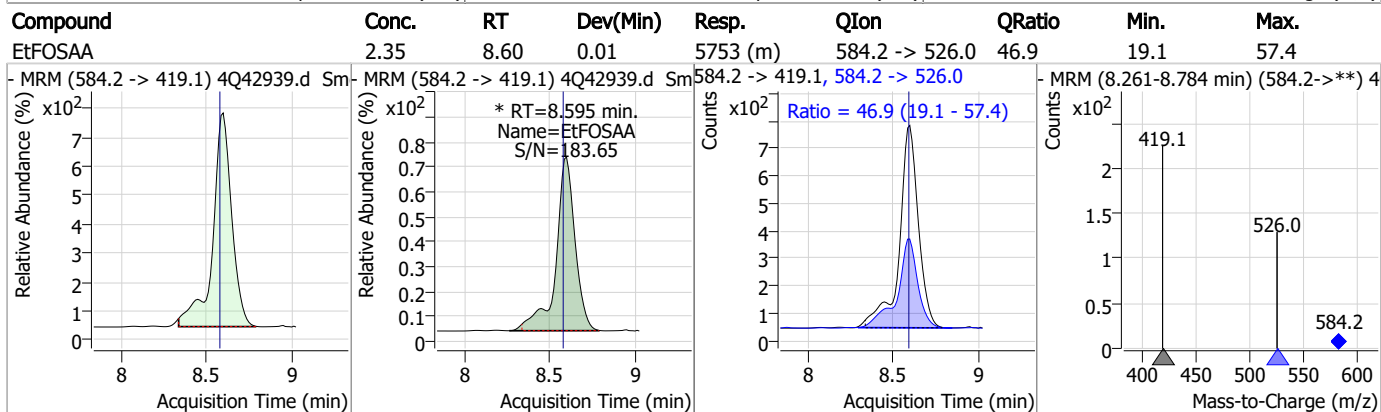
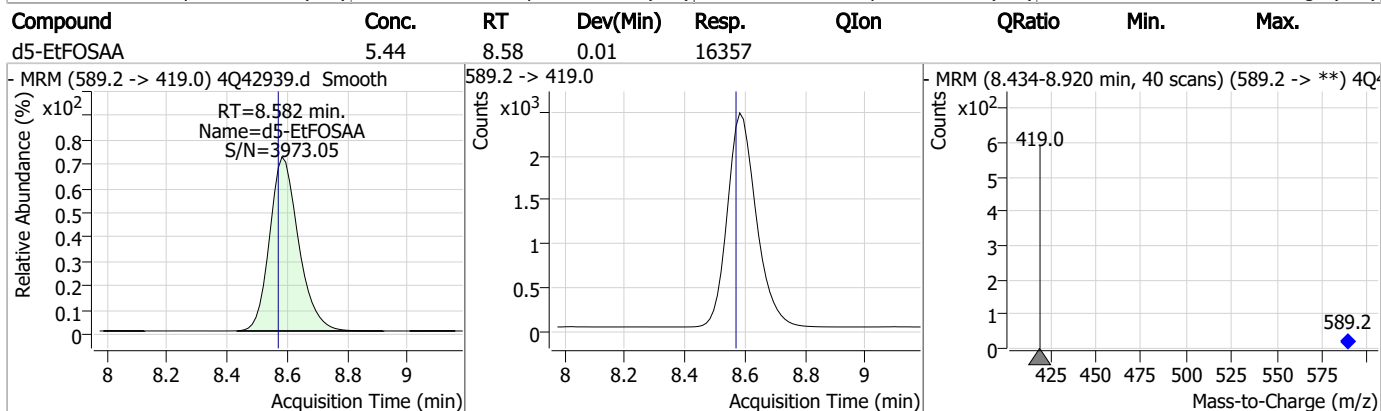
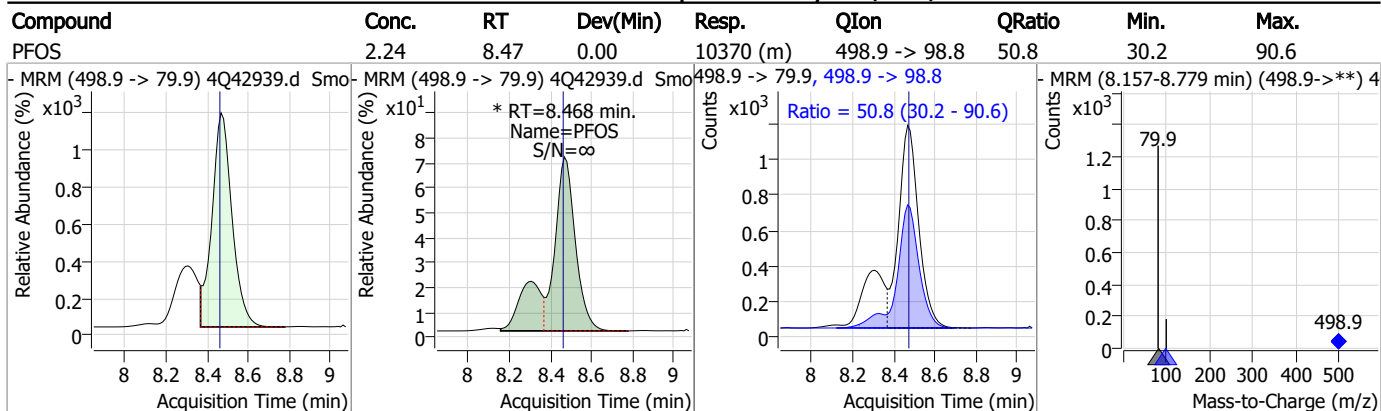
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Perfluorinated Compounds by LC/MS/MS



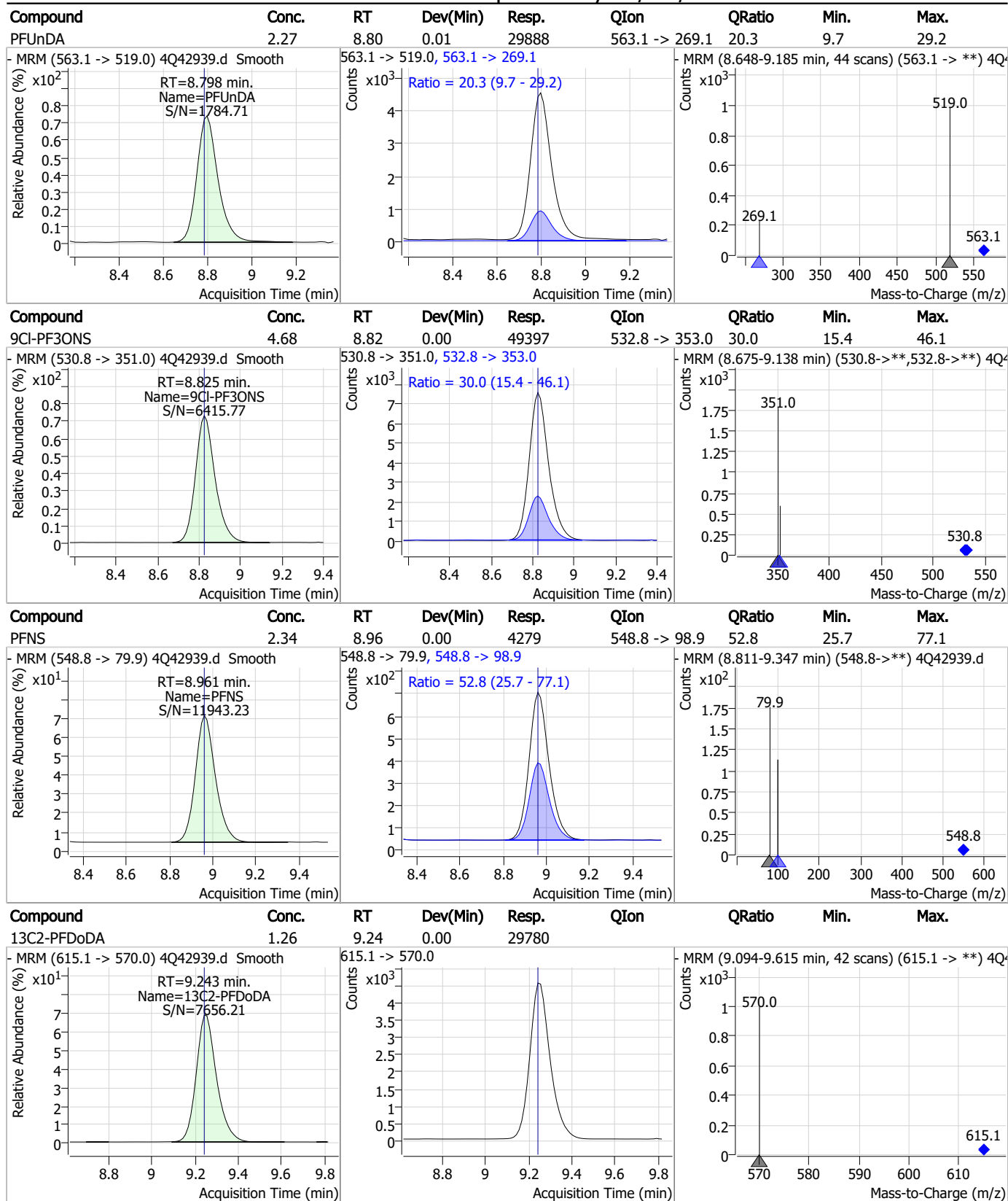
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Perfluorinated Compounds by LC/MS/MS



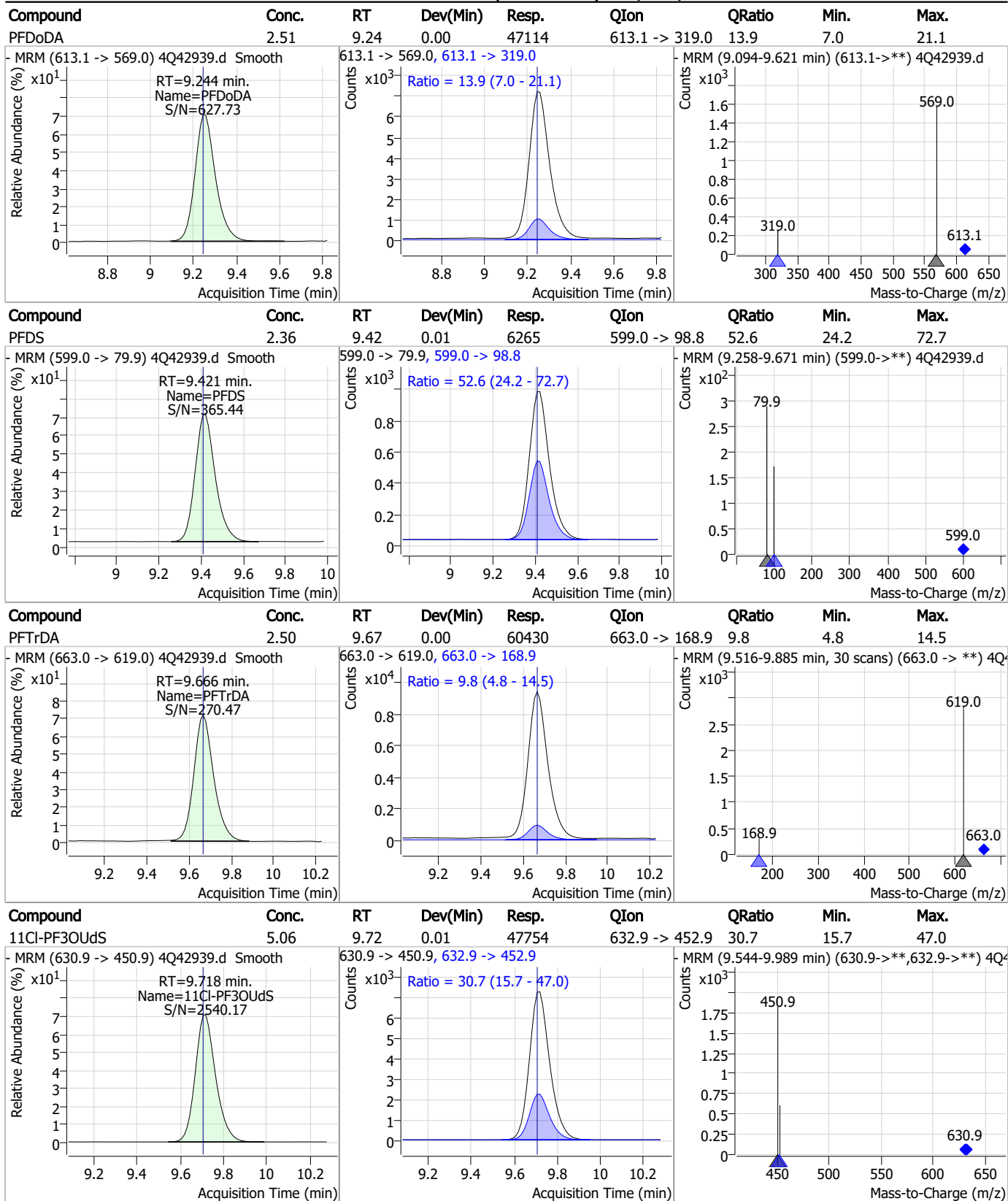
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Perfluorinated Compounds by LC/MS/MS



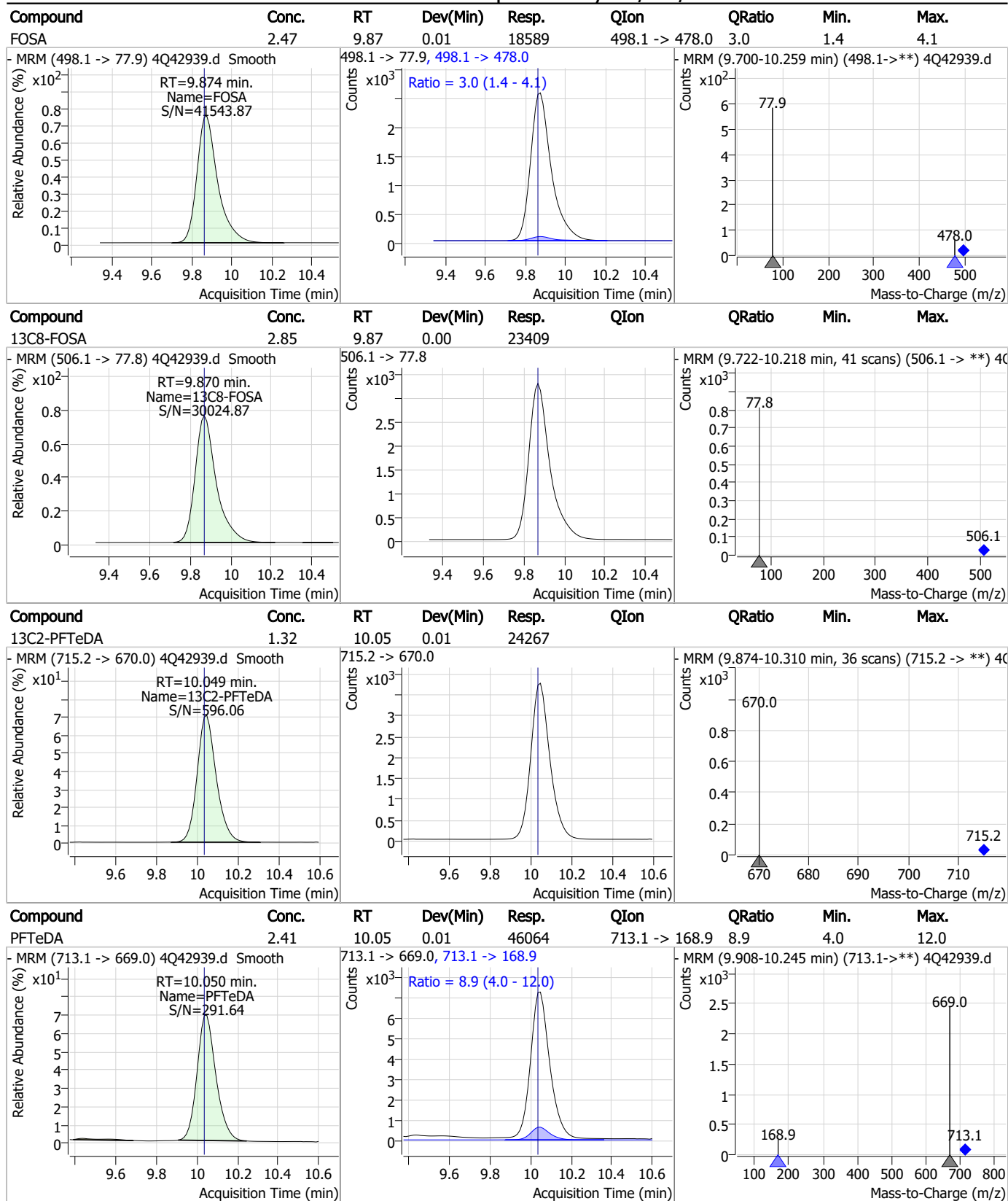
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Perfluorinated Compounds by LC/MS/MS



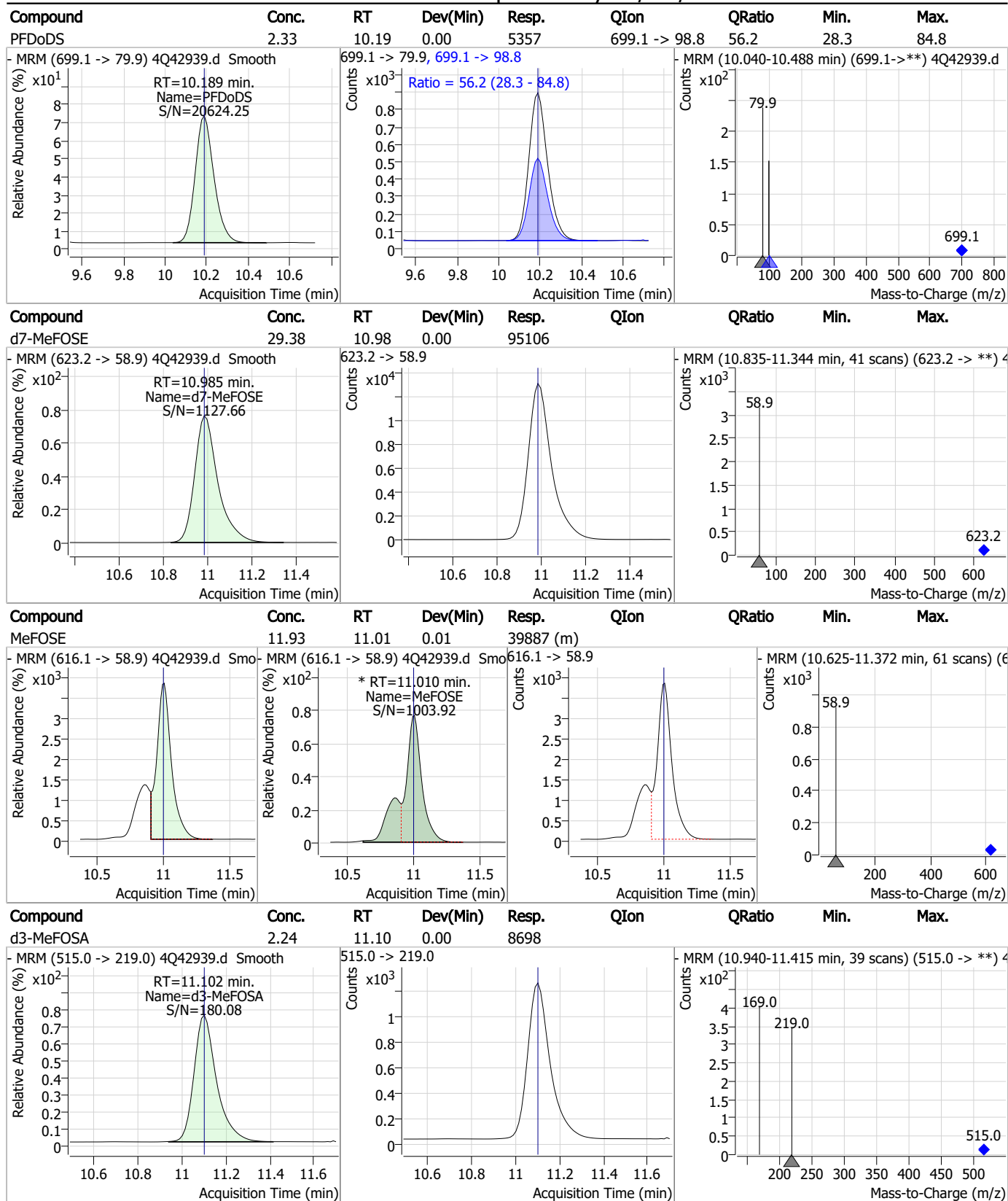
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Perfluorinated Compounds by LC/MS/MS



7.7.5
7

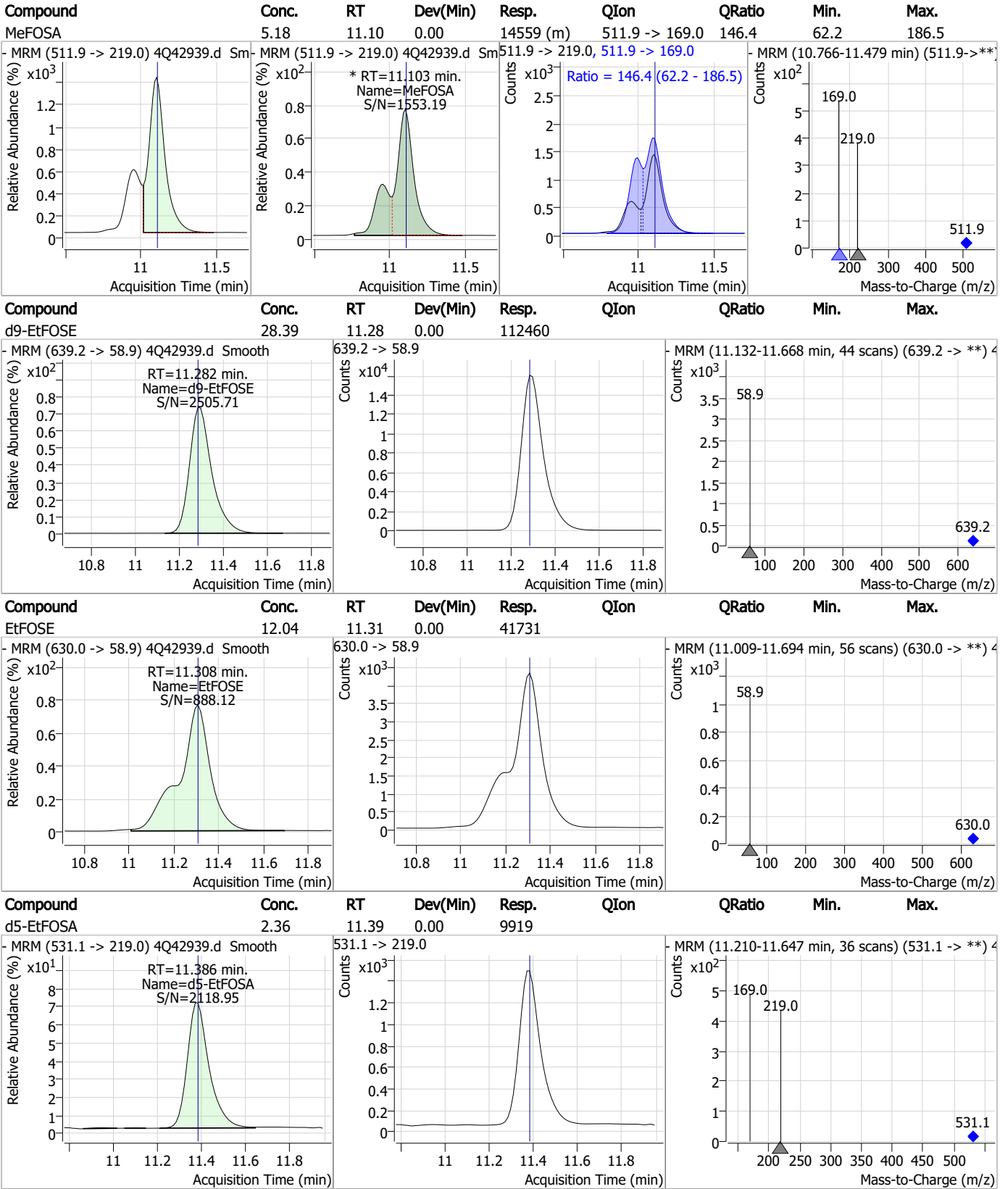
Perfluorinated Compounds by LC/MS/MS



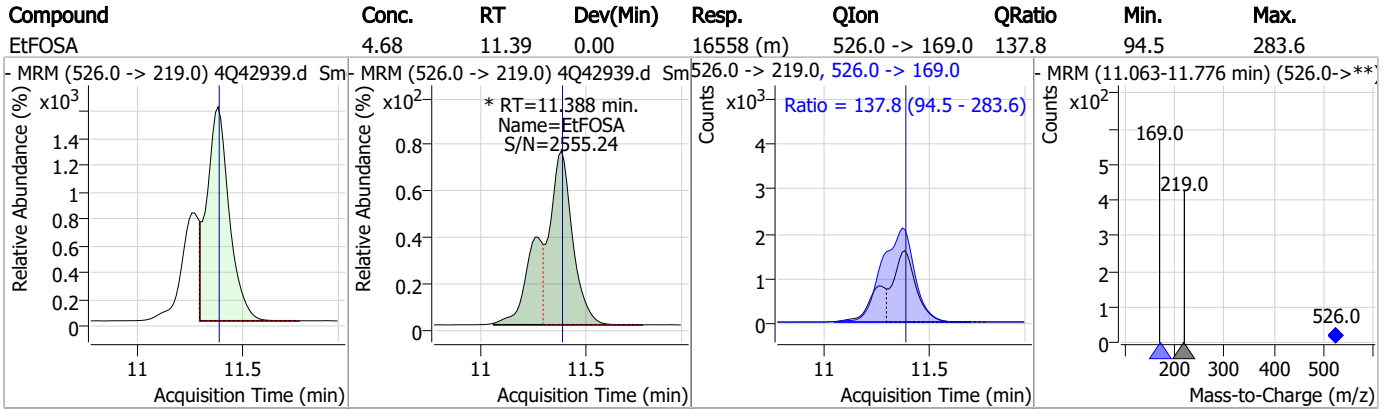
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Manual Integration Approval Summary

Sample Number: S4Q621-ICC621 Method: EPA DRAFT 1633
Lab FileID: 4Q42939.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 12:41 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.60	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.5.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42940.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 12:55:26 PM
 Sample Name : ic621-5
 Vial : P1-A6
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.011	216.8 -> 171.9	124921	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	81444	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	63076	2.50 µg/L	0.012
M4-PFHpA	6.592	367.1 -> 322.0	31657	2.50 µg/L	0.012
M8-PFOA	7.250	421.1 -> 376.0	38752	2.50 µg/L	0.013
M9-PFNA	7.809	472.1 -> 427.0	21167	1.25 µg/L	0.012
M6-PFDA	8.315	519.1 -> 474.1	20520	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	22969	1.25 µg/L	0.012
M2-PFDoDA	9.243	615.1 -> 570.0	29504	1.25 µg/L	0.000
M2-PFTeDA	10.049	715.2 -> 670.0	23133	1.25 µg/L	0.012
M8-FOSA	9.870	506.1 -> 77.8	21479	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	13607	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	8315	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	11920	2.50 µg/L	0.000
M2-4:2FTS	5.348	329.1 -> 80.9	1656	5.00 µg/L	0.012
M2-6:2FTS	7.010	429.1 -> 80.9	2366	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3957	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	17803	5.00 µg/L	0.012
M3-HFPO-DA	6.026	286.9 -> 168.9	38527	10.00 µg/L	0.012
M5-EtFOSAA	8.582	589.2 -> 419.0	14945	5.00 µg/L	0.012
M7-MeFOSE	10.997	623.2 -> 58.9	86850	25.00 µg/L	0.012
M9-EtFOSE	11.307	639.2 -> 58.9	105010	25.00 µg/L	0.025
M5-EtFOSA	11.398	531.1 -> 219.0	10750	2.50 µg/L	0.012
M3-MeFOSA	11.114	515.0 -> 219.0	10151	2.50 µg/L	0.012
13C4-PFOS	8.467	502.8 -> 79.9	12789	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	71718	5.00 µg/L	0.025
18O2-PFHxS	7.353	403.0 -> 83.9	5765	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	45475	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	19235	1.25 µg/L	0.012
13C5-PFNA	7.809	468.0 -> 423.0	24615	1.25 µg/L	0.012
13C2-PFHxA	5.660	315.1 -> 270.0	54681	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.348	329.1 -> 80.9	1656	5.26 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2366	5.24 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3957	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C2-PFDoDA	9.243	615.1 -> 570.0	29504	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-PFTeDA	10.049	715.2 -> 670.0	23133	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C3-PFBS	5.564	302.1 -> 79.9	13607	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C3-PFHxS	7.354	402.1 -> 79.9	8315	2.61 µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C4-PFBA	3.011	216.8 -> 171.9	124921	10.00 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.592	367.1 -> 322.0	31657	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFHxA	5.659	318.0 -> 273.0	63076	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C5-PFPeA	4.475	268.3 -> 223.0	81444	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C6-PFDA	8.315	519.1 -> 474.1	20520	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C7-PFUnDA	8.797	570.0 -> 525.1	22969	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-FOSA	9.870	506.1 -> 77.8	21479	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C8-PFOA	7.250	421.1 -> 376.0	38752	2.59 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C8-PFOS	8.467	507.1 -> 79.9	11920	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C9-PFNA	7.809	472.1 -> 427.0	21167	1.18 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.4%	
d3-MeFOSAA	8.373	573.2 -> 419.0	17803	4.73 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	38527	10.04 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
d3-MeFOSA	11.114	515.0 -> 219.0	10151	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
d5-EtFOSAA	8.582	589.2 -> 419.0	14945	4.88 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
d7-MeFOSE	10.997	623.2 -> 58.9	86850	26.33 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
d9-EtFOSE	11.307	639.2 -> 58.9	105010	26.02 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
d5-EtFOSA	11.398	531.1 -> 219.0	10750	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
Target Compounds					QValue
4:2FTS	5.348	327.1 -> 307.0	36799	17.83 µg/L	98
		327.1 -> 80.9	15406		
6:2FTS	7.011	427.1 -> 407.0	30231	18.71 µg/L	99
		427.1 -> 80.9	12999		
8:2FTS	8.090	527.1 -> 507.0	33000	18.60 µg/L	100
		527.1 -> 80.8	13134		
EtFOSAA	8.595	584.2 -> 419.1	10984	4.92 µg/L	m 81
		584.2 -> 526.0	5467		
FOSA	9.874	498.1 -> 77.9	34438	4.98 µg/L	98
		498.1 -> 478.0	1137		
MeFOSAA	8.373	570.1 -> 419.0	12057	4.91 µg/L	m 94
		570.1 -> 483.0	2201		
PFBA	3.020	212.8 -> 168.9	56170	19.69 µg/L	100
PFBS	5.565	298.7 -> 79.9	22223	4.38 µg/L	95
		298.7 -> 98.8	9189		
PFDA	8.316	512.9 -> 469.0	58800	5.01 µg/L	99
		512.9 -> 219.0	11537		
PFDoDA	9.244	613.1 -> 569.0	94272	5.07 µg/L	100
		613.1 -> 319.0	13067		
PFDS	9.409	599.0 -> 79.9	12682	4.76 µg/L	97

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	6404			
PFHpA	6.593	363.1 -> 319.0	78545	4.97	µg/L	99
		363.1 -> 169.0	13546			
PFHpS	7.936	449.0 -> 79.9	14498	4.67	µg/L	99
		449.0 -> 98.9	7427			
PFHxA	5.662	313.0 -> 269.0	92008	4.93	µg/L	100
		313.0 -> 118.9	2717			
PFHxS	7.355	398.7 -> 79.9	11654	4.09	µg/L	m 96
		398.7 -> 98.9	6387			
PFNA	7.810	463.0 -> 419.0	55072	4.87	µg/L	96
		463.0 -> 219.0	13387			
PFNS	8.961	548.8 -> 79.9	8919	4.86	µg/L	96
		548.8 -> 98.9	4317			
PFOA	7.252	413.0 -> 369.0	83867	4.63	µg/L	98
		413.0 -> 169.0	17926			
PFOS	8.468	498.9 -> 79.9	20749	4.47	µg/L	m 85
		498.9 -> 98.8	10167			
PFPeA	4.477	263.0 -> 219.0	152277	9.88	µg/L	100
PFPeS	6.632	349.1 -> 79.9	11718	4.83	µg/L	98
		349.1 -> 98.9	4855			
PFTeDA	10.050	713.1 -> 669.0	90965	4.99	µg/L	100
		713.1 -> 168.9	7419			
PFTrDA	9.666	663.0 -> 619.0	119591	4.99	µg/L	99
		663.0 -> 168.9	11208			
PFUnDA	8.798	563.1 -> 519.0	62199	4.79	µg/L	100
		563.1 -> 269.1	12206			
11CI-PF3OUdS	9.705	630.9 -> 450.9	98327	9.78	µg/L	99
		632.9 -> 452.9	30139			
9CI-PF3ONS	8.825	530.8 -> 351.0	104680	9.32	µg/L	99
		532.8 -> 353.0	31565			
ADONA	6.843	376.9 -> 250.9	216314	9.35	µg/L	99
		376.9 -> 84.8	58876			
HFPO-DA	6.027	284.9 -> 168.9	29468	9.65	µg/L	100
		284.9 -> 184.9	3608			
3:3FTCA	3.992	241.0 -> 177.0	17393	24.21	µg/L	98
		241.0 -> 117.0	1572			
5:3FTCA	6.357	341.0 -> 237.1	330585	125.37	µg/L	99
		341.0 -> 217.0	238118			
7:3FTCA	7.799	441.0 -> 316.9	138396	128.06	µg/L	99
		441.0 -> 336.9	307498			
EtFOSA	11.400	526.0 -> 219.0	38265	9.99	µg/L	m 63
		526.0 -> 169.0	51446			
EtFOSE	11.320	630.0 -> 58.9	78212	24.16	µg/L	100
MeFOSA	11.116	511.9 -> 219.0	31361	9.56	µg/L	m 79
		511.9 -> 169.0	46574			
MeFOSE	11.010	616.1 -> 58.9	74370	24.36	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	10759	4.67	µg/L	99
		699.1 -> 98.8	6195			
NFDHA	5.541	295.0 -> 201.0	13046	10.39	µg/L	100
		295.0 -> 84.9	3244			
PFMBA	4.891	279.0 -> 85.1	86371	9.80	µg/L	100
PFMPA	3.628	229.0 -> 84.9	75259	9.76	µg/L	100
PFEESA	6.108	314.8 -> 134.9	139198	8.88	µg/L	100
		314.8 -> 82.9	4696			

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

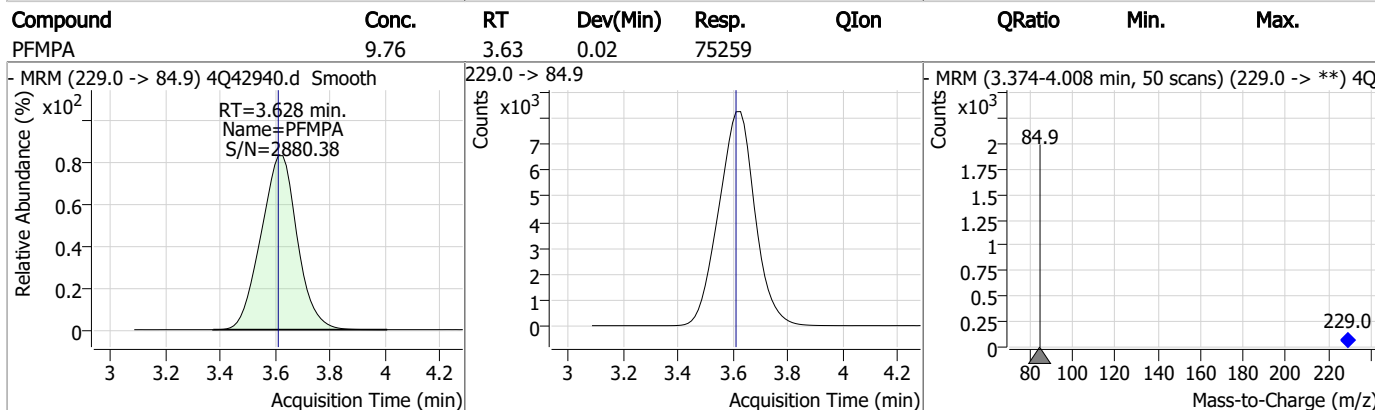
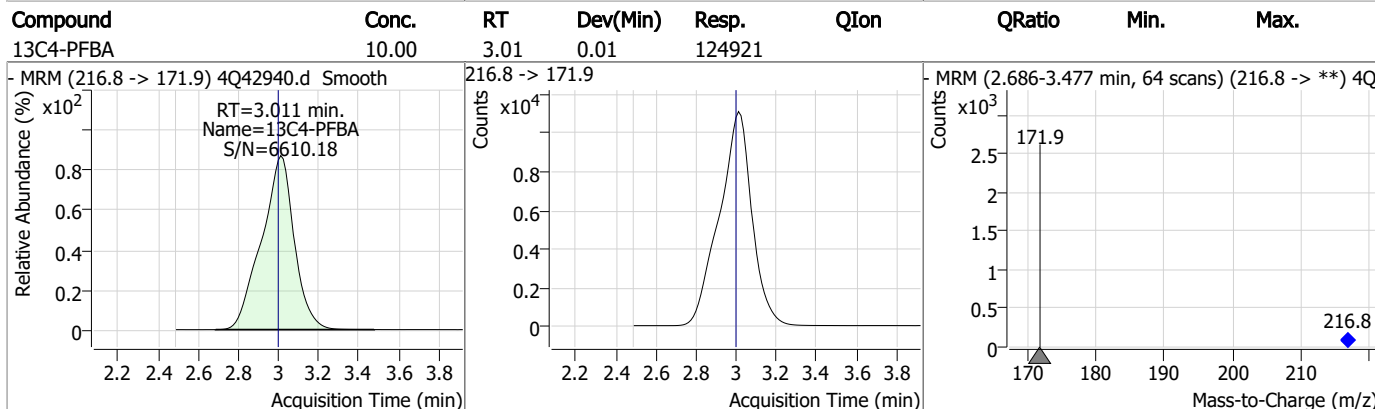
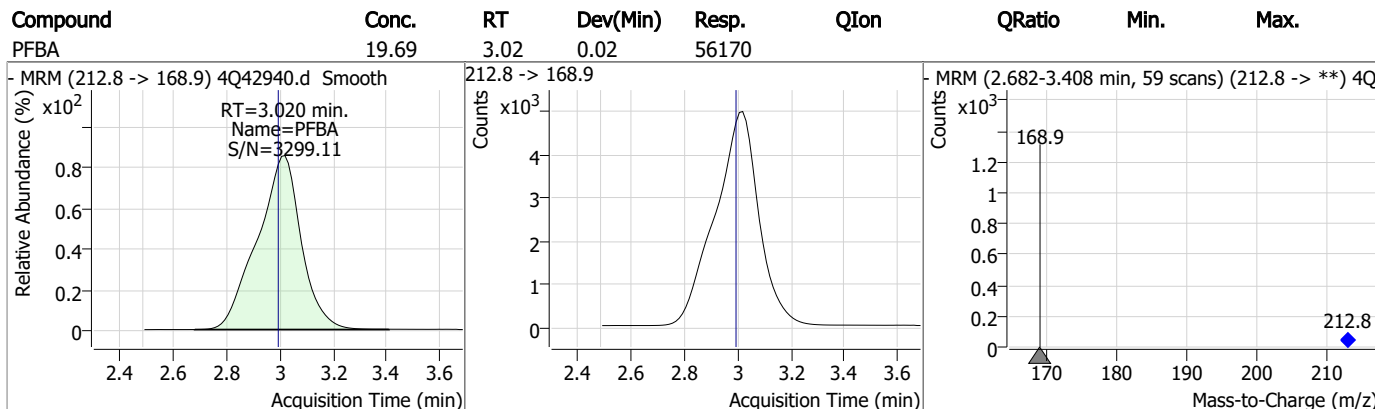
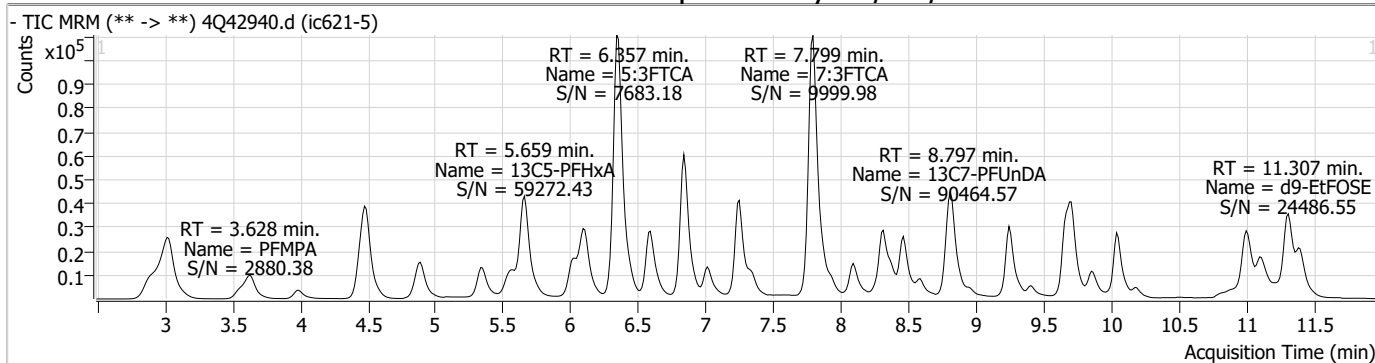
Perfluorinated Compounds by LC/MS/MS

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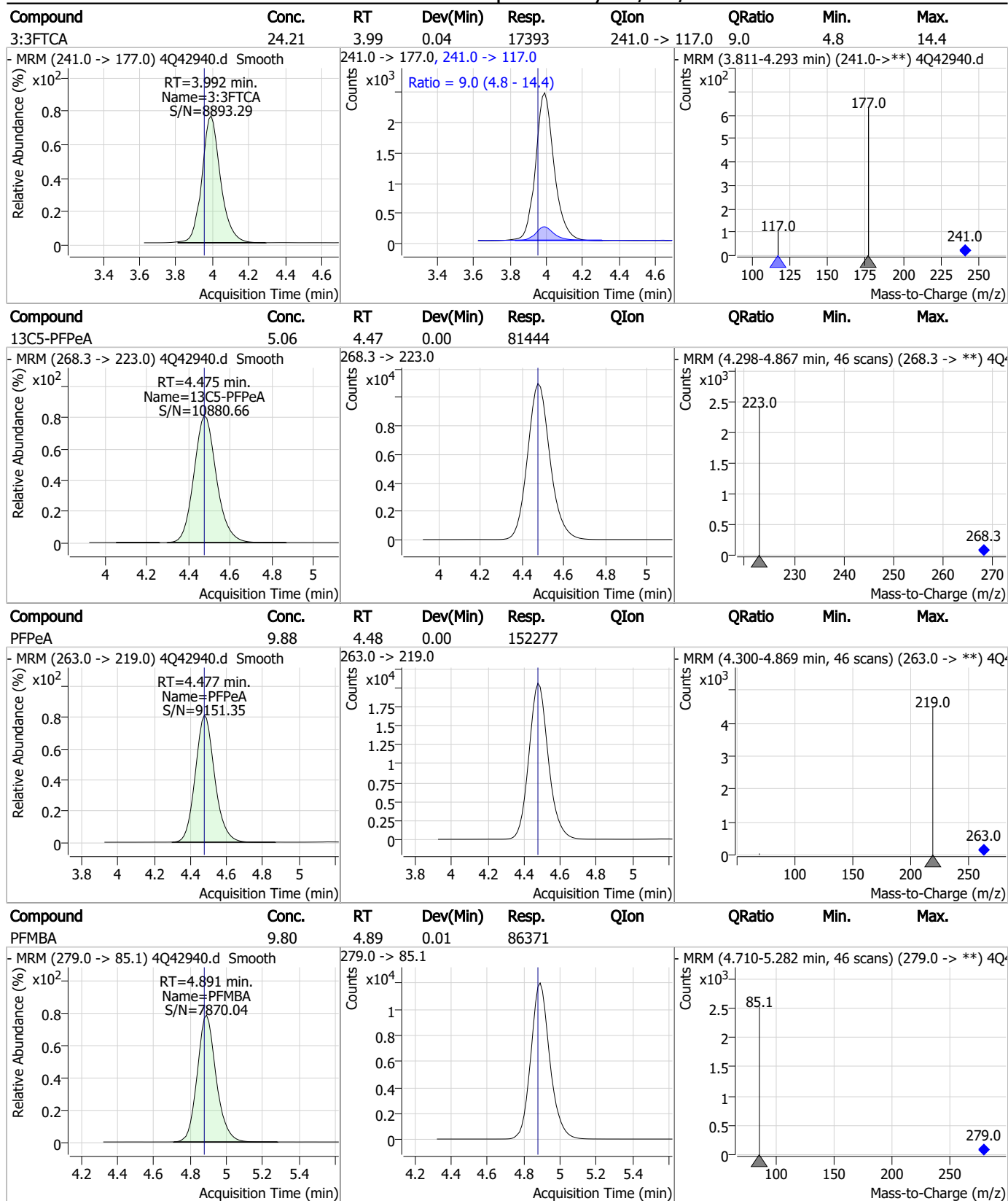
7.7.6

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Perfluorinated Compounds by LC/MS/MS

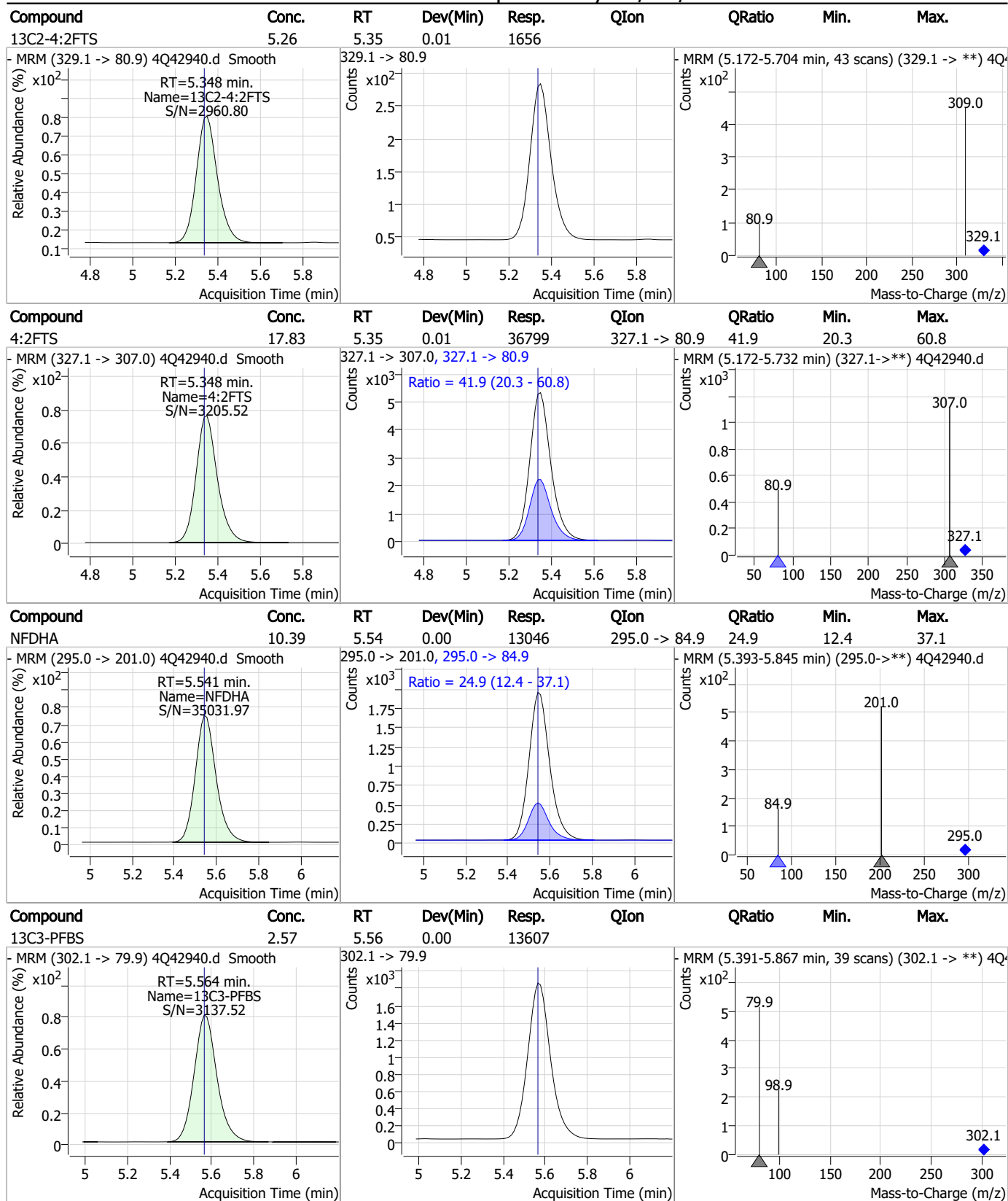


Perfluorinated Compounds by LC/MS/MS



7.7.6
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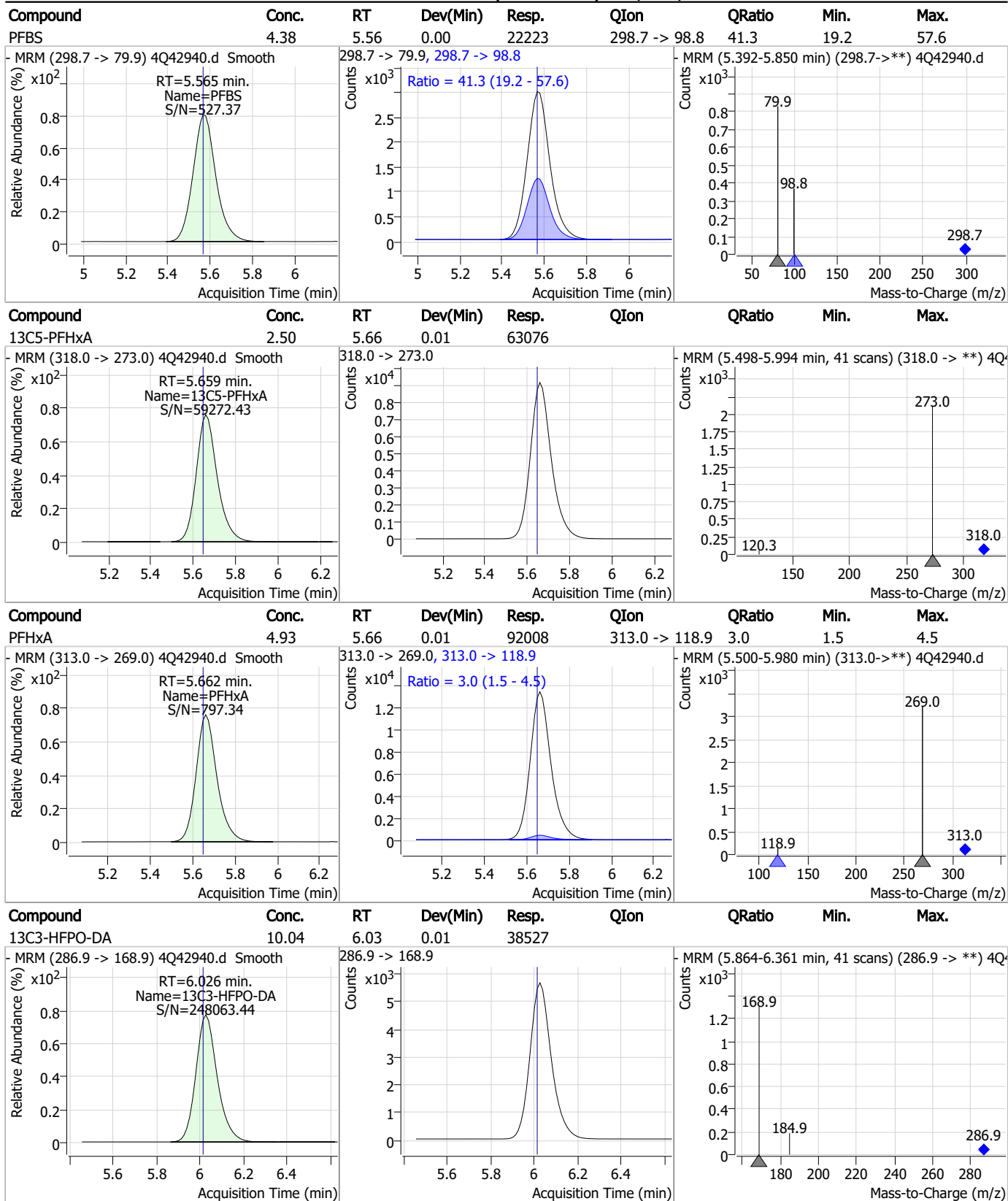
Perfluorinated Compounds by LC/MS/MS



7.7.6

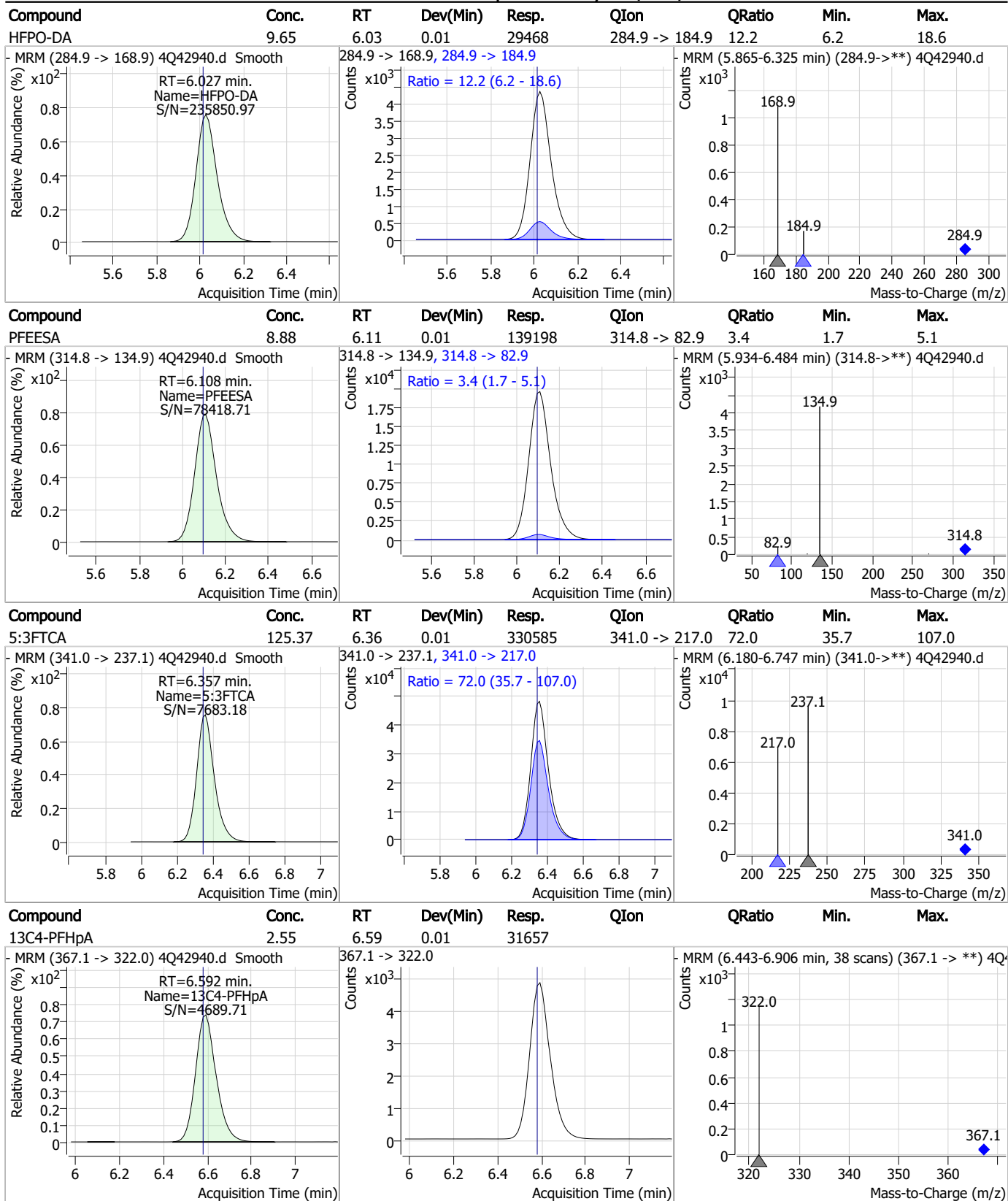
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Perfluorinated Compounds by LC/MS/MS



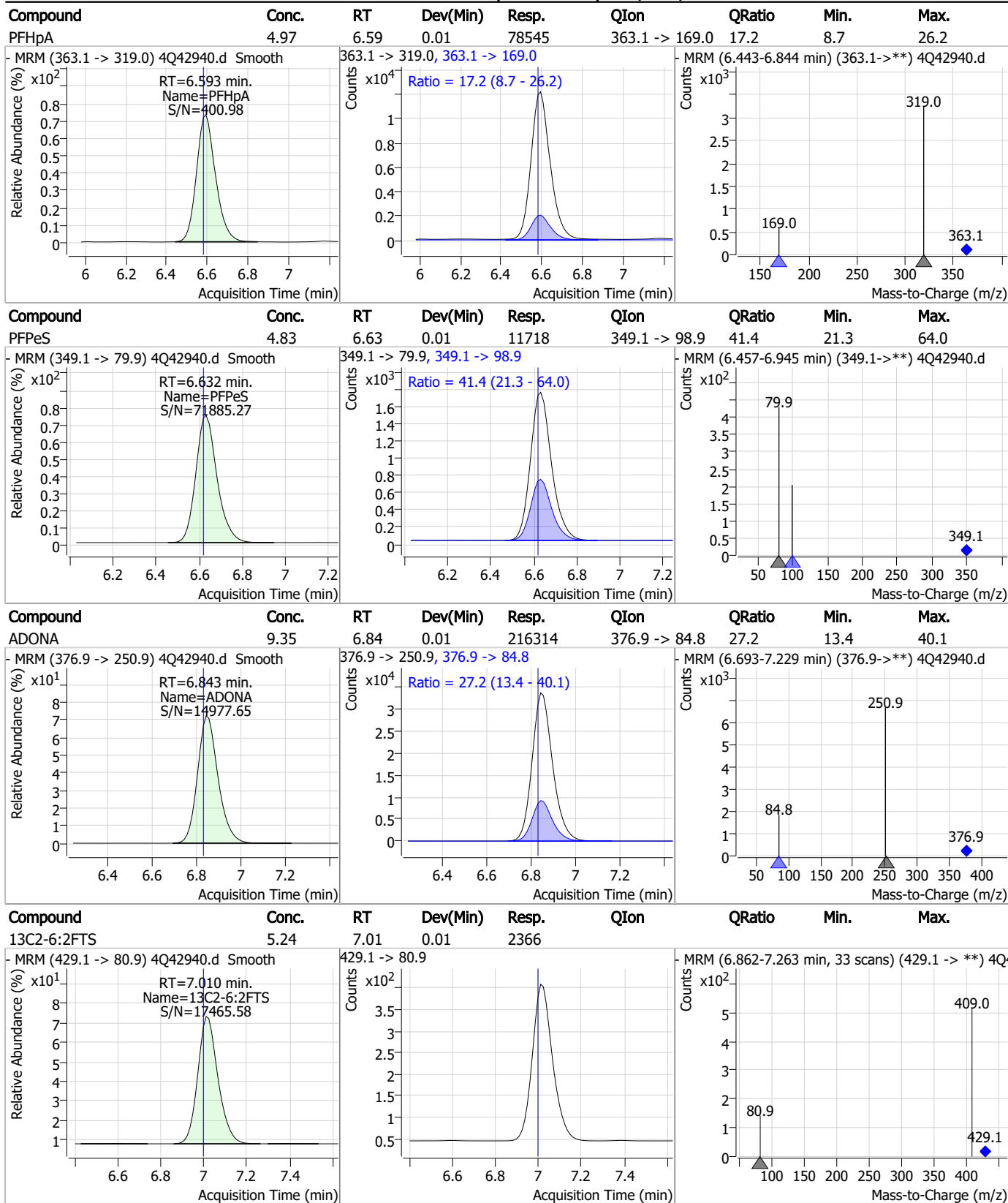
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Perfluorinated Compounds by LC/MS/MS



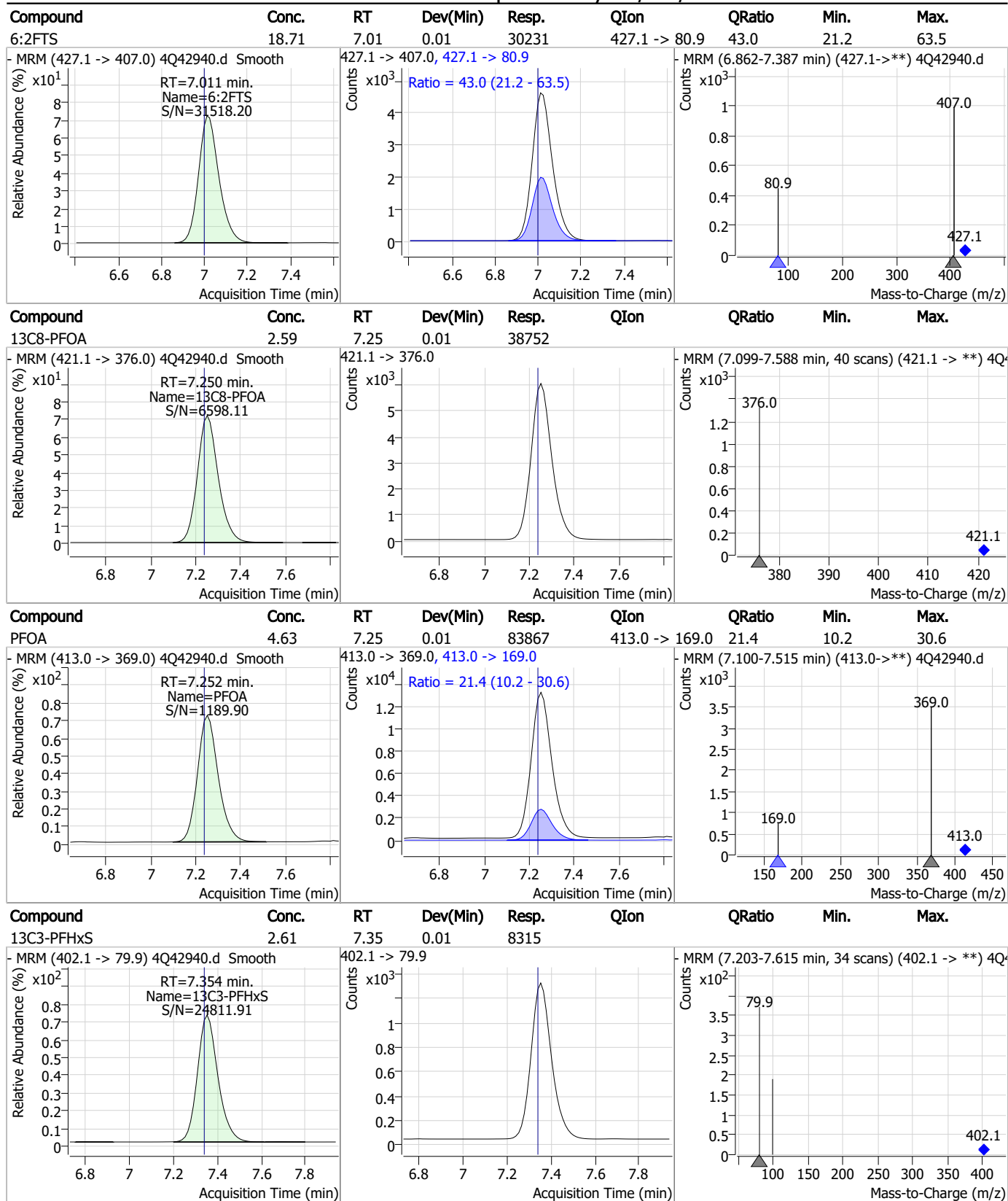
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Perfluorinated Compounds by LC/MS/MS



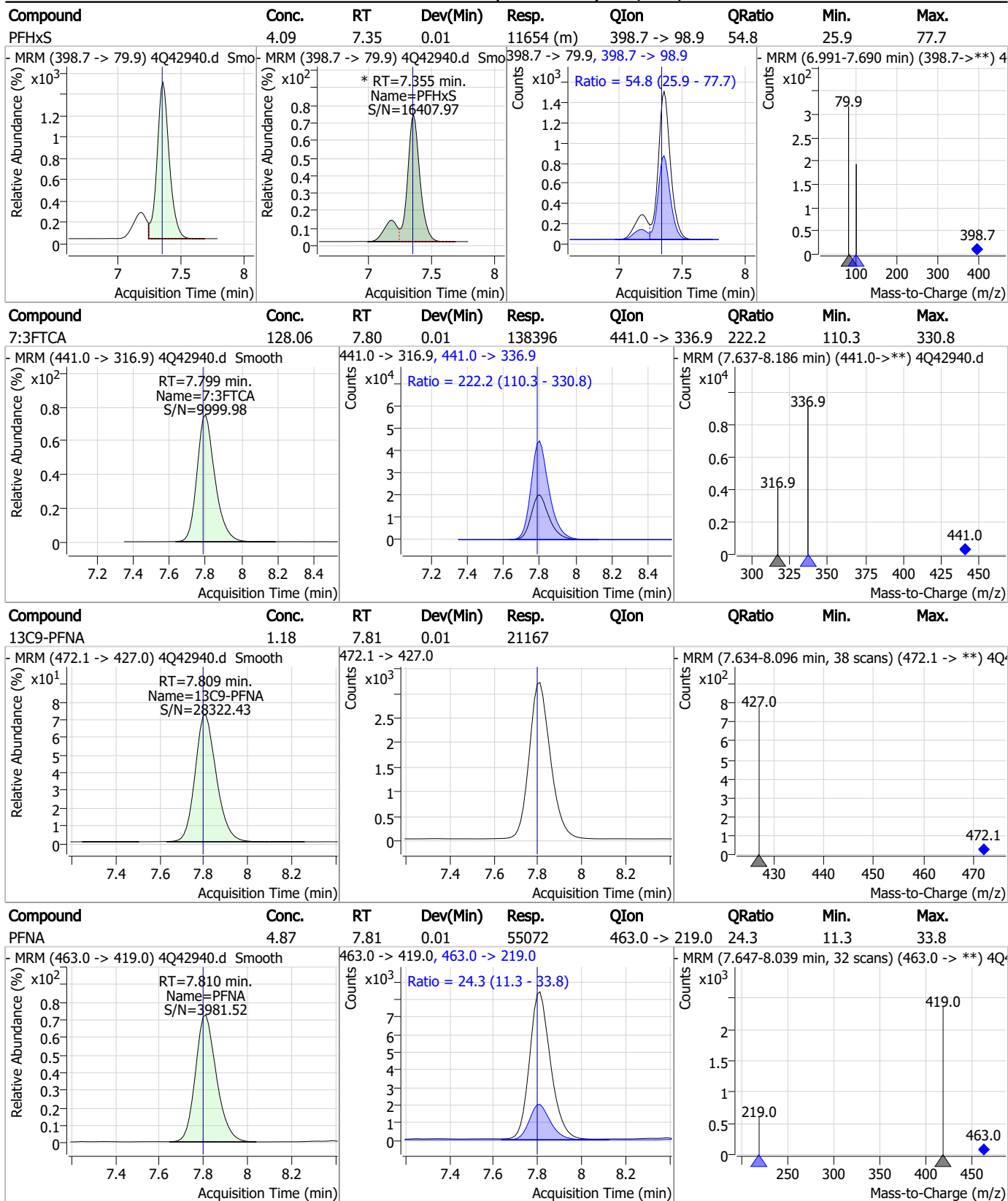
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Perfluorinated Compounds by LC/MS/MS



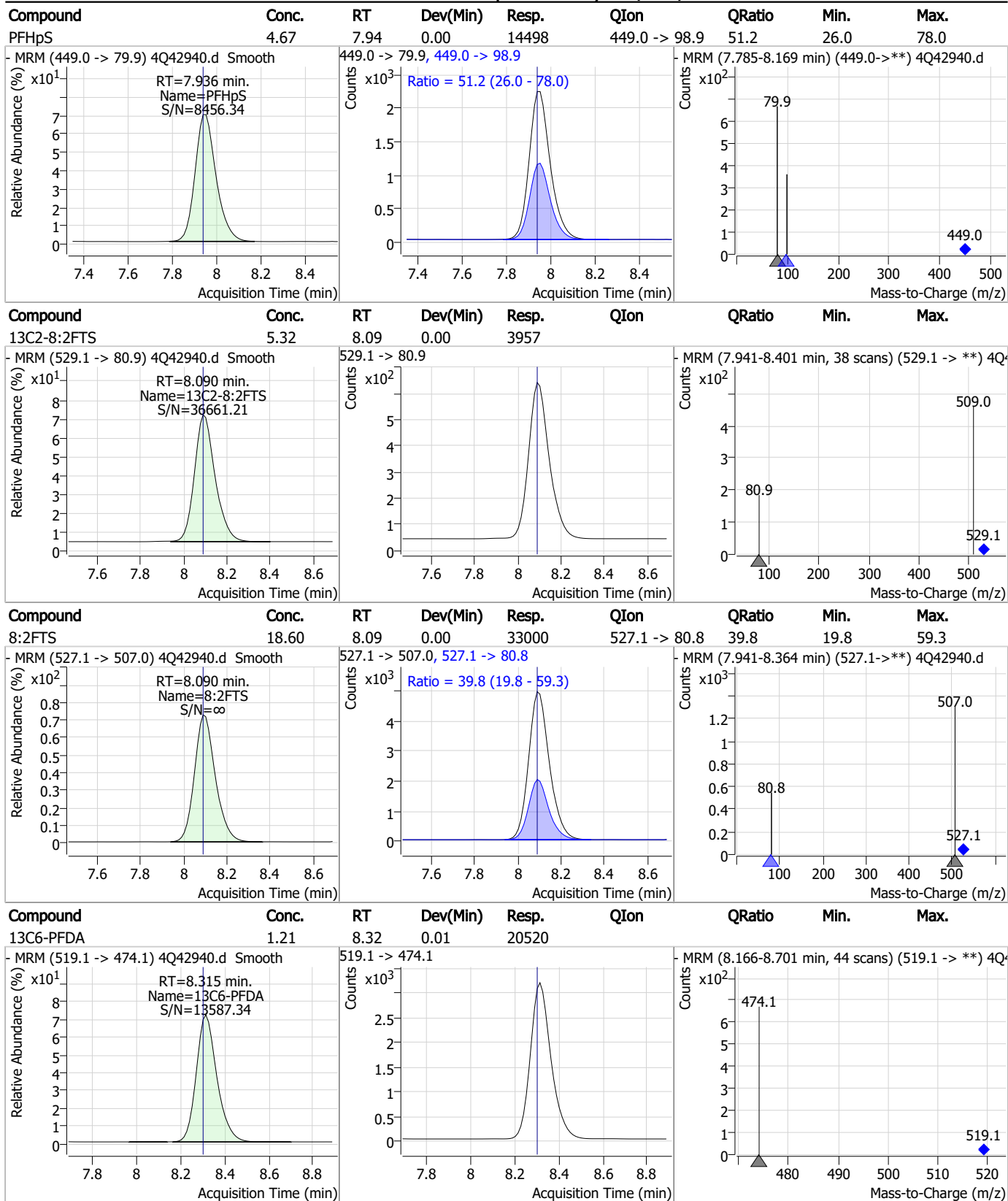
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Perfluorinated Compounds by LC/MS/MS



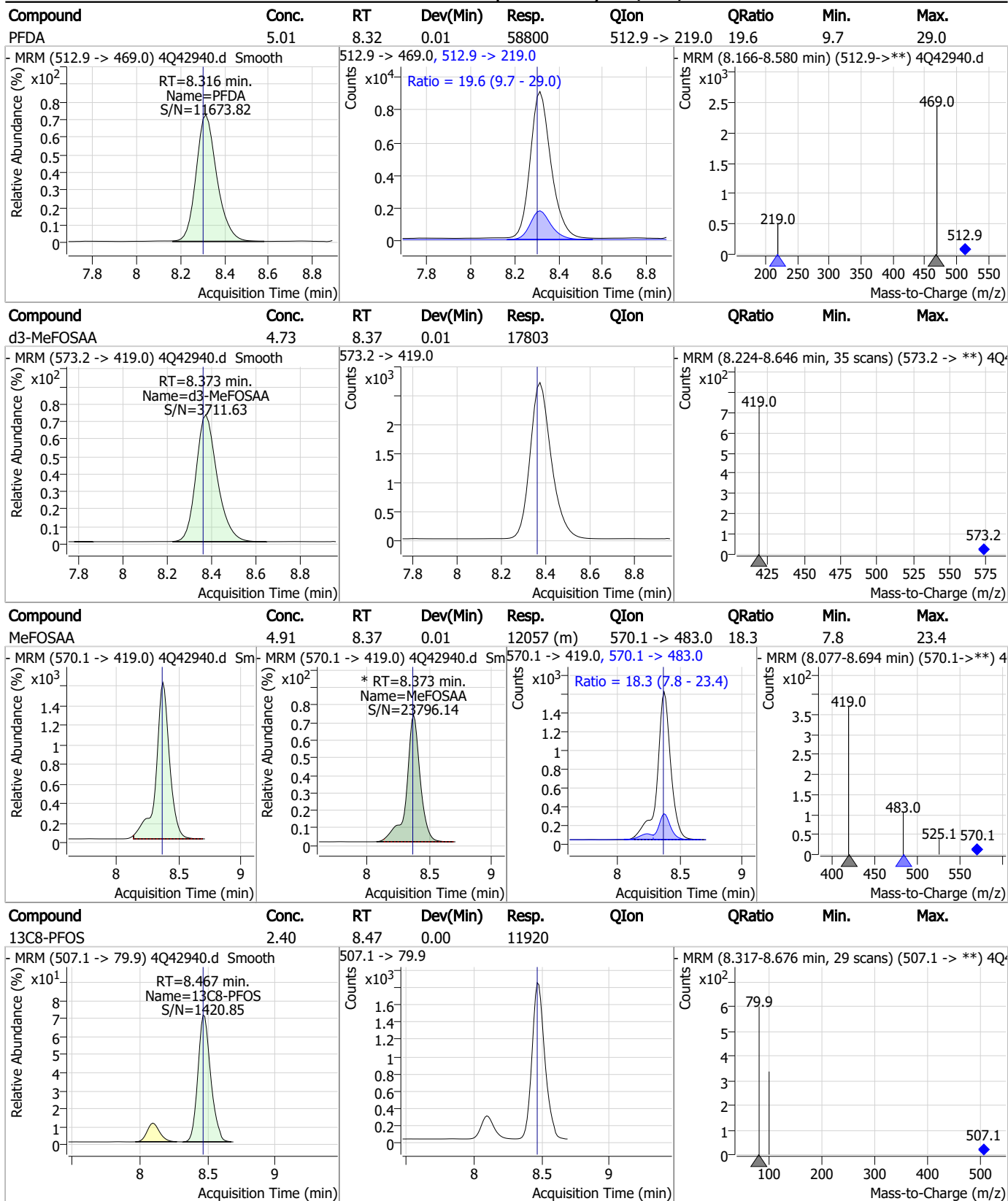
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Perfluorinated Compounds by LC/MS/MS



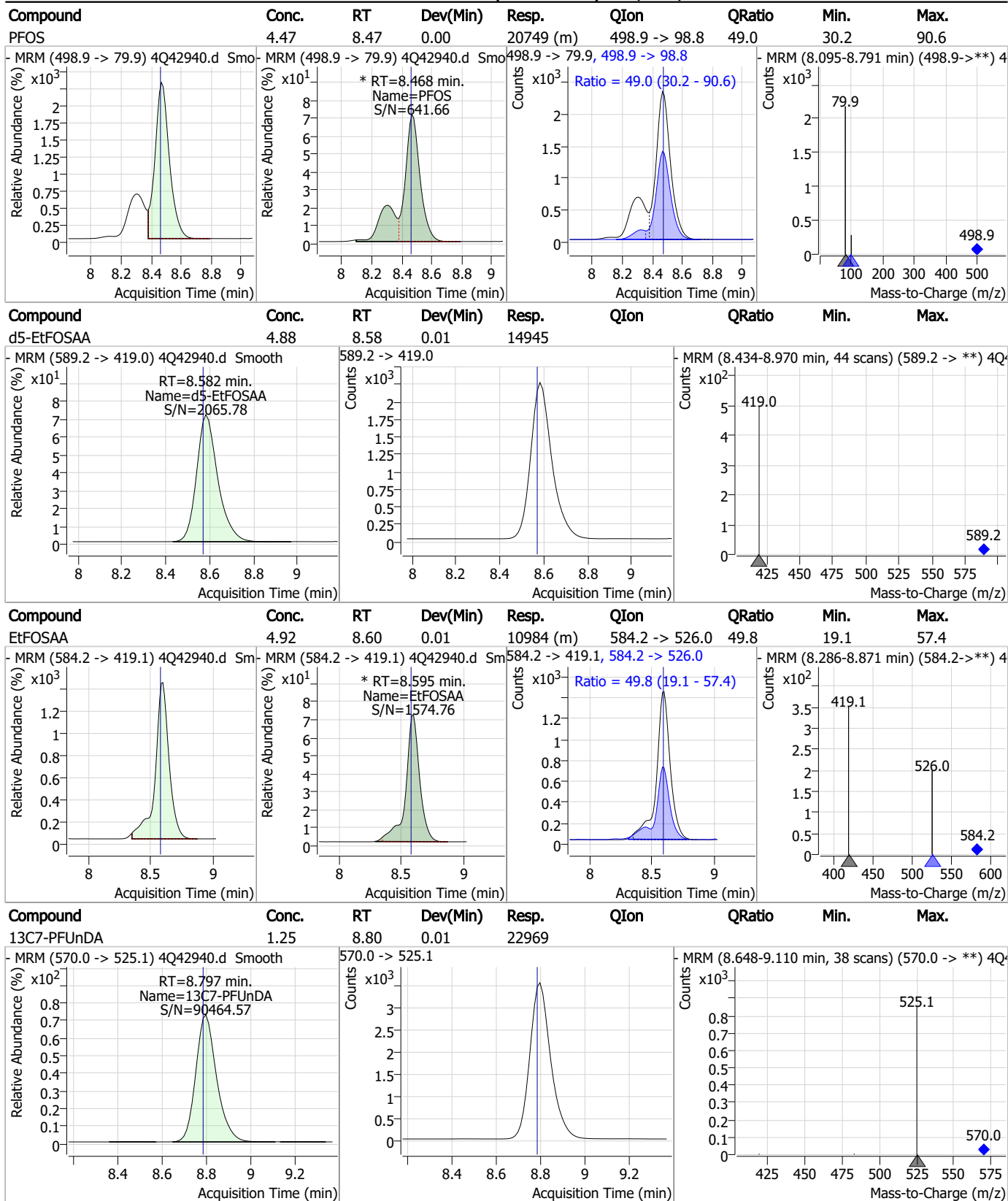
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Perfluorinated Compounds by LC/MS/MS



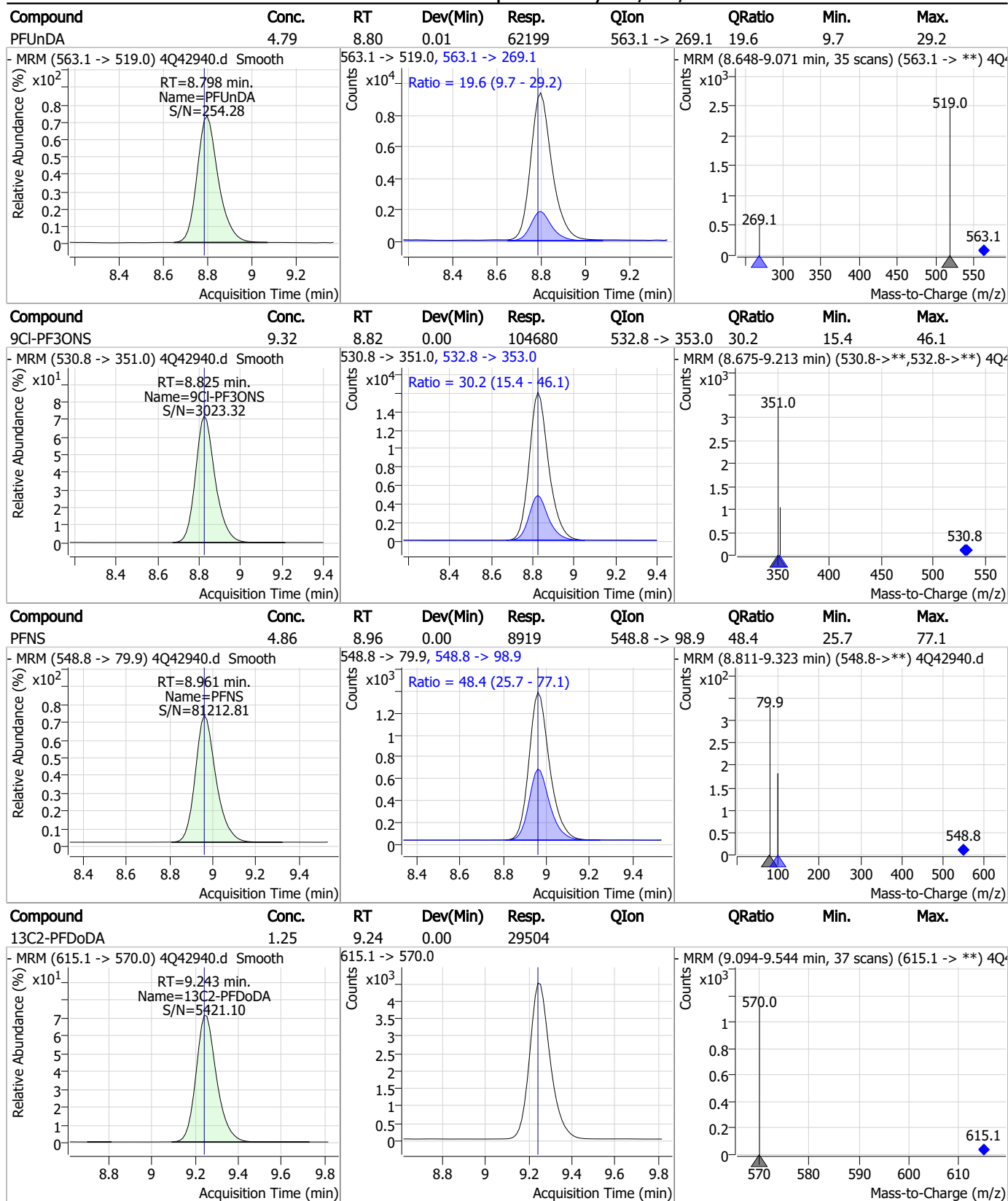
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Perfluorinated Compounds by LC/MS/MS



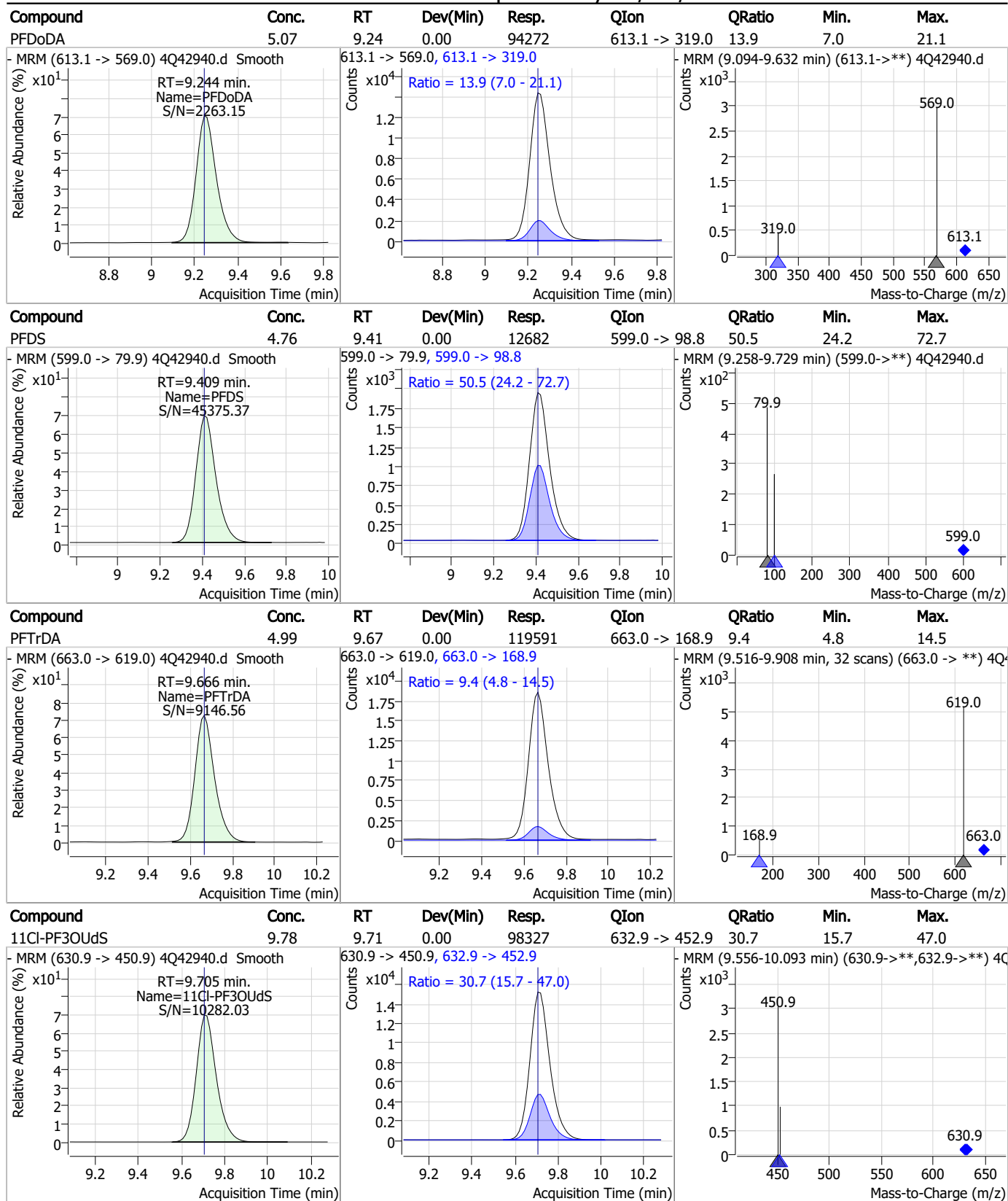
7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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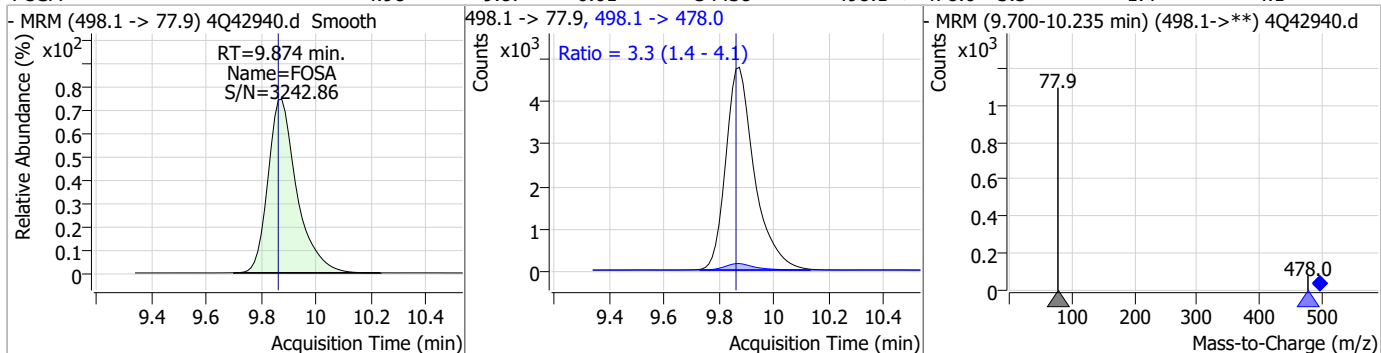
Perfluorinated Compounds by LC/MS/MS



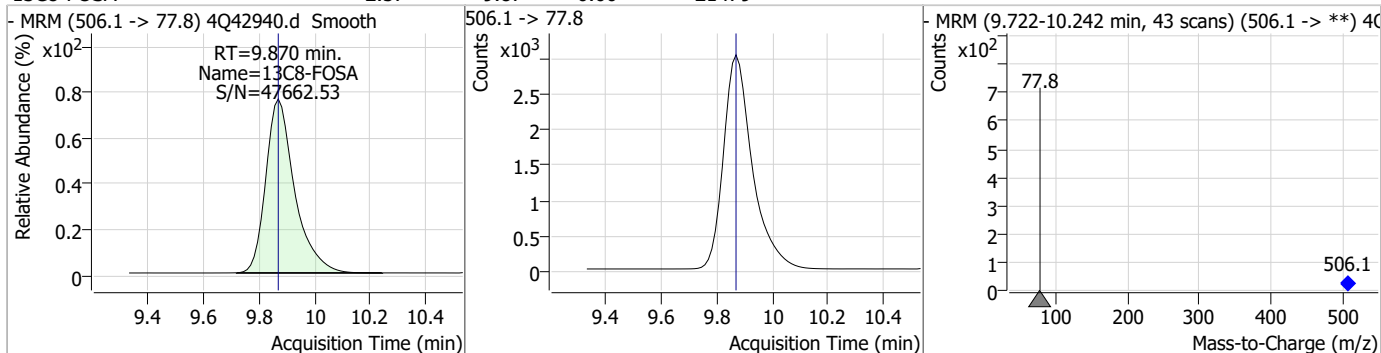
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Perfluorinated Compounds by LC/MS/MS

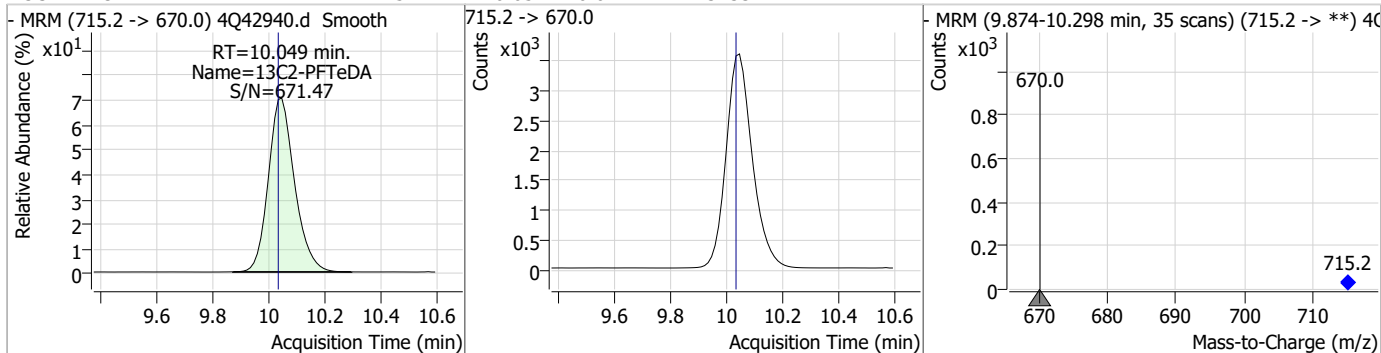
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	4.98	9.87	0.01	34438	498.1 -> 478.0	3.3	1.4	4.1



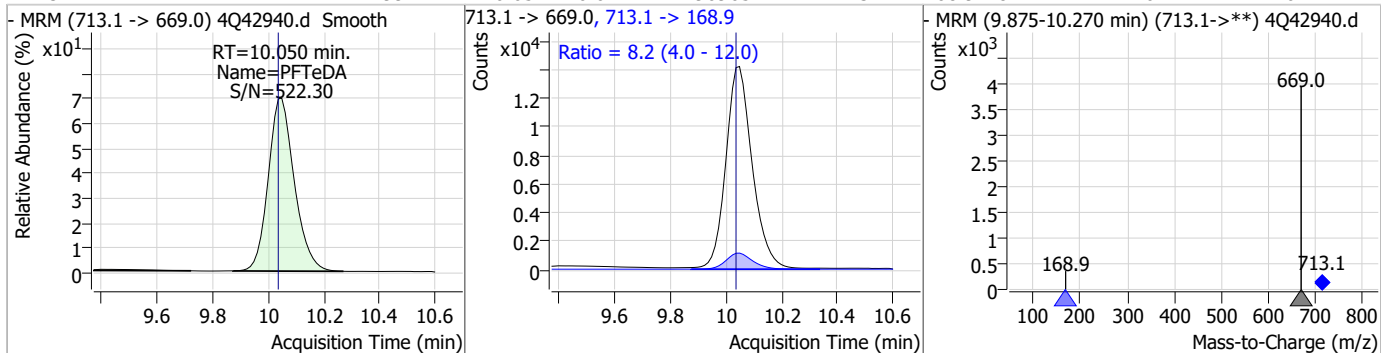
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.57	9.87	0.00	21479				



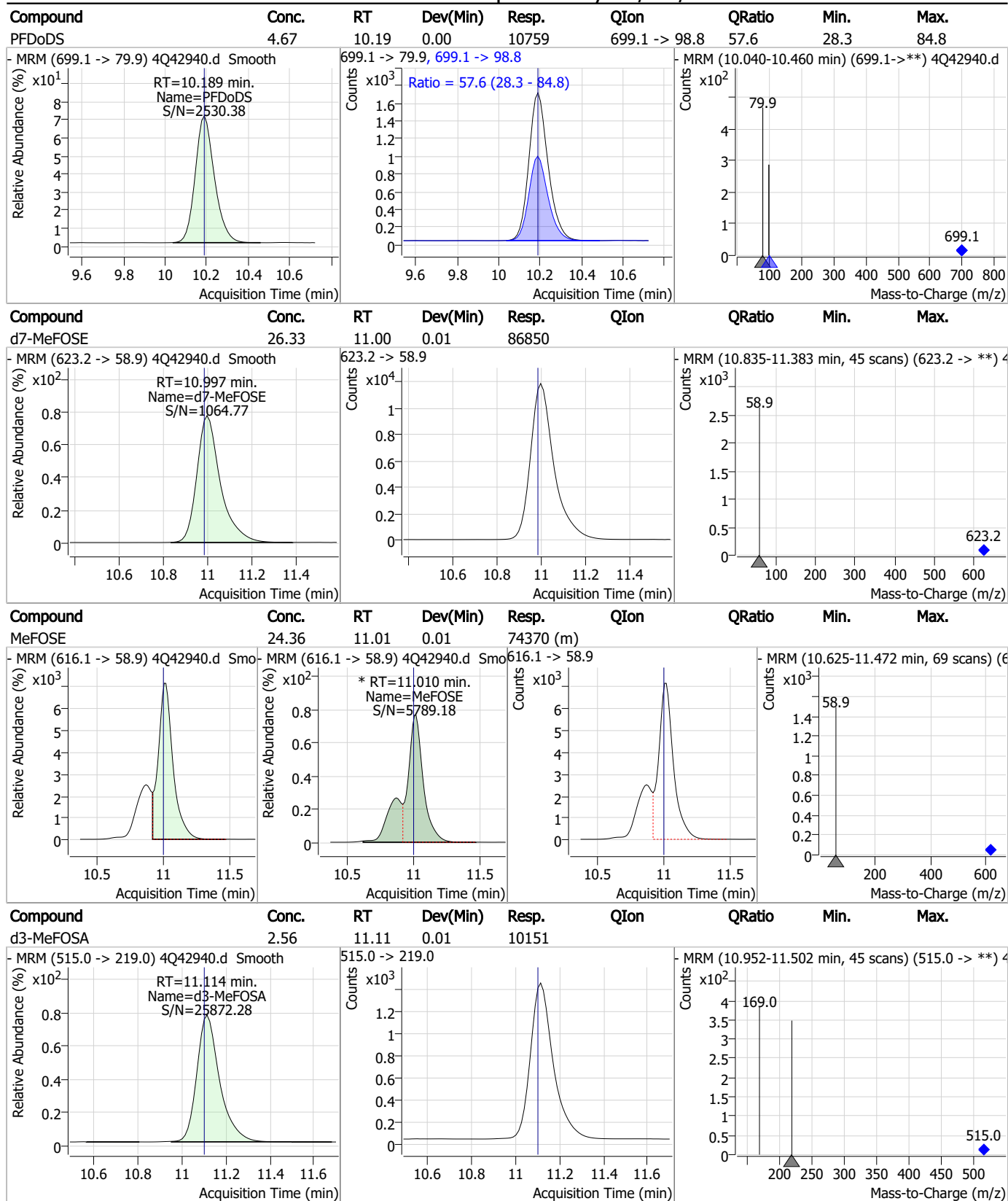
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTEda	1.25	10.05	0.01	23133				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTEda	4.99	10.05	0.01	90965	713.1 -> 168.9	8.2	4.0	12.0

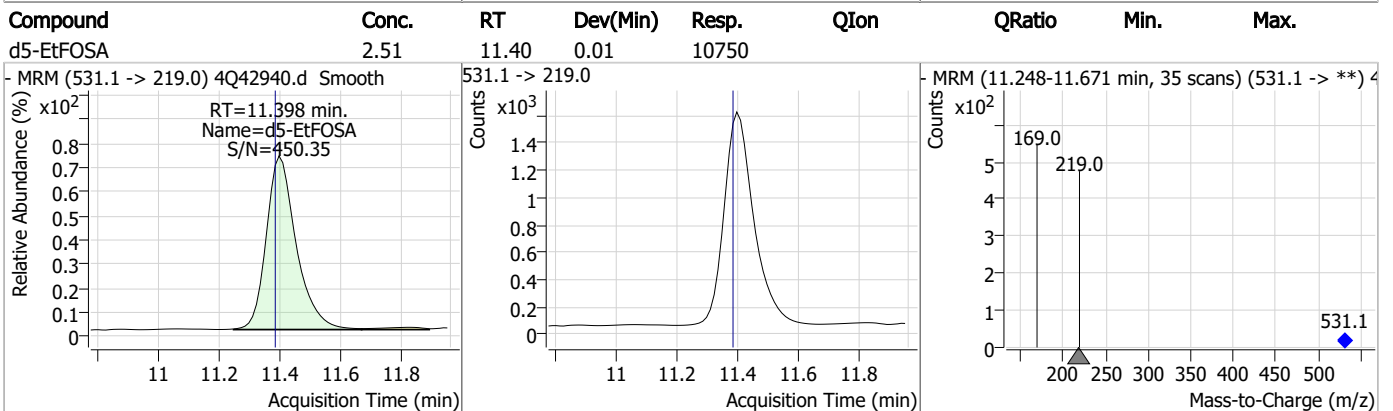
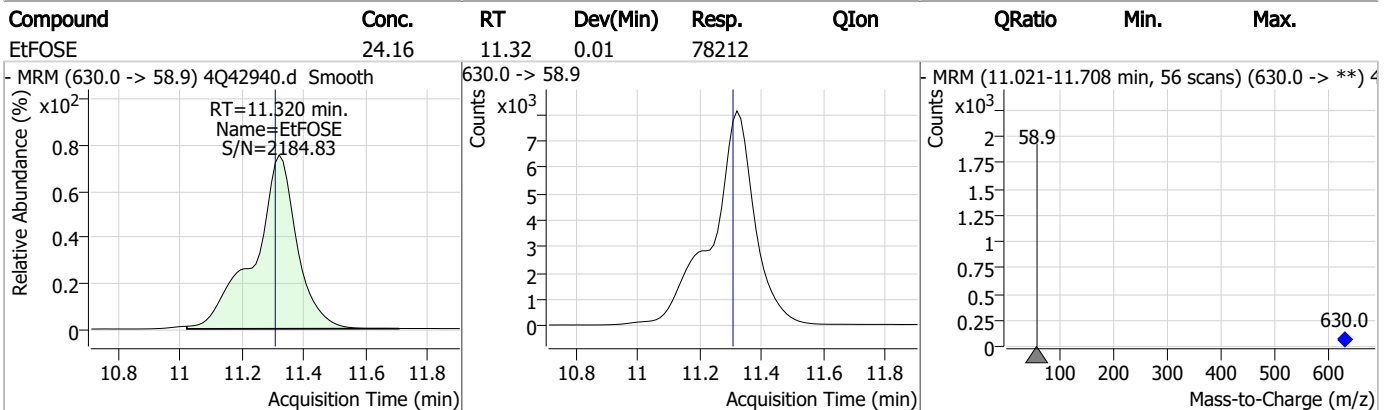
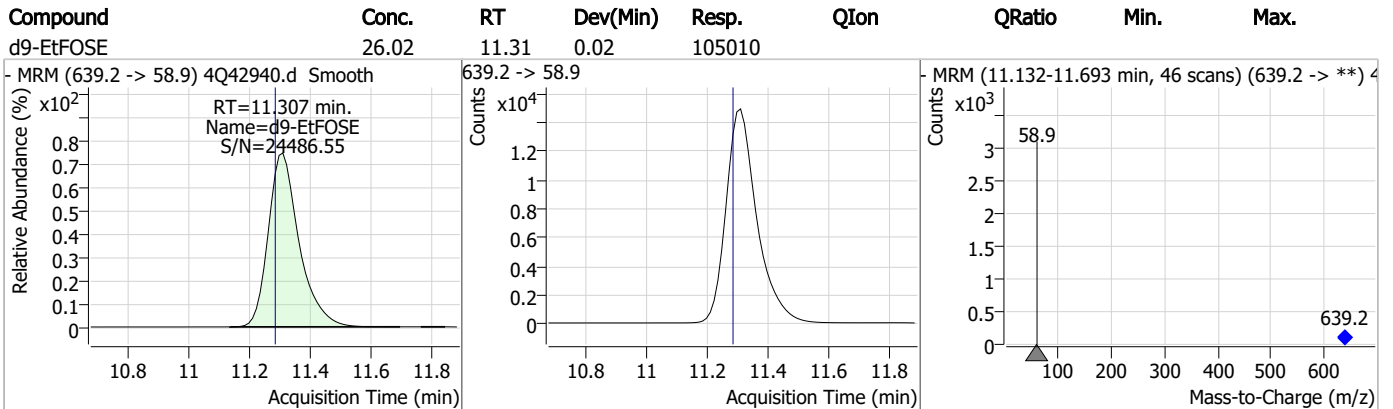
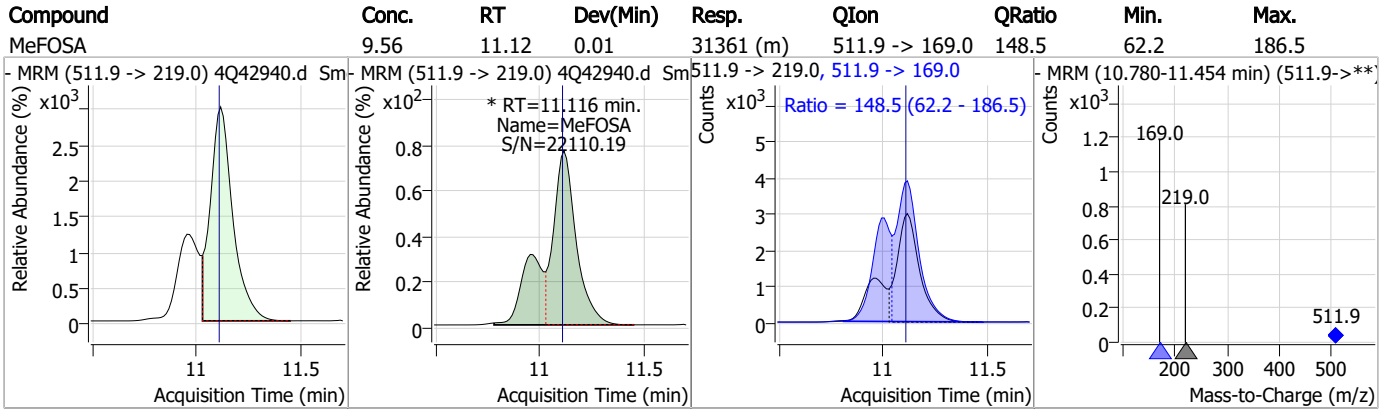


Perfluorinated Compounds by LC/MS/MS



7.7.6
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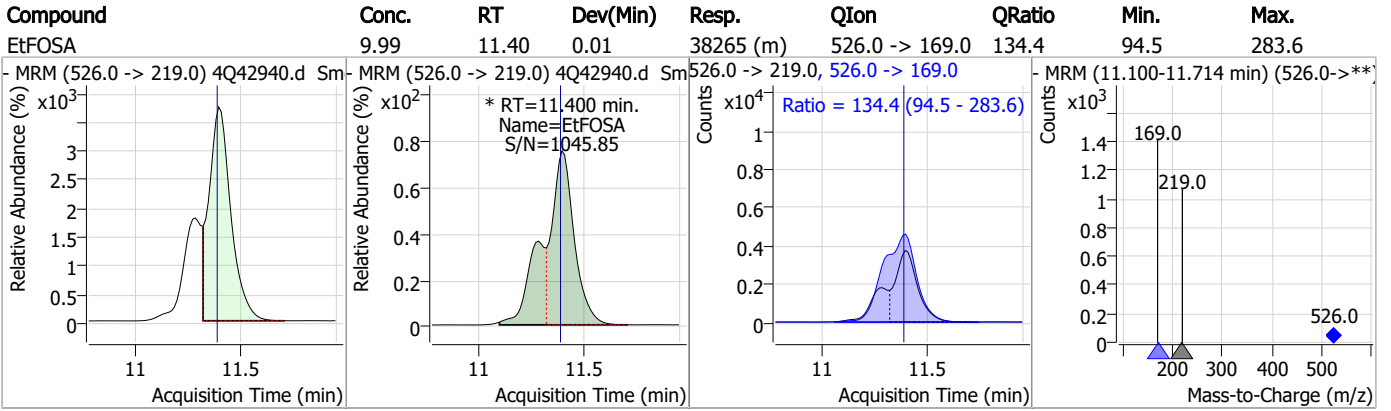
Perfluorinated Compounds by LC/MS/MS



7.7.6

7

Perfluorinated Compounds by LC/MS/MS



7.7.6

7

Manual Integration Approval Summary

Sample Number: S4Q621-IC621 Method: EPA DRAFT 1633
Lab FileID: 4Q42940.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 12:55 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.60	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.12	Split peak
EtFOSA	4151-50-2		11.40	Split peak

7.7.6.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 04/17/23 14:32

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42941.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 1:09:29 PM
 Sample Name : ic621-6
 Vial : P1-A7
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.024	216.8 -> 171.9	126412	10.00 µg/L	0.025
M5-PFPeA	4.462	268.3 -> 223.0	81834	5.00 µg/L	-0.012
M5-PFHxA	5.646	318.0 -> 273.0	63527	2.50 µg/L	0.000
M4-PFHpA	6.580	367.1 -> 322.0	31808	2.50 µg/L	0.000
M8-PFOA	7.250	421.1 -> 376.0	37243	2.50 µg/L	0.013
M9-PFNA	7.797	472.1 -> 427.0	21809	1.25 µg/L	0.000
M6-PFDA	8.315	519.1 -> 474.1	20998	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	21474	1.25 µg/L	0.012
M2-PFDoDA	9.243	615.1 -> 570.0	27372	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	20512	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	17533	2.50 µg/L	0.000
M3-PFBS	5.551	302.1 -> 79.9	14110	2.50 µg/L	-0.012
M3-PFHxS	7.354	402.1 -> 79.9	8257	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	12070	2.50 µg/L	0.000
M2-4:2FTS	5.323	329.1 -> 80.9	1452	5.00 µg/L	-0.012
M2-6:2FTS	7.010	429.1 -> 80.9	2236	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3527	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	17884	5.00 µg/L	0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	38938	10.00 µg/L	0.000
M5-EtFOSAA	8.582	589.2 -> 419.0	14045	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	62837	25.00 µg/L	0.000
M9-EtFOSE	11.294	639.2 -> 58.9	80189	25.00 µg/L	0.012
M5-EtFOSA	11.386	531.1 -> 219.0	10156	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	9584	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	12669	2.50 µg/L	0.000
13C3-PFBA	3.028	216.0 -> 172.0	72633	5.00 µg/L	0.037
18O2-PFHxS	7.353	403.0 -> 83.9	6061	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	46239	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	18825	1.25 µg/L	0.012
13C5-PFNA	7.797	468.0 -> 423.0	24784	1.25 µg/L	0.000
13C2-PFHxA	5.647	315.1 -> 270.0	55207	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.323	329.1 -> 80.9	1452	4.39 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.7%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2236	4.71 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.1%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3527	4.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.2%		
13C2-PFDoDA	9.243	615.1 -> 570.0	27372	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.5%		
13C2-PFTeDA	10.036	715.2 -> 670.0	20512	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.0%		
13C3-PFBS	5.551	302.1 -> 79.9	14110	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C3-PFHxS	7.354	402.1 -> 79.9	8257	2.46 µg/L	0.013

7.7.7
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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 = 98.5%	
13C4-PFBA	3.024	216.8 -> 171.9	126412	9.99 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.580	367.1 -> 322.0	31808	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C5-PFHxA	5.646	318.0 -> 273.0	63527	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C5-PFPeA	4.462	268.3 -> 223.0	81834	5.03 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C6-PFDA	8.315	519.1 -> 474.1	20998	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C7-PFUnDA	8.797	570.0 -> 525.1	21474	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C8-FOSA	9.870	506.1 -> 77.8	17533	2.12 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.6%	
13C8-PFOA	7.250	421.1 -> 376.0	37243	2.45 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C8-PFOS	8.467	507.1 -> 79.9	12070	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C9-PFNA	7.797	472.1 -> 427.0	21809	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.6%	
d3-MeFOSAA	8.373	573.2 -> 419.0	17884	4.79 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	38938	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
d3-MeFOSA	11.102	515.0 -> 219.0	9584	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
d5-EtFOSAA	8.582	589.2 -> 419.0	14045	4.63 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.6%	
d7-MeFOSE	10.985	623.2 -> 58.9	62837	19.23 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.9%	
d9-EtFOSE	11.294	639.2 -> 58.9	80189	20.06 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.2%	
d5-EtFOSA	11.386	531.1 -> 219.0	10156	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
Target Compounds					QValue
4:2FTS	5.323	327.1 -> 307.0 327.1 -> 80.9	86277 36011	47.66 µg/L	98
6:2FTS	7.011	427.1 -> 407.0 427.1 -> 80.9	69045 29064	45.23 µg/L	100
8:2FTS	8.090	527.1 -> 507.0 527.1 -> 80.8	74437 31399	47.07 µg/L	96
EtFOSAA	8.583	584.2 -> 419.1 584.2 -> 526.0	24919 11587	11.88 µg/L	m 86
FOSA	9.874	498.1 -> 77.9 498.1 -> 478.0	67848 1957	12.02 µg/L	99
MeFOSAA	8.373	570.1 -> 419.0 570.1 -> 483.0	26871 5843	10.90 µg/L	m 85
PFBA	3.032	212.8 -> 168.9	141543	49.03 µg/L	100
PFBS	5.552	298.7 -> 79.9 298.7 -> 98.8	57723 21216	10.96 µg/L	97
PFDA	8.316	512.9 -> 469.0 512.9 -> 219.0	146600 28673	12.21 µg/L	99
PFDoDA	9.244	613.1 -> 569.0 613.1 -> 319.0	215453 29708	12.48 µg/L	99
PFDS	9.409	599.0 -> 79.9	31216	11.57 µg/L	100

7.7.7

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	15229			
PFHpA	6.580	363.1 -> 319.0	198822	12.53	µg/L	100
		363.1 -> 169.0	35138			
PFHpS	7.936	449.0 -> 79.9	36937	11.76	µg/L	99
		449.0 -> 98.9	18919			
PFHxA	5.649	313.0 -> 269.0	231353	12.30	µg/L	99
		313.0 -> 118.9	7474			
PFHxS	7.355	398.7 -> 79.9	31261	11.05	µg/L	m 100
		398.7 -> 98.9	16193			
PFNA	7.797	463.0 -> 419.0	137984	11.84	µg/L	95
		463.0 -> 219.0	34461			
PFNS	8.961	548.8 -> 79.9	22258	11.98	µg/L	100
		548.8 -> 98.9	11487			
PFOA	7.252	413.0 -> 369.0	216081	12.42	µg/L	99
		413.0 -> 169.0	43078			
PFOS	8.468	498.9 -> 79.9	52470	11.17	µg/L	m 84
		498.9 -> 98.8	25355			
PFPeA	4.464	263.0 -> 219.0	384441	24.82	µg/L	100
PFPeS	6.619	349.1 -> 79.9	28905	12.00	µg/L	99
		349.1 -> 98.9	12488			
PFTeDA	10.037	713.1 -> 669.0	197481	12.23	µg/L	99
		713.1 -> 168.9	16352			
PFTrDA	9.666	663.0 -> 619.0	266056	11.96	µg/L	99
		663.0 -> 168.9	25219			
PFUnDA	8.798	563.1 -> 519.0	141972	11.69	µg/L	100
		563.1 -> 269.1	27866			
11Cl-PF3OUdS	9.705	630.9 -> 450.9	243104	23.92	µg/L	100
		632.9 -> 452.9	75926			
9Cl-PF3ONS	8.825	530.8 -> 351.0	269692	23.75	µg/L	100
		532.8 -> 353.0	82823			
ADONA	6.843	376.9 -> 250.9	552337	23.61	µg/L	100
		376.9 -> 84.8	148755			
HFPO-DA	6.015	284.9 -> 168.9	75047	24.32	µg/L	100
		284.9 -> 184.9	9286			
3:3FTCA	3.979	241.0 -> 177.0	44989	62.33	µg/L	100
		241.0 -> 117.0	4315			
5:3FTCA	6.345	341.0 -> 237.1	841310	316.78	µg/L	100
		341.0 -> 217.0	599805			
7:3FTCA	7.786	441.0 -> 316.9	337679	310.25	µg/L	98
		441.0 -> 336.9	756780			
EtFOSA	11.388	526.0 -> 219.0	90504	25.01	µg/L	m 64
		526.0 -> 169.0	123529			
EtFOSE	11.308	630.0 -> 58.9	148842	60.22	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	72250	23.32	µg/L	m 77
		511.9 -> 169.0	108340			
MeFOSE	11.010	616.1 -> 58.9	132184	59.85	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	27343	11.72	µg/L	99
		699.1 -> 98.8	15267			
NFDHA	5.528	295.0 -> 201.0	31926	25.26	µg/L	98
		295.0 -> 84.9	8190			
PFMBA	4.878	279.0 -> 85.1	221121	24.97	µg/L	100
PFMPA	3.628	229.0 -> 84.9	194173	25.07	µg/L	100
PFEESA	6.083	314.8 -> 134.9	353987	22.42	µg/L	100
		314.8 -> 82.9	11637			

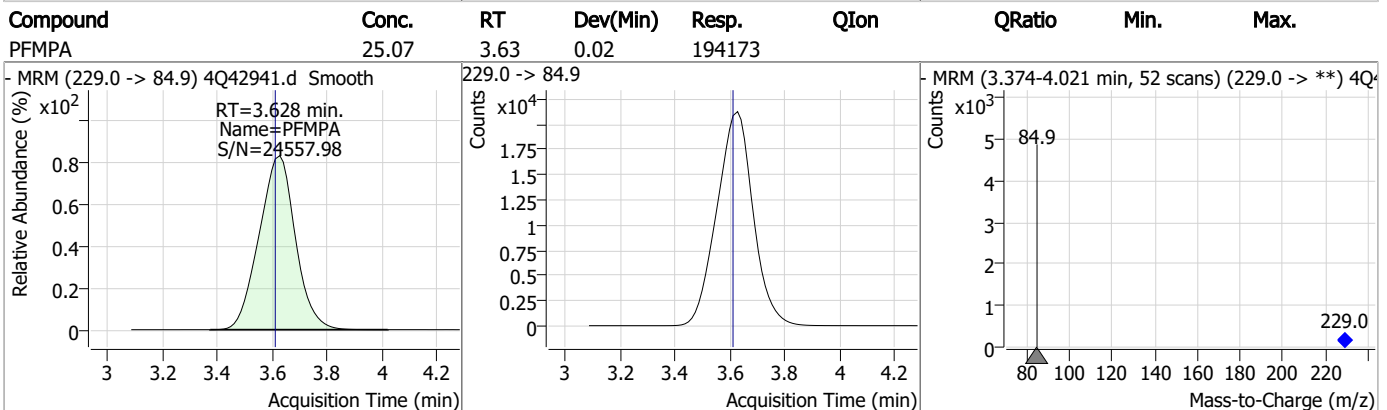
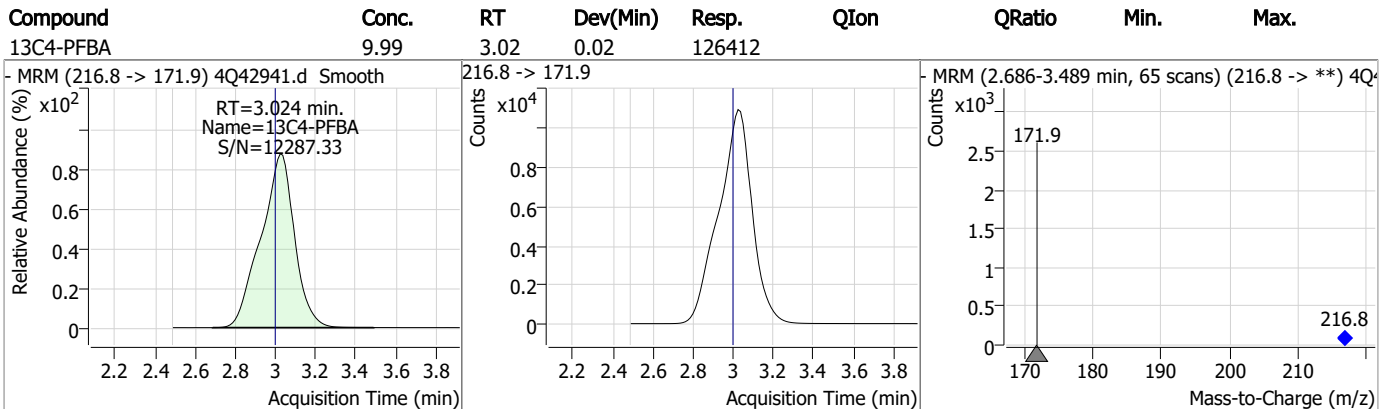
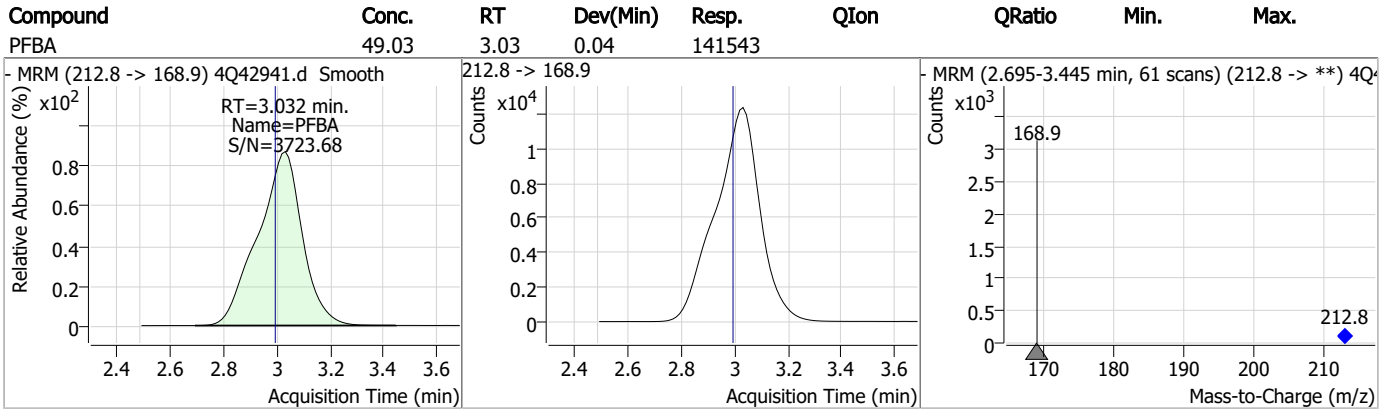
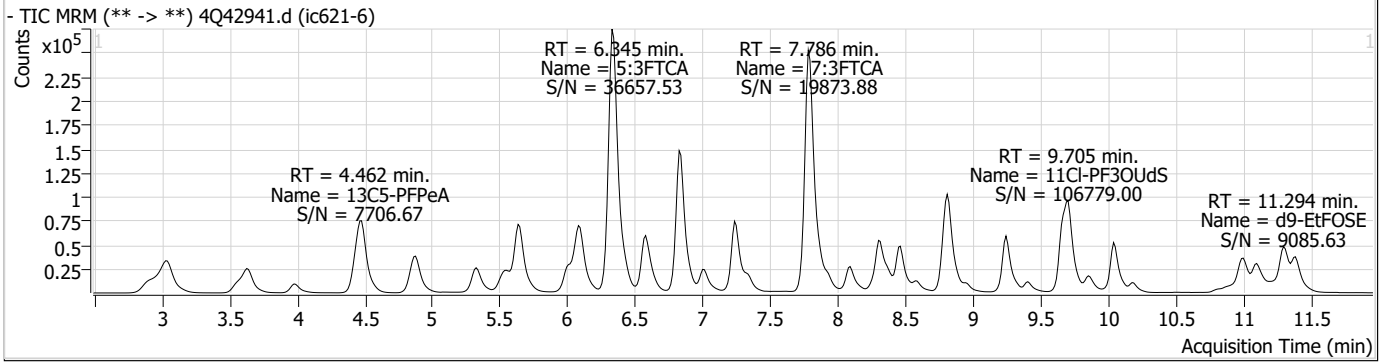
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

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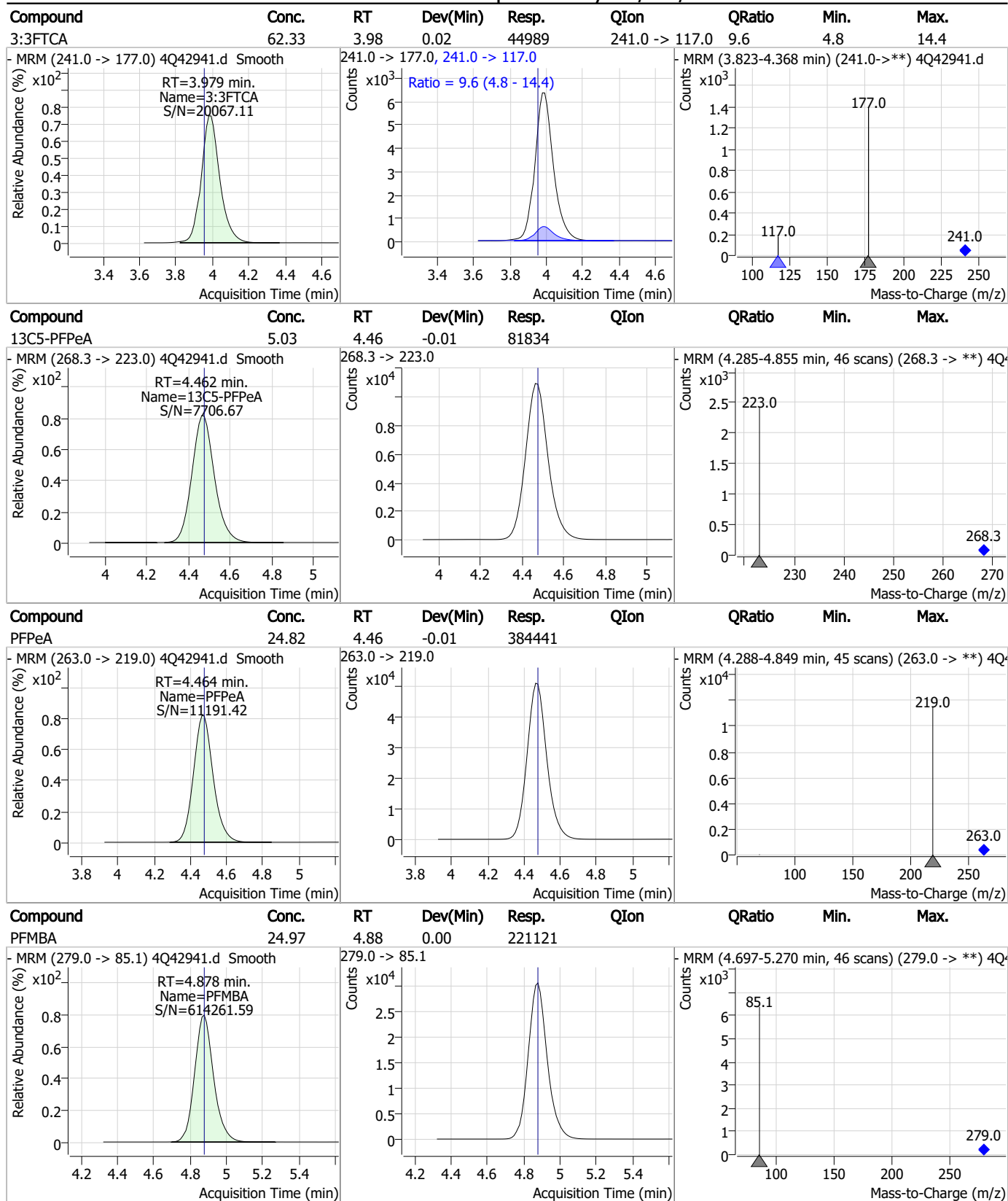
Perfluorinated Compounds by LC/MS/MS



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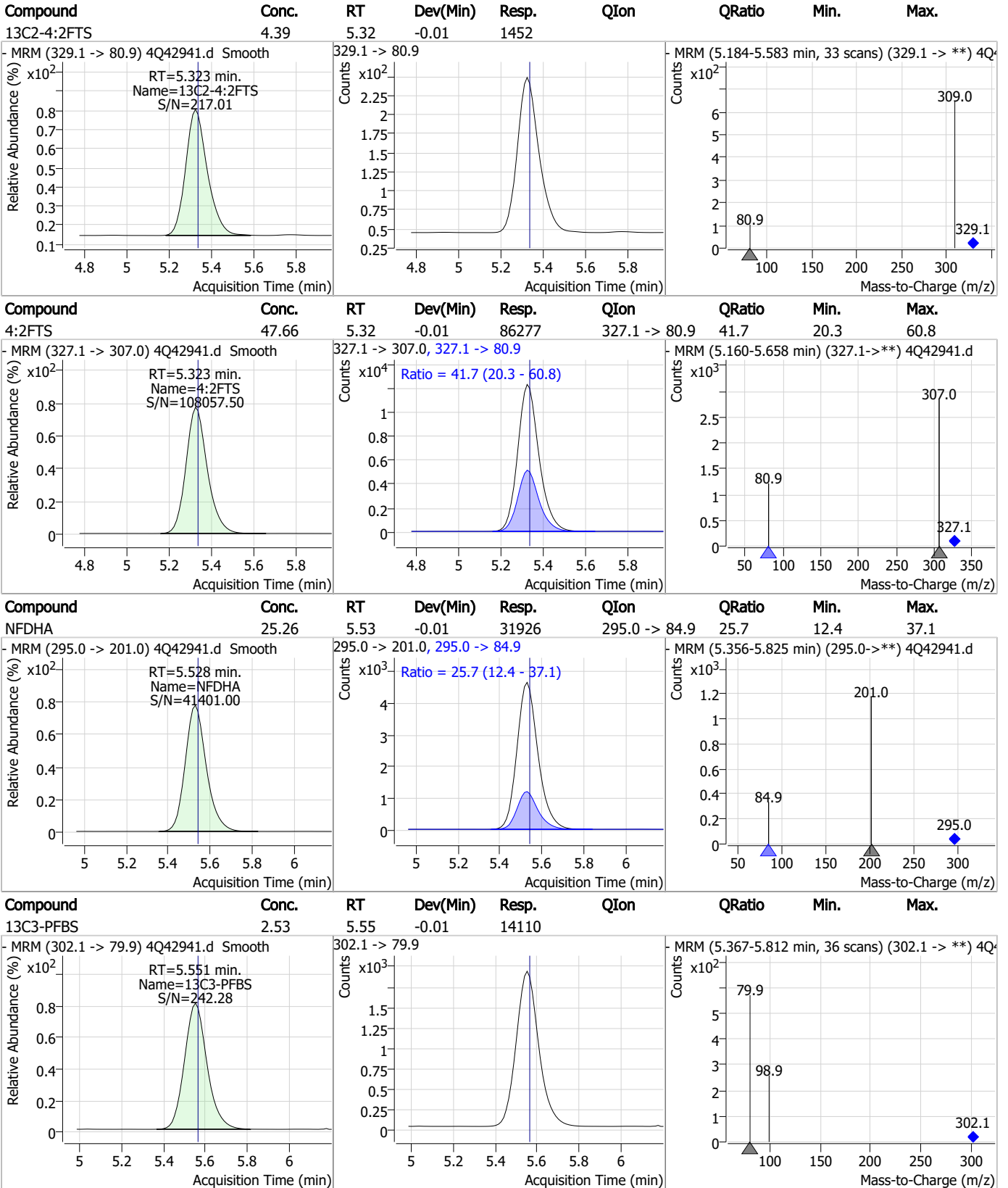
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Perfluorinated Compounds by LC/MS/MS



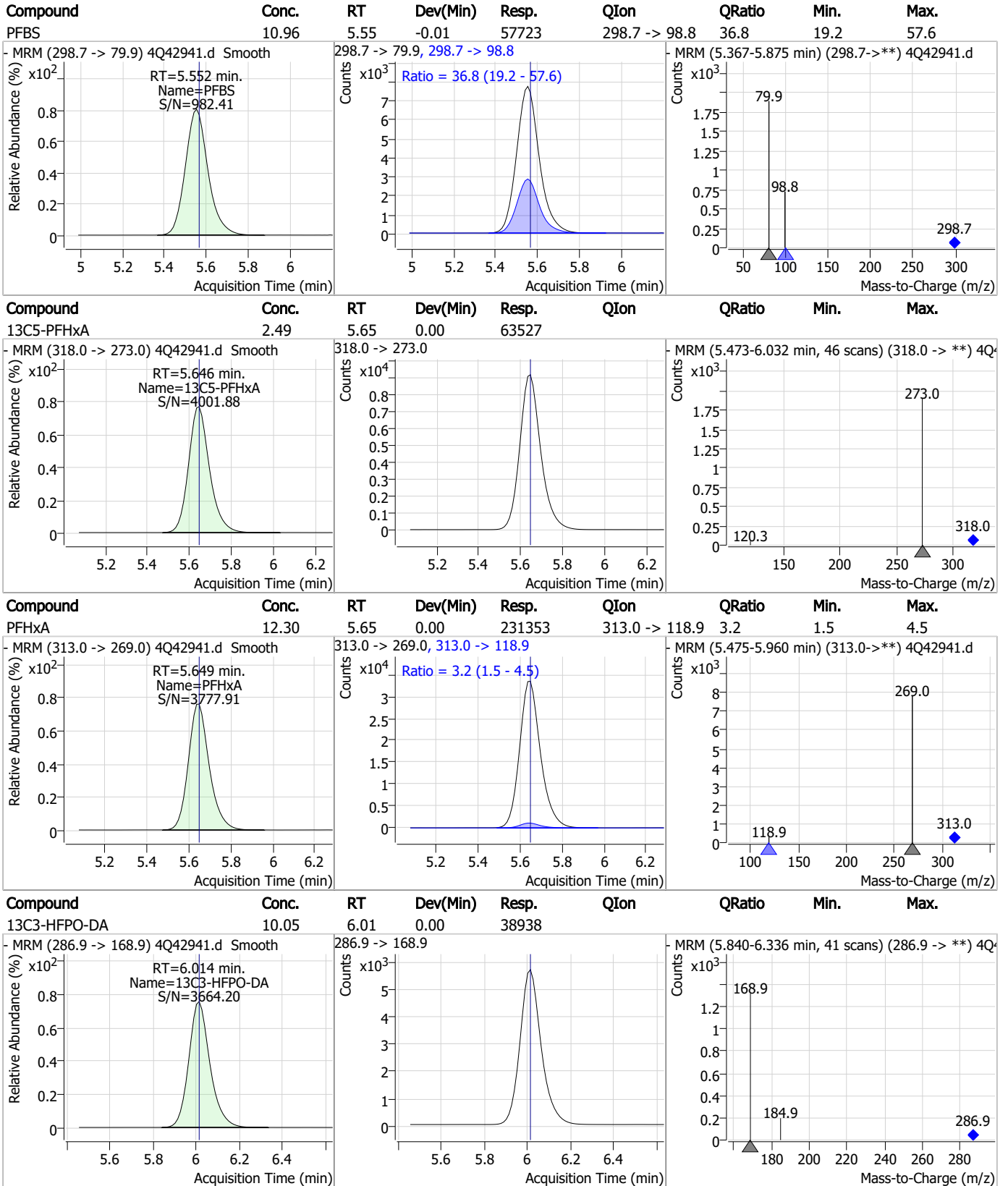
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Perfluorinated Compounds by LC/MS/MS



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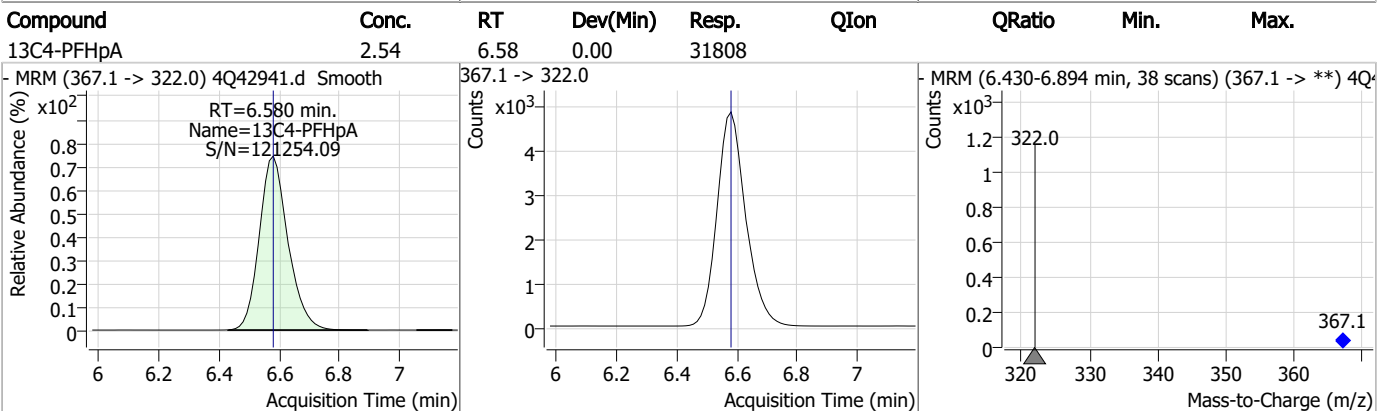
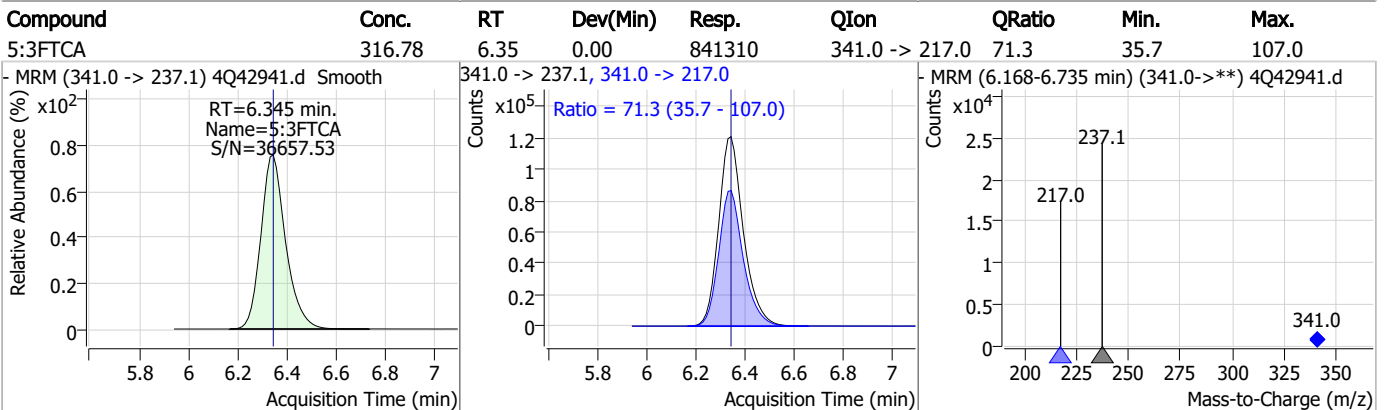
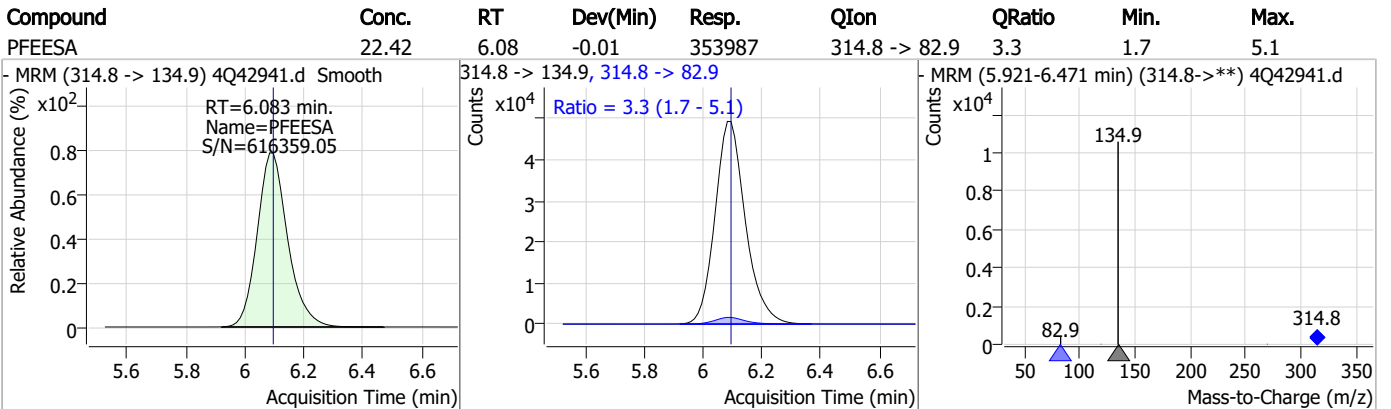
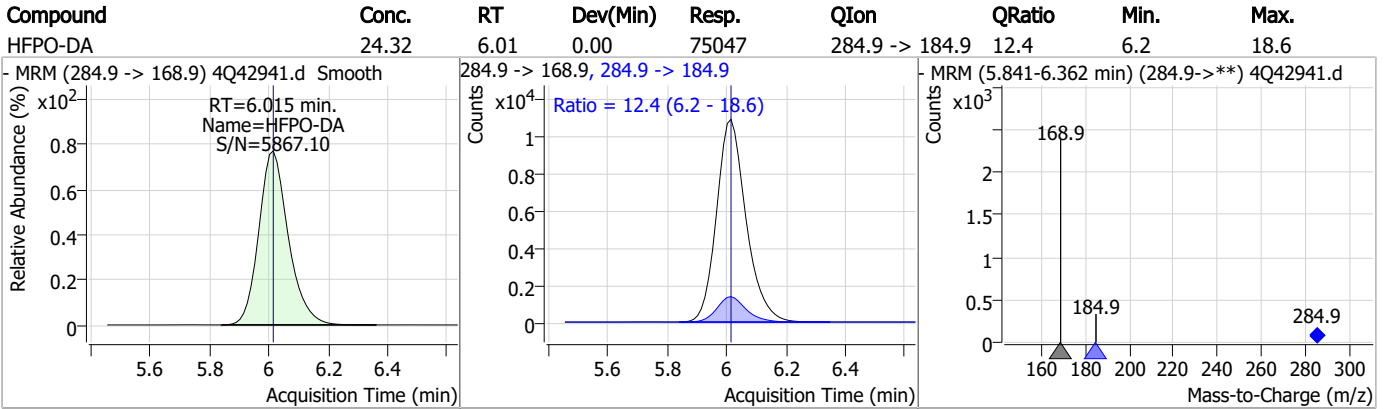
Perfluorinated Compounds by LC/MS/MS



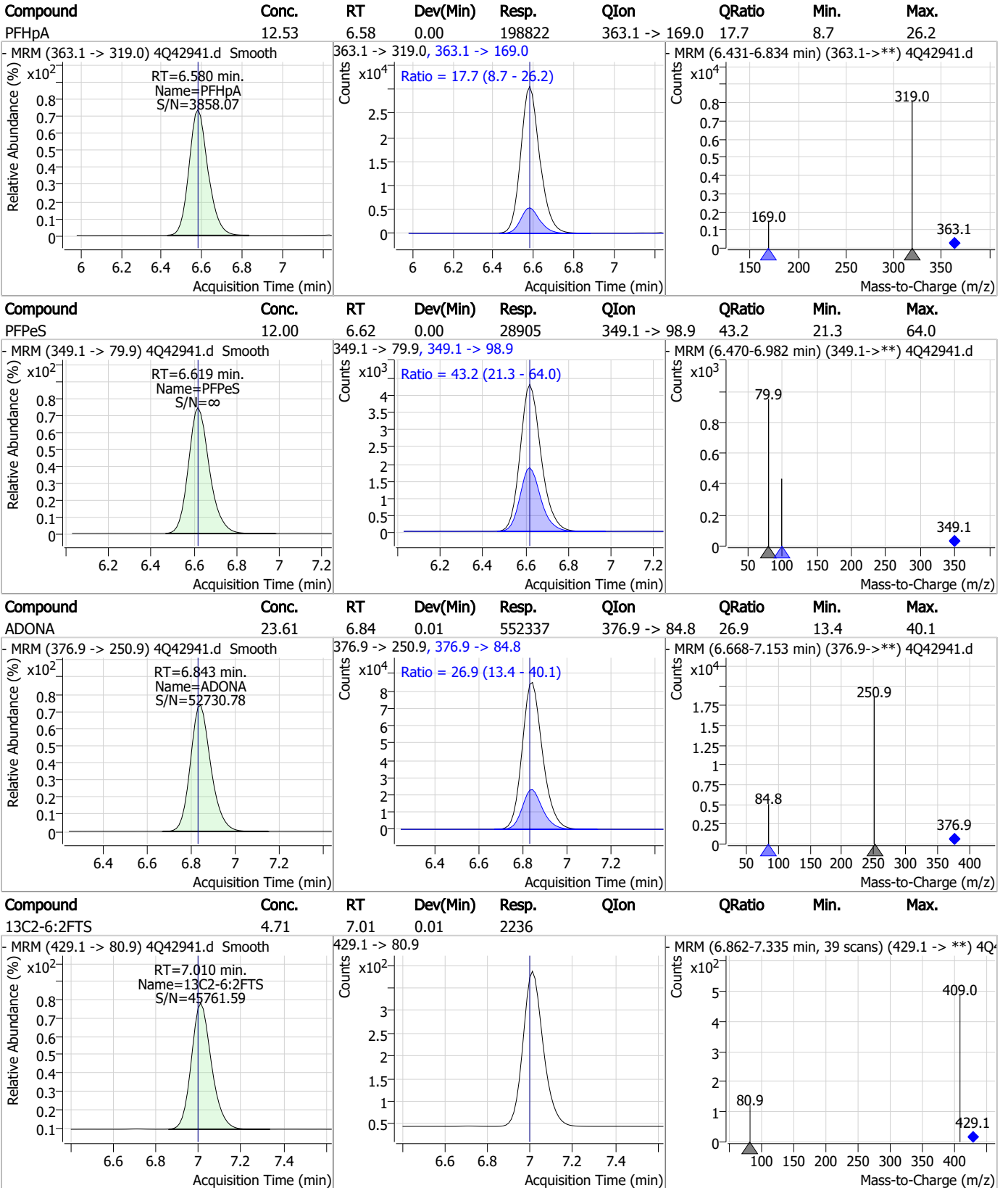
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Perfluorinated Compounds by LC/MS/MS



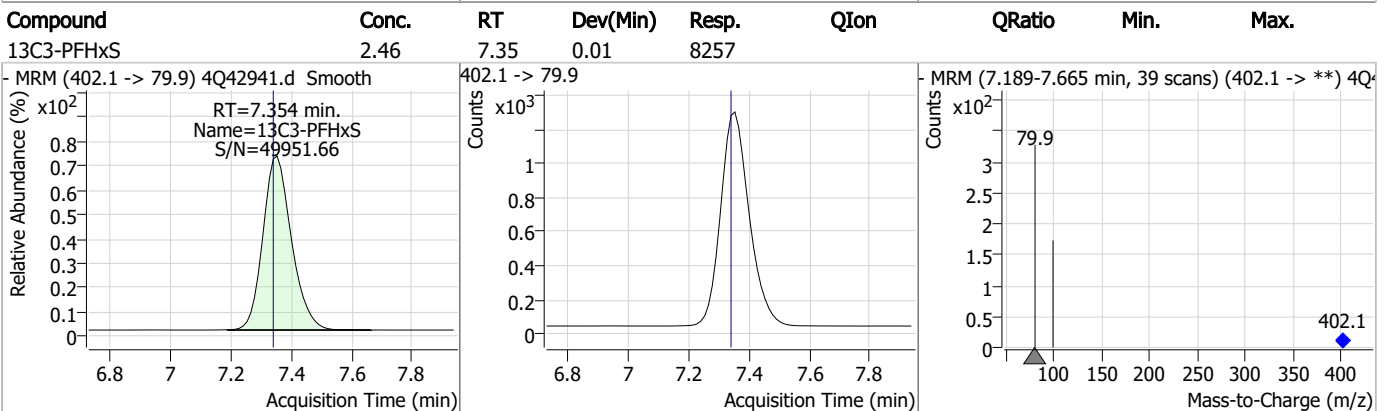
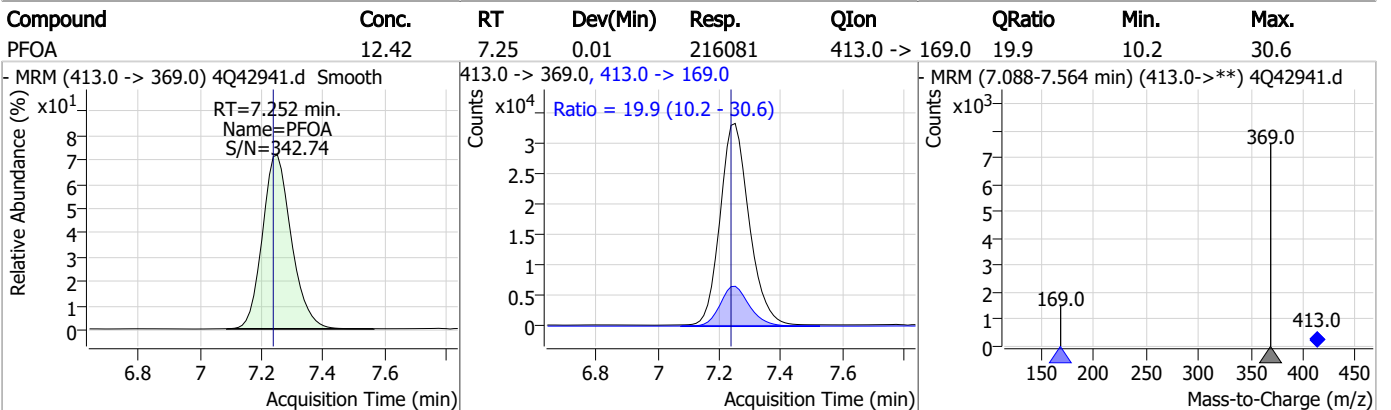
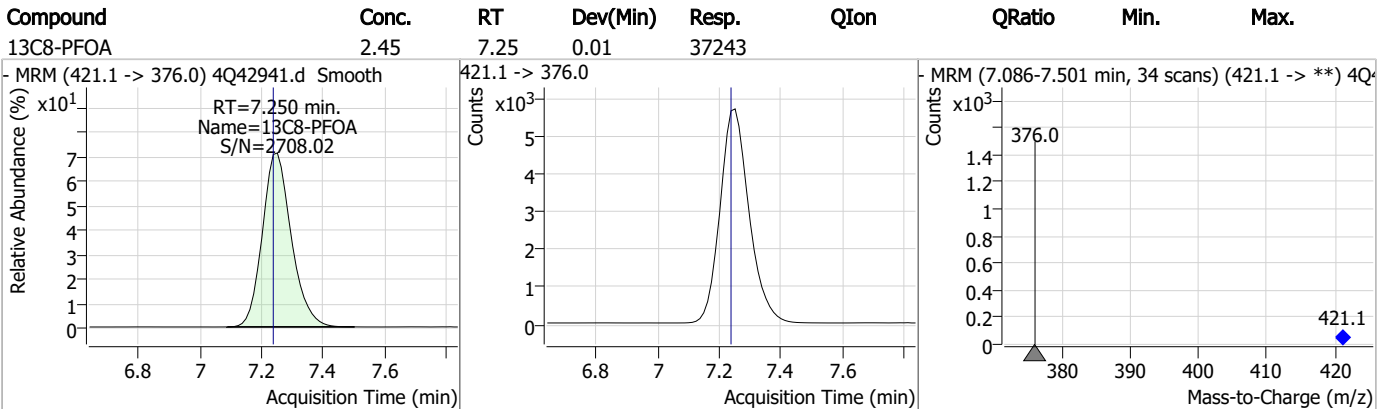
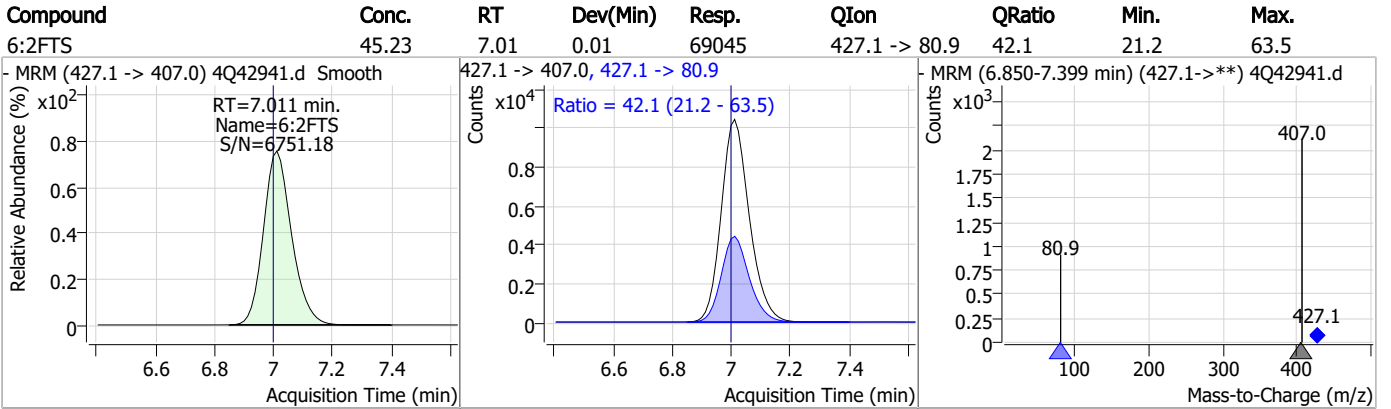
Perfluorinated Compounds by LC/MS/MS



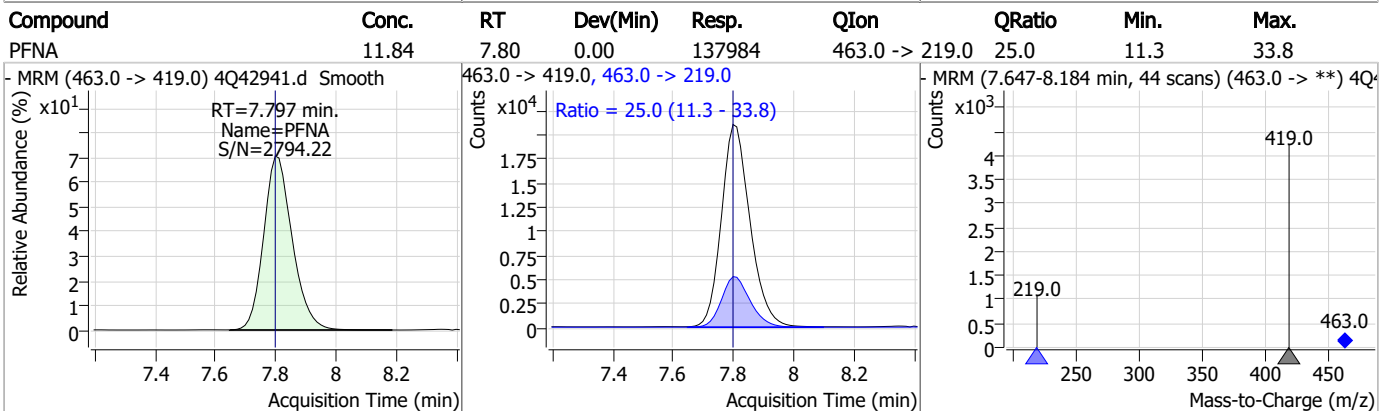
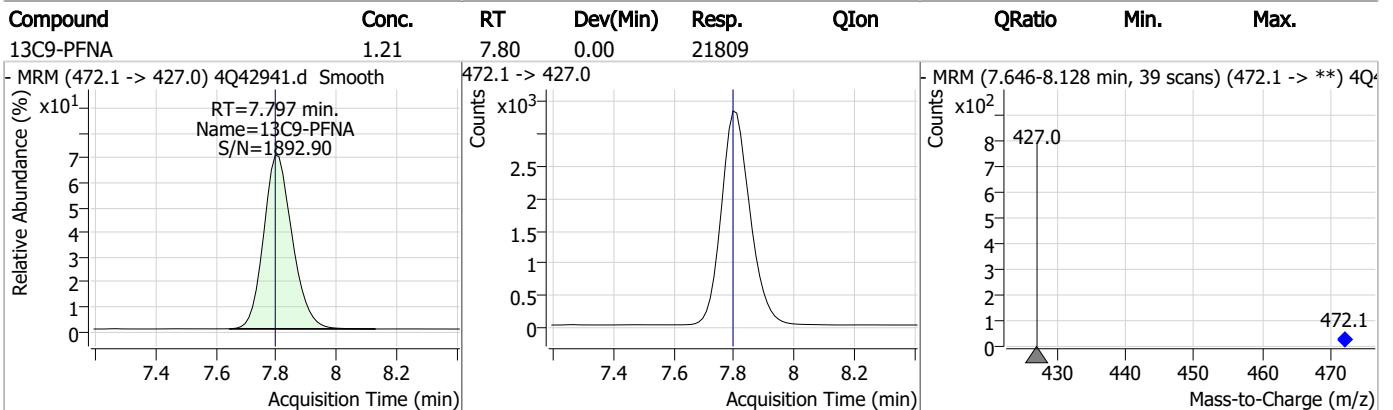
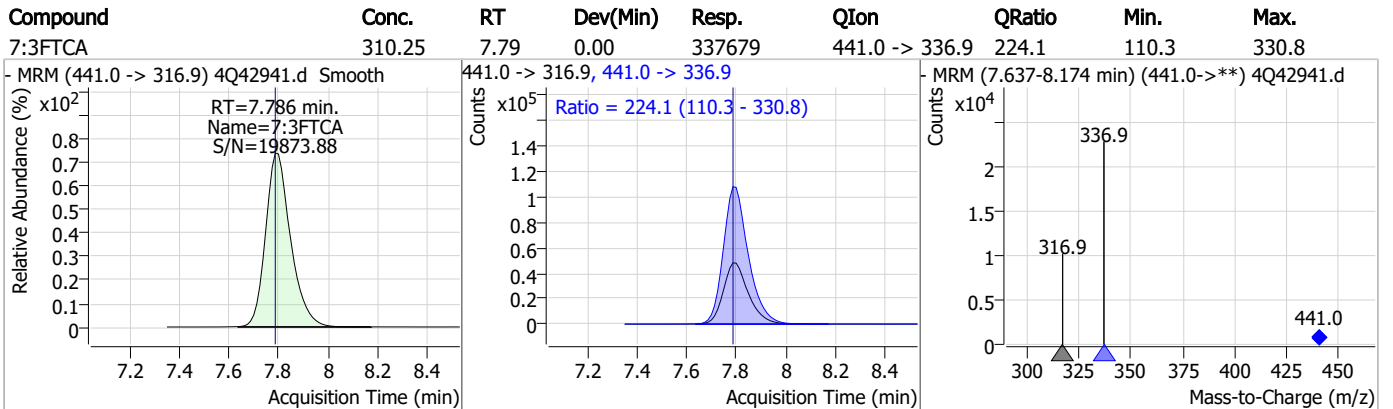
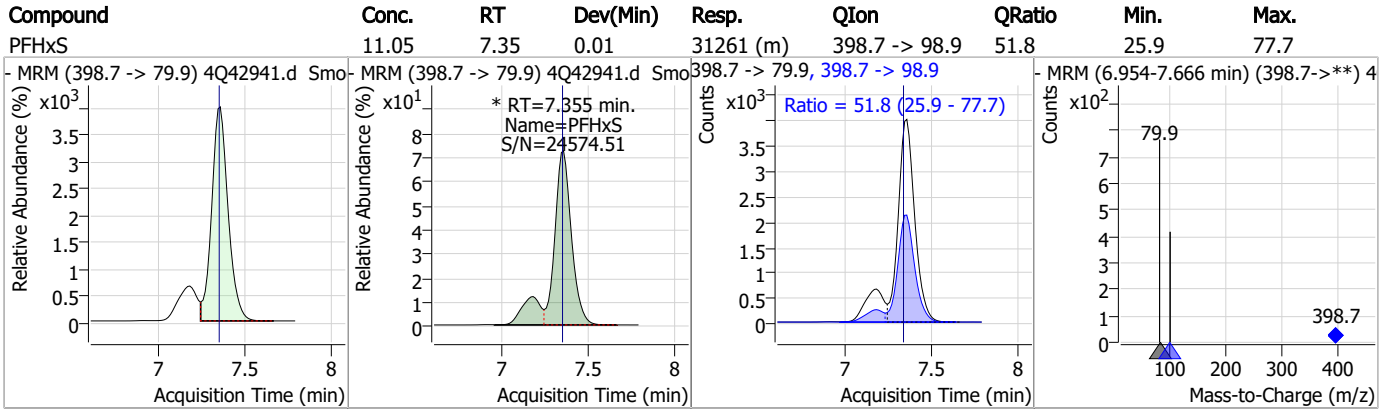
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Perfluorinated Compounds by LC/MS/MS



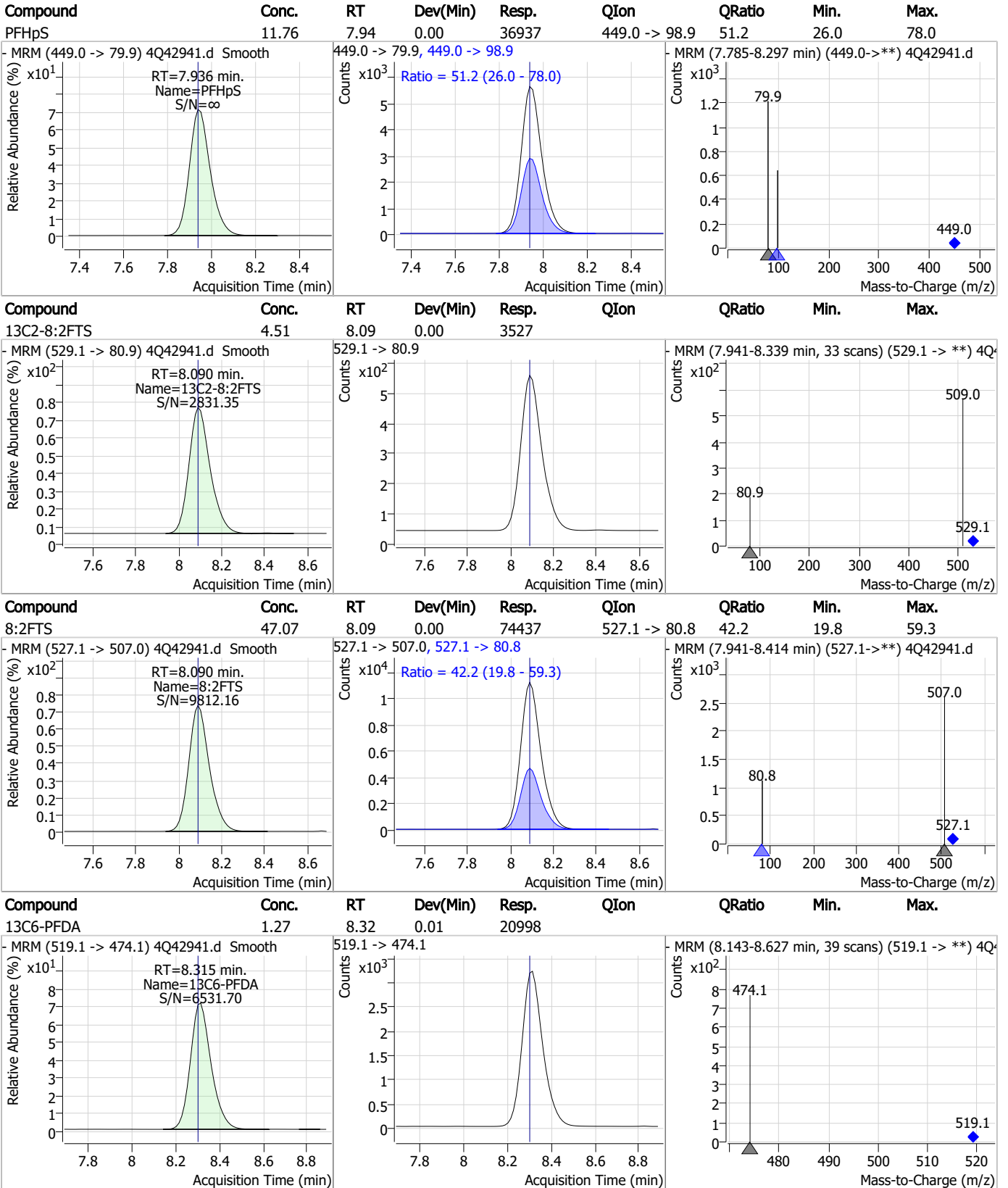
Perfluorinated Compounds by LC/MS/MS



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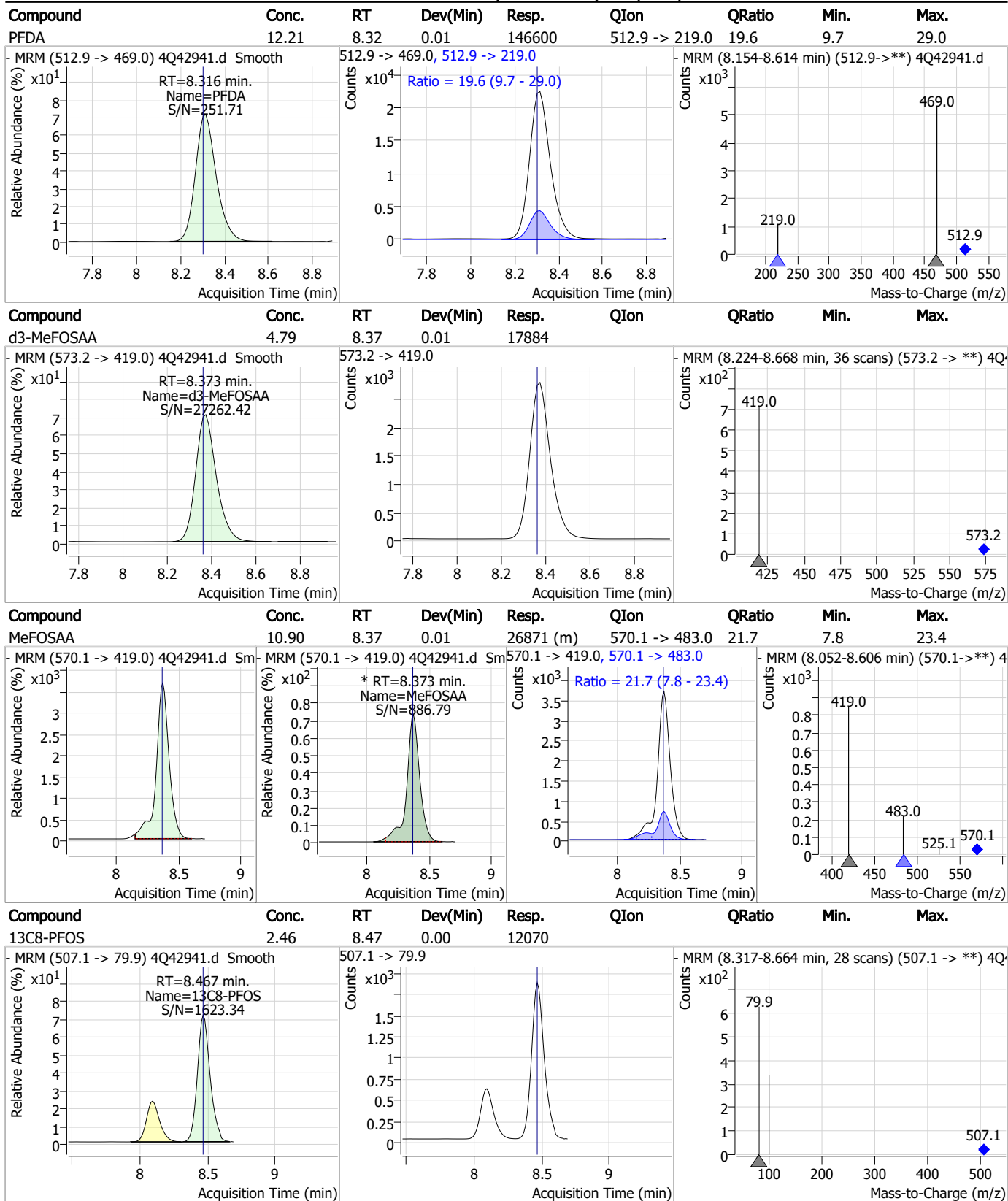
Perfluorinated Compounds by LC/MS/MS



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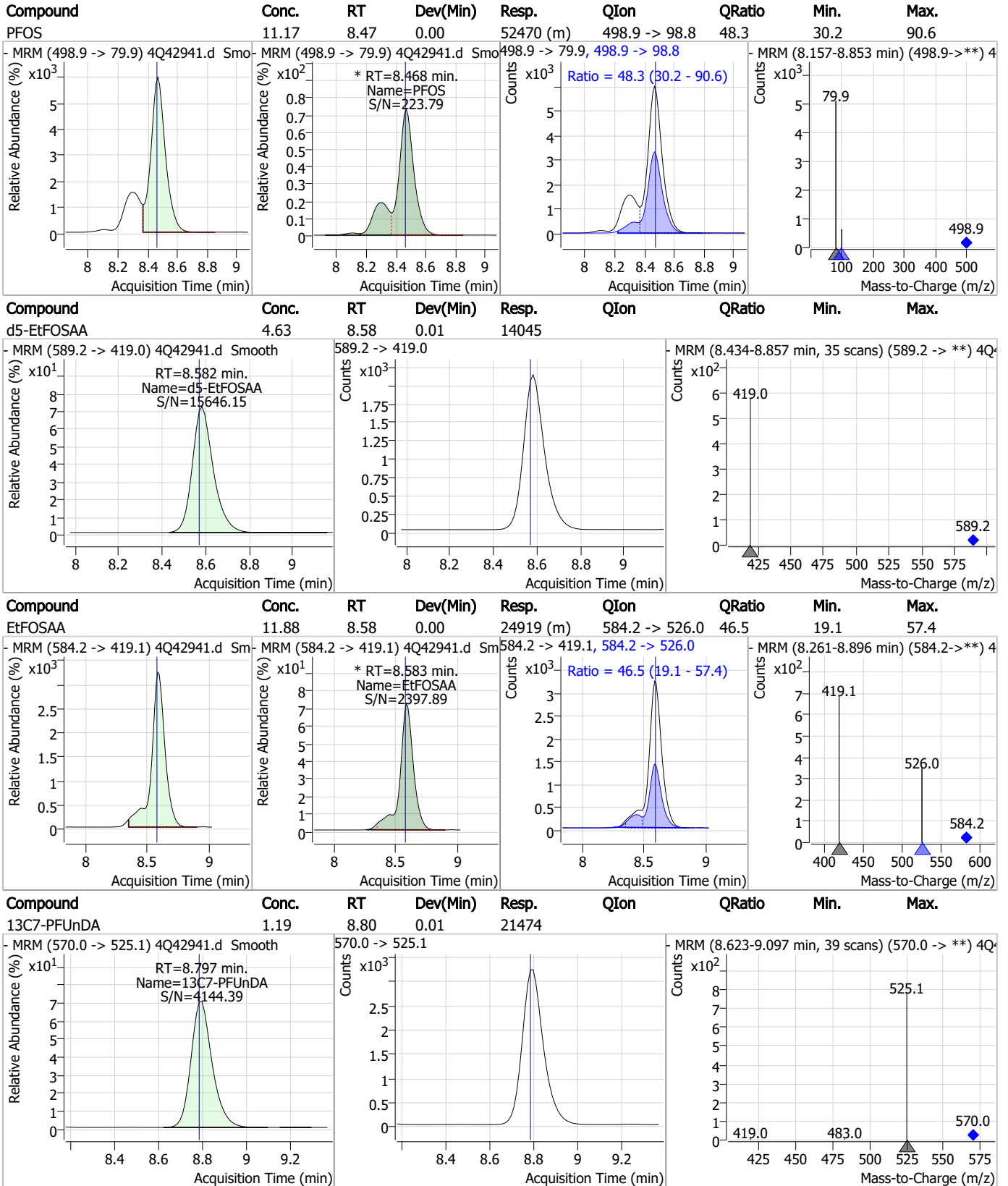
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Perfluorinated Compounds by LC/MS/MS



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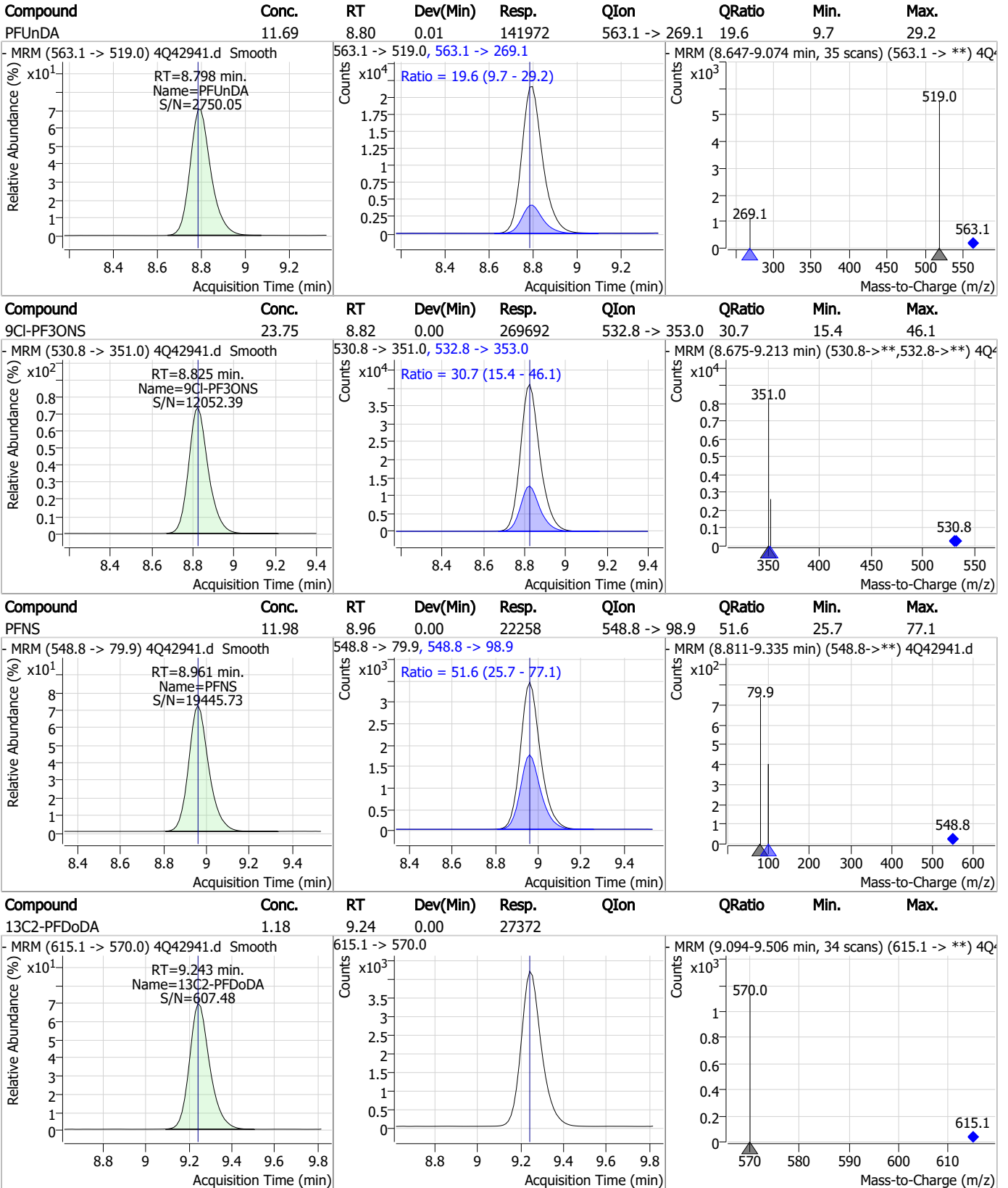
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

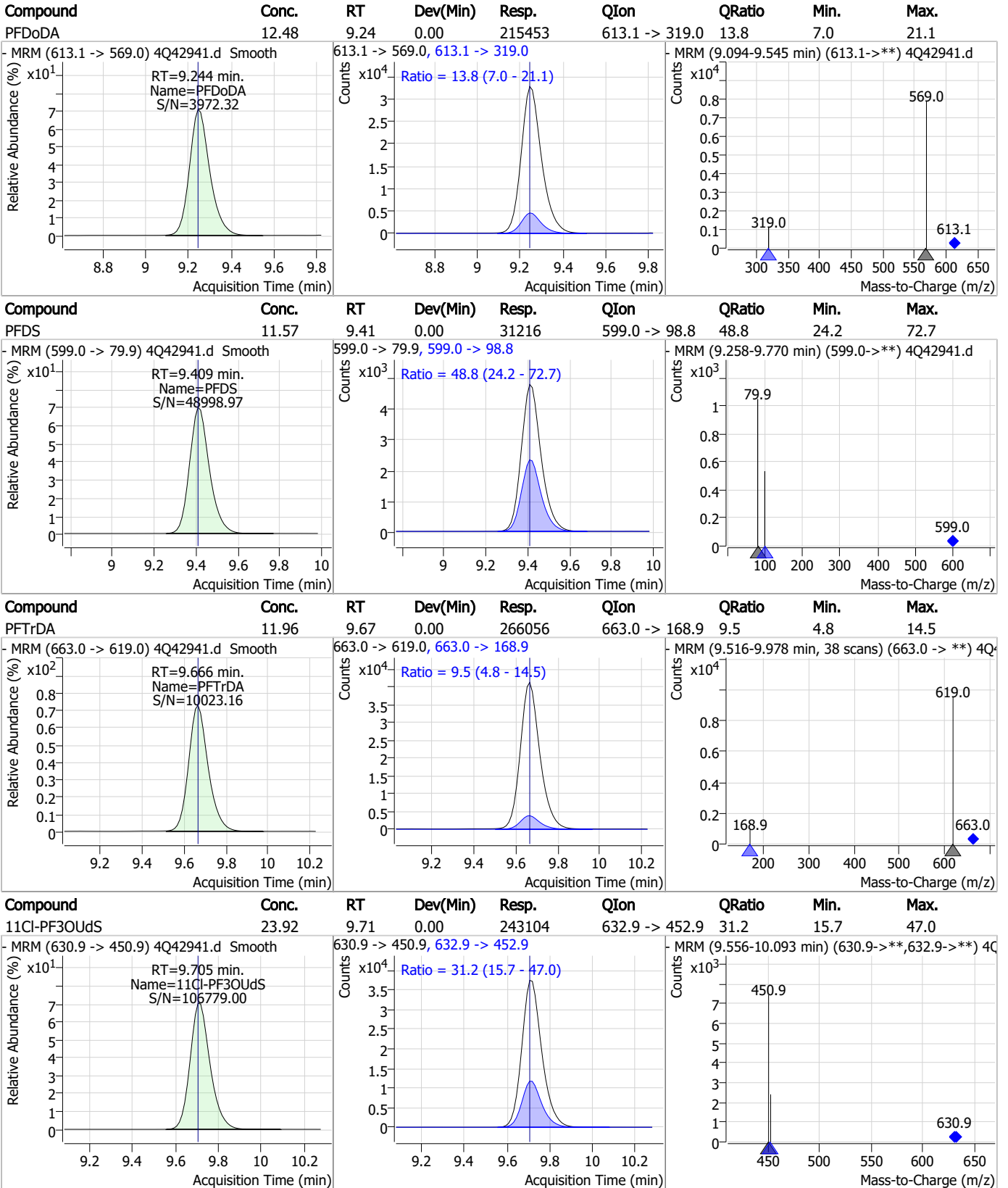


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Perfluorinated Compounds by LC/MS/MS

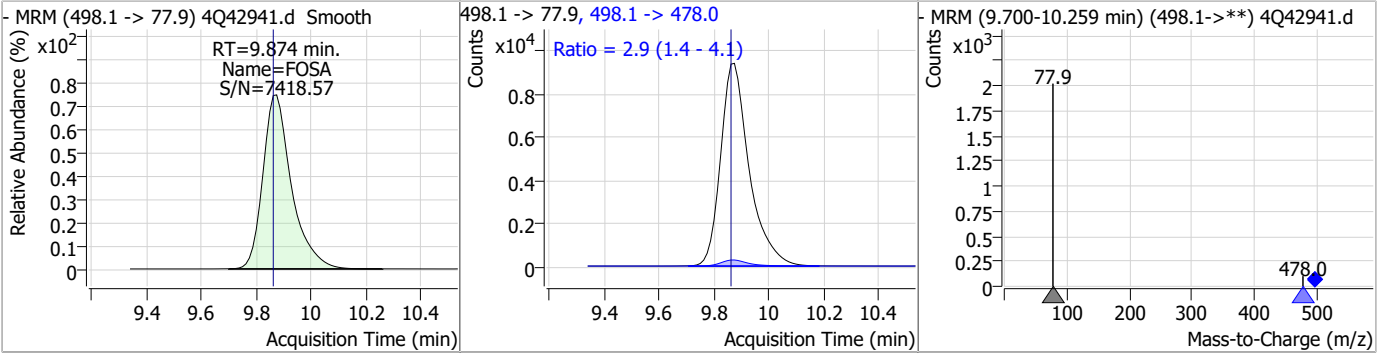


7.7.7
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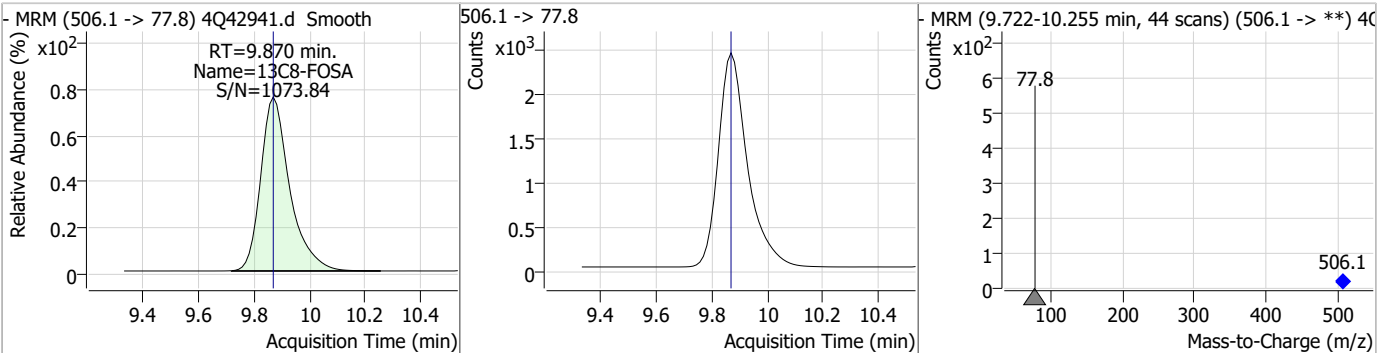


Perfluorinated Compounds by LC/MS/MS

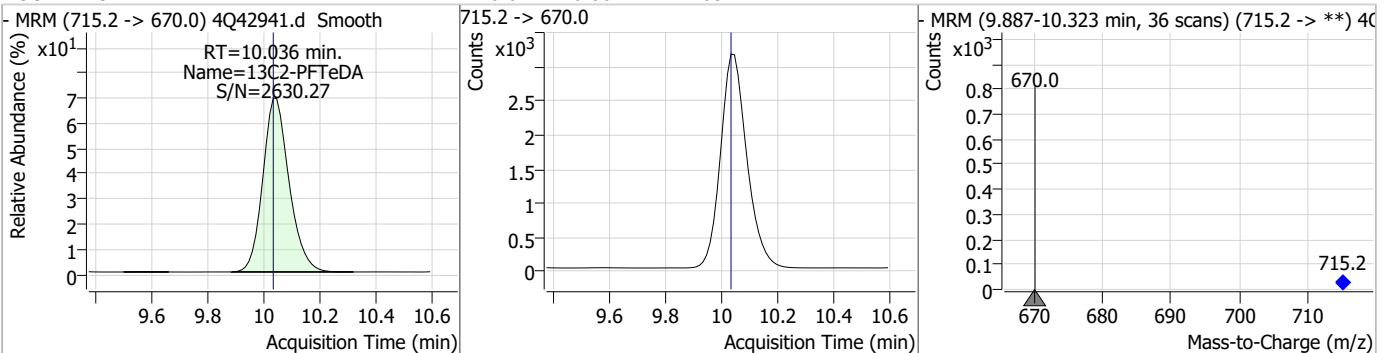
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	12.02	9.87	0.01	67848	498.1 -> 478.0	2.9	1.4	4.1



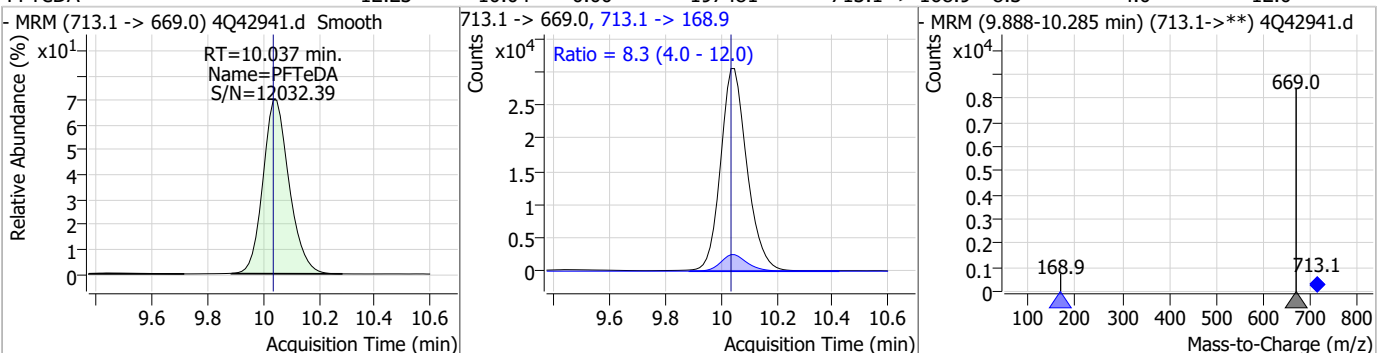
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.12	9.87	0.00	17533				



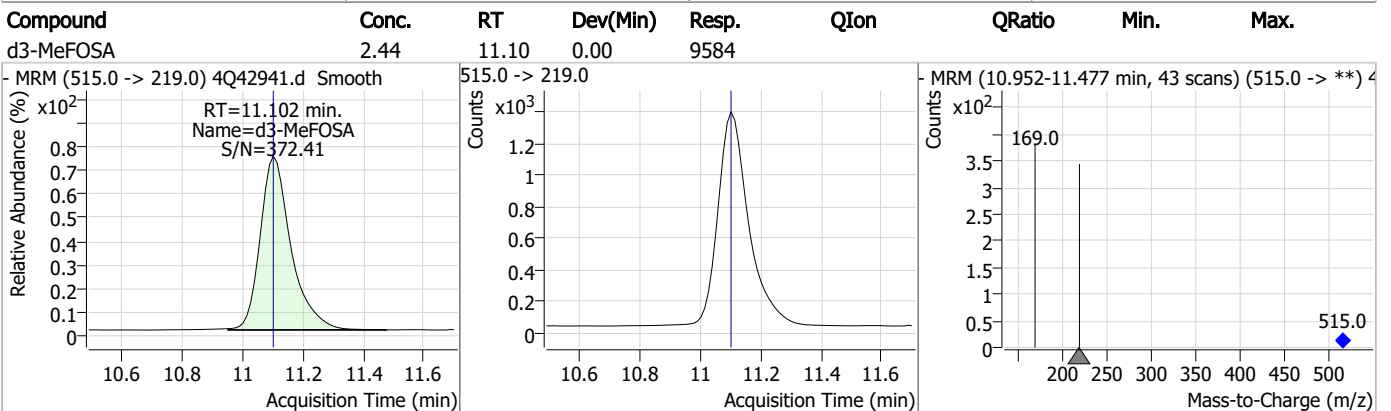
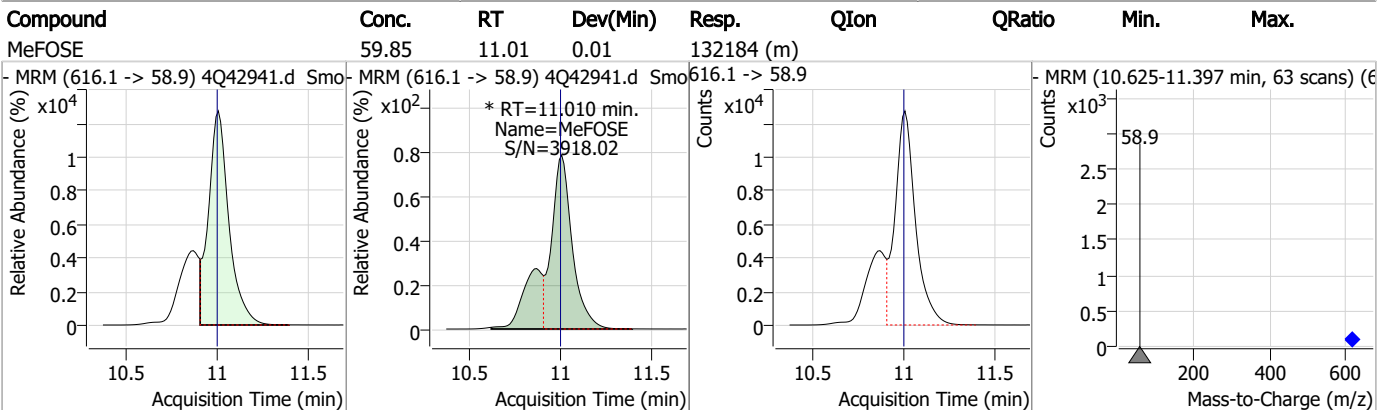
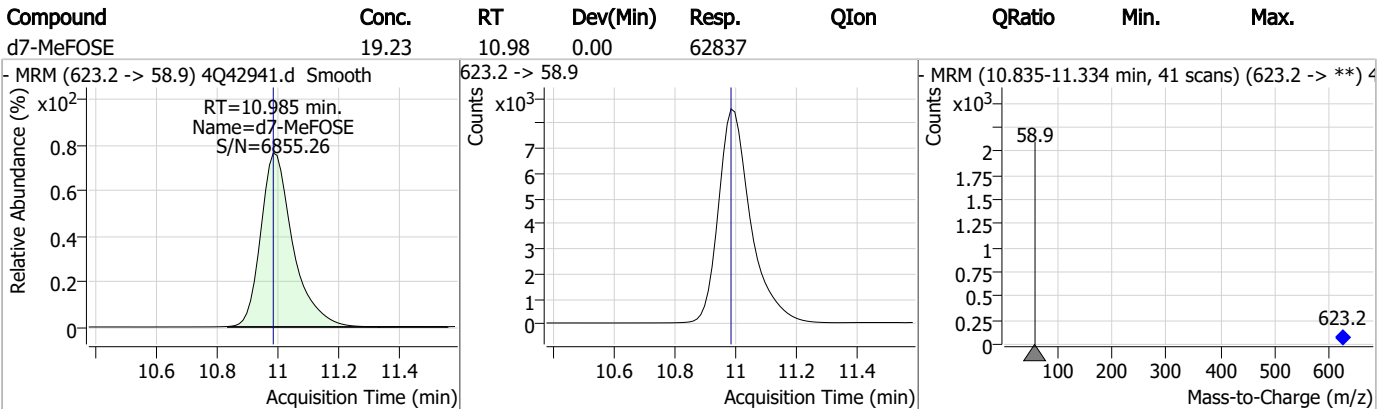
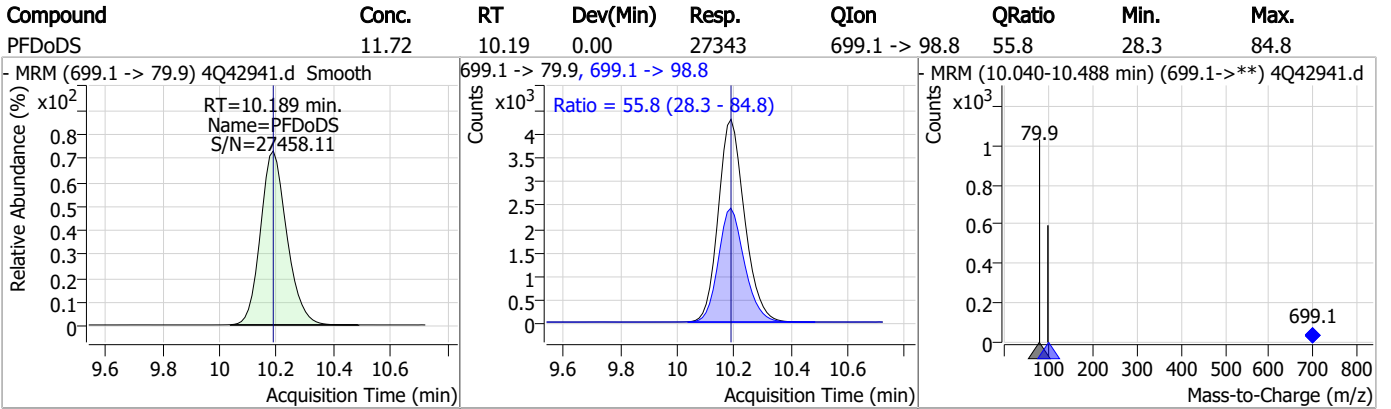
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.14	10.04	0.00	20512				



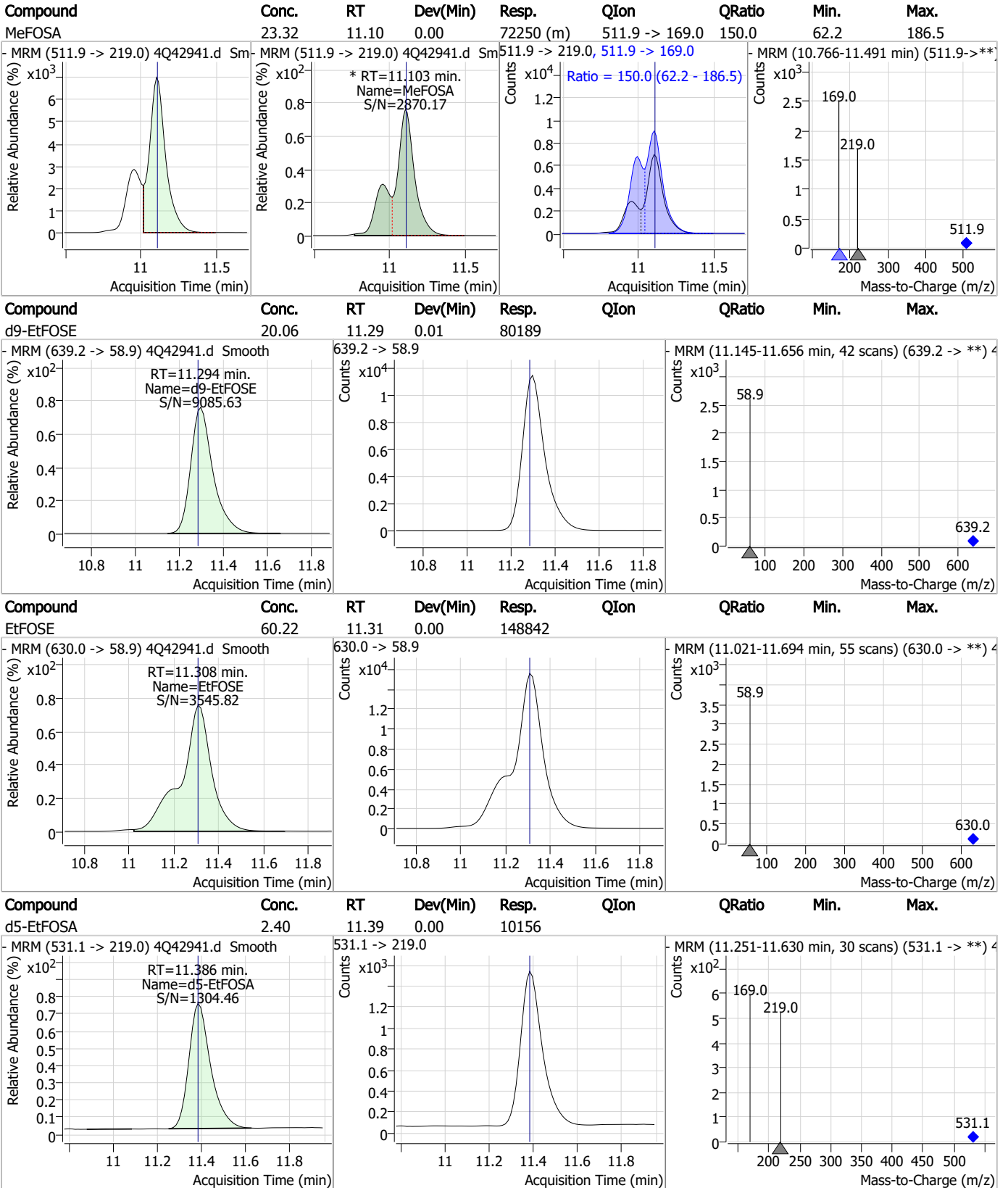
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	12.23	10.04	0.00	197481	713.1 -> 168.9	8.3	4.0	12.0



Perfluorinated Compounds by LC/MS/MS



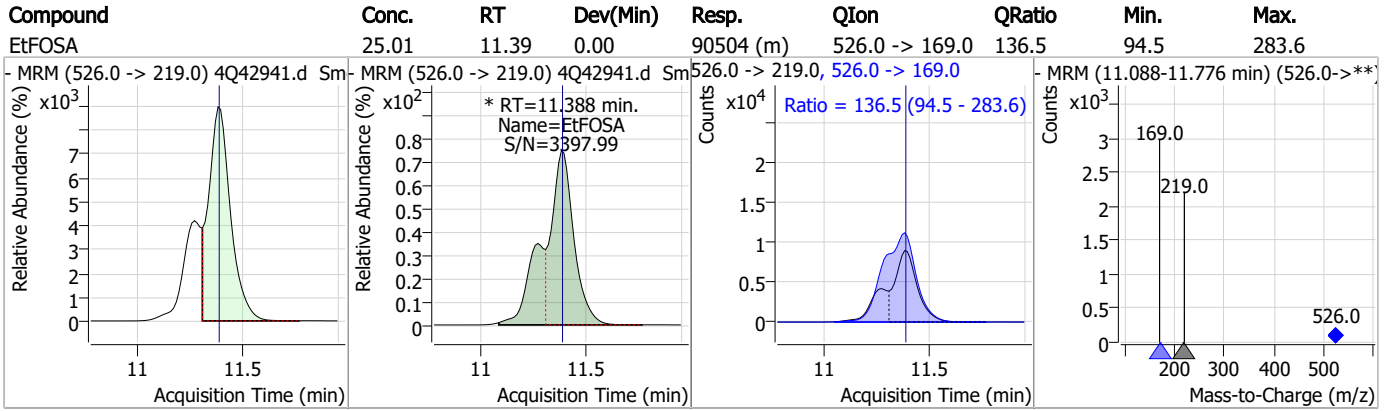
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q621-IC621 Method: EPA DRAFT 1633
Lab FileID: 4Q42941.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 13:09 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.58	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.7.1
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Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 04/17/23 14:32

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42942.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 1:23:33 PM
 Sample Name : ic621-7
 Vial : P1-A8
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.986	216.8 -> 171.9	102593	10.00 µg/L	-0.013
M5-PFPeA	4.475	268.3 -> 223.0	69460	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	56715	2.50 µg/L	0.012
M4-PFHpA	6.592	367.1 -> 322.0	26681	2.50 µg/L	0.012
M8-PFOA	7.250	421.1 -> 376.0	32514	2.50 µg/L	0.013
M9-PFNA	7.809	472.1 -> 427.0	17690	1.25 µg/L	0.012
M6-PFDA	8.315	519.1 -> 474.1	17039	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	18595	1.25 µg/L	0.012
M2-PFDoDA	9.255	615.1 -> 570.0	23332	1.25 µg/L	0.012
M2-PFTeDA	10.049	715.2 -> 670.0	17892	1.25 µg/L	0.012
M8-FOSA	9.870	506.1 -> 77.8	14752	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	11690	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	7094	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	10282	2.50 µg/L	0.000
M2-4:2FTS	5.348	329.1 -> 80.9	1223	5.00 µg/L	0.012
M2-6:2FTS	7.010	429.1 -> 80.9	1583	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3042	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	14817	5.00 µg/L	0.012
M3-HFPO-DA	6.026	286.9 -> 168.9	34783	10.00 µg/L	0.012
M5-EtFOSAA	8.582	589.2 -> 419.0	11616	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	53798	25.00 µg/L	0.000
M9-EtFOSE	11.294	639.2 -> 58.9	64655	25.00 µg/L	0.012
M5-EtFOSA	11.386	531.1 -> 219.0	8894	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	8039	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	10340	2.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	59199	5.00 µg/L	0.000
18O2-PFHxS	7.353	403.0 -> 83.9	5192	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	39776	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	15282	1.25 µg/L	0.012
13C5-PFNA	7.809	468.0 -> 423.0	20720	1.25 µg/L	0.012
13C2-PFHxA	5.660	315.1 -> 270.0	48967	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.348	329.1 -> 80.9	1223	4.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.3%		
13C2-6:2FTS	7.010	429.1 -> 80.9	1583	3.89 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 77.8%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3042	4.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.8%		
13C2-PFDoDA	9.255	615.1 -> 570.0	23332	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C2-PFTeDA	10.049	715.2 -> 670.0	17892	1.22 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-PFBS	5.564	302.1 -> 79.9	11690	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C3-PFHxS	7.354	402.1 -> 79.9	7094	2.47 µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C4-PFBA	2.986	216.8 -> 171.9	102593	9.95 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.592	367.1 -> 322.0	26681	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C5-PFHxA	5.659	318.0 -> 273.0	56715	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFPeA	4.475	268.3 -> 223.0	69460	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C6-PFDA	8.315	519.1 -> 474.1	17039	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C7-PFUnDA	8.797	570.0 -> 525.1	18595	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-FOSA	9.870	506.1 -> 77.8	14752	2.18 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.3%	
13C8-PFOA	7.250	421.1 -> 376.0	32514	2.48 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C8-PFOS	8.467	507.1 -> 79.9	10282	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C9-PFNA	7.809	472.1 -> 427.0	17690	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.7%	
d3-MeFOSAA	8.373	573.2 -> 419.0	14817	4.87 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	34783	10.12 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
d3-MeFOSA	11.102	515.0 -> 219.0	8039	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
d5-EtFOSAA	8.582	589.2 -> 419.0	11616	4.69 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
d7-MeFOSE	10.985	623.2 -> 58.9	53798	20.17 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.7%	
d9-EtFOSE	11.294	639.2 -> 58.9	64655	19.81 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.3%	
d5-EtFOSA	11.386	531.1 -> 219.0	8894	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0 327.1 -> 80.9	149113 62168	97.77 µg/L	98
6:2FTS	7.011	427.1 -> 407.0 427.1 -> 80.9	118873 50766	110.00 µg/L	99
8:2FTS	8.090	527.1 -> 507.0 527.1 -> 80.8	130148 52682	95.42 µg/L	98
EtFOSAA	8.595	584.2 -> 419.1 584.2 -> 526.0	46615 22537	26.86 µg/L	m 83
FOSA	9.874	498.1 -> 77.9 498.1 -> 478.0	128381 3676	27.03 µg/L	100
MeFOSAA	8.373	570.1 -> 419.0 570.1 -> 483.0	51741 11601	25.34 µg/L	m 84
PFBA	2.982	212.8 -> 168.9	255389	109.00 µg/L	100
PFBS	5.565	298.7 -> 79.9 298.7 -> 98.8	108008 41796	24.76 µg/L	100
PFDA	8.316	512.9 -> 469.0 512.9 -> 219.0	275937 54317	28.32 µg/L	99
PFDoDA	9.256	613.1 -> 569.0 613.1 -> 319.0	400458 56638	27.22 µg/L	100
PFDS	9.421	599.0 -> 79.9	58904	25.62 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	29103			
PFHpA	6.593	363.1 -> 319.0	378304	28.42	µg/L	99
		363.1 -> 169.0	67836			
PFHpS	7.936	449.0 -> 79.9	70063	26.18	µg/L	100
		449.0 -> 98.9	36405			
PFHxA	5.662	313.0 -> 269.0	444401	26.47	µg/L	100
		313.0 -> 118.9	13168			
PFHxS	7.355	398.7 -> 79.9	61105	25.14	µg/L	m 98
		398.7 -> 98.9	30890			
PFNA	7.810	463.0 -> 419.0	259527	27.44	µg/L	95
		463.0 -> 219.0	64719			
PFNS	8.961	548.8 -> 79.9	43695	27.61	µg/L	97
		548.8 -> 98.9	21676			
PFOA	7.252	413.0 -> 369.0	409809	26.98	µg/L	100
		413.0 -> 169.0	83910			
PFOS	8.468	498.9 -> 79.9	96521	24.12	µg/L	m 85
		498.9 -> 98.8	47000			
PFPeA	4.477	263.0 -> 219.0	722329	54.94	µg/L	100
PFPeS	6.619	349.1 -> 79.9	54365	26.28	µg/L	99
		349.1 -> 98.9	23502			
PFTeDA	10.050	713.1 -> 669.0	367233	26.07	µg/L	100
		713.1 -> 168.9	29972			
PFTrDA	9.666	663.0 -> 619.0	483565	25.51	µg/L	100
		663.0 -> 168.9	46443			
PFUnDA	8.798	563.1 -> 519.0	273178	25.97	µg/L	98
		563.1 -> 269.1	51378			
11Cl-PF3OUdS	9.718	630.9 -> 450.9	444453	48.96	µg/L	100
		632.9 -> 452.9	138808			
9Cl-PF3ONS	8.825	530.8 -> 351.0	525108	51.78	µg/L	99
		532.8 -> 353.0	158417			
ADONA	6.843	376.9 -> 250.9	1045774	50.05	µg/L	99
		376.9 -> 84.8	284110			
HFPO-DA	6.027	284.9 -> 168.9	146599	53.18	µg/L	99
		284.9 -> 184.9	17473			
3:3FTCA	3.954	241.0 -> 177.0	85991	140.36	µg/L	99
		241.0 -> 117.0	8070			
5:3FTCA	6.345	341.0 -> 237.1	1585312	668.61	µg/L	100
		341.0 -> 217.0	1136011			
7:3FTCA	7.786	441.0 -> 316.9	638400	656.99	µg/L	100
		441.0 -> 336.9	1407835			
EtFOSA	11.388	526.0 -> 219.0	170980	53.95	µg/L	m 63
		526.0 -> 169.0	230636			
EtFOSE	11.308	630.0 -> 58.9	269944	135.46	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	138850	53.42	µg/L	m 81
		511.9 -> 169.0	202913			
MeFOSE	11.010	616.1 -> 58.9	248200	131.27	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	51354	25.83	µg/L	100
		699.1 -> 98.8	28999			
NFDHA	5.541	295.0 -> 201.0	58788	52.09	µg/L	100
		295.0 -> 84.9	14454			
PFMBA	4.891	279.0 -> 85.1	414238	55.10	µg/L	100
PFMPA	3.598	229.0 -> 84.9	362117	55.07	µg/L	100
PFEESA	6.096	314.8 -> 134.9	676104	47.96	µg/L	100
		314.8 -> 82.9	22203			

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

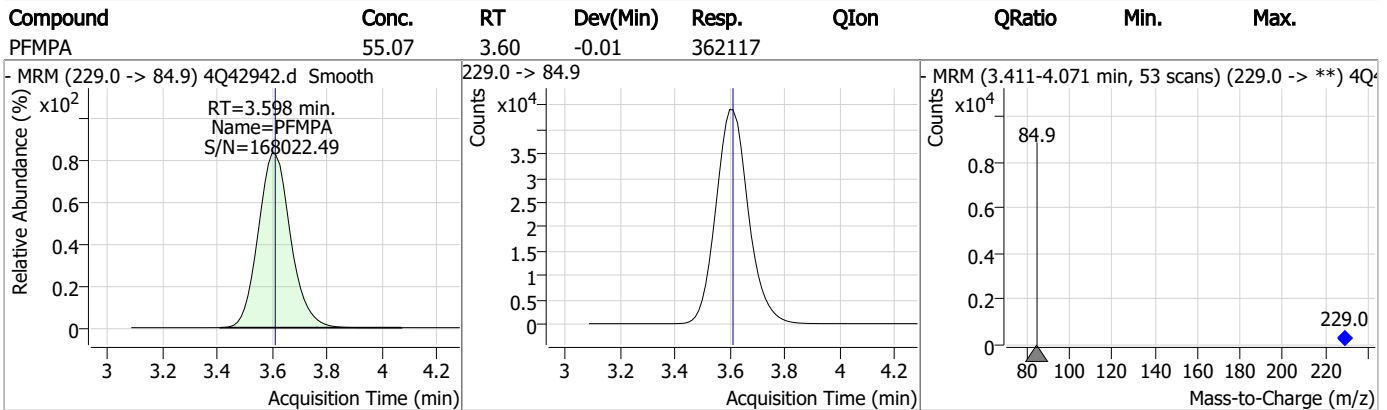
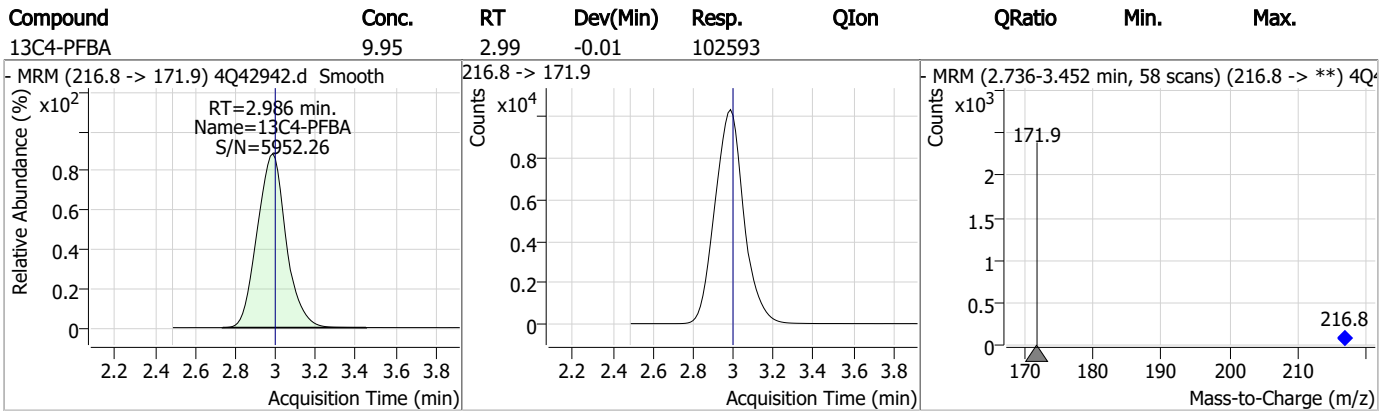
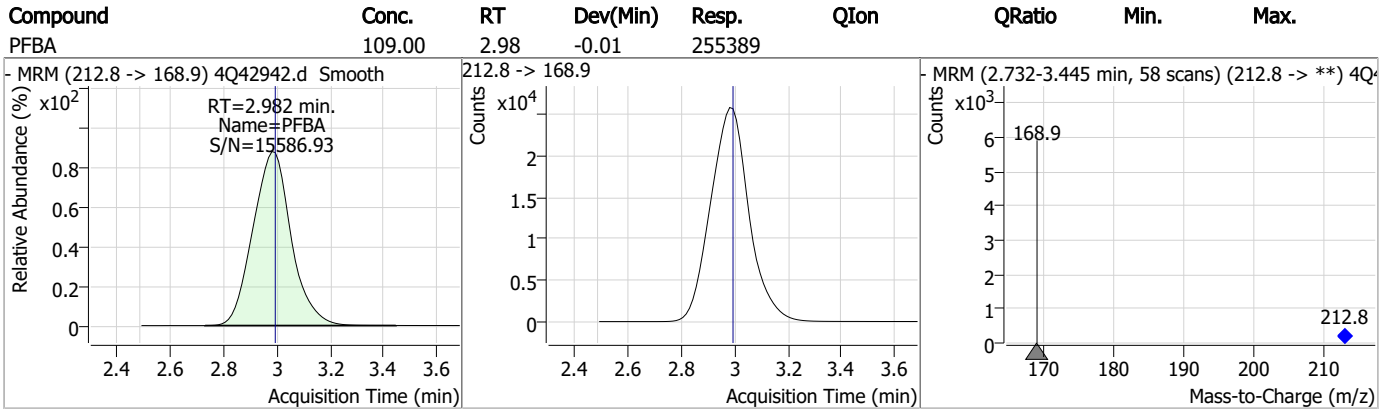
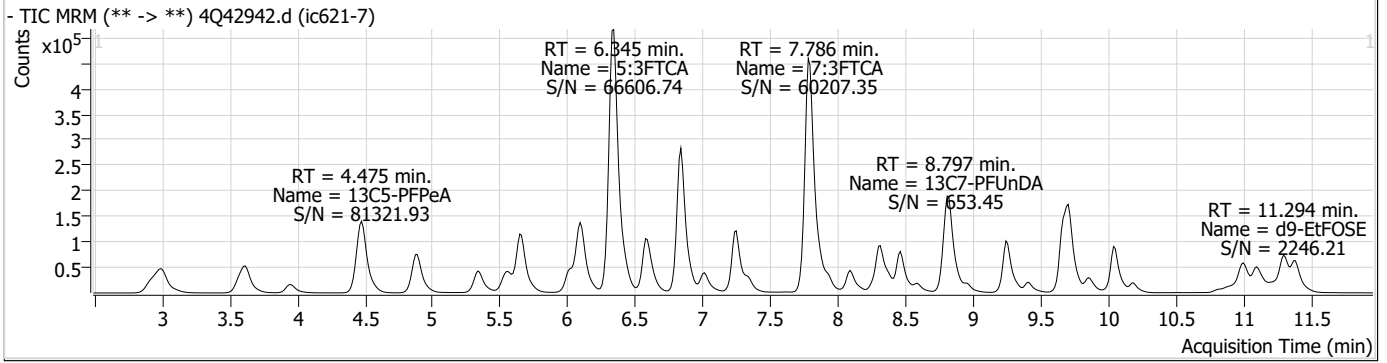
Perfluorinated Compounds by LC/MS/MS

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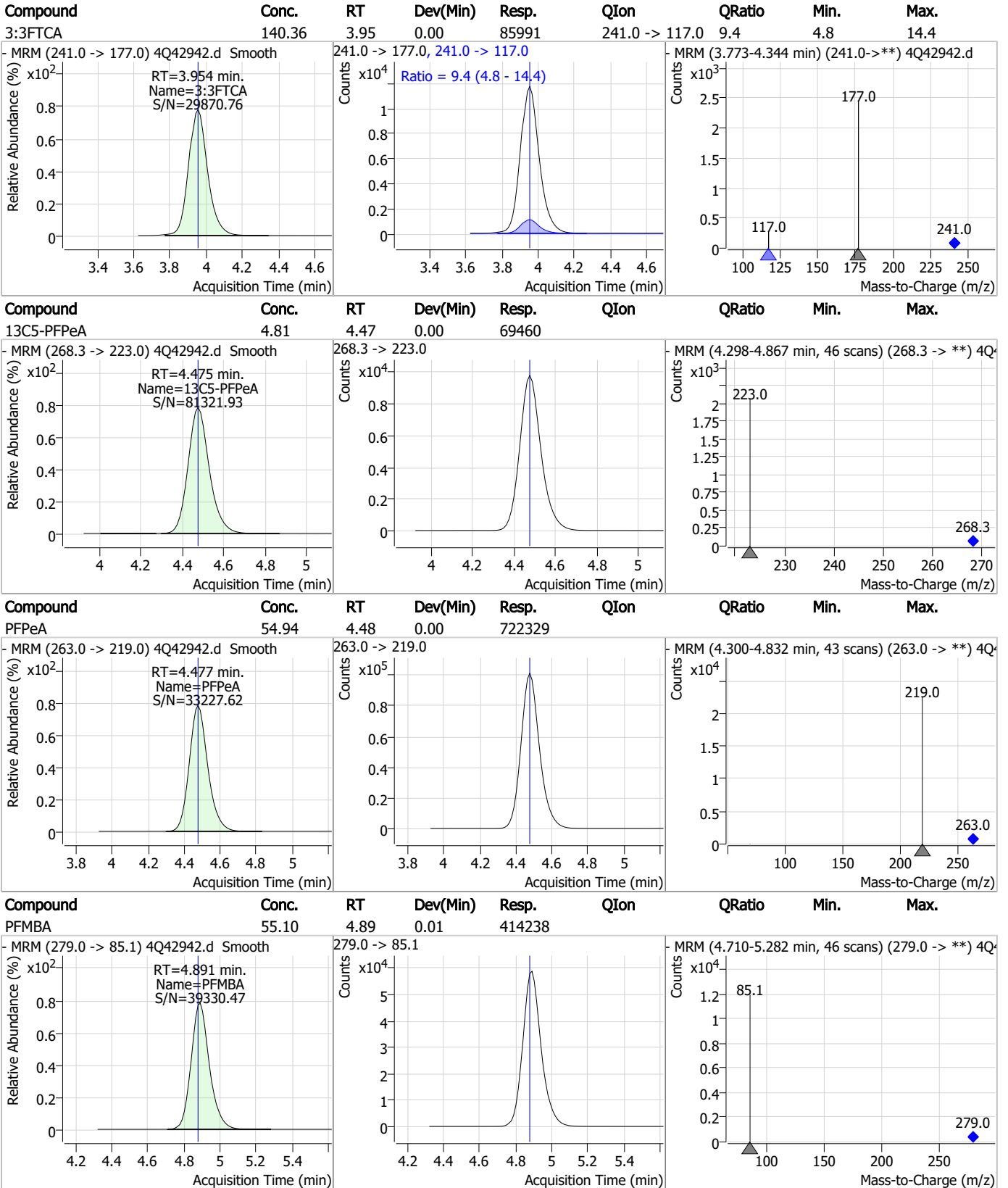
Perfluorinated Compounds by LC/MS/MS



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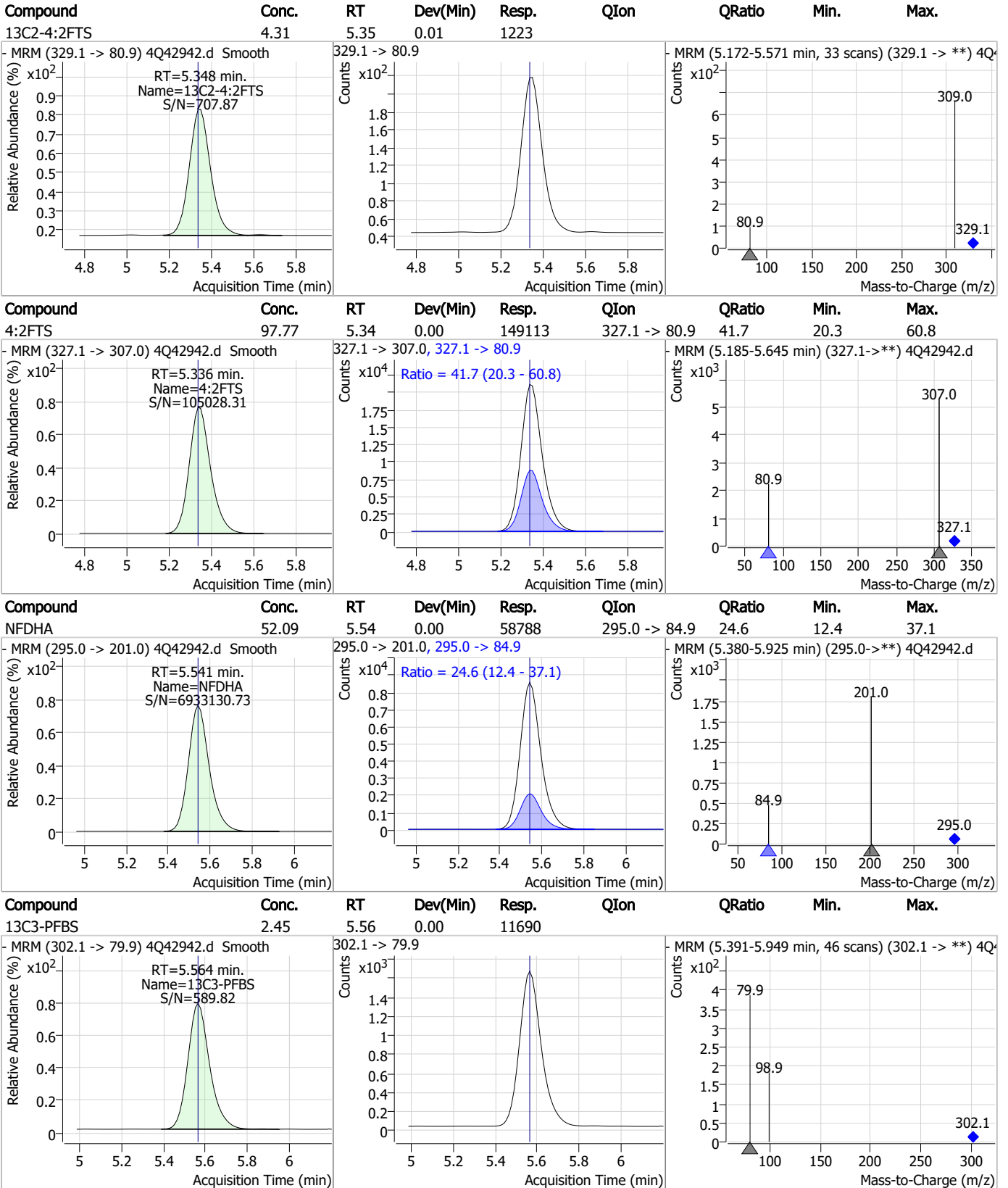
Perfluorinated Compounds by LC/MS/MS



7.7.8

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Perfluorinated Compounds by LC/MS/MS

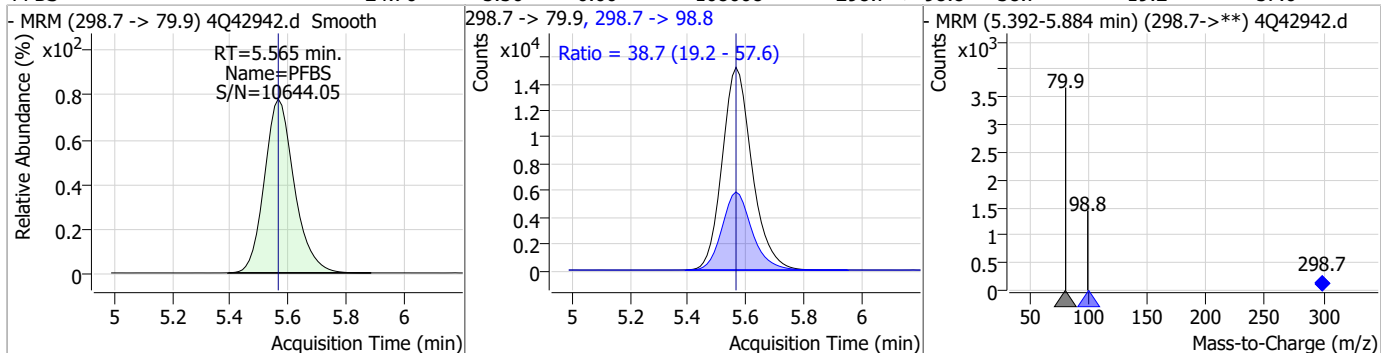


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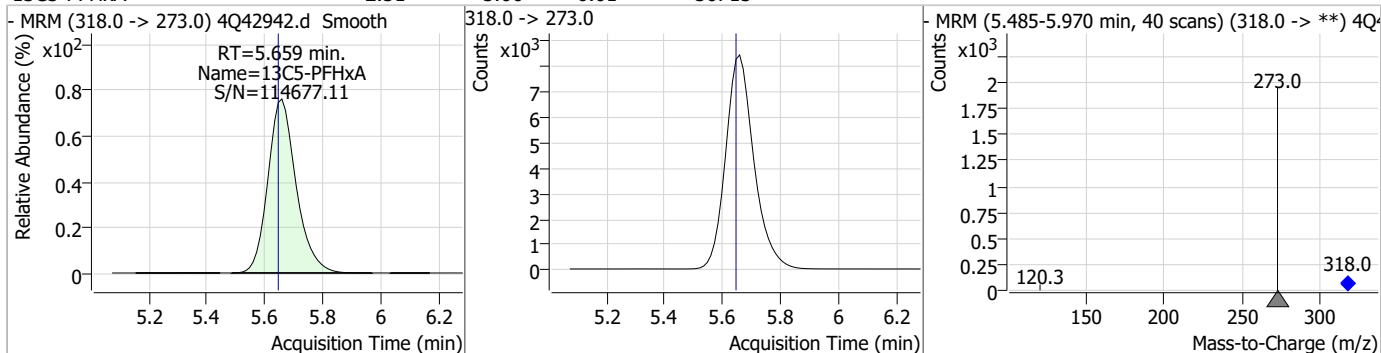
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Perfluorinated Compounds by LC/MS/MS

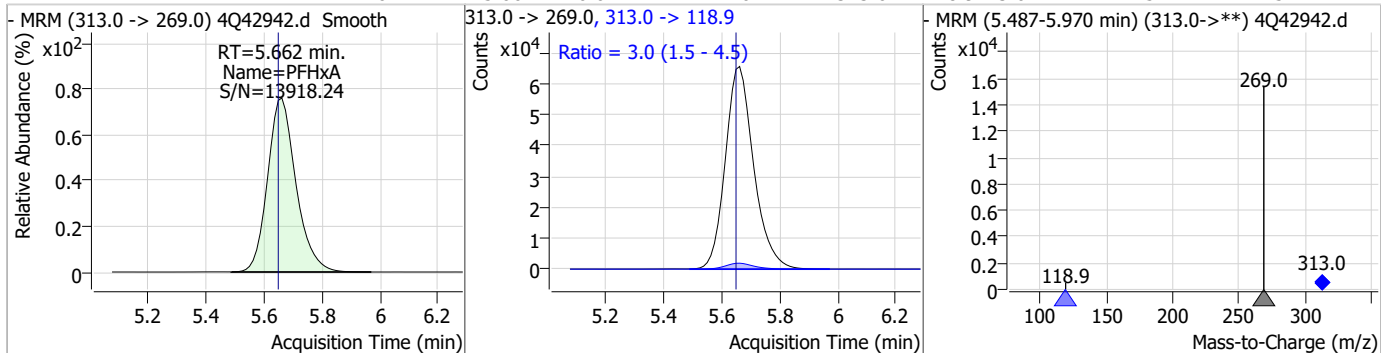
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	24.76	5.56	0.00	108008	298.7 -> 98.8	38.7	19.2	57.6



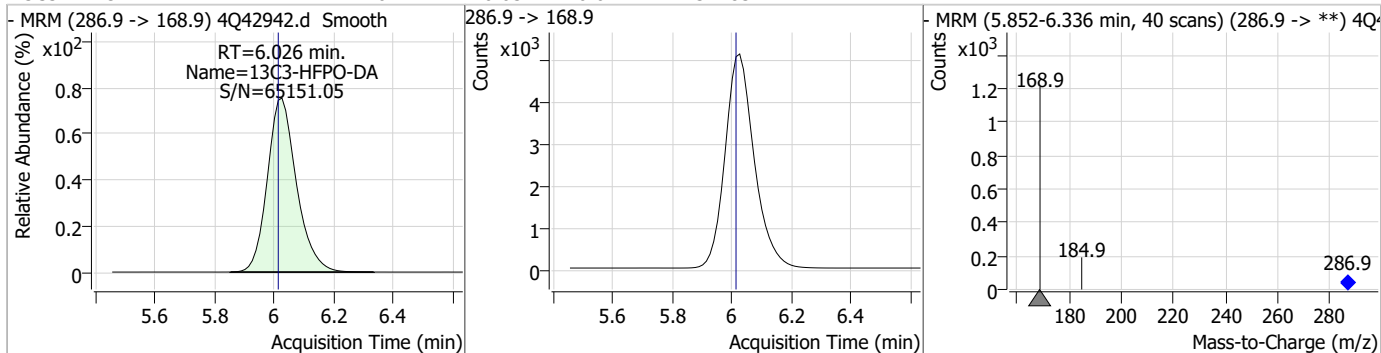
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.66	0.01	56715	318.0 -> 273.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	26.47	5.66	0.01	444401	313.0 -> 118.9	3.0	1.5	4.5

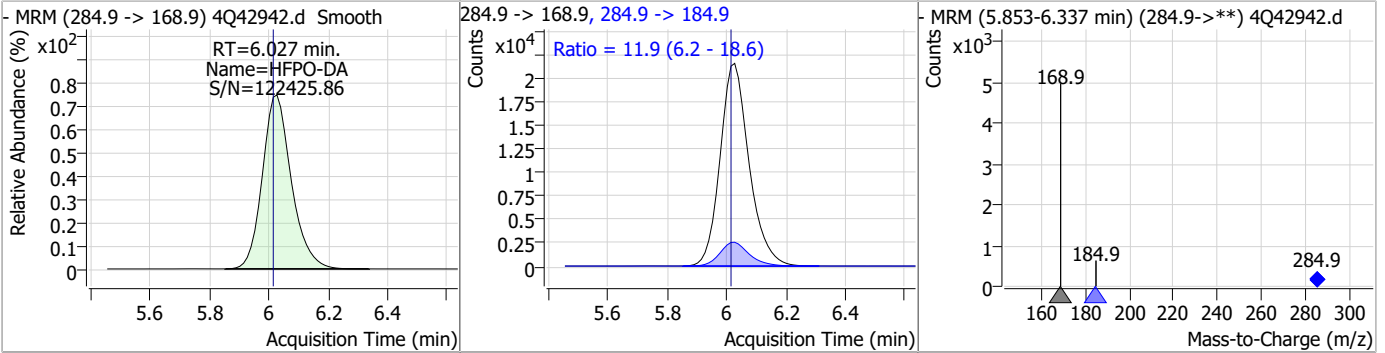


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.12	6.03	0.01	34783	286.9 -> 168.9			

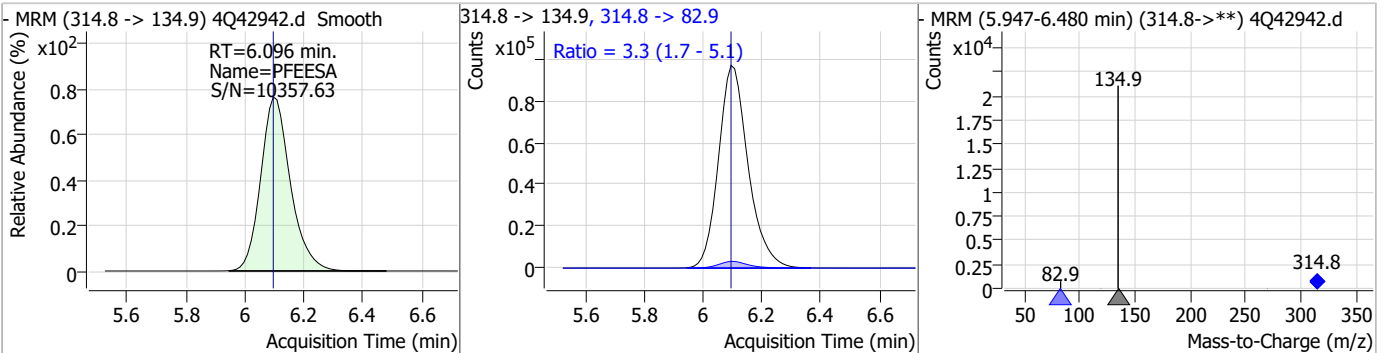


Perfluorinated Compounds by LC/MS/MS

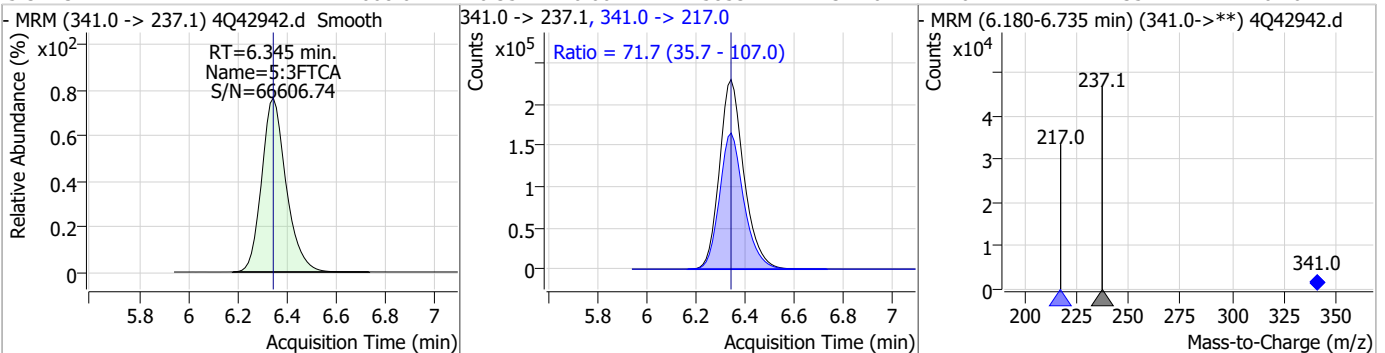
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	53.18	6.03	0.01	146599	284.9 -> 184.9	11.9	6.2	18.6



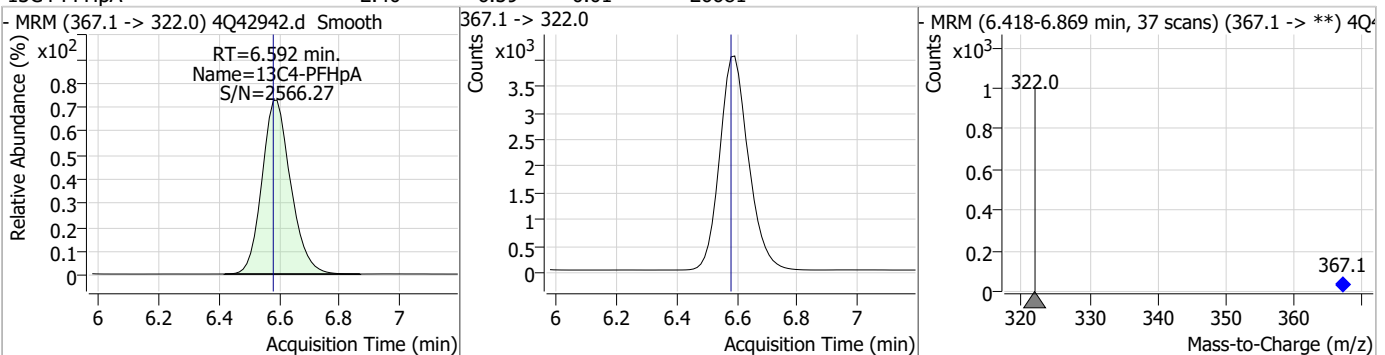
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	47.96	6.10	0.00	676104	314.8 -> 82.9	3.3	1.7	5.1



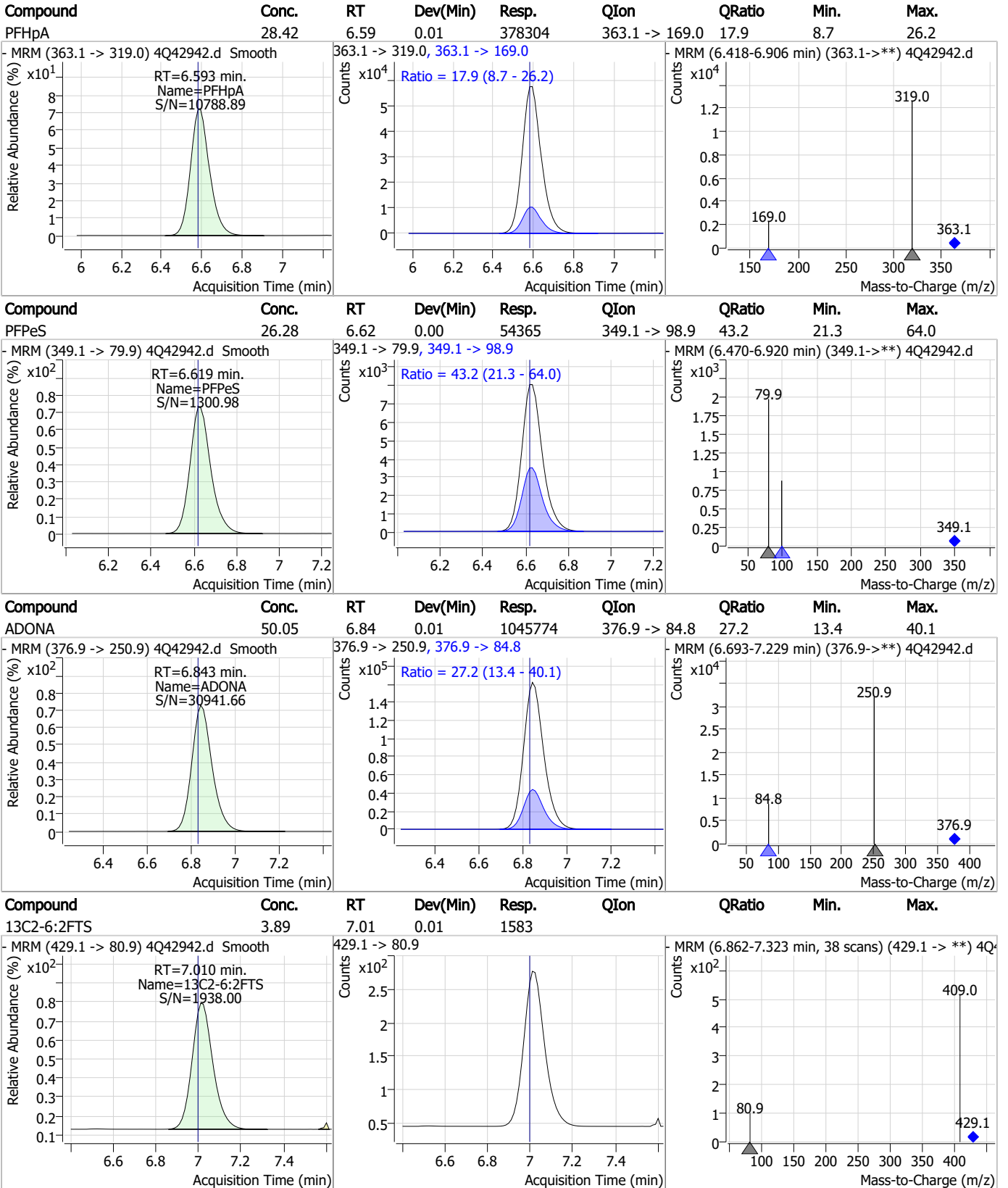
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	668.61	6.35	0.00	1585312	341.0 -> 217.0	71.7	35.7	107.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.40	6.59	0.01	26681	367.1 -> 322.0			



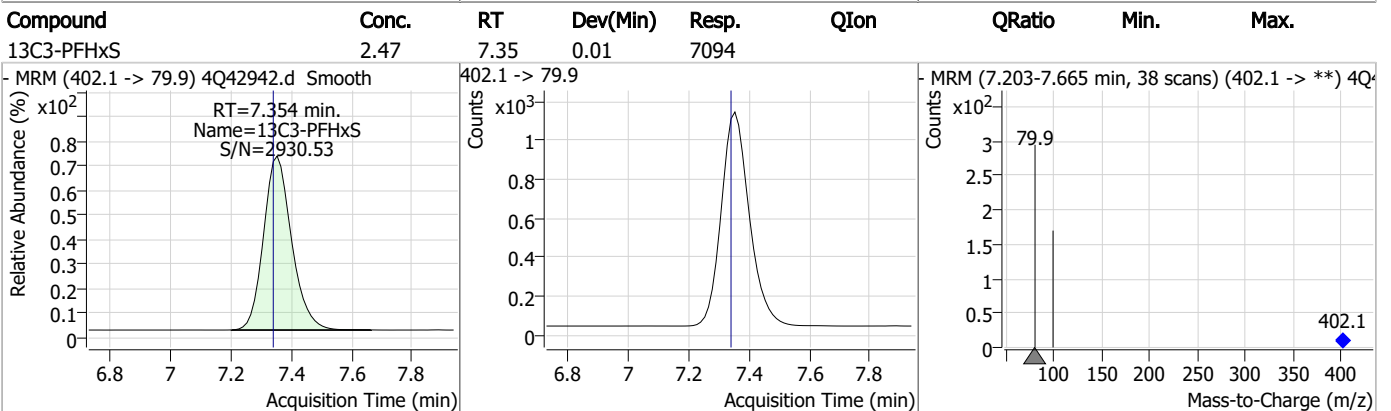
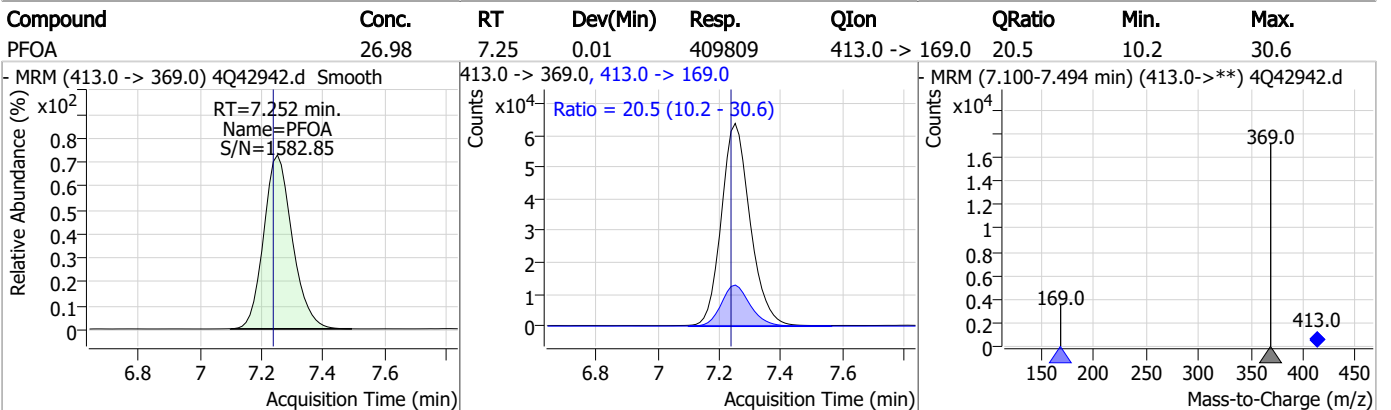
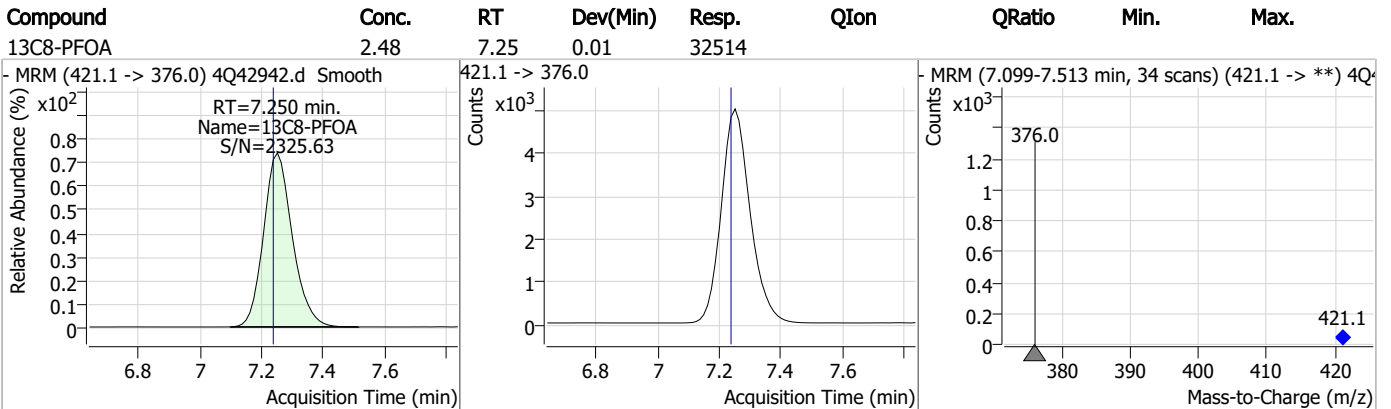
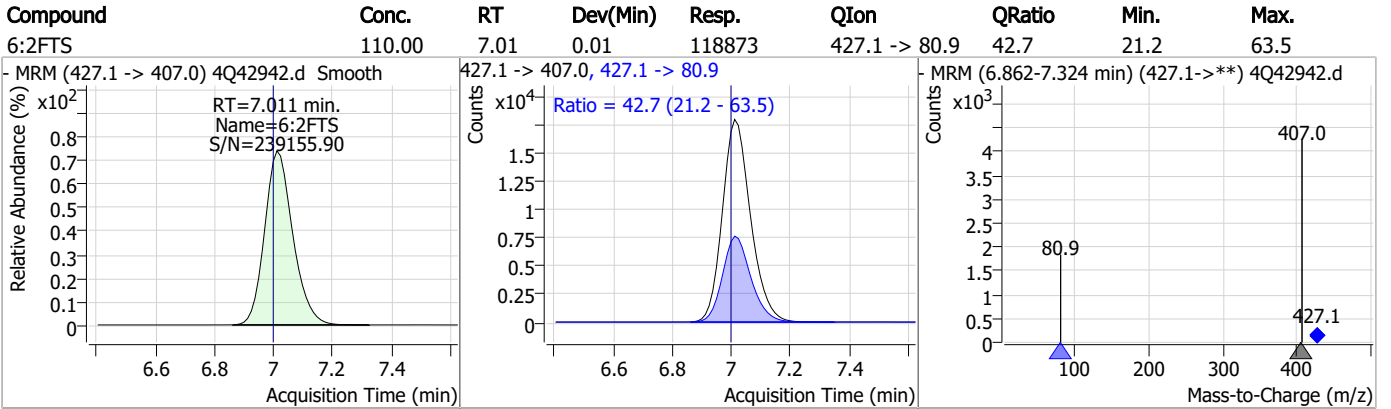
Perfluorinated Compounds by LC/MS/MS



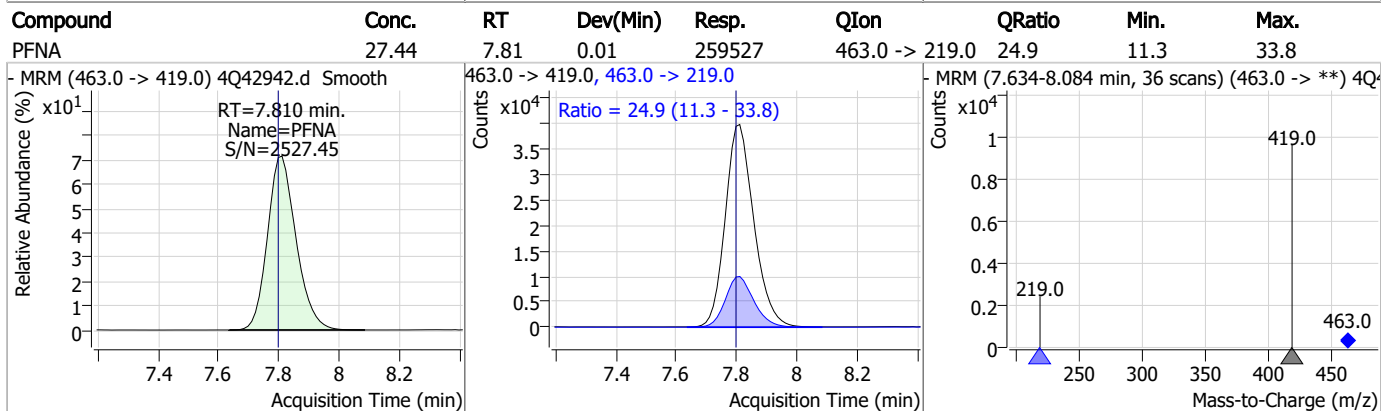
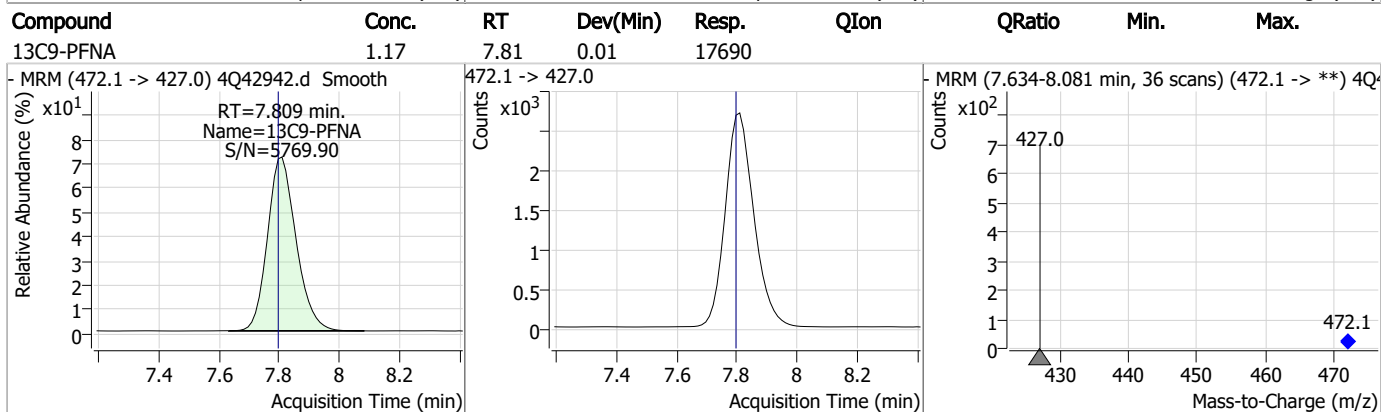
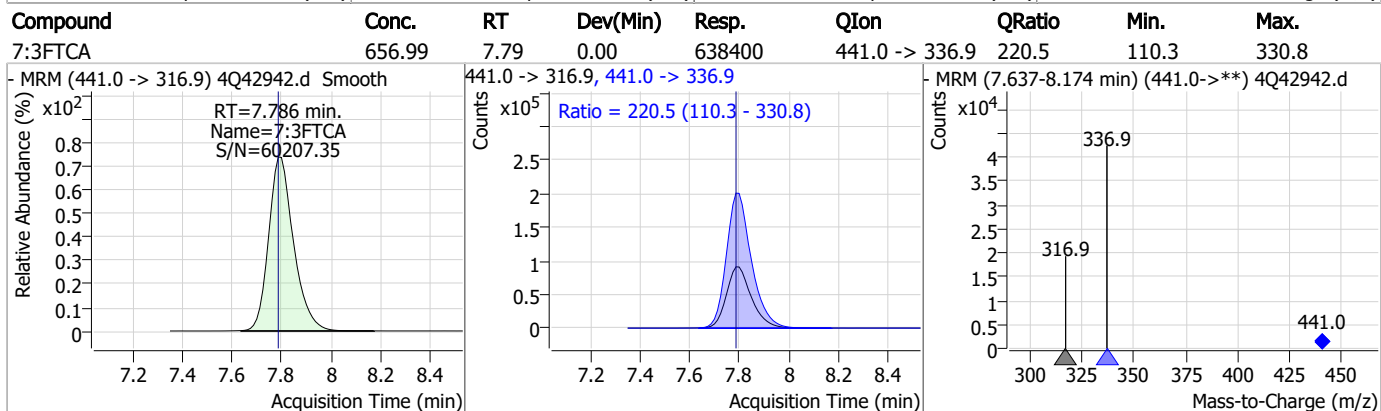
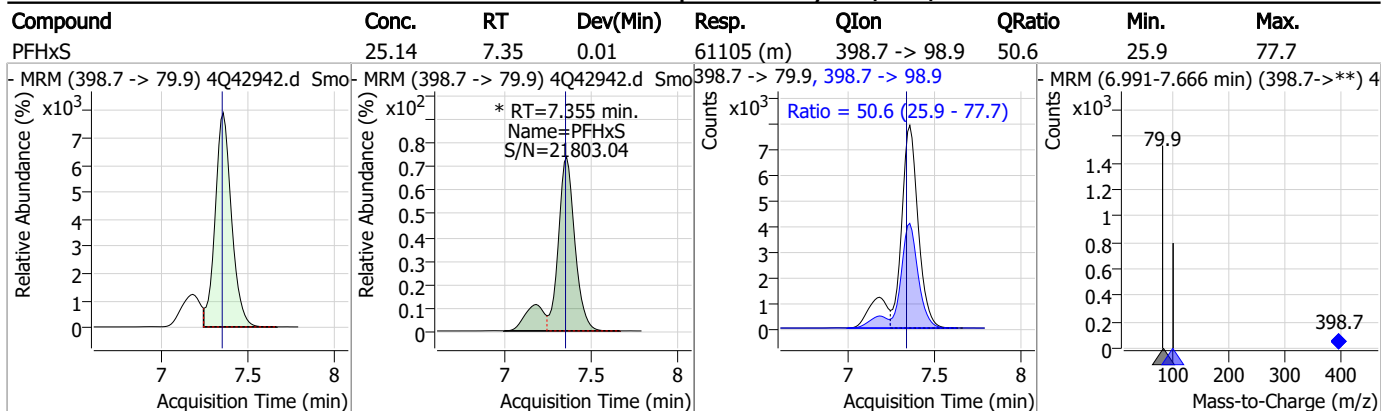
7.7.8

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Perfluorinated Compounds by LC/MS/MS

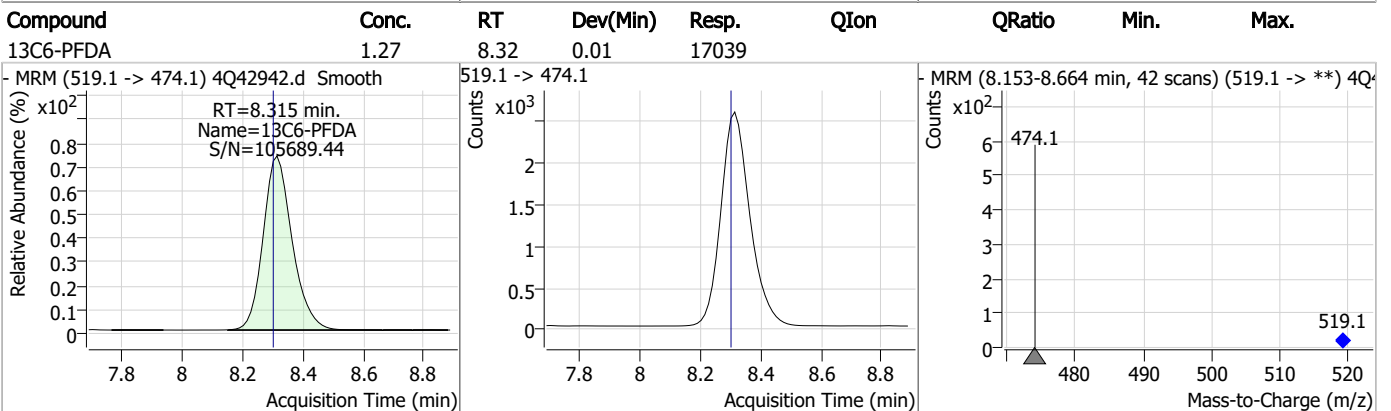
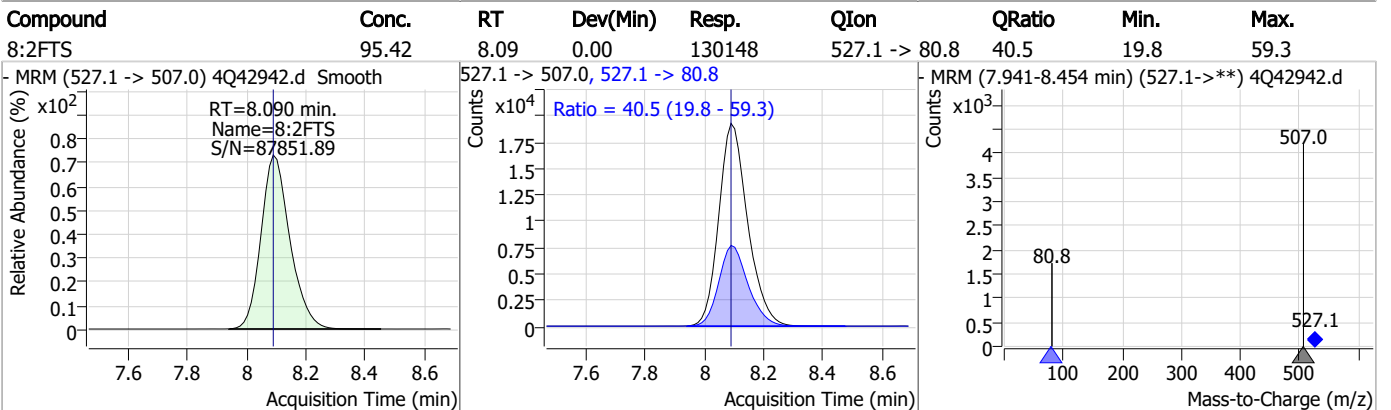
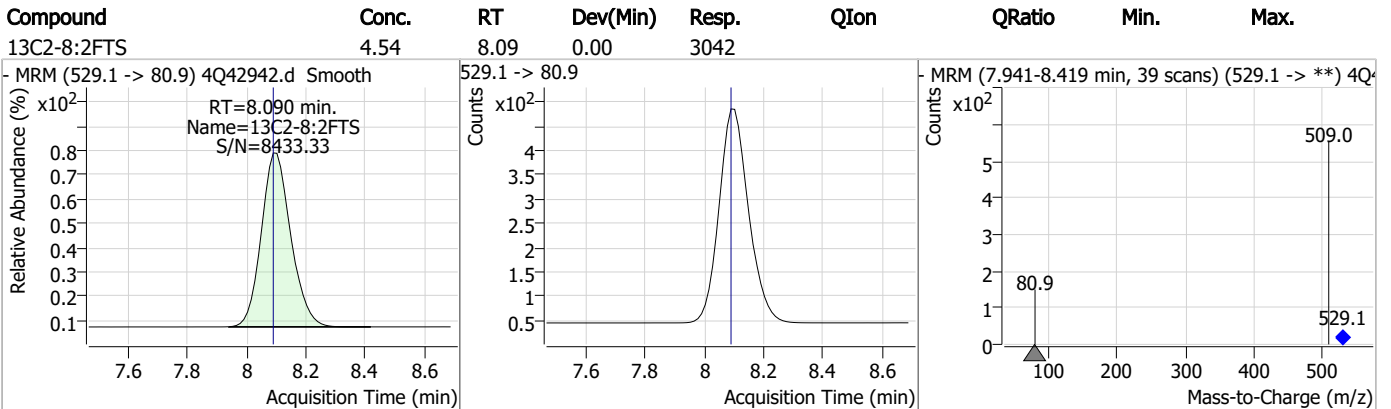
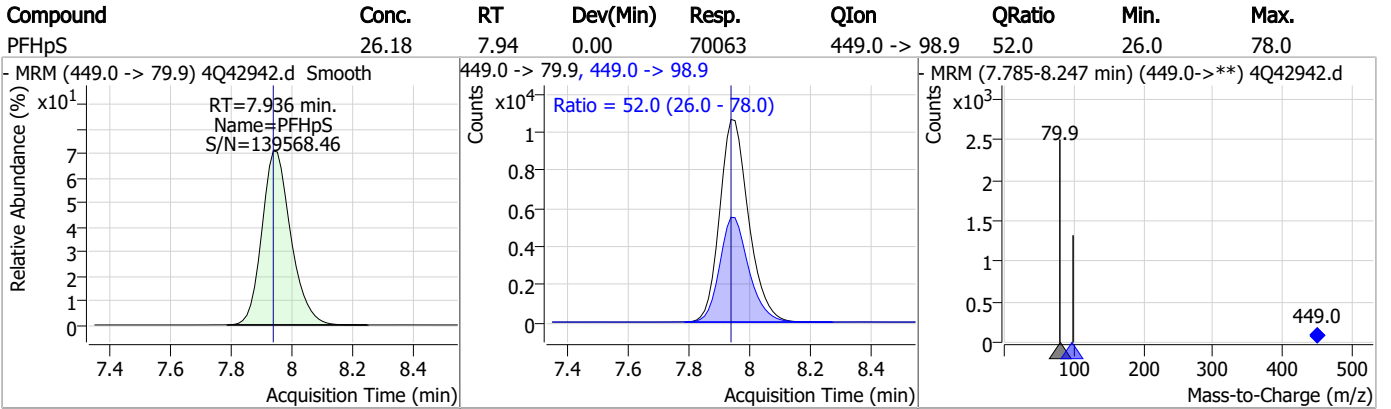


Perfluorinated Compounds by LC/MS/MS



7.7.8
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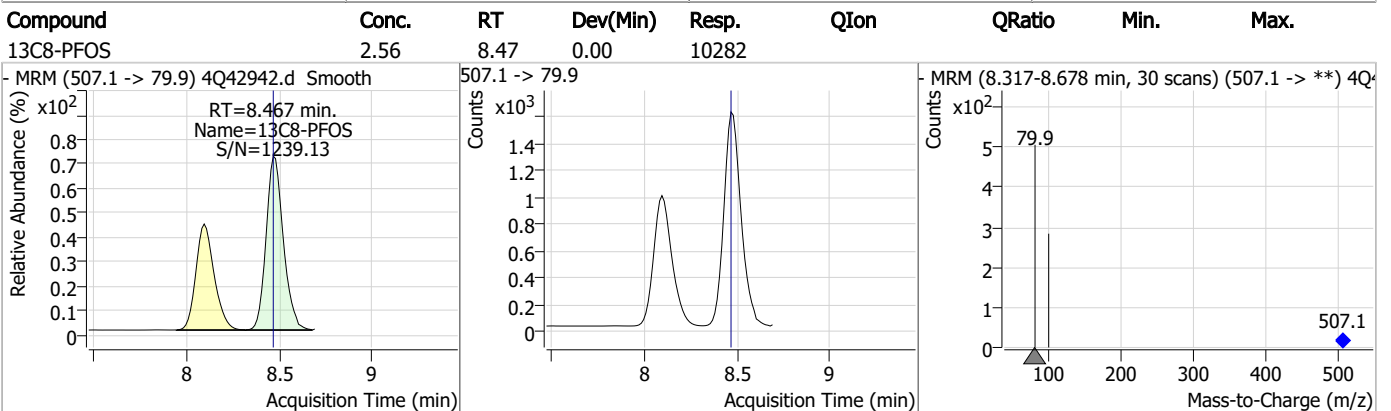
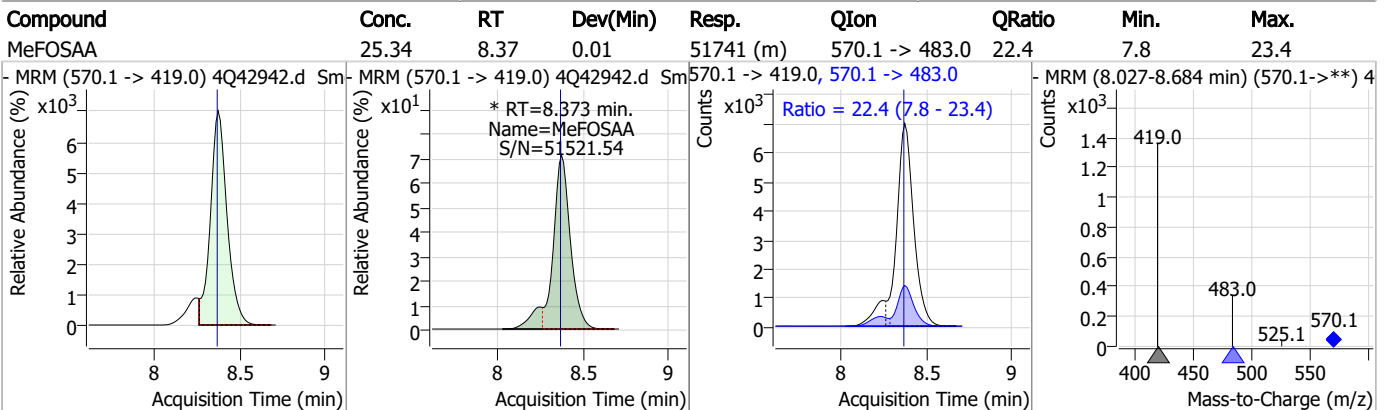
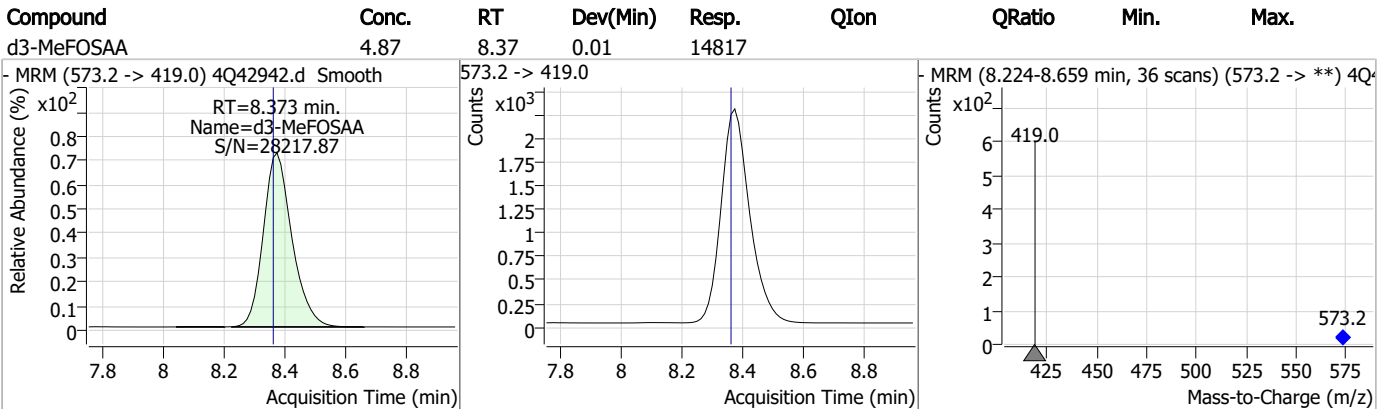
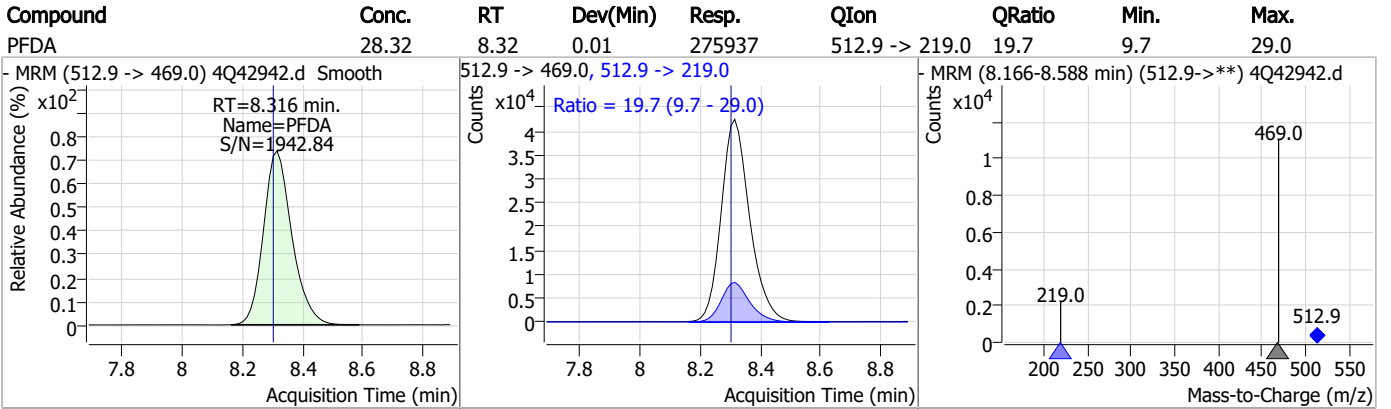
Perfluorinated Compounds by LC/MS/MS



7.7.8

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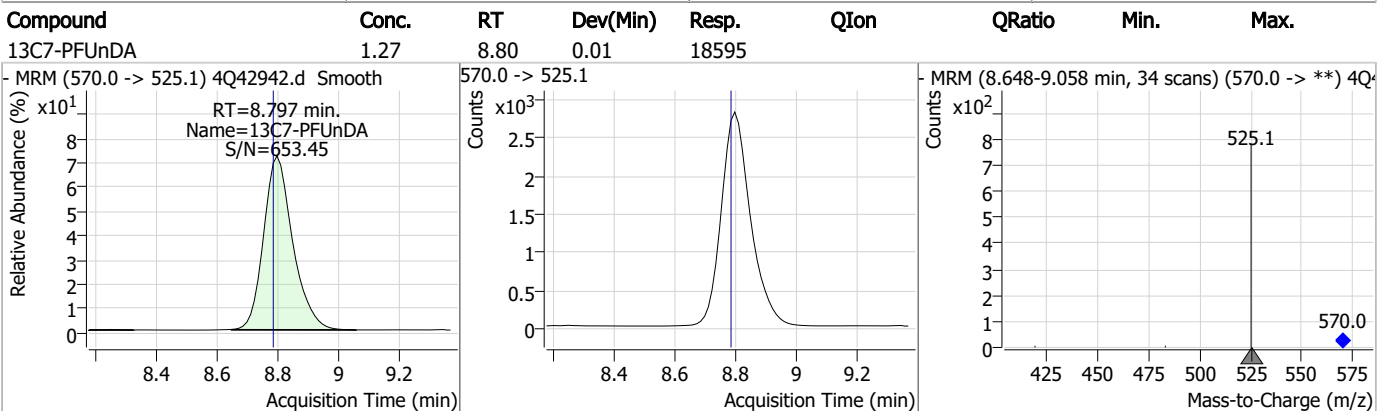
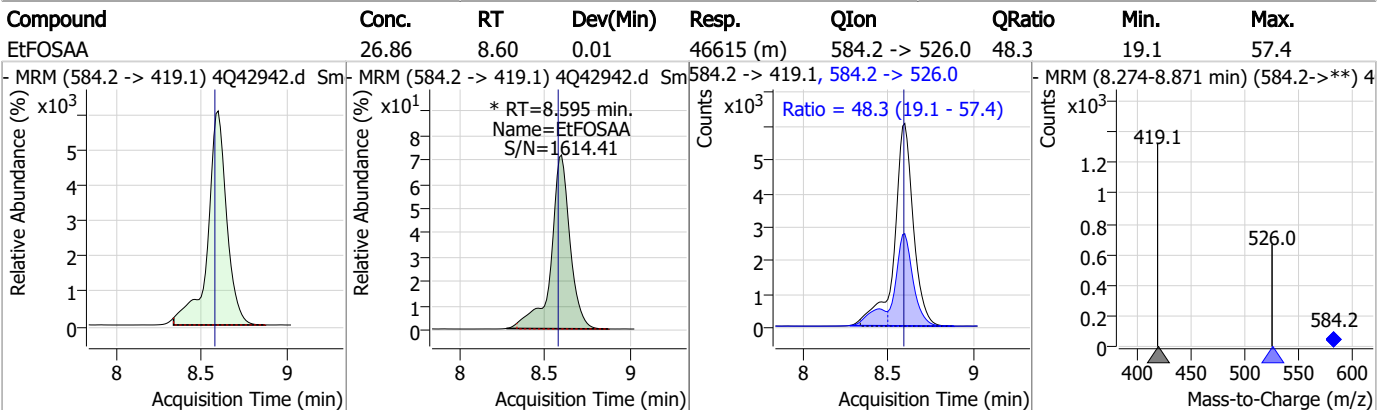
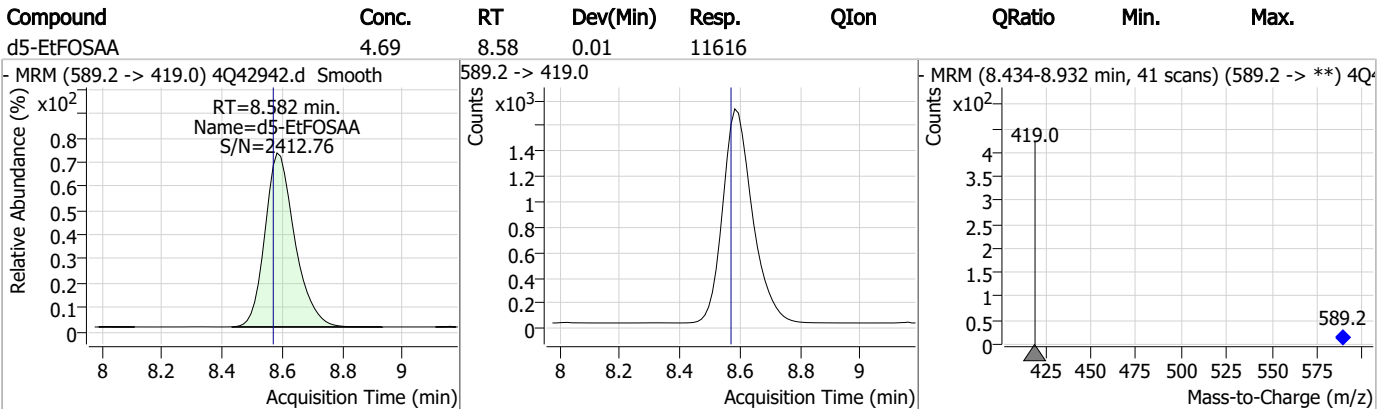
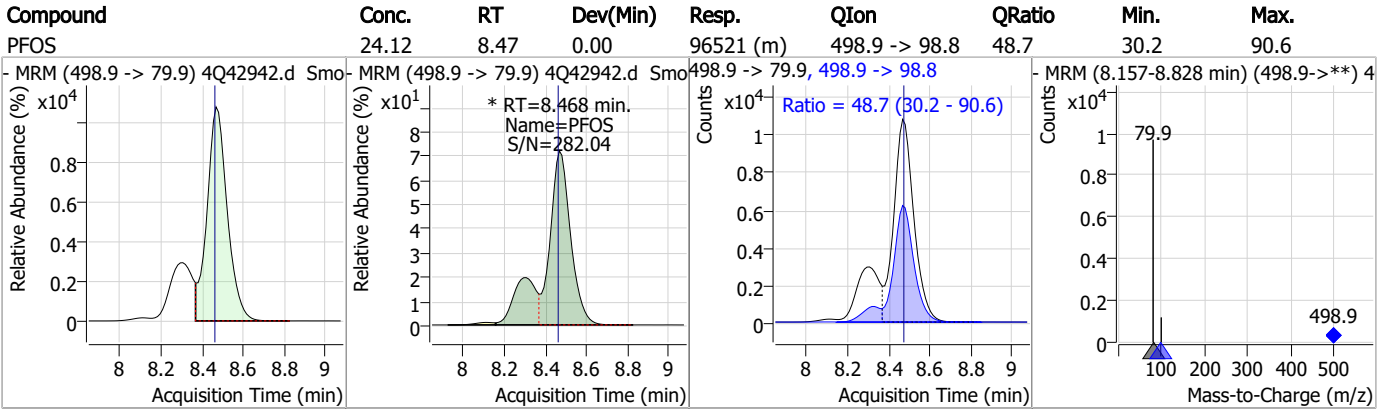
Perfluorinated Compounds by LC/MS/MS



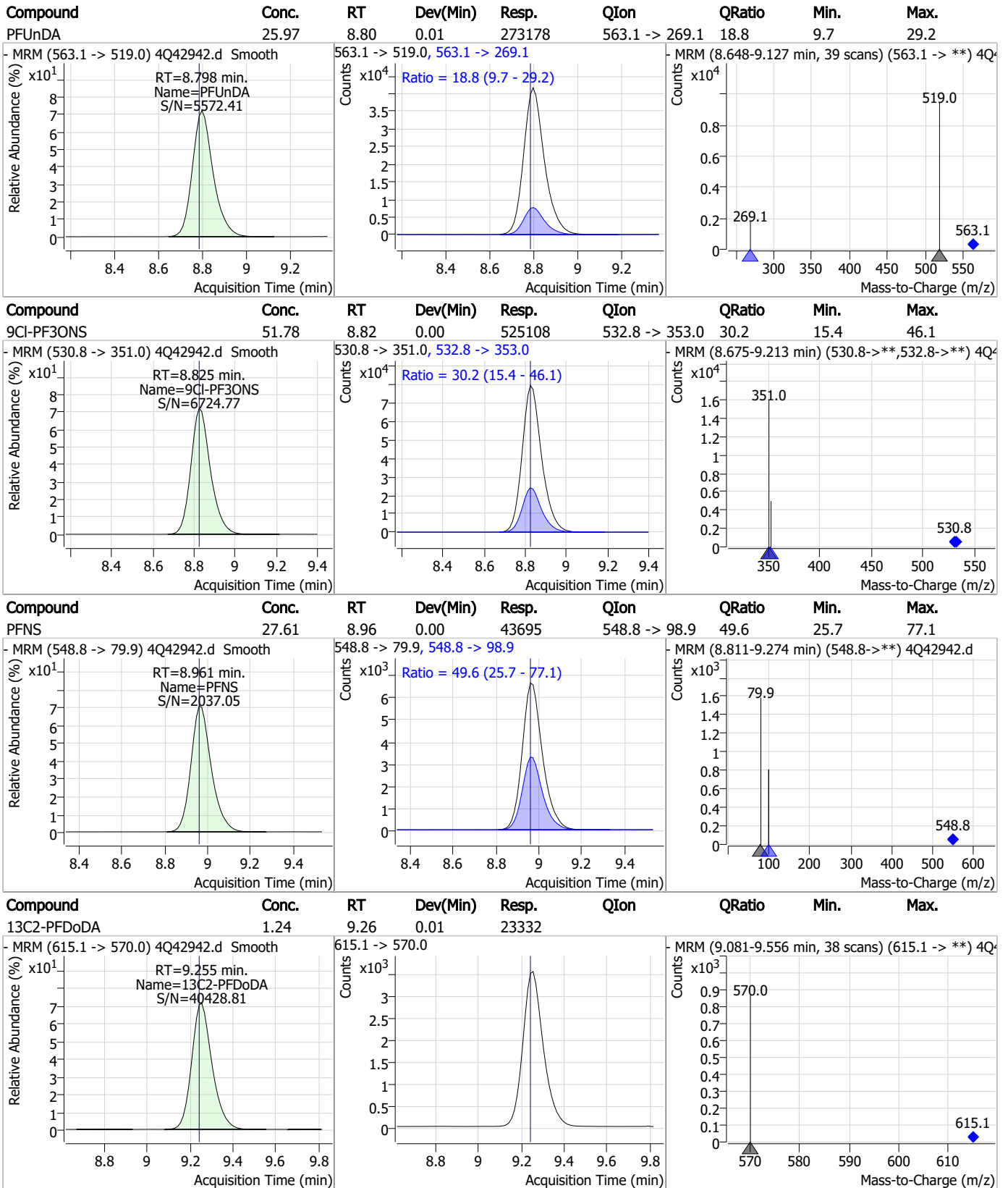
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Perfluorinated Compounds by LC/MS/MS



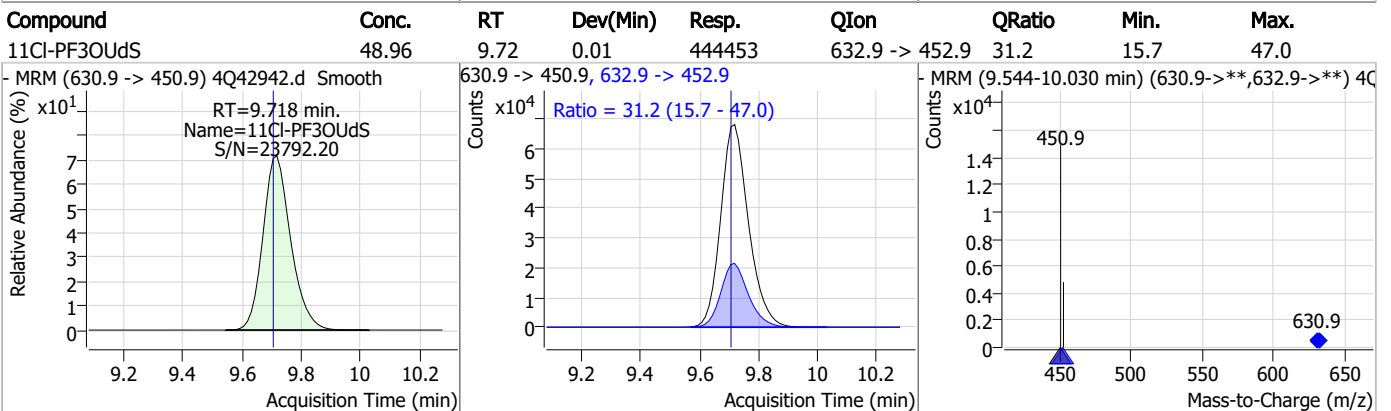
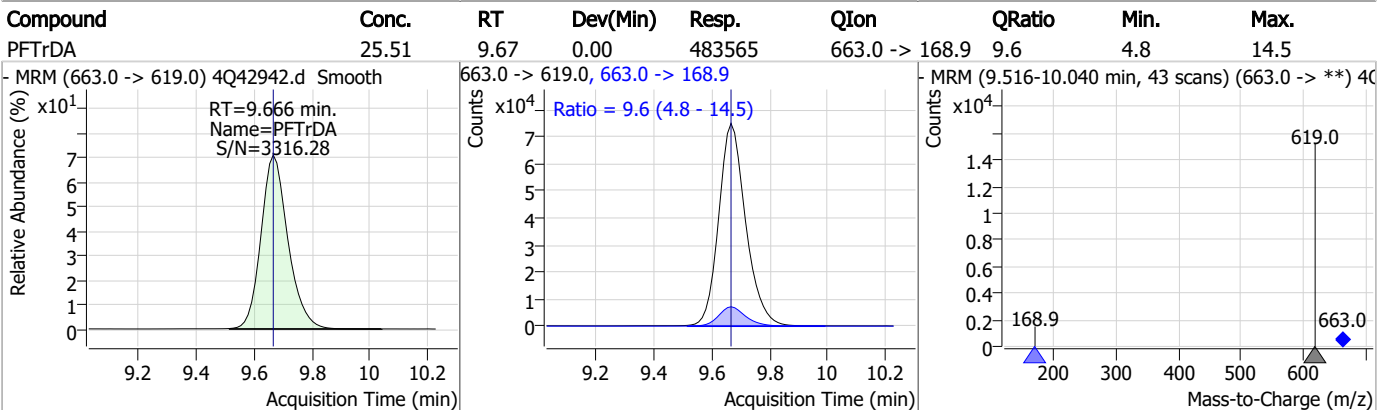
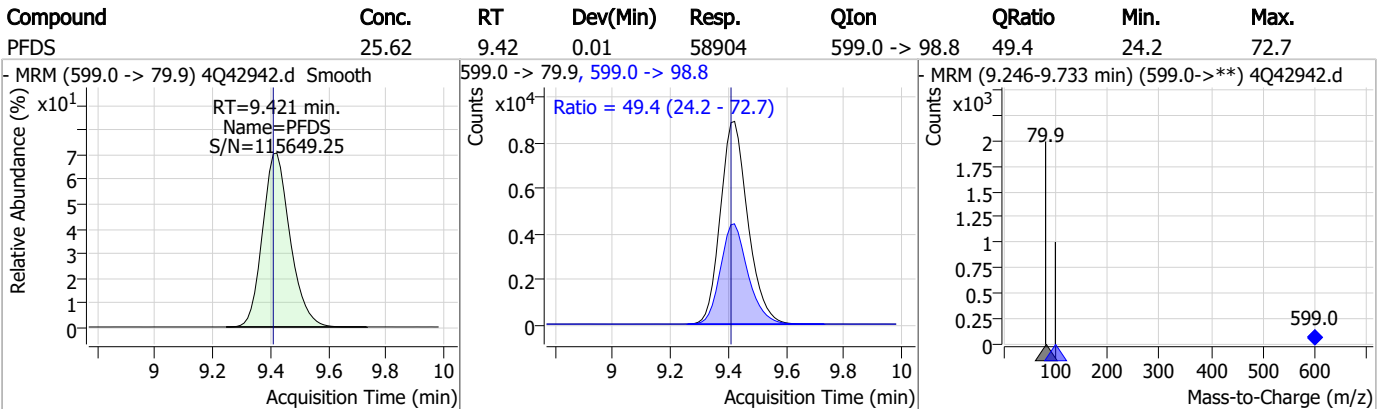
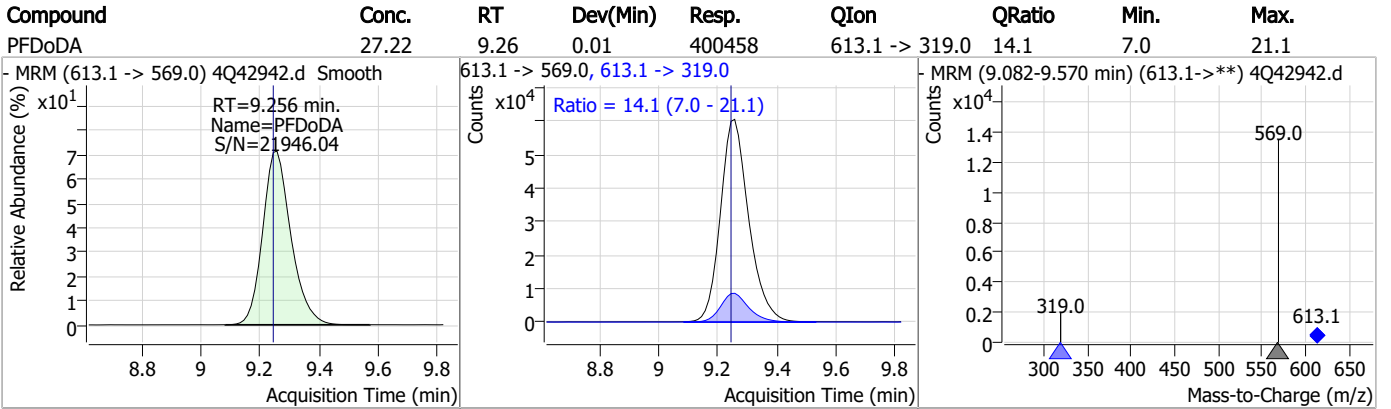
Perfluorinated Compounds by LC/MS/MS



7.7.8

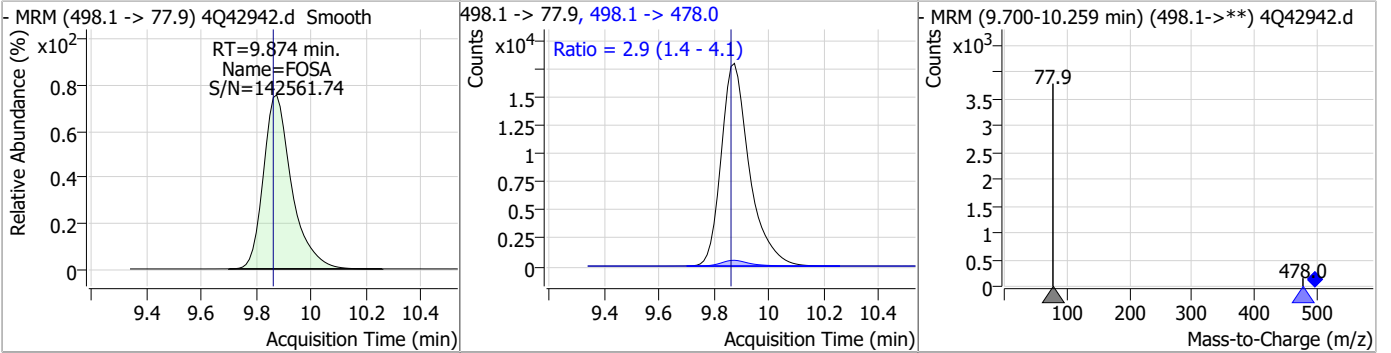
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Perfluorinated Compounds by LC/MS/MS

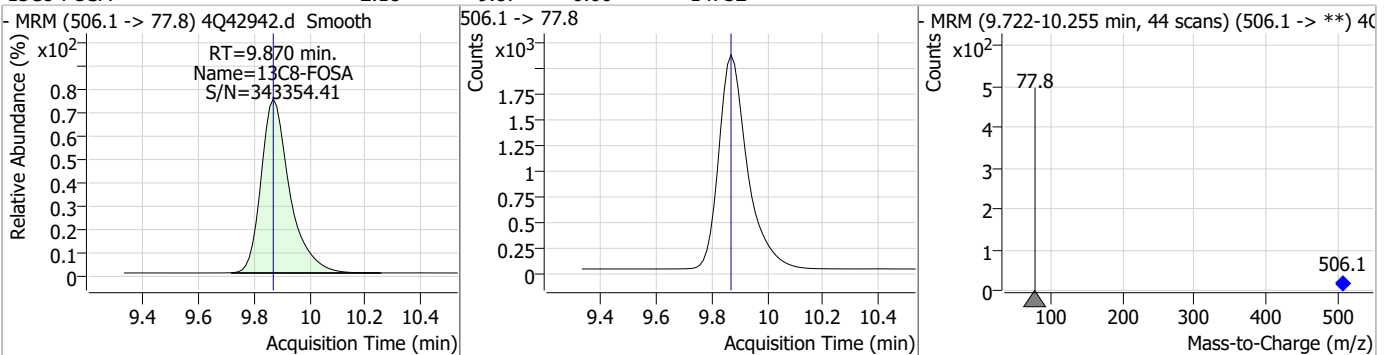


Perfluorinated Compounds by LC/MS/MS

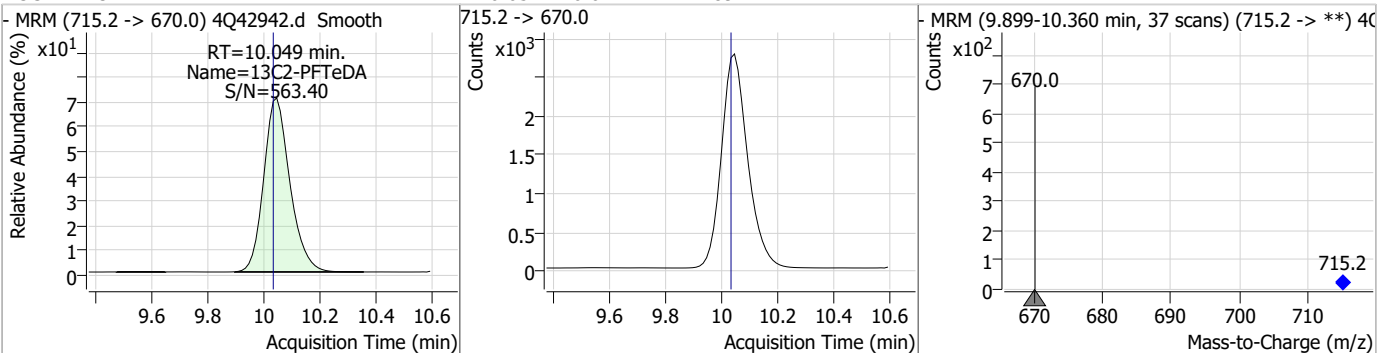
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	27.03	9.87	0.01	128381	498.1 -> 478.0	2.9	1.4	4.1



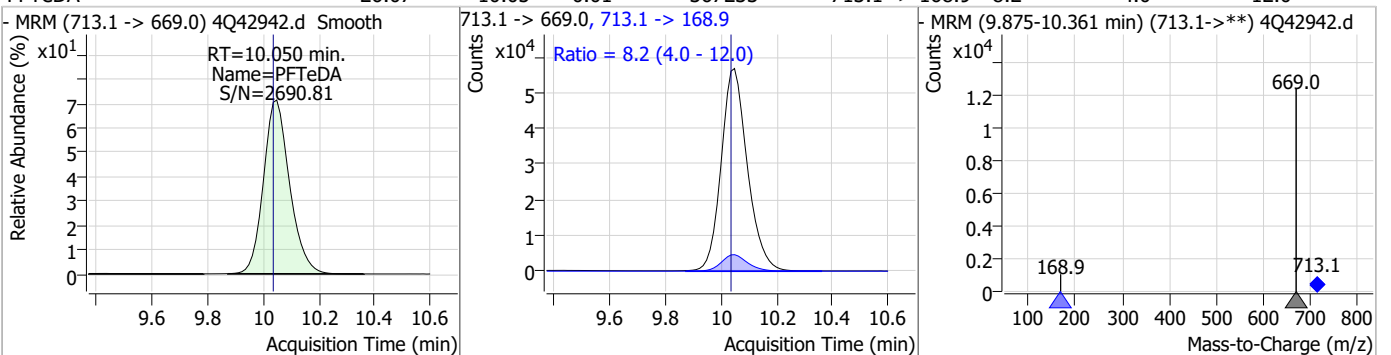
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.18	9.87	0.00	14752				



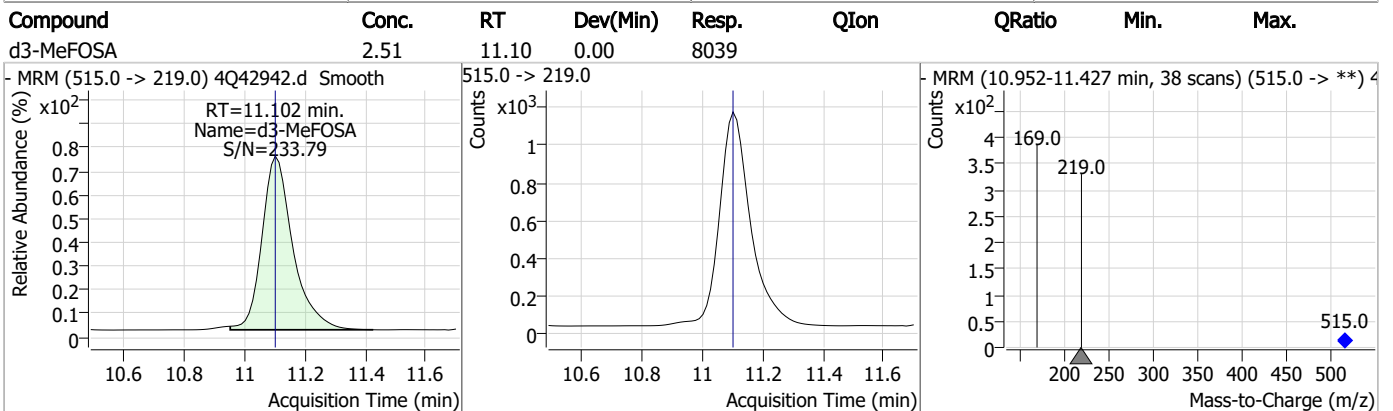
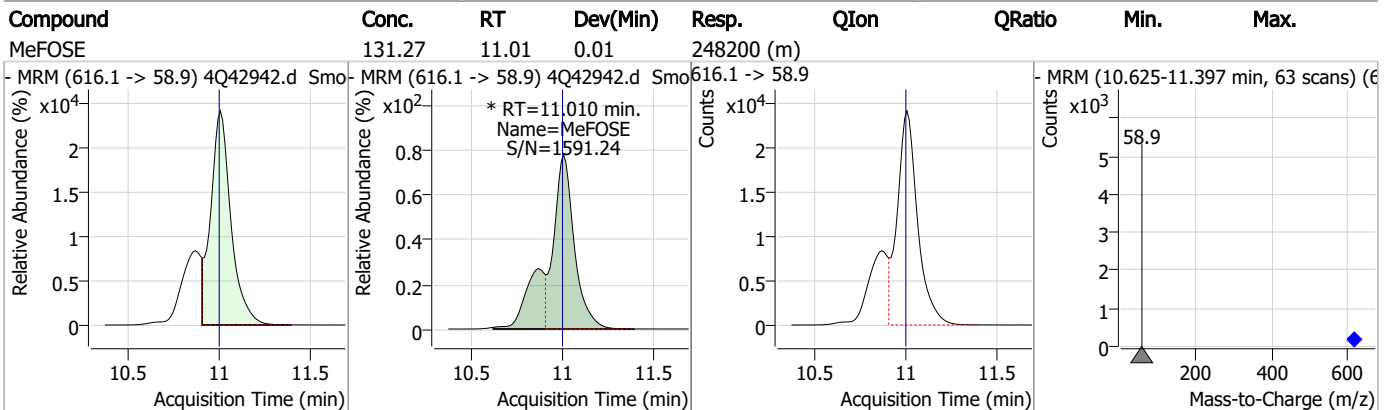
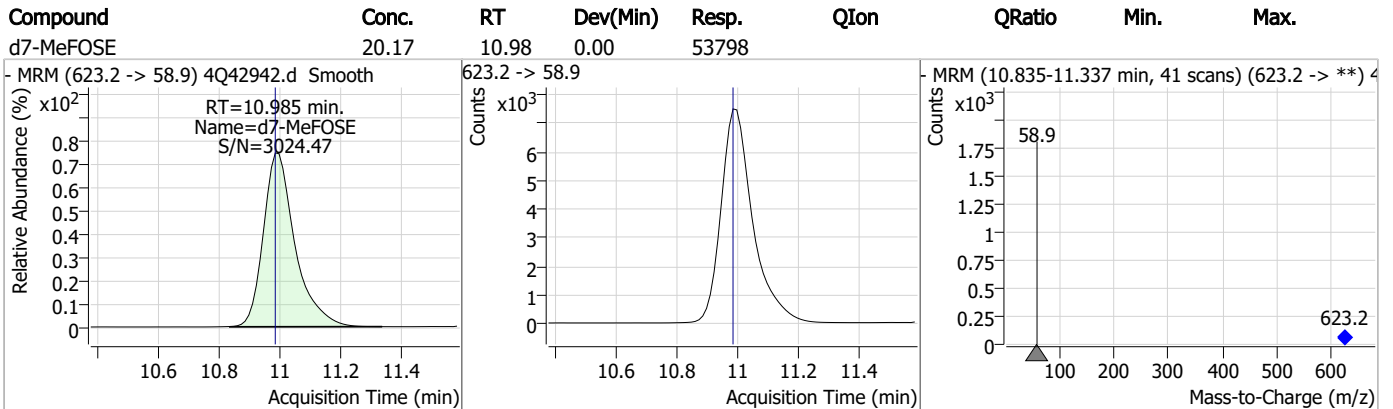
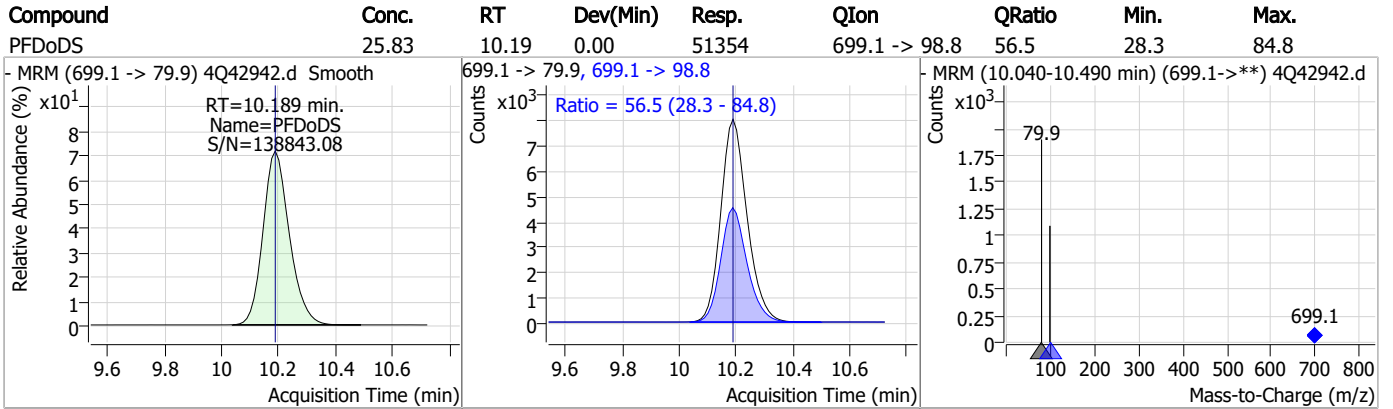
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	10.05	0.01	17892				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	26.07	10.05	0.01	367233	713.1 -> 168.9	8.2	4.0	12.0



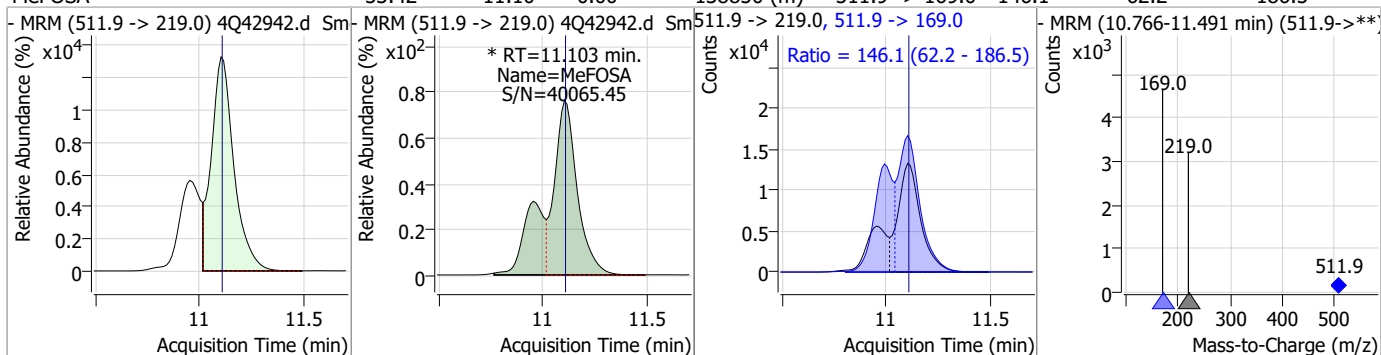
Perfluorinated Compounds by LC/MS/MS



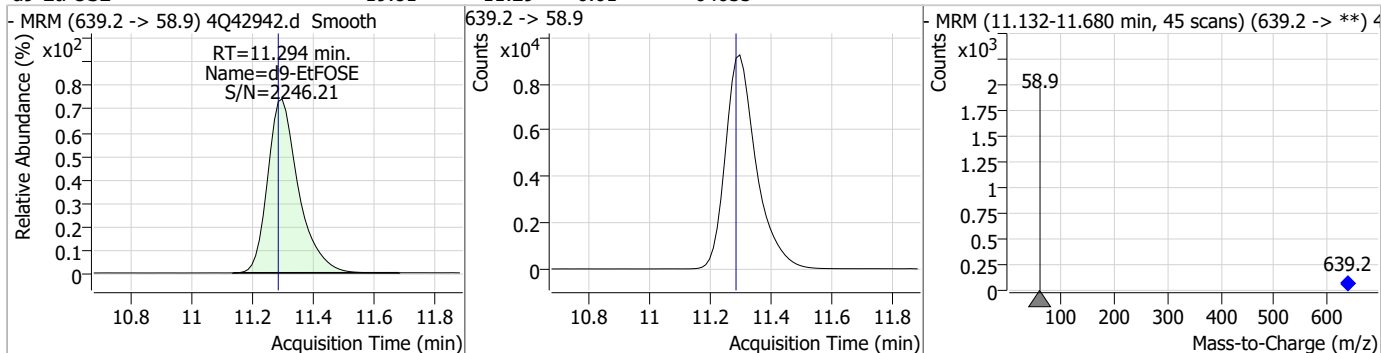
7.7.8
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Perfluorinated Compounds by LC/MS/MS

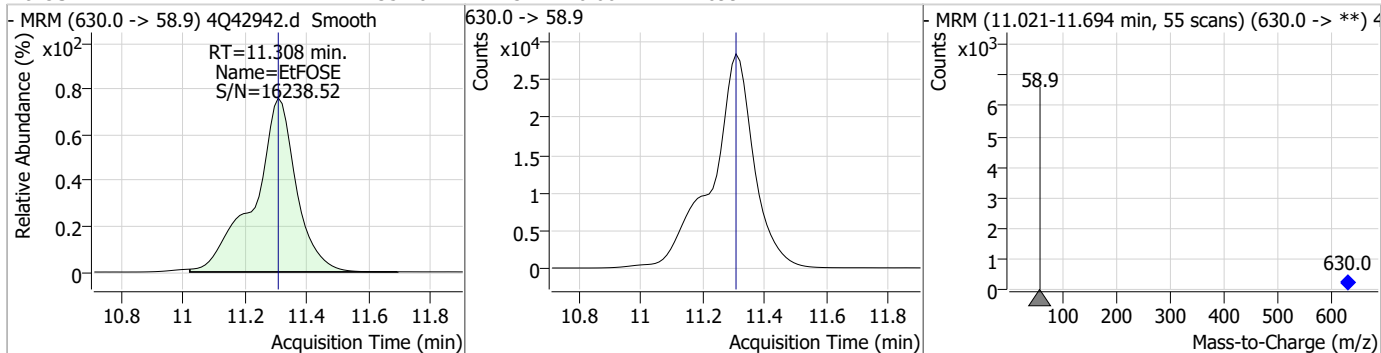
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	53.42	11.10	0.00	138850 (m)	511.9 -> 169.0	146.1	62.2	186.5



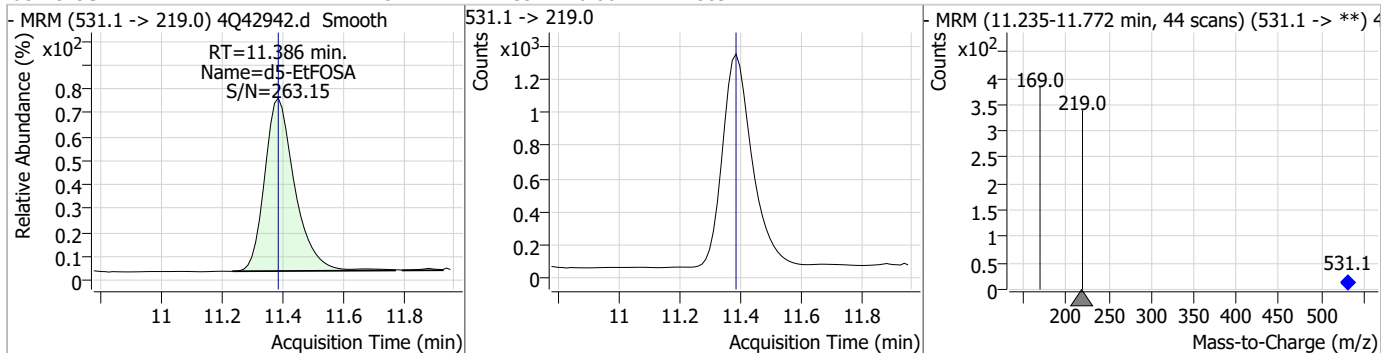
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.81	11.29	0.01	64655				



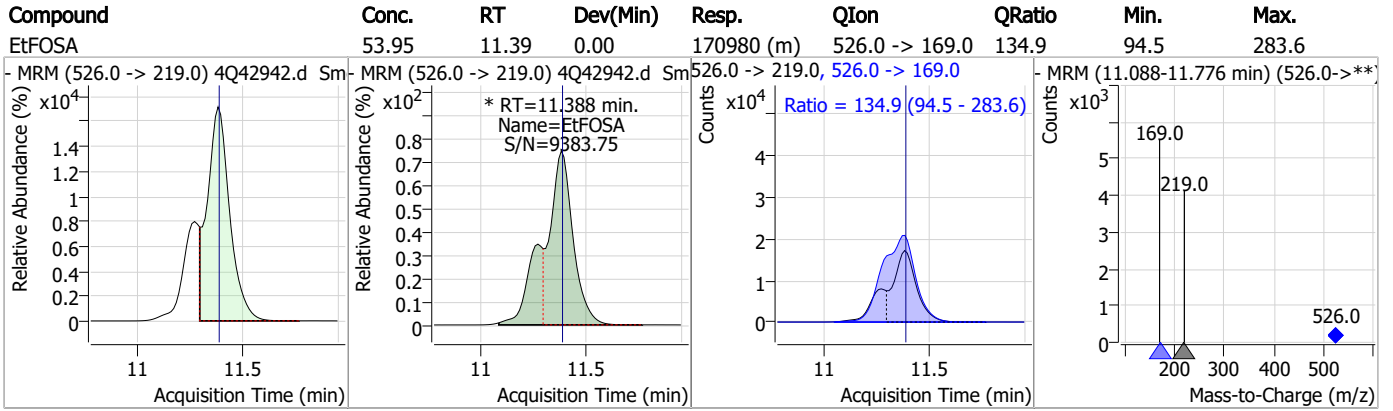
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	135.46	11.31	0.00	269944				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.57	11.39	0.00	8894				



Perfluorinated Compounds by LC/MS/MS



7.7.8

7

Manual Integration Approval Summary

Sample Number: S4Q621-IC621 Method: EPA DRAFT 1633
Lab FileID: 4Q42942.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 13:23 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.60	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.8.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42943.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 1:37:37 PM
 Sample Name : ic621-8
 Vial : P1-A9
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.011	216.8 -> 171.9	102643	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	67834	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	55320	2.50 µg/L	0.012
M4-PFHpA	6.580	367.1 -> 322.0	27176	2.50 µg/L	0.000
M8-PFOA	7.250	421.1 -> 376.0	32006	2.50 µg/L	0.013
M9-PFNA	7.797	472.1 -> 427.0	18136	1.25 µg/L	0.000
M6-PFDA	8.303	519.1 -> 474.1	16822	1.25 µg/L	0.000
M7-PFUnDA	8.785	570.0 -> 525.1	17497	1.25 µg/L	0.000
M2-PFDoDA	9.243	615.1 -> 570.0	23859	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	18140	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	15039	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	11594	2.50 µg/L	0.000
M3-PFHxS	7.341	402.1 -> 79.9	7490	2.50 µg/L	0.000
M8-PFOS	8.467	507.1 -> 79.9	9556	2.50 µg/L	0.000
M2-4:2FTS	5.348	329.1 -> 80.9	1037	5.00 µg/L	0.012
M2-6:2FTS	7.010	429.1 -> 80.9	1557	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	2666	5.00 µg/L	0.000
M3-MeFOSAA	8.360	573.2 -> 419.0	13621	5.00 µg/L	0.000
M3-HFPO-DA	6.026	286.9 -> 168.9	34332	10.00 µg/L	0.012
M5-EtFOSAA	8.582	589.2 -> 419.0	10514	5.00 µg/L	0.012
M7-MeFOSE	10.997	623.2 -> 58.9	49713	25.00 µg/L	0.012
M9-EtFOSE	11.294	639.2 -> 58.9	63989	25.00 µg/L	0.012
M5-EtFOSA	11.398	531.1 -> 219.0	8598	2.50 µg/L	0.012
M3-MeFOSA	11.102	515.0 -> 219.0	7952	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	9764	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	58962	5.00 µg/L	0.025
18O2-PFHxS	7.353	403.0 -> 83.9	5402	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	39389	2.50 µg/L	0.013
13C2-PFDA	8.303	515.1 -> 470.1	15542	1.25 µg/L	0.000
13C5-PFNA	7.797	468.0 -> 423.0	19223	1.25 µg/L	0.000
13C2-PFHxA	5.660	315.1 -> 270.0	48222	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.348	329.1 -> 80.9	1037	3.51 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 70.3%		
13C2-6:2FTS	7.010	429.1 -> 80.9	1557	3.68 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 73.5%		
13C2-8:2FTS	8.090	529.1 -> 80.9	2666	3.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 76.5%		
13C2-PFDoDA	9.243	615.1 -> 570.0	23859	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-PFTeDA	10.036	715.2 -> 670.0	18140	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C3-PFBS	5.564	302.1 -> 79.9	11594	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.4%		
13C3-PFHxS	7.341	402.1 -> 79.9	7490	2.51 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 = 100.2%	
13C4-PFBA	3.011	216.8 -> 171.9	102643	10.00 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.580	367.1 -> 322.0	27176	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFHxA	5.659	318.0 -> 273.0	55320	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFPeA	4.475	268.3 -> 223.0	67834	4.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C6-PFDA	8.303	519.1 -> 474.1	16822	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C7-PFUnDA	8.785	570.0 -> 525.1	17497	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-FOSA	9.870	506.1 -> 77.8	15039	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C8-PFOA	7.250	421.1 -> 376.0	32006	2.47 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C8-PFOS	8.467	507.1 -> 79.9	9556	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C9-PFNA	7.797	472.1 -> 427.0	18136	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.6%	
d3-MeFOSAA	8.360	573.2 -> 419.0	13621	4.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	34332	10.14 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
d3-MeFOSA	11.102	515.0 -> 219.0	7952	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
d5-EtFOSAA	8.582	589.2 -> 419.0	10514	4.50 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.0%	
d7-MeFOSE	10.997	623.2 -> 58.9	49713	19.74 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.0%	
d9-EtFOSE	11.294	639.2 -> 58.9	63989	20.77 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.1%	
d5-EtFOSA	11.398	531.1 -> 219.0	8598	2.63 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.3%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	325462	251.84 µg/L	99
		327.1 -> 80.9	134920		
6:2FTS	7.011	427.1 -> 407.0	244704	230.19 µg/L	99
		427.1 -> 80.9	102296		
8:2FTS	8.090	527.1 -> 507.0	273965	229.18 µg/L	100
		527.1 -> 80.8	108192		
EtFOSAA	8.583	584.2 -> 419.1	108416	69.03 µg/L	m 86
		584.2 -> 526.0	51029		
FOSA	9.861	498.1 -> 77.9	313877	64.82 µg/L	100
		498.1 -> 478.0	8852		
MeFOSAA	8.373	570.1 -> 419.0	122323	65.17 µg/L	m 89
		570.1 -> 483.0	24998		
PFBA	3.020	212.8 -> 168.9	614809	262.28 µg/L	100
PFBS	5.565	298.7 -> 79.9	247553	57.21 µg/L	99
		298.7 -> 98.8	96440		
PFDA	8.304	512.9 -> 469.0	635700	66.09 µg/L	99
		512.9 -> 219.0	126012		
PFDoDA	9.244	613.1 -> 569.0	947715	62.99 µg/L	99
		613.1 -> 319.0	135269		
PFDS	9.409	599.0 -> 79.9	136623	63.94 µg/L	98

7.7.9
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	67872			
PFHpA	6.593	363.1 -> 319.0	894863	66.01	µg/L	100
		363.1 -> 169.0	158450			
PFHpS	7.936	449.0 -> 79.9	167050	67.16	µg/L	100
		449.0 -> 98.9	86636			
PFHxA	5.662	313.0 -> 269.0	1057722	64.59	µg/L	100
		313.0 -> 118.9	31634			
PFHxS	7.342	398.7 -> 79.9	158231	61.66	µg/L	m 96
		398.7 -> 98.9	78041			
PFNA	7.797	463.0 -> 419.0	607902	62.70	µg/L	94
		463.0 -> 219.0	153301			
PFNS	8.961	548.8 -> 79.9	106786	72.62	µg/L	99
		548.8 -> 98.9	55497			
PFOA	7.252	413.0 -> 369.0	974655	65.18	µg/L	100
		413.0 -> 169.0	197208			
PFOS	8.468	498.9 -> 79.9	224848	60.45	µg/L	m 85
		498.9 -> 98.8	110965			
PFPeA	4.477	263.0 -> 219.0	1698521	132.28	µg/L	100
PFPeS	6.632	349.1 -> 79.9	134652	61.64	µg/L	98
		349.1 -> 98.9	58711			
PFTeDA	10.037	713.1 -> 669.0	861044	60.29	µg/L	100
		713.1 -> 168.9	70146			
PFTrDA	9.654	663.0 -> 619.0	1078811	55.65	µg/L	100
		663.0 -> 168.9	103955			
PFUnDA	8.785	563.1 -> 519.0	611628	61.80	µg/L	100
		563.1 -> 269.1	118771			
11Cl-PF3OUdS	9.705	630.9 -> 450.9	1006397	112.31	µg/L	99
		632.9 -> 452.9	310164			
9Cl-PF3ONS	8.812	530.8 -> 351.0	1185562	118.44	µg/L	100
		532.8 -> 353.0	364698			
ADONA	6.843	376.9 -> 250.9	2486865	120.59	µg/L	100
		376.9 -> 84.8	666664			
HFPO-DA	6.027	284.9 -> 168.9	348817	128.20	µg/L	98
		284.9 -> 184.9	40558			
3:3FTCA	3.979	241.0 -> 177.0	217606	363.71	µg/L	99
		241.0 -> 117.0	19941			
5:3FTCA	6.345	341.0 -> 237.1	3796979	1641.78	µg/L	100
		341.0 -> 217.0	2710111			
7:3FTCA	7.786	441.0 -> 316.9	1491931	1574.11	µg/L	99
		441.0 -> 336.9	3308937			
EtFOSA	11.400	526.0 -> 219.0	403228	131.62	µg/L	m 64
		526.0 -> 169.0	550141			
EtFOSE	11.320	630.0 -> 58.9	623625	316.20	µg/L	100
MeFOSA	11.116	511.9 -> 219.0	321816	125.17	µg/L	m 79
		511.9 -> 169.0	476751			
MeFOSE	11.010	616.1 -> 58.9	567406	324.75	µg/L	m 100
PFDoDS	10.176	699.1 -> 79.9	121607	65.83	µg/L	99
		699.1 -> 98.8	67715			
NFDHA	5.541	295.0 -> 201.0	121383	110.27	µg/L	100
		295.0 -> 84.9	30125			
PFMBA	4.891	279.0 -> 85.1	979514	133.41	µg/L	100
PFMPA	3.611	229.0 -> 84.9	878322	136.79	µg/L	100
PFEESA	6.096	314.8 -> 134.9	1607415	116.91	µg/L	100
		314.8 -> 82.9	54107			

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

7.7.9
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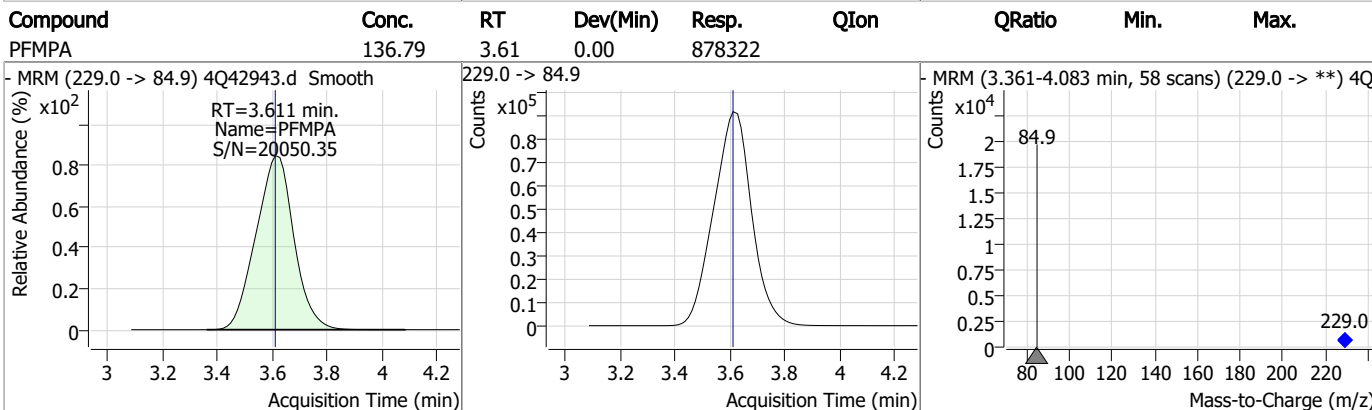
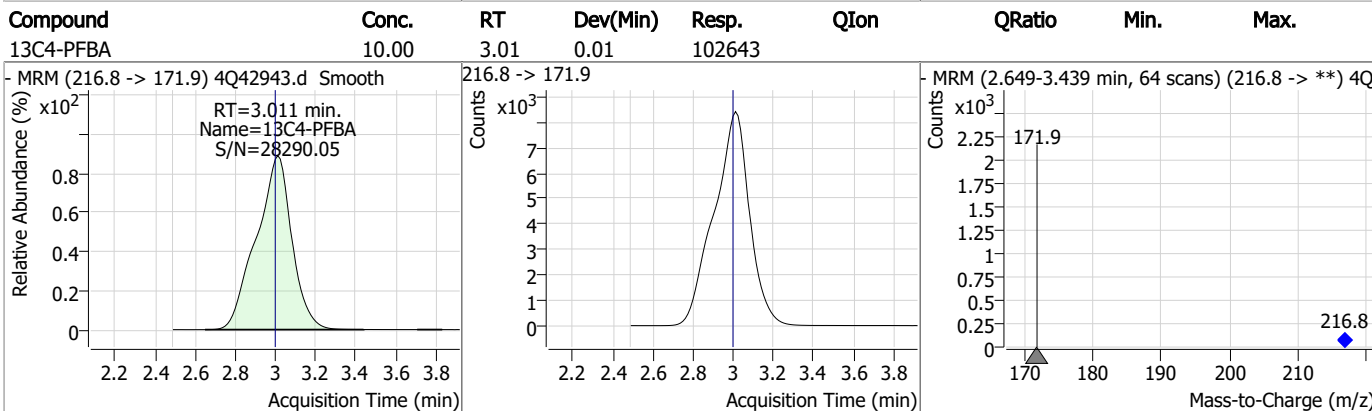
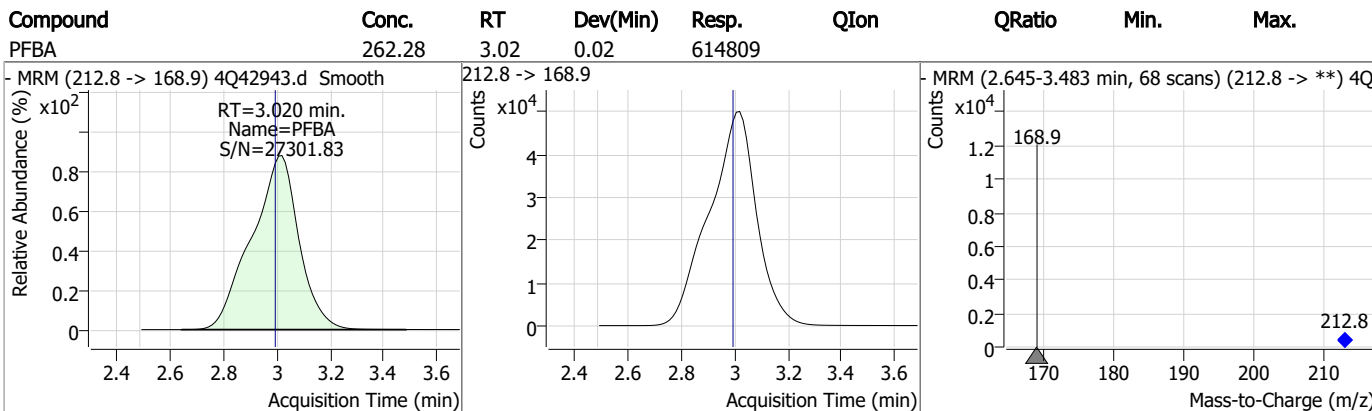
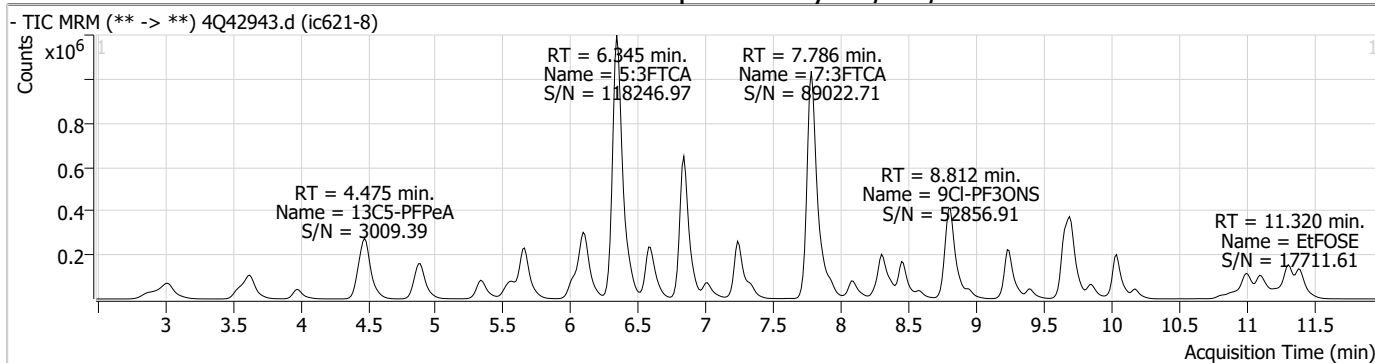
Perfluorinated Compounds by LC/MS/MS

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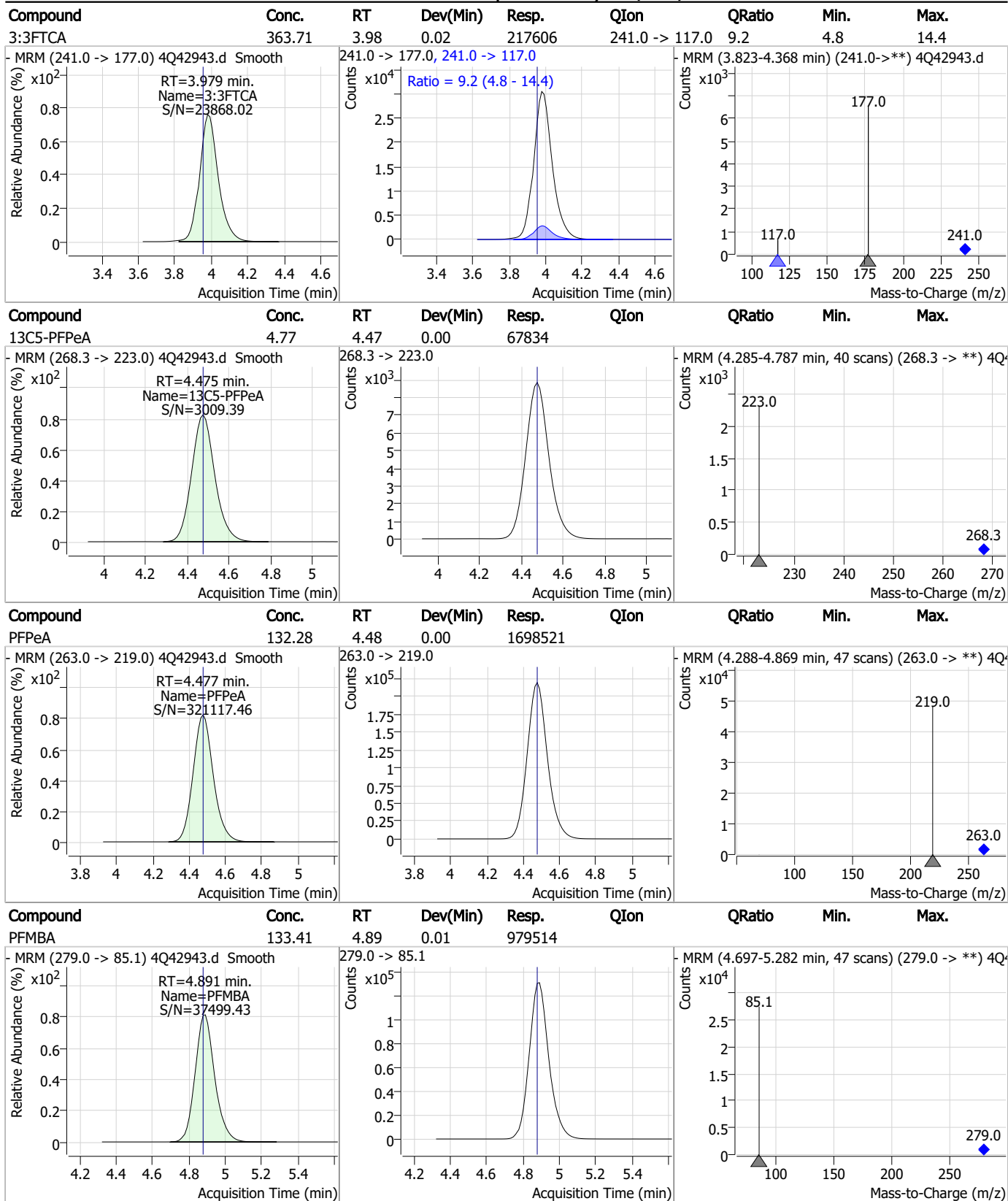
7.7.9

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Perfluorinated Compounds by LC/MS/MS

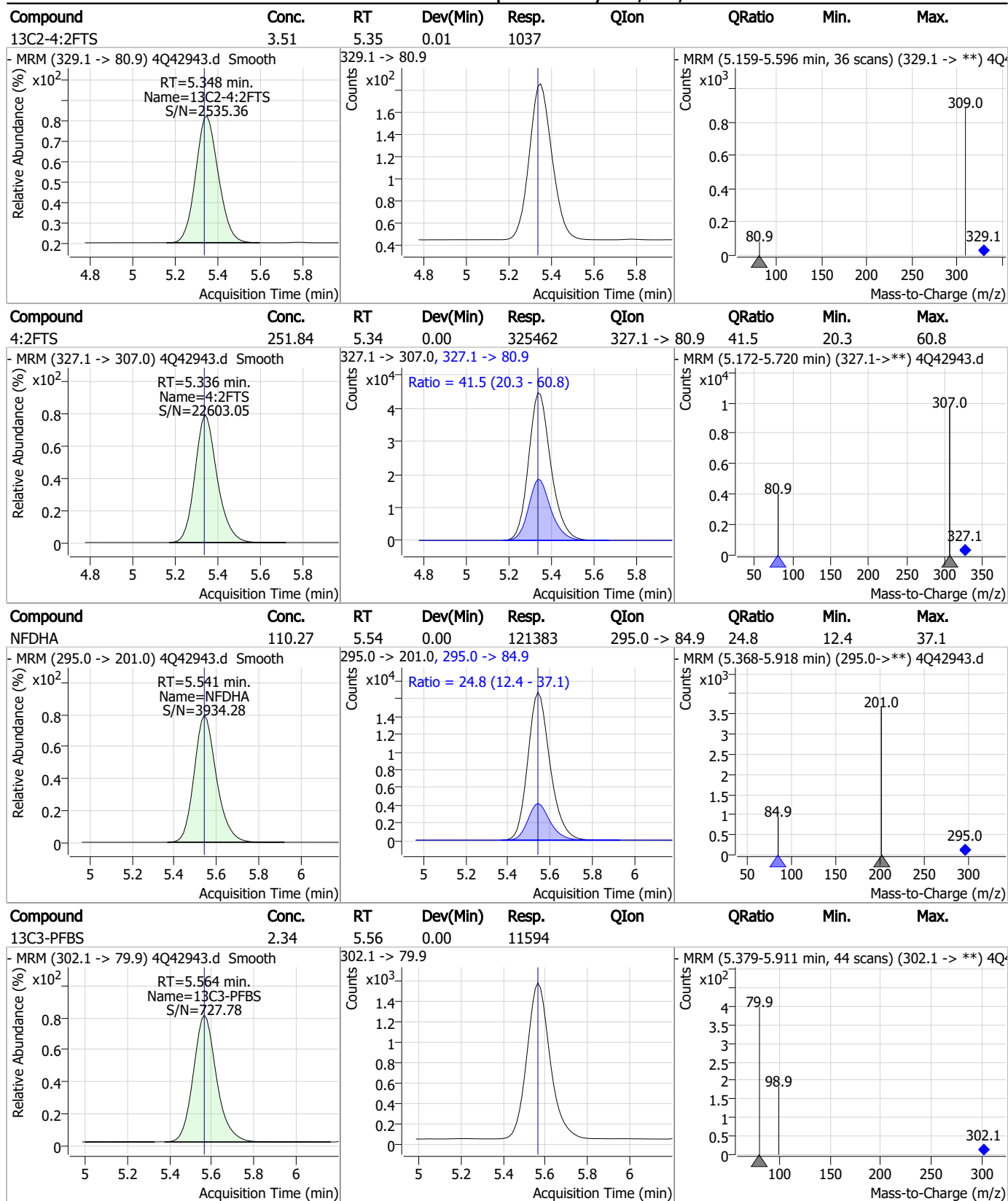


Perfluorinated Compounds by LC/MS/MS



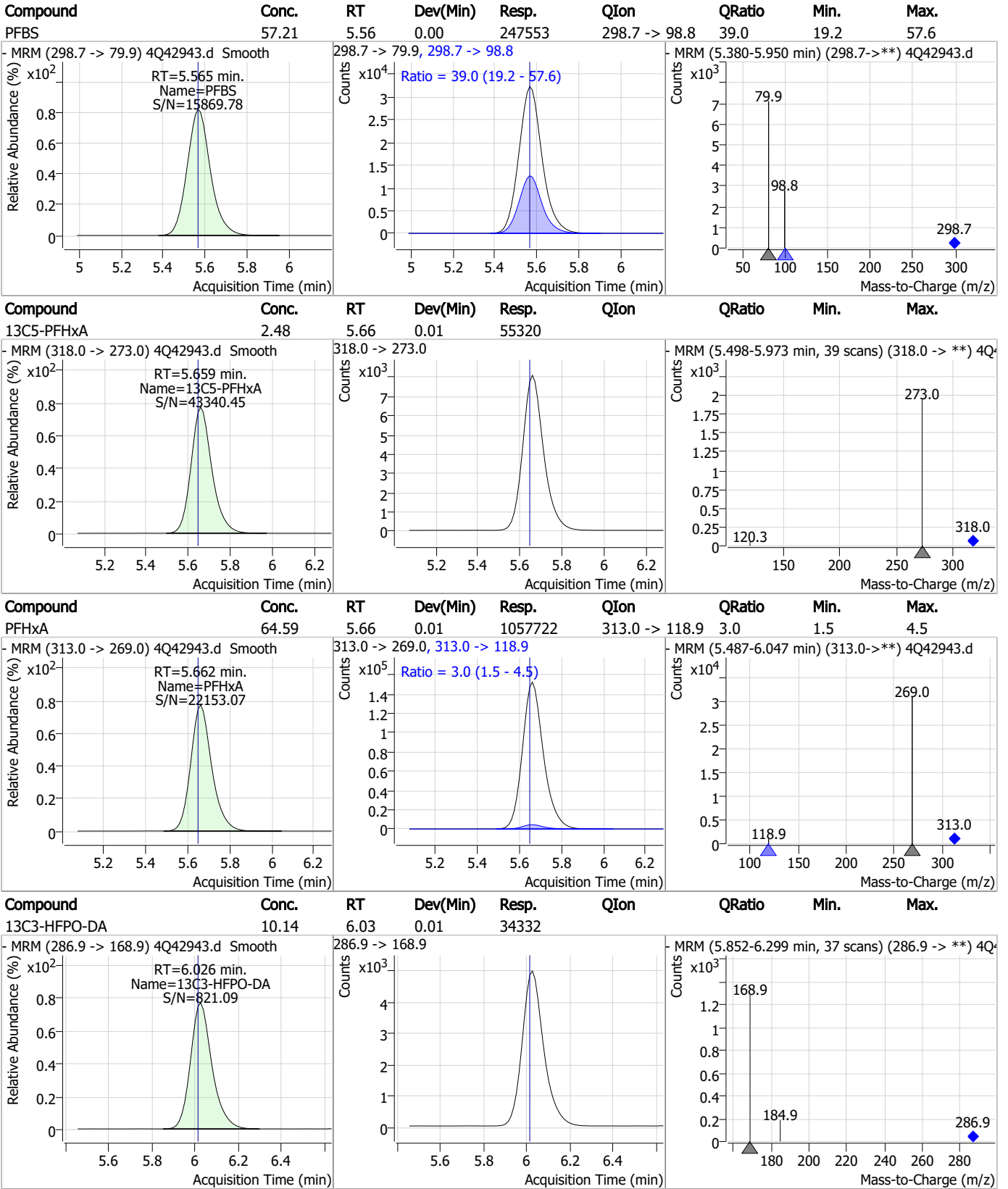
7.7.9
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Perfluorinated Compounds by LC/MS/MS



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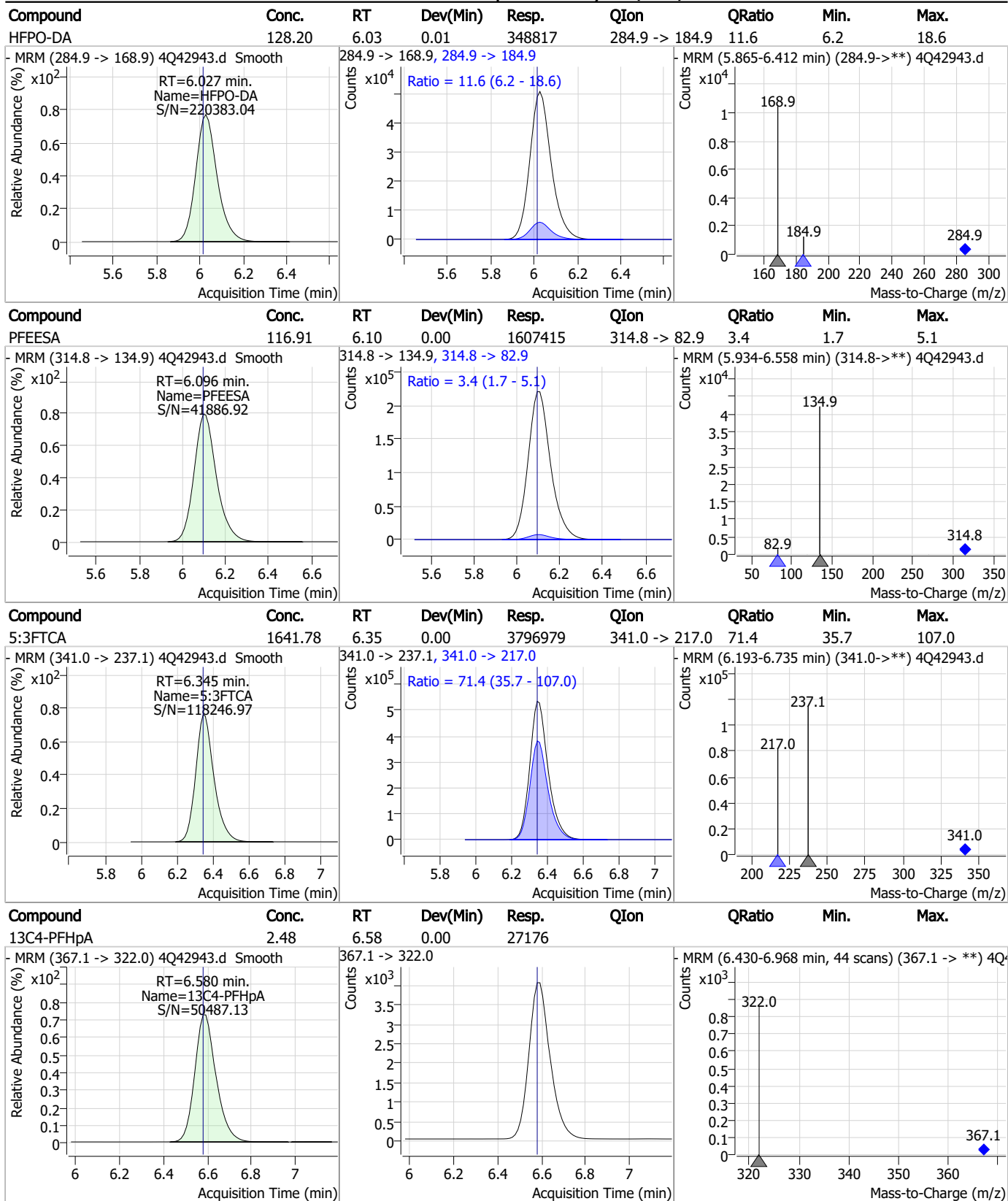
Perfluorinated Compounds by LC/MS/MS



7.7.9

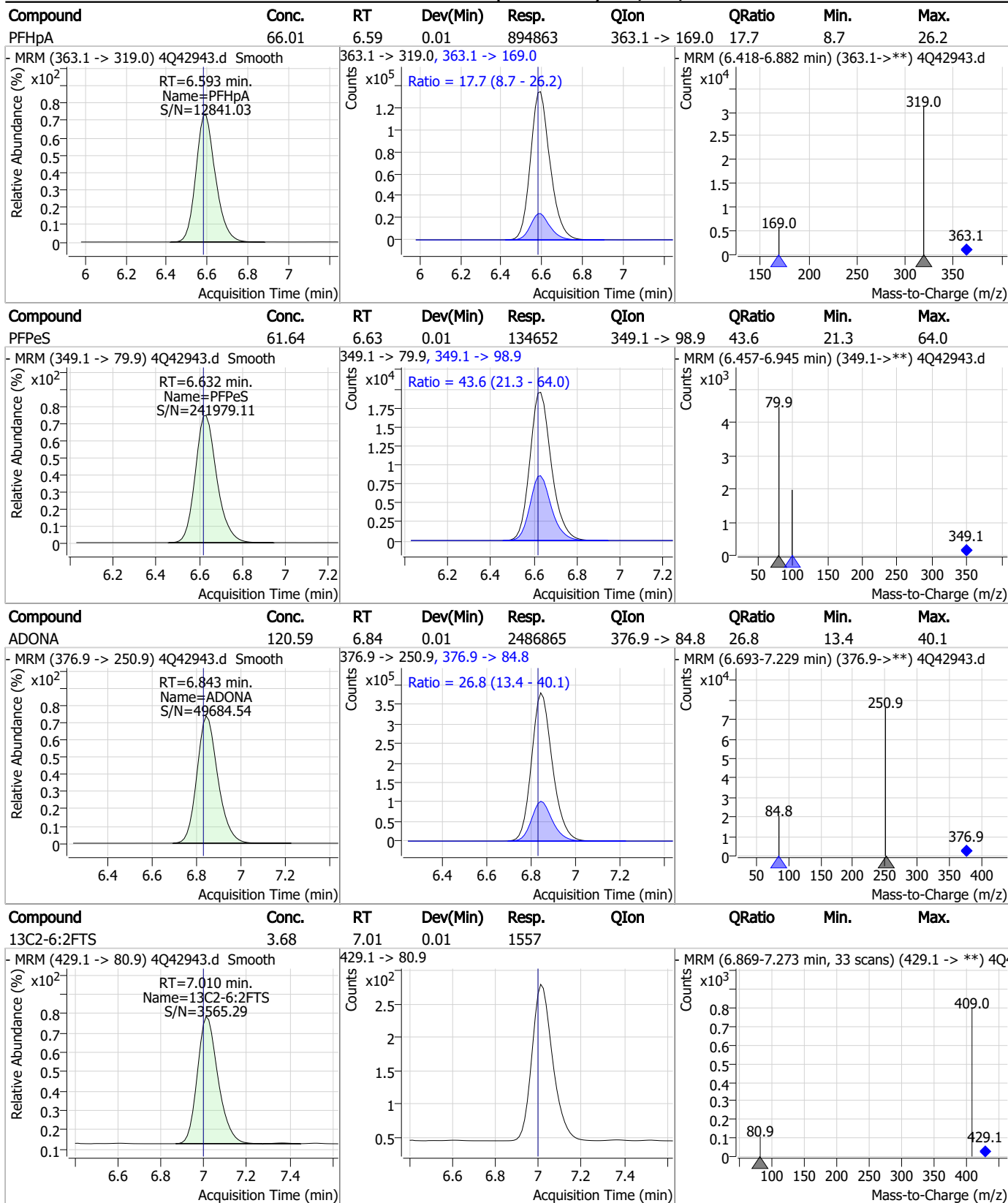
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Perfluorinated Compounds by LC/MS/MS



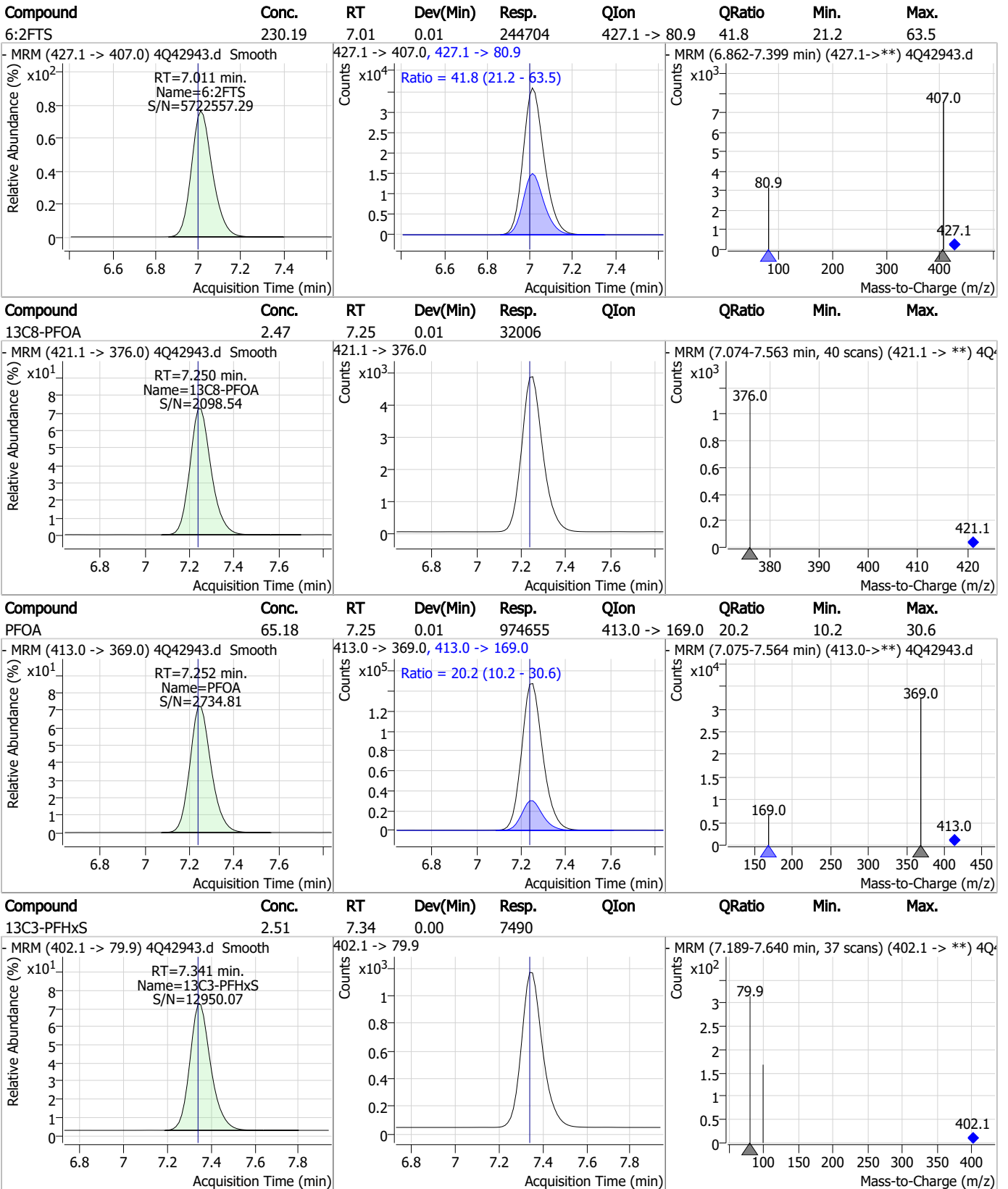
7.7.9
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Perfluorinated Compounds by LC/MS/MS



7.7.9
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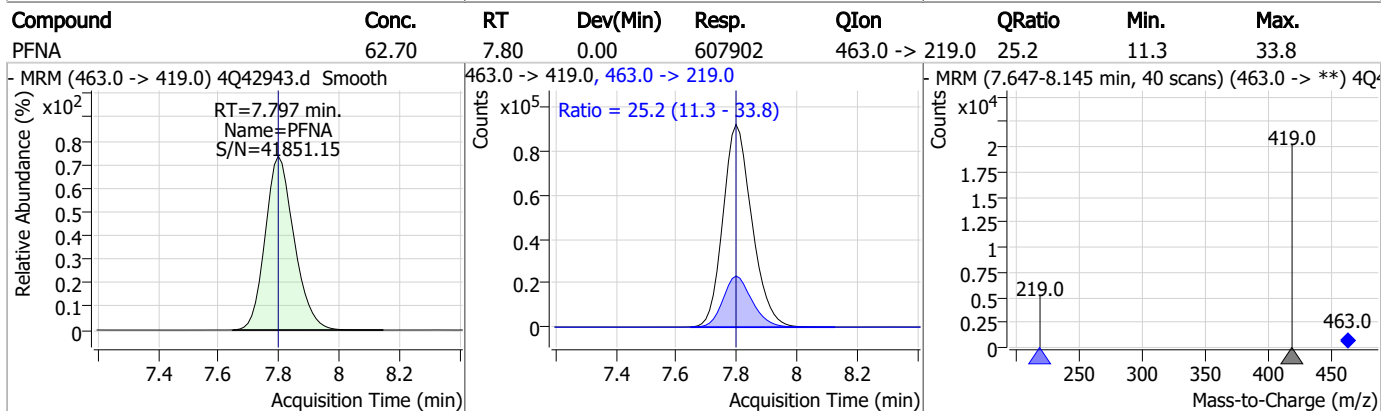
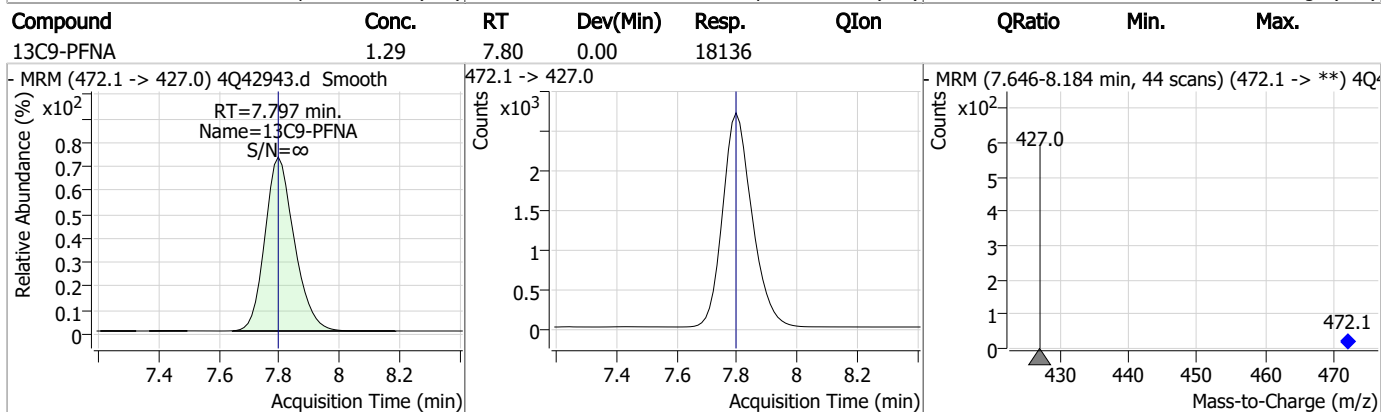
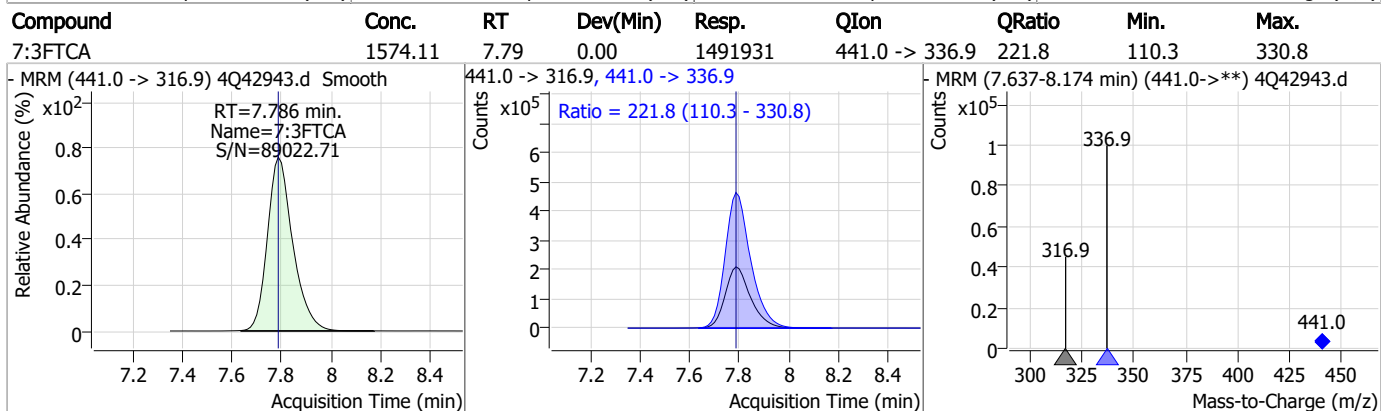
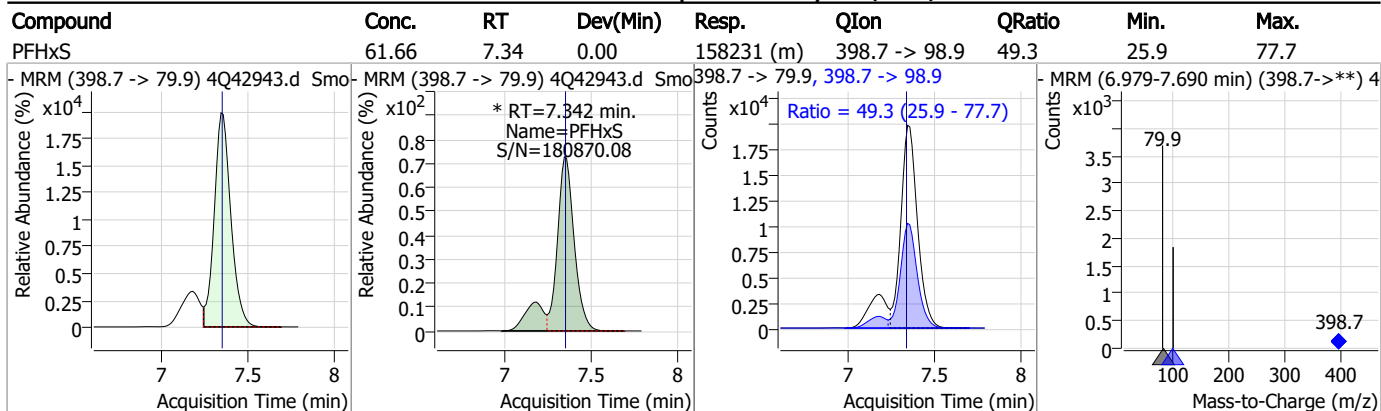
Perfluorinated Compounds by LC/MS/MS



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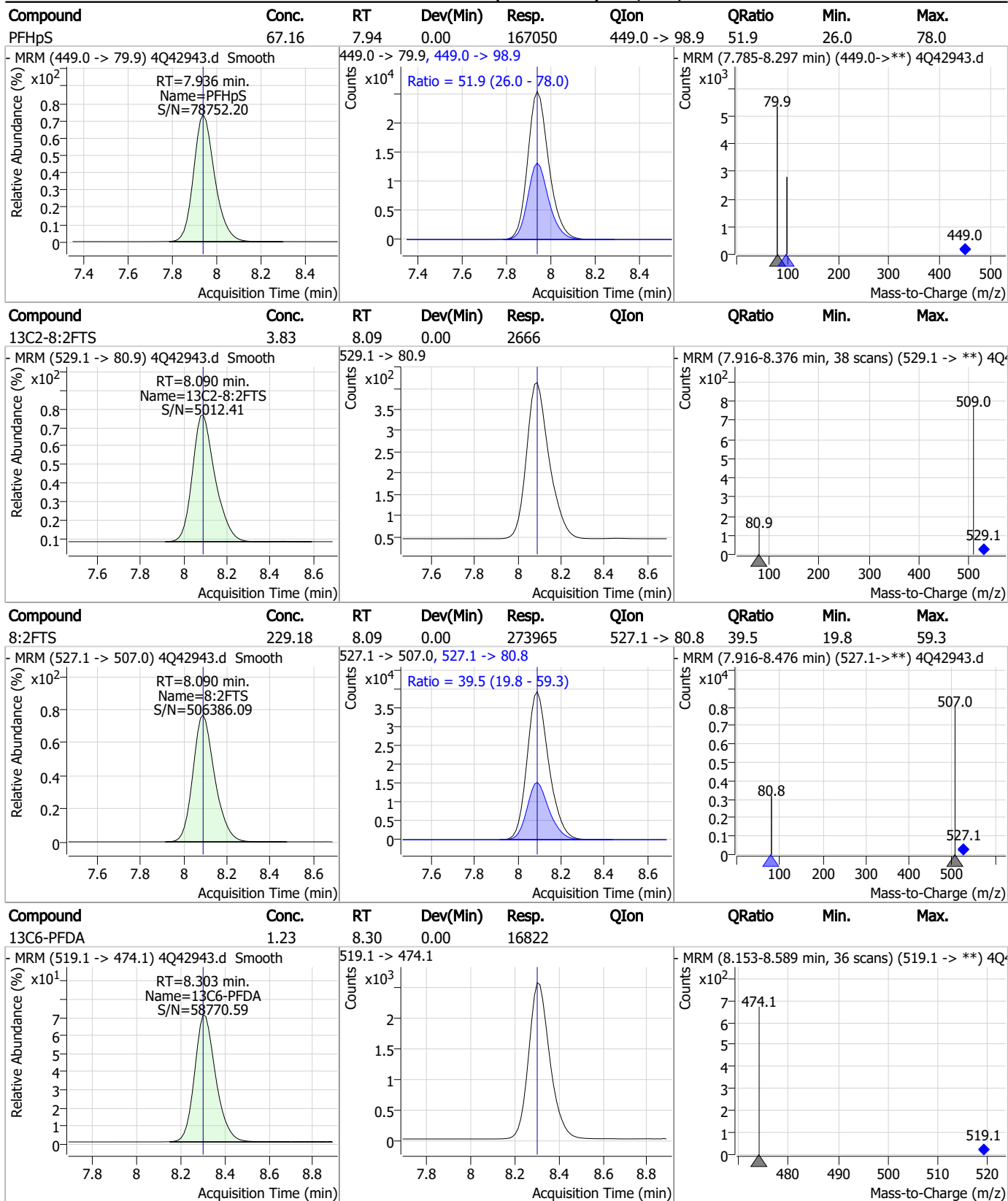
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Perfluorinated Compounds by LC/MS/MS



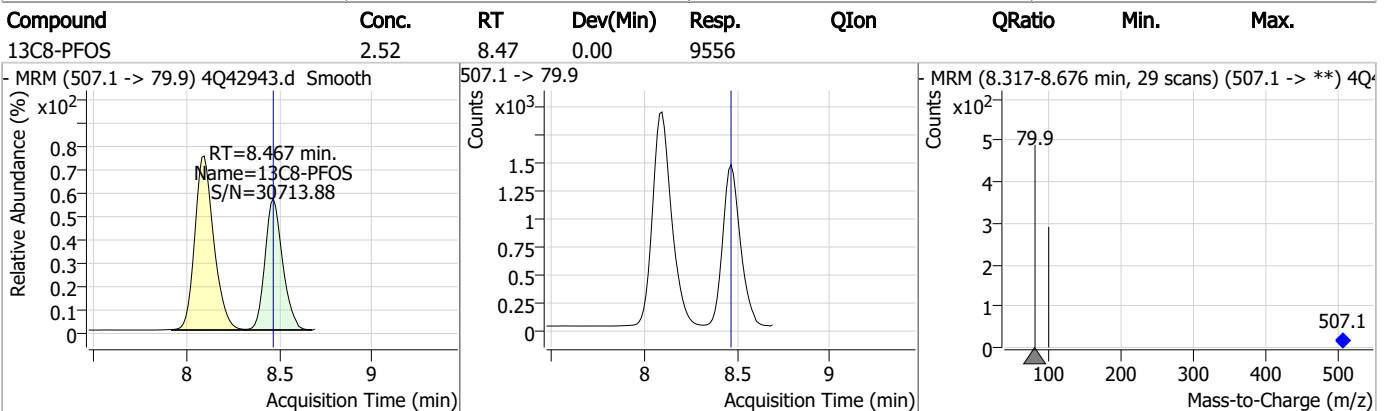
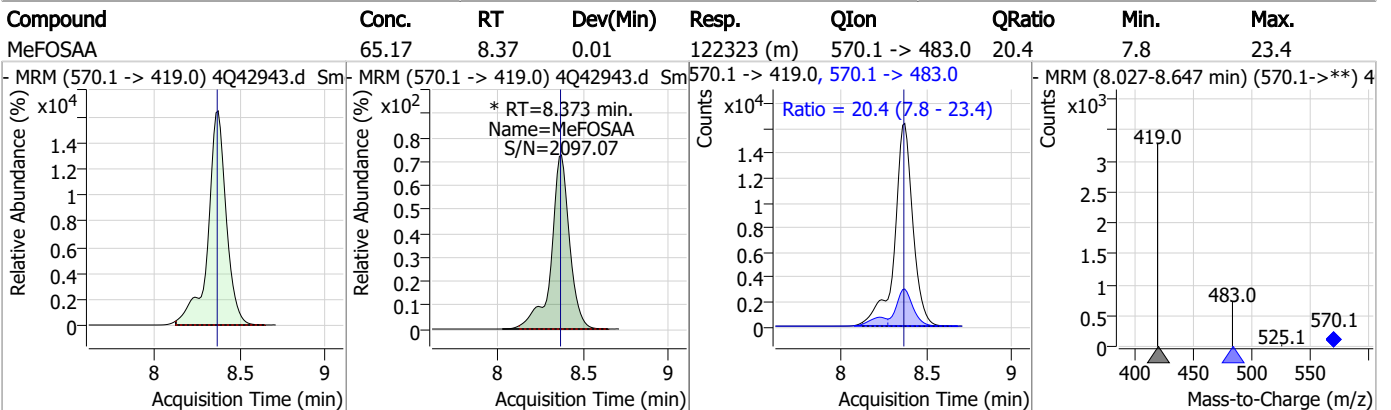
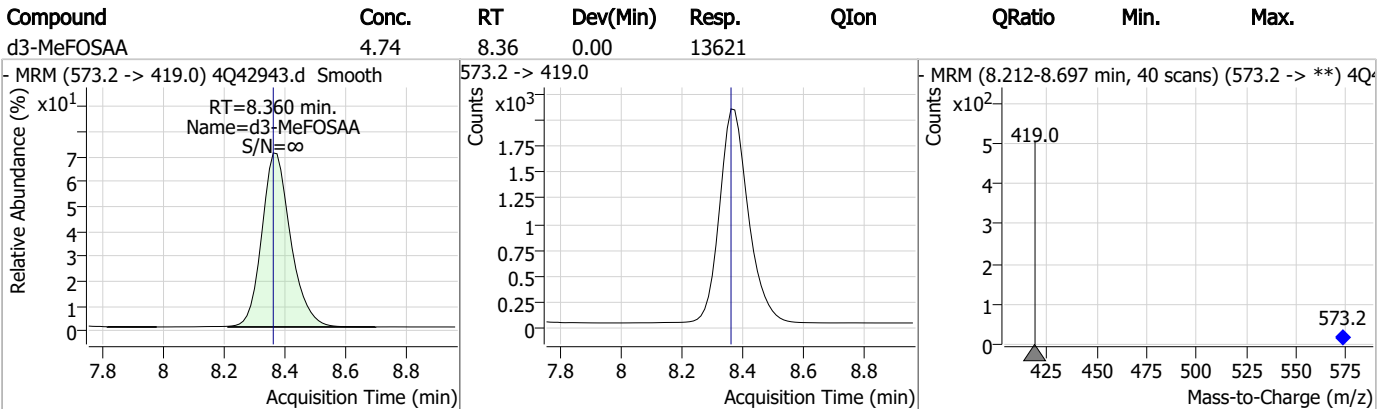
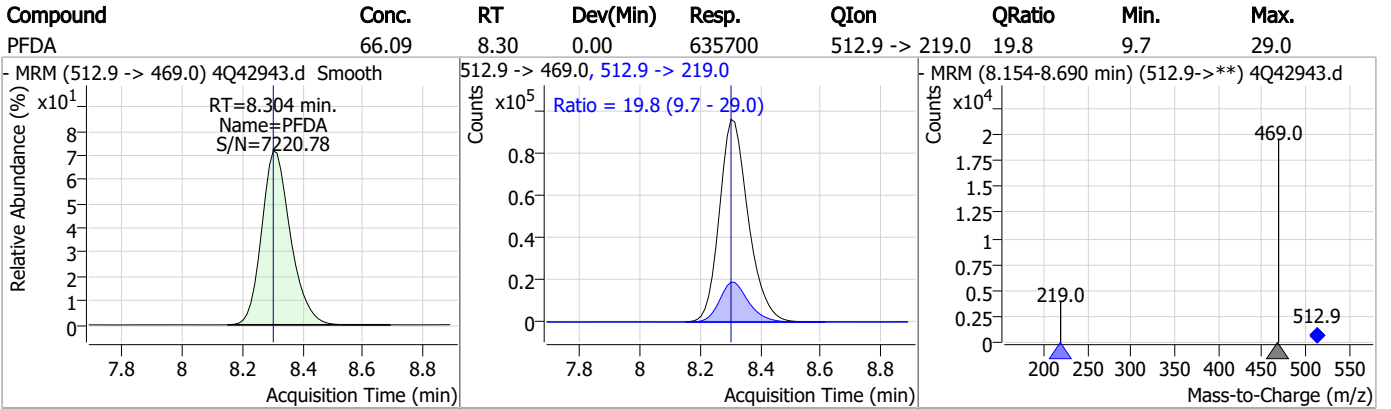
7.7.9
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Perfluorinated Compounds by LC/MS/MS

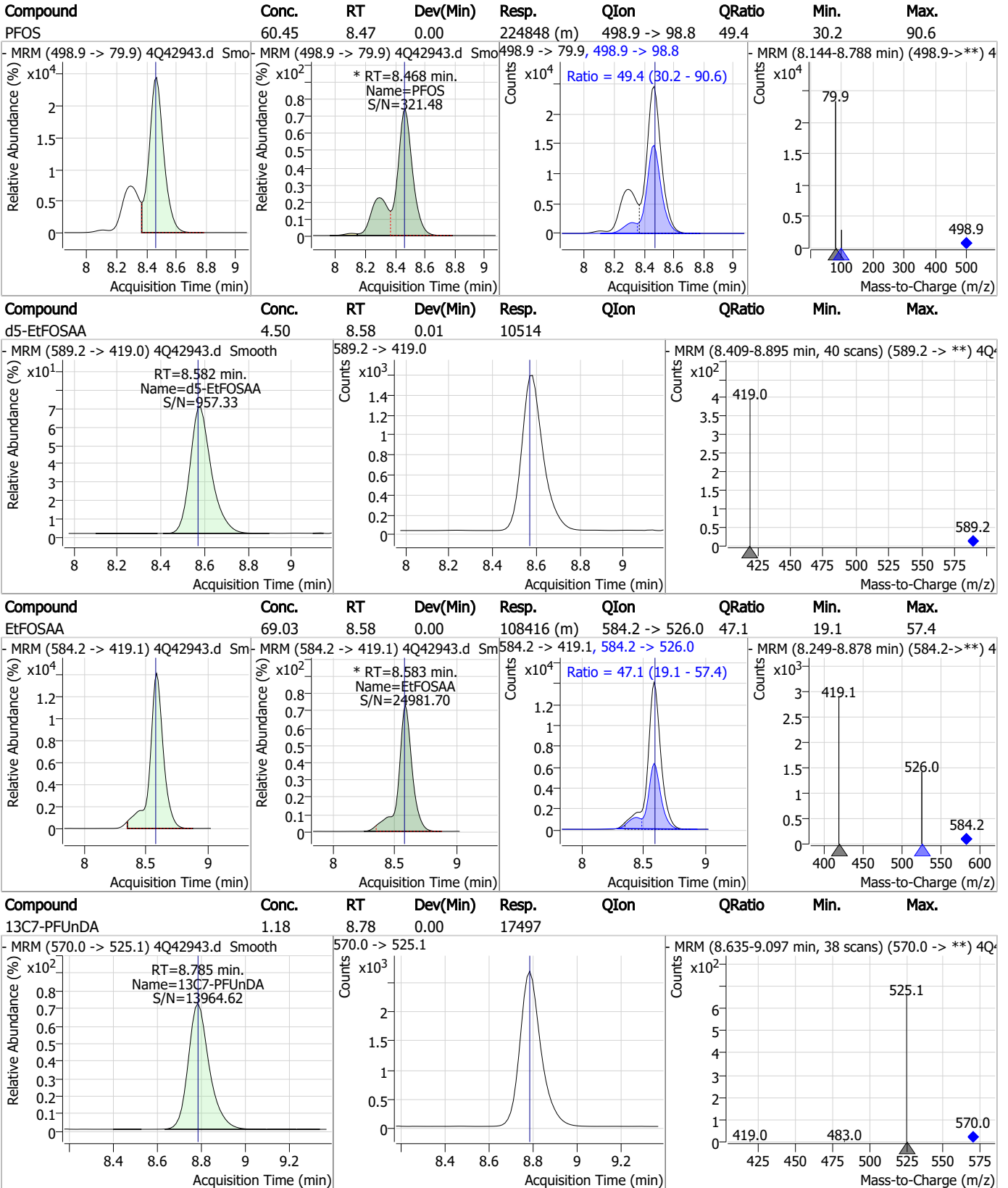


7.7.9
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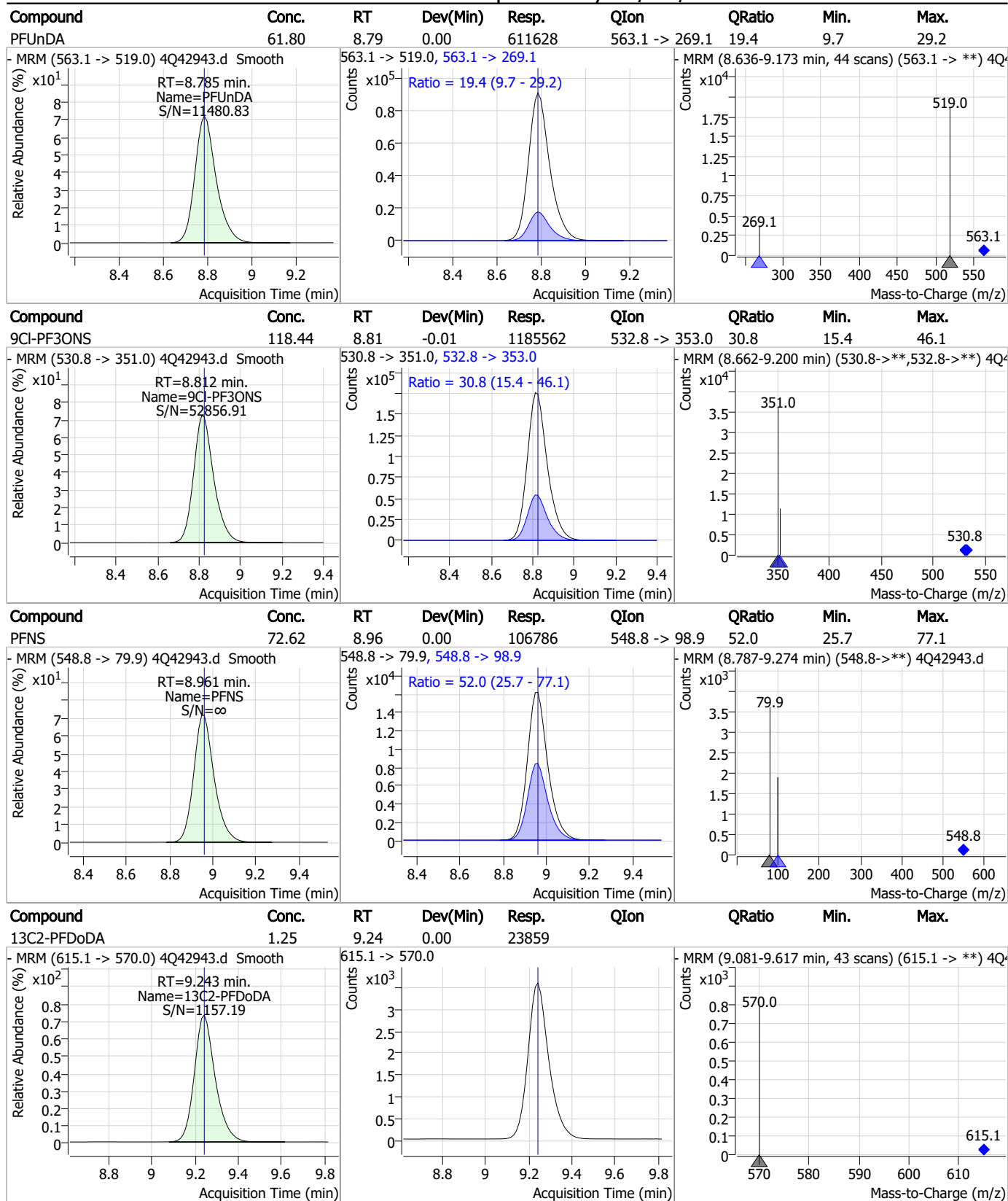
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.7.9

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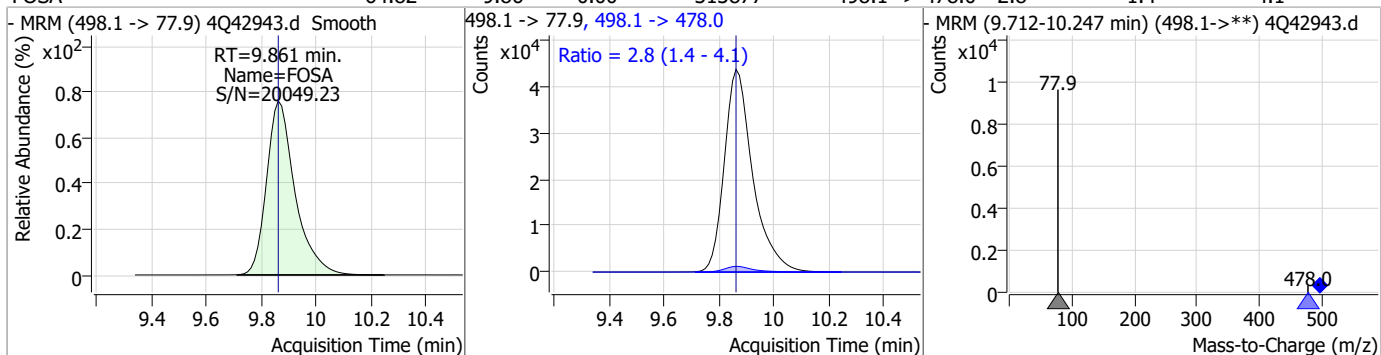
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	62.99	9.24	0.00	947715	613.1 -> 319.0	14.3	7.0	21.1
PFDS	63.94	9.41	0.00	136623	599.0 -> 98.8	49.7	24.2	72.7
PFTrDA	55.65	9.65	-0.01	1078811	663.0 -> 168.9	9.6	4.8	14.5
11Cl-PF3OUdS	112.31	9.71	0.00	1006397	632.9 -> 452.9	30.8	15.7	47.0

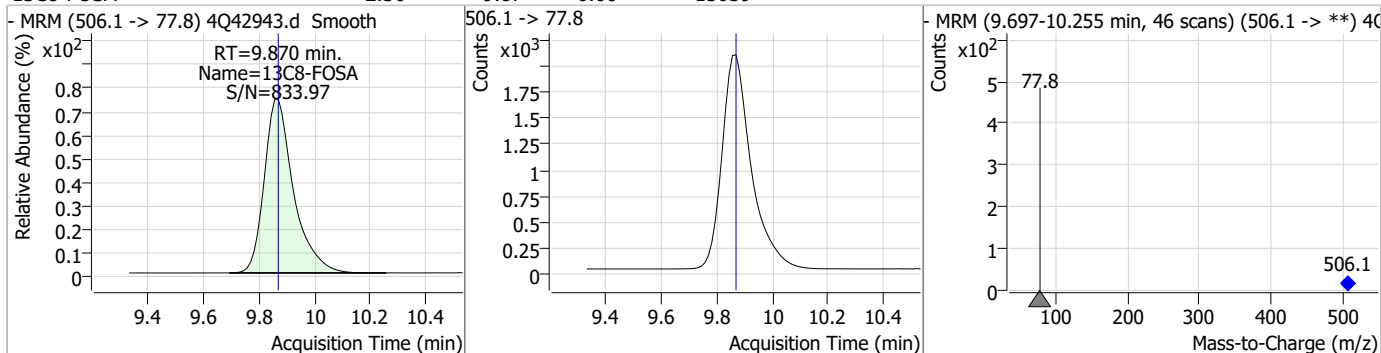
7.7.9
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Perfluorinated Compounds by LC/MS/MS

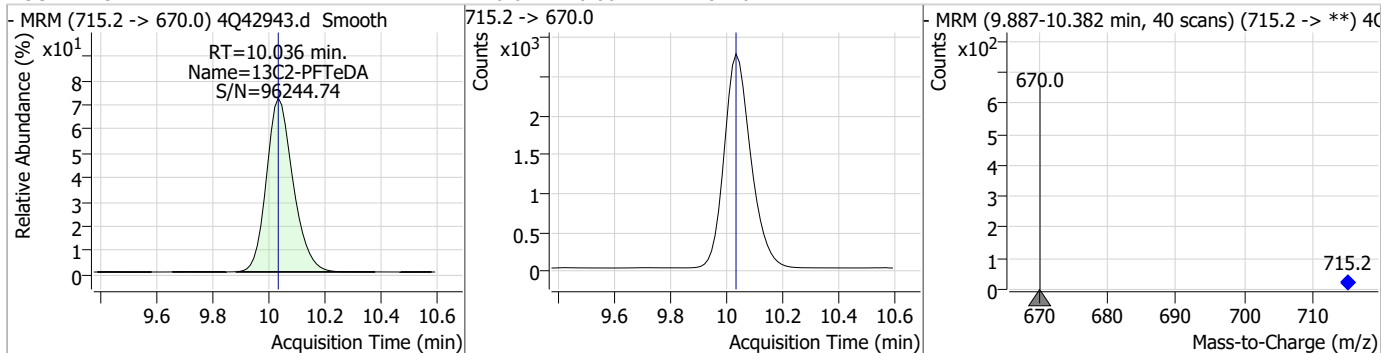
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	64.82	9.86	0.00	313877	498.1 -> 478.0	2.8	1.4	4.1



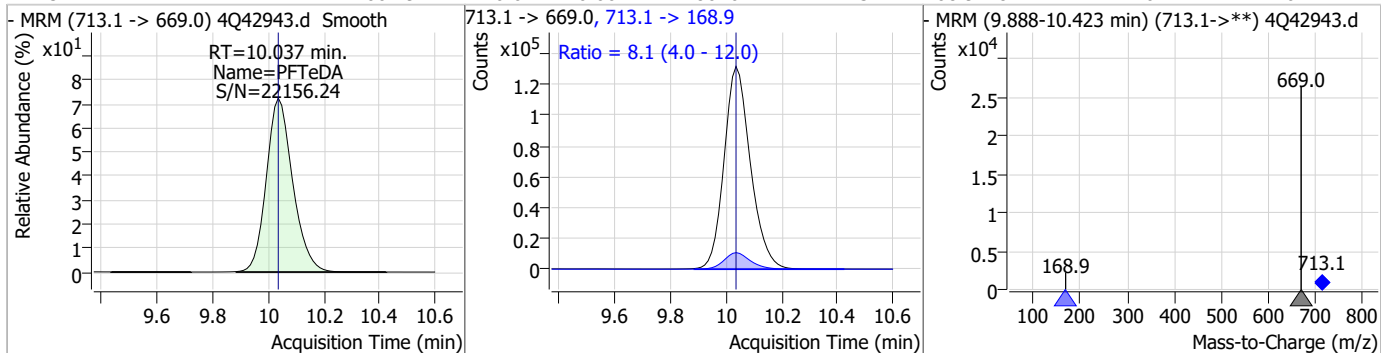
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.36	9.87	0.00	15039				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	10.04	0.00	18140				



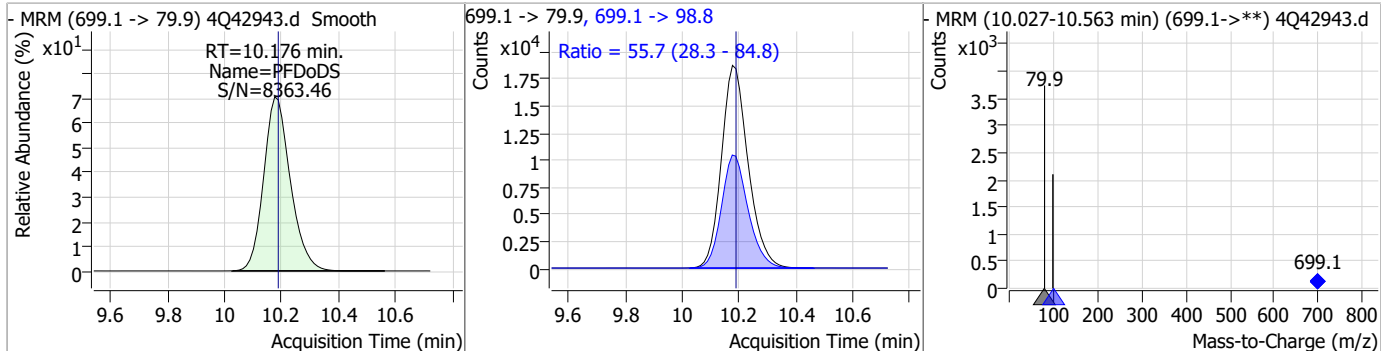
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	60.29	10.04	0.00	861044	713.1 -> 168.9	8.1	4.0	12.0



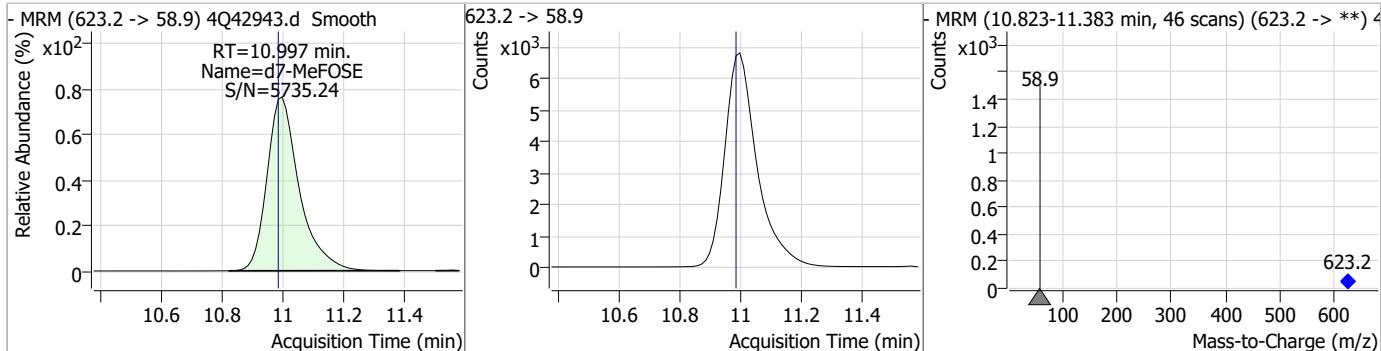
7.7.9
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Perfluorinated Compounds by LC/MS/MS

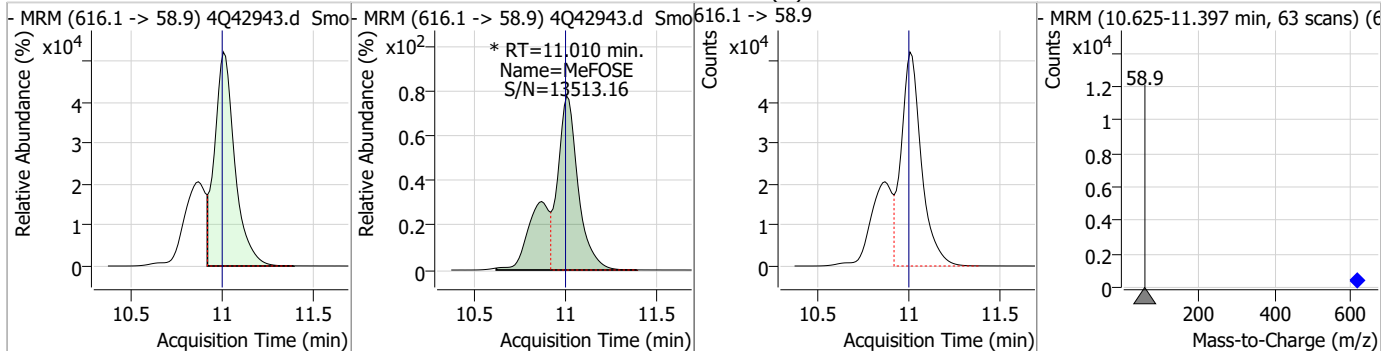
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	65.83	10.18	-0.01	121607	699.1 -> 98.8	55.7	28.3	84.8



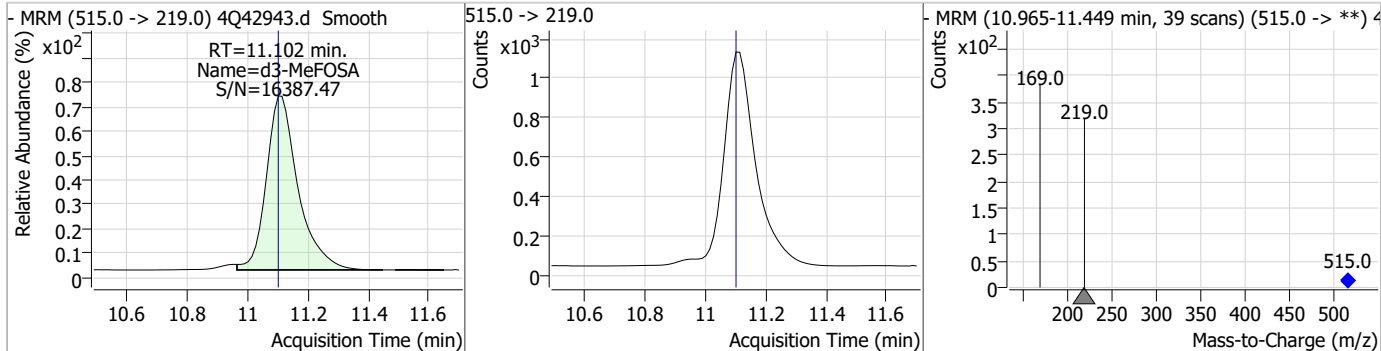
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.74	11.00	0.01	49713				



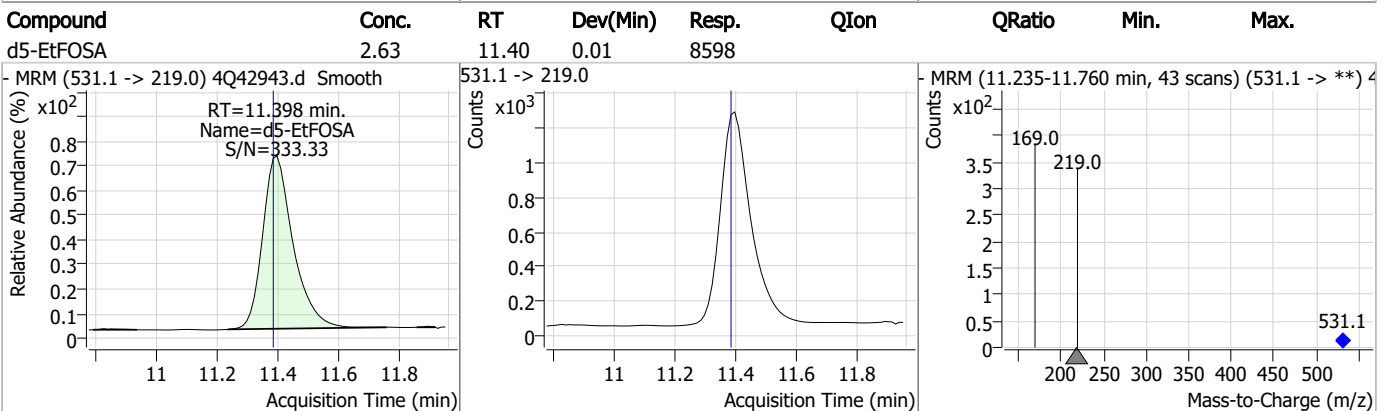
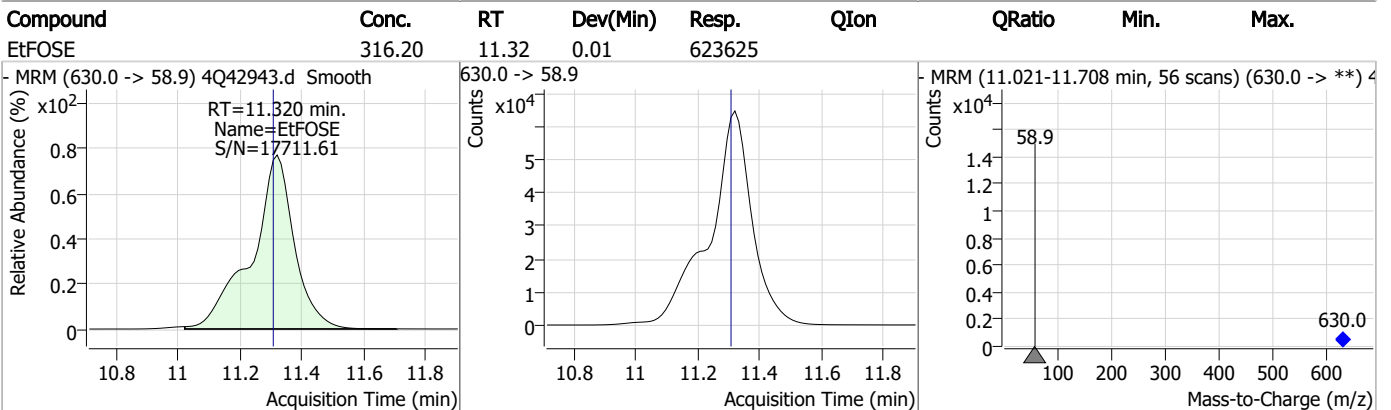
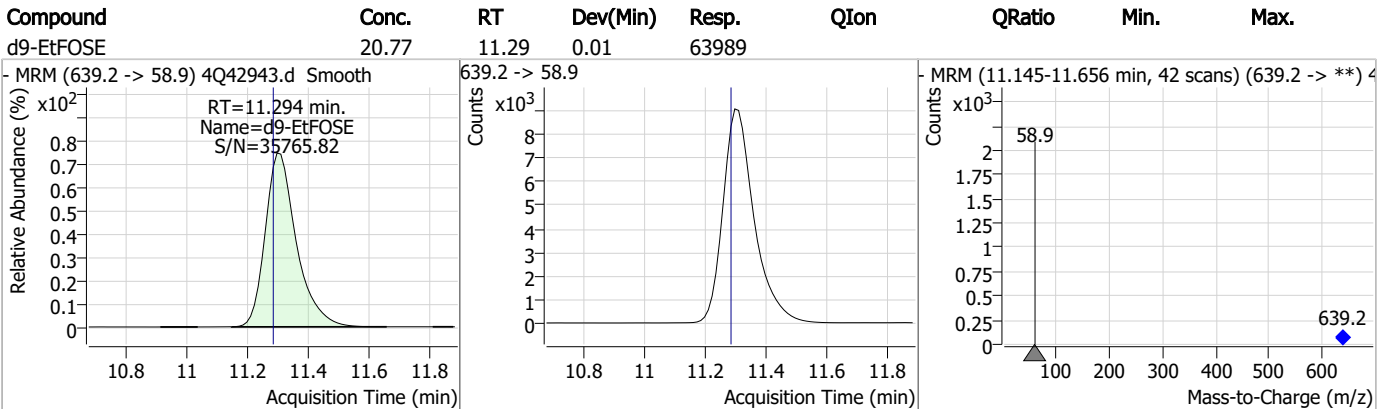
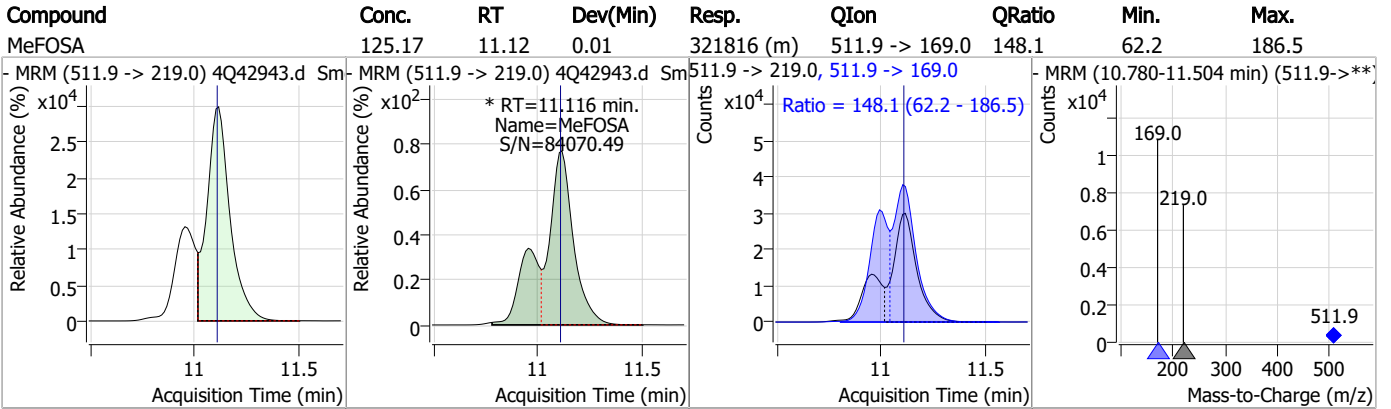
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	324.75	11.01	0.01	567406 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.63	11.10	0.00	7952				



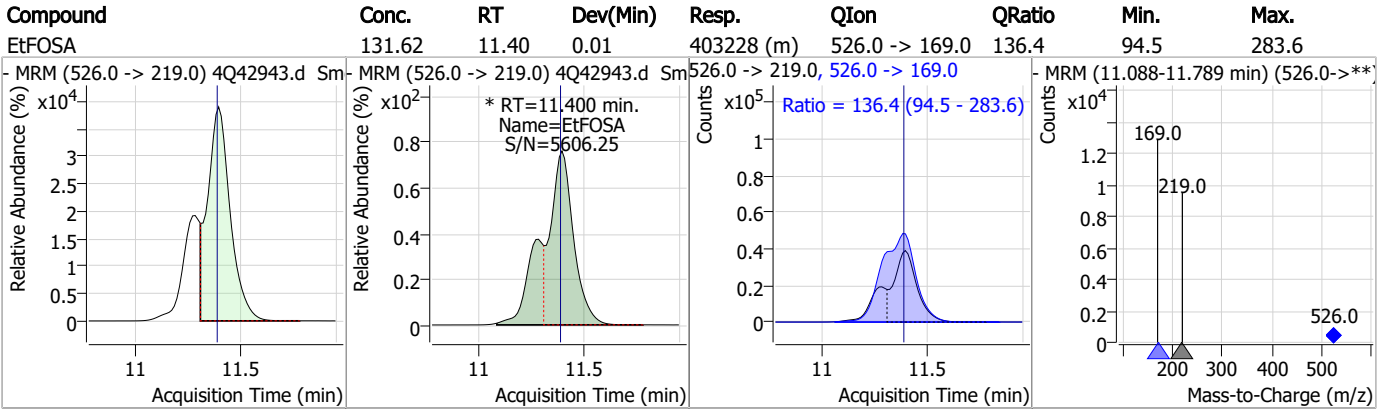
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q621-IC621 Method: EPA DRAFT 1633
Lab FileID: 4Q42943.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 13:37 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.34	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.58	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.12	Split peak
EtFOSA	4151-50-2		11.40	Split peak

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7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42945.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 2:05:46 PM
 Sample Name : icv621-4
 Vial : P1-B1
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.986	216.8 -> 171.9	114282	10.00 µg/L	-0.013
M5-PFPeA	4.475	268.3 -> 223.0	75854	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	58947	2.50 µg/L	0.012
M4-PFHpA	6.592	367.1 -> 322.0	29149	2.50 µg/L	0.012
M8-PFOA	7.250	421.1 -> 376.0	37022	2.50 µg/L	0.013
M9-PFNA	7.809	472.1 -> 427.0	18964	1.25 µg/L	0.012
M6-PFDA	8.328	519.1 -> 474.1	19212	1.25 µg/L	0.025
M7-PFUnDA	8.797	570.0 -> 525.1	20455	1.25 µg/L	0.012
M2-PFDoDA	9.243	615.1 -> 570.0	25144	1.25 µg/L	0.000
M2-PFTeDA	10.011	715.2 -> 670.0	18924	1.25 µg/L	-0.025
M8-FOSA	9.858	506.1 -> 77.8	15960	2.50 µg/L	-0.012
M3-PFBS	5.564	302.1 -> 79.9	13068	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	7835	2.50 µg/L	0.013
M8-PFOS	8.479	507.1 -> 79.9	11292	2.50 µg/L	0.012
M2-4:2FTS	5.335	329.1 -> 80.9	1351	5.00 µg/L	0.000
M2-6:2FTS	7.023	429.1 -> 80.9	2035	5.00 µg/L	0.025
M2-8:2FTS	8.102	529.1 -> 80.9	3225	5.00 µg/L	0.012
M3-MeFOSAA	8.385	573.2 -> 419.0	16070	5.00 µg/L	0.025
M3-HFPO-DA	6.026	286.9 -> 168.9	37196	10.00 µg/L	0.012
M5-EtFOSAA	8.595	589.2 -> 419.0	12435	5.00 µg/L	0.025
M7-MeFOSE	10.972	623.2 -> 58.9	57691	25.00 µg/L	-0.012
M9-EtFOSE	11.282	639.2 -> 58.9	72890	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	9770	2.50 µg/L	-0.012
M3-MeFOSA	11.089	515.0 -> 219.0	8514	2.50 µg/L	-0.012
13C4-PFOS	8.480	502.8 -> 79.9	11710	2.50 µg/L	0.012
13C3-PFBA	2.991	216.0 -> 172.0	66740	5.00 µg/L	0.000
18O2-PFHxS	7.353	403.0 -> 83.9	5375	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	44799	2.50 µg/L	0.013
13C2-PFDA	8.328	515.1 -> 470.1	18014	1.25 µg/L	0.025
13C5-PFNA	7.809	468.0 -> 423.0	22595	1.25 µg/L	0.012
13C2-PFHxA	5.660	315.1 -> 270.0	51664	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1351	4.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C2-6:2FTS	7.023	429.1 -> 80.9	2035	4.83 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C2-8:2FTS	8.102	529.1 -> 80.9	3225	4.65 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.0%		
13C2-PFDoDA	9.243	615.1 -> 570.0	25144	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.7%		
13C2-PFTeDA	10.011	715.2 -> 670.0	18924	1.10 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.7%		
13C3-PFBS	5.564	302.1 -> 79.9	13068	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C3-PFHxS	7.354	402.1 -> 79.9	7835	2.63 µg/L	0.013

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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	2.986	216.8 -> 171.9	114282	9.83 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C4-PFHpA	6.592	367.1 -> 322.0	29149	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C5-PFHxA	5.659	318.0 -> 273.0	58947	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C5-PFPeA	4.475	268.3 -> 223.0	75854	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C6-PFDA	8.328	519.1 -> 474.1	19212	1.21 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C7-PFUnDA	8.797	570.0 -> 525.1	20455	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C8-FOSA	9.858	506.1 -> 77.8	15960	2.08 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.4%	
13C8-PFOA	7.250	421.1 -> 376.0	37022	2.51 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C8-PFOS	8.479	507.1 -> 79.9	11292	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C9-PFNA	7.809	472.1 -> 427.0	18964	1.15 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.2%	
d3-MeFOSAA	8.385	573.2 -> 419.0	16070	4.66 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	37196	10.26 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d3-MeFOSA	11.089	515.0 -> 219.0	8514	2.35 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.9%	
d5-EtFOSAA	8.595	589.2 -> 419.0	12435	4.44 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.7%	
d7-MeFOSE	10.972	623.2 -> 58.9	57691	19.10 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.4%	
d9-EtFOSE	11.282	639.2 -> 58.9	72890	19.72 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.9%	
d5-EtFOSA	11.373	531.1 -> 219.0	9770	2.49 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
Target Compounds					QValue
4:2FTS	5.348	327.1 -> 307.0	15049	8.94 µg/L	95
		327.1 -> 80.9	6599		
6:2FTS	7.023	427.1 -> 407.0	12866	9.26 µg/L	94
		427.1 -> 80.9	5927		
8:2FTS	8.103	527.1 -> 507.0	13884	9.60 µg/L	97
		527.1 -> 80.8	5771		
EtFOSAA	8.608	584.2 -> 419.1	4379	2.36 µg/L	m 81
		584.2 -> 526.0	2191		
FOSA	9.849	498.1 -> 77.9	12070	2.35 µg/L	99
		498.1 -> 478.0	380		
MeFOSAA	8.386	570.1 -> 419.0	5086	2.30 µg/L	m 83
		570.1 -> 483.0	1150		
PFBA	2.995	212.8 -> 168.9	24641	9.44 µg/L	100
PFBS	5.565	298.7 -> 79.9	10292	2.11 µg/L	99
		298.7 -> 98.8	3874		
PFDA	8.328	512.9 -> 469.0	25728	2.34 µg/L	99
		512.9 -> 219.0	5106		
PFDODA	9.244	613.1 -> 569.0	38415	2.42 µg/L	100
		613.1 -> 319.0	5358		
PFDS	9.396	599.0 -> 79.9	5754	2.28 µg/L	99

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2819			
PFHpA	6.593	363.1 -> 319.0	34915	2.40	µg/L	97
		363.1 -> 169.0	6562			
PFHpS	7.950	449.0 -> 79.9	6649	2.26	µg/L	99
		449.0 -> 98.9	3523			
PFHxA	5.662	313.0 -> 269.0	41136	2.36	µg/L	100
		313.0 -> 118.9	1266			
PFHxS	7.355	398.7 -> 79.9	5413	2.02	µg/L	m 96
		398.7 -> 98.9	2944			
PFNA	7.810	463.0 -> 419.0	24681	2.43	µg/L	95
		463.0 -> 219.0	6197			
PFNS	8.961	548.8 -> 79.9	3892	2.24	µg/L	97
		548.8 -> 98.9	1922			
PFOA	7.252	413.0 -> 369.0	38063	2.20	µg/L	99
		413.0 -> 169.0	7891			
PFOS	8.480	498.9 -> 79.9	9782	2.23	µg/L	m 84
		498.9 -> 98.8	4751			
PFPeA	4.477	263.0 -> 219.0	67966	4.73	µg/L	100
PFPeS	6.632	349.1 -> 79.9	4953	2.17	µg/L	100
		349.1 -> 98.9	2100			
PFTeDA	10.012	713.1 -> 669.0	34997	2.35	µg/L	100
		713.1 -> 168.9	2826			
PFTrDA	9.641	663.0 -> 619.0	48326	2.37	µg/L	99
		663.0 -> 168.9	4886			
PFUnDA	8.798	563.1 -> 519.0	25089	2.17	µg/L	98
		563.1 -> 269.1	5070			
11CI-PF3OUdS	9.693	630.9 -> 450.9	44324	4.57	µg/L	99
		632.9 -> 452.9	14005			
9CI-PF3ONS	8.825	530.8 -> 351.0	47826	4.41	µg/L	99
		532.8 -> 353.0	14549			
ADONA	6.843	376.9 -> 250.9	101133	4.53	µg/L	99
		376.9 -> 84.8	27669			
HFPO-DA	6.027	284.9 -> 168.9	13573	4.60	µg/L	100
		284.9 -> 184.9	1681			
3:3FTCA	3.954	241.0 -> 177.0	7897	11.80	µg/L	98
		241.0 -> 117.0	802			
5:3FTCA	6.345	341.0 -> 237.1	148231	60.15	µg/L	100
		341.0 -> 217.0	105285			
7:3FTCA	7.799	441.0 -> 316.9	60006	59.42	µg/L	98
		441.0 -> 336.9	133869			
EtFOSA	11.375	526.0 -> 219.0	16122	4.63	µg/L	m 63
		526.0 -> 169.0	21744			
EtFOSE	11.295	630.0 -> 58.9	27354	12.18	µg/L	100
MeFOSA	11.091	511.9 -> 219.0	13297	4.83	µg/L	m 83
		511.9 -> 169.0	19157			
MeFOSE	10.985	616.1 -> 58.9	23703	11.69	µg/L	m 100
PFDoDS	10.152	699.1 -> 79.9	4884	2.24	µg/L	99
		699.1 -> 98.8	2784			
NFDHA	5.541	295.0 -> 201.0	5463	4.66	µg/L	98
		295.0 -> 84.9	1417			
PFMBA	4.891	279.0 -> 85.1	38460	4.68	µg/L	100
PFMPA	3.611	229.0 -> 84.9	33438	4.66	µg/L	100
PFEESA	6.108	314.8 -> 134.9	61306	4.18	µg/L	100
		314.8 -> 82.9	2104			

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

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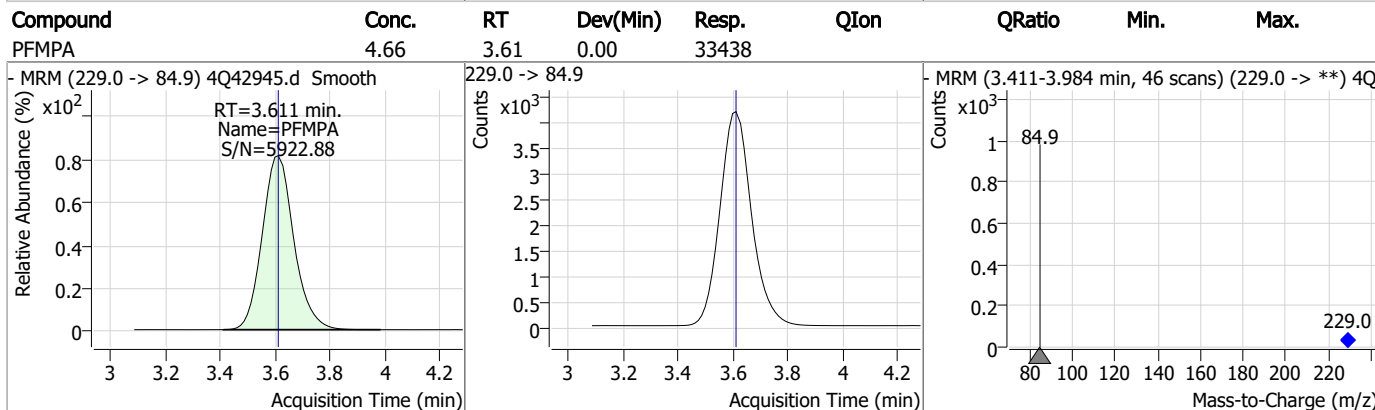
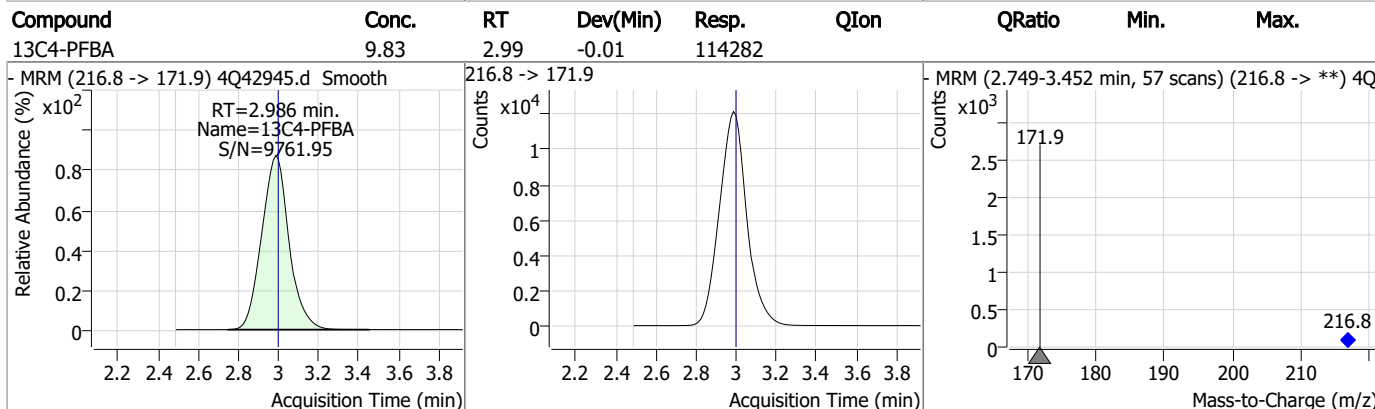
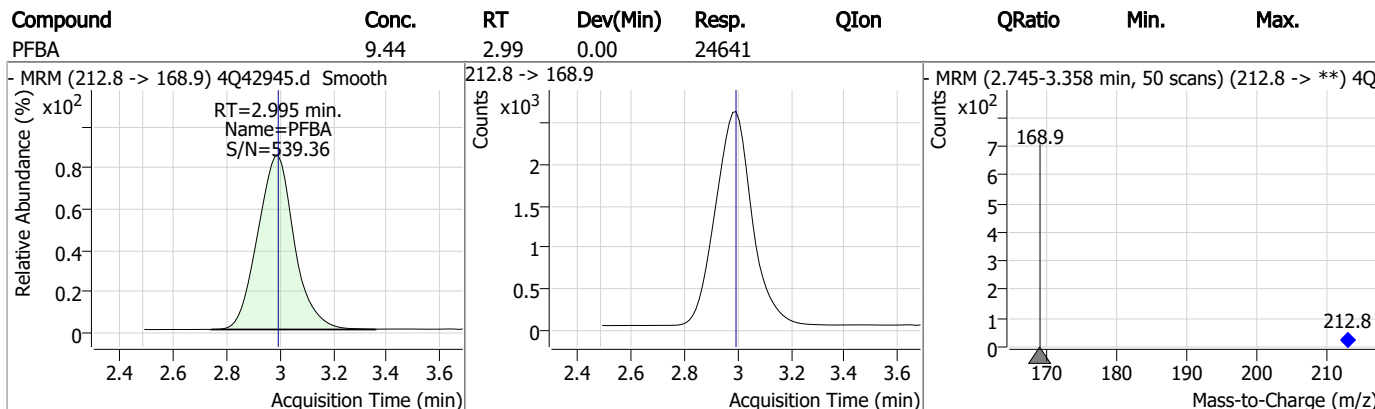
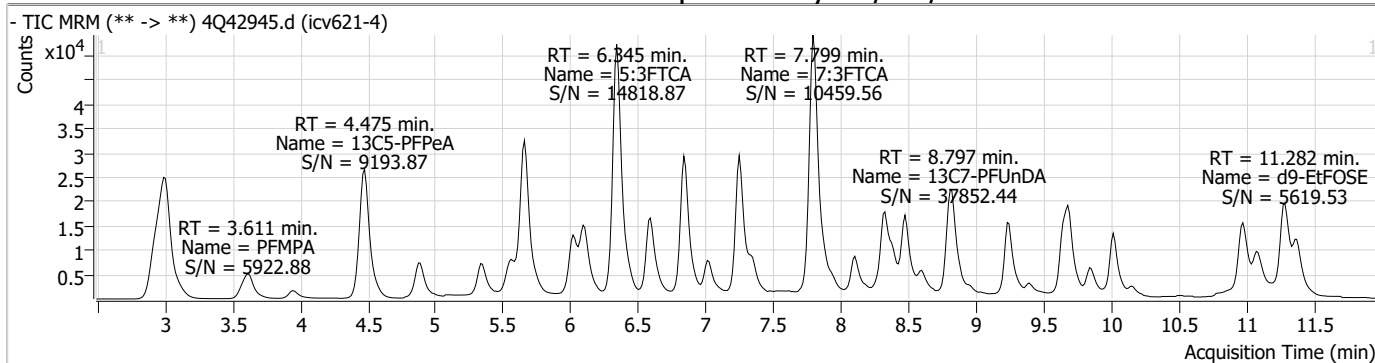
Perfluorinated Compounds by LC/MS/MS

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

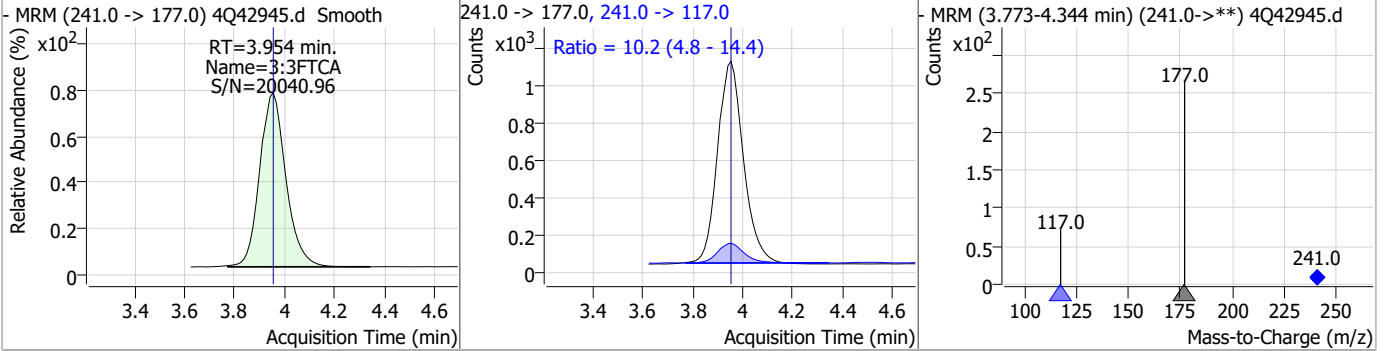
7

Perfluorinated Compounds by LC/MS/MS

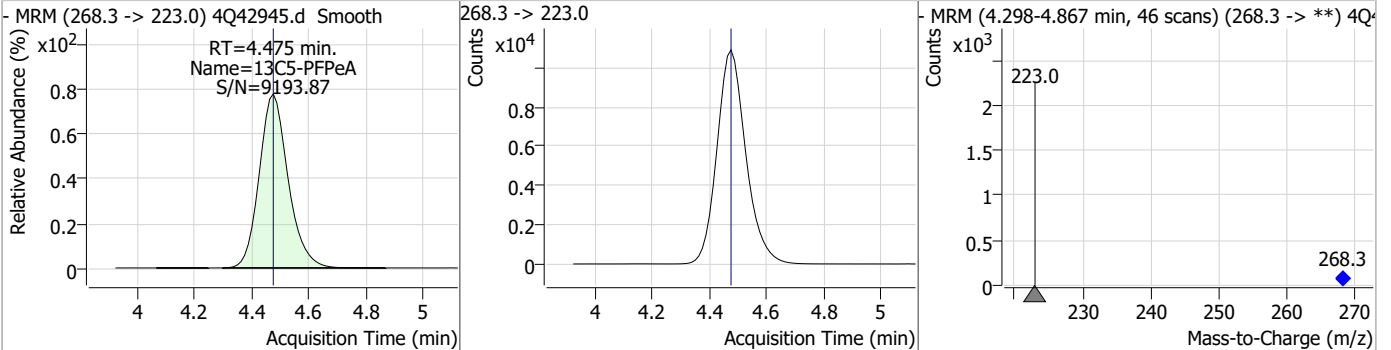


Perfluorinated Compounds by LC/MS/MS

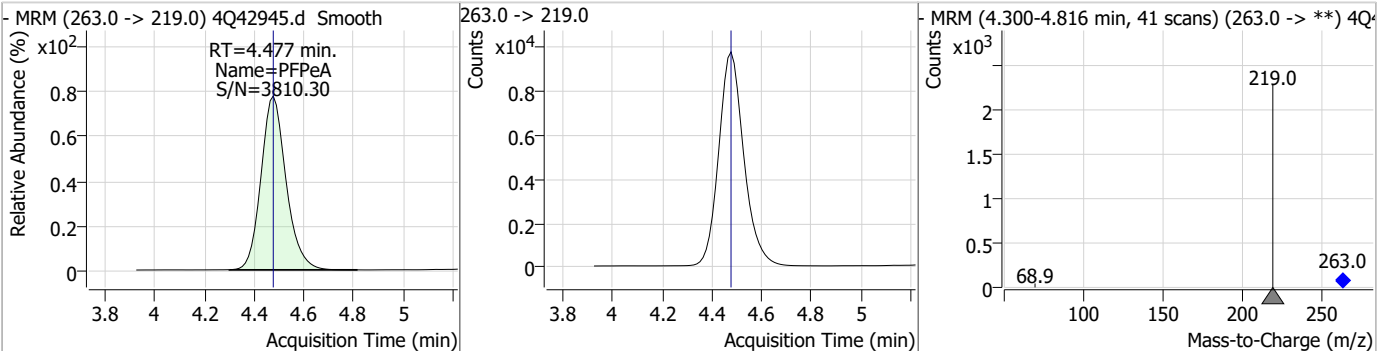
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.80	3.95	0.00	7897	241.0 -> 117.0	10.2	4.8	14.4



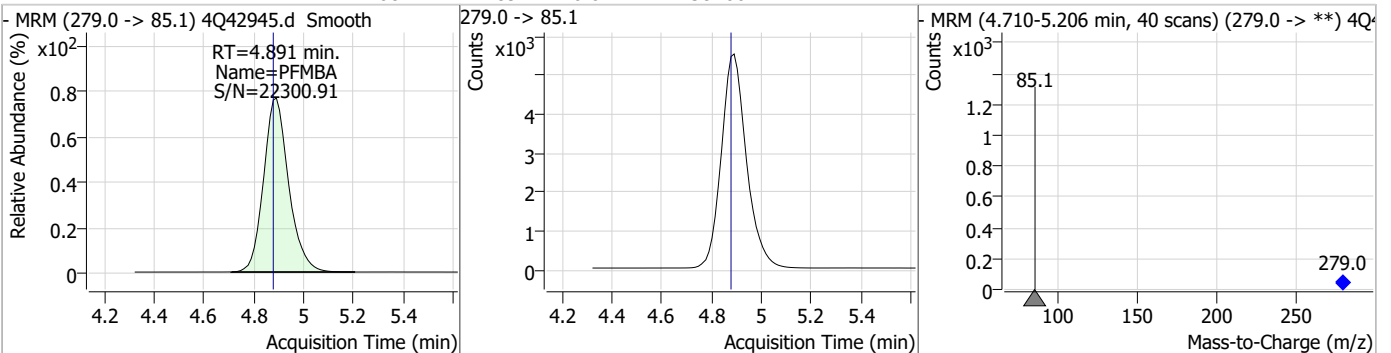
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.98	4.47	0.00	75854				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.73	4.48	0.00	67966				

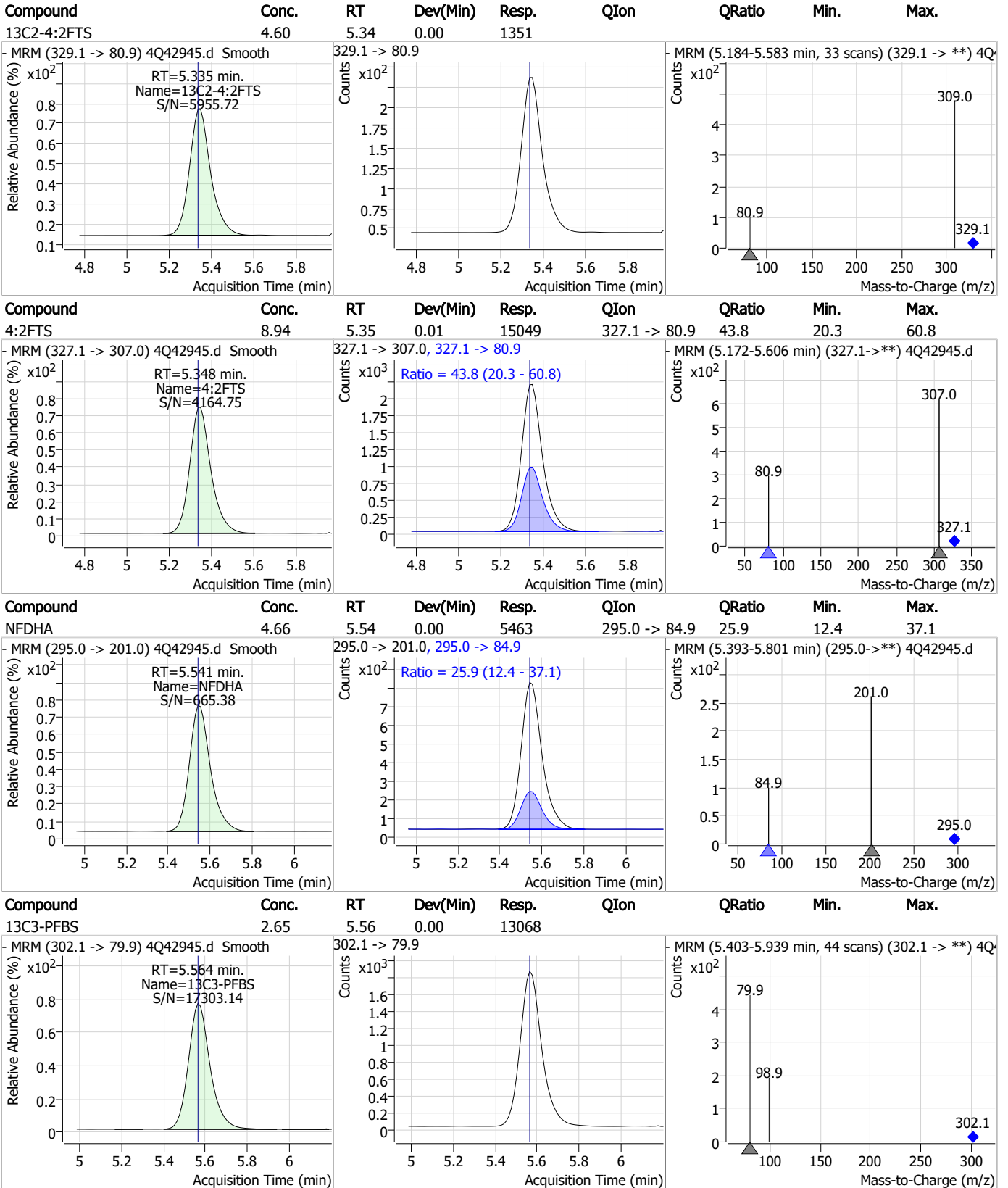


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.68	4.89	0.01	38460				



7.7.10 7

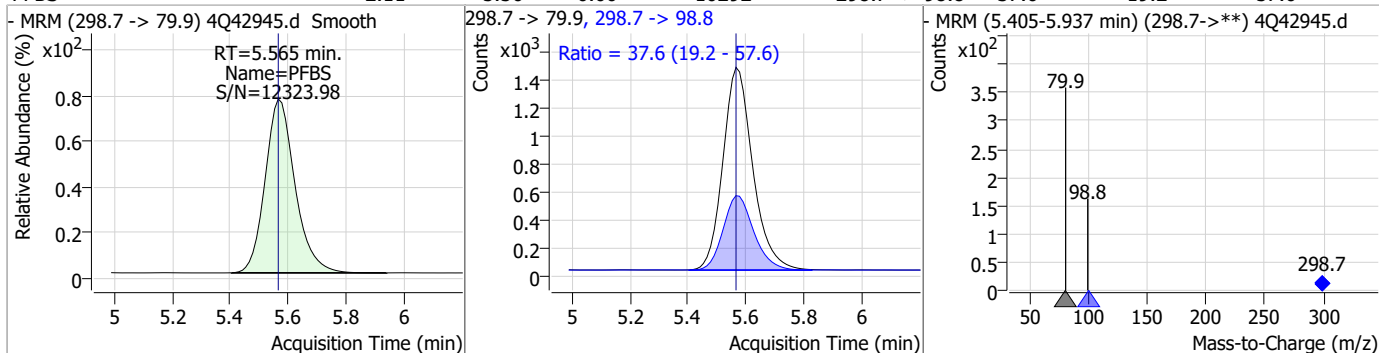
Perfluorinated Compounds by LC/MS/MS



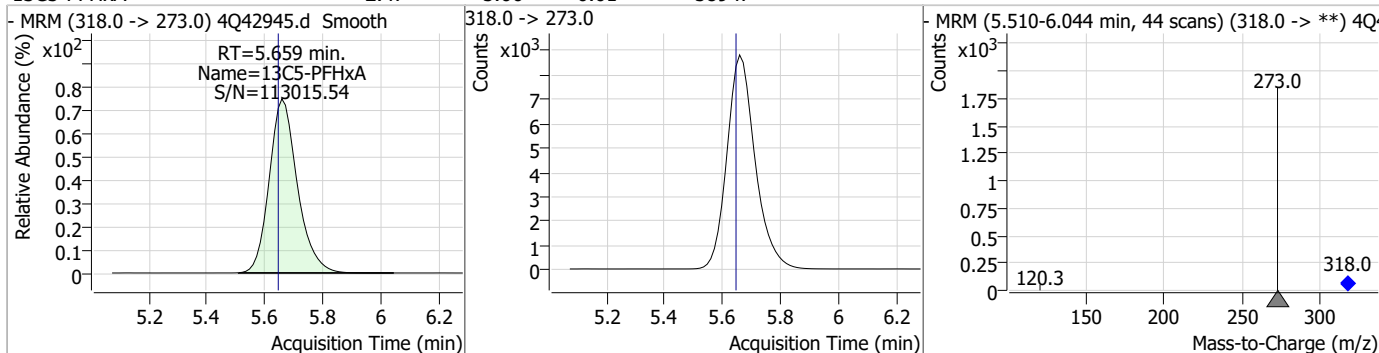
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

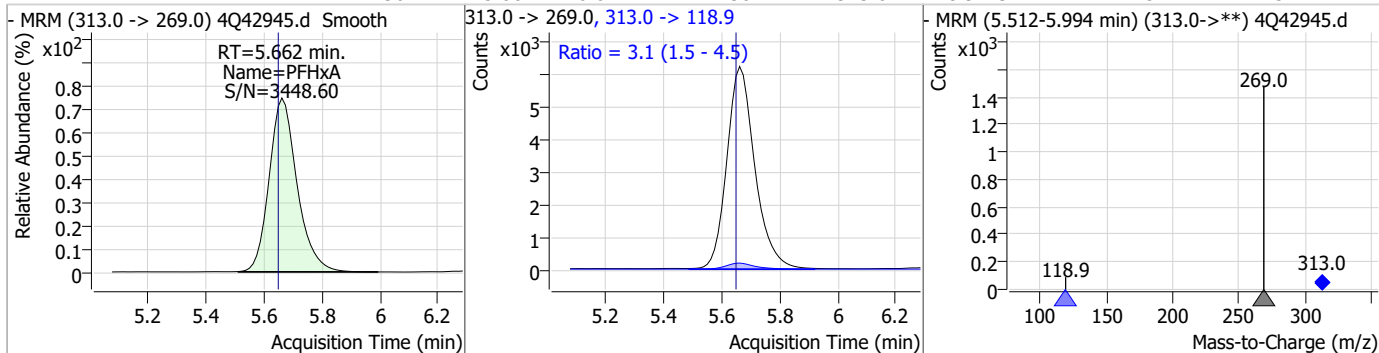
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.11	5.56	0.00	10292	298.7 -> 98.8	37.6	19.2	57.6



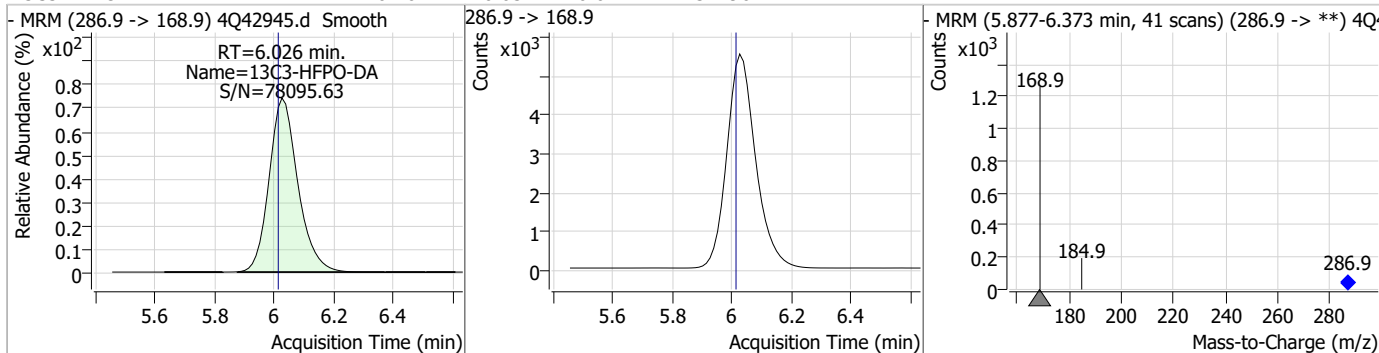
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.47	5.66	0.01	58947				



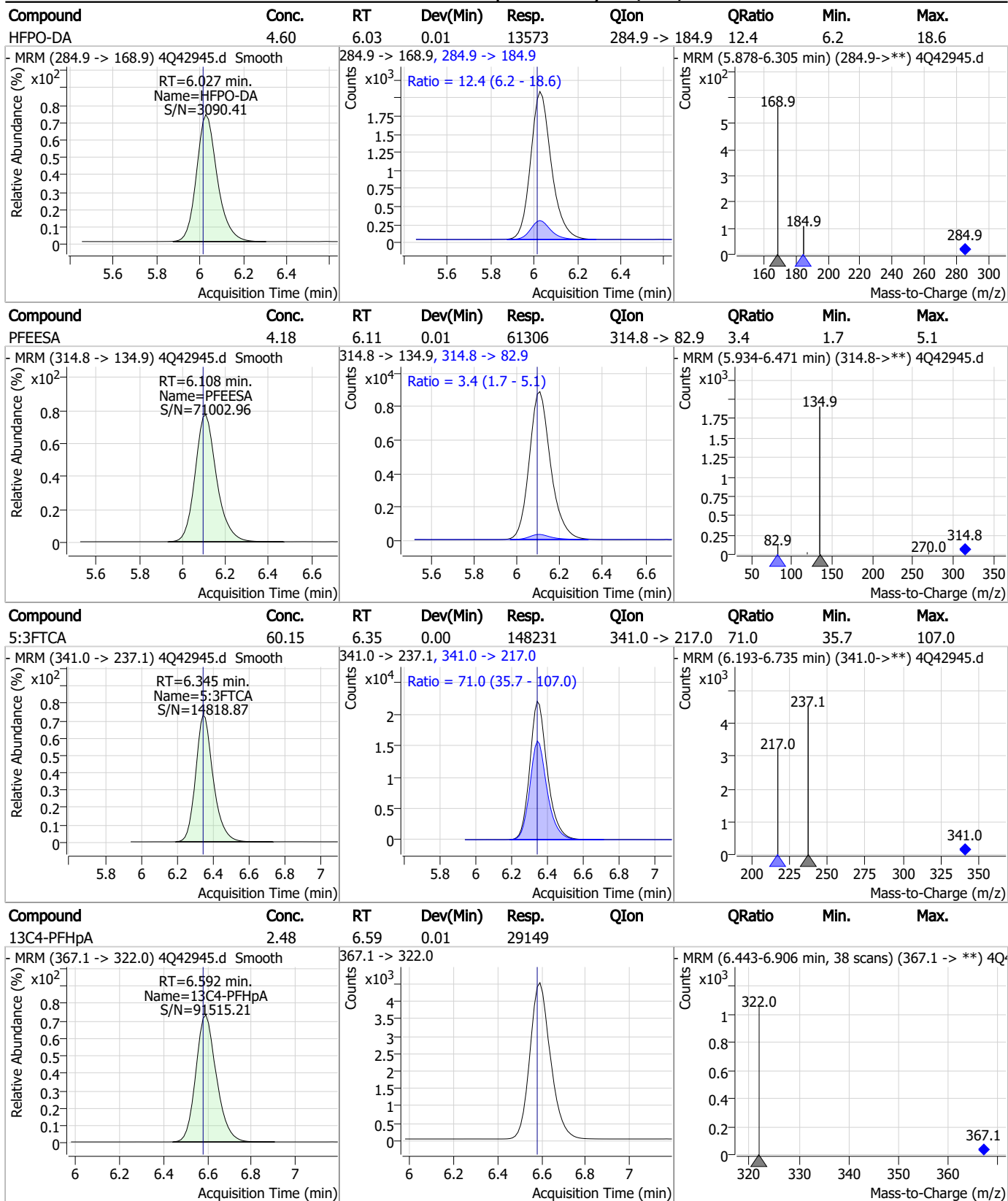
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.36	5.66	0.01	41136	313.0 -> 118.9	3.1	1.5	4.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.26	6.03	0.01	37196				

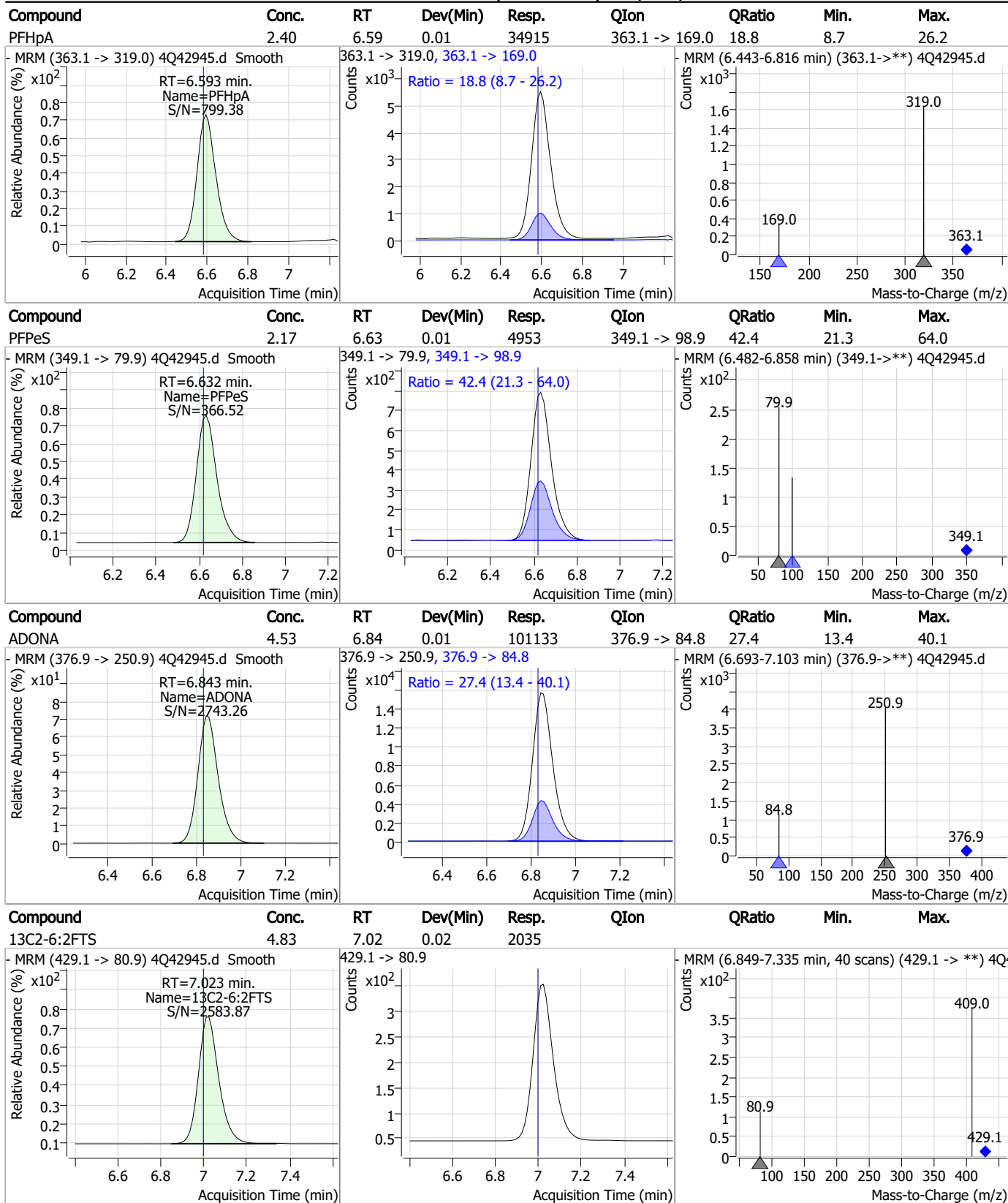


Perfluorinated Compounds by LC/MS/MS



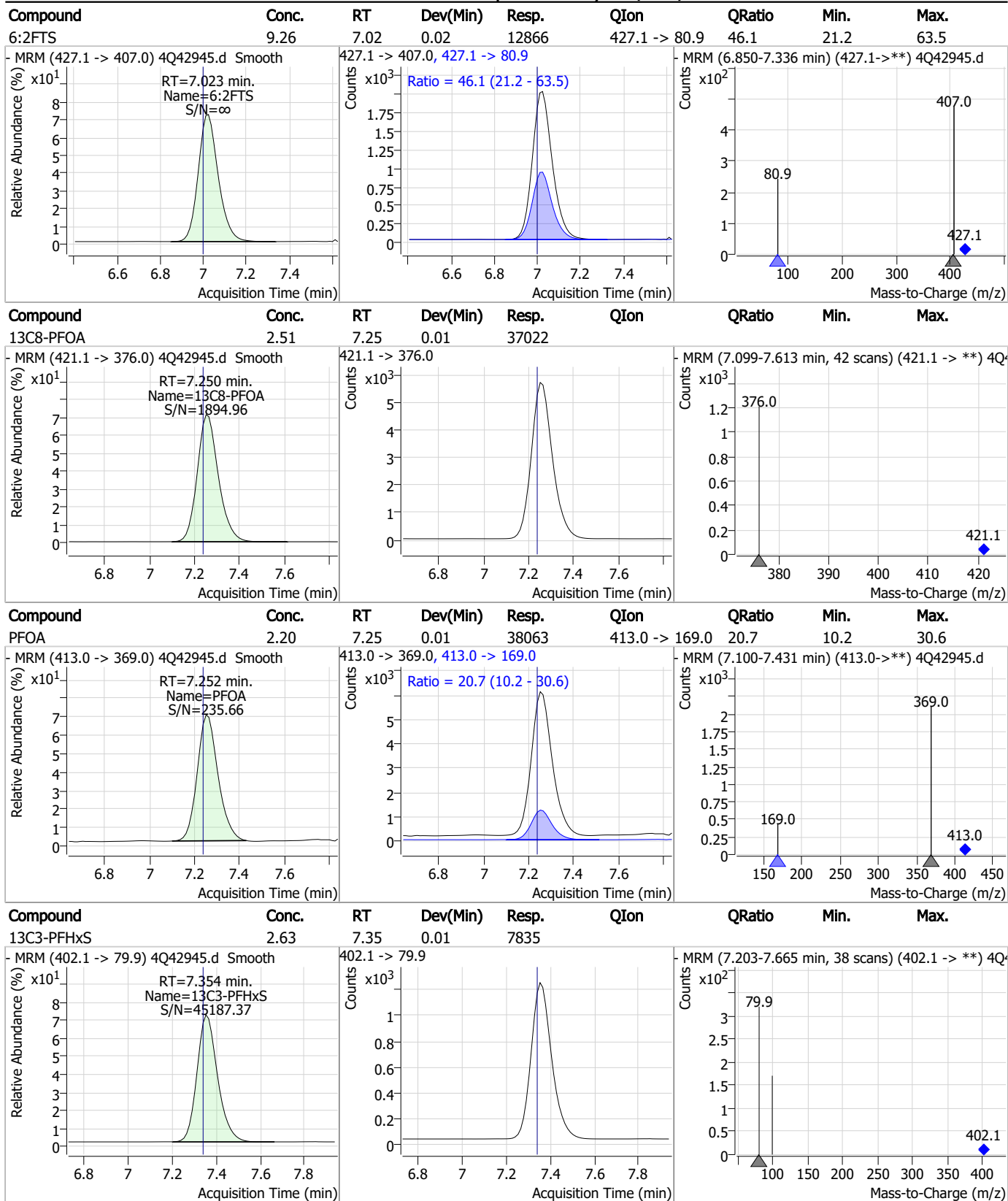
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



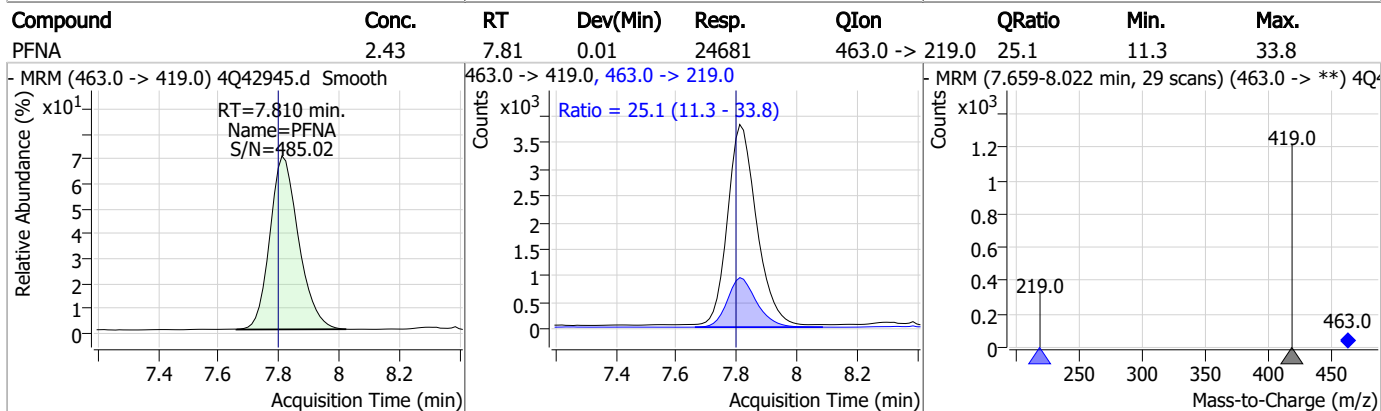
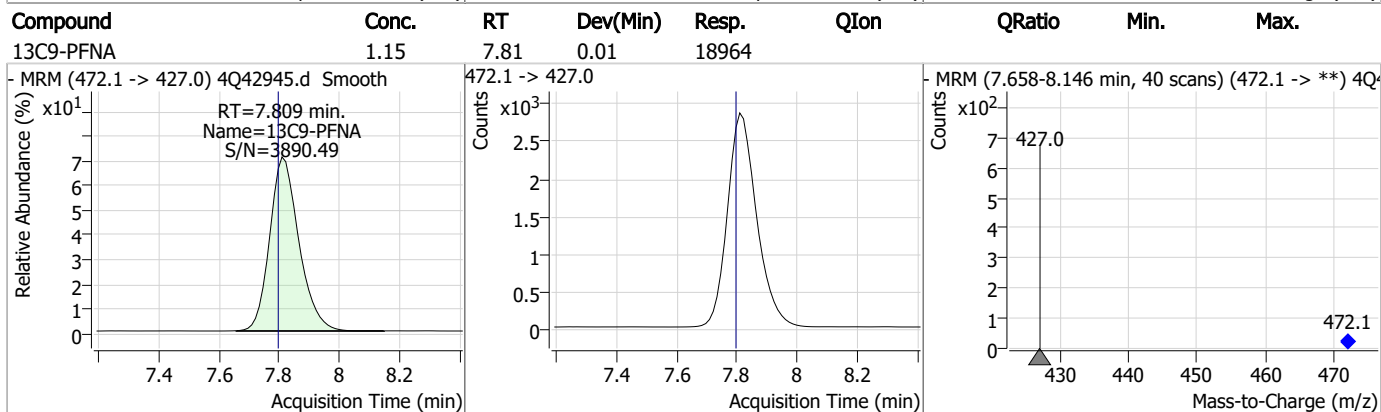
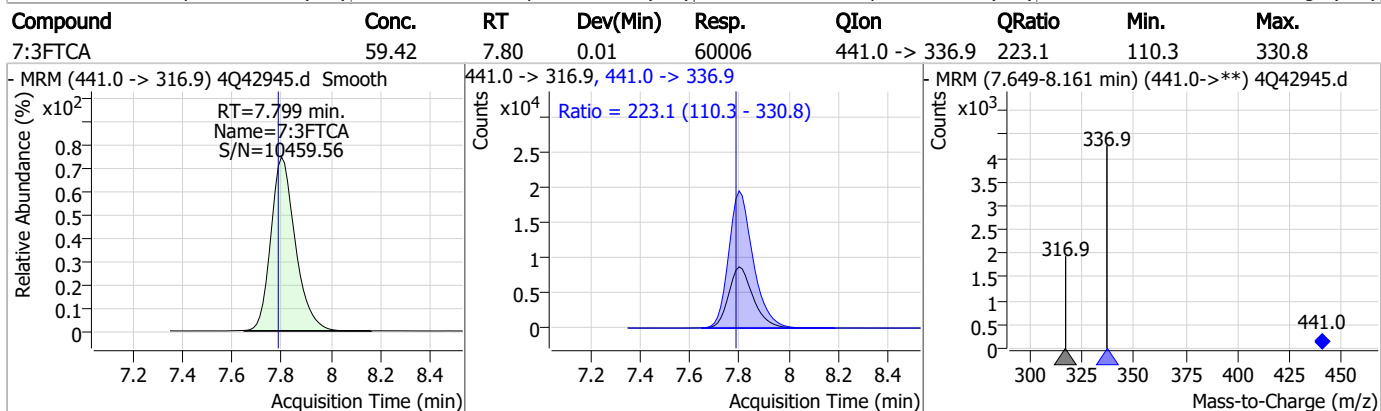
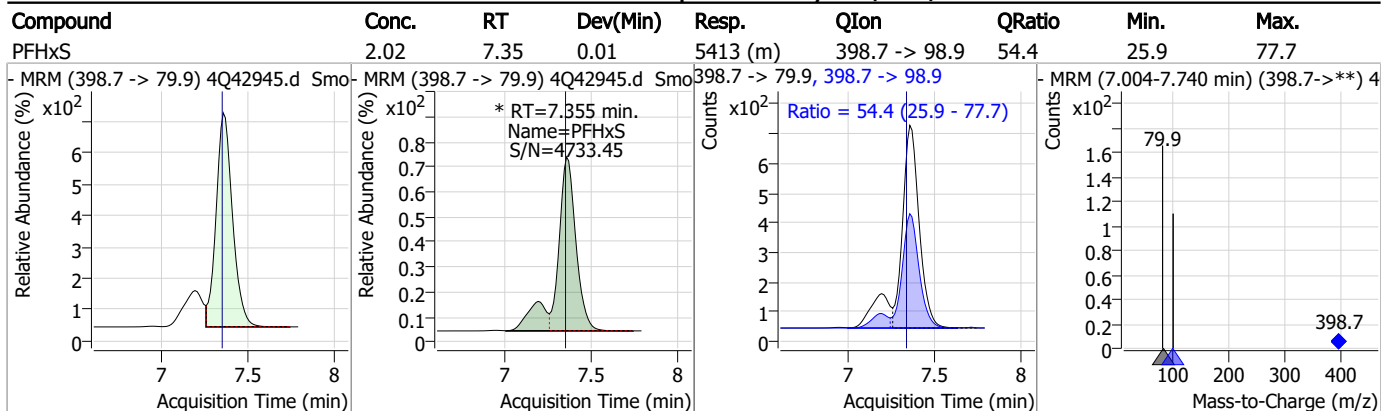
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



7.7.10 7

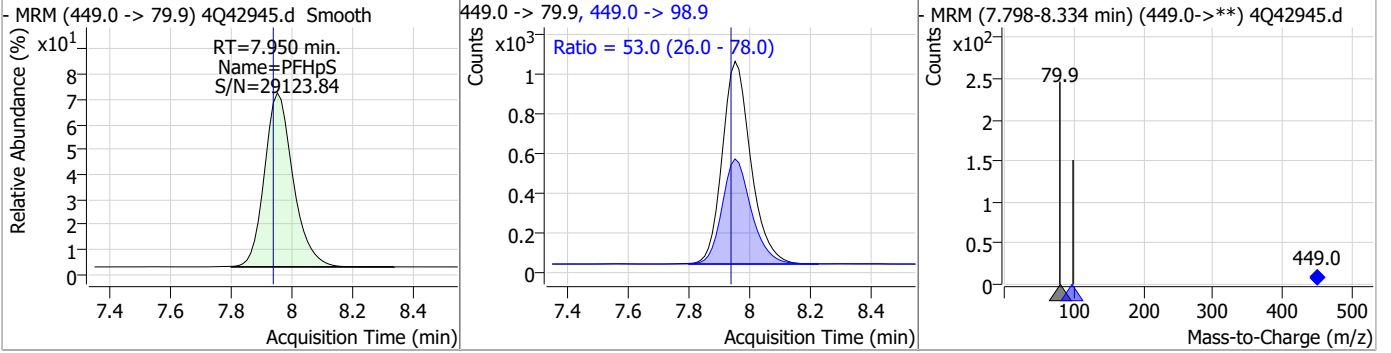
Perfluorinated Compounds by LC/MS/MS



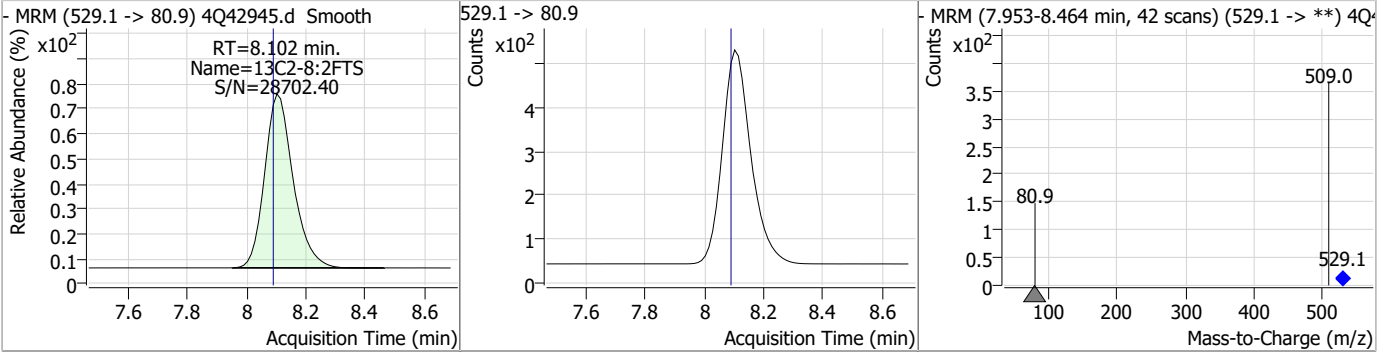
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

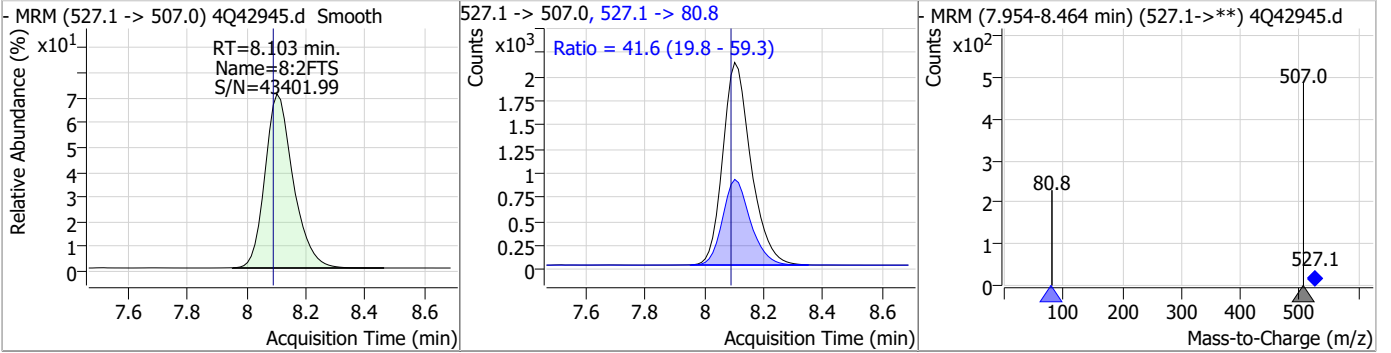
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.26	7.95	0.01	6649	449.0 -> 98.9	53.0	26.0	78.0



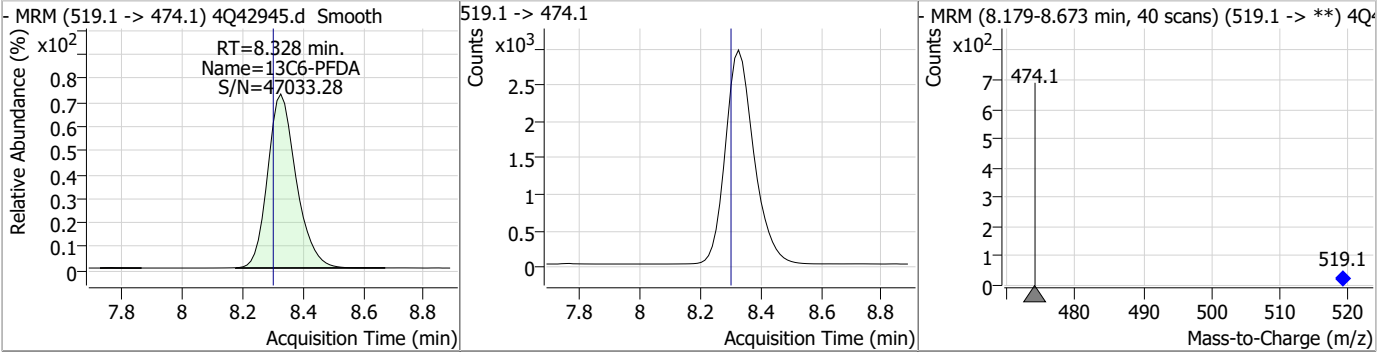
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.65	8.10	0.01	3225				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	9.60	8.10	0.01	13884	527.1 -> 80.8	41.6	19.8	59.3



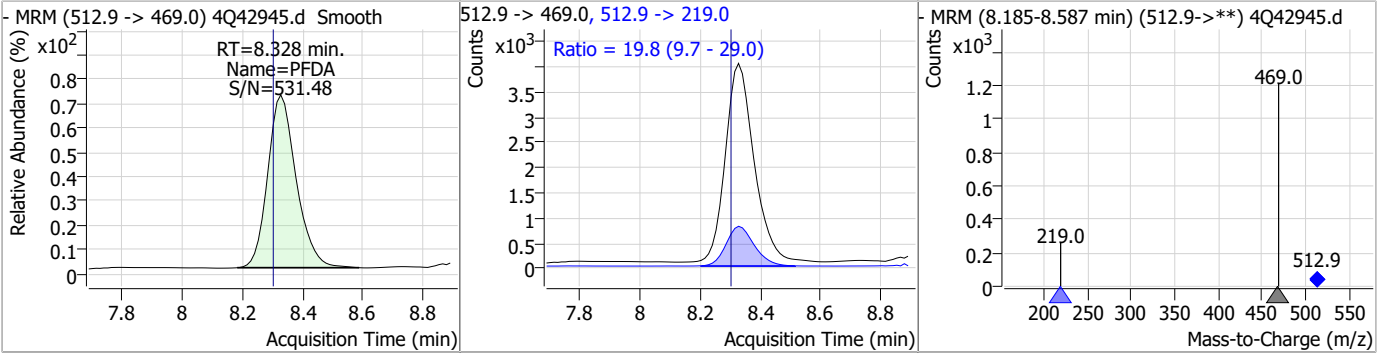
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.21	8.33	0.02	19212				



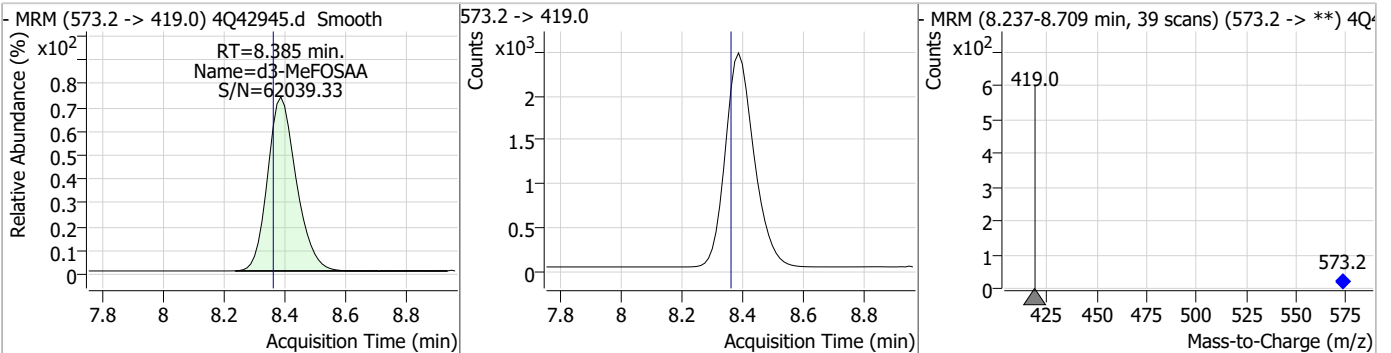
7.7.10
7

Perfluorinated Compounds by LC/MS/MS

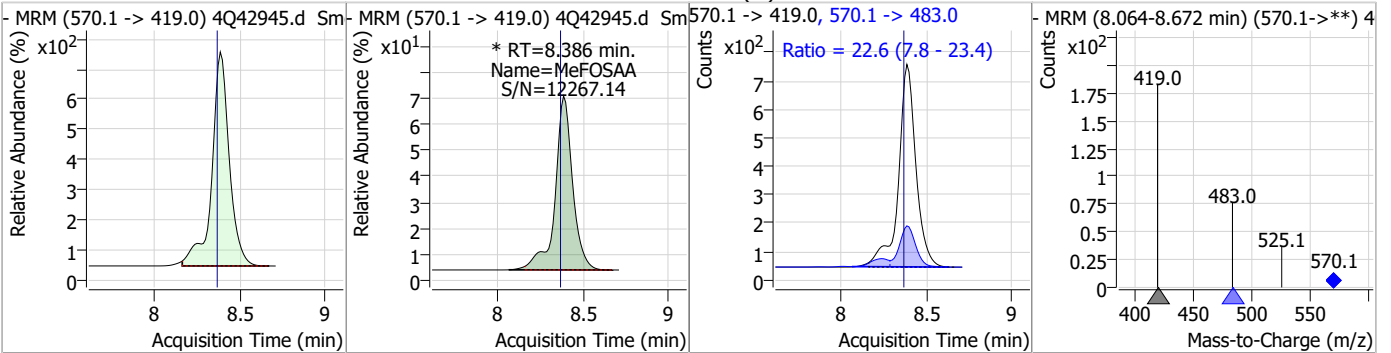
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.34	8.33	0.02	25728	512.9 -> 219.0	19.8	9.7	29.0



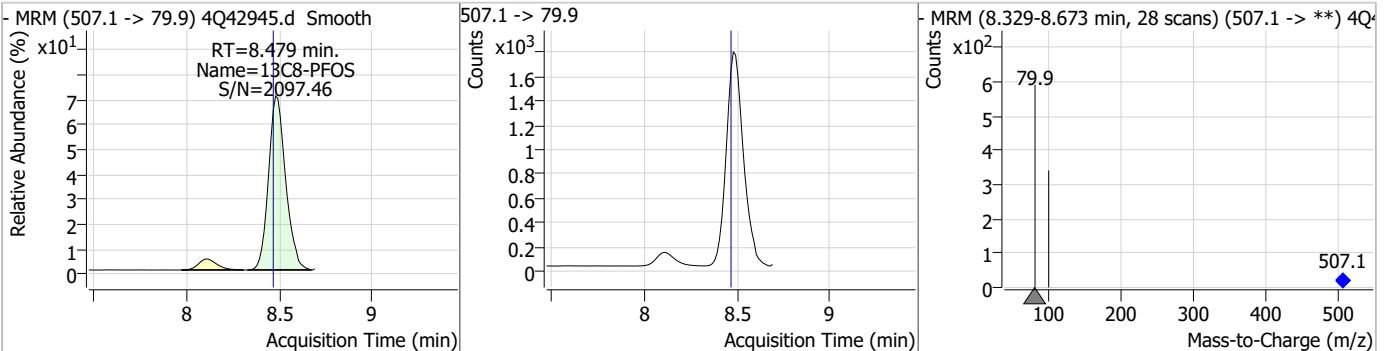
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.66	8.39	0.02	16070				



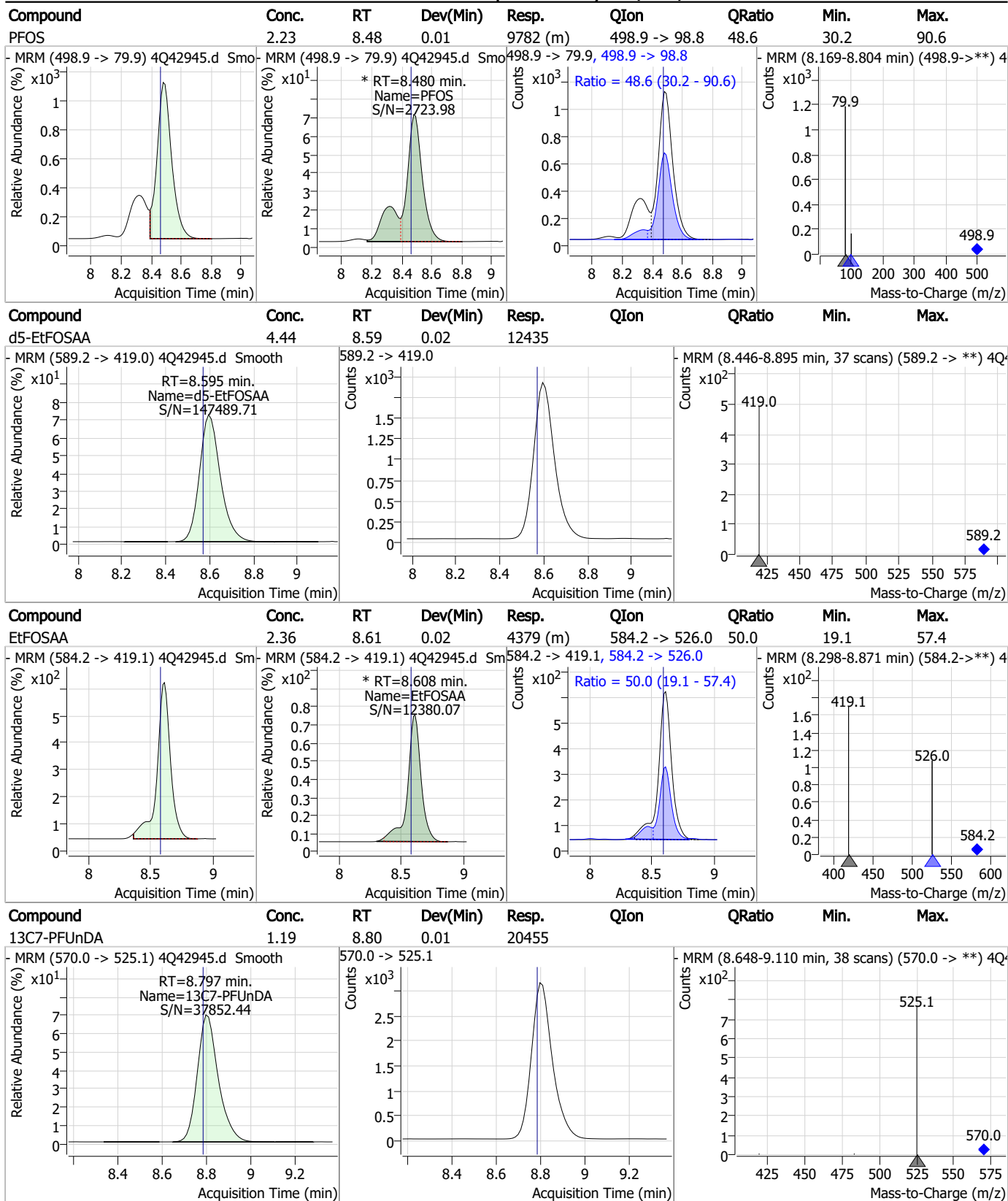
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.30	8.39	0.02	5086 (m)	570.1 -> 483.0	22.6	7.8	23.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.49	8.48	0.01	11292				

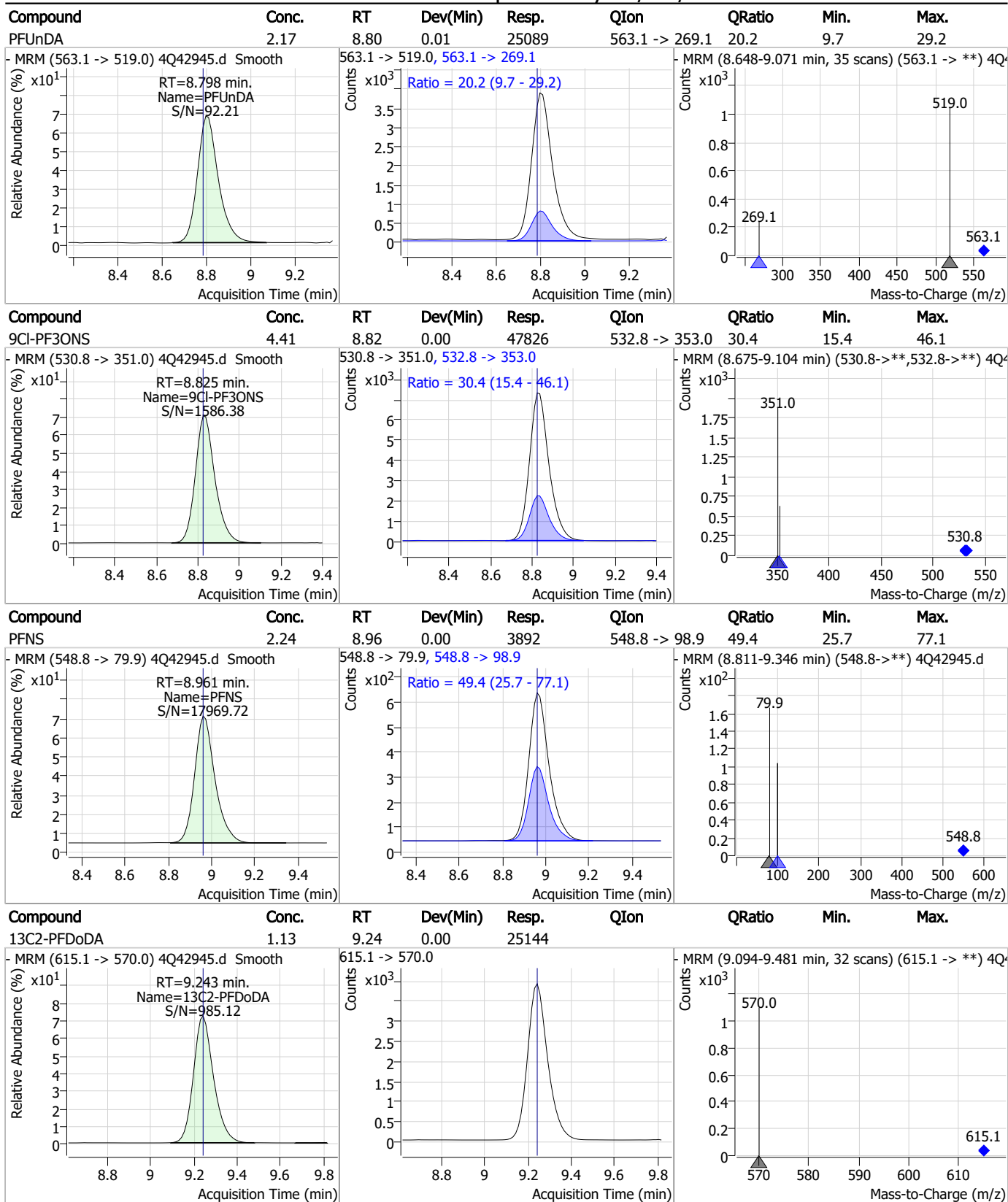


Perfluorinated Compounds by LC/MS/MS



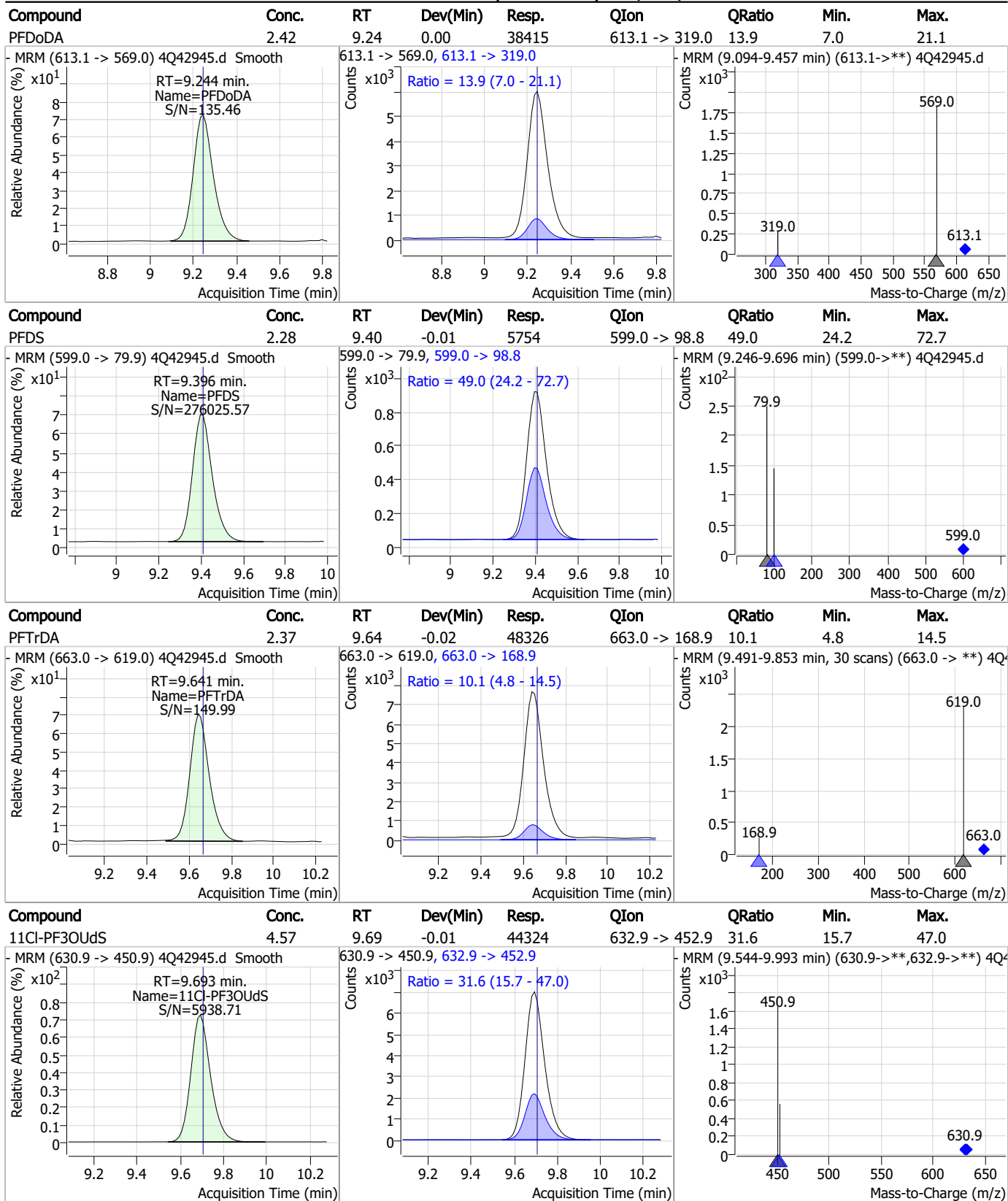
7.7.10
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Perfluorinated Compounds by LC/MS/MS



7.7.10
7

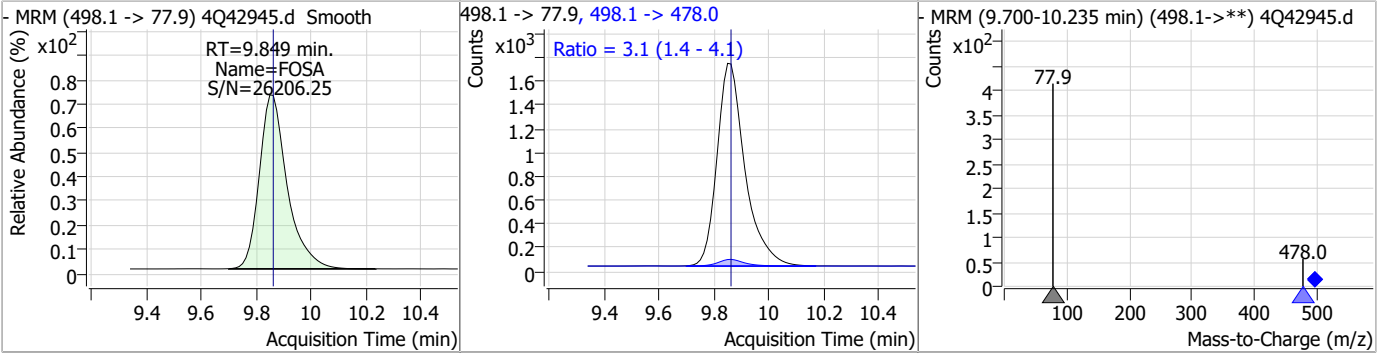
Perfluorinated Compounds by LC/MS/MS



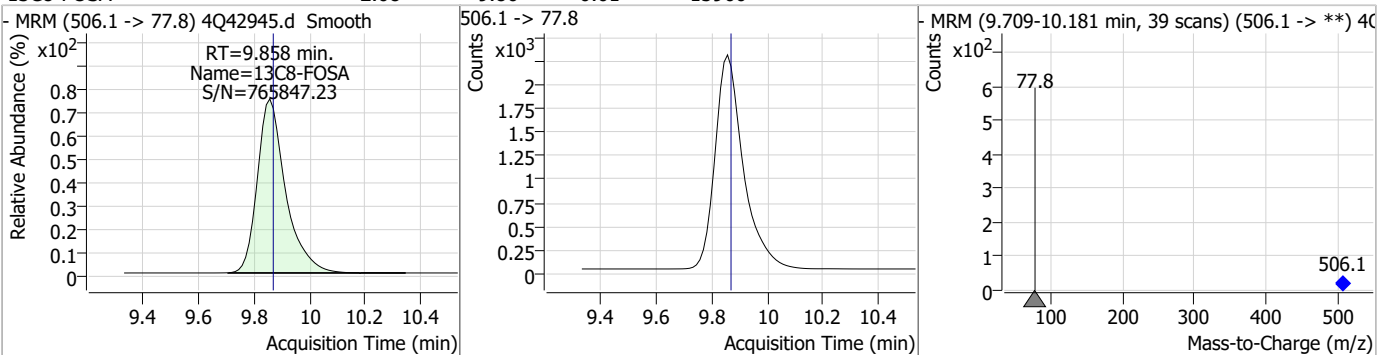
7.7.10
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Perfluorinated Compounds by LC/MS/MS

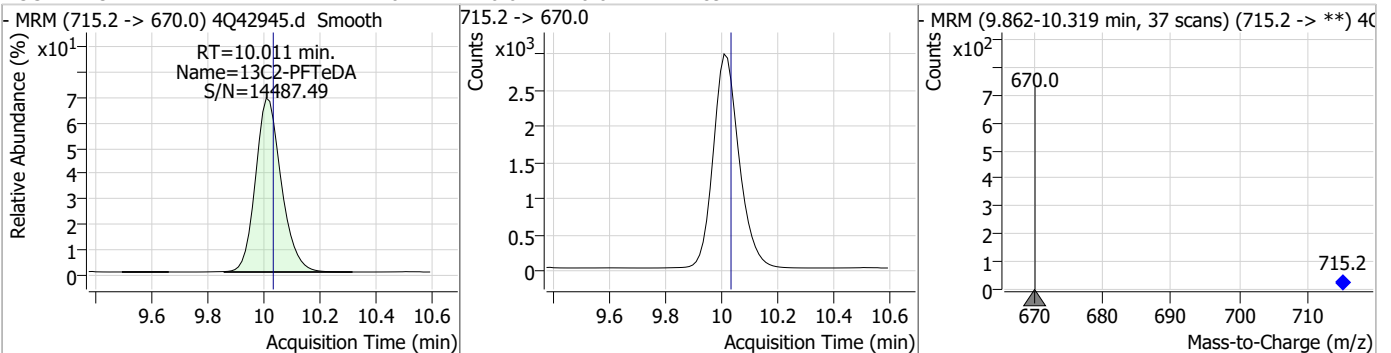
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.35	9.85	-0.01	12070	498.1 -> 478.0	3.1	1.4	4.1



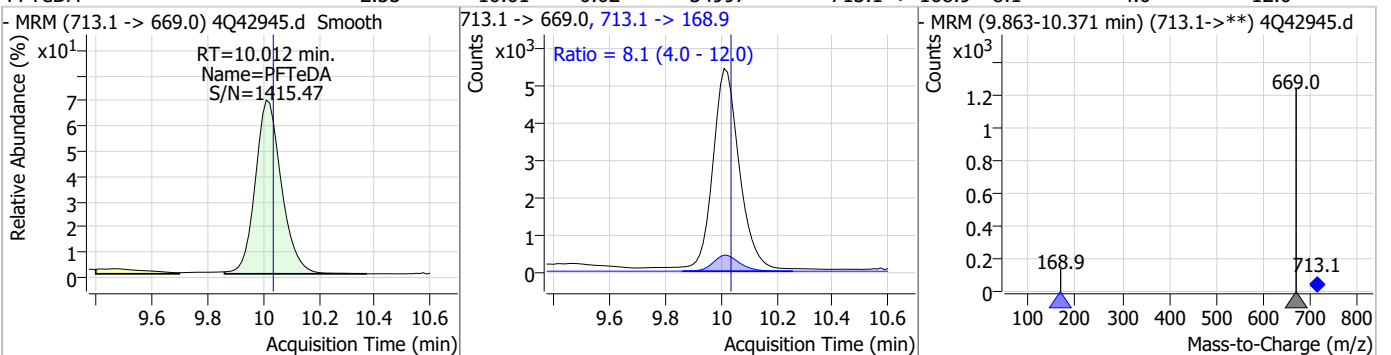
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.08	9.86	-0.01	15960				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.10	10.01	-0.02	18924				



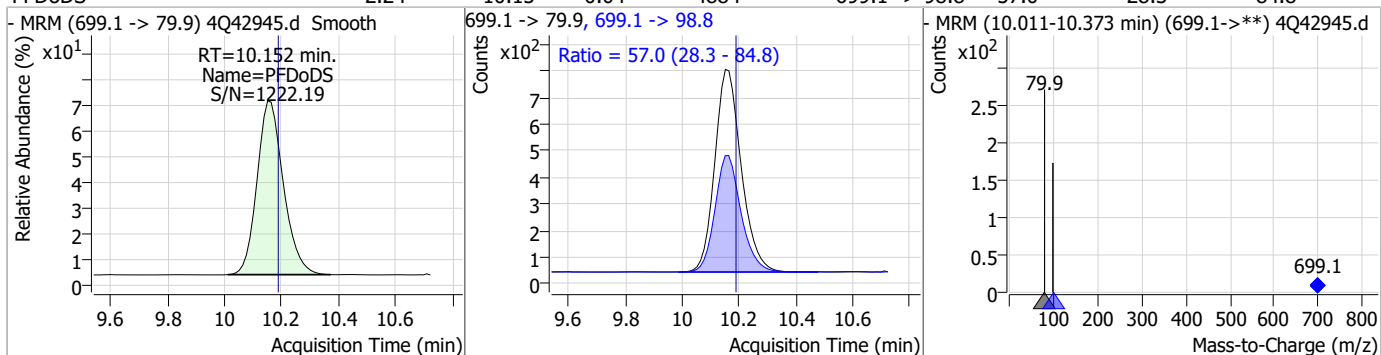
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.35	10.01	-0.02	34997	713.1 -> 168.9	8.1	4.0	12.0



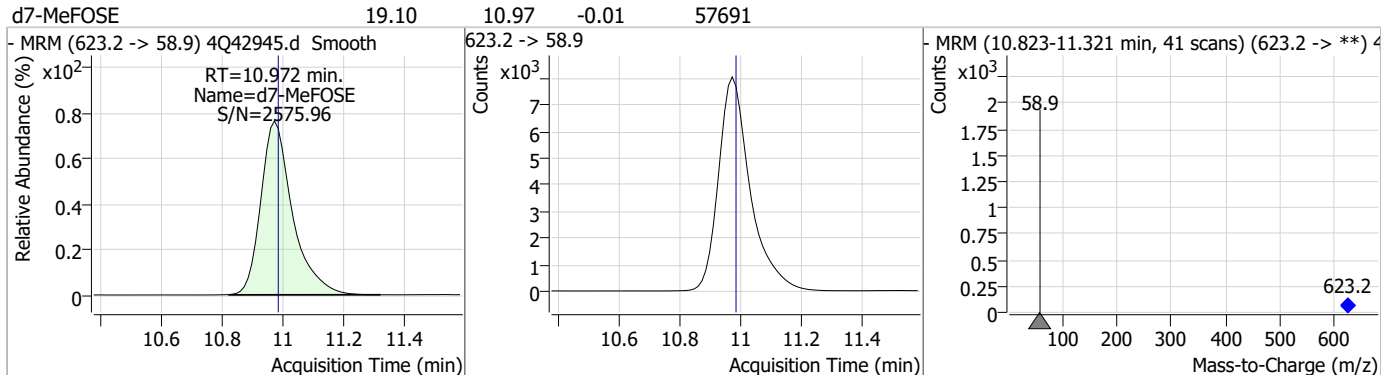
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

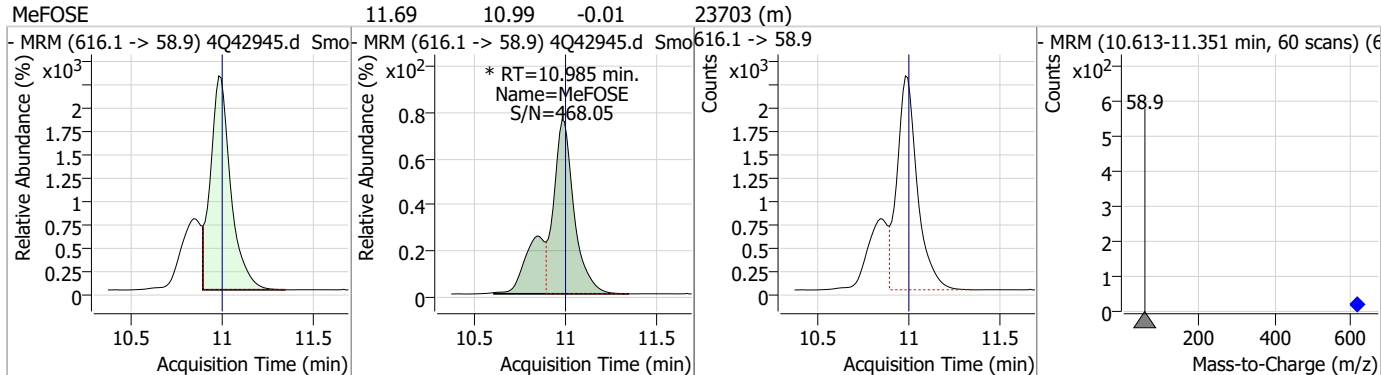
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.24	10.15	-0.04	4884	699.1 -> 98.8	57.0	28.3	84.8



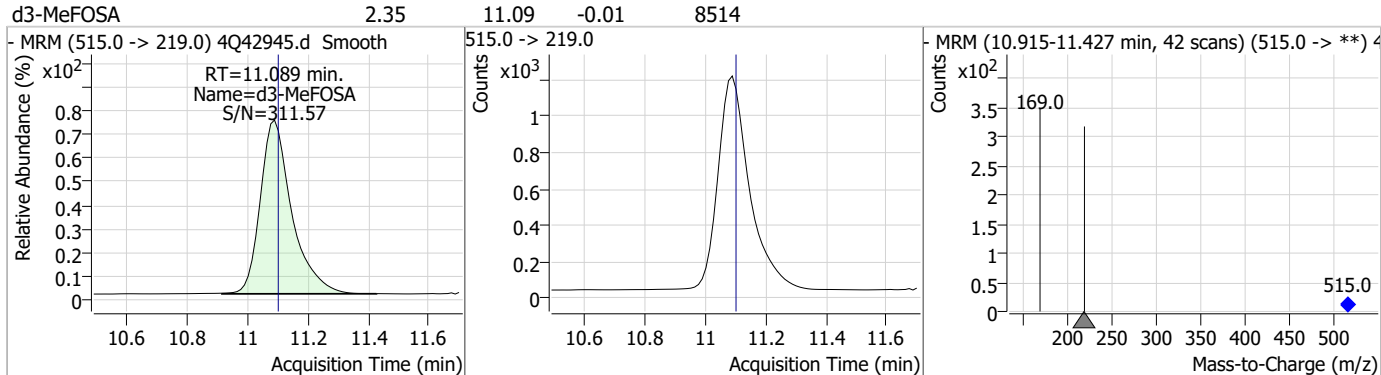
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.10	10.97	-0.01	57691				



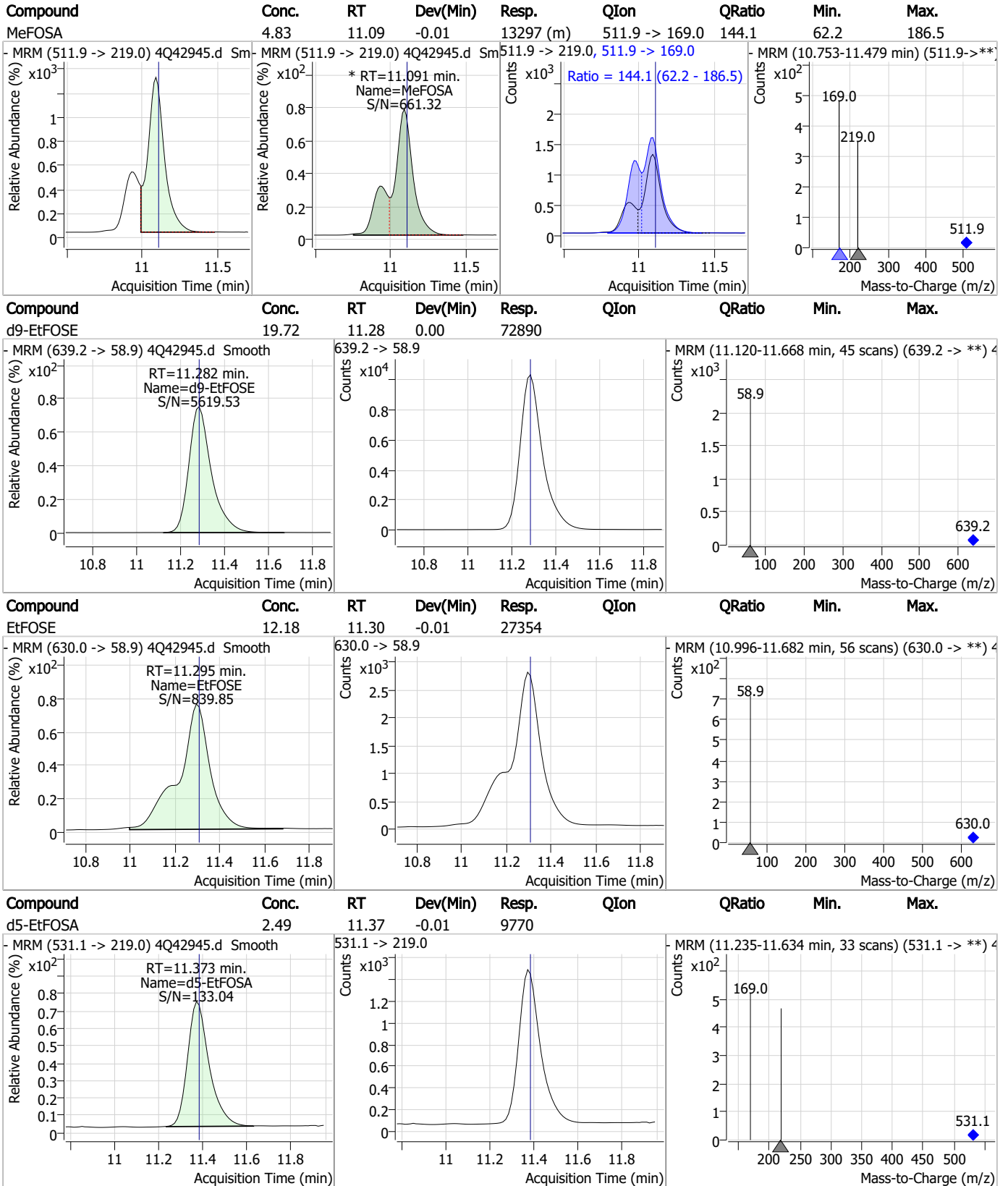
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.69	10.99	-0.01	23703 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.35	11.09	-0.01	8514				

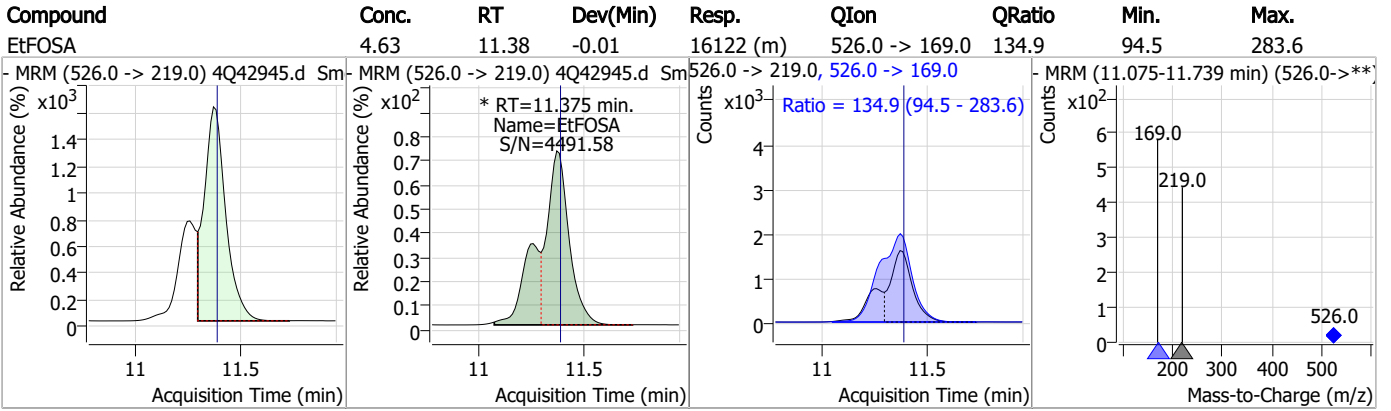


Perfluorinated Compounds by LC/MS/MS



7.7.10
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Perfluorinated Compounds by LC/MS/MS



7.7.10
7

Manual Integration Approval Summary

Sample Number: S4Q621-ICV621 Method: EPA DRAFT 1633
Lab FileID: 4Q42945.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 14:05 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.39	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.48	Split peak
EtFOSAA	2991-50-6		8.61	Split peak
MeFOSE	24448-09-7		10.98	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.7.10.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42946.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 2:19:52 PM
 Sample Name : icv621-20
 Vial : P1-B2
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.986	216.8 -> 171.9	130871	10.00 µg/L	-0.013
M5-PFPeA	4.475	268.3 -> 223.0	86264	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	67390	2.50 µg/L	0.012
M4-PFHpA	6.592	367.1 -> 322.0	31914	2.50 µg/L	0.012
M8-PFOA	7.250	421.1 -> 376.0	40502	2.50 µg/L	0.013
M9-PFNA	7.809	472.1 -> 427.0	21152	1.25 µg/L	0.012
M6-PFDA	8.315	519.1 -> 474.1	20562	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	21203	1.25 µg/L	0.012
M2-PFDoDA	9.243	615.1 -> 570.0	28529	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	21163	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	18047	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	14054	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	8413	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	12146	2.50 µg/L	0.000
M2-4:2FTS	5.335	329.1 -> 80.9	1461	5.00 µg/L	0.000
M2-6:2FTS	7.010	429.1 -> 80.9	2144	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3635	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	16928	5.00 µg/L	0.012
M3-HFPO-DA	6.026	286.9 -> 168.9	41152	10.00 µg/L	0.012
M5-EtFOSAA	8.582	589.2 -> 419.0	14073	5.00 µg/L	0.012
M7-MeFOSE	10.997	623.2 -> 58.9	64344	25.00 µg/L	0.012
M9-EtFOSE	11.294	639.2 -> 58.9	78370	25.00 µg/L	0.012
M5-EtFOSA	11.386	531.1 -> 219.0	11053	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	9393	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	12522	2.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	75920	5.00 µg/L	0.000
18O2-PFHxS	7.353	403.0 -> 83.9	6273	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	49589	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	19488	1.25 µg/L	0.012
13C5-PFNA	7.797	468.0 -> 423.0	24673	1.25 µg/L	0.000
13C2-PFHxA	5.660	315.1 -> 270.0	58049	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1461	4.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.3%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2144	4.36 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.2%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3635	4.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.8%		
13C2-PFDoDA	9.243	615.1 -> 570.0	28529	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C2-PFTeDA	10.036	715.2 -> 670.0	21163	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.7%		
13C3-PFBS	5.564	302.1 -> 79.9	14054	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C3-PFHxS	7.354	402.1 -> 79.9	8413	2.42 µg/L	0.013

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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 = 96.9%	
13C4-PFBA	2.986	216.8 -> 171.9	130871	9.90 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C4-PFHpA	6.592	367.1 -> 322.0	31914	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C5-PFHxA	5.659	318.0 -> 273.0	67390	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C5-PFPeA	4.475	268.3 -> 223.0	86264	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C6-PFDA	8.315	519.1 -> 474.1	20562	1.20 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C7-PFUnDA	8.797	570.0 -> 525.1	21203	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.1%	
13C8-FOSA	9.870	506.1 -> 77.8	18047	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.1%	
13C8-PFOA	7.250	421.1 -> 376.0	40502	2.48 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOS	8.467	507.1 -> 79.9	12146	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C9-PFNA	7.809	472.1 -> 427.0	21152	1.18 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.1%	
d3-MeFOSAA	8.373	573.2 -> 419.0	16928	4.59 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	41152	10.10 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d3-MeFOSA	11.102	515.0 -> 219.0	9393	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
d5-EtFOSAA	8.582	589.2 -> 419.0	14073	4.69 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
d7-MeFOSE	10.997	623.2 -> 58.9	64344	19.92 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.7%	
d9-EtFOSE	11.294	639.2 -> 58.9	78370	19.83 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.3%	
d5-EtFOSA	11.386	531.1 -> 219.0	11053	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%	
Target Compounds					QValue
4:2FTS	5.348	327.1 -> 307.0	43850	24.07 µg/L	97
		327.1 -> 80.9	18548		
6:2FTS	7.011	427.1 -> 407.0	36632	25.02 µg/L	99
		427.1 -> 80.9	15338		
8:2FTS	8.090	527.1 -> 507.0	38182	23.43 µg/L	97
		527.1 -> 80.8	15711		
EtFOSAA	8.595	584.2 -> 419.1	47132	22.42 µg/L	m 85
		584.2 -> 526.0	22430		
FOSA	9.861	498.1 -> 77.9	137970	23.74 µg/L	100
		498.1 -> 478.0	3956		
MeFOSAA	8.373	570.1 -> 419.0	54195	23.23 µg/L	m 87
		570.1 -> 483.0	11422		
PFBA	2.995	212.8 -> 168.9	65140	21.79 µg/L	100
PFBS	5.565	298.7 -> 79.9	130543	24.89 µg/L	99
		298.7 -> 98.8	49476		
PFDA	8.316	512.9 -> 469.0	286852	24.40 µg/L	99
		512.9 -> 219.0	56409		
PFDoDA	9.244	613.1 -> 569.0	368092	20.46 µg/L	100
		613.1 -> 319.0	50909		
PFDS	9.409	599.0 -> 79.9	63196	23.27 µg/L	100

7.7.11
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	30566			
PFHpA	6.593	363.1 -> 319.0	379568	23.84	µg/L	99
		363.1 -> 169.0	67414			
PFHpS	7.936	449.0 -> 79.9	74668	23.62	µg/L	99
		449.0 -> 98.9	39316			
PFHxA	5.662	313.0 -> 269.0	466735	23.40	µg/L	100
		313.0 -> 118.9	14050			
PFHxS	7.355	398.7 -> 79.9	71158	24.69	µg/L	m 98
		398.7 -> 98.9	36091			
PFNA	7.797	463.0 -> 419.0	292165	25.84	µg/L	96
		463.0 -> 219.0	71416			
PFNS	8.961	548.8 -> 79.9	46554	24.91	µg/L	99
		548.8 -> 98.9	23467			
PFOA	7.252	413.0 -> 369.0	415985	21.98	µg/L	100
		413.0 -> 169.0	84619			
PFOS	8.468	498.9 -> 79.9	95210	20.14	µg/L	m 82
		498.9 -> 98.8	44149			
PFPeA	4.477	263.0 -> 219.0	398882	24.43	µg/L	100
PFPeS	6.632	349.1 -> 79.9	62867	25.62	µg/L	99
		349.1 -> 98.9	27189			
PFTeDA	10.037	713.1 -> 669.0	396398	23.79	µg/L	100
		713.1 -> 168.9	32160			
PFTrDA	9.666	663.0 -> 619.0	441790	19.06	µg/L	100
		663.0 -> 168.9	43545			
PFUnDA	8.798	563.1 -> 519.0	268118	22.36	µg/L	99
		563.1 -> 269.1	51192			
11CI-PF3OUdS	9.705	630.9 -> 450.9	252237	23.48	µg/L	98
		632.9 -> 452.9	76305			
9CI-PF3ONS	8.825	530.8 -> 351.0	278343	23.20	µg/L	99
		532.8 -> 353.0	83771			
ADONA	6.843	376.9 -> 250.9	557441	22.55	µg/L	99
		376.9 -> 84.8	151992			
HFPO-DA	6.027	284.9 -> 168.9	70722	21.68	µg/L	100
		284.9 -> 184.9	8706			
3:3FTCA	3.954	241.0 -> 177.0	16961	22.29	µg/L	99
		241.0 -> 117.0	1669			
5:3FTCA	6.345	341.0 -> 237.1	67293	23.89	µg/L	99
		341.0 -> 217.0	47323			
7:3FTCA	7.786	441.0 -> 316.9	24253	21.01	µg/L	96
		441.0 -> 336.9	55063			
EtFOSA	11.388	526.0 -> 219.0	86921	22.07	µg/L	47
		526.0 -> 169.0	97241			
EtFOSE	11.308	630.0 -> 58.9	291838	120.82	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	69001	22.72	µg/L	94
		511.9 -> 169.0	80787			
MeFOSE	11.010	616.1 -> 58.9	257631	113.93	µg/L	100
PFDoDS	10.176	699.1 -> 79.9	53320	22.71	µg/L	99
		699.1 -> 98.8	29639			
NFDHA	5.541	295.0 -> 201.0	30696	22.89	µg/L	99
		295.0 -> 84.9	7783			
PFMBA	4.891	279.0 -> 85.1	220004	23.56	µg/L	100
PFMPA	3.598	229.0 -> 84.9	190119	23.28	µg/L	100
PFEESA	6.108	314.8 -> 134.9	346780	20.70	µg/L	100
		314.8 -> 82.9	11571			

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

7.7.11
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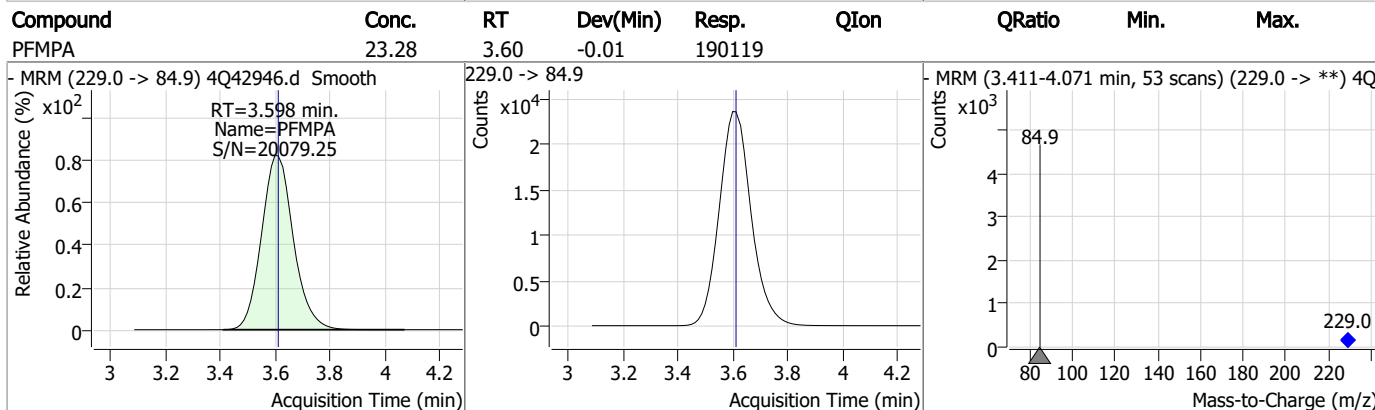
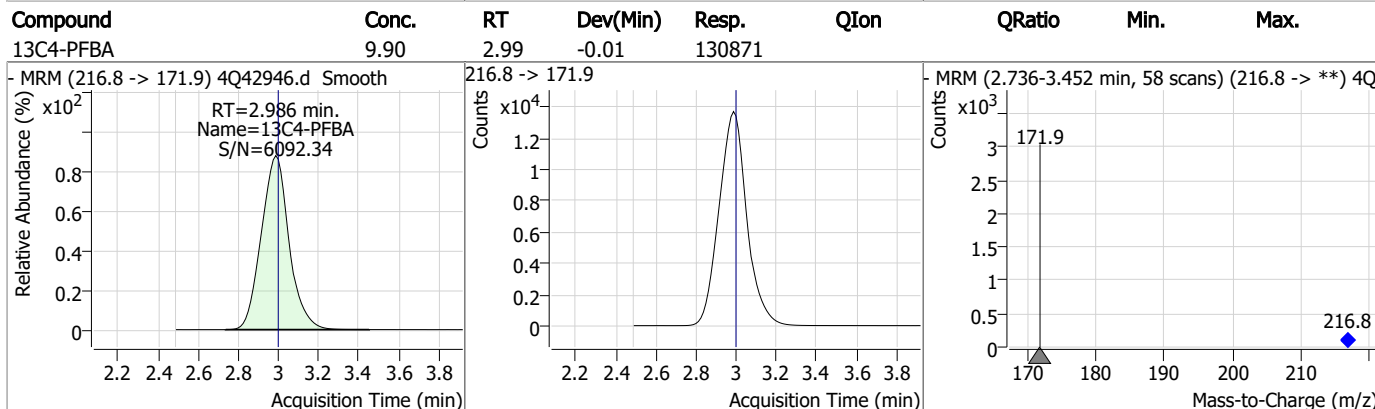
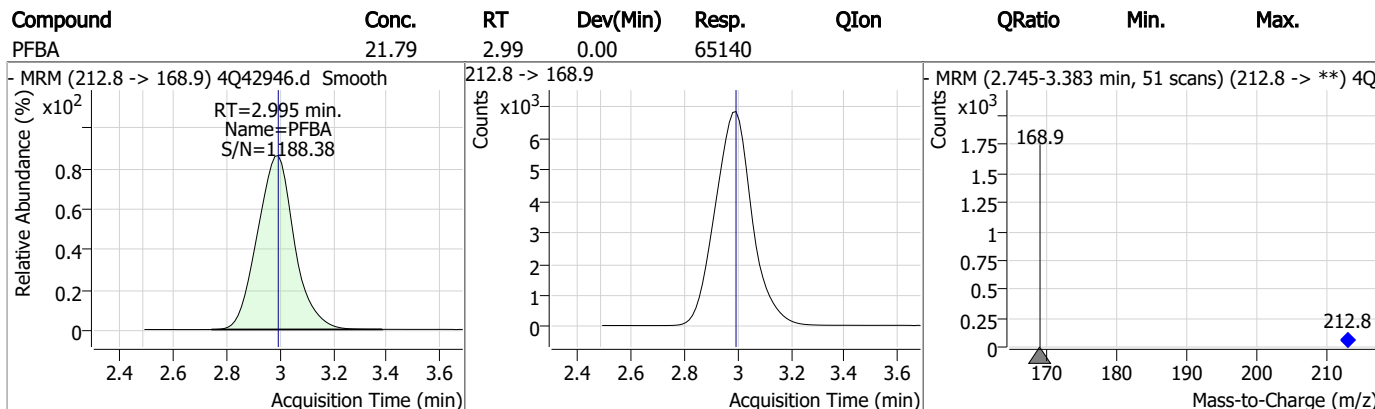
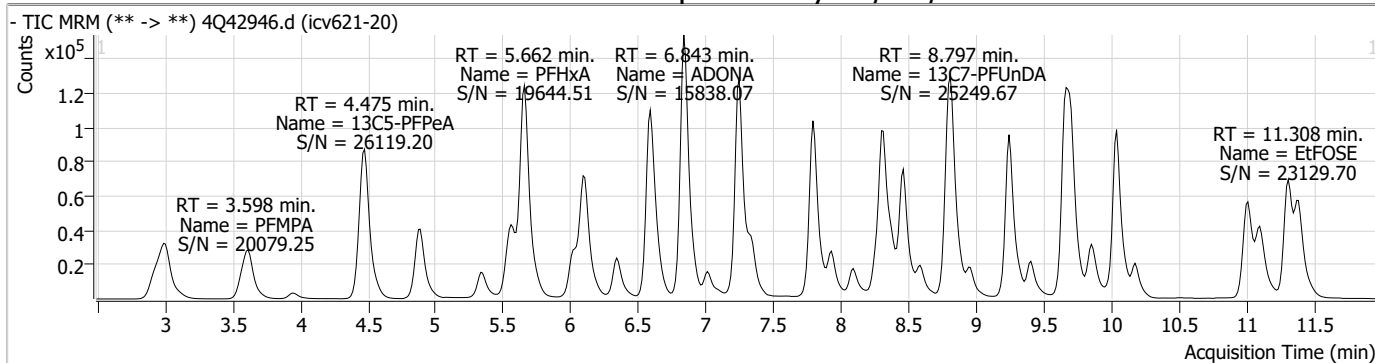
Perfluorinated Compounds by LC/MS/MS

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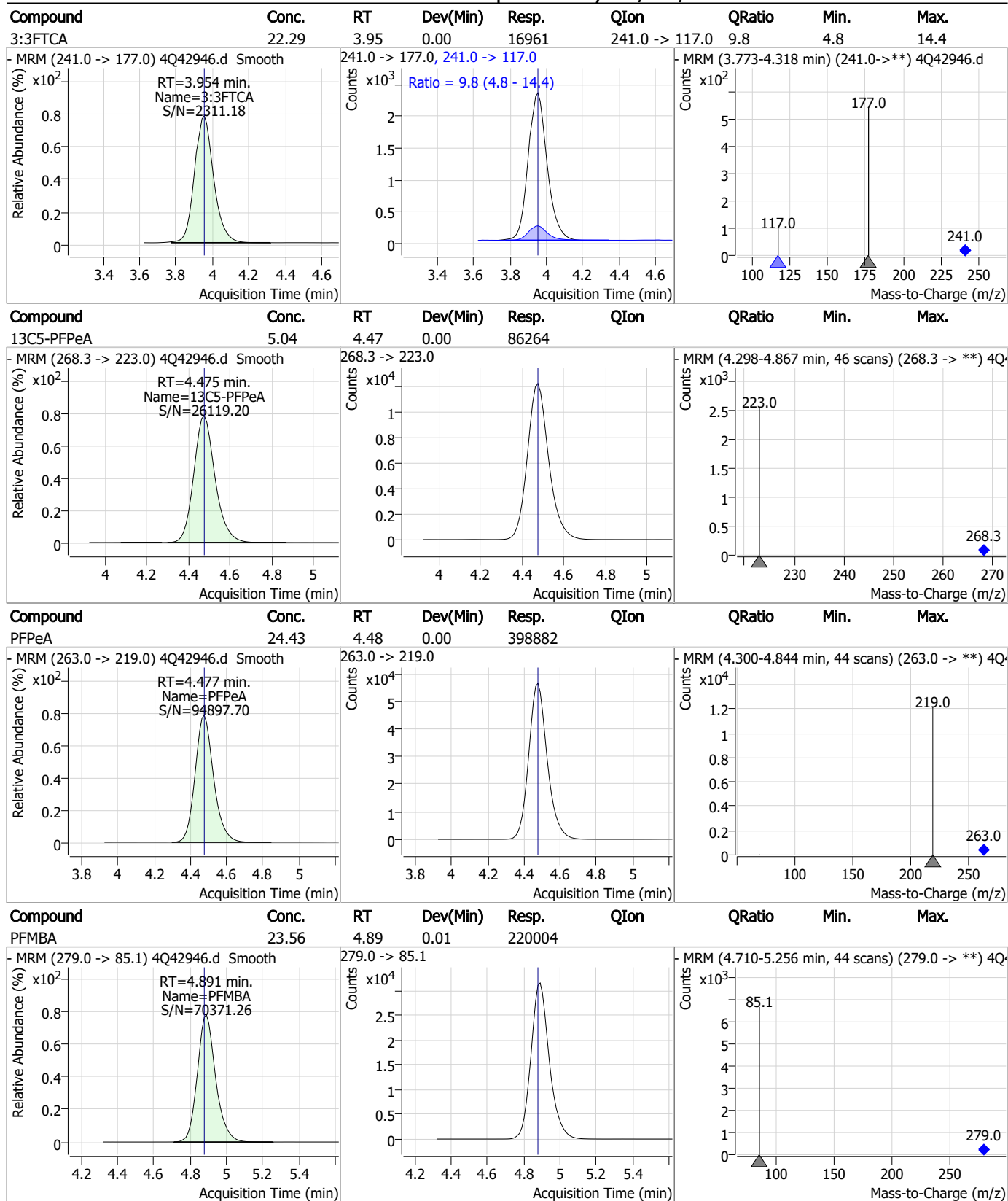
7.7.11

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Perfluorinated Compounds by LC/MS/MS



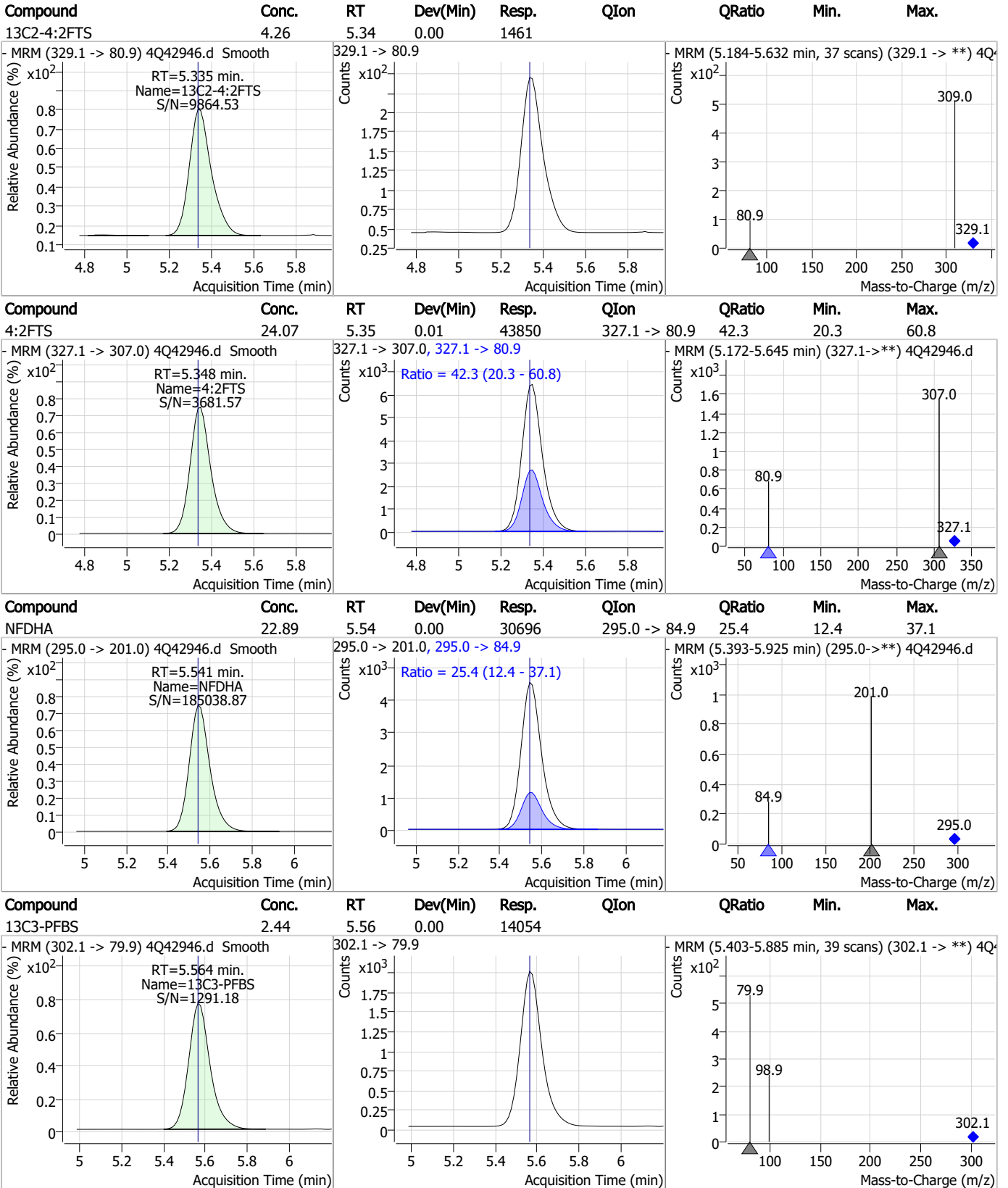
Perfluorinated Compounds by LC/MS/MS



7.7.11

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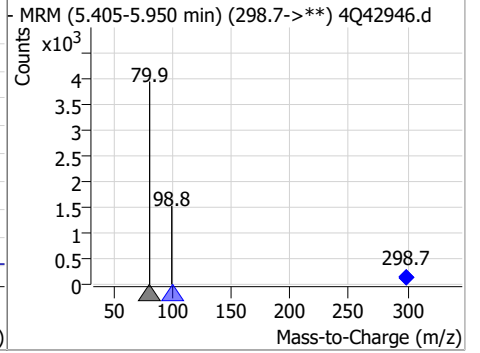
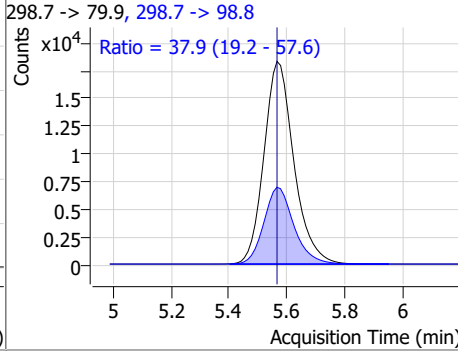
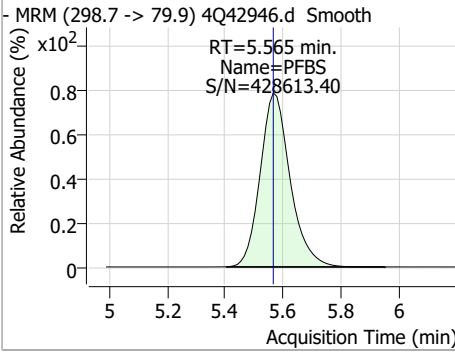
Perfluorinated Compounds by LC/MS/MS



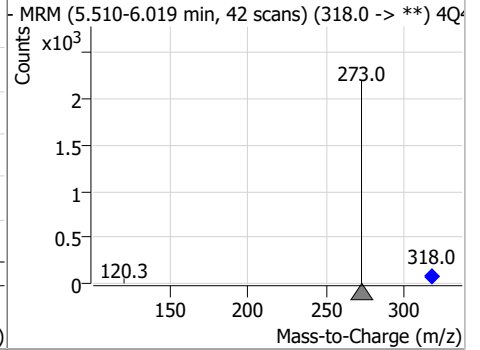
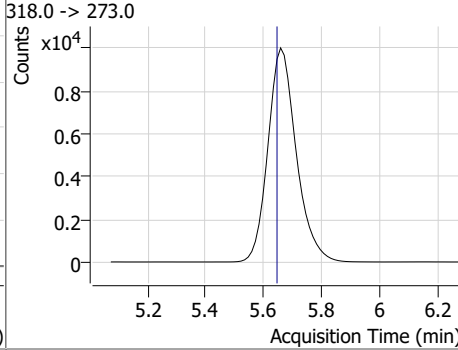
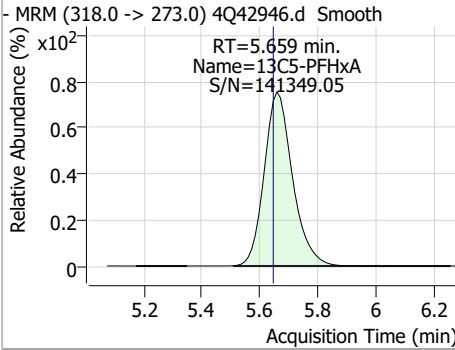
7.7.11
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Perfluorinated Compounds by LC/MS/MS

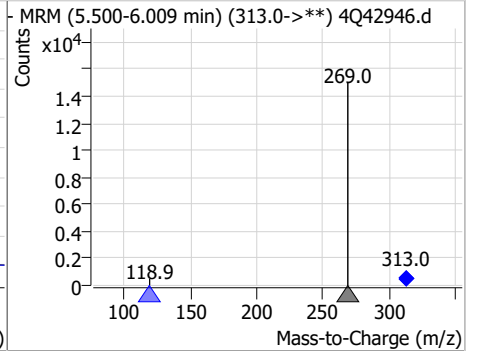
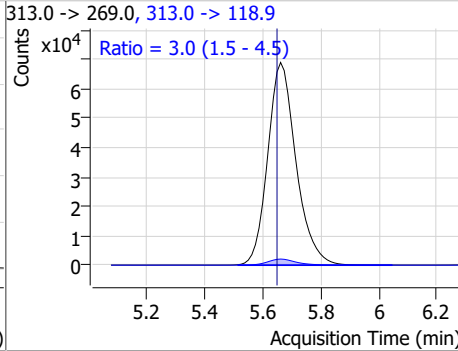
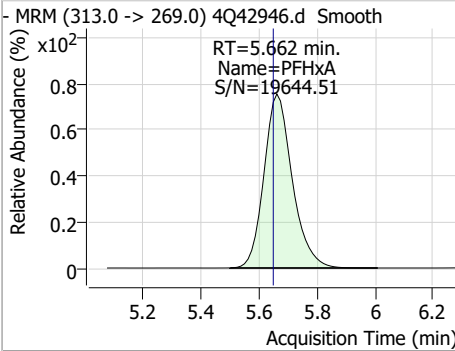
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	24.89	5.56	0.00	130543	298.7 -> 98.8	37.9	19.2	57.6



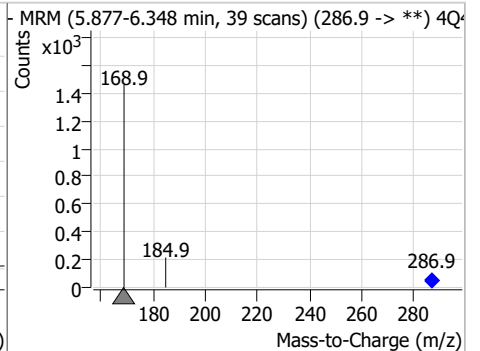
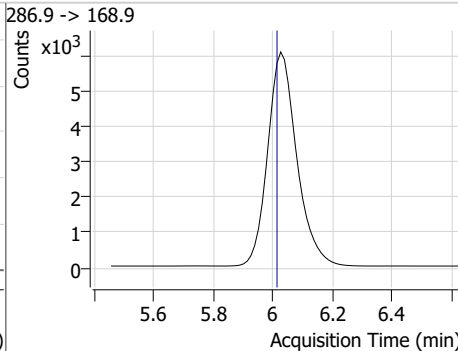
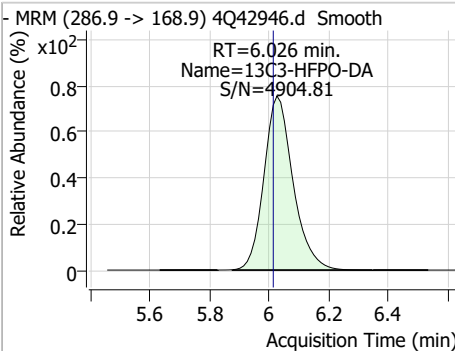
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.66	0.01	67390				



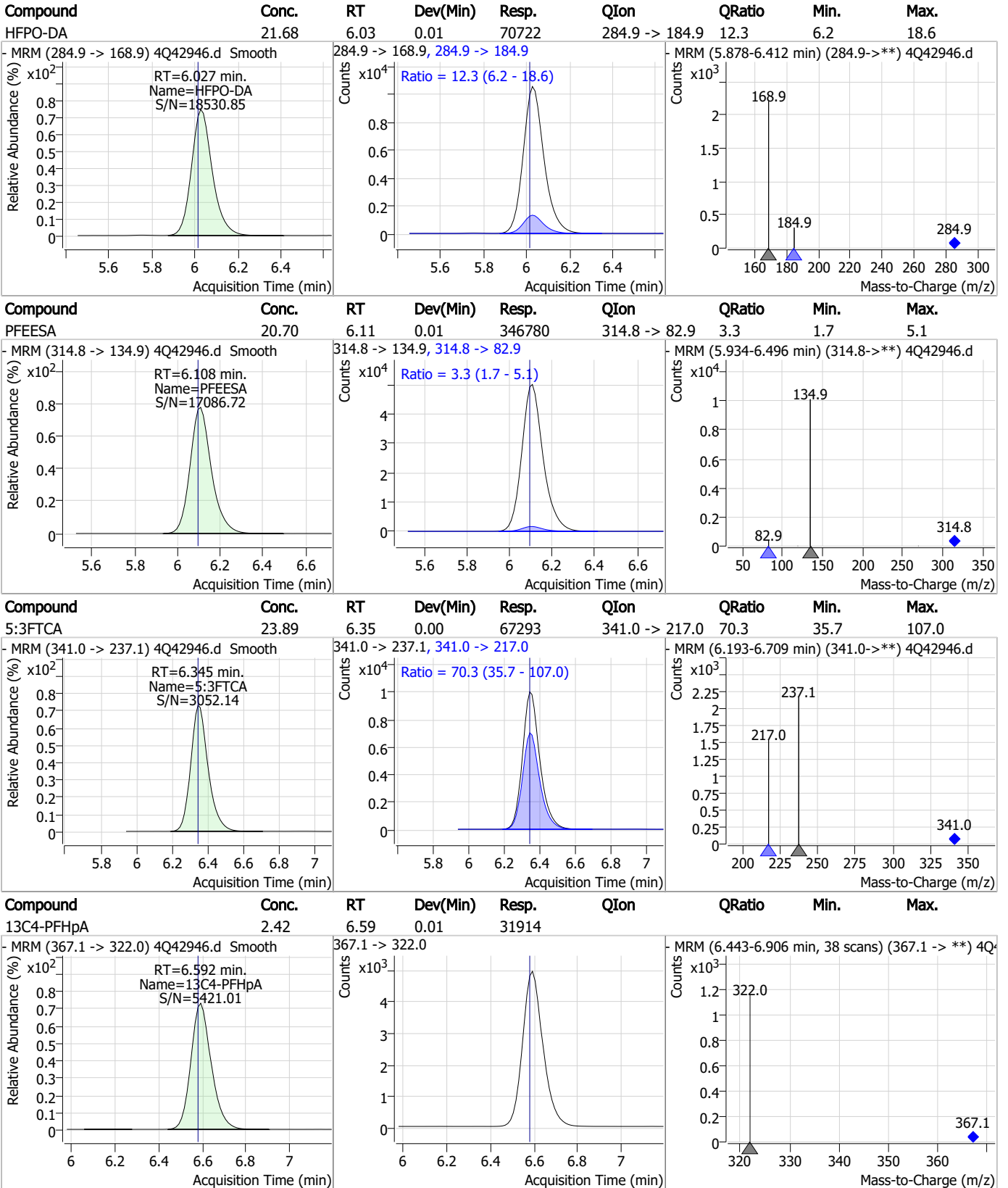
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	23.40	5.66	0.01	466735	313.0 -> 118.9	3.0	1.5	4.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.10	6.03	0.01	41152				



Perfluorinated Compounds by LC/MS/MS

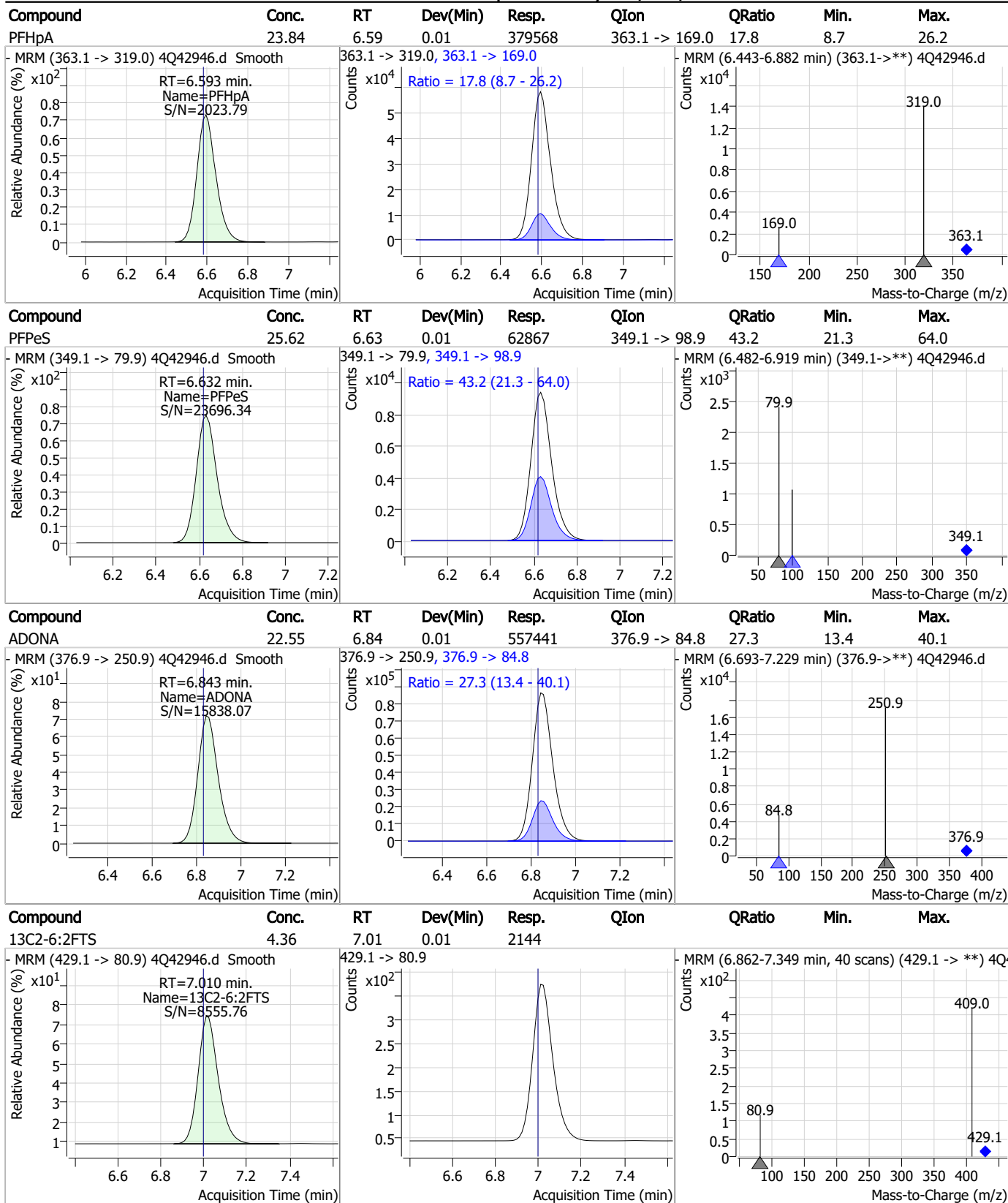


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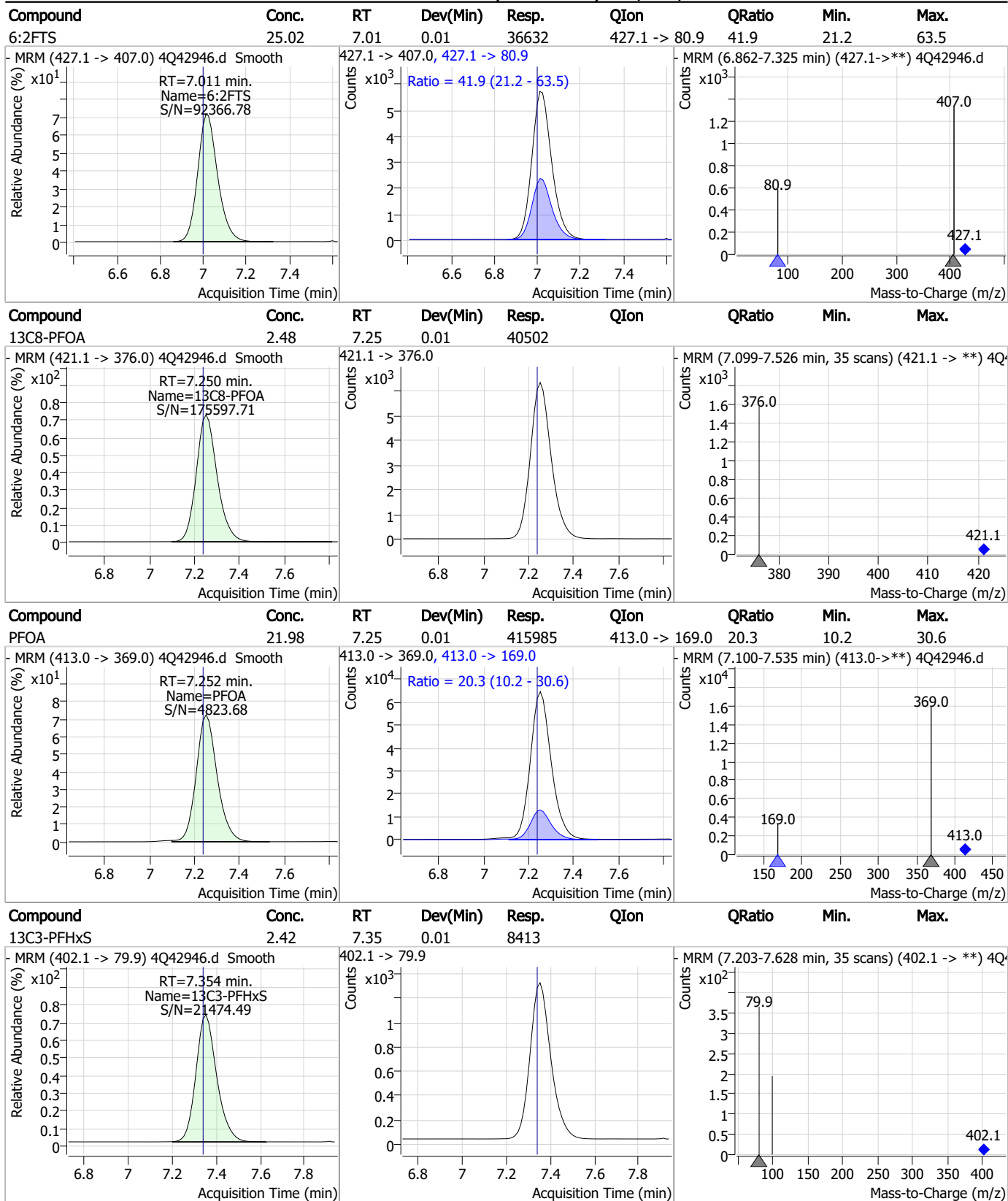


Perfluorinated Compounds by LC/MS/MS



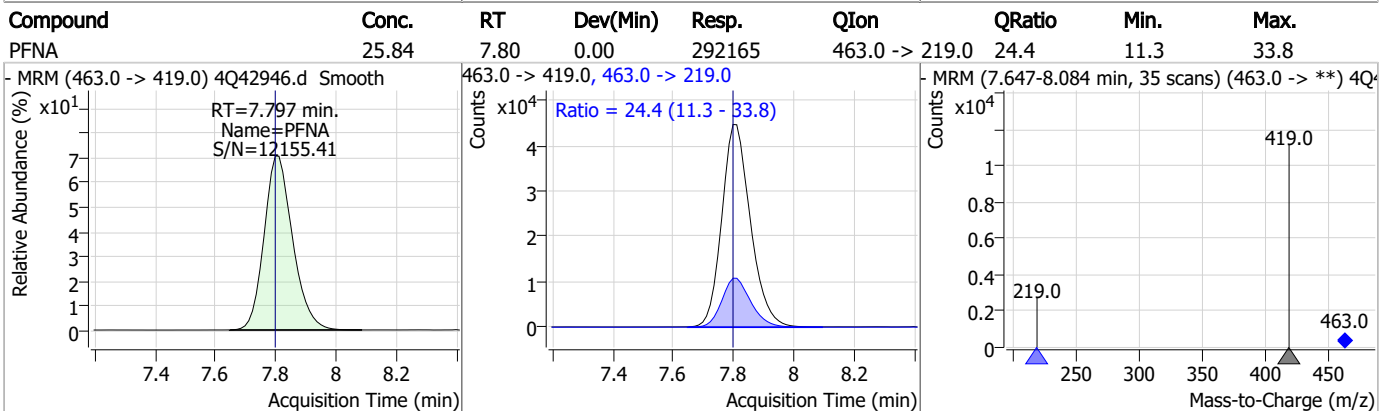
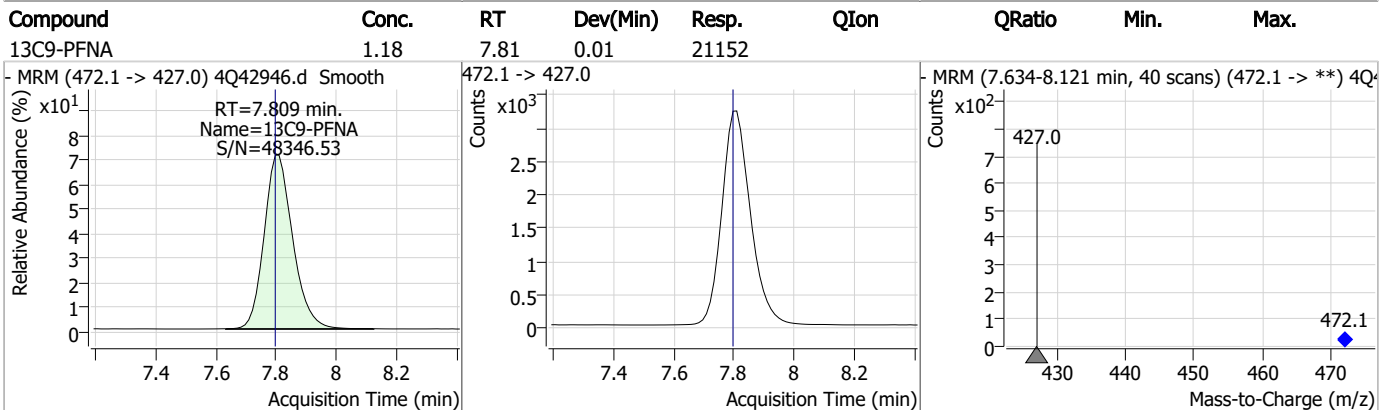
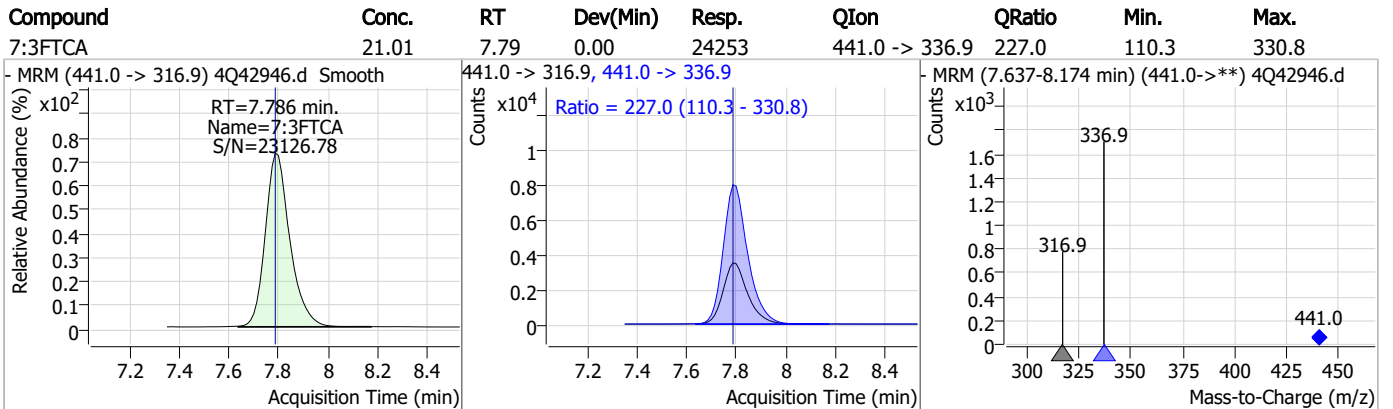
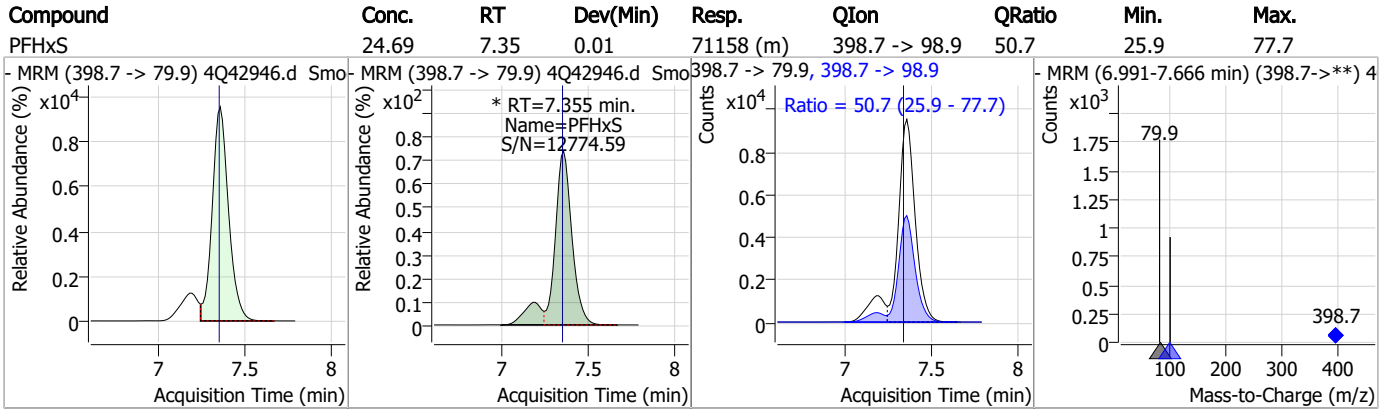
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Perfluorinated Compounds by LC/MS/MS

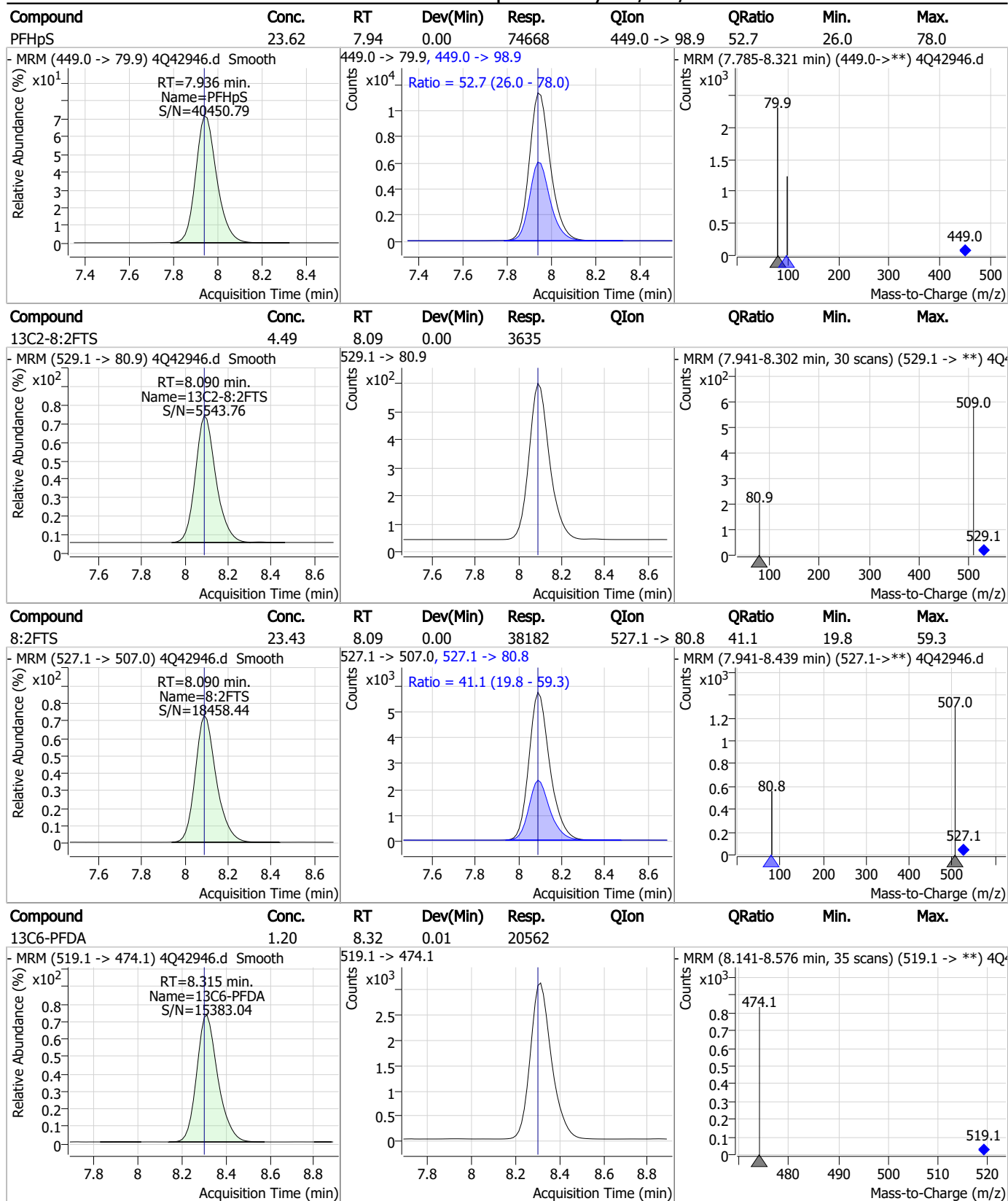


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Perfluorinated Compounds by LC/MS/MS

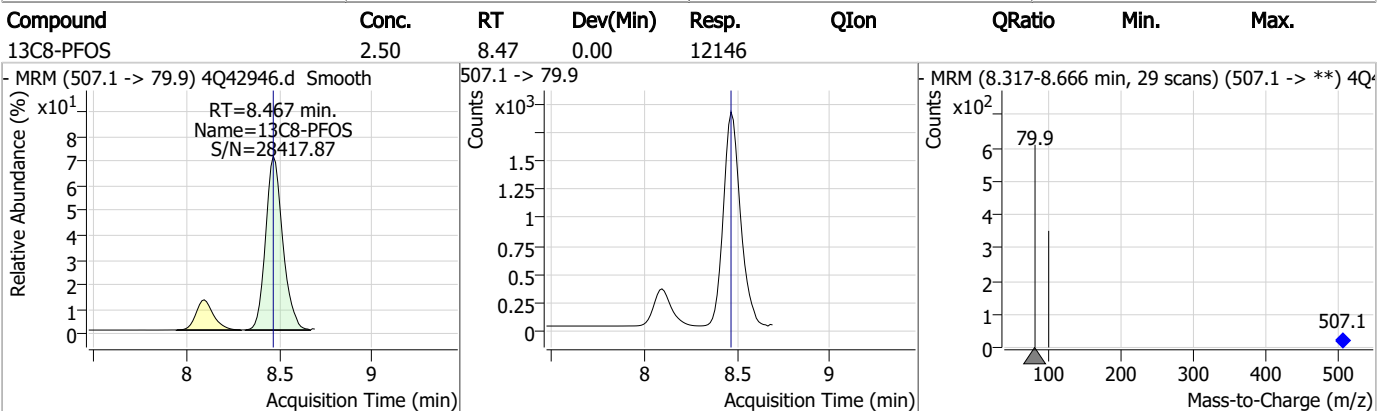
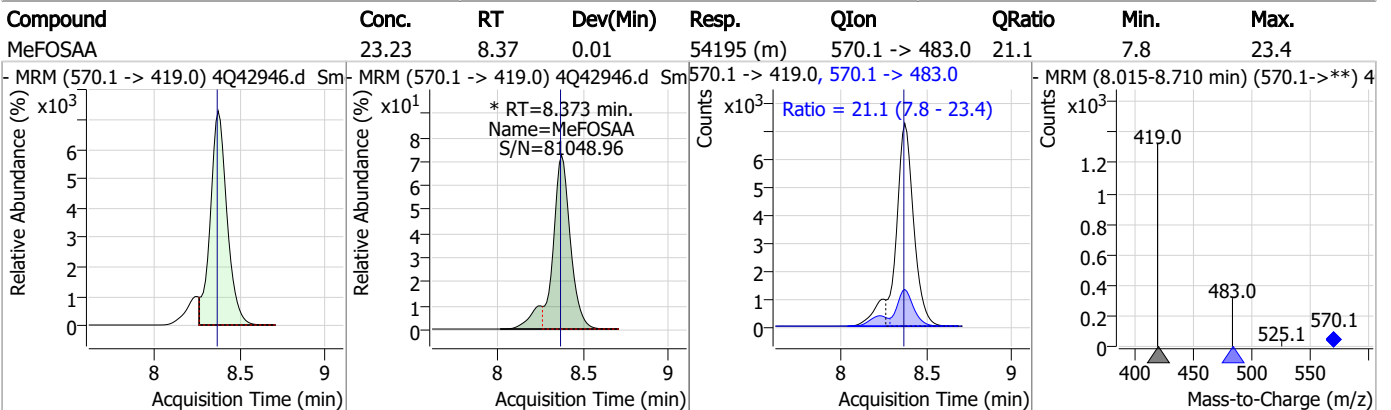
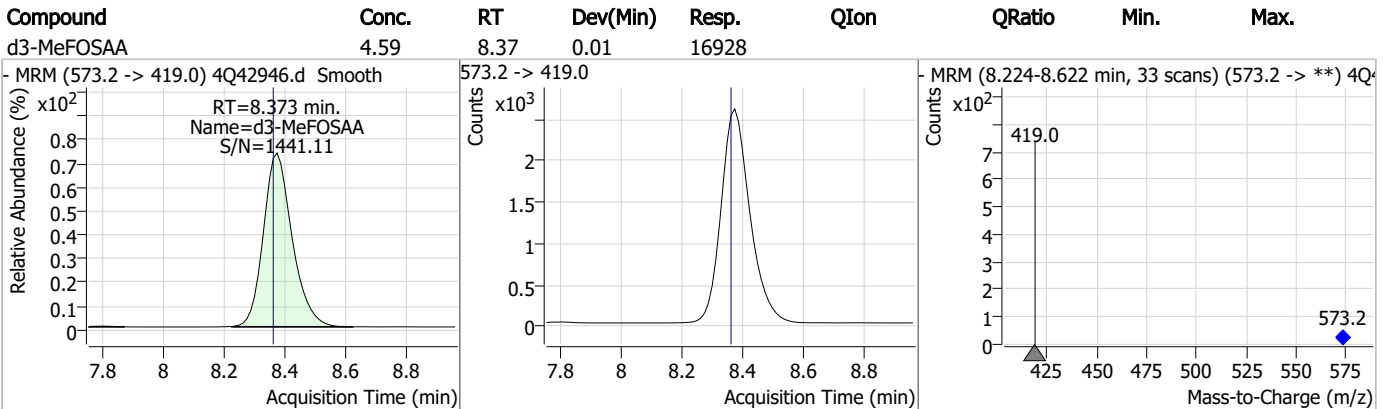
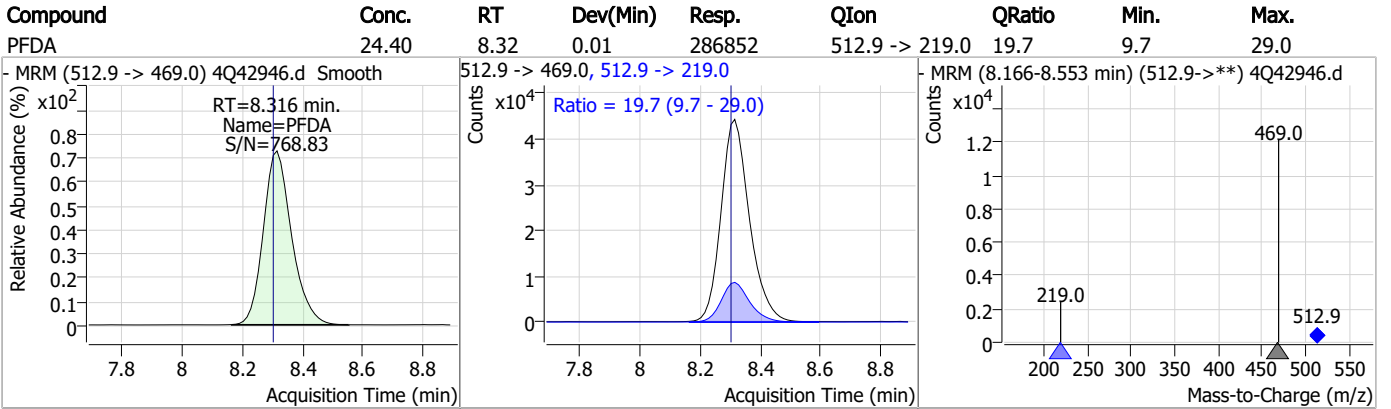


Perfluorinated Compounds by LC/MS/MS

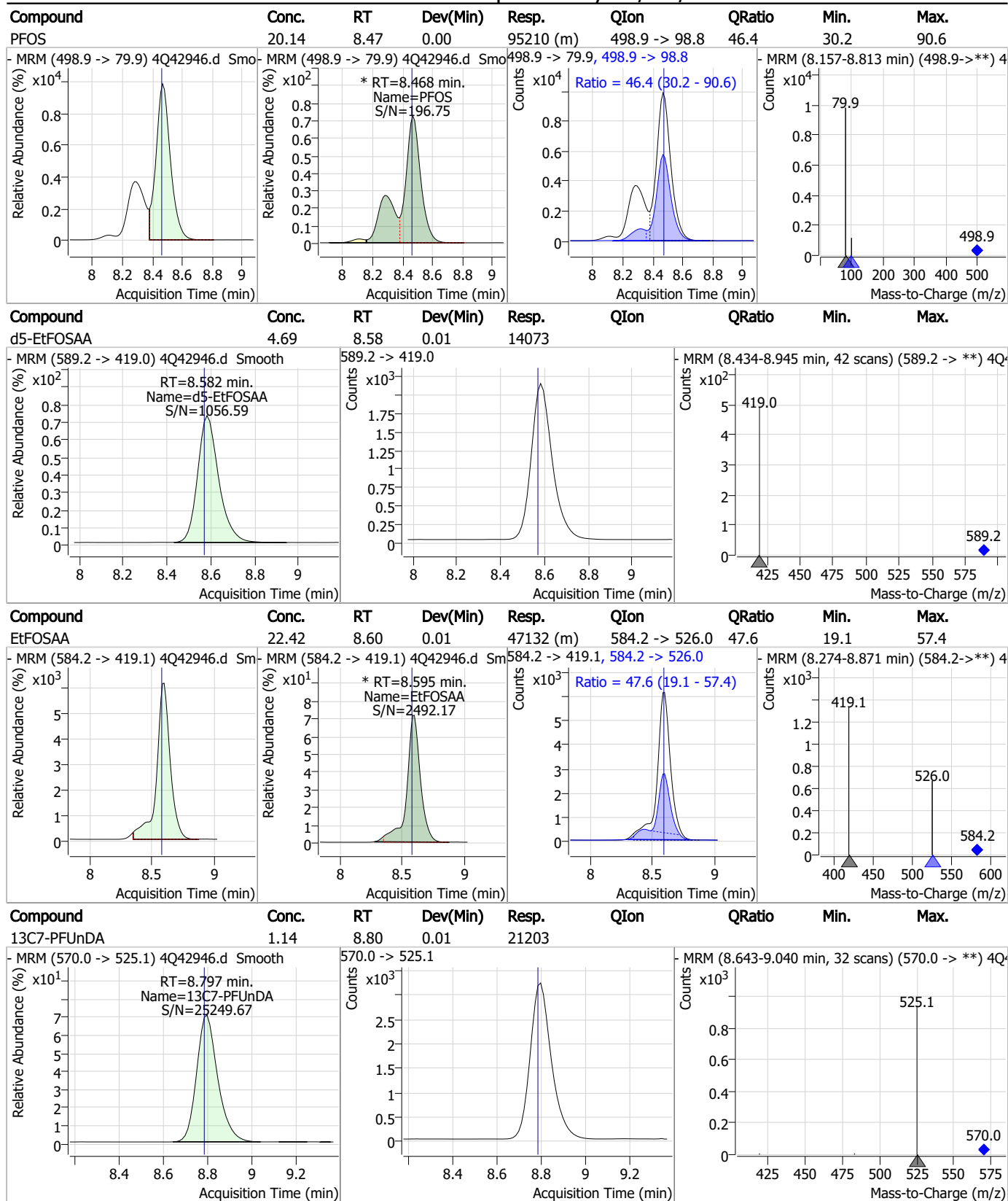


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Perfluorinated Compounds by LC/MS/MS



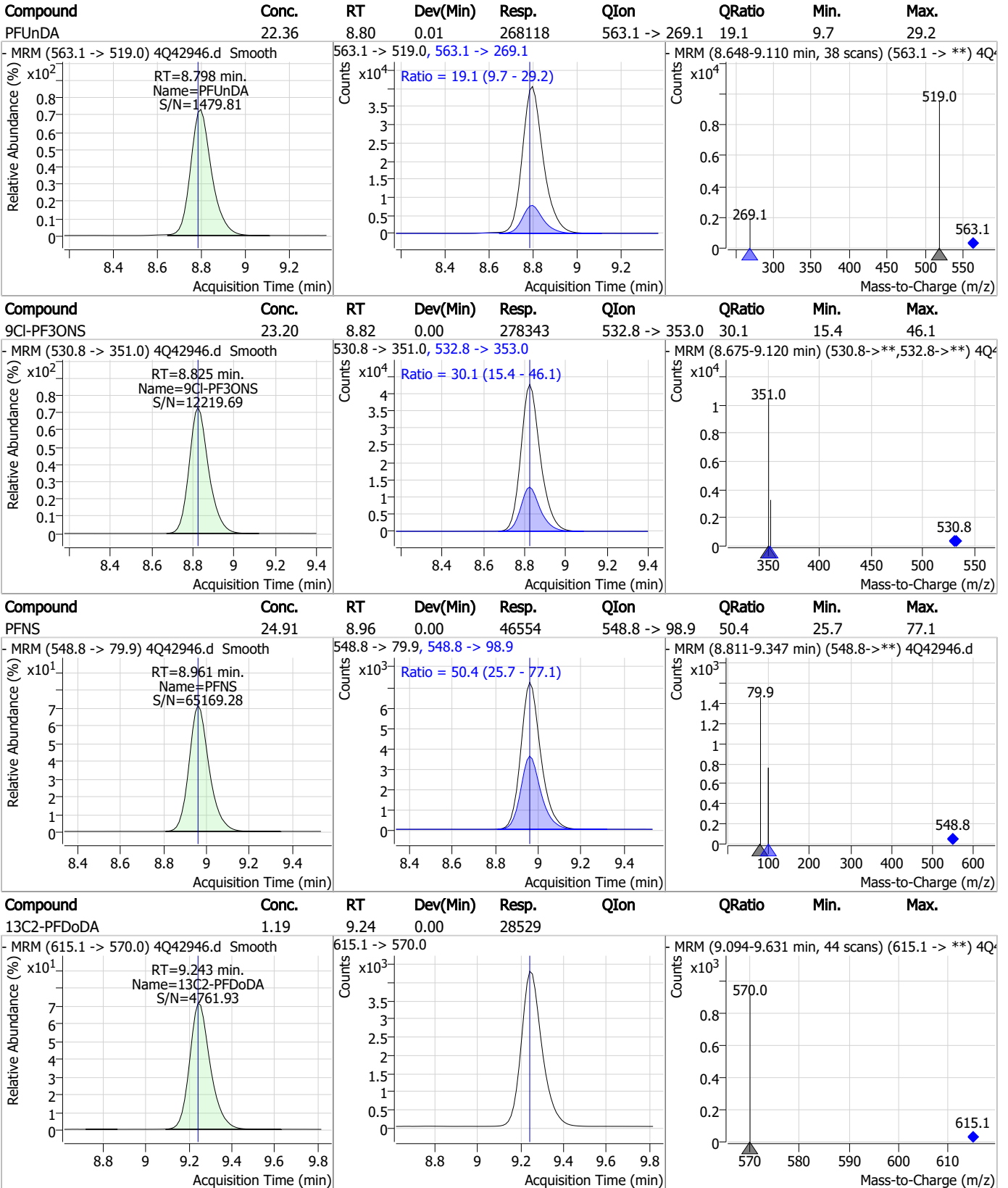
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

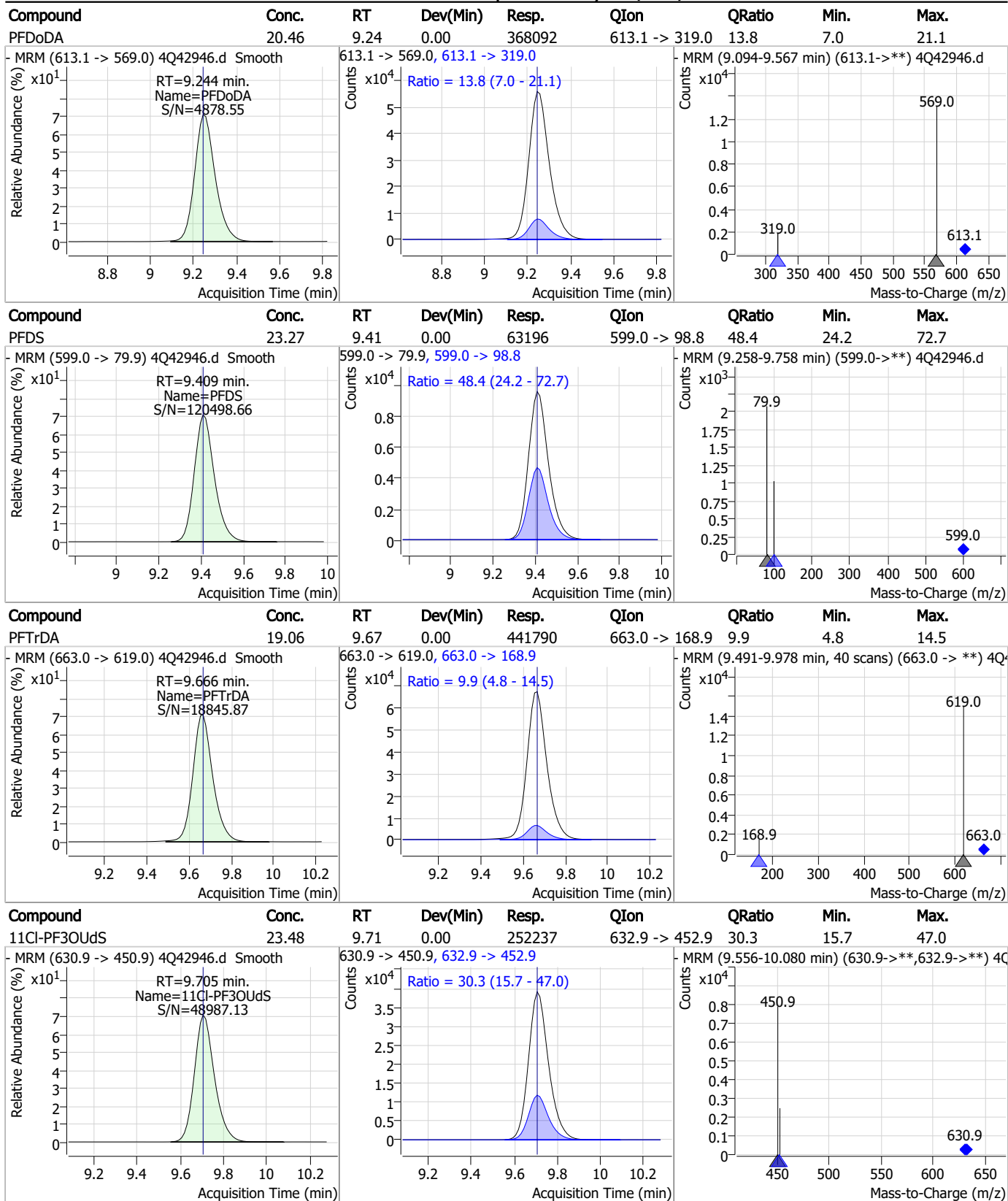


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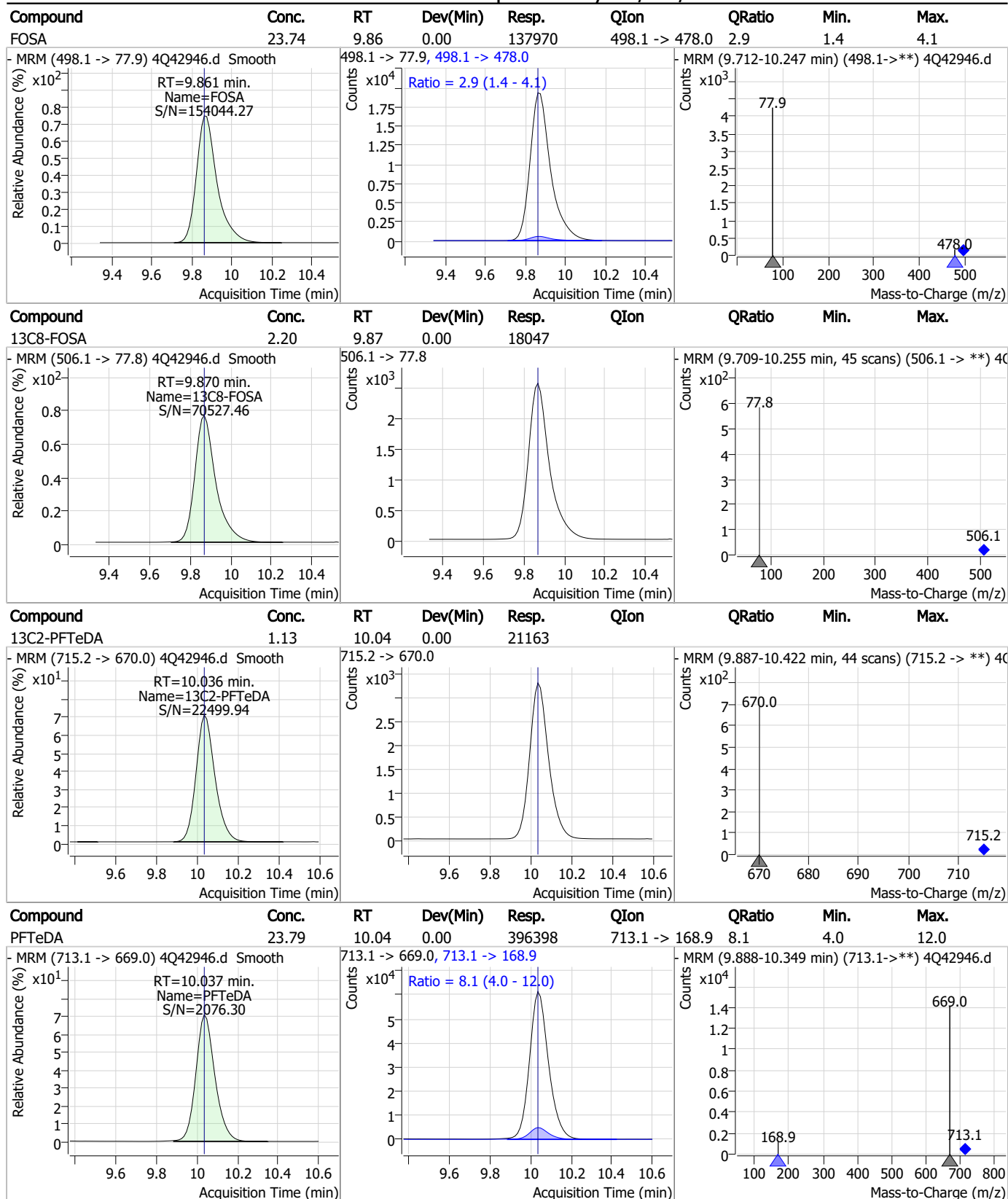


Perfluorinated Compounds by LC/MS/MS



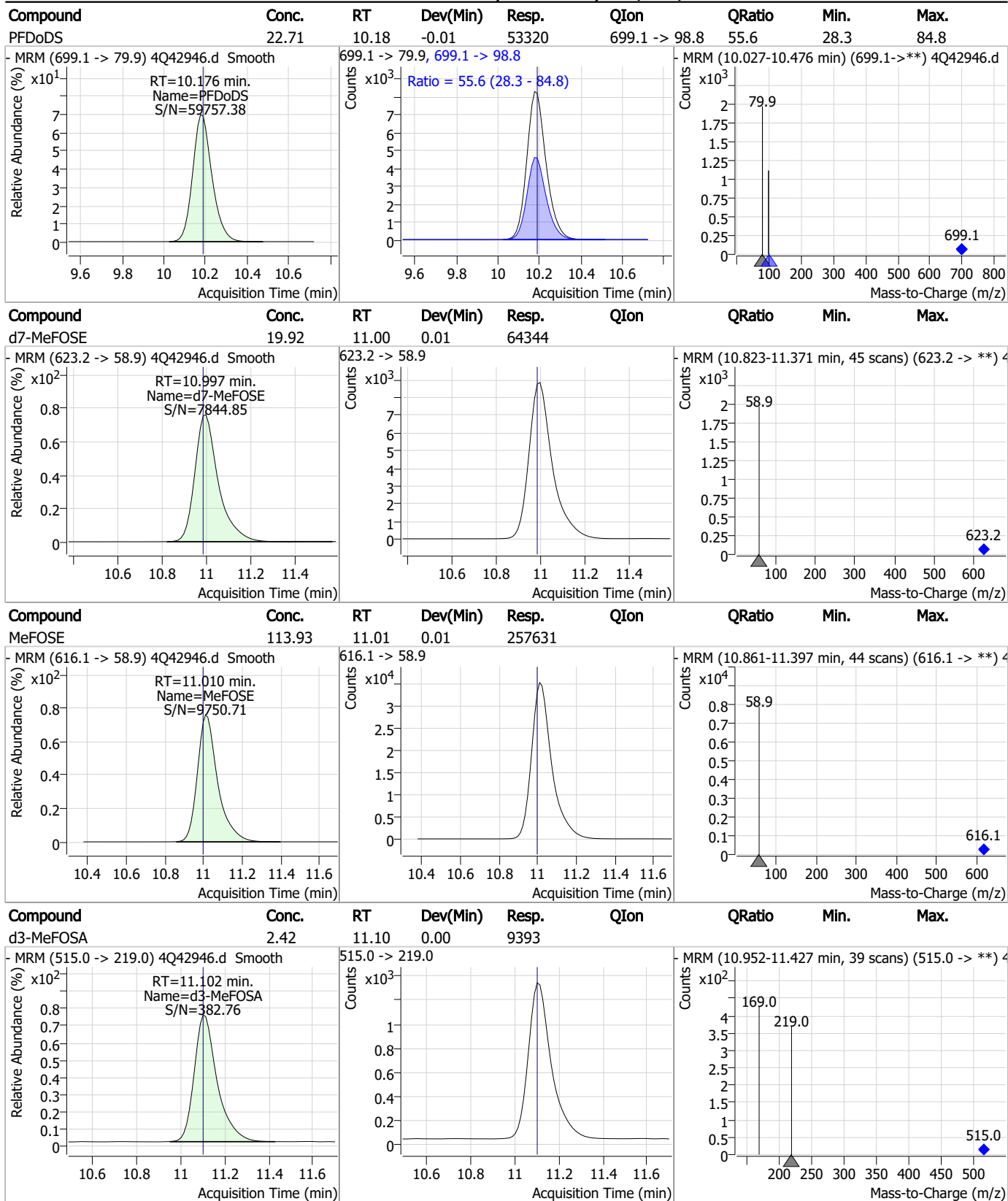
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Perfluorinated Compounds by LC/MS/MS



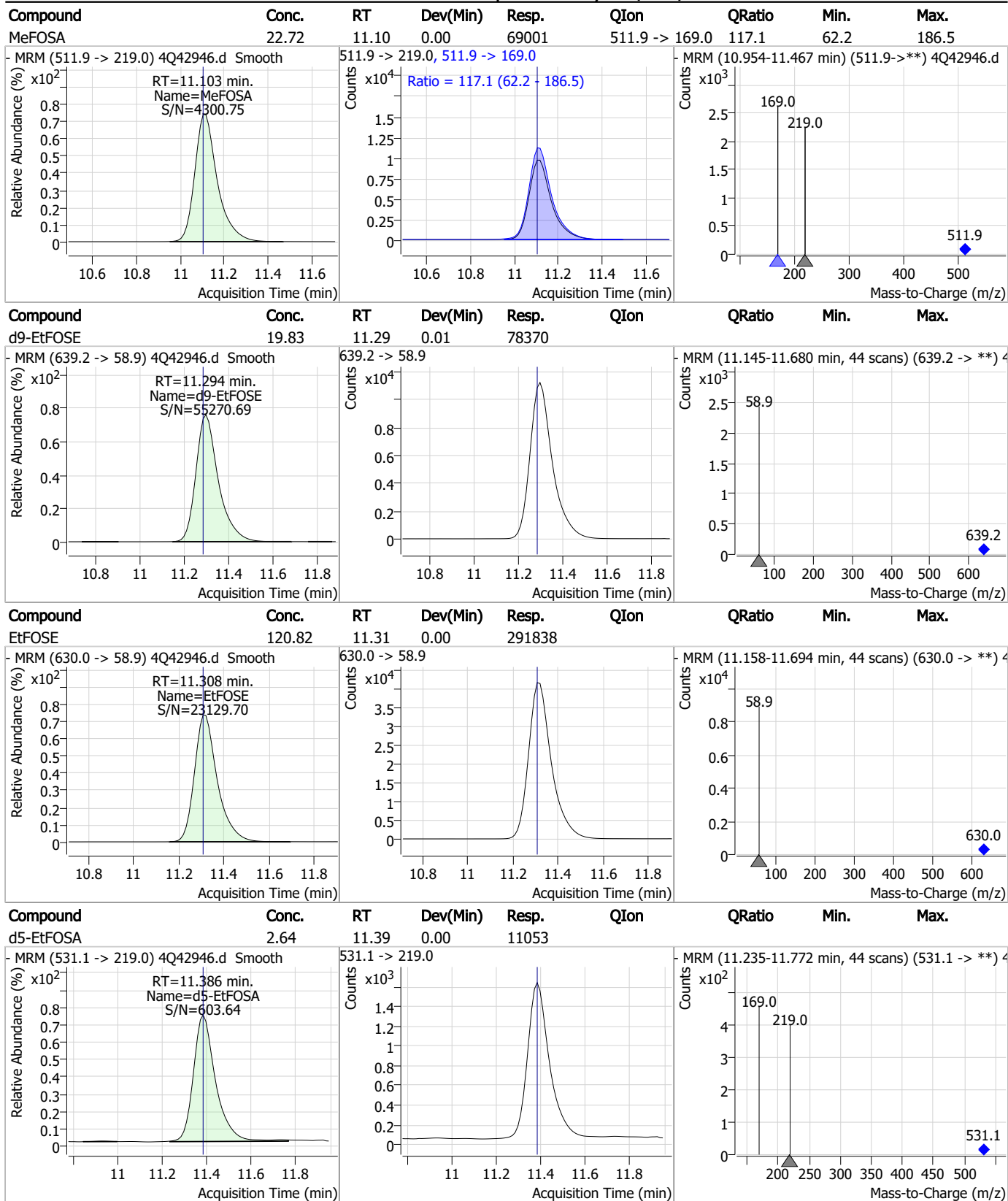
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Perfluorinated Compounds by LC/MS/MS



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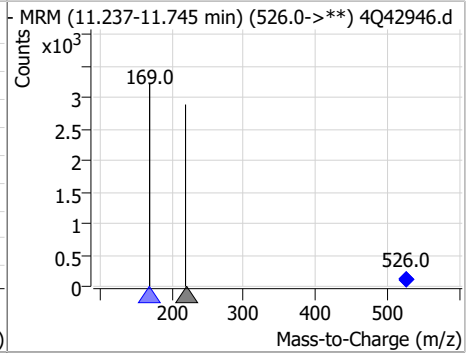
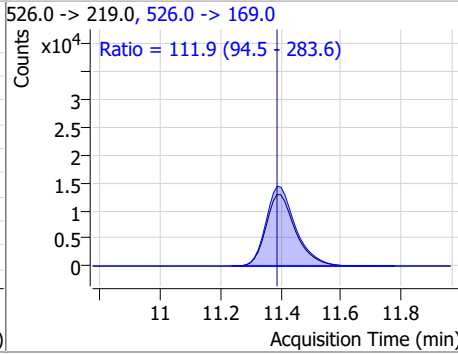
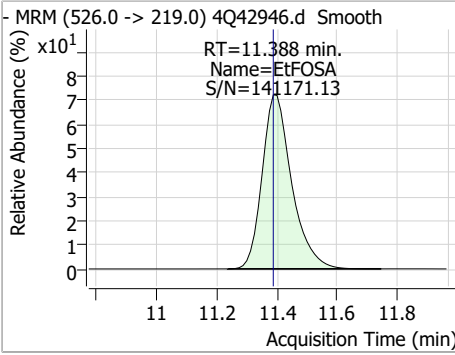
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	22.07	11.39	0.00	86921	526.0 -> 169.0	111.9	94.5	283.6



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Manual Integration Approval Summary

Sample Number: S4Q621-ICV621 Method: EPA DRAFT 1633
Lab FileID: 4Q42946.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 14:19 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.60	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43149.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 11:26:32 AM
 Sample Name : cc621-4
 Vial : P1-A5
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96301,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.961	216.8 -> 171.9	131431	10.00 µg/L	0.000
M5-PFPeA	4.450	268.3 -> 223.0	77007	5.00 µg/L	0.000
M5-PFHxA	5.622	318.0 -> 273.0	61637	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	32038	2.50 µg/L	0.000
M8-PFOA	7.214	421.1 -> 376.0	37708	2.50 µg/L	0.000
M9-PFNA	7.759	472.1 -> 427.0	21465	1.25 µg/L	0.000
M6-PFDA	8.266	519.1 -> 474.1	20061	1.25 µg/L	0.000
M7-PFUnDA	8.748	570.0 -> 525.1	22408	1.25 µg/L	0.000
M2-PFDoDA	9.194	615.1 -> 570.0	27252	1.25 µg/L	0.000
M2-PFTeDA	9.987	715.2 -> 670.0	19312	1.25 µg/L	0.000
M8-FOSA	9.834	506.1 -> 77.8	16484	2.50 µg/L	0.000
M3-PFBS	5.527	302.1 -> 79.9	13582	2.50 µg/L	0.000
M3-PFHxS	7.317	402.1 -> 79.9	8292	2.50 µg/L	0.000
M8-PFOS	8.417	507.1 -> 79.9	11830	2.50 µg/L	0.000
M2-4:2FTS	5.309	329.1 -> 80.9	1645	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	2756	5.00 µg/L	0.000
M2-8:2FTS	8.054	529.1 -> 80.9	4136	5.00 µg/L	0.000
M3-MeFOSAA	8.324	573.2 -> 419.0	18997	5.00 µg/L	0.000
M3-HFPO-DA	5.989	286.9 -> 168.9	38086	10.00 µg/L	0.000
M5-EtFOSAA	8.533	589.2 -> 419.0	14732	5.00 µg/L	0.000
M7-MeFOSE	10.974	623.2 -> 58.9	60614	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	75918	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	9928	2.50 µg/L	0.000
M3-MeFOSA	11.090	515.0 -> 219.0	9515	2.50 µg/L	0.000
13C4-PFOS	8.418	502.8 -> 79.9	12080	2.50 µg/L	0.000
13C3-PFBA	2.966	216.0 -> 172.0	73315	5.00 µg/L	0.000
18O2-PFHxS	7.316	403.0 -> 83.9	5988	2.50 µg/L	0.000
13C4-PFOA	7.214	417.1 -> 372.0	45562	2.50 µg/L	0.000
13C2-PFDA	8.267	515.1 -> 470.1	18679	1.25 µg/L	0.000
13C5-PFNA	7.759	468.0 -> 423.0	23741	1.25 µg/L	0.000
13C2-PFHxA	5.623	315.1 -> 270.0	51832	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.309	329.1 -> 80.9	1645	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-6:2FTS	6.974	429.1 -> 80.9	2756	5.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.4%		
13C2-8:2FTS	8.054	529.1 -> 80.9	4136	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.1%		
13C2-PFDoDA	9.194	615.1 -> 570.0	27252	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C2-PFTeDA	9.987	715.2 -> 670.0	19312	1.08 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.3%		
13C3-PFBS	5.527	302.1 -> 79.9	13582	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C3-PFHxS	7.317	402.1 -> 79.9	8292	2.50 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 = 100.1%	
13C4-PFBA	2.961	216.8 -> 171.9	131431	10.29 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C4-PFHpA	6.555	367.1 -> 322.0	32038	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C5-PFHxA	5.622	318.0 -> 273.0	61637	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C5-PFPeA	4.450	268.3 -> 223.0	77007	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C6-PFDA	8.266	519.1 -> 474.1	20061	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C7-PFUnDA	8.748	570.0 -> 525.1	22408	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C8-FOSA	9.834	506.1 -> 77.8	16484	2.09 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.5%	
13C8-PFOA	7.214	421.1 -> 376.0	37708	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-PFOS	8.417	507.1 -> 79.9	11830	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C9-PFNA	7.759	472.1 -> 427.0	21465	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
d3-MeFOSAA	8.324	573.2 -> 419.0	18997	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.8%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	38086	10.47 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d3-MeFOSA	11.090	515.0 -> 219.0	9515	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
d5-EtFOSAA	8.533	589.2 -> 419.0	14732	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d7-MeFOSE	10.974	623.2 -> 58.9	60614	19.46 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.8%	
d9-EtFOSE	11.282	639.2 -> 58.9	75918	19.91 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.7%	
d5-EtFOSA	11.373	531.1 -> 219.0	9928	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
Target Compounds					QValue
4:2FTS	5.310	327.1 -> 307.0	17151	8.37 µg/L	97
		327.1 -> 80.9	7498		
6:2FTS	6.974	427.1 -> 407.0	14418	7.66 µg/L	97
		427.1 -> 80.9	6255		
8:2FTS	8.054	527.1 -> 507.0	16338	8.81 µg/L	95
		527.1 -> 80.8	6672		
EtFOSAA	8.547	584.2 -> 419.1	4772	2.17 µg/L	90
		584.2 -> 526.0	2572		
FOSA	9.837	498.1 -> 77.9	11064	2.08 µg/L	99
		498.1 -> 478.0	315		
MeFOSAA	8.325	570.1 -> 419.0	5095	1.95 µg/L	m 97
		570.1 -> 483.0	1231		
PFBA	2.957	212.8 -> 168.9	23320	7.77 µg/L	100
PFBS	5.528	298.7 -> 79.9	9449	1.86 µg/L	96
		298.7 -> 98.8	3569		
PFDA	8.267	512.9 -> 469.0	25992	2.27 µg/L	97
		512.9 -> 219.0	4776		
PFDODA	9.195	613.1 -> 569.0	35169	2.05 µg/L	99
		613.1 -> 319.0	4962		
PFDS	9.358	599.0 -> 79.9	4941	1.87 µg/L	96

7.7.12
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2554			
PFHpA	6.555	363.1 -> 319.0	32748	2.05	µg/L	99
		363.1 -> 169.0	6015			
PFHpS	7.900	449.0 -> 79.9	6321	2.05	µg/L	98
		449.0 -> 98.9	3262			
PFHxA	5.625	313.0 -> 269.0	37602	2.06	µg/L	99
		313.0 -> 118.9	1074			
PFHxS	7.318	398.7 -> 79.9	5359	1.89	µg/L	m 96
		398.7 -> 98.9	2575			
PFNA	7.760	463.0 -> 419.0	23290	2.03	µg/L	99
		463.0 -> 219.0	5906			
PFNS	8.912	548.8 -> 79.9	3657	2.01	µg/L	97
		548.8 -> 98.9	1894			
PFOA	7.215	413.0 -> 369.0	35809	2.03	µg/L	98
		413.0 -> 169.0	7173			
PFOS	8.419	498.9 -> 79.9	8889	1.93	µg/L	m 98
		498.9 -> 98.8	4106			
PFPeA	4.452	263.0 -> 219.0	63363	4.35	µg/L	100
PFPeS	6.595	349.1 -> 79.9	4751	1.96	µg/L	99
		349.1 -> 98.9	2170			
PFTeDA	9.988	713.1 -> 669.0	31253	2.06	µg/L	98
		713.1 -> 168.9	2577			
PFTrDA	9.617	663.0 -> 619.0	43017	1.94	µg/L	100
		663.0 -> 168.9	4346			
PFUnDA	8.748	563.1 -> 519.0	24185	1.91	µg/L	95
		563.1 -> 269.1	5045			
11CI-PF3OUdS	9.656	630.9 -> 450.9	48907	4.92	µg/L	100
		632.9 -> 452.9	14940			
9CI-PF3ONS	8.775	530.8 -> 351.0	50402	4.54	µg/L	99
		532.8 -> 353.0	15332			
ADONA	6.806	376.9 -> 250.9	112748	4.93	µg/L	99
		376.9 -> 84.8	30034			
HFPO-DA	5.990	284.9 -> 168.9	15034	4.98	µg/L	98
		284.9 -> 184.9	1850			
3:3FTCA	3.917	241.0 -> 177.0	8791	12.94	µg/L	99
		241.0 -> 117.0	804			
5:3FTCA	6.308	341.0 -> 237.1	168544	65.41	µg/L	99
		341.0 -> 217.0	118275			
7:3FTCA	7.749	441.0 -> 316.9	67527	63.94	µg/L	98
		441.0 -> 336.9	154485			
EtFOSA	11.375	526.0 -> 219.0	18490	5.23	µg/L	m 100
		526.0 -> 169.0	24947			
EtFOSE	11.295	630.0 -> 58.9	30099	12.86	µg/L	100
MeFOSA	11.092	511.9 -> 219.0	15091	4.91	µg/L	m 99
		511.9 -> 169.0	22086			
MeFOSE	11.000	616.1 -> 58.9	26158	12.28	µg/L	m 100
PFDoDS	10.140	699.1 -> 79.9	4257	1.86	µg/L	98
		699.1 -> 98.8	2466			
NFDHA	5.504	295.0 -> 201.0	6902	5.63	µg/L	94
		295.0 -> 84.9	1593			
PFMBA	4.853	279.0 -> 85.1	42913	5.15	µg/L	100
PFMPA	3.578	229.0 -> 84.9	38117	5.23	µg/L	100
PFEESA	6.059	314.8 -> 134.9	68663	4.48	µg/L	100
		314.8 -> 82.9	2257			

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

7.7.12
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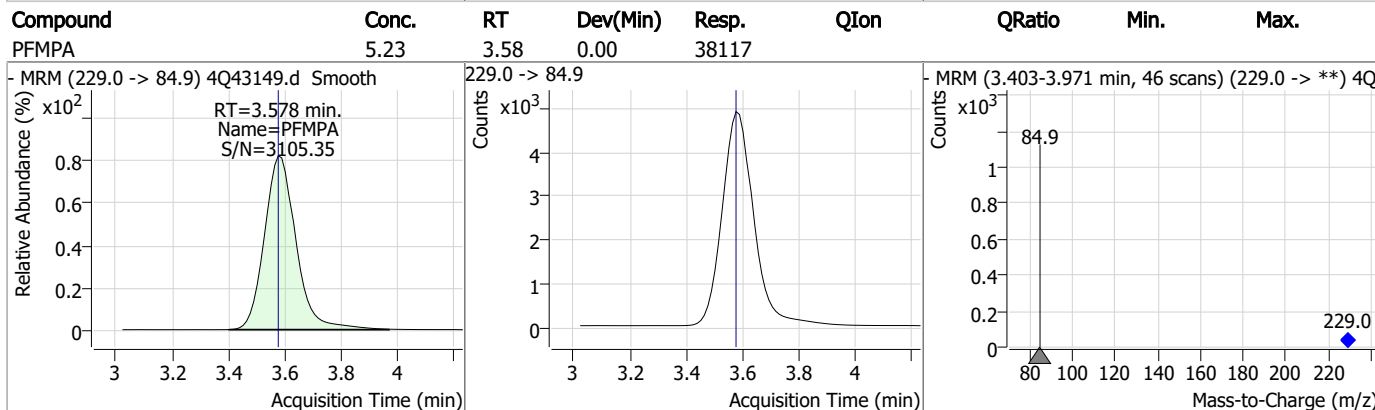
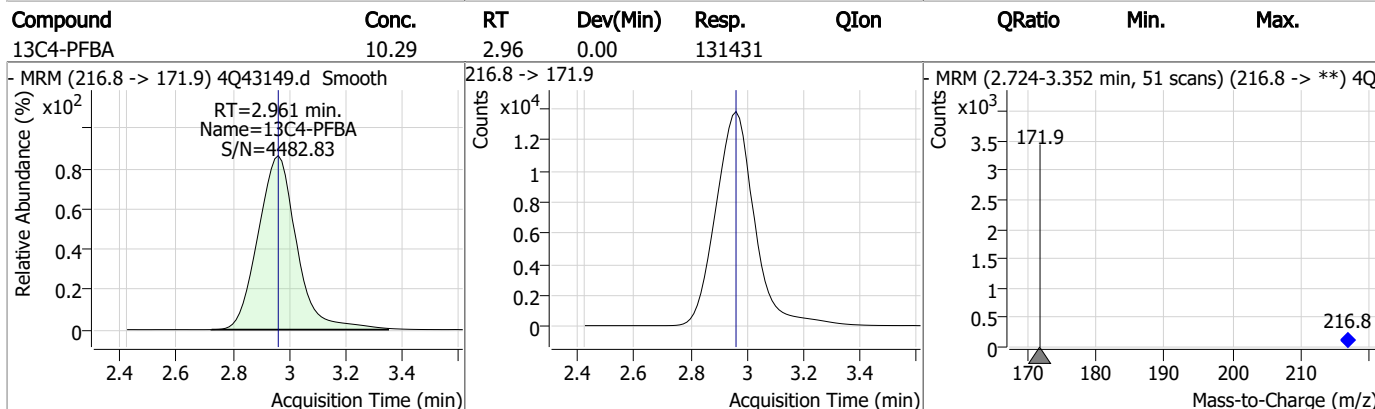
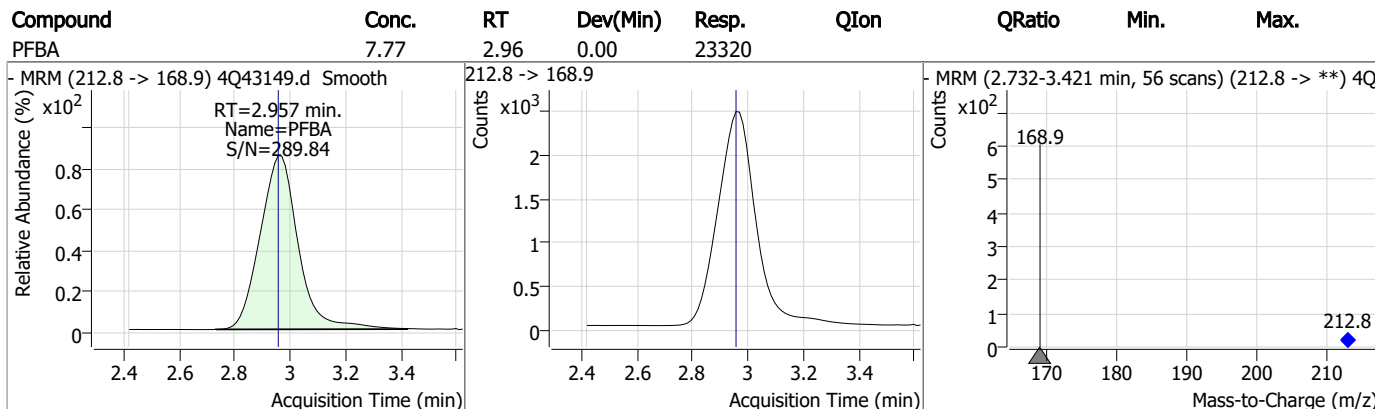
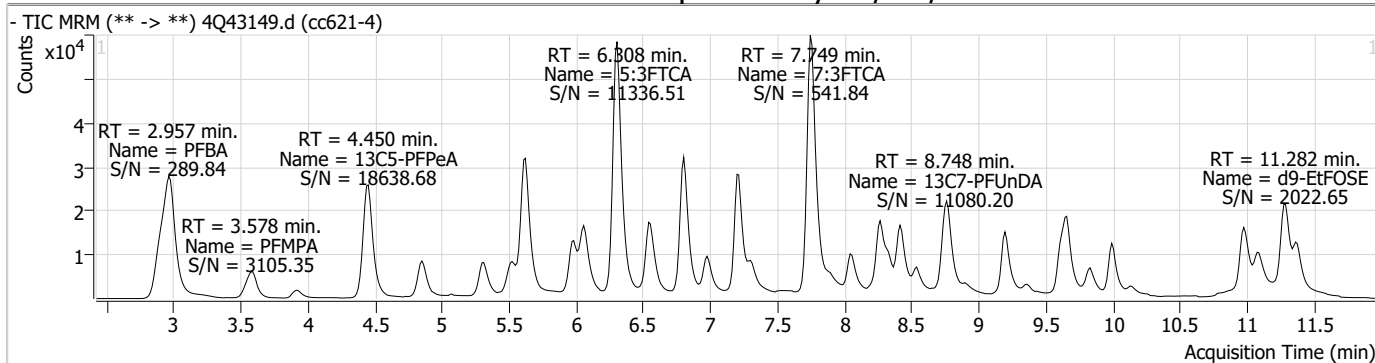
Perfluorinated Compounds by LC/MS/MS

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

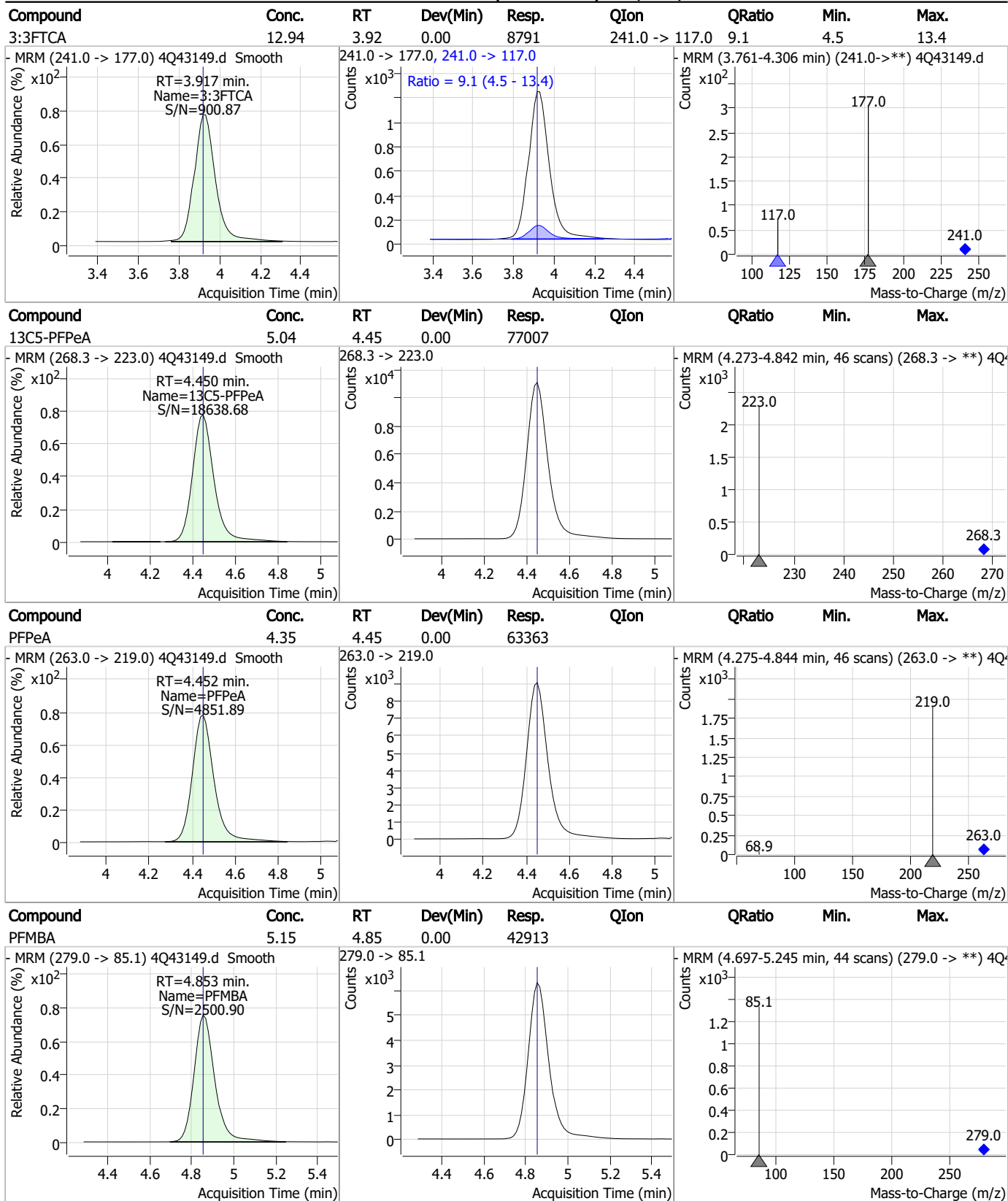
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Perfluorinated Compounds by LC/MS/MS



7.7.12
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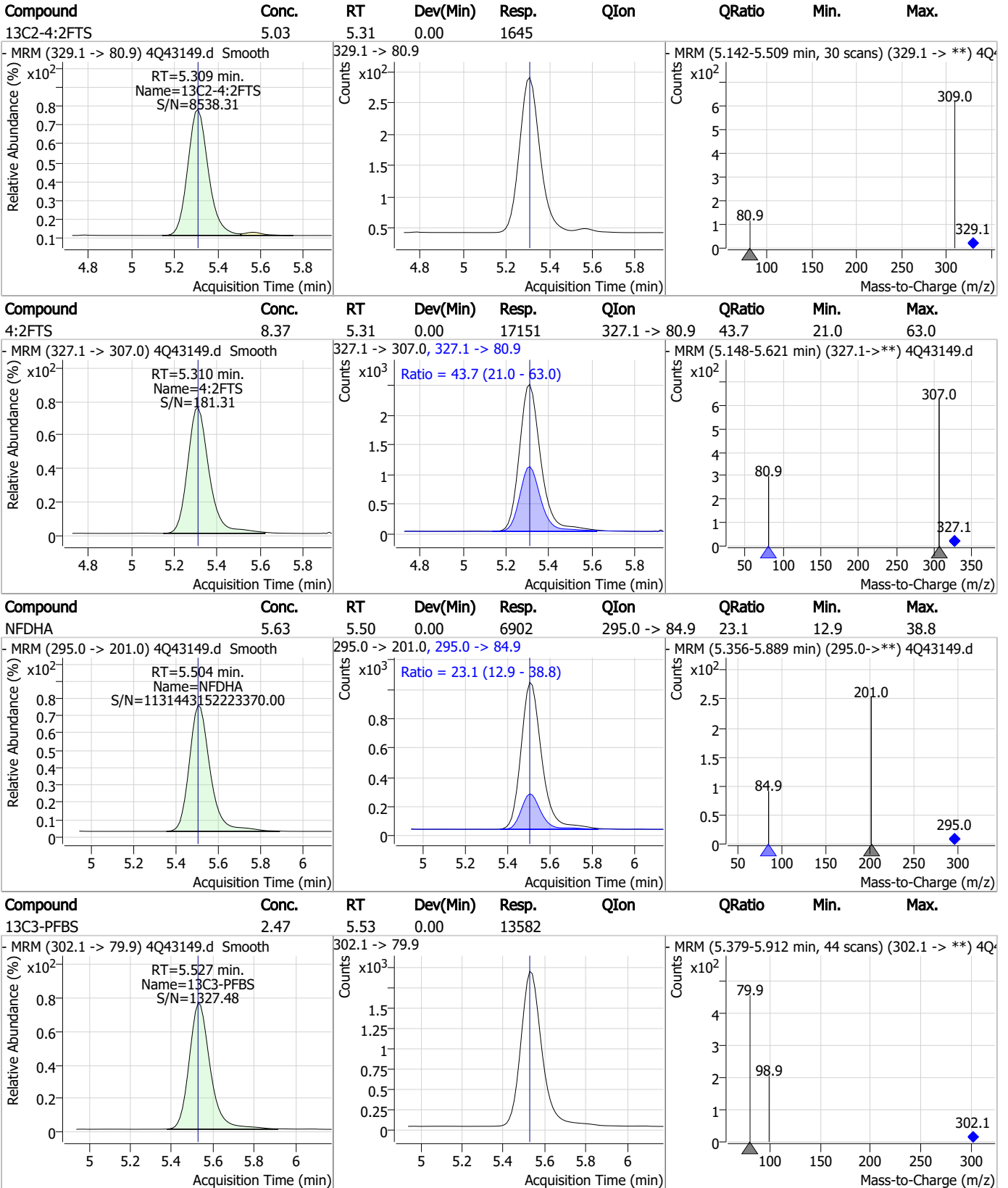
Perfluorinated Compounds by LC/MS/MS



7.7.12

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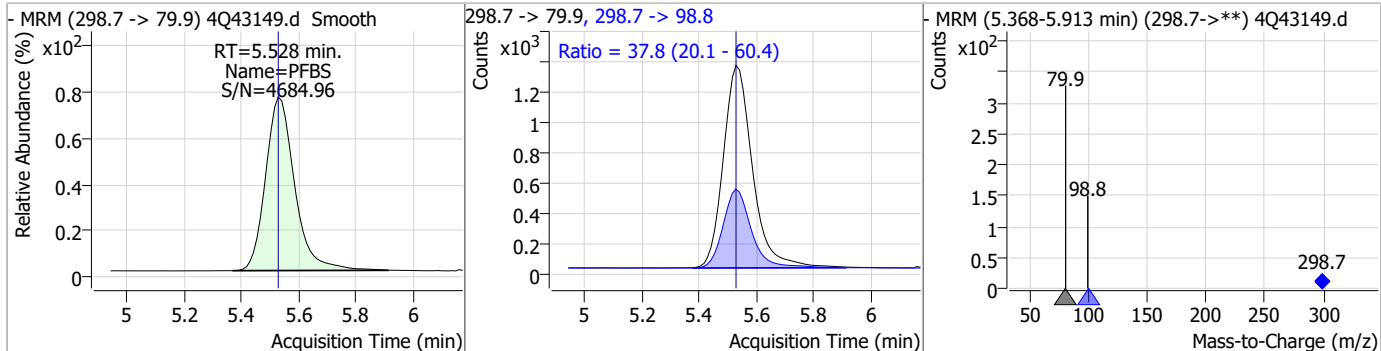
Perfluorinated Compounds by LC/MS/MS



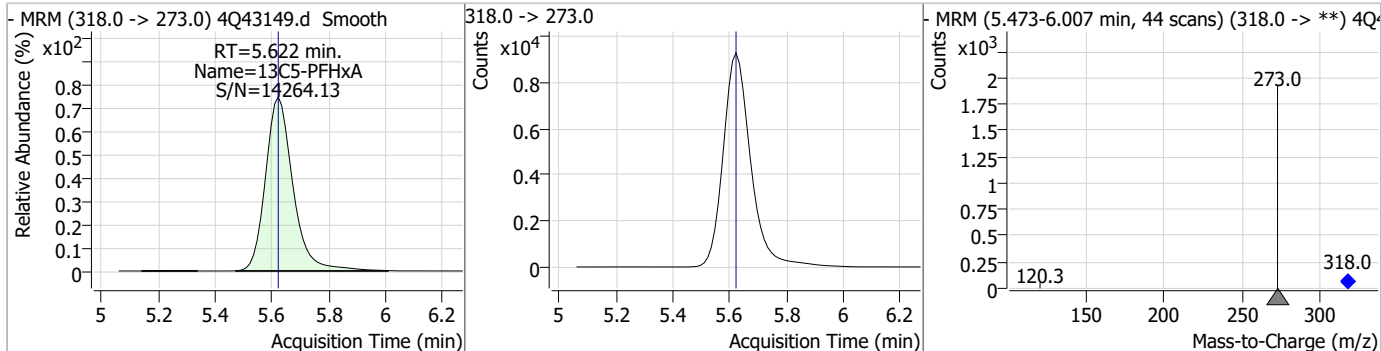
7.7.12 7

Perfluorinated Compounds by LC/MS/MS

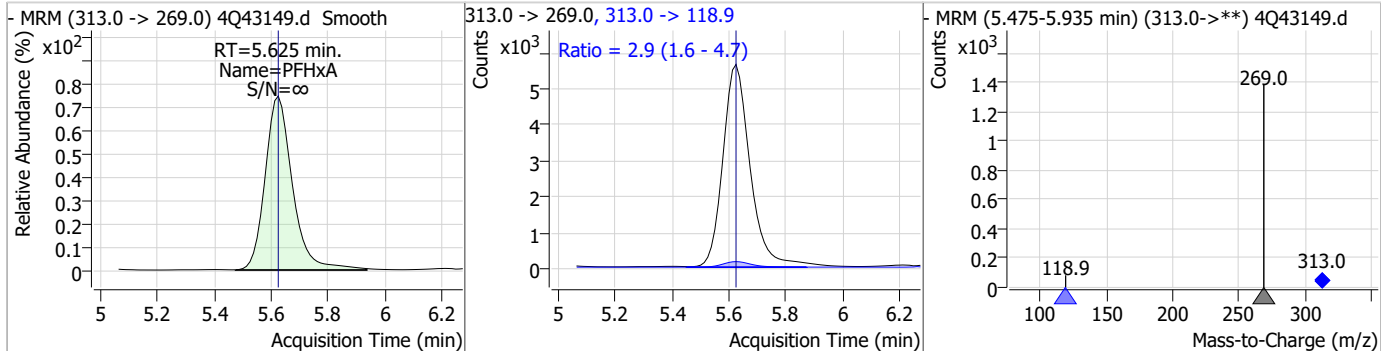
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.86	5.53	0.00	9449	298.7 -> 98.8	37.8	20.1	60.4



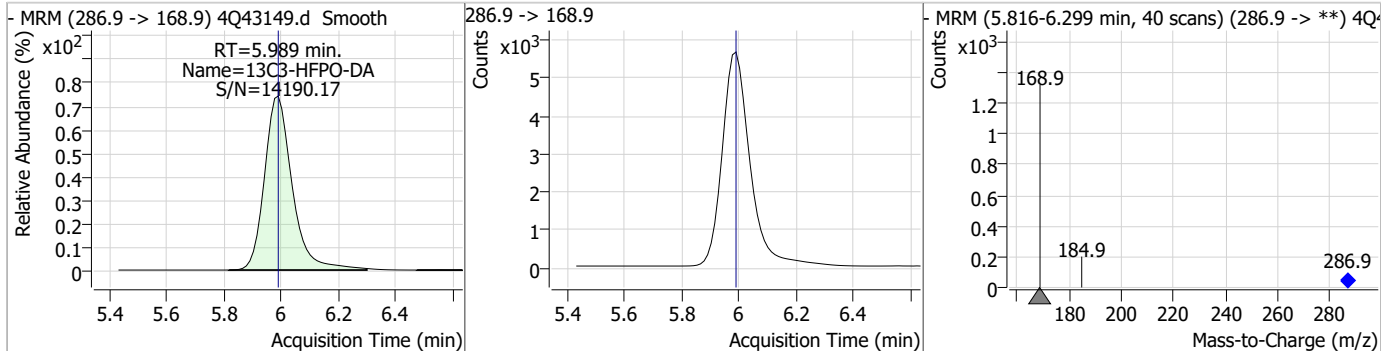
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.57	5.62	0.00	61637				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.06	5.62	0.00	37602	313.0 -> 118.9	2.9	1.6	4.7



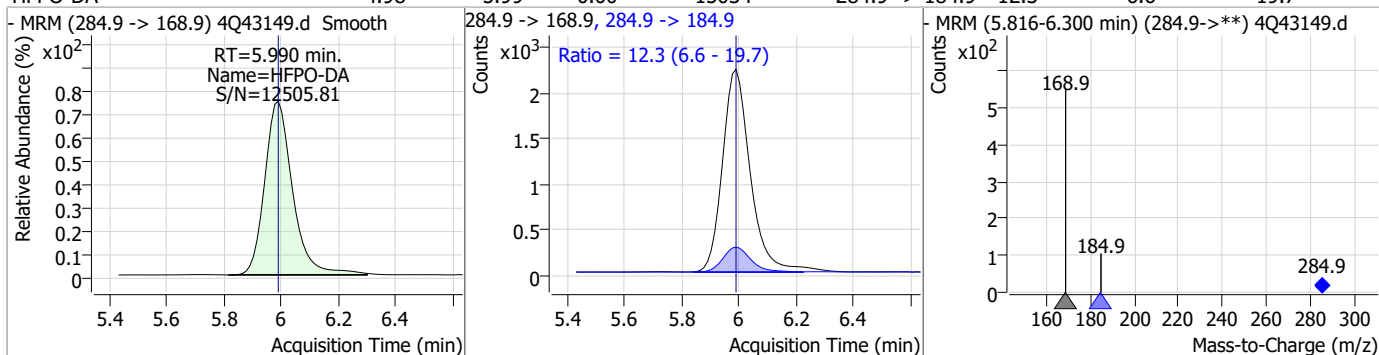
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.47	5.99	0.00	38086				



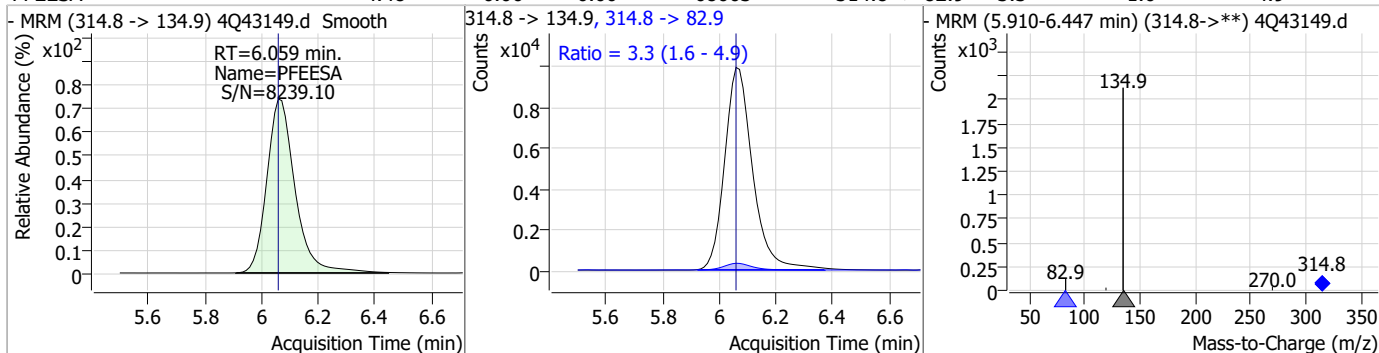
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Perfluorinated Compounds by LC/MS/MS

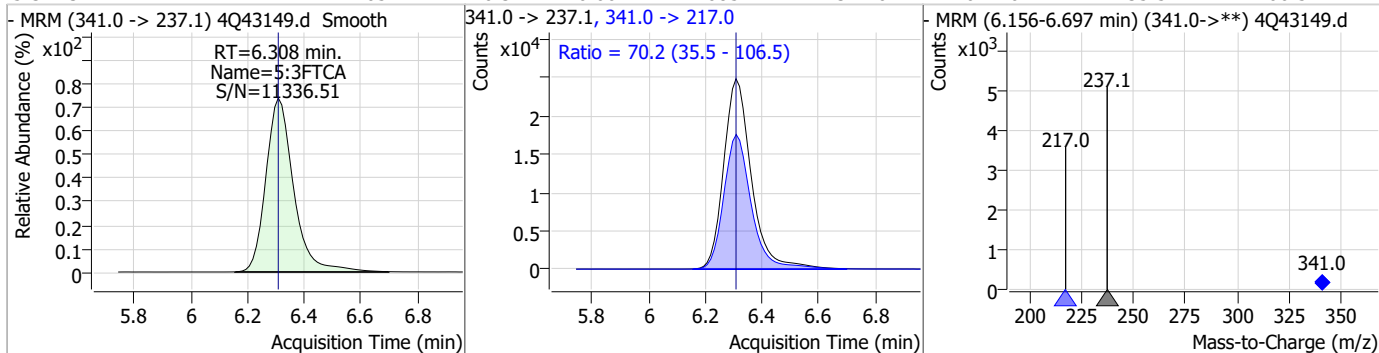
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.98	5.99	0.00	15034	284.9 -> 184.9	12.3	6.6	19.7



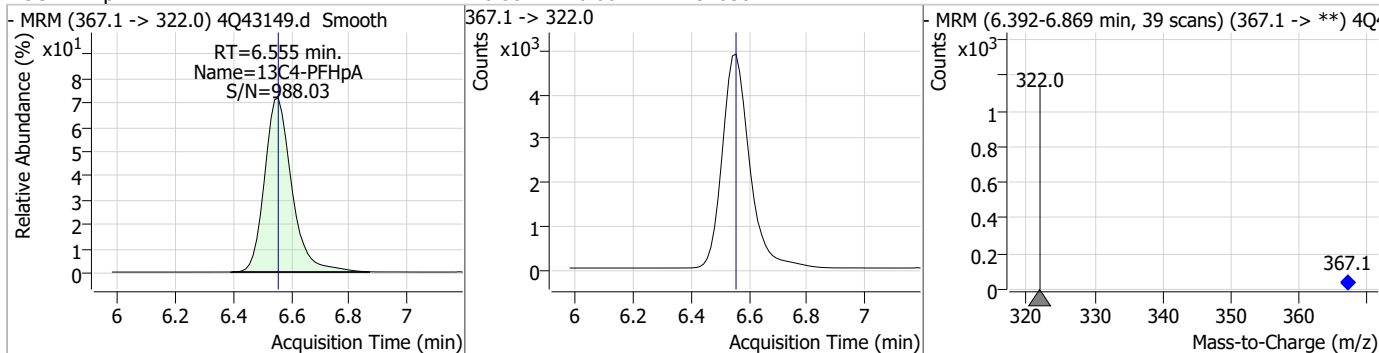
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.48	6.06	0.00	68663	314.8 -> 82.9	3.3	1.6	4.9



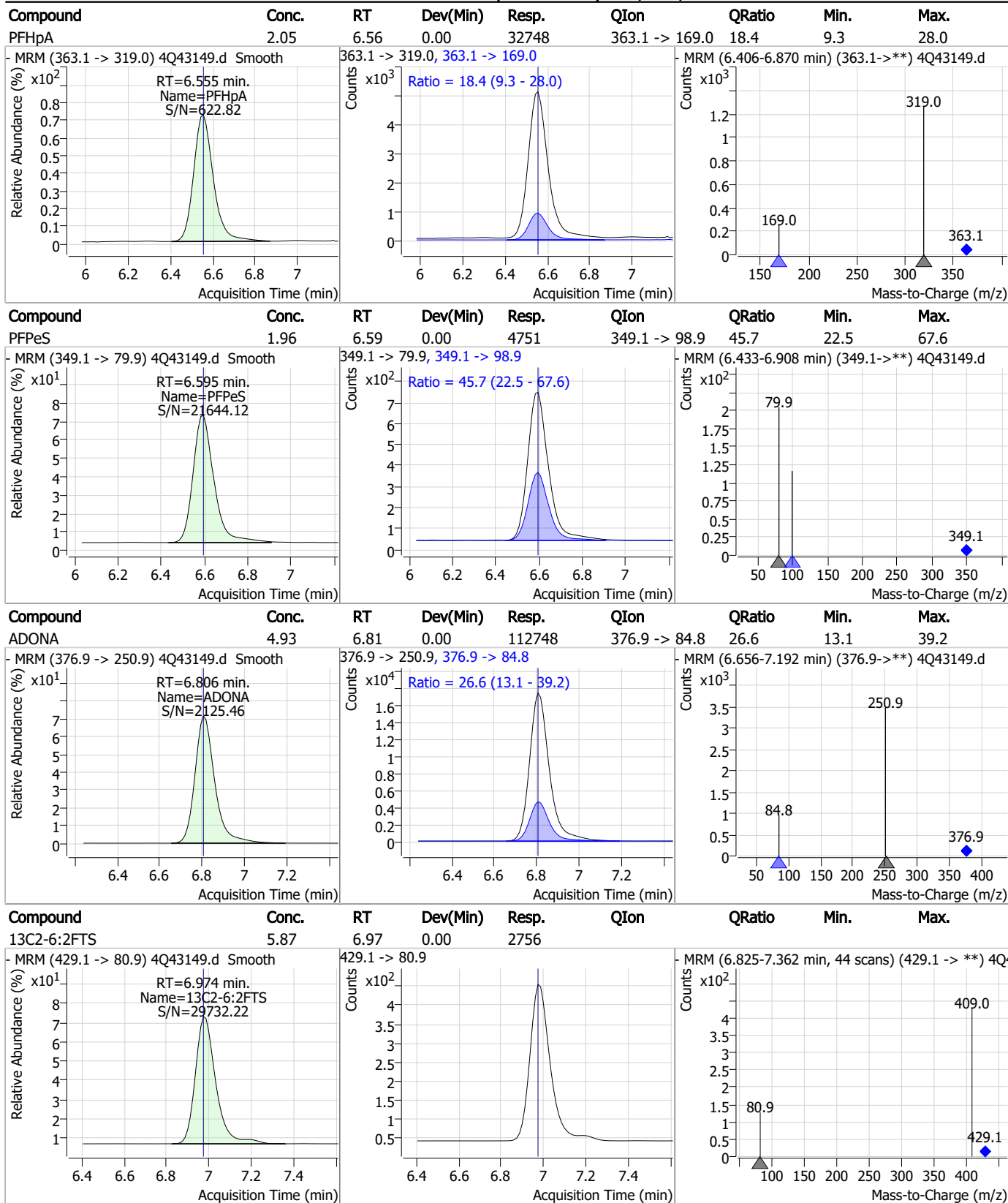
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	65.41	6.31	0.00	168544	341.0 -> 217.0	70.2	35.5	106.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.72	6.55	0.00	32038	367.1 -> 322.0			

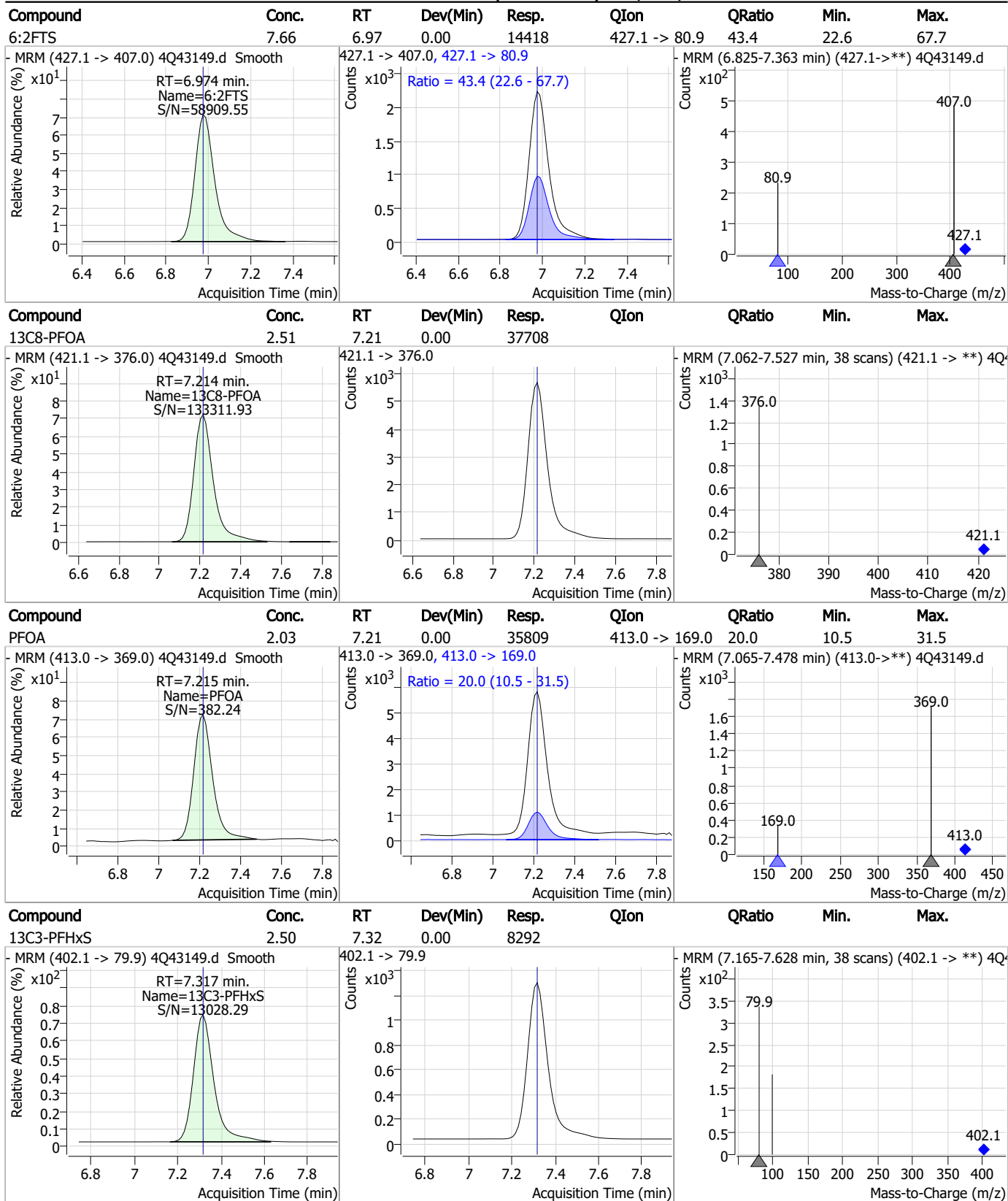


Perfluorinated Compounds by LC/MS/MS



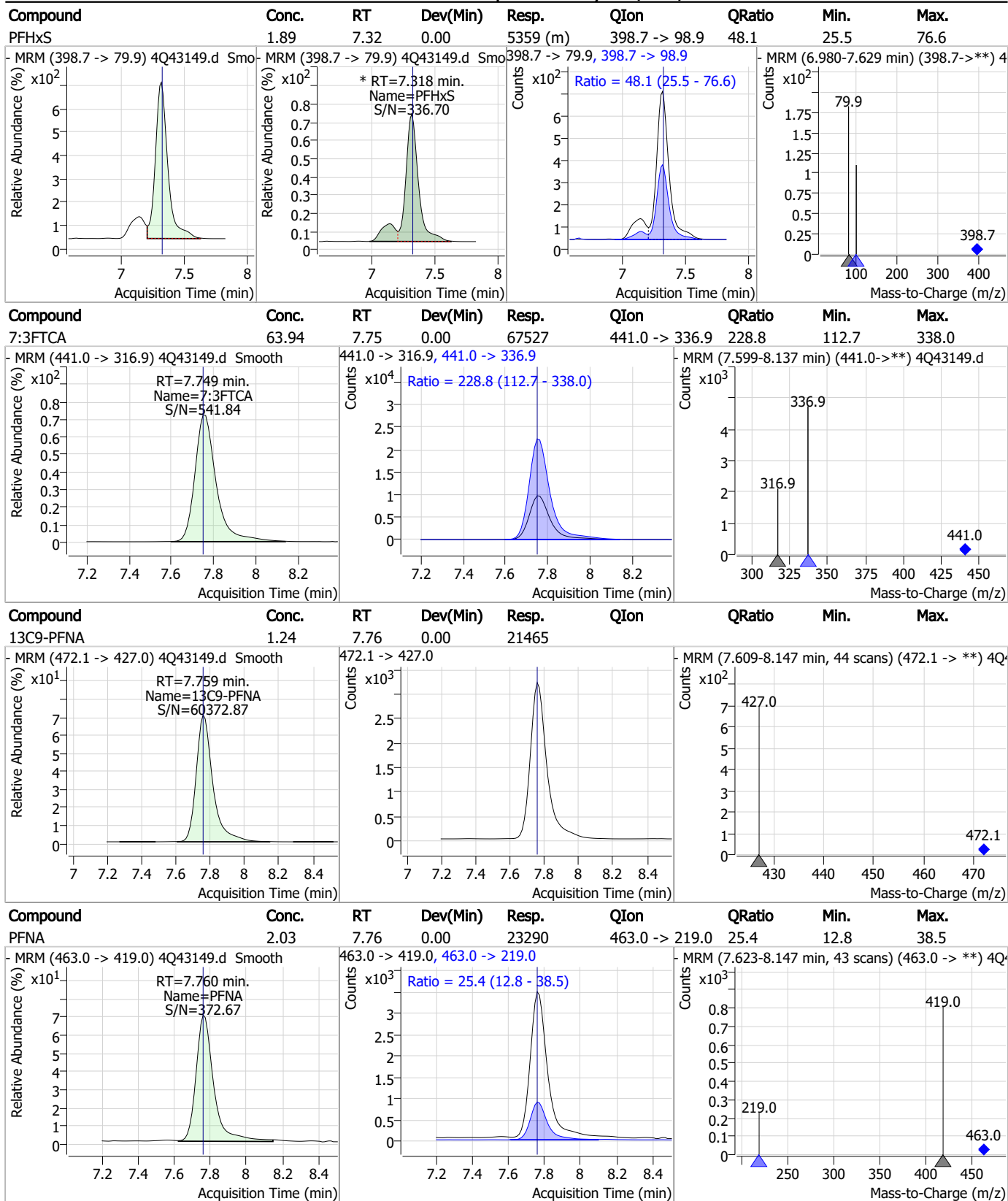
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Perfluorinated Compounds by LC/MS/MS



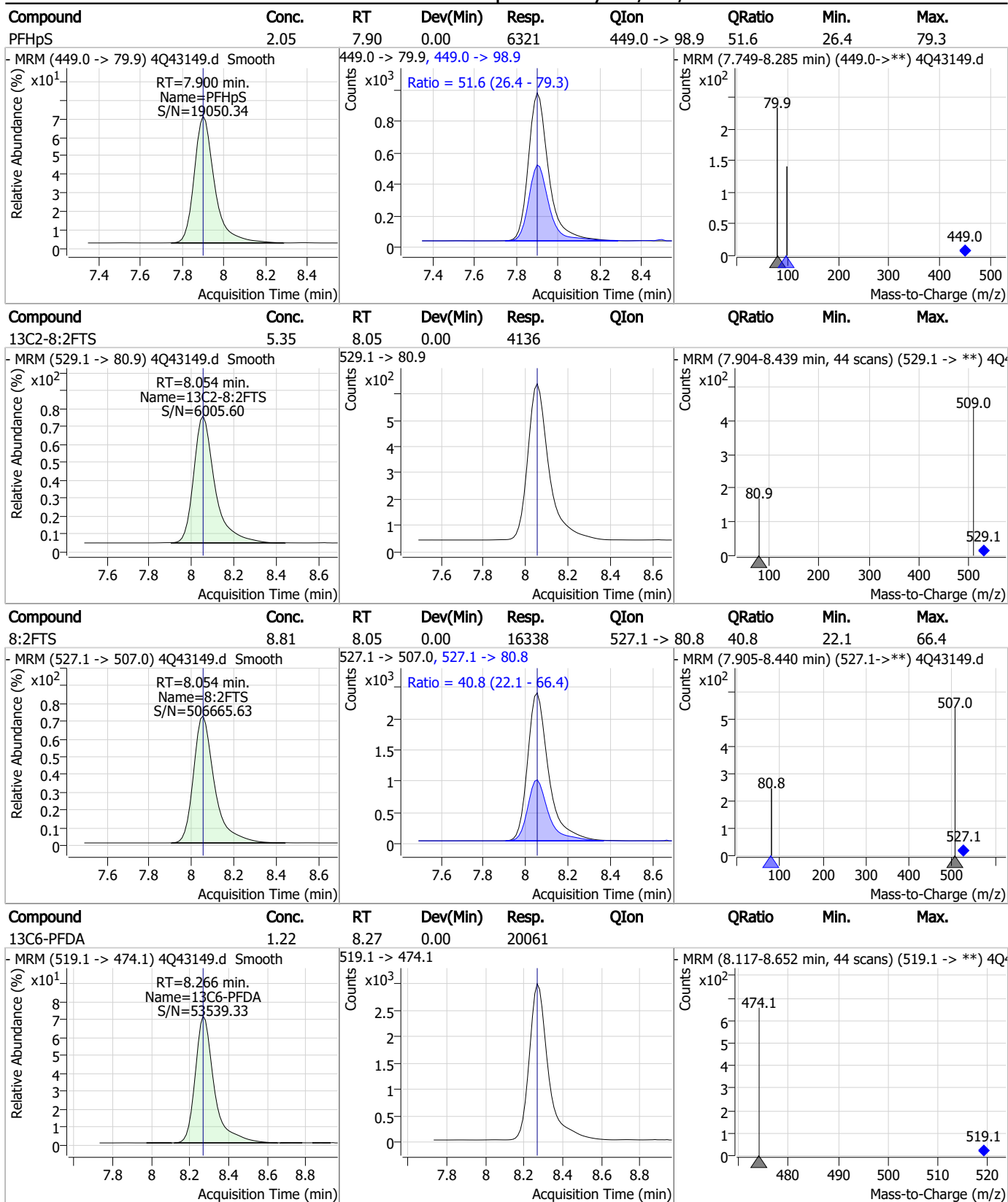
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Perfluorinated Compounds by LC/MS/MS



7.7.12
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Perfluorinated Compounds by LC/MS/MS

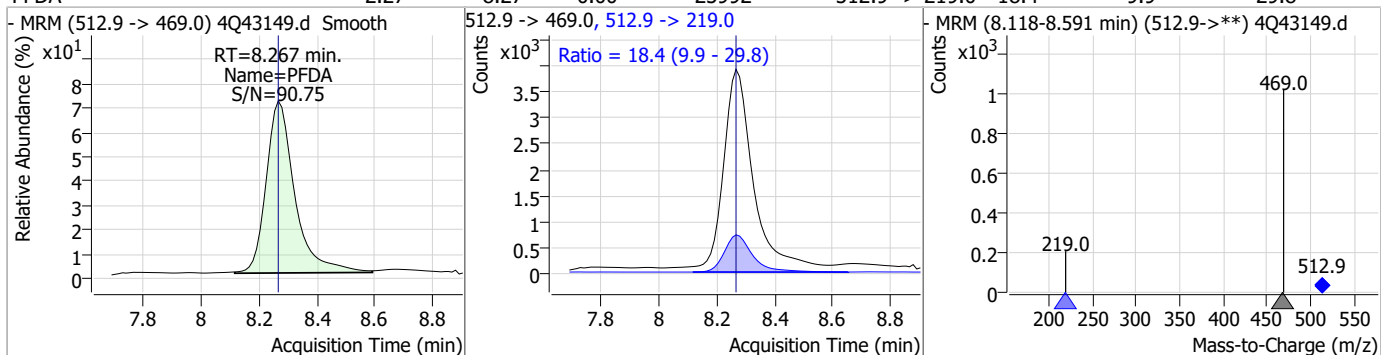


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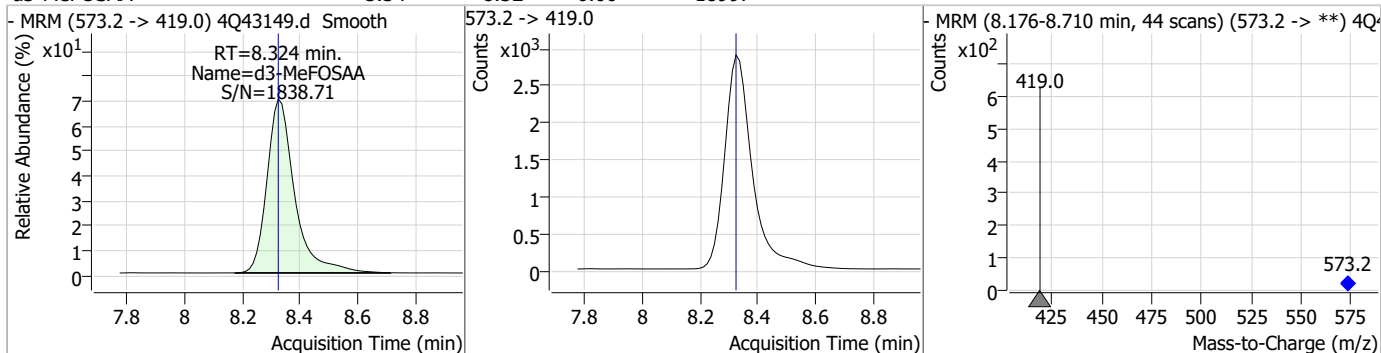
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Perfluorinated Compounds by LC/MS/MS

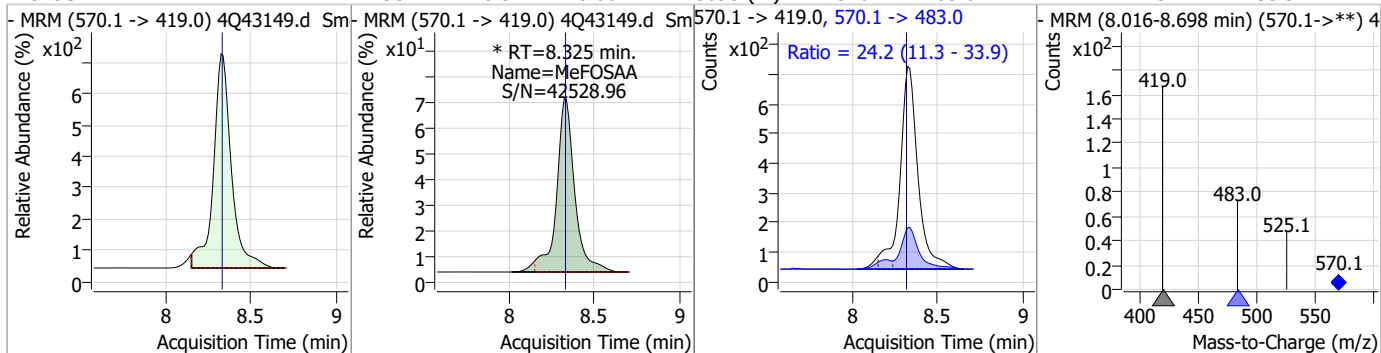
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.27	8.27	0.00	25992	512.9 -> 219.0	18.4	9.9	29.8



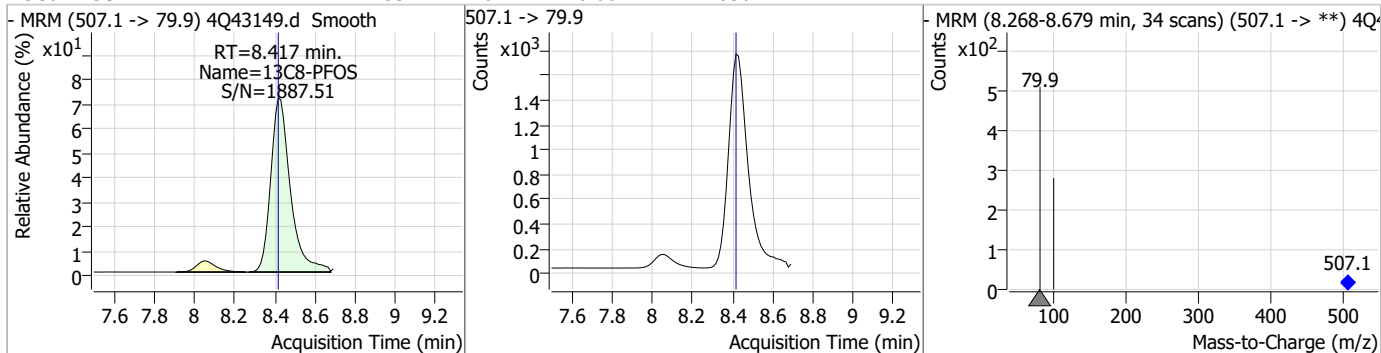
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.34	8.32	0.00	18997				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.95	8.32	0.00	5095 (m)	570.1 -> 483.0	24.2	11.3	33.9

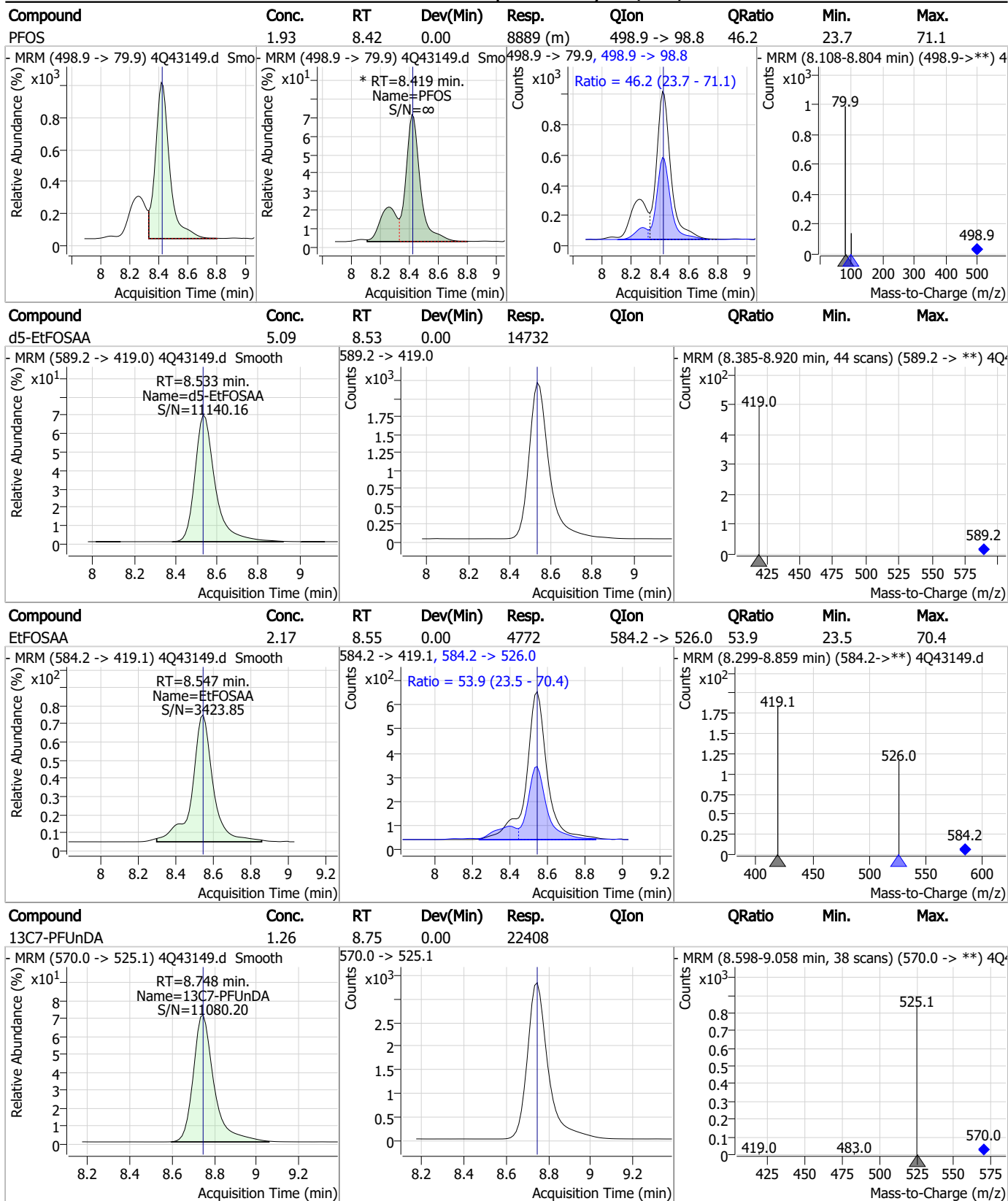


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.53	8.42	0.00	11830				



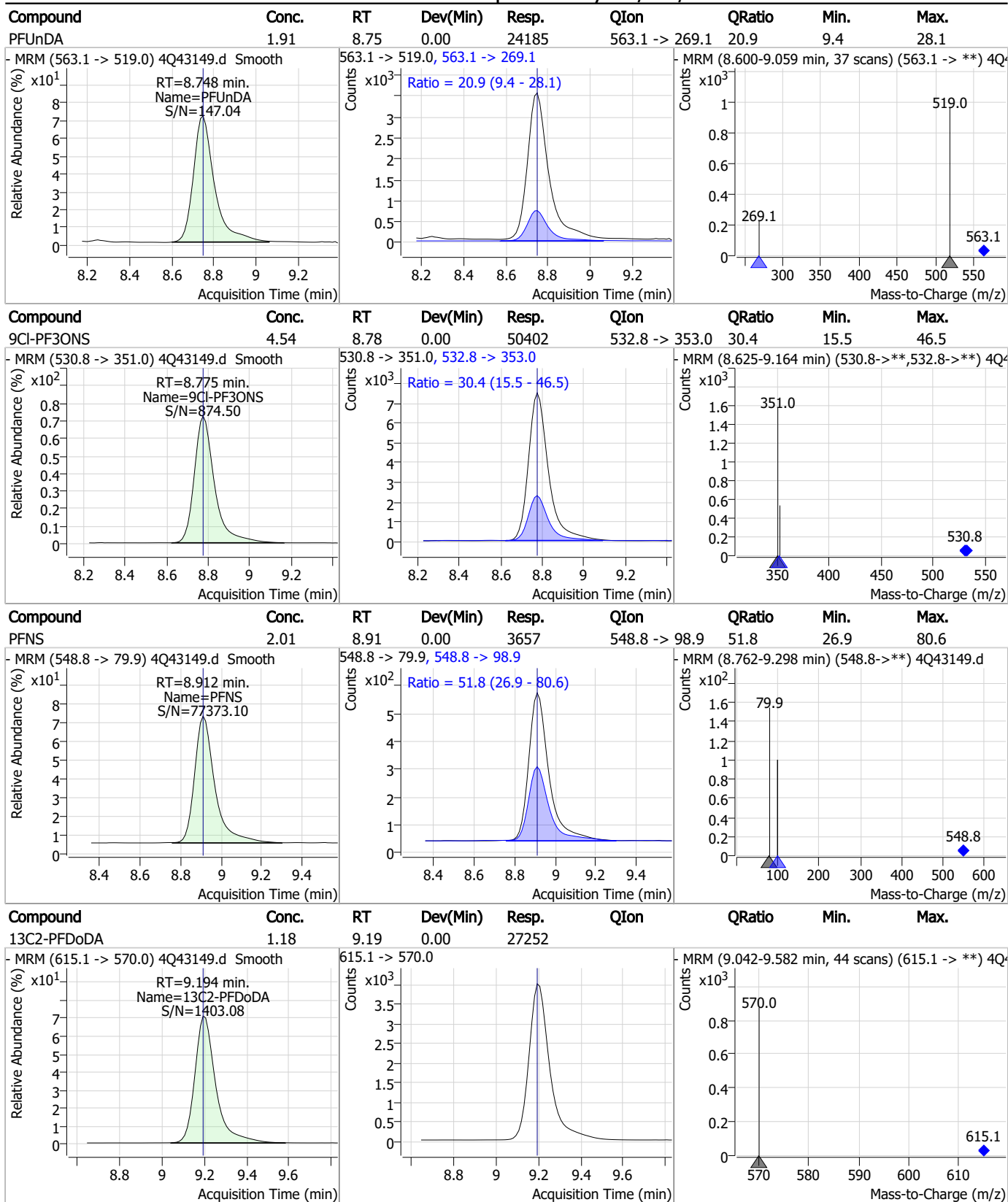
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Perfluorinated Compounds by LC/MS/MS



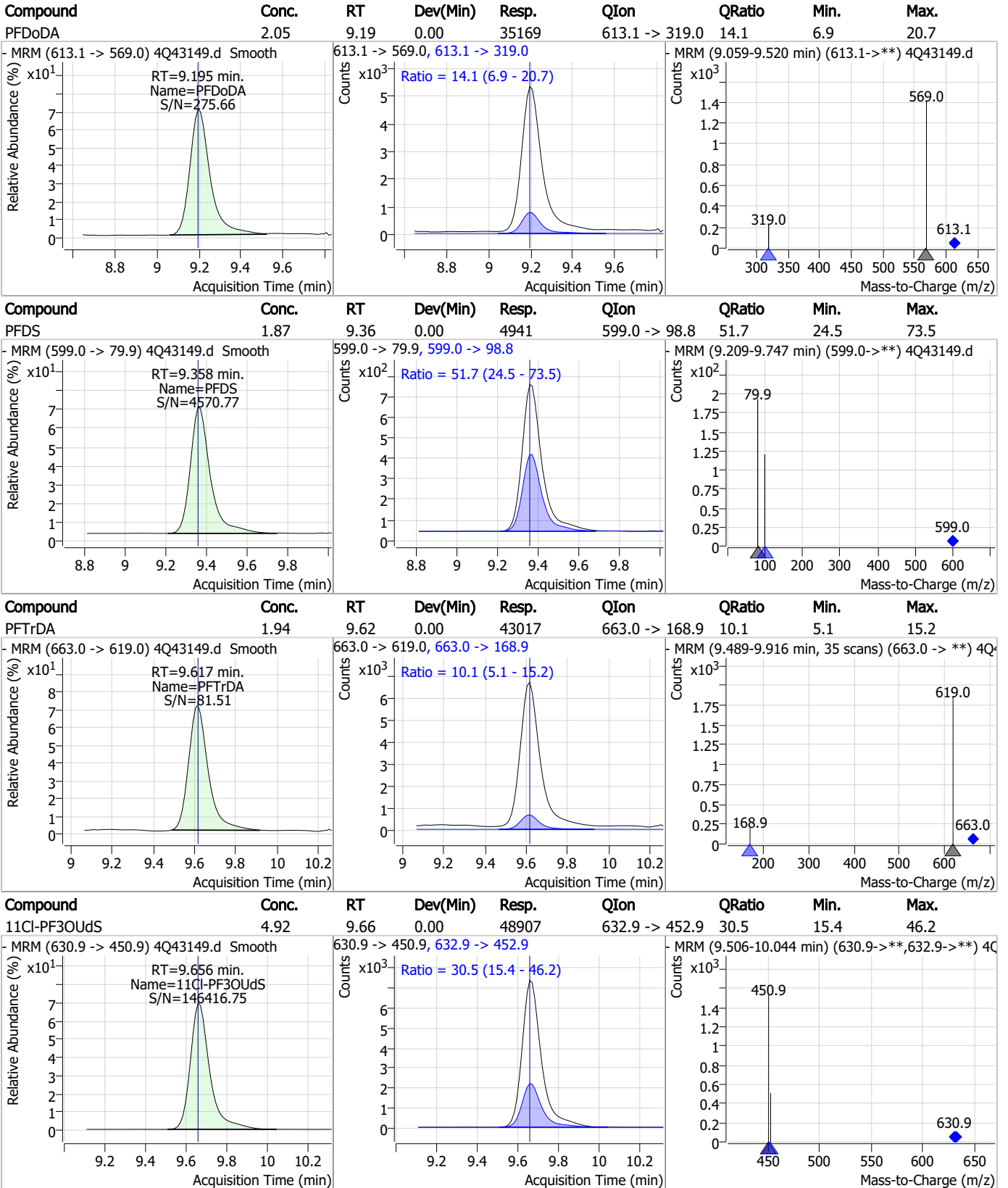
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Perfluorinated Compounds by LC/MS/MS



7.7.12
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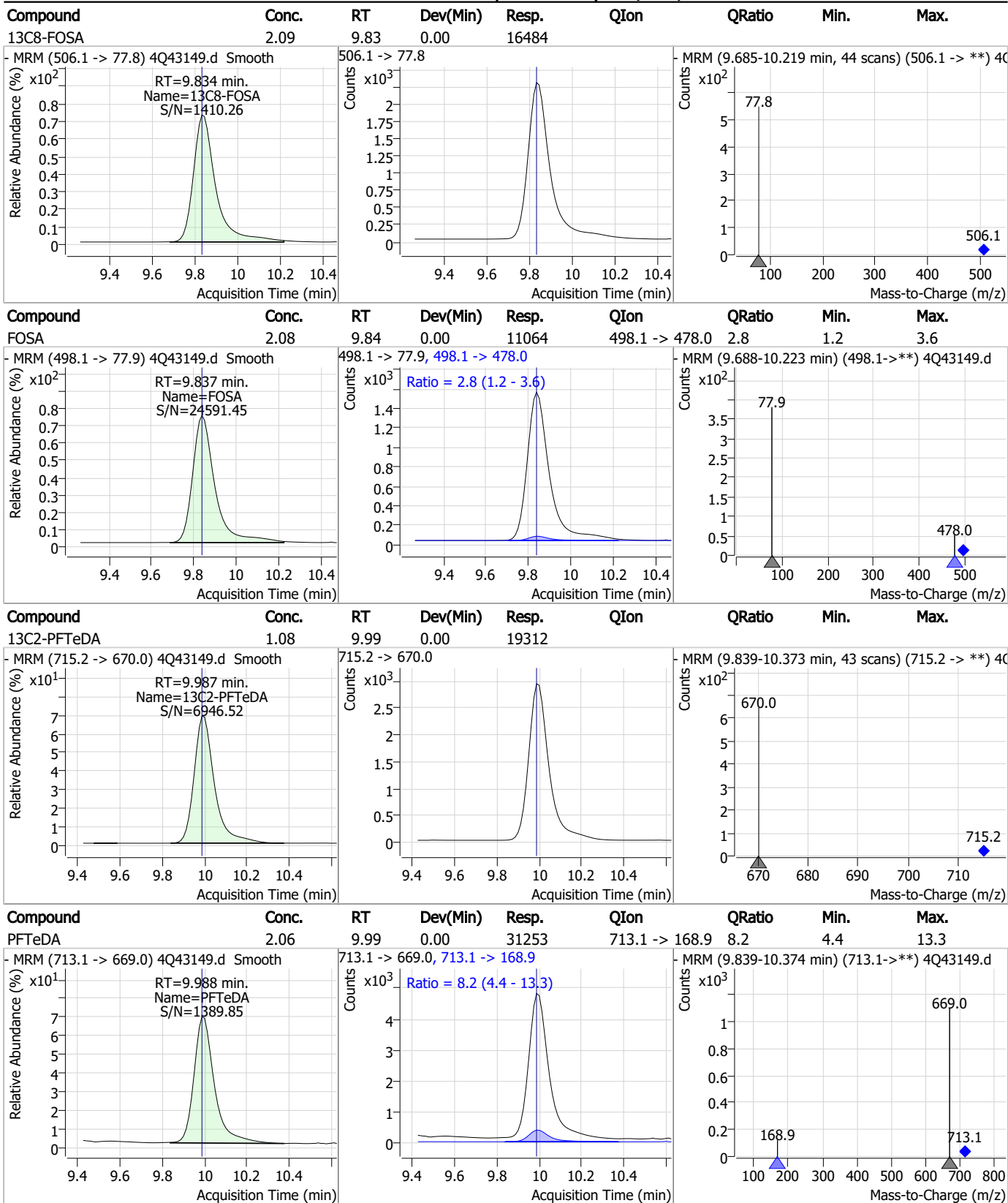
Perfluorinated Compounds by LC/MS/MS



7.7.12 7



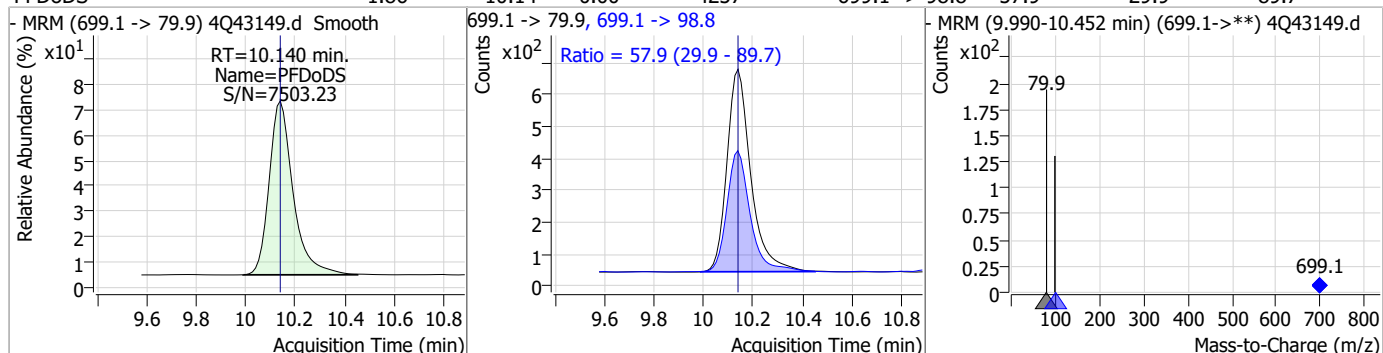
Perfluorinated Compounds by LC/MS/MS



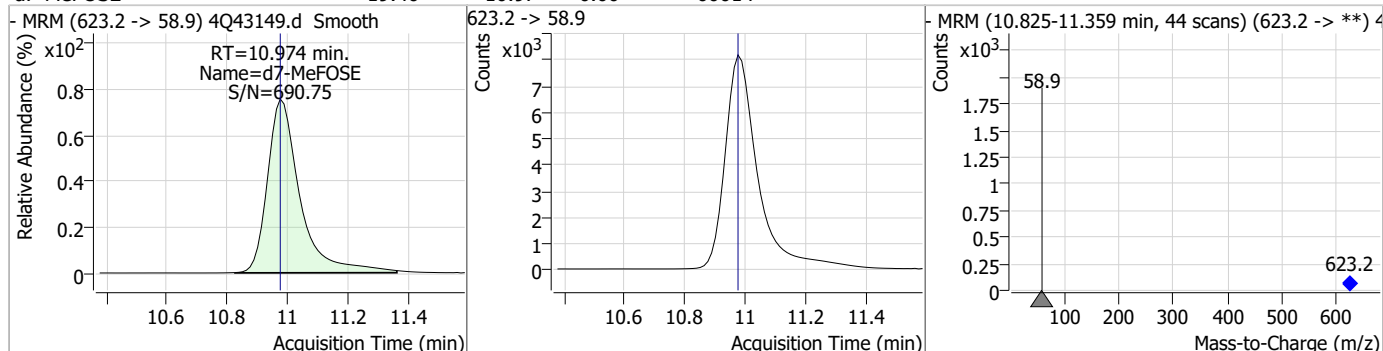
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Perfluorinated Compounds by LC/MS/MS

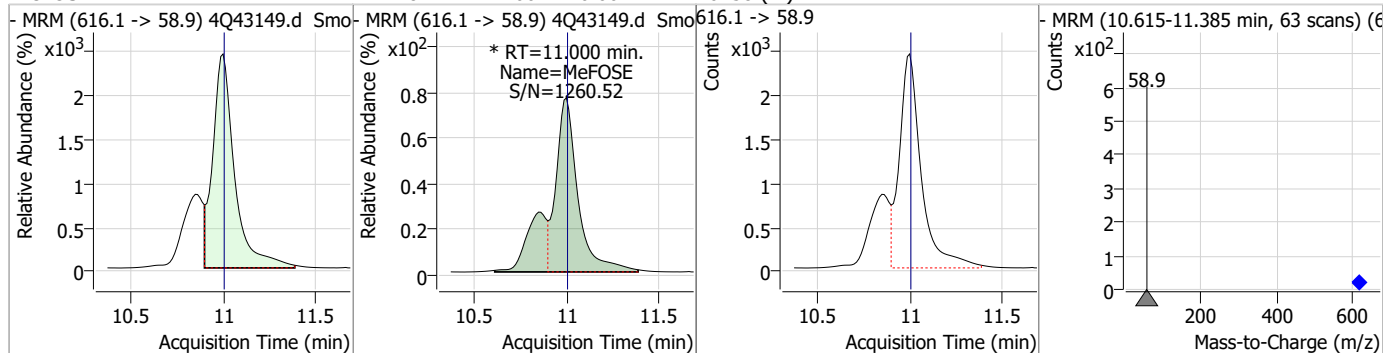
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	1.86	10.14	0.00	4257	699.1 -> 98.8	57.9	29.9	89.7



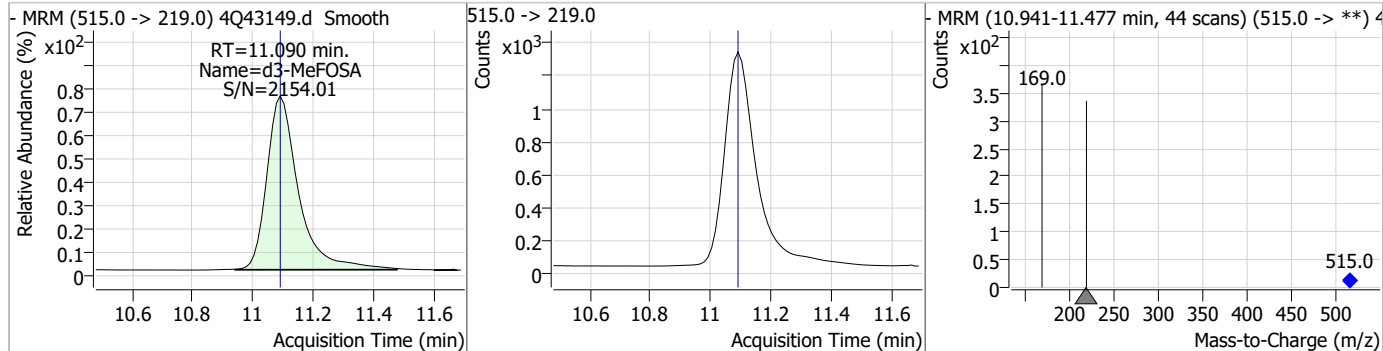
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.46	10.97	0.00	60614				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.28	11.00	0.00	26158 (m)				

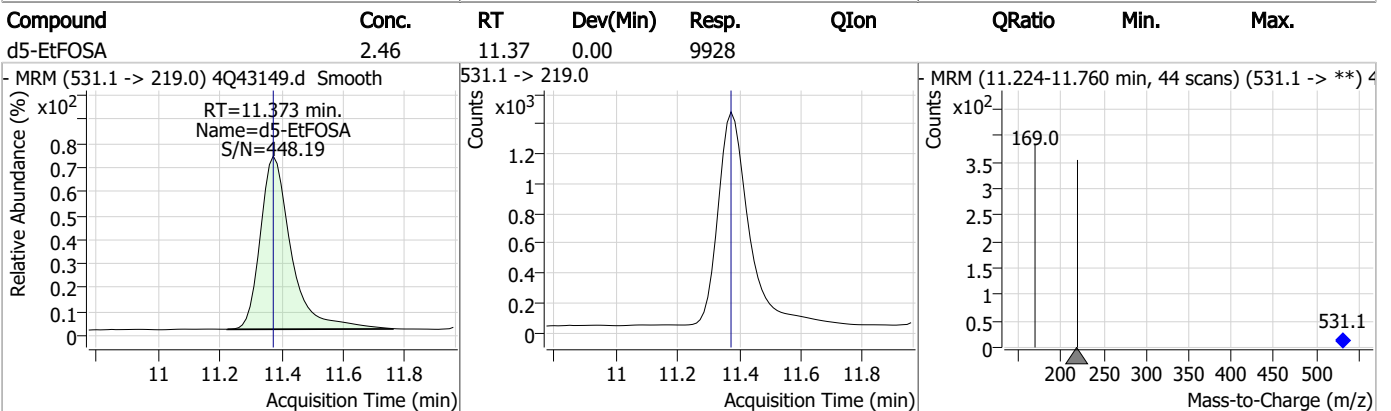
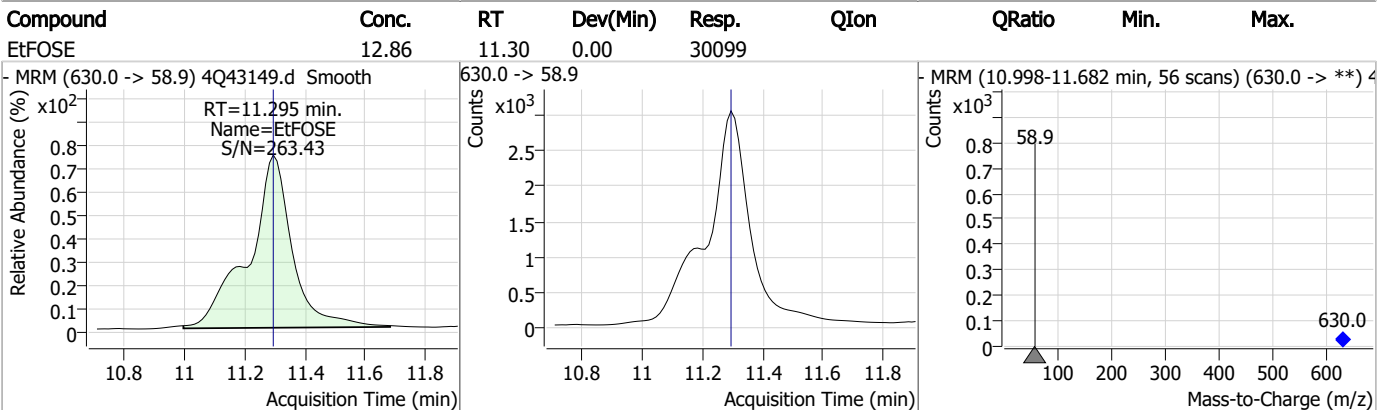
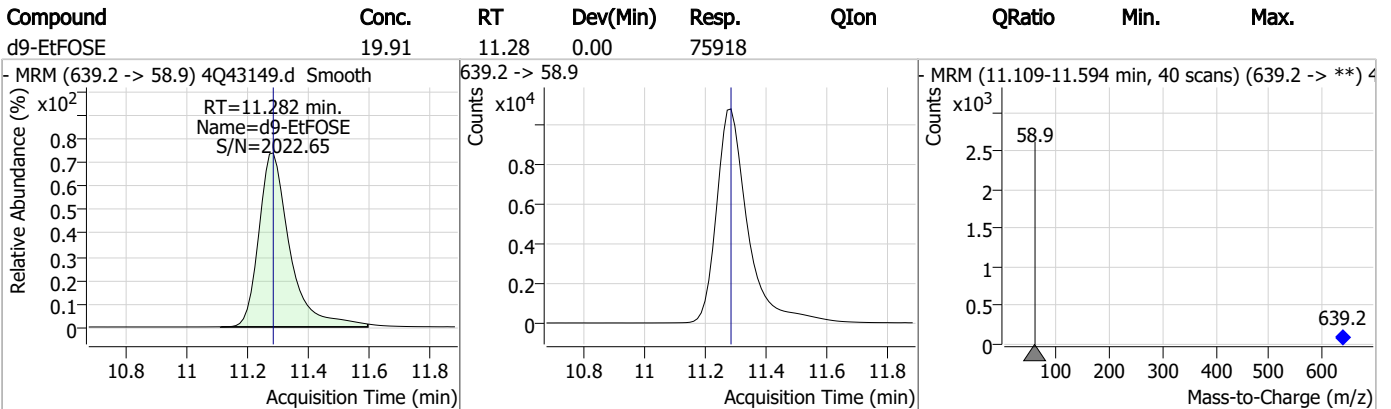
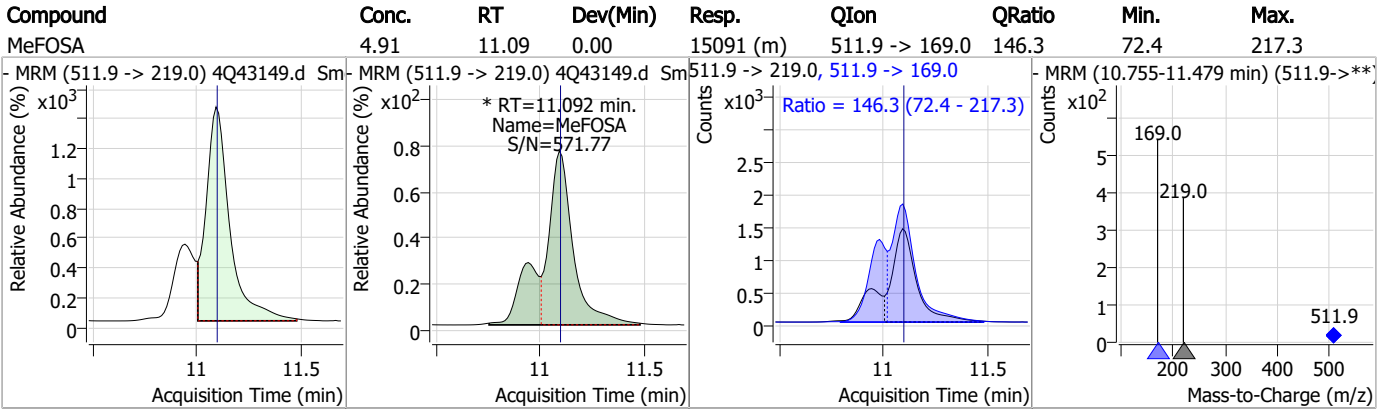


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.54	11.09	0.00	9515				



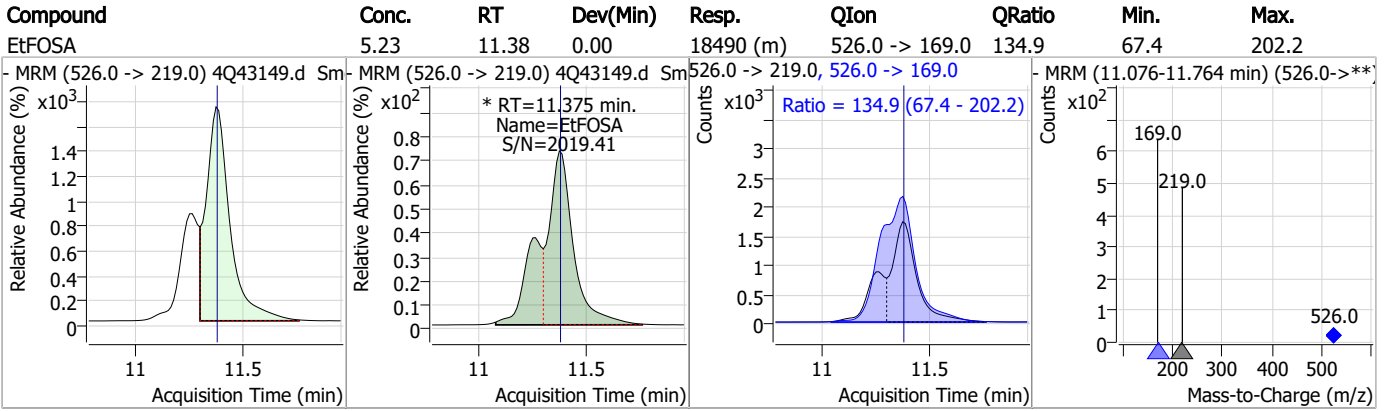
7.7.12
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.7.12
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Manual Integration Approval Summary

Sample Number: S4Q624-CC621 Method: EPA DRAFT 1633
Lab FileID: 4Q43149.D Analyst approved: 04/19/23 13:20 Martha Valls
Injection Time: 04/18/23 11:26 Supervisor approved: 04/19/23 16:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
MeFOSAA	2355-31-9		8.32	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.42	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.7.12.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43150.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 11:40:35 AM
 Sample Name : cc621-1.0LL
 Vial : P1-A2
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96301,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	122225	10.00 µg/L	0.038
M5-PFPeA	4.450	268.3 -> 223.0	67216	5.00 µg/L	0.000
M5-PFHxA	5.622	318.0 -> 273.0	54275	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	27334	2.50 µg/L	0.000
M8-PFOA	7.214	421.1 -> 376.0	33601	2.50 µg/L	0.000
M9-PFNA	7.759	472.1 -> 427.0	19049	1.25 µg/L	0.000
M6-PFDA	8.254	519.1 -> 474.1	18234	1.25 µg/L	-0.012
M7-PFUnDA	8.735	570.0 -> 525.1	19696	1.25 µg/L	-0.012
M2-PFDoDA	9.194	615.1 -> 570.0	23444	1.25 µg/L	0.000
M2-PFTeDA	10.000	715.2 -> 670.0	17386	1.25 µg/L	0.012
M8-FOSA	9.846	506.1 -> 77.8	14846	2.50 µg/L	0.012
M3-PFBS	5.539	302.1 -> 79.9	11707	2.50 µg/L	0.012
M3-PFHxS	7.317	402.1 -> 79.9	7220	2.50 µg/L	0.000
M8-PFOS	8.405	507.1 -> 79.9	11096	2.50 µg/L	-0.012
M2-4:2FTS	5.309	329.1 -> 80.9	1679	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	2466	5.00 µg/L	0.000
M2-8:2FTS	8.041	529.1 -> 80.9	3644	5.00 µg/L	-0.012
M3-MeFOSAA	8.312	573.2 -> 419.0	16628	5.00 µg/L	-0.012
M3-HFPO-DA	5.989	286.9 -> 168.9	33199	10.00 µg/L	0.000
M5-EtFOSAA	8.521	589.2 -> 419.0	14244	5.00 µg/L	-0.012
M7-MeFOSE	10.974	623.2 -> 58.9	54134	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	68326	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	9208	2.50 µg/L	0.000
M3-MeFOSA	11.090	515.0 -> 219.0	8339	2.50 µg/L	0.000
13C4-PFOS	8.406	502.8 -> 79.9	10777	2.50 µg/L	-0.012
13C3-PFBA	2.991	216.0 -> 172.0	67847	5.00 µg/L	0.025
18O2-PFHxS	7.316	403.0 -> 83.9	5253	2.50 µg/L	0.000
13C4-PFOA	7.214	417.1 -> 372.0	40803	2.50 µg/L	0.000
13C2-PFDA	8.254	515.1 -> 470.1	16239	1.25 µg/L	-0.012
13C5-PFNA	7.759	468.0 -> 423.0	20802	1.25 µg/L	0.000
13C2-PFHxA	5.623	315.1 -> 270.0	46030	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.309	329.1 -> 80.9	1679	5.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.1%		
13C2-6:2FTS	6.974	429.1 -> 80.9	2466	5.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.8%		
13C2-8:2FTS	8.041	529.1 -> 80.9	3644	5.38 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.5%		
13C2-PFDoDA	9.194	615.1 -> 570.0	23444	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C2-PFTeDA	10.000	715.2 -> 670.0	17386	1.12 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.4%		
13C3-PFBS	5.539	302.1 -> 79.9	11707	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFHxS	7.317	402.1 -> 79.9	7220	2.48 µg/L	0.000

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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 = 99.3%	
13C4-PFBA	2.999	216.8 -> 171.9	122225	10.34 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C4-PFHpA	6.555	367.1 -> 322.0	27334	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C5-PFHxA	5.622	318.0 -> 273.0	54275	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C5-PFPeA	4.450	268.3 -> 223.0	67216	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C6-PFDA	8.254	519.1 -> 474.1	18234	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C7-PFUnDA	8.735	570.0 -> 525.1	19696	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C8-FOSA	9.846	506.1 -> 77.8	14846	2.11 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.2%	
13C8-PFOA	7.214	421.1 -> 376.0	33601	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-PFOS	8.405	507.1 -> 79.9	11096	2.66 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C9-PFNA	7.759	472.1 -> 427.0	19049	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.6%	
d3-MeFOSAA	8.312	573.2 -> 419.0	16628	5.24 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	33199	10.28 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
d3-MeFOSA	11.090	515.0 -> 219.0	8339	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
d5-EtFOSAA	8.521	589.2 -> 419.0	14244	5.52 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.4%	
d7-MeFOSE	10.974	623.2 -> 58.9	54134	19.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.9%	
d9-EtFOSE	11.282	639.2 -> 58.9	68326	20.09 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.4%	
d5-EtFOSA	11.373	531.1 -> 219.0	9208	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
Target Compounds					QValue
4:2FTS	5.310	327.1 -> 307.0	1594	0.76 µg/L	96
		327.1 -> 80.9	709		
6:2FTS	6.974	427.1 -> 407.0	1476	0.88 µg/L	88
		427.1 -> 80.9	548		
8:2FTS	8.042	527.1 -> 507.0	1224	0.75 µg/L	95
		527.1 -> 80.8	583		
EtFOSAA	8.534	584.2 -> 419.1	411	0.19 µg/L	m 79
		584.2 -> 526.0	252		
FOSA	9.837	498.1 -> 77.9	1117	0.23 µg/L	97
		498.1 -> 478.0	17		
MeFOSAA	8.312	570.1 -> 419.0	324	0.14 µg/L	m 86
		570.1 -> 483.0	96		
PFBA	2.995	212.8 -> 168.9	2145	0.77 µg/L	100
PFBS	5.540	298.7 -> 79.9	821	0.19 µg/L	94
		298.7 -> 98.8	363		
PFDA	8.255	512.9 -> 469.0	2398	0.23 µg/L	93
		512.9 -> 219.0	398		
PFDODA	9.195	613.1 -> 569.0	2842	0.19 µg/L	97
		613.1 -> 319.0	432		
PFDS	9.370	599.0 -> 79.9	421	0.17 µg/L	71

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7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.555	599.0 -> 98.8	290	0.19	µg/L	92
		363.1 -> 319.0	2538			
PFHpS	7.887	363.1 -> 169.0	568	0.19	µg/L	84
		449.0 -> 79.9	555			
PFHxA	5.625	449.0 -> 98.9	230	0.21	µg/L	99
		313.0 -> 269.0	3405			
PFHxS	7.318	313.0 -> 118.9	119	0.18	µg/L	m
		398.7 -> 79.9	446			
PFNA	7.760	398.7 -> 98.9	292	0.24	µg/L	93
		463.0 -> 419.0	2467			
PFNS	8.899	463.0 -> 219.0	541	0.20	µg/L	97
		548.8 -> 79.9	338			
PFOA	7.215	548.8 -> 98.9	174	0.24	µg/L	96
		413.0 -> 369.0	3772			
PFOS	8.406	413.0 -> 169.0	715	0.18	µg/L	m
		498.9 -> 79.9	794			
PFPeA	4.452	498.9 -> 98.8	428	0.42	µg/L	100
		263.0 -> 219.0	5333			
PFPeS	6.595	349.1 -> 79.9	497	0.24	µg/L	81
		349.1 -> 98.9	162			
PFTeDA	10.000	713.1 -> 669.0	2174	0.16	µg/L	93
		713.1 -> 168.9	249			
PFTrDA	9.617	663.0 -> 619.0	3481	0.18	µg/L	100
		663.0 -> 168.9	353			
PFUnDA	8.736	563.1 -> 519.0	1749	0.16	µg/L	85
		563.1 -> 269.1	448			
11Cl-PF3OUdS	9.669	630.9 -> 450.9	3586	0.41	µg/L	99
		632.9 -> 452.9	1087			
9Cl-PF3ONS	8.763	530.8 -> 351.0	3485	0.36	µg/L	99
		532.8 -> 353.0	1108			
ADONA	6.806	376.9 -> 250.9	7835	0.39	µg/L	97
		376.9 -> 84.8	2180			
HFPO-DA	5.990	284.9 -> 168.9	1049	0.40	µg/L	90
		284.9 -> 184.9	177			
3:3FTCA	3.967	241.0 -> 177.0	701	1.18	µg/L	92
		241.0 -> 117.0	84			
5:3FTCA	6.321	341.0 -> 237.1	12061	5.32	µg/L	99
		341.0 -> 217.0	8418			
7:3FTCA	7.749	441.0 -> 316.9	4589	4.94	µg/L	86
		441.0 -> 336.9	11388			
EtFOSA	11.375	526.0 -> 219.0	1393	0.42	µg/L	m
		526.0 -> 169.0	1810			
EtFOSE	11.295	630.0 -> 58.9	1988	0.94	µg/L	m
		511.9 -> 219.0	1138			
MeFOSA	11.092	511.9 -> 169.0	1578	0.42	µg/L	m
		616.1 -> 58.9	2208			
MeFOSE	11.000	699.1 -> 79.9	473	1.16	µg/L	m
		699.1 -> 98.8	218			
PFDoDS	10.140	295.0 -> 201.0	429	0.22	µg/L	82
		295.0 -> 84.9	94			
NFDHA	5.504	279.0 -> 85.1	3189	0.44	µg/L	100
		229.0 -> 84.9	2735			
PFMBA	4.866	314.8 -> 134.9	4910	0.36	µg/L	98
		314.8 -> 82.9	198			

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

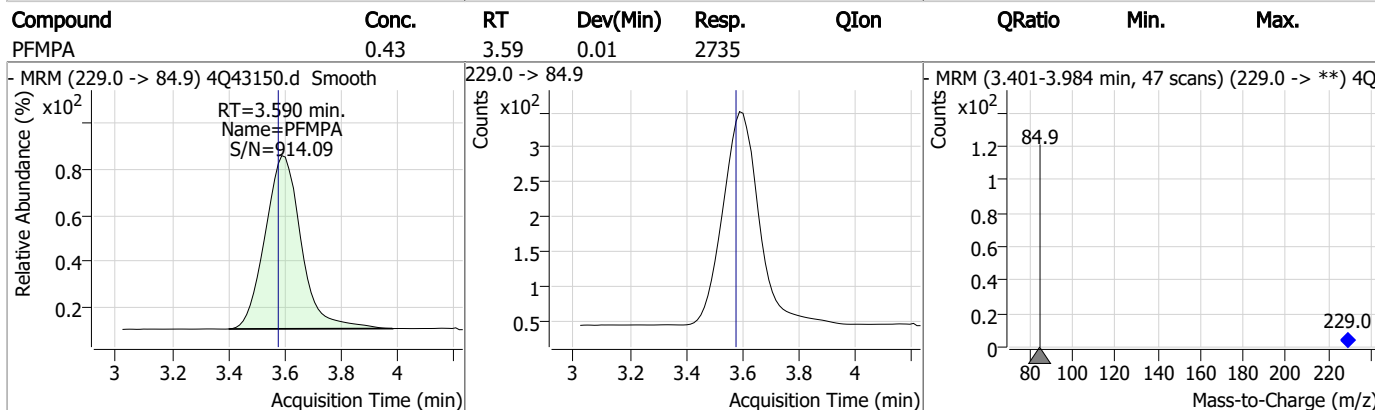
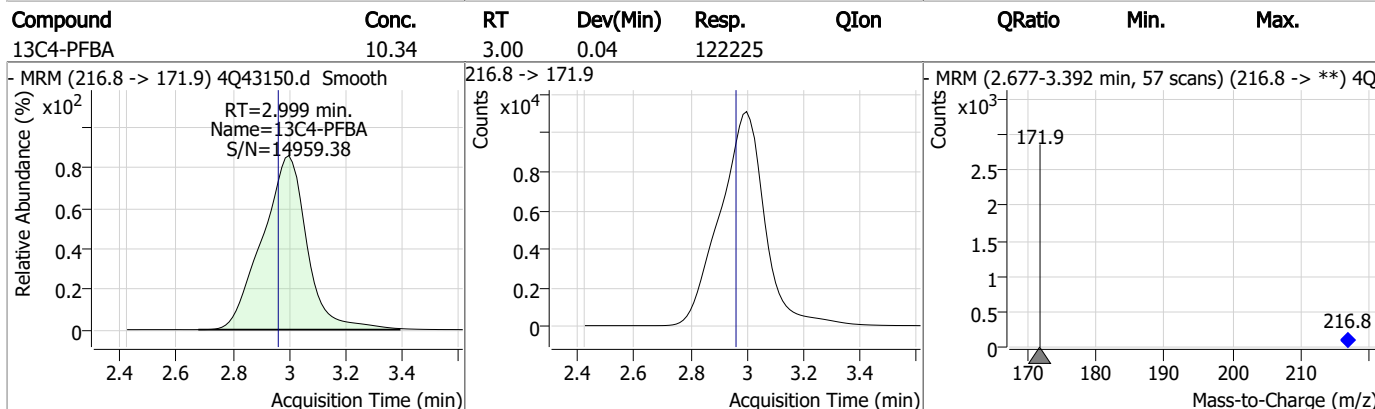
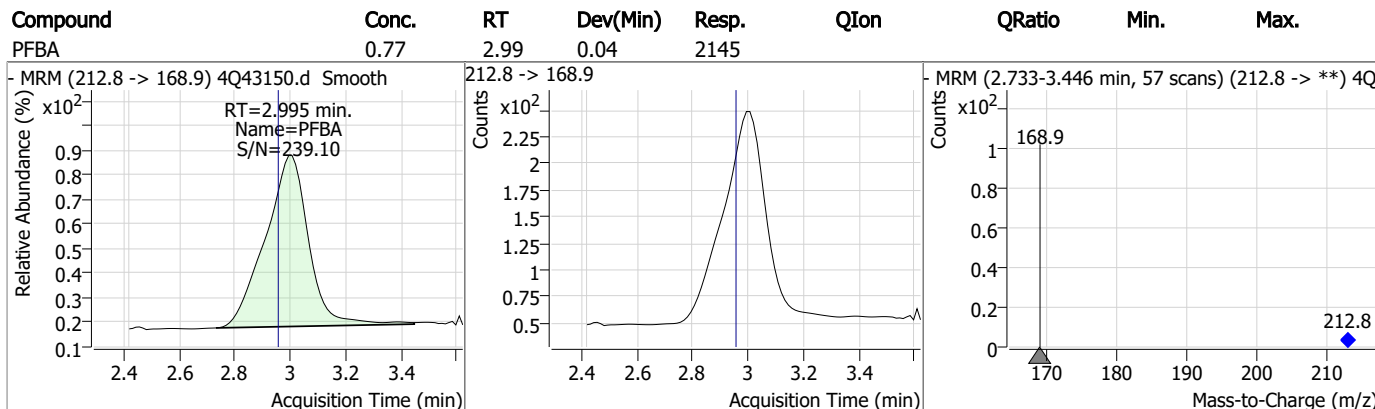
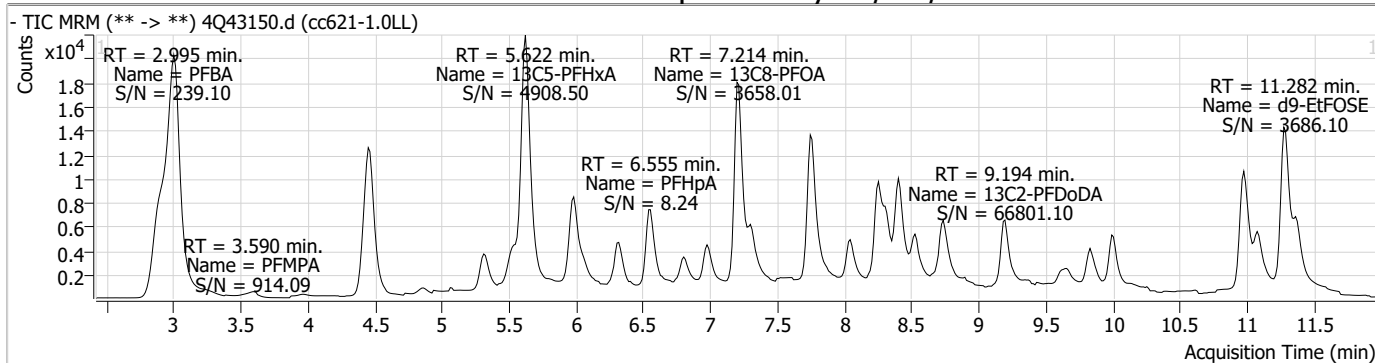
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.13

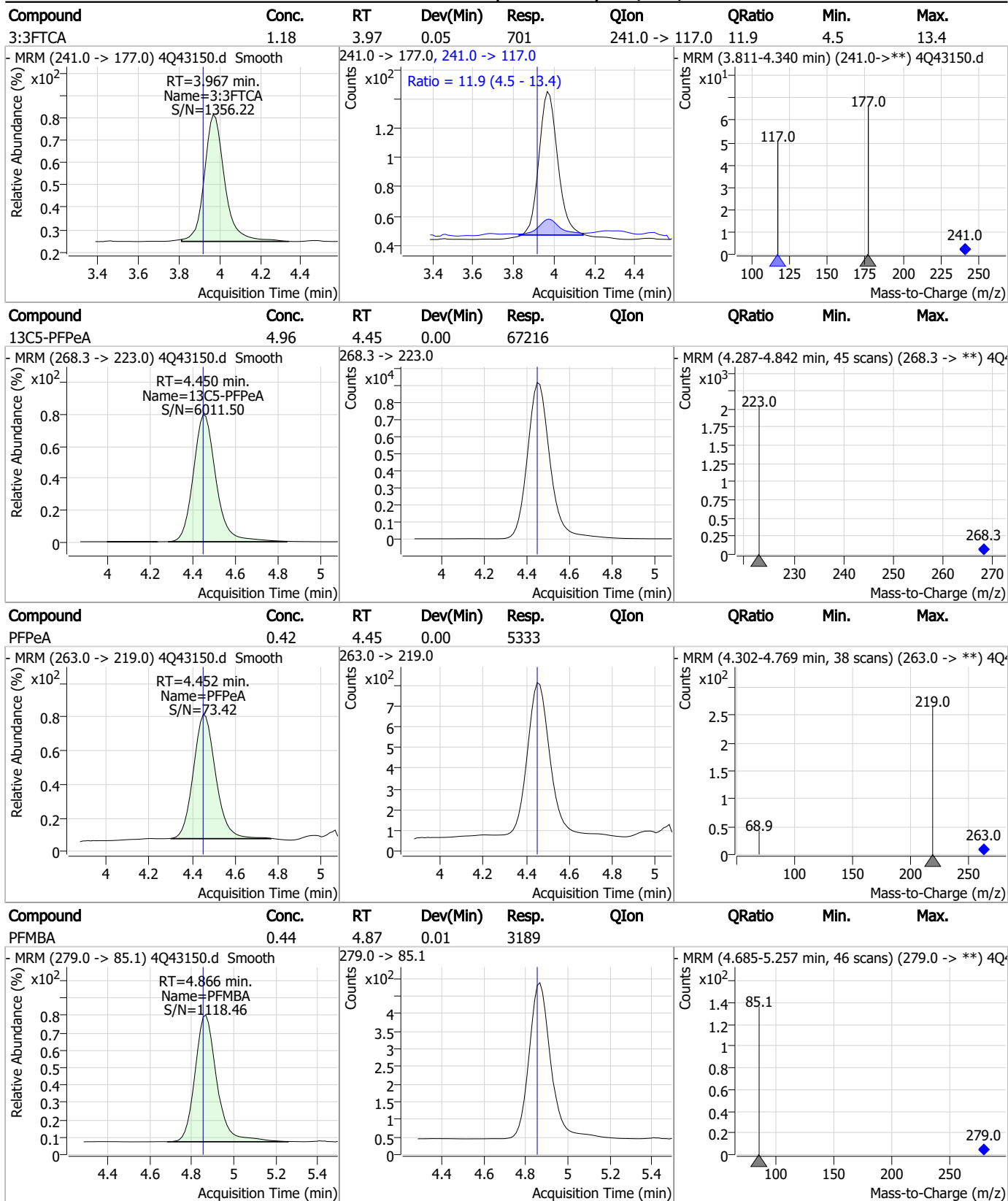
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Perfluorinated Compounds by LC/MS/MS



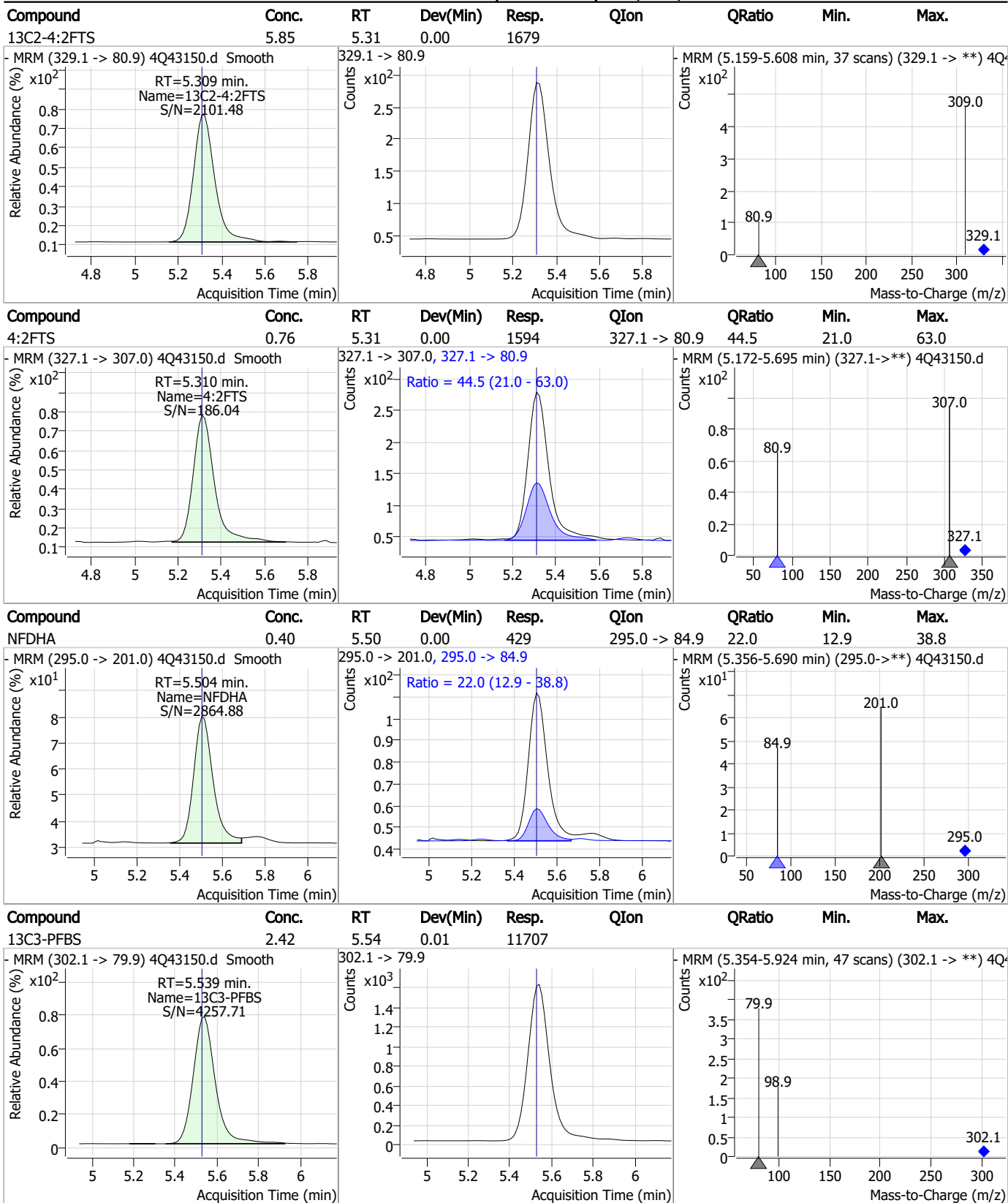
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Perfluorinated Compounds by LC/MS/MS



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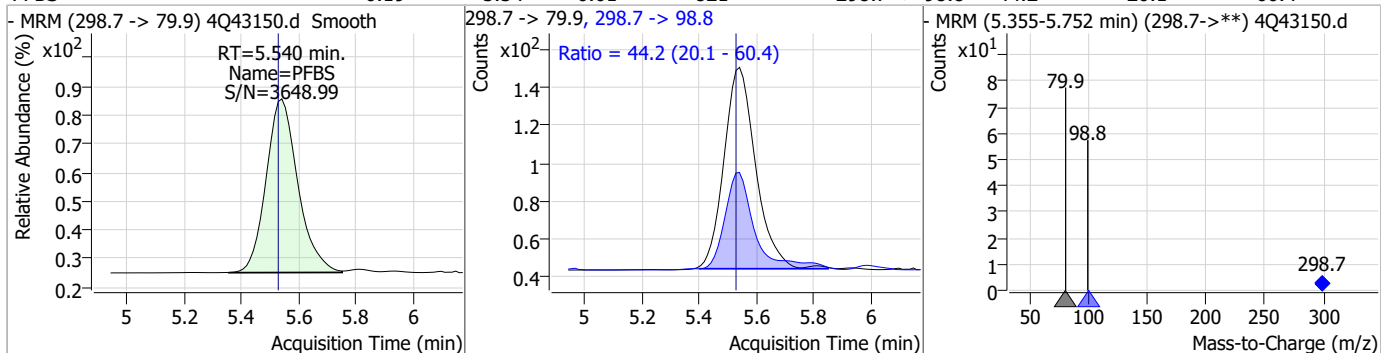
Perfluorinated Compounds by LC/MS/MS



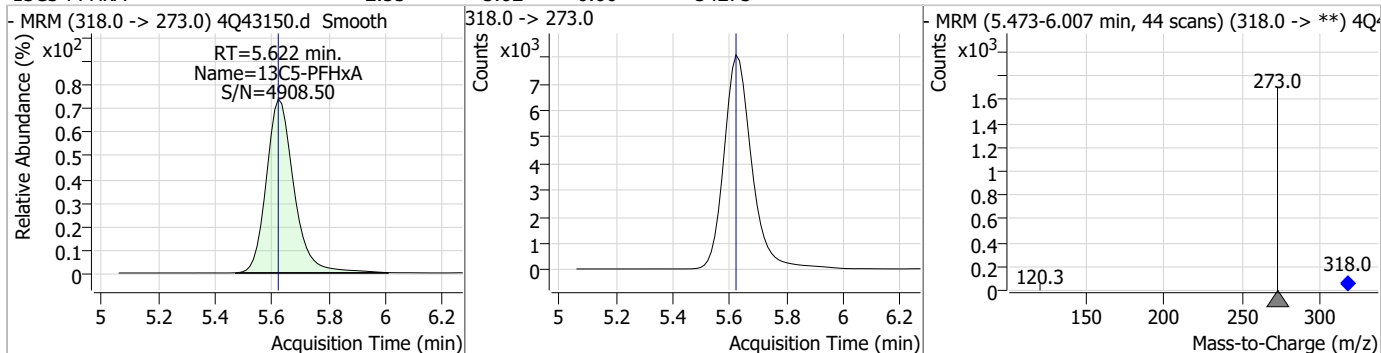
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Perfluorinated Compounds by LC/MS/MS

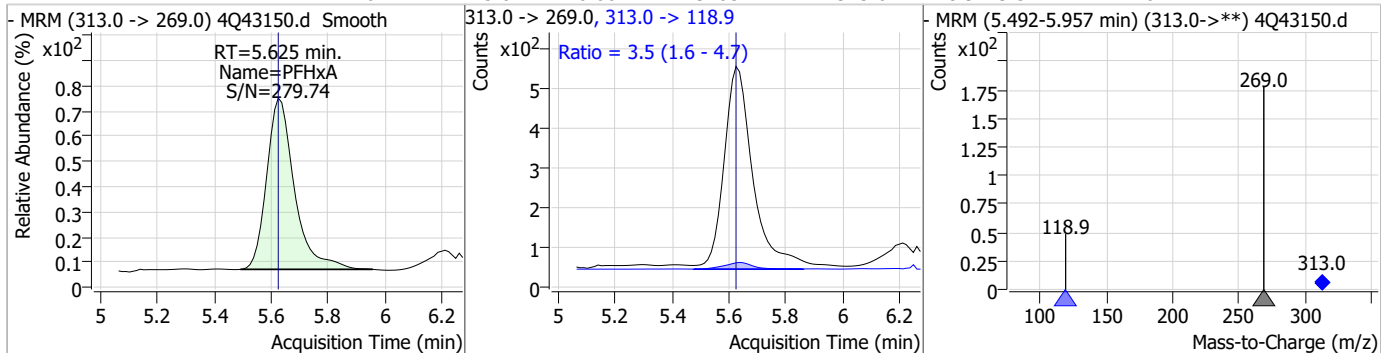
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.19	5.54	0.01	821	298.7 -> 98.8	44.2	20.1	60.4



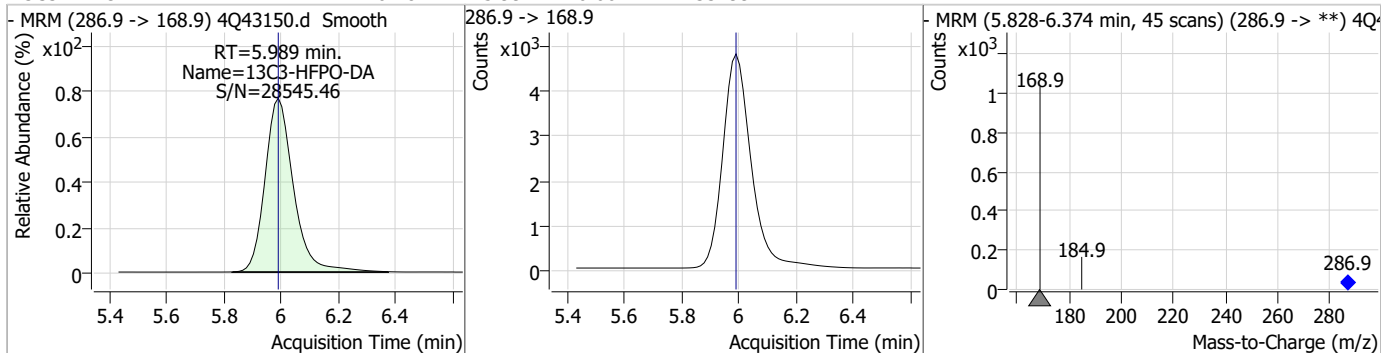
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.55	5.62	0.00	54275				



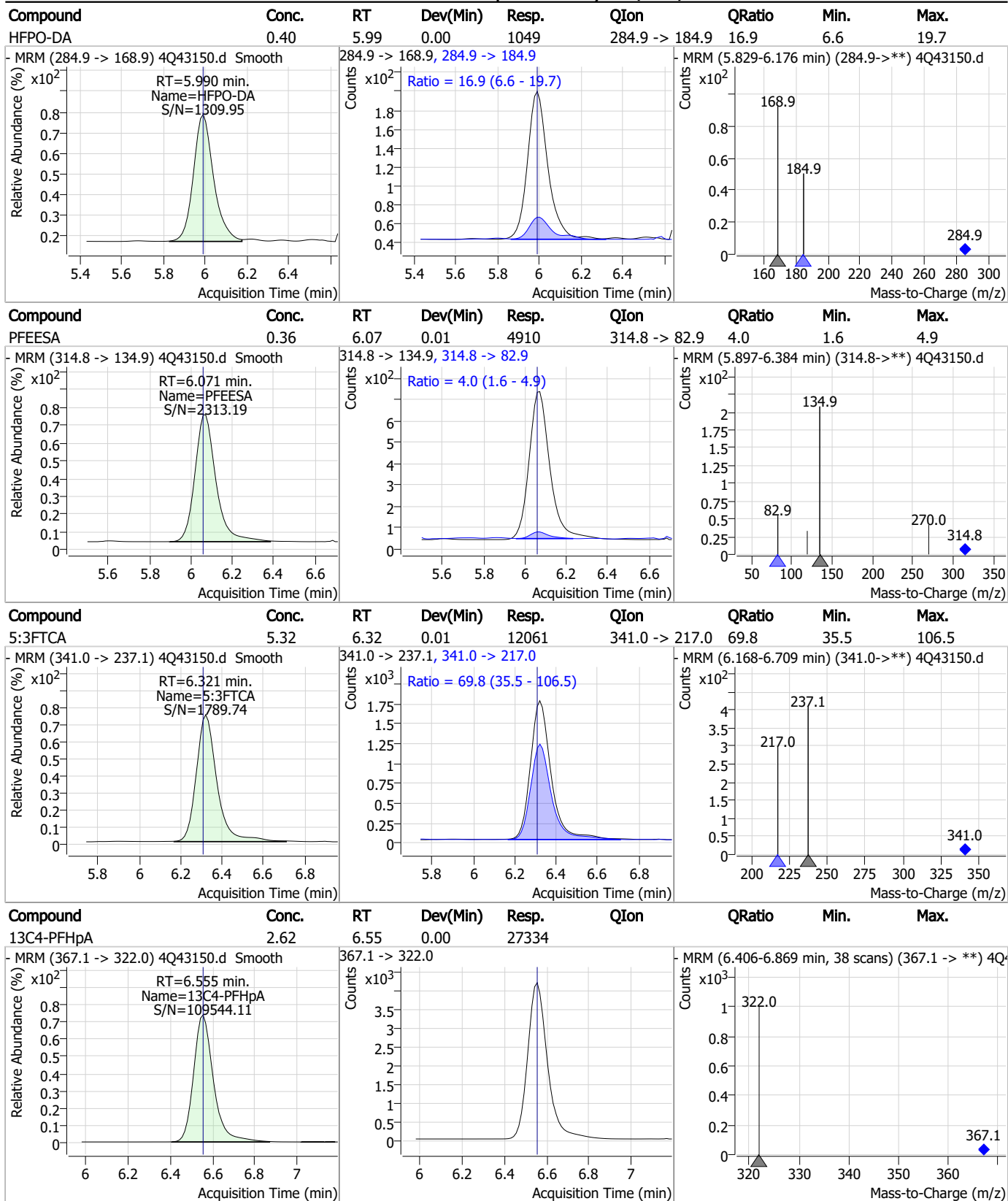
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.21	5.62	0.00	3405	313.0 -> 118.9	3.5	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.28	5.99	0.00	33199				

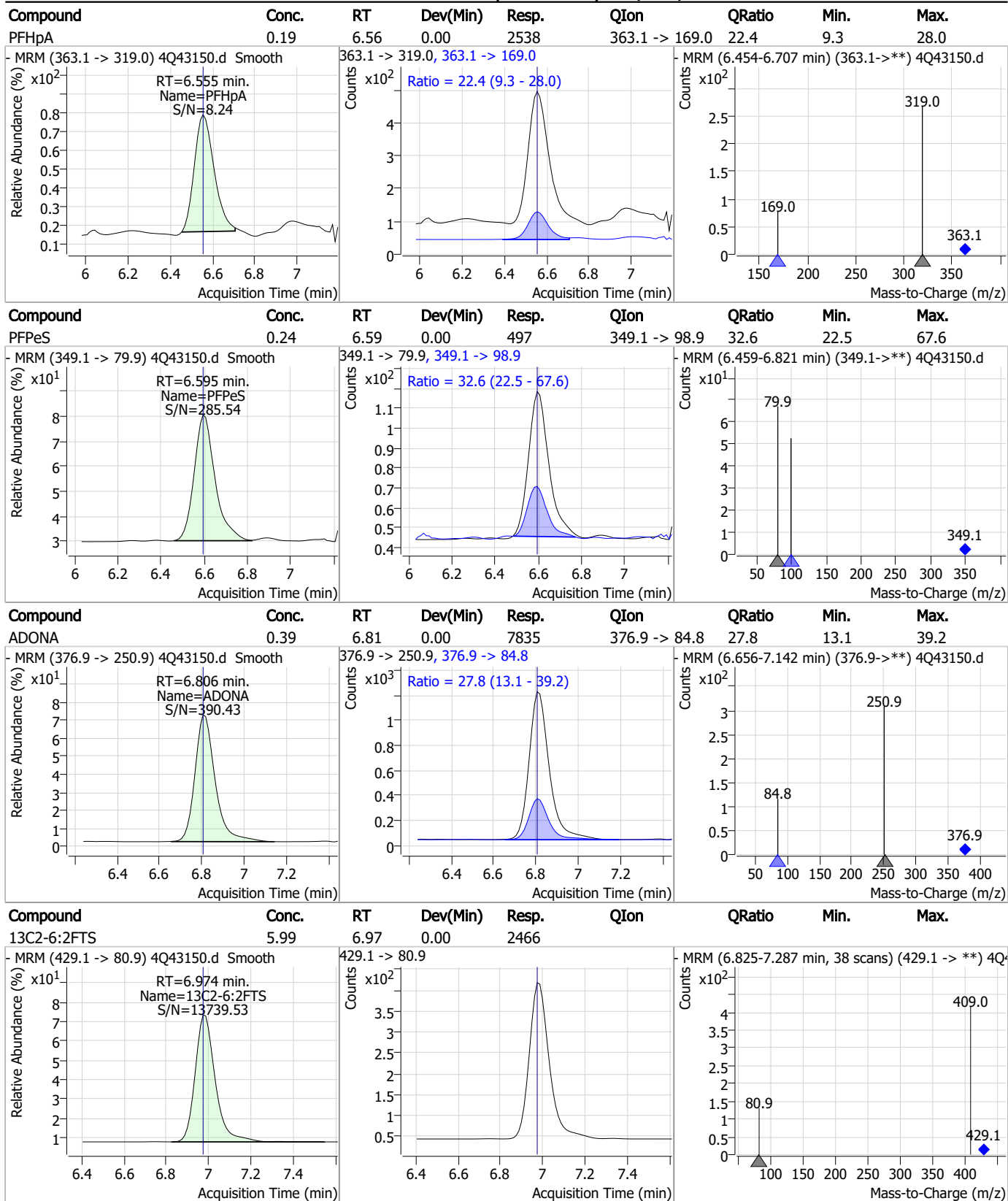


Perfluorinated Compounds by LC/MS/MS



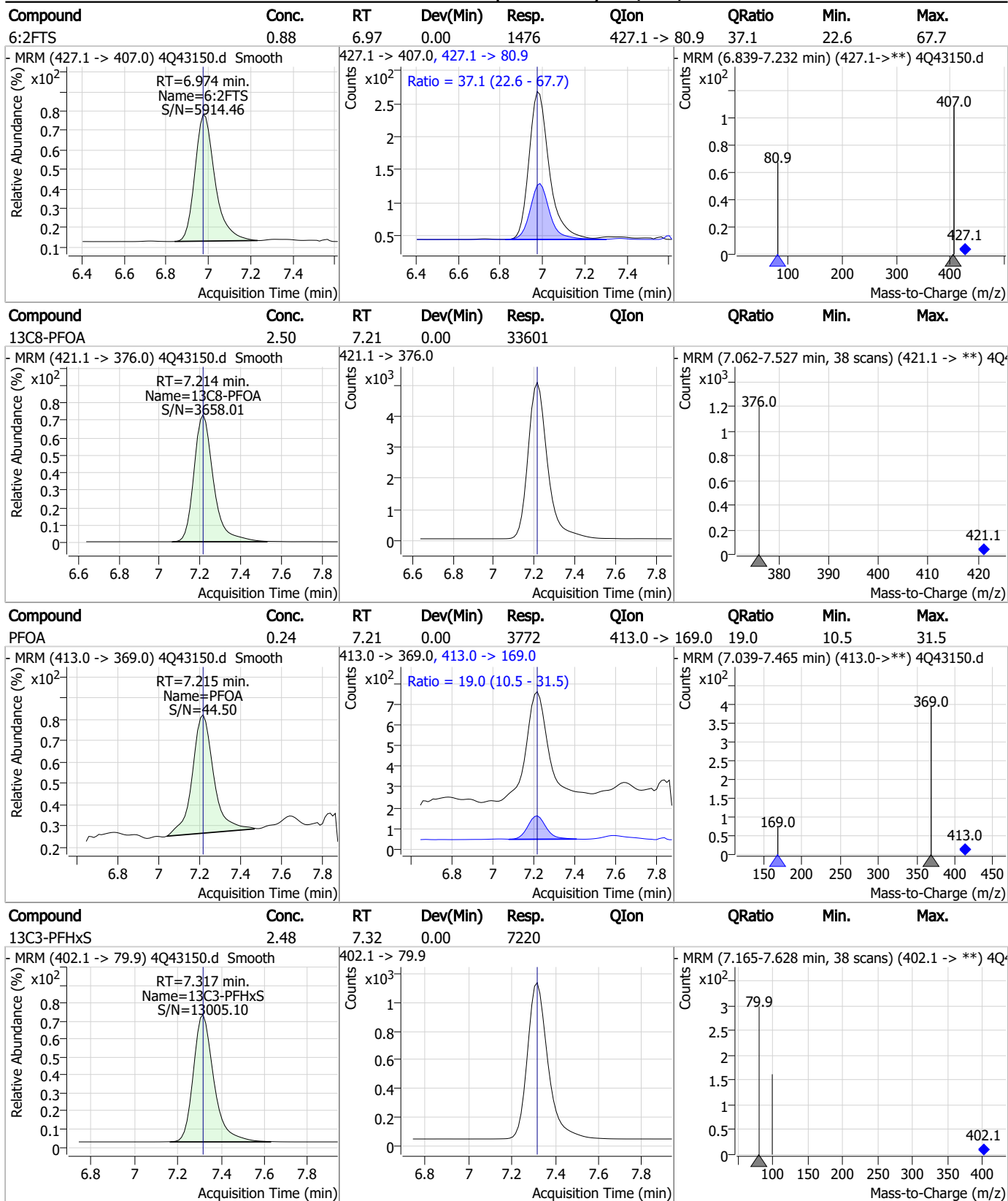
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Perfluorinated Compounds by LC/MS/MS



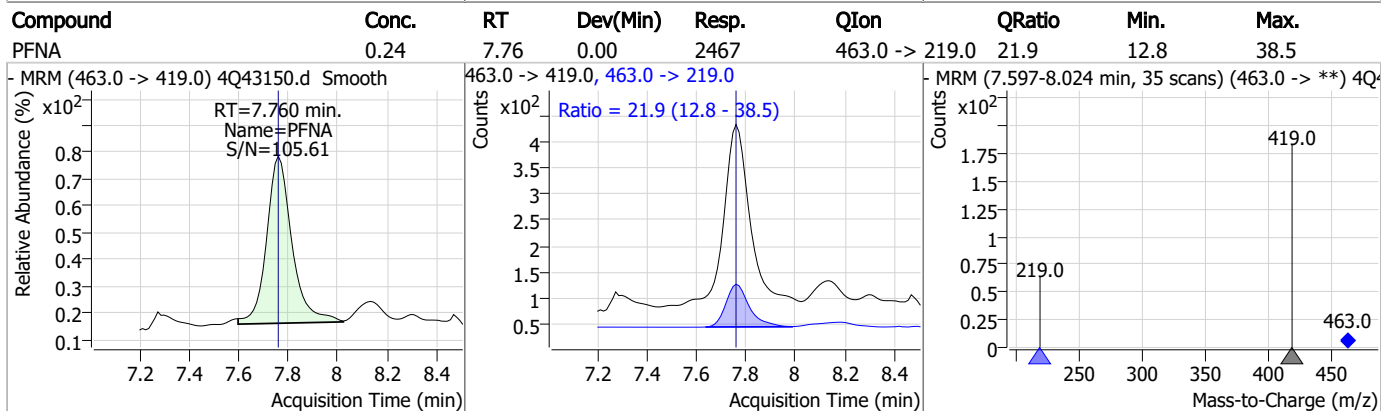
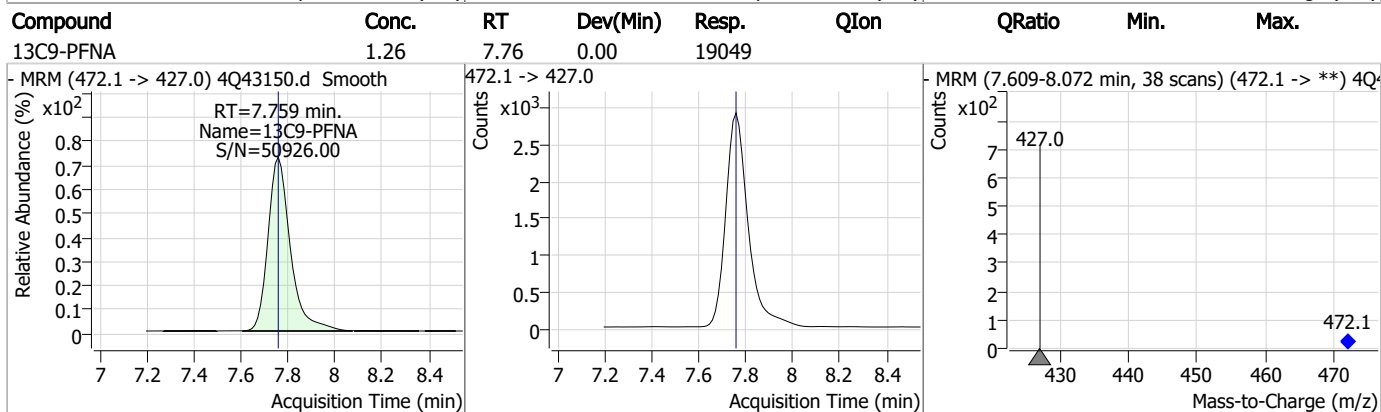
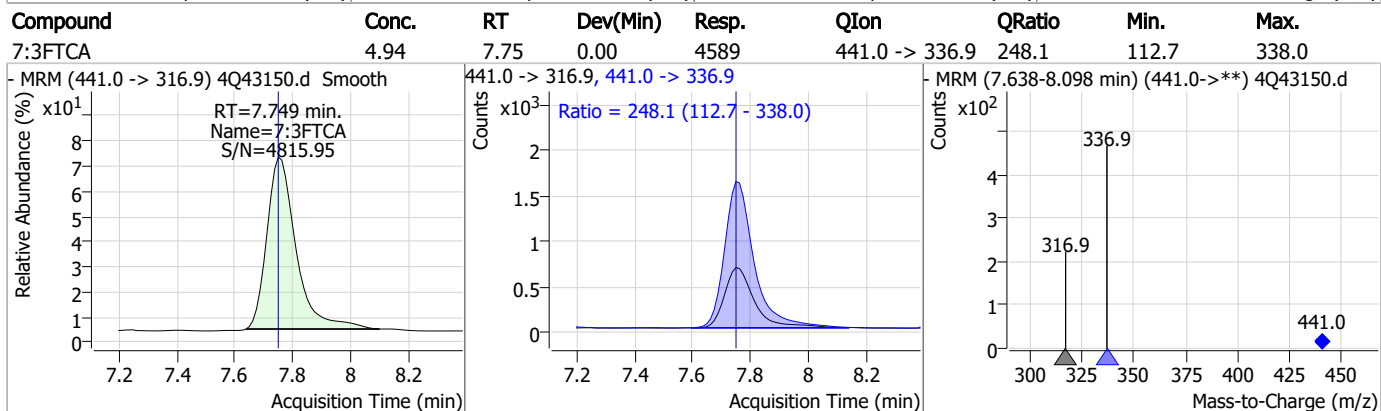
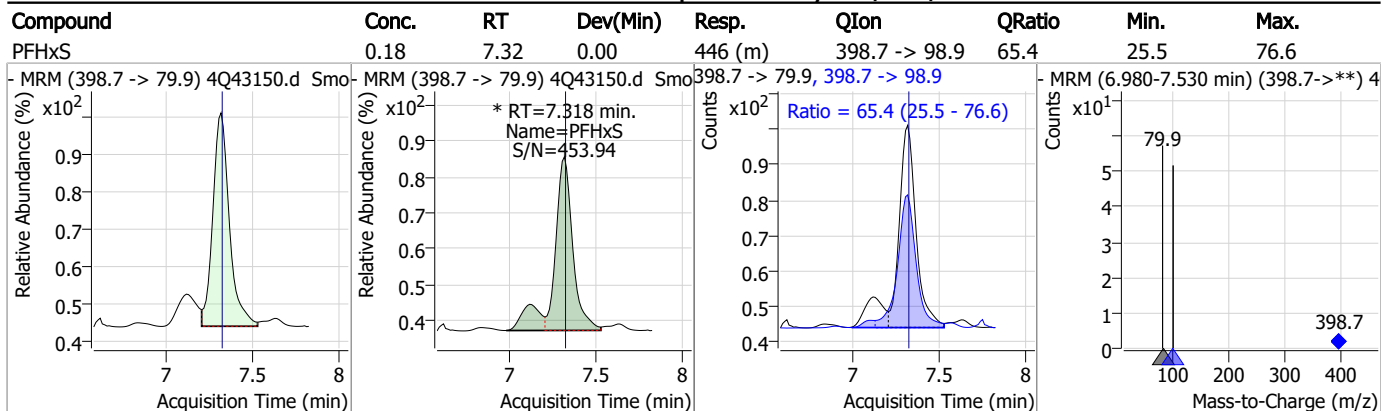
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Perfluorinated Compounds by LC/MS/MS



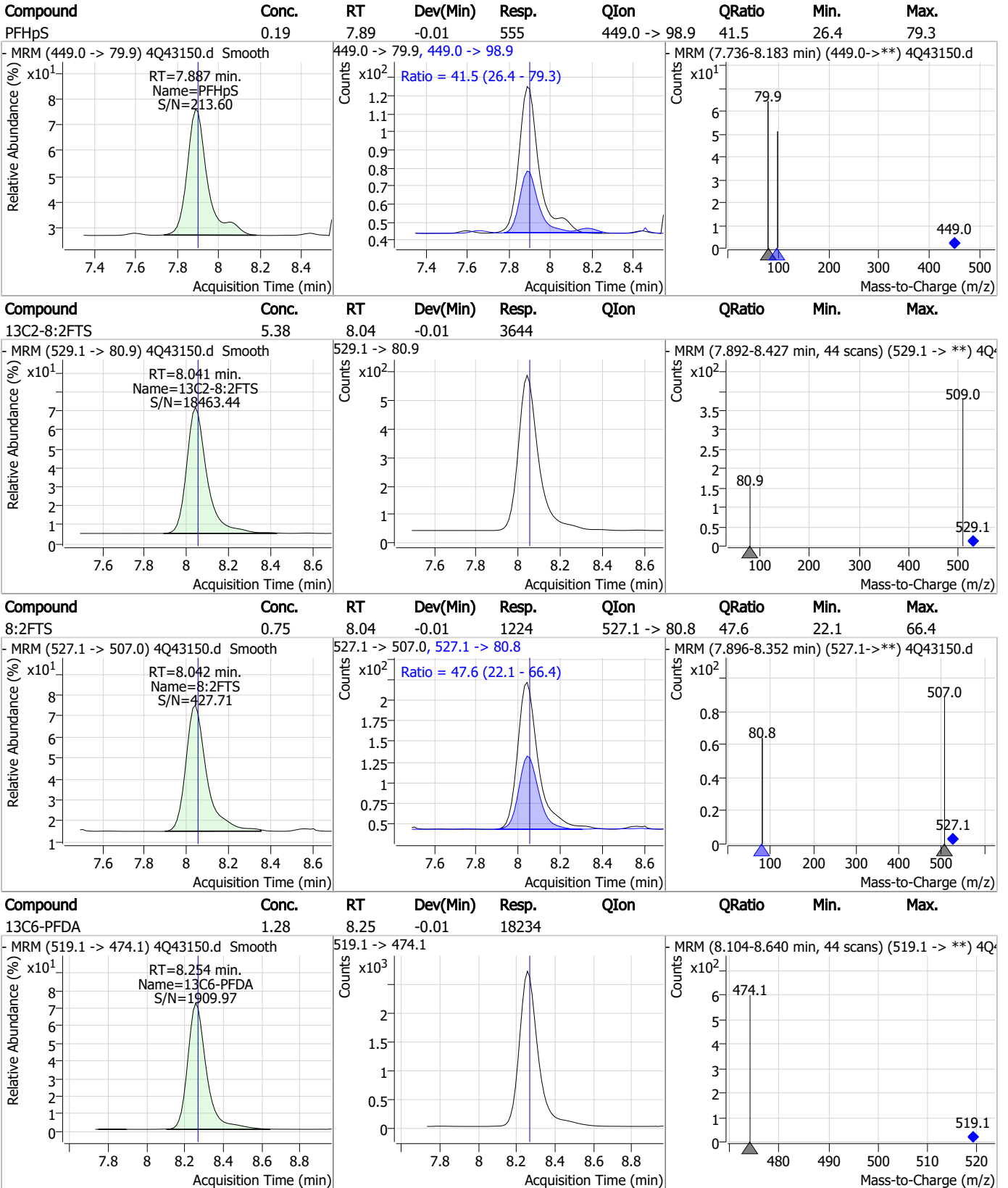
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Perfluorinated Compounds by LC/MS/MS



7.7.13
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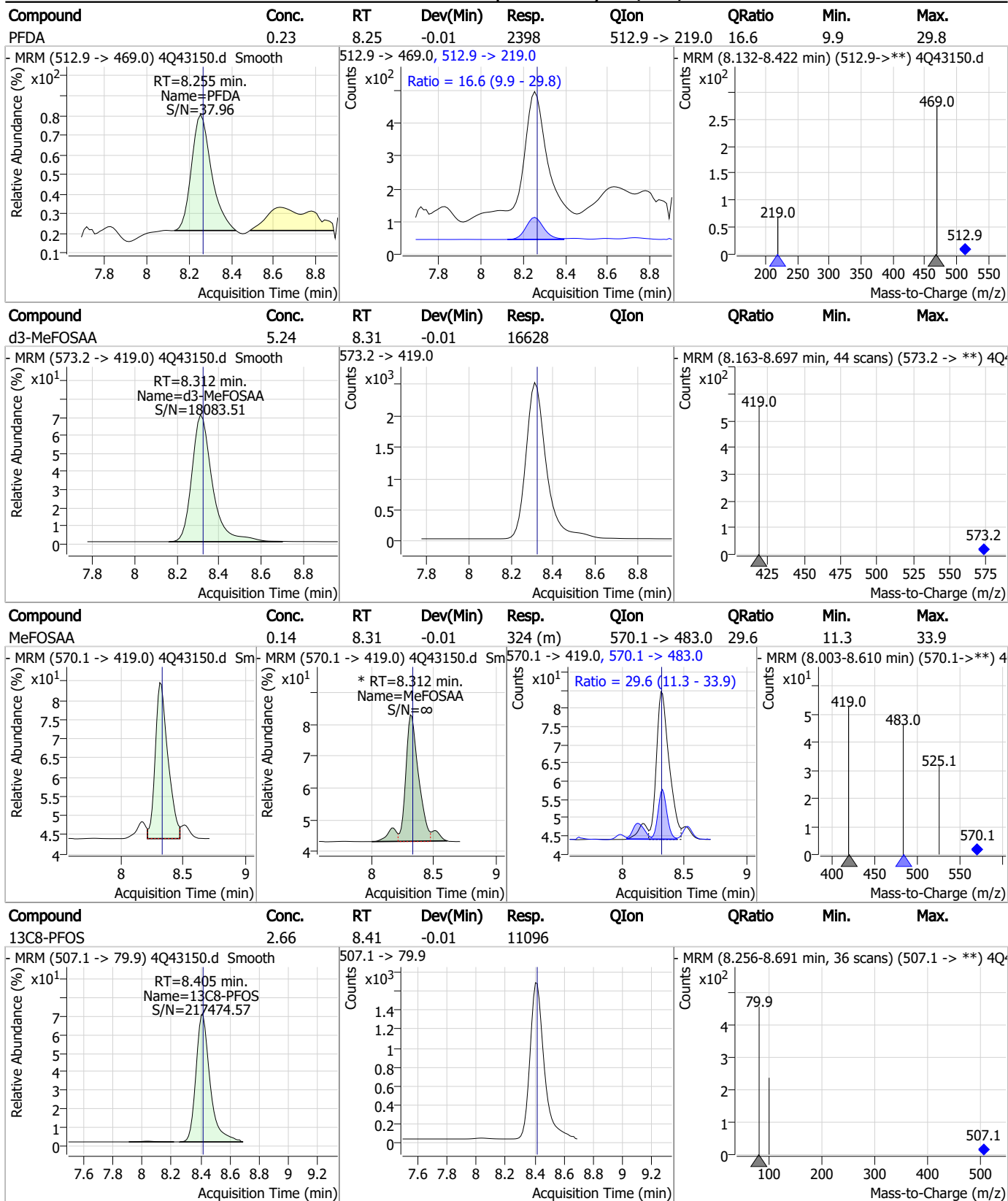
Perfluorinated Compounds by LC/MS/MS



7.7.13
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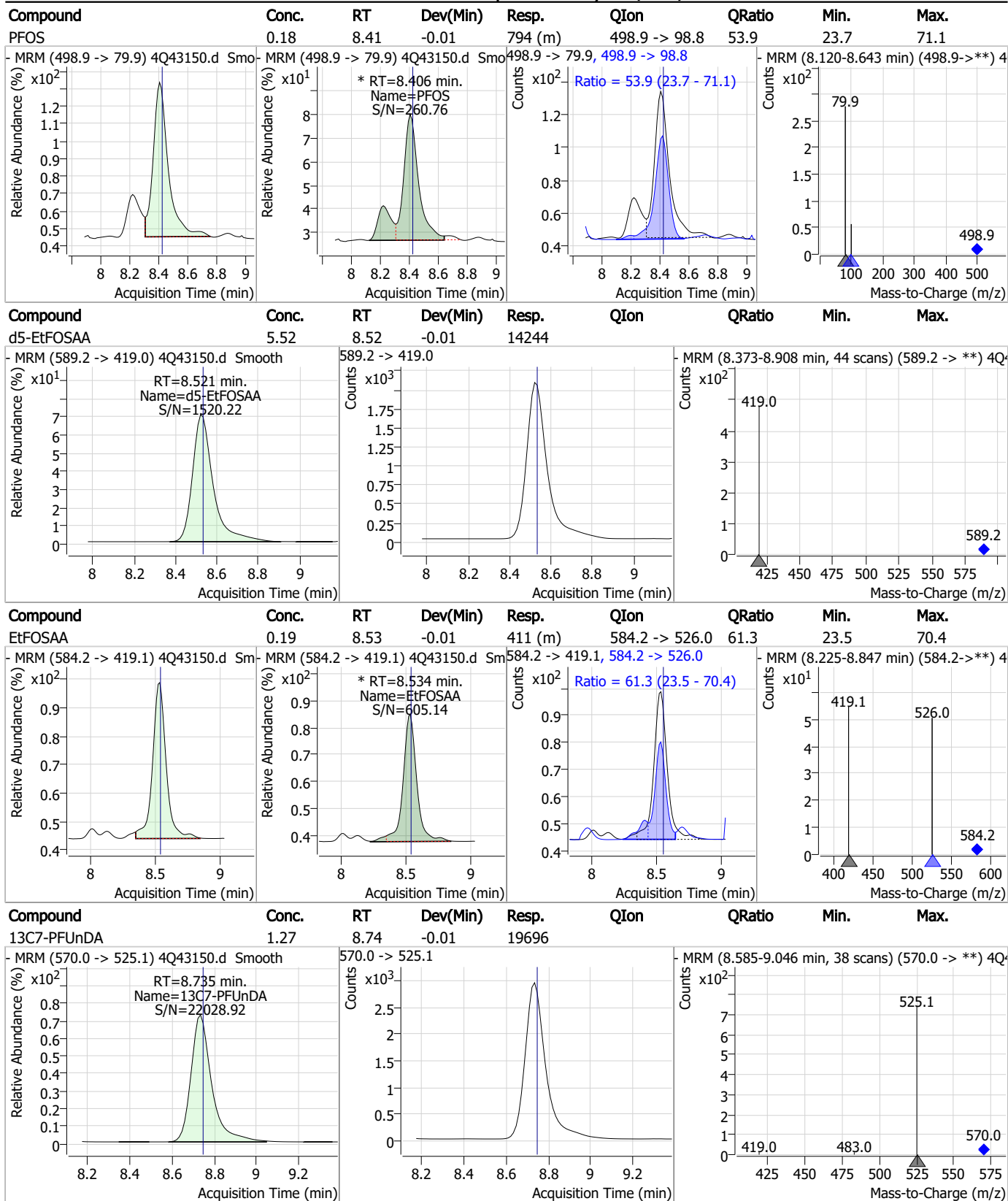
Perfluorinated Compounds by LC/MS/MS



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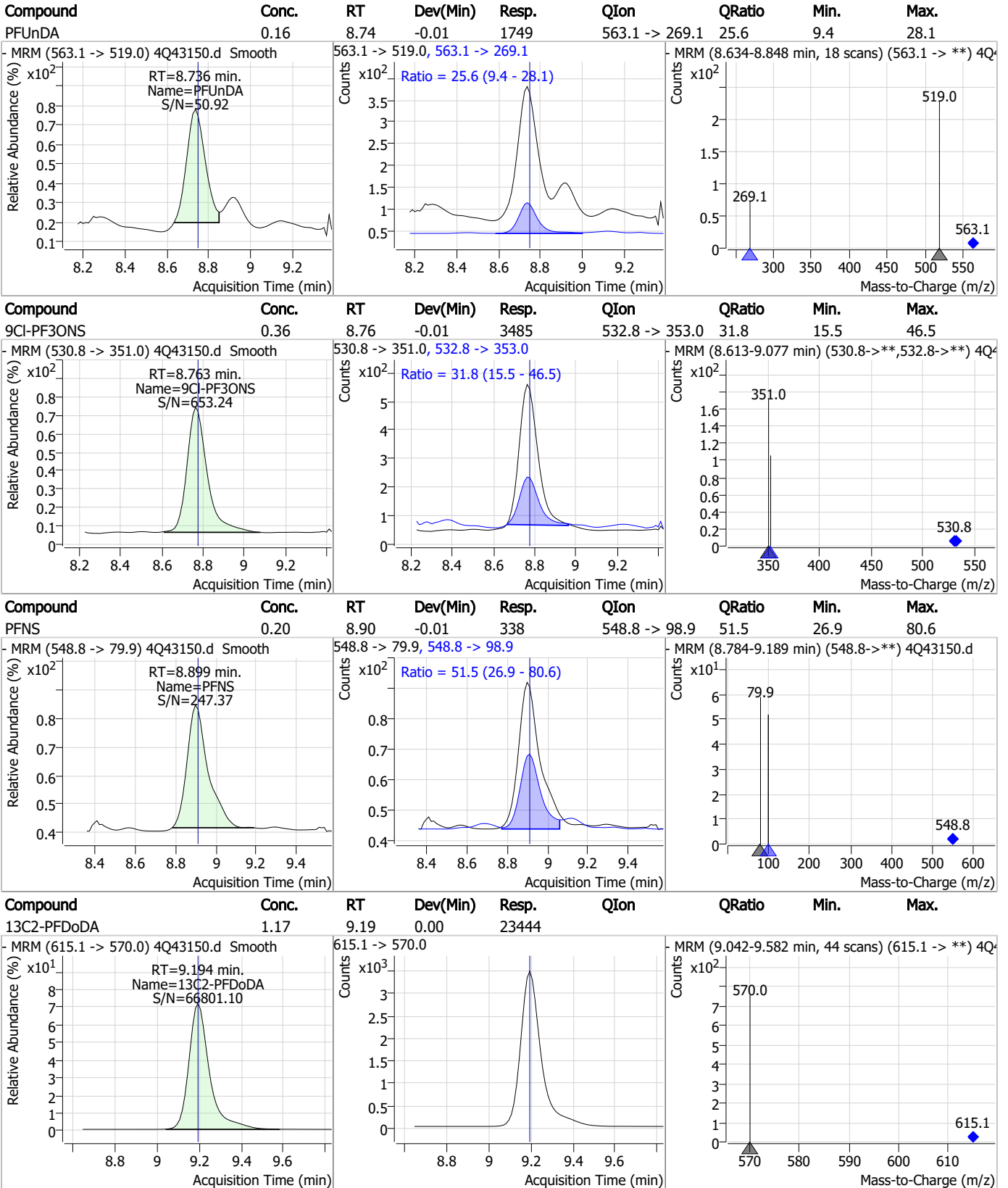
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Perfluorinated Compounds by LC/MS/MS



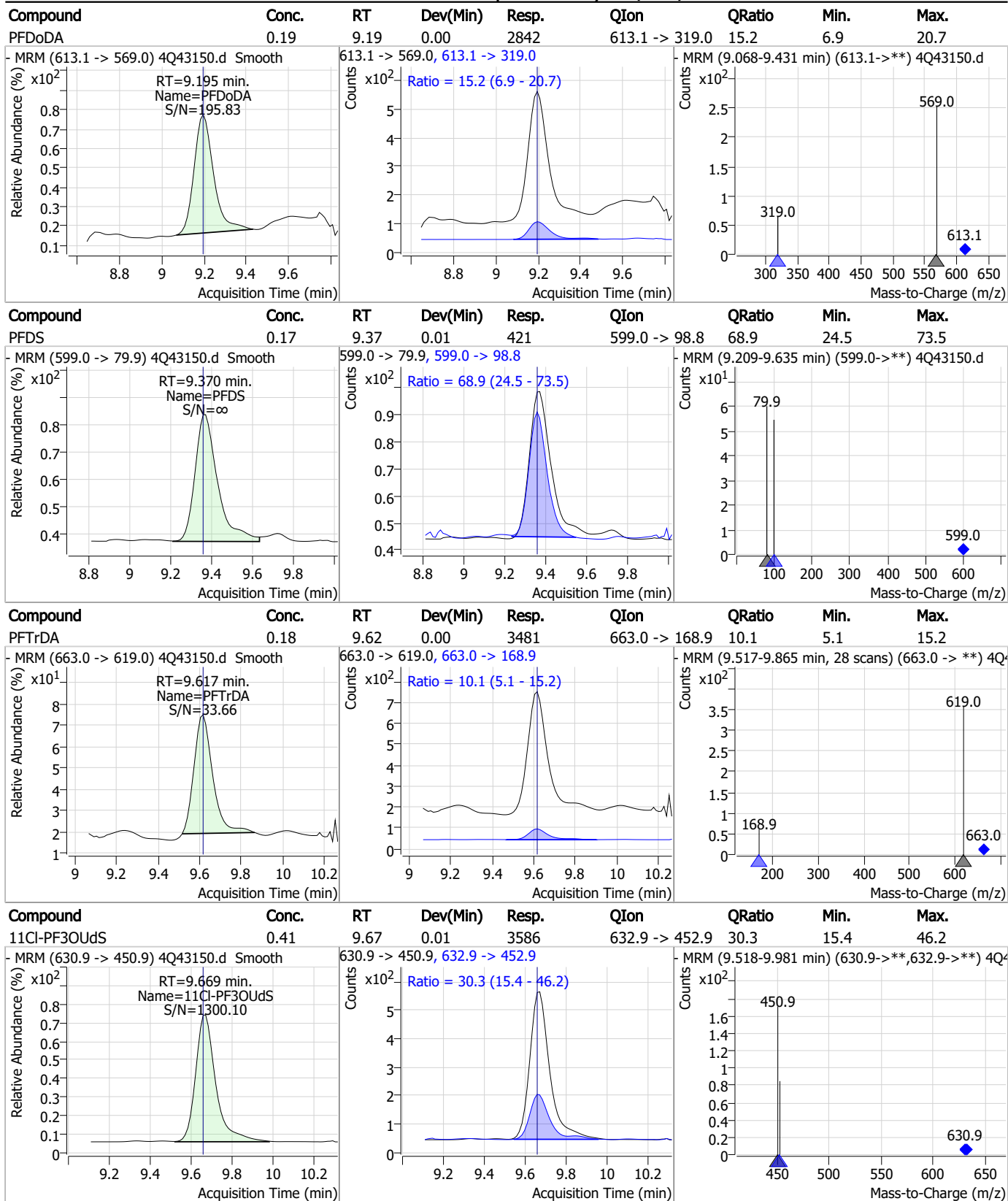
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Perfluorinated Compounds by LC/MS/MS



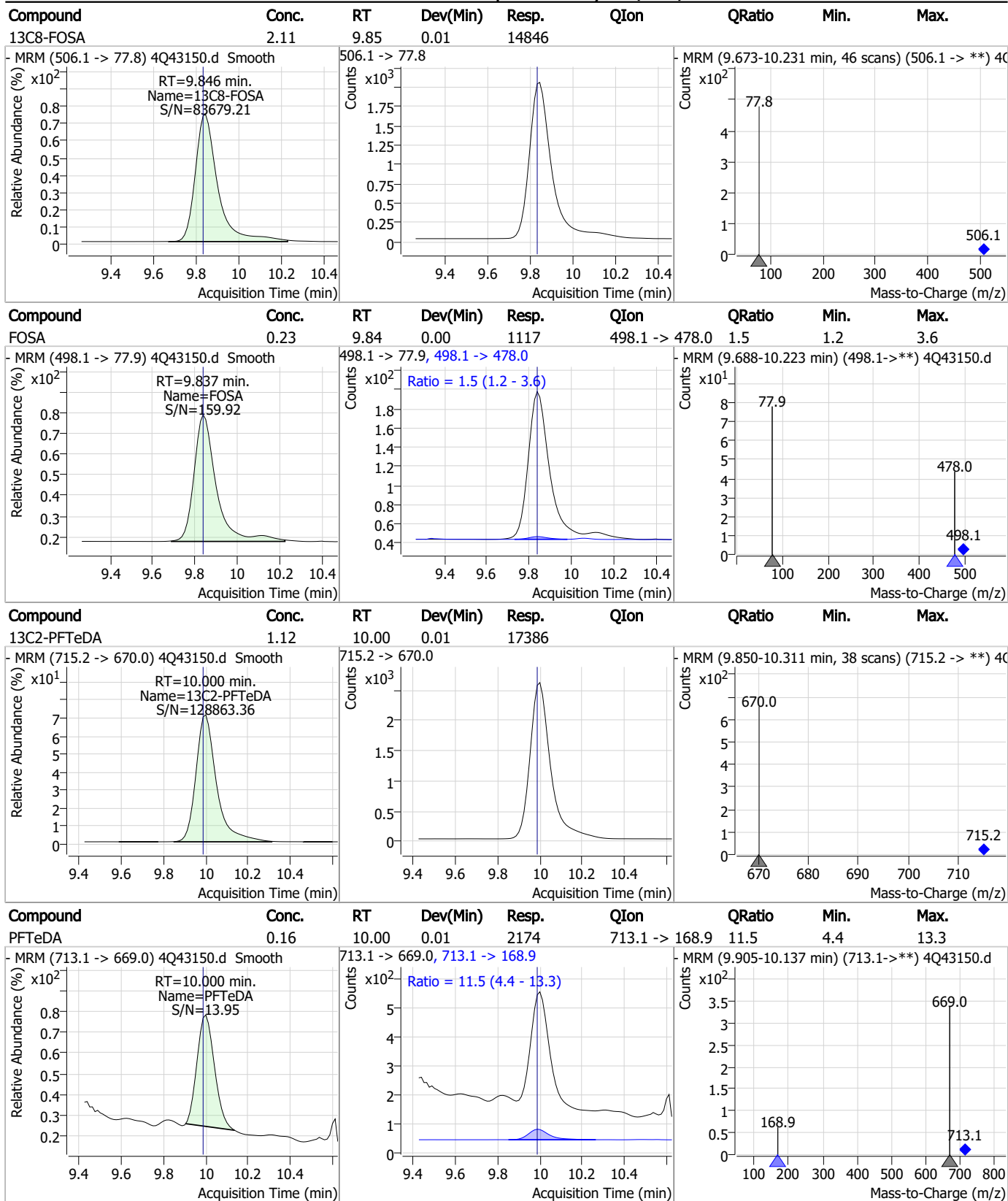
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

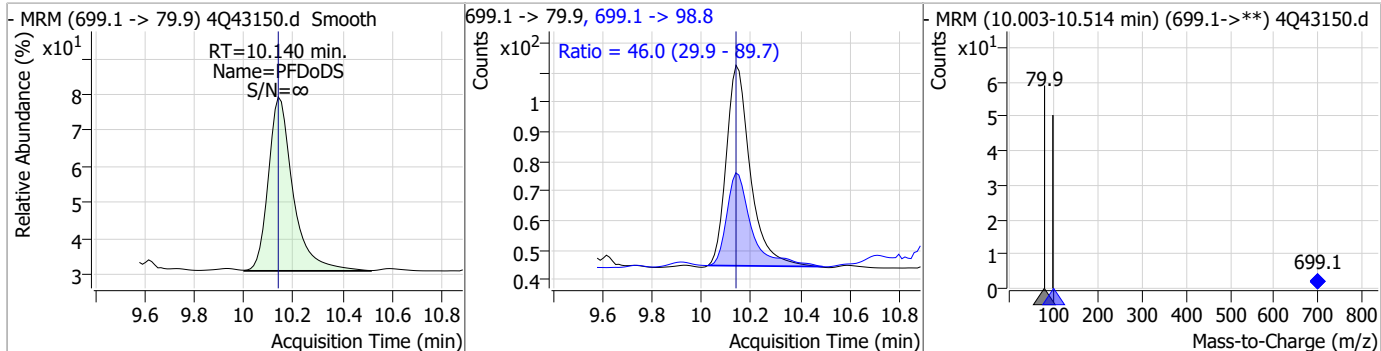


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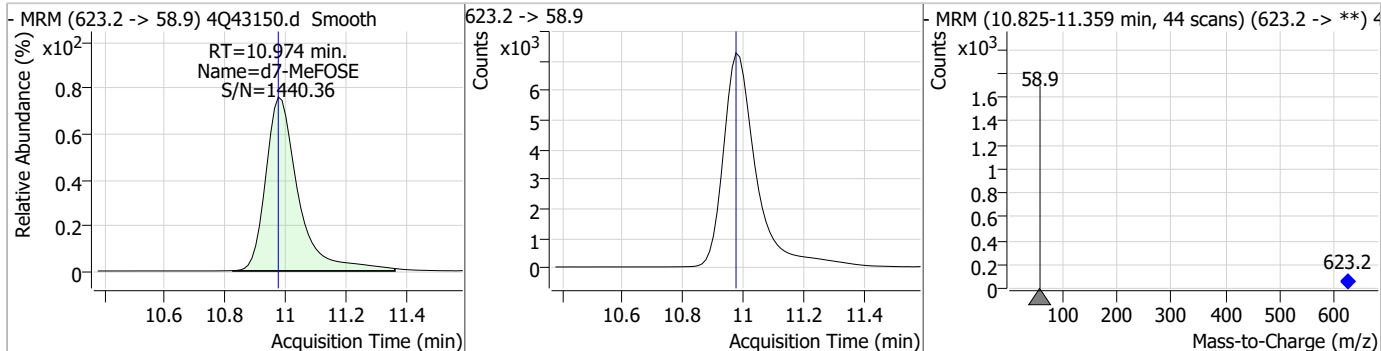
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Perfluorinated Compounds by LC/MS/MS

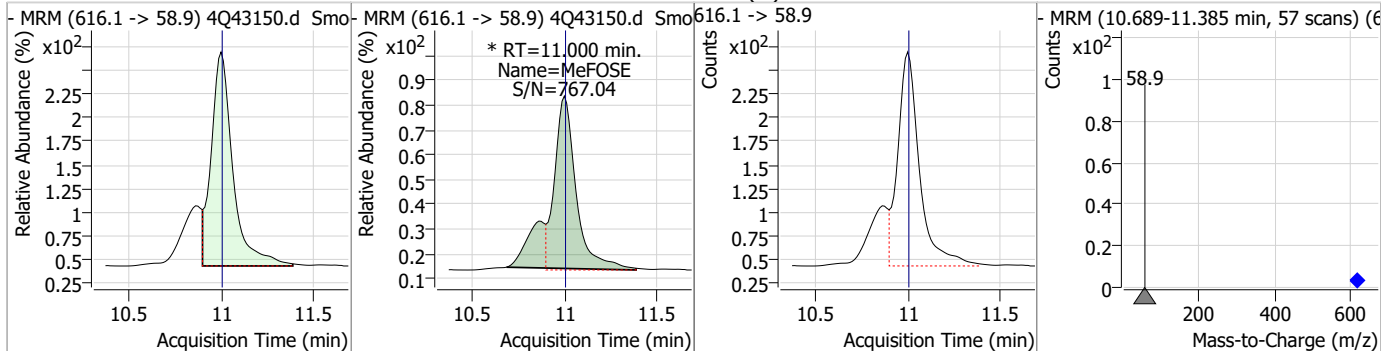
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.22	10.14	0.00	473	699.1 -> 98.8	46.0	29.9	89.7



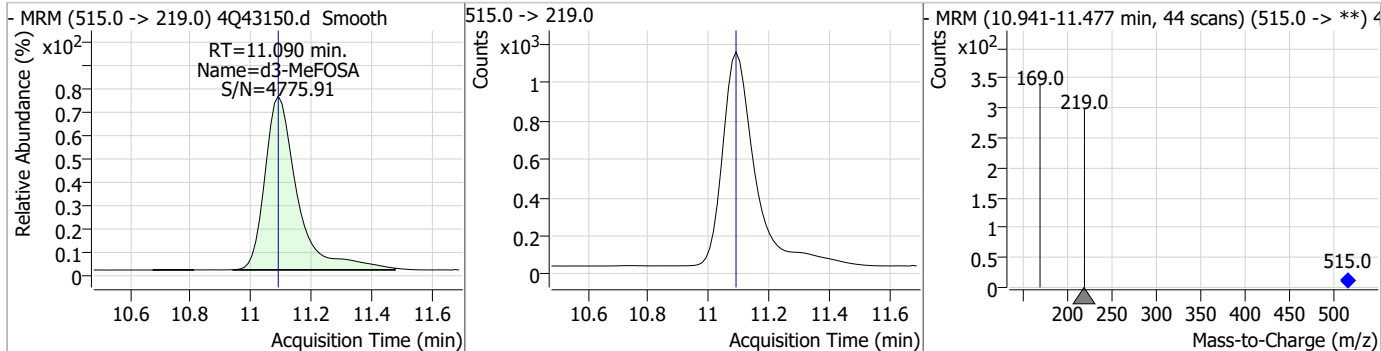
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.48	10.97	0.00	54134				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.16	11.00	0.00	2208 (m)				

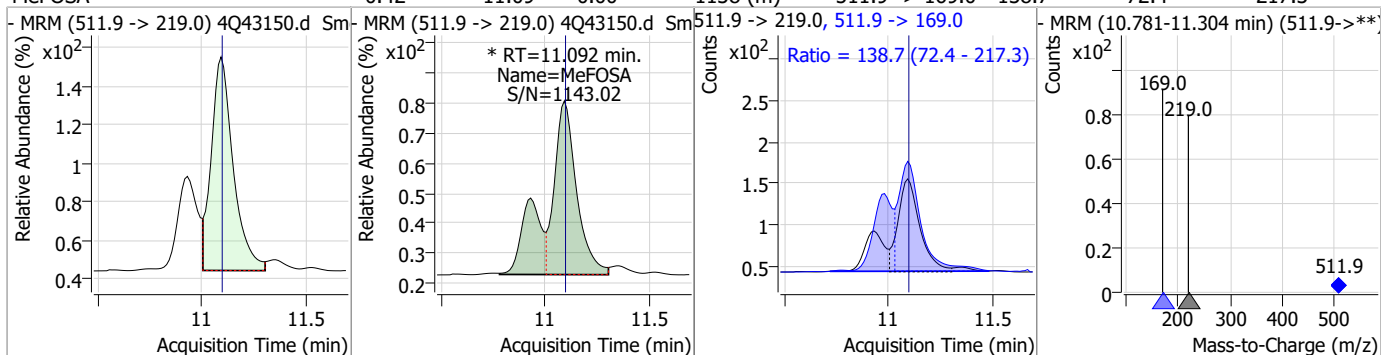


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.50	11.09	0.00	8339				

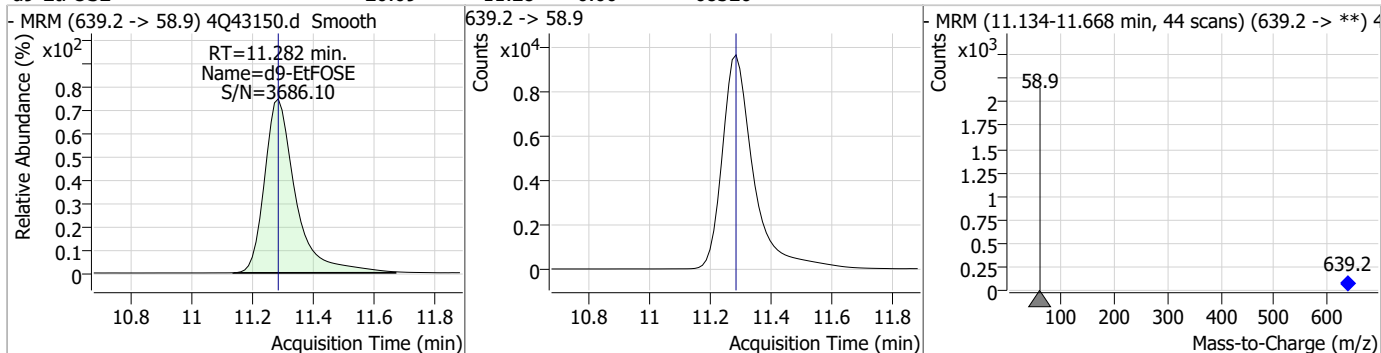


Perfluorinated Compounds by LC/MS/MS

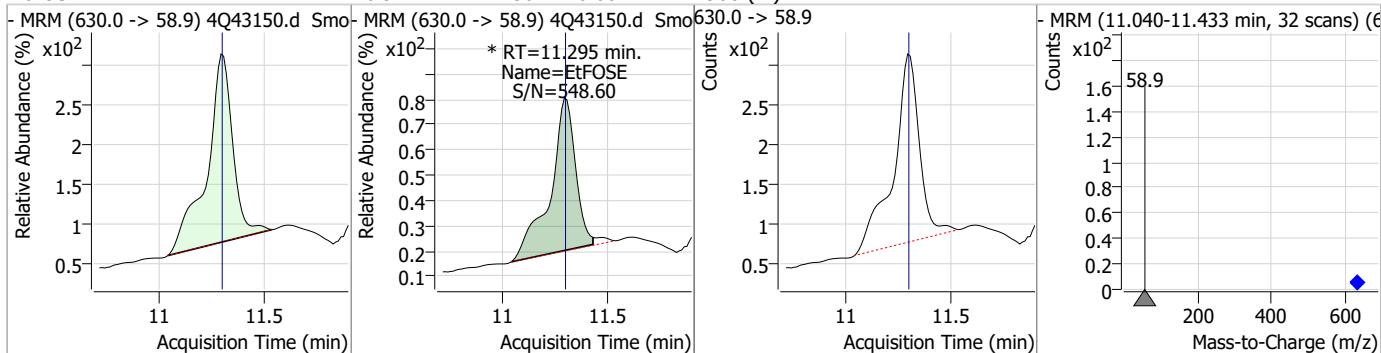
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.42	11.09	0.00	1138 (m)	511.9 -> 169.0	138.7	72.4	217.3



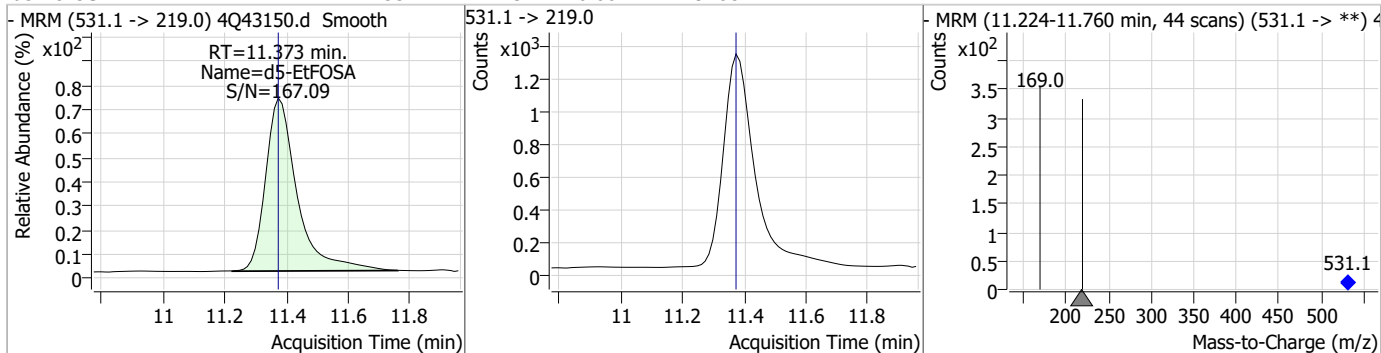
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.09	11.28	0.00	68326				



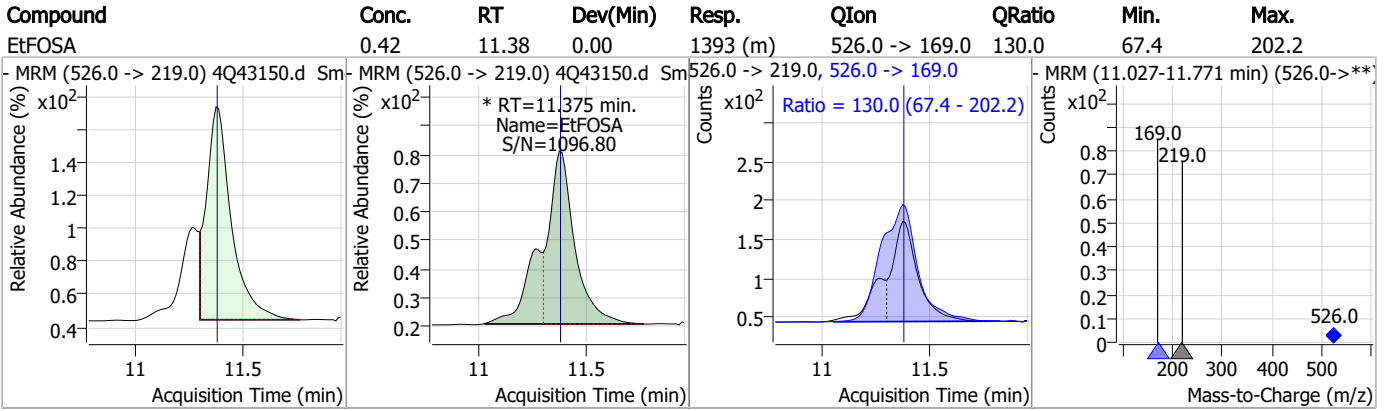
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.94	11.30	0.00	1988 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.55	11.37	0.00	9208				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q624-CC621
Lab FileID: 4Q43150.D
Injection Time: 04/18/23 11:40

Method: EPA DRAFT 1633
Analyst approved: 04/19/23 14:48 Martha Valls
Supervisor approved: 04/19/23 16:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
MeFOSAA	2355-31-9		8.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.41	Split peak
EtFOSAA	2991-50-6		8.53	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSE	1691-99-2		11.29	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.7.13.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43161.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 2:29:11 PM
 Sample Name : cc621-4
 Vial : P1-A5
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96296,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.064	216.8 -> 171.9	146945	10.00 µg/L	0.103
M5-PFPeA	4.487	268.3 -> 223.0	79216	5.00 µg/L	0.037
M5-PFHxA	5.646	318.0 -> 273.0	62019	2.50 µg/L	0.024
M4-PFHpA	6.567	367.1 -> 322.0	28817	2.50 µg/L	0.012
M8-PFOA	7.213	421.1 -> 376.0	37962	2.50 µg/L	0.000
M9-PFNA	7.771	472.1 -> 427.0	21058	1.25 µg/L	0.012
M6-PFDA	8.265	519.1 -> 474.1	20032	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	21009	1.25 µg/L	-0.001
M2-PFDoDA	9.205	615.1 -> 570.0	26282	1.25 µg/L	0.011
M2-PFTeDA	9.998	715.2 -> 670.0	18593	1.25 µg/L	0.011
M8-FOSA	9.845	506.1 -> 77.8	17031	2.50 µg/L	0.011
M3-PFBS	5.564	302.1 -> 79.9	13339	2.50 µg/L	0.037
M3-PFHxS	7.316	402.1 -> 79.9	8360	2.50 µg/L	-0.001
M8-PFOS	8.429	507.1 -> 79.9	12004	2.50 µg/L	0.012
M2-4:2FTS	5.335	329.1 -> 80.9	1745	5.00 µg/L	0.026
M2-6:2FTS	6.985	429.1 -> 80.9	2218	5.00 µg/L	0.012
M2-8:2FTS	8.052	529.1 -> 80.9	3607	5.00 µg/L	-0.001
M3-MeFOSAA	8.335	573.2 -> 419.0	16770	5.00 µg/L	0.011
M3-HFPO-DA	6.014	286.9 -> 168.9	36600	10.00 µg/L	0.025
M5-EtFOSAA	8.545	589.2 -> 419.0	14391	5.00 µg/L	0.011
M7-MeFOSE	10.972	623.2 -> 58.9	58204	25.00 µg/L	-0.002
M9-EtFOSE	11.281	639.2 -> 58.9	70991	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	9718	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	8695	2.50 µg/L	-0.002
13C4-PFOS	8.430	502.8 -> 79.9	12210	2.50 µg/L	0.012
13C3-PFBA	3.068	216.0 -> 172.0	79564	5.00 µg/L	0.102
18O2-PFHxS	7.328	403.0 -> 83.9	5651	2.50 µg/L	0.012
13C4-PFOA	7.214	417.1 -> 372.0	46011	2.50 µg/L	0.000
13C2-PFDA	8.265	515.1 -> 470.1	17318	1.25 µg/L	-0.001
13C5-PFNA	7.771	468.0 -> 423.0	23837	1.25 µg/L	0.012
13C2-PFHxA	5.647	315.1 -> 270.0	53192	2.50 µg/L	0.024
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1745	5.65 µg/L	0.026
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C2-6:2FTS	6.985	429.1 -> 80.9	2218	5.01 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-8:2FTS	8.052	529.1 -> 80.9	3607	4.95 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C2-PFDoDA	9.205	615.1 -> 570.0	26282	1.23 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-PFTeDA	9.998	715.2 -> 670.0	18593	1.12 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.6%		
13C3-PFBS	5.564	302.1 -> 79.9	13339	2.57 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C3-PFHxS	7.316	402.1 -> 79.9	8360	2.67 µg/L	-0.001

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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 = 106.9%	
13C4-PFBA	3.064	216.8 -> 171.9	146945	10.61 µg/L	0.103
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C4-PFHpA	6.567	367.1 -> 322.0	28817	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C5-PFHxA	5.646	318.0 -> 273.0	62019	2.52 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C5-PFPeA	4.487	268.3 -> 223.0	79216	5.05 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C6-PFDA	8.265	519.1 -> 474.1	20032	1.32 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C7-PFUnDA	8.747	570.0 -> 525.1	21009	1.27 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C8-FOSA	9.845	506.1 -> 77.8	17031	2.13 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.3%	
13C8-PFOA	7.213	421.1 -> 376.0	37962	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C8-PFOS	8.429	507.1 -> 79.9	12004	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C9-PFNA	7.771	472.1 -> 427.0	21058	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
d3-MeFOSAA	8.335	573.2 -> 419.0	16770	4.66 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	36600	9.80 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d3-MeFOSA	11.089	515.0 -> 219.0	8695	2.30 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.0%	
d5-EtFOSAA	8.545	589.2 -> 419.0	14391	4.92 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
d7-MeFOSE	10.972	623.2 -> 58.9	58204	18.48 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.9%	
d9-EtFOSE	11.281	639.2 -> 58.9	70991	18.42 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.7%	
d5-EtFOSA	11.373	531.1 -> 219.0	9718	2.38 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.2%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	17228	7.92 µg/L	96
		327.1 -> 80.9	7651		
6:2FTS	6.986	427.1 -> 407.0	13325	8.80 µg/L	99
		427.1 -> 80.9	5904		
8:2FTS	8.053	527.1 -> 507.0	14241	8.81 µg/L	95
		527.1 -> 80.8	5832		
EtFOSAA	8.545	584.2 -> 419.1	4313	2.01 µg/L	m 87
		584.2 -> 526.0	2408		
FOSA	9.848	498.1 -> 77.9	11367	2.07 µg/L	97
		498.1 -> 478.0	390		
MeFOSAA	8.336	570.1 -> 419.0	5255	2.27 µg/L	m 97
		570.1 -> 483.0	1104		
PFBA	3.071	212.8 -> 168.9	26063	7.77 µg/L	100
PFBS	5.565	298.7 -> 79.9	9079	1.82 µg/L	98
		298.7 -> 98.8	3558		
PFDA	8.278	512.9 -> 469.0	25050	2.19 µg/L	99
		512.9 -> 219.0	5025		
PFDODA	9.206	613.1 -> 569.0	33876	2.04 µg/L	97
		613.1 -> 319.0	5104		
PFDS	9.369	599.0 -> 79.9	4988	1.86 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	2553			
PFHpA	6.568	363.1 -> 319.0	30429	2.12	µg/L	99
		363.1 -> 169.0	5555			
PFHpS	7.910	449.0 -> 79.9	5999	1.92	µg/L	98
		449.0 -> 98.9	3264			
PFHxA	5.649	313.0 -> 269.0	37702	2.05	µg/L	99
		313.0 -> 118.9	1284			
PFHxS	7.317	398.7 -> 79.9	5114	1.79	µg/L	m 96
		398.7 -> 98.9	2749			
PFNA	7.771	463.0 -> 419.0	22635	2.01	µg/L	98
		463.0 -> 219.0	5580			
PFNS	8.911	548.8 -> 79.9	3536	1.91	µg/L	94
		548.8 -> 98.9	1755			
PFOA	7.215	413.0 -> 369.0	35261	1.99	µg/L	99
		413.0 -> 169.0	7505			
PFOS	8.431	498.9 -> 79.9	8710	1.86	µg/L	m 99
		498.9 -> 98.8	4180			
PFPeA	4.489	263.0 -> 219.0	63581	4.24	µg/L	100
PFPeS	6.606	349.1 -> 79.9	4322	1.77	µg/L	99
		349.1 -> 98.9	1980			
PFTeDA	9.999	713.1 -> 669.0	29945	2.05	µg/L	100
		713.1 -> 168.9	2639			
PFTrDA	9.616	663.0 -> 619.0	42936	2.01	µg/L	100
		663.0 -> 168.9	4340			
PFUnDA	8.747	563.1 -> 519.0	24492	2.06	µg/L	99
		563.1 -> 269.1	4702			
11CI-PF3OUdS	9.668	630.9 -> 450.9	47721	5.00	µg/L	98
		632.9 -> 452.9	15277			
9CI-PF3ONS	8.775	530.8 -> 351.0	49792	4.67	µg/L	99
		532.8 -> 353.0	15604			
ADONA	6.818	376.9 -> 250.9	105705	4.81	µg/L	99
		376.9 -> 84.8	28038			
HFPO-DA	6.015	284.9 -> 168.9	13511	4.66	µg/L	99
		284.9 -> 184.9	1808			
3:3FTCA	4.029	241.0 -> 177.0	9076	12.99	µg/L	99
		241.0 -> 117.0	842			
5:3FTCA	6.343	341.0 -> 237.1	168699	65.07	µg/L	99
		341.0 -> 217.0	118893			
7:3FTCA	7.773	441.0 -> 316.9	67504	63.53	µg/L	97
		441.0 -> 336.9	148597			
EtFOSA	11.375	526.0 -> 219.0	17736	5.12	µg/L	m 100
		526.0 -> 169.0	23887			
EtFOSE	11.295	630.0 -> 58.9	27851	12.73	µg/L	100
MeFOSA	11.090	511.9 -> 219.0	14293	5.08	µg/L	m 98
		511.9 -> 169.0	21102			
MeFOSE	10.997	616.1 -> 58.9	26121	12.77	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	4248	1.83	µg/L	98
		699.1 -> 98.8	2475			
NFDHA	5.541	295.0 -> 201.0	6158	4.99	µg/L	100
		295.0 -> 84.9	1609			
PFMBA	4.891	279.0 -> 85.1	43483	5.07	µg/L	100
PFMPA	3.653	229.0 -> 84.9	38485	5.13	µg/L	100
PFEESA	6.083	314.8 -> 134.9	68139	4.42	µg/L	99
		314.8 -> 82.9	2541			

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

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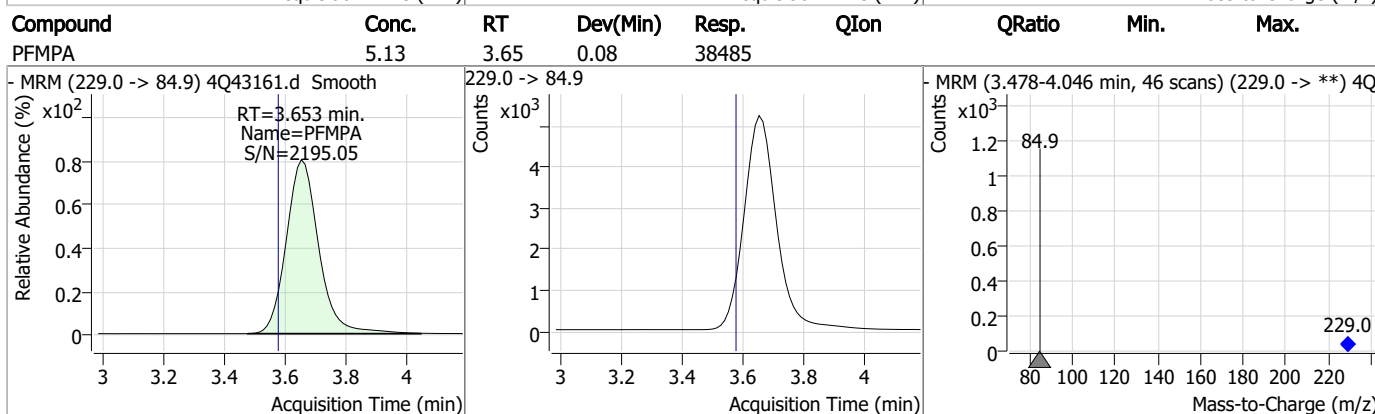
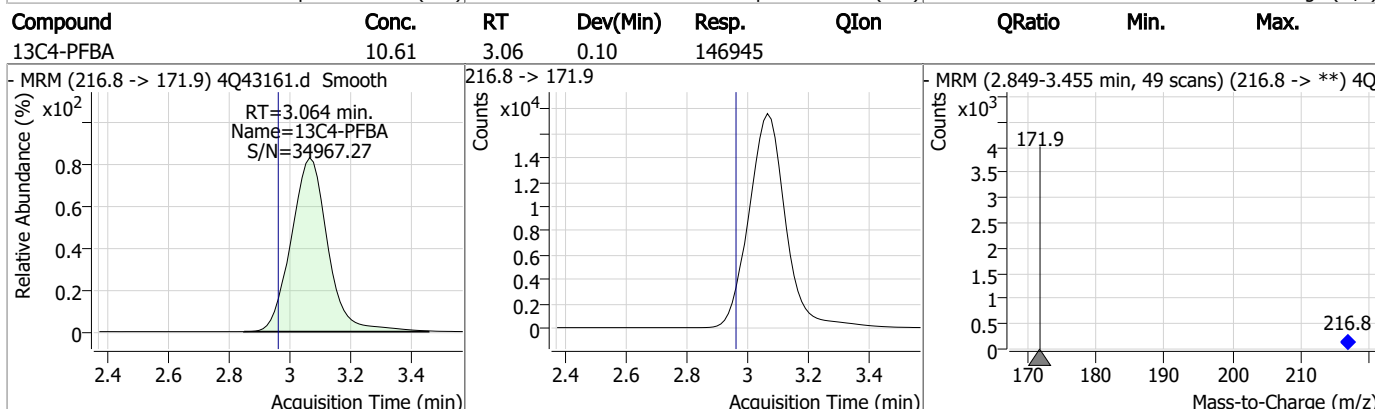
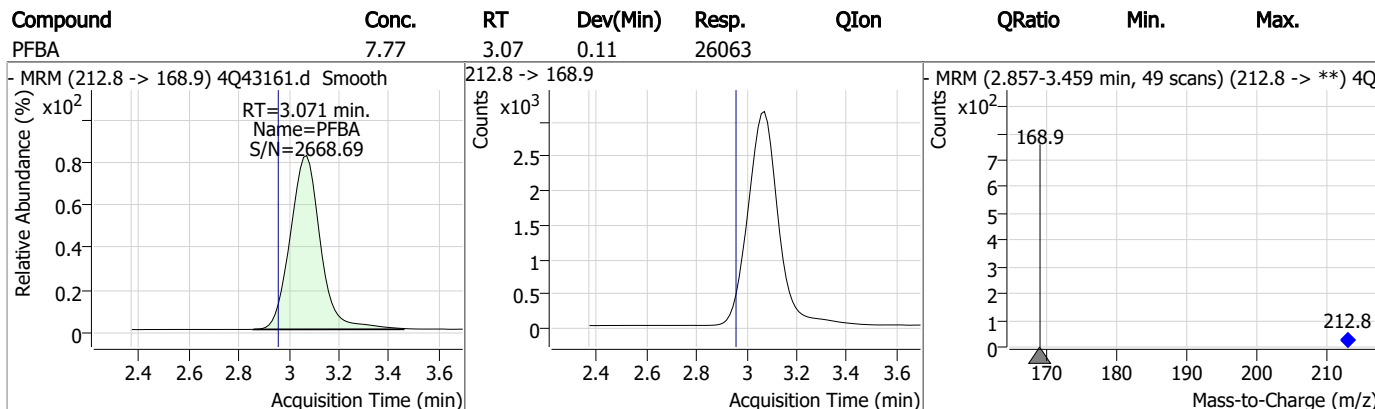
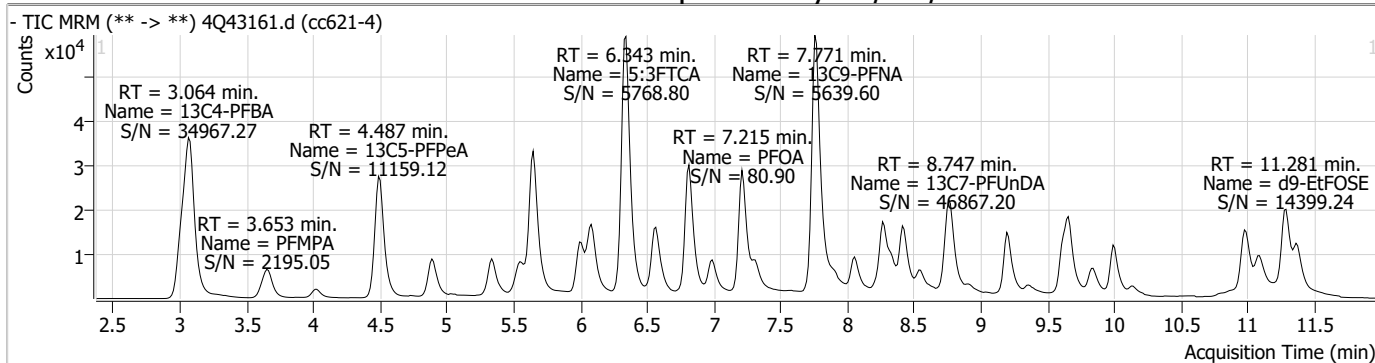
Perfluorinated Compounds by LC/MS/MS

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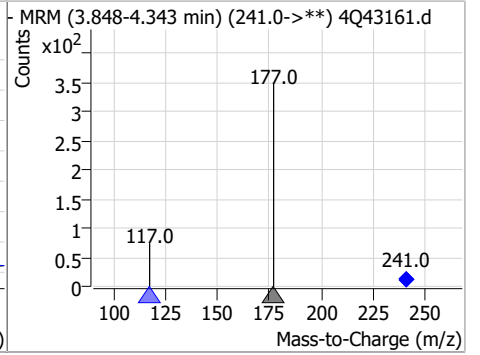
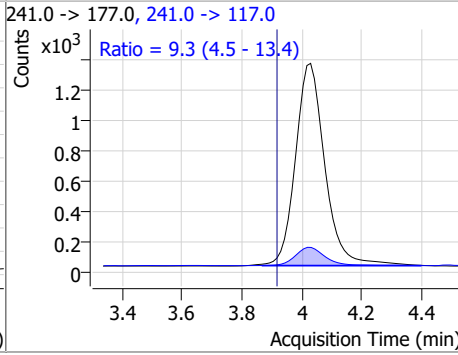
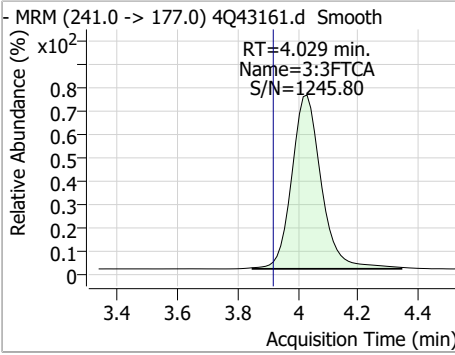
Perfluorinated Compounds by LC/MS/MS



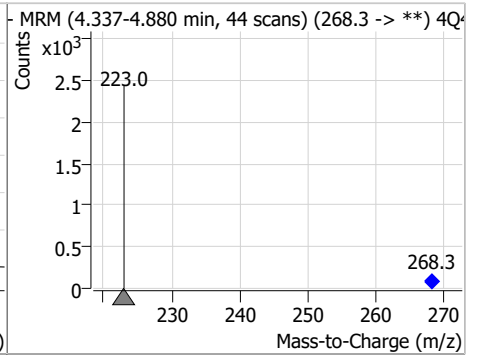
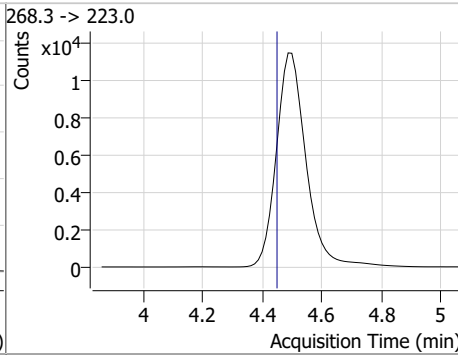
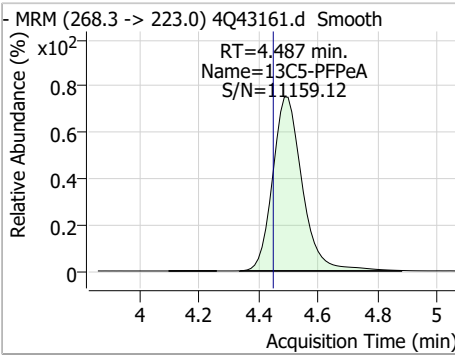
7.7.14
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Perfluorinated Compounds by LC/MS/MS

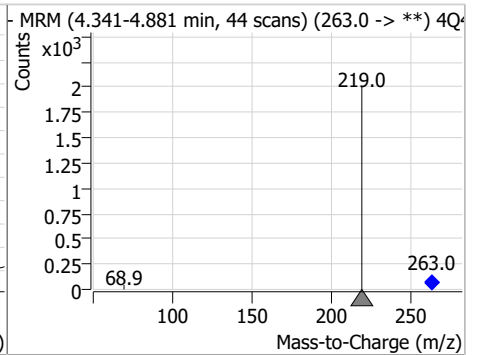
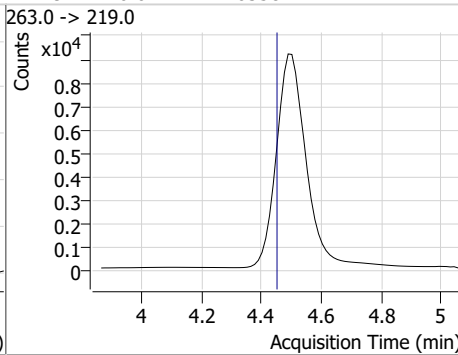
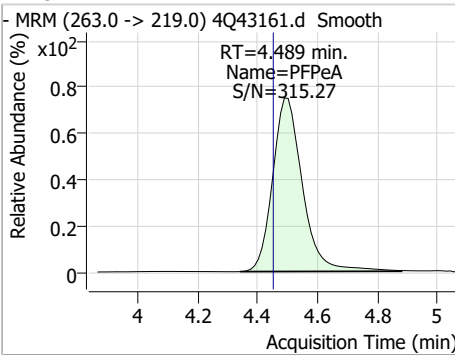
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.99	4.03	0.11	9076	241.0 -> 117.0	9.3	4.5	13.4



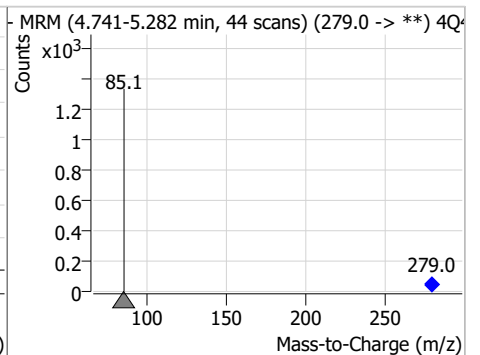
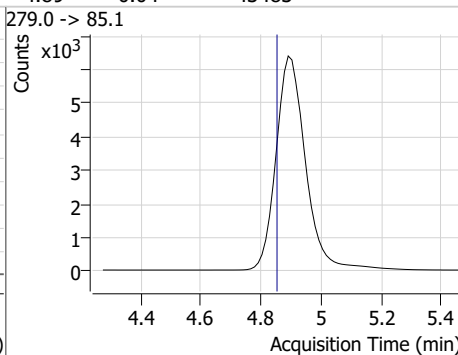
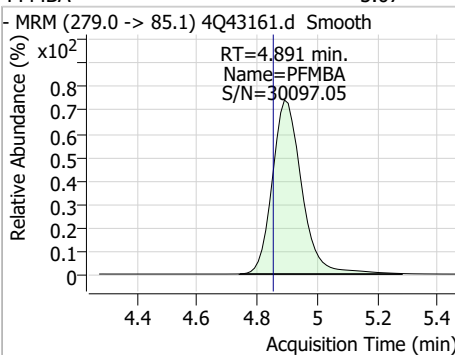
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.05	4.49	0.04	79216				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.24	4.49	0.04	63581				

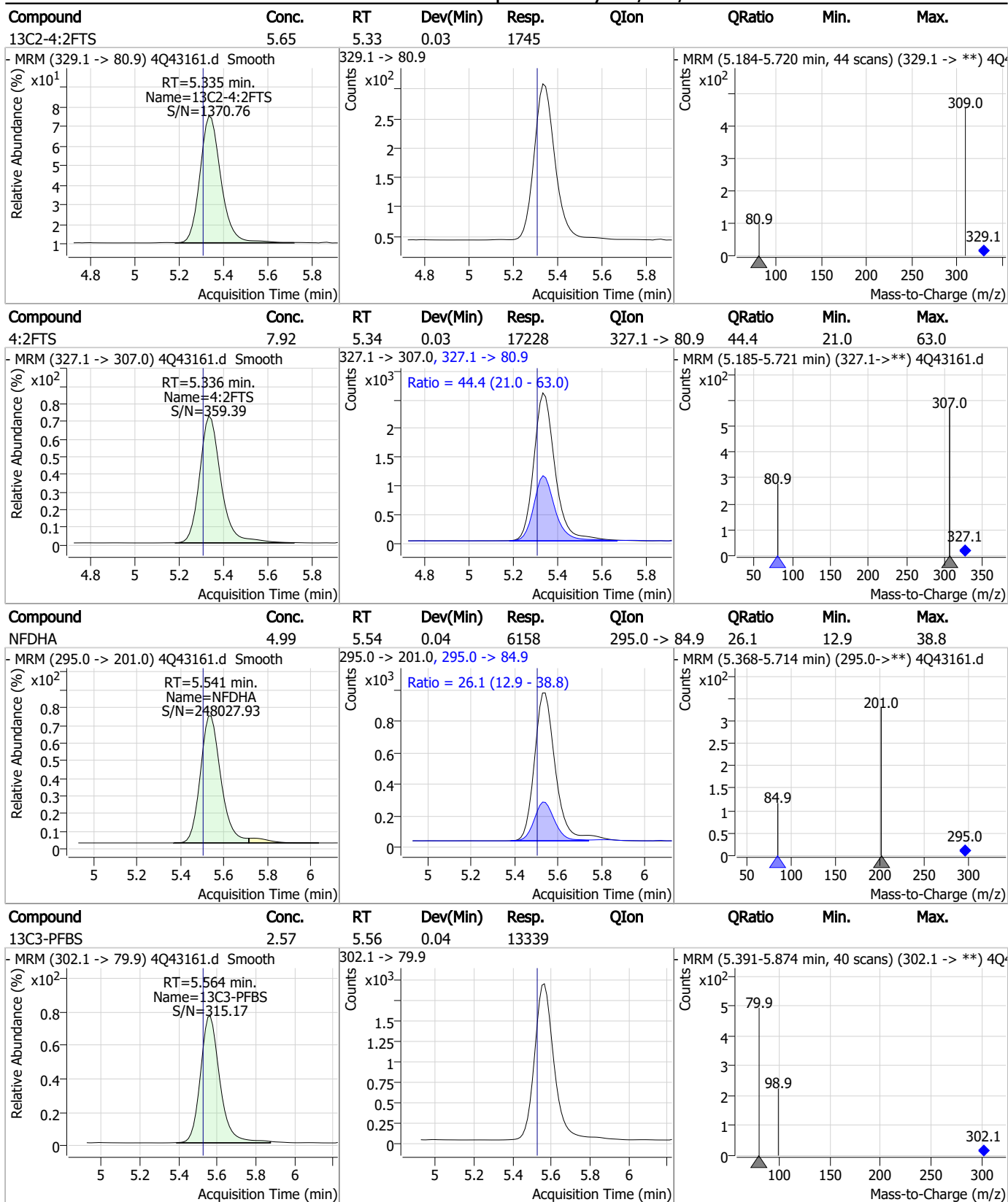


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.07	4.89	0.04	43483				



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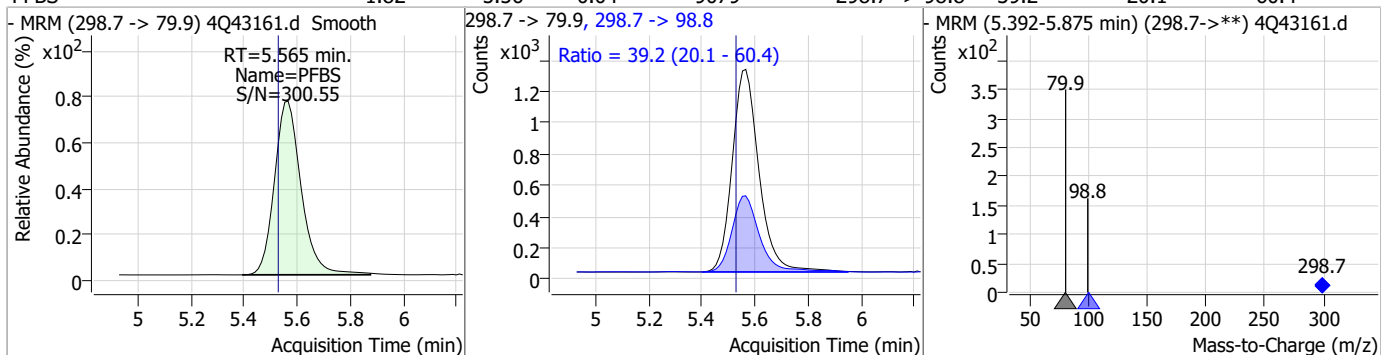
Perfluorinated Compounds by LC/MS/MS



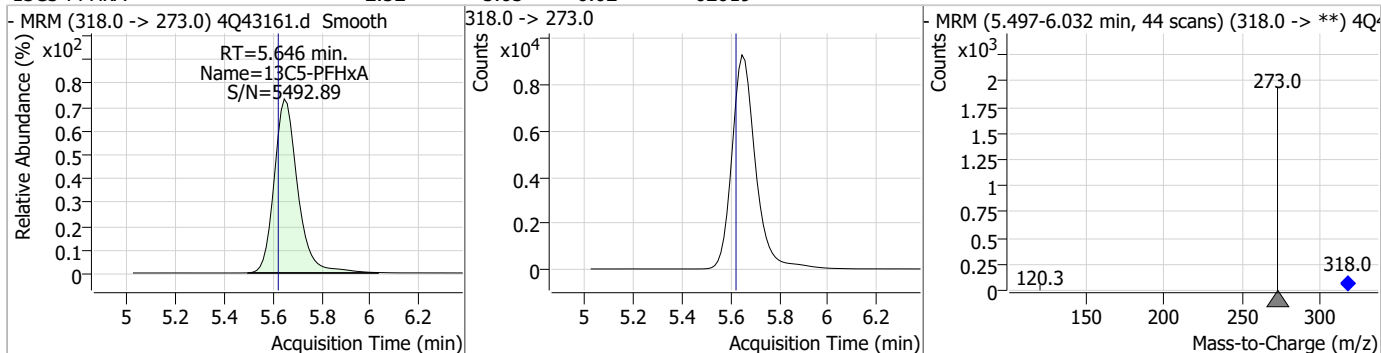
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Perfluorinated Compounds by LC/MS/MS

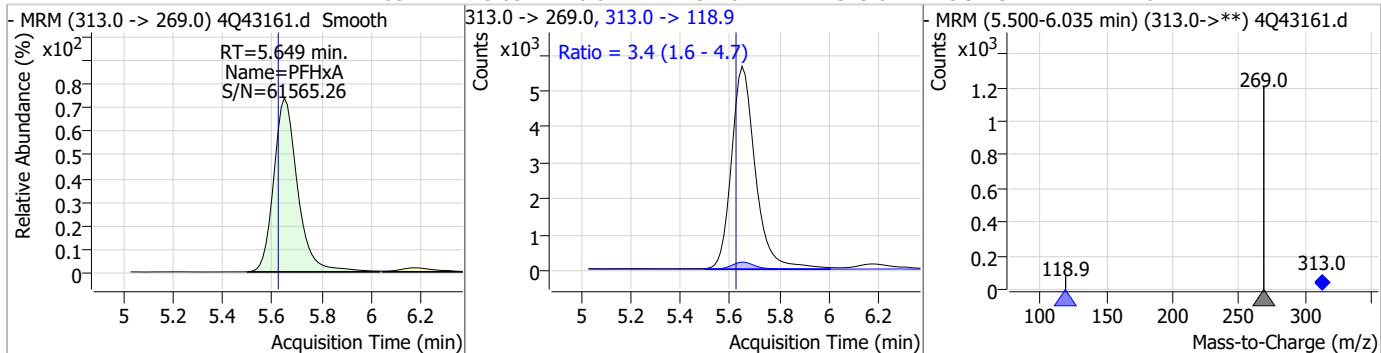
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.82	5.56	0.04	9079	298.7 -> 98.8	39.2	20.1	60.4



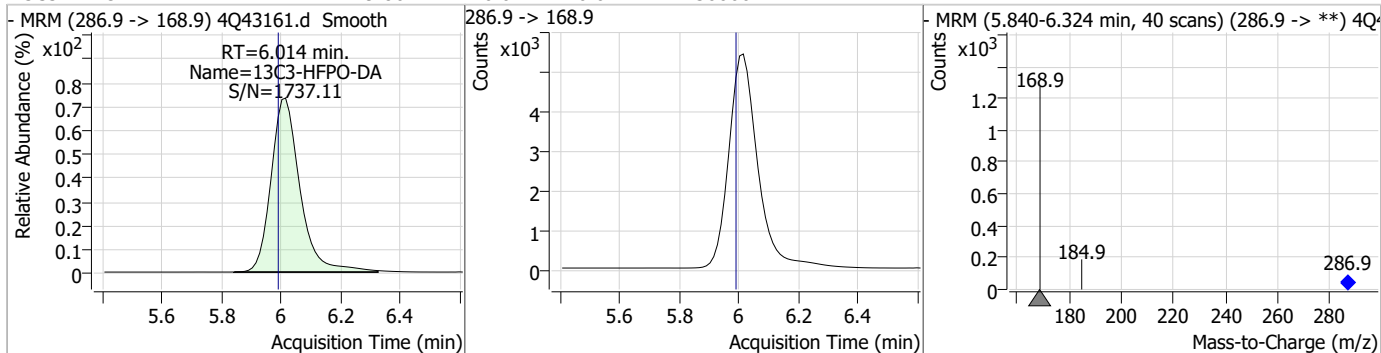
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.52	5.65	0.02	62019				



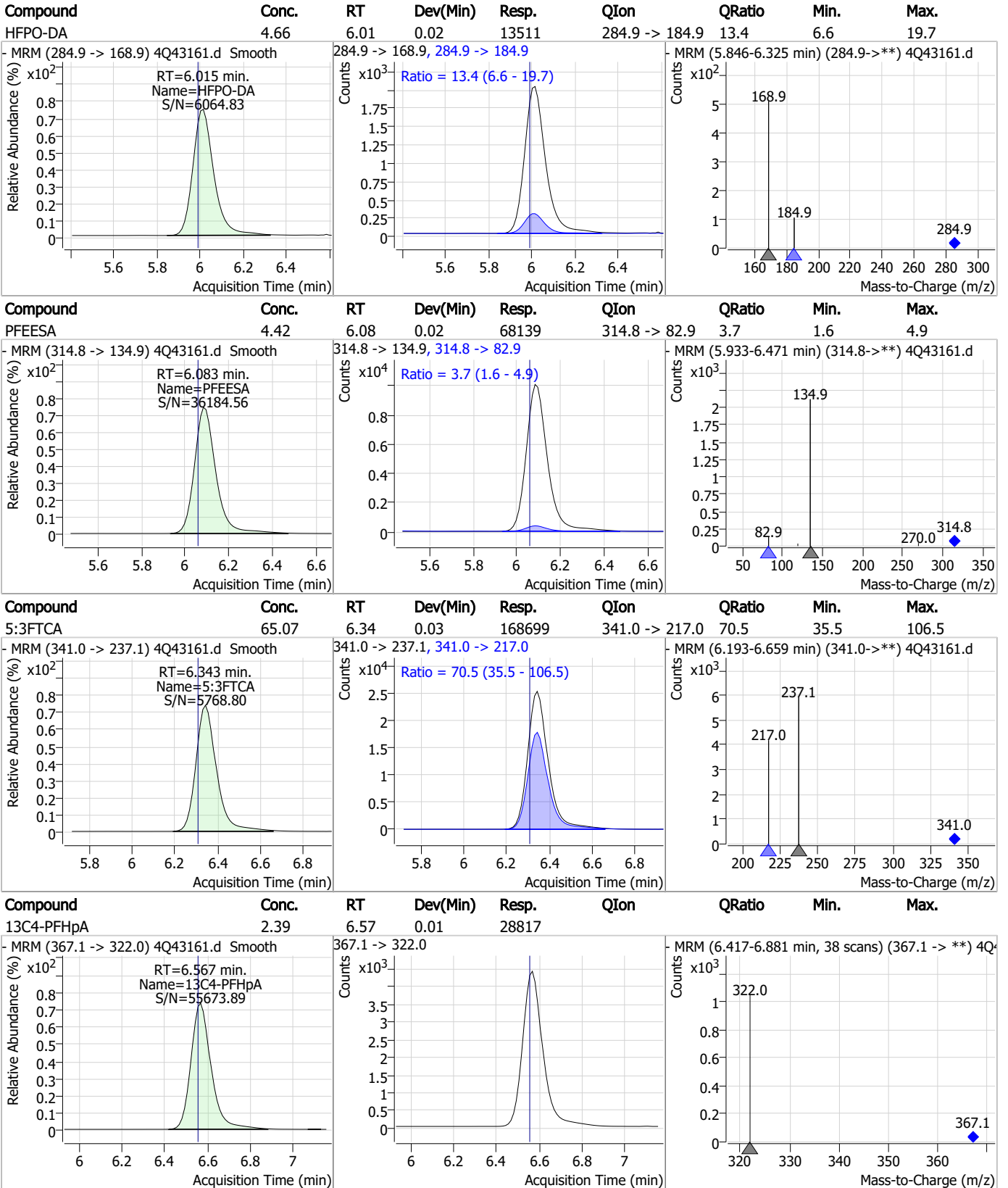
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.05	5.65	0.02	37702	313.0 -> 118.9	3.4	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.80	6.01	0.02	36600				



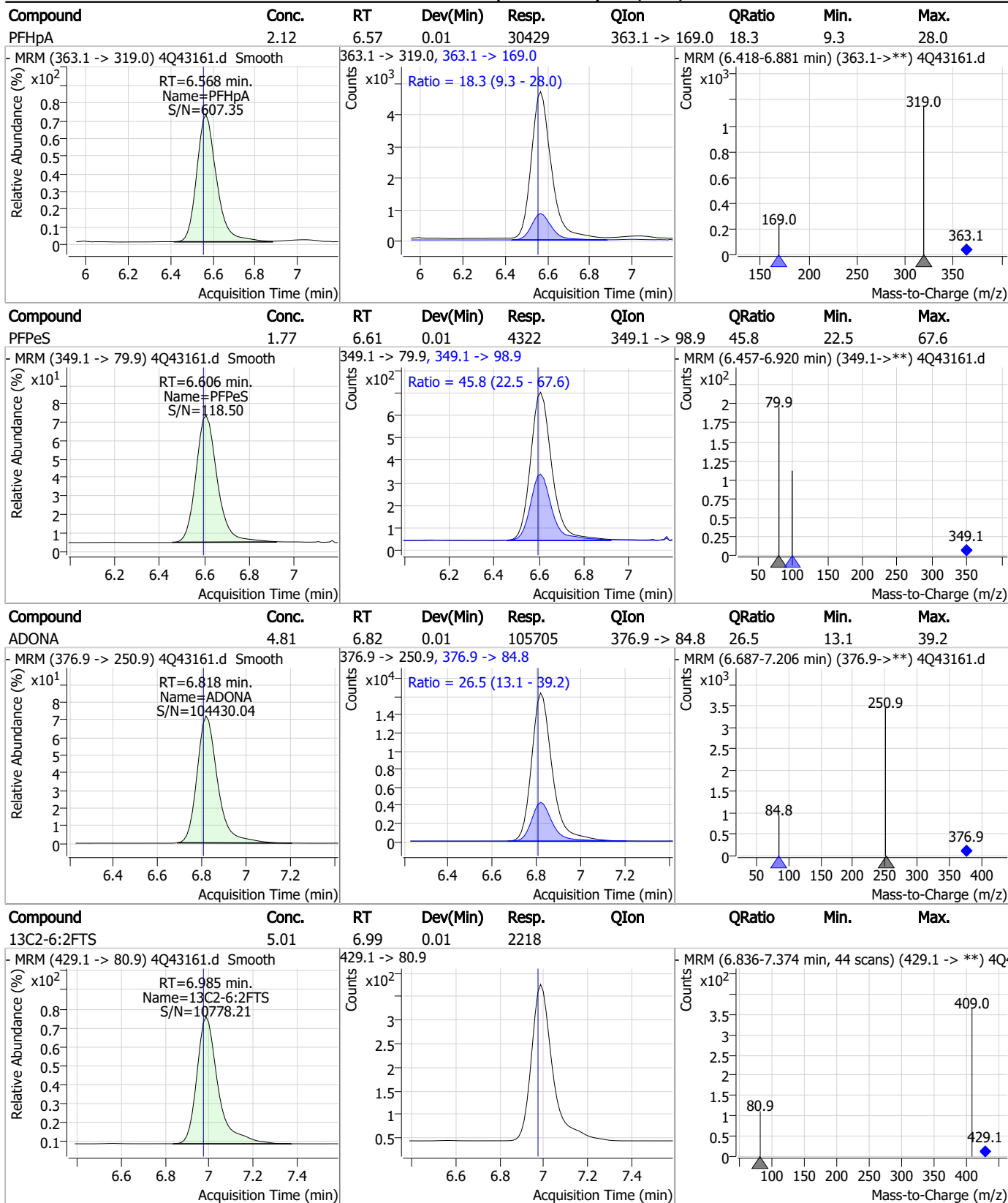
Perfluorinated Compounds by LC/MS/MS



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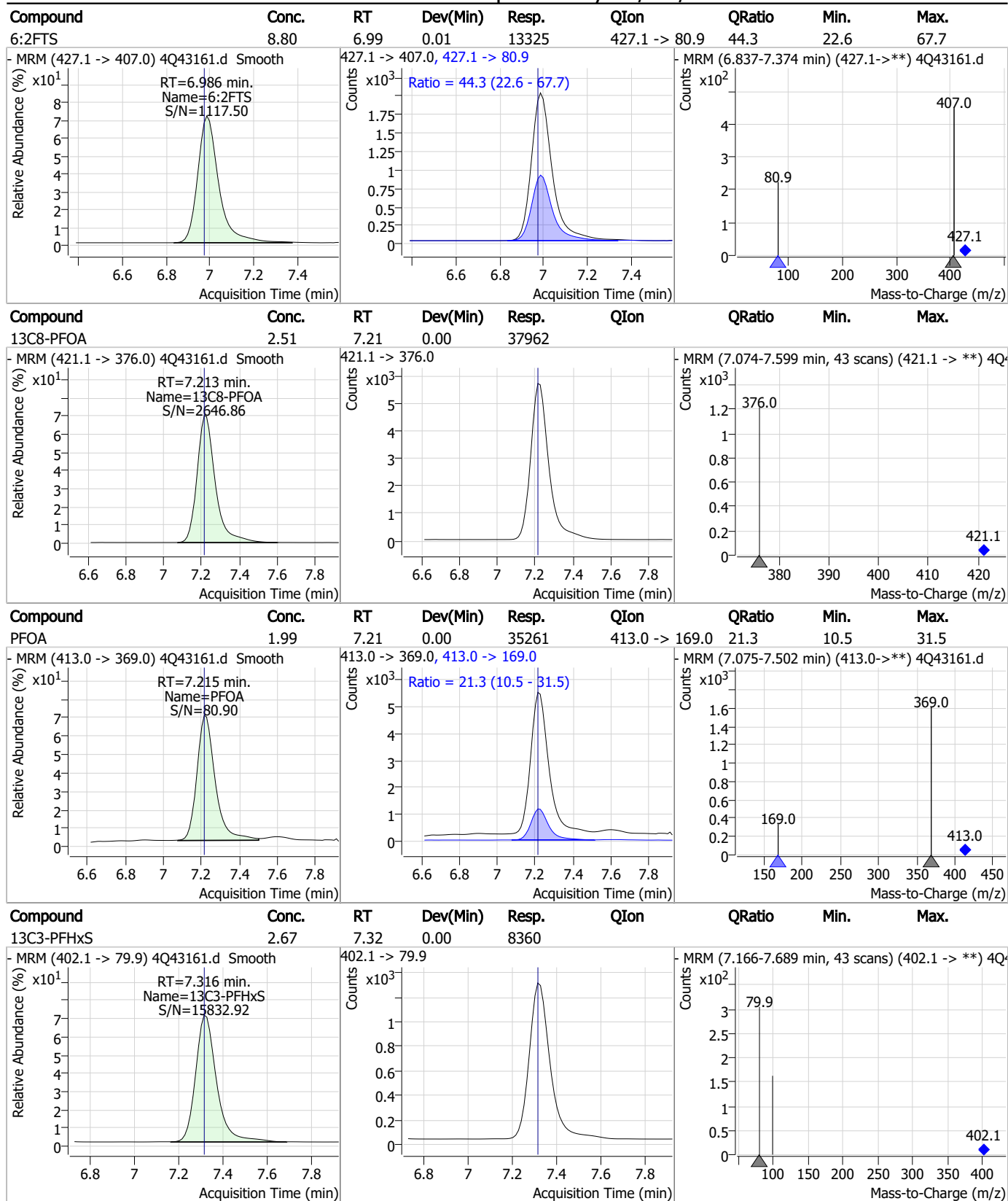


Perfluorinated Compounds by LC/MS/MS



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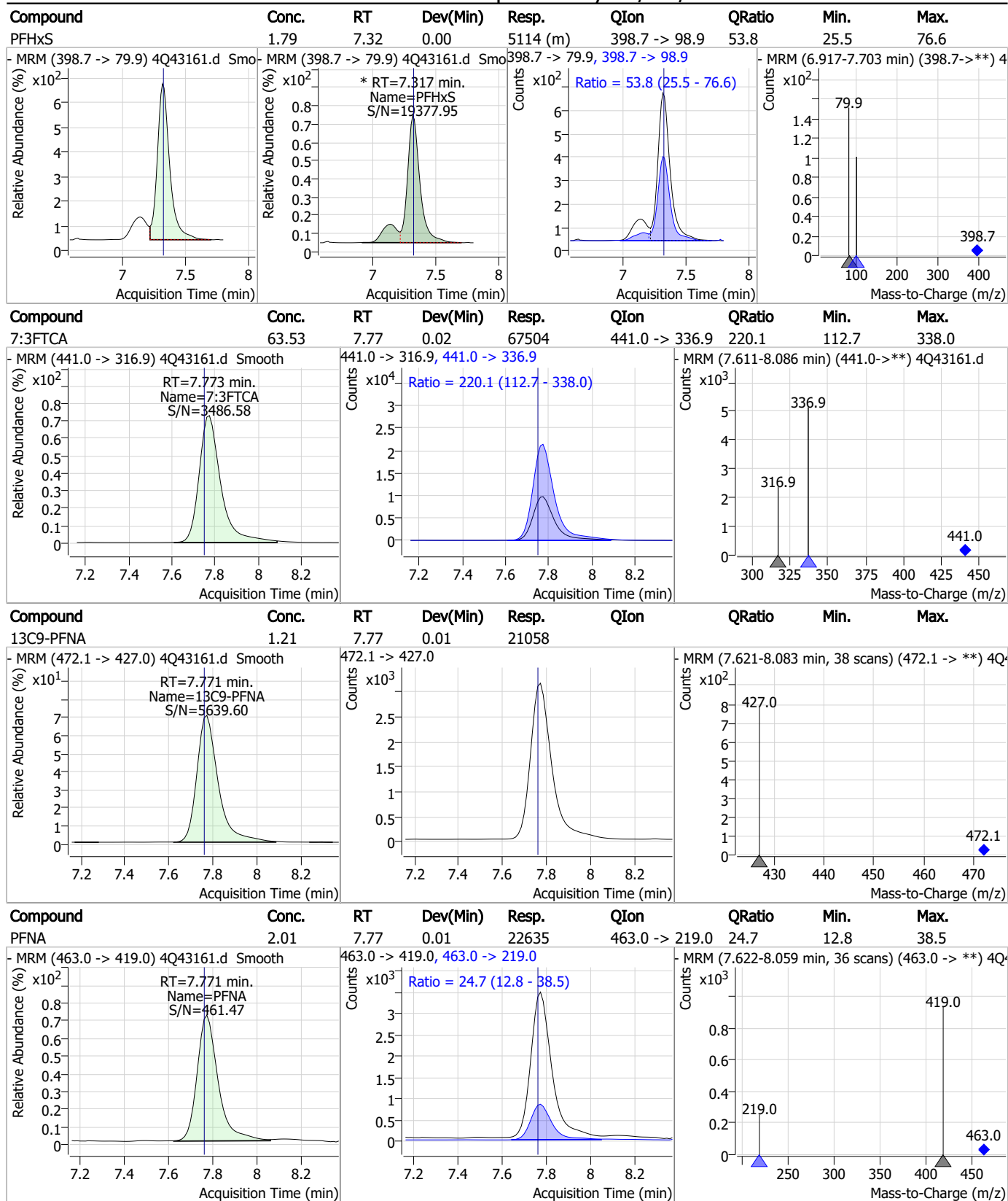
Perfluorinated Compounds by LC/MS/MS



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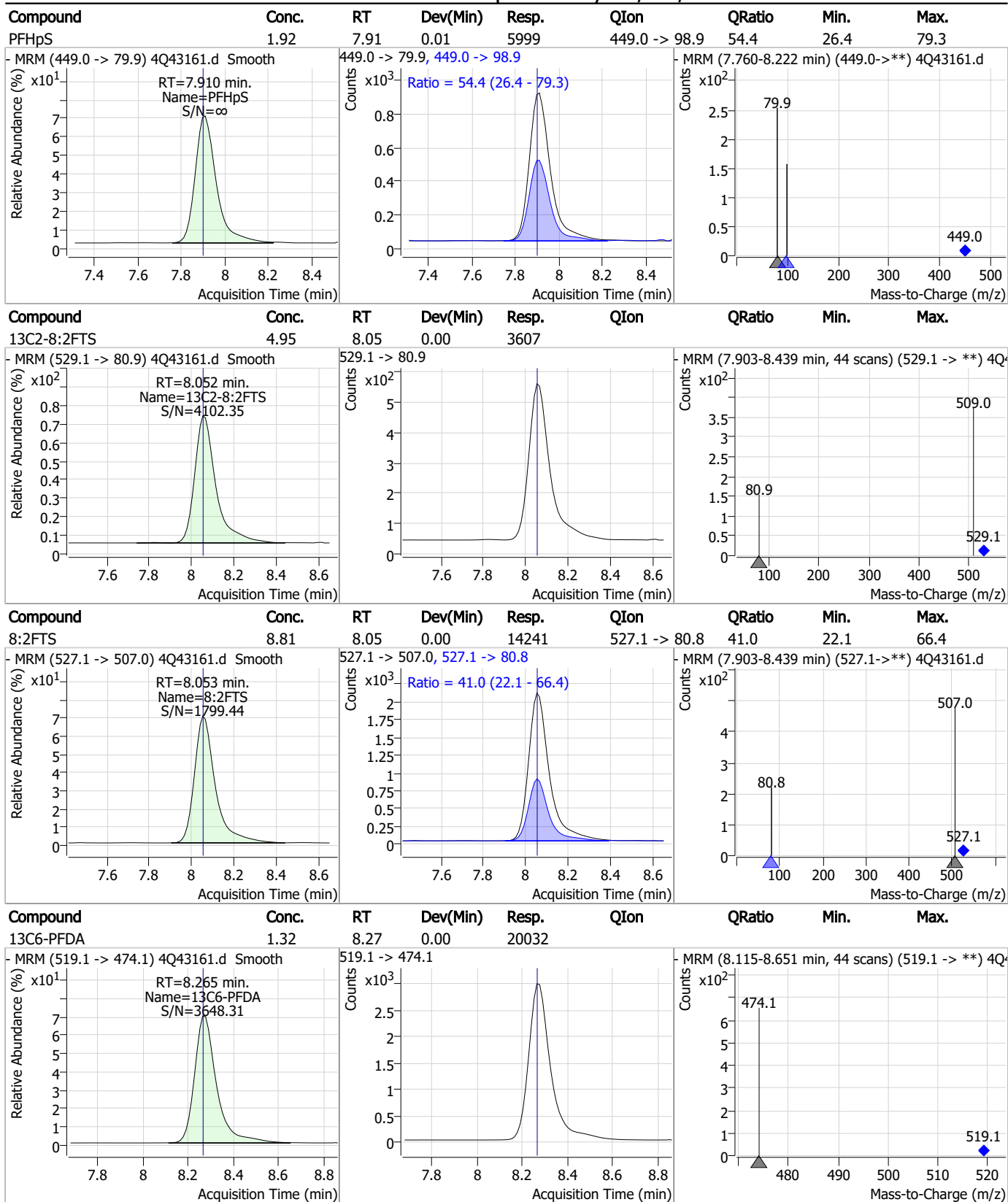


Perfluorinated Compounds by LC/MS/MS



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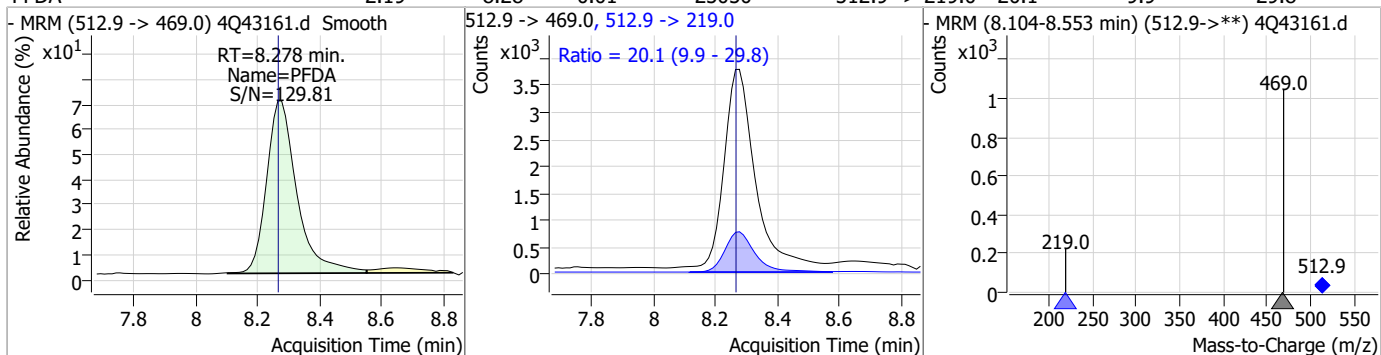
Perfluorinated Compounds by LC/MS/MS



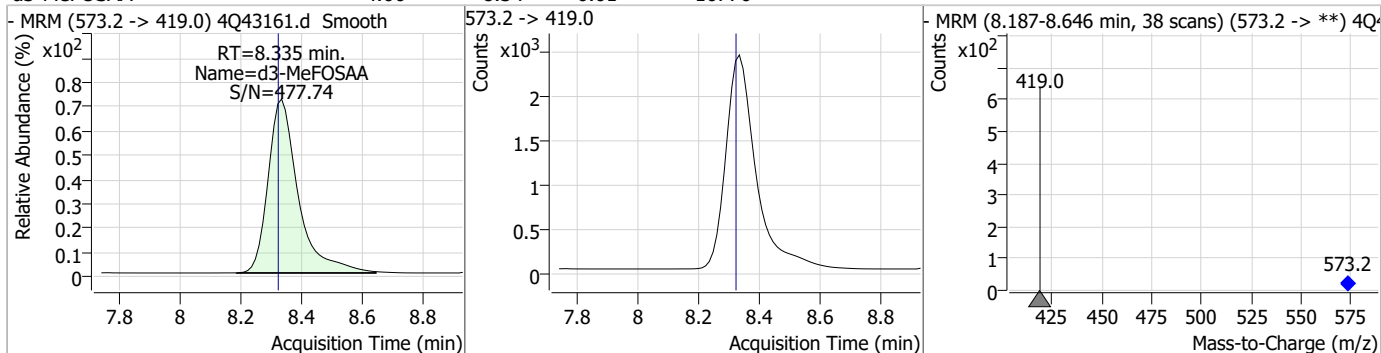
7.7.14

Perfluorinated Compounds by LC/MS/MS

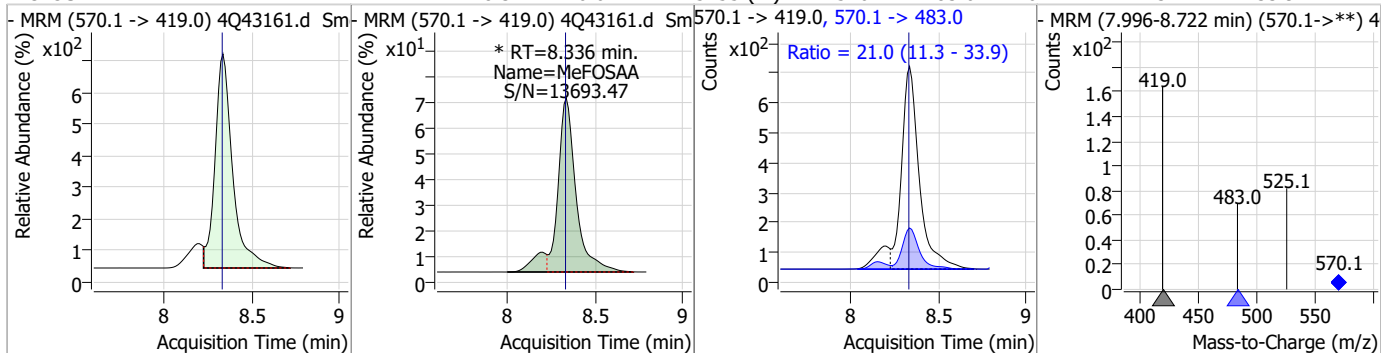
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.19	8.28	0.01	25050	512.9 -> 219.0	20.1	9.9	29.8



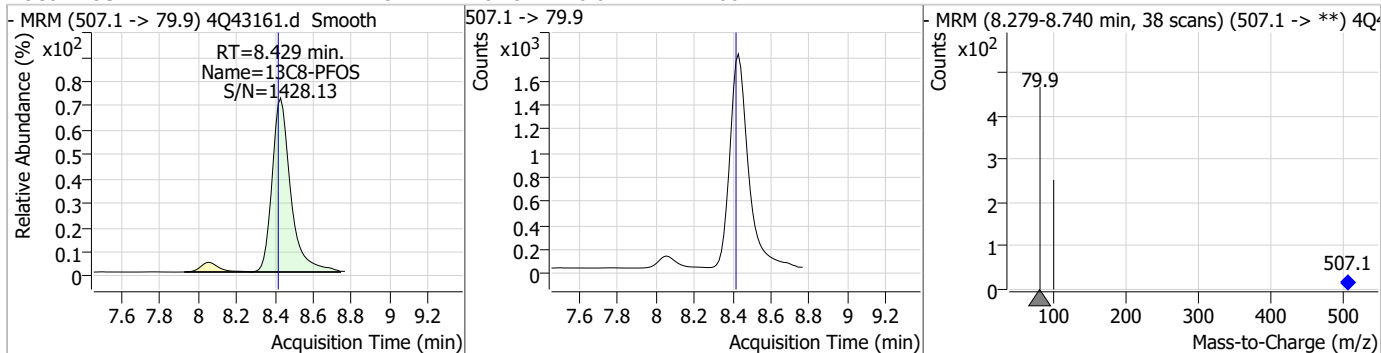
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.66	8.34	0.01	16770				



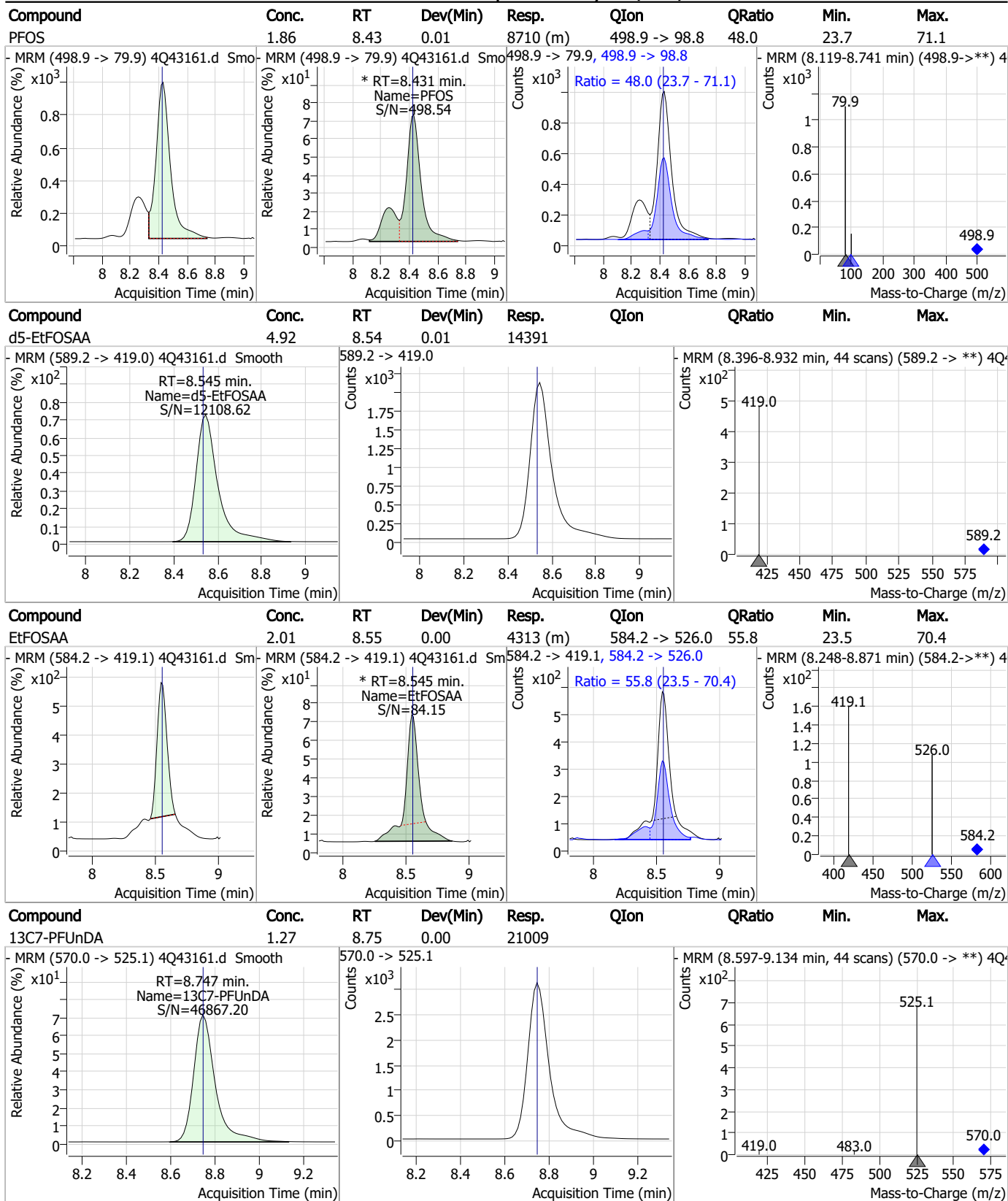
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.27	8.34	0.01	5255 (m)	570.1 -> 483.0	21.0	11.3	33.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.54	8.43	0.01	12004				

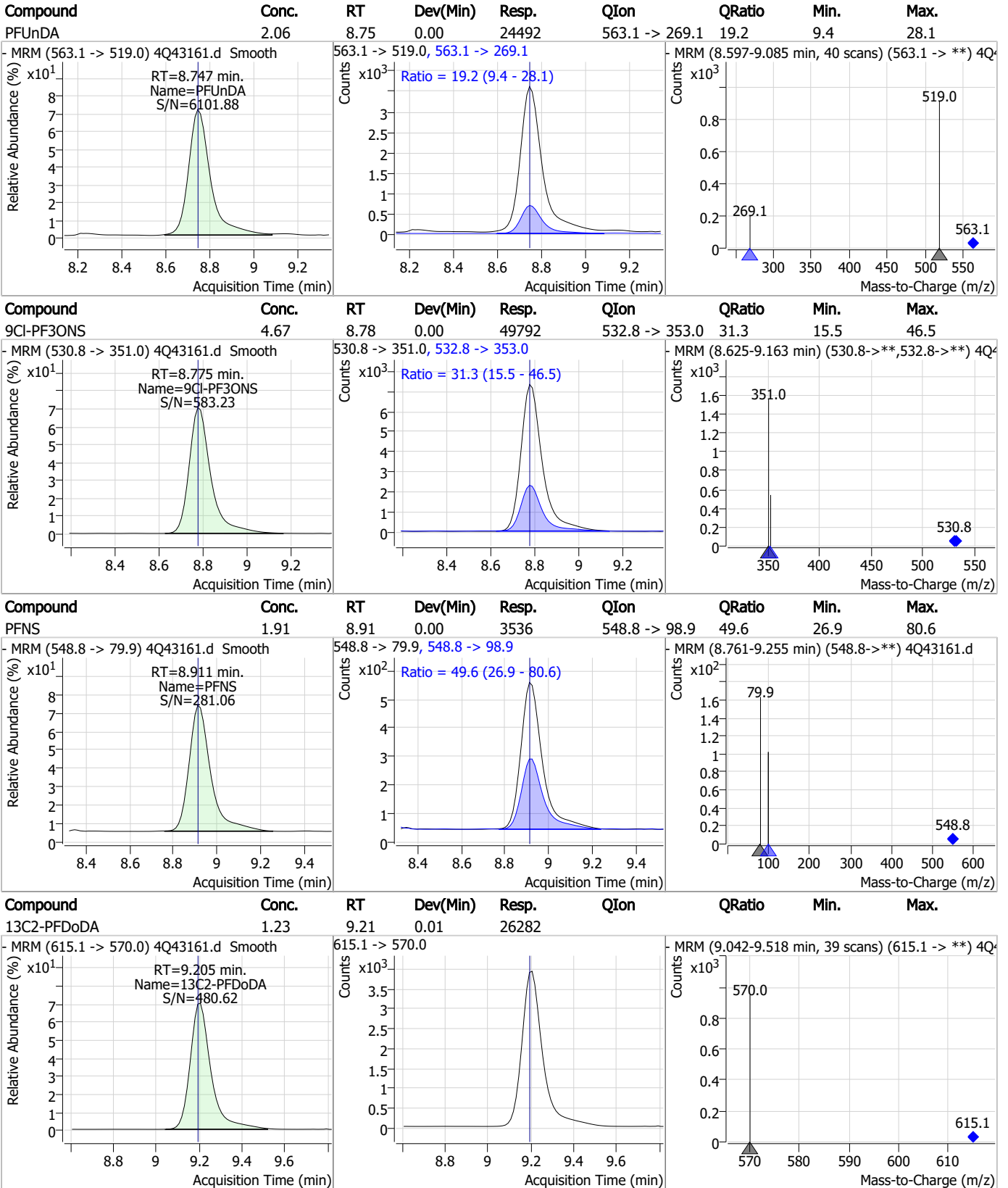


Perfluorinated Compounds by LC/MS/MS



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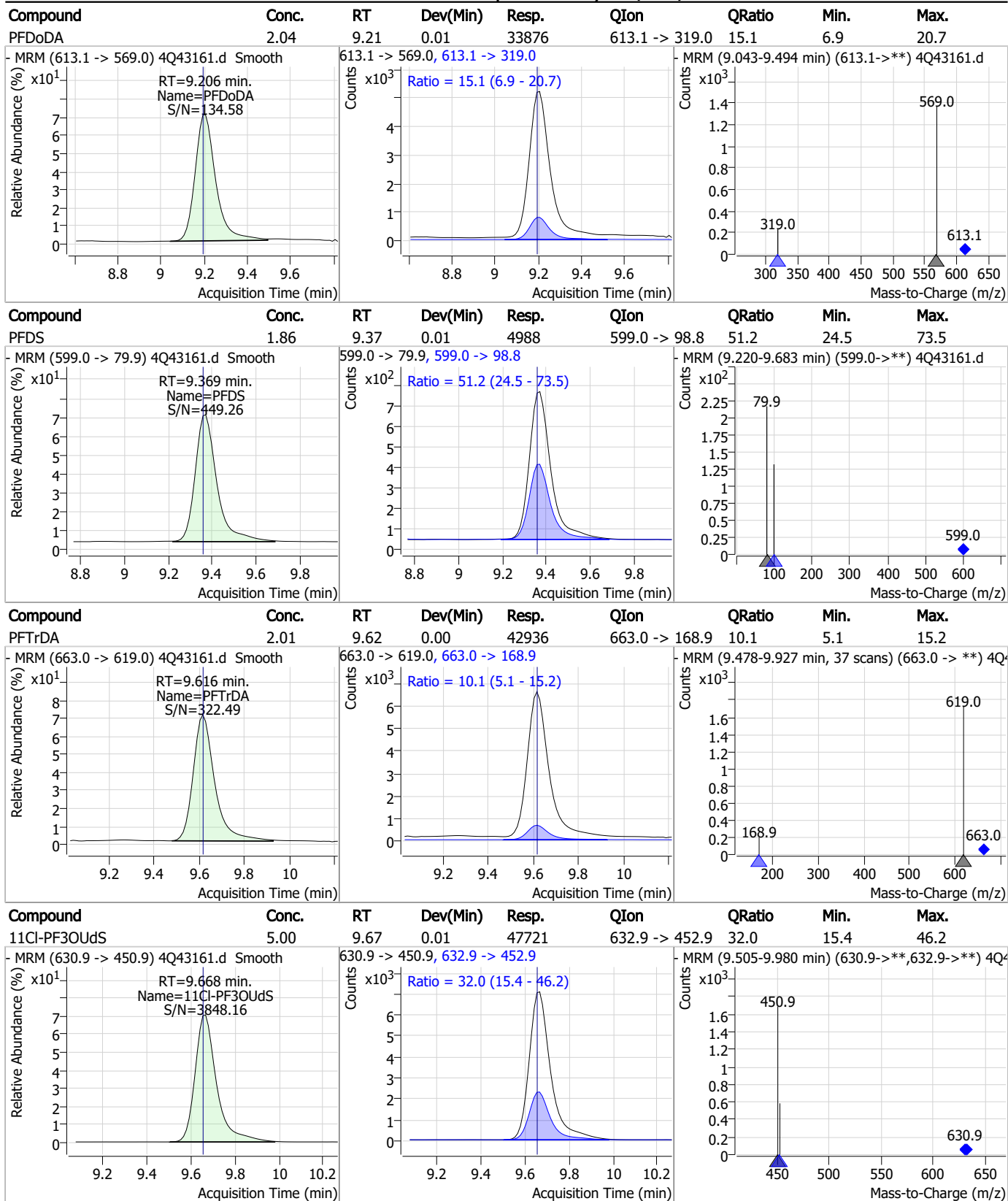
Perfluorinated Compounds by LC/MS/MS



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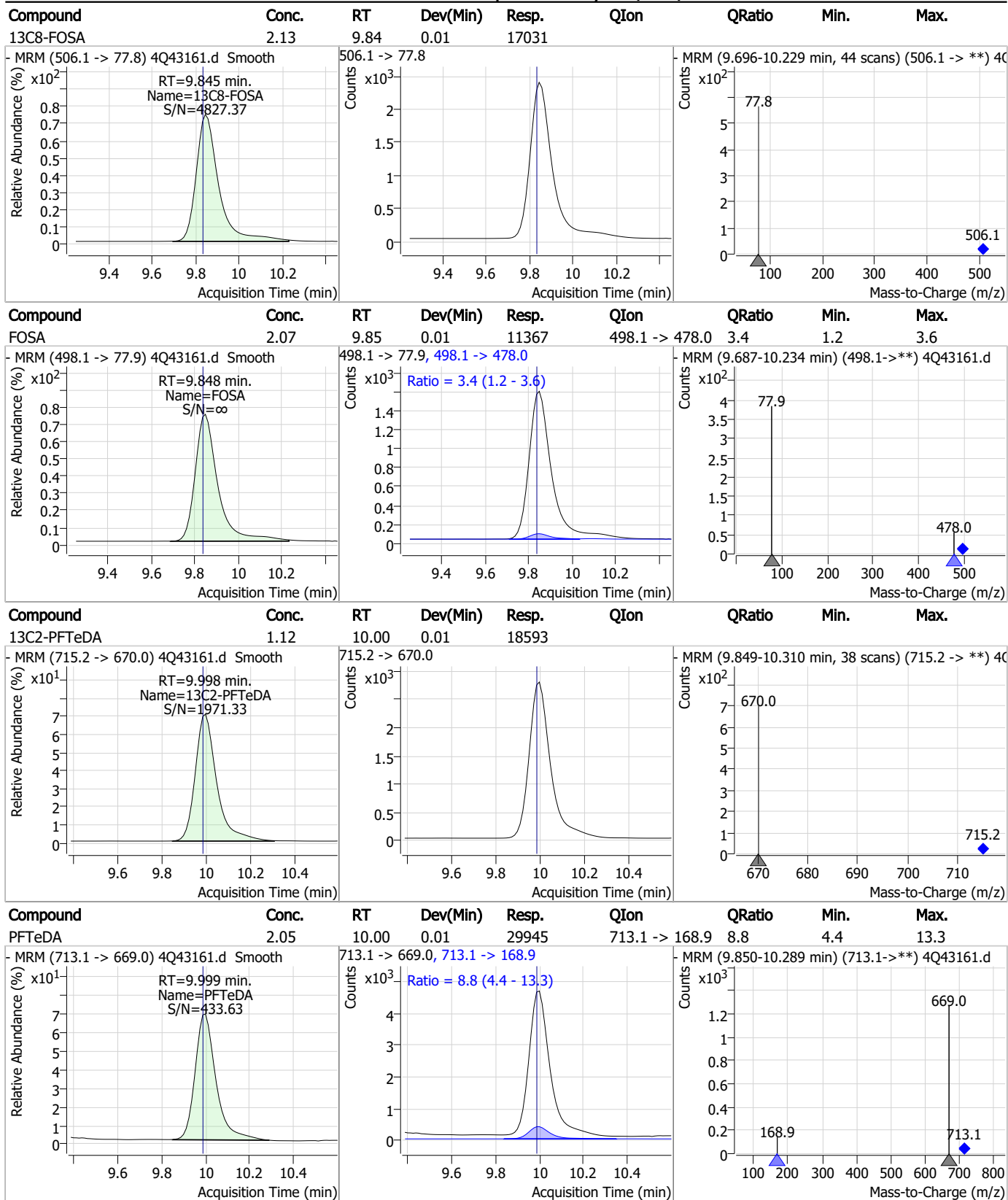


Perfluorinated Compounds by LC/MS/MS



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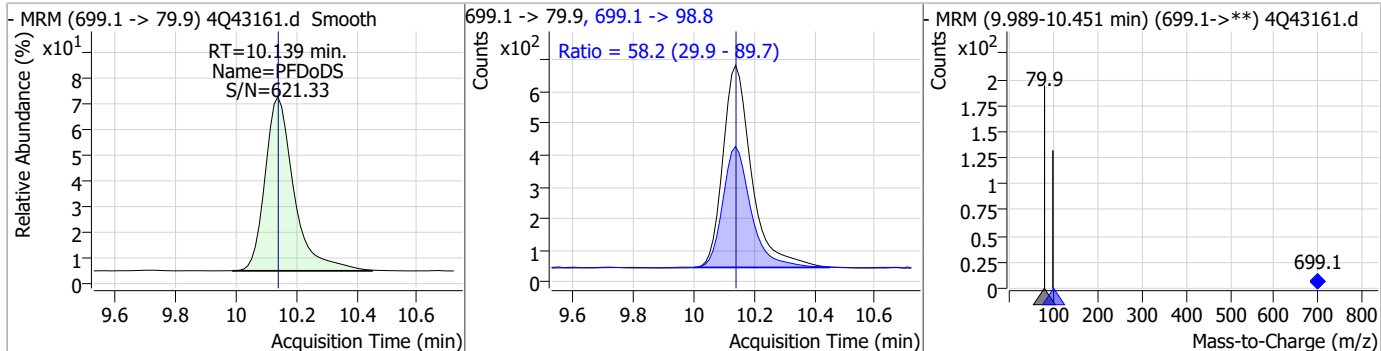
Perfluorinated Compounds by LC/MS/MS



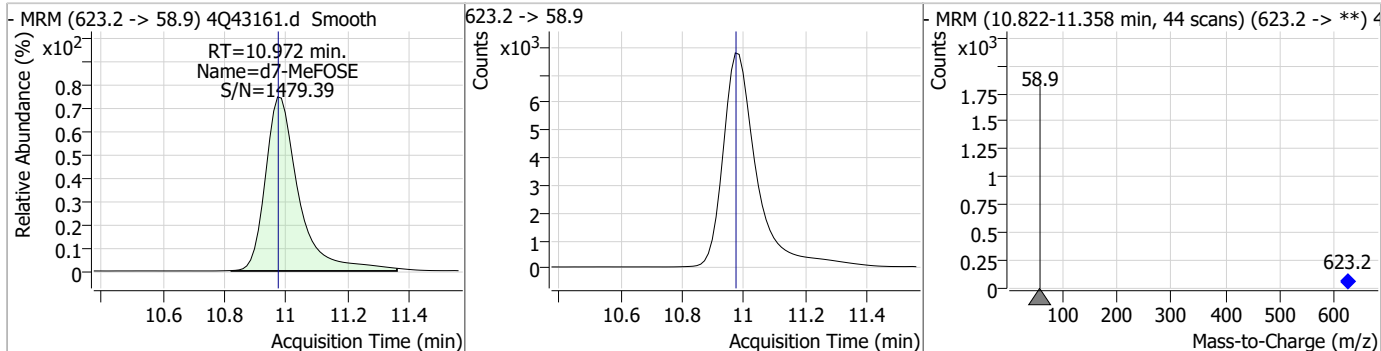
7.7.14
7

Perfluorinated Compounds by LC/MS/MS

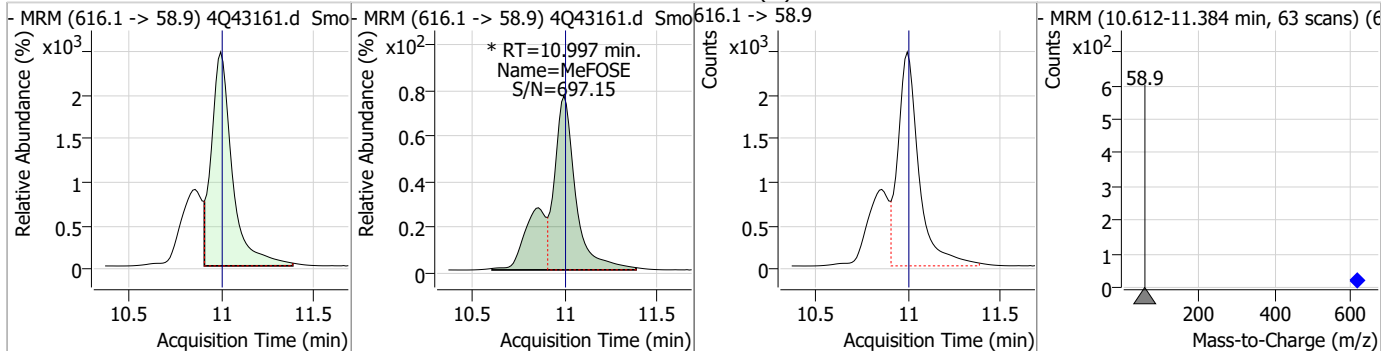
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.83	10.14	0.00	4248	699.1 -> 98.8	58.2	29.9	89.7



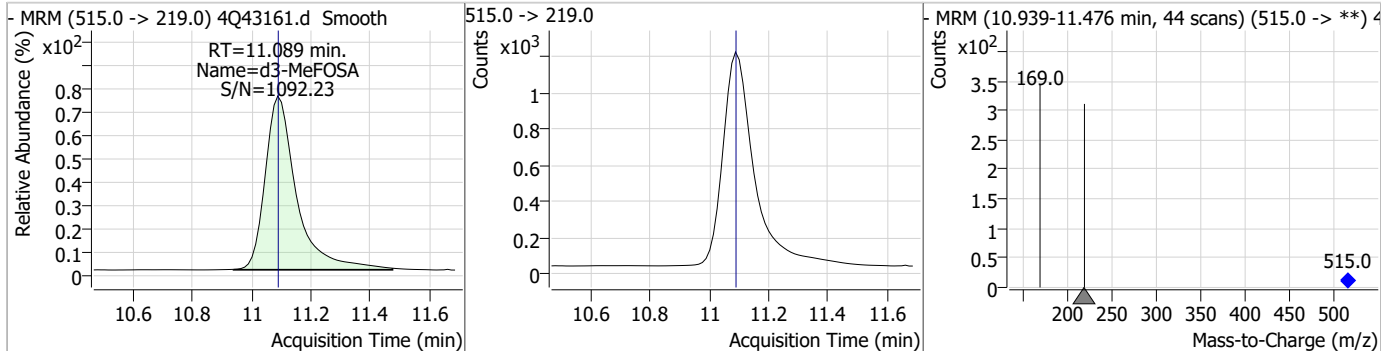
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	18.48	10.97	0.00	58204				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.77	11.00	0.00	26121 (m)				

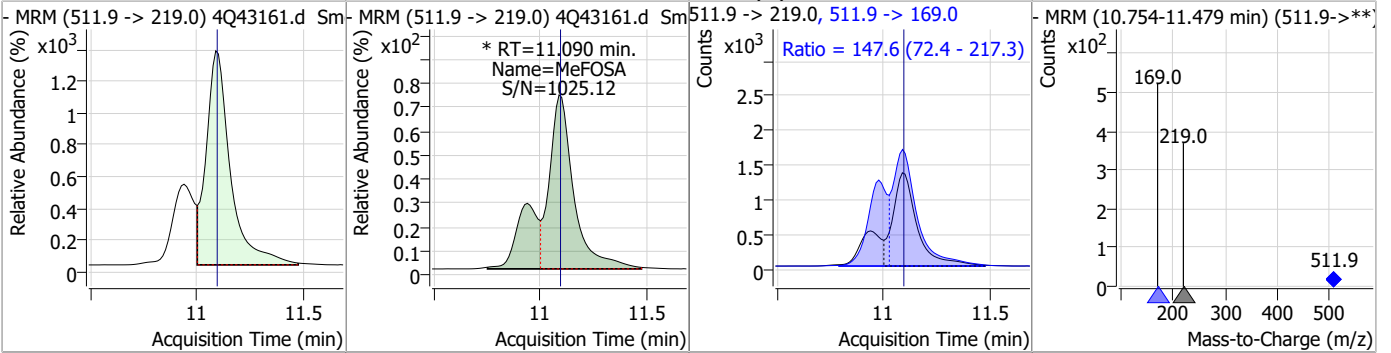


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.30	11.09	0.00	8695				

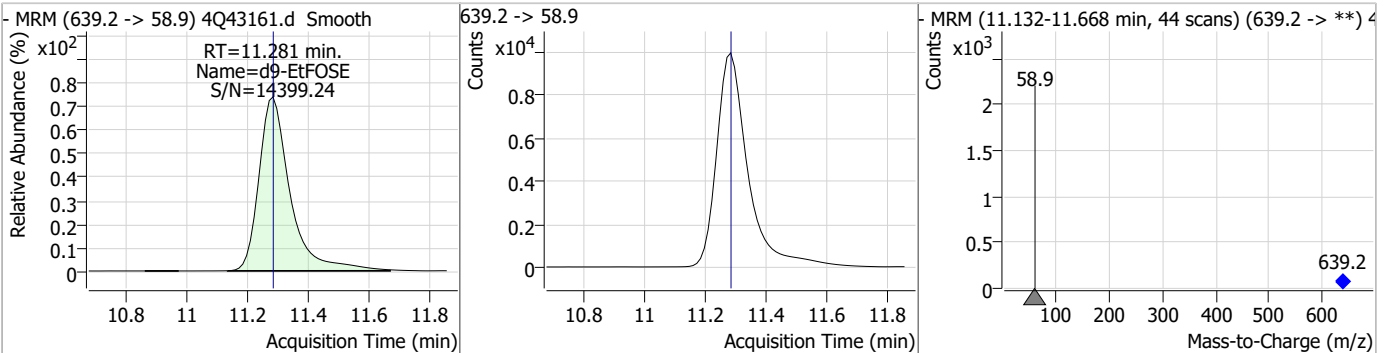


Perfluorinated Compounds by LC/MS/MS

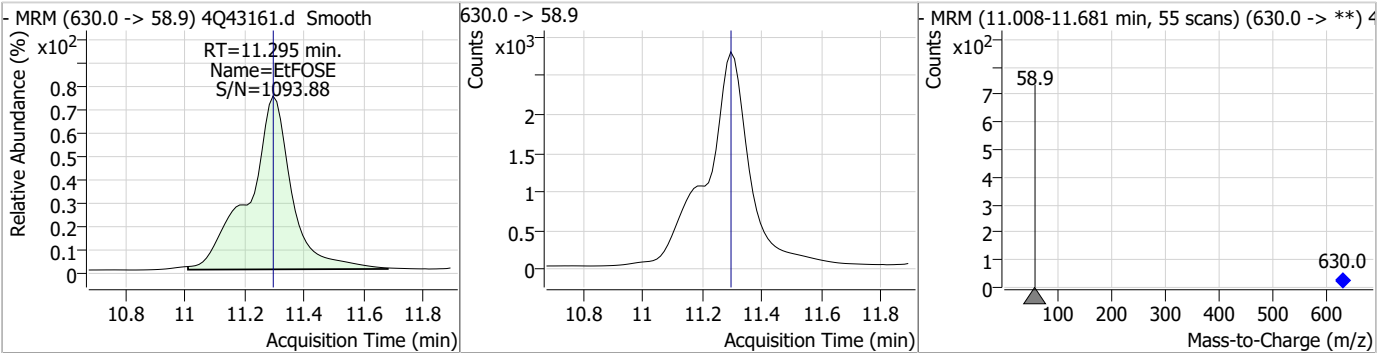
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.08	11.09	0.00	14293 (m)	511.9 -> 169.0	147.6	72.4	217.3



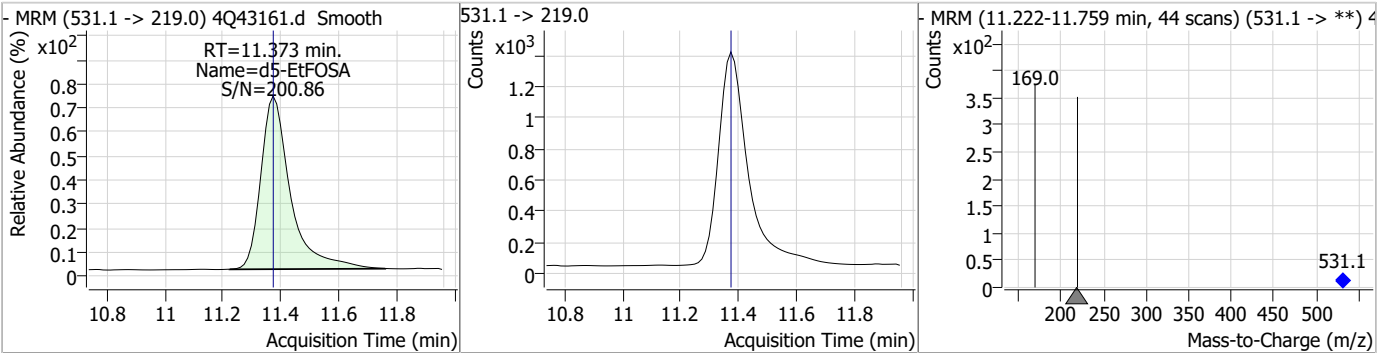
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	18.42	11.28	0.00	70991				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.73	11.29	0.00	27851				

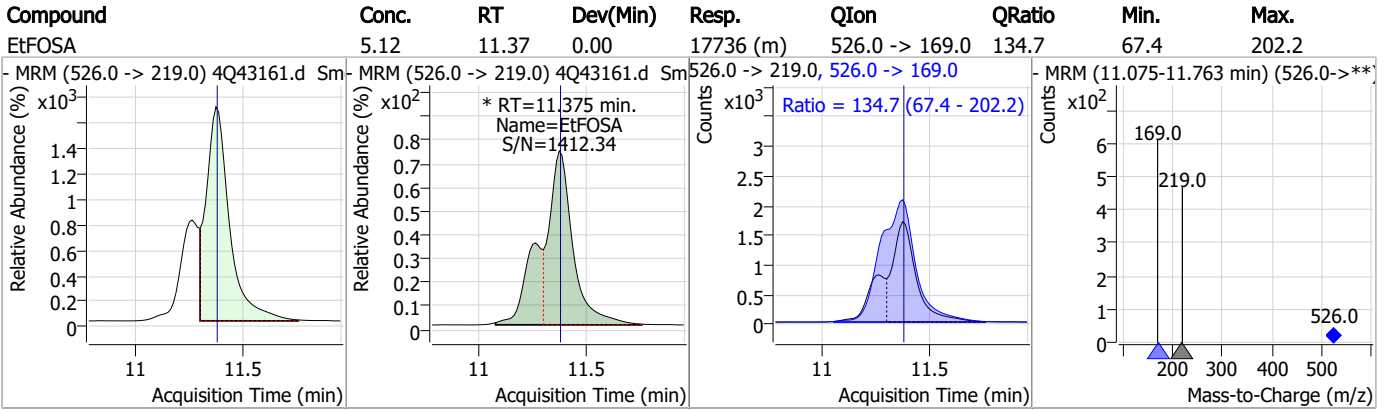


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.38	11.37	0.00	9718				



7.7.14
7

Perfluorinated Compounds by LC/MS/MS



7.7.14

7

Manual Integration Approval Summary

Sample Number: S4Q624-CC621 Method: EPA DRAFT 1633
Lab FileID: 4Q43161.D Analyst approved: 04/19/23 13:20 Martha Valls
Injection Time: 04/18/23 14:29 Supervisor approved: 04/19/23 16:26 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
MeFOSAA	2355-31-9		8.34	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak
EtFOSAA	2991-50-6		8.54	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.7.14.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43173.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 5:17:53 PM
 Sample Name : cc621-4
 Vial : P1-A5
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96296,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.961	216.8 -> 171.9	139131	10.00 µg/L	0.000
M5-PFPeA	4.449	268.3 -> 223.0	76849	5.00 µg/L	0.000
M5-PFHxA	5.634	318.0 -> 273.0	62106	2.50 µg/L	0.012
M4-PFHpA	6.555	367.1 -> 322.0	31429	2.50 µg/L	0.000
M8-PFOA	7.213	421.1 -> 376.0	36923	2.50 µg/L	0.000
M9-PFNA	7.771	472.1 -> 427.0	20726	1.25 µg/L	0.012
M6-PFDA	8.265	519.1 -> 474.1	20118	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	20979	1.25 µg/L	-0.001
M2-PFDoDA	9.205	615.1 -> 570.0	27442	1.25 µg/L	0.011
M2-PFTeDA	9.998	715.2 -> 670.0	19256	1.25 µg/L	0.011
M8-FOSA	9.845	506.1 -> 77.8	16591	2.50 µg/L	0.011
M3-PFBS	5.539	302.1 -> 79.9	13200	2.50 µg/L	0.012
M3-PFHxS	7.316	402.1 -> 79.9	7887	2.50 µg/L	-0.001
M8-PFOS	8.429	507.1 -> 79.9	11528	2.50 µg/L	0.012
M2-4:2FTS	5.322	329.1 -> 80.9	1722	5.00 µg/L	0.013
M2-6:2FTS	6.985	429.1 -> 80.9	2393	5.00 µg/L	0.012
M2-8:2FTS	8.052	529.1 -> 80.9	3734	5.00 µg/L	-0.001
M3-MeFOSAA	8.335	573.2 -> 419.0	18058	5.00 µg/L	0.011
M3-HFPO-DA	5.989	286.9 -> 168.9	36613	10.00 µg/L	0.000
M5-EtFOSAA	8.545	589.2 -> 419.0	15414	5.00 µg/L	0.011
M7-MeFOSE	10.984	623.2 -> 58.9	59346	25.00 µg/L	0.010
M9-EtFOSE	11.281	639.2 -> 58.9	73584	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	9949	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	8985	2.50 µg/L	-0.002
13C4-PFOS	8.430	502.8 -> 79.9	12351	2.50 µg/L	0.012
13C3-PFBA	2.966	216.0 -> 172.0	76007	5.00 µg/L	0.000
18O2-PFHxS	7.315	403.0 -> 83.9	5372	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	46607	2.50 µg/L	0.000
13C2-PFDA	8.278	515.1 -> 470.1	18434	1.25 µg/L	0.011
13C5-PFNA	7.771	468.0 -> 423.0	23176	1.25 µg/L	0.012
13C2-PFHxA	5.635	315.1 -> 270.0	53084	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.322	329.1 -> 80.9	1722	5.87 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.3%		
13C2-6:2FTS	6.985	429.1 -> 80.9	2393	5.68 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.6%		
13C2-8:2FTS	8.052	529.1 -> 80.9	3734	5.39 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.8%		
13C2-PFDoDA	9.205	615.1 -> 570.0	27442	1.21 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C2-PFTeDA	9.998	715.2 -> 670.0	19256	1.09 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.2%		
13C3-PFBS	5.539	302.1 -> 79.9	13200	2.67 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C3-PFHxS	7.316	402.1 -> 79.9	7887	2.65 µg/L	-0.001

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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	2.961	216.8 -> 171.9	139131	10.51 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C4-PFHpA	6.555	367.1 -> 322.0	31429	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C5-PFHxA	5.634	318.0 -> 273.0	62106	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C5-PFPeA	4.449	268.3 -> 223.0	76849	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C6-PFDA	8.265	519.1 -> 474.1	20118	1.24 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C7-PFUnDA	8.747	570.0 -> 525.1	20979	1.19 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C8-FOSA	9.845	506.1 -> 77.8	16591	2.05 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.2%	
13C8-PFOA	7.213	421.1 -> 376.0	36923	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C8-PFOS	8.429	507.1 -> 79.9	11528	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C9-PFNA	7.771	472.1 -> 427.0	20726	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.2%	
d3-MeFOSAA	8.335	573.2 -> 419.0	18058	4.96 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	36613	9.83 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
d3-MeFOSA	11.089	515.0 -> 219.0	8985	2.35 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.0%	
d5-EtFOSAA	8.545	589.2 -> 419.0	15414	5.21 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
d7-MeFOSE	10.984	623.2 -> 58.9	59346	18.63 µg/L	0.010
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.5%	
d9-EtFOSE	11.281	639.2 -> 58.9	73584	18.88 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.5%	
d5-EtFOSA	11.373	531.1 -> 219.0	9949	2.41 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
Target Compounds					QValue
4:2FTS	5.311	327.1 -> 307.0	16243	7.57 µg/L	98
		327.1 -> 80.9	7028		
6:2FTS	6.986	427.1 -> 407.0	13443	8.23 µg/L	96
		427.1 -> 80.9	6378		
8:2FTS	8.053	527.1 -> 507.0	14955	8.93 µg/L	96
		527.1 -> 80.8	6223		
EtFOSAA	8.545	584.2 -> 419.1	4822	2.09 µg/L	m 97
		584.2 -> 526.0	2185		
FOSA	9.848	498.1 -> 77.9	11279	2.11 µg/L	97
		498.1 -> 478.0	396		
MeFOSAA	8.336	570.1 -> 419.0	5020	2.02 µg/L	100
		570.1 -> 483.0	1136		
PFBA	2.970	212.8 -> 168.9	24639	7.75 µg/L	100
PFBS	5.540	298.7 -> 79.9	9047	1.84 µg/L	99
		298.7 -> 98.8	3715		
PFDA	8.266	512.9 -> 469.0	25921	2.25 µg/L	100
		512.9 -> 219.0	5120		
PFDODA	9.206	613.1 -> 569.0	35809	2.07 µg/L	99
		613.1 -> 319.0	5117		
PFDS	9.369	599.0 -> 79.9	4982	1.93 µg/L	95

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.555	599.0 -> 98.8	2611	2.09	µg/L	99
		363.1 -> 319.0	32697			
PFHpS	7.897	363.1 -> 169.0	5900	2.19	µg/L	93
		449.0 -> 79.9	6574			
PFHxA	5.637	449.0 -> 98.9	3142	2.00	µg/L	100
		313.0 -> 269.0	36797			
PFHxS	7.317	313.0 -> 118.9	1107	1.94	µg/L	m
		398.7 -> 79.9	5243			
PFNA	7.771	398.7 -> 98.9	2553	2.04	µg/L	99
		463.0 -> 419.0	22633			
PFNS	8.911	463.0 -> 219.0	5925	2.06	µg/L	99
		548.8 -> 79.9	3647			
PFOA	7.215	548.8 -> 98.9	1938	2.04	µg/L	99
		413.0 -> 369.0	35262			
PFOS	8.431	413.0 -> 169.0	7196	1.82	µg/L	m
		498.9 -> 79.9	8189			
PFPeA	4.452	498.9 -> 98.8	4389	4.31	µg/L	100
		263.0 -> 219.0	62711			
PFPeS	6.594	349.1 -> 79.9	4815	2.09	µg/L	99
		349.1 -> 98.9	2215			
PFTeDA	9.999	713.1 -> 669.0	30377	2.00	µg/L	100
		713.1 -> 168.9	2653			
PFTrDA	9.616	663.0 -> 619.0	44511	2.00	µg/L	99
		663.0 -> 168.9	4260			
PFUnDA	8.747	563.1 -> 519.0	23400	1.97	µg/L	96
		563.1 -> 269.1	4814			
11CI-PF3OUdS	9.668	630.9 -> 450.9	50187	5.25	µg/L	98
		632.9 -> 452.9	14845			
9CI-PF3ONS	8.775	530.8 -> 351.0	50537	4.73	µg/L	100
		532.8 -> 353.0	15646			
ADONA	6.818	376.9 -> 250.9	111203	5.06	µg/L	99
		376.9 -> 84.8	29682			
HFPO-DA	6.002	284.9 -> 168.9	14007	4.83	µg/L	99
		284.9 -> 184.9	1779			
3:3FTCA	3.929	241.0 -> 177.0	9132	13.47	µg/L	98
		241.0 -> 117.0	876			
5:3FTCA	6.318	341.0 -> 237.1	171591	66.09	µg/L	97
		341.0 -> 217.0	117200			
7:3FTCA	7.761	441.0 -> 316.9	68635	64.50	µg/L	98
		441.0 -> 336.9	156838			
EtFOSA	11.387	526.0 -> 219.0	17788	5.02	µg/L	m
		526.0 -> 169.0	24123			
EtFOSE	11.295	630.0 -> 58.9	29547	13.03	µg/L	100
		511.9 -> 219.0	14935			
MeFOSA	11.090	511.9 -> 169.0	21468	5.14	µg/L	m
		616.1 -> 58.9	25844			
MeFOSE	10.997	699.1 -> 79.9	4321	12.39	µg/L	m
		699.1 -> 98.8	2542			
PFDoDS	10.139	295.0 -> 201.0	6697	1.94	µg/L	99
		295.0 -> 84.9	1502			
NFDHA	5.516	279.0 -> 85.1	43694	5.42	µg/L	93
		229.0 -> 84.9	39046			
PFMBA	4.866	314.8 -> 134.9	68878	5.25	µg/L	100
PFMPA	3.591	314.8 -> 82.9	2351	5.37	µg/L	100
PFEESA	6.071			4.46	µg/L	100

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

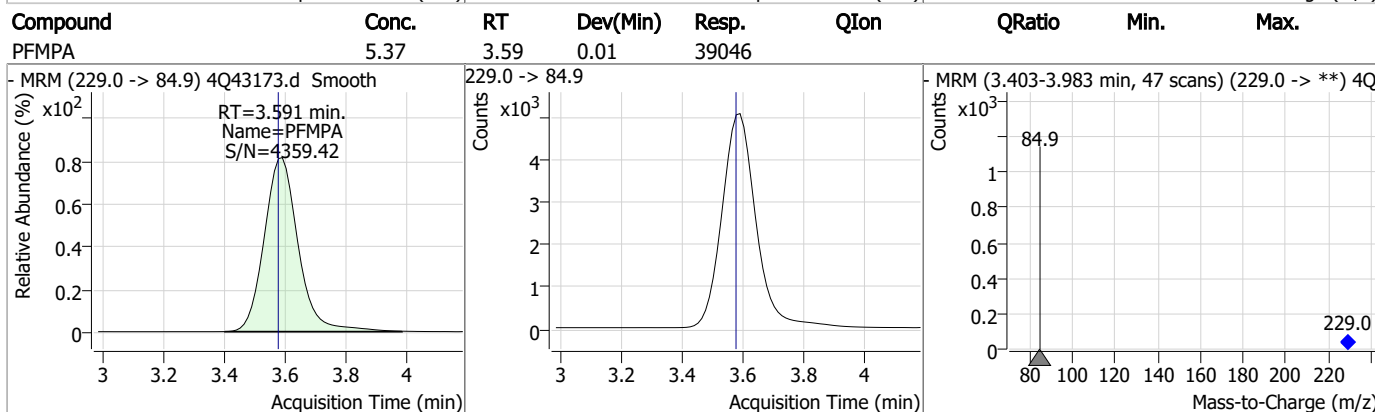
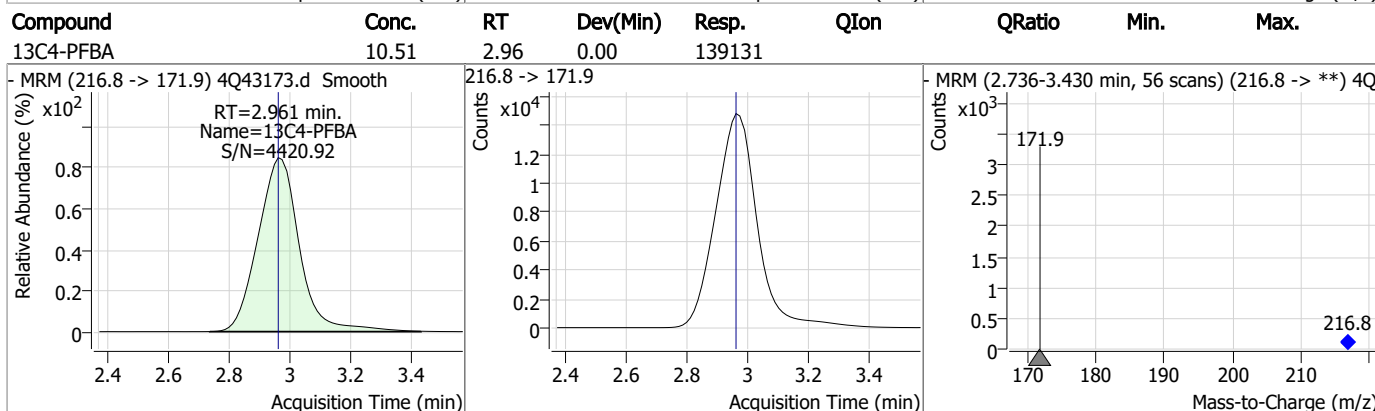
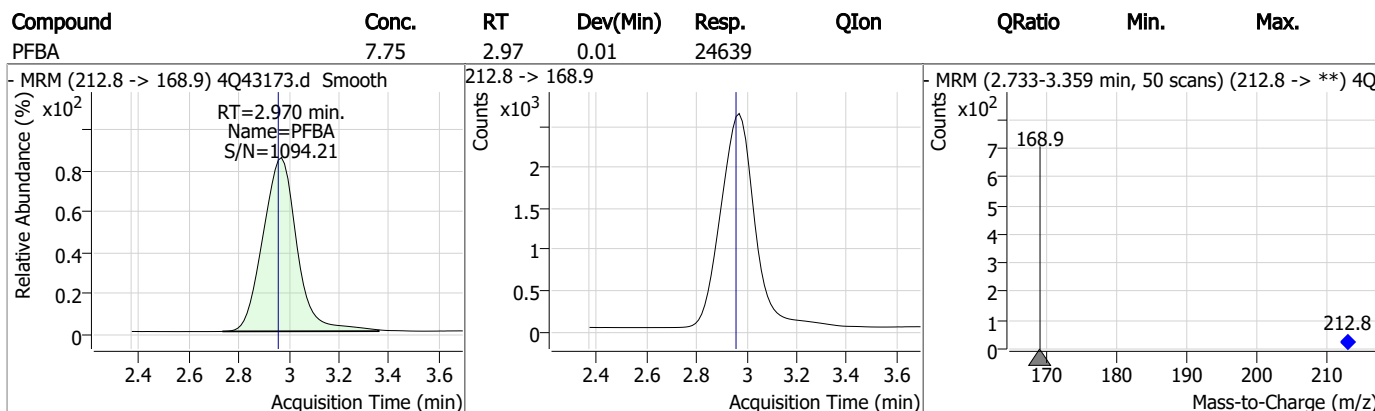
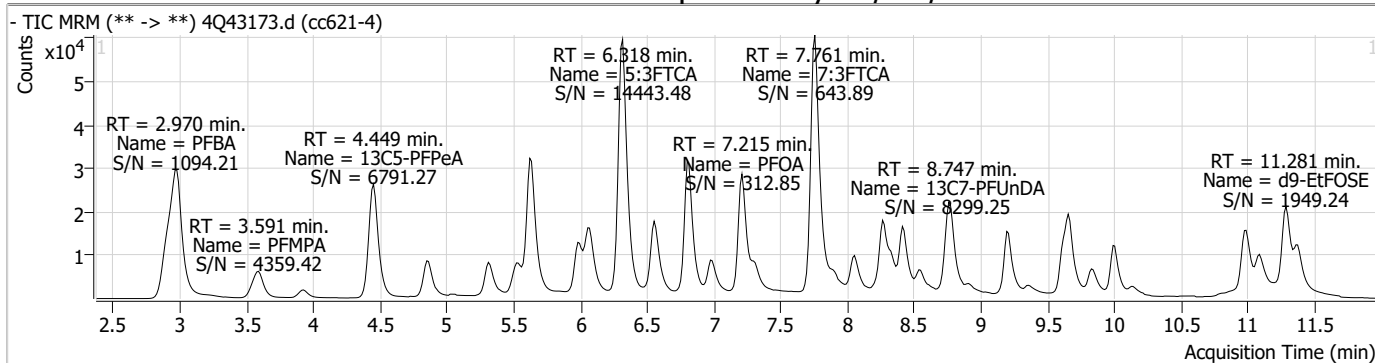
Perfluorinated Compounds by LC/MS/MS

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

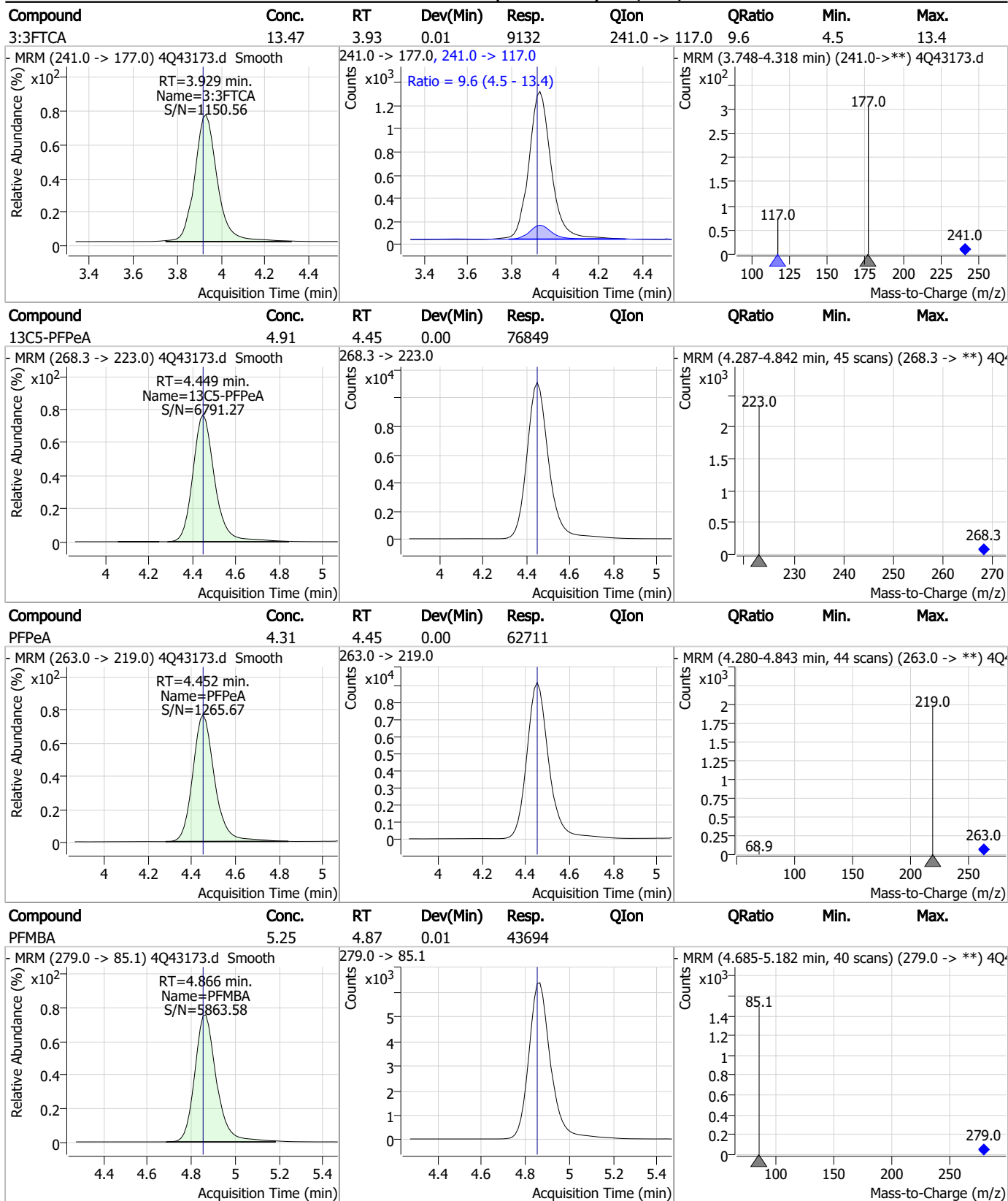
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Perfluorinated Compounds by LC/MS/MS



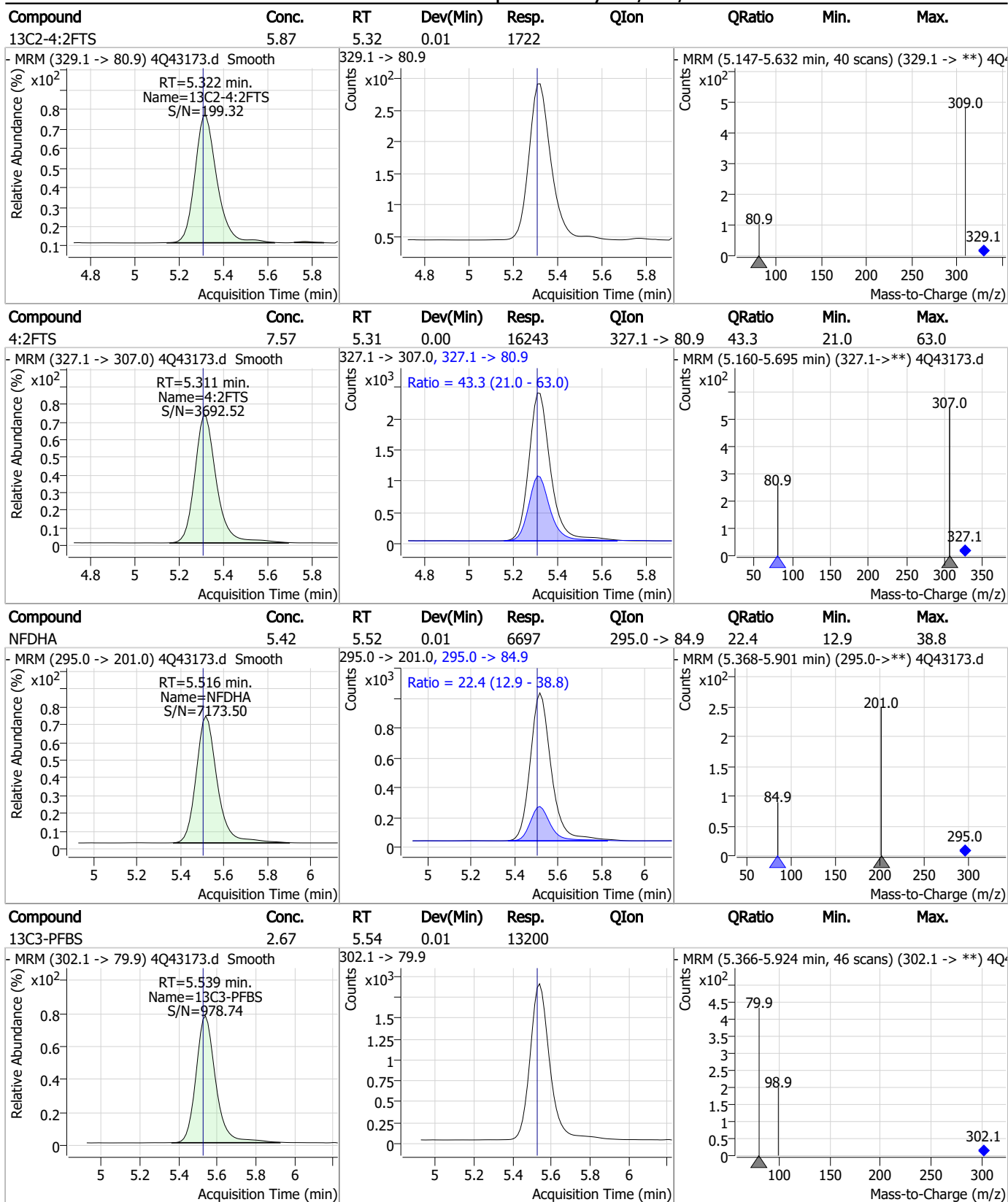
7.7.15
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Perfluorinated Compounds by LC/MS/MS



7.7.15
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Perfluorinated Compounds by LC/MS/MS

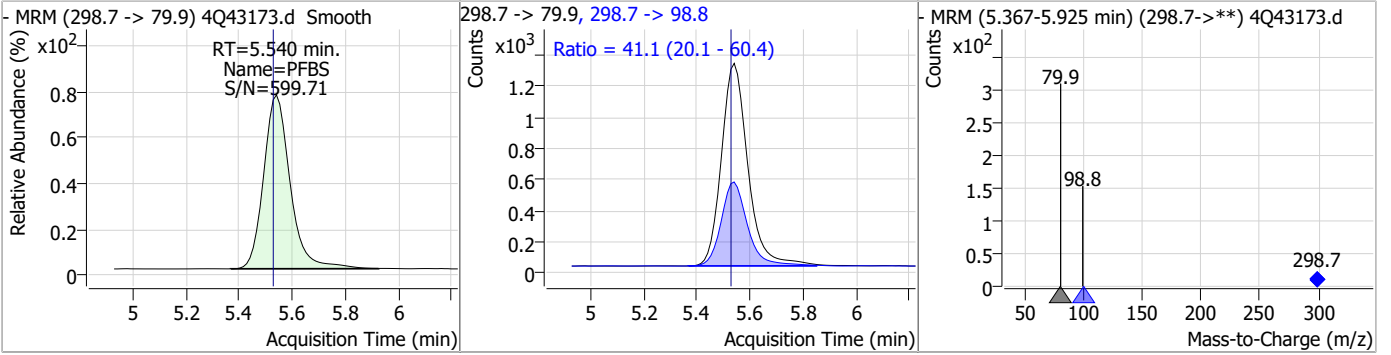


7.7.15

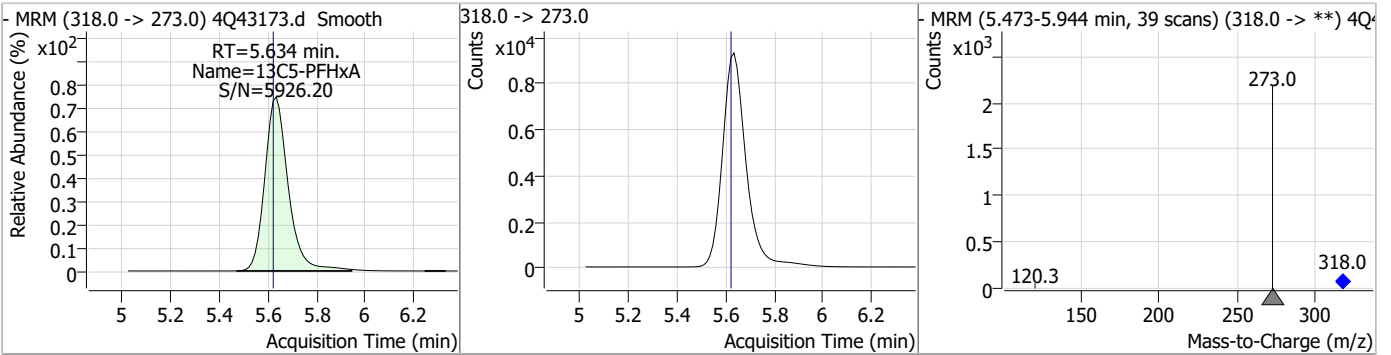
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Perfluorinated Compounds by LC/MS/MS

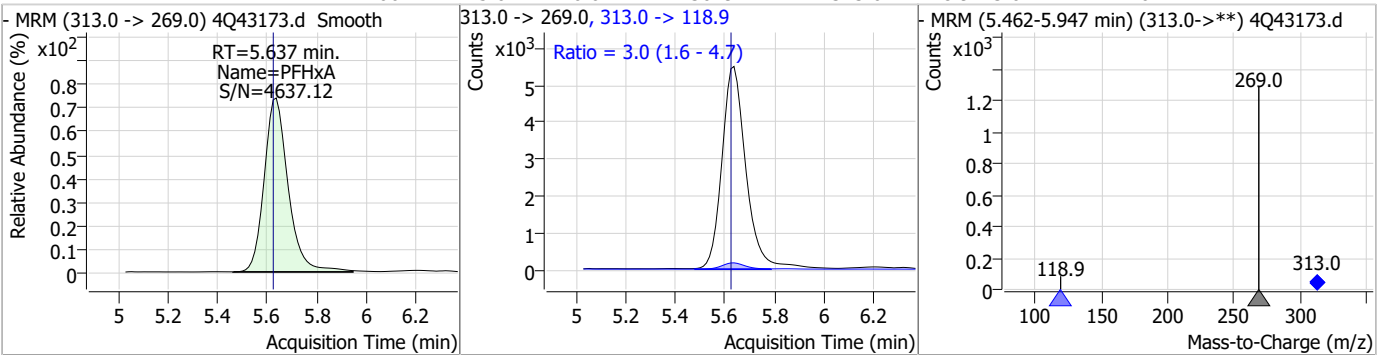
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.84	5.54	0.01	9047	298.7 -> 98.8	41.1	20.1	60.4



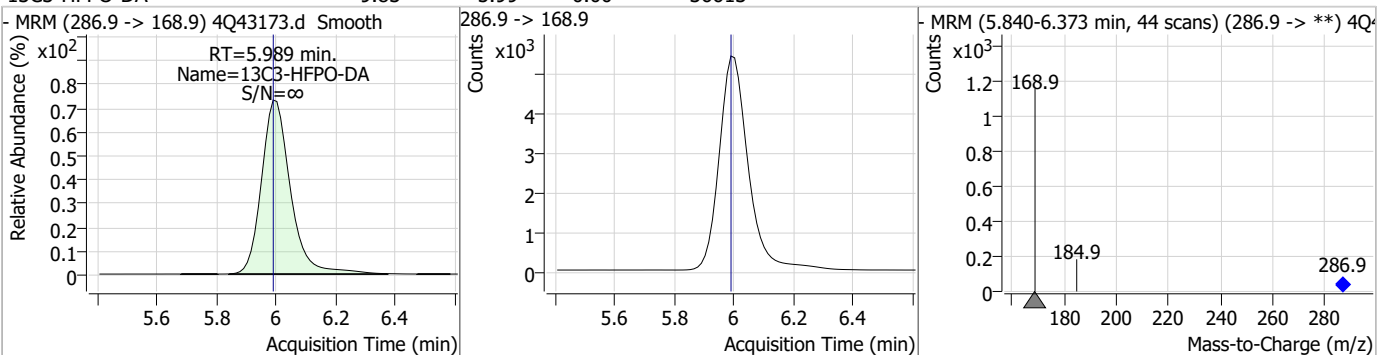
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.53	5.63	0.01	62106				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.00	5.64	0.01	36797	313.0 -> 118.9	3.0	1.6	4.7

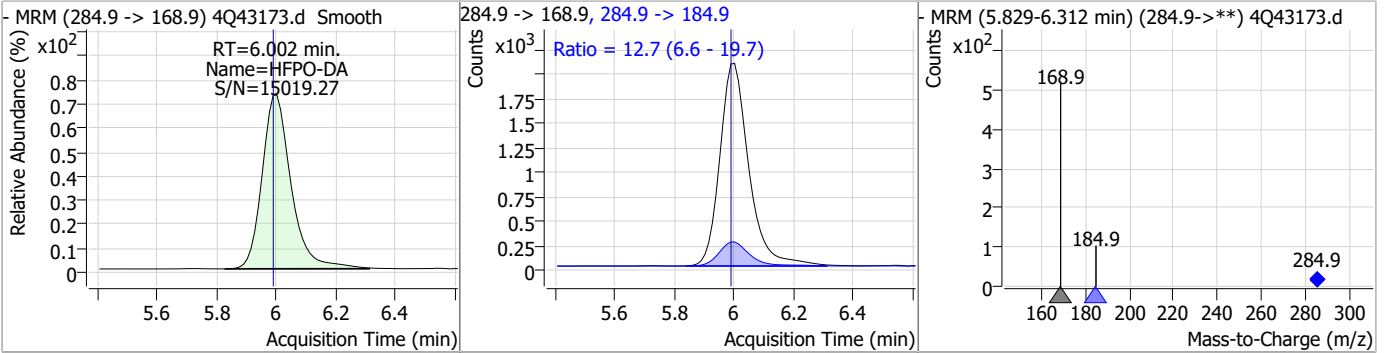


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.83	5.99	0.00	36613				

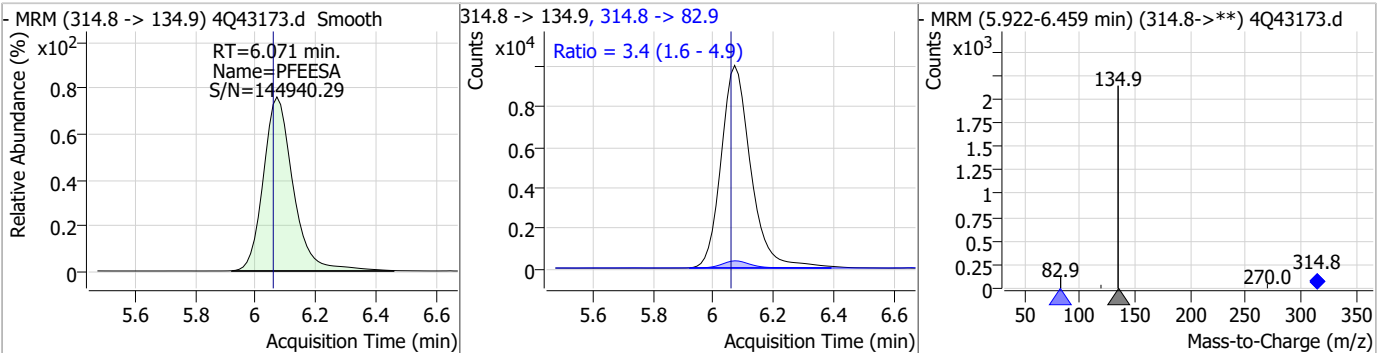


Perfluorinated Compounds by LC/MS/MS

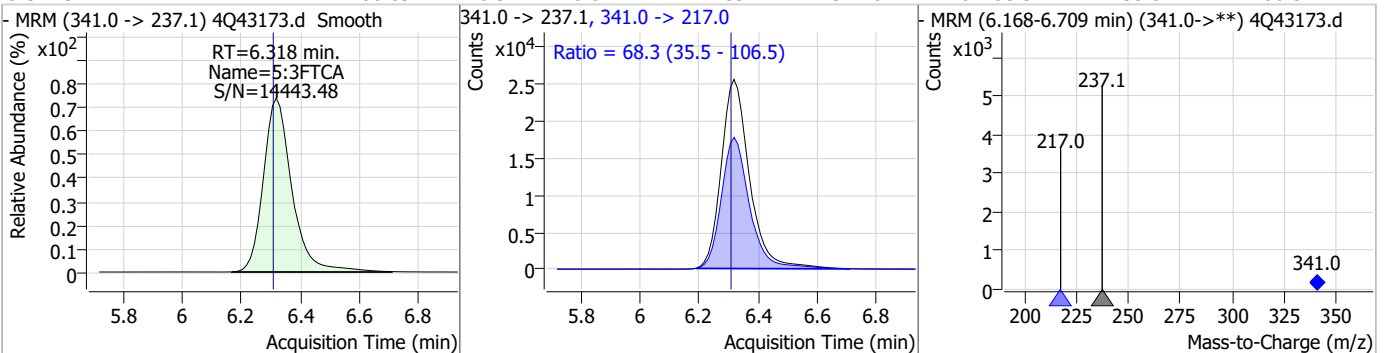
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.83	6.00	0.01	14007	284.9 -> 184.9	12.7	6.6	19.7



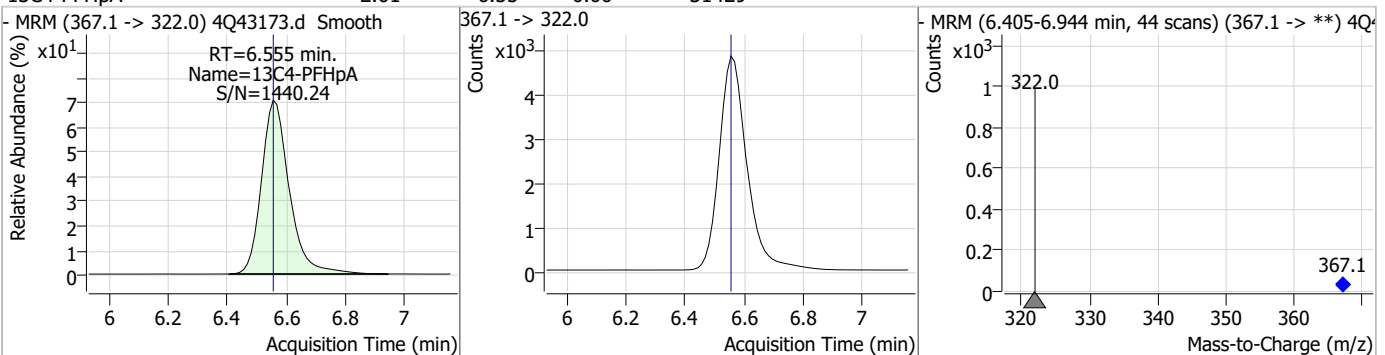
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.46	6.07	0.01	68878	314.8 -> 82.9	3.4	1.6	4.9



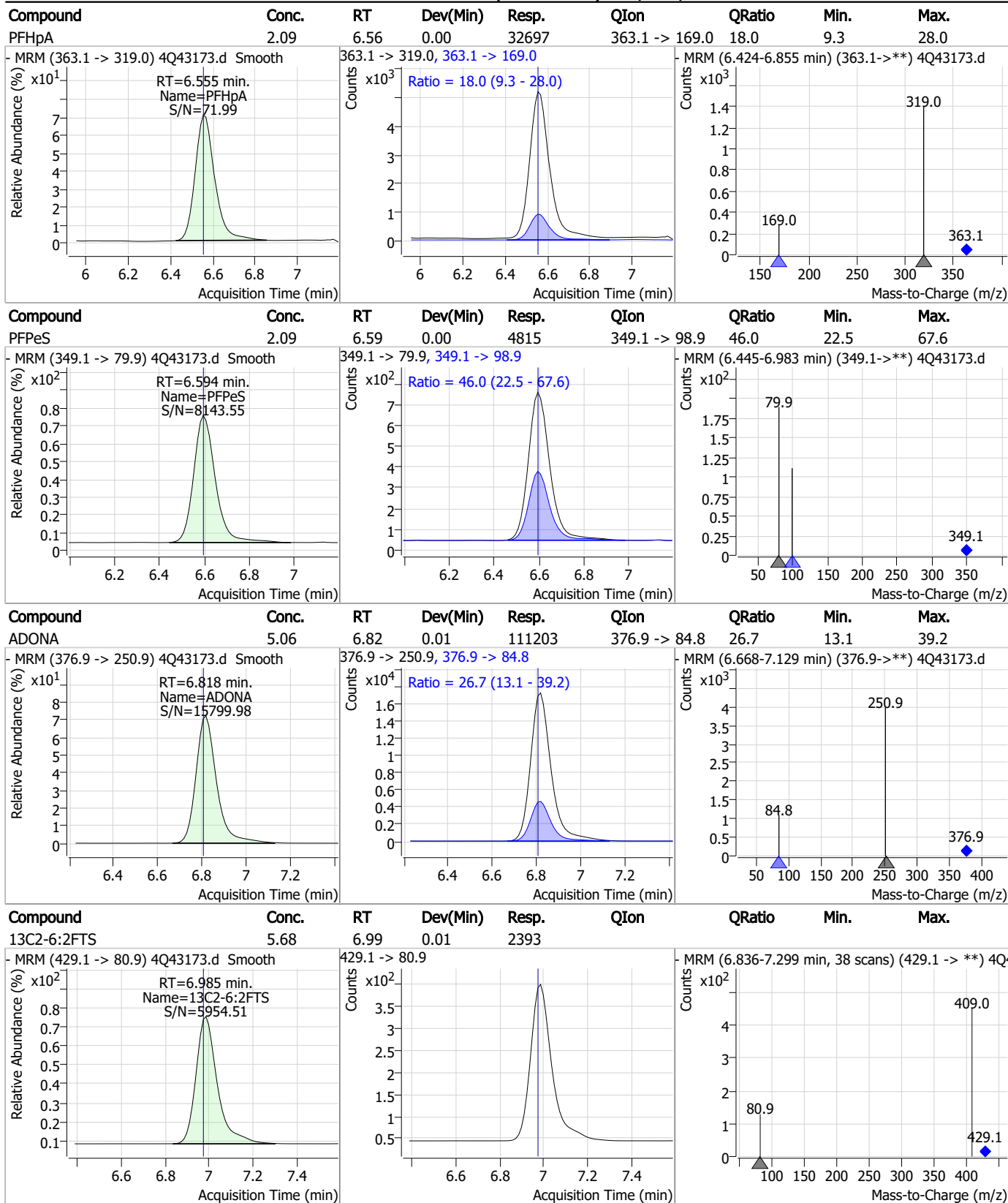
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	66.09	6.32	0.01	171591	341.0 -> 217.0	68.3	35.5	106.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.61	6.55	0.00	31429	367.1 -> 322.0	-	-	-



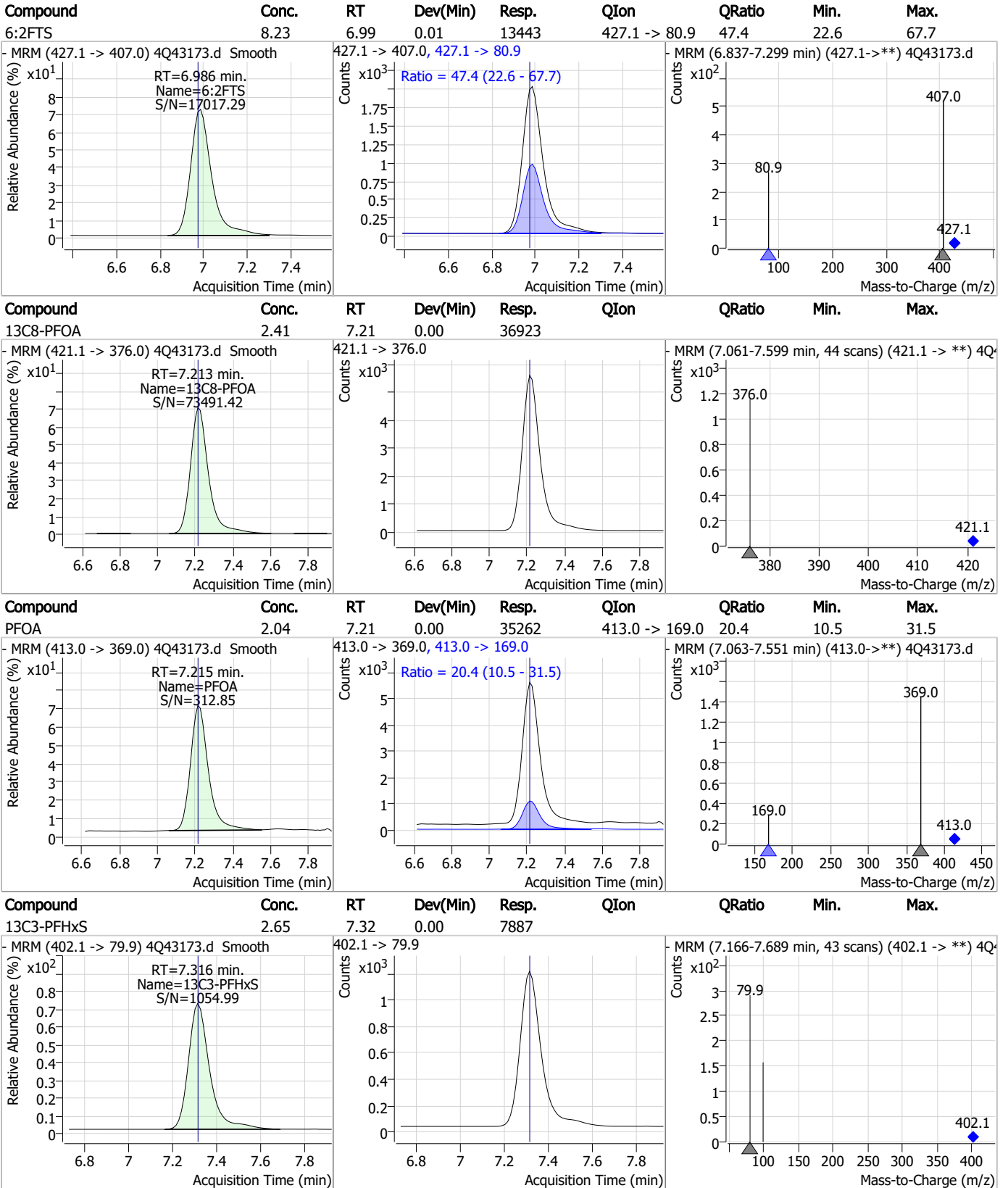
Perfluorinated Compounds by LC/MS/MS



7.7.15
7



Perfluorinated Compounds by LC/MS/MS

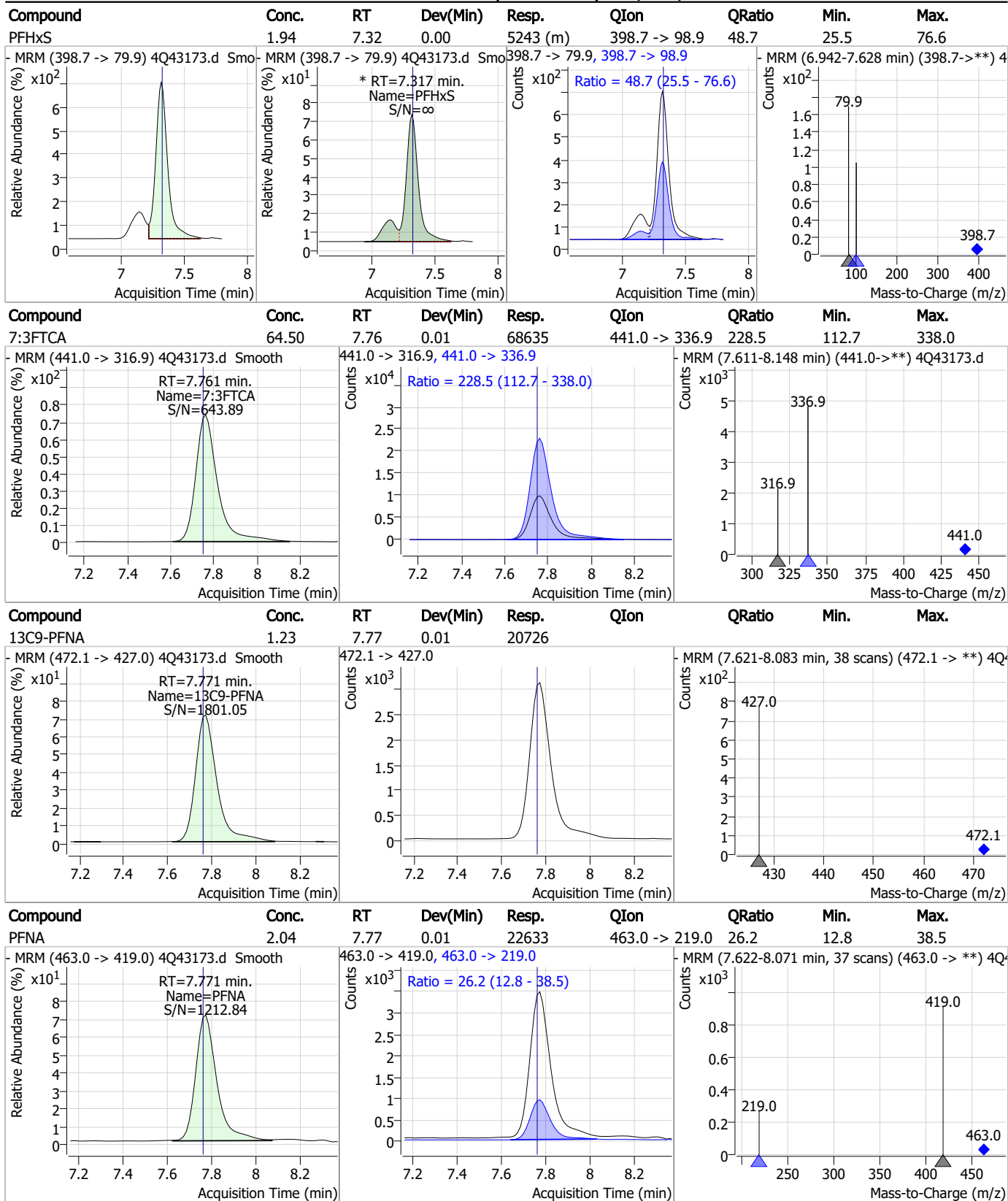


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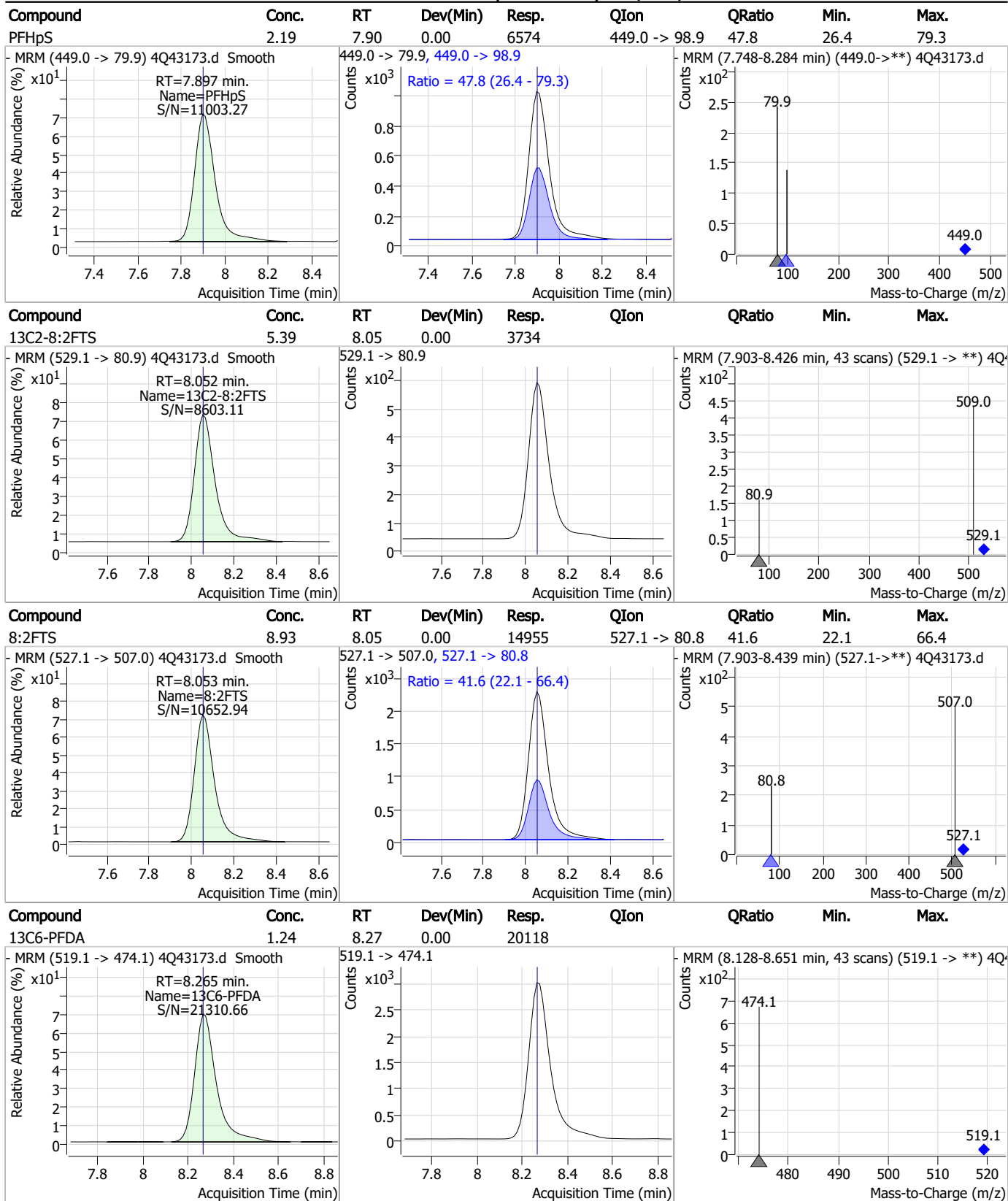


Perfluorinated Compounds by LC/MS/MS



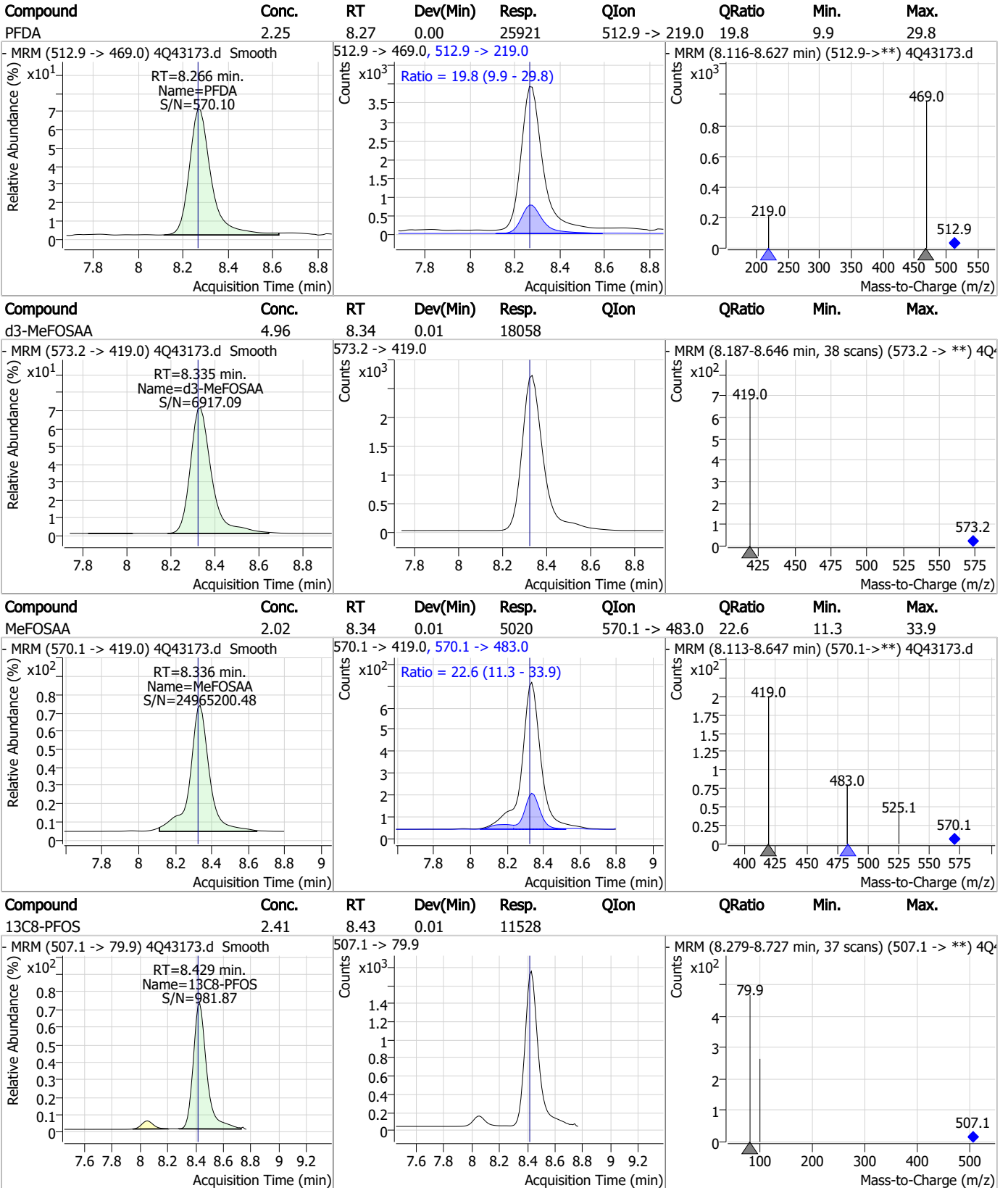
7.7.15
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Perfluorinated Compounds by LC/MS/MS



7.7.15
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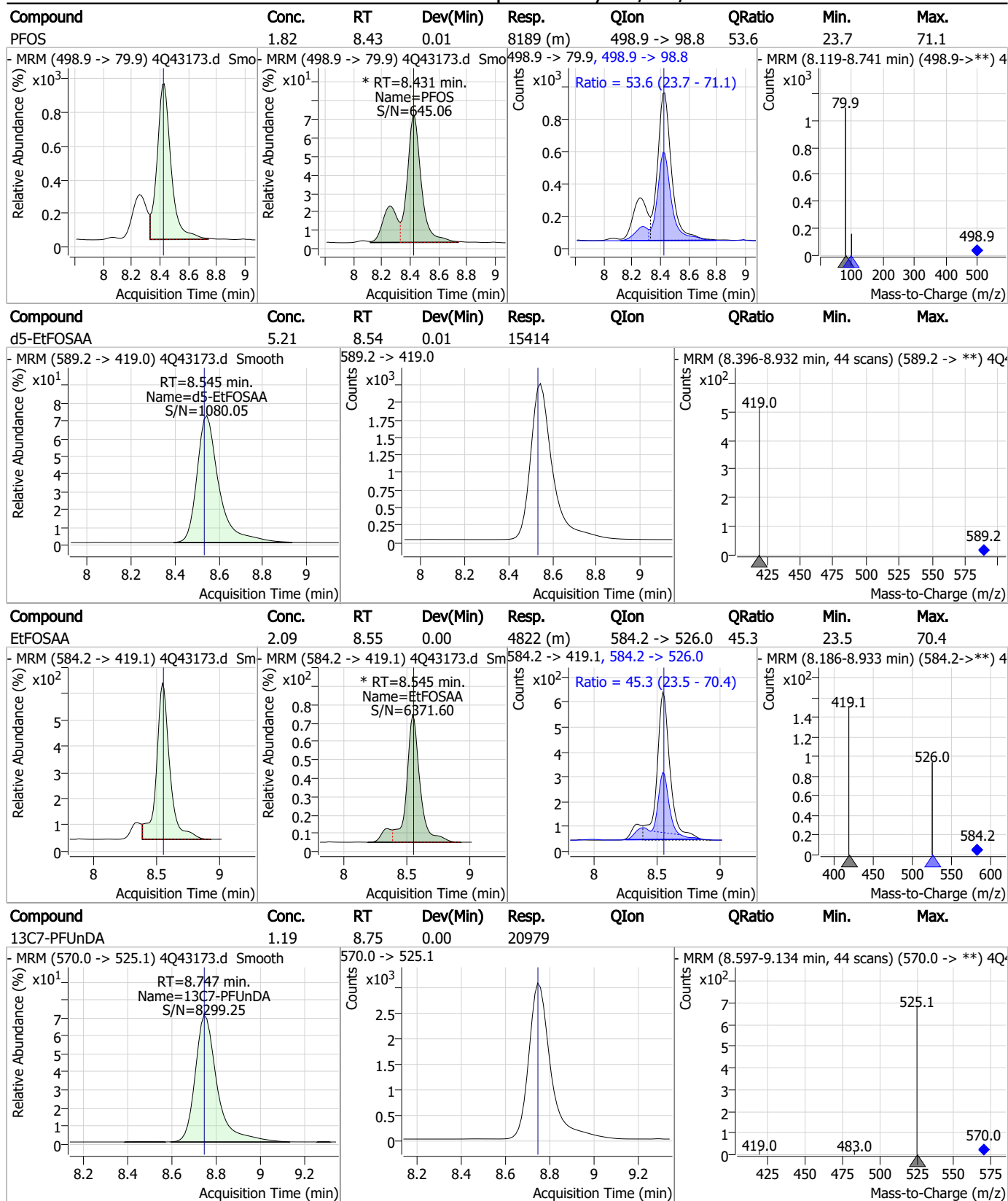
Perfluorinated Compounds by LC/MS/MS



7.7.15 7



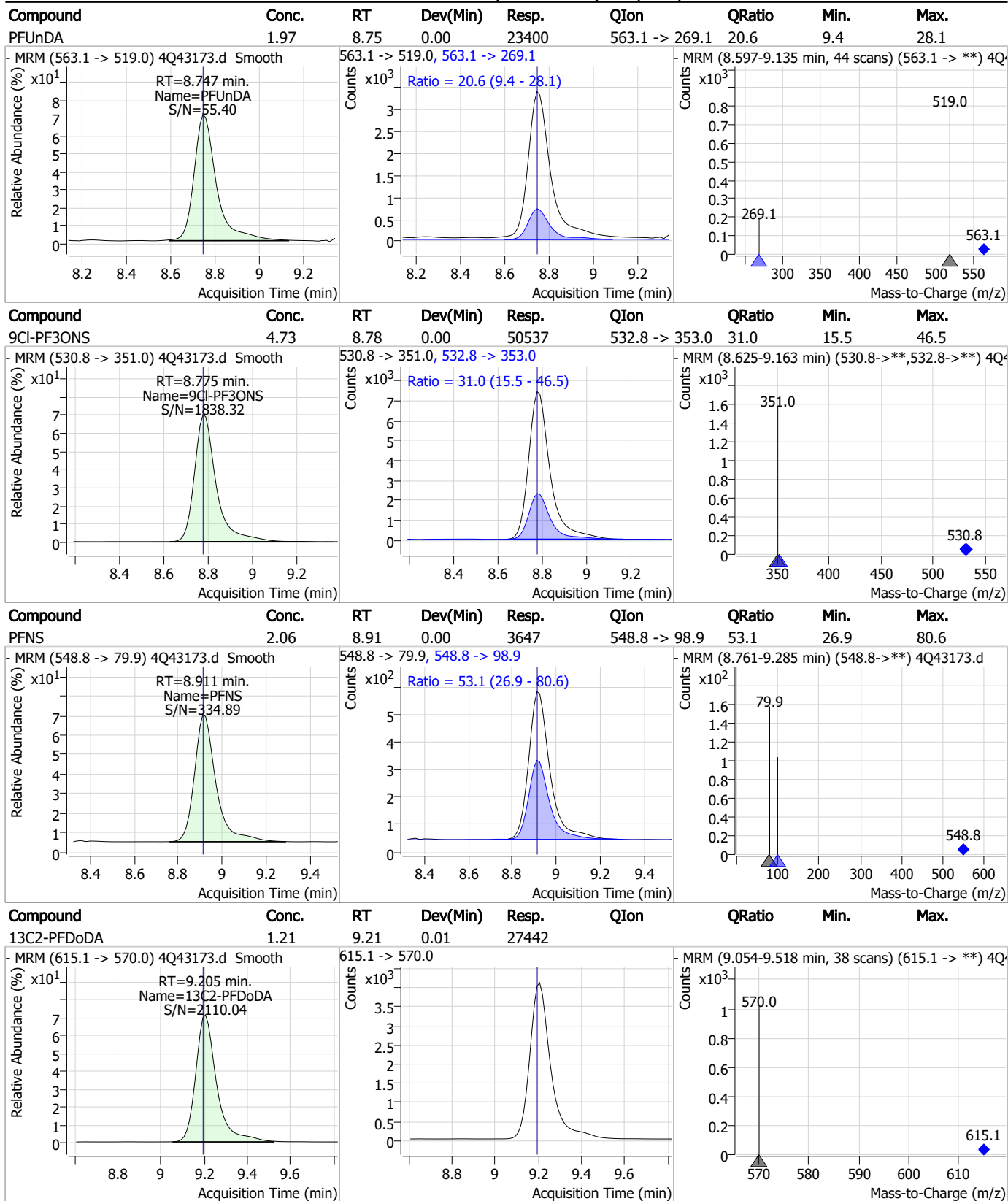
Perfluorinated Compounds by LC/MS/MS



7.7.15

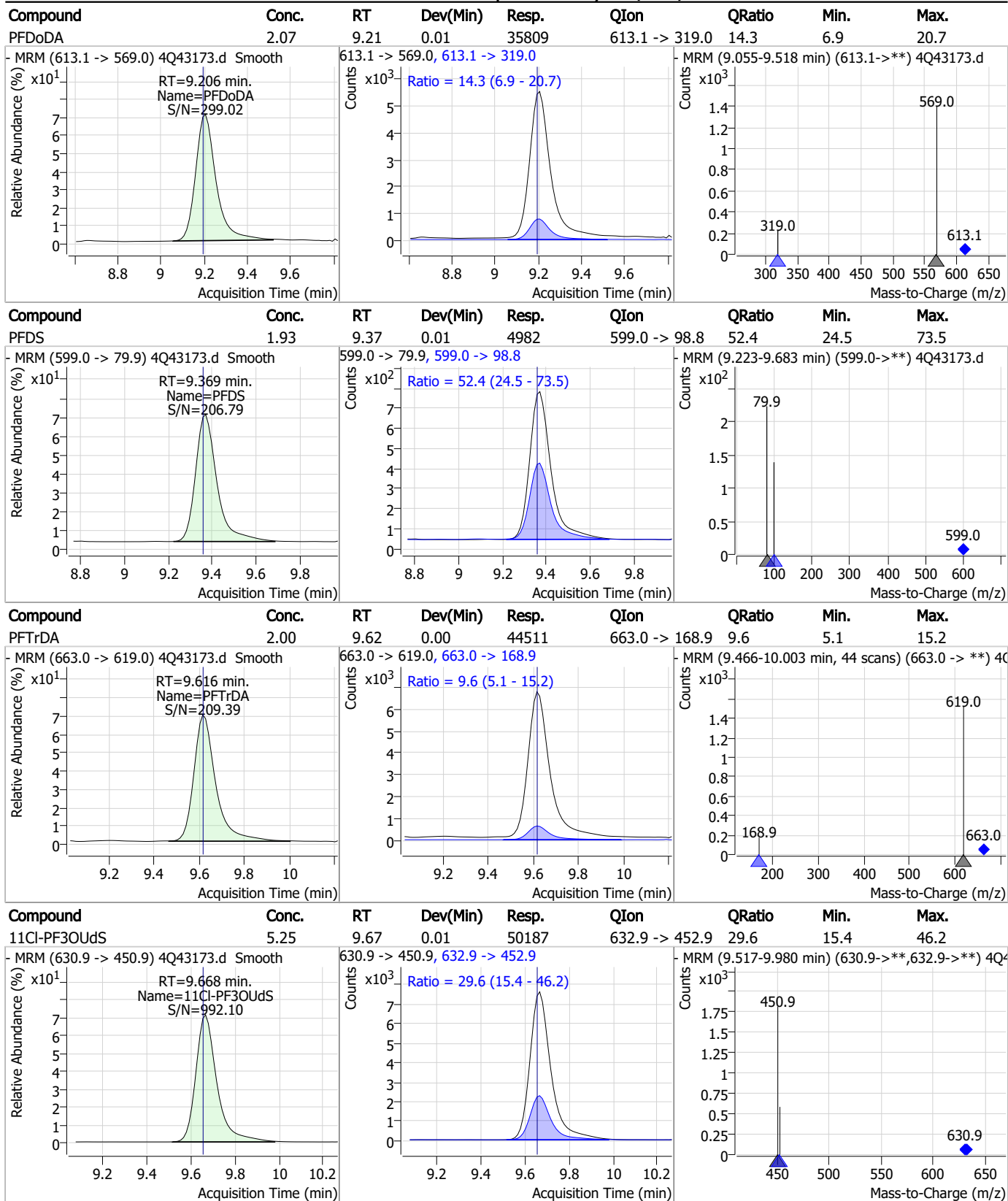
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Perfluorinated Compounds by LC/MS/MS



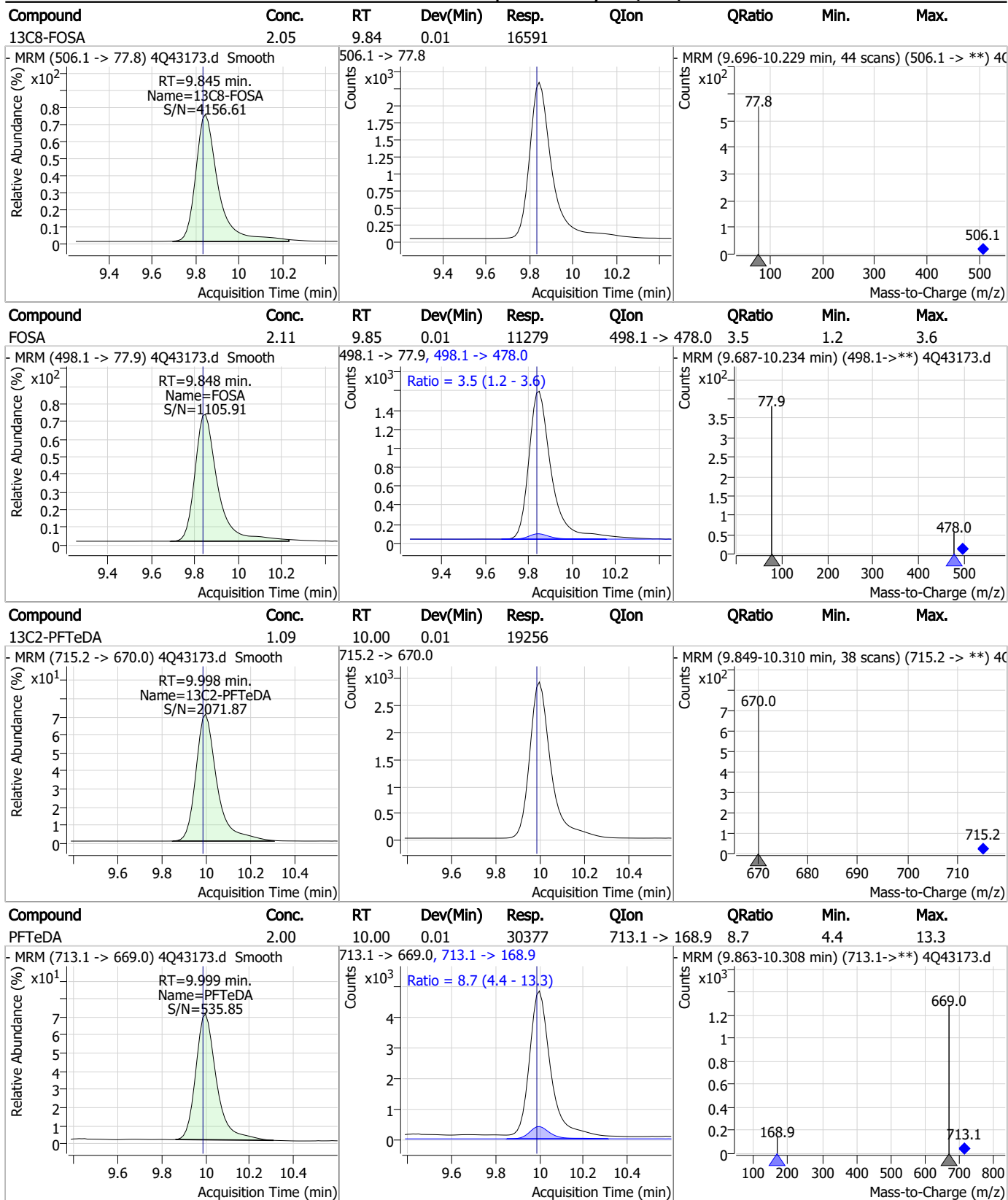
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Perfluorinated Compounds by LC/MS/MS



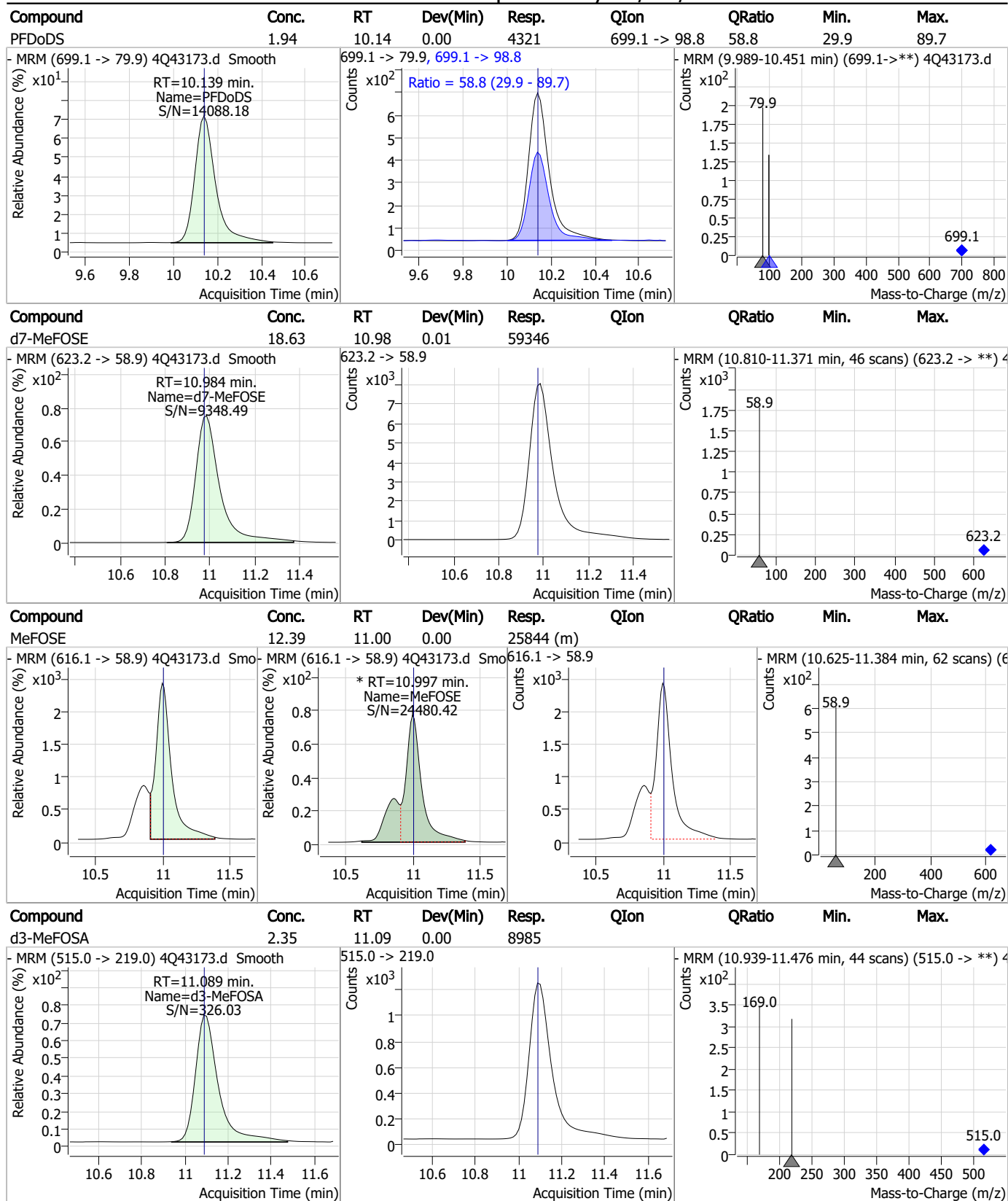
7.7.15
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Perfluorinated Compounds by LC/MS/MS



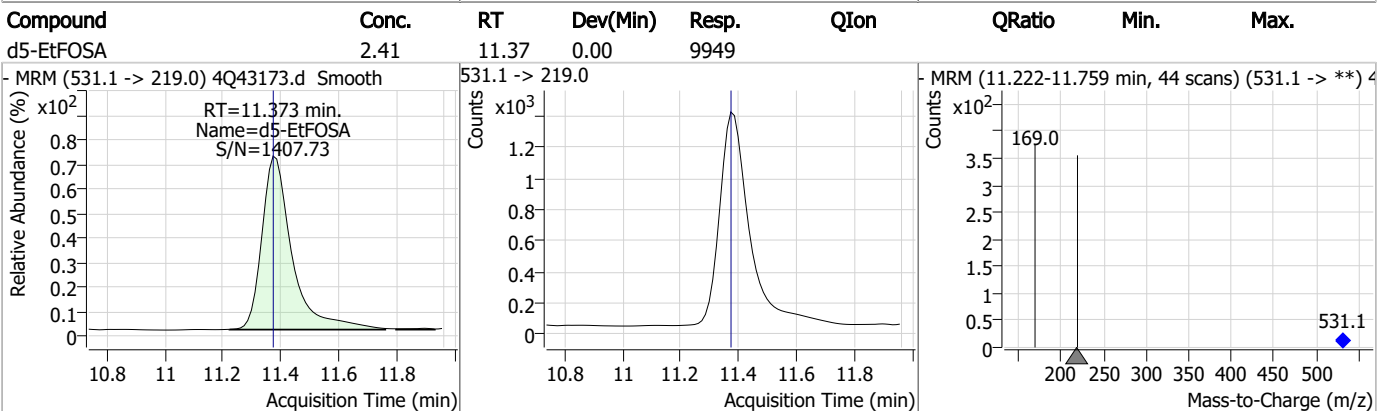
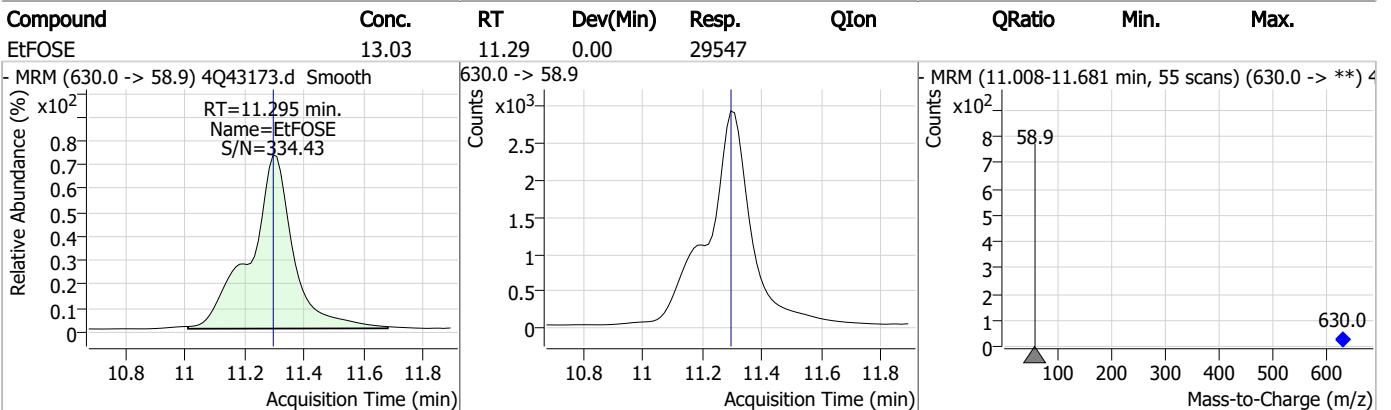
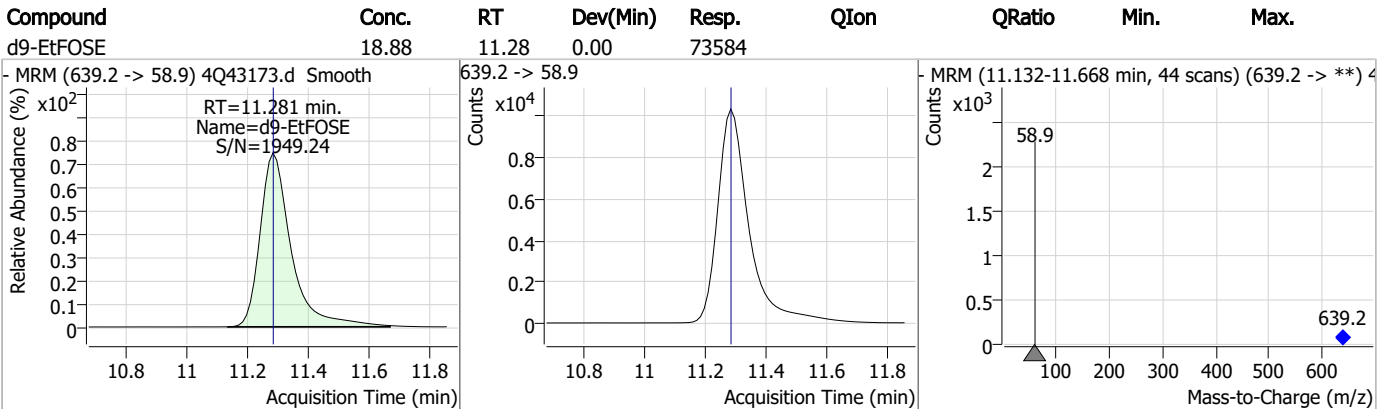
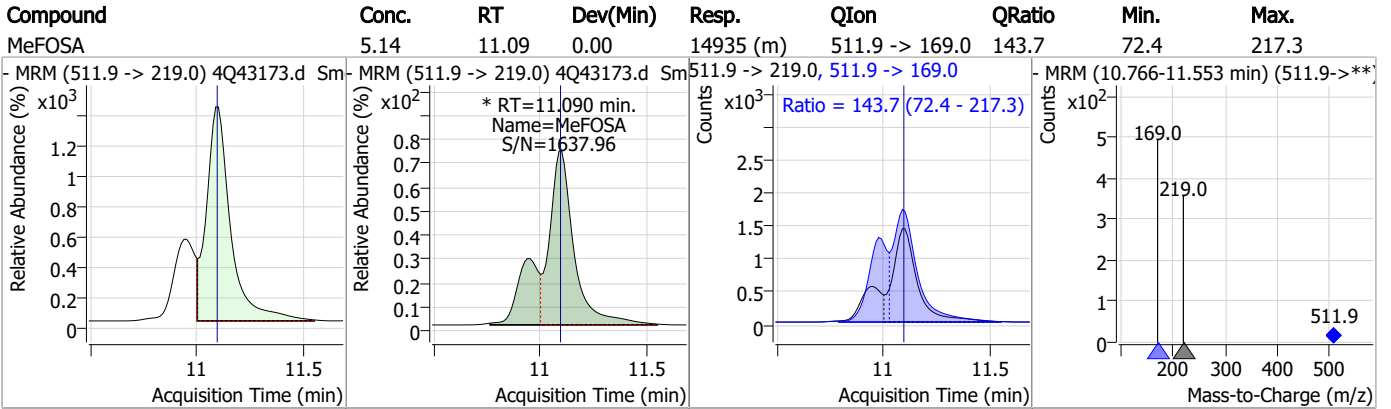
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Perfluorinated Compounds by LC/MS/MS



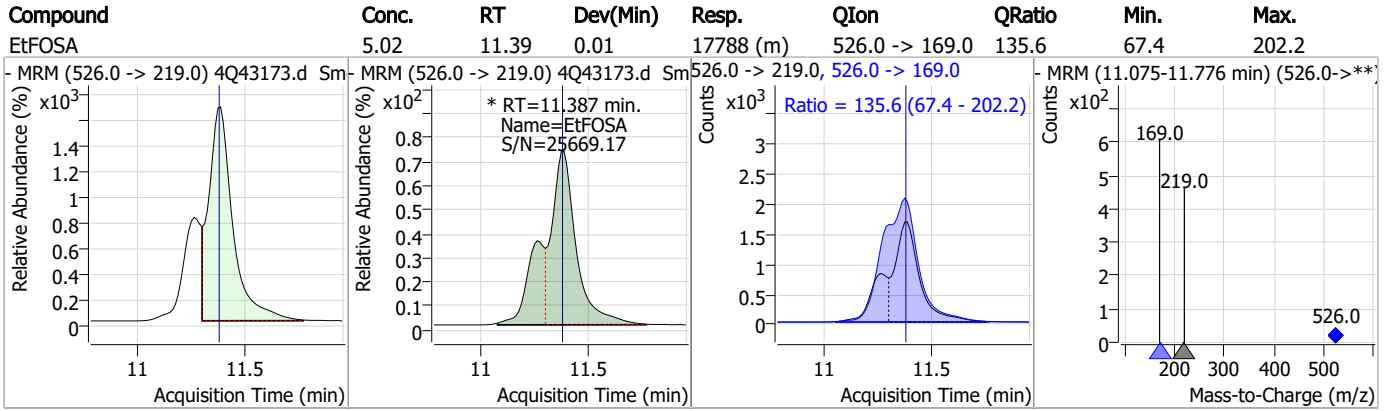
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.7.15

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Manual Integration Approval Summary

Sample Number: S4Q624-CC621 Method: EPA DRAFT 1633
Lab FileID: 4Q43173.D Analyst approved: 04/19/23 13:20 Martha Valls
Injection Time: 04/18/23 17:17 Supervisor approved: 04/19/23 17:20 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak
EtFOSAA	2991-50-6		8.54	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.15.1
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QQQ Check Tune Report



Instrument Name LCMS4-Q
MS Model G6470A
MS Instrument Serial SG2004G105
Software_Firmware Version 10.0.142, FW: A.00.08.100
Tune Date & Time 19 April 2023 09:52:03
Data Path D:\MassHunter\Tune\QQQ\G6470A\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.62E+0 [R] (Torr); 3.50E-5 [H] (Torr)

Source Parameters

Parameter	Negative
Gas Temp (°C)	300
Gas Flow (l/min)	8
Nebulizer (psi)	15
Capillary (V)	3500
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	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	112.98	-0.01	Pass	0.70	0.67	-0.03	Pass	150810
302.00	302.01	0.01	Pass	0.70	0.67	-0.03	Pass	200891
601.98	602.01	0.03	Pass	0.70	0.70	0.00	Pass	569904
1033.99	1034.03	0.04	Pass	0.70	0.68	-0.02	Pass	626614
1633.95	1633.96	0.01	Pass	0.70	0.68	-0.02	Pass	1117803
2233.91	2233.91	0.00	Pass	0.70	0.73	0.03	Pass	666171

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.08	0.08	Pass	0.70	0.60	-0.10	Pass	36984
112.99	112.98	-0.01	Pass	0.70	0.70	0.00	Pass	119793
302.00	301.99	-0.01	Pass	0.70	0.68	-0.02	Pass	155976
601.98	601.93	-0.05	Pass	0.70	0.70	0.00	Pass	293971
1033.99	1033.88	-0.11	Pass	0.70	0.72	0.02	Pass	90988
1633.95	1633.75	-0.20	Pass	0.70	0.76	0.06	Pass	99954
2233.91	2233.61	-0.30	Pass	0.70	0.75	0.05	Pass	49738

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.00	0.01	Pass	1.20	1.20	0.00	Pass	198469
302.00	301.98	-0.02	Pass	1.20	1.43	0.23	Pass	267202
601.98	601.98	0.00	Pass	1.20	1.49	0.29	Pass	930405
1033.99	1034.01	0.02	Pass	1.20	1.51	0.31	Pass	1261743
1633.95	1633.94	-0.01	Pass	1.20	1.33	0.13	Pass	2970020
2233.91	2233.88	-0.03	Pass	1.20	1.21	0.01	Pass	1526338

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.09	0.09	Pass	1.20	1.11	-0.09	Pass	49432
112.99	112.96	-0.03	Pass	1.20	1.19	-0.01	Pass	168011
302.00	302.00	0.00	Pass	1.20	1.44	0.24	Pass	230824
601.98	601.96	-0.02	Pass	1.20	1.54	0.34	Pass	548057
1033.99	1033.85	-0.14	Pass	1.20	1.60	0.40	Pass	183313
1633.95	1633.65	-0.30	Pass	1.20	1.62	0.42	Pass	259781
2233.91	2233.69	-0.22	Pass	1.20	1.52	0.32	Pass	165955

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.91	-0.08	Pass	2.50	2.55	0.05	Pass	258071
302.00	301.98	-0.02	Pass	2.50	2.76	0.26	Pass	334280
601.98	602.02	0.04	Pass	2.50	2.76	0.26	Pass	1252102
1033.99	1034.00	0.01	Pass	2.50	2.79	0.29	Pass	1937896
1633.95	1633.93	-0.02	Pass	2.50	2.60	0.10	Pass	5695926
2233.91	2233.80	-0.11	Pass	2.50	2.42	-0.08	Pass	3951295

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	2.40	-0.10	Pass	61646
112.99	112.97	-0.02	Pass	2.50	2.47	-0.03	Pass	209832
302.00	301.99	-0.01	Pass	2.50	2.66	0.16	Pass	299364
601.98	601.96	-0.02	Pass	2.50	2.82	0.32	Pass	753280
1033.99	1033.87	-0.12	Pass	2.50	2.87	0.37	Pass	264423
1633.95	1633.74	-0.21	Pass	2.50	2.75	0.25	Pass	455973
2233.91	2233.71	-0.20	Pass	2.50	2.43	-0.07	Pass	400220

7.7.16
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43242.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/19/2023 11:54:48 AM
 Sample Name : ic625-1
 Vial : P1-A2
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s6q625.batch.bin
 Sample Information : OP96301,S4q625,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	130824	10.00 µg/L	0.000
M5-PFPeA	4.412	268.3 -> 223.0	78147	5.00 µg/L	0.000
M5-PFHxA	5.584	318.0 -> 273.0	59029	2.50 µg/L	0.000
M4-PFHpA	6.517	367.1 -> 322.0	31971	2.50 µg/L	0.000
M8-PFOA	7.188	421.1 -> 376.0	44538	2.50 µg/L	0.000
M9-PFNA	7.733	472.1 -> 427.0	23774	1.25 µg/L	0.000
M6-PFDA	8.240	519.1 -> 474.1	23696	1.25 µg/L	0.000
M7-PFUnDA	8.722	570.0 -> 525.1	26179	1.25 µg/L	0.000
M2-PFDoDA	9.180	615.1 -> 570.0	31714	1.25 µg/L	0.000
M2-PFTeDA	9.974	715.2 -> 670.0	25293	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	21321	2.50 µg/L	0.000
M3-PFBS	5.502	302.1 -> 79.9	13333	2.50 µg/L	0.000
M3-PFHxS	7.291	402.1 -> 79.9	7952	2.50 µg/L	0.000
M8-PFOS	8.392	507.1 -> 79.9	12096	2.50 µg/L	0.000
M2-4:2FTS	5.273	329.1 -> 80.9	1759	5.00 µg/L	0.000
M2-6:2FTS	6.948	429.1 -> 80.9	2994	5.00 µg/L	0.000
M2-8:2FTS	8.027	529.1 -> 80.9	5278	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	20194	5.00 µg/L	0.000
M3-HFPO-DA	5.952	286.9 -> 168.9	37917	10.00 µg/L	0.000
M5-EtFOSAA	8.507	589.2 -> 419.0	16827	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	93022	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	119656	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	12129	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	11027	2.50 µg/L	0.000
13C4-PFOS	8.405	502.8 -> 79.9	12011	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	72305	5.00 µg/L	0.000
18O2-PFHxS	7.290	403.0 -> 83.9	5351	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	51646	2.50 µg/L	0.000
13C2-PFDA	8.241	515.1 -> 470.1	21433	1.25 µg/L	0.000
13C5-PFNA	7.734	468.0 -> 423.0	27480	1.25 µg/L	0.000
13C2-PFHxA	5.585	315.1 -> 270.0	50079	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.273	329.1 -> 80.9	1759	5.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.0%		
13C2-6:2FTS	6.948	429.1 -> 80.9	2994	6.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.1%		
13C2-8:2FTS	8.027	529.1 -> 80.9	5278	5.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.8%		
13C2-PFDoDA	9.180	615.1 -> 570.0	31714	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-PFTeDA	9.974	715.2 -> 670.0	25293	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C3-PFBS	5.502	302.1 -> 79.9	13333	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C3-PFHxS	7.291	402.1 -> 79.9	7952	2.60 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 = 104.1%	
13C4-PFBA	2.936	216.8 -> 171.9	130824	10.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C4-PFHpA	6.517	367.1 -> 322.0	31971	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFHxA	5.584	318.0 -> 273.0	59029	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFPeA	4.412	268.3 -> 223.0	78147	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C6-PFDA	8.240	519.1 -> 474.1	23696	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C7-PFUnDA	8.722	570.0 -> 525.1	26179	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-FOSA	9.783	506.1 -> 77.8	21321	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C8-PFOA	7.188	421.1 -> 376.0	44538	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C8-PFOS	8.392	507.1 -> 79.9	12096	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C9-PFNA	7.733	472.1 -> 427.0	23774	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.1%	
d3-MeFOSAA	8.298	573.2 -> 419.0	20194	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C3-HFPO-DA	5.952	286.9 -> 168.9	37917	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
d3-MeFOSA	11.064	515.0 -> 219.0	11027	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
d5-EtFOSAA	8.507	589.2 -> 419.0	16827	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
d7-MeFOSE	10.959	623.2 -> 58.9	93022	25.25 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d9-EtFOSE	11.256	639.2 -> 58.9	119656	25.36 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
d5-EtFOSA	11.360	531.1 -> 219.0	12129	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
Target Compounds					QValue
4:2FTS	5.273	327.1 -> 307.0	1268	0.56 µg/L	93
		327.1 -> 80.9	628		
6:2FTS	6.949	427.1 -> 407.0	1419	0.62 µg/L	95
		427.1 -> 80.9	676		
8:2FTS	8.028	527.1 -> 507.0	1404	0.54 µg/L	83
		527.1 -> 80.8	726		
EtFOSAA	8.508	584.2 -> 419.1	336	0.14 µg/L	91
		584.2 -> 526.0	201		
FOSA	9.774	498.1 -> 77.9	1297	0.18 µg/L	96
		498.1 -> 478.0	22		
MeFOSAA	8.299	570.1 -> 419.0	407	0.14 µg/L	90
		570.1 -> 483.0	72		
PFBA	2.945	212.8 -> 168.9	1964	0.65 µg/L	100
PFBS	5.503	298.7 -> 79.9	797	0.15 µg/L	95
		298.7 -> 98.8	343		
PFDA	8.241	512.9 -> 469.0	2115	0.15 µg/L	99
		512.9 -> 219.0	418		
PFDODA	9.181	613.1 -> 569.0	3534	0.17 µg/L	95
		613.1 -> 319.0	409		
PFDS	9.344	599.0 -> 79.9	396	0.14 µg/L	77

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	252			
PFHpA	6.530	363.1 -> 319.0	2764	0.16	µg/L	99
		363.1 -> 169.0	470			
PFHpS	7.873	449.0 -> 79.9	586	0.17	µg/L	67
		449.0 -> 98.9	176			
PFHxA	5.587	313.0 -> 269.0	2986	0.16	µg/L	96
		313.0 -> 118.9	131			
PFHxS	7.280	398.7 -> 79.9	425	0.15	µg/L	m 97
		398.7 -> 98.9	224			
PFNA	7.734	463.0 -> 419.0	2235	0.17	µg/L	93
		463.0 -> 219.0	501			
PFNS	8.886	548.8 -> 79.9	396	0.18	µg/L	93
		548.8 -> 98.9	202			
PFOA	7.176	413.0 -> 369.0	2895	0.15	µg/L	m 96
		413.0 -> 169.0	661			
PFOS	8.394	498.9 -> 79.9	676	0.15	µg/L	m 94
		498.9 -> 98.8	374			
PFPeA	4.414	263.0 -> 219.0	4895	0.31	µg/L	100
PFPeS	6.557	349.1 -> 79.9	370	0.15	µg/L	99
		349.1 -> 98.9	164			
PFTeDA	9.974	713.1 -> 669.0	3294	0.16	µg/L	99
		713.1 -> 168.9	294			
PFTrDA	9.591	663.0 -> 619.0	4500	0.17	µg/L	m 97
		663.0 -> 168.9	379			
PFUnDA	8.722	563.1 -> 519.0	2685	0.18	µg/L	96
		563.1 -> 269.1	499			
11Cl-PF3OUdS	9.643	630.9 -> 450.9	3490	0.32	µg/L	99
		632.9 -> 452.9	1067			
9Cl-PF3ONS	8.749	530.8 -> 351.0	3751	0.32	µg/L	91
		532.8 -> 353.0	934			
ADONA	6.781	376.9 -> 250.9	8443	0.31	µg/L	99
		376.9 -> 84.8	2173			
HFPO-DA	5.953	284.9 -> 168.9	941	0.31	µg/L	97
		284.9 -> 184.9	95			
3:3FTCA	3.867	241.0 -> 177.0	578	0.78	µg/L	91
		241.0 -> 117.0	72			
5:3FTCA	6.231	341.0 -> 237.1	10990	3.96	µg/L	100
		341.0 -> 217.0	7909			
7:3FTCA	7.686	441.0 -> 316.9	5425	4.01	µg/L	97
		441.0 -> 336.9	12389			
EtFOSA	11.362	526.0 -> 219.0	1478	0.33	µg/L	m 100
		526.0 -> 169.0	2094			
EtFOSE	11.282	630.0 -> 58.9	2931	0.77	µg/L	100
MeFOSA	11.078	511.9 -> 219.0	1148	0.31	µg/L	m 92
		511.9 -> 169.0	1768			
MeFOSE	10.973	616.1 -> 58.9	2562	0.77	µg/L	m 100
PFDoDS	10.126	699.1 -> 79.9	397	0.15	µg/L	93
		699.1 -> 98.8	234			
NFDHA	5.479	295.0 -> 201.0	324	0.32	µg/L	100
		295.0 -> 84.9	92			
PFMBA	4.828	279.0 -> 85.1	2922	0.33	µg/L	100
PFMPA	3.553	229.0 -> 84.9	2611	0.33	µg/L	100
PFEESA	6.034	314.8 -> 134.9	4488	0.29	µg/L	97
		314.8 -> 82.9	111			

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

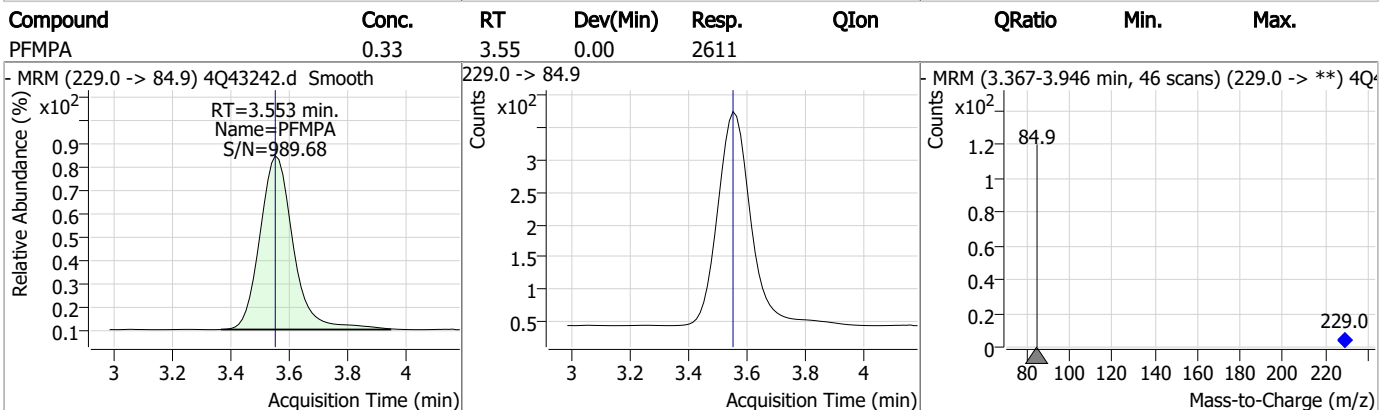
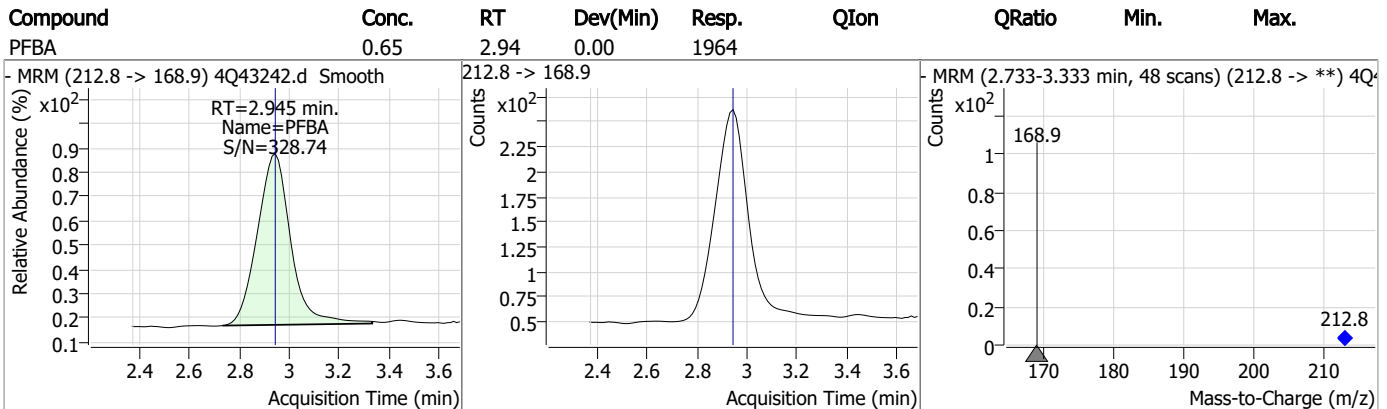
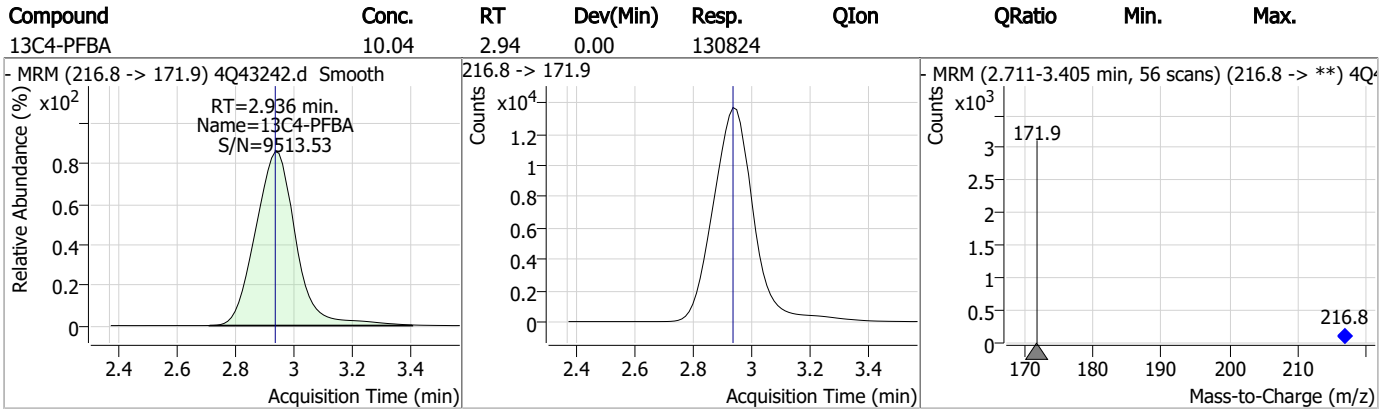
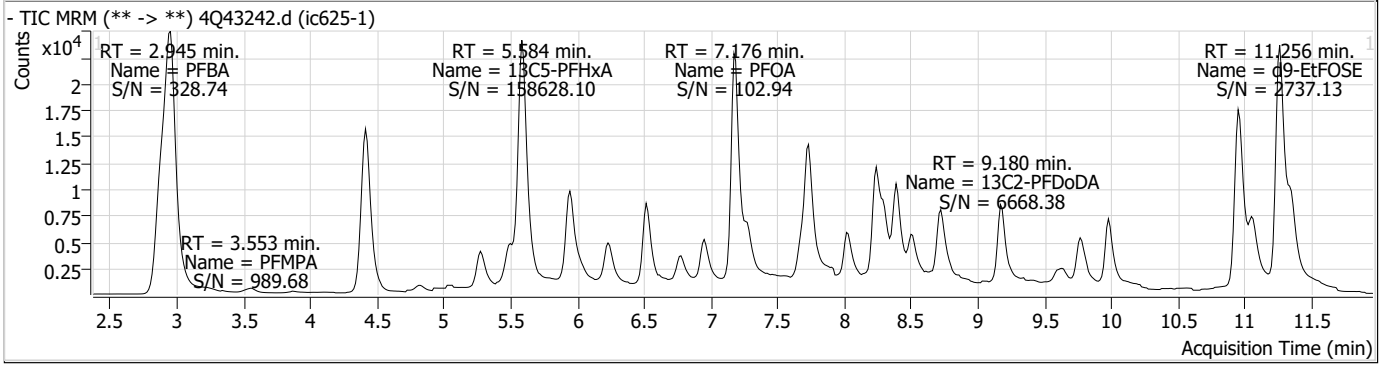
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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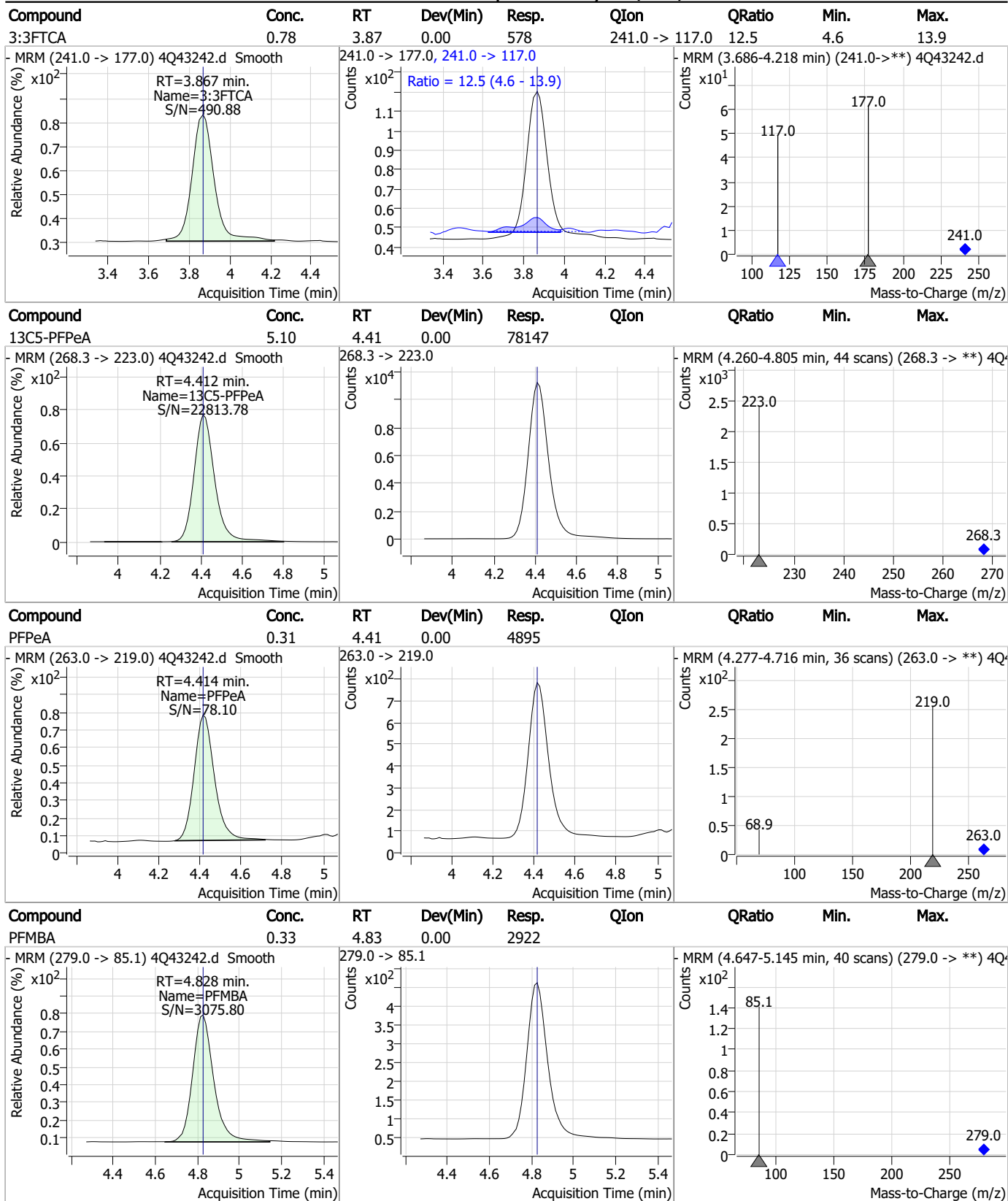
7.7.17
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Perfluorinated Compounds by LC/MS/MS

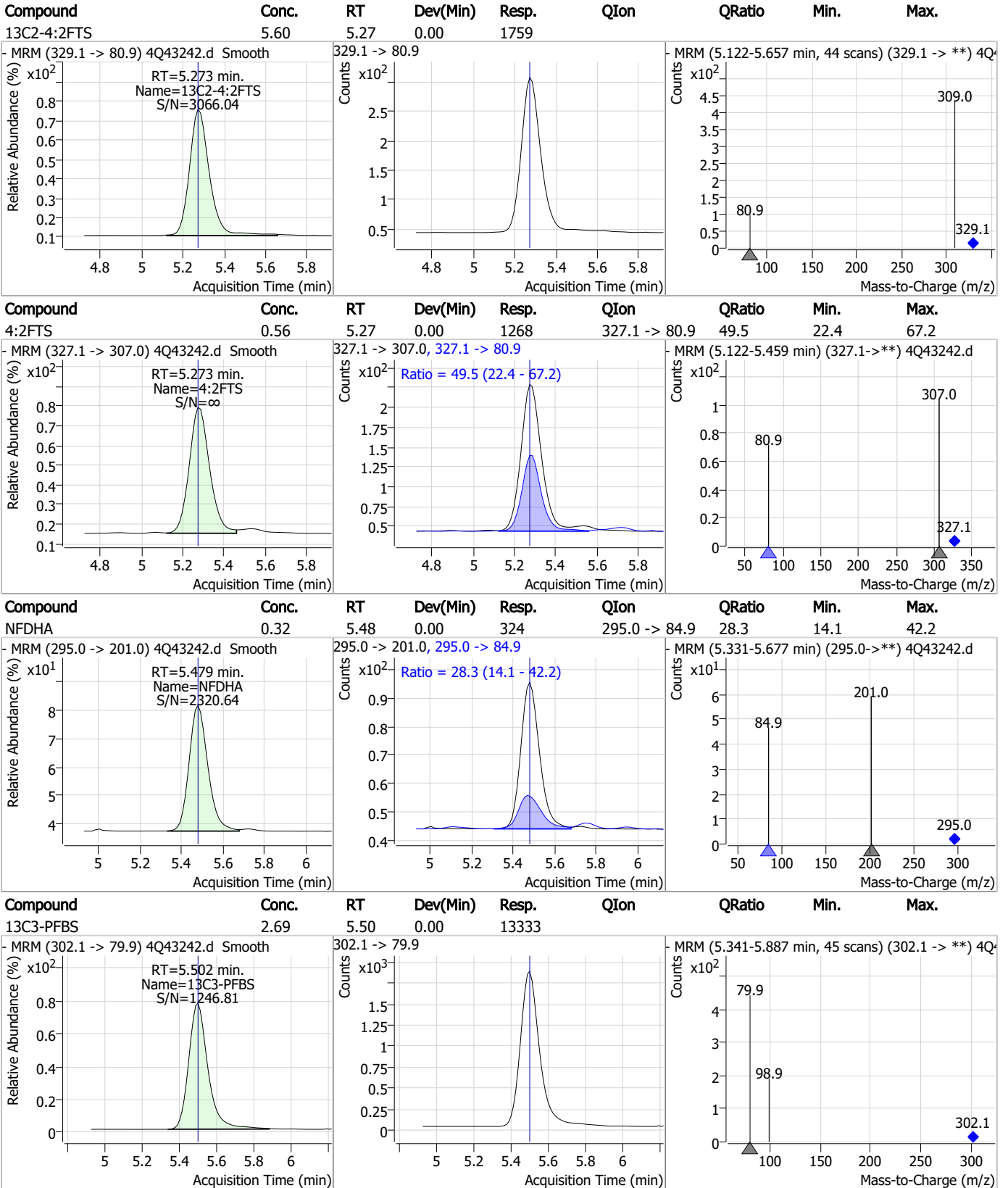


Perfluorinated Compounds by LC/MS/MS



7.7.17

Perfluorinated Compounds by LC/MS/MS



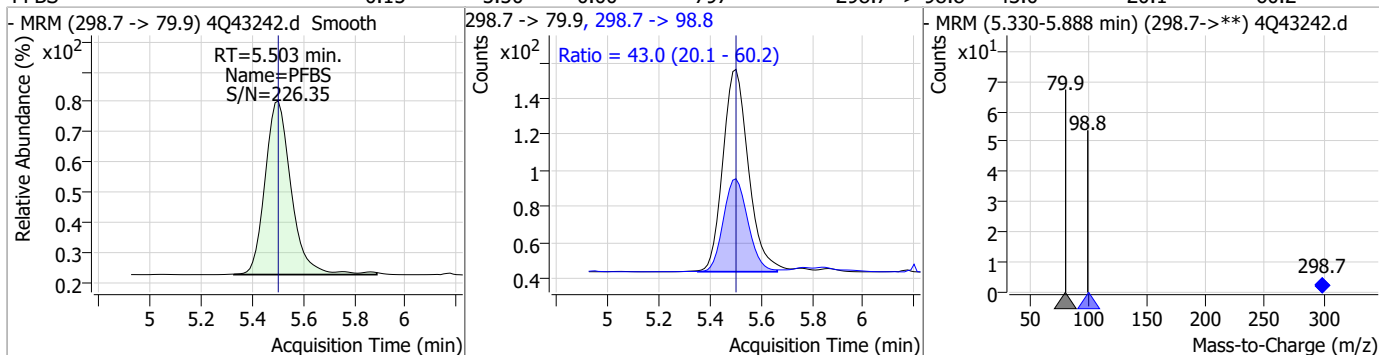
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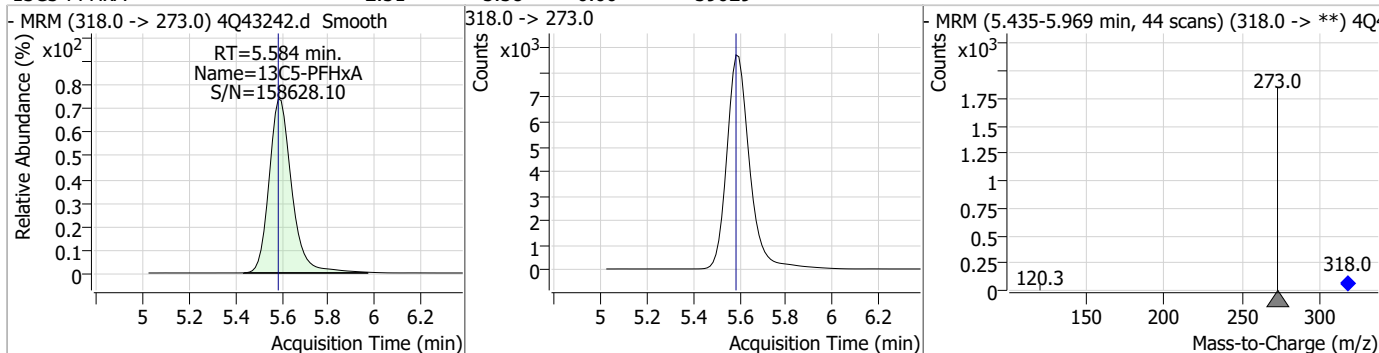


Perfluorinated Compounds by LC/MS/MS

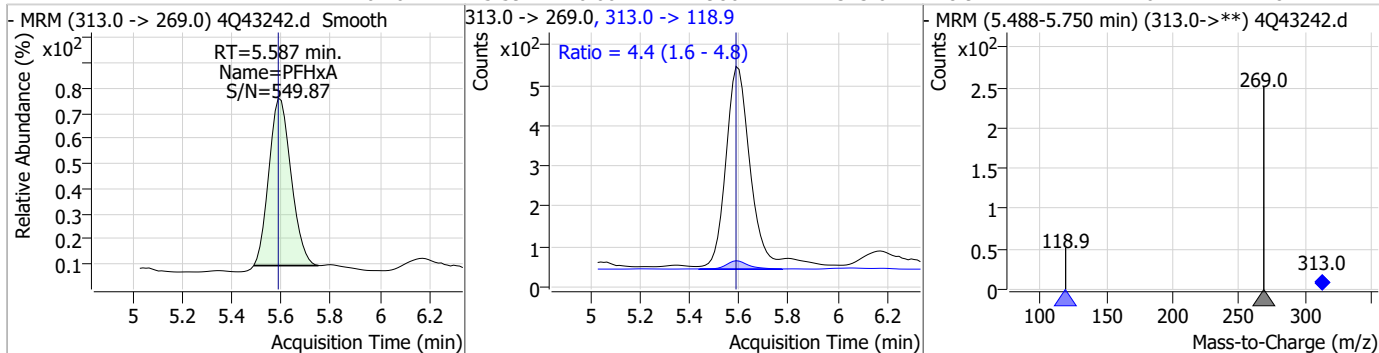
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.15	5.50	0.00	797	298.7 -> 98.8	43.0	20.1	60.2



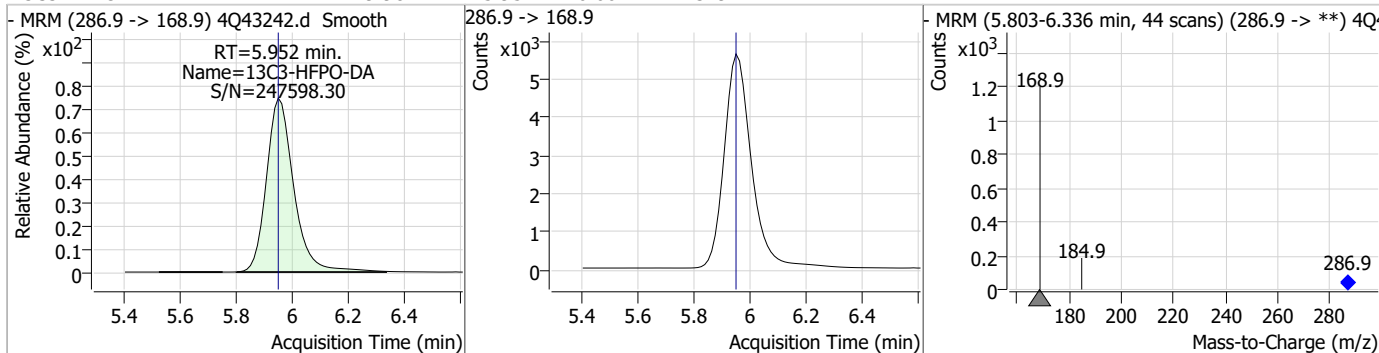
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.58	0.00	59029				



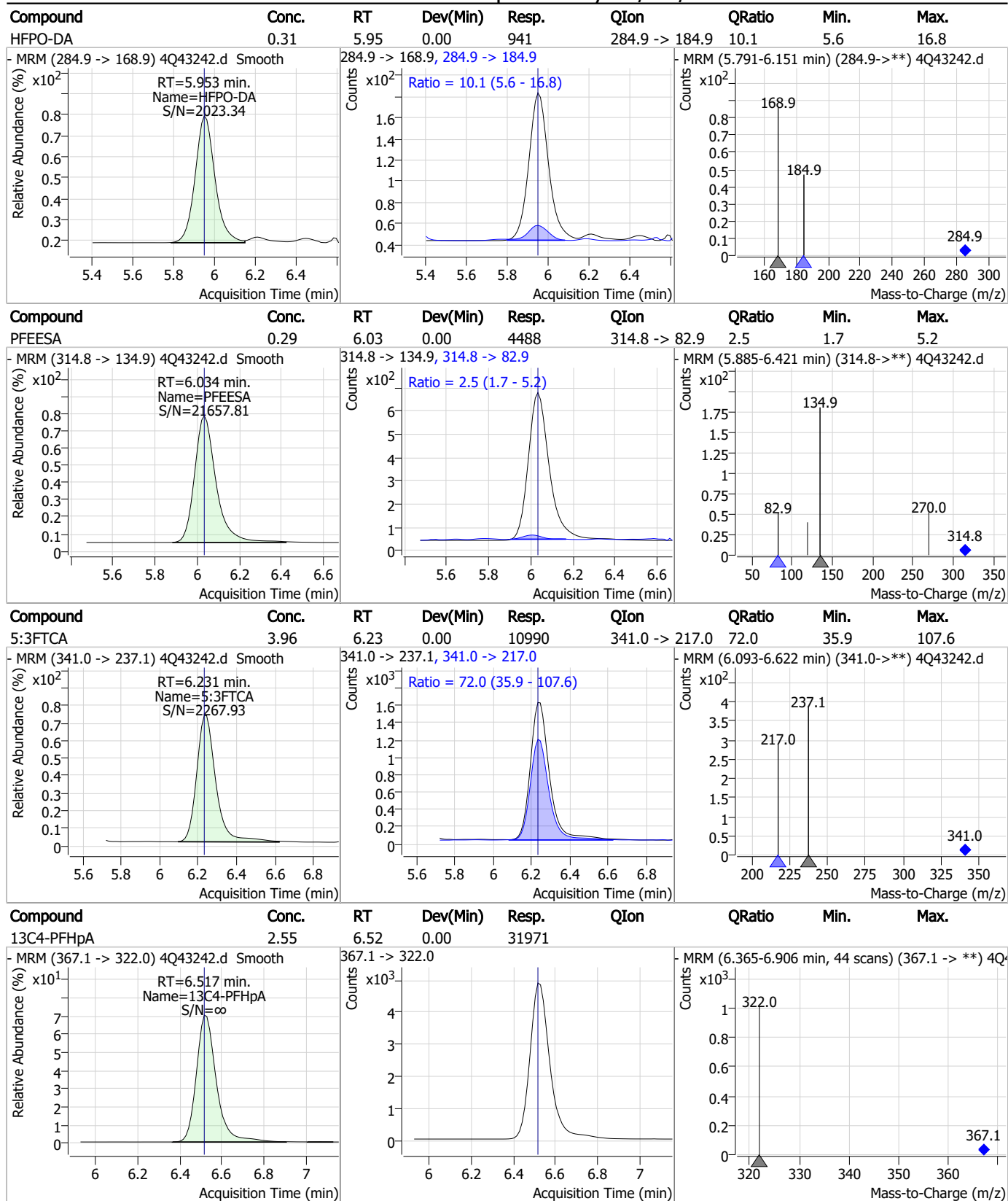
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.16	5.59	0.00	2986	313.0 -> 118.9	4.4	1.6	4.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.98	5.95	0.00	37917				

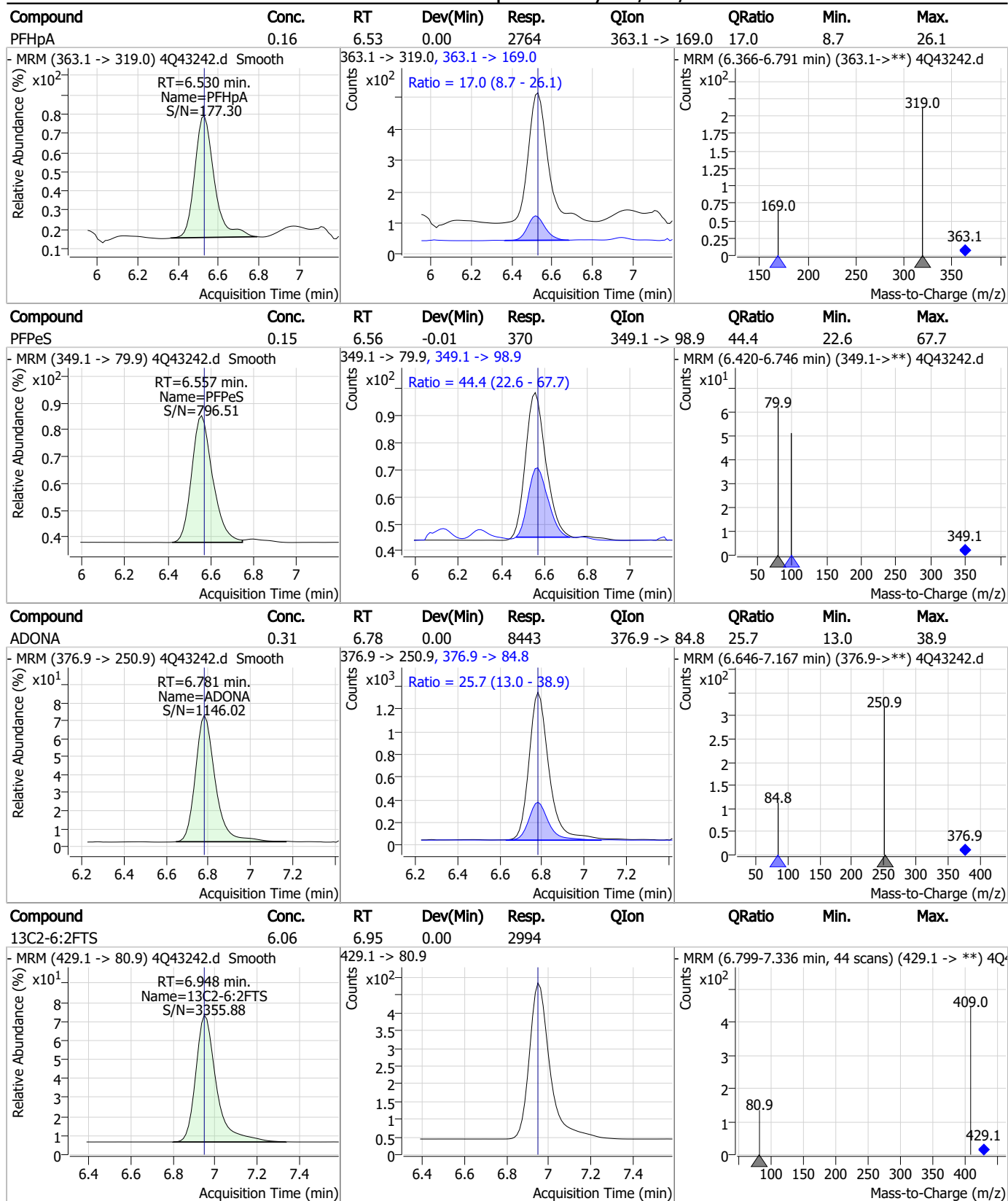


Perfluorinated Compounds by LC/MS/MS



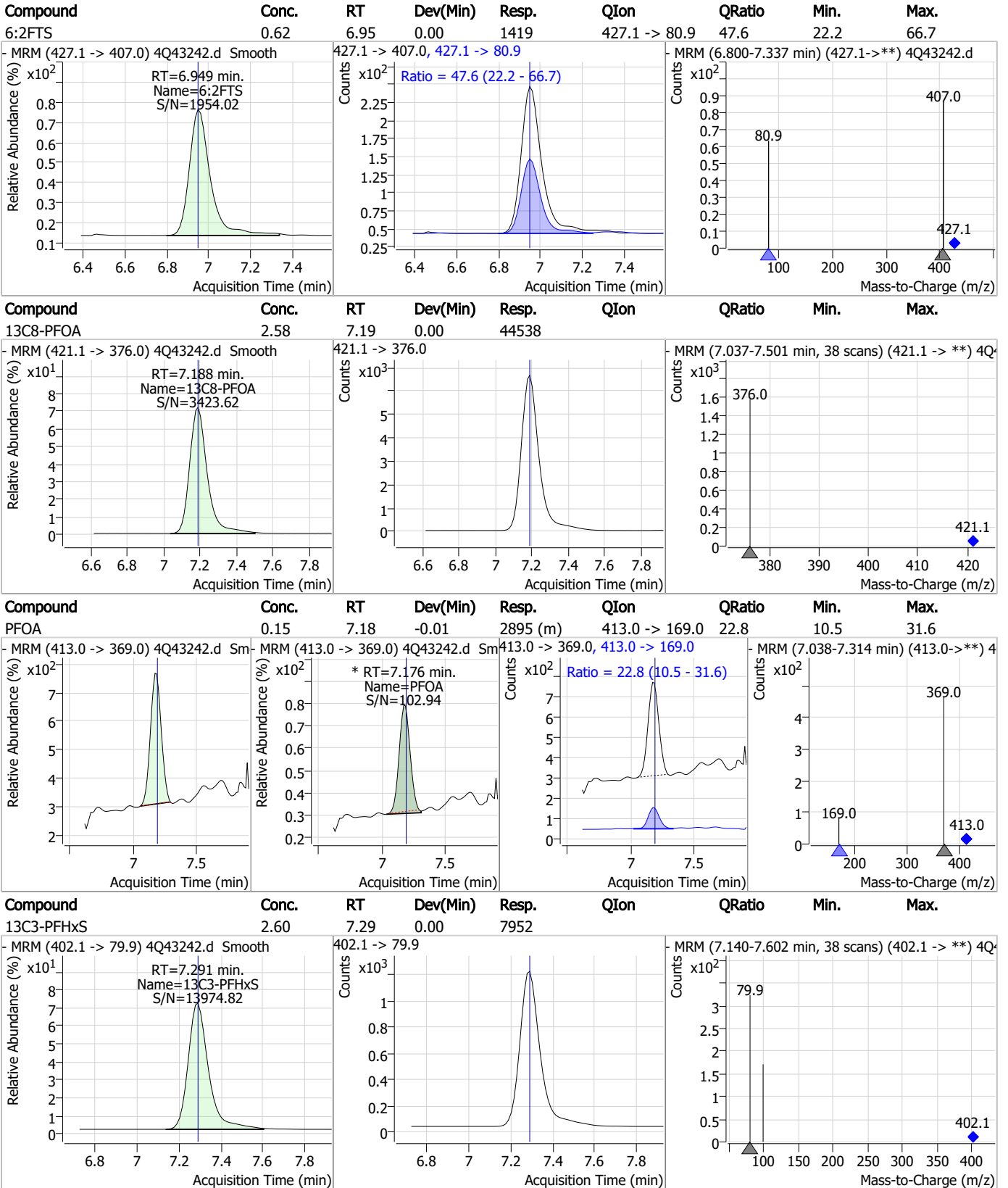
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Perfluorinated Compounds by LC/MS/MS



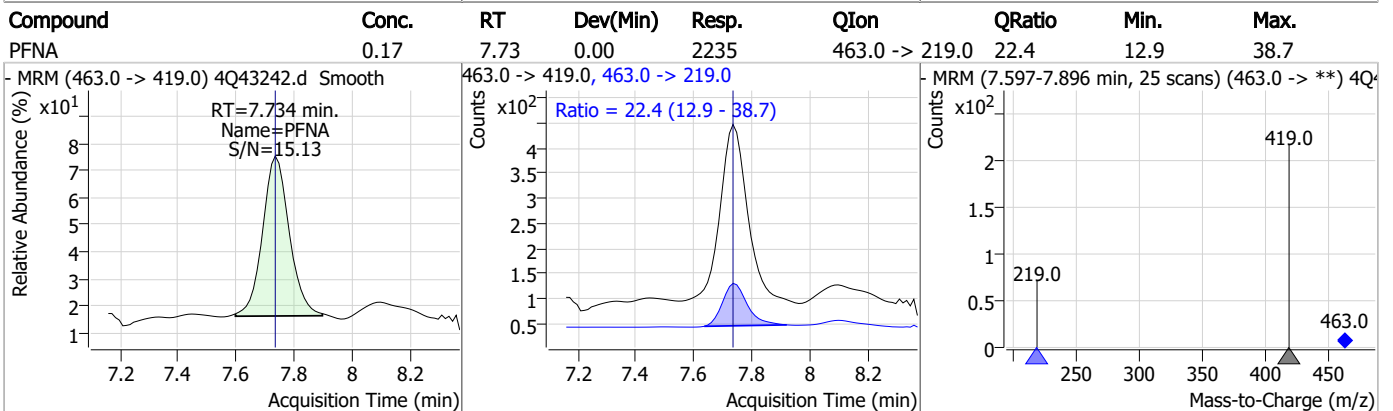
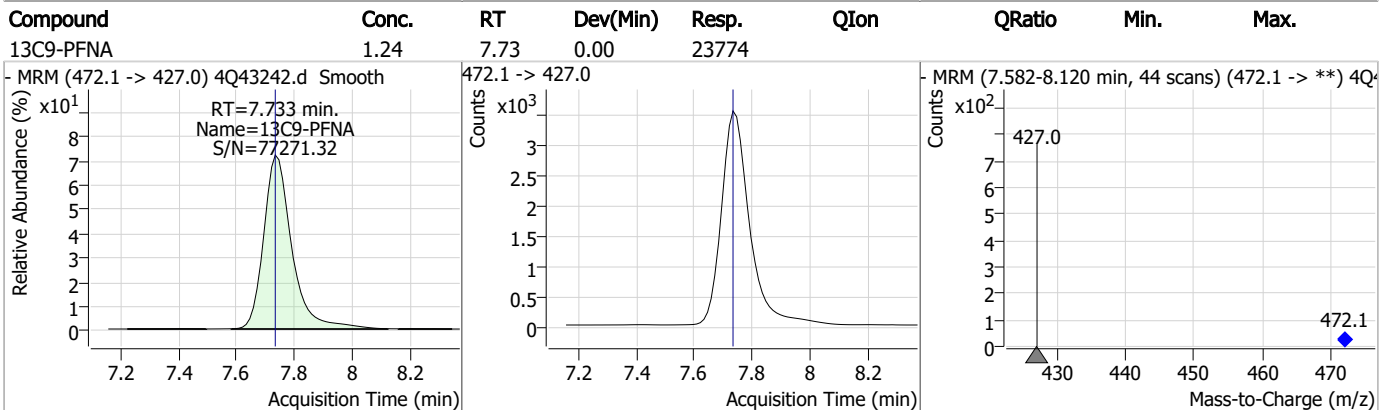
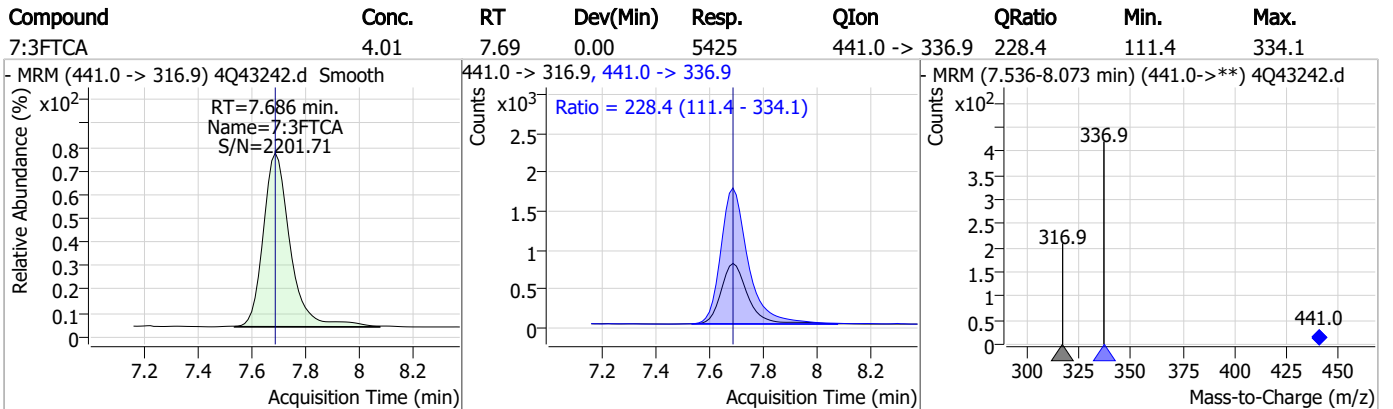
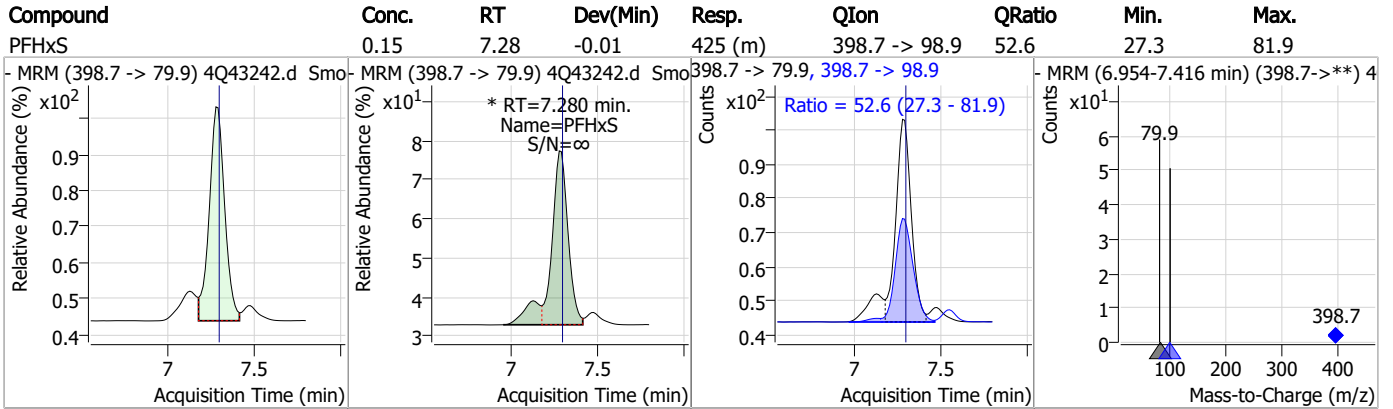
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Perfluorinated Compounds by LC/MS/MS



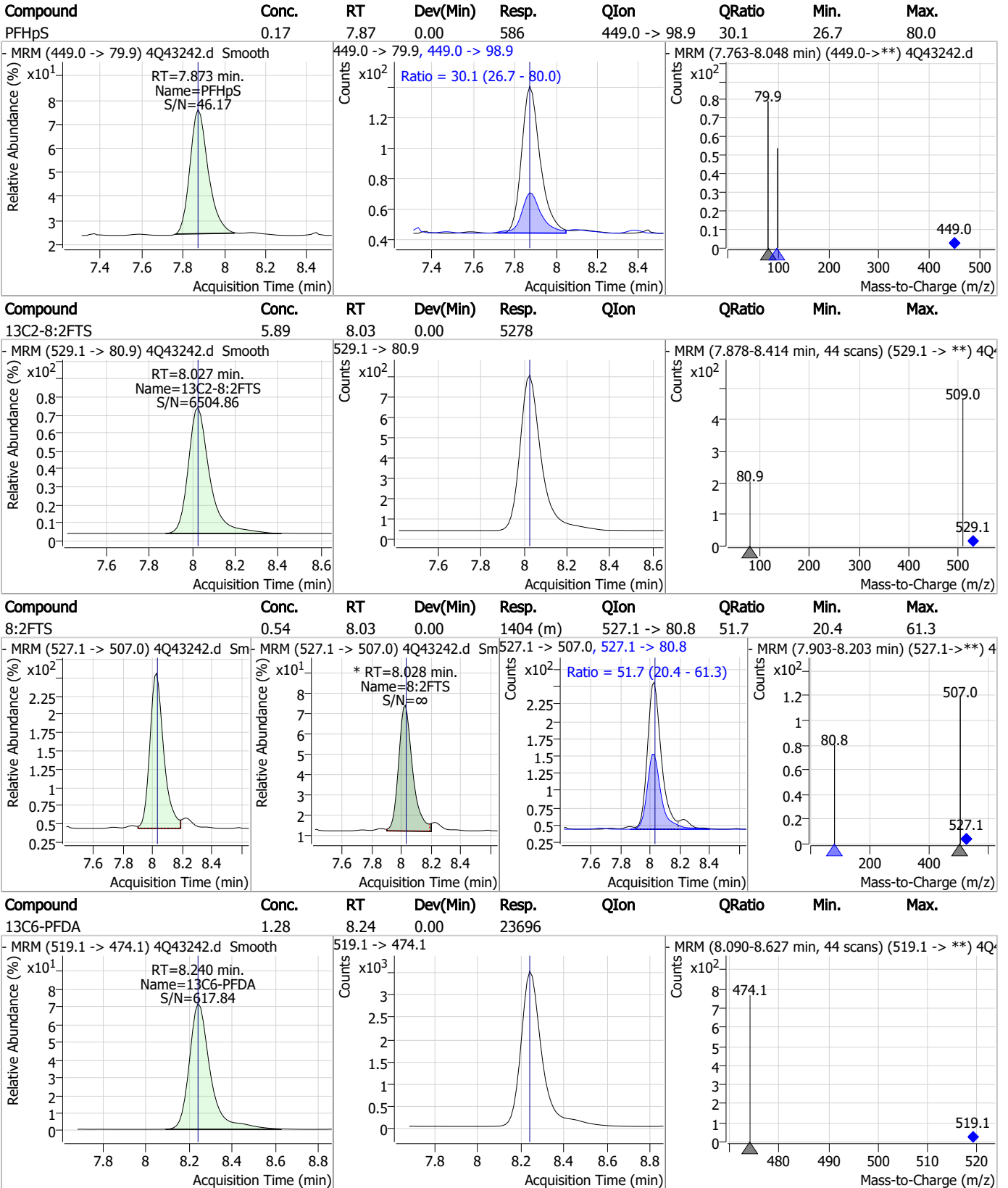
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Perfluorinated Compounds by LC/MS/MS



7.7.17

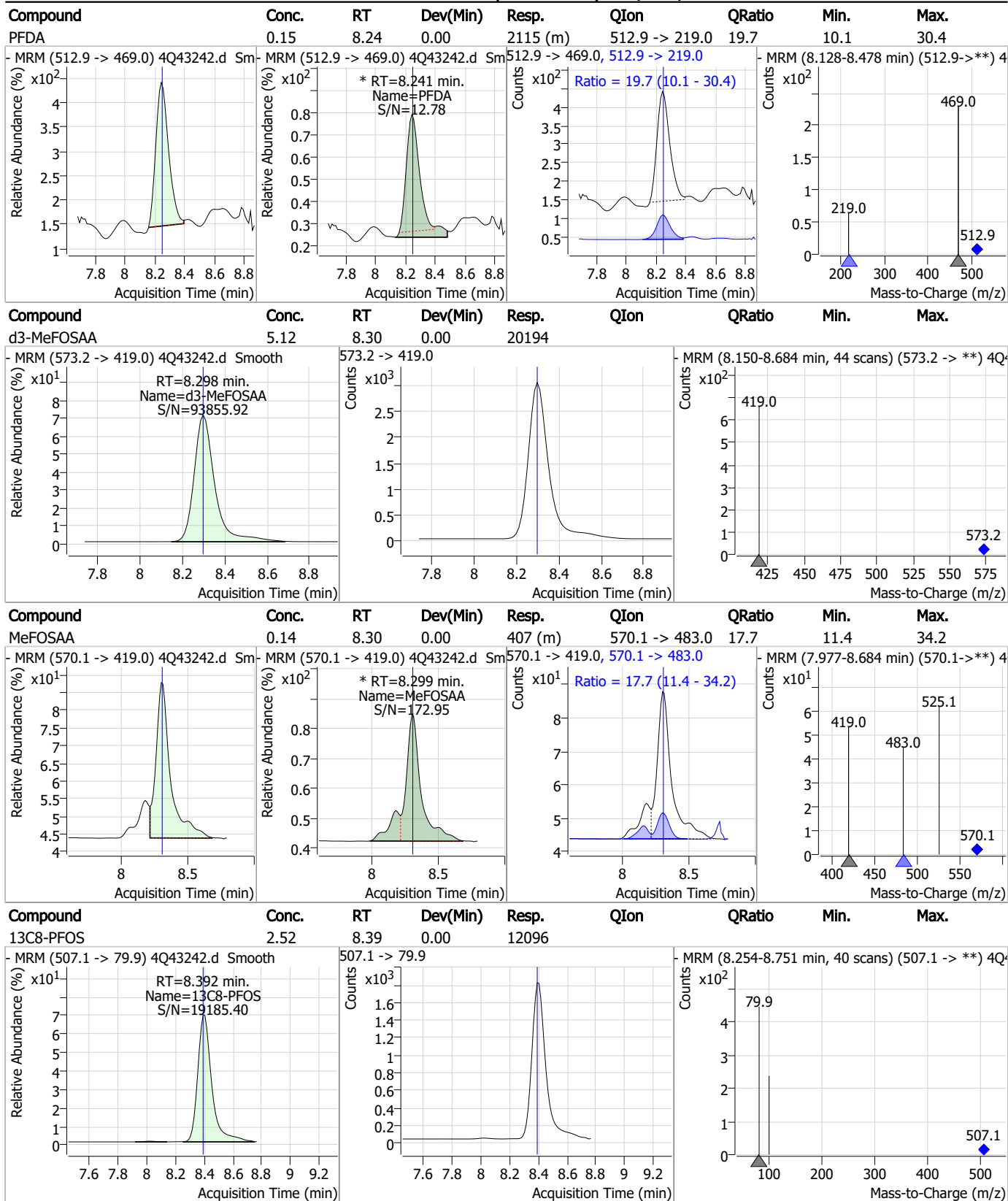
Perfluorinated Compounds by LC/MS/MS



7.7.17

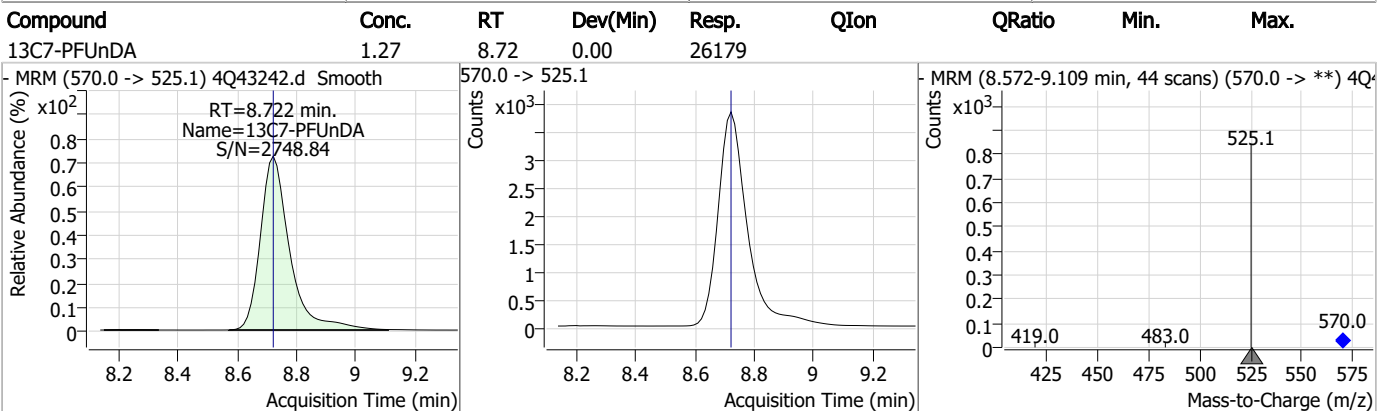
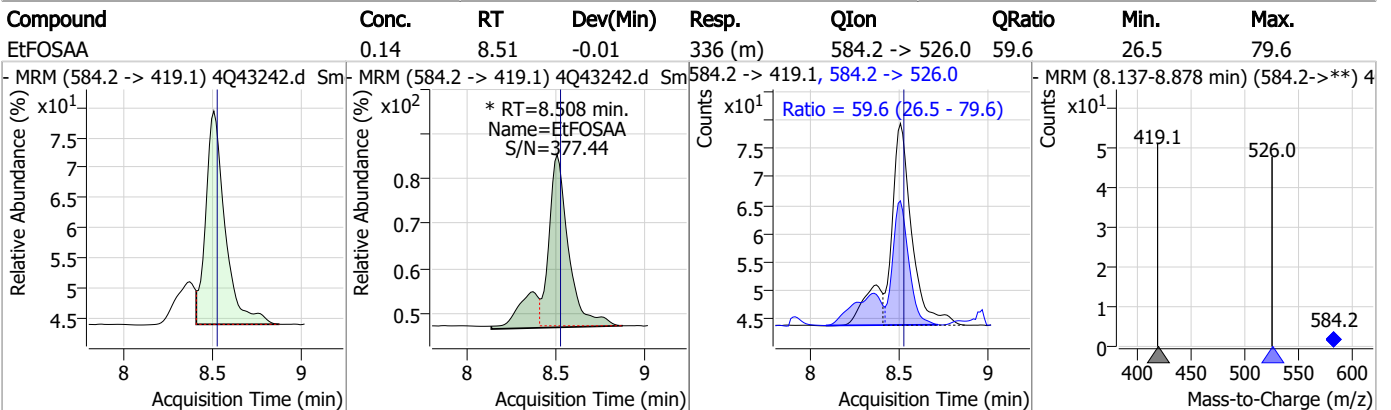
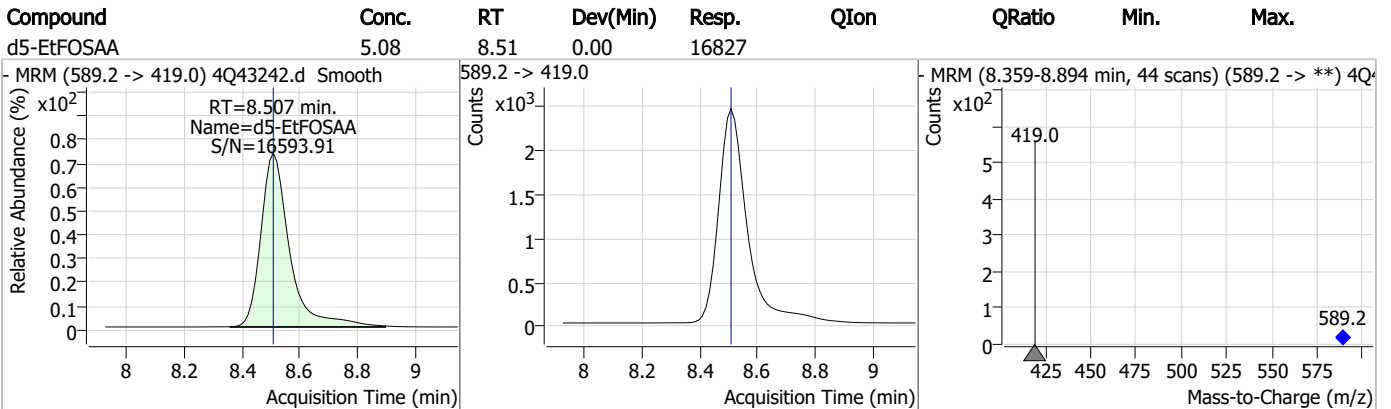
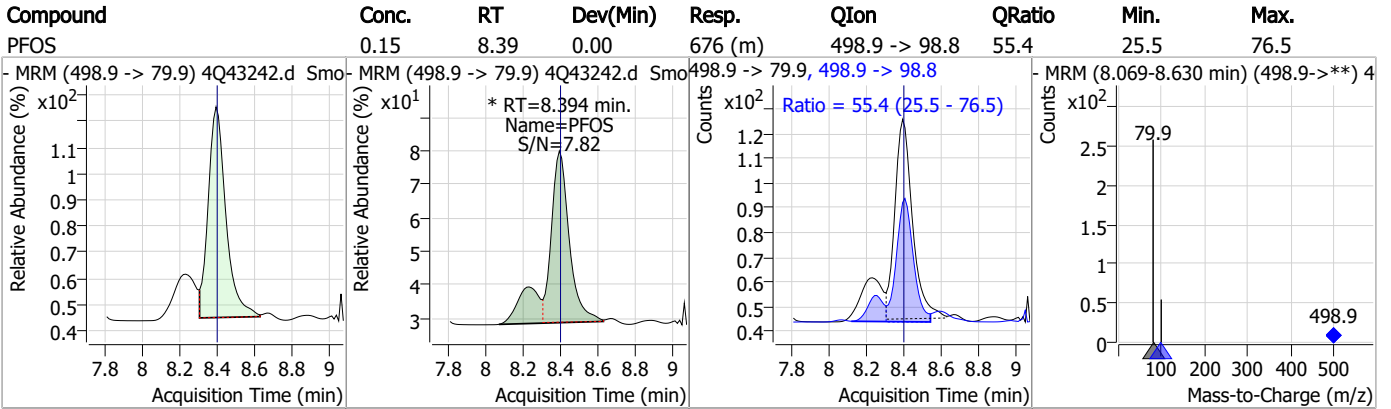


Perfluorinated Compounds by LC/MS/MS



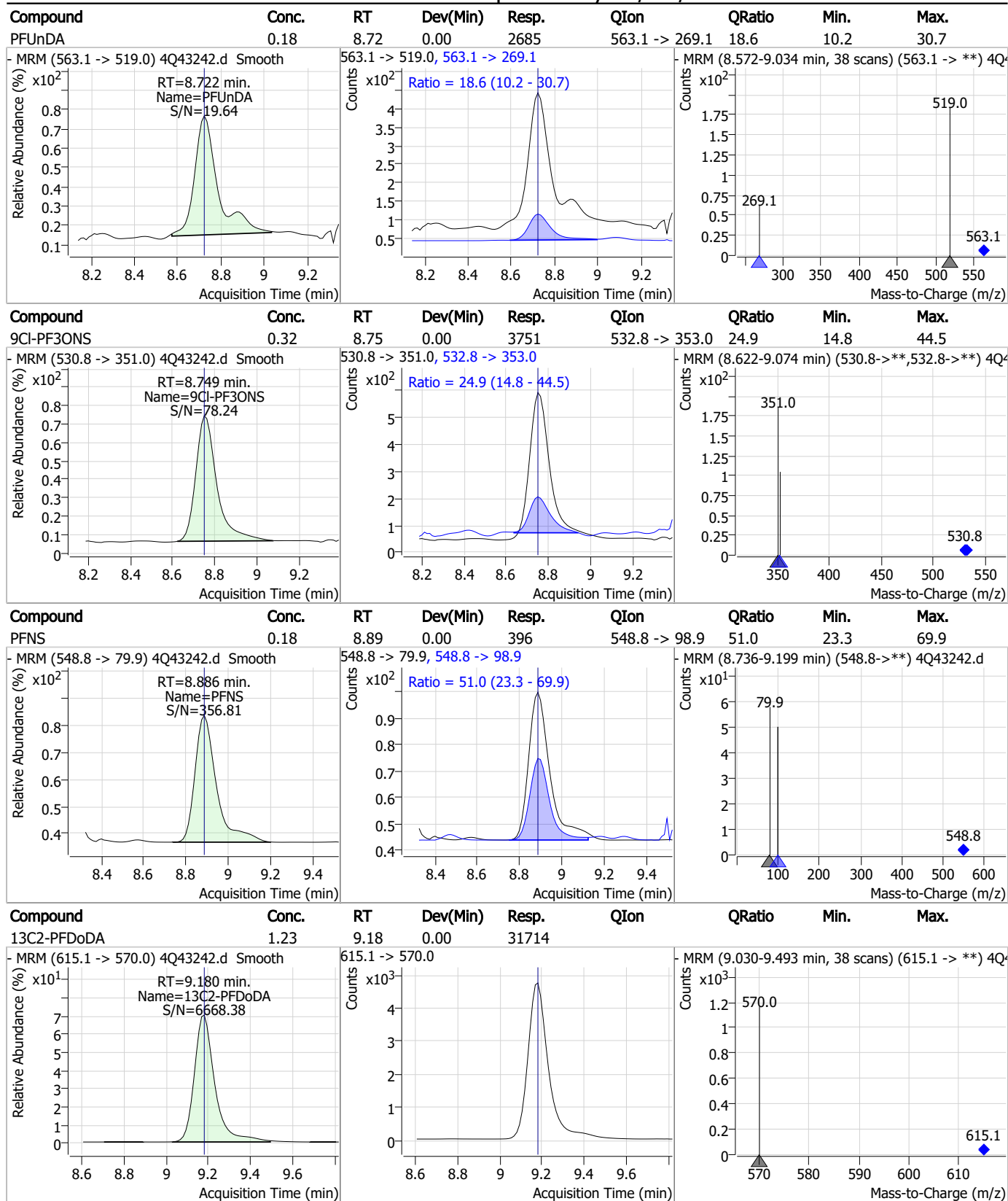
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Perfluorinated Compounds by LC/MS/MS



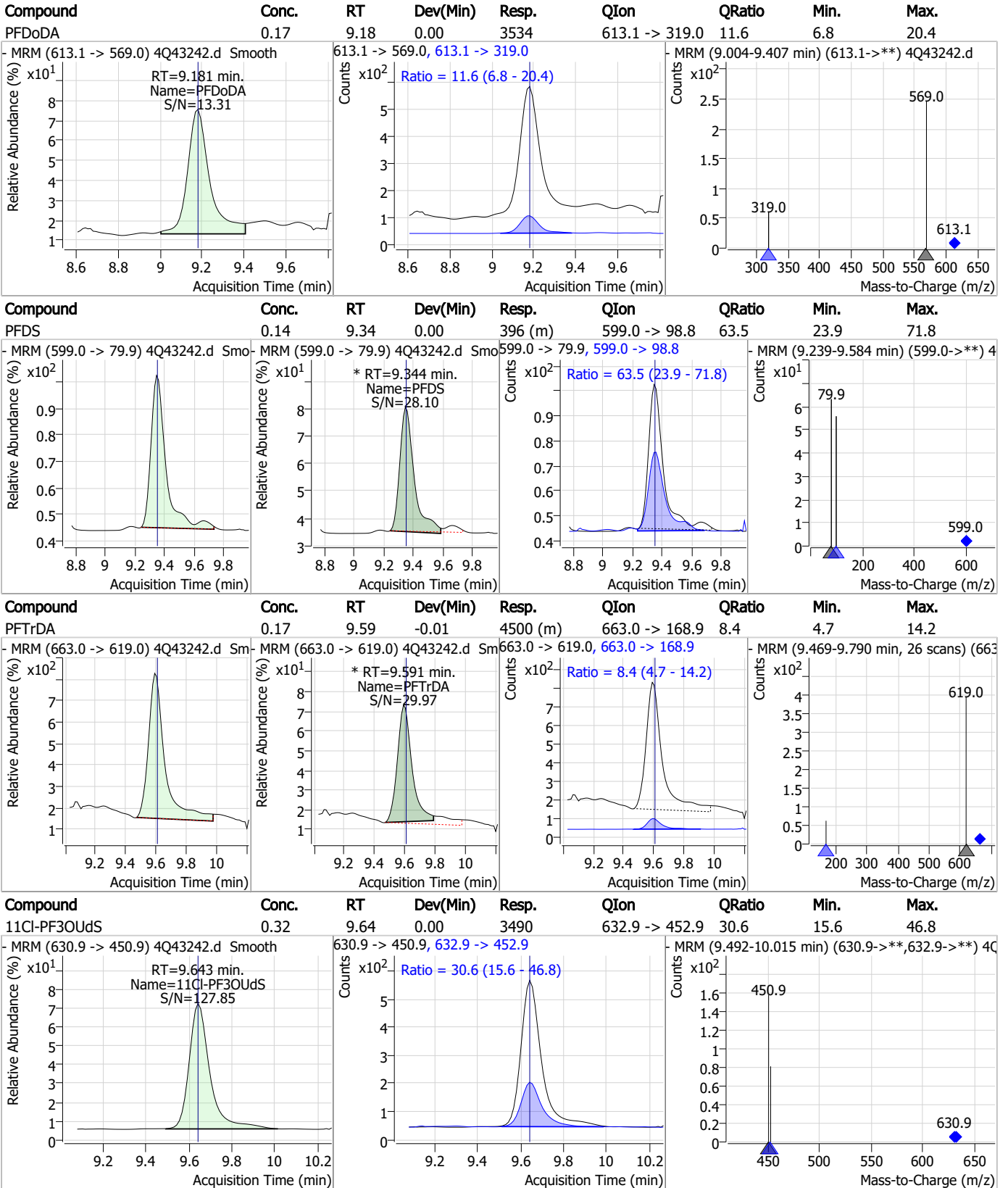
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Perfluorinated Compounds by LC/MS/MS



7.7.17

Perfluorinated Compounds by LC/MS/MS

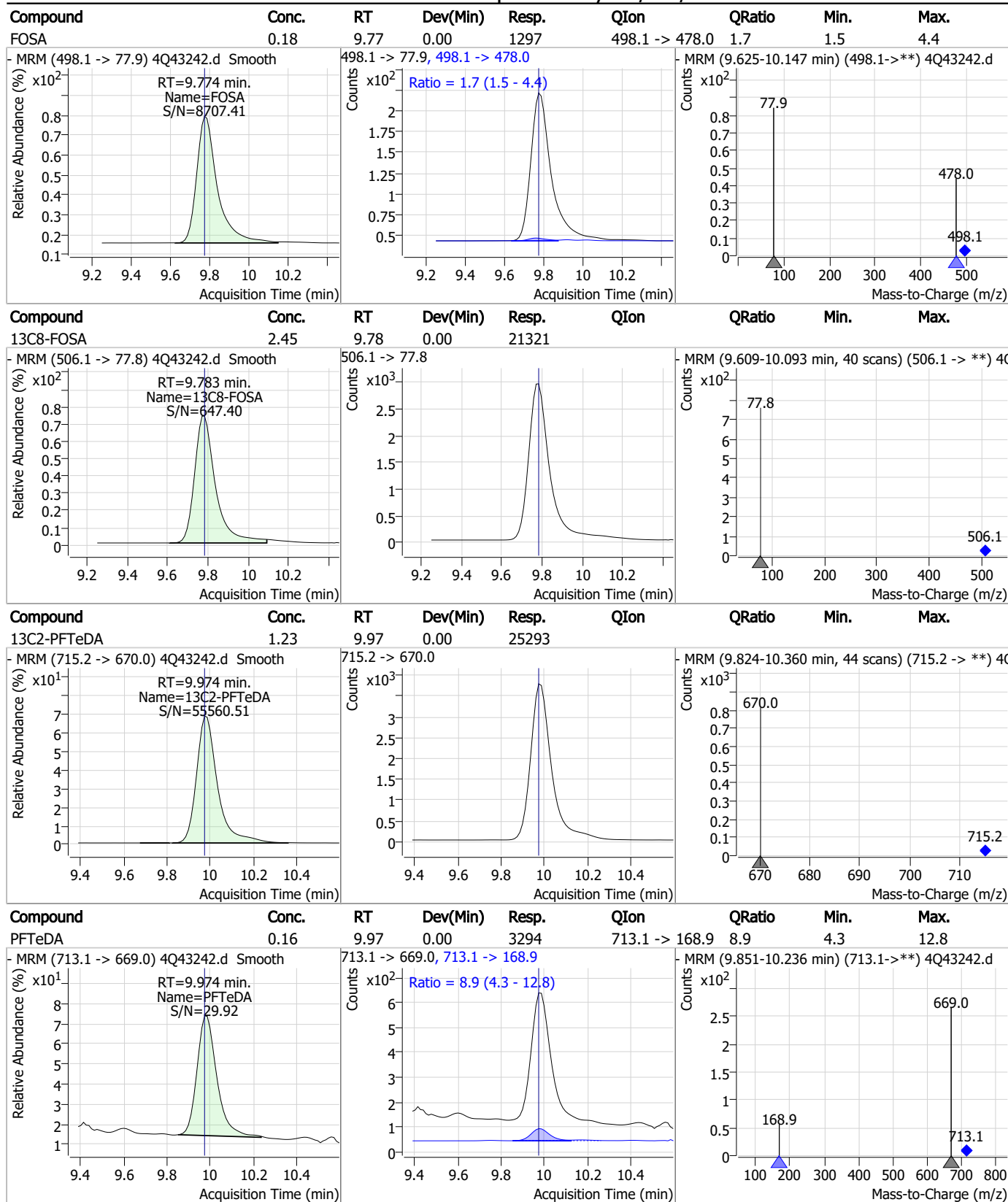


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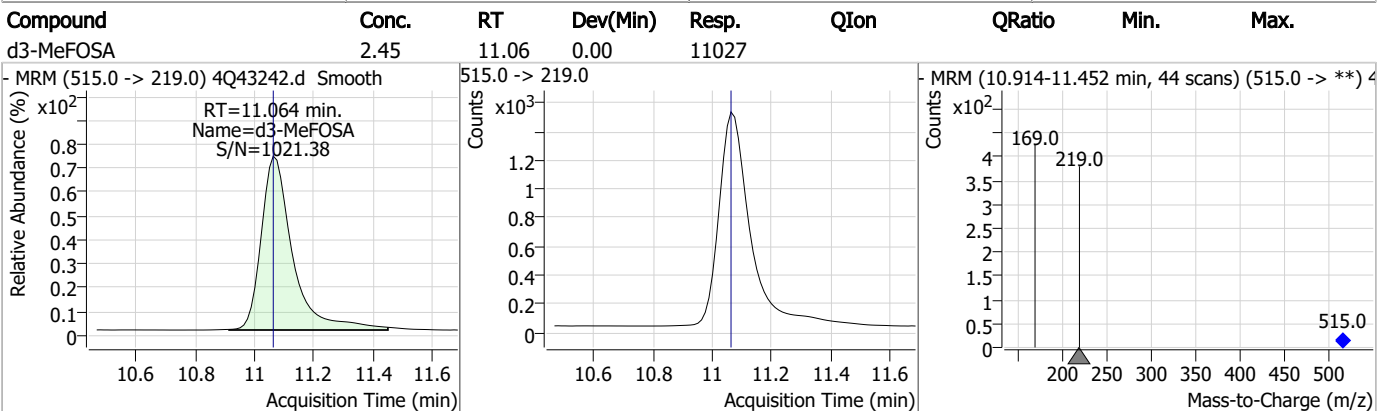
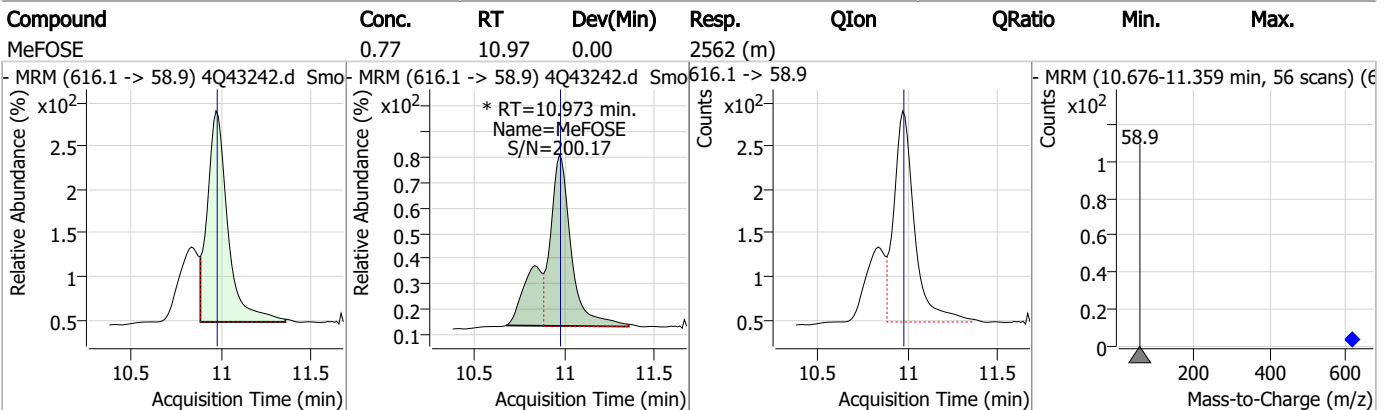
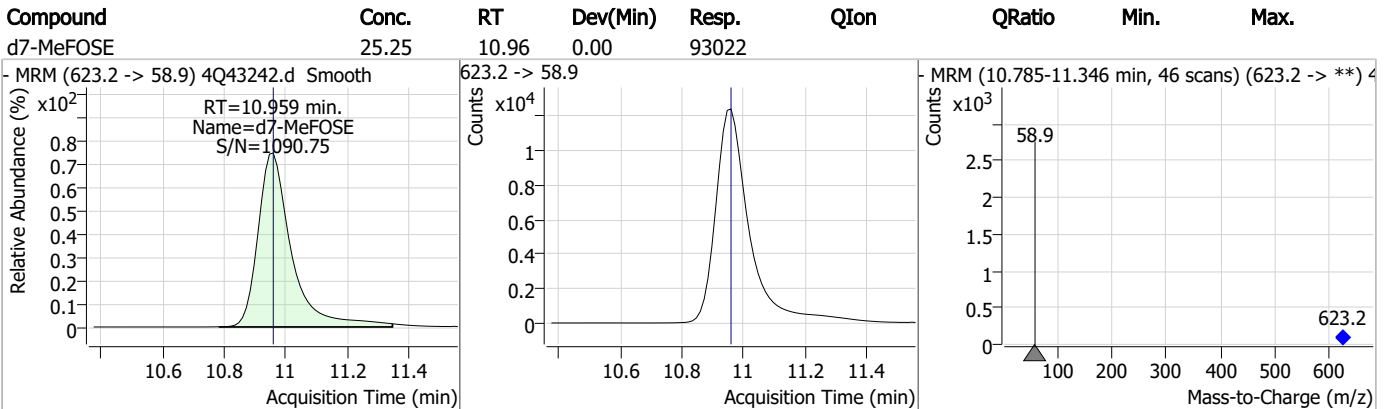
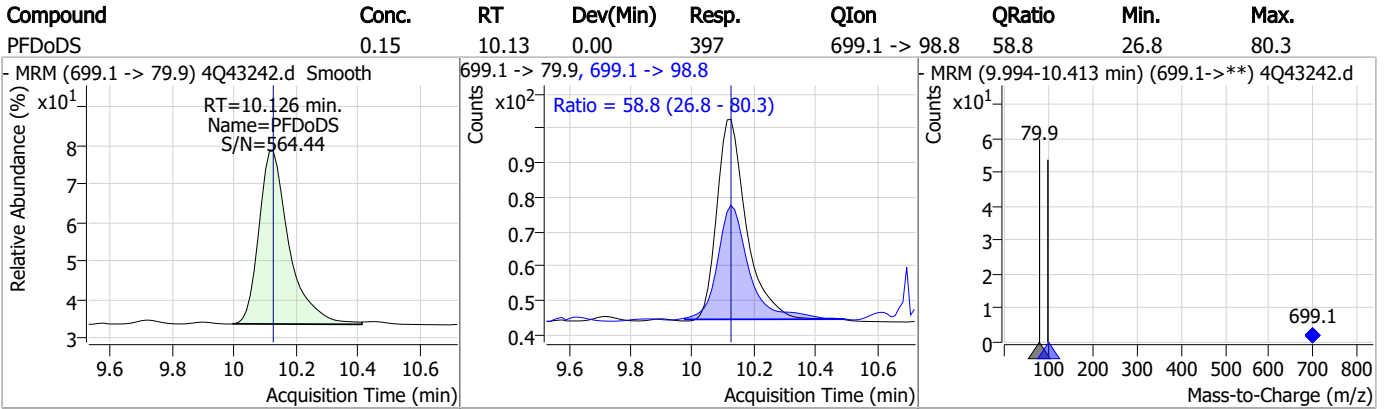
Perfluorinated Compounds by LC/MS/MS



7.7.17

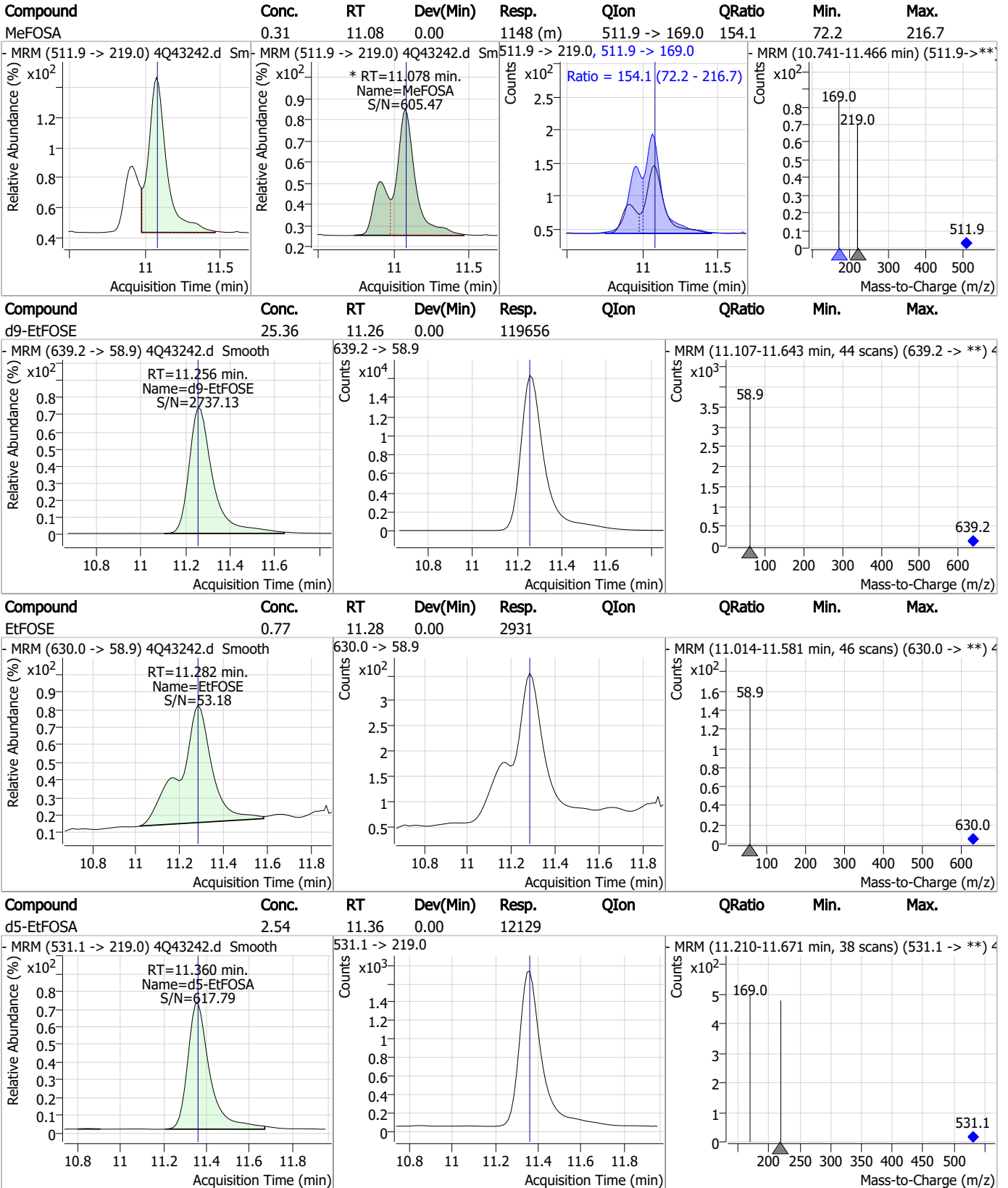
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Perfluorinated Compounds by LC/MS/MS



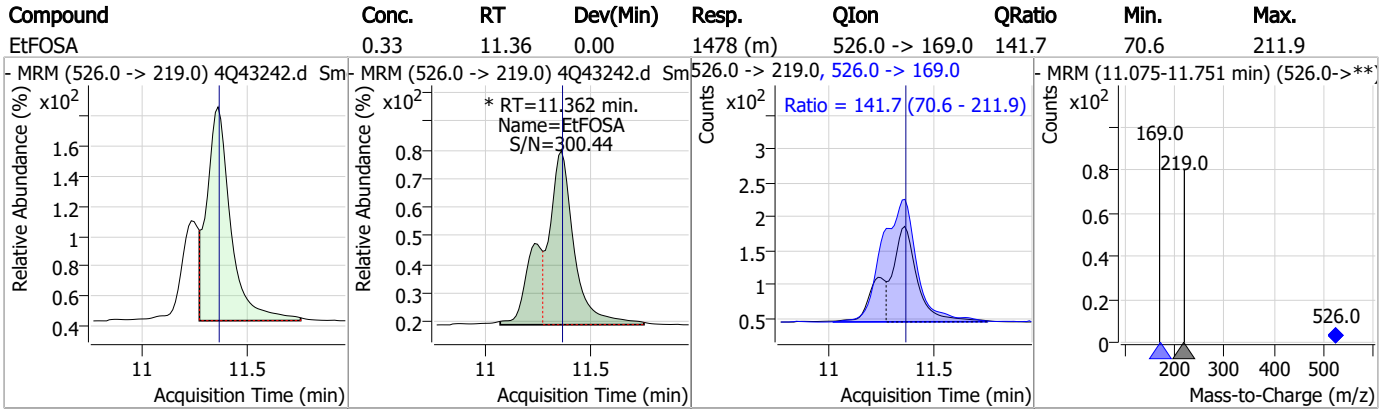
7.7.17
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q625-IC625 **Method:** EPA DRAFT 1633
Lab FileID: 4Q43242.D **Analyst approved:** 04/20/23 14:17 Natasha Gumtie
Injection Time: 04/19/23 11:54 **Supervisor approved:** 04/21/23 13:15 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.18	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
8:2 Fluorotelomer sulfonate	39108-34-4		8.03	Poor instrument integration
Perfluorodecanoic acid	335-76-2		8.24	Split peak
MeFOSAA	2355-31-9		8.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.39	Split peak
EtFOSAA	2991-50-6		8.51	Split peak
Perfluorodecanesulfonic acid	335-77-3		9.34	Split peak
Perfluorotridecanoic acid	72629-94-8		9.59	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.7.17.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43243.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/19/2023 12:08:50 PM
 Sample Name : ic625-2
 Vial : P1-A3
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s6q625.batch.bin
 Sample Information : OP96301,S4q625,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	127982	10.00 µg/L	0.000
M5-PFPeA	4.412	268.3 -> 223.0	76984	5.00 µg/L	0.000
M5-PFHxA	5.584	318.0 -> 273.0	57751	2.50 µg/L	0.000
M4-PFHpA	6.517	367.1 -> 322.0	31885	2.50 µg/L	0.000
M8-PFOA	7.188	421.1 -> 376.0	43221	2.50 µg/L	0.000
M9-PFNA	7.733	472.1 -> 427.0	23197	1.25 µg/L	0.000
M6-PFDA	8.240	519.1 -> 474.1	23273	1.25 µg/L	0.000
M7-PFUnDA	8.722	570.0 -> 525.1	25408	1.25 µg/L	0.000
M2-PFDoDA	9.180	615.1 -> 570.0	30983	1.25 µg/L	0.000
M2-PFTeDA	9.974	715.2 -> 670.0	25324	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	21282	2.50 µg/L	0.000
M3-PFBS	5.502	302.1 -> 79.9	12771	2.50 µg/L	0.000
M3-PFHxS	7.291	402.1 -> 79.9	7611	2.50 µg/L	0.000
M8-PFOS	8.405	507.1 -> 79.9	11641	2.50 µg/L	0.012
M2-4:2FTS	5.273	329.1 -> 80.9	1657	5.00 µg/L	0.000
M2-6:2FTS	6.948	429.1 -> 80.9	2753	5.00 µg/L	0.000
M2-8:2FTS	8.027	529.1 -> 80.9	4839	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	20426	5.00 µg/L	0.000
M3-HFPO-DA	5.952	286.9 -> 168.9	38348	10.00 µg/L	0.000
M5-EtFOSAA	8.507	589.2 -> 419.0	16522	5.00 µg/L	0.000
M7-MeFOSE	10.947	623.2 -> 58.9	96961	25.00 µg/L	-0.012
M9-EtFOSE	11.256	639.2 -> 58.9	121317	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	11879	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	10927	2.50 µg/L	0.000
13C4-PFOS	8.405	502.8 -> 79.9	12285	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	70583	5.00 µg/L	0.000
18O2-PFHxS	7.290	403.0 -> 83.9	5513	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	52510	2.50 µg/L	0.000
13C2-PFDA	8.241	515.1 -> 470.1	21268	1.25 µg/L	0.000
13C5-PFNA	7.734	468.0 -> 423.0	26891	1.25 µg/L	0.000
13C2-PFHxA	5.585	315.1 -> 270.0	50142	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.273	329.1 -> 80.9	1657	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-6:2FTS	6.948	429.1 -> 80.9	2753	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-8:2FTS	8.027	529.1 -> 80.9	4839	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C2-PFDoDA	9.180	615.1 -> 570.0	30983	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C2-PFTeDA	9.974	715.2 -> 670.0	25324	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C3-PFBS	5.502	302.1 -> 79.9	12771	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C3-PFHxS	7.291	402.1 -> 79.9	7611	2.42 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 = 96.7%	
13C4-PFBA	2.936	216.8 -> 171.9	127982	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.517	367.1 -> 322.0	31885	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C5-PFHxA	5.584	318.0 -> 273.0	57751	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C5-PFPeA	4.412	268.3 -> 223.0	76984	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C6-PFDA	8.240	519.1 -> 474.1	23273	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C7-PFUnDA	8.722	570.0 -> 525.1	25408	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C8-FOSA	9.783	506.1 -> 77.8	21282	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C8-PFOA	7.188	421.1 -> 376.0	43221	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C8-PFOS	8.405	507.1 -> 79.9	11641	2.37 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C9-PFNA	7.733	472.1 -> 427.0	23197	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.8%	
d3-MeFOSAA	8.298	573.2 -> 419.0	20426	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C3-HFPO-DA	5.952	286.9 -> 168.9	38348	10.08 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
d3-MeFOSA	11.064	515.0 -> 219.0	10927	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.0%	
d5-EtFOSAA	8.507	589.2 -> 419.0	16522	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
d7-MeFOSE	10.947	623.2 -> 58.9	96961	25.73 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
d9-EtFOSE	11.256	639.2 -> 58.9	121317	25.14 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
d5-EtFOSA	11.360	531.1 -> 219.0	11879	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
Target Compounds					QValue
4:2FTS	5.273	327.1 -> 307.0	2988	1.41 µg/L	98
		327.1 -> 80.9	1296		
6:2FTS	6.949	427.1 -> 407.0	2901	1.38 µg/L	93
		427.1 -> 80.9	1158		
8:2FTS	8.028	527.1 -> 507.0	3389	1.42 µg/L	95
		527.1 -> 80.8	1489		
EtFOSAA	8.521	584.2 -> 419.1	845	0.36 µg/L	m 88
		584.2 -> 526.0	518		
FOSA	9.774	498.1 -> 77.9	2494	0.35 µg/L	m 98
		498.1 -> 478.0	57		
MeFOSAA	8.299	570.1 -> 419.0	1000	0.34 µg/L	m 98
		570.1 -> 483.0	221		
PFBA	2.932	212.8 -> 168.9	4257	1.43 µg/L	100
PFBS	5.503	298.7 -> 79.9	1671	0.33 µg/L	93
		298.7 -> 98.8	600		
PFDA	8.241	512.9 -> 469.0	5088	0.36 µg/L	87
		512.9 -> 219.0	729		
PFDODA	9.181	613.1 -> 569.0	7323	0.36 µg/L	96
		613.1 -> 319.0	1119		
PFDS	9.344	599.0 -> 79.9	999	0.37 µg/L	88

7.7.18
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	562			
PFHpA	6.517	363.1 -> 319.0	5886	0.35	µg/L	99
		363.1 -> 169.0	1047			
PFHpS	7.873	449.0 -> 79.9	1190	0.36	µg/L	99
		449.0 -> 98.9	623			
PFHxA	5.587	313.0 -> 269.0	6611	0.36	µg/L	97
		313.0 -> 118.9	267			
PFHxS	7.292	398.7 -> 79.9	994	0.36	µg/L	m 97
		398.7 -> 98.9	520			
PFNA	7.734	463.0 -> 419.0	4718	0.36	µg/L	96
		463.0 -> 219.0	1306			
PFNS	8.899	548.8 -> 79.9	607	0.29	µg/L	84
		548.8 -> 98.9	346			
PFOA	7.189	413.0 -> 369.0	6097	0.32	µg/L	95
		413.0 -> 169.0	1412			
PFOS	8.394	498.9 -> 79.9	1505	0.34	µg/L	m 97
		498.9 -> 98.8	739			
PFPeA	4.414	263.0 -> 219.0	10890	0.71	µg/L	100
PFPeS	6.557	349.1 -> 79.9	773	0.32	µg/L	91
		349.1 -> 98.9	394			
PFTeDA	9.974	713.1 -> 669.0	7567	0.37	µg/L	100
		713.1 -> 168.9	643			
PFTrDA	9.604	663.0 -> 619.0	9132	0.36	µg/L	95
		663.0 -> 168.9	1036			
PFUnDA	8.722	563.1 -> 519.0	5037	0.35	µg/L	99
		563.1 -> 269.1	1049			
11Cl-PF3OUdS	9.643	630.9 -> 450.9	7689	0.70	µg/L	96
		632.9 -> 452.9	2241			
9Cl-PF3ONS	8.749	530.8 -> 351.0	7811	0.66	µg/L	99
		532.8 -> 353.0	2379			
ADONA	6.781	376.9 -> 250.9	18940	0.69	µg/L	98
		376.9 -> 84.8	5146			
HFPO-DA	5.953	284.9 -> 168.9	2057	0.68	µg/L	92
		284.9 -> 184.9	290			
3:3FTCA	3.867	241.0 -> 177.0	1345	1.84	µg/L	93
		241.0 -> 117.0	92			
5:3FTCA	6.231	341.0 -> 237.1	24613	9.08	µg/L	99
		341.0 -> 217.0	17524			
7:3FTCA	7.686	441.0 -> 316.9	12240	9.25	µg/L	95
		441.0 -> 336.9	26257			
EtFOSA	11.362	526.0 -> 219.0	3247	0.73	µg/L	m 96
		526.0 -> 169.0	4414			
EtFOSE	11.282	630.0 -> 58.9	7108	1.84	µg/L	100
MeFOSA	11.065	511.9 -> 219.0	2783	0.76	µg/L	m 92
		511.9 -> 169.0	3735			
MeFOSE	10.973	616.1 -> 58.9	6439	1.87	µg/L	m 100
PFDoDS	10.126	699.1 -> 79.9	847	0.34	µg/L	95
		699.1 -> 98.8	484			
NFDHA	5.465	295.0 -> 201.0	844	0.86	µg/L	99
		295.0 -> 84.9	244			
PFMBA	4.828	279.0 -> 85.1	6202	0.71	µg/L	100
PFMPA	3.553	229.0 -> 84.9	5500	0.70	µg/L	100
PFEESA	6.034	314.8 -> 134.9	9818	0.66	µg/L	99
		314.8 -> 82.9	360			

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

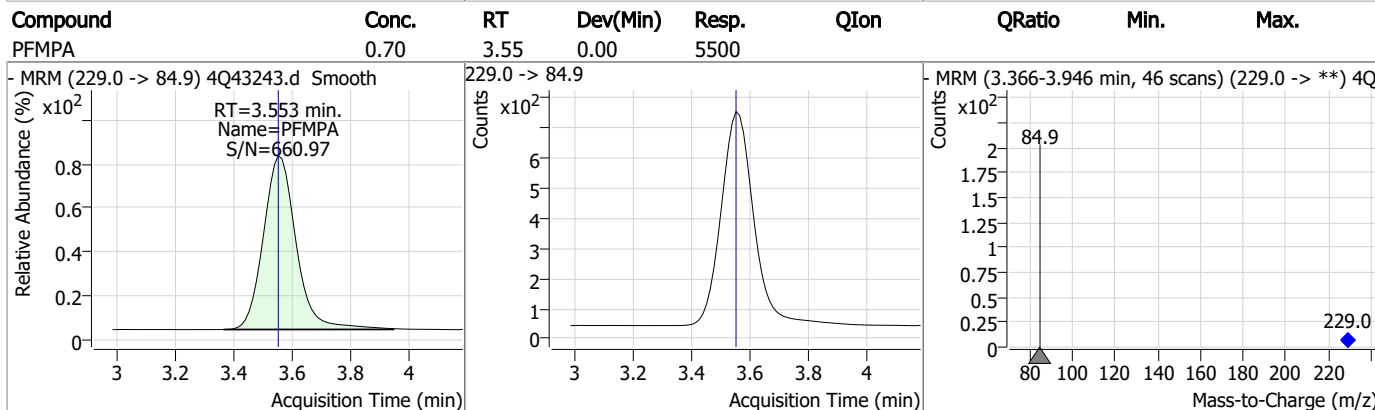
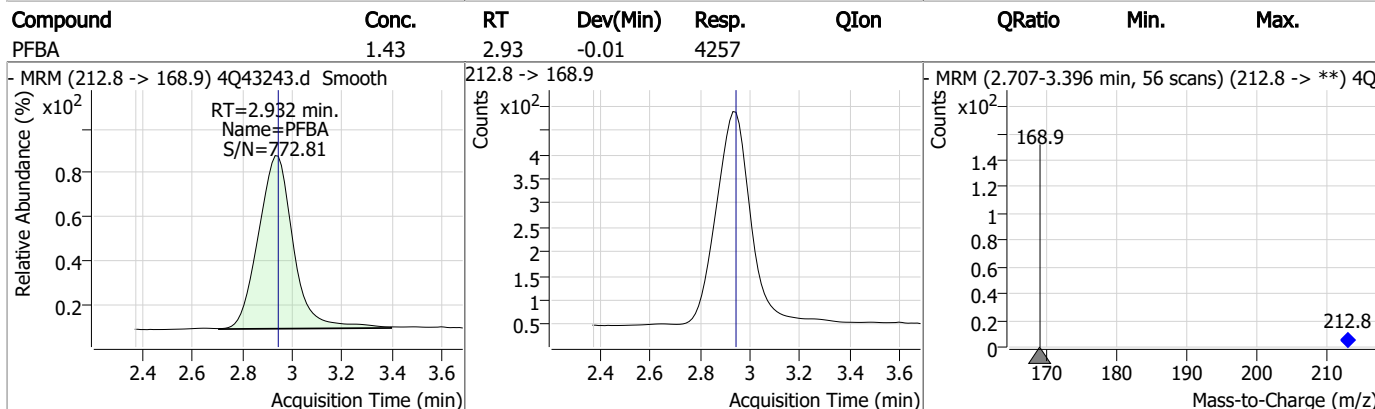
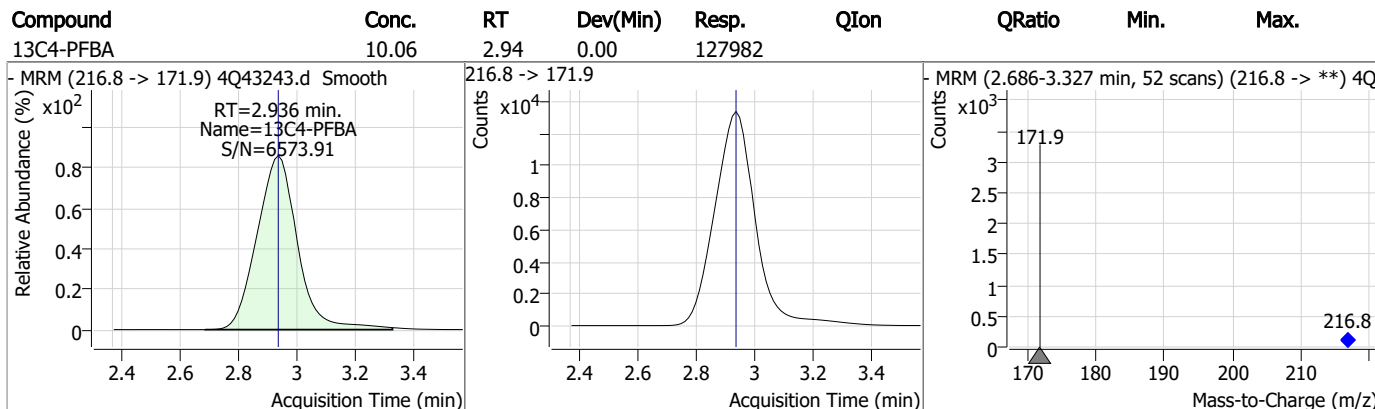
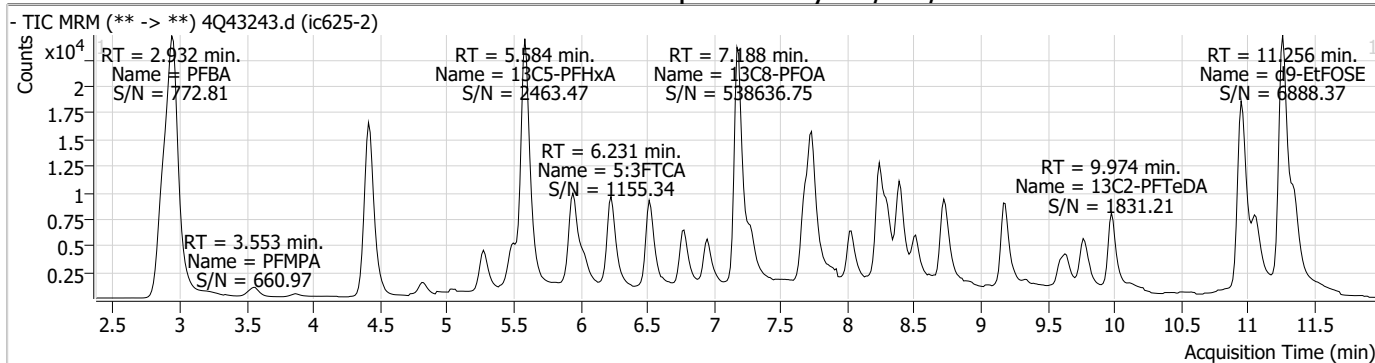
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.18

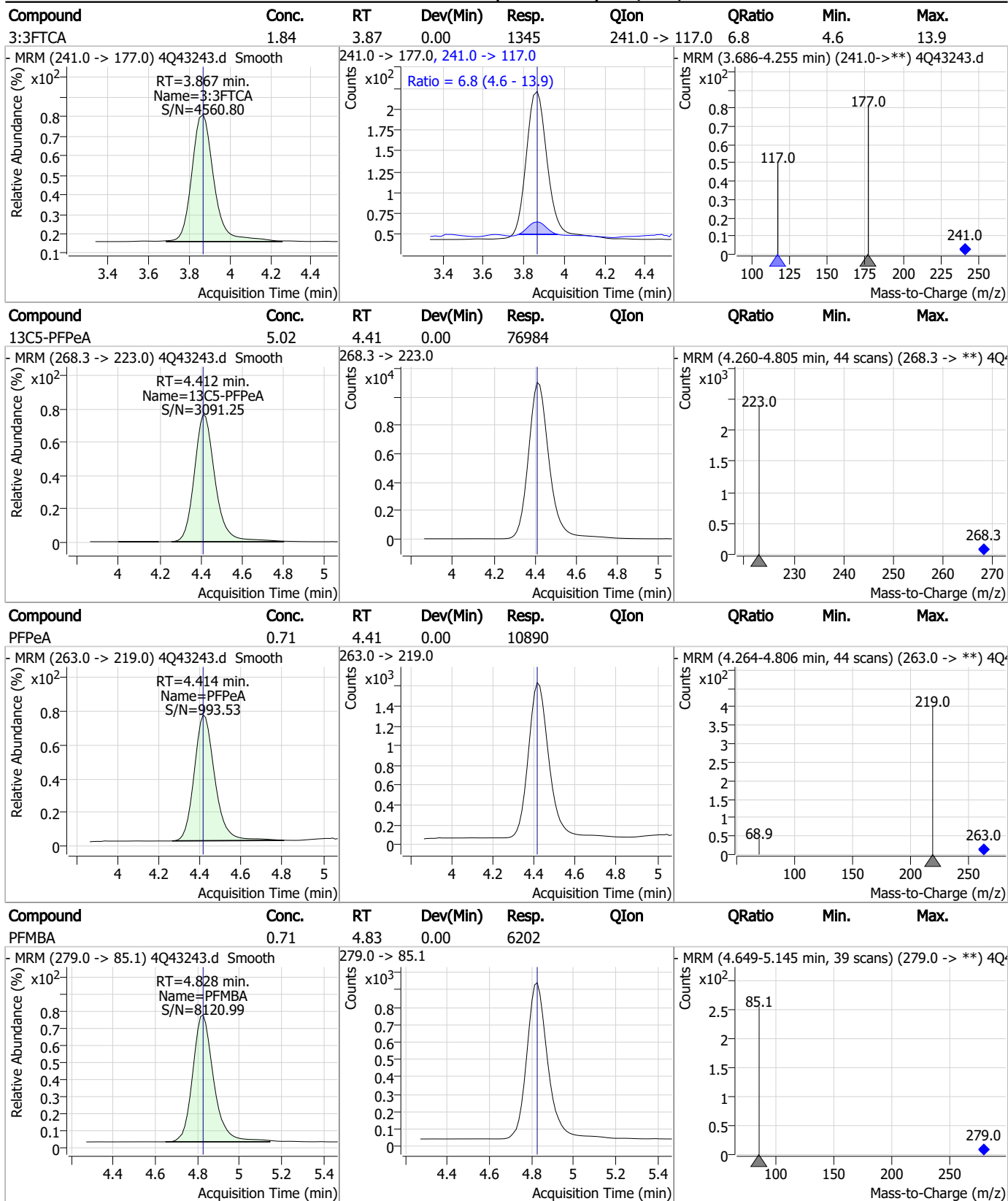
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Perfluorinated Compounds by LC/MS/MS



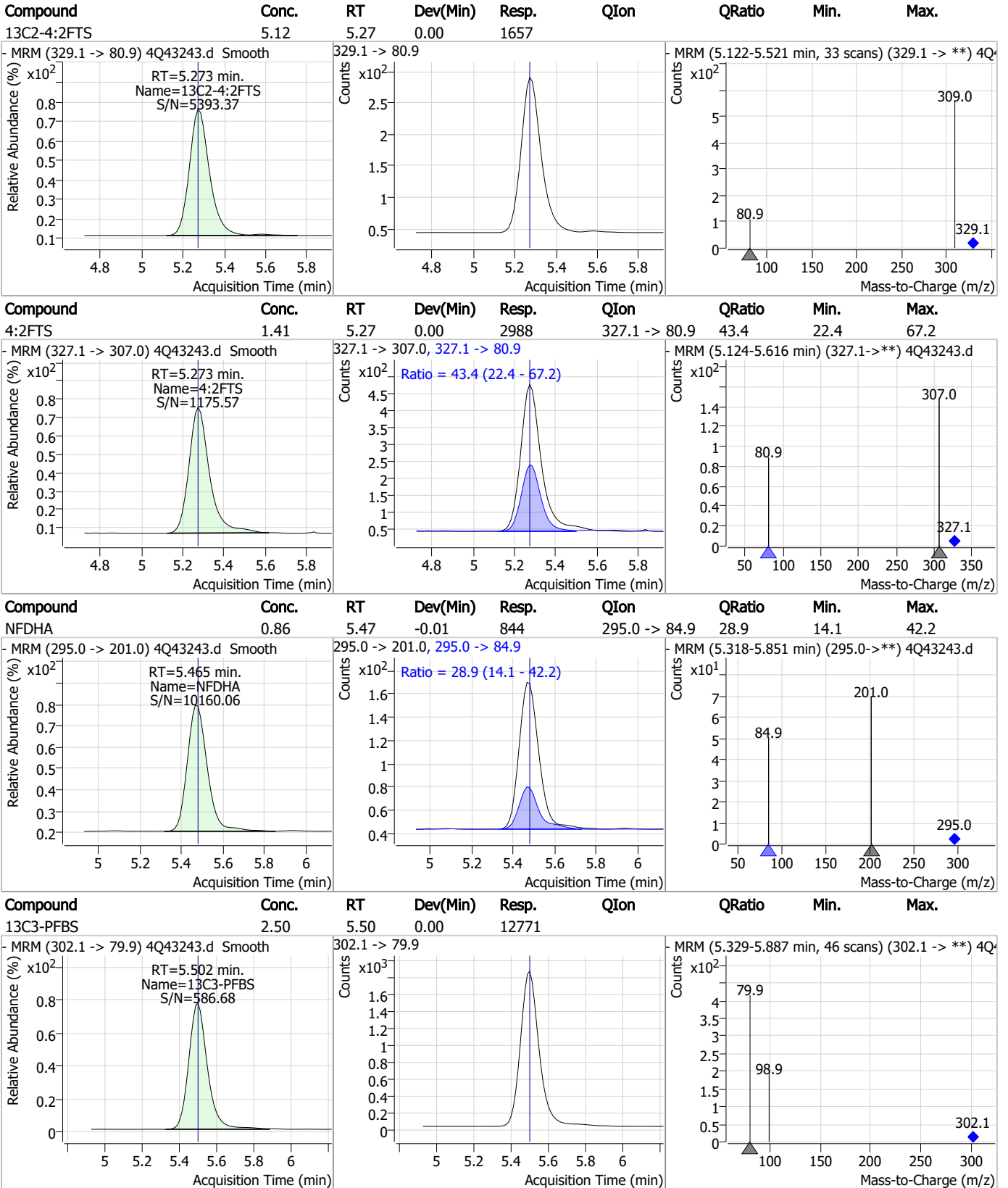
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Perfluorinated Compounds by LC/MS/MS



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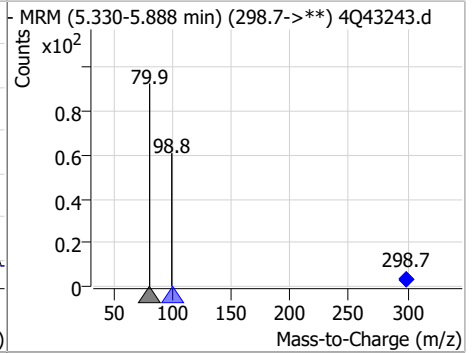
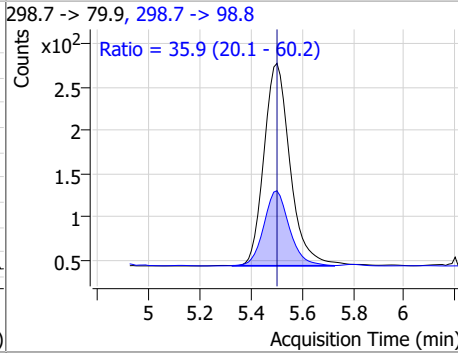
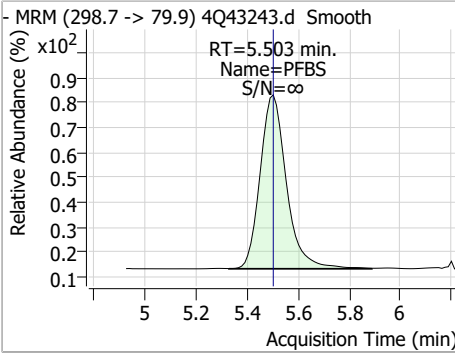
Perfluorinated Compounds by LC/MS/MS



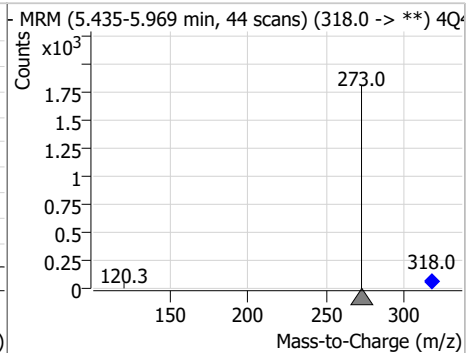
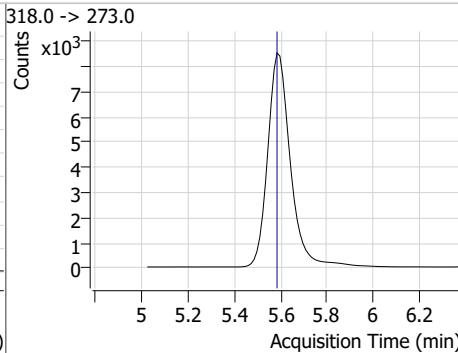
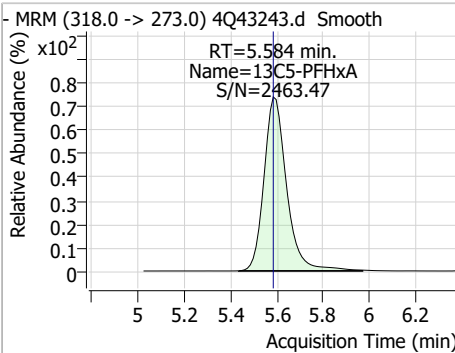
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Perfluorinated Compounds by LC/MS/MS

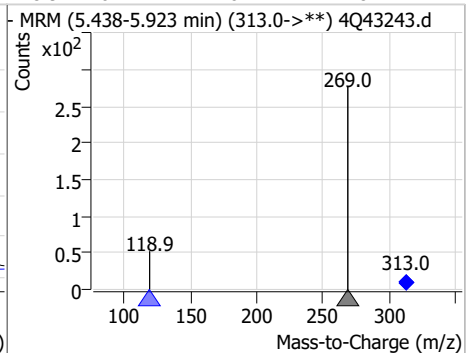
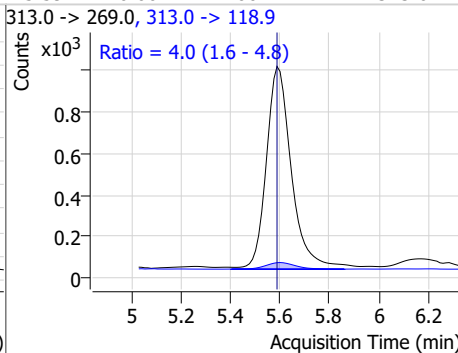
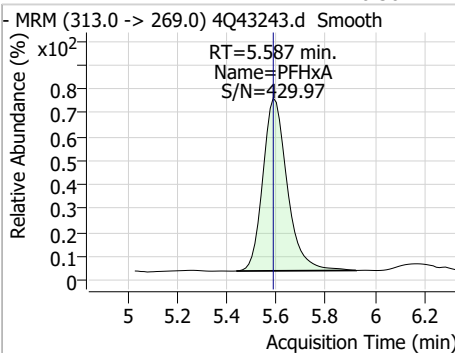
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.33	5.50	0.00	1671	298.7 -> 98.8	35.9	20.1	60.2



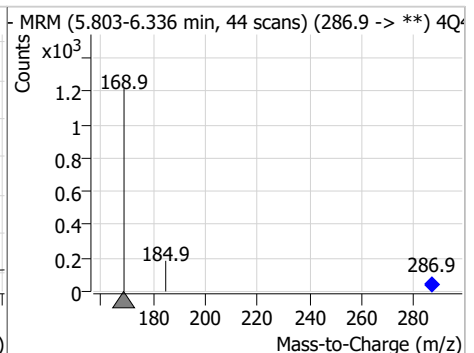
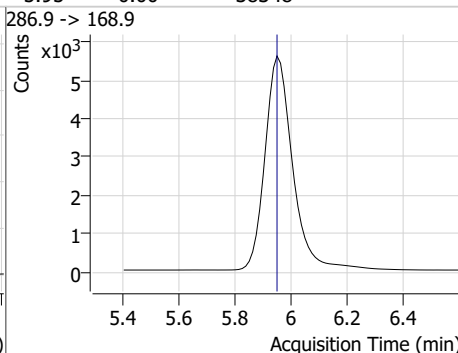
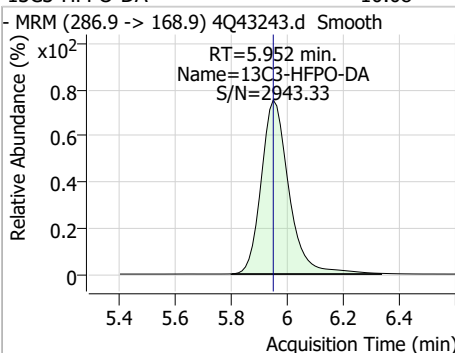
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.45	5.58	0.00	57751	318.0 -> 273.0	4.0	1.6	4.8



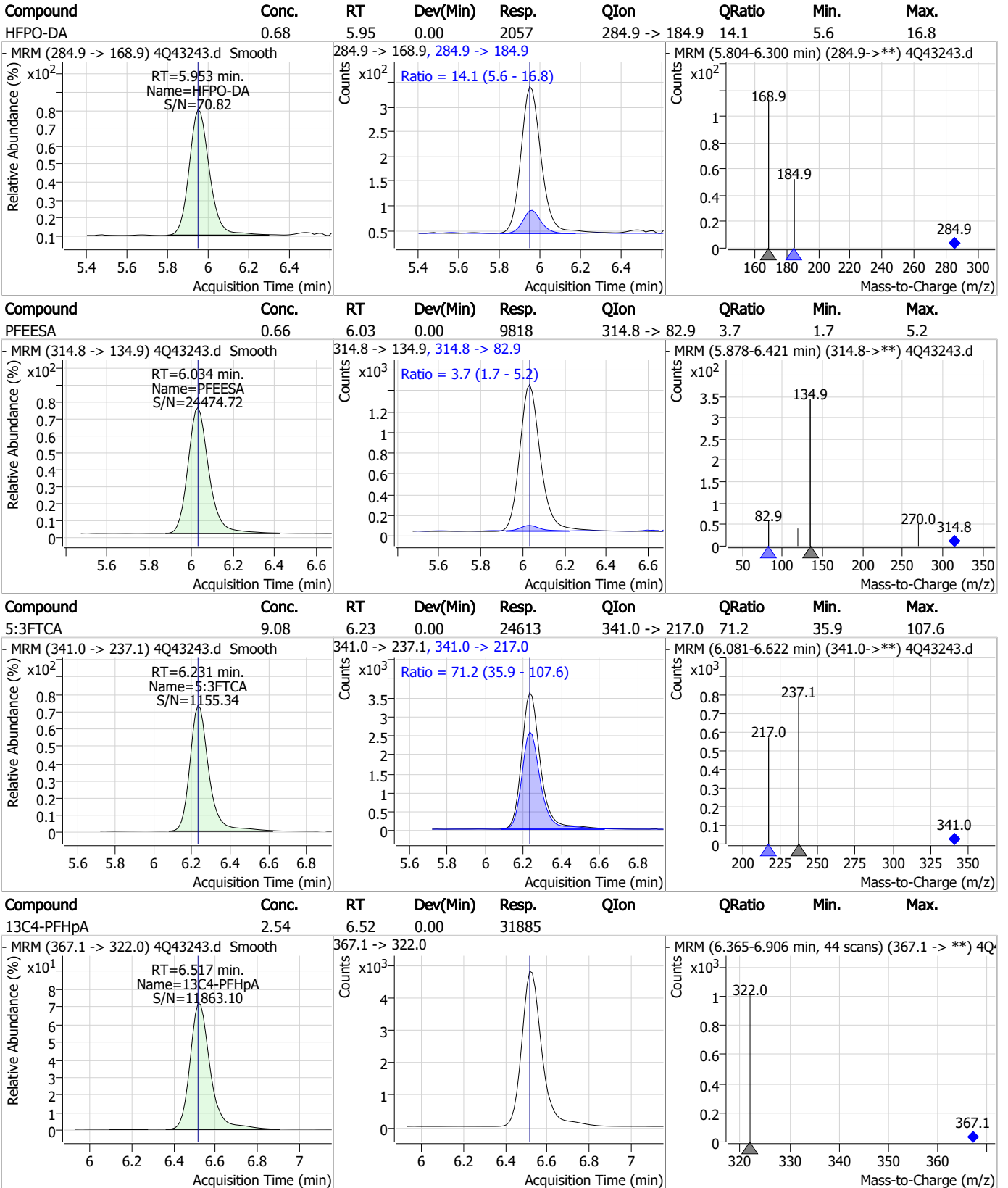
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.36	5.59	0.00	6611	313.0 -> 118.9	4.0	1.6	4.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.08	5.95	0.00	38348	286.9 -> 168.9	4.0	1.6	4.8

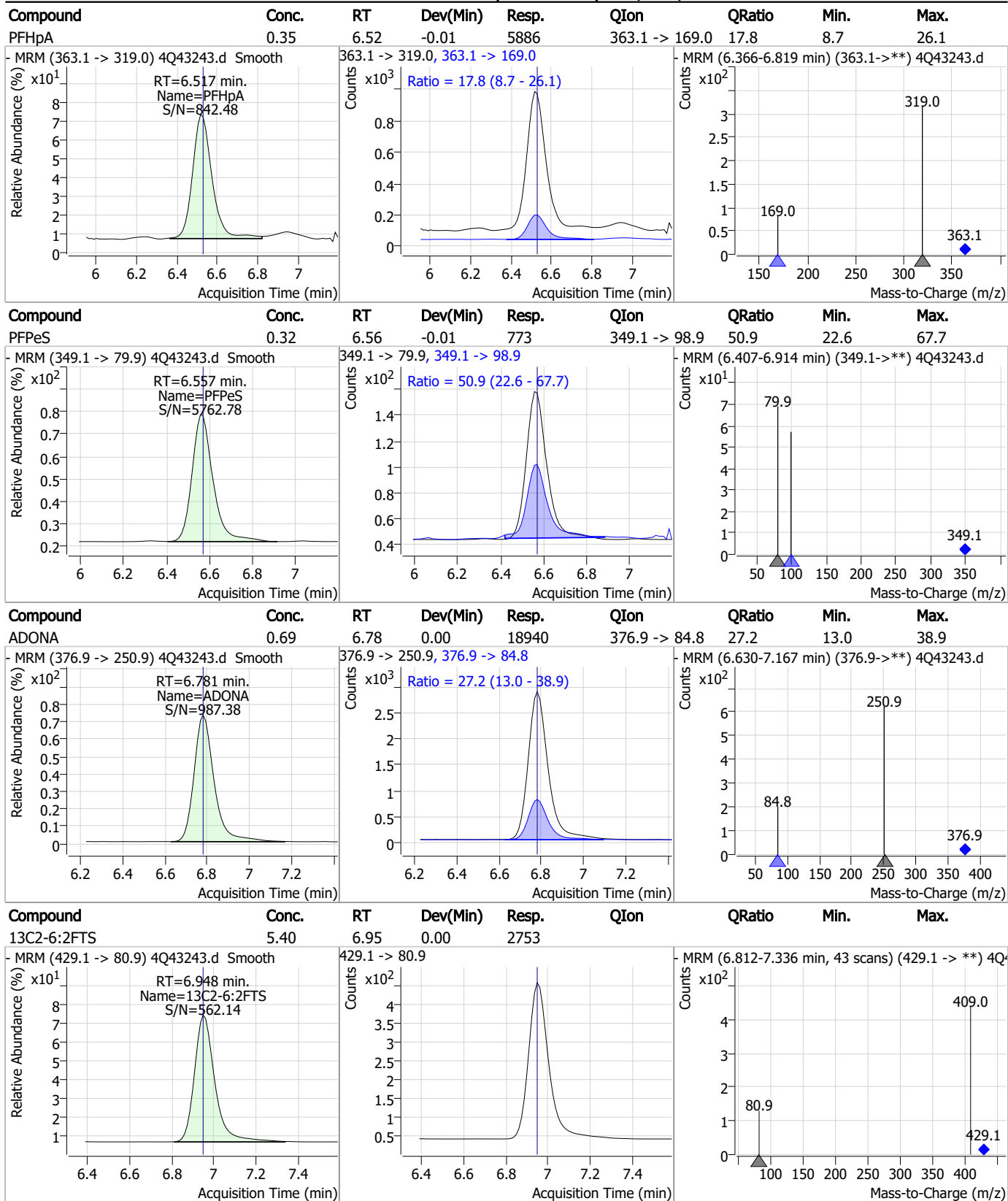


Perfluorinated Compounds by LC/MS/MS



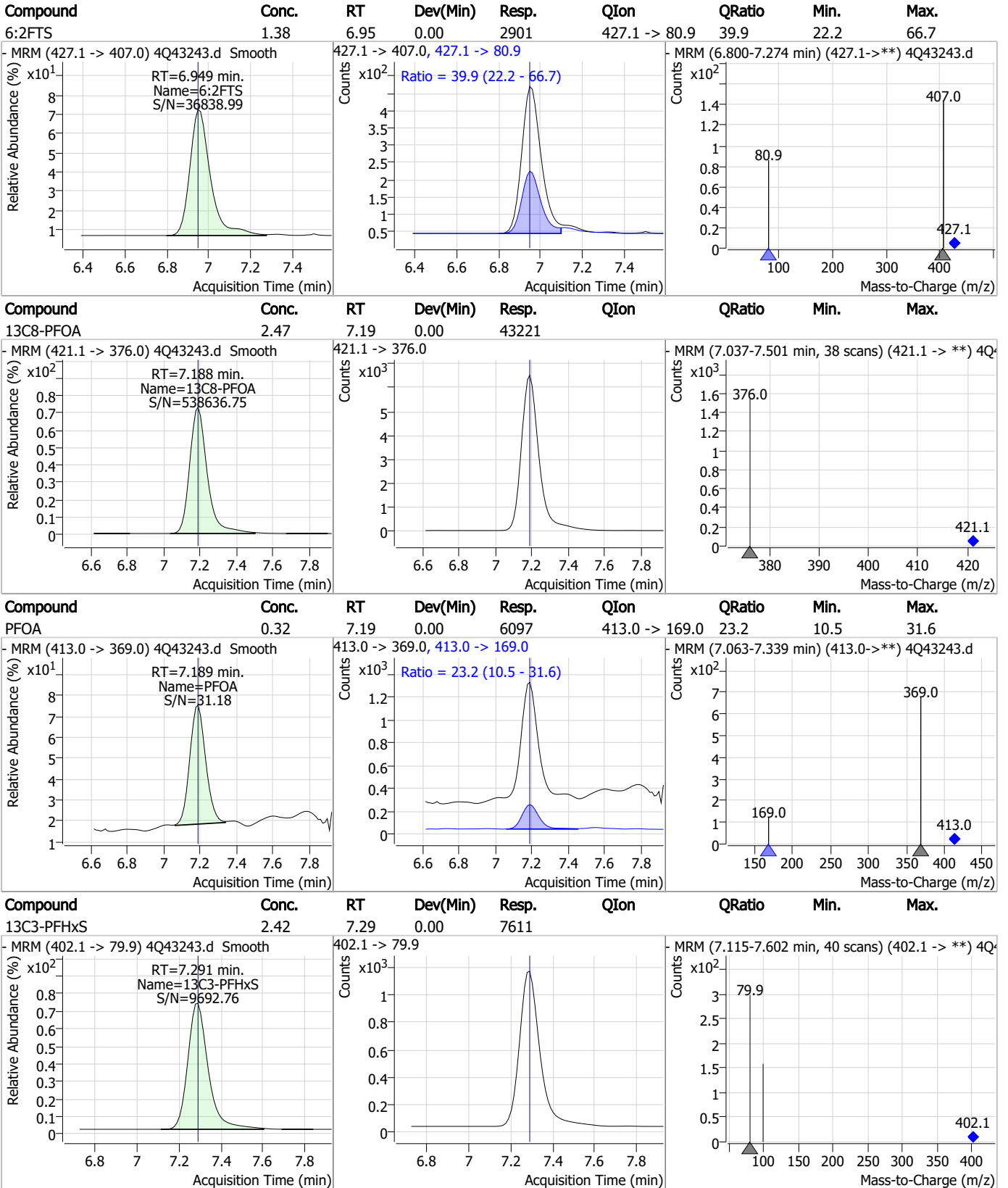
7.7.18 7

Perfluorinated Compounds by LC/MS/MS



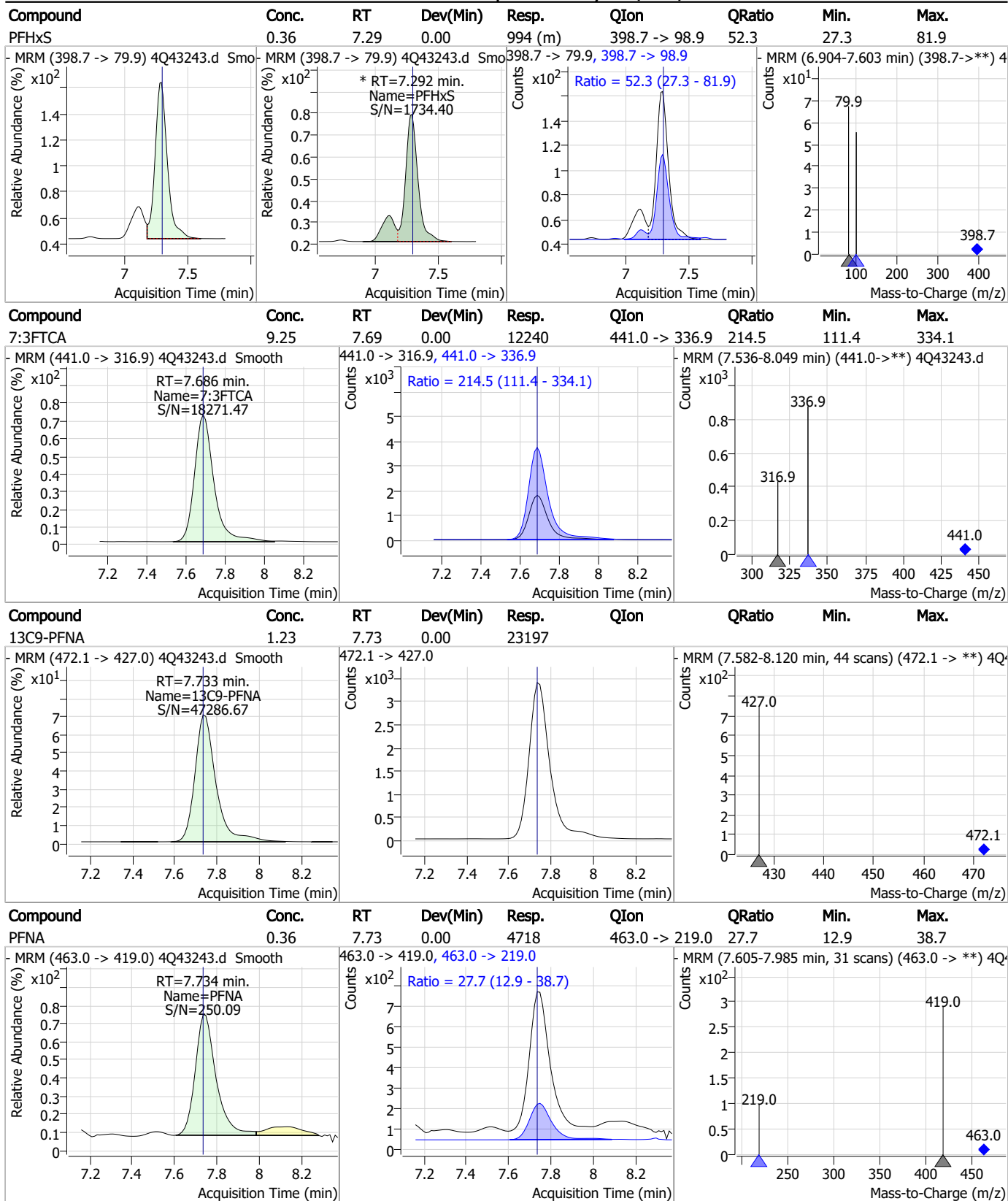
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Perfluorinated Compounds by LC/MS/MS



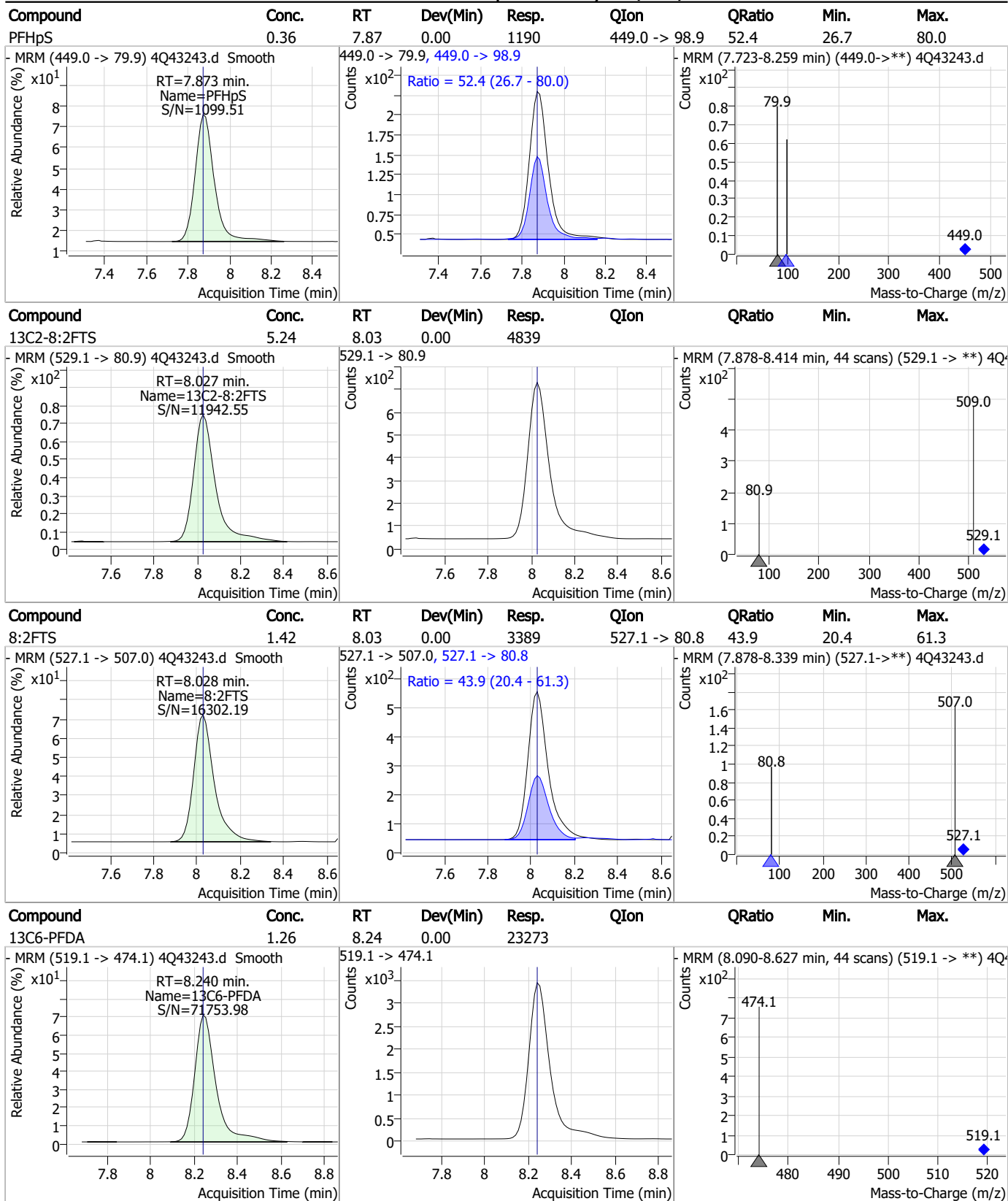
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Perfluorinated Compounds by LC/MS/MS



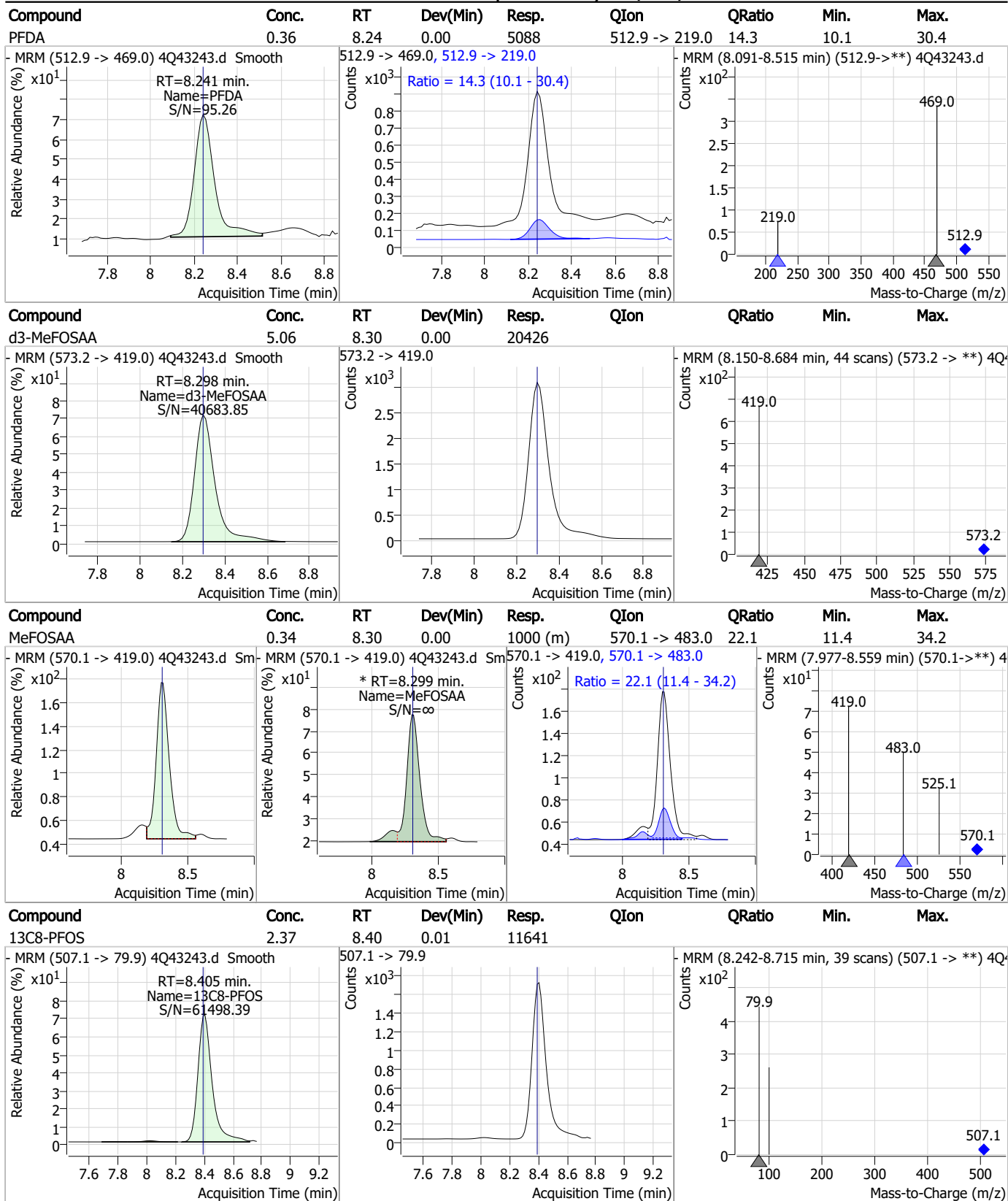
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Perfluorinated Compounds by LC/MS/MS



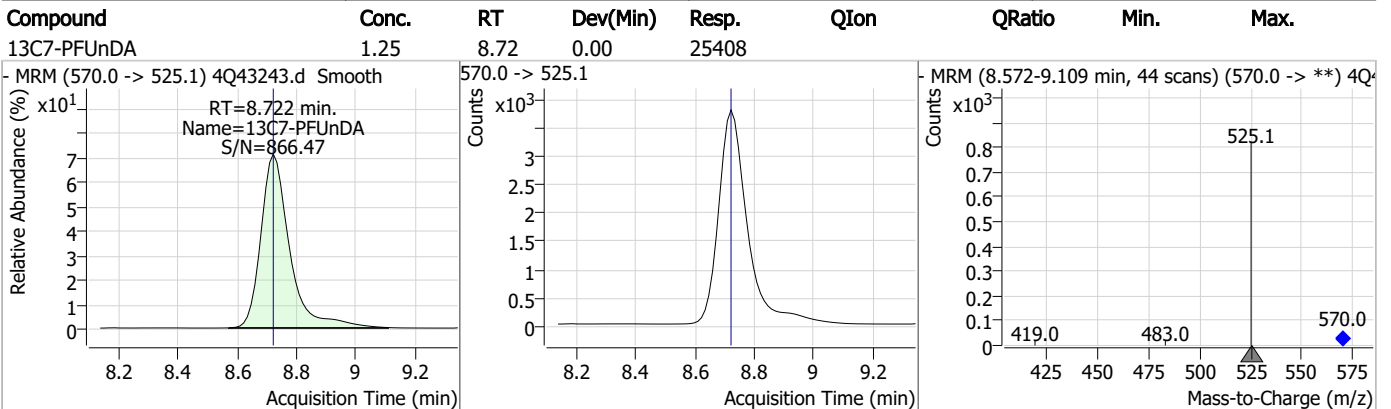
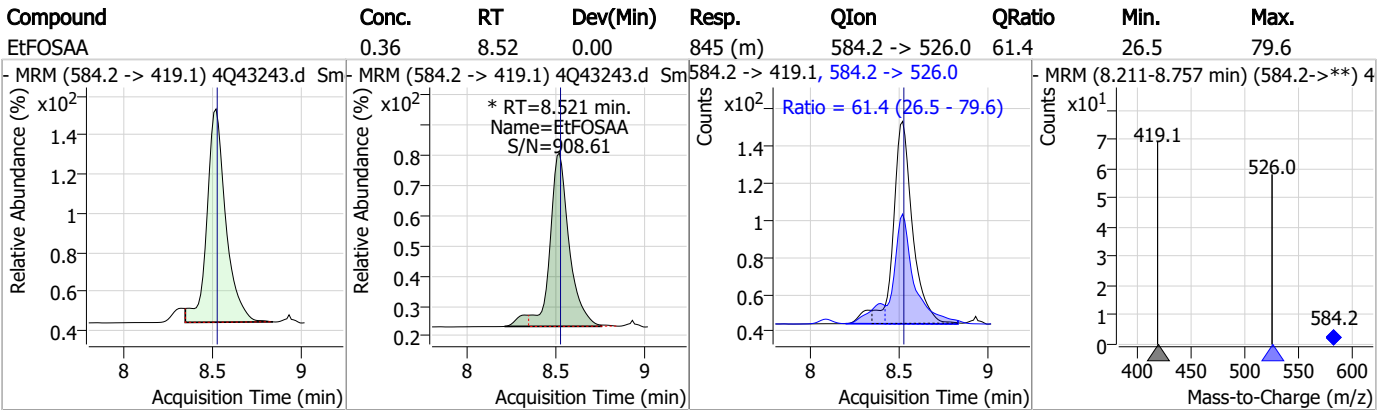
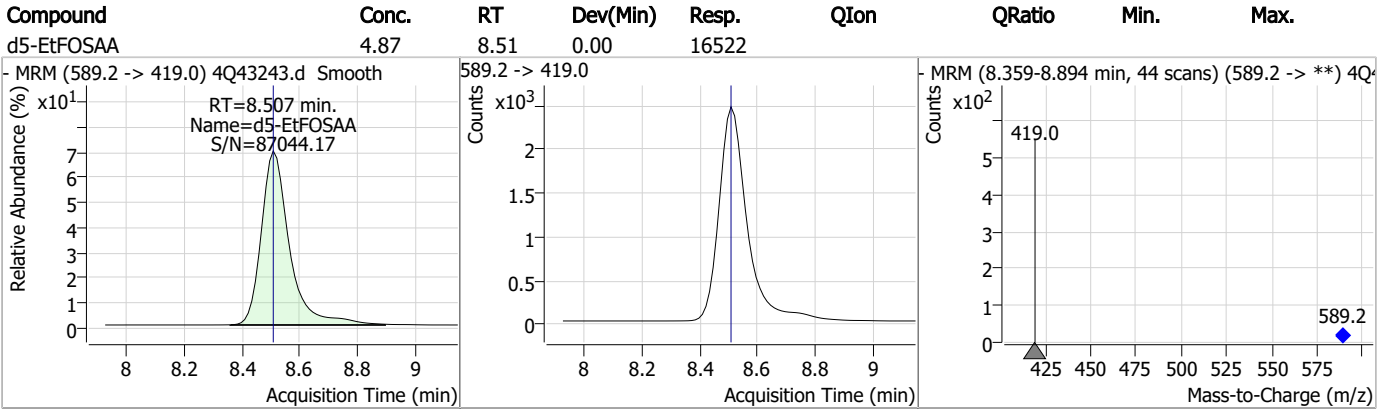
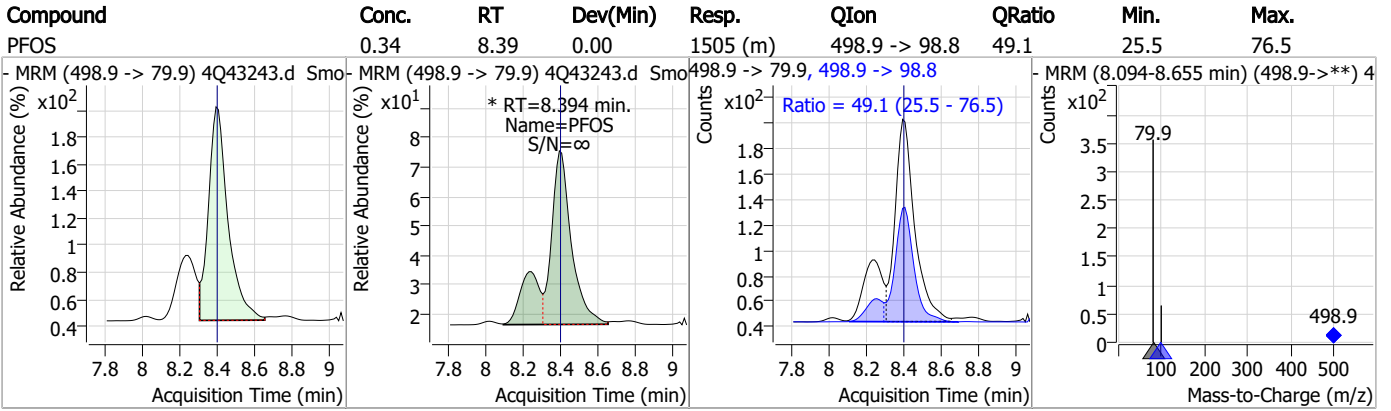
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Perfluorinated Compounds by LC/MS/MS



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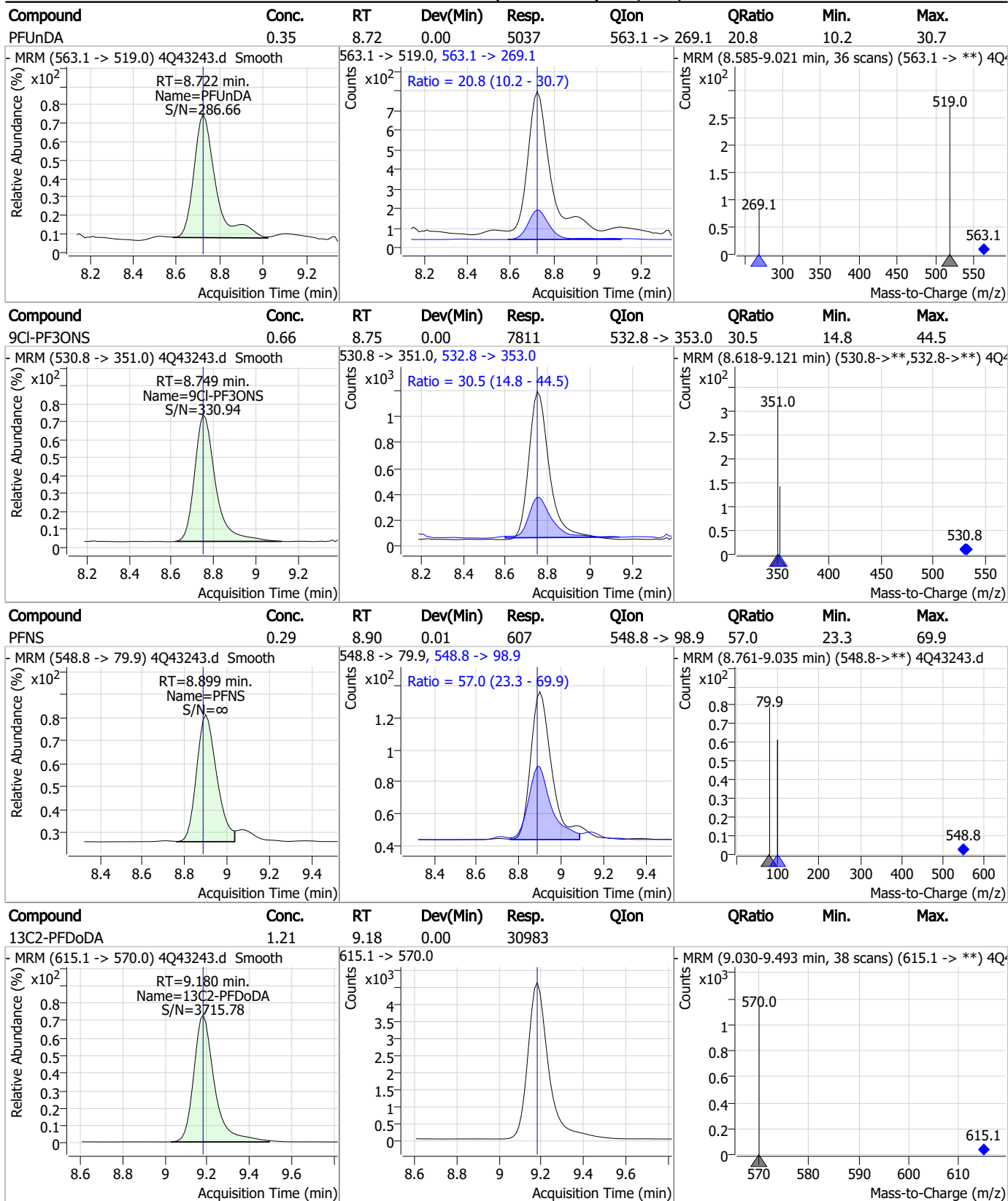
Perfluorinated Compounds by LC/MS/MS



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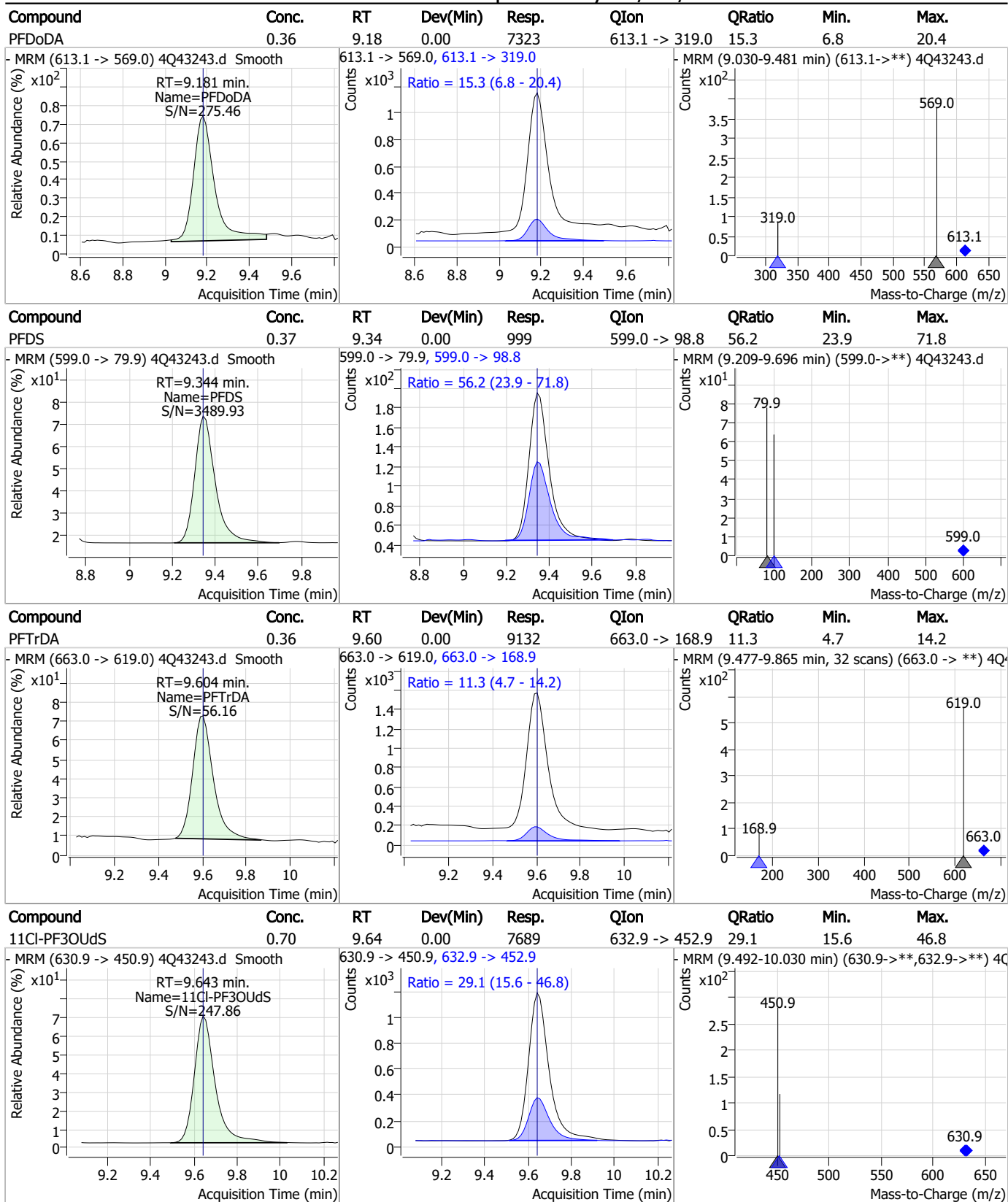


Perfluorinated Compounds by LC/MS/MS



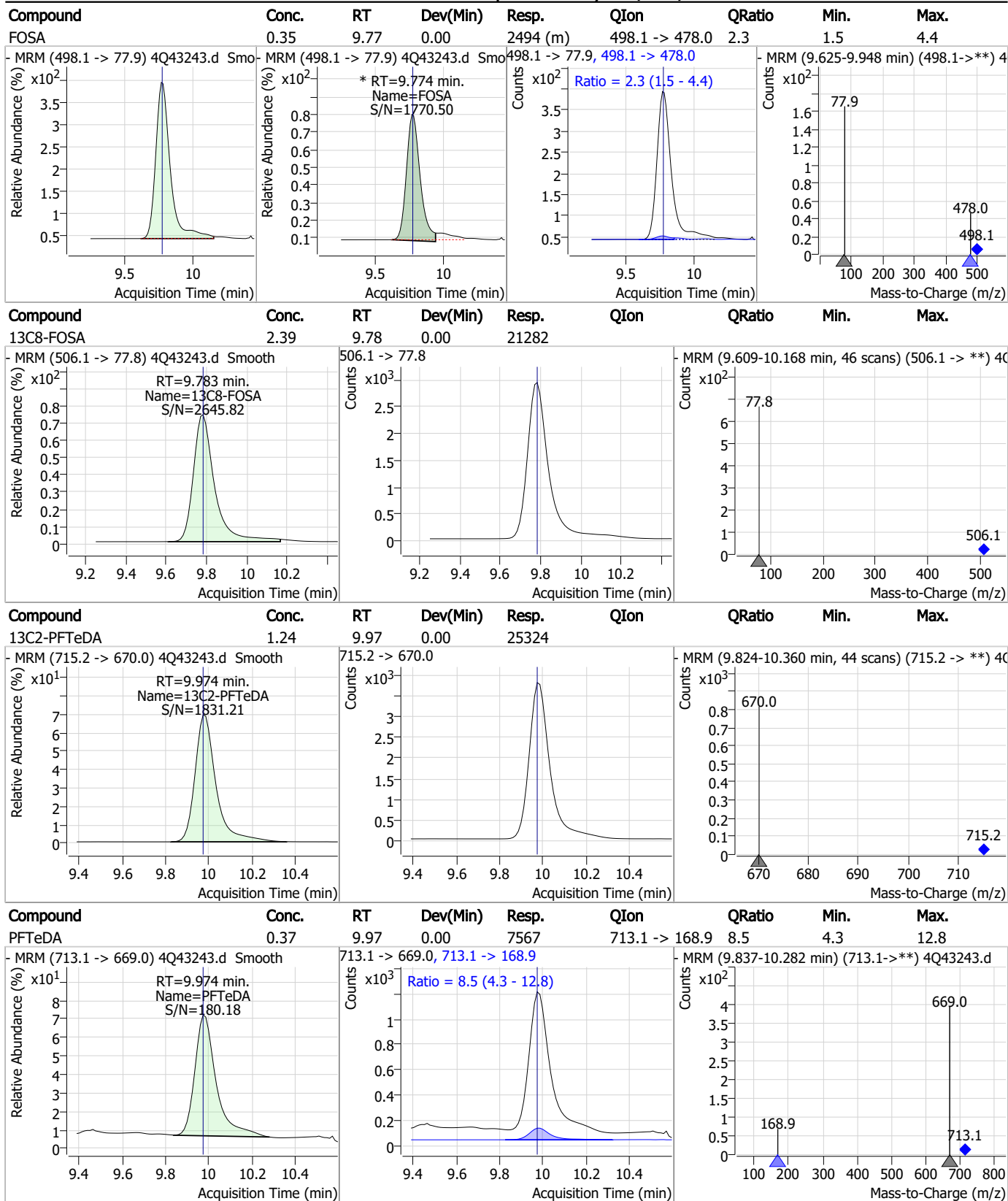
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Perfluorinated Compounds by LC/MS/MS



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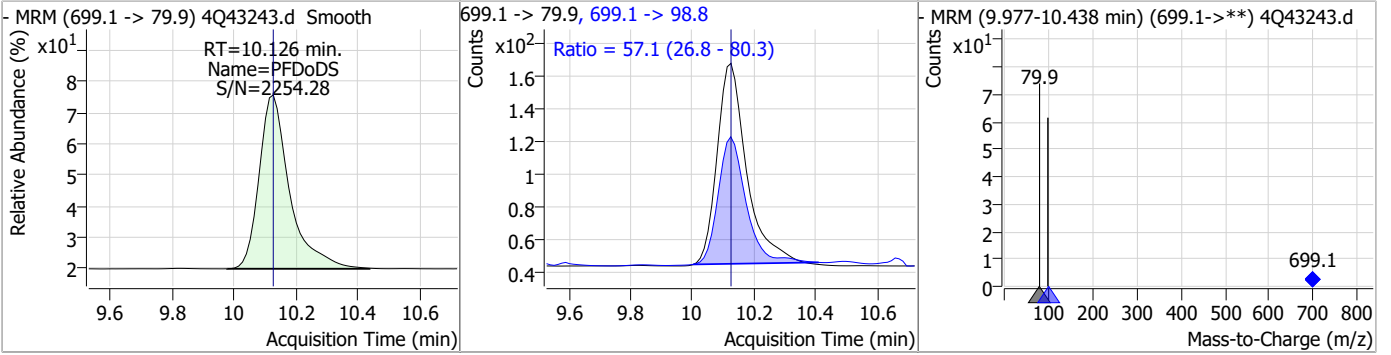
Perfluorinated Compounds by LC/MS/MS



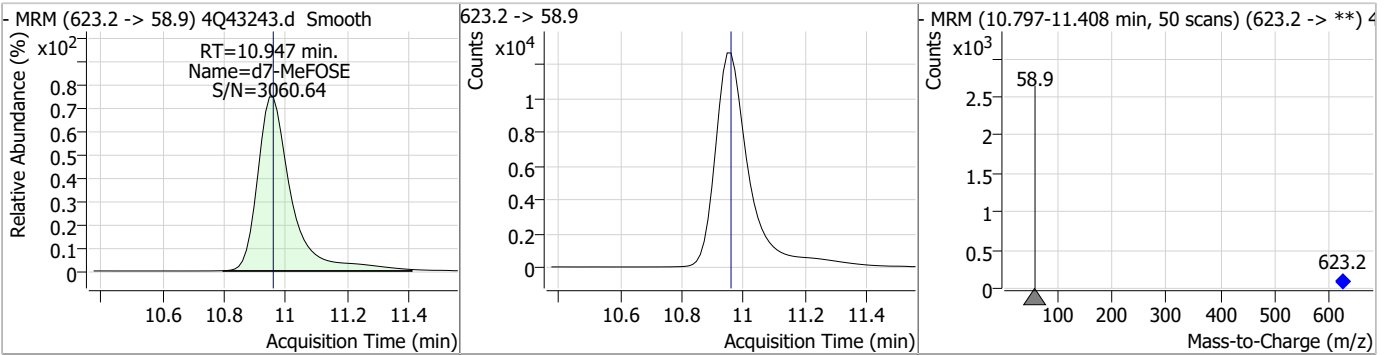
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Perfluorinated Compounds by LC/MS/MS

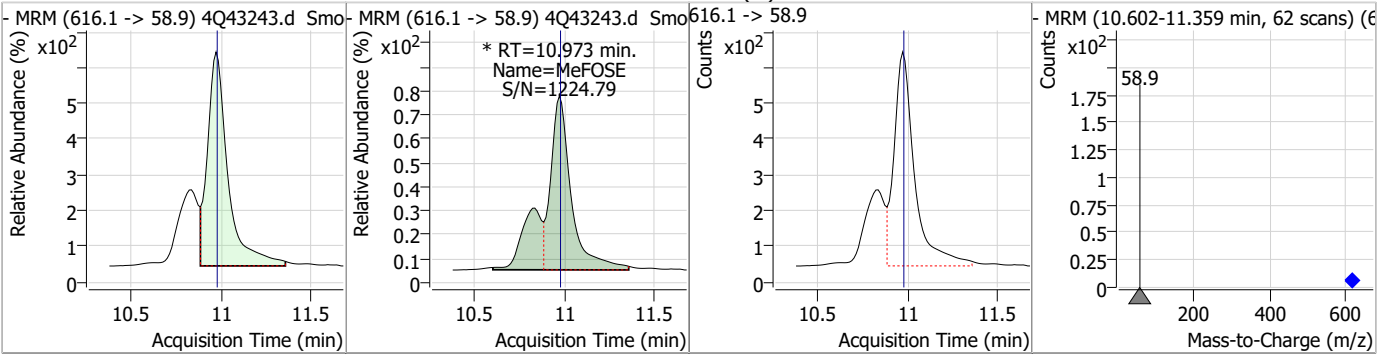
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.34	10.13	0.00	847	699.1 -> 98.8	57.1	26.8	80.3



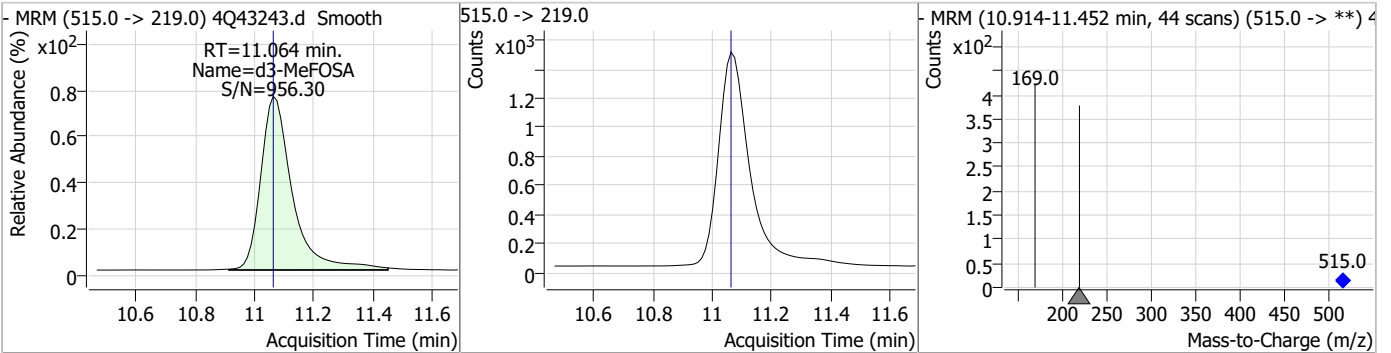
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.73	10.95	-0.01	96961				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.87	10.97	0.00	6439 (m)				

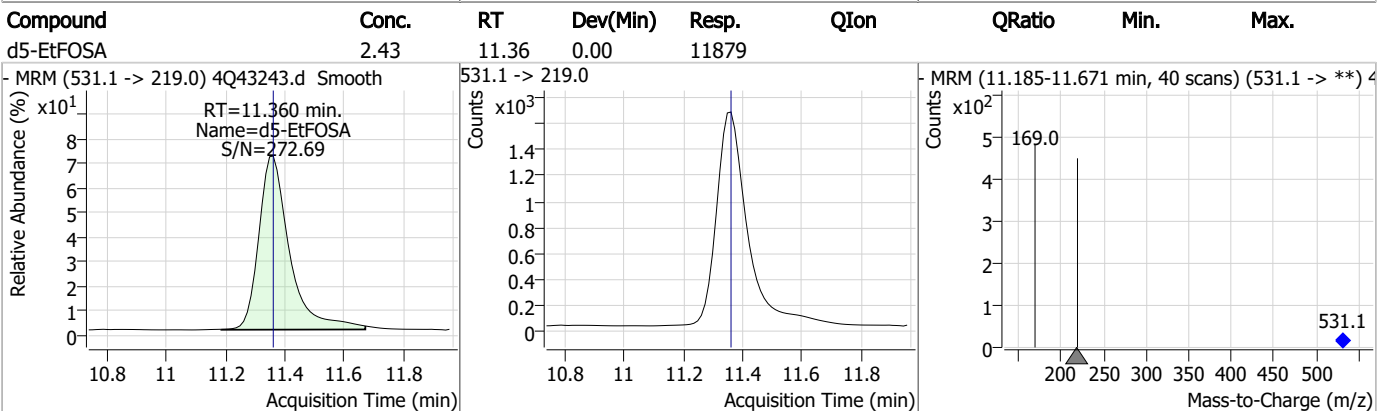
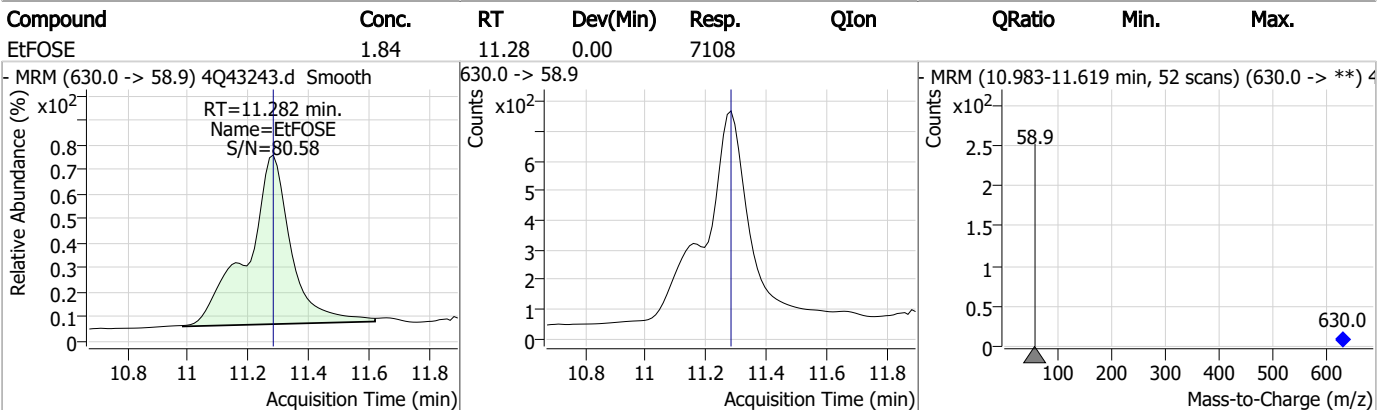
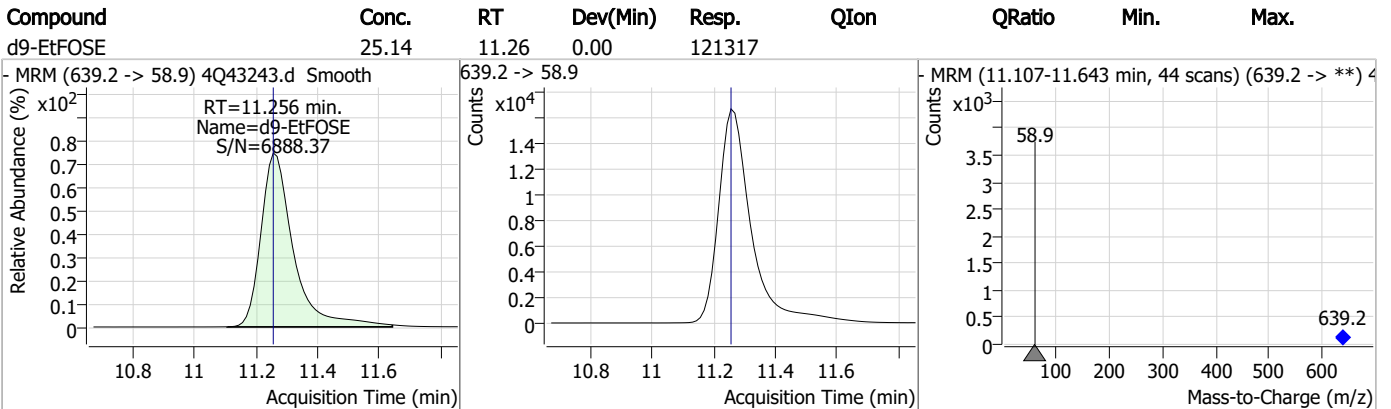
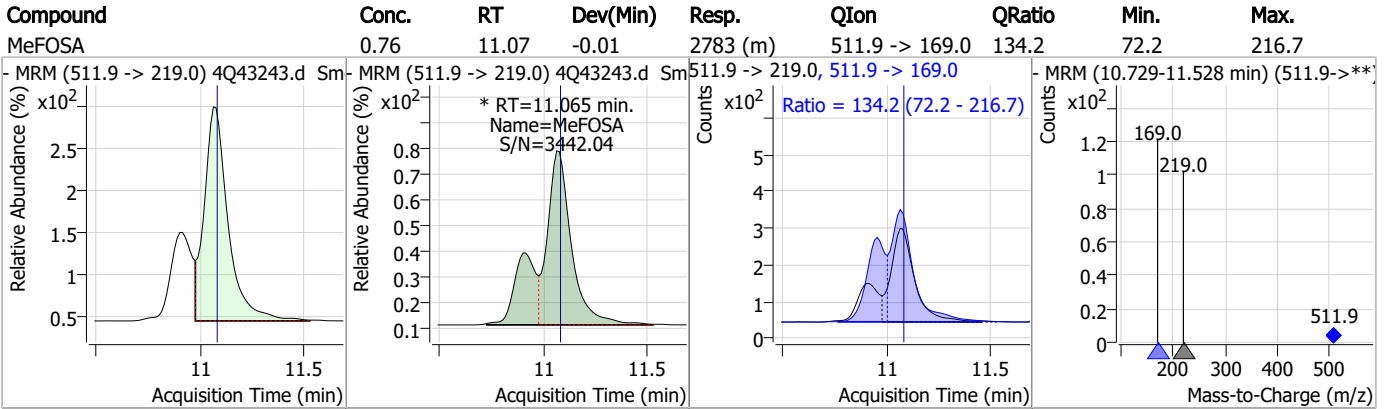


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.37	11.06	0.00	10927				



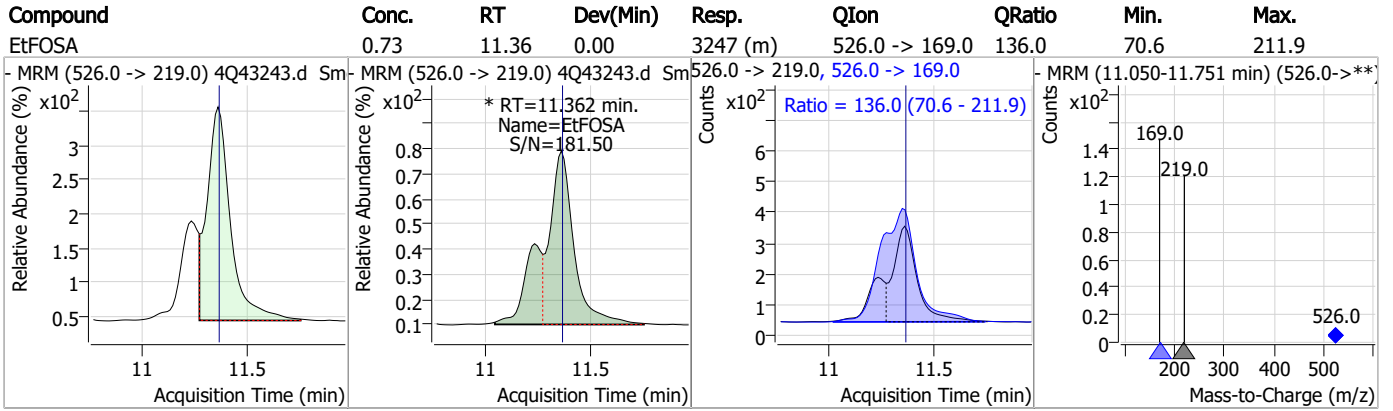
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q625-IC625 Method: EPA DRAFT 1633
Lab FileID: 4Q43243.D Analyst approved: 04/20/23 14:17 Natasha Gumtie
Injection Time: 04/19/23 12:08 Supervisor approved: 04/21/23 13:15 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.39	Split peak
EtFOSAA	2991-50-6		8.52	Split peak
PFOSA	754-91-6		9.77	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.06	Split peak
EtFOSA	4151-50-2		11.36	Split peak

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7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43244.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/19/2023 12:22:56 PM
 Sample Name : ic625-3
 Vial : P1-A4
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s6q625.batch.bin
 Sample Information : OP96301,S4q625,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.949	216.8 -> 171.9	121090	10.00 µg/L	0.012
M5-PFPeA	4.412	268.3 -> 223.0	73640	5.00 µg/L	0.000
M5-PFHxA	5.597	318.0 -> 273.0	56403	2.50 µg/L	0.012
M4-PFHpA	6.517	367.1 -> 322.0	30582	2.50 µg/L	0.000
M8-PFOA	7.188	421.1 -> 376.0	41424	2.50 µg/L	0.000
M9-PFNA	7.733	472.1 -> 427.0	22514	1.25 µg/L	0.000
M6-PFDA	8.240	519.1 -> 474.1	22015	1.25 µg/L	0.000
M7-PFUnDA	8.722	570.0 -> 525.1	24404	1.25 µg/L	0.000
M2-PFDoDA	9.180	615.1 -> 570.0	30042	1.25 µg/L	0.000
M2-PFTeDA	9.986	715.2 -> 670.0	23951	1.25 µg/L	0.012
M8-FOSA	9.783	506.1 -> 77.8	20720	2.50 µg/L	0.000
M3-PFBS	5.502	302.1 -> 79.9	12296	2.50 µg/L	0.000
M3-PFHxS	7.279	402.1 -> 79.9	7252	2.50 µg/L	-0.012
M8-PFOS	8.392	507.1 -> 79.9	11442	2.50 µg/L	0.000
M2-4:2FTS	5.273	329.1 -> 80.9	1742	5.00 µg/L	0.000
M2-6:2FTS	6.948	429.1 -> 80.9	2602	5.00 µg/L	0.000
M2-8:2FTS	8.027	529.1 -> 80.9	4778	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	19025	5.00 µg/L	0.000
M3-HFPO-DA	5.952	286.9 -> 168.9	35679	10.00 µg/L	0.000
M5-EtFOSAA	8.507	589.2 -> 419.0	16171	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	89516	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	113632	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	11339	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	10435	2.50 µg/L	0.000
13C4-PFOS	8.393	502.8 -> 79.9	11465	2.50 µg/L	-0.012
13C3-PFBA	2.941	216.0 -> 172.0	67554	5.00 µg/L	0.000
18O2-PFHxS	7.290	403.0 -> 83.9	5329	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	48425	2.50 µg/L	0.000
13C2-PFDA	8.241	515.1 -> 470.1	20152	1.25 µg/L	0.000
13C5-PFNA	7.734	468.0 -> 423.0	25858	1.25 µg/L	0.000
13C2-PFHxA	5.598	315.1 -> 270.0	47339	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.273	329.1 -> 80.9	1742	5.57 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.4%		
13C2-6:2FTS	6.948	429.1 -> 80.9	2602	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C2-8:2FTS	8.027	529.1 -> 80.9	4778	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.0%		
13C2-PFDoDA	9.180	615.1 -> 570.0	30042	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C2-PFTeDA	9.986	715.2 -> 670.0	23951	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C3-PFBS	5.502	302.1 -> 79.9	12296	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C3-PFHxS	7.279	402.1 -> 79.9	7252	2.38 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 = 95.3%		
13C4-PFBA	2.949	216.8 -> 171.9	121090	9.95 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C4-PFHpA	6.517	367.1 -> 322.0	30582	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C5-PFHxA	5.597	318.0 -> 273.0	56403	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C5-PFPeA	4.412	268.3 -> 223.0	73640	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C6-PFDA	8.240	519.1 -> 474.1	22015	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C7-PFUnDA	8.722	570.0 -> 525.1	24404	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C8-FOSA	9.783	506.1 -> 77.8	20720	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C8-PFOA	7.188	421.1 -> 376.0	41424	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C8-PFOS	8.392	507.1 -> 79.9	11442	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C9-PFNA	7.733	472.1 -> 427.0	22514	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
d3-MeFOSAA	8.298	573.2 -> 419.0	19025	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C3-HFPO-DA	5.952	286.9 -> 168.9	35679	9.93 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
d3-MeFOSA	11.064	515.0 -> 219.0	10435	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.2%		
d5-EtFOSAA	8.507	589.2 -> 419.0	16171	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
d7-MeFOSE	10.959	623.2 -> 58.9	89516	25.45 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 101.8%		
d9-EtFOSE	11.256	639.2 -> 58.9	113632	25.23 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
d5-EtFOSA	11.360	531.1 -> 219.0	11339	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.4%		
Target Compounds					QValue
4:2FTS	5.273	327.1 -> 307.0	10363	4.65 µg/L	97
		327.1 -> 80.9	4462		
6:2FTS	6.949	427.1 -> 407.0	9617	4.84 µg/L	99
		427.1 -> 80.9	4343		
8:2FTS	8.028	527.1 -> 507.0	11959	5.08 µg/L	99
		527.1 -> 80.8	4841		
EtFOSAA	8.508	584.2 -> 419.1	2824	1.22 µg/L	m 83
		584.2 -> 526.0	1159		
FOSA	9.774	498.1 -> 77.9	8739	1.25 µg/L	98
		498.1 -> 478.0	191		
MeFOSAA	8.299	570.1 -> 419.0	3561	1.31 µg/L	94
		570.1 -> 483.0	711		
PFBA	2.945	212.8 -> 168.9	13744	4.89 µg/L	100
PFBS	5.503	298.7 -> 79.9	5200	1.07 µg/L	96
		298.7 -> 98.8	1976		
PFDA	8.241	512.9 -> 469.0	15834	1.17 µg/L	m 96
		512.9 -> 219.0	3473		
PFDoDA	9.181	613.1 -> 569.0	24111	1.22 µg/L	99
		613.1 -> 319.0	3329		
PFDS	9.344	599.0 -> 79.9	3219	1.20 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1565			
PFHpA	6.530	363.1 -> 319.0	18828	1.17	µg/L	97
		363.1 -> 169.0	3562			
PFHpS	7.873	449.0 -> 79.9	3603	1.09	µg/L	99
		449.0 -> 98.9	1946			
PFHxA	5.587	313.0 -> 269.0	21175	1.19	µg/L	99
		313.0 -> 118.9	770			
PFHxS	7.292	398.7 -> 79.9	3033	1.14	µg/L	m 87
		398.7 -> 98.9	1364			
PFNA	7.734	463.0 -> 419.0	14775	1.15	µg/L	98
		463.0 -> 219.0	3946			
PFNS	8.886	548.8 -> 79.9	2232	1.10	µg/L	90
		548.8 -> 98.9	1190			
PFOA	7.189	413.0 -> 369.0	21725	1.18	µg/L	99
		413.0 -> 169.0	4627			
PFOS	8.394	498.9 -> 79.9	4958	1.13	µg/L	m 96
		498.9 -> 98.8	2660			
PFPeA	4.414	263.0 -> 219.0	35578	2.42	µg/L	100
PFPeS	6.569	349.1 -> 79.9	2623	1.14	µg/L	88
		349.1 -> 98.9	1394			
PFTeDA	9.987	713.1 -> 669.0	24119	1.24	µg/L	98
		713.1 -> 168.9	1877			
PFTrDA	9.604	663.0 -> 619.0	31196	1.27	µg/L	98
		663.0 -> 168.9	3111			
PFUnDA	8.722	563.1 -> 519.0	16909	1.22	µg/L	97
		563.1 -> 269.1	3226			
11Cl-PF3OUdS	9.643	630.9 -> 450.9	24506	2.38	µg/L	100
		632.9 -> 452.9	7594			
9Cl-PF3ONS	8.749	530.8 -> 351.0	24949	2.26	µg/L	99
		532.8 -> 353.0	7490			
ADONA	6.781	376.9 -> 250.9	59948	2.34	µg/L	98
		376.9 -> 84.8	16225			
HFPO-DA	5.953	284.9 -> 168.9	7357	2.61	µg/L	97
		284.9 -> 184.9	741			
3:3FTCA	3.867	241.0 -> 177.0	4204	6.00	µg/L	99
		241.0 -> 117.0	400			
5:3FTCA	6.231	341.0 -> 237.1	81449	30.75	µg/L	98
		341.0 -> 217.0	56826			
7:3FTCA	7.686	441.0 -> 316.9	39803	30.80	µg/L	99
		441.0 -> 336.9	89410			
EtFOSA	11.362	526.0 -> 219.0	9960	2.35	µg/L	m 99
		526.0 -> 169.0	14149			
EtFOSE	11.282	630.0 -> 58.9	22624	6.24	µg/L	100
MeFOSA	11.065	511.9 -> 219.0	8550	2.45	µg/L	m 95
		511.9 -> 169.0	12853			
MeFOSE	10.973	616.1 -> 58.9	19414	6.10	µg/L	m 100
PFDoDS	10.126	699.1 -> 79.9	2920	1.20	µg/L	99
		699.1 -> 98.8	1537			
NFDHA	5.479	295.0 -> 201.0	2384	2.48	µg/L	95
		295.0 -> 84.9	735			
PFMBA	4.828	279.0 -> 85.1	20621	2.46	µg/L	100
PFMPA	3.553	229.0 -> 84.9	17951	2.41	µg/L	100
PFEESA	6.034	314.8 -> 134.9	31305	2.15	µg/L	100
		314.8 -> 82.9	1061			

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

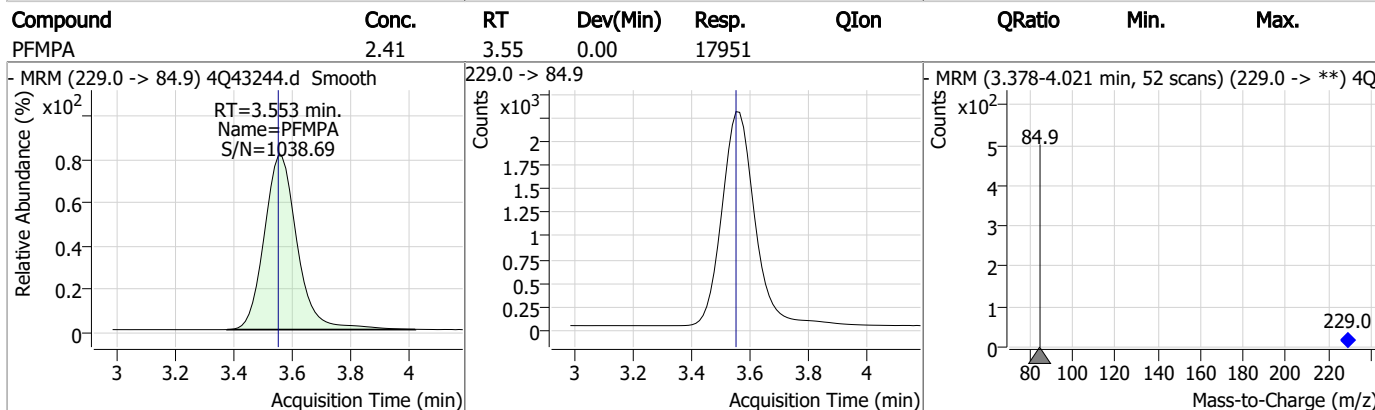
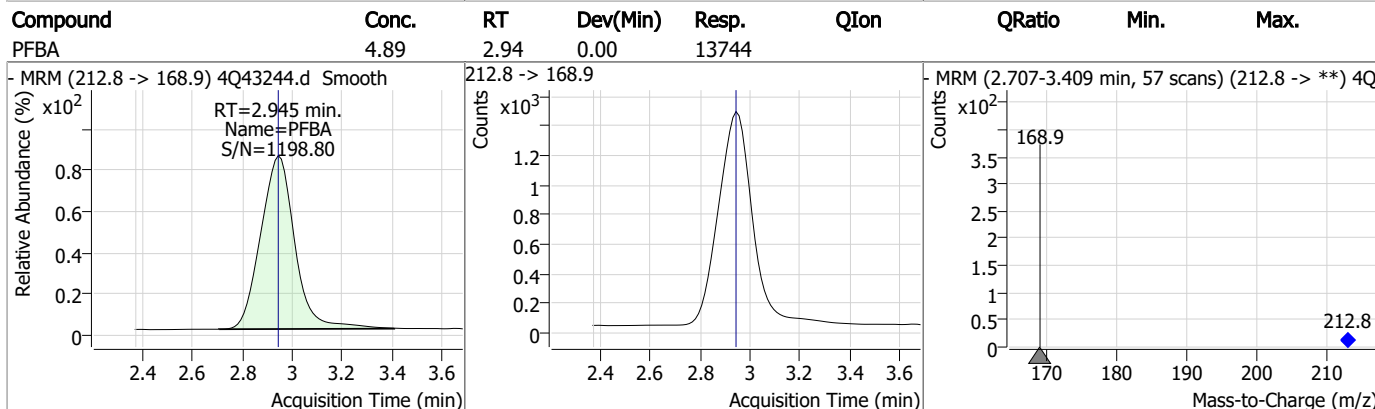
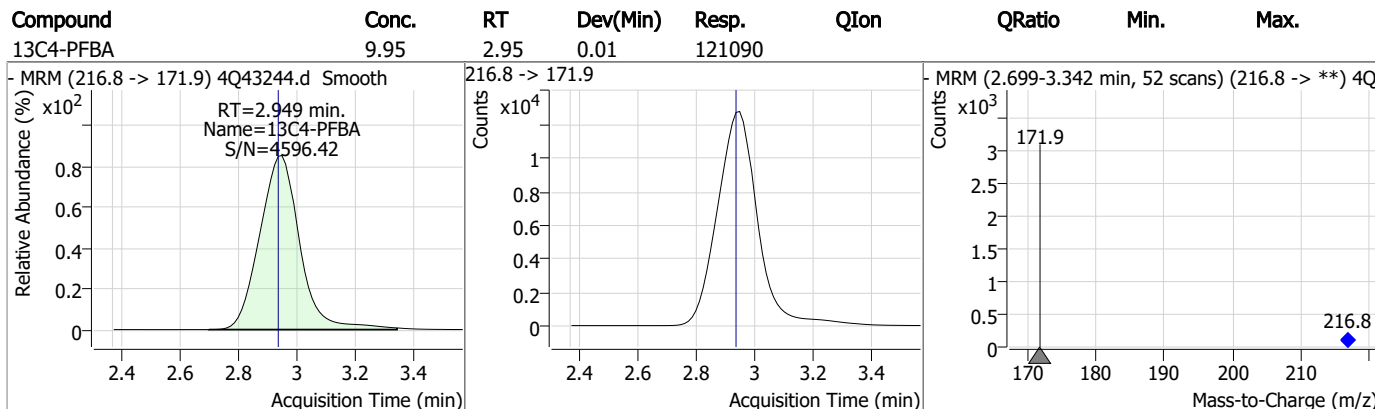
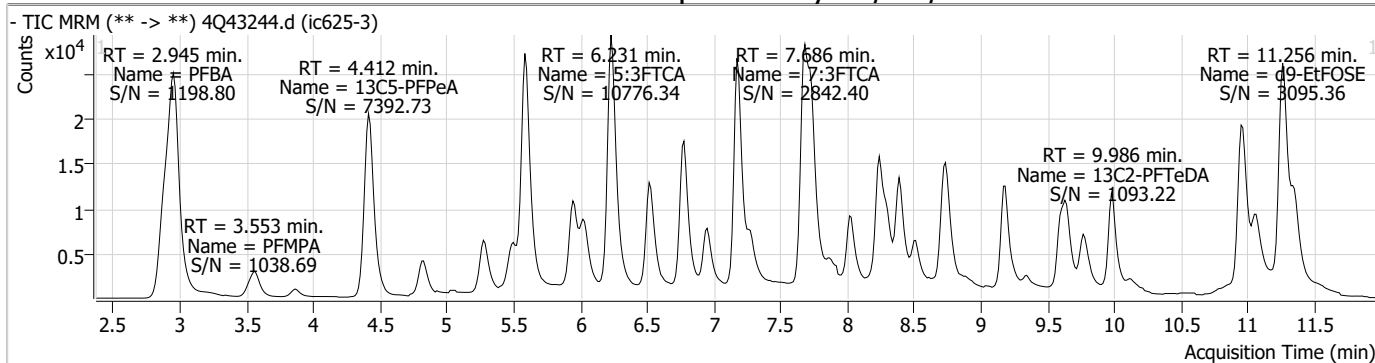
Perfluorinated Compounds by LC/MS/MS

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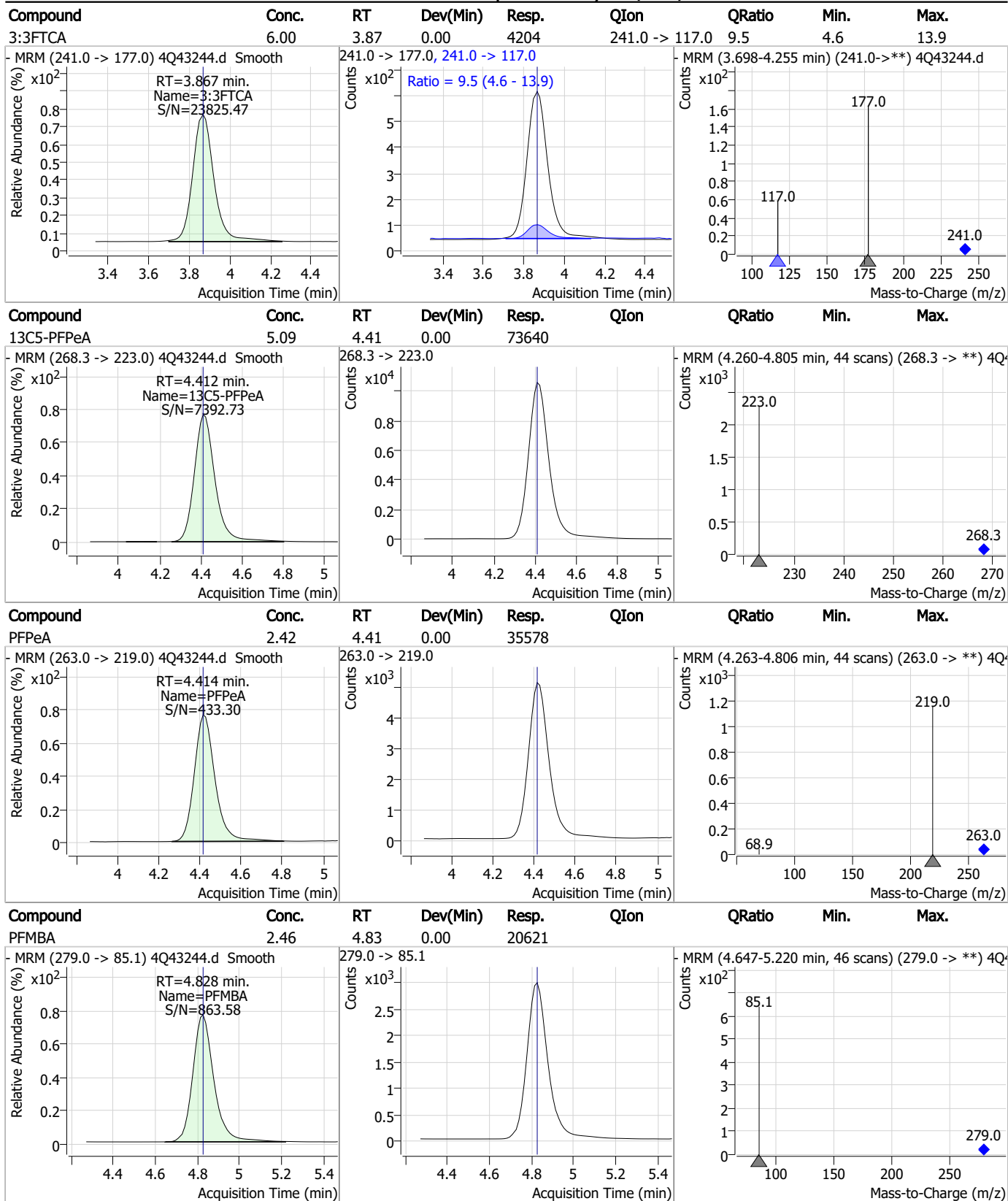
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Perfluorinated Compounds by LC/MS/MS



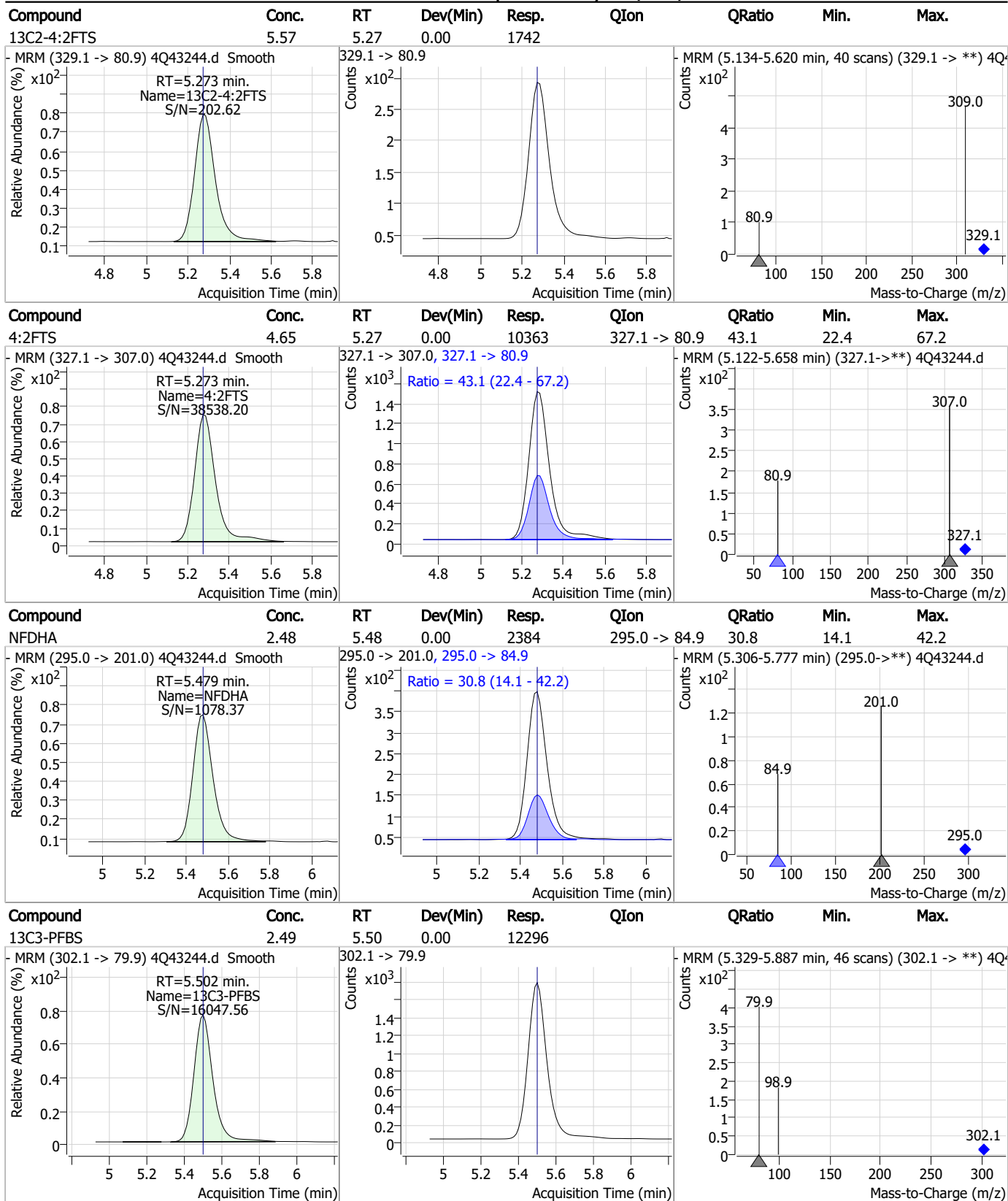
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

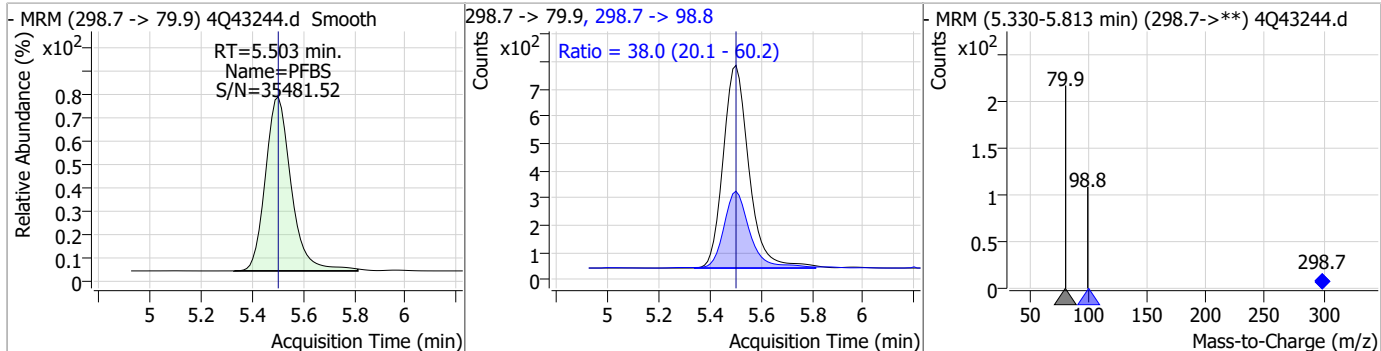


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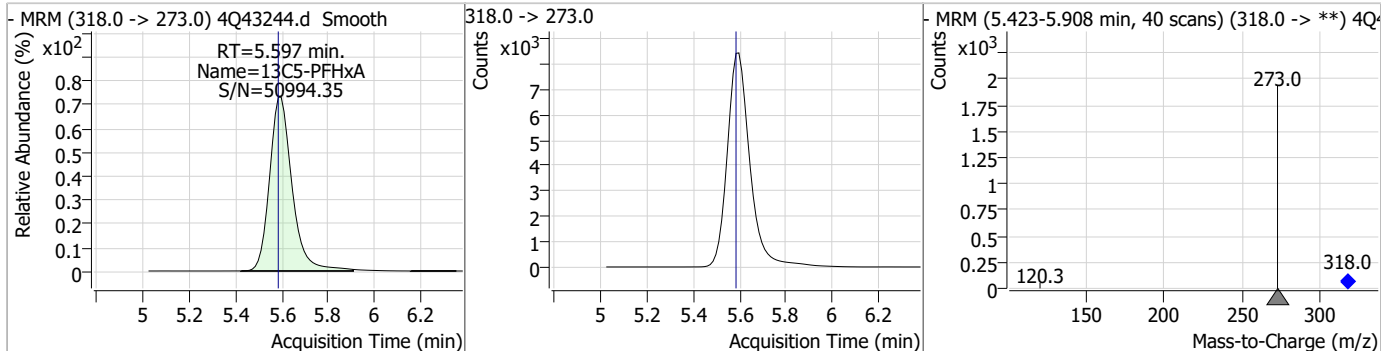
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Perfluorinated Compounds by LC/MS/MS

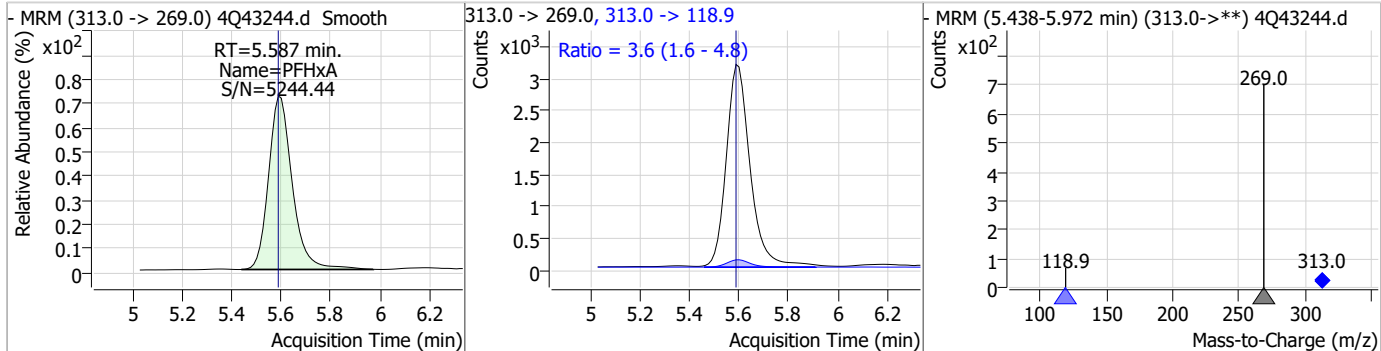
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.07	5.50	0.00	5200	298.7 -> 98.8	38.0	20.1	60.2



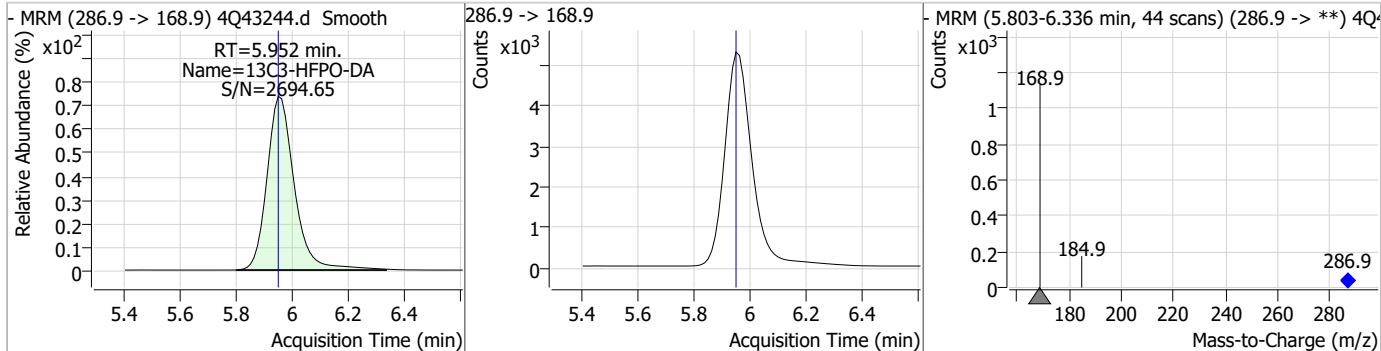
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.54	5.60	0.01	56403				



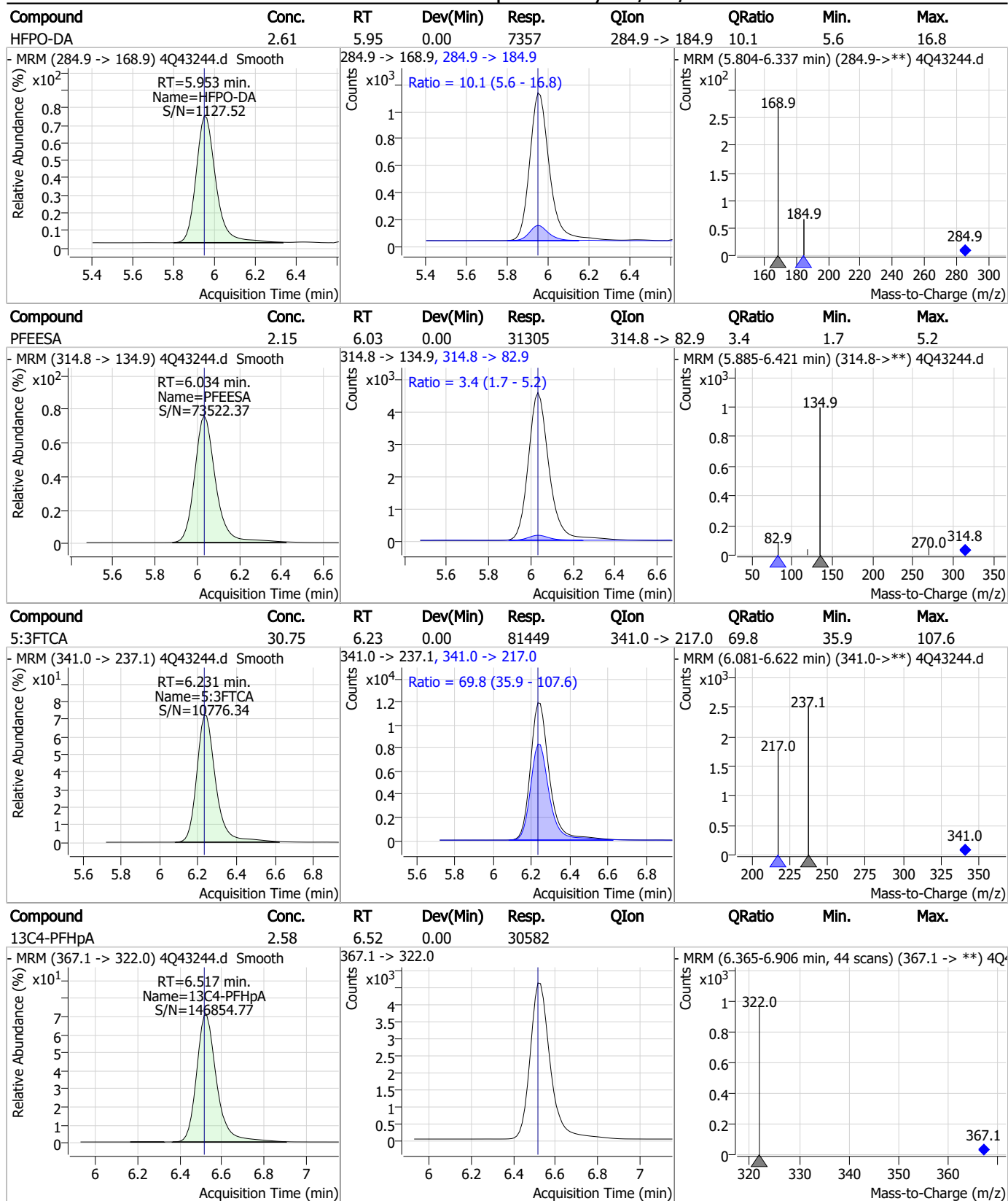
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.19	5.59	0.00	21175	313.0 -> 118.9	3.6	1.6	4.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.93	5.95	0.00	35679				

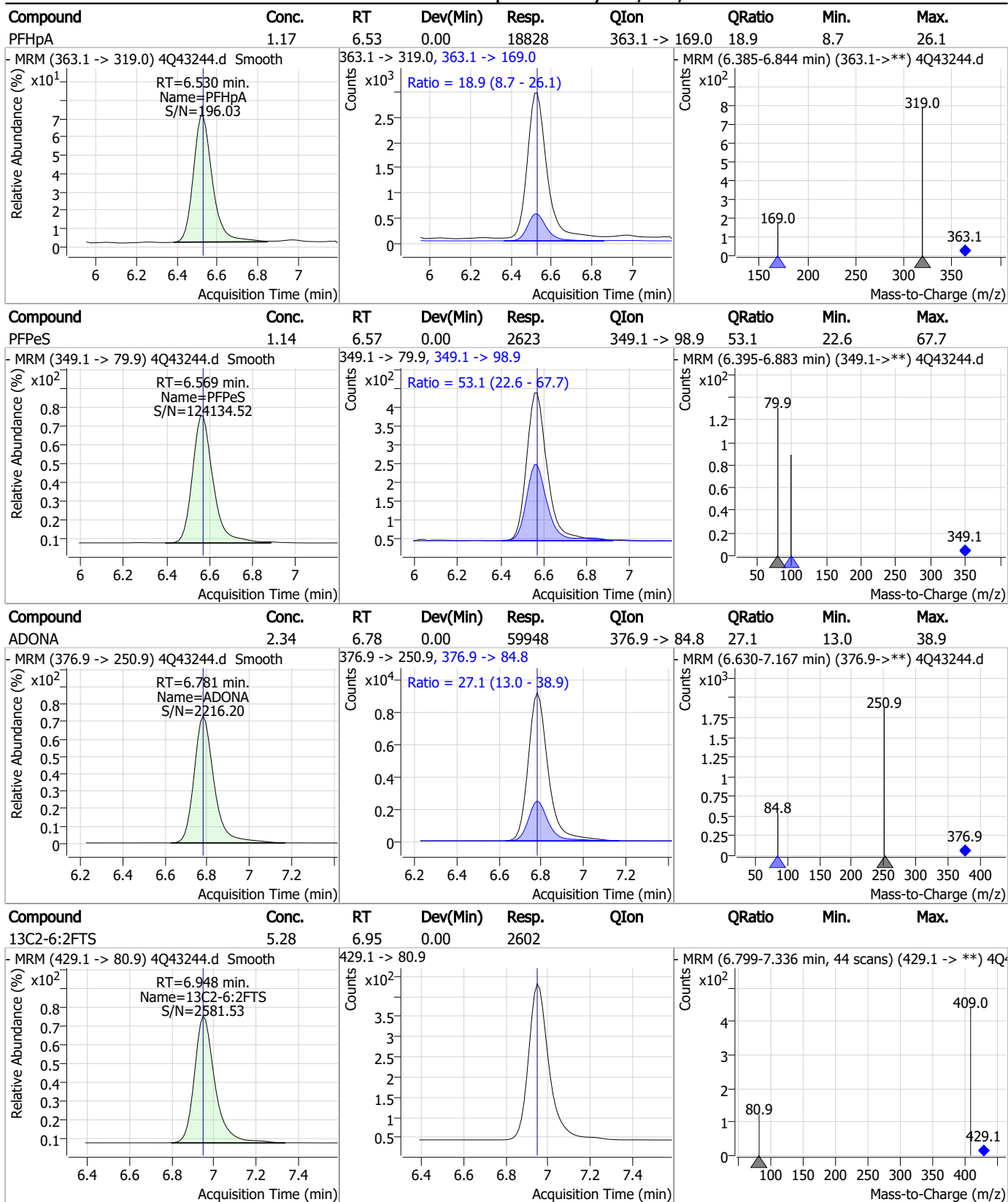


Perfluorinated Compounds by LC/MS/MS



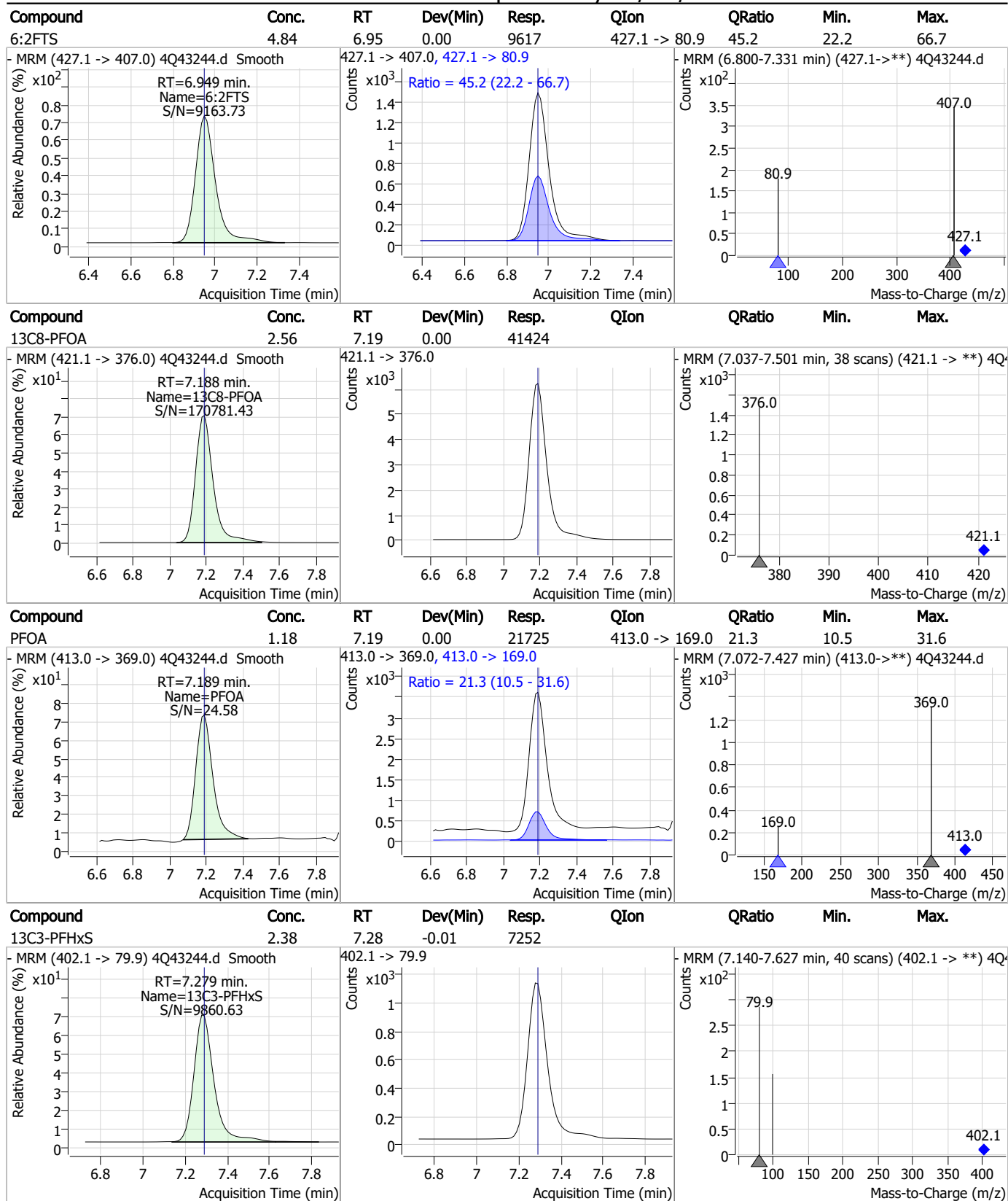
7.7.19 7

Perfluorinated Compounds by LC/MS/MS



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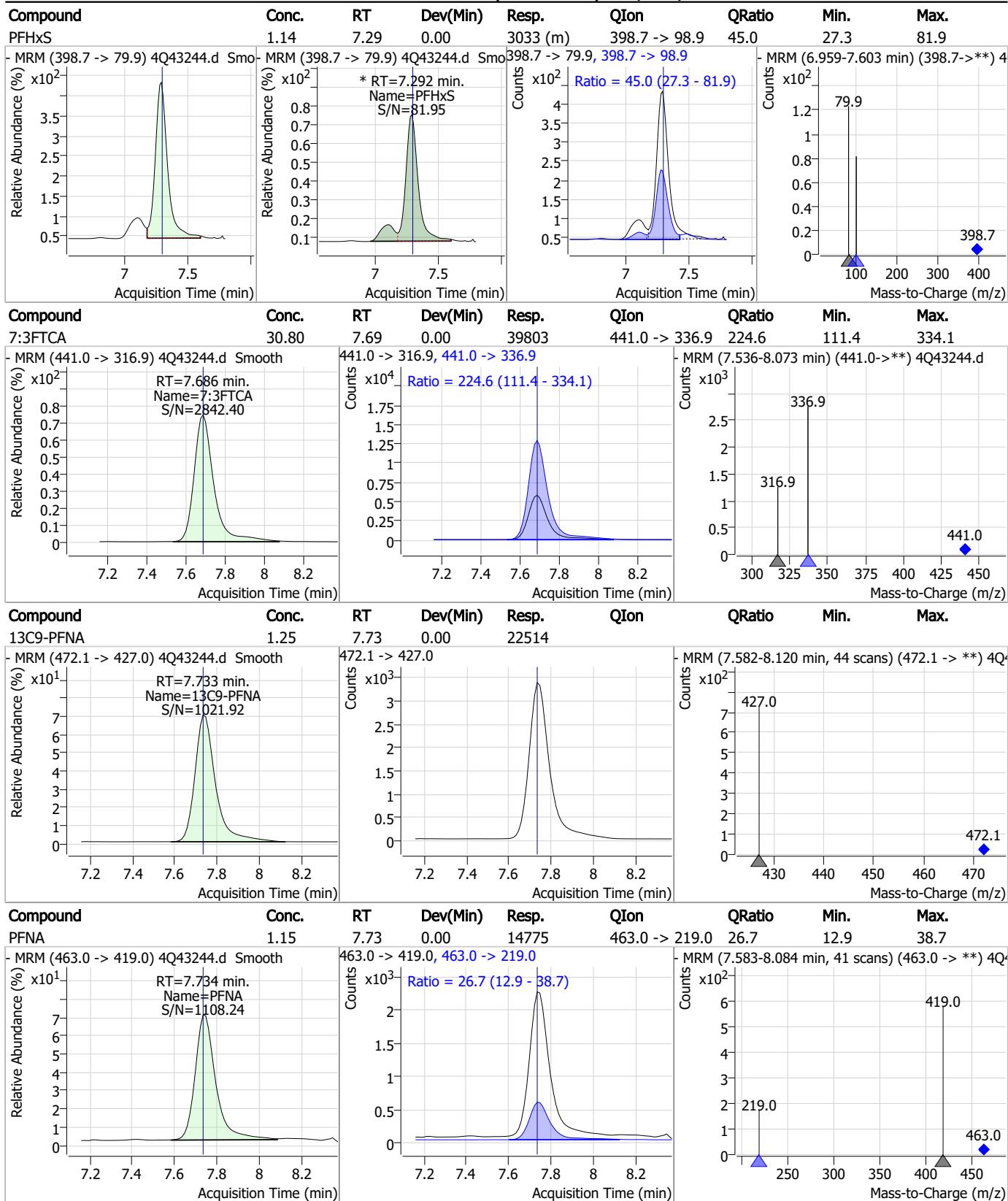
Perfluorinated Compounds by LC/MS/MS



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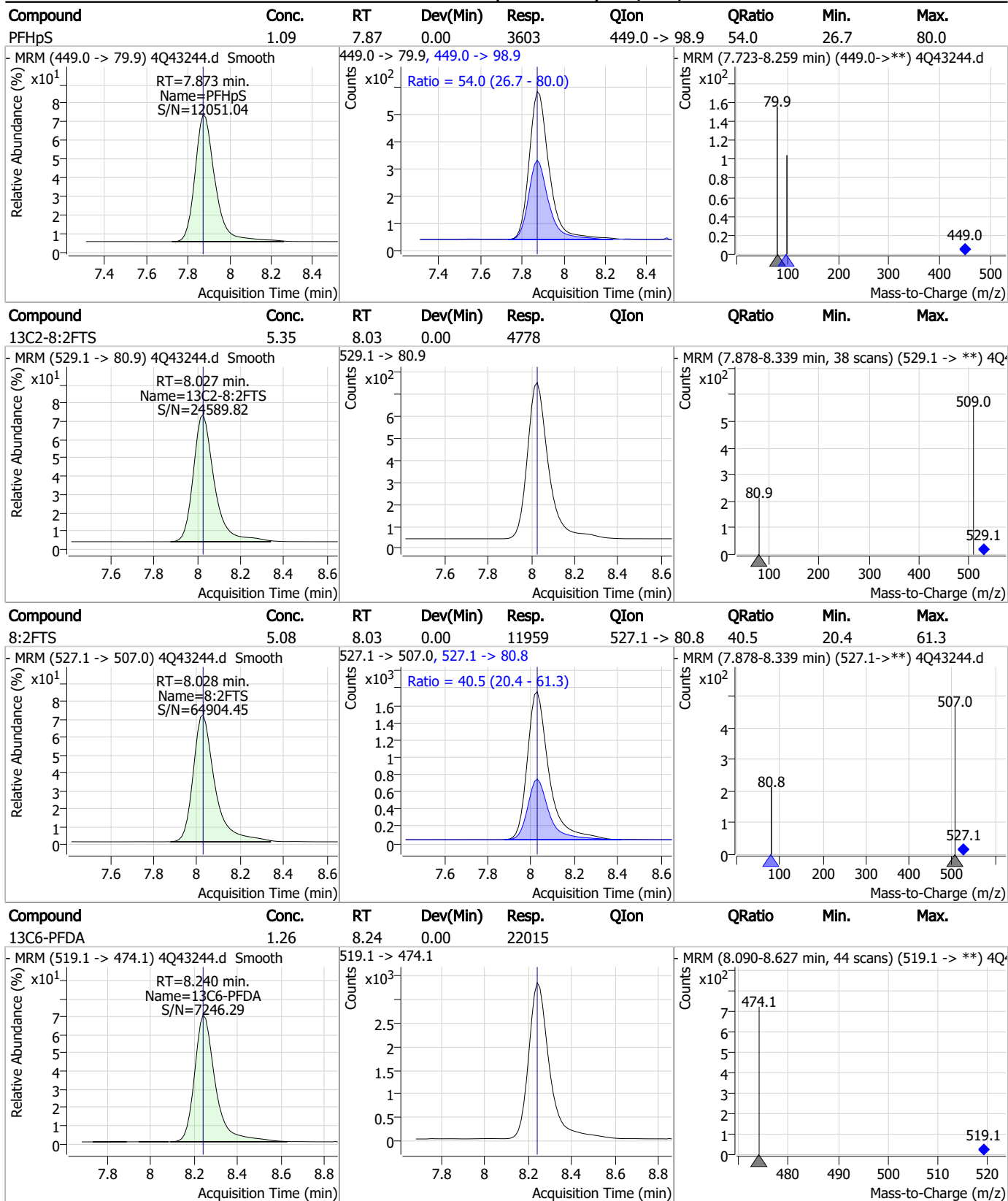
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Perfluorinated Compounds by LC/MS/MS



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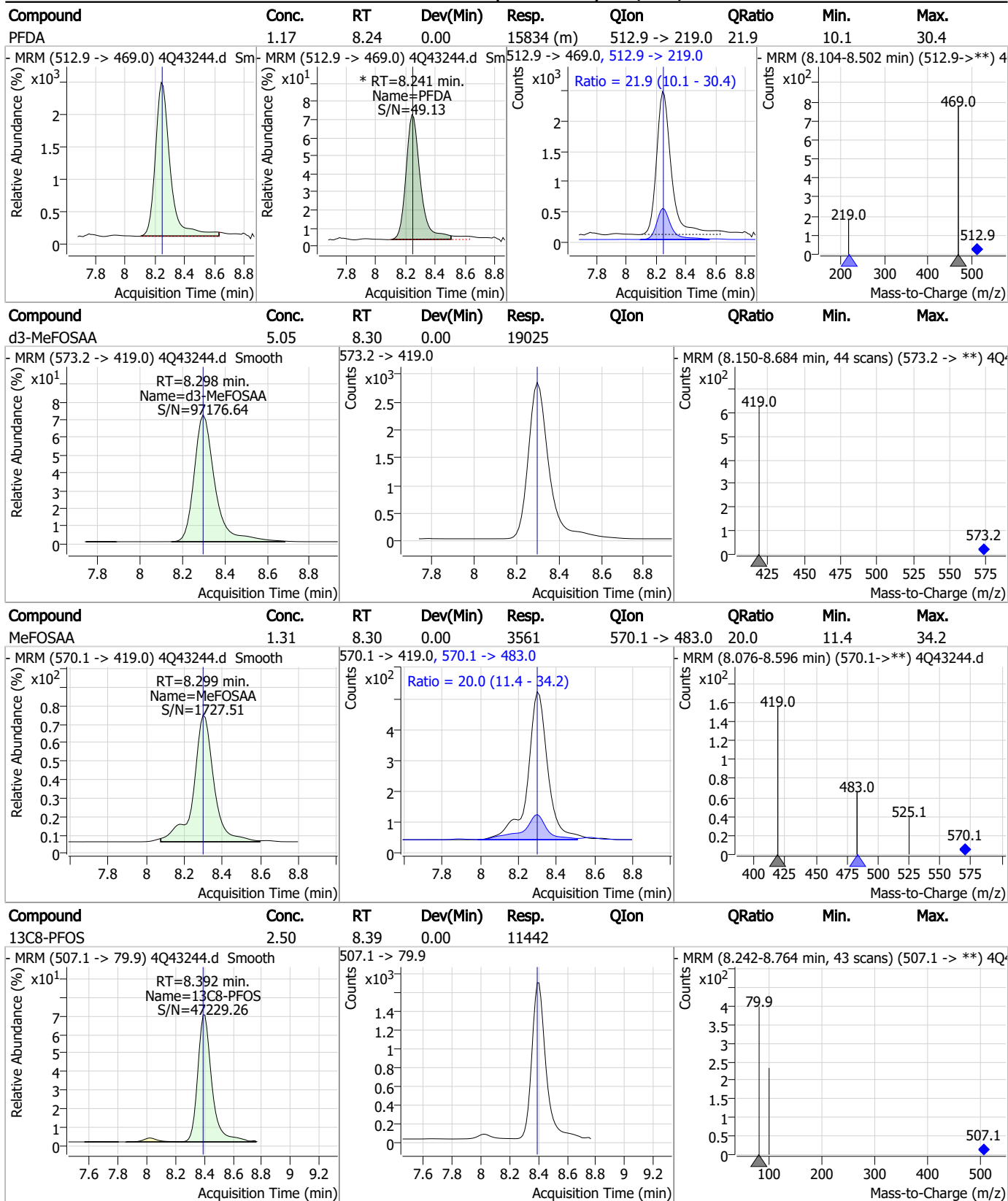
Perfluorinated Compounds by LC/MS/MS



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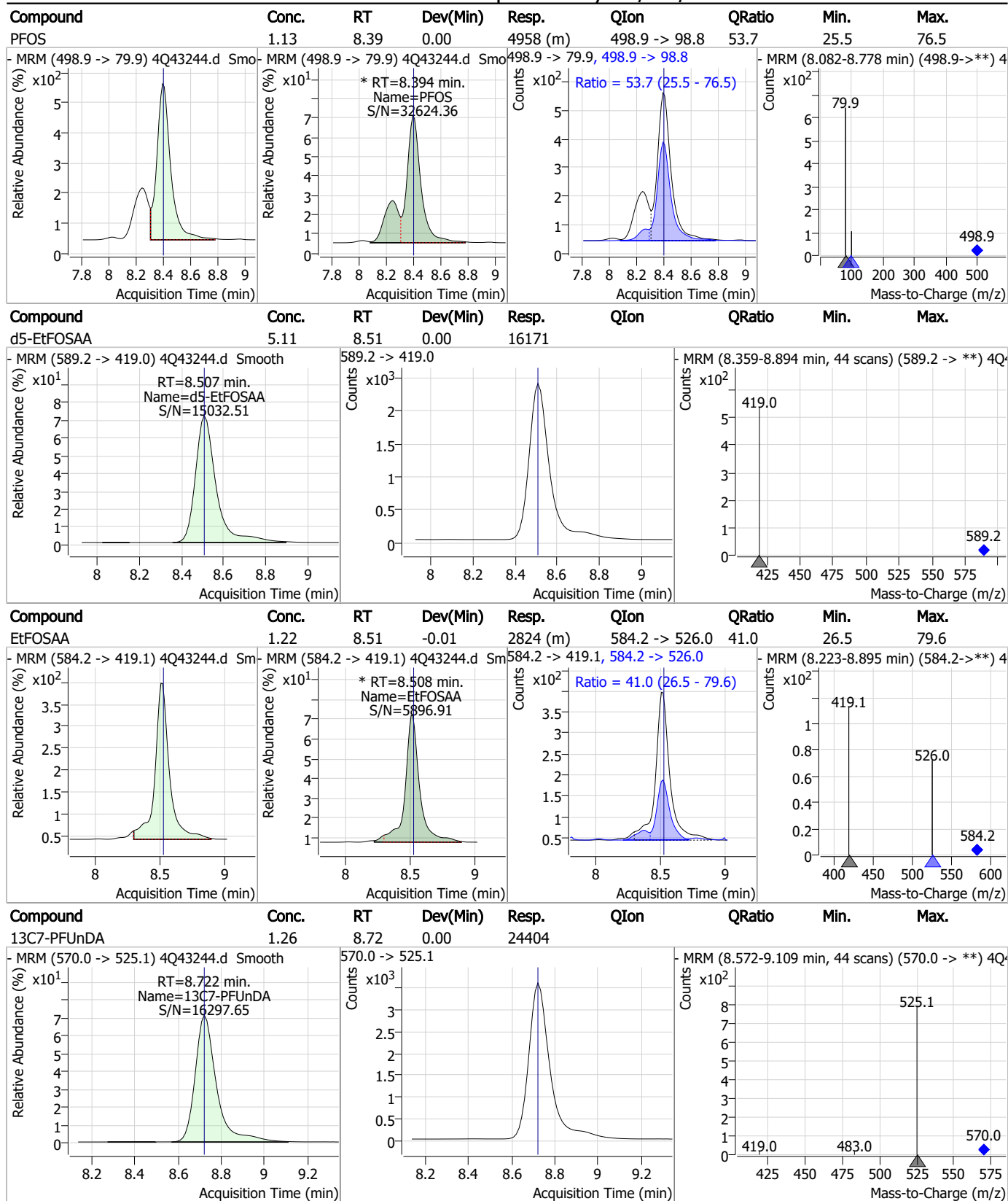
Perfluorinated Compounds by LC/MS/MS



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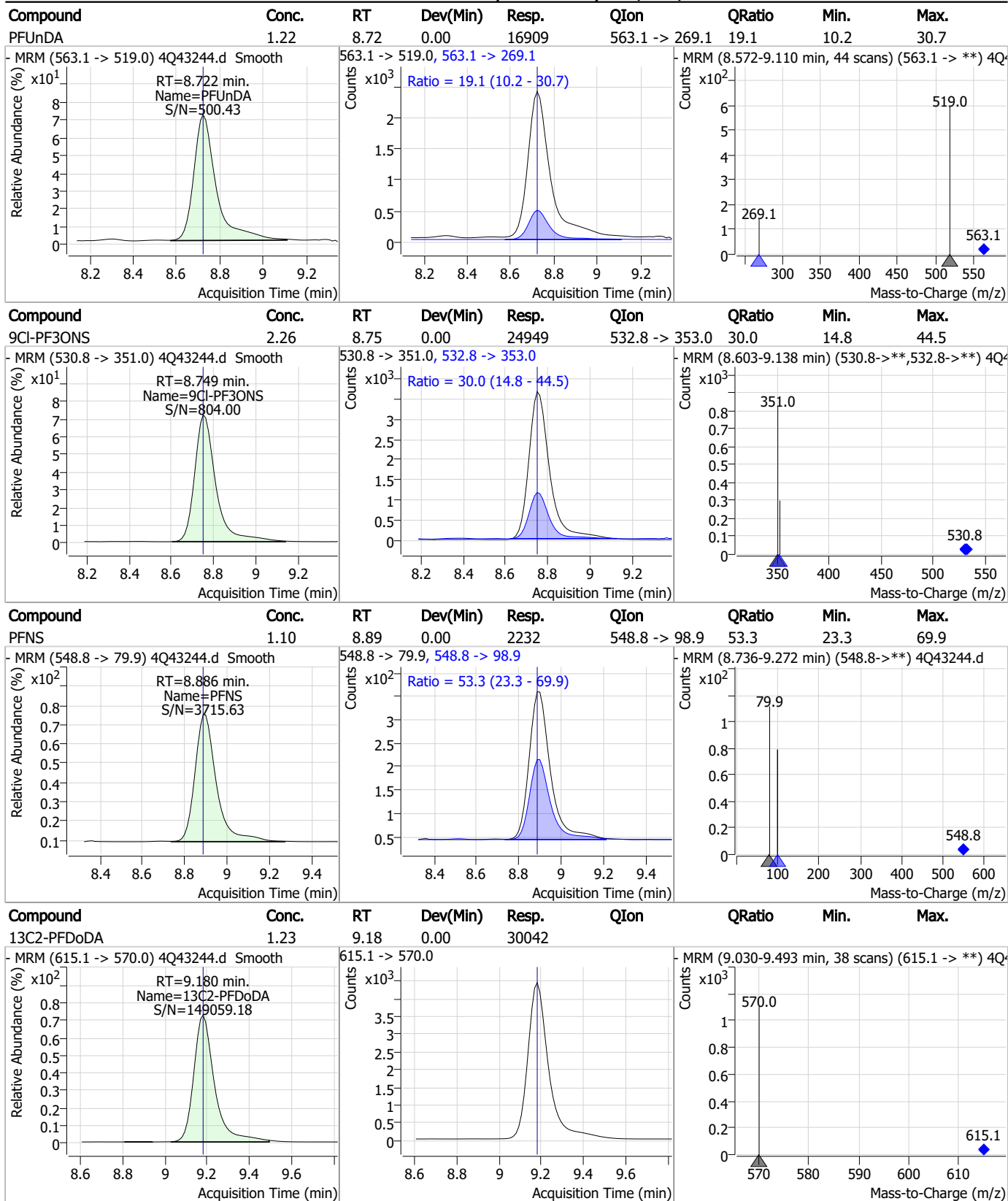
Perfluorinated Compounds by LC/MS/MS



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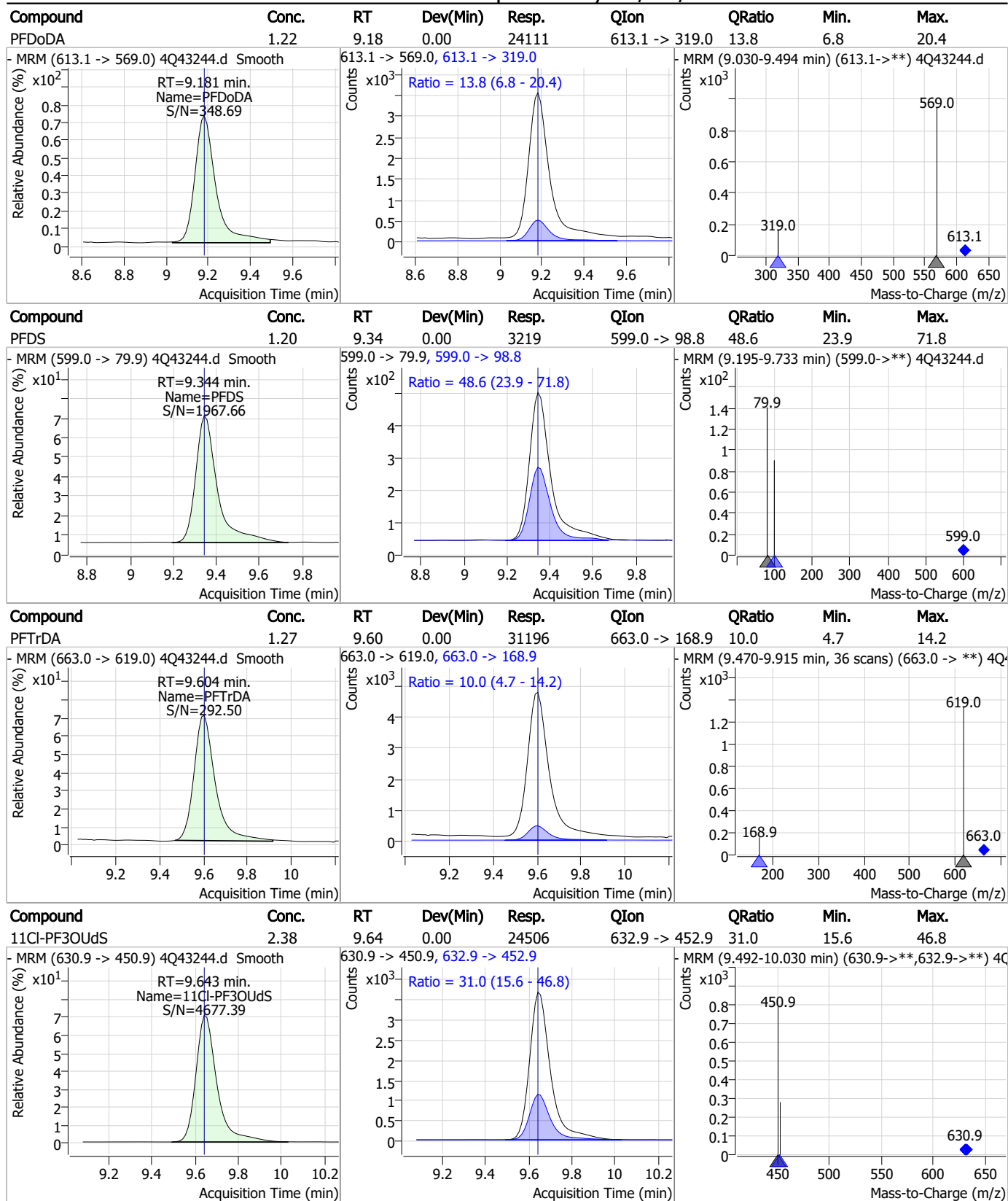
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

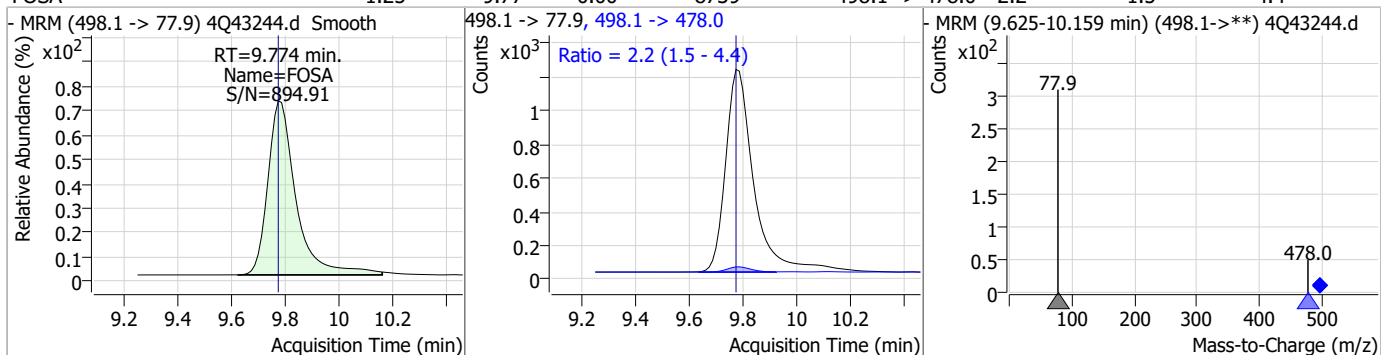


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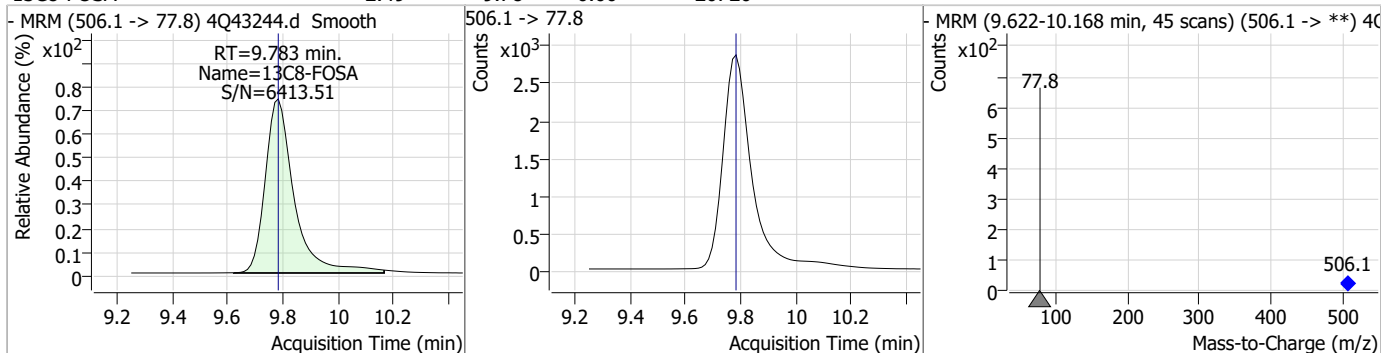
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Perfluorinated Compounds by LC/MS/MS

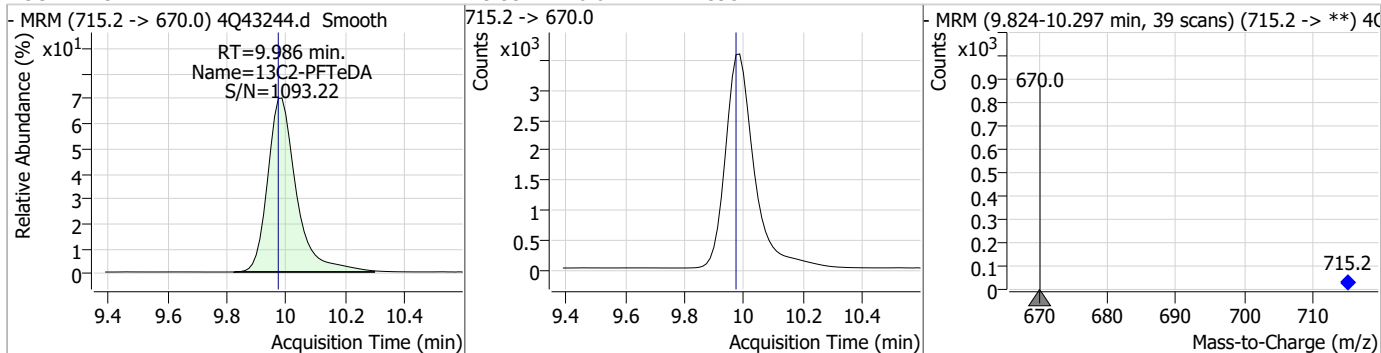
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.25	9.77	0.00	8739	498.1 -> 478.0	2.2	1.5	4.4



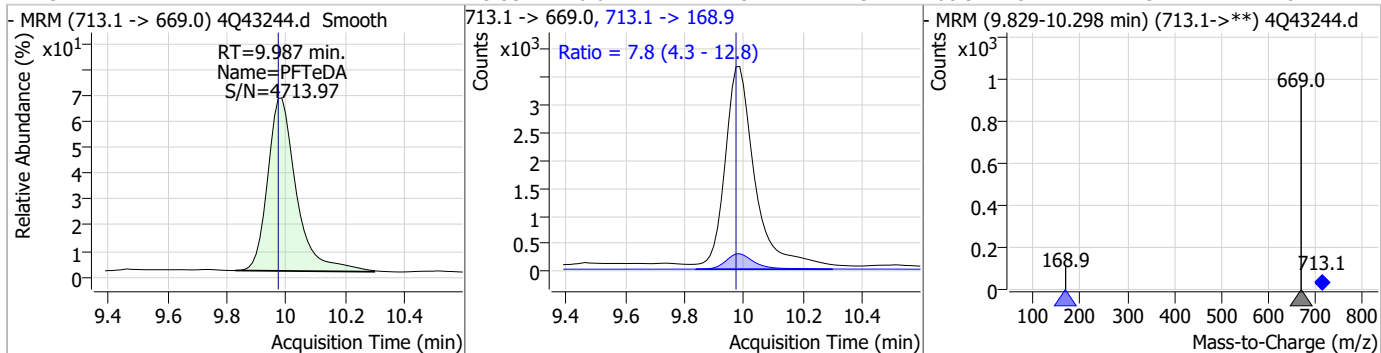
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.49	9.78	0.00	20720				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.24	9.99	0.01	23951				

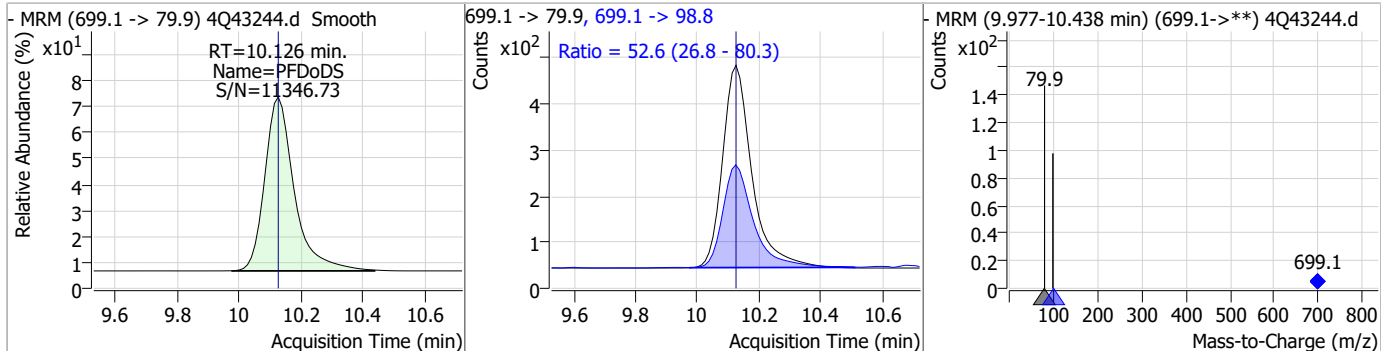


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.24	9.99	0.01	24119	713.1 -> 168.9	7.8	4.3	12.8

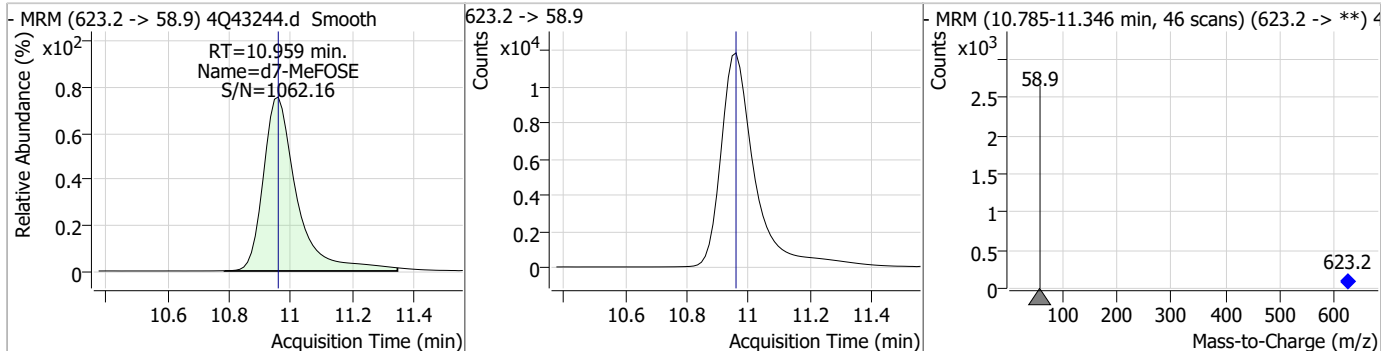


Perfluorinated Compounds by LC/MS/MS

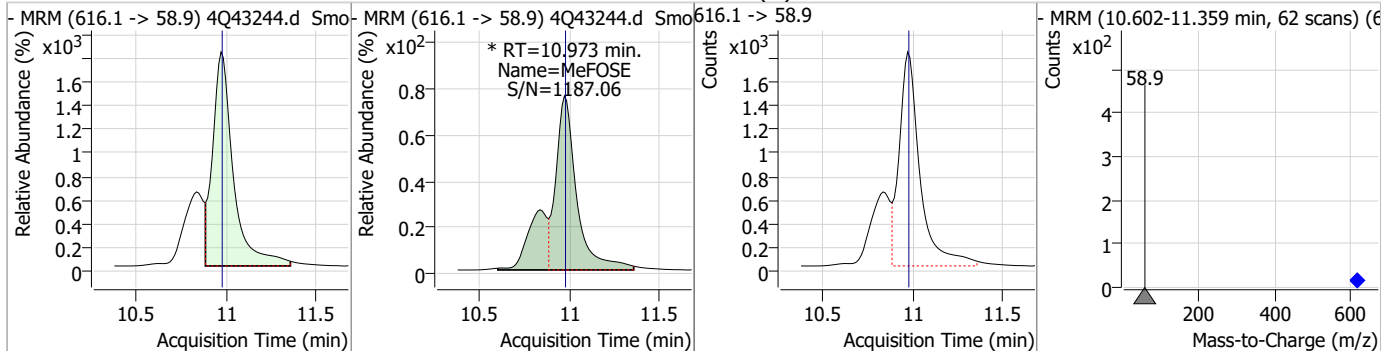
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	1.20	10.13	0.00	2920	699.1 -> 98.8	52.6	26.8	80.3



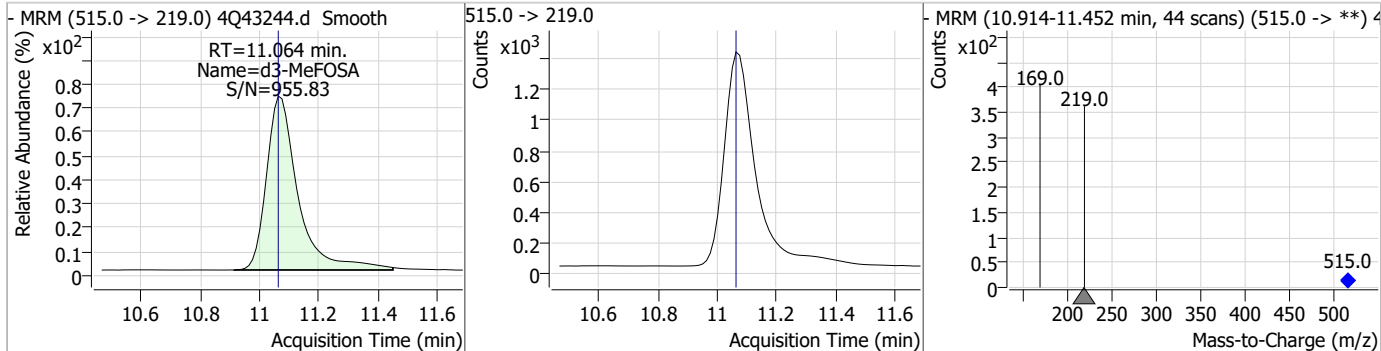
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.45	10.96	0.00	89516				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	6.10	10.97	0.00	19414 (m)				

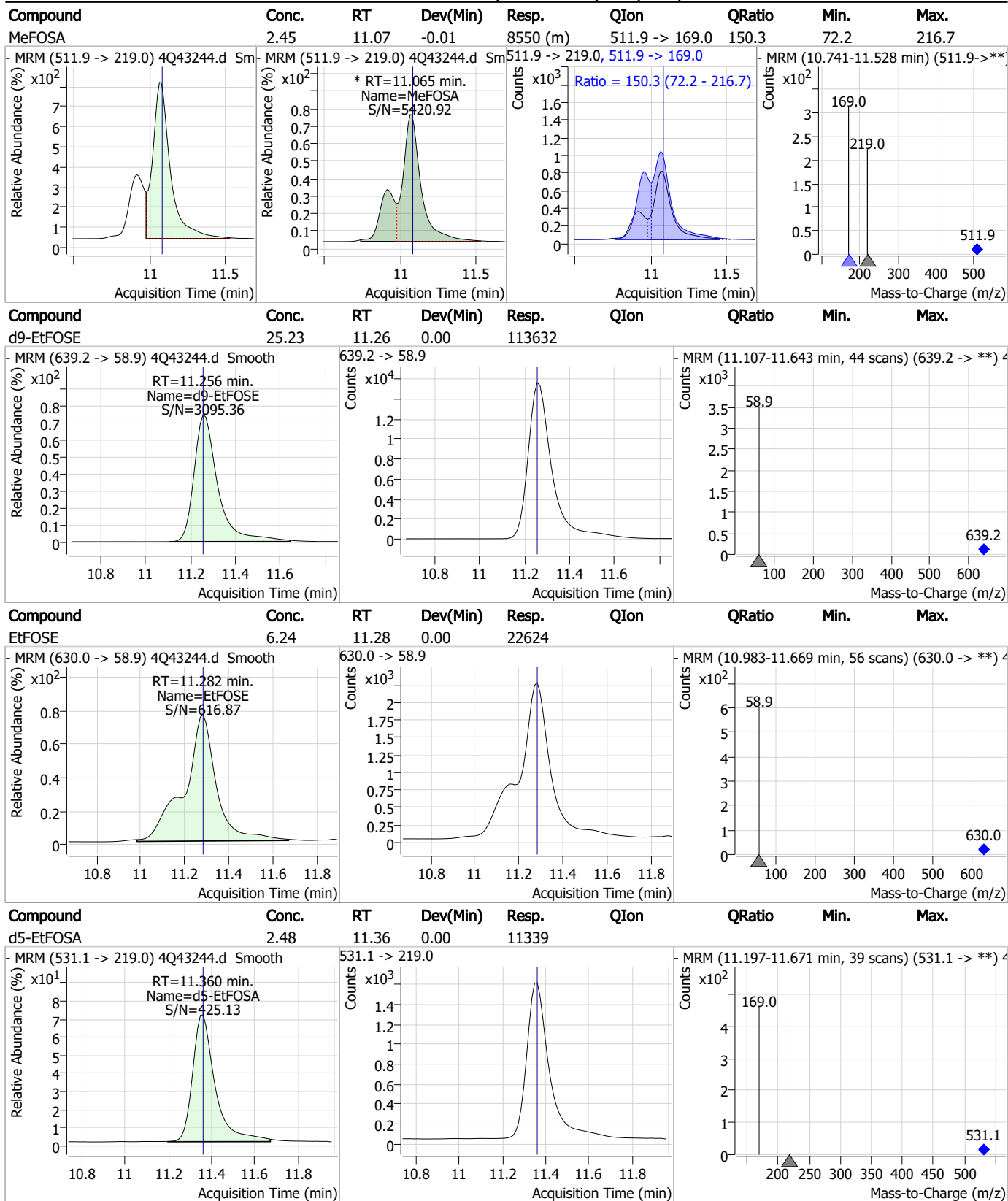


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.43	11.06	0.00	10435				



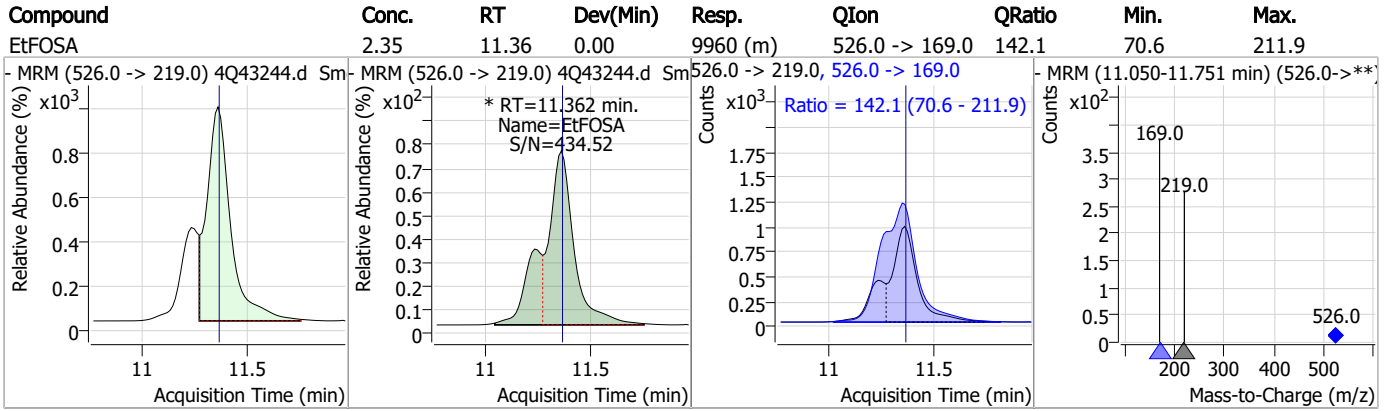
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.7.19

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Manual Integration Approval Summary

Sample Number: S4Q625-IC625 Method: EPA DRAFT 1633
Lab FileID: 4Q43244.D Analyst approved: 04/20/23 14:17 Natasha Gumtie
Injection Time: 04/19/23 12:22 Supervisor approved: 04/21/23 13:15 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorodecanoic acid	335-76-2		8.24	Poor instrument integration
Perfluorooctanesulfonic acid	1763-23-1		8.39	Split peak
EtFOSAA	2991-50-6		8.51	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.06	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.7.19.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43245.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/19/2023 12:37:00 PM
 Sample Name : icc625-4
 Vial : P1-A5
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s6q625.batch.bin
 Sample Information : OP96301,S4q625,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	117237	10.00 µg/L	0.000
M5-PFPeA	4.412	268.3 -> 223.0	70959	5.00 µg/L	0.000
M5-PFHxA	5.584	318.0 -> 273.0	54151	2.50 µg/L	0.000
M4-PFHpA	6.517	367.1 -> 322.0	29237	2.50 µg/L	0.000
M8-PFOA	7.188	421.1 -> 376.0	39658	2.50 µg/L	0.000
M9-PFNA	7.733	472.1 -> 427.0	21139	1.25 µg/L	0.000
M6-PFDA	8.240	519.1 -> 474.1	20355	1.25 µg/L	0.000
M7-PFUnDA	8.722	570.0 -> 525.1	23958	1.25 µg/L	0.000
M2-PFDoDA	9.180	615.1 -> 570.0	28882	1.25 µg/L	0.000
M2-PFTeDA	9.974	715.2 -> 670.0	23004	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	19463	2.50 µg/L	0.000
M3-PFBS	5.502	302.1 -> 79.9	11828	2.50 µg/L	0.000
M3-PFHxS	7.291	402.1 -> 79.9	7427	2.50 µg/L	0.000
M8-PFOS	8.392	507.1 -> 79.9	10795	2.50 µg/L	0.000
M2-4:2FTS	5.273	329.1 -> 80.9	1527	5.00 µg/L	0.000
M2-6:2FTS	6.948	429.1 -> 80.9	2487	5.00 µg/L	0.000
M2-8:2FTS	8.027	529.1 -> 80.9	4145	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	17830	5.00 µg/L	0.000
M3-HFPO-DA	5.952	286.9 -> 168.9	33945	10.00 µg/L	0.000
M5-EtFOSAA	8.507	589.2 -> 419.0	15313	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	82927	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	107681	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	11003	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	10009	2.50 µg/L	0.000
13C4-PFOS	8.405	502.8 -> 79.9	10659	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	64787	5.00 µg/L	0.000
18O2-PFHxS	7.290	403.0 -> 83.9	4980	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	47901	2.50 µg/L	0.000
13C2-PFDA	8.241	515.1 -> 470.1	19600	1.25 µg/L	0.000
13C5-PFNA	7.734	468.0 -> 423.0	24550	1.25 µg/L	0.000
13C2-PFHxA	5.585	315.1 -> 270.0	45871	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.273	329.1 -> 80.9	1527	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C2-6:2FTS	6.948	429.1 -> 80.9	2487	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-8:2FTS	8.027	529.1 -> 80.9	4145	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C2-PFDoDA	9.180	615.1 -> 570.0	28882	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C2-PFTeDA	9.974	715.2 -> 670.0	23004	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-PFBS	5.502	302.1 -> 79.9	11828	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C3-PFHxS	7.291	402.1 -> 79.9	7427	2.61 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C4-PFBA	2.936	216.8 -> 171.9	117237	10.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C4-PFHpA	6.517	367.1 -> 322.0	29237	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C5-PFHxA	5.584	318.0 -> 273.0	54151	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C5-PFPeA	4.412	268.3 -> 223.0	70959	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C6-PFDA	8.240	519.1 -> 474.1	20355	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C7-PFUnDA	8.722	570.0 -> 525.1	23958	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C8-FOSA	9.783	506.1 -> 77.8	19463	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C8-PFOA	7.188	421.1 -> 376.0	39658	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOS	8.392	507.1 -> 79.9	10795	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C9-PFNA	7.733	472.1 -> 427.0	21139	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.6%	
d3-MeFOSAA	8.298	573.2 -> 419.0	17830	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C3-HFPO-DA	5.952	286.9 -> 168.9	33945	9.75 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
d3-MeFOSA	11.064	515.0 -> 219.0	10009	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
d5-EtFOSAA	8.507	589.2 -> 419.0	15313	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
d7-MeFOSE	10.959	623.2 -> 58.9	82927	25.36 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
d9-EtFOSE	11.256	639.2 -> 58.9	107681	25.71 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
d5-EtFOSA	11.360	531.1 -> 219.0	11003	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
Target Compounds					QValue
4:2FTS	5.273	327.1 -> 307.0	18892	9.67 µg/L	100
		327.1 -> 80.9	8465		
6:2FTS	6.949	427.1 -> 407.0	18232	9.59 µg/L	100
		427.1 -> 80.9	8113		
8:2FTS	8.028	527.1 -> 507.0	22274	10.90 µg/L	100
		527.1 -> 80.8	9100		
EtFOSAA	8.521	584.2 -> 419.1	5531	2.53 µg/L	m 100
		584.2 -> 526.0	2935		
FOSA	9.774	498.1 -> 77.9	16527	2.51 µg/L	100
		498.1 -> 478.0	480		
MeFOSAA	8.299	570.1 -> 419.0	6410	2.52 µg/L	m 100
		570.1 -> 483.0	1460		
PFBA	2.945	212.8 -> 168.9	27278	10.03 µg/L	100
PFBS	5.503	298.7 -> 79.9	9903	2.12 µg/L	100
		298.7 -> 98.8	3977		
PFDA	8.241	512.9 -> 469.0	32921	2.64 µg/L	100
		512.9 -> 219.0	6666		
PFDODA	9.181	613.1 -> 569.0	50201	2.64 µg/L	100
		613.1 -> 319.0	6830		
PFDS	9.344	599.0 -> 79.9	6396	2.54 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3062			
PFHpA	6.530	363.1 -> 319.0	38121	2.48	µg/L	100
		363.1 -> 169.0	6634			
PFHpS	7.873	449.0 -> 79.9	7454	2.40	µg/L	100
		449.0 -> 98.9	3976			
PFHxA	5.587	313.0 -> 269.0	42784	2.51	µg/L	100
		313.0 -> 118.9	1370			
PFHxS	7.292	398.7 -> 79.9	5723	2.10	µg/L	m 100
		398.7 -> 98.9	3124			
PFNA	7.734	463.0 -> 419.0	30924	2.57	µg/L	100
		463.0 -> 219.0	7976			
PFNS	8.886	548.8 -> 79.9	4710	2.46	µg/L	100
		548.8 -> 98.9	2196			
PFOA	7.189	413.0 -> 369.0	46193	2.61	µg/L	100
		413.0 -> 169.0	9717			
PFOS	8.394	498.9 -> 79.9	9982	2.41	µg/L	m 100
		498.9 -> 98.8	5089			
PFPeA	4.414	263.0 -> 219.0	71978	5.08	µg/L	100
PFPeS	6.569	349.1 -> 79.9	5539	2.36	µg/L	100
		349.1 -> 98.9	2499			
PFTeDA	9.974	713.1 -> 669.0	47555	2.54	µg/L	100
		713.1 -> 168.9	4052			
PFTrDA	9.604	663.0 -> 619.0	63427	2.68	µg/L	100
		663.0 -> 168.9	5988			
PFUnDA	8.722	563.1 -> 519.0	32586	2.40	µg/L	100
		563.1 -> 269.1	6664			
11Cl-PF3OUdS	9.643	630.9 -> 450.9	49085	5.02	µg/L	100
		632.9 -> 452.9	15317			
9Cl-PF3ONS	8.749	530.8 -> 351.0	50312	4.79	µg/L	100
		532.8 -> 353.0	14921			
ADONA	6.781	376.9 -> 250.9	119186	4.89	µg/L	100
		376.9 -> 84.8	30947			
HFPO-DA	5.953	284.9 -> 168.9	14273	5.32	µg/L	100
		284.9 -> 184.9	1598			
3:3FTCA	3.867	241.0 -> 177.0	8328	12.34	µg/L	100
		241.0 -> 117.0	772			
5:3FTCA	6.231	341.0 -> 237.1	161672	63.58	µg/L	100
		341.0 -> 217.0	115992			
7:3FTCA	7.686	441.0 -> 316.9	80338	64.74	µg/L	100
		441.0 -> 336.9	178949			
EtFOSA	11.362	526.0 -> 219.0	19551	4.76	µg/L	m 100
		526.0 -> 169.0	27621			
EtFOSE	11.282	630.0 -> 58.9	43331	12.62	µg/L	100
MeFOSA	11.078	511.9 -> 219.0	17467	5.22	µg/L	m 100
		511.9 -> 169.0	25235			
MeFOSE	10.973	616.1 -> 58.9	38028	12.90	µg/L	m 100
PFDoDS	10.126	699.1 -> 79.9	5795	2.53	µg/L	100
		699.1 -> 98.8	3104			
NFDHA	5.479	295.0 -> 201.0	4974	5.38	µg/L	100
		295.0 -> 84.9	1400			
PFMBA	4.828	279.0 -> 85.1	40792	5.04	µg/L	100
PFMPA	3.553	229.0 -> 84.9	35875	4.99	µg/L	100
PFEESA	6.034	314.8 -> 134.9	62170	4.44	µg/L	100
		314.8 -> 82.9	2166			

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

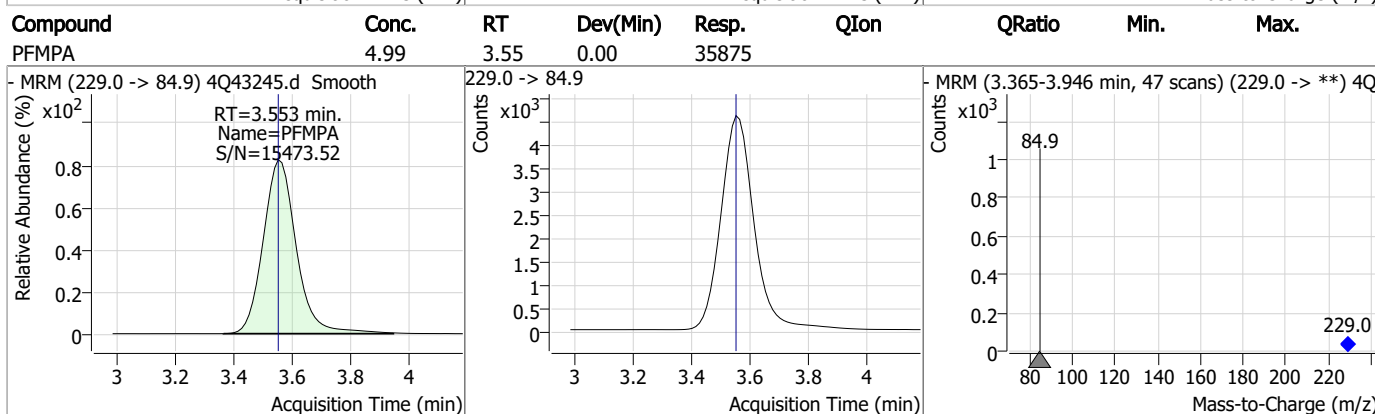
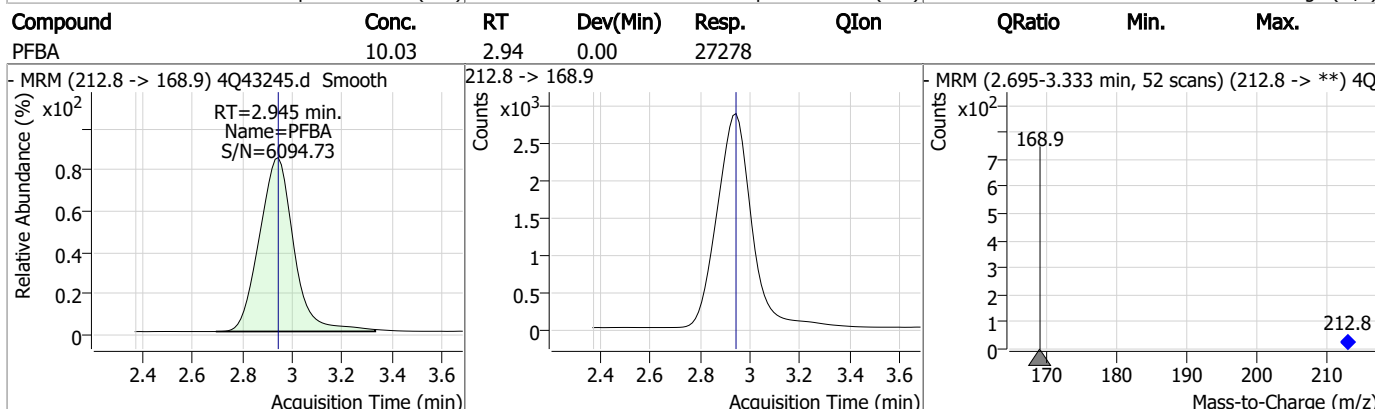
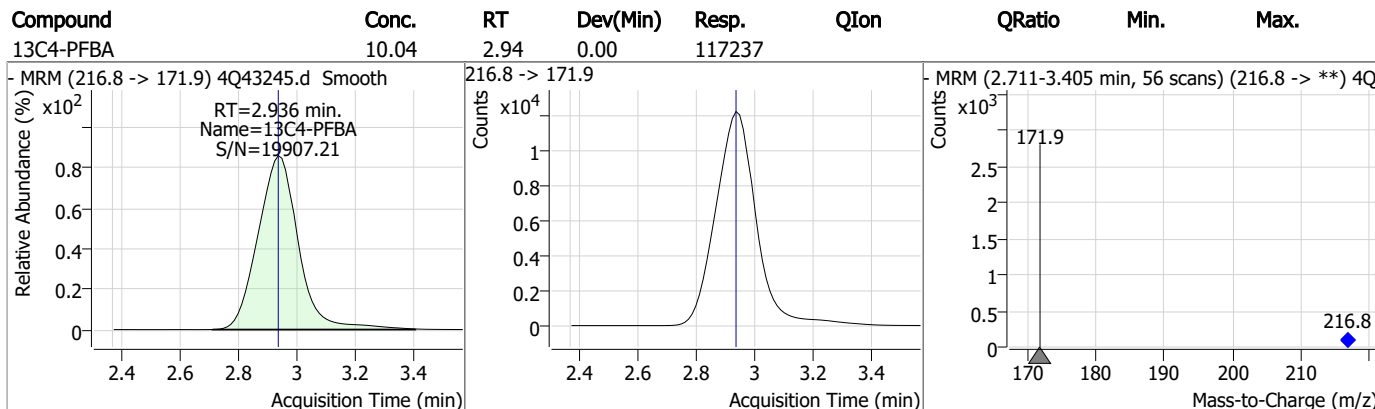
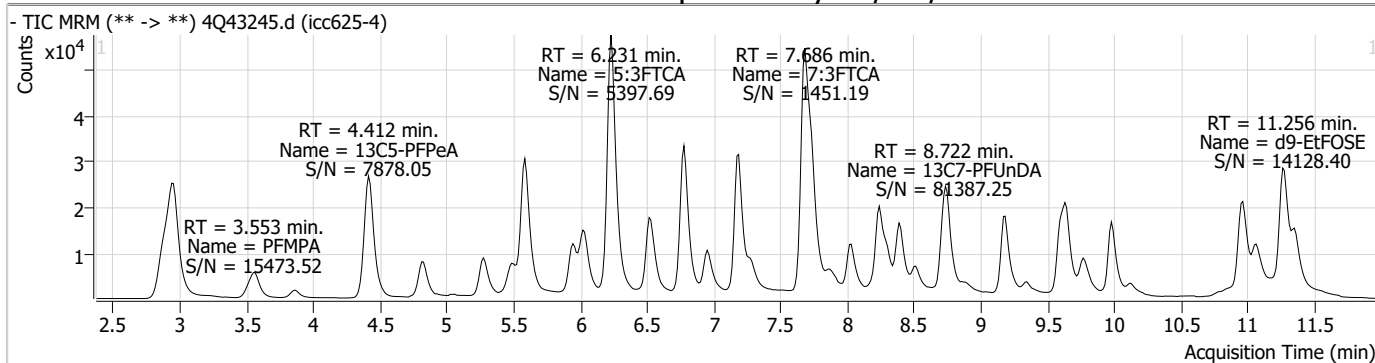
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.20

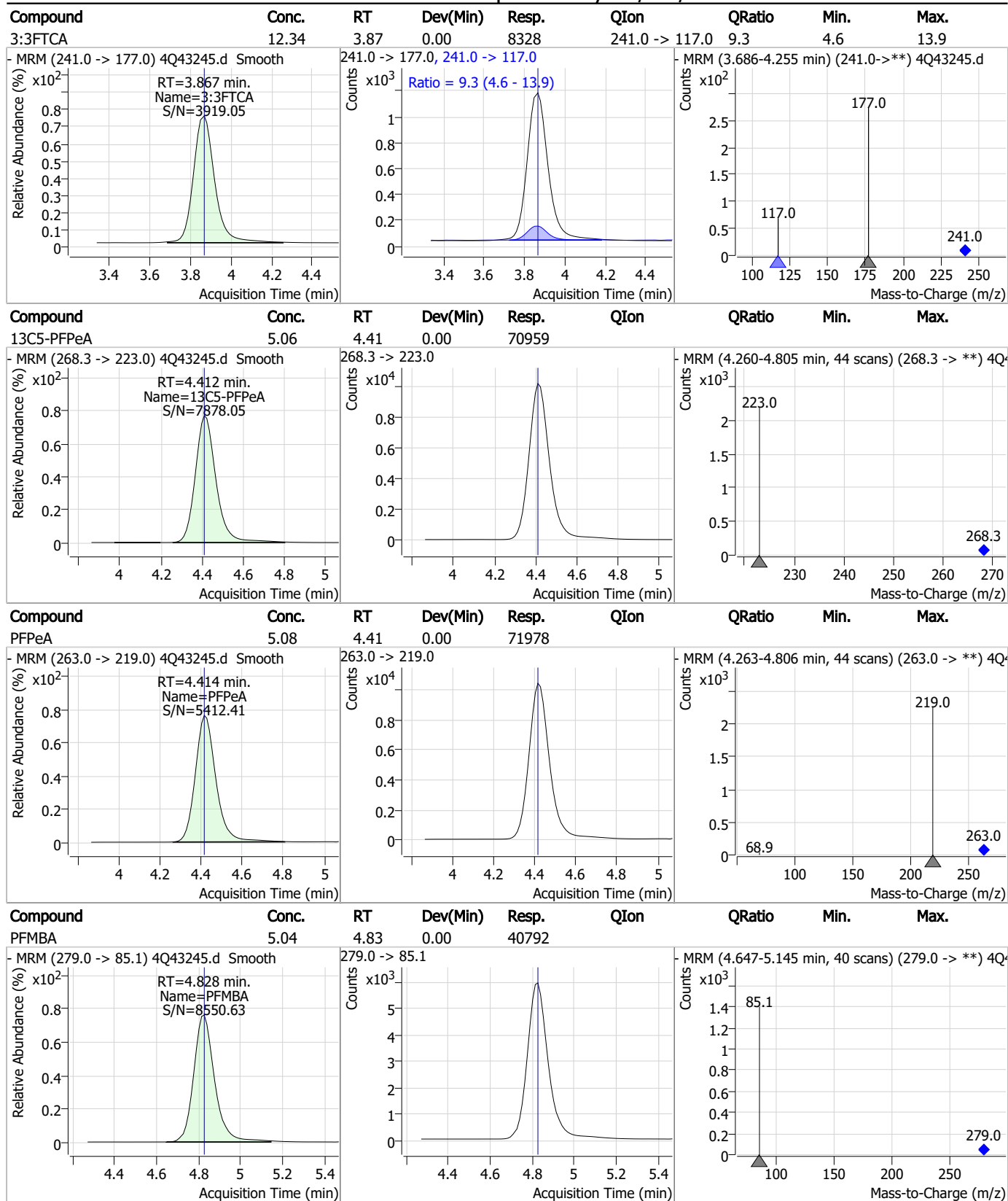
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Perfluorinated Compounds by LC/MS/MS



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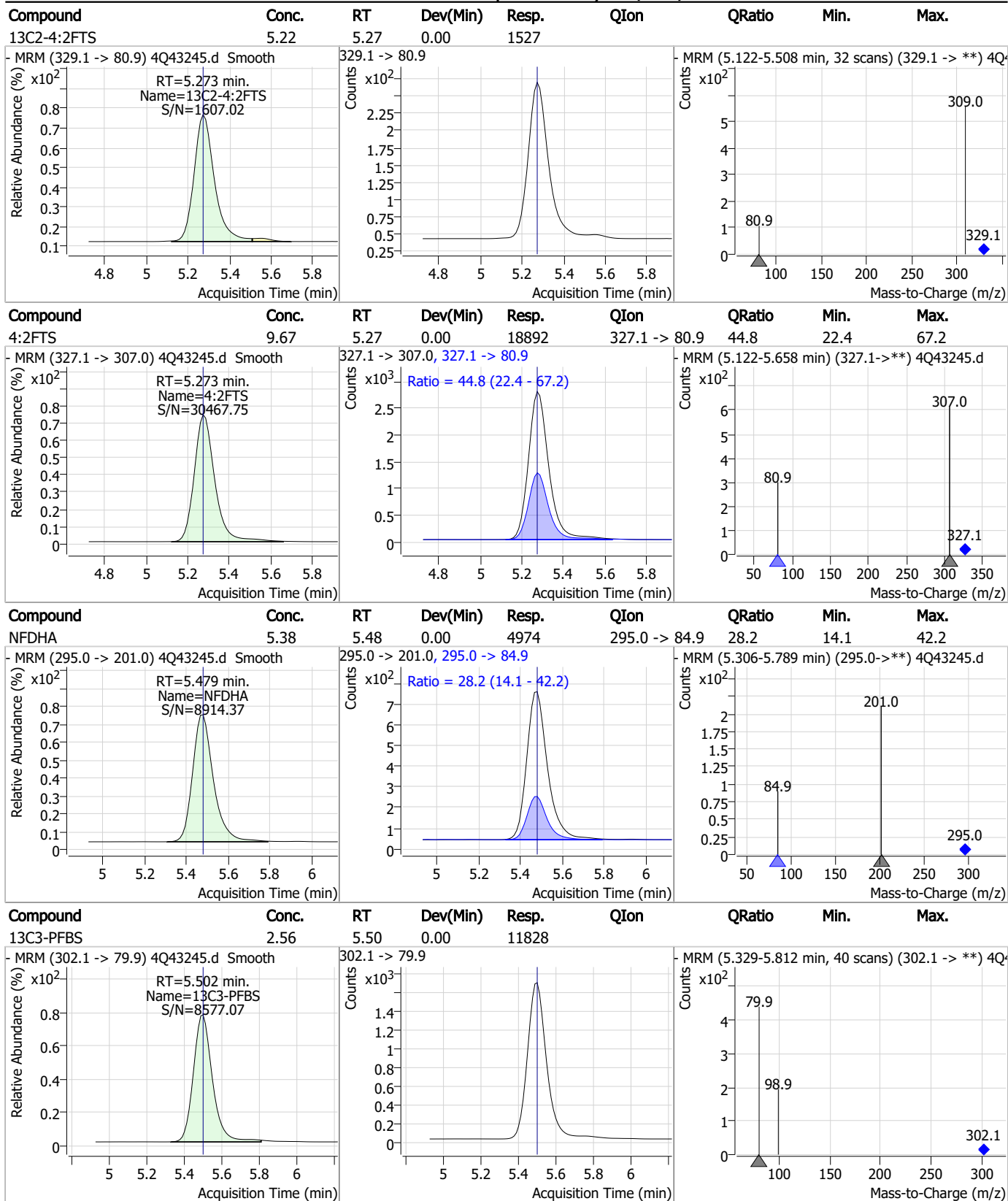
Perfluorinated Compounds by LC/MS/MS



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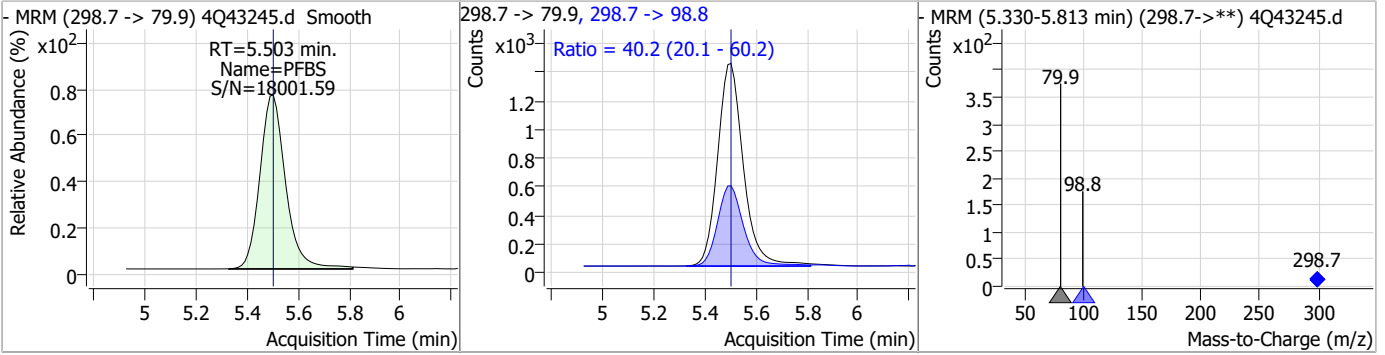
Perfluorinated Compounds by LC/MS/MS



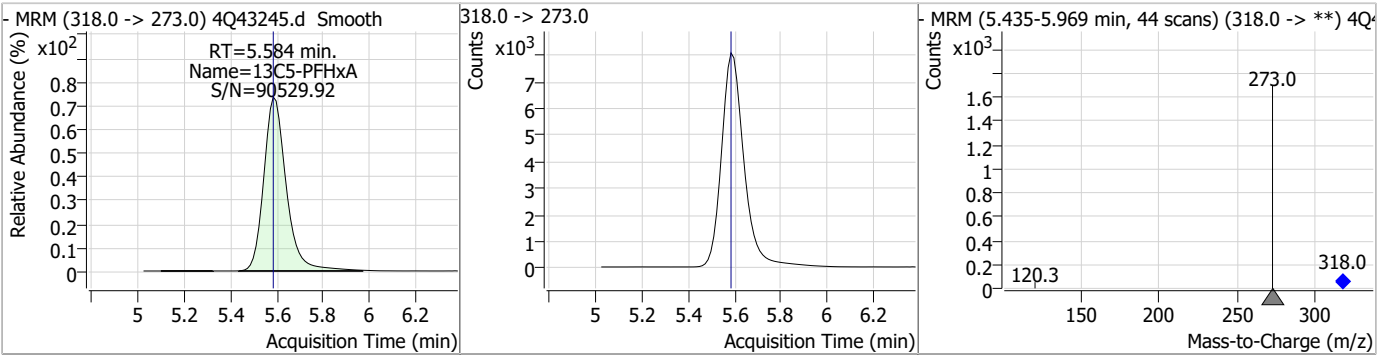
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Perfluorinated Compounds by LC/MS/MS

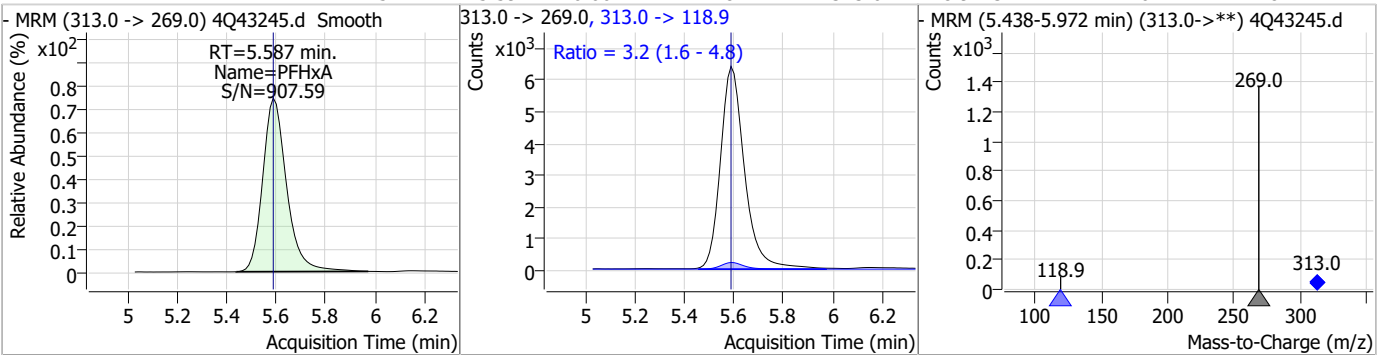
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.12	5.50	0.00	9903	298.7 -> 98.8	40.2	20.1	60.2



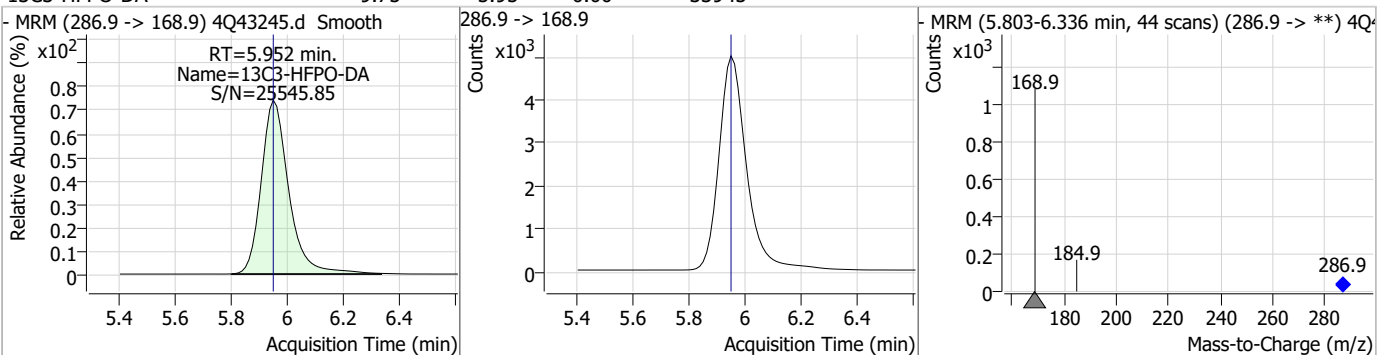
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.58	0.00	54151				



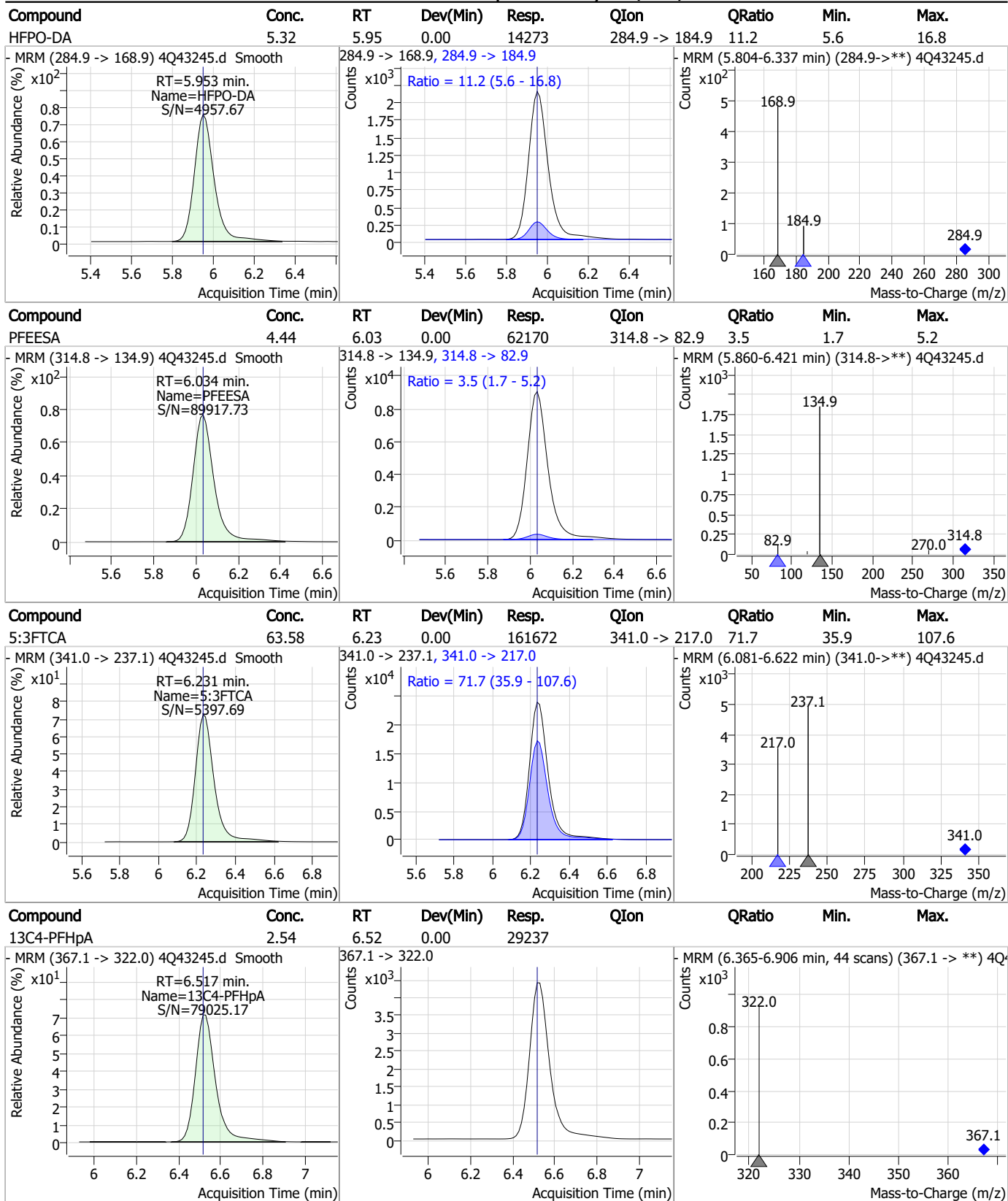
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.51	5.59	0.00	42784	313.0 -> 118.9	3.2	1.6	4.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.75	5.95	0.00	33945				

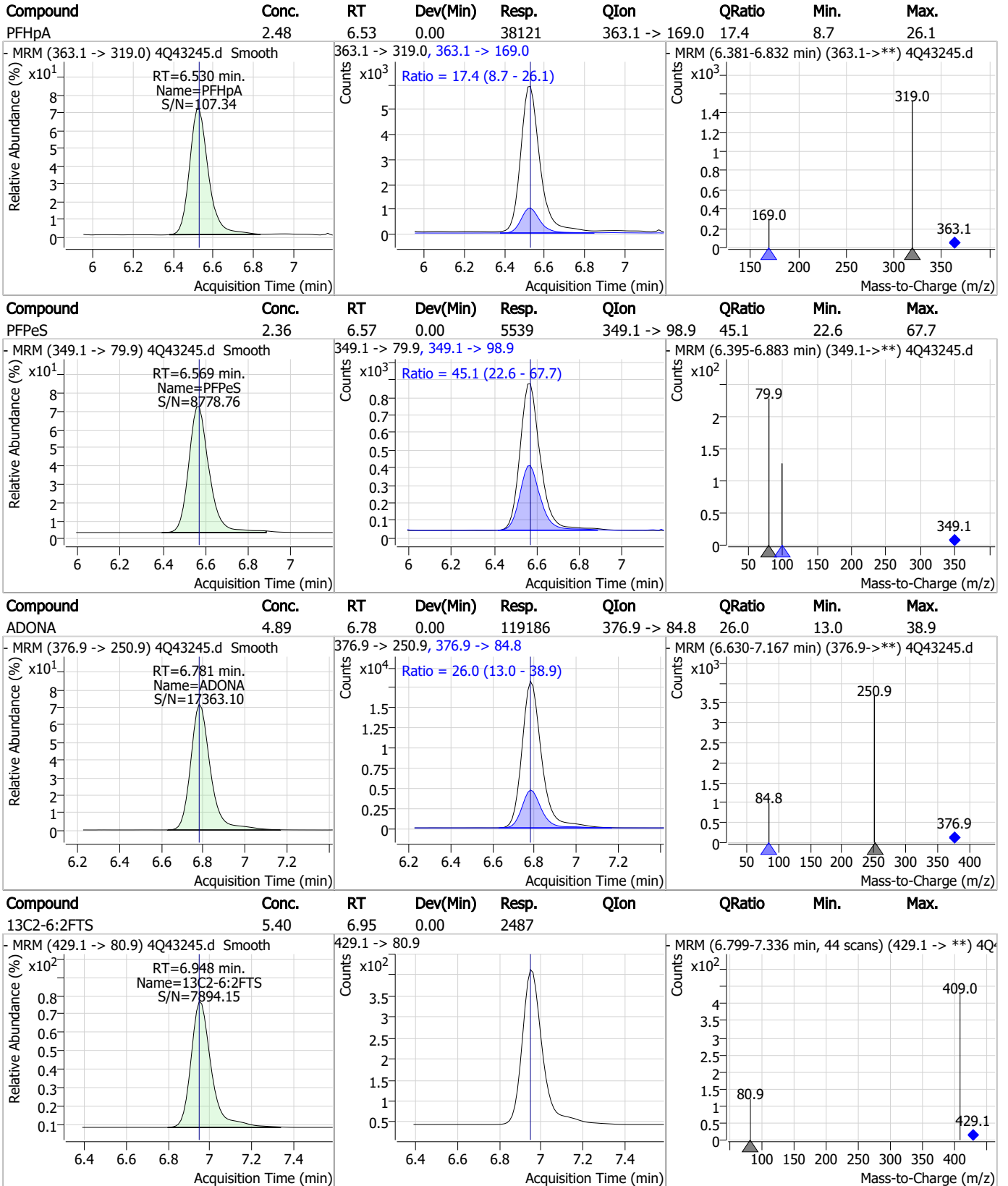


Perfluorinated Compounds by LC/MS/MS



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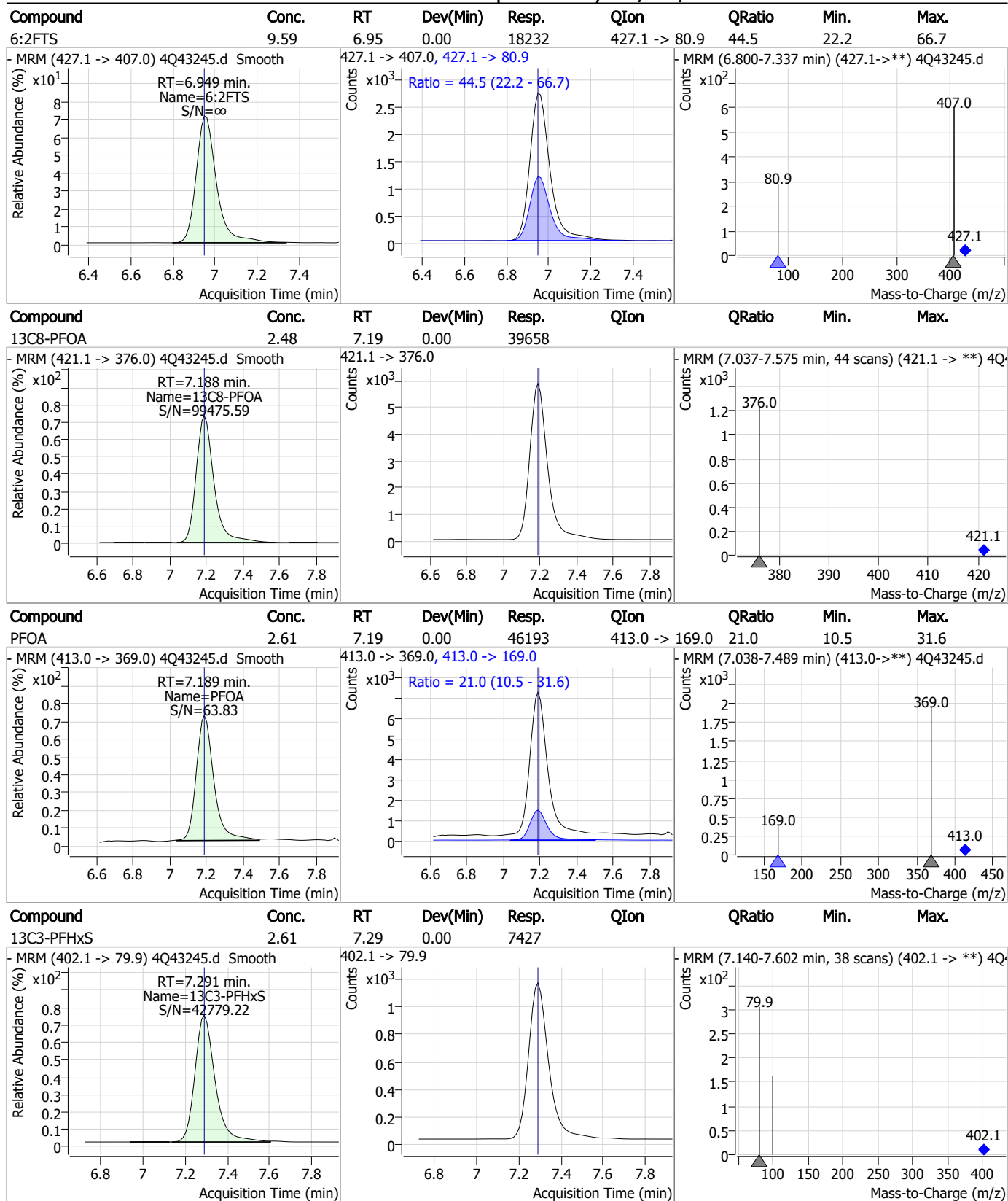
Perfluorinated Compounds by LC/MS/MS



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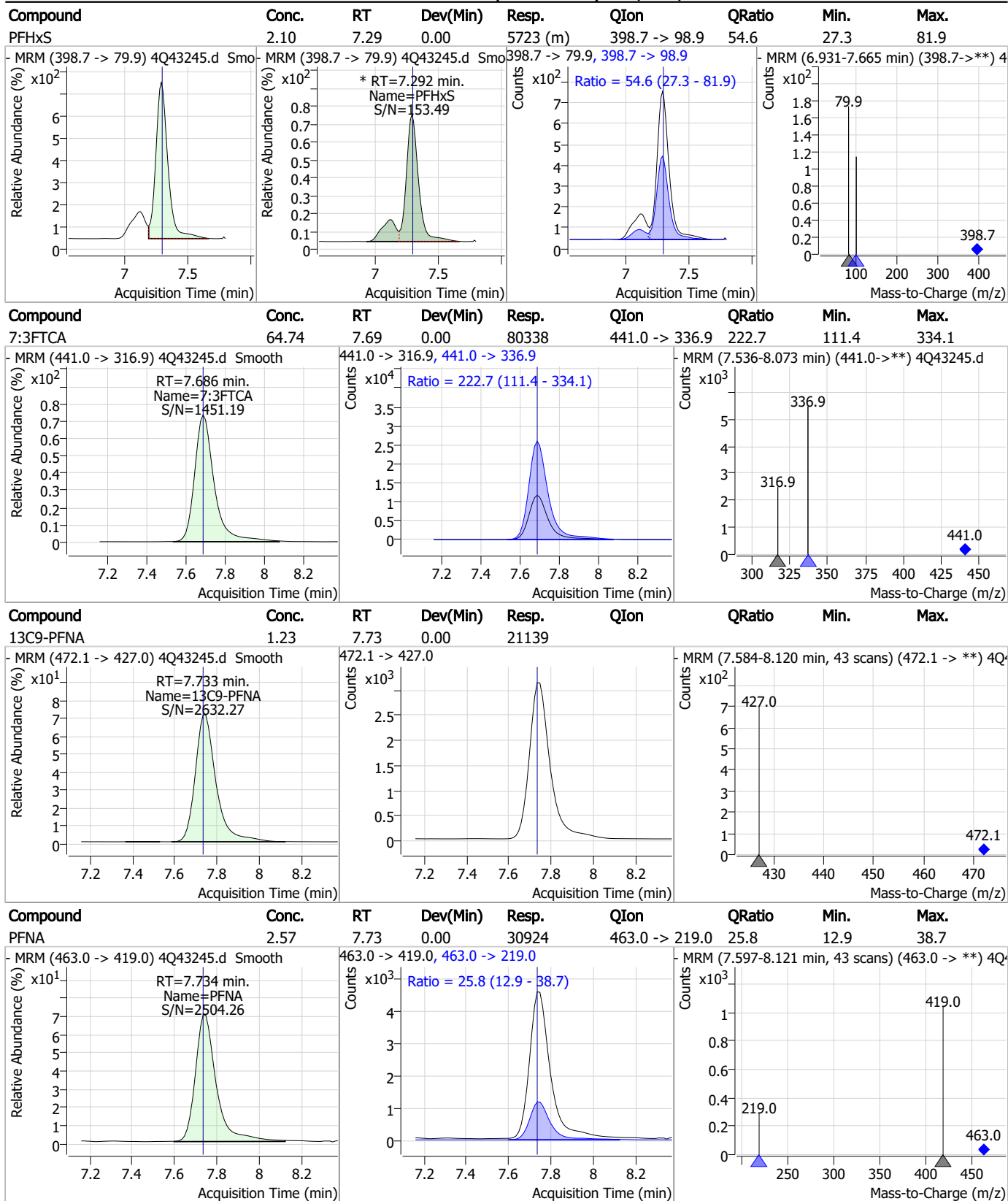
Perfluorinated Compounds by LC/MS/MS



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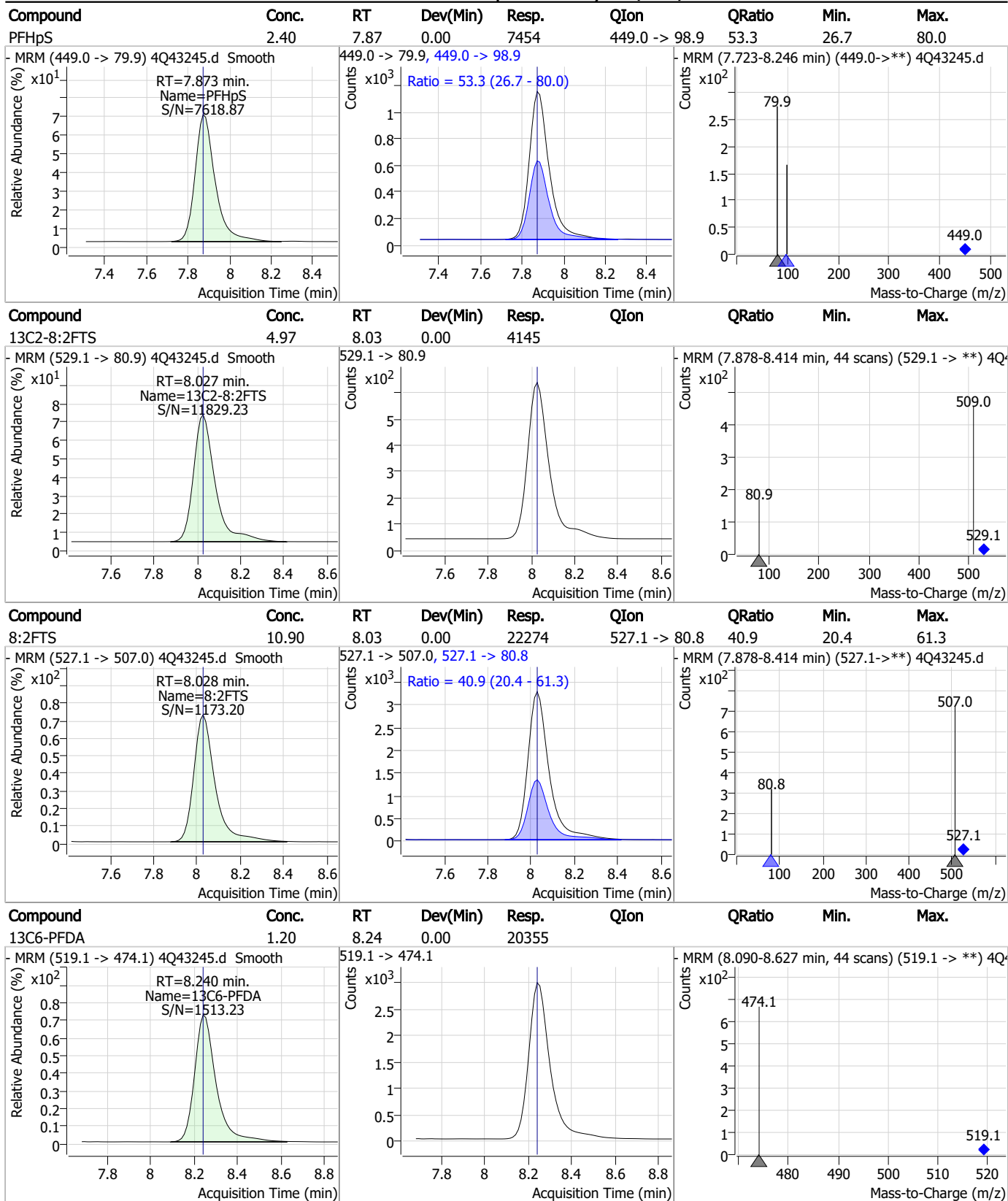
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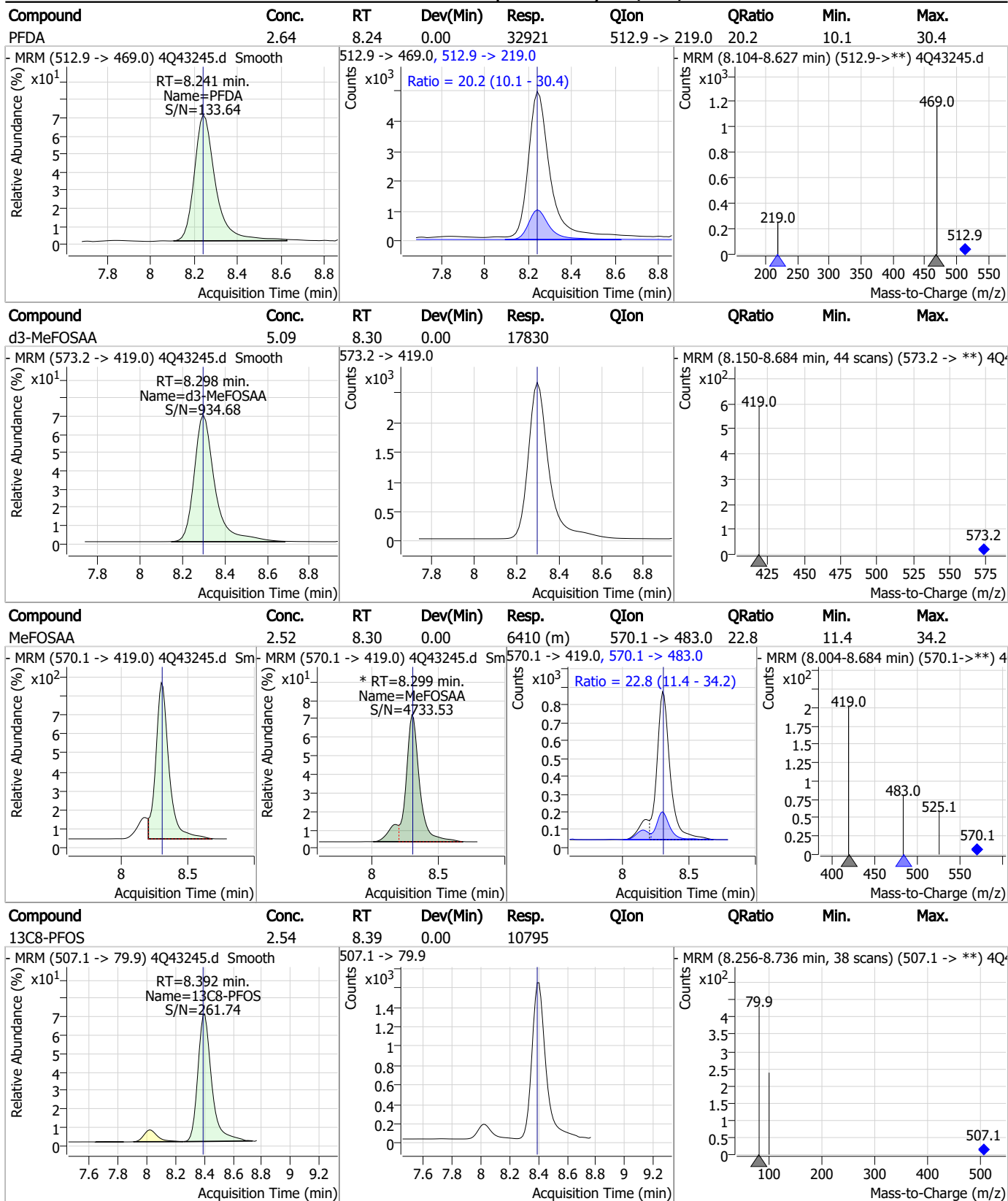
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Perfluorinated Compounds by LC/MS/MS



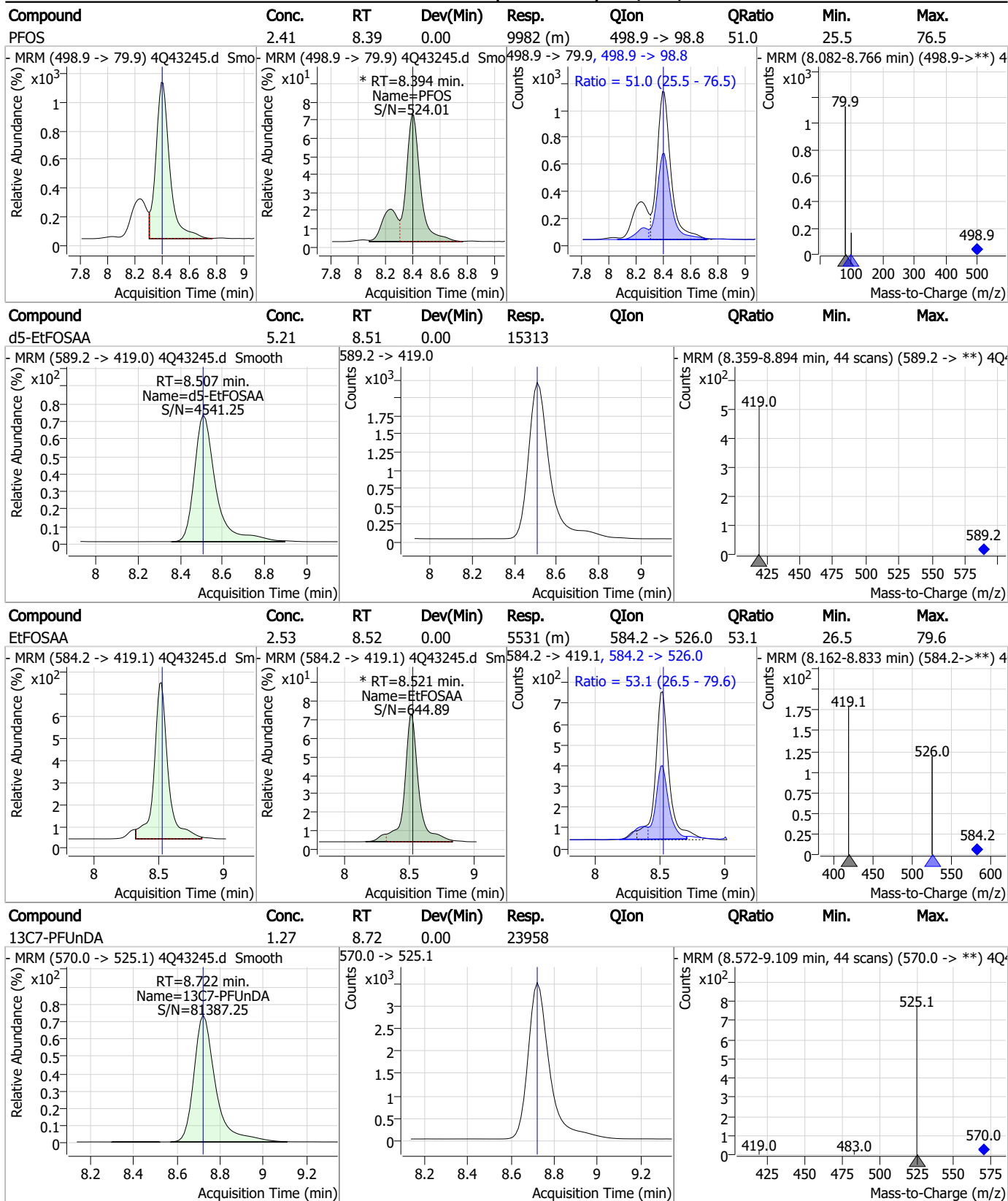
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Perfluorinated Compounds by LC/MS/MS



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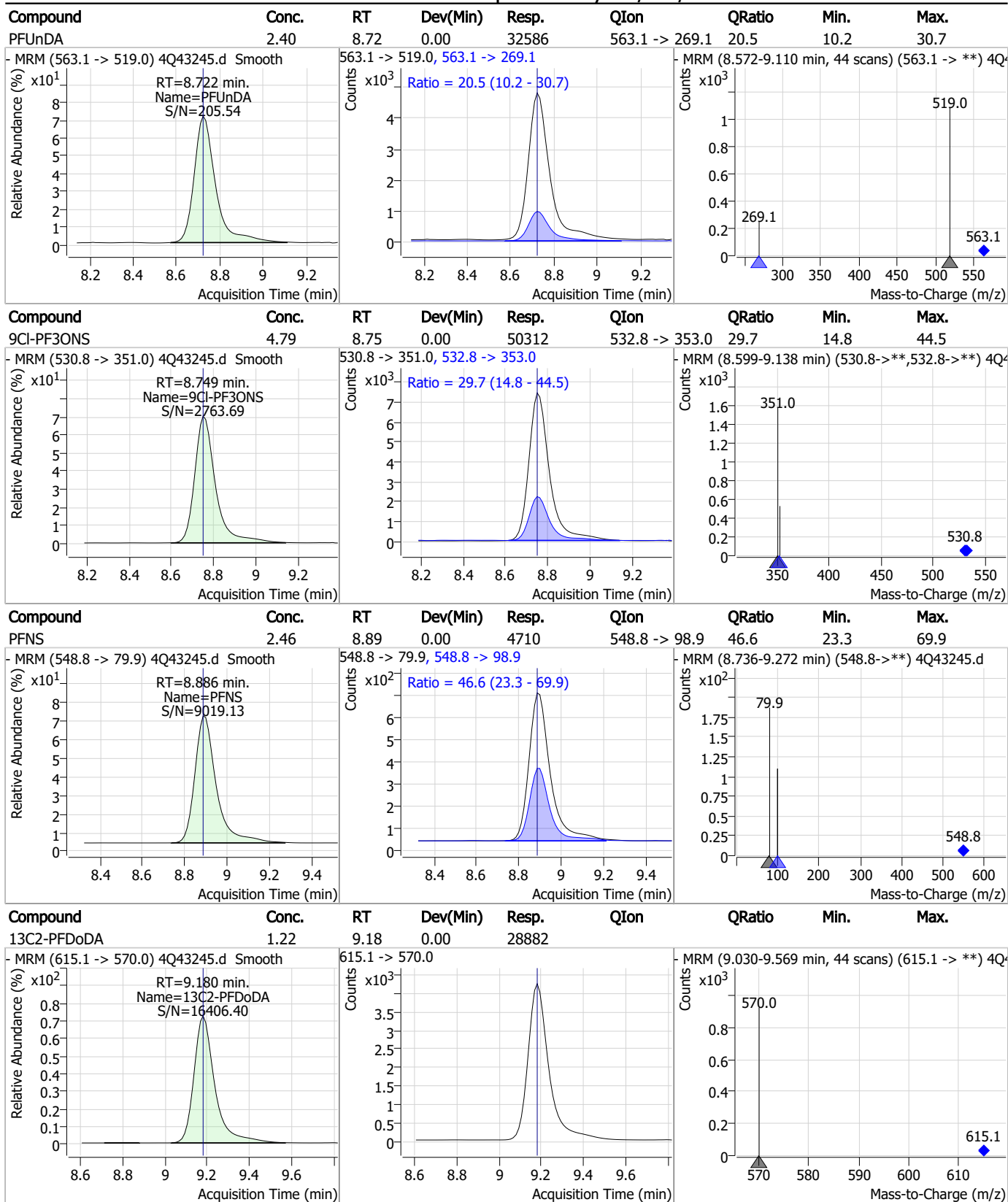
Perfluorinated Compounds by LC/MS/MS



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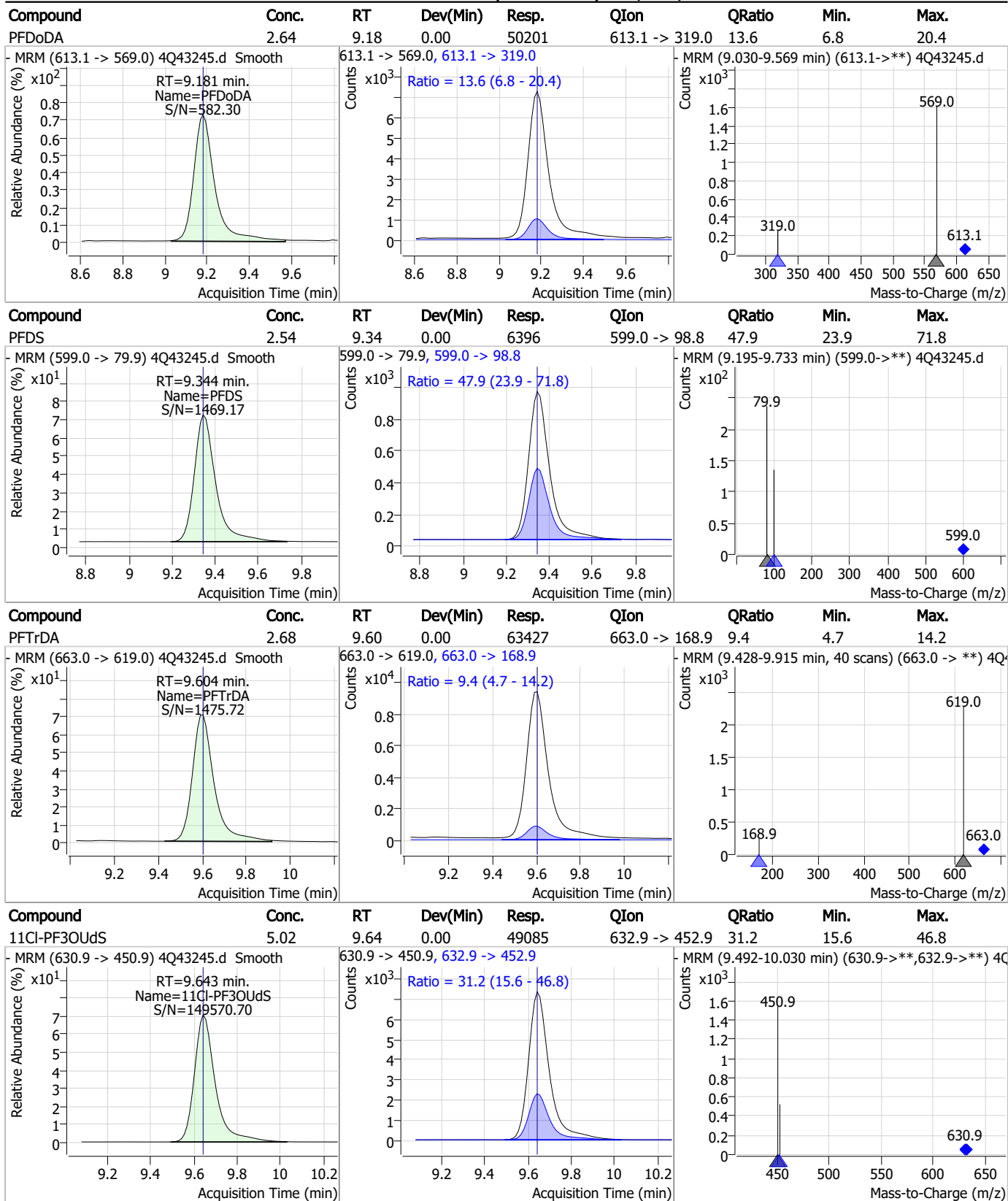
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Perfluorinated Compounds by LC/MS/MS



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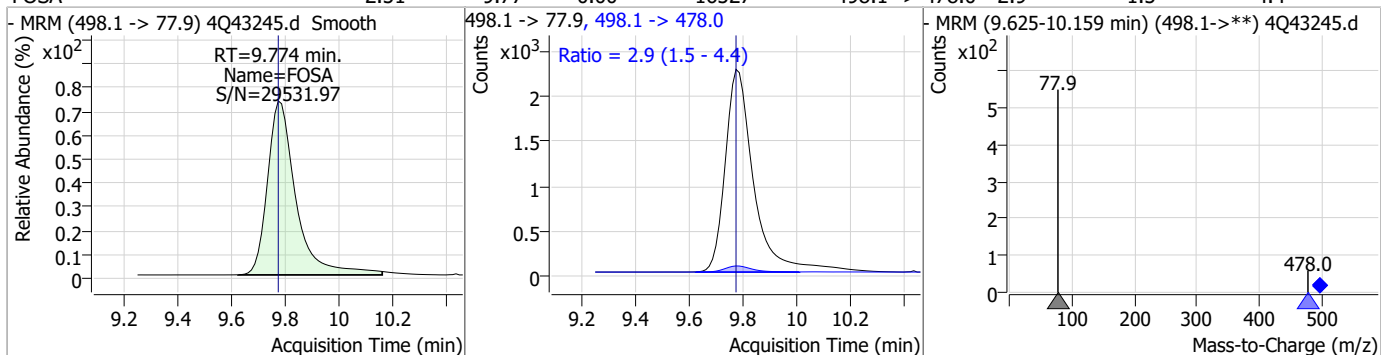
Perfluorinated Compounds by LC/MS/MS



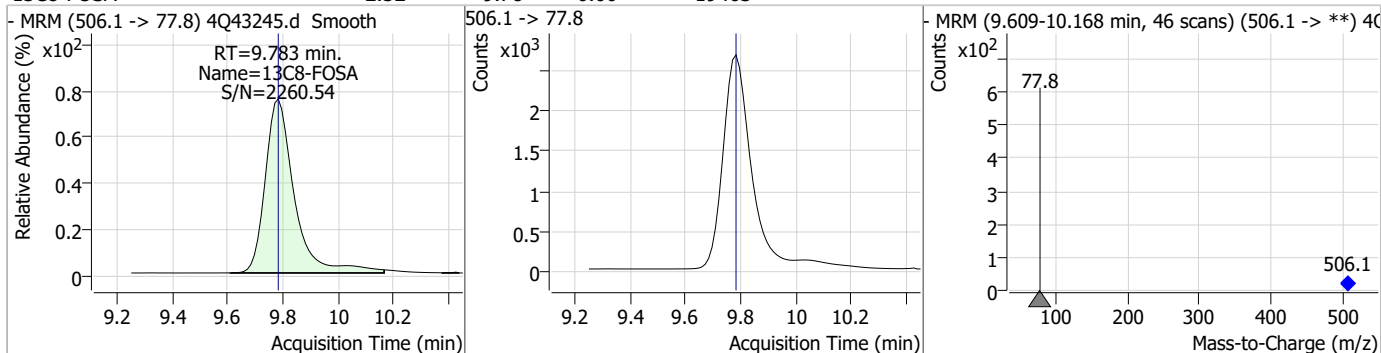
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Perfluorinated Compounds by LC/MS/MS

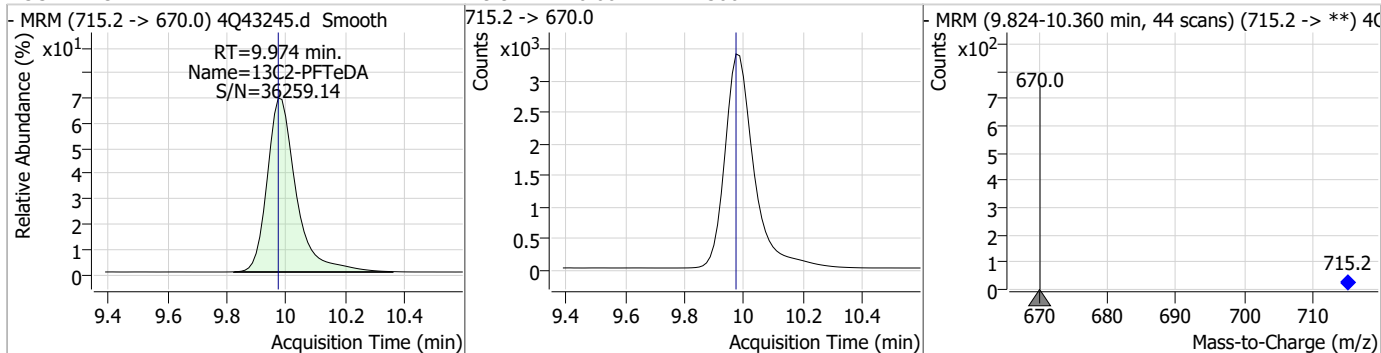
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.51	9.77	0.00	16527	498.1 -> 478.0	2.9	1.5	4.4



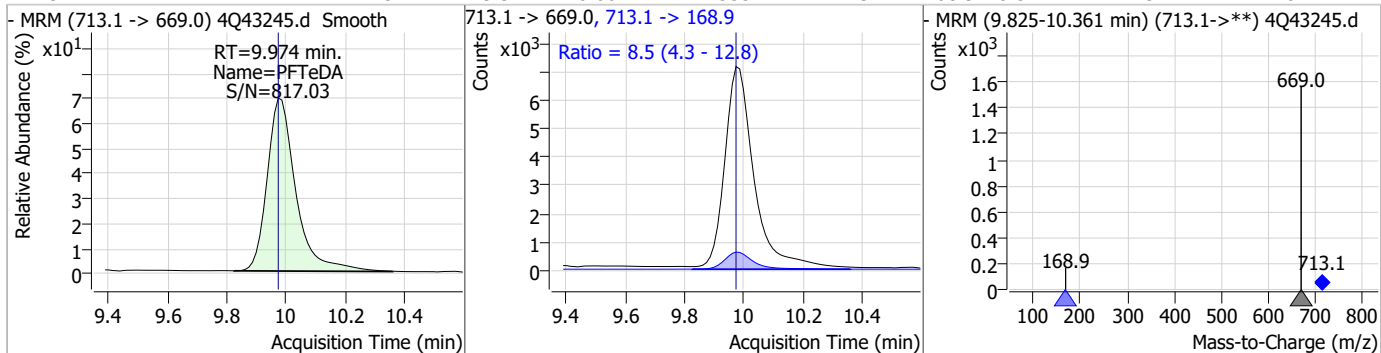
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.52	9.78	0.00	19463	506.1 -> 478.0			



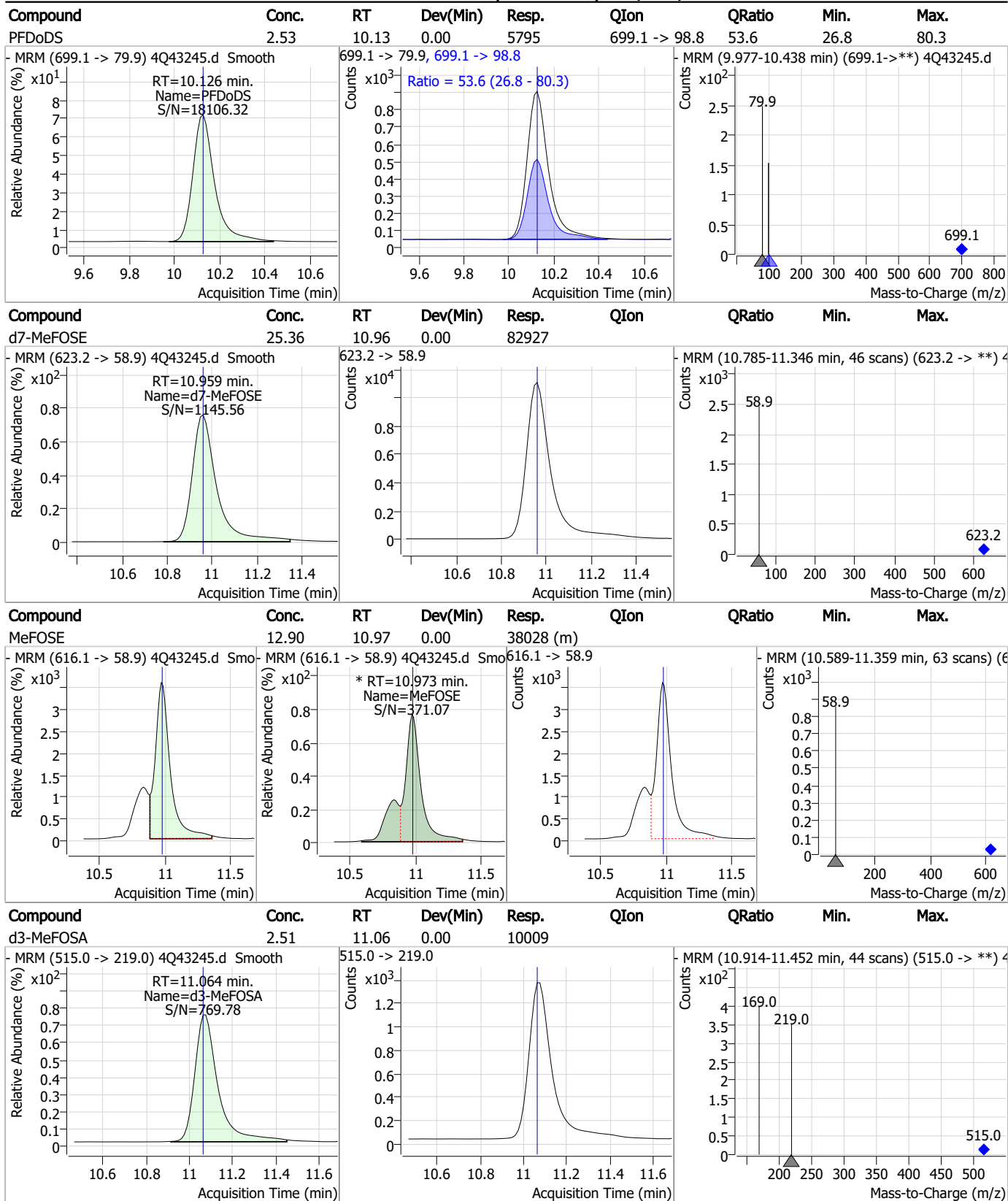
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	9.97	0.00	23004	715.2 -> 670.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.54	9.97	0.00	47555	713.1 -> 669.0	8.5	4.3	12.8



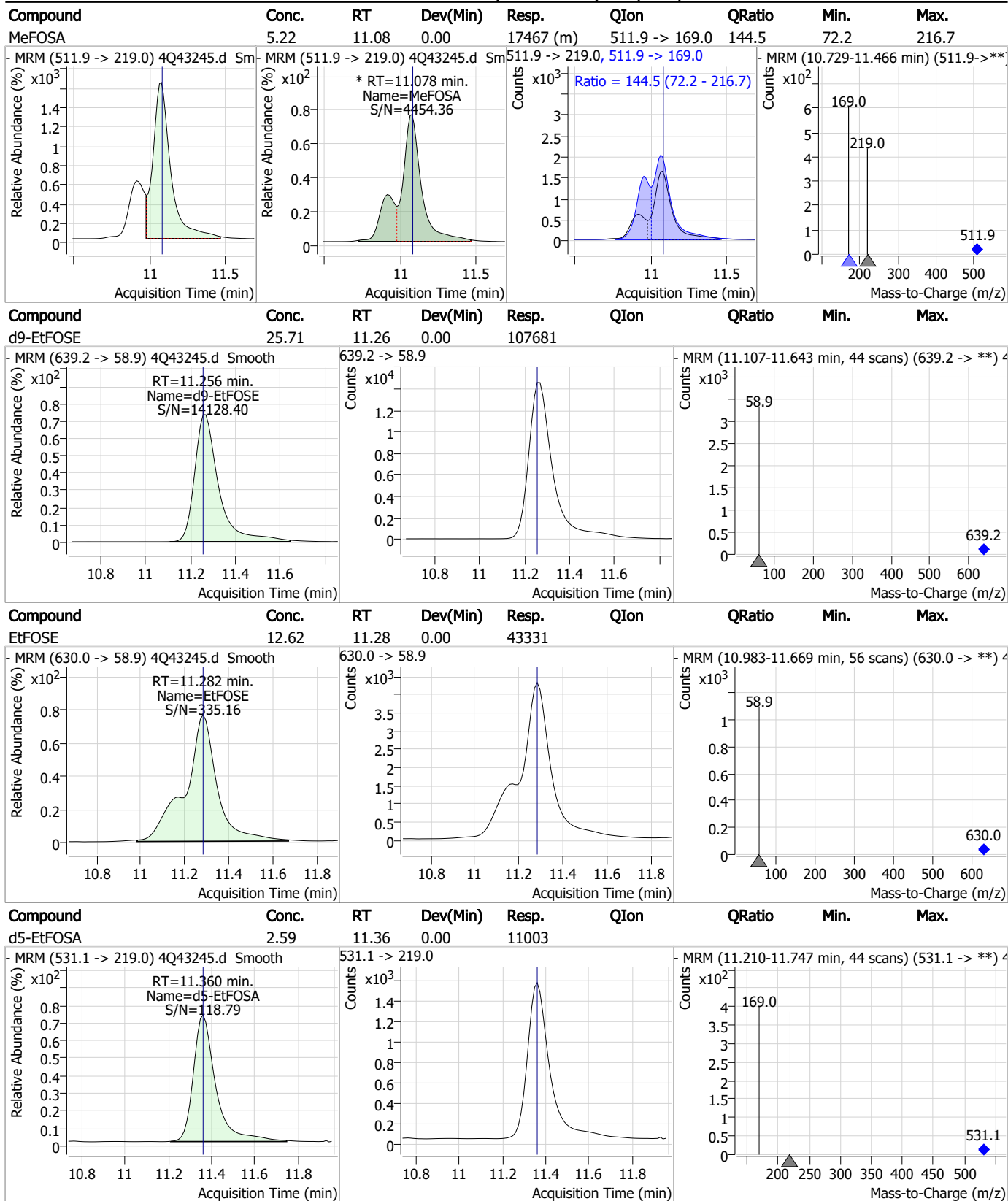
Perfluorinated Compounds by LC/MS/MS



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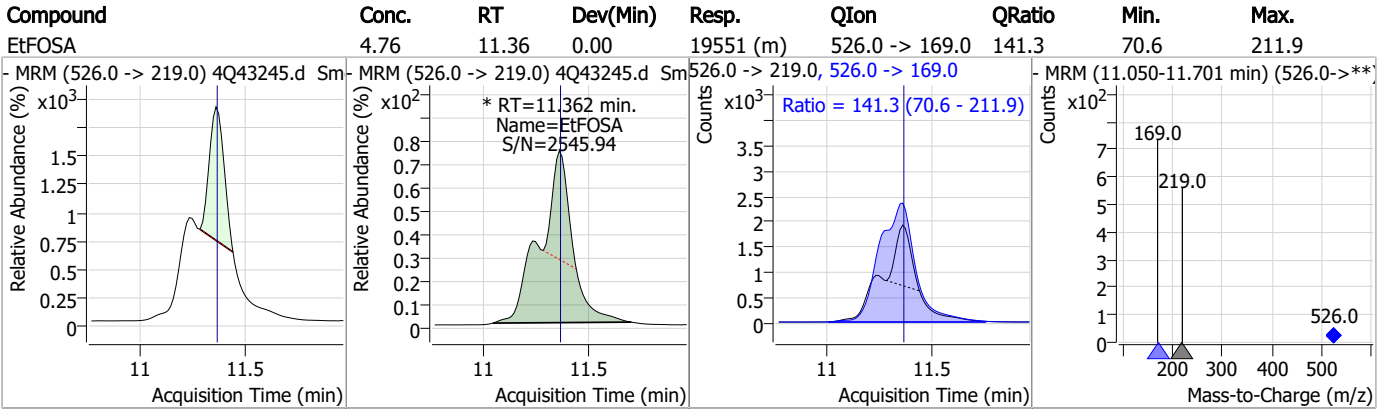
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q625-ICC625 Method: EPA DRAFT 1633
Lab FileID: 4Q43245.D Analyst approved: 04/20/23 14:17 Natasha Gumtie
Injection Time: 04/19/23 12:37 Supervisor approved: 04/21/23 13:15 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.39	Split peak
EtFOSAA	2991-50-6		8.52	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSA	4151-50-2		11.36	Split peak

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 04/21/23 13:15

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43246.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/19/2023 12:51:03 PM
 Sample Name : ic625-5
 Vial : P1-A6
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s6q625.batch.bin
 Sample Information : OP96301,S4q625,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	112993	10.00 µg/L	0.000
M5-PFPeA	4.412	268.3 -> 223.0	67826	5.00 µg/L	0.000
M5-PFHxA	5.597	318.0 -> 273.0	52332	2.50 µg/L	0.012
M4-PFHpA	6.529	367.1 -> 322.0	27964	2.50 µg/L	0.012
M8-PFOA	7.188	421.1 -> 376.0	38331	2.50 µg/L	0.000
M9-PFNA	7.746	472.1 -> 427.0	20342	1.25 µg/L	0.013
M6-PFDA	8.253	519.1 -> 474.1	20144	1.25 µg/L	0.012
M7-PFUnDA	8.722	570.0 -> 525.1	23264	1.25 µg/L	0.000
M2-PFDoDA	9.180	615.1 -> 570.0	27644	1.25 µg/L	0.000
M2-PFTeDA	9.974	715.2 -> 670.0	22739	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	18573	2.50 µg/L	0.000
M3-PFBS	5.502	302.1 -> 79.9	11579	2.50 µg/L	0.000
M3-PFHxS	7.291	402.1 -> 79.9	6913	2.50 µg/L	0.000
M8-PFOS	8.405	507.1 -> 79.9	10378	2.50 µg/L	0.012
M2-4:2FTS	5.273	329.1 -> 80.9	1514	5.00 µg/L	0.000
M2-6:2FTS	6.948	429.1 -> 80.9	2462	5.00 µg/L	0.000
M2-8:2FTS	8.027	529.1 -> 80.9	4005	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	16935	5.00 µg/L	0.000
M3-HFPO-DA	5.952	286.9 -> 168.9	32901	10.00 µg/L	0.000
M5-EtFOSAA	8.507	589.2 -> 419.0	14546	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	80842	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	104259	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	10089	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	9626	2.50 µg/L	0.000
13C4-PFOS	8.405	502.8 -> 79.9	10270	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	62410	5.00 µg/L	0.000
18O2-PFHxS	7.290	403.0 -> 83.9	4952	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	45940	2.50 µg/L	0.000
13C2-PFDA	8.253	515.1 -> 470.1	17219	1.25 µg/L	0.012
13C5-PFNA	7.746	468.0 -> 423.0	24251	1.25 µg/L	0.013
13C2-PFHxA	5.598	315.1 -> 270.0	45534	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.273	329.1 -> 80.9	1514	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C2-6:2FTS	6.948	429.1 -> 80.9	2462	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C2-8:2FTS	8.027	529.1 -> 80.9	4005	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C2-PFDoDA	9.180	615.1 -> 570.0	27644	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C2-PFTeDA	9.974	715.2 -> 670.0	22739	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C3-PFBS	5.502	302.1 -> 79.9	11579	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C3-PFHxS	7.291	402.1 -> 79.9	6913	2.44 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 = 97.8%	
13C4-PFBA	2.936	216.8 -> 171.9	112993	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFHpA	6.529	367.1 -> 322.0	27964	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C5-PFHxA	5.597	318.0 -> 273.0	52332	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C5-PFPeA	4.412	268.3 -> 223.0	67826	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C6-PFDA	8.253	519.1 -> 474.1	20144	1.35 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C7-PFUnDA	8.722	570.0 -> 525.1	23264	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.7%	
13C8-FOSA	9.783	506.1 -> 77.8	18573	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C8-PFOA	7.188	421.1 -> 376.0	38331	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-PFOS	8.405	507.1 -> 79.9	10378	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C9-PFNA	7.746	472.1 -> 427.0	20342	1.20 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.1%	
d3-MeFOSAA	8.298	573.2 -> 419.0	16935	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C3-HFPO-DA	5.952	286.9 -> 168.9	32901	9.52 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
d3-MeFOSA	11.064	515.0 -> 219.0	9626	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
d5-EtFOSAA	8.507	589.2 -> 419.0	14546	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
d7-MeFOSE	10.959	623.2 -> 58.9	80842	25.66 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d9-EtFOSE	11.256	639.2 -> 58.9	104259	25.84 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
d5-EtFOSA	11.360	531.1 -> 219.0	10089	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
Target Compounds					QValue
4:2FTS	5.273	327.1 -> 307.0	38541	19.89 µg/L	95
		327.1 -> 80.9	16097		
6:2FTS	6.949	427.1 -> 407.0	36565	19.43 µg/L	96
		427.1 -> 80.9	15311		
8:2FTS	8.028	527.1 -> 507.0	42859	21.71 µg/L	100
		527.1 -> 80.8	17595		
EtFOSAA	8.521	584.2 -> 419.1	11351	5.46 µg/L	m 99
		584.2 -> 526.0	5931		
FOSA	9.786	498.1 -> 77.9	32118	5.11 µg/L	99
		498.1 -> 478.0	862		
MeFOSAA	8.311	570.1 -> 419.0	13410	5.55 µg/L	m 93
		570.1 -> 483.0	2582		
PFBA	2.945	212.8 -> 168.9	54837	20.92 µg/L	100
PFBS	5.503	298.7 -> 79.9	20582	4.49 µg/L	98
		298.7 -> 98.8	8054		
PFDA	8.253	512.9 -> 469.0	65494	5.30 µg/L	99
		512.9 -> 219.0	13404		
PFDODA	9.181	613.1 -> 569.0	97993	5.39 µg/L	99
		613.1 -> 319.0	13630		
PFDS	9.344	599.0 -> 79.9	12422	5.12 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	6214			
PFHpA	6.530	363.1 -> 319.0	77187	5.25	µg/L	98
		363.1 -> 169.0	14096			
PFHpS	7.885	449.0 -> 79.9	14624	4.90	µg/L	97
		449.0 -> 98.9	7523			
PFHxA	5.587	313.0 -> 269.0	87282	5.30	µg/L	99
		313.0 -> 118.9	2534			
PFHxS	7.292	398.7 -> 79.9	12080	4.77	µg/L	m 93
		398.7 -> 98.9	6013			
PFNA	7.747	463.0 -> 419.0	62633	5.41	µg/L	100
		463.0 -> 219.0	16104			
PFNS	8.899	548.8 -> 79.9	8944	4.87	µg/L	87
		548.8 -> 98.9	4934			
PFOA	7.189	413.0 -> 369.0	92556	5.42	µg/L	100
		413.0 -> 169.0	19636			
PFOS	8.406	498.9 -> 79.9	20188	5.07	µg/L	m 99
		498.9 -> 98.8	10380			
PFPeA	4.414	263.0 -> 219.0	144581	10.67	µg/L	100
PFPeS	6.569	349.1 -> 79.9	11147	5.10	µg/L	95
		349.1 -> 98.9	5408			
PFTeDA	9.974	713.1 -> 669.0	96573	5.23	µg/L	100
		713.1 -> 168.9	8152			
PFTrDA	9.604	663.0 -> 619.0	124563	5.50	µg/L	100
		663.0 -> 168.9	11729			
PFUnDA	8.722	563.1 -> 519.0	64963	4.94	µg/L	96
		563.1 -> 269.1	12232			
11CI-PF3OUdS	9.643	630.9 -> 450.9	99129	10.46	µg/L	99
		632.9 -> 452.9	30473			
9CI-PF3ONS	8.749	530.8 -> 351.0	101269	9.95	µg/L	98
		532.8 -> 353.0	31276			
ADONA	6.781	376.9 -> 250.9	241897	10.23	µg/L	98
		376.9 -> 84.8	65626			
HFPO-DA	5.953	284.9 -> 168.9	27322	10.51	µg/L	95
		284.9 -> 184.9	3573			
3:3FTCA	3.867	241.0 -> 177.0	16390	25.41	µg/L	99
		241.0 -> 117.0	1565			
5:3FTCA	6.231	341.0 -> 237.1	324592	132.08	µg/L	100
		341.0 -> 217.0	233206			
7:3FTCA	7.686	441.0 -> 316.9	160472	133.82	µg/L	100
		441.0 -> 336.9	358438			
EtFOSA	11.362	526.0 -> 219.0	40905	10.87	µg/L	m 95
		526.0 -> 169.0	55496			
EtFOSE	11.282	630.0 -> 58.9	90457	27.21	µg/L	100
MeFOSA	11.065	511.9 -> 219.0	34414	10.69	µg/L	m 97
		511.9 -> 169.0	51046			
MeFOSE	10.973	616.1 -> 58.9	75804	26.37	µg/L	m 100
PFDoDS	10.126	699.1 -> 79.9	11285	5.12	µg/L	98
		699.1 -> 98.8	6216			
NFDHA	5.479	295.0 -> 201.0	9282	10.39	µg/L	98
		295.0 -> 84.9	2538			
PFMBA	4.828	279.0 -> 85.1	81568	10.54	µg/L	100
PFMPA	3.553	229.0 -> 84.9	72120	10.49	µg/L	100
PFEESA	6.034	314.8 -> 134.9	125569	9.28	µg/L	100
		314.8 -> 82.9	4528			

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

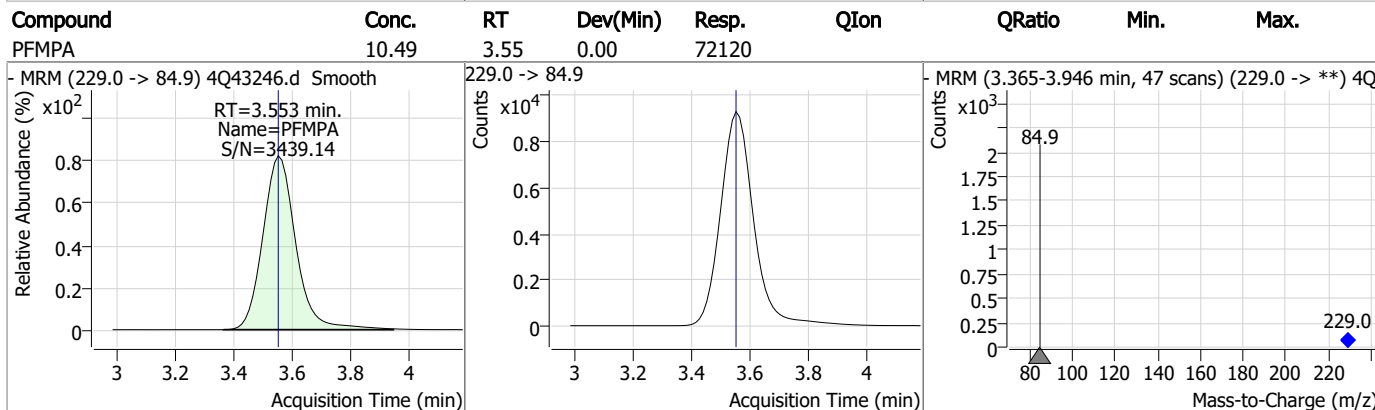
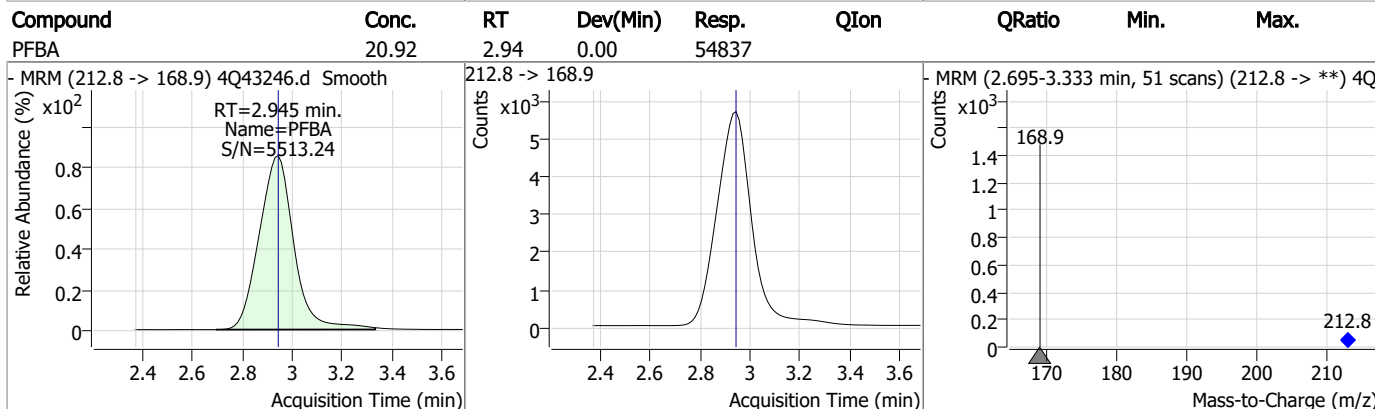
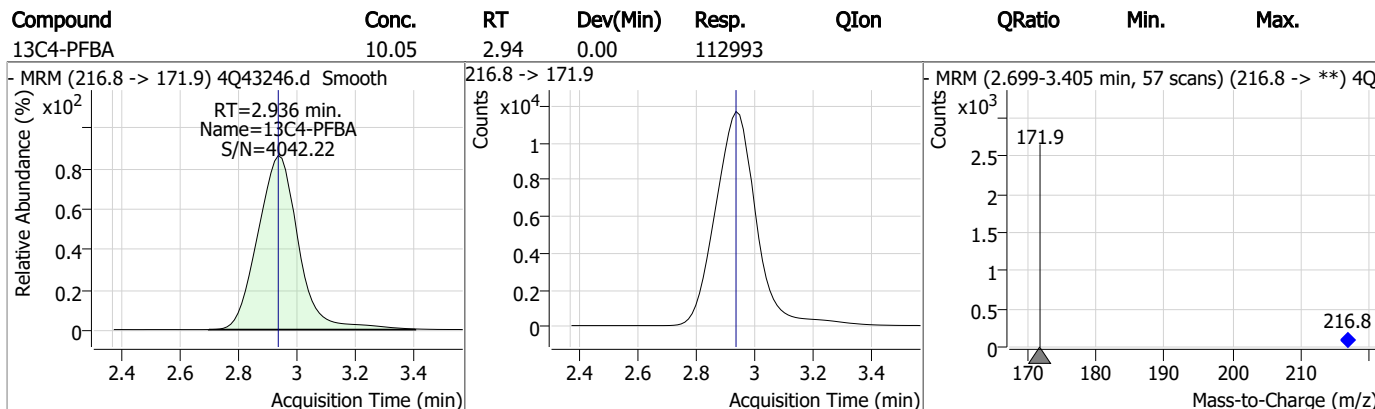
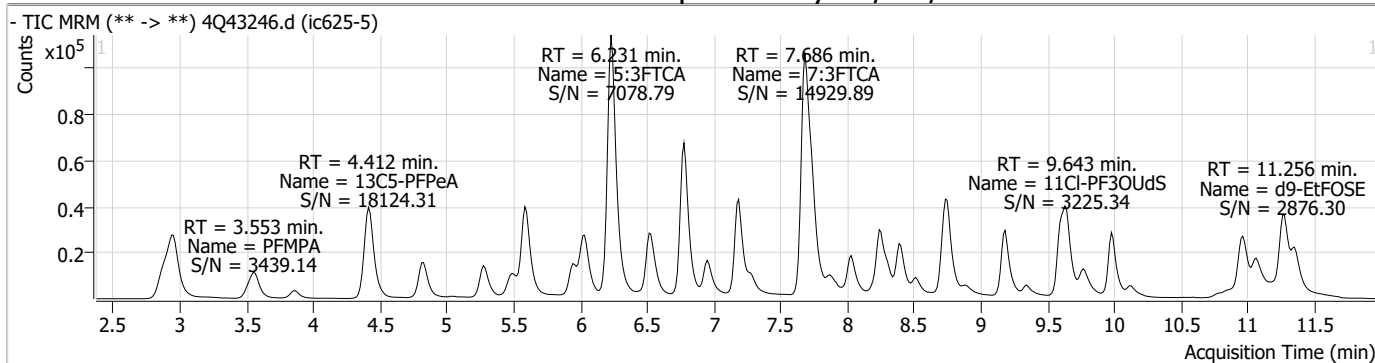
Perfluorinated Compounds by LC/MS/MS

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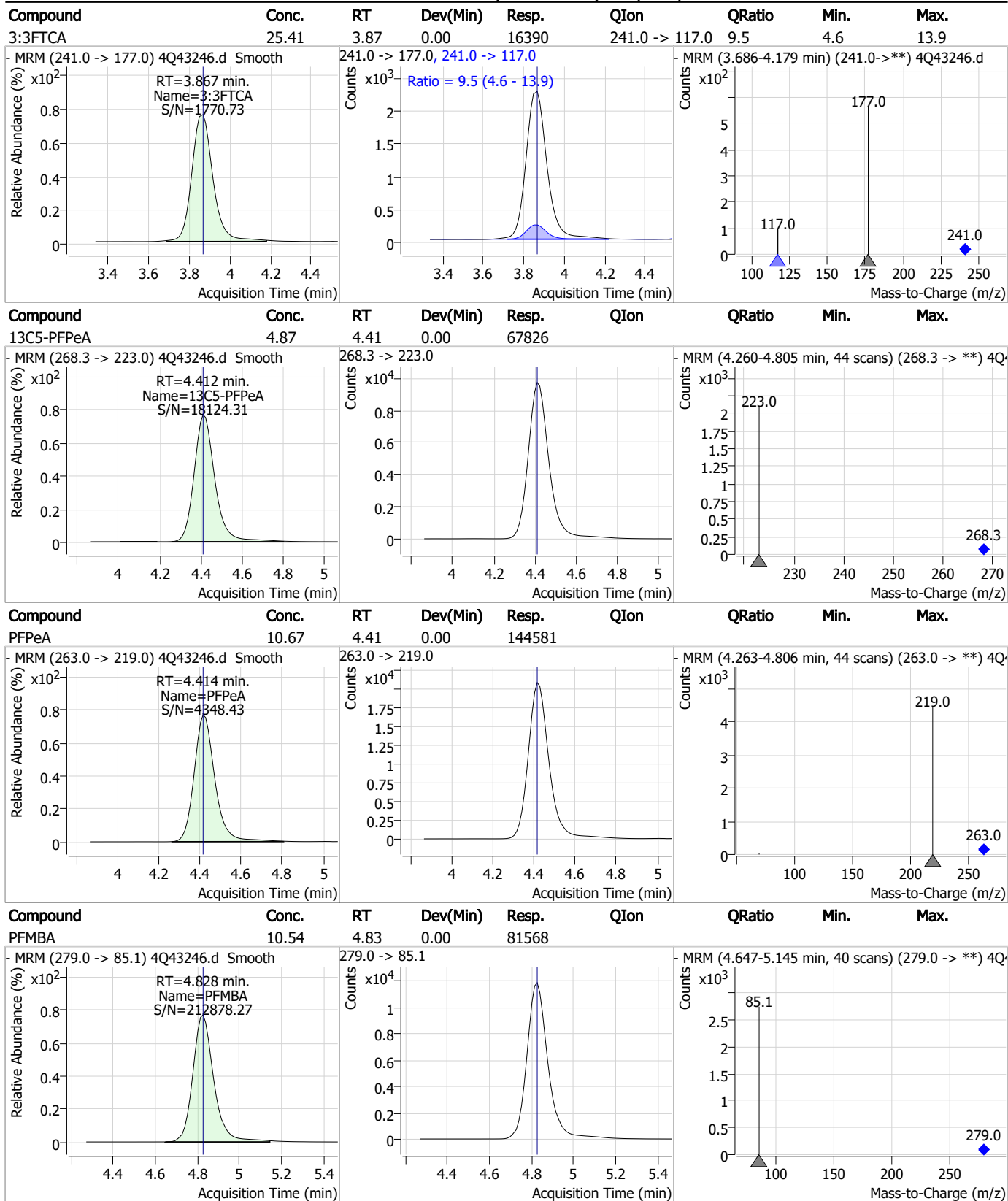
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Perfluorinated Compounds by LC/MS/MS

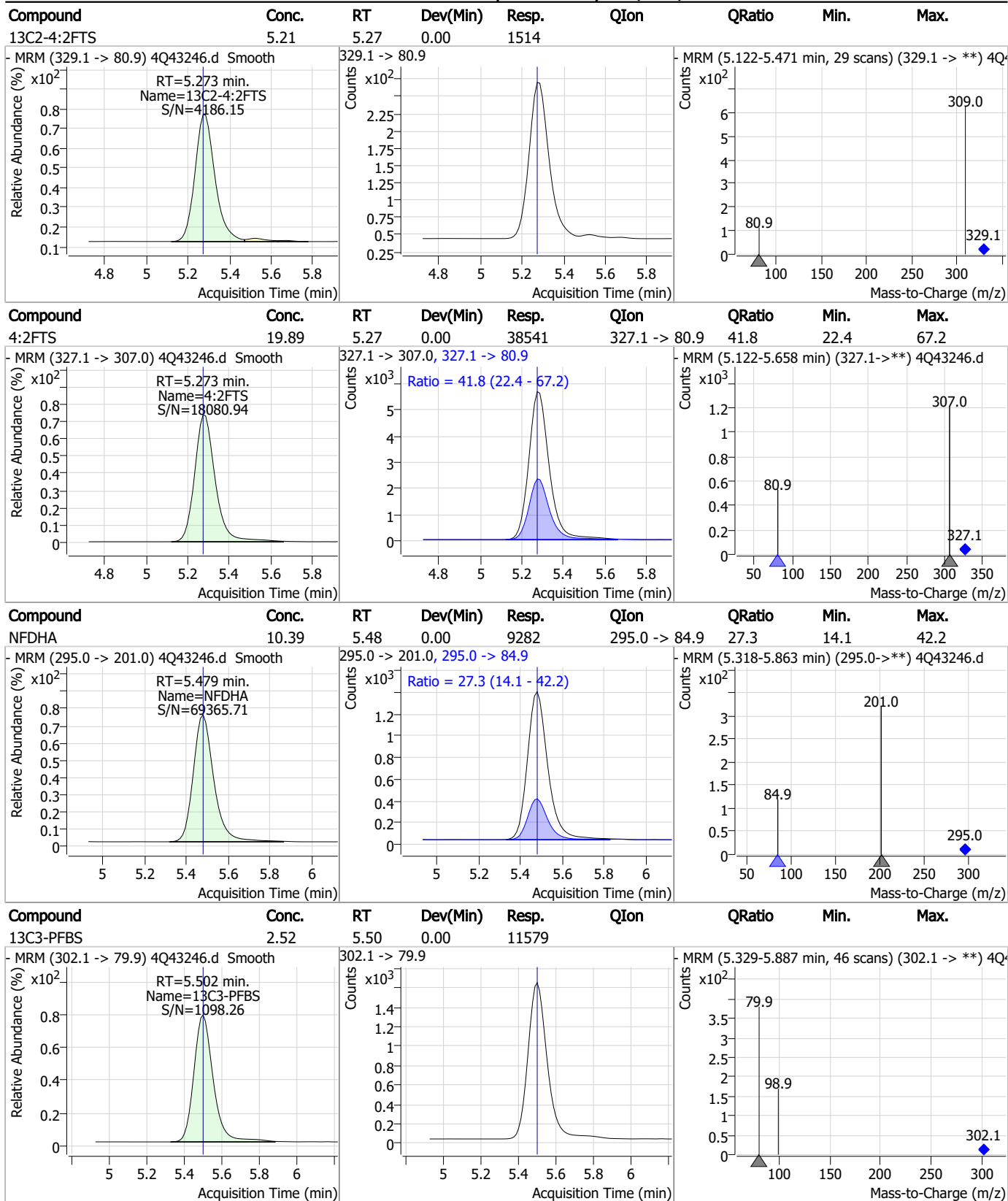


Perfluorinated Compounds by LC/MS/MS



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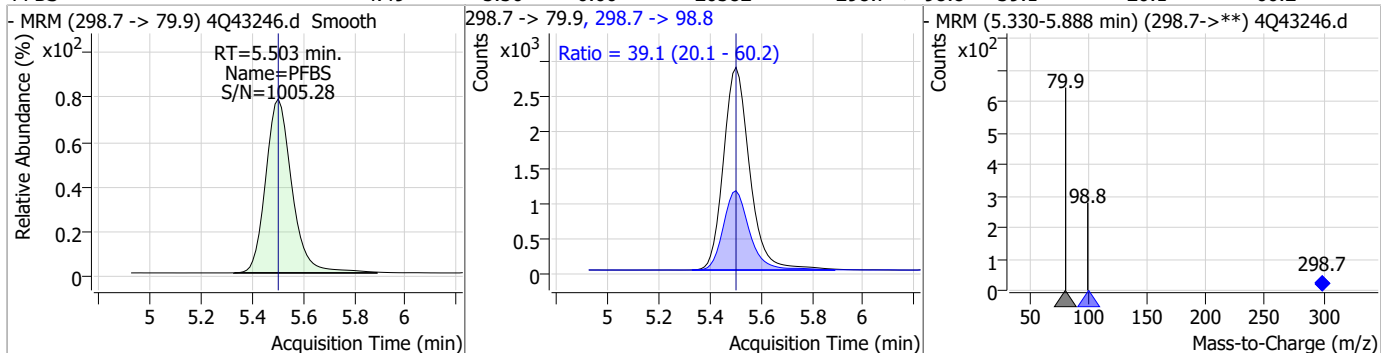
Perfluorinated Compounds by LC/MS/MS



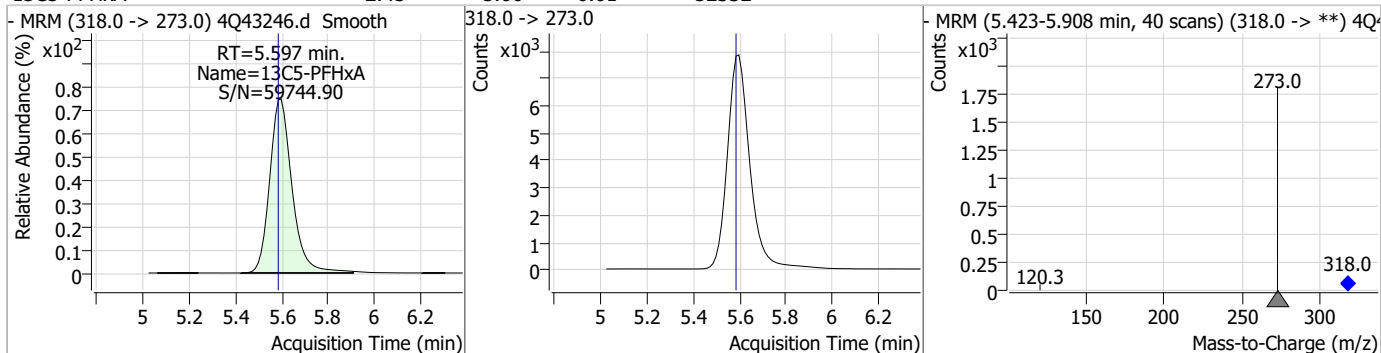
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Perfluorinated Compounds by LC/MS/MS

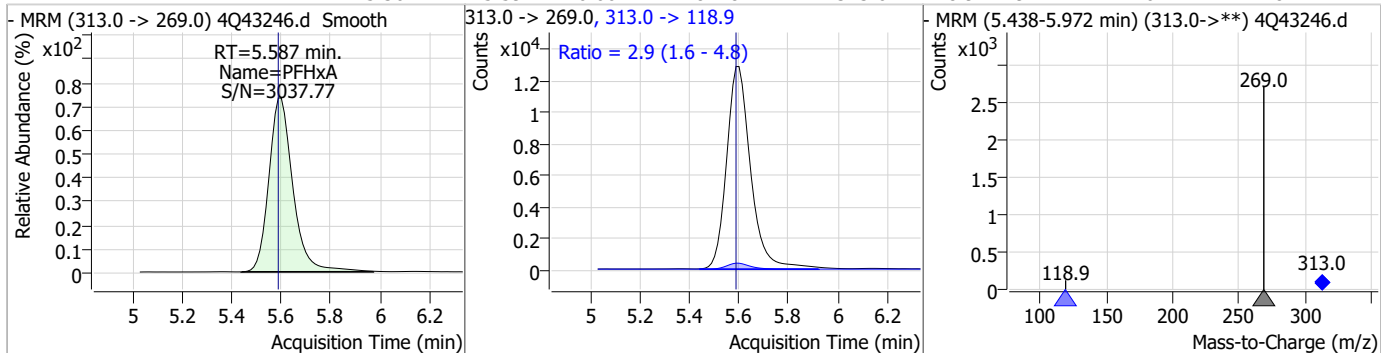
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.49	5.50	0.00	20582	298.7 -> 98.8	39.1	20.1	60.2



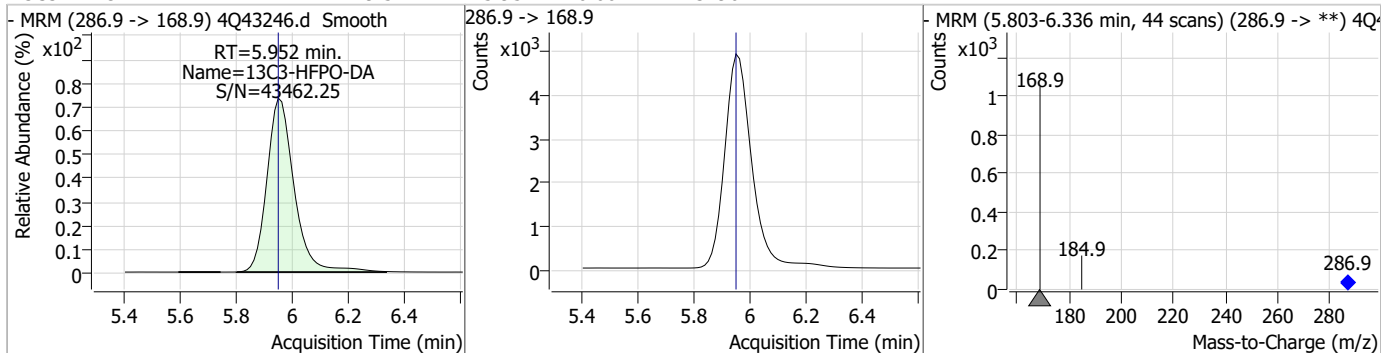
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.45	5.60	0.01	52332				



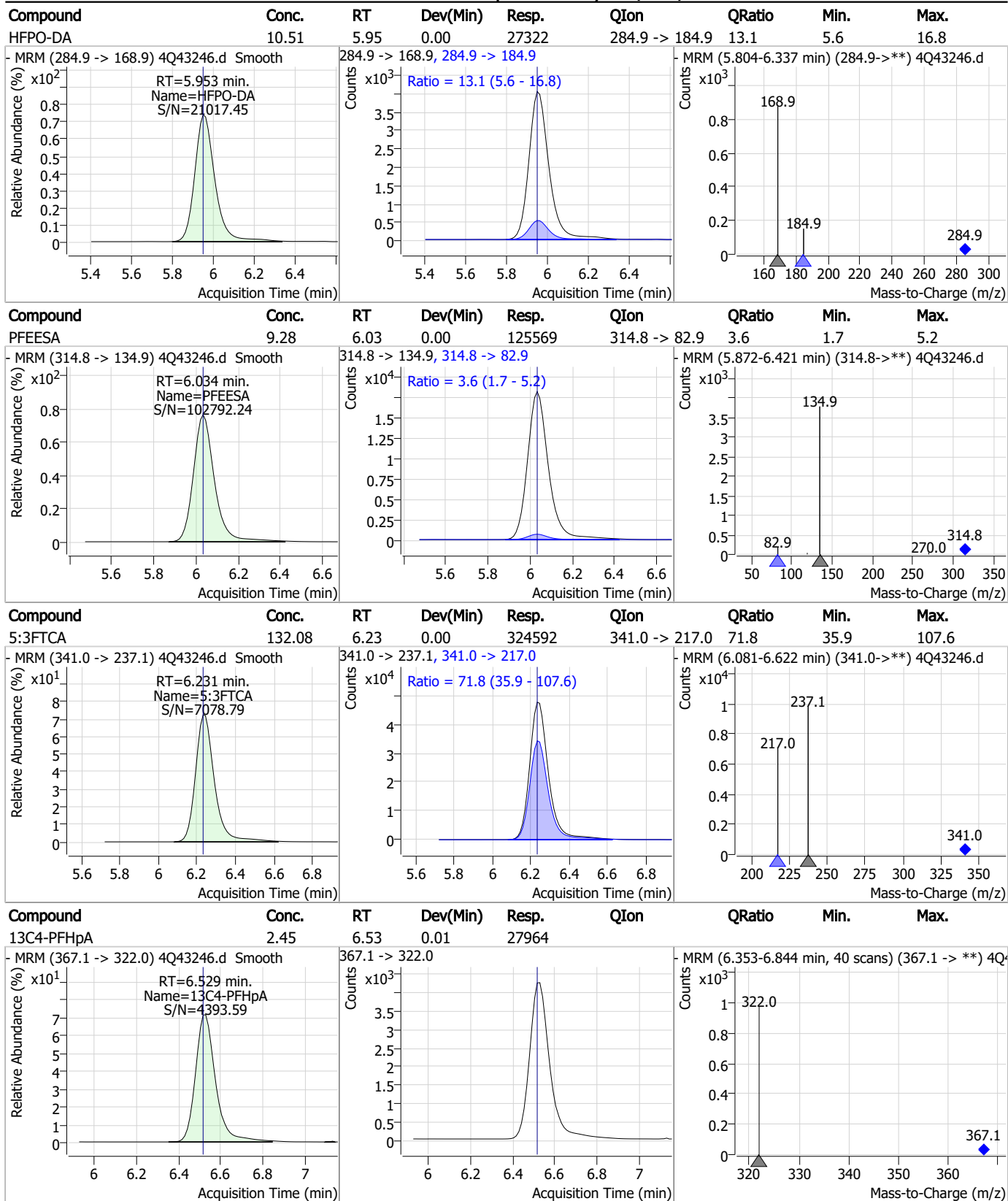
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	5.30	5.59	0.00	87282	313.0 -> 118.9	2.9	1.6	4.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.52	5.95	0.00	32901				

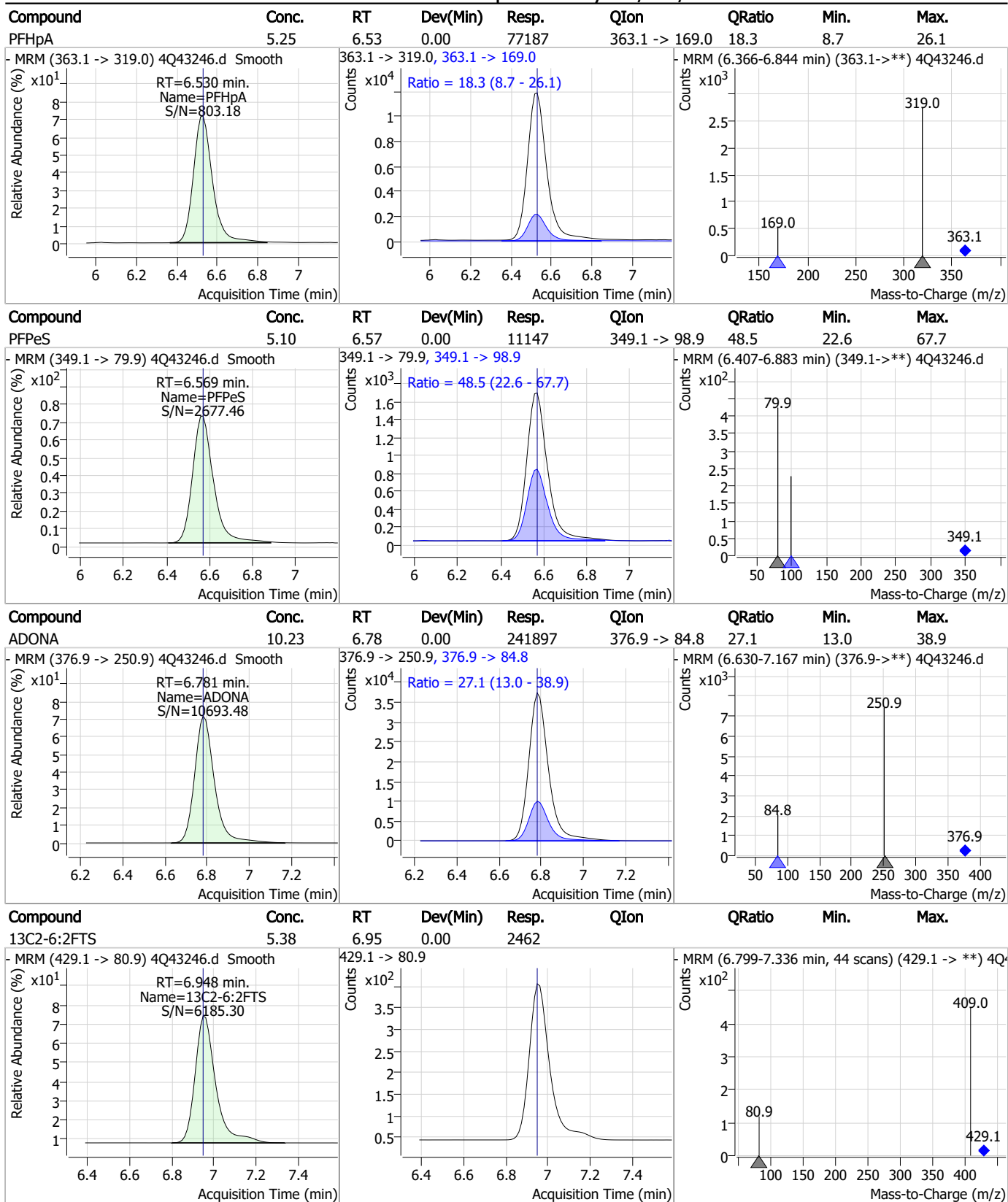


Perfluorinated Compounds by LC/MS/MS



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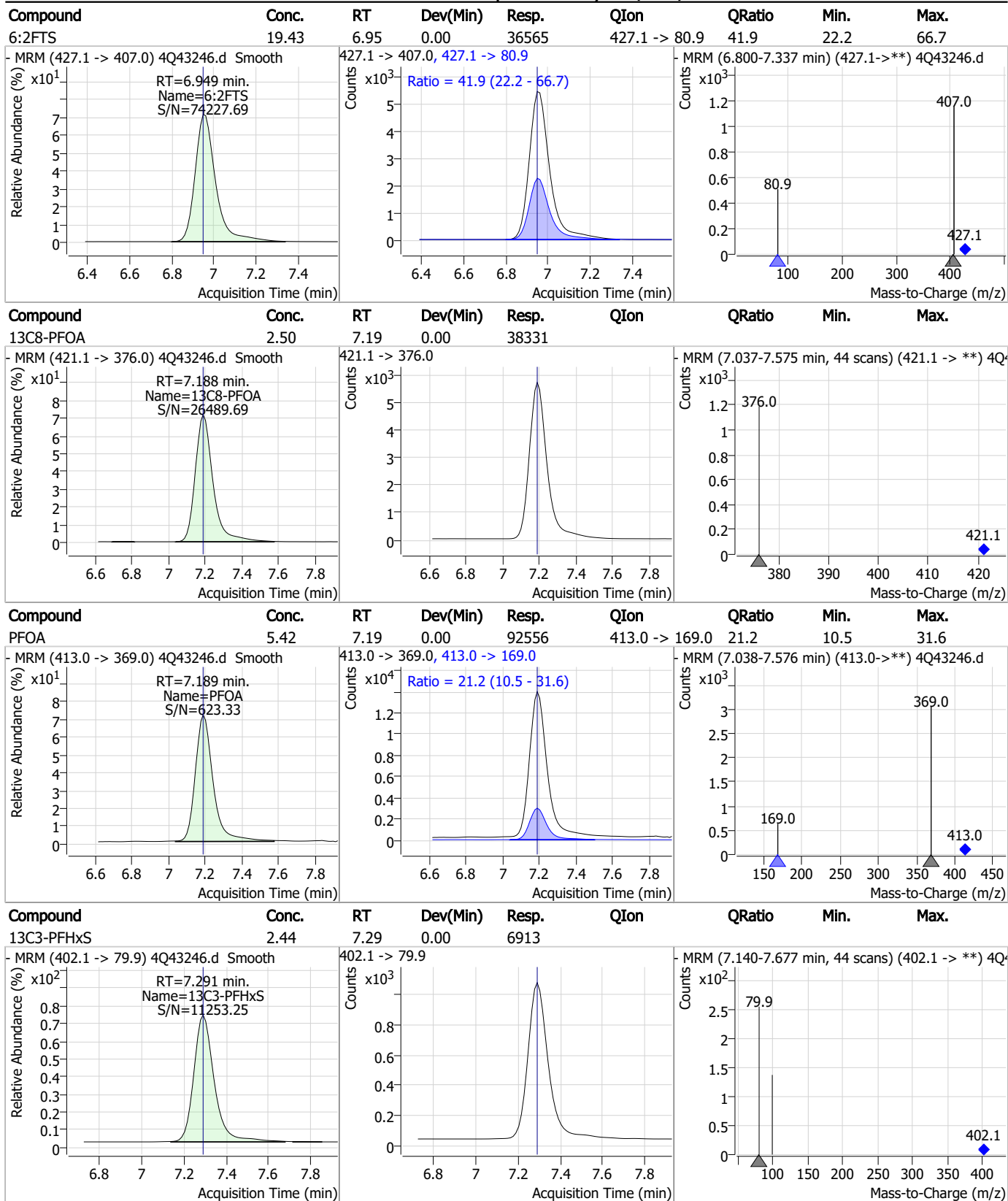
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

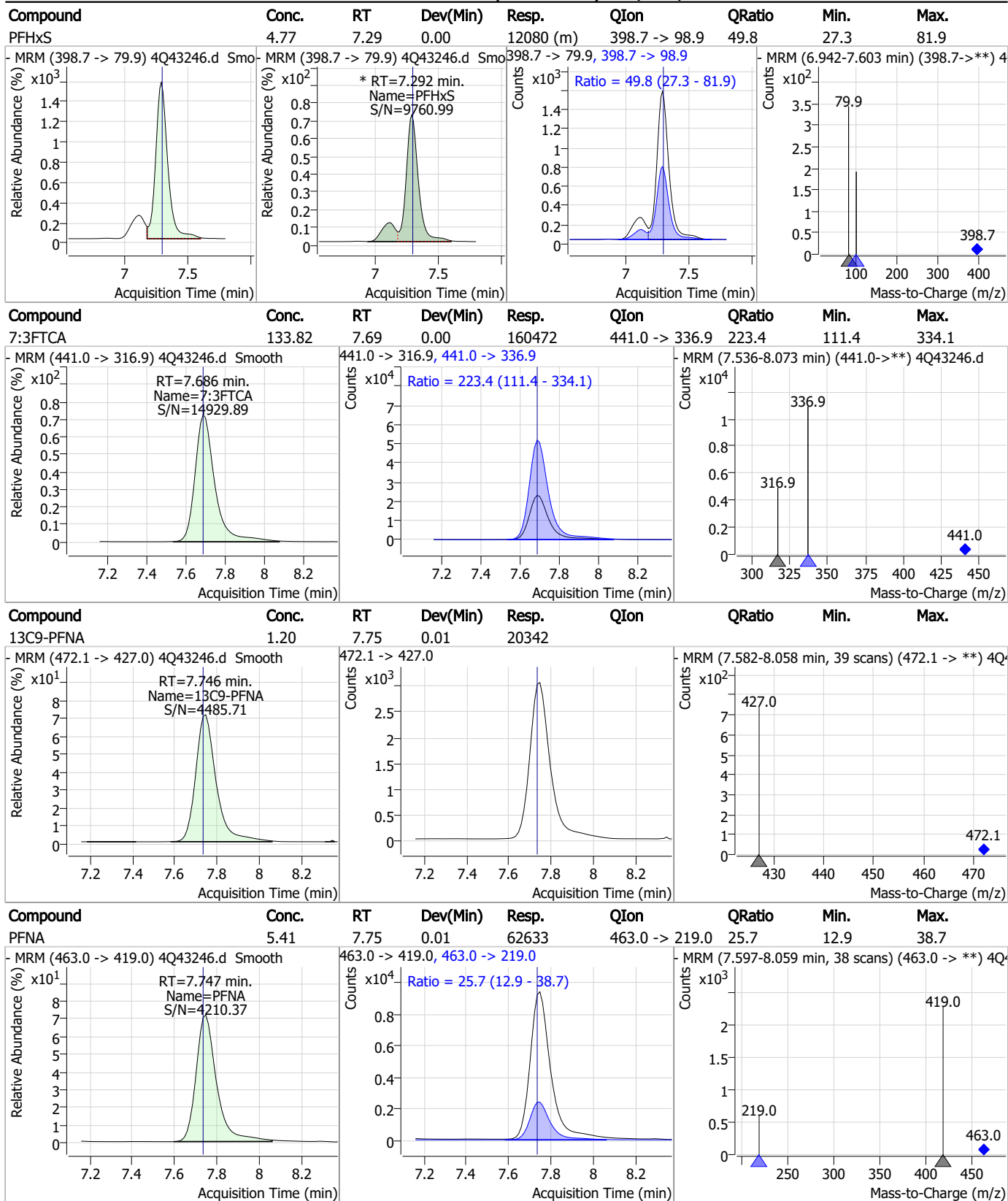


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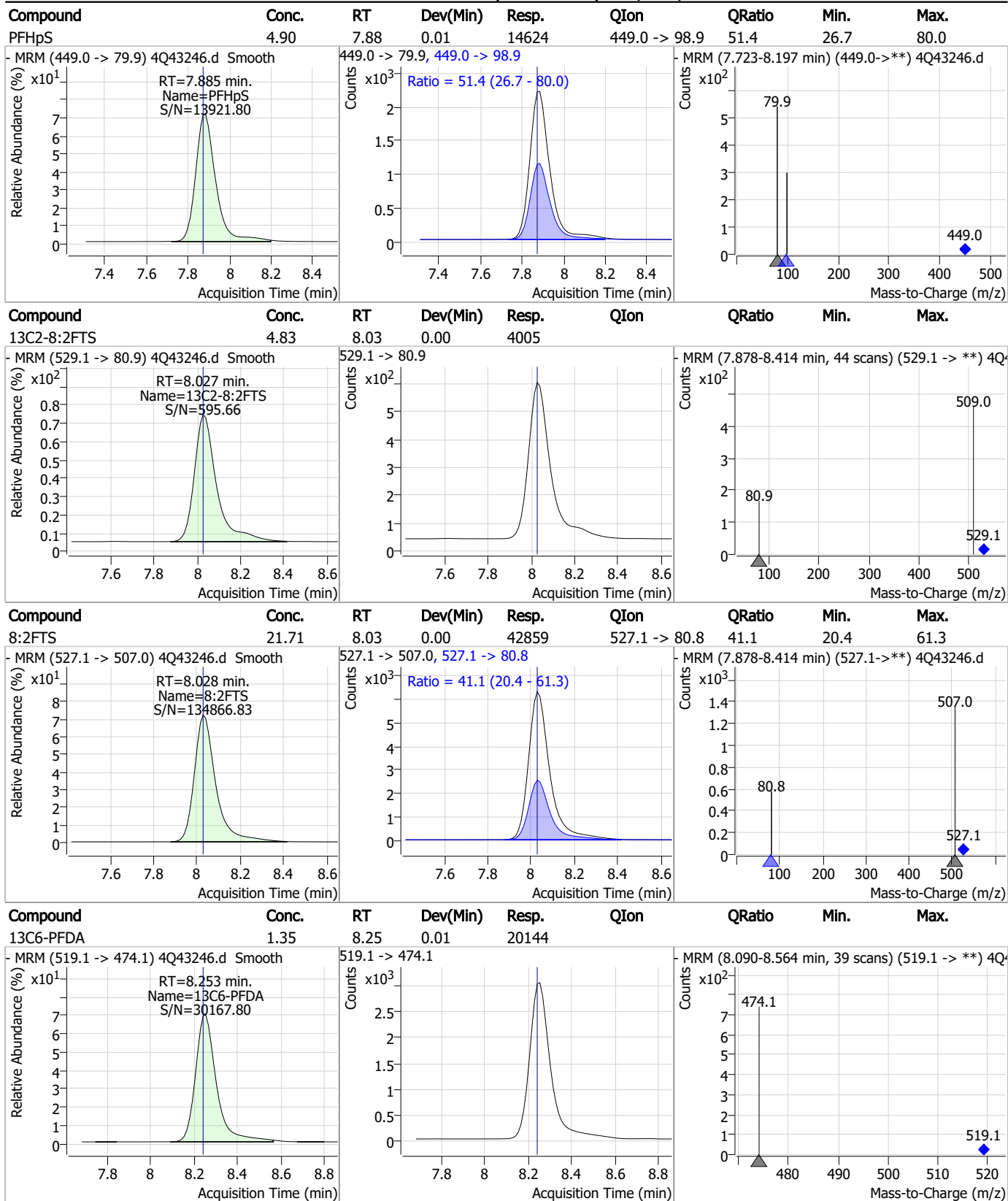


Perfluorinated Compounds by LC/MS/MS



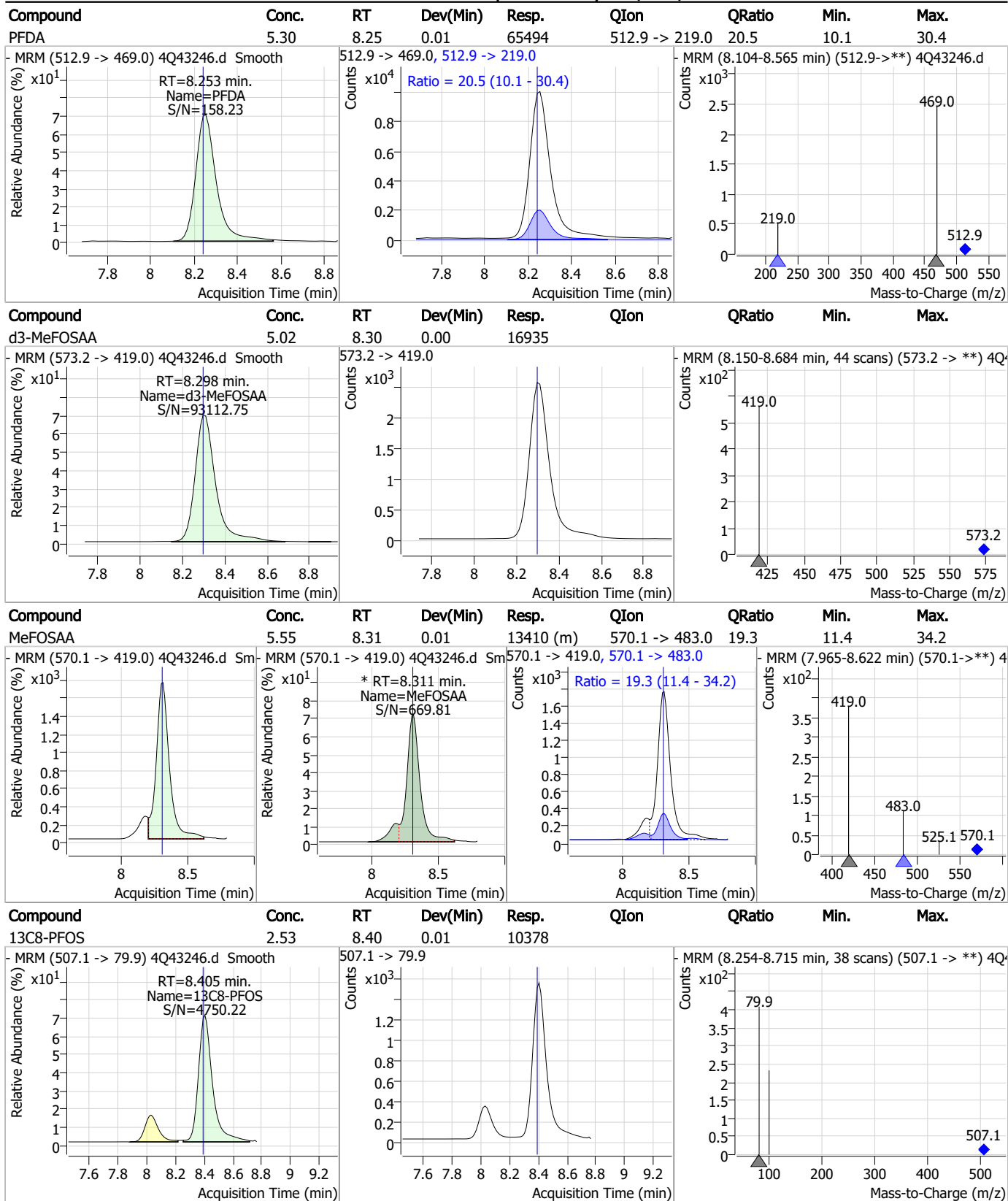
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Perfluorinated Compounds by LC/MS/MS



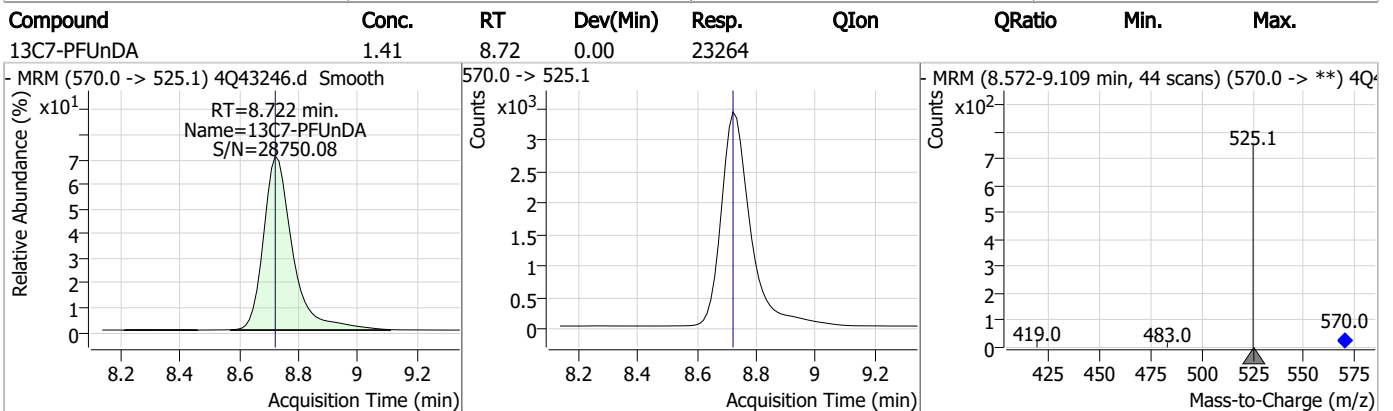
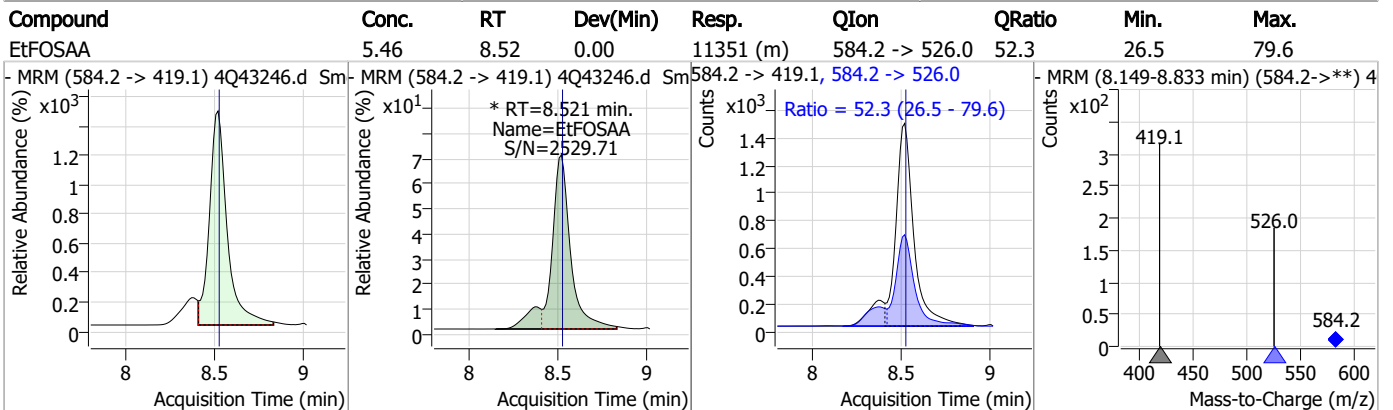
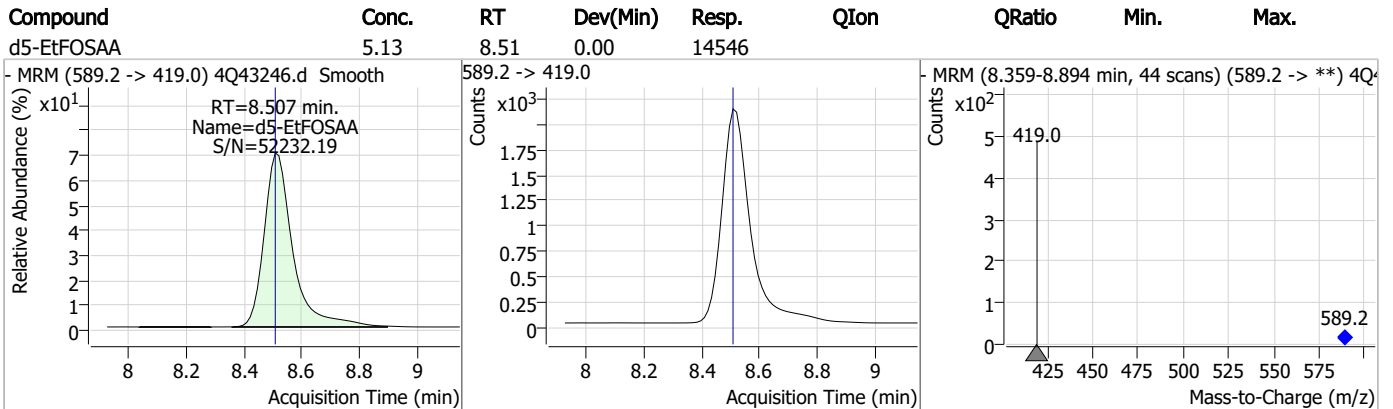
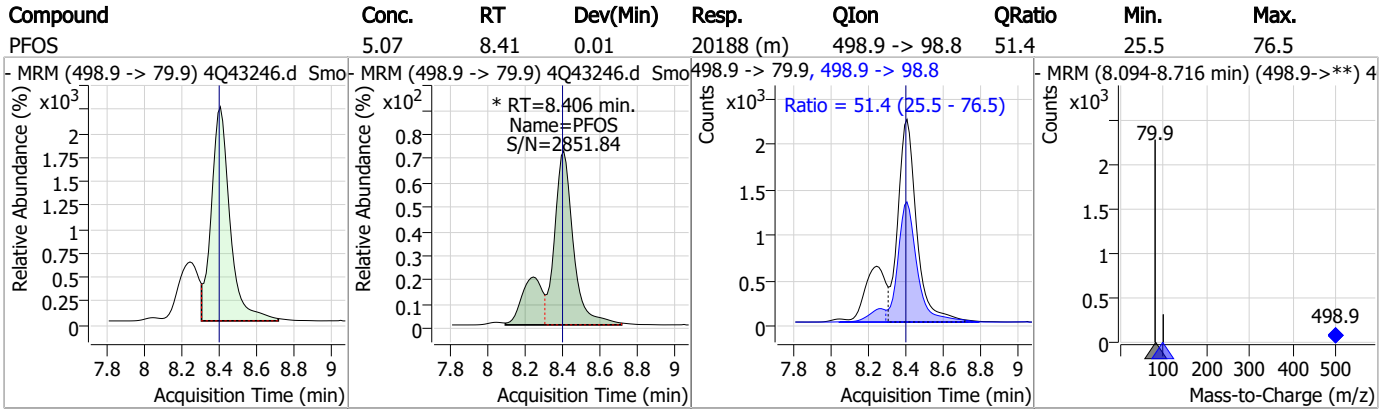
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Perfluorinated Compounds by LC/MS/MS



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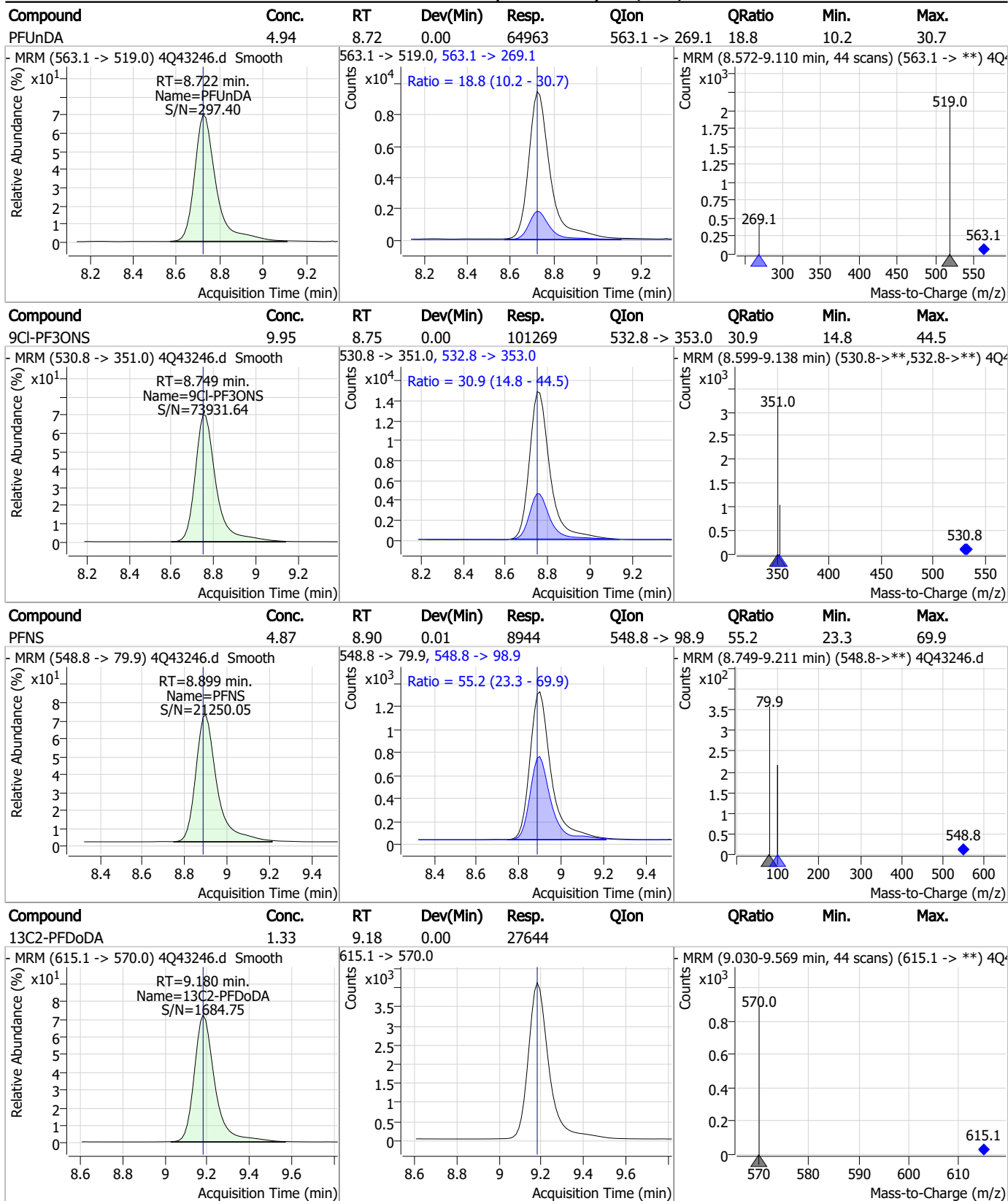
Perfluorinated Compounds by LC/MS/MS



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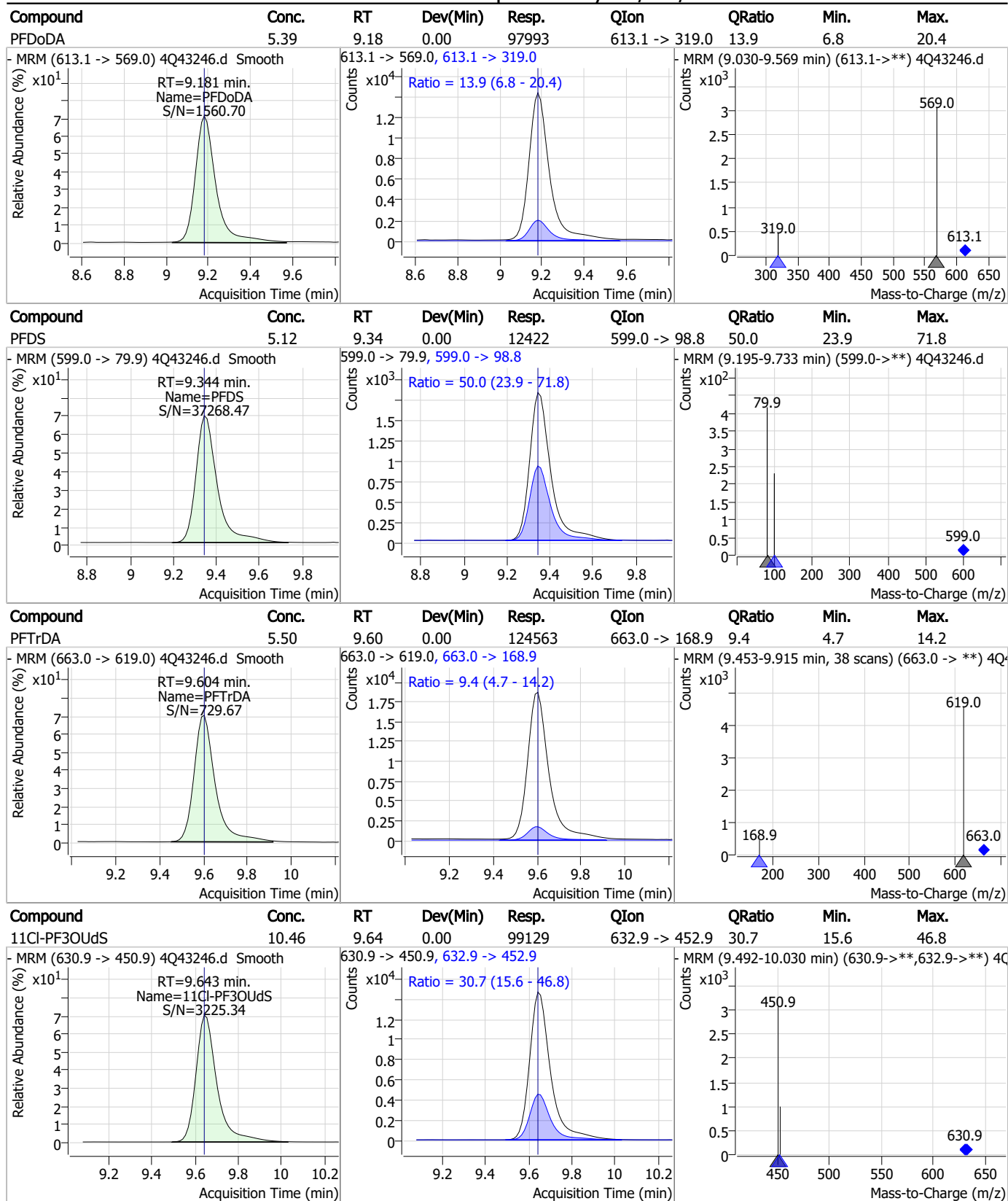
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

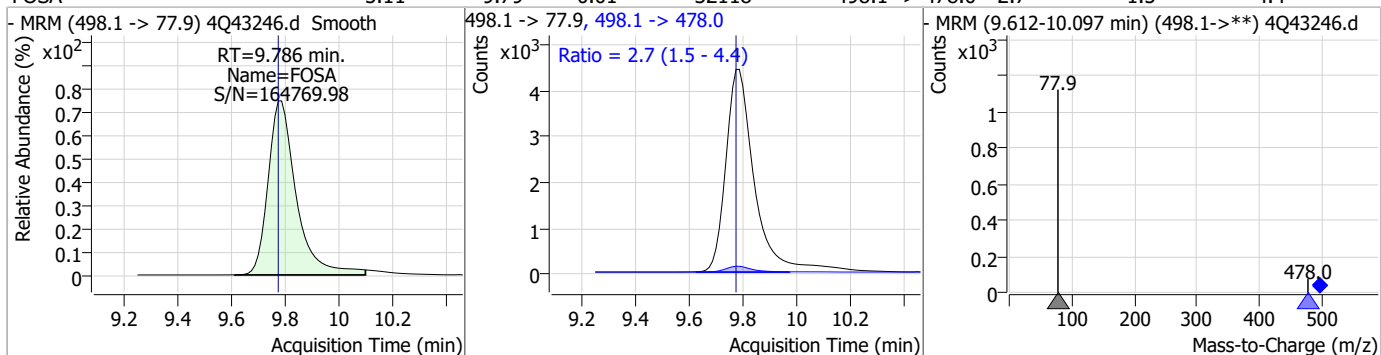


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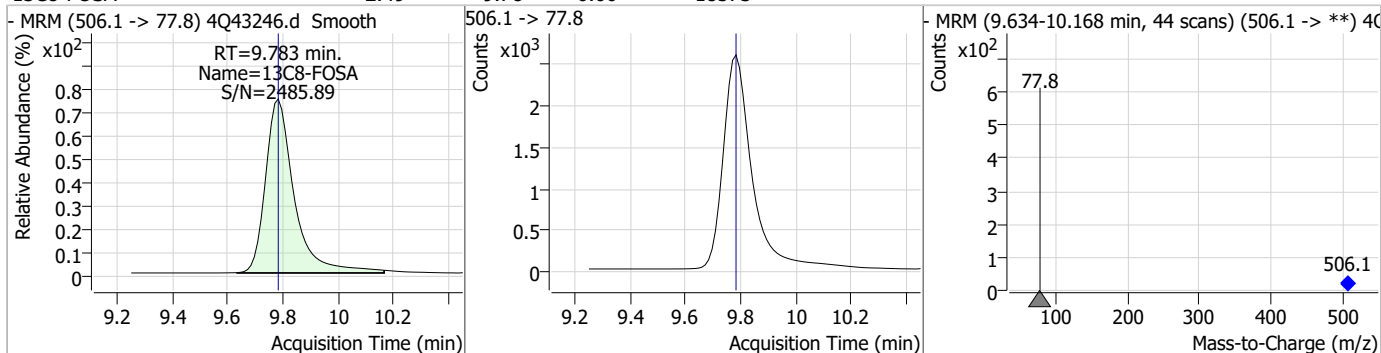
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Perfluorinated Compounds by LC/MS/MS

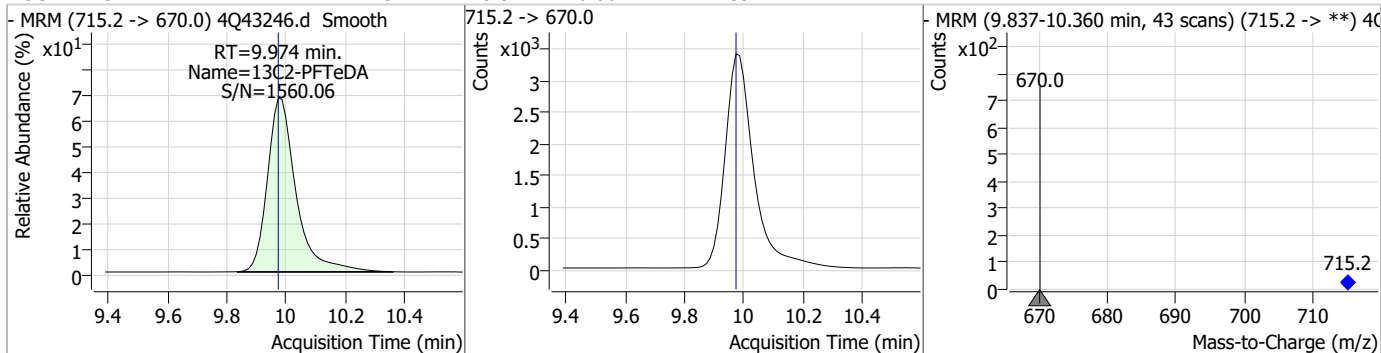
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	5.11	9.79	0.01	32118	498.1 -> 478.0	2.7	1.5	4.4



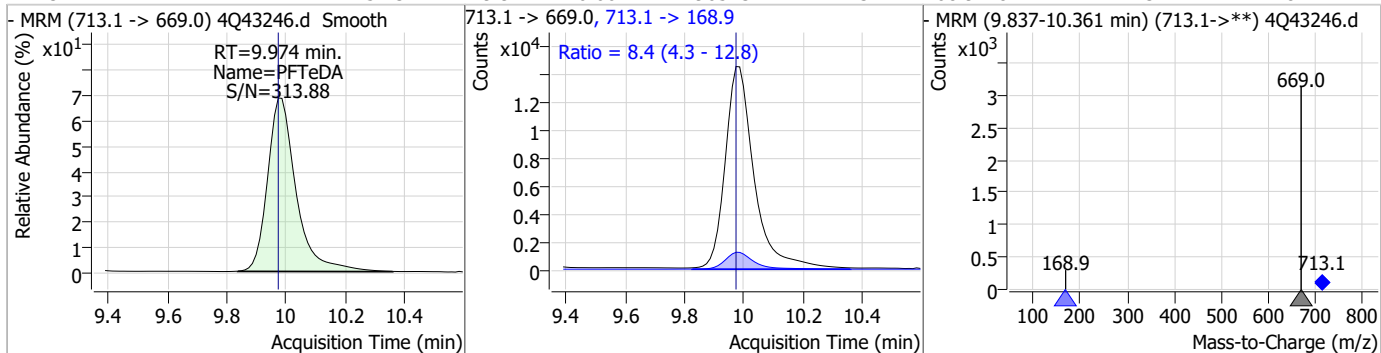
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.49	9.78	0.00	18573				



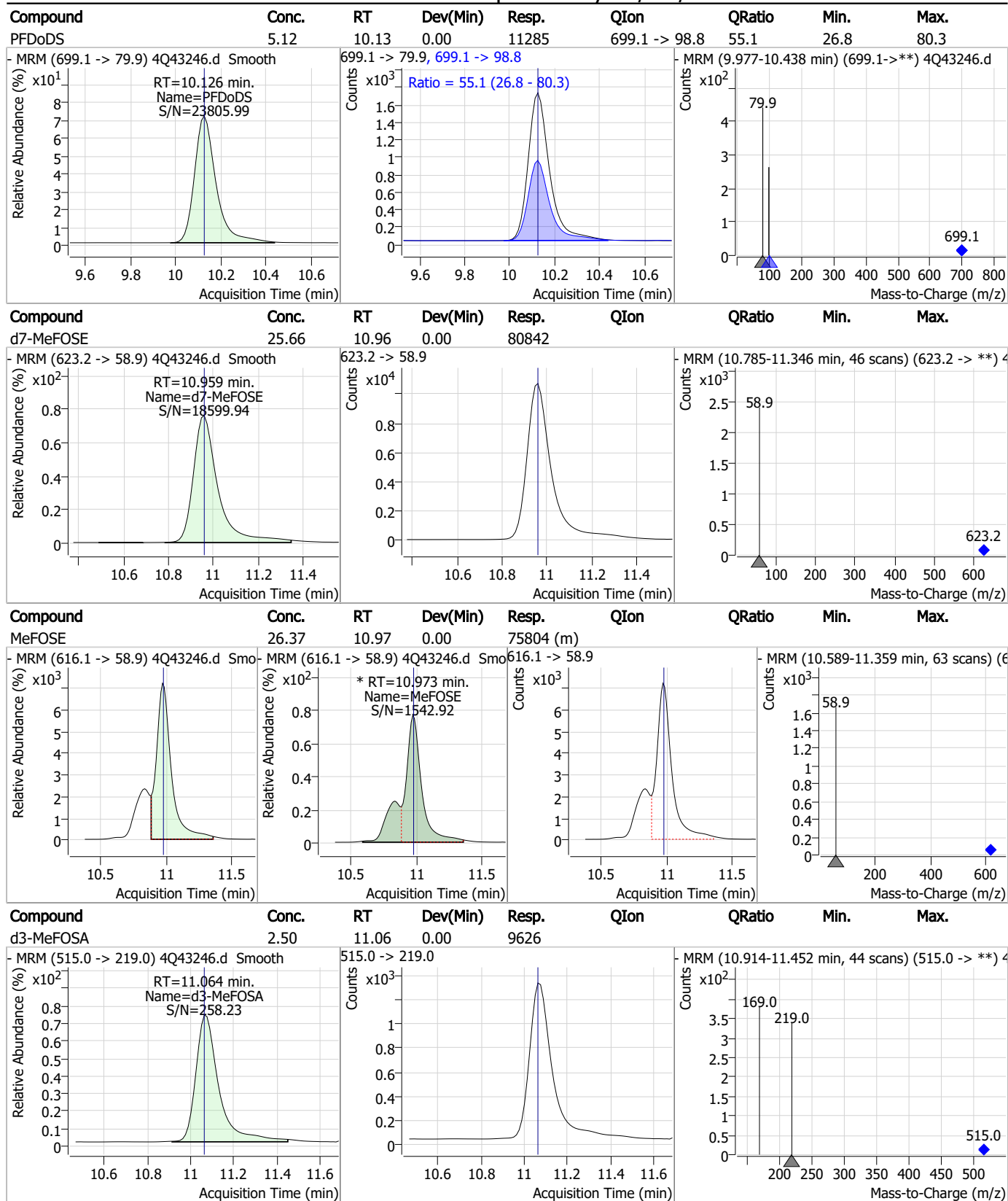
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.37	9.97	0.00	22739				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	5.23	9.97	0.00	96573	713.1 -> 168.9	8.4	4.3	12.8



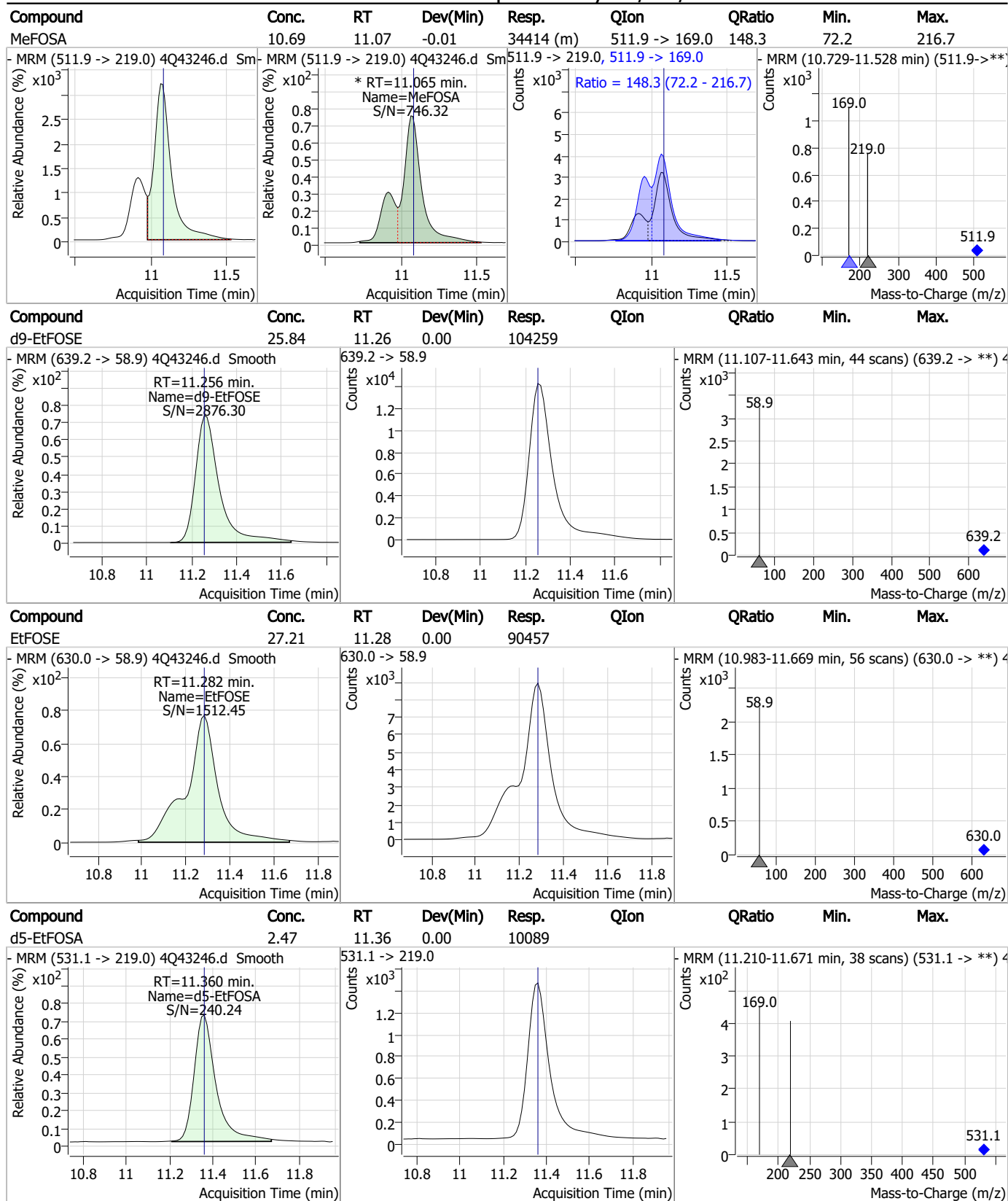
Perfluorinated Compounds by LC/MS/MS



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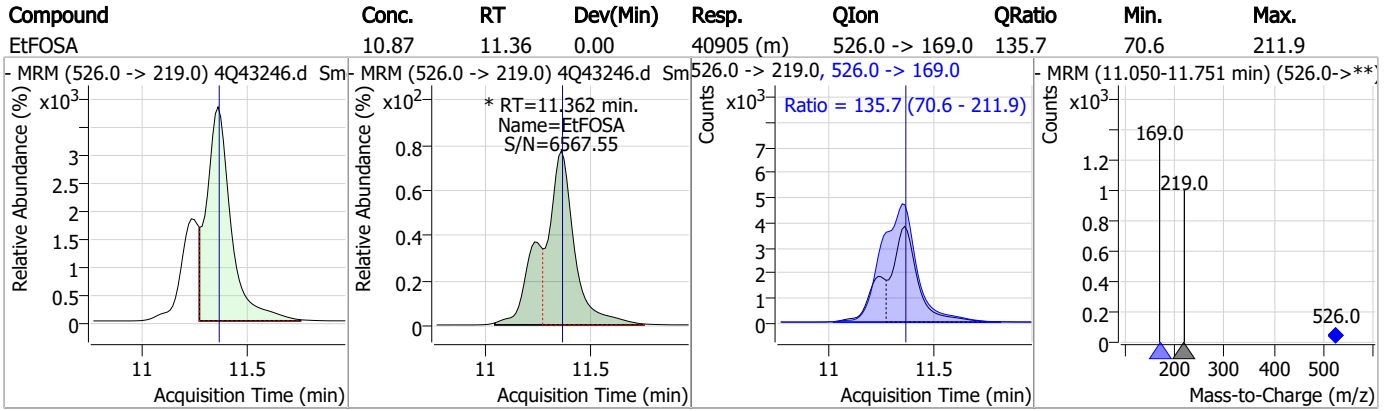
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q625-IC625 Method: EPA DRAFT 1633
Lab FileID: 4Q43246.D Analyst approved: 04/20/23 14:17 Natasha Gumtie
Injection Time: 04/19/23 12:51 Supervisor approved: 04/21/23 13:15 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.41	Split peak
EtFOSAA	2991-50-6		8.52	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.06	Split peak
EtFOSA	4151-50-2		11.36	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43247.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/19/2023 1:05:07 PM
 Sample Name : ic625-6
 Vial : P1-A7
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s6q625.batch.bin
 Sample Information : OP96301,S4q625,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	114248	10.00 µg/L	0.000
M5-PFPeA	4.412	268.3 -> 223.0	67886	5.00 µg/L	0.000
M5-PFHxA	5.597	318.0 -> 273.0	53585	2.50 µg/L	0.012
M4-PFHpA	6.529	367.1 -> 322.0	27798	2.50 µg/L	0.012
M8-PFOA	7.188	421.1 -> 376.0	37707	2.50 µg/L	0.000
M9-PFNA	7.746	472.1 -> 427.0	20752	1.25 µg/L	0.013
M6-PFDA	8.253	519.1 -> 474.1	20196	1.25 µg/L	0.012
M7-PFUnDA	8.722	570.0 -> 525.1	22269	1.25 µg/L	0.000
M2-PFDoDA	9.180	615.1 -> 570.0	28148	1.25 µg/L	0.000
M2-PFTeDA	9.974	715.2 -> 670.0	22121	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	19152	2.50 µg/L	0.000
M3-PFBS	5.502	302.1 -> 79.9	11056	2.50 µg/L	0.000
M3-PFHxS	7.291	402.1 -> 79.9	7229	2.50 µg/L	0.000
M8-PFOS	8.405	507.1 -> 79.9	10872	2.50 µg/L	0.012
M2-4:2FTS	5.285	329.1 -> 80.9	1481	5.00 µg/L	0.012
M2-6:2FTS	6.961	429.1 -> 80.9	2279	5.00 µg/L	0.012
M2-8:2FTS	8.027	529.1 -> 80.9	4193	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	17208	5.00 µg/L	0.000
M3-HFPO-DA	5.952	286.9 -> 168.9	34374	10.00 µg/L	0.000
M5-EtFOSAA	8.507	589.2 -> 419.0	14809	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	79700	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	101109	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	10317	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	9795	2.50 µg/L	0.000
13C4-PFOS	8.405	502.8 -> 79.9	10377	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	63189	5.00 µg/L	0.000
18O2-PFHxS	7.290	403.0 -> 83.9	4877	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	44729	2.50 µg/L	0.000
13C2-PFDA	8.253	515.1 -> 470.1	18620	1.25 µg/L	0.012
13C5-PFNA	7.746	468.0 -> 423.0	23062	1.25 µg/L	0.013
13C2-PFHxA	5.598	315.1 -> 270.0	45168	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.285	329.1 -> 80.9	1481	5.17 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C2-6:2FTS	6.961	429.1 -> 80.9	2279	5.06 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C2-8:2FTS	8.027	529.1 -> 80.9	4193	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C2-PFDoDA	9.180	615.1 -> 570.0	28148	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C2-PFTeDA	9.974	715.2 -> 670.0	22121	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C3-PFBS	5.502	302.1 -> 79.9	11056	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C3-PFHxS	7.291	402.1 -> 79.9	7229	2.60 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C4-PFBA	2.936	216.8 -> 171.9	114248	10.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C4-PFHpA	6.529	367.1 -> 322.0	27798	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C5-PFHxA	5.597	318.0 -> 273.0	53585	2.52 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C5-PFPeA	4.412	268.3 -> 223.0	67886	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C6-PFDA	8.253	519.1 -> 474.1	20196	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C7-PFUnDA	8.722	570.0 -> 525.1	22269	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C8-FOSA	9.783	506.1 -> 77.8	19152	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C8-PFOA	7.188	421.1 -> 376.0	37707	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-PFOS	8.405	507.1 -> 79.9	10872	2.62 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C9-PFNA	7.746	472.1 -> 427.0	20752	1.29 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.1%	
d3-MeFOSAA	8.298	573.2 -> 419.0	17208	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C3-HFPO-DA	5.952	286.9 -> 168.9	34374	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
d3-MeFOSA	11.064	515.0 -> 219.0	9795	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
d5-EtFOSAA	8.507	589.2 -> 419.0	14809	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
d7-MeFOSE	10.959	623.2 -> 58.9	79700	25.04 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d9-EtFOSE	11.256	639.2 -> 58.9	101109	24.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d5-EtFOSA	11.360	531.1 -> 219.0	10317	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
Target Compounds					QValue
4:2FTS	5.273	327.1 -> 307.0	92087	48.60 µg/L	96
		327.1 -> 80.9	39071		
6:2FTS	6.949	427.1 -> 407.0	85733	49.22 µg/L	94
		427.1 -> 80.9	34706		
8:2FTS	8.028	527.1 -> 507.0	105150	50.87 µg/L	97
		527.1 -> 80.8	41308		
EtFOSAA	8.521	584.2 -> 419.1	29783	14.08 µg/L	m 91
		584.2 -> 526.0	13906		
FOSA	9.774	498.1 -> 77.9	84532	13.05 µg/L	100
		498.1 -> 478.0	2515		
MeFOSAA	8.311	570.1 -> 419.0	33057	13.46 µg/L	m 93
		570.1 -> 483.0	6415		
PFBA	2.945	212.8 -> 168.9	142951	53.93 µg/L	100
PFBS	5.503	298.7 -> 79.9	54196	12.39 µg/L	95
		298.7 -> 98.8	20206		
PFDA	8.253	512.9 -> 469.0	173187	13.98 µg/L	99
		512.9 -> 219.0	34111		
PFDoDA	9.181	613.1 -> 569.0	247163	13.34 µg/L	99
		613.1 -> 319.0	34740		
PFDS	9.344	599.0 -> 79.9	31882	12.55 µg/L	96

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	16077			
PFHpA	6.530	363.1 -> 319.0	202319	13.84	µg/L	99
		363.1 -> 169.0	35738			
PFHpS	7.873	449.0 -> 79.9	39031	12.48	µg/L	95
		449.0 -> 98.9	19348			
PFHxA	5.600	313.0 -> 269.0	226996	13.45	µg/L	100
		313.0 -> 118.9	7228			
PFHxS	7.292	398.7 -> 79.9	31731	11.98	µg/L	m 95
		398.7 -> 98.9	16118			
PFNA	7.747	463.0 -> 419.0	159045	13.46	µg/L	98
		463.0 -> 219.0	39215			
PFNS	8.899	548.8 -> 79.9	23785	12.35	µg/L	93
		548.8 -> 98.9	12245			
PFOA	7.189	413.0 -> 369.0	236074	14.05	µg/L	99
		413.0 -> 169.0	48893			
PFOS	8.406	498.9 -> 79.9	49930	11.98	µg/L	m 100
		498.9 -> 98.8	25445			
PFPeA	4.414	263.0 -> 219.0	378453	27.91	µg/L	100
PFPeS	6.569	349.1 -> 79.9	29148	12.75	µg/L	99
		349.1 -> 98.9	12924			
PFTeDA	9.974	713.1 -> 669.0	247172	13.75	µg/L	99
		713.1 -> 168.9	20484			
PFTrDA	9.604	663.0 -> 619.0	312461	13.55	µg/L	99
		663.0 -> 168.9	30103			
PFUnDA	8.722	563.1 -> 519.0	169568	13.46	µg/L	97
		563.1 -> 269.1	32161			
11CI-PF3OUdS	9.643	630.9 -> 450.9	253518	25.60	µg/L	99
		632.9 -> 452.9	77473			
9CI-PF3ONS	8.749	530.8 -> 351.0	270616	25.44	µg/L	100
		532.8 -> 353.0	80998			
ADONA	6.781	376.9 -> 250.9	636520	25.76	µg/L	98
		376.9 -> 84.8	170631			
HFPO-DA	5.953	284.9 -> 168.9	72405	26.66	µg/L	98
		284.9 -> 184.9	8570			
3:3FTCA	3.867	241.0 -> 177.0	43985	68.13	µg/L	100
		241.0 -> 117.0	4080			
5:3FTCA	6.244	341.0 -> 237.1	847471	336.78	µg/L	100
		341.0 -> 217.0	606618			
7:3FTCA	7.686	441.0 -> 316.9	414720	337.74	µg/L	100
		441.0 -> 336.9	921113			
EtFOSA	11.362	526.0 -> 219.0	106394	27.64	µg/L	m 96
		526.0 -> 169.0	144792			
EtFOSE	11.282	630.0 -> 58.9	220860	68.51	µg/L	100
MeFOSA	11.065	511.9 -> 219.0	89484	27.32	µg/L	m 99
		511.9 -> 169.0	129885			
MeFOSE	10.973	616.1 -> 58.9	192221	67.82	µg/L	m 100
PFDoDS	10.126	699.1 -> 79.9	28550	12.37	µg/L	96
		699.1 -> 98.8	16135			
NFDHA	5.479	295.0 -> 201.0	25055	27.40	µg/L	97
		295.0 -> 84.9	6624			
PFMBA	4.828	279.0 -> 85.1	213238	27.54	µg/L	100
PFMPA	3.553	229.0 -> 84.9	190252	27.65	µg/L	100
PFEESA	6.034	314.8 -> 134.9	327981	23.68	µg/L	100
		314.8 -> 82.9	11154			

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

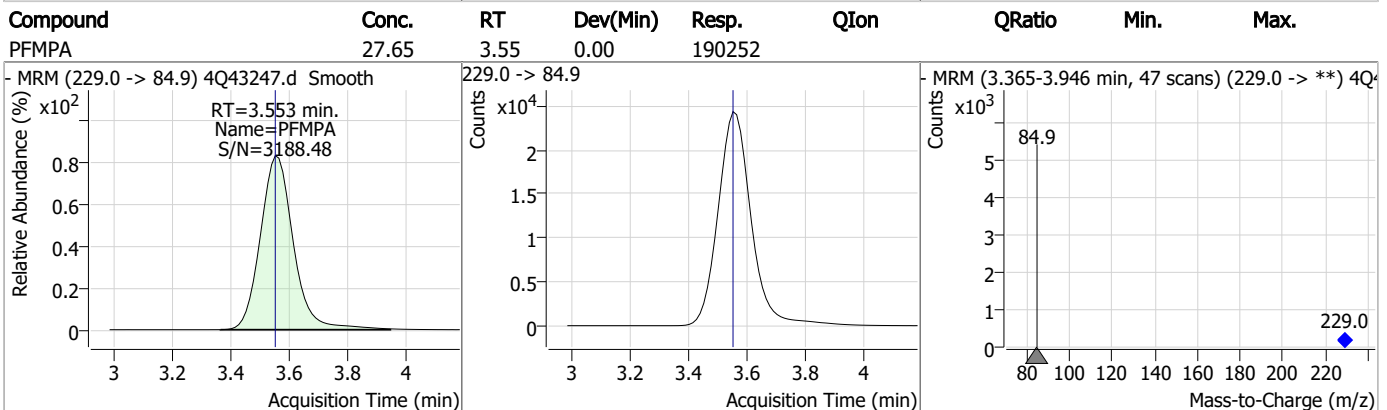
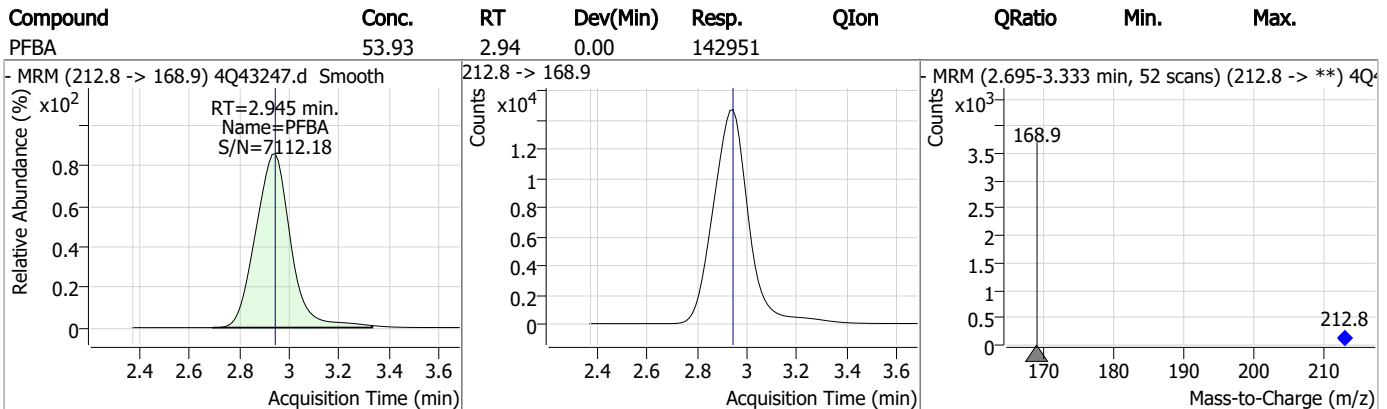
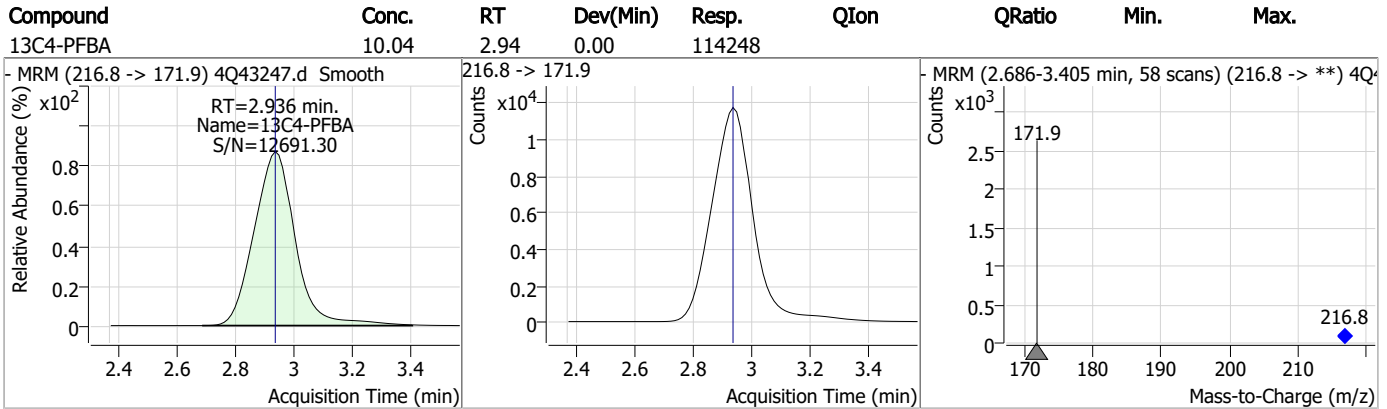
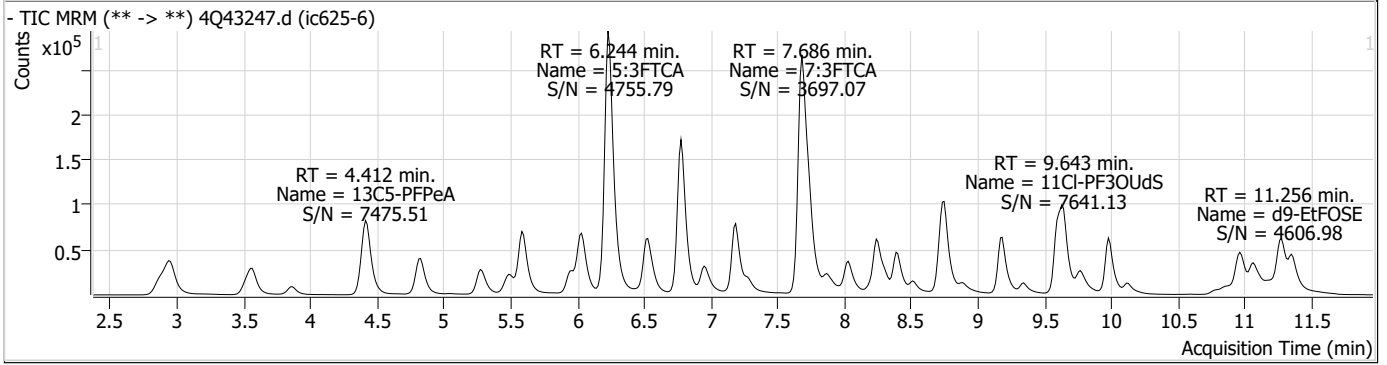
Perfluorinated Compounds by LC/MS/MS

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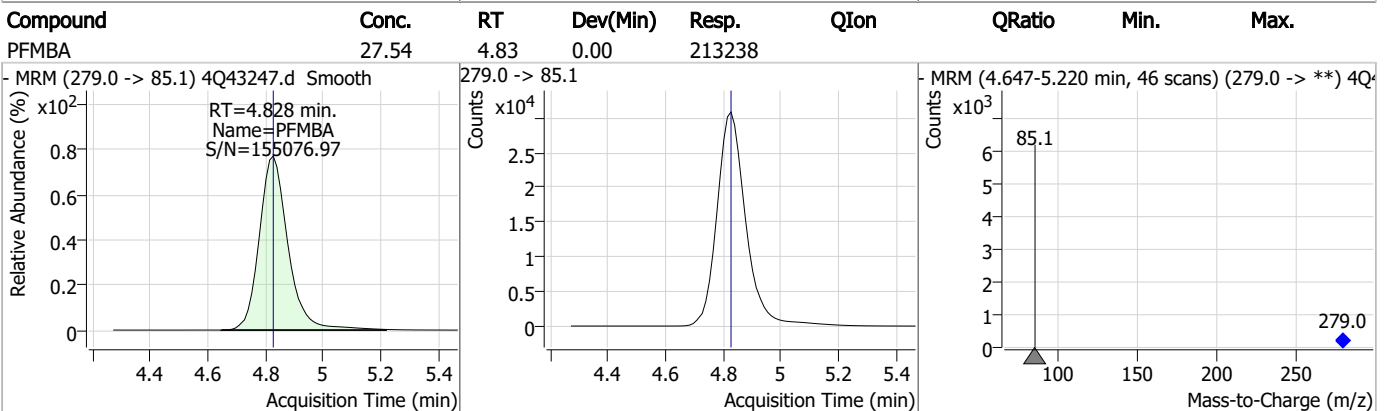
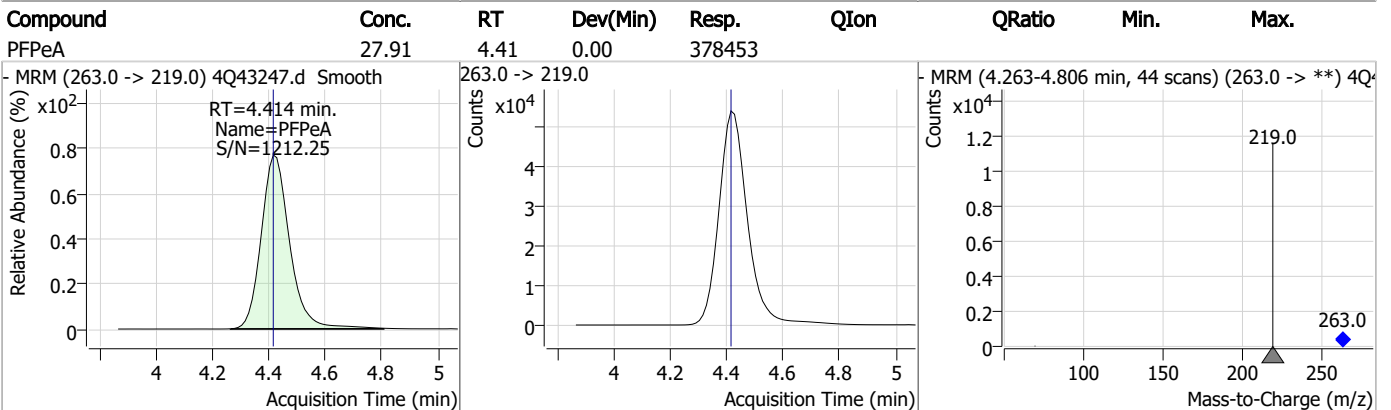
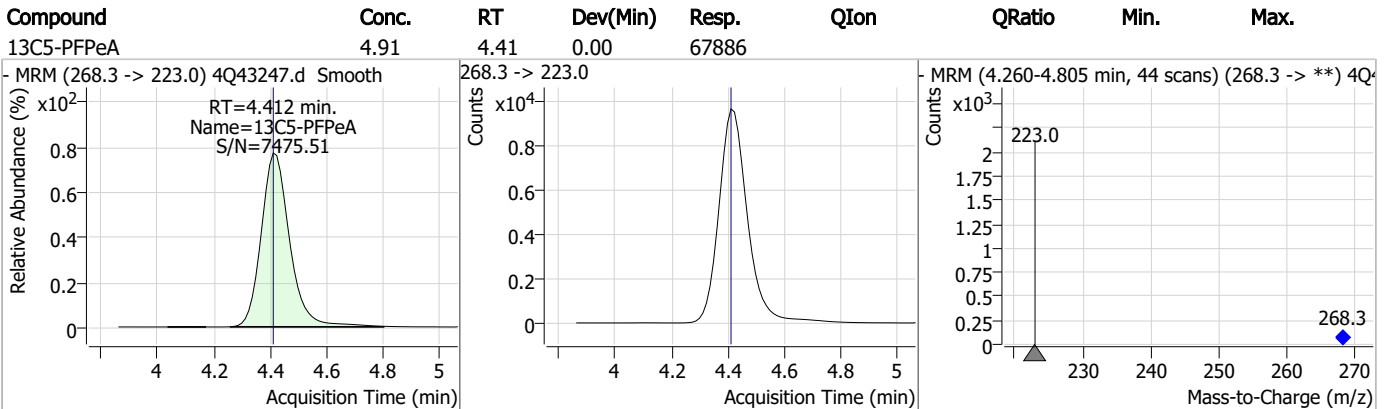
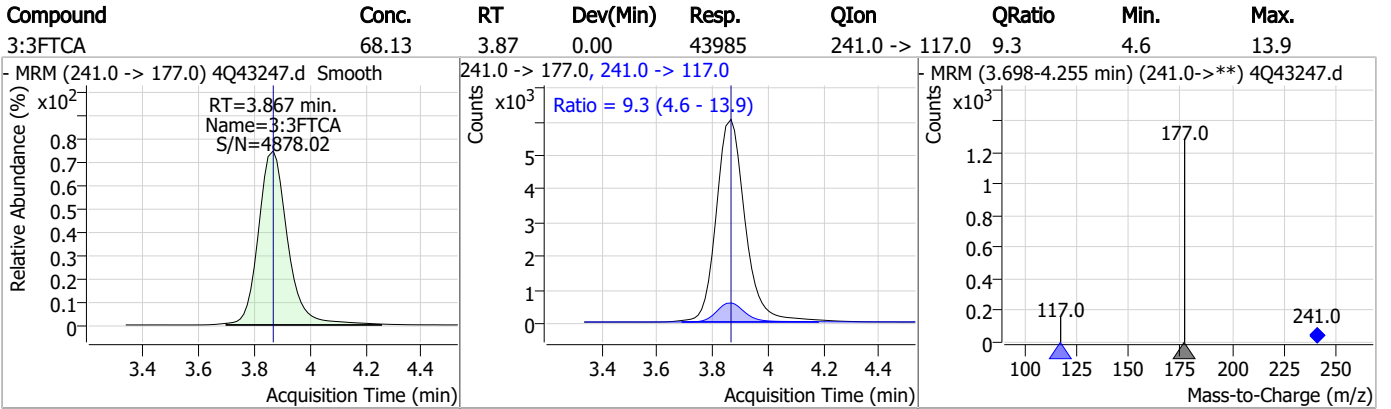
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Perfluorinated Compounds by LC/MS/MS

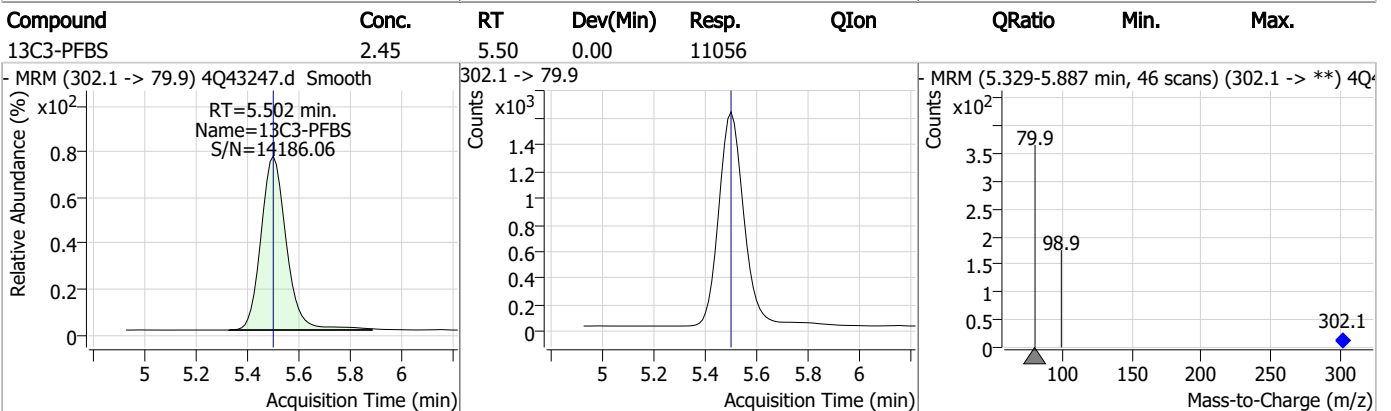
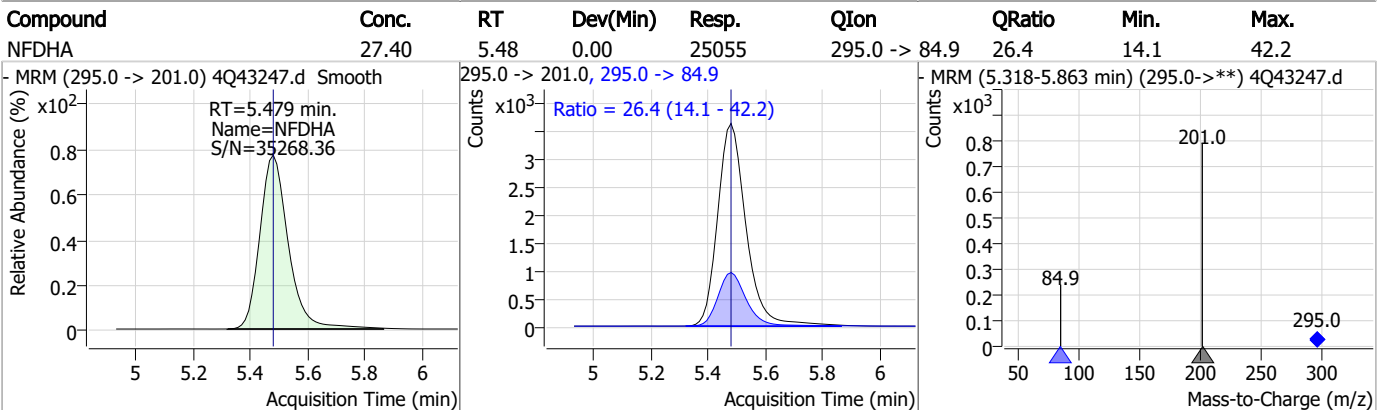
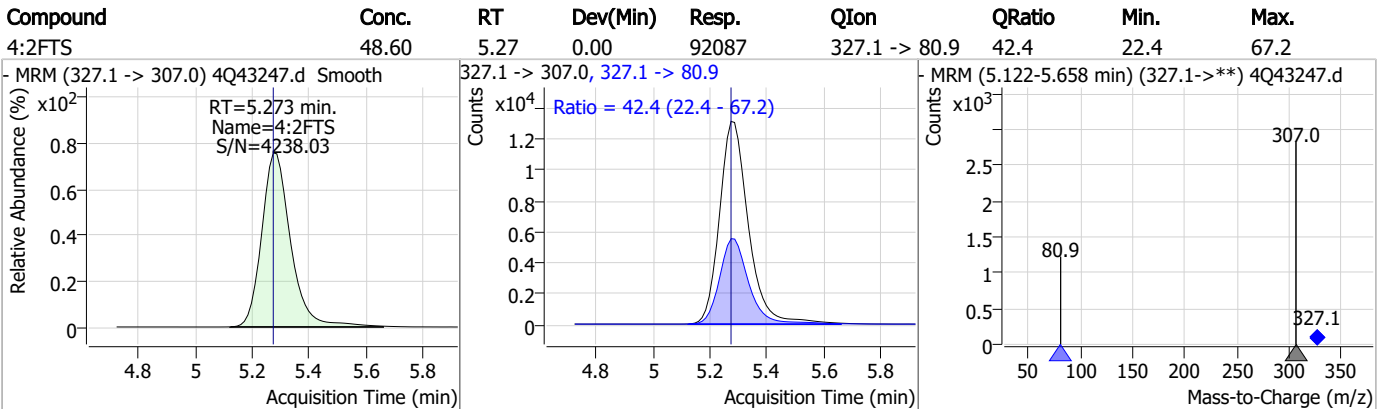
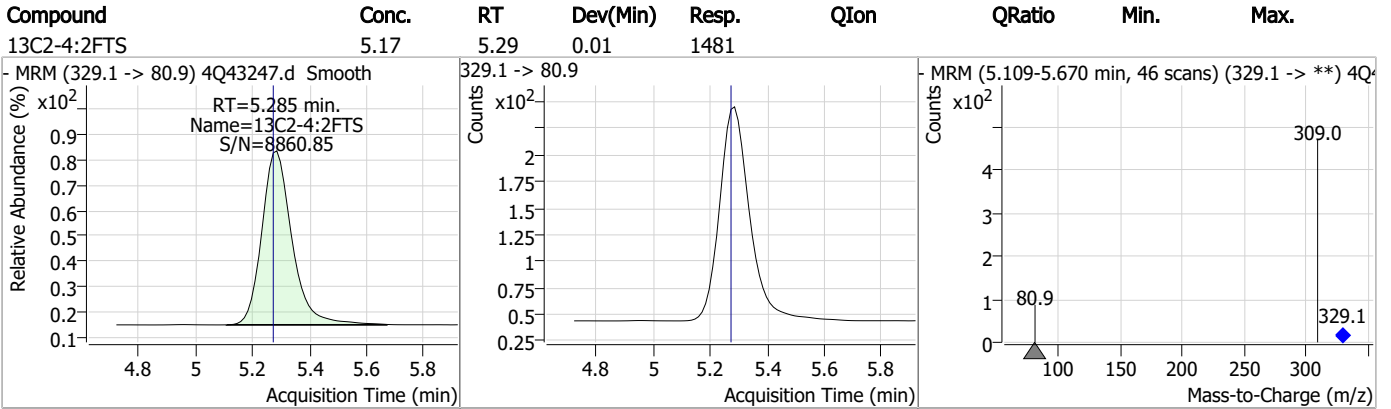


Perfluorinated Compounds by LC/MS/MS



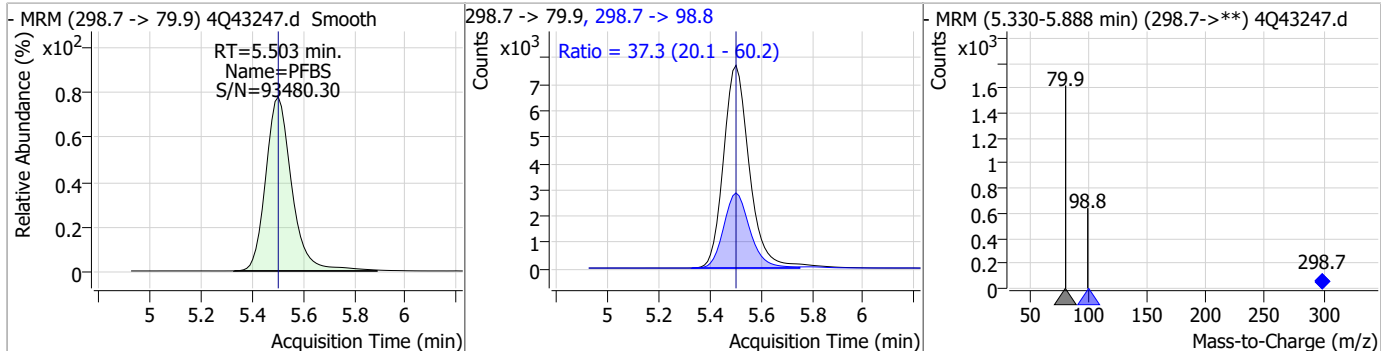
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Perfluorinated Compounds by LC/MS/MS

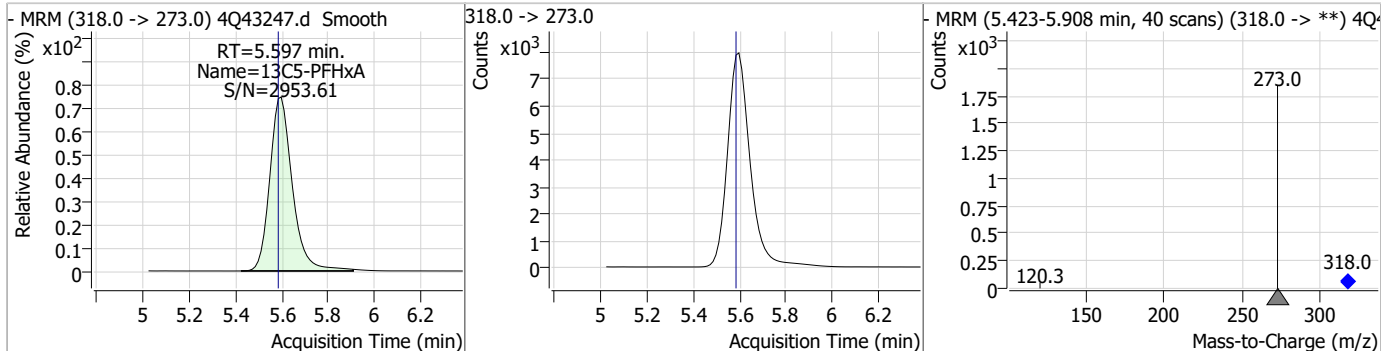


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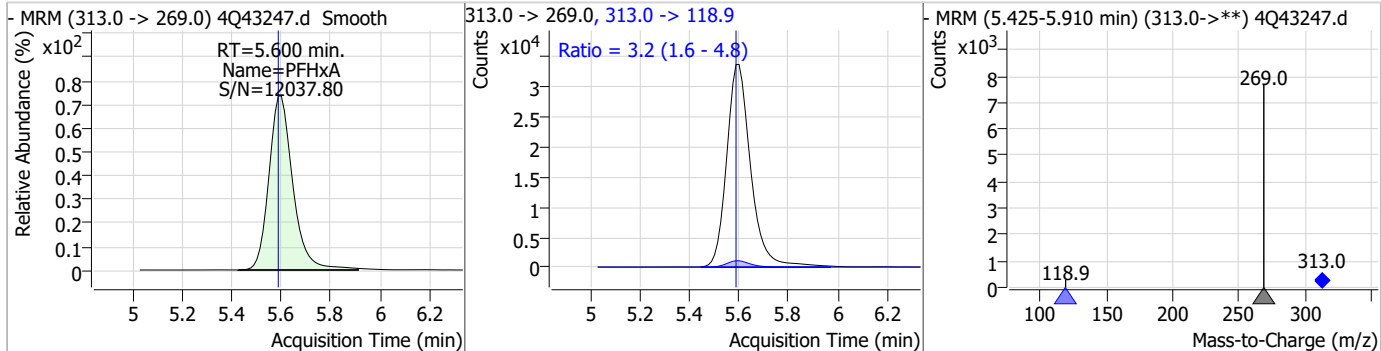
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	12.39	5.50	0.00	54196	298.7 -> 98.8	37.3	20.1	60.2



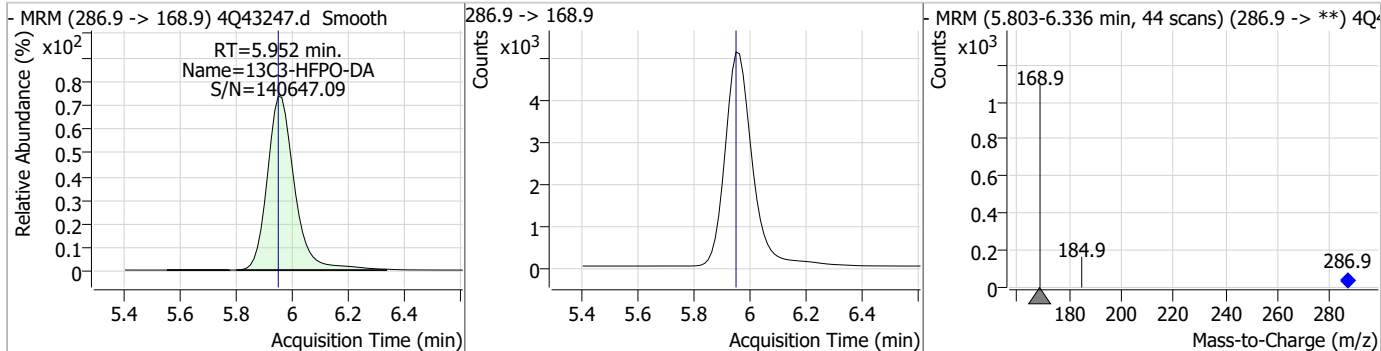
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.52	5.60	0.01	53585				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	13.45	5.60	0.01	226996	313.0 -> 118.9	3.2	1.6	4.8

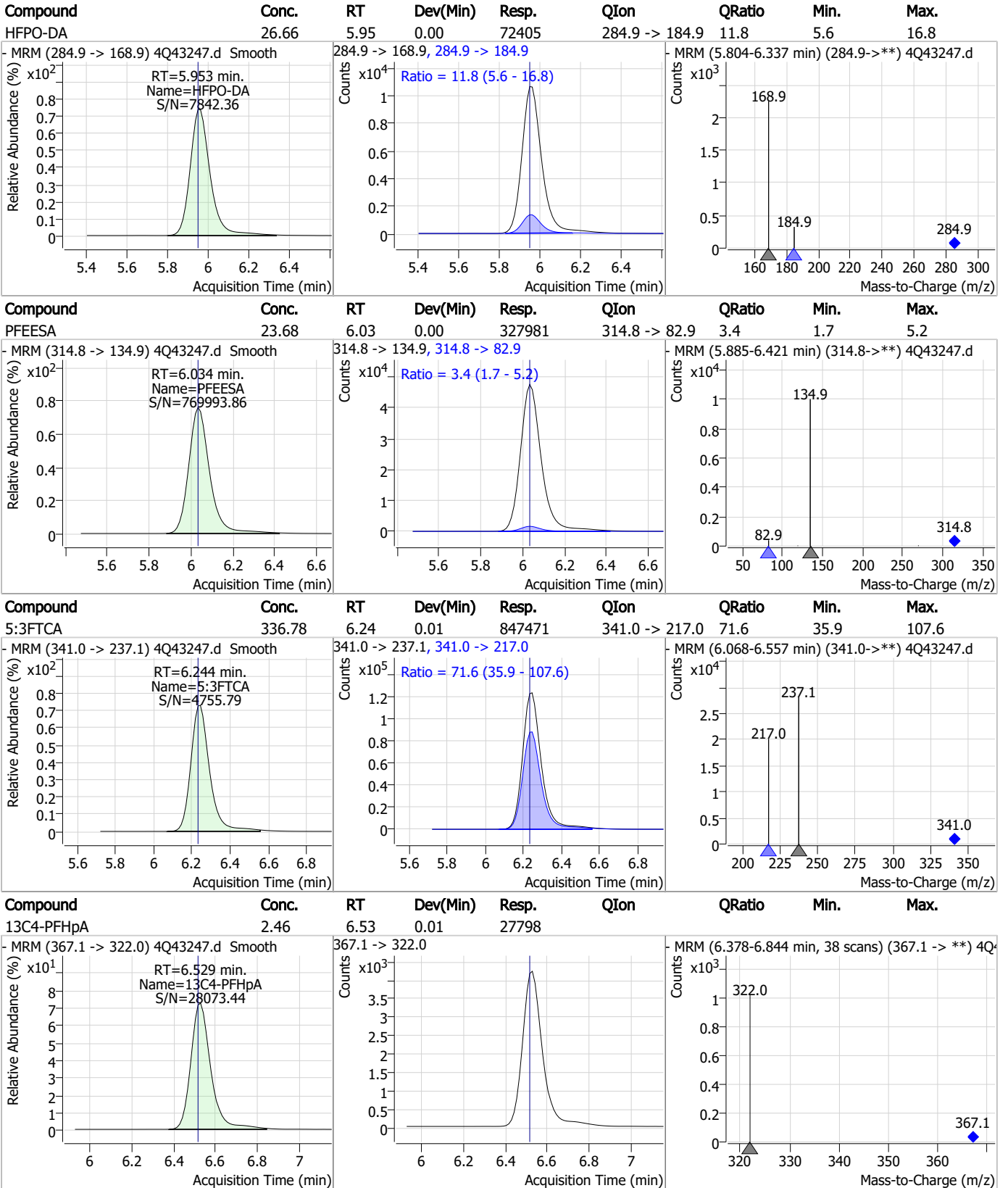


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.03	5.95	0.00	34374				



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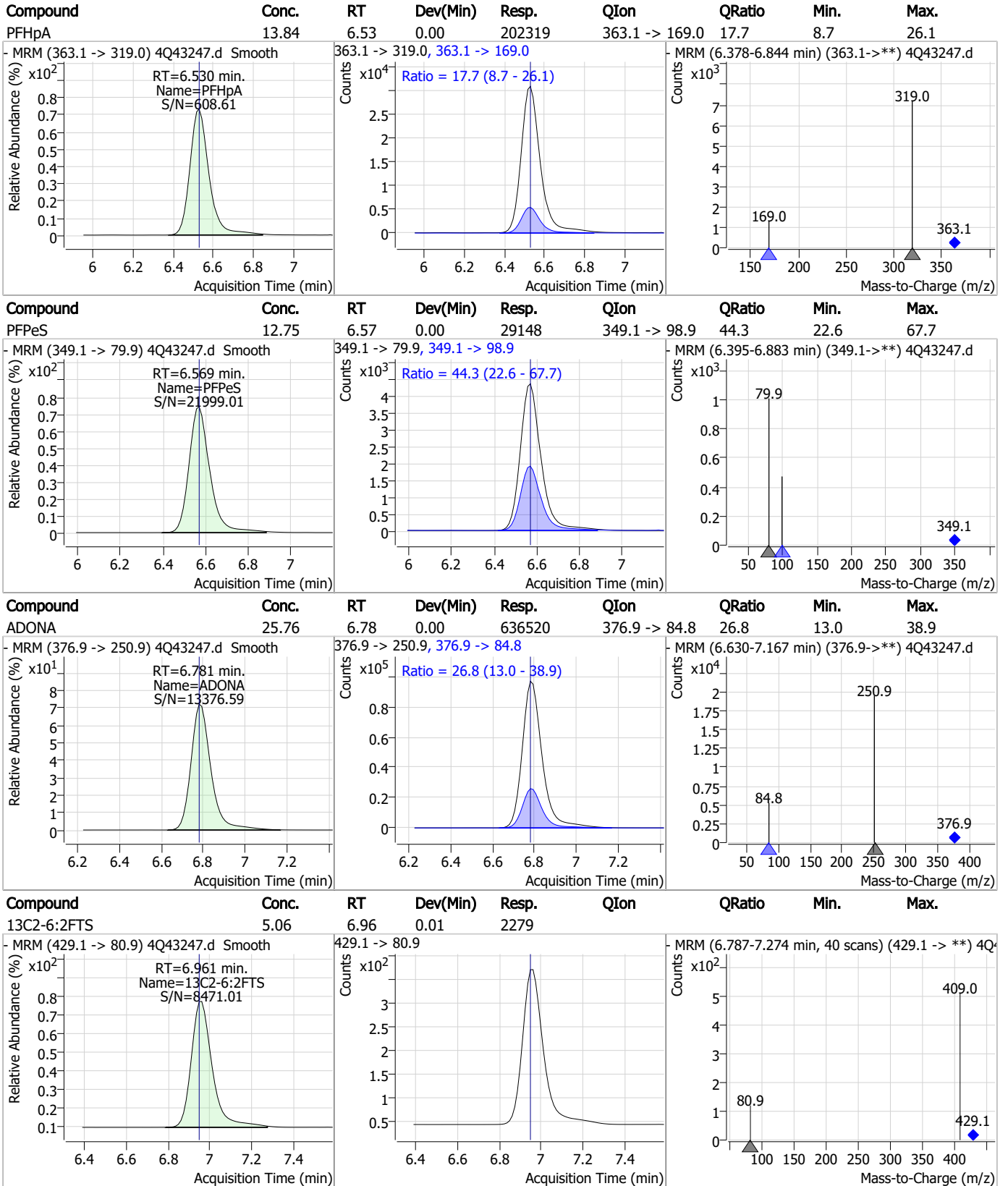
Perfluorinated Compounds by LC/MS/MS



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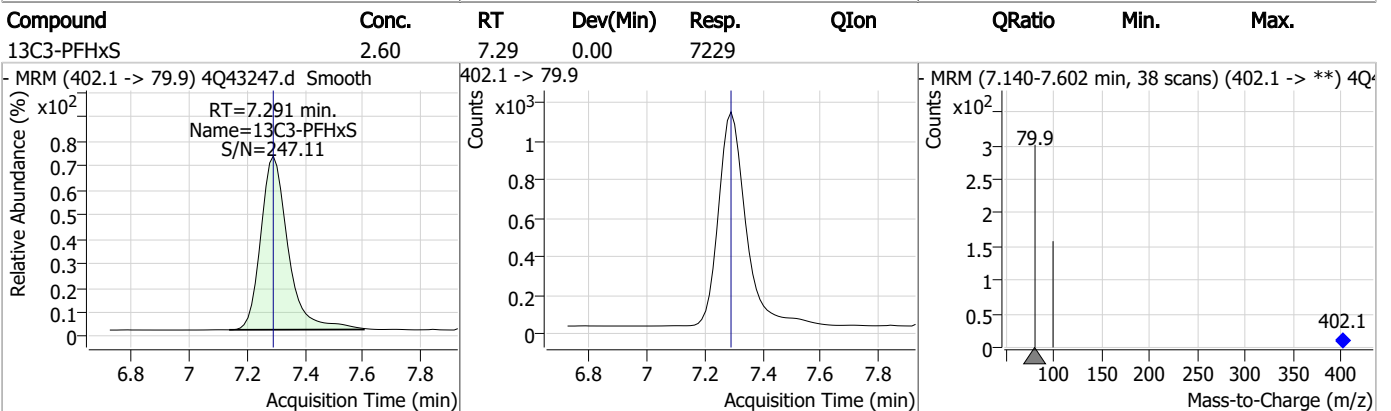
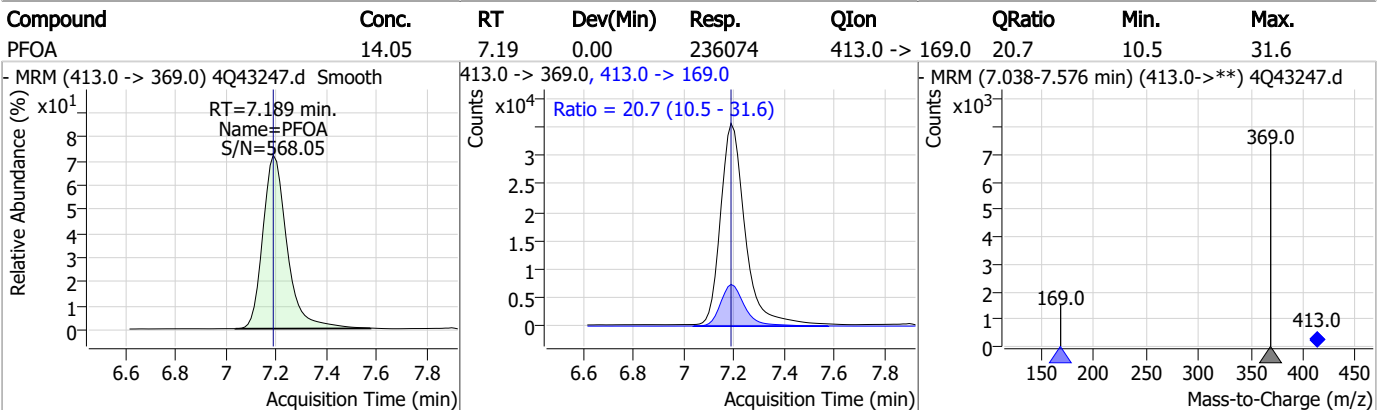
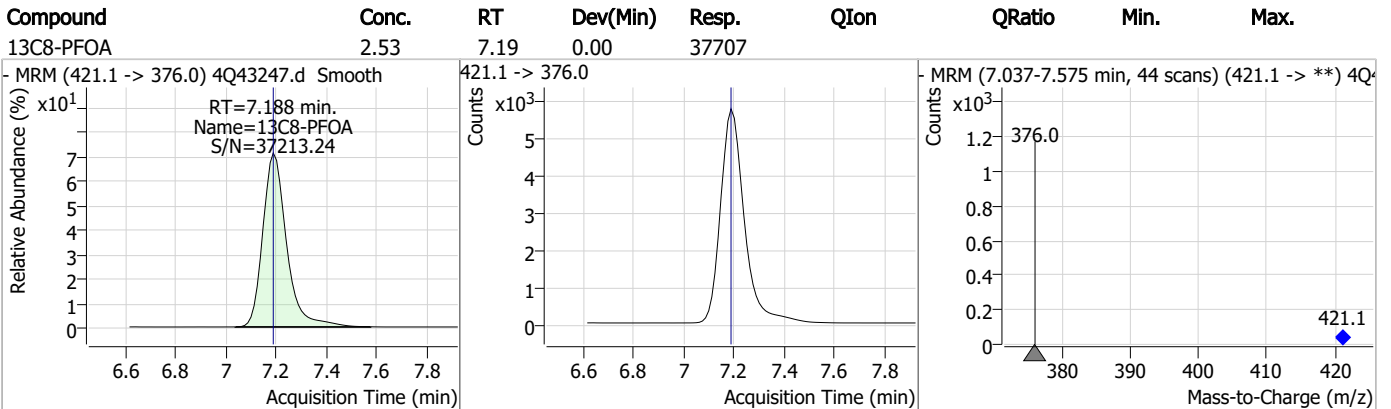
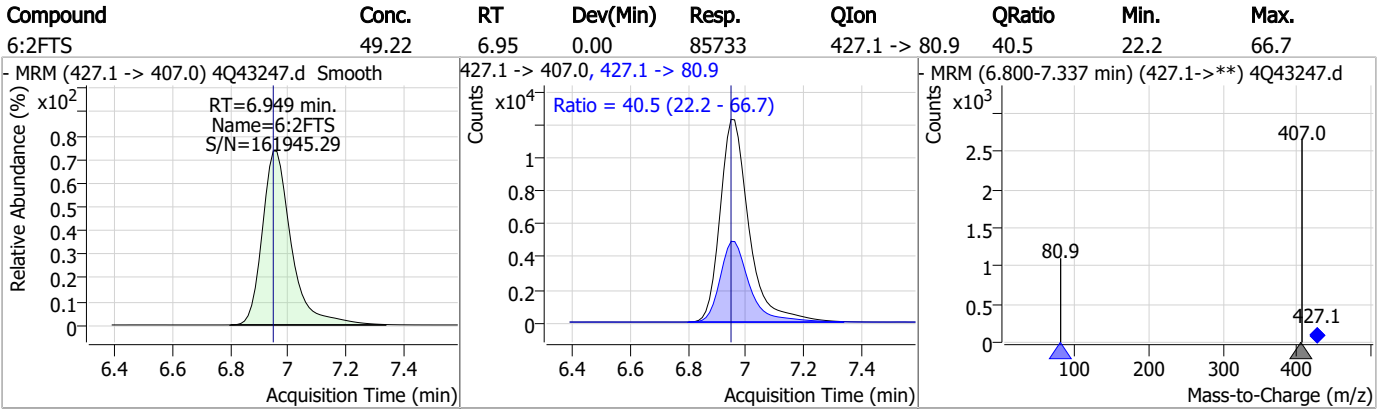
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Perfluorinated Compounds by LC/MS/MS

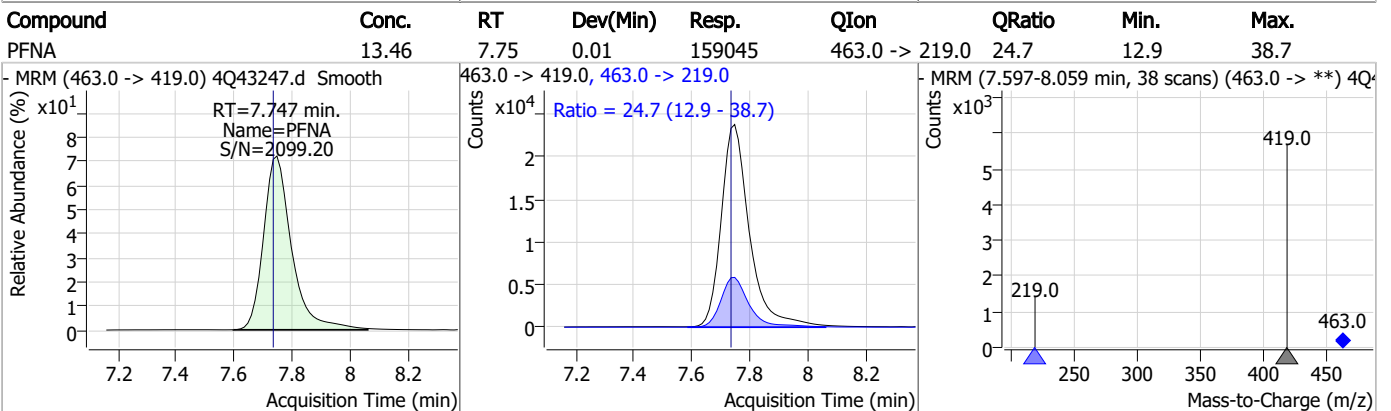
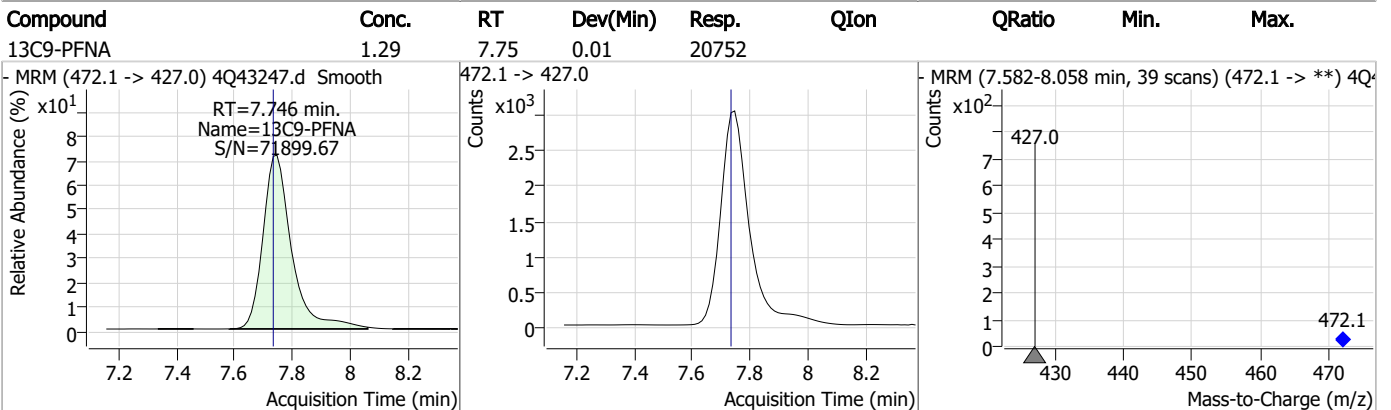
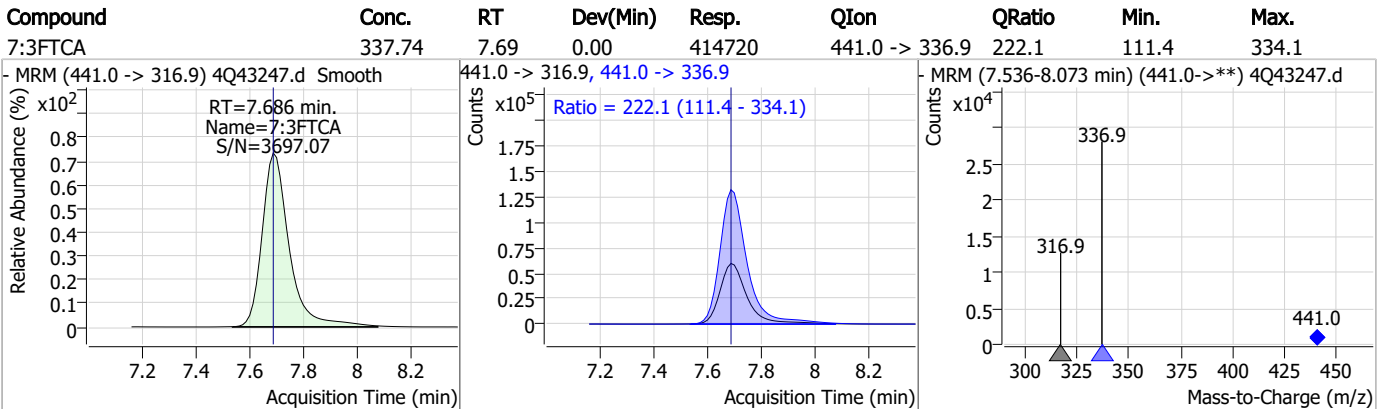
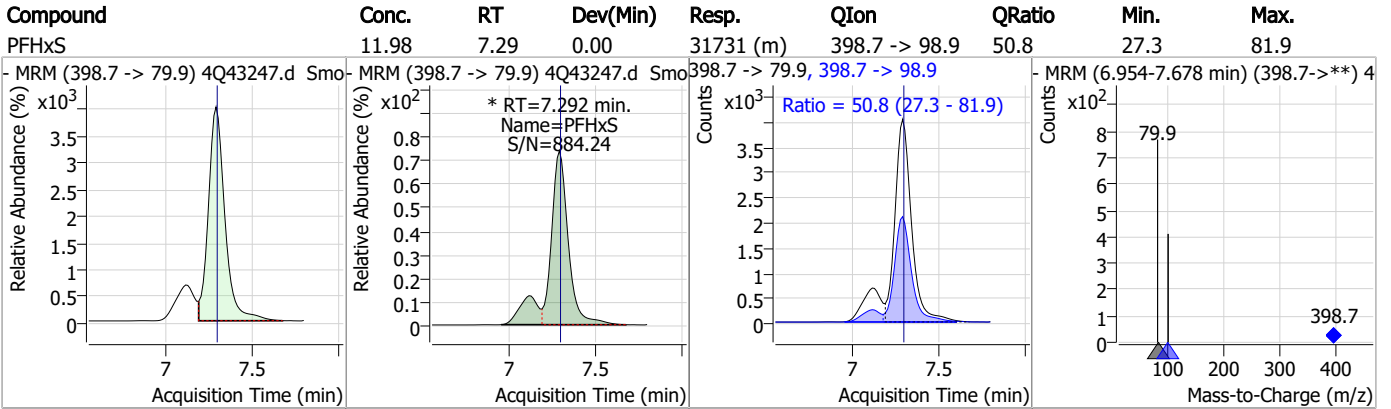


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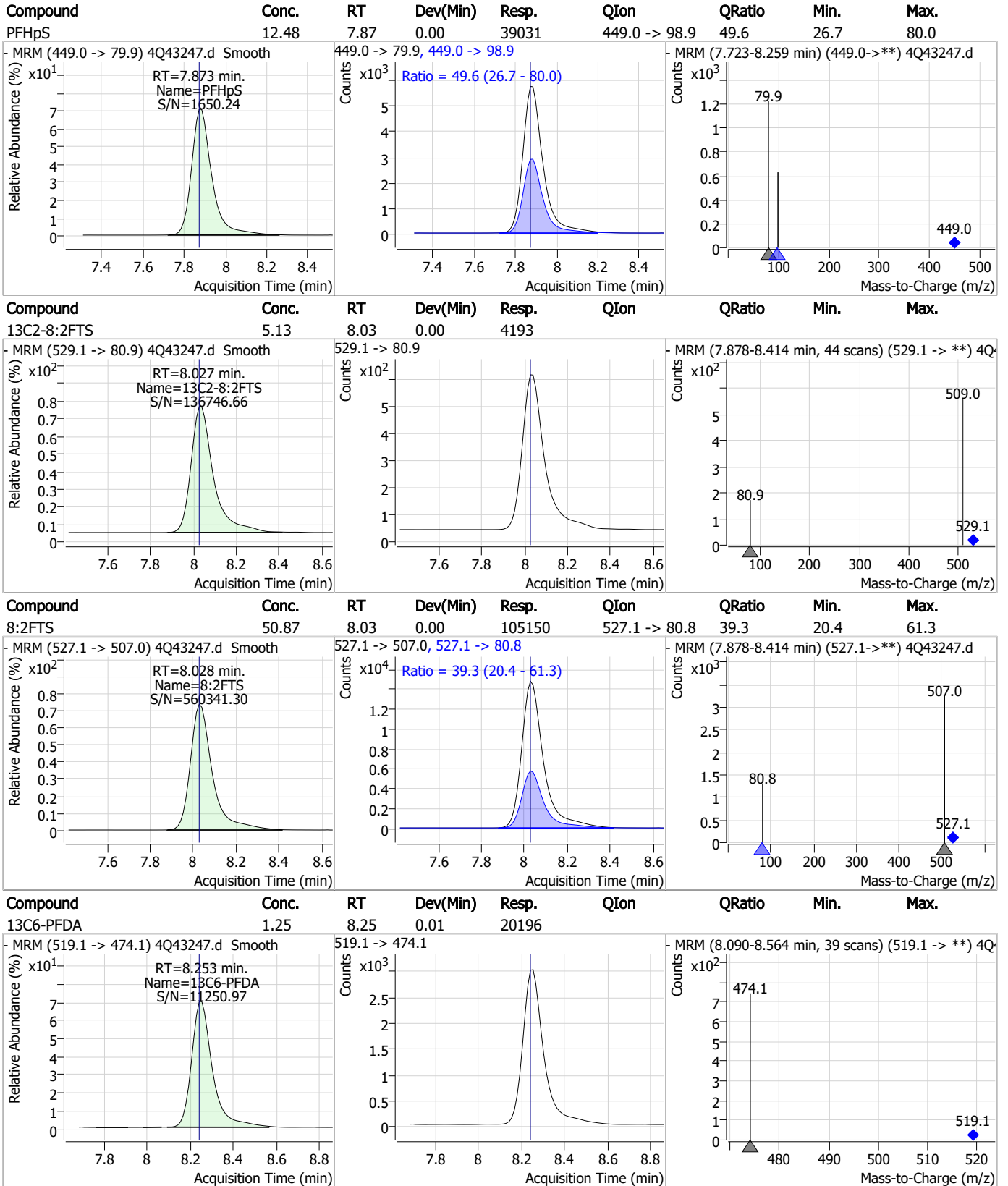
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



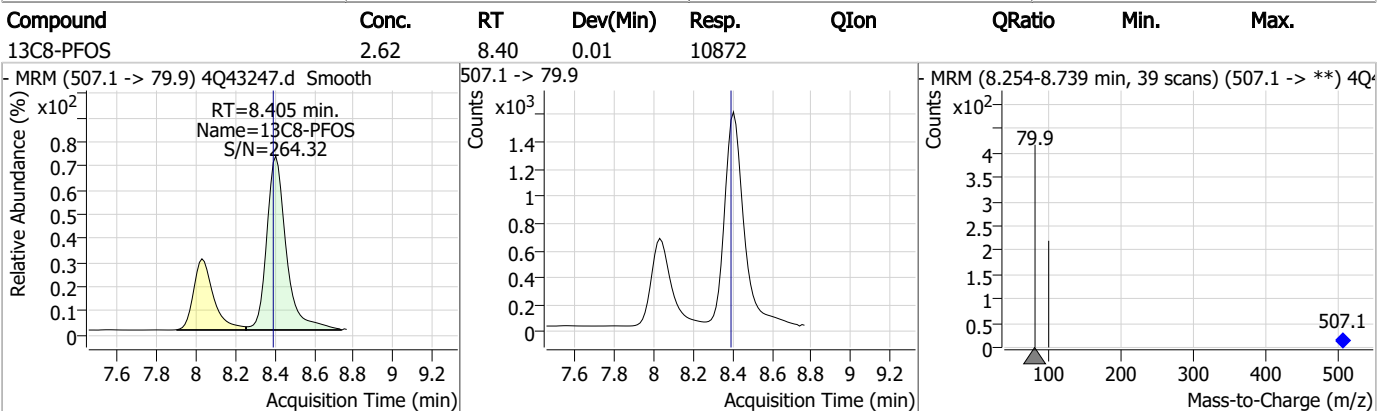
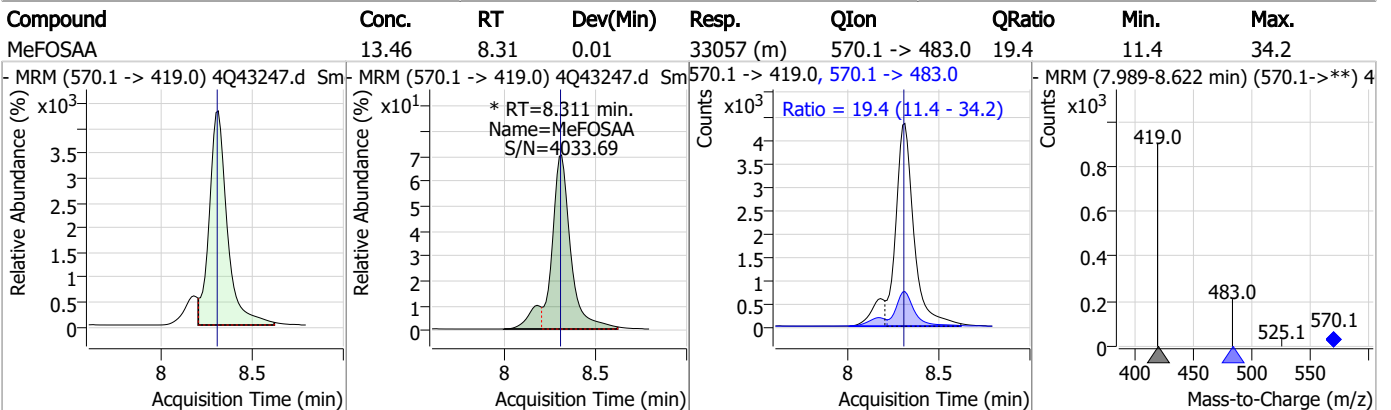
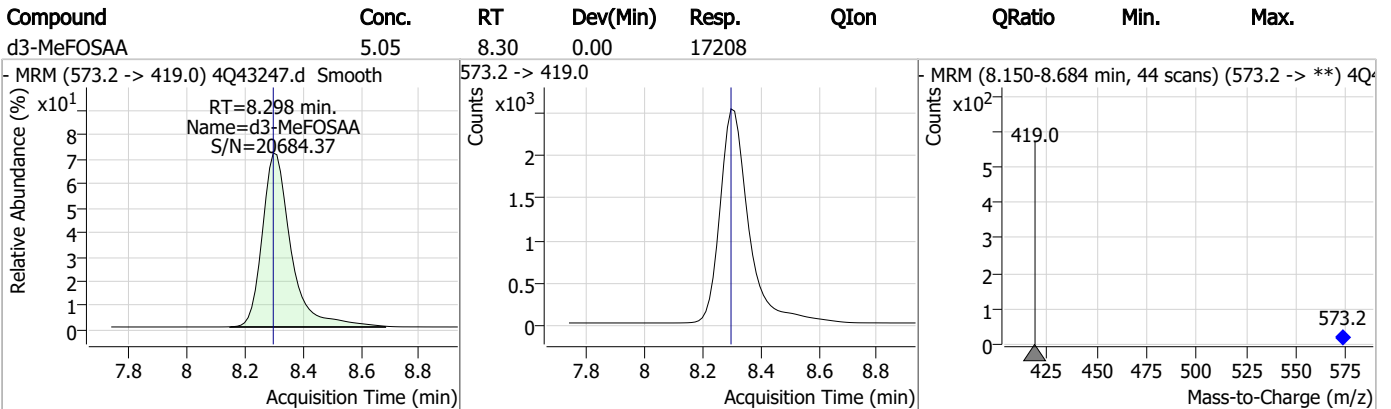
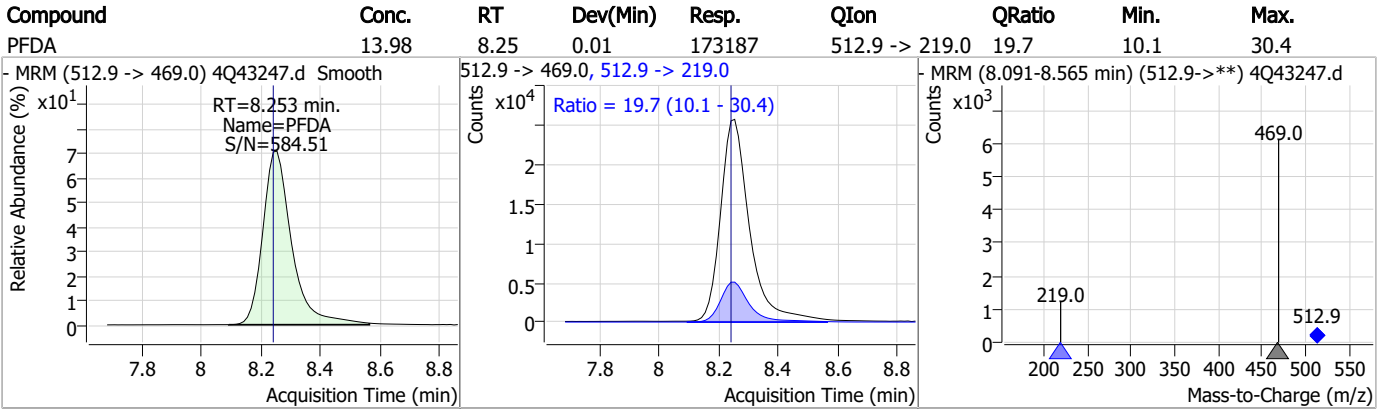
Perfluorinated Compounds by LC/MS/MS



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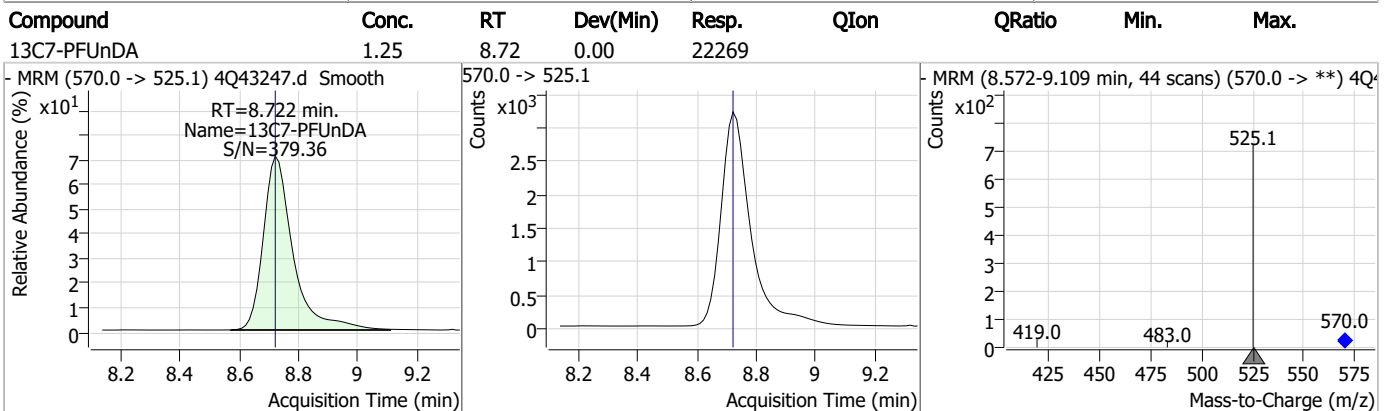
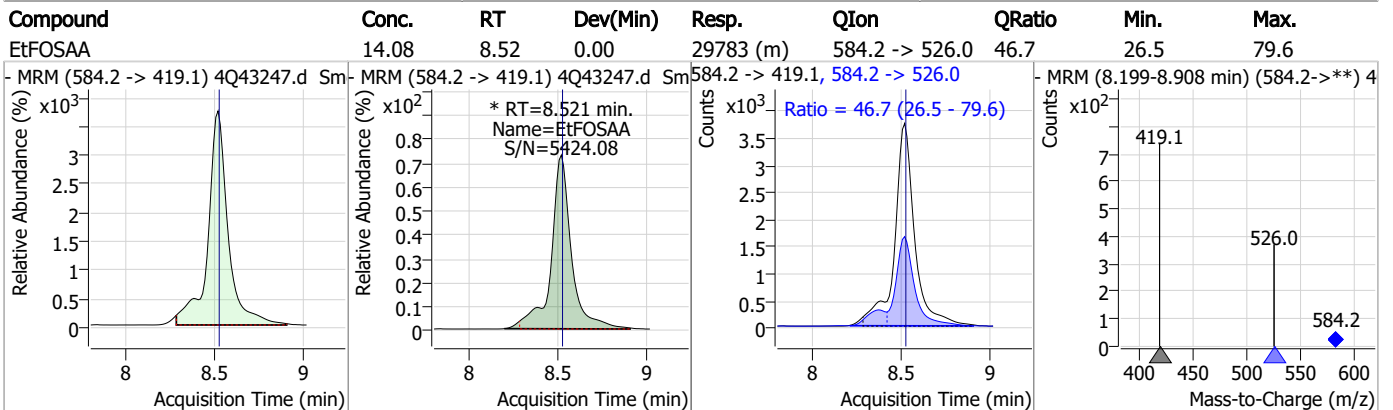
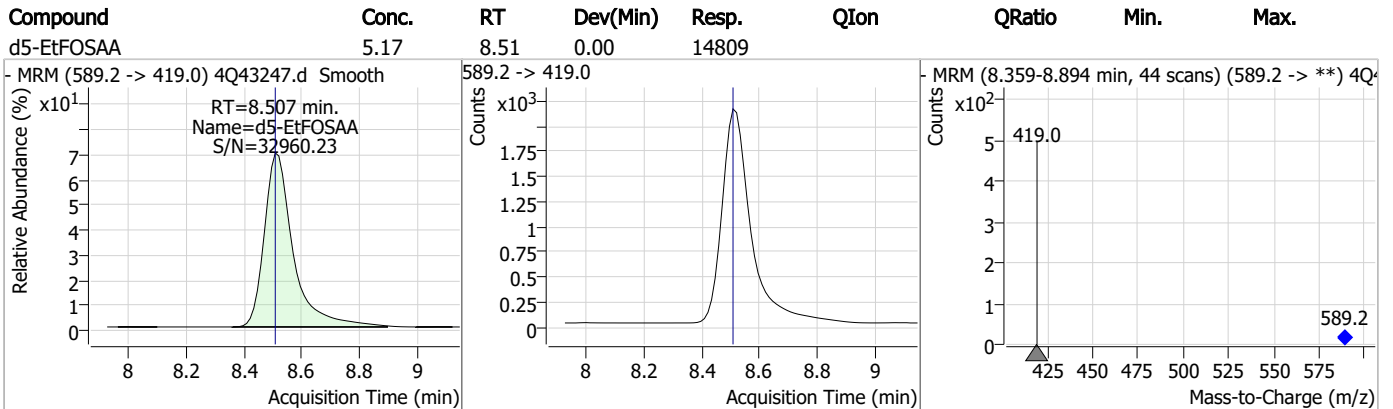
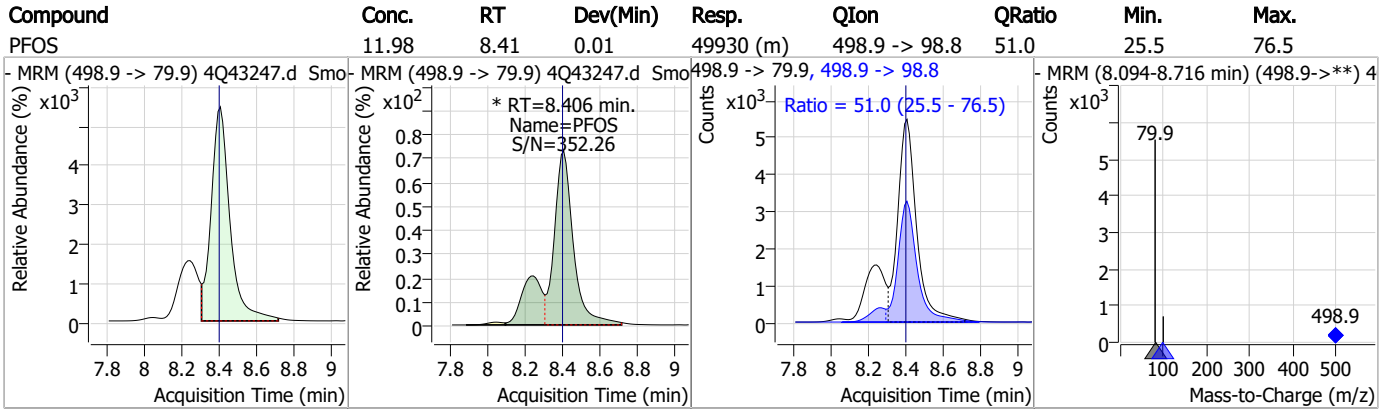
Perfluorinated Compounds by LC/MS/MS



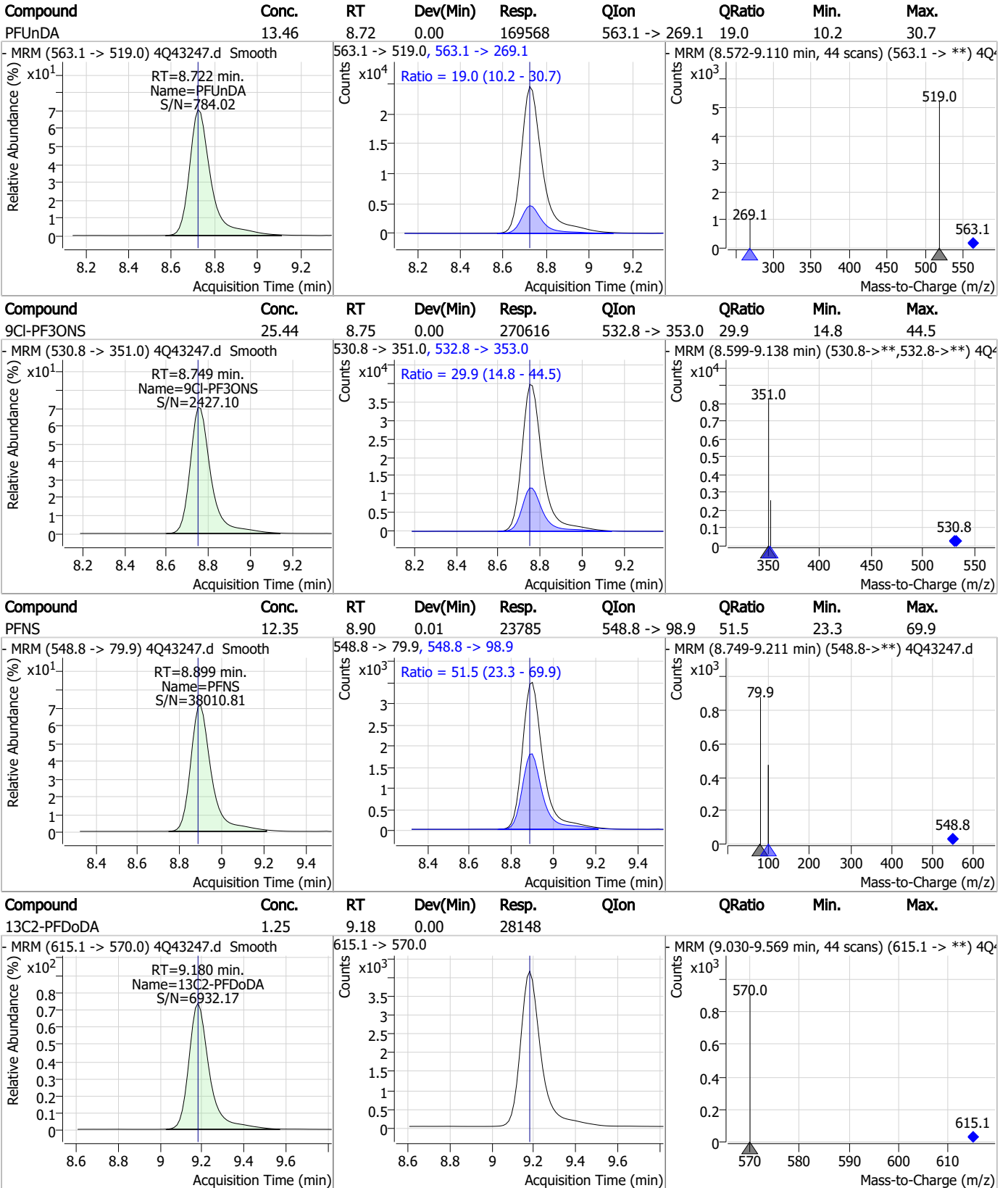
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Perfluorinated Compounds by LC/MS/MS



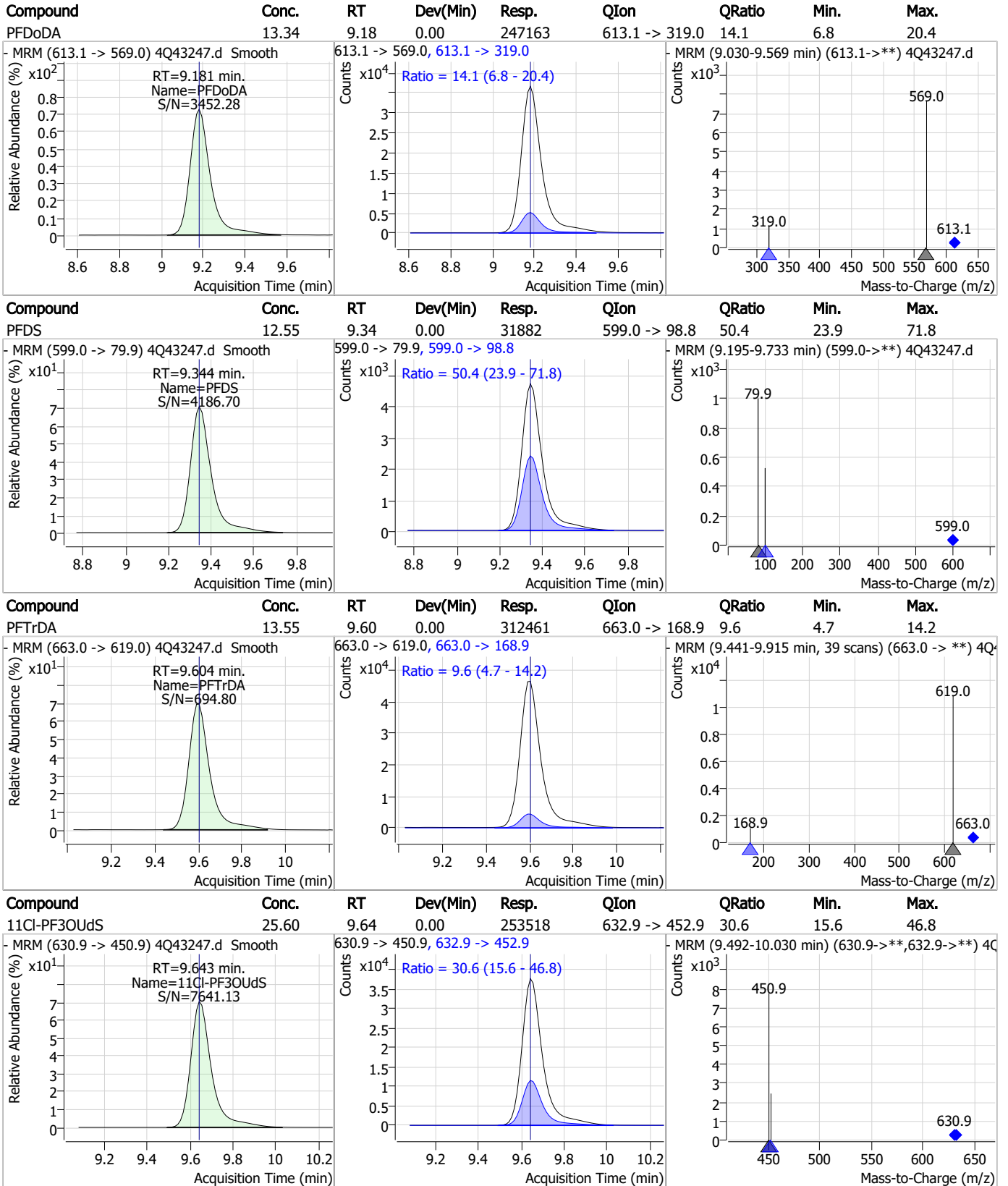
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

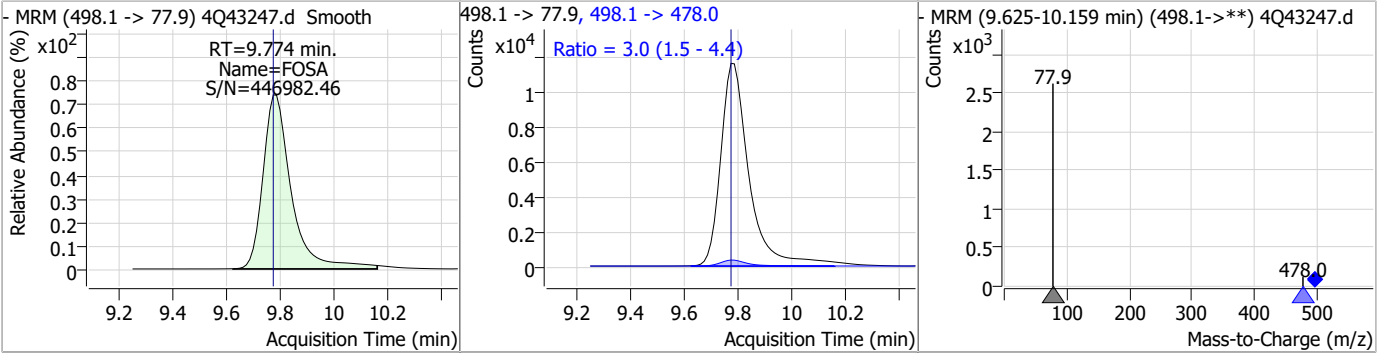


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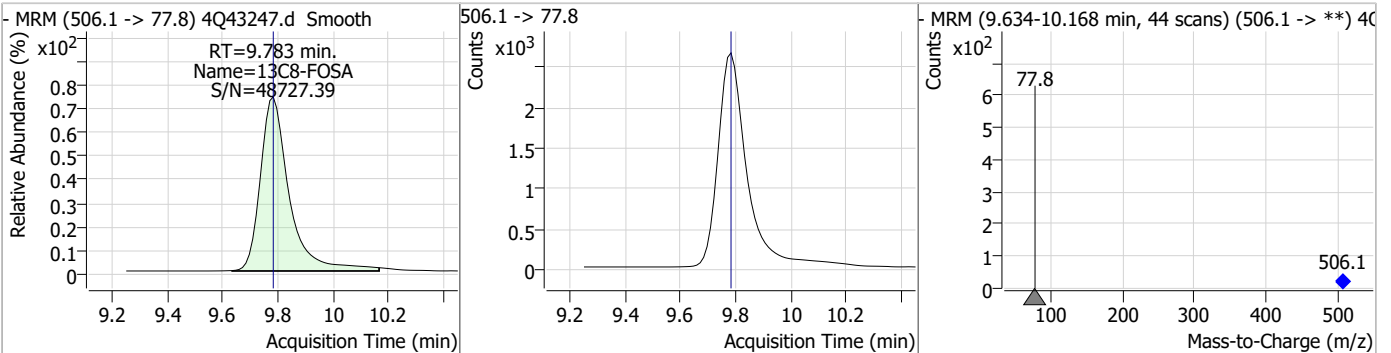


Perfluorinated Compounds by LC/MS/MS

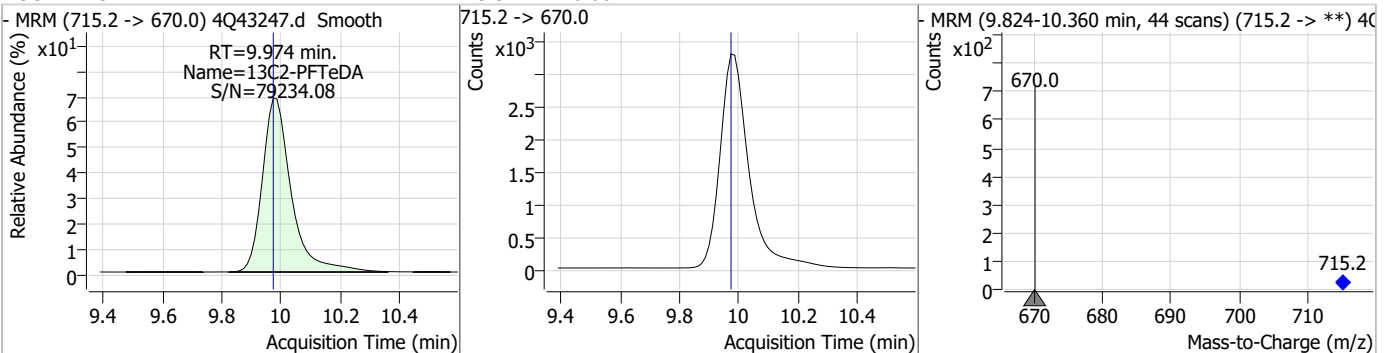
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	13.05	9.77	0.00	84532	498.1 -> 478.0	3.0	1.5	4.4



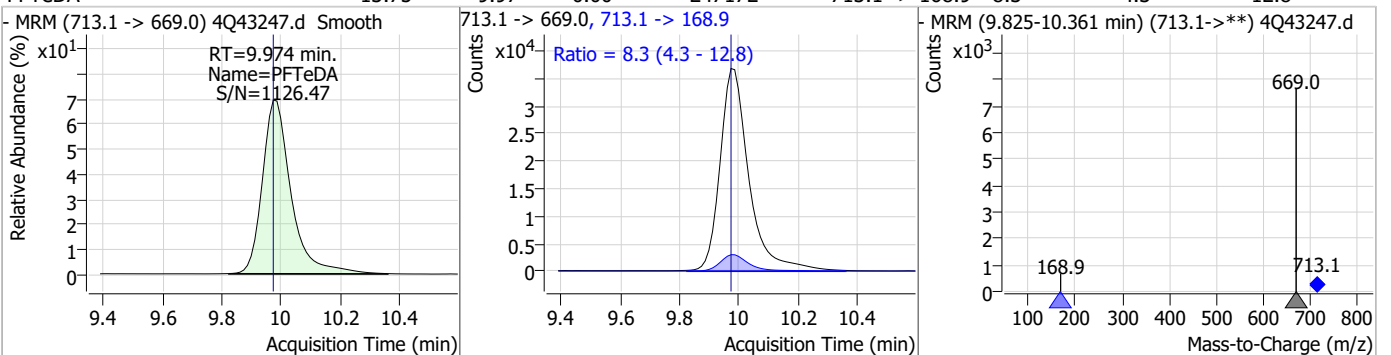
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.55	9.78	0.00	19152				



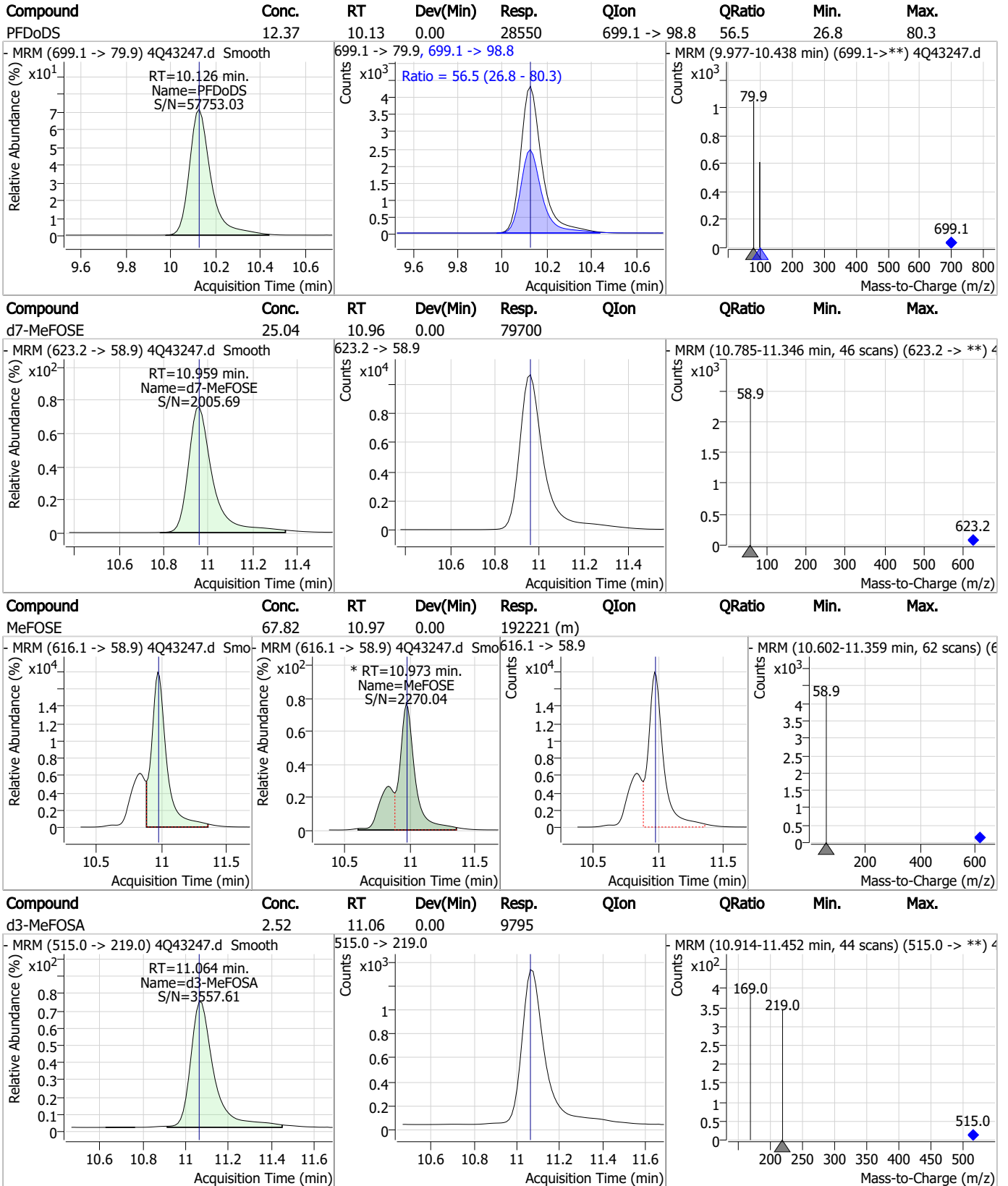
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.24	9.97	0.00	22121				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.75	9.97	0.00	247172	713.1 -> 168.9	8.3	4.3	12.8



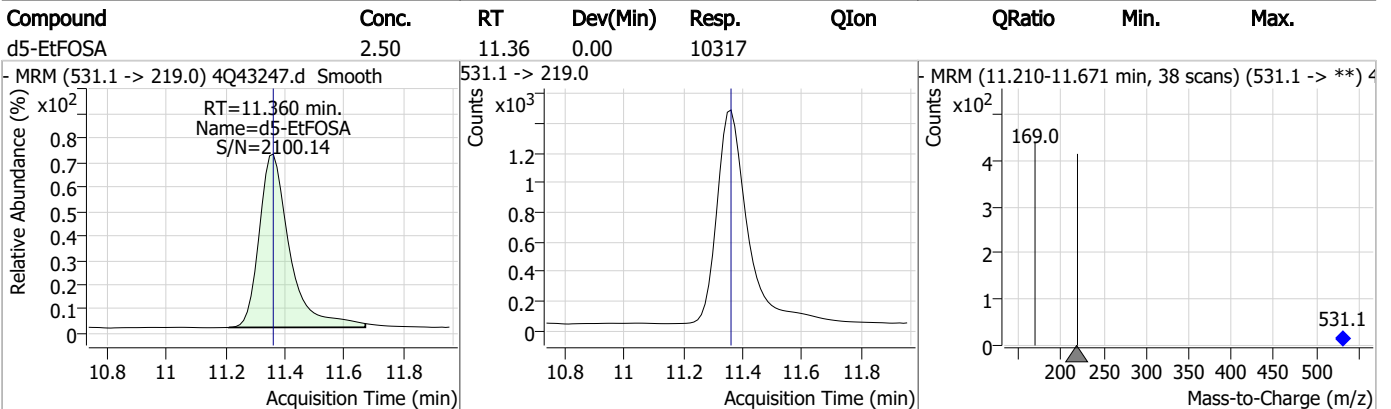
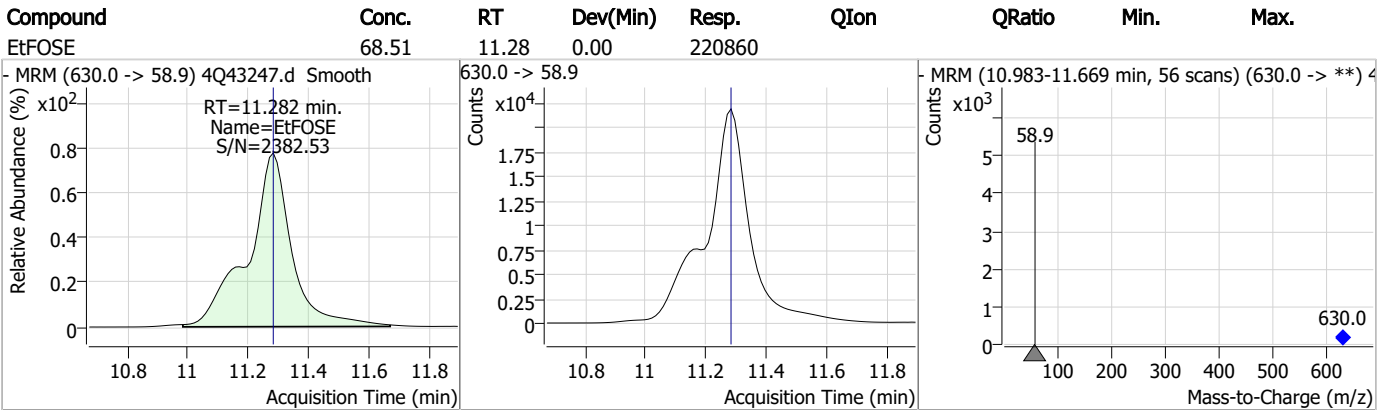
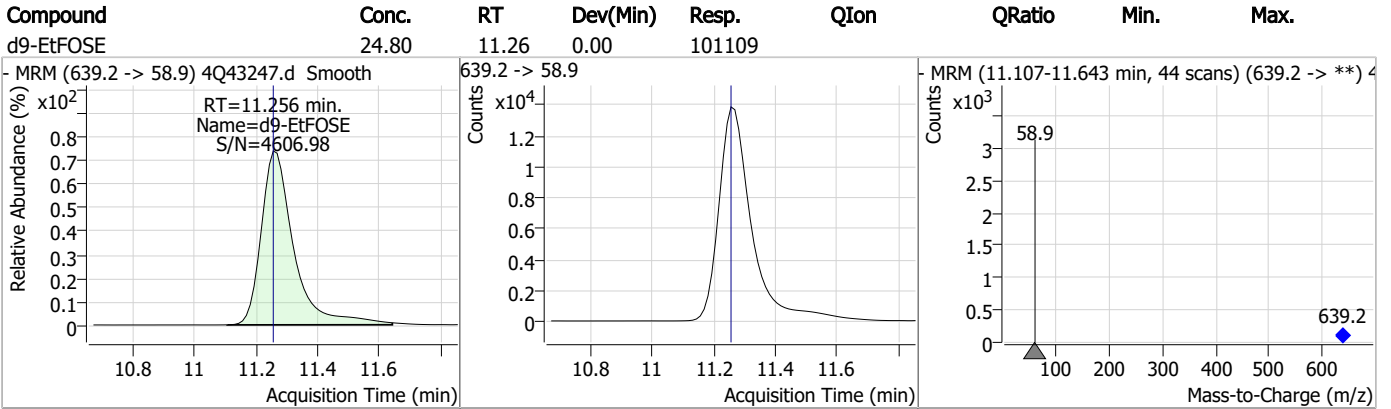
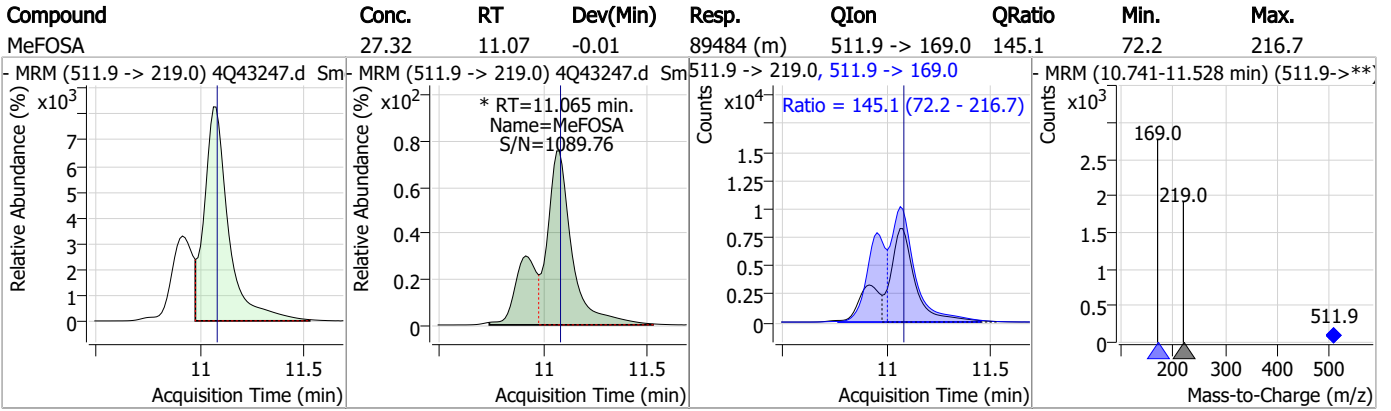
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

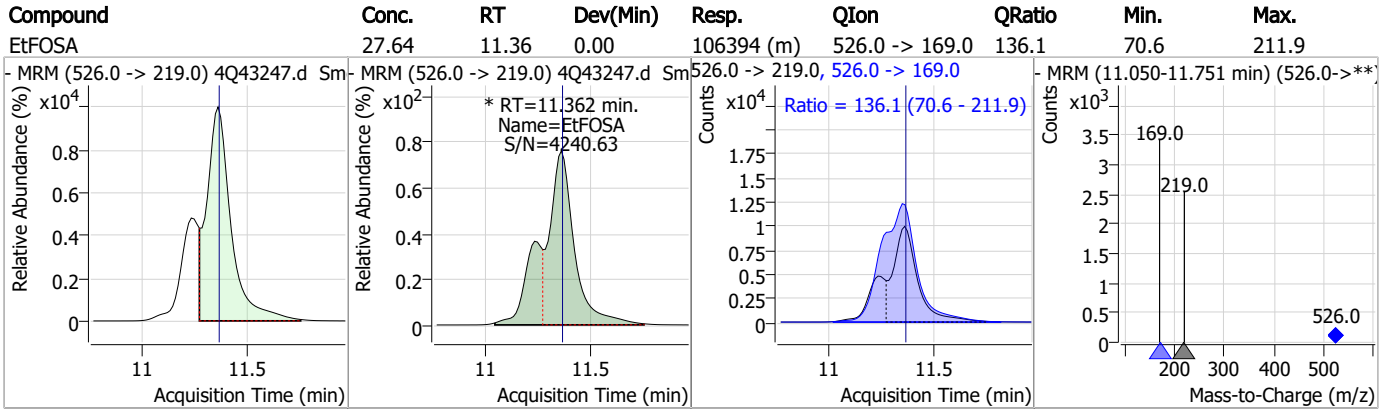


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Perfluorinated Compounds by LC/MS/MS



7.7.22

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Manual Integration Approval Summary

Sample Number: S4Q625-IC625 Method: EPA DRAFT 1633
Lab FileID: 4Q43247.D Analyst approved: 04/20/23 14:17 Natasha Gumtie
Injection Time: 04/19/23 13:05 Supervisor approved: 04/21/23 13:15 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.41	Split peak
EtFOSAA	2991-50-6		8.52	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.06	Split peak
EtFOSA	4151-50-2		11.36	Split peak

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 04/21/23 13:15

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43248.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/19/2023 1:19:10 PM
 Sample Name : ic625-7
 Vial : P1-A8
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s6q625.batch.bin
 Sample Information : OP96301,S4q625,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	108816	10.00 µg/L	0.000
M5-PFPeA	4.412	268.3 -> 223.0	67326	5.00 µg/L	0.000
M5-PFHxA	5.597	318.0 -> 273.0	52085	2.50 µg/L	0.012
M4-PFHpA	6.529	367.1 -> 322.0	27273	2.50 µg/L	0.012
M8-PFOA	7.188	421.1 -> 376.0	35898	2.50 µg/L	0.000
M9-PFNA	7.733	472.1 -> 427.0	19864	1.25 µg/L	0.000
M6-PFDA	8.240	519.1 -> 474.1	19435	1.25 µg/L	0.000
M7-PFUnDA	8.722	570.0 -> 525.1	20871	1.25 µg/L	0.000
M2-PFDoDA	9.180	615.1 -> 570.0	27751	1.25 µg/L	0.000
M2-PFTeDA	9.986	715.2 -> 670.0	21641	1.25 µg/L	0.012
M8-FOSA	9.783	506.1 -> 77.8	18534	2.50 µg/L	0.000
M3-PFBS	5.502	302.1 -> 79.9	10959	2.50 µg/L	0.000
M3-PFHxS	7.291	402.1 -> 79.9	6918	2.50 µg/L	0.000
M8-PFOS	8.392	507.1 -> 79.9	10489	2.50 µg/L	0.000
M2-4:2FTS	5.273	329.1 -> 80.9	1202	5.00 µg/L	0.000
M2-6:2FTS	6.948	429.1 -> 80.9	1857	5.00 µg/L	0.000
M2-8:2FTS	8.027	529.1 -> 80.9	3570	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	16339	5.00 µg/L	0.000
M3-HFPO-DA	5.952	286.9 -> 168.9	34649	10.00 µg/L	0.000
M5-EtFOSAA	8.507	589.2 -> 419.0	13442	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	76089	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	98189	25.00 µg/L	0.012
M5-EtFOSA	11.360	531.1 -> 219.0	10171	2.50 µg/L	0.000
M3-MeFOSA	11.076	515.0 -> 219.0	9475	2.50 µg/L	0.012
13C4-PFOS	8.393	502.8 -> 79.9	10114	2.50 µg/L	-0.012
13C3-PFBA	2.941	216.0 -> 172.0	60733	5.00 µg/L	0.000
18O2-PFHxS	7.290	403.0 -> 83.9	5000	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	44741	2.50 µg/L	0.000
13C2-PFDA	8.241	515.1 -> 470.1	18518	1.25 µg/L	0.000
13C5-PFNA	7.734	468.0 -> 423.0	22340	1.25 µg/L	0.000
13C2-PFHxA	5.598	315.1 -> 270.0	43406	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.273	329.1 -> 80.9	1202	4.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 81.9%		
13C2-6:2FTS	6.948	429.1 -> 80.9	1857	4.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 80.4%		
13C2-8:2FTS	8.027	529.1 -> 80.9	3570	4.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.2%		
13C2-PFDoDA	9.180	615.1 -> 570.0	27751	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C2-PFTeDA	9.986	715.2 -> 670.0	21641	1.22 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C3-PFBS	5.502	302.1 -> 79.9	10959	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C3-PFHxS	7.291	402.1 -> 79.9	6918	2.42 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 = 96.9%	
13C4-PFBA	2.936	216.8 -> 171.9	108816	9.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C4-PFHpA	6.529	367.1 -> 322.0	27273	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFHxA	5.597	318.0 -> 273.0	52085	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C5-PFPeA	4.412	268.3 -> 223.0	67326	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C6-PFDA	8.240	519.1 -> 474.1	19435	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C7-PFUnDA	8.722	570.0 -> 525.1	20871	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C8-FOSA	9.783	506.1 -> 77.8	18534	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-PFOA	7.188	421.1 -> 376.0	35898	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C8-PFOS	8.392	507.1 -> 79.9	10489	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C9-PFNA	7.733	472.1 -> 427.0	19864	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.8%	
d3-MeFOSAA	8.298	573.2 -> 419.0	16339	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C3-HFPO-DA	5.952	286.9 -> 168.9	34649	10.52 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.2%	
d3-MeFOSA	11.076	515.0 -> 219.0	9475	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
d5-EtFOSAA	8.507	589.2 -> 419.0	13442	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d7-MeFOSE	10.959	623.2 -> 58.9	76089	24.52 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
d9-EtFOSE	11.269	639.2 -> 58.9	98189	24.71 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
d5-EtFOSA	11.360	531.1 -> 219.0	10171	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
Target Compounds					QValue
4:2FTS	5.273	327.1 -> 307.0	165202	107.41 µg/L	95
		327.1 -> 80.9	68520		
6:2FTS	6.949	427.1 -> 407.0	148786	104.83 µg/L	95
		427.1 -> 80.9	61676		
8:2FTS	8.028	527.1 -> 507.0	185029	105.15 µg/L	96
		527.1 -> 80.8	70546		
EtFOSAA	8.508	584.2 -> 419.1	57346	29.88 µg/L	m 92
		584.2 -> 526.0	27264		
FOSA	9.774	498.1 -> 77.9	170141	27.15 µg/L	100
		498.1 -> 478.0	4756		
MeFOSAA	8.299	570.1 -> 419.0	64258	27.56 µg/L	m 95
		570.1 -> 483.0	13057		
PFBA	2.932	212.8 -> 168.9	274660	108.79 µg/L	100
PFBS	5.503	298.7 -> 79.9	106656	24.60 µg/L	97
		298.7 -> 98.8	40740		
PFDA	8.241	512.9 -> 469.0	332129	27.85 µg/L	99
		512.9 -> 219.0	66190		
PFDoDA	9.181	613.1 -> 569.0	481182	26.35 µg/L	98
		613.1 -> 319.0	68501		
PFDS	9.344	599.0 -> 79.9	61411	25.05 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	30721			
PFHpA	6.530	363.1 -> 319.0	392402	27.37	µg/L	99
		363.1 -> 169.0	69703			
PFHpS	7.873	449.0 -> 79.9	74201	24.59	µg/L	98
		449.0 -> 98.9	38256			
PFHxA	5.587	313.0 -> 269.0	448104	27.31	µg/L	99
		313.0 -> 118.9	13312			
PFHxS	7.292	398.7 -> 79.9	63234	24.96	µg/L	m 96
		398.7 -> 98.9	32569			
PFNA	7.747	463.0 -> 419.0	311563	27.54	µg/L	98
		463.0 -> 219.0	76927			
PFNS	8.886	548.8 -> 79.9	47507	25.57	µg/L	93
		548.8 -> 98.9	24438			
PFOA	7.189	413.0 -> 369.0	466865	29.20	µg/L	99
		413.0 -> 169.0	95785			
PFOS	8.394	498.9 -> 79.9	96621	24.02	µg/L	m 98
		498.9 -> 98.8	48125			
PFPeA	4.414	263.0 -> 219.0	733870	54.57	µg/L	100
PFPeS	6.569	349.1 -> 79.9	57815	26.42	µg/L	99
		349.1 -> 98.9	25633			
PFTeDA	9.987	713.1 -> 669.0	474301	26.97	µg/L	100
		713.1 -> 168.9	39878			
PFTrDA	9.604	663.0 -> 619.0	582051	25.61	µg/L	99
		663.0 -> 168.9	56983			
PFUnDA	8.722	563.1 -> 519.0	323933	27.43	µg/L	97
		563.1 -> 269.1	61746			
11Cl-PF3OUdS	9.643	630.9 -> 450.9	477438	47.83	µg/L	100
		632.9 -> 452.9	148165			
9Cl-PF3ONS	8.749	530.8 -> 351.0	535821	49.98	µg/L	99
		532.8 -> 353.0	161700			
ADONA	6.781	376.9 -> 250.9	1225443	49.21	µg/L	98
		376.9 -> 84.8	332492			
HFPO-DA	5.953	284.9 -> 168.9	146313	53.46	µg/L	98
		284.9 -> 184.9	17370			
3:3FTCA	3.867	241.0 -> 177.0	87219	136.23	µg/L	100
		241.0 -> 117.0	7967			
5:3FTCA	6.231	341.0 -> 237.1	1657272	677.55	µg/L	100
		341.0 -> 217.0	1188393			
7:3FTCA	7.686	441.0 -> 316.9	794079	665.31	µg/L	100
		441.0 -> 336.9	1769009			
EtFOSA	11.362	526.0 -> 219.0	206213	54.33	µg/L	m 96
		526.0 -> 169.0	281675			
EtFOSE	11.282	630.0 -> 58.9	414882	132.51	µg/L	100
MeFOSA	11.078	511.9 -> 219.0	173614	54.79	µg/L	m 99
		511.9 -> 169.0	253694			
MeFOSE	10.985	616.1 -> 58.9	371417	137.27	µg/L	m 100
PFDoDS	10.126	699.1 -> 79.9	56914	25.56	µg/L	98
		699.1 -> 98.8	31502			
NFDHA	5.479	295.0 -> 201.0	45094	50.74	µg/L	97
		295.0 -> 84.9	11961			
PFMBA	4.828	279.0 -> 85.1	415593	54.12	µg/L	100
PFMPA	3.553	229.0 -> 84.9	372228	54.55	µg/L	100
PFEESA	6.034	314.8 -> 134.9	656788	48.79	µg/L	99
		314.8 -> 82.9	21389			

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

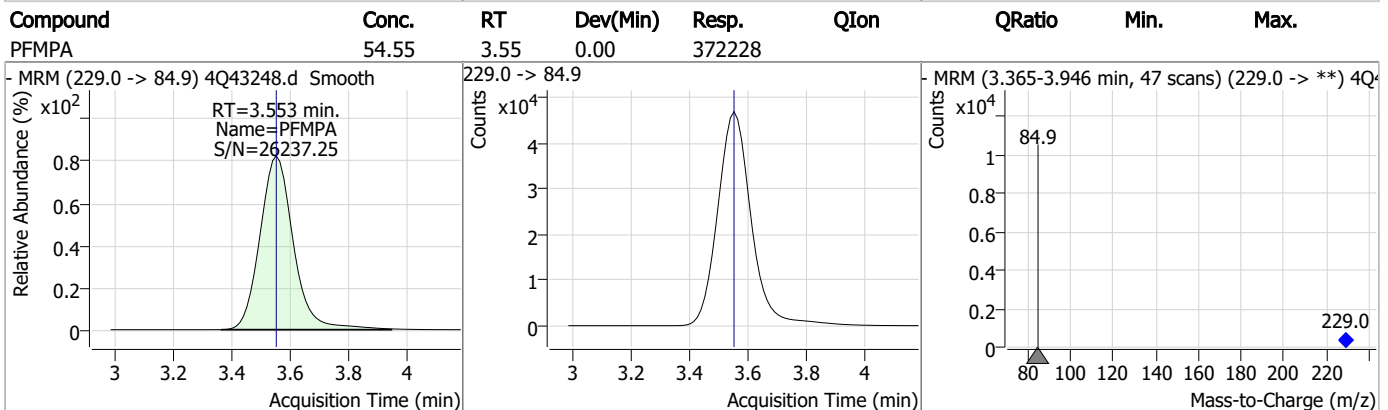
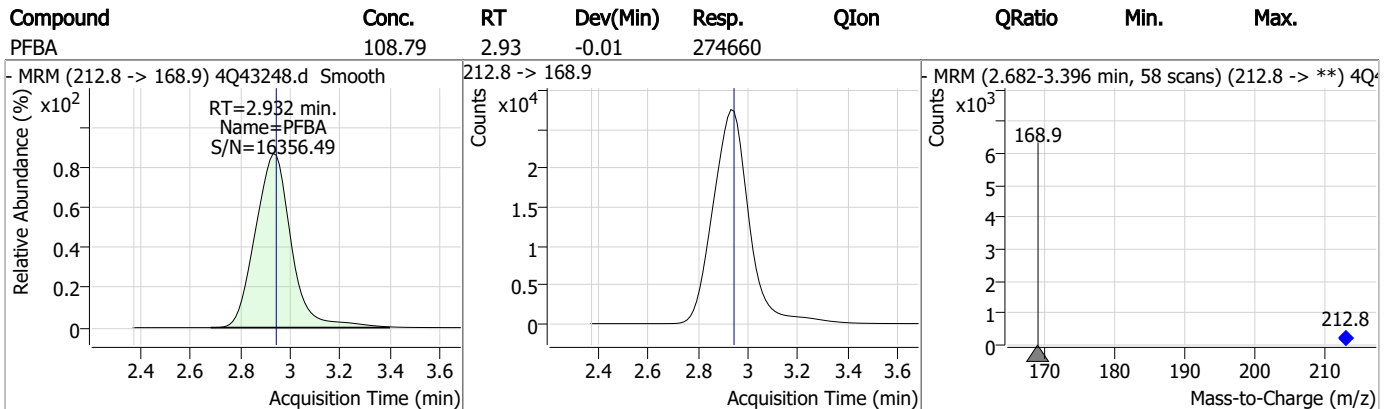
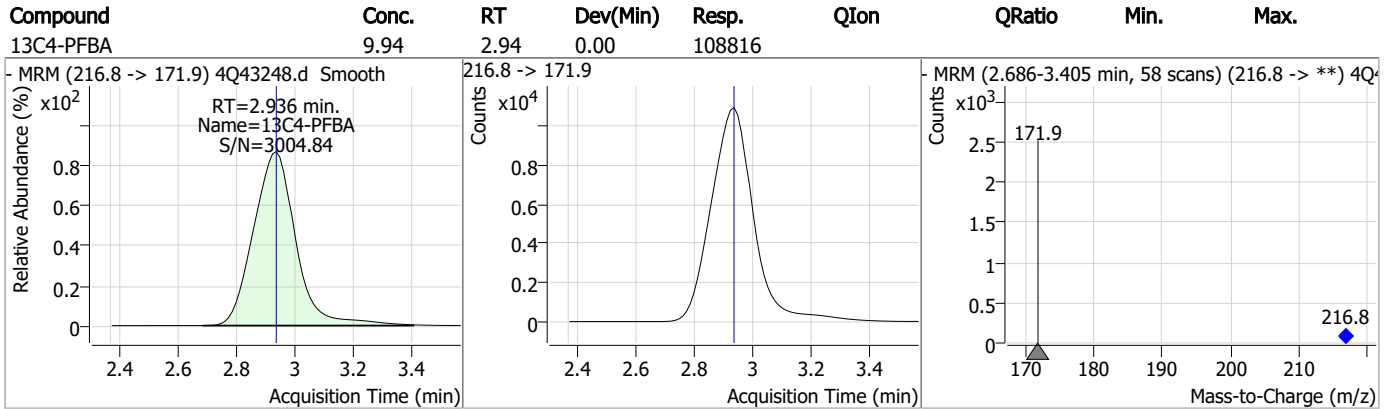
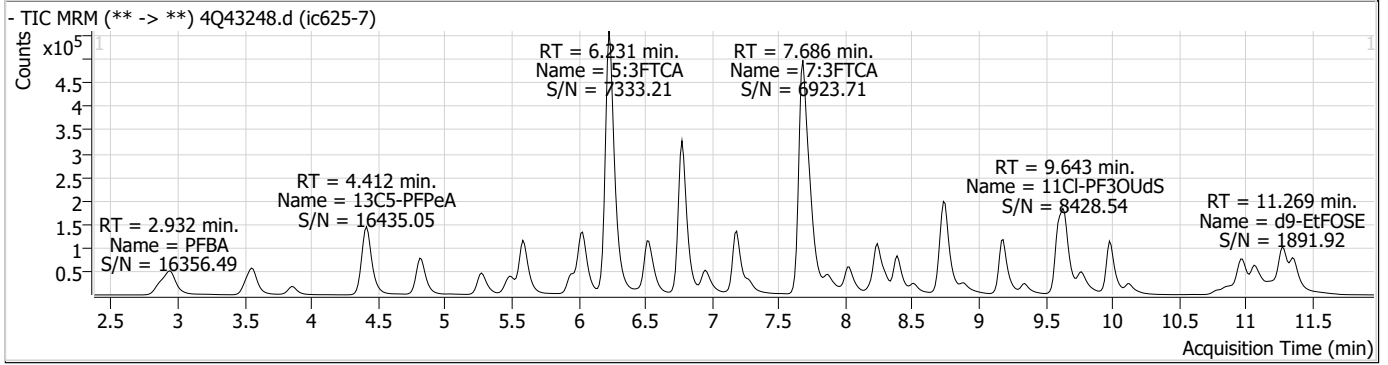
Perfluorinated Compounds by LC/MS/MS

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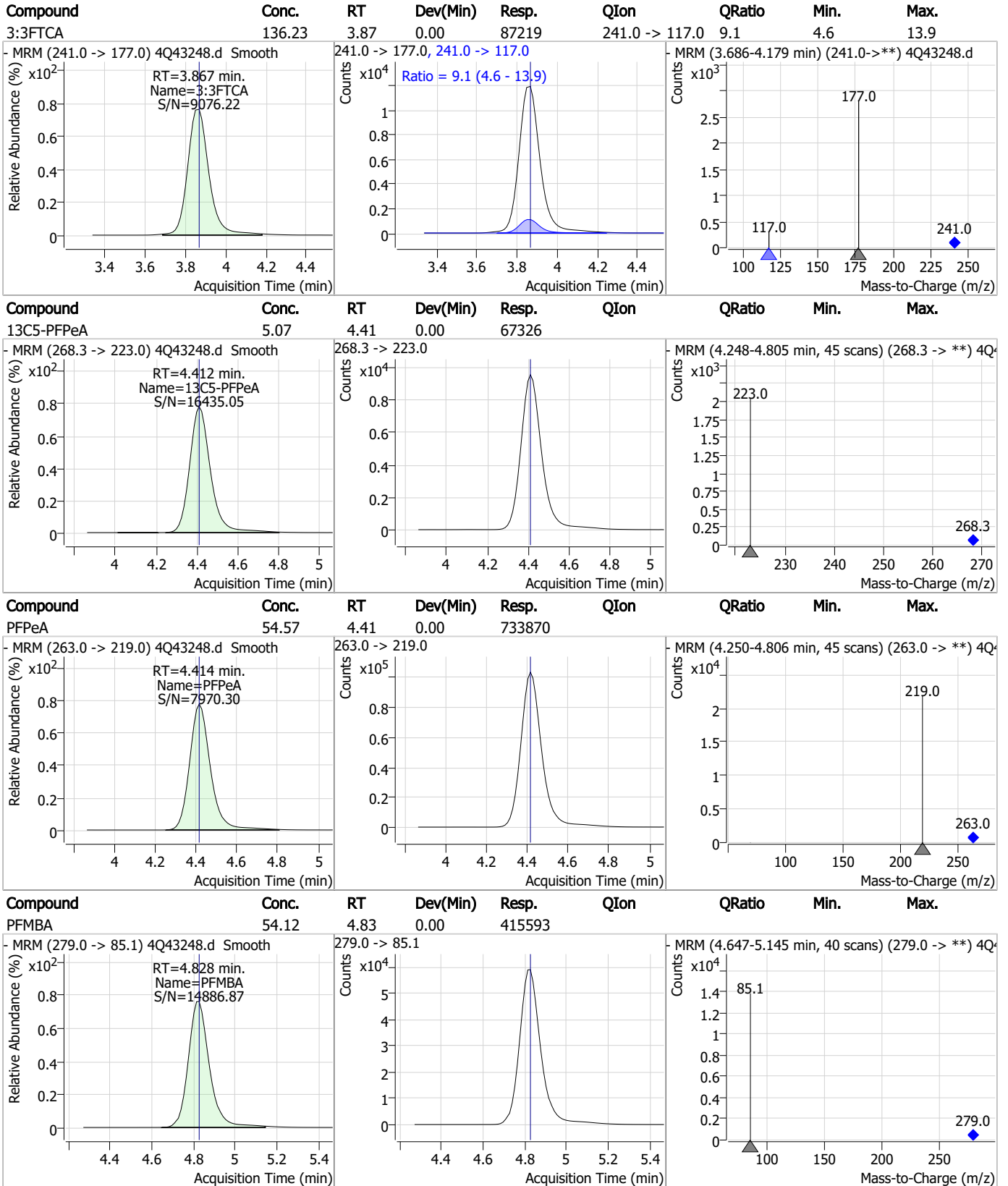
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Perfluorinated Compounds by LC/MS/MS



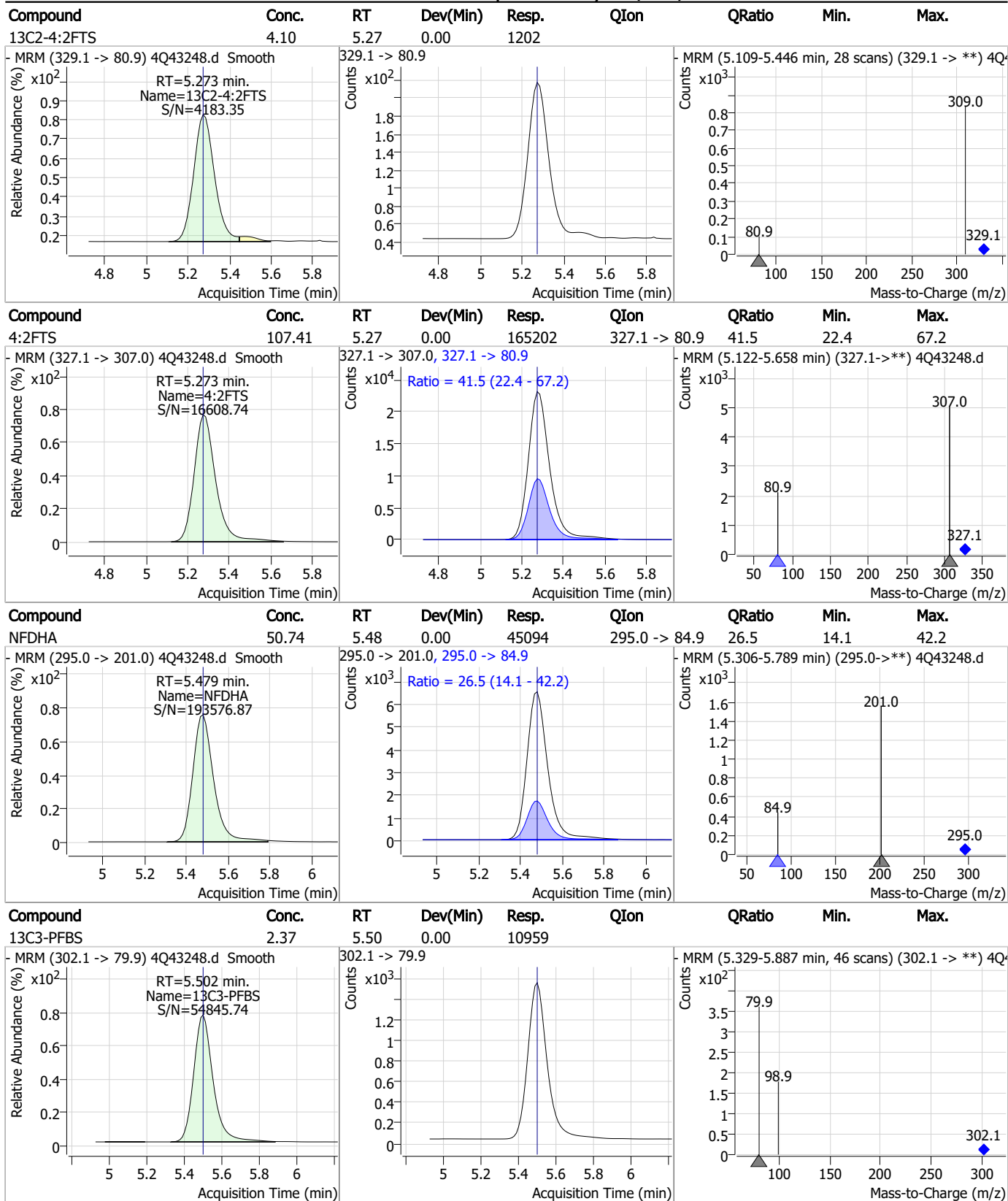
Perfluorinated Compounds by LC/MS/MS



7.7.23 7



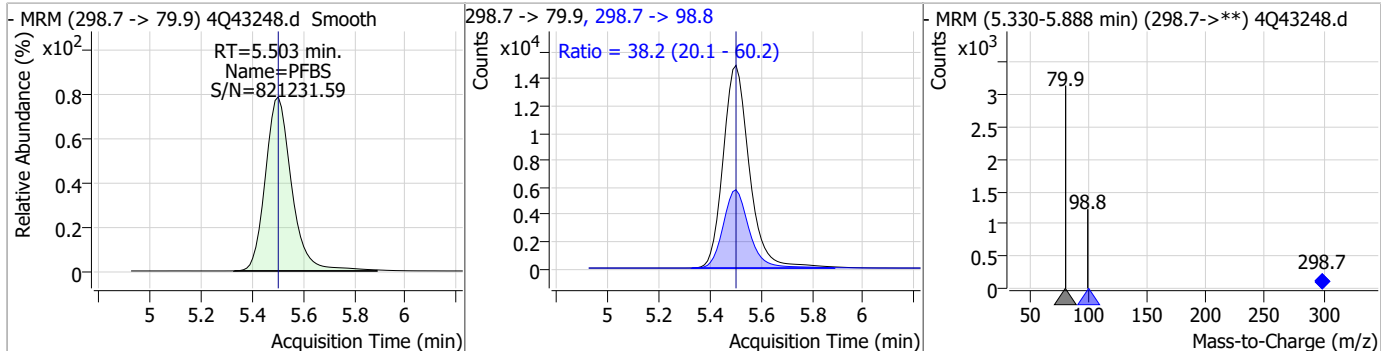
Perfluorinated Compounds by LC/MS/MS



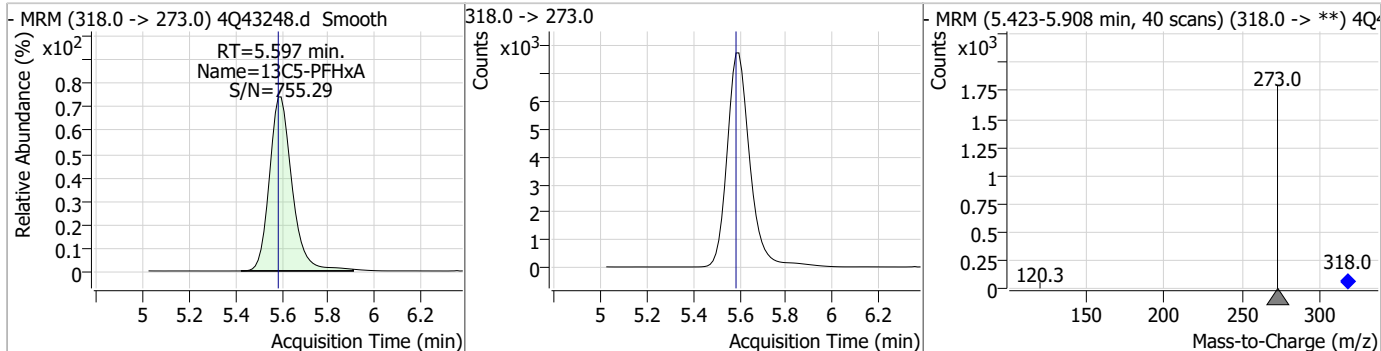
7.7.23
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Perfluorinated Compounds by LC/MS/MS

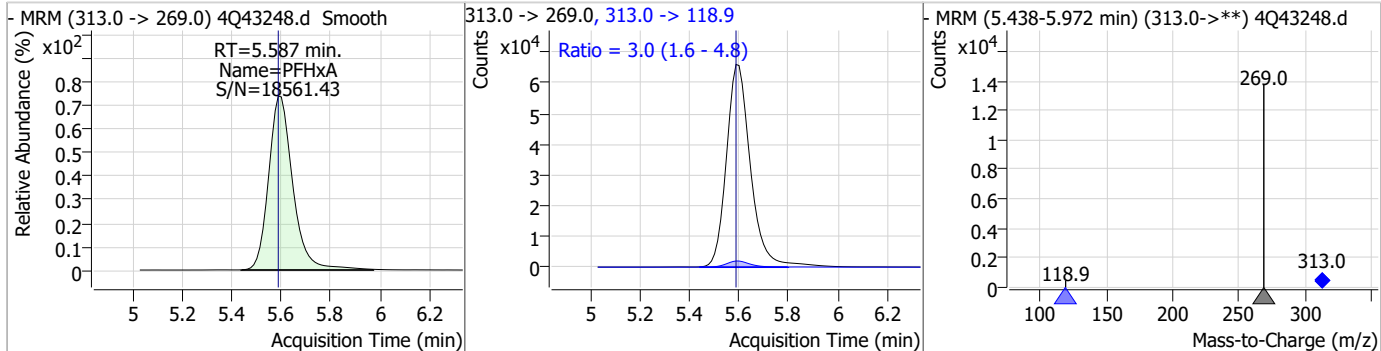
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	24.60	5.50	0.00	106656	298.7 -> 98.8	38.2	20.1	60.2



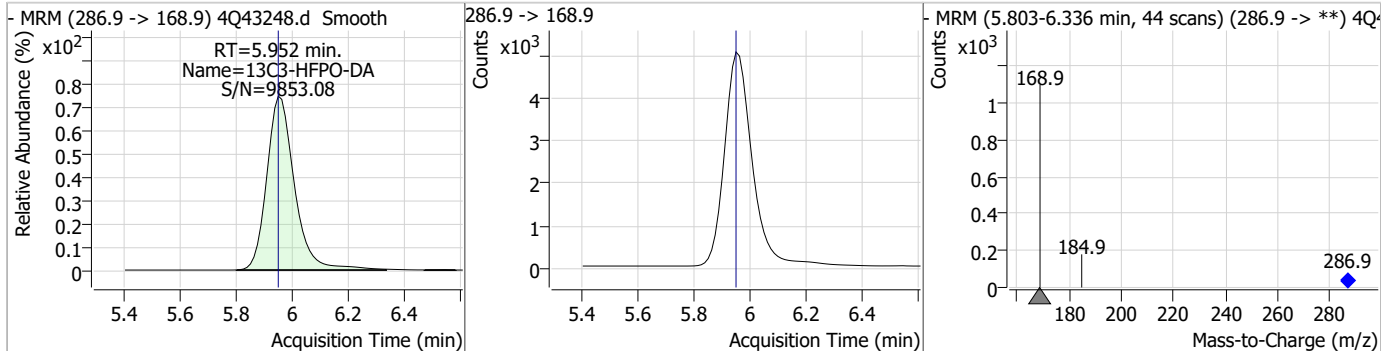
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.55	5.60	0.01	52085				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	27.31	5.59	0.00	448104	313.0 -> 118.9	3.0	1.6	4.8

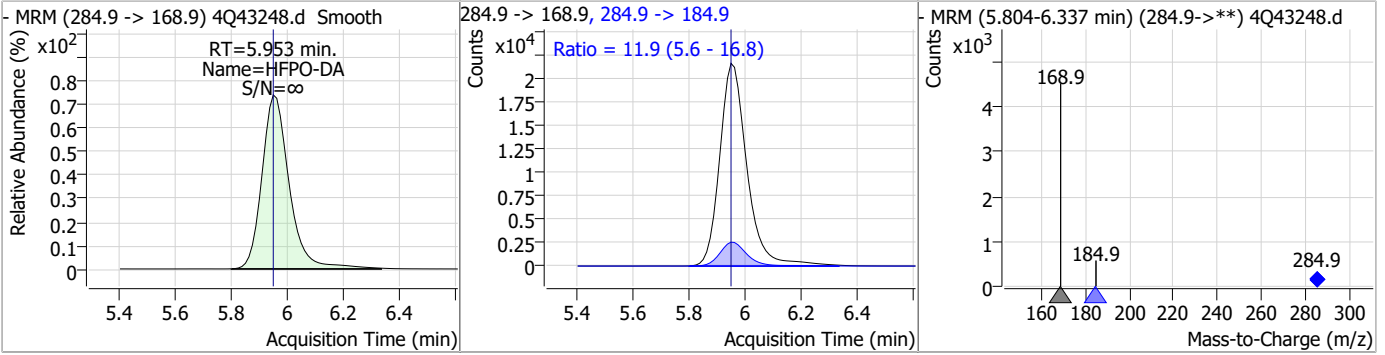


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.52	5.95	0.00	34649				

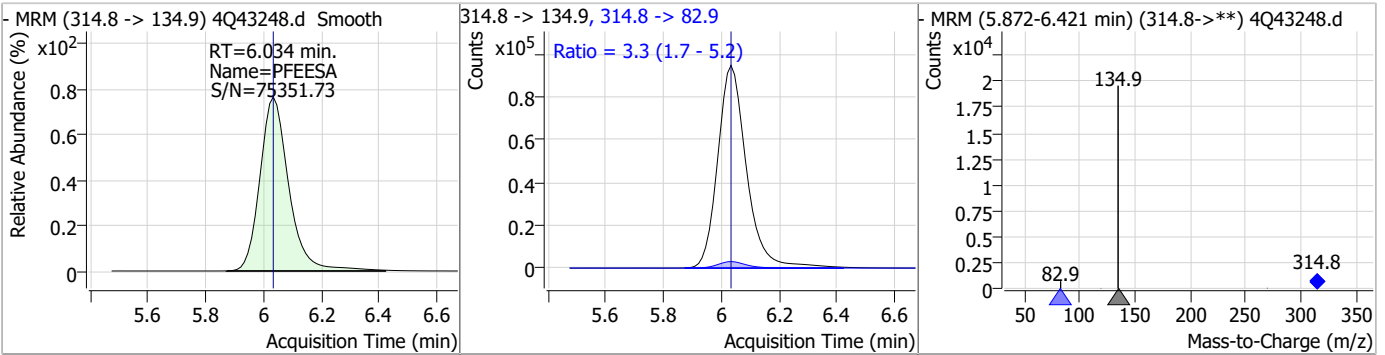


Perfluorinated Compounds by LC/MS/MS

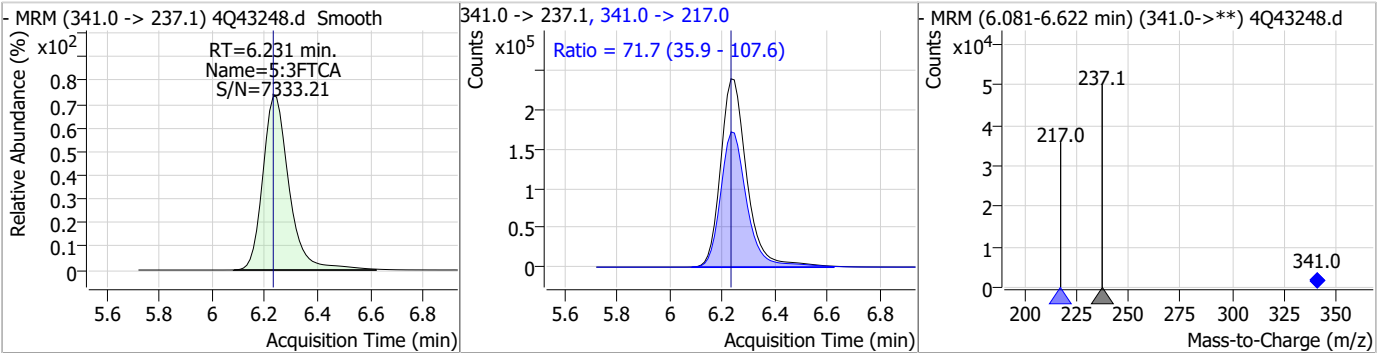
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	53.46	5.95	0.00	146313	284.9 -> 184.9	11.9	5.6	16.8



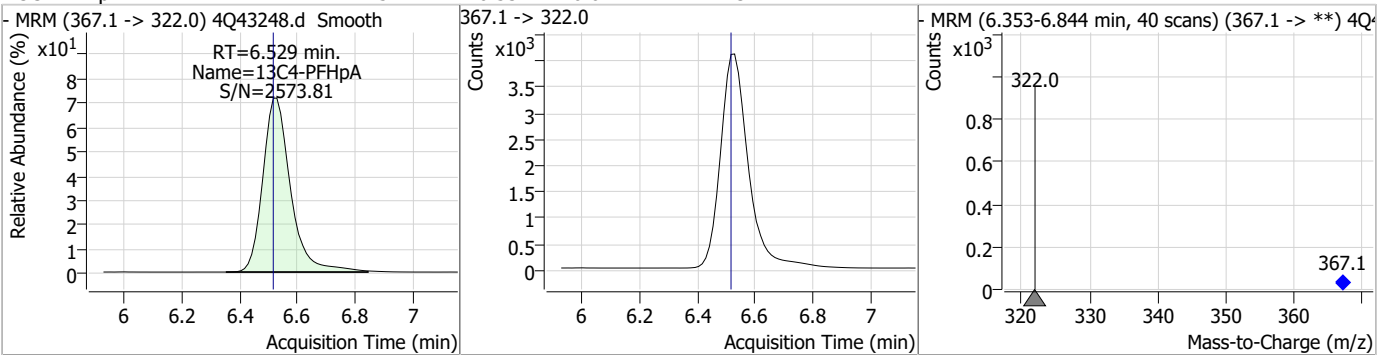
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	48.79	6.03	0.00	656788	314.8 -> 82.9	3.3	1.7	5.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	677.55	6.23	0.00	1657272	341.0 -> 217.0	71.7	35.9	107.6

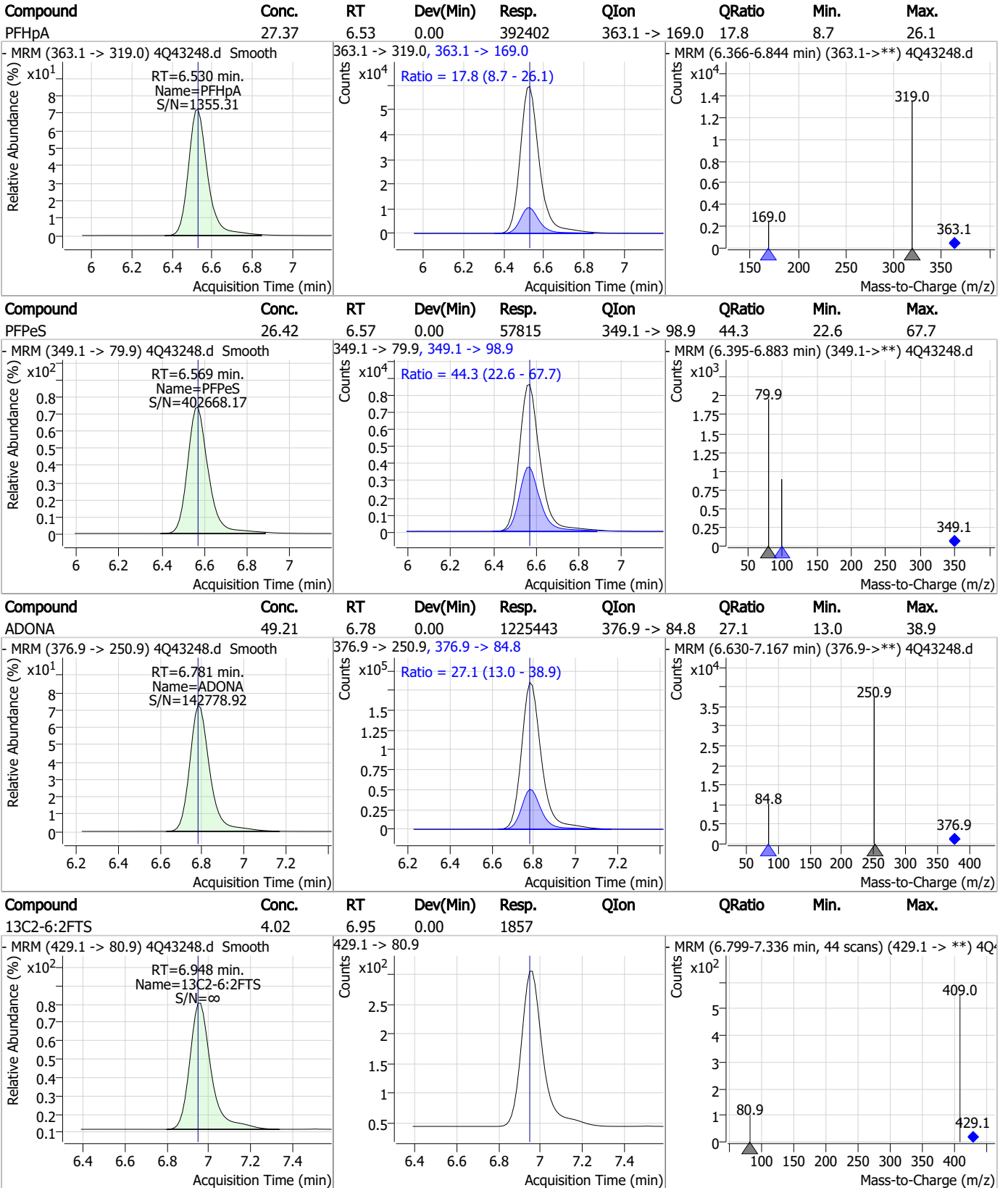


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.51	6.53	0.01	27273				



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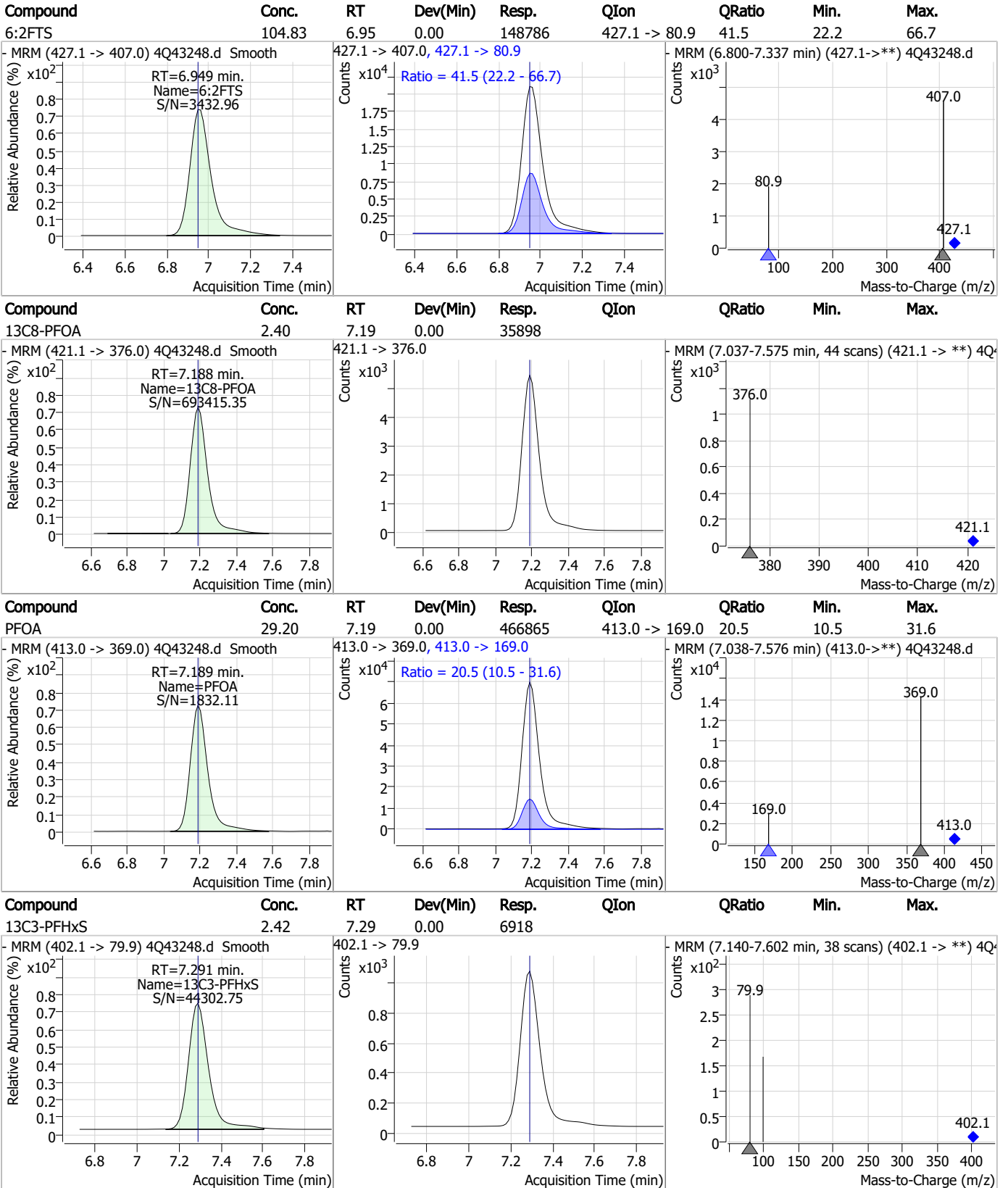
Perfluorinated Compounds by LC/MS/MS



7.7.23 7



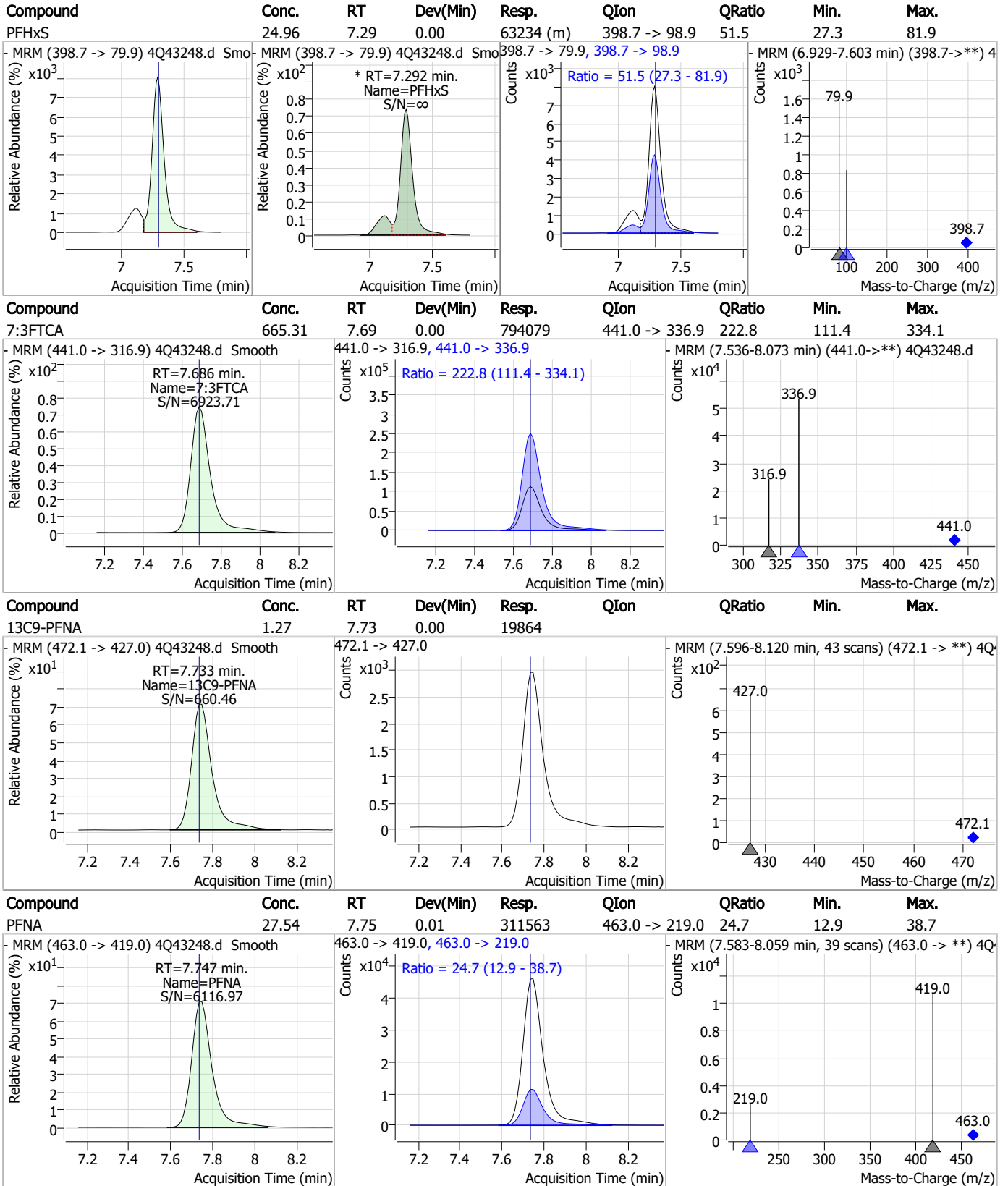
Perfluorinated Compounds by LC/MS/MS



7.7.23

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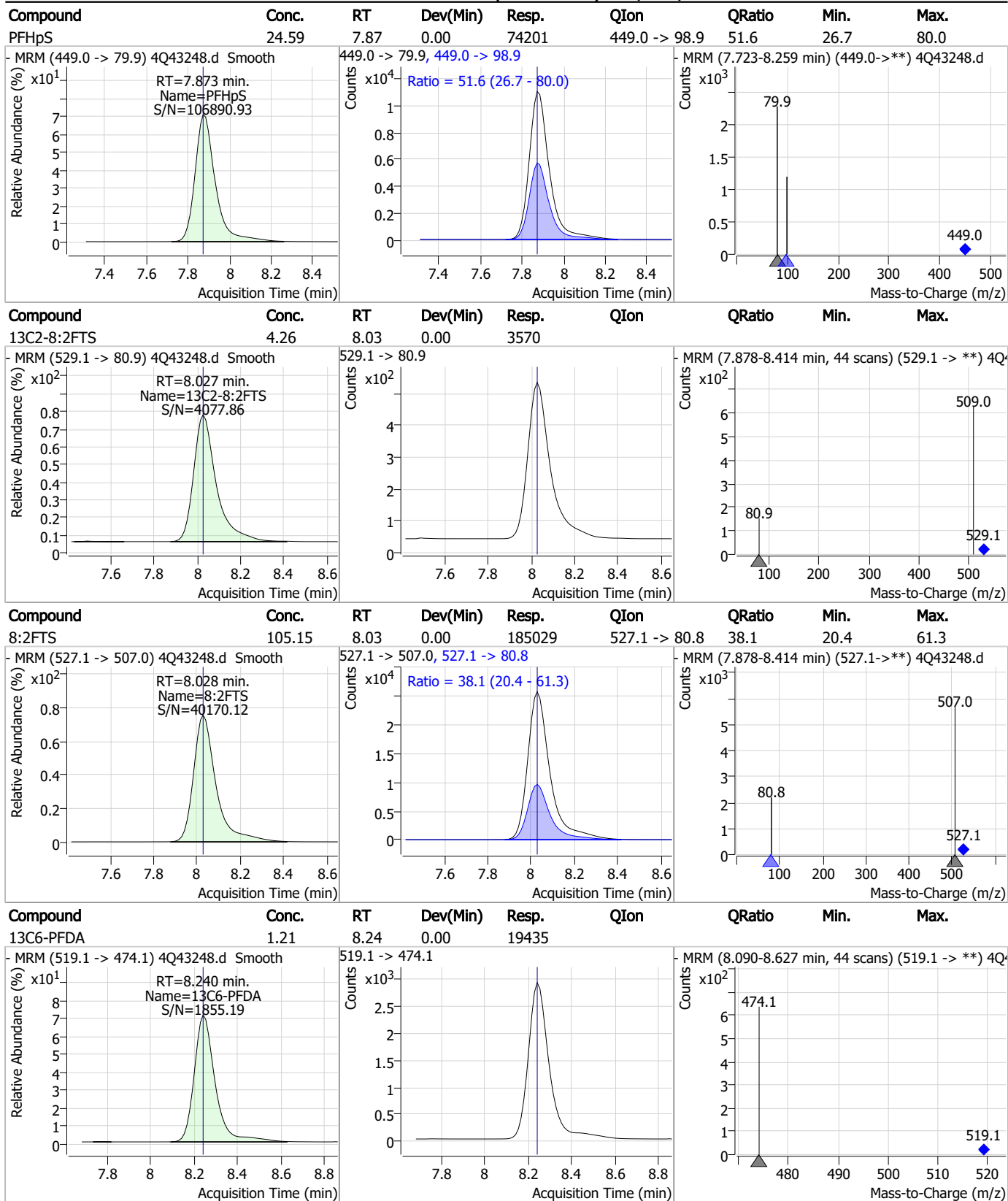
Perfluorinated Compounds by LC/MS/MS



7.7.23 7

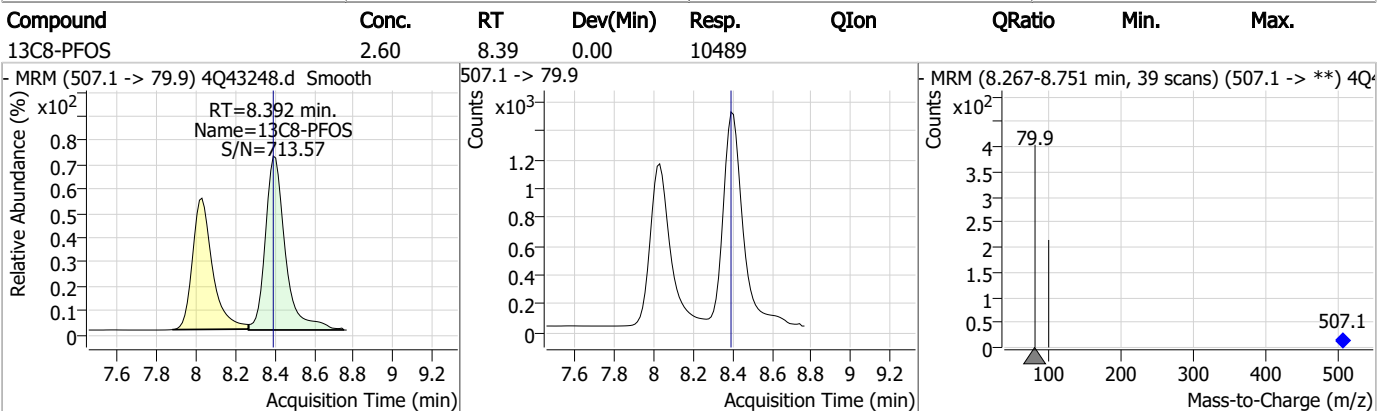
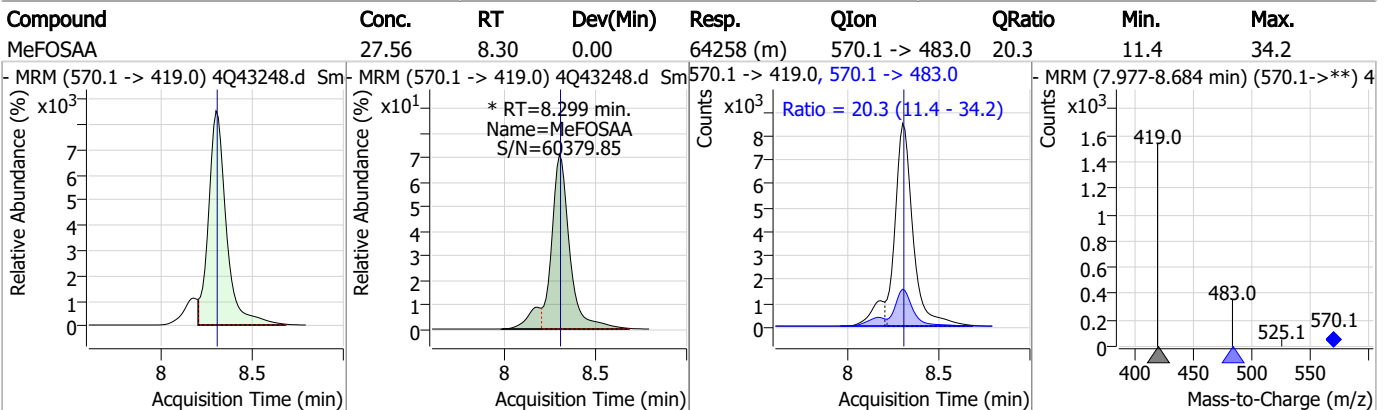
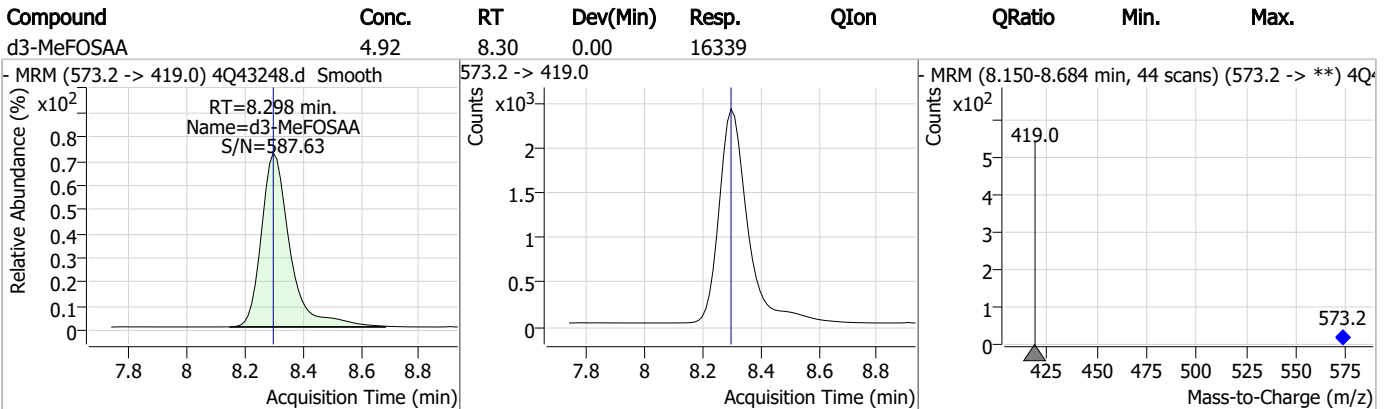
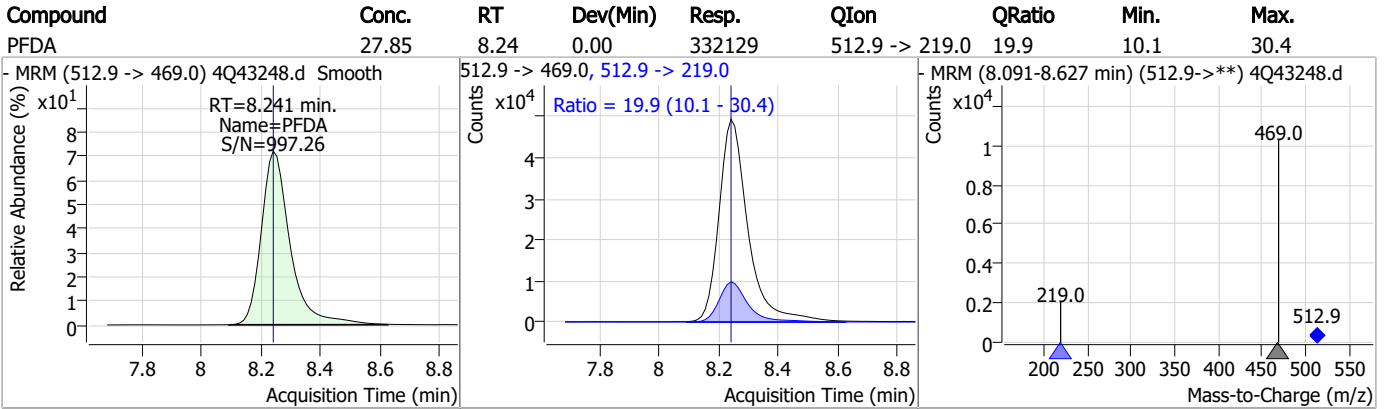


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

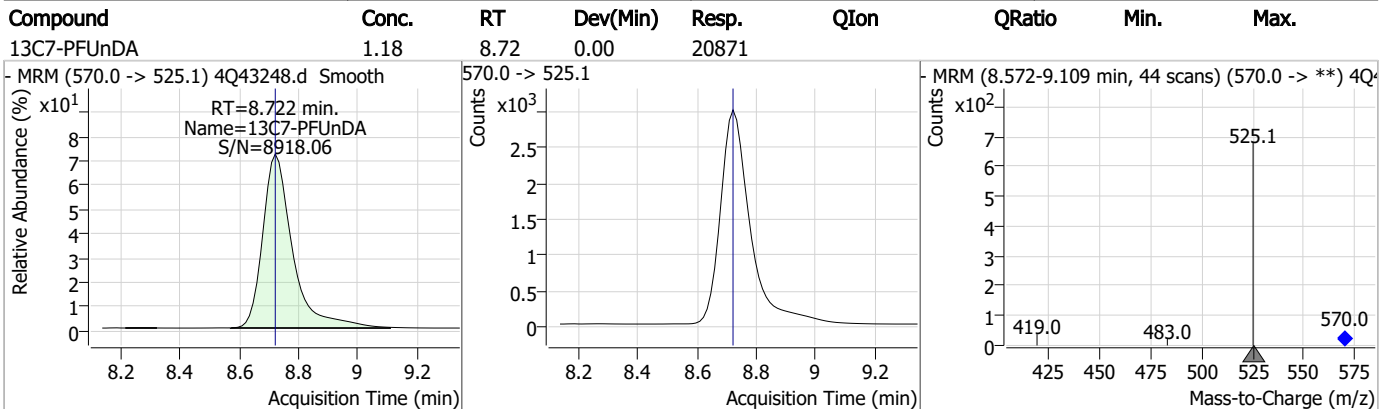
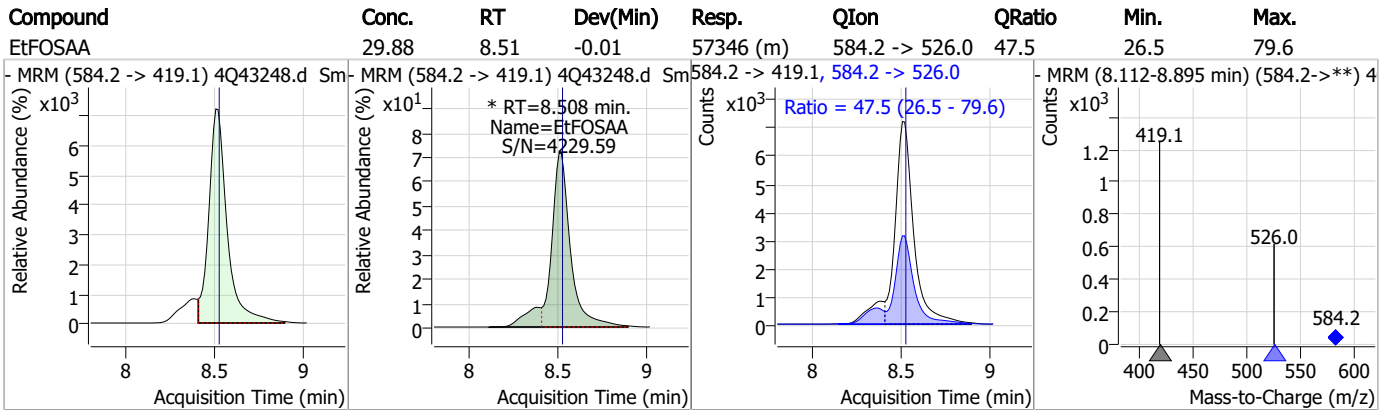
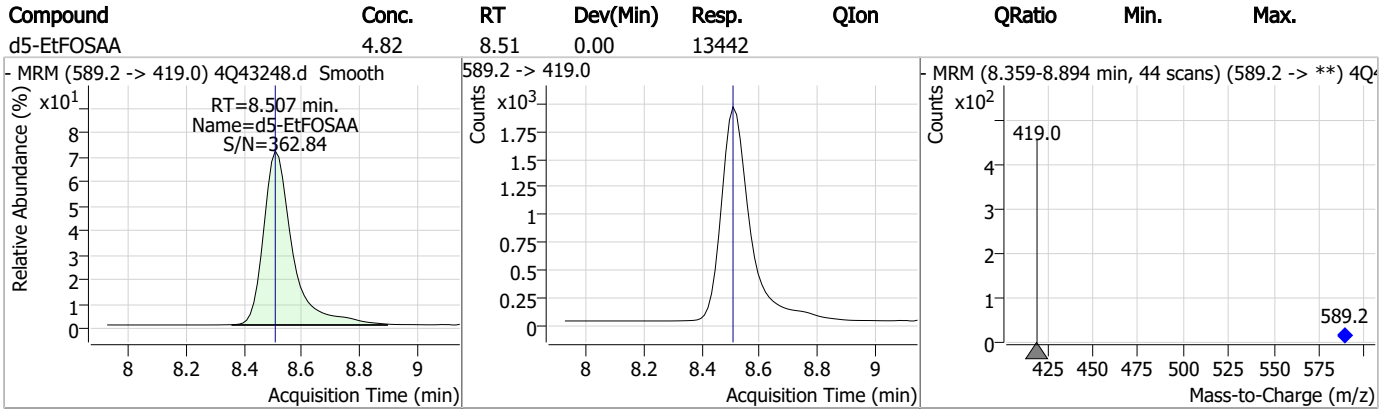
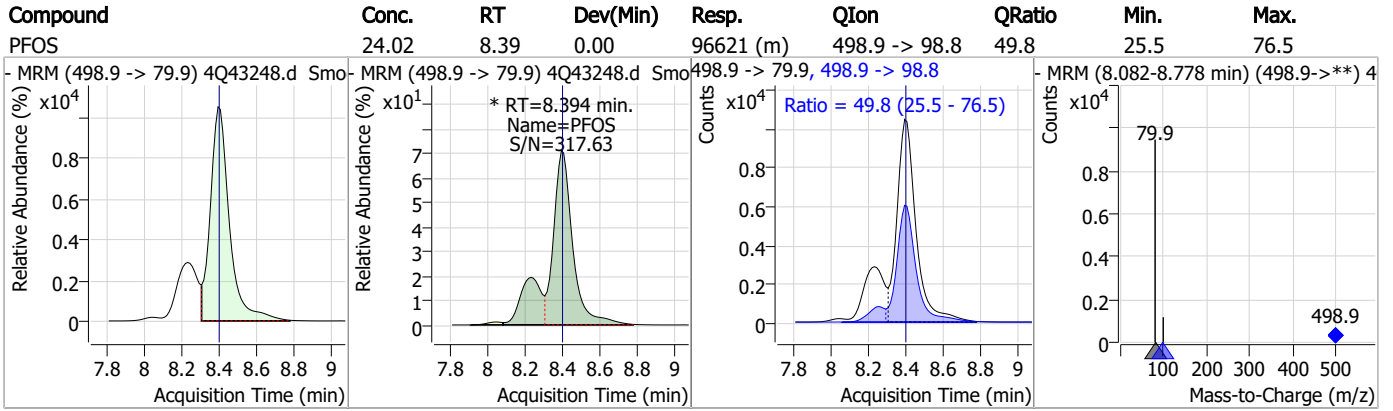


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Perfluorinated Compounds by LC/MS/MS

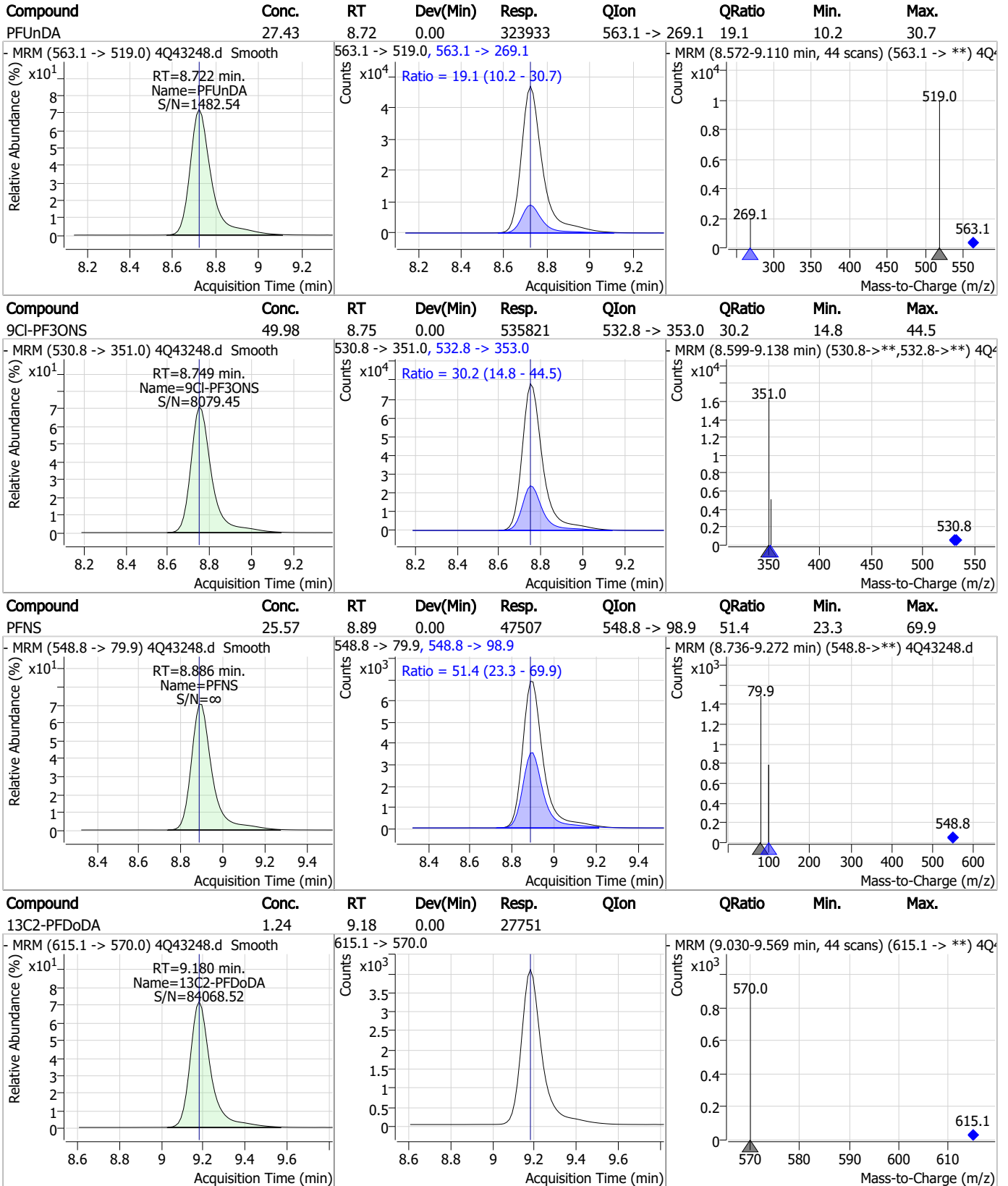


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Perfluorinated Compounds by LC/MS/MS



7.7.23 7



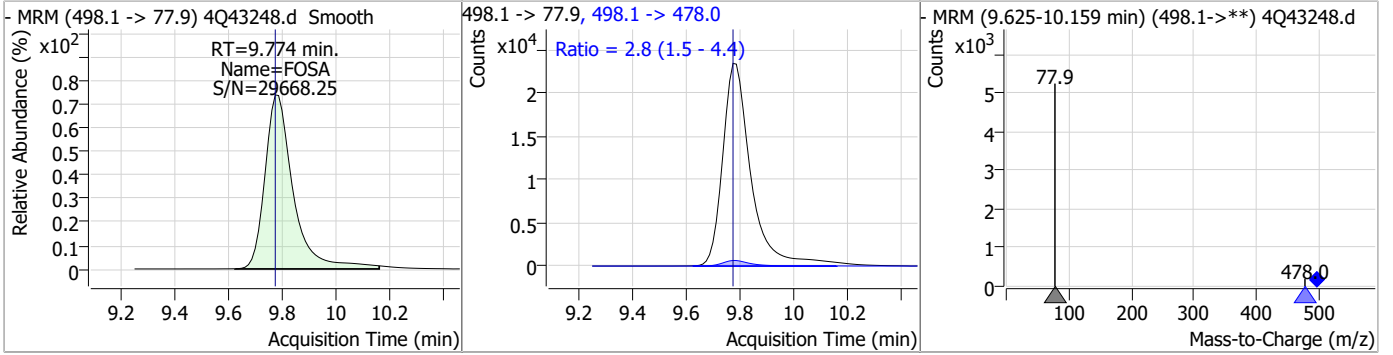
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	26.35	9.18	0.00	481182	613.1 -> 319.0	14.2	6.8	20.4
PFDS	25.05	9.34	0.00	61411	599.0 -> 98.8	50.0	23.9	71.8
PFTrDA	25.61	9.60	0.00	582051	663.0 -> 168.9	9.8	4.7	14.2
11CI-PF3OUds	47.83	9.64	0.00	477438	632.9 -> 452.9	31.0	15.6	46.8

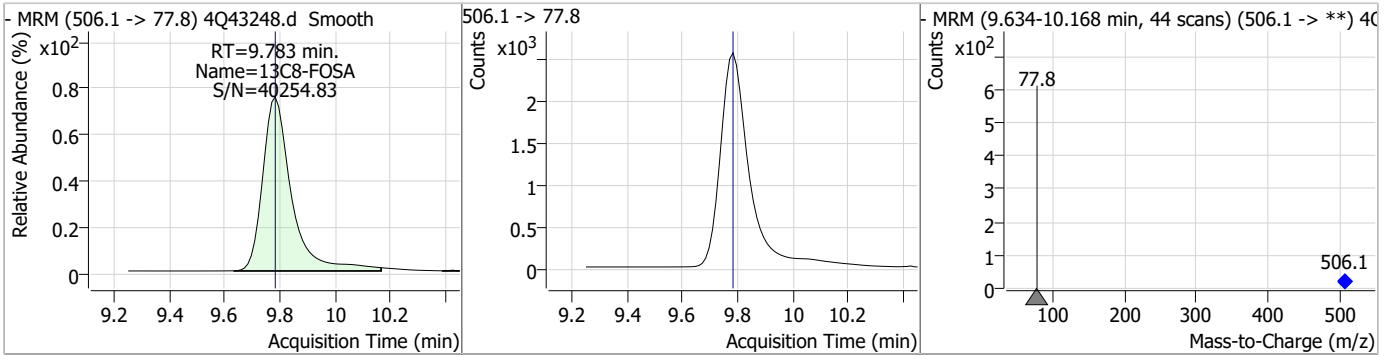
7.7.23 7

Perfluorinated Compounds by LC/MS/MS

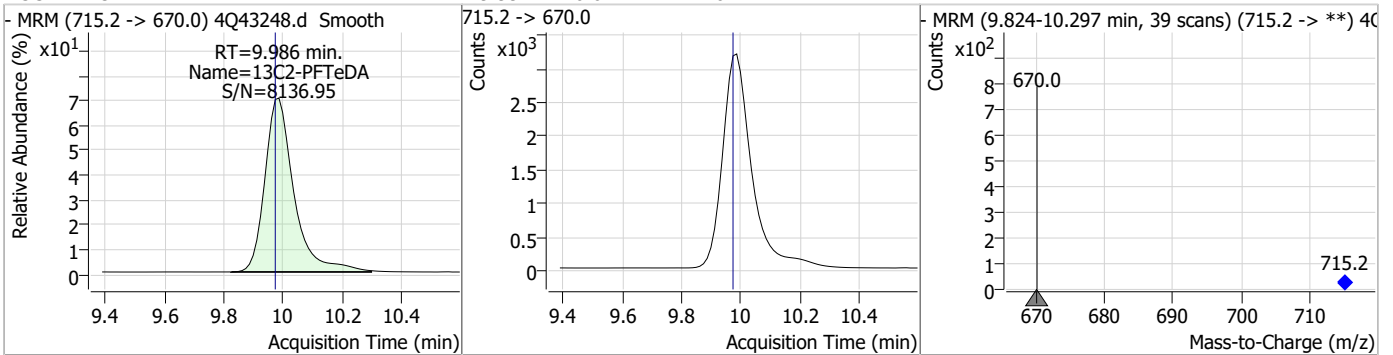
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	27.15	9.77	0.00	170141	498.1 -> 478.0	2.8	1.5	4.4



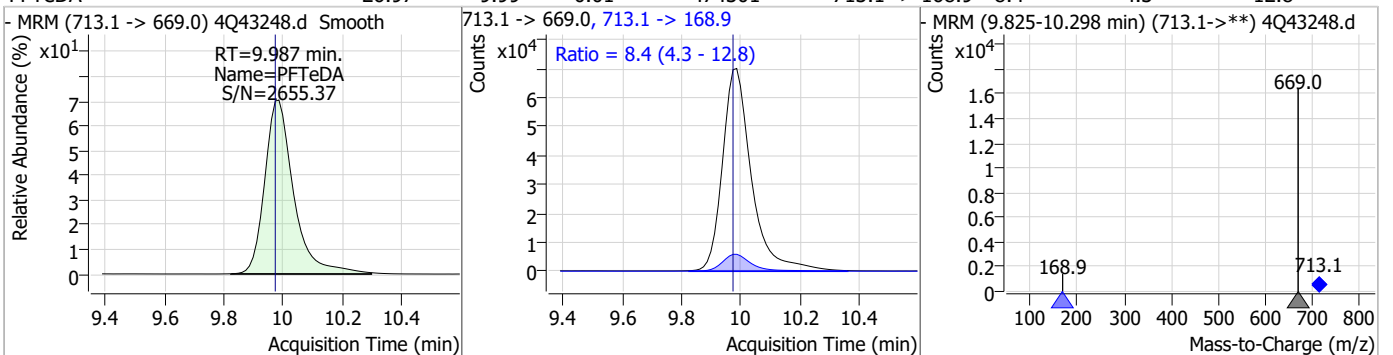
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.53	9.78	0.00	18534				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	9.99	0.01	21641				



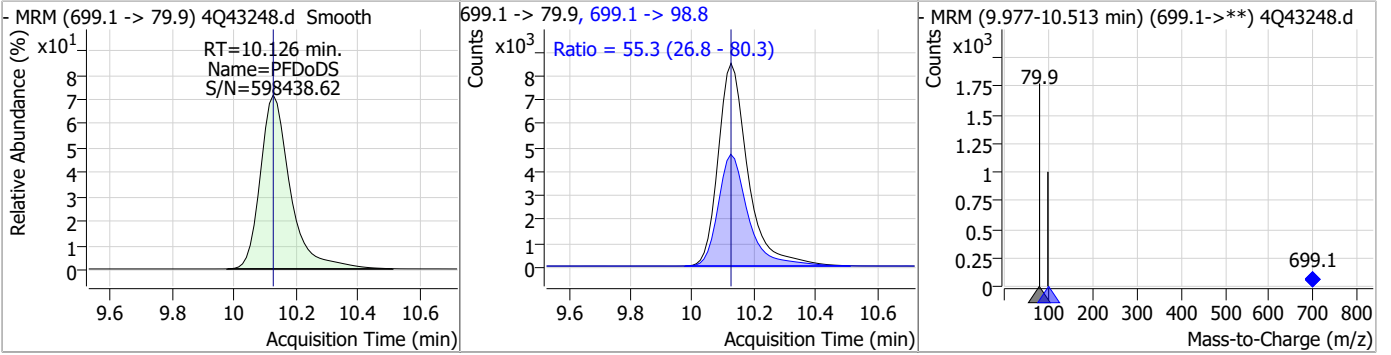
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	26.97	9.99	0.01	474301	713.1 -> 168.9	8.4	4.3	12.8



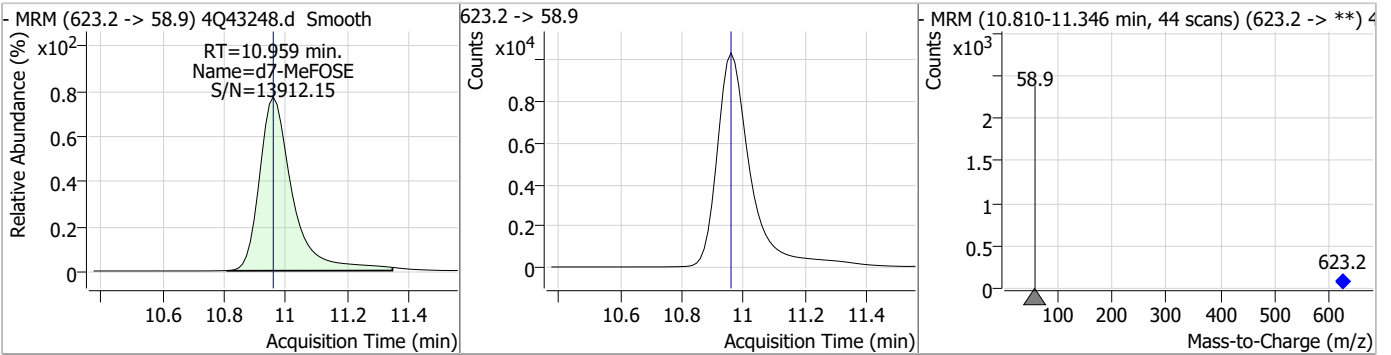
7.7.23
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Perfluorinated Compounds by LC/MS/MS

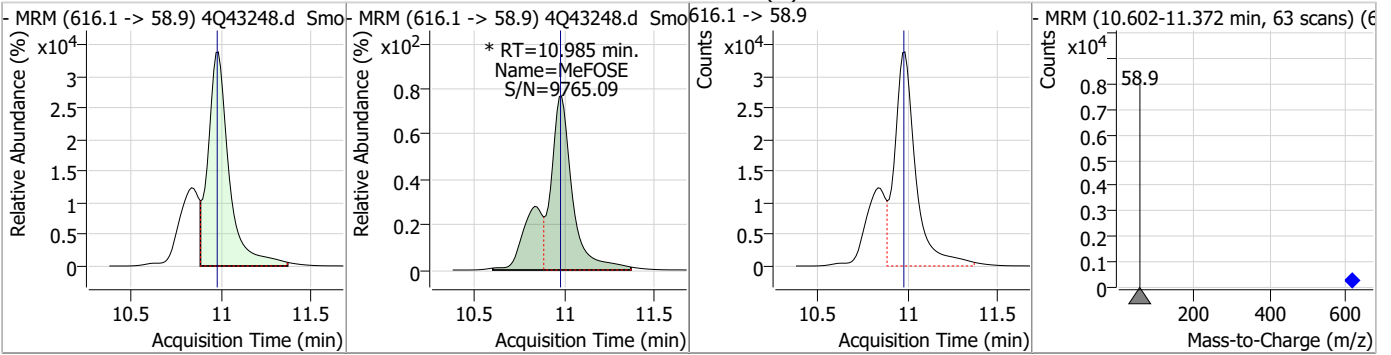
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	25.56	10.13	0.00	56914	699.1 -> 98.8	55.3	26.8	80.3



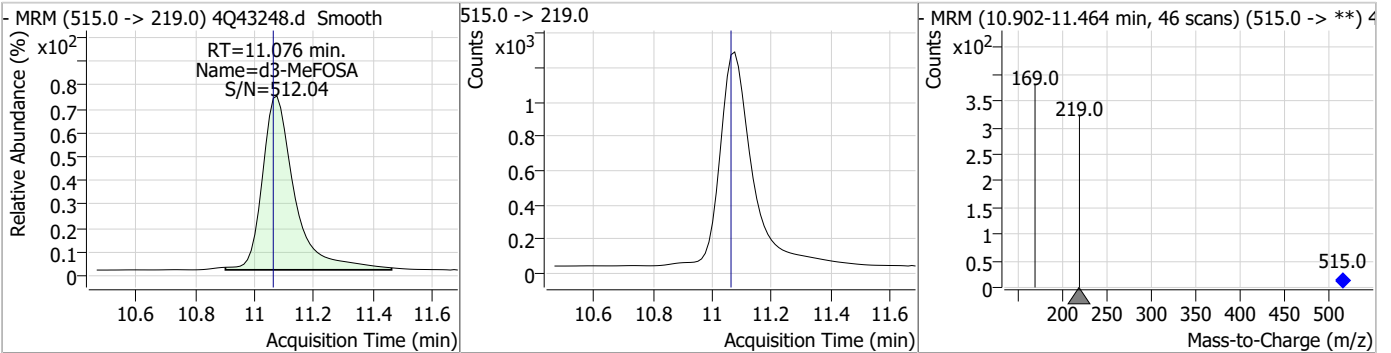
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.52	10.96	0.00	76089				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	137.27	10.99	0.01	371417 (m)				



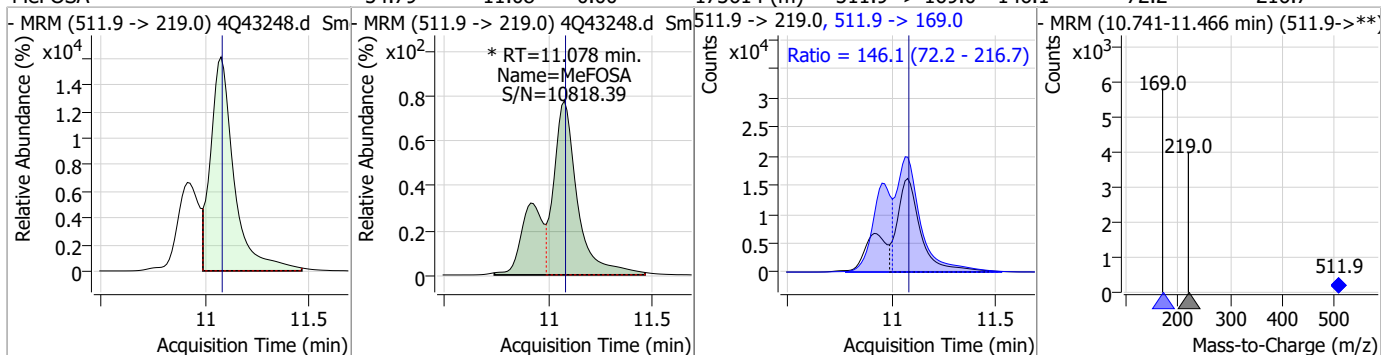
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.50	11.08	0.01	9475				



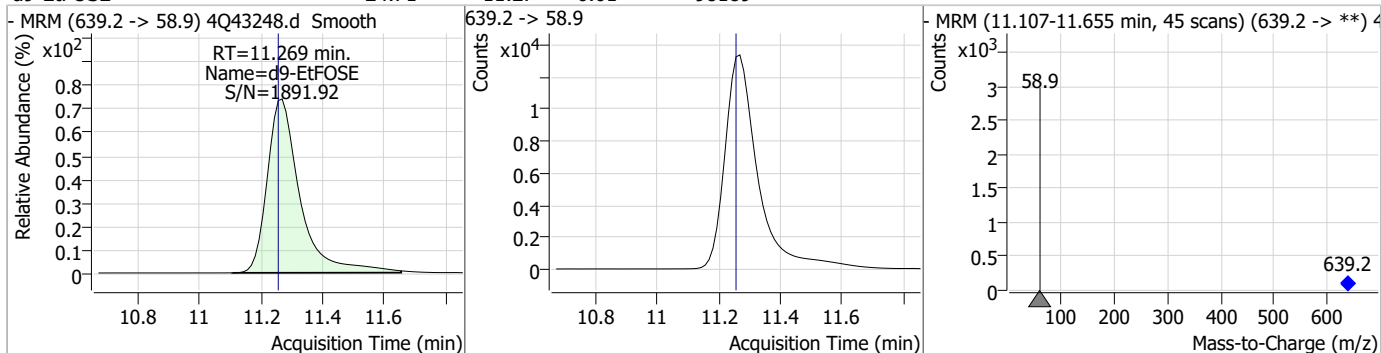
7.7.23
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Perfluorinated Compounds by LC/MS/MS

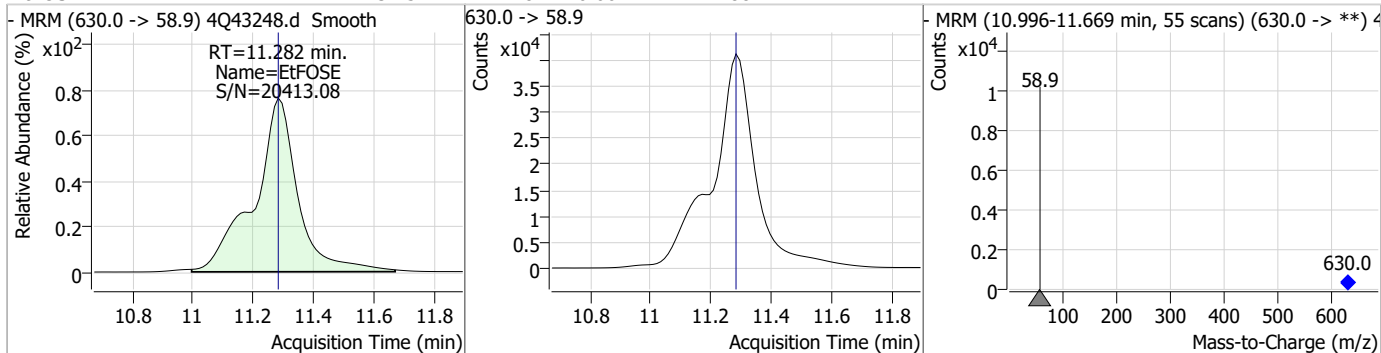
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	54.79	11.08	0.00	173614 (m)	511.9 -> 169.0	146.1	72.2	216.7



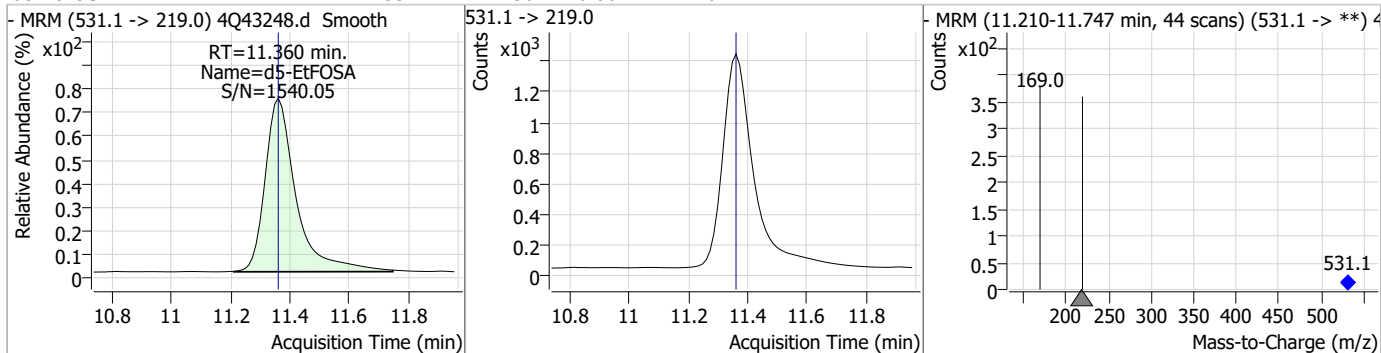
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.71	11.27	0.01	98189				



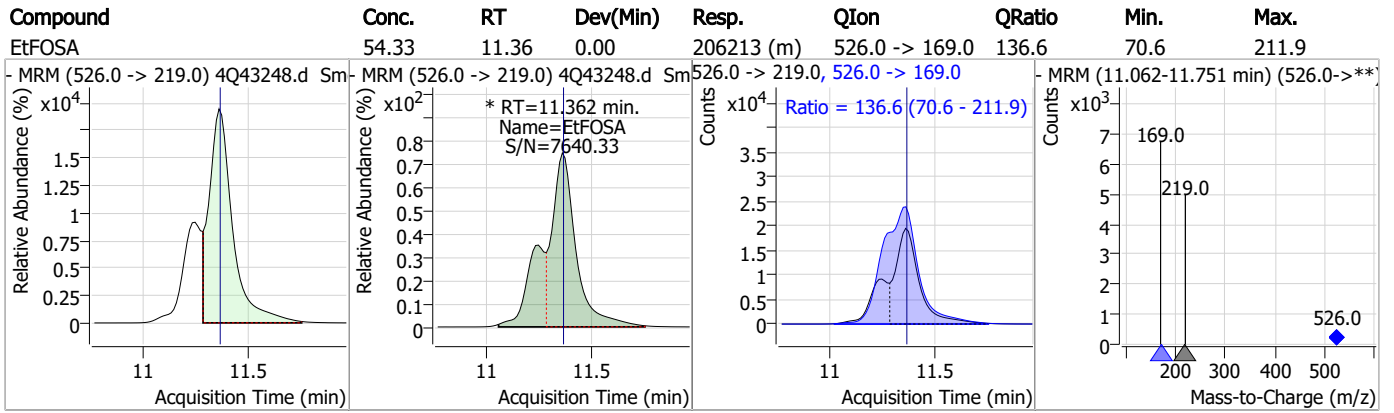
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	132.51	11.28	0.00	414882				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.53	11.36	0.00	10171				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q625-IC625 Method: EPA DRAFT 1633
Lab FileID: 4Q43248.D Analyst approved: 04/20/23 14:17 Natasha Gumtie
Injection Time: 04/19/23 13:19 Supervisor approved: 04/21/23 13:15 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.39	Split peak
EtFOSAA	2991-50-6		8.51	Split peak
MeFOSE	24448-09-7		10.98	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.7.23.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43249.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/19/2023 1:33:14 PM
 Sample Name : ic625-8
 Vial : P1-A9
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s6q625.batch.bin
 Sample Information : OP96301,S4q625,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	96836	10.00 µg/L	0.000
M5-PFPeA	4.412	268.3 -> 223.0	63376	5.00 µg/L	0.000
M5-PFHxA	5.597	318.0 -> 273.0	49319	2.50 µg/L	0.012
M4-PFHpA	6.529	367.1 -> 322.0	25296	2.50 µg/L	0.012
M8-PFOA	7.188	421.1 -> 376.0	35215	2.50 µg/L	0.000
M9-PFNA	7.746	472.1 -> 427.0	18766	1.25 µg/L	0.013
M6-PFDA	8.253	519.1 -> 474.1	17448	1.25 µg/L	0.012
M7-PFUnDA	8.722	570.0 -> 525.1	18235	1.25 µg/L	0.000
M2-PFDoDA	9.180	615.1 -> 570.0	26675	1.25 µg/L	0.000
M2-PFTeDA	9.986	715.2 -> 670.0	20531	1.25 µg/L	0.012
M8-FOSA	9.783	506.1 -> 77.8	17785	2.50 µg/L	0.000
M3-PFBS	5.502	302.1 -> 79.9	10587	2.50 µg/L	0.000
M3-PFHxS	7.291	402.1 -> 79.9	6814	2.50 µg/L	0.000
M8-PFOS	8.405	507.1 -> 79.9	8796	2.50 µg/L	0.012
M2-4:2FTS	5.273	329.1 -> 80.9	1114	5.00 µg/L	0.000
M2-6:2FTS	6.961	429.1 -> 80.9	1486	5.00 µg/L	0.012
M2-8:2FTS	8.027	529.1 -> 80.9	3432	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	14580	5.00 µg/L	0.000
M3-HFPO-DA	5.952	286.9 -> 168.9	32769	10.00 µg/L	0.000
M5-EtFOSAA	8.507	589.2 -> 419.0	12055	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	66891	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	86519	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	9322	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	9666	2.50 µg/L	0.000
13C4-PFOS	8.405	502.8 -> 79.9	9486	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	54457	5.00 µg/L	0.000
18O2-PFHxS	7.290	403.0 -> 83.9	4733	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	42555	2.50 µg/L	0.000
13C2-PFDA	8.241	515.1 -> 470.1	17140	1.25 µg/L	0.000
13C5-PFNA	7.746	468.0 -> 423.0	20902	1.25 µg/L	0.013
13C2-PFHxA	5.598	315.1 -> 270.0	42473	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.273	329.1 -> 80.9	1114	4.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 80.2%		
13C2-6:2FTS	6.961	429.1 -> 80.9	1486	3.40 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 68.0%		
13C2-8:2FTS	8.027	529.1 -> 80.9	3432	4.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.6%		
13C2-PFDoDA	9.180	615.1 -> 570.0	26675	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C2-PFTeDA	9.986	715.2 -> 670.0	20531	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C3-PFBS	5.502	302.1 -> 79.9	10587	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C3-PFHxS	7.291	402.1 -> 79.9	6814	2.52 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 = 100.9%		
13C4-PFBA	2.936	216.8 -> 171.9	96836	9.87 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C4-PFHpA	6.529	367.1 -> 322.0	25296	2.38 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C5-PFHxA	5.597	318.0 -> 273.0	49319	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C5-PFPeA	4.412	268.3 -> 223.0	63376	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C6-PFDA	8.253	519.1 -> 474.1	17448	1.18 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.1%		
13C7-PFUnDA	8.722	570.0 -> 525.1	18235	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.8%		
13C8-FOSA	9.783	506.1 -> 77.8	17785	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.4%		
13C8-PFOA	7.188	421.1 -> 376.0	35215	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C8-PFOS	8.405	507.1 -> 79.9	8796	2.32 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C9-PFNA	7.746	472.1 -> 427.0	18766	1.29 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.8%		
d3-MeFOSAA	8.298	573.2 -> 419.0	14580	4.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C3-HFPO-DA	5.952	286.9 -> 168.9	32769	10.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
d3-MeFOSA	11.064	515.0 -> 219.0	9666	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.8%		
d5-EtFOSAA	8.507	589.2 -> 419.0	12055	4.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.1%		
d7-MeFOSE	10.959	623.2 -> 58.9	66891	22.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 91.9%		
d9-EtFOSE	11.256	639.2 -> 58.9	86519	23.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 92.9%		
d5-EtFOSA	11.360	531.1 -> 219.0	9322	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
Target Compounds					QValue
4:2FTS	5.273	327.1 -> 307.0	348069	244.28 µg/L	95
		327.1 -> 80.9	145303		
6:2FTS	6.961	427.1 -> 407.0	293379	258.22 µg/L	95
		427.1 -> 80.9	120895		
8:2FTS	8.028	527.1 -> 507.0	362520	214.30 µg/L	95
		527.1 -> 80.8	137884		
EtFOSAA	8.521	584.2 -> 419.1	127839	74.27 µg/L	m 93
		584.2 -> 526.0	61481		
FOSA	9.786	498.1 -> 77.9	405770	67.46 µg/L	100
		498.1 -> 478.0	11775		
MeFOSAA	8.311	570.1 -> 419.0	141565	68.05 µg/L	m 98
		570.1 -> 483.0	30786		
PFBA	2.945	212.8 -> 168.9	618715	275.40 µg/L	100
PFBS	5.503	298.7 -> 79.9	245012	58.51 µg/L	97
		298.7 -> 98.8	93656		
PFDA	8.253	512.9 -> 469.0	734399	68.60 µg/L	100
		512.9 -> 219.0	146920		
PFDODA	9.181	613.1 -> 569.0	1124521	64.06 µg/L	98
		613.1 -> 319.0	159816		
PFDS	9.344	599.0 -> 79.9	140394	68.30 µg/L	97

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.530	599.0 -> 98.8	70045	69.89	µg/L	99
		363.1 -> 319.0	929393			
PFHpS	7.873	363.1 -> 169.0	164126	68.65	µg/L	97
		449.0 -> 79.9	173730			
PFHxA	5.600	449.0 -> 98.9	89218	69.01	µg/L	99
		313.0 -> 269.0	1072008			
PFHxS	7.292	313.0 -> 118.9	32243	64.20	µg/L	94
		398.7 -> 79.9	160247			
PFNA	7.747	398.7 -> 98.9	80326	67.07	µg/L	98
		463.0 -> 419.0	716768			
PFNS	8.899	463.0 -> 219.0	178386	74.05	µg/L	93
		548.8 -> 79.9	115377			
PFOA	7.189	548.8 -> 98.9	59437	69.67	µg/L	99
		413.0 -> 369.0	1092843			
PFOS	8.406	413.0 -> 169.0	225424	65.75	µg/L	97
		498.9 -> 79.9	221793			
PFPeA	4.414	498.9 -> 98.8	108819	134.05	µg/L	100
		263.0 -> 219.0	1696813			
PFPeS	6.569	349.1 -> 79.9	139406	64.67	µg/L	99
		349.1 -> 98.9	61602			
PFTeDA	9.987	713.1 -> 669.0	1089629	65.32	µg/L	99
		713.1 -> 168.9	89924			
PFTrDA	9.604	663.0 -> 619.0	1281163	58.64	µg/L	99
		663.0 -> 168.9	124390			
PFUnDA	8.722	563.1 -> 519.0	718941	69.69	µg/L	98
		563.1 -> 269.1	139404			
11Cl-PF3OUdS	9.643	630.9 -> 450.9	1070775	113.42	µg/L	100
		632.9 -> 452.9	334010			
9Cl-PF3ONS	8.749	530.8 -> 351.0	1228751	121.19	µg/L	98
		532.8 -> 353.0	379484			
ADONA	6.781	376.9 -> 250.9	2875977	122.11	µg/L	98
		376.9 -> 84.8	771815			
HFPO-DA	5.953	284.9 -> 168.9	346277	133.77	µg/L	98
		284.9 -> 184.9	41293			
3:3FTCA	3.867	241.0 -> 177.0	216383	359.04	µg/L	99
		241.0 -> 117.0	19502			
5:3FTCA	6.244	341.0 -> 237.1	3840785	1658.31	µg/L	100
		341.0 -> 217.0	2746440			
7:3FTCA	7.686	441.0 -> 316.9	1796102	1589.24	µg/L	99
		441.0 -> 336.9	3969309			
EtFOSA	11.362	526.0 -> 219.0	476236	136.91	µg/L	97
		526.0 -> 169.0	653142			
EtFOSE	11.282	630.0 -> 58.9	913658	331.18	µg/L	100
MeFOSA	11.078	511.9 -> 219.0	399297	123.54	µg/L	98
		511.9 -> 169.0	589104			
MeFOSE	10.973	616.1 -> 58.9	777789	326.98	µg/L	100
PFDoDS	10.126	699.1 -> 79.9	130686	69.98	µg/L	96
		699.1 -> 98.8	73670			
NFDHA	5.479	295.0 -> 201.0	95398	113.36	µg/L	95
		295.0 -> 84.9	24543			
PFMBA	4.828	279.0 -> 85.1	966108	133.65	µg/L	100
PFMPA	3.553	229.0 -> 84.9	874633	136.16	µg/L	100
PFEESA	6.034	314.8 -> 134.9	1535541	120.46	µg/L	100
		314.8 -> 82.9	52810			

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

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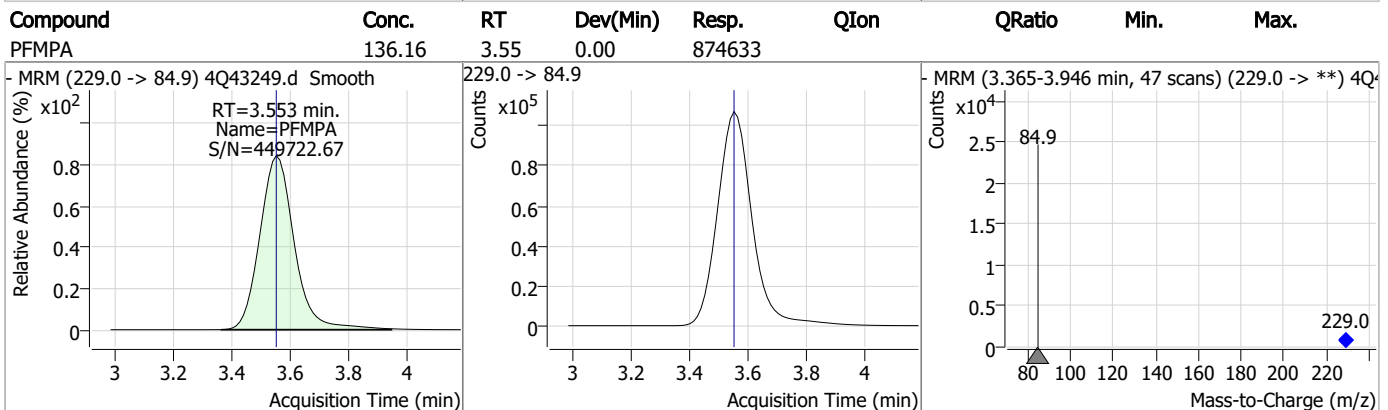
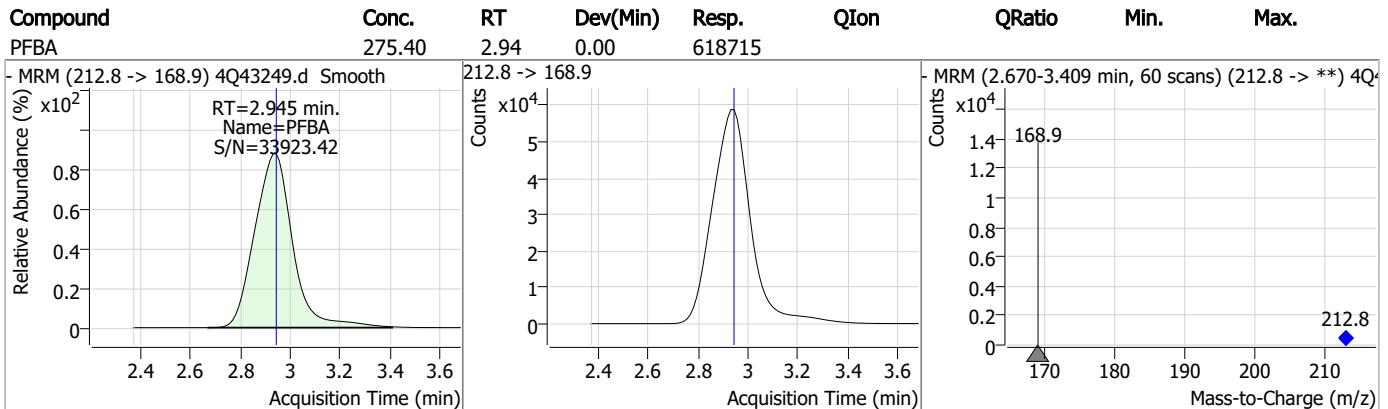
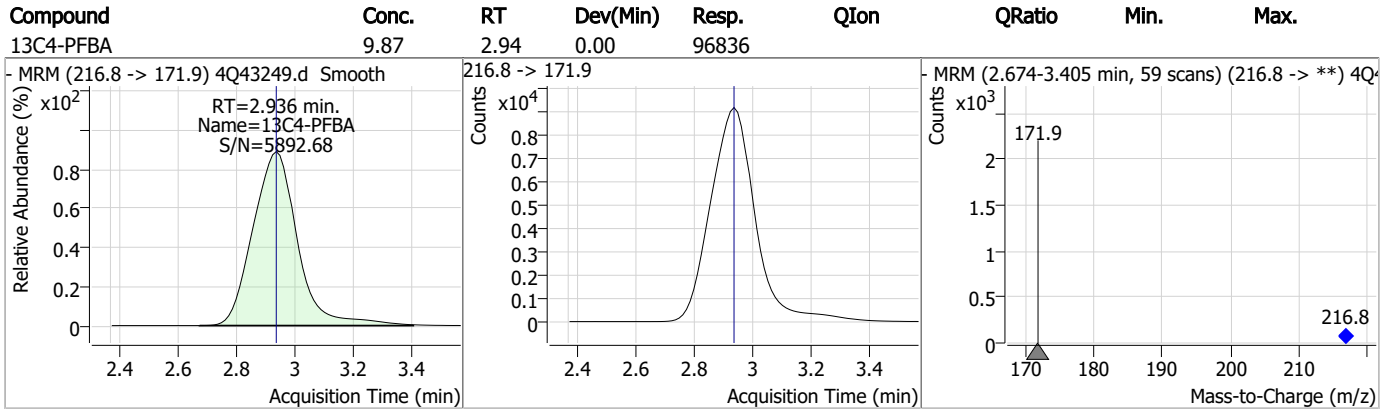
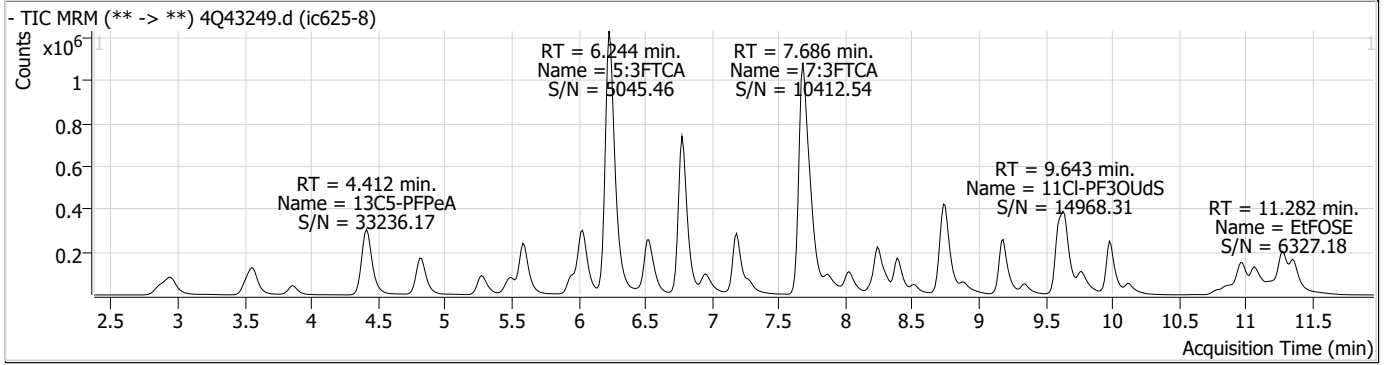
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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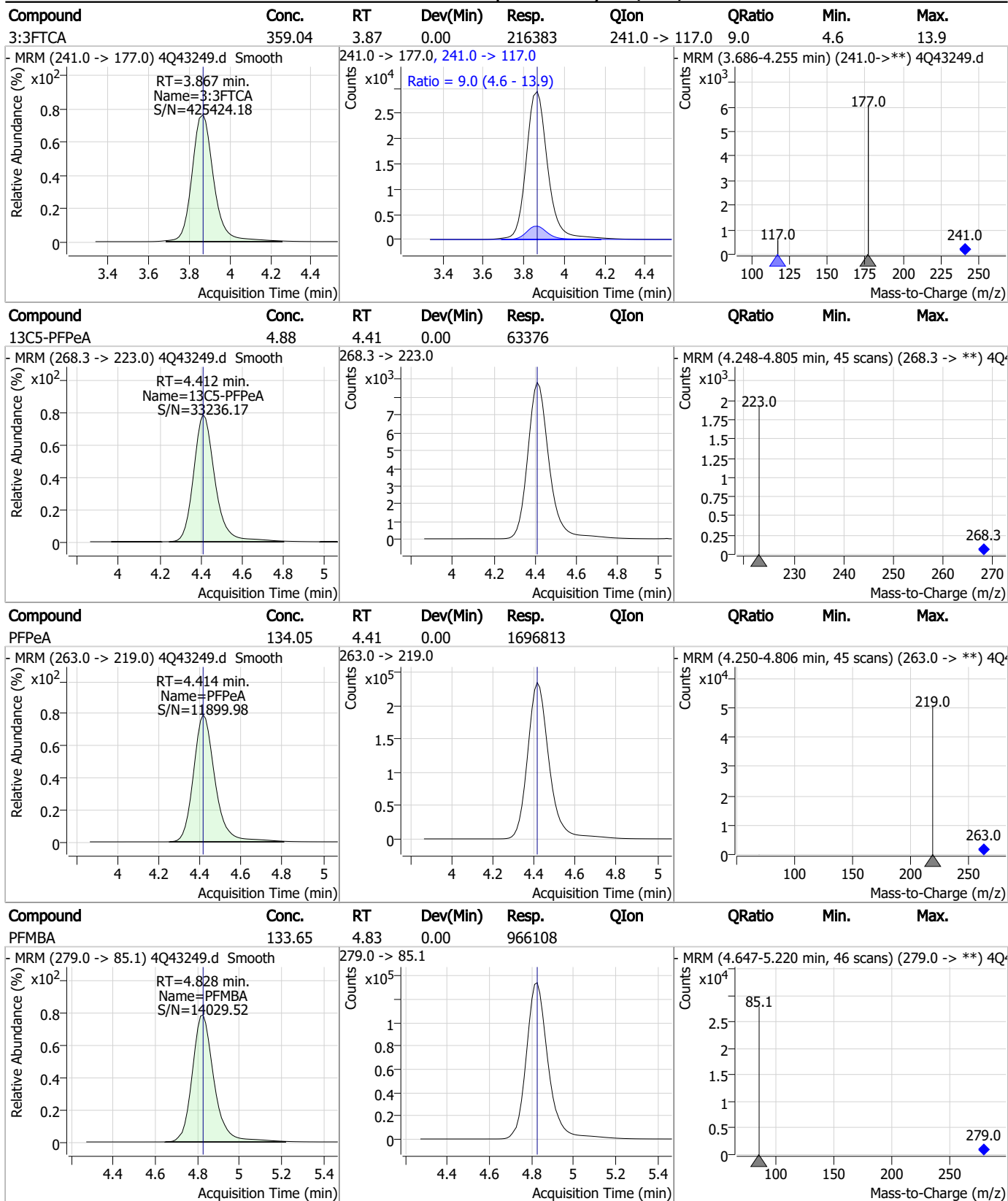
7.7.24

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Perfluorinated Compounds by LC/MS/MS

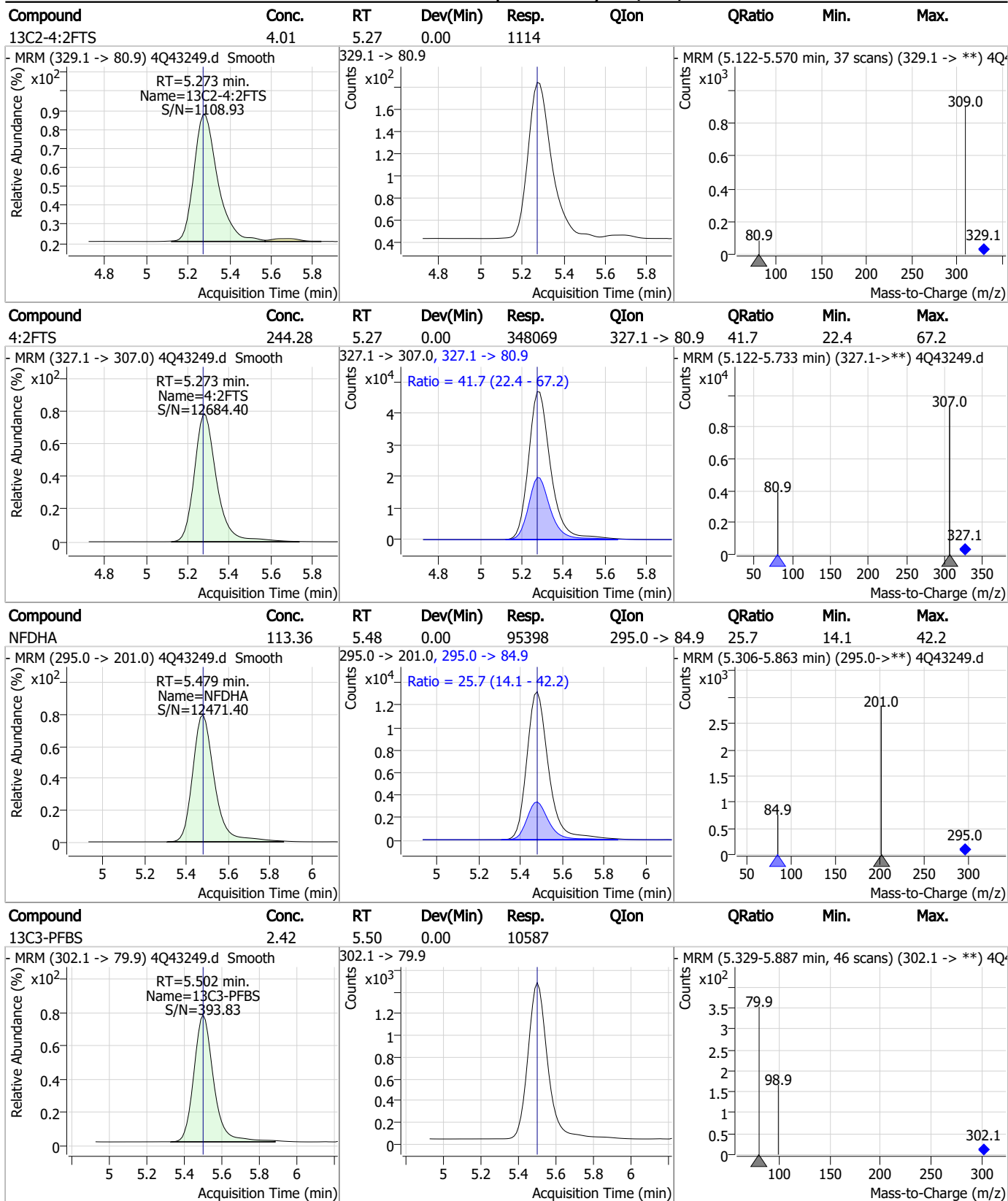


Perfluorinated Compounds by LC/MS/MS



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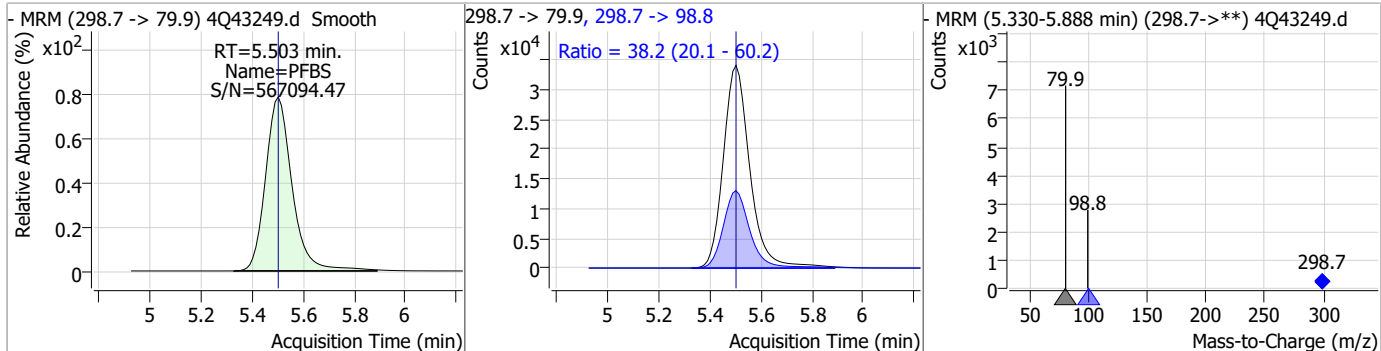
Perfluorinated Compounds by LC/MS/MS



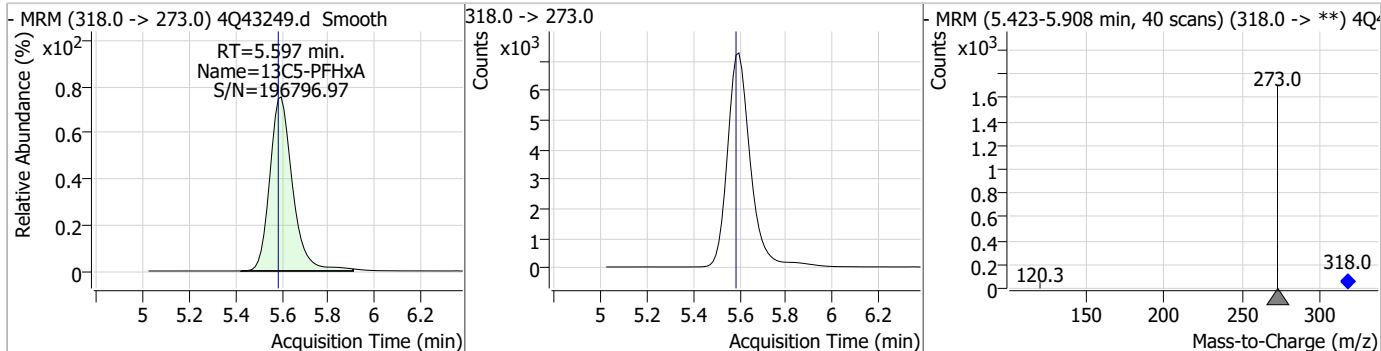
7.7.24
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Perfluorinated Compounds by LC/MS/MS

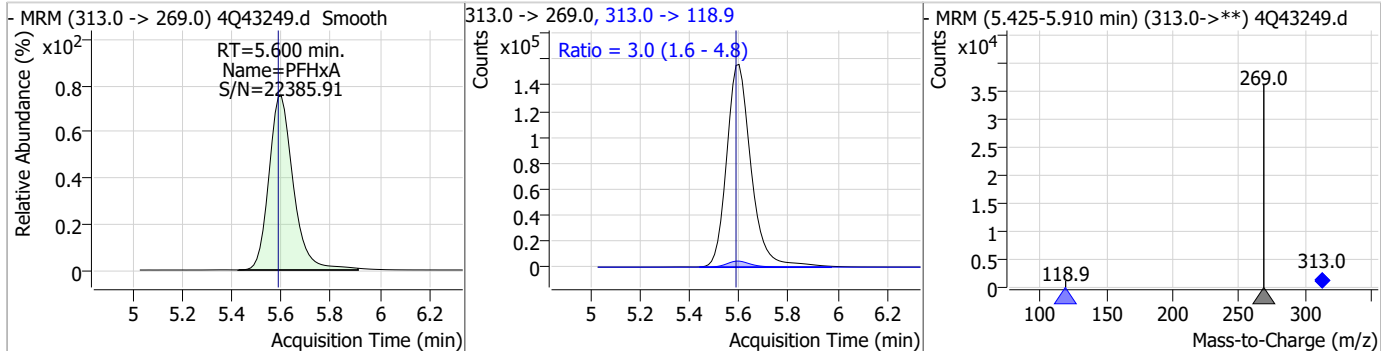
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	58.51	5.50	0.00	245012	298.7 -> 98.8	38.2	20.1	60.2



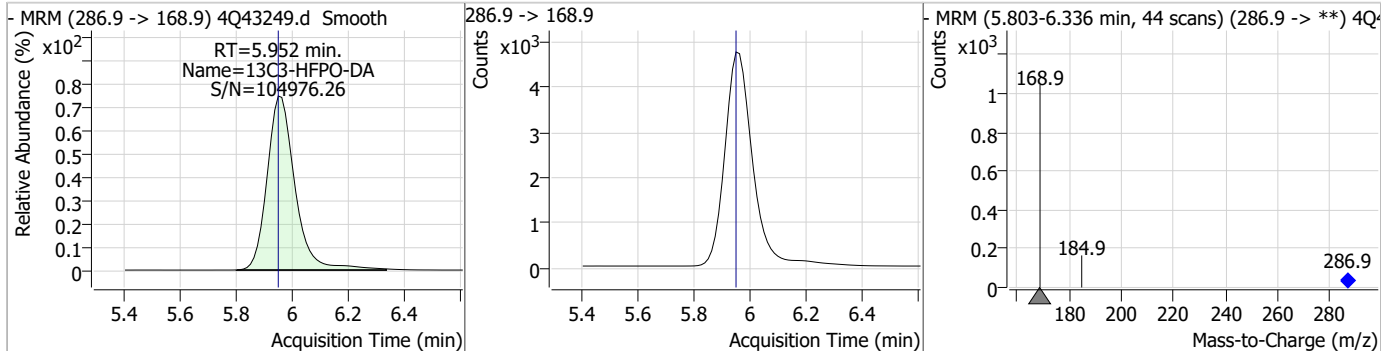
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.47	5.60	0.01	49319				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	69.01	5.60	0.01	1072008	313.0 -> 118.9	3.0	1.6	4.8

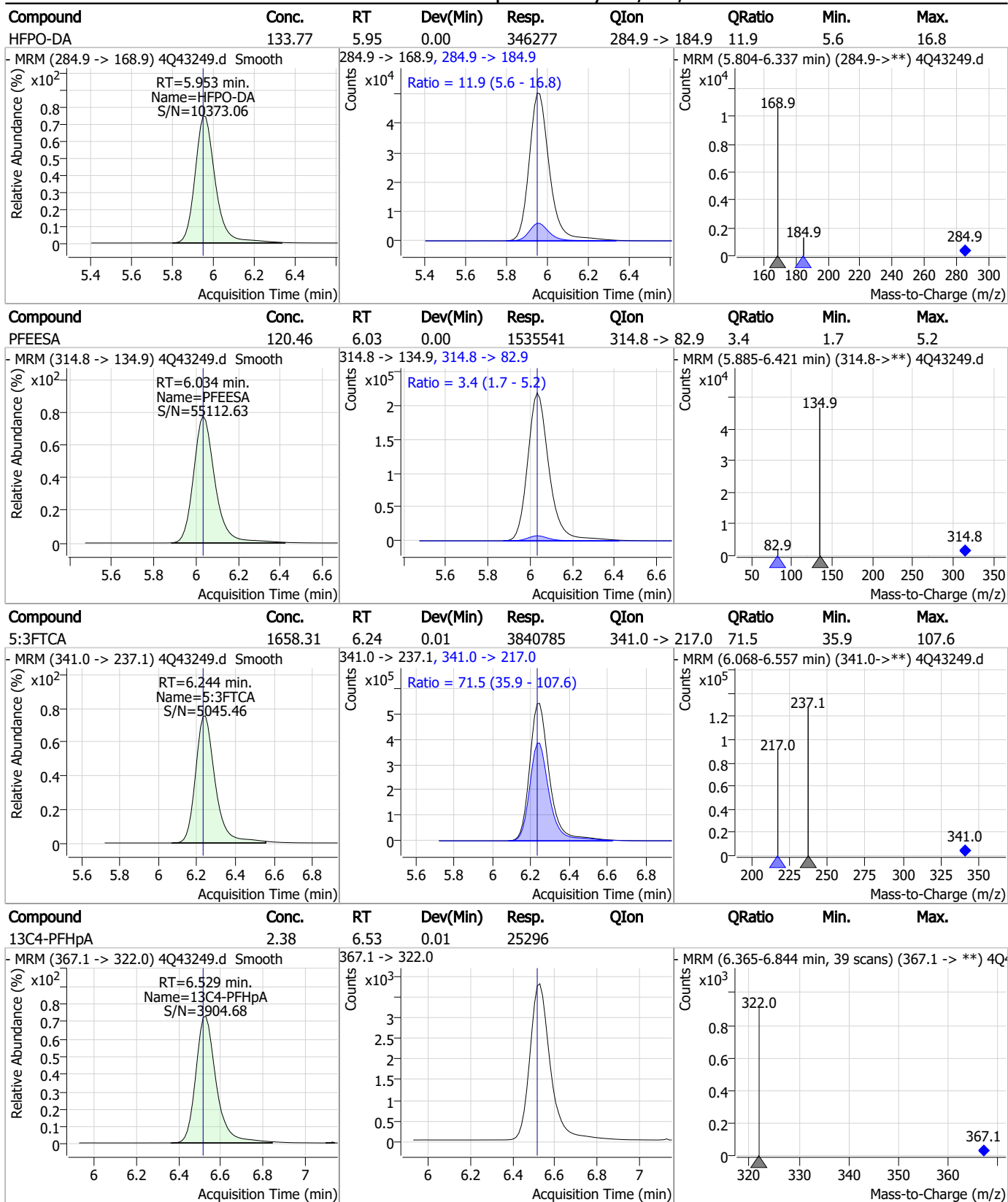


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.17	5.95	0.00	32769				



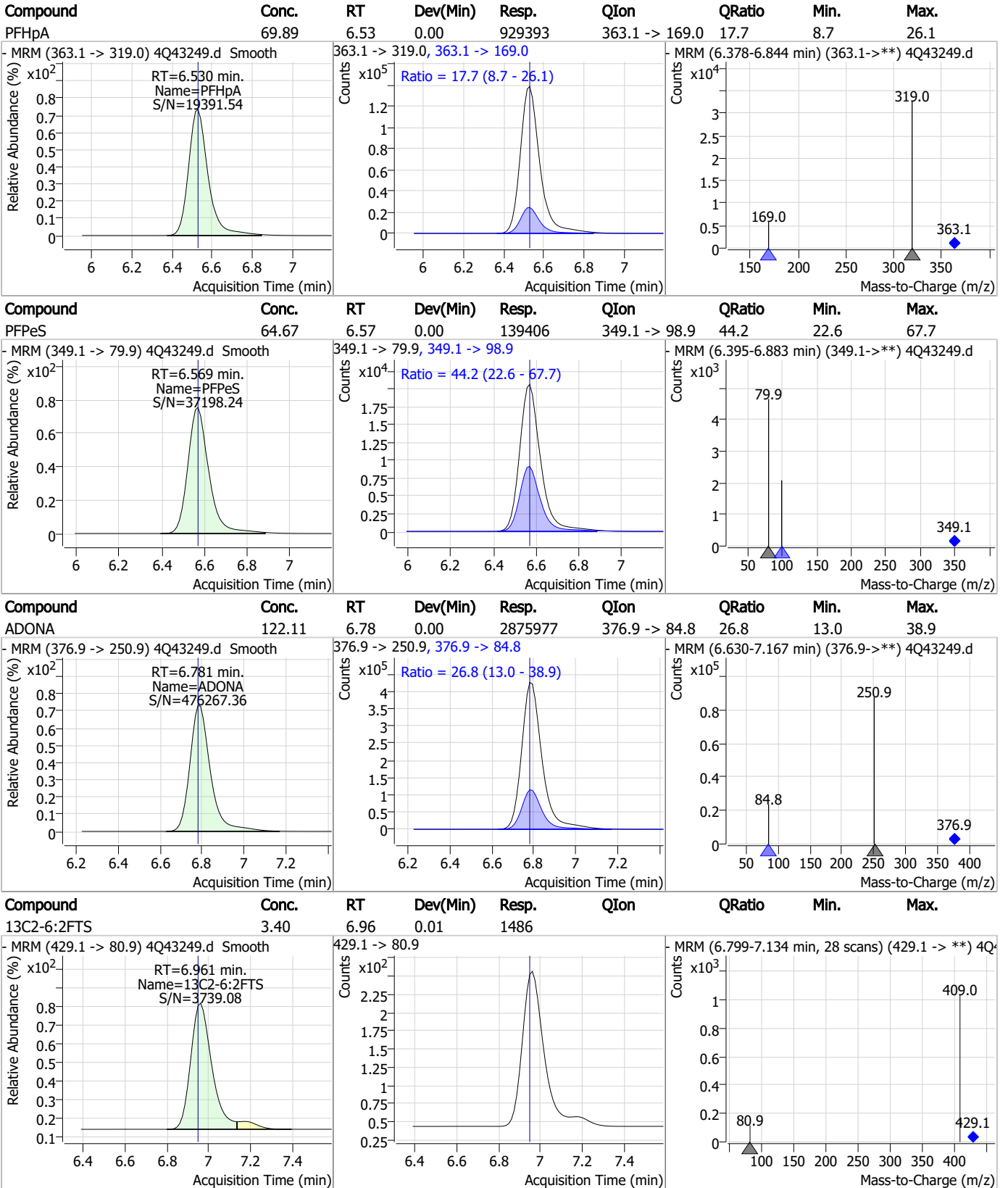
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Perfluorinated Compounds by LC/MS/MS



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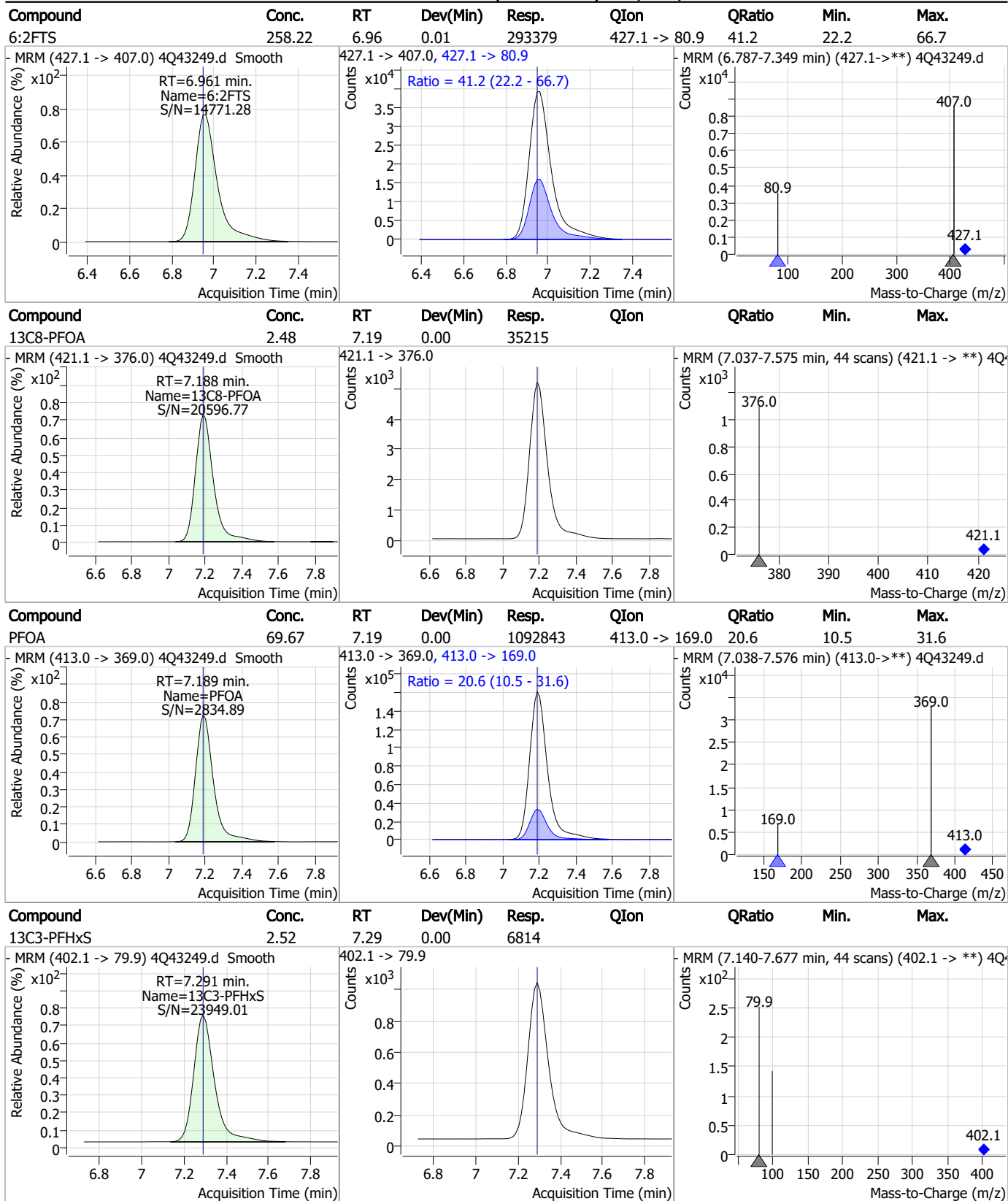
Perfluorinated Compounds by LC/MS/MS



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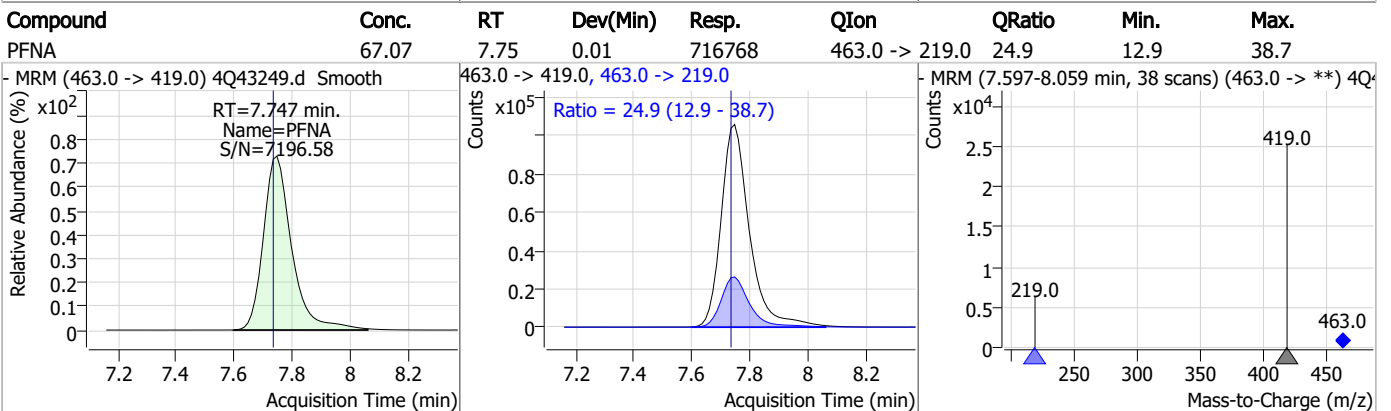
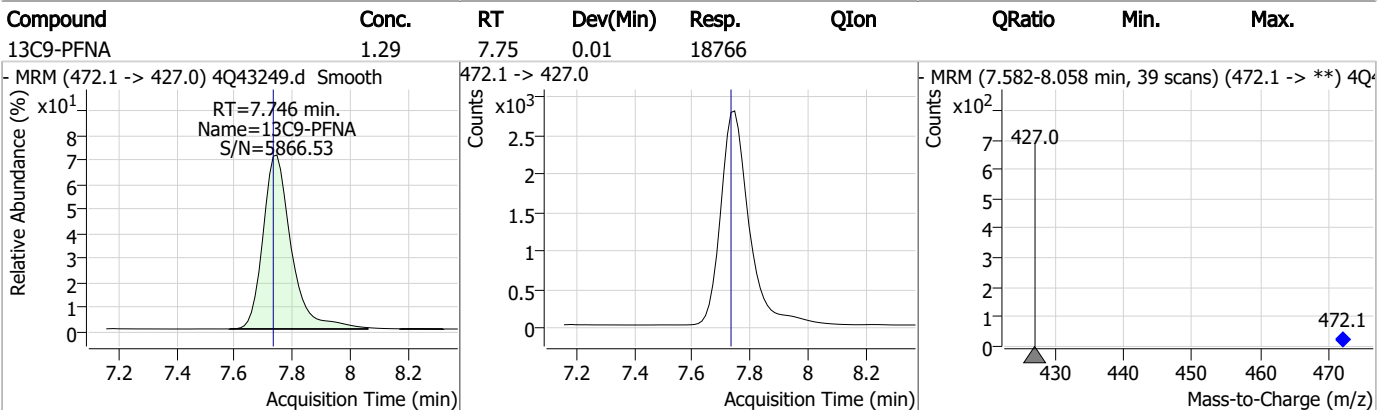
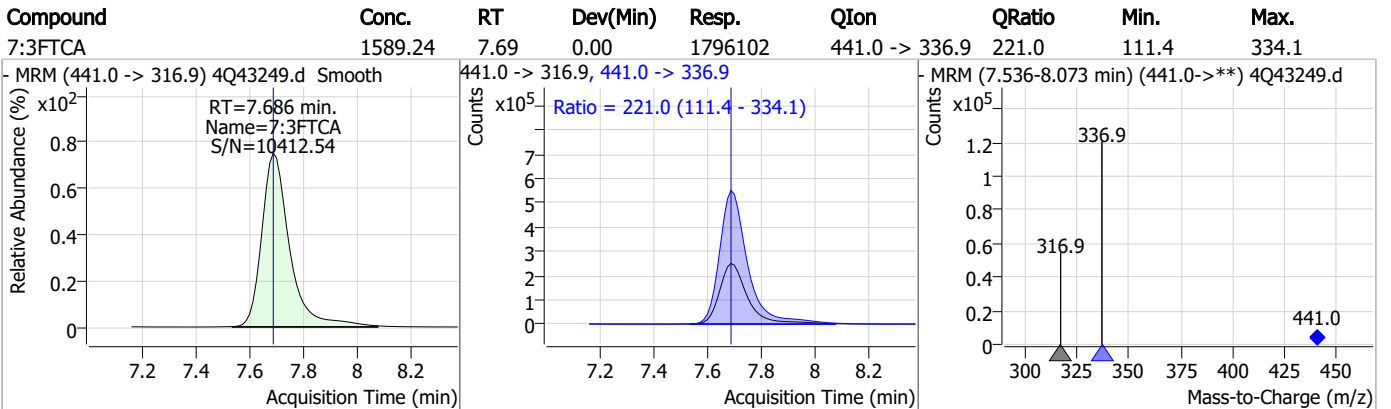
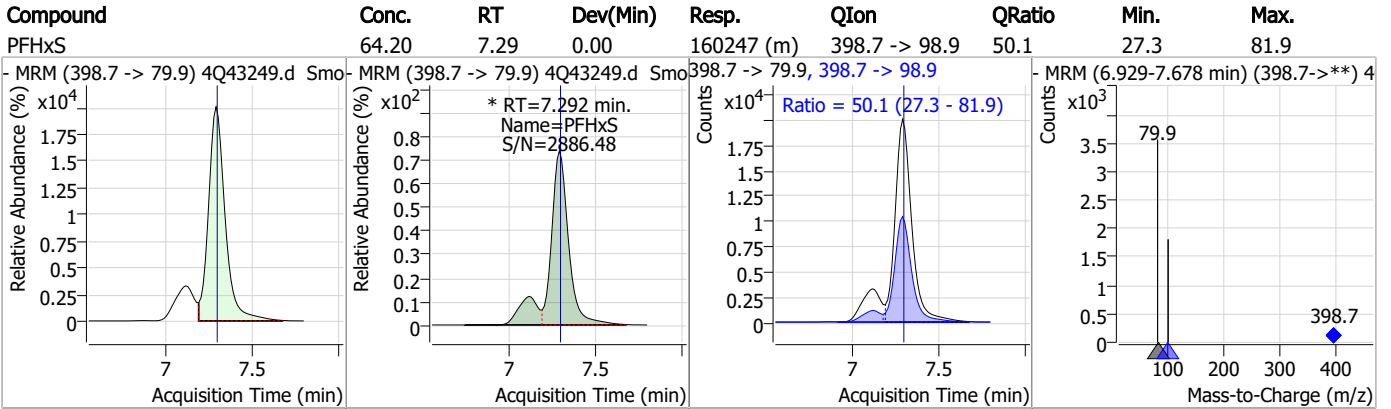
Perfluorinated Compounds by LC/MS/MS



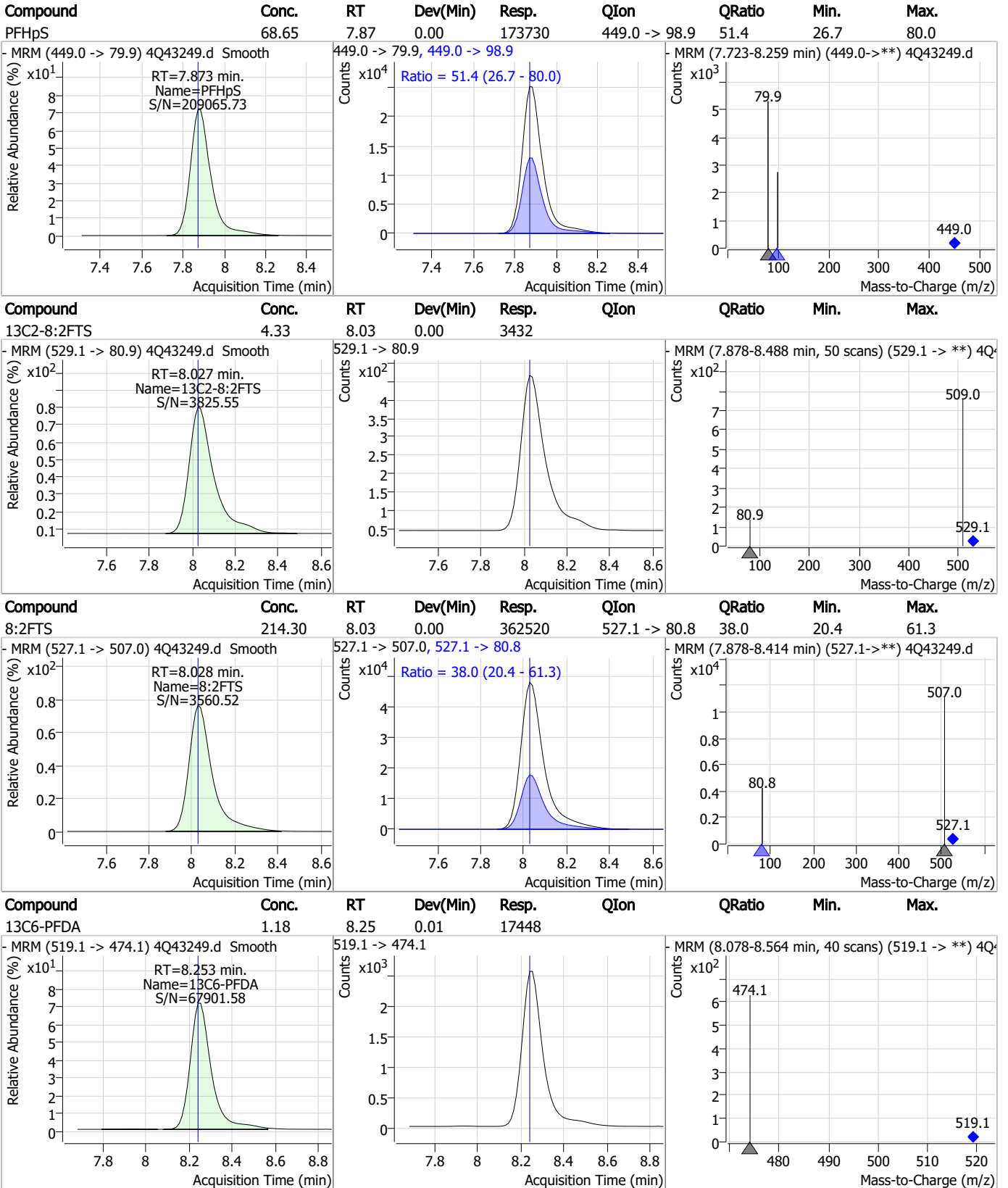
7.7.24

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Perfluorinated Compounds by LC/MS/MS



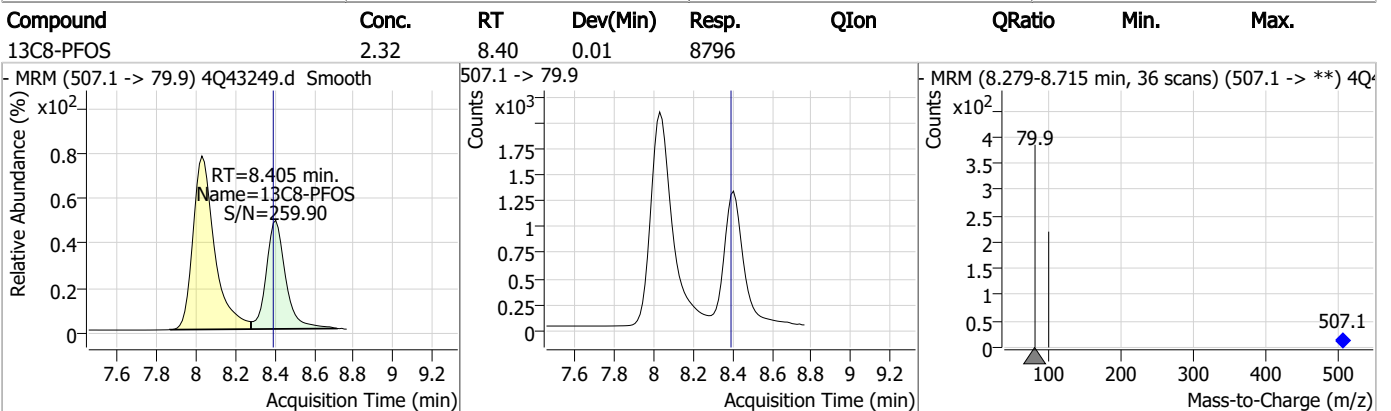
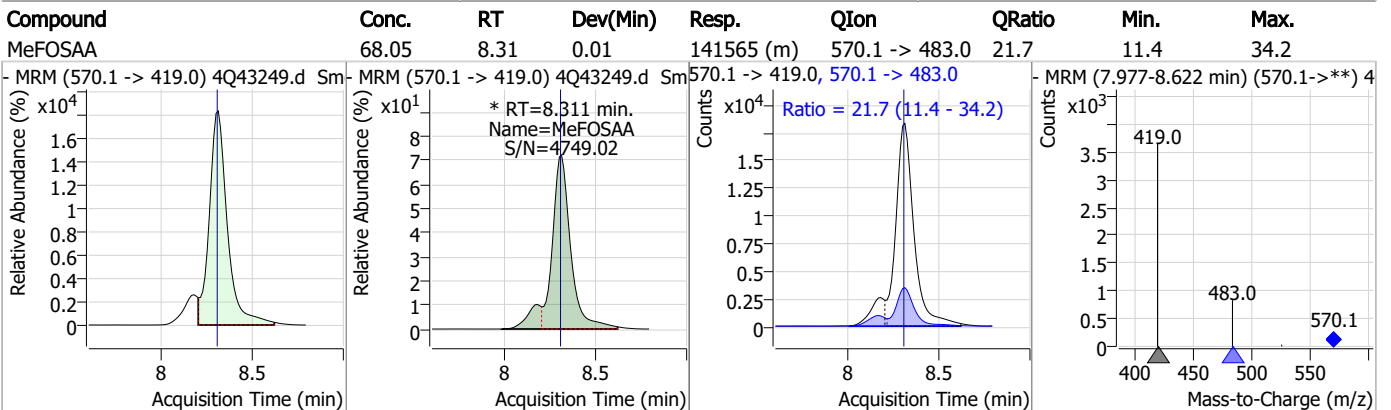
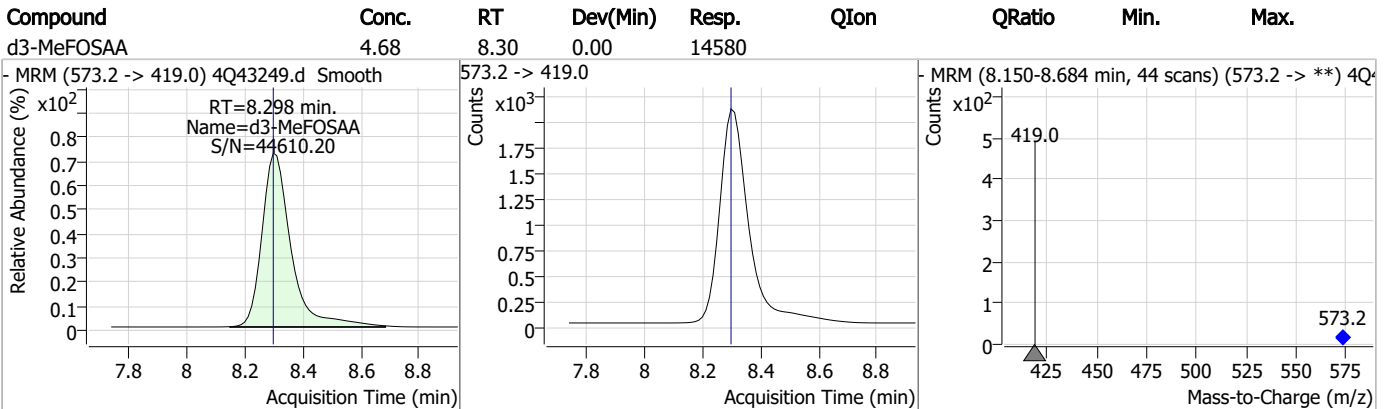
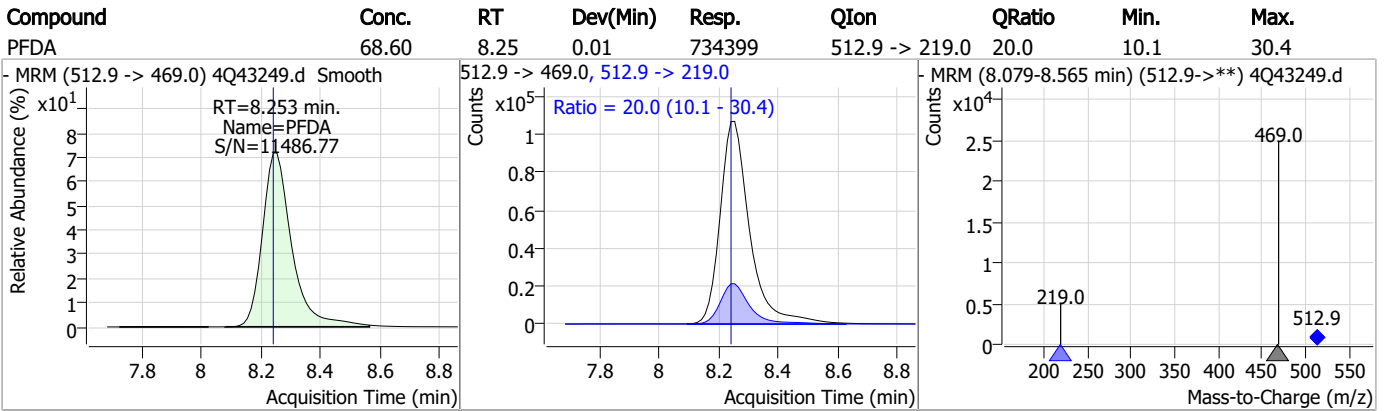
Perfluorinated Compounds by LC/MS/MS



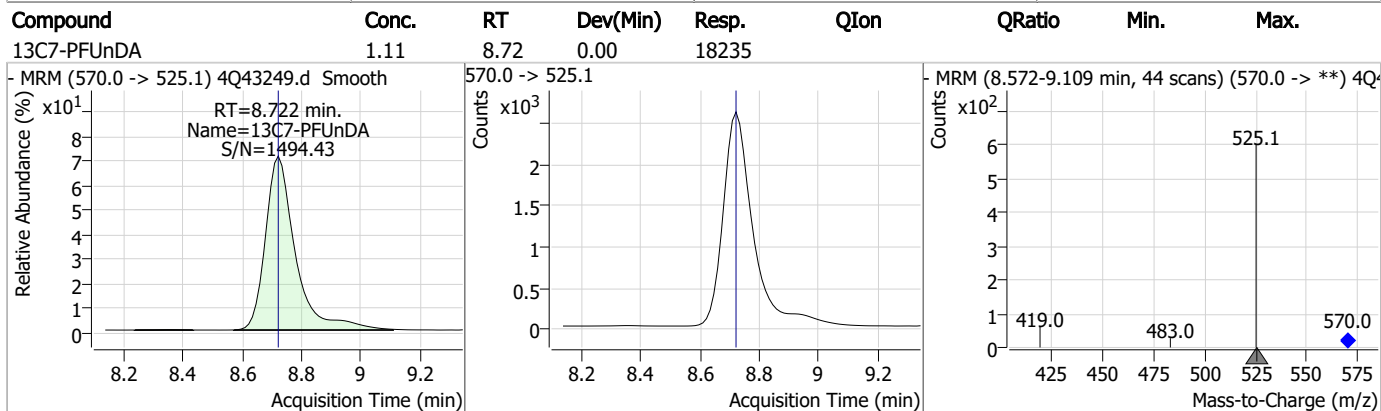
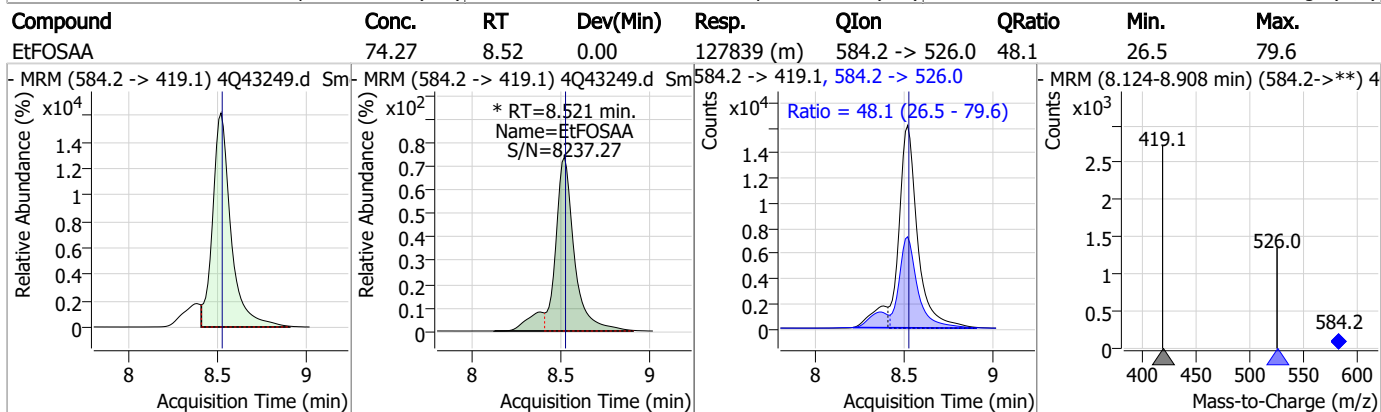
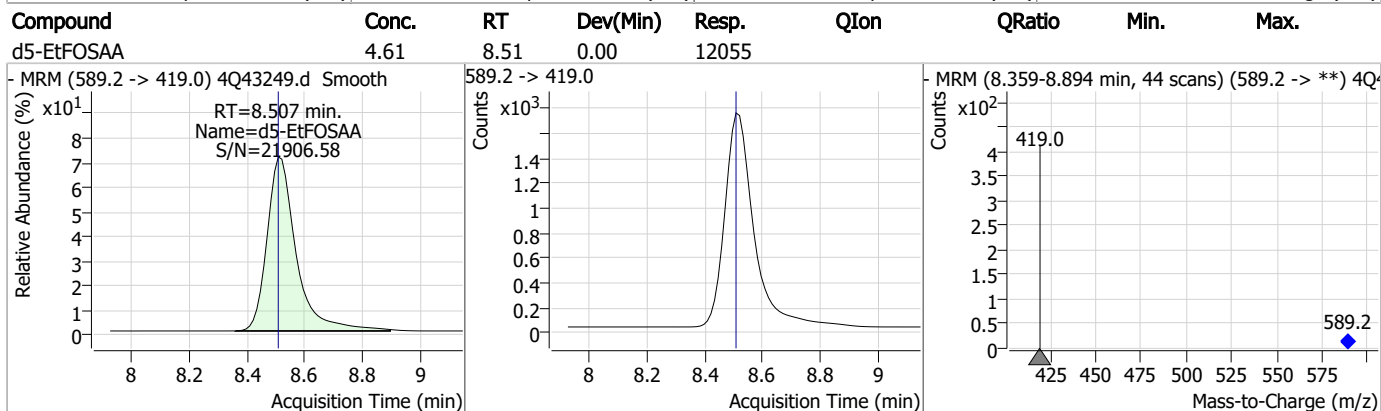
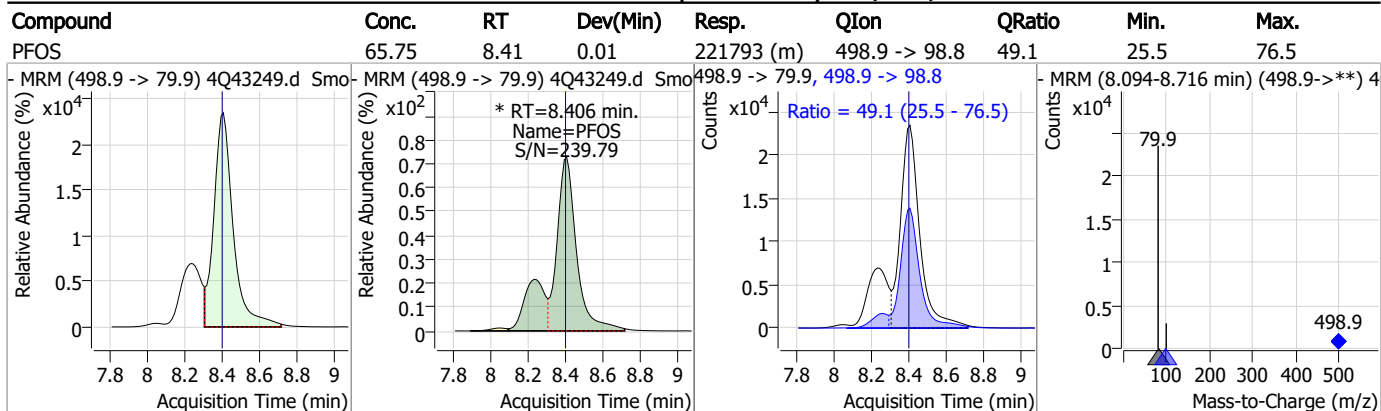
7.7.24 7



Perfluorinated Compounds by LC/MS/MS

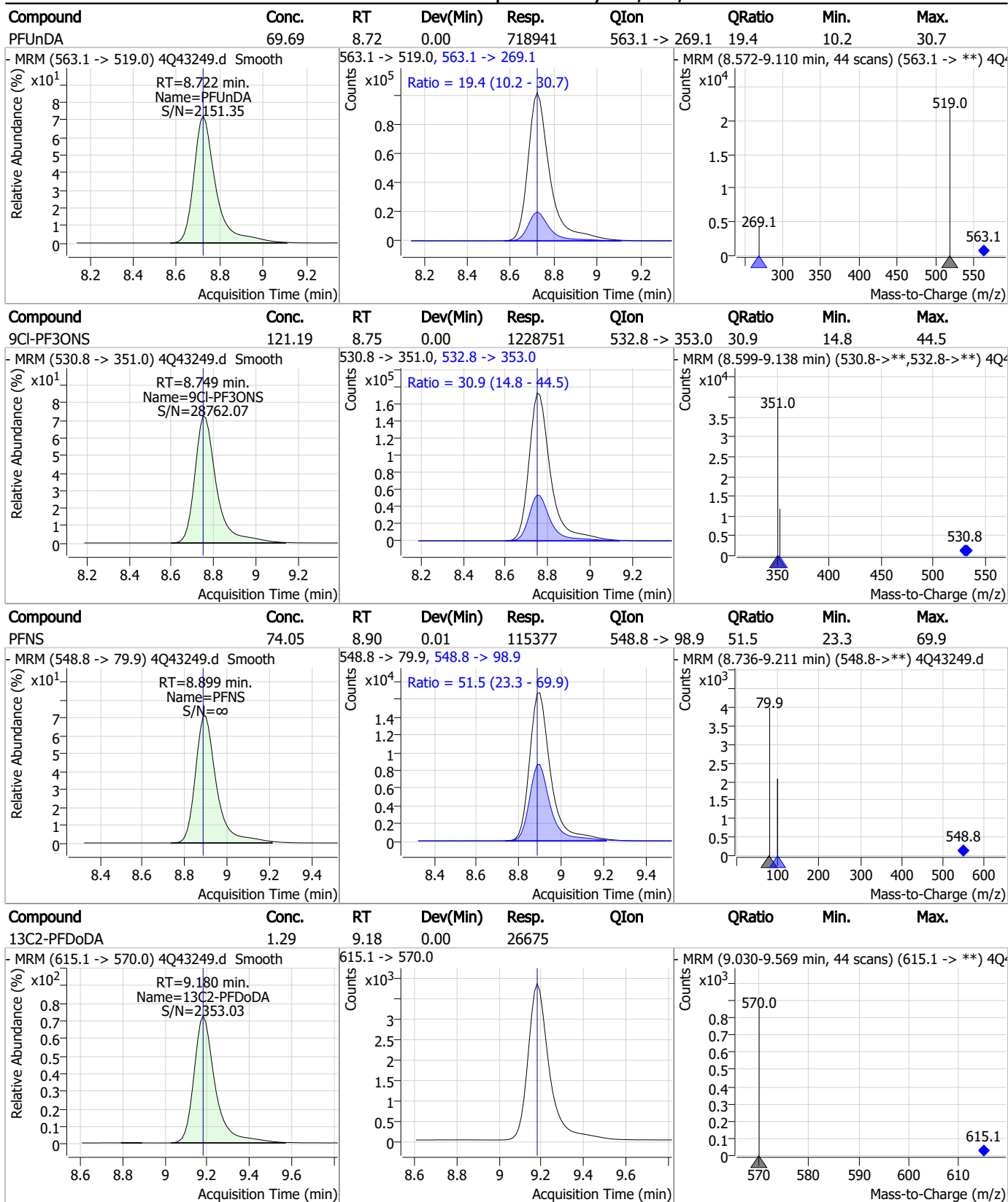


Perfluorinated Compounds by LC/MS/MS



7.7.24
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Perfluorinated Compounds by LC/MS/MS



7.7.24
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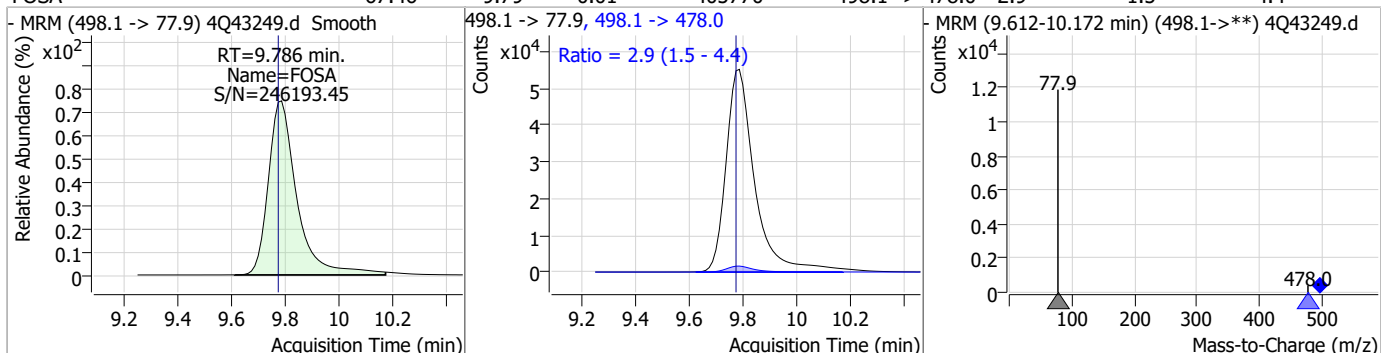
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	64.06	9.18	0.00	1124521	613.1 -> 319.0	14.2	6.8	20.4
PFDS	68.30	9.34	0.00	140394	599.0 -> 98.8	49.9	23.9	71.8
PFTrDA	58.64	9.60	0.00	1281163	663.0 -> 168.9	9.7	4.7	14.2
11Cl-PF3OUdS	113.42	9.64	0.00	1070775	632.9 -> 452.9	31.2	15.6	46.8

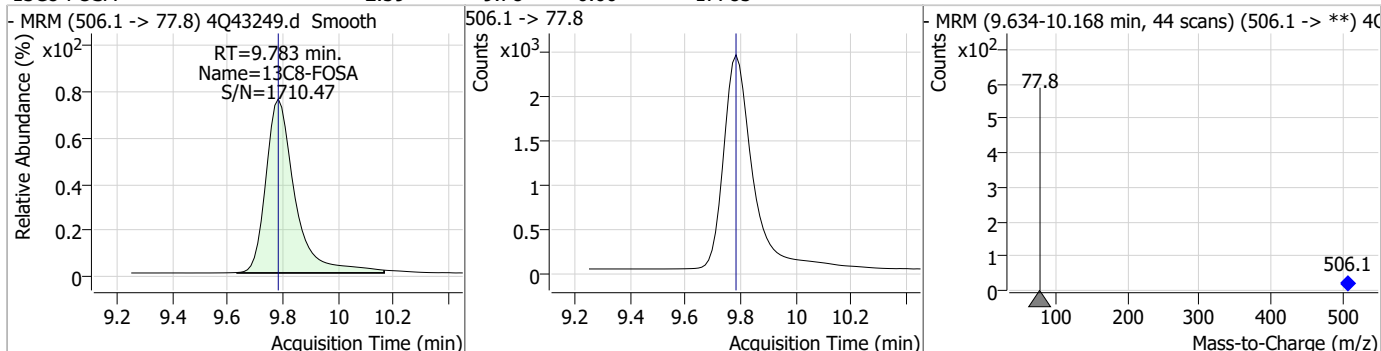
7.7.24
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Perfluorinated Compounds by LC/MS/MS

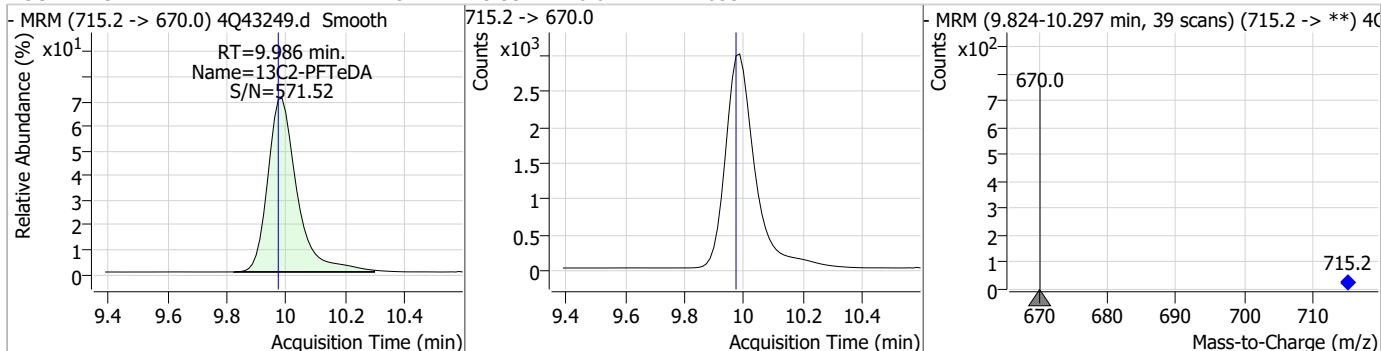
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	67.46	9.79	0.01	405770	498.1 -> 478.0	2.9	1.5	4.4



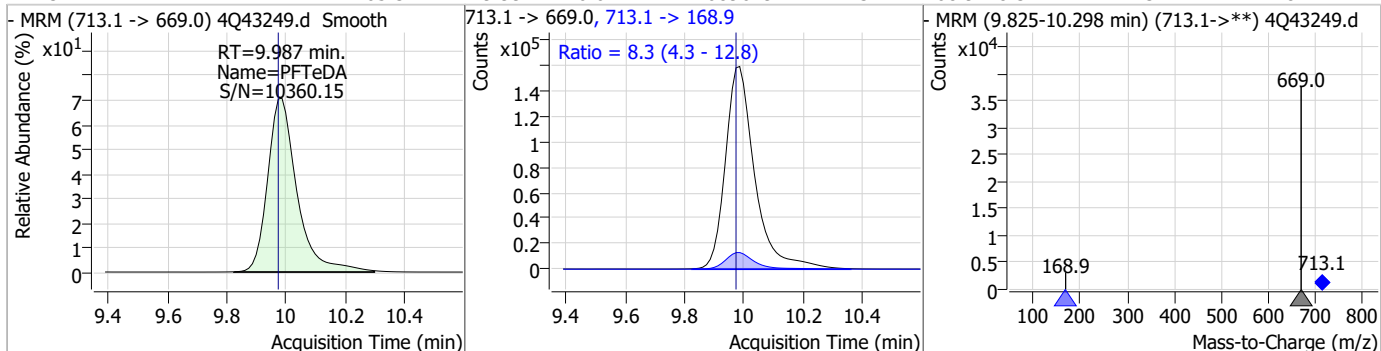
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.59	9.78	0.00	17785				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.25	9.99	0.01	20531				

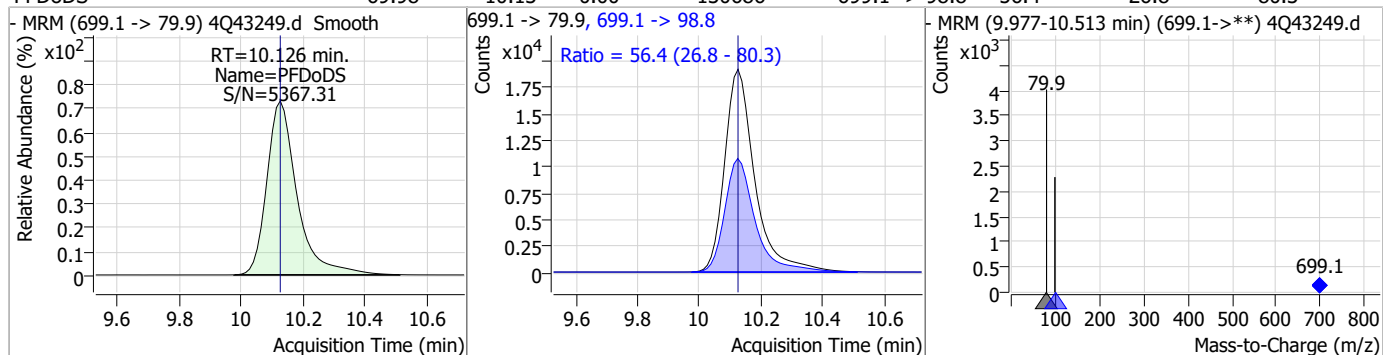


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	65.32	9.99	0.01	1089629	713.1 -> 168.9	8.3	4.3	12.8

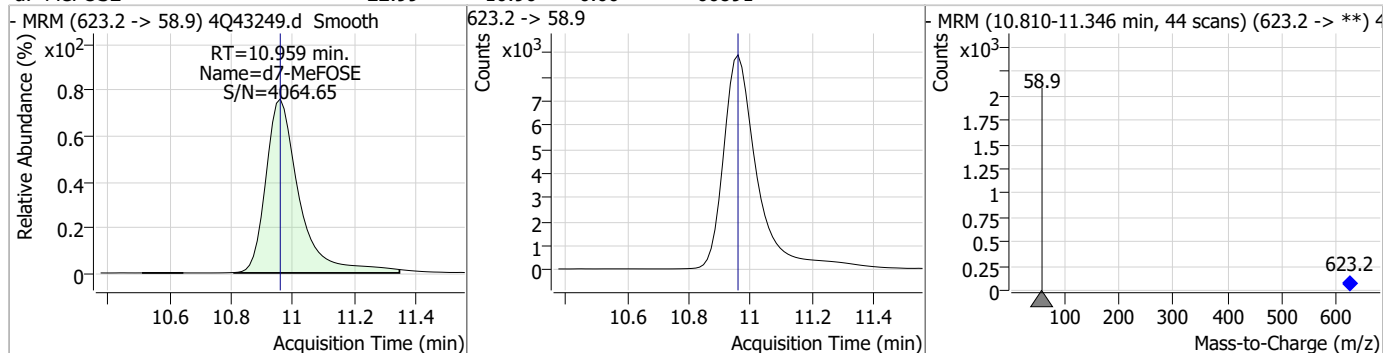


Perfluorinated Compounds by LC/MS/MS

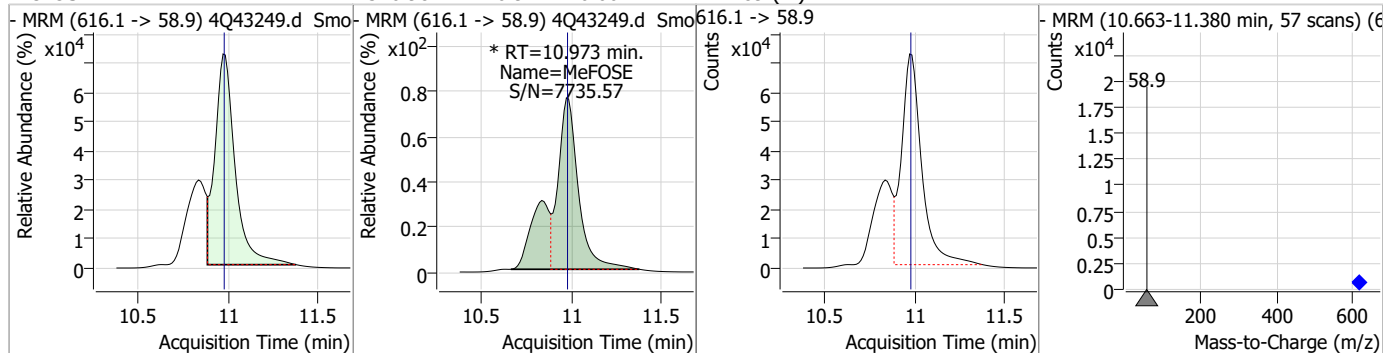
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	69.98	10.13	0.00	130686	699.1 -> 98.8	56.4	26.8	80.3



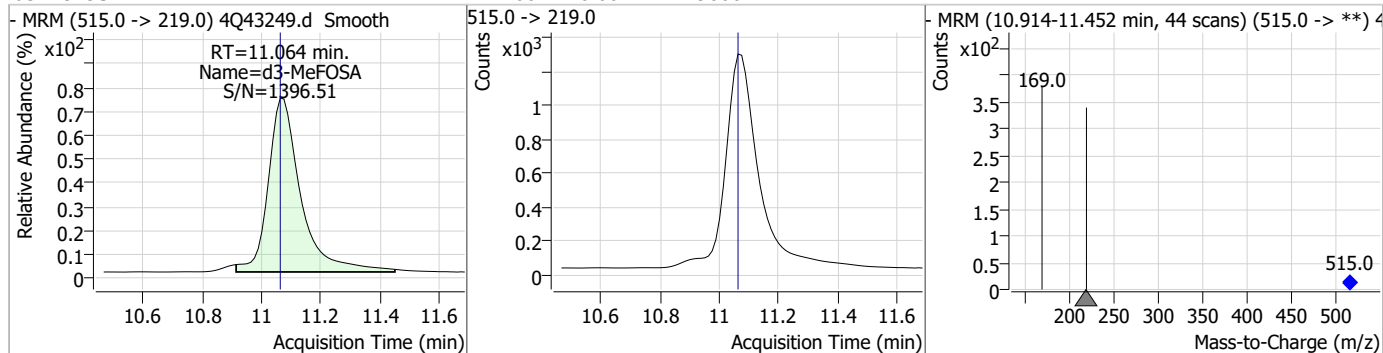
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.99	10.96	0.00	66891				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	326.98	10.97	0.00	777789 (m)				



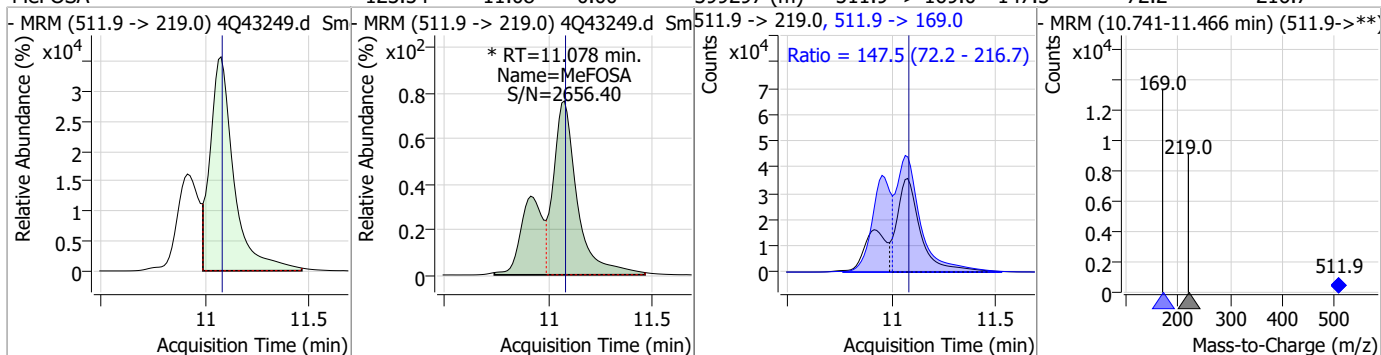
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.72	11.06	0.00	9666				



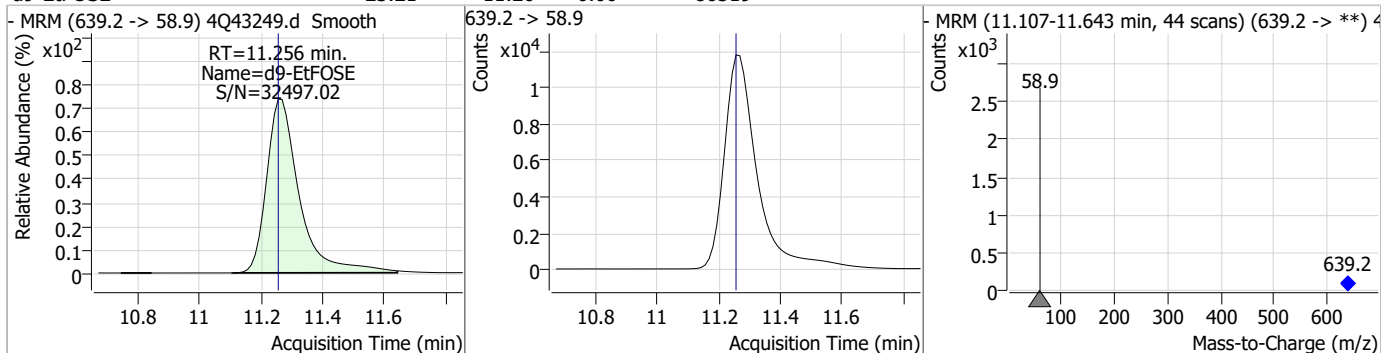
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Perfluorinated Compounds by LC/MS/MS

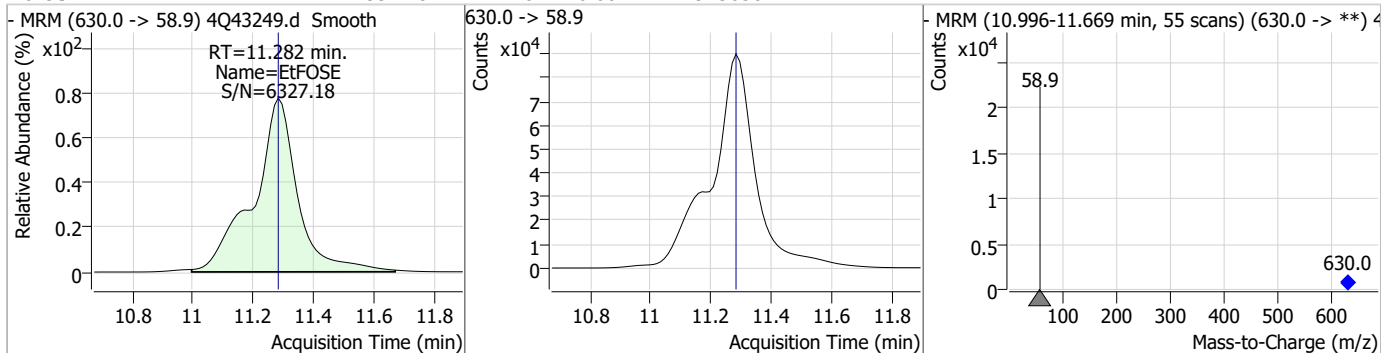
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	123.54	11.08	0.00	399297 (m)	511.9 -> 169.0	147.5	72.2	216.7



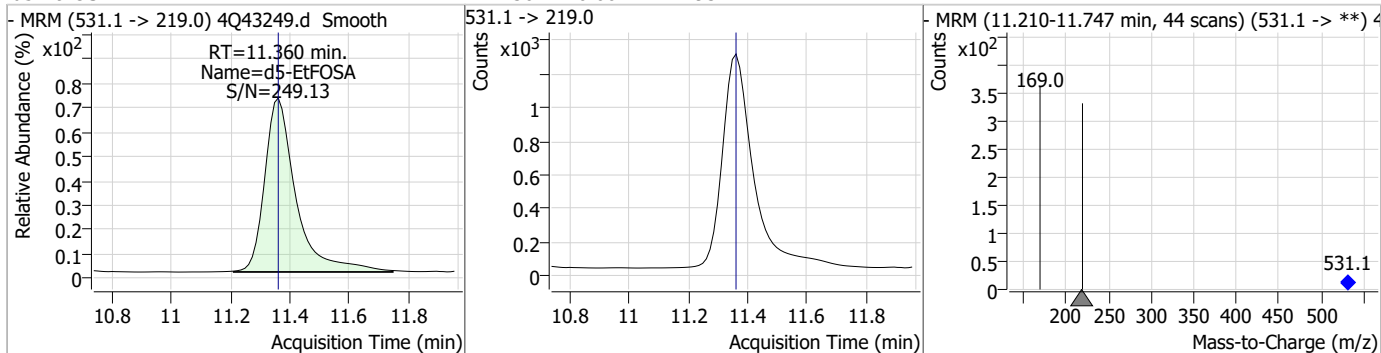
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.21	11.26	0.00	86519				



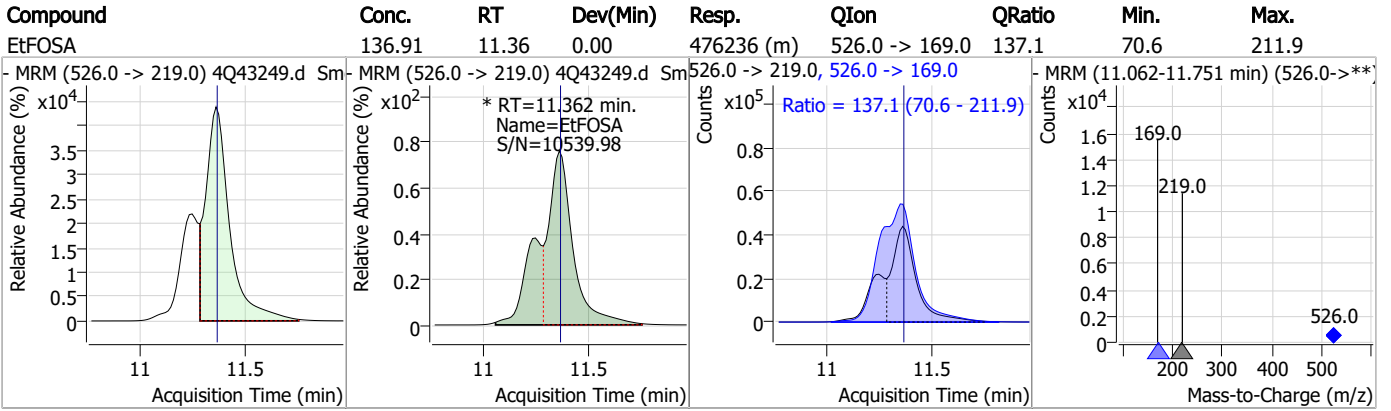
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	331.18	11.28	0.00	913658				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.47	11.36	0.00	9322				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q625-IC625 Method: EPA DRAFT 1633
Lab FileID: 4Q43249.D Analyst approved: 04/20/23 14:17 Natasha Gumtie
Injection Time: 04/19/23 13:33 Supervisor approved: 04/21/23 13:15 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.41	Split peak
EtFOSAA	2991-50-6		8.52	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSA	4151-50-2		11.36	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43251.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/19/2023 2:01:16 PM
 Sample Name : icv625-4
 Vial : P1-B1
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s6q625.batch.bin
 Sample Information : OP96301,S4q625,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	118833	10.00 µg/L	0.000
M5-PFPeA	4.412	268.3 -> 223.0	72834	5.00 µg/L	0.000
M5-PFHxA	5.597	318.0 -> 273.0	54240	2.50 µg/L	0.012
M4-PFHpA	6.529	367.1 -> 322.0	28787	2.50 µg/L	0.012
M8-PFOA	7.188	421.1 -> 376.0	40690	2.50 µg/L	0.000
M9-PFNA	7.746	472.1 -> 427.0	22341	1.25 µg/L	0.013
M6-PFDA	8.253	519.1 -> 474.1	21967	1.25 µg/L	0.012
M7-PFUnDA	8.734	570.0 -> 525.1	23338	1.25 µg/L	0.012
M2-PFDoDA	9.180	615.1 -> 570.0	28824	1.25 µg/L	0.000
M2-PFTeDA	9.974	715.2 -> 670.0	22668	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	20261	2.50 µg/L	0.000
M3-PFBS	5.502	302.1 -> 79.9	11796	2.50 µg/L	0.000
M3-PFHxS	7.291	402.1 -> 79.9	7436	2.50 µg/L	0.000
M8-PFOS	8.405	507.1 -> 79.9	11089	2.50 µg/L	0.012
M2-4:2FTS	5.273	329.1 -> 80.9	1685	5.00 µg/L	0.000
M2-6:2FTS	6.948	429.1 -> 80.9	2790	5.00 µg/L	0.000
M2-8:2FTS	8.027	529.1 -> 80.9	4539	5.00 µg/L	0.000
M3-MeFOSAA	8.310	573.2 -> 419.0	19043	5.00 µg/L	0.012
M3-HFPO-DA	5.952	286.9 -> 168.9	35290	10.00 µg/L	0.000
M5-EtFOSAA	8.520	589.2 -> 419.0	15849	5.00 µg/L	0.012
M7-MeFOSE	10.947	623.2 -> 58.9	84940	25.00 µg/L	-0.012
M9-EtFOSE	11.256	639.2 -> 58.9	108851	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	11350	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	9929	2.50 µg/L	0.000
13C4-PFOS	8.405	502.8 -> 79.9	10840	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	66579	5.00 µg/L	-0.013
18O2-PFHxS	7.290	403.0 -> 83.9	5014	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	48713	2.50 µg/L	0.000
13C2-PFDA	8.253	515.1 -> 470.1	19779	1.25 µg/L	0.012
13C5-PFNA	7.746	468.0 -> 423.0	24530	1.25 µg/L	0.013
13C2-PFHxA	5.598	315.1 -> 270.0	46186	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.273	329.1 -> 80.9	1685	5.72 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.5%		
13C2-6:2FTS	6.948	429.1 -> 80.9	2790	6.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.4%		
13C2-8:2FTS	8.027	529.1 -> 80.9	4539	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-PFDoDA	9.180	615.1 -> 570.0	28824	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C2-PFTeDA	9.974	715.2 -> 670.0	22668	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C3-PFBS	5.502	302.1 -> 79.9	11796	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C3-PFHxS	7.291	402.1 -> 79.9	7436	2.60 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 = 103.9%	
13C4-PFBA	2.936	216.8 -> 171.9	118833	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFHpA	6.529	367.1 -> 322.0	28787	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C5-PFHxA	5.597	318.0 -> 273.0	54240	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C5-PFPeA	4.412	268.3 -> 223.0	72834	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C6-PFDA	8.253	519.1 -> 474.1	21967	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C7-PFUnDA	8.734	570.0 -> 525.1	23338	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C8-FOSA	9.783	506.1 -> 77.8	20261	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C8-PFOA	7.188	421.1 -> 376.0	40690	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C8-PFOS	8.405	507.1 -> 79.9	11089	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C9-PFNA	7.746	472.1 -> 427.0	22341	1.30 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.3%	
d3-MeFOSAA	8.310	573.2 -> 419.0	19043	5.35 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C3-HFPO-DA	5.952	286.9 -> 168.9	35290	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
d3-MeFOSA	11.064	515.0 -> 219.0	9929	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
d5-EtFOSAA	8.520	589.2 -> 419.0	15849	5.30 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
d7-MeFOSE	10.947	623.2 -> 58.9	84940	25.54 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
d9-EtFOSE	11.256	639.2 -> 58.9	108851	25.56 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
d5-EtFOSA	11.360	531.1 -> 219.0	11350	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
Target Compounds					QValue
4:2FTS	5.286	327.1 -> 307.0	20672	9.59 µg/L	96
		327.1 -> 80.9	8748		
6:2FTS	6.949	427.1 -> 407.0	19636	9.21 µg/L	97
		427.1 -> 80.9	8388		
8:2FTS	8.028	527.1 -> 507.0	22879	10.23 µg/L	97
		527.1 -> 80.8	8972		
EtFOSAA	8.521	584.2 -> 419.1	6024	2.66 µg/L	m 96
		584.2 -> 526.0	3039		
FOSA	9.786	498.1 -> 77.9	17171	2.51 µg/L	100
		498.1 -> 478.0	514		
MeFOSAA	8.311	570.1 -> 419.0	6336	2.33 µg/L	m 95
		570.1 -> 483.0	1290		
PFBA	2.932	212.8 -> 168.9	28270	10.25 µg/L	100
PFBS	5.503	298.7 -> 79.9	10735	2.30 µg/L	94
		298.7 -> 98.8	3940		
PFDA	8.253	512.9 -> 469.0	31264	2.32 µg/L	95
		512.9 -> 219.0	7097		
PFDODA	9.181	613.1 -> 569.0	48955	2.58 µg/L	100
		613.1 -> 319.0	6730		
PFDS	9.357	599.0 -> 79.9	6080	2.35 µg/L	90

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3303			
PFHpA	6.530	363.1 -> 319.0	39910	2.64	µg/L	99
		363.1 -> 169.0	7160			
PFHpS	7.885	449.0 -> 79.9	7320	2.29	µg/L	100
		449.0 -> 98.9	3927			
PFHxA	5.600	313.0 -> 269.0	43768	2.56	µg/L	99
		313.0 -> 118.9	1309			
PFHxS	7.292	398.7 -> 79.9	6331	2.32	µg/L	m 92
		398.7 -> 98.9	3091			
PFNA	7.747	463.0 -> 419.0	31517	2.48	µg/L	100
		463.0 -> 219.0	8066			
PFNS	8.899	548.8 -> 79.9	4645	2.36	µg/L	99
		548.8 -> 98.9	2193			
PFOA	7.189	413.0 -> 369.0	46794	2.58	µg/L	99
		413.0 -> 169.0	9652			
PFOS	8.406	498.9 -> 79.9	10126	2.38	µg/L	m 97
		498.9 -> 98.8	4971			
PFPeA	4.414	263.0 -> 219.0	73900	5.08	µg/L	100
PFPeS	6.569	349.1 -> 79.9	5651	2.40	µg/L	99
		349.1 -> 98.9	2499			
PFTeDA	9.974	713.1 -> 669.0	47774	2.59	µg/L	100
		713.1 -> 168.9	4121			
PFTrDA	9.604	663.0 -> 619.0	62115	2.63	µg/L	98
		663.0 -> 168.9	6391			
PFUnDA	8.735	563.1 -> 519.0	32621	2.47	µg/L	97
		563.1 -> 269.1	6294			
11CI-PF3OUdS	9.655	630.9 -> 450.9	49833	4.90	µg/L	100
		632.9 -> 452.9	15582			
9CI-PF3ONS	8.762	530.8 -> 351.0	50826	4.65	µg/L	98
		532.8 -> 353.0	14665			
ADONA	6.781	376.9 -> 250.9	125142	4.93	µg/L	98
		376.9 -> 84.8	33957			
HFPO-DA	5.965	284.9 -> 168.9	14518	5.21	µg/L	98
		284.9 -> 184.9	1738			
3:3FTCA	3.848	241.0 -> 177.0	8477	12.24	µg/L	100
		241.0 -> 117.0	800			
5:3FTCA	6.244	341.0 -> 237.1	167377	65.71	µg/L	99
		341.0 -> 217.0	118507			
7:3FTCA	7.686	441.0 -> 316.9	81246	65.37	µg/L	99
		441.0 -> 336.9	182255			
EtFOSA	11.362	526.0 -> 219.0	20886	4.93	µg/L	m 97
		526.0 -> 169.0	28716			
EtFOSE	11.282	630.0 -> 58.9	44029	12.69	µg/L	100
MeFOSA	11.065	511.9 -> 219.0	17295	5.21	µg/L	m 99
		511.9 -> 169.0	24784			
MeFOSE	10.973	616.1 -> 58.9	38527	12.75	µg/L	m 100
PFDoDS	10.126	699.1 -> 79.9	5814	2.47	µg/L	98
		699.1 -> 98.8	3052			
NFDHA	5.479	295.0 -> 201.0	5334	5.76	µg/L	92
		295.0 -> 84.9	1272			
PFMBA	4.828	279.0 -> 85.1	41547	5.00	µg/L	100
PFMPA	3.553	229.0 -> 84.9	36572	4.95	µg/L	100
PFEESA	6.034	314.8 -> 134.9	64179	4.58	µg/L	100
		314.8 -> 82.9	2255			

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

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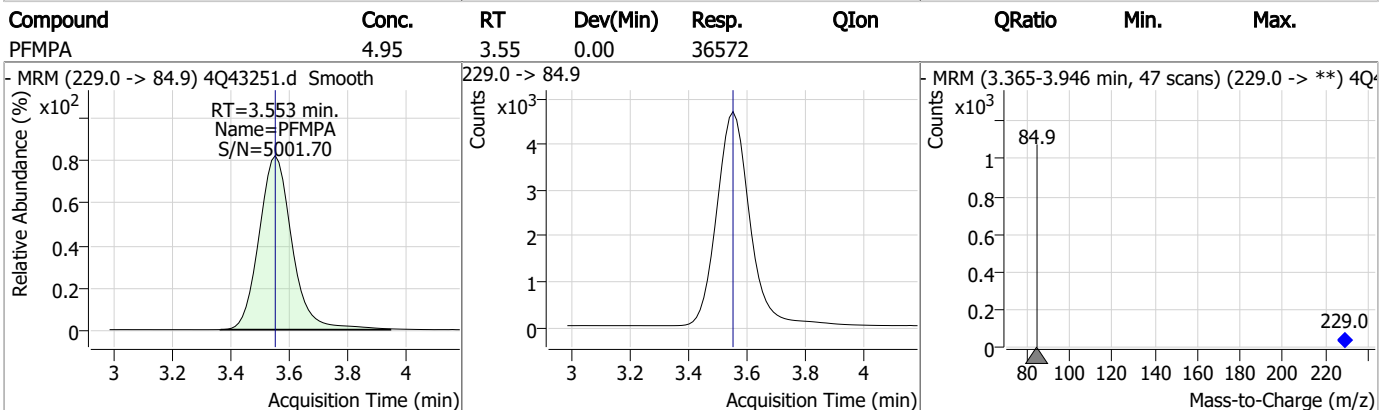
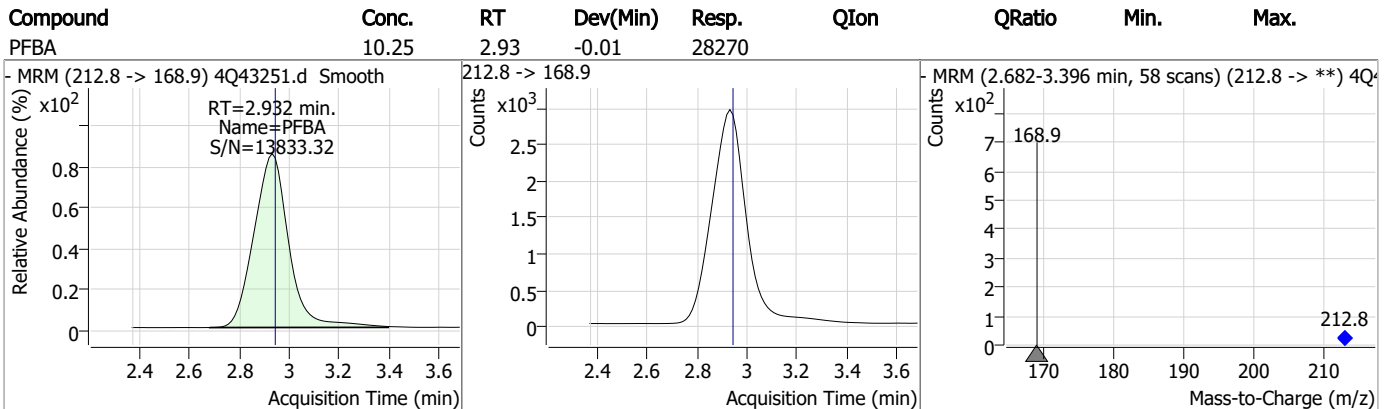
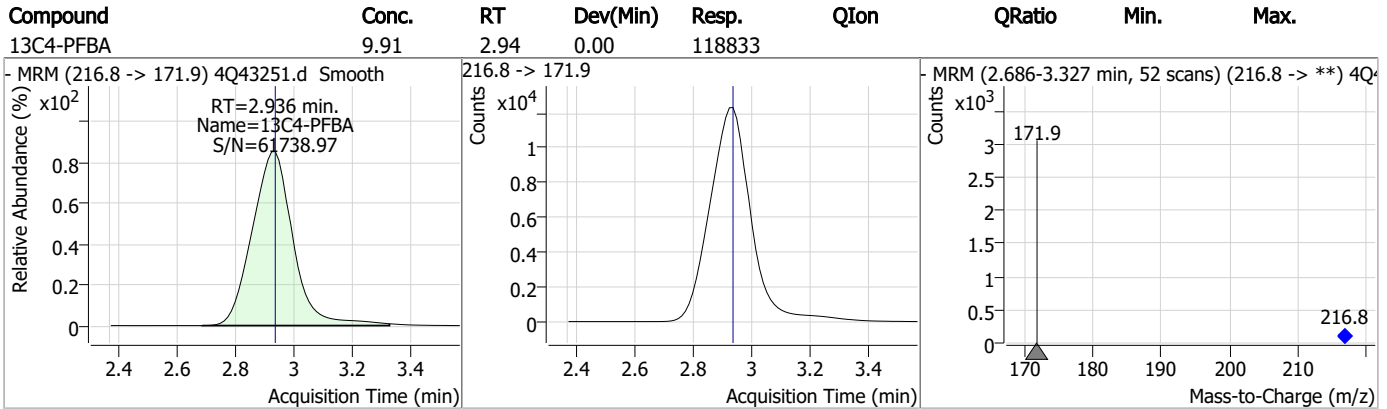
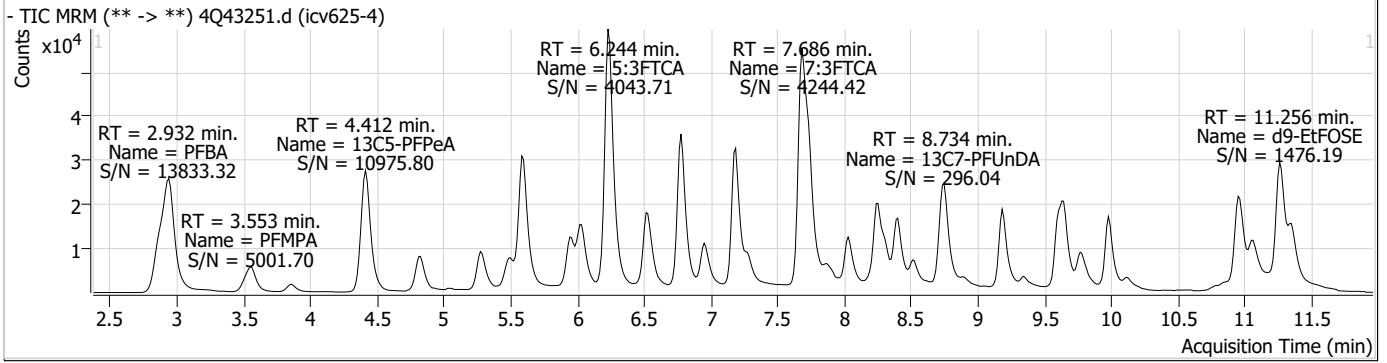
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.25

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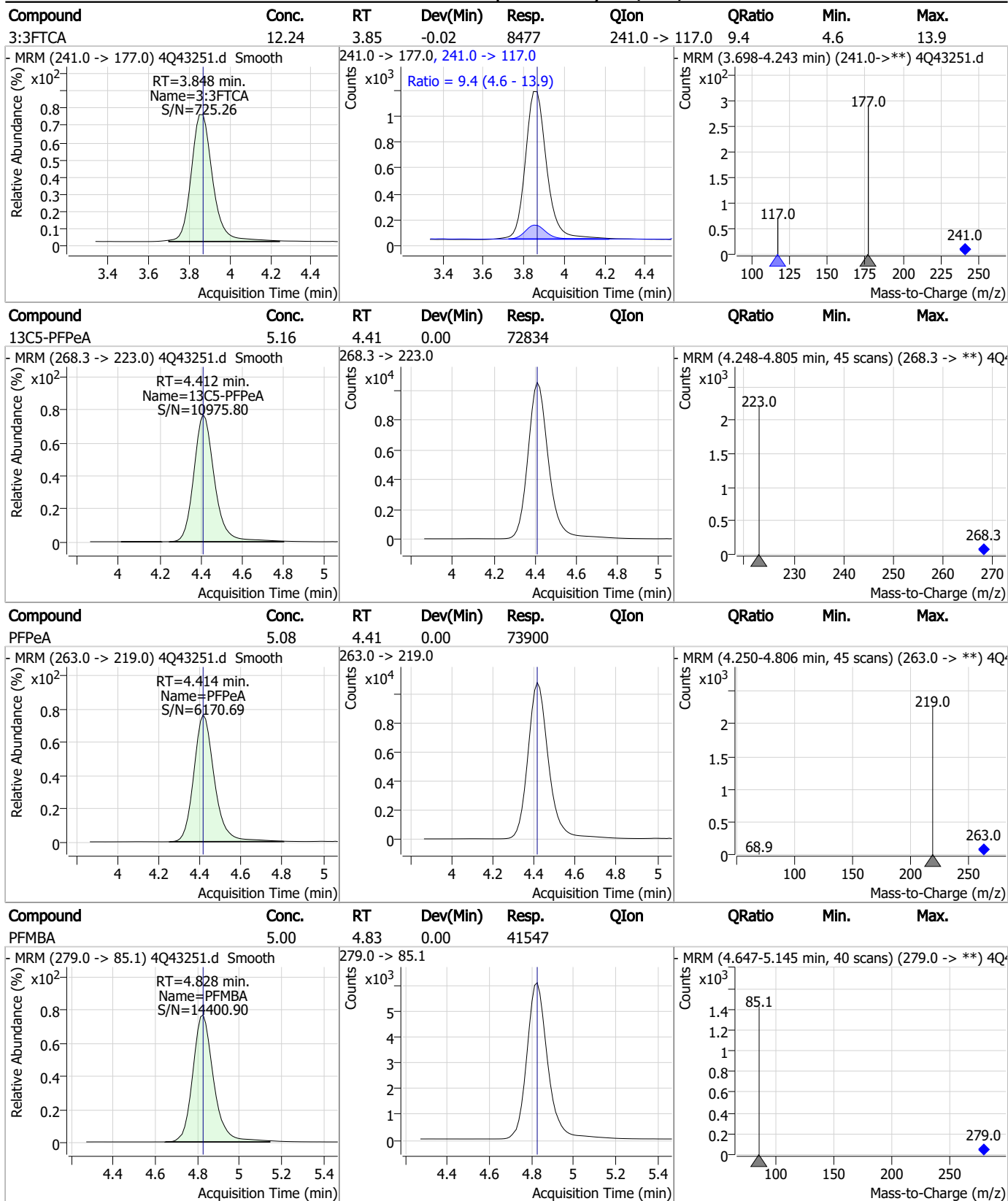
Perfluorinated Compounds by LC/MS/MS



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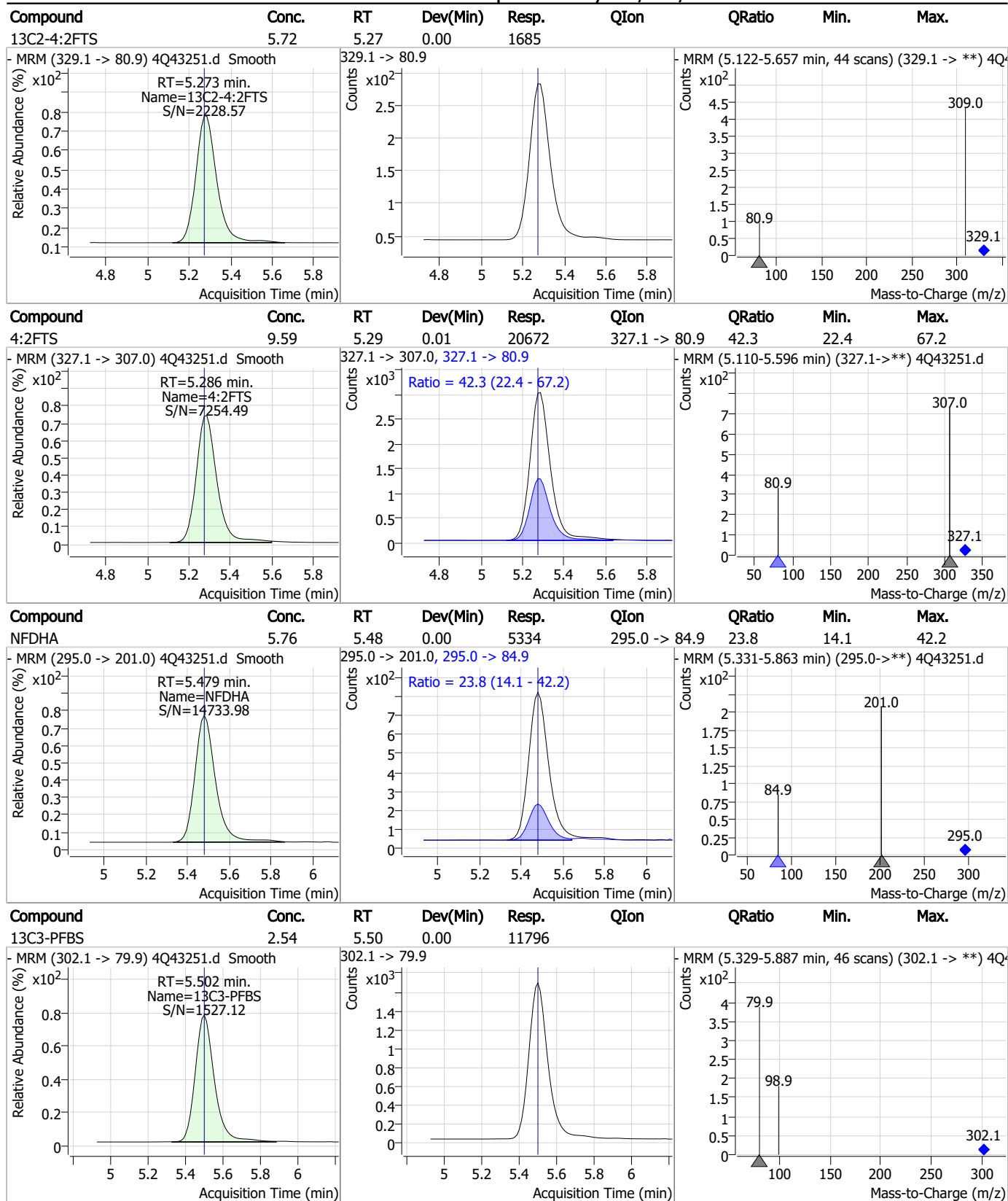
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

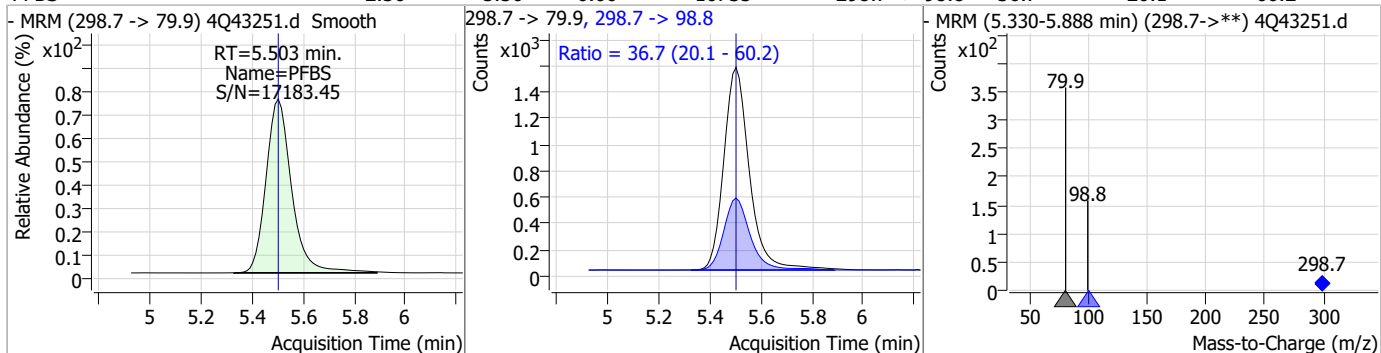


7.7.25

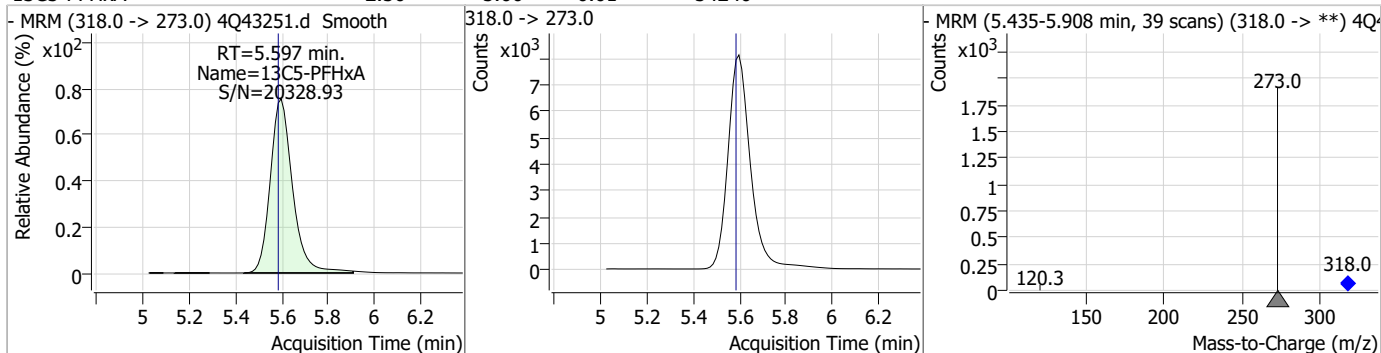
7

Perfluorinated Compounds by LC/MS/MS

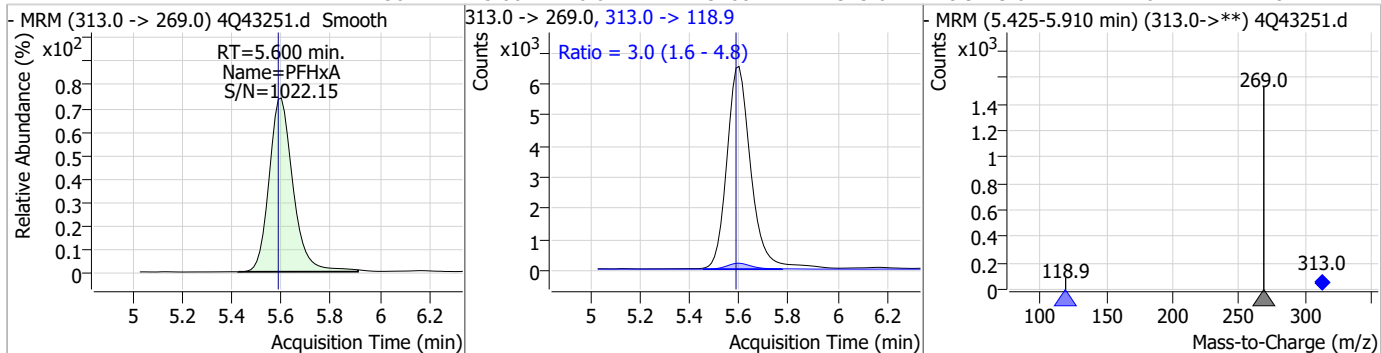
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.30	5.50	0.00	10735	298.7 -> 98.8	36.7	20.1	60.2



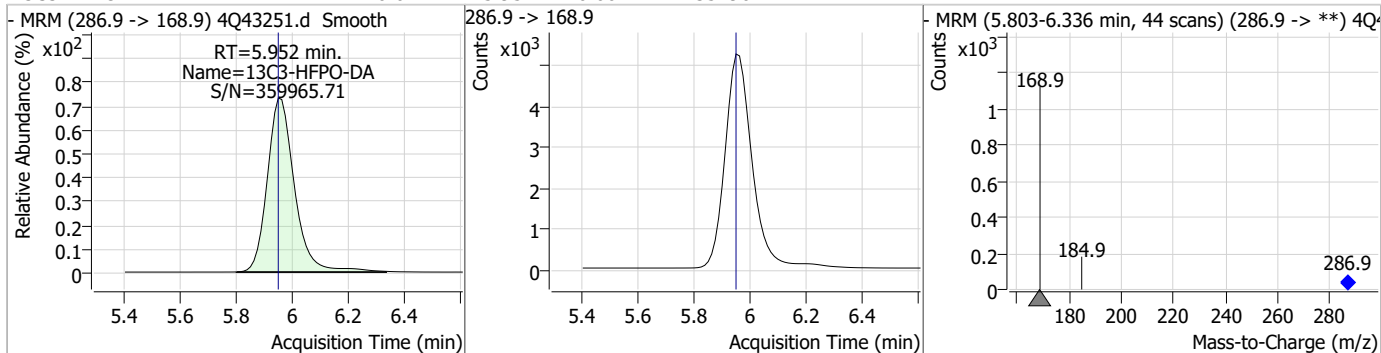
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.50	5.60	0.01	54240	318.0 -> 273.0	3.0	1.6	4.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.56	5.60	0.01	43768	313.0 -> 118.9	3.0	1.6	4.8

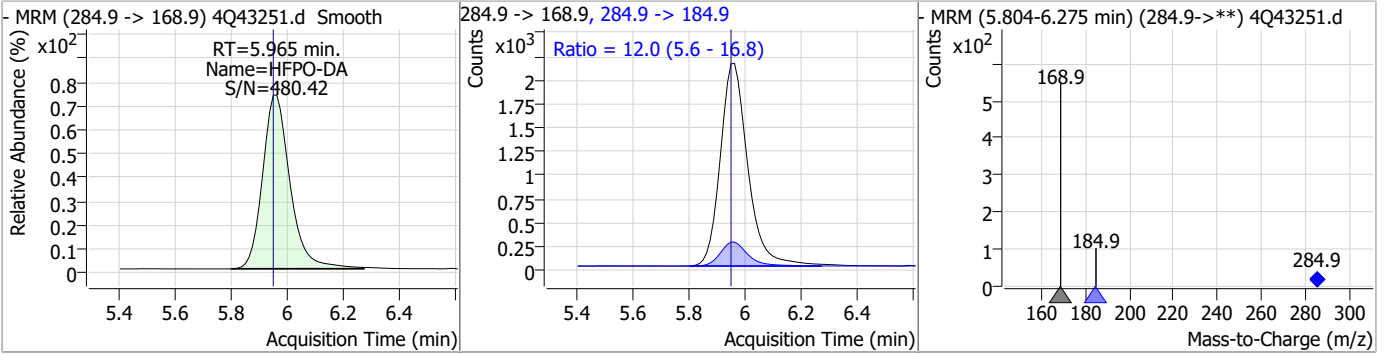


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.07	5.95	0.00	35290	286.9 -> 168.9	3.0	1.6	4.8

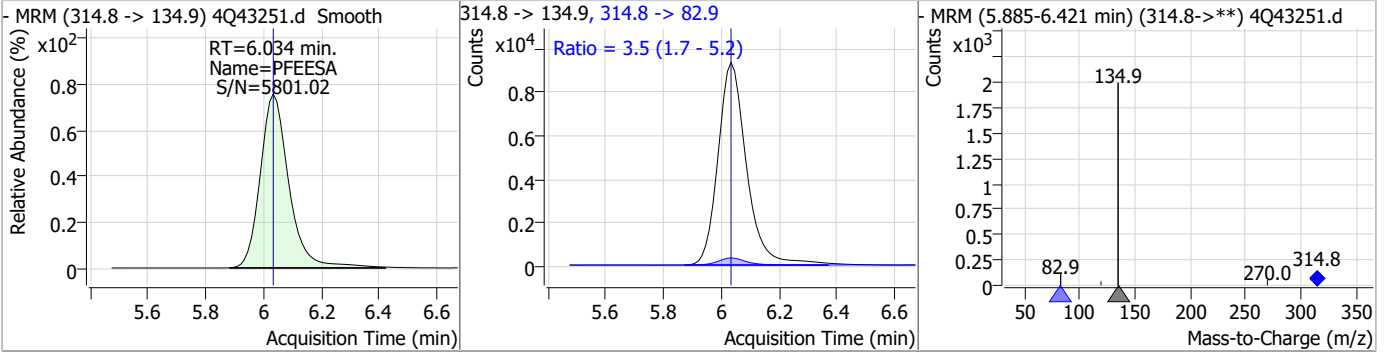


Perfluorinated Compounds by LC/MS/MS

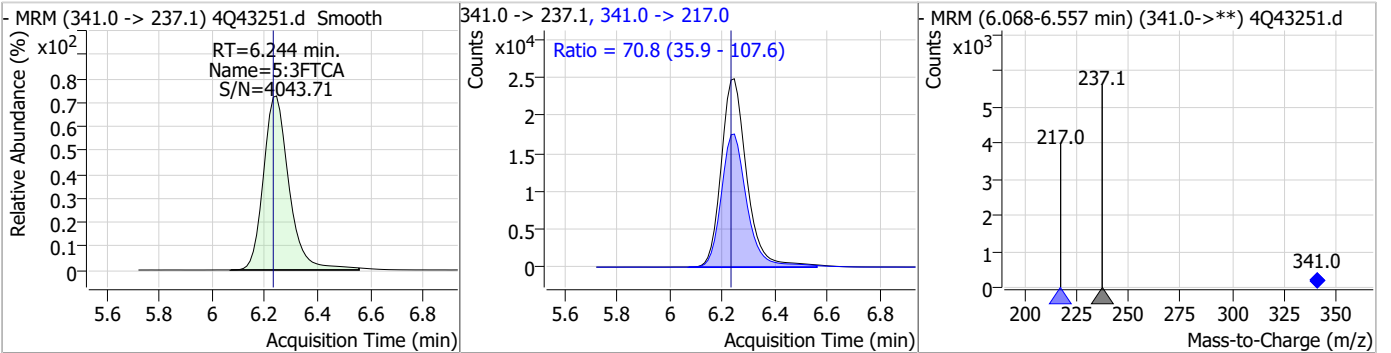
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.21	5.97	0.01	14518	284.9 -> 184.9	12.0	5.6	16.8



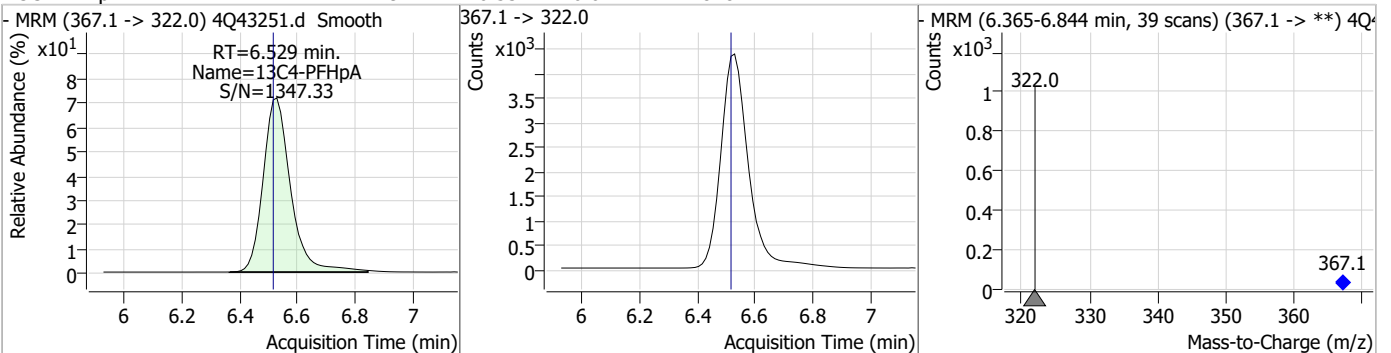
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.58	6.03	0.00	64179	314.8 -> 82.9	3.5	1.7	5.2



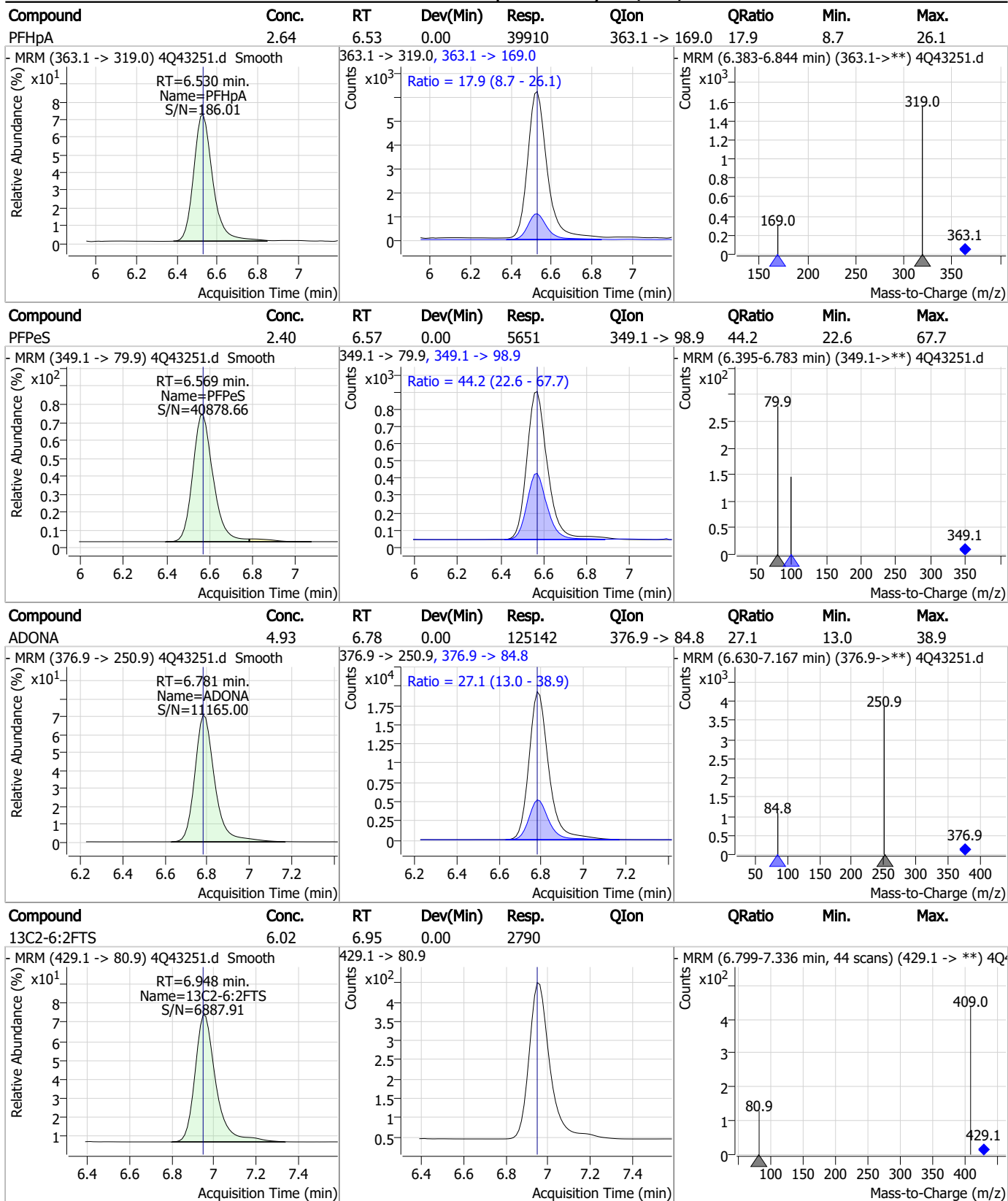
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	65.71	6.24	0.01	167377	341.0 -> 217.0	70.8	35.9	107.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.49	6.53	0.01	28787				



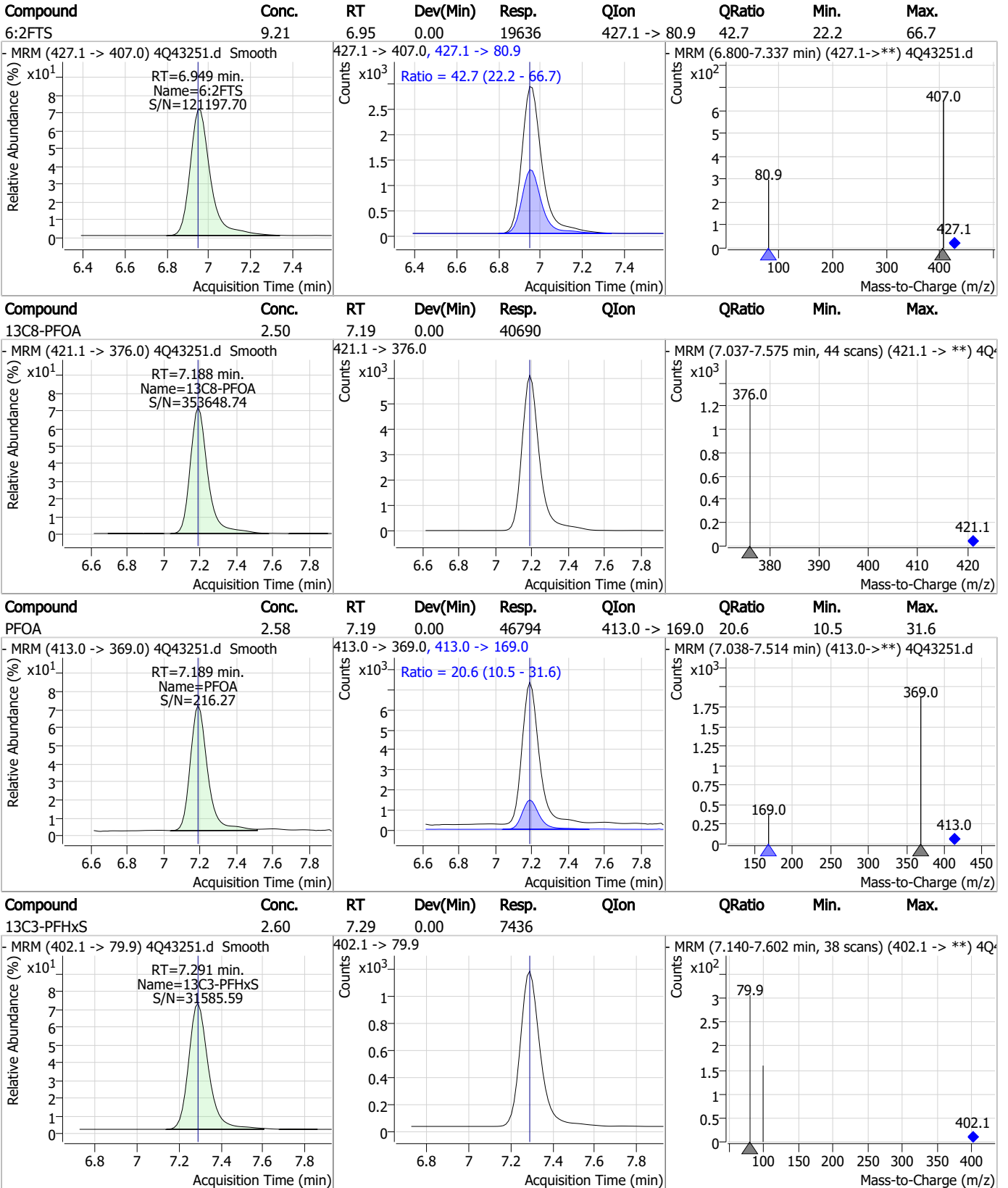
Perfluorinated Compounds by LC/MS/MS



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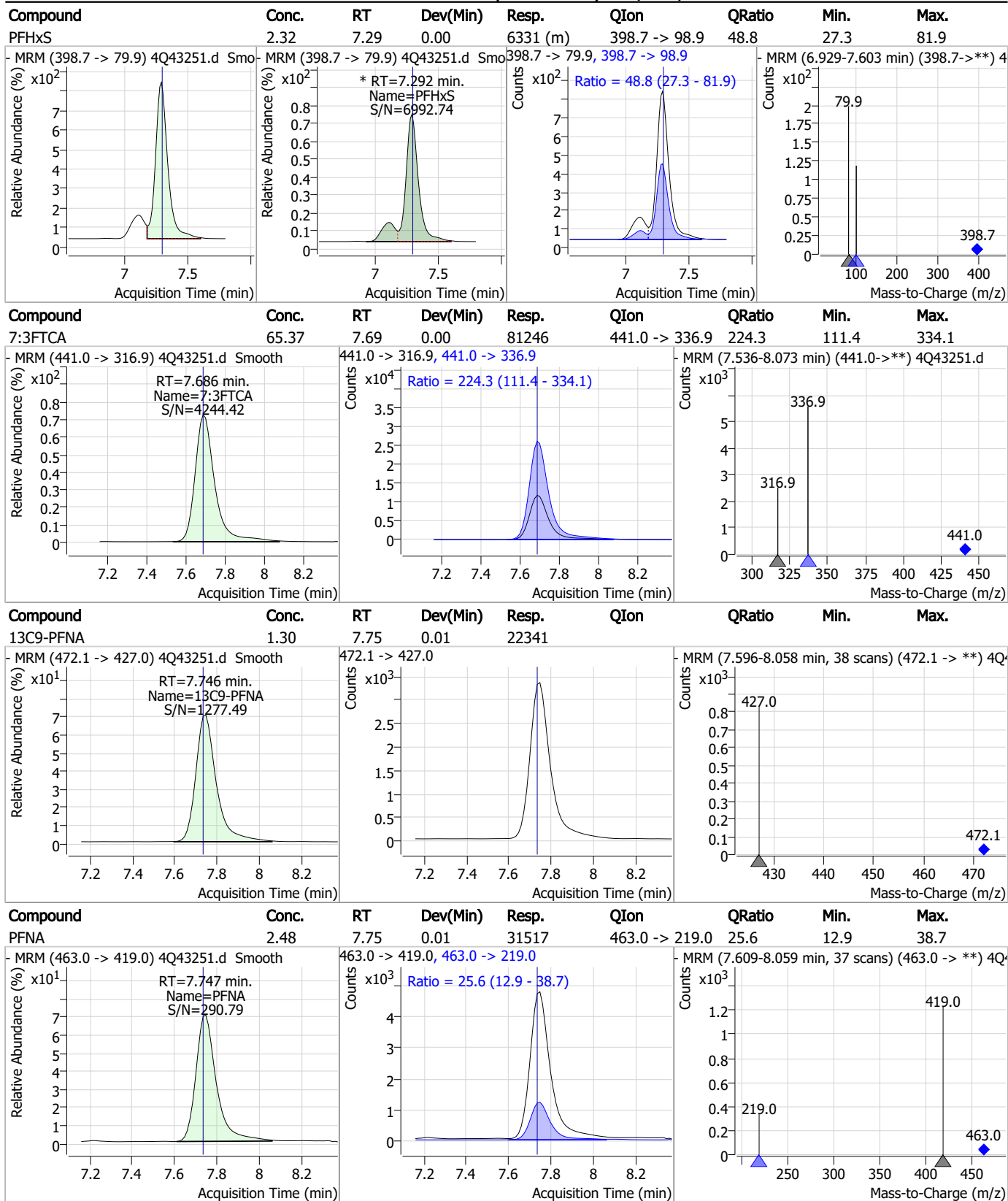
Perfluorinated Compounds by LC/MS/MS



7.7.25 7

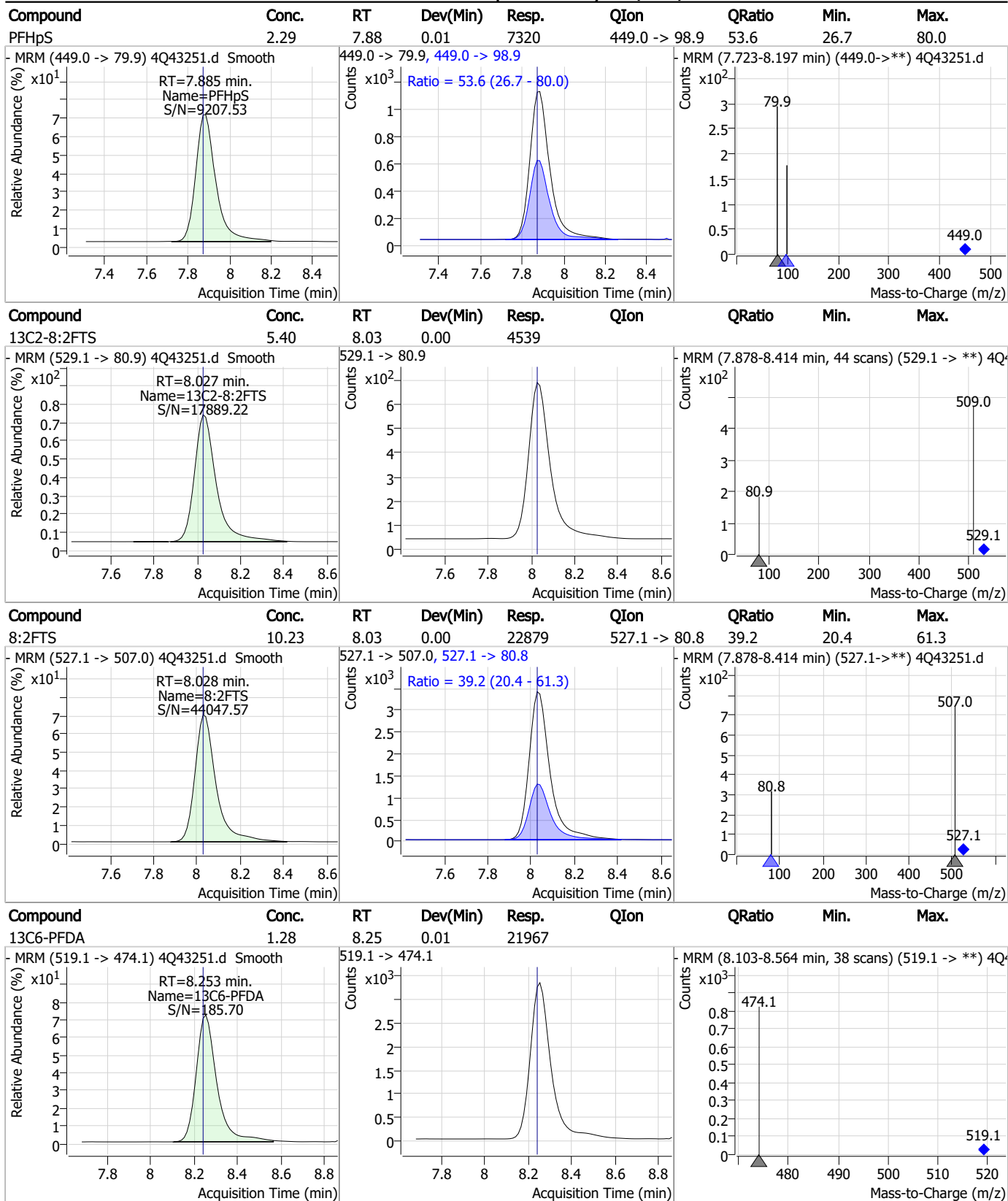


Perfluorinated Compounds by LC/MS/MS



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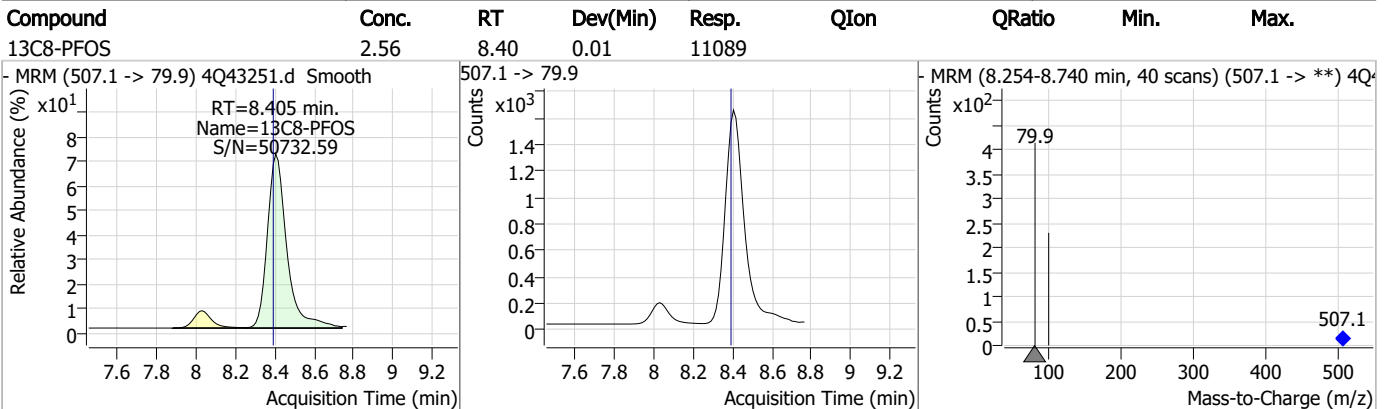
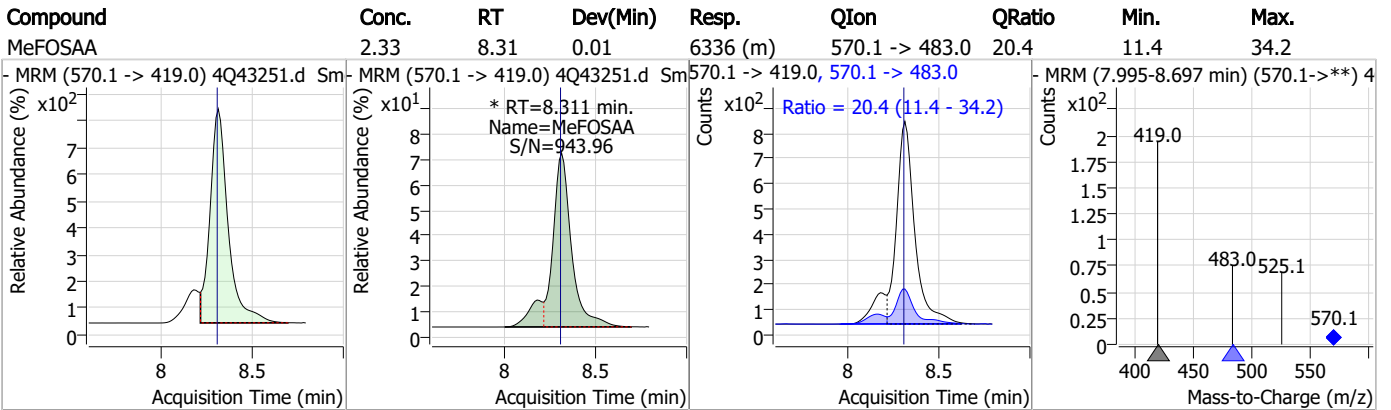
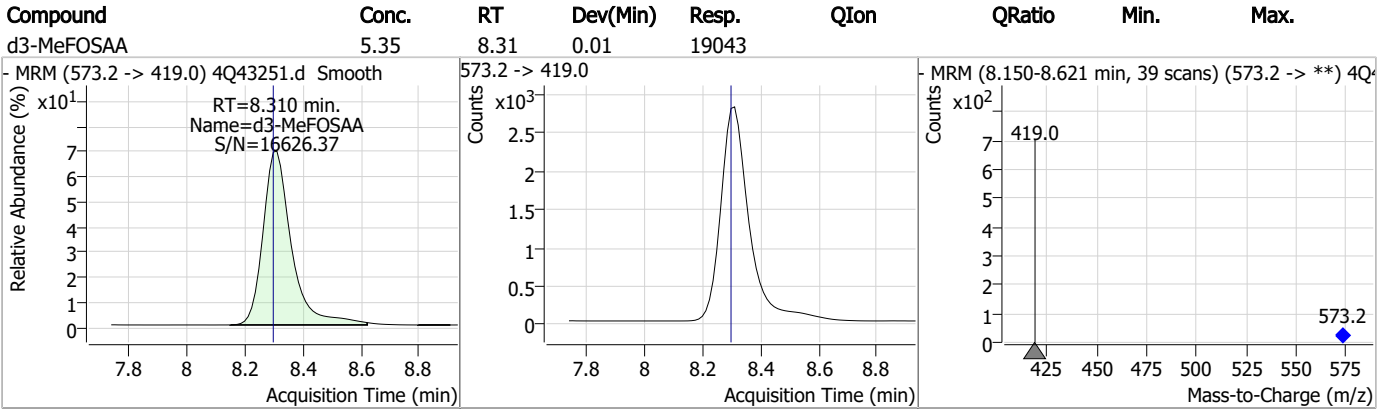
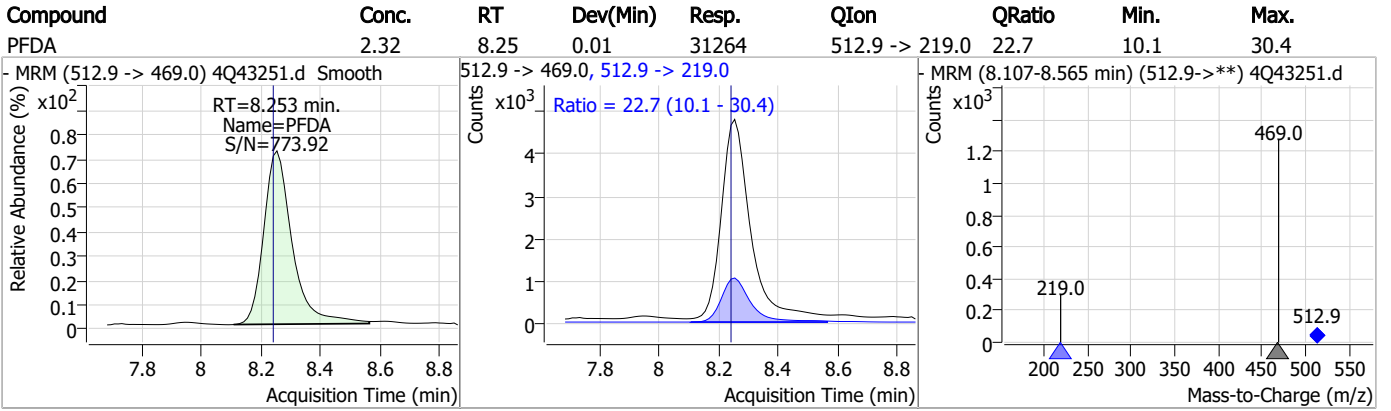
Perfluorinated Compounds by LC/MS/MS



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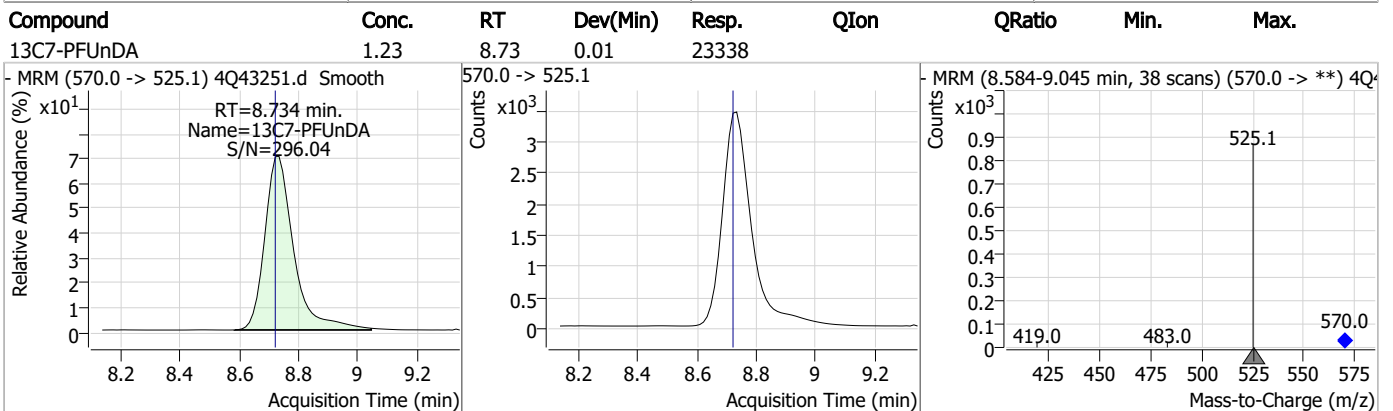
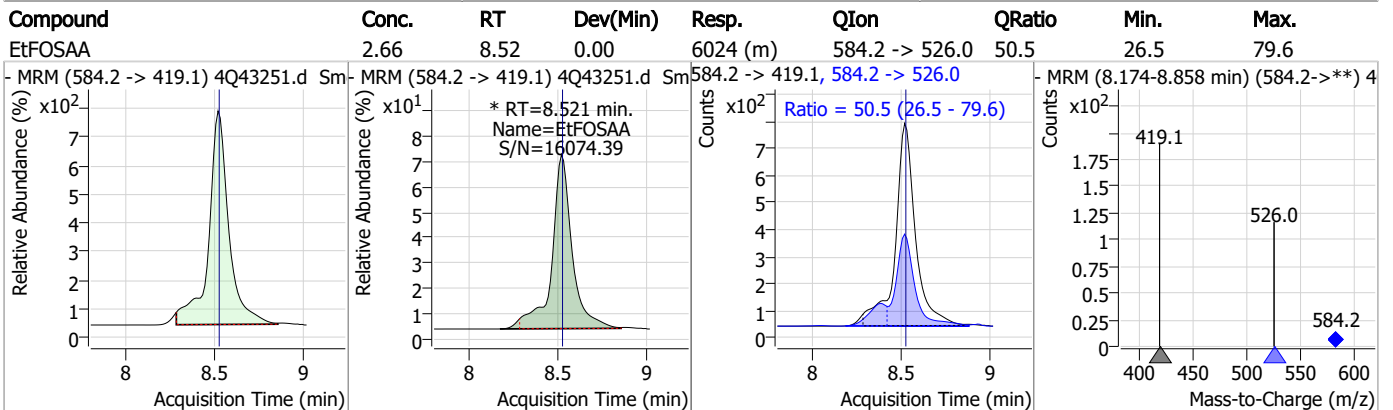
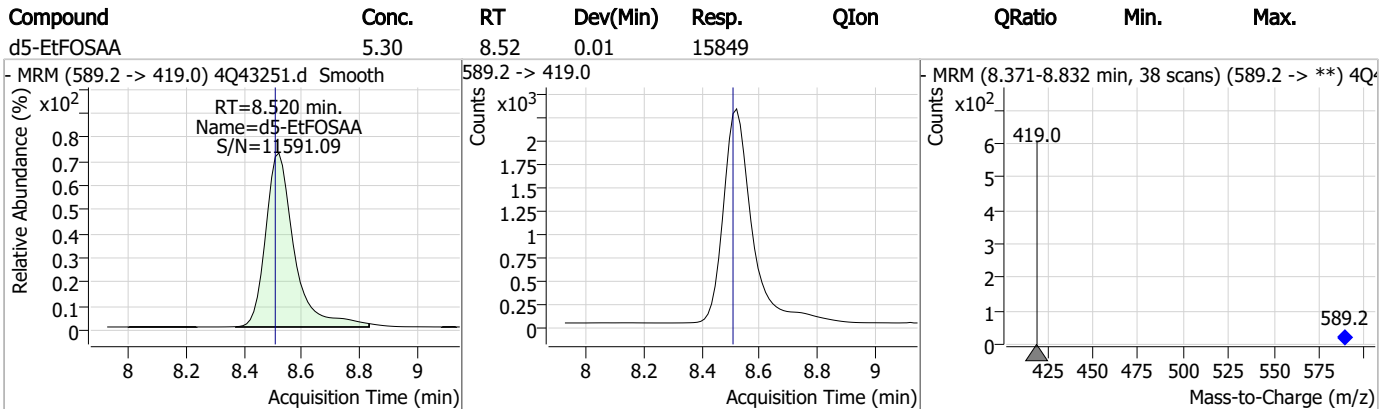
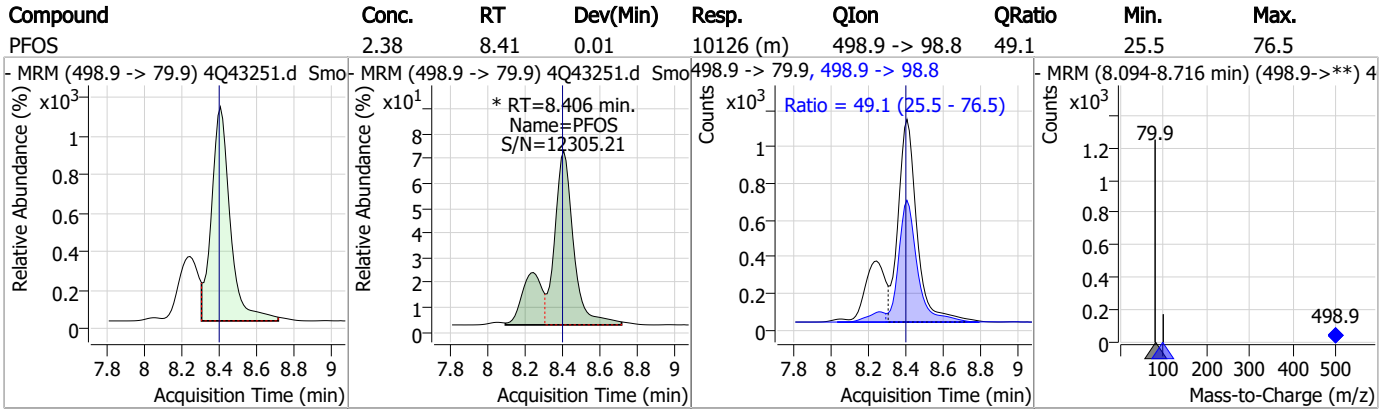
Perfluorinated Compounds by LC/MS/MS



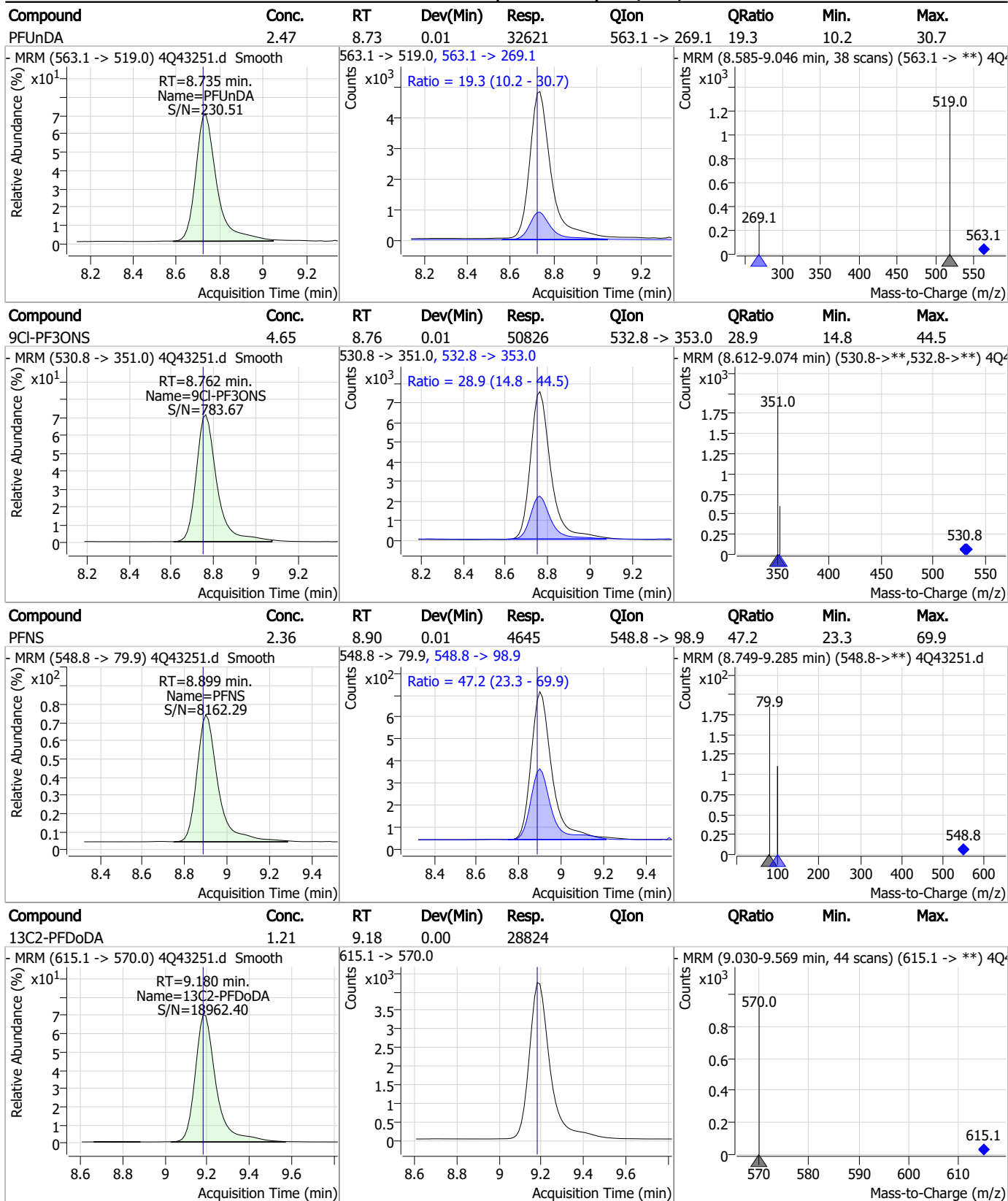
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Perfluorinated Compounds by LC/MS/MS



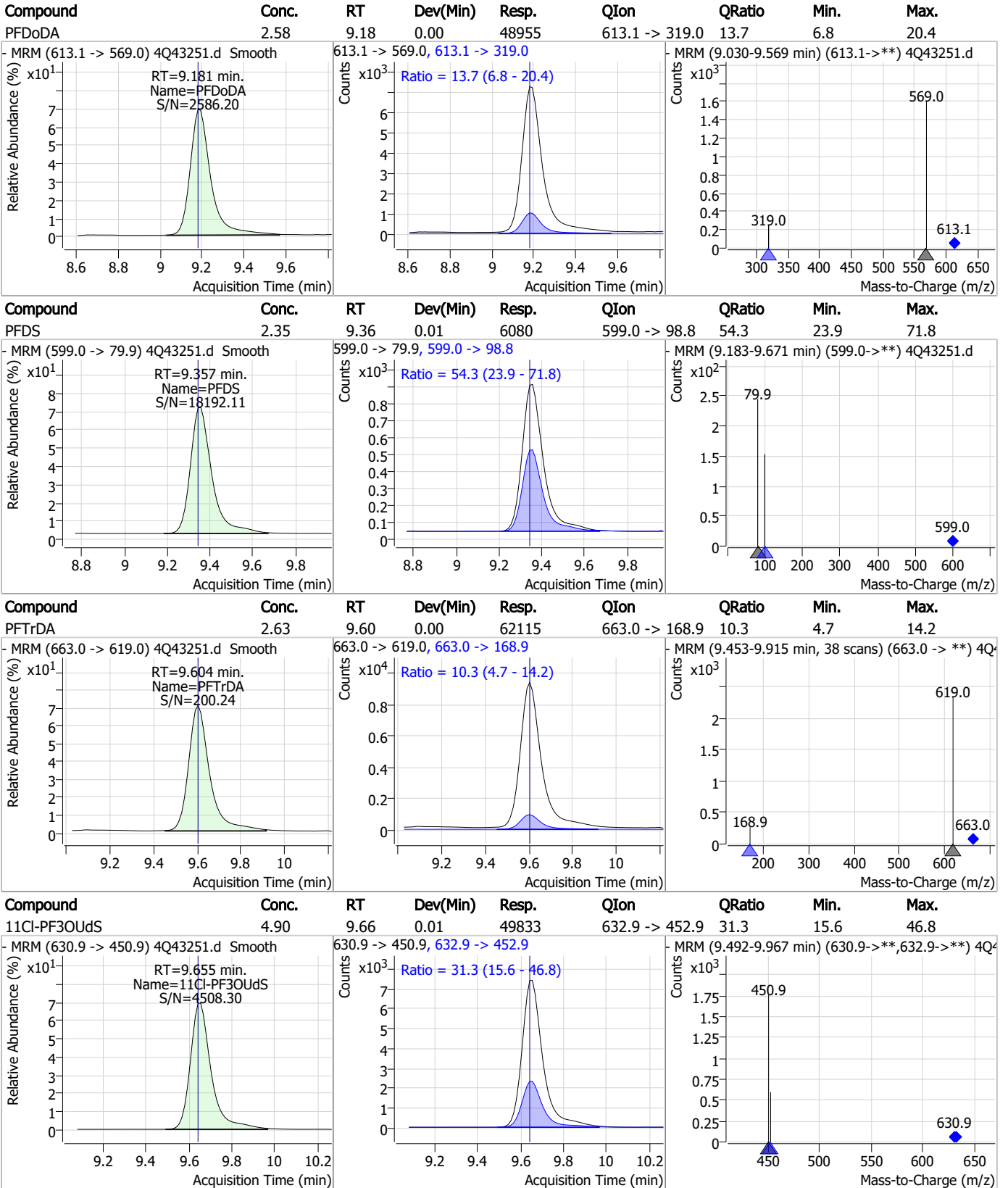
Perfluorinated Compounds by LC/MS/MS



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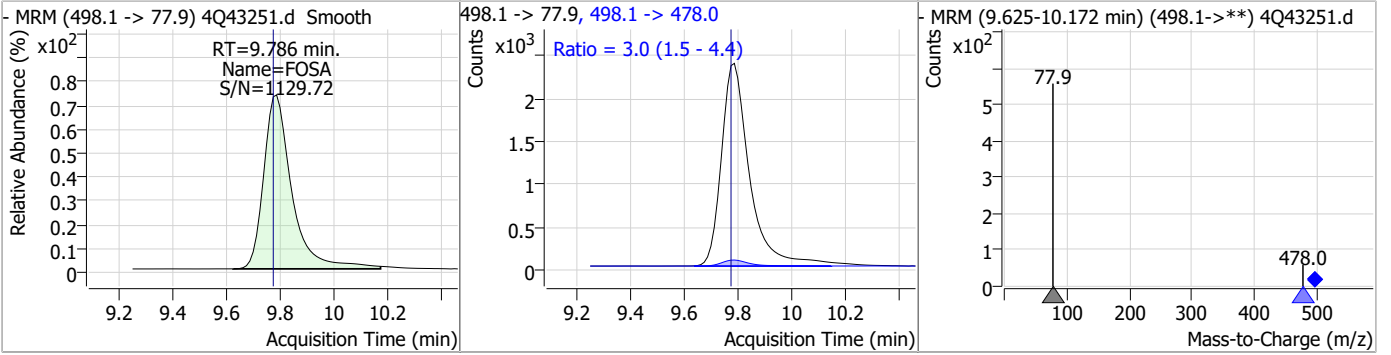
Perfluorinated Compounds by LC/MS/MS



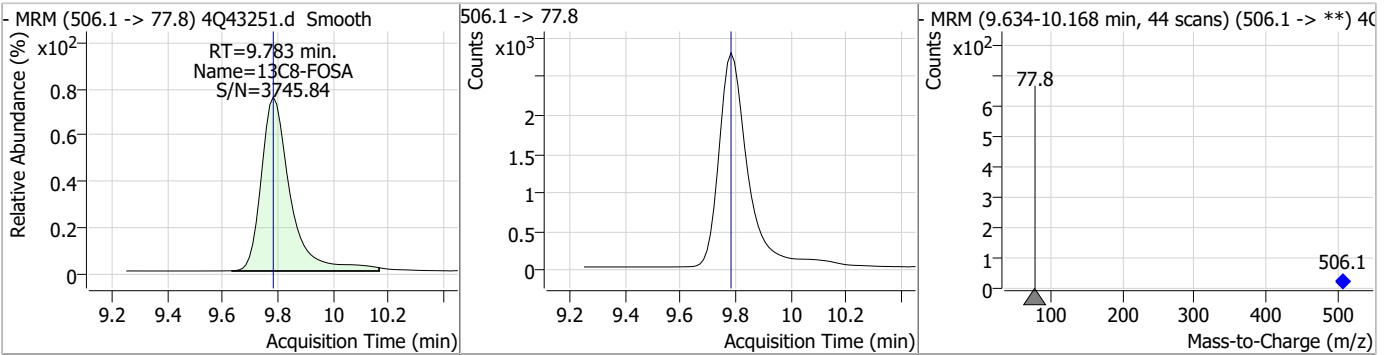
7.7.25 7

Perfluorinated Compounds by LC/MS/MS

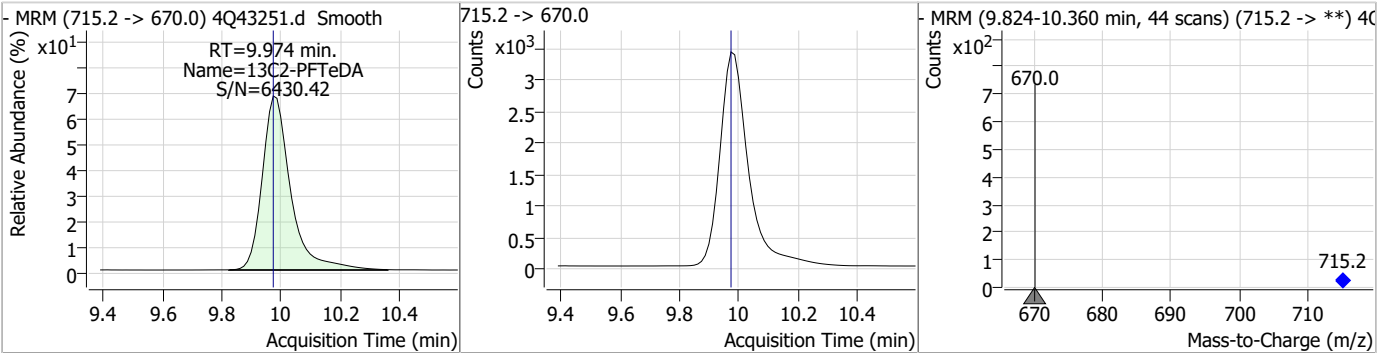
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.51	9.79	0.01	17171	498.1 -> 478.0	3.0	1.5	4.4



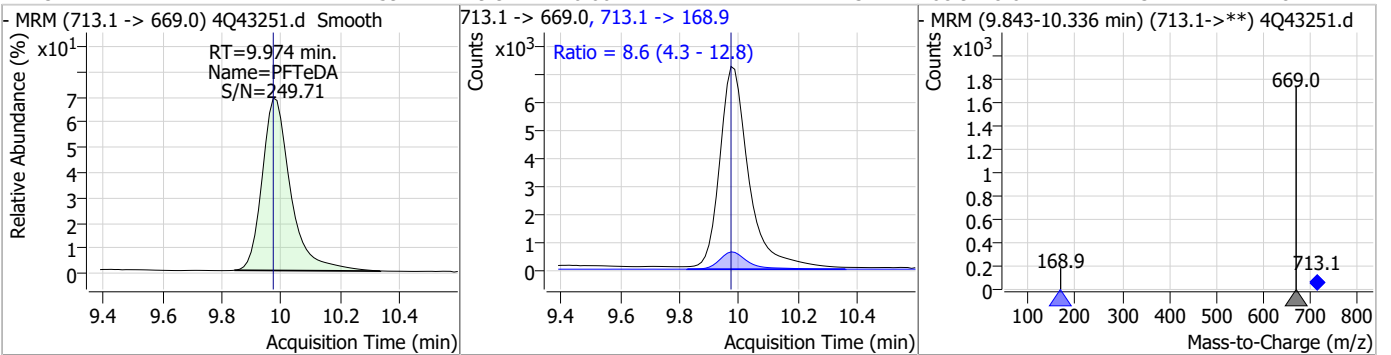
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
¹³ C8-FOSA	2.58	9.78	0.00	20261				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
¹³ C2-PFTeDA	1.19	9.97	0.00	22668				

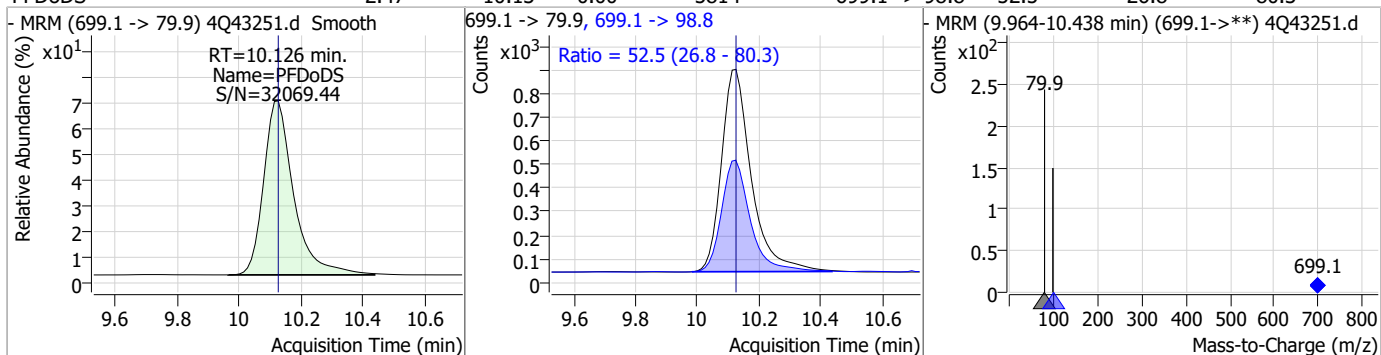


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.59	9.97	0.00	47774	713.1 -> 168.9	8.6	4.3	12.8

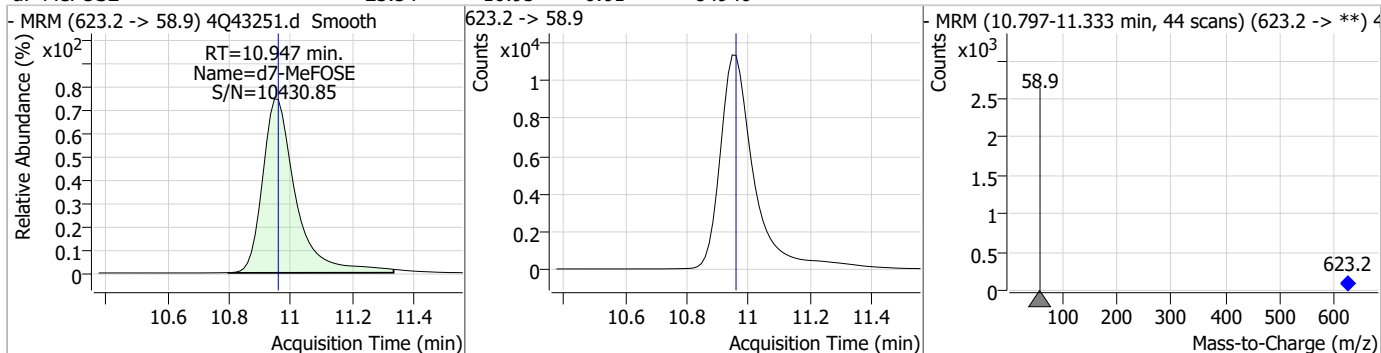


Perfluorinated Compounds by LC/MS/MS

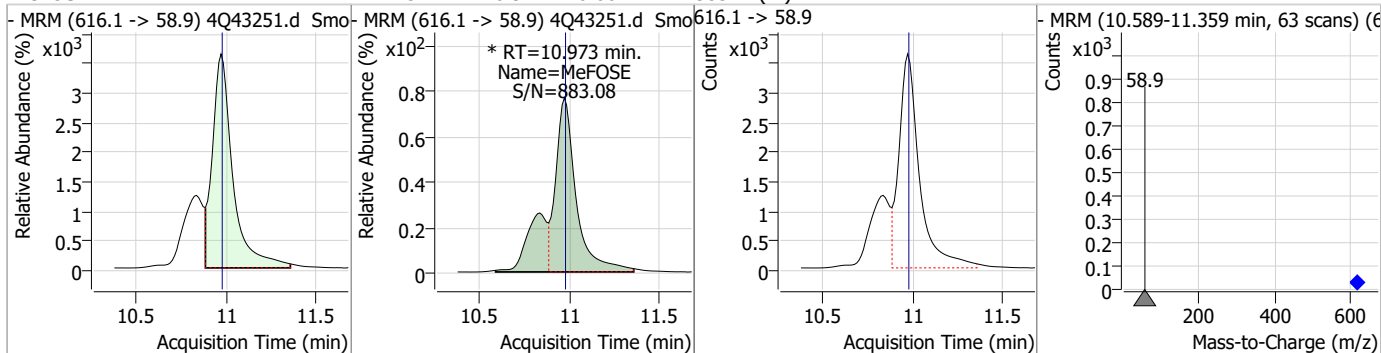
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.47	10.13	0.00	5814	699.1 -> 98.8	52.5	26.8	80.3



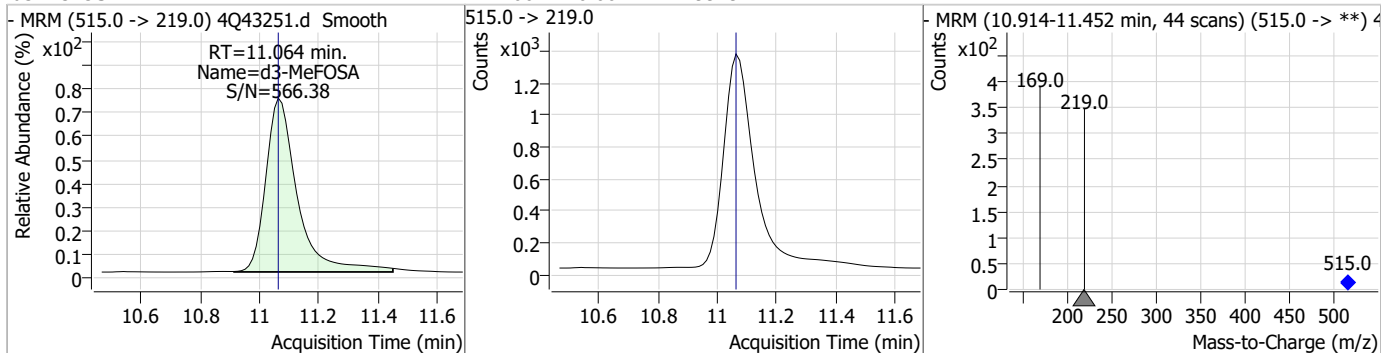
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.54	10.95	-0.01	84940				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.75	10.97	0.00	38527 (m)				

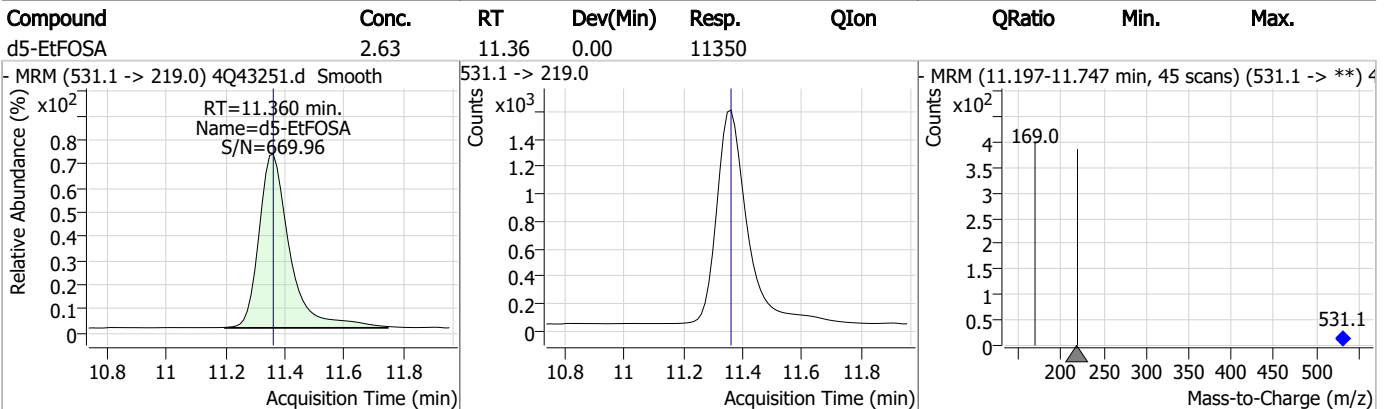
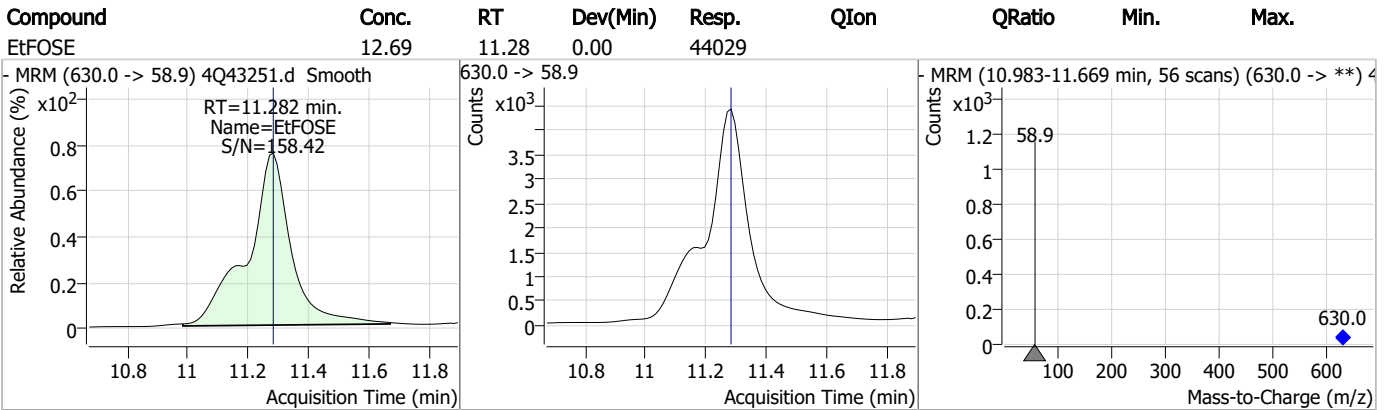
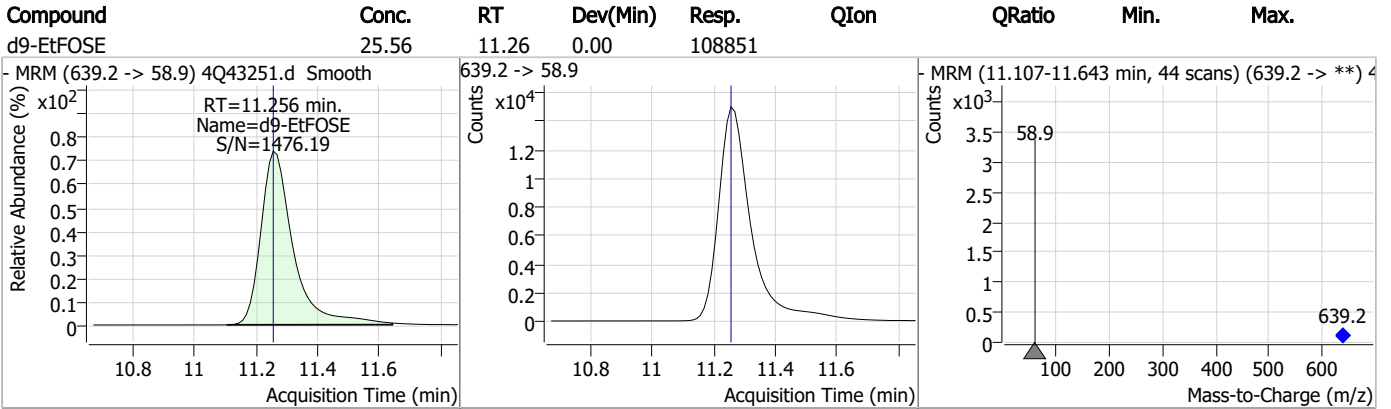
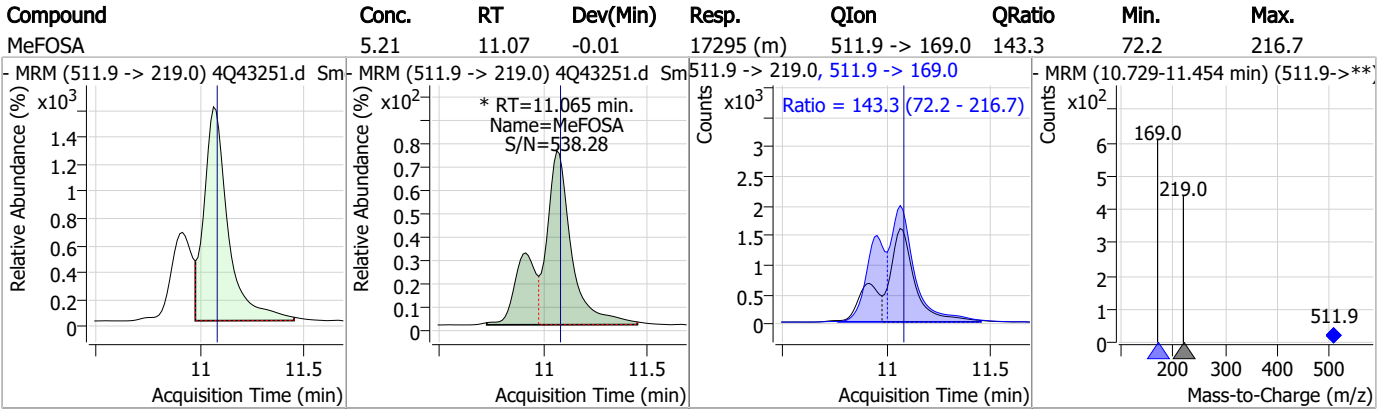


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.44	11.06	0.00	9929				



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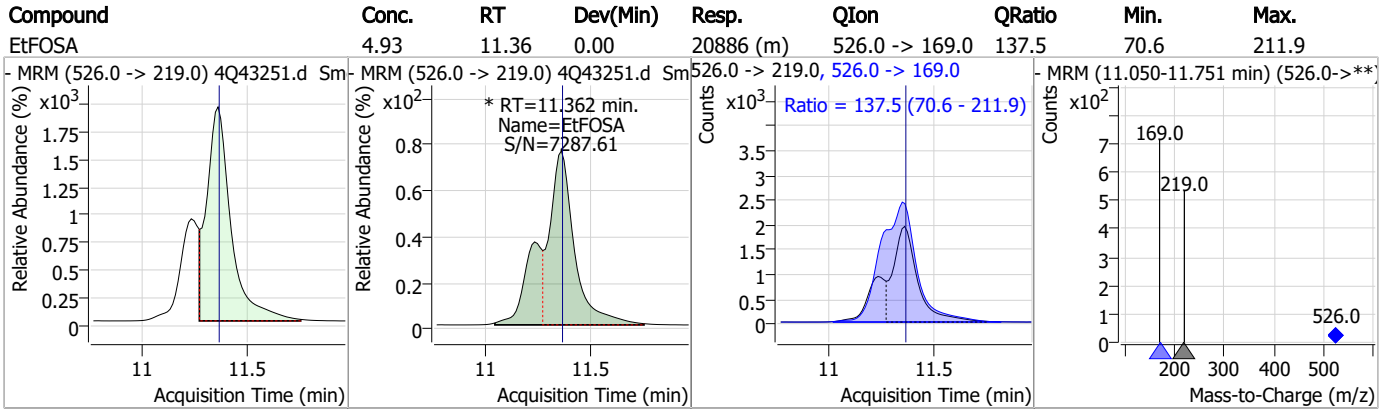
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q625-ICV625 Method: EPA DRAFT 1633
Lab FileID: 4Q43251.D Analyst approved: 04/20/23 14:17 Natasha Gumtie
Injection Time: 04/19/23 14:01 Supervisor approved: 04/21/23 13:15 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.41	Split peak
EtFOSAA	2991-50-6		8.52	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.06	Split peak
EtFOSA	4151-50-2		11.36	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43252.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/19/2023 2:15:18 PM
 Sample Name : icv625-20
 Vial : P1-B2
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s6q625.batch.bin
 Sample Information : OP96301,S4q625,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	116683	10.00 µg/L	0.000
M5-PFPeA	4.412	268.3 -> 223.0	69243	5.00 µg/L	0.000
M5-PFHxA	5.597	318.0 -> 273.0	51670	2.50 µg/L	0.012
M4-PFHpA	6.529	367.1 -> 322.0	27033	2.50 µg/L	0.012
M8-PFOA	7.188	421.1 -> 376.0	37669	2.50 µg/L	0.000
M9-PFNA	7.746	472.1 -> 427.0	20914	1.25 µg/L	0.013
M6-PFDA	8.253	519.1 -> 474.1	18872	1.25 µg/L	0.012
M7-PFUnDA	8.722	570.0 -> 525.1	21866	1.25 µg/L	0.000
M2-PFDoDA	9.180	615.1 -> 570.0	26638	1.25 µg/L	0.000
M2-PFTeDA	9.986	715.2 -> 670.0	21221	1.25 µg/L	0.012
M8-FOSA	9.783	506.1 -> 77.8	19115	2.50 µg/L	0.000
M3-PFBS	5.502	302.1 -> 79.9	11188	2.50 µg/L	0.000
M3-PFHxS	7.291	402.1 -> 79.9	7061	2.50 µg/L	0.000
M8-PFOS	8.405	507.1 -> 79.9	10233	2.50 µg/L	0.012
M2-4:2FTS	5.285	329.1 -> 80.9	1467	5.00 µg/L	0.012
M2-6:2FTS	6.961	429.1 -> 80.9	2543	5.00 µg/L	0.012
M2-8:2FTS	8.027	529.1 -> 80.9	4376	5.00 µg/L	0.000
M3-MeFOSAA	8.310	573.2 -> 419.0	16673	5.00 µg/L	0.012
M3-HFPO-DA	5.964	286.9 -> 168.9	33521	10.00 µg/L	0.013
M5-EtFOSAA	8.520	589.2 -> 419.0	13970	5.00 µg/L	0.012
M7-MeFOSE	10.959	623.2 -> 58.9	78806	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	98626	25.00 µg/L	0.012
M5-EtFOSA	11.360	531.1 -> 219.0	10336	2.50 µg/L	0.000
M3-MeFOSA	11.076	515.0 -> 219.0	9735	2.50 µg/L	0.012
13C4-PFOS	8.405	502.8 -> 79.9	10534	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	65094	5.00 µg/L	-0.013
18O2-PFHxS	7.290	403.0 -> 83.9	4610	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	44555	2.50 µg/L	0.000
13C2-PFDA	8.253	515.1 -> 470.1	19122	1.25 µg/L	0.012
13C5-PFNA	7.746	468.0 -> 423.0	23219	1.25 µg/L	0.013
13C2-PFHxA	5.598	315.1 -> 270.0	45359	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.285	329.1 -> 80.9	1467	5.42 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C2-6:2FTS	6.961	429.1 -> 80.9	2543	5.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.4%		
13C2-8:2FTS	8.027	529.1 -> 80.9	4376	5.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.3%		
13C2-PFDoDA	9.180	615.1 -> 570.0	26638	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C2-PFTeDA	9.986	715.2 -> 670.0	21221	1.16 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.4%		
13C3-PFBS	5.502	302.1 -> 79.9	11188	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C3-PFHxS	7.291	402.1 -> 79.9	7061	2.68 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 = 107.3%	
13C4-PFBA	2.936	216.8 -> 171.9	116683	9.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.529	367.1 -> 322.0	27033	2.38 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C5-PFHxA	5.597	318.0 -> 273.0	51670	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C5-PFPeA	4.412	268.3 -> 223.0	69243	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C6-PFDA	8.253	519.1 -> 474.1	18872	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.2%	
13C7-PFUnDA	8.722	570.0 -> 525.1	21866	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C8-FOSA	9.783	506.1 -> 77.8	19115	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C8-PFOA	7.188	421.1 -> 376.0	37669	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C8-PFOS	8.405	507.1 -> 79.9	10233	2.43 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C9-PFNA	7.746	472.1 -> 427.0	20914	1.29 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
d3-MeFOSAA	8.310	573.2 -> 419.0	16673	4.82 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C3-HFPO-DA	5.964	286.9 -> 168.9	33521	9.74 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.4%	
d3-MeFOSA	11.076	515.0 -> 219.0	9735	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
d5-EtFOSAA	8.520	589.2 -> 419.0	13970	4.81 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
d7-MeFOSE	10.959	623.2 -> 58.9	78806	24.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
d9-EtFOSE	11.269	639.2 -> 58.9	98626	23.83 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
d5-EtFOSA	11.360	531.1 -> 219.0	10336	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
Target Compounds					QValue
4:2FTS	5.273	327.1 -> 307.0	42674	22.73 µg/L	94
		327.1 -> 80.9	17450		
6:2FTS	6.961	427.1 -> 407.0	37892	19.49 µg/L	96
		427.1 -> 80.9	15779		
8:2FTS	8.028	527.1 -> 507.0	43926	20.36 µg/L	97
		527.1 -> 80.8	17253		
EtFOSAA	8.521	584.2 -> 419.1	44877	22.50 µg/L	94
		584.2 -> 526.0	21785		
FOSA	9.786	498.1 -> 77.9	135378	20.94 µg/L	100
		498.1 -> 478.0	3880		
MeFOSAA	8.311	570.1 -> 419.0	47089	19.79 µg/L	98
		570.1 -> 483.0	10375		
PFBA	2.932	212.8 -> 168.9	53746	19.85 µg/L	100
PFBS	5.503	298.7 -> 79.9	97588	22.05 µg/L	96
		298.7 -> 98.8	37063		
PFDA	8.253	512.9 -> 469.0	260811	22.52 µg/L	99
		512.9 -> 219.0	51519		
PFDoDA	9.181	613.1 -> 569.0	324987	18.54 µg/L	99
		613.1 -> 319.0	45777		
PFDS	9.344	599.0 -> 79.9	49709	20.79 µg/L	99

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.530	599.0 -> 98.8	24136	21.06	µg/L	100
		363.1 -> 319.0	299261			
PFHpS	7.873	363.1 -> 169.0	52189	20.85	µg/L	98
		449.0 -> 79.9	61382			
PFHxA	5.600	449.0 -> 98.9	31736	22.09	µg/L	100
		313.0 -> 269.0	359526			
PFHxS	7.292	313.0 -> 118.9	11134	21.61	µg/L	m
		398.7 -> 79.9	55881			
PFNA	7.747	398.7 -> 98.9	28096	21.90	µg/L	98
		463.0 -> 419.0	260867			
PFNS	8.899	463.0 -> 219.0	64522	20.91	µg/L	92
		548.8 -> 79.9	37908			
PFOA	7.189	548.8 -> 98.9	19572	21.69	µg/L	100
		413.0 -> 369.0	363929			
PFOS	8.406	413.0 -> 169.0	75902	18.42	µg/L	m
		498.9 -> 79.9	72289			
PFPeA	4.414	498.9 -> 98.8	33865	22.19	µg/L	100
		263.0 -> 219.0	306949			
PFPeS	6.569	349.1 -> 79.9	49818	22.31	µg/L	99
		349.1 -> 98.9	22006			
PFTeDA	9.987	713.1 -> 669.0	383665	22.25	µg/L	100
		713.1 -> 168.9	32108			
PFTrDA	9.604	663.0 -> 619.0	413850	18.97	µg/L	99
		663.0 -> 168.9	40181			
PFUnDA	8.722	563.1 -> 519.0	241030	19.48	µg/L	97
		563.1 -> 269.1	46095			
11Cl-PF3OUdS	9.643	630.9 -> 450.9	208225	21.56	µg/L	99
		632.9 -> 452.9	63739			
9Cl-PF3ONS	8.762	530.8 -> 351.0	213870	20.62	µg/L	98
		532.8 -> 353.0	65257			
ADONA	6.781	376.9 -> 250.9	509795	21.16	µg/L	98
		376.9 -> 84.8	136640			
HFPO-DA	5.965	284.9 -> 168.9	52976	20.01	µg/L	97
		284.9 -> 184.9	6605			
3:3FTCA	3.867	241.0 -> 177.0	13209	20.06	µg/L	100
		241.0 -> 117.0	1242			
5:3FTCA	6.244	341.0 -> 237.1	53061	21.87	µg/L	100
		341.0 -> 217.0	37951			
7:3FTCA	7.686	441.0 -> 316.9	25670	21.68	µg/L	97
		441.0 -> 336.9	56119			
EtFOSA	11.362	526.0 -> 219.0	79874	20.71	µg/L	75
		526.0 -> 169.0	88110			
EtFOSE	11.282	630.0 -> 58.9	346926	110.32	µg/L	100
MeFOSA	11.078	511.9 -> 219.0	66904	20.55	µg/L	77
		511.9 -> 169.0	77680			
MeFOSE	10.985	616.1 -> 58.9	302946	108.10	µg/L	100
PFDoDS	10.126	699.1 -> 79.9	43426	19.99	µg/L	97
		699.1 -> 98.8	24273			
NFDHA	5.479	295.0 -> 201.0	19251	21.83	µg/L	95
		295.0 -> 84.9	4902			
PFMBA	4.828	279.0 -> 85.1	167146	21.16	µg/L	100
PFMPA	3.553	229.0 -> 84.9	148249	21.12	µg/L	100
PFEESA	6.034	314.8 -> 134.9	251261	18.81	µg/L	100
		314.8 -> 82.9	8771			

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

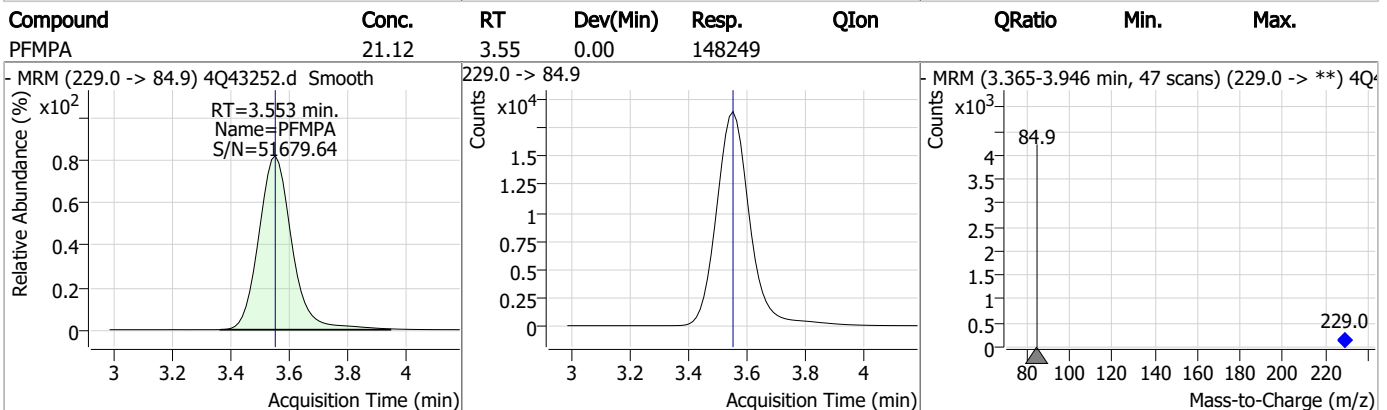
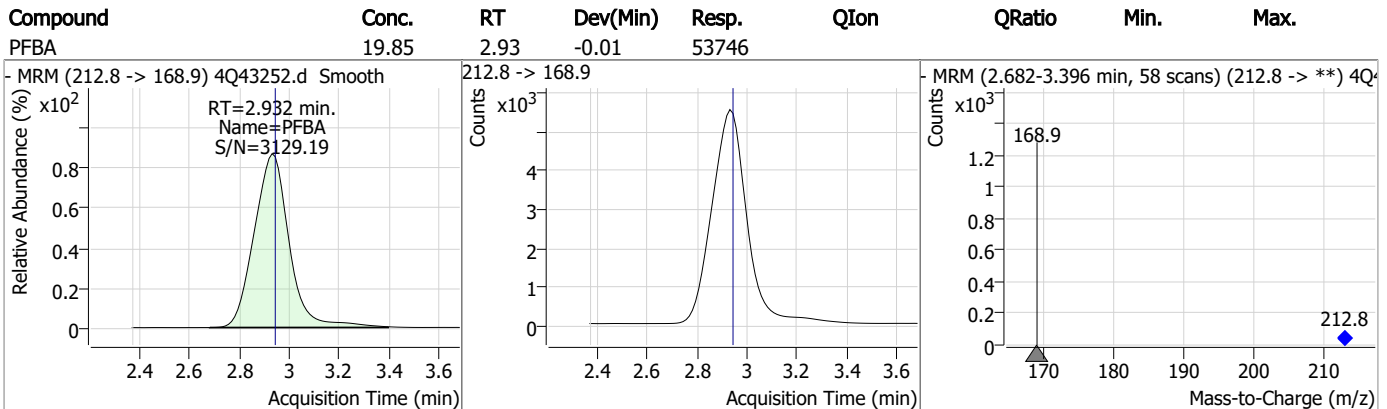
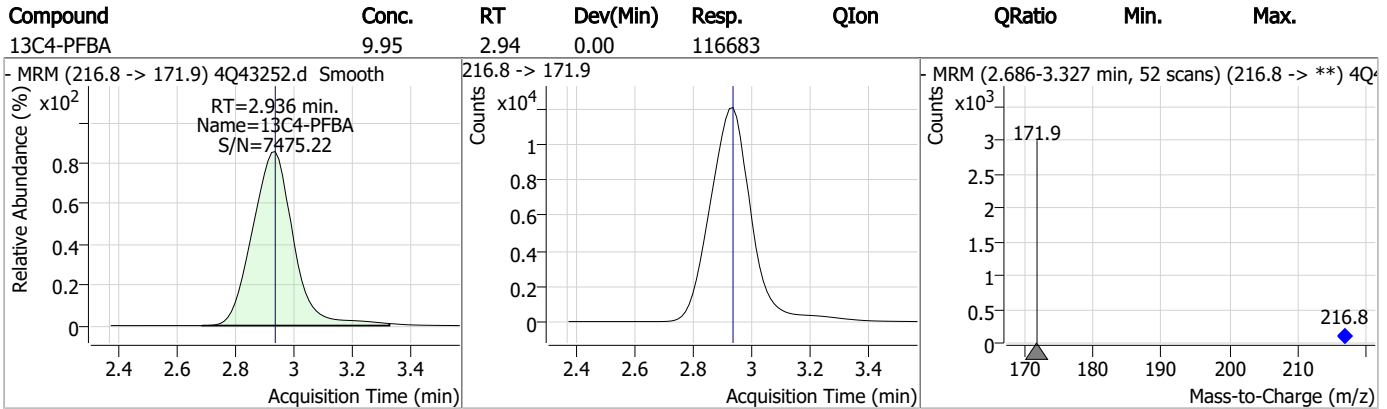
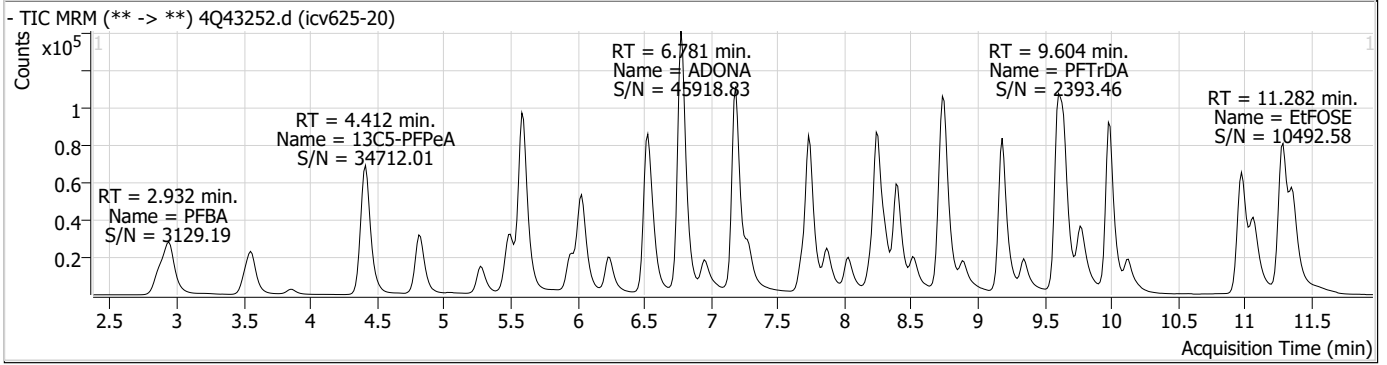
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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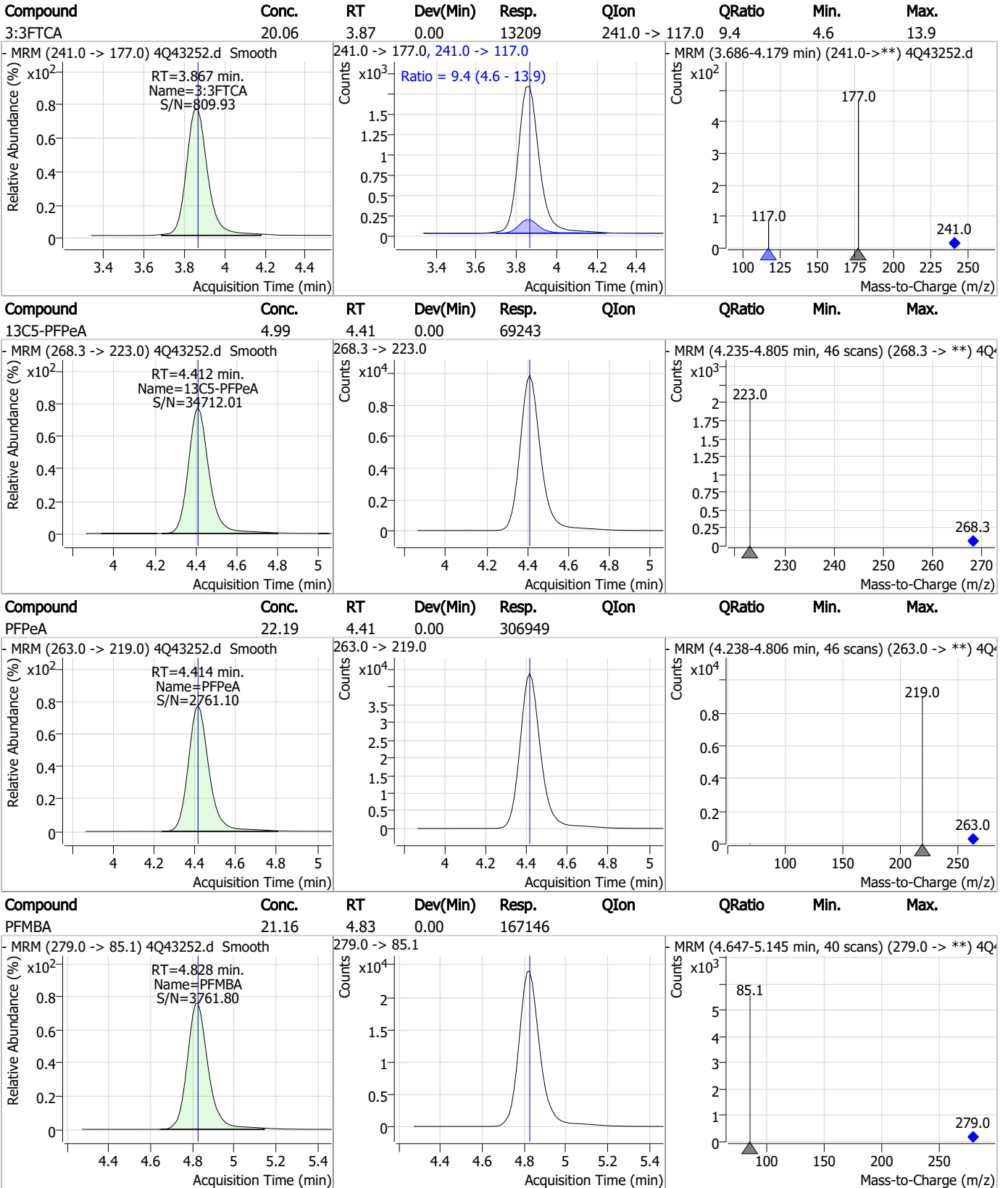
7.7.26

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Perfluorinated Compounds by LC/MS/MS

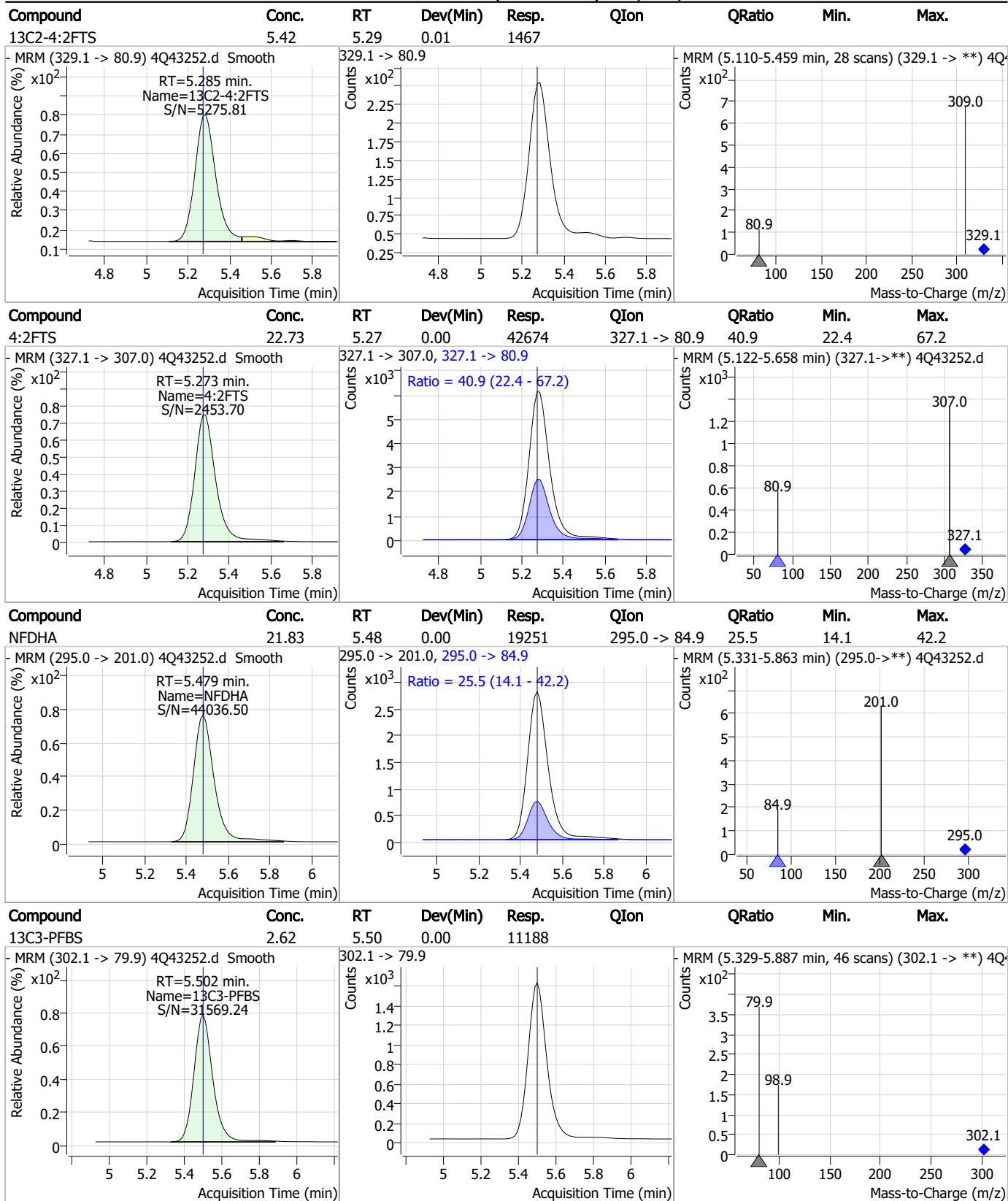


Perfluorinated Compounds by LC/MS/MS



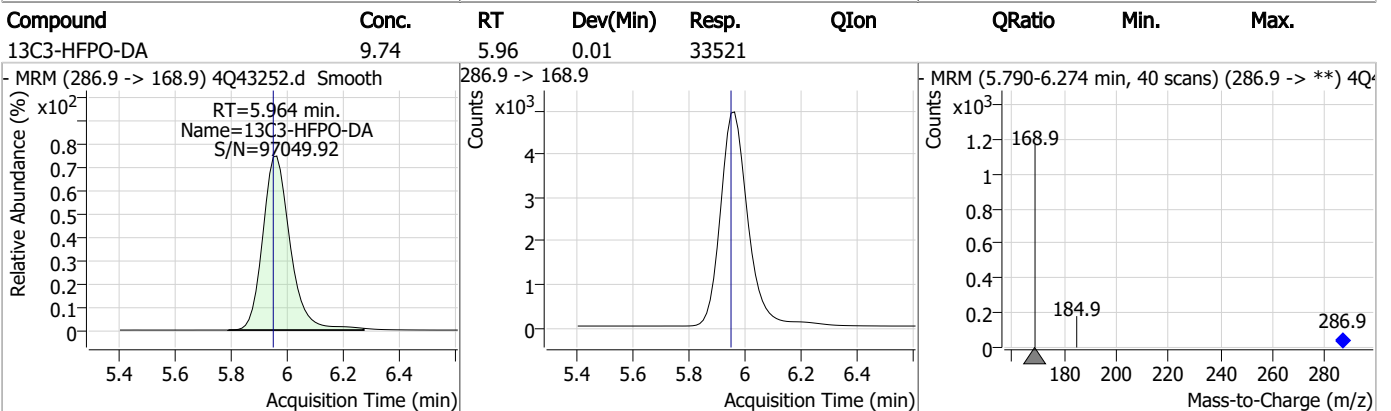
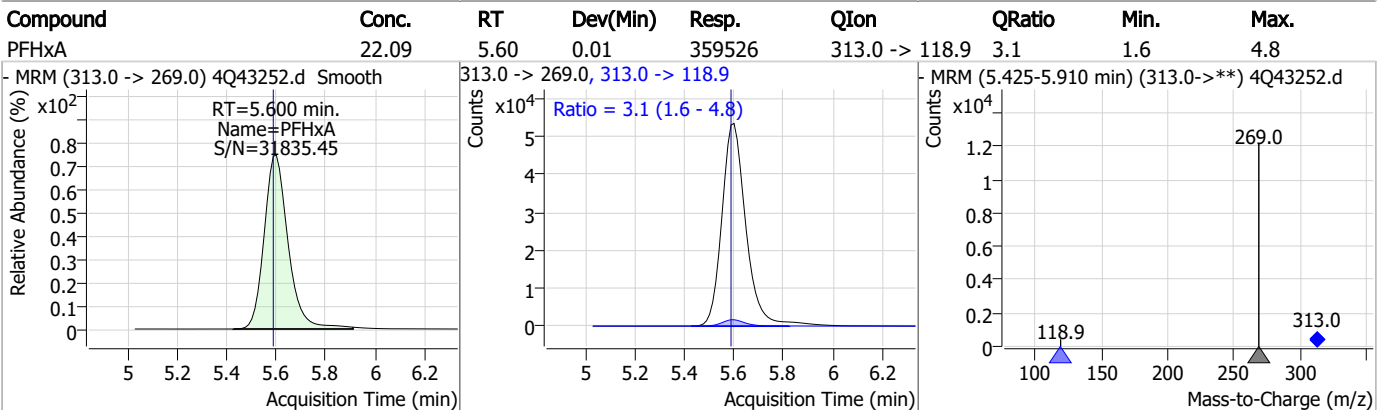
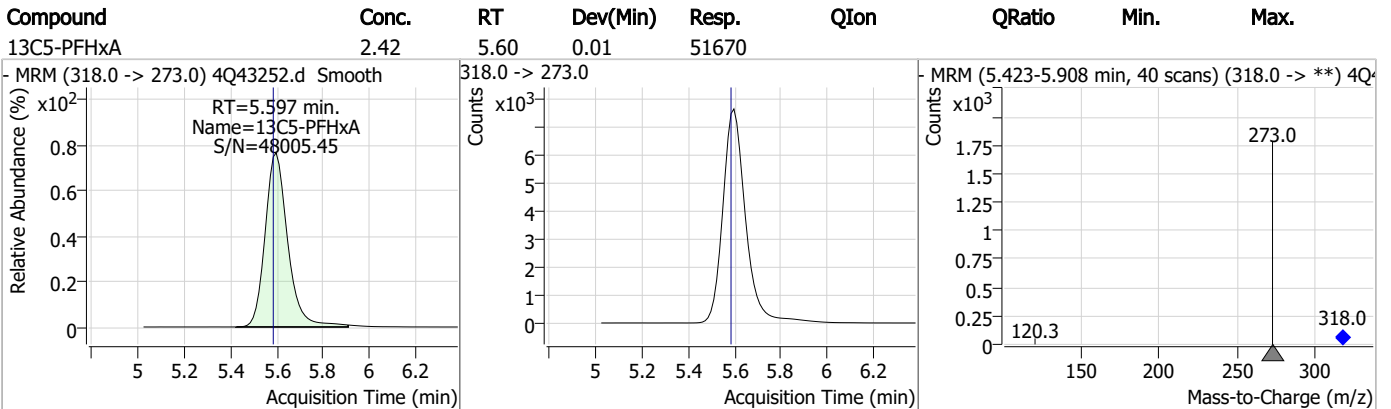
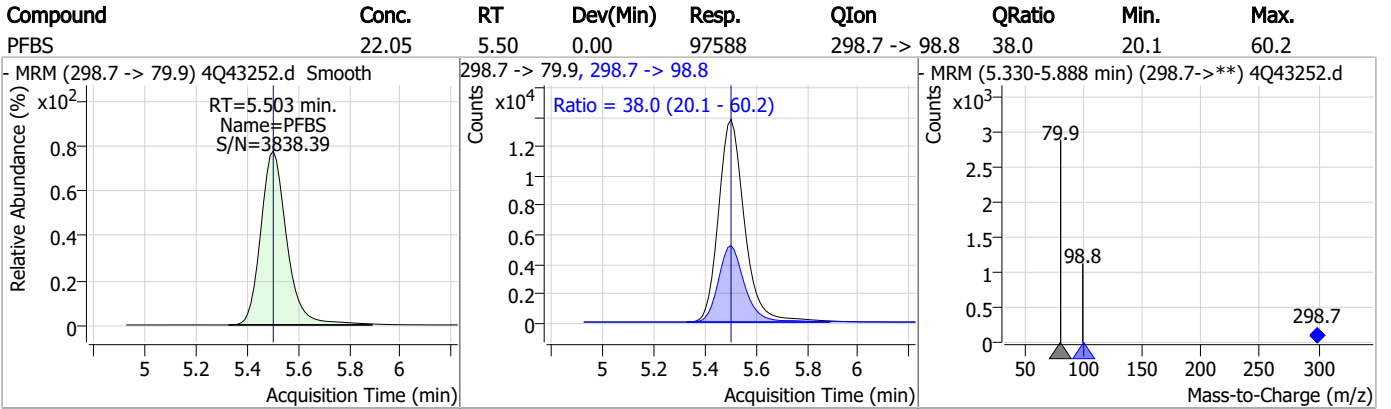
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Perfluorinated Compounds by LC/MS/MS



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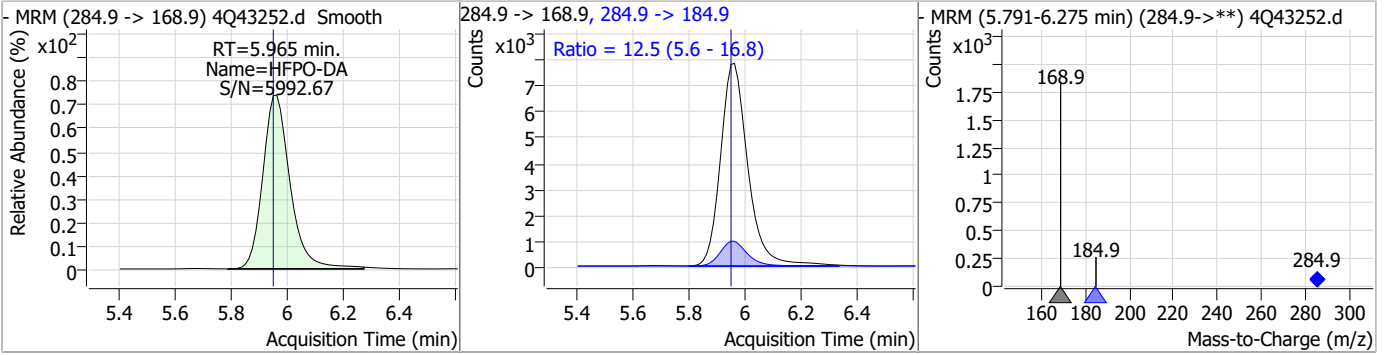
Perfluorinated Compounds by LC/MS/MS



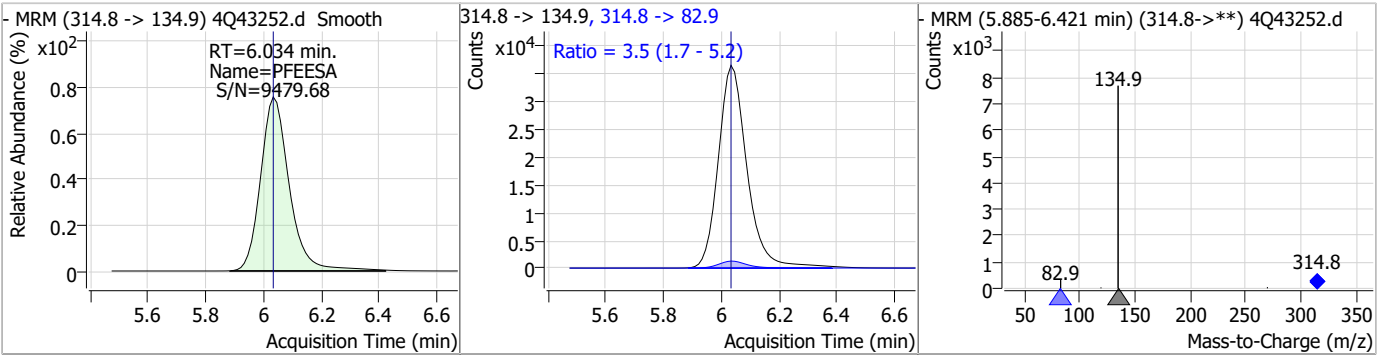
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Perfluorinated Compounds by LC/MS/MS

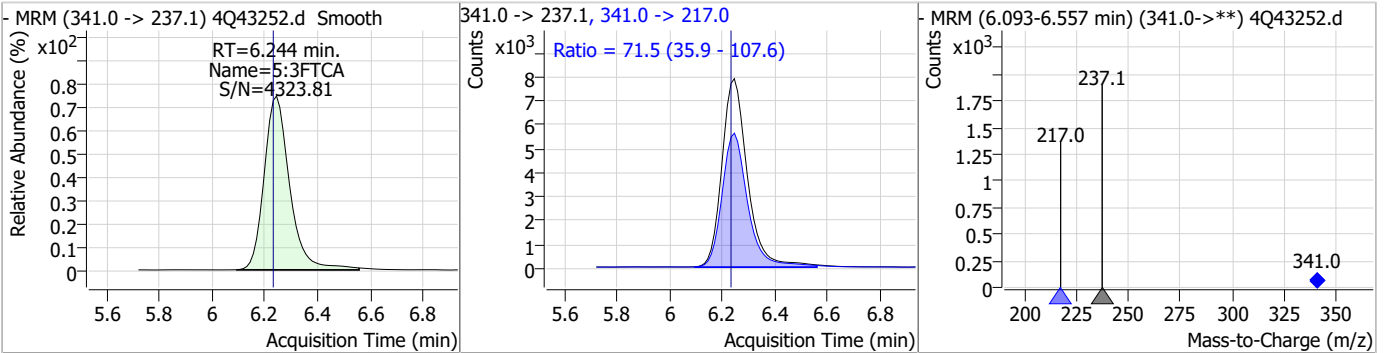
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	20.01	5.97	0.01	52976	284.9 -> 184.9	12.5	5.6	16.8



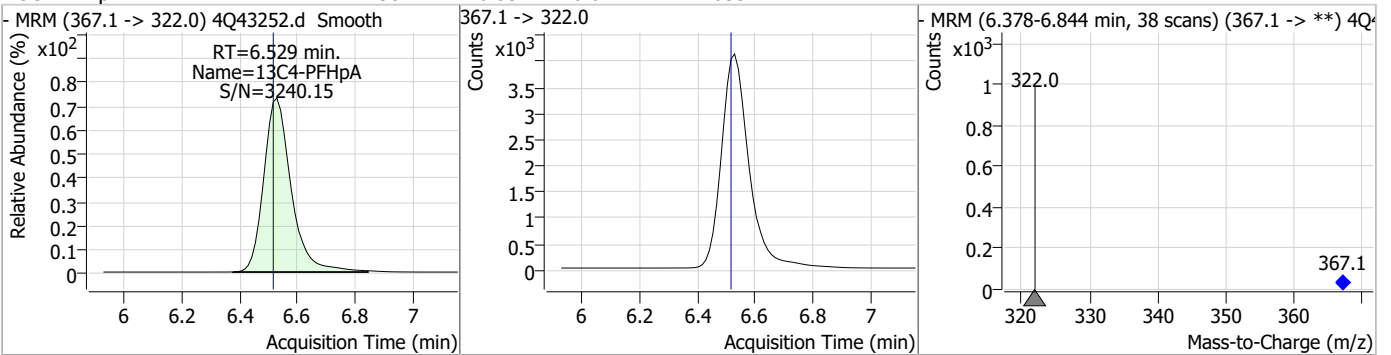
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	18.81	6.03	0.00	251261	314.8 -> 82.9	3.5	1.7	5.2



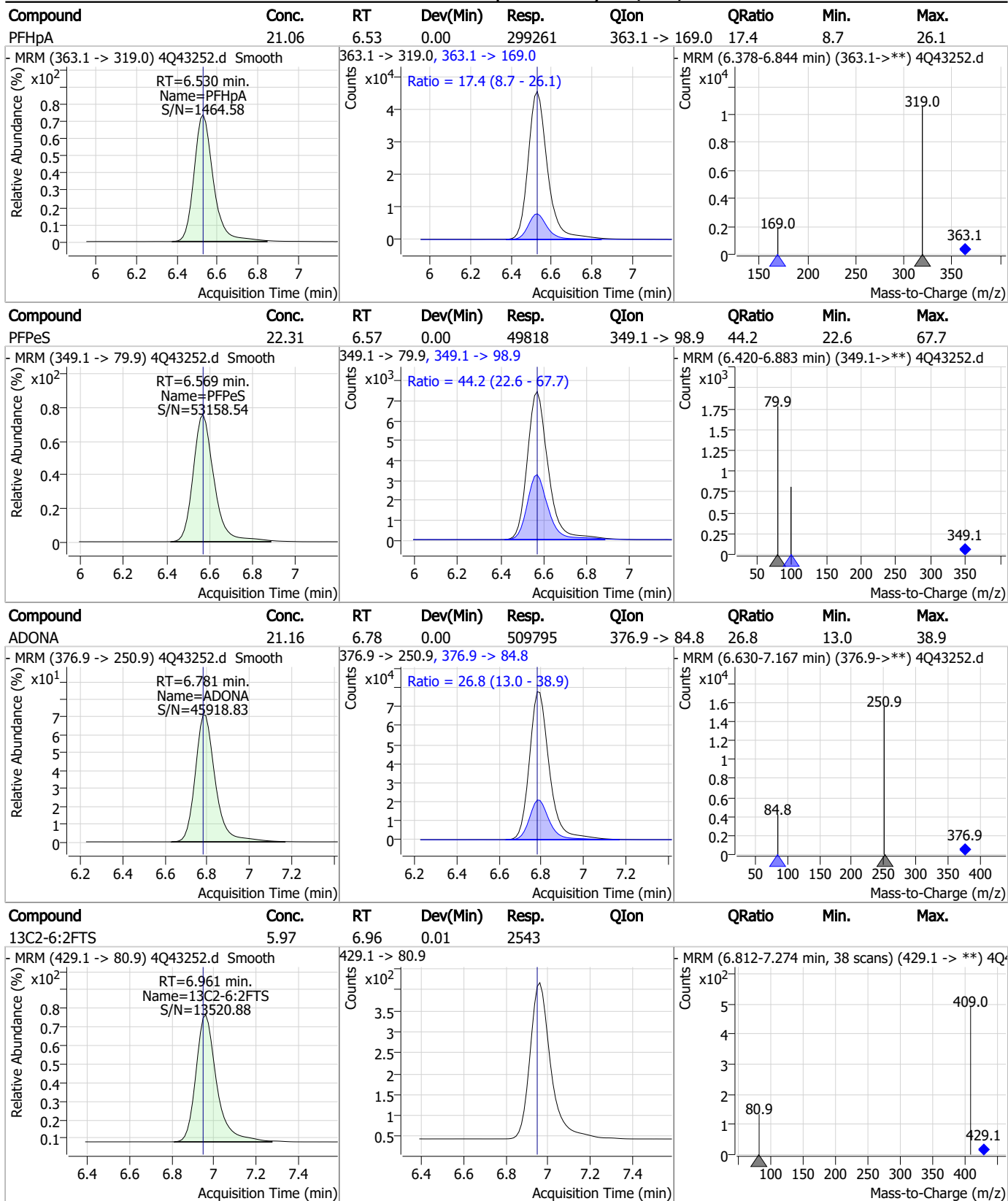
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	21.87	6.24	0.01	53061	341.0 -> 217.0	71.5	35.9	107.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.38	6.53	0.01	27033	367.1 -> 322.0	-	-	-

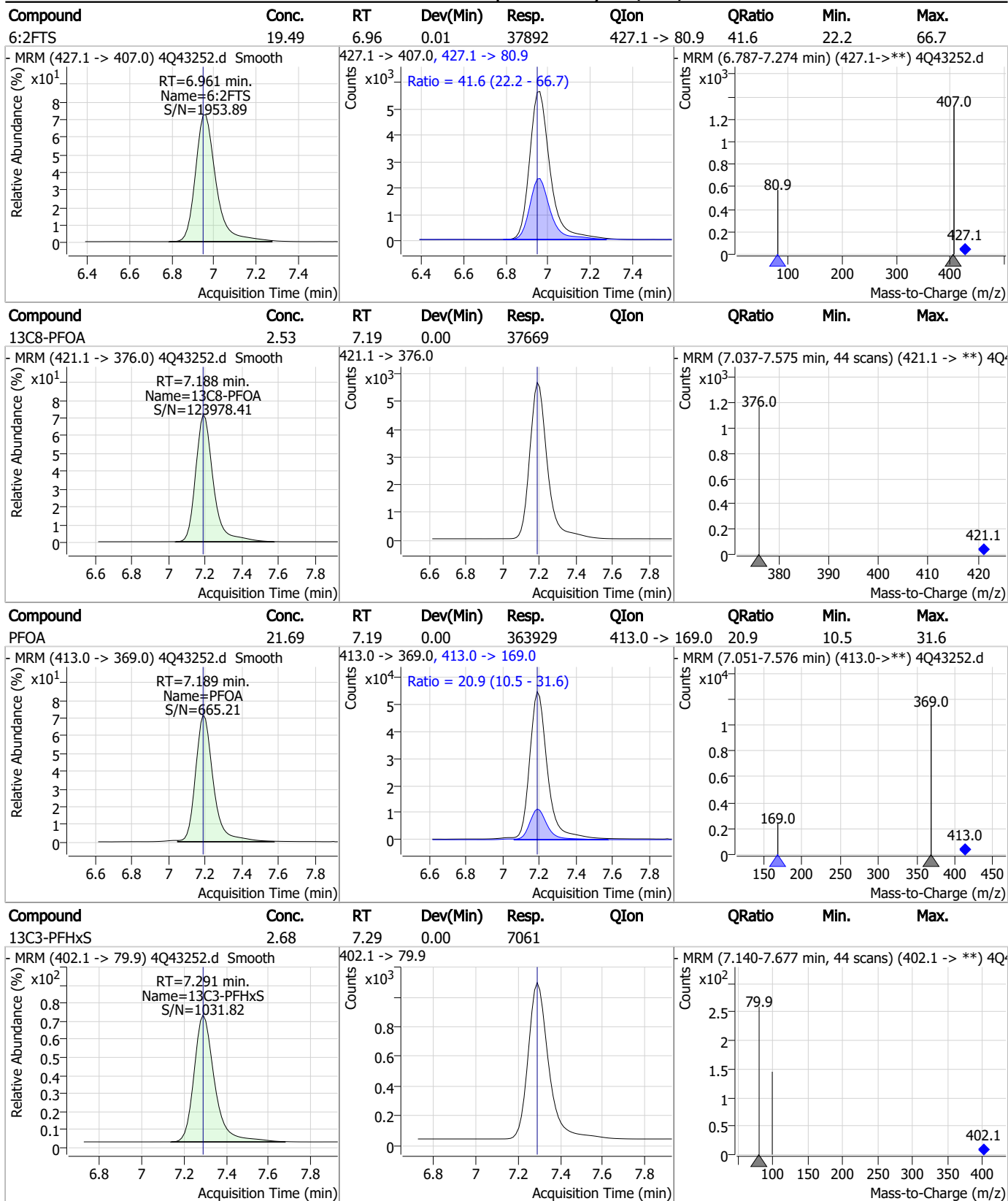


Perfluorinated Compounds by LC/MS/MS



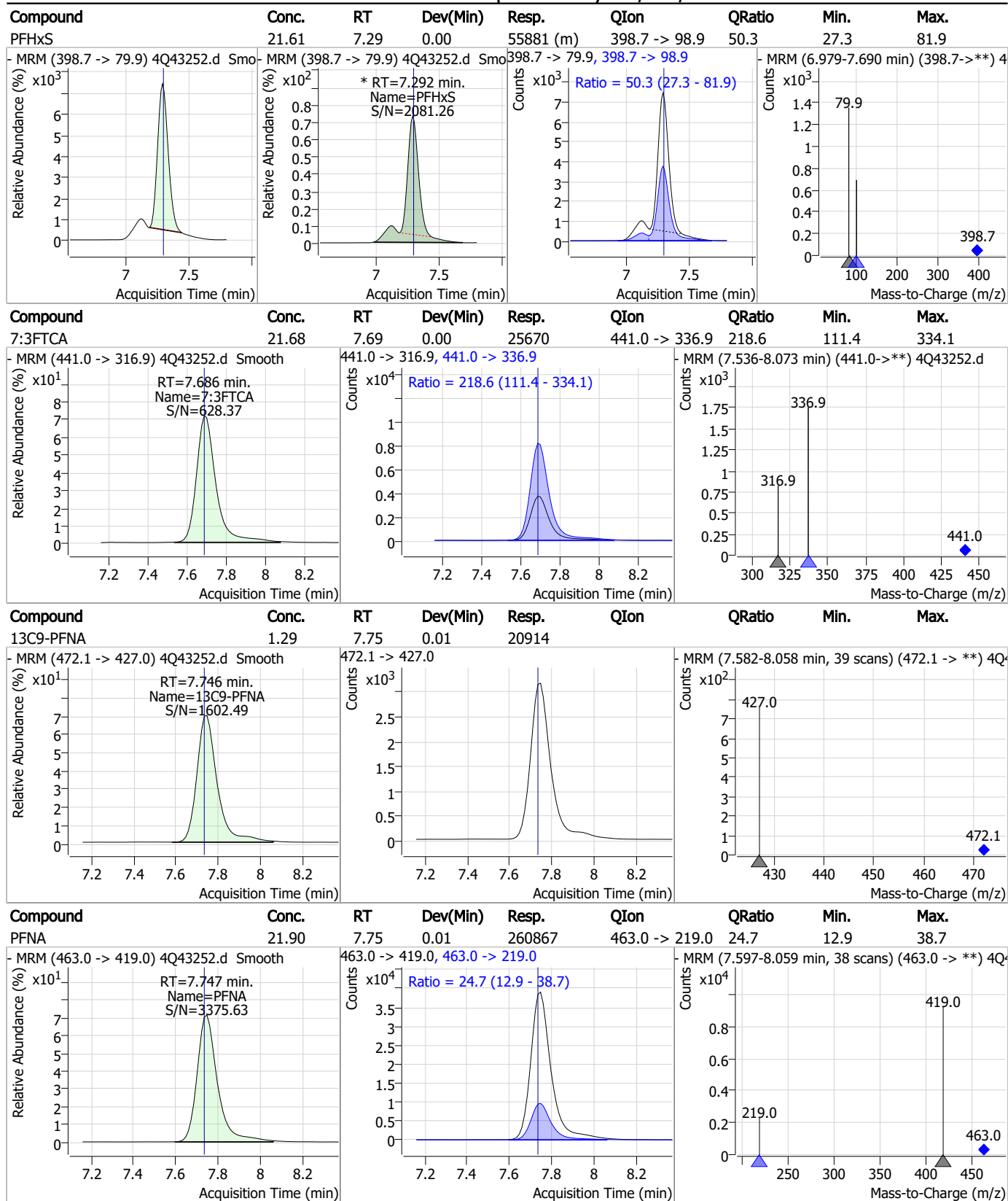
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Perfluorinated Compounds by LC/MS/MS



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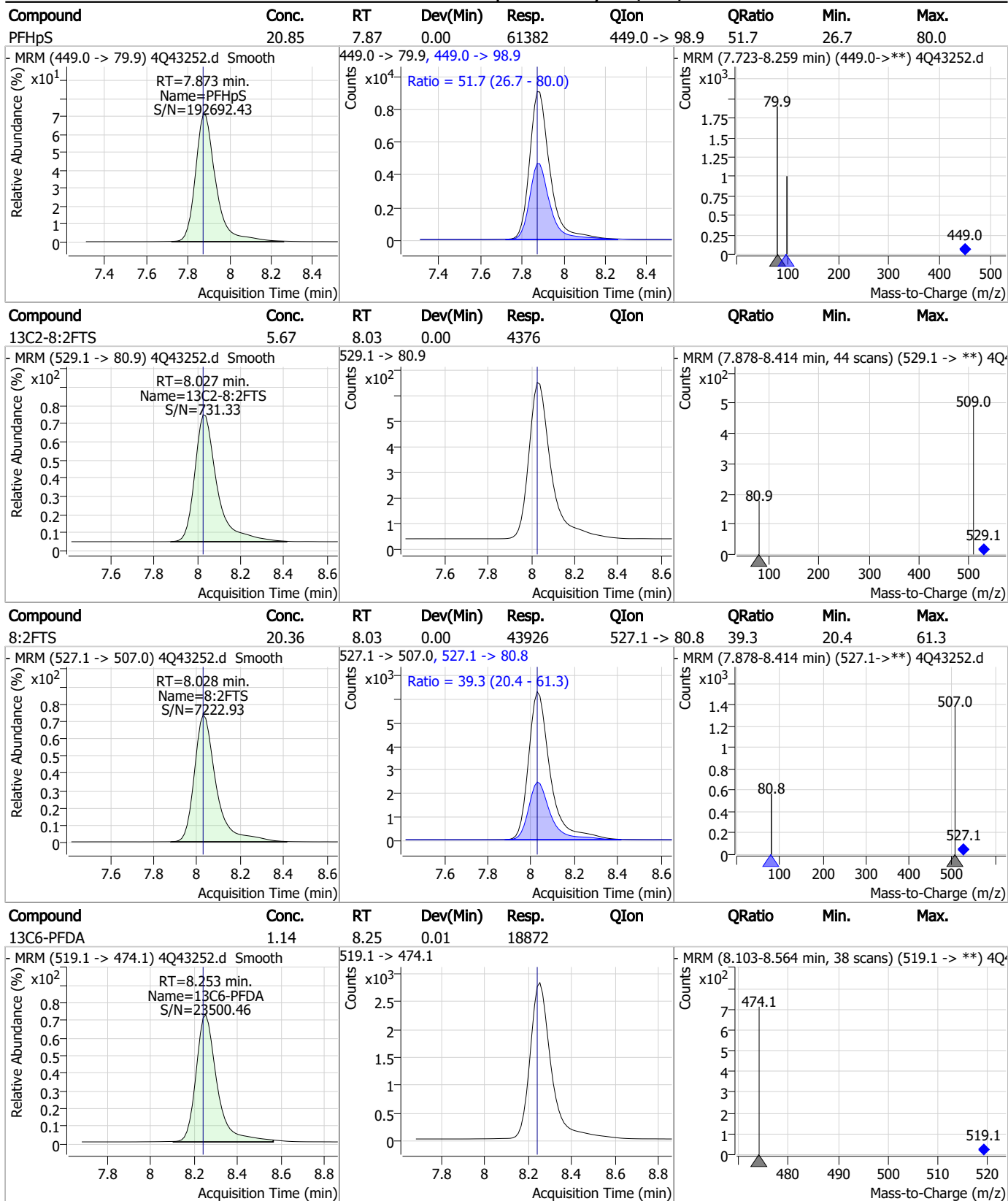
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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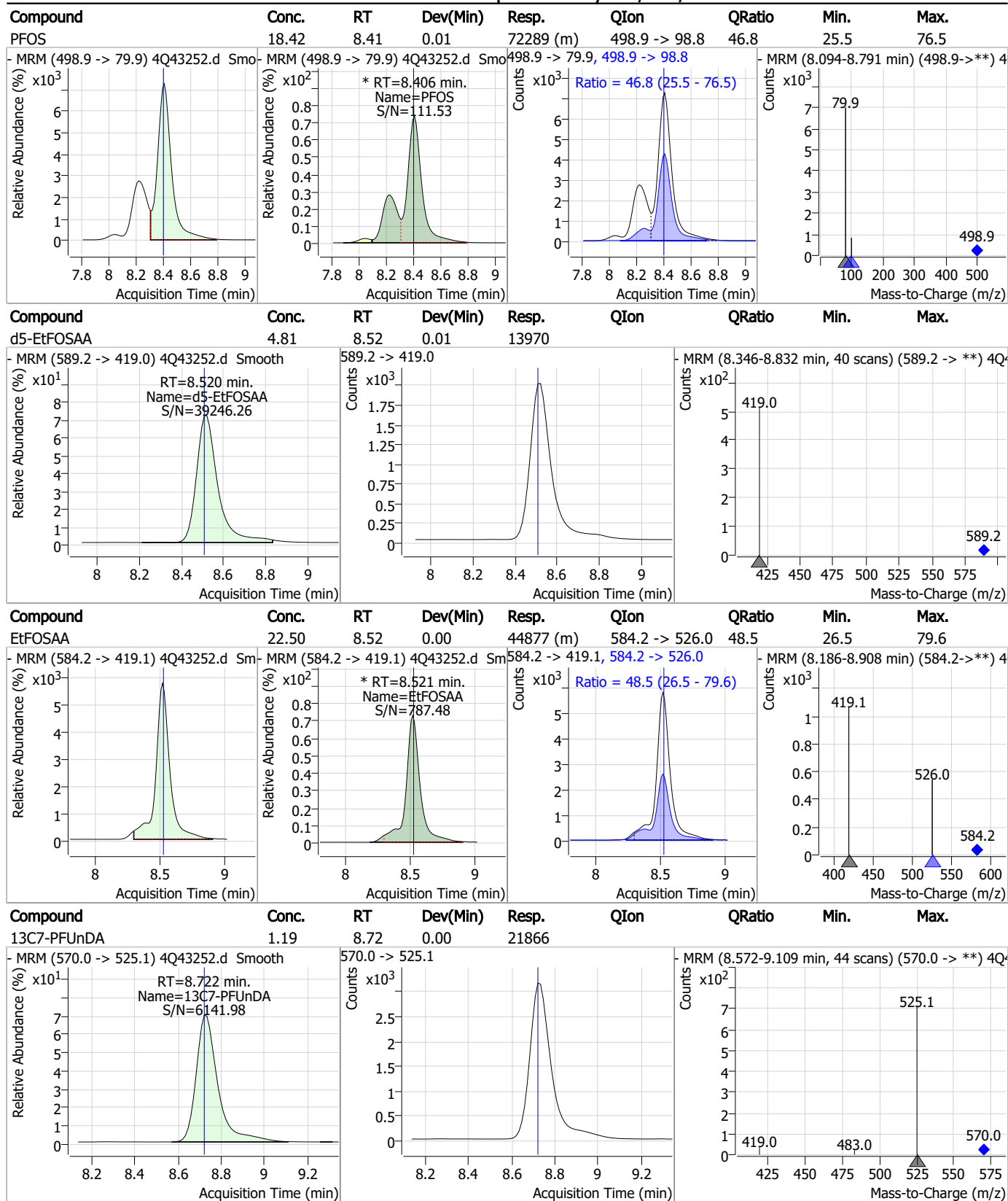
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	22.52	8.25	0.01	260811	512.9 -> 219.0	19.8	10.1	30.4
d3-MeFOSAA	4.82	8.31	0.01	16673				
MeFOSAA	19.79	8.31	0.01	47089	570.1 -> 483.0	22.0	11.4	34.2
13C8-PFOS	2.43	8.40	0.01	10233				

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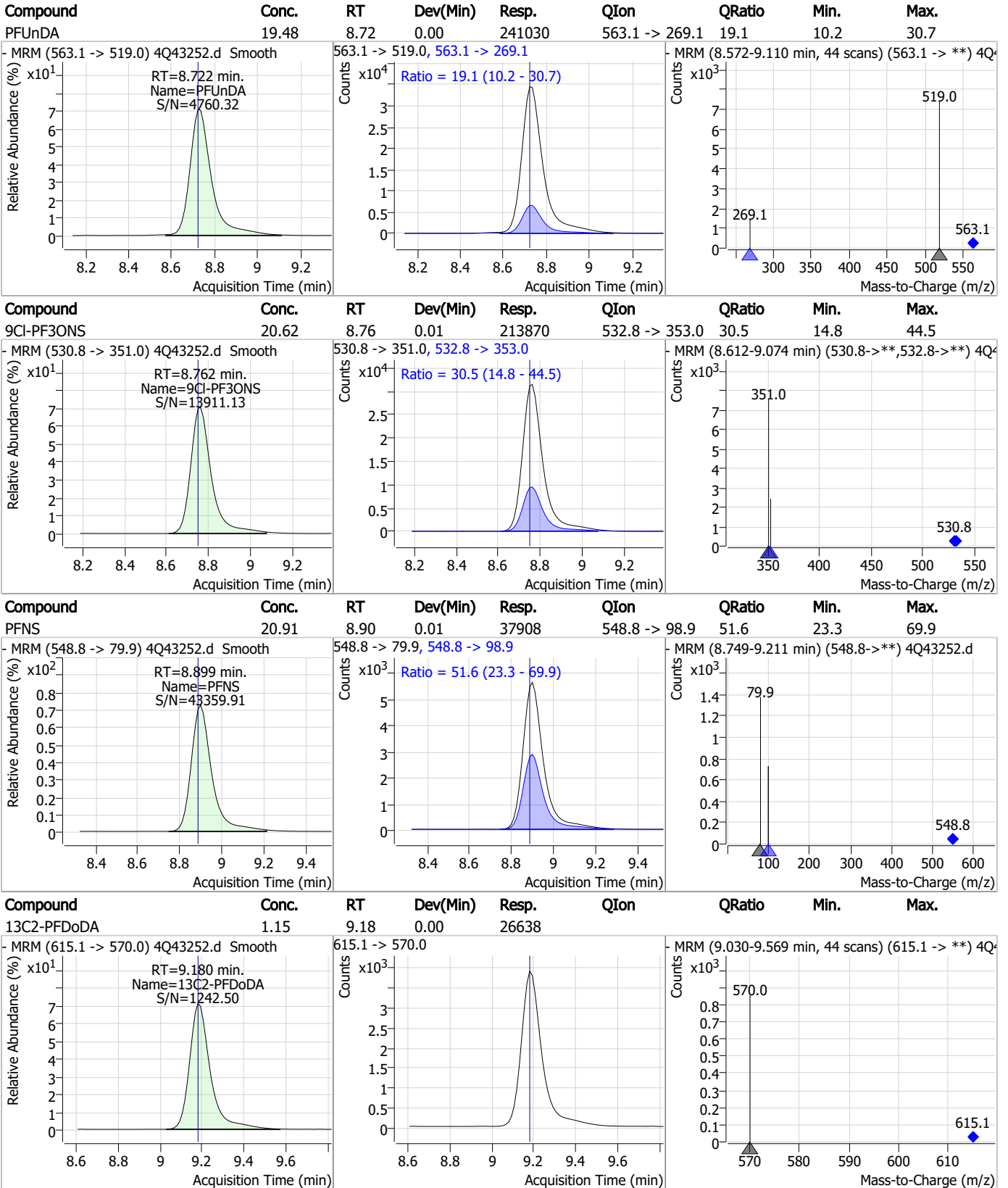
Perfluorinated Compounds by LC/MS/MS



7.7.26

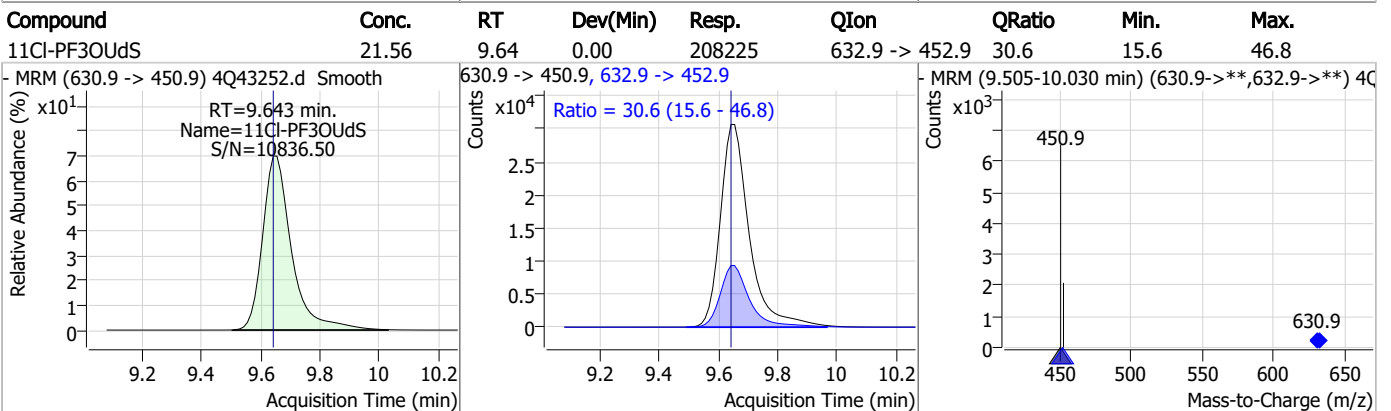
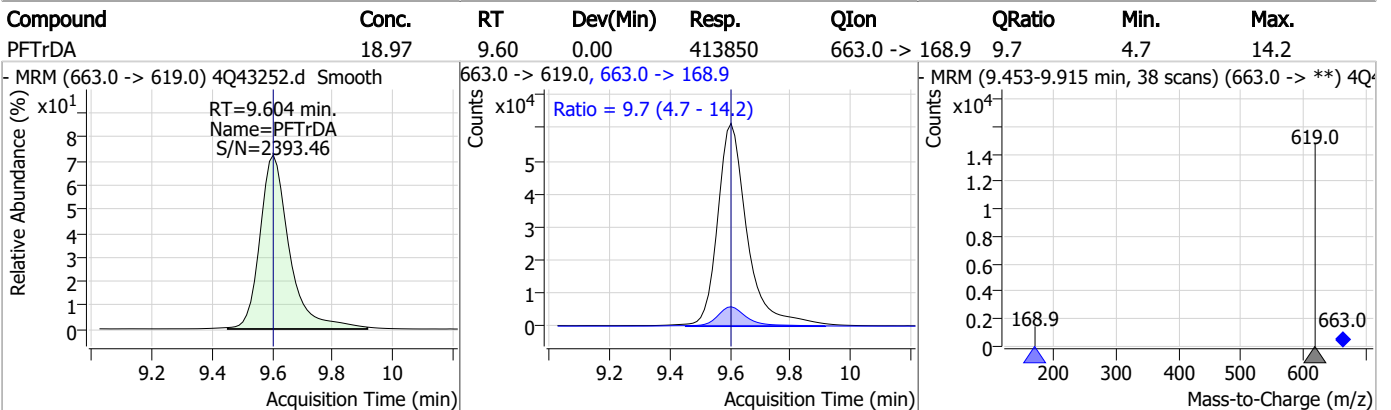
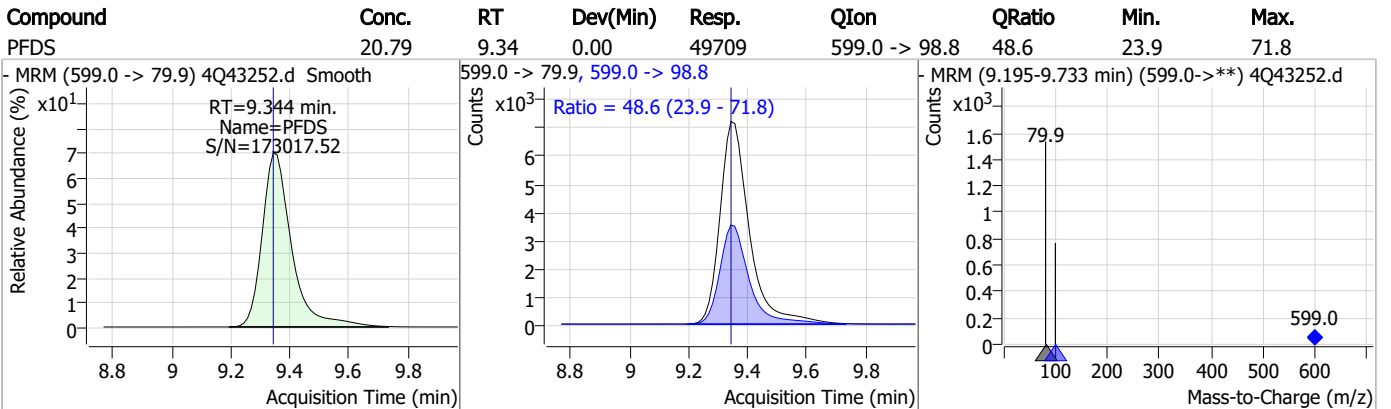
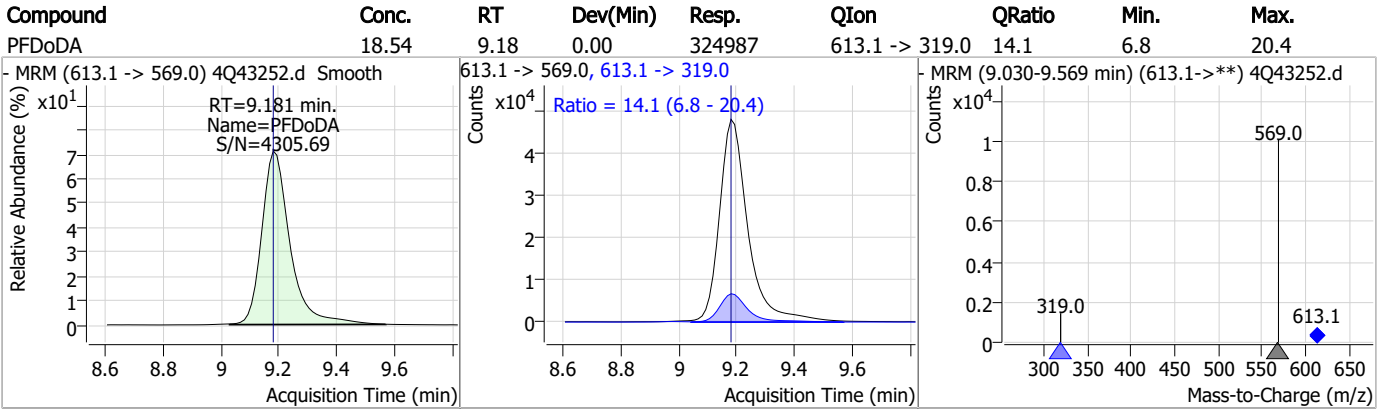
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

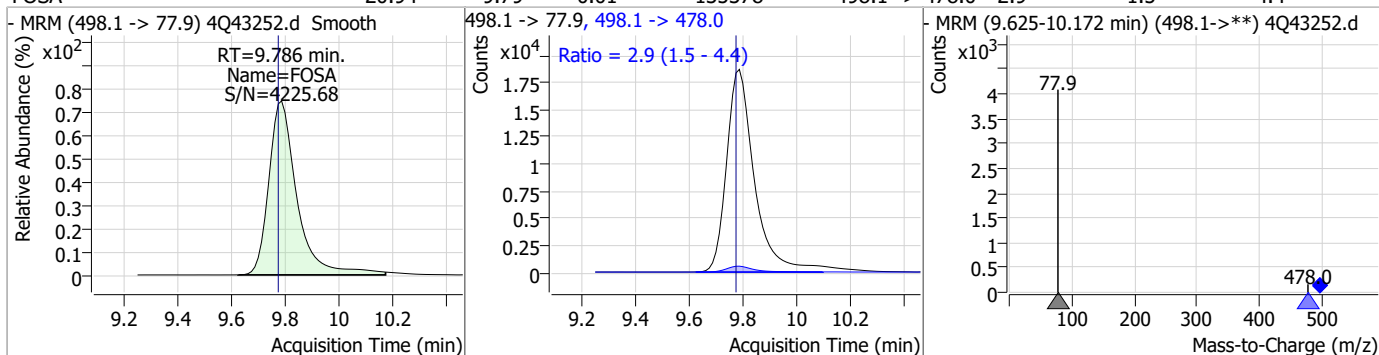


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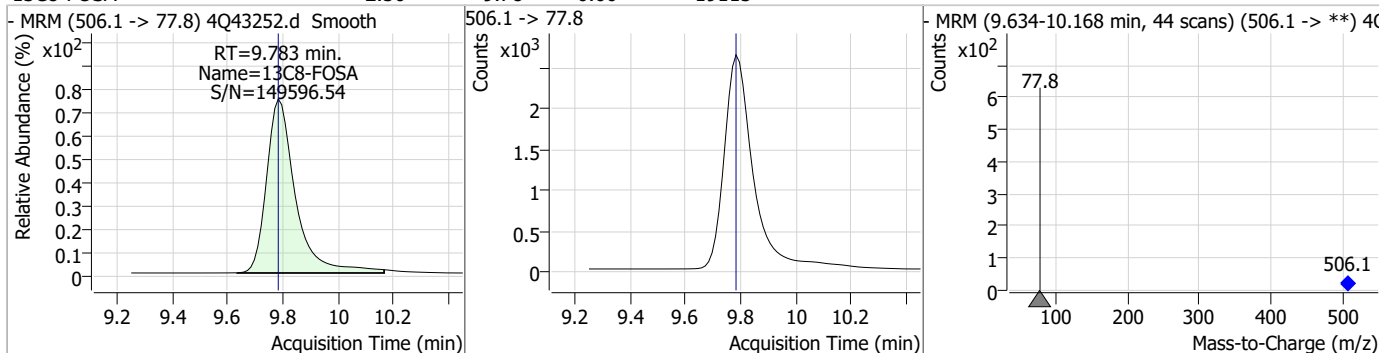


Perfluorinated Compounds by LC/MS/MS

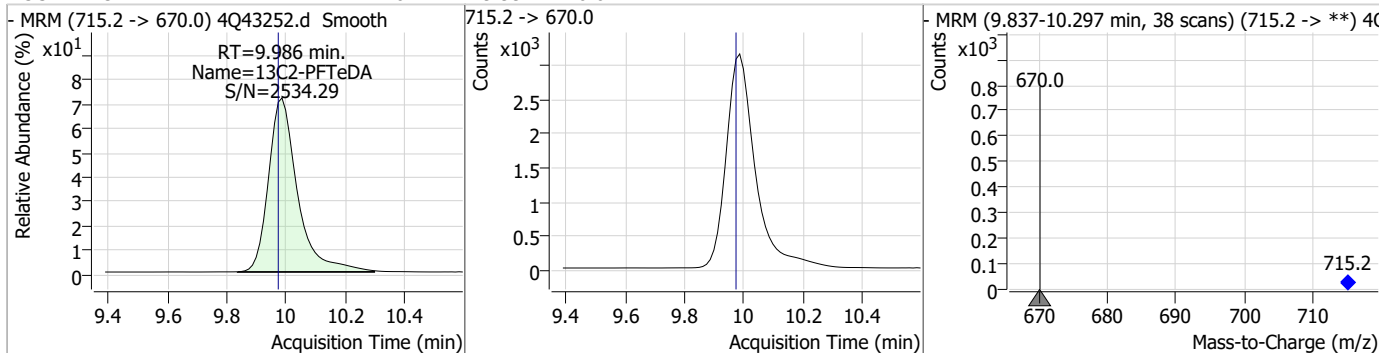
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	20.94	9.79	0.01	135378	498.1 -> 478.0	2.9	1.5	4.4



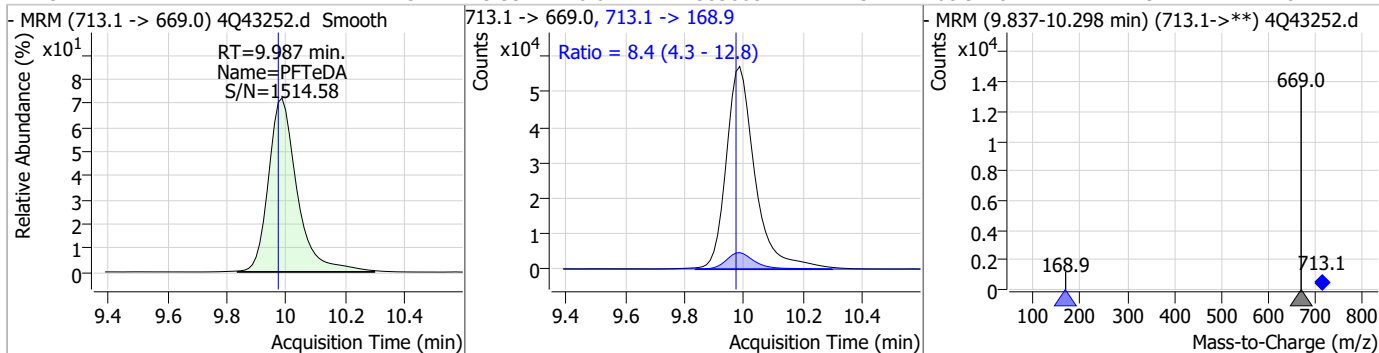
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.50	9.78	0.00	19115				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.16	9.99	0.01	21221				

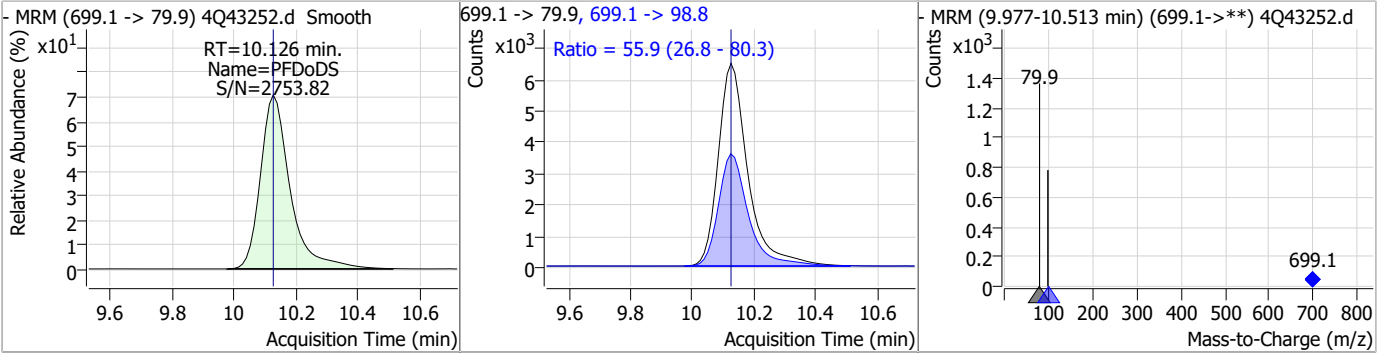


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	22.25	9.99	0.01	383665	713.1 -> 168.9	8.4	4.3	12.8

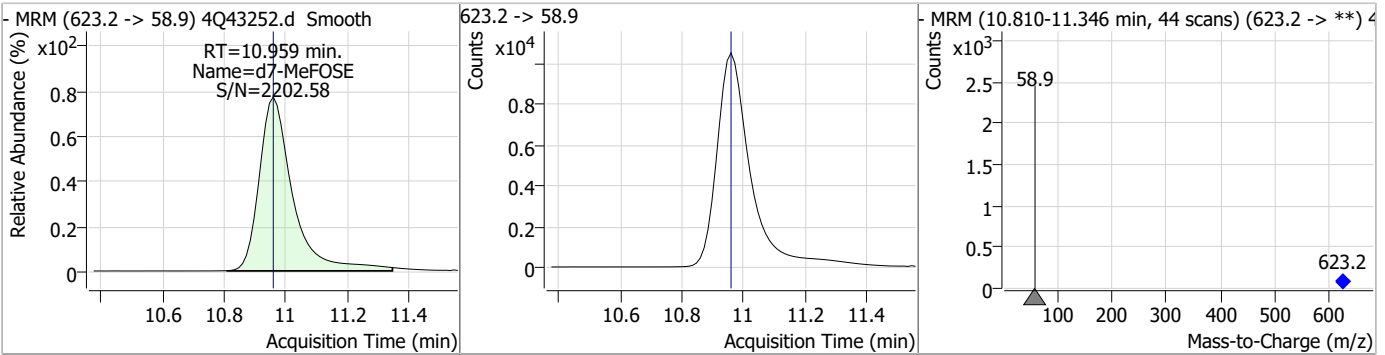


Perfluorinated Compounds by LC/MS/MS

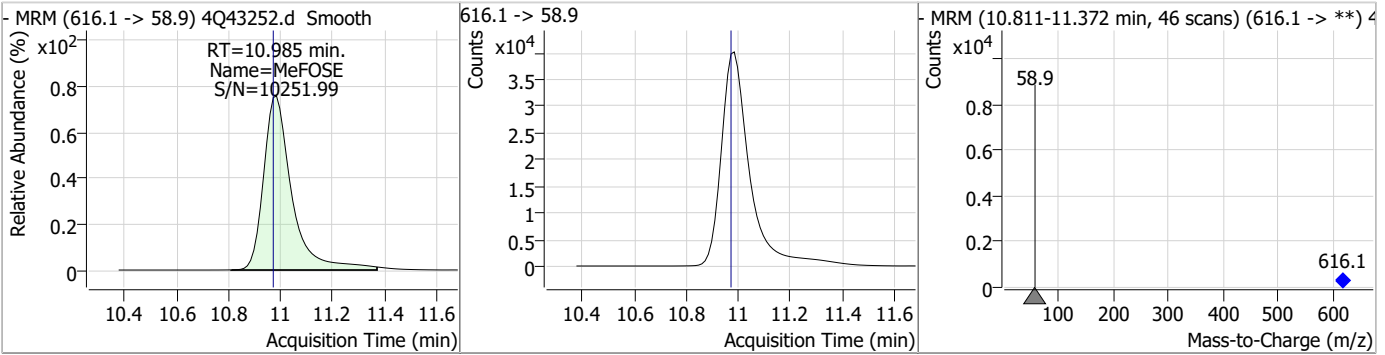
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	19.99	10.13	0.00	43426	699.1 -> 98.8	55.9	26.8	80.3



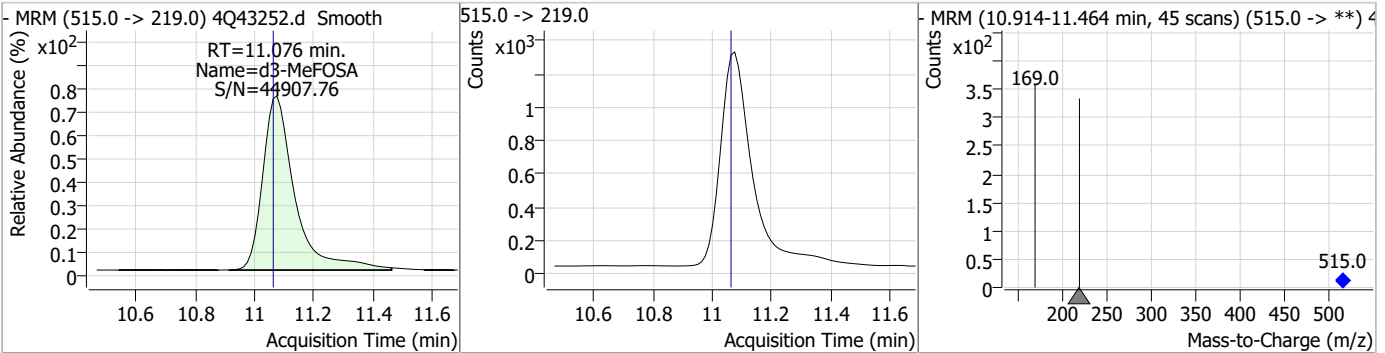
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.39	10.96	0.00	78806				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	108.10	10.99	0.01	302946				



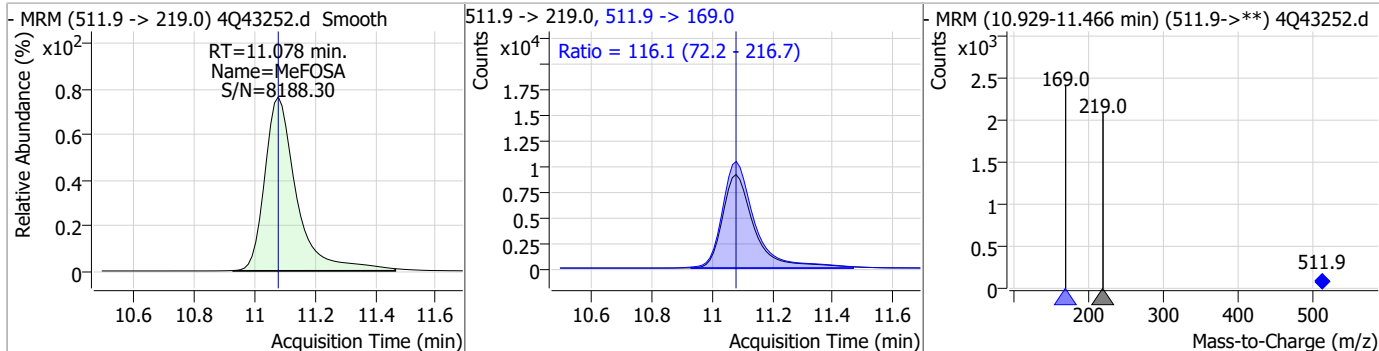
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.47	11.08	0.01	9735				



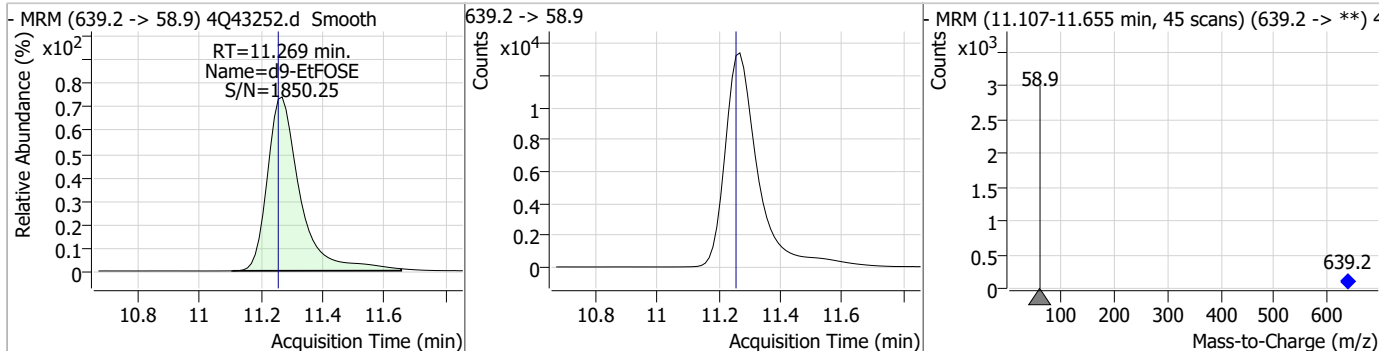
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Perfluorinated Compounds by LC/MS/MS

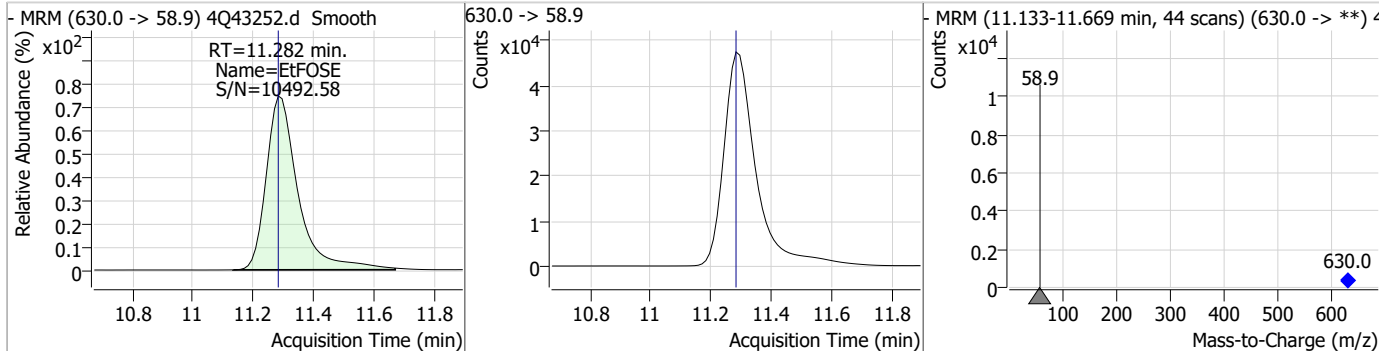
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	20.55	11.08	0.00	66904	511.9 -> 169.0	116.1	72.2	216.7



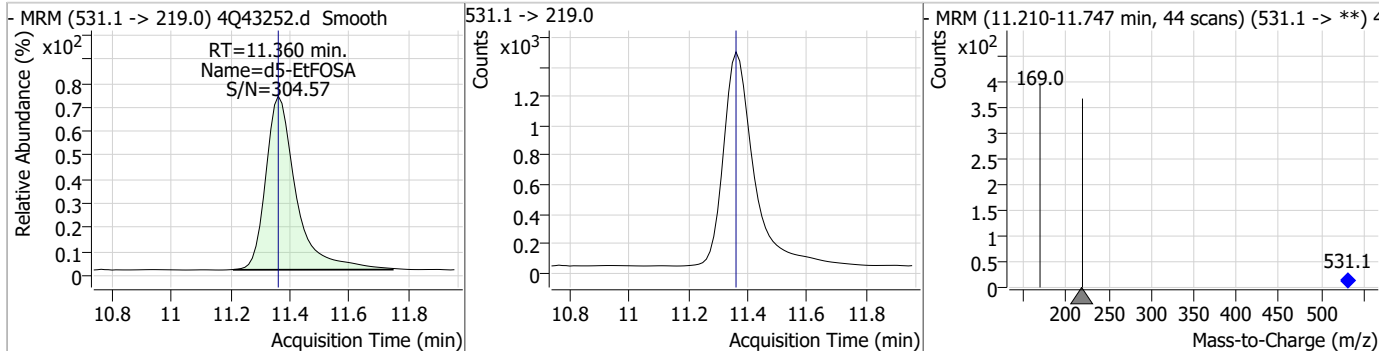
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.83	11.27	0.01	98626				



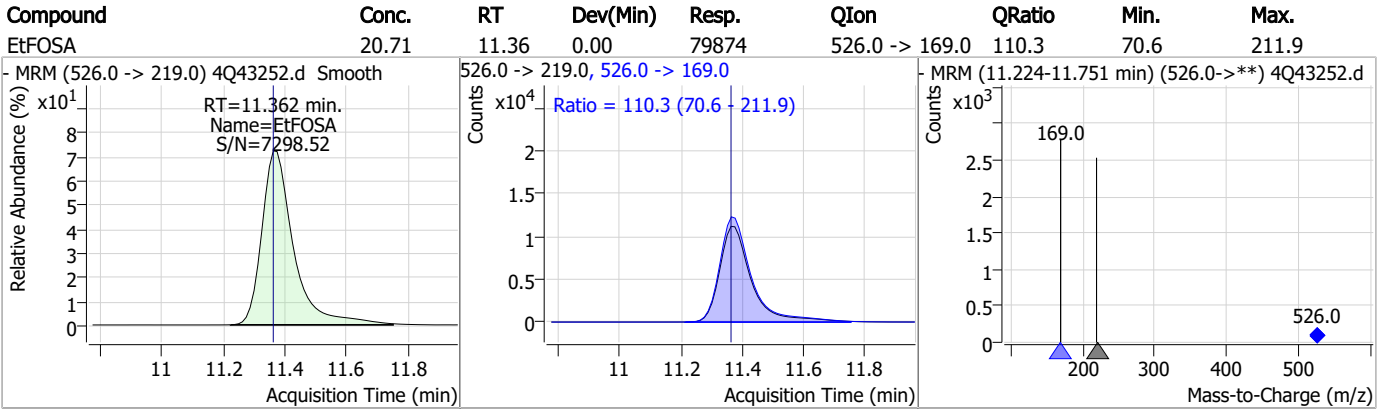
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	110.32	11.28	0.00	346926				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.46	11.36	0.00	10336				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q625-ICV625 Method: EPA DRAFT 1633
Lab FileID: 4Q43252.D Analyst approved: 04/20/23 14:17 Natasha Gumtie
Injection Time: 04/19/23 14:15 Supervisor approved: 04/21/23 13:15 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.41	Split peak
EtFOSAA	2991-50-6		8.52	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43334.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/20/2023 2:48:59 PM
 Sample Name : cc625-1.0LL
 Vial : P1-A2
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s4q626.batch.bin
 Sample Information : OP96301,S4q626,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.039	216.8 -> 171.9	150183	10.00 µg/L	0.103
M5-PFPeA	4.462	268.3 -> 223.0	88505	5.00 µg/L	0.050
M5-PFHxA	5.622	318.0 -> 273.0	66829	2.50 µg/L	0.037
M4-PFHpA	6.542	367.1 -> 322.0	36003	2.50 µg/L	0.025
M8-PFOA	7.201	421.1 -> 376.0	48464	2.50 µg/L	0.013
M9-PFNA	7.746	472.1 -> 427.0	24441	1.25 µg/L	0.013
M6-PFDA	8.253	519.1 -> 474.1	24706	1.25 µg/L	0.012
M7-PFUnDA	8.722	570.0 -> 525.1	25643	1.25 µg/L	0.000
M2-PFDoDA	9.180	615.1 -> 570.0	33713	1.25 µg/L	0.000
M2-PFTeDA	9.974	715.2 -> 670.0	26345	1.25 µg/L	0.000
M8-FOSA	9.796	506.1 -> 77.8	23563	2.50 µg/L	0.012
M3-PFBS	5.527	302.1 -> 79.9	13791	2.50 µg/L	0.025
M3-PFHxS	7.291	402.1 -> 79.9	8589	2.50 µg/L	0.000
M8-PFOS	8.405	507.1 -> 79.9	12489	2.50 µg/L	0.012
M2-4:2FTS	5.310	329.1 -> 80.9	1775	5.00 µg/L	0.037
M2-6:2FTS	6.961	429.1 -> 80.9	2473	5.00 µg/L	0.012
M2-8:2FTS	8.040	529.1 -> 80.9	4458	5.00 µg/L	0.012
M3-MeFOSAA	8.310	573.2 -> 419.0	20260	5.00 µg/L	0.012
M3-HFPO-DA	5.977	286.9 -> 168.9	39030	10.00 µg/L	0.025
M5-EtFOSAA	8.520	589.2 -> 419.0	16139	5.00 µg/L	0.012
M7-MeFOSE	10.959	623.2 -> 58.9	97364	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	127188	25.00 µg/L	0.012
M5-EtFOSA	11.360	531.1 -> 219.0	13064	2.50 µg/L	0.000
M3-MeFOSA	11.076	515.0 -> 219.0	11705	2.50 µg/L	0.012
13C4-PFOS	8.405	502.8 -> 79.9	12715	2.50 µg/L	0.000
13C3-PFBA	3.043	216.0 -> 172.0	83118	5.00 µg/L	0.102
18O2-PFHxS	7.290	403.0 -> 83.9	5956	2.50 µg/L	0.000
13C4-PFOA	7.201	417.1 -> 372.0	57752	2.50 µg/L	0.013
13C2-PFDA	8.253	515.1 -> 470.1	22817	1.25 µg/L	0.012
13C5-PFNA	7.746	468.0 -> 423.0	28563	1.25 µg/L	0.013
13C2-PFHxA	5.623	315.1 -> 270.0	55960	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.310	329.1 -> 80.9	1775	5.08 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-6:2FTS	6.961	429.1 -> 80.9	2473	4.49 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.9%		
13C2-8:2FTS	8.040	529.1 -> 80.9	4458	4.47 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.4%		
13C2-PFDoDA	9.180	615.1 -> 570.0	33713	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C2-PFTeDA	9.974	715.2 -> 670.0	26345	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C3-PFBS	5.527	302.1 -> 79.9	13791	2.50 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C3-PFHxS	7.291	402.1 -> 79.9	8589	2.53 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 = 101.0%	
13C4-PFBA	3.039	216.8 -> 171.9	150183	10.03 µg/L	0.103
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C4-PFHpA	6.542	367.1 -> 322.0	36003	2.57 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C5-PFHxA	5.622	318.0 -> 273.0	66829	2.54 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C5-PFPeA	4.462	268.3 -> 223.0	88505	5.17 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C6-PFDA	8.253	519.1 -> 474.1	24706	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C7-PFUnDA	8.722	570.0 -> 525.1	25643	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.8%	
13C8-FOSA	9.796	506.1 -> 77.8	23563	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C8-PFOA	7.201	421.1 -> 376.0	48464	2.51 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C8-PFOS	8.405	507.1 -> 79.9	12489	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C9-PFNA	7.746	472.1 -> 427.0	24441	1.23 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.0%	
d3-MeFOSAA	8.310	573.2 -> 419.0	20260	4.85 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C3-HFPO-DA	5.977	286.9 -> 168.9	39030	9.19 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.9%	
d3-MeFOSA	11.076	515.0 -> 219.0	11705	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
d5-EtFOSAA	8.520	589.2 -> 419.0	16139	4.60 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.0%	
d7-MeFOSE	10.959	623.2 -> 58.9	97364	24.96 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
d9-EtFOSE	11.269	639.2 -> 58.9	127188	25.46 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
d5-EtFOSA	11.360	531.1 -> 219.0	13064	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
Target Compounds					QValue
4:2FTS	5.311	327.1 -> 307.0	1414	0.62 µg/L	97
		327.1 -> 80.9	657		
6:2FTS	6.974	427.1 -> 407.0	1082	0.57 µg/L	85
		427.1 -> 80.9	585		
8:2FTS	8.028	527.1 -> 507.0	1335	0.61 µg/L	93
		527.1 -> 80.8	489		
EtFOSAA	8.521	584.2 -> 419.1	420	0.18 µg/L	m 63
		584.2 -> 526.0	112		
FOSA	9.799	498.1 -> 77.9	1306	0.16 µg/L	99
		498.1 -> 478.0	41		
MeFOSAA	8.299	570.1 -> 419.0	524	0.18 µg/L	m 98
		570.1 -> 483.0	125		
PFBA	3.046	212.8 -> 168.9	2190	0.63 µg/L	100
PFBS	5.528	298.7 -> 79.9	822	0.15 µg/L	91
		298.7 -> 98.8	282		
PFDA	8.253	512.9 -> 469.0	2228	0.15 µg/L	99
		512.9 -> 219.0	441		
PFDODA	9.181	613.1 -> 569.0	3141	0.14 µg/L	100
		613.1 -> 319.0	428		
PFDS	9.344	599.0 -> 79.9	458	0.16 µg/L	88

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	258			
PFHpA	6.543	363.1 -> 319.0	2784	0.15	µg/L	93
		363.1 -> 169.0	572			
PFHpS	7.885	449.0 -> 79.9	527	0.15	µg/L	98
		449.0 -> 98.9	289			
PFHxA	5.625	313.0 -> 269.0	3459	0.16	µg/L	100
		313.0 -> 118.9	114			
PFHxS	7.292	398.7 -> 79.9	531	0.17	µg/L	m 94
		398.7 -> 98.9	312			
PFNA	7.747	463.0 -> 419.0	2148	0.15	µg/L	86
		463.0 -> 219.0	398			
PFNS	8.899	548.8 -> 79.9	351	0.16	µg/L	99
		548.8 -> 98.9	162			
PFOA	7.202	413.0 -> 369.0	3259	0.15	µg/L	m 89
		413.0 -> 169.0	852			
PFOS	8.418	498.9 -> 79.9	772	0.16	µg/L	m 92
		498.9 -> 98.8	349			
PFPeA	4.464	263.0 -> 219.0	5677	0.32	µg/L	100
PFPeS	6.582	349.1 -> 79.9	438	0.16	µg/L	97
		349.1 -> 98.9	189			
PFTeDA	9.974	713.1 -> 669.0	3123	0.15	µg/L	98
		713.1 -> 168.9	287			
PFTrDA	9.591	663.0 -> 619.0	4229	0.15	µg/L	96
		663.0 -> 168.9	464			
PFUnDA	8.735	563.1 -> 519.0	2421	0.17	µg/L	97
		563.1 -> 269.1	468			
11CI-PF3OUdS	9.643	630.9 -> 450.9	3437	0.31	µg/L	97
		632.9 -> 452.9	1018			
9CI-PF3ONS	8.762	530.8 -> 351.0	3125	0.26	µg/L	m 91
		532.8 -> 353.0	1078			
ADONA	6.793	376.9 -> 250.9	8931	0.32	µg/L	97
		376.9 -> 84.8	2477			
HFPO-DA	5.977	284.9 -> 168.9	882	0.29	µg/L	m 99
		284.9 -> 184.9	102			
3:3FTCA	3.967	241.0 -> 177.0	617	0.73	µg/L	99
		241.0 -> 117.0	56			
5:3FTCA	6.281	341.0 -> 237.1	12116	3.86	µg/L	99
		341.0 -> 217.0	8581			
7:3FTCA	7.711	441.0 -> 316.9	5462	3.57	µg/L	90
		441.0 -> 336.9	13032			
EtFOSA	11.362	526.0 -> 219.0	1625	0.33	µg/L	100
		526.0 -> 169.0	2296			
EtFOSE	11.282	630.0 -> 58.9	2919	0.72	µg/L	100
MeFOSA	11.078	511.9 -> 219.0	1394	0.36	µg/L	m 93
		511.9 -> 169.0	1895			
MeFOSE	10.985	616.1 -> 58.9	2847	0.82	µg/L	m 100
PFDoDS	10.114	699.1 -> 79.9	455	0.17	µg/L	99
		699.1 -> 98.8	241			
NFDHA	5.516	295.0 -> 201.0	339	0.30	µg/L	82
		295.0 -> 84.9	63			
PFMBA	4.866	279.0 -> 85.1	3093	0.31	µg/L	100
PFMPA	3.628	229.0 -> 84.9	2768	0.31	µg/L	100
PFEESA	6.059	314.8 -> 134.9	4733	0.27	µg/L	100
		314.8 -> 82.9	166			

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

7.7.27
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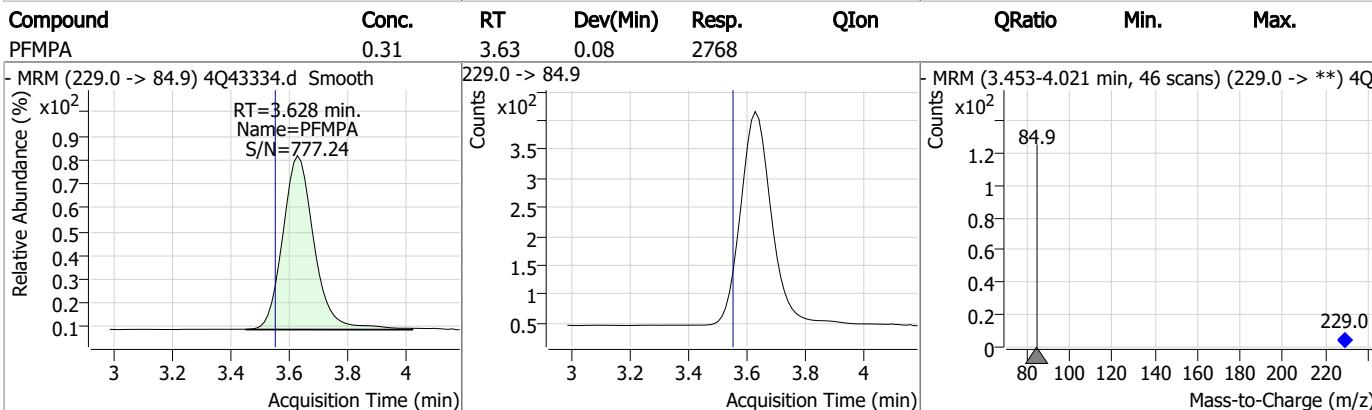
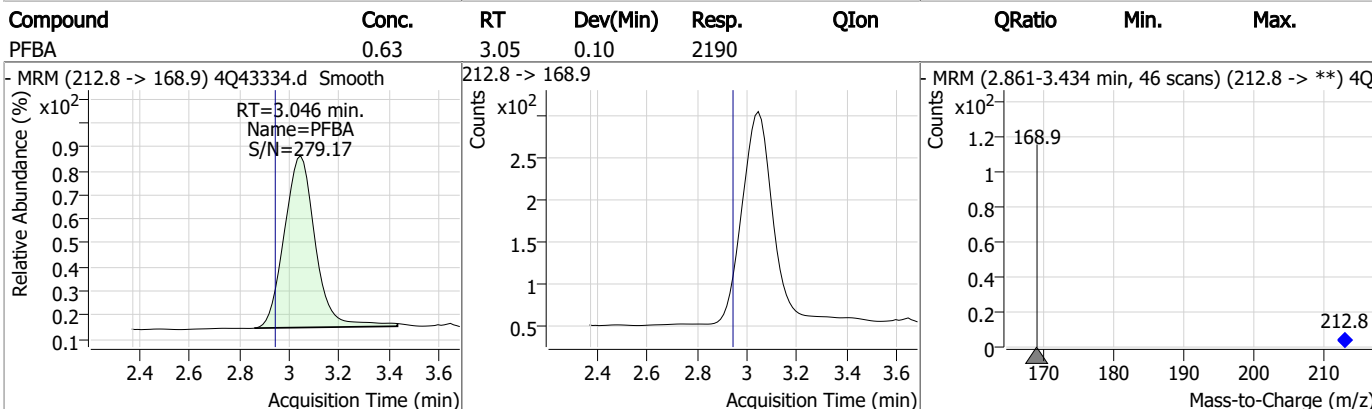
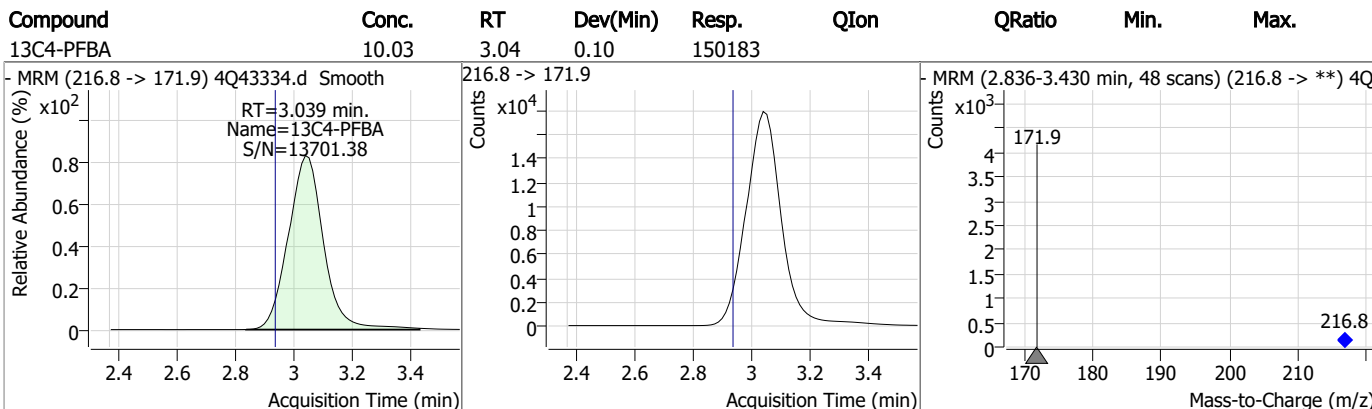
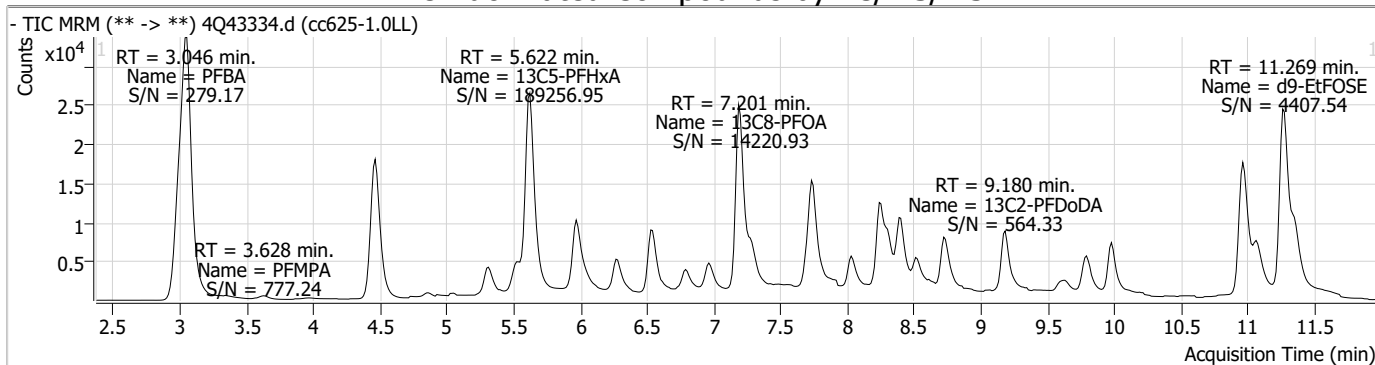
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.27

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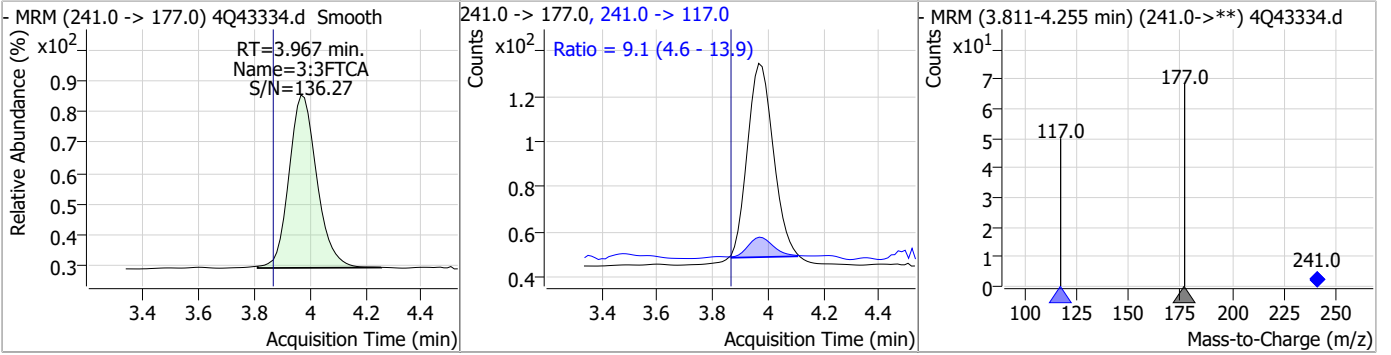
Perfluorinated Compounds by LC/MS/MS



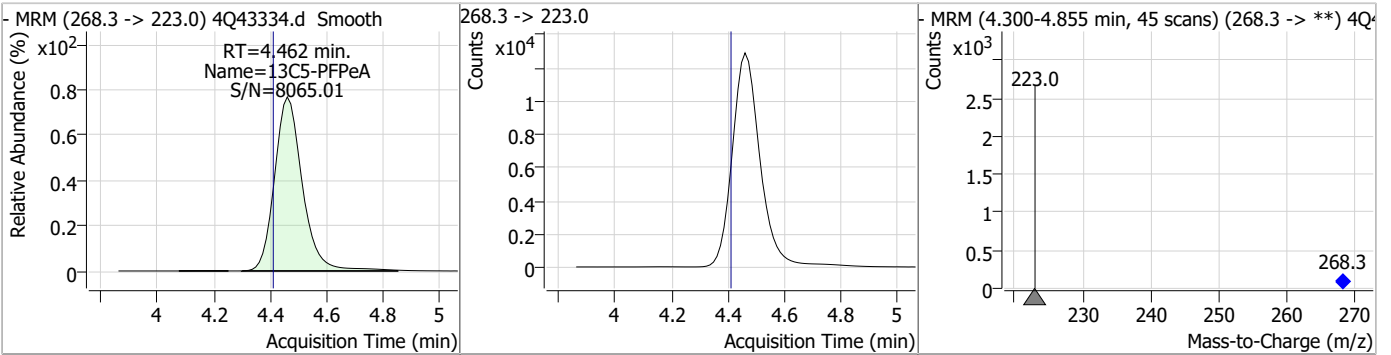
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Perfluorinated Compounds by LC/MS/MS

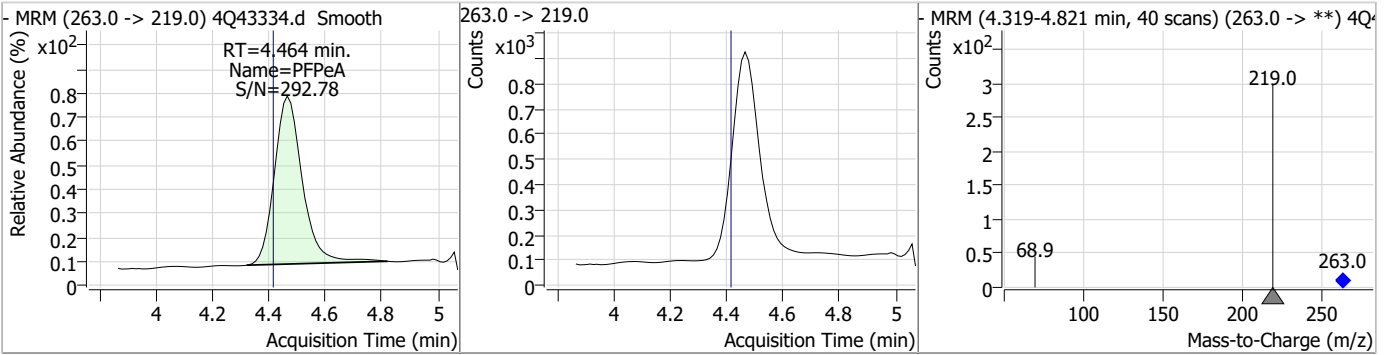
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	0.73	3.97	0.10	617	241.0 -> 117.0	9.1	4.6	13.9



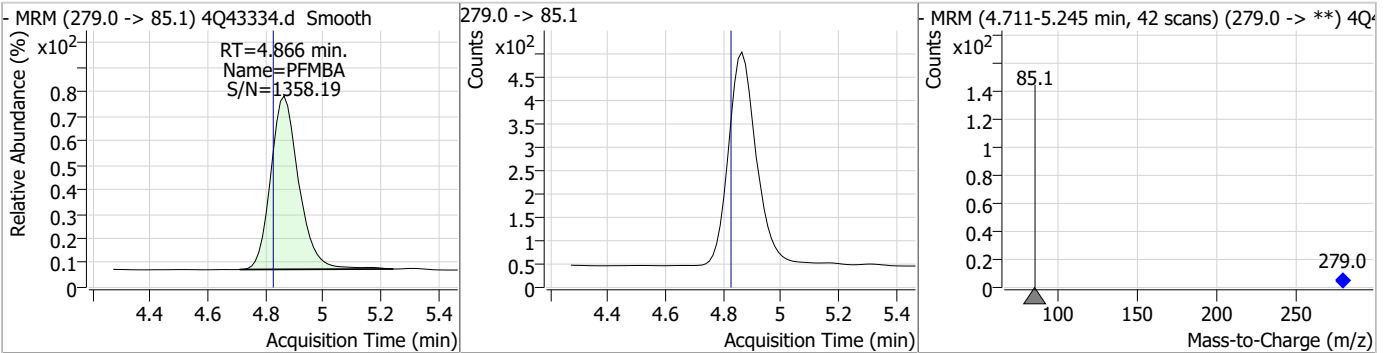
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.17	4.46	0.05	88505				



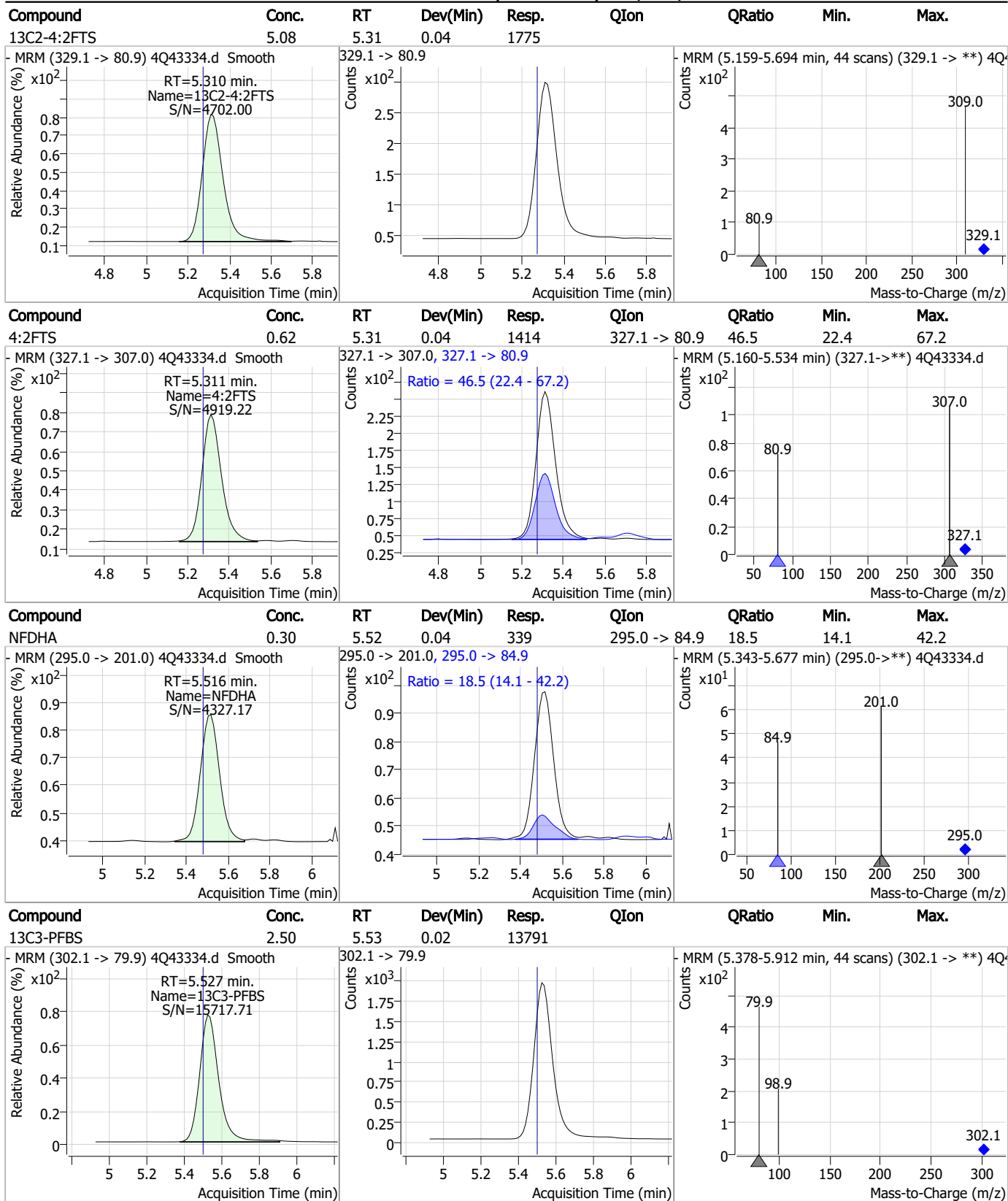
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.32	4.46	0.05	5677				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.31	4.87	0.04	3093				



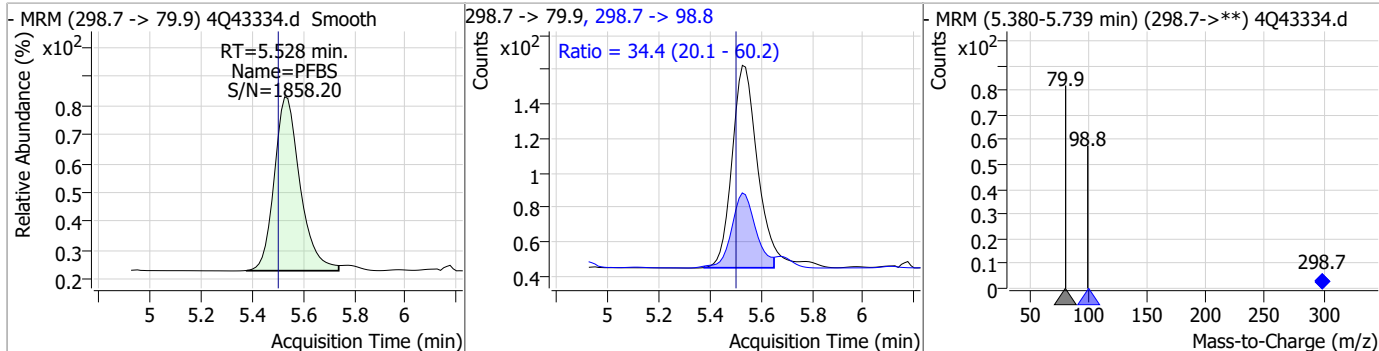
Perfluorinated Compounds by LC/MS/MS



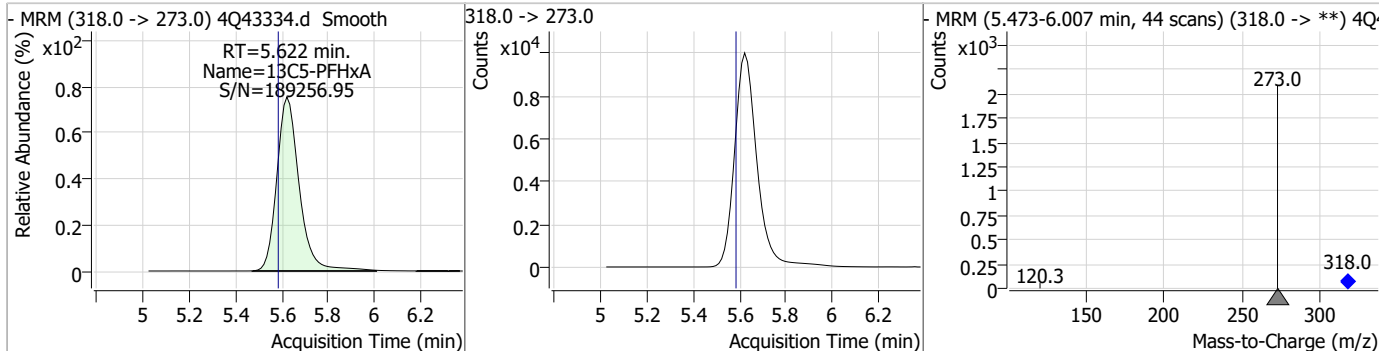
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Perfluorinated Compounds by LC/MS/MS

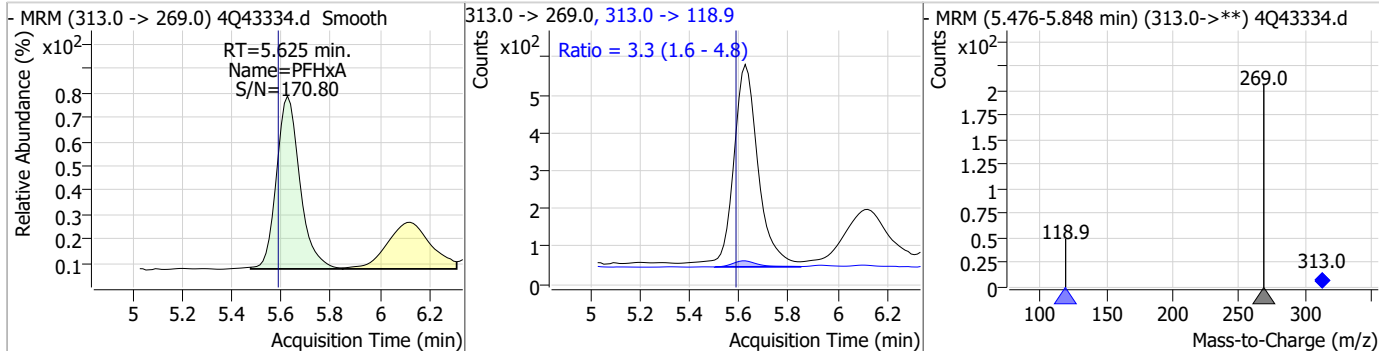
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.15	5.53	0.02	822	298.7 -> 98.8	34.4	20.1	60.2



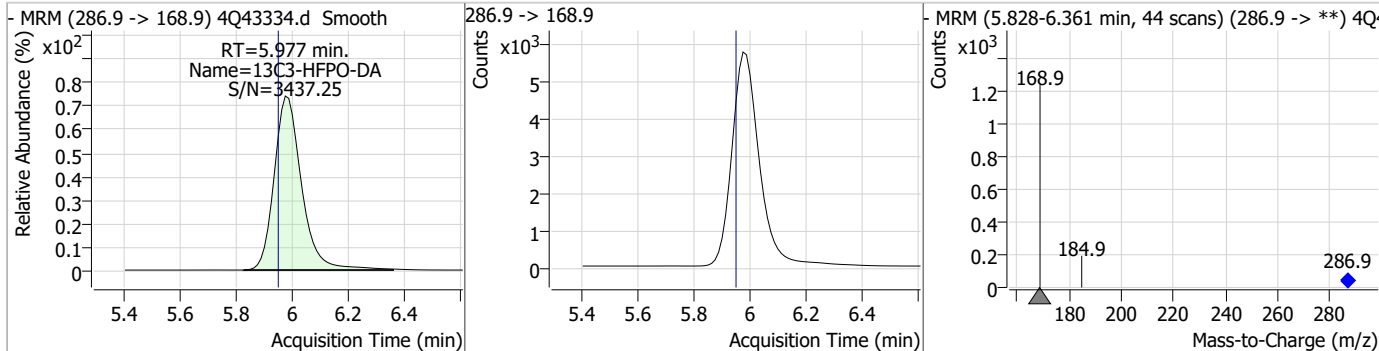
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.54	5.62	0.04	66829				



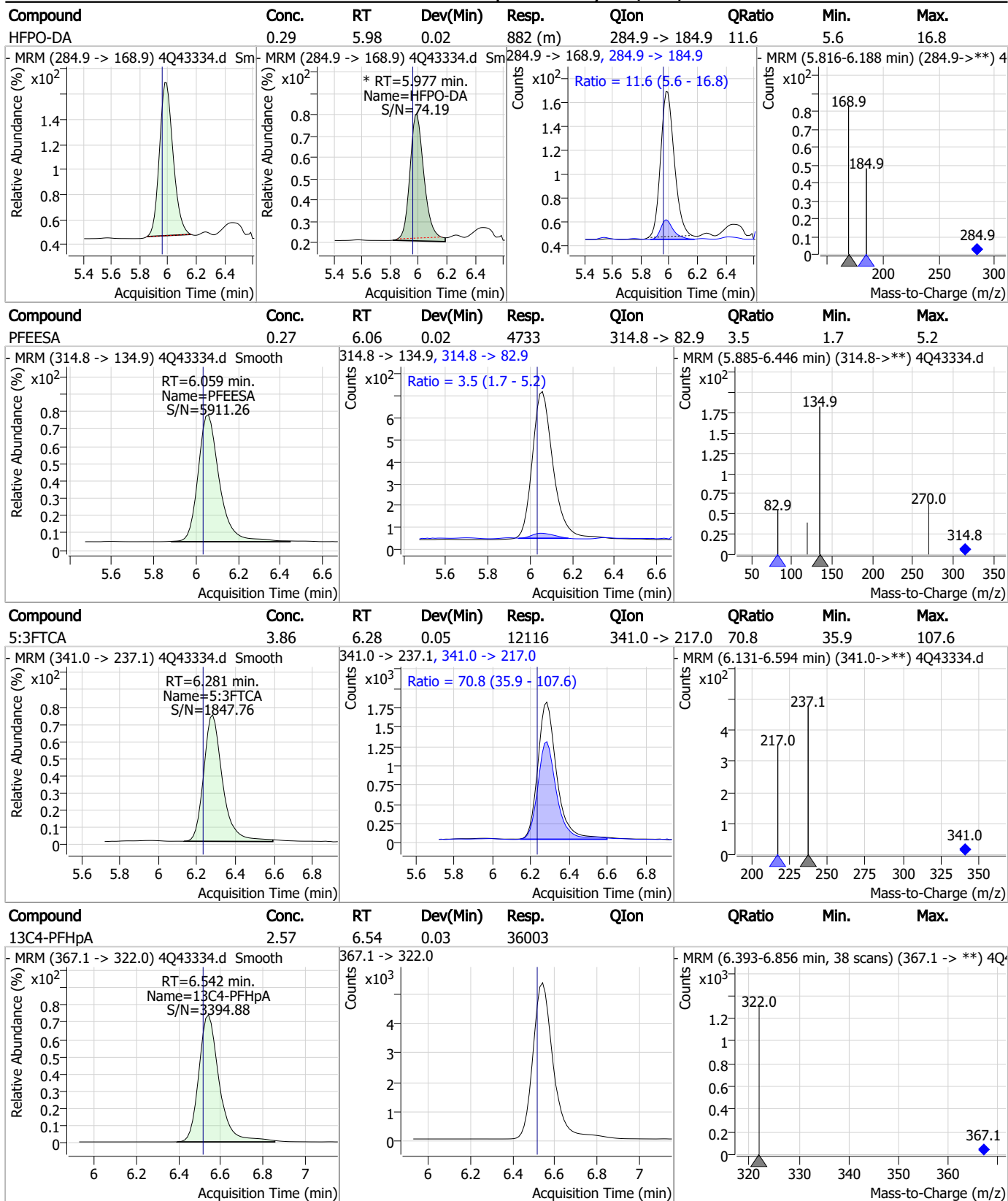
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.16	5.62	0.04	3459	313.0 -> 118.9	3.3	1.6	4.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.19	5.98	0.02	39030				

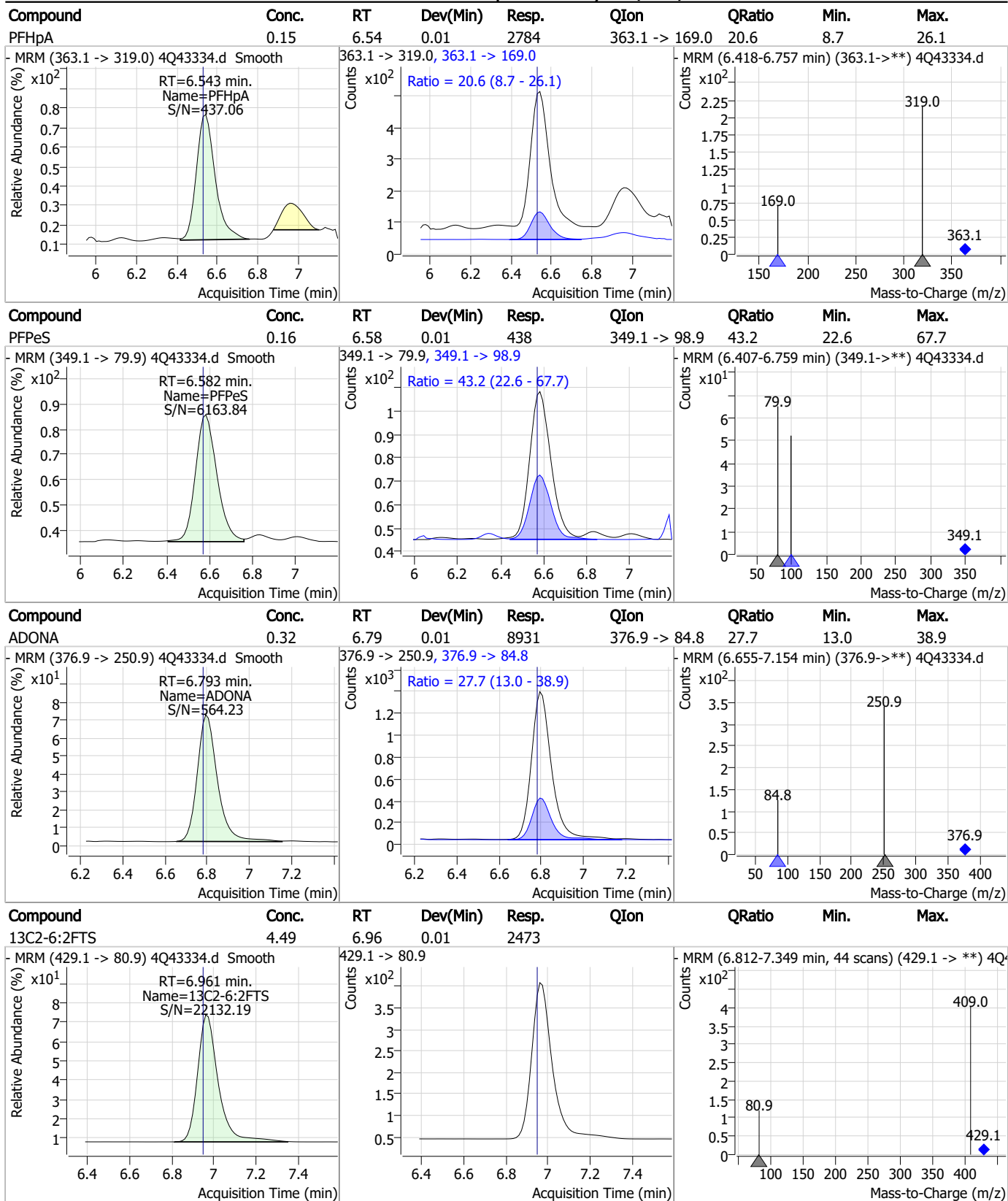


Perfluorinated Compounds by LC/MS/MS



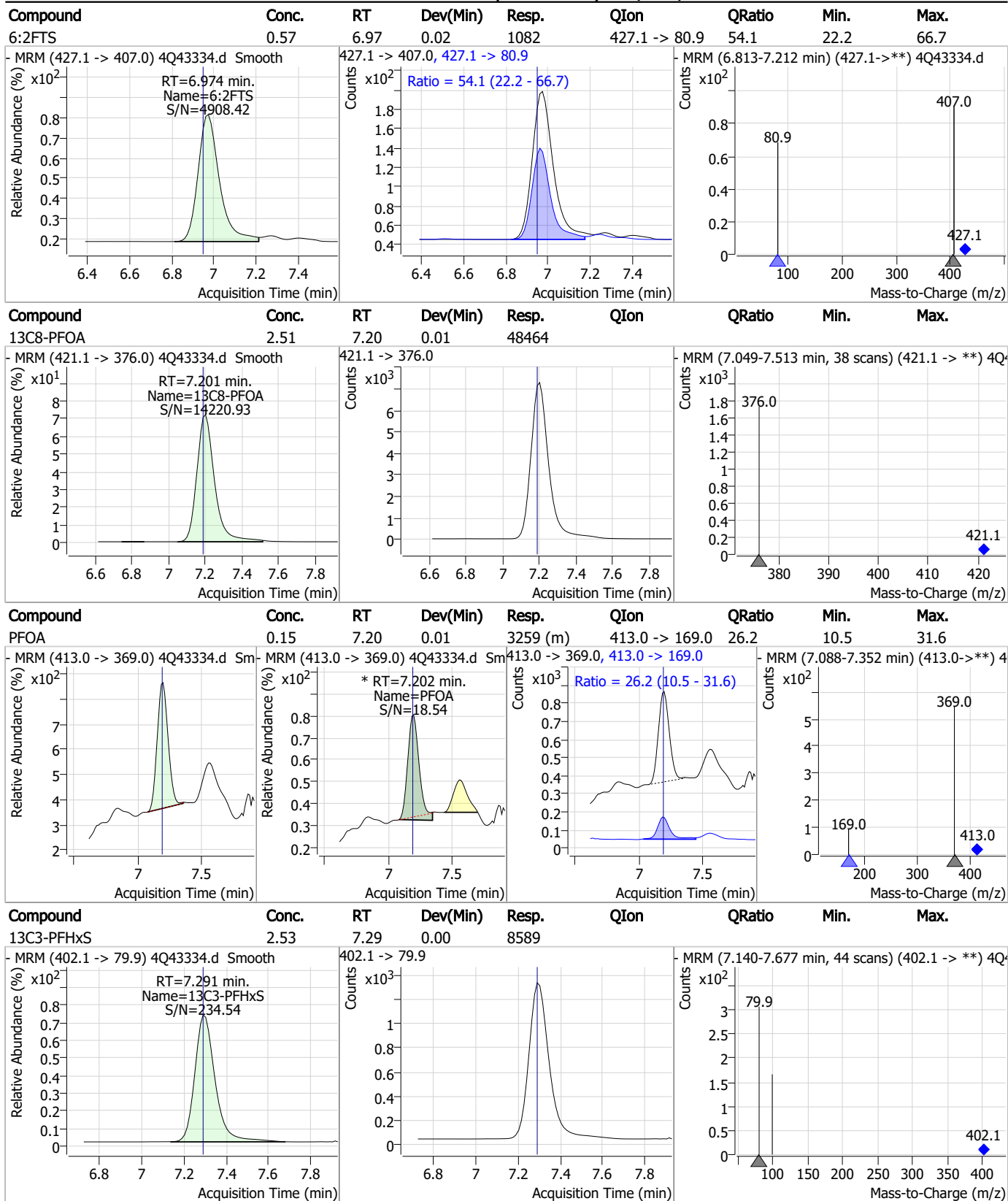
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Perfluorinated Compounds by LC/MS/MS



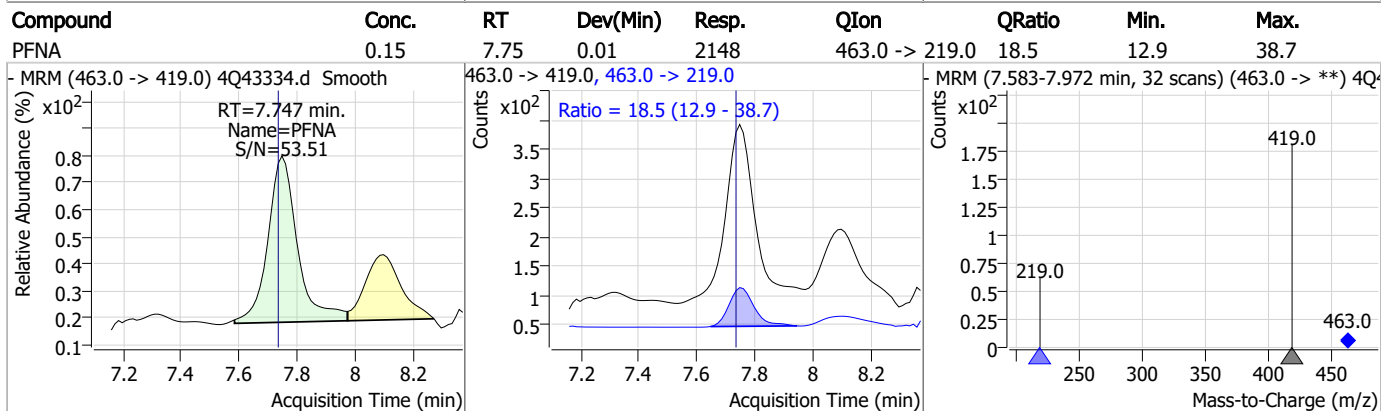
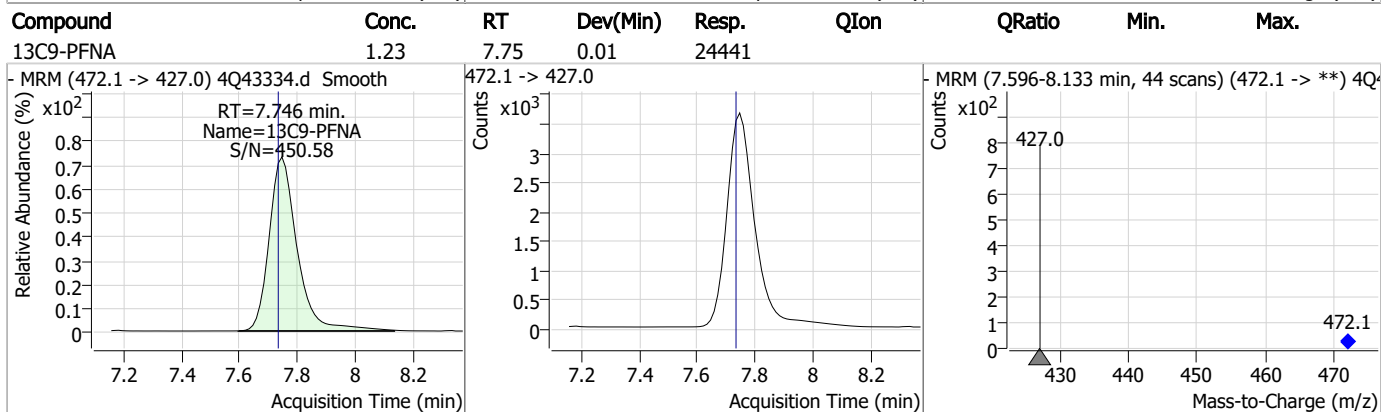
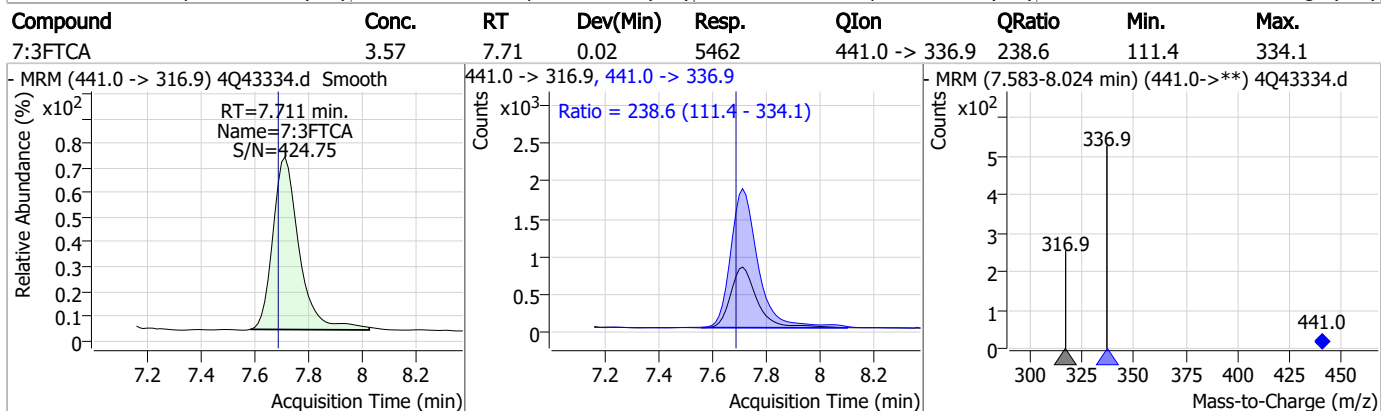
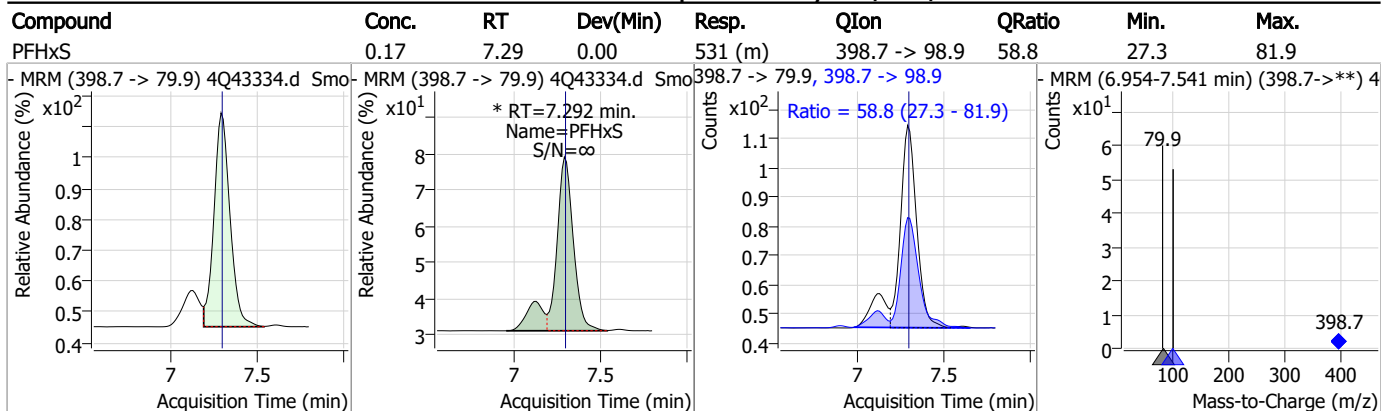
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Perfluorinated Compounds by LC/MS/MS



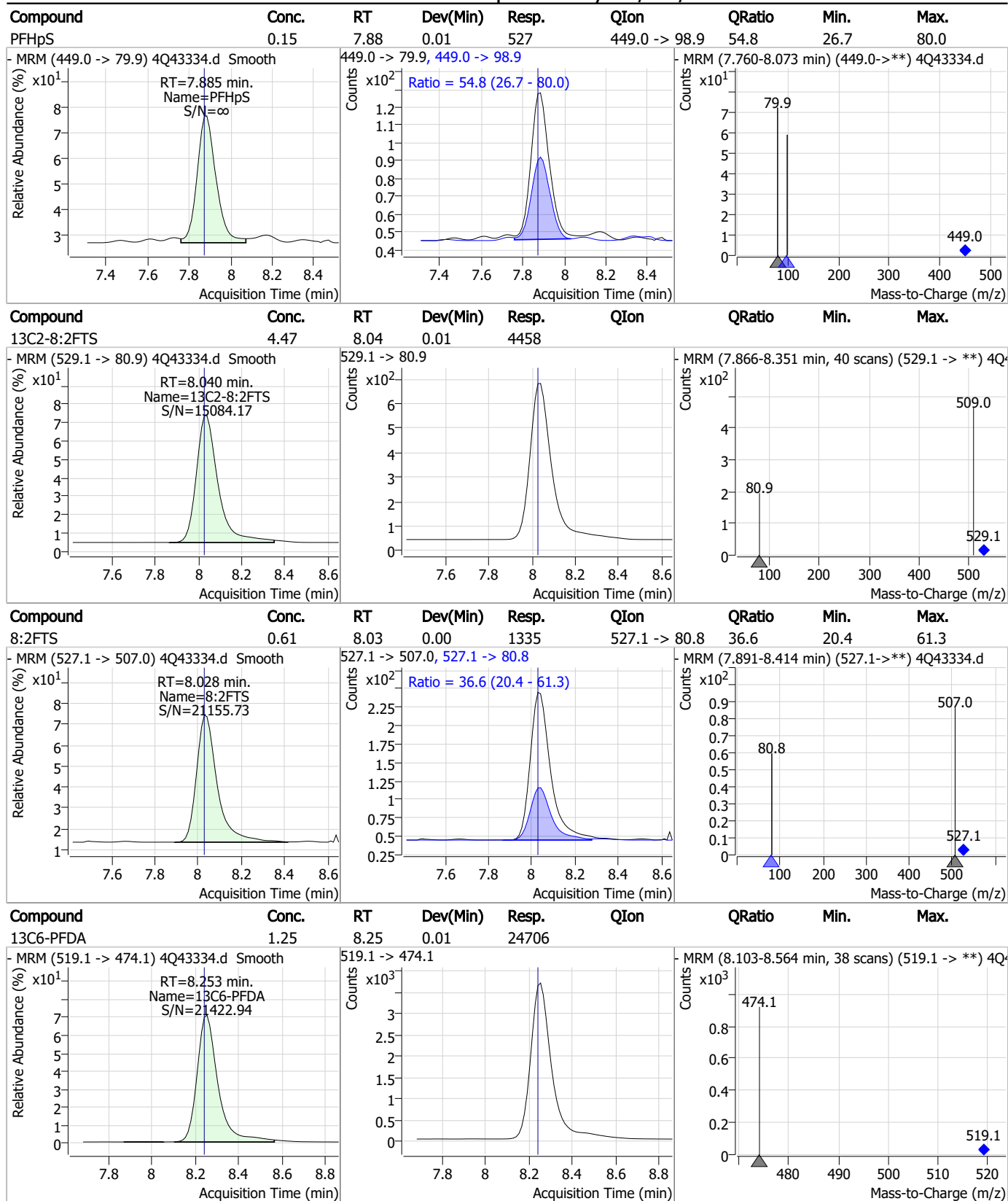
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Perfluorinated Compounds by LC/MS/MS



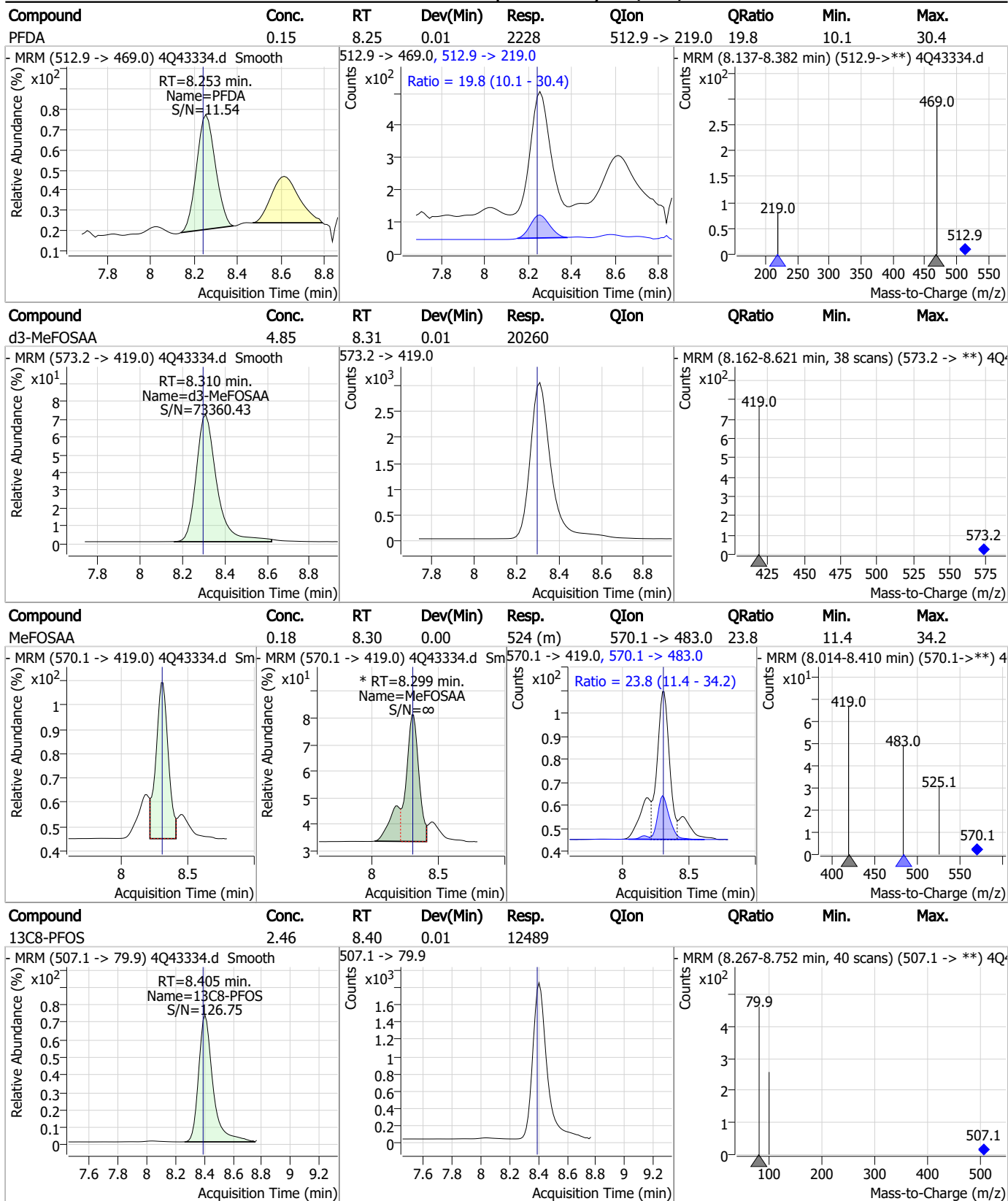
7.7.27 7

Perfluorinated Compounds by LC/MS/MS



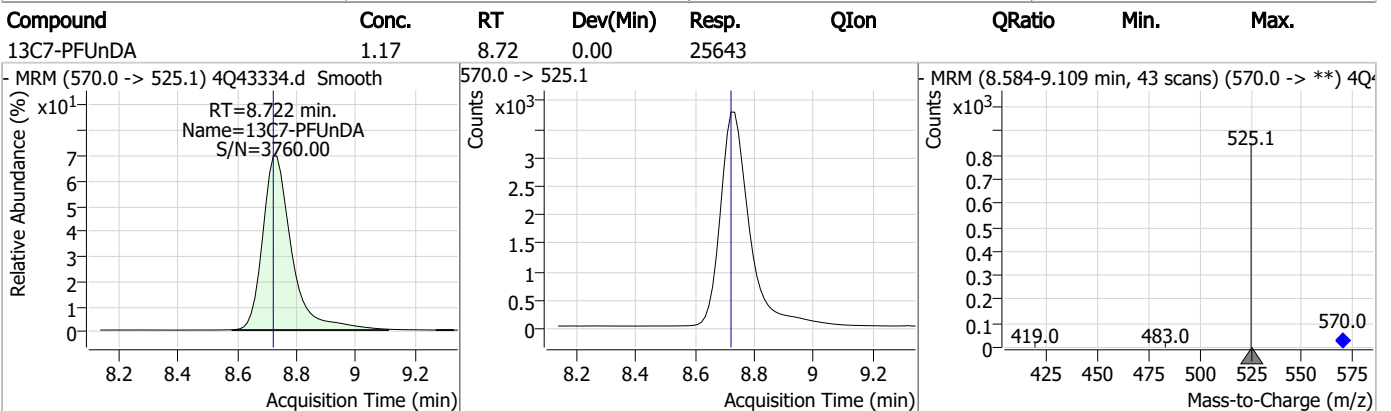
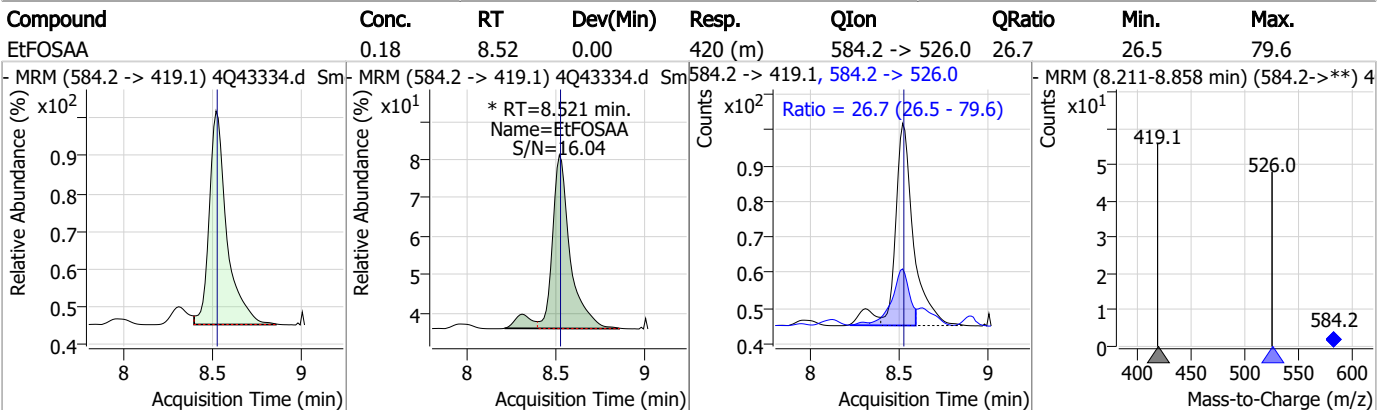
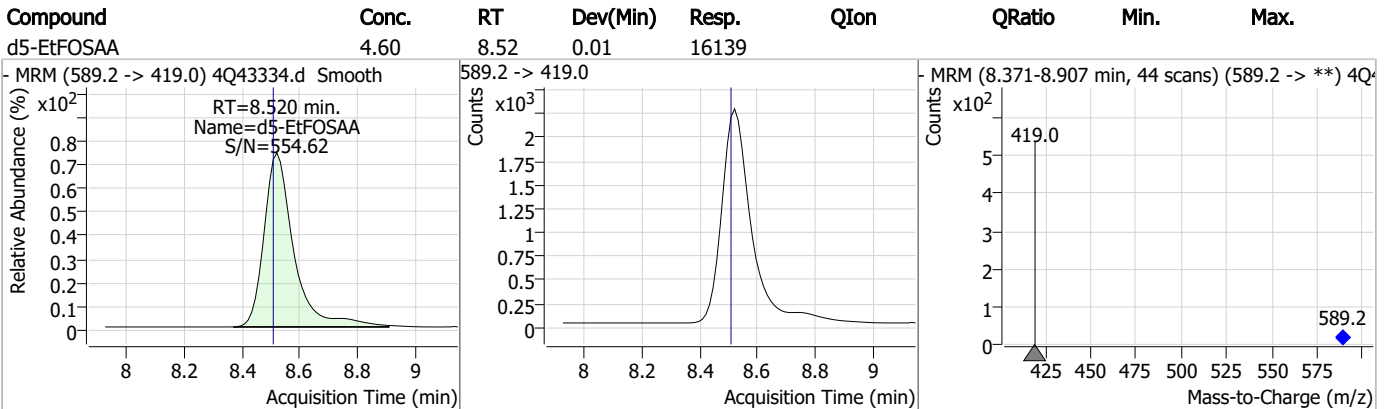
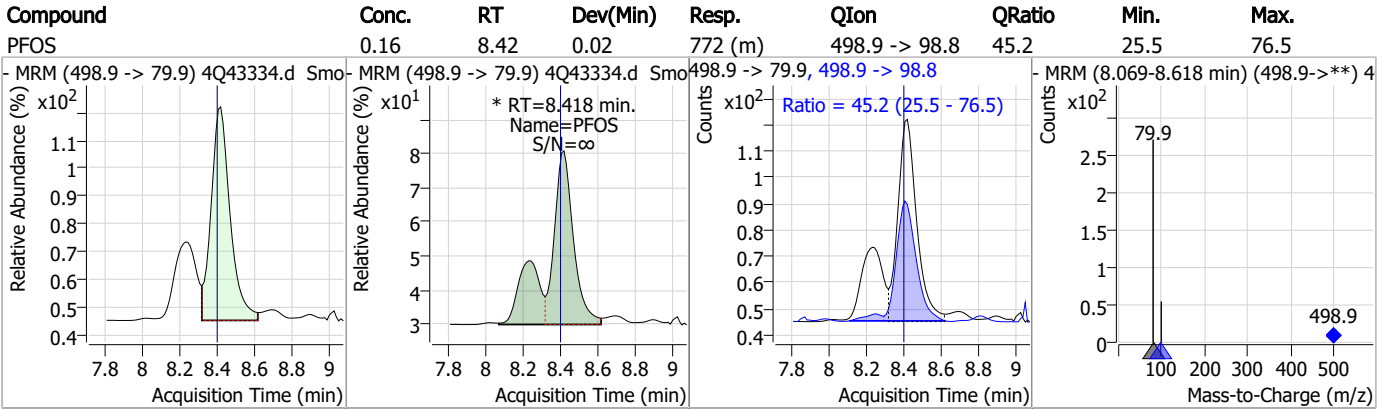
7.7.27

Perfluorinated Compounds by LC/MS/MS



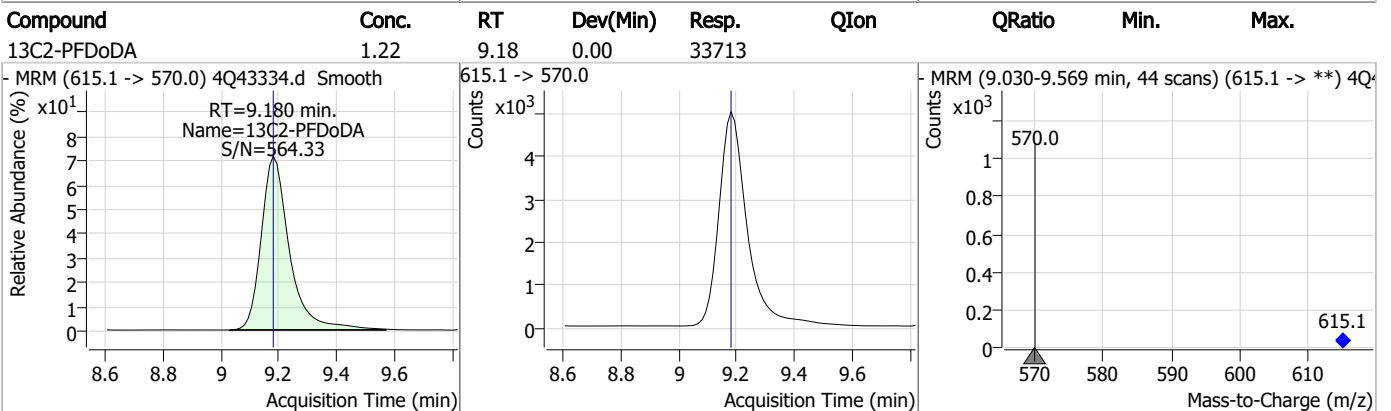
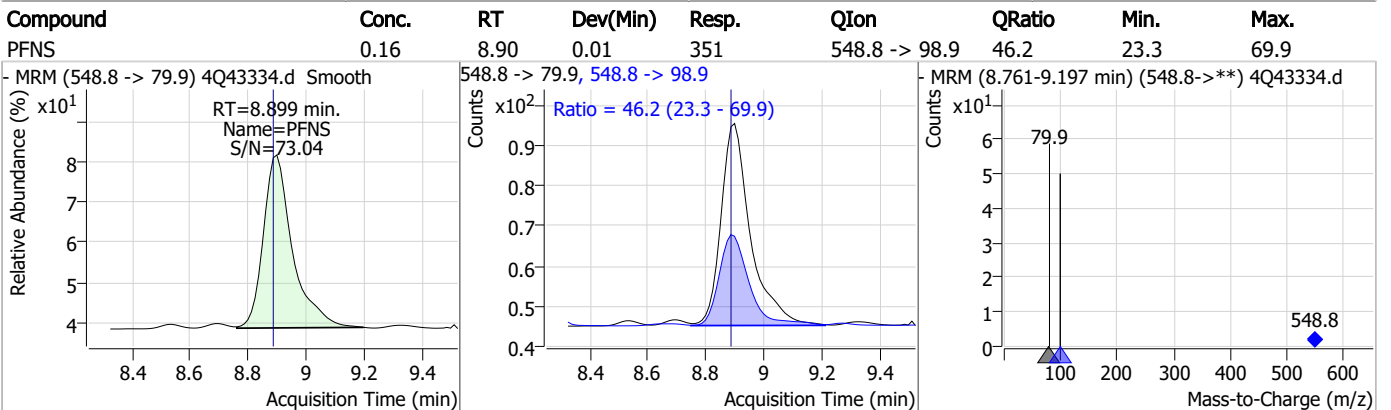
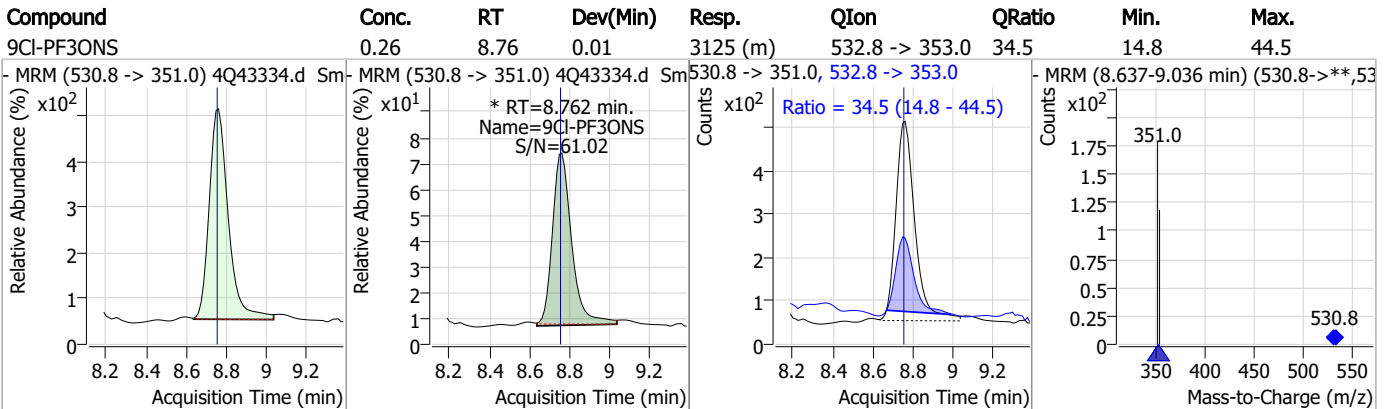
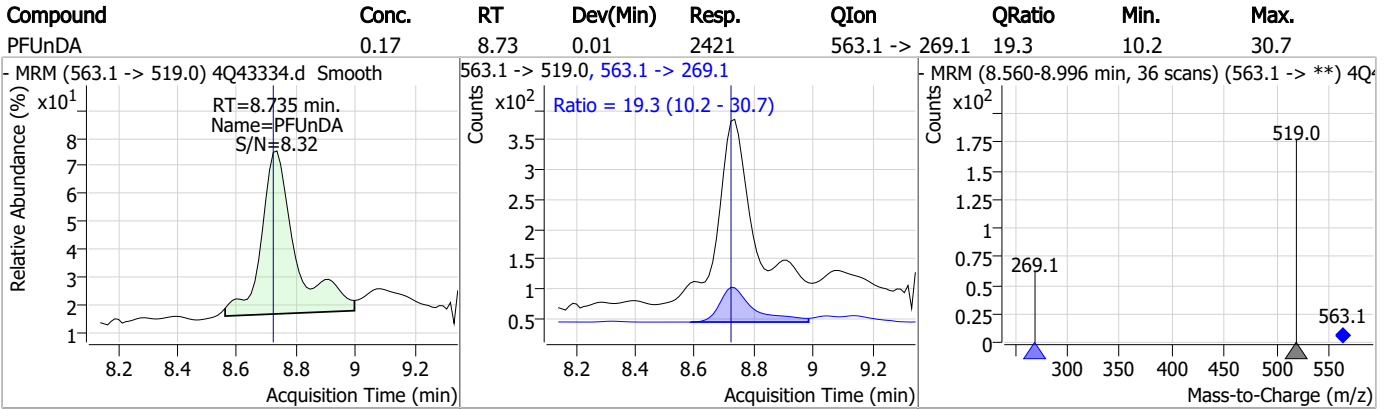
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Perfluorinated Compounds by LC/MS/MS



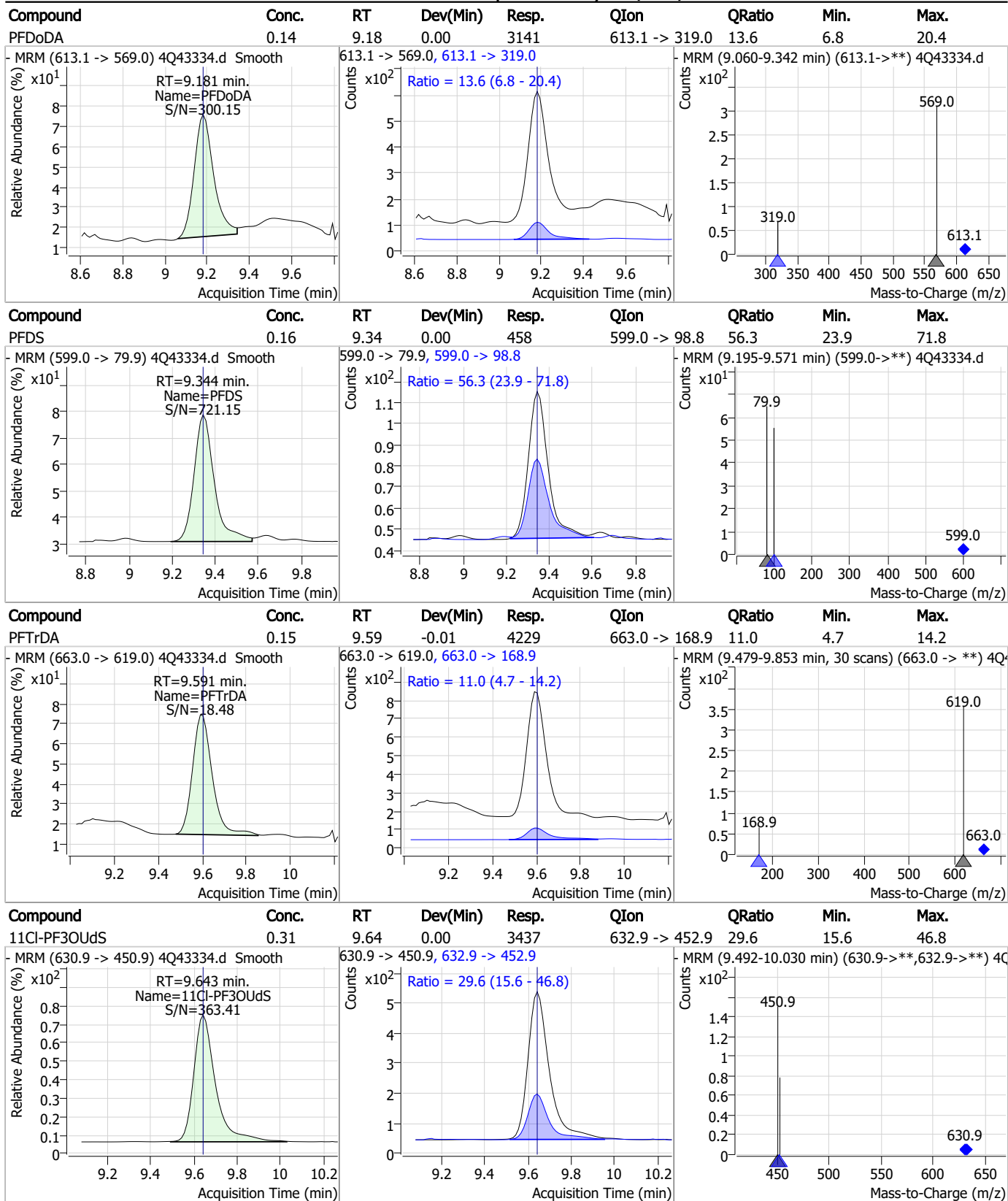
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Perfluorinated Compounds by LC/MS/MS



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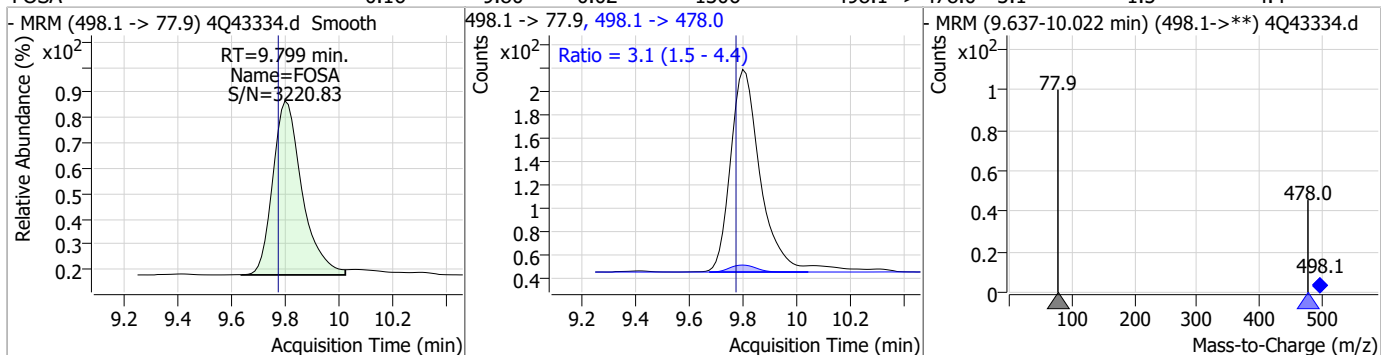
Perfluorinated Compounds by LC/MS/MS



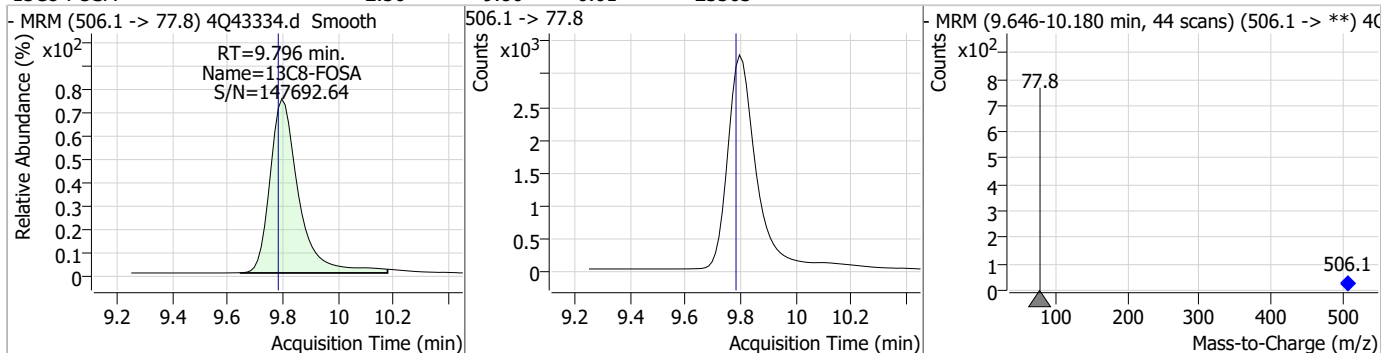
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Perfluorinated Compounds by LC/MS/MS

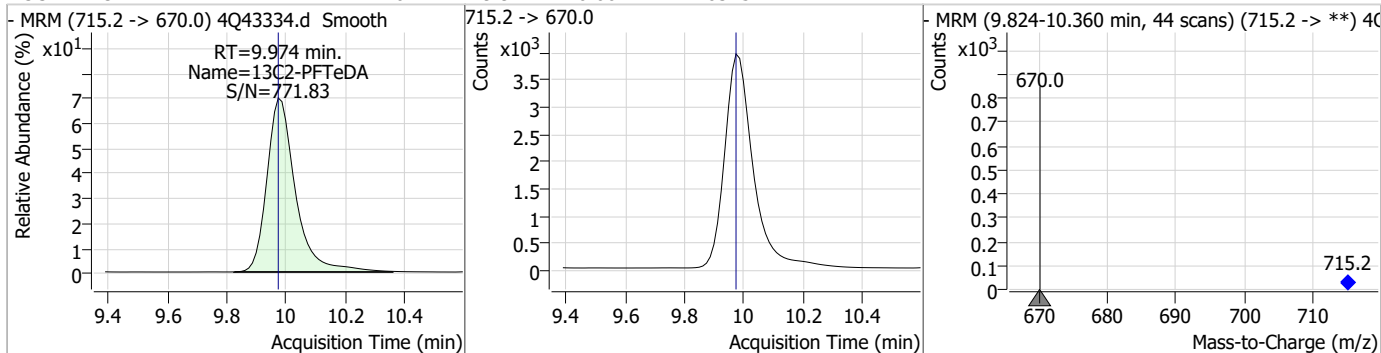
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.16	9.80	0.02	1306	498.1 -> 478.0	3.1	1.5	4.4



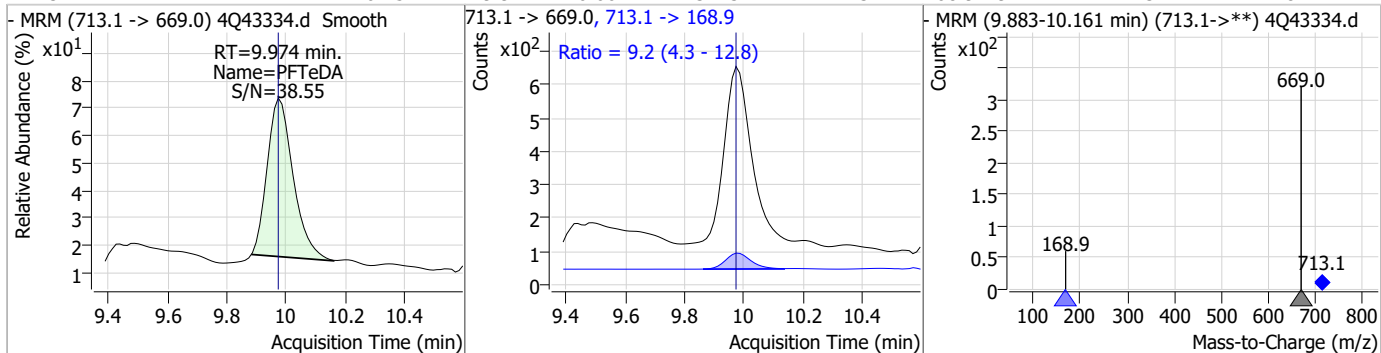
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.56	9.80	0.01	23563				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.20	9.97	0.00	26345				



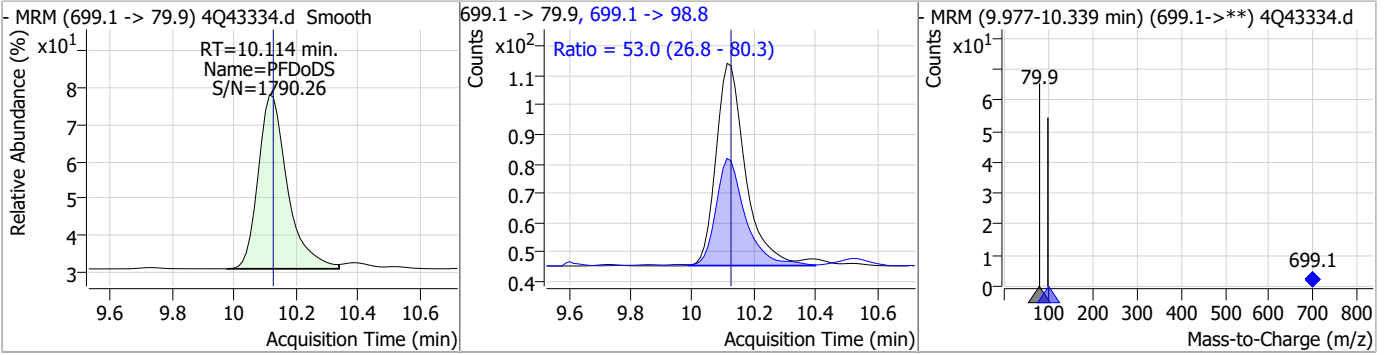
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.15	9.97	0.00	3123	713.1 -> 168.9	9.2	4.3	12.8



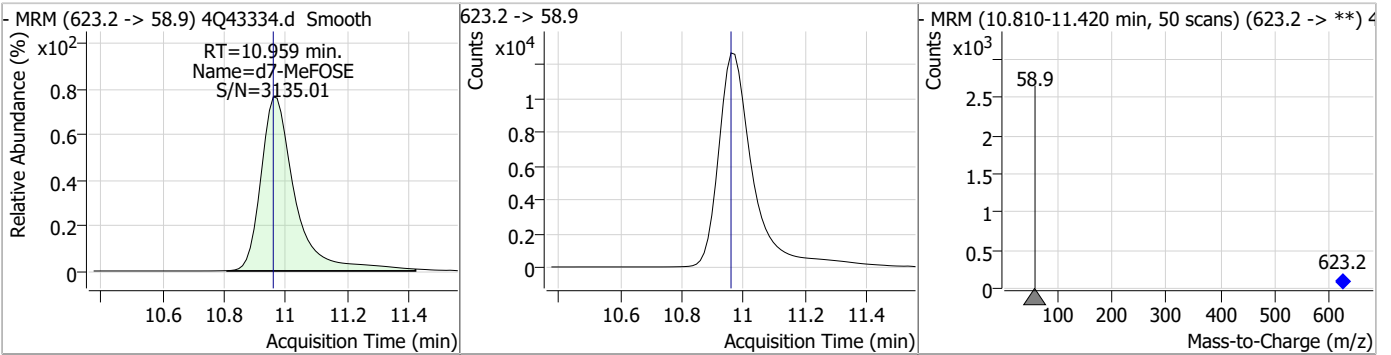
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Perfluorinated Compounds by LC/MS/MS

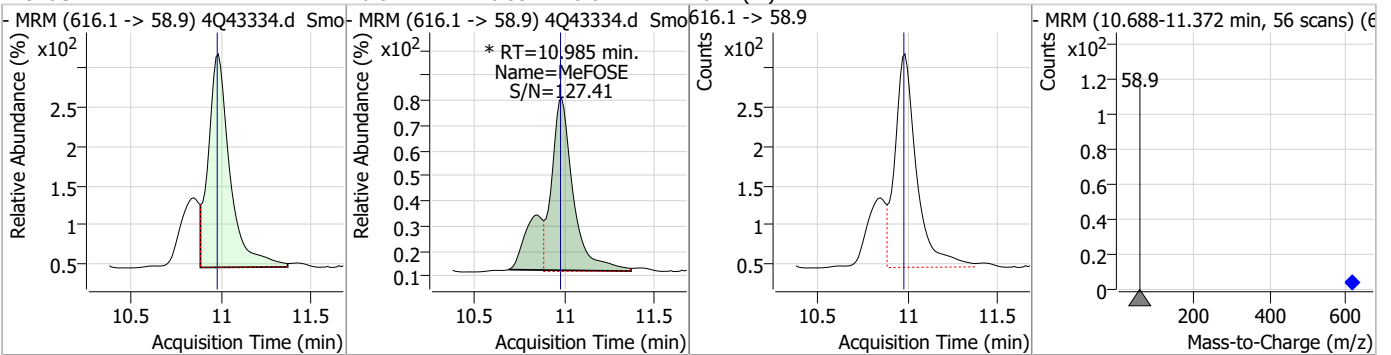
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.17	10.11	-0.01	455	699.1 -> 98.8	53.0	26.8	80.3



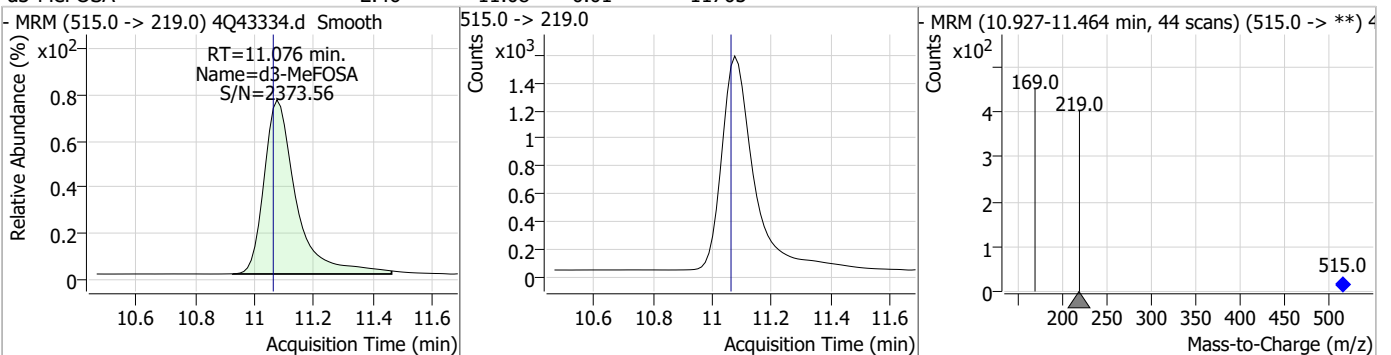
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.96	10.96	0.00	97364				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.82	10.99	0.01	2847 (m)				

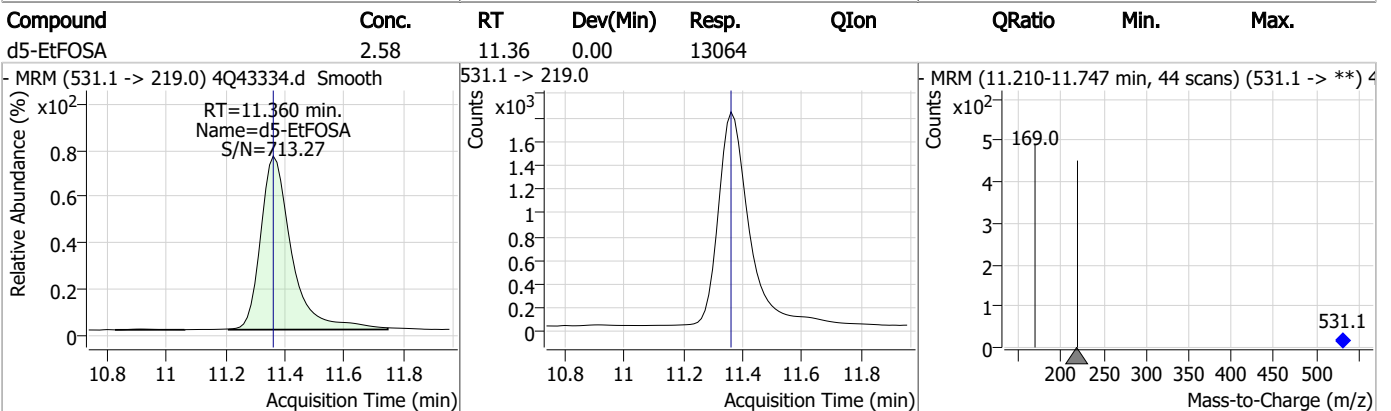
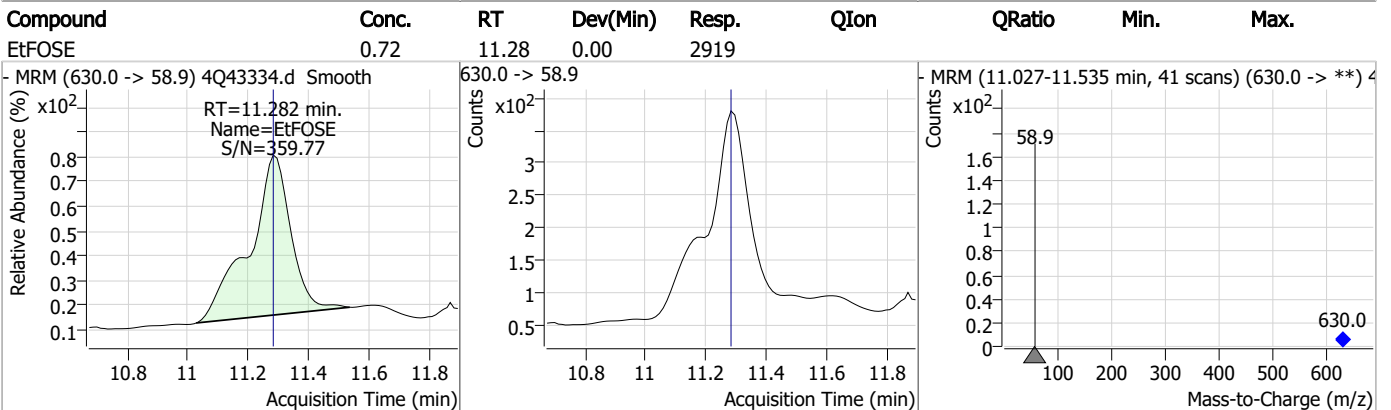
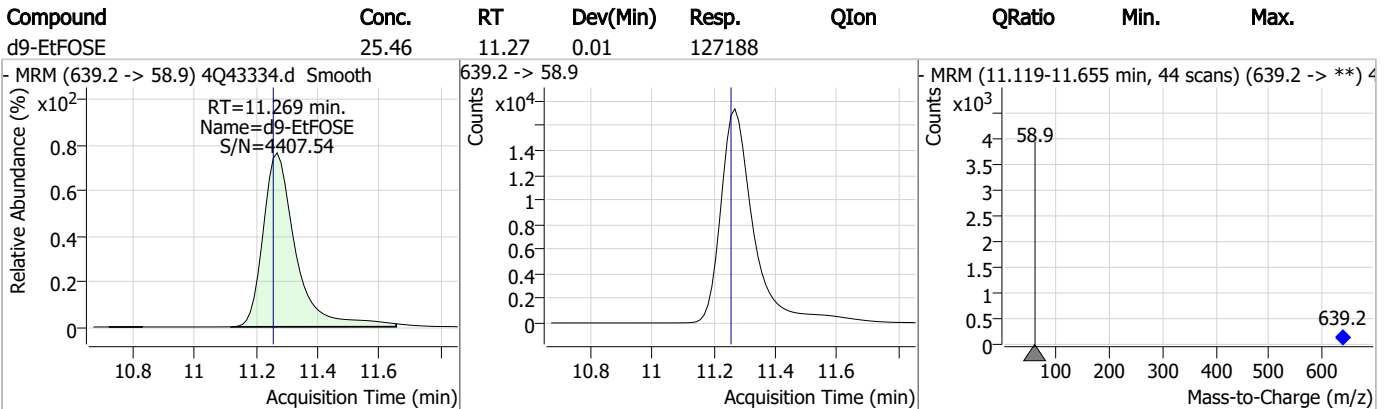
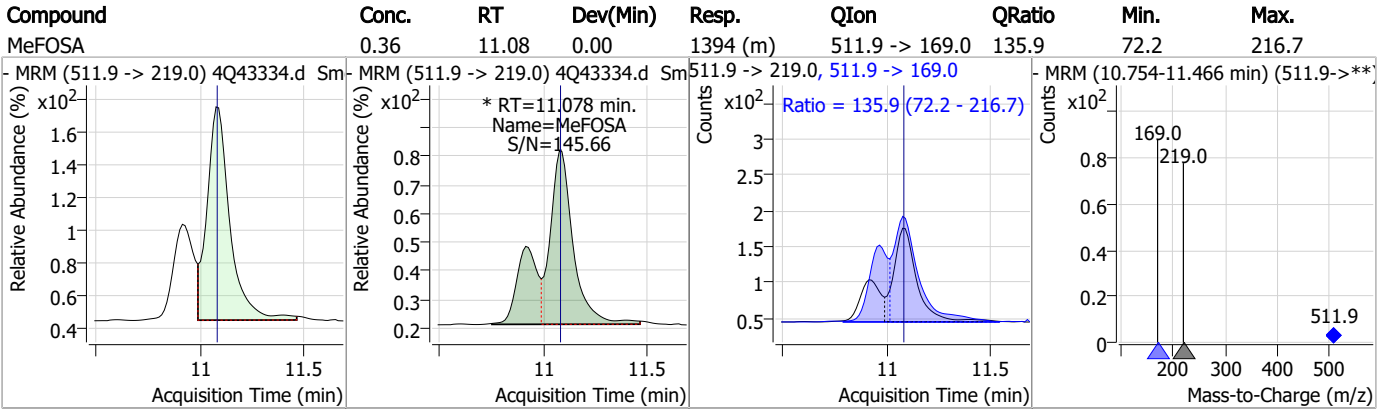


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.46	11.08	0.01	11705				



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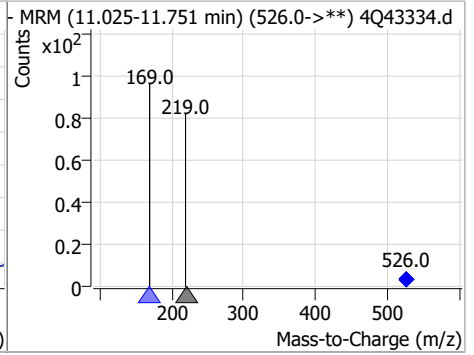
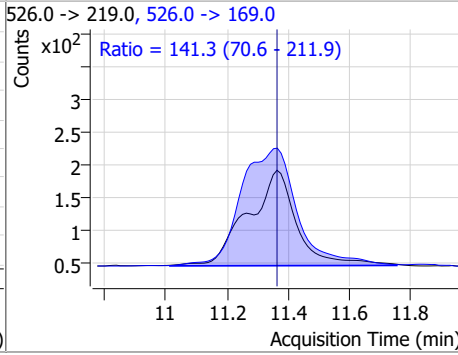
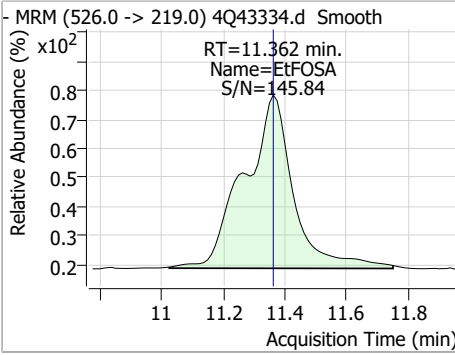
Perfluorinated Compounds by LC/MS/MS



7.7.27

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	0.33	11.36	0.00	1625	526.0 -> 169.0	141.3	70.6	211.9



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Manual Integration Approval Summary

Sample Number: S4Q626-CC625
Lab FileID: 4Q43334.D
Injection Time: 04/20/23 14:48

Method: EPA DRAFT 1633
Analyst approved: 04/21/23 11:13 Natasha Gumtie
Supervisor approved: 04/21/23 14:03 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		5.98	Poor instrument integration
Perfluorooctanoic acid	335-67-1		7.20	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.42	Split peak
EtFOSAA	2991-50-6		8.52	Split peak
9Cl-PF3ONS (F-53B Major)	756426-58-1		8.76	Poor instrument integration
MeFOSE	24448-09-7		10.98	Split peak
MeFOSA	31506-32-8		11.08	Split peak

7.7.27.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43344.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/20/2023 8:02:26 PM
 Sample Name : cc625-4
 Vial : P1-A5
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s4q626.batch.bin
 Sample Information : OP96301,S4q626,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.949	216.8 -> 171.9	133495	10.00 µg/L	0.012
M5-PFPeA	4.424	268.3 -> 223.0	75657	5.00 µg/L	0.012
M5-PFHxA	5.597	318.0 -> 273.0	59544	2.50 µg/L	0.012
M4-PFHpA	6.529	367.1 -> 322.0	31144	2.50 µg/L	0.012
M8-PFOA	7.188	421.1 -> 376.0	41967	2.50 µg/L	0.000
M9-PFNA	7.733	472.1 -> 427.0	23169	1.25 µg/L	0.000
M6-PFDA	8.240	519.1 -> 474.1	22331	1.25 µg/L	0.000
M7-PFUnDA	8.722	570.0 -> 525.1	23607	1.25 µg/L	0.000
M2-PFDoDA	9.168	615.1 -> 570.0	30981	1.25 µg/L	-0.012
M2-PFTeDA	9.961	715.2 -> 670.0	23693	1.25 µg/L	-0.012
M8-FOSA	9.783	506.1 -> 77.8	20601	2.50 µg/L	0.000
M3-PFBS	5.502	302.1 -> 79.9	12723	2.50 µg/L	0.000
M3-PFHxS	7.291	402.1 -> 79.9	7816	2.50 µg/L	0.000
M8-PFOS	8.405	507.1 -> 79.9	11163	2.50 µg/L	0.012
M2-4:2FTS	5.285	329.1 -> 80.9	1811	5.00 µg/L	0.012
M2-6:2FTS	6.961	429.1 -> 80.9	2871	5.00 µg/L	0.012
M2-8:2FTS	8.027	529.1 -> 80.9	4199	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	19645	5.00 µg/L	0.000
M3-HFPO-DA	5.952	286.9 -> 168.9	35057	10.00 µg/L	0.000
M5-EtFOSAA	8.507	589.2 -> 419.0	16301	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	82579	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	107139	25.00 µg/L	0.012
M5-EtFOSA	11.360	531.1 -> 219.0	11415	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	10834	2.50 µg/L	0.000
13C4-PFOS	8.405	502.8 -> 79.9	12064	2.50 µg/L	0.000
13C3-PFBA	2.953	216.0 -> 172.0	73171	5.00 µg/L	0.012
18O2-PFHxS	7.290	403.0 -> 83.9	5671	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	52855	2.50 µg/L	0.000
13C2-PFDA	8.241	515.1 -> 470.1	20828	1.25 µg/L	0.000
13C5-PFNA	7.746	468.0 -> 423.0	26460	1.25 µg/L	0.013
13C2-PFHxA	5.598	315.1 -> 270.0	52103	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.285	329.1 -> 80.9	1811	5.44 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C2-6:2FTS	6.961	429.1 -> 80.9	2871	5.48 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.6%		
13C2-8:2FTS	8.027	529.1 -> 80.9	4199	4.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.4%		
13C2-PFDoDA	9.168	615.1 -> 570.0	30981	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-PFTeDA	9.961	715.2 -> 670.0	23693	1.18 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.7%		
13C3-PFBS	5.502	302.1 -> 79.9	12723	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C3-PFHxS	7.291	402.1 -> 79.9	7816	2.41 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 = 96.5%	
13C4-PFBA	2.949	216.8 -> 171.9	133495	10.13 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C4-PFHpA	6.529	367.1 -> 322.0	31144	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C5-PFHxA	5.597	318.0 -> 273.0	59544	2.43 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C5-PFPeA	4.424	268.3 -> 223.0	75657	4.75 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C6-PFDA	8.240	519.1 -> 474.1	22331	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C7-PFUnDA	8.722	570.0 -> 525.1	23607	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C8-FOSA	9.783	506.1 -> 77.8	20601	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C8-PFOA	7.188	421.1 -> 376.0	41967	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C8-PFOS	8.405	507.1 -> 79.9	11163	2.32 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.7%	
13C9-PFNA	7.733	472.1 -> 427.0	23169	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.3%	
d3-MeFOSAA	8.298	573.2 -> 419.0	19645	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C3-HFPO-DA	5.952	286.9 -> 168.9	35057	8.87 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.7%	
d3-MeFOSA	11.064	515.0 -> 219.0	10834	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
d5-EtFOSAA	8.507	589.2 -> 419.0	16301	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d7-MeFOSE	10.959	623.2 -> 58.9	82579	22.31 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.3%	
d9-EtFOSE	11.269	639.2 -> 58.9	107139	22.61 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.4%	
d5-EtFOSA	11.360	531.1 -> 219.0	11415	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
Target Compounds					QValue
4:2FTS	5.286	327.1 -> 307.0	21185	9.14 µg/L	93
		327.1 -> 80.9	8550		
6:2FTS	6.949	427.1 -> 407.0	19706	8.98 µg/L	97
		427.1 -> 80.9	8425		
8:2FTS	8.028	527.1 -> 507.0	23119	11.17 µg/L	94
		527.1 -> 80.8	8658		
EtFOSAA	8.521	584.2 -> 419.1	6018	2.59 µg/L	m 91
		584.2 -> 526.0	2827		
FOSA	9.786	498.1 -> 77.9	17243	2.47 µg/L	100
		498.1 -> 478.0	502		
MeFOSAA	8.299	570.1 -> 419.0	7061	2.52 µg/L	m 100
		570.1 -> 483.0	1604		
PFBA	2.957	212.8 -> 168.9	30409	9.82 µg/L	100
PFBS	5.503	298.7 -> 79.9	11001	2.19 µg/L	100
		298.7 -> 98.8	4406		
PFDA	8.241	512.9 -> 469.0	35774	2.61 µg/L	97
		512.9 -> 219.0	6781		
PFDODA	9.169	613.1 -> 569.0	51794	2.54 µg/L	100
		613.1 -> 319.0	6994		
PFDS	9.331	599.0 -> 79.9	6508	2.50 µg/L	96

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.530	599.0 -> 98.8	3284	2.59	µg/L	99
		363.1 -> 319.0	42372			
PFHpS	7.873	363.1 -> 169.0	7529	2.44	µg/L	94
		449.0 -> 79.9	7830			
PFHxA	5.600	449.0 -> 98.9	4494	2.50	µg/L	99
		313.0 -> 269.0	46846			
PFHxS	7.292	313.0 -> 118.9	1388	2.30	µg/L	m
		398.7 -> 79.9	6572			
PFNA	7.747	398.7 -> 98.9	3346	2.45	µg/L	99
		463.0 -> 419.0	32371			
PFNS	8.886	463.0 -> 219.0	8149	2.32	µg/L	87
		548.8 -> 79.9	4579			
PFOA	7.189	548.8 -> 98.9	2542	2.72	µg/L	97
		413.0 -> 369.0	50905			
PFOS	8.406	413.0 -> 169.0	11407	2.45	µg/L	m
		498.9 -> 79.9	10472			
PFPeA	4.427	498.9 -> 98.8	5650	5.15	µg/L	100
		263.0 -> 219.0	77767			
PFPeS	6.557	349.1 -> 79.9	6194	2.51	µg/L	97
		349.1 -> 98.9	2678			
PFTeDA	9.962	713.1 -> 669.0	48145	2.50	µg/L	100
		713.1 -> 168.9	4058			
PFTrDA	9.591	663.0 -> 619.0	65010	2.56	µg/L	98
		663.0 -> 168.9	6541			
PFUnDA	8.722	563.1 -> 519.0	35242	2.64	µg/L	97
		563.1 -> 269.1	6794			
11CI-PF3OUdS	9.630	630.9 -> 450.9	51681	5.12	µg/L	99
		632.9 -> 452.9	16387			
9CI-PF3ONS	8.749	530.8 -> 351.0	55429	5.11	µg/L	99
		532.8 -> 353.0	16643			
ADONA	6.781	376.9 -> 250.9	132898	5.27	µg/L	99
		376.9 -> 84.8	35116			
HFPO-DA	5.953	284.9 -> 168.9	13908	5.02	µg/L	98
		284.9 -> 184.9	1677			
3:3FTCA	3.879	241.0 -> 177.0	8965	12.46	µg/L	98
		241.0 -> 117.0	909			
5:3FTCA	6.244	341.0 -> 237.1	179299	64.12	µg/L	98
		341.0 -> 217.0	125995			
7:3FTCA	7.699	441.0 -> 316.9	84902	62.22	µg/L	99
		441.0 -> 336.9	190486			
EtFOSA	11.362	526.0 -> 219.0	21563	5.06	µg/L	m
		526.0 -> 169.0	29938			
EtFOSE	11.282	630.0 -> 58.9	45720	13.38	µg/L	100
		511.9 -> 219.0	17856			
MeFOSA	11.078	511.9 -> 169.0	26257	4.93	µg/L	m
		616.1 -> 58.9	37311			
MeFOSE	10.973	699.1 -> 79.9	5962	12.71	µg/L	m
		699.1 -> 98.8	3089			
PFDoDS	10.101	295.0 -> 201.0	5579	2.52	µg/L	97
		295.0 -> 84.9	1488			
NFDHA	5.479	279.0 -> 85.1	43911	5.49	µg/L	97
		229.0 -> 84.9	38727			
PFMBA	4.828	314.8 -> 134.9	67946	5.09	µg/L	100
		314.8 -> 82.9	2299			
PFMPA	3.565			5.05	µg/L	100
PFEESA	6.034			4.41	µg/L	100

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



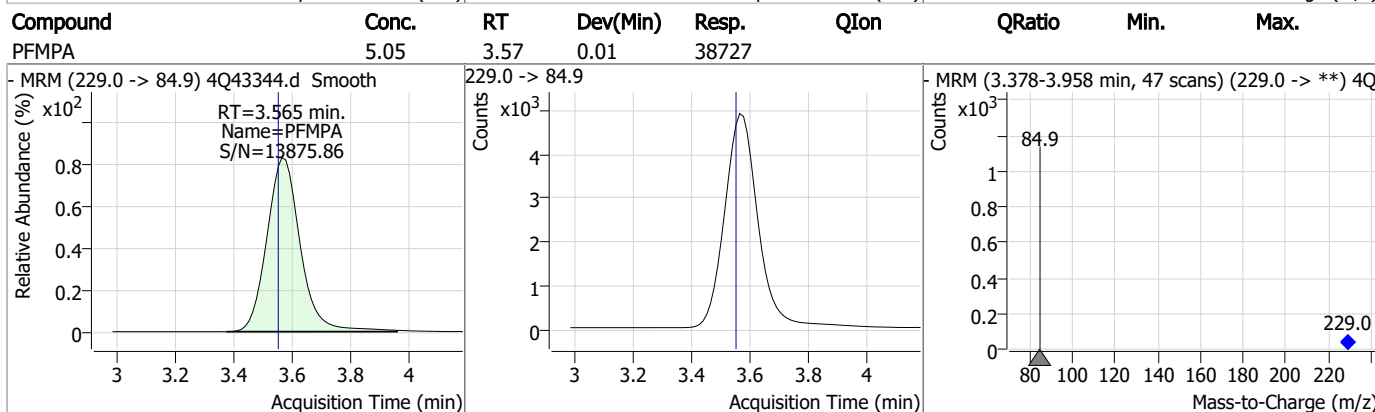
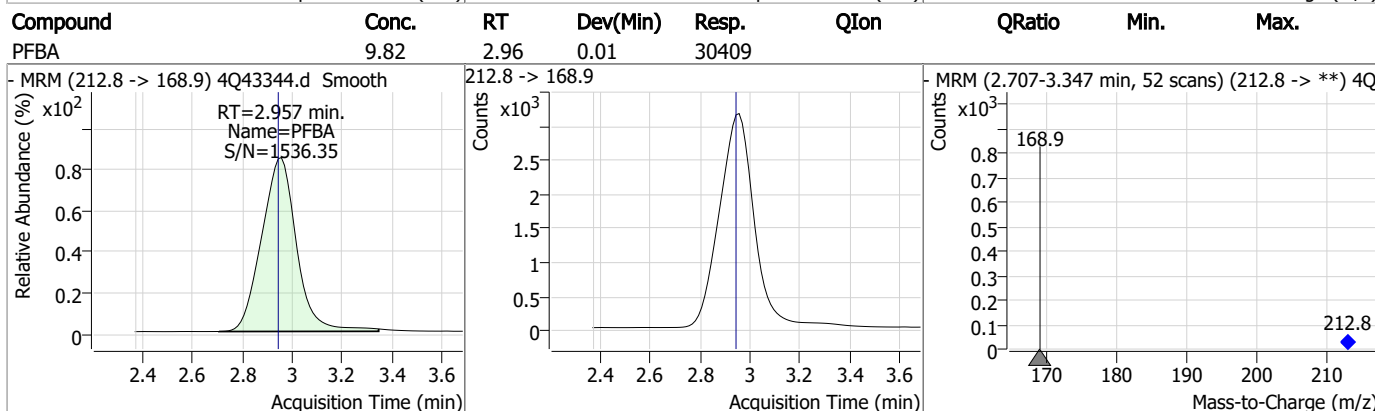
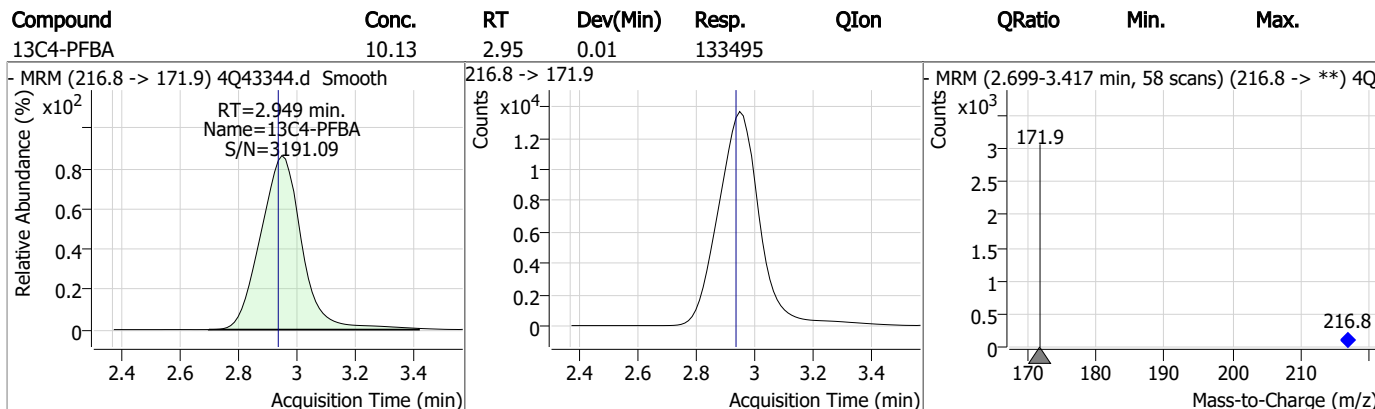
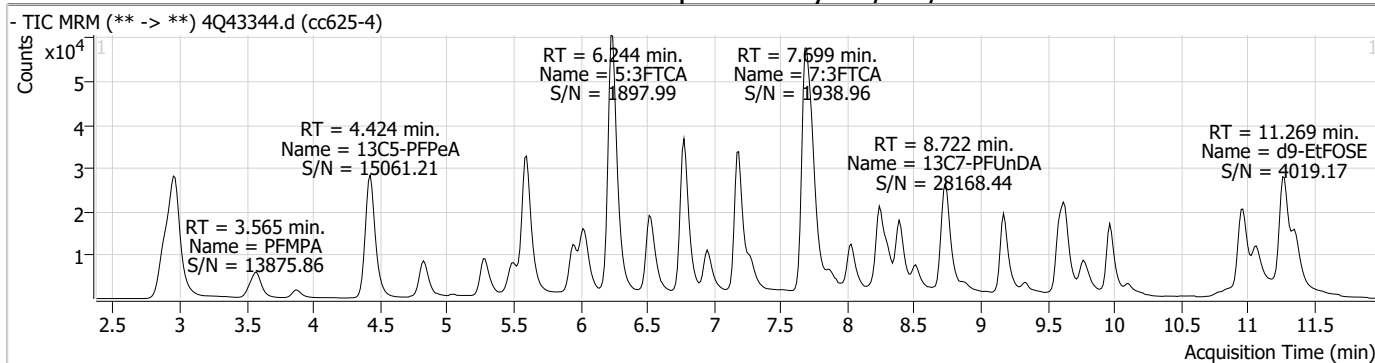
Perfluorinated Compounds by LC/MS/MS

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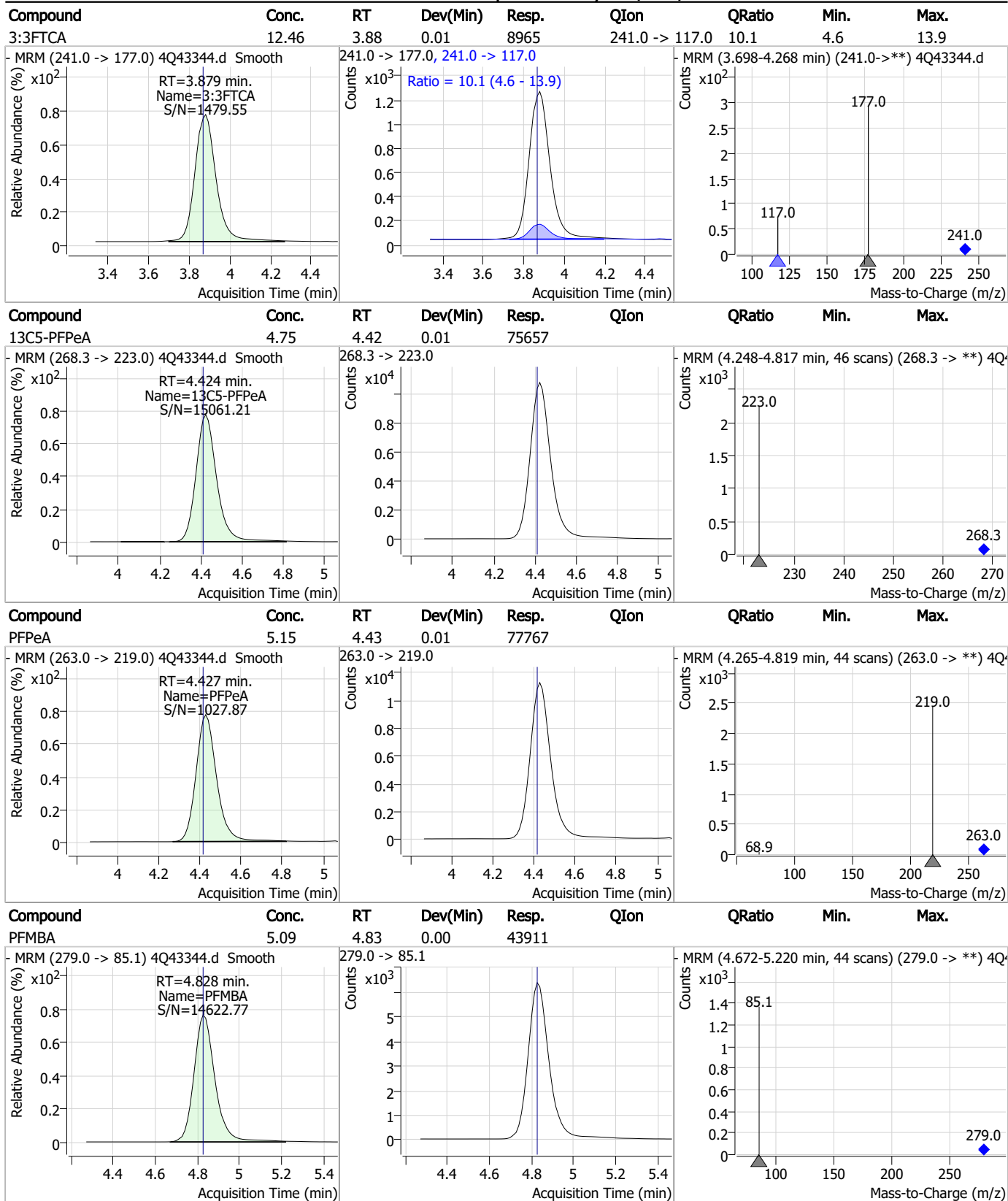
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Perfluorinated Compounds by LC/MS/MS



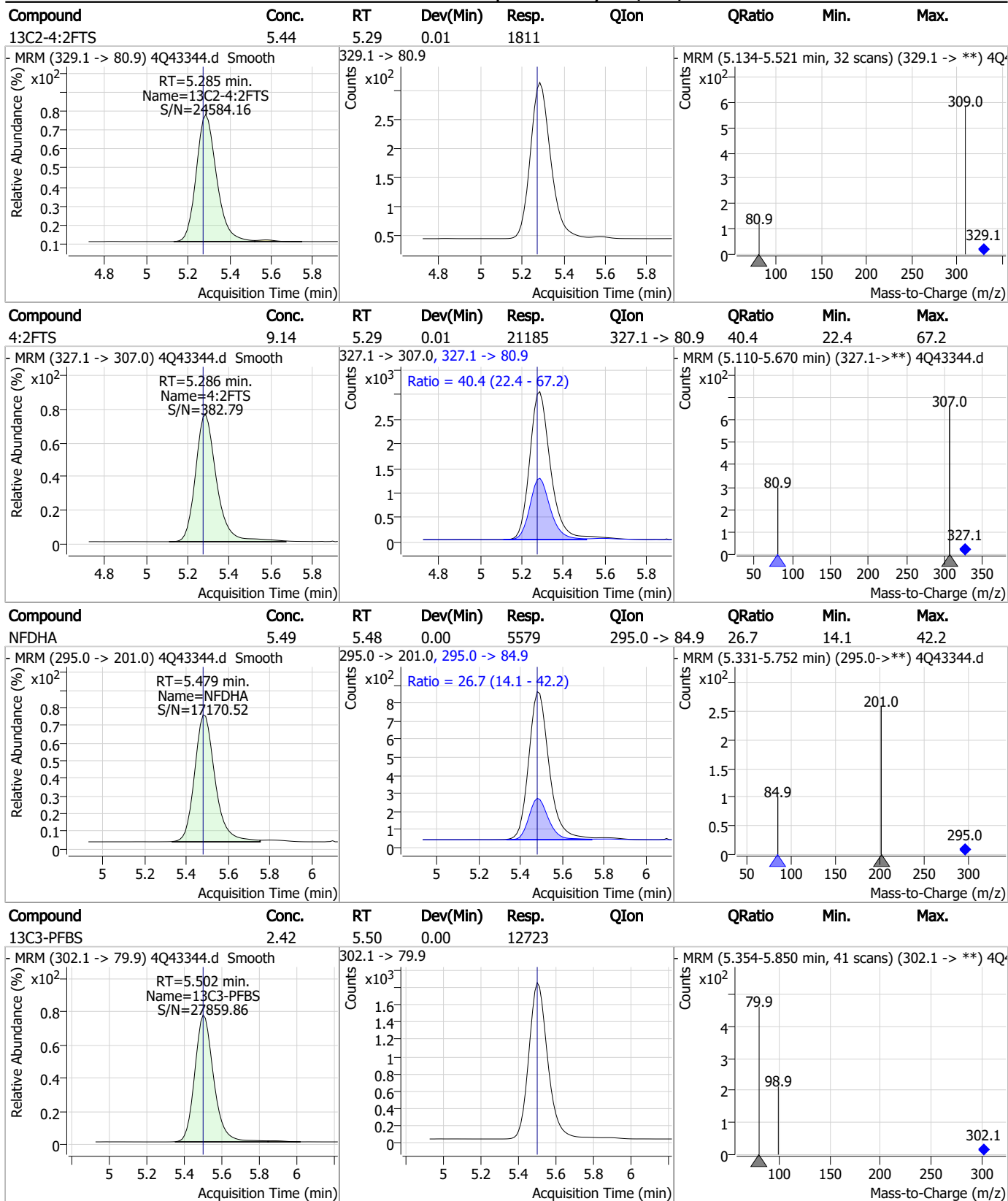
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

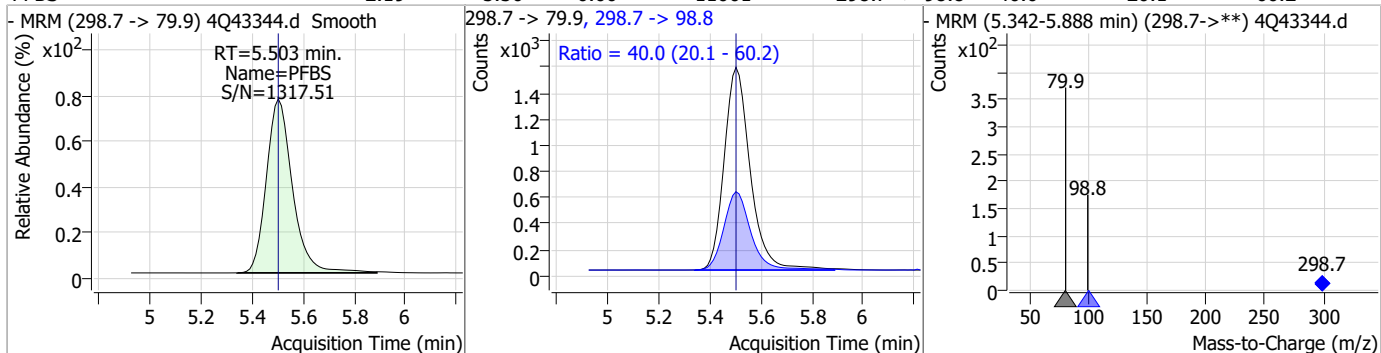


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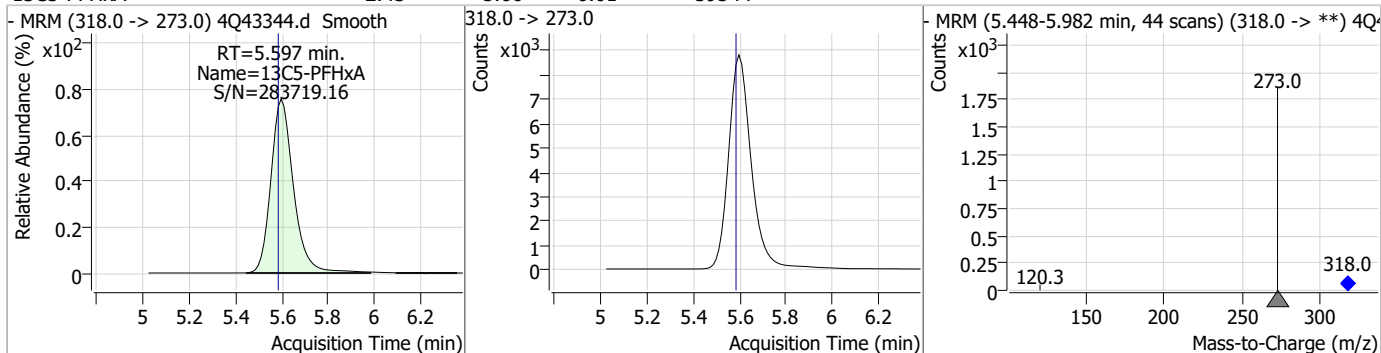
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Perfluorinated Compounds by LC/MS/MS

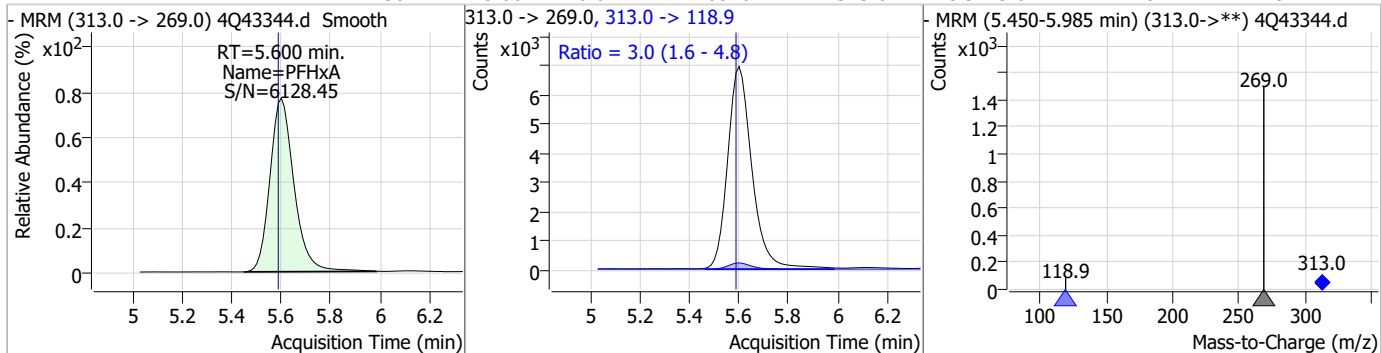
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.19	5.50	0.00	11001	298.7 -> 98.8	40.0	20.1	60.2



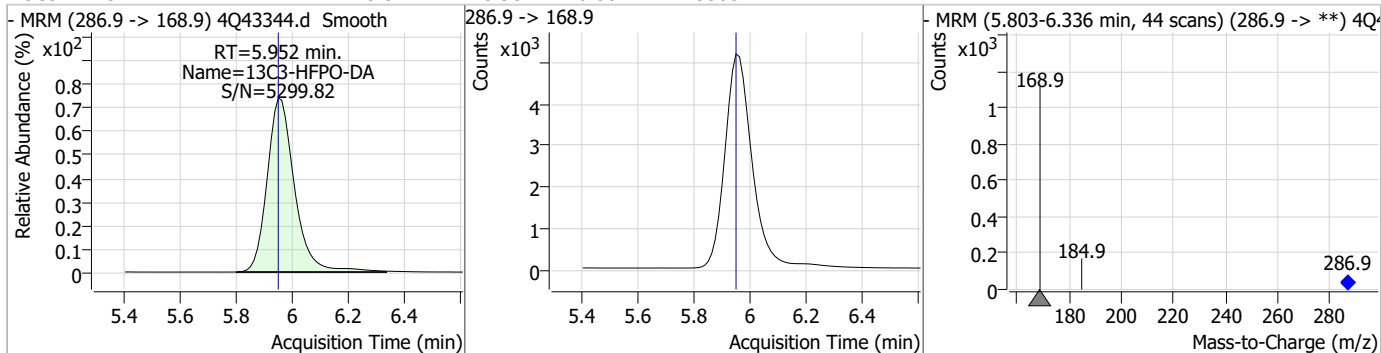
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.43	5.60	0.01	59544	318.0 -> 273.0	3.0	1.6	4.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.50	5.60	0.01	46846	313.0 -> 118.9	3.0	1.6	4.8

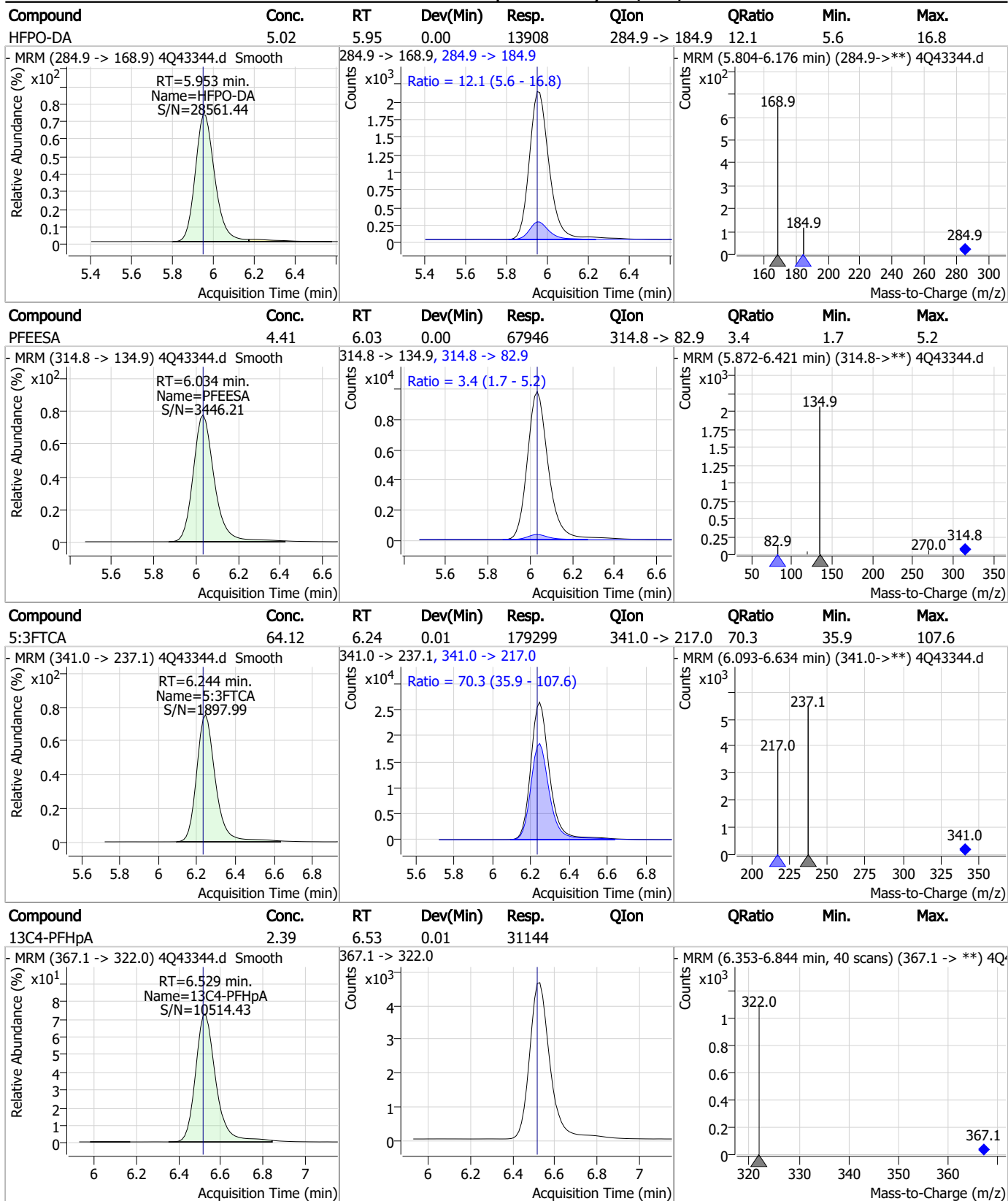


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.87	5.95	0.00	35057	286.9 -> 168.9	1.0	0.2	1.8



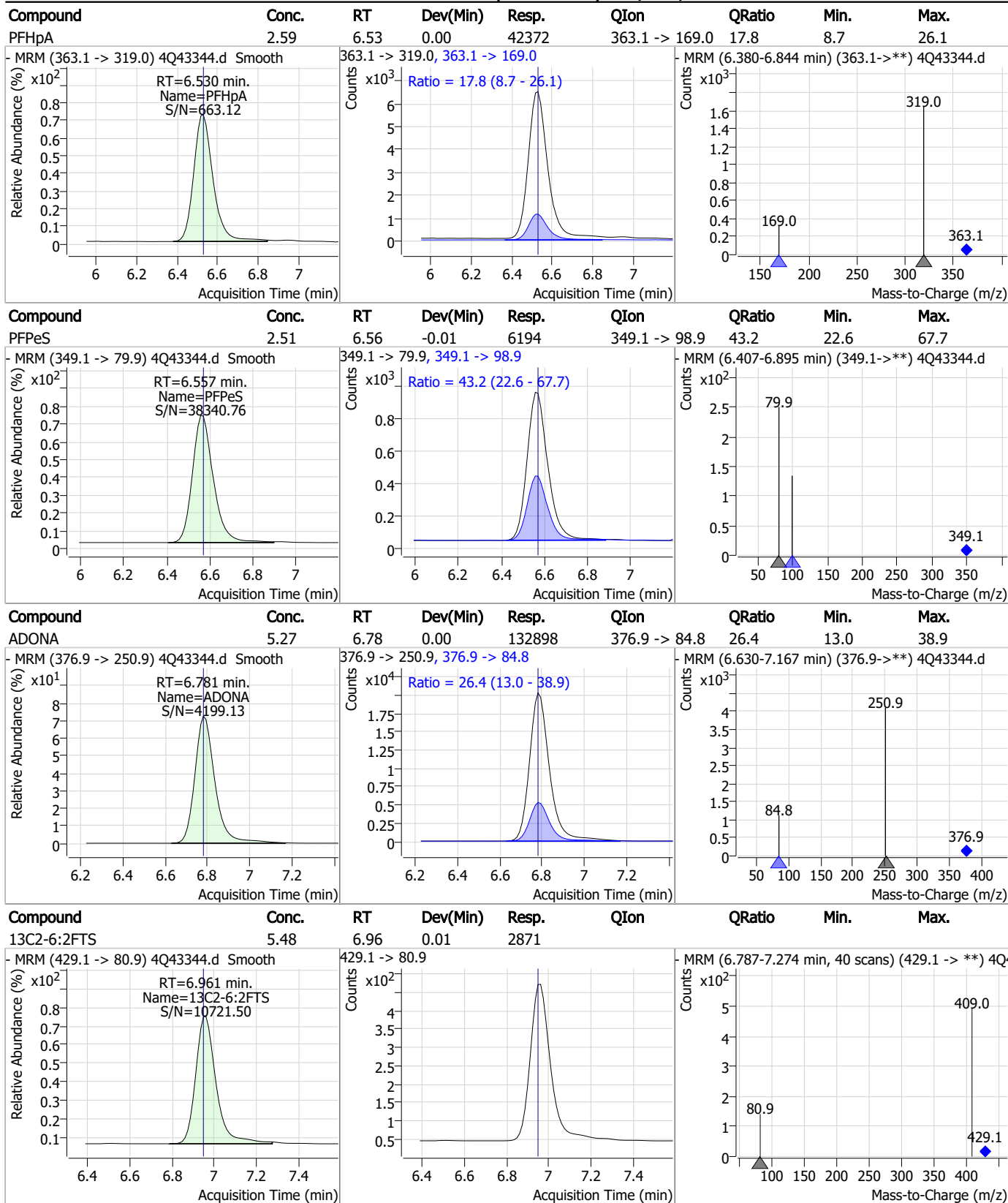
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Perfluorinated Compounds by LC/MS/MS



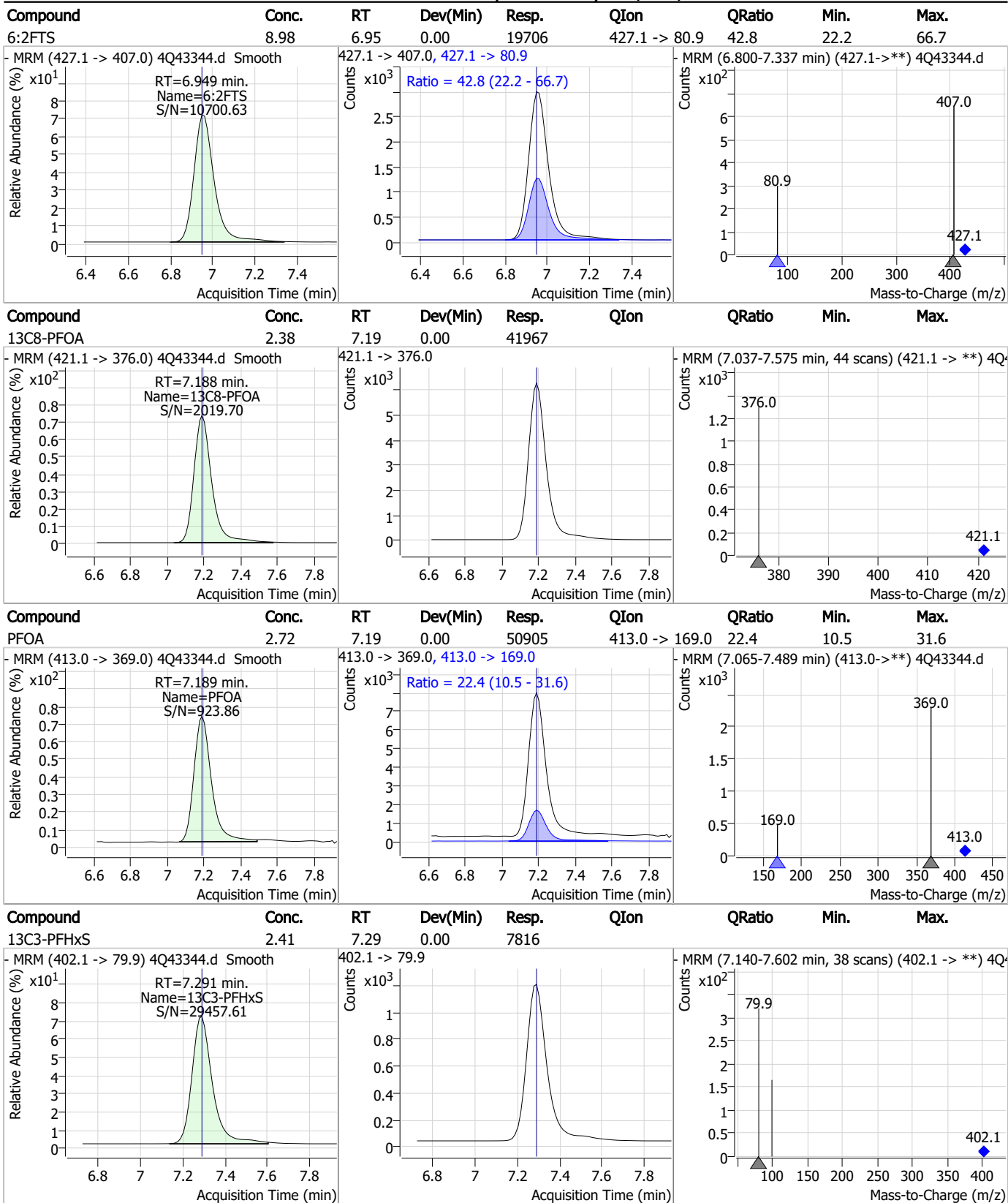
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Perfluorinated Compounds by LC/MS/MS



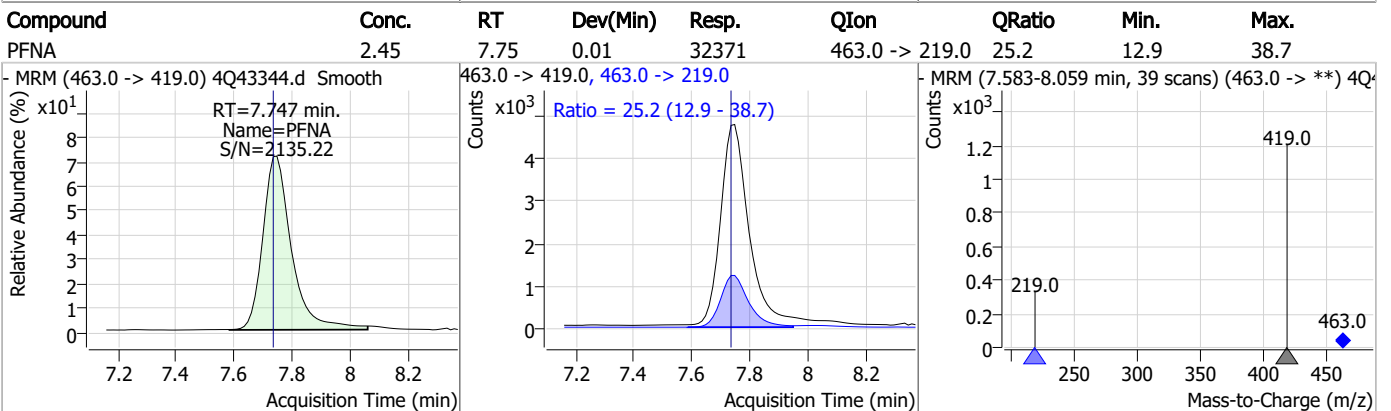
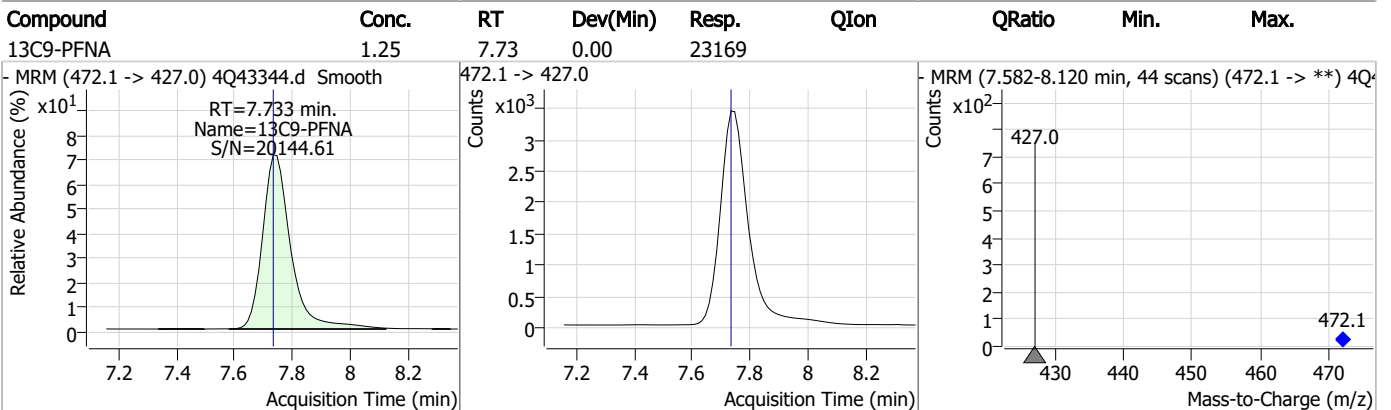
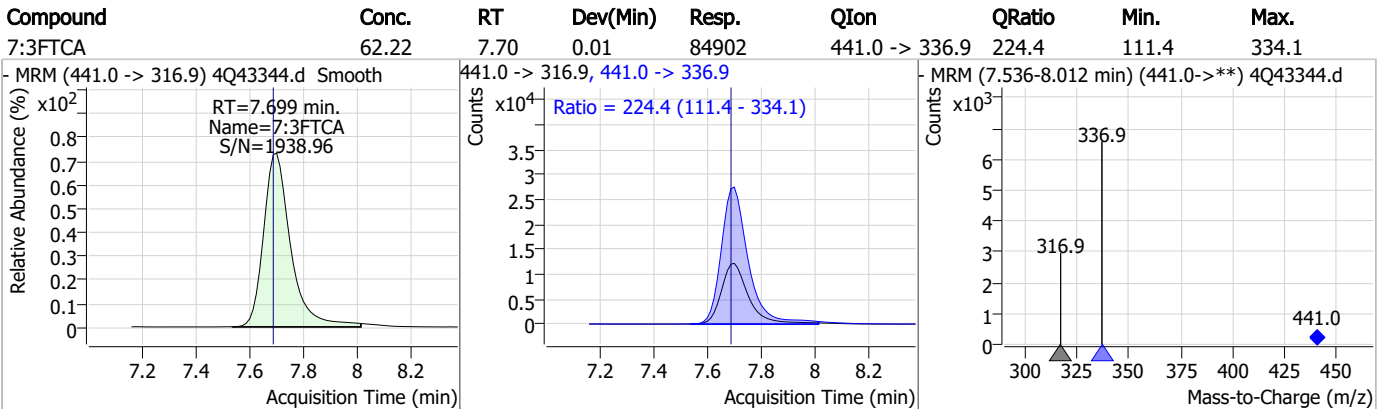
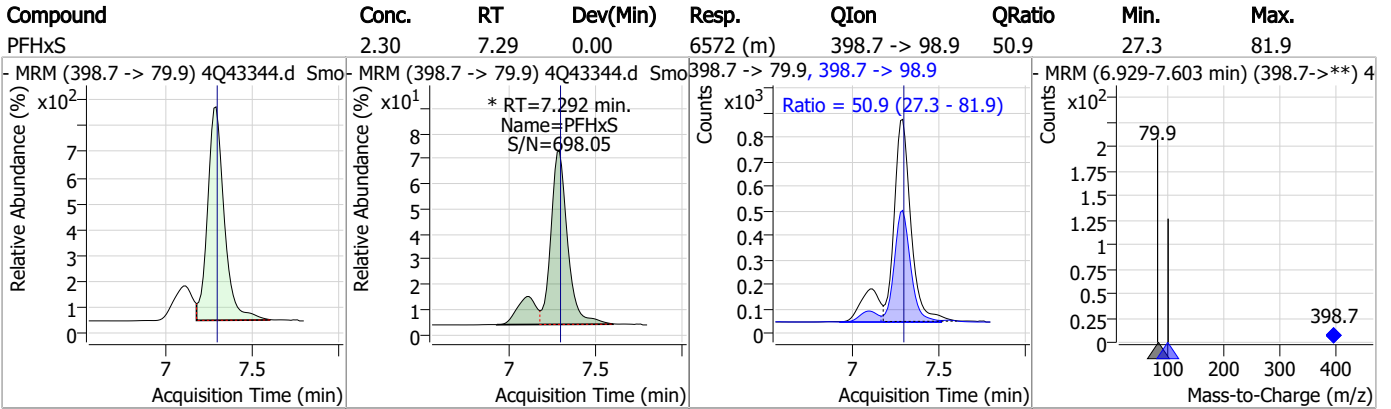
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Perfluorinated Compounds by LC/MS/MS



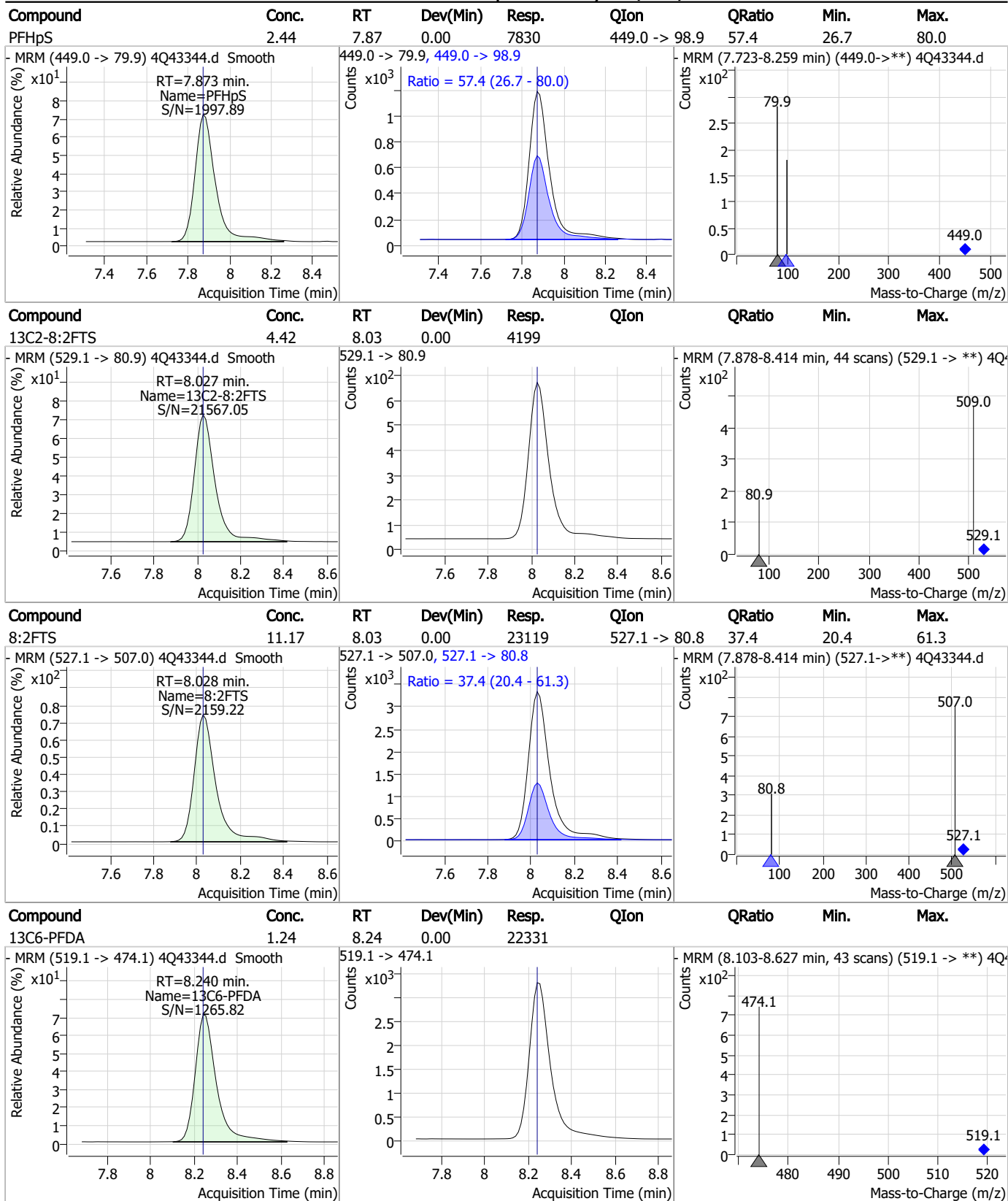
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

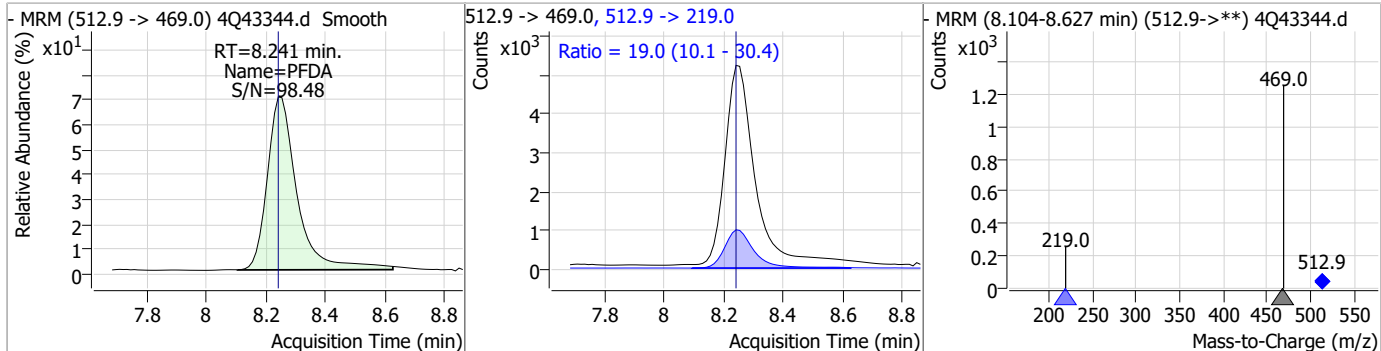


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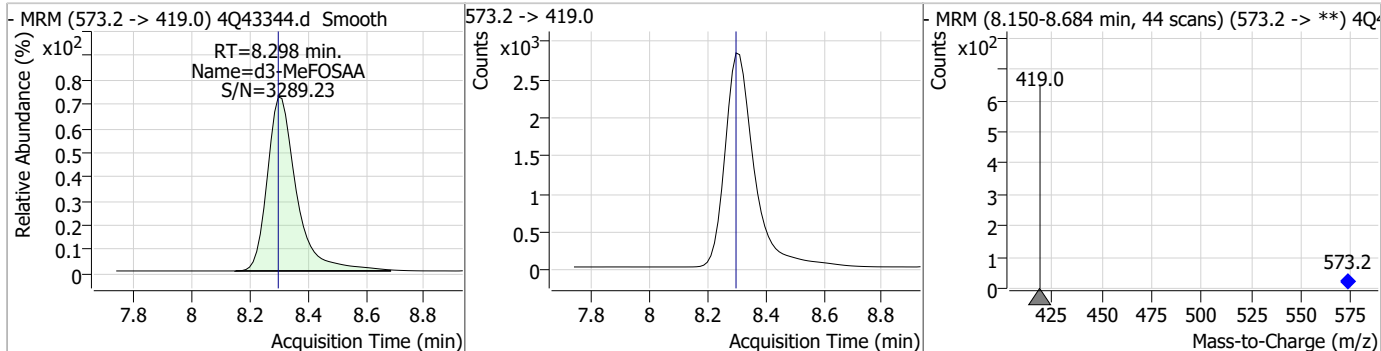
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Perfluorinated Compounds by LC/MS/MS

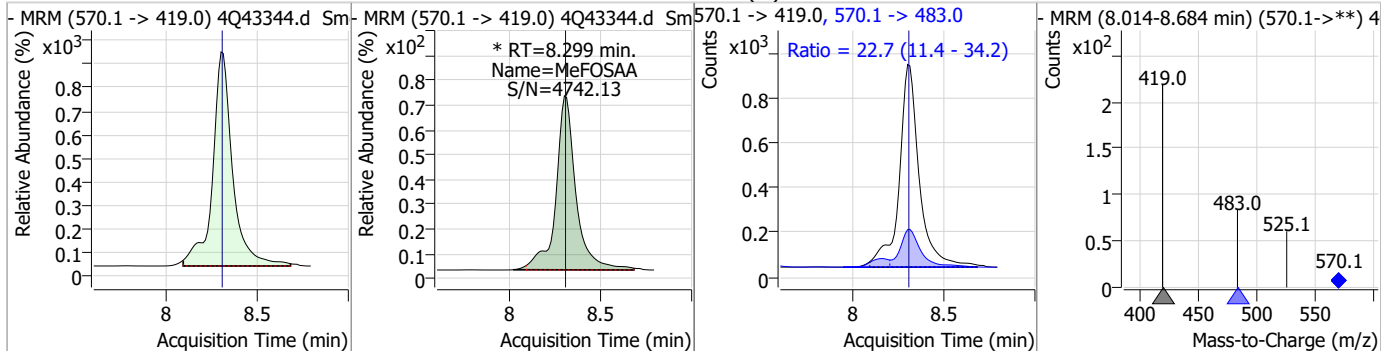
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.61	8.24	0.00	35774	512.9 -> 219.0	19.0	10.1	30.4



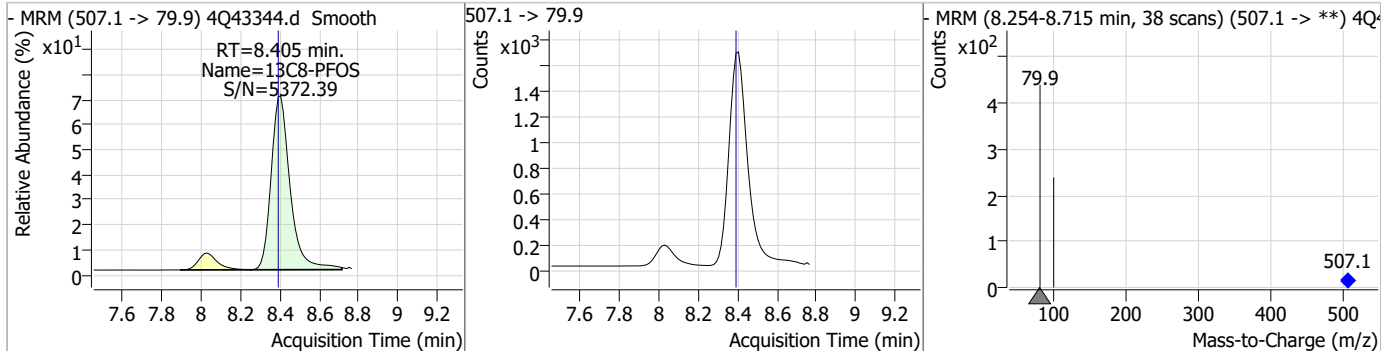
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.96	8.30	0.00	19645				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.52	8.30	0.00	7061 (m)	570.1 -> 483.0	22.7	11.4	34.2



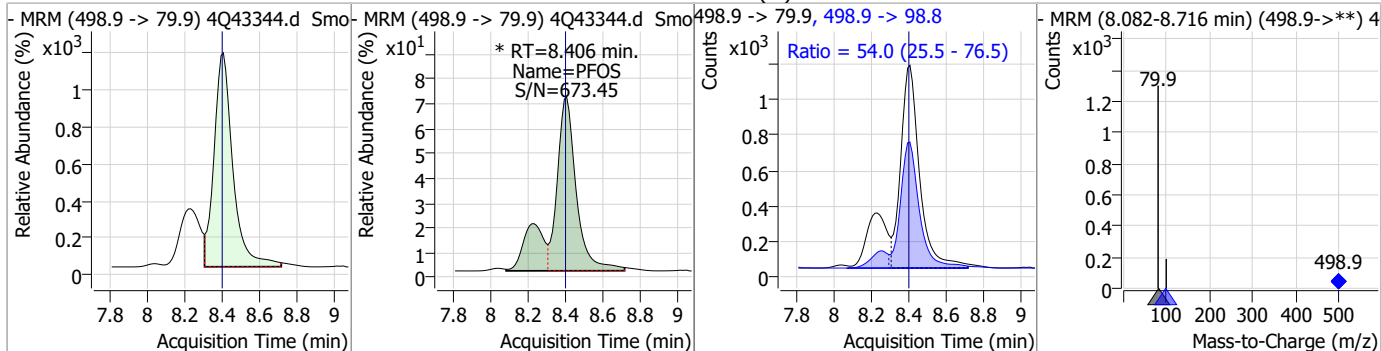
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.32	8.40	0.01	11163				



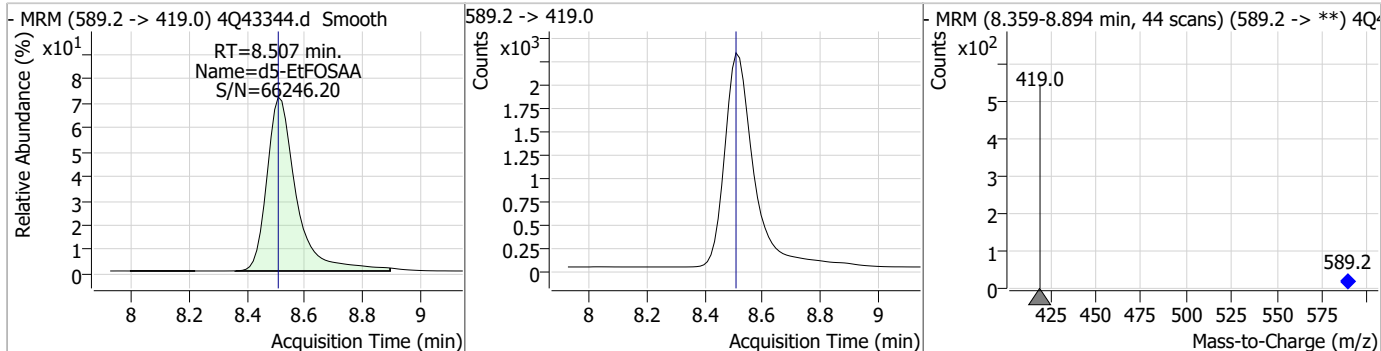
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Perfluorinated Compounds by LC/MS/MS

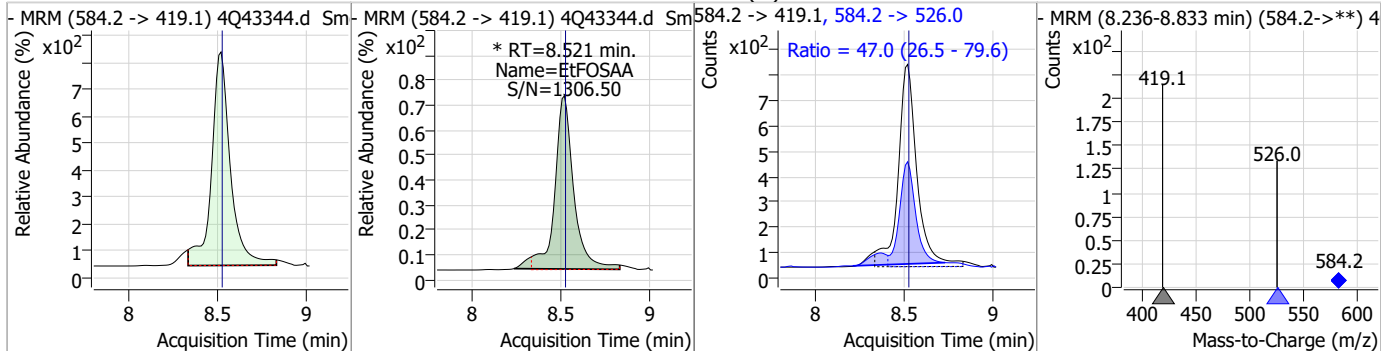
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.45	8.41	0.01	10472 (m)	498.9 -> 98.8	54.0	25.5	76.5



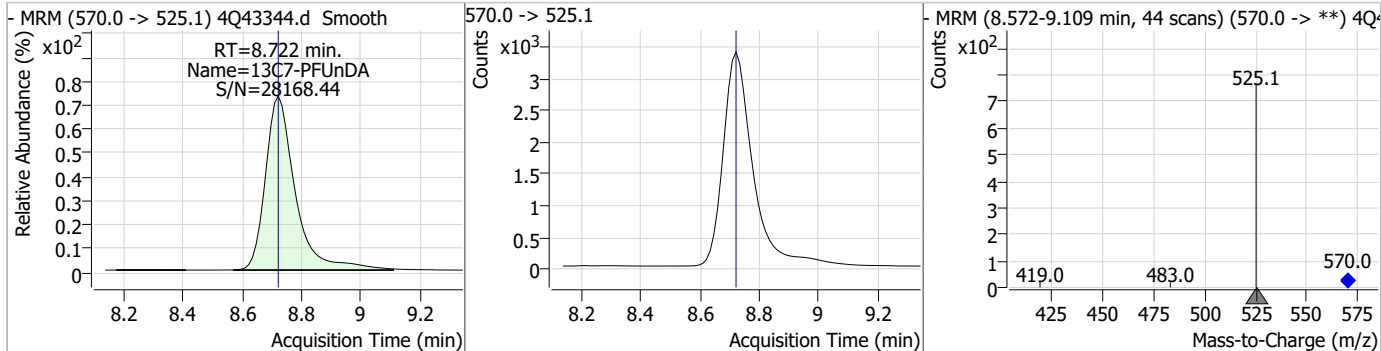
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.90	8.51	0.00	16301				



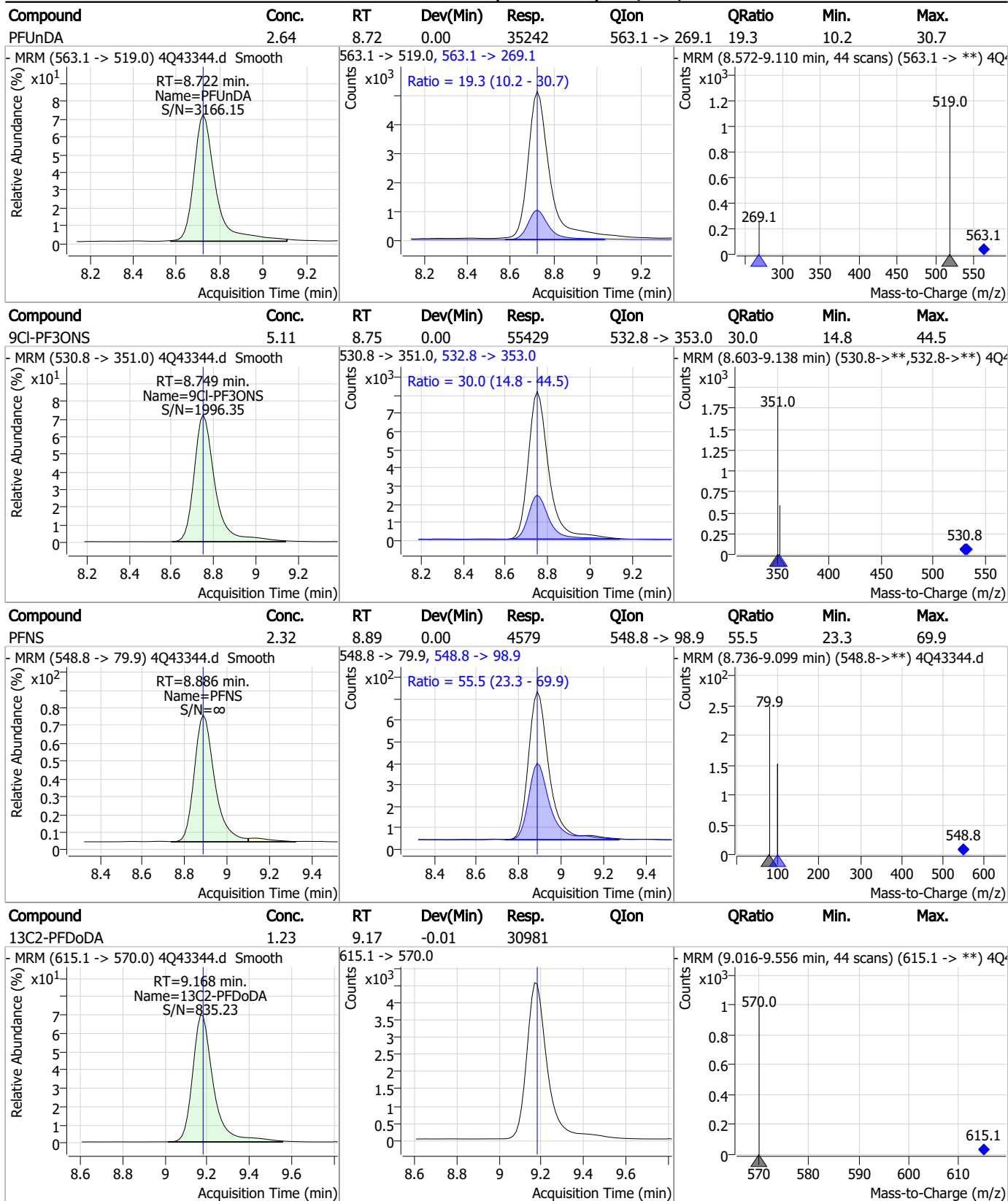
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.59	8.52	0.00	6018 (m)	584.2 -> 526.0	47.0	26.5	79.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.18	8.72	0.00	23607				



Perfluorinated Compounds by LC/MS/MS

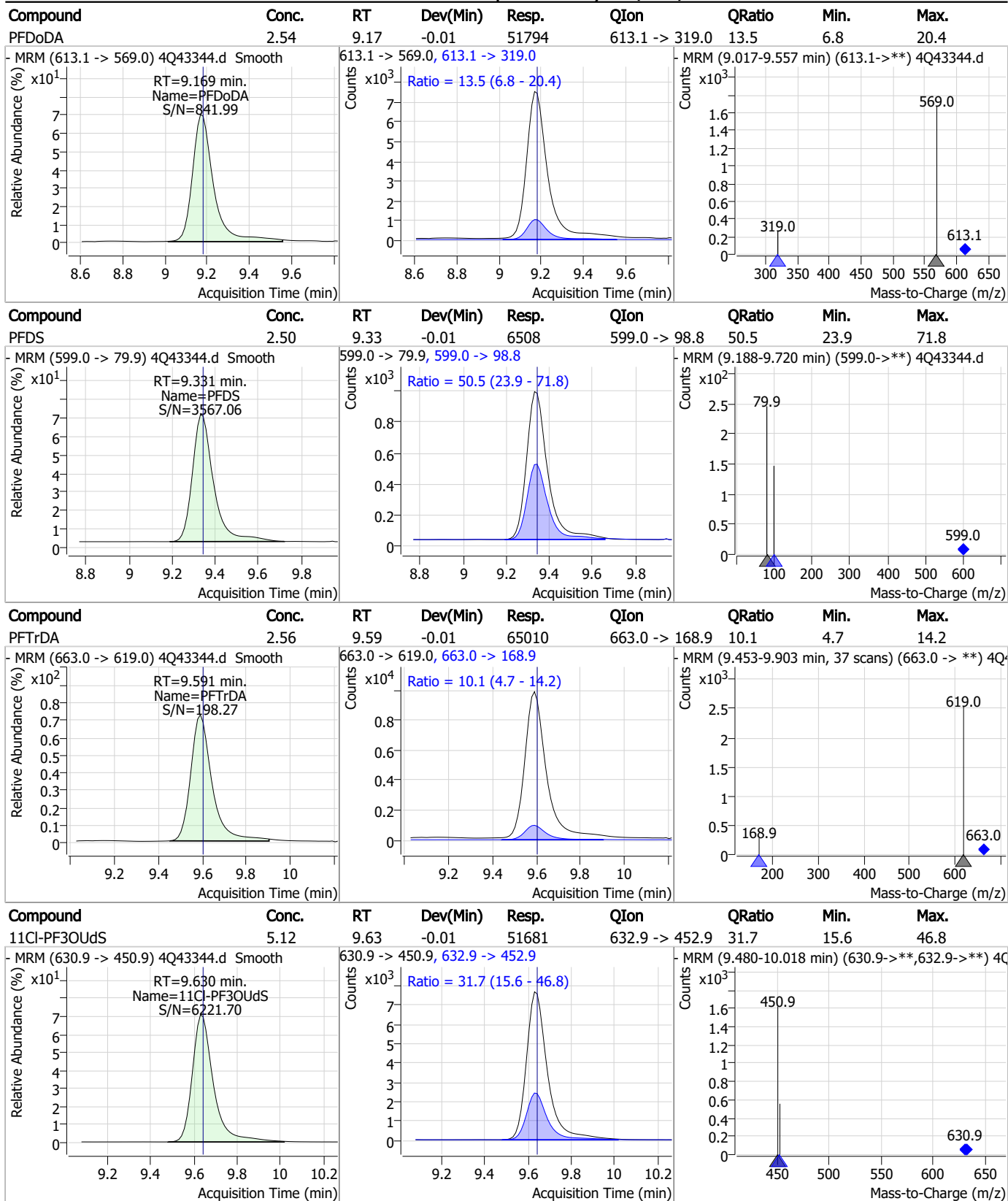


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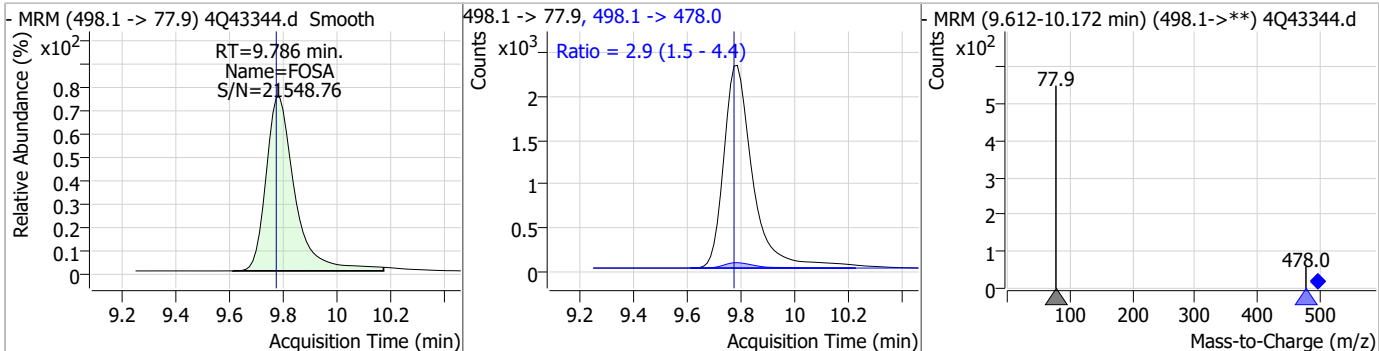
Perfluorinated Compounds by LC/MS/MS



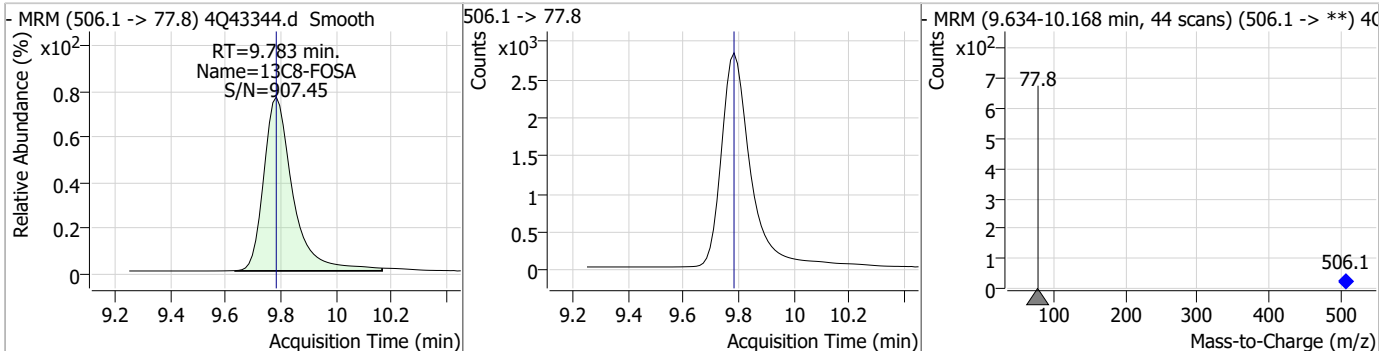
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Perfluorinated Compounds by LC/MS/MS

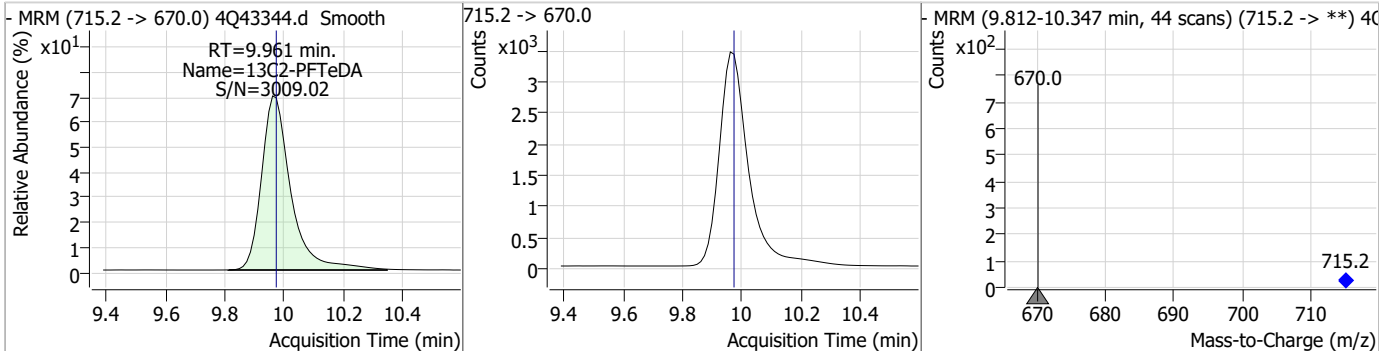
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.47	9.79	0.01	17243	498.1 -> 478.0	2.9	1.5	4.4



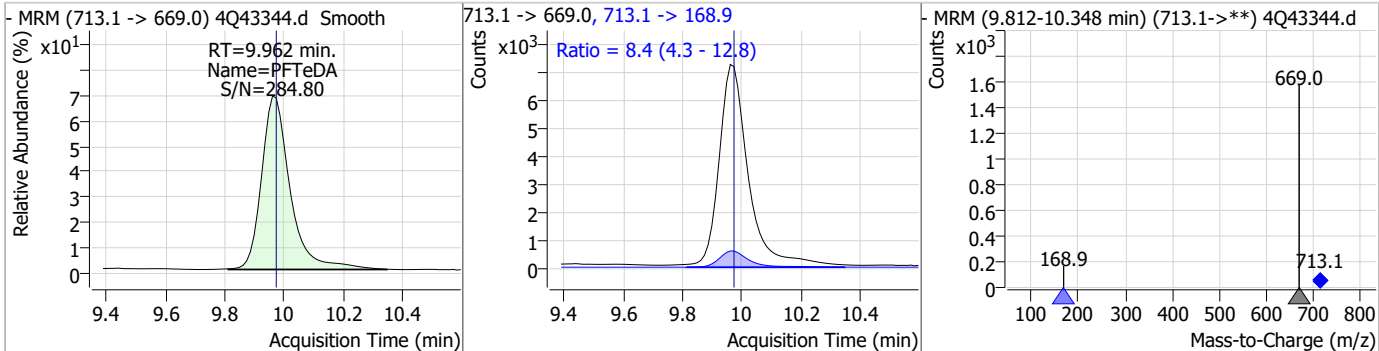
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.36	9.78	0.00	20601				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.18	9.96	-0.01	23693				



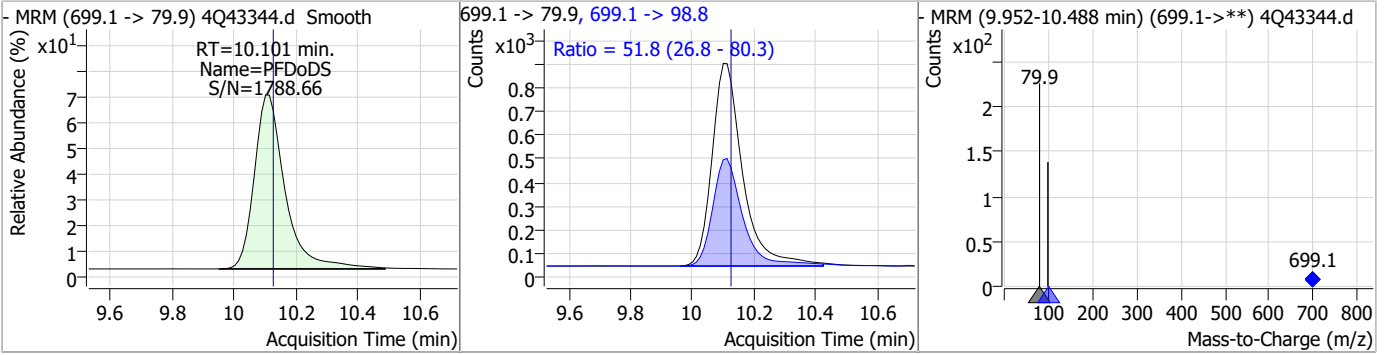
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.50	9.96	-0.01	48145	713.1 -> 168.9	8.4	4.3	12.8



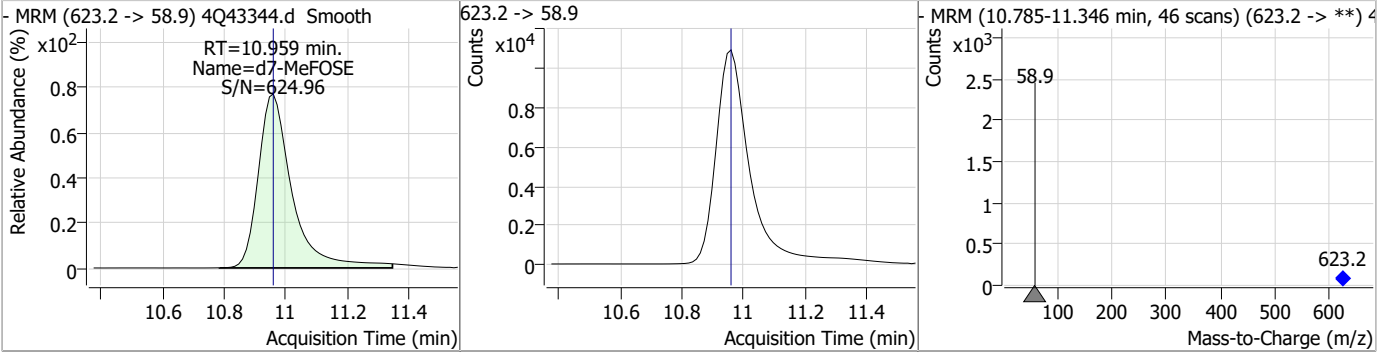
7.7.28
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Perfluorinated Compounds by LC/MS/MS

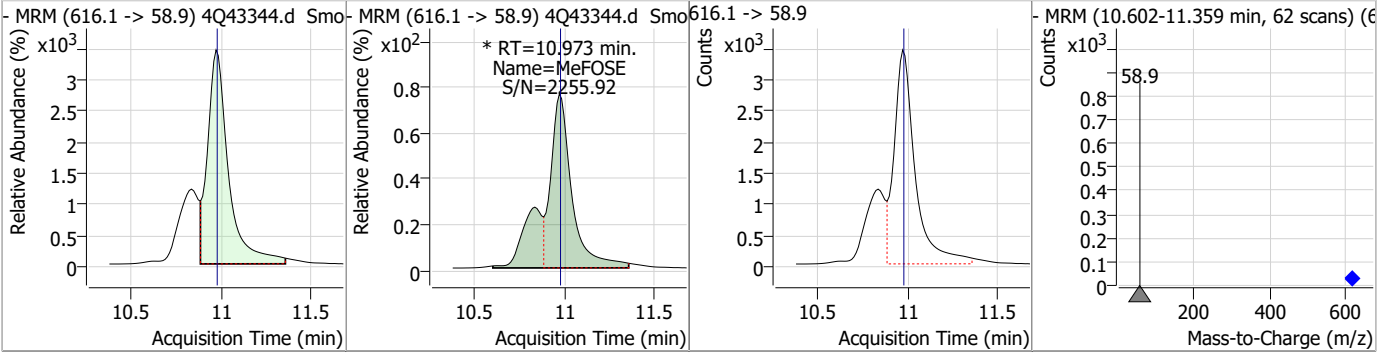
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	2.52	10.10	-0.02	5962	699.1 -> 98.8	51.8	26.8	80.3



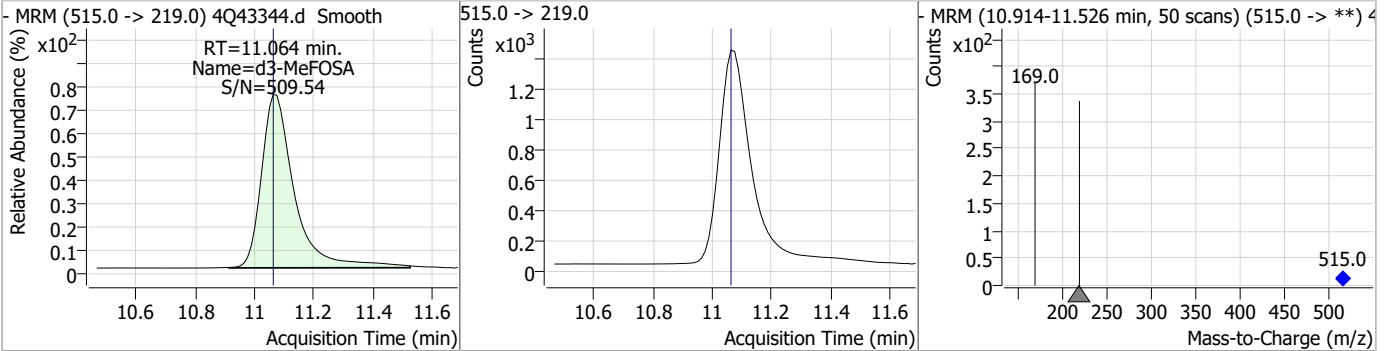
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.31	10.96	0.00	82579				



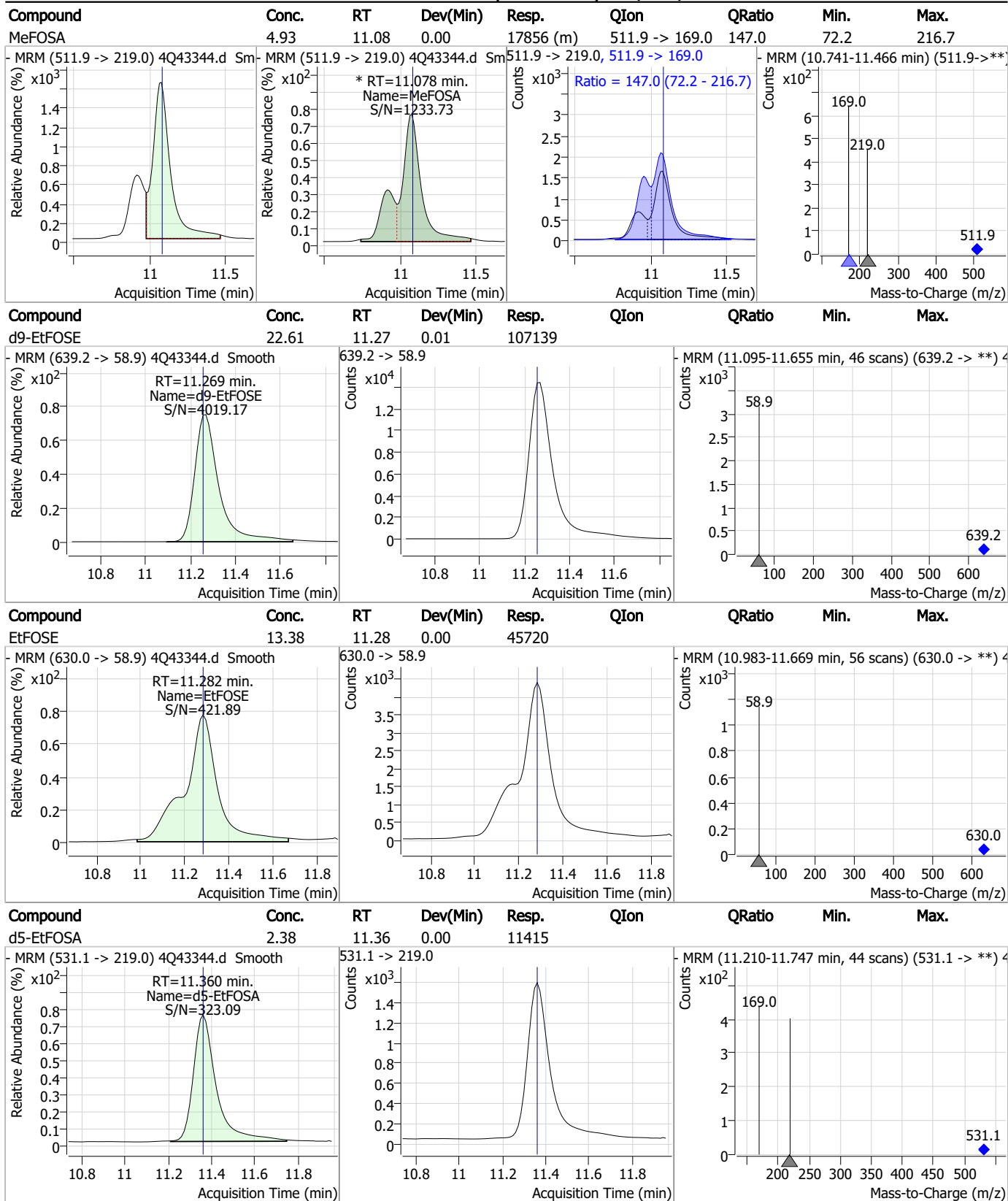
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.71	10.97	0.00	37311 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.40	11.06	0.00	10834				

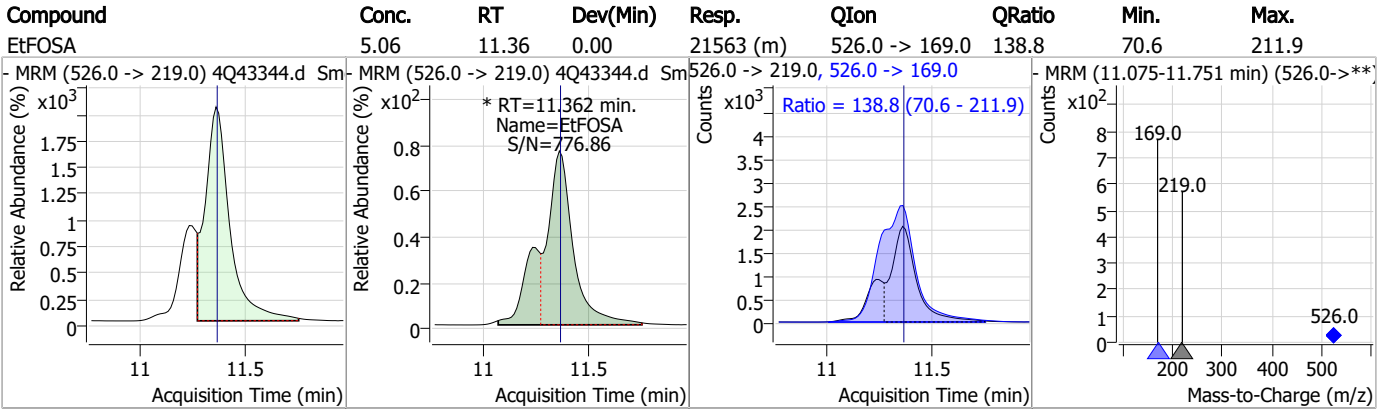


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q626-CC625 Method: EPA DRAFT 1633
Lab FileID: 4Q43344.D Analyst approved: 04/21/23 11:13 Natasha Gumtie
Injection Time: 04/20/23 20:02 Supervisor approved: 04/21/23 14:54 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.41	Split peak
EtFOSAA	2991-50-6		8.52	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSA	4151-50-2		11.36	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43356.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/20/2023 10:51:00 PM
 Sample Name : cc625-4
 Vial : P1-A5
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s4q626.batch.bin
 Sample Information : OP96301,S4q626,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.949	216.8 -> 171.9	133164	10.00 µg/L	0.012
M5-PFPeA	4.424	268.3 -> 223.0	75320	5.00 µg/L	0.012
M5-PFHxA	5.597	318.0 -> 273.0	61256	2.50 µg/L	0.012
M4-PFHpA	6.529	367.1 -> 322.0	31652	2.50 µg/L	0.012
M8-PFOA	7.188	421.1 -> 376.0	43351	2.50 µg/L	0.000
M9-PFNA	7.733	472.1 -> 427.0	23289	1.25 µg/L	0.000
M6-PFDA	8.240	519.1 -> 474.1	22836	1.25 µg/L	0.000
M7-PFUnDA	8.722	570.0 -> 525.1	25302	1.25 µg/L	0.000
M2-PFDoDA	9.168	615.1 -> 570.0	30466	1.25 µg/L	-0.012
M2-PFTeDA	9.974	715.2 -> 670.0	22981	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	20198	2.50 µg/L	0.000
M3-PFBS	5.502	302.1 -> 79.9	12622	2.50 µg/L	0.000
M3-PFHxS	7.291	402.1 -> 79.9	7857	2.50 µg/L	0.000
M8-PFOS	8.392	507.1 -> 79.9	11241	2.50 µg/L	0.000
M2-4:2FTS	5.285	329.1 -> 80.9	1819	5.00 µg/L	0.012
M2-6:2FTS	6.961	429.1 -> 80.9	2799	5.00 µg/L	0.012
M2-8:2FTS	8.027	529.1 -> 80.9	4743	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	20257	5.00 µg/L	0.000
M3-HFPO-DA	5.964	286.9 -> 168.9	35533	10.00 µg/L	0.013
M5-EtFOSAA	8.507	589.2 -> 419.0	16681	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	80765	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	108214	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	11641	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	10842	2.50 µg/L	0.000
13C4-PFOS	8.393	502.8 -> 79.9	12070	2.50 µg/L	-0.012
13C3-PFBA	2.941	216.0 -> 172.0	73824	5.00 µg/L	0.000
18O2-PFHxS	7.290	403.0 -> 83.9	5183	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	52420	2.50 µg/L	0.000
13C2-PFDA	8.241	515.1 -> 470.1	20790	1.25 µg/L	0.000
13C5-PFNA	7.734	468.0 -> 423.0	26464	1.25 µg/L	0.000
13C2-PFHxA	5.598	315.1 -> 270.0	50870	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.285	329.1 -> 80.9	1819	5.98 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.6%		
13C2-6:2FTS	6.961	429.1 -> 80.9	2799	5.84 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.9%		
13C2-8:2FTS	8.027	529.1 -> 80.9	4743	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.3%		
13C2-PFDoDA	9.168	615.1 -> 570.0	30466	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-PFTeDA	9.974	715.2 -> 670.0	22981	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C3-PFBS	5.502	302.1 -> 79.9	12622	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C3-PFHxS	7.291	402.1 -> 79.9	7857	2.65 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 = 106.2%	
13C4-PFBA	2.949	216.8 -> 171.9	133164	10.01 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.529	367.1 -> 322.0	31652	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFHxA	5.597	318.0 -> 273.0	61256	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C5-PFPeA	4.424	268.3 -> 223.0	75320	4.84 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C6-PFDA	8.240	519.1 -> 474.1	22836	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C7-PFUnDA	8.722	570.0 -> 525.1	25302	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C8-FOSA	9.783	506.1 -> 77.8	20198	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.3%	
13C8-PFOA	7.188	421.1 -> 376.0	43351	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C8-PFOS	8.392	507.1 -> 79.9	11241	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C9-PFNA	7.733	472.1 -> 427.0	23289	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.8%	
d3-MeFOSAA	8.298	573.2 -> 419.0	20257	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C3-HFPO-DA	5.964	286.9 -> 168.9	35533	9.21 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.1%	
d3-MeFOSA	11.064	515.0 -> 219.0	10842	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
d5-EtFOSAA	8.507	589.2 -> 419.0	16681	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d7-MeFOSE	10.959	623.2 -> 58.9	80765	21.81 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.3%	
d9-EtFOSE	11.256	639.2 -> 58.9	108214	22.82 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.3%	
d5-EtFOSA	11.360	531.1 -> 219.0	11641	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
Target Compounds					QValue
4:2FTS	5.286	327.1 -> 307.0	21055	9.05 µg/L	98
		327.1 -> 80.9	9114		
6:2FTS	6.949	427.1 -> 407.0	20333	9.50 µg/L	96
		427.1 -> 80.9	8480		
8:2FTS	8.028	527.1 -> 507.0	22408	9.58 µg/L	99
		527.1 -> 80.8	9244		
EtFOSAA	8.521	584.2 -> 419.1	6349	2.67 µg/L	m 93
		584.2 -> 526.0	3043		
FOSA	9.786	498.1 -> 77.9	17311	2.53 µg/L	100
		498.1 -> 478.0	498		
MeFOSAA	8.299	570.1 -> 419.0	7076	2.45 µg/L	m 99
		570.1 -> 483.0	1587		
PFBA	2.945	212.8 -> 168.9	30536	9.88 µg/L	100
PFBS	5.503	298.7 -> 79.9	11099	2.22 µg/L	99
		298.7 -> 98.8	4409		
PFDA	8.241	512.9 -> 469.0	34935	2.49 µg/L	100
		512.9 -> 219.0	7041		
PFDODA	9.169	613.1 -> 569.0	52088	2.60 µg/L	99
		613.1 -> 319.0	6972		
PFDS	9.344	599.0 -> 79.9	6868	2.61 µg/L	98

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3209			
PFHpA	6.530	363.1 -> 319.0	40668	2.44	µg/L	98
		363.1 -> 169.0	7481			
PFHpS	7.873	449.0 -> 79.9	8215	2.54	µg/L	99
		449.0 -> 98.9	4318			
PFHxA	5.600	313.0 -> 269.0	46631	2.42	µg/L	100
		313.0 -> 118.9	1419			
PFHxS	7.292	398.7 -> 79.9	6837	2.38	µg/L	m 95
		398.7 -> 98.9	3463			
PFNA	7.734	463.0 -> 419.0	30761	2.32	µg/L	99
		463.0 -> 219.0	8125			
PFNS	8.886	548.8 -> 79.9	4935	2.48	µg/L	91
		548.8 -> 98.9	2588			
PFOA	7.189	413.0 -> 369.0	51329	2.66	µg/L	96
		413.0 -> 169.0	9925			
PFOS	8.394	498.9 -> 79.9	10197	2.37	µg/L	m 89
		498.9 -> 98.8	5954			
PFPeA	4.427	263.0 -> 219.0	79204	5.26	µg/L	100
PFPeS	6.569	349.1 -> 79.9	5706	2.30	µg/L	98
		349.1 -> 98.9	2491			
PFTeDA	9.974	713.1 -> 669.0	47942	2.57	µg/L	99
		713.1 -> 168.9	3917			
PFTrDA	9.591	663.0 -> 619.0	66728	2.67	µg/L	100
		663.0 -> 168.9	6262			
PFUnDA	8.722	563.1 -> 519.0	35786	2.50	µg/L	98
		563.1 -> 269.1	6929			
11Cl-PF3OUdS	9.643	630.9 -> 450.9	51950	5.07	µg/L	99
		632.9 -> 452.9	16369			
9Cl-PF3ONS	8.749	530.8 -> 351.0	55255	5.03	µg/L	99
		532.8 -> 353.0	16794			
ADONA	6.781	376.9 -> 250.9	134509	5.27	µg/L	99
		376.9 -> 84.8	35883			
HFPO-DA	5.965	284.9 -> 168.9	14259	5.08	µg/L	99
		284.9 -> 184.9	1569			
3:3FTCA	3.879	241.0 -> 177.0	8884	12.40	µg/L	99
		241.0 -> 117.0	873			
5:3FTCA	6.244	341.0 -> 237.1	179103	62.26	µg/L	97
		341.0 -> 217.0	123702			
7:3FTCA	7.686	441.0 -> 316.9	82126	58.51	µg/L	93
		441.0 -> 336.9	192365			
EtFOSA	11.362	526.0 -> 219.0	22613	5.21	µg/L	m 93
		526.0 -> 169.0	30105			
EtFOSE	11.282	630.0 -> 58.9	44083	12.78	µg/L	100
MeFOSA	11.078	511.9 -> 219.0	18132	5.00	µg/L	m 98
		511.9 -> 169.0	26737			
MeFOSE	10.973	616.1 -> 58.9	37780	13.15	µg/L	m 100
PFDoDS	10.114	699.1 -> 79.9	5614	2.35	µg/L	94
		699.1 -> 98.8	3249			
NFDHA	5.491	295.0 -> 201.0	5693	5.45	µg/L	99
		295.0 -> 84.9	1575			
PFMBA	4.828	279.0 -> 85.1	43905	5.11	µg/L	100
PFMPA	3.565	229.0 -> 84.9	39131	5.13	µg/L	100
PFEESA	6.034	314.8 -> 134.9	69477	4.39	µg/L	100
		314.8 -> 82.9	2440			

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

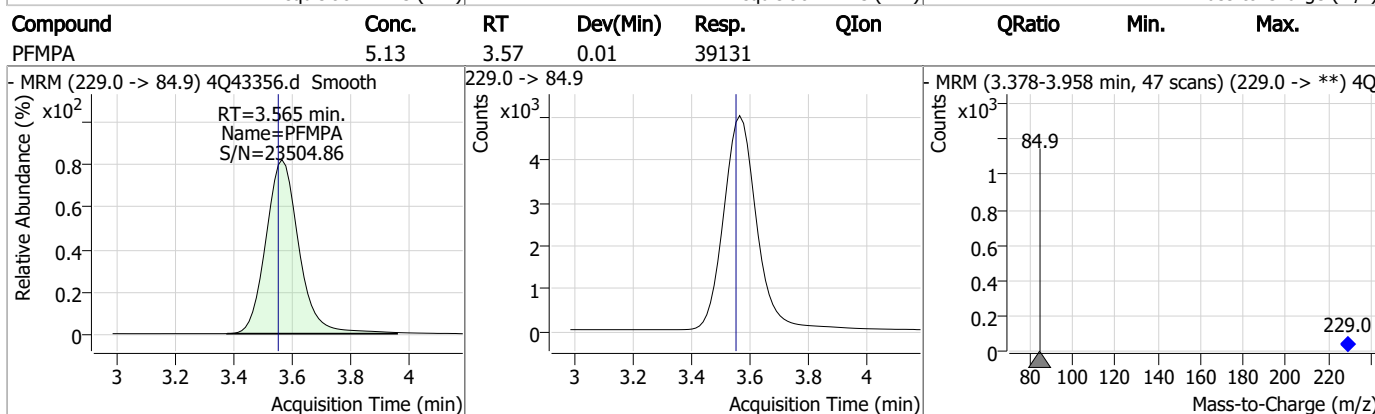
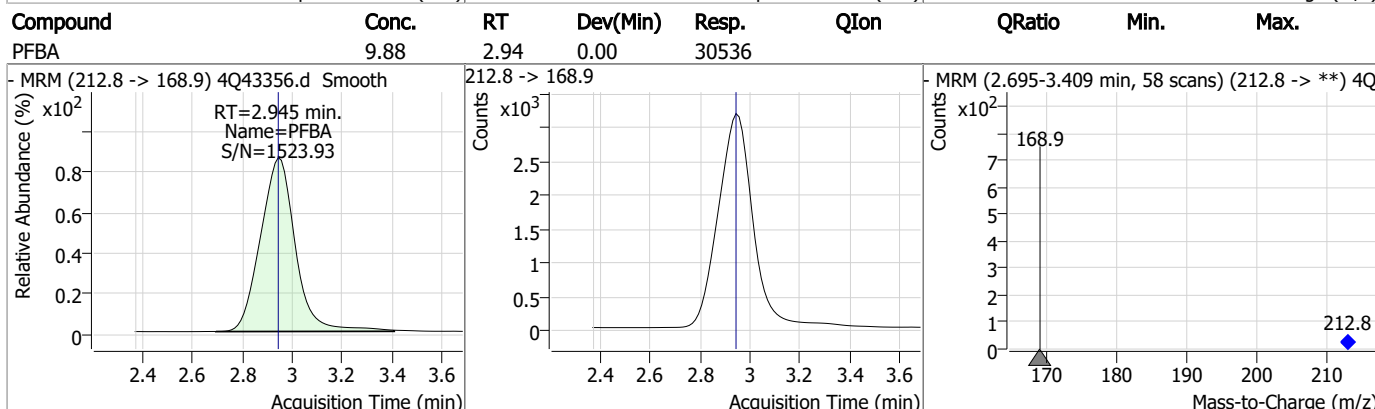
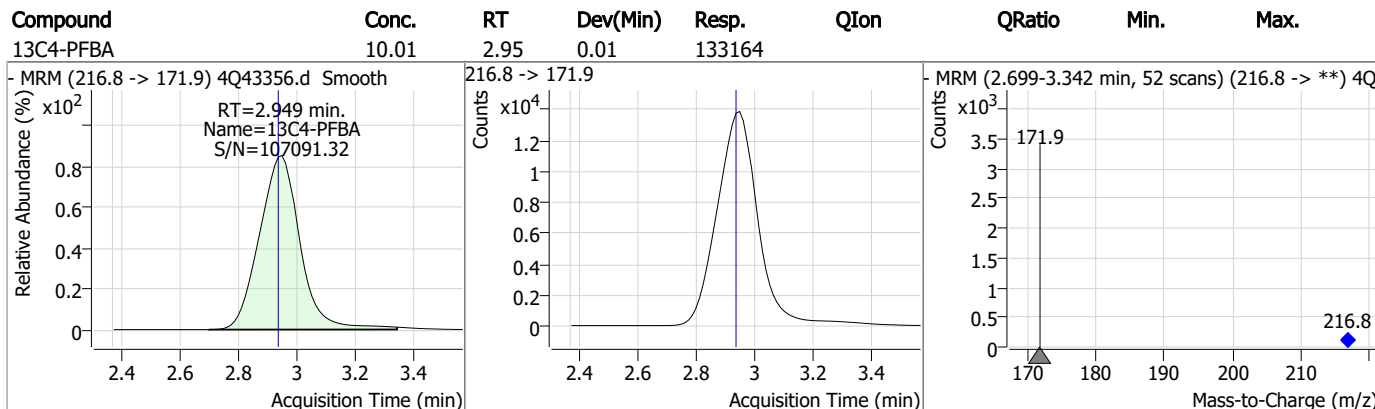
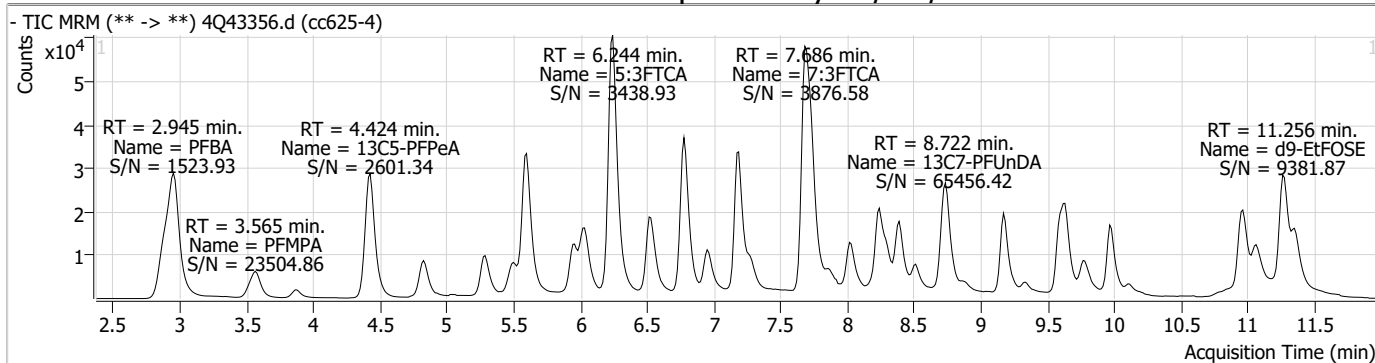
Perfluorinated Compounds by LC/MS/MS

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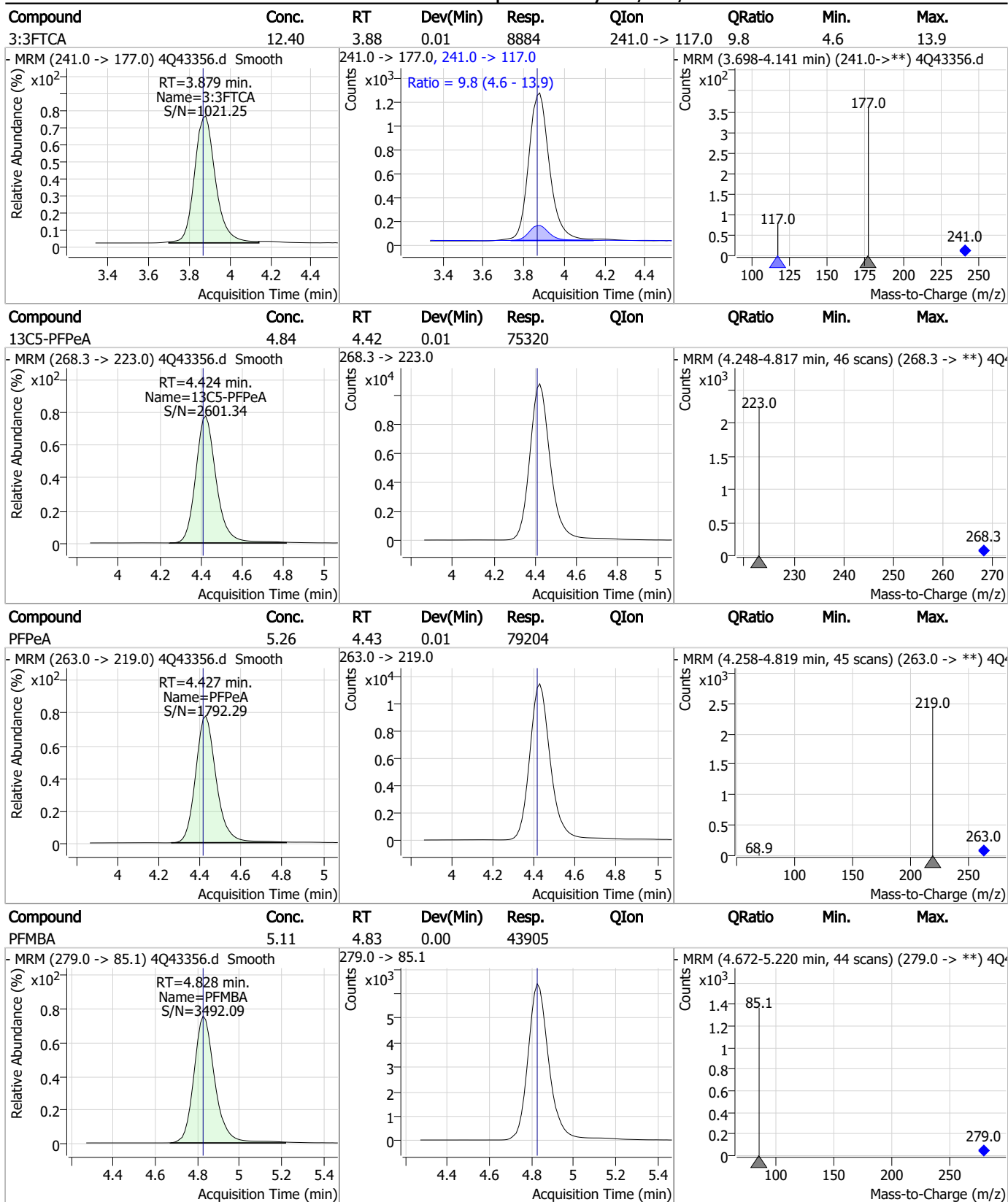
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Perfluorinated Compounds by LC/MS/MS



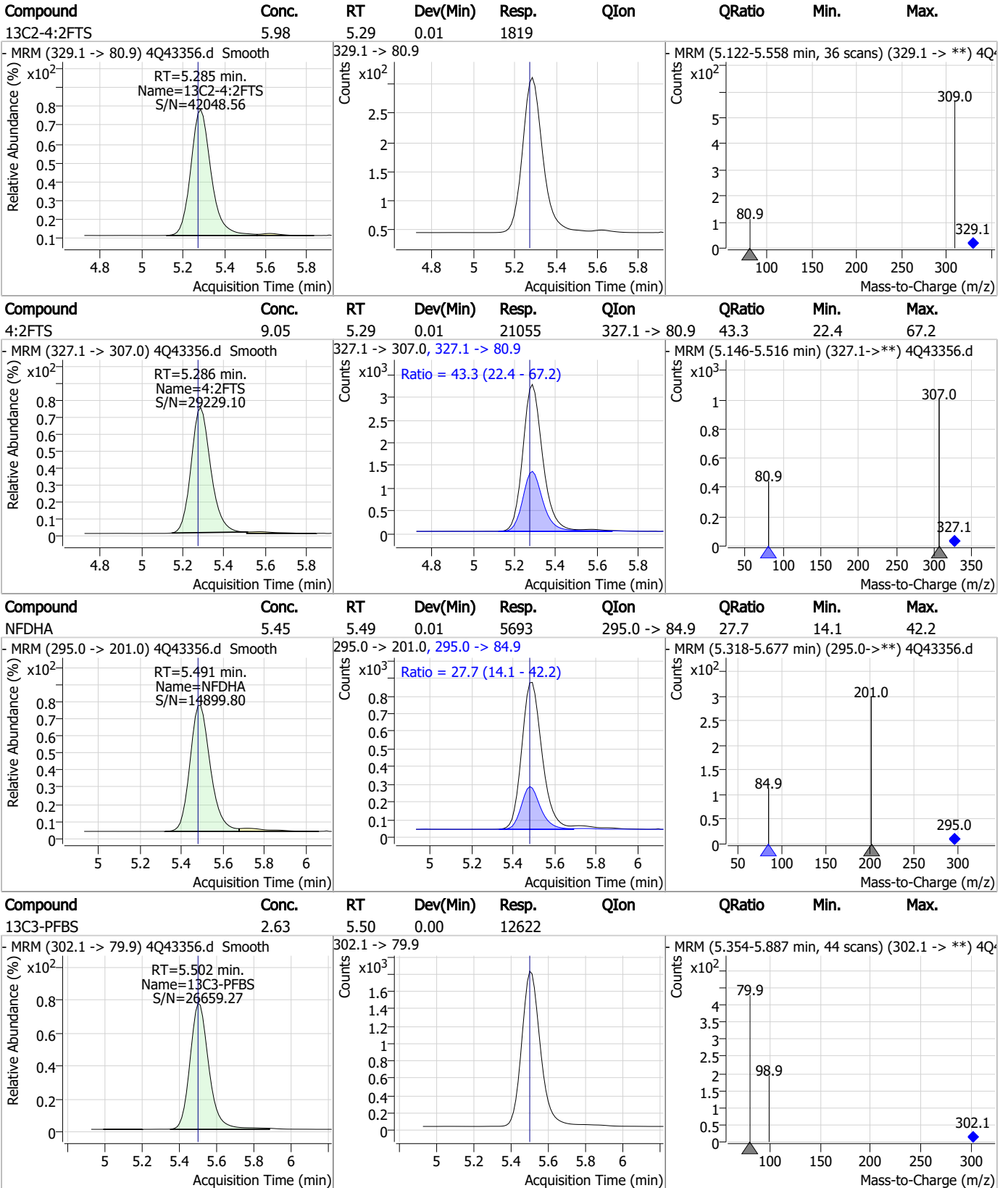
Perfluorinated Compounds by LC/MS/MS



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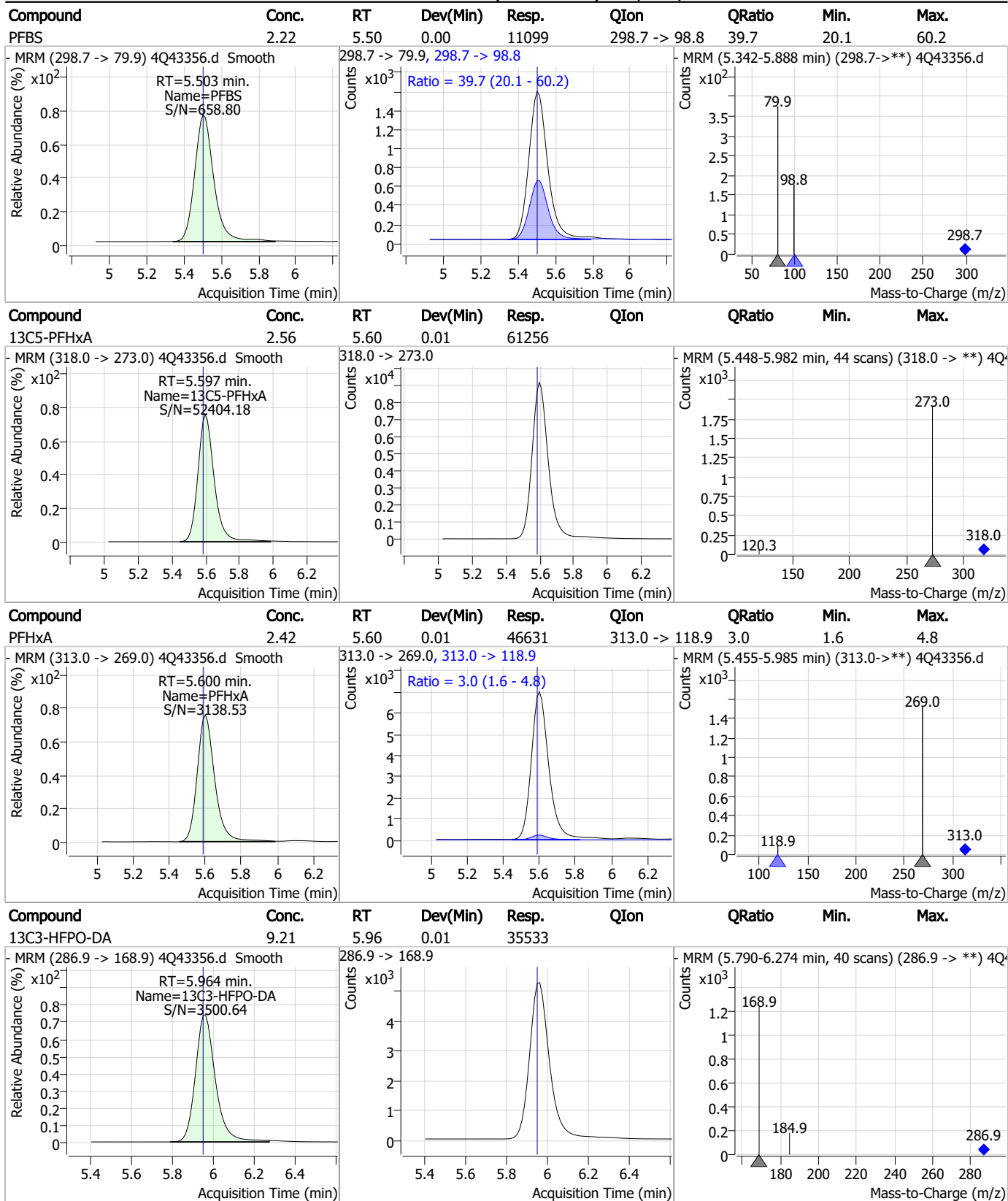
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Perfluorinated Compounds by LC/MS/MS



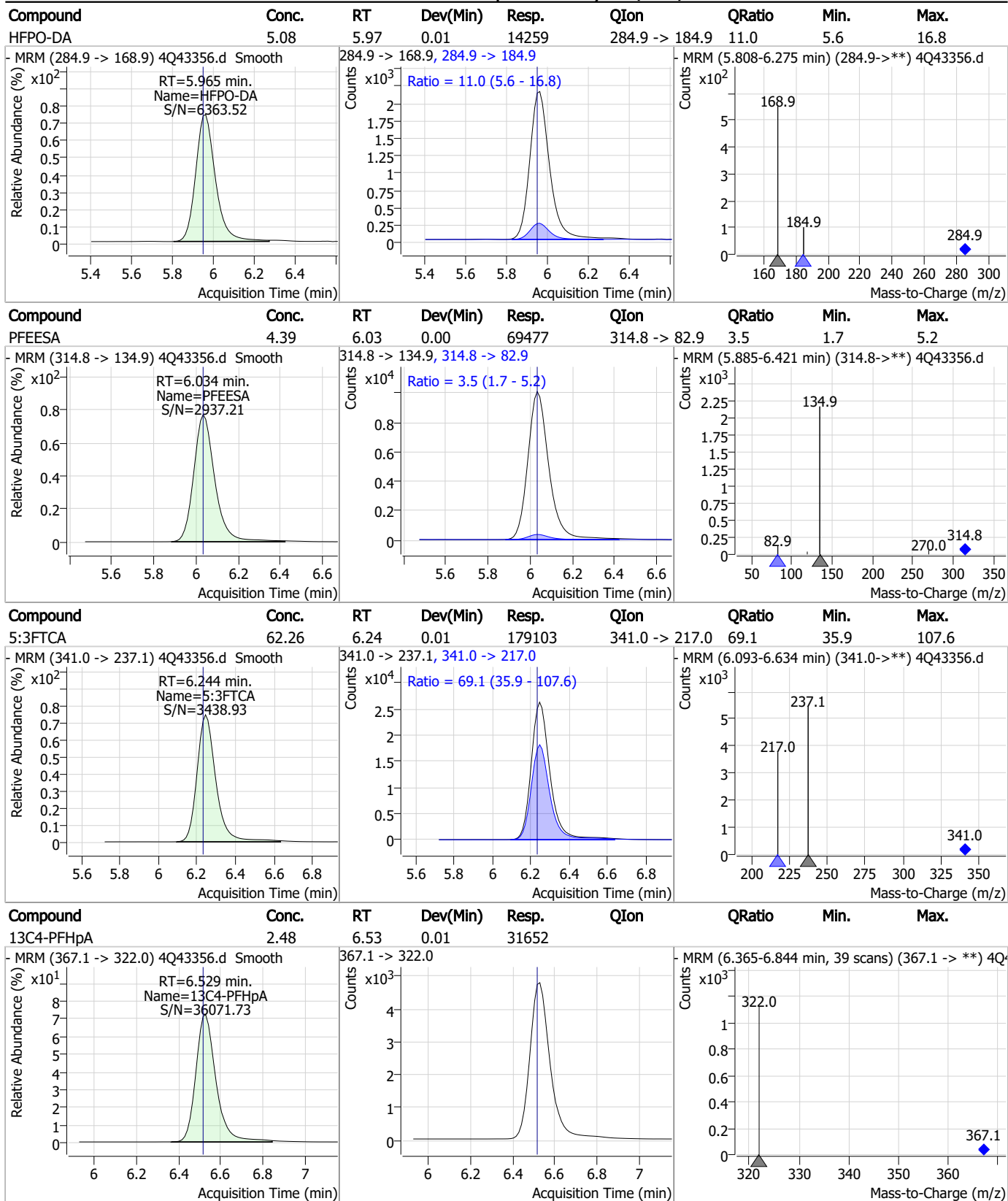
7.7.29
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Perfluorinated Compounds by LC/MS/MS



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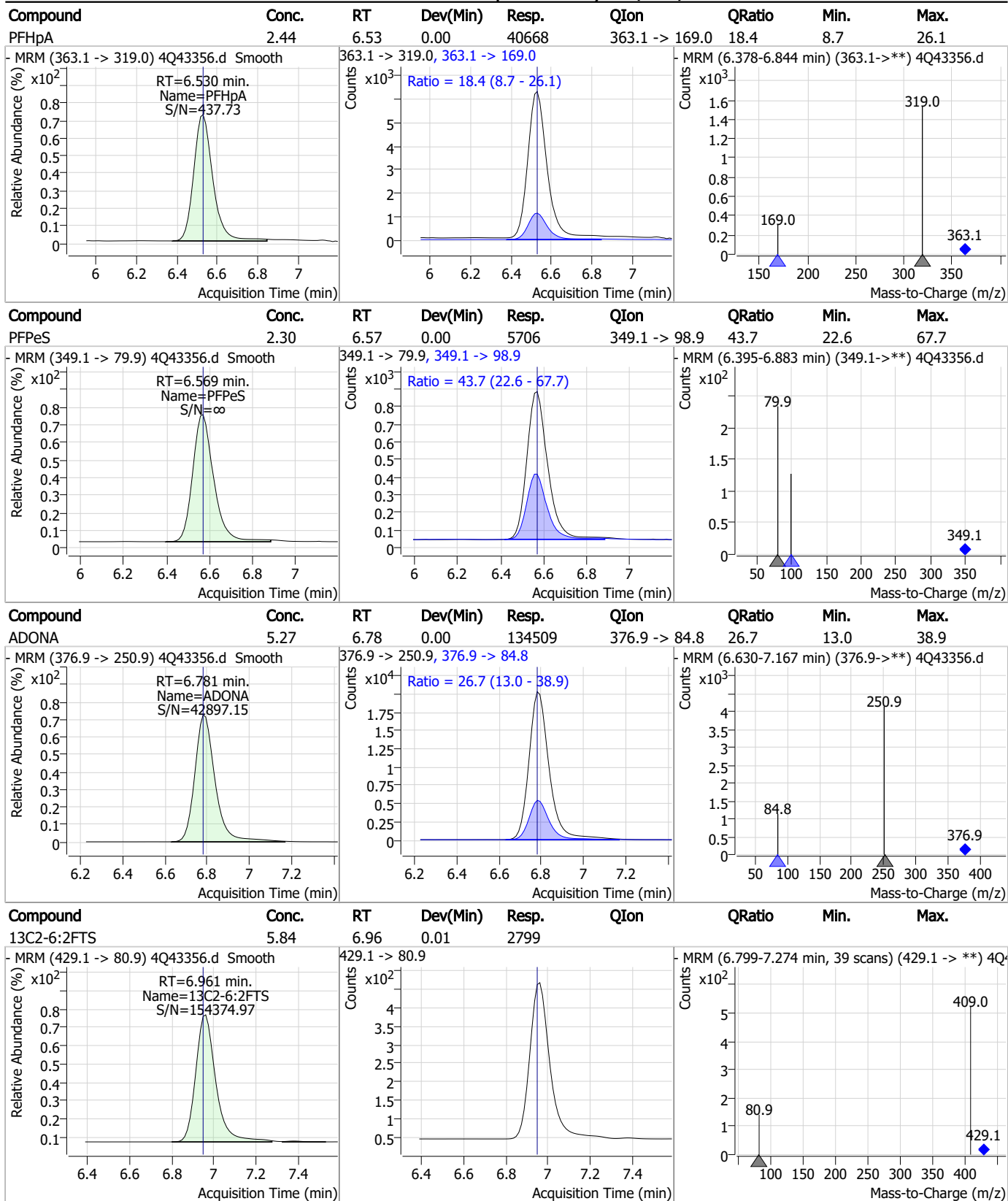
Perfluorinated Compounds by LC/MS/MS



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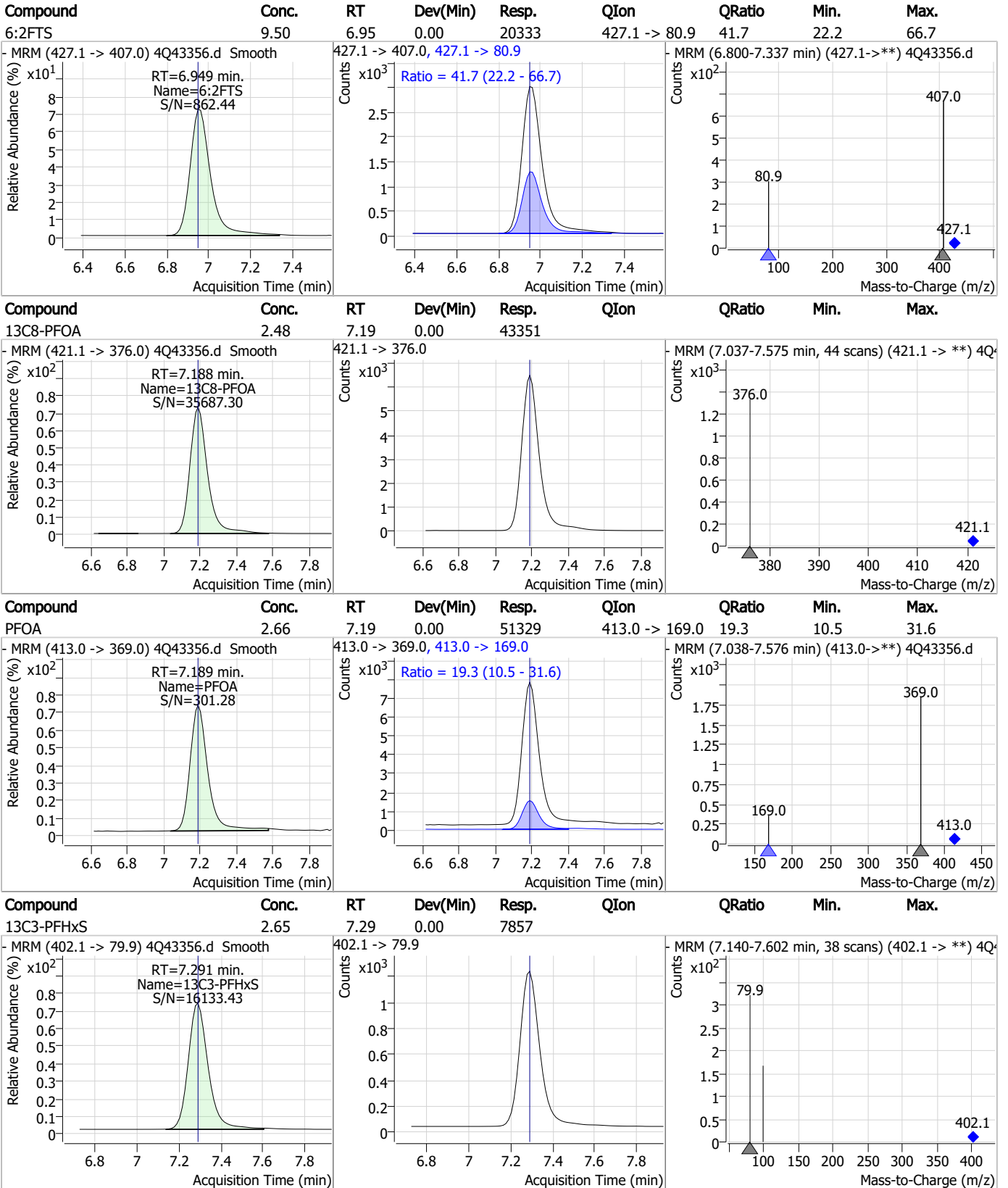
Perfluorinated Compounds by LC/MS/MS



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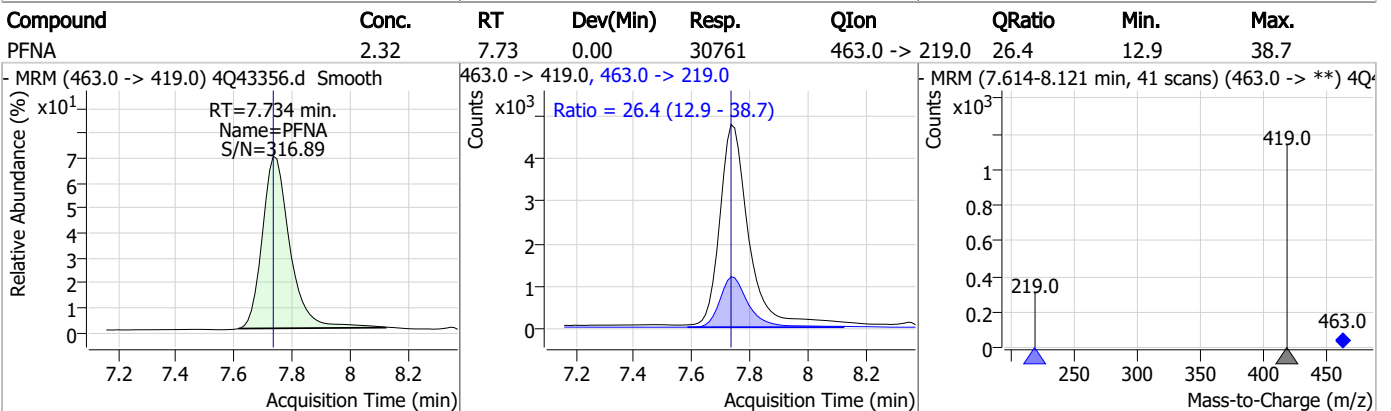
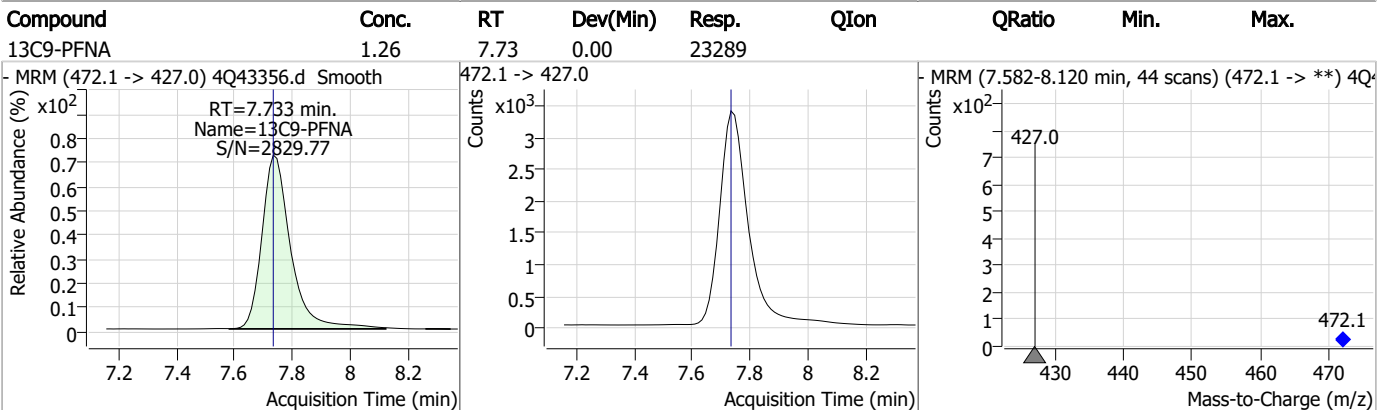
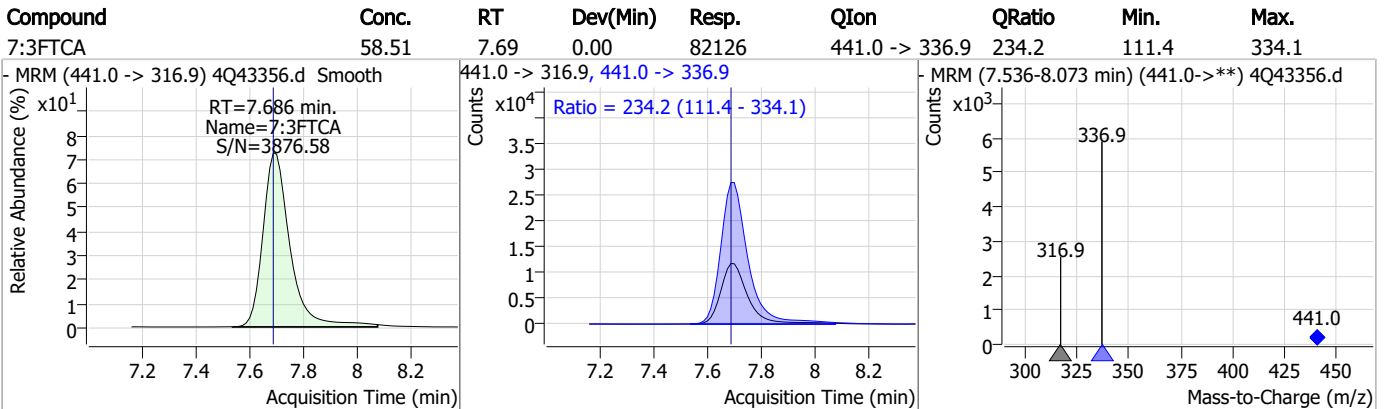
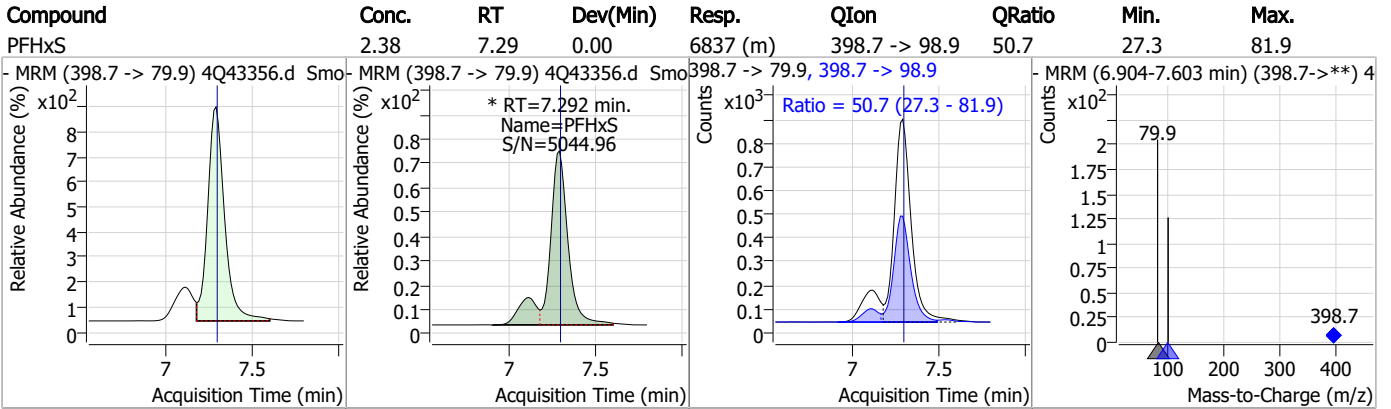
Perfluorinated Compounds by LC/MS/MS



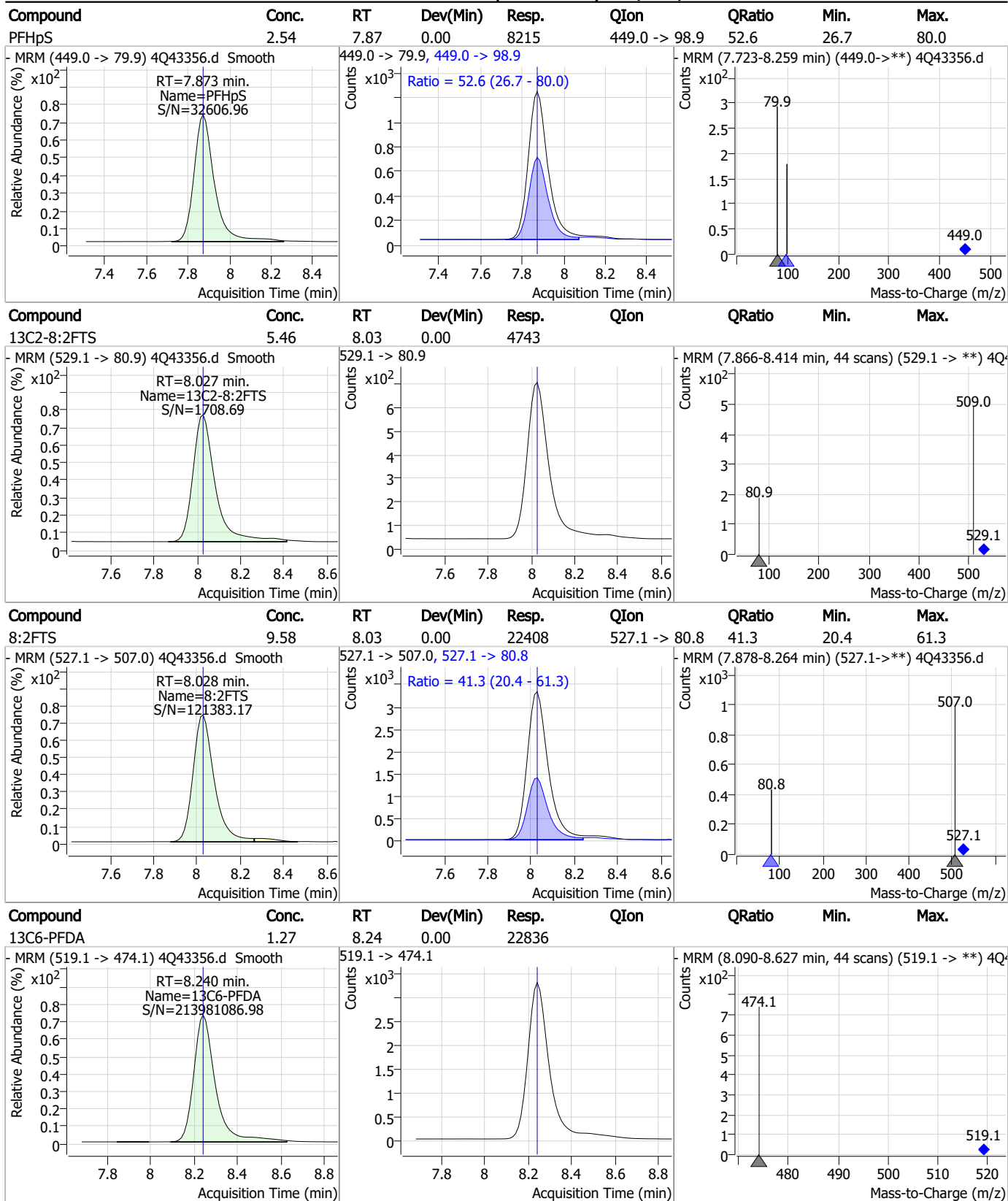
7.7.29 7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

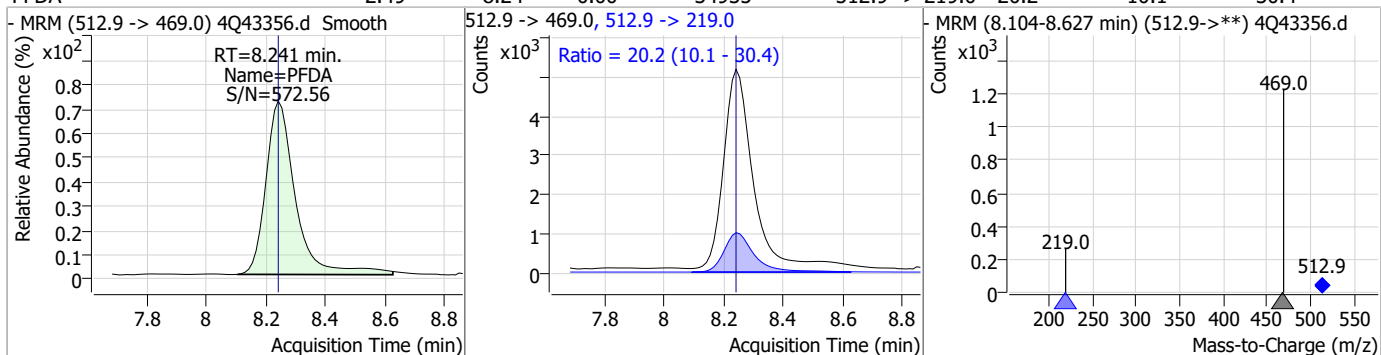


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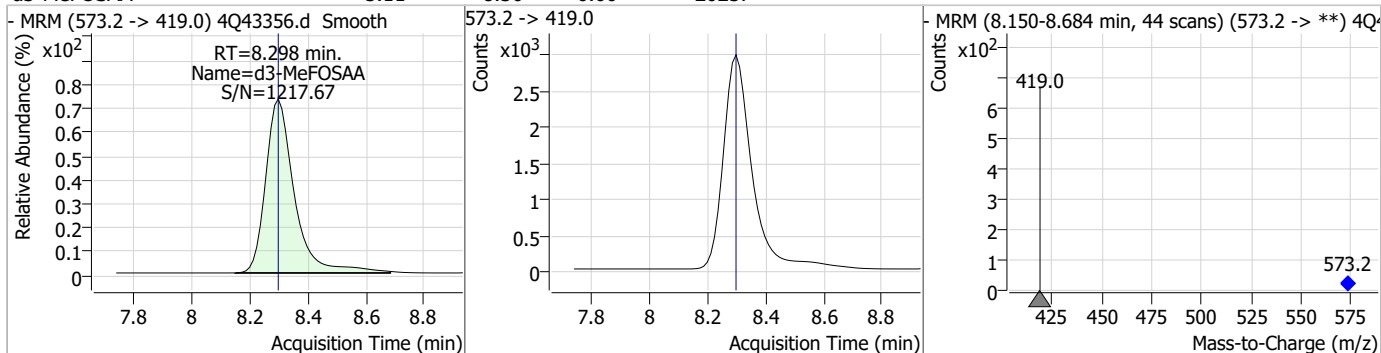
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Perfluorinated Compounds by LC/MS/MS

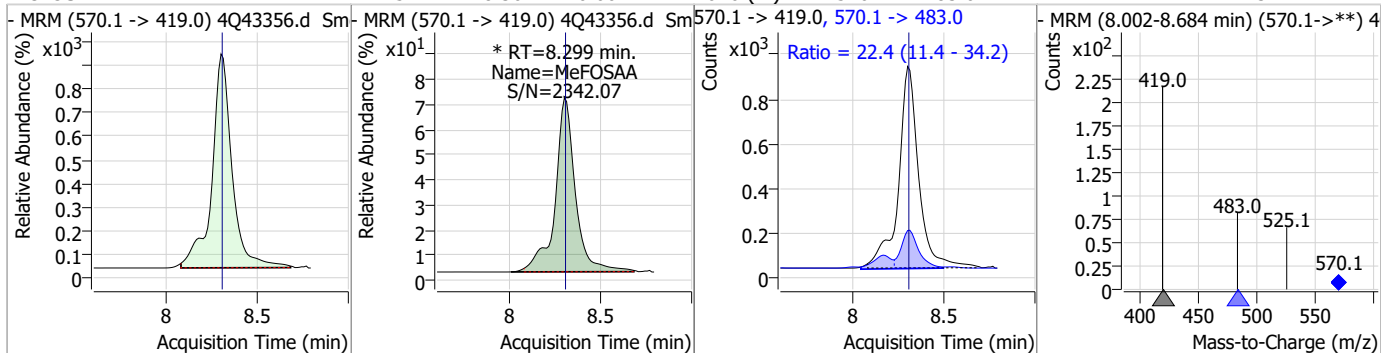
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.49	8.24	0.00	34935	512.9 -> 219.0	20.2	10.1	30.4



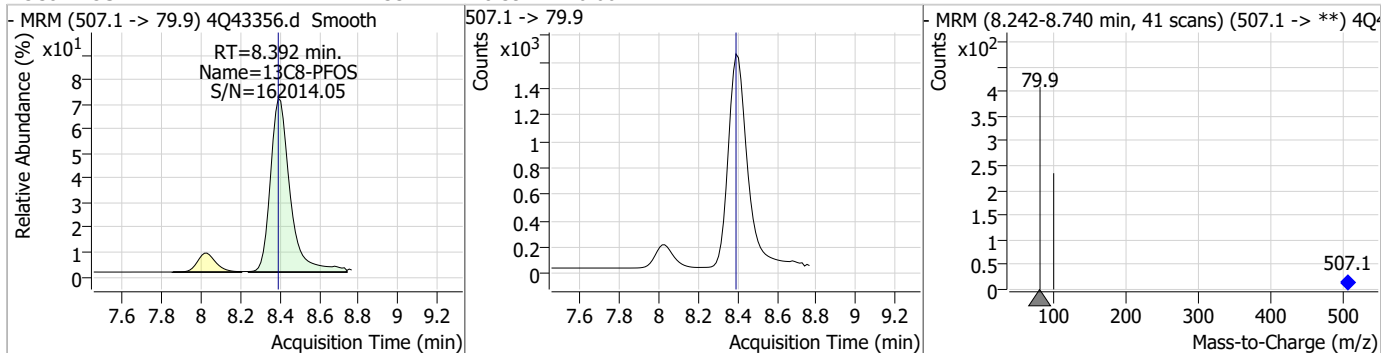
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.11	8.30	0.00	20257				



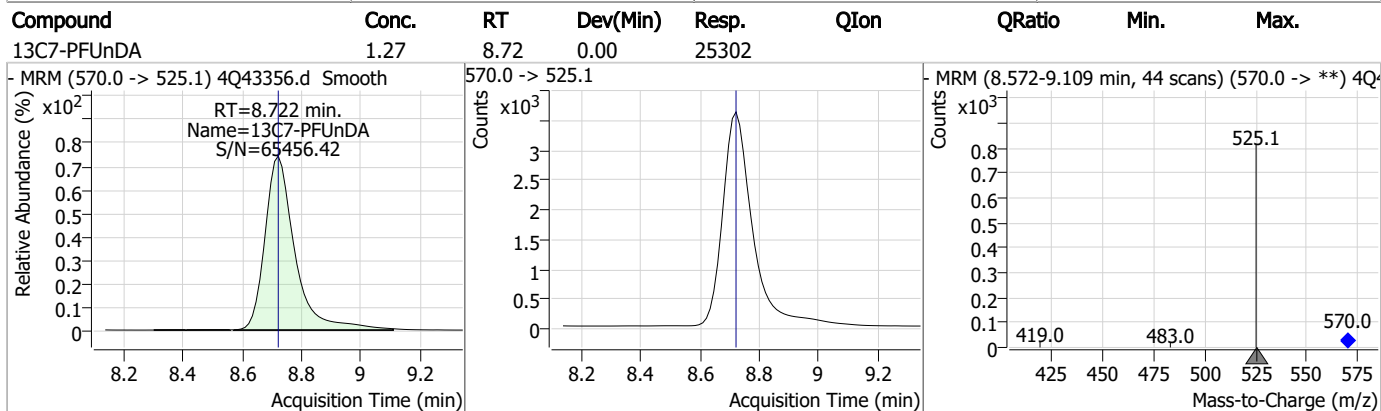
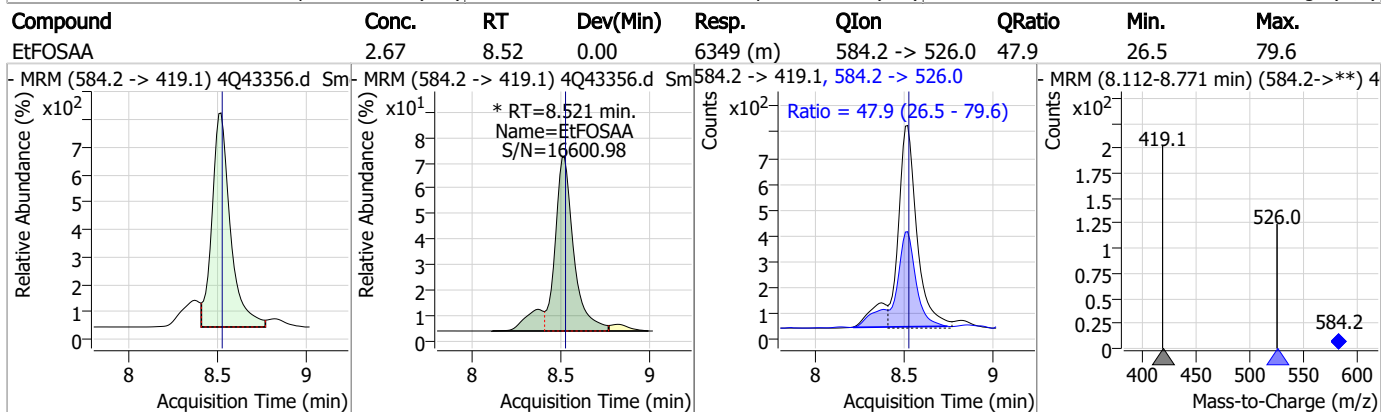
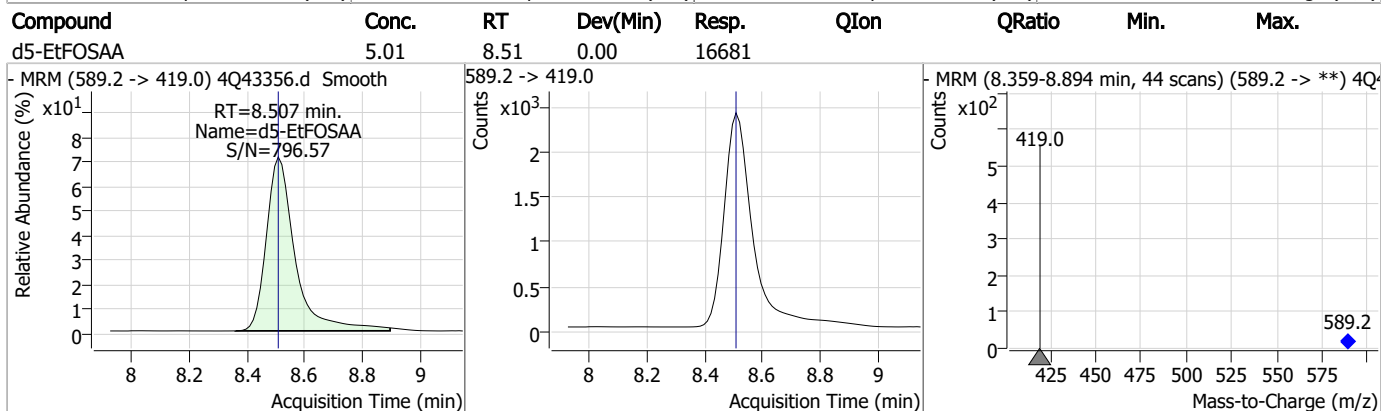
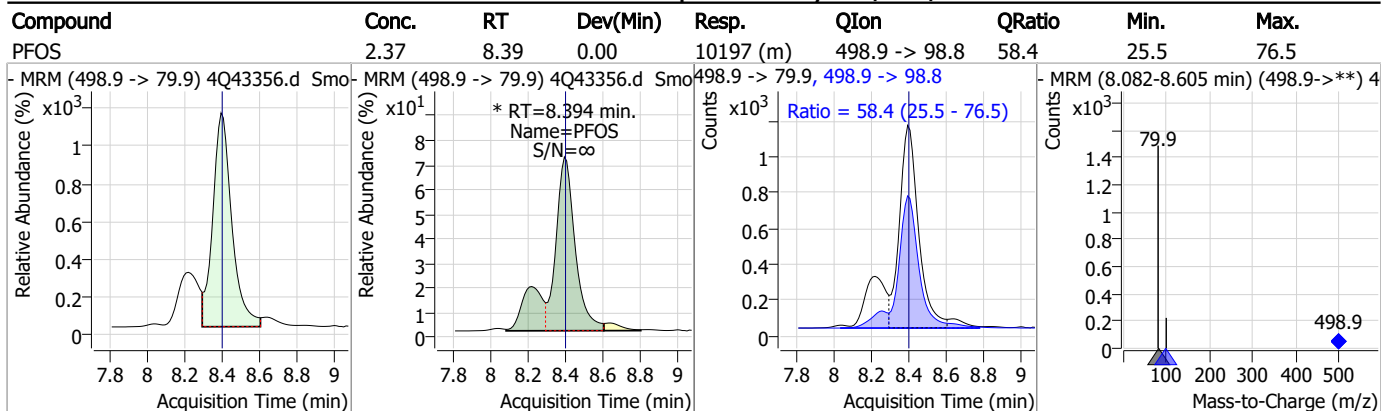
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.45	8.30	0.00	7076 (m)	570.1 -> 483.0	22.4	11.4	34.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.33	8.39	0.00	11241				



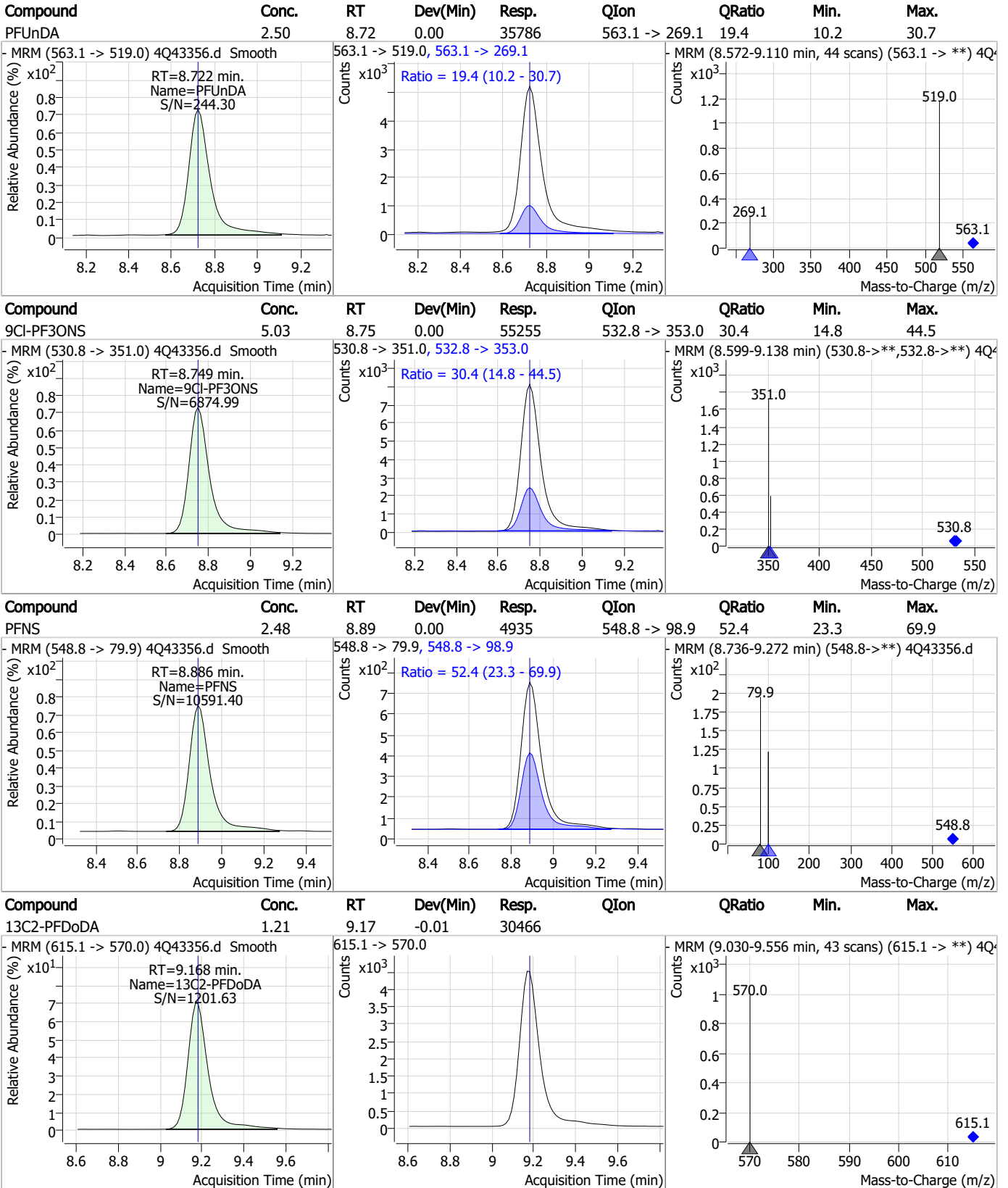
Perfluorinated Compounds by LC/MS/MS



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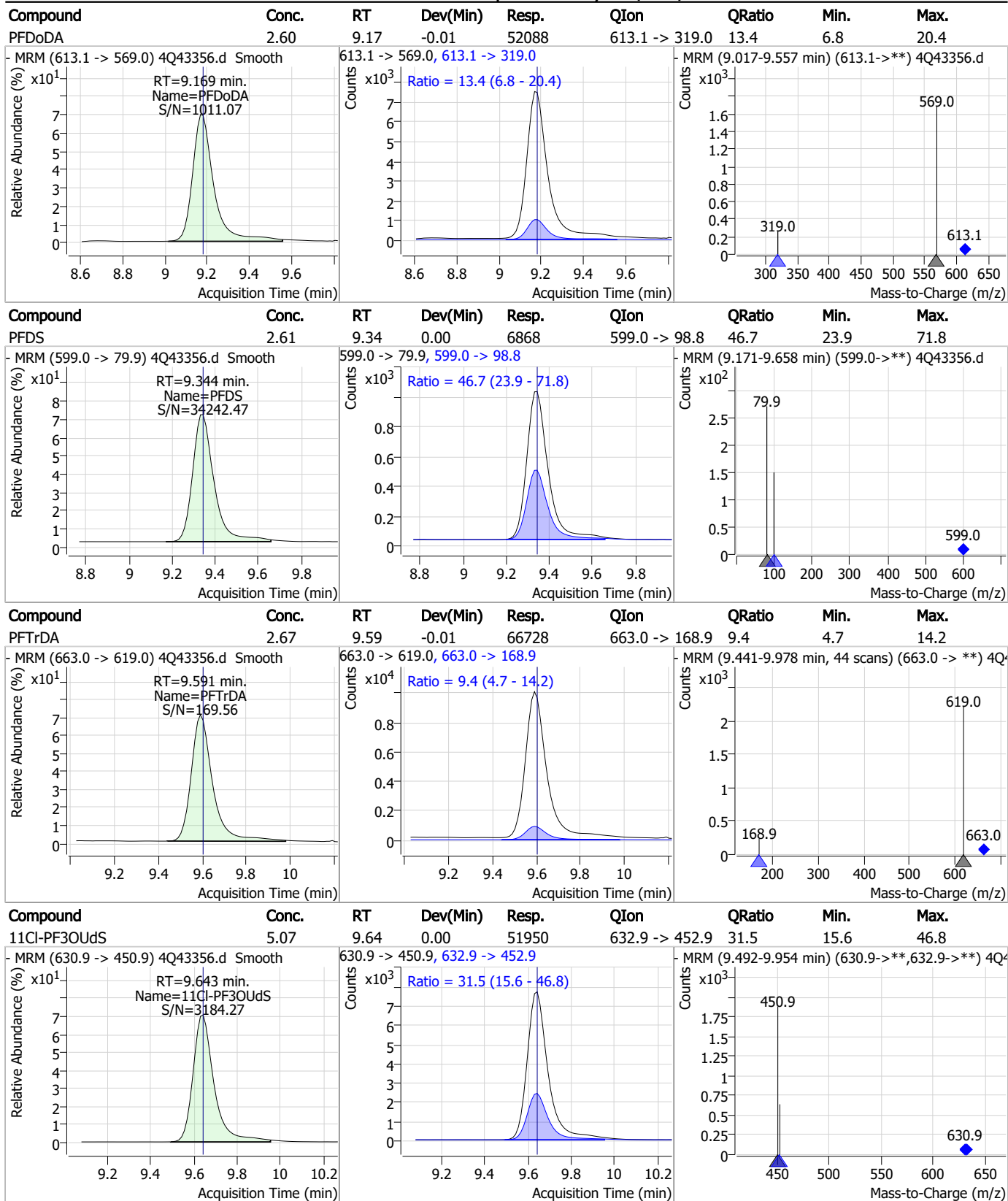
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

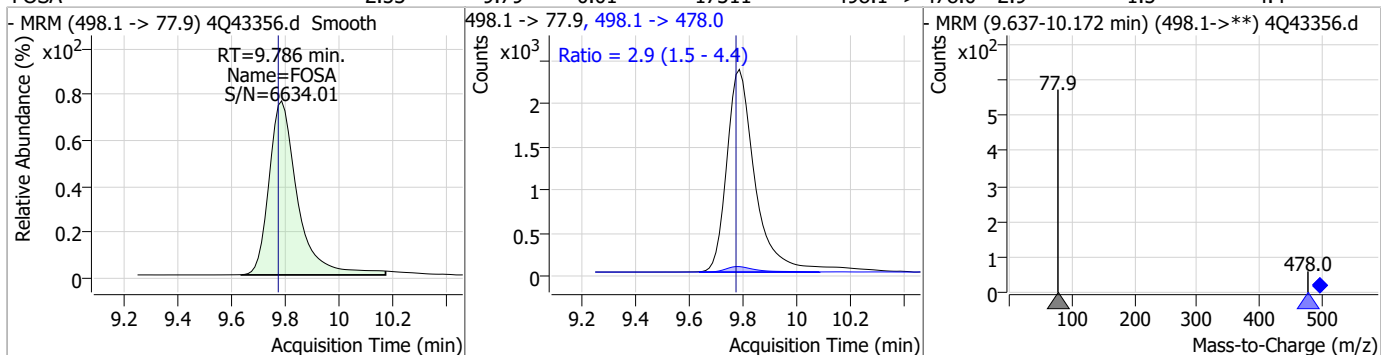


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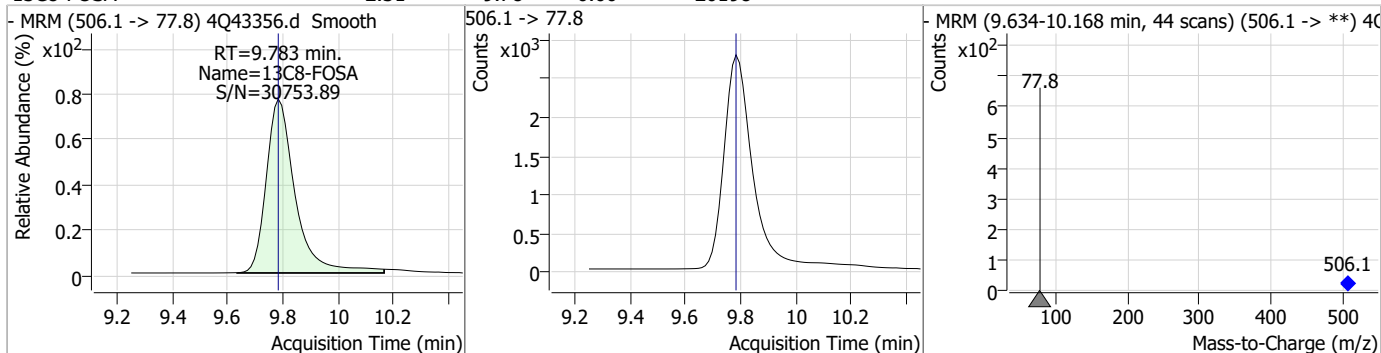
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Perfluorinated Compounds by LC/MS/MS

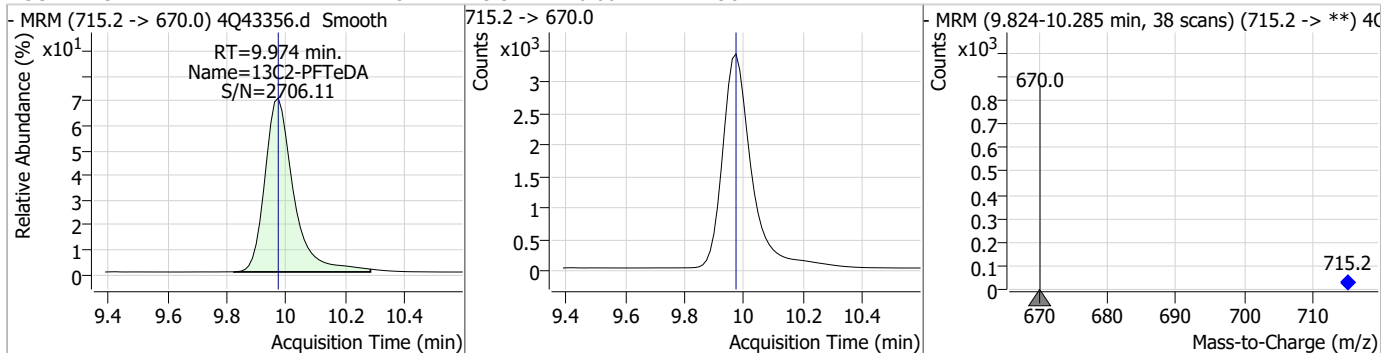
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.53	9.79	0.01	17311	498.1 -> 478.0	2.9	1.5	4.4



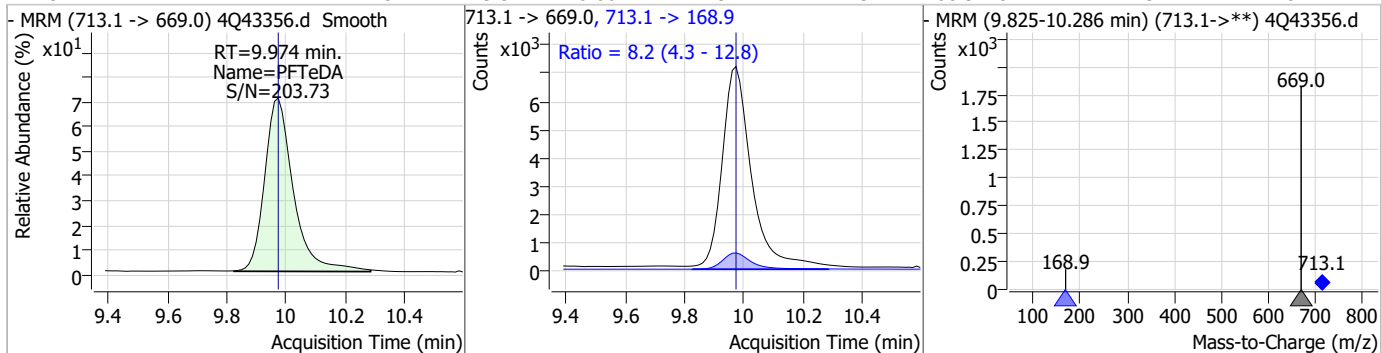
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.31	9.78	0.00	20198				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.15	9.97	0.00	22981				



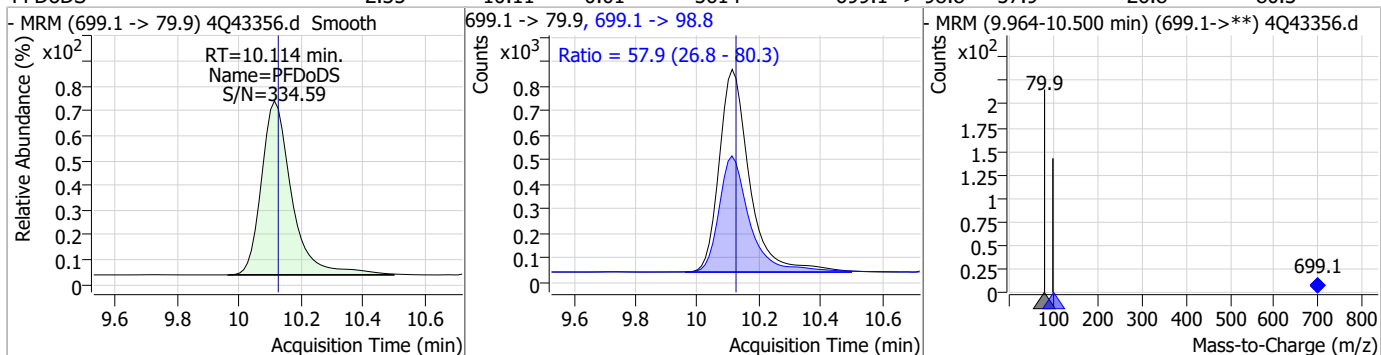
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.57	9.97	0.00	47942	713.1 -> 168.9	8.2	4.3	12.8



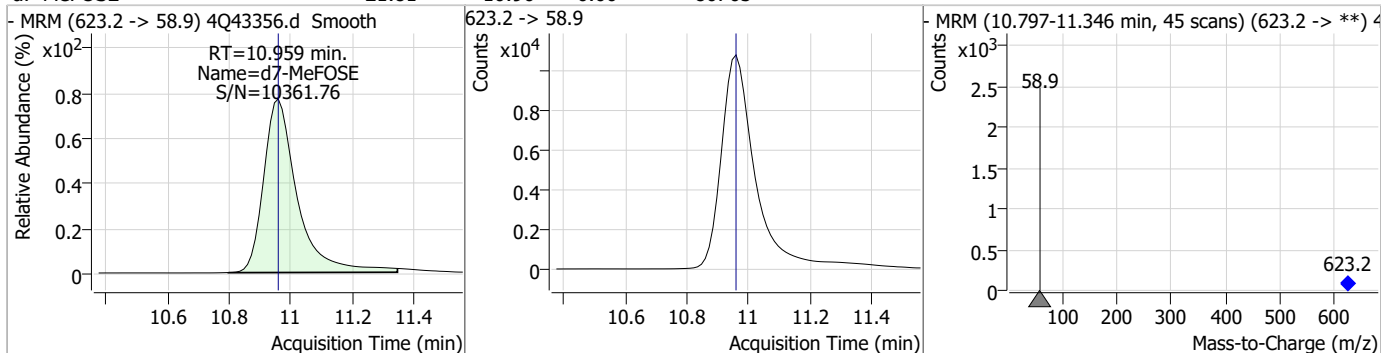
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Perfluorinated Compounds by LC/MS/MS

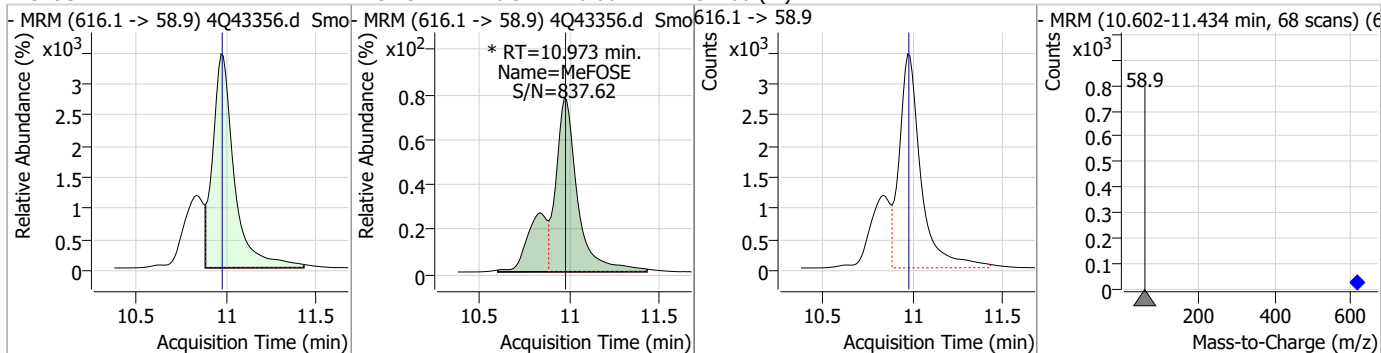
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.35	10.11	-0.01	5614	699.1 -> 98.8	57.9	26.8	80.3



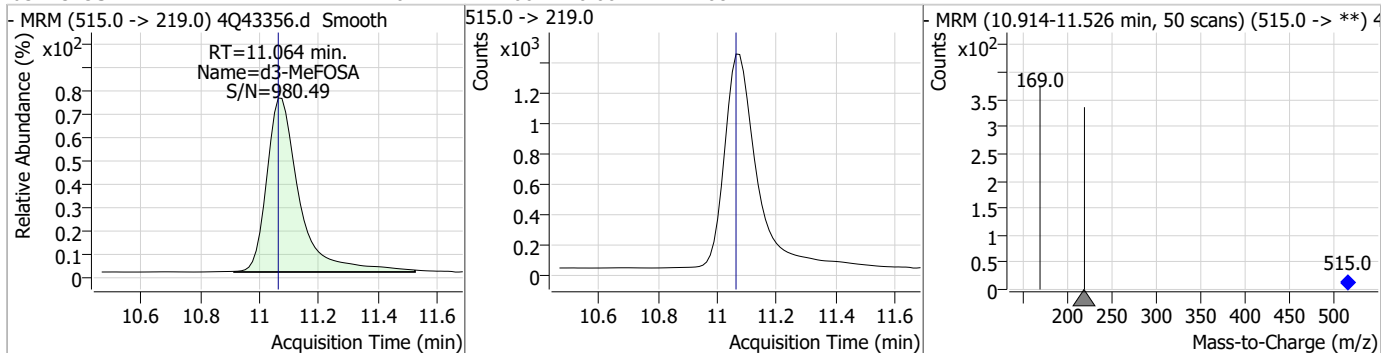
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.81	10.96	0.00	80765				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	13.15	10.97	0.00	37780 (m)				



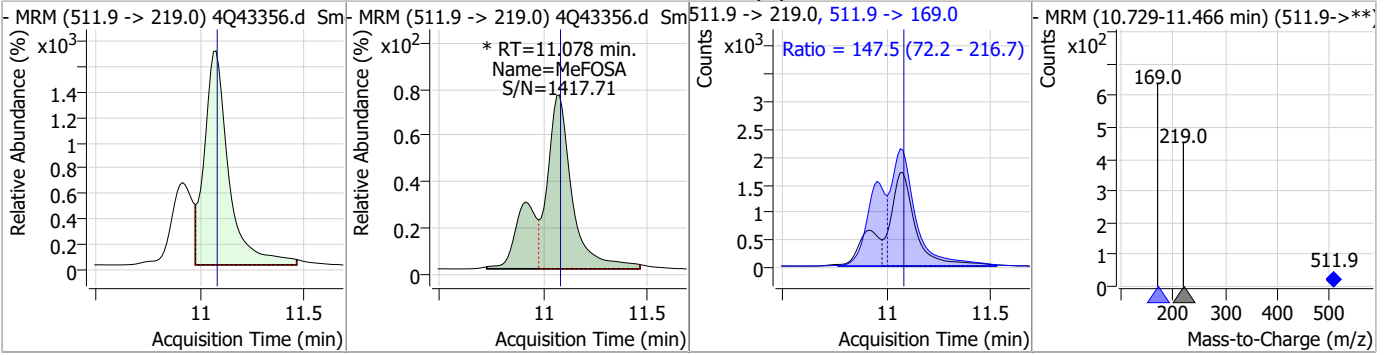
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.40	11.06	0.00	10842				



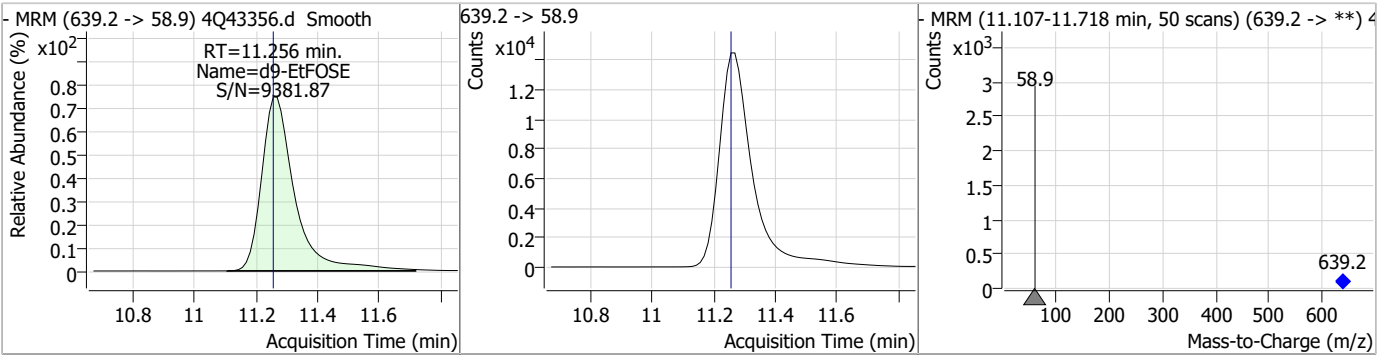
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Perfluorinated Compounds by LC/MS/MS

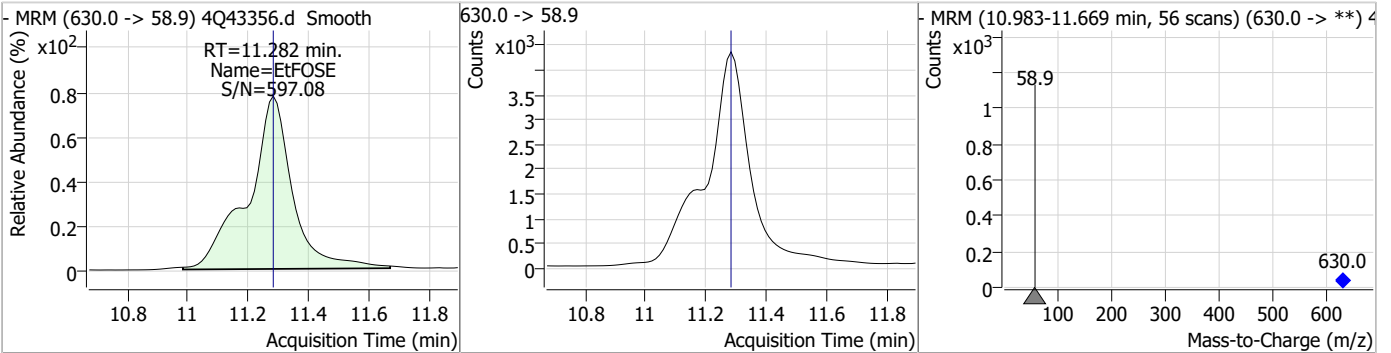
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.00	11.08	0.00	18132 (m)	511.9 -> 169.0	147.5	72.2	216.7



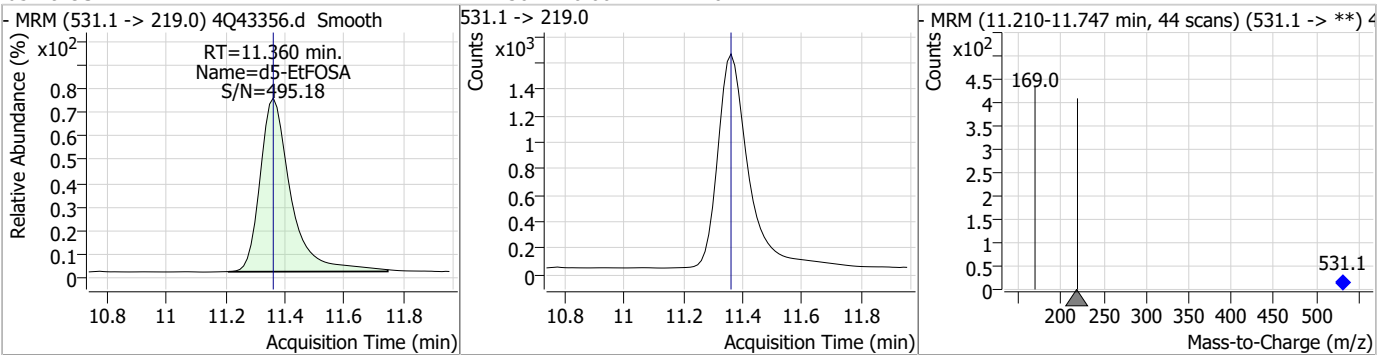
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	22.82	11.26	0.00	108214				



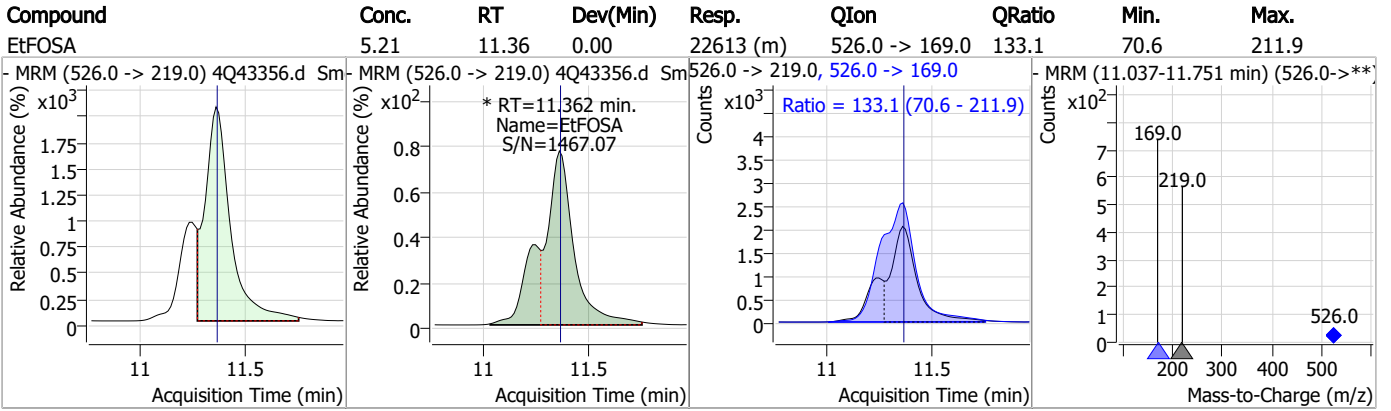
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.78	11.28	0.00	44083				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.42	11.36	0.00	11641				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q626-CC625 Method: EPA DRAFT 1633
Lab FileID: 4Q43356.D Analyst approved: 04/21/23 11:13 Natasha Gumtie
Injection Time: 04/20/23 22:51 Supervisor approved: 04/21/23 14:54 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.39	Split peak
EtFOSAA	2991-50-6		8.52	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSA	4151-50-2		11.36	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43363.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/21/2023 12:29:17 AM
 Sample Name : cc625-4
 Vial : P1-A5
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s4q626.batch.bin
 Sample Information : OP96301,S4q626,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.949	216.8 -> 171.9	134106	10.00 µg/L	0.012
M5-PFPeA	4.424	268.3 -> 223.0	75015	5.00 µg/L	0.012
M5-PFHxA	5.597	318.0 -> 273.0	59813	2.50 µg/L	0.012
M4-PFHpA	6.517	367.1 -> 322.0	31104	2.50 µg/L	0.000
M8-PFOA	7.188	421.1 -> 376.0	42909	2.50 µg/L	0.000
M9-PFNA	7.733	472.1 -> 427.0	24231	1.25 µg/L	0.000
M6-PFDA	8.240	519.1 -> 474.1	23308	1.25 µg/L	0.000
M7-PFUnDA	8.722	570.0 -> 525.1	25697	1.25 µg/L	0.000
M2-PFDoDA	9.168	615.1 -> 570.0	31041	1.25 µg/L	-0.012
M2-PFTeDA	9.961	715.2 -> 670.0	23496	1.25 µg/L	-0.012
M8-FOSA	9.783	506.1 -> 77.8	20227	2.50 µg/L	0.000
M3-PFBS	5.502	302.1 -> 79.9	12660	2.50 µg/L	0.000
M3-PFHxS	7.279	402.1 -> 79.9	7046	2.50 µg/L	-0.012
M8-PFOS	8.392	507.1 -> 79.9	11460	2.50 µg/L	0.000
M2-4:2FTS	5.273	329.1 -> 80.9	1717	5.00 µg/L	0.000
M2-6:2FTS	6.948	429.1 -> 80.9	2682	5.00 µg/L	0.000
M2-8:2FTS	8.027	529.1 -> 80.9	4549	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	19894	5.00 µg/L	0.000
M3-HFPO-DA	5.952	286.9 -> 168.9	34925	10.00 µg/L	0.000
M5-EtFOSAA	8.507	589.2 -> 419.0	17243	5.00 µg/L	0.000
M7-MeFOSE	10.947	623.2 -> 58.9	83015	25.00 µg/L	-0.012
M9-EtFOSE	11.256	639.2 -> 58.9	106749	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	11456	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	11003	2.50 µg/L	0.000
13C4-PFOS	8.393	502.8 -> 79.9	11905	2.50 µg/L	-0.012
13C3-PFBA	2.953	216.0 -> 172.0	73699	5.00 µg/L	0.012
18O2-PFHxS	7.278	403.0 -> 83.9	5191	2.50 µg/L	-0.012
13C4-PFOA	7.188	417.1 -> 372.0	52553	2.50 µg/L	0.000
13C2-PFDA	8.241	515.1 -> 470.1	20085	1.25 µg/L	0.000
13C5-PFNA	7.734	468.0 -> 423.0	25212	1.25 µg/L	0.000
13C2-PFHxA	5.598	315.1 -> 270.0	50221	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.273	329.1 -> 80.9	1717	5.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.7%		
13C2-6:2FTS	6.948	429.1 -> 80.9	2682	5.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C2-8:2FTS	8.027	529.1 -> 80.9	4549	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C2-PFDoDA	9.168	615.1 -> 570.0	31041	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-PFTeDA	9.961	715.2 -> 670.0	23496	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C3-PFBS	5.502	302.1 -> 79.9	12660	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C3-PFHxS	7.279	402.1 -> 79.9	7046	2.38 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 = 95.1%	
13C4-PFBA	2.949	216.8 -> 171.9	134106	10.10 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFHpA	6.517	367.1 -> 322.0	31104	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C5-PFHxA	5.597	318.0 -> 273.0	59813	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C5-PFPeA	4.424	268.3 -> 223.0	75015	4.88 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C6-PFDA	8.240	519.1 -> 474.1	23308	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.3%	
13C7-PFUnDA	8.722	570.0 -> 525.1	25697	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.8%	
13C8-FOSA	9.783	506.1 -> 77.8	20227	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C8-PFOA	7.188	421.1 -> 376.0	42909	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C8-PFOS	8.392	507.1 -> 79.9	11460	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C9-PFNA	7.733	472.1 -> 427.0	24231	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.1%	
d3-MeFOSAA	8.298	573.2 -> 419.0	19894	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C3-HFPO-DA	5.952	286.9 -> 168.9	34925	9.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.7%	
d3-MeFOSA	11.064	515.0 -> 219.0	11003	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
d5-EtFOSAA	8.507	589.2 -> 419.0	17243	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
d7-MeFOSE	10.947	623.2 -> 58.9	83015	22.73 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.9%	
d9-EtFOSE	11.256	639.2 -> 58.9	106749	22.82 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.3%	
d5-EtFOSA	11.360	531.1 -> 219.0	11456	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
Target Compounds					QValue
4:2FTS	5.286	327.1 -> 307.0	21407	9.74 µg/L	98
		327.1 -> 80.9	9309		
6:2FTS	6.949	427.1 -> 407.0	21118	10.30 µg/L	95
		427.1 -> 80.9	8725		
8:2FTS	8.028	527.1 -> 507.0	23246	10.37 µg/L	100
		527.1 -> 80.8	9538		
EtFOSAA	8.508	584.2 -> 419.1	6540	2.66 µg/L	m 86
		584.2 -> 526.0	2843		
FOSA	9.774	498.1 -> 77.9	16939	2.48 µg/L	99
		498.1 -> 478.0	545		
MeFOSAA	8.299	570.1 -> 419.0	6914	2.44 µg/L	m 98
		570.1 -> 483.0	1493		
PFBA	2.957	212.8 -> 168.9	30536	9.81 µg/L	100
PFBS	5.503	298.7 -> 79.9	11445	2.29 µg/L	98
		298.7 -> 98.8	4466		
PFDA	8.241	512.9 -> 469.0	34932	2.44 µg/L	99
		512.9 -> 219.0	7211		
PFDODA	9.169	613.1 -> 569.0	51268	2.51 µg/L	99
		613.1 -> 319.0	7251		
PFDS	9.331	599.0 -> 79.9	6461	2.41 µg/L	98

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.517	599.0 -> 98.8	3161	2.57	µg/L	98
		363.1 -> 319.0	41993			
PFHpS	7.873	363.1 -> 169.0	7597	2.54	µg/L	93
		449.0 -> 79.9	8358			
PFHxA	5.587	449.0 -> 98.9	4065	2.42	µg/L	99
		313.0 -> 269.0	45661			
PFHxS	7.280	313.0 -> 118.9	1598	2.61	µg/L	m
		398.7 -> 79.9	6744			
PFNA	7.734	398.7 -> 98.9	3355	2.46	µg/L	95
		463.0 -> 419.0	33894			
PFNS	8.886	463.0 -> 219.0	7863	2.47	µg/L	98
		548.8 -> 79.9	5008			
PFOA	7.189	548.8 -> 98.9	2268	2.65	µg/L	99
		413.0 -> 369.0	50613			
PFOS	8.394	413.0 -> 169.0	10823	2.57	µg/L	m
		498.9 -> 79.9	11301			
PFPeA	4.427	498.9 -> 98.8	5047	5.27	µg/L	100
		263.0 -> 219.0	78942			
PFPeS	6.557	349.1 -> 79.9	6213	2.79	µg/L	95
		349.1 -> 98.9	2597			
PFTeDA	9.962	713.1 -> 669.0	48763	2.55	µg/L	99
		713.1 -> 168.9	4363			
PFTrDA	9.591	663.0 -> 619.0	68111	2.68	µg/L	99
		663.0 -> 168.9	6746			
PFUnDA	8.722	563.1 -> 519.0	33548	2.31	µg/L	100
		563.1 -> 269.1	6927			
11CI-PF3OUdS	9.630	630.9 -> 450.9	52302	5.20	µg/L	100
		632.9 -> 452.9	16414			
9CI-PF3ONS	8.749	530.8 -> 351.0	55700	5.15	µg/L	99
		532.8 -> 353.0	16313			
ADONA	6.781	376.9 -> 250.9	133533	5.32	µg/L	99
		376.9 -> 84.8	35177			
HFPO-DA	5.953	284.9 -> 168.9	14202	5.15	µg/L	99
		284.9 -> 184.9	1661			
3:3FTCA	3.879	241.0 -> 177.0	8997	12.61	µg/L	100
		241.0 -> 117.0	849			
5:3FTCA	6.244	341.0 -> 237.1	175561	62.50	µg/L	98
		341.0 -> 217.0	123352			
7:3FTCA	7.686	441.0 -> 316.9	84452	61.61	µg/L	98
		441.0 -> 336.9	190192			
EtFOSA	11.362	526.0 -> 219.0	21785	5.10	µg/L	m
		526.0 -> 169.0	30214			
EtFOSE	11.282	630.0 -> 58.9	44734	13.14	µg/L	100
		511.9 -> 219.0	17988			
MeFOSA	11.065	511.9 -> 169.0	26682	4.89	µg/L	m
		616.1 -> 58.9	35406			
MeFOSE	10.973	699.1 -> 79.9	5970	11.99	µg/L	m
		699.1 -> 98.8	3472			
PFDoDS	10.114	295.0 -> 201.0	5888	5.77	µg/L	96
		295.0 -> 84.9	1549			
NFDHA	5.479	279.0 -> 85.1	44213	5.17	µg/L	100
		229.0 -> 84.9	38997			
PFMBA	3.565	314.8 -> 134.9	68392	4.42	µg/L	99
		314.8 -> 82.9	2271			

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

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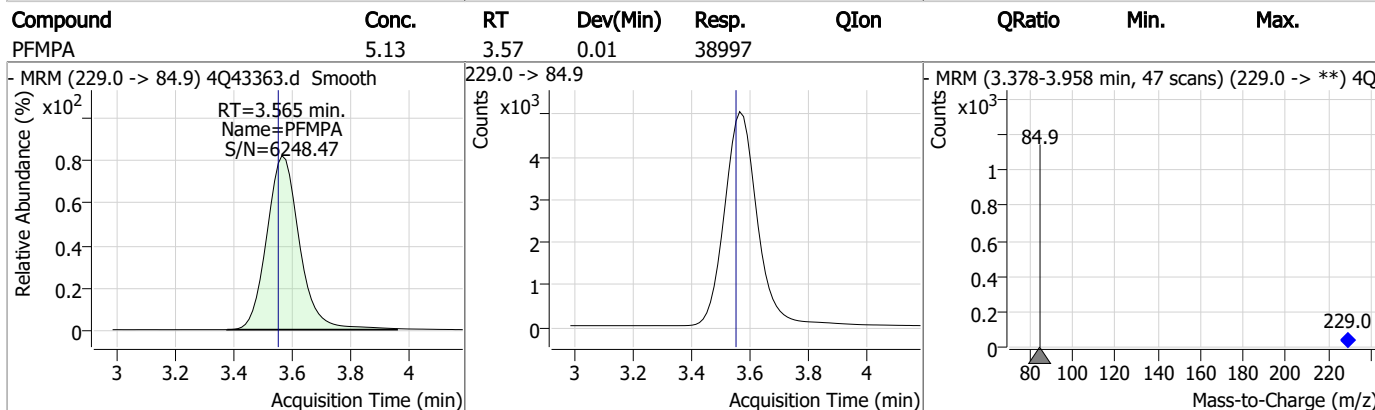
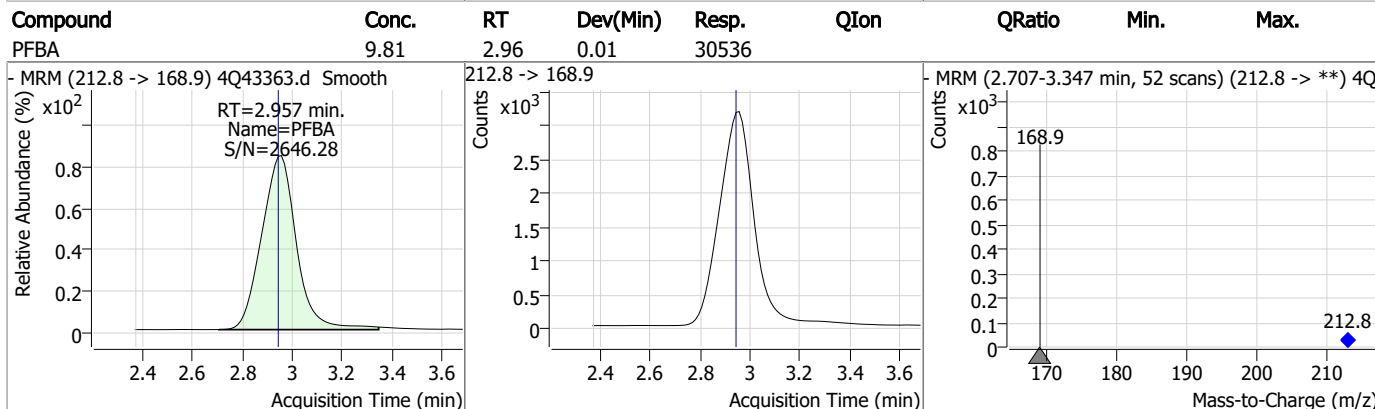
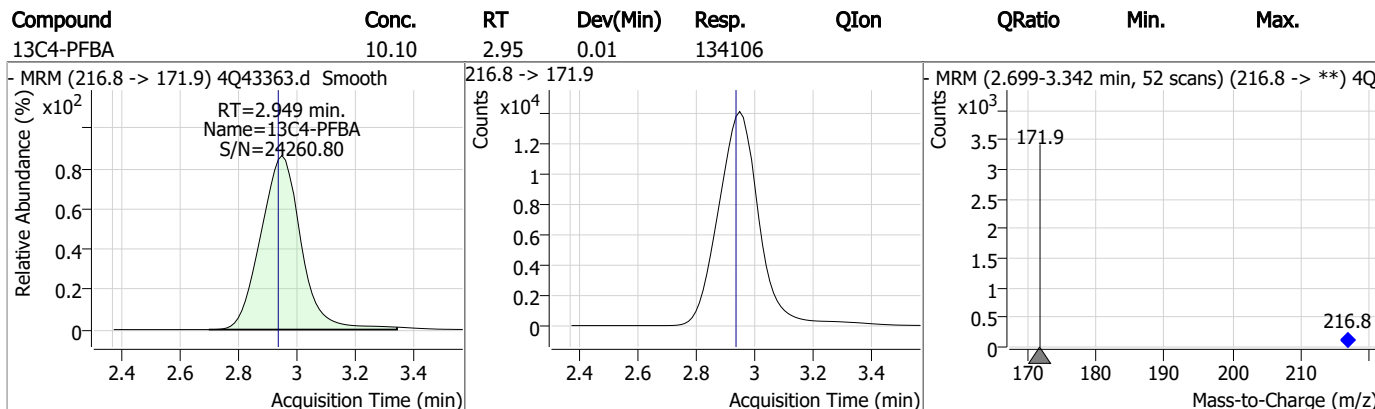
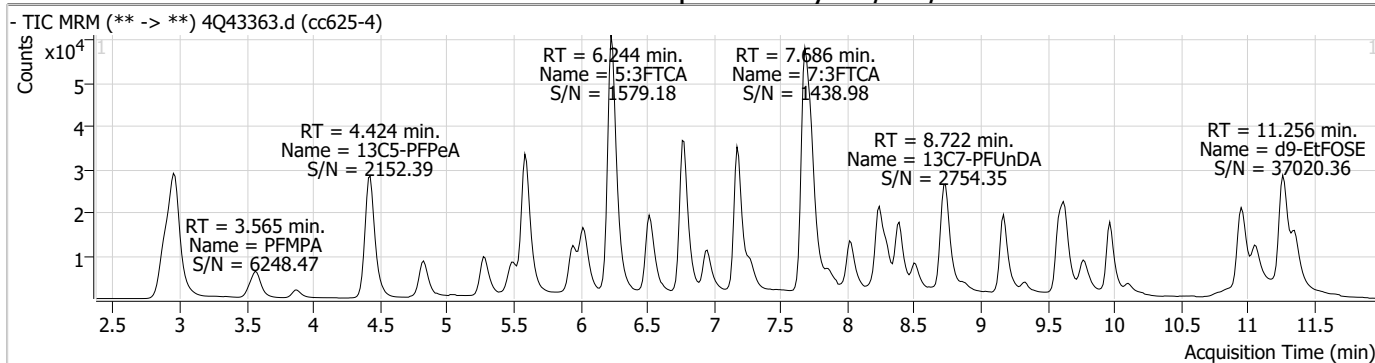
Perfluorinated Compounds by LC/MS/MS

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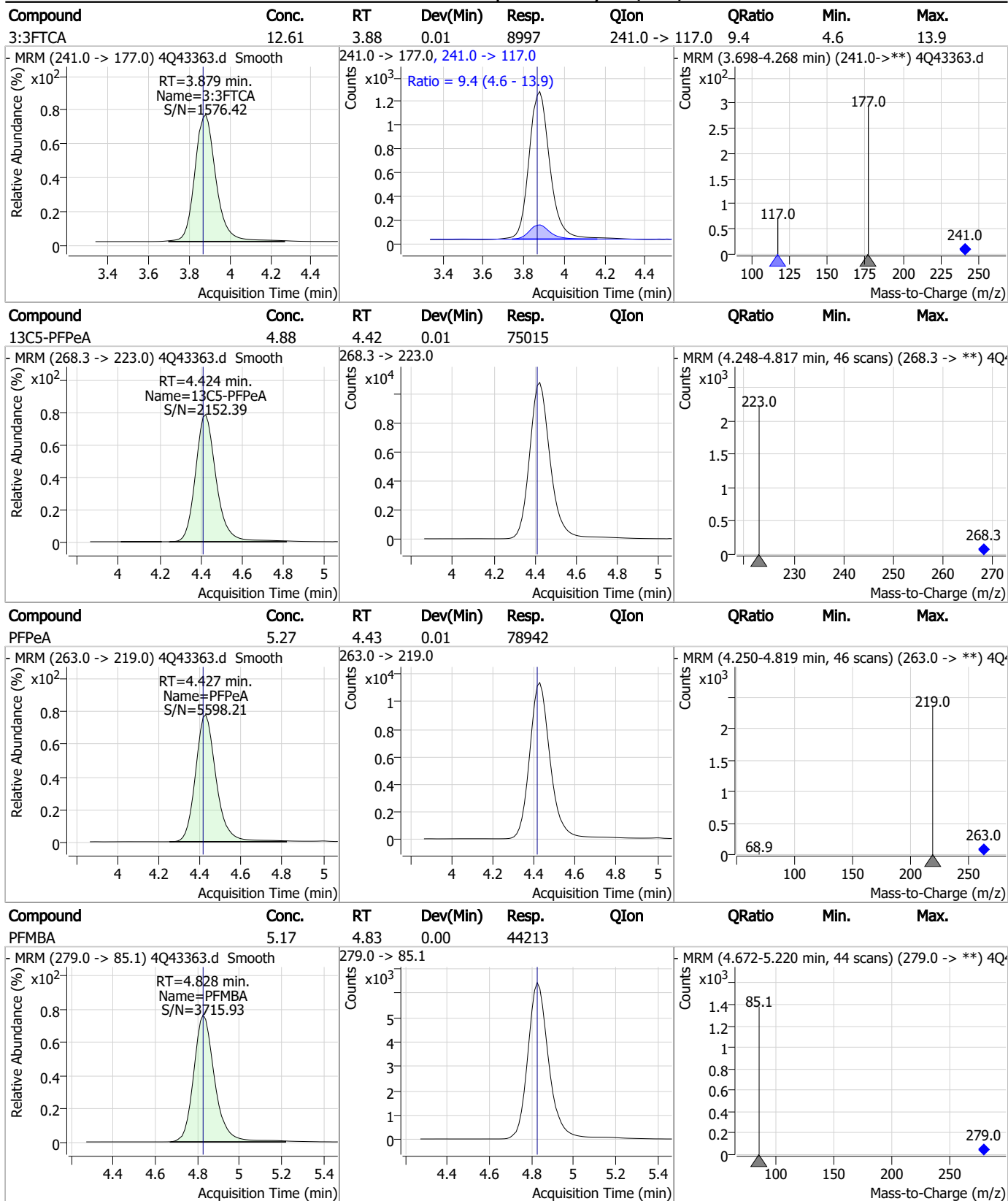
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Perfluorinated Compounds by LC/MS/MS



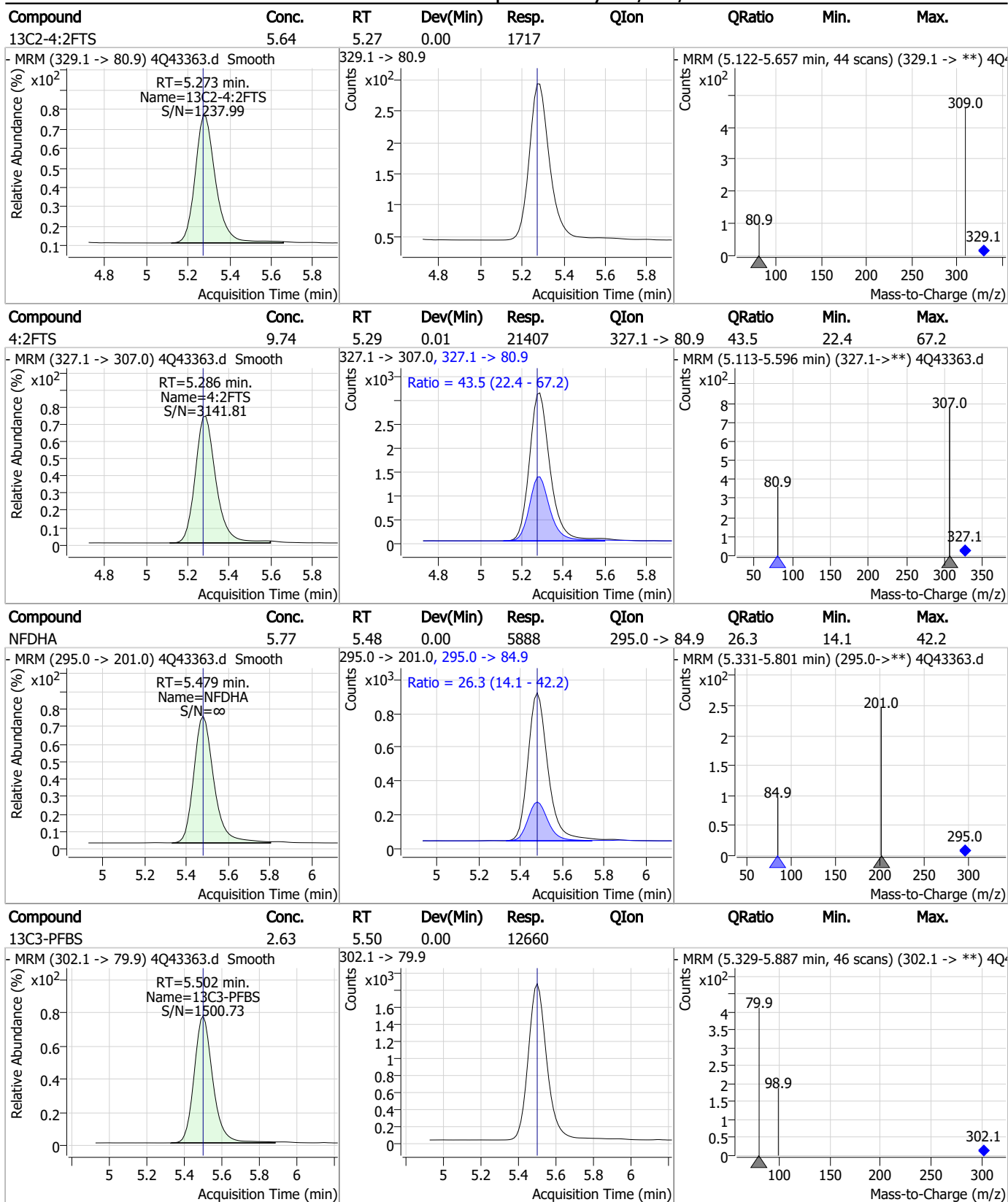
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Perfluorinated Compounds by LC/MS/MS



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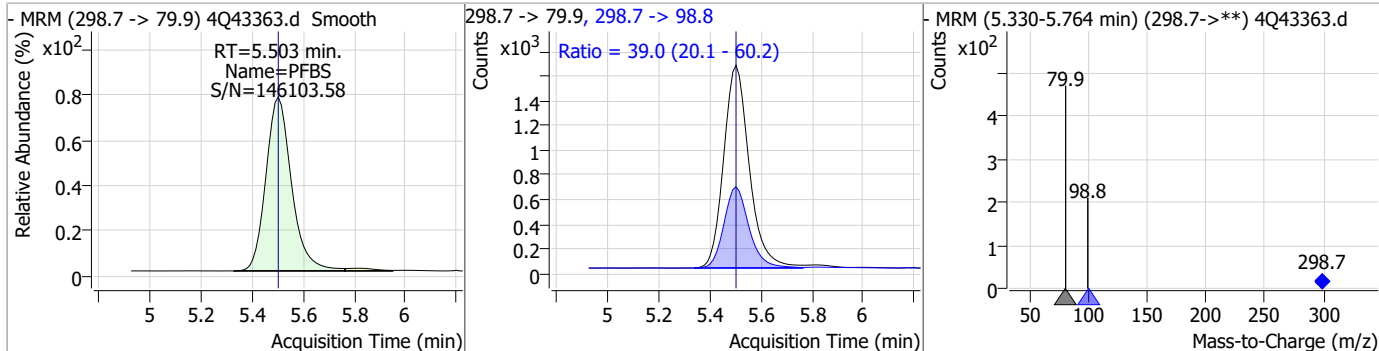
Perfluorinated Compounds by LC/MS/MS



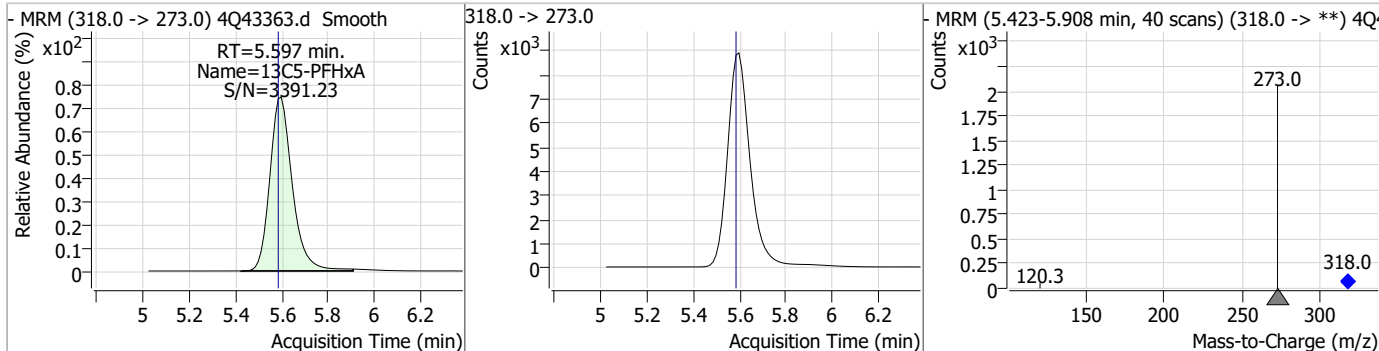
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Perfluorinated Compounds by LC/MS/MS

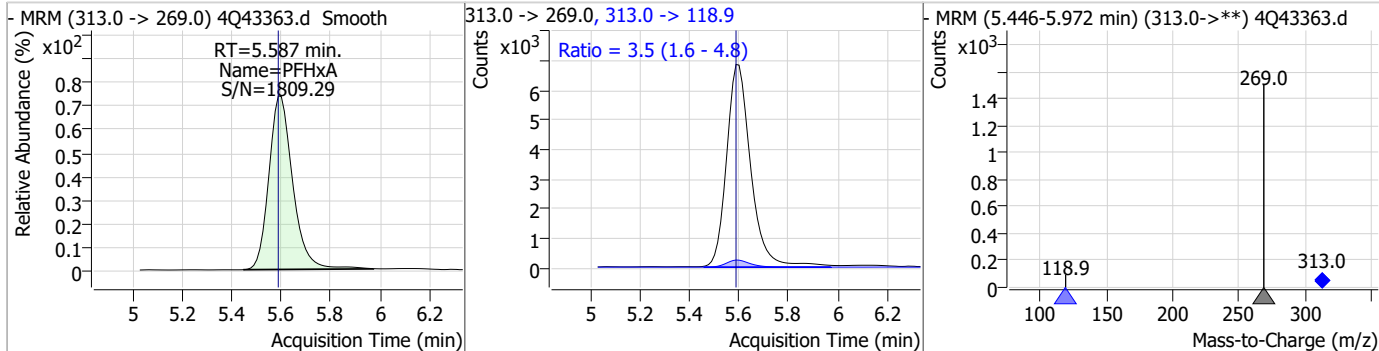
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.29	5.50	0.00	11445	298.7 -> 98.8	39.0	20.1	60.2



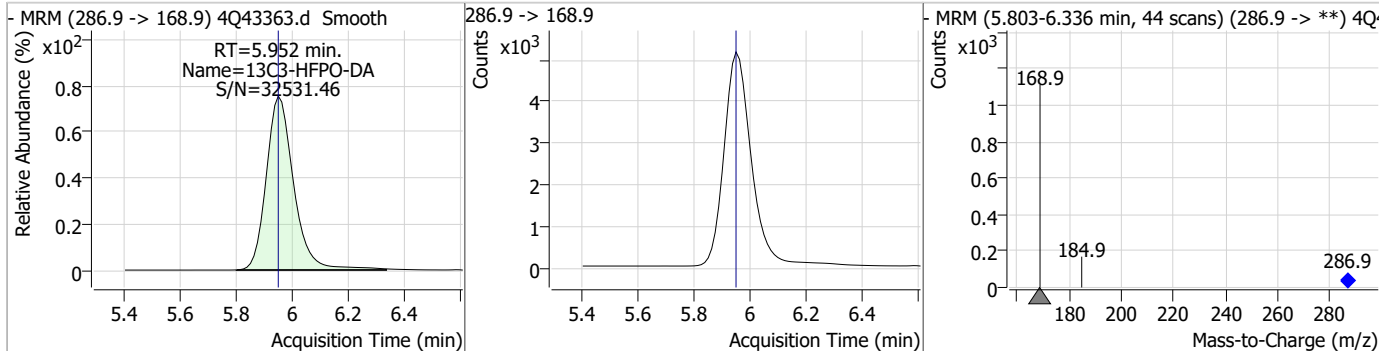
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.53	5.60	0.01	59813				



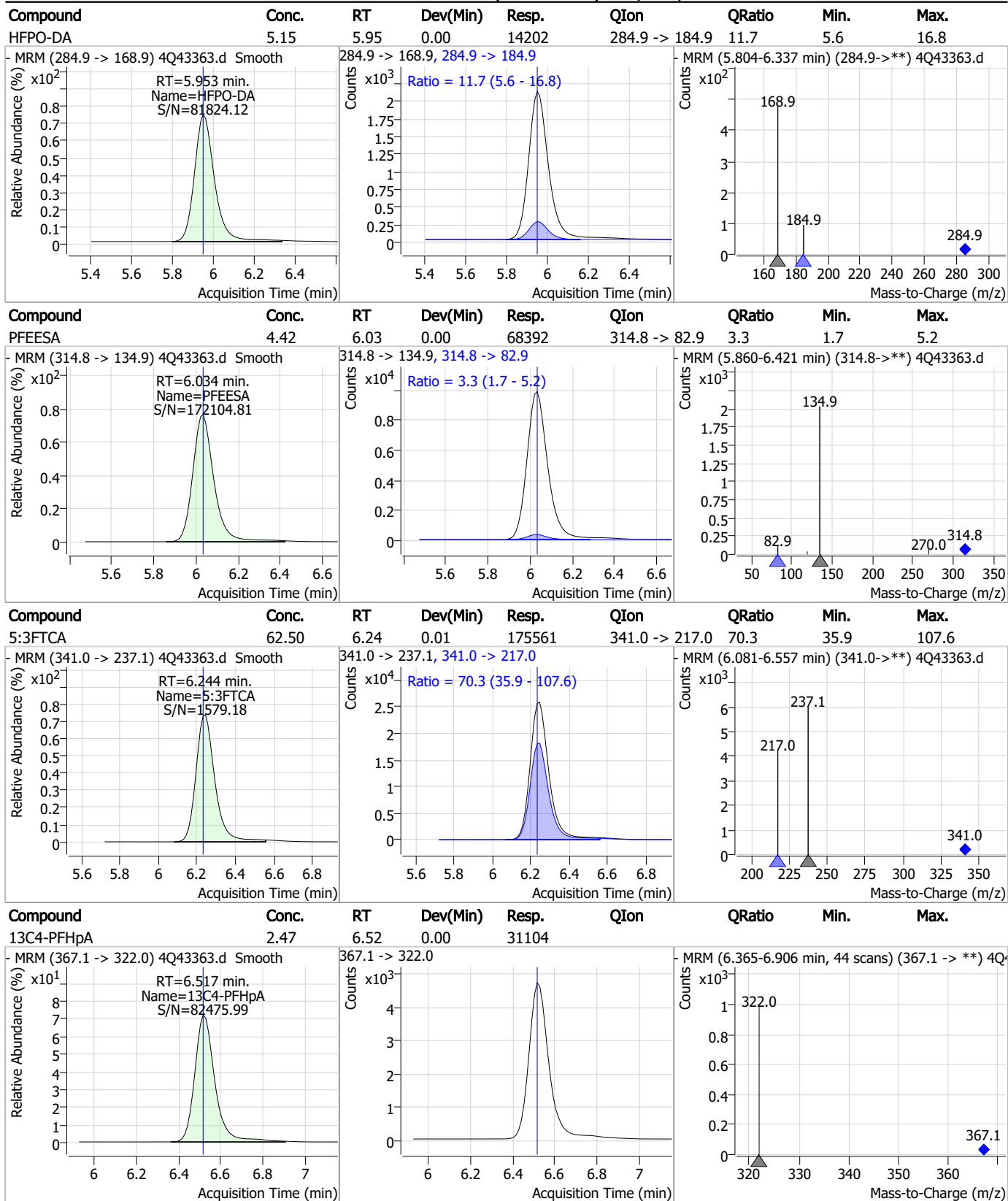
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.42	5.59	0.00	45661	313.0 -> 118.9	3.5	1.6	4.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.17	5.95	0.00	34925				

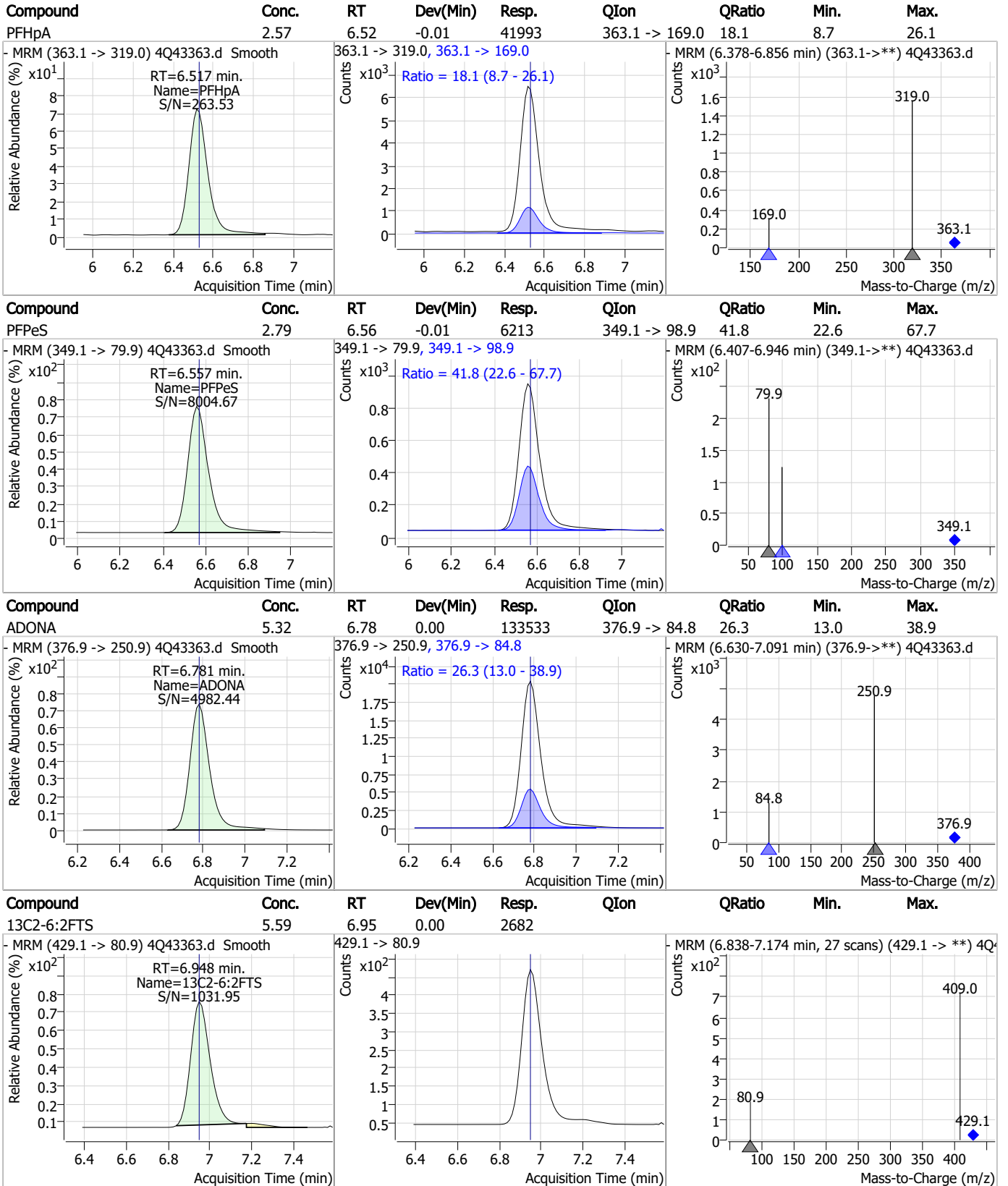


Perfluorinated Compounds by LC/MS/MS



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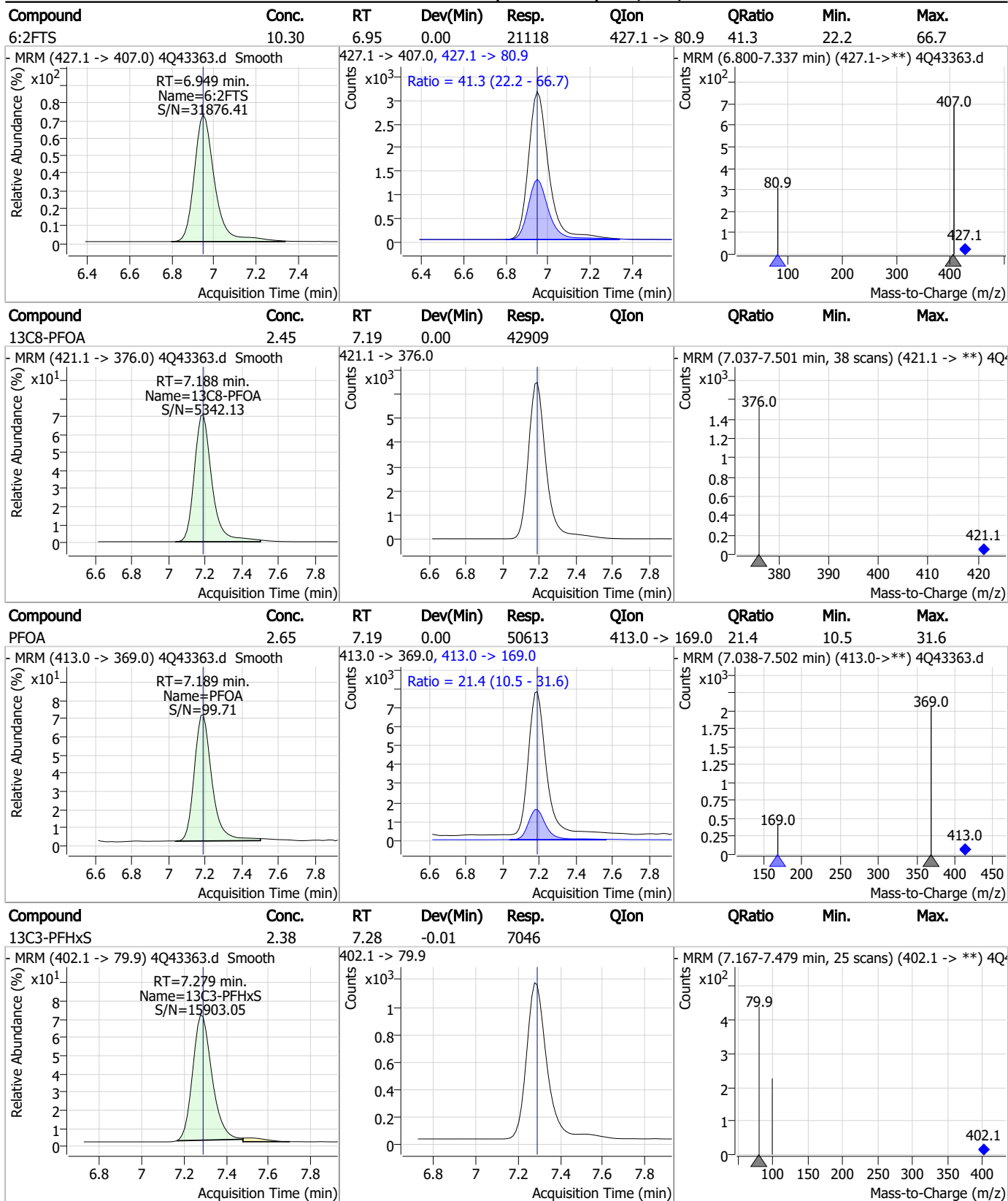
Perfluorinated Compounds by LC/MS/MS



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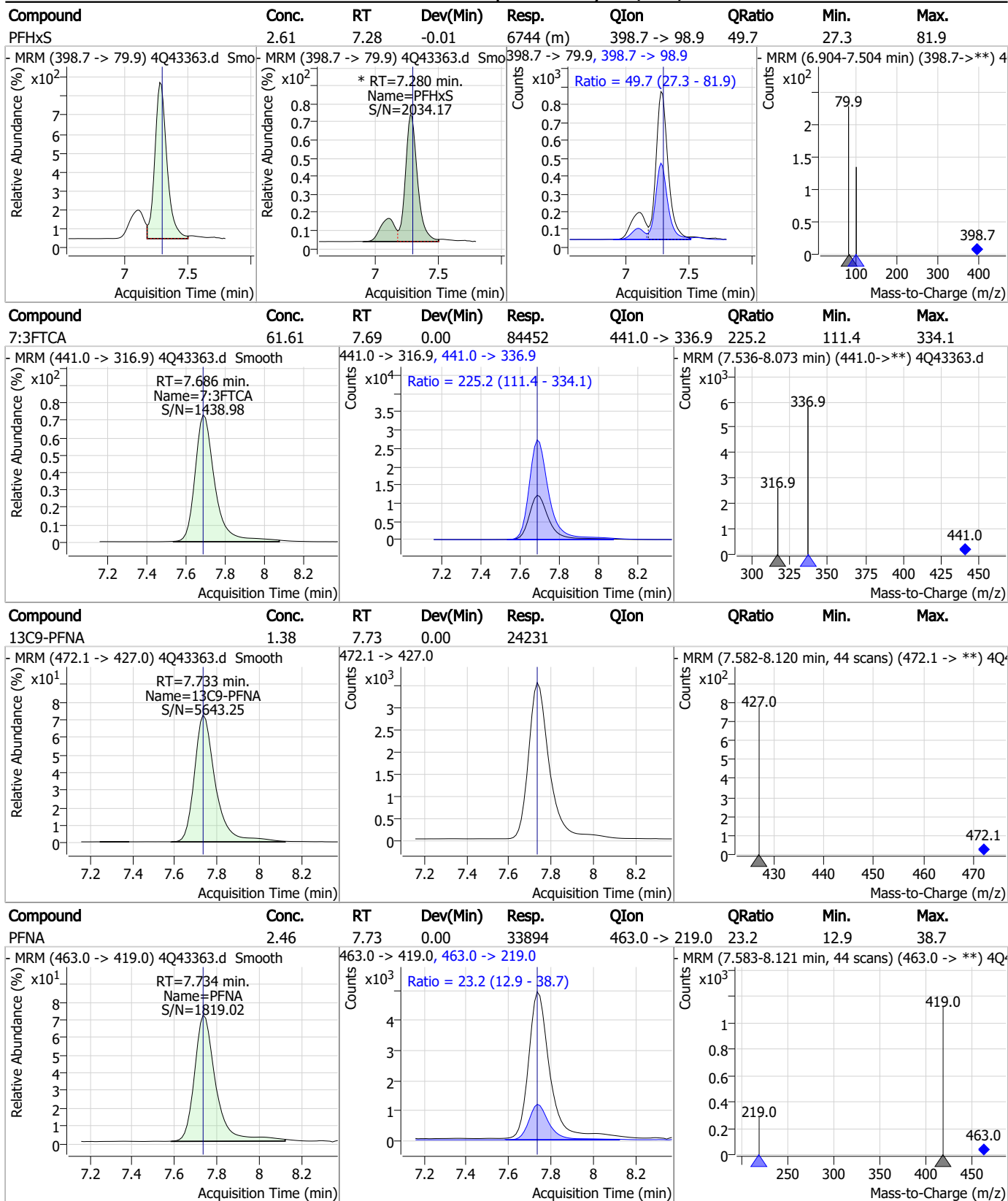
Perfluorinated Compounds by LC/MS/MS



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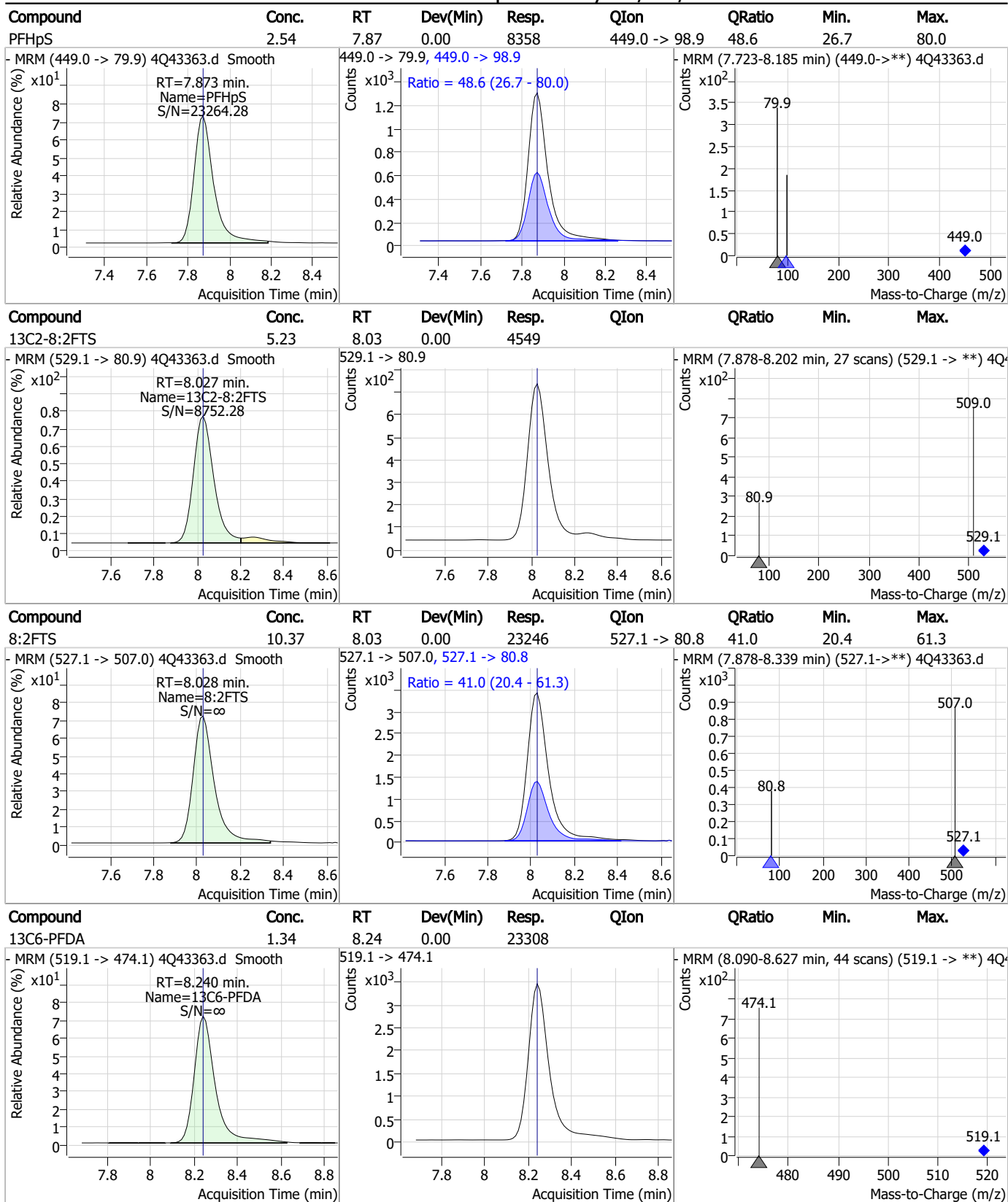


Perfluorinated Compounds by LC/MS/MS



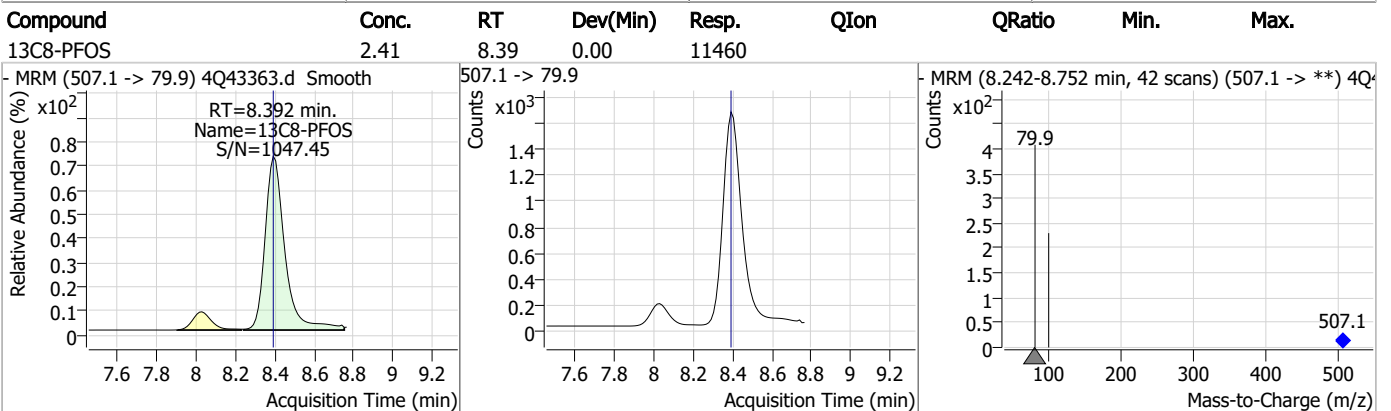
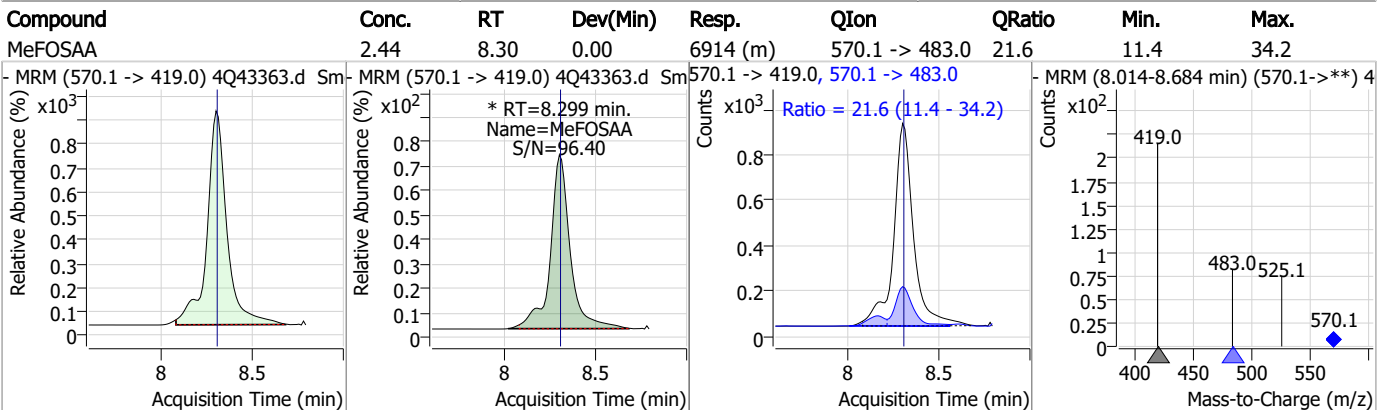
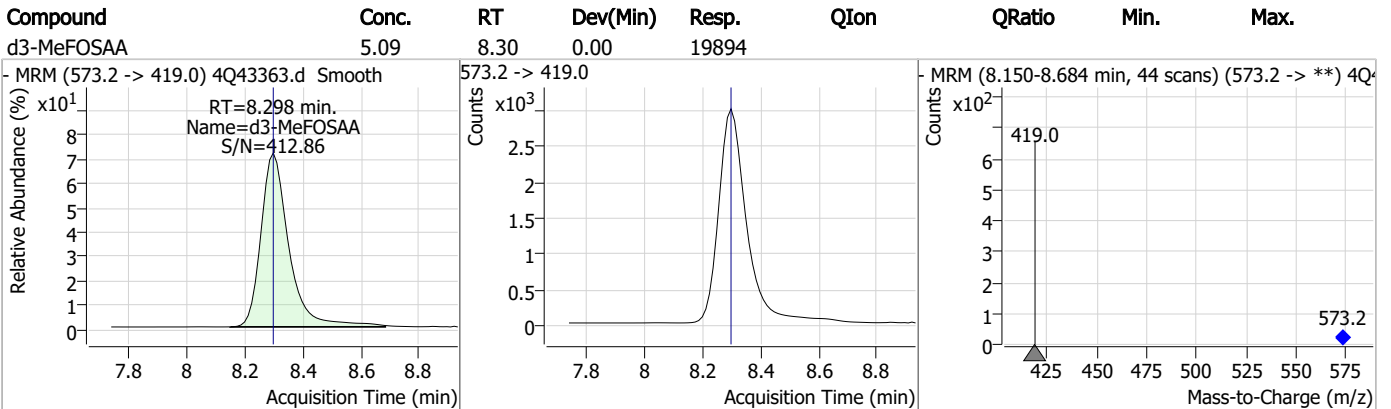
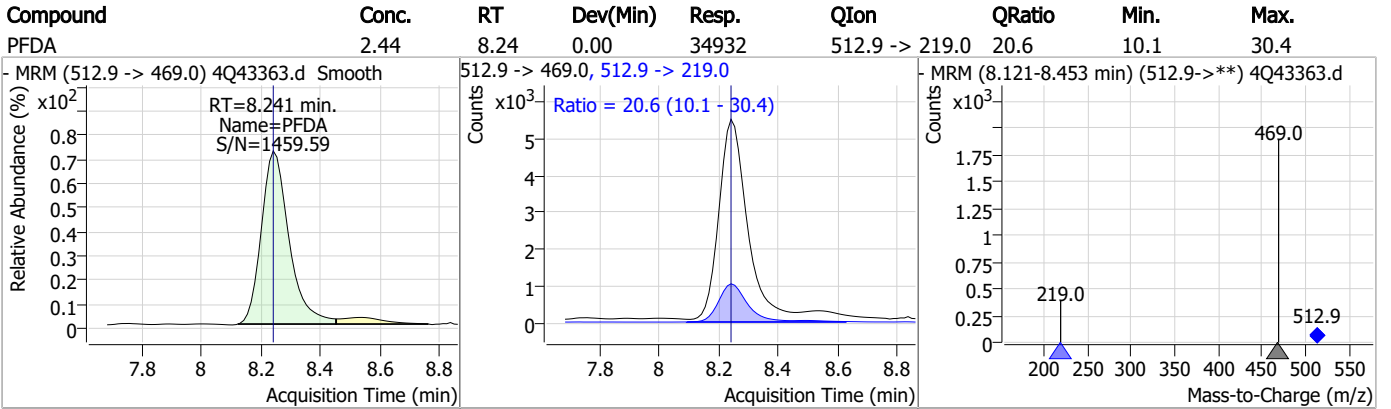
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Perfluorinated Compounds by LC/MS/MS



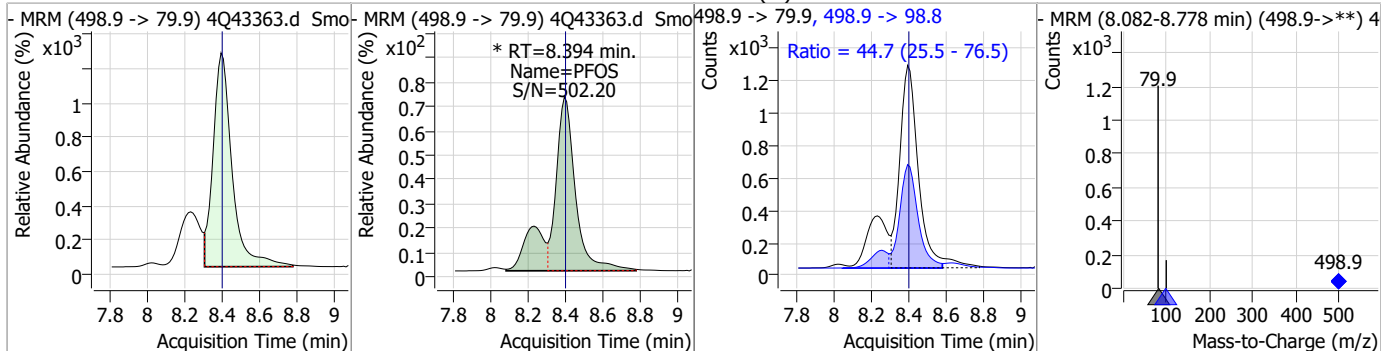
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Perfluorinated Compounds by LC/MS/MS

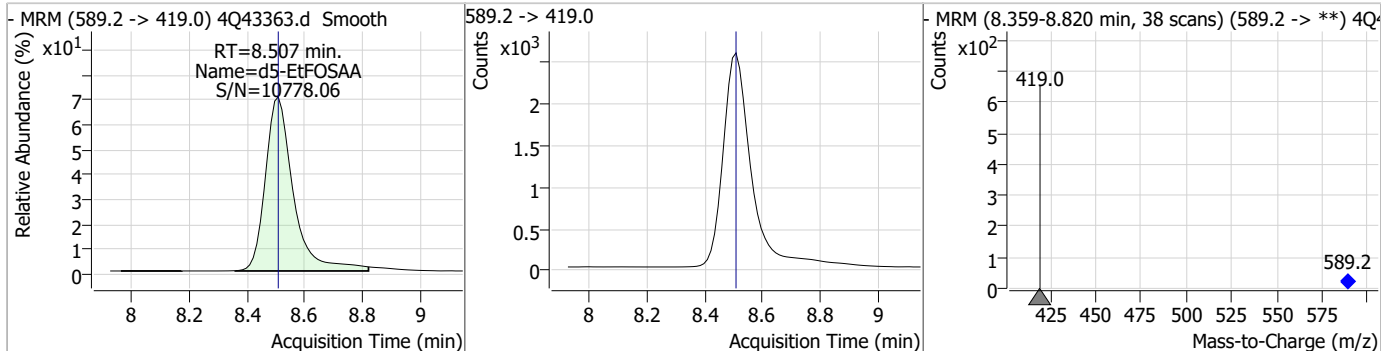


Perfluorinated Compounds by LC/MS/MS

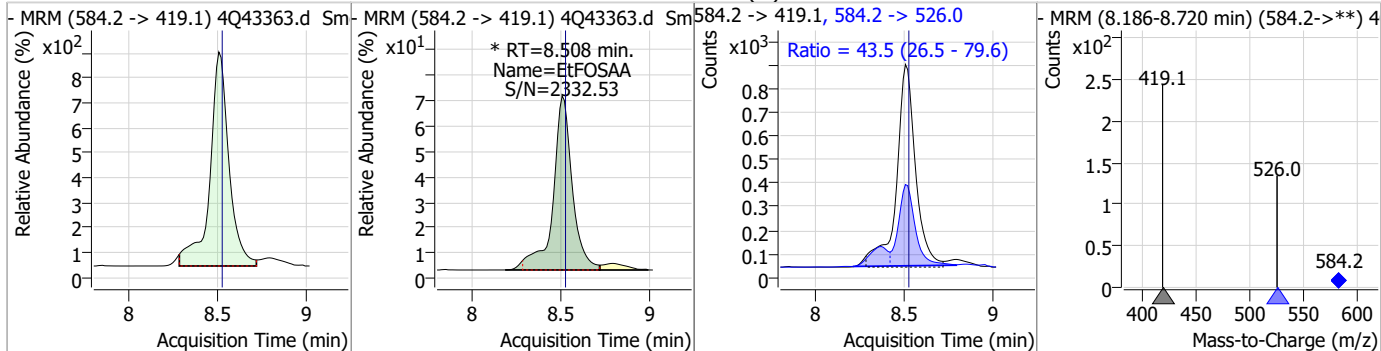
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.57	8.39	0.00	11301 (m)	498.9 -> 98.8	44.7	25.5	76.5



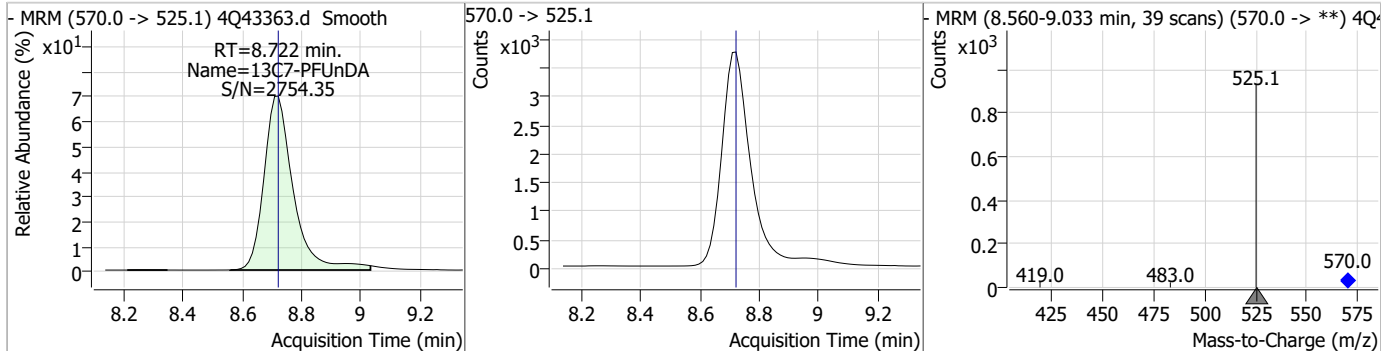
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.25	8.51	0.00	17243				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.66	8.51	-0.01	6540 (m)	584.2 -> 526.0	43.5	26.5	79.6

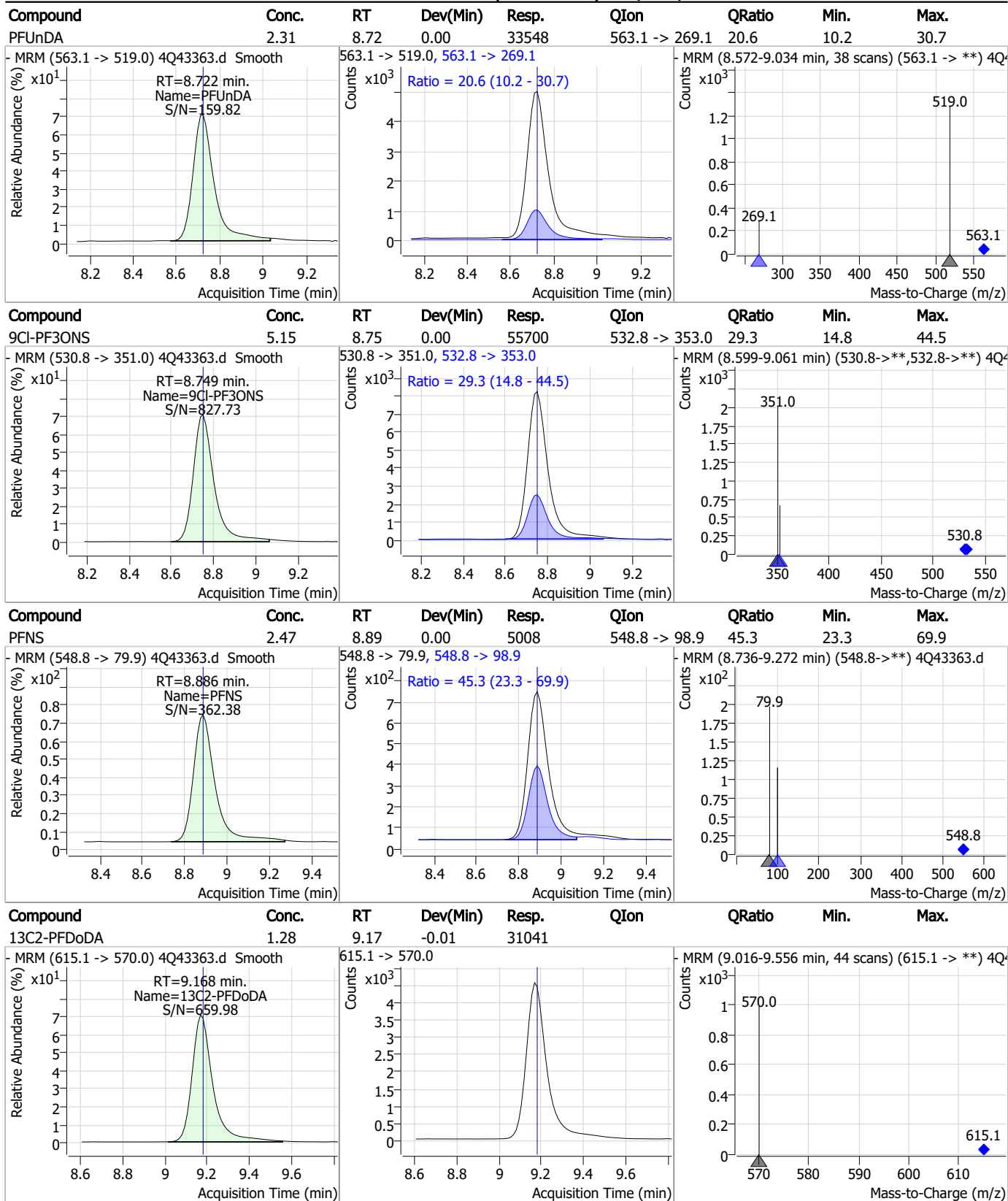


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.33	8.72	0.00	25697				



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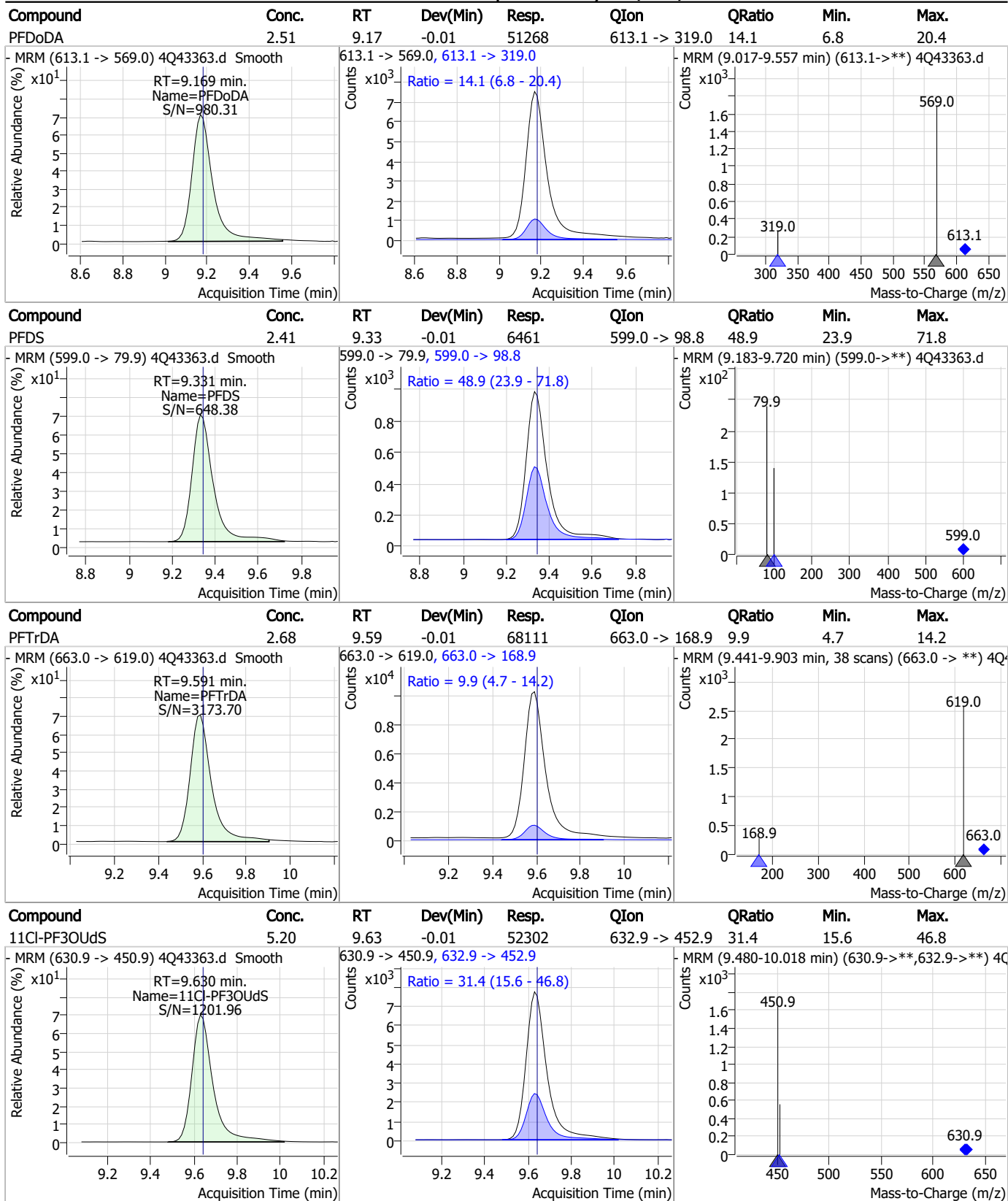
Perfluorinated Compounds by LC/MS/MS



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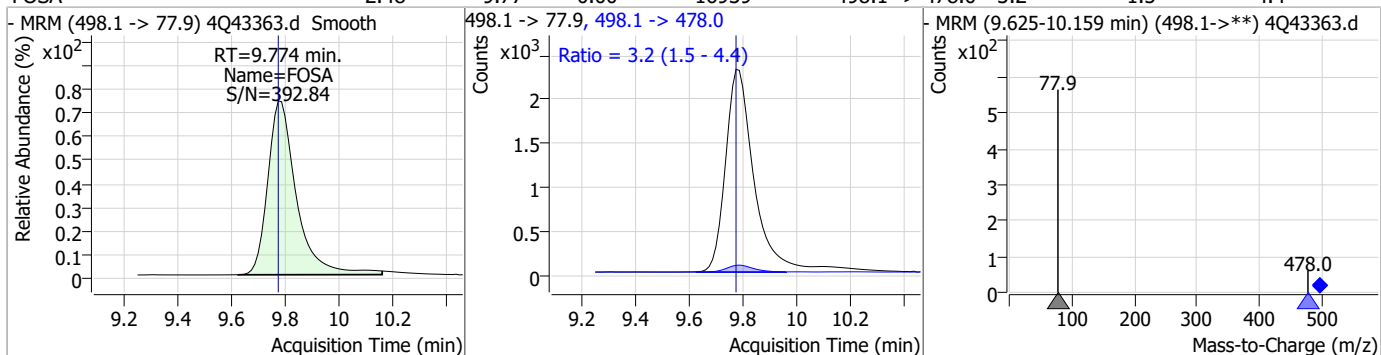
Perfluorinated Compounds by LC/MS/MS



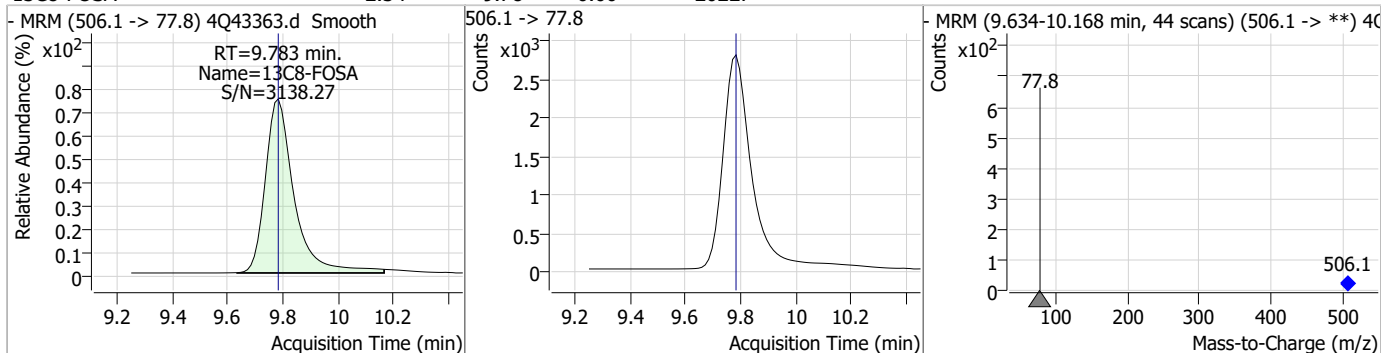
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Perfluorinated Compounds by LC/MS/MS

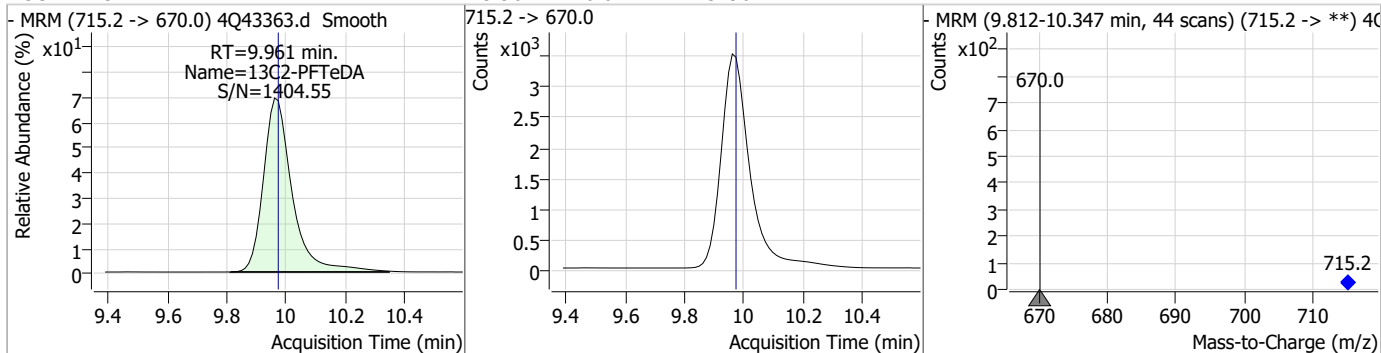
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.48	9.77	0.00	16939	498.1 -> 478.0	3.2	1.5	4.4



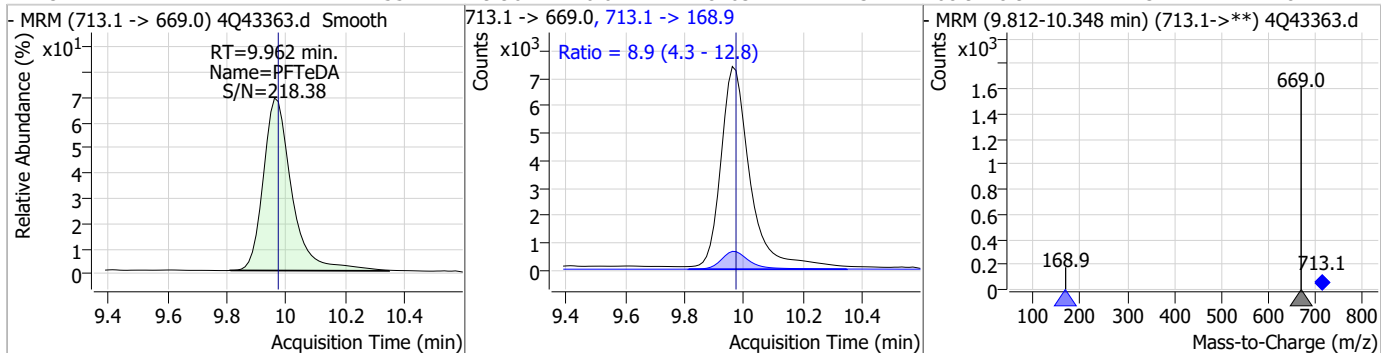
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.34	9.78	0.00	20227				



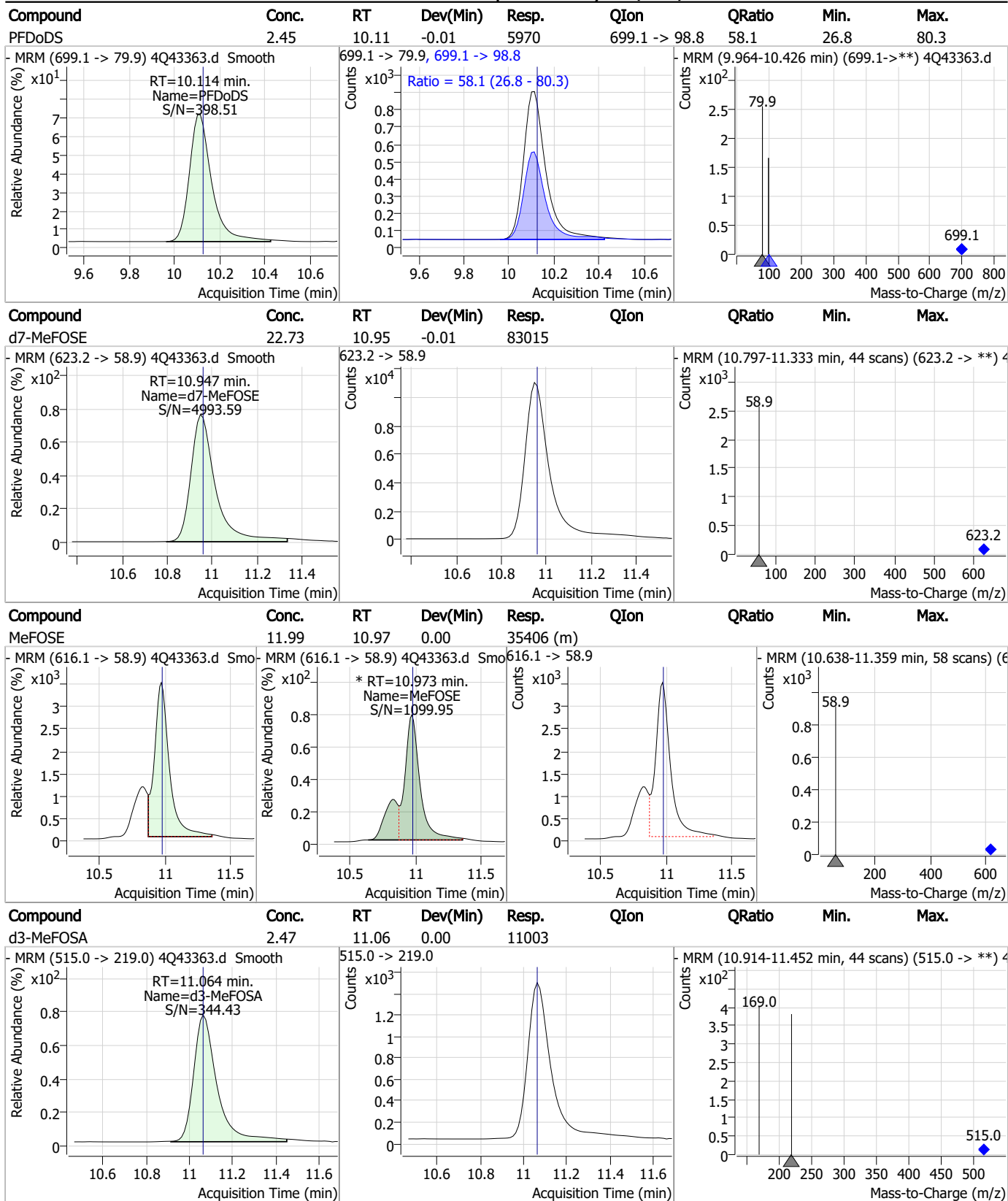
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	9.96	-0.01	23496				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.55	9.96	-0.01	48763	713.1 -> 168.9	8.9	4.3	12.8



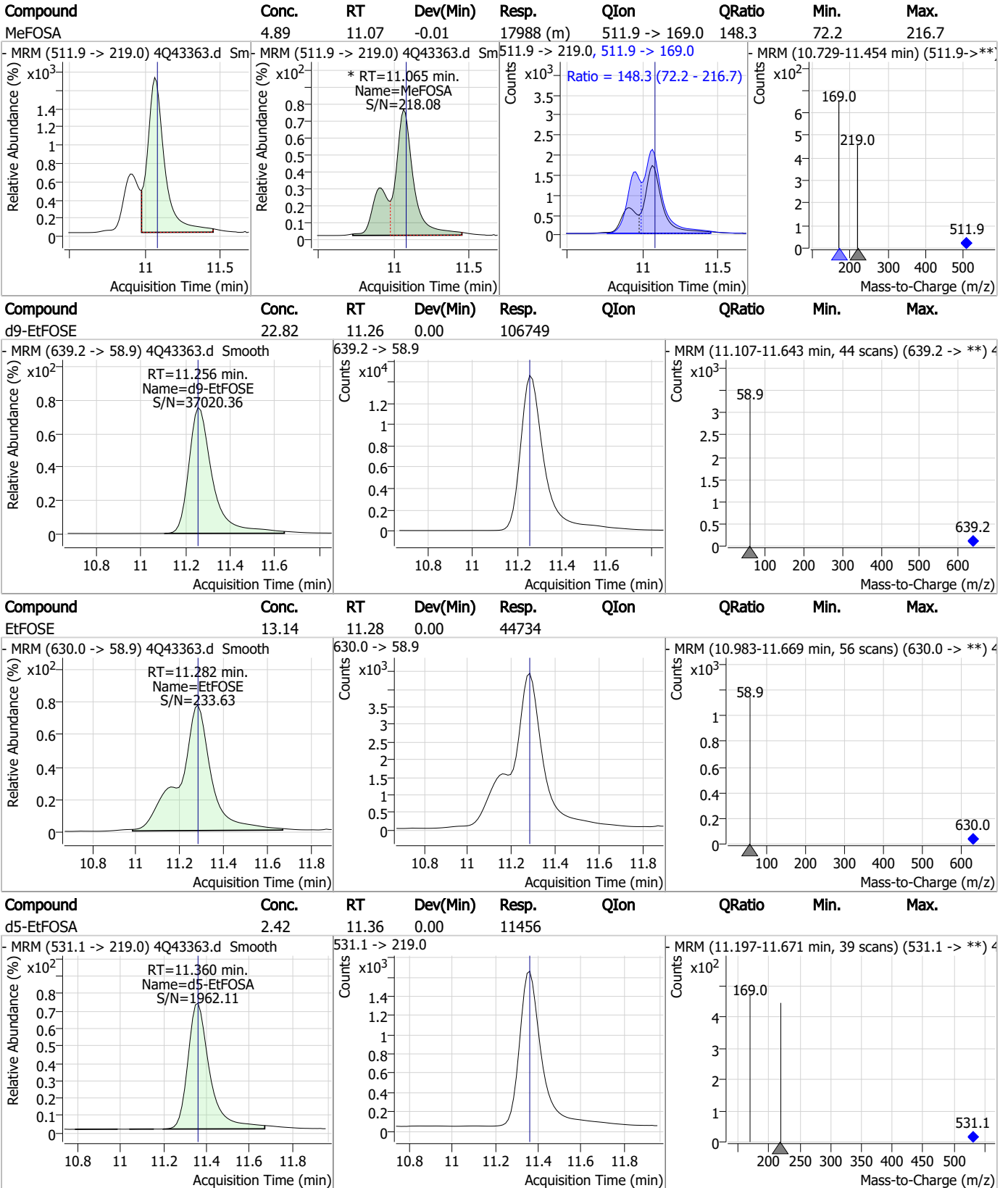
Perfluorinated Compounds by LC/MS/MS



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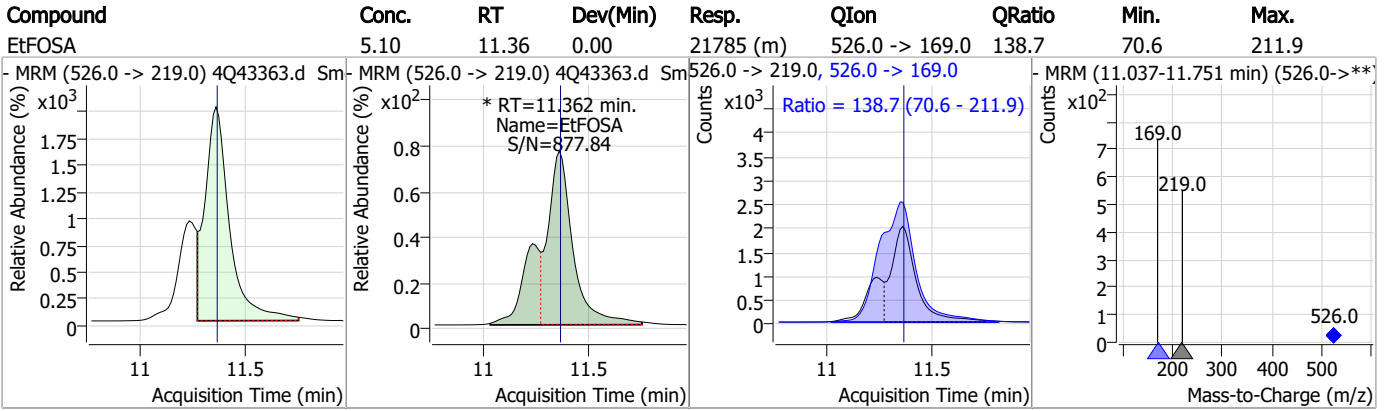


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q626-CC625 Method: EPA DRAFT 1633
Lab FileID: 4Q43363.D Analyst approved: 04/21/23 11:13 Natasha Gumtie
Injection Time: 04/21/23 00:29 Supervisor approved: 04/21/23 14:54 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.39	Split peak
EtFOSAA	2991-50-6		8.51	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.06	Split peak
EtFOSA	4151-50-2		11.36	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43364.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/21/2023 12:43:20 AM
 Sample Name : cc625-1.0LL
 Vial : P1-A2
 DA Method File : 1633_041923_S4Q625.quantmethod.xml
 Batch Name : s4q626.batch.bin
 Sample Information : OP96301,S4q626,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.949	216.8 -> 171.9	154790	10.00 µg/L	0.012
M5-PFPeA	4.424	268.3 -> 223.0	86388	5.00 µg/L	0.012
M5-PFHxA	5.584	318.0 -> 273.0	69708	2.50 µg/L	0.000
M4-PFHpA	6.517	367.1 -> 322.0	36767	2.50 µg/L	0.000
M8-PFOA	7.188	421.1 -> 376.0	51105	2.50 µg/L	0.000
M9-PFNA	7.733	472.1 -> 427.0	28962	1.25 µg/L	0.000
M6-PFDA	8.240	519.1 -> 474.1	26839	1.25 µg/L	0.000
M7-PFUnDA	8.722	570.0 -> 525.1	29003	1.25 µg/L	0.000
M2-PFDoDA	9.168	615.1 -> 570.0	36014	1.25 µg/L	-0.012
M2-PFTeDA	9.961	715.2 -> 670.0	26537	1.25 µg/L	-0.012
M8-FOSA	9.783	506.1 -> 77.8	23227	2.50 µg/L	0.000
M3-PFBS	5.502	302.1 -> 79.9	15027	2.50 µg/L	0.000
M3-PFHxS	7.279	402.1 -> 79.9	9005	2.50 µg/L	-0.012
M8-PFOS	8.392	507.1 -> 79.9	12659	2.50 µg/L	0.000
M2-4:2FTS	5.273	329.1 -> 80.9	2093	5.00 µg/L	0.000
M2-6:2FTS	6.948	429.1 -> 80.9	3284	5.00 µg/L	0.000
M2-8:2FTS	8.027	529.1 -> 80.9	5920	5.00 µg/L	0.000
M3-MeFOSAA	8.298	573.2 -> 419.0	24969	5.00 µg/L	0.000
M3-HFPO-DA	5.952	286.9 -> 168.9	40094	10.00 µg/L	0.000
M5-EtFOSAA	8.507	589.2 -> 419.0	20037	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	97057	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	127856	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	13352	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	12077	2.50 µg/L	0.000
13C4-PFOS	8.393	502.8 -> 79.9	13656	2.50 µg/L	-0.012
13C3-PFBA	2.953	216.0 -> 172.0	84105	5.00 µg/L	0.012
18O2-PFHxS	7.290	403.0 -> 83.9	6068	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	60688	2.50 µg/L	0.000
13C2-PFDA	8.241	515.1 -> 470.1	24529	1.25 µg/L	0.000
13C5-PFNA	7.734	468.0 -> 423.0	31268	1.25 µg/L	0.000
13C2-PFHxA	5.585	315.1 -> 270.0	59107	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.273	329.1 -> 80.9	2093	5.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.5%		
13C2-6:2FTS	6.948	429.1 -> 80.9	3284	5.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.1%		
13C2-8:2FTS	8.027	529.1 -> 80.9	5920	5.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.5%		
13C2-PFDoDA	9.168	615.1 -> 570.0	36014	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C2-PFTeDA	9.961	715.2 -> 670.0	26537	1.13 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.1%		
13C3-PFBS	5.502	302.1 -> 79.9	15027	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.0%		
13C3-PFHxS	7.279	402.1 -> 79.9	9005	2.60 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 = 104.0%	
13C4-PFBA	2.949	216.8 -> 171.9	154790	10.22 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C4-PFHpA	6.517	367.1 -> 322.0	36767	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFHxA	5.584	318.0 -> 273.0	69708	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFPeA	4.424	268.3 -> 223.0	86388	4.78 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C6-PFDA	8.240	519.1 -> 474.1	26839	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C7-PFUnDA	8.722	570.0 -> 525.1	29003	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C8-FOSA	9.783	506.1 -> 77.8	23227	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.8%	
13C8-PFOA	7.188	421.1 -> 376.0	51105	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C8-PFOS	8.392	507.1 -> 79.9	12659	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C9-PFNA	7.733	472.1 -> 427.0	28962	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.1%	
d3-MeFOSAA	8.298	573.2 -> 419.0	24969	5.57 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.4%	
13C3-HFPO-DA	5.952	286.9 -> 168.9	40094	8.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.4%	
d3-MeFOSA	11.064	515.0 -> 219.0	12077	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%	
d5-EtFOSAA	8.507	589.2 -> 419.0	20037	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.4%	
d7-MeFOSE	10.959	623.2 -> 58.9	97057	23.17 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.7%	
d9-EtFOSE	11.256	639.2 -> 58.9	127856	23.83 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
d5-EtFOSA	11.360	531.1 -> 219.0	13352	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
Target Compounds					QValue
4:2FTS	5.286	327.1 -> 307.0	1717	0.64 µg/L	95
		327.1 -> 80.9	714		
6:2FTS	6.949	427.1 -> 407.0	1649	0.66 µg/L	99
		427.1 -> 80.9	750		
8:2FTS	8.028	527.1 -> 507.0	1648	0.56 µg/L	100
		527.1 -> 80.8	676		
EtFOSAA	8.508	584.2 -> 419.1	550	0.19 µg/L	m 77
		584.2 -> 526.0	202		
FOSA	9.774	498.1 -> 77.9	1227	0.16 µg/L	97
		498.1 -> 478.0	23		
MeFOSAA	8.299	570.1 -> 419.0	502	0.14 µg/L	m 89
		570.1 -> 483.0	89		
PFBA	2.945	212.8 -> 168.9	2264	0.63 µg/L	100
PFBS	5.503	298.7 -> 79.9	948	0.16 µg/L	96
		298.7 -> 98.8	404		
PFDA	8.241	512.9 -> 469.0	2923	0.18 µg/L	87
		512.9 -> 219.0	411		
PFDODA	9.169	613.1 -> 569.0	3703	0.16 µg/L	99
		613.1 -> 319.0	484		
PFDS	9.331	599.0 -> 79.9	576	0.19 µg/L	87

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.517	599.0 -> 98.8	225	0.17	µg/L	95
		363.1 -> 319.0	3195			
PFHpS	7.873	363.1 -> 169.0	492	0.18	µg/L	91
		449.0 -> 79.9	644			
PFHxA	5.587	449.0 -> 98.9	302	0.16	µg/L	98
		313.0 -> 269.0	3515			
PFHxS	7.280	313.0 -> 118.9	130	0.15	µg/L	m
		398.7 -> 79.9	502			
PFNA	7.734	398.7 -> 98.9	208	0.15	µg/L	98
		463.0 -> 419.0	2525			
PFNS	8.886	463.0 -> 219.0	623	0.18	µg/L	89
		548.8 -> 79.9	400			
PFOA	7.189	548.8 -> 98.9	157	0.16	µg/L	99
		413.0 -> 369.0	3688			
PFOS	8.394	413.0 -> 169.0	785	0.16	µg/L	m
		498.9 -> 79.9	784			
PFPeA	4.427	498.9 -> 98.8	393	0.34	µg/L	100
		263.0 -> 219.0	5792			
PFPeS	6.557	349.1 -> 79.9	451	0.16	µg/L	99
		349.1 -> 98.9	205			
PFTeDA	9.962	713.1 -> 669.0	4319	0.20	µg/L	96
		713.1 -> 168.9	306			
PFTrDA	9.591	663.0 -> 619.0	4840	0.16	µg/L	100
		663.0 -> 168.9	461			
PFUnDA	8.710	563.1 -> 519.0	3207	0.20	µg/L	91
		563.1 -> 269.1	528			
11CI-PF3OUdS	9.630	630.9 -> 450.9	3871	0.34	µg/L	99
		632.9 -> 452.9	1185			
9CI-PF3ONS	8.749	530.8 -> 351.0	4143	0.33	µg/L	90
		532.8 -> 353.0	1010			
ADONA	6.781	376.9 -> 250.9	9530	0.33	µg/L	96
		376.9 -> 84.8	2665			
HFPO-DA	5.953	284.9 -> 168.9	1055	0.33	µg/L	97
		284.9 -> 184.9	130			
3:3FTCA	3.879	241.0 -> 177.0	622	0.76	µg/L	92
		241.0 -> 117.0	39			
5:3FTCA	6.244	341.0 -> 237.1	12317	3.76	µg/L	99
		341.0 -> 217.0	8689			
7:3FTCA	7.686	441.0 -> 316.9	6231	3.90	µg/L	91
		441.0 -> 336.9	12970			
EtFOSA	11.362	526.0 -> 219.0	1651	0.33	µg/L	m
		526.0 -> 169.0	2290			
EtFOSE	11.282	630.0 -> 58.9	3445	0.85	µg/L	100
		511.9 -> 219.0	1428			
MeFOSA	11.065	511.9 -> 169.0	1928	0.35	µg/L	m
		616.1 -> 58.9	2530			
MeFOSE	10.973	699.1 -> 79.9	430	0.73	µg/L	m
		699.1 -> 98.8	246			
PFDoDS	10.114	295.0 -> 201.0	468	0.39	µg/L	96
		295.0 -> 84.9	122			
NFDHA	5.479	279.0 -> 85.1	3193	0.32	µg/L	100
		229.0 -> 84.9	2893			
PFMBA	3.565	314.8 -> 134.9	4894	0.33	µg/L	100
		314.8 -> 82.9	159			
PFEESA	6.034			0.27	µg/L	99

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

7.7.31
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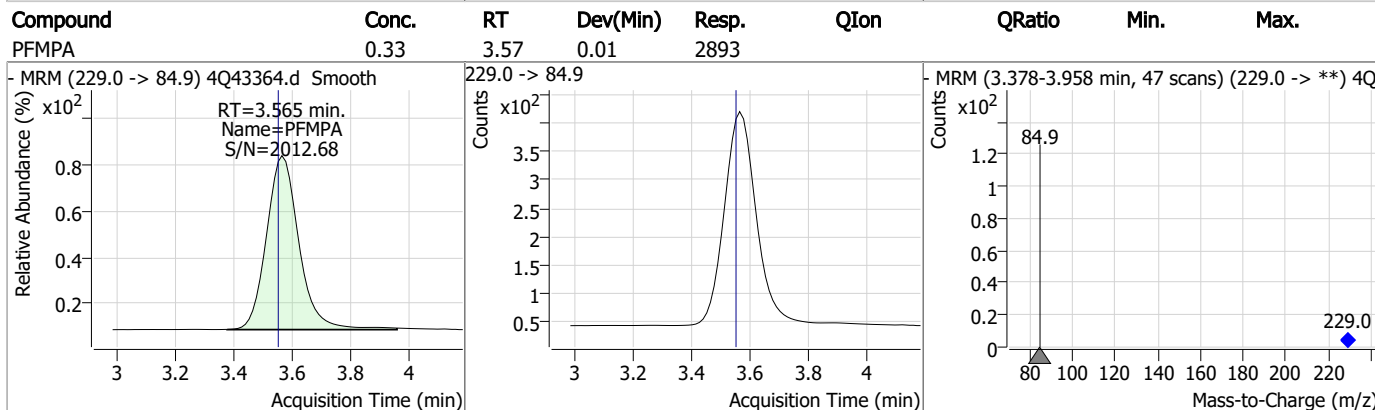
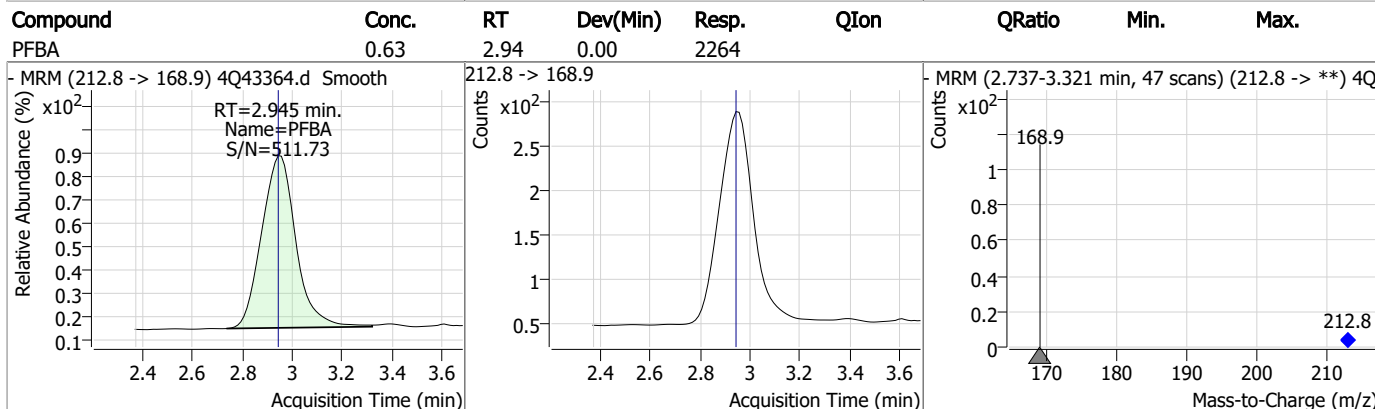
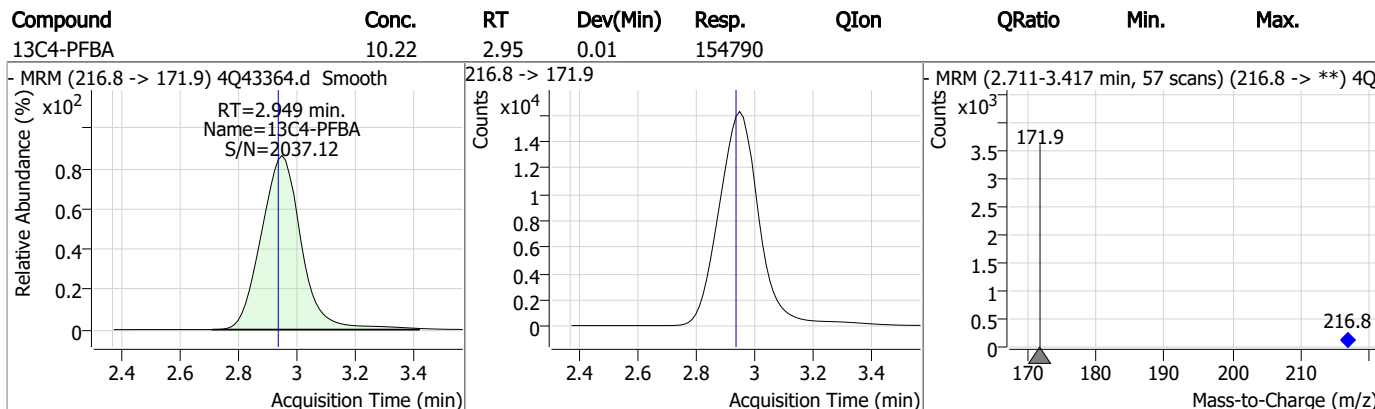
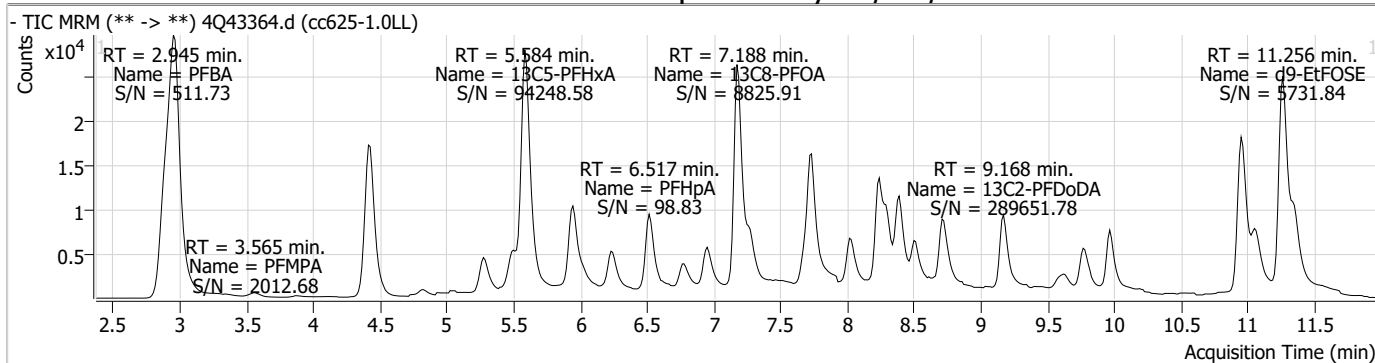
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.31

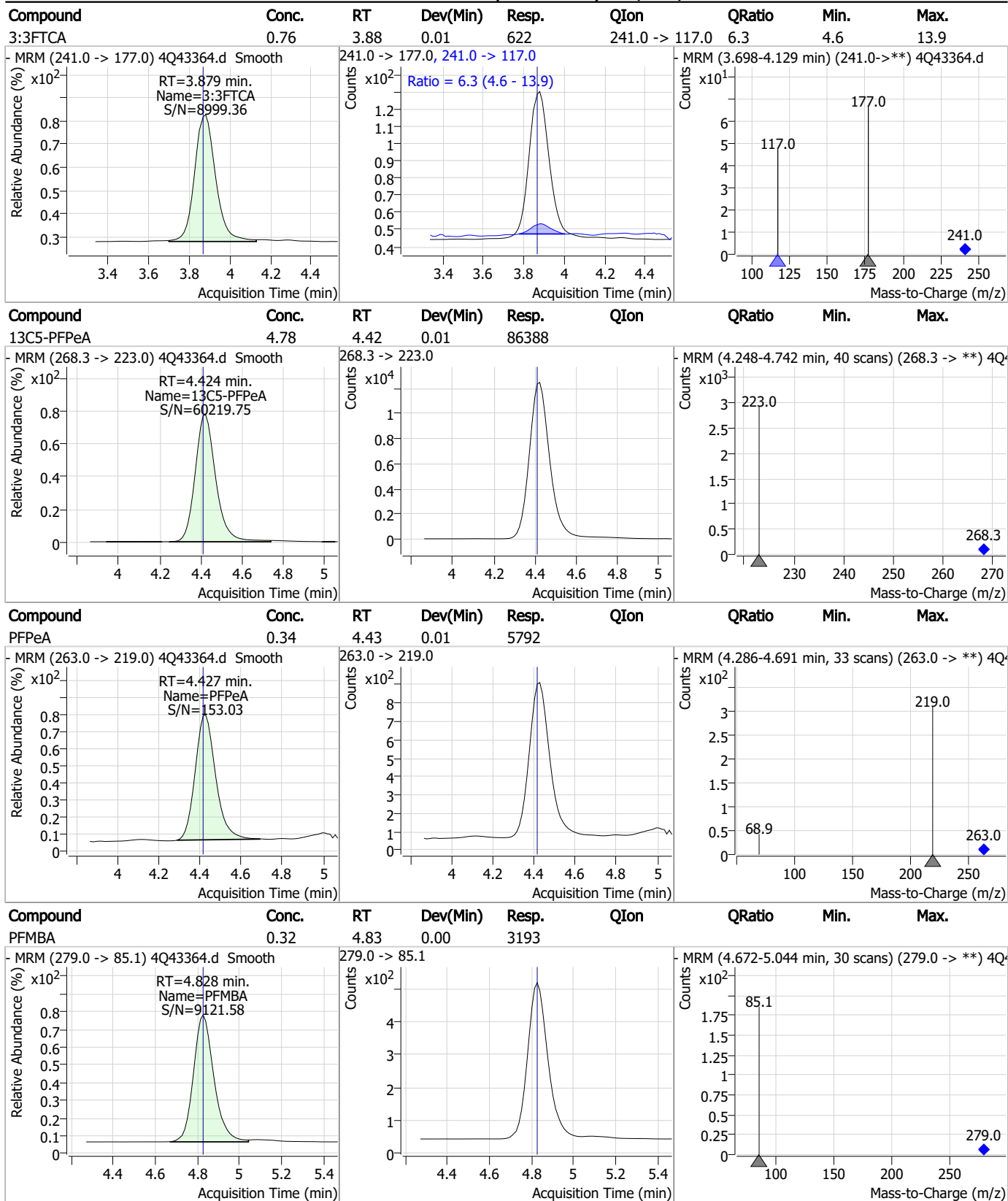
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Perfluorinated Compounds by LC/MS/MS



7.7.31
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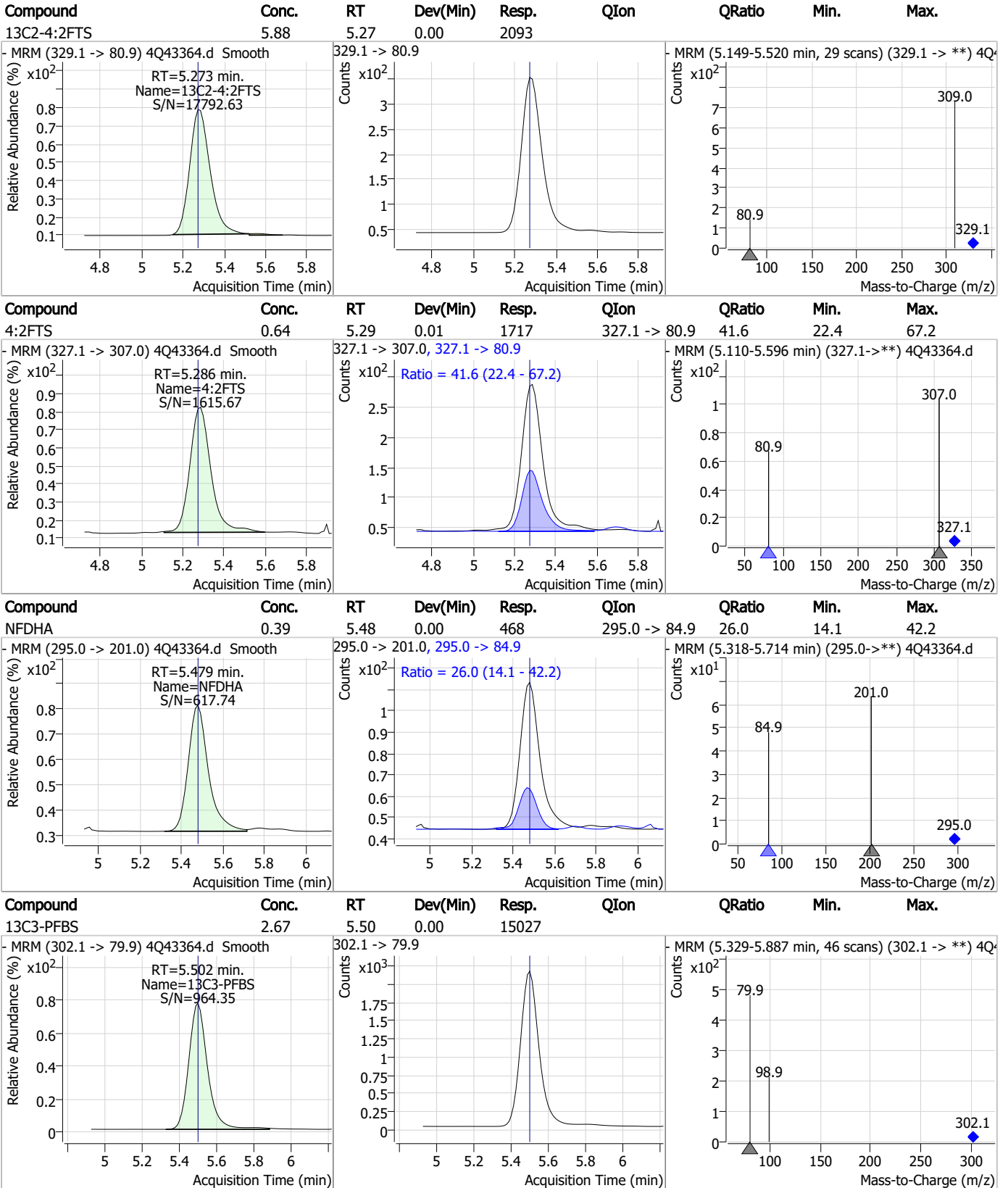
Perfluorinated Compounds by LC/MS/MS



7.7.31

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Perfluorinated Compounds by LC/MS/MS



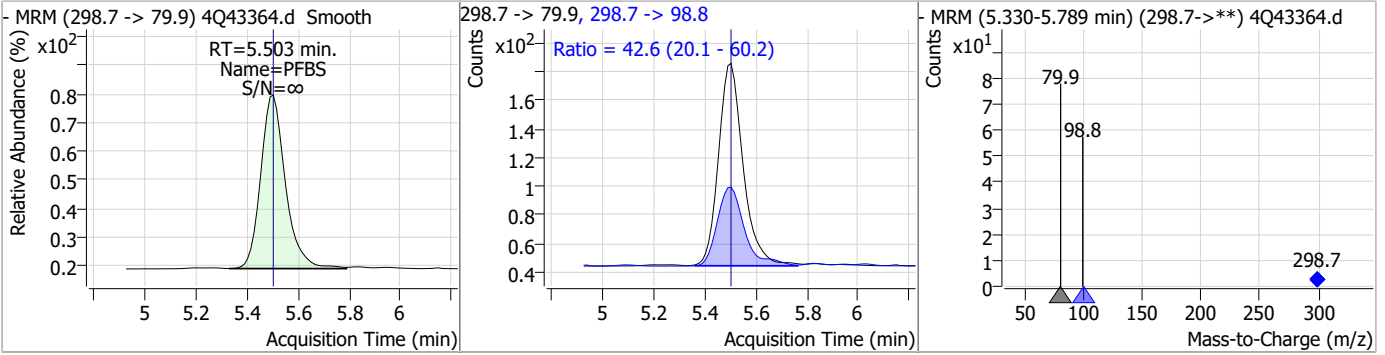
7.7.31

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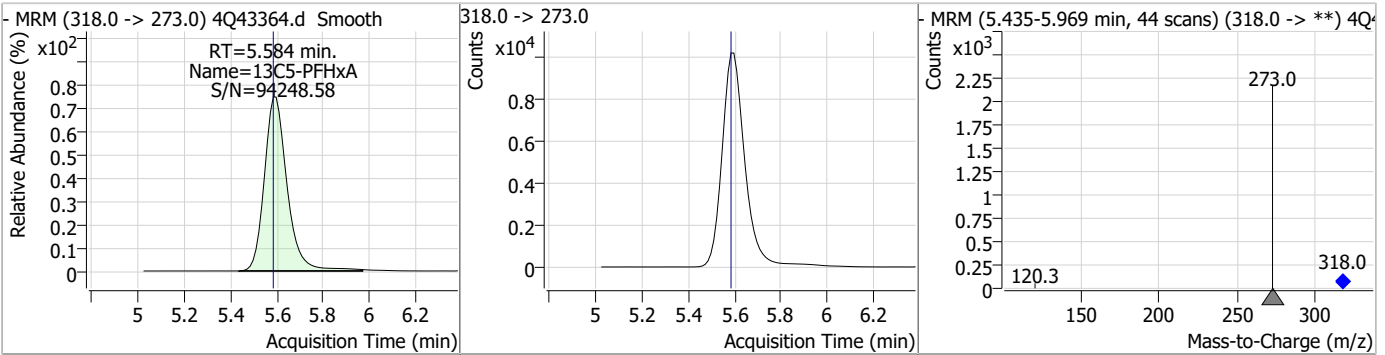


Perfluorinated Compounds by LC/MS/MS

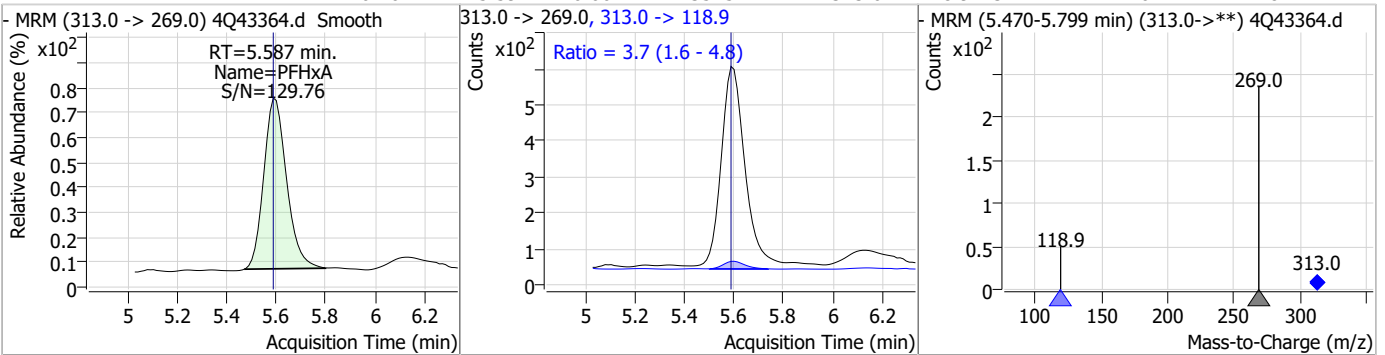
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.16	5.50	0.00	948	298.7 -> 98.8	42.6	20.1	60.2



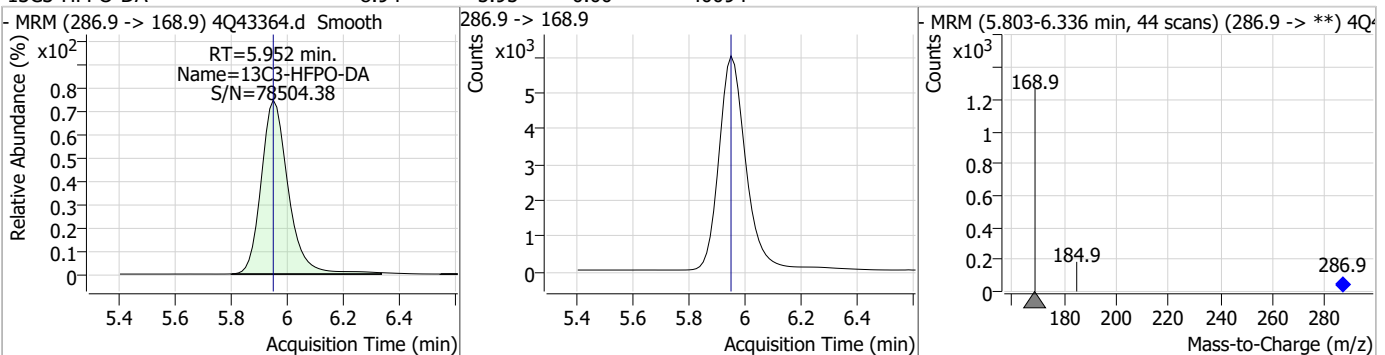
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.58	0.00	69708				



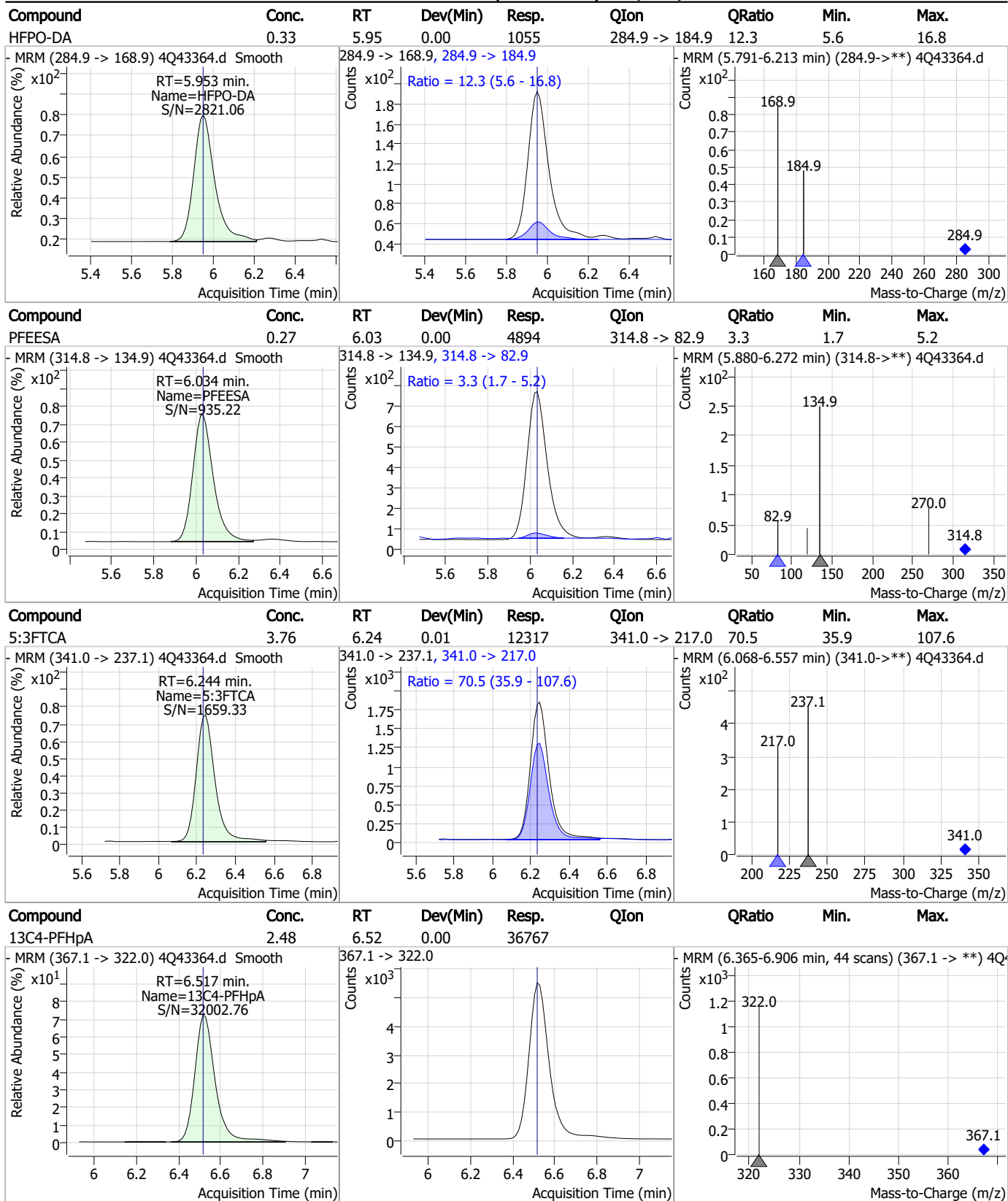
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.16	5.59	0.00	3515	313.0 -> 118.9	3.7	1.6	4.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.94	5.95	0.00	40094				

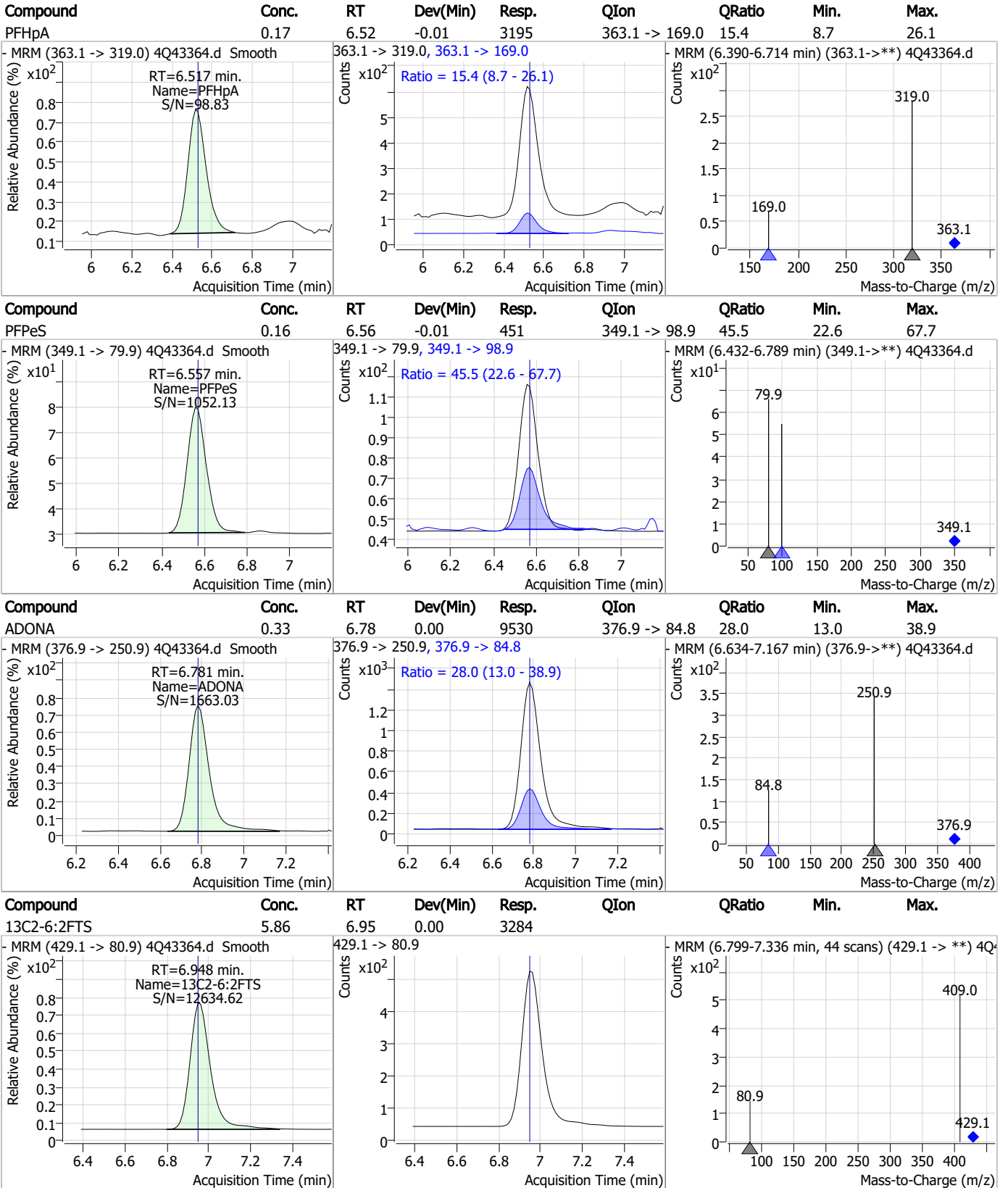


Perfluorinated Compounds by LC/MS/MS



7.7.31
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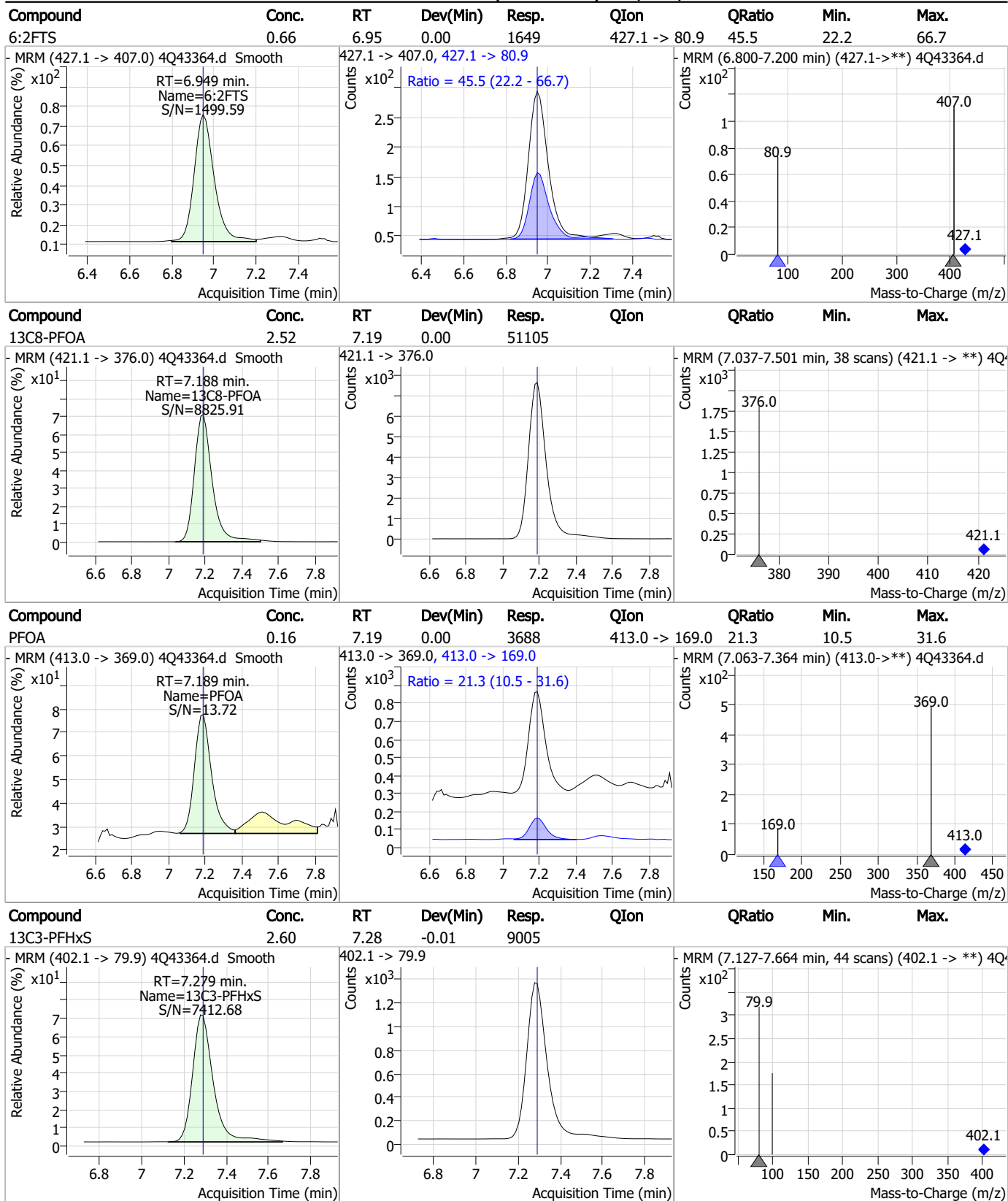
Perfluorinated Compounds by LC/MS/MS



7.7.31
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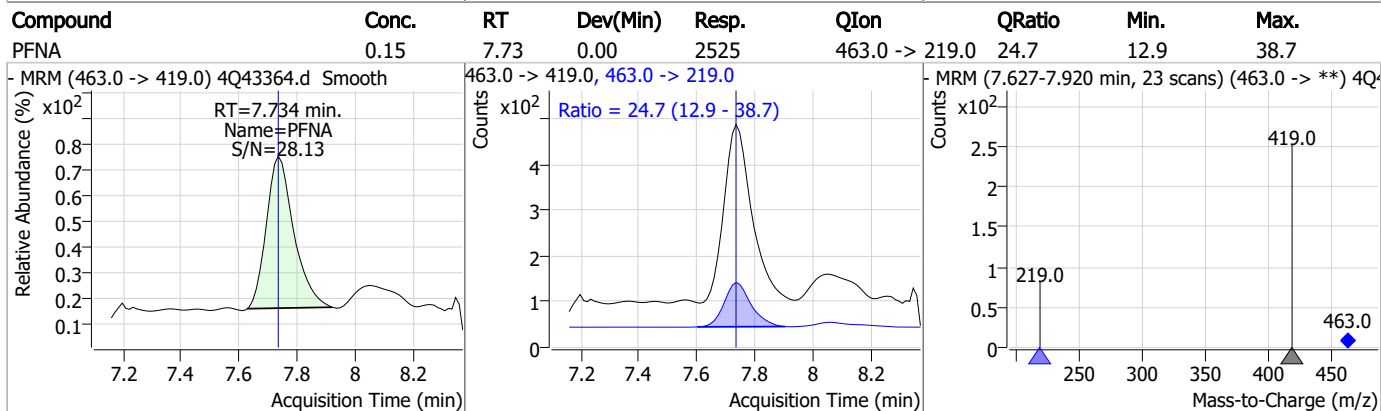
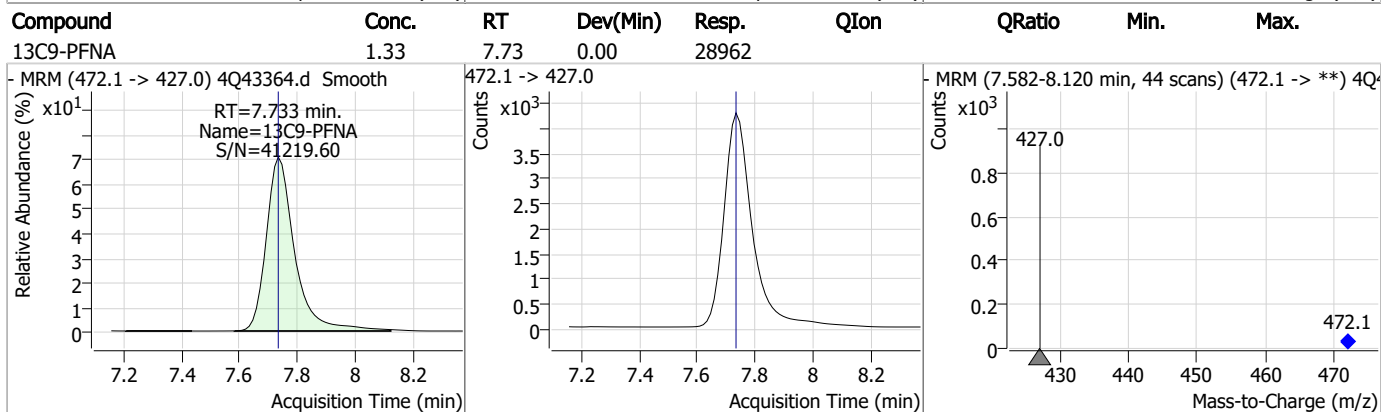
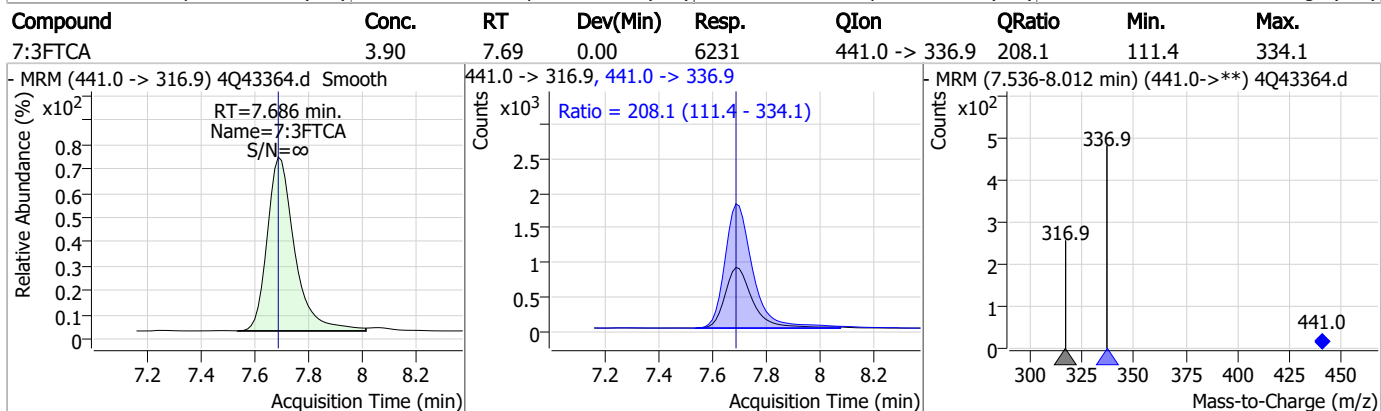
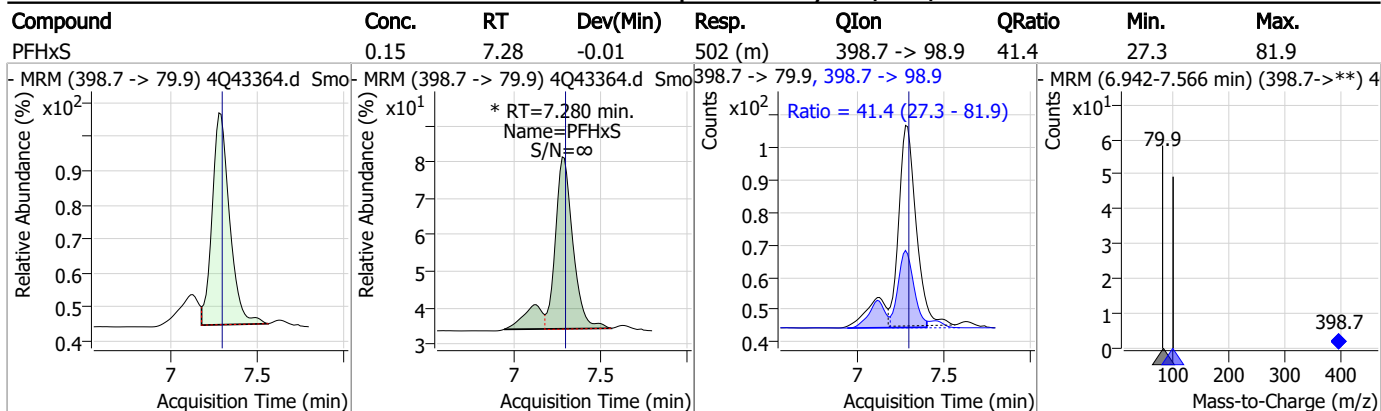
Perfluorinated Compounds by LC/MS/MS



7.7.31
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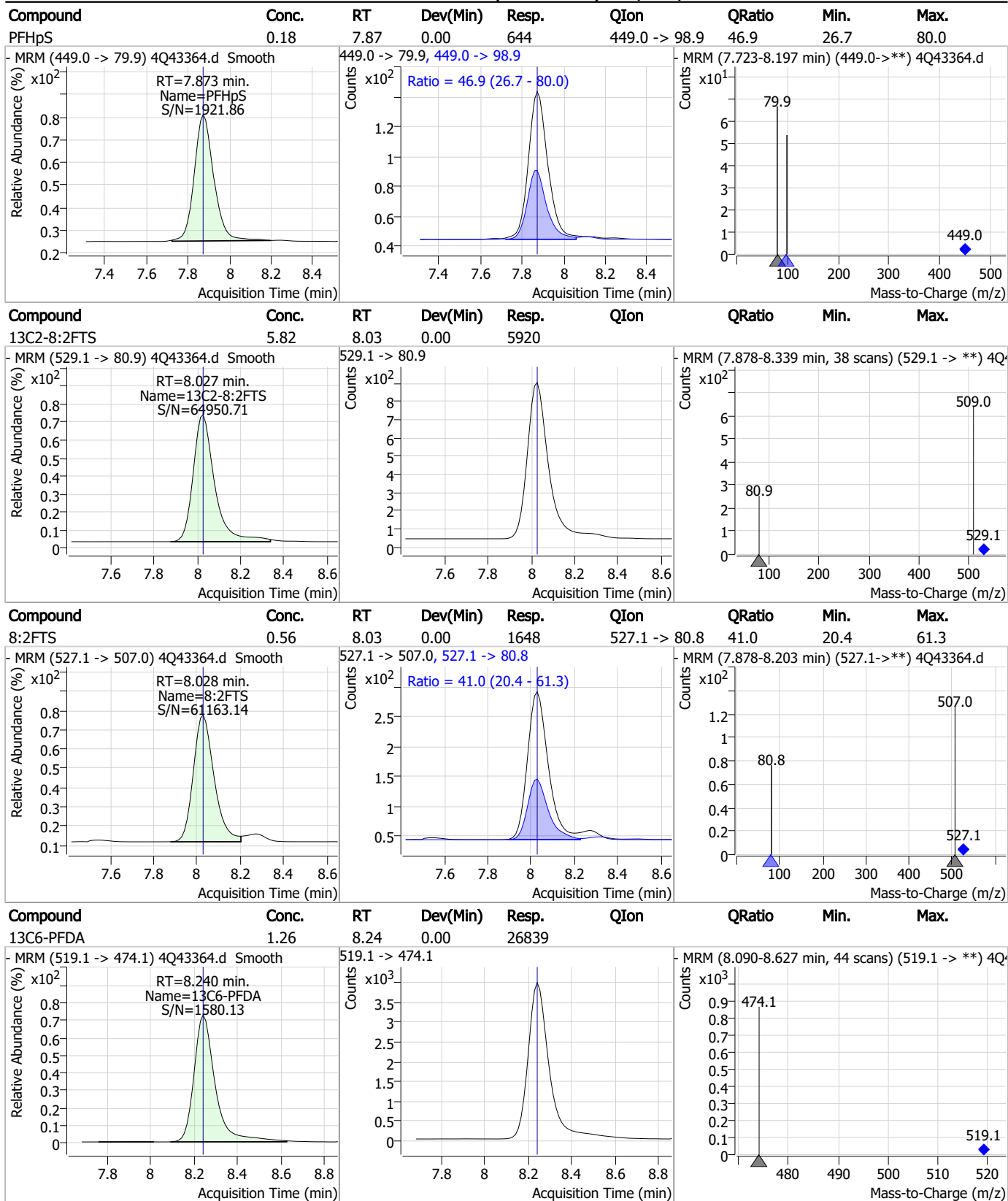


Perfluorinated Compounds by LC/MS/MS



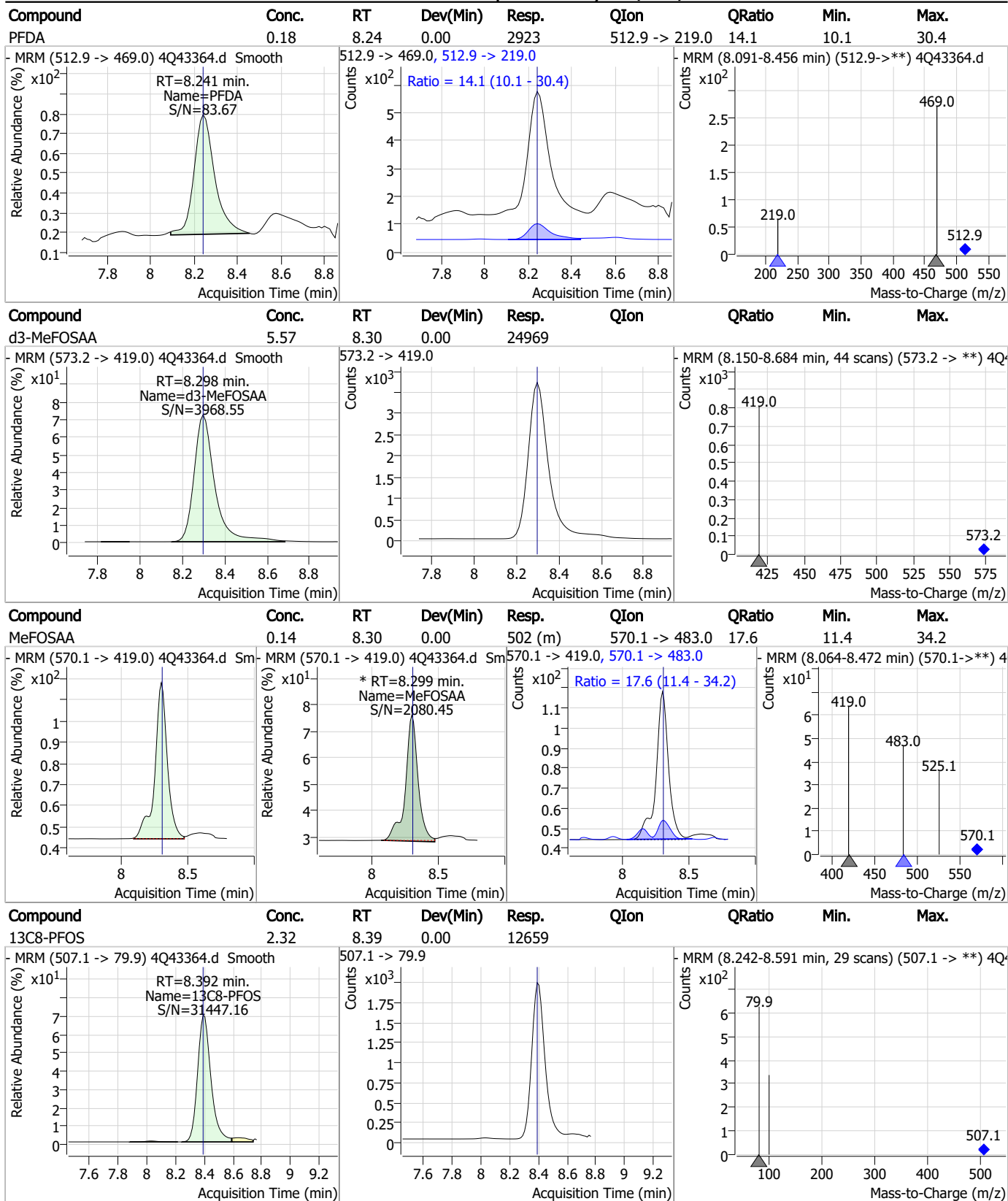
7.7.31
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Perfluorinated Compounds by LC/MS/MS



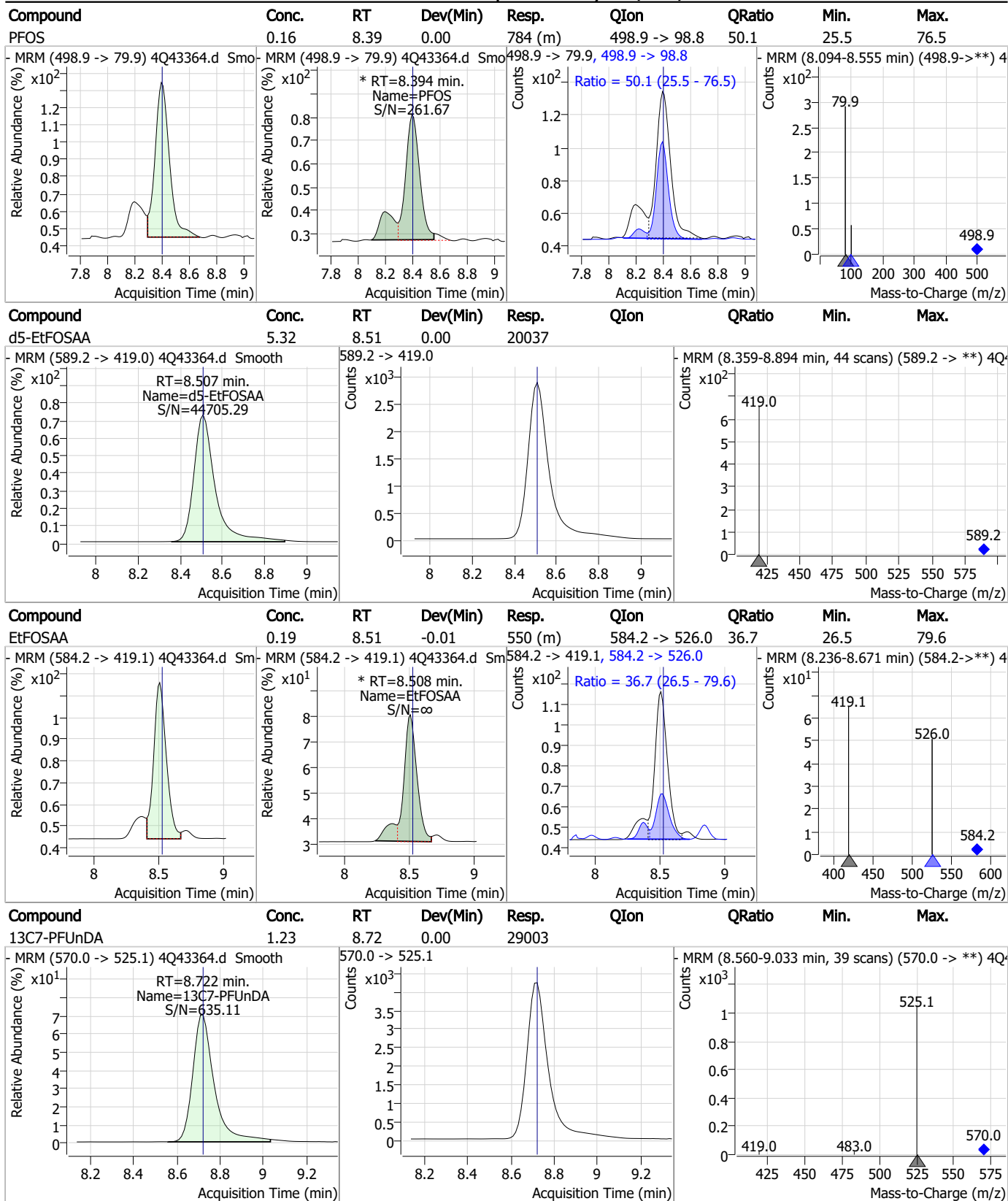
7.7.31
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Perfluorinated Compounds by LC/MS/MS



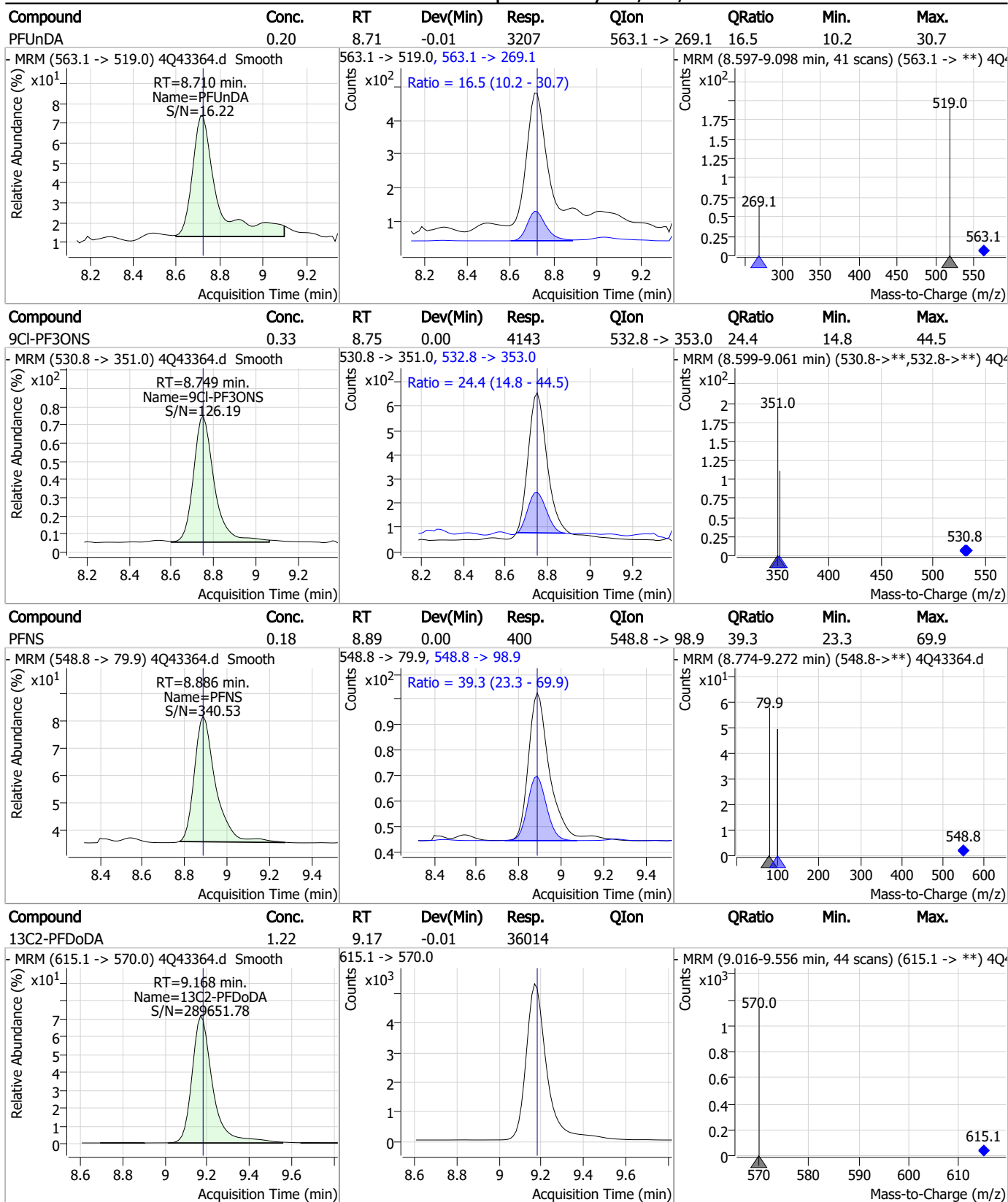
7.7.31
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Perfluorinated Compounds by LC/MS/MS



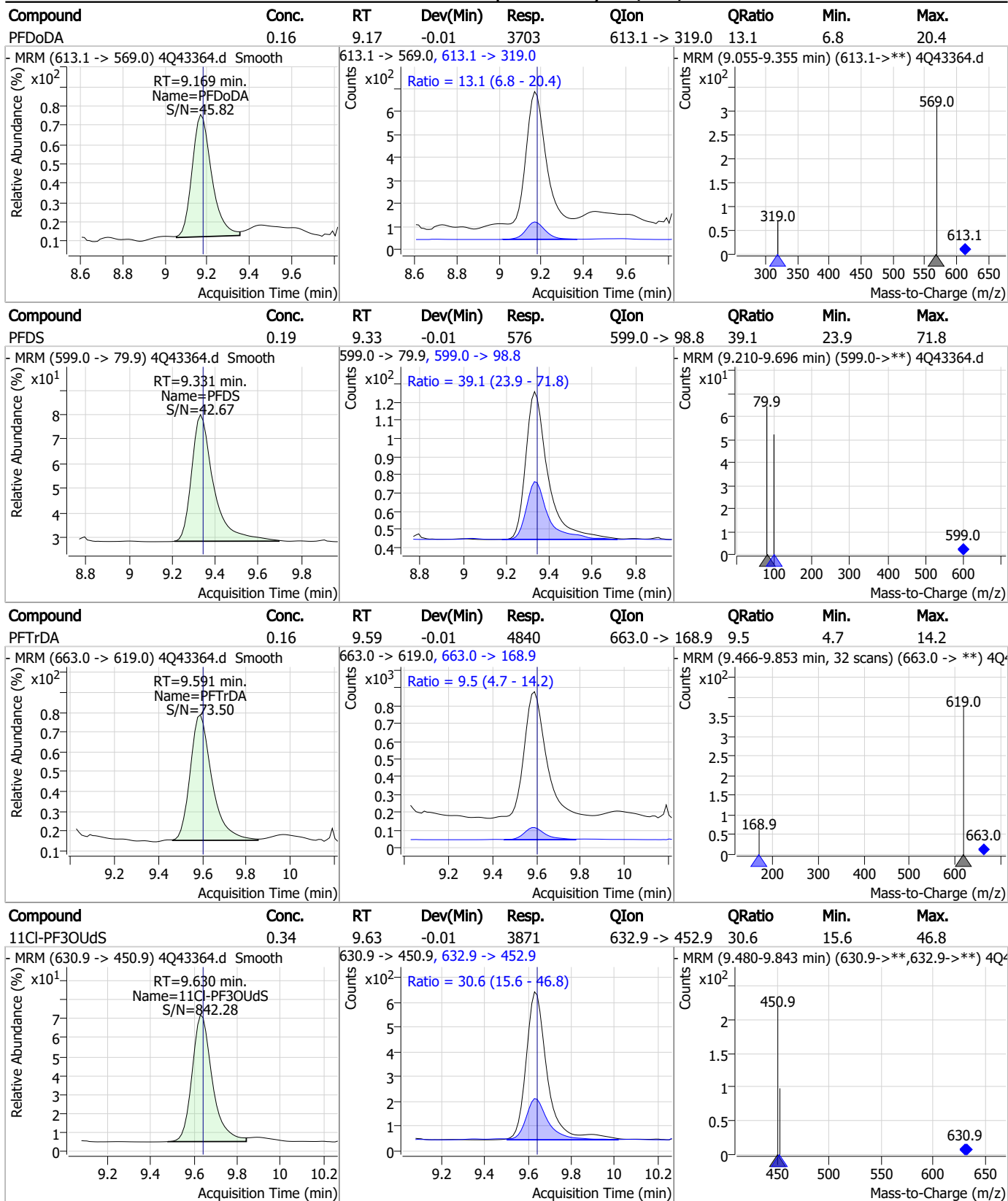
7.7.31
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Perfluorinated Compounds by LC/MS/MS



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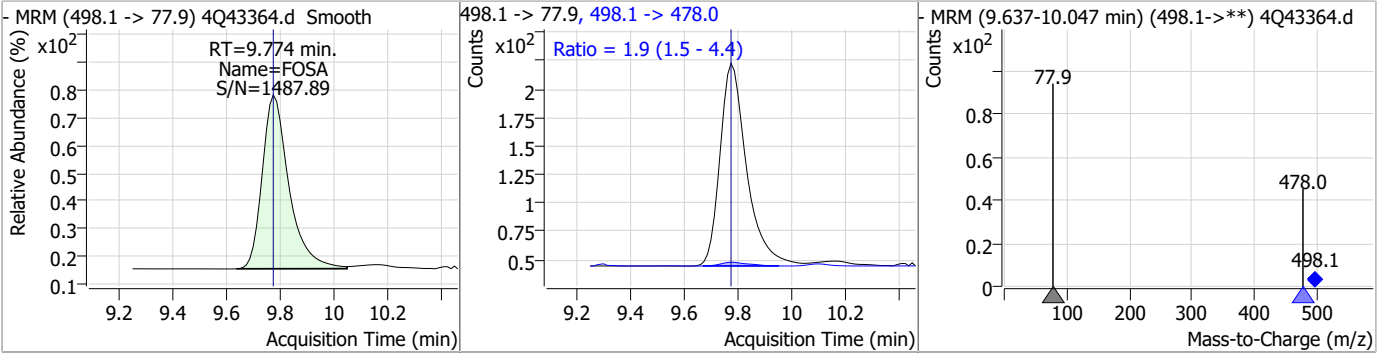
Perfluorinated Compounds by LC/MS/MS



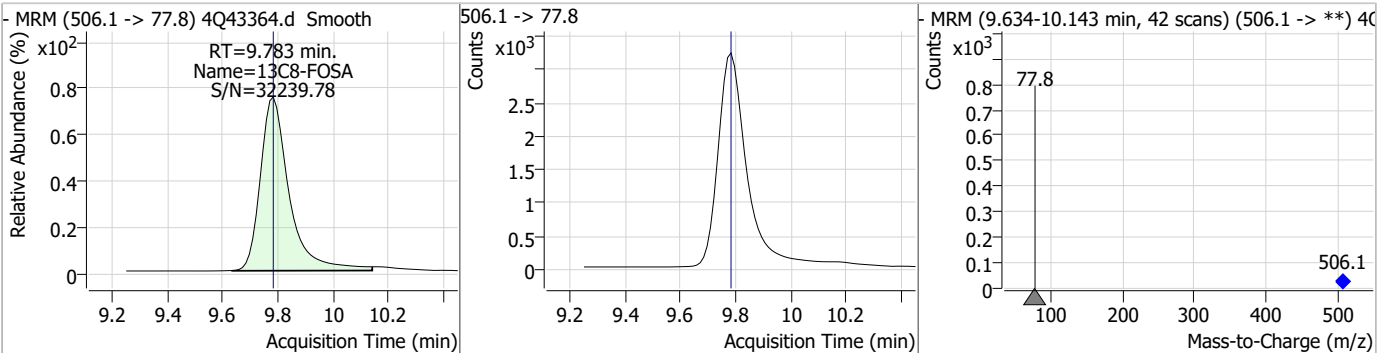
7.7.31
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Perfluorinated Compounds by LC/MS/MS

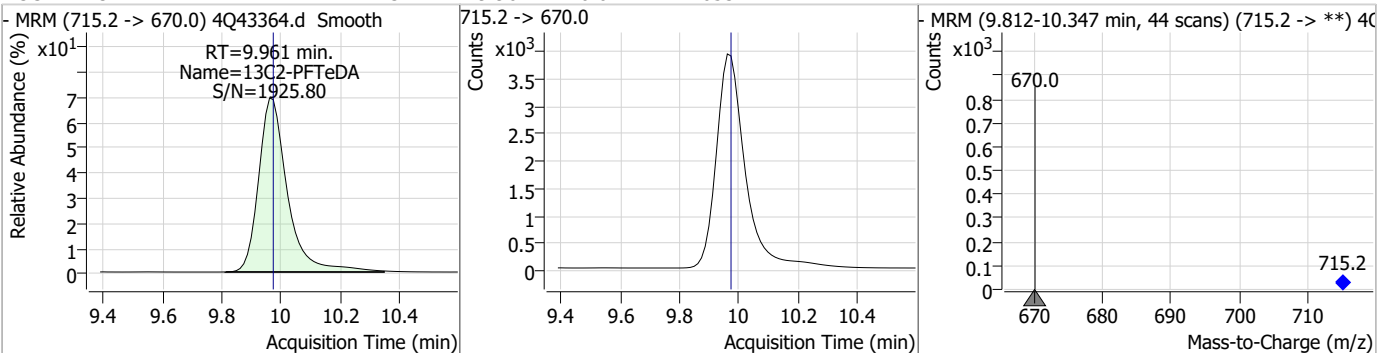
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.16	9.77	0.00	1227	498.1 -> 478.0	1.9	1.5	4.4



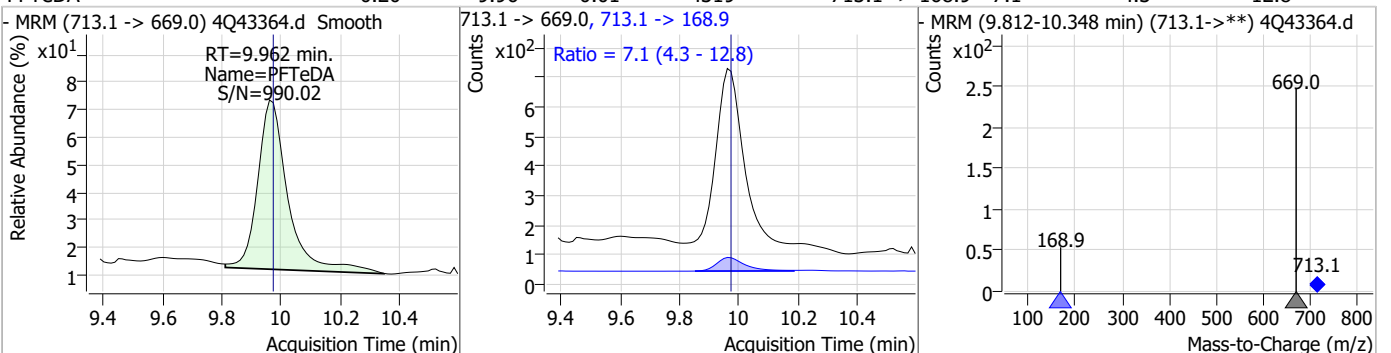
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.35	9.78	0.00	23227				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.13	9.96	-0.01	26537				

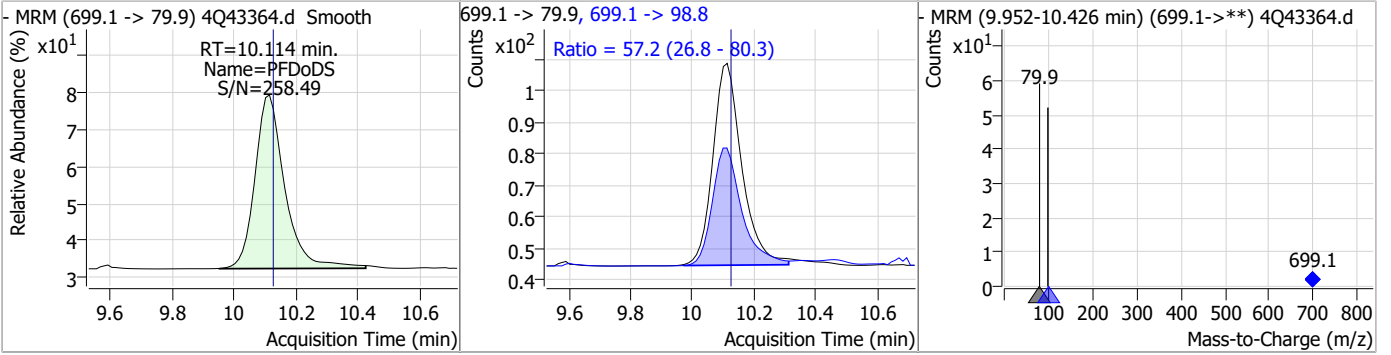


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.20	9.96	-0.01	4319	713.1 -> 168.9	7.1	4.3	12.8

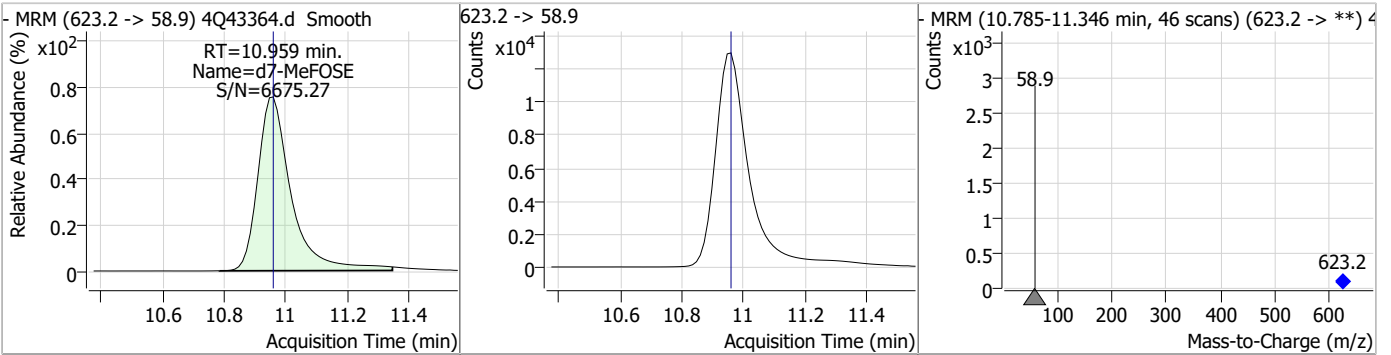


Perfluorinated Compounds by LC/MS/MS

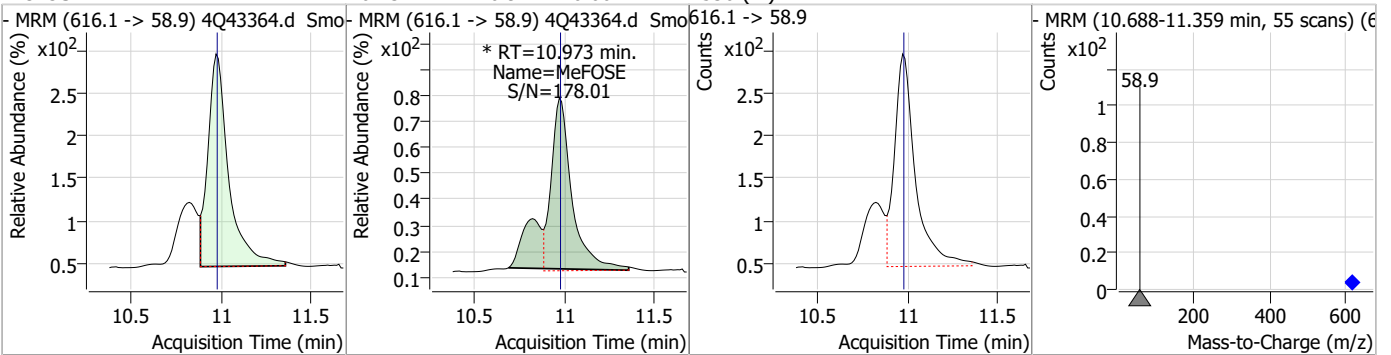
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.16	10.11	-0.01	430	699.1 -> 98.8	57.2	26.8	80.3



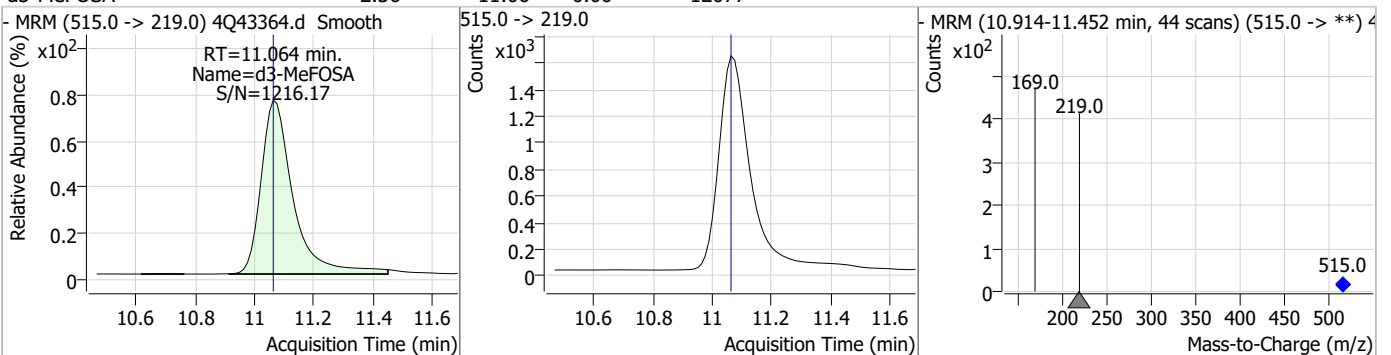
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.17	10.96	0.00	97057				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.73	10.97	0.00	2530 (m)				

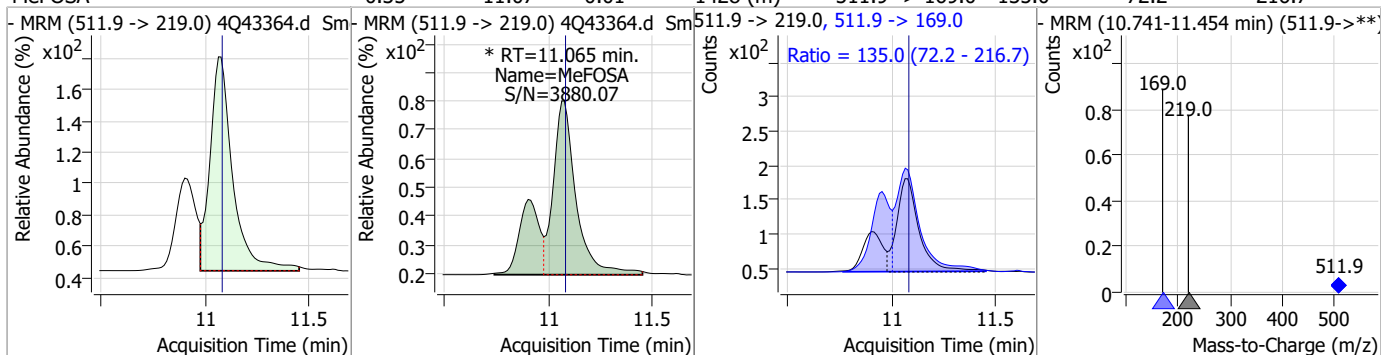


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.36	11.06	0.00	12077				

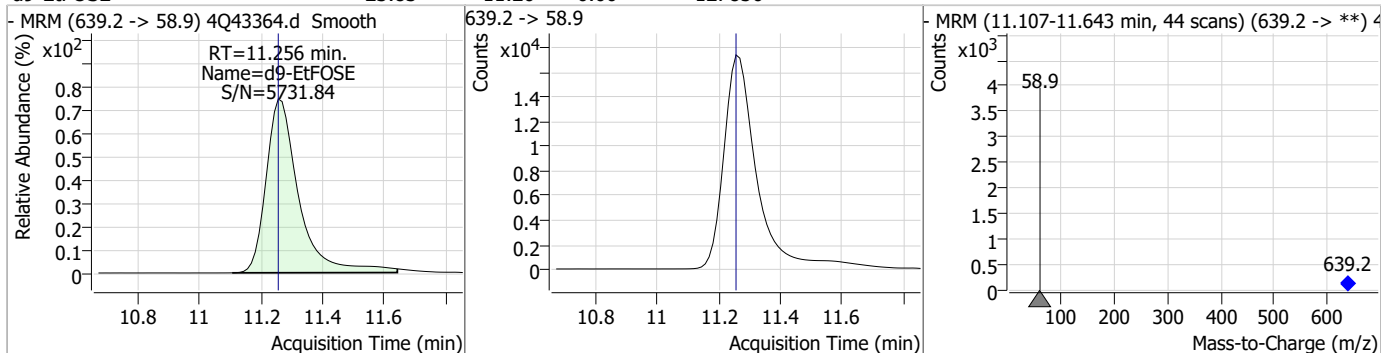


Perfluorinated Compounds by LC/MS/MS

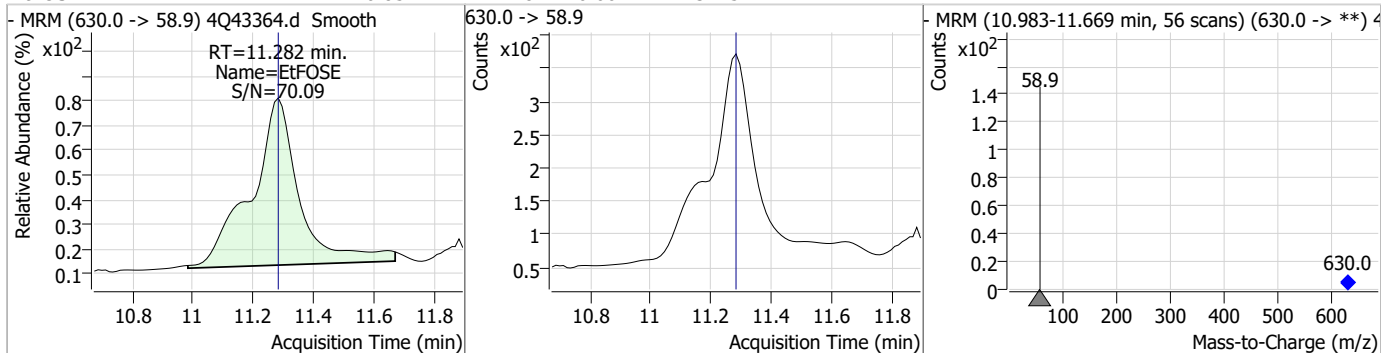
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.35	11.07	-0.01	1428 (m)	511.9 -> 169.0	135.0	72.2	216.7



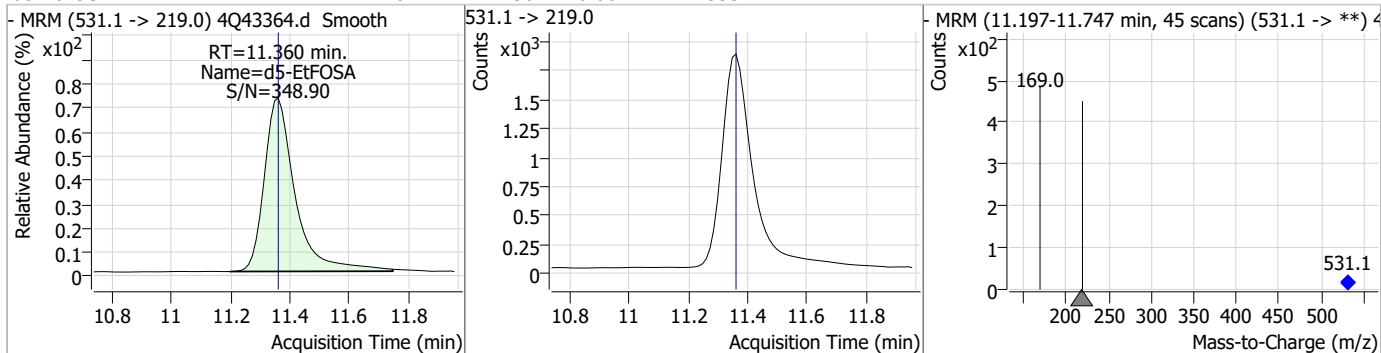
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.83	11.26	0.00	127856				



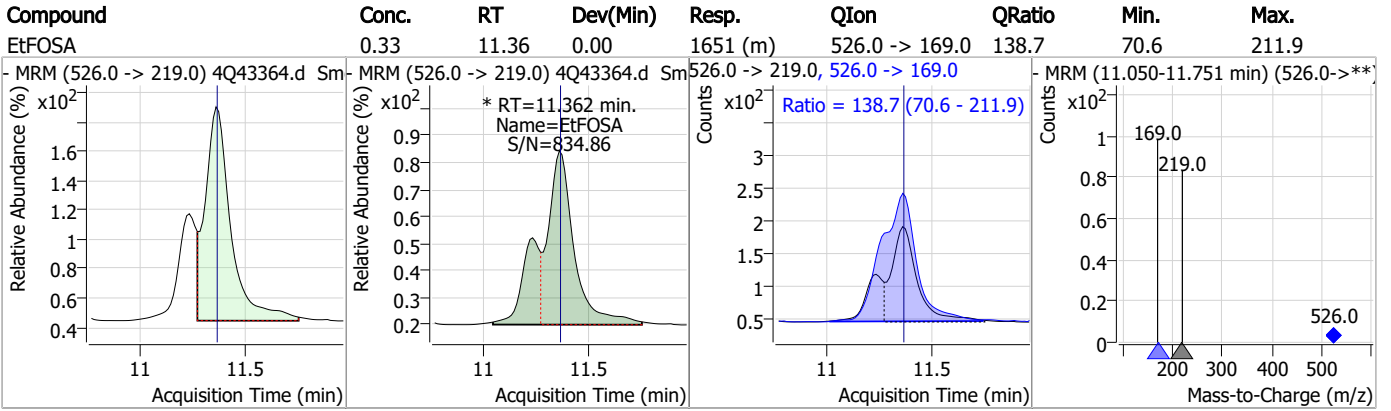
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.85	11.28	0.00	3445				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.46	11.36	0.00	13352				



Perfluorinated Compounds by LC/MS/MS



7.7.31

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Manual Integration Approval Summary

Sample Number: S4Q626-CC625 Method: EPA DRAFT 1633
Lab FileID: 4Q43364.D Analyst approved: 04/21/23 11:13 Natasha Gumtie
Injection Time: 04/21/23 00:43 Supervisor approved: 04/21/23 14:54 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.39	Split peak
EtFOSAA	2991-50-6		8.51	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.06	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.7.31.1
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SGS ORLANDO

DATE:	04/14/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	ID_041423_S4Q621
CAL DATE:	04/14/23
ANALYST:	M. Valls
RUN BATCH:	S4Q621

ELUENT A LOT #:	224863 W5%ACN 214785 2ml(MA)MAC.11387
ELUENT B LOT #:	ACN 214785
IC/CC STD LOT #:	LCMS 2098B
ICV STD LOT #:	LCMS 2098B/2100B
ISTD/ID STD LOT #:	11615/11636

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q42930.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
2	4Q42931.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
3	4Q42932.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
4	4Q42933.d	P1-B3	RT TDCA	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
5	4Q42934.d	P1-B4	RT BR-LN	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
6	4Q42935.d	P1-A1	ic621-0	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
7	4Q42936.d	P1-A2	ic621-1	1633full_4Q.m	Calibration	1.6/500	OP96301,S4q621500,,5.0.1,water	✓
8	4Q42937.d	P1-A3	ic621-2	1633full_4Q.m	Calibration	3.2/500	OP96301,S4q621500,,5.0.1,water	✓
9	4Q42938.d	P1-A4	ic621-3	1633full_4Q.m	Calibration	10/500	OP96301,S4q621500,,5.0.1,water	✓
10	4Q42939.d	P1-A5	ic621-4	1633full_4Q.m	Calibration	20/500	OP96301,S4q621500,,5.0.1,water	✓
11	4Q42940.d	P1-A6	ic621-5	1633full_4Q.m	Calibration	40/500	OP96301,S4q621500,,5.0.1,water	✓
12	4Q42941.d	P1-A7	ic621-6	1633full_4Q.m	Calibration	100/500	OP96301,S4q621500,,5.0.1,water	✓
13	4Q42942.d	P1-A8	ic621-7	1633full_4Q.m	Calibration	200/500	OP96301,S4q621500,,5.0.1,water	✓
14	4Q42943.d	P1-A9	ic621-8	1633full_4Q.m	Calibration	1x	OP96301,S4q621500,,5.0.1,water	✓
15	4Q42944.d	P1-A1	iblk	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
16	4Q42945.d	P1-B1	icv621-4	1633full_4Q.m	QC	20/500	OP96301,S4q621500,,5.0.1,water	✓
17	4Q42946.d	P1-B2	icv621-20	1633full_4Q.m	QC	100/500	OP96301,S4q621500,,5.0.1,water	Prep by NG
18	4Q42947.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96301,S4q621500,,5.0.1,water	✓
19	4Q42948.d	P1-A2	cc621-1.0LL	1633full_4Q.m	QC	1.6/500	OP96301,S4q621500,,5.0.1,water	✓
20	4Q42949.d	P1-C1	Test cc4 2104-a	1633full_4Q.m	QC	20/500	OP96301,S4q621500,,5.0.1,water	LCMS2104-A Pass
21	4Q42950.d	P1-C2	Test cc4 2104-b	1633full_4Q.m	QC	20/500	OP96301,S4q621500,,5.0.1,water	LCMS2104-B Pass
22	4Q42951.d	P1-C3	Test cc4 2104-c	1633full_4Q.m	QC	20/500	OP96301,S4q621500,,5.0.1,water	LCMS2104-C Pass
23	4Q42952.d	P1-C4	Full list 2100-a	1633full_4Q.m	QC	100/500	OP96301,S4q621500,,5.0.1,water	LCMS2100-C Pass
24	4Q42953.d	P1-B8	blank	1633full_4Q.m	QC		OP96301,S4q621500,,5.0.1,water	Clean
25	4Q42954.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q621500,,5.0.1,water	✓
26	4Q42955.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q621500,,5.0.1,water	✓
27	4Q42956.d	P2-F6	op96296-bs	1633full_4Q.m	Sample		OP96296,S4q621500,,5.0.1,water	rr batch, no peaks
28	4Q42957.d	P2-F7	op96296-llbs:3	1633full_4Q.m	Sample		OP96296,S4q621500,,5.0.1,water	↓
29	4Q42958.d	P2-F8	op96296-mb	1633full_4Q.m	Sample		OP96296,S4q621500,,5.0.1,water	↓
30	4Q42959.d	P2-F9	FC3816-1	1633full_4Q.m	Sample		OP96296,S4q621560,,5.0.1,water	rr1x
31	4Q42960.d	P3-A1	FC3816-2	1633full_4Q.m	Sample		OP96296,S4q621550,,5.0.1,water	↓
32	4Q42961.d	P3-A2	op96296-ms	1633full_4Q.m	Sample		OP96296,S4q621530,,5.0.1,water	↓
33	4Q42962.d	P3-A3	FC3816-3	1633full_4Q.m	Sample		OP96296,S4q621530,,5.0.1,water	↓
34	4Q42963.d	P3-A4	op96296-dup	1633full_4Q.m	Sample		OP96296,S4q621540,,5.0.1,water	↓
35	4Q42964.d	P3-A5	FC3816-4	1633full_4Q.m	Sample		OP96296,S4q621550,,5.0.1,water	↓

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LCMS4-4Q ANALYSIS LOG

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36	4Q42965.d	P3-A6	FC3816-5	1633full_4Q.m	Sample		OP96296,S4q621,550,,5.0.1,water	↓
37	4Q42966.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q621,500,,5.0.1,water	✓
38	4Q42967.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q621,500,,5.0.1,water	✓
39	4Q42968.d	P3-A7	FC3816-6	1633full_4Q.m	Sample		OP96296,S4q621,520,,5.0.1,water	↓
40	4Q42969.d	P3-A8	FC3816-7	1633full_4Q.m	Sample		OP96296,S4q621,560,,5.0.1,water	↓
41	4Q42970.d	P3-A9	FC3816-8	1633full_4Q.m	Sample		OP96296,S4q621,560,,5.0.1,water	↓
42	4Q42971.d	P3-B1	FC3816-9	1633full_4Q.m	Sample		OP96296,S4q621,560,,5.0.1,water	↓
43	4Q42972.d	P3-B2	FC3816-10	1633full_4Q.m	Sample		OP96296,S4q621,560,,5.0.1,water	↓
44	4Q42973.d	P3-B3	FC3816-11	1633full_4Q.m	Sample		OP96296,S4q621,540,,5.0.1,water	↓
45	4Q42974.d	P3-B4	FC3816-12	1633full_4Q.m	Sample		OP96296,S4q621,520,,5.0.1,water	↓
46	4Q42975.d	P3-B5	FC3816-13	1633full_4Q.m	Sample		OP96296,S4q621,530,,5.0.1,water	↓
47	4Q42976.d	P3-B6	FC3816-14	1633full_4Q.m	Sample		OP96296,S4q621,570,,5.0.1,water	↓
48	4Q42977.d	P3-B7	FC3816-15	1633full_4Q.m	Sample		OP96296,S4q621,530,,5.0.1,water	↓
49	4Q42978.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q621,500,,5.0.1,water	✓
50	4Q42979.d	P1-A2	cc621-1.0LL	1633full_4Q.m	QC	1.6/500	OP96301,S4q621,500,,5.0.1,water	✓
51	4Q42980.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q621,500,,5.0.1,water	✓
52	4Q42981.d	P3-B8	FC3816-16	1633full_4Q.m	Sample		OP96296,S4q621,530,,5.0.1,water	↓
53	4Q42982.d	P3-B9	FC3816-17	1633full_4Q.m	Sample		OP96296,S4q621,530,,5.0.1,water	↓
54	4Q42983.d	P3-C1	FC3816-18	1633full_4Q.m	Sample		OP96296,S4q621,530,,5.0.1,water	↓
55	4Q42984.d	P3-C2	op96297-bs	1633full_4Q.m	Sample		OP96297,S4q621,500,,5.0.1,water	✓
56	4Q42985.d	P3-C3	op96297-llbs:2	1633full_4Q.m	Sample		OP96297,S4q621,500,,5.0.1,water	✓
57	4Q42986.d	P3-C4	op96297-mb	1633full_4Q.m	Sample		OP96297,S4q621,500,,5.0.1,water	✓
58	4Q42987.d	P3-C5	FC3790-1	1633full_4Q.m	Sample		OP96297,S4q621,570,,5.0.1,water	r5x surr high
59	4Q42988.d	P3-C6	FC3790-2	1633full_4Q.m	Sample		OP96297,S4q621,570,,5.0.1,water	✓
60	4Q42989.d	P3-C7	FC3790-3	1633full_4Q.m	Sample		OP96297,S4q621,560,,5.0.1,water	✓
61	4Q42990.d	P3-C8	FC3790-4	1633full_4Q.m	Sample		OP96297,S4q621,560,,5.0.1,water	✓ + r12x FNA
62	4Q42991.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96297,S4q621,500,,5.0.1,water	✓
63	4Q42992.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96297,S4q621,500,,5.0.1,water	✓
64	4Q42993.d	P3-C9	FC3790-5	1633full_4Q.m	Sample		OP96297,S4q621,570,,5.0.1,water	✓
65	4Q42994.d	P3-D1	op96297-ms	1633full_4Q.m	Sample		OP96297,S4q621,560,,5.0.1,water	✓
66	4Q42995.d	P3-D2	op96297-msd	1633full_4Q.m	Sample		OP96297,S4q621,570,,5.0.1,water	✓
67	4Q42996.d	P3-D3	FC3790-6	1633full_4Q.m	Sample		OP96297,S4q621,550,,5.0.1,water	rr, no NIS
68	4Q42997.d	P3-D4	FC3790-4	1633full_4Q.m	Sample	50/500	OP96297,S4q621,560,,5.0.10,water	rr lower dilution. 2x
69	4Q42998.d	P3-D5	FC3757-19	1633full_4Q.m	Sample	250/500	OP96301,S4q621,560,,5.0.2,water	✓
70	4Q42999.d	P3-D6	op96301-dup	1633full_4Q.m	Sample	250/500	OP96301,S4q621,560,,5.0.2,water	✓
71	4Q43000.d	P3-D7	FC3818-4	1633full_4Q.m	Sample	100/500	OP96323,S4q621,545,,5.0.5,water	✓
72	4Q43001.d	P3-D8	FC3818-5	1633full_4Q.m	Sample	100/500	OP96323,S4q621,520,,5.0.5,water	✓
73	4Q43002.d	P1-A5	ecc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q621,500,,5.0.1,water	✓
74	4Q43003.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q621,500,,5.0.1,water	✓



SGS ORLANDO

DATE:	04/18/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	ID_041423_S4Q621
CAL DATE:	04/14/23
ANALYST:	M. Valls
RUN BATCH:	S4Q624

ELUENT A LOT #:	224863 W5%ACN 214785 2ml/MAMAC.11387
ELUENT B LOT #:	ACN 214785
IC/CC STD LOT #:	LCMS 2098
ICV STD LOT #:	LCMS 2098B/2100B
ISTD/ID STD LOT #:	11615/11636

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q43143.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0.1,water	✓
2	4Q43144.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0.1,water	✓
3	4Q43145.d	P1-B3	RT TDCA	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0.1,water	✓
4	4Q43146.d	P1-B4	RT BR-LN	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0.1,water	✓
5	4Q43147.d	P1-A9	High Std	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0.1,water	✓
6	4Q43148.d	P1-A1	IBLK	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0.1,water	✓
7	4Q43149.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96301,S4q624,500,,5.0.1,water	✓
8	4Q43150.d	P1-A2	cc621-1.0LL	1633full_4Q.m	QC	1.6/500	OP96301,S4q624,500,,5.0.1,water	✓
9	4Q43151.d	P4-B7	JD63141-12A	1633full_4Q.m	Sample		OP96371,S4q624,60,,5.0.1,water	✓
10	4Q43152.d	P4-B8	JD63141-17A	1633full_4Q.m	Sample	50/500	OP96371,S4q624,545,,5.0.10,water	✓
11	4Q43153.d	P4-B9	FC5088-1	1633full_4Q.m	Sample	100/500	OP96368,S4q624,540,,5.0.5,water	✓
12	4Q43154.d	P4-C1	op96403-bs	1633full_4Q.m	Sample		OP96403,S4q624,500,,5.0.1,water	✓
13	4Q43155.d	P4-C2	op96403-llbs:3	1633full_4Q.m	Sample		OP96403,S4q624,500,,5.0.1,water	✓
14	4Q43156.d	P4-C3	op96403-mb	1633full_4Q.m	Sample		OP96403,S4q624,500,,5.0.1,water	✓
15	4Q43157.d	P4-C4	FC5164-1	1633full_4Q.m	Sample		OP96403,S4q624,560,,5.0.1,water	✓
16	4Q43158.d	P4-C5	FC5164-2	1633full_4Q.m	Sample		OP96403,S4q624,550,,5.0.1,water	✓
17	4Q43159.d	P4-C6	FC5194-1	1633full_4Q.m	Sample		OP96403,S4q624,510,,5.0.1,water	✓
18	4Q43160.d	P4-C7	op96403-ms	1633full_4Q.m	Sample		OP96403,S4q624,510,,5.0.1,water	✓
19	4Q43161.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q624,500,,5.0.1,water	✓
20	4Q43162.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q624,500,,5.0.1,water	✓
21	4Q43163.d	P4-C8	FC5194-2	1633full_4Q.m	Sample		OP96403,S4q624,560,,5.0.1,water	REDO
22	4Q43164.d	P4-C9	op96403-dup	1633full_4Q.m	Sample		OP96403,S4q624,570,,5.0.1,water	REDO
23	4Q43165.d	P4-D1	FC5194-3	1633full_4Q.m	Sample		OP96403,S4q624,530,,5.0.1,water	REDO
24	4Q43166.d	P4-D2	FC5088-3	1633full_4Q.m	Sample		OP96368,S4q624,570,,5.0.1,water	✓
25	4Q43167.d	P5-A1	op96427-bs	1633full_4Q.m	Sample		OP96427,S4q624,500,,5.0.1,water	✓
26	4Q43168.d	P5-A2	op96427-llbs:3	1633full_4Q.m	Sample		OP96427,S4q624,500,,5.0.1,water	✓
27	4Q43169.d	P5-A3	op96427-mb	1633full_4Q.m	Sample		OP96427,S4q624,500,,5.0.1,water	✓
28	4Q43170.d	P5-A4	FC5252-1	1633full_4Q.m	Sample		OP96427,S4q624,570,,5.0.1,water	✓
29	4Q43171.d	P5-A5	FC5252-2	1633full_4Q.m	Sample		OP96427,S4q624,550,,5.0.1,water	✓
30	4Q43172.d	P5-A6	op96427-ms	1633full_4Q.m	Sample		OP96427,S4q624,540,,5.0.1,water	✓
31	4Q43173.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q624,500,,5.0.1,water	✓
32	4Q43174.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q624,500,,5.0.1,water	✓
33	4Q43175.d	P5-A7	FC5252-3	1633full_4Q.m	Sample		OP96427,S4q624,550,,5.0.1,water	✓
34	4Q43176.d	P5-A8	op96427-dup	1633full_4Q.m	Sample		OP96427,S4q624,560,,5.0.1,water	✓
35	4Q43177.d	P5-A9	FC5252-4	1633full_4Q.m	Sample		OP96427,S4q624,570,,5.0.1,water	✓

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LCMS4-4Q ANALYSIS LOG

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36	4Q43178.d	P5-B1	FC5252-5	1633full_4Q.m	Sample		OP96427,S4q624,510,,5.0.1,water	pfba low. Redo
37	4Q43179.d	P5-B2	op96386-bs	1633full_4Q.m	Sample		OP96386,S4q624,500,,5.0.1,water	✓
38	4Q43180.d	P5-B3	op96386-llbs:2	1633full_4Q.m	Sample		OP96386,S4q624,500,,5.0.1,water	✓
39	4Q43181.d	P5-B4	op96386-mb	1633full_4Q.m	Sample		OP96386,S4q624,500,,5.0.1,water	✓
40	4Q43182.d	P5-B5	JD63151-1	1633full_4Q.m	Sample		OP96386,S4q624,545,,5.0.1,water	✓
41	4Q43183.d	P5-B6	JD63151-2	1633full_4Q.m	Sample		OP96386,S4q624,545,,5.0.1,water	✓ + RR2X
42	4Q43184.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q624,500,,5.0.1,water	✓
43	4Q43185.d	P1-A2	cc621-1,OLL	1633full_4Q.m	QC	1.6/500	OP96301,S4q624,500,,5.0.1,water	✓
44	4Q43186.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q624,500,,5.0.1,water	✓
45	4Q43187.d	P5-B7	JD63151-3	1633full_4Q.m	Sample		OP96386,S4q624,545,,5.0.1,water	✓
46	4Q43188.d	P5-B8	op96386-ms	1633full_4Q.m	Sample		OP96386,S4q624,545,,5.0.1,water	✓
47	4Q43189.d	P5-B9	JD63151-4	1633full_4Q.m	Sample		OP96386,S4q624,545,,5.0.1,water	✓
48	4Q43190.d	P5-C1	op96386-dup	1633full_4Q.m	Sample		OP96386,S4q624,545,,5.0.1,water	✓
49	4Q43191.d	P5-C2	JD63151-5	1633full_4Q.m	Sample		OP96386,S4q624,545,,5.0.1,water	✓
50	4Q43192.d	P5-C3	JD63151-6	1633full_4Q.m	Sample		OP96386,S4q624,545,,5.0.1,water	✓
51	4Q43193.d	P5-C4	JD63151-7	1633full_4Q.m	Sample		OP96386,S4q624,545,,5.0.1,water	✓
52	4Q43194.d	P5-C5	JD63151-8	1633full_4Q.m	Sample		OP96386,S4q624,545,,5.0.1,water	✓
53	4Q43195.d	P5-C7	JD63170-1	1633full_4Q.m	Sample		OP96386,S4q624,545,,5.0.1,water	✓
54	4Q43196.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q624,500,,5.0.1,water	✓
55	4Q43197.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q624,500,,5.0.1,water	✓
56	4Q43198.d	P5-C8	JD63170-2	1633full_4Q.m	Sample		OP96386,S4q624,545,,5.0.1,water	rr10x, high surr
57	4Q43199.d	P5-C9	JD63170-3	1633full_4Q.m	Sample		OP96386,S4q624,545,,5.0.1,water	rr1x co + 5x high surr
58	4Q43200.d	P5-D1	JD63170-4	1633full_4Q.m	Sample		OP96386,S4q624,545,,5.0.1,water	rr5x
59	4Q43201.d	P5-D2	JD63170-5	1633full_4Q.m	Sample		OP96386,S4q624,545,,5.0.1,water	rr10x, high surr
60	4Q43202.d	P5-D3	JD63170-6	1633full_4Q.m	Sample		OP96386,S4q624,545,,5.0.1,water	rr10x, high surr
61	4Q43203.d	P5-D4	JD63170-7	1633full_4Q.m	Sample		OP96386,S4q624,545,,5.0.1,water	rr1x co
62	4Q43204.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q624,500,,5.0.1,water	✓
63	4Q43205.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q624,500,,5.0.1,water	✓
64	4Q43206.d	P5-D5	op96364-bs	1633full_4Q.m	Sample		OP96364,S4q624,500,,5.0.1,soil	✓
65	4Q43207.d	P5-D6	op96364-llbs:2	1633full_4Q.m	Sample		OP96364,S4q624,500,,5.0.1,soil	✓
66	4Q43208.d	P5-D7	op96364-mb	1633full_4Q.m	Sample		OP96364,S4q624,500,,5.0.1,soil	✓
67	4Q43209.d	P5-D8	JD62946-1	1633full_4Q.m	Sample		OP96364,S4q624,496,,5.0.1,soil	✓
68	4Q43210.d	P5-D9	op96364-ms	1633full_4Q.m	Sample		OP96364,S4q624,498,,5.0.1,soil	✓
69	4Q43211.d	P5-E1	JD62924-1B	1633full_4Q.m	Sample		OP96364,S4q624,505,,5.0.1,soil	✓
70	4Q43212.d	P5-E2	op96364-dup	1633full_4Q.m	Sample		OP96364,S4q624,495,,5.0.1,soil	✓
71	4Q43213.d	P5-E3	JD63287-1	1633full_4Q.m	Sample		OP96364,S4q624,504,,5.0.1,soil	✓
72	4Q43214.d	P5-E4	JD63287-2	1633full_4Q.m	Sample		OP96364,S4q624,496,,5.0.1,soil	✓
73	4Q43215.d	P5-E5	JD63287-3	1633full_4Q.m	Sample		OP96364,S4q624,501,,5.0.1,soil	✓
74	4Q43216.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q624,500,,5.0.1,water	✓
75	4Q43217.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q624,500,,5.0.1,water	✓
76	4Q43218.d	P5-E6	JD63287-4	1633full_4Q.m	Sample		OP96364,S4q624,496,,5.0.1,soil	✓
77	4Q43219.d	P5-E7	JD63287-5	1633full_4Q.m	Sample		OP96364,S4q624,495,,5.0.1,soil	✓
78	4Q43220.d	P5-E8	JD63287-6	1633full_4Q.m	Sample		OP96364,S4q624,499,,5.0.1,soil	✓

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SGS ORLANDO LCMS4-4Q ANALYSIS LOG

79	4Q43221.d	P5-E9	JD63287-7	1633full_4Q.m	Sample		OP96364,S4q624,5.02,,5.0,1,soil	✓
80	4Q43222.d	P5-F1	JD63287-8	1633full_4Q.m	Sample		OP96364,S4q624,4.96,,5.0,1,soil	✓
81	4Q43223.d	P5-F2	JD63287-9	1633full_4Q.m	Sample		OP96364,S4q624,5.00,,5.0,1,soil	✓
82	4Q43224.d	P5-F3	JD63287-10	1633full_4Q.m	Sample		OP96364,S4q624,5.00,,5.0,1,soil	✓
83	4Q43225.d	P5-F4	JD63287-11	1633full_4Q.m	Sample		OP96364,S4q624,4.98,,5.0,1,soil	✓
84	4Q43226.d	P5-F5	JD63287-12	1633full_4Q.m	Sample		OP96364,S4q624,4.97,,5.0,1,soil	✓
85	4Q43227.d	P5-F6	JD63287-13	1633full_4Q.m	Sample		OP96296,S4q624,5.00,,5.0,1,water	✓
86	4Q43228.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96301,S4q624,5.00,,5.0,1,water	✓
87	4Q43229.d	P1-A2	cc621-1.0LL	1633full_4Q.m	QC	1.6/500	OP96296,S4q624,5.00,,5.0,1,water	✓
88	4Q43230.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96364,S4q624,4.99,,5.0,1,soil	✓
89	4Q43231.d	P5-F7	JD63287-14	1633full_4Q.m	Sample		OP96364,S4q624,4.97,,5.0,1,soil	✓
90	4Q43232.d	P5-F8	JD63287-15	1633full_4Q.m	Sample		OP96364,S4q624,5.00,,5.0,1,soil	✓
91	4Q43233.d	P5-F9	JD63287-16	1633full_4Q.m	Sample		OP96364,S4q624,4.99,,5.0,1,soil	✓
92	4Q43234.d	P5-C7	JD63287-17	1633full_4Q.m	Sample		OP96296,S4q624,5.00,,5.0,1,water	✓
93	4Q43235.d	P1-A5	ecc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q624,5.00,,5.0,1,water	✓
94	4Q43236.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q624,5.00,,5.0,1,water	✓

SGS ORLANDO

DATE:	04/19/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	ID_041923_S4Q625
CAL DATE:	04/19/23
ANALYST:	M. Valls NG
RUN BATCH:	S4Q625

ELUENT A LOT #:	224863 W5%ACN 214785 2mMAMAC.11387
ELUENT B LOT #:	ACN 214785
IC/CC STD LOT #:	LCMS 2098
ICV STD LOT #:	LCMS 2098B/2100B
ISTD/ID STD LOT #:	11615/11636

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q43237.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q625 500,,5.0.1,water	ND
2	4Q43238.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q625 500,,5.0.1,water	ND
3	4Q43239.d	P1-B3	RT TDCA	1633full_4Q.m	Sample		OP96301,S4q625 500,,5.0.1,water	✓
4	4Q43240.d	P1-B4	RT BR-LN	1633full_4Q.m	Sample		OP96301,S4q625 500,,5.0.1,water	✓
5	4Q43241.d	P1-A1	ic625-0	1633full_4Q.m	Sample		OP96301,S4q625 500,,5.0.1,water	Check Tune File
6	4Q43242.d	P1-A2	ic625-1	1633full_4Q.m	Calibration	1.6/500	OP96301,S4q625 500,,5.0.1,water	PASS
7	4Q43243.d	P1-A3	ic625-2	1633full_4Q.m	Calibration	3.2/500	OP96301,S4q625 500,,5.0.1,water	PASS
8	4Q43244.d	P1-A4	ic625-3	1633full_4Q.m	Calibration	10/500	OP96301,S4q625 500,,5.0.1,water	PASS
9	4Q43245.d	P1-A5	ic625-4	1633full_4Q.m	Calibration	20/500	OP96301,S4q625 500,,5.0.1,water	PASS
10	4Q43246.d	P1-A6	ic625-5	1633full_4Q.m	Calibration	40/500	OP96301,S4q625 500,,5.0.1,water	PASS
11	4Q43247.d	P1-A7	ic625-6	1633full_4Q.m	Calibration	100/500	OP96301,S4q625 500,,5.0.1,water	PASS
12	4Q43248.d	P1-A8	ic625-7	1633full_4Q.m	Calibration	200/500	OP96301,S4q625 500,,5.0.1,water	PASS
13	4Q43249.d	P1-A9	ic625-8	1633full_4Q.m	Calibration	1x	OP96301,S4q625 500,,5.0.1,water	PASS, EifOSAA dropped
14	4Q43250.d	P1-A1	IBLK	1633full_4Q.m	Sample		OP96301,S4q625 500,,5.0.1,water	ND
15	4Q43251.d	P1-B1	icv625-4	1633full_4Q.m	QC	20/500	OP96301,S4q625 500,,5.0.1,water	PASS, prepped by NG
16	4Q43252.d	P1-B2	icv625-20	1633full_4Q.m	QC	100/500	OP96301,S4q625 500,,5.0.1,water	PASS
17	4Q43253.d	P1-A5	cc625-4	1633full_4Q.m	QC	20/500	OP96301,S4q625 500,,5.0.1,water	PASS
18	4Q43254.d	P1-A2	cc625-1.0LL	1633full_4Q.m	QC	1.6/500	OP96301,S4q625 500,,5.0.1,water	PASS
19	4Q43255.d	P2-A1	op96455-bs	1633full_4Q.m	Sample		OP96455,S4q625 500,,5.0.1,water	✓
20	4Q43256.d	P2-A2	op96455-llbs:2	1633full_4Q.m	Sample		OP96455,S4q625 500,,5.0.1,water	✓
21	4Q43257.d	P2-A3	op96455-mb	1633full_4Q.m	Sample		OP96455,S4q625 500,,5.0.1,water	✓
22	4Q43258.d	P2-A4	FC5043-3	1633full_4Q.m	Sample		OP96455,S4q625 460,,5.0.1,water	✓
23	4Q43259.d	P2-A5	FC5043-5	1633full_4Q.m	Sample		OP96455,S4q625 515,,5.0.1,water	✓
24	4Q43260.d	P2-A6	DA54565-2	1633full_4Q.m	Sample		OP96455,S4q625 225,,5.0.1,water	✓
25	4Q43261.d	P2-A7	JD62814-1	1633full_4Q.m	Sample		OP96455,S4q625 540,,5.0.1,water	✓
26	4Q43262.d	P2-A8	JD62814-2	1633full_4Q.m	Sample		OP96455,S4q625 540,,5.0.1,water	✓
27	4Q43263.d	P2-A9	JD62814-3	1633full_4Q.m	Sample		OP96455,S4q625 270,,5.0.1,water	✓
28	4Q43264.d	P1-A5	cc625-4	1633full_4Q.m	QC	20/500	OP96301,S4q625 500,,5.0.1,water	PASS
29	4Q43265.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96301,S4q625 500,,5.0.1,water	ND
30	4Q43266.d	P2-B1	op96452-bs	1633full_4Q.m	Sample		OP96452,S4q625 500,,5.0.1,water	✓
31	4Q43267.d	P2-B2	op96452-llbs:3	1633full_4Q.m	Sample		OP96301,S4q625 500,,5.0.1,water	✓
32	4Q43268.d	P2-B3	op96452-mb	1633full_4Q.m	Sample		OP96301,S4q625 500,,5.0.1,water	✓
33	4Q43269.d	P2-B4	FC3818-6	1633full_4Q.m	Sample		OP96301,S4q625 560,,5.0.1,water	✓
34	4Q43270.d	P2-B5	DA54565-1	1633full_4Q.m	Sample		OP96322,S4q625 250,,5.0.1,water	✓
35	4Q43271.d	P2-B6	DA54565-2	1633full_4Q.m	Sample		OP96322,S4q625 240,,5.0.1,water	✓

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36	4Q43272.d	P2-B7	JD63151-2	1633full_4Q.m	Sample	250/500	OP96386.S4q625.545,,5.0.2,water	rr 5x
37	4Q43273.d	P2-B8	JD63170-2	1633full_4Q.m	Sample	50/500	OP96386.S4q625.545,,5.0.10,water	✓
38	4Q43274.d	P2-B9	JD63170-3	1633full_4Q.m	Sample		OP96386.S4q625.545,,5.0.1,water	✓
39	4Q43275.d	P2-C1	JD63170-3	1633full_4Q.m	Sample	100/500	OP96386.S4q625.545,,5.0.5,water	✓
40	4Q43276.d	P1-A5	cc625-4	1633full_4Q.m	QC	20/500	OP96301.S4q625.500,,5.0.1,water	PASS
41	4Q43277.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96301.S4q625.500,,5.0.1,water	ND
42	4Q43278.d	P2-C2	JD63170-4	1633full_4Q.m	Sample	50/500	OP96386.S4q625.545,,5.0.10,water	✓
43	4Q43279.d	P2-C3	JD63170-5	1633full_4Q.m	Sample	50/500	OP96386.S4q625.545,,5.0.10,water	✓
44	4Q43280.d	P2-C4	JD63170-6	1633full_4Q.m	Sample	50/500	OP96386.S4q625.545,,5.0.10,water	✓
45	4Q43281.d	P2-C5	JD63170-7	1633full_4Q.m	Sample		OP96386.S4q625.545,,5.0.1,water	✓
46	4Q43282.d	P1-A5	cc625-4	1633full_4Q.m	QC	20/500	OP96301.S4q625.500,,5.0.1,water	PASS
47	4Q43283.d	P1-A2	cc625-1.0LL	1633full_4Q.m	QC	1.6/500	OP96301.S4q625.500,,5.0.1,water	PASS
48	4Q43284.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96301.S4q625.500,,5.0.1,water	ND
49	4Q43285.d	P2-C6	op96429-bs	1633full_4Q.m	Sample		OP96429.S4q625.500,,5.0.1,water	✓
50	4Q43286.d	P2-C7	op96429-llbs:2	1633full_4Q.m	Sample		OP96429.S4q625.500,,5.0.1,water	✓
51	4Q43287.d	P2-C8	op96429-mb	1633full_4Q.m	Sample		OP96429.S4q625.500,,5.0.1,water	✓
52	4Q43288.d	P2-C9	JD63290-1A	1633full_4Q.m	Sample		OP96429.S4q625.495,,5.0.1,water	✓
53	4Q43289.d	P2-D1	op96429-ms	1633full_4Q.m	Sample		OP96429.S4q625.495,,5.0.1,water	✓
54	4Q43290.d	P2-D2	JD63290-2A	1633full_4Q.m	Sample		OP96429.S4q625.545,,5.0.1,water	✓
55	4Q43291.d	P2-D3	op96429-dup	1633full_4Q.m	Sample		OP96429.S4q625.545,,5.0.1,water	✓
56	4Q43292.d	P2-D4	JD63290-3A	1633full_4Q.m	Sample		OP96429.S4q625.500,,5.0.1,water	✓
57	4Q43293.d	P2-D5	JD63290-4	1633full_4Q.m	Sample		OP96429.S4q625.545,,5.0.1,water	✓
58	4Q43294.d	P1-A5	cc625-4	1633full_4Q.m	QC	20/500	OP96301.S4q625.500,,5.0.1,water	PASS
59	4Q43295.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96301.S4q625.500,,5.0.1,water	ND
60	4Q43296.d	P2-D6	op96382-bs	1633full_4Q.m	Sample		OP96382.S4q625.500,,5.0.1,water	rr 1x
61	4Q43297.d	P2-D7	op96382-llbs:3	1633full_4Q.m	Sample		OP96382.S4q625.500,,5.0.1,water	✓
62	4Q43298.d	P2-D8	op96382-mb	1633full_4Q.m	Sample		OP96382.S4q625.500,,5.0.1,water	✓
63	4Q43299.d	P2-D9	FC3817-1	1633full_4Q.m	Sample		OP96382.S4q625.550,,5.0.1,water	✓
64	4Q43300.d	P2-E1	FC3817-2	1633full_4Q.m	Sample		OP96382.S4q625.520,,5.0.1,water	✓
65	4Q43301.d	P2-E2	FC3817-3	1633full_4Q.m	Sample		OP96382.S4q625.540,,5.0.1,water	✓
66	4Q43302.d	P2-E3	FC3817-4	1633full_4Q.m	Sample		OP96382.S4q625.460,,5.0.1,water	✓
67	4Q43303.d	P2-E4	FC3817-5	1633full_4Q.m	Sample		OP96382.S4q625.560,,5.0.1,water	✓
68	4Q43304.d	P2-E5	FC3817-6	1633full_4Q.m	Sample		OP96382.S4q625.550,,5.0.1,water	rr 1x
69	4Q43305.d	P2-E6	FC3817-7	1633full_4Q.m	Sample		OP96382.S4q625.540,,5.0.1,water	✓
70	4Q43306.d	P1-A5	cc625-4	1633full_4Q.m	QC	20/500	OP96301.S4q625.500,,5.0.1,water	PASS
71	4Q43307.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96301.S4q625.500,,5.0.1,water	ND
72	4Q43308.d	P2-E7	FC3817-8	1633full_4Q.m	Sample		OP96382.S4q625.570,,5.0.1,water	rr 10x
73	4Q43309.d	P2-E8	FC3817-9	1633full_4Q.m	Sample		OP96382.S4q625.530,,5.0.1,water	✓
74	4Q43310.d	P2-E9	FC3817-10	1633full_4Q.m	Sample		OP96382.S4q625.480,,5.0.1,water	rr 1x
75	4Q43311.d	P2-F1	FC3817-11	1633full_4Q.m	Sample		OP96382.S4q625.520,,5.0.1,water	rr 1x
76	4Q43312.d	P2-F2	FC3817-12	1633full_4Q.m	Sample		OP96382.S4q625.540,,5.0.1,water	✓
77	4Q43313.d	P2-F3	FC3817-13	1633full_4Q.m	Sample		OP96382.S4q625.520,,5.0.1,water	rr 5x
78	4Q43314.d	P2-F4	FC3817-14	1633full_4Q.m	Sample		OP96382.S4q625.485,,5.0.1,water	✓

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79	4Q43315.d	P2-F5	FC3817-15	1633full_4Q.m	Sample	OP96382,S4q625,500,,5,0,1,water	✓
80	4Q43316.d	P2-F6	op96382-ms	1633full_4Q.m	Sample	OP96382,S4q625,530,,5,0,1,water	✓
81	4Q43317.d	P2-F7	op96382-msd	1633full_4Q.m	Sample	OP96382,S4q625,485,,5,0,1,water	✓
82	4Q43318.d	P1-A5	cc625-4	1633full_4Q.m	QC	OP96301,S4q625,500,,5,0,1,water	PASS
83	4Q43319.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96301,S4q625,500,,5,0,1,water	ND
84	4Q43320.d	P2-F8	FC3817-16	1633full_4Q.m	Sample	OP96382,S4q625,500,,5,0,1,water	✓
85	4Q43321.d	P2-F9	FC3817-17	1633full_4Q.m	Sample	OP96382,S4q625,540,,5,0,1,water	✓
86	4Q43322.d	P1-A5	ecc625-4	1633full_4Q.m	QC	OP96301,S4q625,500,,5,0,1,water	PASS
87	4Q43323.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96301,S4q625,500,,5,0,1,water	ND
88	4Q43324.d	P1-F1	Test 2107-a	1633full_4Q.m	Sample	OP96301,S4q625,500,,5,0,1,water	test pass
89	4Q43325.d	P1-F2	Test 2107-b	1633full_4Q.m	Sample	OP96301,S4q625,500,,5,0,1,water	test pass
90	4Q43326.d	P1-F3	Test 2107-c	1633full_4Q.m	Sample	OP96301,S4q625,500,,5,0,1,water	test pass

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LCMS4-4Q ANALYSIS LOG

DATE:	04/20/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

METHODS:	1633
PROC. METH:	ID_041923_S4Q625
CAL DATE:	04/19/23
ANALYST:	M. Valls NG
RUN BATCH:	S4Q626

ELUENT A LOT #:	224863 W5%ACN 214785 2mmMAMAC.11387
ELUENT B LOT #:	ACN 214785
IC/CC STD LOT #:	LCMS 2098
ICV STD LOT #:	LCMS 2098B/2100B
ISTD/ID STD LOT #:	11615/11636

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q43327.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q626 500,,5.0.1,water	ND
2	4Q43328.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q626 500,,5.0.1,water	ND
3	4Q43329.d	P1-B3	RT TDCA	1633full_4Q.m	Sample		OP96301,S4q626 500,,5.0.1,water	✓
4	4Q43330.d	P1-B4	RT BR-LN	1633full_4Q.m	Sample		OP96301,S4q626 500,,5.0.1,water	✓
5	4Q43331.d	P1-A9	high std	1633full_4Q.m	Sample		OP96301,S4q626 500,,5.0.1,water	✓
6	4Q43332.d	P1-A1	IBLK	1633full_4Q.m	Sample		OP96301,S4q626 500,,5.0.1,water	ND
7	4Q43333.d	P1-A5	cc625-4	1633full_4Q.m	QC	20/500	OP96301,S4q626 500,,5.0.1,water	PASS
8	4Q43334.d	P1-A2	cc625-1.0LL	1633full_4Q.m	QC	1.6/500	OP96301,S4q626 500,,5.0.1,water	PASS
9	4Q43335.d	P3-A1	JD63151-2	1633full_4Q.m	Sample	100/500	OP96386,S4q626 545,,5.0.5,water	✓
10	4Q43336.d	P2-D9	FC3817-1	1633full_4Q.m	Sample		OP96382,S4q626 550,,5.0.1,water	✓
11	4Q43337.d	P2-E4	FC3817-5	1633full_4Q.m	Sample		OP96382,S4q626 560,,5.0.1,water	✓
12	4Q43338.d	P2-E5	FC3817-6	1633full_4Q.m	Sample		OP96382,S4q626 550,,5.0.1,water	✓
13	4Q43339.d	P3-A2	FC3817-8	1633full_4Q.m	Sample	50/500	OP96382,S4q626 570,,5.0.10,water	✓
14	4Q43340.d	P2-E9	FC3817-10	1633full_4Q.m	Sample		OP96382,S4q626 480,,5.0.1,water	✓
15	4Q43341.d	P2-F1	FC3817-11	1633full_4Q.m	Sample		OP96382,S4q626 520,,5.0.1,water	✓
16	4Q43342.d	P3-A3	FC3817-13	1633full_4Q.m	Sample	100/500	OP96382,S4q626 520,,5.0.5,water	✓
17	4Q43343.d	P1-A1	ccb	1633full_4Q.m	Sample		OP96301,S4q626 500,,5.0.1,water	✓
18	4Q43344.d	P1-A5	cc625-4	1633full_4Q.m	QC	20/500	OP96301,S4q626 500,,5.0.1,water	PASS
19	4Q43345.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96301,S4q626 500,,5.0.1,water	ND
20	4Q43346.d	P3-B1	fc3921-1	1633full_4Q.m	Sample		OP96411,S4q626 575,,5.0.1,water	✓
21	4Q43347.d	P3-B2	fc3921-6	1633full_4Q.m	Sample		OP96411,S4q626 550,,5.0.1,water	✓
22	4Q43348.d	P3-B3	fc3921-8	1633full_4Q.m	Sample	100/500	OP96411,S4q626 550,,5.0.5,water	✓
23	4Q43349.d	P3-B4	fc3921-8	1633full_4Q.m	Sample	50/500	OP96411,S4q626 550,,5.0.10,water	✓
24	4Q43350.d	P3-B5	fc3921-12	1633full_4Q.m	Sample	250/500	OP96411,S4q626 550,,5.0.2,water	✓
25	4Q43351.d	P3-B6	fc3921-13	1633full_4Q.m	Sample	250/500	OP96411,S4q626 550,,5.0.2,water	✓
26	4Q43352.d	P3-B7	fc3921-14	1633full_4Q.m	Sample		OP96411,S4q626 550,,5.0.1,water	✓
27	4Q43353.d	P3-B8	fc3921-15	1633full_4Q.m	Sample		OP96411,S4q626 550,,5.0.1,water	✓
28	4Q43354.d	P3-B9	fc3920-1	1633full_4Q.m	Sample		OP96428,S4q626 560,,5.0.1,water	✓
29	4Q43355.d	P3-C1	fc3888-1	1633full_4Q.m	Sample	50/500	OP96428,S4q626 60,,5.0.10,water	redo at 10mL
30	4Q43356.d	P1-A5	cc625-4	1633full_4Q.m	QC	20/500	OP96301,S4q626 500,,5.0.1,water	PASS
31	4Q43357.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96301,S4q626 500,,5.0.1,water	ND
32	4Q43358.d	P3-C2	op96494-bs	1633full_4Q.m	Sample		OP96494,S4q626 500,,5.0.1,water	✓
33	4Q43359.d	P3-C3	op96494-llbs:3	1633full_4Q.m	Sample		OP96494,S4q626 500,,5.0.1,water	✓
34	4Q43360.d	P3-C4	op96494-mb	1633full_4Q.m	Sample		OP96494,S4q626 500,,5.0.1,water	✓
35	4Q43361.d	P3-C5	fc5194-3	1633full_4Q.m	Sample		OP96494,S4q626 510,,5.0.1,water	✓

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36	4Q43362.d	P3-C6	fc5252-5	1633full_4Q.m	Sample	20/500	OP96494,S4q626.490,,5.0.1,water	✓
37	4Q43363.d	P1-A5	cc625-4	1633full_4Q.m	QC	20/500	OP96301,S4q626.500,,5.0.1,water	PASS
38	4Q43364.d	P1-A2	cc625-1.0LL	1633full_4Q.m	QC	1.6/500	OP96301,S4q626.500,,5.0.1,water	PASS
39	4Q43365.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96301,S4q626.500,,5.0.1,water	ND
40	4Q43366.d	P3-C7	op96383-bs	1633full_4Q.m	Sample		OP96383,S4q626.500,,5.0.1,water	✓
41	4Q43367.d	P3-C8	op96383-llbs:3	1633full_4Q.m	Sample		OP96383,S4q626.500,,5.0.1,water	✓
42	4Q43368.d	P3-C9	op96383-mb	1633full_4Q.m	Sample		OP96383,S4q626.500,,5.0.1,water	✓
43	4Q43369.d	P3-D1	fc3839-1	1633full_4Q.m	Sample		OP96383,S4q626.575,,5.0.1,water	✓
44	4Q43370.d	P3-D2	fc3839-2	1633full_4Q.m	Sample		OP96383,S4q626.565,,5.0.1,water	✓
45	4Q43371.d	P3-D3	op96383-ms	1633full_4Q.m	Sample		OP96383,S4q626.560,,5.0.1,water	✓
46	4Q43372.d	P3-D4	op96383-msd	1633full_4Q.m	Sample		OP96383,S4q626.575,,5.0.1,water	✓
47	4Q43373.d	P3-D5	fc3839-3	1633full_4Q.m	Sample		OP96383,S4q626.575,,5.0.1,water	✓
48	4Q43374.d	P3-D6	fc3839-4	1633full_4Q.m	Sample		OP96383,S4q626.560,,5.0.1,water	✓
49	4Q43375.d	P3-D7	fc3839-5	1633full_4Q.m	Sample		OP96383,S4q626.545,,5.0.1,water	rr 1x
50	4Q43376.d	P1-A5	cc625-4	1633full_4Q.m	QC	20/500	OP96301,S4q626.500,,5.0.1,water	PASS
51	4Q43377.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96301,S4q626.500,,5.0.1,water	ND
52	4Q43378.d	P3-D8	fc3839-6	1633full_4Q.m	Sample		OP96383,S4q626.555,,5.0.1,water	✓
53	4Q43379.d	P3-D9	fc3839-7	1633full_4Q.m	Sample		OP96383,S4q626.540,,5.0.1,water	✓
54	4Q43380.d	P3-E1	fc3839-8	1633full_4Q.m	Sample		OP96383,S4q626.545,,5.0.1,water	✓
55	4Q43381.d	P3-E2	fc3839-9	1633full_4Q.m	Sample		OP96383,S4q626.545,,5.0.1,water	✓
56	4Q43382.d	P3-E3	fc3839-10	1633full_4Q.m	Sample		OP96383,S4q626.575,,5.0.1,water	✓
57	4Q43383.d	P3-E4	fc3839-11	1633full_4Q.m	Sample		OP96383,S4q626.565,,5.0.1,water	✓
58	4Q43384.d	P3-E5	fc3839-12	1633full_4Q.m	Sample		OP96383,S4q626.530,,5.0.1,water	rr 10x
59	4Q43385.d	P3-E6	fc3839-13	1633full_4Q.m	Sample		OP96383,S4q626.575,,5.0.1,water	rr 10x
60	4Q43386.d	P3-E7	fc3839-14	1633full_4Q.m	Sample		OP96383,S4q626.555,,5.0.1,water	✓
61	4Q43387.d	P3-E8	fc3839-15	1633full_4Q.m	Sample		OP96383,S4q626.560,,5.0.1,water	✓
62	4Q43388.d	P1-A5	cc625-4	1633full_4Q.m	QC	20/500	OP96301,S4q626.500,,5.0.1,water	PASS
63	4Q43389.d	P1-A2	cc625-1.0LL	1633full_4Q.m	QC	1.6/500	OP96301,S4q626.500,,5.0.1,water	PASS
64	4Q43390.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96301,S4q626.500,,5.0.1,water	ND
65	4Q43391.d	P3-E9	fc3839-16	1633full_4Q.m	Sample		OP96383,S4q626.565,,5.0.1,water	✓
66	4Q43392.d	P3-F1	fc3839-17	1633full_4Q.m	Sample		OP96383,S4q626.575,,5.0.1,water	✓
67	4Q43393.d	P3-F2	fc3839-18	1633full_4Q.m	Sample		OP96383,S4q626.575,,5.0.1,water	✓
68	4Q43394.d	P3-F3	op96426-bs	1633full_4Q.m	Sample		OP96426,S4q626.500,,5.0.1,water	un, do tri high
69	4Q43395.d	P3-F4	op96426-llbs:3	1633full_4Q.m	Sample		OP96426,S4q626.500,,5.0.1,water	✓
70	4Q43396.d	P3-F5	op96426-mb	1633full_4Q.m	Sample		OP96426,S4q626.500,,5.0.1,water	✓
71	4Q43397.d	P3-F6	fc3922-1	1633full_4Q.m	Sample		OP96426,S4q626.530,,5.0.1,water	✓
72	4Q43398.d	P3-F7	fc3922-2	1633full_4Q.m	Sample		OP96426,S4q626.550,,5.0.1,water	✓
73	4Q43399.d	P3-F8	fc3922-3	1633full_4Q.m	Sample		OP96426,S4q626.550,,5.0.1,water	✓
74	4Q43400.d	P3-F9	fc3922-4	1633full_4Q.m	Sample		OP96426,S4q626.560,,5.0.1,water	✓
75	4Q43401.d	P1-A5	cc625-4	1633full_4Q.m	QC	20/500	OP96301,S4q626.500,,5.0.1,water	PASS
76	4Q43402.d	P1-B9	iccb	1633full_4Q.m	Sample		OP96301,S4q626.500,,5.0.1,water	ND
77	4Q43403.d	P4-A1	fc3922-5	1633full_4Q.m	Sample		OP96426,S4q626.520,,5.0.1,water	✓
78	4Q43404.d	P4-A2	fc3922-6	1633full_4Q.m	Sample		OP96426,S4q626.520,,5.0.1,water	✓

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SGS ORLANDO LCMS4-4Q ANALYSIS LOG

79	4Q43405.d	P4-A3	fc3922-7	1633full_4Q.m	Sample	OP96426.S4q626.530,,5.0.1,water	✓
80	4Q43406.d	P4-A4	fc3922-8	1633full_4Q.m	Sample	OP96426.S4q626.530,,5.0.1,water	rr 10x
81	4Q43407.d	P4-A5	fc3922-9	1633full_4Q.m	Sample	OP96426.S4q626.540,,5.0.1,water	rr 10x
82	4Q43408.d	P4-A6	fc3922-10	1633full_4Q.m	Sample	OP96426.S4q626.550,,5.0.1,water	rr 1x c/o
83	4Q43409.d	P4-A7	fc3922-11	1633full_4Q.m	Sample	OP96426.S4q626.560,,5.0.1,water	✓
84	4Q43410.d	P4-A8	fc3922-12	1633full_4Q.m	Sample	OP96426.S4q626.560,,5.0.1,water	✓
85	4Q43411.d	P4-A9	fc3922-13	1633full_4Q.m	Sample	OP96426.S4q626.540,,5.0.1,water	rr 10x
86	4Q43412.d	P4-B1	fc3922-14	1633full_4Q.m	Sample	OP96426.S4q626.540,,5.0.1,water	✓
87	4Q43413.d	P1-A5	cc625-4	1633full_4Q.m	QC	20/500	PASS
88	4Q43414.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96301.S4q626.500,,5.0.1,water	ND
89	4Q43415.d	P4-B2	fc3922-15	1633full_4Q.m	Sample	OP96426.S4q626.500,,5.0.1,water	✓
90	4Q43416.d	P4-B3	op96426-ms	1633full_4Q.m	Sample	OP96426.S4q626.510,,5.0.1,water	✓
91	4Q43417.d	P4-B4	op96426-msd	1633full_4Q.m	Sample	OP96426.S4q626.520,,5.0.1,water	✓
92	4Q43418.d	P4-B5	fc3922-16	1633full_4Q.m	Sample	OP96426.S4q626.530,,5.0.1,water	✓
93	4Q43419.d	P4-B6	fc3922-17	1633full_4Q.m	Sample	OP96426.S4q626.530,,5.0.1,water	rr 10x
94	4Q43420.d	P4-B7	fc3922-18	1633full_4Q.m	Sample	OP96426.S4q626.530,,5.0.1,water	rr 10x
95	4Q43421.d	P1-A5	ecc625-4	1633full_4Q.m	QC	20/500	PASS
96	4Q43422.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96301.S4q626.500,,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 2098A	1033 spike Cal std.	11672A	PFAC	Wellington	8/18/27	3/23/24	1-4 ppm	2.50uL	4mL	0.25 ppm	1033 MIX	4/6/23	10/6/23	MW
		11672B	MXH			4/16/24				250ppb				
		LCMS 2097	Br-In Et, Me	Sgs 1A60	9/1	10/28/23	3ppm	250uL		312.5ppb				
		11674B	PFAC MXF	Wellington	1/11/25	3/30/24	2ppm	250uL		350ppb				
		11675	PFAC MXG		12/1/27	3/30/24	2ppm	250uL		125ppb				
		11642B	PFAC MXJ		9/14/26	3/23/24	4-20 ppm	312uL		312/1000 ppb				
LCMS 2099	537.1 Du std. (Internal)	11070	MBP-PEA	Wellington Labs	07/06/25	04/06/24	50ppm	80uL	4mL	1.0ppm	2011MESH 41, H2O	04/13/23	06/15/23	NG
		10438A	Mw:2 FTS		11/05/25	04/06/24		80uL		1.0ppm				NG
		10512B	d3-N-NIST684A		10/22/25	05/15/23		160uL		2.0ppm				NG
		10498A	M-PFOS		11/02/25	03/22/24		80uL		1.0ppm				NG
		11069	M-PTFA		12/09/26	03/22/24		80uL		1.0ppm				NG
LCMS 2100	Full List (90)	11626	PFOR 28 Comp.	Absolute	11/19/27	4/11/24	1.0ppm	400uL	4.0mL	100ppb	75% MeOH 5% H2O	4/11/23	7/24/23	MW
91B	List 40 spike (Std)	LCMS 2067	40 List ADD ON #1	Sgs wld.		8/23/23	1.0ppm	400uL			(2.40031)			
		LCMS 2070	40 List ADD ON #2			5/12/23	1.0ppm	400uL						
		LCMS 2054	Fose Std.			7/24/23	5.0ppm	400uL		50ppb				
LCMS 2101	Fose std.	11336	N-et Fose	Wellington	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	9/11/23	9/19/23	MW
		11338	N-me Fose		5/13/27	9/19/23	50ppm	200uL						

* B/C checked are normal

* tested & used on 10/11/23

LCMS 2100 91B * 100% 100uL 100ppb

* based on date opened as specified in each SGS - Orlando SOP. (1.000)



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 2095A-J	(10ppb) PFC ID SURF	A-J 11669	PFAC-2YES	Wellington Labs	01/15/23	03/28/24	1.0ppm	2.4mL	~50mL	0.5ppm	151 meet 51.425	03/28/23	09/26/23	NS
↓	↓	11585	M2HFO-DA	↓	11/08/23	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
↓	↓	11431	d-N-METOSAN	↓	05/06/27	03/13/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
LCMS 2096A-B	1033 spike Cal cert.	11672	PFAC-MxH	Wellington Labs	8/15/27	3/23/24	1-4 ppm	250uL	4mL	0.25 125 250ppb	1033 MIX	3/30/23	9/30/23	MU
↓	↓	11686	PFAC-MxI	↓	2/27/28	3/30/24	170 ppm	250uL	↓	0.25 6 25ppb	↓	↓	↓	↓
↓	↓	11674A	PFAC-MxG	↓	11/1/25	3/23/24	2ppm	500uL	↓	250ppb	↓	↓	↓	↓
↓	↓	11674B	PFAC-MxH	↓	12/1/27	3/30/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11675	PFAC-MxG	↓	9/14/26	3/23/24	4-20 ppm	312uL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11642B	PFAC-MxJ	↓	10/28/23	10/28/23	50ppm	200uL	5mL	2ppm 5ppm	1033 MIX	4/16/23	10/28/23	MU
LCMS 2097A-B	BR-LN metet for 1033	11497	br-N metosa	Wellington Labs	08/23/27	10/28/23	50ppm	200uL	↓	2ppm	↓	↓	↓	↓
↓	↓	11498	br-N Effosa	↓	10/07/27	10/28/23	50ppm	200uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11495	br-N metosa	↓	10/28/23	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11494	br-N Effosa	↓	10/17/27	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓					4/6/24								

* tested 3/29 10/27

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2067	40 List Std. ADD-ON #1	10726A	10:2 FTS	Wellington	3/3/26	3/21/23	50 ppm	80 uL	4.0 mL	1 ppm	95% meth 5% H2O	2/8/23	3/21/23	MV
		10840	L ⁻ PFDOs		7/9/26	10/18/23							8/23/23	
		10829	N ⁻ McFosA		8/3/26	8/23/23								
		10837	N ⁻ EtFosA		8/3/26	8/23/23								
		10842	PFHxDA		9/3/26	10/18/23								
		10841	PFODA		5/7/26	10/18/23								
		11116 B	3:3 FTCA PFAPA		2/3/27	2/8/24								
		10685A	5:3 FTCA PFAPA		11/11/25	8/23/23								
		11116 A	7:3 FTCA FHAPA		11/12/25	2/8/24								
		11332	PFECHS		3/2/27	10/18/23								
		10762B	PFEESA		5/13/25	10/18/23								
		10763B	PFMBA PF50HxA		3/31/25	10/18/23								
		10764	PFMPA PF406A		3/31/25	2/8/24								
		10765B	NFHDA 3.6-08APA		3/31/25	10/18/23								
					NS	02/10/23								

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

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Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2074 A-B	PFC SPIKE	11613	PROA-SDP C8800015	Absolute	11/09/23	02/23/24	1.0ppm	2mL	5mL	400ppb	95% MeOH 5% H2O	02/23/23	02/23/23	NG
↓	↓	10829	N-Me- FSA-M	Wellington Labs	02/23/26	02/23/23	50ppm	40uL	↓	↓	↓	↓	↓	NG
↓	↓	11250	FBSA-1	↓	11/10/26	11/08/23	↓	↓	↓	↓	↓	↓	↓	NG
↓	↓	11249	FHSA-1	↓	12/29/26	11/03/23	↓	↓	↓	↓	↓	↓	↓	NG
↓	↓	11332	FTECHS	↓	03/28/27	10/18/23	↓	↓	↓	↓	↓	↓	↓	NG
LCMS 2075A-F	(10 PPB) PFC ID SURC	11639	MPAC- 24ES	Wellington Labs	03/24/27	02/23/24	1.0ppm	2.4mL	~50 mL	0.5ppm	95% MeOH 5% H2O	02/23/23	02/23/23	NG
↓	↓	11585	N2HFO- DA	Wellington Labs	11/08/23	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NG
↓	↓	11385	DA-N- N2FO-SAM	Wellington Labs	05/10/27	01/01/24	50ppm	48uL	↓	↓	↓	↓	↓	NG
LCMS 2076	40 List std. ADDON #2	11250	FBSA-1	Wellington Labs	11/10/26	11/8/23	50ppm	80uL	4.0mL	1ppm	95% MeOH 5% H2O	2/17/23	5/19/26	MV
↓	↓	11249	FHSA-1	↓	2/29/26	11/3/23	50ppm	80uL	↓	↓	↓	↓	↓	↓
↓	↓	11140	L-PFAS	↓	7/12/26	5/26/23	50ppm	80uL	↓	↓	↓	↓	↓	↓
LCMS 2077A-B	1633 Solvent B	11387	Ammonium Acetate	Sigmall drich	---	1/25/24	99.9%	0.62g	4L	2mM	MA	2/28/23	4/28/23	MV
↓	↓	224870	HPLC water	Fisher	---	2/28/23	↓	3,800ml	↓	95%	↓	↓	↓	↓
↓	↓	220225	Acetonil trile	↓	---	2/20/24	↓	200mL	↓	5%	↓	↓	↓	↓
↓	↓					n/a	n/a	n/a	2/28/23					
↓	↓					Continue next page #1								

* 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 2052	1633 prep mix	Lot: 221044	MeOH	Fisher	—	1/4/24	99.9%	92 mL	100 mL	92%	N/A	1/19/23	2/19/23	MV
↓	↓	Lot: 219481	NH4OH	↓	—	9/19/23	100%	3.3 mL	↓	1%	↓	↓	↓	↓
↓	↓	Lot: 224863	H2O	↓	—	1/17/24	100%	1.7 mL	↓	4%	↓	↓	↓	↓
↓	↓	Lot: 224297	Acetic ACID	↓	—	6/24	99.7%	0.625 mL	↓	.625%	↓	↓	↓	↓
LCMS 2053	(spike) Full list std	11568	PF6A 200 28	SGS standards	11/9/27	1/10/24	1.0 ppm	400 NL	4.0 mL	100 ppb	95% MeOH 5% H2O	12/4/23	3/21/23	MV
↓	↓	LCMS 1987	40 list add-on #1	↓	—	3/21/23	1.0 ppm	400 NL	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 1986	40 list add-on #2	↓	—	4/8/23	1.0 ppm	400 NL	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 2054	Fosc std.	↓	—	7/24/23	5.0 ppm	400 NL	↓	500 ppb	↓	↓	↓	↓
LCMS 2054	Fosc std.	11336	N-Et-FOSE	Wellington	5/13/27	9/19/23	50 ppm	200 NL	2.0 mL	5 ppm	95% MeOH 5% H2O	12/4/23	7/24/23	MV
↓	↓	11338	N-Me FOSE	↓	5/13/27	9/19/23	50 ppm	200 NL	↓	↓	↓	↓	↓	↓
LCMS 2055	1633 Cal std.	10855	PFAC-MxH	Wellington	9/14/26	1/17/24	1-4 ppm	250 NL	4 mL	62.5 125 250 ppb	1633 MIX	1/24/23	7/24/23	MV
↓	↓	10853I	PFAC-MxI	↓	9/14/26	1/11/24	1-10 ppm	250 NL	↓	62.5 125 250 ppb	↓	↓	↓	↓
↓	↓	11579B	PFAC-MxF	↓	1/11/25	1/11/24	2 ppm	500 NL	↓	250 ppb	↓	↓	↓	↓
↓	↓	11607A	PFAC-MxG	↓	3/4/25	1/24/24	2 ppm	250 NL	↓	125 ppb	↓	↓	↓	↓
↓	↓	10854I	PFAC-MxJ	↓	9/14/26	1/11/24	4-20 ppm	312 NL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11492	PFAC-MxJ	↓	9/14/26	1/24/24	4-20 ppm	312 NL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11603	PFAC-MxJ	↓	9/14/26	1/24/24	4-20 ppm	312 NL	↓	312/100 ppb	↓	↓	↓	↓

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

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

11494



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSE

2-(N-Methylperfluorooctanesulfonamido)ethanol Isomeric Mix

<u>PRODUCT CODE:</u>	br-NMeFOSE
<u>LOT NUMBER:</u>	brNMeFOSE0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/02/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/07/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-methylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
 Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
 Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
 Figure 3: LC/MS Data (SIR)
 Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 24448-09-7 (for linear isomer).

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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

brNMeFOSE0922 (1 of 7)
rev1

7.9.1

7

11495



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSE

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

<u>PRODUCT CODE:</u>	br-NEtFOSE
<u>LOT NUMBER:</u>	brNEtFOSE1022
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/12/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

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Revision#:9, Revised 2020-12-23

brNEtFOSE1022 (1 of 7)
rev1

7.9.1

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11497



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSA

N-Methylperfluorooctanesulfonamide Isomeric Mix

<u>PRODUCT CODE:</u>	br-NMeFOSA
<u>LOT NUMBER:</u>	brNMeFOSA0822
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/18/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	08/23/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	08/23/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
 Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
 Figure 2: LC/MS Data (SIR)
 Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 31506-32-8 (for linear isomer).

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

brNMeFOSA0822 (1 of 6)
rev1

7.9.1

7

11498



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSA

N-Ethylperfluorooctanesulfonamide Isomeric Mix

<u>PRODUCT CODE:</u>	br-NEtFOSA
<u>LOT NUMBER:</u>	brNEtFOSA0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/23/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	10/07/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-ethylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
 Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
 Figure 2: LC/MS Data (SIR)
 Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 4151-50-2 (for linear isomer).

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

brNEtFOSA0922 (1 of 6)
rev1

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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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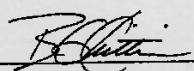
PFACMXJ:0921 (1 of 5)
rev1

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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
(m/mcd/yyyy)

11672
rec'd: 02/23/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

**Native PFAS
Solution/Mixture**

PRODUCT CODE:	PFAC-MXH
LOT NUMBER:	PFACMXH0822
SOLVENT(S):	Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	08/05/2022
LAST TESTED: (mm/dd/yyyy)	08/08/2022
EXPIRY DATE: (mm/dd/yyyy)	08/08/2027
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₅, C₇, C₉, C₁₀ and C₁₂ linear; C₆ and C₈ linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide (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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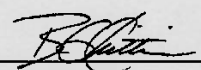
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Table A: PFAC-MXH; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

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 ^a	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 perfluorohexanesulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptadisulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate ^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)

11674 A-B
rec'd: 02/23/23



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 (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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Revision# 9, Revised 2020-12-23

PFACMXFC122 (1 of 5)
rev0

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Table A:

PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxananoate	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)

11675
rec'd: 02/23/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic Acids and Sulfonate Solution/Mixture

PRODUCT CODE: PFAC-MXG
LOT NUMBER: PFACMXG1122
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 11/30/2022
LAST TESTED: (mm/dd/yyyy) 12/01/2022
EXPIRY DATE: (mm/dd/yyyy) 12/01/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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

Table A

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)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FPePA

LOT NUMBER:

FPePA1120

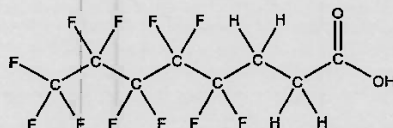
COMPOUND:

3-Perfluoropentyl propanoic acid

STRUCTURE:

CAS #:

914637-49-3



MOLECULAR FORMULA:

C₈H₅F₁₁O₂

MOLECULAR WEIGHT:

342.11

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/11/2020

EXPIRY DATE: (mm/dd/yyyy)

11/11/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 5:3 telomer acid (C₈H₃F₁₁O₂) as an impurity determined by ¹⁹F NMR.

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Certified By:

B.G. Chittim, General Manager

Date: 11/27/2020

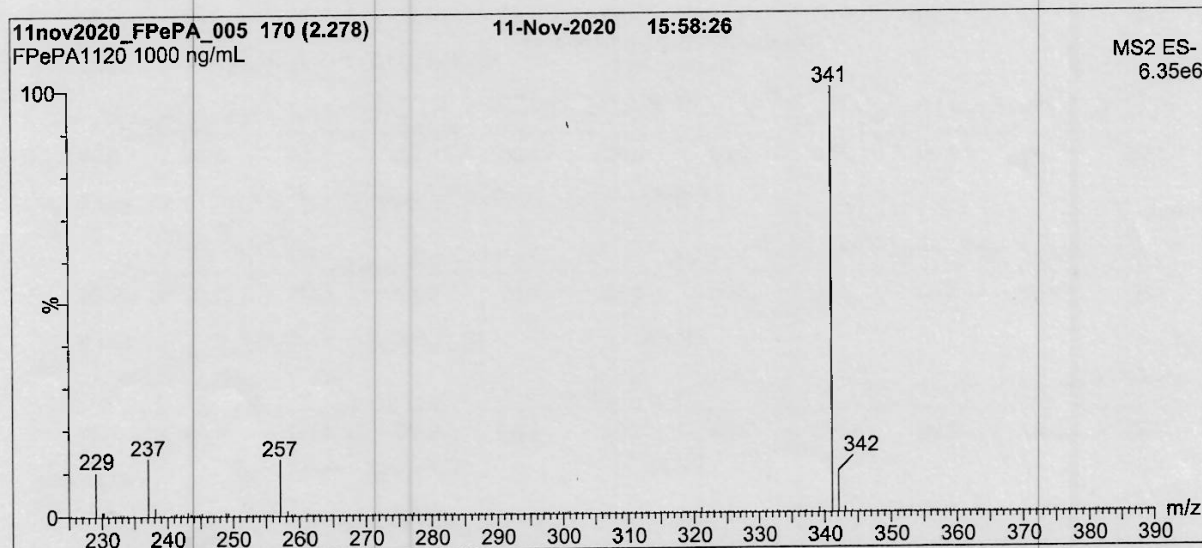
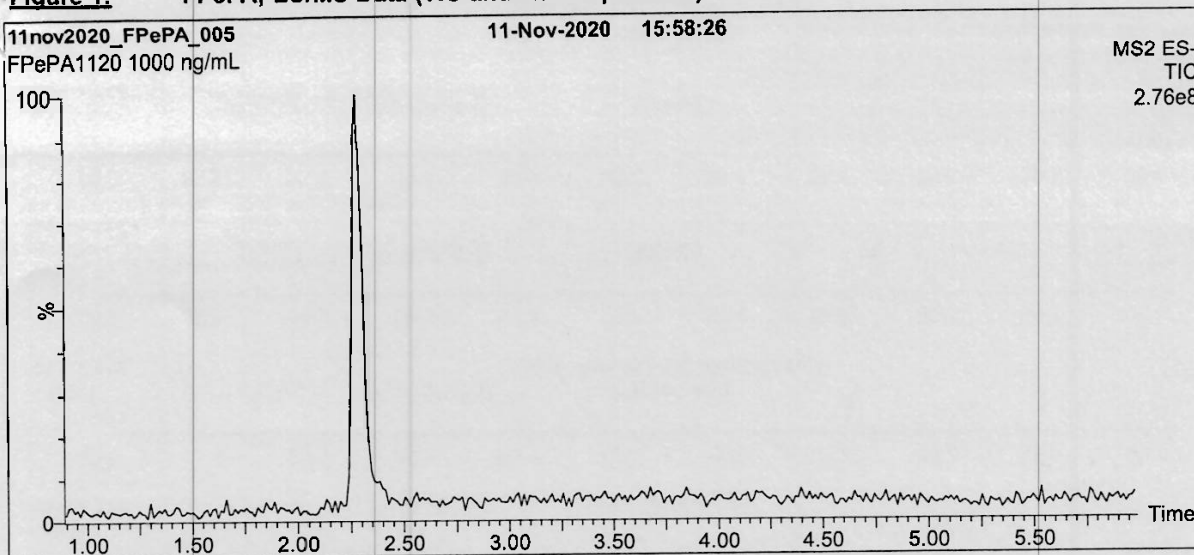
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 Revision#:8, Revised 2020-09-10

FPePA1120 (1 of 4)
 rev0

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

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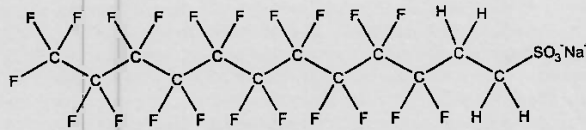


WELLINGTON LABORATORIES

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

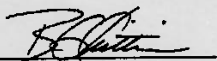
DOCUMENTATION/ DATA ATTACHED:

- 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.

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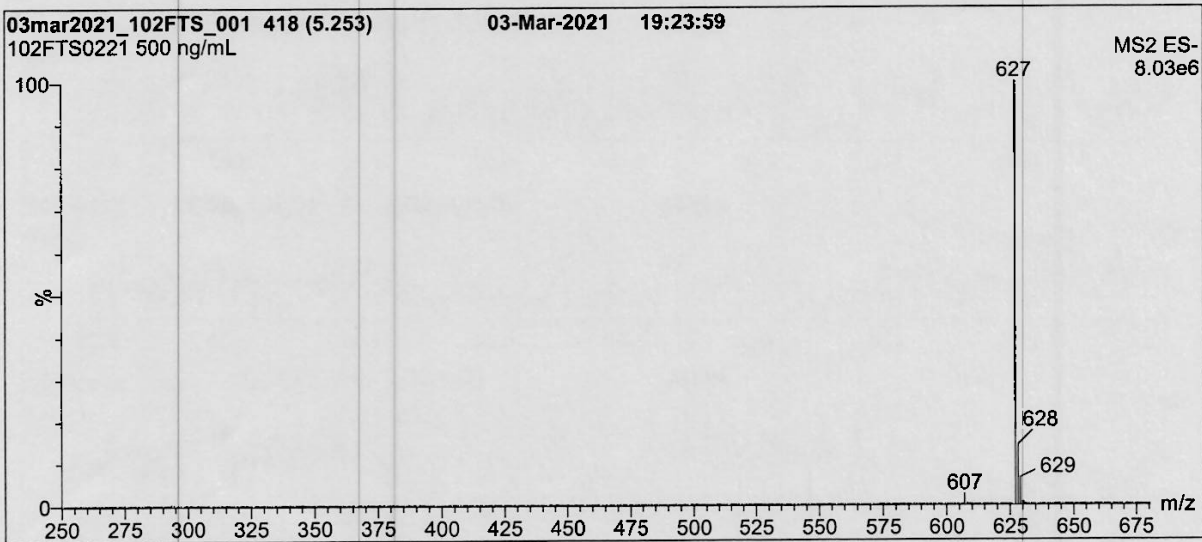
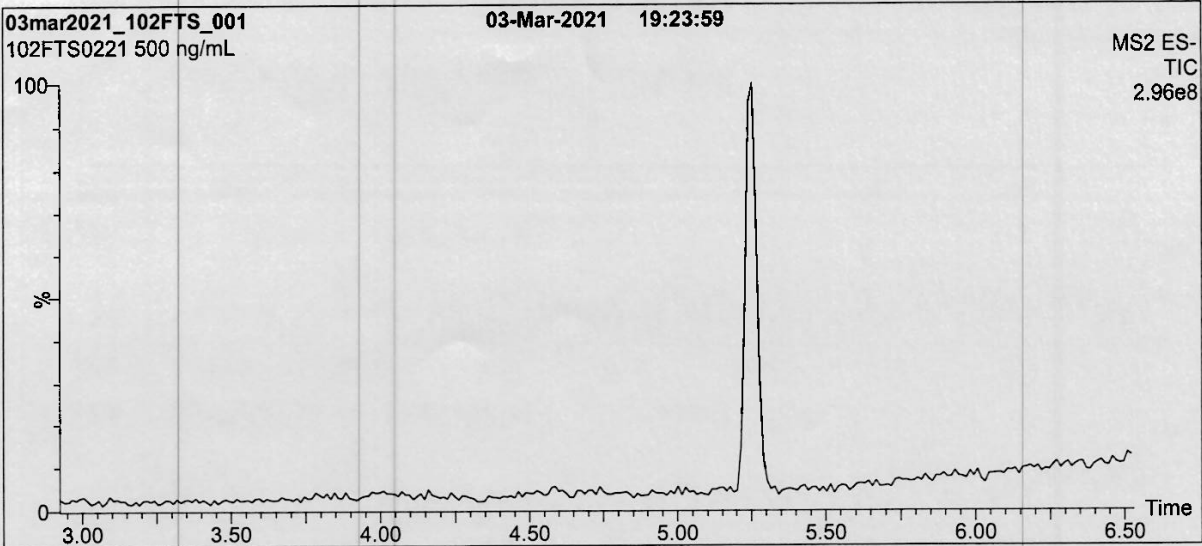
Certified By:  **Date:** 03/05/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

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Figure 1: 10:2FTS; LC/MS Data (Full Scan and Mass Spectrum)



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% H₂O / 60% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 3 min
before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 25.00
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

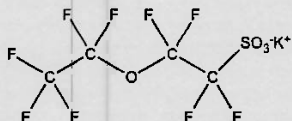
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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFEESA *retd 8/20/21 WPH* **LOT NUMBER:** PFEESA0520
COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate
STRUCTURE: **CAS #:** 117205-07-9



MOLECULAR FORMULA: C₄F₈SO₄K **MOLECULAR WEIGHT:** 354.19
CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol
 44.6 ± 2.2 µg/ml (PFEESA acid)
 44.5 ± 2.2 µg/ml (PFEESA anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/13/2020
EXPIRY DATE: (mm/dd/yyyy) 05/13/2025
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

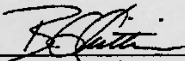
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Certified By: 
 B.G. Chittim, General Manager **Date:** 05/29/2020
(mm/dd/yyyy)

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 Revision#:7, Revised 2020-01-09

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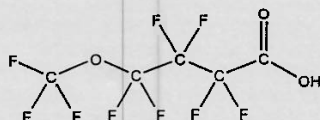
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

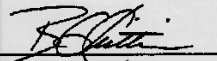
DOCUMENTATION/ DATA ATTACHED:

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.

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

B.G. Chittim, General Manager

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PF5OHxA0320 (1 of 4)
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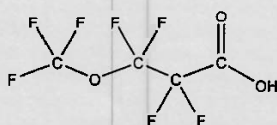
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

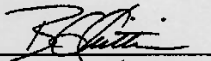
DOCUMENTATION/ DATA ATTACHED:

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

PF4OPeA0320 (1 of 4)
rev1

7.9.1
7

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

rec'd
WPH
8/20/21

LOT NUMBER:

36OPFHpA0320

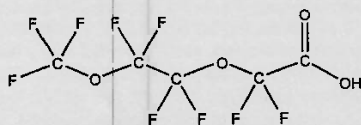
COMPOUND:

Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₉O₄

MOLECULAR WEIGHT:

296.04

CONCENTRATION:

50.0 ± 2.5 µg/ml

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/31/2020

EXPIRY DATE: (mm/dd/yyyy)

03/31/2025

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 05/27/2020
(mm/dd/yyyy)

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10829



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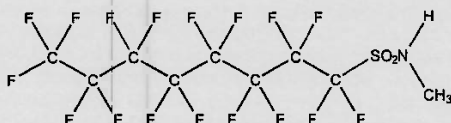
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

LOT NUMBER: NMeFOSA0721M

STRUCTURE:

CAS #: 31506-32-8



rec'd
WPA
10/5/21

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

MOLECULAR WEIGHT: 513.17
SOLVENT(S): Methanol

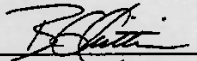
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

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

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NMeFOSA0721M (1 of 4)
rev0

7.9.1

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

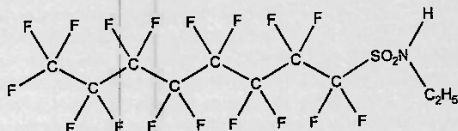
10837

LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:



CAS #: 4151-50-2

MOLECULAR FORMULA:

C₁₀H₉F₁₇NO₂S

MOLECULAR WEIGHT:

527.20

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/12/2021

EXPIRY DATE: (mm/dd/yyyy)

08/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

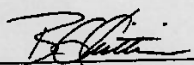
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:


B.G. Chittim, General Manager

Date: 08/16/2021

(mm/dd/yyyy)

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10

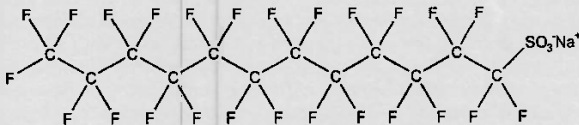
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LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

10840

PRODUCT CODE: L-PFDoS **LOT NUMBER:** LPFDoS0721
COMPOUND: Sodium perfluoro-1-dodecanesulfonate

STRUCTURE: **CAS #:** 1260224-54-1



MOLECULAR FORMULA: C₁₂F₂₅SO₃Na **MOLECULAR WEIGHT:** 722.14
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol
 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

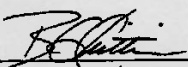
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

LPFDoS0721 (1 of 4)
 rev0



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFODA

10847 NS 01/18/23

LOT NUMBER:

PFODA0821

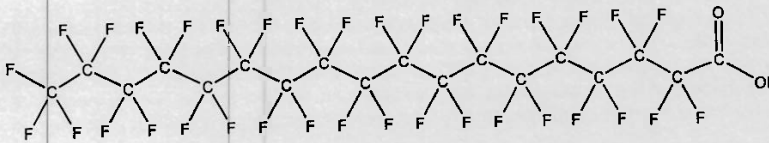
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

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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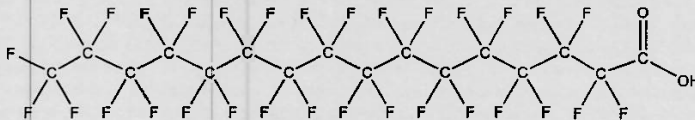
CERTIFICATE OF ANALYSIS DOCUMENTATION

10842 * NG 01/18/23

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0421

COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆H₃₁O₂ **MOLECULAR WEIGHT:** 814.13

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

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 05/07/2021

EXPIRY DATE: (mm/dd/yyyy) 05/07/2026

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

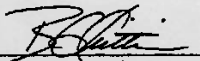
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Certified By: 
B.G. Chittim, General Manager

Date: 05/25/2021
(mm/dd/yyyy)

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1116 A.B ^{mw}

1116B on the back mw



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

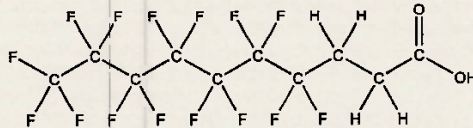
COMPOUND:

3-Perfluoroheptyl propanoic acid

STRUCTURE:

CAS #:

812-70-4



MOLECULAR FORMULA:

C₁₀H₅F₁₅O₂

MOLECULAR WEIGHT:

442.12

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/12/2020

EXPIRY DATE: (mm/dd/yyyy)

11/12/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 11/27/2020

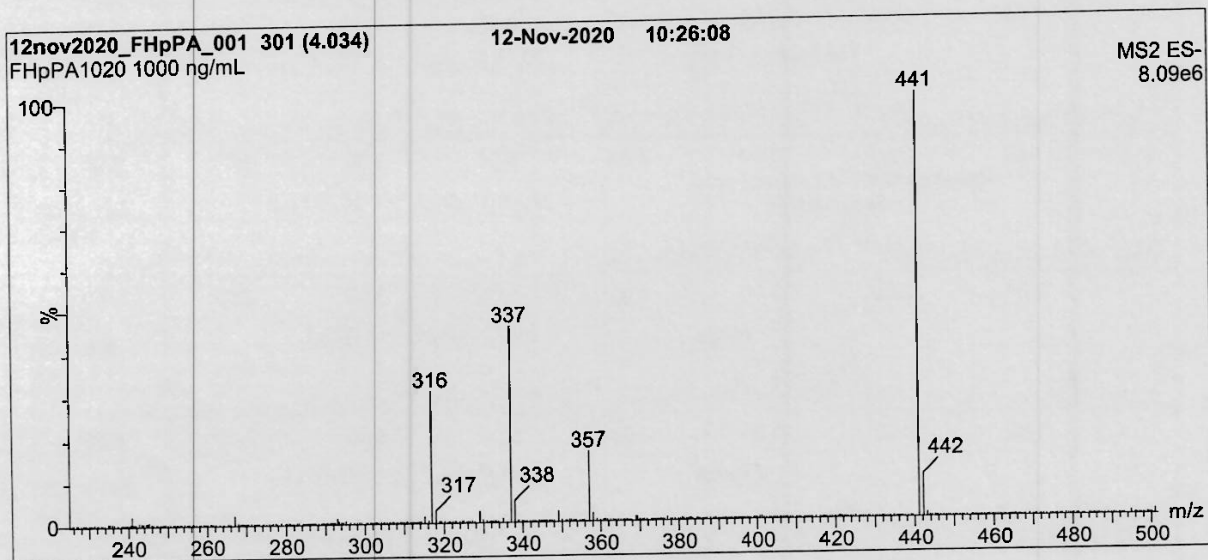
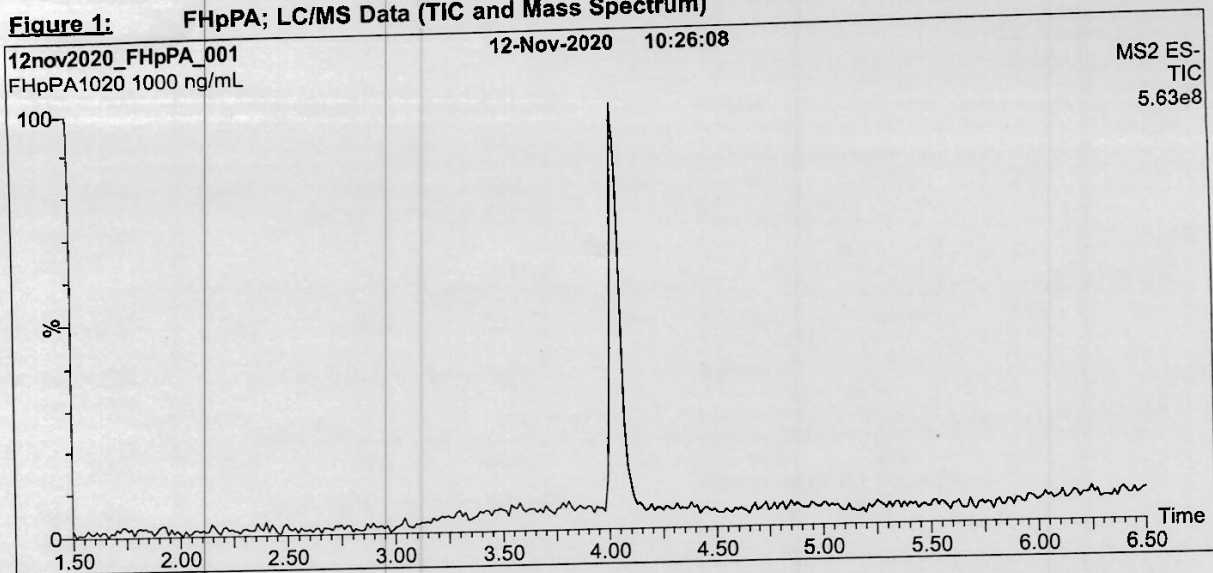
(mm/dd/yyyy)

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

FHpPA1020 (1 of 4)
rev0

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



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 28.50
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

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

FPPrPA(3:3FTCA) 1116 B



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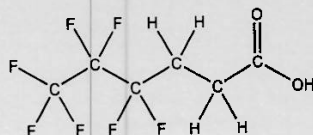
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FPPrPA
COMPOUND: 3-Perfluoropropyl propanoic acid

LOT NUMBER: FPPrPA0122

STRUCTURE:

CAS #: 356-02-5



MOLECULAR FORMULA: C₆H₅F₇O₂
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/03/2022
EXPIRY DATE: (mm/dd/yyyy) 02/03/2027
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 242.09
SOLVENT(S): Methanol

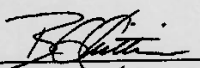
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid (C₆H₃F₇O₂) as an impurity determined by ¹⁹F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 02/04/2022
(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

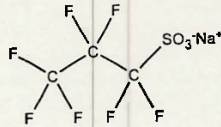
COMPOUND:

Sodium perfluoro-1-propanesulfonate

CAS #:

Not available

STRUCTURE:



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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PRODUCT CODE:

FHxSA-I

LOT NUMBER:

FHxSA12211

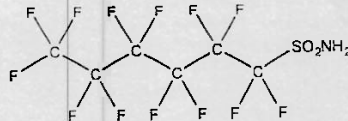
COMPOUND:

Perfluoro-1-hexanesulfonamide

STRUCTURE:

CAS #:

41997-13-1



MOLECULAR FORMULA:

C₆H₂F₁₃NO₂S

MOLECULAR WEIGHT:

399.13

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

isopropanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

12/29/2021

EXPIRY DATE: (mm/dd/yyyy)

12/29/2026

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

Date: 01/10/2022

(mm/dd/yyyy)

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FHxSA12211 (1 of 4)
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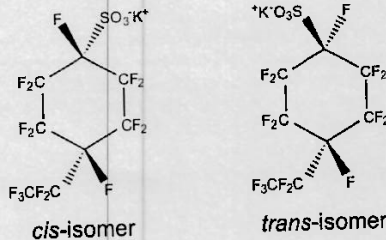
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:
COMPOUND:

PFECHS
Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

LOT NUMBER: PFECHS0222

STRUCTURE:



CAS #: 335-24-0

MOLECULAR FORMULA:
CONCENTRATION:

C₈F₁₅SO₃K
50.0 ± 2.5 µg/mL (K salt)
46.2 ± 2.3 µg/mL (PFECHS acid)
46.1 ± 2.3 µg/mL (PFECHS anion)
>98%

MOLECULAR WEIGHT: 500.22
SOLVENT(S): Methanol

CHEMICAL PURITY:

LAST TESTED: (mm/dd/yyyy)

03/28/2022

EXPIRY DATE: (mm/dd/yyyy)

03/28/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 03/30/2022
(mm/dd/yyyy)

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11338



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

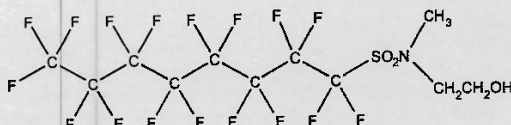
NMeFOSE0522M

COMPOUND:

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

STRUCTURE:**CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C₁₁H₈F₁₇NO₃S**MOLECULAR WEIGHT:**

557.22

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy)

05/13/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS Data (Full Scan and Mass Spectrum)

Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager
Date: 06/14/2022
(mm/dd/yyyy)

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11615 A-5
rec'd 01/19/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

Mass-Labelled PFAS Injection
Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-IS
LOT NUMBER: MPFACHIFIS1122
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 11/28/2022
LAST TESTED: (mm/dd/yyyy) 11/29/2022
EXPIRY DATE: (mm/dd/yyyy) 11/29/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄, C₆, C₈-C₁₀) and two mass-labelled (¹⁸O and ¹³C) perfluoroalkanesulfonates (C₆ and C₈). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and mass-labelled perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of ≥99% per ¹³C or >94% per ¹⁸O.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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

MPFACHIFIS1122 (1 of 5)
rev0

7.9.1

7

Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, ± 5% in methanol/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(2,3,4- ¹³ C ₃)butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- ¹³ C ₂)hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- ¹³ C ₄)octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- ¹³ C ₅)nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2- ¹³ C ₂)decanoic acid	MPFDA	250		7
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-hexane(¹⁸ O ₂)sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4- ¹³ C ₄)octanesulfonate	MPFOS	500	479	6

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 12/05/2022
(mm/dd/yyyy)



11626
rec'd 01/26/23

CERTIFIED WEIGHT REPORT

Part Number: **64029A**
Lot Number: **110922**
Description: **PFOA - DOD**
28 components
Expiration Date: **110827**
Recommended Storage: **Freezer (0 °C)**
Nominal Concentration (µg/mL): **1.0**
NIST Test ID#: **6UTB**

Solvent(s): **Methanol (1 mM KOH)**
2-Propanol
Lot# **102722** (98%)
32500 (2%)

Formulated By: <i>P. S. Chauhan</i>	110922
Prepared By: <i>Prashant Chauhan</i>	DATE
Reviewed By: <i>Pedro L. Rentas</i>	110922
	DATE

Volume(s) shown below were combined and diluted to (mL):
Note: All assigned values are anion 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)	LD50
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	ipr-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	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 (PTTDA)	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. Perfluorooctanesulfonamide (FOSA)	3677	FOSA03221	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A
13. N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (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	29189-87-2	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-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropanoic 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-oxadecane-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-Chlorooctadecafluoro-3-oxanone-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
28. 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	ipr-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	ipr-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	6.3	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 Reference: Taylor, B.N. and Kaye, C.E. "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

11636 A-J
rec'd 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-ES
LOT NUMBER: MPFACHIFES1022
SOLVENT(S): Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 10/28/2022
LAST TESTED: (mm/dd/yyyy) 11/23/2022
EXPIRY DATE: (mm/dd/yyyy) 11/23/2025
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄-C₁₂, C₁₄), three mass-labelled (¹³C) perfluoroalkanesulfonates (C₄, C₆, and C₈), three mass-labelled (one ¹³C and two ²H) perfluoro-1-octanesulfonamides, three mass-labelled (¹³C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (²H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (²H) perfluorooctanesulfonamidoethanols, and mass-labelled (¹³C) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ¹³C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual ²H-labelled components all have chemical purities >98% and isotopic purities of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

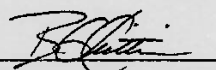
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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
 519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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 ₆)hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- ¹³ C ₆)heptanoic acid	M4PFHpA	500		7
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	500		10
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₁₀)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₁₁)undecanoic acid	M7PFUdA	250		18
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	250		22
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		17
N-methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d 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 ₃ -ol	d9-N-EtFOSE	5000		23
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₃)propanoic acid	M3HFPO-DA	2000		6
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)decanesulfonate	M2-8:2FTS	1000	960	13

* Concentrations have been rounded to three significant figures.

Certified By:  Date: 11/24/2022
(mm/dd/yyyy)
 B.G. Chittim, General Manager

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 04/14/23 10:00
Started (mm/dd/yy 24:00)

Method: EPA 1633 Draft (QSM)

Date/Time: 4/17/23 14:24
Finished (mm/dd/yy 24:00)

Balance ID: _____

Batch#: OP96403 Ext. By: GH

Conc. By: _____ Viald By: _____

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount (ul)	Spike Amount (ul)	Final Volume (ml)	Manifold ID	Comments
OP 96403 MB		500	7	N/A	25		5	Ab	
OP 96403 BS		500	7						
OP 96403 LLBS		500	7			200			
FC5164-1	2	560				60			
	2	550							
FC5194-1	2	510							
	2	560							
FC5194-3	2	530	7	N/A	25		5	Ab	
OP FC5194-1 MS	3	510	7	N/A	25	200	5	Ab	
OP FC5194-2 DUP	3	570	7	N/A	25		5	Ab	

Comments:

EIS (SURR) ID: 11741 D-F Conc: 250-5000 ng/ml Exp. Date: 04/11/24 Inj. By: GH Ver. By: DBL
 SPIKE.1 ID: LMS 2098C Conc: VARIED Exp. Date: 10/06/23 Inj. By: GH Ver. By: DBL
 SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 11702 D-F Conc: 250-1000 ng/ml Exp. Date: 4/15/24 Inj. By: MW Ver. By: NG

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot # 224231 1% NH4OH MeOH PF 356 SPE Lot # 523-001184
 Water Lot# OP96255 0.3M Formic Acid PF 347 Syringe filter Lot # _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 215322
 0.1M Formic PF 351 5% Formic Acid _____ Carbon Lot# 160898

Relinquished By: Shaniceh Vadgait
 Accepted By: M. Valls

Date: 04/14/23
 Date: 4/17/23

1633 AQ extraction 042222.xls.NF

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 04/20/23 09:30
 Started (mm/dd/yy 24:00)

Method: EPA 1033 Draft (QSM)

Date/Time: 04/20/23 15:30
 Finished (mm/dd/yy 24:00)

Balance ID: _____

Batch#: OP96494 Ext. By: CM Conc. By: _____ Viald By: _____

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount (ul)	Spike Amount (ul)	Final Volume (ml)	Manifold ID	Comments
OP96494 MB		500	7	N/A	25		5	G	
OP96494 BS		500	↓	↓	↓	32	↓	↓	SPike 2
OP96494 LLBS		500	↓	↓	↓	66	↓	↓	SPike 1
FCS194-3 RE	3	510	↓	↓	↓		↓	↓	
FCS252-S RE	3	490	7	N/A	25		5	G	
<p>CM 4/20/23</p>									
OP	MS								
OP	MSD								
OP	DUP								

Comments:

EIS (SURR) ID: 117411-3 Conc: 250-5000 Exp. Date: 04/18/24 Inj. By: CM Ver. By: GH
 SPIKE.1 ID: LCMS2104-B Conc: Varied Exp. Date: 10/14/23 Inj. By: CM Ver. By: GH
 SPIKE.2 ID: LCMS2107-A Conc: Varied Exp. Date: 10/19/23 Inj. By: CM Ver. By: GH
 NIS (ISTD) ID: 117028# Conc: 250-1000 Exp. Date: 04/18/24 Inj. By: NG Ver. By: LR

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____
 Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot # 224231 1% NH4OH MeOH PF365 SPE Lot # 6723930-02
 Water Lot# OP96255 0.3M Formic Acid PF363 Syringe filter Lot # _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 215322
 0.1M Formic PF362 5% Formic Acid _____ Carbon Lot# 160898

Relinquished By: Carla
 Accepted By: [Signature]

Date: 04/20/23
 Date: 04/20/23