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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC9496

Sampling Date: 09/08/23



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Total number of pages in report: 1253



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 unless noted in the narrative, comments or footnotes.

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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: FC9496

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

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC9496-1	09/08/23	09:20	CWTN09/13/23	AQ	Ground Water	AF-RHMW04-WGN01LF-2309
FC9496-2	09/08/23	10:30	MGMU09/13/23	AQ	Ground Water	AF-RHMW17S-WGN01LF-2309
FC9496-3	09/08/23	10:45	MGMU09/13/23	AQ	Equipment Blank	AF-RHMW17S-WQEB01-2309
FC9496-4	09/08/23	11:50	MGMU09/13/23	AQ	Ground Water	AF-RHMW17D-WGN01LF-2309
FC9496-4D	09/08/23	11:50	MGMU09/13/23	AQ	Water Dup/MSD	AF-RHMW17D-WGN01LF-2309
FC9496-4S	09/08/23	11:50	MGMU09/13/23	AQ	Water Matrix Spike	AF-RHMW17D-WGN01LF-2309
FC9496-5	09/08/23	11:20	MGMU09/13/23	AQ	Field Blank Water	AF-RHMW17D-WQFB01-2309
FC9496-6	09/08/23	12:10	CWTN09/13/23	AQ	Ground Water	AF-RHMW06-WGN01LF-2309
FC9496-7	09/08/23	13:45	MG 09/13/23	AQ	Ground Water	AF-RHMW17-WGN01LF-2309

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC9496

Site: N6274223F0104 RH Fire Suppression System

Report Date: 9/20/2023 10:59:08

On 09/13/2023, 5 Sample(s), 1 Equipment Blank, 1 Field Blank were received at SGS North America Inc - Orlando, at a maximum corrected temperature of 4.4 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC9496 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: OP99007

Sample(s) FC9496-1MS, FC9496-2DUP were used as the QC samples indicated.

RPD(s) for Duplicate for Perfluorooctanesulfonic acid, Perfluorooctanoic acid are outside control limits for sample OP99007-DUP. Probable cause is due to sample non-homogeneity.

Sample(s) FC9496-4 have surrogates outside control limits.

FC9496-4 for 13C4-PFBA: Outside control limits.

Matrix: AQ

Batch ID: OP99024

Sample(s) FC9496-4MS, FC9496-4MSD were used as the QC samples indicated.

SGS North America Inc. - Orlando certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. SGS North America Inc.- Orlando is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

Kim Benham, Client Services (*Signature on File*)

Summary of Hits

Job Number: FC9496
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 09/08/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC9496-1 AF-RHMW04-WGN01LF-2309

No hits reported in this sample.

FC9496-2 AF-RHMW17S-WGN01LF-2309

Perfluorobutanoic acid	9.6 J	15	3.8	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	0.97 J	3.8	1.9	ng/l	EPA DRAFT 1633
Perfluorooctanoic acid	1.0 J	3.8	0.96	ng/l	EPA DRAFT 1633
Perfluorobutanesulfonic acid	0.50 J	3.8	1.9	ng/l	EPA DRAFT 1633
Perfluorooctanesulfonic acid	1.2 J	3.8	1.9	ng/l	EPA DRAFT 1633

FC9496-3 AF-RHMW17S-WQEB01-2309

No hits reported in this sample.

FC9496-4 AF-RHMW17D-WGN01LF-2309

No hits reported in this sample.

FC9496-5 AF-RHMW17D-WQFB01-2309

No hits reported in this sample.

FC9496-6 AF-RHMW06-WGN01LF-2309

No hits reported in this sample.

FC9496-7 AF-RHMW17-WGN01LF-2309

No hits reported in this sample.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW04-WGN01LF-2309		
Lab Sample ID:	FC9496-1	Date Sampled:	09/08/23
Matrix:	AQ - Ground Water	Date Received:	09/13/23
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	6Q24602.D	1	09/18/23 13:39	MV	09/14/23 10:00	OP99007	S6Q353
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.6 U	15	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.3	1.8	0.85	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.91 U	3.6	0.91	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.6	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.6	1.8	0.49	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.6	1.8	0.58	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.3 U	18	7.3	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.7	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.6	1.8	0.61	ng/l	
31506-32-8	MeFOSA	3.6 U	7.3	3.6	0.91	ng/l	
4151-50-2	EtFOSA	3.6 U	7.3	3.6	0.91	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW04-WGN01LF-2309	
Lab Sample ID:	FC9496-1	Date Sampled: 09/08/23
Matrix:	AQ - Ground Water	Date Received: 09/13/23
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

PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

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

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	18 U	36	18	4.0	ng/l
1691-99-2	EtFOSE	18 U	36	18	6.7	ng/l

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

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

13C4-PFBA	119%	20-150%
13C5-PFPeA	99%	20-150%
13C5-PFHxA	111%	20-150%
13C4-PFHpA	118%	20-150%
13C8-PFOA	120%	20-150%
13C9-PFNA	143%	20-150%
13C6-PFDA	117%	20-150%
13C7-PFUnDA	99%	20-150%
13C2-PFDoDA	96%	20-150%
13C2-PFTeDA	94%	20-150%
13C3-PFBS	131%	20-150%
13C3-PFHxS	119%	20-150%

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

Report of Analysis

Client Sample ID:	AF-RHMW04-WGN01LF-2309	
Lab Sample ID:	FC9496-1	Date Sampled: 09/08/23
Matrix:	AQ - Ground Water	Date Received: 09/13/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	111%		20-150%
	13C8-FOSA	86%		20-150%
	d3-MeFOSA	76%		20-150%
	d5-EtFOSA	90%		20-150%
	d3-MeFOSAA	105%		20-150%
	d5-EtFOSAA	91%		20-150%
	d7-MeFOSE	79%		20-150%
	d9-EtFOSE	86%		20-150%
	13C2-4:2FTS	119%		20-180%
	13C2-6:2FTS	115%		20-180%
	13C2-8:2FTS	107%		20-180%
	13C3-HFPO-DA	110%		20-150%

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

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-RHMW17S-WGN01LF-2309		
Lab Sample ID:	FC9496-2	Date Sampled:	09/08/23
Matrix:	AQ - Ground Water	Date Received:	09/13/23
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	6Q24604.D	1	09/18/23 14:07	MV	09/14/23 10:00	OP99007	S6Q353
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	9.6	15	3.8	1.8	ng/l	J
2706-90-3	Perfluoropentanoic acid	1.9 U	7.7	1.9	0.90	ng/l	
307-24-4	Perfluorohexanoic acid	0.97	3.8	1.9	0.48	ng/l	J
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
335-67-1	Perfluorooctanoic acid	1.0	3.8	0.96	0.48	ng/l	J
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.59	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.81	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.50	3.8	1.9	0.48	ng/l	J
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.8	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	3.8	1.9	0.67	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.48	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.2	3.8	1.9	0.52	ng/l	J
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.55	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	1.9	0.62	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.8	3.8	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.1	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.7 U	19	7.7	4.0	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	3.8	1.9	0.64	ng/l	
31506-32-8	MeFOSA	3.8 U	7.7	3.8	0.96	ng/l	
4151-50-2	EtFOSA	3.8 U	7.7	3.8	0.96	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17S-WGN01LF-2309		
Lab Sample ID:	FC9496-2	Date Sampled:	09/08/23
Matrix:	AQ - Ground Water	Date Received:	09/13/23
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	3.8 U	4.8	3.8	0.96	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.8	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	19 U	38	19	4.2	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.1	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	54%		20-150%
	13C5-PFPeA	84%		20-150%
	13C5-PFHxA	94%		20-150%
	13C4-PFHpA	98%		20-150%
	13C8-PFOA	108%		20-150%
	13C9-PFNA	117%		20-150%
	13C6-PFDA	101%		20-150%
	13C7-PFUnDA	86%		20-150%
	13C2-PFDoDA	85%		20-150%
	13C2-PFTeDA	70%		20-150%
	13C3-PFBS	112%		20-150%
	13C3-PFHxS	103%		20-150%

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

4.2
4

Report of Analysis

Client Sample ID:	AF-RHMW17S-WGN01LF-2309		
Lab Sample ID:	FC9496-2	Date Sampled:	09/08/23
Matrix:	AQ - Ground Water	Date Received:	09/13/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	85%		20-150%
	13C8-FOSA	73%		20-150%
	d3-MeFOSA	55%		20-150%
	d5-EtFOSA	58%		20-150%
	d3-MeFOSAA	88%		20-150%
	d5-EtFOSAA	75%		20-150%
	d7-MeFOSE	57%		20-150%
	d9-EtFOSE	62%		20-150%
	13C2-4:2FTS	96%		20-180%
	13C2-6:2FTS	92%		20-180%
	13C2-8:2FTS	87%		20-180%
	13C3-HFPO-DA	93%		20-150%

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

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-RHMW17S-WQEB01-2309		
Lab Sample ID:	FC9496-3	Date Sampled:	09/08/23
Matrix:	AQ - Equipment Blank	Date Received:	09/13/23
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	6Q24606.D	1	09/18/23 14:36	MV	09/14/23 10:00	OP99007	S6Q353
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.6 U	15	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.3	1.8	0.85	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.91 U	3.6	0.91	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.6	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.6	1.8	0.49	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.6	1.8	0.58	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.3 U	18	7.3	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.7	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.6	1.8	0.61	ng/l	
31506-32-8	MeFOSA	3.6 U	7.3	3.6	0.91	ng/l	
4151-50-2	EtFOSA	3.6 U	7.3	3.6	0.91	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17S-WQEB01-2309		
Lab Sample ID:	FC9496-3	Date Sampled:	09/08/23
Matrix:	AQ - Equipment Blank	Date Received:	09/13/23
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	3.6 U	4.5	3.6	0.91	ng/l	
2991-50-6	EtFOSAA	3.6 U	4.5	3.6	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	18 U	36	18	4.0	ng/l	
1691-99-2	EtFOSE	18 U	36	18	6.7	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	113%		20-150%
	13C5-PFPeA	93%		20-150%
	13C5-PFHxA	101%		20-150%
	13C4-PFHpA	107%		20-150%
	13C8-PFOA	115%		20-150%
	13C9-PFNA	133%		20-150%
	13C6-PFDA	106%		20-150%
	13C7-PFUnDA	88%		20-150%
	13C2-PFDoDA	90%		20-150%
	13C2-PFTeDA	88%		20-150%
	13C3-PFBS	117%		20-150%
	13C3-PFHxS	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-RHMW17S-WQEB01-2309	
Lab Sample ID:	FC9496-3	Date Sampled: 09/08/23
Matrix:	AQ - Equipment Blank	Date Received: 09/13/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	109%		20-150%
	13C8-FOSA	83%		20-150%
	d3-MeFOSA	76%		20-150%
	d5-EtFOSA	77%		20-150%
	d3-MeFOSAA	97%		20-150%
	d5-EtFOSAA	82%		20-150%
	d7-MeFOSE	73%		20-150%
	d9-EtFOSE	76%		20-150%
	13C2-4:2FTS	109%		20-180%
	13C2-6:2FTS	105%		20-180%
	13C2-8:2FTS	100%		20-180%
	13C3-HFPO-DA	103%		20-150%

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 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-RHMW17D-WGN01LF-2309		
Lab Sample ID:	FC9496-4	Date Sampled:	09/08/23
Matrix:	AQ - Ground Water	Date Received:	09/13/23
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	6Q24607.D	1	09/18/23 14:50	MV	09/14/23 10:00	OP99007	S6Q353
Run #2	4Q50750.D	1	09/18/23 19:22	AL	09/15/23 08:30	OP99024	S4Q742

Run #	Initial Volume	Final Volume
Run #1	520 ml	5.0 ml
Run #2	65.0 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	31 U ^a	120	31	15	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.7	1.9	0.90	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
335-67-1	Perfluorooctanoic acid	0.96 U	3.8	0.96	0.48	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.59	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.81	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

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

FLUOROTELOMER SULFONIC ACIDS

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

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.9 U	3.8	1.9	0.64	ng/l	
31506-32-8	MeFOSA	3.8 U	7.7	3.8	0.96	ng/l	
4151-50-2	EtFOSA	3.8 U	7.7	3.8	0.96	ng/l	

U = Not detected

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LOQ = Limit of Quantitation

DL = Detection Limit

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E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17D-WGN01LF-2309		
Lab Sample ID:	FC9496-4	Date Sampled:	09/08/23
Matrix:	AQ - Ground Water	Date Received:	09/13/23
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	3.8 U	4.8	3.8	0.96	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.8	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	19 U	38	19	4.2	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.1	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	4% ^b	112%	20-150%
	13C5-PFPeA	26%	108%	20-150%
	13C5-PFHxA	96%	107%	20-150%
	13C4-PFHpA	121%	108%	20-150%
	13C8-PFOA	119%	103%	20-150%
	13C9-PFNA	133%	103%	20-150%
	13C6-PFDA	124%	104%	20-150%
	13C7-PFUnDA	104%	108%	20-150%
	13C2-PFDoDA	96%	96%	20-150%
	13C2-PFTeDA	69%	93%	20-150%
	13C3-PFBS	108%	107%	20-150%
	13C3-PFHxS	116%	106%	20-150%

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

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Report of Analysis

Client Sample ID:	AF-RHMW17D-WGN01LF-2309	
Lab Sample ID:	FC9496-4	Date Sampled: 09/08/23
Matrix:	AQ - Ground Water	Date Received: 09/13/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	92%	93%	20-150%
	13C8-FOSA	78%	78%	20-150%
	d3-MeFOSA	73%	71%	20-150%
	d5-EtFOSA	79%	69%	20-150%
	d3-MeFOSAA	118%	100%	20-150%
	d5-EtFOSAA	114%	104%	20-150%
	d7-MeFOSE	69%	85%	20-150%
	d9-EtFOSE	72%	92%	20-150%
	13C2-4:2FTS	178%	108%	20-180%
	13C2-6:2FTS	108%	97%	20-180%
	13C2-8:2FTS	110%	84%	20-180%
	13C3-HFPO-DA	87%	110%	20-150%

- (a) Result is from Run# 2
- (b) Outside control limits.

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

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-RHMW17D-WQFB01-2309		
Lab Sample ID:	FC9496-5	Date Sampled:	09/08/23
Matrix:	AQ - Field Blank Water	Date Received:	09/13/23
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	6Q24608.D	1	09/18/23 15:05	MV	09/14/23 10:00	OP99007	S6Q353
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.5 U	14	3.5	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.0	1.8	0.82	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
335-67-1	Perfluorooctanoic acid	0.88 U	3.5	0.88	0.44	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.5	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.5	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.5 U	4.4	3.5	0.98	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.5	1.8	0.61	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.5	1.8	0.47	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.5	1.8	0.50	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.5	1.8	0.56	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.5 U	4.4	3.5	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.0 U	18	7.0	2.8	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.0	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.6	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.5	1.8	0.59	ng/l	
31506-32-8	MeFOSA	3.5 U	7.0	3.5	0.88	ng/l	
4151-50-2	EtFOSA	3.5 U	7.0	3.5	0.88	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17D-WQFB01-2309		
Lab Sample ID:	FC9496-5	Date Sampled:	09/08/23
Matrix:	AQ - Field Blank Water	Date Received:	09/13/23
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	3.5 U	4.4	3.5	0.88	ng/l	
2991-50-6	EtFOSAA	3.5 U	4.4	3.5	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	18 U	35	18	3.8	ng/l	
1691-99-2	EtFOSE	18 U	35	18	6.5	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	113%		20-150%
	13C5-PFPeA	97%		20-150%
	13C5-PFHxA	103%		20-150%
	13C4-PFHpA	116%		20-150%
	13C8-PFOA	111%		20-150%
	13C9-PFNA	117%		20-150%
	13C6-PFDA	118%		20-150%
	13C7-PFUnDA	99%		20-150%
	13C2-PFDoDA	93%		20-150%
	13C2-PFTeDA	79%		20-150%
	13C3-PFBS	125%		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

4.5
4

Report of Analysis

Client Sample ID:	AF-RHMW17D-WQFB01-2309	
Lab Sample ID:	FC9496-5	Date Sampled: 09/08/23
Matrix:	AQ - Field Blank Water	Date Received: 09/13/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	97%		20-150%
	13C8-FOSA	80%		20-150%
	d3-MeFOSA	75%		20-150%
	d5-EtFOSA	83%		20-150%
	d3-MeFOSAA	97%		20-150%
	d5-EtFOSAA	85%		20-150%
	d7-MeFOSE	77%		20-150%
	d9-EtFOSE	76%		20-150%
	13C2-4:2FTS	115%		20-180%
	13C2-6:2FTS	109%		20-180%
	13C2-8:2FTS	100%		20-180%
	13C3-HFPO-DA	111%		20-150%

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

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Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW06-WGN01LF-2309		
Lab Sample ID:	FC9496-6	Date Sampled:	09/08/23
Matrix:	AQ - Ground Water	Date Received:	09/13/23
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	6Q24611.D	1	09/18/23 15:48	MV	09/14/23 10:00	OP99007	S6Q353
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.6 U	15	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.3	1.8	0.85	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.91 U	3.6	0.91	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.6	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.6	1.8	0.49	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.6	1.8	0.58	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.3 U	18	7.3	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.7	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.6	1.8	0.61	ng/l	
31506-32-8	MeFOSA	3.6 U	7.3	3.6	0.91	ng/l	
4151-50-2	EtFOSA	3.6 U	7.3	3.6	0.91	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW06-WGN01LF-2309	
Lab Sample ID:	FC9496-6	Date Sampled: 09/08/23
Matrix:	AQ - Ground Water	Date Received: 09/13/23
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

PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

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

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	18 U	36	18	4.0	ng/l
1691-99-2	EtFOSE	18 U	36	18	6.7	ng/l

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

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

13C4-PFBA	125%	20-150%
13C5-PFPeA	117%	20-150%
13C5-PFHxA	127%	20-150%
13C4-PFHpA	132%	20-150%
13C8-PFOA	126%	20-150%
13C9-PFNA	146%	20-150%
13C6-PFDA	123%	20-150%
13C7-PFUnDA	98%	20-150%
13C2-PFDoDA	96%	20-150%
13C2-PFTeDA	92%	20-150%
13C3-PFBS	138%	20-150%
13C3-PFHxS	118%	20-150%

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 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.6
4

Report of Analysis

Client Sample ID:	AF-RHMW06-WGN01LF-2309	
Lab Sample ID:	FC9496-6	Date Sampled: 09/08/23
Matrix:	AQ - Ground Water	Date Received: 09/13/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	107%		20-150%
	13C8-FOSA	85%		20-150%
	d3-MeFOSA	76%		20-150%
	d5-EtFOSA	85%		20-150%
	d3-MeFOSAA	101%		20-150%
	d5-EtFOSAA	96%		20-150%
	d7-MeFOSE	75%		20-150%
	d9-EtFOSE	77%		20-150%
	13C2-4:2FTS	123%		20-180%
	13C2-6:2FTS	110%		20-180%
	13C2-8:2FTS	112%		20-180%
	13C3-HFPO-DA	132%		20-150%

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

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Report of Analysis

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Client Sample ID:	AF-RHMW17-WGN01LF-2309		
Lab Sample ID:	FC9496-7	Date Sampled:	09/08/23
Matrix:	AQ - Ground Water	Date Received:	09/13/23
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	6Q24612.D	1	09/18/23 16:02	MV	09/14/23 10:00	OP99007	S6Q353
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.5 U	14	3.5	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.0	1.8	0.82	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
335-67-1	Perfluorooctanoic acid	0.88 U	3.5	0.88	0.44	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.5	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.5	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.5 U	4.4	3.5	0.98	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.5	1.8	0.61	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.5	1.8	0.47	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.5	1.8	0.50	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.5	1.8	0.56	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.5 U	4.4	3.5	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.0 U	18	7.0	2.8	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.0	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.6	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.5	1.8	0.59	ng/l	
31506-32-8	MeFOSA	3.5 U	7.0	3.5	0.88	ng/l	
4151-50-2	EtFOSA	3.5 U	7.0	3.5	0.88	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17-WGN01LF-2309		
Lab Sample ID:	FC9496-7	Date Sampled:	09/08/23
Matrix:	AQ - Ground Water	Date Received:	09/13/23
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	3.5 U	4.4	3.5	0.88	ng/l	
2991-50-6	EtFOSAA	3.5 U	4.4	3.5	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	18 U	35	18	3.8	ng/l	
1691-99-2	EtFOSE	18 U	35	18	6.5	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	109%		20-150%
	13C5-PFPeA	93%		20-150%
	13C5-PFHxA	100%		20-150%
	13C4-PFHpA	111%		20-150%
	13C8-PFOA	113%		20-150%
	13C9-PFNA	130%		20-150%
	13C6-PFDA	123%		20-150%
	13C7-PFUnDA	102%		20-150%
	13C2-PFDoDA	99%		20-150%
	13C2-PFTeDA	89%		20-150%
	13C3-PFBS	124%		20-150%
	13C3-PFHxS	111%		20-150%

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

Report of Analysis

Client Sample ID:	AF-RHMW17-WGN01LF-2309		
Lab Sample ID:	FC9496-7	Date Sampled:	09/08/23
Matrix:	AQ - Ground Water	Date Received:	09/13/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	108%		20-150%
	13C8-FOSA	79%		20-150%
	d3-MeFOSA	63%		20-150%
	d5-EtFOSA	74%		20-150%
	d3-MeFOSAA	102%		20-150%
	d5-EtFOSAA	81%		20-150%
	d7-MeFOSE	65%		20-150%
	d9-EtFOSE	67%		20-150%
	13C2-4:2FTS	115%		20-180%
	13C2-6:2FTS	109%		20-180%
	13C2-8:2FTS	102%		20-180%
	13C3-HFPO-DA	105%		20-150%

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits



SGS North America Inc - Orlando
Chain of Custody

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

FC9496

COC #: 2309AFSG08

SGS - ORLANDO JOB #:

PAGE 1 OF 1

SGS - ORLANDO Quote # SKIFF #

Client / Reporting Information		Project Information		Analytical Information			Matrix Codes	
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System					DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe	
Address: 1001 Bishop St. ste 1600		Street						
City: Honolulu	State: HI	Zip: 96813	City Honolulu					State Hawaii
Project Contact: Katie Abbott	Email: katie.abbott@aecom.com	Project # CTO CV123F0104						
Project Manager: Watson Tanji	Email: watson.tanji@aecom.com	Fax #						
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order # 151253						
Sampler(s) Name(s) (Printed) Sampler 1: Chris Vlahakis Sampler 2: Tyler Nishikawa								

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION										PFAS EPA Draft 1633	LAB USE ONLY				
		DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	ICI	NIH1	NIH2	NIH3	NIH4	NIH5			NIH6	DI WATER	MEDIA	
1	AF-RHMMW04-WGN01LF-2309	9/8/23	0920	CV123F0104	GW	3	X													

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
10 Day (Business) 7 Day <input type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other	Approved By: / Date: <input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S	EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWB: 016-98963456

Sample Custody must be documented below each time samples change possession, including courier delivery.							
1	Relinquished by Sampler/Affiliation <i>Tyler Nishikawa AECOM</i>	Date Time: <i>9/8/23 1300</i>	2	Received By/Affiliation <i>Ellie Shimatsu AECOM</i>	3	Relinquished By/Affiliation <i>Ellie Shimatsu AECOM</i>	Date Time: <i>09/13/23 1000</i>
5	Relinquished by/Affiliation <i>UC</i>	Date Time:	6	Received By/Affiliation <i>UC 09/13/23 0800</i>	7	Relinquished By/Affiliation	Date Time:
							8

PFAS_COCs_ALL_09052023.xls Rev 031318

4.6 FR#1



5.1
5



SGS North America Inc - Orlando
Chain of Custody

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

FC9496

COC #: 2309AFSG12

SGS - ORLANDO JOB # :

PAGE 1 OF 1

Client / Reporting Information		Project Information		Analytical Information		Matrix Codes															
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		<div style="border: 1px solid black; padding: 5px;"> <p>EN 9/8/22</p> </div>		<p>DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe</p>															
Address: 1001 Bishop St. ste 1600		Street																			
City: Honolulu State: HI Zip: 96813		City Honolulu State Hawaii																			
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # CTO CV123F0104																			
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #																			
Sampler(s) Name(s) (Printed)		Client Purchase Order # 151253		<p>PFAS EPA Draft 1633</p> <p>LAB USE ONLY</p> <p>INITIAL ASSESSMENT <u>ZJS</u></p> <p>LAB VERIFICATION</p>																	
Sampler 1: Sampler 2:																					
COLLECTION		CONTAINER INFORMATION																			
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME					SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HO	NECH	PHOS	RESCA	NACH-ZINC	DI WATER	MECH		
2	AF-RHMMW17S-WGN01LF-2309	9/8/23	10:30					Mb, MU	GW	3	X									X	
3	AF-RHMMW17S-WQEB01-2309	9/8/23	10:45					Mb, MU	WW	3	X									X	
Turnaround Time (Business days)		Data Deliverable Information						Comments / Remarks													
10 Day (Business) Approved By: / Date: _____ 7 Day _____ <input checked="" type="checkbox"/> 5 Day 3 Day RUSH _____ 2 Day RUSH _____ 1 Day RUSH _____ Other _____		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S						EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWB: 016-48963456													
Rush T/A Data Available VIA Email or Lablink																					
Sample Custody must be documented below each time samples change possession, including courier delivery.																					
Relinquished by Sampler/Affiliation		Date Time:		Received By/Affiliation		Relinquished By/Affiliation		Date Time:		Received By/Affiliation		Relinquished By/Affiliation		Date Time:		Received By/Affiliation					
1 <u>[Signature]</u>		9/8/23 10:30		Eli Martin/AECOM		3 <u>Eli Martin/AECOM</u>		9/11/23 10:00		4 <u>UC</u>		5 <u>UC</u>		6 <u>[Signature]</u>		7 <u>[Signature]</u>					
5 <u>UC</u>				09/13/23		0800				8											

PFAS_COCs_ALL_09052023.xls Rev 031318

FC9496: Chain of Custody

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SGS North America Inc - Orlando
Chain of Custody

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

FC9496

COC #: 2309AFSG11

SGS - ORLANDO JOB # :

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Client / Reporting Information			Project Information			Analytical Information													Matrix Codes
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System																DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe
Address: 1001 Bishop St. ste 1600			Street																
City: Honolulu State: HI Zip: 96813			City Honolulu State Hawaii																
Project Contact: Katie Abbott Email: katie.abbott@aecom.com Project Manager: Watson Tanji Email: watson.tanji@aecom.com			Project # CTO CVI23F0104																
Phone #: 303-796-4624 / 808-954-4512			Fax #																
Sampler(s) Name(s) (Printed) Sampler 1: <u>Mariah G.</u> Sampler 2: <u>MAX Ullax</u>			Client Purchase Order # 151253																
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH-ZnAC	DIL WATER	MEDIA	LAB USE ONLY			
4	AF-RHMW17D-WGN01LF-2309	9.8.23	1150	Mh	GW	7	X									X			
5	AF-RHMW17D-WQFB01-2309	9.8.23	1120	Mh	WW	3	X									X			
													INITIAL ASSESSMENT		Z.D.				
													LABEL VERIFICATION						
															Mh 9/18/23				
Turnaround Time (Business days)				Data Deliverable Information				Comments / Remarks											
10 Day (Business)		Approved By: / Date:		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S				EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW *Extra bottleware is to be used for an MS/MSD <u>united AWB: 016-48763456</u>											
7 Day																			
5 Day																			
3 Day RUSH																			
2 Day RUSH																			
1 Day RUSH																			
Other																			
Rush T/A Data Available VIA Email or Lablink																			
Sample Custody must be documented below each time samples change possession, including courier delivery.																			
Relinquished by Sampler/Affiliation		Date Time:		Received By/Affiliation				Relinquished By/Affiliation		Date Time:		Received By/Affiliation							
1 <u>Mariah Gusew Aecom</u>		9/18/23 1540		2 <u>Alex Edmond</u>				3 <u>Alex Edmond Aecom</u>		9/18/23 1000		4 <u>uc</u>							
5 <u>uc</u>				6 <u>[Signature]</u>				7 <u>[Signature]</u>				8 <u>[Signature]</u>							
Lab Use Only: Cooler Temperature (s) Celsius (corrected): <u>4.0 18.4</u>																			

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FC9496: Chain of Custody

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SGS North America Inc - Orlando
Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, FL 32811
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FC9496
SGS - ORLANDO JOB #:

COC #: 2309AFSG09

PAGE 1 OF 1

SGS - ORLANDO Quote # SKIFF #

Client / Reporting Information		Project Information		Analytical Information	Matrix Codes
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		PFAS EPA Draft 1633 	DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe
Address: 1001 Bishop St. ste 1600		Street			
City: Honolulu State: HI Zip: 96813		City Honolulu State Hawaii			
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # CTO CVI23F0104			
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #			
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order # 151253			
Sampler(s) Name(s) (Printed)					
Sampler 1: Chris Wernick Sampler 2: Tyler Wickham					

SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	COLLECTION																LAB USE ONLY
				SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	PCI	NH3	HNO3	PERDA	NaOH/NaAC	DI WATER	MESH	PFAS EPA Draft 1633				
6	AF-RHMW06-WGN01LF-2309	9/8/23	1210	EW, W/MSD	GW	3		X										X		
				INITIAL ASSESSMENT																
				LABEL VERIFICATION																

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
10 Day (Business) 7 Day <input checked="" type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other	Approved By: / Date: _____ <input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S	EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW Unit # AWB: 016-48963456

Rush T/A Data Available VIA Email or Lablink									
Sample Custody must be documented below each time samples change possession, including courier delivery.									
1	Relinquished by Sampler/Affiliation <i>WATSON TANJI</i> AECOM	Date Time: 9/8/23 1400	2	Received By/Affiliation <i>ELLIE SHIMATSU</i> AECOM	Relinquished By/Affiliation <i>ELLIE SHIMATSU</i> AECOM	Date Time: 9/11/23 1000	4	Received By/Affiliation <i>UC</i>	
5	Relinquished by/Affiliation <i>UC</i>	Date Time:	6	Received By/Affiliation <i>UC</i>	Date Time: 09/13/23 0800	7	Relinquished By/Affiliation	8	Received By/Affiliation

PFAS_COCs_ALL_09052023.xls Rev 031318

FC9496: Chain of Custody

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SGS North America Inc - Orlando
Chain of Custody

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

FC9496

COC #: 2309AFSG10

SGS - ORLANDO JOB #:

PAGE 1 OF 1

Client / Reporting Information		Project Information		Analytical Information										Matrix Codes		
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		<div style="text-align: center;">EM 9/11/23</div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe		
Address: 1001 Bishop St. ste 1600		Street														
City: Honolulu State: HI Zip: 96813		City Honolulu State Hawaii														
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # CTO CVI23F0104														
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #														
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order # 151253		PFAS EPA Draft 1683										LAB USE ONLY		
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	PHI	NIOSH	IN-NO3	ASPCOL	INAD/ZNAC	DI WATER	MEPH	
7	AF-RHMM17-WGN01LF-2309	9/8/23	1245	M6	GW	3	X									
Turnaround Time (Business days)		Data Deliverable Information		Comments / Remarks												
10 Day (Business) Approved By: / Date: _____ 7 Day _____ <input checked="" type="checkbox"/> 5 Day _____ 3 Day RUSH _____ 2 Day RUSH _____ 1 Day RUSH _____ Other _____ Rush T/A Data Available VIA Email or Lablink		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S		EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWB 016-48963456												
Sample Custody must be documented below each time samples change possession, including courier delivery.																
Relinquished by Sampler/Affiliation		Date Time: 9/8/23		Received By/Affiliation		Date Time: 9/11/23		Relinquished By/Affiliation		Date Time: 9/11/23		Received By/Affiliation		Date Time: 9/11/23		
1 Alex Edmond / AECOM				2 Alex Edmond / AECOM				3 Alex Edmond				4 UC				
5 UC				6 UC		09/13/23 0800		7				8				

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FC9496: Chain of Custody

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SGS Sample Receipt Summary

Job Number: fc9496

Client: AECOM

Project: N6274223F0104 RH Fire Suppression Sys

Date / Time Received: 9/13/2023 8:00:00 AM

Delivery Method: United Cargo/Airspace

Airbill #'s: United Cargo AWB #: 016-48963456

Cooler Temps (Raw Measured) °C: Cooler 1: (4.6);

Cooler Temps (Corrected) °C: Cooler 1: (4.4);

Cooler Informatio

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 presented properly:
- 3. Sufficient volume/containers recv'd for analysi:
- 4. Condition of sample: Intact
- 5. Sample recv'd within HT:
- 6. Dates/Times/IDs on COC match sample labe:
- 7. VOCs have headspace:
- 8. Bottles received for unspecified tests:
- 9. Compositing instructions clear:
- 10. Voa Soil Kits/Jars received past 48hrs?:
- 11. % Solids Jar Received?:
- 12. Residual Chlorine Present?:

Misc Information

Number of Encores: 25 Gram 5 Gram Number of Lab Filtered Metals
 Test Strip Lot #: pH 0-3: _____ pH 10-12: _____ Other: (Specify) _____
 Residual Chlorine Test Strip Lot: _____

Comments

SM001
Rev. Date 05/04/17

Technician: SHAYLAP

Date: 9/13/2023 9:36:36 AM

Reviewer: ZB

Date: 09/13/23

FC9496: Chain of Custody

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QC Evaluation: DOD QSM5.x Limits

Job Number: FC9496
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 09/08/23

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

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

* Sample used for QC is not from job FC9496

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: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q353-IBLK	6Q24596.D	1	09/18/23	MV	n/a	n/a	S6Q353

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-1, FC9496-2, FC9496-3, FC9496-4, FC9496-5, FC9496-6, FC9496-7

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Instrument Blank

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q353-IBLK	6Q24596.D	1	09/18/23	MV	n/a	n/a	S6Q353

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-1, FC9496-2, FC9496-3, FC9496-4, FC9496-5, FC9496-6, FC9496-7

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	102% 20-150%
	13C5-PFPeA	87% 20-150%
	13C5-PFHxA	91% 20-150%
	13C4-PFHpA	99% 20-150%
	13C8-PFOA	101% 20-150%
	13C9-PFNA	111% 20-150%
	13C6-PFDA	105% 20-150%
	13C7-PFUnDA	98% 20-150%
	13C2-PFDoDA	99% 20-150%
	13C2-PFTeDA	108% 20-150%
	13C3-PFBS	108% 20-150%
	13C3-PFHxS	102% 20-150%
	13C8-PFOS	98% 20-150%
	13C8-FOSA	90% 20-150%
	d3-MeFOSAA	88% 20-150%
	d5-EtFOSAA	81% 20-150%
	13C2-4:2FTS	106% 20-180%
	13C2-6:2FTS	86% 20-180%
	13C2-8:2FTS	81% 20-180%

6.1.1

6

Instrument Blank

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q742-IBLK	4Q50729.D	1	09/18/23	AL	n/a	n/a	S4Q742

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	

CAS No.	ID Standard Recoveries	Limits	
	13C4-PFBA	101%	20-150%
	13C5-PFPeA	102%	20-150%
	13C5-PFHxA	102%	20-150%
	13C4-PFHpA	104%	20-150%
	13C8-PFOA	101%	20-150%
	13C9-PFNA	106%	20-150%
	13C6-PFDA	108%	20-150%
	13C7-PFUnDA	104%	20-150%
	13C2-PFDoDA	101%	20-150%
	13C2-PFTeDA	113%	20-150%
	13C3-PFBS	95%	20-150%
	13C3-PFHxS	97%	20-150%
	13C8-PFOS	108%	20-150%
	13C8-FOSA	104%	20-150%
	d3-MeFOSAA	94%	20-150%
	d5-EtFOSAA	98%	20-150%
	13C2-4:2FTS	92%	20-180%
	13C2-6:2FTS	91%	20-180%
	13C2-8:2FTS	96%	20-180%

Continuing Calibration Blank

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q353-ICCB	6Q24610.D	1	09/18/23	MV	n/a	n/a	S6Q353

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-6, FC9496-7

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q353-ICCB	6Q24610.D	1	09/18/23	MV	n/a	n/a	S6Q353

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-6, FC9496-7

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	101% 20-150%
	13C5-PFPeA	79% 20-150%
	13C5-PFHxA	90% 20-150%
	13C4-PFHpA	98% 20-150%
	13C8-PFOA	104% 20-150%
	13C9-PFNA	121% 20-150%
	13C6-PFDA	116% 20-150%
	13C7-PFUnDA	94% 20-150%
	13C2-PFDoDA	94% 20-150%
	13C2-PFTeDA	90% 20-150%
	13C3-PFBS	107% 20-150%
	13C3-PFHxS	96% 20-150%
	13C8-PFOS	102% 20-150%
	13C8-FOSA	100% 20-150%
	d3-MeFOSAA	98% 20-150%
	d5-EtFOSAA	97% 20-150%
	13C2-4:2FTS	100% 20-180%
	13C2-6:2FTS	101% 20-180%
	13C2-8:2FTS	89% 20-180%

Continuing Calibration Blank

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q742-ICCB	4Q50745.D	1	09/18/23	AL	n/a	n/a	S4Q742

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	101% 20-150%
	13C5-PFPeA	98% 20-150%
	13C5-PFHxA	101% 20-150%
	13C4-PFHpA	101% 20-150%
	13C8-PFOA	97% 20-150%
	13C9-PFNA	102% 20-150%
	13C6-PFDA	102% 20-150%
	13C7-PFUnDA	104% 20-150%
	13C2-PFDoDA	100% 20-150%
	13C2-PFTeDA	111% 20-150%
	13C3-PFBS	95% 20-150%
	13C3-PFHxS	96% 20-150%
	13C8-PFOS	103% 20-150%
	13C8-FOSA	103% 20-150%
	d3-MeFOSAA	102% 20-150%
	d5-EtFOSAA	101% 20-150%
	13C2-4:2FTS	102% 20-180%
	13C2-6:2FTS	86% 20-180%
	13C2-8:2FTS	89% 20-180%

Method Blank Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99007-MB	6Q24601.D	1	09/18/23	MV	09/14/23	OP99007	S6Q353

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-1, FC9496-2, FC9496-3, FC9496-4, FC9496-5, FC9496-6, FC9496-7

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Method Blank Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99007-MB	6Q24601.D	1	09/18/23	MV	09/14/23	OP99007	S6Q353

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-1, FC9496-2, FC9496-3, FC9496-4, FC9496-5, FC9496-6, FC9496-7

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

CAS No.	ID Standard Recoveries	Limits	
	13C4-PFBA	111%	20-150%
	13C5-PFPeA	94%	20-150%
	13C5-PFHxA	99%	20-150%
	13C4-PFHpA	107%	20-150%
	13C8-PFOA	101%	20-150%
	13C9-PFNA	125%	20-150%
	13C6-PFDA	132%	20-150%
	13C7-PFUnDA	106%	20-150%
	13C2-PFDoDA	103%	20-150%
	13C2-PFTeDA	97%	20-150%
	13C3-PFBS	120%	20-150%
	13C3-PFHxS	110%	20-150%
	13C8-PFOS	107%	20-150%
	13C8-FOSA	65%	20-150%
	d3-MeFOSA	60%	20-150%
	d5-EtFOSA	71%	20-150%
	d3-MeFOSAA	96%	20-150%
	d5-EtFOSAA	93%	20-150%
	d7-MeFOSE	59%	20-150%
	d9-EtFOSE	67%	20-150%
	13C2-4:2FTS	119%	20-180%
	13C2-6:2FTS	101%	20-180%
	13C2-8:2FTS	111%	20-180%
	13C3-HFPO-DA	107%	20-150%

Method Blank Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99024-MB	4Q50748.D	1	09/18/23	AL	09/15/23	OP99024	S4Q742

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	145% 20-150%
	13C5-PFPeA	142% 20-150%
	13C5-PFHxA	141% 20-150%
	13C4-PFHpA	139% 20-150%
	13C8-PFOA	137% 20-150%
	13C9-PFNA	144% 20-150%
	13C6-PFDA	137% 20-150%
	13C7-PFUnDA	137% 20-150%
	13C2-PFDoDA	125% 20-150%
	13C2-PFTeDA	121% 20-150%
	13C3-PFBS	140% 20-150%
	13C3-PFHxS	132% 20-150%
	13C8-PFOS	148% 20-150%
	13C8-FOSA	101% 20-150%
	d3-MeFOSA	94% 20-150%
	d5-EtFOSA	99% 20-150%
	d3-MeFOSAA	133% 20-150%
	d5-EtFOSAA	133% 20-150%
	d7-MeFOSE	109% 20-150%
	d9-EtFOSE	119% 20-150%
	13C2-4:2FTS	135% 20-180%
	13C2-6:2FTS	138% 20-180%
	13C2-8:2FTS	125% 20-180%
	13C3-HFPO-DA	144% 20-150%

Blank Spike Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99007-LLBS	6Q24600.D	1	09/18/23	MV	09/14/23	OP99007	S6Q353

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-1, FC9496-2, FC9496-3, FC9496-4, FC9496-5, FC9496-6, FC9496-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0331	110	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0162	108	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0074	99	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0077	103	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0066	88	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0068	91	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0078	104	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0077	103	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0074	99	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0066	88	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0073	97	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0069	104	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0074	105	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0081	118	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0071	99	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0067	96	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0070	97	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0065	90	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0056	77	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0297	106	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0305	107	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0284	99	40-150
754-91-6	PFOSA	0.0075	0.0073	97	40-150
31506-32-8	MeFOSA	0.015	0.0172	115	40-150
4151-50-2	EtFOSA	0.015	0.0138	92	40-150
2355-31-9	MeFOSAA	0.0075	0.0081	108	40-150
2991-50-6	EtFOSAA	0.0075	0.0096	128	40-150
24448-09-7	MeFOSE	0.0375	0.0376	100	40-150
1691-99-2	EtFOSE	0.0375	0.0378	101	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0171	114	40-150
919005-14-4	ADONA	0.0142	0.0158	111	40-150
377-73-1	PFMPA	0.015	0.0177	118	40-150
863090-89-5	PFMBA	0.015	0.0172	115	40-150
151772-58-6	NFDHA	0.015	0.0157	105	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0147	105	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0134	95	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99007-LLBS	6Q24600.D	1	09/18/23	MV	09/14/23	OP99007	S6Q353

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-1, FC9496-2, FC9496-3, FC9496-4, FC9496-5, FC9496-6, FC9496-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0146	109	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0320	85	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.197	105	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.199	106	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	105%	20-150%
	13C5-PFPeA	88%	20-150%
	13C5-PFHxA	95%	20-150%
	13C4-PFHpA	105%	20-150%
	13C8-PFOA	101%	20-150%
	13C9-PFNA	124%	20-150%
	13C6-PFDA	111%	20-150%
	13C7-PFUnDA	92%	20-150%
	13C2-PFDoDA	95%	20-150%
	13C2-PFTeDA	94%	20-150%
	13C3-PFBS	112%	20-150%
	13C3-PFHxS	100%	20-150%
	13C8-PFOS	107%	20-150%
	13C8-FOSA	73%	20-150%
	d3-MeFOSA	60%	20-150%
	d5-EtFOSA	71%	20-150%
	d3-MeFOSAA	96%	20-150%
	d5-EtFOSAA	82%	20-150%
	d7-MeFOSE	62%	20-150%
	d9-EtFOSE	67%	20-150%
	13C2-4:2FTS	107%	20-180%
	13C2-6:2FTS	101%	20-180%
	13C2-8:2FTS	93%	20-180%
	13C3-HFPO-DA	98%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99024-LLBS	4Q50747.D	1	09/18/23	AL	09/15/23	OP99024	S4Q742

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0268	89	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	125%	20-150%
	13C5-PFPeA	121%	20-150%
	13C5-PFHxA	123%	20-150%
	13C4-PFHpA	120%	20-150%
	13C8-PFOA	119%	20-150%
	13C9-PFNA	127%	20-150%
	13C6-PFDA	129%	20-150%
	13C7-PFUnDA	129%	20-150%
	13C2-PFDoDA	113%	20-150%
	13C2-PFTeDA	114%	20-150%
	13C3-PFBS	118%	20-150%
	13C3-PFHxS	109%	20-150%
	13C8-PFOS	112%	20-150%
	13C8-FOSA	97%	20-150%
	d3-MeFOSA	85%	20-150%
	d5-EtFOSA	87%	20-150%
	d3-MeFOSAA	104%	20-150%
	d5-EtFOSAA	112%	20-150%
	d7-MeFOSE	102%	20-150%
	d9-EtFOSE	104%	20-150%
	13C2-4:2FTS	112%	20-180%
	13C2-6:2FTS	116%	20-180%
	13C2-8:2FTS	115%	20-180%
	13C3-HFPO-DA	122%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99007-BS	6Q24599.D	1	09/18/23	MV	09/14/23	OP99007	S6Q353

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-1, FC9496-2, FC9496-3, FC9496-4, FC9496-5, FC9496-6, FC9496-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.102	102	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0503	101	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0230	92	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0239	96	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0210	84	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0195	78	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0251	100	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0227	91	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0233	93	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0205	82	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0233	93	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0197	89	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0242	103	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0230	101	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0249	105	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0220	95	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0263	109	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0229	95	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0196	81	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0958	102	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.101	106	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0927	97	40-150
754-91-6	PFOSA	0.025	0.0219	88	40-150
31506-32-8	MeFOSA	0.05	0.0499	100	40-150
4151-50-2	EtFOSA	0.05	0.0460	92	40-150
2355-31-9	MeFOSAA	0.025	0.0238	95	40-150
2991-50-6	EtFOSAA	0.025	0.0277	111	40-150
24448-09-7	MeFOSE	0.125	0.115	92	40-150
1691-99-2	EtFOSE	0.125	0.114	91	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0526	105	40-150
919005-14-4	ADONA	0.0473	0.0522	110	40-150
377-73-1	PFMPA	0.05	0.0485	97	40-150
863090-89-5	PFMBA	0.05	0.0546	109	40-150
151772-58-6	NFDHA	0.05	0.0472	94	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0460	98	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0440	93	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99007-BS	6Q24599.D	1	09/18/23	MV	09/14/23	OP99007	S6Q353

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-1, FC9496-2, FC9496-3, FC9496-4, FC9496-5, FC9496-6, FC9496-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0462	104	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.146	117	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.615	98	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.621	99	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	63%	20-150%
	13C5-PFPeA	90%	20-150%
	13C5-PFHxA	98%	20-150%
	13C4-PFHpA	107%	20-150%
	13C8-PFOA	110%	20-150%
	13C9-PFNA	130%	20-150%
	13C6-PFDA	115%	20-150%
	13C7-PFUnDA	106%	20-150%
	13C2-PFDoDA	103%	20-150%
	13C2-PFTeDA	98%	20-150%
	13C3-PFBS	125%	20-150%
	13C3-PFHxS	106%	20-150%
	13C8-PFOS	95%	20-150%
	13C8-FOSA	77%	20-150%
	d3-MeFOSA	68%	20-150%
	d5-EtFOSA	71%	20-150%
	d3-MeFOSAA	99%	20-150%
	d5-EtFOSAA	81%	20-150%
	d7-MeFOSE	63%	20-150%
	d9-EtFOSE	67%	20-150%
	13C2-4:2FTS	107%	20-180%
	13C2-6:2FTS	99%	20-180%
	13C2-8:2FTS	100%	20-180%
	13C3-HFPO-DA	97%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99024-BS	4Q50746.D	1	09/18/23	AL	09/15/23	OP99024	S4Q742

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0866	87	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	47%	20-150%
	13C5-PFPeA	112%	20-150%
	13C5-PFHxA	114%	20-150%
	13C4-PFHpA	113%	20-150%
	13C8-PFOA	108%	20-150%
	13C9-PFNA	109%	20-150%
	13C6-PFDA	115%	20-150%
	13C7-PFUnDA	119%	20-150%
	13C2-PFDoDA	110%	20-150%
	13C2-PFTeDA	106%	20-150%
	13C3-PFBS	121%	20-150%
	13C3-PFHxS	114%	20-150%
	13C8-PFOS	104%	20-150%
	13C8-FOSA	86%	20-150%
	d3-MeFOSA	82%	20-150%
	d5-EtFOSA	81%	20-150%
	d3-MeFOSAA	100%	20-150%
	d5-EtFOSAA	103%	20-150%
	d7-MeFOSE	97%	20-150%
	d9-EtFOSE	101%	20-150%
	13C2-4:2FTS	108%	20-180%
	13C2-6:2FTS	118%	20-180%
	13C2-8:2FTS	118%	20-180%
	13C3-HFPO-DA	113%	20-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99007-MS	6Q24603.D	1	09/18/23	MV	09/14/23	OP99007	S6Q353
FC9496-1	6Q24602.D	1	09/18/23	MV	09/14/23	OP99007	S6Q353

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-1, FC9496-2, FC9496-3, FC9496-4, FC9496-5, FC9496-6, FC9496-7

CAS No.	Compound	FC9496-1 ug/l	Spike Q	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.015 U	0.0909	0.0929	102	40-150
2706-90-3	Perfluoropentanoic acid	0.0073 U	0.0455	0.0444	98	40-150
307-24-4	Perfluorohexanoic acid	0.0036 U	0.0227	0.0204	90	40-150
375-85-9	Perfluoroheptanoic acid	0.0036 U	0.0227	0.0193	85	40-150
335-67-1	Perfluorooctanoic acid	0.0036 U	0.0227	0.0189	83	40-150
375-95-1	Perfluorononanoic acid	0.0036 U	0.0227	0.0192	84	40-150
335-76-2	Perfluorodecanoic acid	0.0036 U	0.0227	0.0227	100	40-150
2058-94-8	Perfluoroundecanoic acid	0.0036 U	0.0227	0.0217	95	40-150
307-55-1	Perfluorododecanoic acid	0.0036 U	0.0227	0.0205	90	40-150
72629-94-8	Perfluorotridecanoic acid	0.0036 U	0.0227	0.0193	85	40-150
376-06-7	Perfluorotetradecanoic acid	0.0036 U	0.0227	0.0200	88	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0036 U	0.0202	0.0187	93	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0045 U	0.0214	0.0197	92	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0036 U	0.0208	0.0196	94	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0036 U	0.0217	0.0236	109	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0036 U	0.0211	0.0214	101	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0036 U	0.0219	0.0227	104	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0036 U	0.0219	0.0203	93	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0045 U	0.022	0.0172	78	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.018 U	0.0852	0.0821	96	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U	0.0864	0.0873	101	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U	0.0873	0.0815	93	40-150
754-91-6	PFOSA	0.0036 U	0.0227	0.0196	86	40-150
31506-32-8	MeFOSA	0.0073 U	0.0455	0.0478	105	40-150
4151-50-2	EtFOSA	0.0073 U	0.0455	0.0408	90	40-150
2355-31-9	MeFOSAA	0.0045 U	0.0227	0.0224	99	40-150
2991-50-6	EtFOSAA	0.0045 U	0.0227	0.0260	114	40-150
24448-09-7	MeFOSE	0.036 U	0.114	0.107	94	40-150
1691-99-2	EtFOSE	0.036 U	0.114	0.105	92	40-150
13252-13-6	HFPO-DA (GenX)	0.0036 U	0.0455	0.0440	97	40-150
919005-14-4	ADONA	0.0073 U	0.043	0.0431	100	40-150
377-73-1	PFMPA	0.0073 U	0.0455	0.0490	108	40-150
863090-89-5	PFMBA	0.0073 U	0.0455	0.0479	105	40-150
151772-58-6	NFDHA	0.0073 U	0.0455	0.0421	93	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0073 U	0.0425	0.0362	85	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0073 U	0.043	0.0331	77	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99007-MS	6Q24603.D	1	09/18/23	MV	09/14/23	OP99007	S6Q353
FC9496-1	6Q24602.D	1	09/18/23	MV	09/14/23	OP99007	S6Q353

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-1, FC9496-2, FC9496-3, FC9496-4, FC9496-5, FC9496-6, FC9496-7

CAS No.	Compound	FC9496-1 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0073 U	0.0405	0.0414	102	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.018 U	0.114	0.0894	79	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.091 U	0.568	0.543	96	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.091 U	0.568	0.540	95	40-150

CAS No.	ID Standard Recoveries	MS	FC9496-1	Limits
	13C4-PFBA	106%	119%	20-150%
	13C5-PFPeA	91%	99%	20-150%
	13C5-PFHxA	100%	111%	20-150%
	13C4-PFHpA	113%	118%	20-150%
	13C8-PFOA	101%	120%	20-150%
	13C9-PFNA	124%	143%	20-150%
	13C6-PFDA	110%	117%	20-150%
	13C7-PFUnDA	93%	99%	20-150%
	13C2-PFDoDA	93%	96%	20-150%
	13C2-PFTeDA	90%	94%	20-150%
	13C3-PFBS	113%	131%	20-150%
	13C3-PFHxS	106%	119%	20-150%
	13C8-PFOS	97%	111%	20-150%
	13C8-FOSA	82%	86%	20-150%
	d3-MeFOSA	75%	76%	20-150%
	d5-EtFOSA	80%	90%	20-150%
	d3-MeFOSAA	99%	105%	20-150%
	d5-EtFOSAA	83%	91%	20-150%
	d7-MeFOSE	71%	79%	20-150%
	d9-EtFOSE	78%	86%	20-150%
	13C2-4:2FTS	101%	119%	20-180%
	13C2-6:2FTS	96%	115%	20-180%
	13C2-8:2FTS	92%	107%	20-180%
	13C3-HFPO-DA	104%	110%	20-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99024-MS	4Q50751.D	1	09/18/23	AL	09/15/23	OP99024	S4Q742
OP99024-MSD	4Q50752.D	1	09/18/23	AL	09/15/23	OP99024	S4Q742
FC9496-4	4Q50750.D	1	09/18/23	AL	09/15/23	OP99024	S4Q742

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-4

CAS No.	Compound	FC9496-4 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
375-22-4	Perfluorobutanoic acid	0.12 U	0.769	0.631	82	0.769	0.672	87	6	40-150/30

CAS No.	ID Standard Recoveries	MS	MSD	FC9496-4	Limits
	13C4-PFBA	105%	100%	112%	20-150%
	13C5-PFPeA	105%	98%	108%	20-150%
	13C5-PFHxA	102%	97%	107%	20-150%
	13C4-PFHpA	104%	96%	108%	20-150%
	13C8-PFOA	104%	95%	103%	20-150%
	13C9-PFNA	106%	91%	103%	20-150%
	13C6-PFDA	89%	92%	104%	20-150%
	13C7-PFUnDA	99%	88%	108%	20-150%
	13C2-PFDoDA	82%	78%	96%	20-150%
	13C2-PFTeDA	84%	75%	93%	20-150%
	13C3-PFBS	97%	90%	107%	20-150%
	13C3-PFHxS	98%	87%	106%	20-150%
	13C8-PFOS	88%	83%	93%	20-150%
	13C8-FOSA	81%	70%	78%	20-150%
	d3-MeFOSA	76%	73%	71%	20-150%
	d5-EtFOSA	72%	75%	69%	20-150%
	d3-MeFOSAA	93%	87%	100%	20-150%
	d5-EtFOSAA	99%	95%	104%	20-150%
	d7-MeFOSE	83%	76%	85%	20-150%
	d9-EtFOSE	90%	83%	92%	20-150%
	13C2-4:2FTS	95%	88%	108%	20-180%
	13C2-6:2FTS	88%	82%	97%	20-180%
	13C2-8:2FTS	68%	72%	84%	20-180%
	13C3-HFPO-DA	102%	98%	110%	20-150%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99007-DUP	6Q24605.D	1	09/18/23	MV	09/14/23	OP99007	S6Q353
FC9496-2	6Q24604.D	1	09/18/23	MV	09/14/23	OP99007	S6Q353

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-1, FC9496-2, FC9496-3, FC9496-4, FC9496-5, FC9496-6, FC9496-7

CAS No.	Compound	FC9496-2 ug/l	DUP Q	ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.0096	J	0.0102	J	6	30
2706-90-3	Perfluoropentanoic acid	0.0077	U	ND		nc	30
307-24-4	Perfluorohexanoic acid	0.00097	J	0.00086	J	12	30
375-85-9	Perfluoroheptanoic acid	0.0038	U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0010	J	0.00073	J	31*	30
375-95-1	Perfluorononanoic acid	0.0038	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0038	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0038	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0038	U	ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0038	U	ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0038	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.00050	J	0.00046	J	8	30
2706-91-4	Perfluoropentanesulfonic acid	0.0048	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0038	U	ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0038	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0012	J	0.00079	J	41*	30
68259-12-1	Perfluorononanesulfonic acid	0.0038	U	ND		nc	30
335-77-3	Perfluorodecanesulfonic acid	0.0038	U	ND		nc	30
79780-39-5	Perfluorododecanesulfonic aci	0.0048	U	ND		nc	30
757124-72-44:2	Fluorotelomer sulfonate	0.019	U	ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.019	U	ND		nc	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.019	U	ND		nc	30
754-91-6	PFOSA	0.0038	U	ND		nc	30
31506-32-8	MeFOSA	0.0077	U	ND		nc	30
4151-50-2	EtFOSA	0.0077	U	ND		nc	30
2355-31-9	MeFOSAA	0.0048	U	ND		nc	30
2991-50-6	EtFOSAA	0.0048	U	ND		nc	30
24448-09-7	MeFOSE	0.038	U	ND		nc	30
1691-99-2	EtFOSE	0.038	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0038	U	ND		nc	30
919005-14-4	ADONA	0.0077	U	ND		nc	30
377-73-1	PFMPA	0.0077	U	ND		nc	30
863090-89-5	PFMBA	0.0077	U	ND		nc	30
151772-58-6	NFDHA	0.0077	U	ND		nc	30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0077	U	ND		nc	30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0077	U	ND		nc	30

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99007-DUP	6Q24605.D	1	09/18/23	MV	09/14/23	OP99007	S6Q353
FC9496-2	6Q24604.D	1	09/18/23	MV	09/14/23	OP99007	S6Q353

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9496-1, FC9496-2, FC9496-3, FC9496-4, FC9496-5, FC9496-6, FC9496-7

CAS No.	Compound	FC9496-2 ug/l	DUP Q ug/l	Q RPD	Limits
113507-82-7	PFEESA	0.0077 U	ND	nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.019 U	ND	nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.096 U	ND	nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.096 U	ND	nc	30

CAS No.	ID Standard Recoveries	DUP	FC9496-2	Limits
	13C4-PFBA	57%	54%	20-150%
	13C5-PFPeA	90%	84%	20-150%
	13C5-PFHxA	108%	94%	20-150%
	13C4-PFHpA	108%	98%	20-150%
	13C8-PFOA	117%	108%	20-150%
	13C9-PFNA	127%	117%	20-150%
	13C6-PFDA	115%	101%	20-150%
	13C7-PFUnDA	101%	86%	20-150%
	13C2-PFDoDA	91%	85%	20-150%
	13C2-PFTeDA	81%	70%	20-150%
	13C3-PFBS	126%	112%	20-150%
	13C3-PFHxS	111%	103%	20-150%
	13C8-PFOS	106%	85%	20-150%
	13C8-FOSA	84%	73%	20-150%
	d3-MeFOSA	67%	55%	20-150%
	d5-EtFOSA	68%	58%	20-150%
	d3-MeFOSAA	93%	88%	20-150%
	d5-EtFOSAA	77%	75%	20-150%
	d7-MeFOSE	64%	57%	20-150%
	d9-EtFOSE	68%	62%	20-150%
	13C2-4:2FTS	106%	96%	20-180%
	13C2-6:2FTS	95%	92%	20-180%
	13C2-8:2FTS	101%	87%	20-180%
	13C3-HFPO-DA	101%	93%	20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q742-CC741	Injection Date:	09/18/23
Lab File ID:	4Q50744.D	Injection Time:	17:54
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	41279	2.72	27163	5.41	38763	7.04	12055	7.57	9654	8.07
Check Std ^c	40167	2.74	25769	5.43	37311	7.06	11111	7.61	9177	8.09
Upper Limit ^d	82558	3.14	54326	5.83	77526	7.46	24110	8.01	19308	8.49
Lower Limit ^e	16512	2.34	10865	5.03	15505	6.66	4822	7.21	3862	7.69

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
S4Q742-ICCB	43938	2.73	28289	5.43	40651	7.06	12658	7.61	10087	8.09	1
S4Q742-ICCB	43938	2.73	28289	5.43	40651	7.06	12658	7.61	10087	8.09	1
OP99024-BS	40383	2.79	24381	5.45	35901	7.06	11475	7.61	8863	8.09	1
OP99024-LLBS	35176	2.79	22322	5.45	32006	7.06	9625	7.61	7817	8.09	1
OP99024-MB	30912	2.79	19480	5.45	27721	7.06	8622	7.61	7298	8.09	1
ZZZZZZ	41077	2.78	25598	5.45	36540	7.06	11278	7.61	9608	8.09	1
FC9496-4	38600	2.79	24362	5.45	35880	7.08	11183	7.61	8693	8.09	1
OP99024-MS	42213	2.79	26522	5.45	36673	7.06	11709	7.60	9710	8.08	1
OP99024-MSD	46026	2.79	28834	5.43	41901	7.06	13362	7.60	10699	8.09	1
OP98977-BS	44679	2.79	28018	5.45	38918	7.06	12348	7.60	10093	8.08	1
OP98977-LLBS	36103	2.79	22725	5.45	31786	7.06	9769	7.60	7458	8.08	1
OP98977-MB	44278	2.79	27587	5.43	39047	7.06	12477	7.60	10133	8.08	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: S4Q741-ICC741 4Q50690.D 09/17/23 13:36. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

6.6.1
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Injection Standard Area Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q742-CC741	Injection Date:	09/18/23
Lab File ID:	4Q50744.D	Injection Time:	17:54
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	3158	7.10	4974	8.18
Check Std ^c	3206	7.13	4835	8.21
Upper Limit ^d	6316	7.53	9948	8.61
Lower Limit ^e	1263	6.73	1990	7.81

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S4Q742-ICCB	3369	7.13	5180	8.21	1
S4Q742-ICCB	3369	7.13	5180	8.21	1
OP99024-BS	2675	7.13	4958	8.21	1
OP99024-LLBS	2712	7.13	4371	8.21	1
OP99024-MB	2366	7.13	3638	8.22	1
ZZZZZZ	2905	7.13	4599	8.21	1
FC9496-4	2928	7.13	5187	8.21	1
OP99024-MS	3332	7.13	5358	8.21	1
OP99024-MSD	3606	7.13	5921	8.21	1
OP98977-BS	3211	7.13	5222	8.21	1
OP98977-LLBS	2744	7.13	4416	8.21	1
OP98977-MB	3331	7.13	5436	8.21	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q741-ICC741 4Q50690.D 09/17/23 13:36. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

6.6.1
6

Injection Standard Area Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q353-CC347	Injection Date:	09/18/23
Lab File ID:	6Q24597.D	Injection Time:	12:24
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal ^b	73917	2.99	52058	5.64	82938	7.20	40329	7.73	28860	8.21
Check Std ^c	83986	3.00	59265	5.64	96157	7.20	39352	7.73	29807	8.20
Upper Limit ^d	147834	3.40	104116	6.04	165876	7.60	80658	8.13	57720	8.60
Lower Limit ^e	29567	2.60	20823	5.24	33175	6.80	16132	7.33	11544	7.80

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF ^a
OP99007-BS	72179	3.01	52036	5.65	78027	7.21	32183	7.73	24156	8.20	1
OP99007-LLBS	72225	3.01	50179	5.65	80227	7.20	32141	7.73	24141	8.20	1
OP99007-MB	56624	3.01	39373	5.65	61974	7.20	25807	7.73	18759	8.20	1
FC9496-1	64428	3.01	47243	5.65	70624	7.20	28374	7.73	22797	8.20	1
OP99007-MS	67941	3.01	49673	5.65	77118	7.21	30189	7.73	23653	8.21	1
FC9496-2	71653	3.01	54475	5.64	80998	7.20	34195	7.72	27273	8.20	1
OP99007-DUP	64993	3.01	49376	5.64	74610	7.21	32443	7.73	24114	8.21	1
FC9496-3	67266	3.01	48338	5.65	71081	7.20	30232	7.72	24636	8.20	1
FC9496-4	67701	3.01	45927	5.65	76148	7.21	31237	7.73	23339	8.20	1
FC9496-5	67112	3.01	45754	5.65	71665	7.21	30946	7.73	21980	8.21	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: S6Q347-ICC347 6Q24131.D 09/09/23 21:29. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

6.6.2
6

Injection Standard Area Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q353-CC347	Injection Date:	09/18/23
Lab File ID:	6Q24597.D	Injection Time:	12:24
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	9886	7.31	16775	8.36
Check Std ^c	10229	7.31	17741	8.35
Upper Limit ^d	19772	7.71	33550	8.75
Lower Limit ^e	3954	6.91	6710	7.95

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
OP99007-B5	8599	7.31	15564	8.36	1
OP99007-LLBS	8739	7.31	14486	8.36	1
OP99007-MB	6729	7.31	11296	8.36	1
FC9496-1	7759	7.31	13001	8.35	1
OP99007-MS	8837	7.31	13431	8.36	1
FC9496-2	9143	7.31	16722	8.36	1
OP99007-DUP	8158	7.31	14753	8.36	1
FC9496-3	8416	7.31	13753	8.36	1
FC9496-4	8344	7.31	15436	8.35	1
FC9496-5	7855	7.31	13744	8.36	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q347-ICC347 6Q24131.D 09/09/23 21:29. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

Injection Standard Area Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q353-CC347	Injection Date:	09/18/23
Lab File ID:	6Q24609.D	Injection Time:	15:19
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal ^b	73917	2.99	52058	5.64	82938	7.20	40329	7.73	28860	8.21
Check Std ^c	85244	2.99	59211	5.65	97155	7.21	39001	7.73	29909	8.21
Upper Limit ^d	147834	3.39	104116	6.05	165876	7.61	80658	8.13	57720	8.61
Lower Limit ^e	29567	2.59	20823	5.25	33175	6.81	16132	7.33	11544	7.81

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
S6Q353-ICCB	80955	2.99	59651	5.64	86631	7.21	35810	7.73	26957	8.20	1
S6Q353-ICCB	80955	2.99	59651	5.64	86631	7.21	35810	7.73	26957	8.20	1
FC9496-6	60486	3.01	39821	5.65	64105	7.20	26920	7.73	20634	8.20	1
FC9496-7	64441	3.01	46555	5.65	68563	7.20	27971	7.73	20631	8.20	1
ZZZZZZ	74640	2.99	54260	5.64	83334	7.20	35434	7.72	25702	8.20	2
ZZZZZZ	76280	2.99	53672	5.64	85544	7.21	34306	7.73	27046	8.21	2
ZZZZZZ	77078	3.01	54775	5.65	84091	7.21	34495	7.73	26978	8.20	1
ZZZZZZ	73966	3.01	54945	5.65	80568	7.20	34446	7.73	24994	8.20	1
ZZZZZZ	74888	3.01	53587	5.65	82435	7.20	32126	7.72	25290	8.20	1

IS 1 = 13C3-PFBA
 IS 2 = 13C2-PFHxA
 IS 3 = 13C4-PFOA
 IS 4 = 13C5-PFNA
 IS 5 = 13C2-PFDA

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q347-ICC347 6Q24131.D 09/09/23 21:29. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

6.6.3
6

Injection Standard Area Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q353-CC347	Injection Date:	09/18/23
Lab File ID:	6Q24609.D	Injection Time:	15:19
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	9886	7.31	16775	8.36
Check Std ^c	10556	7.31	18192	8.36
Upper Limit ^d	19772	7.71	33550	8.76
Lower Limit ^e	3954	6.91	6710	7.96

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q353-ICCB	10077	7.31	15588	8.36	1
S6Q353-ICCB	10077	7.31	15588	8.36	1
FC9496-6	7445	7.31	12454	8.36	1
FC9496-7	7706	7.31	13320	8.36	1
ZZZZZZ	9494	7.31	16562	8.35	2
ZZZZZZ	9120	7.31	15572	8.36	2
ZZZZZZ	9456	7.31	15584	8.36	1
ZZZZZZ	8651	7.31	13955	8.36	1
ZZZZZZ	8799	7.31	14913	8.35	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q347-ICC347 6Q24131.D 09/09/23 21:29. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

6.6.3
6

TDCA Retention Time Check

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q741-RT	Injection Date:	09/17/23
Lab File ID:	4Q50684.D	Injection Time:	12:08
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.167	--	--
TDCA	6.808	1.359	1.000
TCDCA	6.659	1.508	1.000
TUDCA	5.827	2.340	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
S4Q741-IC741	4Q50686.D	09/17/23	12:37	00:29	Mass Calibration Verification
S4Q741-IC741	4Q50687.D	09/17/23	12:52	00:44	Initial cal 1
S4Q741-IC741	4Q50688.D	09/17/23	13:07	00:59	Initial cal 2
S4Q741-IC741	4Q50689.D	09/17/23	13:22	01:14	Initial cal 3
S4Q741-ICC741	4Q50690.D	09/17/23	13:36	01:28	Initial cal 4
S4Q741-IC741	4Q50691.D	09/17/23	13:52	01:44	Initial cal 5
S4Q741-IC741	4Q50692.D	09/17/23	14:06	01:58	Initial cal 6
S4Q741-IC741	4Q50693.D	09/17/23	14:21	02:13	Initial cal 7
S4Q741-IC741	4Q50694.D	09/17/23	14:36	02:28	Initial cal 8
S4Q741-IBLK	4Q50695.D	09/17/23	14:51	02:43	Instrument Blank
S4Q741-IBLK	4Q50695.D	09/17/23	14:51	02:43	Instrument Blank
S4Q741-ICV741	4Q50696.D	09/17/23	15:05	02:57	Initial cal verification 4
S4Q741-ICV741	4Q50697.D	09/17/23	15:20	03:12	Initial cal verification 20
S4Q741-CC741	4Q50698.D	09/17/23	15:35	03:27	Continuing cal 4
S4Q741-CC741	4Q50699.D	09/17/23	15:50	03:42	Continuing cal 1.0LL
OP98976-BS	4Q50701.D	09/17/23	16:19	04:11	Blank Spike
OP98976-LLBS	4Q50702.D	09/17/23	16:39	04:31	Blank Spike
OP98976-MB	4Q50703.D	09/17/23	16:53	04:45	Method Blank
FC9222-7	4Q50704.D	09/17/23	17:08	05:00	(used for QC only; not part of job FC9496)
ZZZZZZ	4Q50707.D	09/17/23	17:52	05:44	(unrelated sample)
ZZZZZZ	4Q50708.D	09/17/23	18:07	05:59	(unrelated sample)
ZZZZZZ	4Q50709.D	09/17/23	18:22	06:14	(unrelated sample)
S4Q741-CC741	4Q50710.D	09/17/23	18:37	06:29	Continuing cal 4
S4Q741-ICCB	4Q50711.D	09/17/23	18:51	06:43	Continuing Calibration Blank
S4Q741-ICCB	4Q50711.D	09/17/23	18:51	06:43	Continuing Calibration Blank
ZZZZZZ	4Q50712.D	09/17/23	19:06	06:58	(unrelated sample)
ZZZZZZ	4Q50713.D	09/17/23	19:21	07:13	(unrelated sample)
ZZZZZZ	4Q50715.D	09/17/23	19:50	07:42	(unrelated sample)
ZZZZZZ	4Q50716.D	09/17/23	20:05	07:57	(unrelated sample)
S4Q741-CC741	4Q50717.D	09/17/23	20:20	08:12	Continuing cal 4
S4Q741-ICCB	4Q50718.D	09/17/23	20:35	08:27	Continuing Calibration Blank
S4Q741-ICCB	4Q50718.D	09/17/23	20:35	08:27	Continuing Calibration Blank
FC9406-2	4Q50719.D	09/17/23	20:49	08:41	(used for QC only; not part of job FC9496)
OP99010-MS	4Q50720.D	09/17/23	21:04	08:56	Matrix Spike

TDCA Retention Time Check

Job Number: FC9496
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q741-RT	Injection Date: 09/17/23
Lab File ID: 4Q50684.D	Injection Time: 12:08
Instrument ID: GCMS4Q	

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP99010-MSD	4Q50721.D	09/17/23	21:19	09:11	Matrix Spike Duplicate
S4Q741-ECC741	4Q50722.D	09/17/23	21:33	09:25	Ending cal 4
S4Q741-ICCB	4Q50723.D	09/17/23	21:48	09:40	Continuing Calibration Blank

6.7.1

6

TDCA Retention Time Check

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q742-RT	Injection Date:	09/18/23
Lab File ID:	4Q50726.D	Injection Time:	12:11
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.167	--	--
TDCA	6.820	1.347	1.000
TCDCA	6.671	1.496	1.000
TUDCA	5.815	2.352	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
S4Q742-IBLK	4Q50729.D	09/18/23	12:59	00:48	Instrument Blank
S4Q742-IBLK	4Q50729.D	09/18/23	12:59	00:48	Instrument Blank
S4Q742-CC741	4Q50730.D	09/18/23	13:14	01:03	Continuing cal 4
S4Q742-CC741	4Q50731.D	09/18/23	14:17	02:06	Continuing cal 1.0LL
S4Q742-CC741	4Q50732.D	09/18/23	14:47	02:36	Continuing cal 1.0LL
S4Q742-CC741	4Q50733.D	09/18/23	15:11	03:00	Continuing cal 1.0LL
FC9222-7	4Q50734.D	09/18/23	15:26	03:15	(used for QC only; not part of job FC9496)
OP98976-MS	4Q50735.D	09/18/23	15:41	03:30	Matrix Spike
OP98976-MSD	4Q50736.D	09/18/23	15:56	03:45	Matrix Spike Duplicate
ZZZZZZ	4Q50737.D	09/18/23	16:10	03:59	(unrelated sample)
ZZZZZZ	4Q50738.D	09/18/23	16:25	04:14	(unrelated sample)
ZZZZZZ	4Q50739.D	09/18/23	16:40	04:29	(unrelated sample)
ZZZZZZ	4Q50741.D	09/18/23	17:09	04:58	(unrelated sample)
ZZZZZZ	4Q50742.D	09/18/23	17:24	05:13	(unrelated sample)
ZZZZZZ	4Q50743.D	09/18/23	17:39	05:28	(unrelated sample)
S4Q742-CC741	4Q50744.D	09/18/23	17:54	05:43	Continuing cal 4
S4Q742-ICCB	4Q50745.D	09/18/23	18:08	05:57	Continuing Calibration Blank
S4Q742-ICCB	4Q50745.D	09/18/23	18:08	05:57	Continuing Calibration Blank
OP99024-BS	4Q50746.D	09/18/23	18:23	06:12	Blank Spike
OP99024-LLBS	4Q50747.D	09/18/23	18:38	06:27	Blank Spike
OP99024-MB	4Q50748.D	09/18/23	18:53	06:42	Method Blank
ZZZZZZ	4Q50749.D	09/18/23	19:07	06:56	(unrelated sample)
FC9496-4	4Q50750.D	09/18/23	19:22	07:11	AF-RHMW17D-WGN01LF-2309
OP99024-MS	4Q50751.D	09/18/23	19:37	07:26	Matrix Spike
OP99024-MSD	4Q50752.D	09/18/23	19:52	07:41	Matrix Spike Duplicate
OP98977-BS	4Q50753.D	09/18/23	20:06	07:55	Blank Spike
OP98977-LLBS	4Q50754.D	09/18/23	20:21	08:10	Blank Spike
OP98977-MB	4Q50755.D	09/18/23	20:36	08:25	Method Blank
S4Q742-CC741	4Q50756.D	09/18/23	20:51	08:40	Continuing cal 4
S4Q742-ICCB	4Q50757.D	09/18/23	21:05	08:54	Continuing Calibration Blank
S4Q742-ICCB	4Q50757.D	09/18/23	21:05	08:54	Continuing Calibration Blank
ZZZZZZ	4Q50758.D	09/18/23	21:20	09:09	(unrelated sample)
ZZZZZZ	4Q50759.D	09/18/23	21:35	09:24	(unrelated sample)
ZZZZZZ	4Q50760.D	09/18/23	21:50	09:39	(unrelated sample)

TDCA Retention Time Check

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q742-RT	Injection Date:	09/18/23
Lab File ID:	4Q50726.D	Injection Time:	12:11
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	4Q50761.D	09/18/23	22:04	09:53	(unrelated sample)
ZZZZZZ	4Q50762.D	09/18/23	22:19	10:08	(unrelated sample)
ZZZZZZ	4Q50763.D	09/18/23	22:34	10:23	(unrelated sample)
ZZZZZZ	4Q50764.D	09/18/23	22:49	10:38	(unrelated sample)
ZZZZZZ	4Q50765.D	09/18/23	23:03	10:52	(unrelated sample)
ZZZZZZ	4Q50766.D	09/18/23	23:18	11:07	(unrelated sample)
ZZZZZZ	4Q50767.D	09/18/23	23:33	11:22	(unrelated sample)
S4Q742-CC741	4Q50768.D	09/18/23	23:48	11:37	Continuing cal 4
S4Q742-ICCB	4Q50769.D	09/19/23	00:02	11:51	Continuing Calibration Blank
S4Q742-ICCB	4Q50769.D	09/19/23	00:02	11:51	Continuing Calibration Blank
ZZZZZZ	4Q50770.D	09/19/23	00:17	12:06	(unrelated sample)
ZZZZZZ	4Q50771.D	09/19/23	00:32	12:21	(unrelated sample)
ZZZZZZ	4Q50772.D	09/19/23	00:47	12:36	(unrelated sample)
FC9227-14	4Q50773.D	09/19/23	01:01	12:50	(used for QC only; not part of job FC9496)
OP98977-MS	4Q50774.D	09/19/23	01:16	13:05	Matrix Spike
OP98977-MSD	4Q50775.D	09/19/23	01:31	13:20	Matrix Spike Duplicate
ZZZZZZ	4Q50776.D	09/19/23	01:46	13:35	(unrelated sample)
ZZZZZZ	4Q50777.D	09/19/23	02:00	13:49	(unrelated sample)
ZZZZZZ	4Q50778.D	09/19/23	02:15	14:04	(unrelated sample)
ZZZZZZ	4Q50779.D	09/19/23	02:30	14:19	(unrelated sample)
S4Q742-CC741	4Q50780.D	09/19/23	02:45	14:34	Continuing cal 4
S4Q742-ICCB	4Q50781.D	09/19/23	02:59	14:48	Continuing Calibration Blank
S4Q742-ICCB	4Q50781.D	09/19/23	02:59	14:48	Continuing Calibration Blank
ZZZZZZ	4Q50782.D	09/19/23	03:14	15:03	(unrelated sample)
S4Q742-ECC741	4Q50783.D	09/19/23	03:29	15:18	Ending cal 4
S4Q742-ICCB	4Q50784.D	09/19/23	03:44	15:33	Continuing Calibration Blank
S4Q742-ICCB	4Q50784.D	09/19/23	03:44	15:33	Continuing Calibration Blank

6.7.2
6

TDCA Retention Time Check

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q347-RT	Injection Date:	09/09/23
Lab File ID:	6Q24125.D	Injection Time:	20:03
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.374	--	--
TDCA	6.923	1.451	1.000
TCDCA	6.762	1.612	1.000
TUDCA	5.947	2.427	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
S6Q347-IC347	6Q24127.D	09/09/23	20:31	00:28	Mass Calibration Verification
S6Q347-IC347	6Q24128.D	09/09/23	20:46	00:43	Initial cal 1
S6Q347-IC347	6Q24129.D	09/09/23	21:00	00:57	Initial cal 2
S6Q347-IC347	6Q24130.D	09/09/23	21:14	01:11	Initial cal 3
S6Q347-ICC347	6Q24131.D	09/09/23	21:29	01:26	Initial cal 4
S6Q347-IC347	6Q24132.D	09/09/23	21:43	01:40	Initial cal 5
S6Q347-IC347	6Q24133.D	09/09/23	21:57	01:54	Initial cal 6
S6Q347-IC347	6Q24134.D	09/09/23	22:12	02:09	Initial cal 7
S6Q347-IC347	6Q24135.D	09/09/23	22:26	02:23	Initial cal 8
S6Q347-IBLK	6Q24136.D	09/09/23	22:41	02:38	Instrument Blank
S6Q347-IBLK	6Q24136.D	09/09/23	22:41	02:38	Instrument Blank
S6Q347-ICV347	6Q24137.D	09/09/23	22:55	02:52	Initial cal verification 4
S6Q347-ICV347	6Q24138.D	09/09/23	23:09	03:06	Initial cal verification 20
S6Q347-CC347	6Q24139.D	09/09/23	23:23	03:20	Continuing cal 4
S6Q347-CC347	6Q24140.D	09/09/23	23:38	03:35	Continuing cal 1.0LL
OP98824-BS	6Q24141.D	09/09/23	23:52	03:49	Blank Spike
OP98824-LLBS	6Q24142.D	09/10/23	00:06	04:03	Blank Spike
OP98824-MB	6Q24143.D	09/10/23	00:21	04:18	Method Blank
ZZZZZZ	6Q24144.D	09/10/23	00:35	04:32	(unrelated sample)
ZZZZZZ	6Q24145.D	09/10/23	00:49	04:46	(unrelated sample)
ZZZZZZ	6Q24146.D	09/10/23	01:04	05:01	(unrelated sample)
ZZZZZZ	6Q24147.D	09/10/23	01:18	05:15	(unrelated sample)
ZZZZZZ	6Q24148.D	09/10/23	01:32	05:29	(unrelated sample)
ZZZZZZ	6Q24149.D	09/10/23	01:47	05:44	(unrelated sample)
ZZZZZZ	6Q24150.D	09/10/23	02:01	05:58	(unrelated sample)
S6Q347-CC347	6Q24151.D	09/10/23	02:15	06:12	Continuing cal 4
S6Q347-ICCB	6Q24152.D	09/10/23	02:30	06:27	Continuing Calibration Blank
S6Q347-ICCB	6Q24152.D	09/10/23	02:30	06:27	Continuing Calibration Blank
ZZZZZZ	6Q24153.D	09/10/23	02:44	06:41	(unrelated sample)
ZZZZZZ	6Q24154.D	09/10/23	02:58	06:55	(unrelated sample)
ZZZZZZ	6Q24155.D	09/10/23	03:13	07:10	(unrelated sample)
ZZZZZZ	6Q24156.D	09/10/23	03:27	07:24	(unrelated sample)
S6Q347-ECC347	6Q24157.D	09/10/23	03:41	07:38	Ending cal 4
S6Q347-ICCB	6Q24158.D	09/10/23	03:56	07:53	Continuing Calibration Blank

TDCA Retention Time Check

Job Number: FC9496
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q347-RT	Injection Date: 09/09/23
Lab File ID: 6Q24125.D	Injection Time: 20:03
Instrument ID: GCMS6Q	

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q347-ICCB	6Q24158.D	09/10/23	03:56	07:53	Continuing Calibration Blank

6.7.3

6

TDCA Retention Time Check

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q353-RT	Injection Date:	09/18/23
Lab File ID:	6Q24593.D	Injection Time:	11:26
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.362	--	--
TDCA	6.923	1.439	1.000
TCDCA	6.774	1.588	1.000
TUDCA	5.960	2.402	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
S6Q353-IBLK	6Q24596.D	09/18/23	12:09	00:43	Instrument Blank
S6Q353-IBLK	6Q24596.D	09/18/23	12:09	00:43	Instrument Blank
S6Q353-CC347	6Q24597.D	09/18/23	12:24	00:58	Continuing cal 4
S6Q353-CC347	6Q24598.D	09/18/23	12:41	01:15	Continuing cal 1.0LL
OP99007-BS	6Q24599.D	09/18/23	12:56	01:30	Blank Spike
OP99007-LLBS	6Q24600.D	09/18/23	13:10	01:44	Blank Spike
OP99007-MB	6Q24601.D	09/18/23	13:24	01:58	Method Blank
FC9496-1	6Q24602.D	09/18/23	13:39	02:13	AF-RHMW04-WGN01LF-2309
OP99007-MS	6Q24603.D	09/18/23	13:53	02:27	Matrix Spike
FC9496-2	6Q24604.D	09/18/23	14:07	02:41	AF-RHMW17S-WGN01LF-2309
OP99007-DUP	6Q24605.D	09/18/23	14:22	02:56	Duplicate
FC9496-3	6Q24606.D	09/18/23	14:36	03:10	AF-RHMW17S-WQEB01-2309
FC9496-4	6Q24607.D	09/18/23	14:50	03:24	AF-RHMW17D-WGN01LF-2309
FC9496-5	6Q24608.D	09/18/23	15:05	03:39	AF-RHMW17D-WQFB01-2309
S6Q353-CC347	6Q24609.D	09/18/23	15:19	03:53	Continuing cal 4
S6Q353-ICCB	6Q24610.D	09/18/23	15:33	04:07	Continuing Calibration Blank
S6Q353-ICCB	6Q24610.D	09/18/23	15:33	04:07	Continuing Calibration Blank
FC9496-6	6Q24611.D	09/18/23	15:48	04:22	AF-RHMW06-WGN01LF-2309
FC9496-7	6Q24612.D	09/18/23	16:02	04:36	AF-RHMW17-WGN01LF-2309
ZZZZZZ	6Q24613.D	09/18/23	16:16	04:50	(unrelated sample)
ZZZZZZ	6Q24614.D	09/18/23	16:31	05:05	(unrelated sample)
ZZZZZZ	6Q24615.D	09/18/23	16:45	05:19	(unrelated sample)
ZZZZZZ	6Q24616.D	09/18/23	16:59	05:33	(unrelated sample)
ZZZZZZ	6Q24617.D	09/18/23	17:14	05:48	(unrelated sample)
S6Q353-CC347	6Q24618.D	09/18/23	17:28	06:02	Continuing cal 4
S6Q353-ICCB	6Q24619.D	09/18/23	17:42	06:16	Continuing Calibration Blank
S6Q353-ICCB	6Q24619.D	09/18/23	17:42	06:16	Continuing Calibration Blank
OP99025-BS	6Q24620.D	09/18/23	17:57	06:31	Blank Spike
OP99025-LLBS	6Q24621.D	09/18/23	18:11	06:45	Blank Spike
OP99025-MB	6Q24622.D	09/18/23	18:25	06:59	Method Blank
ZZZZZZ	6Q24623.D	09/18/23	18:40	07:14	(unrelated sample)
ZZZZZZ	6Q24624.D	09/18/23	18:54	07:28	(unrelated sample)
ZZZZZZ	6Q24625.D	09/18/23	19:08	07:42	(unrelated sample)
ZZZZZZ	6Q24626.D	09/18/23	19:23	07:57	(unrelated sample)

TDCA Retention Time Check

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q353-RT	Injection Date:	09/18/23
Lab File ID:	6Q24593.D	Injection Time:	11:26
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q24627.D	09/18/23	19:37	08:11	(unrelated sample)
ZZZZZZ	6Q24628.D	09/18/23	19:51	08:25	(unrelated sample)
ZZZZZZ	6Q24629.D	09/18/23	20:05	08:39	(unrelated sample)
S6Q353-CC347	6Q24630.D	09/18/23	20:20	08:54	Continuing cal 4
S6Q353-ICCB	6Q24631.D	09/18/23	20:34	09:08	Continuing Calibration Blank
ZZZZZZ	6Q24632.D	09/18/23	20:48	09:22	(unrelated sample)
ZZZZZZ	6Q24633.D	09/18/23	21:03	09:37	(unrelated sample)
ZZZZZZ	6Q24634.D	09/18/23	21:17	09:51	(unrelated sample)
ZZZZZZ	6Q24635.D	09/18/23	21:31	10:05	(unrelated sample)
ZZZZZZ	6Q24636.D	09/18/23	21:46	10:20	(unrelated sample)
ZZZZZZ	6Q24637.D	09/18/23	22:00	10:34	(unrelated sample)
ZZZZZZ	6Q24638.D	09/18/23	22:14	10:48	(unrelated sample)
S6Q353-CC347	6Q24639.D	09/18/23	22:29	11:03	Continuing cal 4
S6Q353-ICCB	6Q24640.D	09/18/23	22:43	11:17	Continuing Calibration Blank
OP99028-BS	6Q24641.D	09/18/23	22:57	11:31	Blank Spike
OP99028-LLBS	6Q24642.D	09/18/23	23:12	11:46	Blank Spike
OP99028-MB	6Q24643.D	09/18/23	23:26	12:00	Method Blank
ZZZZZZ	6Q24644.D	09/18/23	23:40	12:14	(unrelated sample)
ZZZZZZ	6Q24645.D	09/18/23	23:55	12:29	(unrelated sample)
ZZZZZZ	6Q24646.D	09/19/23	00:09	12:43	(unrelated sample)
ZZZZZZ	6Q24647.D	09/19/23	00:23	12:57	(unrelated sample)
FC9440-5	6Q24648.D	09/19/23	00:38	13:12	(used for QC only; not part of job FC9496)
OP99028-MS	6Q24649.D	09/19/23	00:52	13:26	Matrix Spike
S6Q353-CC347	6Q24650.D	09/19/23	01:06	13:40	Continuing cal 4
S6Q353-ICCB	6Q24651.D	09/19/23	01:21	13:55	Continuing Calibration Blank
FC9440-6	6Q24652.D	09/19/23	01:35	14:09	(used for QC only; not part of job FC9496)
OP99028-DUP	6Q24653.D	09/19/23	01:49	14:23	Duplicate
ZZZZZZ	6Q24654.D	09/19/23	02:04	14:38	(unrelated sample)
ZZZZZZ	6Q24655.D	09/19/23	02:18	14:52	(unrelated sample)
ZZZZZZ	6Q24656.D	09/19/23	02:32	15:06	(unrelated sample)
OP99029-BS	6Q24657.D	09/19/23	02:47	15:21	Blank Spike
OP99029-LLBS	6Q24658.D	09/19/23	03:01	15:35	Blank Spike
OP99029-MB	6Q24659.D	09/19/23	03:15	15:49	Method Blank
ZZZZZZ	6Q24660.D	09/19/23	03:29	16:03	(unrelated sample)
ZZZZZZ	6Q24661.D	09/19/23	03:44	16:18	(unrelated sample)
S6Q353-CC347	6Q24662.D	09/19/23	03:58	16:32	Continuing cal 4
S6Q353-ICCB	6Q24663.D	09/19/23	04:12	16:46	Continuing Calibration Blank
ZZZZZZ	6Q24668.D	09/19/23	05:24	17:58	(unrelated sample)
ZZZZZZ	6Q24669.D	09/19/23	05:38	18:12	(unrelated sample)
ZZZZZZ	6Q24670.D	09/19/23	05:53	18:27	(unrelated sample)
ZZZZZZ	6Q24671.D	09/19/23	06:07	18:41	(unrelated sample)
ZZZZZZ	6Q24672.D	09/19/23	06:22	18:56	(unrelated sample)
ZZZZZZ	6Q24673.D	09/19/23	06:36	19:10	(unrelated sample)
S6Q353-CC347	6Q24674.D	09/19/23	06:50	19:24	Continuing cal 4

6.7.4
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TDCA Retention Time Check

Job Number: FC9496
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q353-RT	Injection Date: 09/18/23
Lab File ID: 6Q24593.D	Injection Time: 11:26
Instrument ID: GCMS6Q	

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q353-ICCB	6Q24675.D	09/19/23	07:05	19:39	Continuing Calibration Blank
ZZZZZZ	6Q24676.D	09/19/23	07:19	19:53	(unrelated sample)
ZZZZZZ	6Q24677.D	09/19/23	07:33	20:07	(unrelated sample)
S6Q353-ECC347	6Q24678.D	09/19/23	07:48	20:22	Ending cal 4
S6Q353-ICCB	6Q24679.D	09/19/23	08:02	20:36	Continuing Calibration Blank

6.7.4

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Ion Ratio Summary

Job Number: FC9496
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q353 Method: EPA DRAFT 1633

Lab Sample ID	Lab File ID	Ion Ratios				
		PFBA	PFHxA	PFOA	PFBS	PFOS
S6Q347-ICC347	6Q24131.D	0	4.4	18.4	38.1	47.9
FC9496-1	6Q24602.D					
FC9496-2	6Q24604.D	0	5.3	11.7	28.2	41.3
FC9496-3	6Q24606.D					
FC9496-4	6Q24607.D					
FC9496-5	6Q24608.D					
FC9496-6	6Q24611.D					
FC9496-7	6Q24612.D					

6.8.1

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Isotope Dilution Standard Recovery Summary

Job Number: FC9496
 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
FC9496-1	6Q24602.D	119	99	111	118	120	143	117	99
FC9496-2	6Q24604.D	54	84	94	98	108	117	101	86
FC9496-3	6Q24606.D	113	93	101	107	115	133	106	88
FC9496-4	6Q24607.D	4* a	26	96	121	119	133	124	104
FC9496-4	4Q50750.D	112	108	107	108	103	103	104	108
FC9496-5	6Q24608.D	113	97	103	116	111	117	118	99
FC9496-6	6Q24611.D	125	117	127	132	126	146	123	98
FC9496-7	6Q24612.D	109	93	100	111	113	130	123	102
OP99007-BS	6Q24599.D	63	90	98	107	110	130	115	106
OP99007-DUP	6Q24605.D	57	90	108	108	117	127	115	101
OP99007-LLBS	6Q24600.D	105	88	95	105	101	124	111	92
OP99007-MB	6Q24601.D	111	94	99	107	101	125	132	106
OP99007-MS	6Q24603.D	106	91	100	113	101	124	110	93
OP99024-BS	4Q50746.D	47	112	114	113	108	109	115	119
OP99024-LLBS	4Q50747.D	125	121	123	120	119	127	129	129
OP99024-MB	4Q50748.D	145	142	141	139	137	144	137	137
OP99024-MS	4Q50751.D	105	105	102	104	104	106	89	99
OP99024-MSD	4Q50752.D	100	98	97	96	95	91	92	88
S4Q742-IBLK	4Q50729.D	101	102	102	104	101	106	108	104
S4Q742-ICCB	4Q50745.D	101	98	101	101	97	102	102	104
S6Q353-IBLK	6Q24596.D	102	87	91	99	101	111	105	98
S6Q353-ICCB	6Q24610.D	101	79	90	98	104	121	116	94

Isotope Dilution Standards

Recovery Limits

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

(a) Outside control limits.

Isotope Dilution Standard Recovery Summary

Job Number: FC9496
 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
FC9496-1	6Q24602.D	96	94	131	119	111	86	76	90
FC9496-2	6Q24604.D	85	70	112	103	85	73	55	58
FC9496-3	6Q24606.D	90	88	117	108	109	83	76	77
FC9496-4	6Q24607.D	96	69	108	116	92	78	73	79
FC9496-4	4Q50750.D	96	93	107	106	93	78	71	69
FC9496-5	6Q24608.D	93	79	125	109	97	80	75	83
FC9496-6	6Q24611.D	96	92	138	118	107	85	76	85
FC9496-7	6Q24612.D	99	89	124	111	108	79	63	74
OP99007-BS	6Q24599.D	103	98	125	106	95	77	68	71
OP99007-DUP	6Q24605.D	91	81	126	111	106	84	67	68
OP99007-LLBS	6Q24600.D	95	94	112	100	107	73	60	71
OP99007-MB	6Q24601.D	103	97	120	110	107	65	60	71
OP99007-MS	6Q24603.D	93	90	113	106	97	82	75	80
OP99024-BS	4Q50746.D	110	106	121	114	104	86	82	81
OP99024-LLBS	4Q50747.D	113	114	118	109	112	97	85	87
OP99024-MB	4Q50748.D	125	121	140	132	148	101	94	99
OP99024-MS	4Q50751.D	82	84	97	98	88	81	76	72
OP99024-MSD	4Q50752.D	78	75	90	87	83	70	73	75
S4Q742-IBLK	4Q50729.D	101	113	95	97	108	104		
S4Q742-ICCB	4Q50745.D	100	111	95	96	103	103		
S6Q353-IBLK	6Q24596.D	99	108	108	102	98	90		
S6Q353-ICCB	6Q24610.D	94	90	107	96	102	100		

Isotope Dilution Standards

Recovery Limits

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

6.9.1
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Isotope Dilution Standard Recovery Summary

Job Number: FC9496
 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
FC9496-1	6Q24602.D	105	91	79	86	119	115	107	110
FC9496-2	6Q24604.D	88	75	57	62	96	92	87	93
FC9496-3	6Q24606.D	97	82	73	76	109	105	100	103
FC9496-4	6Q24607.D	118	114	69	72	178	108	110	87
FC9496-4	4Q50750.D	100	104	85	92	108	97	84	110
FC9496-5	6Q24608.D	97	85	77	76	115	109	100	111
FC9496-6	6Q24611.D	101	96	75	77	123	110	112	132
FC9496-7	6Q24612.D	102	81	65	67	115	109	102	105
OP99007-BS	6Q24599.D	99	81	63	67	107	99	100	97
OP99007-DUP	6Q24605.D	93	77	64	68	106	95	101	101
OP99007-LLBS	6Q24600.D	96	82	62	67	107	101	93	98
OP99007-MB	6Q24601.D	96	93	59	67	119	101	111	107
OP99007-MS	6Q24603.D	99	83	71	78	101	96	92	104
OP99024-BS	4Q50746.D	100	103	97	101	108	118	118	113
OP99024-LLBS	4Q50747.D	104	112	102	104	112	116	115	122
OP99024-MB	4Q50748.D	133	133	109	119	135	138	125	144
OP99024-MS	4Q50751.D	93	99	83	90	95	88	68	102
OP99024-MSD	4Q50752.D	87	95	76	83	88	82	72	98
S4Q742-IBLK	4Q50729.D	94	98			92	91	96	
S4Q742-ICCB	4Q50745.D	102	101			102	86	89	
S6Q353-IBLK	6Q24596.D	88	81			106	86	81	
S6Q353-ICCB	6Q24610.D	98	97			100	101	89	

Isotope Dilution Standards

Recovery Limits

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

6.9.1

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Initial Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q741-ICC741
 Lab FileID: 4Q50690.D

Initial Calibration Report

Method Path	D:\MassHunter\methods											
Method File	1633_091723_S4Q741.quantmethod.xml											
Batch Name	D:\MassHunter\Data\091723_1633_S4Q741\QuantResults\4q741.batch.bin											
Last Calib Update	9/17/2023 4:39:19 PM											
Level Name	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
1	D:\MassHunter\Data\091723_1633_S4Q741\4Q50687.d											
2	D:\MassHunter\Data\091723_1633_S4Q741\4Q50688.d											
3	D:\MassHunter\Data\091723_1633_S4Q741\4Q50689.d											
4	D:\MassHunter\Data\091723_1633_S4Q741\4Q50690.d											
5	D:\MassHunter\Data\091723_1633_S4Q741\4Q50691.d											
6	D:\MassHunter\Data\091723_1633_S4Q741\4Q50692.d											
7	D:\MassHunter\Data\091723_1633_S4Q741\4Q50693.d											
8	D:\MassHunter\Data\091723_1633_S4Q741\4Q50694.d											
Compound												
I M4-PFBA												
T PFBA												
T 3:3FTCA												
I M5-PFPeA												
T PFMPA												
T PFPeA												
T PFMBA												
I M5-PFHXA												
T NFDHA												
T PFHxA												
T PFEEA												
T 5:3FTCA												
T 7:3FTCA												
I M4-PFHpA												
T PFHpA												
I M8-PFOA												
T PFOA												
I M9-PFNA												
T PFNA												
I M6-PFDA												
T PFDA												
I M7-PFUndA												
T PFUndA												
I M2-PFDODA												



Initial Calibration Summary

Job Number: FC9496
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q741-ICC741
 Lab FileID: 4Q50690.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.9685	0.9717	1.0343	1.0454	1.0898	1.1543	1.1303	1.1428	1.0671	6.924
T PFTfDA	Avg RF	0.9360	0.9952	1.1365	1.2333	1.2918	1.3050	1.2554	1.2299	1.1729	11.809
I M2-PFTeDA	Avg RF	1.4974	1.4913	1.5263	1.8495	1.8881	1.8024	1.9242	1.8155	1.7243	10.781
T PFTeDA	Avg RF					ISTD					
I M8-FOSA	Avg RF	1.1065	0.9519	1.1085	1.1294	1.1662	1.1999	1.2101	1.2316	1.1380	7.800
T FOSA	Avg RF					ISTD					
I M3-PFBS	Avg RF	1.0830	0.9674	1.1019	1.2412	1.2201	1.2553	1.2315	1.3050	1.1757	9.636
T PFBS	Avg RF					ISTD					
I M3-PFHxS	Avg RF	1.0822	0.8948	1.0554	1.0055	1.0587	1.0597	1.0204	1.0530	1.0287	5.757
T PFPeS	Avg RF	1.1538	0.9491	1.0492	1.0906	1.1557	1.1722	1.0875	1.1695	1.1035	6.980
T PFHxS	Avg RF					ISTD					
I M8-PFOS	Avg RF	1.0235	1.0226	0.9289	1.0379	1.1074	1.0803	1.2404	1.1318	1.0716	8.618
T PFHpS	Avg RF	1.1873	1.0426	1.2354	1.1888	1.4140	1.2859	1.5078	1.3235	1.2732	11.370
T PFOS	Avg RF	0.7323	0.7496	0.7012	0.7527	0.7550	0.7381	0.8141	0.6879	0.7414	5.156
T PFNS	Avg RF	0.9254	0.8113	0.8114	0.8587	0.9286	0.9146	1.0468	0.9427	0.9049	8.587
T PFDS	Avg RF	0.5630	0.5822	0.6051	0.6071	0.6910	0.6674	0.7719	0.6927	0.6476	10.861
T PFDoDS	Avg RF					ISTD					
I M2-4:2FTS	Avg RF	7.4463	7.4303	7.7198	8.3881	9.0631	9.5628	8.7019	9.4250	8.4672	10.189
T 4:2FTS	Avg RF					ISTD					
I M2-6:2FTS	Avg RF	5.9648	5.4905	5.7265	5.7324	6.0086	6.3249	5.9879	4.9643	5.7750	7.111
T 6:2FTS	Avg RF					ISTD					
I M2-8:2FTS	Avg RF	2.1782	2.6414	3.1800	3.0014	2.8986	3.2990	2.9361	2.4068	2.8177	13.588
T 8:2FTS	Avg RF					ISTD					
I M3-MeFOSAA	Avg RF	1.0959	0.8340	1.1171	1.1036	1.0799	1.2015	1.1417	1.1601	1.0917	10.188
T MeFOSAA	Avg RF					ISTD					
I M3-HFO-DA	Avg RF	0.8967	1.0179	1.0567	1.0980	1.1353	1.1609	1.1442	1.1626	1.0840	8.449
T HFPO-DA	Avg RF	6.2888	6.5852	7.2540	7.5862	8.0150	8.0739	8.0889	8.1929	7.5106	9.800
T ADONA	Avg RF	2.4904	2.5918	2.9013	3.0903	3.1276	3.1132	2.9390	2.7126	2.8708	8.594
T 9CH-PF3ONS	Avg RF	2.2593	2.2856	2.5447	2.7170	2.8617	2.8988	2.8218	2.7917	2.6476	9.654
T 11CH-PF3OUds	Avg RF					ISTD					
I M5-EFOSAA	Avg RF	0.6889	0.7872	0.8520	0.9621	0.8848	0.8582	0.9452	1.0632	0.8802	12.953
T EFOSAA	Avg RF					ISTD					
I M7-MeFOSE	Avg RF	1.0613	1.0786	1.1494	1.2415	1.2696	1.3024	1.3377	1.3728	1.2267	9.582
T MeFOSE	Avg RF					ISTD					
I M9-EFOSE	Avg RF	0.9339	0.9174	0.9810	1.0060	1.0773	1.1048	1.0970	1.1384	1.0320	8.104
T EFOSE	Avg RF					ISTD					

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Page 2 of 3

Initial Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q741-ICC741
 Lab FileID: 4Q50690.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA											
T EtFOSA	Avg RF	1.0366	0.9581	1.0445	1.0968	1.0884	1.1662	1.1574	1.1913	1.0924	7.169
I M3-MeFOSA											
T MeFOSA	Avg RF	1.1989	1.1128	1.1533	1.2290	1.2605	1.1507	1.2034	1.1211	1.1787	4.458
I 13C4-PFOS											
S d3-MeFOSAA	Avg RF	1.0979	1.0581	1.1361	1.0985	1.0916	1.0854	1.2103	1.2066	1.1231	5.064
S 13C8-PFOS	Avg RF	1.1098	1.0216	1.1802	1.1219	1.0371	1.1075	1.0574	1.2560	1.1114	6.991
S d5-EFOSAA	Avg RF	1.0428	0.9490	1.0541	0.9866	0.9830	1.1144	1.1095	1.0818	1.0401	5.938
S 13C8-FOSA	Avg RF	1.7037	1.6736	1.7563	1.6902	1.6440	1.6613	1.7793	1.9096	1.7272	5.032
S d7-MeFOSE	Avg RF	0.9936	0.9429	1.0263	0.9546	0.9690	0.9866	1.0063	1.0234	0.9878	3.109
S d3-MeFOSA	Avg RF	0.9562	0.9172	1.0299	0.9662	0.9264	1.0179	1.0632	1.2369	1.0142	10.208
S d9-EFOSE	Avg RF	1.4826	1.3351	1.4715	1.4492	1.4025	1.4171	1.4485	1.3946	1.4251	3.375
S d5-EFOSA	Avg RF	1.3906	1.3014	1.3813	1.3278	1.3394	1.3186	1.4149	1.4848	1.3698	4.434
I 13C3-PFBA											
S 13C4-PFBA	Avg RF	0.9832	0.9969	0.9664	0.9902	0.9940	0.9939	0.9901	1.0044	0.9899	1.141
I 1802-PFHxS											
S 13C2-4:2FTS	Avg RF	0.1227	0.1405	0.1484	0.1510	0.1462	0.1344	0.1316	0.1174	0.1365	8.963
S 13C3-PBBS	Avg RF	2.2282	2.4257	2.3235	2.4466	2.4313	2.4642	2.3731	2.4521	2.3931	3.401
S 13C2-6:2FTS	Avg RF	0.1807	0.2022	0.2047	0.2281	0.2201	0.2164	0.2020	0.2369	0.2114	8.373
S 13C3-PFHxS	Avg RF	1.4426	1.4884	1.3517	1.5460	1.5042	1.5473	1.5177	1.6244	1.5028	5.366
S 13C2-8:2FTS	Avg RF	0.2968	0.3106	0.3038	0.3471	0.3488	0.3207	0.3166	0.3669	0.3264	7.619
I 13C4-PFOA											
S 13C8-PFOA	Avg RF	0.9149	0.9131	0.9169	0.9126	0.9255	0.9364	0.9174	0.9012	0.9172	1.118
I 13C2-PFDA											
S 13C6-PFDA	Avg RF	0.9467	0.9871	0.9173	0.9462	0.9212	0.8948	1.0073	0.9877	0.9510	4.175
S 13C7-PFUnDA	Avg RF	1.0797	1.1403	1.0956	1.1326	1.1359	1.0340	1.0359	0.9215	1.0719	6.914
S 13C2-PFDODA	Avg RF	1.3443	1.4209	1.3762	1.4181	1.4404	1.3538	1.4346	1.4910	1.4099	3.484
S 13C2-PFTeDA	Avg RF	0.6951	0.7331	0.7813	0.7199	0.7208	0.7545	0.7383	0.8271	0.7463	5.555
I 13C5-PFNA											
S 13C9-PFNA	Avg RF	1.1740	1.1385	1.1039	1.1515	1.1602	1.0761	1.1572	1.1757	1.1421	3.071
I 13C2-PFHxA											
S 13C5-PPeA	Avg RF	0.5948	0.6059	0.5846	0.5866	0.6072	0.5828	0.5851	0.5606	0.5885	2.514
S 13C5-PFHxA	Avg RF	1.1443	1.1272	1.1279	1.1244	1.1919	1.1862	1.0984	1.1039	1.1380	3.044
S 13C3-HPO-D-A	Avg RF	0.2775	0.2751	0.2683	0.2658	0.2797	0.2679	0.2692	0.2607	0.2705	2.364
S 13C4-PFHpA	Avg RF	0.7999	0.7976	0.7742	0.8049	0.8307	0.7911	0.7688	0.7603	0.7909	2.871

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

Initial Calibration Verification

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q741-ICV741
 Lab FileID: 4Q50696.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\091723_1633_S4Q741\s4q741.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\091723_1633_S4Q741\4Q50687.d
 2:D:\MassHunter\Data\091723_1633_S4Q741\4Q50688.d
 3:D:\MassHunter\Data\091723_1633_S4Q741\4Q50689.d
 4:D:\MassHunter\Data\091723_1633_S4Q741\4Q50690.d
 5:D:\MassHunter\Data\091723_1633_S4Q741\4Q50691.d
 6:D:\MassHunter\Data\091723_1633_S4Q741\4Q50692.d
 7:D:\MassHunter\Data\091723_1633_S4Q741\4Q50693.d
 8:D:\MassHunter\Data\091723_1633_S4Q741\4Q50694.d

Data File: 4Q50696
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.536	10.7	110.7
13C2-6:2FTS	5.000	5.783	15.7	115.7
13C2-8:2FTS	5.000	5.312	6.2	106.2
13C2-PFDoDA	1.250	1.204	-3.6	96.4
13C2-PFTeDA	1.250	1.232	-1.4	98.6
13C3-PFBS	2.500	2.344	-6.2	93.8
13C3-PFHxS	2.500	2.481	-0.8	99.2
13C4-PFBA	10.000	9.997	0.0	100.0
13C4-PFHpA	2.500	2.513	0.5	100.5
13C5-PFHxA	2.500	2.504	0.1	100.1
13C5-PFPeA	5.000	4.982	-0.4	99.6
13C6-PFDA	1.250	1.274	1.9	101.9
13C7-PFUnDA	1.250	1.314	5.1	105.1
13C8-FOSA	2.500	2.474	-1.0	99.0
13C8-PFOA	2.500	2.435	-2.6	97.4
13C8-PFOS	2.500	2.263	-9.5	90.5
13C9-PFNA	1.250	1.406	12.5	112.5
4:2FTS	9.375	10.192	8.7	108.7
6:2FTS	9.500	9.711	2.2	102.2
8:2FTS	9.600	10.909	13.6	113.6
d3-MeFOSAA	5.000	5.054	1.1	101.1
EtFOSAA	2.500	2.774	11.0	111.0
FOSA	2.500	2.523	0.9	100.9
MeFOSAA	2.500	2.722	8.9	108.9
PFBA	10.000	10.243	2.4	102.4
PFBS	2.218	2.410	8.6	108.6
PFDA	2.500	2.576	3.1	103.1
PFDoDA	2.500	2.605	4.2	104.2
PFDS	2.413	2.670	10.6	110.6
PFHpA	2.500	2.619	4.8	104.8
PFHpS	2.383	2.594	8.9	108.9
PFHxA	2.500	2.496	-0.2	99.8
PFHxS	2.285	2.351	2.9	102.9
PFNA	2.500	2.458	-1.7	98.3
PFNS	2.405	2.750	14.3	114.3
PFOA	2.500	2.498	-0.1	99.9
PFOS	2.320	2.969	28.0	128.0

Initial Calibration Verification

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q741-ICV741
 Lab FileID: 4Q50696.D

PFPeA	5.000	5.205	4.1	104.1
PFPeS	2.353	2.207	-6.2	93.8
PFTeDA	2.500	2.526	1.0	101.0
PFTTrDA	2.500	2.741	9.7	109.7
PFUnDA	2.500	2.545	1.8	101.8
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	4.963	5.0	105.0
13C3-HFPO-DA	10.000	9.859	-1.4	98.6
9C1-PF3ONS	4.675	5.270	12.7	112.7
ADONA	4.725	4.949	4.7	104.7
HFPO-DA	5.000	5.016	0.3	100.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.468	-0.1	99.9
5:3FTCA	62.400	64.331	3.1	103.1
7:3FTCA	62.400	65.013	4.2	104.2
d3-MeFOSA	2.500	2.411	-3.5	96.5
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.267	5.3	105.3
EtFOSE	12.500	13.264	6.1	106.1
MeFOSA	5.000	5.251	5.0	105.0
MeFOSE	12.500	12.916	3.3	103.3
PFDoDS	2.425	2.741	13.0	113.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.162	3.2	103.2
d7-MeFOSE	25.000	24.674	-1.3	98.7
d9-EtFOSE	25.000	24.178	-3.3	96.7
d5-EtFOSA	2.500	2.437	-2.5	97.5
NFDHA	5.000	5.219	4.4	104.4
PFMBA	5.000	5.207	4.1	104.1
PFMPA	5.000	5.165	3.3	103.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.670	4.9	104.9

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q741-ICV741
 Lab FileID: 4Q50697.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\091723_1633_S4Q741\s4q741.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\091723_1633_S4Q741\4Q50687.d
 2:D:\MassHunter\Data\091723_1633_S4Q741\4Q50688.d
 3:D:\MassHunter\Data\091723_1633_S4Q741\4Q50689.d
 4:D:\MassHunter\Data\091723_1633_S4Q741\4Q50690.d
 5:D:\MassHunter\Data\091723_1633_S4Q741\4Q50691.d
 6:D:\MassHunter\Data\091723_1633_S4Q741\4Q50692.d
 7:D:\MassHunter\Data\091723_1633_S4Q741\4Q50693.d
 8:D:\MassHunter\Data\091723_1633_S4Q741\4Q50694.d

Data File: 4Q50697
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.594	11.9	111.9
13C2-6:2FTS	5.000	6.347	26.9	126.9
13C2-8:2FTS	5.000	6.395	27.9	127.9
13C2-PFDoDA	1.250	1.194	-4.5	95.5
13C2-PFTeDA	1.250	1.214	-2.9	97.1
13C3-PFBS	2.500	2.630	5.2	105.2
13C3-PFHxS	2.500	2.648	5.9	105.9
13C4-PFBA	10.000	10.027	0.3	100.3
13C4-PFHpA	2.500	2.456	-1.8	98.2
13C5-PFHxA	2.500	2.512	0.5	100.5
13C5-PFPeA	5.000	5.060	1.2	101.2
13C6-PFDA	1.250	1.260	0.8	100.8
13C7-PFUnDA	1.250	1.258	0.7	100.7
13C8-FOSA	2.500	2.369	-5.2	94.8
13C8-PFOA	2.500	2.524	0.9	100.9
13C8-PFOS	2.500	2.461	-1.6	98.4
13C9-PFNA	1.250	1.260	0.8	100.8
4:2FTS	20.000	25.080	25.4	125.4
6:2FTS	20.000	21.720	8.6	108.6
8:2FTS	20.000	19.870	-0.7	99.3
d3-MeFOSAA	5.000	5.102	2.0	102.0
EtFOSAA	20.000	21.069	5.3	105.3
FOSA	20.000	20.042	0.2	100.2
MeFOSAA	20.000	21.035	5.2	105.2
PFBA	20.000	20.214	1.1	101.1
PFBS	20.000	22.300	11.5	111.5
PFDA	20.000	20.214	1.1	101.1
PFDoDA	20.000	19.609	-2.0	98.0
PFDS	20.000	20.520	2.6	102.6
PFHpA	20.000	21.974	9.9	109.9
PFHpS	20.000	20.988	4.9	104.9
PFHxA	20.000	21.758	8.8	108.8
PFHxS	20.000	22.221	11.1	111.1
PFNA	20.000	22.941	14.7	114.7
PFNS	20.000	19.540	-2.3	97.7
PFOA	20.000	20.082	0.4	100.4
PFOS	20.000	21.982	9.9	109.9

Initial Calibration Verification

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q741-ICV741
 Lab FileID: 4Q50697.D

PFPeA	20.000	21.533	7.7	107.7
PFPeS	20.000	20.472	2.4	102.4
PFTeDA	20.000	21.539	7.7	107.7
PFTTrDA	20.000	19.582	-2.1	97.9
PFUnDA	20.000	19.400	-3.0	97.0
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	20.000	22.256	11.3	111.3
13C3-HFPO-DA	10.000	9.769	-2.3	97.7
9C1-PF3ONS	20.000	21.647	8.2	108.2
ADONA	20.000	19.445	-2.8	97.2
HFPO-DA	20.000	20.647	3.2	103.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	19.056	-4.7	95.3
5:3FTCA	20.000	20.209	1.0	101.0
7:3FTCA	20.000	19.351	-3.2	96.8
d3-MeFOSA	2.500	2.477	-0.9	99.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	19.213	-3.9	96.1
EtFOSE	100.000	110.352	10.4	110.4
MeFOSA	20.000	17.528	-12.4	87.6
MeFOSE	100.000	114.237	14.2	114.2
PFDoDS	20.000	19.899	-0.5	99.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.055	1.1	101.1
d7-MeFOSE	25.000	23.313	-6.7	93.3
d9-EtFOSE	25.000	23.352	-6.6	93.4
d5-EtFOSA	2.500	2.355	-5.8	94.2
NFDHA	20.000	19.512	-2.4	97.6
PFMBA	20.000	20.711	3.6	103.6
PFMPA	20.000	20.706	3.5	103.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	18.710	-6.4	93.6

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q742-CC741
 Lab FileID: 4Q50733.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\091823_1633_S4Q742\s4q742.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\091723_1633_S4Q741\4Q50687.d
 2:D:\MassHunter\Data\091723_1633_S4Q741\4Q50688.d
 3:D:\MassHunter\Data\091723_1633_S4Q741\4Q50689.d
 4:D:\MassHunter\Data\091723_1633_S4Q741\4Q50690.d
 5:D:\MassHunter\Data\091723_1633_S4Q741\4Q50691.d
 6:D:\MassHunter\Data\091723_1633_S4Q741\4Q50692.d
 7:D:\MassHunter\Data\091723_1633_S4Q741\4Q50693.d
 8:D:\MassHunter\Data\091723_1633_S4Q741\4Q50694.d

Data File: 4Q50733
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.681	-6.4	93.6
13C2-6:2FTS	5.000	4.110	-17.8	82.2
13C2-8:2FTS	5.000	4.633	-7.3	92.7
13C2-PFDoDA	1.250	1.249	-0.1	99.9
13C2-PFTeDA	1.250	1.393	11.4	111.4
13C3-PFBS	2.500	2.495	-0.2	99.8
13C3-PFHxS	2.500	2.555	2.2	102.2
13C4-PFBA	10.000	10.117	1.2	101.2
13C4-PFHpA	2.500	2.535	1.4	101.4
13C5-PFHxA	2.500	2.530	1.2	101.2
13C5-PFPeA	5.000	5.013	0.3	100.3
13C6-PFDA	1.250	1.270	1.6	101.6
13C7-PFUnDA	1.250	1.323	5.8	105.8
13C8-FOSA	2.500	2.630	5.2	105.2
13C8-PFOA	2.500	2.493	-0.3	99.7
13C8-PFOS	2.500	2.403	-3.9	96.1
13C9-PFNA	1.250	1.208	-3.4	96.6
4:2FTS	0.750	0.633	-15.6	84.4
6:2FTS	0.760	0.752	-1.0	99.0
8:2FTS	0.768	0.617	-19.7	80.3
d3-MeFOSAA	5.000	4.580	-8.4	91.6
EtFOSAA	0.200	0.145	-27.4	72.6
FOSA	0.200	0.170	-15.1	84.9
MeFOSAA	0.200	0.199	-0.6	99.4
PFBA	0.800	0.690	-13.8	86.2
PFBS	0.177	0.145	-17.9	82.1
PFDA	0.200	0.170	-14.8	85.2
PFDoDA	0.200	0.187	-6.5	93.5
PFDS	0.193	0.176	-8.7	91.3
PFHpA	0.200	0.186	-6.8	93.2
PFHpS	0.191	0.191	0.1	100.1
PFHxA	0.200	0.140	-29.8	70.2
PFHxS	0.183	0.131	-28.2	71.8
PFNA	0.200	0.166	-17.1	82.9
PFNS	0.192	0.193	0.5	100.5
PFOA	0.200	0.202	1.2	101.2
PFOS	0.186	0.189	1.5	101.5

Continuing Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q742-CC741
 Lab FileID: 4Q50733.D

PFPeA	0.400	0.354	-11.5	88.5
PFPeS	0.188	0.151	-19.6	80.4
PFTeDA	0.200	0.145	-27.6	72.4
PFTTrDA	0.200	0.183	-8.4	91.6
PFUnDA	0.200	0.159	-20.6	79.4
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	0.356	-5.8	94.2
13C3-HFPO-DA	10.000	9.934	-0.7	99.3
9C1-PF3ONS	0.374	0.333	-10.8	89.2
ADONA	0.378	0.327	-13.6	86.4
HFPO-DA	0.400	0.341	-14.7	85.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.804	-19.5	80.5
5:3FTCA	4.992	4.031	-19.3	80.7
7:3FTCA	4.992	4.085	-18.2	81.8
d3-MeFOSA	2.500	2.295	-8.2	91.8
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.367	-8.4	91.6
EtFOSE	1.000	0.860	-14.0	86.0
MeFOSA	0.400	0.336	-16.0	84.0
MeFOSE	1.000	0.795	-20.5	79.5
PFDoDS	0.194	0.193	-0.3	99.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.804	-3.9	96.1
d7-MeFOSE	25.000	26.865	7.5	107.5
d9-EtFOSE	25.000	26.435	5.7	105.7
d5-EtFOSA	2.500	2.440	-2.4	97.6
NFDHA	0.400	0.373	-6.8	93.2
PFMBA	0.400	0.354	-11.5	88.5
PFMPA	0.400	0.359	-10.4	89.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.335	-5.9	94.1

CC Criteria: +/- 30%

6:10.4

6

Continuing Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q742-CC741
 Lab FileID: 4Q50744.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\091823_1633_S4Q742\s4q742.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\091723_1633_S4Q741\4Q50687.d
 2:D:\MassHunter\Data\091723_1633_S4Q741\4Q50688.d
 3:D:\MassHunter\Data\091723_1633_S4Q741\4Q50689.d
 4:D:\MassHunter\Data\091723_1633_S4Q741\4Q50690.d
 5:D:\MassHunter\Data\091723_1633_S4Q741\4Q50691.d
 6:D:\MassHunter\Data\091723_1633_S4Q741\4Q50692.d
 7:D:\MassHunter\Data\091723_1633_S4Q741\4Q50693.d
 8:D:\MassHunter\Data\091723_1633_S4Q741\4Q50694.d

Data File: 4Q50744
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.906	-1.9	98.1
13C2-6:2FTS	5.000	4.651	-7.0	93.0
13C2-8:2FTS	5.000	4.258	-14.8	85.2
13C2-PFDoDA	1.250	1.306	4.5	104.5
13C2-PFTeDA	1.250	1.438	15.1	115.1
13C3-PFBS	2.500	2.351	-6.0	94.0
13C3-PFHxS	2.500	2.408	-3.7	96.3
13C4-PFBA	10.000	10.138	1.4	101.4
13C4-PFHpA	2.500	2.440	-2.4	97.6
13C5-PFHxA	2.500	2.545	1.8	101.8
13C5-PFPeA	5.000	5.006	0.1	100.1
13C6-PFDA	1.250	1.272	1.8	101.8
13C7-PFUnDA	1.250	1.381	10.5	110.5
13C8-FOSA	2.500	2.628	5.1	105.1
13C8-PFOA	2.500	2.442	-2.3	97.7
13C8-PFOS	2.500	2.581	3.2	103.2
13C9-PFNA	1.250	1.346	7.7	107.7
4:2FTS	9.375	8.955	-4.5	95.5
6:2FTS	9.500	9.078	-4.4	95.6
8:2FTS	9.600	9.687	0.9	100.9
d3-MeFOSAA	5.000	4.682	-6.4	93.6
EtFOSAA	2.500	2.573	2.9	102.9
FOSA	2.500	2.511	0.4	100.4
MeFOSAA	2.500	2.458	-1.7	98.3
PFBA	10.000	9.862	-1.4	98.6
PFBS	2.218	2.255	1.7	101.7
PFDA	2.500	2.459	-1.7	98.3
PFDoDA	2.500	2.480	-0.8	99.2
PFDS	2.413	2.275	-5.7	94.3
PFHpA	2.500	2.573	2.9	102.9
PFHpS	2.383	2.207	-7.4	92.6
PFHxA	2.500	2.560	2.4	102.4
PFHxS	2.285	2.333	2.1	102.1
PFNA	2.500	2.261	-9.5	90.5
PFNS	2.405	2.184	-9.2	90.8
PFOA	2.500	2.456	-1.8	98.2
PFOS	2.320	2.558	10.3	110.3

Continuing Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q742-CC741
 Lab FileID: 4Q50744.D

PFPeA	5.000	5.148	3.0	103.0
PFPeS	2.353	2.173	-7.6	92.4
PFTeDA	2.500	2.338	-6.5	93.5
PFTTrDA	2.500	2.674	7.0	107.0
PFUnDA	2.500	2.460	-1.6	98.4
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	4.709	-0.3	99.7
13C3-HFPO-DA	10.000	10.335	3.4	103.4
9C1-PF3ONS	4.675	4.944	5.7	105.7
ADONA	4.725	4.590	-2.9	97.1
HFPO-DA	5.000	4.995	-0.1	99.9
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.670	-6.5	93.5
5:3FTCA	62.400	61.547	-1.4	98.6
7:3FTCA	62.400	61.092	-2.1	97.9
d3-MeFOSA	2.500	2.348	-6.1	93.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.012	0.2	100.2
EtFOSE	12.500	12.733	1.9	101.9
MeFOSA	5.000	5.156	3.1	103.1
MeFOSE	12.500	13.171	5.4	105.4
PFDoDS	2.425	2.422	-0.1	99.9
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.979	-0.4	99.6
d7-MeFOSE	25.000	28.196	12.8	112.8
d9-EtFOSE	25.000	26.276	5.1	105.1
d5-EtFOSA	2.500	2.308	-7.7	92.3
NFDHA	5.000	5.438	8.8	108.8
PFMBA	5.000	5.039	0.8	100.8
PFMPA	5.000	5.087	1.7	101.7
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.632	4.1	104.1

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q742-CC741
 Lab FileID: 4Q50756.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\091823_1633_S4Q742\s4q742.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\091723_1633_S4Q741\4Q50687.d
 2:D:\MassHunter\Data\091723_1633_S4Q741\4Q50688.d
 3:D:\MassHunter\Data\091723_1633_S4Q741\4Q50689.d
 4:D:\MassHunter\Data\091723_1633_S4Q741\4Q50690.d
 5:D:\MassHunter\Data\091723_1633_S4Q741\4Q50691.d
 6:D:\MassHunter\Data\091723_1633_S4Q741\4Q50692.d
 7:D:\MassHunter\Data\091723_1633_S4Q741\4Q50693.d
 8:D:\MassHunter\Data\091723_1633_S4Q741\4Q50694.d

Data File: 4Q50756
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.838	16.8	116.8
13C2-6:2FTS	5.000	5.543	10.9	110.9
13C2-8:2FTS	5.000	5.308	6.2	106.2
13C2-PFDoDA	1.250	1.205	-3.6	96.4
13C2-PFTeDA	1.250	1.214	-2.9	97.1
13C3-PFBS	2.500	2.550	2.0	102.0
13C3-PFHxS	2.500	2.402	-3.9	96.1
13C4-PFBA	10.000	10.189	1.9	101.9
13C4-PFHpA	2.500	2.513	0.5	100.5
13C5-PFHxA	2.500	2.516	0.7	100.7
13C5-PFPeA	5.000	5.064	1.3	101.3
13C6-PFDA	1.250	1.170	-6.4	93.6
13C7-PFUnDA	1.250	1.312	4.9	104.9
13C8-FOSA	2.500	2.506	0.2	100.2
13C8-PFOA	2.500	2.491	-0.3	99.7
13C8-PFOS	2.500	2.468	-1.3	98.7
13C9-PFNA	1.250	1.256	0.5	100.5
4:2FTS	9.375	9.462	0.9	100.9
6:2FTS	9.500	9.401	-1.0	99.0
8:2FTS	9.600	9.734	1.4	101.4
d3-MeFOSAA	5.000	4.862	-2.8	97.2
EtFOSAA	2.500	2.573	2.9	102.9
FOSA	2.500	2.467	-1.3	98.7
MeFOSAA	2.500	2.658	6.3	106.3
PFBA	10.000	9.835	-1.7	98.3
PFBS	2.218	2.306	3.9	103.9
PFDA	2.500	2.592	3.7	103.7
PFDoDA	2.500	2.436	-2.5	97.5
PFDS	2.413	2.320	-3.9	96.1
PFHpA	2.500	2.509	0.4	100.4
PFHpS	2.383	2.487	4.4	104.4
PFHxA	2.500	2.573	2.9	102.9
PFHxS	2.285	2.335	2.2	102.2
PFNA	2.500	2.481	-0.8	99.2
PFNS	2.405	2.572	6.9	106.9
PFOA	2.500	2.471	-1.2	98.8
PFOS	2.320	2.696	16.2	116.2

Continuing Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q742-CC741
 Lab FileID: 4Q50756.D

PFPeA	5.000	5.034	0.7	100.7
PFPeS	2.353	2.476	5.2	105.2
PFTeDA	2.500	2.477	-0.9	99.1
PFTTrDA	2.500	2.638	5.5	105.5
PFUnDA	2.500	2.374	-5.0	95.0
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	4.800	1.6	101.6
13C3-HFPO-DA	10.000	9.941	-0.6	99.4
9C1-PF3ONS	4.675	4.944	5.7	105.7
ADONA	4.725	4.796	1.5	101.5
HFPO-DA	5.000	5.232	4.6	104.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.078	-3.2	96.8
5:3FTCA	62.400	62.335	-0.1	99.9
7:3FTCA	62.400	62.943	0.9	100.9
d3-MeFOSA	2.500	2.410	-3.6	96.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.967	-0.7	99.3
EtFOSE	12.500	12.383	-0.9	99.1
MeFOSA	5.000	5.123	2.5	102.5
MeFOSE	12.500	12.282	-1.7	98.3
PFDoDS	2.425	2.343	-3.4	96.6
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.963	-0.7	99.3
d7-MeFOSE	25.000	26.753	7.0	107.0
d9-EtFOSE	25.000	27.358	9.4	109.4
d5-EtFOSA	2.500	2.502	0.1	100.1
NFDHA	5.000	5.398	8.0	108.0
PFMBA	5.000	4.999	0.0	100.0
PFMPA	5.000	4.996	-0.1	99.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.639	4.3	104.3

CC Criteria: +/- 30%

Initial Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q347-ICC347
 Lab FileID: 6Q24131.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods											
Method File	1633_090923_S6Q347.quantmethod.xml											
Batch Name	D:\MassHunter\Data\090923_1633_S6Q347\QuantResults\S6Q347.batch.bin											
Last Calib Update	9/10/2023 12:48:31 PM											
Level Name	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
1	D:\MassHunter\Data\090923_1633_S6Q347\6Q24128.d											
2	D:\MassHunter\Data\090923_1633_S6Q347\6Q24129.d											
3	D:\MassHunter\Data\090923_1633_S6Q347\6Q24130.d											
4	D:\MassHunter\Data\090923_1633_S6Q347\6Q24131.d											
5	D:\MassHunter\Data\090923_1633_S6Q347\6Q24132.d											
6	D:\MassHunter\Data\090923_1633_S6Q347\6Q24133.d											
7	D:\MassHunter\Data\090923_1633_S6Q347\6Q24134.d											
8	D:\MassHunter\Data\090923_1633_S6Q347\6Q24135.d											
Compound												
I M4-PFBA												
T PFBA	Avg RF	0.3237	0.3287	0.3105	0.3206	0.3271	0.3446	0.3510	0.3378	0.3305	4.015	
T 3:3FTCA	Avg RF	0.0517	0.0563	0.0521	0.0540	0.0549	0.0591	0.0628	0.0664	0.0572	9.178	
I M5-PFPeA												
T PFMPA	Avg RF	1.1287	1.1532	1.1043	1.1485	1.1474	1.1971	1.2241	1.2086	1.1640	3.578	
T PFPeA	Avg RF	2.1880	2.2326	2.1460	2.2034	2.2003	2.2719	2.3181	2.2586	2.2274	2.441	
T PFMBa	Avg RF	1.5638	1.6063	1.5567	1.6086	1.5970	1.6647	1.7090	1.6816	1.6235	3.424	
I M5-PFHxA												
T NFDHA	Avg RF	0.1061	0.1087	0.1027	0.1047	0.1026	0.1147	0.1051	0.0990	0.1055	4.447	
T PFHxA	Avg RF	0.8910	0.8709	0.9001	0.8869	0.8936	0.9921	0.9140	0.9306	0.9099	4.148	
T PFEEsA	Avg RF	1.1430	1.1591	1.1009	1.1091	1.1294	1.1963	1.1442	1.1145	1.1371	2.728	
T 5:3FTCA	Avg RF	0.1484	0.1550	0.1500	0.1516	0.1508	0.1694	0.1533	0.1582	0.1546	4.340	
T 7:3FTCA	Avg RF	0.0910	0.0942	0.0883	0.0886	0.0922	0.0942	0.0928	0.0897	0.0914	2.579	
I M4-PFHpA												
T PFHpA	Avg RF	1.2504	1.2871	1.2479	1.3247	1.3463	1.3511	1.4353	1.3402	1.3229	4.646	
I M8-PFOA												
T PFOA	Avg RF	1.1826	1.4159	1.2589	1.1926	1.2025	1.3666	1.3582	1.3308	1.2885	7.044	
I M9-PFNA												
T PFNA	Avg RF	0.9831	0.8994	0.8632	0.9243	0.8924	0.9749	1.0169	0.9874	0.9427	5.842	
I M6-PFDA												
T PFDA	Avg RF	1.1034	1.1218	1.1081	1.0880	1.1831	1.1451	1.2249	1.1352	1.1387	3.996	
I M7-PFUnDA												
T PFUnDA	Avg RF	0.6535	0.7135	0.7138	0.6645	0.7136	0.7561	0.7900	0.7237	0.7161	6.184	
I M2-PFDdA												

Initial Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q347-ICC347
 Lab FileID: 6Q24131.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.9292	0.9016	0.8473	0.9160	0.9202	1.0372	0.9717	0.8983	0.9277	6.061
T PFTfDA	Avg RF	1.0587	1.0418	1.0570	0.9980	1.0482	1.1585	1.0981	0.9783	1.0548	5.306
I M2-PFTeDA	Avg RF	1.8856	1.7514	1.6722	1.7953	1.8782	1.8294	1.8414	1.7525	1.8008	4.037
T PFTeDA	Avg RF	1.8856	1.7514	1.6722	1.7953	1.8782	1.8294	1.8414	1.7525	1.8008	4.037
I M8-FOSA	Avg RF	0.8885	0.9483	0.9095	0.8800	0.9248	0.9711	0.9332	0.9042	0.9200	3.330
T FOSA	Avg RF	0.8885	0.9483	0.9095	0.8800	0.9248	0.9711	0.9332	0.9042	0.9200	3.330
I M3-PFBS	Avg RF	1.2048	1.2544	1.1458	1.1954	1.1733	1.2562	1.2814	1.2993	1.2263	4.439
T PFBS	Avg RF	1.2048	1.2544	1.1458	1.1954	1.1733	1.2562	1.2814	1.2993	1.2263	4.439
I M3-PFHxS	Avg RF	1.3412	1.3763	1.2197	1.3247	1.4853	1.3321	1.4186	1.3820	1.3600	5.692
T PFPeS	Avg RF	1.3412	1.3763	1.2197	1.3247	1.4853	1.3321	1.4186	1.3820	1.3600	5.692
T PFHxS	Avg RF	1.5265	1.6517	1.5508	1.3972	1.6587	1.4390	1.7126	1.6066	1.5679	7.046
I M8-PFOS	Avg RF	1.3779	1.2711	1.1067	1.1676	1.2119	1.2089	1.1761	1.1601	1.2100	6.847
T PFHpS	Avg RF	1.3779	1.2711	1.1067	1.1676	1.2119	1.2089	1.1761	1.1601	1.2100	6.847
T PFOS	Avg RF	1.4142	1.5678	1.2512	1.2888	1.4469	1.3684	1.3556	1.3877	1.3851	7.033
T PFNS	Avg RF	1.2135	1.1588	1.0559	1.1360	1.1892	1.3382	1.1882	1.1635	1.1804	6.743
T PFDS	Avg RF	0.7122	0.7742	0.6141	0.6940	0.7812	0.7553	0.7506	0.7452	0.7284	7.501
T PFDoDS	Avg RF	0.3683	0.4249	0.3733	0.3877	0.4221	0.4064	0.4006	0.4093	0.3991	5.276
I M2-4:2FTS	Avg RF	8.4165	8.5913	7.8020	8.1516	8.2851	8.4961	8.9032	7.5096	8.2694	5.385
T 4:2FTS	Avg RF	8.4165	8.5913	7.8020	8.1516	8.2851	8.4961	8.9032	7.5096	8.2694	5.385
I M2-6:2FTS	Avg RF	4.4708	4.4499	4.3779	4.3833	4.7150	4.4815	4.3214	4.1869	4.4233	3.432
T 6:2FTS	Avg RF	4.4708	4.4499	4.3779	4.3833	4.7150	4.4815	4.3214	4.1869	4.4233	3.432
I M2-8:2FTS	Avg RF	3.5833	3.4861	3.6757	3.1175	3.1436	3.6205	3.5599	2.7967	3.3729	9.341
T 8:2FTS	Avg RF	3.5833	3.4861	3.6757	3.1175	3.1436	3.6205	3.5599	2.7967	3.3729	9.341
I M3-MeFOSAA	Avg RF	1.2659	1.1705	1.2332	1.1658	1.0222	1.2467	1.2370	1.1602	1.1877	6.601
T MeFOSAA	Avg RF	1.2659	1.1705	1.2332	1.1658	1.0222	1.2467	1.2370	1.1602	1.1877	6.601
I M3-HFO-DA	Avg RF	0.8735	0.9683	0.9223	0.9505	0.9441	0.9293	1.0102	0.9716	0.9462	4.264
T HFPO-DA	Avg RF	0.8735	0.9683	0.9223	0.9505	0.9441	0.9293	1.0102	0.9716	0.9462	4.264
T ADONA	Avg RF	13.71	14.29	14.34	15.42	14.32	14.07	15.64	14.05	14.48	4.708
T 9CI-PF3ONS	Avg RF	5.4084	5.9667	5.9765	7.1218	6.6304	6.1945	6.3034	6.4310	6.2541	8.123
T 11CI-PF3OUds	Avg RF	3.5170	3.6777	3.6002	4.1867	3.5871	3.5928	3.7214	3.3043	3.6484	6.878
I M5-EFOSAA	Avg RF	0.7400	0.7377	0.7261	0.6945	0.6795	0.6000	0.7950	0.6765	0.7062	8.193
T EFOSAA	Avg RF	0.7400	0.7377	0.7261	0.6945	0.6795	0.6000	0.7950	0.6765	0.7062	8.193
I M7-MeFOSE	Avg RF	1.0542	1.0354	1.0669	1.0635	1.0817	1.1212	1.1019	1.1236	1.0811	2.960
T MeFOSE	Avg RF	1.0542	1.0354	1.0669	1.0635	1.0817	1.1212	1.1019	1.1236	1.0811	2.960
I M9-EFOSE	Avg RF	1.1041	1.2319	1.1956	1.2073	1.1832	1.2245	1.2119	1.1462	1.1881	3.637
T EFOSE	Avg RF	1.1041	1.2319	1.1956	1.2073	1.1832	1.2245	1.2119	1.1462	1.1881	3.637

Generated at 12:50 PM on 9/10/2023

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Initial Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q347-ICC347
 Lab FileID: 6Q24131.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA	Avg RF	1.2887	1.3126	1.2893	1.3358	1.4123	1.3592	1.4659	1.4178	1.3602	4.829
T EFOSA						ISTD					
I M3-MeFOSA	Avg RF	1.0318	1.0724	1.0764	1.0798	1.0335	1.0951	1.0865	1.0125	1.0610	2.871
T MeFOSA						ISTD					
I 13C4-PFOS						ISTD					
S d3-MeFOSAA	Avg RF	0.6776	0.7083	0.6701	0.6458	0.7850	0.6665	0.7220	0.7165	0.6990	6.281
S 13C8-PFOS	Avg RF	0.7398	0.7415	0.8625	0.7380	0.7533	0.7669	0.8726	0.8261	0.7876	7.246
S d5-EFOSAA	Avg RF	0.6430	0.6630	0.6669	0.6233	0.6512	0.7405	0.6587	0.7328	0.6724	6.238
S 13C8-FOSA	Avg RF	1.6327	1.7572	1.7695	1.6490	1.7148	1.7726	1.9547	1.9874	1.7797	7.275
S d7-MeFOSE	Avg RF	0.6103	0.6411	0.6653	0.6032	0.6713	0.6439	0.7125	0.7107	0.6573	6.229
S d3-MeFOSA	Avg RF	0.6619	0.6944	0.6944	0.6482	0.7349	0.7215	0.7892	0.8312	0.7214	8.686
S d9-EFOSE	Avg RF	0.8556	0.8416	0.8863	0.8284	0.8959	0.8848	0.9634	0.9203	0.8845	4.958
S d5-EFOSA	Avg RF	0.6302	0.6923	0.6886	0.6147	0.6631	0.6860	0.7123	0.6942	0.6727	5.061
I 13C3-PFBA						ISTD					
S 13C4-PFBA	Avg RF	1.2605	1.2637	1.2773	1.2645	1.2606	1.2603	1.2563	1.2586	1.2627	0.508
I 18O2-PFHXS						ISTD					
S 13C2-4:2FTS	Avg RF	0.1515	0.1498	0.1545	0.1614	0.1447	0.1290	0.1237	0.1109	0.1407	12.464
S 13C3-PBBS	Avg RF	2.3832	2.2233	2.3578	2.3575	2.4722	2.1927	2.3507	2.1589	2.3120	4.680
S 13C2-6:2FTS	Avg RF	0.2142	0.2265	0.2250	0.2369	0.2054	0.1869	0.1949	0.1620	0.2065	11.899
S 13C3-PFHXS	Avg RF	1.4125	1.2987	1.3896	1.4459	1.3144	1.3840	1.4094	1.3318	1.3733	3.817
S 13C2-8:2FTS	Avg RF	0.2219	0.2156	0.2152	0.2464	0.2370	0.1937	0.2026	0.1778	0.2138	10.453
I 13C4-PFOA						ISTD					
S 13C8-PFOA	Avg RF	0.9502	0.8542	0.9544	0.9029	0.9380	0.9741	0.8503	0.9359	0.9200	5.045
I 13C2-PFDA						ISTD					
S 13C6-PFDA	Avg RF	1.0458	1.1031	1.0997	1.1527	1.0542	1.1612	1.0435	1.0469	1.0884	4.461
S 13C7-PFUnDA	Avg RF	1.4854	1.5255	1.4622	1.6139	1.4807	1.5075	1.2993	1.2911	1.4582	7.585
S 13C2-PFDODA	Avg RF	1.3382	1.4103	1.3086	1.4038	1.3645	1.3111	1.2872	1.3024	1.3407	3.524
S 13C2-PFTeDA	Avg RF	0.4875	0.5050	0.5091	0.5199	0.4729	0.4995	0.4953	0.4981	0.4984	2.836
I 13C5-PFNA						ISTD					
S 13C9-PFNA	Avg RF	0.8032	0.7721	0.7829	0.8342	0.8413	0.7284	0.7687	0.7187	0.7812	5.693
I 13C2-PFHXA						ISTD					
S 13C5-PPFA	Avg RF	0.3525	0.3356	0.3331	0.3289	0.3417	0.3286	0.3449	0.3303	0.3369	2.566
S 13C5-PFHXA	Avg RF	1.4024	1.3651	1.3549	1.3450	1.4014	1.2726	1.4679	1.4152	1.3781	4.205
S 13C3-HPODA	Avg RF	0.1969	0.1936	0.1859	0.1746	0.1890	0.1955	0.1923	0.1956	0.1904	3.876
S 13C4-PFHpA	Avg RF	1.1161	1.0747	1.0784	1.0414	1.0626	1.0458	1.0786	1.0938	1.0739	2.278

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

Initial Calibration Verification

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q347-ICV347
 Lab FileID: 6Q24137.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\090923_1633_S6Q347\s6q347.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\090923_1633_S6Q347\6Q24128.d
 2:D:\MassHunter\Data\090923_1633_S6Q347\6Q24129.d
 3:D:\MassHunter\Data\090923_1633_S6Q347\6Q24130.d
 4:D:\MassHunter\Data\090923_1633_S6Q347\6Q24131.d
 5:D:\MassHunter\Data\090923_1633_S6Q347\6Q24132.d
 6:D:\MassHunter\Data\090923_1633_S6Q347\6Q24133.d
 7:D:\MassHunter\Data\090923_1633_S6Q347\6Q24134.d
 8:D:\MassHunter\Data\090923_1633_S6Q347\6Q24135.d

Data File: 6Q24137
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	6.066	21.3	121.3
13C2-6:2FTS	5.000	5.579	11.6	111.6
13C2-8:2FTS	5.000	5.598	12.0	112.0
13C2-PFDoDA	1.250	1.278	2.2	102.2
13C2-PFTeDA	1.250	1.352	8.2	108.2
13C3-PFBS	2.500	2.754	10.2	110.2
13C3-PFHxS	2.500	2.699	8.0	108.0
13C4-PFBA	10.000	10.046	0.5	100.5
13C4-PFHpA	2.500	2.527	1.1	101.1
13C5-PFHxA	2.500	2.566	2.6	102.6
13C5-PFPeA	5.000	5.174	3.5	103.5
13C6-PFDA	1.250	1.403	12.3	112.3
13C7-PFUnDA	1.250	1.342	7.4	107.4
13C8-FOSA	2.500	2.453	-1.9	98.1
13C8-PFOA	2.500	2.268	-9.3	90.7
13C8-PFOS	2.500	2.403	-3.9	96.1
13C9-PFNA	1.250	1.347	7.7	107.7
4:2FTS	9.375	8.732	-6.9	93.1
6:2FTS	9.500	9.766	2.8	102.8
8:2FTS	9.600	9.739	1.4	101.4
d3-MeFOSAA	5.000	5.293	5.9	105.9
EtFOSAA	2.500	2.395	-4.2	95.8
FOSA	2.500	2.341	-6.4	93.6
MeFOSAA	2.500	2.163	-13.5	86.5
PFBA	10.000	10.100	1.0	101.0
PFBS	2.218	2.163	-2.5	97.5
PFDA	2.500	2.462	-1.5	98.5
PFDoDA	2.500	2.572	2.9	102.9
PFDS	2.413	2.521	4.5	104.5
PFHpA	2.500	2.586	3.5	103.5
PFHpS	2.383	2.398	0.6	100.6
PFHxA	2.500	2.546	1.8	101.8
PFHxS	2.285	2.147	-6.0	94.0
PFNA	2.500	2.500	0.0	100.0
PFNS	2.405	2.464	2.5	102.5
PFOA	2.500	2.617	4.7	104.7
PFOS	2.320	2.282	-1.6	98.4

Initial Calibration Verification

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q347-ICV347
 Lab FileID: 6Q24137.D

PFPeA	5.000	4.937	-1.3	98.7
PFPeS	2.353	2.251	-4.3	95.7
PFTeDA	2.500	2.499	0.0	100.0
PFTTrDA	2.500	2.520	0.8	100.8
PFUnDA	2.500	2.423	-3.1	96.9
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	5.189	9.8	109.8
13C3-HFPO-DA	10.000	9.778	-2.2	97.8
9C1-PF3ONS	4.675	4.885	4.5	104.5
ADONA	4.725	4.877	3.2	103.2
HFPO-DA	5.000	5.121	2.4	102.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.159	-2.6	97.4
5:3FTCA	62.400	61.064	-2.1	97.9
7:3FTCA	62.400	61.831	-0.9	99.1
d3-MeFOSA	2.500	2.427	-2.9	97.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.034	0.7	100.7
EtFOSE	12.500	12.605	0.8	100.8
MeFOSA	5.000	5.062	1.2	101.2
MeFOSE	12.500	12.869	3.0	103.0
PFDoDS	2.425	2.427	0.1	100.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.923	-1.5	98.5
d7-MeFOSE	25.000	24.434	-2.3	97.7
d9-EtFOSE	25.000	24.033	-3.9	96.1
d5-EtFOSA	2.500	2.465	-1.4	98.6
NFDHA	5.000	4.953	-0.9	99.1
PFMBA	5.000	4.985	-0.3	99.7
PFMPA	5.000	4.925	-1.5	98.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.255	-4.4	95.6

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q347-ICV347
 Lab FileID: 6Q24138.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\090923_1633_S6Q347\s6q347.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\090923_1633_S6Q347\6Q24128.d
 2:D:\MassHunter\Data\090923_1633_S6Q347\6Q24129.d
 3:D:\MassHunter\Data\090923_1633_S6Q347\6Q24130.d
 4:D:\MassHunter\Data\090923_1633_S6Q347\6Q24131.d
 5:D:\MassHunter\Data\090923_1633_S6Q347\6Q24132.d
 6:D:\MassHunter\Data\090923_1633_S6Q347\6Q24133.d
 7:D:\MassHunter\Data\090923_1633_S6Q347\6Q24134.d
 8:D:\MassHunter\Data\090923_1633_S6Q347\6Q24135.d

Data File: 6Q24138
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.430	8.6	108.6
13C2-6:2FTS	5.000	5.395	7.9	107.9
13C2-8:2FTS	5.000	5.334	6.7	106.7
13C2-PFDoDA	1.250	1.221	-2.3	97.7
13C2-PFTeDA	1.250	1.231	-1.5	98.5
13C3-PFBS	2.500	2.601	4.1	104.1
13C3-PFHxS	2.500	2.626	5.0	105.0
13C4-PFBA	10.000	10.071	0.7	100.7
13C4-PFHpA	2.500	2.464	-1.4	98.6
13C5-PFHxA	2.500	2.341	-6.4	93.6
13C5-PFPeA	5.000	4.924	-1.5	98.5
13C6-PFDA	1.250	1.139	-8.9	91.1
13C7-PFUnDA	1.250	1.244	-0.5	99.5
13C8-FOSA	2.500	2.864	14.5	114.5
13C8-PFOA	2.500	2.496	-0.1	99.9
13C8-PFOS	2.500	2.705	8.2	108.2
13C9-PFNA	1.250	1.288	3.0	103.0
4:2FTS	20.000	21.462	7.3	107.3
6:2FTS	20.000	22.699	13.5	113.5
8:2FTS	20.000	19.617	-1.9	98.1
d3-MeFOSAA	5.000	5.544	10.9	110.9
EtFOSAA	20.000	18.985	-5.1	94.9
FOSA	20.000	19.302	-3.5	96.5
MeFOSAA	20.000	22.650	13.3	113.3
PFBA	20.000	20.288	1.4	101.4
PFBS	20.000	20.776	3.9	103.9
PFDA	20.000	23.708	18.5	118.5
PFDoDA	20.000	20.195	1.0	101.0
PFDS	20.000	22.597	13.0	113.0
PFHpA	20.000	20.561	2.8	102.8
PFHpS	20.000	20.527	2.6	102.6
PFHxA	20.000	22.484	12.4	112.4
PFHxS	20.000	20.688	3.4	103.4
PFNA	20.000	21.312	6.6	106.6
PFNS	20.000	21.484	7.4	107.4
PFOA	20.000	19.508	-2.5	97.5
PFOS	20.000	19.693	-1.5	98.5

Initial Calibration Verification

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q347-ICV347
 Lab FileID: 6Q24138.D

PFPeA	20.000	21.057	5.3	105.3
PFPeS	20.000	21.104	5.5	105.5
PFTeDA	20.000	19.818	-0.9	99.1
PFTTrDA	20.000	17.940	-10.3	89.7
PFUnDA	20.000	19.824	-0.9	99.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	20.731	3.7	103.7
13C3-HFPO-DA	10.000	9.696	-3.0	97.0
9C1-PF3ONS	20.000	20.926	4.6	104.6
ADONA	20.000	19.264	-3.7	96.3
HFPO-DA	20.000	19.865	-0.7	99.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	19.401	-3.0	97.0
5:3FTCA	20.000	22.080	10.4	110.4
7:3FTCA	20.000	20.916	4.6	104.6
d3-MeFOSA	2.500	2.810	12.4	112.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	18.339	-8.3	91.7
EtFOSE	100.000	111.385	11.4	111.4
MeFOSA	20.000	19.568	-2.2	97.8
MeFOSE	100.000	119.331	19.3	119.3
PFDoDS	20.000	20.145	0.7	100.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.901	18.0	118.0
d7-MeFOSE	25.000	27.430	9.7	109.7
d9-EtFOSE	25.000	26.723	6.9	106.9
d5-EtFOSA	2.500	2.884	15.4	115.4
NFDHA	20.000	21.229	6.1	106.1
PFMBA	20.000	20.546	2.7	102.7
PFMPA	20.000	20.612	3.1	103.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	19.494	-2.5	97.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q353-CC347
 Lab FileID: 6Q24597.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\091823_1633_S6Q353\S6Q353.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\090923_1633_S6Q347\6Q24128.d
 2:D:\MassHunter\Data\090923_1633_S6Q347\6Q24129.d
 3:D:\MassHunter\Data\090923_1633_S6Q347\6Q24130.d
 4:D:\MassHunter\Data\090923_1633_S6Q347\6Q24131.d
 5:D:\MassHunter\Data\090923_1633_S6Q347\6Q24132.d
 6:D:\MassHunter\Data\090923_1633_S6Q347\6Q24133.d
 7:D:\MassHunter\Data\090923_1633_S6Q347\6Q24134.d
 8:D:\MassHunter\Data\090923_1633_S6Q347\6Q24135.d

Data File: 6Q24597
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.845	-3.1	96.9
13C2-6:2FTS	5.000	4.593	-8.1	91.9
13C2-8:2FTS	5.000	4.618	-7.6	92.4
13C2-PFDoDA	1.250	1.249	-0.1	99.9
13C2-PFTeDA	1.250	1.252	0.2	100.2
13C3-PFBS	2.500	2.786	11.4	111.4
13C3-PFHxS	2.500	2.420	-3.2	96.8
13C4-PFBA	10.000	10.090	0.9	100.9
13C4-PFHpA	2.500	2.590	3.6	103.6
13C5-PFHxA	2.500	2.389	-4.4	95.6
13C5-PFPeA	5.000	4.067	-18.7	81.3
13C6-PFDA	1.250	1.317	5.3	105.3
13C7-PFUnDA	1.250	1.139	-8.9	91.1
13C8-FOSA	2.500	2.327	-6.9	93.1
13C8-PFOA	2.500	2.342	-6.3	93.7
13C8-PFOS	2.500	2.466	-1.4	98.6
13C9-PFNA	1.250	1.369	9.6	109.6
4:2FTS	9.375	9.883	5.4	105.4
6:2FTS	9.500	10.127	6.6	106.6
8:2FTS	9.600	9.098	-5.2	94.8
d3-MeFOSAA	5.000	4.412	-11.8	88.2
EtFOSAA	2.500	2.718	8.7	108.7
FOSA	2.500	2.354	-5.8	94.2
MeFOSAA	2.500	2.522	0.9	100.9
PFBA	10.000	10.744	7.4	107.4
PFBS	2.218	2.184	-1.5	98.5
PFDA	2.500	2.465	-1.4	98.6
PFDoDA	2.500	2.250	-10.0	90.0
PFDS	2.413	2.199	-8.9	91.1
PFHpA	2.500	2.473	-1.1	98.9
PFHpS	2.383	2.388	0.2	100.2
PFHxA	2.500	2.290	-8.4	91.6
PFHxS	2.285	2.484	8.7	108.7
PFNA	2.500	2.112	-15.5	84.5
PFNS	2.405	2.239	-6.9	93.1
PFOA	2.500	2.273	-9.1	90.9
PFOS	2.320	2.385	2.8	102.8

Continuing Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q353-CC347
 Lab FileID: 6Q24597.D

PFPeA	5.000	5.464	9.3	109.3
PFPeS	2.353	2.361	0.4	100.4
PFTeDA	2.500	2.484	-0.6	99.4
PFTTrDA	2.500	2.307	-7.7	92.3
PFUnDA	2.500	2.611	4.4	104.4
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	4.136	-12.5	87.5
13C3-HFPO-DA	10.000	10.339	3.4	103.4
9C1-PF3ONS	4.675	4.203	-10.1	89.9
ADONA	4.725	4.573	-3.2	96.8
HFPO-DA	5.000	4.913	-1.7	98.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.706	-6.2	93.8
5:3FTCA	62.400	62.251	-0.2	99.8
7:3FTCA	62.400	63.649	2.0	102.0
d3-MeFOSA	2.500	2.129	-14.8	85.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.767	-4.7	95.3
EtFOSE	12.500	12.449	-0.4	99.6
MeFOSA	5.000	5.624	12.5	112.5
MeFOSE	12.500	12.658	1.3	101.3
PFDoDS	2.425	2.199	-9.3	90.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.194	-16.1	83.9
d7-MeFOSE	25.000	25.899	3.6	103.6
d9-EtFOSE	25.000	28.321	13.3	113.3
d5-EtFOSA	2.500	2.321	-7.1	92.9
NFDHA	5.000	4.867	-2.7	97.3
PFMBA	5.000	5.784	15.7	115.7
PFMPA	5.000	5.856	17.1	117.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.478	0.6	100.6

CC Criteria: +/- 30%

6:10:10 6

Continuing Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q353-CC347
 Lab FileID: 6Q24598.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\091823_1633_S6Q353\S6Q353.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\090923_1633_S6Q347\6Q24128.d
 2:D:\MassHunter\Data\090923_1633_S6Q347\6Q24129.d
 3:D:\MassHunter\Data\090923_1633_S6Q347\6Q24130.d
 4:D:\MassHunter\Data\090923_1633_S6Q347\6Q24131.d
 5:D:\MassHunter\Data\090923_1633_S6Q347\6Q24132.d
 6:D:\MassHunter\Data\090923_1633_S6Q347\6Q24133.d
 7:D:\MassHunter\Data\090923_1633_S6Q347\6Q24134.d
 8:D:\MassHunter\Data\090923_1633_S6Q347\6Q24135.d

Data File: 6Q24598
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.499	10.0	110.0
13C2-6:2FTS	5.000	5.195	3.9	103.9
13C2-8:2FTS	5.000	4.883	-2.3	97.7
13C2-PFDoDA	1.250	1.279	2.3	102.3
13C2-PFTeDA	1.250	1.431	14.5	114.5
13C3-PFBS	2.500	2.982	19.3	119.3
13C3-PFHxS	2.500	2.616	4.6	104.6
13C4-PFBA	10.000	10.135	1.3	101.3
13C4-PFHpA	2.500	2.441	-2.4	97.6
13C5-PFHxA	2.500	2.286	-8.5	91.5
13C5-PFPeA	5.000	4.281	-14.4	85.6
13C6-PFDA	1.250	1.412	13.0	113.0
13C7-PFUnDA	1.250	1.238	-1.0	99.0
13C8-FOSA	2.500	2.405	-3.8	96.2
13C8-PFOA	2.500	2.518	0.7	100.7
13C8-PFOS	2.500	2.244	-10.3	89.7
13C9-PFNA	1.250	1.394	11.5	111.5
4:2FTS	0.750	0.758	1.1	101.1
6:2FTS	0.760	0.722	-5.1	94.9
8:2FTS	0.768	0.796	3.6	103.6
d3-MeFOSAA	5.000	4.436	-11.3	88.7
EtFOSAA	0.200	0.231	15.3	115.3
FOSA	0.200	0.173	-13.7	86.3
MeFOSAA	0.200	0.213	6.6	106.6
PFBA	0.800	0.815	1.9	101.9
PFBS	0.177	0.175	-1.4	98.6
PFDA	0.200	0.196	-2.1	97.9
PFDoDA	0.200	0.181	-9.6	90.4
PFDS	0.193	0.221	14.6	114.6
PFHpA	0.200	0.197	-1.5	98.5
PFHpS	0.191	0.173	-9.3	90.7
PFHxA	0.200	0.179	-10.5	89.5
PFHxS	0.183	0.202	10.4	110.4
PFNA	0.200	0.171	-14.3	85.7
PFNS	0.192	0.234	22.0	122.0
PFOA	0.200	0.174	-13.2	86.8
PFOS	0.186	0.207	11.2	111.2

Continuing Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q353-CC347
 Lab FileID: 6Q24598.D

PFPeA	0.400	0.407	1.9	101.9
PFPeS	0.188	0.194	3.3	103.3
PFTeDA	0.200	0.178	-10.9	89.1
PFTrDA	0.200	0.200	-0.2	99.8
PFUnDA	0.200	0.227	13.5	113.5
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	0.360	-4.7	95.3
13C3-HFPO-DA	10.000	9.681	-3.2	96.8
9C1-PF3ONS	0.374	0.339	-9.3	90.7
ADONA	0.378	0.374	-1.1	98.9
HFPO-DA	0.400	0.472	18.0	118.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.895	-10.4	89.6
5:3FTCA	4.992	5.381	7.8	107.8
7:3FTCA	4.992	5.014	0.5	100.5
d3-MeFOSA	2.500	2.208	-11.7	88.3
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.339	-15.3	84.7
EtFOSE	1.000	0.915	-8.5	91.5
MeFOSA	0.400	0.421	5.3	105.3
MeFOSE	1.000	0.934	-6.6	93.4
PFDoDS	0.194	0.196	0.9	100.9
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.113	-17.7	82.3
d7-MeFOSE	25.000	28.961	15.8	115.8
d9-EtFOSE	25.000	29.731	18.9	118.9
d5-EtFOSA	2.500	2.396	-4.2	95.8
NFDHA	0.400	0.394	-1.5	98.5
PFMBA	0.400	0.432	8.0	108.0
PFMPA	0.400	0.442	10.5	110.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.358	0.6	100.6

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q353-CC347
 Lab FileID: 6Q24609.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\091823_1633_S6Q353\S6Q353.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\090923_1633_S6Q347\6Q24128.d
 2:D:\MassHunter\Data\090923_1633_S6Q347\6Q24129.d
 3:D:\MassHunter\Data\090923_1633_S6Q347\6Q24130.d
 4:D:\MassHunter\Data\090923_1633_S6Q347\6Q24131.d
 5:D:\MassHunter\Data\090923_1633_S6Q347\6Q24132.d
 6:D:\MassHunter\Data\090923_1633_S6Q347\6Q24133.d
 7:D:\MassHunter\Data\090923_1633_S6Q347\6Q24134.d
 8:D:\MassHunter\Data\090923_1633_S6Q347\6Q24135.d

Data File: 6Q24609
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.903	-1.9	98.1
13C2-6:2FTS	5.000	4.742	-5.2	94.8
13C2-8:2FTS	5.000	4.373	-12.5	87.5
13C2-PFDoDA	1.250	1.154	-7.7	92.3
13C2-PFTeDA	1.250	1.135	-9.2	90.8
13C3-PFBS	2.500	2.740	9.6	109.6
13C3-PFHxS	2.500	2.362	-5.5	94.5
13C4-PFBA	10.000	10.158	1.6	101.6
13C4-PFHpA	2.500	2.558	2.3	102.3
13C5-PFHxA	2.500	2.458	-1.7	98.3
13C5-PFPeA	5.000	4.382	-12.4	87.6
13C6-PFDA	1.250	1.298	3.8	103.8
13C7-PFUnDA	1.250	1.125	-10.0	90.0
13C8-FOSA	2.500	2.248	-10.1	89.9
13C8-PFOA	2.500	2.371	-5.2	94.8
13C8-PFOS	2.500	2.524	1.0	101.0
13C9-PFNA	1.250	1.414	13.1	113.1
4:2FTS	9.375	9.436	0.6	100.6
6:2FTS	9.500	9.672	1.8	101.8
8:2FTS	9.600	9.573	-0.3	99.7
d3-MeFOSAA	5.000	4.263	-14.7	85.3
EtFOSAA	2.500	2.517	0.7	100.7
FOSA	2.500	2.266	-9.4	90.6
MeFOSAA	2.500	2.698	7.9	107.9
PFBA	10.000	10.490	4.9	104.9
PFBS	2.218	2.105	-5.1	94.9
PFDA	2.500	2.489	-0.4	99.6
PFDoDA	2.500	2.493	-0.3	99.7
PFDS	2.413	2.028	-16.0	84.0
PFHpA	2.500	2.463	-1.5	98.5
PFHpS	2.383	2.193	-8.0	92.0
PFHxA	2.500	2.232	-10.7	89.3
PFHxS	2.285	2.445	7.0	107.0
PFNA	2.500	2.145	-14.2	85.8
PFNS	2.405	2.259	-6.1	93.9
PFOA	2.500	2.253	-9.9	90.1
PFOS	2.320	2.071	-10.7	89.3

Continuing Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q353-CC347
 Lab FileID: 6Q24609.D

PFPeA	5.000	5.124	2.5	102.5
PFPeS	2.353	2.403	2.1	102.1
PFTeDA	2.500	2.449	-2.0	98.0
PFTTrDA	2.500	2.297	-8.1	91.9
PFUnDA	2.500	2.628	5.1	105.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	3.791	-19.8	80.2
13C3-HFPO-DA	10.000	10.621	6.2	106.2
9C1-PF3ONS	4.675	3.958	-15.3	84.7
ADONA	4.725	4.558	-3.5	96.5
HFPO-DA	5.000	4.723	-5.5	94.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.675	-6.5	93.5
5:3FTCA	62.400	63.427	1.6	101.6
7:3FTCA	62.400	56.891	-8.8	91.2
d3-MeFOSA	2.500	1.856	-25.8	74.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.881	-2.4	97.6
EtFOSE	12.500	12.804	2.4	102.4
MeFOSA	5.000	5.683	13.7	113.7
MeFOSE	12.500	12.307	-1.5	98.5
PFDoDS	2.425	2.038	-15.9	84.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.316	-13.7	86.3
d7-MeFOSE	25.000	19.900	-20.4	79.6
d9-EtFOSE	25.000	19.110	-23.6	76.4
d5-EtFOSA	2.500	1.912	-23.5	76.5
NFDHA	5.000	4.684	-6.3	93.7
PFMBA	5.000	5.426	8.5	108.5
PFMPA	5.000	5.543	10.9	110.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.418	-0.7	99.3

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q353-CC347
 Lab FileID: 6Q24618.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\091823_1633_S6Q353\S6Q353.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\090923_1633_S6Q347\6Q24128.d
 2:D:\MassHunter\Data\090923_1633_S6Q347\6Q24129.d
 3:D:\MassHunter\Data\090923_1633_S6Q347\6Q24130.d
 4:D:\MassHunter\Data\090923_1633_S6Q347\6Q24131.d
 5:D:\MassHunter\Data\090923_1633_S6Q347\6Q24132.d
 6:D:\MassHunter\Data\090923_1633_S6Q347\6Q24133.d
 7:D:\MassHunter\Data\090923_1633_S6Q347\6Q24134.d
 8:D:\MassHunter\Data\090923_1633_S6Q347\6Q24135.d

Data File: 6Q24618
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.682	-6.4	93.6
13C2-6:2FTS	5.000	4.103	-17.9	82.1
13C2-8:2FTS	5.000	4.494	-10.1	89.9
13C2-PFDoDA	1.250	1.149	-8.0	92.0
13C2-PFTeDA	1.250	1.204	-3.6	96.4
13C3-PFBS	2.500	2.518	0.7	100.7
13C3-PFHxS	2.500	2.362	-5.5	94.5
13C4-PFBA	10.000	10.183	1.8	101.8
13C4-PFHpA	2.500	2.519	0.8	100.8
13C5-PFHxA	2.500	2.415	-3.4	96.6
13C5-PFPeA	5.000	4.420	-11.6	88.4
13C6-PFDA	1.250	1.346	7.7	107.7
13C7-PFUnDA	1.250	1.176	-5.9	94.1
13C8-FOSA	2.500	2.236	-10.6	89.4
13C8-PFOA	2.500	2.364	-5.4	94.6
13C8-PFOS	2.500	2.243	-10.3	89.7
13C9-PFNA	1.250	1.394	11.5	111.5
4:2FTS	9.375	9.450	0.8	100.8
6:2FTS	9.500	10.994	15.7	115.7
8:2FTS	9.600	9.065	-5.6	94.4
d3-MeFOSAA	5.000	4.632	-7.4	92.6
EtFOSAA	2.500	2.627	5.1	105.1
FOSA	2.500	2.284	-8.6	91.4
MeFOSAA	2.500	2.680	7.2	107.2
PFBA	10.000	10.716	7.2	107.2
PFBS	2.218	2.257	1.7	101.7
PFDA	2.500	2.693	7.7	107.7
PFDoDA	2.500	2.556	2.2	102.2
PFDS	2.413	2.617	8.5	108.5
PFHpA	2.500	2.515	0.6	100.6
PFHpS	2.383	2.574	8.0	108.0
PFHxA	2.500	2.335	-6.6	93.4
PFHxS	2.285	2.286	0.0	100.0
PFNA	2.500	2.124	-15.0	85.0
PFNS	2.405	2.649	10.2	110.2
PFOA	2.500	2.200	-12.0	88.0
PFOS	2.320	2.575	11.0	111.0

Continuing Calibration Summary

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q353-CC347
 Lab FileID: 6Q24618.D

PFPeA	5.000	5.134	2.7	102.7
PFPeS	2.353	2.257	-4.1	95.9
PFTeDA	2.500	2.330	-6.8	93.2
PFTTrDA	2.500	2.370	-5.2	94.8
PFUnDA	2.500	2.526	1.1	101.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	3.834	-18.9	81.1
13C3-HFPO-DA	10.000	10.553	5.5	105.5
9C1-PF3ONS	4.675	3.971	-15.1	84.9
ADONA	4.725	4.604	-2.6	97.4
HFPO-DA	5.000	4.816	-3.7	96.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.824	-5.3	94.7
5:3FTCA	62.400	61.662	-1.2	98.8
7:3FTCA	62.400	63.228	1.3	101.3
d3-MeFOSA	2.500	1.997	-20.1	79.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.701	-6.0	94.0
EtFOSE	12.500	12.752	2.0	102.0
MeFOSA	5.000	5.349	7.0	107.0
MeFOSE	12.500	12.970	3.8	103.8
PFDoDS	2.425	2.257	-6.9	93.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.085	-18.3	81.7
d7-MeFOSE	25.000	19.892	-20.4	79.6
d9-EtFOSE	25.000	19.928	-20.3	79.7
d5-EtFOSA	2.500	2.046	-18.2	81.8
NFDHA	5.000	4.746	-5.1	94.9
PFMBA	5.000	5.332	6.6	106.6
PFMPA	5.000	5.511	10.2	110.2
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.490	0.9	100.9

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q741	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
S4Q741-RT	4Q50684.D	09/17/23 12:08	n/a	Retention Time Marker
S4Q741-RT	4Q50685.D	09/17/23 12:22	n/a	Retention Time Marker
S4Q741-IC741	4Q50686.D	09/17/23 12:37	n/a	Mass Calibration Verification
S4Q741-IC741	4Q50687.D	09/17/23 12:52	n/a	Initial cal 1
S4Q741-IC741	4Q50688.D	09/17/23 13:07	n/a	Initial cal 2
S4Q741-IC741	4Q50689.D	09/17/23 13:22	n/a	Initial cal 3
S4Q741-ICC741	4Q50690.D	09/17/23 13:36	n/a	Initial cal 4
S4Q741-IC741	4Q50691.D	09/17/23 13:52	n/a	Initial cal 5
S4Q741-IC741	4Q50692.D	09/17/23 14:06	n/a	Initial cal 6
S4Q741-IC741	4Q50693.D	09/17/23 14:21	n/a	Initial cal 7
S4Q741-IC741	4Q50694.D	09/17/23 14:36	n/a	Initial cal 8
S4Q741-IBLK	4Q50695.D	09/17/23 14:51	n/a	Instrument Blank
S4Q741-IBLK	4Q50695.D	09/17/23 14:51	n/a	Instrument Blank
S4Q741-ICV741	4Q50696.D	09/17/23 15:05	n/a	Initial cal verification 4
S4Q741-ICV741	4Q50697.D	09/17/23 15:20	n/a	Initial cal verification 20
S4Q741-CC741	4Q50698.D	09/17/23 15:35	n/a	Continuing cal 4
S4Q741-CC741	4Q50699.D	09/17/23 15:50	n/a	Continuing cal 1.0LL
OP98976-BS	4Q50701.D	09/17/23 16:19	OP98976	Blank Spike
OP98976-LLBS	4Q50702.D	09/17/23 16:39	OP98976	Blank Spike
OP98976-MB	4Q50703.D	09/17/23 16:53	OP98976	Method Blank
FC9222-7	4Q50704.D	09/17/23 17:08	OP98976	(used for QC only; not part of job FC9496)
ZZZZZZ	4Q50707.D	09/17/23 17:52	OP98976	(unrelated sample)
ZZZZZZ	4Q50708.D	09/17/23 18:07	OP98976	(unrelated sample)
ZZZZZZ	4Q50709.D	09/17/23 18:22	OP98976	(unrelated sample)
S4Q741-CC741	4Q50710.D	09/17/23 18:37	n/a	Continuing cal 4
S4Q741-ICCB	4Q50711.D	09/17/23 18:51	n/a	Continuing Calibration Blank
S4Q741-ICCB	4Q50711.D	09/17/23 18:51	n/a	Continuing Calibration Blank
ZZZZZZ	4Q50712.D	09/17/23 19:06	OP98976	(unrelated sample)
ZZZZZZ	4Q50713.D	09/17/23 19:21	OP98976	(unrelated sample)
ZZZZZZ	4Q50715.D	09/17/23 19:50	OP98976	(unrelated sample)
ZZZZZZ	4Q50716.D	09/17/23 20:05	OP98976	(unrelated sample)
S4Q741-CC741	4Q50717.D	09/17/23 20:20	n/a	Continuing cal 4
S4Q741-ICCB	4Q50718.D	09/17/23 20:35	n/a	Continuing Calibration Blank
S4Q741-ICCB	4Q50718.D	09/17/23 20:35	n/a	Continuing Calibration Blank
FC9406-2	4Q50719.D	09/17/23 20:49	OP99010	(used for QC only; not part of job FC9496)
OP99010-MS	4Q50720.D	09/17/23 21:04	OP99010	Matrix Spike
OP99010-MSD	4Q50721.D	09/17/23 21:19	OP99010	Matrix Spike Duplicate
S4Q741-ECC741	4Q50722.D	09/17/23 21:33	n/a	Ending cal 4
S4Q741-ICCB	4Q50723.D	09/17/23 21:48	n/a	Continuing Calibration Blank

Run Sequence Report

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q742	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
S4Q742-RT	4Q50726.D	09/18/23 12:11	n/a	Retention Time Marker
S4Q742-RT	4Q50727.D	09/18/23 12:29	n/a	Retention Time Marker
S4Q742-IBLK	4Q50729.D	09/18/23 12:59	n/a	Instrument Blank
S4Q742-IBLK	4Q50729.D	09/18/23 12:59	n/a	Instrument Blank
S4Q742-CC741	4Q50730.D	09/18/23 13:14	n/a	Continuing cal 4
S4Q742-CC741	4Q50731.D	09/18/23 14:17	n/a	Continuing cal 1.0LL
S4Q742-CC741	4Q50732.D	09/18/23 14:47	n/a	Continuing cal 1.0LL
S4Q742-CC741	4Q50733.D	09/18/23 15:11	n/a	Continuing cal 1.0LL
FC9222-7	4Q50734.D	09/18/23 15:26	OP98976	(used for QC only; not part of job FC9496)
OP98976-MS	4Q50735.D	09/18/23 15:41	OP98976	Matrix Spike
OP98976-MSD	4Q50736.D	09/18/23 15:56	OP98976	Matrix Spike Duplicate
ZZZZZZ	4Q50737.D	09/18/23 16:10	OP98976	(unrelated sample)
ZZZZZZ	4Q50738.D	09/18/23 16:25	OP98976	(unrelated sample)
ZZZZZZ	4Q50739.D	09/18/23 16:40	OP98976	(unrelated sample)
ZZZZZZ	4Q50741.D	09/18/23 17:09	OP98976	(unrelated sample)
ZZZZZZ	4Q50742.D	09/18/23 17:24	OP98976	(unrelated sample)
ZZZZZZ	4Q50743.D	09/18/23 17:39	OP98976	(unrelated sample)
S4Q742-CC741	4Q50744.D	09/18/23 17:54	n/a	Continuing cal 4
S4Q742-ICCB	4Q50745.D	09/18/23 18:08	n/a	Continuing Calibration Blank
S4Q742-ICCB	4Q50745.D	09/18/23 18:08	n/a	Continuing Calibration Blank
OP99024-BS	4Q50746.D	09/18/23 18:23	OP99024	Blank Spike
OP99024-LLBS	4Q50747.D	09/18/23 18:38	OP99024	Blank Spike
OP99024-MB	4Q50748.D	09/18/23 18:53	OP99024	Method Blank
ZZZZZZ	4Q50749.D	09/18/23 19:07	OP99024	(unrelated sample)
FC9496-4	4Q50750.D	09/18/23 19:22	OP99024	AF-RHMW17D-WGN01LF-2309
OP99024-MS	4Q50751.D	09/18/23 19:37	OP99024	Matrix Spike
OP99024-MSD	4Q50752.D	09/18/23 19:52	OP99024	Matrix Spike Duplicate
OP98977-BS	4Q50753.D	09/18/23 20:06	OP98977	Blank Spike
OP98977-LLBS	4Q50754.D	09/18/23 20:21	OP98977	Blank Spike
OP98977-MB	4Q50755.D	09/18/23 20:36	OP98977	Method Blank
S4Q742-CC741	4Q50756.D	09/18/23 20:51	n/a	Continuing cal 4
S4Q742-ICCB	4Q50757.D	09/18/23 21:05	n/a	Continuing Calibration Blank
S4Q742-ICCB	4Q50757.D	09/18/23 21:05	n/a	Continuing Calibration Blank
ZZZZZZ	4Q50758.D	09/18/23 21:20	OP98977	(unrelated sample)
ZZZZZZ	4Q50759.D	09/18/23 21:35	OP98977	(unrelated sample)
ZZZZZZ	4Q50760.D	09/18/23 21:50	OP98977	(unrelated sample)
ZZZZZZ	4Q50761.D	09/18/23 22:04	OP98977	(unrelated sample)
ZZZZZZ	4Q50762.D	09/18/23 22:19	OP98977	(unrelated sample)
ZZZZZZ	4Q50763.D	09/18/23 22:34	OP98977	(unrelated sample)
ZZZZZZ	4Q50764.D	09/18/23 22:49	OP98977	(unrelated sample)
ZZZZZZ	4Q50765.D	09/18/23 23:03	OP98977	(unrelated sample)
ZZZZZZ	4Q50766.D	09/18/23 23:18	OP98977	(unrelated sample)
ZZZZZZ	4Q50767.D	09/18/23 23:33	OP98977	(unrelated sample)
S4Q742-CC741	4Q50768.D	09/18/23 23:48	n/a	Continuing cal 4
S4Q742-ICCB	4Q50769.D	09/19/23 00:02	n/a	Continuing Calibration Blank
S4Q742-ICCB	4Q50769.D	09/19/23 00:02	n/a	Continuing Calibration Blank

Run Sequence Report

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q742	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	4Q50770.D	09/19/23 00:17	OP98977	(unrelated sample)
ZZZZZZ	4Q50771.D	09/19/23 00:32	OP98977	(unrelated sample)
ZZZZZZ	4Q50772.D	09/19/23 00:47	OP98977	(unrelated sample)
FC9227-14	4Q50773.D	09/19/23 01:01	OP98977	(used for QC only; not part of job FC9496)
OP98977-MS	4Q50774.D	09/19/23 01:16	OP98977	Matrix Spike
OP98977-MSD	4Q50775.D	09/19/23 01:31	OP98977	Matrix Spike Duplicate
ZZZZZZ	4Q50776.D	09/19/23 01:46	OP98977	(unrelated sample)
ZZZZZZ	4Q50777.D	09/19/23 02:00	OP98977	(unrelated sample)
ZZZZZZ	4Q50778.D	09/19/23 02:15	OP98977	(unrelated sample)
ZZZZZZ	4Q50779.D	09/19/23 02:30	OP98977	(unrelated sample)
S4Q742-CC741	4Q50780.D	09/19/23 02:45	n/a	Continuing cal 4
S4Q742-ICCB	4Q50781.D	09/19/23 02:59	n/a	Continuing Calibration Blank
S4Q742-ICCB	4Q50781.D	09/19/23 02:59	n/a	Continuing Calibration Blank
ZZZZZZ	4Q50782.D	09/19/23 03:14	OP98977	(unrelated sample)
S4Q742-ECC741	4Q50783.D	09/19/23 03:29	n/a	Ending cal 4
S4Q742-ICCB	4Q50784.D	09/19/23 03:44	n/a	Continuing Calibration Blank
S4Q742-ICCB	4Q50784.D	09/19/23 03:44	n/a	Continuing Calibration Blank

6.11.2

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Run Sequence Report

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q347	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q347-RT	6Q24125.D	09/09/23 20:03	n/a	Retention Time Marker
S6Q347-RT	6Q24126.D	09/09/23 20:17	n/a	Retention Time Marker
S6Q347-IC347	6Q24127.D	09/09/23 20:31	n/a	Mass Calibration Verification
S6Q347-IC347	6Q24128.D	09/09/23 20:46	n/a	Initial cal 1
S6Q347-IC347	6Q24129.D	09/09/23 21:00	n/a	Initial cal 2
S6Q347-IC347	6Q24130.D	09/09/23 21:14	n/a	Initial cal 3
S6Q347-ICC347	6Q24131.D	09/09/23 21:29	n/a	Initial cal 4
S6Q347-IC347	6Q24132.D	09/09/23 21:43	n/a	Initial cal 5
S6Q347-IC347	6Q24133.D	09/09/23 21:57	n/a	Initial cal 6
S6Q347-IC347	6Q24134.D	09/09/23 22:12	n/a	Initial cal 7
S6Q347-IC347	6Q24135.D	09/09/23 22:26	n/a	Initial cal 8
S6Q347-IBLK	6Q24136.D	09/09/23 22:41	n/a	Instrument Blank
S6Q347-IBLK	6Q24136.D	09/09/23 22:41	n/a	Instrument Blank
S6Q347-ICV347	6Q24137.D	09/09/23 22:55	n/a	Initial cal verification 4
S6Q347-ICV347	6Q24138.D	09/09/23 23:09	n/a	Initial cal verification 20
S6Q347-CC347	6Q24139.D	09/09/23 23:23	n/a	Continuing cal 4
S6Q347-CC347	6Q24140.D	09/09/23 23:38	n/a	Continuing cal 1.0LL
OP98824-BS	6Q24141.D	09/09/23 23:52	OP98824	Blank Spike
OP98824-LLBS	6Q24142.D	09/10/23 00:06	OP98824	Blank Spike
OP98824-MB	6Q24143.D	09/10/23 00:21	OP98824	Method Blank
ZZZZZZ	6Q24144.D	09/10/23 00:35	OP98824	(unrelated sample)
ZZZZZZ	6Q24145.D	09/10/23 00:49	OP98824	(unrelated sample)
ZZZZZZ	6Q24146.D	09/10/23 01:04	OP98824	(unrelated sample)
ZZZZZZ	6Q24147.D	09/10/23 01:18	OP98824	(unrelated sample)
ZZZZZZ	6Q24148.D	09/10/23 01:32	OP98824	(unrelated sample)
ZZZZZZ	6Q24149.D	09/10/23 01:47	OP98824	(unrelated sample)
ZZZZZZ	6Q24150.D	09/10/23 02:01	OP98824	(unrelated sample)
S6Q347-CC347	6Q24151.D	09/10/23 02:15	n/a	Continuing cal 4
S6Q347-ICCB	6Q24152.D	09/10/23 02:30	n/a	Continuing Calibration Blank
S6Q347-ICCB	6Q24152.D	09/10/23 02:30	n/a	Continuing Calibration Blank
ZZZZZZ	6Q24153.D	09/10/23 02:44	OP98824	(unrelated sample)
ZZZZZZ	6Q24154.D	09/10/23 02:58	OP98824	(unrelated sample)
ZZZZZZ	6Q24155.D	09/10/23 03:13	OP98824	(unrelated sample)
ZZZZZZ	6Q24156.D	09/10/23 03:27	OP98824	(unrelated sample)
S6Q347-ECC347	6Q24157.D	09/10/23 03:41	n/a	Ending cal 4
S6Q347-ICCB	6Q24158.D	09/10/23 03:56	n/a	Continuing Calibration Blank
S6Q347-ICCB	6Q24158.D	09/10/23 03:56	n/a	Continuing Calibration Blank

Run Sequence Report

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q353	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q353-RT	6Q24593.D	09/18/23 11:26	n/a	Retention Time Marker
S6Q353-RT	6Q24594.D	09/18/23 11:40	n/a	Retention Time Marker
S6Q353-IBLK	6Q24596.D	09/18/23 12:09	n/a	Instrument Blank
S6Q353-IBLK	6Q24596.D	09/18/23 12:09	n/a	Instrument Blank
S6Q353-CC347	6Q24597.D	09/18/23 12:24	n/a	Continuing cal 4
S6Q353-CC347	6Q24598.D	09/18/23 12:41	n/a	Continuing cal 1.0LL
OP99007-BS	6Q24599.D	09/18/23 12:56	OP99007	Blank Spike
OP99007-LLBS	6Q24600.D	09/18/23 13:10	OP99007	Blank Spike
OP99007-MB	6Q24601.D	09/18/23 13:24	OP99007	Method Blank
FC9496-1	6Q24602.D	09/18/23 13:39	OP99007	AF-RHMW04-WGN01LF-2309
OP99007-MS	6Q24603.D	09/18/23 13:53	OP99007	Matrix Spike
FC9496-2	6Q24604.D	09/18/23 14:07	OP99007	AF-RHMW17S-WGN01LF-2309
OP99007-DUP	6Q24605.D	09/18/23 14:22	OP99007	Duplicate
FC9496-3	6Q24606.D	09/18/23 14:36	OP99007	AF-RHMW17S-WQEB01-2309
FC9496-4	6Q24607.D	09/18/23 14:50	OP99007	AF-RHMW17D-WGN01LF-2309
FC9496-5	6Q24608.D	09/18/23 15:05	OP99007	AF-RHMW17D-WQFB01-2309
S6Q353-CC347	6Q24609.D	09/18/23 15:19	n/a	Continuing cal 4
S6Q353-ICCB	6Q24610.D	09/18/23 15:33	n/a	Continuing Calibration Blank
S6Q353-ICCB	6Q24610.D	09/18/23 15:33	n/a	Continuing Calibration Blank
FC9496-6	6Q24611.D	09/18/23 15:48	OP99007	AF-RHMW06-WGN01LF-2309
FC9496-7	6Q24612.D	09/18/23 16:02	OP99007	AF-RHMW17-WGN01LF-2309
ZZZZZZ	6Q24613.D	09/18/23 16:16	OP98896	(unrelated sample)
ZZZZZZ	6Q24614.D	09/18/23 16:31	OP98896	(unrelated sample)
ZZZZZZ	6Q24615.D	09/18/23 16:45	OP98896	(unrelated sample)
ZZZZZZ	6Q24616.D	09/18/23 16:59	OP98959	(unrelated sample)
ZZZZZZ	6Q24617.D	09/18/23 17:14	OP98874	(unrelated sample)
S6Q353-CC347	6Q24618.D	09/18/23 17:28	n/a	Continuing cal 4
S6Q353-ICCB	6Q24619.D	09/18/23 17:42	n/a	Continuing Calibration Blank
S6Q353-ICCB	6Q24619.D	09/18/23 17:42	n/a	Continuing Calibration Blank
OP99025-BS	6Q24620.D	09/18/23 17:57	OP99025	Blank Spike
OP99025-LLBS	6Q24621.D	09/18/23 18:11	OP99025	Blank Spike
OP99025-MB	6Q24622.D	09/18/23 18:25	OP99025	Method Blank
ZZZZZZ	6Q24623.D	09/18/23 18:40	OP99025	(unrelated sample)
ZZZZZZ	6Q24624.D	09/18/23 18:54	OP99025	(unrelated sample)
ZZZZZZ	6Q24625.D	09/18/23 19:08	OP99025	(unrelated sample)
ZZZZZZ	6Q24626.D	09/18/23 19:23	OP99025	(unrelated sample)
ZZZZZZ	6Q24627.D	09/18/23 19:37	OP99025	(unrelated sample)
ZZZZZZ	6Q24628.D	09/18/23 19:51	OP99025	(unrelated sample)
ZZZZZZ	6Q24629.D	09/18/23 20:05	OP99025	(unrelated sample)
S6Q353-CC347	6Q24630.D	09/18/23 20:20	n/a	Continuing cal 4
S6Q353-ICCB	6Q24631.D	09/18/23 20:34	n/a	Continuing Calibration Blank
ZZZZZZ	6Q24632.D	09/18/23 20:48	OP99025	(unrelated sample)
ZZZZZZ	6Q24633.D	09/18/23 21:03	OP99025	(unrelated sample)
ZZZZZZ	6Q24634.D	09/18/23 21:17	OP99025	(unrelated sample)
ZZZZZZ	6Q24635.D	09/18/23 21:31	OP99025	(unrelated sample)
ZZZZZZ	6Q24636.D	09/18/23 21:46	OP99025	(unrelated sample)

Run Sequence Report

Job Number: FC9496
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q353	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	6Q24637.D	09/18/23 22:00	OP99025	(unrelated sample)
ZZZZZZ	6Q24638.D	09/18/23 22:14	OP99025	(unrelated sample)
S6Q353-CC347	6Q24639.D	09/18/23 22:29	n/a	Continuing cal 4
S6Q353-ICCB	6Q24640.D	09/18/23 22:43	n/a	Continuing Calibration Blank
OP99028-BS	6Q24641.D	09/18/23 22:57	OP99028	Blank Spike
OP99028-LLBS	6Q24642.D	09/18/23 23:12	OP99028	Blank Spike
OP99028-MB	6Q24643.D	09/18/23 23:26	OP99028	Method Blank
ZZZZZZ	6Q24644.D	09/18/23 23:40	OP99028	(unrelated sample)
ZZZZZZ	6Q24645.D	09/18/23 23:55	OP99028	(unrelated sample)
ZZZZZZ	6Q24646.D	09/19/23 00:09	OP99028	(unrelated sample)
ZZZZZZ	6Q24647.D	09/19/23 00:23	OP99028	(unrelated sample)
FC9440-5	6Q24648.D	09/19/23 00:38	OP99028	(used for QC only; not part of job FC9496)
OP99028-MS	6Q24649.D	09/19/23 00:52	OP99028	Matrix Spike
S6Q353-CC347	6Q24650.D	09/19/23 01:06	n/a	Continuing cal 4
S6Q353-ICCB	6Q24651.D	09/19/23 01:21	n/a	Continuing Calibration Blank
FC9440-6	6Q24652.D	09/19/23 01:35	OP99028	(used for QC only; not part of job FC9496)
OP99028-DUP	6Q24653.D	09/19/23 01:49	OP99028	Duplicate
ZZZZZZ	6Q24654.D	09/19/23 02:04	OP99028	(unrelated sample)
ZZZZZZ	6Q24655.D	09/19/23 02:18	OP99028	(unrelated sample)
ZZZZZZ	6Q24656.D	09/19/23 02:32	OP99028	(unrelated sample)
OP99029-BS	6Q24657.D	09/19/23 02:47	OP99029	Blank Spike
OP99029-LLBS	6Q24658.D	09/19/23 03:01	OP99029	Blank Spike
OP99029-MB	6Q24659.D	09/19/23 03:15	OP99029	Method Blank
ZZZZZZ	6Q24660.D	09/19/23 03:29	OP99029	(unrelated sample)
ZZZZZZ	6Q24661.D	09/19/23 03:44	OP99029	(unrelated sample)
S6Q353-CC347	6Q24662.D	09/19/23 03:58	n/a	Continuing cal 4
S6Q353-ICCB	6Q24663.D	09/19/23 04:12	n/a	Continuing Calibration Blank
ZZZZZZ	6Q24668.D	09/19/23 05:24	OP99029	(unrelated sample)
ZZZZZZ	6Q24669.D	09/19/23 05:38	OP99029	(unrelated sample)
ZZZZZZ	6Q24670.D	09/19/23 05:53	OP99029	(unrelated sample)
ZZZZZZ	6Q24671.D	09/19/23 06:07	OP99029	(unrelated sample)
ZZZZZZ	6Q24672.D	09/19/23 06:22	OP99029	(unrelated sample)
ZZZZZZ	6Q24673.D	09/19/23 06:36	OP99029	(unrelated sample)
S6Q353-CC347	6Q24674.D	09/19/23 06:50	n/a	Continuing cal 4
S6Q353-ICCB	6Q24675.D	09/19/23 07:05	n/a	Continuing Calibration Blank
ZZZZZZ	6Q24676.D	09/19/23 07:19	OP99029	(unrelated sample)
ZZZZZZ	6Q24677.D	09/19/23 07:33	OP99029	(unrelated sample)
S6Q353-ECC347	6Q24678.D	09/19/23 07:48	n/a	Ending cal 4
S6Q353-ICCB	6Q24679.D	09/19/23 08:02	n/a	Continuing Calibration Blank

6.11.4

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MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24602.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 1:39:15 PM
 Sample Name : FC9496-1
 Vial : P4-C5
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP99007,S6Q353,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	194188	10.00 µg/L	0.041
M5-PFPeA	4.447	268.3 -> 223.0	31427	5.00 µg/L	0.025
M5-PFHxA	5.654	318.0 -> 273.0	72368	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	59831	2.50 µg/L	0.012
M8-PFOA	7.198	421.1 -> 376.0	77698	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	31610	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	29074	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	32976	1.25 µg/L	-0.012
M2-PFDoDA	9.079	615.1 -> 570.0	29199	1.25 µg/L	-0.014
M2-PFTeDA	9.784	715.2 -> 670.0	10655	1.25 µg/L	-0.012
M8-FOSA	9.682	506.1 -> 77.8	19820	2.50 µg/L	0.024
M3-PFBS	5.584	302.1 -> 79.9	23526	2.50 µg/L	0.012
M3-PFHxS	7.313	402.1 -> 79.9	12718	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	11333	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	2600	5.00 µg/L	0.012
M2-6:2FTS	6.974	429.1 -> 80.9	3685	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	3542	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	19003	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	39726	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	15829	5.00 µg/L	-0.012
M7-MeFOSE	10.690	623.2 -> 58.9	67664	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	98593	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	7875	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	7174	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	13001	2.50 µg/L	-0.012
13C3-PFBA	3.014	216.0 -> 172.0	64428	5.00 µg/L	0.025
18O2-PFHxS	7.313	403.0 -> 83.9	7759	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	70624	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	22797	1.25 µg/L	-0.012
13C5-PFNA	7.729	468.0 -> 423.0	28374	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	47243	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2600	5.95 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.1%		
13C2-6:2FTS	6.974	429.1 -> 80.9	3685	5.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.0%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3542	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C2-PFDoDA	9.079	615.1 -> 570.0	29199	1.19 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C2-PFTeDA	9.784	715.2 -> 670.0	10655	1.17 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C3-PFBS	5.584	302.1 -> 79.9	23526	3.28 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 131.1%		
13C3-PFHxS	7.313	402.1 -> 79.9	12718	2.98 µg/L	0.000

7.1.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.4%	
13C4-PFBA	3.025	216.8 -> 171.9	194188	11.93 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 119.3%	
13C4-PFHpA	6.581	367.1 -> 322.0	59831	2.95 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 117.9%	
13C5-PFHxA	5.654	318.0 -> 273.0	72368	2.78 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C5-PFPeA	4.447	268.3 -> 223.0	31427	4.94 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C6-PFDA	8.210	519.1 -> 474.1	29074	1.46 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 117.2%	
13C7-PFUnDA	8.651	570.0 -> 525.1	32976	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-FOSA	9.682	506.1 -> 77.8	19820	2.14 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.7%	
13C8-PFOA	7.198	421.1 -> 376.0	77698	2.99 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.6%	
13C8-PFOS	8.361	507.1 -> 79.9	11333	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.7%	
13C9-PFNA	7.729	472.1 -> 427.0	31610	1.78 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 142.6%	
d3-MeFOSAA	8.256	573.2 -> 419.0	19003	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	39726	11.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.4%	
d3-MeFOSA	10.769	515.0 -> 219.0	7174	1.91 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.5%	
d5-EtFOSAA	8.452	589.2 -> 419.0	15829	4.53 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.5%	
d7-MeFOSE	10.690	623.2 -> 58.9	67664	19.80 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.2%	
d9-EtFOSE	10.923	639.2 -> 58.9	98593	21.43 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 85.7%	
d5-EtFOSA	10.989	531.1 -> 219.0	7875	2.25 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.0%	

Target Compounds

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

Perfluorinated Compounds by LC/MS/MS

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

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

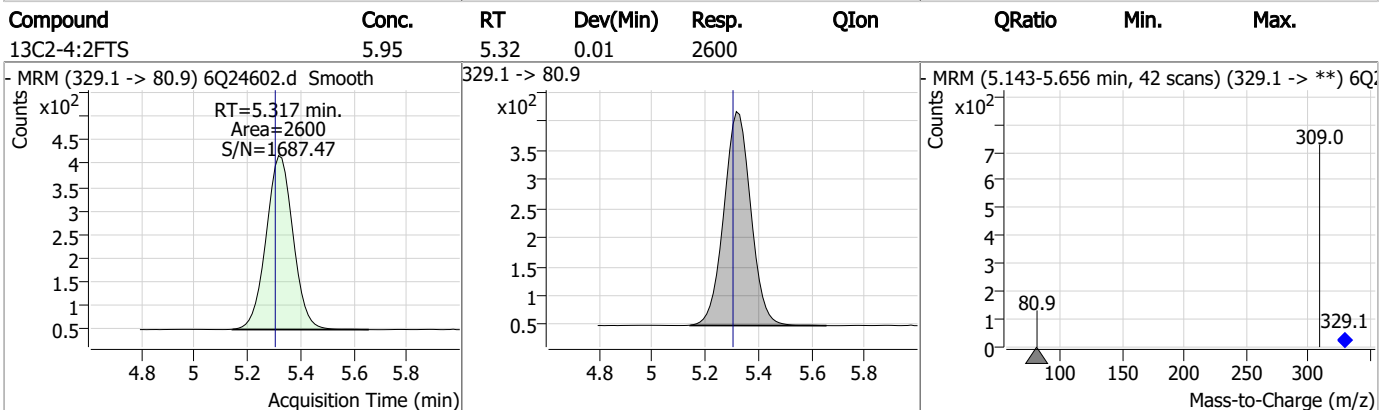
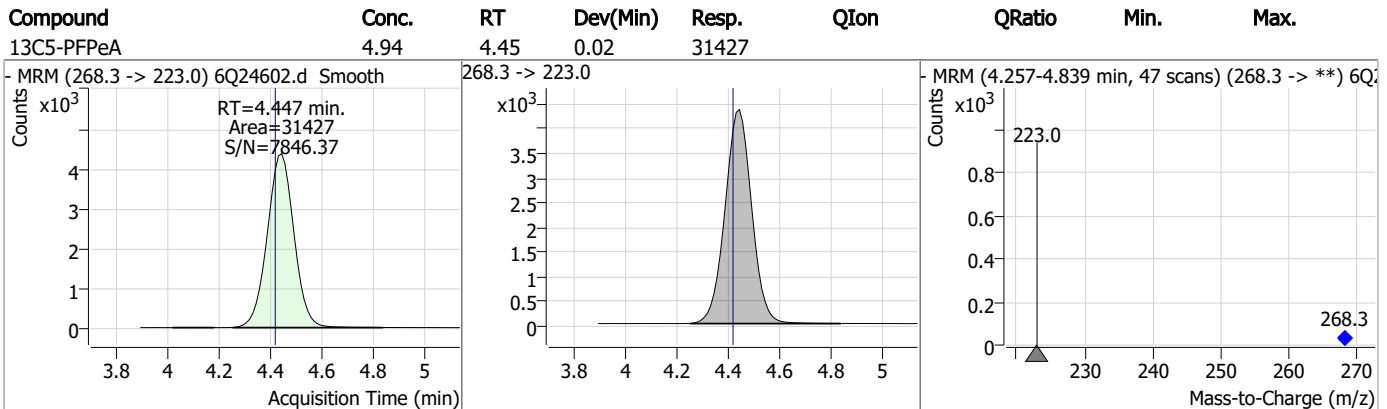
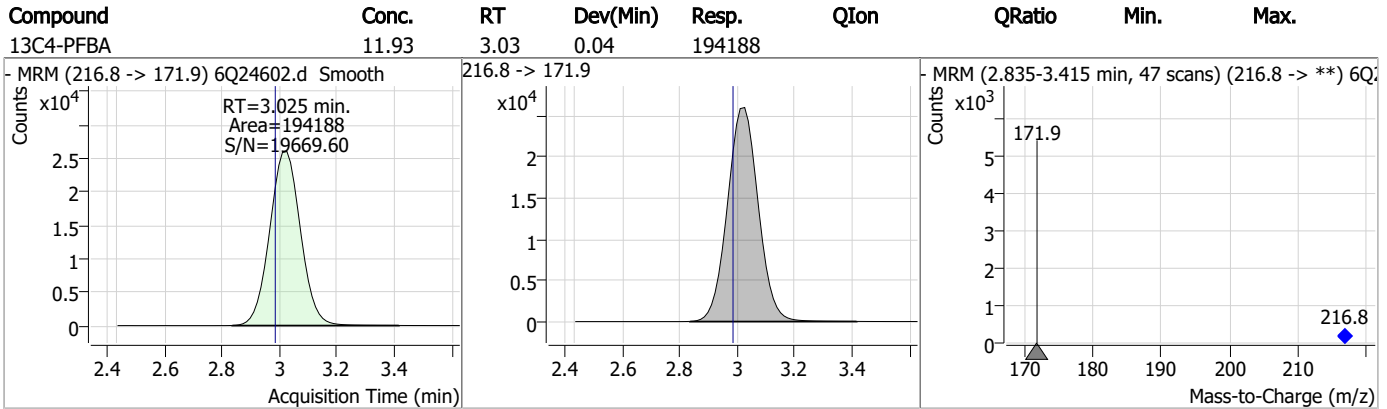
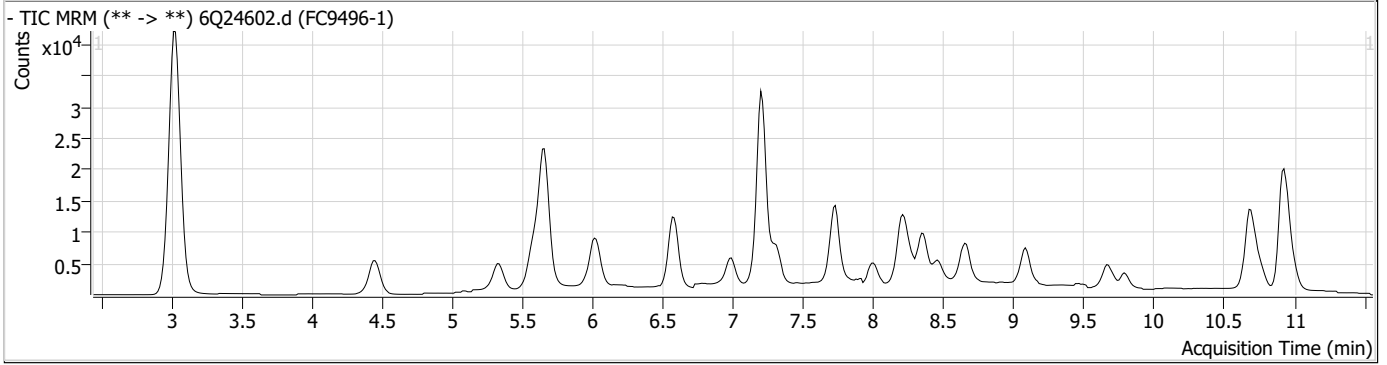
Perfluorinated Compounds by LC/MS/MS

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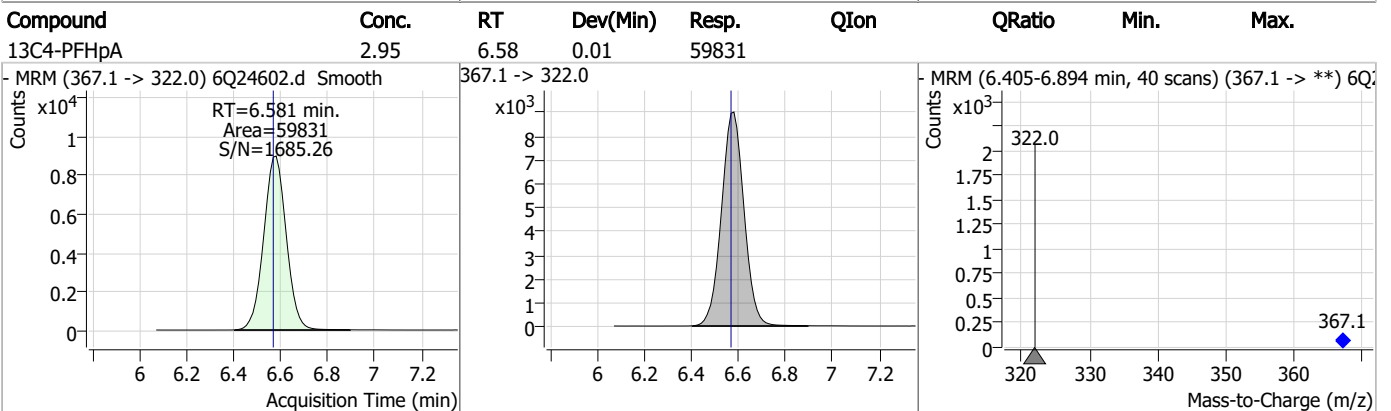
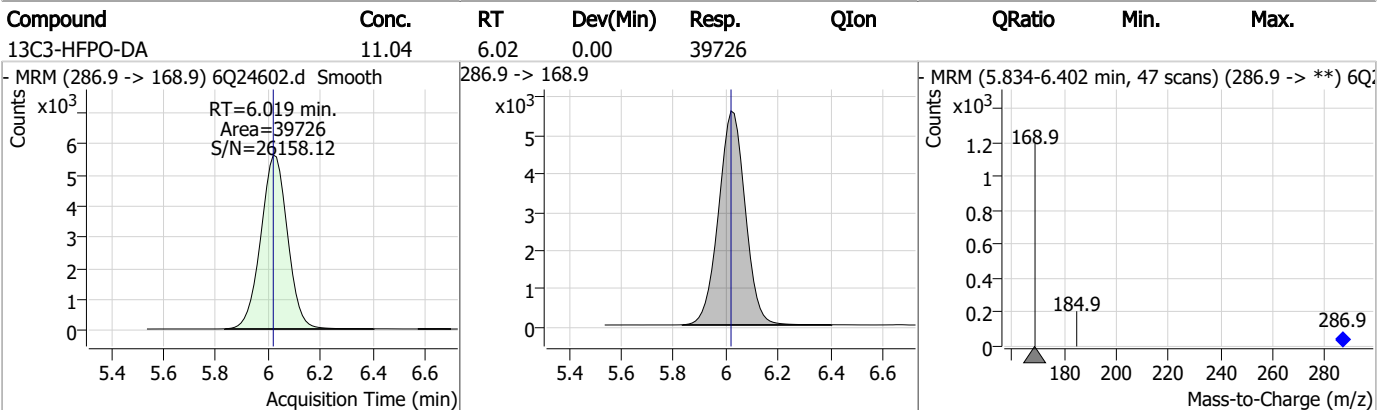
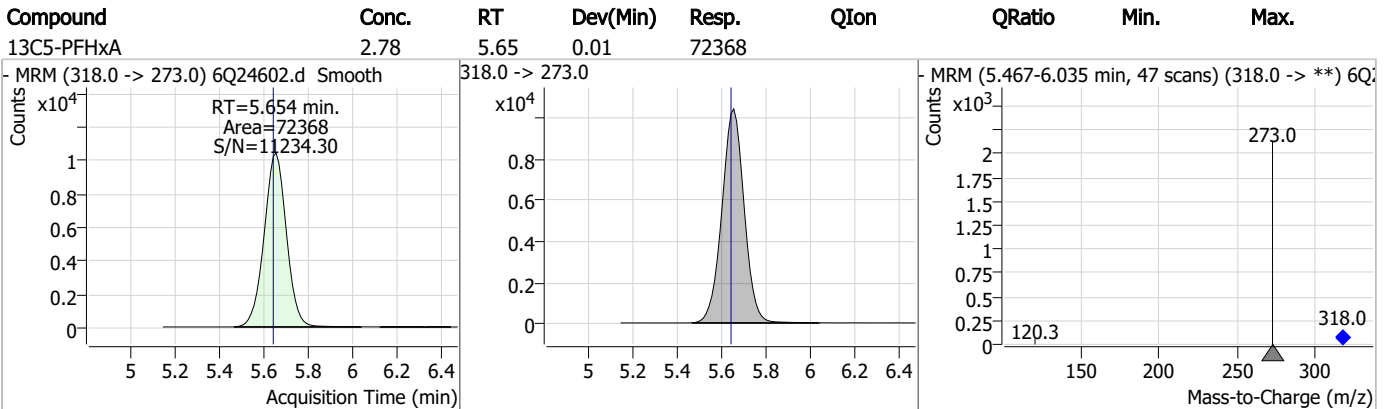
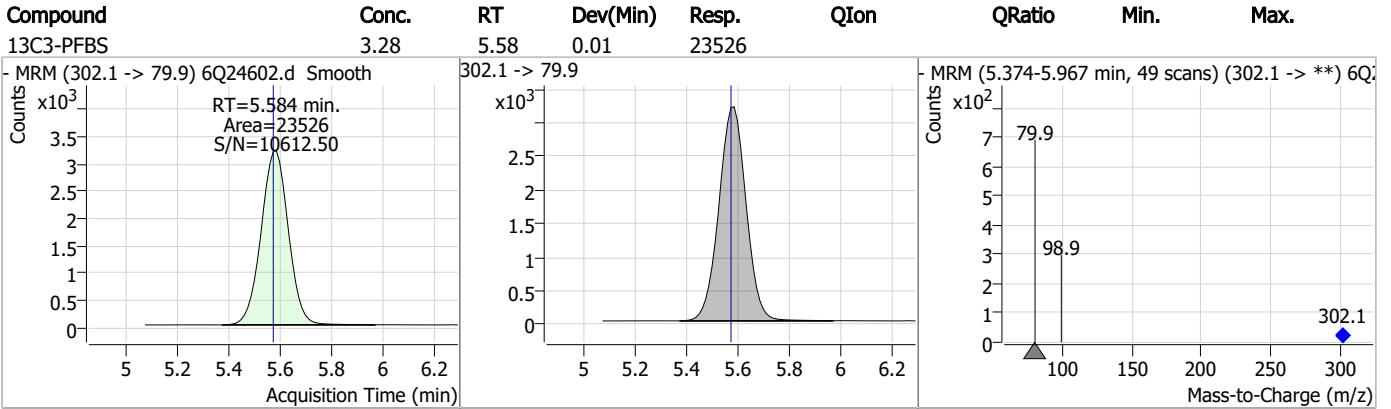
7.1.1
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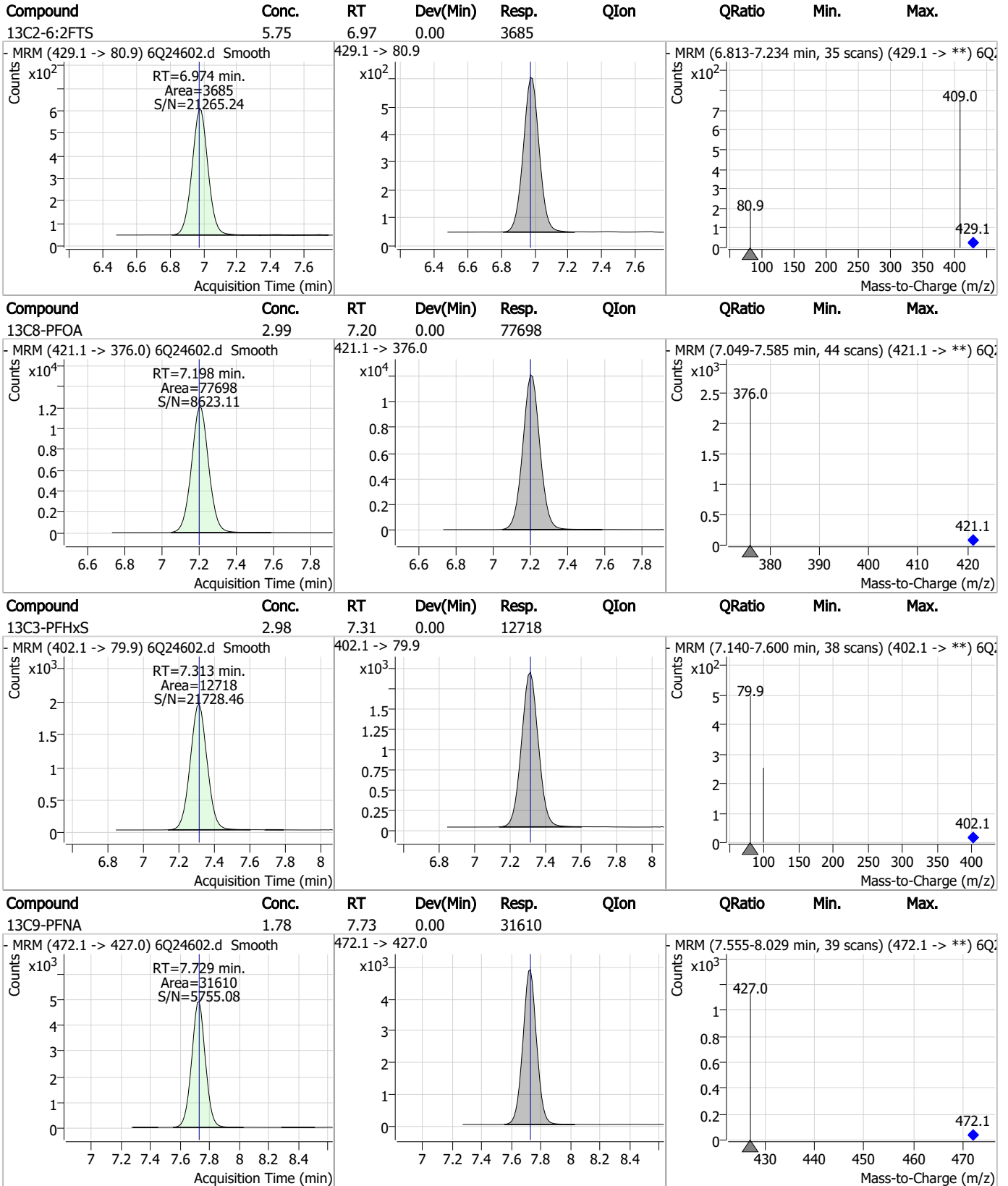
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

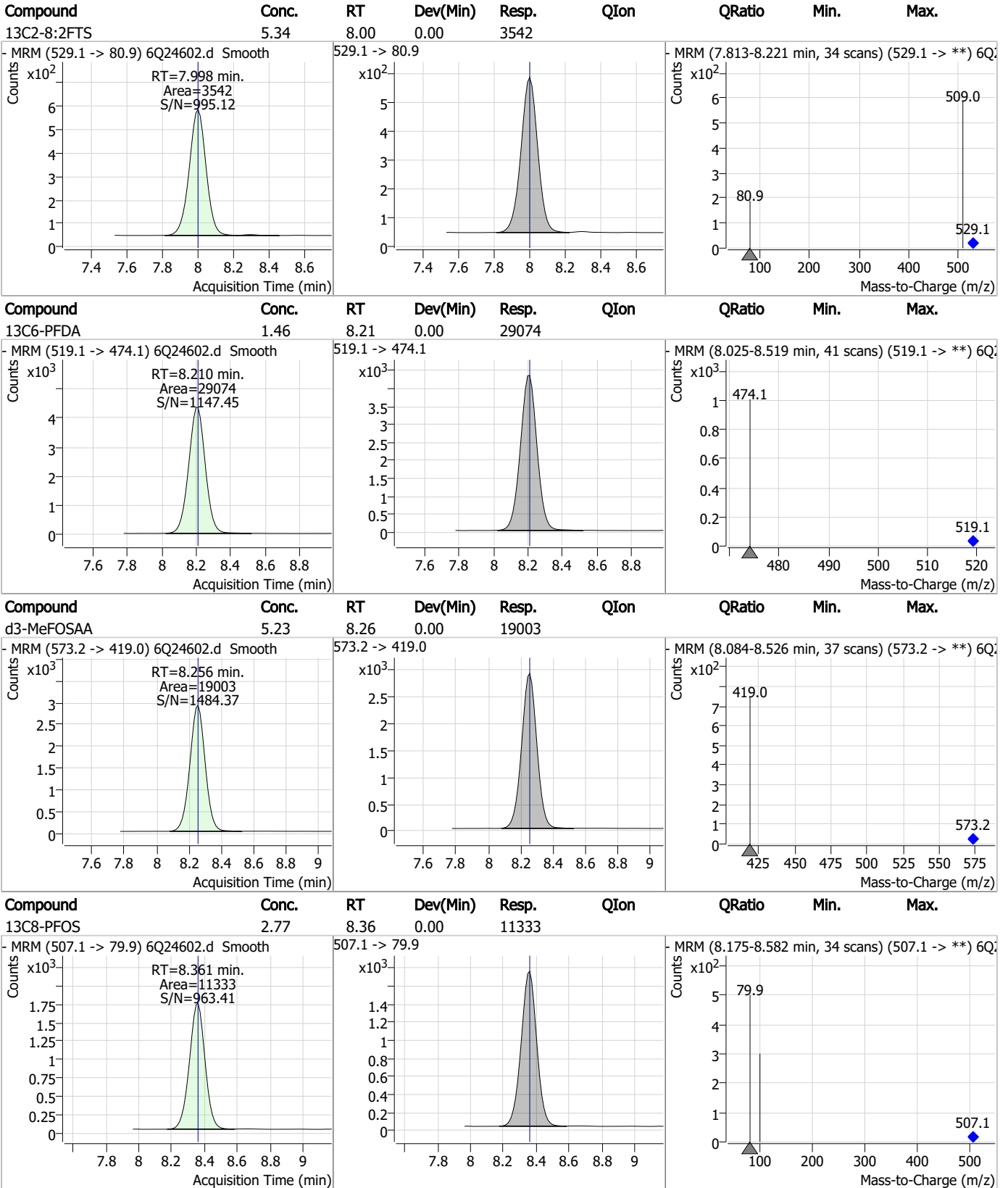


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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.53	8.45	-0.01	15829				
13C7-PFUnDA	1.24	8.65	-0.01	32976				
13C2-PFDoDA	1.19	9.08	-0.01	29199				
13C8-FOSA	2.14	9.68	0.02	19820				

Perfluorinated Compounds by LC/MS/MS

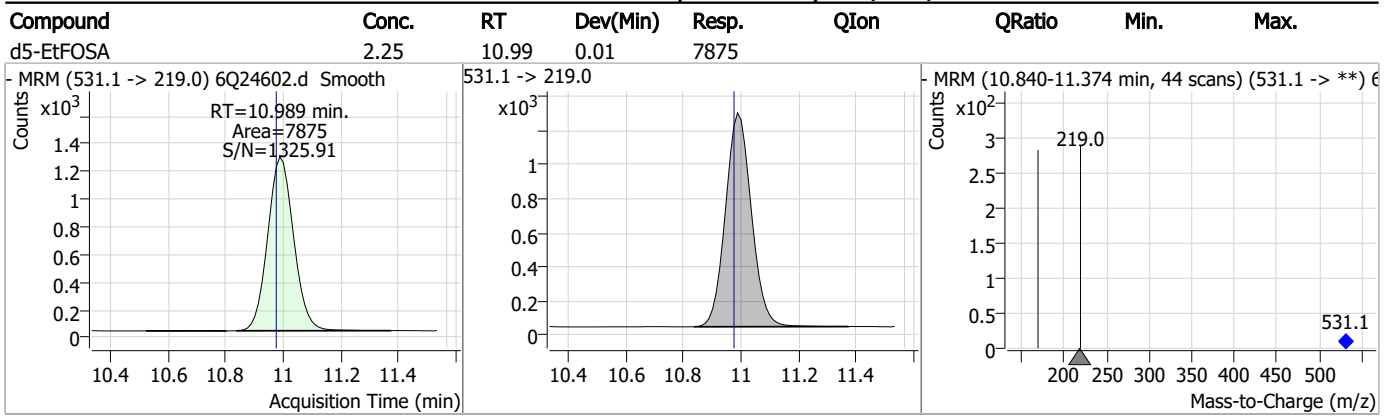
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.17	9.78	-0.01	10655				
d7-MeFOSE	19.80	10.69	0.01	67664				
d3-MeFOSA	1.91	10.77	0.01	7174				
d9-EtFOSE	21.43	10.92	0.01	98593				

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Perfluorinated Compounds by LC/MS/MS



7.1.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24604.d
Operator : marthav
Acq. Method : 1633full.m
Acq. Date-Time : 9/18/2023 2:07:54 PM
Sample Name : FC9496-2
Vial : P4-C7
DA Method File : 1633_090923_S6Q347.quantmethod.xml
Batch Name : S6Q353.batch.bin
Sample Information : OP99007,S6Q353,520,,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	98242	10.00 µg/L	0.041
M5-PFPeA	4.434	268.3 -> 223.0	30898	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	70464	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	57473	2.50 µg/L	0.012
M8-PFOA	7.198	421.1 -> 376.0	80467	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	31230	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	29997	1.25 µg/L	-0.012
M7-PFUnDA	8.651	570.0 -> 525.1	34273	1.25 µg/L	-0.012
M2-PFDoDA	9.080	615.1 -> 570.0	30958	1.25 µg/L	-0.014
M2-PFTeDA	9.784	715.2 -> 670.0	9532	1.25 µg/L	-0.012
M8-FOSA	9.682	506.1 -> 77.8	21621	2.50 µg/L	0.024
M3-PFBS	5.571	302.1 -> 79.9	23721	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	12894	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	11145	2.50 µg/L	-0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2474	5.00 µg/L	0.012
M2-6:2FTS	6.974	429.1 -> 80.9	3487	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	3409	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	20545	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	38465	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	16865	5.00 µg/L	-0.012
M7-MeFOSE	10.690	623.2 -> 58.9	63165	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	91635	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	6506	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	6654	2.50 µg/L	0.012
13C4-PFOS	8.361	502.8 -> 79.9	16722	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	71653	5.00 µg/L	0.025
18O2-PFHxS	7.313	403.0 -> 83.9	9143	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	80998	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	27273	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	34195	1.25 µg/L	-0.012
13C2-PFHxA	5.642	315.1 -> 270.0	54475	2.50 µg/L	0.000

System Monitoring Compounds

13C2-4:2FTS	5.317	329.1 -> 80.9	2474	4.81 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C2-6:2FTS	6.974	429.1 -> 80.9	3487	4.62 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.4%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3409	4.36 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.2%		
13C2-PFDoDA	9.080	615.1 -> 570.0	30958	1.06 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 84.7%		
13C2-PFTeDA	9.784	715.2 -> 670.0	9532	0.88 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 70.1%		
13C3-PFBS	5.571	302.1 -> 79.9	23721	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.2%		
13C3-PFHxS	7.313	402.1 -> 79.9	12894	2.57 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 = 102.7%		
13C4-PFBA	3.025	216.8 -> 171.9	98242	5.43	µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 54.3%		
13C4-PFHpA	6.581	367.1 -> 322.0	57473	2.46	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%		
13C5-PFHxA	5.654	318.0 -> 273.0	70464	2.35	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.9%		
13C5-PFPeA	4.434	268.3 -> 223.0	30898	4.21	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 84.2%		
13C6-PFDA	8.198	519.1 -> 474.1	29997	1.26	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.1%		
13C7-PFUnDA	8.651	570.0 -> 525.1	34273	1.08	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 86.2%		
13C8-FOSA	9.682	506.1 -> 77.8	21621	1.82	µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 72.7%		
13C8-PFOA	7.198	421.1 -> 376.0	80467	2.70	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.0%		
13C8-PFOS	8.348	507.1 -> 79.9	11145	2.12	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.6%		
13C9-PFNA	7.729	472.1 -> 427.0	31230	1.46	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 116.9%		
d3-MeFOSAA	8.256	573.2 -> 419.0	20545	4.39	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 87.9%		
13C3-HFPO-DA	6.019	286.9 -> 168.9	38465	9.27	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.7%		
d3-MeFOSA	10.769	515.0 -> 219.0	6654	1.38	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 55.2%		
d5-EtFOSAA	8.452	589.2 -> 419.0	16865	3.75	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 75.0%		
d7-MeFOSE	10.690	623.2 -> 58.9	63165	14.37	µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 57.5%		
d9-EtFOSE	10.923	639.2 -> 58.9	91635	15.49	µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 62.0%		
d5-EtFOSA	10.989	531.1 -> 219.0	6506	1.45	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 57.8%		

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	3.006	212.8 -> 168.9	3247	1.00	µg/L	m 100
PFBS	5.585	298.7 -> 79.9	605	0.05	µg/L	m 84
		298.7 -> 98.8	171			
PFDA	-	512.9 -> 469.0	-	N.D.		
		512.9 -> 219.0				
PFDODA	-	613.1 -> 569.0	-	N.D.		
		613.1 -> 319.0				
PFDS	-	599.0 -> 79.9	-	N.D.		

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	5.644	449.0 -> 98.9	2582	0.10	µg/L	97
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	138	N.D.		
		398.7 -> 79.9				
PFNA	8.203	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	0	N.D.		
		548.8 -> 79.9				
PFOA	7.200	548.8 -> 98.9	4442	0.11	µg/L	m
		413.0 -> 369.0				
PFOS	8.350	413.0 -> 169.0	518	0.12	µg/L	m
		498.9 -> 79.9				
PFPeA	4.775	498.9 -> 98.8	759	µg/L	m	90
		263.0 -> 219.0				
PFPeS	-	263.0 -> 219.0	0	N.D.		
		349.1 -> 79.9				
PFTeDA	-	349.1 -> 98.9	-	N.D.		
		713.1 -> 669.0				
PFTrDA	-	713.1 -> 168.9	-	N.D.		
		663.0 -> 619.0				
PFUnDA	-	663.0 -> 168.9	-	N.D.		
		563.1 -> 519.0				
11Cl-PF3OUdS	-	563.1 -> 269.1	-	N.D.		
		630.9 -> 450.9				
9Cl-PF3ONS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
ADONA	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
HFPO-DA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
3:3FTCA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
5:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
7:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
EtFOSA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSE	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
MeFOSA	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSE	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
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

7.12
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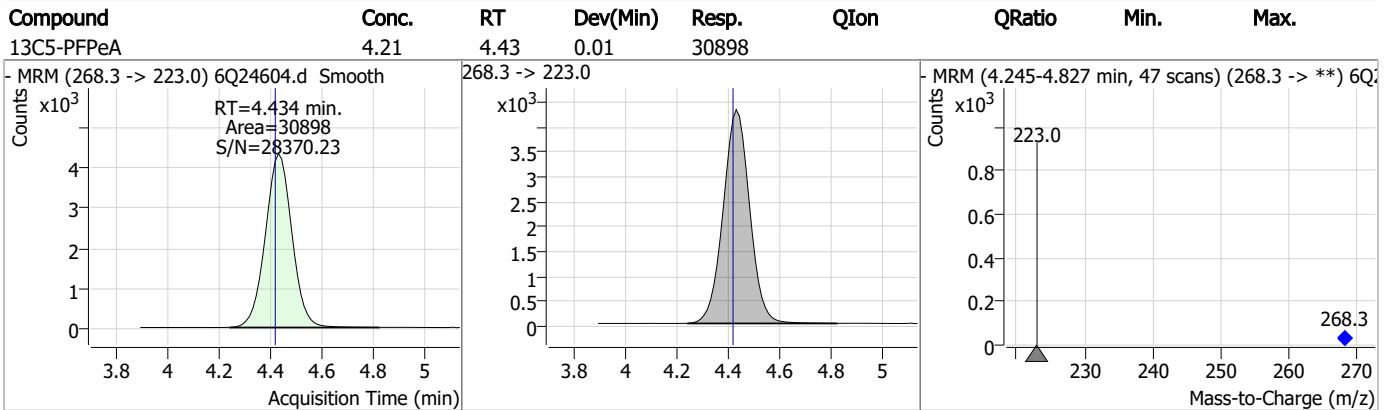
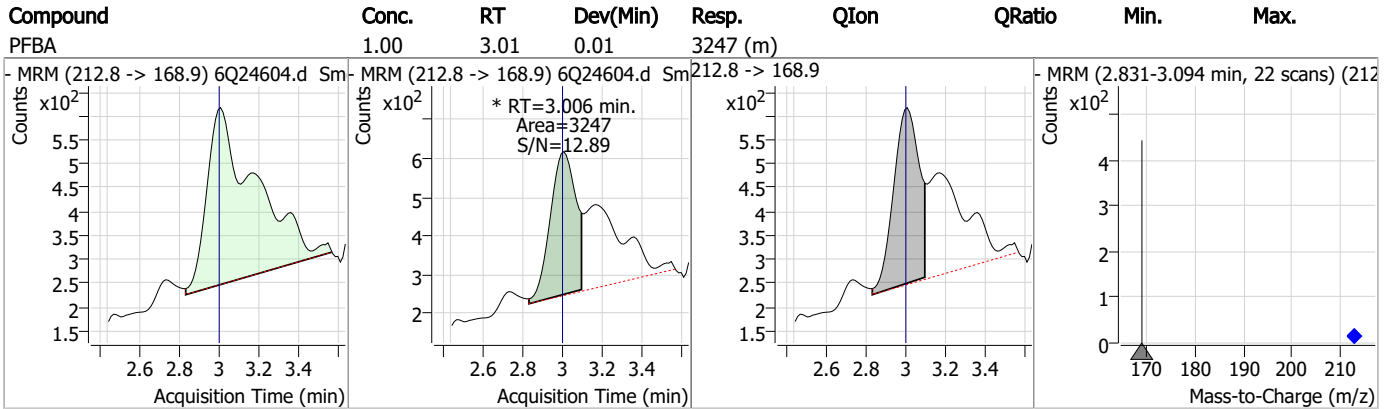
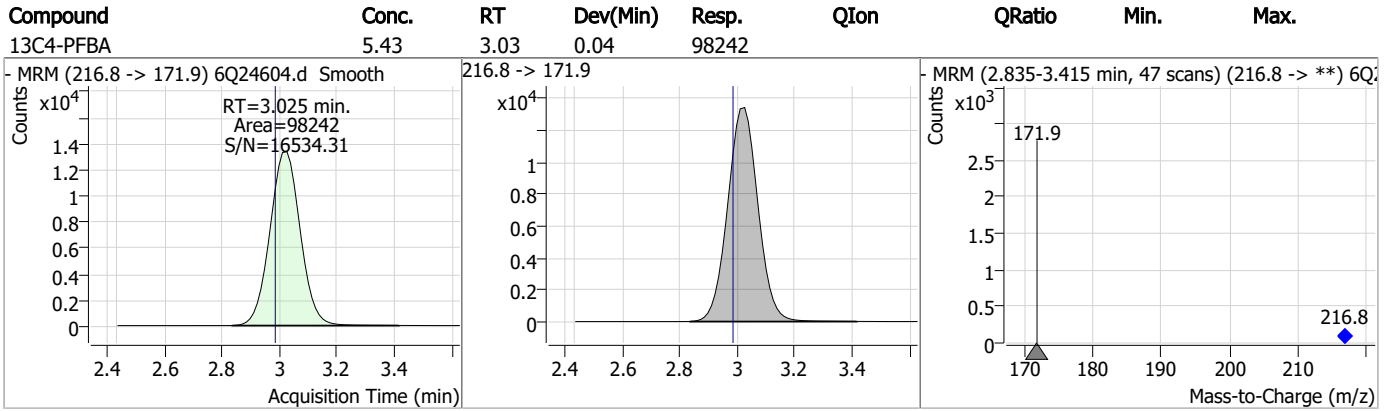
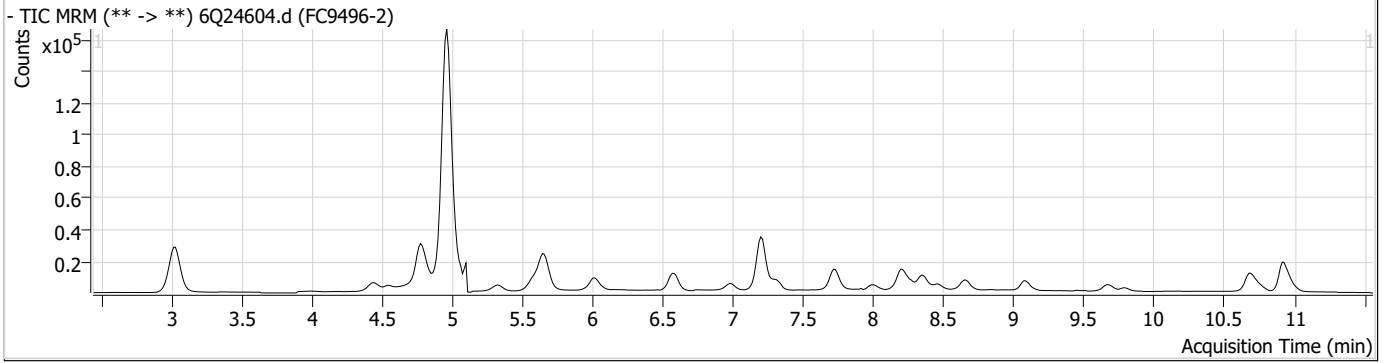
Perfluorinated Compounds by LC/MS/MS

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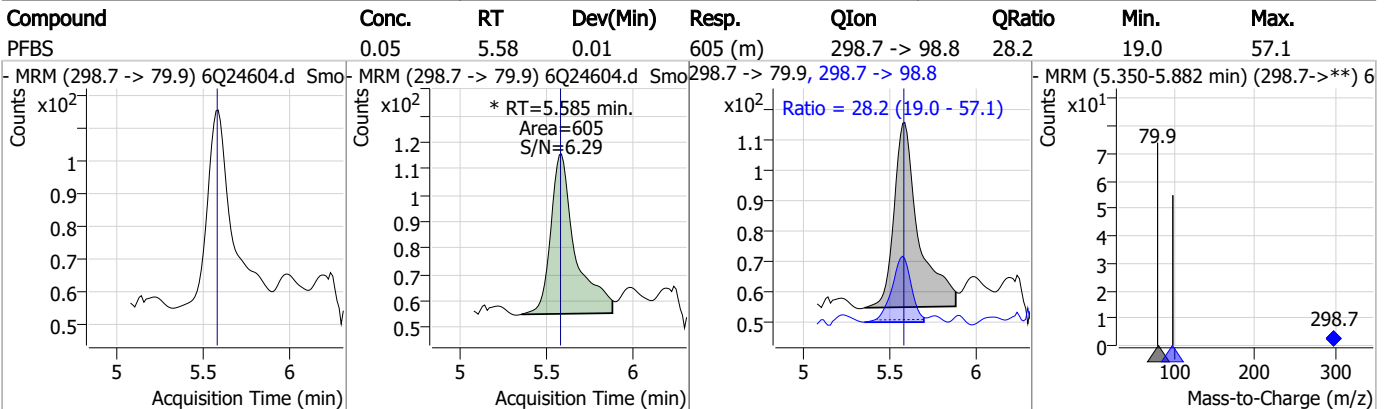
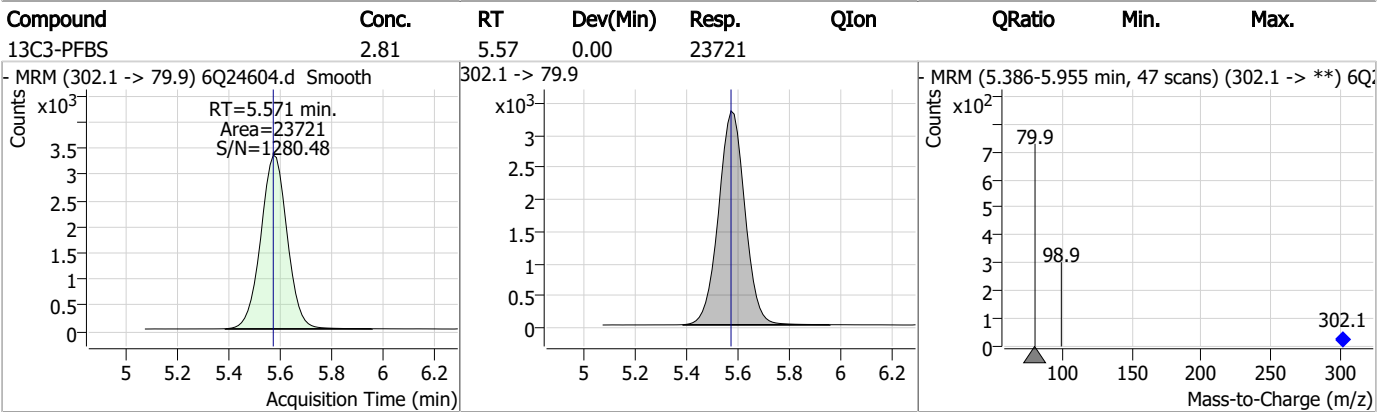
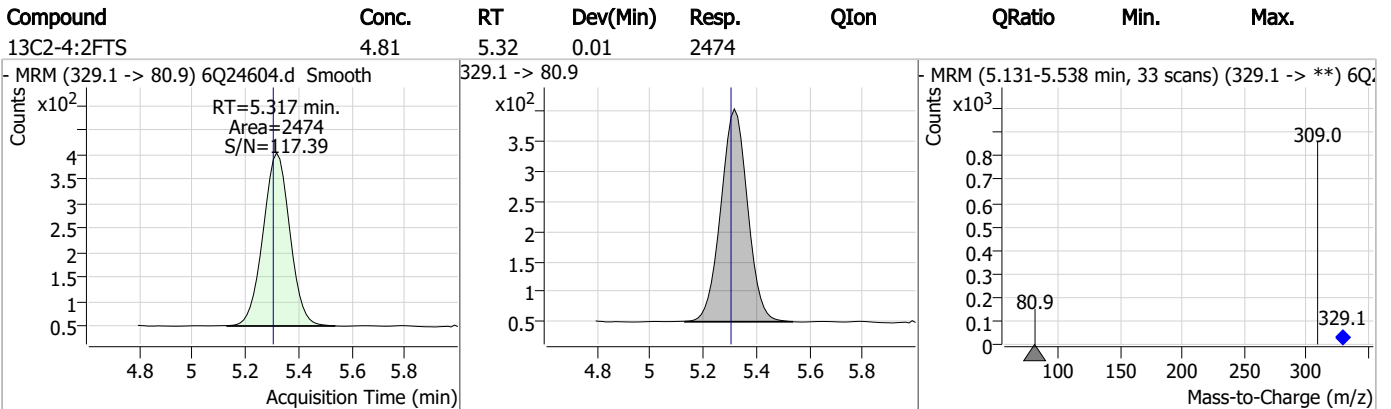
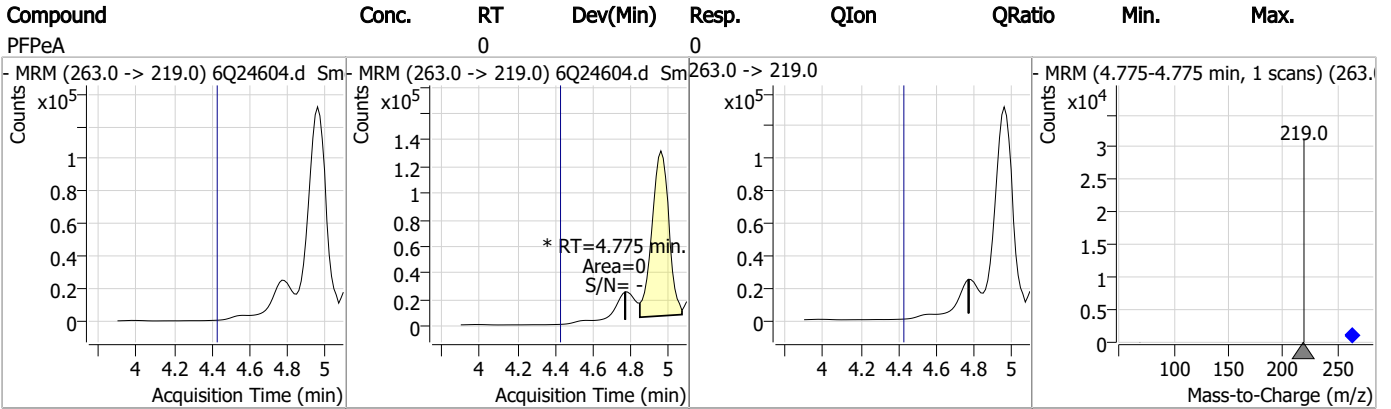
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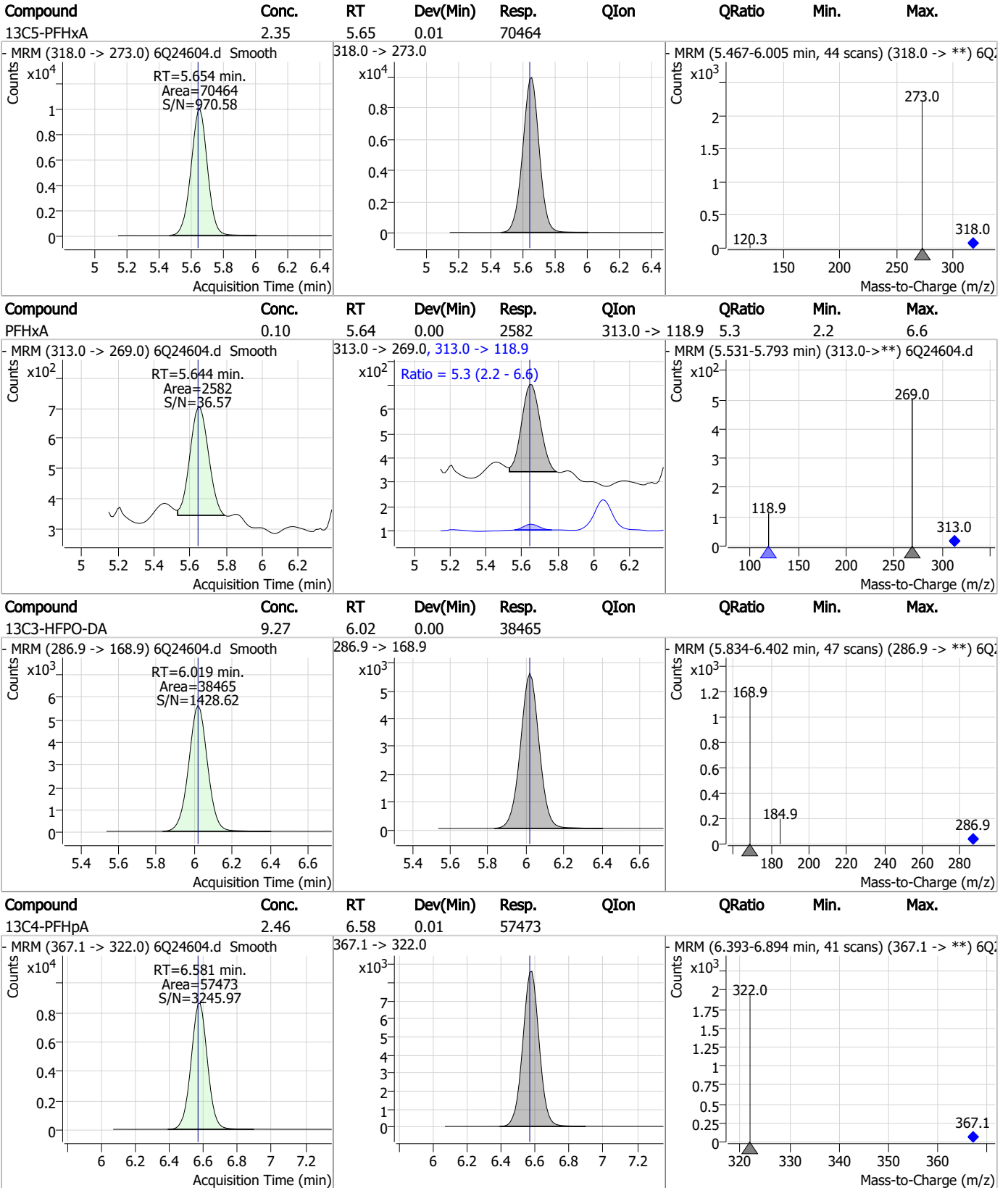
Perfluorinated Compounds by LC/MS/MS



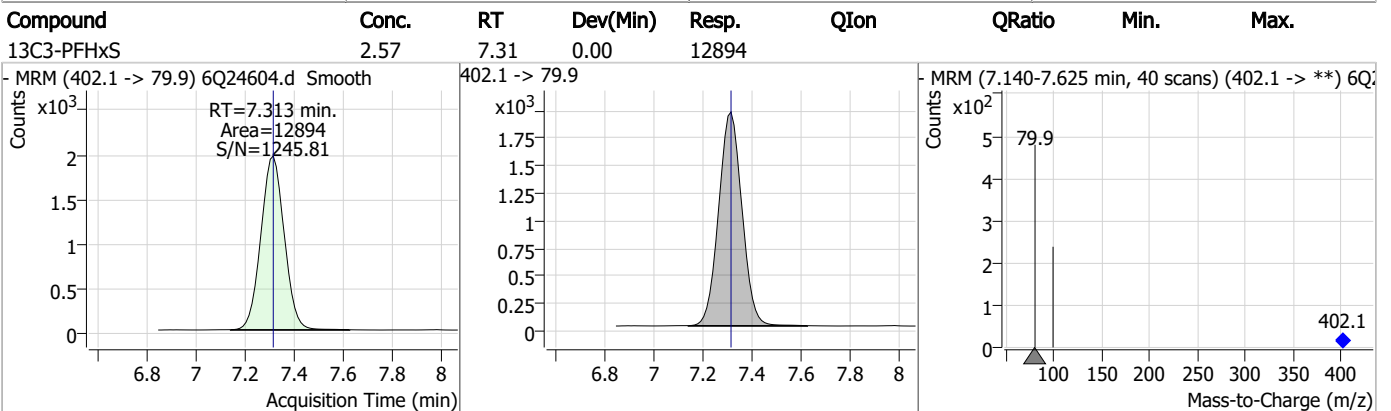
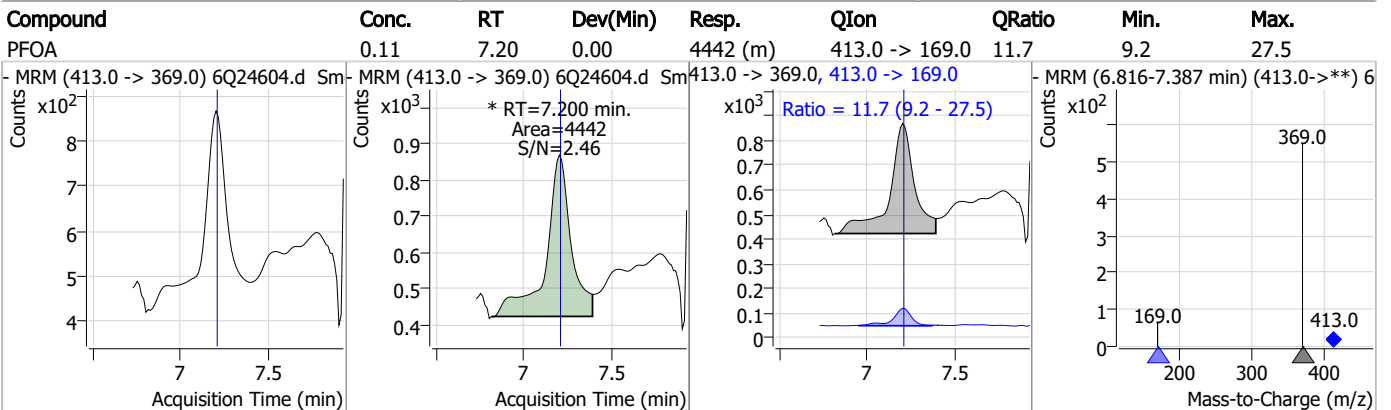
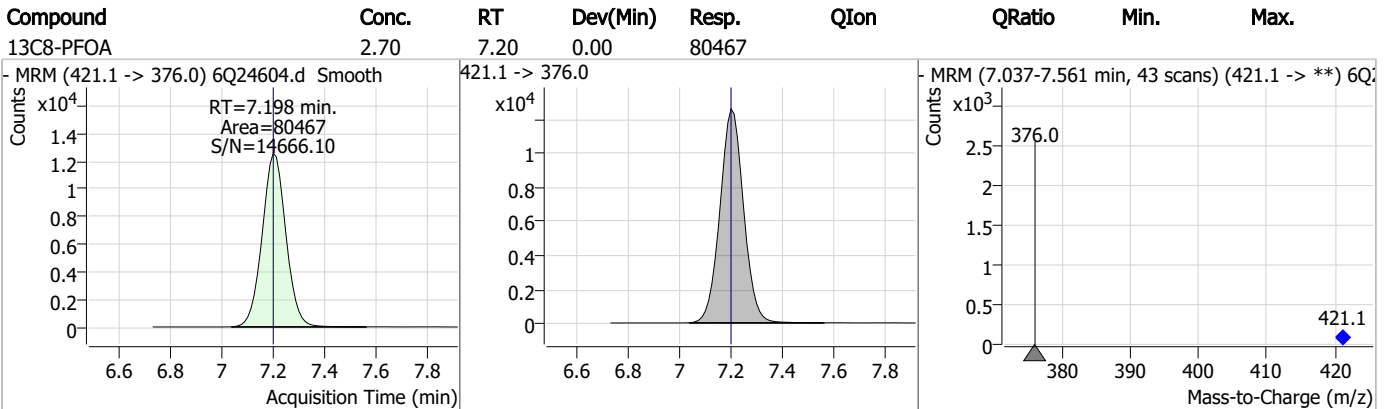
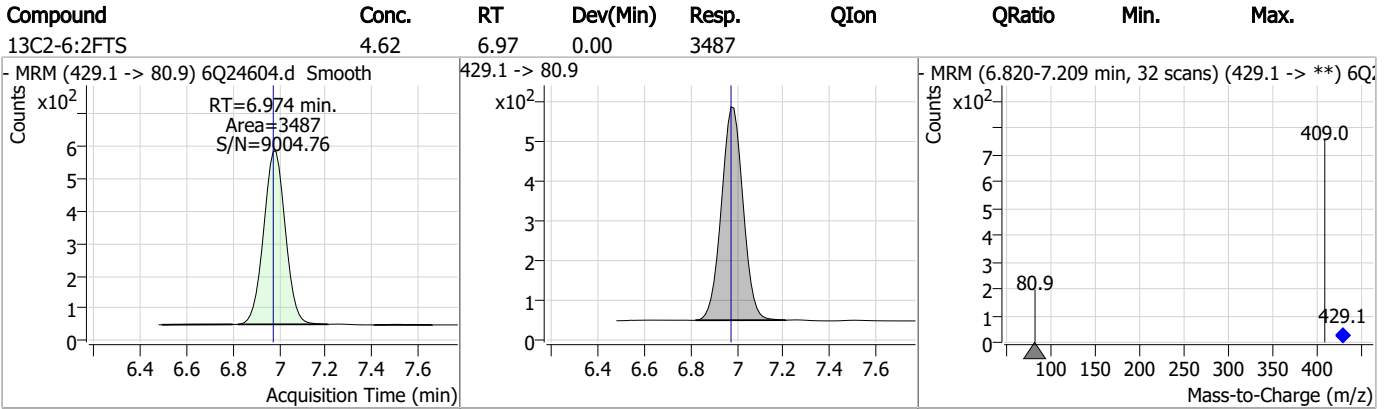
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



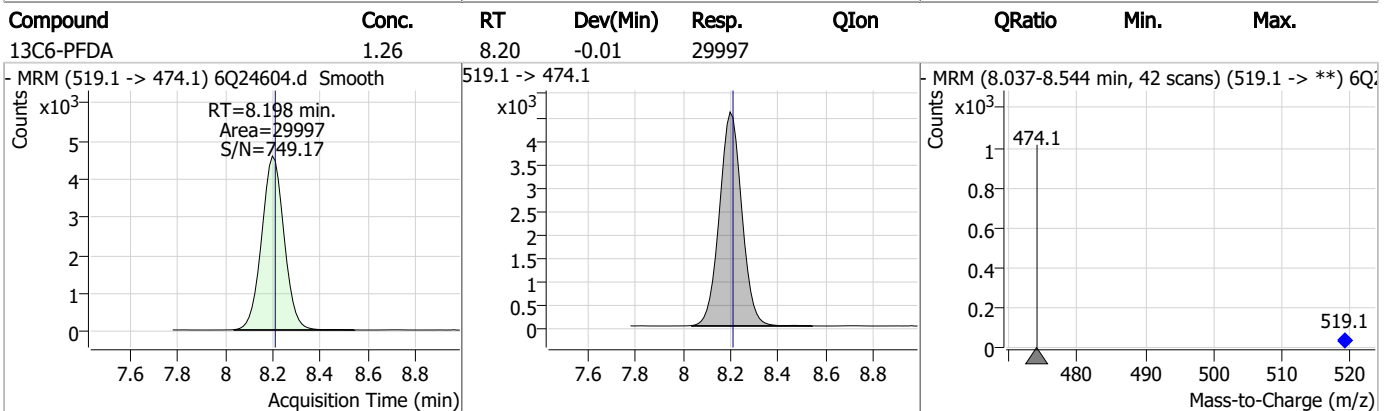
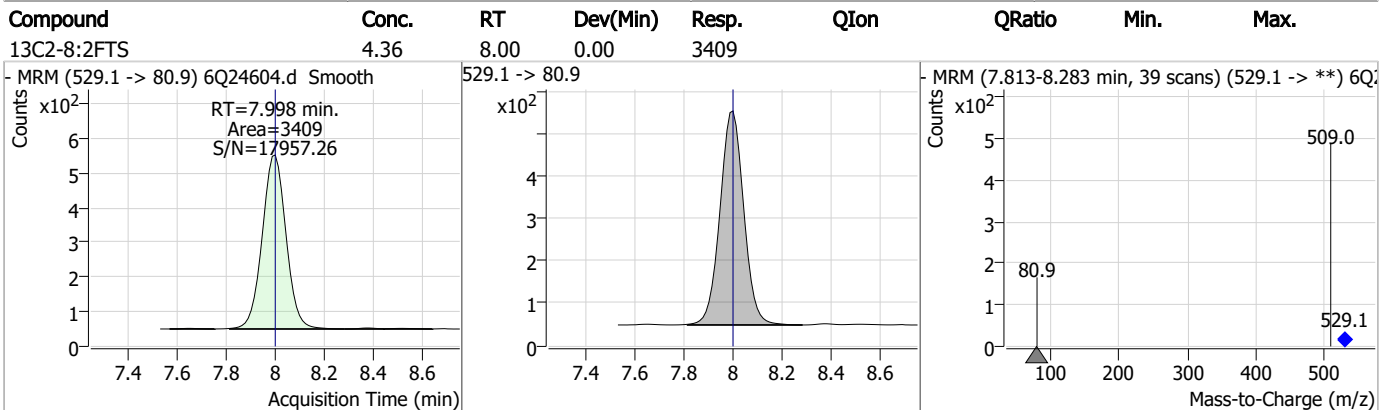
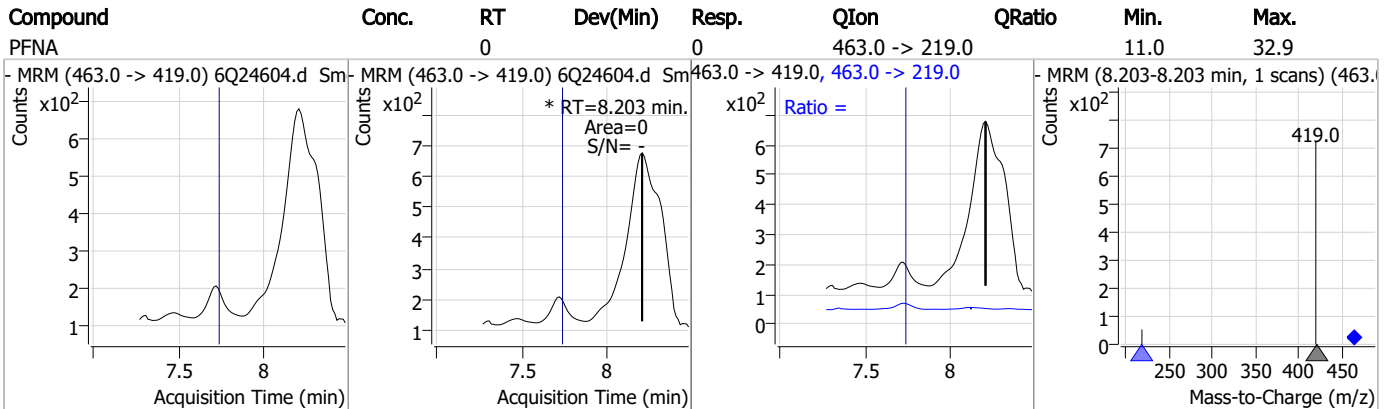
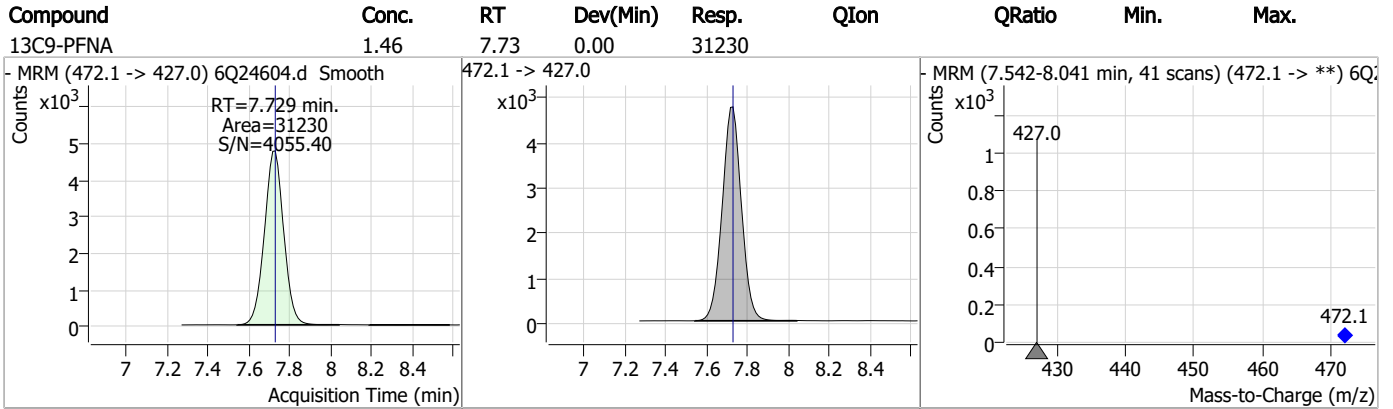
Perfluorinated Compounds by LC/MS/MS



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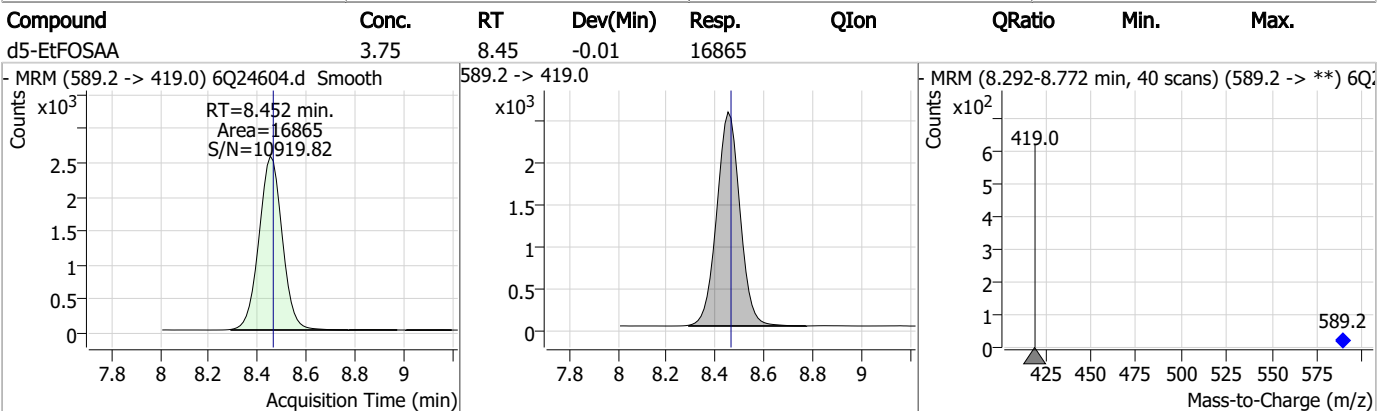
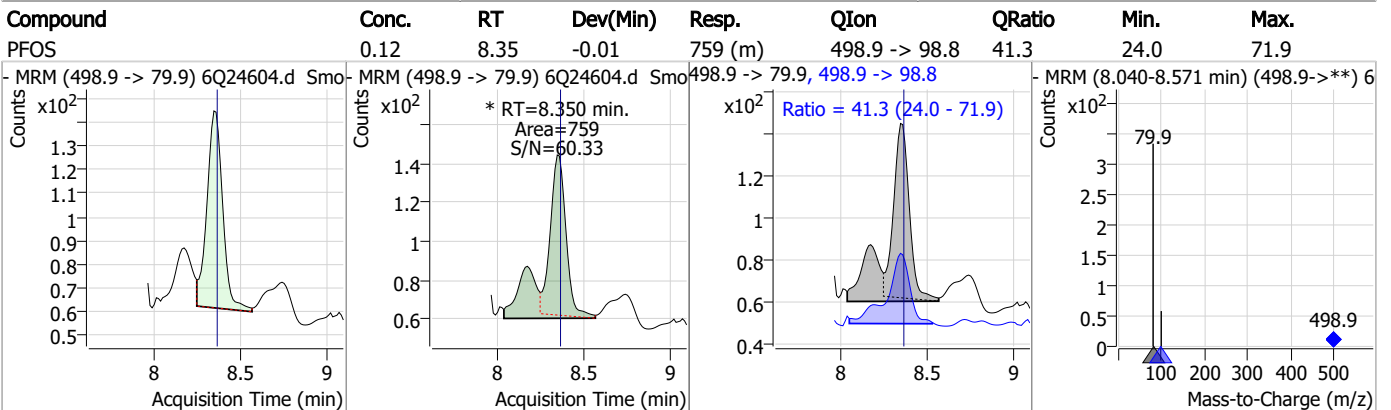
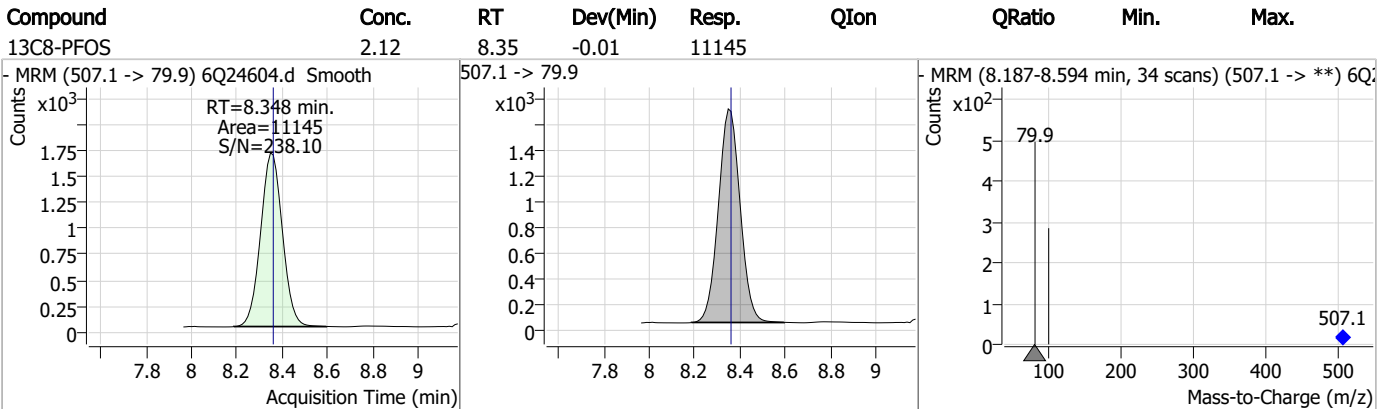
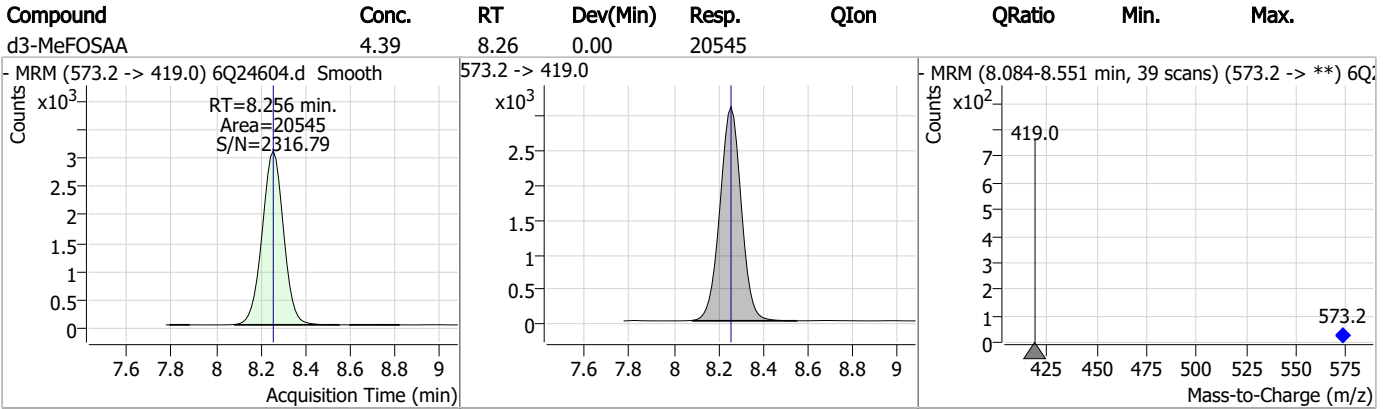
Perfluorinated Compounds by LC/MS/MS



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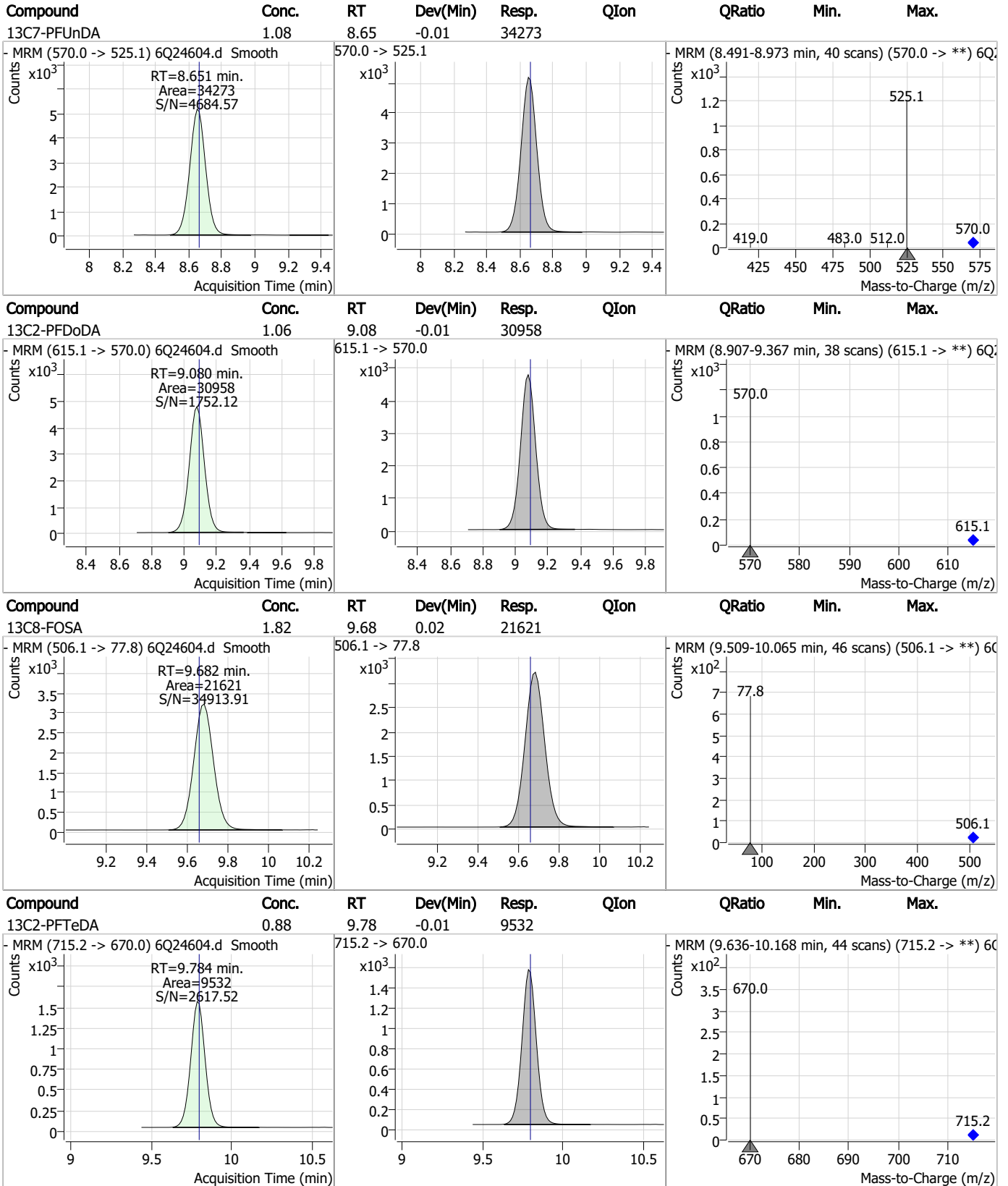
Perfluorinated Compounds by LC/MS/MS



7.1.2

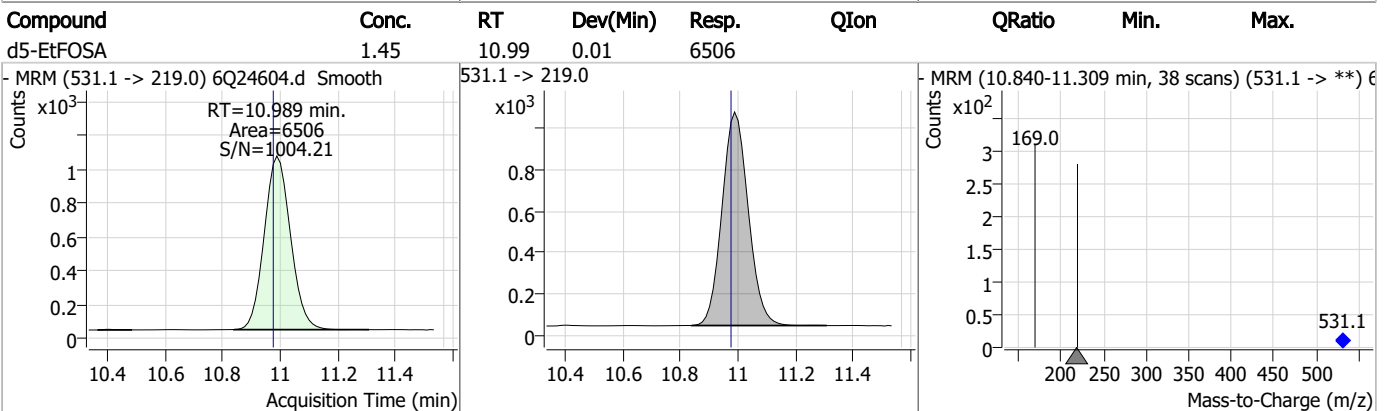
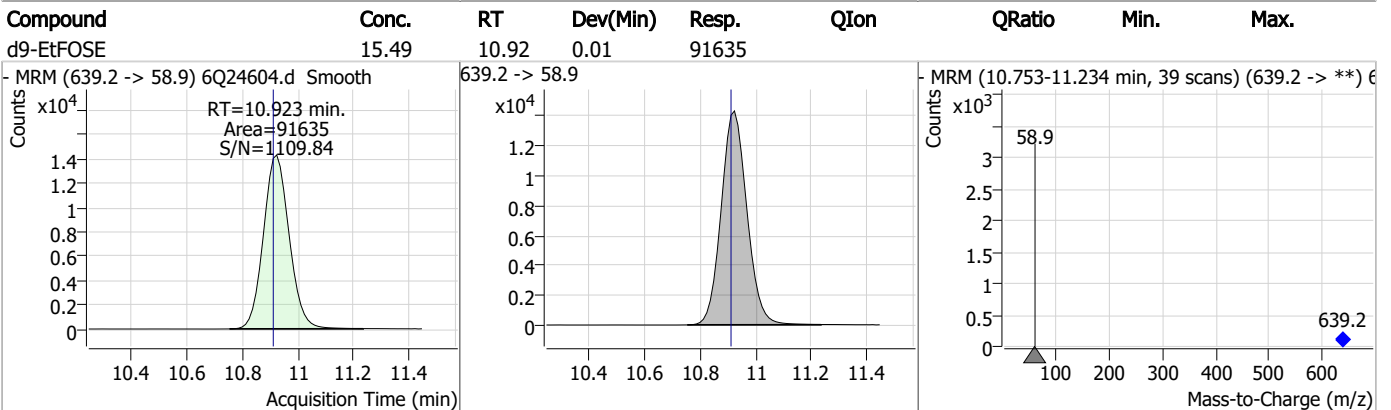
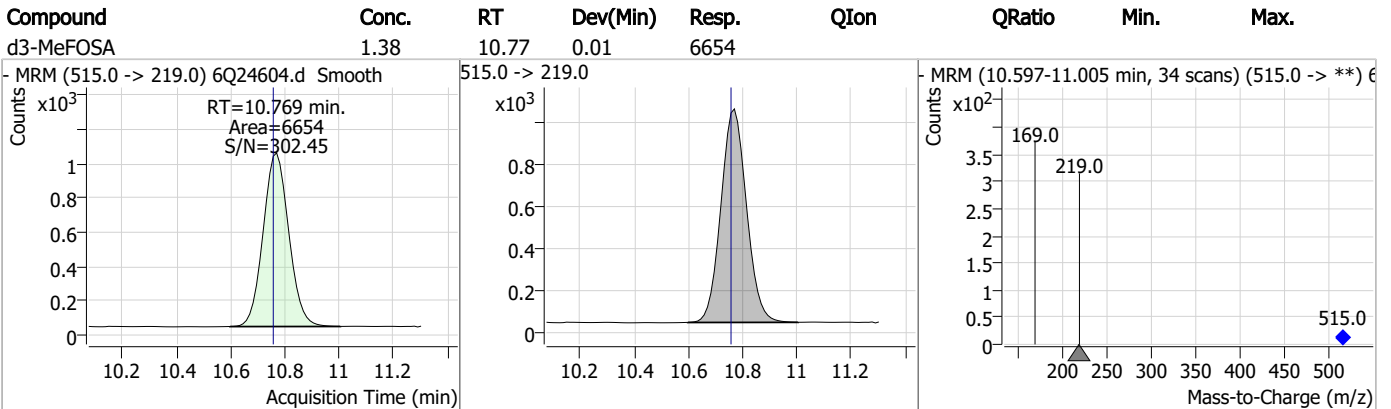
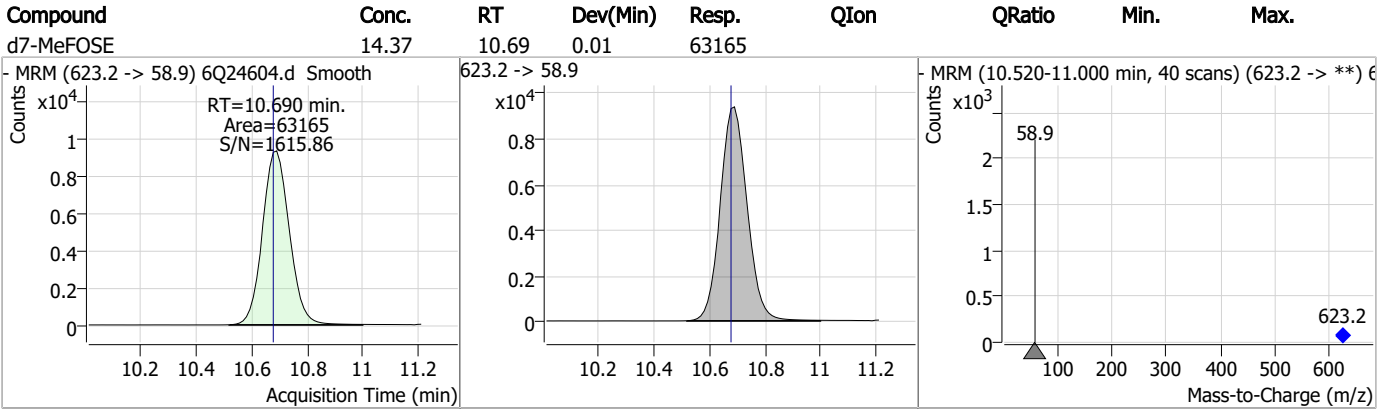
7

Perfluorinated Compounds by LC/MS/MS



7.1.2
7

Perfluorinated Compounds by LC/MS/MS



7.1.2

7

Manual Integration Approval Summary

Sample Number: FC9496-2 Method: EPA DRAFT 1633
Lab FileID: 6Q24604.D Analyst approved: 09/20/23 10:43 Martha Valls
Injection Time: 09/18/23 14:07 Supervisor approved: 09/20/23 10:45 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanoic acid	375-22-4		3.01	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.58	Missed peak
Perfluorooctanoic acid	335-67-1		7.20	Missed peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.1.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24606.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 2:36:32 PM
 Sample Name : FC9496-3
 Vial : P4-C9
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP99007,S6Q353,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	192333	10.00 µg/L	0.041
M5-PFPeA	4.434	268.3 -> 223.0	30326	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	67260	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	55559	2.50 µg/L	0.012
M8-PFOA	7.198	421.1 -> 376.0	75142	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	31363	1.25 µg/L	-0.012
M6-PFDA	8.198	519.1 -> 474.1	28444	1.25 µg/L	-0.012
M7-PFUnDA	8.651	570.0 -> 525.1	31612	1.25 µg/L	-0.012
M2-PFDoDA	9.080	615.1 -> 570.0	29831	1.25 µg/L	-0.014
M2-PFTeDA	9.784	715.2 -> 670.0	10787	1.25 µg/L	-0.012
M8-FOSA	9.670	506.1 -> 77.8	20431	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	22709	2.50 µg/L	0.012
M3-PFHxS	7.313	402.1 -> 79.9	12522	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	11767	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	2588	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3648	5.00 µg/L	0.012
M2-8:2FTS	7.986	529.1 -> 80.9	3600	5.00 µg/L	-0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	18670	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	37894	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	15105	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	66230	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	92713	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	7161	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	7546	2.50 µg/L	0.012
13C4-PFOS	8.361	502.8 -> 79.9	13753	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	67266	5.00 µg/L	0.025
18O2-PFHxS	7.313	403.0 -> 83.9	8416	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	71081	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	24636	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	30232	1.25 µg/L	-0.012
13C2-PFHxA	5.654	315.1 -> 270.0	48338	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2588	5.47 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.3%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3648	5.25 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C2-8:2FTS	7.986	529.1 -> 80.9	3600	5.00 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFDoDA	9.080	615.1 -> 570.0	29831	1.13 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.3%		
13C2-PFTeDA	9.784	715.2 -> 670.0	10787	1.10 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.9%		
13C3-PFBS	5.584	302.1 -> 79.9	22709	2.92 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 116.7%		
13C3-PFHxS	7.313	402.1 -> 79.9	12522	2.71 µg/L	0.000

7.1.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C4-PFBA	3.025	216.8 -> 171.9	192333	11.32 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.2%	
13C4-PFHpA	6.581	367.1 -> 322.0	55559	2.68 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C5-PFHxA	5.654	318.0 -> 273.0	67260	2.52 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C5-PFPeA	4.434	268.3 -> 223.0	30326	4.65 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C6-PFDA	8.198	519.1 -> 474.1	28444	1.33 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C7-PFUnDA	8.651	570.0 -> 525.1	31612	1.10 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 88.0%	
13C8-FOSA	9.670	506.1 -> 77.8	20431	2.09 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.5%	
13C8-PFOA	7.198	421.1 -> 376.0	75142	2.87 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.9%	
13C8-PFOS	8.361	507.1 -> 79.9	11767	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.6%	
13C9-PFNA	7.717	472.1 -> 427.0	31363	1.66 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 132.8%	
d3-MeFOSAA	8.256	573.2 -> 419.0	18670	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	37894	10.29 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
d3-MeFOSA	10.769	515.0 -> 219.0	7546	1.90 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.1%	
d5-EtFOSAA	8.452	589.2 -> 419.0	15105	4.08 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 81.7%	
d7-MeFOSE	10.678	623.2 -> 58.9	66230	18.32 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.3%	
d9-EtFOSE	10.923	639.2 -> 58.9	92713	19.05 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.2%	
d5-EtFOSA	10.989	531.1 -> 219.0	7161	1.94 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.4%	

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

Perfluorinated Compounds by LC/MS/MS

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

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

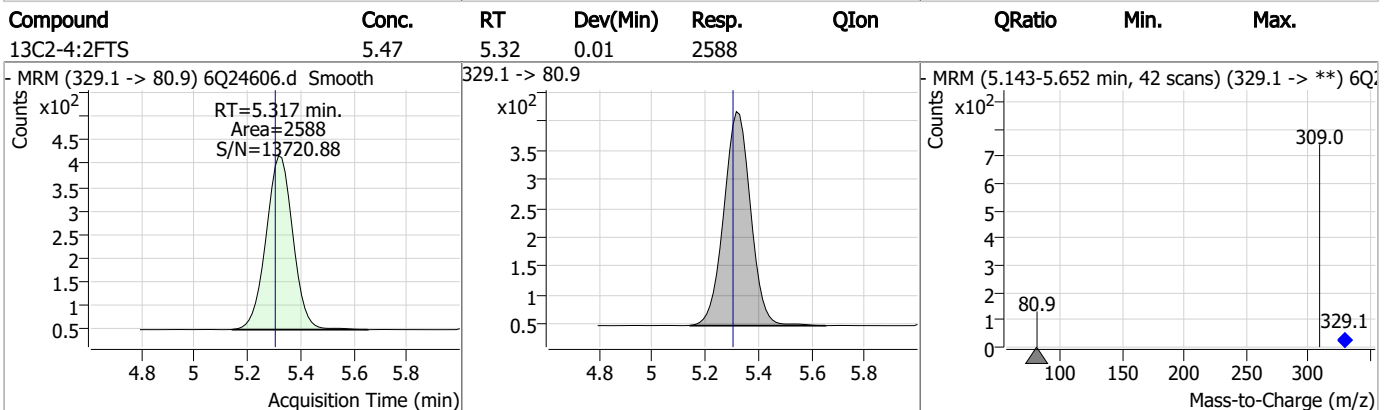
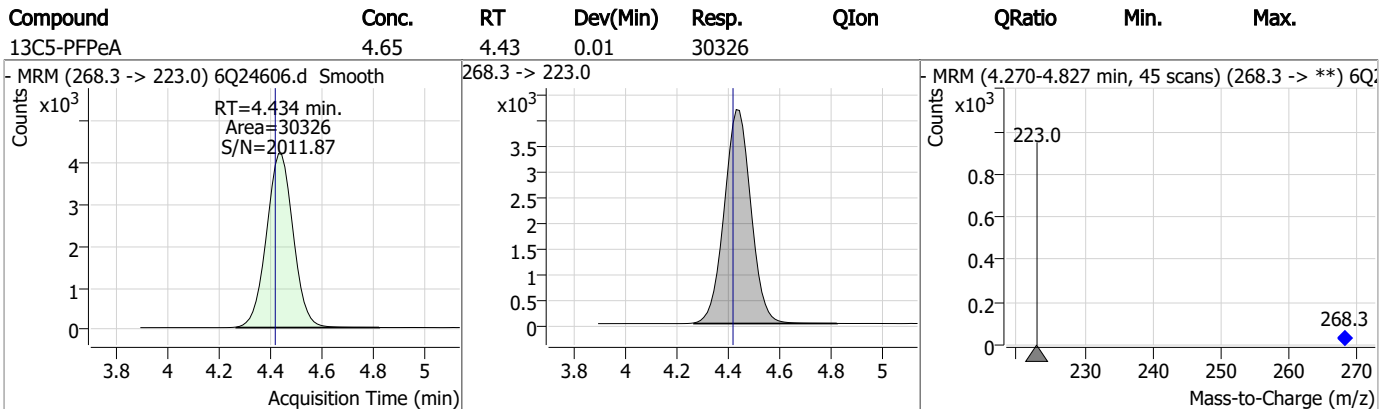
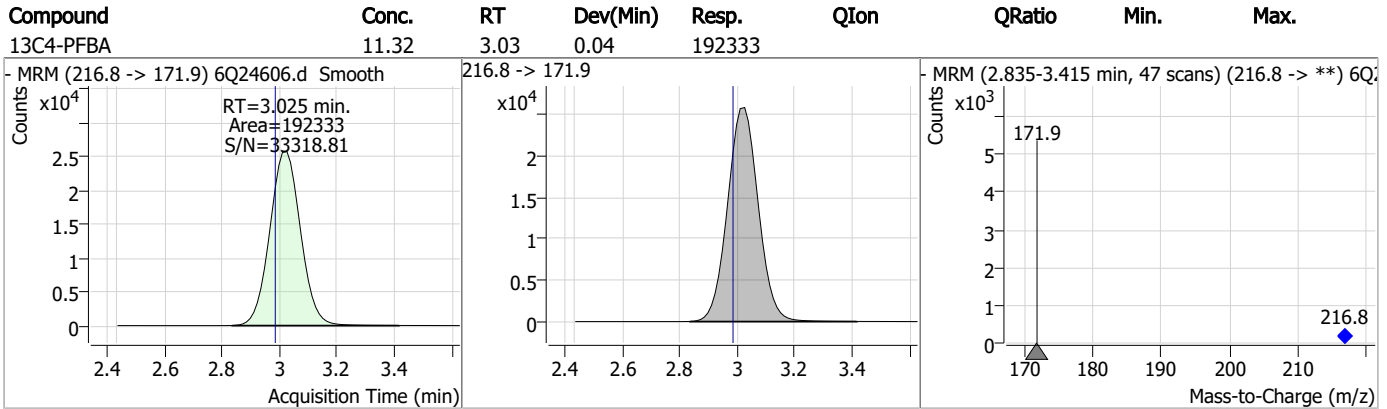
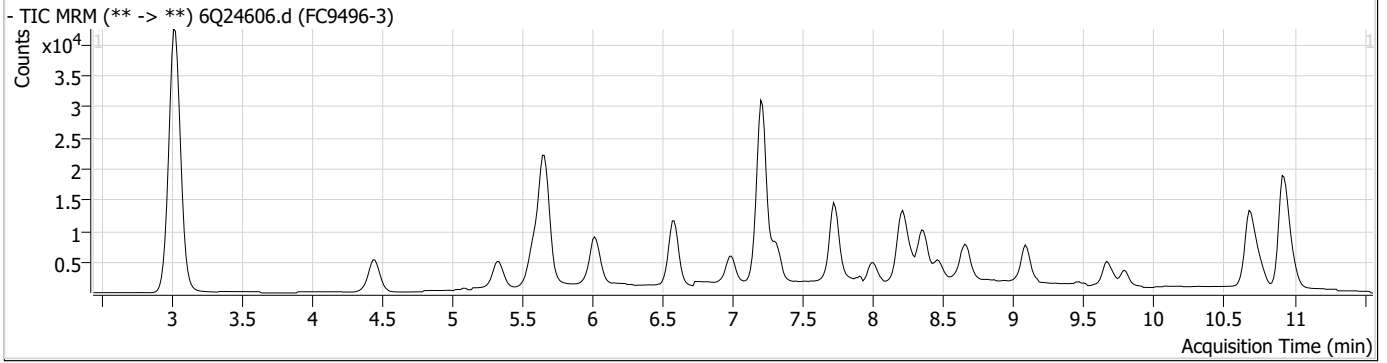
Perfluorinated Compounds by LC/MS/MS

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



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.92	5.58	0.01	22709				
13C5-PFHxA	2.52	5.65	0.01	67260				
13C3-HFPO-DA	10.29	6.02	0.00	37894				
13C4-PFHpA	2.68	6.58	0.01	55559				

7.1.3

7

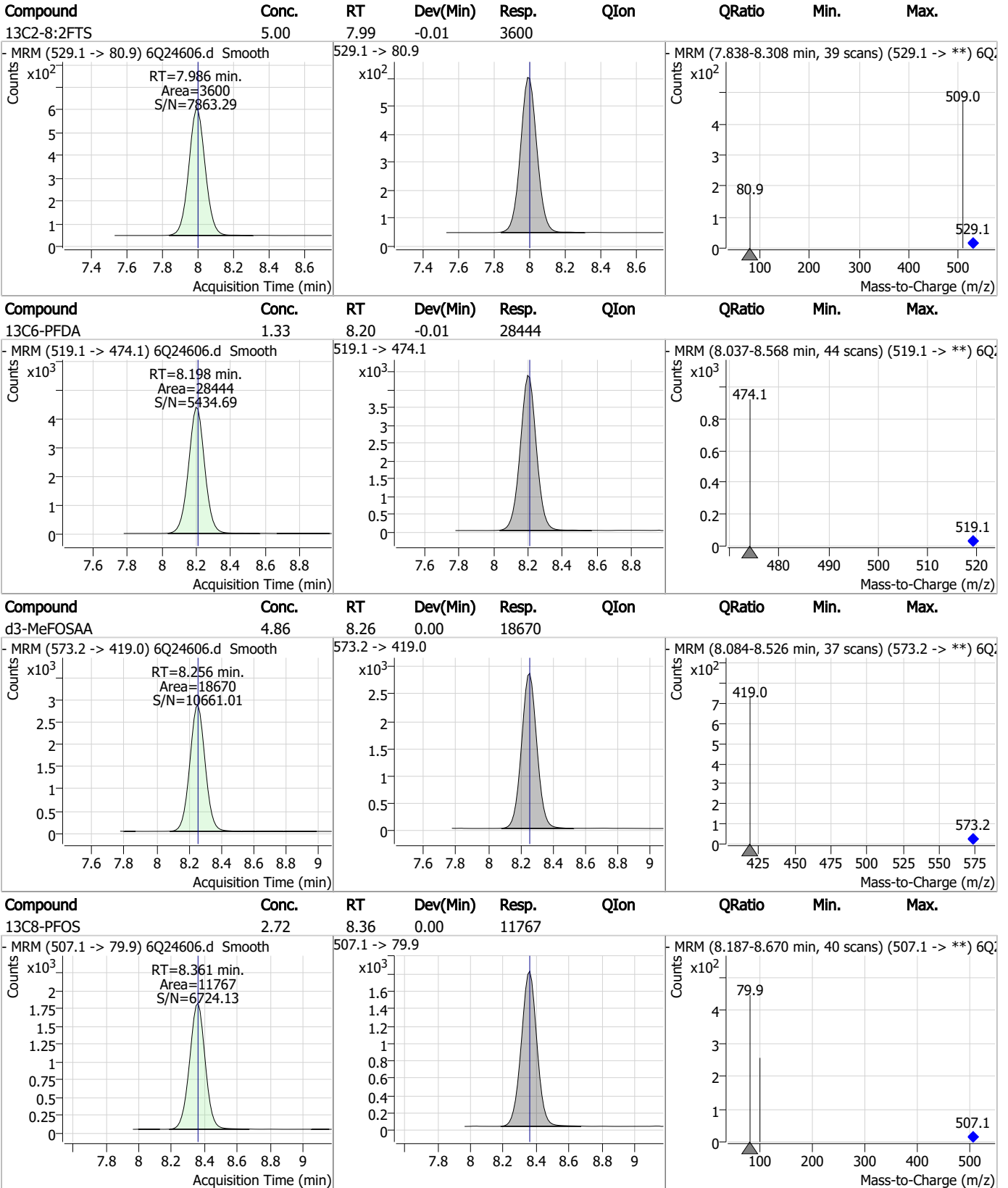
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.25	6.99	0.01	3648				
13C8-PFOA	2.87	7.20	0.00	75142				
13C3-PFHxS	2.71	7.31	0.00	12522				
13C9-PFNA	1.66	7.72	-0.01	31363				

7.1.3

7

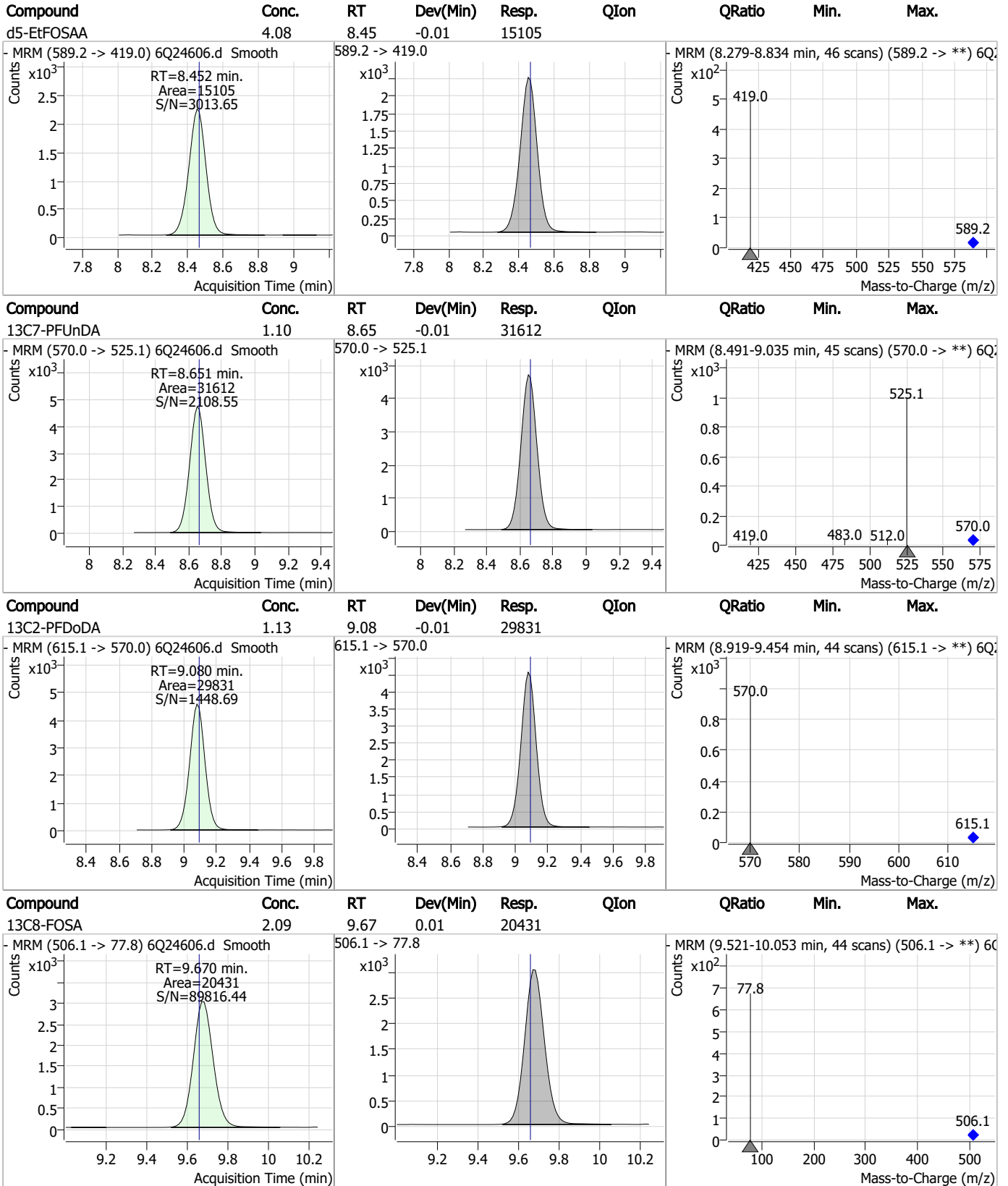
Perfluorinated Compounds by LC/MS/MS



7.1.3

7

Perfluorinated Compounds by LC/MS/MS

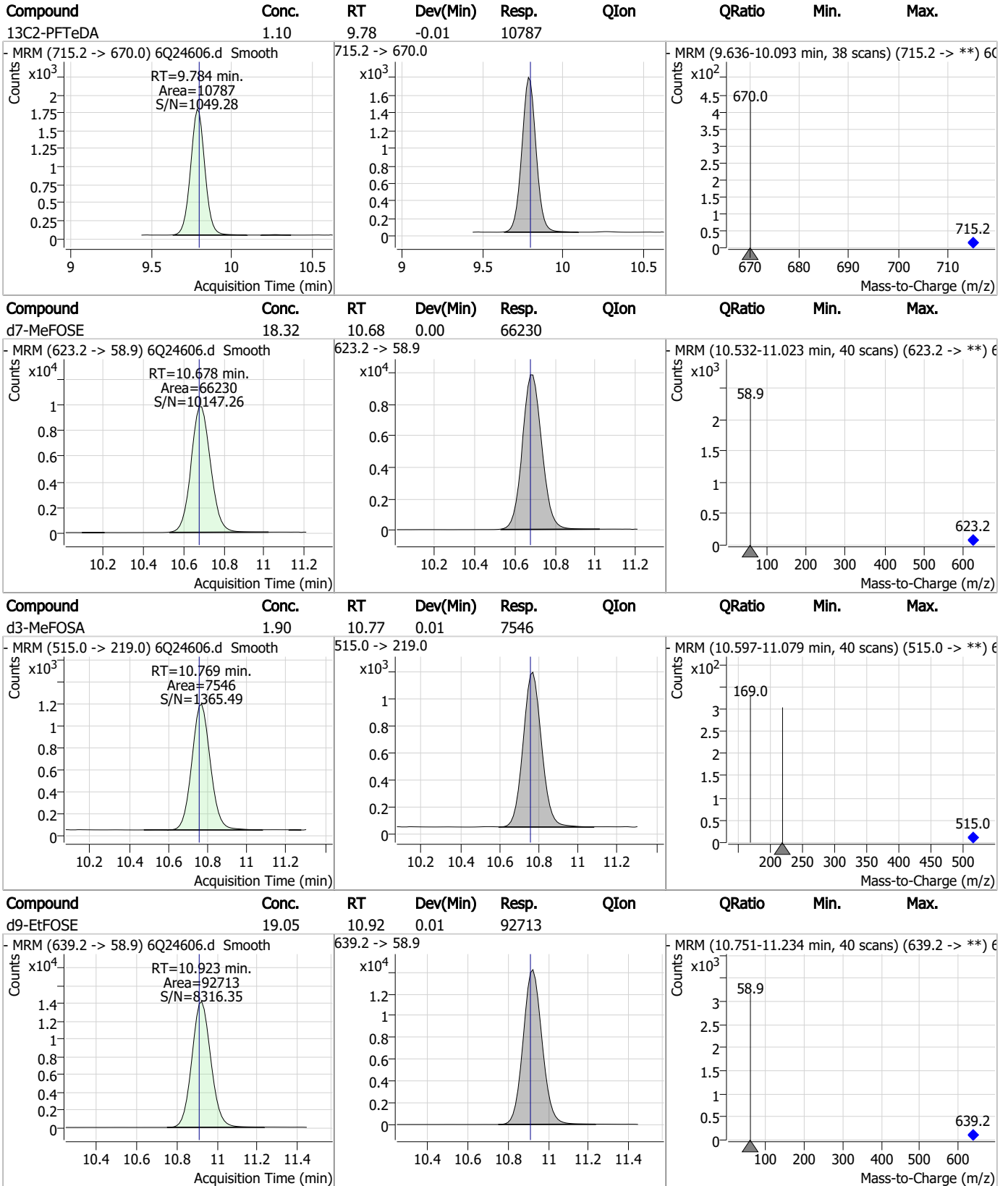


7.1.3

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Perfluorinated Compounds by LC/MS/MS

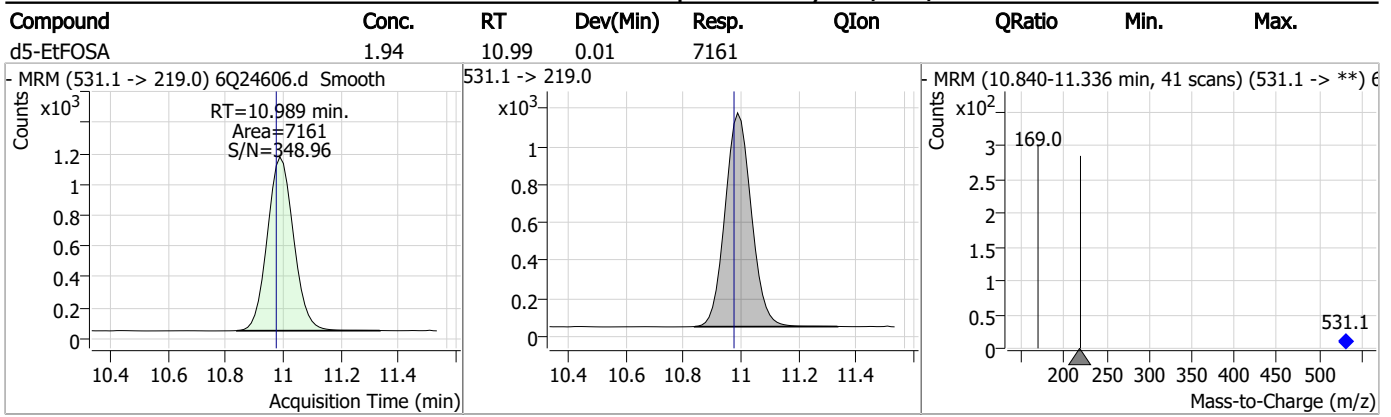


7.1.3

7



Perfluorinated Compounds by LC/MS/MS



7.1.3
7



Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50750.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/18/2023 7:22:39 PM
 Sample Name : fc9496-4
 Vial : P1-D8
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q742.batch.bin
 Sample Information : OP99024,S4Q742,65,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.790	216.8 -> 171.9	85337	10.00 µg/L	0.078
M5-PFPeA	4.265	268.3 -> 223.0	30883	5.00 µg/L	0.050
M5-PFHxA	5.445	318.0 -> 273.0	29792	2.50 µg/L	0.037
M4-PFHpA	6.392	367.1 -> 322.0	20857	2.50 µg/L	0.038
M8-PFOA	7.074	421.1 -> 376.0	34037	2.50 µg/L	0.037
M9-PFNA	7.608	472.1 -> 427.0	13109	1.25 µg/L	0.038
M6-PFDA	8.090	519.1 -> 474.1	8598	1.25 µg/L	0.025
M7-PFUnDA	8.534	570.0 -> 525.1	10102	1.25 µg/L	0.025
M2-PFDoDA	8.966	615.1 -> 570.0	11707	1.25 µg/L	0.025
M2-PFTeDA	9.723	715.2 -> 670.0	6034	1.25 µg/L	0.025
M8-FOSA	9.943	506.1 -> 77.8	6986	2.50 µg/L	0.037
M3-PFBS	5.300	302.1 -> 79.9	7493	2.50 µg/L	0.037
M3-PFHxS	7.128	402.1 -> 79.9	4648	2.50 µg/L	0.025
M8-PFOS	8.204	507.1 -> 79.9	5382	2.50 µg/L	0.026
M2-4:2FTS	5.146	329.1 -> 80.9	866	5.00 µg/L	0.037
M2-6:2FTS	6.847	429.1 -> 80.9	1207	5.00 µg/L	0.037
M2-8:2FTS	7.889	529.1 -> 80.9	1609	5.00 µg/L	0.025
M3-MeFOSAA	8.184	573.2 -> 419.0	11687	5.00 µg/L	0.037
M3-HFPO-DA	5.800	286.9 -> 168.9	29088	10.00 µg/L	0.037
M5-EtFOSAA	8.383	589.2 -> 419.0	11235	5.00 µg/L	0.025
M7-MeFOSE	11.084	623.2 -> 58.9	43756	25.00 µg/L	0.012
M9-EtFOSE	11.356	639.2 -> 58.9	67687	25.00 µg/L	0.012
M5-EtFOSA	11.448	531.1 -> 219.0	4870	2.50 µg/L	0.012
M3-MeFOSA	11.190	515.0 -> 219.0	3730	2.50 µg/L	0.012
13C4-PFOS	8.205	502.8 -> 79.9	5187	2.50 µg/L	0.026
13C3-PFBA	2.793	216.0 -> 172.0	38600	5.00 µg/L	0.077
18O2-PFHxS	7.127	403.0 -> 83.9	2928	2.50 µg/L	0.025
13C4-PFOA	7.075	417.1 -> 372.0	35880	2.50 µg/L	0.037
13C2-PFDA	8.090	515.1 -> 470.1	8693	1.25 µg/L	0.025
13C5-PFNA	7.608	468.0 -> 423.0	11183	1.25 µg/L	0.038
13C2-PFHxA	5.446	315.1 -> 270.0	24362	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.146	329.1 -> 80.9	866	5.42 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C2-6:2FTS	6.847	429.1 -> 80.9	1207	4.87 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C2-8:2FTS	7.889	529.1 -> 80.9	1609	4.21 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 84.2%		
13C2-PFDoDA	8.966	615.1 -> 570.0	11707	1.19 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C2-PFTeDA	9.723	715.2 -> 670.0	6034	1.16 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.0%		
13C3-PFBS	5.300	302.1 -> 79.9	7493	2.67 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C3-PFHxS	7.128	402.1 -> 79.9	4648	2.64 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C4-PFBA	2.790	216.8 -> 171.9	85337	11.17 µg/L	0.078
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.7%	
13C4-PFHpA	6.392	367.1 -> 322.0	20857	2.71 µg/L	0.038
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C5-PFHxA	5.445	318.0 -> 273.0	29792	2.69 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C5-PFPeA	4.265	268.3 -> 223.0	30883	5.39 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C6-PFDA	8.090	519.1 -> 474.1	8598	1.30 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C7-PFUnDA	8.534	570.0 -> 525.1	10102	1.36 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C8-FOSA	9.943	506.1 -> 77.8	6986	1.95 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.0%	
13C8-PFOA	7.074	421.1 -> 376.0	34037	2.59 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C8-PFOS	8.204	507.1 -> 79.9	5382	2.33 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C9-PFNA	7.608	472.1 -> 427.0	13109	1.28 µg/L	0.038
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%	
d3-MeFOSAA	8.184	573.2 -> 419.0	11687	5.02 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C3-HFPO-DA	5.800	286.9 -> 168.9	29088	11.03 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.3%	
d3-MeFOSA	11.190	515.0 -> 219.0	3730	1.77 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 70.9%	
d5-EtFOSAA	8.383	589.2 -> 419.0	11235	5.21 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
d7-MeFOSE	11.084	623.2 -> 58.9	43756	21.35 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 85.4%	
d9-EtFOSE	11.356	639.2 -> 58.9	67687	22.89 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.6%	
d5-EtFOSA	11.448	531.1 -> 219.0	4870	1.71 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 68.5%	

Target Compounds

QValue

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

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8				
PFHpA	-	363.1 -> 319.0	-	N.D.		
		363.1 -> 169.0				
PFHpS	8.207	449.0 -> 79.9	0	µg/L	m	1
		449.0 -> 98.9	0			
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 118.9				
PFHxS	-	398.7 -> 79.9	-	N.D.		
		398.7 -> 98.9				
PFNA	7.921	463.0 -> 419.0	0	µg/L	m	1
		463.0 -> 219.0	0			
PFNS	8.137	548.8 -> 79.9	0	µg/L	m	1
		548.8 -> 98.9	0			
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	8.192	498.9 -> 79.9	0	µg/L	m	1
		498.9 -> 98.8	0			
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

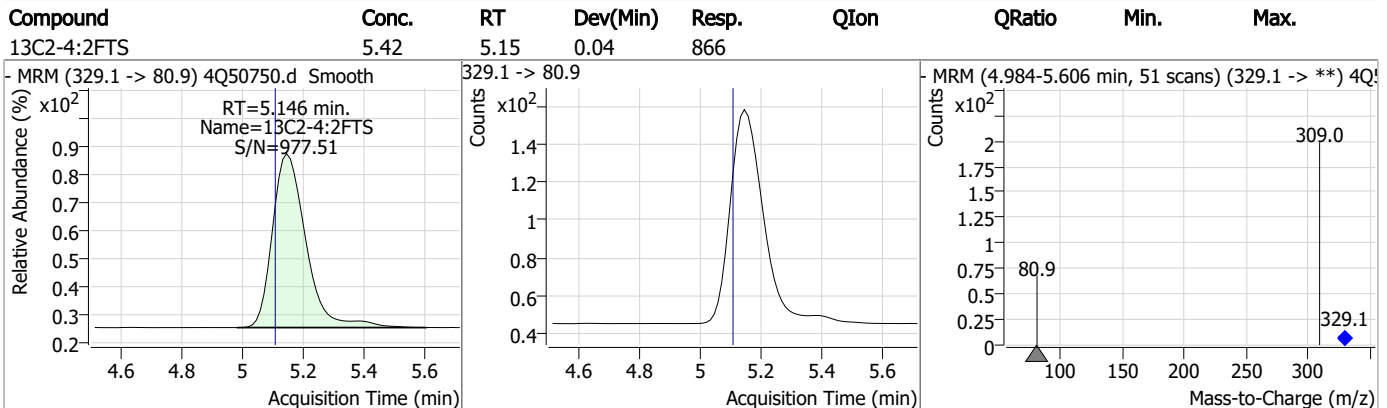
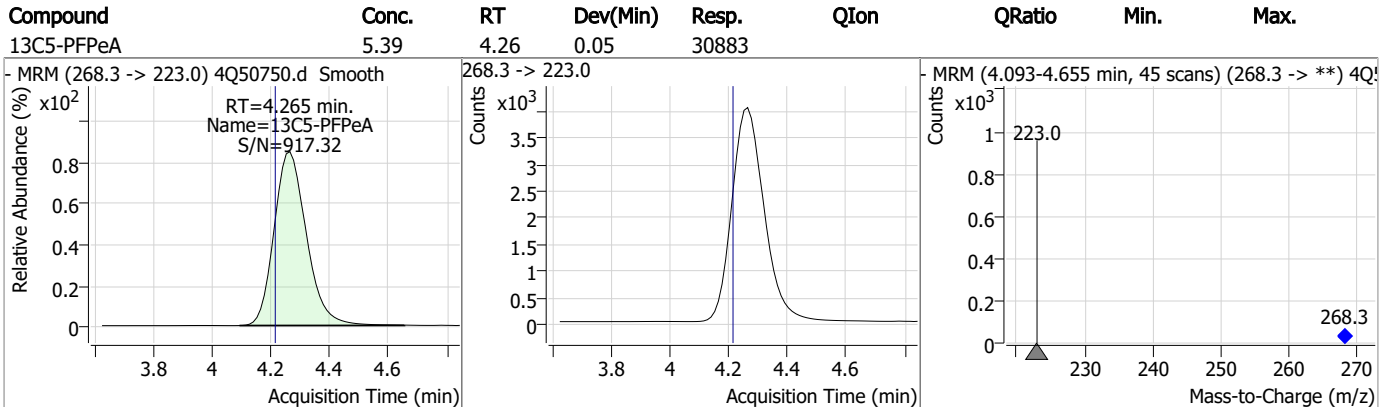
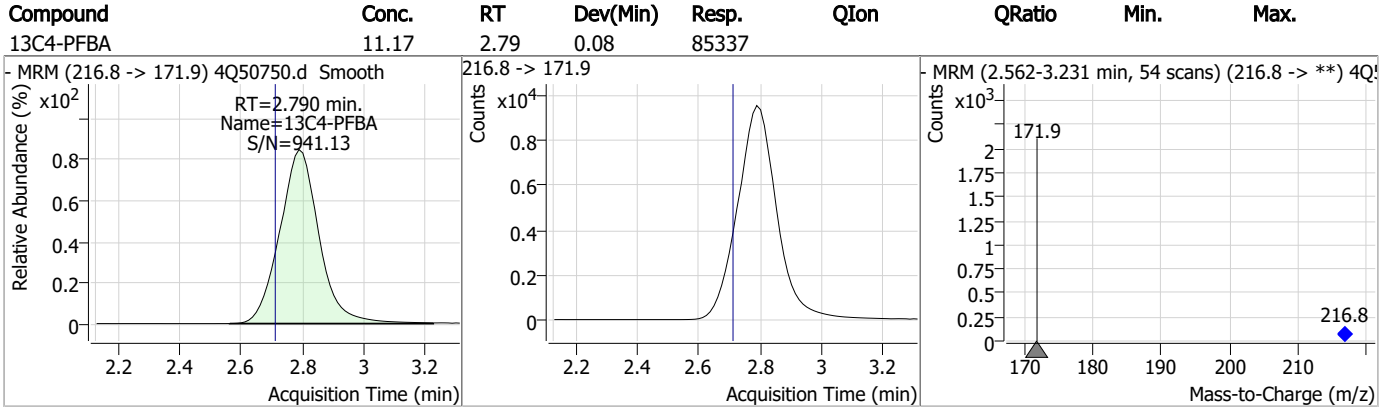
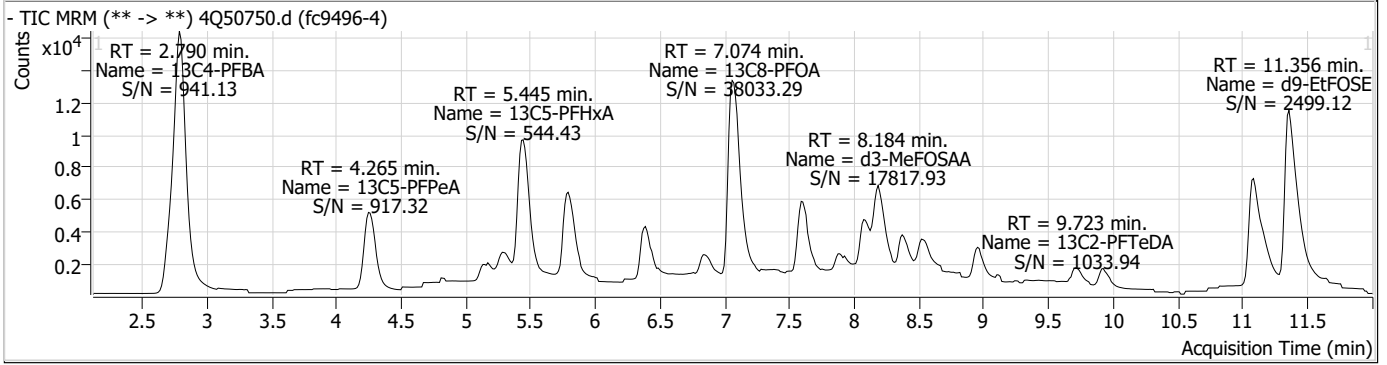
Perfluorinated Compounds by LC/MS/MS

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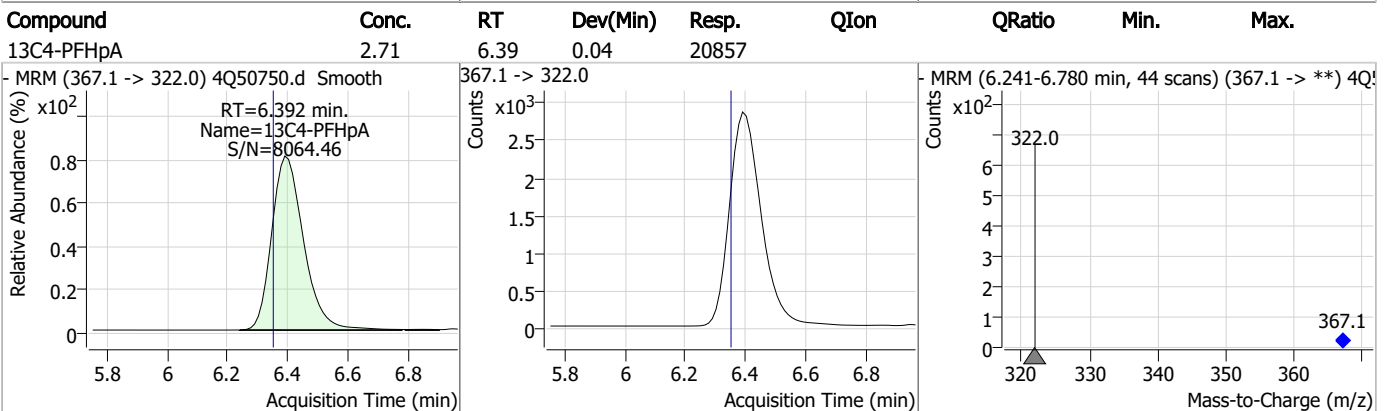
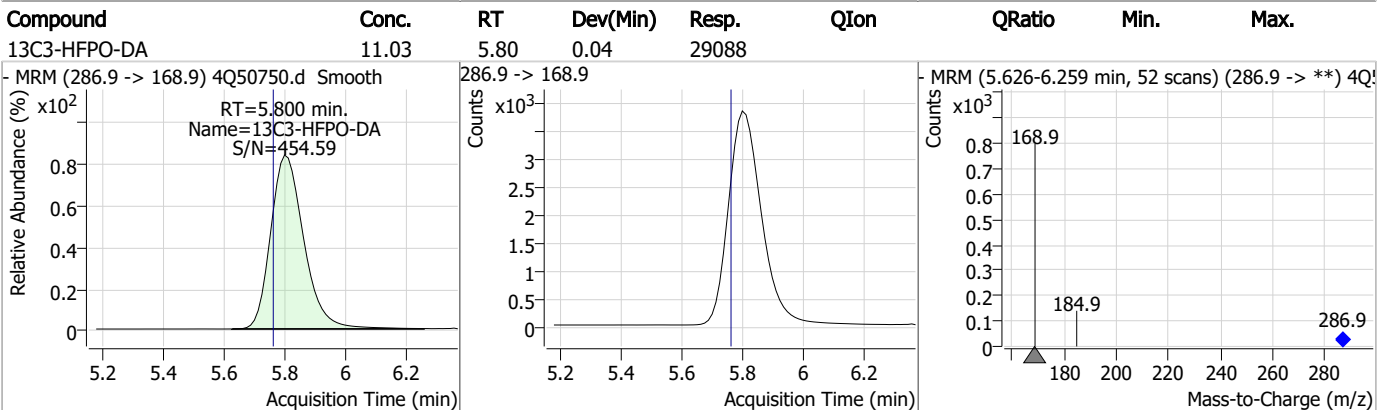
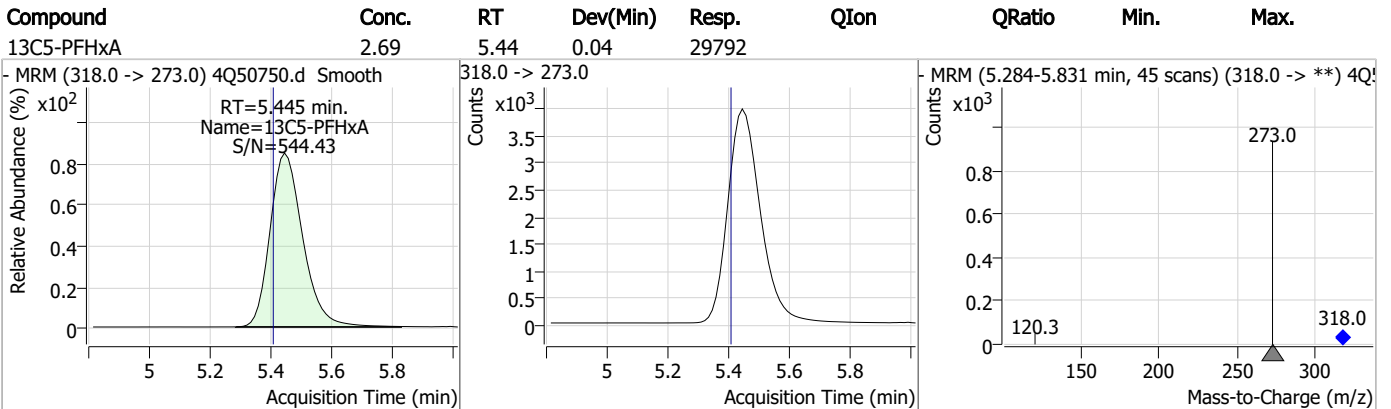
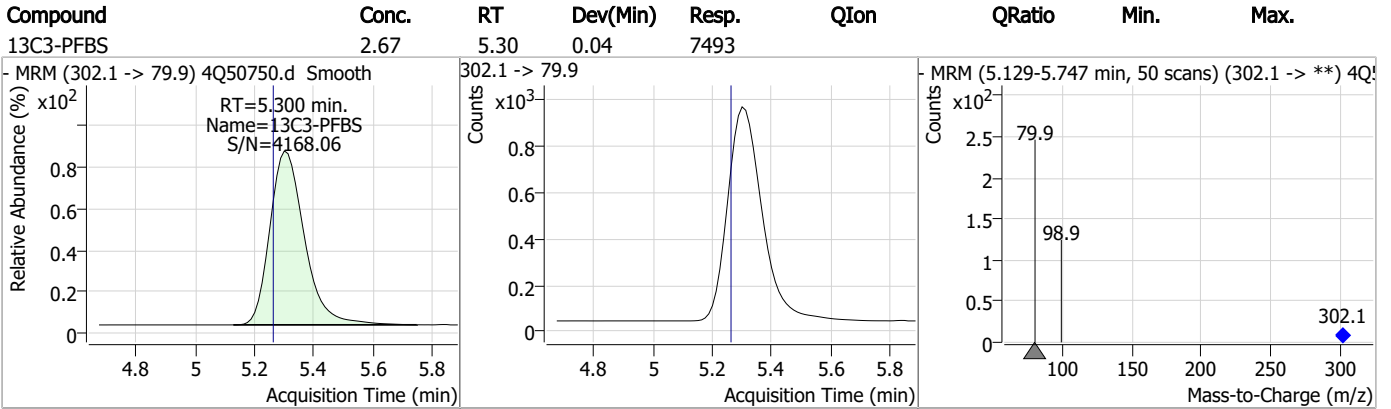
7.1.4
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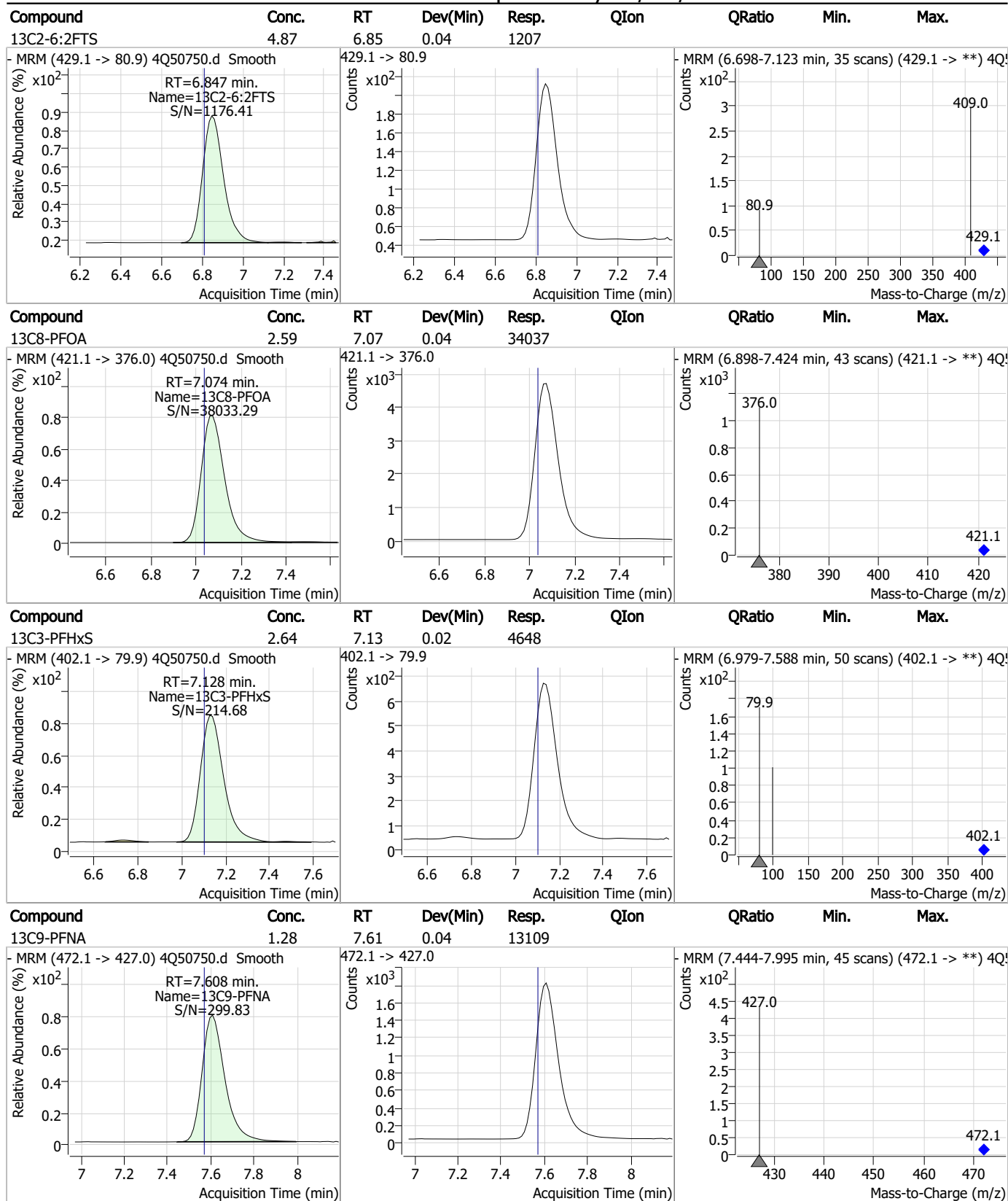
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

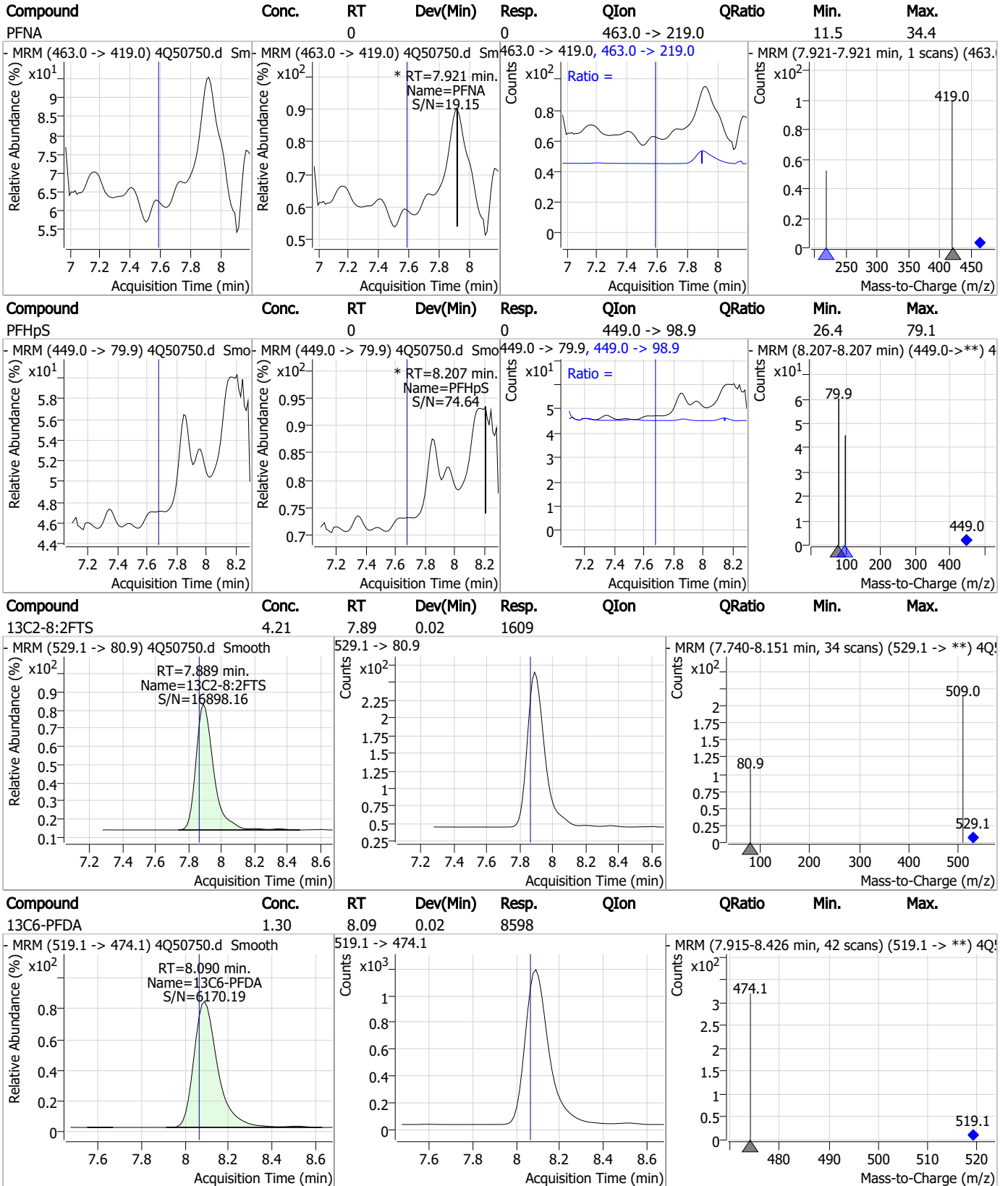


Perfluorinated Compounds by LC/MS/MS

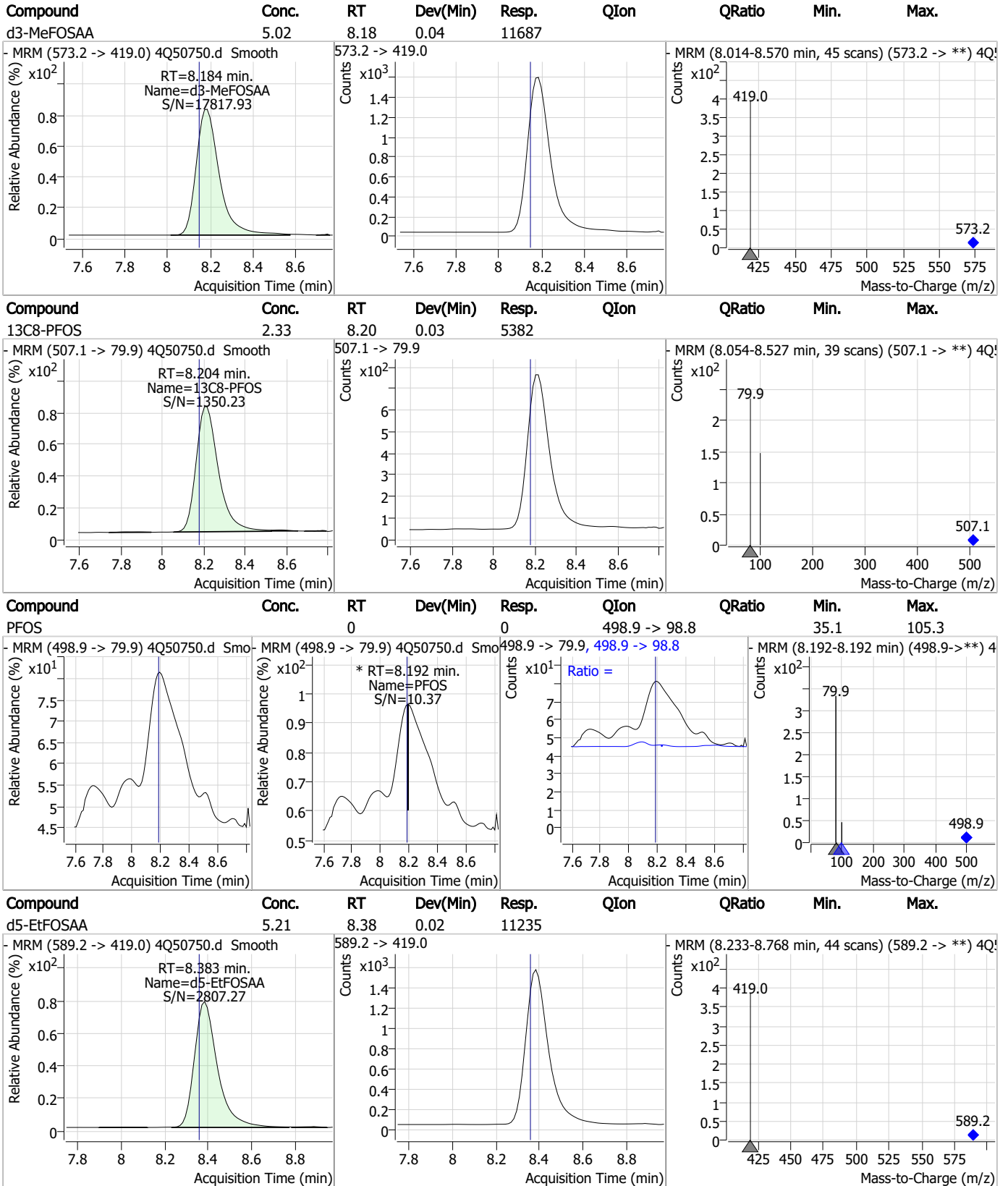


7.1.4
7

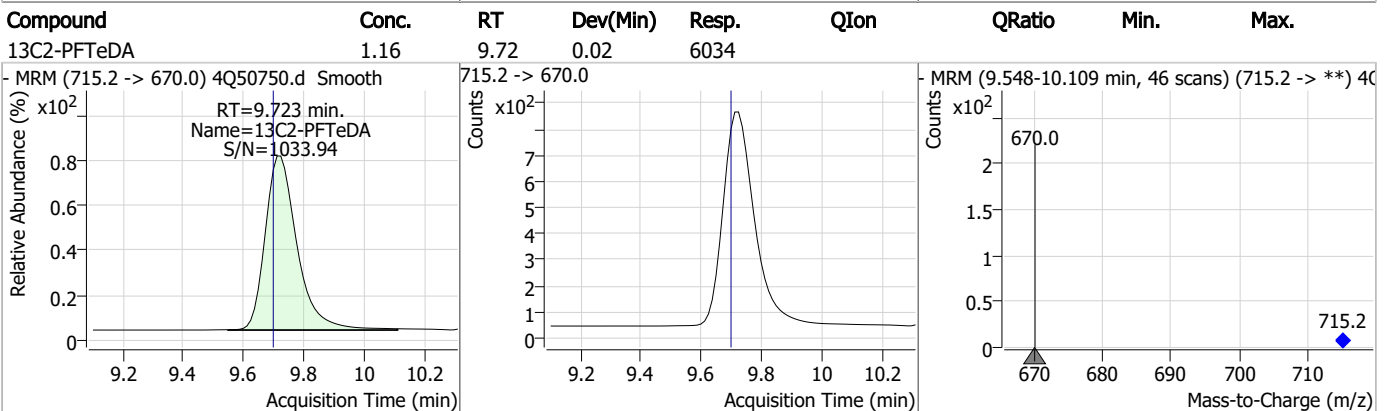
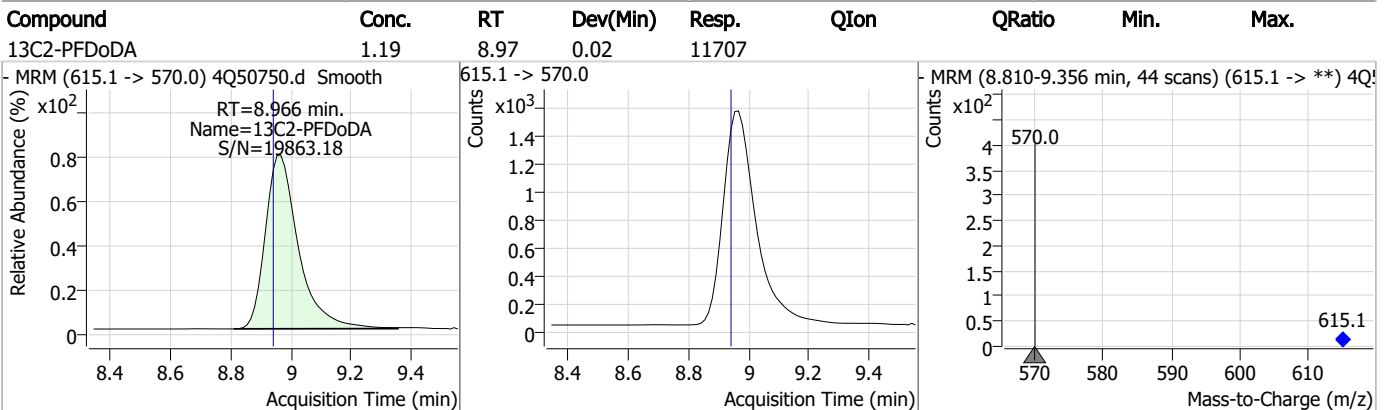
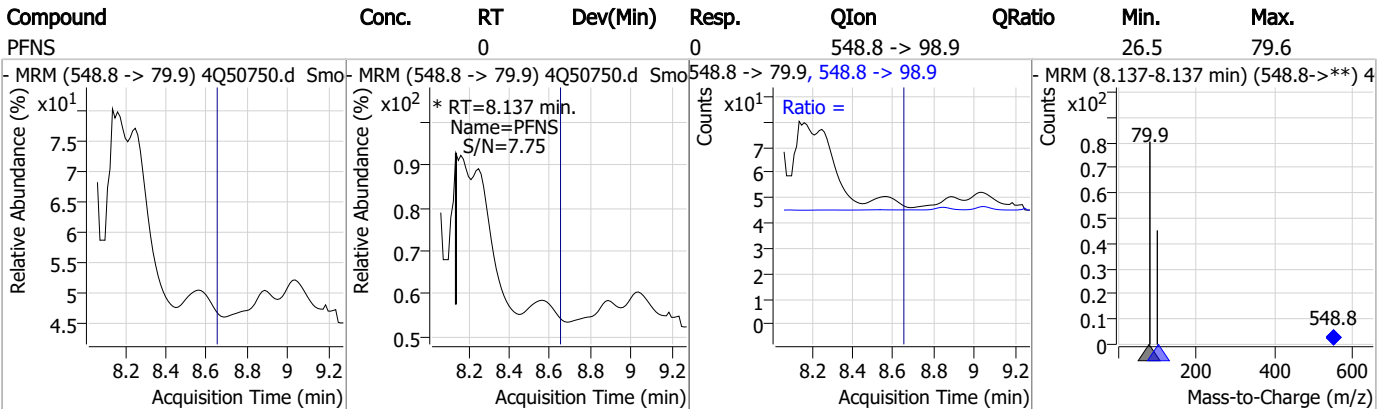
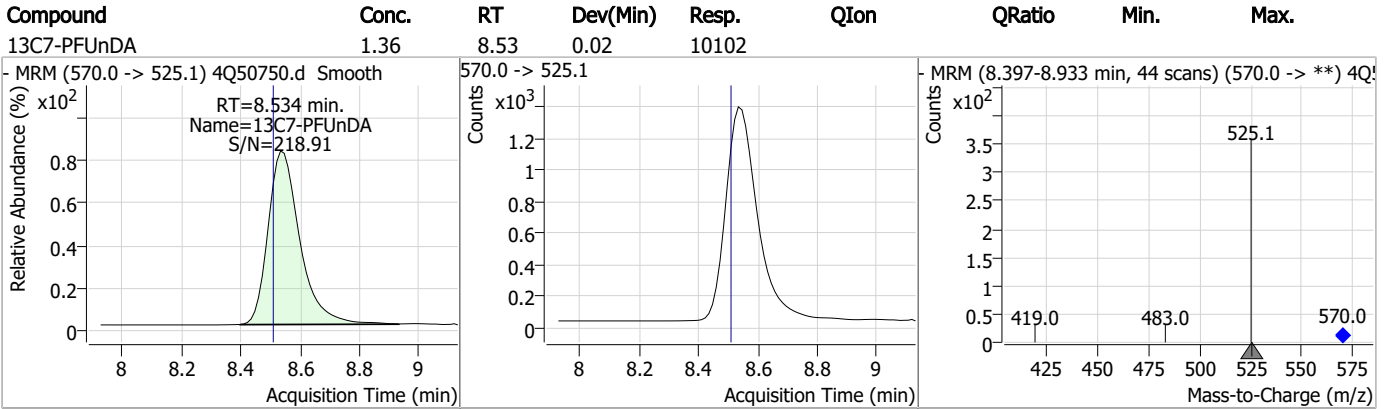
Perfluorinated Compounds by LC/MS/MS



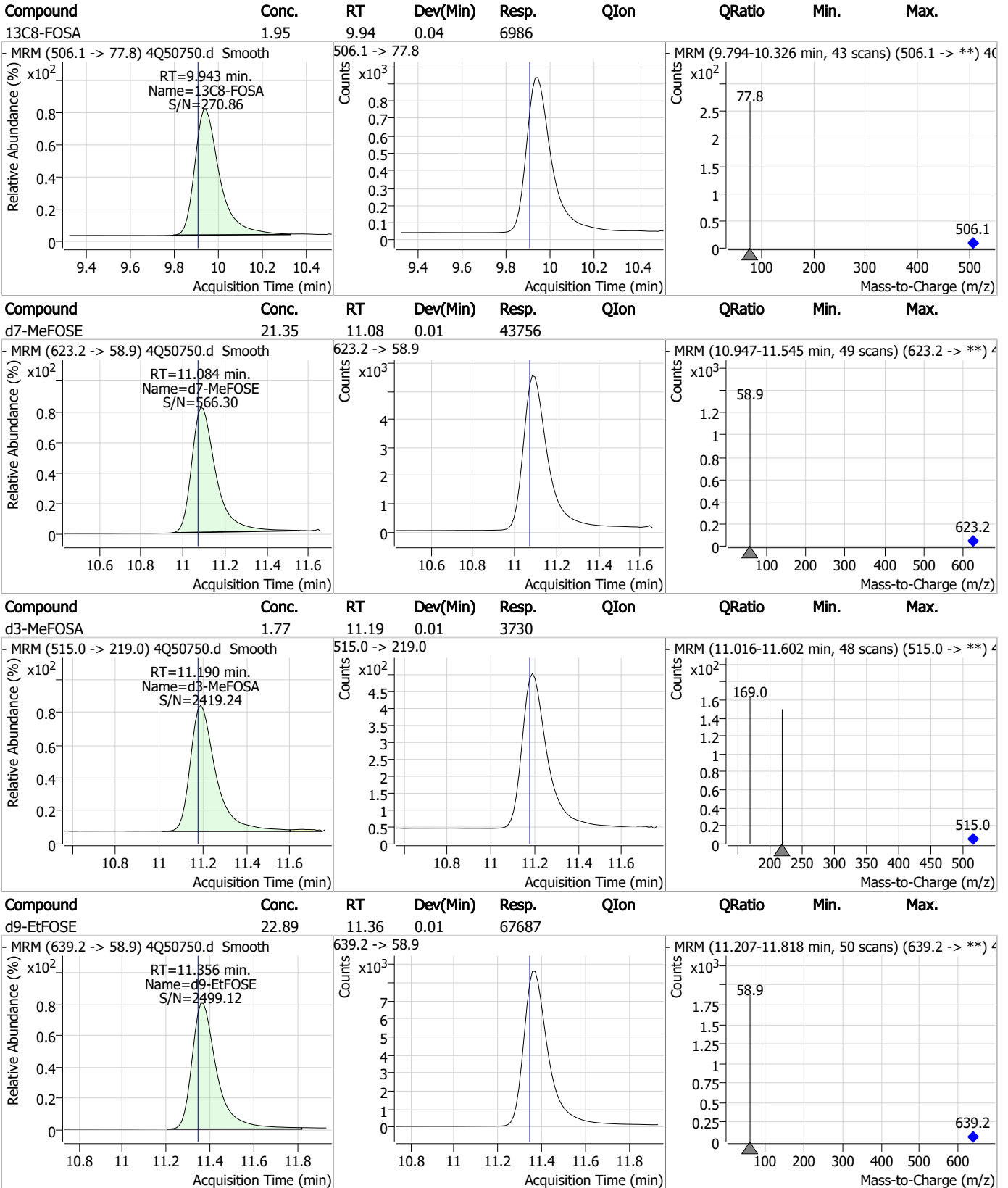
Perfluorinated Compounds by LC/MS/MS



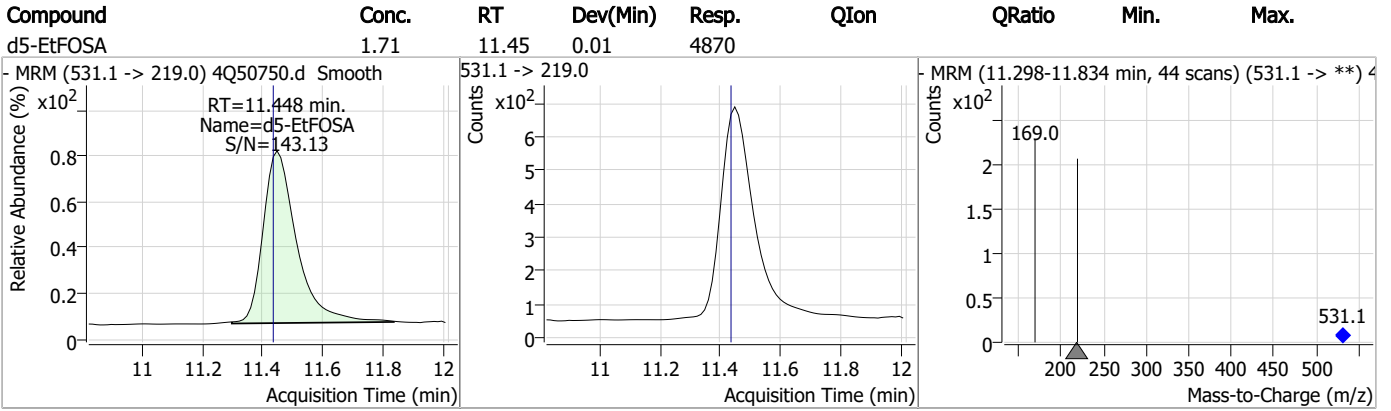
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24607.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 2:50:51 PM
 Sample Name : FC9496-4
 Vial : P4-D1
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP99007,S6Q353,520,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	7516	10.00 µg/L	0.041
M5-PFPeA	4.434	268.3 -> 223.0	8149	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	60574	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	59791	2.50 µg/L	0.012
M8-PFOA	7.198	421.1 -> 376.0	83700	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	32386	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	31511	1.25 µg/L	-0.012
M7-PFUnDA	8.651	570.0 -> 525.1	35462	1.25 µg/L	-0.012
M2-PFDoDA	9.080	615.1 -> 570.0	30154	1.25 µg/L	-0.014
M2-PFTeDA	9.784	715.2 -> 670.0	8004	1.25 µg/L	-0.012
M8-FOSA	9.682	506.1 -> 77.8	21547	2.50 µg/L	0.024
M3-PFBS	5.571	302.1 -> 79.9	20791	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	13274	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	11207	2.50 µg/L	-0.012
M2-4:2FTS	5.317	329.1 -> 80.9	4184	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3722	5.00 µg/L	0.012
M2-8:2FTS	7.998	529.1 -> 80.9	3922	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	25532	5.00 µg/L	-0.012
M3-HFPO-DA	6.019	286.9 -> 168.9	30582	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	23638	5.00 µg/L	-0.012
M7-MeFOSE	10.690	623.2 -> 58.9	69688	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	97878	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	8188	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	8104	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	15436	2.50 µg/L	-0.012
13C3-PFBA	3.014	216.0 -> 172.0	67701	5.00 µg/L	0.025
18O2-PFHxS	7.313	403.0 -> 83.9	8344	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	76148	2.50 µg/L	0.012
13C2-PFDA	8.198	515.1 -> 470.1	23339	1.25 µg/L	-0.012
13C5-PFNA	7.729	468.0 -> 423.0	31237	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	45927	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	4184	8.91 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 178.2%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3722	5.40 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3922	5.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.9%		
13C2-PFDoDA	9.080	615.1 -> 570.0	30154	1.20 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C2-PFTeDA	9.784	715.2 -> 670.0	8004	0.86 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 68.8%		
13C3-PFBS	5.571	302.1 -> 79.9	20791	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.8%		
13C3-PFHxS	7.313	402.1 -> 79.9	13274	2.90 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 = 115.8%		
13C4-PFBA	3.025	216.8 -> 171.9	7516	0.44 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 4.4%		
13C4-PFHpA	6.581	367.1 -> 322.0	59791	3.03 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 121.2%		
13C5-PFHxA	5.654	318.0 -> 273.0	60574	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C5-PFPeA	4.434	268.3 -> 223.0	8149	1.32 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 26.3%		
13C6-PFDA	8.198	519.1 -> 474.1	31511	1.55 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 124.0%		
13C7-PFUnDA	8.651	570.0 -> 525.1	35462	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C8-FOSA	9.682	506.1 -> 77.8	21547	1.96 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 78.4%		
13C8-PFOA	7.198	421.1 -> 376.0	83700	2.99 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 119.5%		
13C8-PFOS	8.348	507.1 -> 79.9	11207	2.30 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.2%		
13C9-PFNA	7.729	472.1 -> 427.0	32386	1.66 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 132.7%		
d3-MeFOSAA	8.244	573.2 -> 419.0	25532	5.92 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.3%		
13C3-HFPO-DA	6.019	286.9 -> 168.9	30582	8.74 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 87.4%		
d3-MeFOSA	10.769	515.0 -> 219.0	8104	1.82 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 72.8%		
d5-EtFOSAA	8.452	589.2 -> 419.0	23638	5.69 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.9%		
d7-MeFOSE	10.690	623.2 -> 58.9	69688	17.17 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 68.7%		
d9-EtFOSE	10.923	639.2 -> 58.9	97878	17.92 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 71.7%		
d5-EtFOSA	10.989	531.1 -> 219.0	8188	1.97 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 78.9%		

Target Compounds

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	9.208	599.0 -> 79.9	0	µg/L m	1

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	0			
PFHpA	-	363.1 -> 319.0	-	N.D.		
		363.1 -> 169.0				
PFHpS	7.856	449.0 -> 79.9	0	µg/L	m	1
		449.0 -> 98.9				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 118.9				
PFHxS	7.836	398.7 -> 79.9	0	µg/L	m	1
		398.7 -> 98.9	0			
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFNS	8.900	548.8 -> 79.9	0	µg/L	m	1
		548.8 -> 98.9				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	8.312	498.9 -> 79.9	0	µg/L	m	1
		498.9 -> 98.8	0			
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
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.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.1.5

7

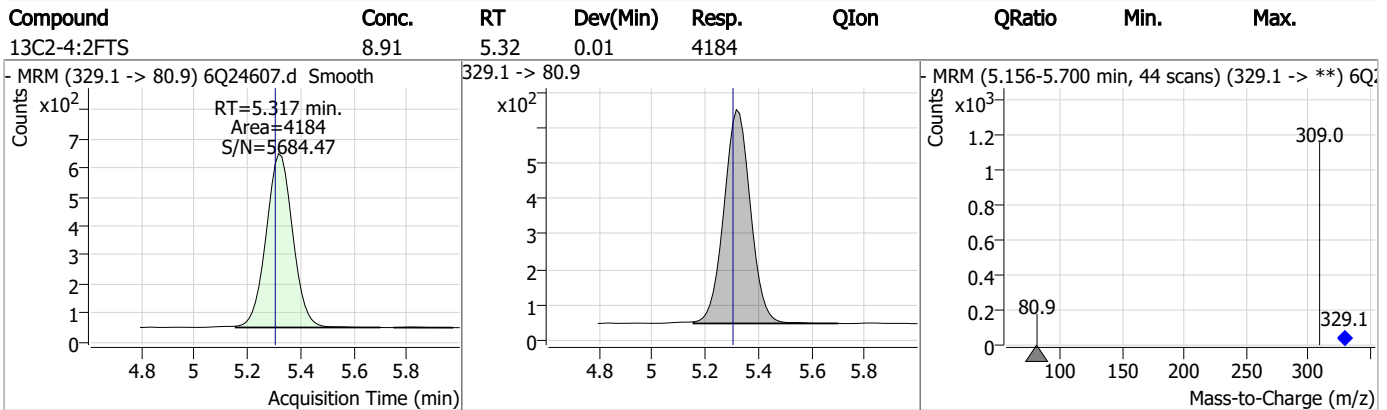
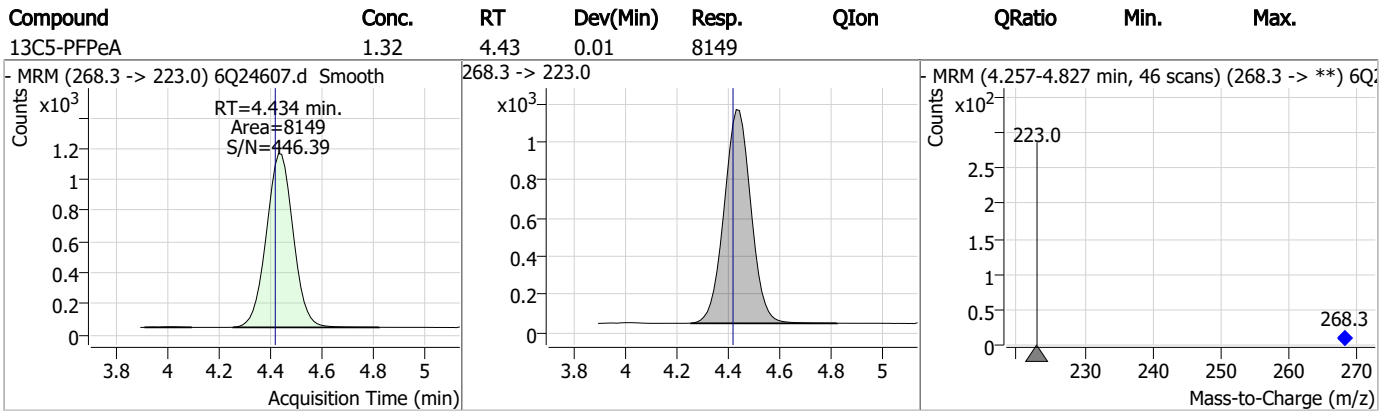
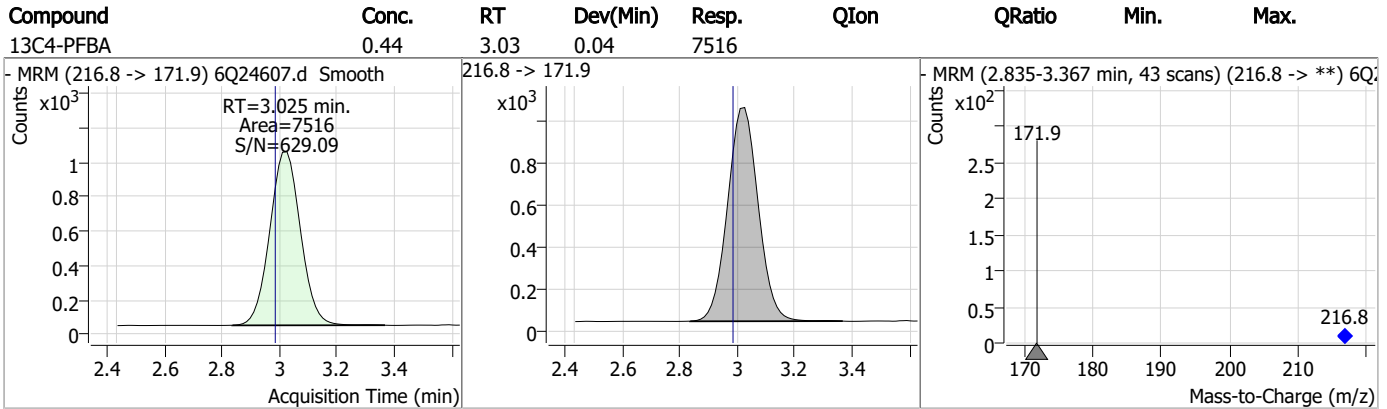
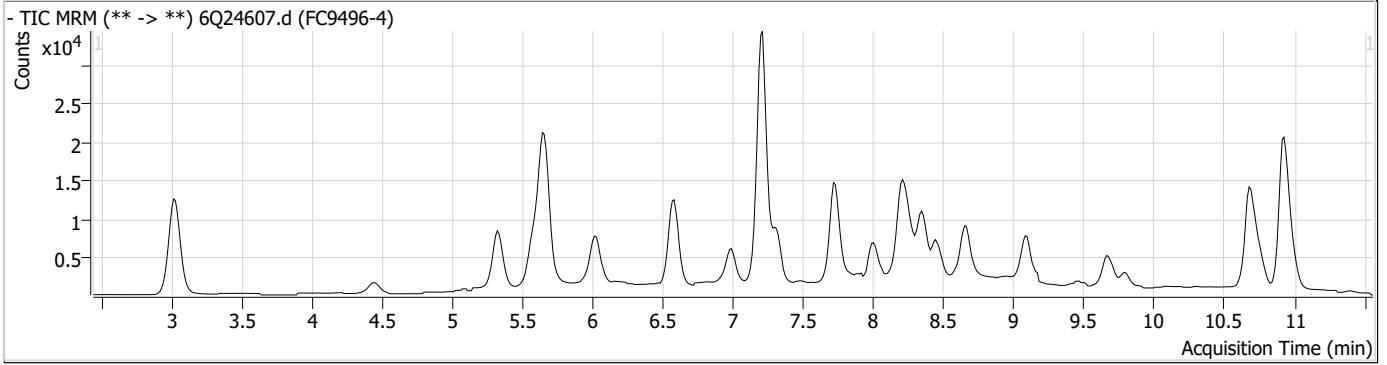
Perfluorinated Compounds by LC/MS/MS

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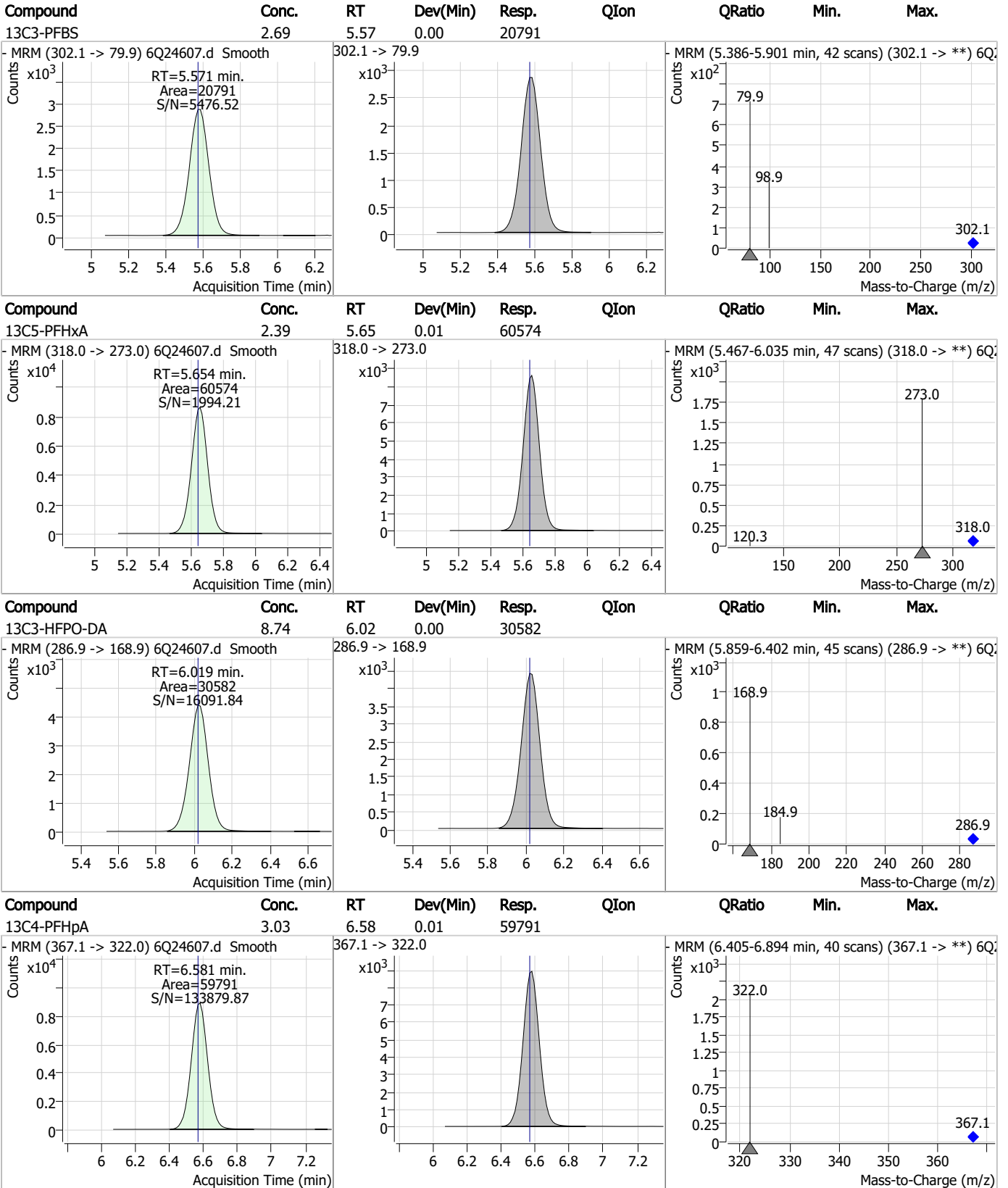
7.1.5
7



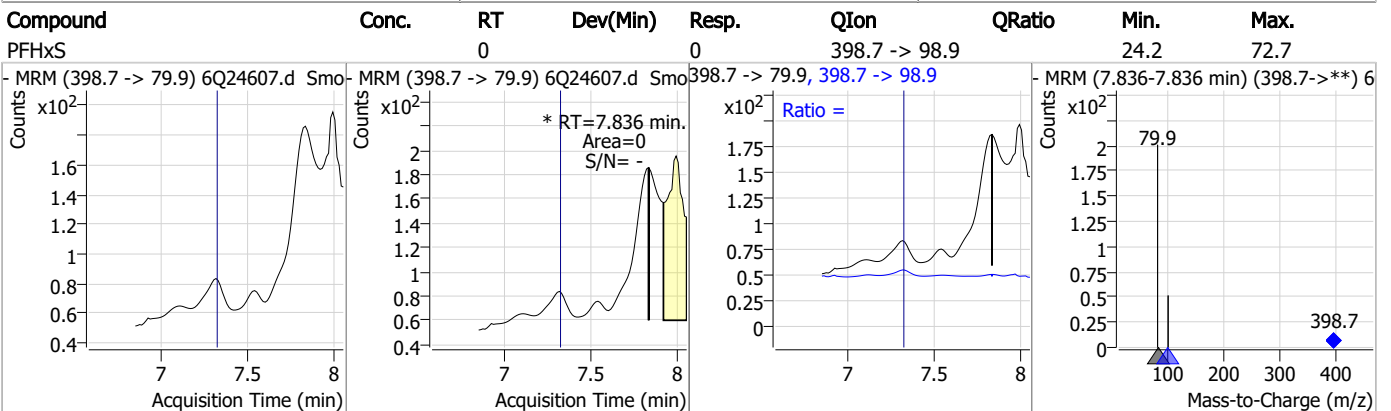
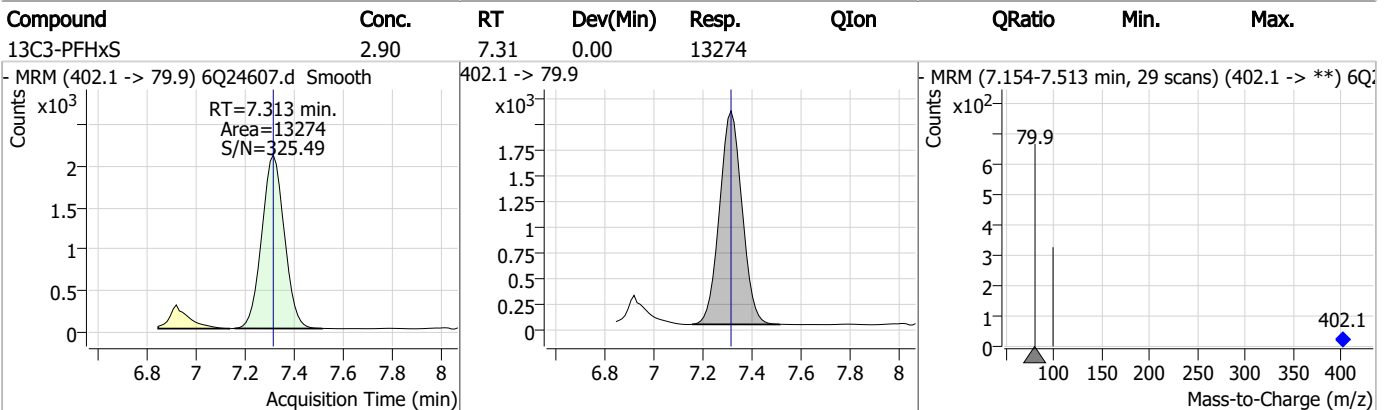
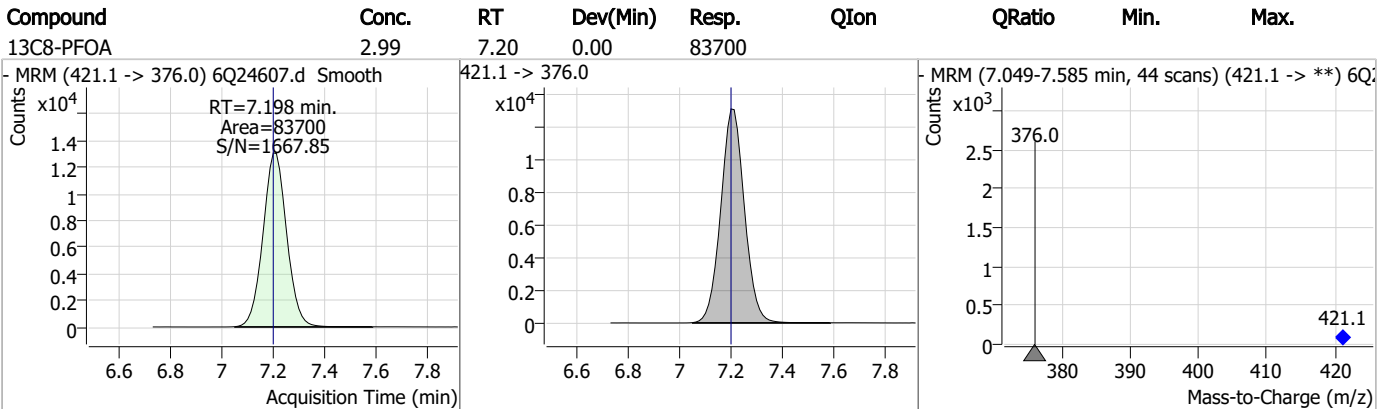
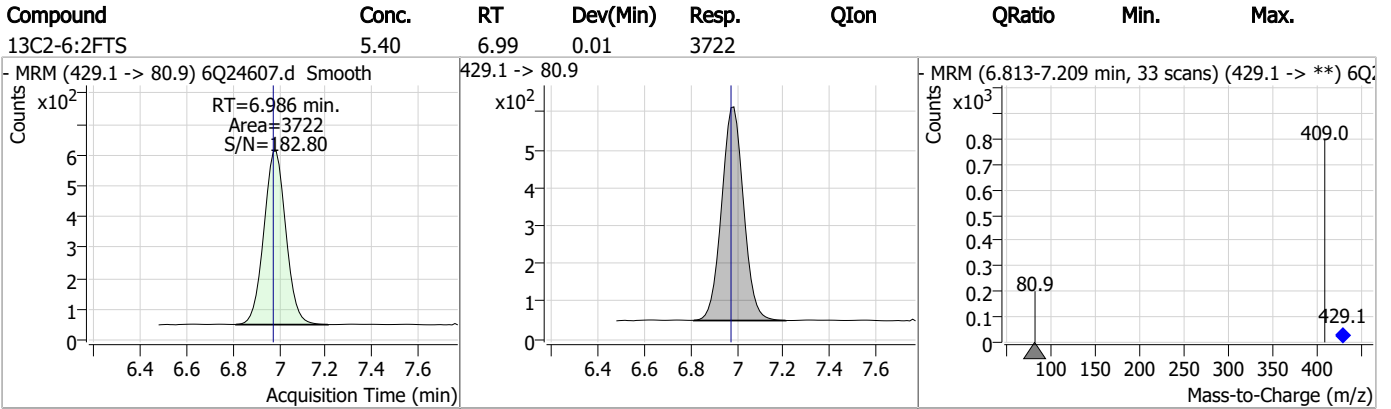
Perfluorinated Compounds by LC/MS/MS



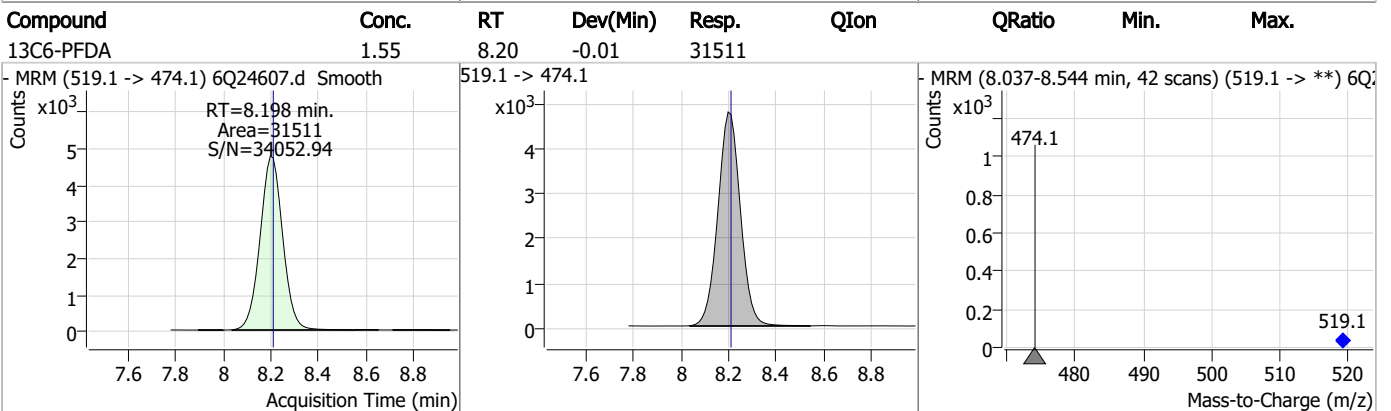
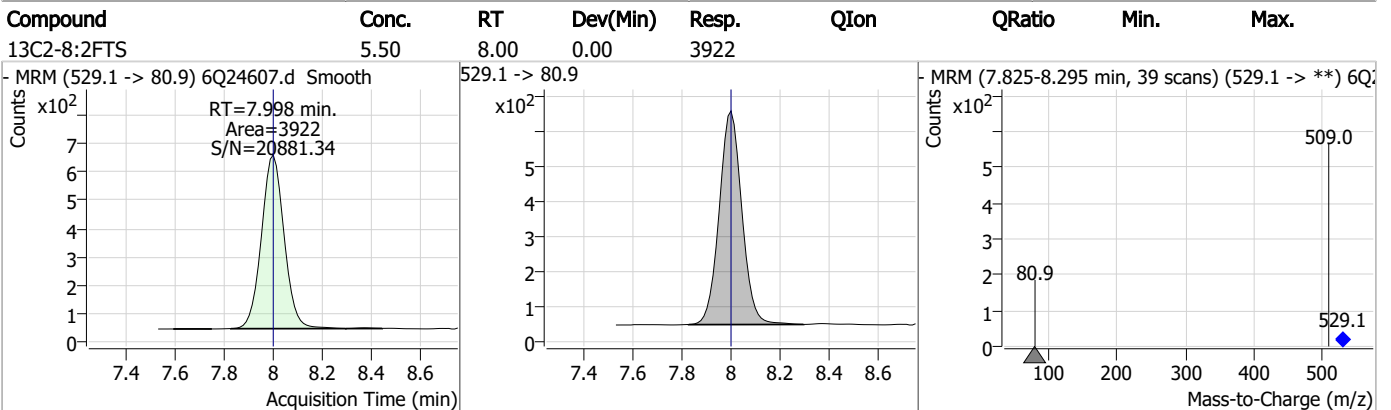
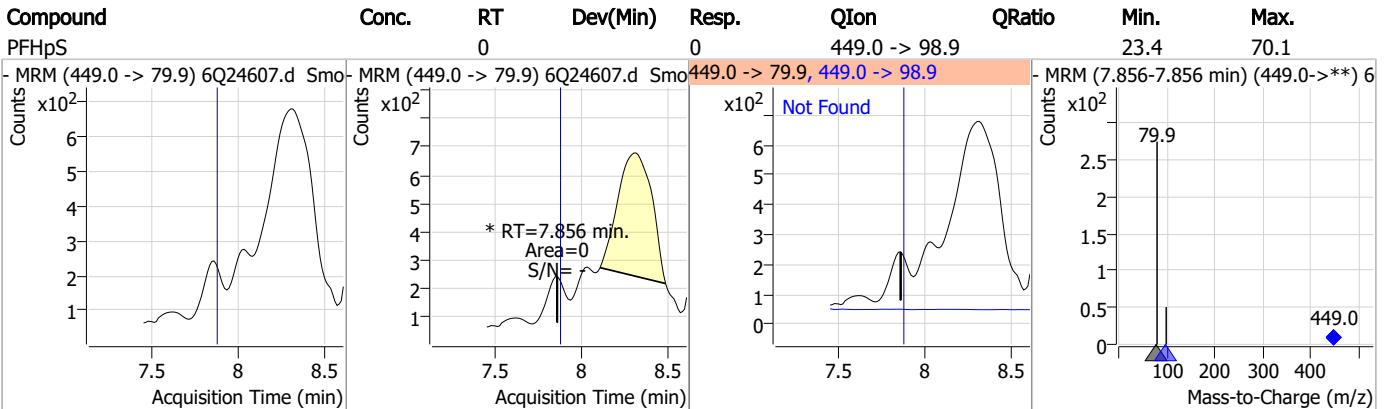
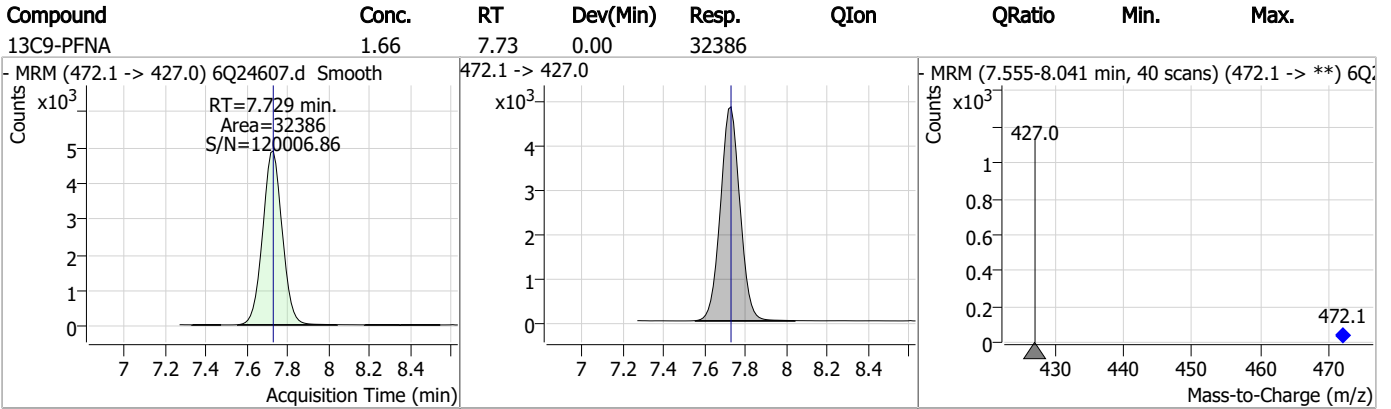
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



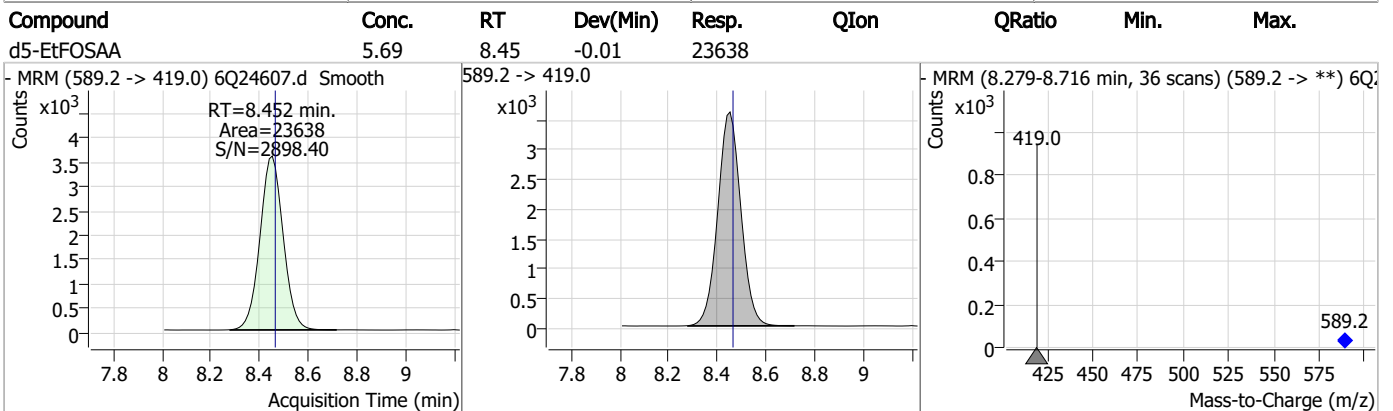
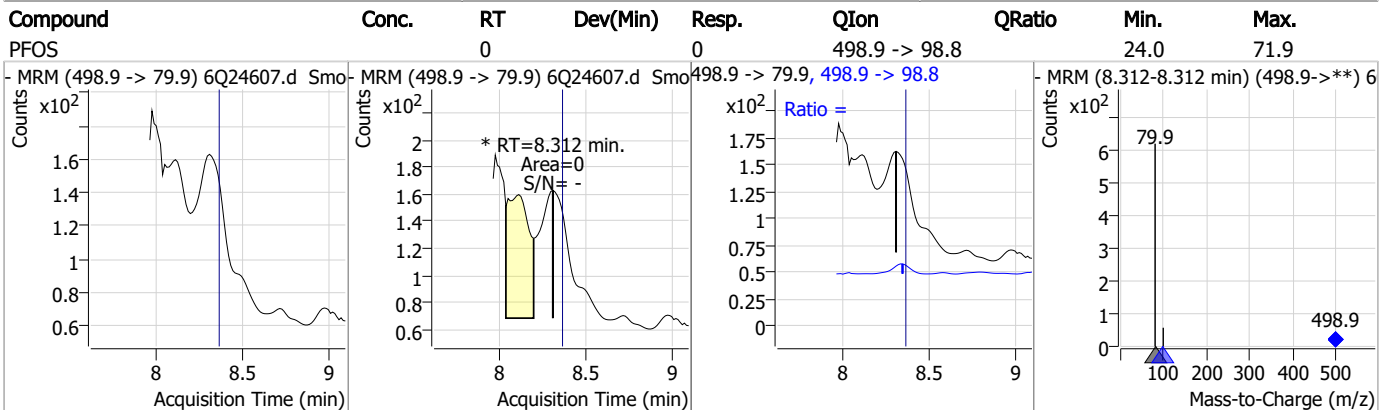
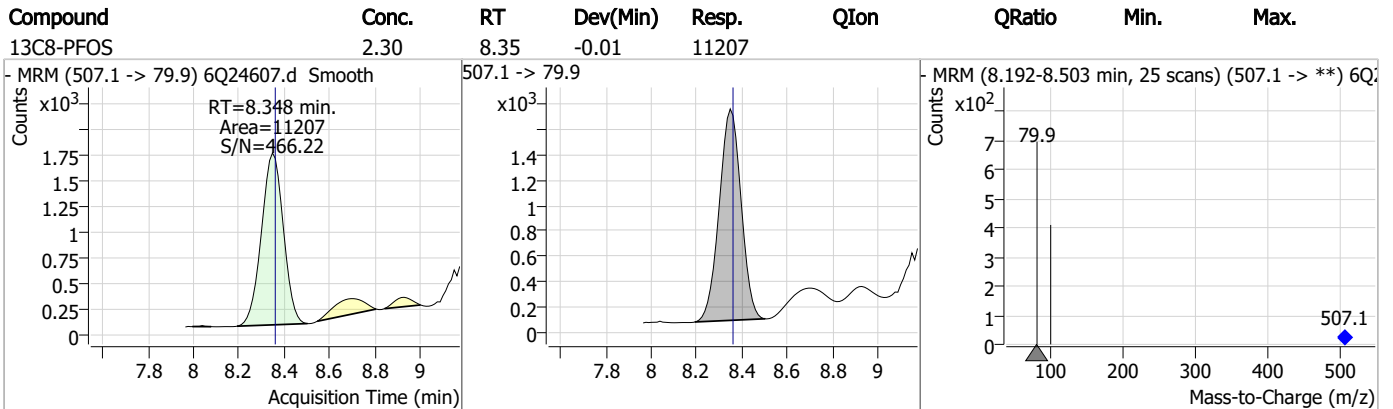
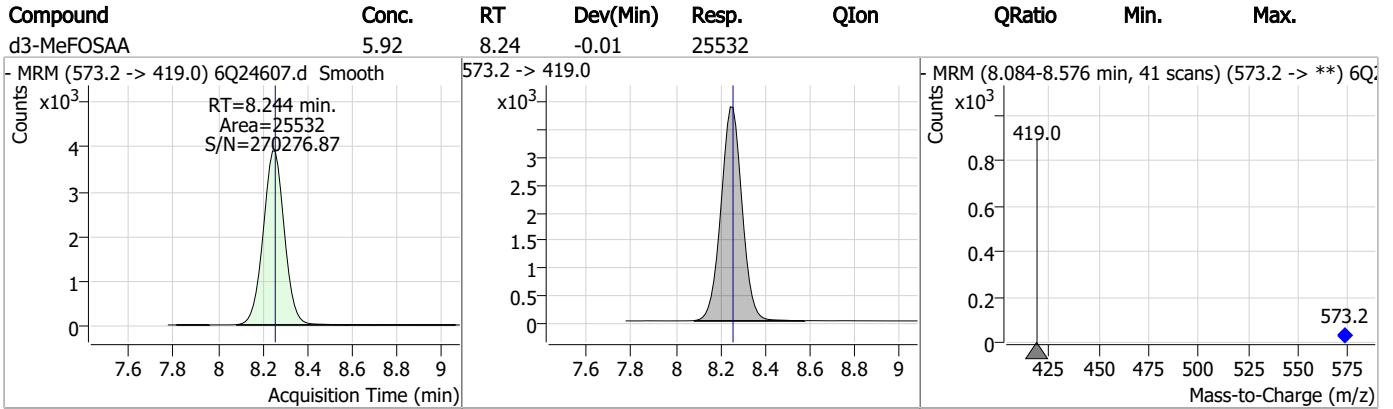
Perfluorinated Compounds by LC/MS/MS



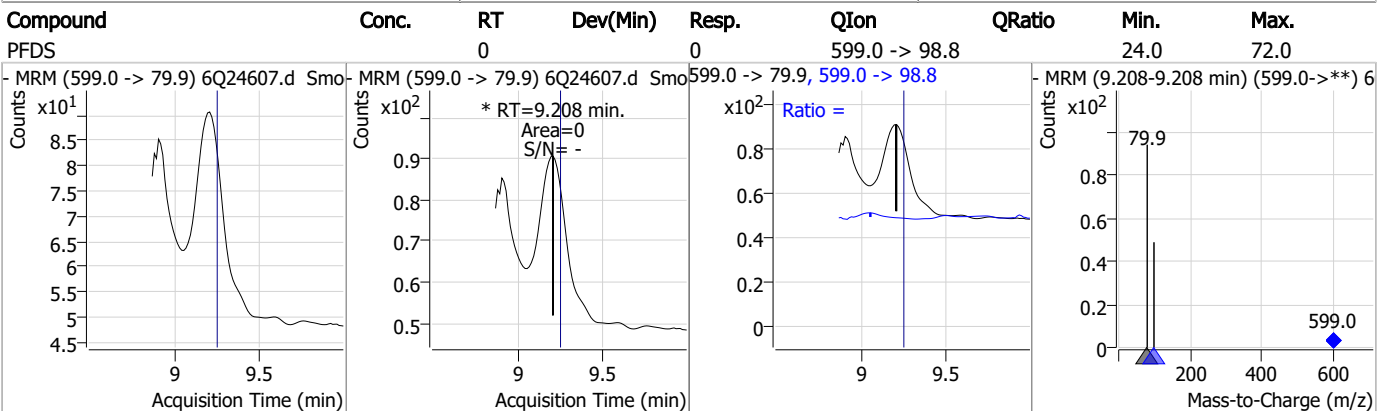
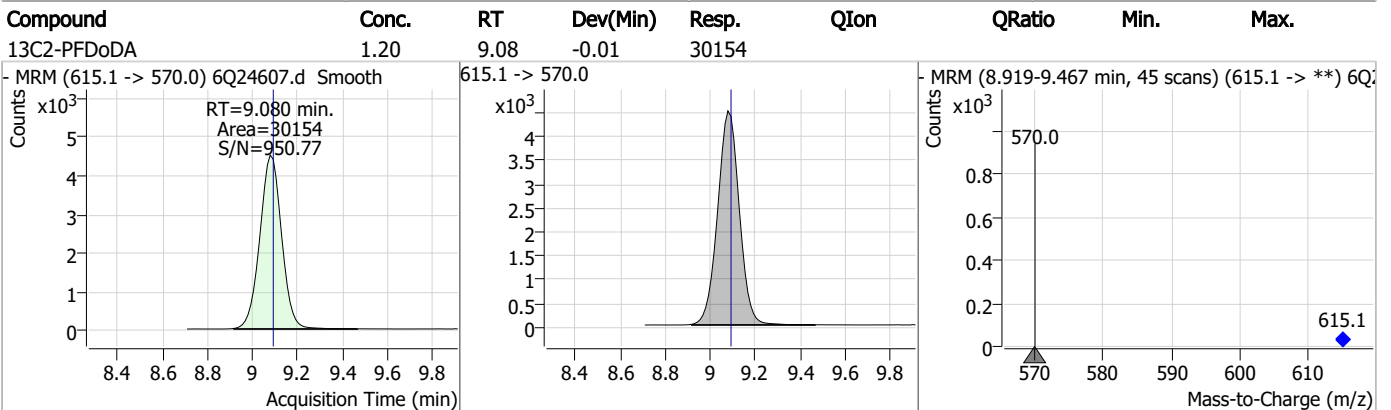
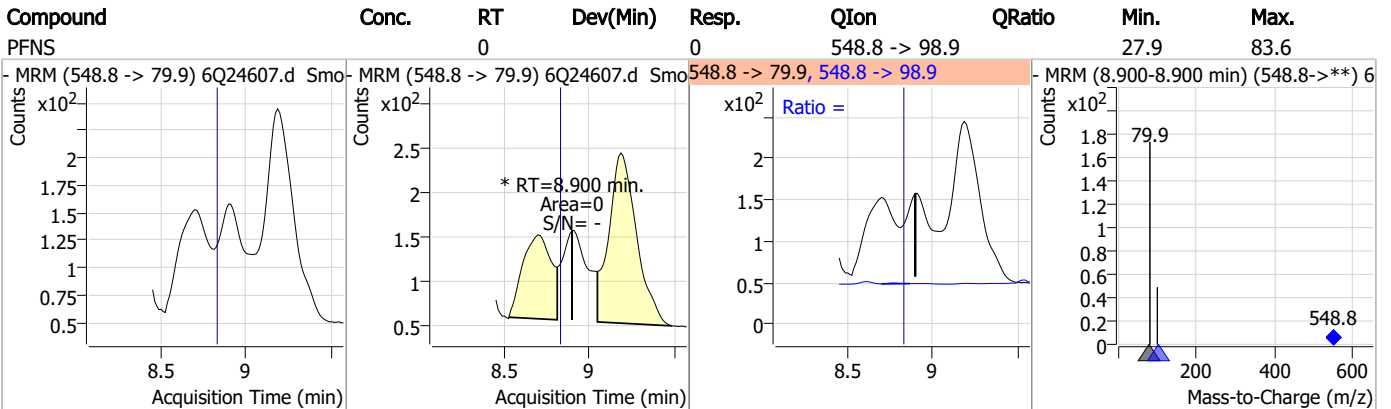
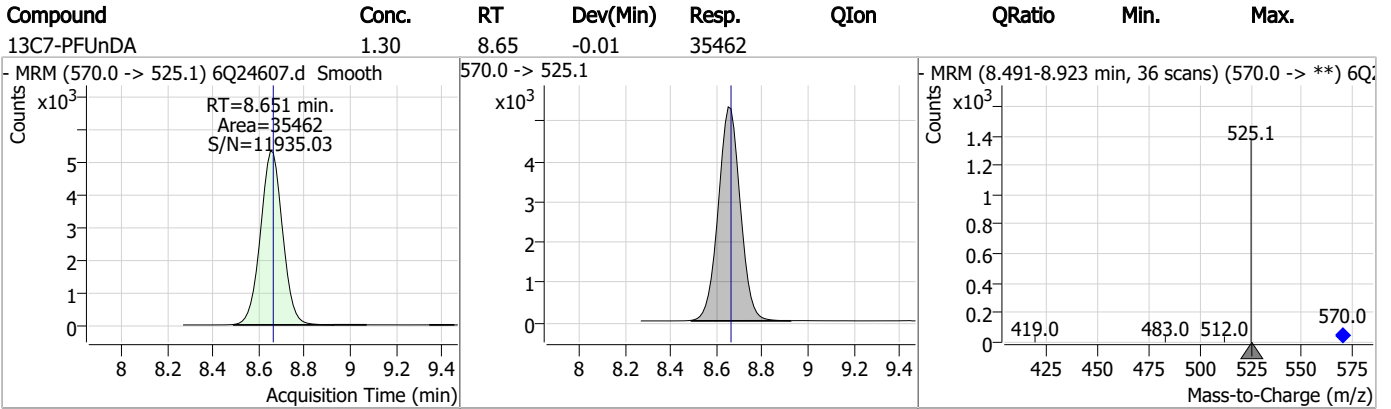
7.1.5

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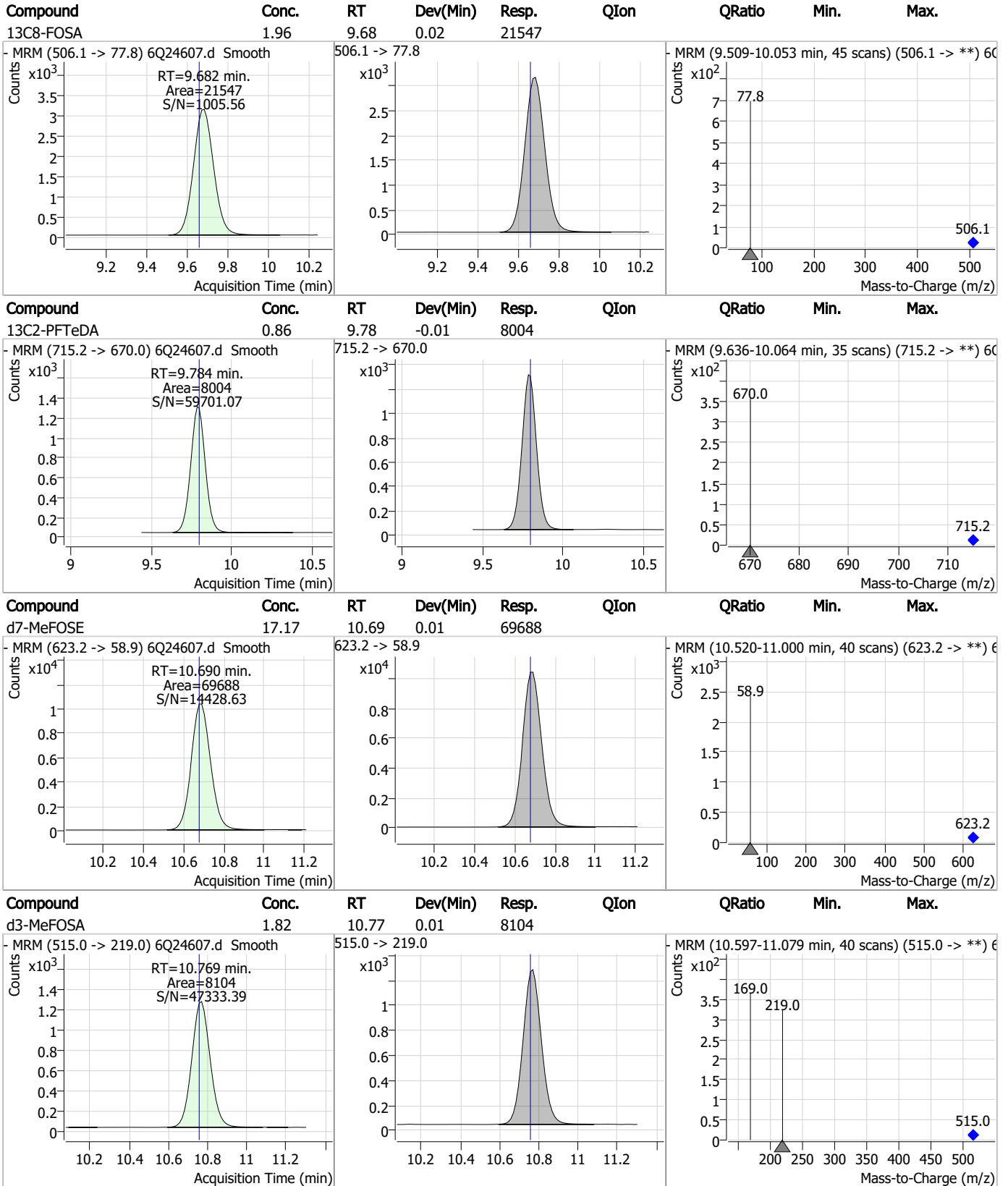
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

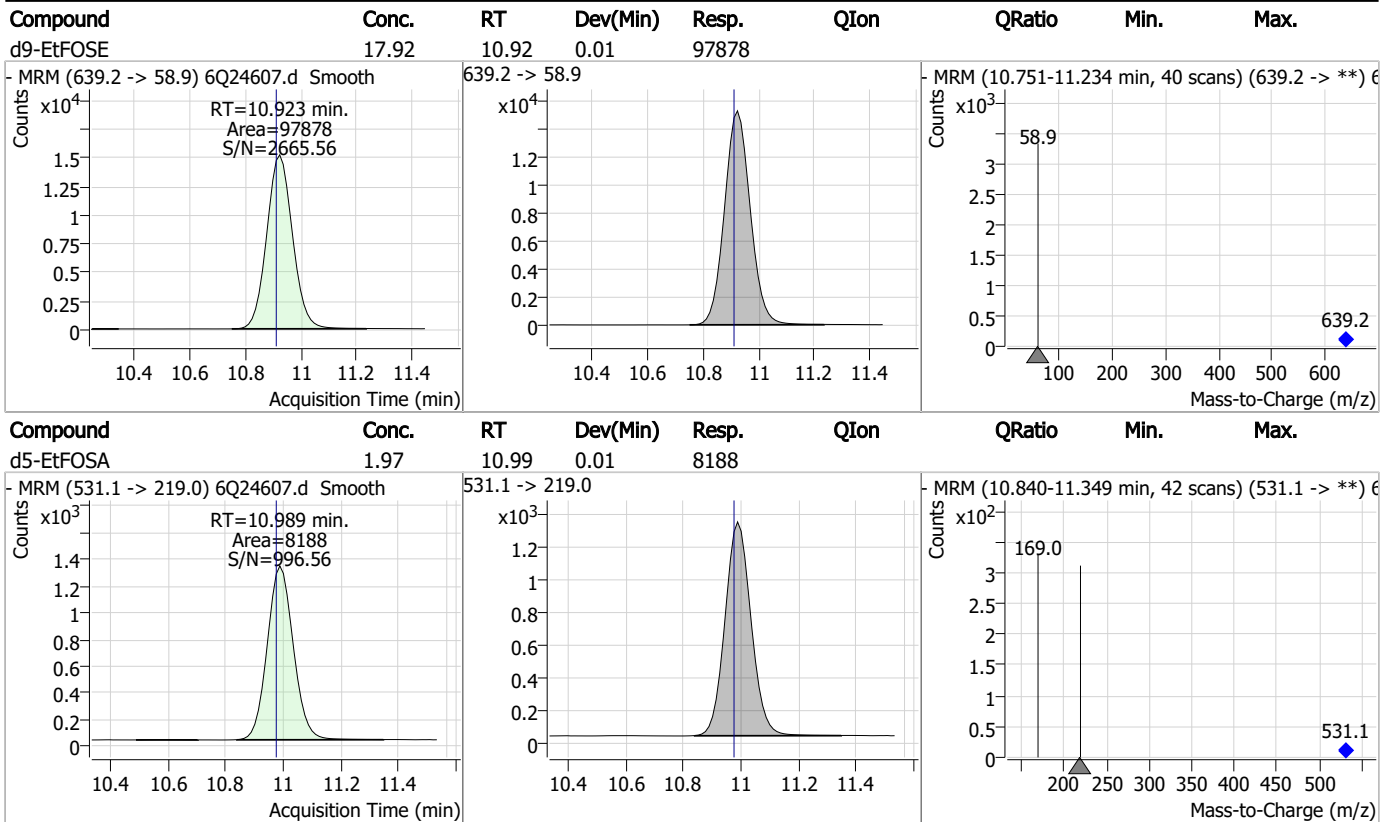


7.1.5

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Perfluorinated Compounds by LC/MS/MS



7.1.5

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24608.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 3:05:11 PM
 Sample Name : FC9496-5
 Vial : P4-D2
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP99007,S6Q353,570,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	192265	10.00 µg/L	0.041
M5-PFPeA	4.447	268.3 -> 223.0	30031	5.00 µg/L	0.025
M5-PFHxA	5.654	318.0 -> 273.0	65120	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	56754	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	73111	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	28263	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	28139	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	31777	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	27368	1.25 µg/L	-0.014
M2-PFTeDA	9.784	715.2 -> 670.0	8613	1.25 µg/L	-0.012
M8-FOSA	9.682	506.1 -> 77.8	19502	2.50 µg/L	0.024
M3-PFBS	5.584	302.1 -> 79.9	22614	2.50 µg/L	0.012
M3-PFHxS	7.313	402.1 -> 79.9	11782	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	10526	2.50 µg/L	0.000
M2-4:2FTS	5.329	329.1 -> 80.9	2543	5.00 µg/L	0.025
M2-6:2FTS	6.986	429.1 -> 80.9	3547	5.00 µg/L	0.012
M2-8:2FTS	7.998	529.1 -> 80.9	3366	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	18635	5.00 µg/L	0.000
M3-HFPO-DA	6.031	286.9 -> 168.9	38605	10.00 µg/L	0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	15752	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	69414	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	92863	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	7669	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	7462	2.50 µg/L	0.012
13C4-PFOS	8.361	502.8 -> 79.9	13744	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	67112	5.00 µg/L	0.025
18O2-PFHxS	7.313	403.0 -> 83.9	7855	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	71665	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	21980	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	30946	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	45754	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.329	329.1 -> 80.9	2543	5.75 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.1%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3547	5.47 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.4%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3366	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C2-PFDoDA	9.080	615.1 -> 570.0	27368	1.16 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C2-PFTeDA	9.784	715.2 -> 670.0	8613	0.98 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.6%		
13C3-PFBS	5.584	302.1 -> 79.9	22614	3.11 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 124.5%		
13C3-PFHxS	7.313	402.1 -> 79.9	11782	2.73 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 = 109.2%	
13C4-PFBA	3.025	216.8 -> 171.9	192265	11.34 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.4%	
13C4-PFHpA	6.581	367.1 -> 322.0	56754	2.89 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.5%	
13C5-PFHxA	5.654	318.0 -> 273.0	65120	2.58 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C5-PFPeA	4.447	268.3 -> 223.0	30031	4.87 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C6-PFDA	8.210	519.1 -> 474.1	28139	1.47 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 117.6%	
13C7-PFUnDA	8.663	570.0 -> 525.1	31777	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C8-FOSA	9.682	506.1 -> 77.8	19502	99.1 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 79.7%	
13C8-PFOA	7.211	421.1 -> 376.0	73111	2.77 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.9%	
13C8-PFOS	8.361	507.1 -> 79.9	10526	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C9-PFNA	7.729	472.1 -> 427.0	28263	1.46 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 116.9%	
d3-MeFOSAA	8.256	573.2 -> 419.0	18635	4.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	38605	11.08 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.8%	
d3-MeFOSA	10.769	515.0 -> 219.0	7462	1.88 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.3%	
d5-EtFOSAA	8.464	589.2 -> 419.0	15752	4.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 85.2%	
d7-MeFOSE	10.678	623.2 -> 58.9	69414	19.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.8%	
d9-EtFOSE	10.923	639.2 -> 58.9	92863	19.10 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.4%	
d5-EtFOSA	10.989	531.1 -> 219.0	7669	2.07 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.0%	

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



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.809	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

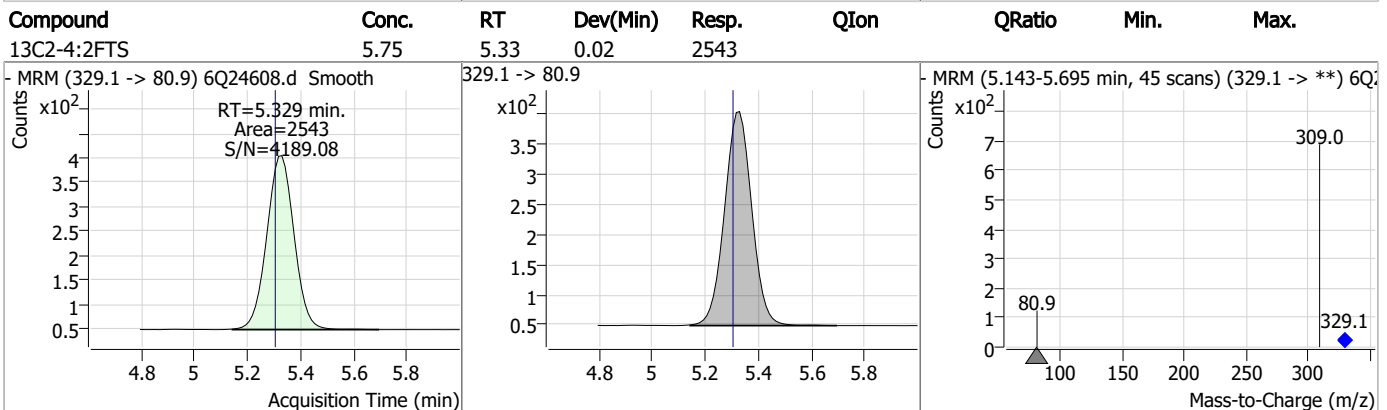
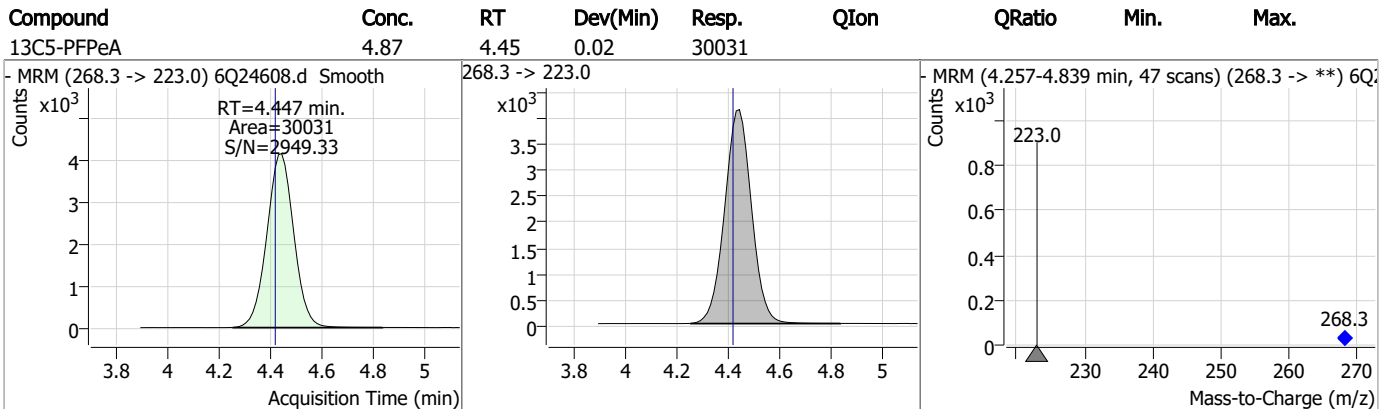
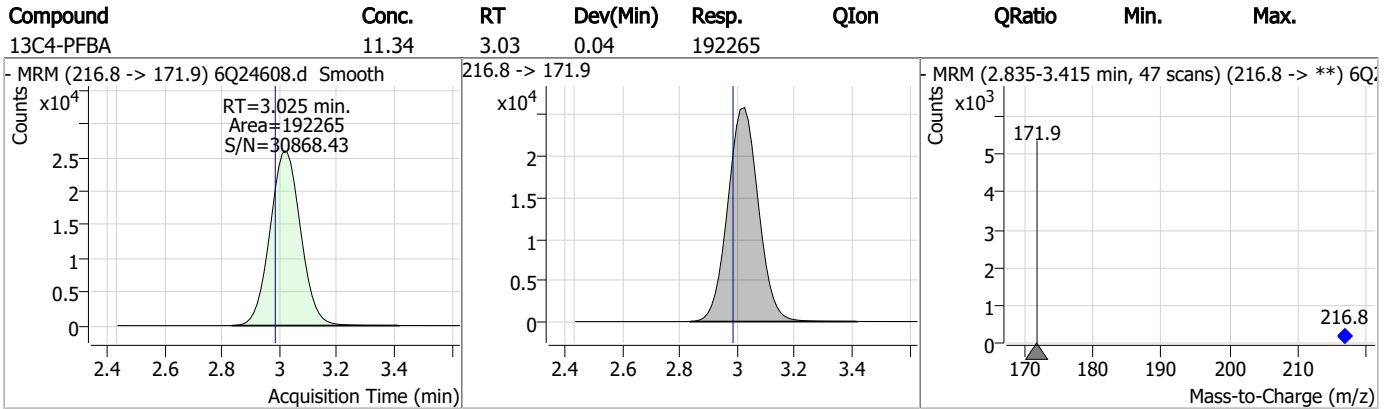
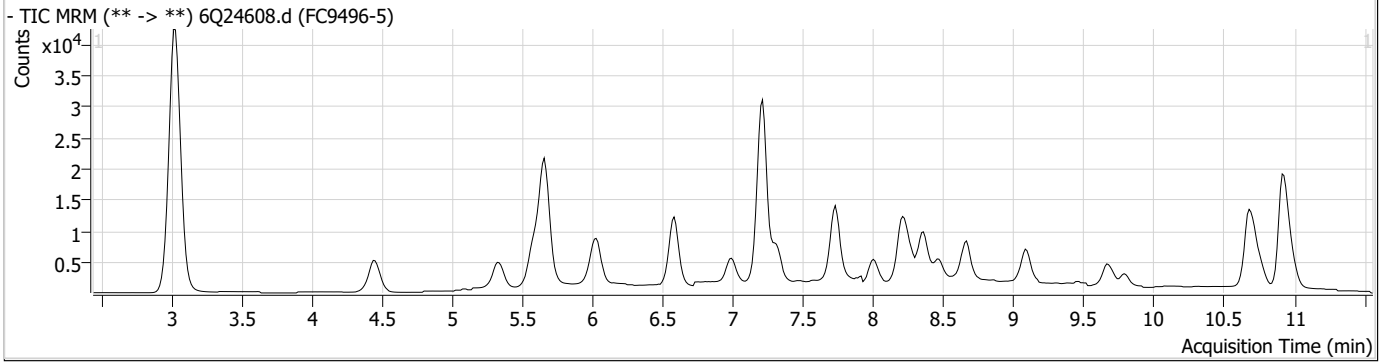
Perfluorinated Compounds by LC/MS/MS

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

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Perfluorinated Compounds by LC/MS/MS



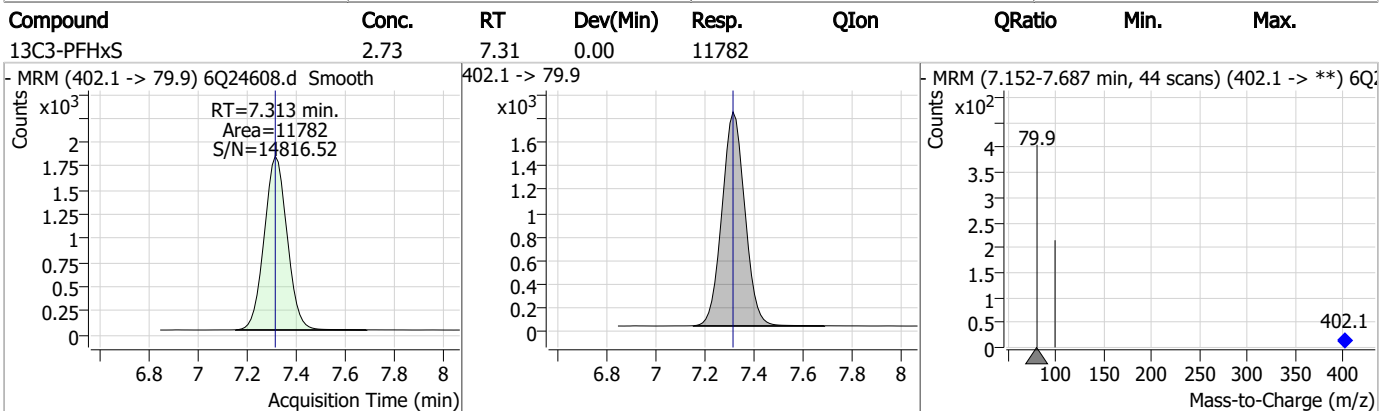
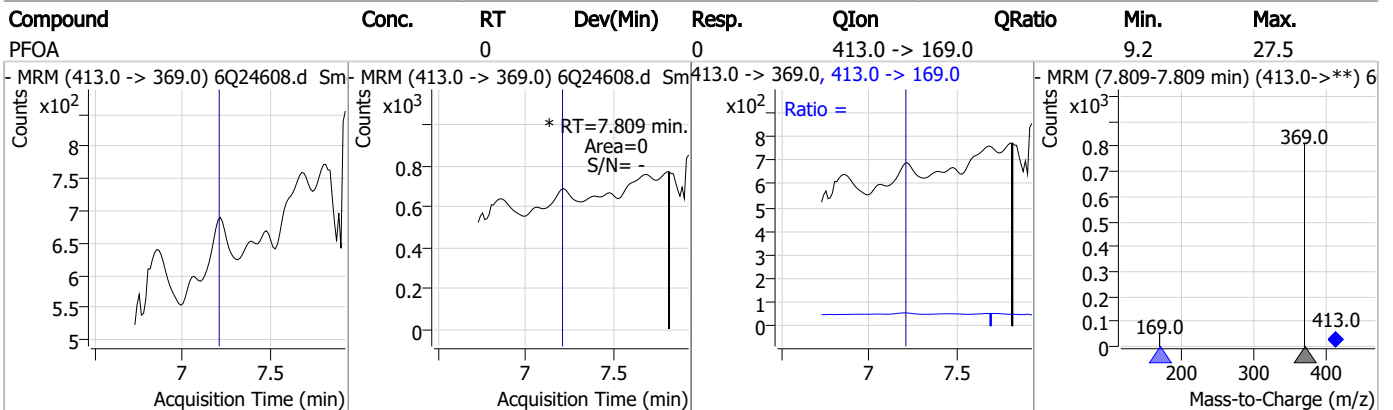
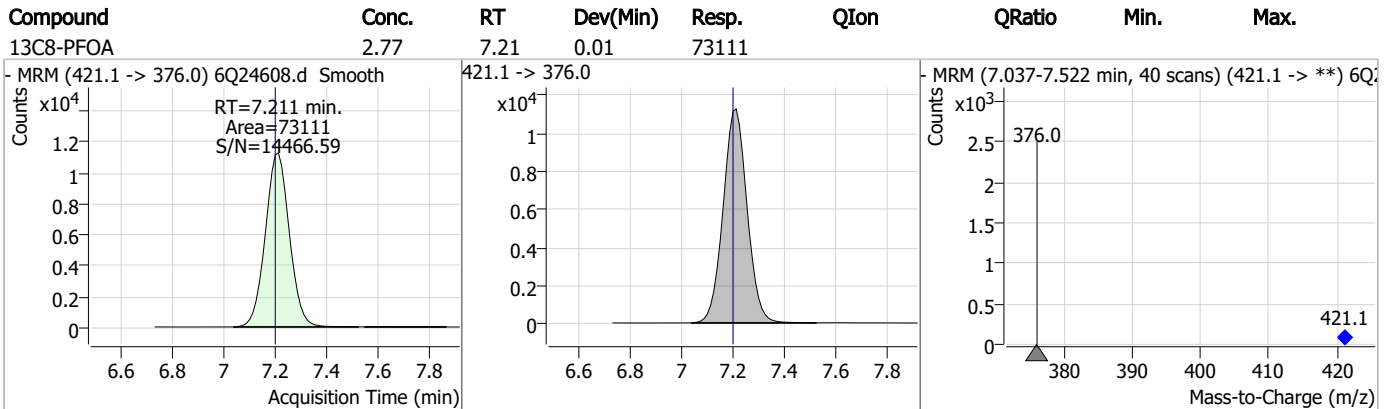
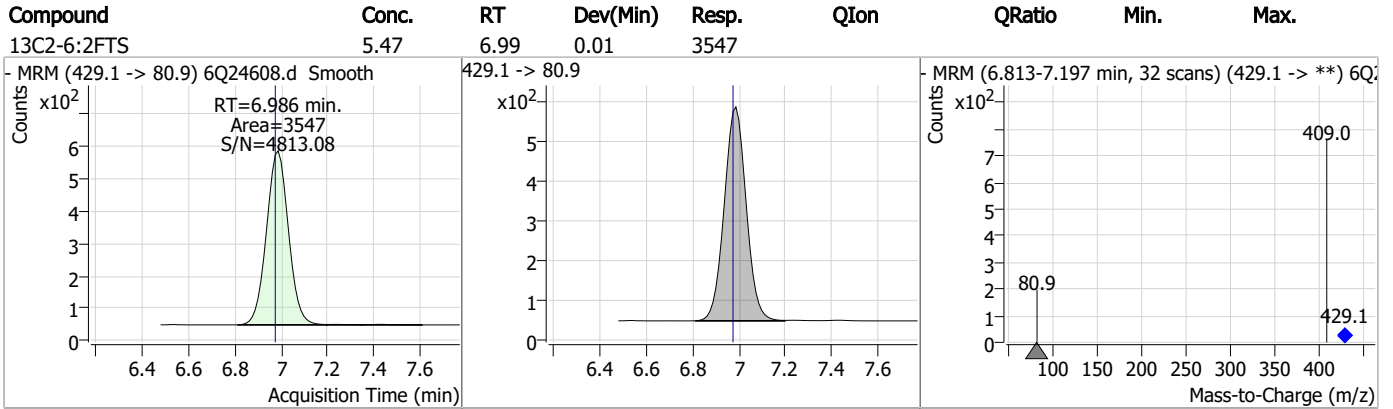
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	3.11	5.58	0.01	22614				
13C5-PFHxA	2.58	5.65	0.01	65120				
13C3-HFPO-DA	11.08	6.03	0.01	38605				
13C4-PFHpA	2.89	6.58	0.01	56754				

7.1.6

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Perfluorinated Compounds by LC/MS/MS



7.1.6

7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.46	7.73	0.00	28263				
13C2-8:2FTS	5.01	8.00	0.00	3366				
13C6-PFDA	1.47	8.21	0.00	28139				
d3-MeFOSAA	4.85	8.26	0.00	18635				

7.1.6

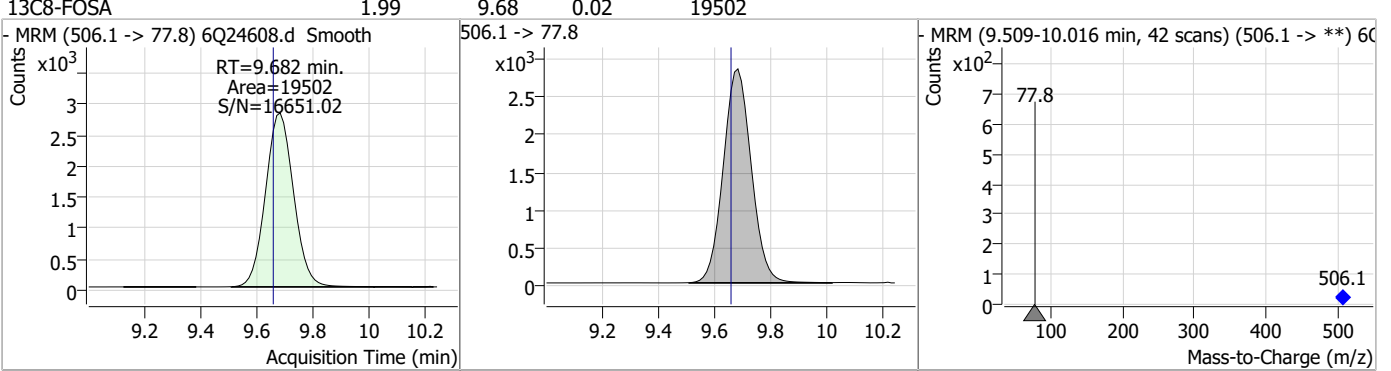
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Perfluorinated Compounds by LC/MS/MS

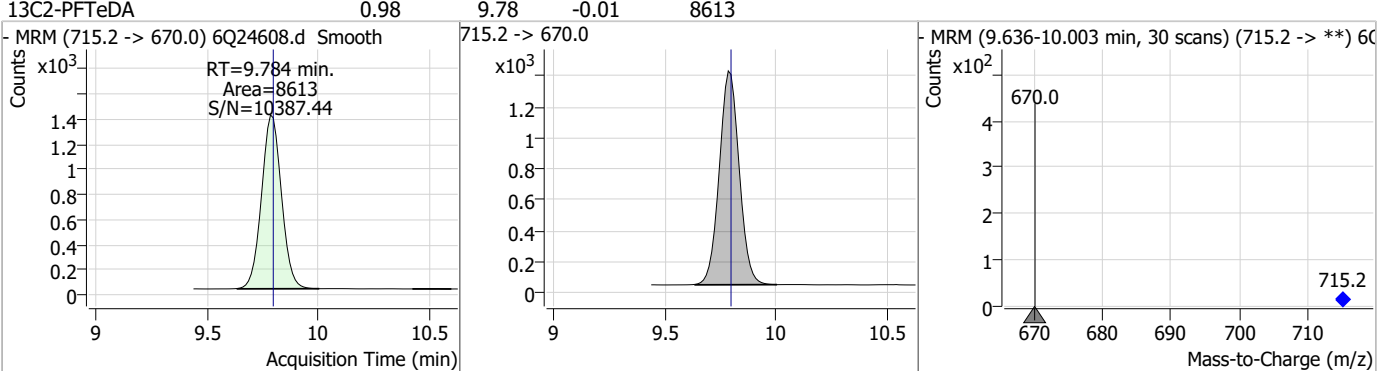
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.43	8.36	0.00	10526				
d5-EtFOSAA	4.26	8.46	0.00	15752				
13C7-PFUnDA	1.24	8.66	0.00	31777				
13C2-PFDoDA	1.16	9.08	-0.01	27368				

Perfluorinated Compounds by LC/MS/MS

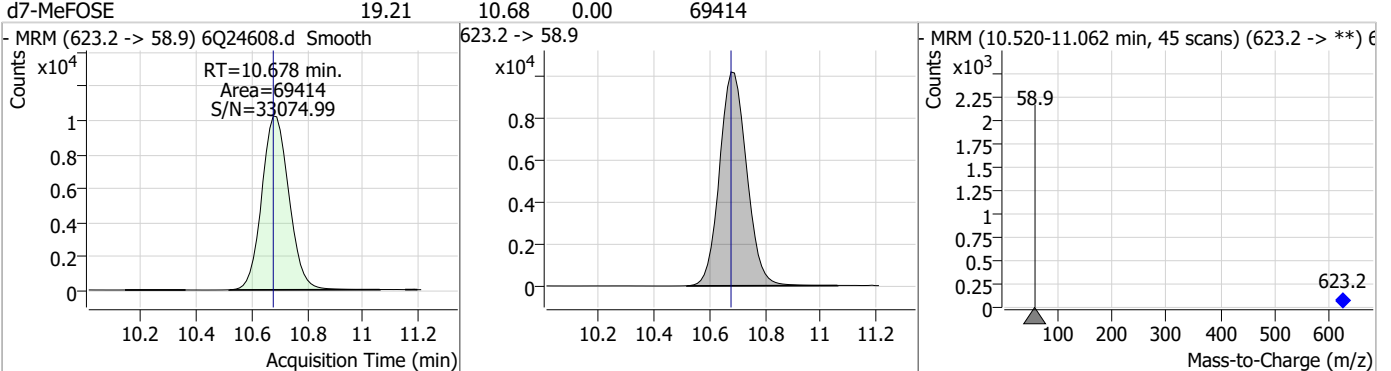
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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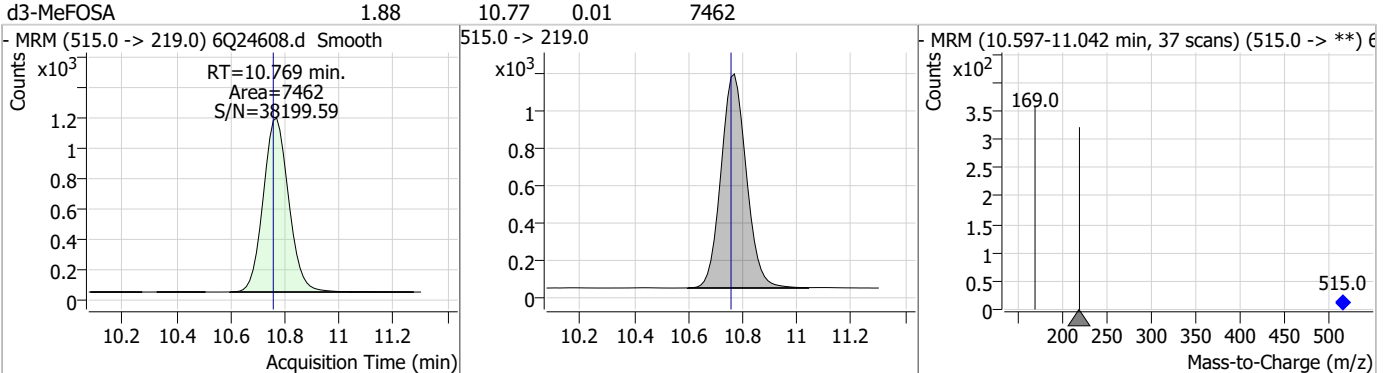
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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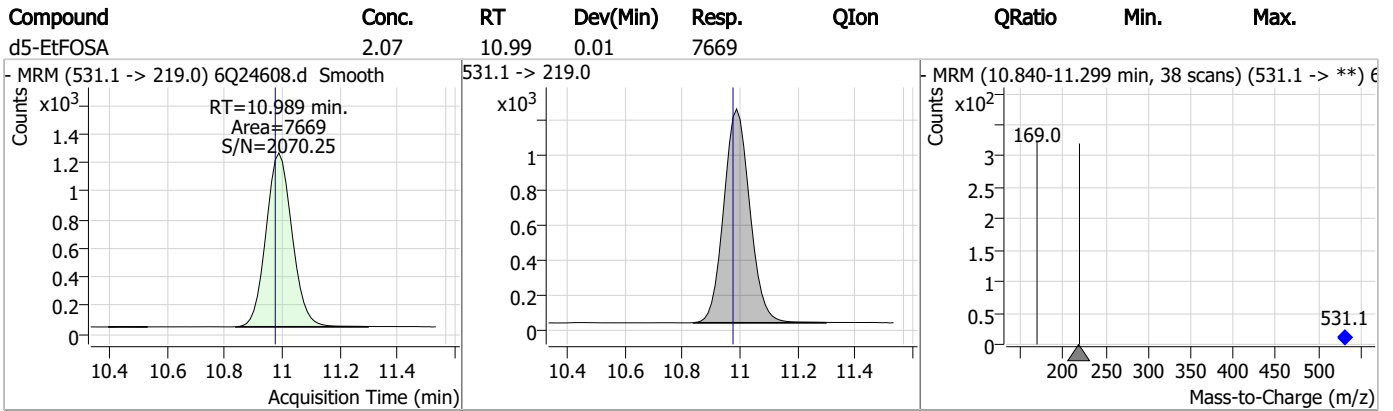
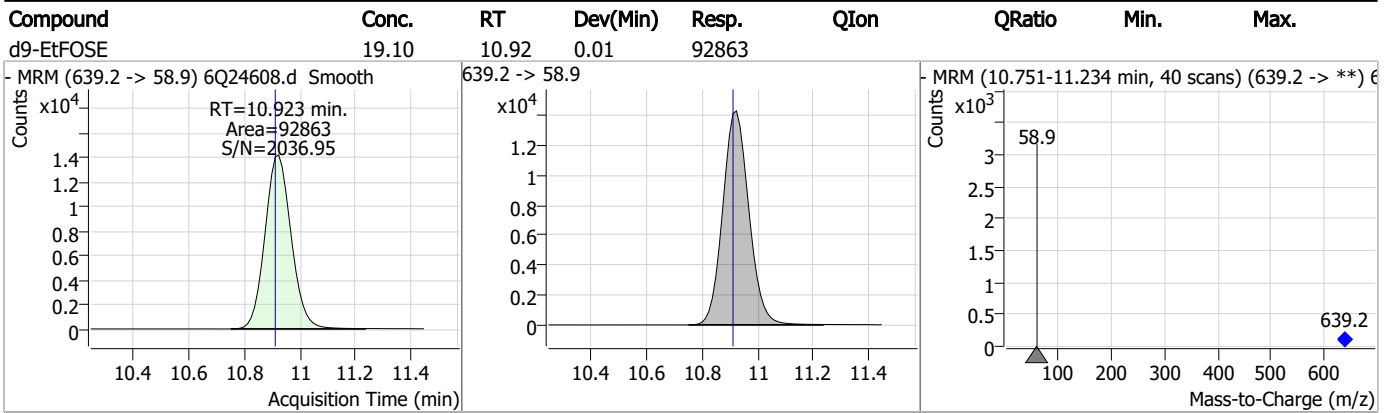
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Perfluorinated Compounds by LC/MS/MS



7.1.6
7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24611.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 3:48:13 PM
 Sample Name : FC9496-6
 Vial : P4-D3
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP99007,S6Q353,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	191690	10.00 µg/L	0.025
M5-PFPeA	4.434	268.3 -> 223.0	31395	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	69466	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	56452	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	74463	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	30612	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	27551	1.25 µg/L	-0.012
M7-PFUnDA	8.664	570.0 -> 525.1	29573	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	26651	1.25 µg/L	-0.014
M2-PFTeDA	9.796	715.2 -> 670.0	9435	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	18803	2.50 µg/L	0.024
M3-PFBS	5.571	302.1 -> 79.9	23739	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	12051	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	10524	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	2571	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3390	5.00 µg/L	0.012
M2-8:2FTS	7.998	529.1 -> 80.9	3559	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	17644	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	40150	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	16064	5.00 µg/L	-0.012
M7-MeFOSE	10.690	623.2 -> 58.9	61120	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	84408	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	7138	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	6845	2.50 µg/L	0.012
13C4-PFOS	8.361	502.8 -> 79.9	12454	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	60486	5.00 µg/L	0.025
18O2-PFHxS	7.313	403.0 -> 83.9	7445	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	64105	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	20634	1.25 µg/L	-0.012
13C5-PFNA	7.729	468.0 -> 423.0	26920	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	39821	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2571	6.14 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.7%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3390	5.51 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.3%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3559	5.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C2-PFDoDA	9.080	615.1 -> 570.0	26651	1.20 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C2-PFTeDA	9.796	715.2 -> 670.0	9435	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.7%		
13C3-PFBS	5.571	302.1 -> 79.9	23739	3.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 137.9%		
13C3-PFHxS	7.313	402.1 -> 79.9	12051	2.95 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 = 117.9%	
13C4-PFBA	3.010	216.8 -> 171.9	191690	12.55 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 125.5%	
13C4-PFHpA	6.581	367.1 -> 322.0	56452	3.30 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 132.0%	
13C5-PFHxA	5.654	318.0 -> 273.0	69466	3.16 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 126.6%	
13C5-PFPeA	4.434	268.3 -> 223.0	31395	5.85 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.0%	
13C6-PFDA	8.198	519.1 -> 474.1	27551	1.53 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 122.7%	
13C7-PFUnDA	8.664	570.0 -> 525.1	29573	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C8-FOSA	9.682	506.1 -> 77.8	18803	2.12 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.8%	
13C8-PFOA	7.211	421.1 -> 376.0	74463	3.16 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 126.3%	
13C8-PFOS	8.361	507.1 -> 79.9	10524	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.3%	
13C9-PFNA	7.729	472.1 -> 427.0	30612	1.82 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 145.6%	
d3-MeFOSAA	8.256	573.2 -> 419.0	17644	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	40150	13.24 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 132.4%	
d3-MeFOSA	10.769	515.0 -> 219.0	6845	1.90 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.2%	
d5-EtFOSAA	8.452	589.2 -> 419.0	16064	4.80 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
d7-MeFOSE	10.690	623.2 -> 58.9	61120	18.67 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.7%	
d9-EtFOSE	10.923	639.2 -> 58.9	84408	19.16 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.6%	
d5-EtFOSA	10.989	531.1 -> 219.0	7138	2.13 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.2%	

7.17
7

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



Perfluorinated Compounds by LC/MS/MS

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

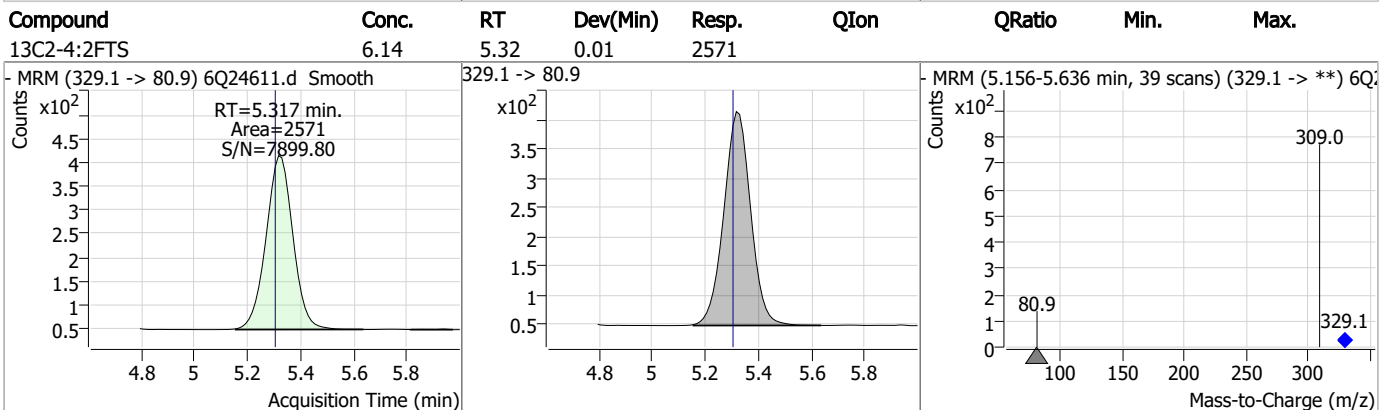
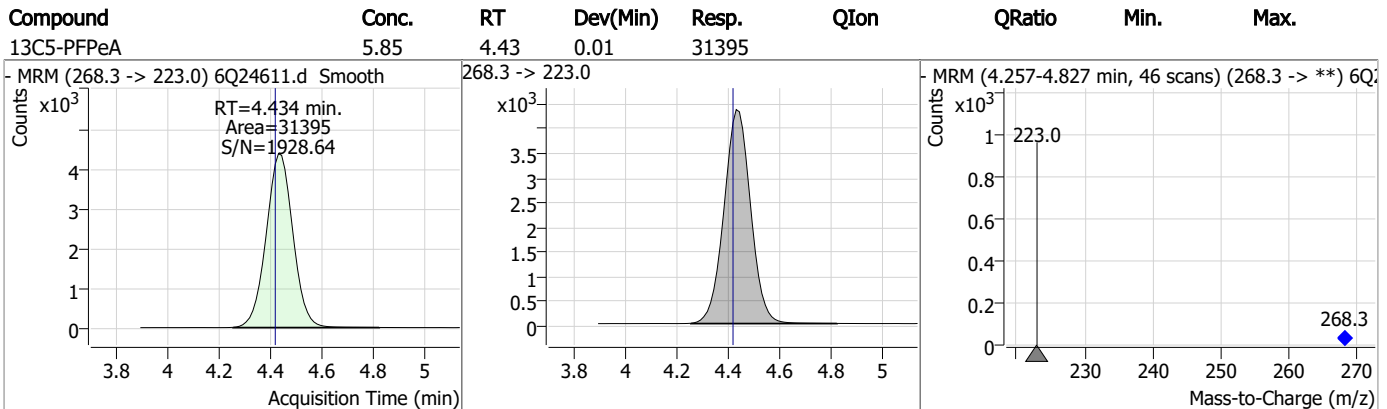
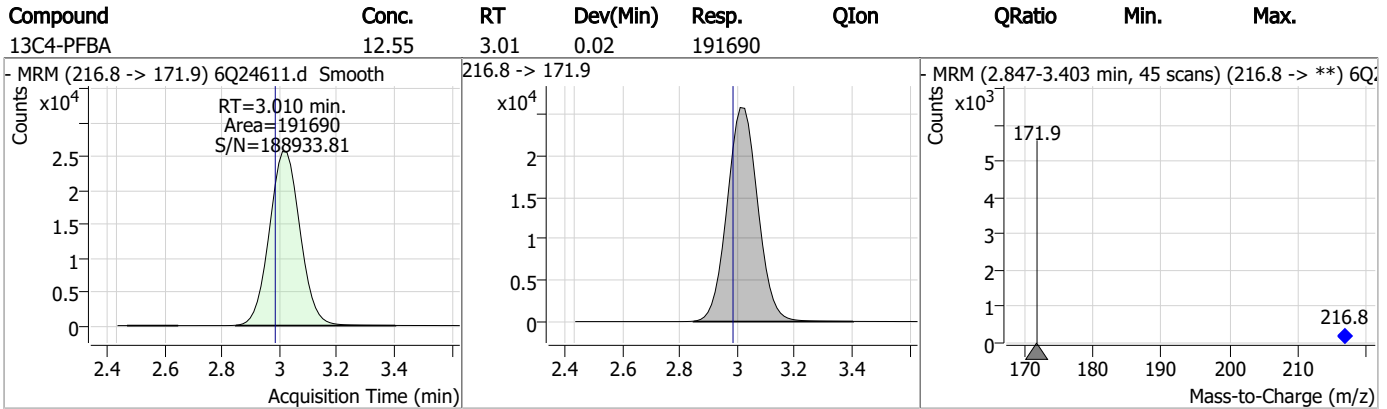
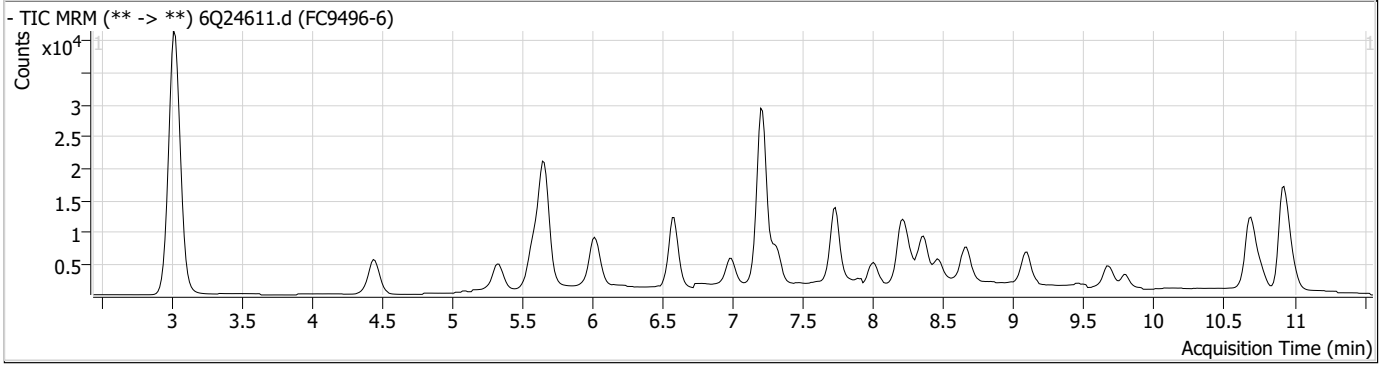
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.1.7
7

Perfluorinated Compounds by LC/MS/MS



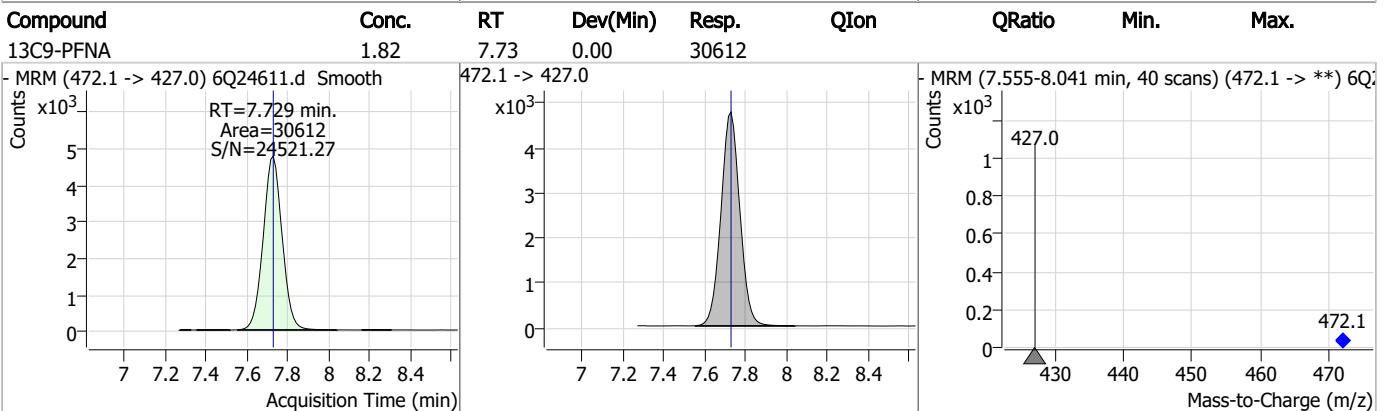
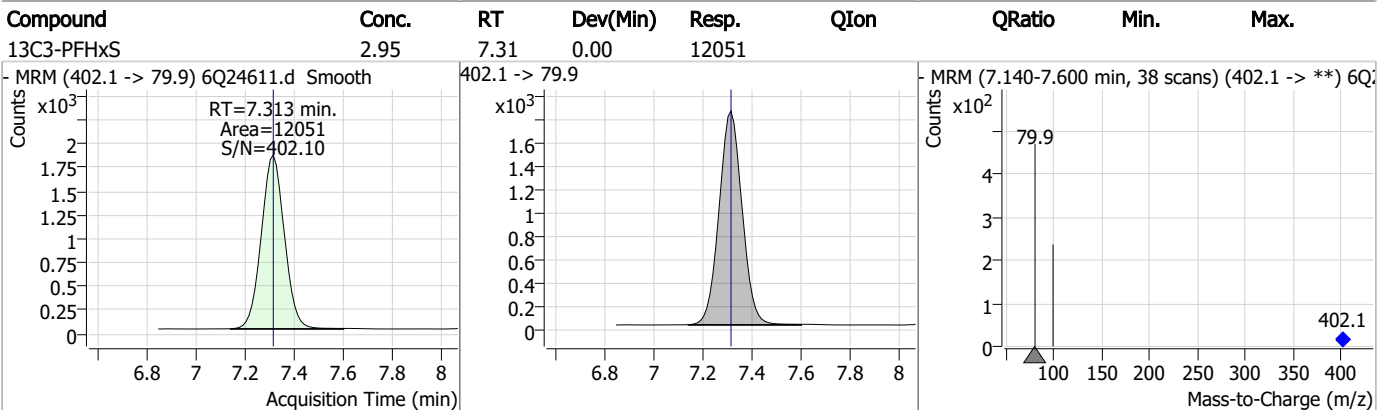
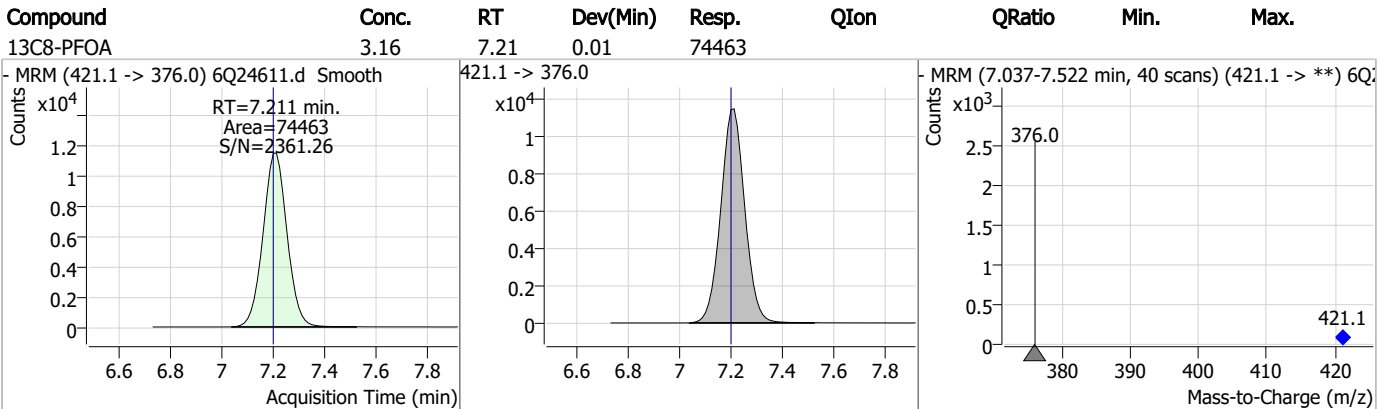
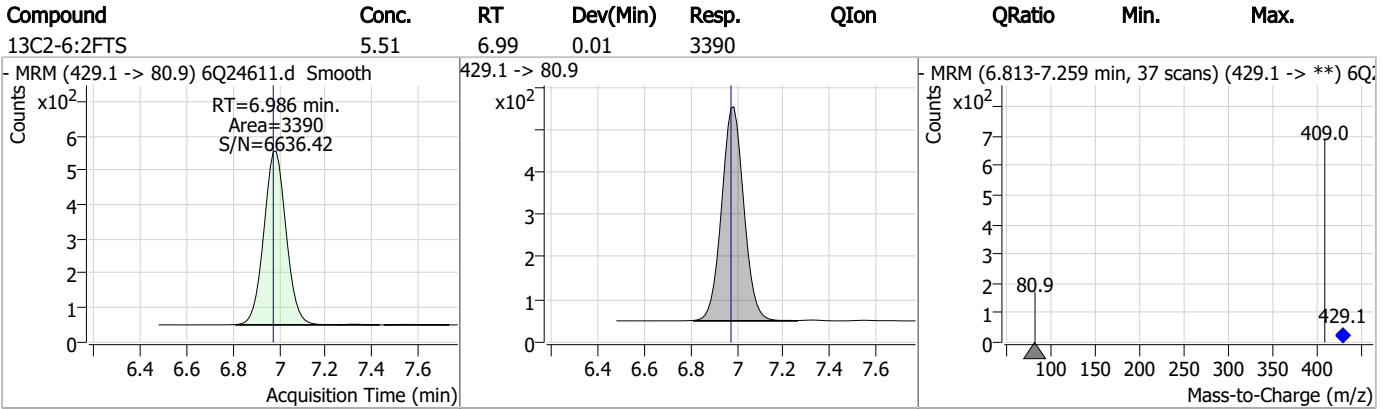
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	3.45	5.57	0.00	23739				
- MRM (302.1 -> 79.9) 6Q24611.d Smooth Counts x10 ³ RT=5.571 min. Area=23739 S/N=19866.46 Acquisition Time (min)			302.1 -> 79.9 Counts x10 ³ Acquisition Time (min)			- MRM (5.398-5.955 min, 46 scans) (302.1 -> **) 6Q24611.d Smooth Counts x10 ² 79.9 98.9 302.1 Mass-to-Charge (m/z)		
13C5-PFHxA	3.16	5.65	0.01	69466				
- MRM (318.0 -> 273.0) 6Q24611.d Smooth Counts x10 ⁴ RT=5.654 min. Area=69466 S/N=3244.12 Acquisition Time (min)			318.0 -> 273.0 Counts x10 ⁴ Acquisition Time (min)			- MRM (5.467-6.035 min, 47 scans) (318.0 -> **) 6Q24611.d Smooth Counts x10 ³ 120.3 273.0 318.0 Mass-to-Charge (m/z)		
13C3-HFPO-DA	13.24	6.02	0.00	40150				
- MRM (286.9 -> 168.9) 6Q24611.d Smooth Counts x10 ³ RT=6.019 min. Area=40150 S/N=∞ Acquisition Time (min)			286.9 -> 168.9 Counts x10 ³ Acquisition Time (min)			- MRM (5.834-6.389 min, 46 scans) (286.9 -> **) 6Q24611.d Smooth Counts x10 ³ 168.9 184.9 286.9 Mass-to-Charge (m/z)		
13C4-PFHpA	3.30	6.58	0.01	56452				
- MRM (367.1 -> 322.0) 6Q24611.d Smooth Counts x10 ⁴ RT=6.581 min. Area=56452 S/N=5229.55 Acquisition Time (min)			367.1 -> 322.0 Counts x10 ³ Acquisition Time (min)			- MRM (6.405-6.894 min, 40 scans) (367.1 -> **) 6Q24611.d Smooth Counts x10 ³ 322.0 367.1 Mass-to-Charge (m/z)		

7.1.7

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Perfluorinated Compounds by LC/MS/MS



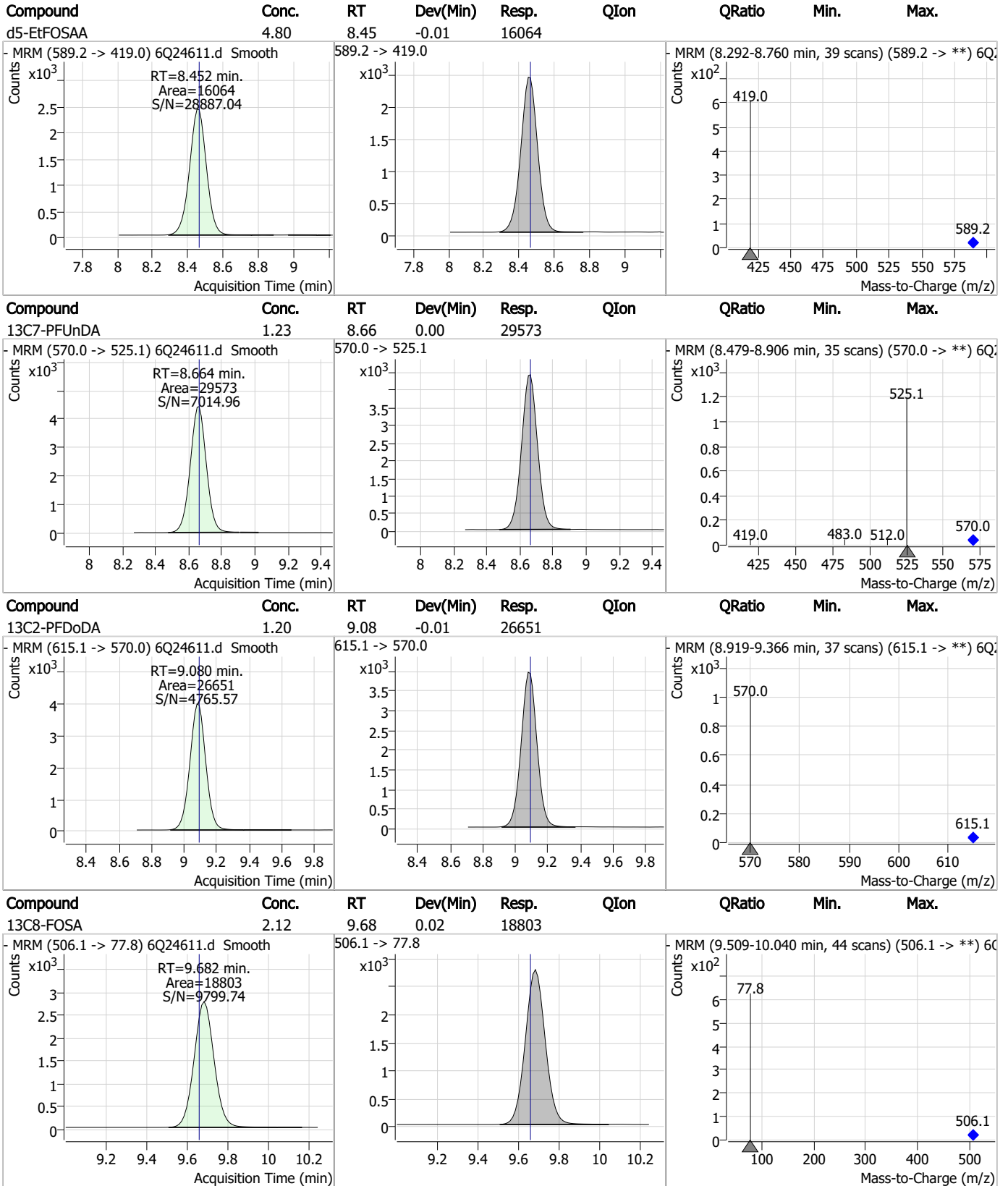
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.59	8.00	0.00	3559				
- MRM (529.1 -> 80.9) 6Q24611.d Smooth Counts x10 ² RT=7.998 min. Area=3559 S/N=22952.42 Acquisition Time (min)			529.1 -> 80.9 Counts x10 ²			- MRM (7.825-8.221 min, 33 scans) (529.1 -> **) 6Q24611.d Smooth Counts x10 ² 80.9 509.0 529.1 Mass-to-Charge (m/z)		
13C6-PFDA	1.53	8.20	-0.01	27551				
- MRM (519.1 -> 474.1) 6Q24611.d Smooth Counts x10 ³ RT=8.198 min. Area=27551 S/N=14518.68 Acquisition Time (min)			519.1 -> 474.1 Counts x10 ³			- MRM (8.037-8.580 min, 45 scans) (519.1 -> **) 6Q24611.d Smooth Counts x10 ³ 474.1 519.1 Mass-to-Charge (m/z)		
d3-MeFOSAA	5.07	8.26	0.00	17644				
- MRM (573.2 -> 419.0) 6Q24611.d Smooth Counts x10 ³ RT=8.256 min. Area=17644 S/N=4241.30 Acquisition Time (min)			573.2 -> 419.0 Counts x10 ³			- MRM (8.084-8.637 min, 46 scans) (573.2 -> **) 6Q24611.d Smooth Counts x10 ² 419.0 573.2 Mass-to-Charge (m/z)		
13C8-PFOS	2.68	8.36	0.00	10524				
- MRM (507.1 -> 79.9) 6Q24611.d Smooth Counts x10 ³ RT=8.361 min. Area=10524 S/N=1162.00 Acquisition Time (min)			507.1 -> 79.9 Counts x10 ³			- MRM (8.191-8.578 min, 31 scans) (507.1 -> **) 6Q24611.d Smooth Counts x10 ² 79.9 507.1 Mass-to-Charge (m/z)		

7.1.7

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Perfluorinated Compounds by LC/MS/MS

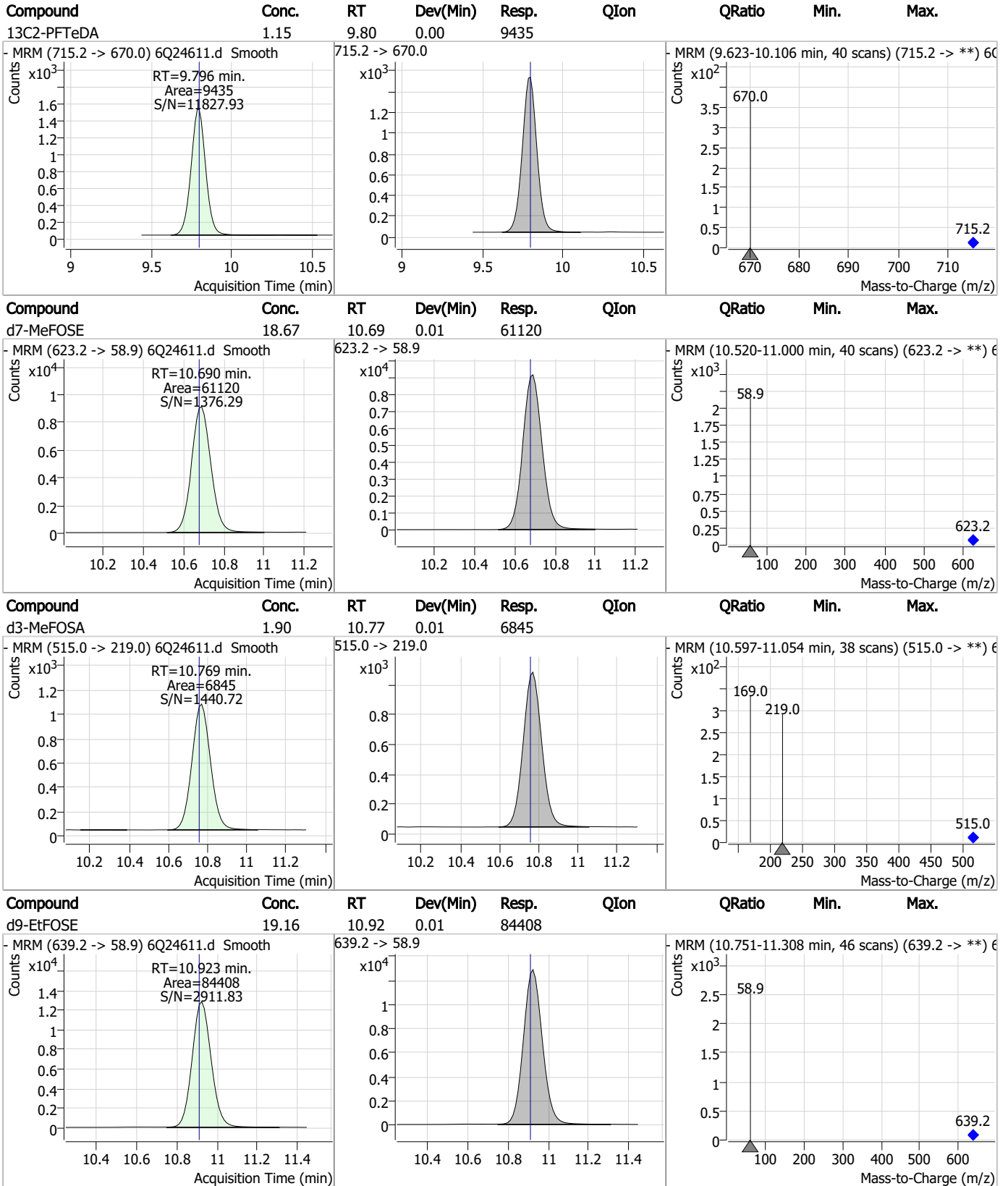


7.1.7

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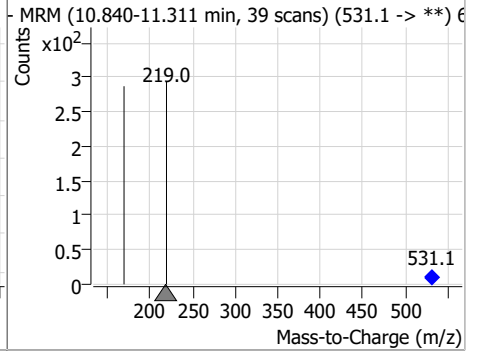
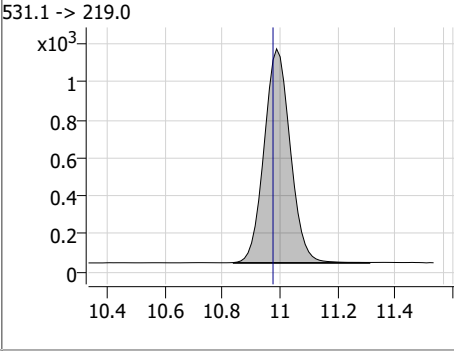
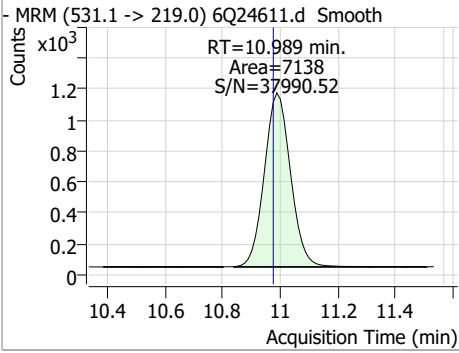


Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.13	10.99	0.01	7138				



7.1.7
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24612.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 4:02:31 PM
 Sample Name : FC9496-7
 Vial : P4-D4
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP99007,S6Q353,570,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	177605	10.00 µg/L	0.041
M5-PFPeA	4.447	268.3 -> 223.0	29292	5.00 µg/L	0.025
M5-PFHxA	5.654	318.0 -> 273.0	64289	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	55253	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	71039	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	28312	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	27540	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	30578	1.25 µg/L	-0.012
M2-PFDoDA	9.080	615.1 -> 570.0	27479	1.25 µg/L	-0.014
M2-PFTeDA	9.784	715.2 -> 670.0	9131	1.25 µg/L	-0.012
M8-FOSA	9.682	506.1 -> 77.8	18835	2.50 µg/L	0.024
M3-PFBS	5.571	302.1 -> 79.9	22101	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	11698	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	11336	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	2489	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3453	5.00 µg/L	0.012
M2-8:2FTS	7.998	529.1 -> 80.9	3373	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	18902	5.00 µg/L	0.000
M3-HFPO-DA	6.031	286.9 -> 168.9	37336	10.00 µg/L	0.012
M5-EtFOSAA	8.452	589.2 -> 419.0	14429	5.00 µg/L	-0.012
M7-MeFOSE	10.690	623.2 -> 58.9	57272	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	78826	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	6616	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	6095	2.50 µg/L	0.012
13C4-PFOS	8.361	502.8 -> 79.9	13320	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	64441	5.00 µg/L	0.025
18O2-PFHxS	7.313	403.0 -> 83.9	7706	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	68563	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	20631	1.25 µg/L	-0.012
13C5-PFNA	7.729	468.0 -> 423.0	27971	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	46555	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2489	5.74 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.8%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3453	5.43 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3373	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-PFDoDA	9.080	615.1 -> 570.0	27479	1.24 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C2-PFTeDA	9.784	715.2 -> 670.0	9131	1.11 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.8%		
13C3-PFBS	5.571	302.1 -> 79.9	22101	3.10 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 124.0%		
13C3-PFHxS	7.313	402.1 -> 79.9	11698	2.76 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 = 110.5%	
13C4-PFBA	3.025	216.8 -> 171.9	177605	10.91 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C4-PFHpA	6.581	367.1 -> 322.0	55253	2.76 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.5%	
13C5-PFHxA	5.654	318.0 -> 273.0	64289	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C5-PFPeA	4.447	268.3 -> 223.0	29292	4.67 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.4%	
13C6-PFDA	8.210	519.1 -> 474.1	27540	1.53 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 122.6%	
13C7-PFUnDA	8.651	570.0 -> 525.1	30578	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C8-FOSA	9.682	506.1 -> 77.8	18835	1.99 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 79.5%	
13C8-PFOA	7.211	421.1 -> 376.0	71039	2.82 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.6%	
13C8-PFOS	8.361	507.1 -> 79.9	11336	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.1%	
13C9-PFNA	7.729	472.1 -> 427.0	28312	1.62 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 129.6%	
d3-MeFOSAA	8.256	573.2 -> 419.0	18902	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	37336	10.53 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
d3-MeFOSA	10.769	515.0 -> 219.0	6095	1.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 63.4%	
d5-EtFOSAA	8.452	589.2 -> 419.0	14429	4.03 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 80.5%	
d7-MeFOSE	10.690	623.2 -> 58.9	57272	16.35 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 65.4%	
d9-EtFOSE	10.923	639.2 -> 58.9	78826	16.73 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 66.9%	
d5-EtFOSA	10.989	531.1 -> 219.0	6616	1.85 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 73.8%	

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



Perfluorinated Compounds by LC/MS/MS

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

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

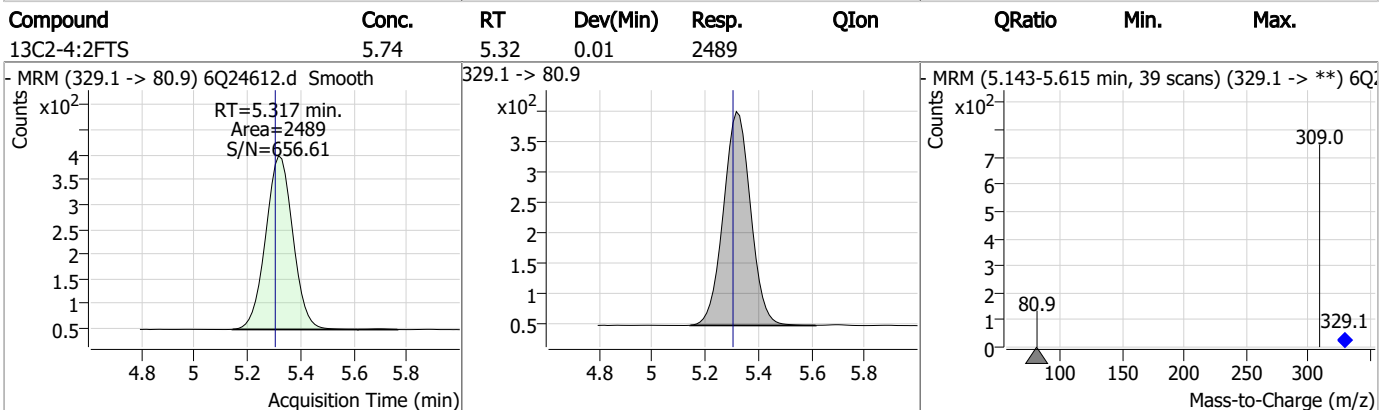
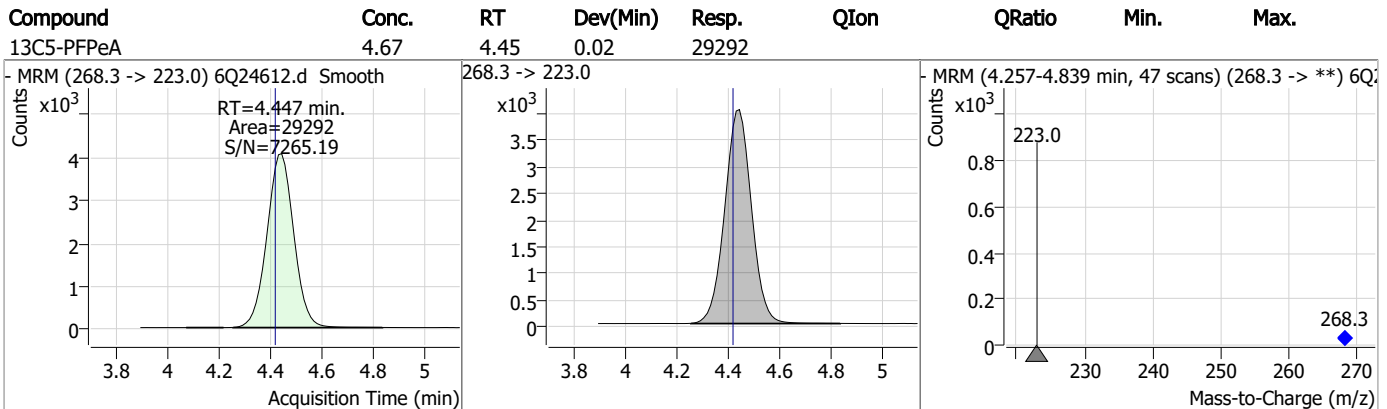
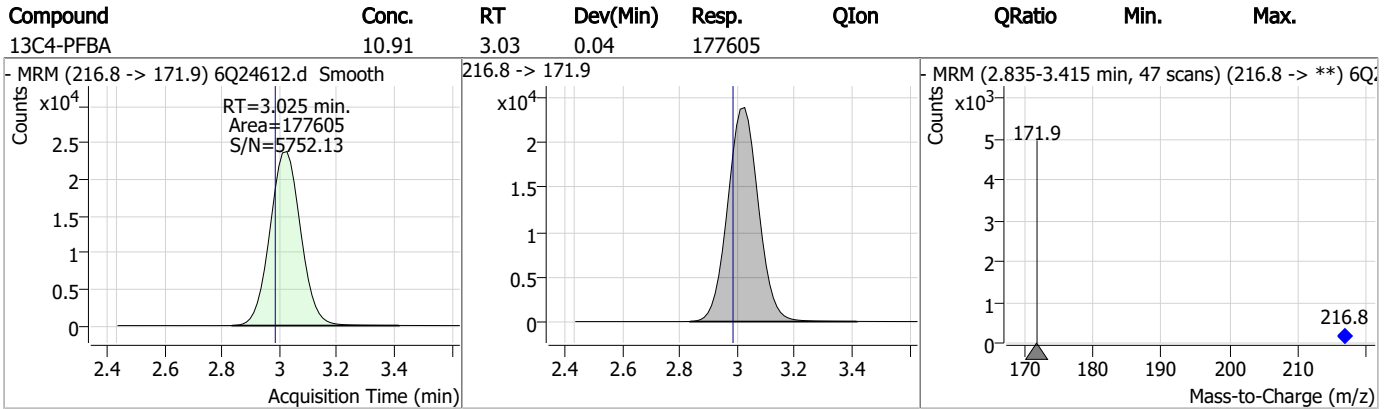
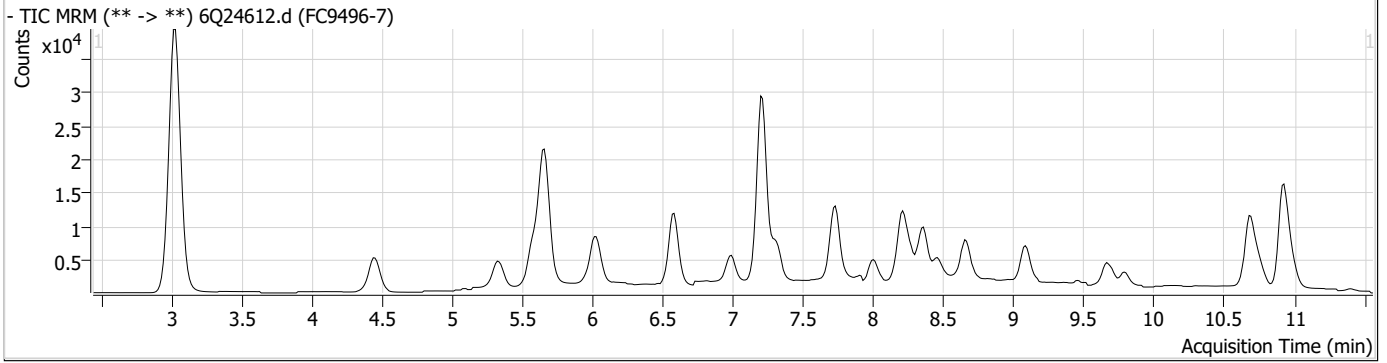
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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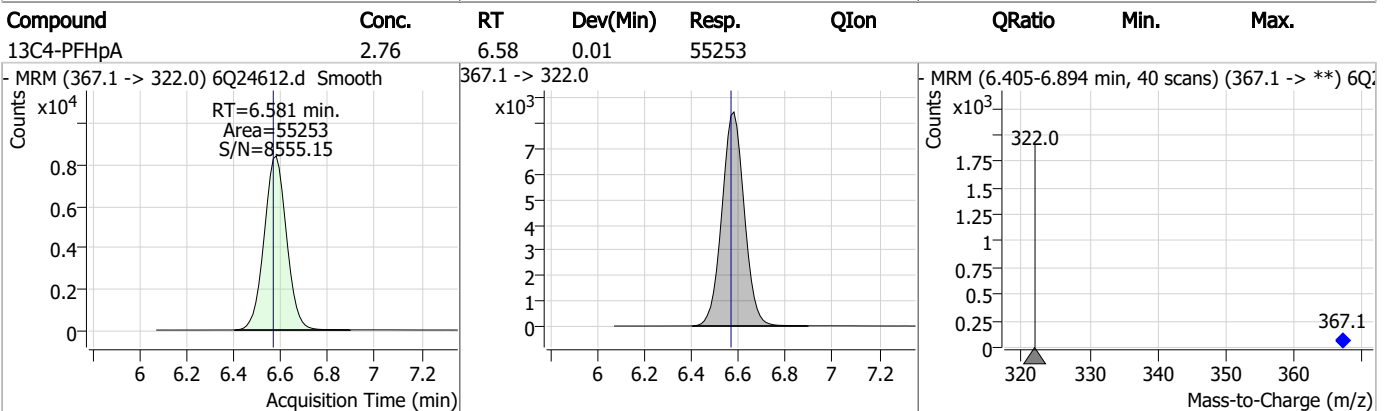
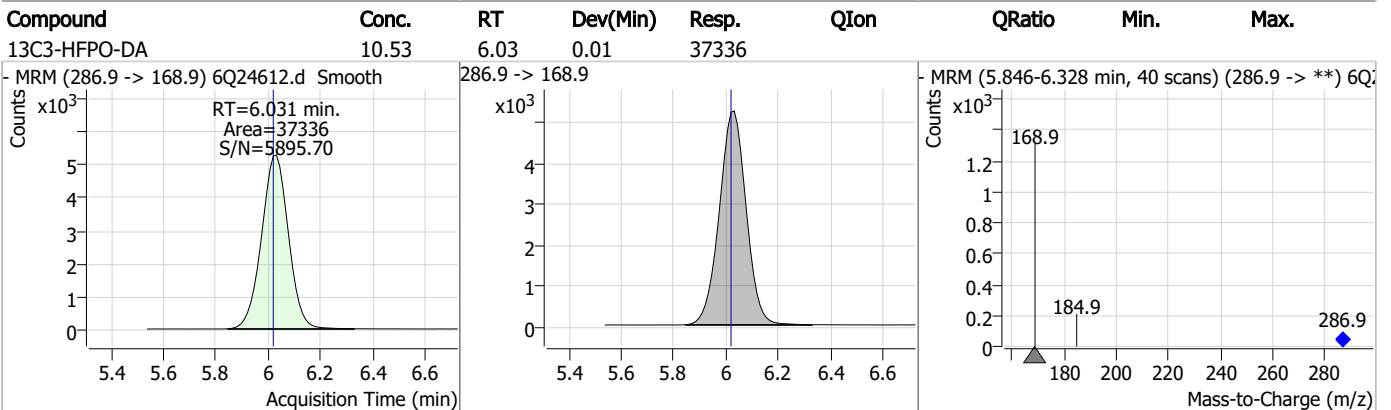
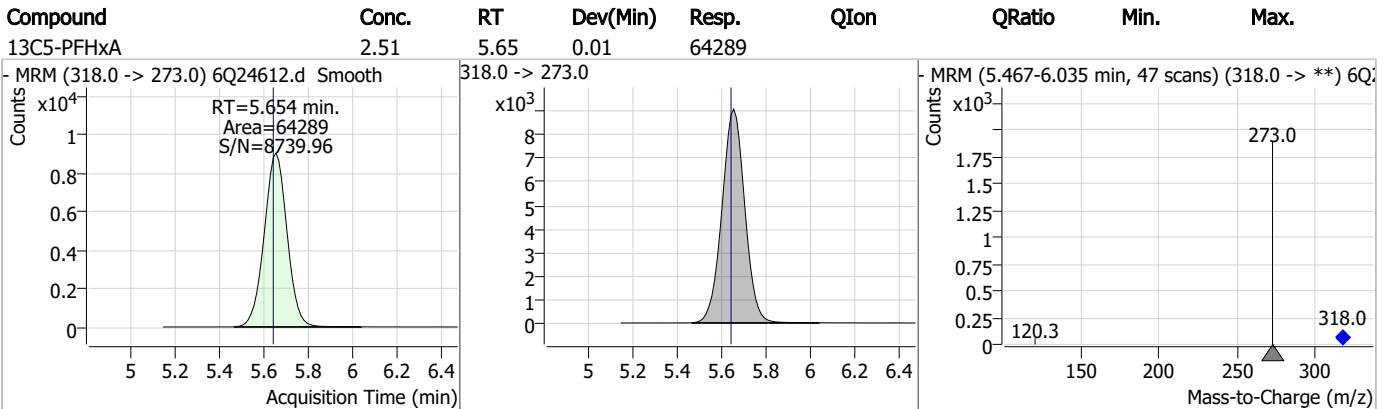
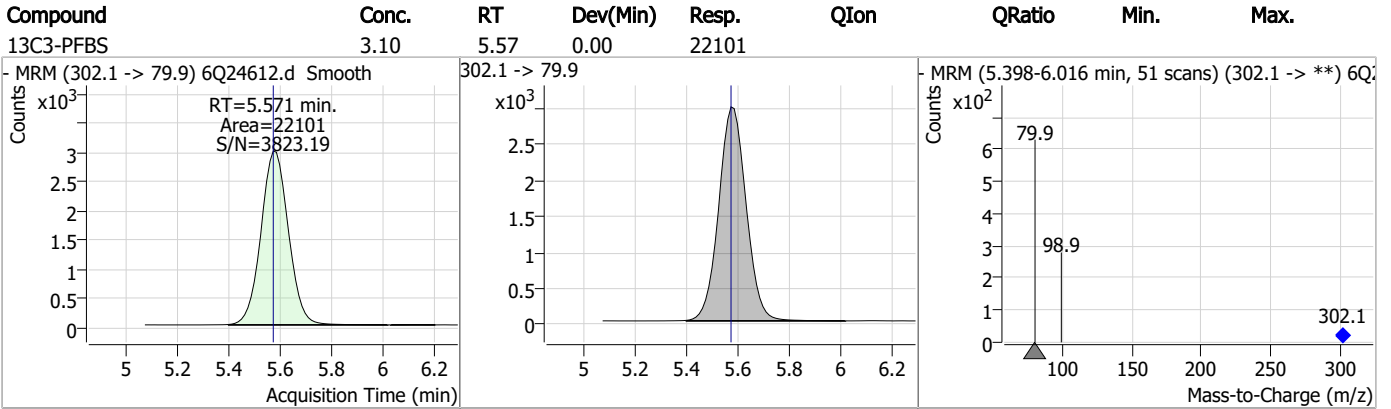
7.1.8
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.43	6.99	0.01	3453				
13C8-PFOA	2.82	7.21	0.01	71039				
13C3-PFHxS	2.76	7.31	0.00	11698				
13C9-PFNA	1.62	7.73	0.00	28312				

7.1.8
7

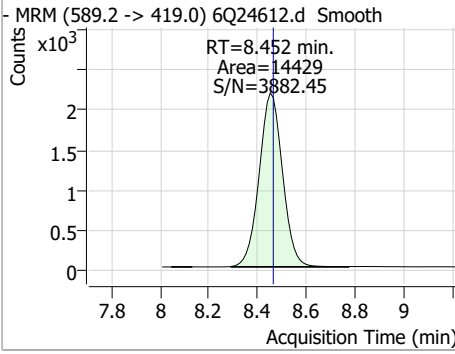
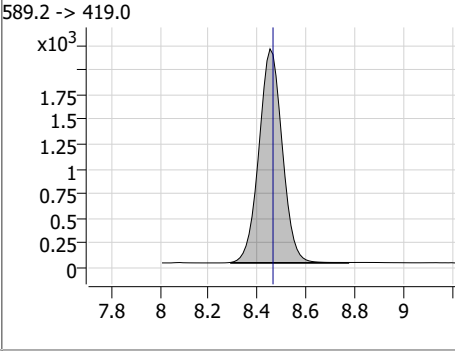
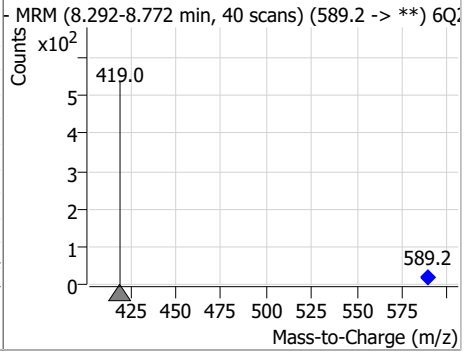
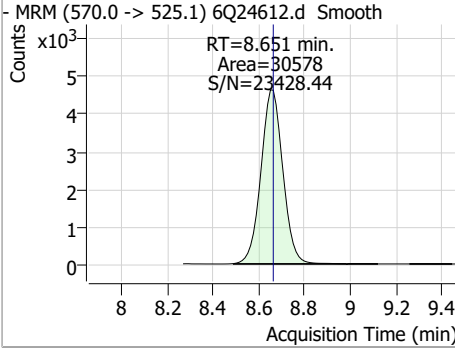
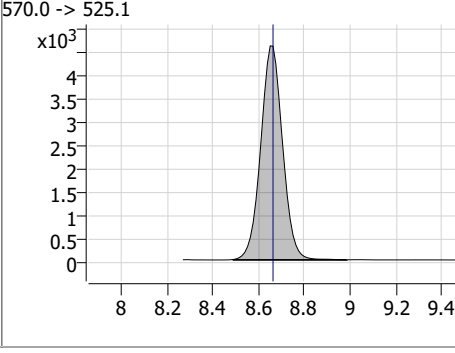
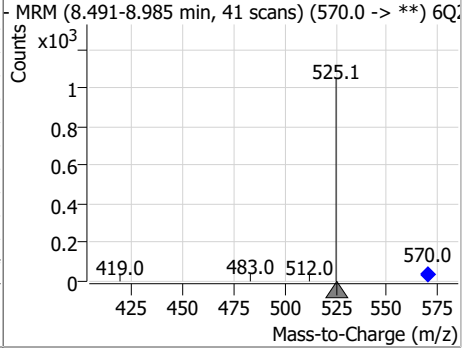
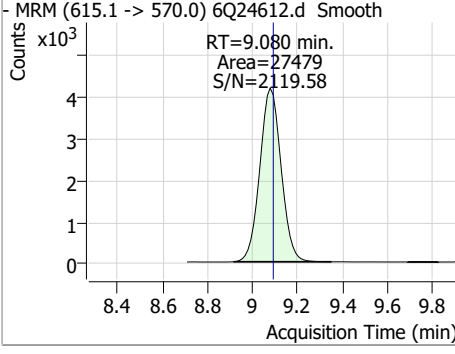
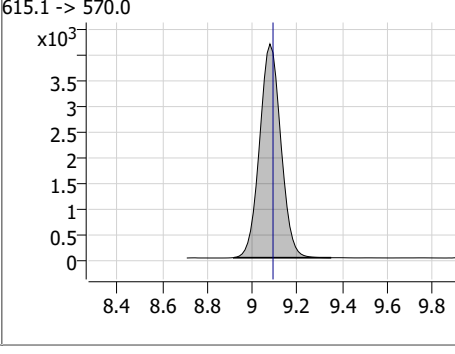
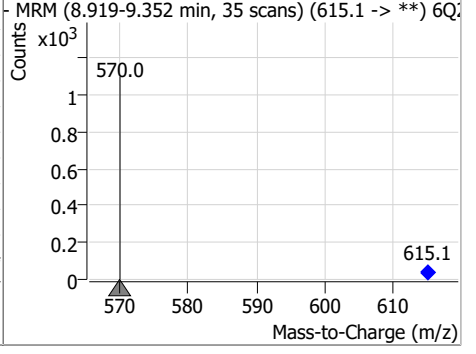
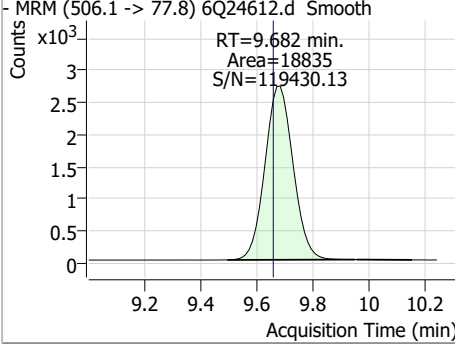
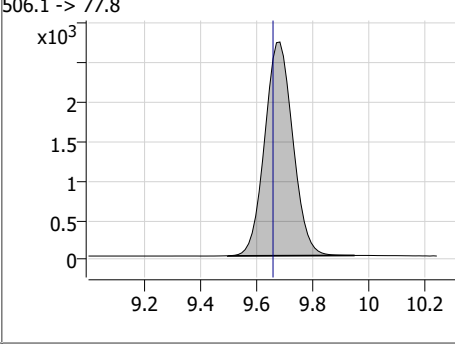
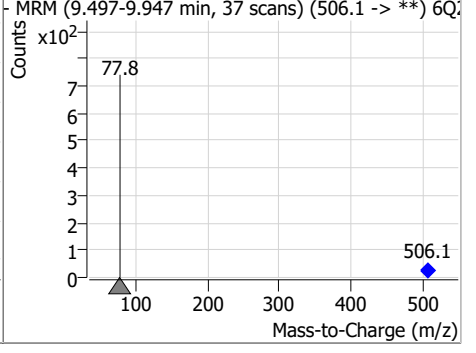
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.12	8.00	0.00	3373				
13C6-PFDA	1.53	8.21	0.00	27540				
d3-MeFOSAA	5.08	8.26	0.00	18902				
13C8-PFOS	2.70	8.36	0.00	11336				

7.1.8

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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.03	8.45	-0.01	14429				
- MRM (589.2 -> 419.0) 6Q24612.d Smooth 			589.2 -> 419.0 			- MRM (8.292-8.772 min, 40 scans) (589.2 -> **) 6Q 		
13C7-PFUnDA	1.27	8.65	-0.01	30578				
- MRM (570.0 -> 525.1) 6Q24612.d Smooth 			570.0 -> 525.1 			- MRM (8.491-8.985 min, 41 scans) (570.0 -> **) 6Q 		
13C2-PFDoDA	1.24	9.08	-0.01	27479				
- MRM (615.1 -> 570.0) 6Q24612.d Smooth 			615.1 -> 570.0 			- MRM (8.919-9.352 min, 35 scans) (615.1 -> **) 6Q 		
13C8-FOSA	1.99	9.68	0.02	18835				
- MRM (506.1 -> 77.8) 6Q24612.d Smooth 			506.1 -> 77.8 			- MRM (9.497-9.947 min, 37 scans) (506.1 -> **) 6Q 		

7.1.8

7



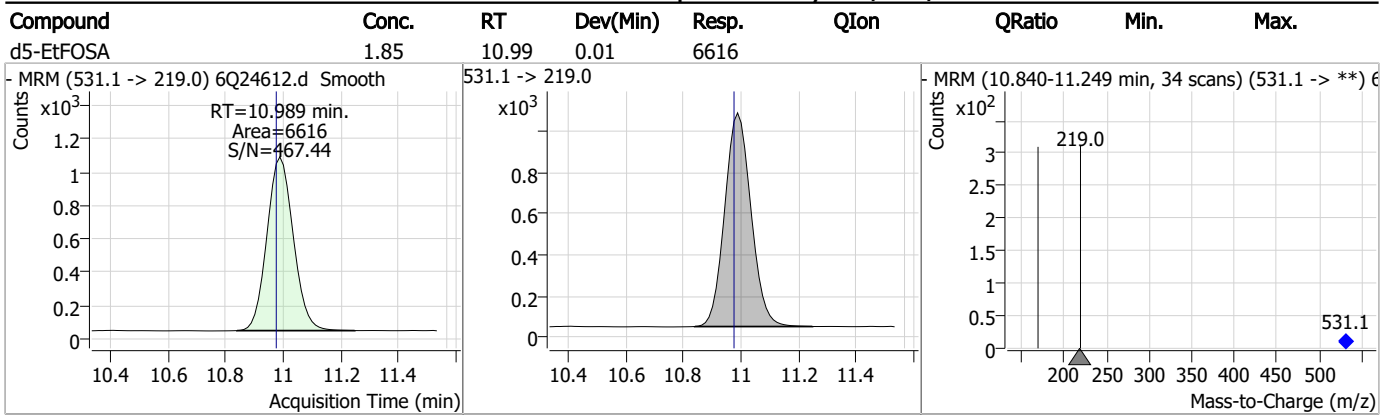
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.11	9.78	-0.01	9131				
- MRM (715.2 -> 670.0) 6Q24612.d Smooth			715.2 -> 670.0		- MRM (9.636-10.056 min, 35 scans) (715.2 -> **) 6Q24612.d Smooth			
d7-MeFOSE	16.35	10.69	0.01	57272				
- MRM (623.2 -> 58.9) 6Q24612.d Smooth			623.2 -> 58.9		- MRM (10.520-11.000 min, 40 scans) (623.2 -> **) 6Q24612.d Smooth			
d3-MeFOSA	1.59	10.77	0.01	6095				
- MRM (515.0 -> 219.0) 6Q24612.d Smooth			515.0 -> 219.0		- MRM (10.609-11.029 min, 35 scans) (515.0 -> **) 6Q24612.d Smooth			
d9-EtFOSE	16.73	10.92	0.01	78826				
- MRM (639.2 -> 58.9) 6Q24612.d Smooth			639.2 -> 58.9		- MRM (10.751-11.234 min, 40 scans) (639.2 -> **) 6Q24612.d Smooth			

7.1.8

7

Perfluorinated Compounds by LC/MS/MS



7.1.8
7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24601.d
 Operator : marthav
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 Acq. Date-Time : 9/18/2023 1:24:57 PM
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 Vial : P4-C4
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP99007,S6Q353,500,,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	159348	10.00 µg/L	0.025
M5-PFPeA	4.434	268.3 -> 223.0	24869	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	53784	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	45045	2.50 µg/L	0.012
M8-PFOA	7.198	421.1 -> 376.0	57448	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	25141	1.25 µg/L	-0.012
M6-PFDA	8.198	519.1 -> 474.1	26869	1.25 µg/L	-0.012
M7-PFUnDA	8.651	570.0 -> 525.1	28921	1.25 µg/L	-0.012
M2-PFDoDA	9.080	615.1 -> 570.0	25978	1.25 µg/L	-0.014
M2-PFTeDA	9.784	715.2 -> 670.0	9103	1.25 µg/L	-0.012
M8-FOSA	9.682	506.1 -> 77.8	13128	2.50 µg/L	0.024
M3-PFBS	5.571	302.1 -> 79.9	18744	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	10191	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	9507	2.50 µg/L	-0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2255	5.00 µg/L	0.012
M2-6:2FTS	6.974	429.1 -> 80.9	2798	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	3201	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	15199	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	32197	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	14198	5.00 µg/L	-0.012
M7-MeFOSE	10.690	623.2 -> 58.9	43456	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	66959	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	5409	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	4864	2.50 µg/L	0.012
13C4-PFOS	8.361	502.8 -> 79.9	11296	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	56624	5.00 µg/L	0.025
18O2-PFHxS	7.313	403.0 -> 83.9	6729	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	61974	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	18759	1.25 µg/L	-0.012
13C5-PFNA	7.729	468.0 -> 423.0	25807	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	39373	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2255	5.95 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.1%		
13C2-6:2FTS	6.974	429.1 -> 80.9	2798	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3201	5.56 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.3%		
13C2-PFDoDA	9.080	615.1 -> 570.0	25978	1.29 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C2-PFTeDA	9.784	715.2 -> 670.0	9103	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C3-PFBS	5.571	302.1 -> 79.9	18744	3.01 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 120.5%		
13C3-PFHxS	7.313	402.1 -> 79.9	10191	2.76 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 = 110.3%	
13C4-PFBA	3.010	216.8 -> 171.9	159348	11.14 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.4%	
13C4-PFHpA	6.581	367.1 -> 322.0	45045	2.66 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C5-PFHxA	5.654	318.0 -> 273.0	53784	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C5-PFPeA	4.434	268.3 -> 223.0	24869	4.69 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C6-PFDA	8.198	519.1 -> 474.1	26869	1.64 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 131.6%	
13C7-PFUnDA	8.651	570.0 -> 525.1	28921	1.32 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C8-FOSA	9.682	506.1 -> 77.8	13128	1.63 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 65.3%	
13C8-PFOA	7.198	421.1 -> 376.0	57448	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C8-PFOS	8.348	507.1 -> 79.9	9507	2.67 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C9-PFNA	7.717	472.1 -> 427.0	25141	1.56 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 124.7%	
d3-MeFOSAA	8.256	573.2 -> 419.0	15199	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	32197	10.74 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
d3-MeFOSA	10.769	515.0 -> 219.0	4864	1.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 59.7%	
d5-EtFOSAA	8.452	589.2 -> 419.0	14198	4.67 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
d7-MeFOSE	10.690	623.2 -> 58.9	43456	14.63 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 58.5%	
d9-EtFOSE	10.923	639.2 -> 58.9	66959	16.75 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 67.0%	
d5-EtFOSA	10.989	531.1 -> 219.0	5409	1.78 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 71.2%	

Target Compounds

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

Perfluorinated Compounds by LC/MS/MS

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

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

7.2.1
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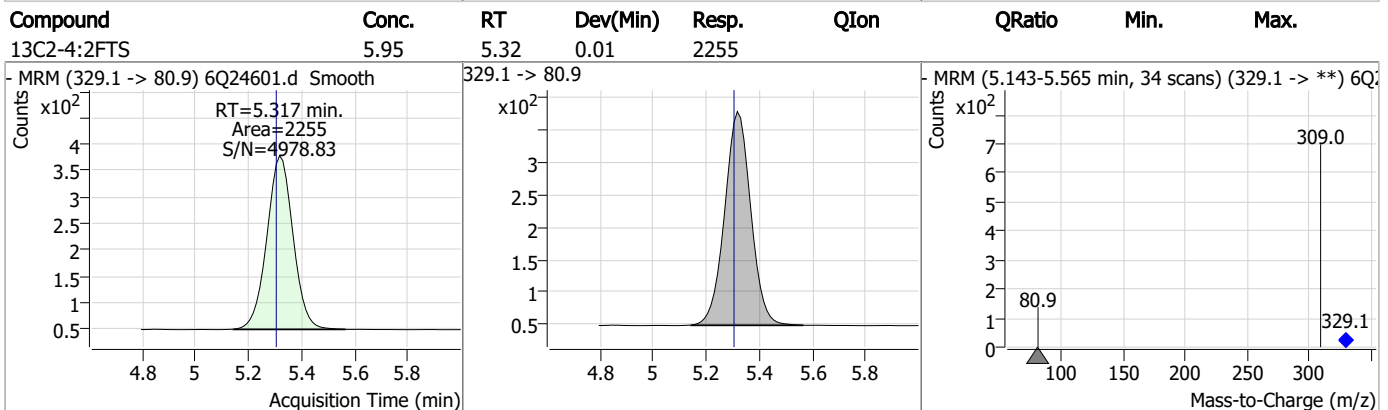
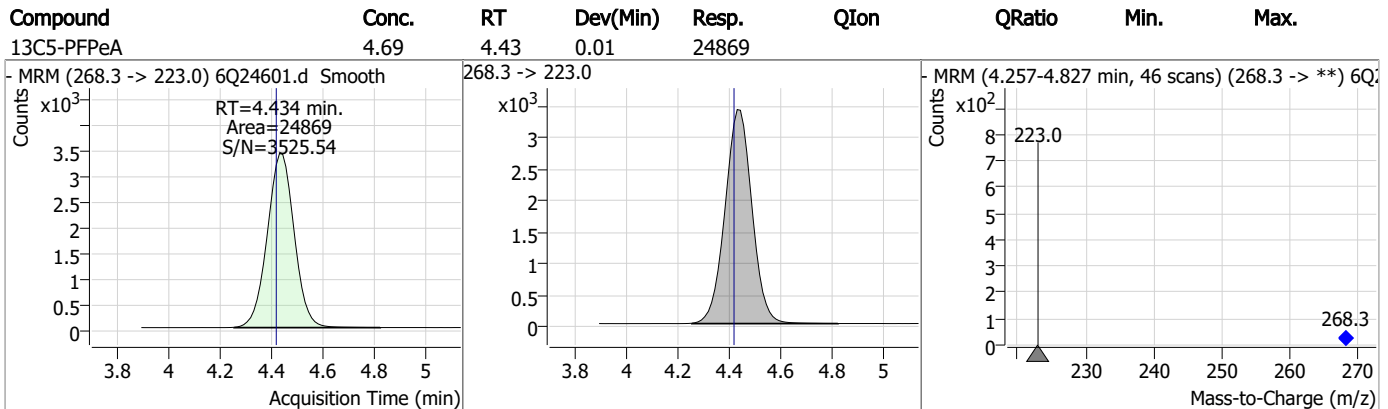
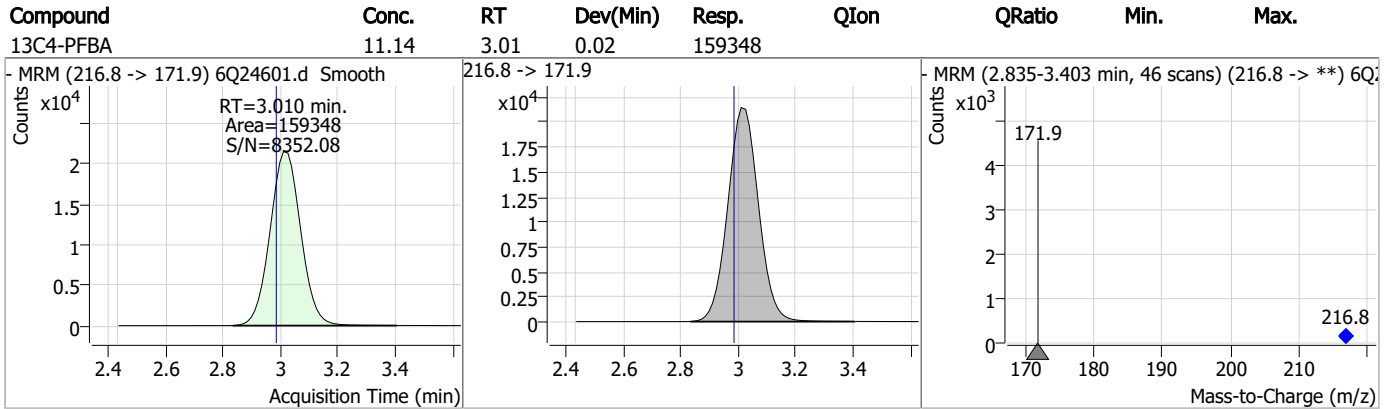
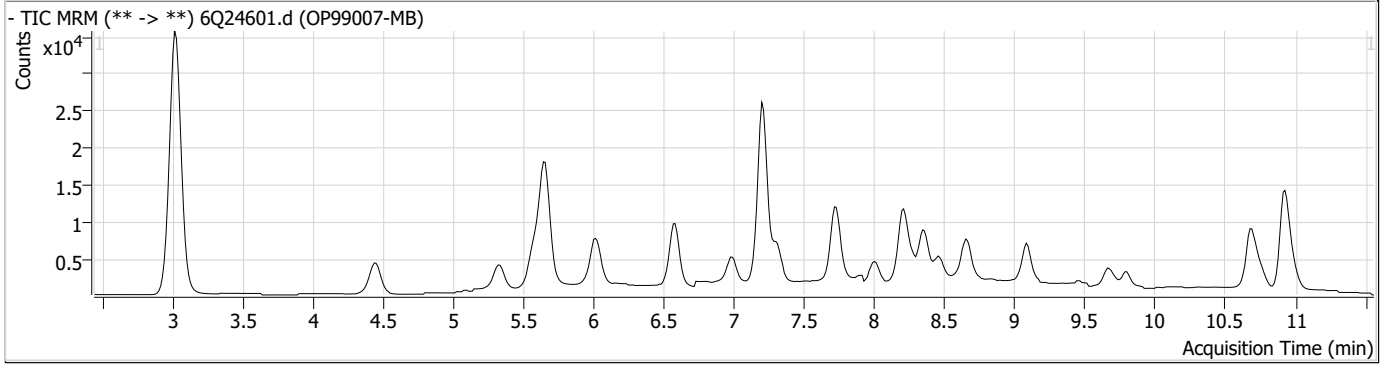
Perfluorinated Compounds by LC/MS/MS

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

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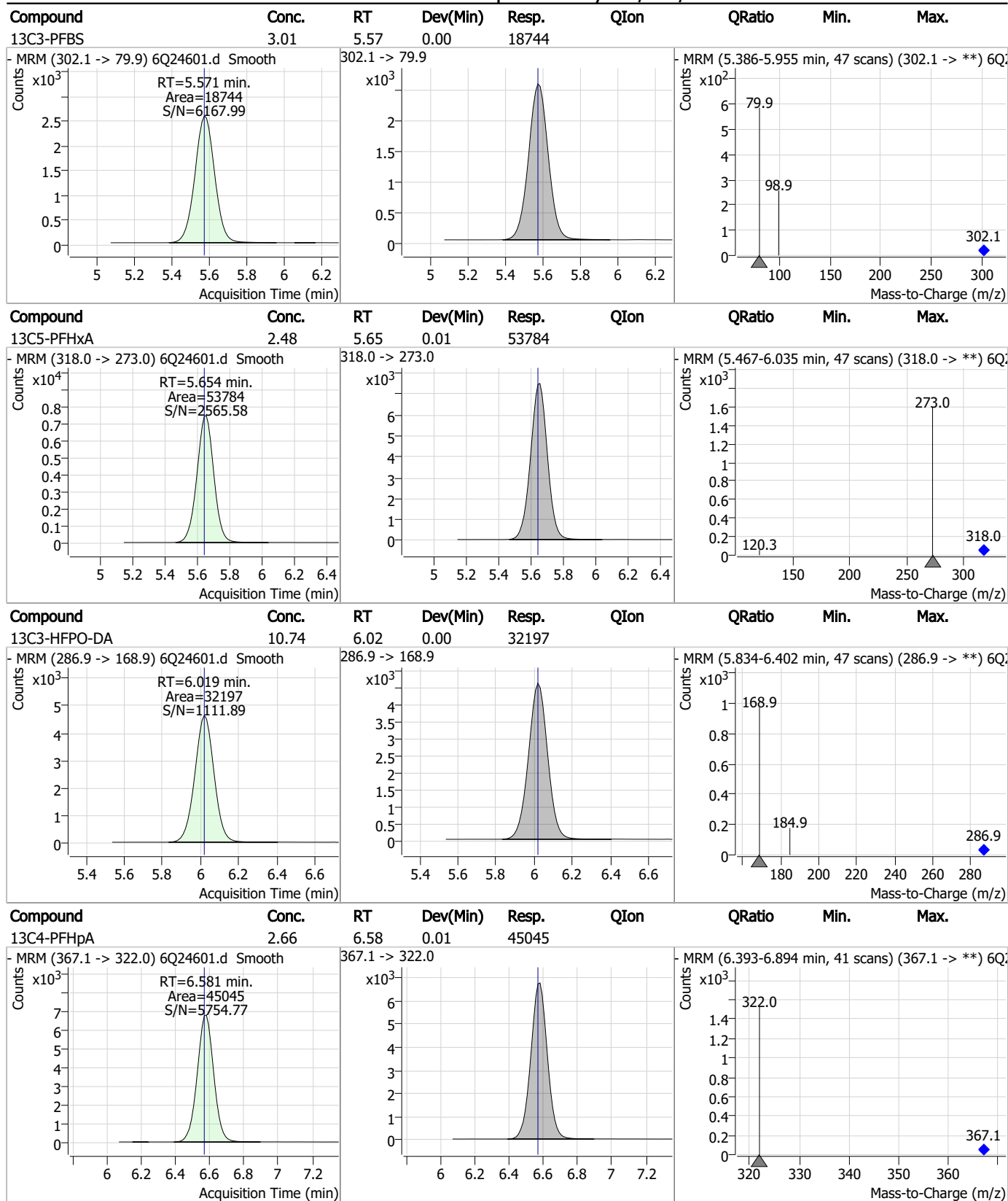
Perfluorinated Compounds by LC/MS/MS



7.2.1

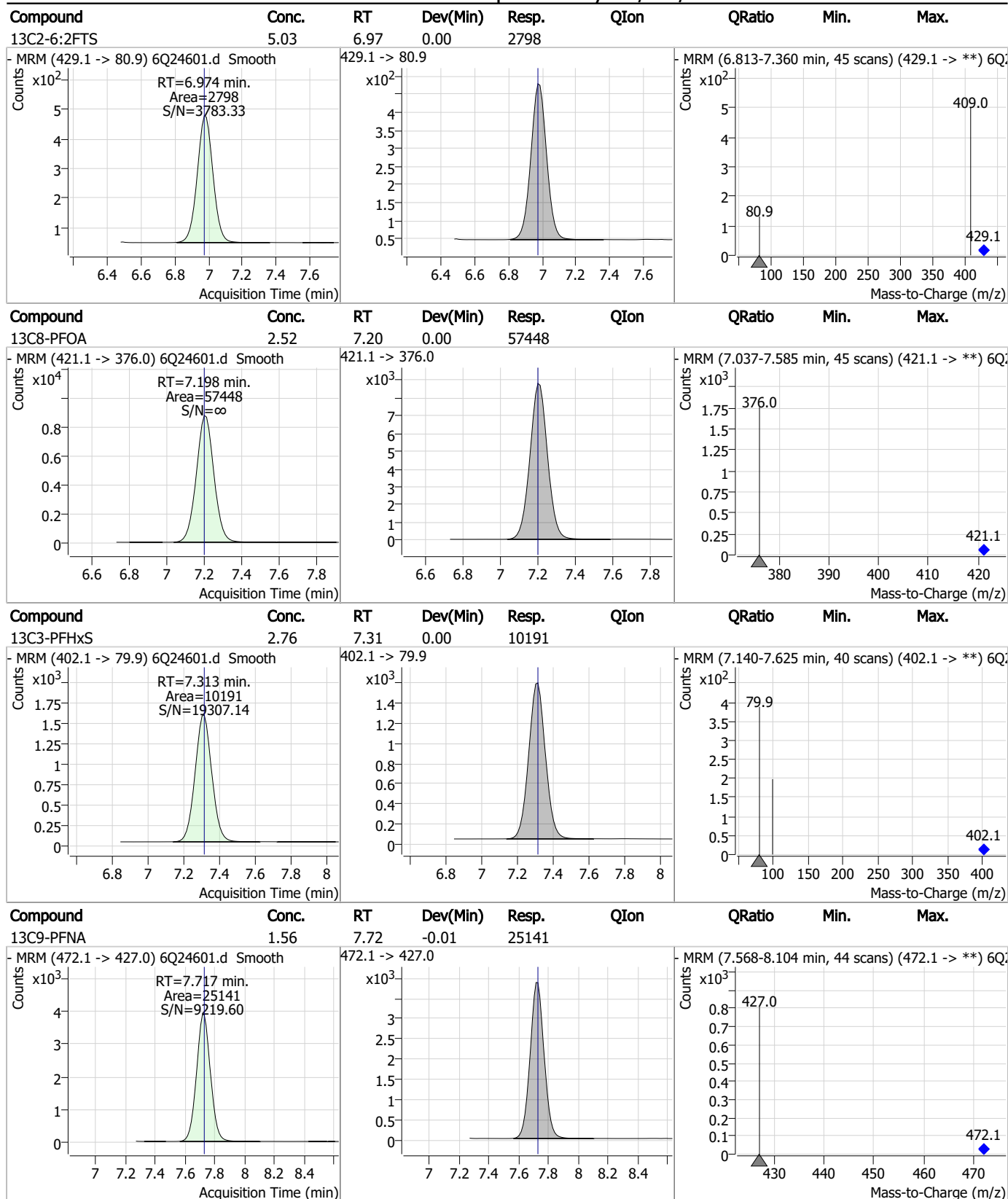
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Perfluorinated Compounds by LC/MS/MS



7.2.1
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Perfluorinated Compounds by LC/MS/MS



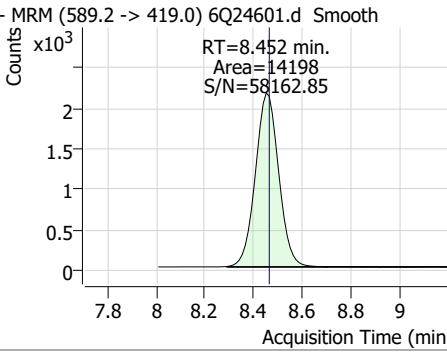
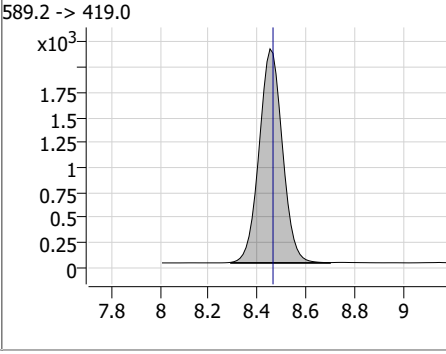
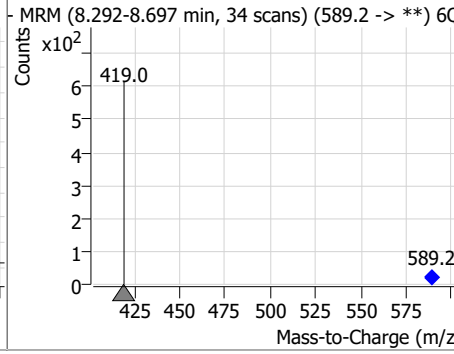
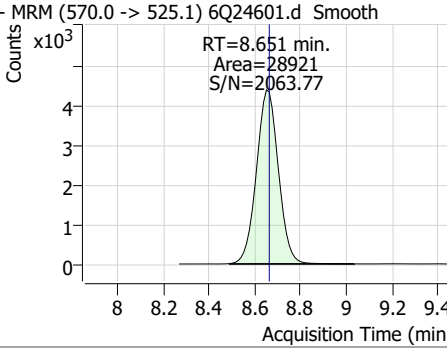
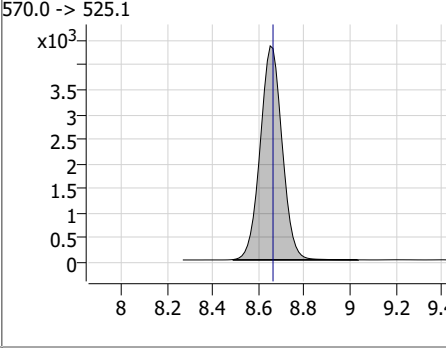
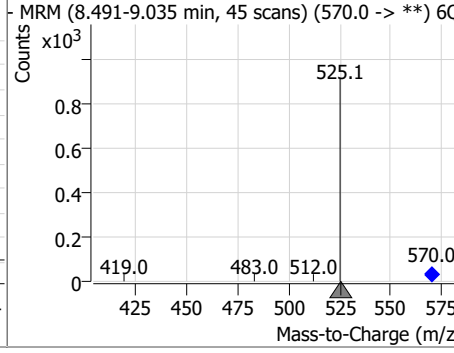
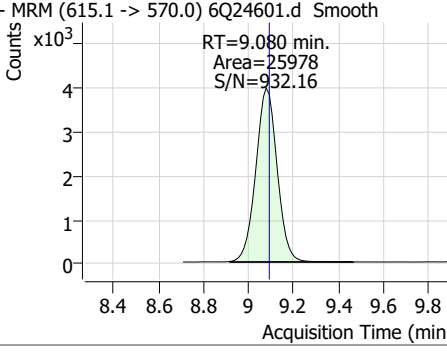
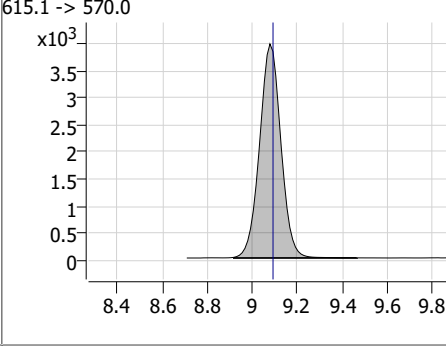
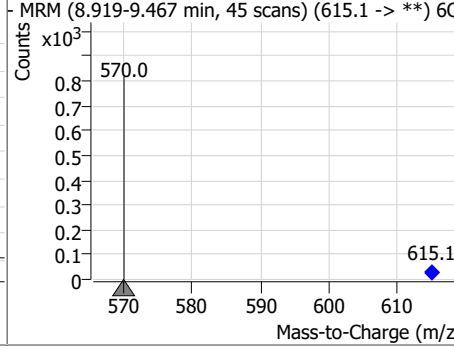
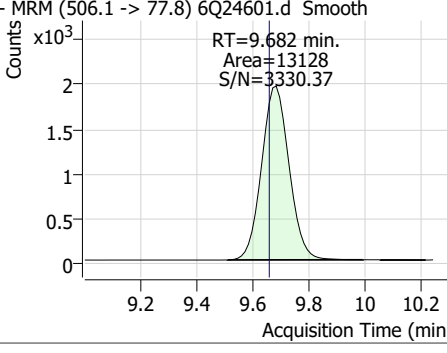
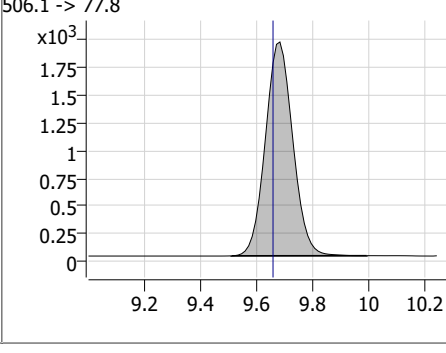
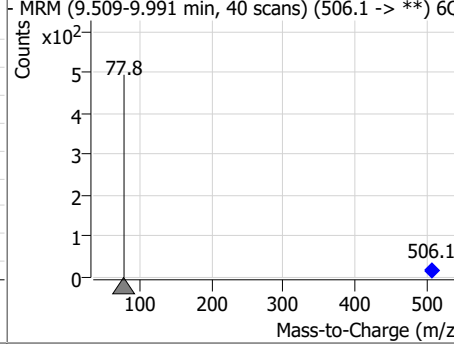
7.2.1
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.56	8.00	0.00	3201				
13C6-PFDA	1.64	8.20	-0.01	26869				
d3-MeFOSAA	4.81	8.26	0.00	15199				
13C8-PFOS	2.67	8.35	-0.01	9507				

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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.67	8.45	-0.01	14198				
- MRM (589.2 -> 419.0) 6Q24601.d Smooth 			589.2 -> 419.0 			- MRM (8.292-8.697 min, 34 scans) (589.2 -> **) 6Q24601.d Smooth 		
13C7-PFUnDA	1.32	8.65	-0.01	28921				
- MRM (570.0 -> 525.1) 6Q24601.d Smooth 			570.0 -> 525.1 			- MRM (8.491-9.035 min, 45 scans) (570.0 -> **) 6Q24601.d Smooth 		
13C2-PFDoDA	1.29	9.08	-0.01	25978				
- MRM (615.1 -> 570.0) 6Q24601.d Smooth 			615.1 -> 570.0 			- MRM (8.919-9.467 min, 45 scans) (615.1 -> **) 6Q24601.d Smooth 		
13C8-FOSA	1.63	9.68	0.02	13128				
- MRM (506.1 -> 77.8) 6Q24601.d Smooth 			506.1 -> 77.8 			- MRM (9.509-9.991 min, 40 scans) (506.1 -> **) 6Q24601.d Smooth 		

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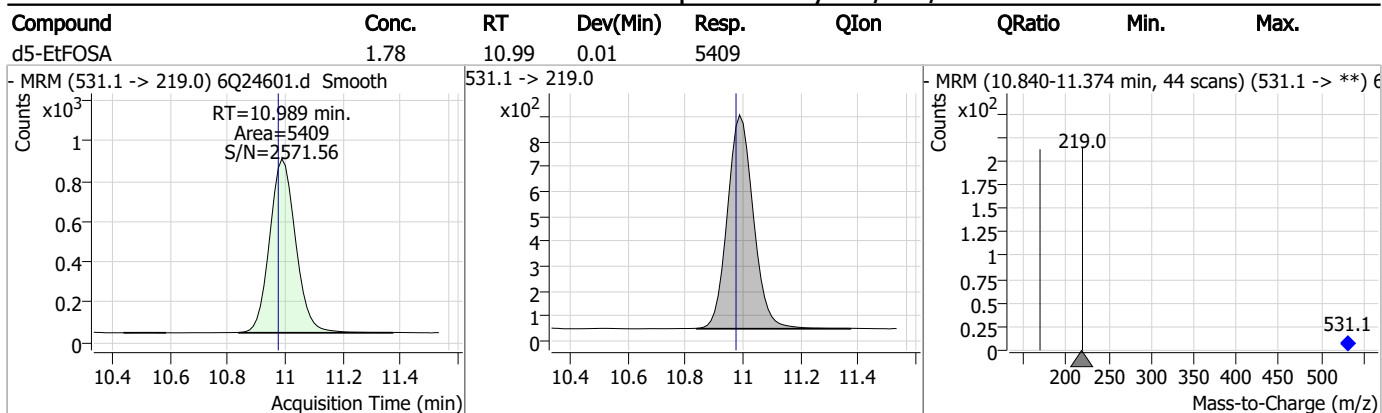
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	9.78	-0.01	9103				
- MRM (715.2 -> 670.0) 6Q24601.d Smooth Counts x10 ³ RT=9.784 min. Area=9103 S/N=18404.85 Acquisition Time (min)			715.2 -> 670.0 Counts x10 ³			- MRM (9.623-10.168 min, 45 scans) (715.2 -> **) 6Q24601.d Smooth Counts x10 ² 670.0 715.2 Mass-to-Charge (m/z)		
d7-MeFOSE	14.63	10.69	0.01	43456				
- MRM (623.2 -> 58.9) 6Q24601.d Smooth Counts x10 ³ RT=10.690 min. Area=43456 S/N=1239.09 Acquisition Time (min)			623.2 -> 58.9 Counts x10 ³			- MRM (10.520-10.975 min, 38 scans) (623.2 -> **) 6Q24601.d Smooth Counts x10 ³ 58.9 623.2 Mass-to-Charge (m/z)		
d3-MeFOSA	1.49	10.77	0.01	4864				
- MRM (515.0 -> 219.0) 6Q24601.d Smooth Counts x10 ³ RT=10.769 min. Area=4864 S/N=230.02 Acquisition Time (min)			515.0 -> 219.0 Counts x10 ²			- MRM (10.610-11.005 min, 32 scans) (515.0 -> **) 6Q24601.d Smooth Counts x10 ² 169.0 219.0 515.0 Mass-to-Charge (m/z)		
d9-EtFOSE	16.75	10.92	0.01	66959				
- MRM (639.2 -> 58.9) 6Q24601.d Smooth Counts x10 ⁴ RT=10.923 min. Area=66959 S/N=1602.12 Acquisition Time (min)			639.2 -> 58.9 Counts x10 ⁴			- MRM (10.751-11.234 min, 40 scans) (639.2 -> **) 6Q24601.d Smooth Counts x10 ³ 58.9 639.2 Mass-to-Charge (m/z)		

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Perfluorinated Compounds by LC/MS/MS



7.2.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50748.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/18/2023 6:53:08 PM
 Sample Name : op99024-mb
 Vial : P1-D6
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q742.batch.bin
 Sample Information : OP99024,S4Q742,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.790	216.8 -> 171.9	89017	10.00 µg/L	0.078
M5-PFPeA	4.265	268.3 -> 223.0	32562	5.00 µg/L	0.050
M5-PFHxA	5.445	318.0 -> 273.0	31240	2.50 µg/L	0.037
M4-PFHpA	6.392	367.1 -> 322.0	21402	2.50 µg/L	0.038
M8-PFOA	7.062	421.1 -> 376.0	34911	2.50 µg/L	0.025
M9-PFNA	7.608	472.1 -> 427.0	14180	1.25 µg/L	0.038
M6-PFDA	8.090	519.1 -> 474.1	9477	1.25 µg/L	0.025
M7-PFUnDA	8.546	570.0 -> 525.1	10710	1.25 µg/L	0.037
M2-PFDoDA	8.966	615.1 -> 570.0	12819	1.25 µg/L	0.025
M2-PFTeDA	9.723	715.2 -> 670.0	6572	1.25 µg/L	0.025
M8-FOSA	9.943	506.1 -> 77.8	6347	2.50 µg/L	0.037
M3-PFBS	5.300	302.1 -> 79.9	7908	2.50 µg/L	0.037
M3-PFHxS	7.128	402.1 -> 79.9	4699	2.50 µg/L	0.025
M8-PFOS	8.216	507.1 -> 79.9	5985	2.50 µg/L	0.038
M2-4:2FTS	5.158	329.1 -> 80.9	872	5.00 µg/L	0.050
M2-6:2FTS	6.847	429.1 -> 80.9	1380	5.00 µg/L	0.037
M2-8:2FTS	7.889	529.1 -> 80.9	1924	5.00 µg/L	0.025
M3-MeFOSAA	8.172	573.2 -> 419.0	10843	5.00 µg/L	0.025
M3-HFPO-DA	5.800	286.9 -> 168.9	30267	10.00 µg/L	0.037
M5-EtFOSAA	8.383	589.2 -> 419.0	10089	5.00 µg/L	0.025
M7-MeFOSE	11.097	623.2 -> 58.9	39003	25.00 µg/L	0.025
M9-EtFOSE	11.369	639.2 -> 58.9	61815	25.00 µg/L	0.025
M5-EtFOSA	11.448	531.1 -> 219.0	4940	2.50 µg/L	0.012
M3-MeFOSA	11.190	515.0 -> 219.0	3457	2.50 µg/L	0.012
13C4-PFOS	8.217	502.8 -> 79.9	3638	2.50 µg/L	0.038
13C3-PFBA	2.793	216.0 -> 172.0	30912	5.00 µg/L	0.077
18O2-PFHxS	7.127	403.0 -> 83.9	2366	2.50 µg/L	0.025
13C4-PFOA	7.062	417.1 -> 372.0	27721	2.50 µg/L	0.025
13C2-PFDA	8.090	515.1 -> 470.1	7298	1.25 µg/L	0.025
13C5-PFNA	7.608	468.0 -> 423.0	8622	1.25 µg/L	0.038
13C2-PFHxA	5.446	315.1 -> 270.0	19480	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.158	329.1 -> 80.9	872	6.75 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 135.0%		
13C2-6:2FTS	6.847	429.1 -> 80.9	1380	6.90 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 137.9%		
13C2-8:2FTS	7.889	529.1 -> 80.9	1924	6.23 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.5%		
13C2-PFDoDA	8.966	615.1 -> 570.0	12819	1.56 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 124.6%		
13C2-PFTeDA	9.723	715.2 -> 670.0	6572	1.51 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 120.7%		
13C3-PFBS	5.300	302.1 -> 79.9	7908	3.49 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 139.6%		
13C3-PFHxS	7.128	402.1 -> 79.9	4699	3.30 µg/L	0.025

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 132.1%	
13C4-PFBA	2.790	216.8 -> 171.9	89017	14.55 µg/L	0.078
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 145.5%	
13C4-PFHpA	6.392	367.1 -> 322.0	21402	3.47 µg/L	0.038
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 138.9%	
13C5-PFHxA	5.445	318.0 -> 273.0	31240	3.52 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 140.9%	
13C5-PFPeA	4.265	268.3 -> 223.0	32562	7.10 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 142.0%	
13C6-PFDA	8.090	519.1 -> 474.1	9477	1.71 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 136.5%	
13C7-PFUnDA	8.546	570.0 -> 525.1	10710	1.71 µg/L	0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 136.9%	
13C8-FOSA	9.943	506.1 -> 77.8	6347	2.52 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-PFOA	7.062	421.1 -> 376.0	34911	3.43 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 137.3%	
13C8-PFOS	8.216	507.1 -> 79.9	5985	3.70 µg/L	0.038
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 148.0%	
13C9-PFNA	7.608	472.1 -> 427.0	14180	1.80 µg/L	0.038
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 144.0%	
d3-MeFOSAA	8.172	573.2 -> 419.0	10843	6.63 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 132.7%	
13C3-HFPO-DA	5.800	286.9 -> 168.9	30267	14.36 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 143.6%	
d3-MeFOSA	11.190	515.0 -> 219.0	3457	2.34 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
d5-EtFOSAA	8.383	589.2 -> 419.0	10089	6.67 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 133.3%	
d7-MeFOSE	11.097	623.2 -> 58.9	39003	27.13 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.5%	
d9-EtFOSE	11.369	639.2 -> 58.9	61815	29.80 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 119.2%	
d5-EtFOSA	11.448	531.1 -> 219.0	4940	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	

Target Compounds

QValue

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

7.22
7

Perfluorinated Compounds by LC/MS/MS

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

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

7.2.2
7

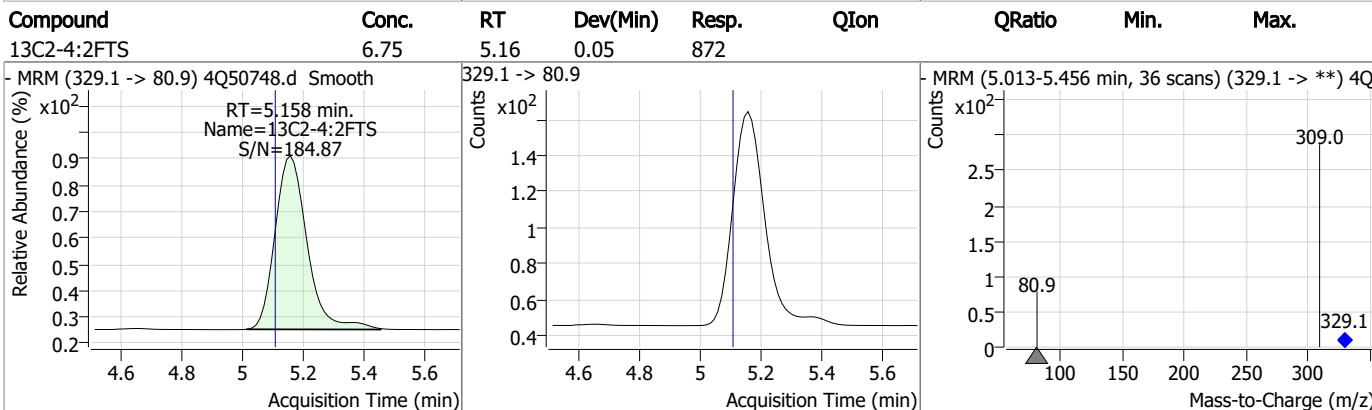
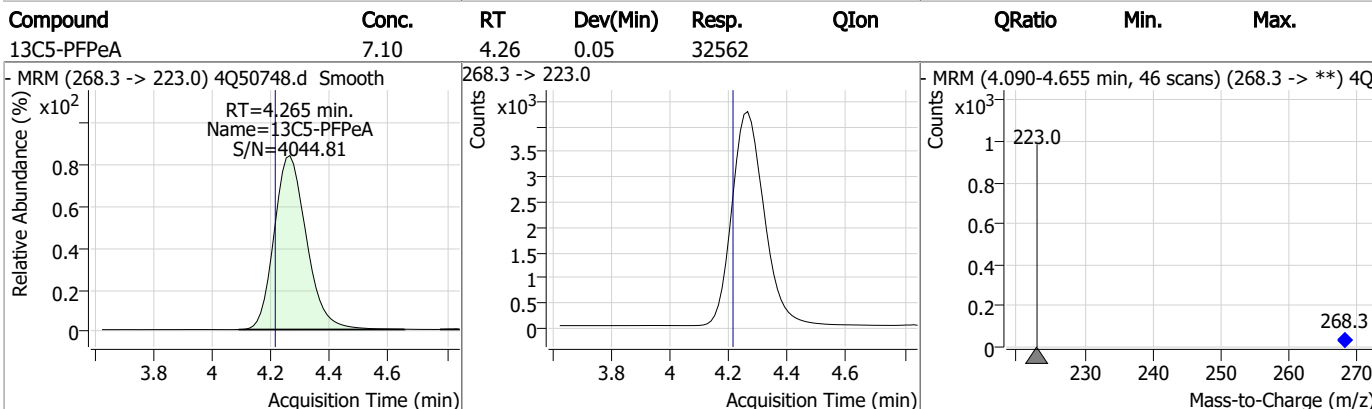
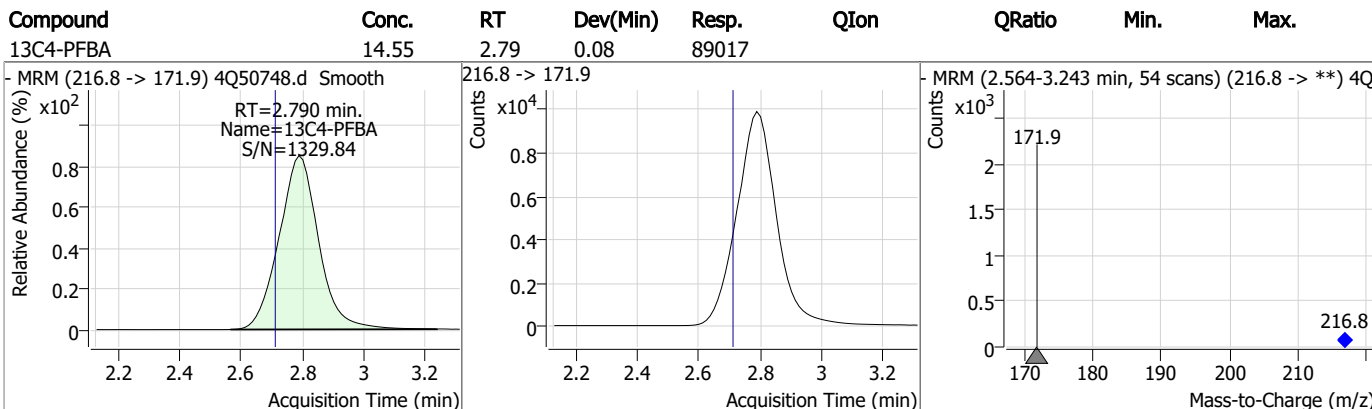
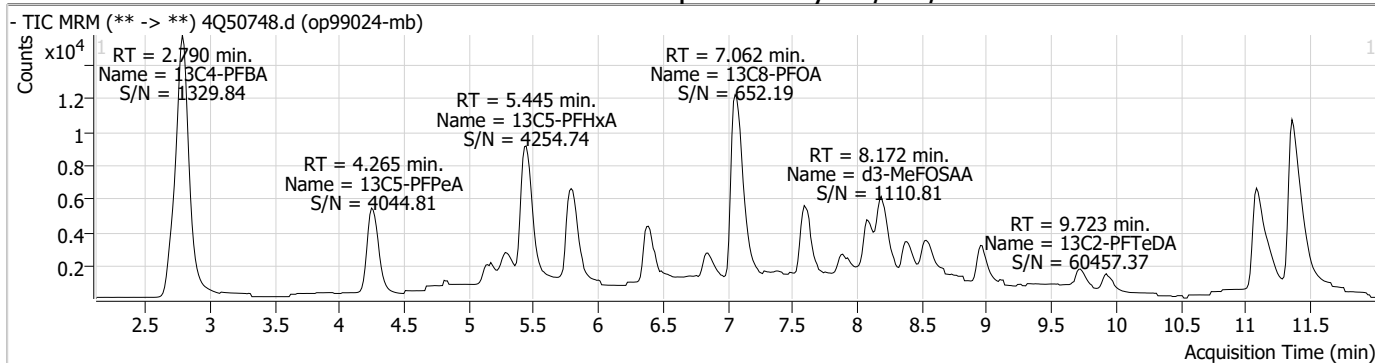
Perfluorinated Compounds by LC/MS/MS

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

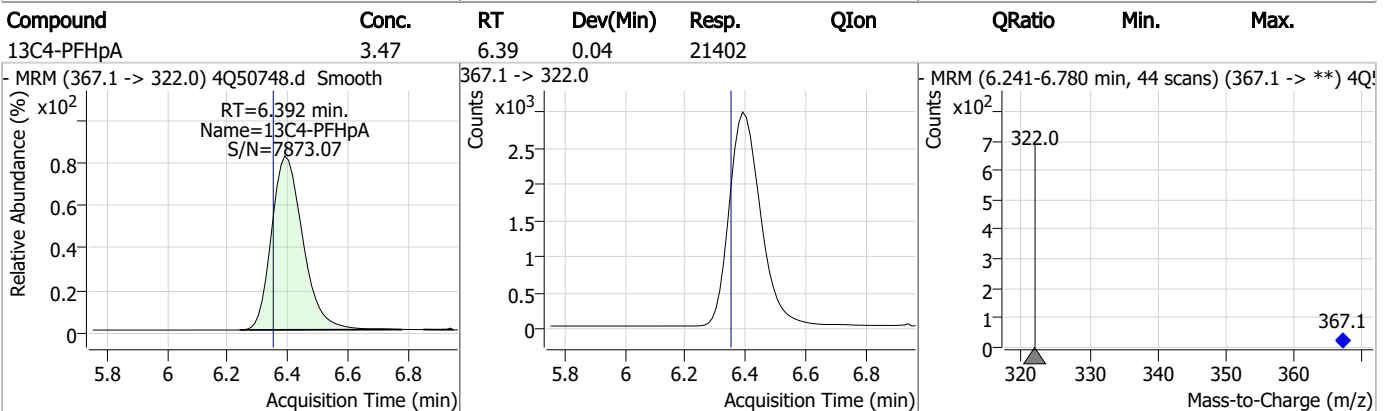
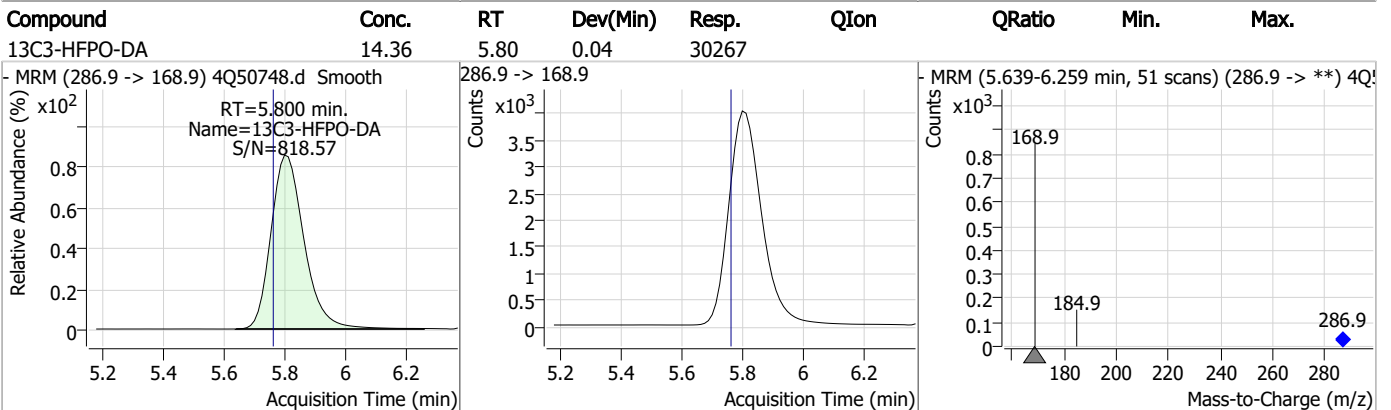
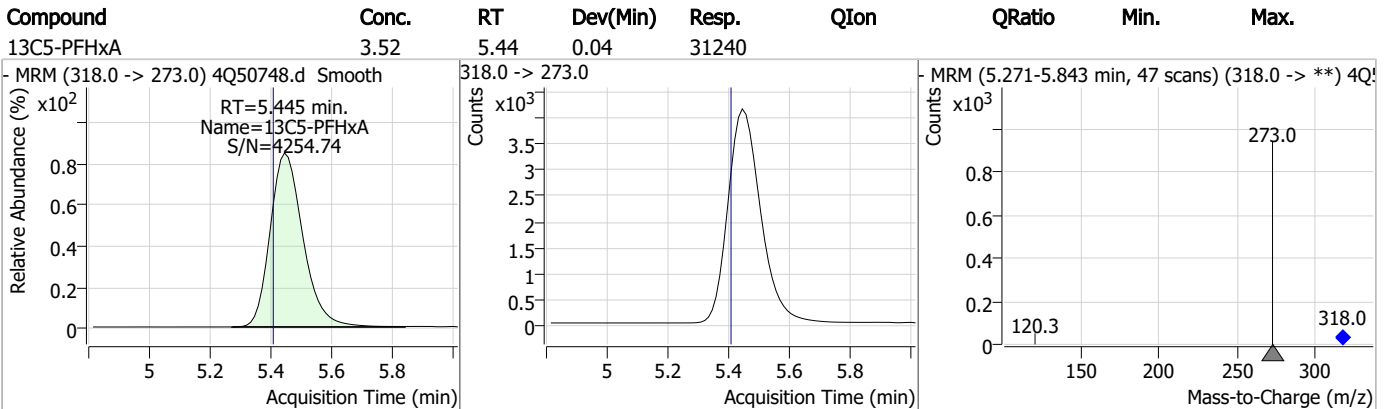
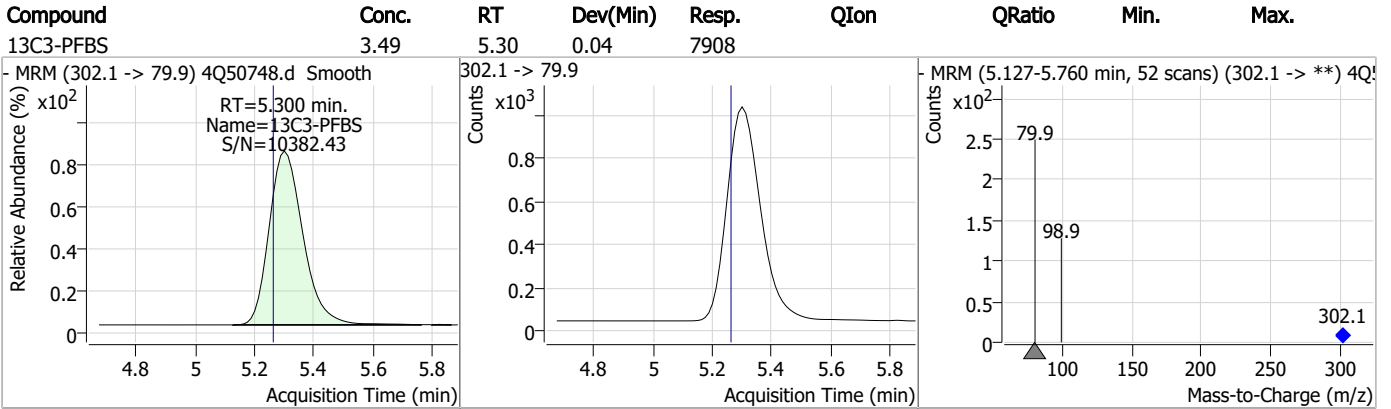
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Perfluorinated Compounds by LC/MS/MS

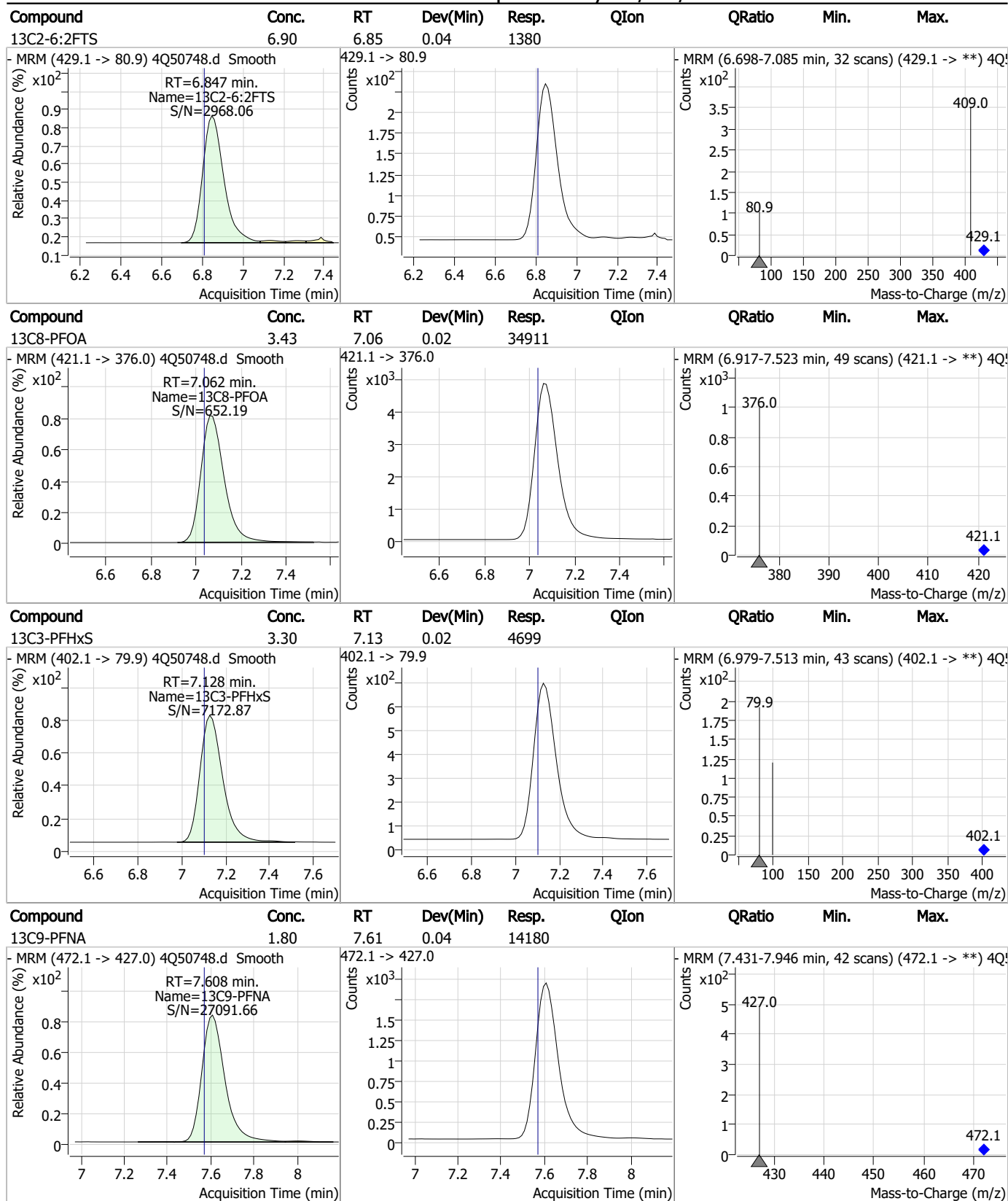


7.2.2
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Perfluorinated Compounds by LC/MS/MS

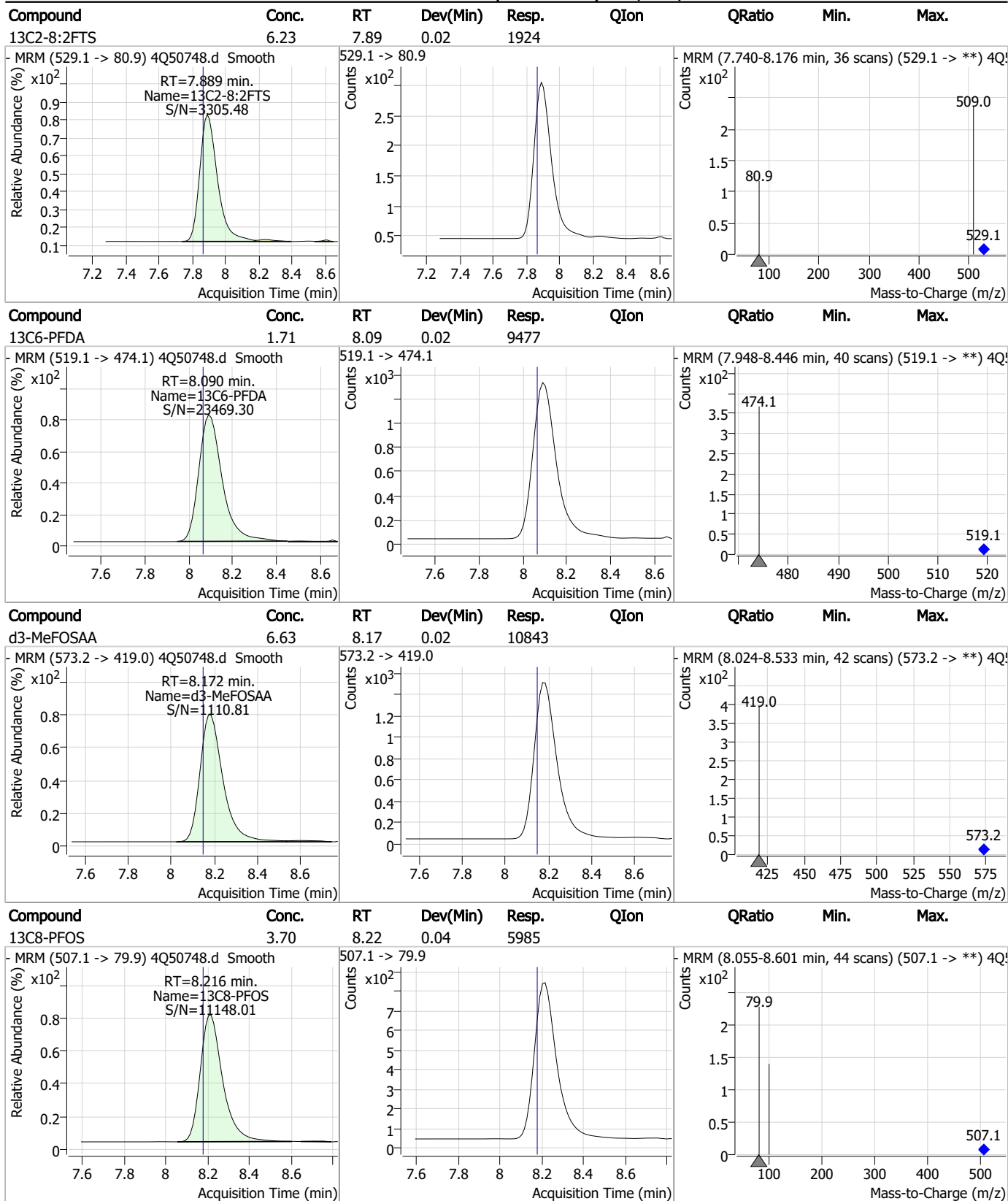


Perfluorinated Compounds by LC/MS/MS



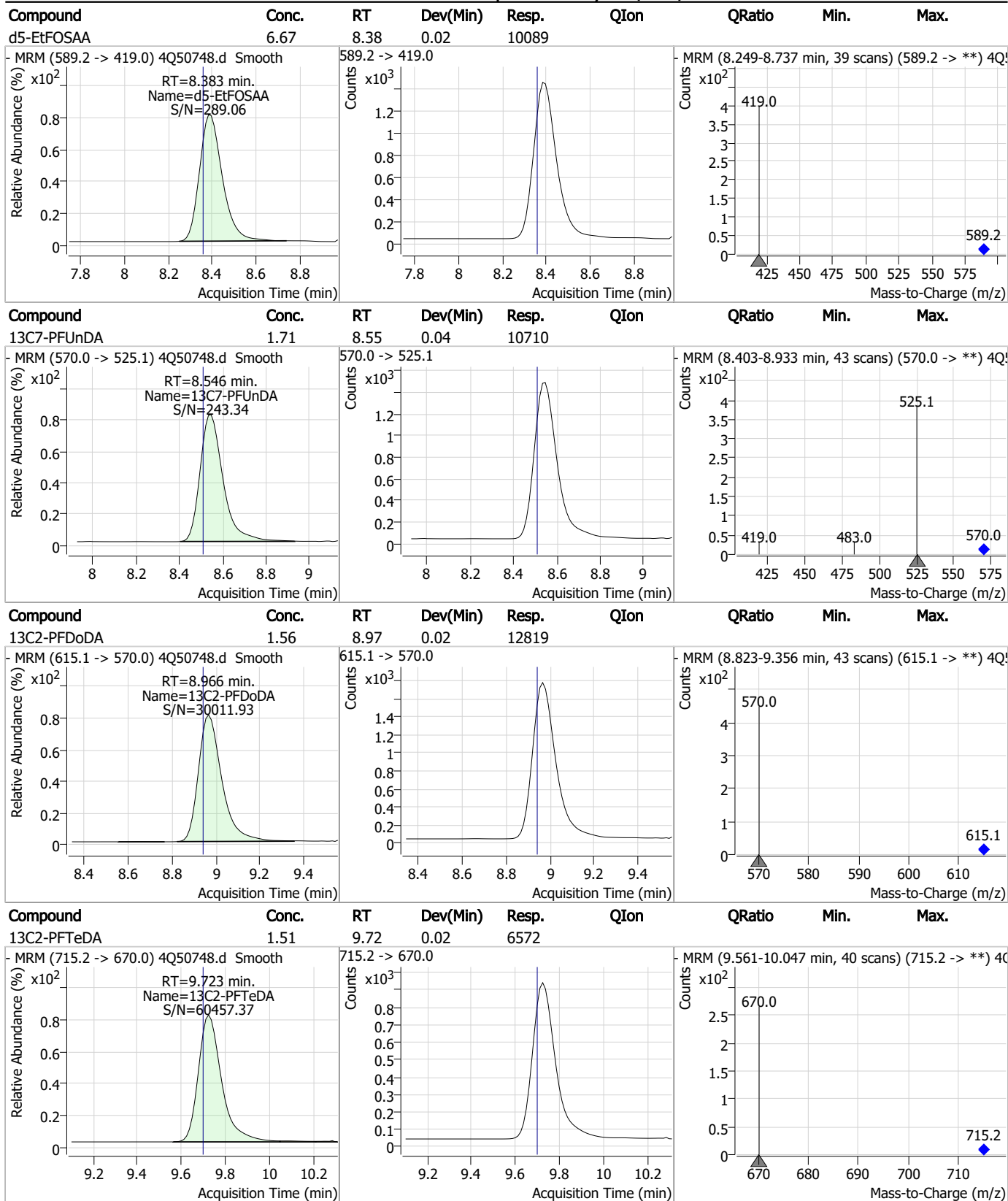
7.2.2
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Perfluorinated Compounds by LC/MS/MS



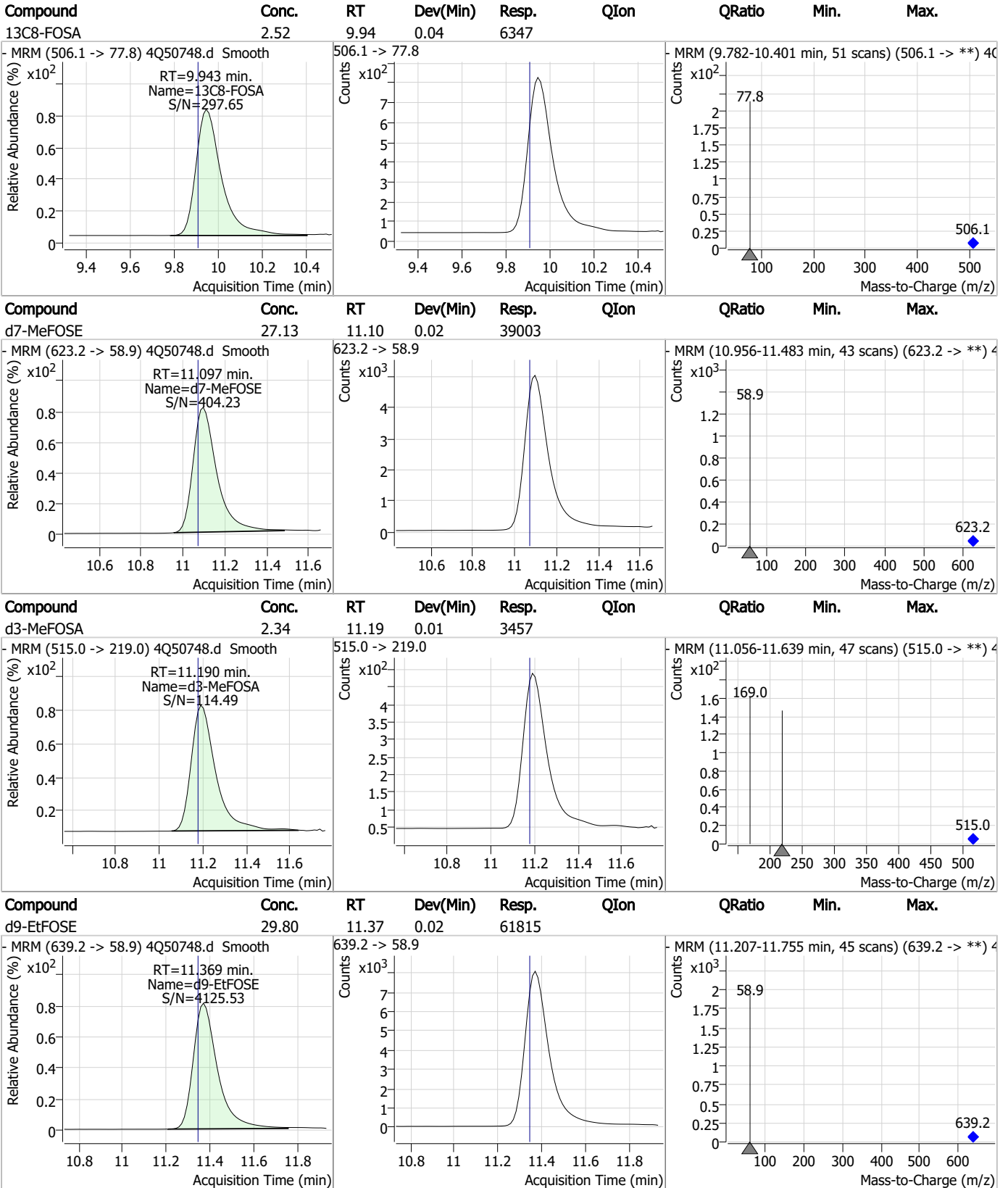
7.2.2
7

Perfluorinated Compounds by LC/MS/MS



7.22
7

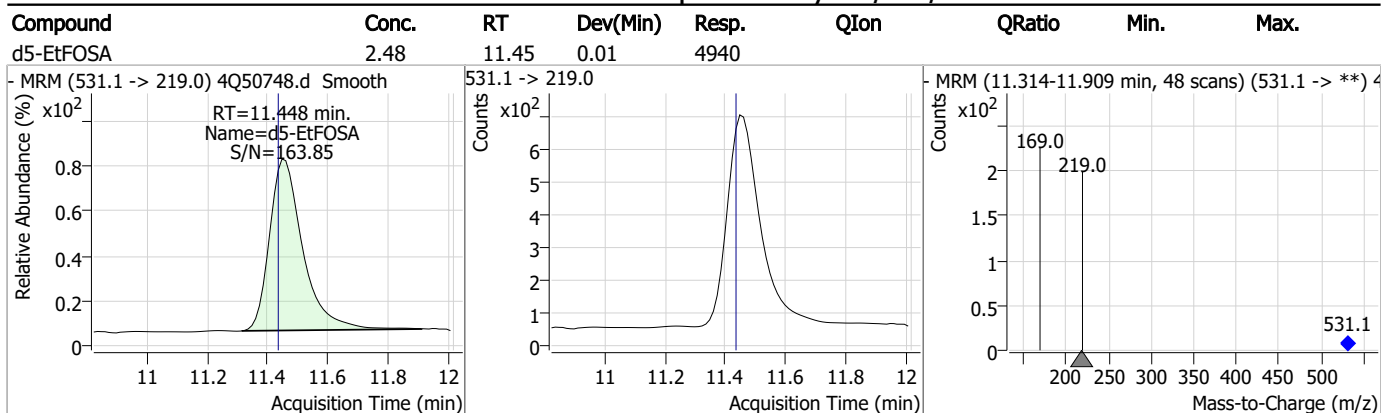
Perfluorinated Compounds by LC/MS/MS



7.2.2

7

Perfluorinated Compounds by LC/MS/MS



7.2.2
7



Perfluorinated Compounds by LC/MS/MS

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 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 12:09:36 PM
 Sample Name : IBLK
 Vial : P1-A1
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP98555,S6Q353,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	204847	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	34132	5.00 µg/L	0.012
M5-PFHxA	5.641	318.0 -> 273.0	72378	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	61572	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	85403	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	33033	1.25 µg/L	-0.012
M6-PFDA	8.198	519.1 -> 474.1	31659	1.25 µg/L	-0.012
M7-PFUnDA	8.651	570.0 -> 525.1	39792	1.25 µg/L	-0.012
M2-PFDoDA	9.080	615.1 -> 570.0	36819	1.25 µg/L	-0.014
M2-PFTeDA	9.784	715.2 -> 670.0	14919	1.25 µg/L	-0.012
M8-FOSA	9.670	506.1 -> 77.8	27583	2.50 µg/L	0.012
M3-PFBS	5.571	302.1 -> 79.9	25164	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	14128	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	13239	2.50 µg/L	-0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2994	5.00 µg/L	0.012
M2-6:2FTS	6.974	429.1 -> 80.9	3546	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	3477	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	21267	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	43729	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	18787	5.00 µg/L	-0.012
M7-MeFOSE	10.690	623.2 -> 58.9	107346	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	146887	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	10051	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	9674	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	17203	2.50 µg/L	-0.012
13C3-PFBA	2.989	216.0 -> 172.0	79898	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	10040	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	92054	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	27710	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	38031	1.25 µg/L	-0.012
13C2-PFHxA	5.642	315.1 -> 270.0	58031	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2994	5.30 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-6:2FTS	6.974	429.1 -> 80.9	3546	4.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.5%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3477	4.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 81.0%		
13C2-PFDoDA	9.080	615.1 -> 570.0	36819	1.24 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-PFTeDA	9.784	715.2 -> 670.0	14919	1.35 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C3-PFBS	5.571	302.1 -> 79.9	25164	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C3-PFHxS	7.301	402.1 -> 79.9	14128	2.56 µg/L	-0.012

7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C4-PFBA	2.985	216.8 -> 171.9	204847	10.15 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C4-PFHpA	6.569	367.1 -> 322.0	61572	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C5-PFHxA	5.641	318.0 -> 273.0	72378	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.5%	
13C5-PFPeA	4.434	268.3 -> 223.0	34132	4.36 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 87.3%	
13C6-PFDA	8.198	519.1 -> 474.1	31659	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C7-PFUnDA	8.651	570.0 -> 525.1	39792	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C8-FOSA	9.670	506.1 -> 77.8	27583	2.25 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.1%	
13C8-PFOA	7.198	421.1 -> 376.0	85403	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C8-PFOS	8.348	507.1 -> 79.9	13239	2.44 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C9-PFNA	7.717	472.1 -> 427.0	33033	1.39 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.2%	
d3-MeFOSAA	8.256	573.2 -> 419.0	21267	4.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.4%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	43729	9.89 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
d3-MeFOSA	10.769	515.0 -> 219.0	9674	1.95 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.0%	
d5-EtFOSAA	8.452	589.2 -> 419.0	18787	4.06 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 81.2%	
d7-MeFOSE	10.690	623.2 -> 58.9	107346	23.73 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.9%	
d9-EtFOSE	10.923	639.2 -> 58.9	146887	24.13 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.5%	
d5-EtFOSA	10.989	531.1 -> 219.0	10051	2.17 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.9%	

7.2.3
7

Target Compounds

QValue

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

Perfluorinated Compounds by LC/MS/MS

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

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

7.2.3
7

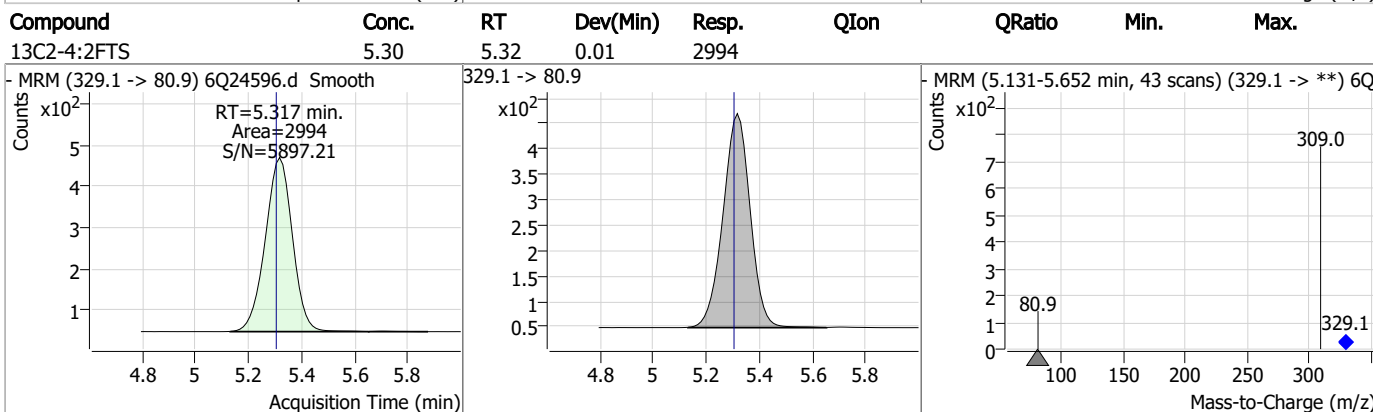
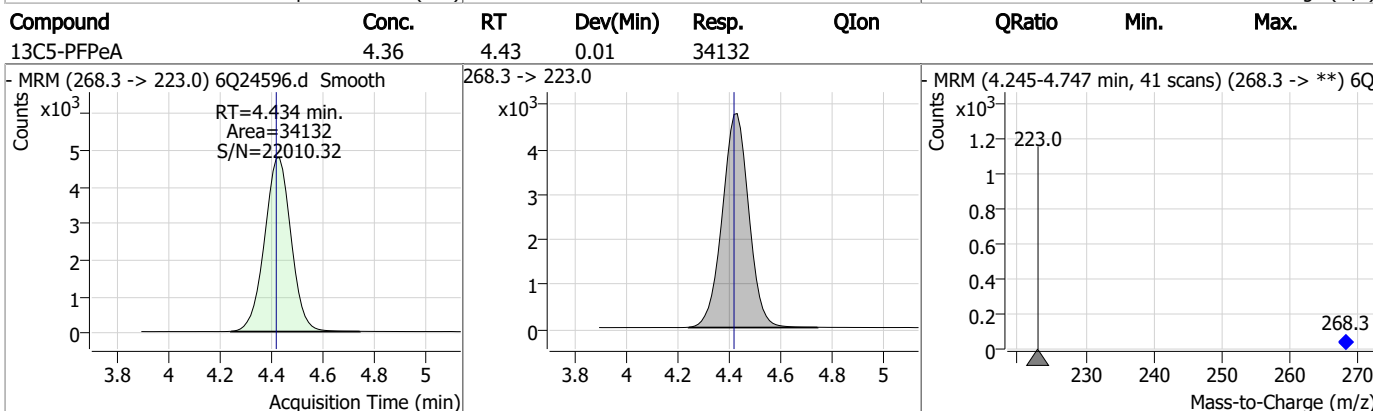
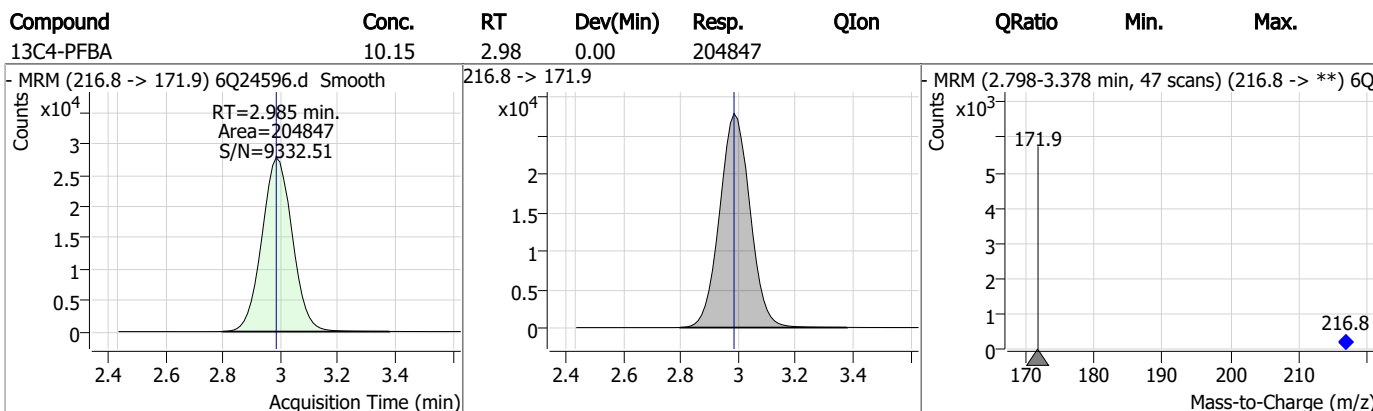
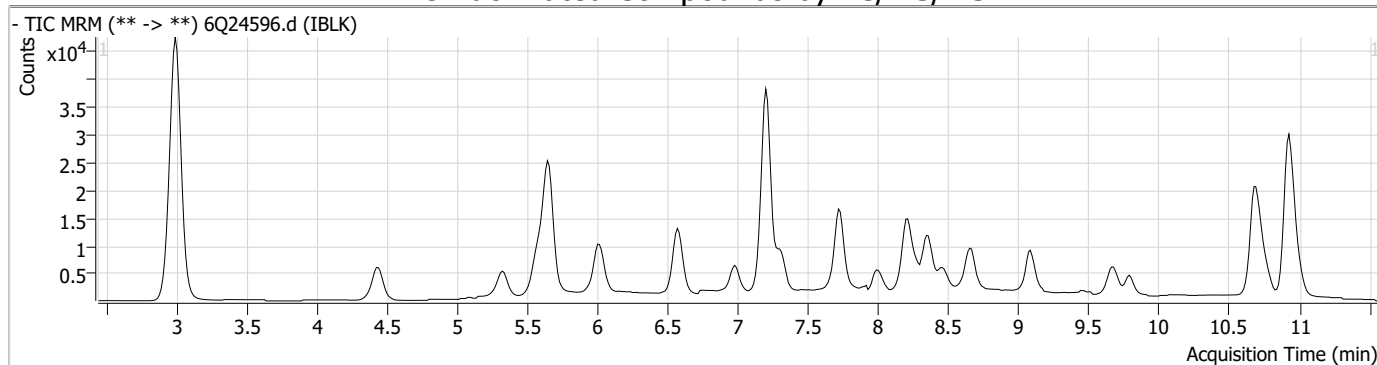
Perfluorinated Compounds by LC/MS/MS

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

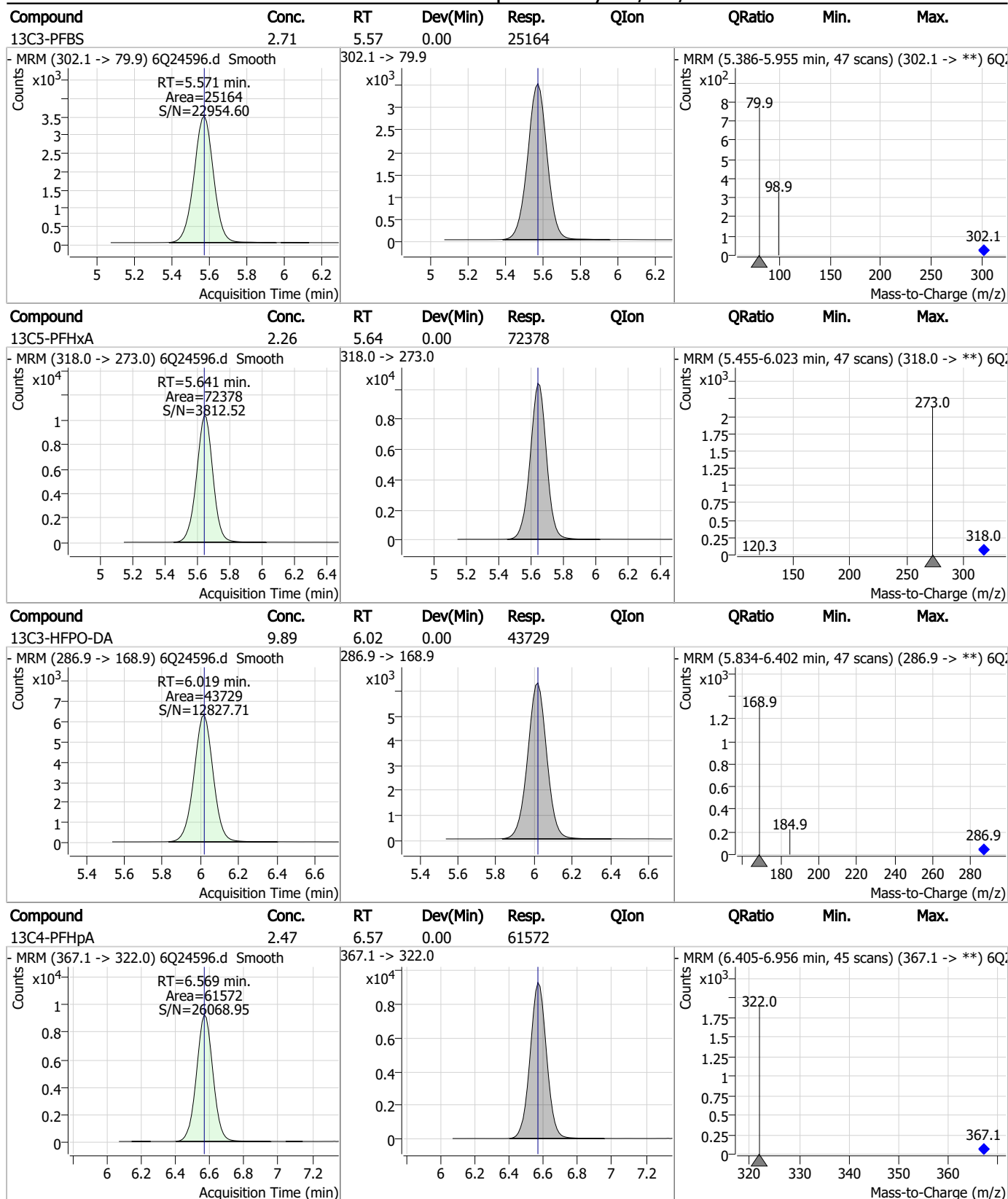
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Perfluorinated Compounds by LC/MS/MS



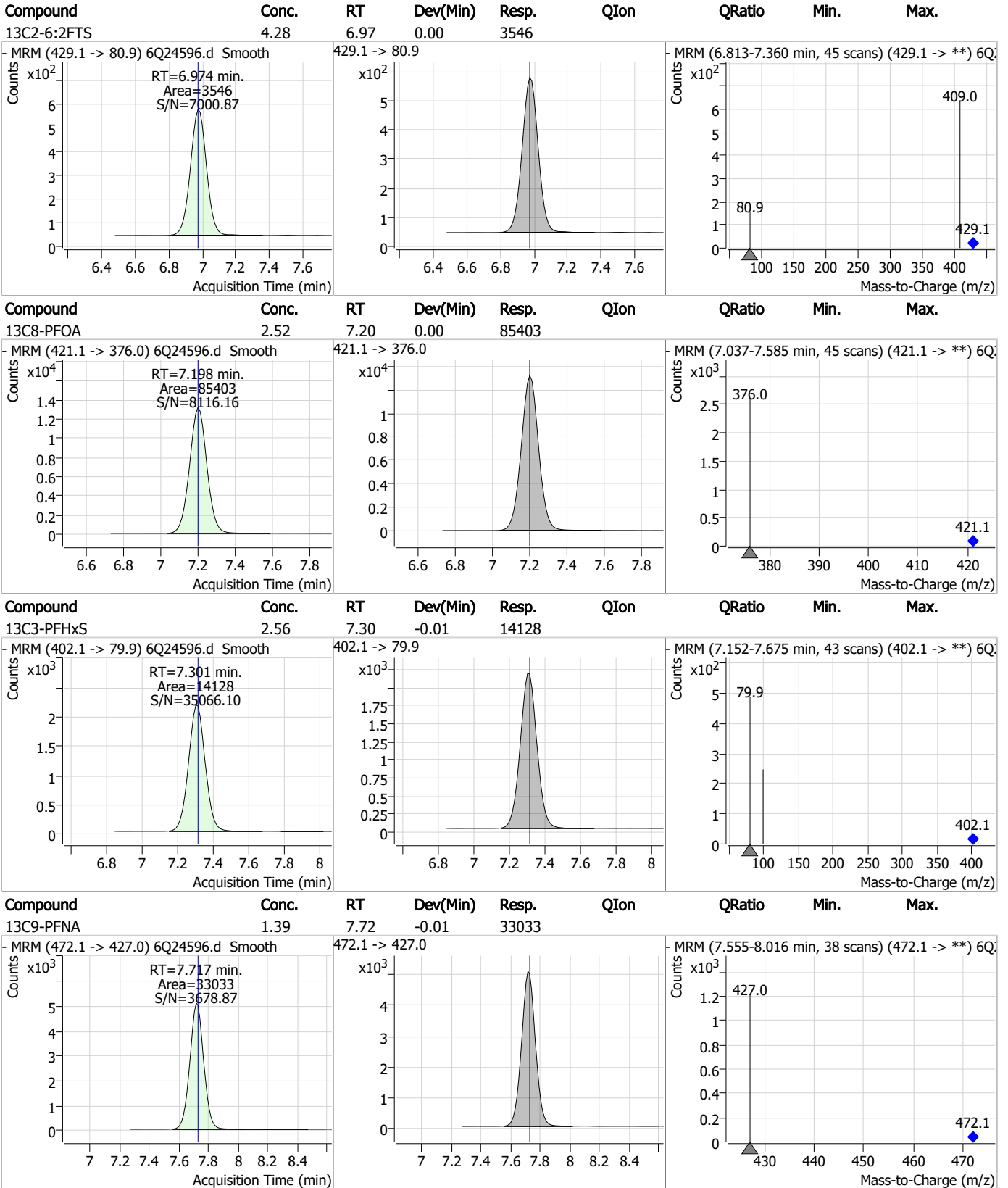
7.2.3
7

Perfluorinated Compounds by LC/MS/MS



7.2.3
7

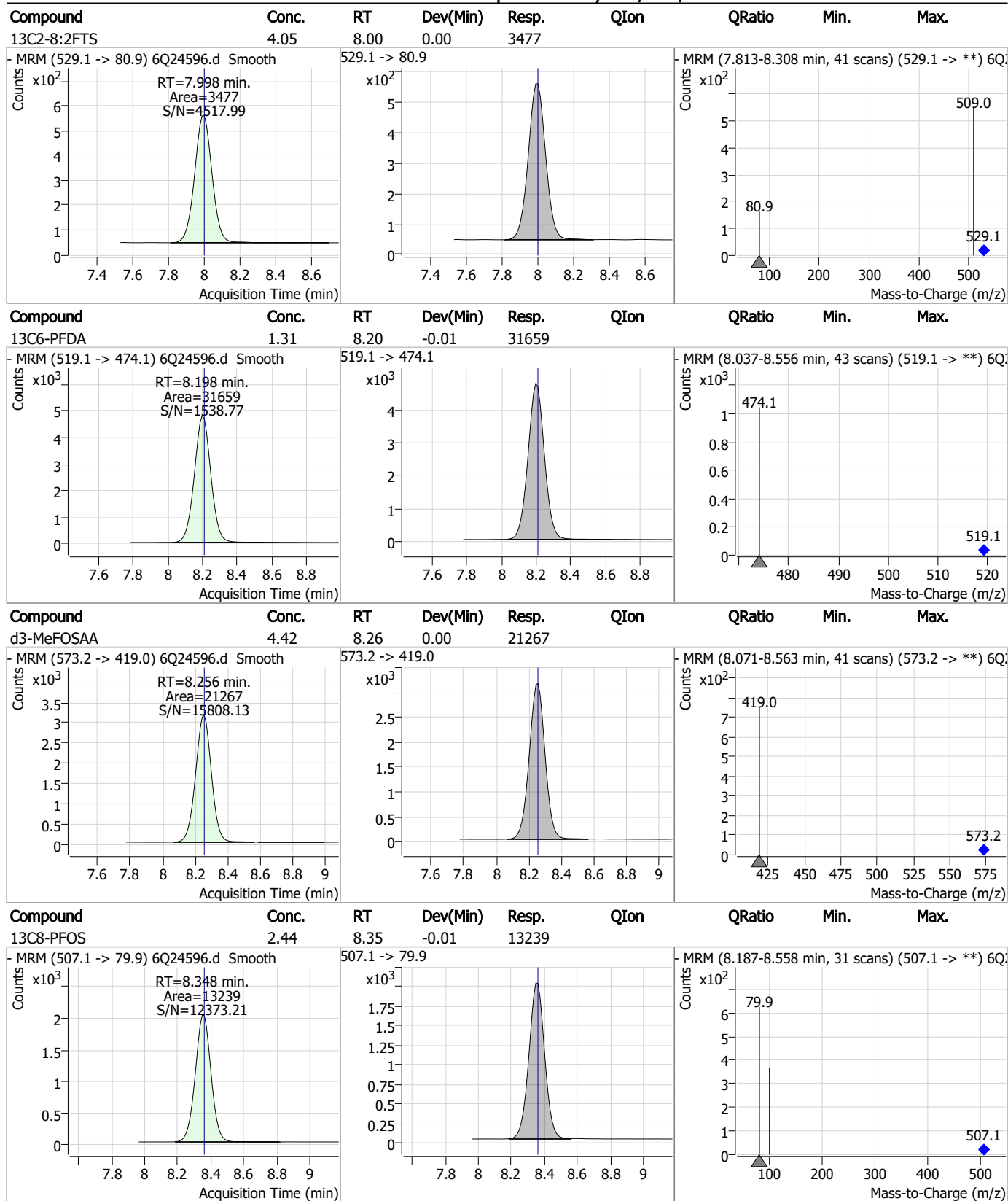
Perfluorinated Compounds by LC/MS/MS



7.2.3

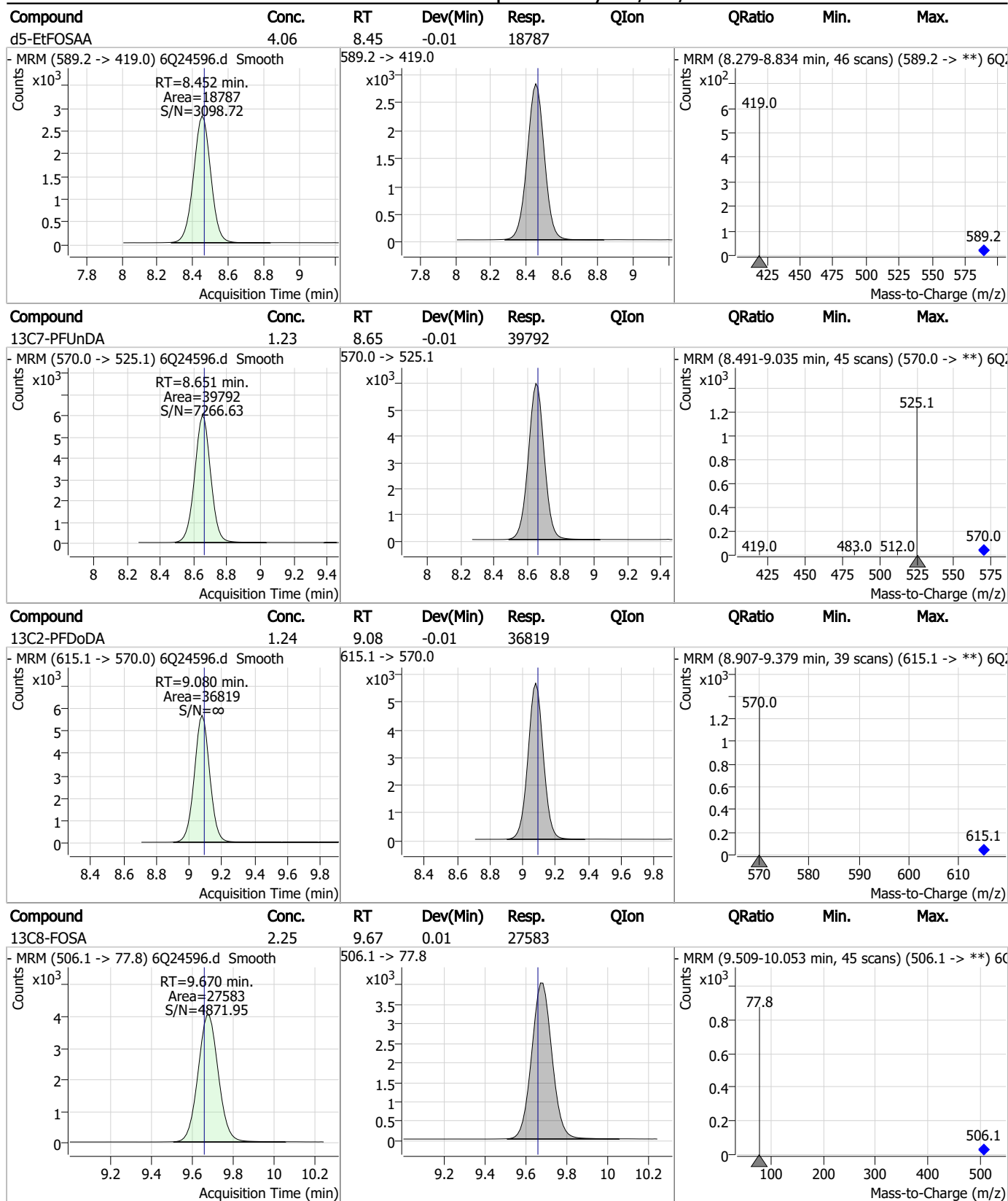
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Perfluorinated Compounds by LC/MS/MS



7.2.3
7

Perfluorinated Compounds by LC/MS/MS



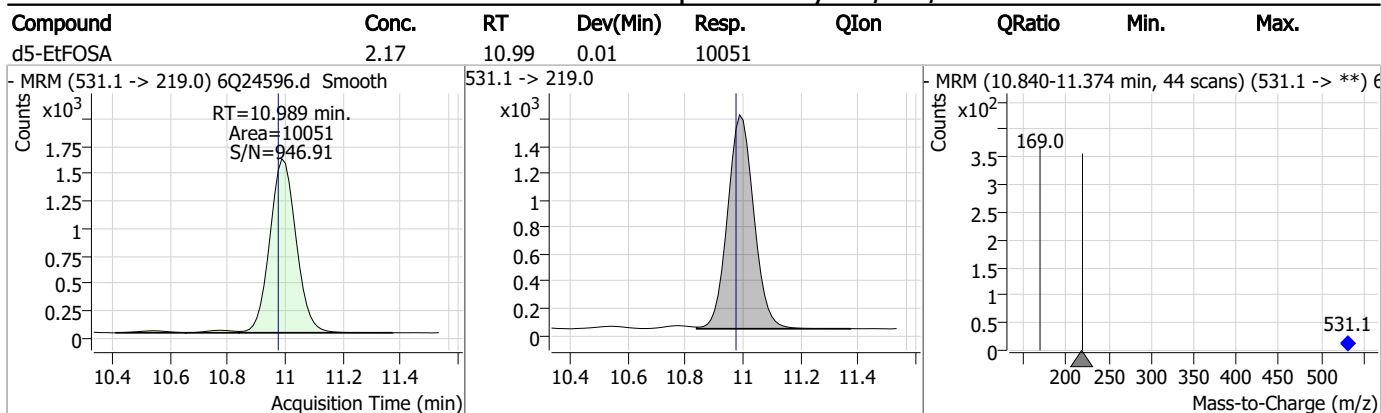
7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.35	9.78	-0.01	14919				
- MRM (715.2 -> 670.0) 6Q24596.d Smooth Counts x10 ³ RT=9.784 min. Area=14919 S/N=482.78 Acquisition Time (min)			715.2 -> 670.0 Counts x10 ³ Acquisition Time (min)			- MRM (9.636-10.056 min, 35 scans) (715.2 -> **) 6Q24596.d Smooth Counts x10 ² 670.0 715.2 Mass-to-Charge (m/z)		
d7-MeFOSE	23.73	10.69	0.01	107346				
- MRM (623.2 -> 58.9) 6Q24596.d Smooth Counts x10 ⁴ RT=10.690 min. Area=107346 S/N=1699.14 Acquisition Time (min)			623.2 -> 58.9 Counts x10 ⁴ Acquisition Time (min)			- MRM (10.520-11.074 min, 46 scans) (623.2 -> **) 6Q24596.d Smooth Counts x10 ³ 58.9 623.2 Mass-to-Charge (m/z)		
d3-MeFOSA	1.95	10.77	0.01	9674				
- MRM (515.0 -> 219.0) 6Q24596.d Smooth Counts x10 ³ RT=10.769 min. Area=9674 S/N=6099.98 Acquisition Time (min)			515.0 -> 219.0 Counts x10 ³ Acquisition Time (min)			- MRM (10.610-11.154 min, 45 scans) (515.0 -> **) 6Q24596.d Smooth Counts x10 ² 169.0 219.0 515.0 Mass-to-Charge (m/z)		
d9-EtFOSE	24.13	10.92	0.01	146887				
- MRM (639.2 -> 58.9) 6Q24596.d Smooth Counts x10 ⁴ RT=10.923 min. Area=146887 S/N=6044.42 Acquisition Time (min)			639.2 -> 58.9 Counts x10 ⁴ Acquisition Time (min)			- MRM (10.763-11.308 min, 45 scans) (639.2 -> **) 6Q24596.d Smooth Counts x10 ³ 58.9 639.2 Mass-to-Charge (m/z)		

7.2.3
7

Perfluorinated Compounds by LC/MS/MS



7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50729.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/18/2023 12:59:17 PM
 Sample Name : iblk
 Vial : P1-A1
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q742.batch.bin
 Sample Information : OP98180,S4Q742,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.724	216.8 -> 171.9	84433	10.00 µg/L	0.012
M5-PFPeA	4.228	268.3 -> 223.0	32647	5.00 µg/L	0.012
M5-PFHxA	5.408	318.0 -> 273.0	31792	2.50 µg/L	0.000
M4-PFHpA	6.353	367.1 -> 322.0	22530	2.50 µg/L	0.000
M8-PFOA	7.037	421.1 -> 376.0	36479	2.50 µg/L	0.000
M9-PFNA	7.570	472.1 -> 427.0	13857	1.25 µg/L	0.000
M6-PFDA	8.065	519.1 -> 474.1	9881	1.25 µg/L	0.000
M7-PFUnDA	8.509	570.0 -> 525.1	10757	1.25 µg/L	0.000
M2-PFDoDA	8.941	615.1 -> 570.0	13690	1.25 µg/L	0.000
M2-PFTeDA	9.698	715.2 -> 670.0	8100	1.25 µg/L	0.000
M8-FOSA	9.906	506.1 -> 77.8	9185	2.50 µg/L	0.000
M3-PFBS	5.263	302.1 -> 79.9	7497	2.50 µg/L	0.000
M3-PFHxS	7.103	402.1 -> 79.9	4802	2.50 µg/L	0.000
M8-PFOS	8.178	507.1 -> 79.9	6128	2.50 µg/L	0.000
M2-4:2FTS	5.121	329.1 -> 80.9	828	5.00 µg/L	0.012
M2-6:2FTS	6.822	429.1 -> 80.9	1279	5.00 µg/L	0.012
M2-8:2FTS	7.865	529.1 -> 80.9	2074	5.00 µg/L	0.000
M3-MeFOSAA	8.147	573.2 -> 419.0	10738	5.00 µg/L	0.000
M3-HFPO-DA	5.763	286.9 -> 168.9	31859	10.00 µg/L	0.000
M5-EtFOSAA	8.358	589.2 -> 419.0	10375	5.00 µg/L	0.000
M7-MeFOSE	11.072	623.2 -> 58.9	59008	25.00 µg/L	0.000
M9-EtFOSE	11.344	639.2 -> 58.9	82104	25.00 µg/L	0.000
M5-EtFOSA	11.435	531.1 -> 219.0	6893	2.50 µg/L	0.000
M3-MeFOSA	11.178	515.0 -> 219.0	4922	2.50 µg/L	0.000
13C4-PFOS	8.179	502.8 -> 79.9	5101	2.50 µg/L	0.000
13C3-PFBA	2.716	216.0 -> 172.0	42250	5.00 µg/L	0.000
18O2-PFHxS	7.102	403.0 -> 83.9	3311	2.50 µg/L	0.000
13C4-PFOA	7.037	417.1 -> 372.0	39279	2.50 µg/L	0.000
13C2-PFDA	8.053	515.1 -> 470.1	9637	1.25 µg/L	-0.013
13C5-PFNA	7.570	468.0 -> 423.0	11421	1.25 µg/L	0.000
13C2-PFHxA	5.409	315.1 -> 270.0	27311	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.121	329.1 -> 80.9	828	4.58 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.6%		
13C2-6:2FTS	6.822	429.1 -> 80.9	1279	4.57 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.4%		
13C2-8:2FTS	7.865	529.1 -> 80.9	2074	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-PFDoDA	8.941	615.1 -> 570.0	13690	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C2-PFTeDA	9.698	715.2 -> 670.0	8100	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 112.6%		
13C3-PFBS	5.263	302.1 -> 79.9	7497	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C3-PFHxS	7.103	402.1 -> 79.9	4802	2.41 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 = 96.5%		
13C4-PFBA	2.724	216.8 -> 171.9	84433	10.09 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C4-PFHpA	6.353	367.1 -> 322.0	22530	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C5-PFHxA	5.408	318.0 -> 273.0	31792	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C5-PFPeA	4.228	268.3 -> 223.0	32647	5.08 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C6-PFDA	8.065	519.1 -> 474.1	9881	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.8%		
13C7-PFUnDA	8.509	570.0 -> 525.1	10757	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C8-FOSA	9.906	506.1 -> 77.8	9185	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C8-PFOA	7.037	421.1 -> 376.0	36479	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C8-PFOS	8.178	507.1 -> 79.9	6128	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C9-PFNA	7.570	472.1 -> 427.0	13857	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.2%		
d3-MeFOSAA	8.147	573.2 -> 419.0	10738	4.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.7%		
13C3-HFPO-DA	5.763	286.9 -> 168.9	31859	10.78 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 107.8%		
d3-MeFOSA	11.178	515.0 -> 219.0	4922	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.1%		
d5-EtFOSAA	8.358	589.2 -> 419.0	10375	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.8%		
d7-MeFOSE	11.072	623.2 -> 58.9	59008	29.28 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 117.1%		
d9-EtFOSE	11.344	639.2 -> 58.9	82104	28.23 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 112.9%		
d5-EtFOSA	11.435	531.1 -> 219.0	6893	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		

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	9.896	498.1 -> 77.9	0	µg/L m	1
		498.1 -> 478.0	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

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	9.699	713.1 -> 669.0	621	0.06 µg/L	#	81
		713.1 -> 168.9	111			
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	11.438	526.0 -> 219.0	1282	0.43 µg/L		96
		526.0 -> 169.0	1811			
EtFOSE	11.370	630.0 -> 58.9	3363	0.99 µg/L		100
MeFOSA	11.168	511.9 -> 219.0	624	0.27 µg/L		48
		511.9 -> 169.0	676			
MeFOSE	11.098	616.1 -> 58.9	2137	0.74 µg/L		100
PFDoDS	9.826	699.1 -> 79.9	89	0.06 µg/L	#	45
		699.1 -> 98.8	85			
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

7.2.4
7

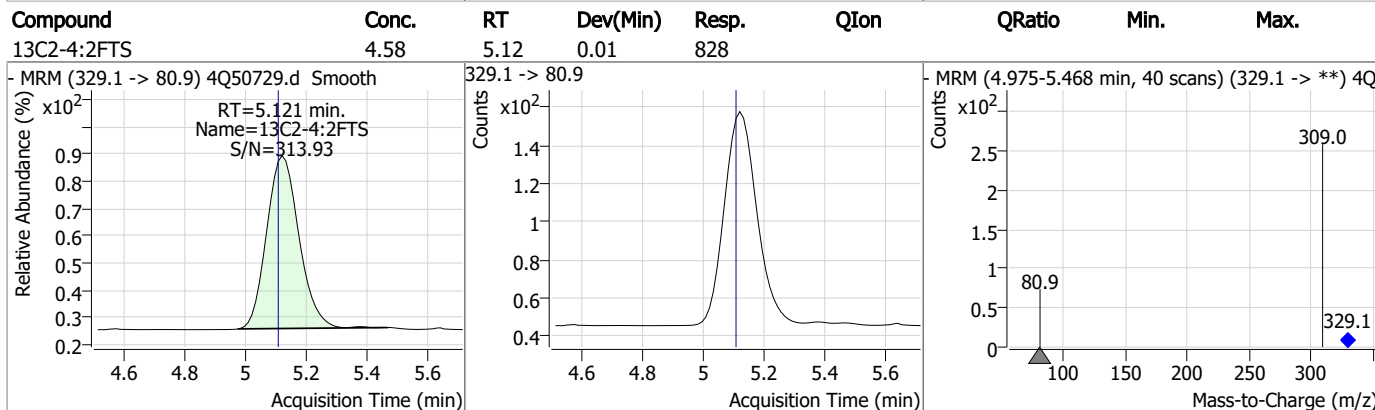
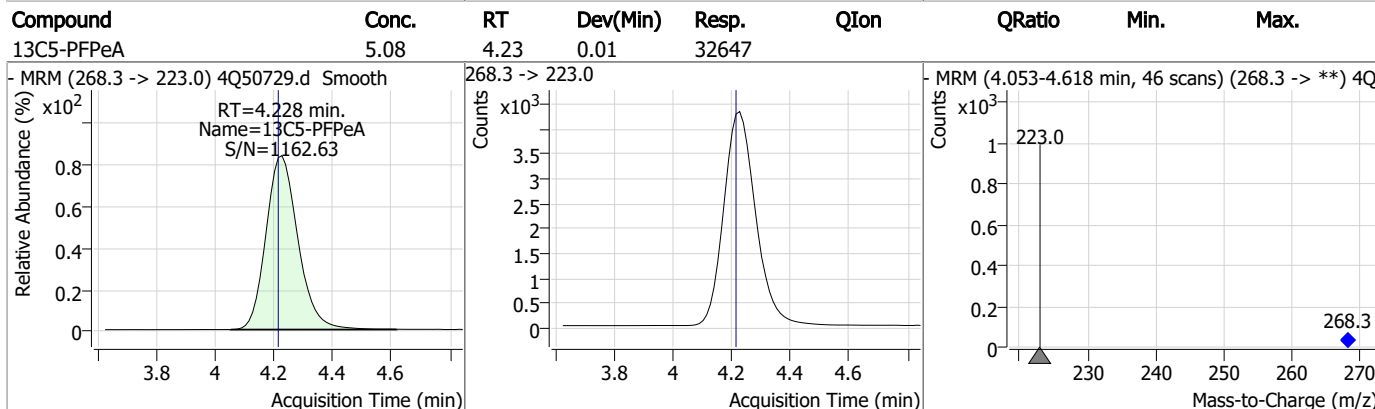
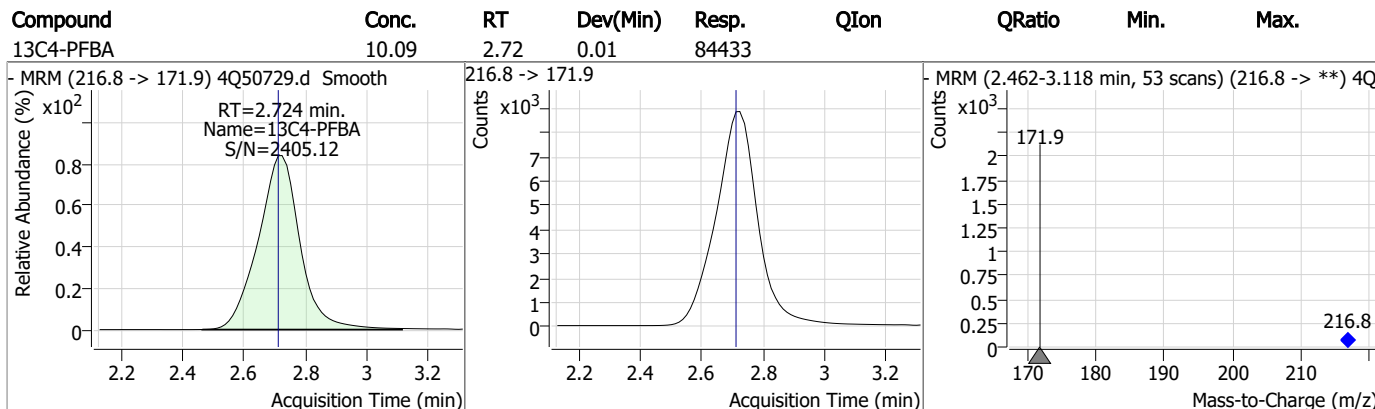
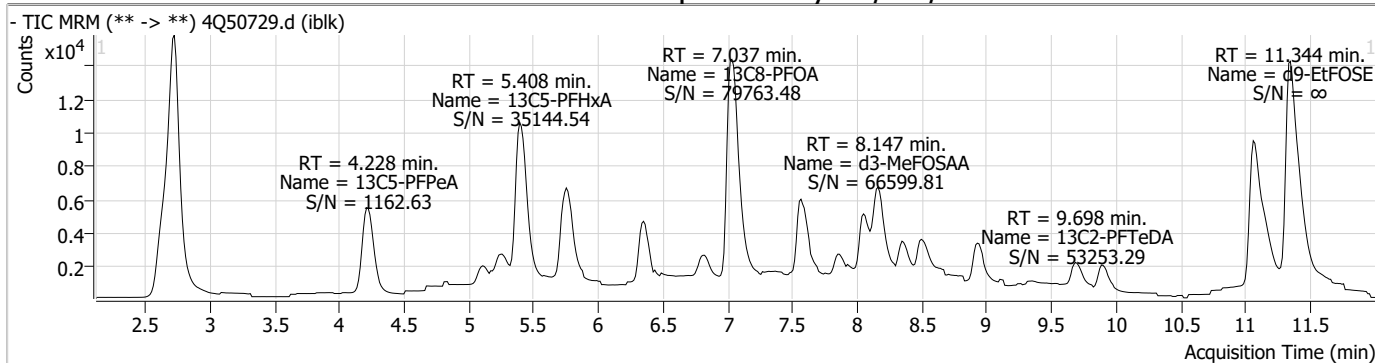
Perfluorinated Compounds by LC/MS/MS

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

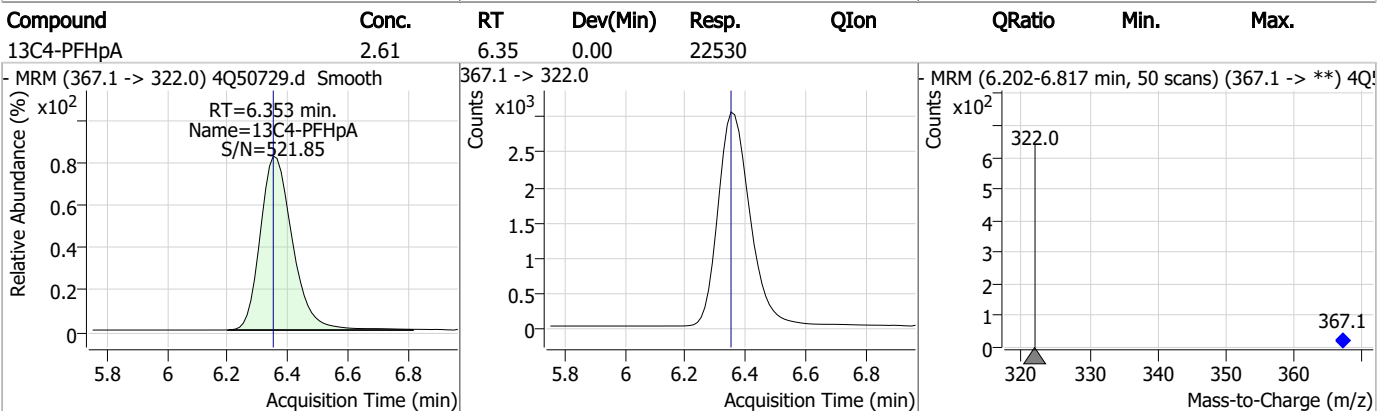
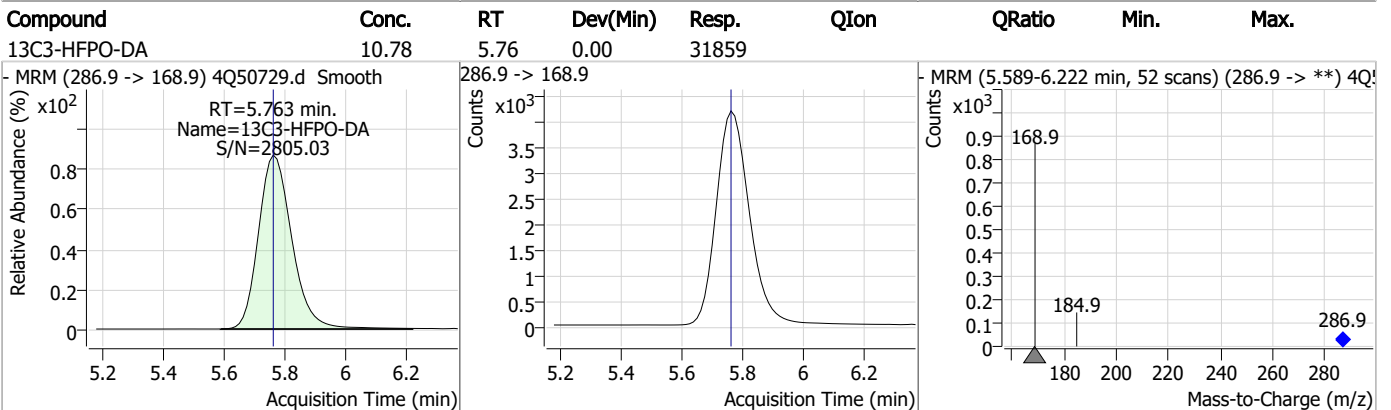
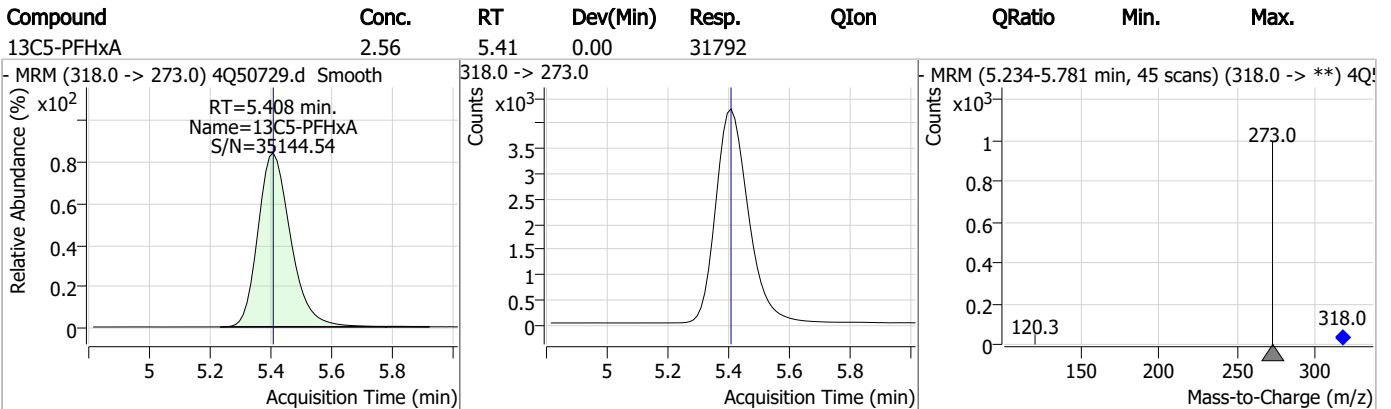
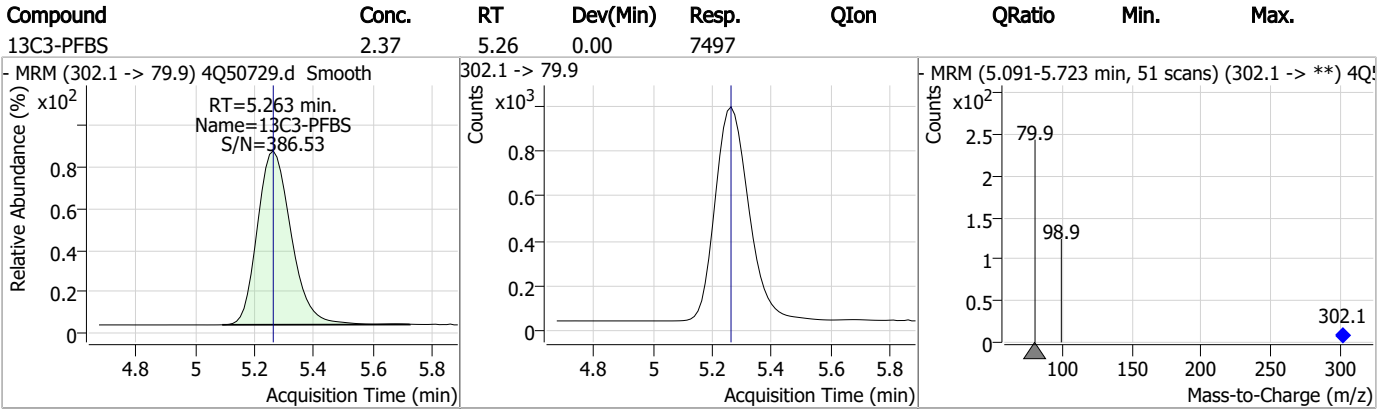
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Perfluorinated Compounds by LC/MS/MS

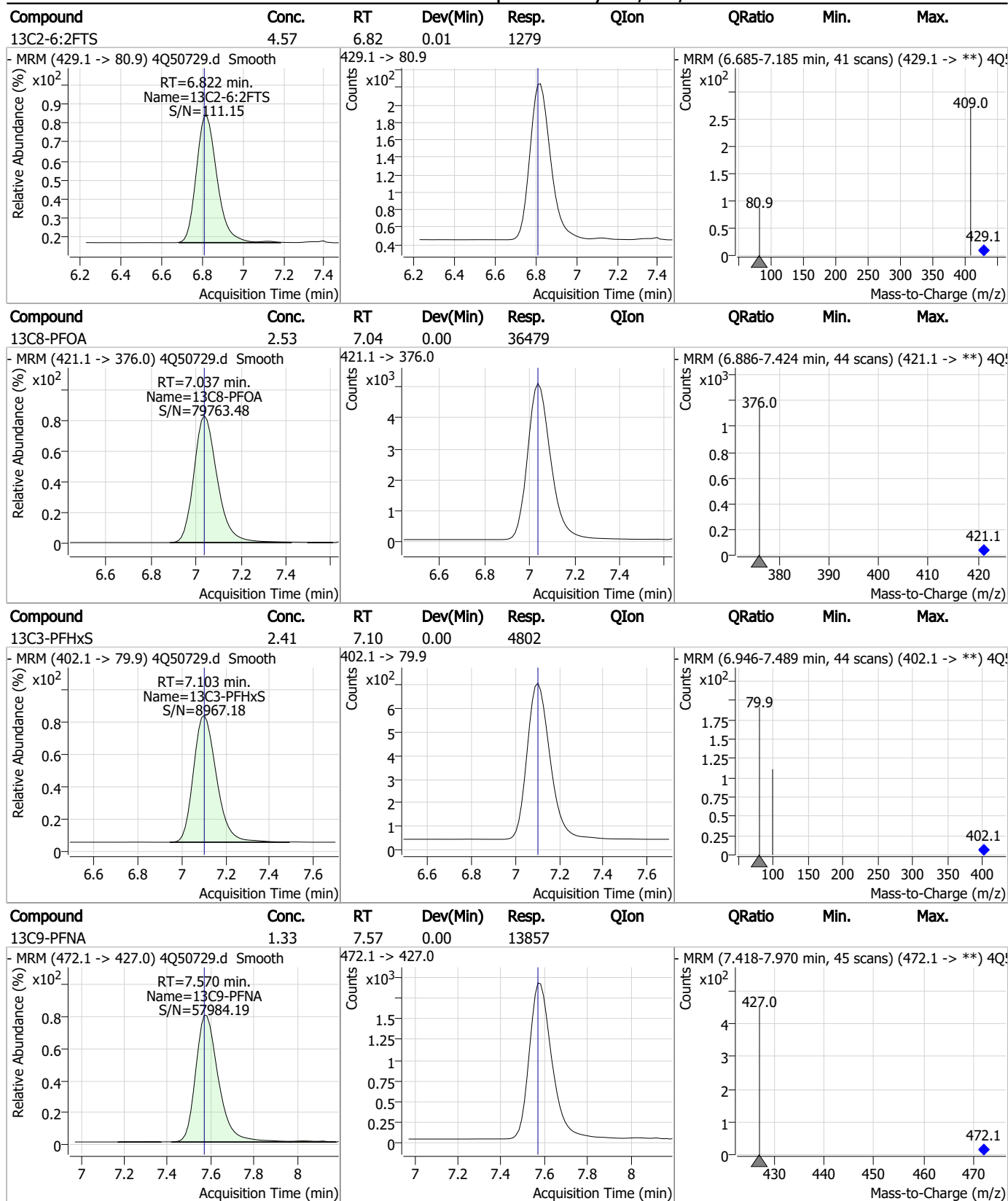


7.2.4
7

Perfluorinated Compounds by LC/MS/MS



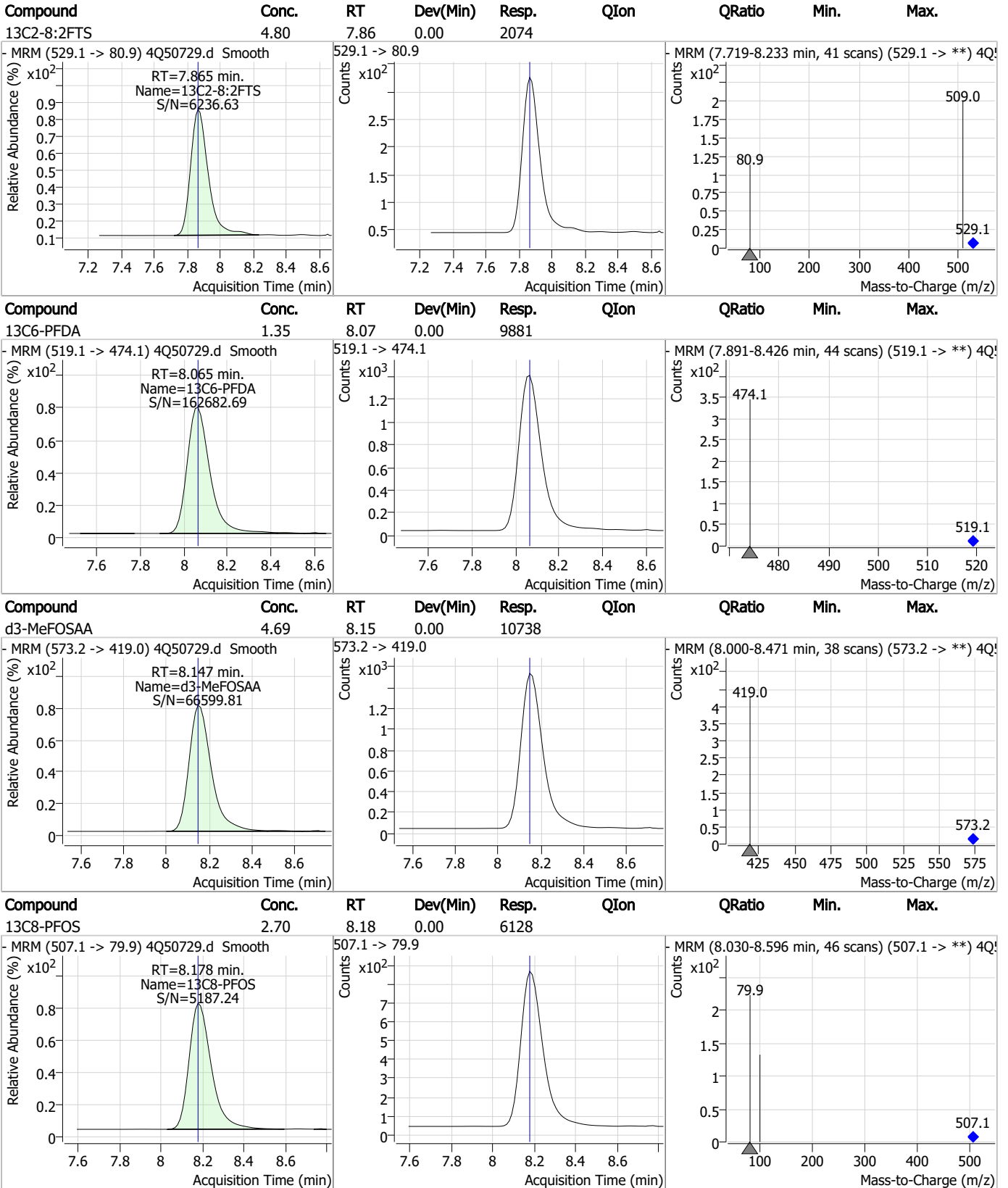
Perfluorinated Compounds by LC/MS/MS



7.2.4

7

Perfluorinated Compounds by LC/MS/MS

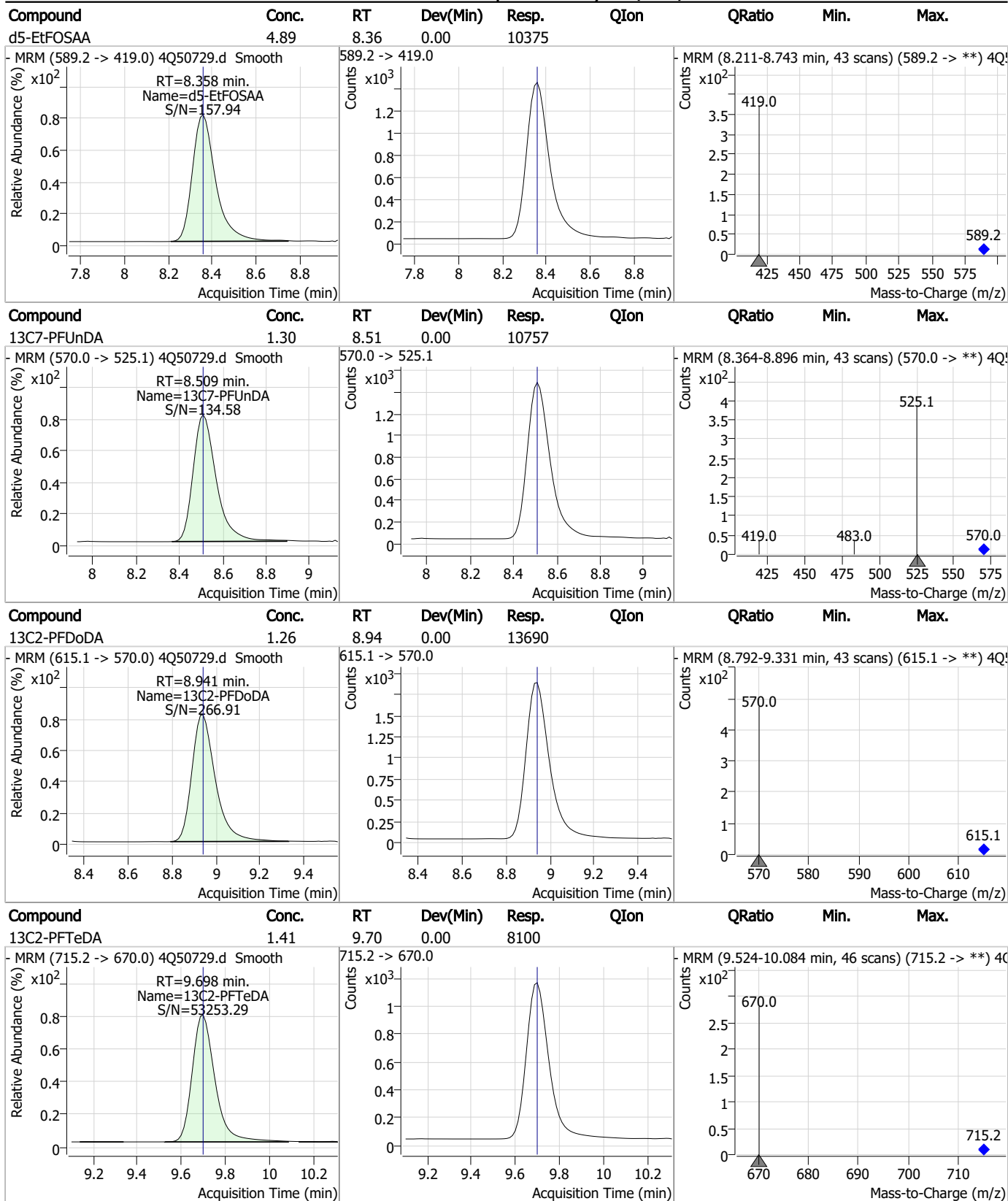


7.2.4

7



Perfluorinated Compounds by LC/MS/MS

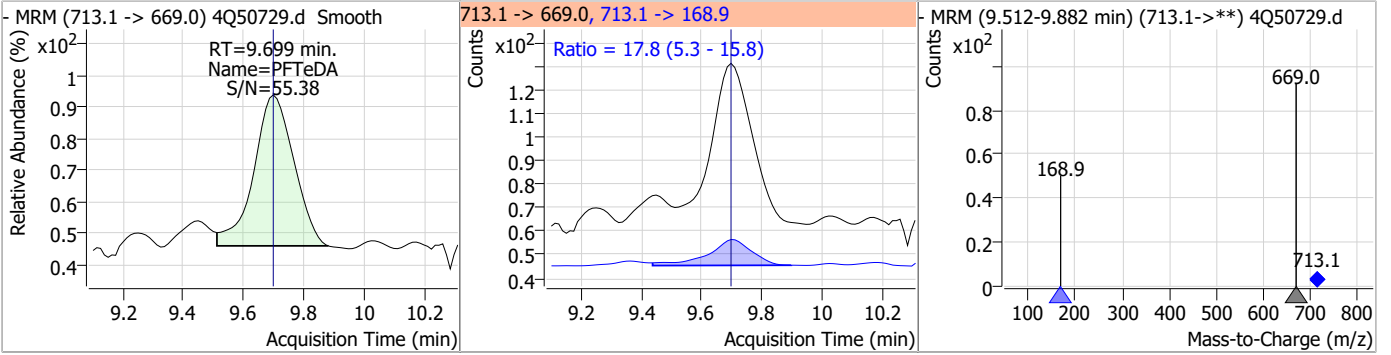


7.2.4

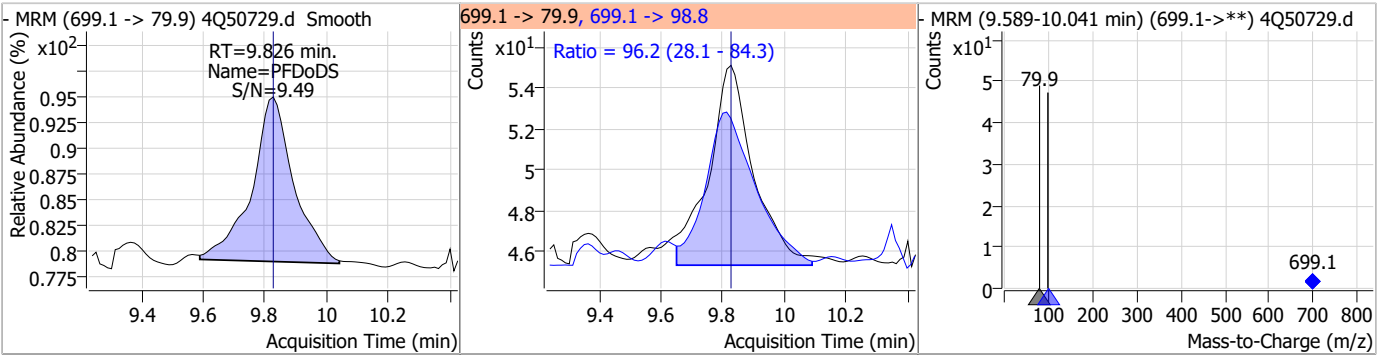
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Perfluorinated Compounds by LC/MS/MS

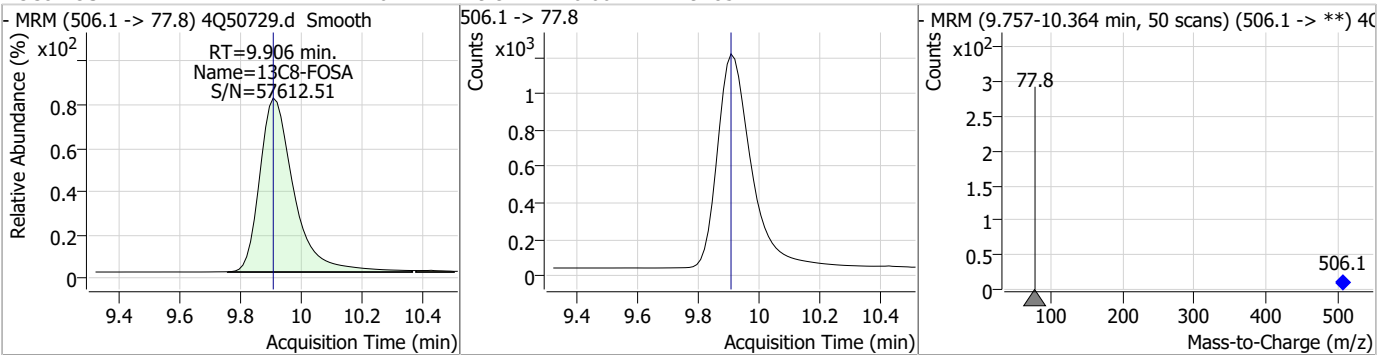
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.06	9.70	0.00	621	713.1 -> 168.9	17.8	5.3	15.8



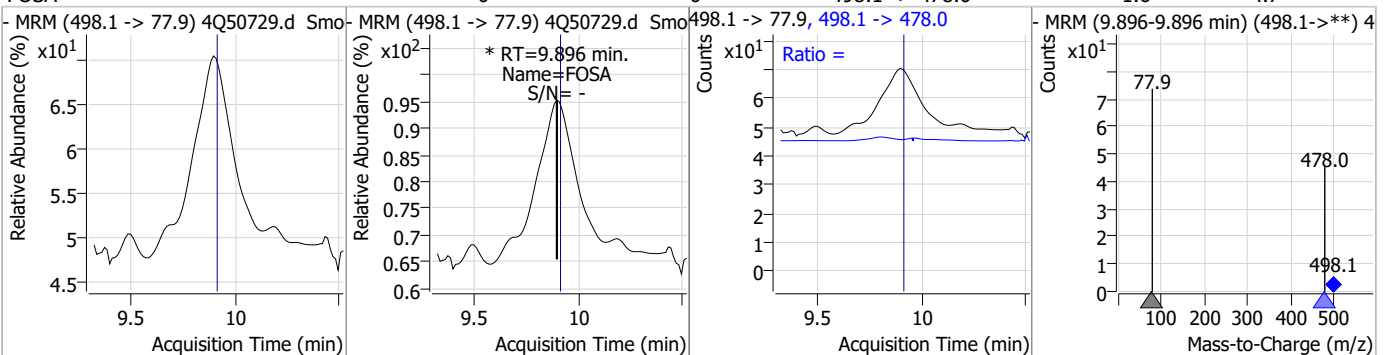
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.06	9.83	0.00	89	699.1 -> 98.8	96.2	28.1	84.3



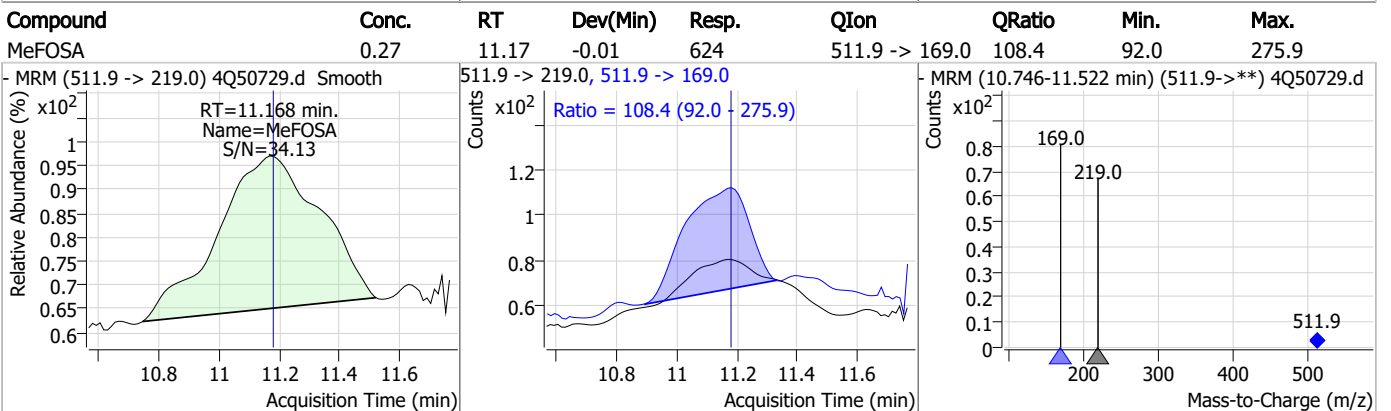
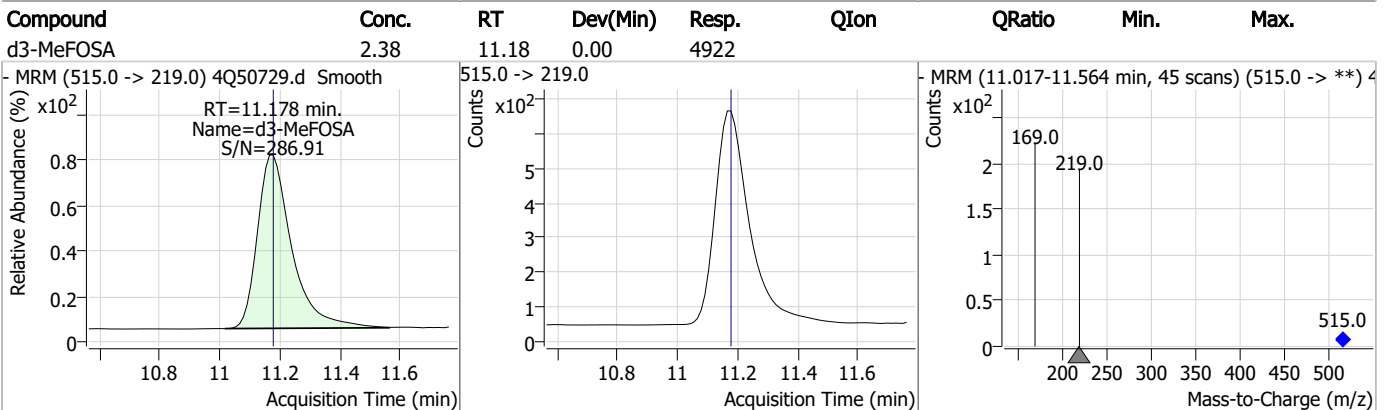
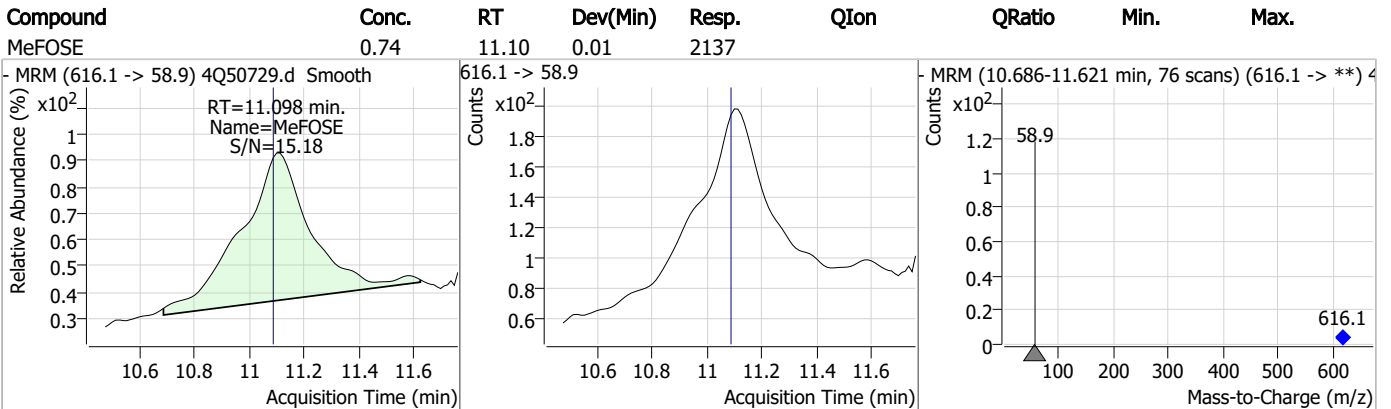
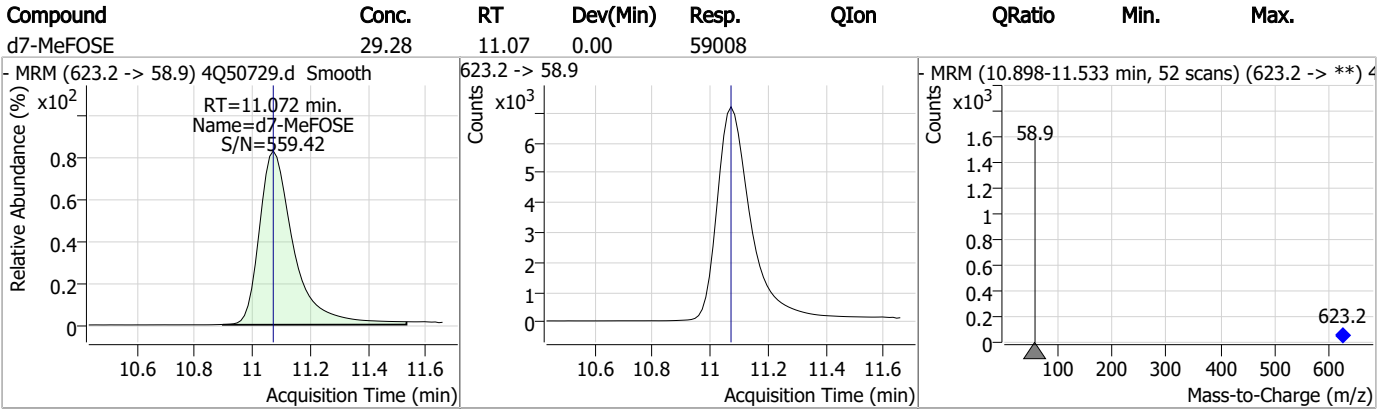
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.61	9.91	0.00	9185				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0	0	0	0	498.1 -> 478.0		1.6	4.7



Perfluorinated Compounds by LC/MS/MS

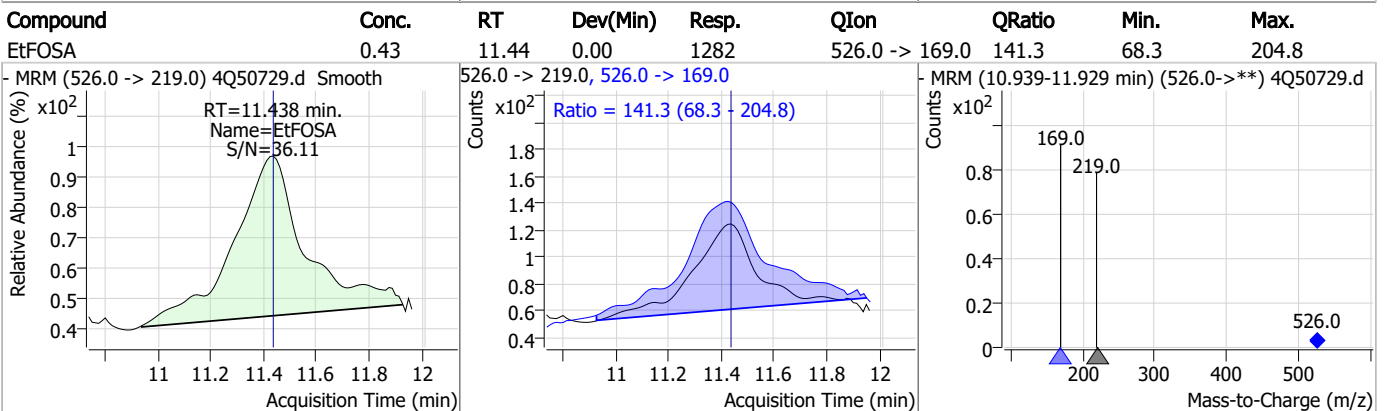
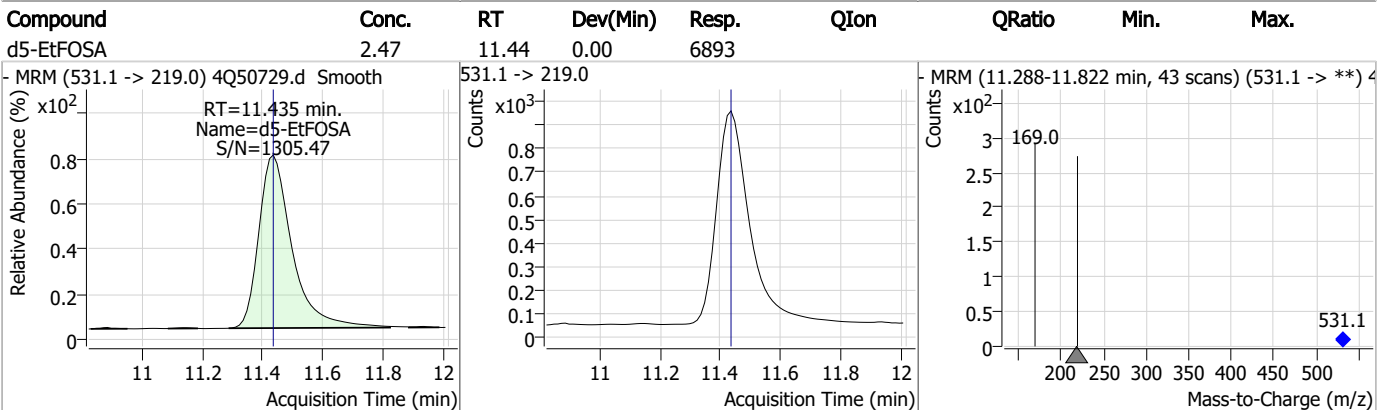
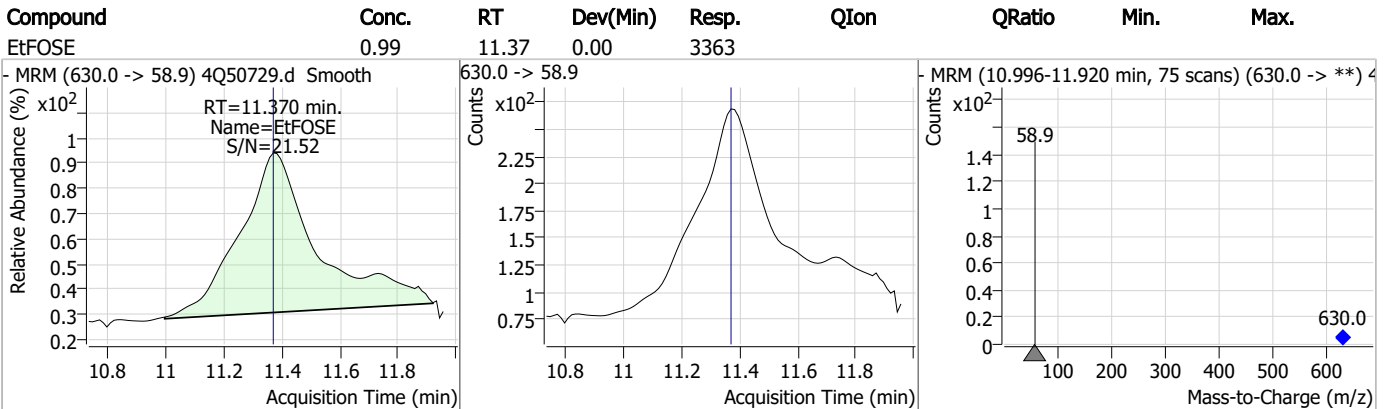
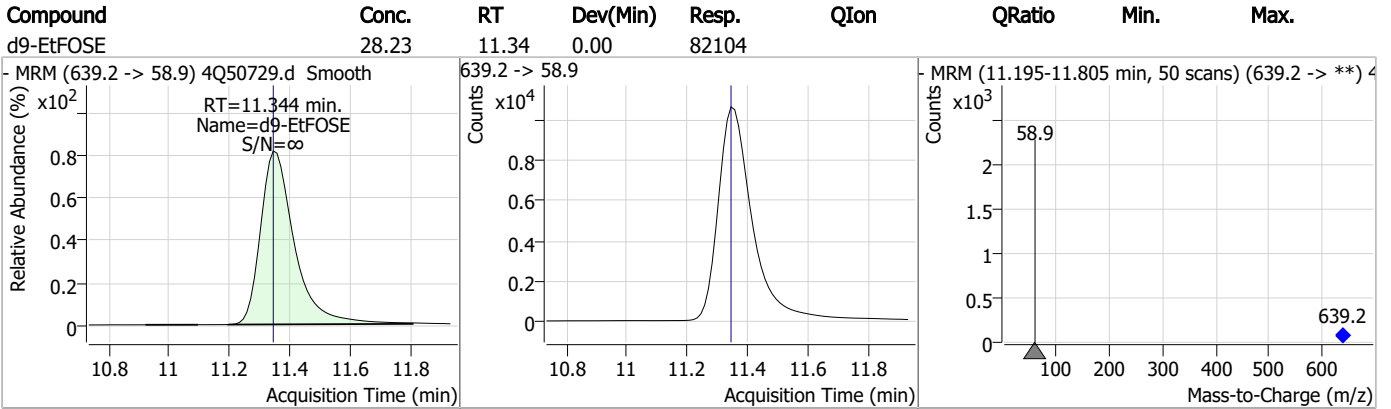


7.2.4

7



Perfluorinated Compounds by LC/MS/MS



7.2.4

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24610.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 3:33:50 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP98555,S6Q353,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	206923	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	31899	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	74072	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	62798	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	83199	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	33839	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	33943	1.25 µg/L	-0.012
M7-PFUnDA	8.664	570.0 -> 525.1	36830	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	33802	1.25 µg/L	-0.014
M2-PFTeDA	9.784	715.2 -> 670.0	12038	1.25 µg/L	-0.012
M8-FOSA	9.670	506.1 -> 77.8	27773	2.50 µg/L	0.012
M3-PFBS	5.571	302.1 -> 79.9	24897	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	13353	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	12499	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	2842	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	4206	5.00 µg/L	0.012
M2-8:2FTS	7.998	529.1 -> 80.9	3835	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	21410	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	44149	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	20354	5.00 µg/L	-0.012
M7-MeFOSE	10.690	623.2 -> 58.9	90749	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	118583	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	9192	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	9008	2.50 µg/L	0.012
13C4-PFOS	8.361	502.8 -> 79.9	15588	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	80955	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	10077	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	86631	2.50 µg/L	0.012
13C2-PFDA	8.198	515.1 -> 470.1	26957	1.25 µg/L	-0.012
13C5-PFNA	7.729	468.0 -> 423.0	35810	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	59651	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2842	5.01 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C2-6:2FTS	6.986	429.1 -> 80.9	4206	5.05 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3835	4.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.0%		
13C2-PFDoDA	9.080	615.1 -> 570.0	33802	1.17 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.5%		
13C2-PFTeDA	9.784	715.2 -> 670.0	12038	1.12 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.6%		
13C3-PFBS	5.571	302.1 -> 79.9	24897	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C3-PFHxS	7.313	402.1 -> 79.9	13353	2.41 µg/L	0.000

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 = 96.5%	
13C4-PFBA	2.985	216.8 -> 171.9	206923	10.12 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C4-PFHpA	6.581	367.1 -> 322.0	62798	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C5-PFHxA	5.654	318.0 -> 273.0	74072	2.25 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.1%	
13C5-PFPeA	4.434	268.3 -> 223.0	31899	3.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 79.4%	
13C6-PFDA	8.198	519.1 -> 474.1	33943	1.45 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.7%	
13C7-PFUnDA	8.664	570.0 -> 525.1	36830	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C8-FOSA	9.670	506.1 -> 77.8	27773	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C8-PFOA	7.211	421.1 -> 376.0	83199	2.61 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C8-PFOS	8.361	507.1 -> 79.9	12499	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C9-PFNA	7.729	472.1 -> 427.0	33839	1.51 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 121.0%	
d3-MeFOSAA	8.256	573.2 -> 419.0	21410	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	44149	9.72 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
d3-MeFOSA	10.769	515.0 -> 219.0	9008	2.00 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.1%	
d5-EtFOSAA	8.452	589.2 -> 419.0	20354	4.85 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
d7-MeFOSE	10.690	623.2 -> 58.9	90749	22.14 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.6%	
d9-EtFOSE	10.923	639.2 -> 58.9	118583	21.50 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.0%	
d5-EtFOSA	10.989	531.1 -> 219.0	9192	2.19 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.7%	

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.	

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Perfluorinated Compounds by LC/MS/MS

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

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

7.2.5
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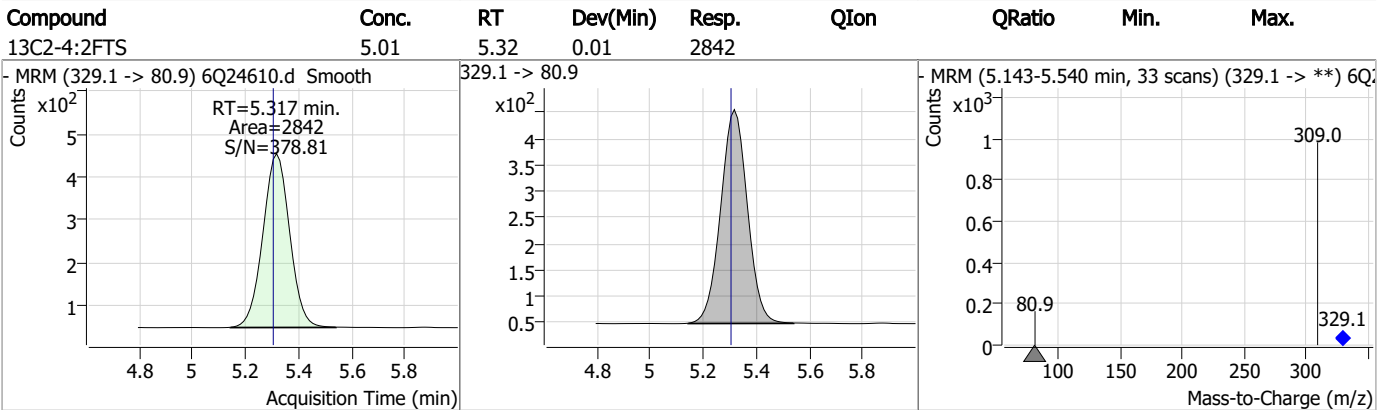
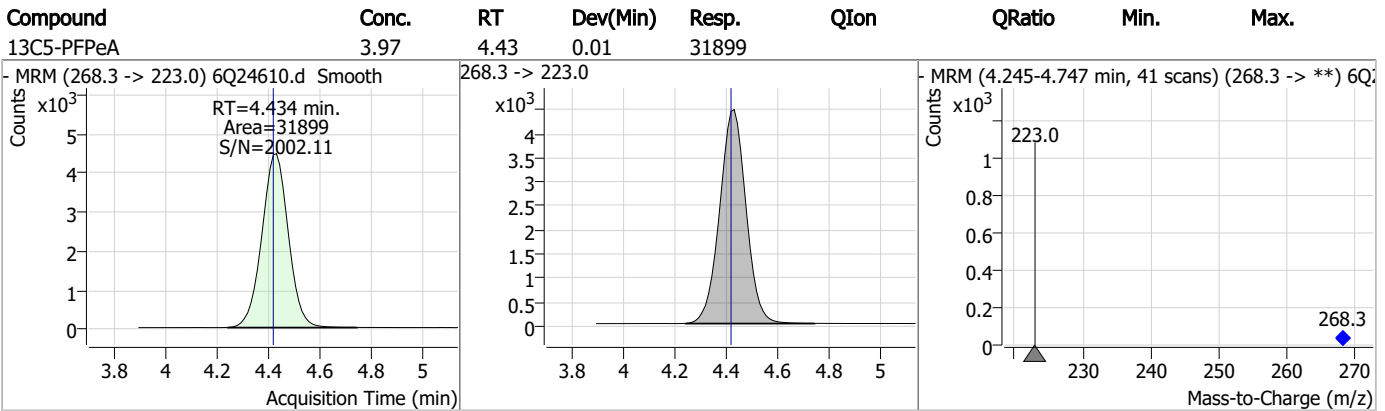
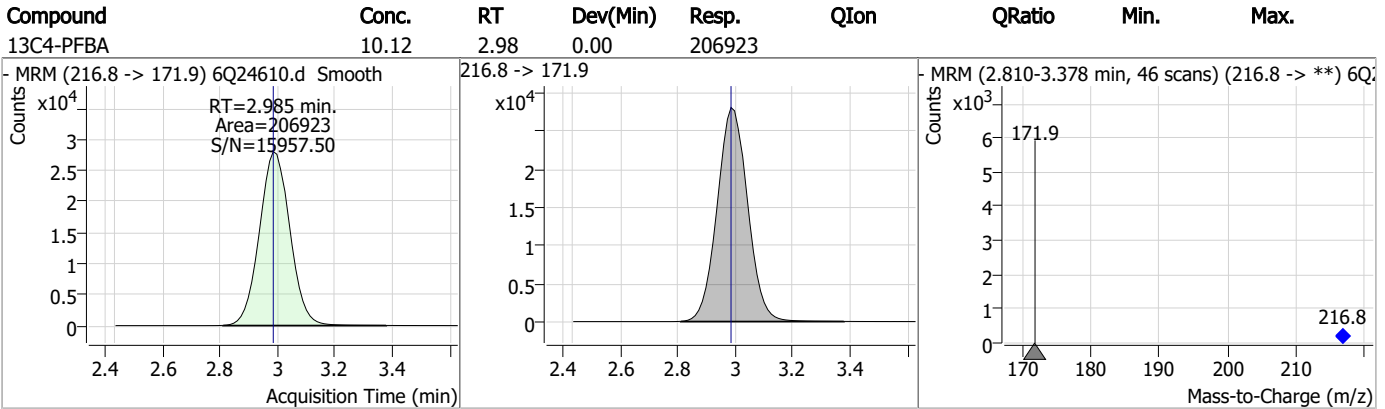
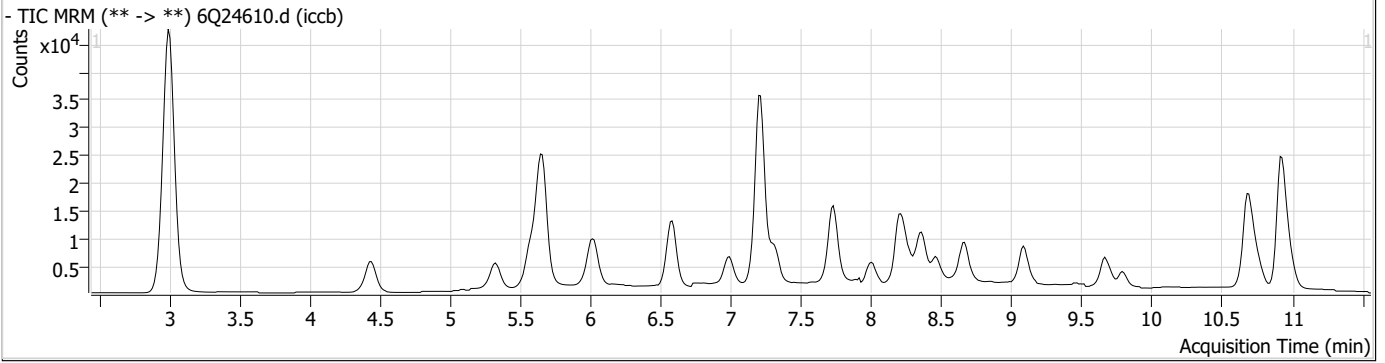
Perfluorinated Compounds by LC/MS/MS

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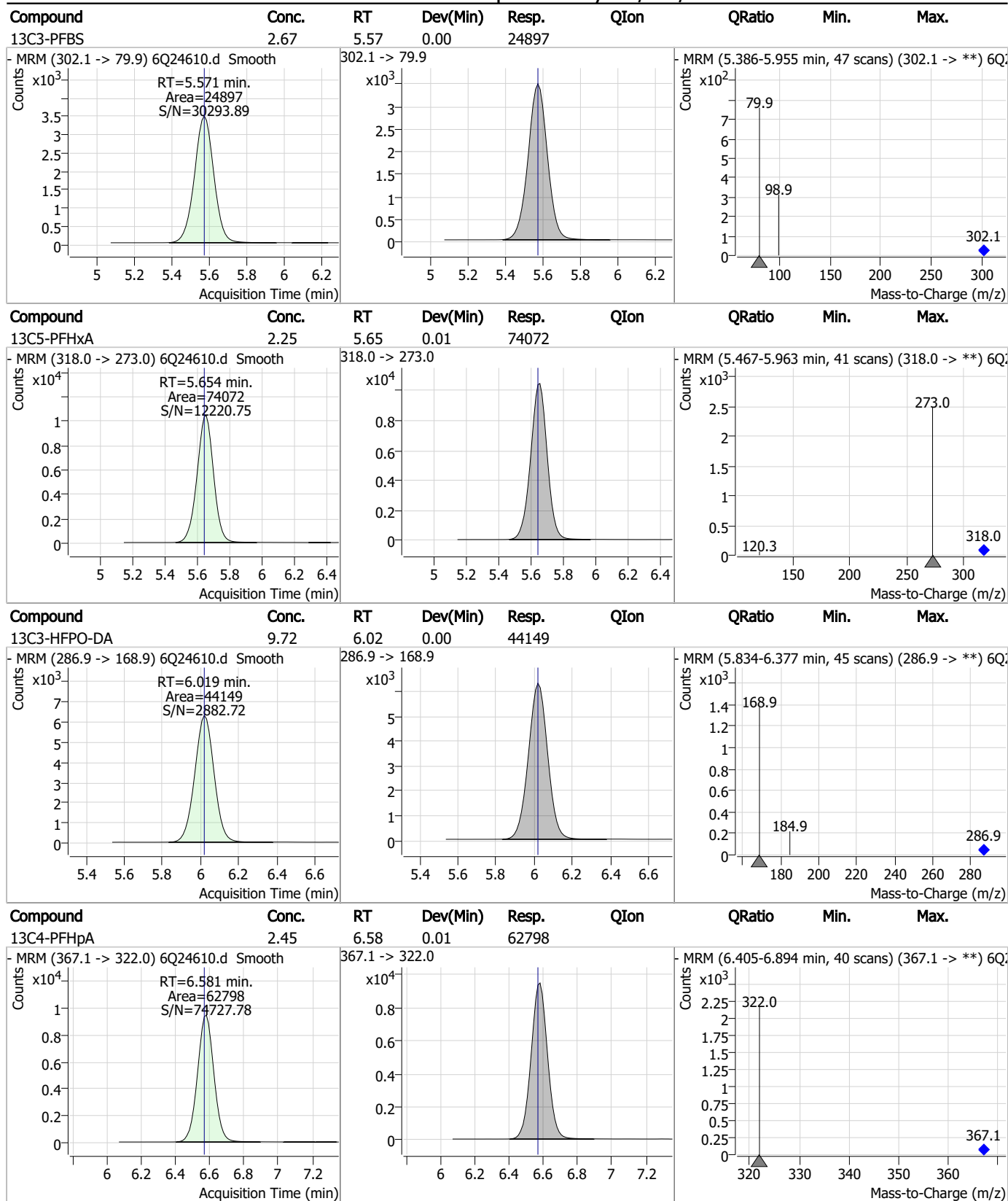
7.2.5

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Perfluorinated Compounds by LC/MS/MS



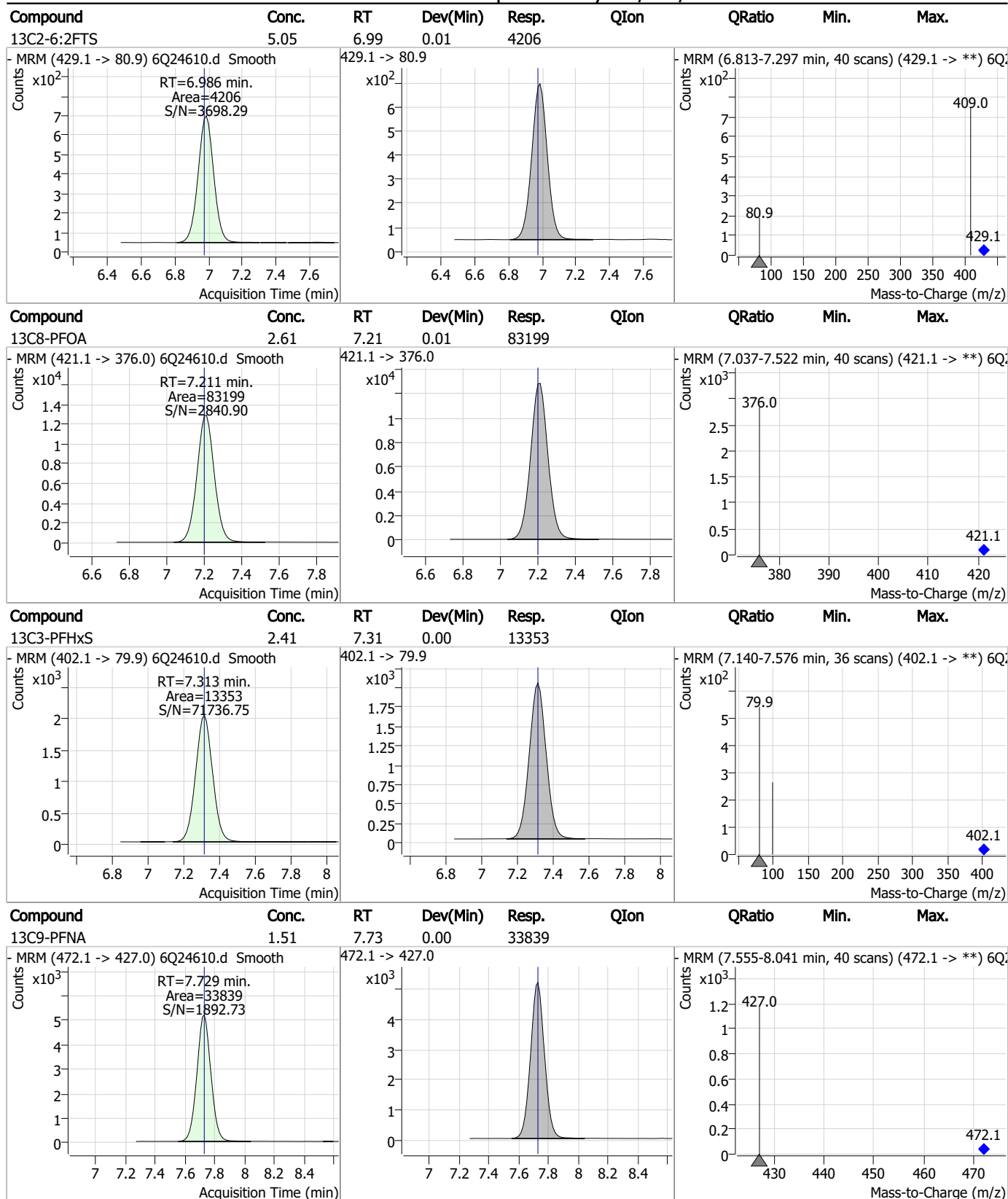
Perfluorinated Compounds by LC/MS/MS



7.2.5

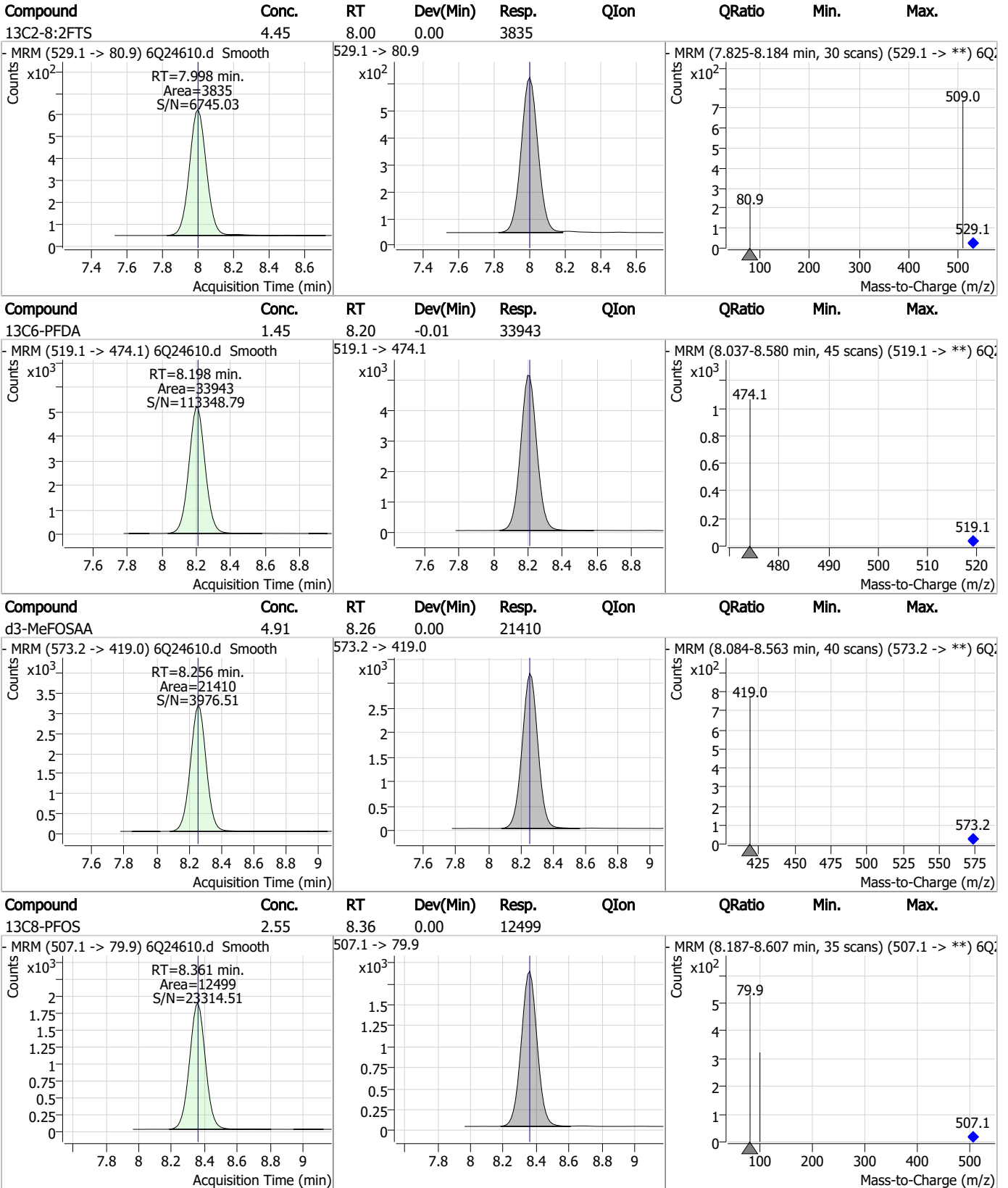
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Perfluorinated Compounds by LC/MS/MS



7.25
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Perfluorinated Compounds by LC/MS/MS



7.25

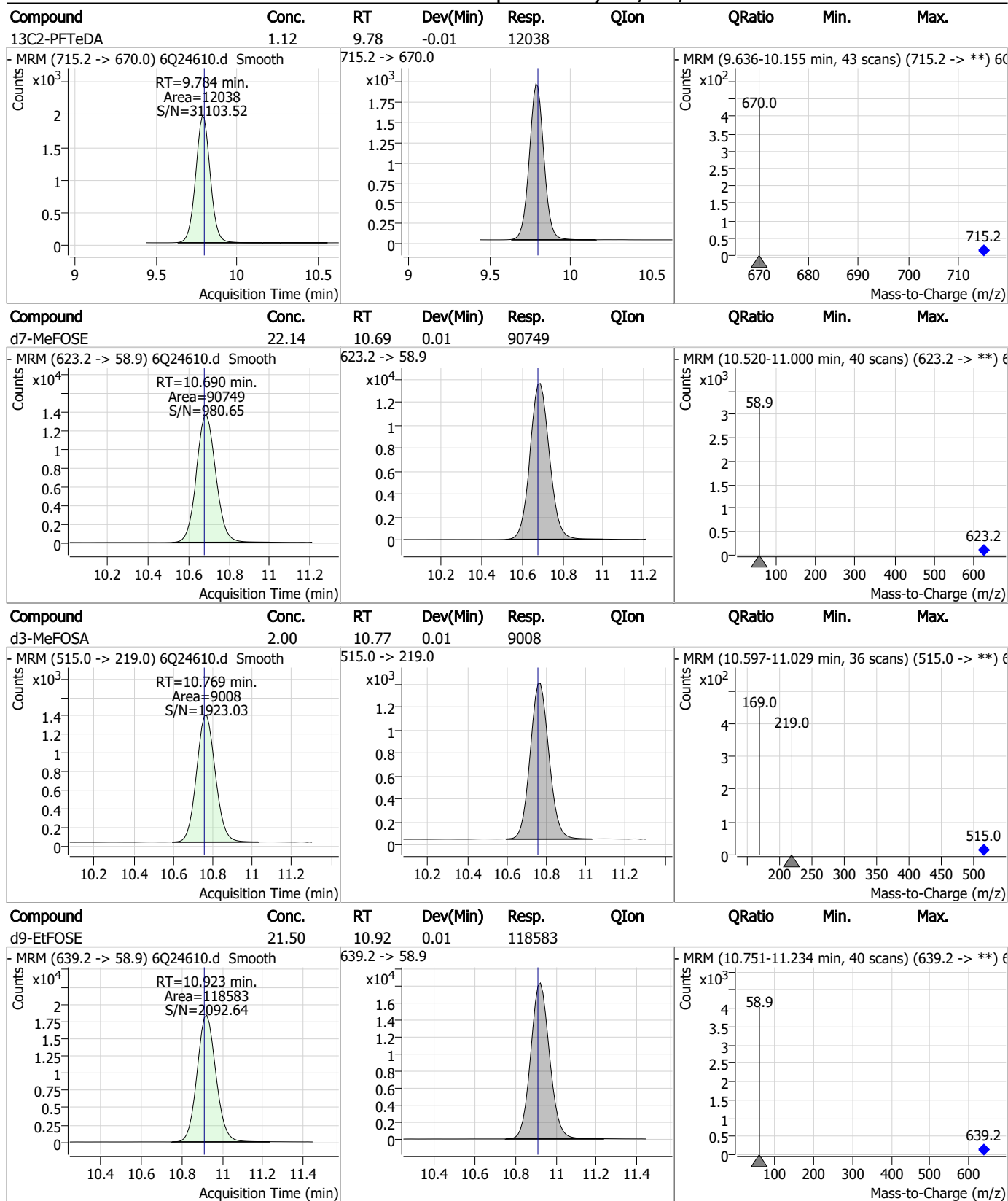
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.85	8.45	-0.01	20354				
13C7-PFUnDA	1.17	8.66	0.00	36830				
13C2-PFDoDA	1.17	9.08	-0.01	33802				
13C8-FOSA	2.50	9.67	0.01	27773				

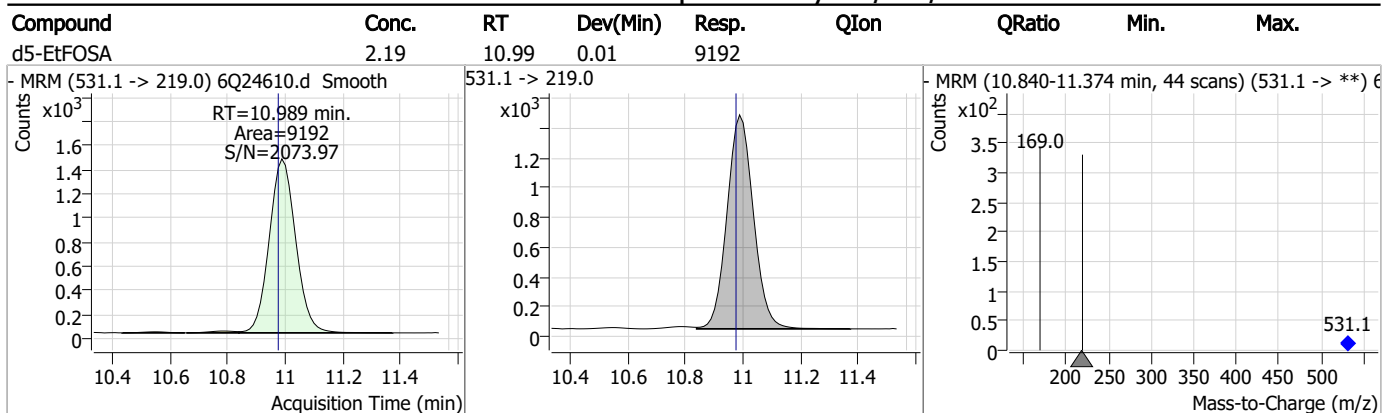
7.2.5
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50745.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/18/2023 6:08:51 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q742.batch.bin
 Sample Information : OP98180,S4Q742,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.724	216.8 -> 171.9	88233	10.00 µg/L	0.012
M5-PFPeA	4.240	268.3 -> 223.0	32613	5.00 µg/L	0.025
M5-PFHxA	5.432	318.0 -> 273.0	32544	2.50 µg/L	0.025
M4-PFHpA	6.392	367.1 -> 322.0	22502	2.50 µg/L	0.038
M8-PFOA	7.062	421.1 -> 376.0	36305	2.50 µg/L	0.025
M9-PFNA	7.596	472.1 -> 427.0	14768	1.25 µg/L	0.026
M6-PFDA	8.090	519.1 -> 474.1	9773	1.25 µg/L	0.025
M7-PFUnDA	8.534	570.0 -> 525.1	11269	1.25 µg/L	0.025
M2-PFDoDA	8.966	615.1 -> 570.0	14220	1.25 µg/L	0.025
M2-PFTeDA	9.710	715.2 -> 670.0	8325	1.25 µg/L	0.012
M8-FOSA	9.931	506.1 -> 77.8	9235	2.50 µg/L	0.025
M3-PFBS	5.288	302.1 -> 79.9	7649	2.50 µg/L	0.025
M3-PFHxS	7.128	402.1 -> 79.9	4858	2.50 µg/L	0.025
M8-PFOS	8.204	507.1 -> 79.9	5906	2.50 µg/L	0.026
M2-4:2FTS	5.146	329.1 -> 80.9	937	5.00 µg/L	0.037
M2-6:2FTS	6.847	429.1 -> 80.9	1221	5.00 µg/L	0.037
M2-8:2FTS	7.902	529.1 -> 80.9	1959	5.00 µg/L	0.037
M3-MeFOSAA	8.172	573.2 -> 419.0	11858	5.00 µg/L	0.025
M3-HFPO-DA	5.788	286.9 -> 168.9	30351	10.00 µg/L	0.025
M5-EtFOSAA	8.383	589.2 -> 419.0	10891	5.00 µg/L	0.025
M7-MeFOSE	11.097	623.2 -> 58.9	60822	25.00 µg/L	0.025
M9-EtFOSE	11.369	639.2 -> 58.9	81288	25.00 µg/L	0.025
M5-EtFOSA	11.448	531.1 -> 219.0	6758	2.50 µg/L	0.012
M3-MeFOSA	11.190	515.0 -> 219.0	4981	2.50 µg/L	0.012
13C4-PFOS	8.205	502.8 -> 79.9	5180	2.50 µg/L	0.026
13C3-PFBA	2.728	216.0 -> 172.0	43938	5.00 µg/L	0.012
18O2-PFHxS	7.127	403.0 -> 83.9	3369	2.50 µg/L	0.025
13C4-PFOA	7.062	417.1 -> 372.0	40651	2.50 µg/L	0.025
13C2-PFDA	8.090	515.1 -> 470.1	10087	1.25 µg/L	0.025
13C5-PFNA	7.608	468.0 -> 423.0	12658	1.25 µg/L	0.038
13C2-PFHxA	5.433	315.1 -> 270.0	28289	2.50 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.146	329.1 -> 80.9	937	5.09 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C2-6:2FTS	6.847	429.1 -> 80.9	1221	4.29 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.7%		
13C2-8:2FTS	7.902	529.1 -> 80.9	1959	4.45 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.1%		
13C2-PFDoDA	8.966	615.1 -> 570.0	14220	1.25 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C2-PFTeDA	9.710	715.2 -> 670.0	8325	1.38 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.6%		
13C3-PFBS	5.288	302.1 -> 79.9	7649	2.37 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.9%		
13C3-PFHxS	7.128	402.1 -> 79.9	4858	2.40 µg/L	0.025

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C4-PFBA	2.724	216.8 -> 171.9	88233	10.14 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C4-PFHpA	6.392	367.1 -> 322.0	22502	2.51 µg/L	0.038
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C5-PFHxA	5.432	318.0 -> 273.0	32544	2.53 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C5-PFPeA	4.240	268.3 -> 223.0	32613	4.90 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C6-PFDA	8.090	519.1 -> 474.1	9773	1.27 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C7-PFUnDA	8.534	570.0 -> 525.1	11269	1.30 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C8-FOSA	9.931	506.1 -> 77.8	9235	2.58 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C8-PFOA	7.062	421.1 -> 376.0	36305	2.43 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C8-PFOS	8.204	507.1 -> 79.9	5906	2.56 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C9-PFNA	7.596	472.1 -> 427.0	14768	1.28 µg/L	0.026
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.1%	
d3-MeFOSAA	8.172	573.2 -> 419.0	11858	5.10 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C3-HFPO-DA	5.788	286.9 -> 168.9	30351	9.92 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d3-MeFOSA	11.190	515.0 -> 219.0	4981	2.37 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
d5-EtFOSAA	8.383	589.2 -> 419.0	10891	5.05 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
d7-MeFOSE	11.097	623.2 -> 58.9	60822	29.72 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 118.9%	
d9-EtFOSE	11.369	639.2 -> 58.9	81288	27.53 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 110.1%	
d5-EtFOSA	11.448	531.1 -> 219.0	6758	2.38 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.2%	

7.2.6
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Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

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

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



7.2.6
7

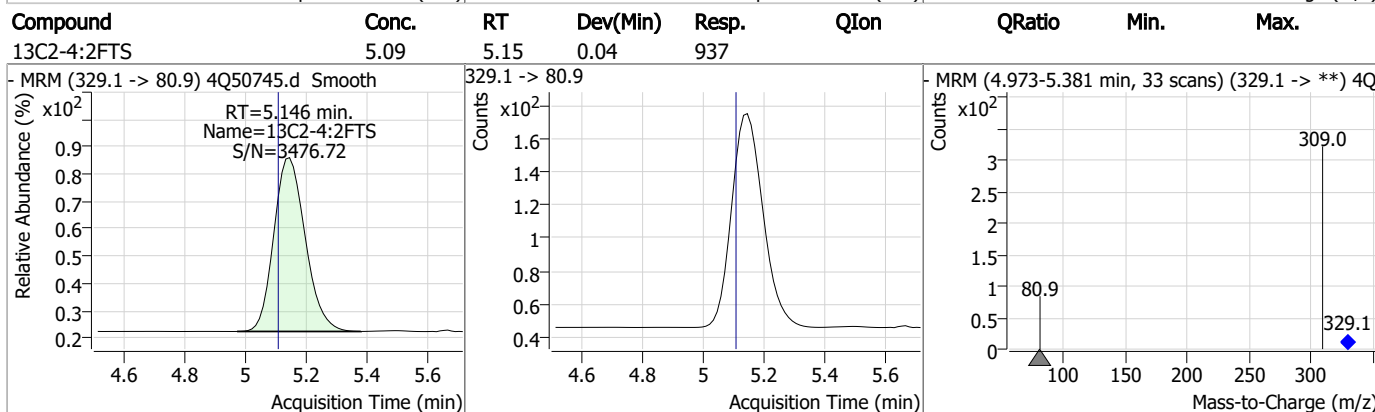
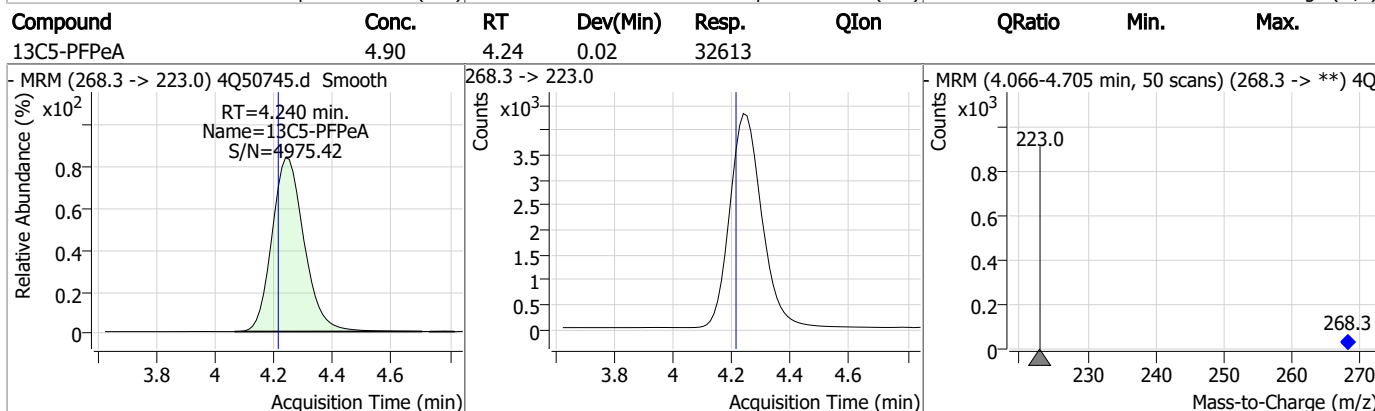
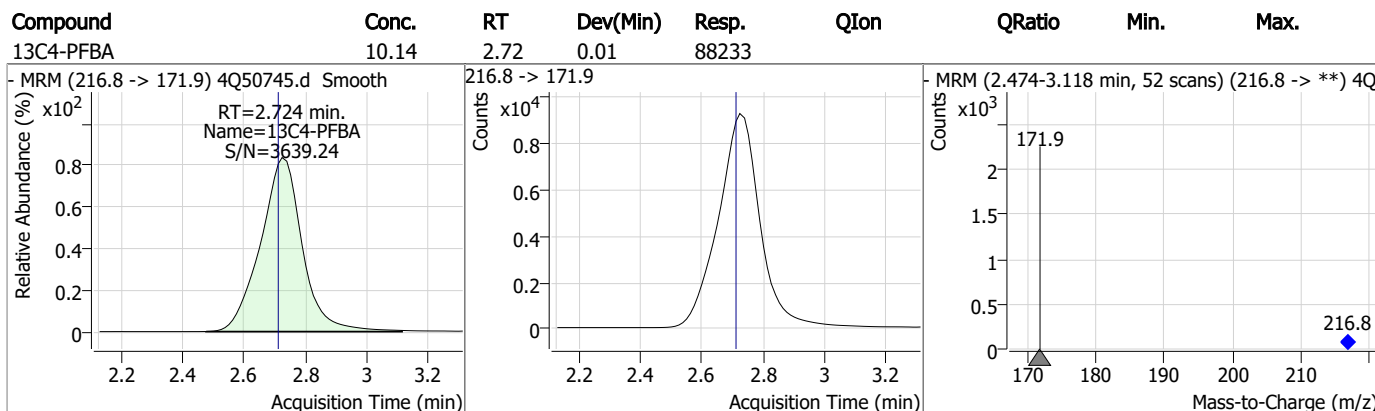
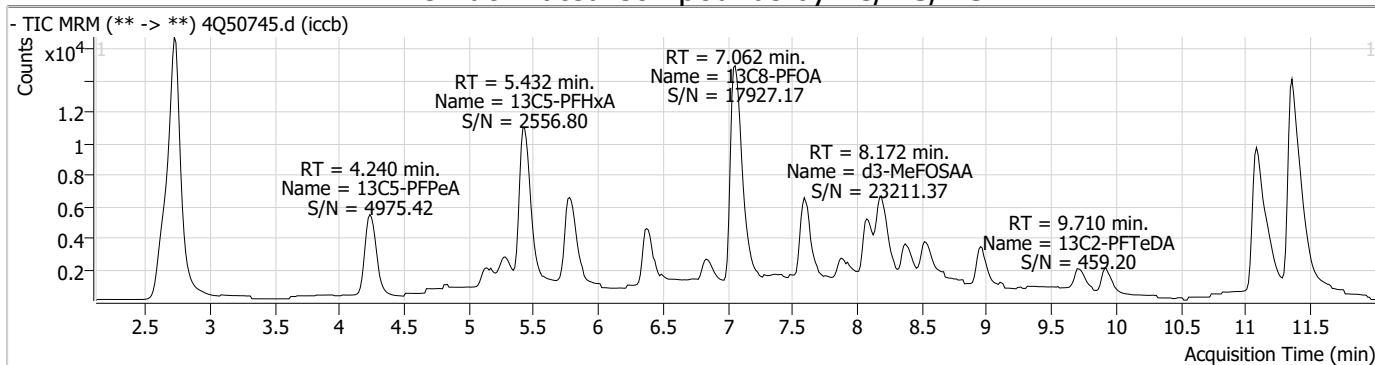
Perfluorinated Compounds by LC/MS/MS

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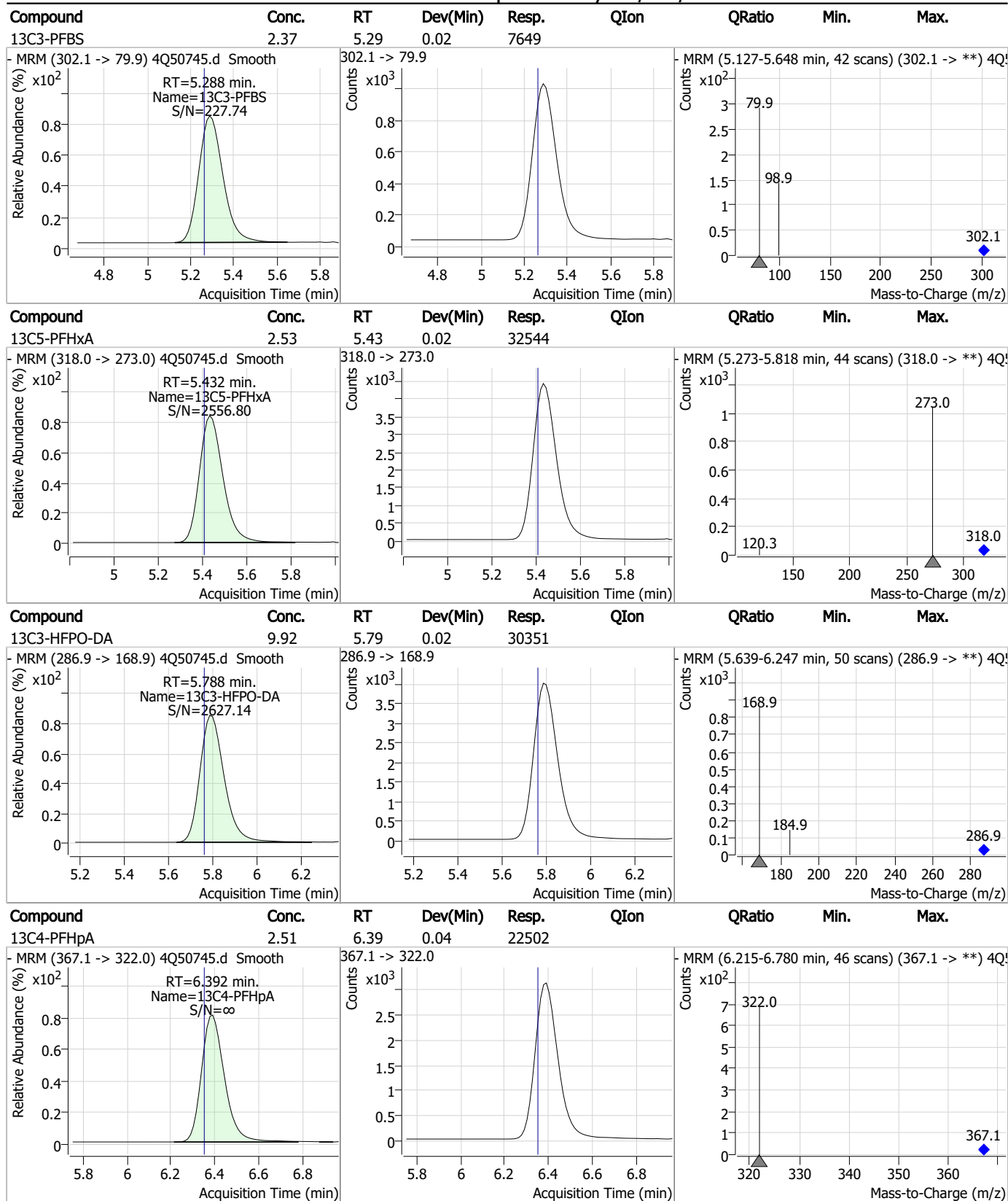
7.2.6

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Perfluorinated Compounds by LC/MS/MS



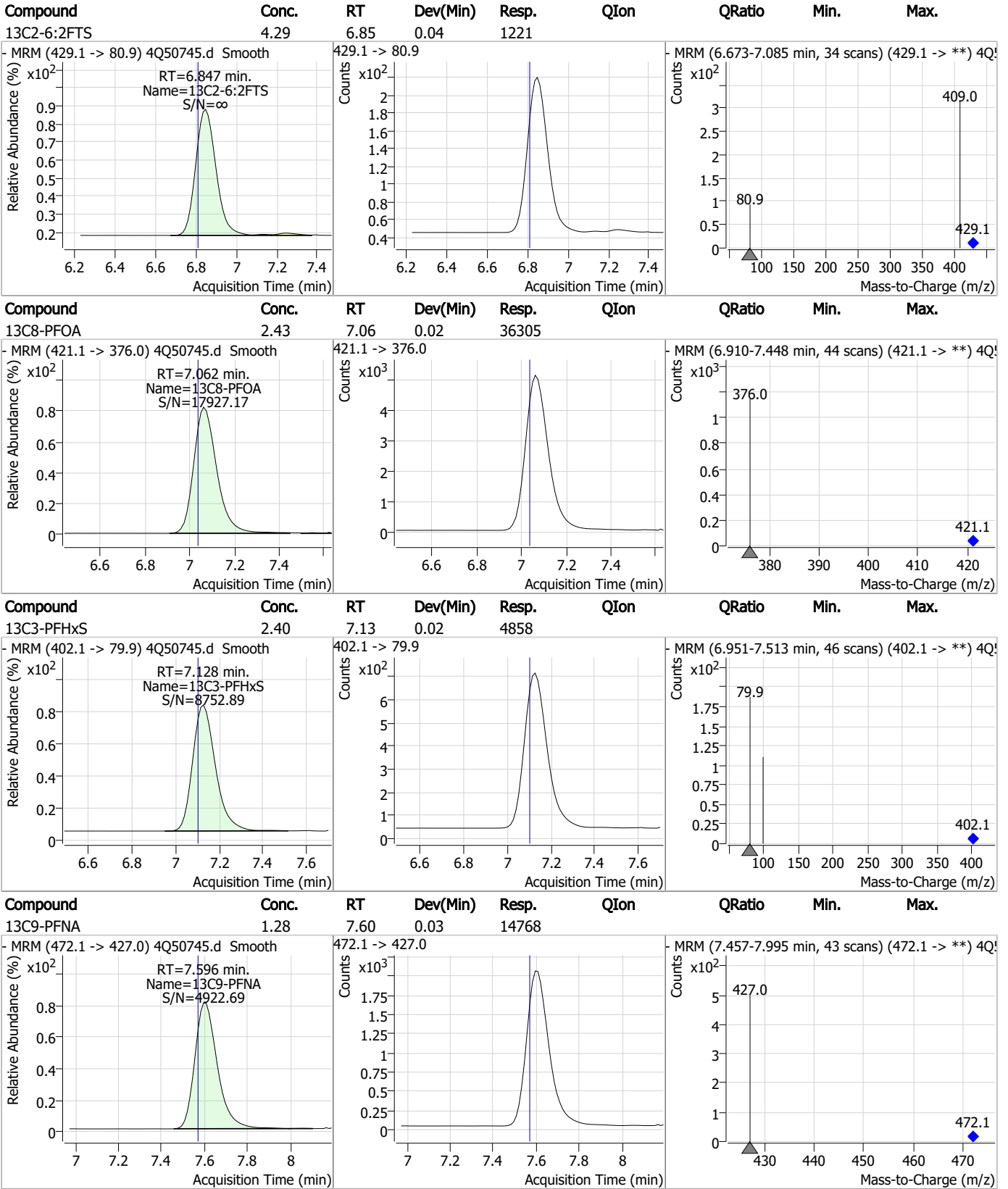
Perfluorinated Compounds by LC/MS/MS



7.2.6
7



Perfluorinated Compounds by LC/MS/MS

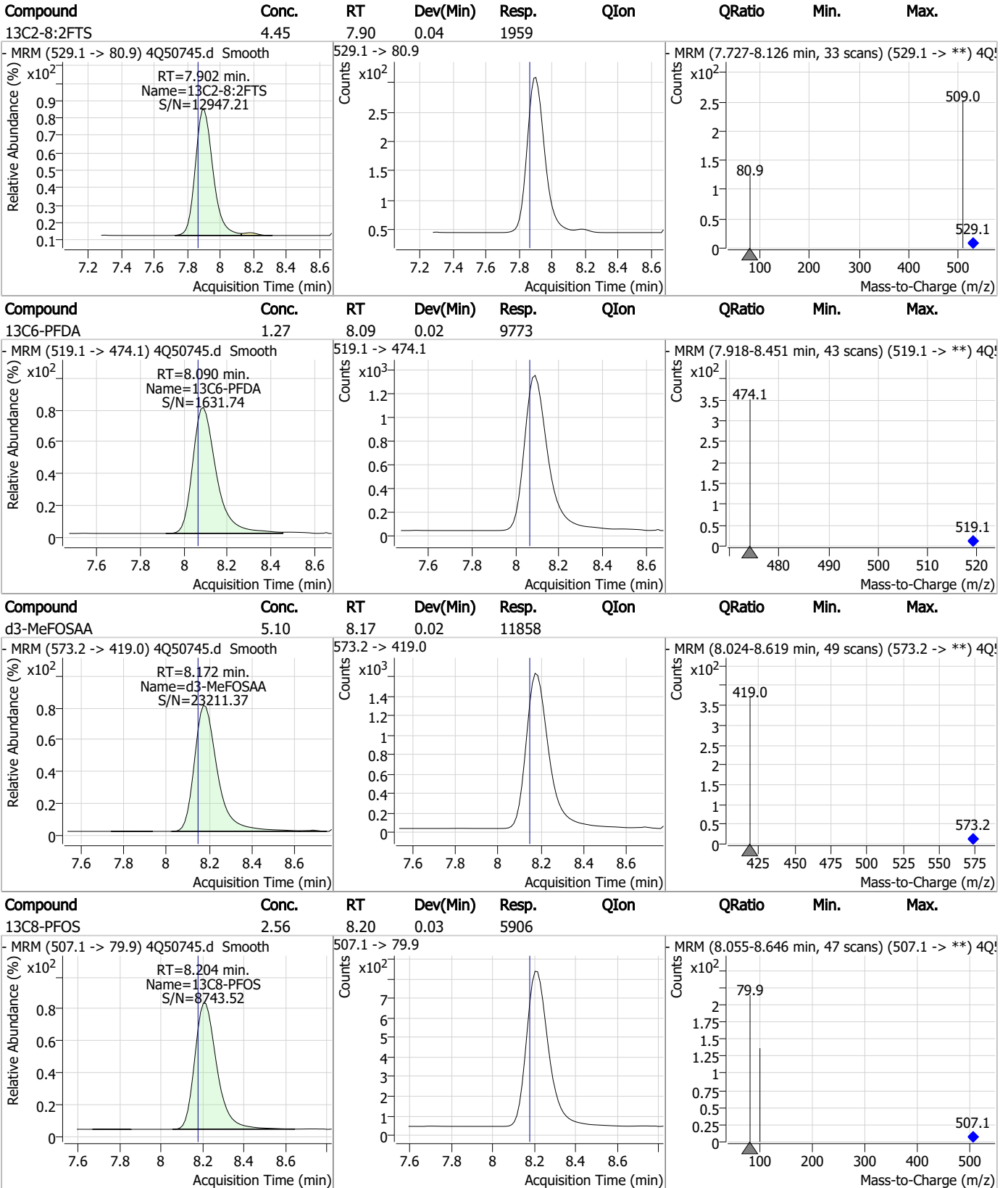


7.2.6

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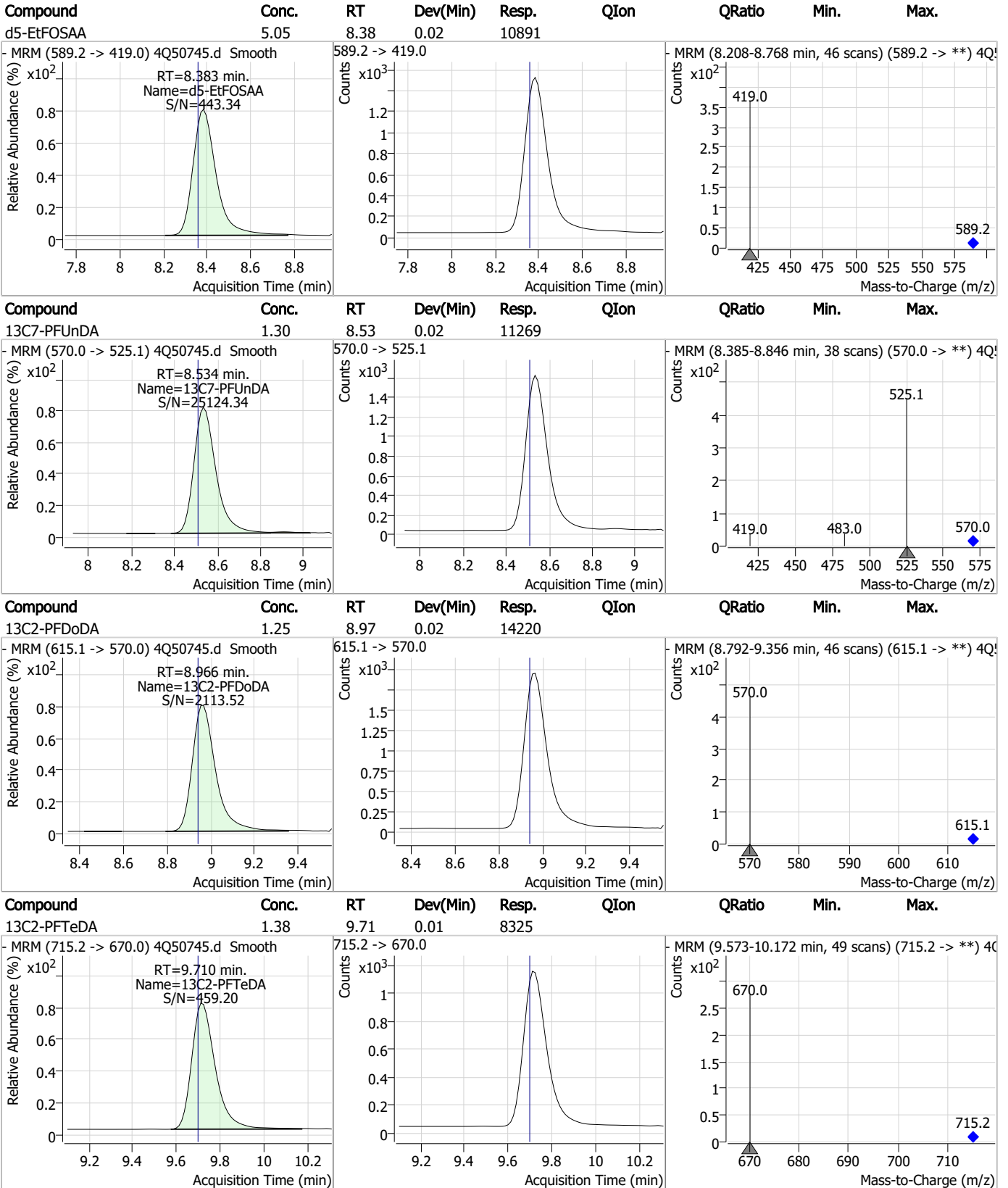
Perfluorinated Compounds by LC/MS/MS



7.2.6

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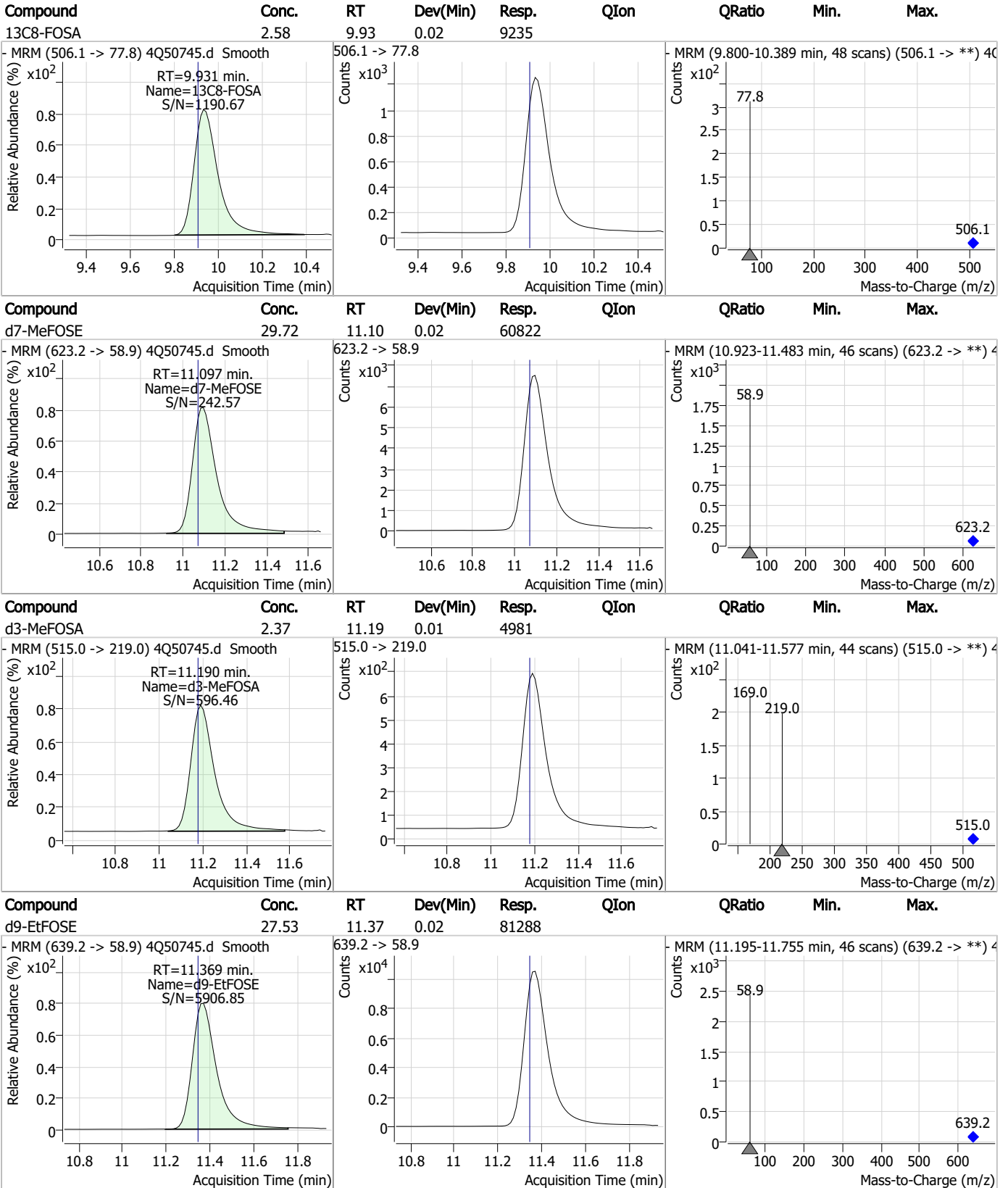
Perfluorinated Compounds by LC/MS/MS



7.2.6

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Perfluorinated Compounds by LC/MS/MS

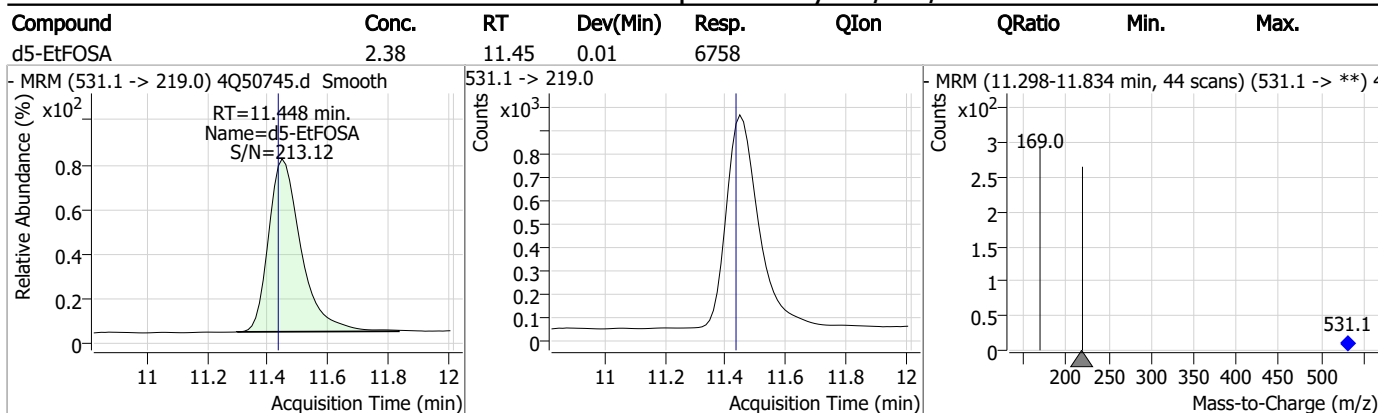


7.2.6

7



Perfluorinated Compounds by LC/MS/MS



7.2.6

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24599.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 12:56:15 PM
 Sample Name : OP99007-BS
 Vial : P4-C2
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP99007,S6Q353,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	114144	10.00 µg/L	0.025
M5-PFPeA	4.434	268.3 -> 223.0	31510	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	70380	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	59952	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	78646	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	32734	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	30239	1.25 µg/L	-0.012
M7-PFUnDA	8.664	570.0 -> 525.1	37457	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	33515	1.25 µg/L	-0.014
M2-PFTeDA	9.784	715.2 -> 670.0	11778	1.25 µg/L	-0.012
M8-FOSA	9.682	506.1 -> 77.8	21205	2.50 µg/L	0.024
M3-PFBS	5.571	302.1 -> 79.9	24830	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	12516	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	11626	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	2592	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3500	5.00 µg/L	0.012
M2-8:2FTS	7.998	529.1 -> 80.9	3682	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	21543	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	38510	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	16942	5.00 µg/L	-0.012
M7-MeFOSE	10.690	623.2 -> 58.9	64886	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	92479	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	7391	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	7647	2.50 µg/L	0.012
13C4-PFOS	8.361	502.8 -> 79.9	15564	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	72179	5.00 µg/L	0.025
18O2-PFHxS	7.313	403.0 -> 83.9	8599	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	78027	2.50 µg/L	0.012
13C2-PFDA	8.198	515.1 -> 470.1	24156	1.25 µg/L	-0.012
13C5-PFNA	7.729	468.0 -> 423.0	32183	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	52036	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2592	5.36 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.1%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3500	4.93 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3682	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFDoDA	9.080	615.1 -> 570.0	33515	1.29 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C2-PFTeDA	9.784	715.2 -> 670.0	11778	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-PFBS	5.571	302.1 -> 79.9	24830	3.12 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 124.9%		
13C3-PFHxS	7.313	402.1 -> 79.9	12516	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 = 106.0%	
13C4-PFBA	3.010	216.8 -> 171.9	114144	6.26 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 62.6%	
13C4-PFHpA	6.581	367.1 -> 322.0	59952	2.68 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.3%	
13C5-PFHxA	5.654	318.0 -> 273.0	70380	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C5-PFPeA	4.434	268.3 -> 223.0	31510	4.49 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.9%	
13C6-PFDA	8.198	519.1 -> 474.1	30239	1.44 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.0%	
13C7-PFUnDA	8.664	570.0 -> 525.1	37457	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C8-FOSA	9.682	506.1 -> 77.8	21205	1.91 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.6%	
13C8-PFOA	7.211	421.1 -> 376.0	78646	2.74 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C8-PFOS	8.361	507.1 -> 79.9	11626	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C9-PFNA	7.729	472.1 -> 427.0	32734	1.63 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 130.2%	
d3-MeFOSAA	8.256	573.2 -> 419.0	21543	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	38510	9.72 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
d3-MeFOSA	10.769	515.0 -> 219.0	7647	1.70 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 68.1%	
d5-EtFOSAA	8.452	589.2 -> 419.0	16942	4.05 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 80.9%	
d7-MeFOSE	10.690	623.2 -> 58.9	64886	15.86 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 63.4%	
d9-EtFOSE	10.923	639.2 -> 58.9	92479	16.79 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 67.2%	
d5-EtFOSA	10.989	531.1 -> 219.0	7391	1.76 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 70.6%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	41048	9.58 µg/L	100
		327.1 -> 80.9	15266		
6:2FTS	6.987	427.1 -> 407.0	31362	10.13 µg/L	98
		427.1 -> 80.9	11975		
8:2FTS	7.999	527.1 -> 507.0	23016	9.27 µg/L	96
		527.1 -> 80.8	8419		
EtFOSAA	8.465	584.2 -> 419.1	6623	2.77 µg/L	100
		584.2 -> 526.0	4326		
FOSA	9.672	498.1 -> 77.9	17103	2.19 µg/L	100
		498.1 -> 478.0	500		
MeFOSAA	8.257	570.1 -> 419.0	12182	2.38 µg/L	99
		570.1 -> 483.0	2516		
PFBA	3.018	212.8 -> 168.9	38416	10.18 µg/L	100
PFBS	5.572	298.7 -> 79.9	24036	1.97 µg/L	100
		298.7 -> 98.8	9211		
PFDA	8.211	512.9 -> 469.0	69200	2.51 µg/L	100
		512.9 -> 219.0	11413		
PFDODA	9.080	613.1 -> 569.0	58033	2.33 µg/L	99
		613.1 -> 319.0	6936		
PFDS	9.233	599.0 -> 79.9	7765	2.29 µg/L	97

7.3.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.582	599.0 -> 98.8	3577	2.39	µg/L	98
		363.1 -> 319.0	75941			
PFHpS	7.868	363.1 -> 169.0	10749	2.49	µg/L	98
		449.0 -> 79.9	14006			
PFHxA	5.657	449.0 -> 98.9	6766	2.30	µg/L	100
		313.0 -> 269.0	58989			
PFHxS	7.314	313.0 -> 118.9	2684	2.30	µg/L	m
		398.7 -> 79.9	18092			
PFNA	7.730	398.7 -> 98.9	8694	1.95	µg/L	95
		463.0 -> 419.0	48020			
PFNS	8.826	463.0 -> 219.0	11768	2.63	µg/L	93
		548.8 -> 79.9	14460			
PFOA	7.212	548.8 -> 98.9	7291	2.10	µg/L	99
		413.0 -> 369.0	85265			
PFOS	8.362	413.0 -> 169.0	15282	2.20	µg/L	m
		498.9 -> 79.9	14183			
PFPeA	4.436	498.9 -> 98.8	7481	5.03	µg/L	100
		263.0 -> 219.0	70632			
PFPeS	6.633	349.1 -> 79.9	16449	2.42	µg/L	98
		349.1 -> 98.9	7560			
PFTeDA	9.785	713.1 -> 669.0	39582	2.33	µg/L	99
		713.1 -> 168.9	2920			
PFTrDA	9.464	663.0 -> 619.0	57995	2.05	µg/L	98
		663.0 -> 168.9	4495			
PFUnDA	8.664	563.1 -> 519.0	48651	2.27	µg/L	99
		563.1 -> 269.1	7524			
11CI-PF3OUdS	9.504	630.9 -> 450.9	61817	4.40	µg/L	99
		632.9 -> 452.9	18210			
9CI-PF3ONS	8.690	530.8 -> 351.0	110773	4.60	µg/L	95
		532.8 -> 353.0	34537			
ADONA	6.829	376.9 -> 250.9	291264	5.22	µg/L	95
		376.9 -> 84.8	72599			
HFPO-DA	6.020	284.9 -> 168.9	19165	5.26	µg/L	97
		284.9 -> 184.9	2671			
3:3FTCA	3.902	241.0 -> 177.0	9525	14.60	µg/L	98
		241.0 -> 117.0	953			
5:3FTCA	6.296	341.0 -> 237.1	267667	61.50	µg/L	99
		341.0 -> 217.0	187366			
7:3FTCA	7.682	441.0 -> 316.9	159795	62.13	µg/L	92
		441.0 -> 336.9	343065			
EtFOSA	10.990	526.0 -> 219.0	18487	4.60	µg/L	92
		526.0 -> 169.0	22534			
EtFOSE	10.937	630.0 -> 58.9	50193	11.42	µg/L	100
		511.9 -> 219.0	16190			
MeFOSA	10.771	511.9 -> 169.0	23177	4.99	µg/L	94
		616.1 -> 58.9	32154			
MeFOSE	10.703	699.1 -> 79.9	3629	11.46	µg/L	100
		699.1 -> 98.8	2055			
PFDoDS	9.910	295.0 -> 201.0	14021	1.96	µg/L	100
		295.0 -> 84.9	3751			
NFDHA	5.535	279.0 -> 85.1	55865	4.72	µg/L	93
		229.0 -> 84.9	35584			
PFMBA	4.863	314.8 -> 134.9	147739	4.85	µg/L	100
		314.8 -> 82.9	4906			
PFMPA	3.575			4.62	µg/L	99
PFEESA	6.124					

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

7.3.1
7

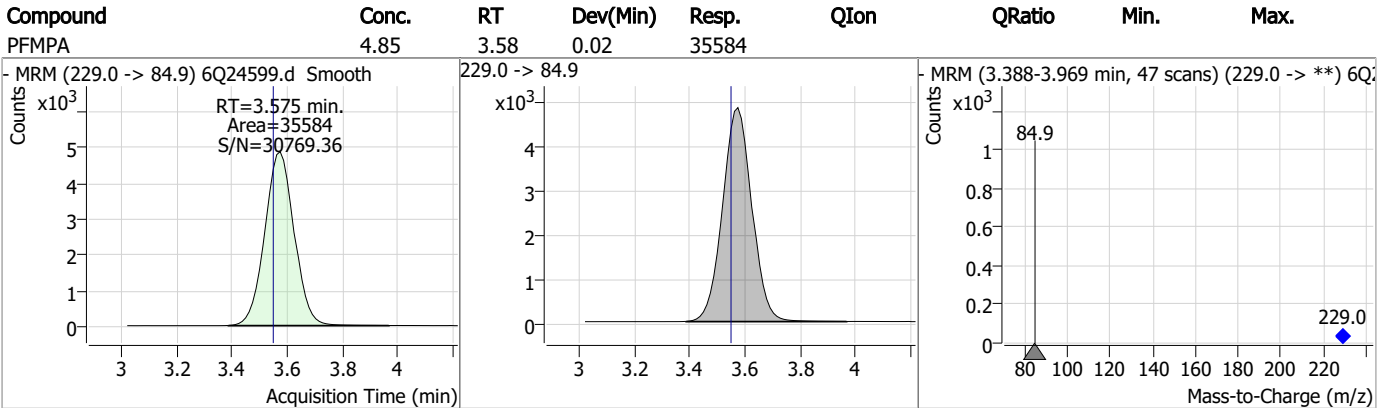
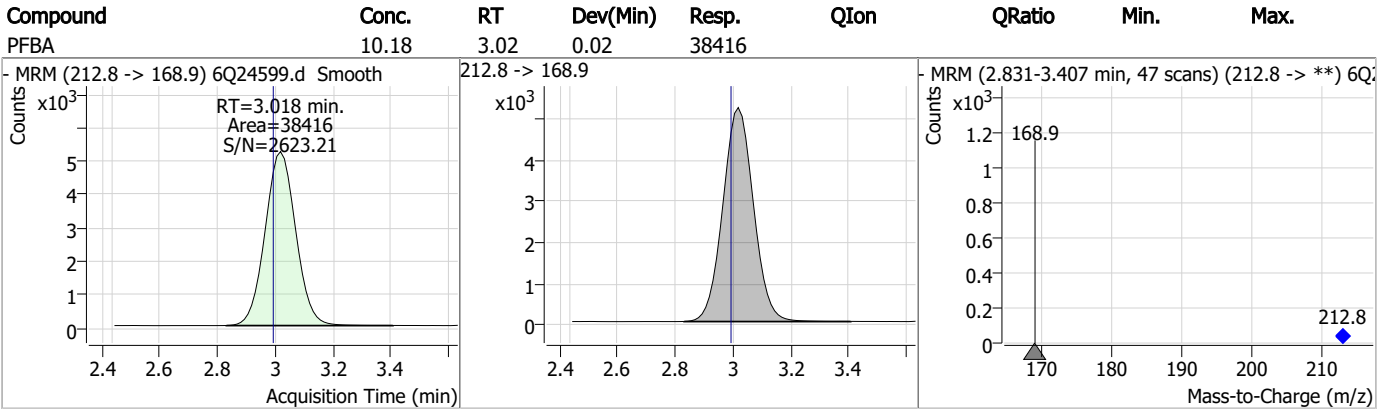
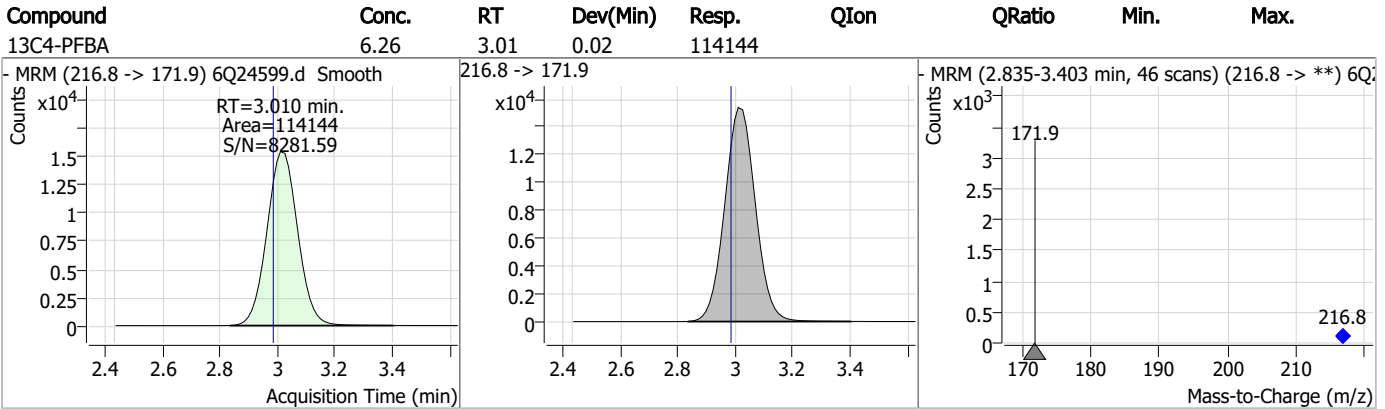
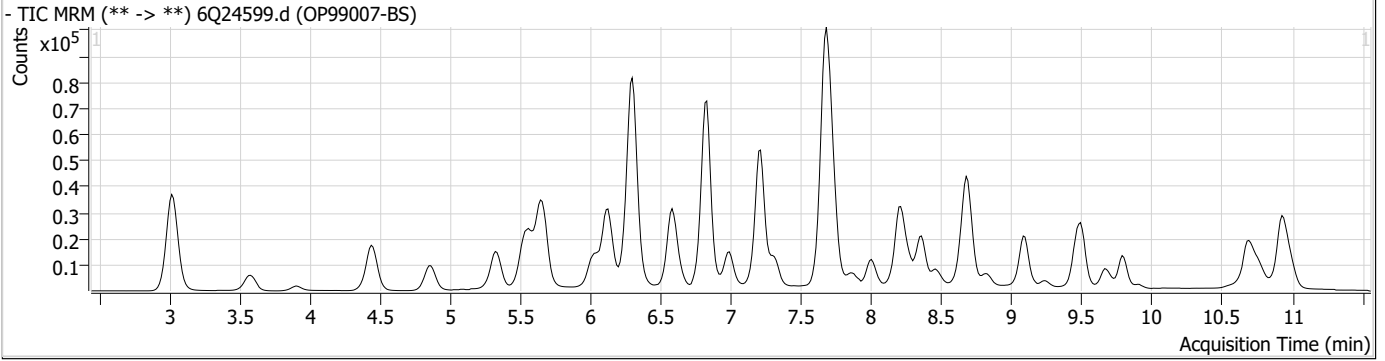
Perfluorinated Compounds by LC/MS/MS

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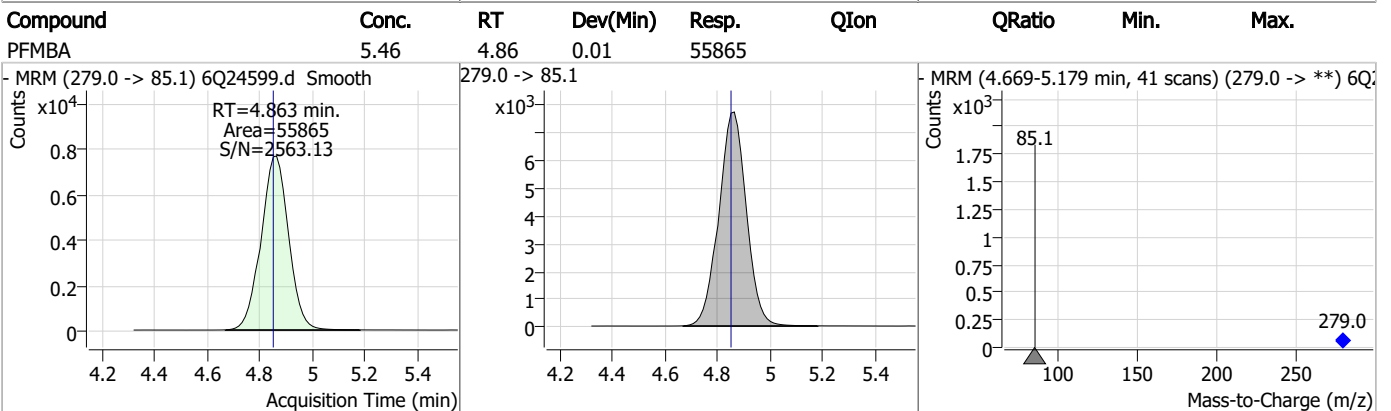
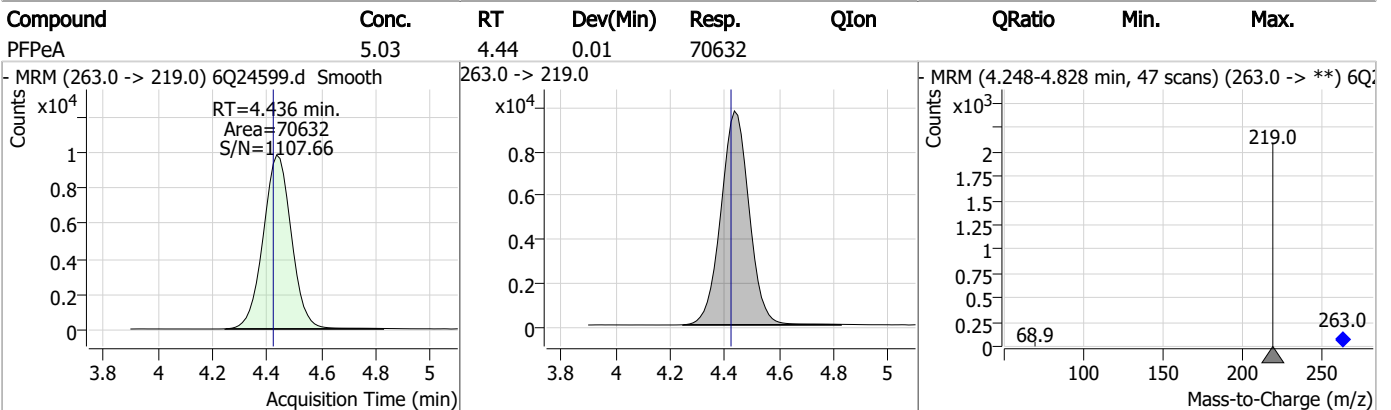
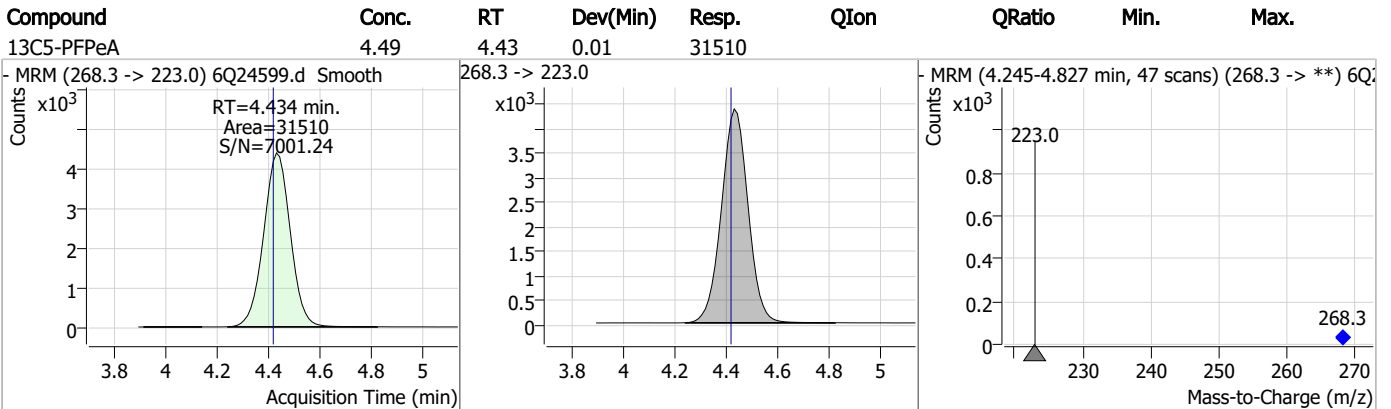
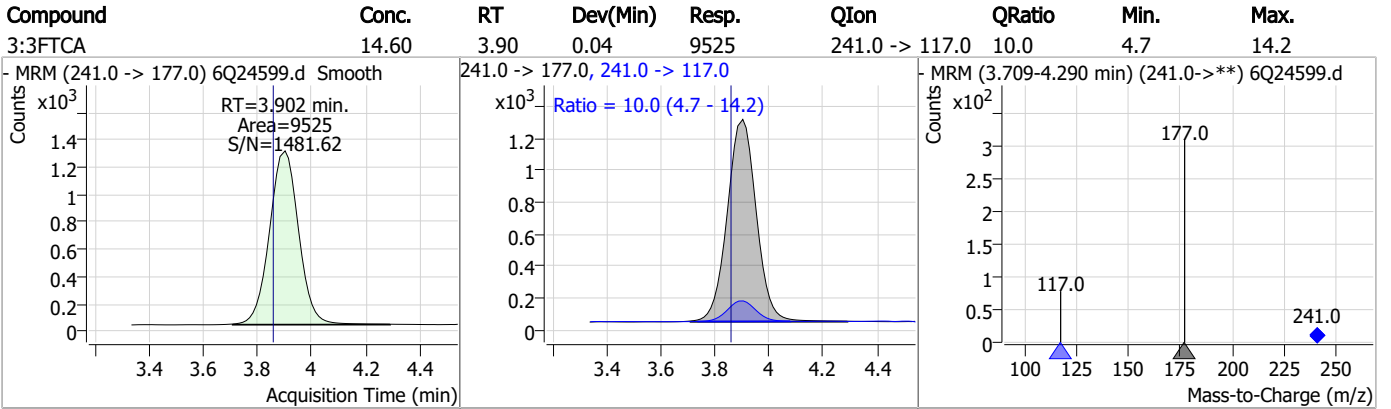
7.3.1

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Perfluorinated Compounds by LC/MS/MS



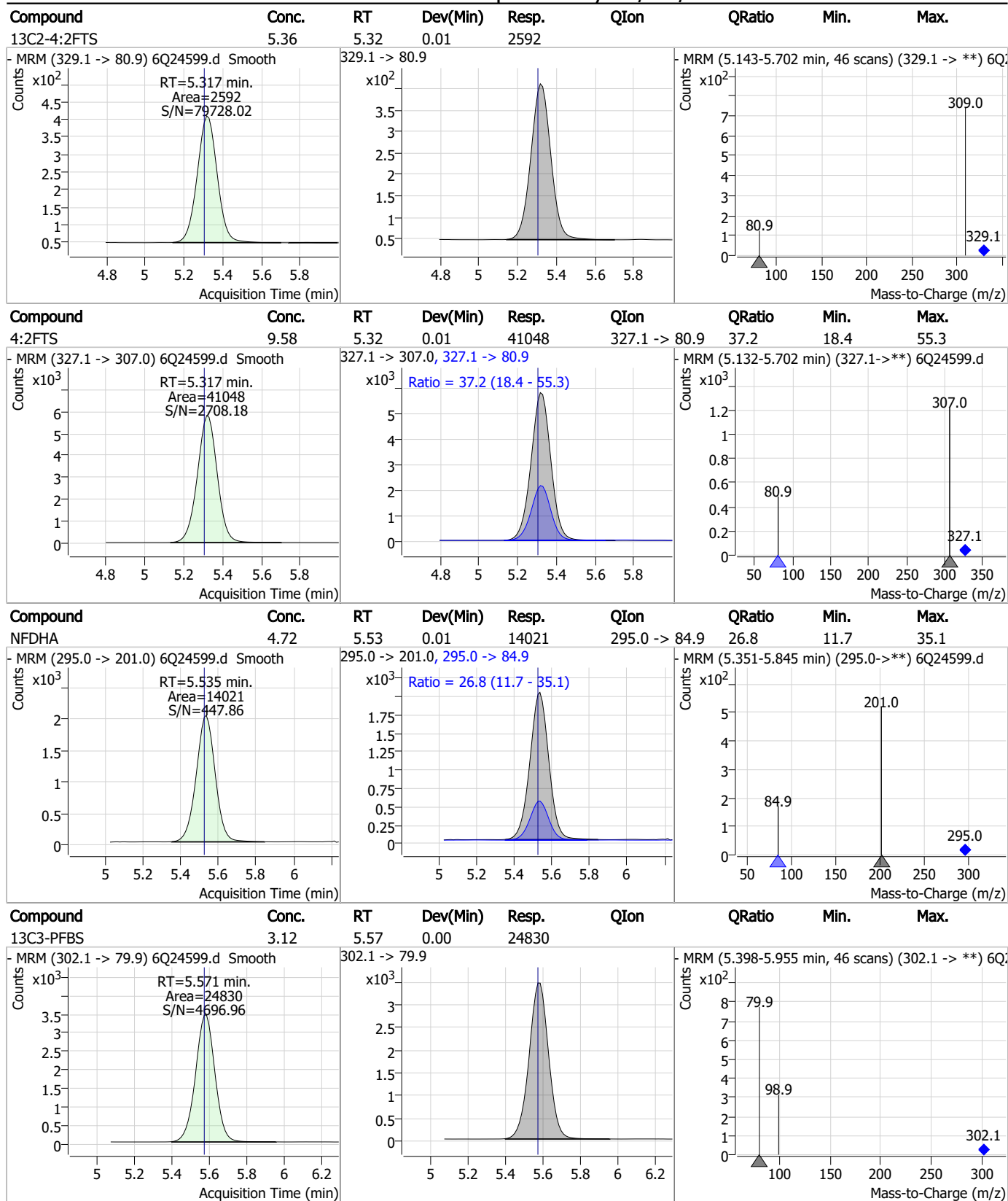
Perfluorinated Compounds by LC/MS/MS



7.3.1

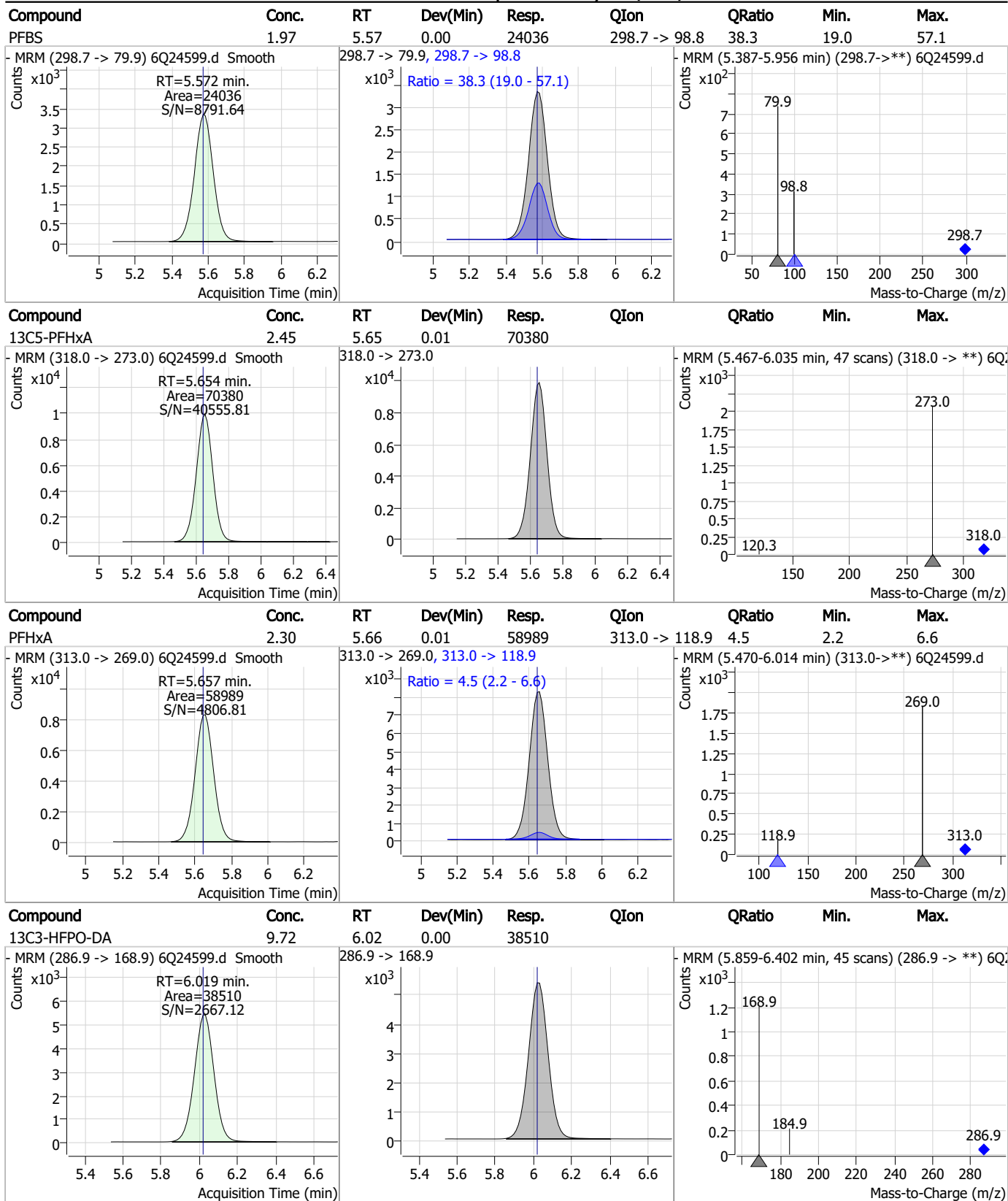
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Perfluorinated Compounds by LC/MS/MS



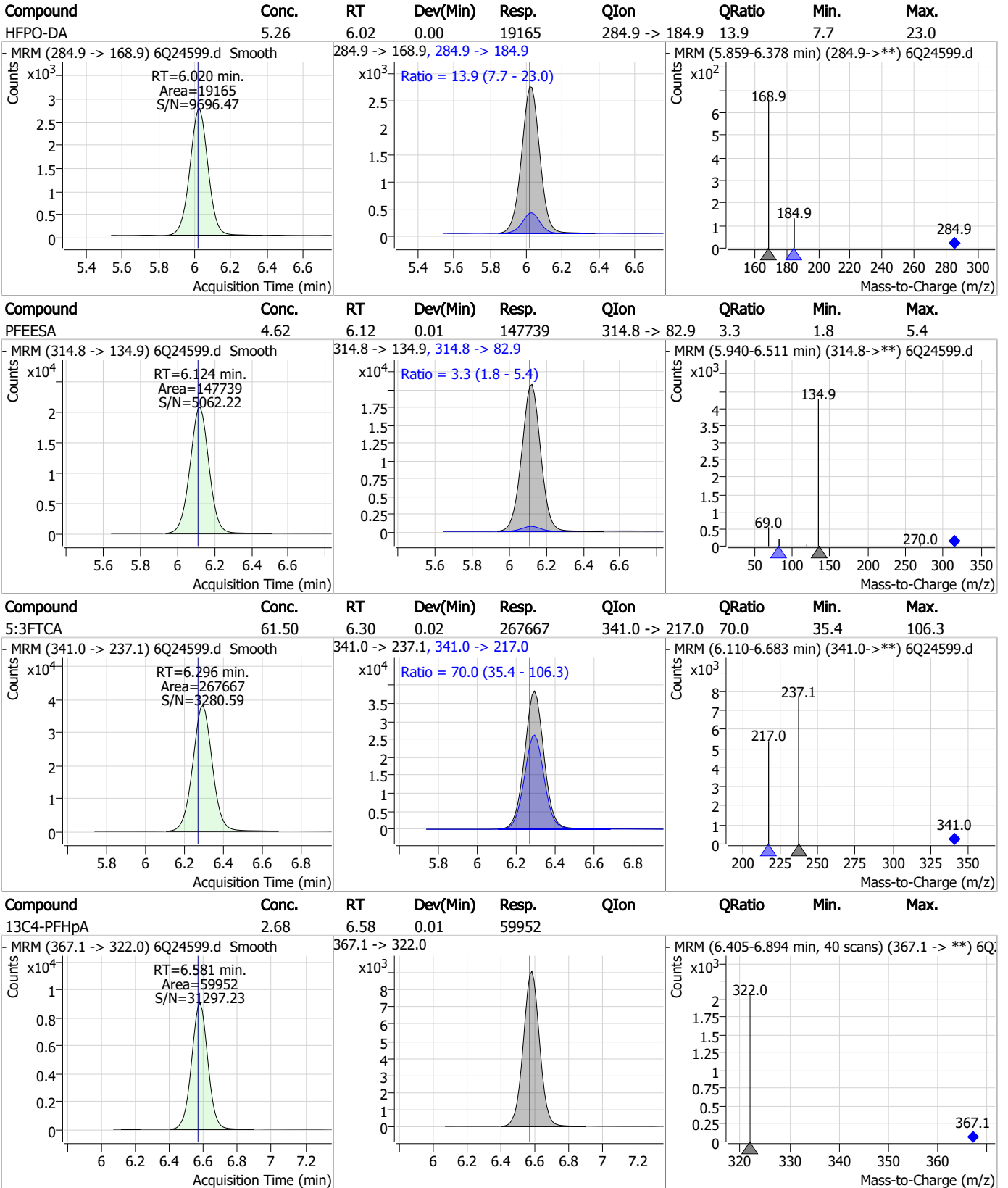
7.3.1
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Perfluorinated Compounds by LC/MS/MS



7.3.1
7

Perfluorinated Compounds by LC/MS/MS

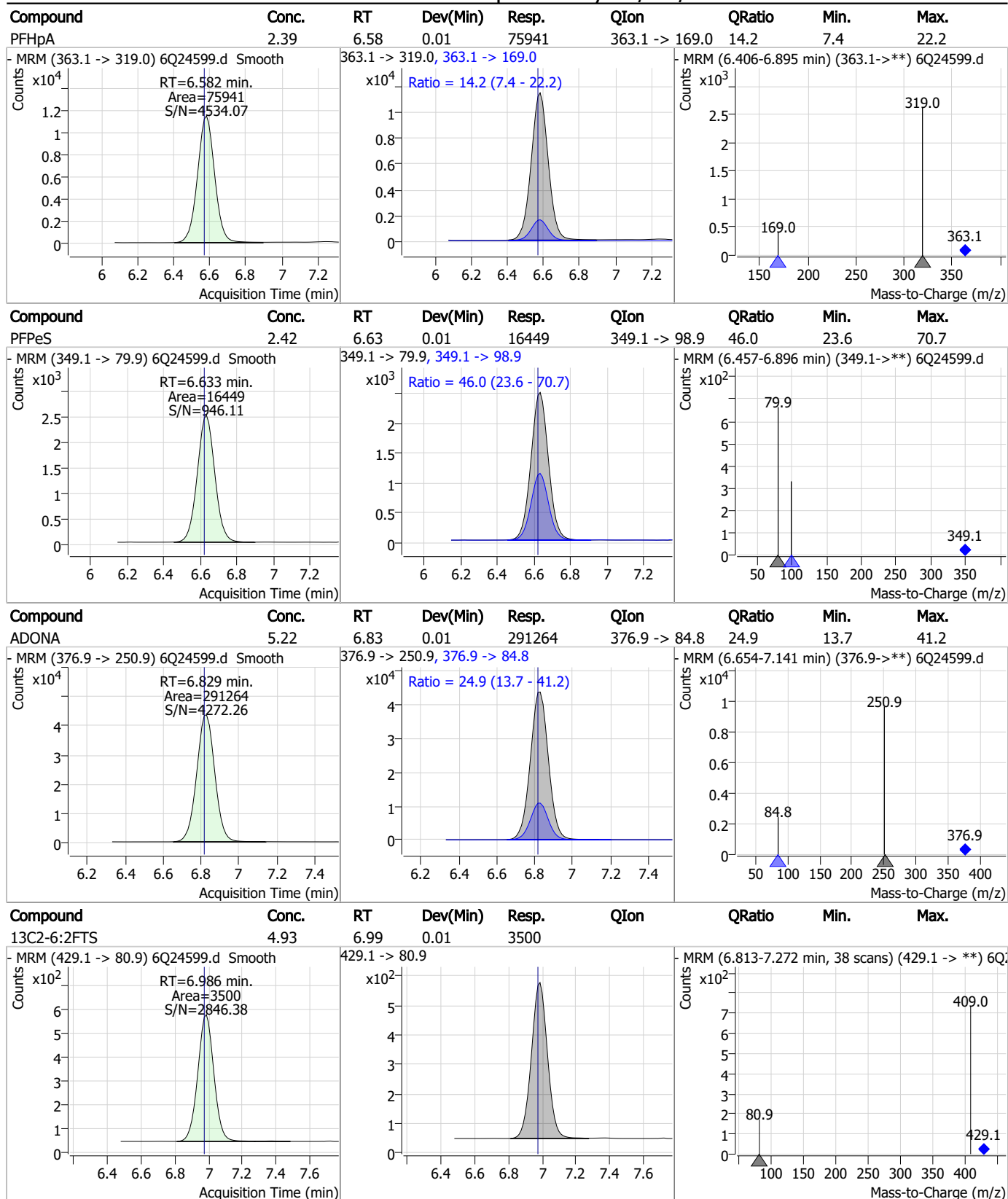


7.3.1

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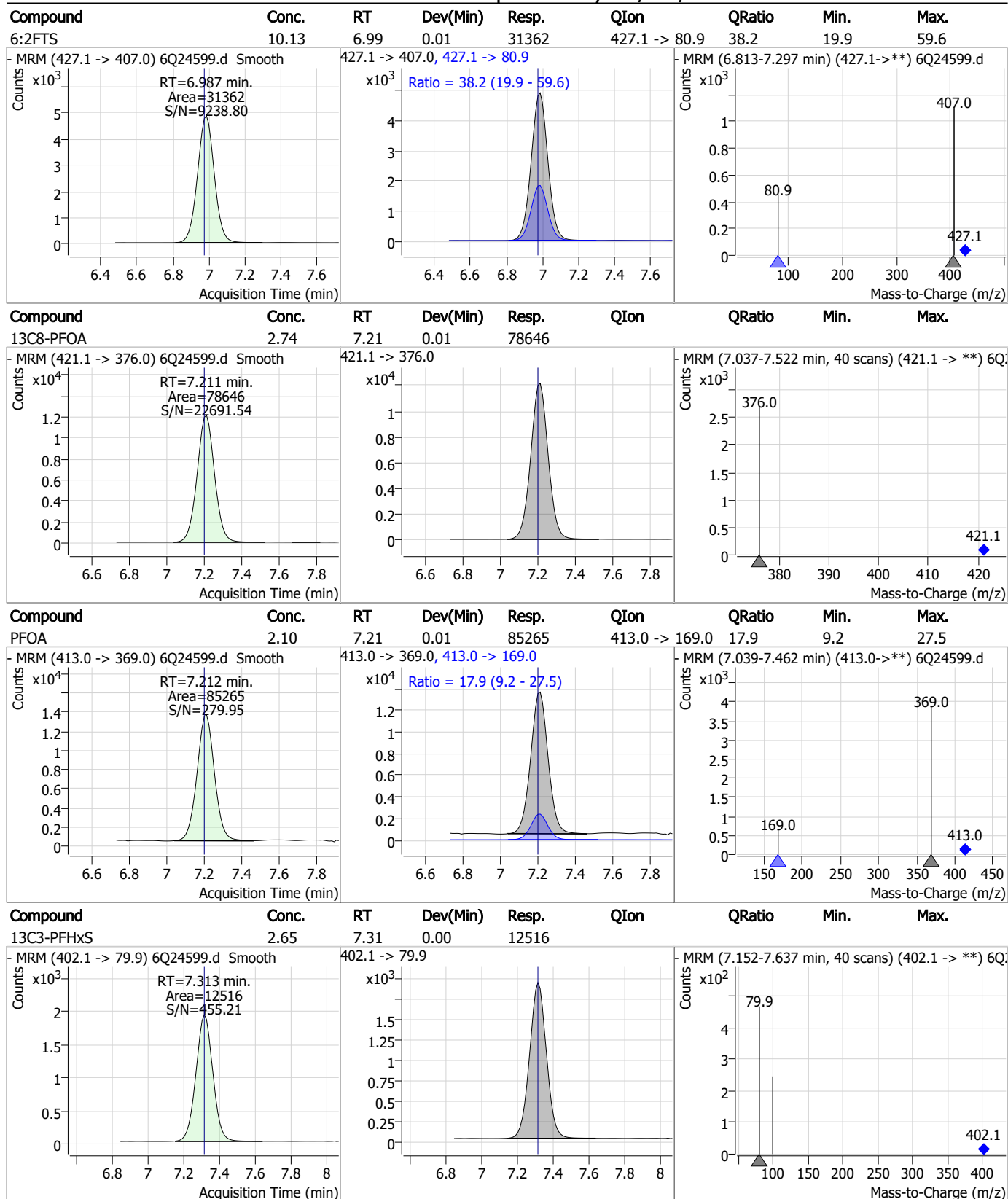


Perfluorinated Compounds by LC/MS/MS



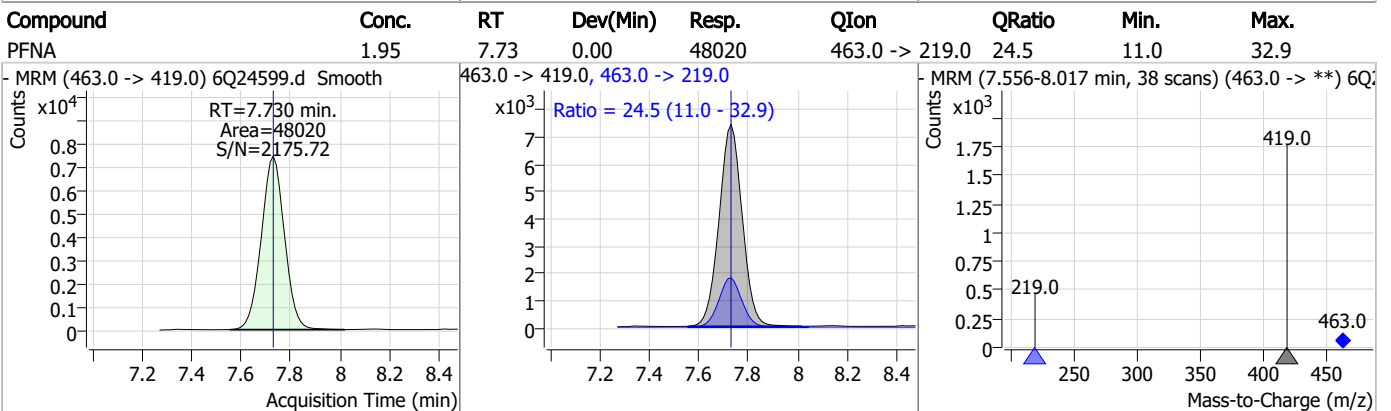
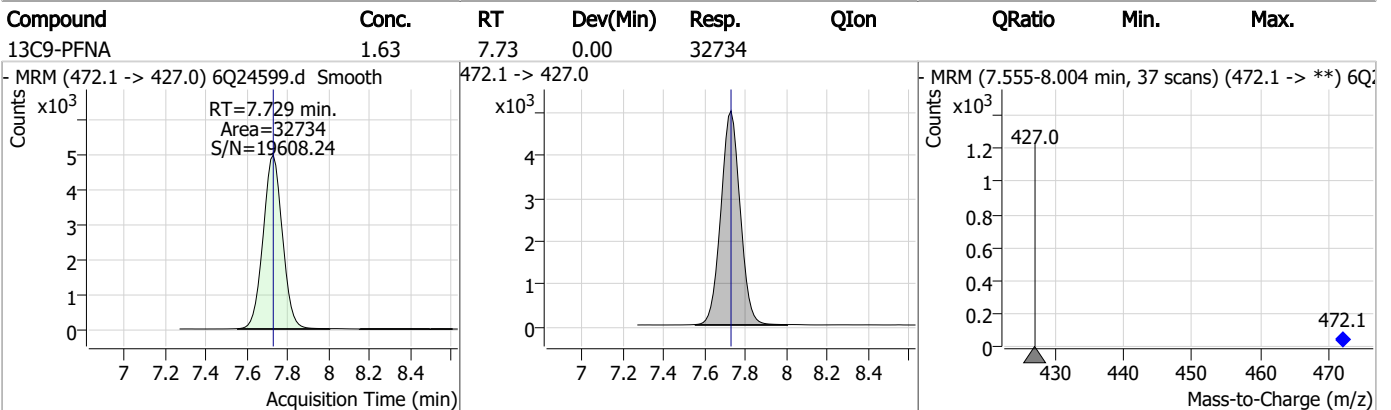
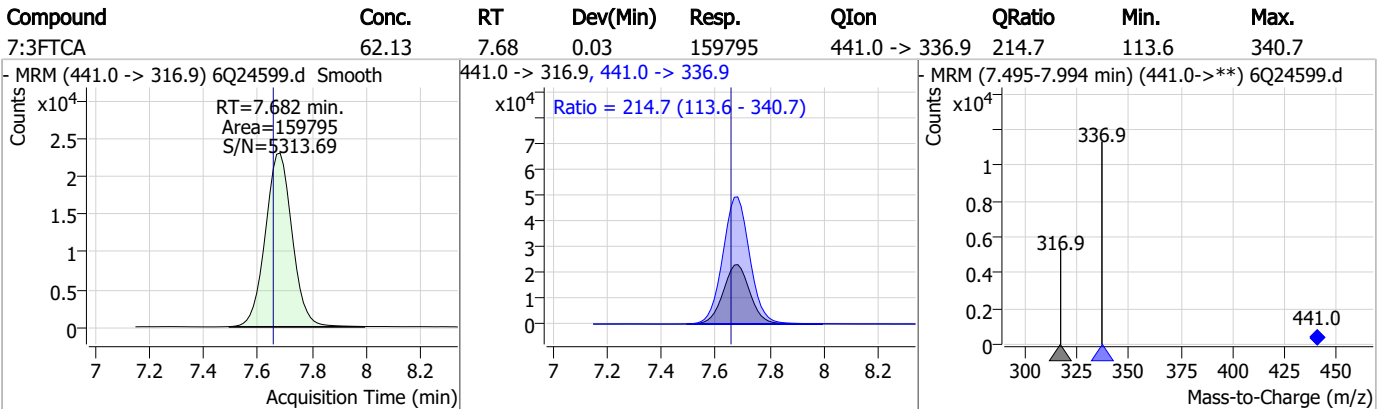
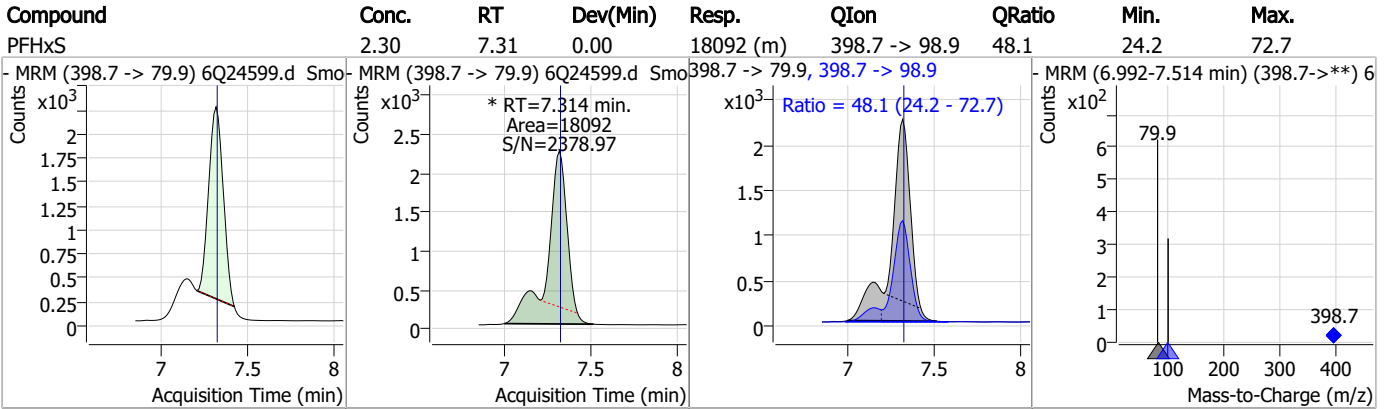
7.3.1
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Perfluorinated Compounds by LC/MS/MS



7.3.1
7

Perfluorinated Compounds by LC/MS/MS



7.3.1

7

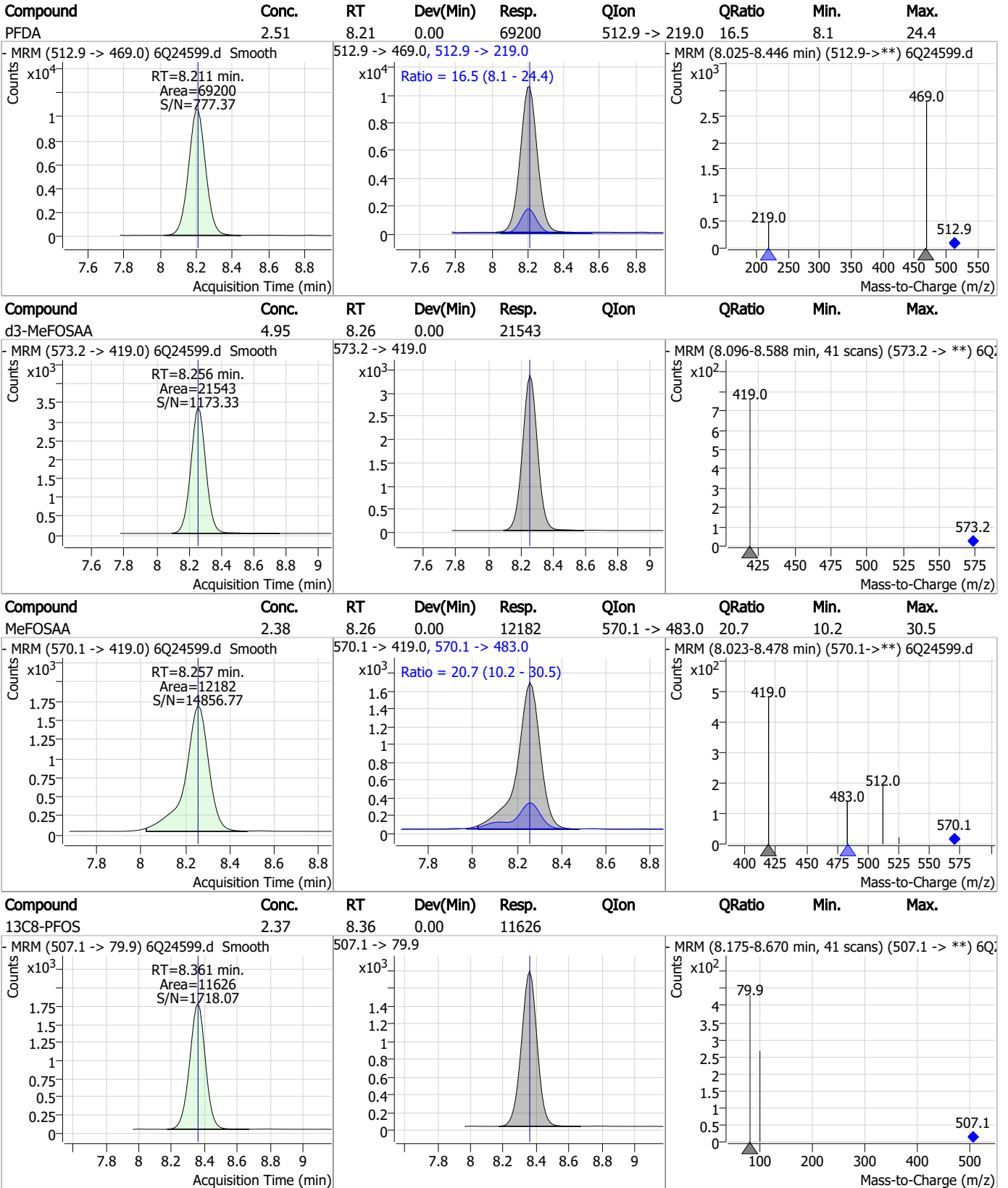
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.49	7.87	0.00	14006	449.0 -> 98.9	48.3	23.4	70.1
13C2-8:2FTS	5.01	8.00	0.00	3682	529.1 -> 80.9			
8:2FTS	9.27	8.00	0.00	23016	527.1 -> 80.8	36.6	19.7	59.0
13C6-PFDA	1.44	8.20	-0.01	30239	519.1 -> 474.1			

7.3.1

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Perfluorinated Compounds by LC/MS/MS

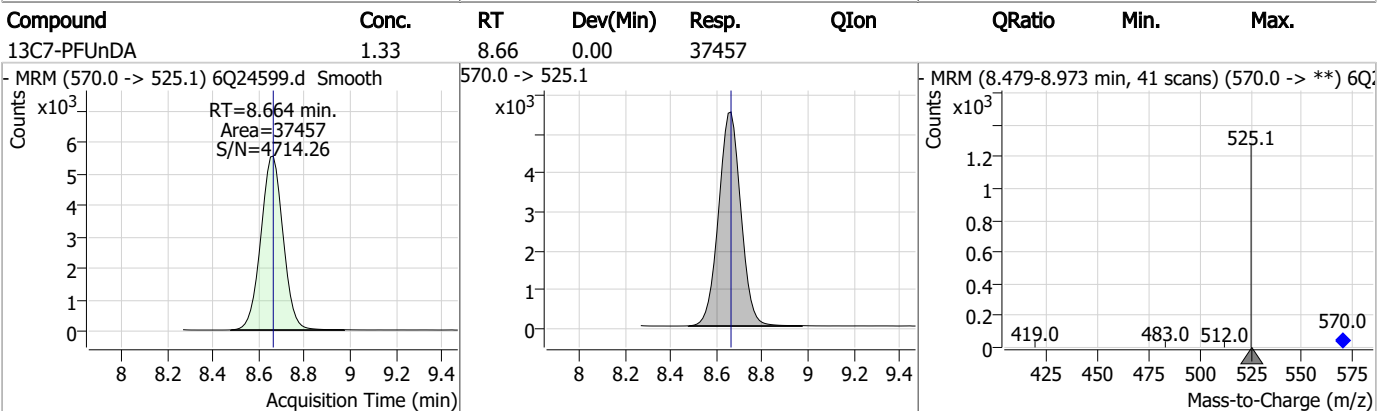
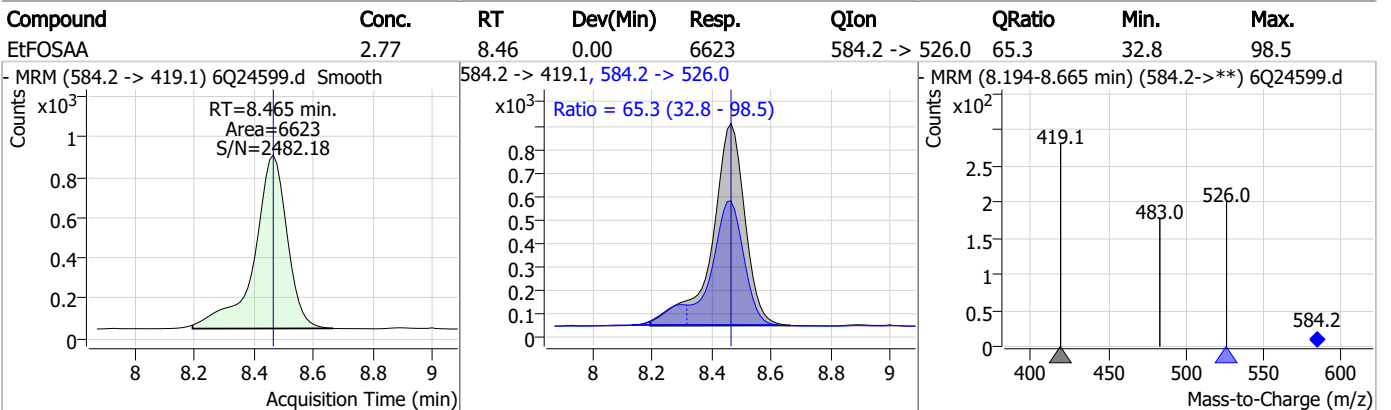
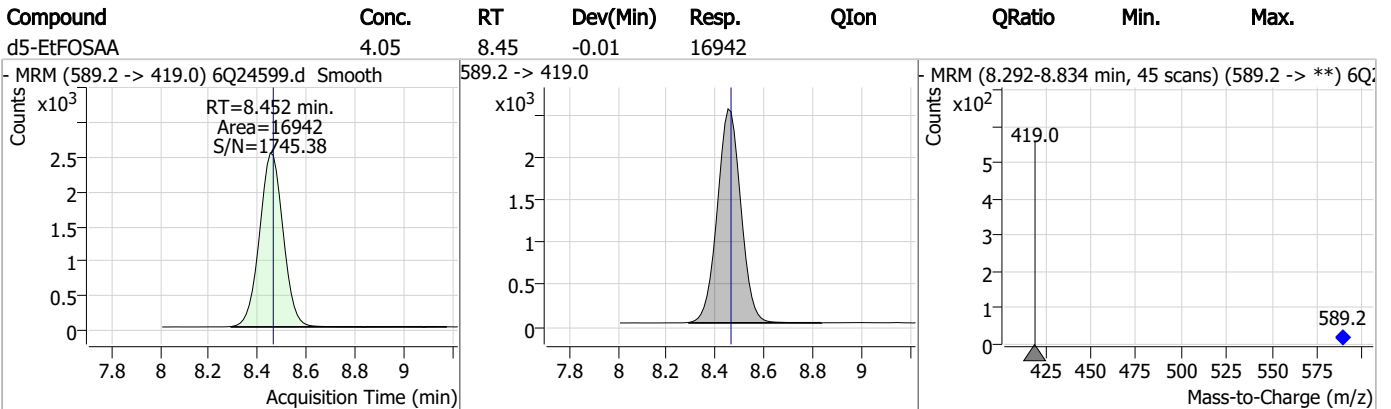
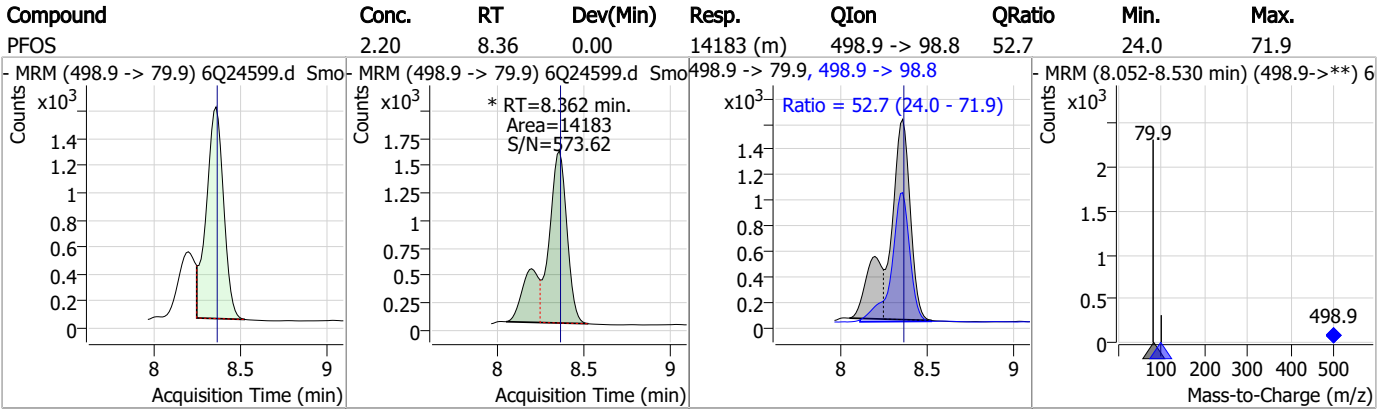


7.3.1

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Perfluorinated Compounds by LC/MS/MS

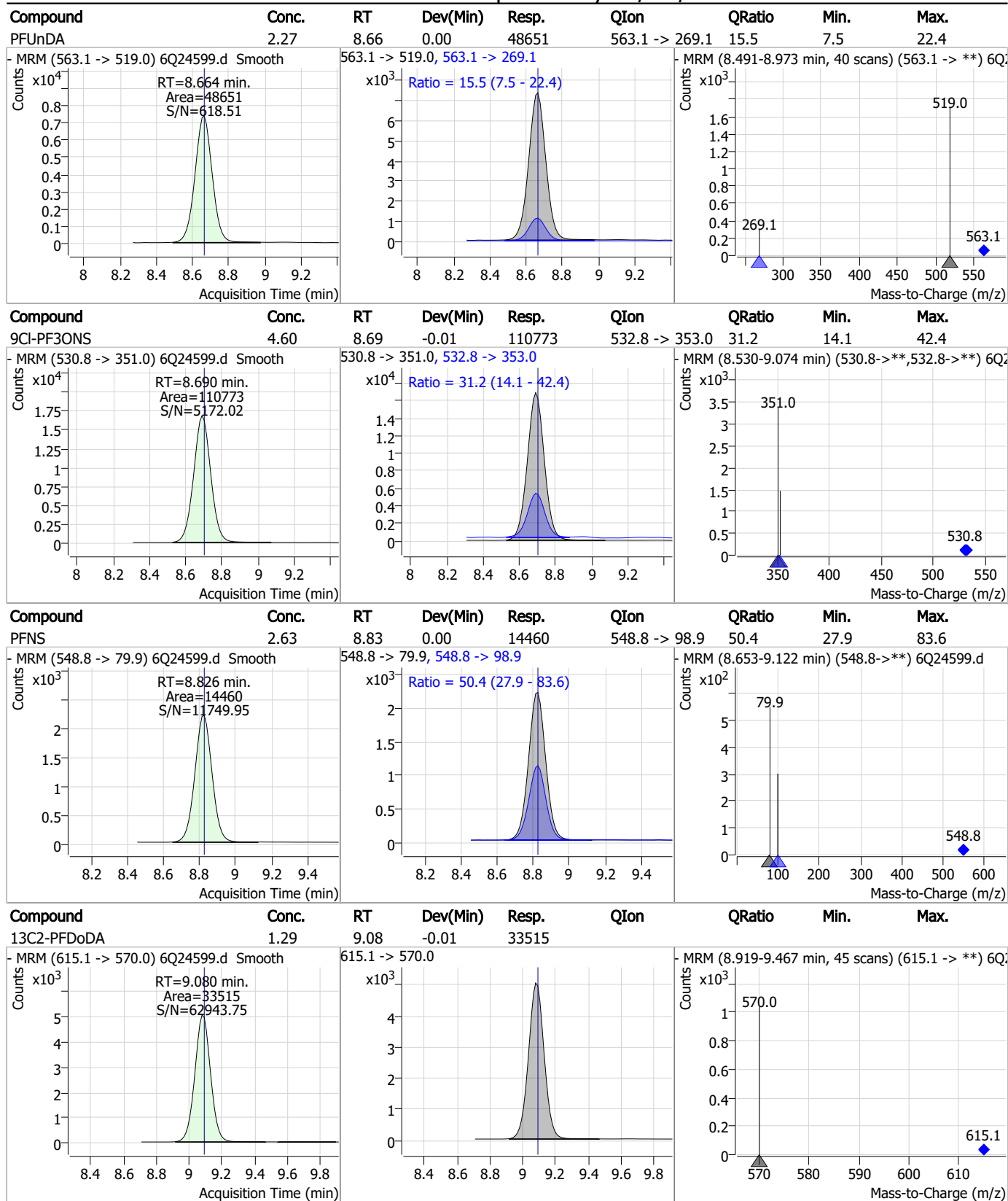


7.3.1

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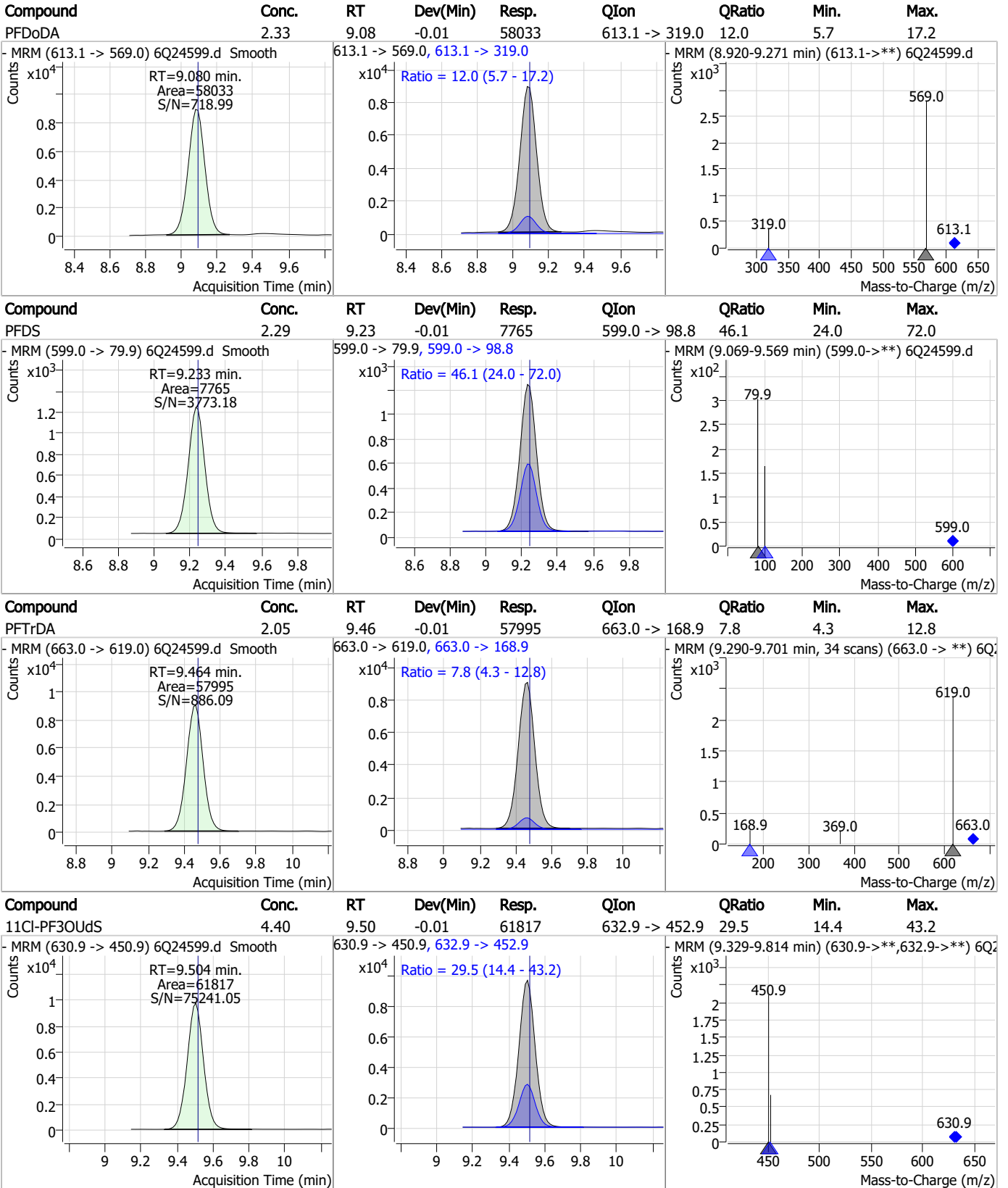


Perfluorinated Compounds by LC/MS/MS



7.3.1
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Perfluorinated Compounds by LC/MS/MS

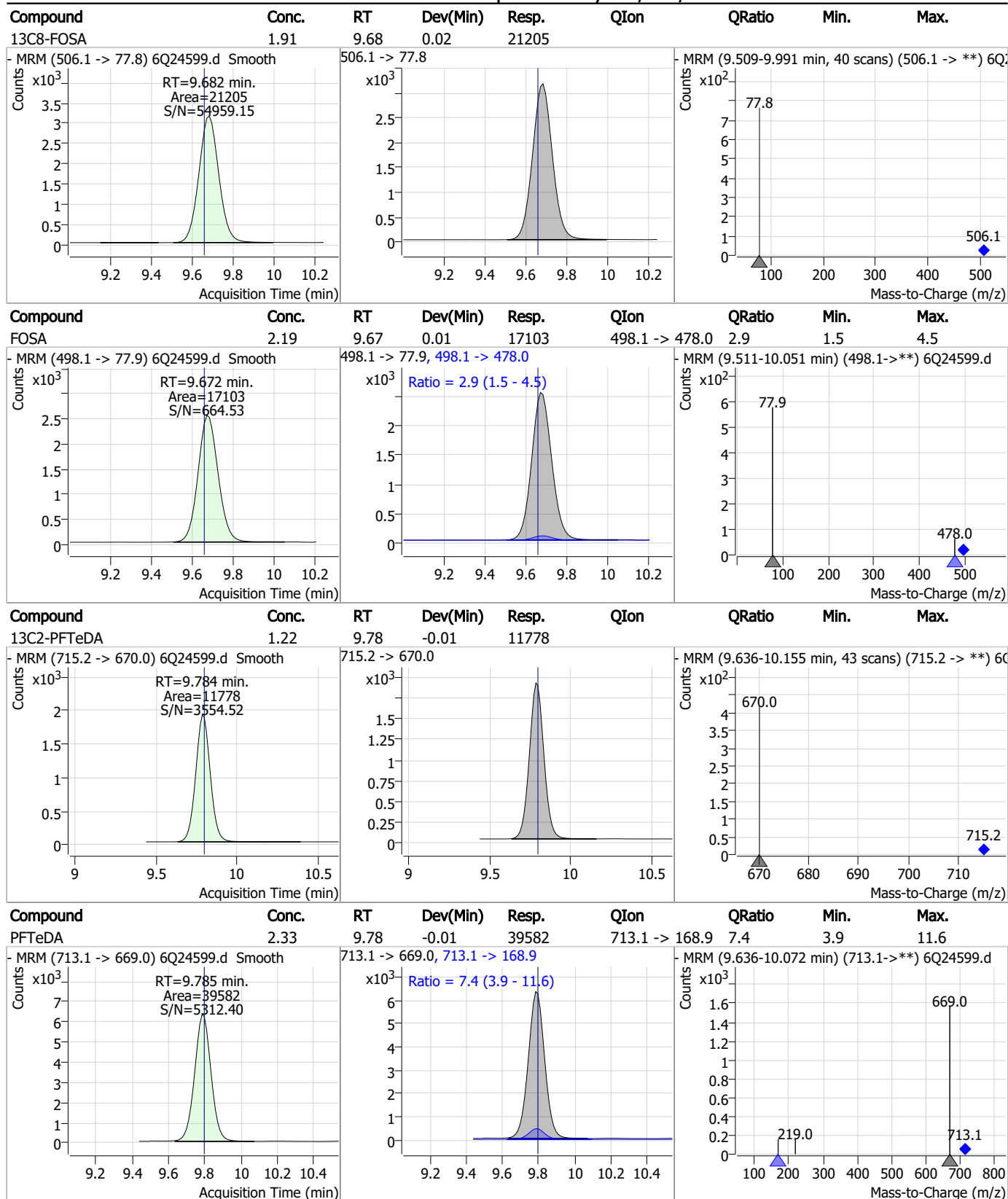


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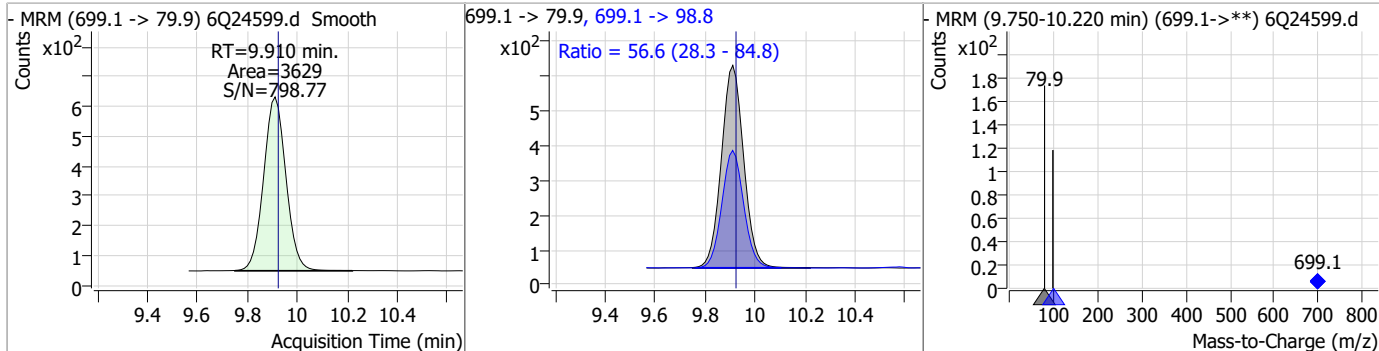
Perfluorinated Compounds by LC/MS/MS



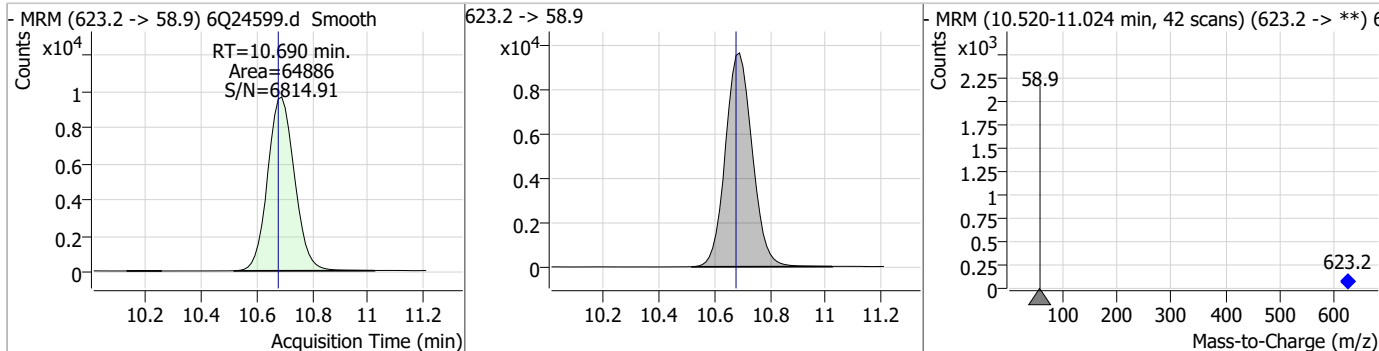
7.3.1
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Perfluorinated Compounds by LC/MS/MS

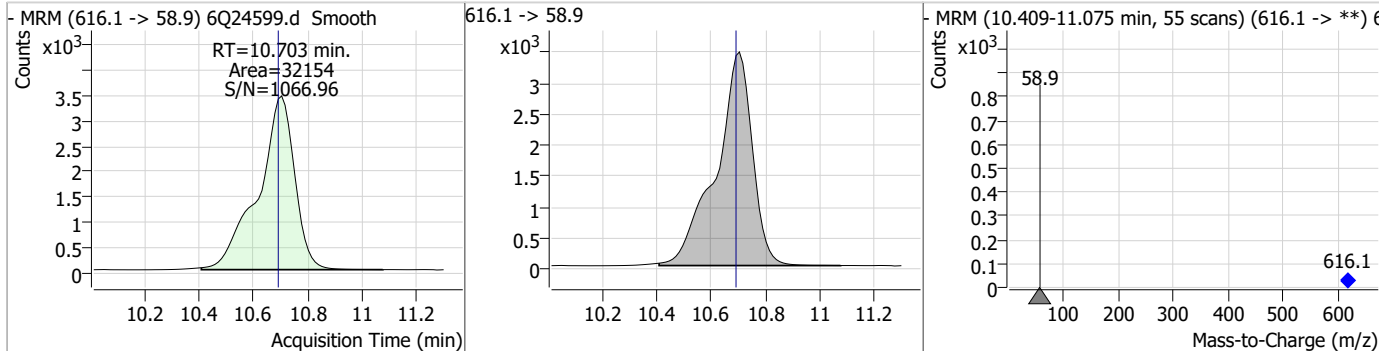
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.96	9.91	-0.01	3629	699.1 -> 98.8	56.6	28.3	84.8



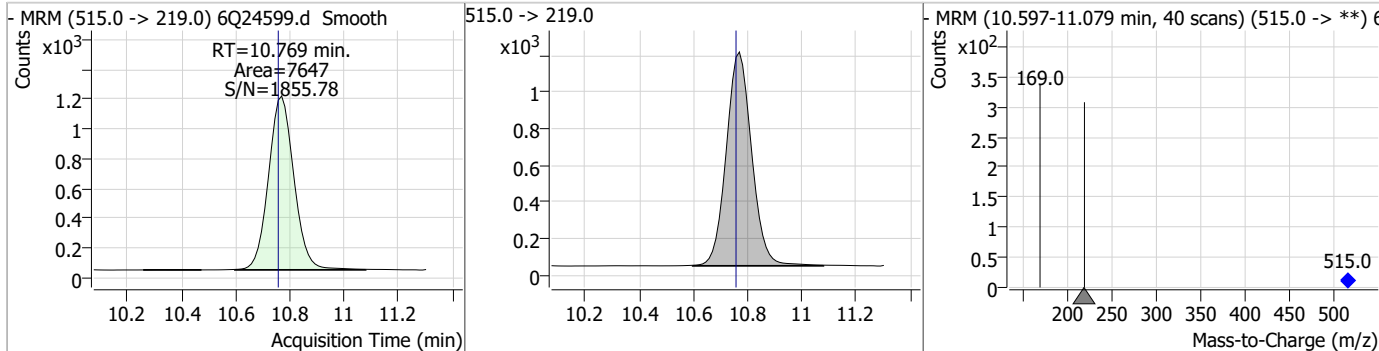
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	15.86	10.69	0.01	64886				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.46	10.70	0.01	32154				

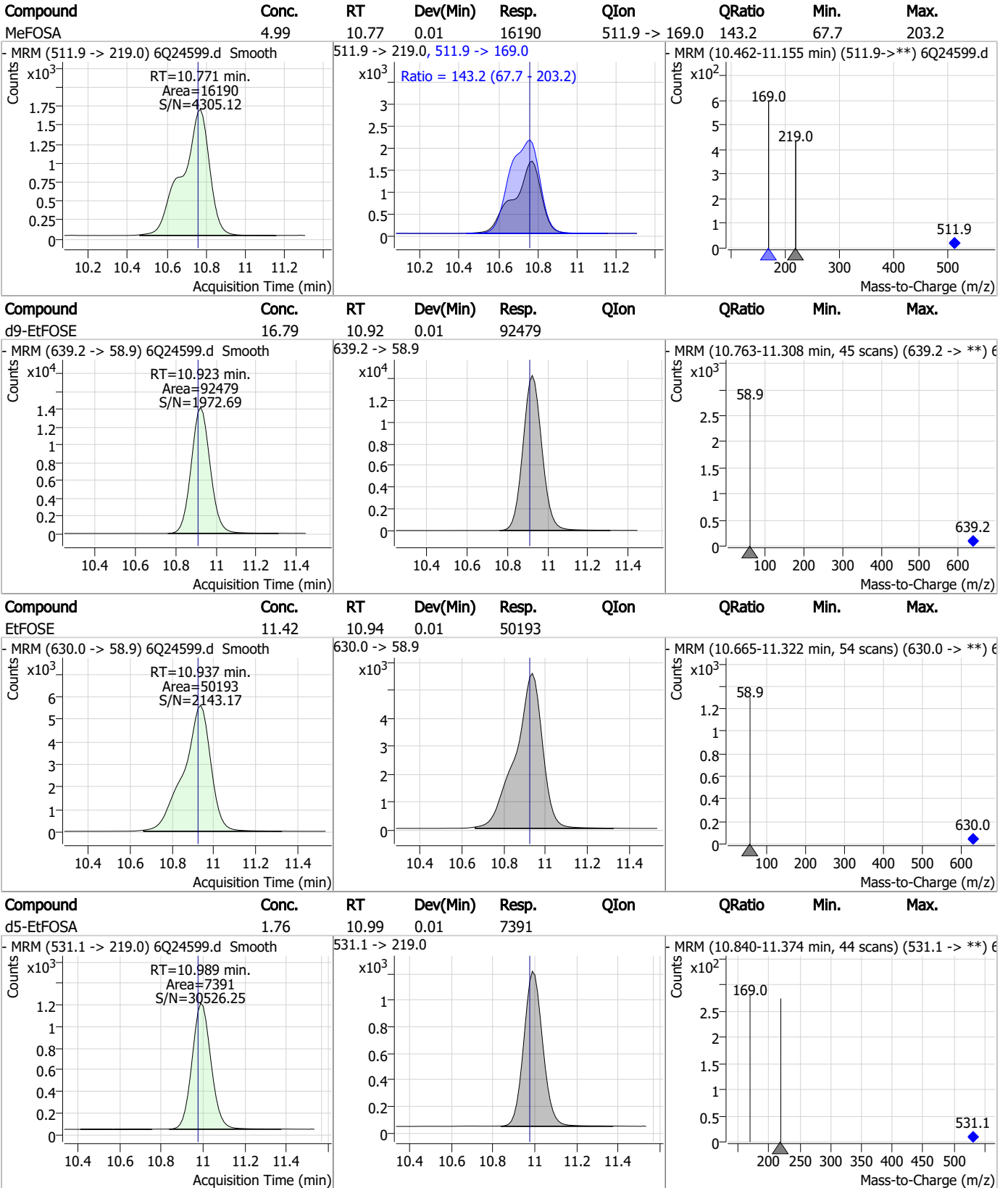


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.70	10.77	0.01	7647				



7.3.1
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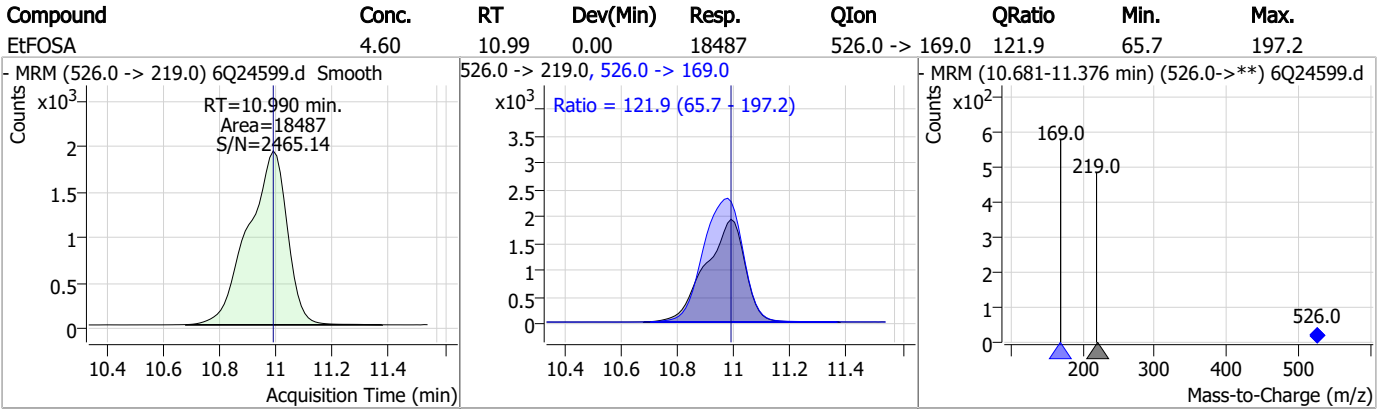
Perfluorinated Compounds by LC/MS/MS



7.3.1

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Perfluorinated Compounds by LC/MS/MS



7.3.1

7

Manual Integration Approval Summary

Sample Number: OP99007-BS Method: EPA DRAFT 1633
Lab FileID: 6Q24599.D Analyst approved: 09/20/23 09:35 Martha Valls
Injection Time: 09/18/23 12:56 Supervisor approved: 09/20/23 10:37 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak

7.3.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24600.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 1:10:35 PM
 Sample Name : OP99007-LLBS:3
 Vial : P4-C3
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP99007,S6Q353,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	191282	10.00 µg/L	0.041
M5-PFPeA	4.434	268.3 -> 223.0	29897	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	65906	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	56743	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	74431	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	31090	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	29083	1.25 µg/L	-0.012
M7-PFUnDA	8.664	570.0 -> 525.1	32544	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	30761	1.25 µg/L	-0.014
M2-PFTeDA	9.796	715.2 -> 670.0	11361	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	18709	2.50 µg/L	0.025
M3-PFBS	5.571	302.1 -> 79.9	22598	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	12002	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	12236	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	2627	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3627	5.00 µg/L	0.012
M2-8:2FTS	7.998	529.1 -> 80.9	3493	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	19382	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	37562	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	15949	5.00 µg/L	-0.012
M7-MeFOSE	10.690	623.2 -> 58.9	59294	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	86210	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	6901	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	6311	2.50 µg/L	0.012
13C4-PFOS	8.361	502.8 -> 79.9	14486	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	72225	5.00 µg/L	0.025
18O2-PFHxS	7.313	403.0 -> 83.9	8739	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	80227	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	24141	1.25 µg/L	-0.012
13C5-PFNA	7.729	468.0 -> 423.0	32141	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	50179	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2627	5.34 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3627	5.03 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3493	4.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.5%		
13C2-PFDoDA	9.080	615.1 -> 570.0	30761	1.19 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C2-PFTeDA	9.796	715.2 -> 670.0	11361	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.4%		
13C3-PFBS	5.571	302.1 -> 79.9	22598	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C3-PFHxS	7.313	402.1 -> 79.9	12002	2.50 µg/L	0.000

7.32
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFBA	3.025	216.8 -> 171.9	191282	10.49 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C4-PFHpA	6.581	367.1 -> 322.0	56743	2.63 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C5-PFHxA	5.654	318.0 -> 273.0	65906	2.38 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C5-PFPeA	4.434	268.3 -> 223.0	29897	4.42 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.4%	
13C6-PFDA	8.198	519.1 -> 474.1	29083	1.38 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.7%	
13C7-PFUnDA	8.664	570.0 -> 525.1	32544	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C8-FOSA	9.682	506.1 -> 77.8	18709	1.81 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 72.6%	
13C8-PFOA	7.211	421.1 -> 376.0	74431	2.52 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C8-PFOS	8.361	507.1 -> 79.9	12236	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.3%	
13C9-PFNA	7.729	472.1 -> 427.0	31090	1.55 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 123.8%	
d3-MeFOSAA	8.256	573.2 -> 419.0	19382	4.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	37562	9.83 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
d3-MeFOSA	10.769	515.0 -> 219.0	6311	1.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 60.4%	
d5-EtFOSAA	8.452	589.2 -> 419.0	15949	4.09 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 81.9%	
d7-MeFOSE	10.690	623.2 -> 58.9	59294	15.57 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 62.3%	
d9-EtFOSE	10.923	639.2 -> 58.9	86210	16.82 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 67.3%	
d5-EtFOSA	10.989	531.1 -> 219.0	6901	1.77 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 70.8%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	12905	2.97 µg/L	97
		327.1 -> 80.9	5015		
6:2FTS	6.987	427.1 -> 407.0	9798	3.05 µg/L	99
		427.1 -> 80.9	3954		
8:2FTS	7.999	527.1 -> 507.0	6698	2.84 µg/L	99
		527.1 -> 80.8	2587		
EtFOSAA	8.465	584.2 -> 419.1	2169	0.96 µg/L	m 96
		584.2 -> 526.0	1353		
FOSA	9.672	498.1 -> 77.9	5055	0.73 µg/L	99
		498.1 -> 478.0	140		
MeFOSAA	8.257	570.1 -> 419.0	3747	0.81 µg/L	96
		570.1 -> 483.0	823		
PFBA	3.018	212.8 -> 168.9	20918	3.31 µg/L	100
PFBS	5.572	298.7 -> 79.9	7616	0.69 µg/L	99
		298.7 -> 98.8	2845		
PFDA	8.198	512.9 -> 469.0	20766	0.78 µg/L	100
		512.9 -> 219.0	3357		
PFDODA	9.080	613.1 -> 569.0	16875	0.74 µg/L	100
		613.1 -> 319.0	1954		
PFDS	9.233	599.0 -> 79.9	2321	0.65 µg/L	92

7.3.2
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.582	599.0 -> 98.8	1233	0.77	µg/L	99
		363.1 -> 319.0	23034			
PFHpS	7.868	363.1 -> 169.0	3272	0.71	µg/L	95
		449.0 -> 79.9	4180			
PFHxA	5.657	449.0 -> 98.9	2102	0.74	µg/L	98
		313.0 -> 269.0	17698			
PFHxS	7.314	313.0 -> 118.9	881	0.81	µg/L	93
		398.7 -> 79.9	6068			
PFNA	7.730	398.7 -> 98.9	2666	0.68	µg/L	98
		463.0 -> 419.0	15924			
PFNS	8.826	463.0 -> 219.0	3605	0.70	µg/L	97
		548.8 -> 79.9	4035			
PFOA	7.212	548.8 -> 98.9	2162	0.66	µg/L	97
		413.0 -> 369.0	25190			
PFOS	8.362	413.0 -> 169.0	4341	0.67	µg/L	97
		498.9 -> 79.9	4571			
PFPeA	4.436	498.9 -> 98.8	2291	1.62	µg/L	100
		263.0 -> 219.0	21587			
PFPeS	6.633	349.1 -> 79.9	4808	0.74	µg/L	98
		349.1 -> 98.9	2316			
PFTeDA	9.785	713.1 -> 669.0	11993	0.73	µg/L	99
		713.1 -> 168.9	951			
PFTrDA	9.464	663.0 -> 619.0	17006	0.66	µg/L	97
		663.0 -> 168.9	1298			
PFUnDA	8.652	563.1 -> 519.0	14268	0.77	µg/L	92
		563.1 -> 269.1	2598			
11CI-PF3OUdS	9.504	630.9 -> 450.9	18295	1.34	µg/L	98
		632.9 -> 452.9	5483			
9CI-PF3ONS	8.690	530.8 -> 351.0	34463	1.47	µg/L	98
		532.8 -> 353.0	10099			
ADONA	6.817	376.9 -> 250.9	85690	1.58	µg/L	100
		376.9 -> 84.8	23463			
HFPO-DA	6.020	284.9 -> 168.9	6092	1.71	µg/L	93
		284.9 -> 184.9	745			
3:3FTCA	3.902	241.0 -> 177.0	3501	3.20	µg/L	97
		241.0 -> 117.0	364			
5:3FTCA	6.296	341.0 -> 237.1	80409	19.73	µg/L	96
		341.0 -> 217.0	54030			
7:3FTCA	7.669	441.0 -> 316.9	47965	19.91	µg/L	84
		441.0 -> 336.9	96593			
EtFOSA	10.990	526.0 -> 219.0	5178	1.38	µg/L	98
		526.0 -> 169.0	6905			
EtFOSE	10.937	630.0 -> 58.9	15491	3.78	µg/L	100
		511.9 -> 219.0	4604			
MeFOSA	10.771	511.9 -> 169.0	6548	1.72	µg/L	94
		616.1 -> 58.9	9649			
MeFOSE	10.703	699.1 -> 79.9	1092	0.56	µg/L	89
		699.1 -> 98.8	706			
PFDoDS	9.911	295.0 -> 201.0	4377	1.57	µg/L	93
		295.0 -> 84.9	1180			
NFDHA	5.535	279.0 -> 85.1	16704	1.72	µg/L	100
		229.0 -> 84.9	12332			
PFMBA	3.575	314.8 -> 134.9	43634	1.46	µg/L	98
		314.8 -> 82.9	1310			

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

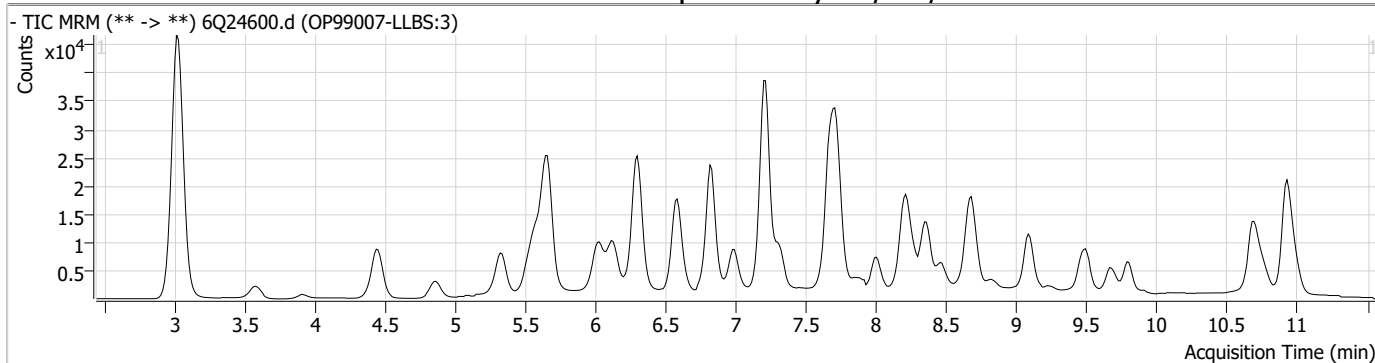
Perfluorinated Compounds by LC/MS/MS

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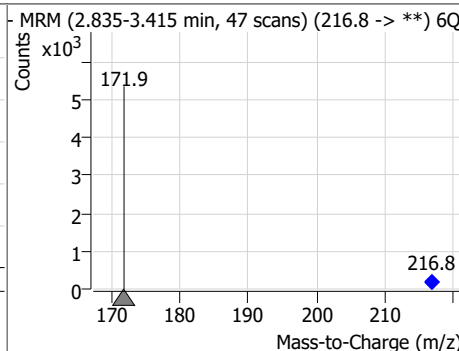
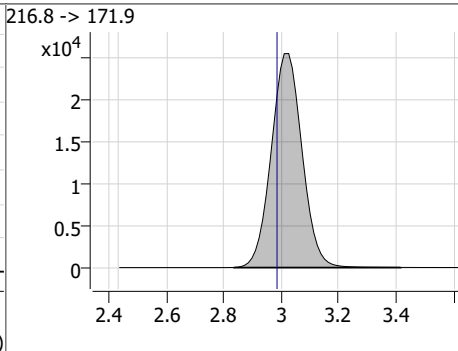
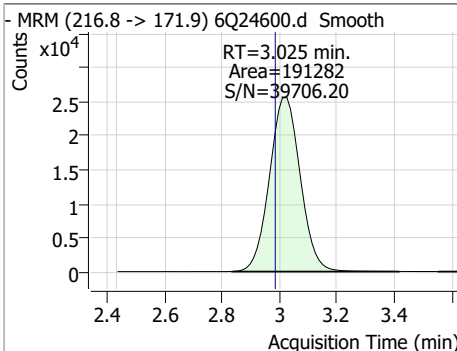
7.3.2

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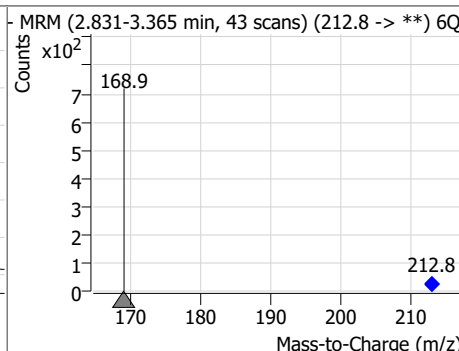
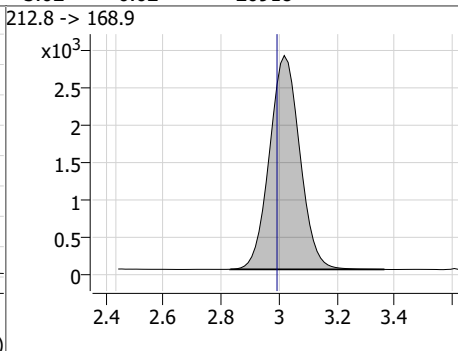
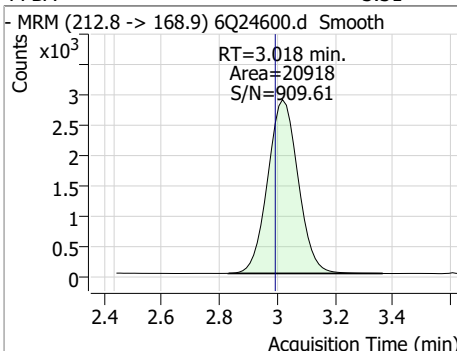
Perfluorinated Compounds by LC/MS/MS



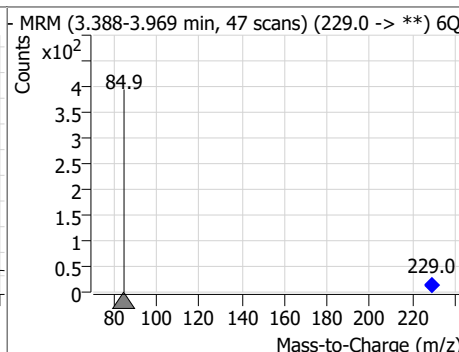
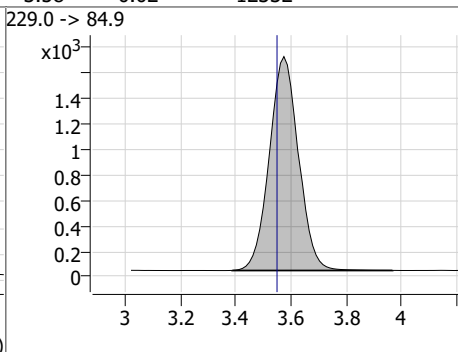
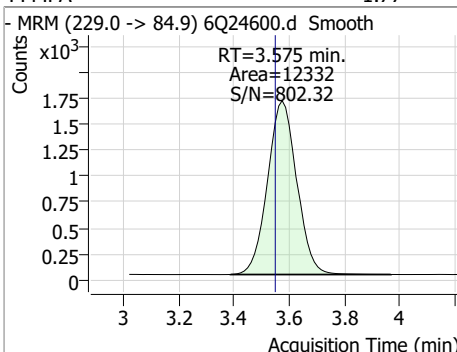
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.49	3.03	0.04	191282				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	3.31	3.02	0.02	20918				



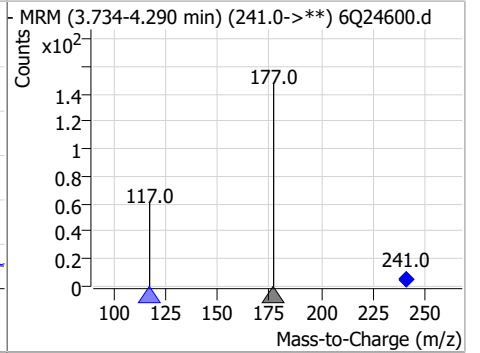
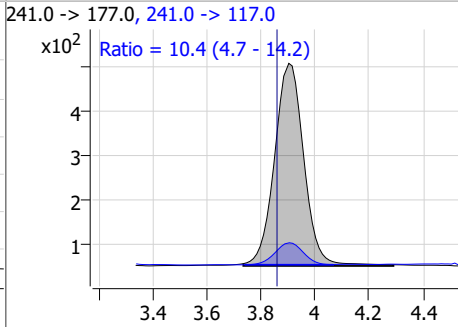
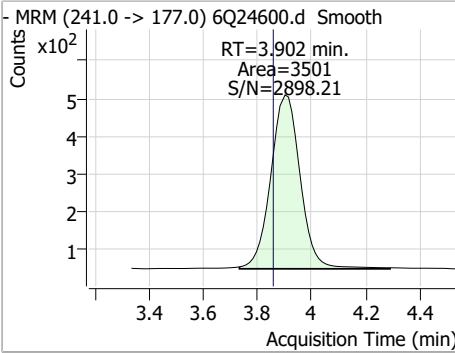
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	1.77	3.58	0.02	12332				



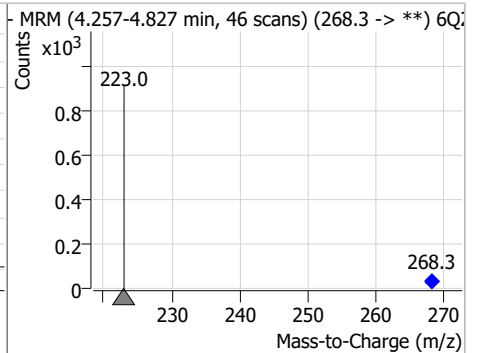
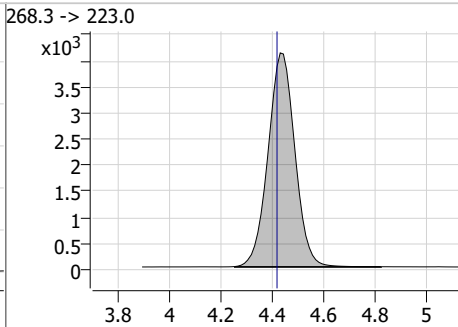
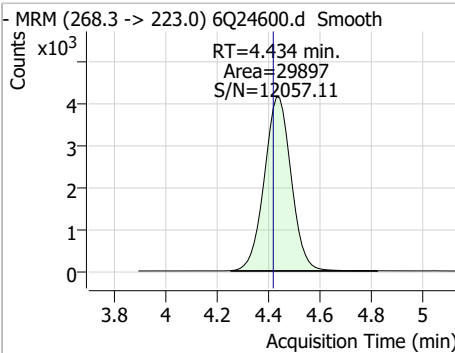
7.3.2
7

Perfluorinated Compounds by LC/MS/MS

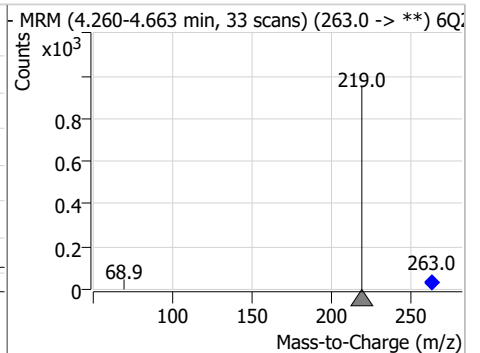
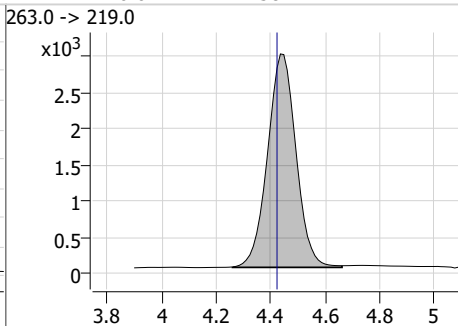
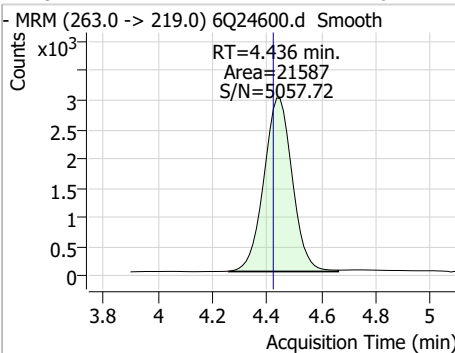
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	3.20	3.90	0.04	3501	241.0 -> 117.0	10.4	4.7	14.2



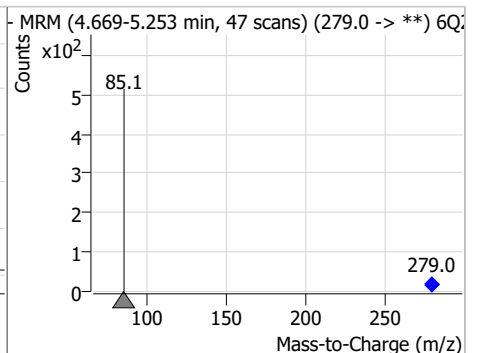
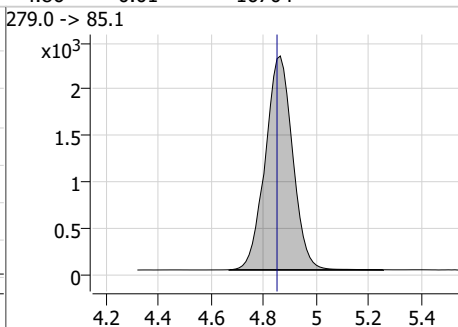
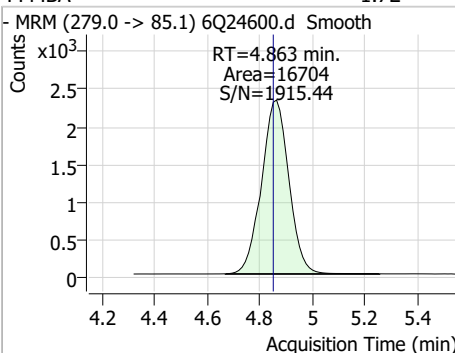
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.42	4.43	0.01	29897				



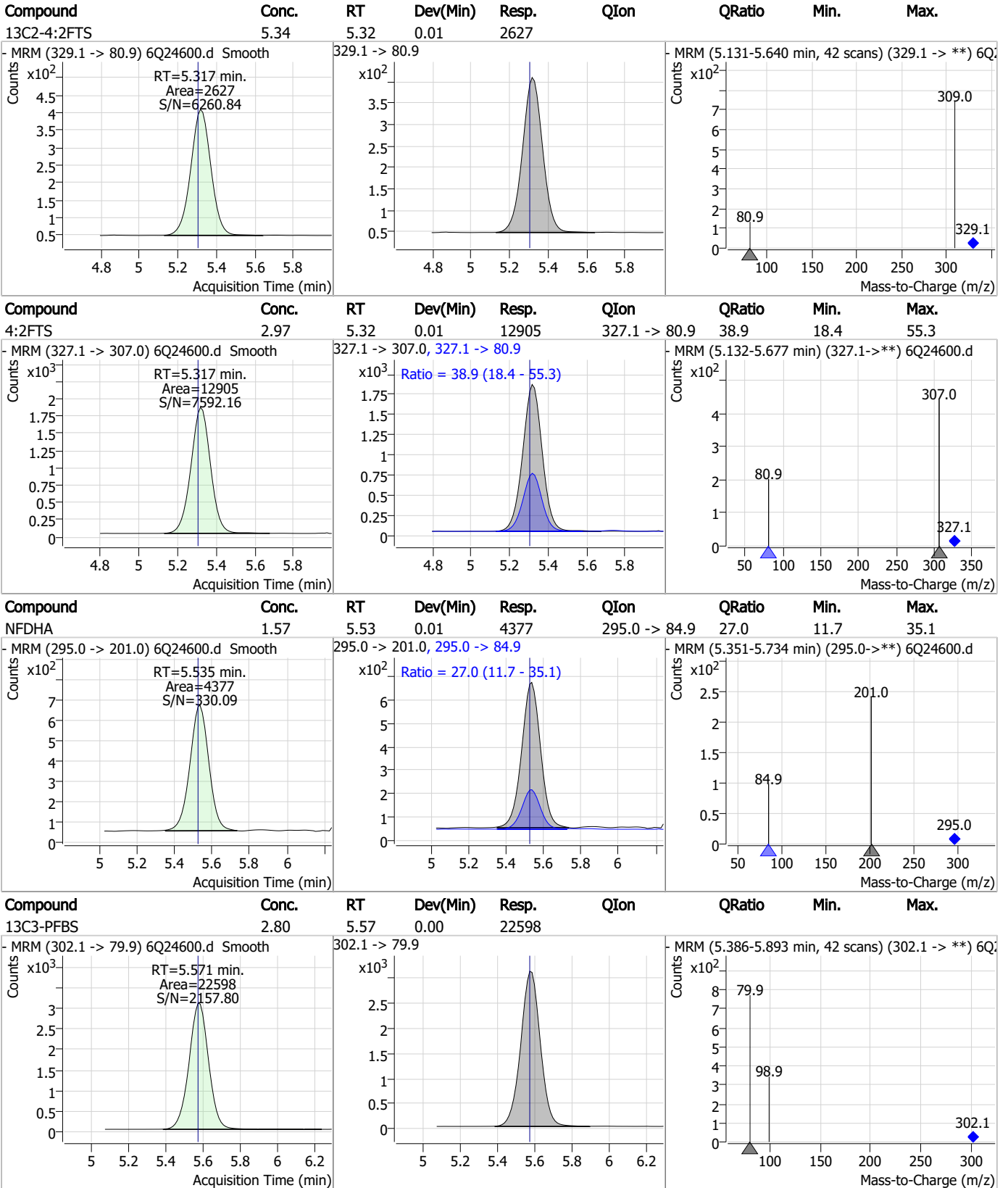
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.62	4.44	0.01	21587				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	1.72	4.86	0.01	16704				



Perfluorinated Compounds by LC/MS/MS

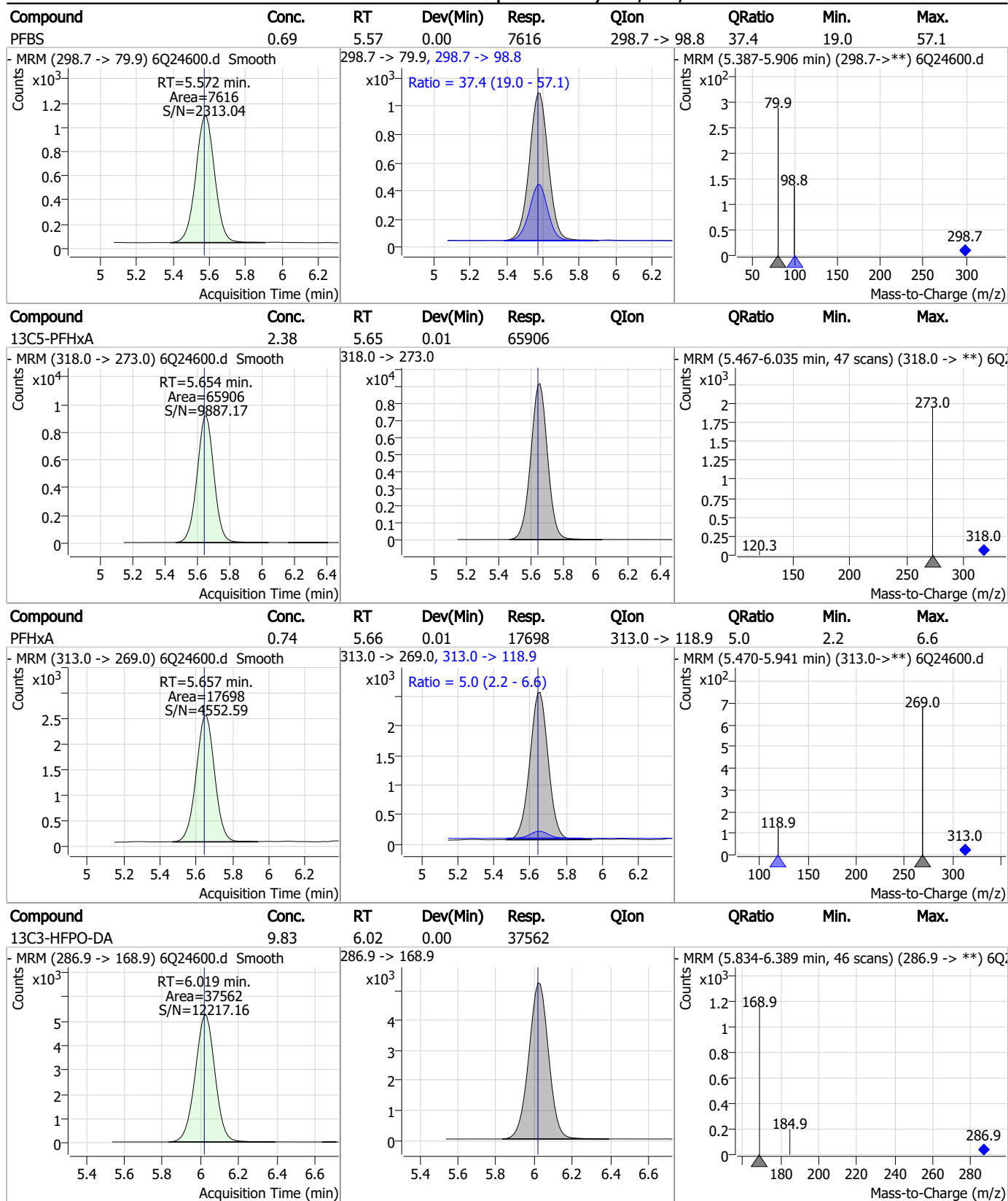


7.3.2

7



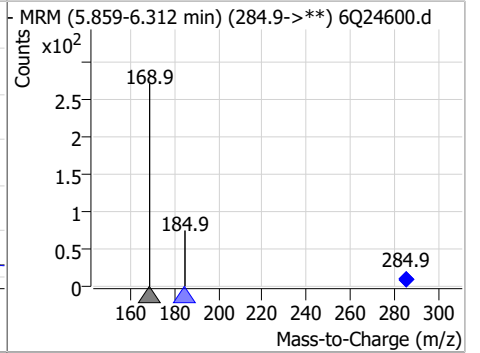
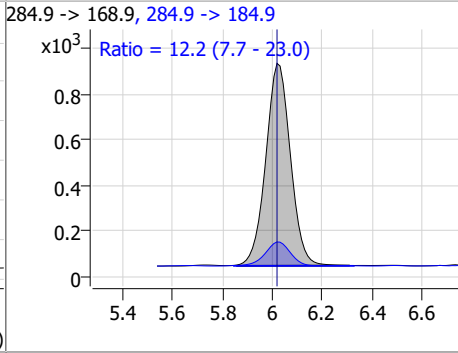
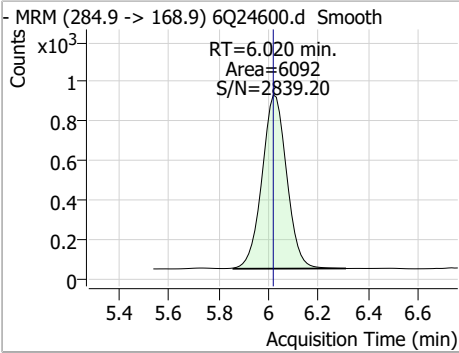
Perfluorinated Compounds by LC/MS/MS



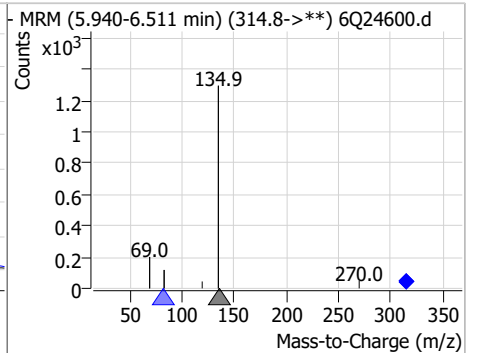
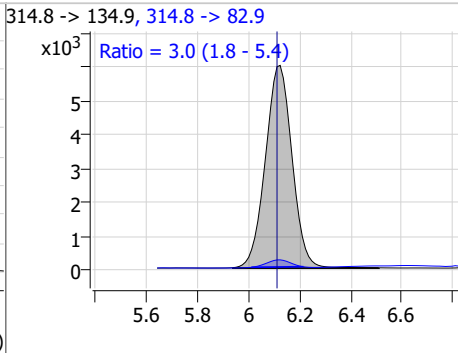
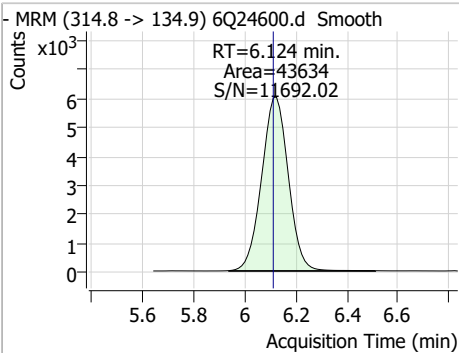
7.3.2
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Perfluorinated Compounds by LC/MS/MS

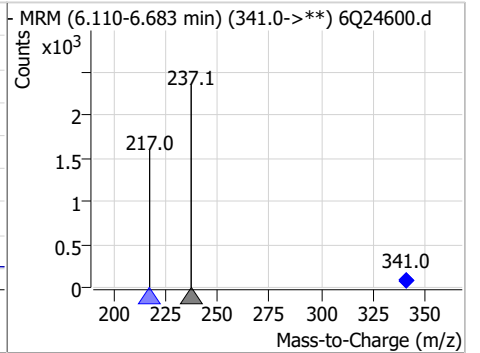
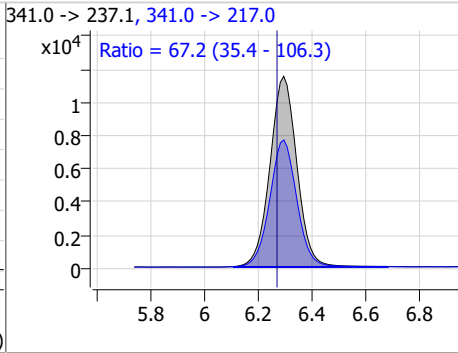
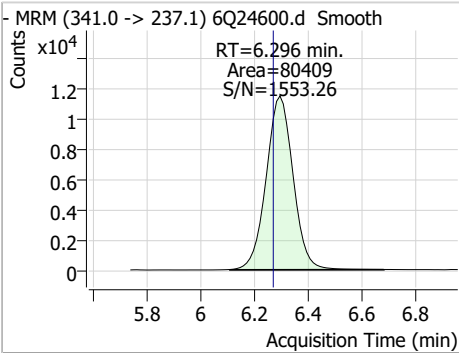
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.71	6.02	0.00	6092	284.9 -> 184.9	12.2	7.7	23.0



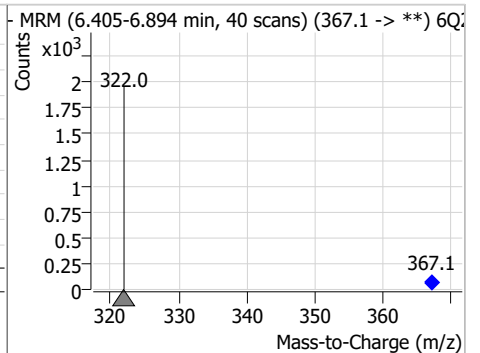
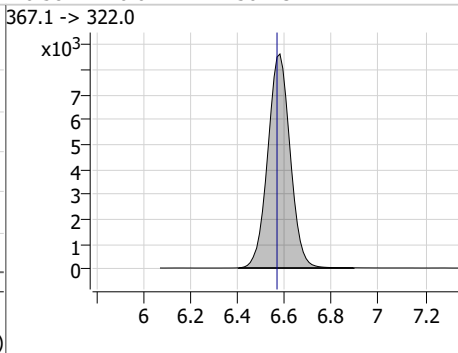
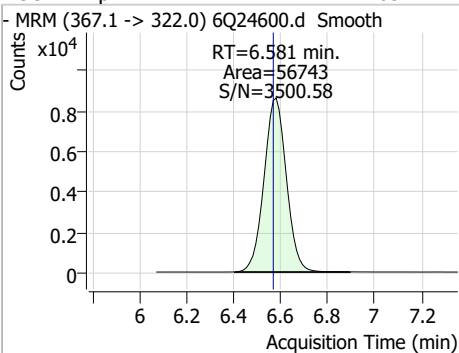
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	1.46	6.12	0.01	43634	314.8 -> 82.9	3.0	1.8	5.4



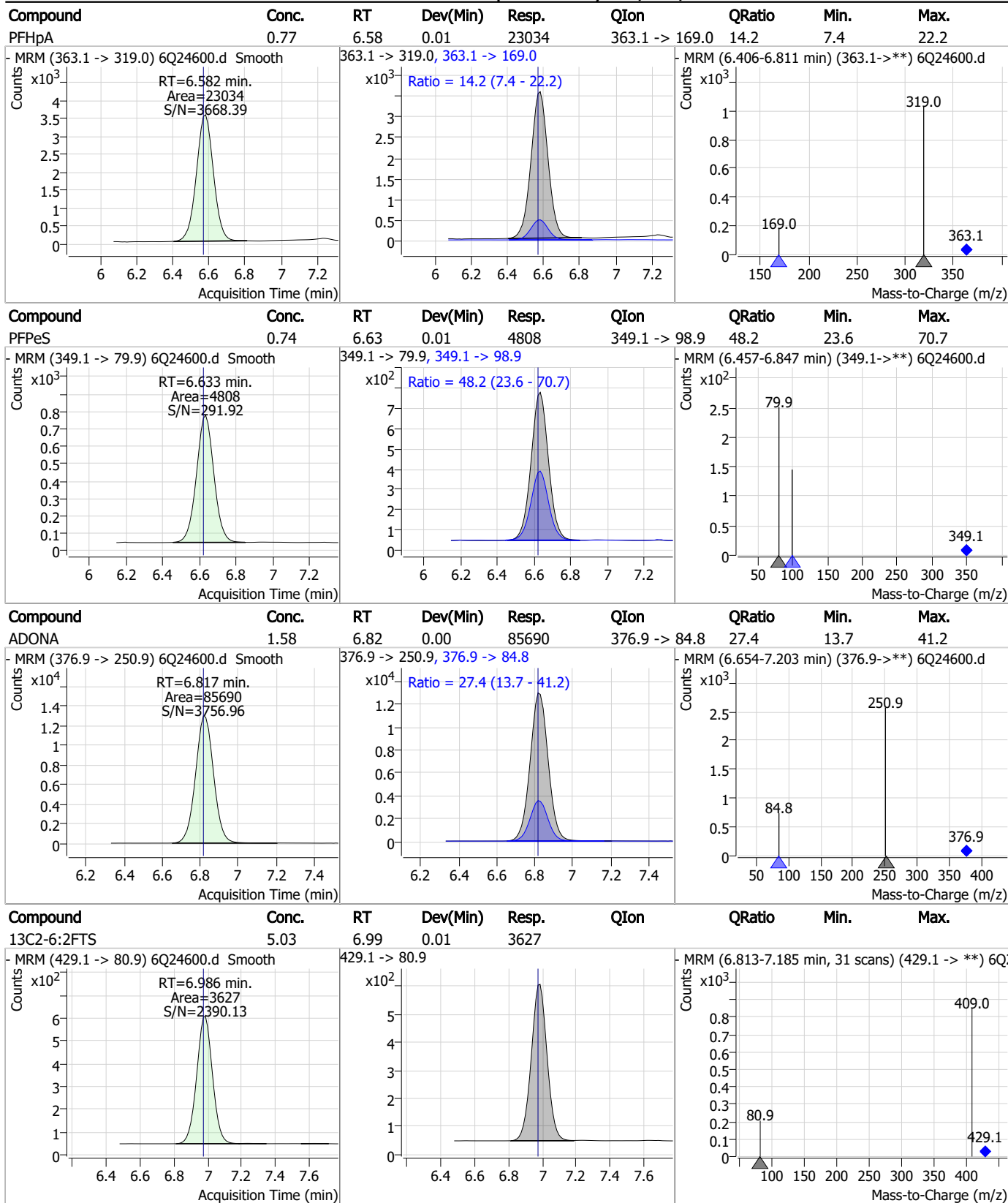
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	19.73	6.30	0.02	80409	341.0 -> 217.0	67.2	35.4	106.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.63	6.58	0.01	56743	367.1 -> 322.0			

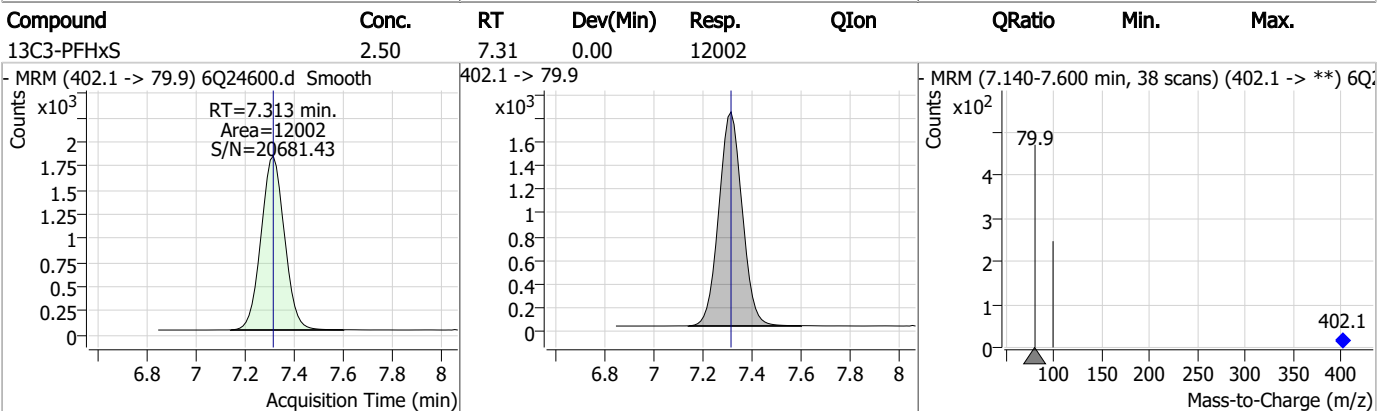
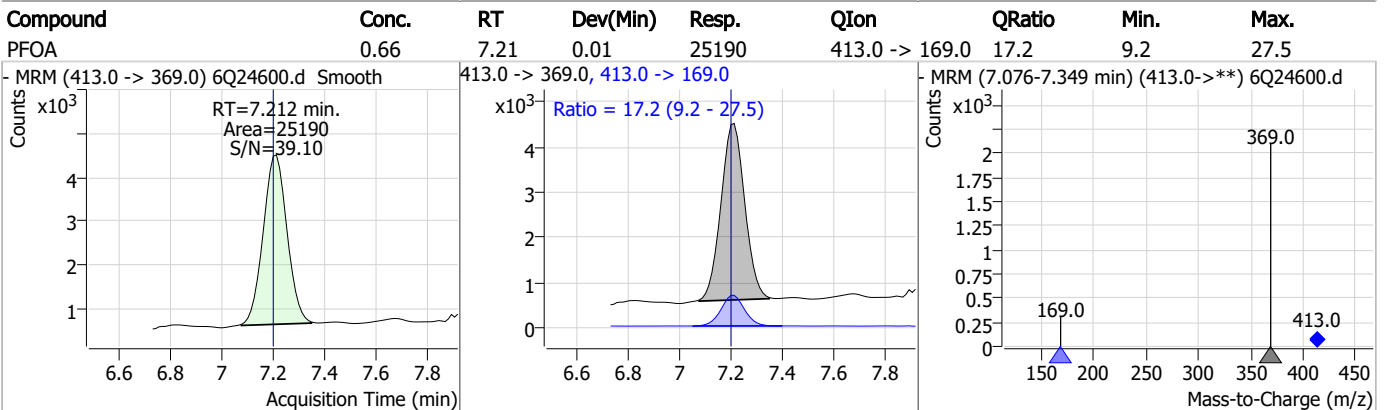
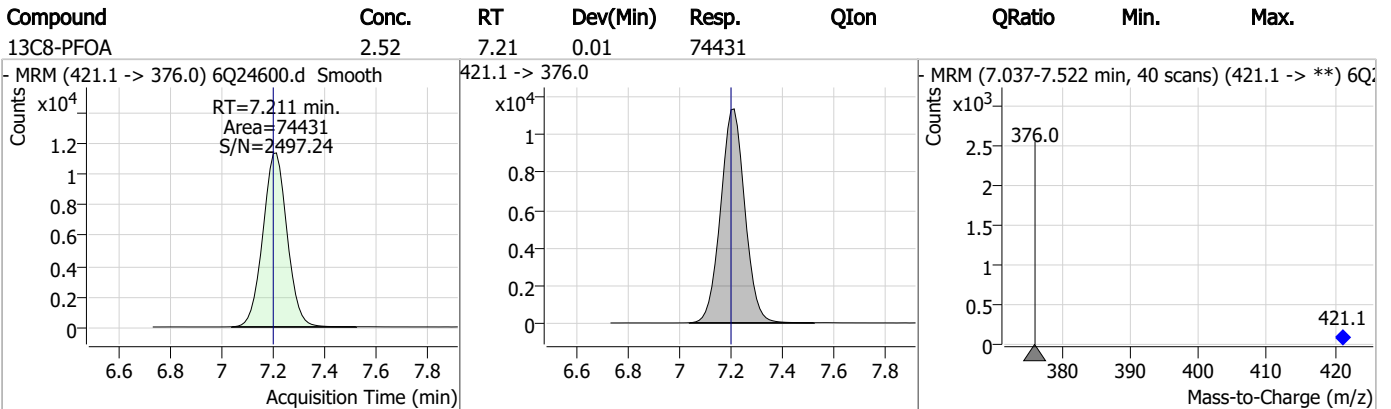
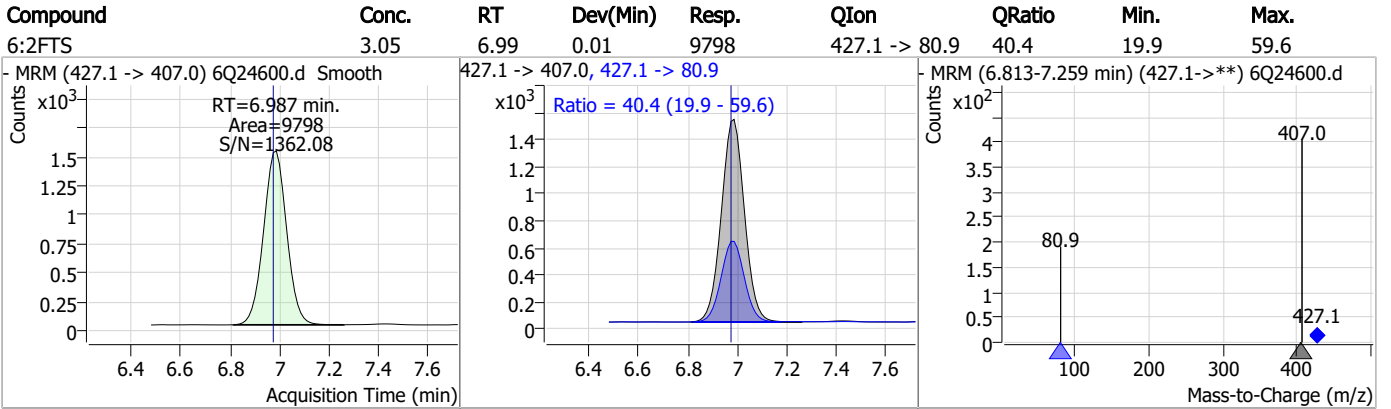


Perfluorinated Compounds by LC/MS/MS

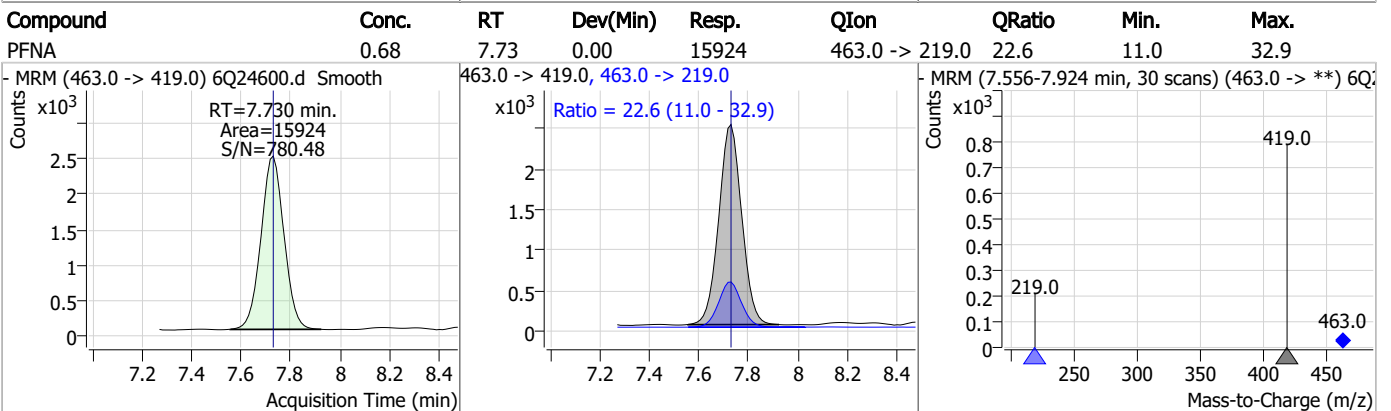
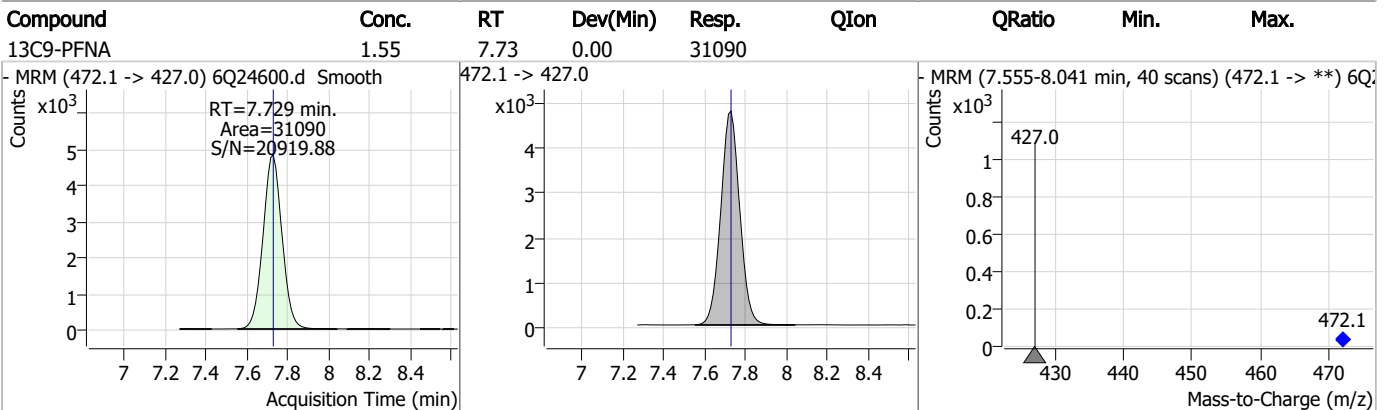
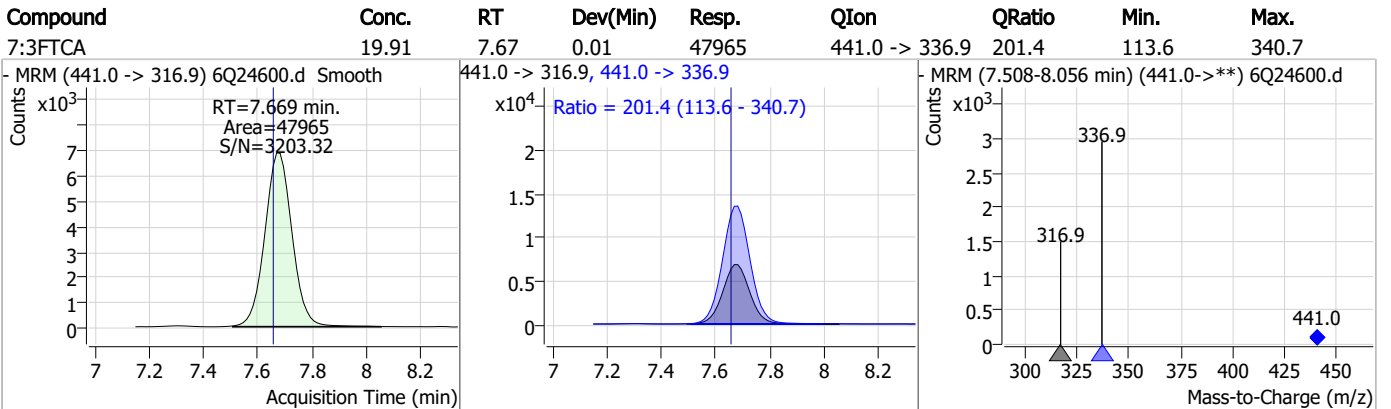
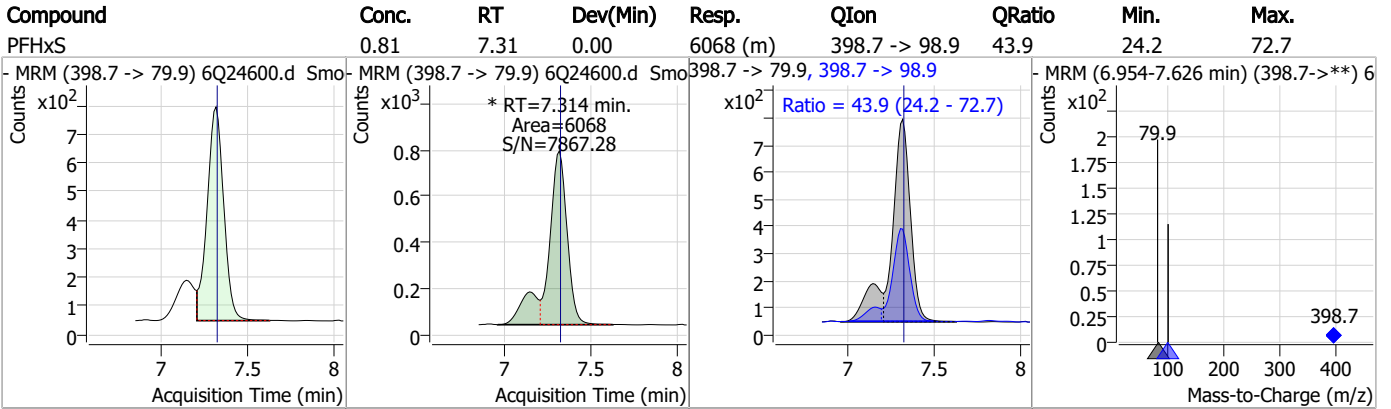


7.3.2
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Perfluorinated Compounds by LC/MS/MS



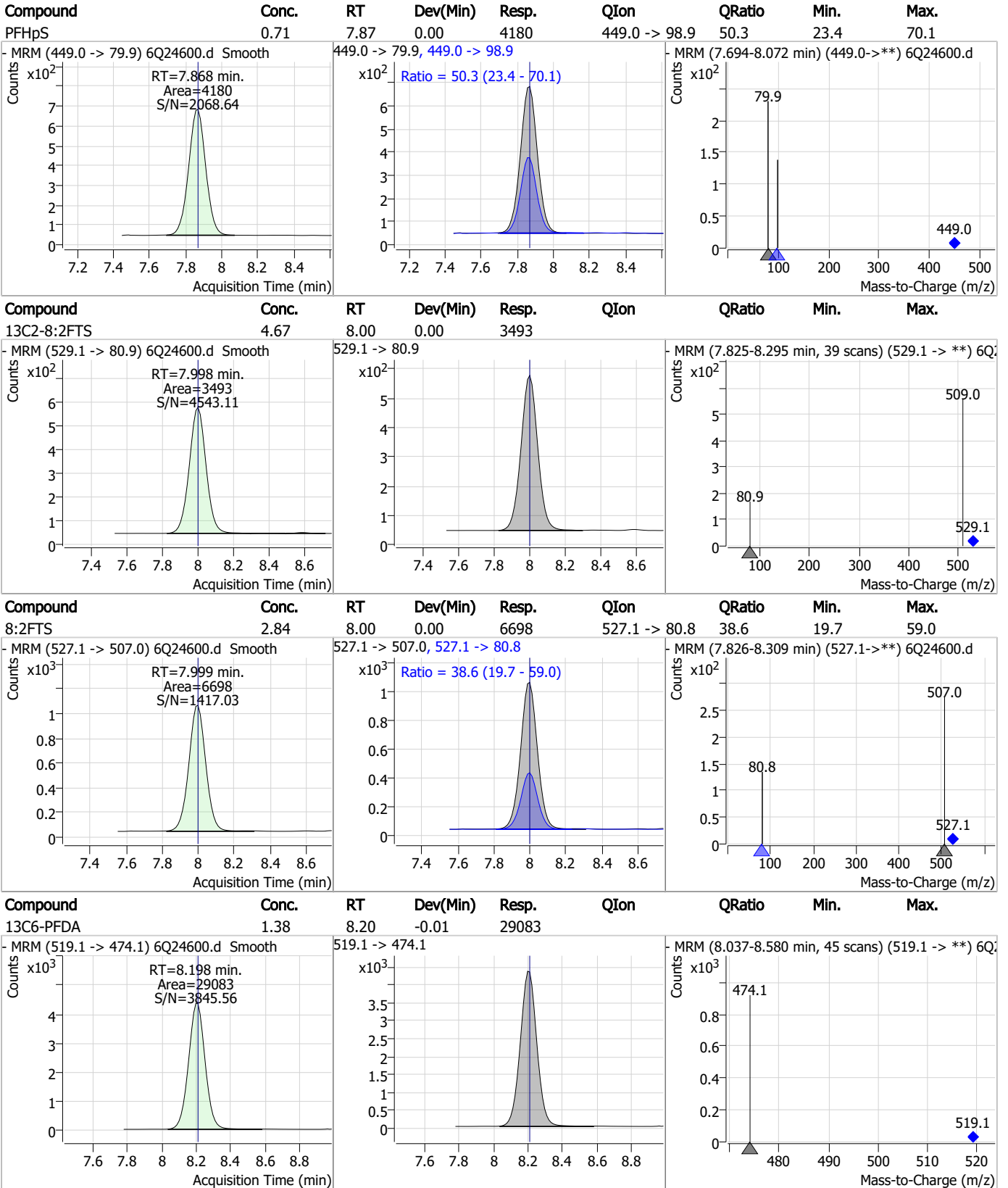
Perfluorinated Compounds by LC/MS/MS



7.3.2

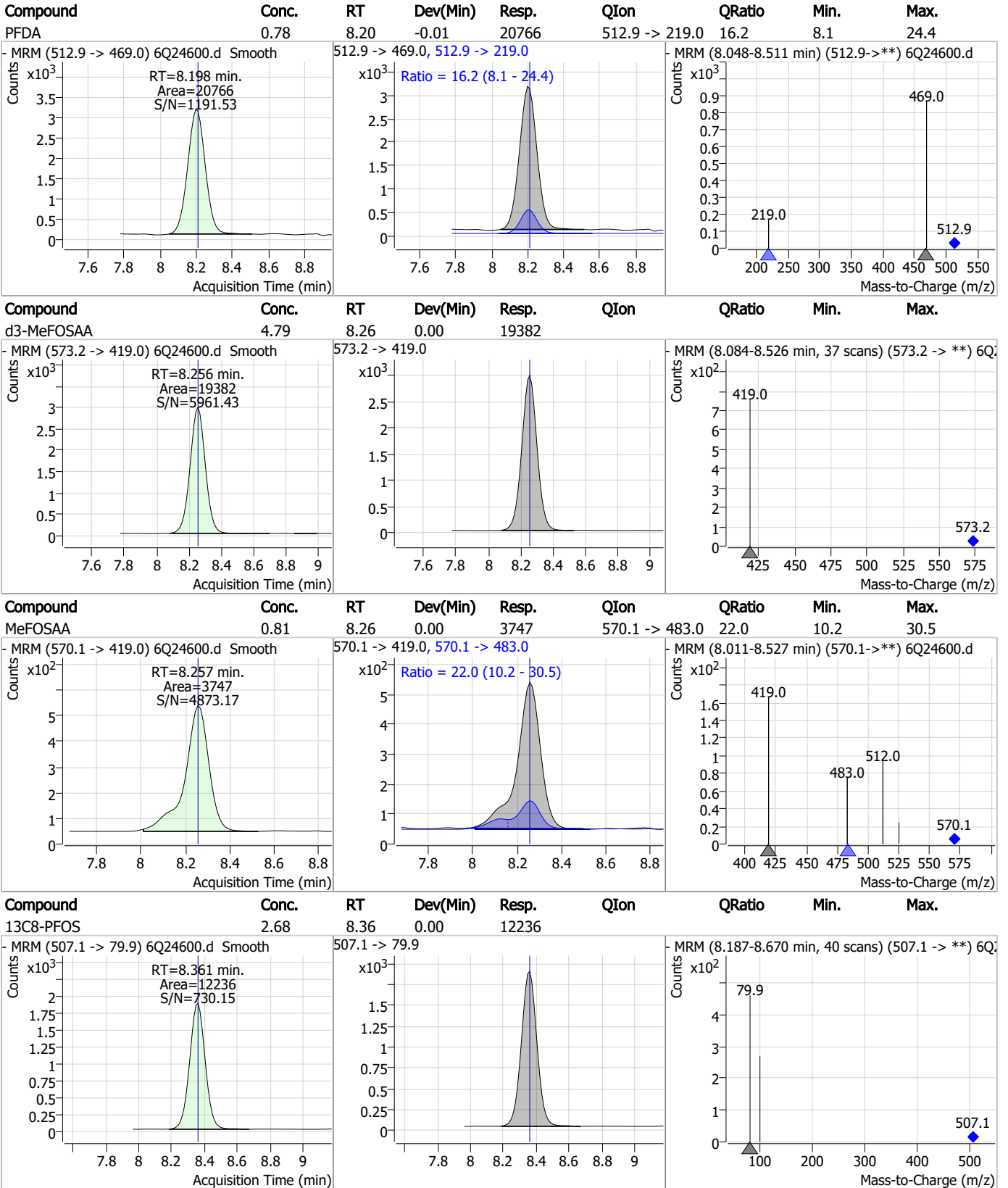
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Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Perfluorinated Compounds by LC/MS/MS

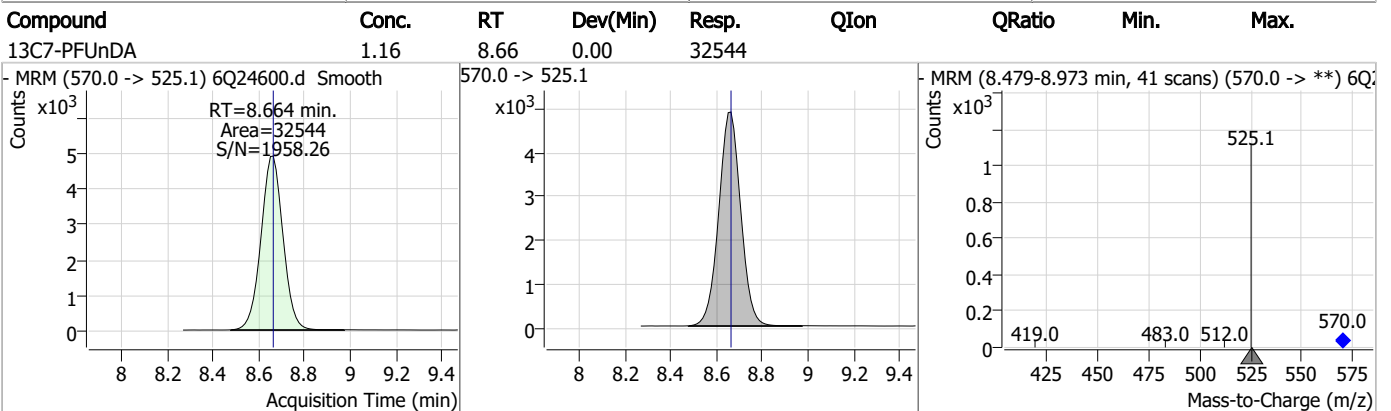
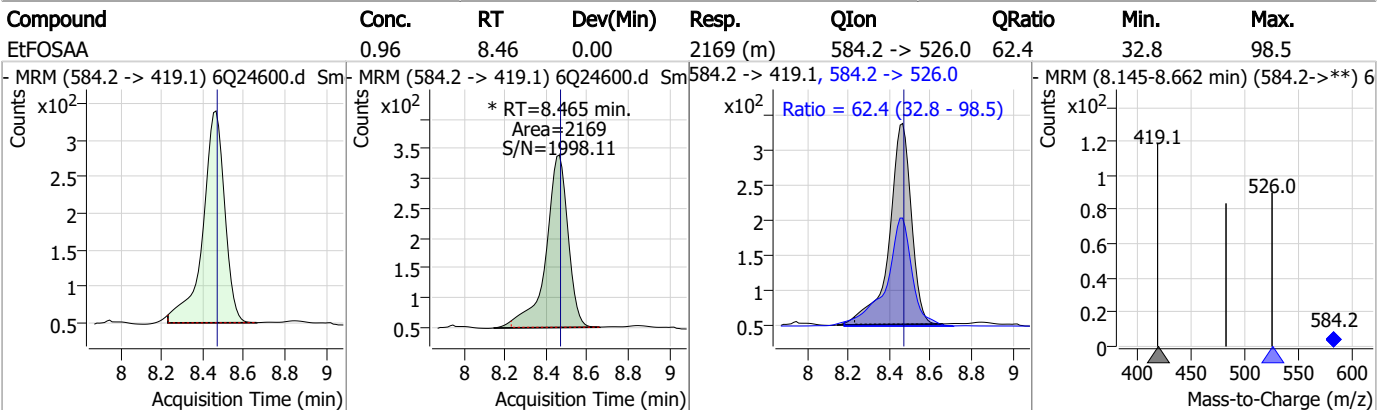
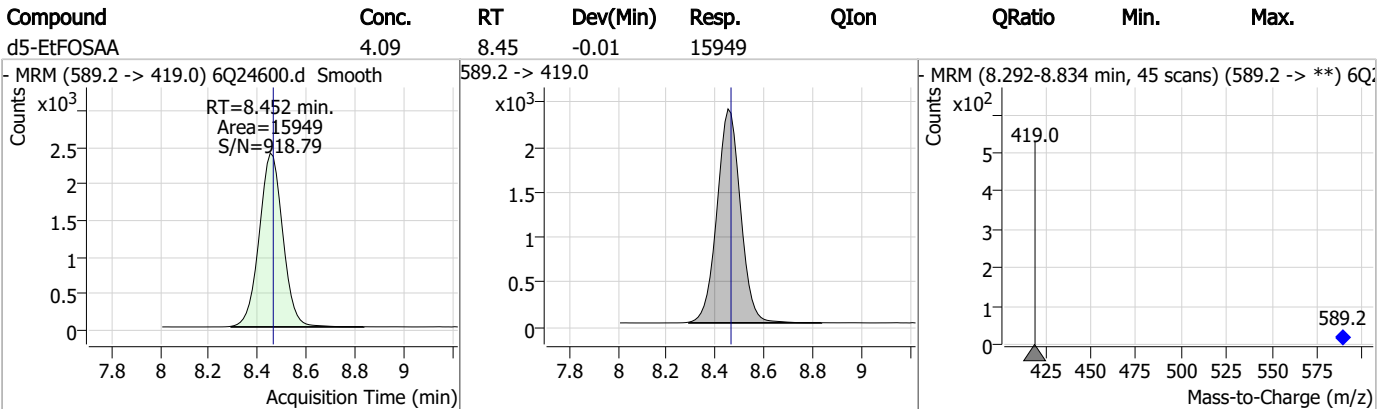
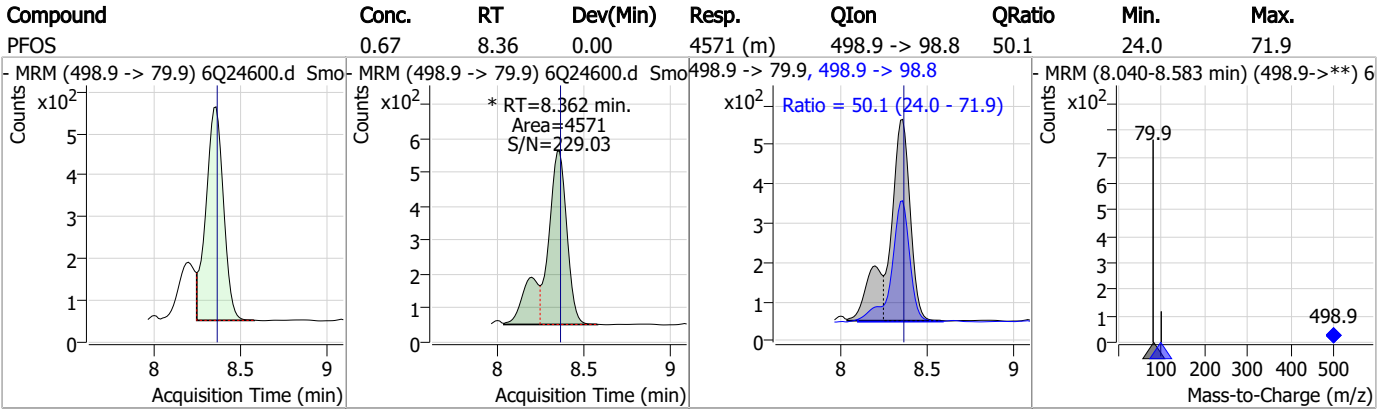


7.3.2

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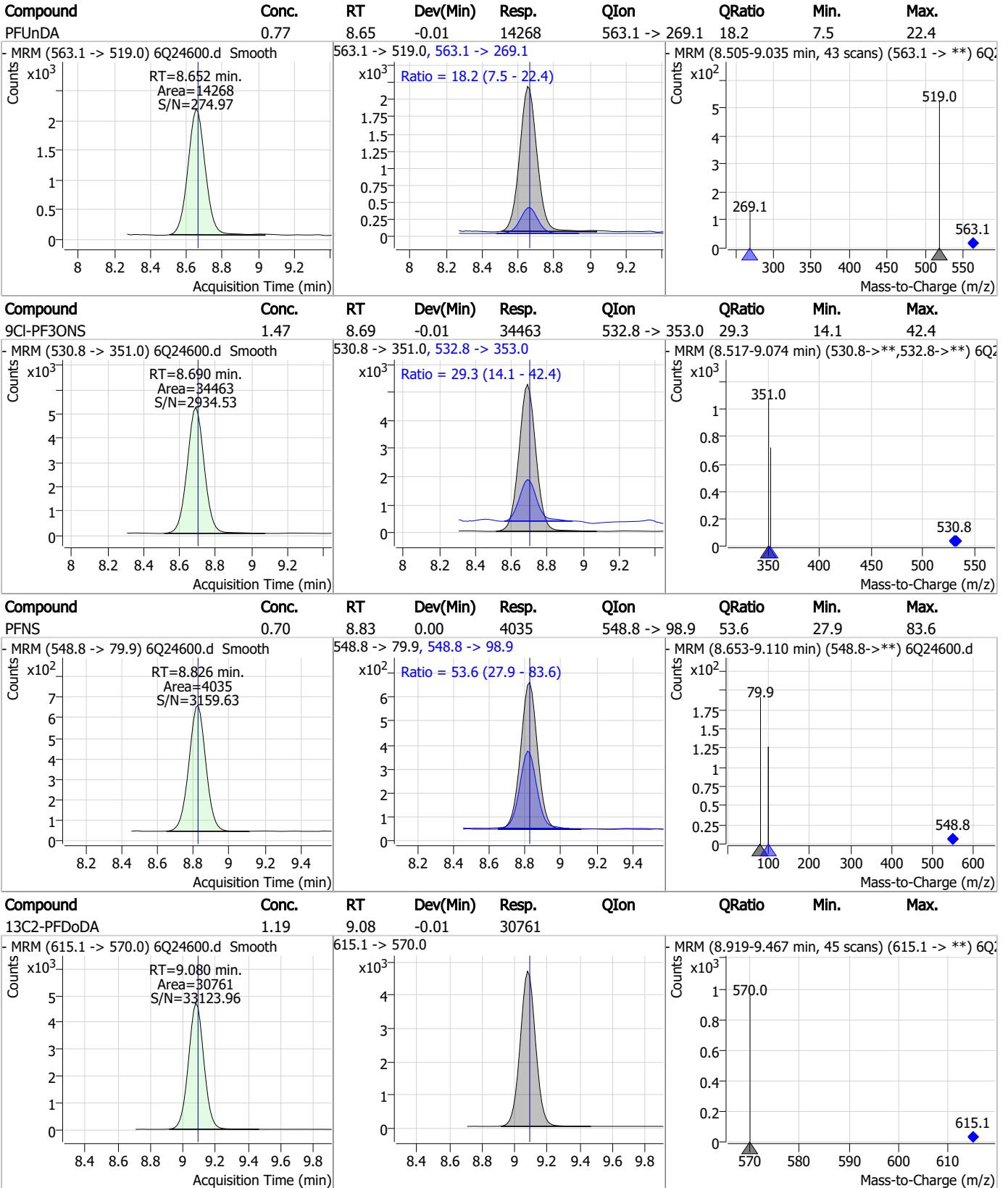
Perfluorinated Compounds by LC/MS/MS



7.3.2

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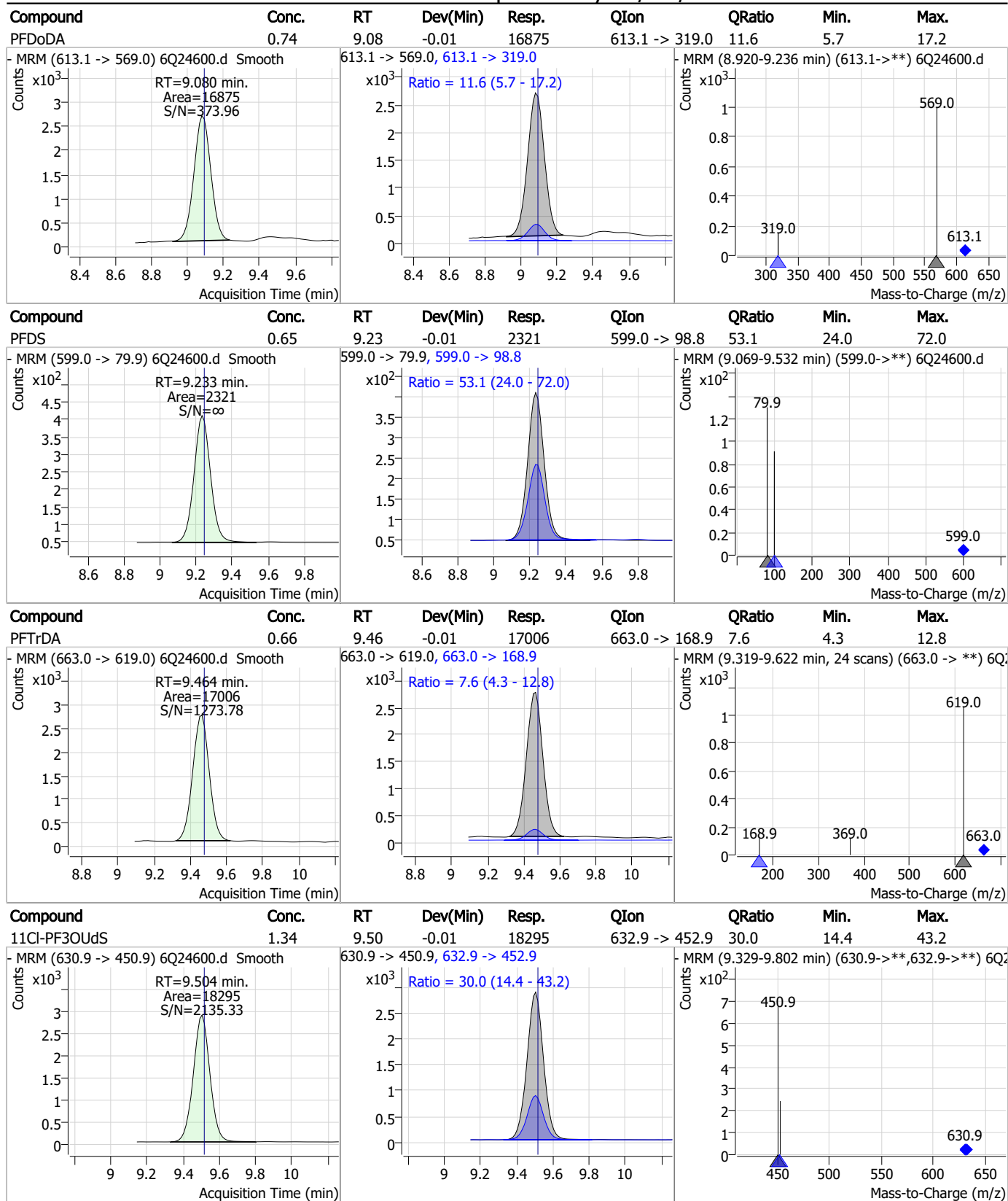
Perfluorinated Compounds by LC/MS/MS



7.3.2

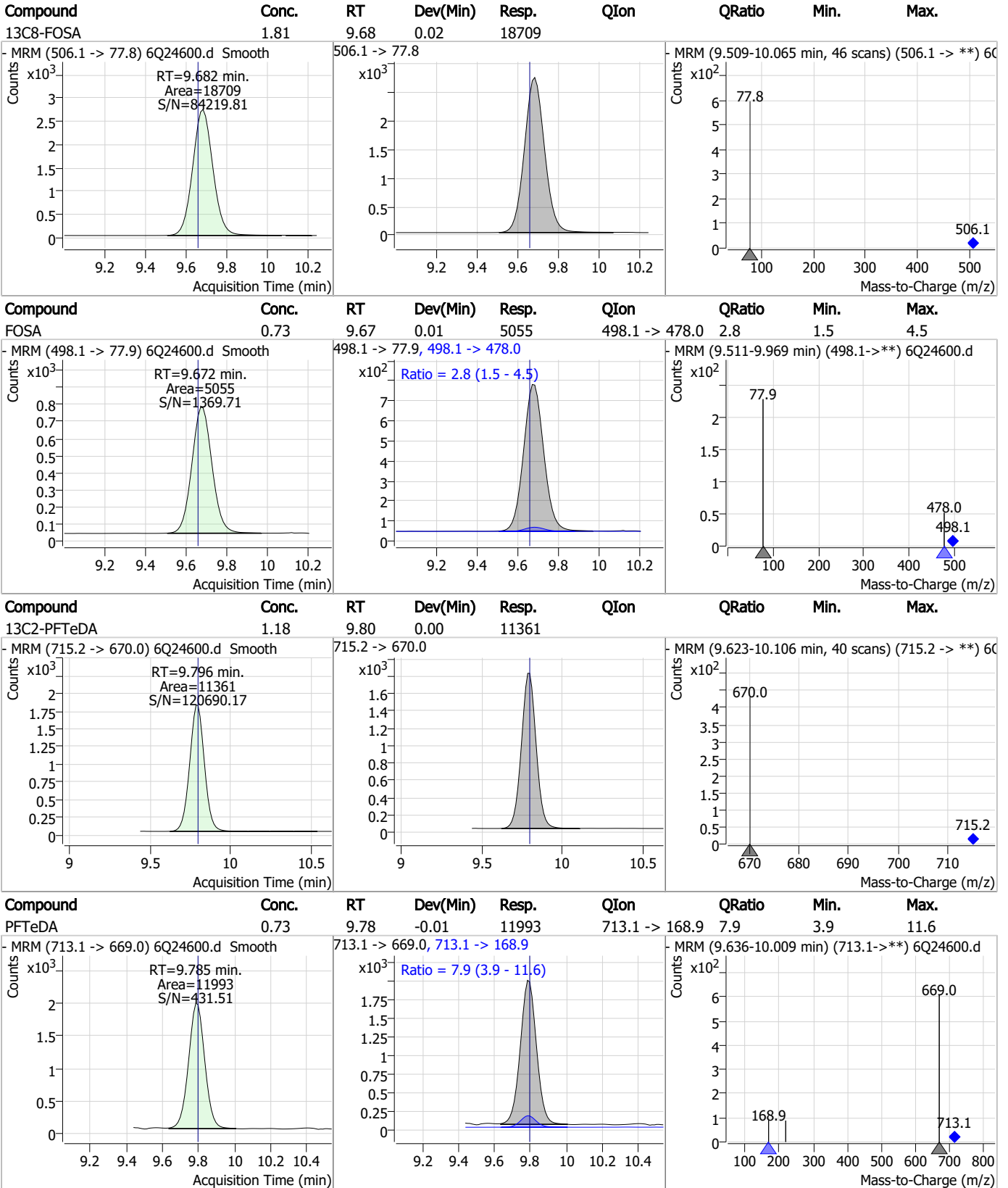
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Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Perfluorinated Compounds by LC/MS/MS

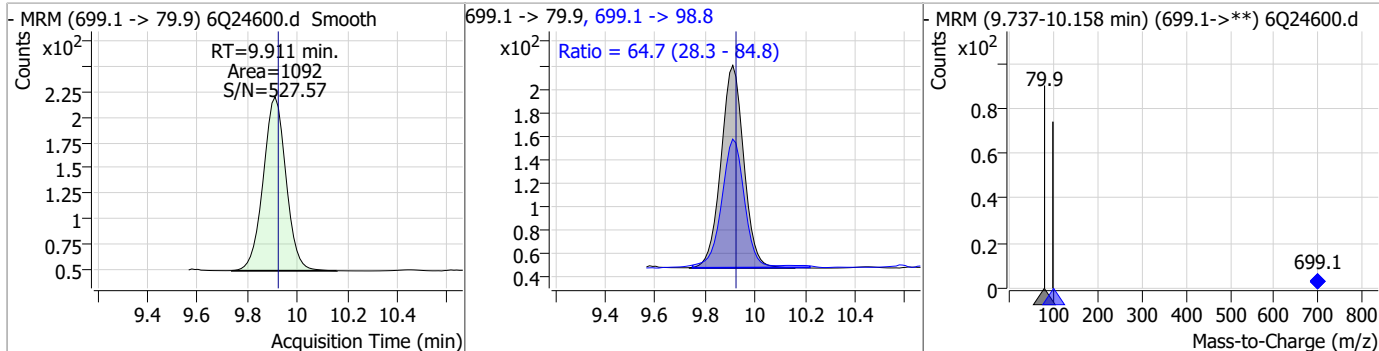


7.3.2

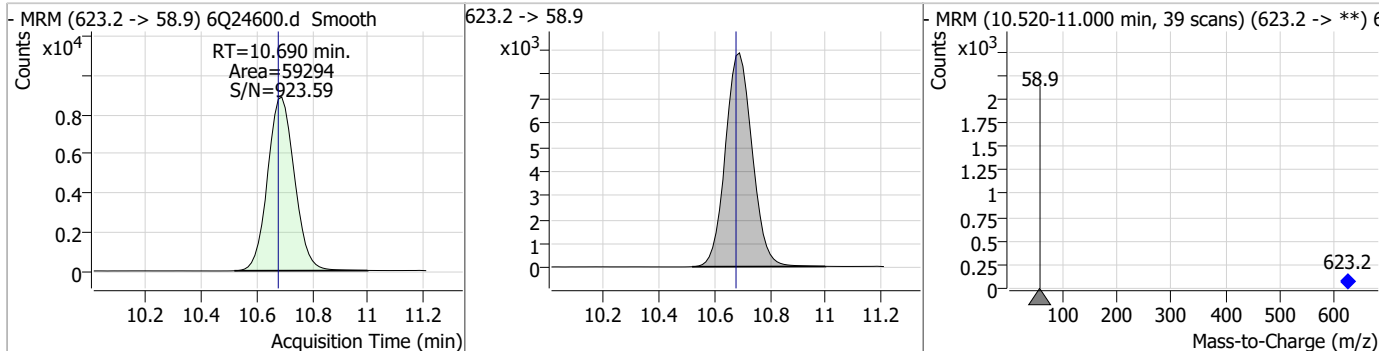
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Perfluorinated Compounds by LC/MS/MS

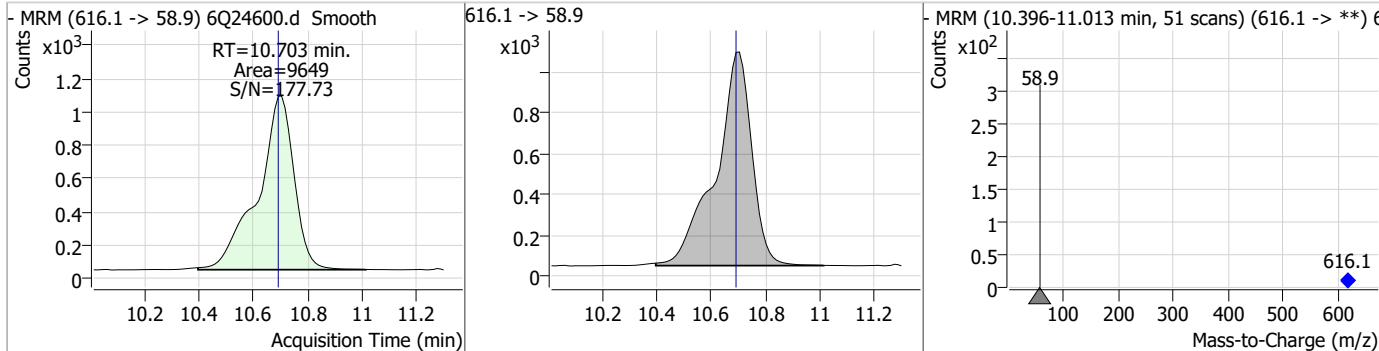
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.56	9.91	-0.01	1092	699.1 -> 98.8	64.7	28.3	84.8



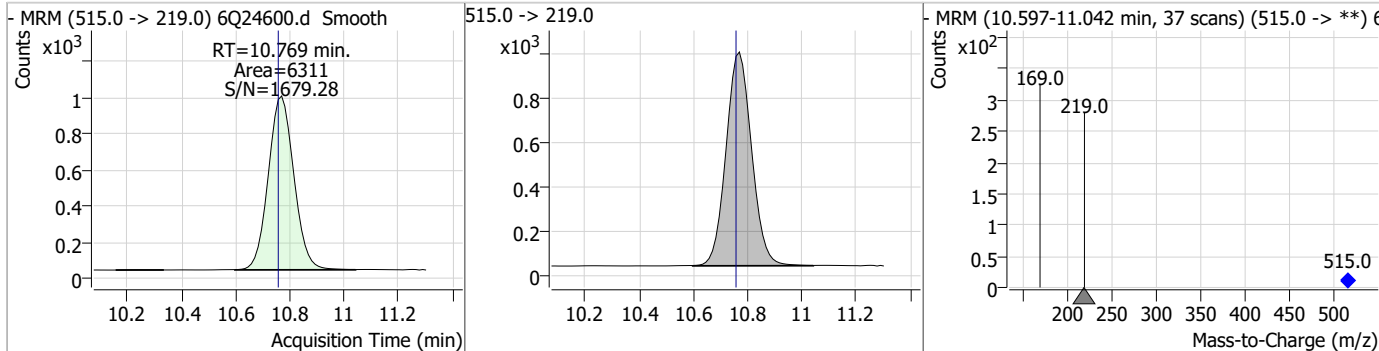
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	15.57	10.69	0.01	59294				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	3.76	10.70	0.01	9649				

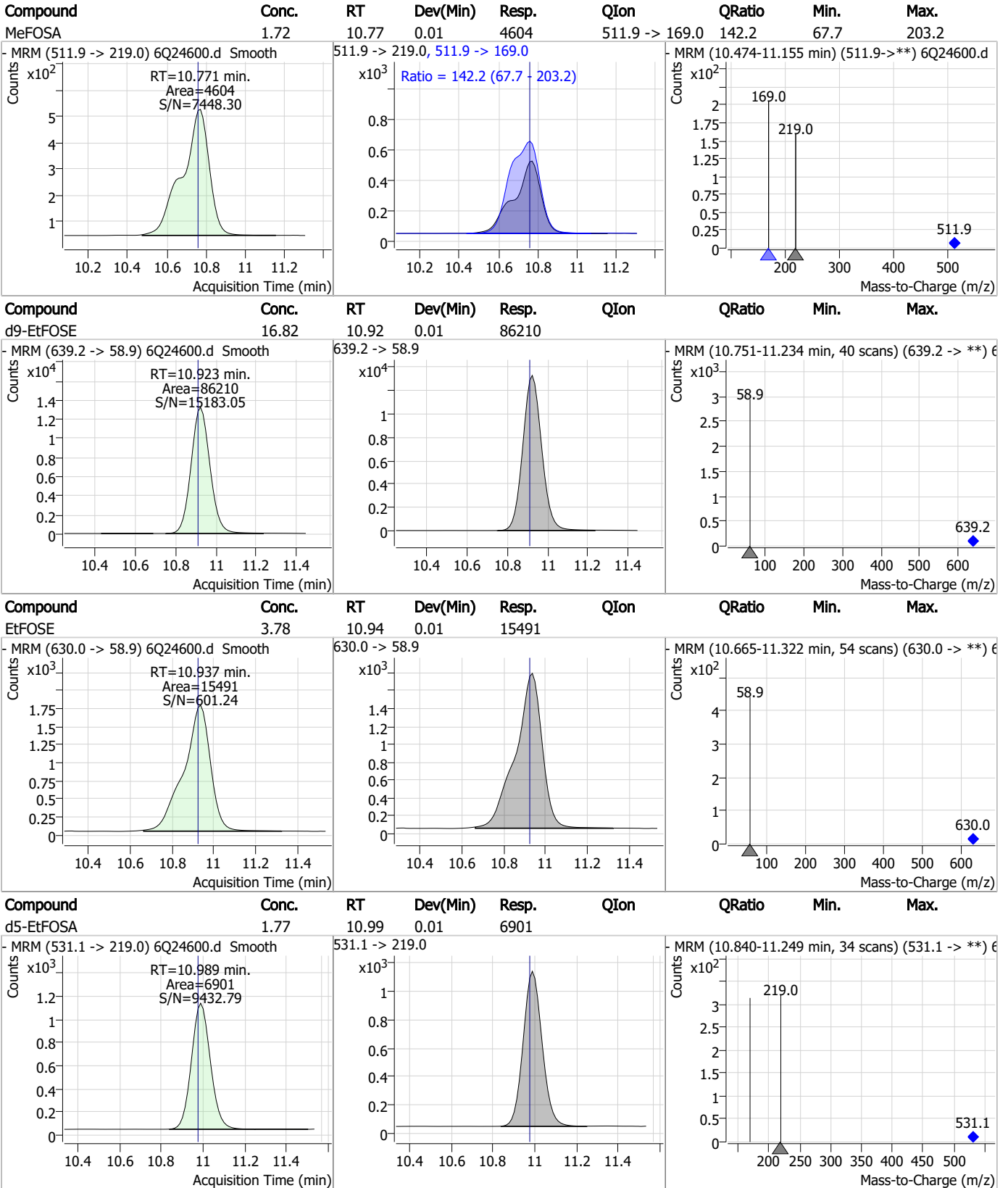


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.51	10.77	0.01	6311				



7.3.2
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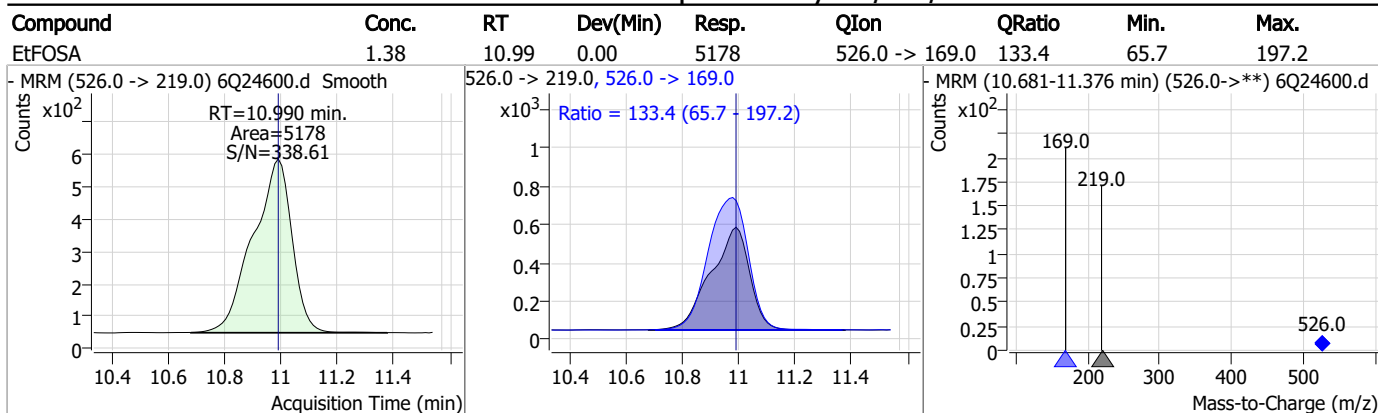
Perfluorinated Compounds by LC/MS/MS



7.3.2

7

Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Manual Integration Approval Summary

Sample Number: OP99007-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q24600.D Analyst approved: 09/20/23 09:35 Martha Valls
Injection Time: 09/18/23 13:10 Supervisor approved: 09/20/23 10:37 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.46	Split peak

7.3.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50746.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/18/2023 6:23:37 PM
 Sample Name : op99024-bs
 Vial : P1-D4
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q742.batch.bin
 Sample Information : OP99024,S4Q742,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.790	216.8 -> 171.9	37876	10.00 µg/L	0.078
M5-PFPeA	4.265	268.3 -> 223.0	32241	5.00 µg/L	0.050
M5-PFHxA	5.445	318.0 -> 273.0	31752	2.50 µg/L	0.037
M4-PFHpA	6.392	367.1 -> 322.0	21812	2.50 µg/L	0.038
M8-PFOA	7.062	421.1 -> 376.0	35689	2.50 µg/L	0.025
M9-PFNA	7.608	472.1 -> 427.0	14262	1.25 µg/L	0.038
M6-PFDA	8.090	519.1 -> 474.1	9679	1.25 µg/L	0.025
M7-PFUnDA	8.534	570.0 -> 525.1	11315	1.25 µg/L	0.025
M2-PFDoDA	8.954	615.1 -> 570.0	13712	1.25 µg/L	0.012
M2-PFTeDA	9.710	715.2 -> 670.0	7010	1.25 µg/L	0.012
M8-FOSA	9.931	506.1 -> 77.8	7390	2.50 µg/L	0.025
M3-PFBS	5.300	302.1 -> 79.9	7759	2.50 µg/L	0.037
M3-PFHxS	7.128	402.1 -> 79.9	4563	2.50 µg/L	0.025
M8-PFOS	8.204	507.1 -> 79.9	5708	2.50 µg/L	0.026
M2-4:2FTS	5.146	329.1 -> 80.9	788	5.00 µg/L	0.037
M2-6:2FTS	6.847	429.1 -> 80.9	1332	5.00 µg/L	0.037
M2-8:2FTS	7.889	529.1 -> 80.9	2065	5.00 µg/L	0.025
M3-MeFOSAA	8.172	573.2 -> 419.0	11171	5.00 µg/L	0.025
M3-HFPO-DA	5.800	286.9 -> 168.9	29919	10.00 µg/L	0.037
M5-EtFOSAA	8.383	589.2 -> 419.0	10623	5.00 µg/L	0.025
M7-MeFOSE	11.084	623.2 -> 58.9	47520	25.00 µg/L	0.012
M9-EtFOSE	11.357	639.2 -> 58.9	71132	25.00 µg/L	0.012
M5-EtFOSA	11.448	531.1 -> 219.0	5468	2.50 µg/L	0.012
M3-MeFOSA	11.190	515.0 -> 219.0	4120	2.50 µg/L	0.012
13C4-PFOS	8.205	502.8 -> 79.9	4958	2.50 µg/L	0.026
13C3-PFBA	2.793	216.0 -> 172.0	40383	5.00 µg/L	0.077
18O2-PFHxS	7.127	403.0 -> 83.9	2675	2.50 µg/L	0.025
13C4-PFOA	7.062	417.1 -> 372.0	35901	2.50 µg/L	0.025
13C2-PFDA	8.090	515.1 -> 470.1	8863	1.25 µg/L	0.025
13C5-PFNA	7.608	468.0 -> 423.0	11475	1.25 µg/L	0.038
13C2-PFHxA	5.446	315.1 -> 270.0	24381	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.146	329.1 -> 80.9	788	5.40 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.9%		
13C2-6:2FTS	6.847	429.1 -> 80.9	1332	5.89 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.8%		
13C2-8:2FTS	7.889	529.1 -> 80.9	2065	5.91 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.3%		
13C2-PFDoDA	8.954	615.1 -> 570.0	13712	1.37 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C2-PFTeDA	9.710	715.2 -> 670.0	7010	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C3-PFBS	5.300	302.1 -> 79.9	7759	3.03 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 121.2%		
13C3-PFHxS	7.128	402.1 -> 79.9	4563	2.84 µg/L	0.025

7.3.3
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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 = 113.5%	
13C4-PFBA	2.790	216.8 -> 171.9	37876	4.74 µg/L	0.078
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 47.4%	
13C4-PFHpA	6.392	367.1 -> 322.0	21812	2.83 µg/L	0.038
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.1%	
13C5-PFHxA	5.445	318.0 -> 273.0	31752	2.86 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.4%	
13C5-PFPeA	4.265	268.3 -> 223.0	32241	5.62 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.4%	
13C6-PFDA	8.090	519.1 -> 474.1	9679	1.44 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.8%	
13C7-PFUnDA	8.534	570.0 -> 525.1	11315	1.49 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 119.1%	
13C8-FOSA	9.931	506.1 -> 77.8	7390	2.16 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.3%	
13C8-PFOA	7.062	421.1 -> 376.0	35689	2.71 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C8-PFOS	8.204	507.1 -> 79.9	5708	2.59 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C9-PFNA	7.608	472.1 -> 427.0	14262	1.36 µg/L	0.038
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.8%	
d3-MeFOSAA	8.172	573.2 -> 419.0	11171	5.02 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C3-HFPO-DA	5.800	286.9 -> 168.9	29919	11.34 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.4%	
d3-MeFOSA	11.190	515.0 -> 219.0	4120	2.05 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.9%	
d5-EtFOSAA	8.383	589.2 -> 419.0	10623	5.15 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
d7-MeFOSE	11.084	623.2 -> 58.9	47520	24.26 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
d9-EtFOSE	11.357	639.2 -> 58.9	71132	25.17 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
d5-EtFOSA	11.448	531.1 -> 219.0	5468	2.01 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.5%	
Target Compounds					QValue
4:2FTS	5.147	327.1 -> 307.0	11712	8.78 µg/L	97
		327.1 -> 80.9	4879		
6:2FTS	6.847	427.1 -> 407.0	12340	8.02 µg/L	97
		427.1 -> 80.9	4444		
8:2FTS	7.890	527.1 -> 507.0	9244	7.94 µg/L	99
		527.1 -> 80.8	4018		
EtFOSAA	8.383	584.2 -> 419.1	3756	2.01 µg/L	m 89
		584.2 -> 526.0	1624		
FOSA	9.933	498.1 -> 77.9	7691	2.29 µg/L	98
		498.1 -> 478.0	194		
MeFOSAA	8.173	570.1 -> 419.0	5230	2.14 µg/L	m 95
		570.1 -> 483.0	957		
PFBA	2.783	212.8 -> 168.9	12557	8.66 µg/L	100
PFBS	5.301	298.7 -> 79.9	7640	2.09 µg/L	98
		298.7 -> 98.8	3074		
PFDA	8.091	512.9 -> 469.0	19103	2.16 µg/L	94
		512.9 -> 219.0	3680		
PFDODA	8.954	613.1 -> 569.0	25740	2.20 µg/L	95
		613.1 -> 319.0	4064		
PFDS	9.094	599.0 -> 79.9	4233	2.05 µg/L	99

7.3.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2017			
PFHpA	6.392	363.1 -> 319.0	28553	2.20	µg/L	99
		363.1 -> 169.0	5558			
PFHpS	7.698	449.0 -> 79.9	4799	1.96	µg/L	97
		449.0 -> 98.9	2623			
PFHxA	5.448	313.0 -> 269.0	25170	2.24	µg/L	100
		313.0 -> 118.9	778			
PFHxS	7.129	398.7 -> 79.9	4571	2.27	µg/L	m 85
		398.7 -> 98.9	2232			
PFNA	7.609	463.0 -> 419.0	20214	2.33	µg/L	99
		463.0 -> 219.0	4726			
PFNS	8.659	548.8 -> 79.9	3683	2.19	µg/L	96
		548.8 -> 98.9	2068			
PFOA	7.063	413.0 -> 369.0	36294	2.26	µg/L	98
		413.0 -> 169.0	7586			
PFOS	8.205	498.9 -> 79.9	5941	2.24	µg/L	m 71
		498.9 -> 98.8	2748			
PFPeA	4.266	263.0 -> 219.0	45417	4.47	µg/L	100
PFPeS	6.394	349.1 -> 79.9	4002	2.13	µg/L	92
		349.1 -> 98.9	1715			
PFTeDA	9.711	713.1 -> 669.0	22201	2.30	µg/L	100
		713.1 -> 168.9	2362			
PFTrDA	9.353	663.0 -> 619.0	29960	2.33	µg/L	98
		663.0 -> 168.9	4004			
PFUnDA	8.534	563.1 -> 519.0	21886	2.08	µg/L	99
		563.1 -> 269.1	4468			
11Cl-PF3OUdS	9.380	630.9 -> 450.9	33107	4.18	µg/L	98
		632.9 -> 452.9	10249			
9Cl-PF3ONS	8.536	530.8 -> 351.0	37970	4.42	µg/L	96
		532.8 -> 353.0	11510			
ADONA	6.654	376.9 -> 250.9	92231	4.10	µg/L	99
		376.9 -> 84.8	23581			
HFPO-DA	5.801	284.9 -> 168.9	14281	4.40	µg/L	98
		284.9 -> 184.9	2104			
3:3FTCA	3.806	241.0 -> 177.0	3464	13.44	µg/L	97
		241.0 -> 117.0	399			
5:3FTCA	6.218	341.0 -> 237.1	100644	50.86	µg/L	93
		341.0 -> 217.0	78563			
7:3FTCA	7.725	441.0 -> 316.9	48206	51.01	µg/L	93
		441.0 -> 336.9	104953			
EtFOSA	11.450	526.0 -> 219.0	10647	4.46	µg/L	98
		526.0 -> 169.0	14307			
EtFOSE	11.382	630.0 -> 58.9	30289	10.32	µg/L	100
MeFOSA	11.192	511.9 -> 219.0	8234	4.24	µg/L	m 80
		511.9 -> 169.0	12749			
MeFOSE	11.110	616.1 -> 58.9	24514	10.51	µg/L	m 100
PFDoDS	9.839	699.1 -> 79.9	3081	2.08	µg/L	100
		699.1 -> 98.8	1734			
NFDHA	5.327	295.0 -> 201.0	3115	4.67	µg/L	96
		295.0 -> 84.9	760			
PFMBA	4.666	279.0 -> 85.1	24091	4.46	µg/L	100
PFMPA	3.395	229.0 -> 84.9	20885	3.45	µg/L	100
PFEESA	5.832	314.8 -> 134.9	44436	4.07	µg/L	100
		314.8 -> 82.9	1424			

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

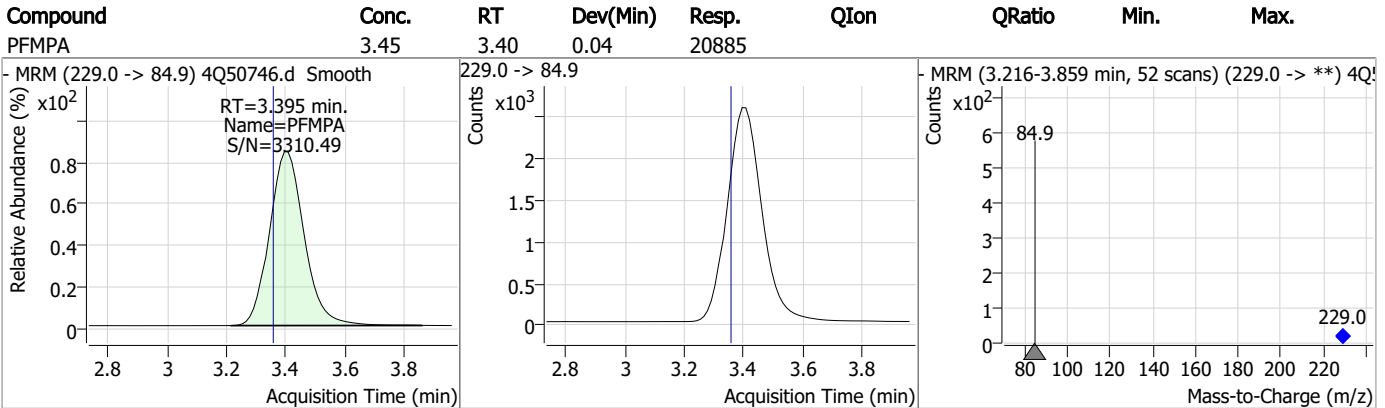
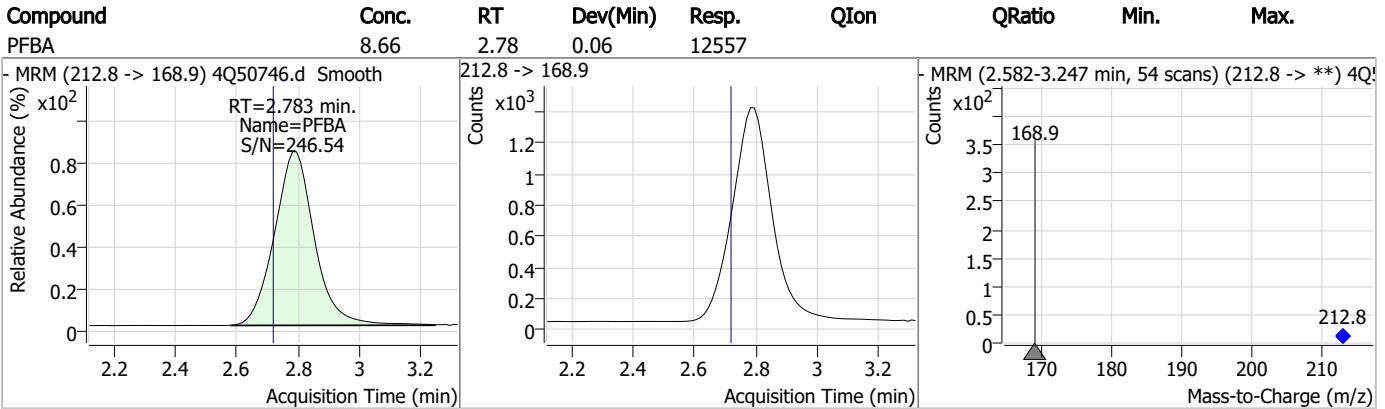
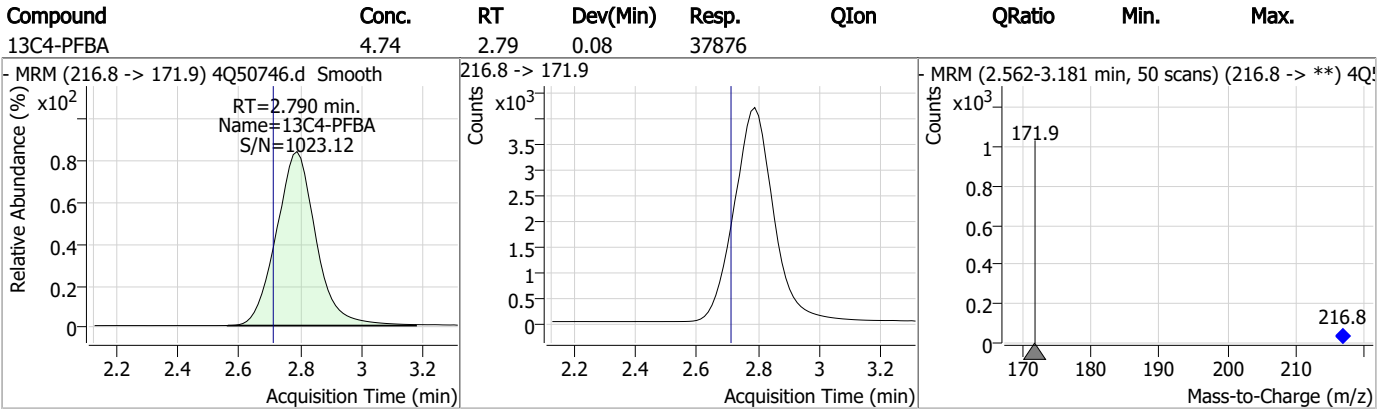
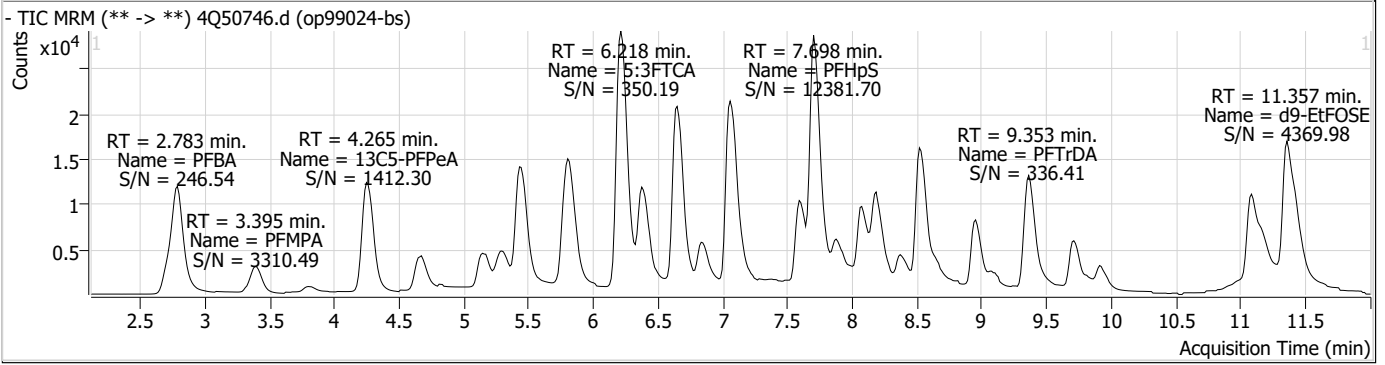
Perfluorinated Compounds by LC/MS/MS

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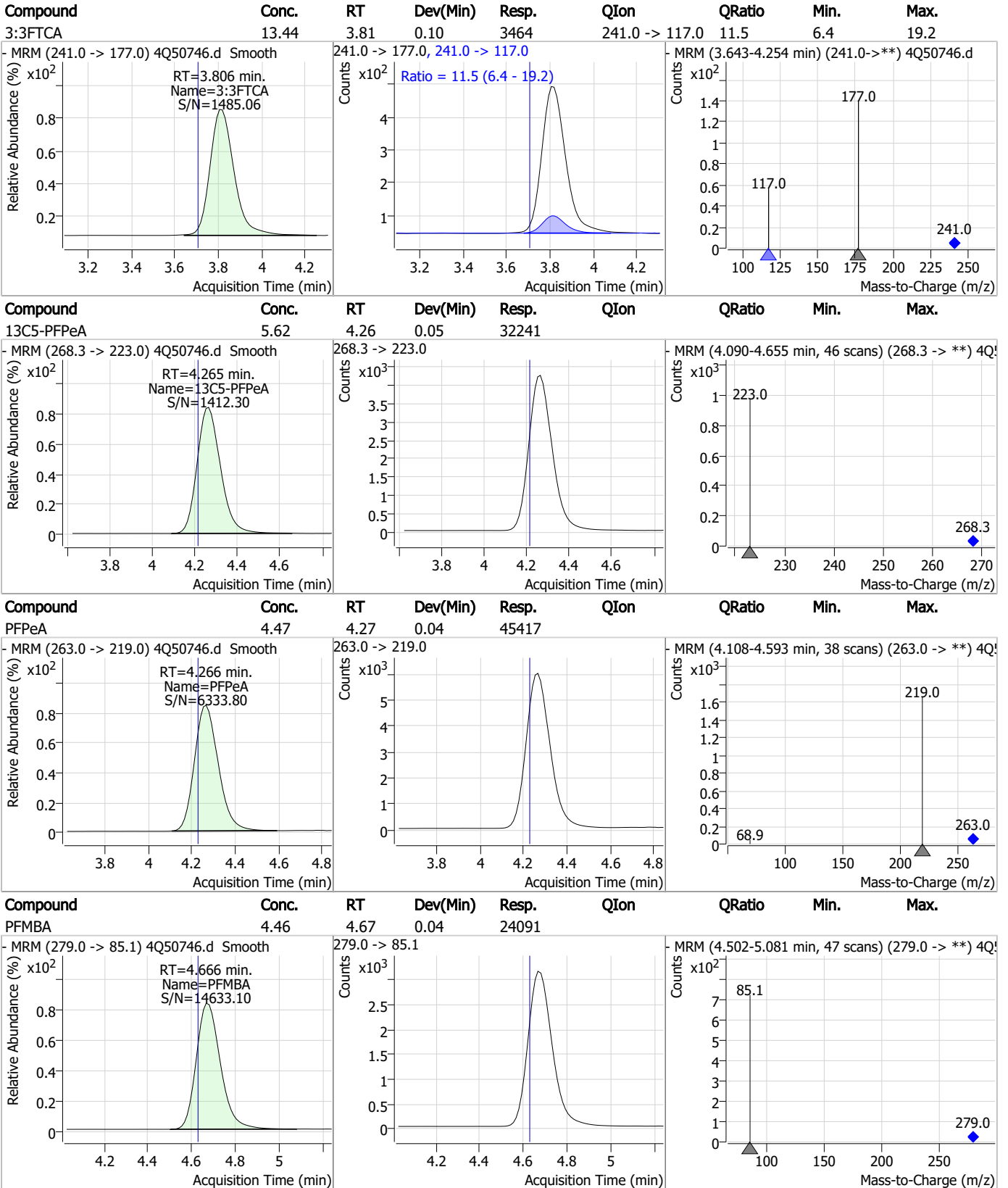
7.3.3

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Perfluorinated Compounds by LC/MS/MS



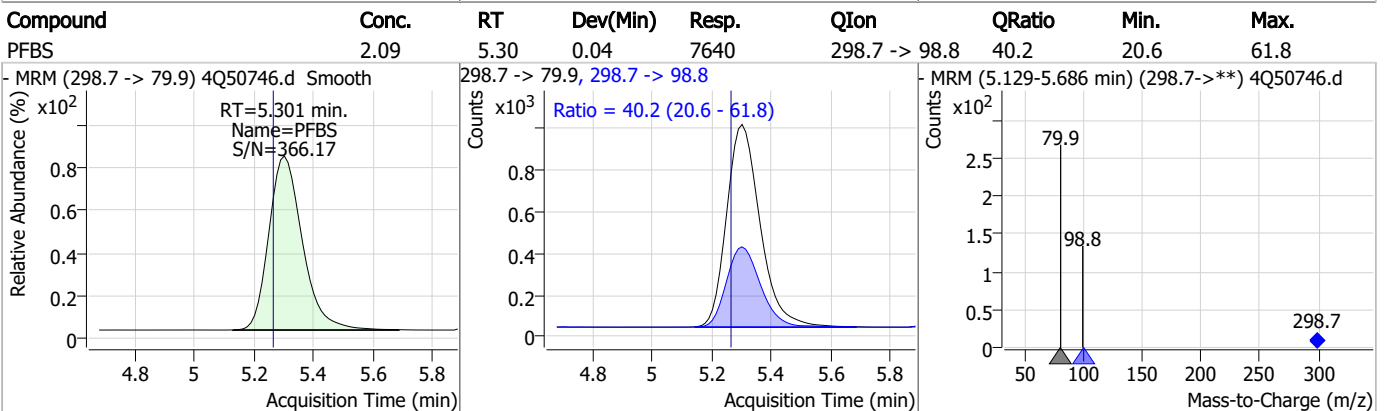
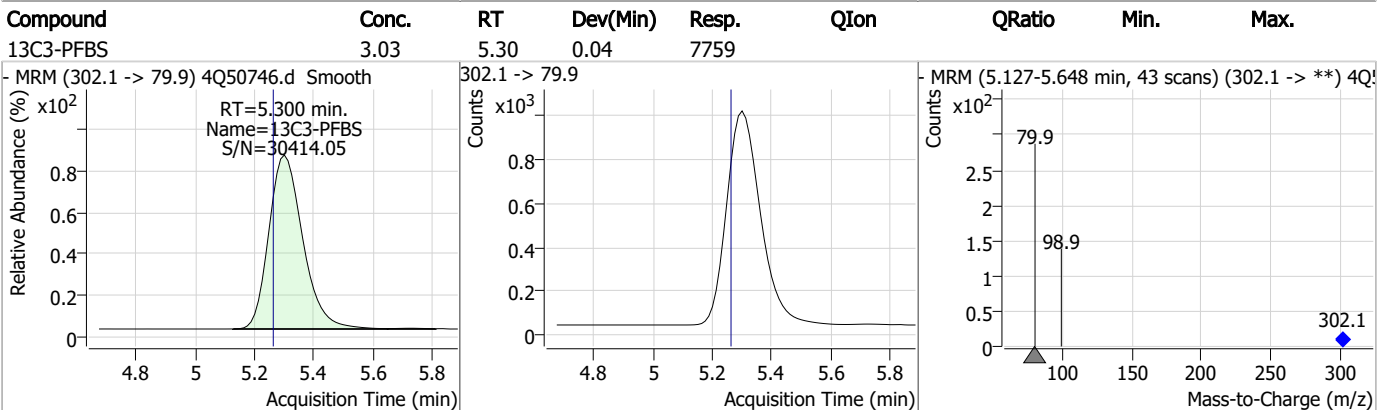
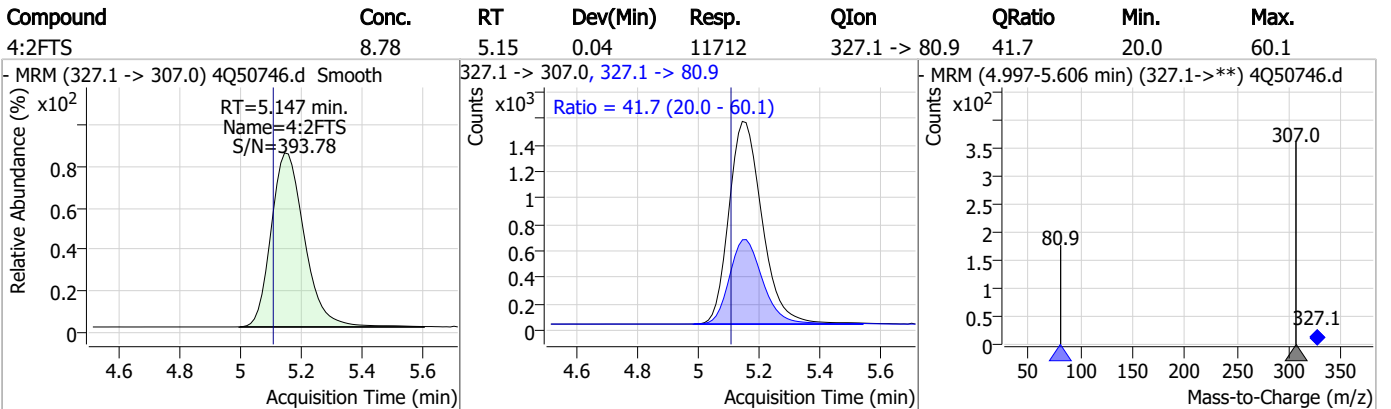
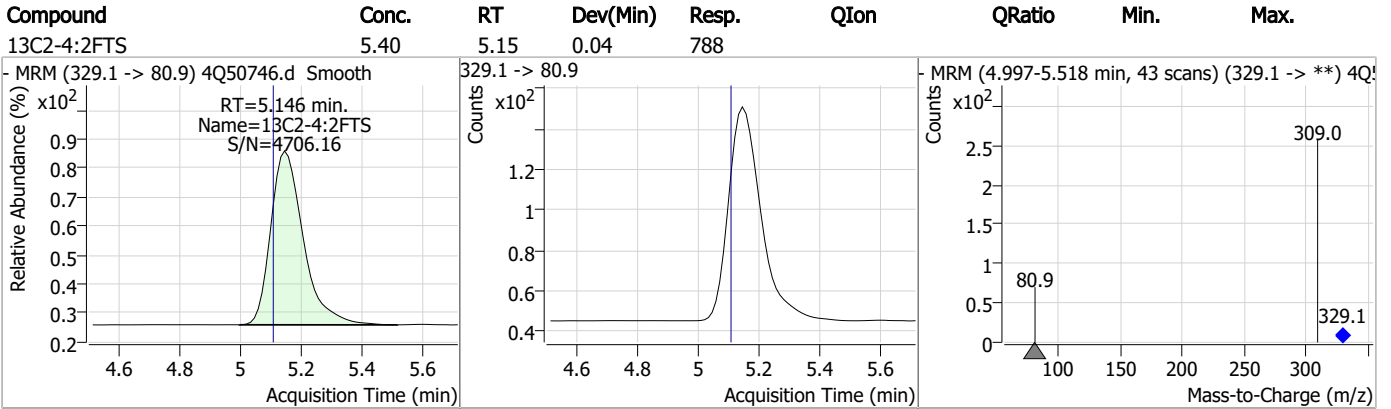
Perfluorinated Compounds by LC/MS/MS



7.3.3

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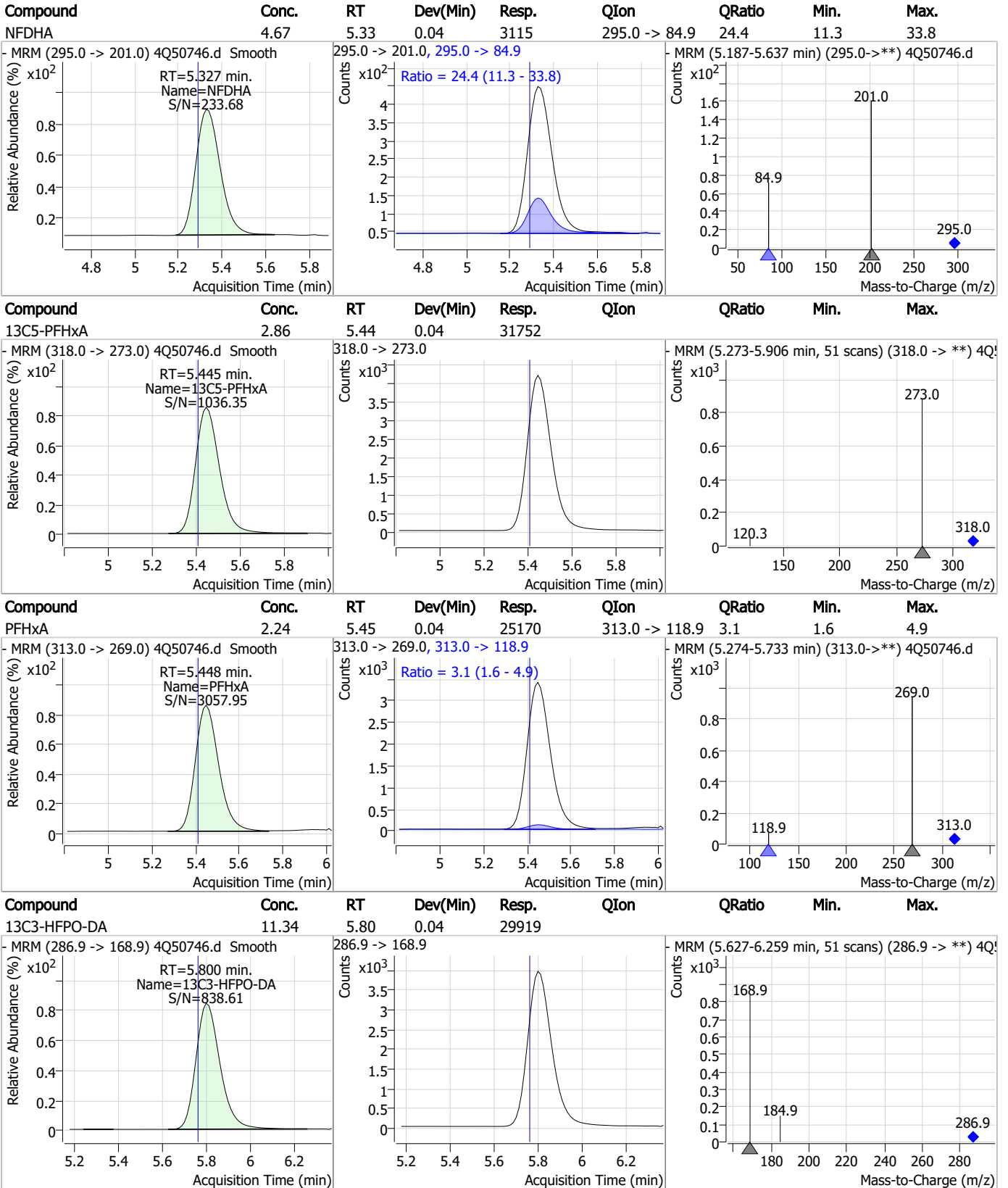
Perfluorinated Compounds by LC/MS/MS



7.3.3

7

Perfluorinated Compounds by LC/MS/MS

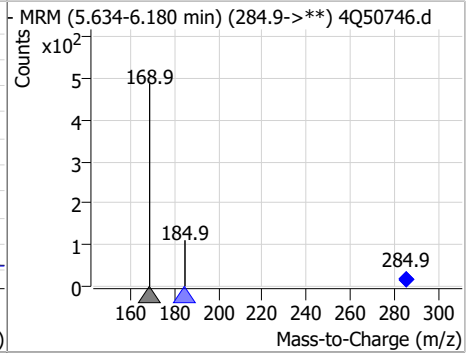
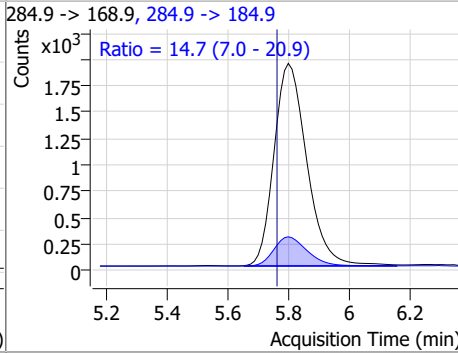
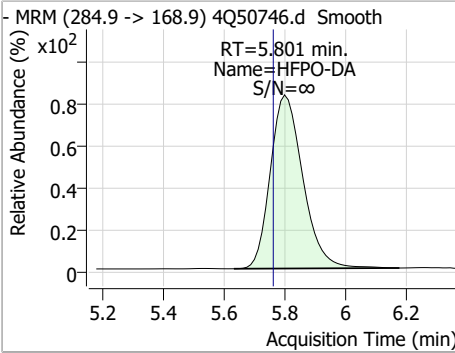


7.3.3

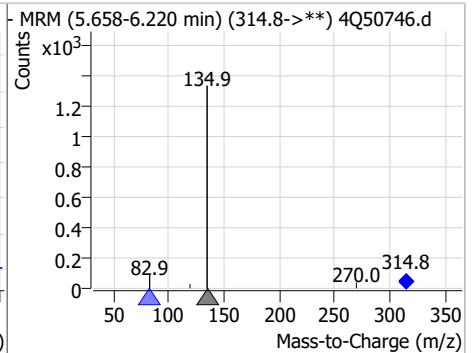
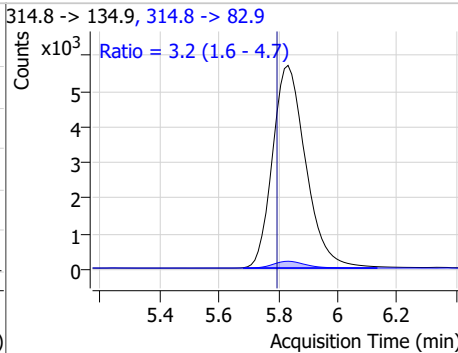
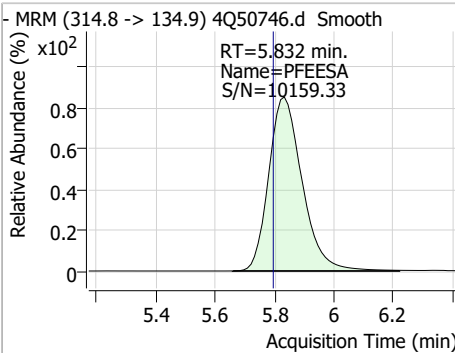
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Perfluorinated Compounds by LC/MS/MS

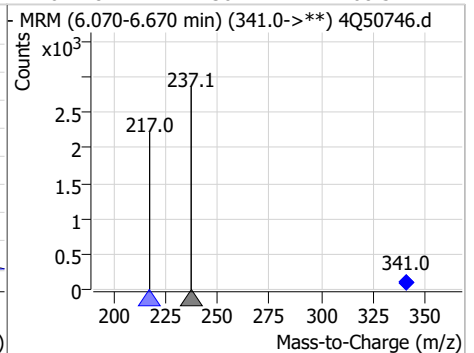
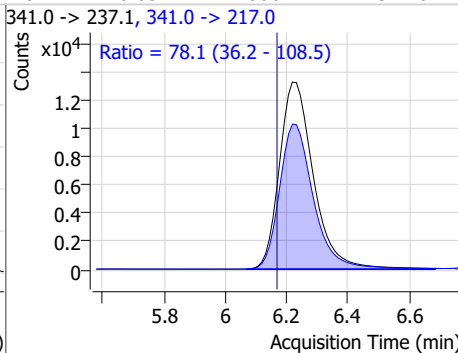
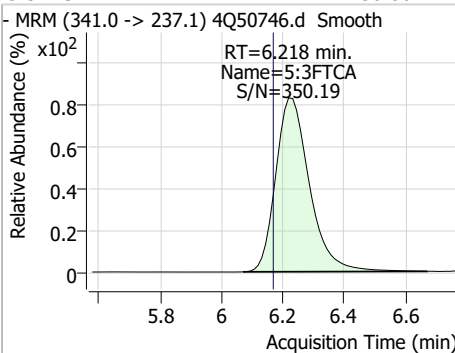
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.40	5.80	0.04	14281	284.9 -> 184.9	14.7	7.0	20.9



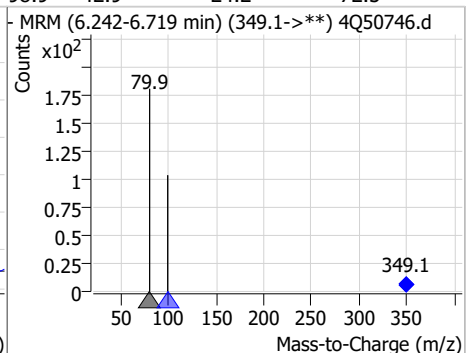
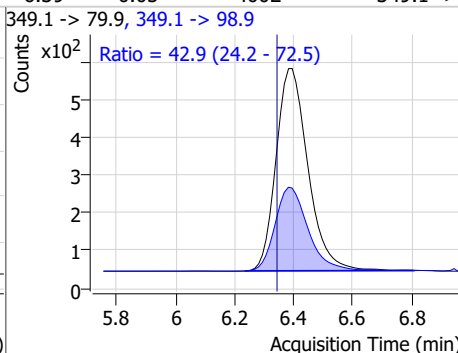
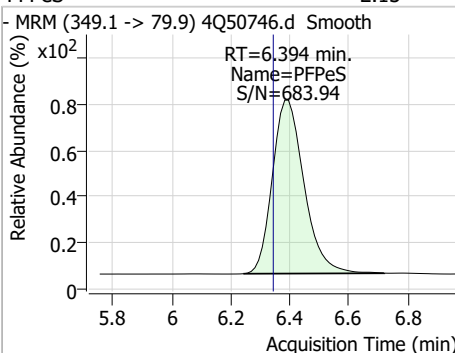
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.07	5.83	0.04	44436	314.8 -> 82.9	3.2	1.6	4.7



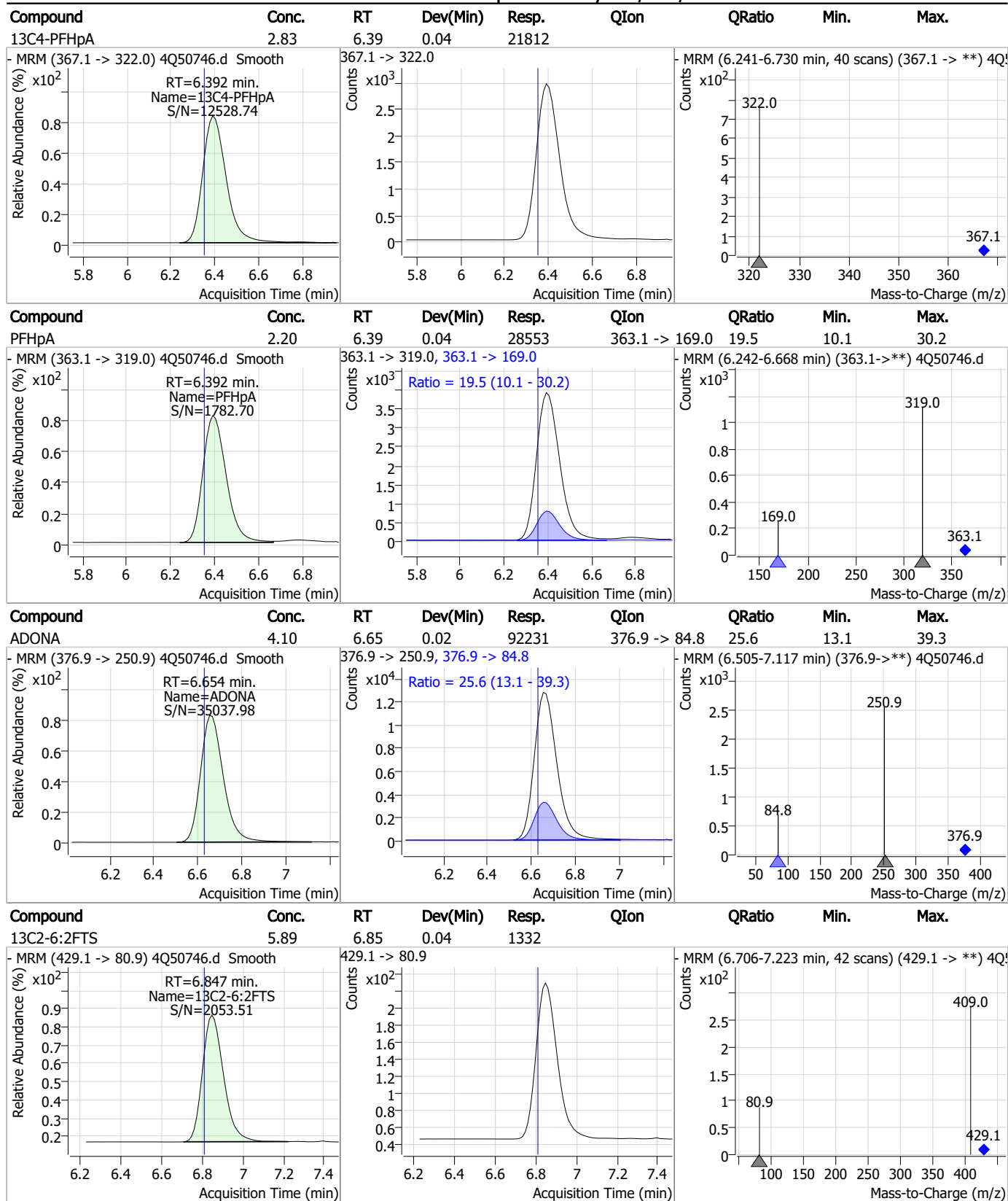
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	50.86	6.22	0.05	100644	341.0 -> 217.0	78.1	36.2	108.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.13	6.39	0.05	4002	349.1 -> 98.9	42.9	24.2	72.5

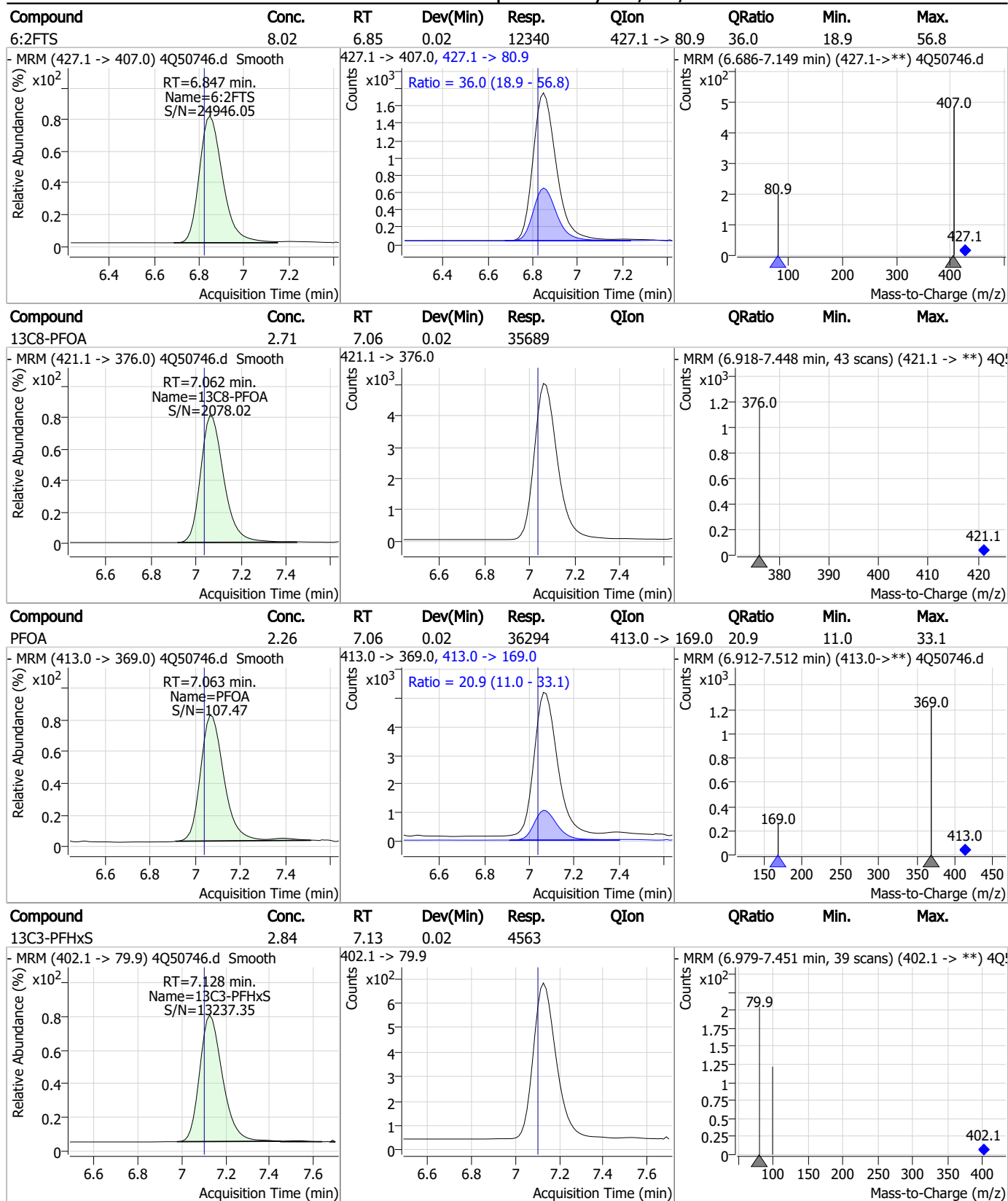


Perfluorinated Compounds by LC/MS/MS



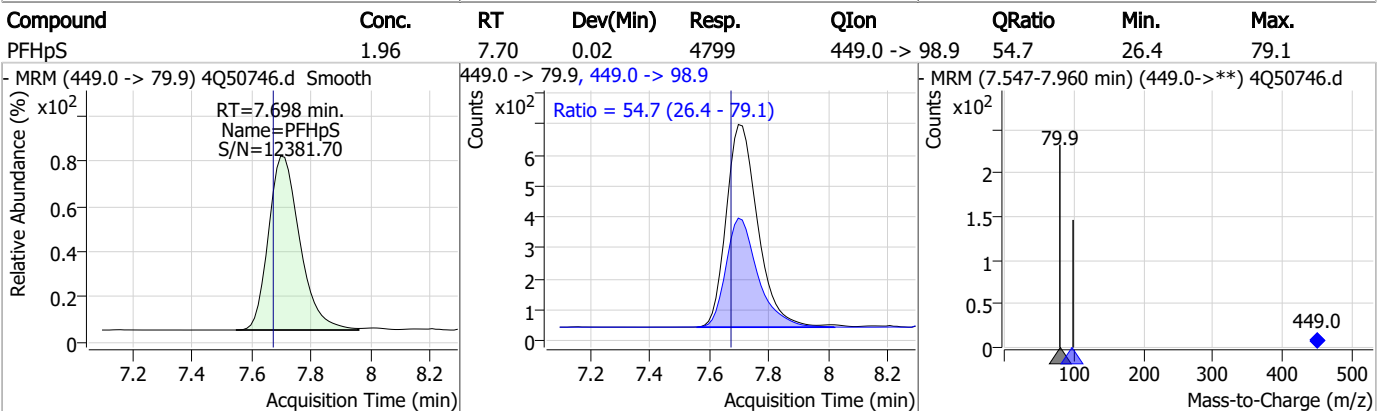
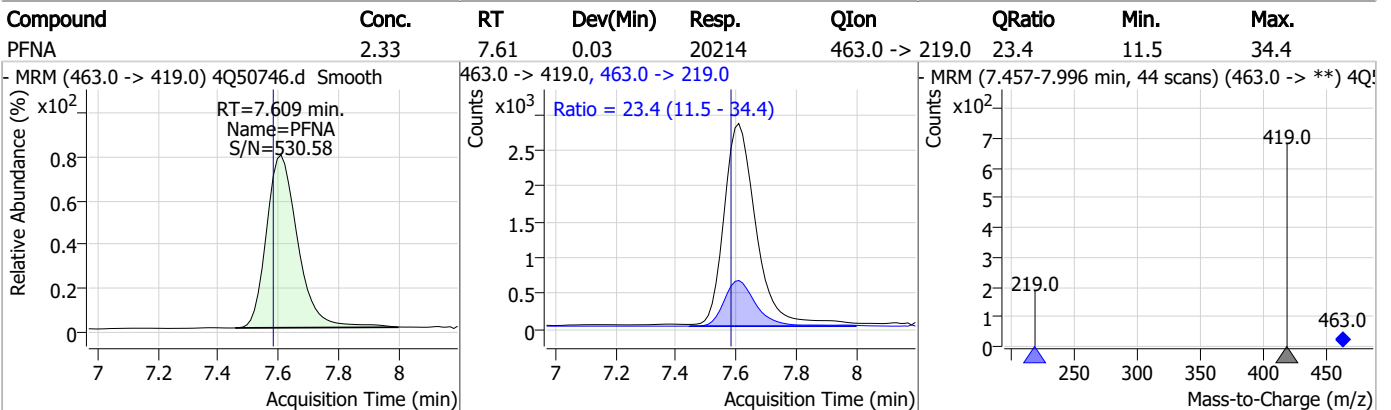
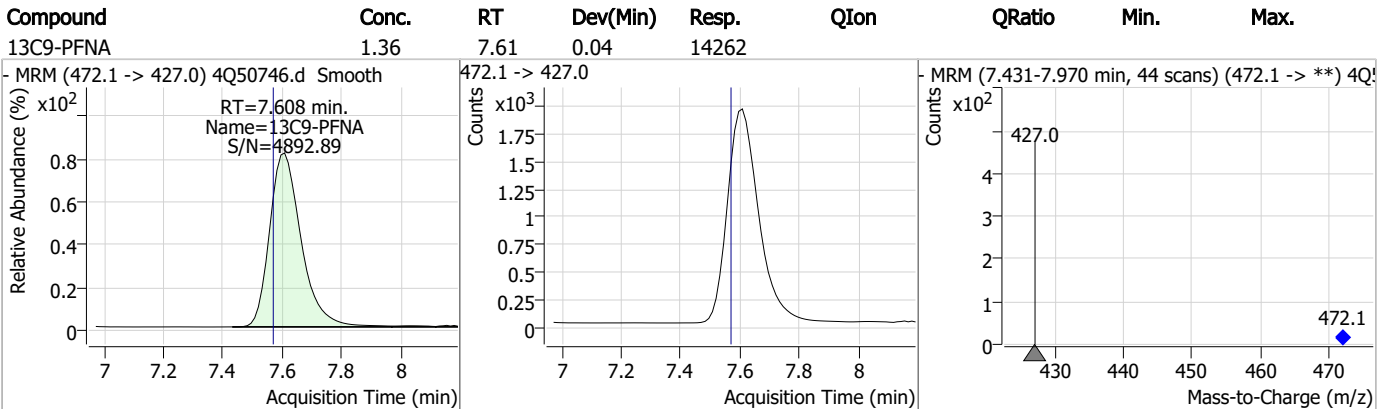
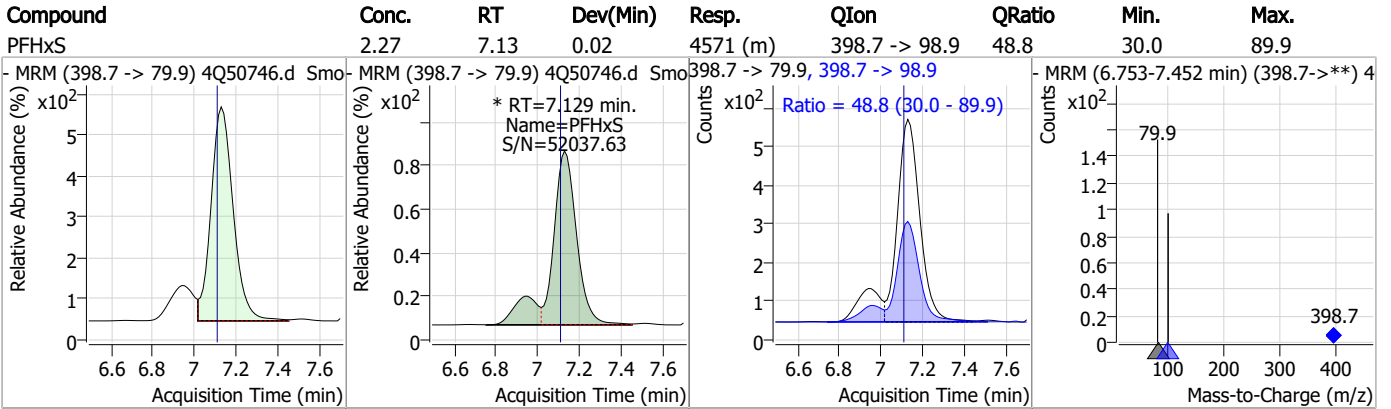
7.3.3
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Perfluorinated Compounds by LC/MS/MS

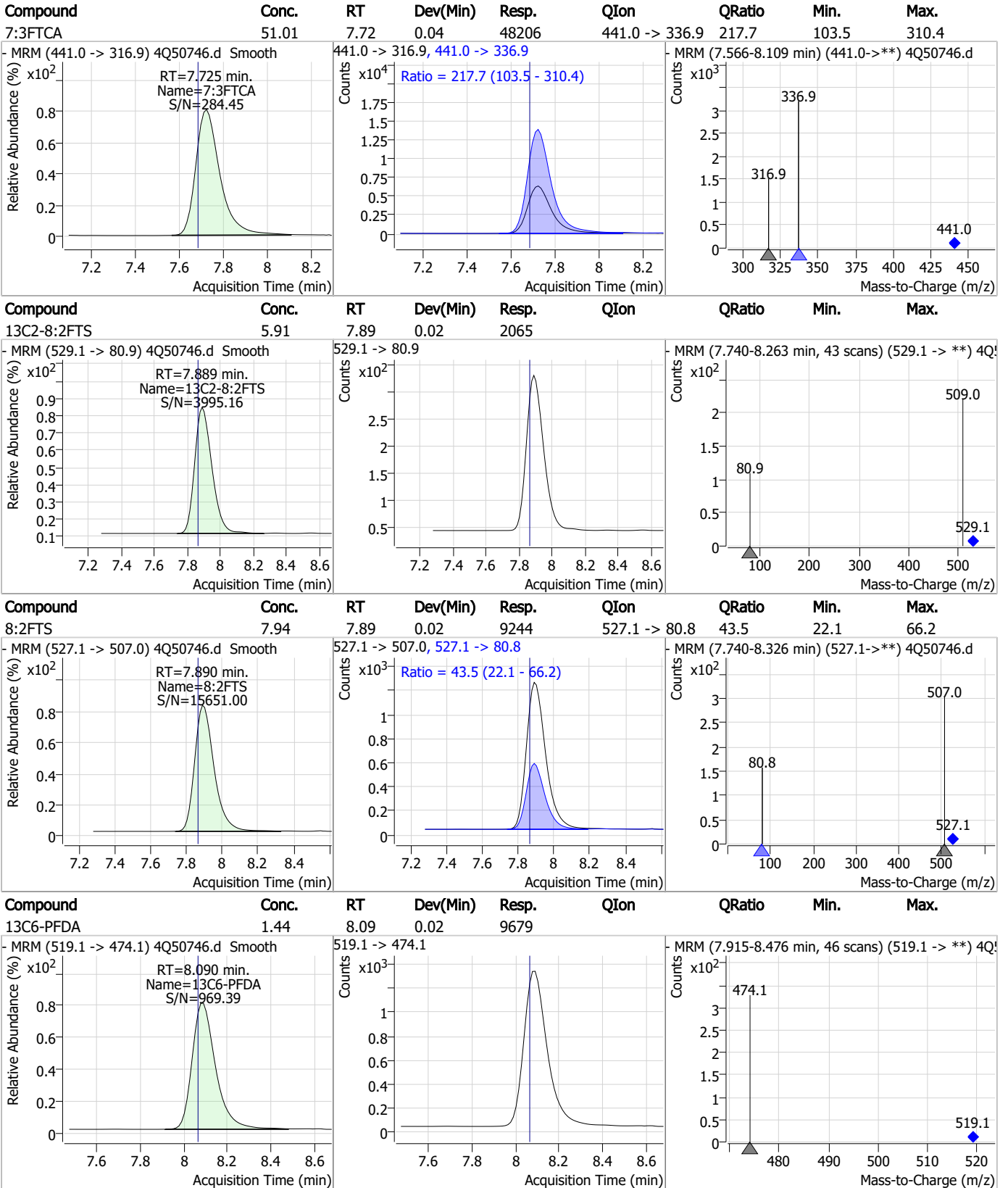


7.3.3
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Perfluorinated Compounds by LC/MS/MS



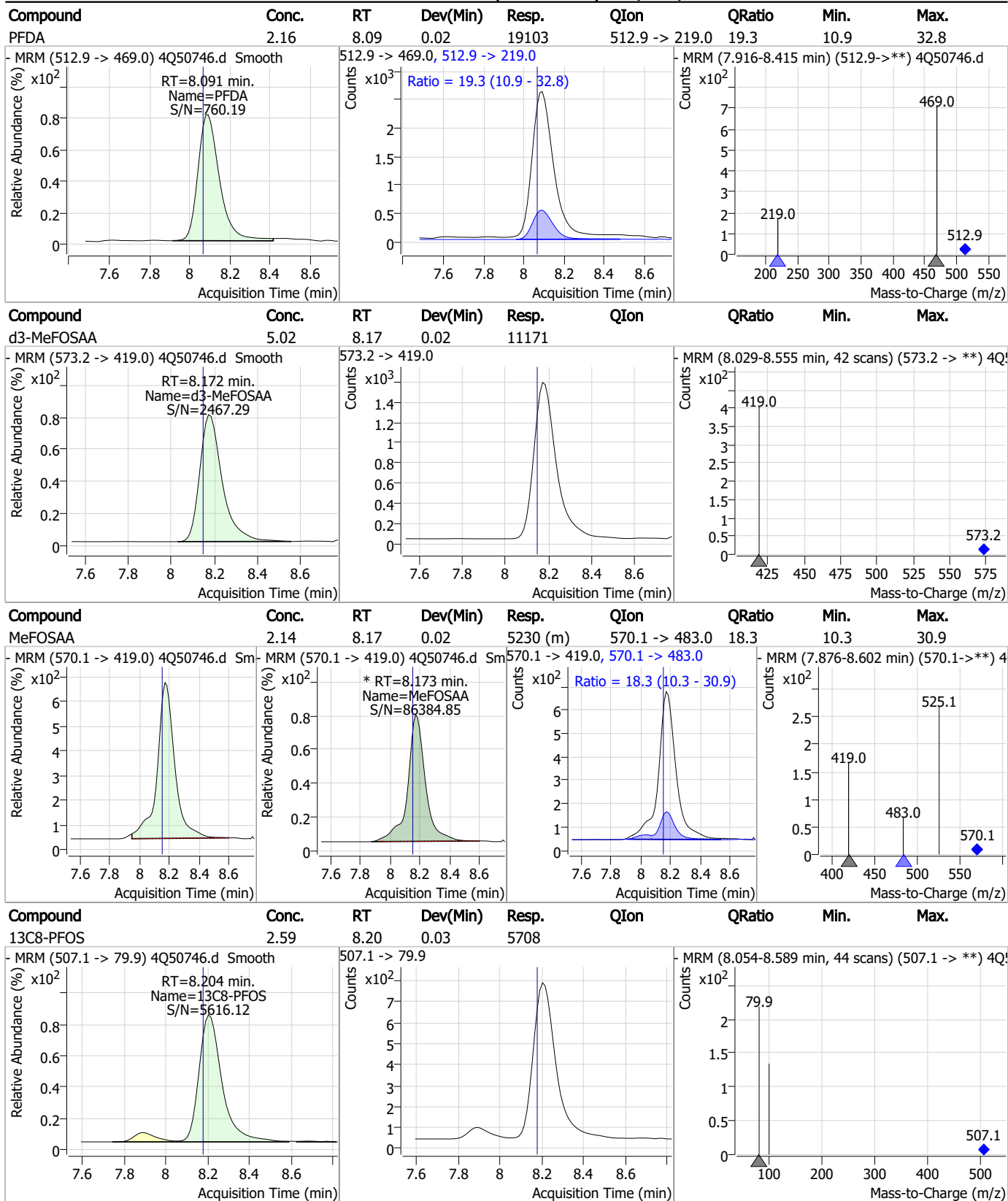
Perfluorinated Compounds by LC/MS/MS



7.3.3

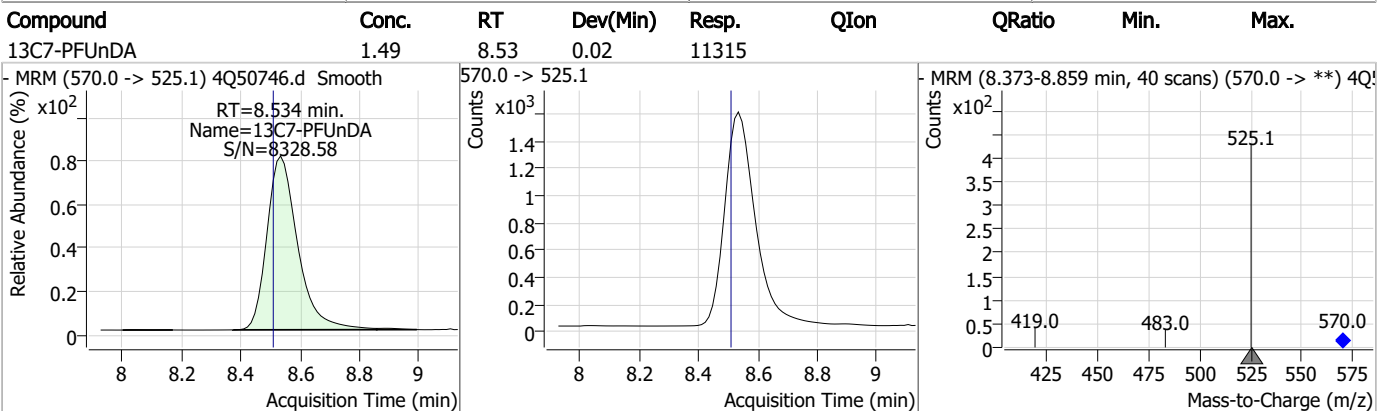
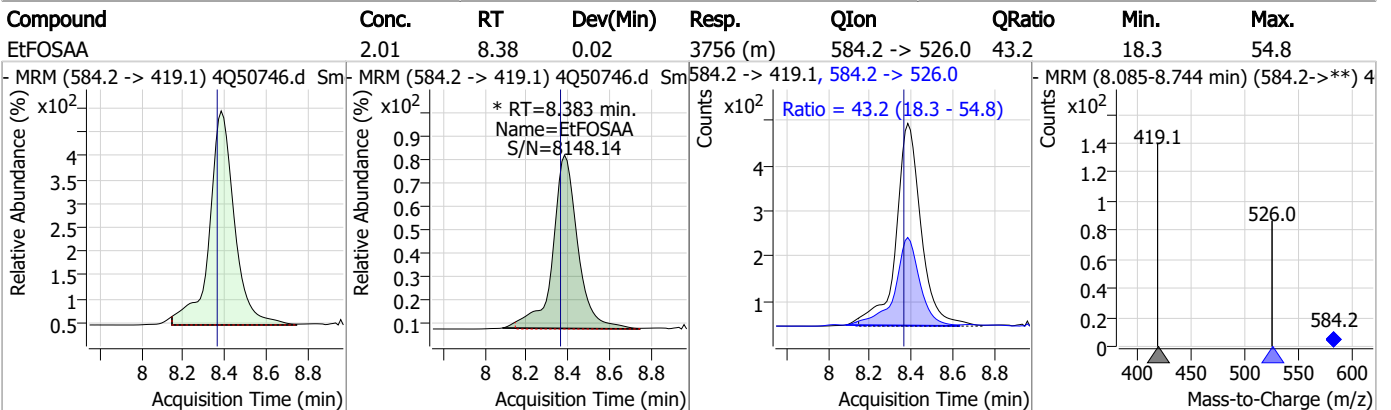
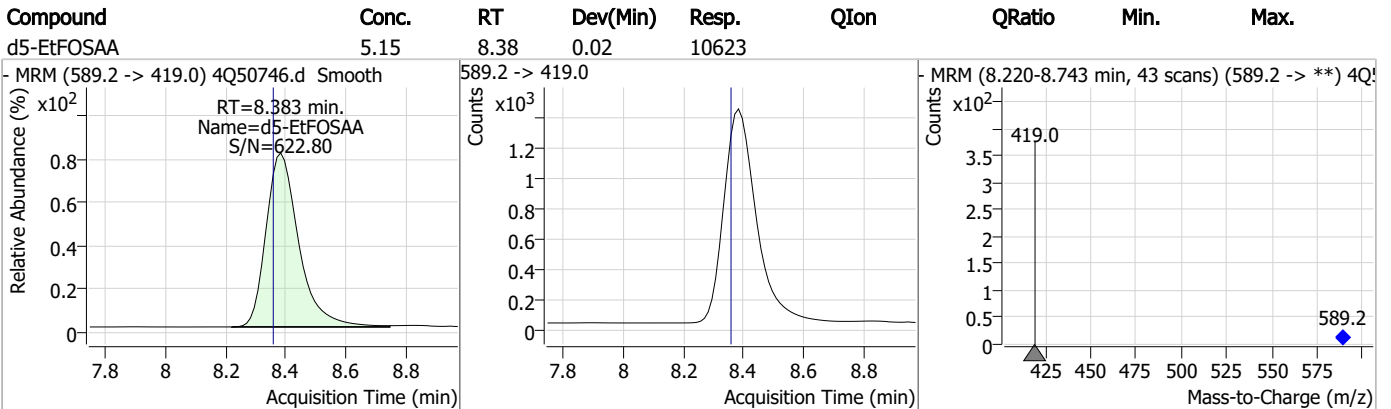
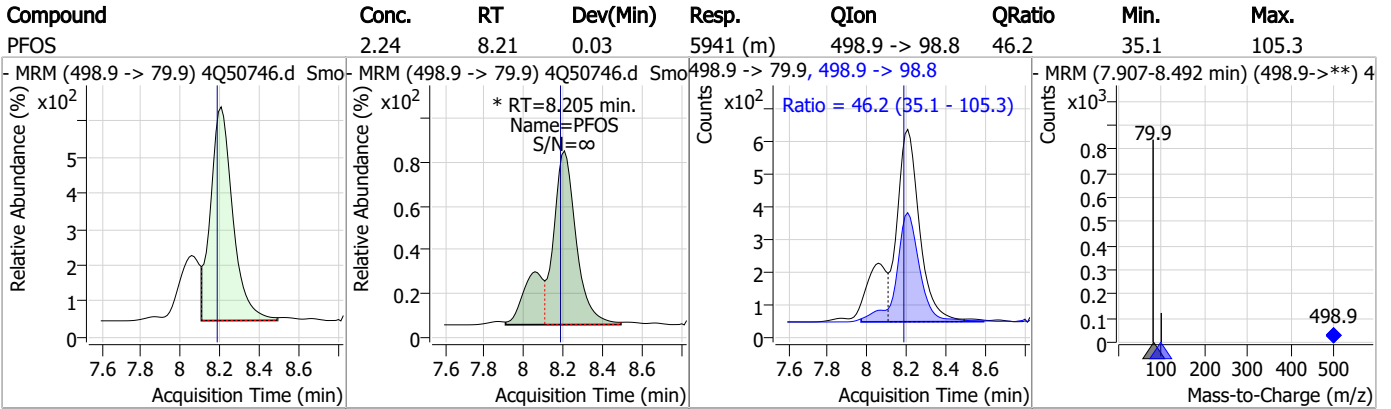
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Perfluorinated Compounds by LC/MS/MS

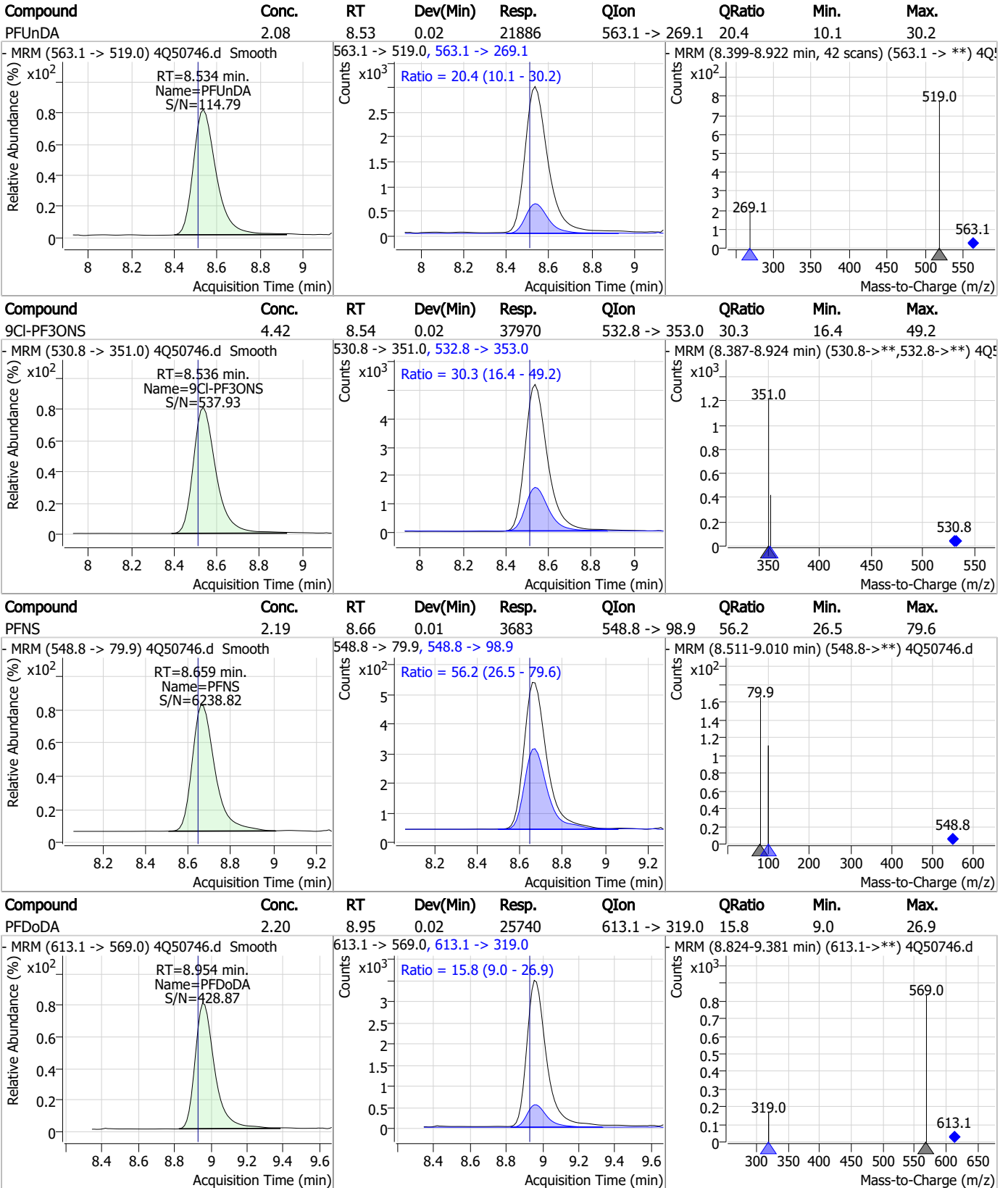


7.3.3
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

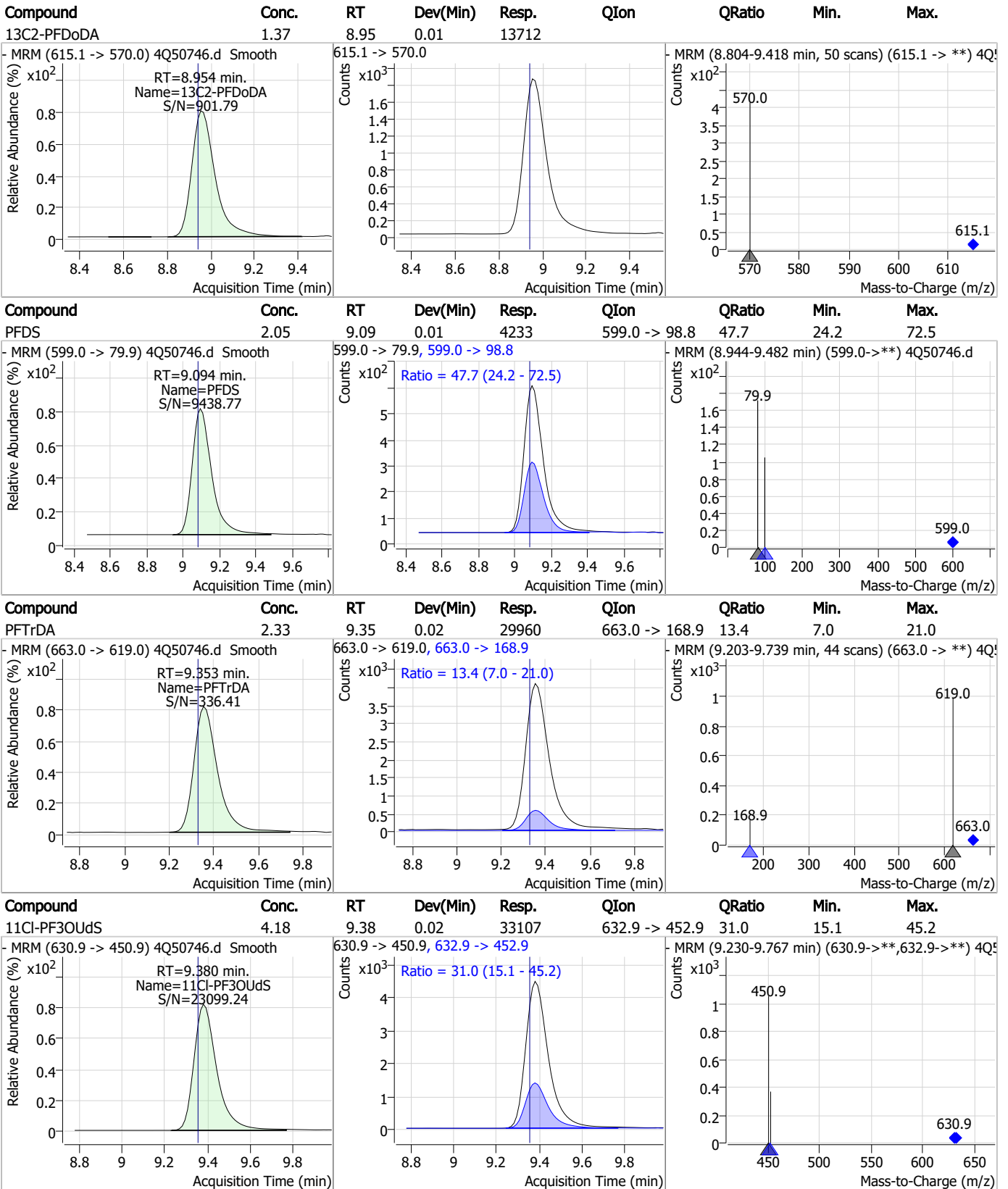


7.3.3

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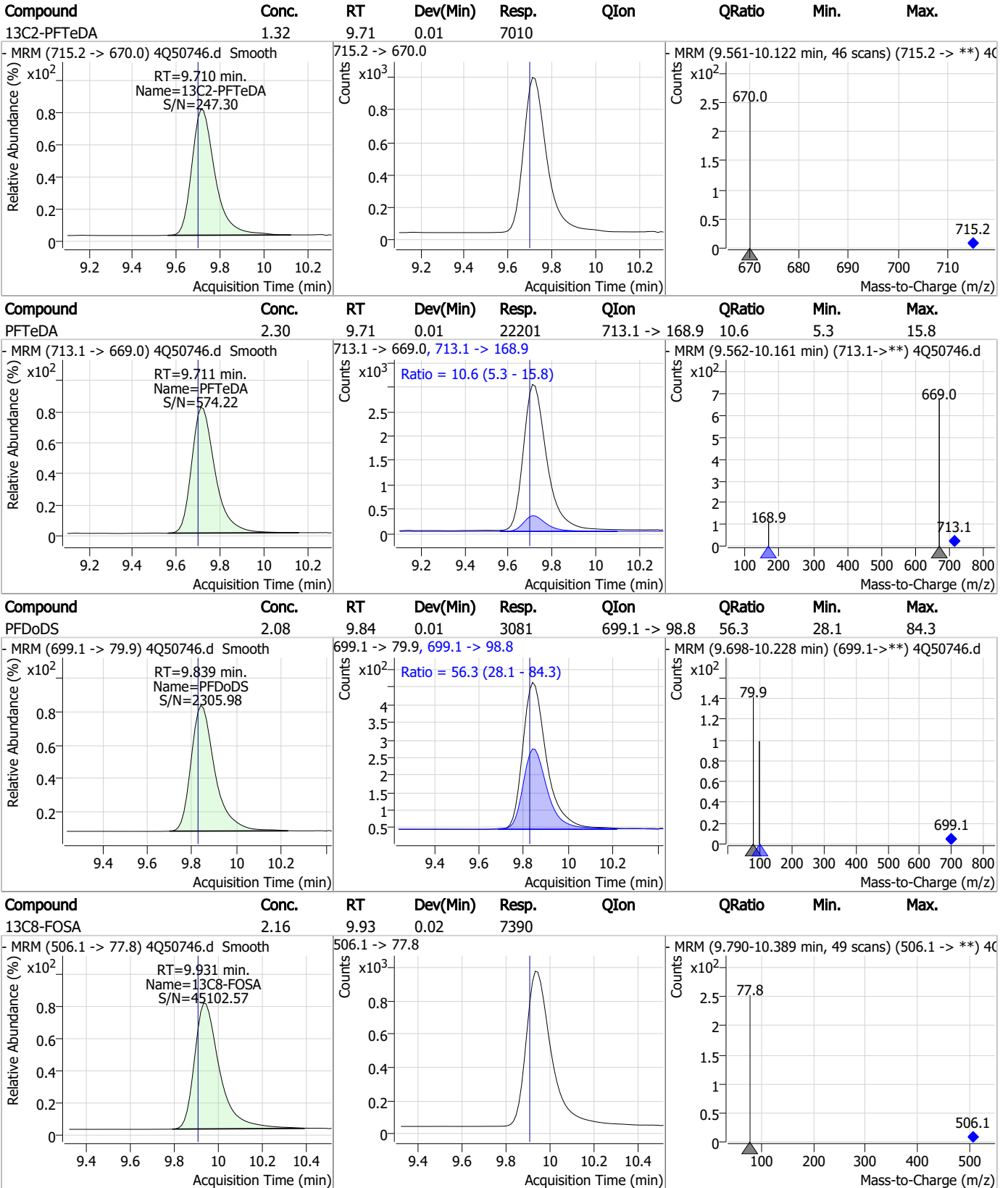
Perfluorinated Compounds by LC/MS/MS



7.3.3

7

Perfluorinated Compounds by LC/MS/MS

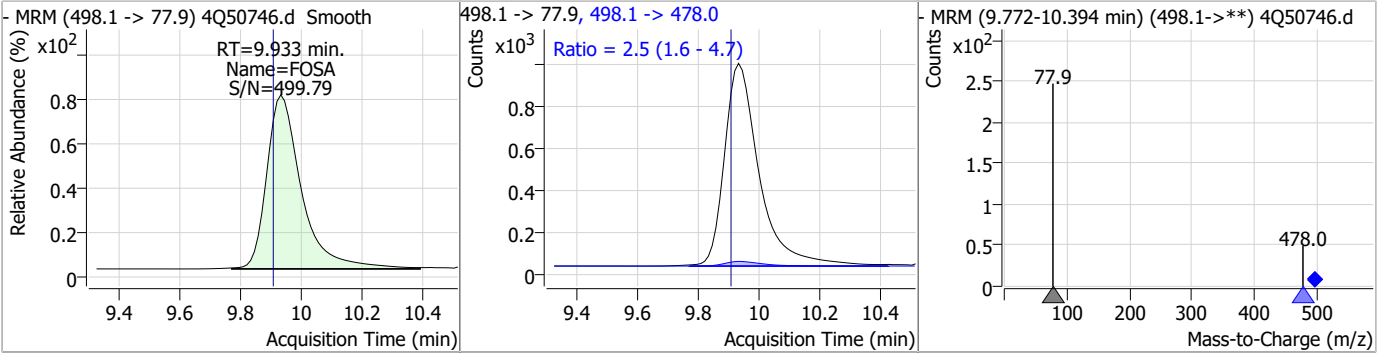


7.3.3

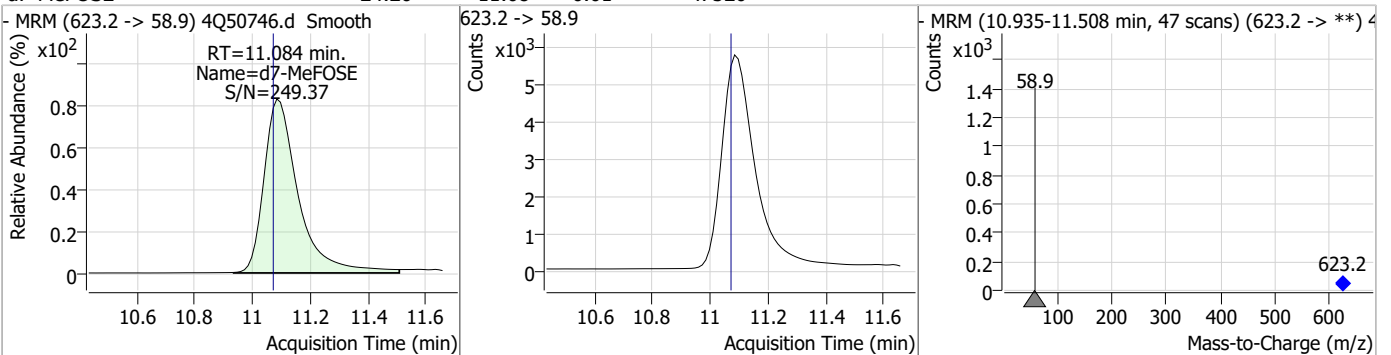
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Perfluorinated Compounds by LC/MS/MS

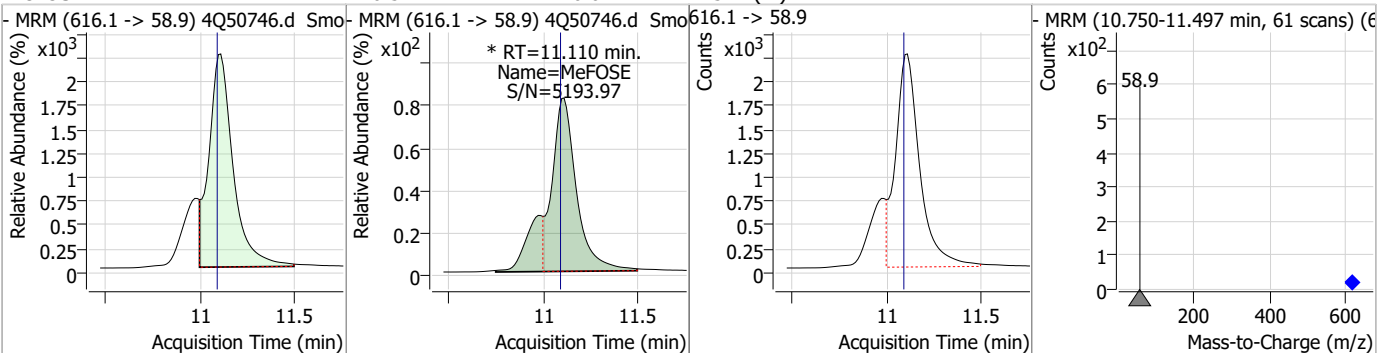
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.29	9.93	0.02	7691	498.1 -> 478.0	2.5	1.6	4.7



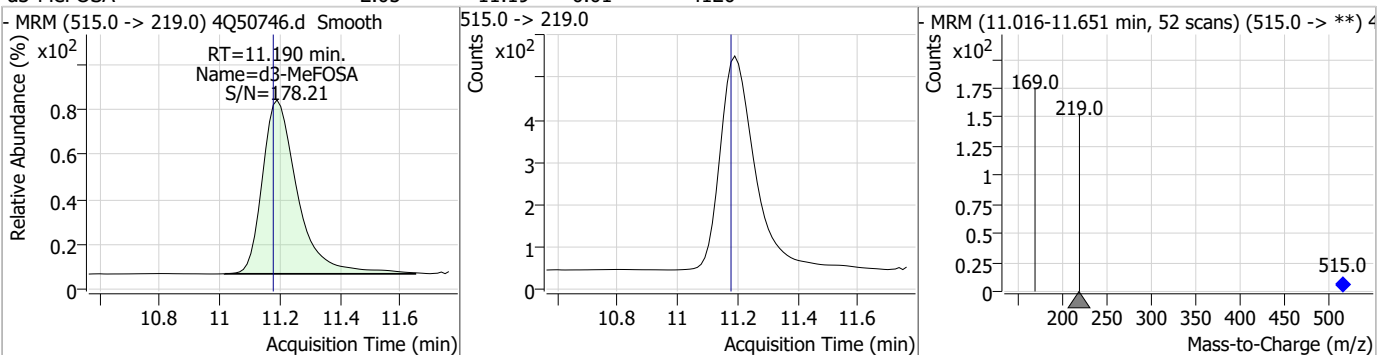
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.26	11.08	0.01	47520				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	10.51	11.11	0.02	24514 (m)				

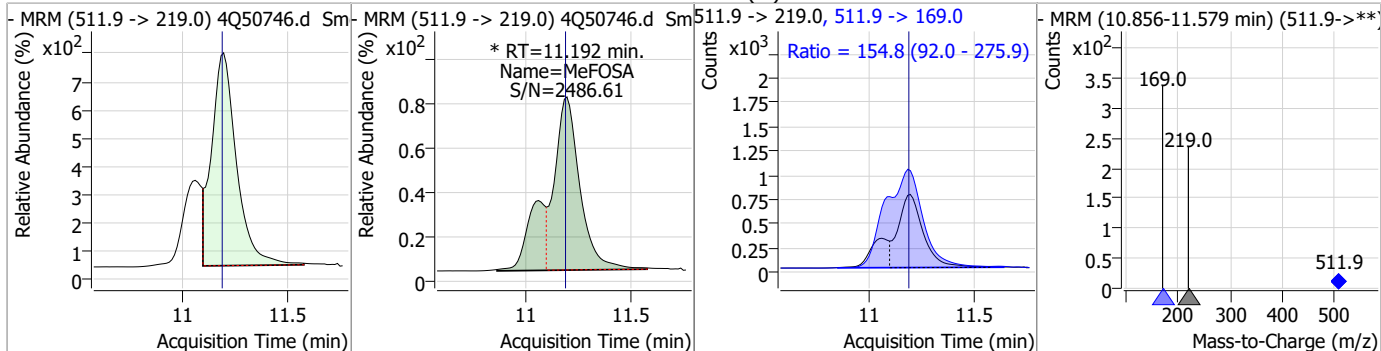


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.05	11.19	0.01	4120				

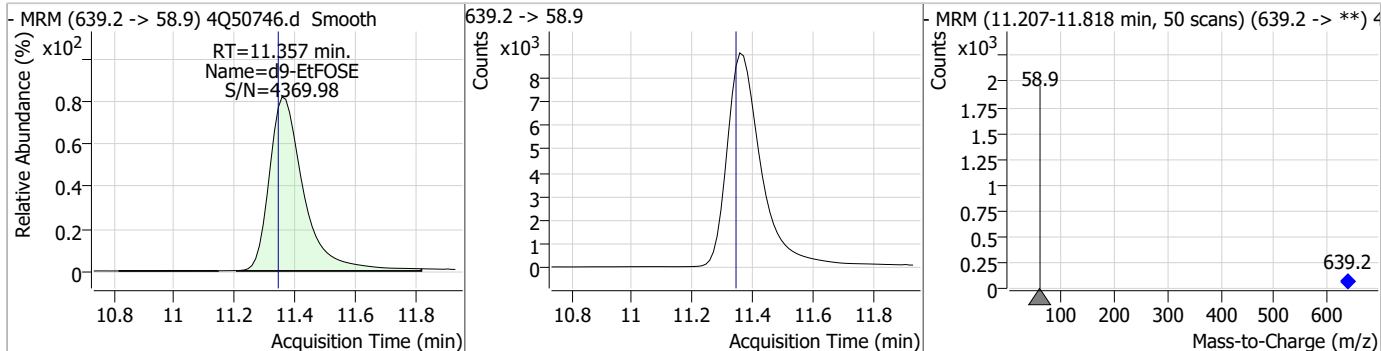


Perfluorinated Compounds by LC/MS/MS

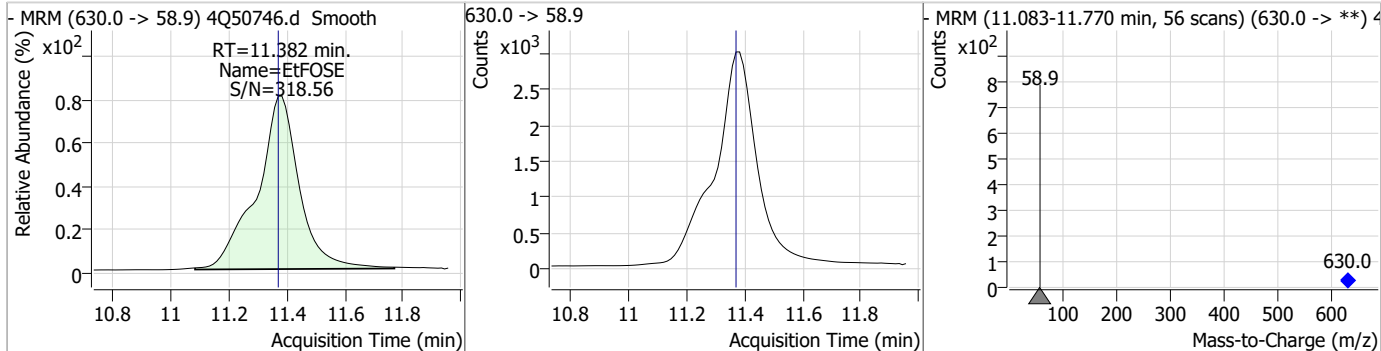
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.24	11.19	0.01	8234 (m)	511.9 -> 169.0	154.8	92.0	275.9



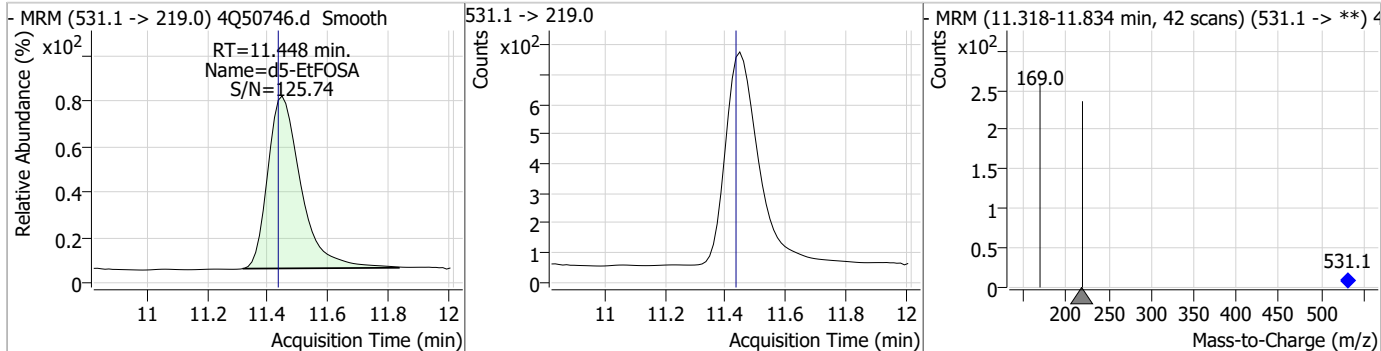
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.17	11.36	0.01	71132				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	10.32	11.38	0.01	30289				



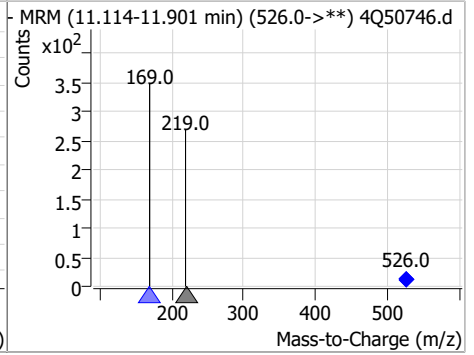
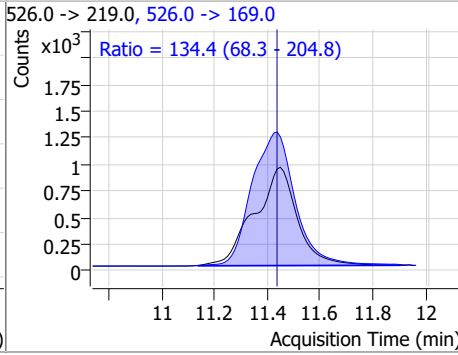
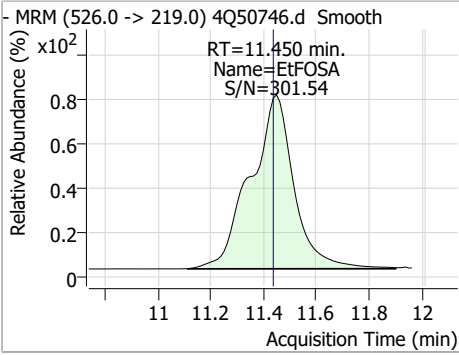
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.01	11.45	0.01	5468				



7.3.3
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	4.46	11.45	0.01	10647	526.0 -> 169.0	134.4	68.3	204.8



7.3.3

7

Manual Integration Approval Summary

Sample Number: OP99024-BS Method: EPA DRAFT 1633
Lab FileID: 4Q50746.D Analyst approved: 09/19/23 10:24 Anna Ludwig
Injection Time: 09/18/23 18:23 Supervisor approved: 09/19/23 13:27 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.13	Split peak
MeFOSAA	2355-31-9		8.17	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.21	Split peak
EtFOSAA	2991-50-6		8.38	Split peak
MeFOSE	24448-09-7		11.11	Split peak
MeFOSA	31506-32-8		11.19	Split peak

7.3.3.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50747.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/18/2023 6:38:22 PM
 Sample Name : op99024-llbs:3
 Vial : P1-D5
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q742.batch.bin
 Sample Information : OP99024,S4Q742,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.790	216.8 -> 171.9	87253	10.00 µg/L	0.078
M5-PFPeA	4.265	268.3 -> 223.0	31817	5.00 µg/L	0.050
M5-PFHxA	5.445	318.0 -> 273.0	31357	2.50 µg/L	0.037
M4-PFHpA	6.392	367.1 -> 322.0	21202	2.50 µg/L	0.038
M8-PFOA	7.062	421.1 -> 376.0	35060	2.50 µg/L	0.025
M9-PFNA	7.608	472.1 -> 427.0	13989	1.25 µg/L	0.038
M6-PFDA	8.090	519.1 -> 474.1	9565	1.25 µg/L	0.025
M7-PFUnDA	8.534	570.0 -> 525.1	10816	1.25 µg/L	0.025
M2-PFDoDA	8.966	615.1 -> 570.0	12470	1.25 µg/L	0.025
M2-PFTeDA	9.723	715.2 -> 670.0	6639	1.25 µg/L	0.025
M8-FOSA	9.943	506.1 -> 77.8	7328	2.50 µg/L	0.037
M3-PFBS	5.300	302.1 -> 79.9	7679	2.50 µg/L	0.037
M3-PFHxS	7.128	402.1 -> 79.9	4435	2.50 µg/L	0.025
M8-PFOS	8.204	507.1 -> 79.9	5423	2.50 µg/L	0.026
M2-4:2FTS	5.146	329.1 -> 80.9	827	5.00 µg/L	0.037
M2-6:2FTS	6.859	429.1 -> 80.9	1333	5.00 µg/L	0.050
M2-8:2FTS	7.889	529.1 -> 80.9	2036	5.00 µg/L	0.025
M3-MeFOSAA	8.184	573.2 -> 419.0	10176	5.00 µg/L	0.037
M3-HFPO-DA	5.800	286.9 -> 168.9	29531	10.00 µg/L	0.037
M5-EtFOSAA	8.383	589.2 -> 419.0	10207	5.00 µg/L	0.025
M7-MeFOSE	11.097	623.2 -> 58.9	43884	25.00 µg/L	0.025
M9-EtFOSE	11.369	639.2 -> 58.9	64626	25.00 µg/L	0.025
M5-EtFOSA	11.448	531.1 -> 219.0	5222	2.50 µg/L	0.012
M3-MeFOSA	11.190	515.0 -> 219.0	3753	2.50 µg/L	0.012
13C4-PFOS	8.205	502.8 -> 79.9	4371	2.50 µg/L	0.026
13C3-PFBA	2.793	216.0 -> 172.0	35176	5.00 µg/L	0.077
18O2-PFHxS	7.127	403.0 -> 83.9	2712	2.50 µg/L	0.025
13C4-PFOA	7.062	417.1 -> 372.0	32006	2.50 µg/L	0.025
13C2-PFDA	8.090	515.1 -> 470.1	7817	1.25 µg/L	0.025
13C5-PFNA	7.608	468.0 -> 423.0	9625	1.25 µg/L	0.038
13C2-PFHxA	5.446	315.1 -> 270.0	22322	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.146	329.1 -> 80.9	827	5.58 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.6%		
13C2-6:2FTS	6.859	429.1 -> 80.9	1333	5.81 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.2%		
13C2-8:2FTS	7.889	529.1 -> 80.9	2036	5.75 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.0%		
13C2-PFDoDA	8.966	615.1 -> 570.0	12470	1.41 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 113.2%		
13C2-PFTeDA	9.723	715.2 -> 670.0	6639	1.42 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 113.8%		
13C3-PFBS	5.300	302.1 -> 79.9	7679	2.96 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 118.3%		
13C3-PFHxS	7.128	402.1 -> 79.9	4435	2.72 µg/L	0.025

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C4-PFBA	2.790	216.8 -> 171.9	87253	12.53 µg/L	0.078
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 125.3%	
13C4-PFHpA	6.392	367.1 -> 322.0	21202	3.00 µg/L	0.038
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 120.1%	
13C5-PFHxA	5.445	318.0 -> 273.0	31357	3.09 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 123.4%	
13C5-PFPeA	4.265	268.3 -> 223.0	31817	6.06 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 121.1%	
13C6-PFDA	8.090	519.1 -> 474.1	9565	1.61 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 128.7%	
13C7-PFUnDA	8.534	570.0 -> 525.1	10816	1.61 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 129.1%	
13C8-FOSA	9.943	506.1 -> 77.8	7328	2.43 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C8-PFOA	7.062	421.1 -> 376.0	35060	2.99 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.4%	
13C8-PFOS	8.204	507.1 -> 79.9	5423	2.79 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.6%	
13C9-PFNA	7.608	472.1 -> 427.0	13989	1.59 µg/L	0.038
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 127.3%	
d3-MeFOSAA	8.184	573.2 -> 419.0	10176	5.18 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C3-HFPO-DA	5.800	286.9 -> 168.9	29531	12.23 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 122.3%	
d3-MeFOSA	11.190	515.0 -> 219.0	3753	2.12 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.7%	
d5-EtFOSAA	8.383	589.2 -> 419.0	10207	5.61 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.3%	
d7-MeFOSE	11.097	623.2 -> 58.9	43884	25.41 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
d9-EtFOSE	11.369	639.2 -> 58.9	64626	25.94 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
d5-EtFOSA	11.448	531.1 -> 219.0	5222	2.18 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.2%	
Target Compounds					QValue
4:2FTS	5.147	327.1 -> 307.0	3830	2.74 µg/L	98
		327.1 -> 80.9	1490		
6:2FTS	6.847	427.1 -> 407.0	3736	2.43 µg/L	99
		427.1 -> 80.9	1381		
8:2FTS	7.890	527.1 -> 507.0	2944	2.57 µg/L	99
		527.1 -> 80.8	1281		
EtFOSAA	8.396	584.2 -> 419.1	1215	0.68 µg/L	95
		584.2 -> 526.0	411		
FOSA	9.933	498.1 -> 77.9	2227	0.67 µg/L	99
		498.1 -> 478.0	76		
MeFOSAA	8.185	570.1 -> 419.0	1313	0.59 µg/L	95
		570.1 -> 483.0	304		
PFBA	2.783	212.8 -> 168.9	8947	2.68 µg/L	100
PFBS	5.301	298.7 -> 79.9	2281	0.63 µg/L	98
		298.7 -> 98.8	966		
PFDA	8.091	512.9 -> 469.0	6007	0.69 µg/L	94
		512.9 -> 219.0	1137		
PFDODA	8.967	613.1 -> 569.0	7370	0.69 µg/L	99
		613.1 -> 319.0	1350		
PFDS	9.107	599.0 -> 79.9	1231	0.63 µg/L	93

7.3.4
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.392	599.0 -> 98.8	655	0.67	µg/L	98
		363.1 -> 319.0	8378			
PFHpS	7.698	363.1 -> 169.0	1626	0.66	µg/L	97
		449.0 -> 79.9	1529			
PFHxA	5.448	449.0 -> 98.9	837	0.70	µg/L	99
		313.0 -> 269.0	7720			
PFHxS	7.129	313.0 -> 118.9	213	0.62	µg/L	90
		398.7 -> 79.9	1218			
PFNA	7.596	398.7 -> 98.9	639	0.61	µg/L	91
		463.0 -> 419.0	5217			
PFNS	8.671	463.0 -> 219.0	1411	0.69	µg/L	90
		548.8 -> 79.9	1099			
PFOA	7.063	548.8 -> 98.9	663	0.66	µg/L	99
		413.0 -> 369.0	10423			
PFOS	8.205	413.0 -> 169.0	2336	0.74	µg/L	75
		498.9 -> 79.9	1855			
PFPeA	4.266	498.9 -> 98.8	929	1.37	µg/L	100
		263.0 -> 219.0	13742			
PFPeS	6.382	349.1 -> 79.9	1239	0.68	µg/L	94
		349.1 -> 98.9	551			
PFTeDA	9.724	713.1 -> 669.0	6604	0.72	µg/L	98
		713.1 -> 168.9	733			
PFTrDA	9.353	663.0 -> 619.0	8060	0.69	µg/L	99
		663.0 -> 168.9	1165			
PFUnDA	8.534	563.1 -> 519.0	6462	0.64	µg/L	94
		563.1 -> 269.1	1467			
11CI-PF3OUdS	9.380	630.9 -> 450.9	9622	1.23	µg/L	99
		632.9 -> 452.9	2954			
9CI-PF3ONS	8.536	530.8 -> 351.0	10726	1.27	µg/L	96
		532.8 -> 353.0	3758			
ADONA	6.654	376.9 -> 250.9	27364	1.23	µg/L	99
		376.9 -> 84.8	7336			
HFPO-DA	5.801	284.9 -> 168.9	4370	1.37	µg/L	96
		284.9 -> 184.9	675			
3:3FTCA	3.806	241.0 -> 177.0	1493	2.51	µg/L	99
		241.0 -> 117.0	184			
5:3FTCA	6.218	341.0 -> 237.1	29820	15.26	µg/L	95
		341.0 -> 217.0	22798			
7:3FTCA	7.725	441.0 -> 316.9	14036	15.04	µg/L	91
		441.0 -> 336.9	31088			
EtFOSA	11.450	526.0 -> 219.0	3077	1.35	µg/L	97
		526.0 -> 169.0	4087			
EtFOSE	11.382	630.0 -> 58.9	8842	3.31	µg/L	100
		511.9 -> 219.0	2341			
MeFOSA	11.192	511.9 -> 169.0	3733	1.32	µg/L	83
		616.1 -> 58.9	6965			
MeFOSE	11.110	699.1 -> 79.9	966	3.23	µg/L	100
		699.1 -> 98.8	579			
PFDoDS	9.839	295.0 -> 201.0	975	0.69	µg/L	95
		295.0 -> 84.9	249			
NFDHA	5.327	279.0 -> 85.1	7373	1.48	µg/L	94
		229.0 -> 84.9	8530			
PFMBA	4.666	314.8 -> 134.9	13498	1.38	µg/L	100
		314.8 -> 82.9	449			
PFMPA	3.395			1.43	µg/L	100
PFEESA	5.820			1.25	µg/L	99

7.3.4
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= Qualifier out of range, m = manually integrated, + = Area summed

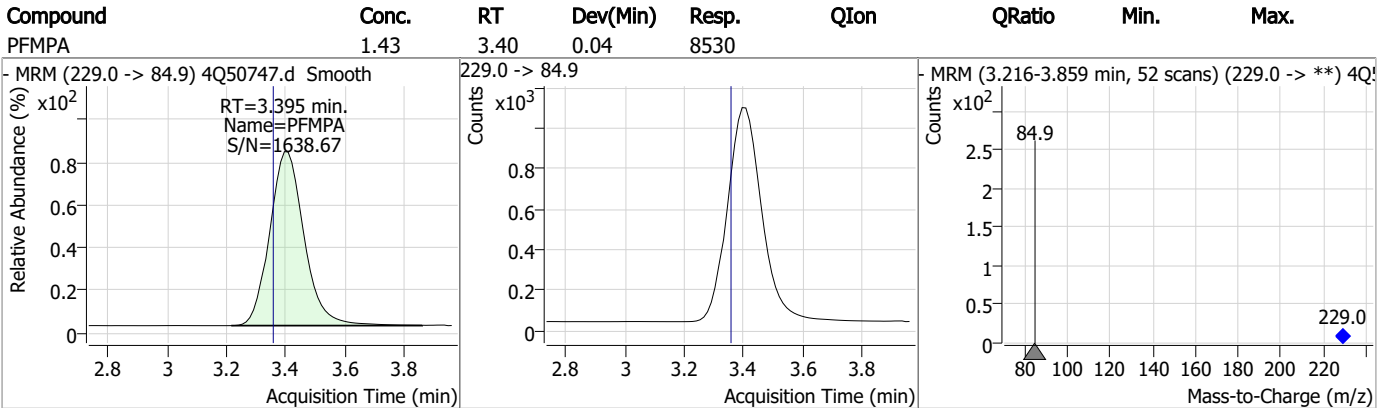
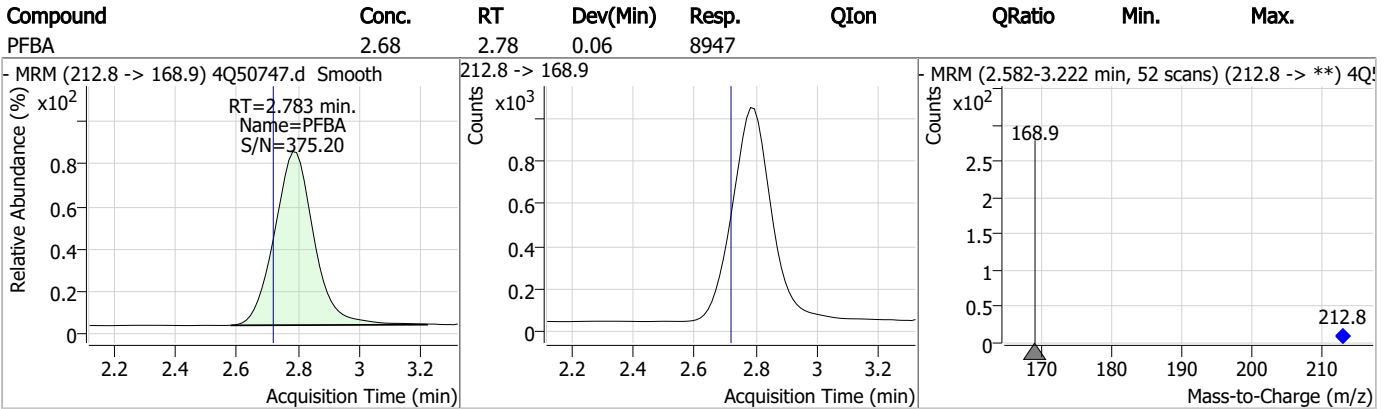
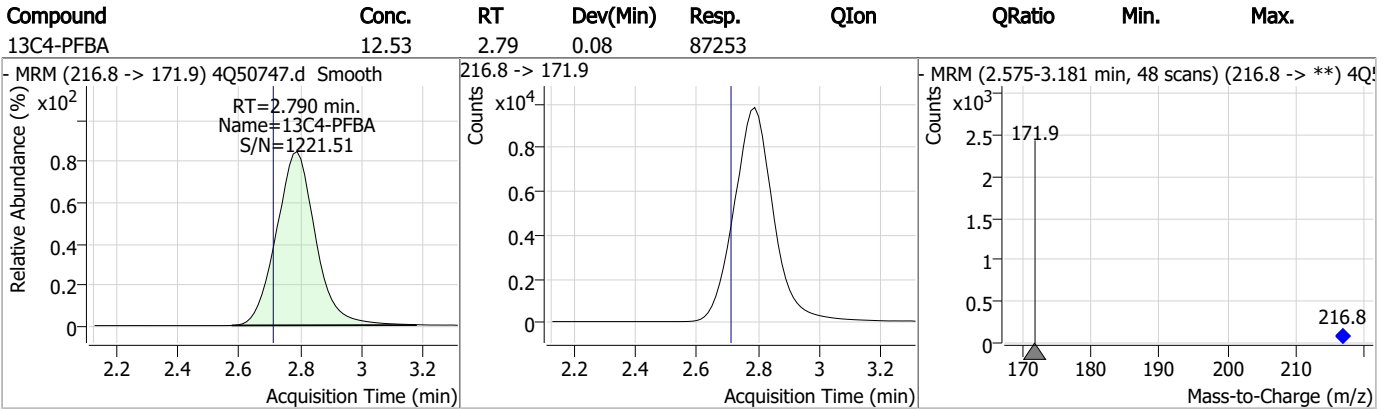
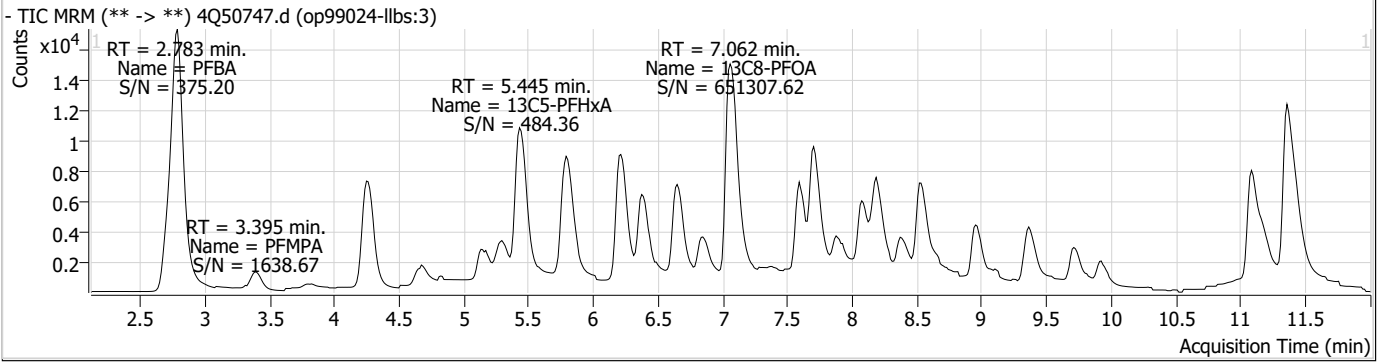
Perfluorinated Compounds by LC/MS/MS

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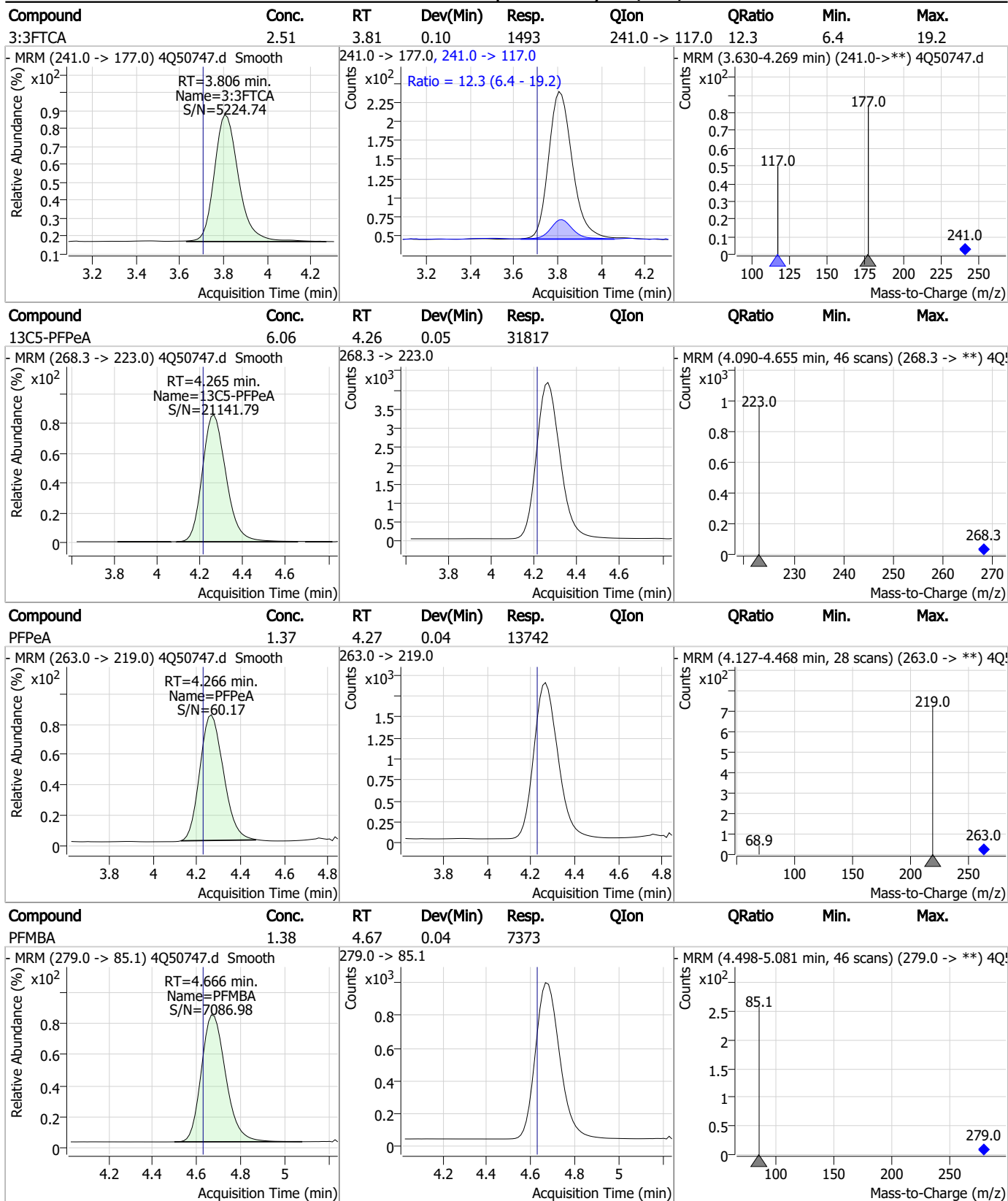
7.3.4

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Perfluorinated Compounds by LC/MS/MS

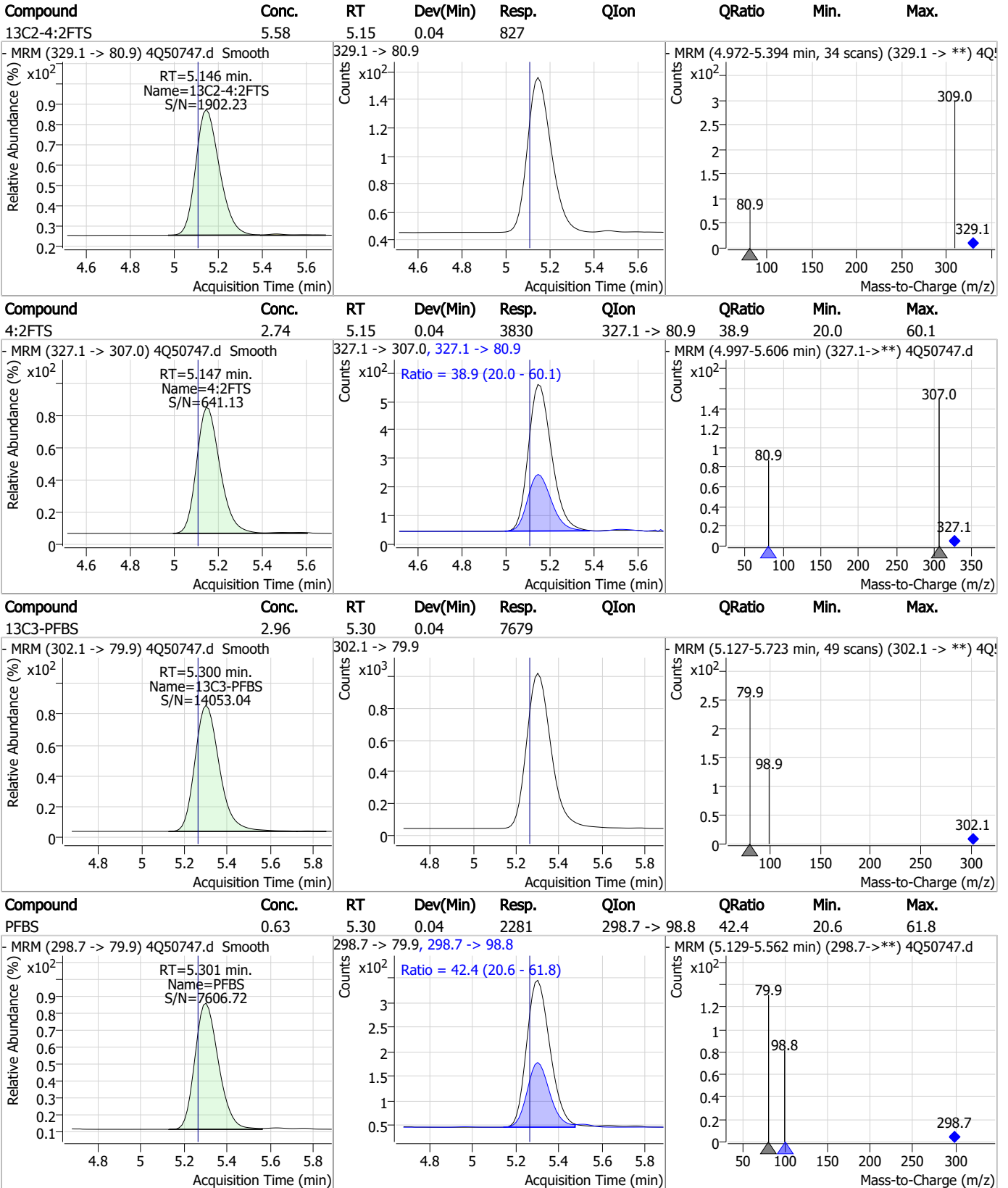


Perfluorinated Compounds by LC/MS/MS



7.3.4
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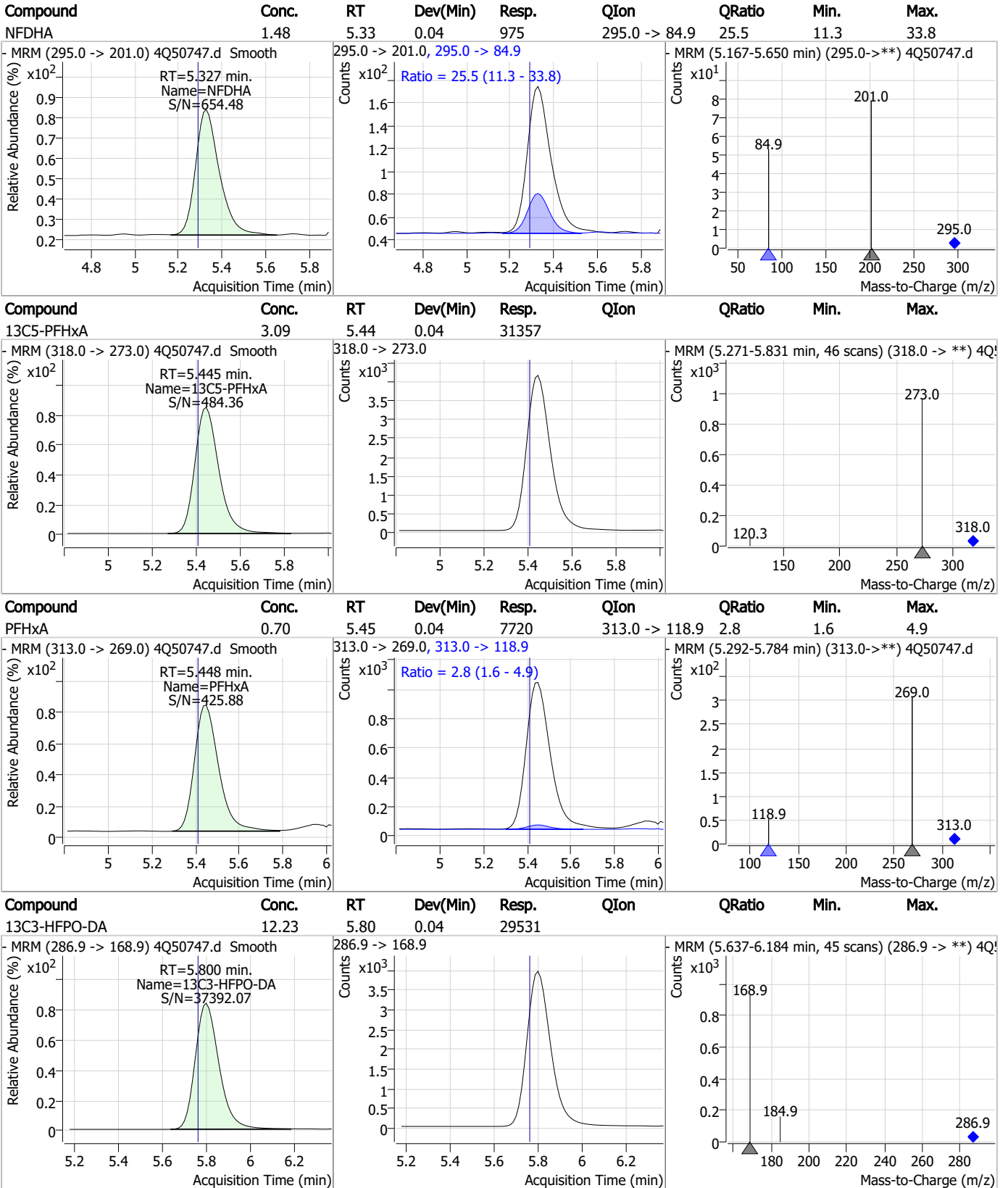
Perfluorinated Compounds by LC/MS/MS



7.3.4

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Perfluorinated Compounds by LC/MS/MS

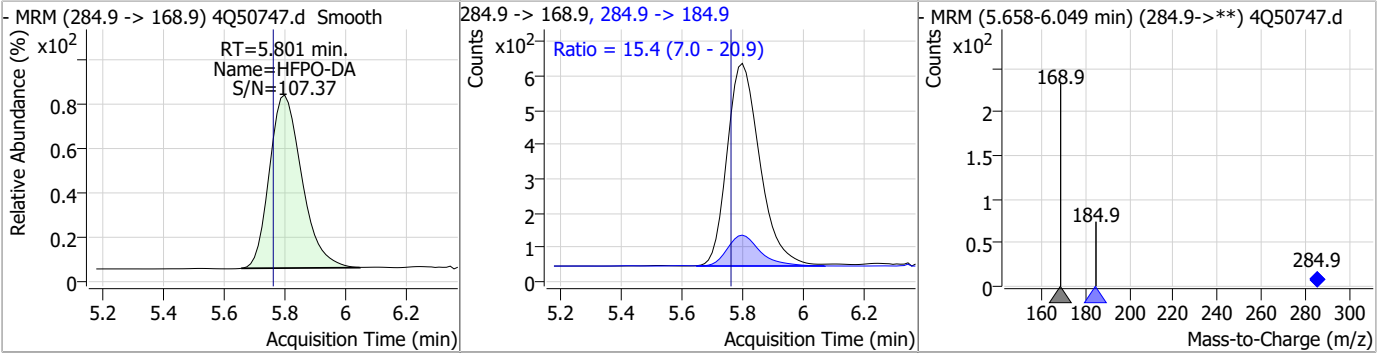


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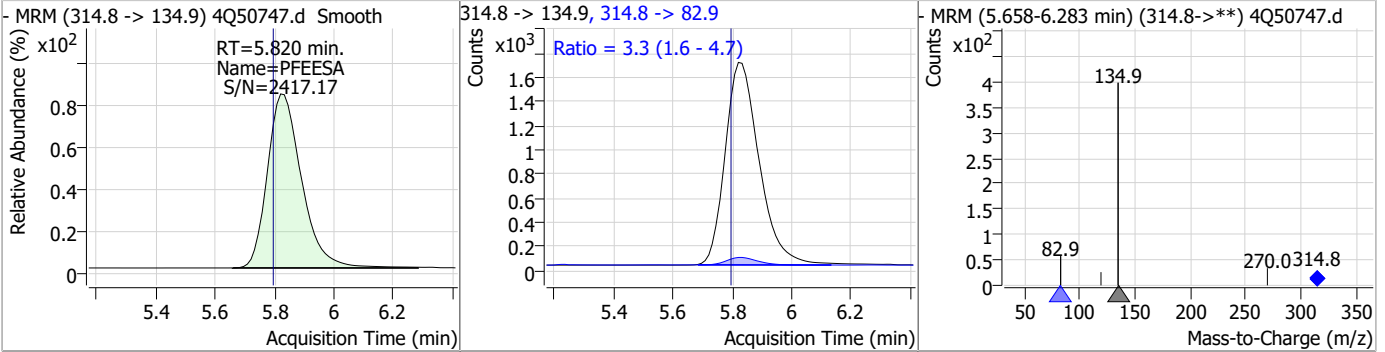
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Perfluorinated Compounds by LC/MS/MS

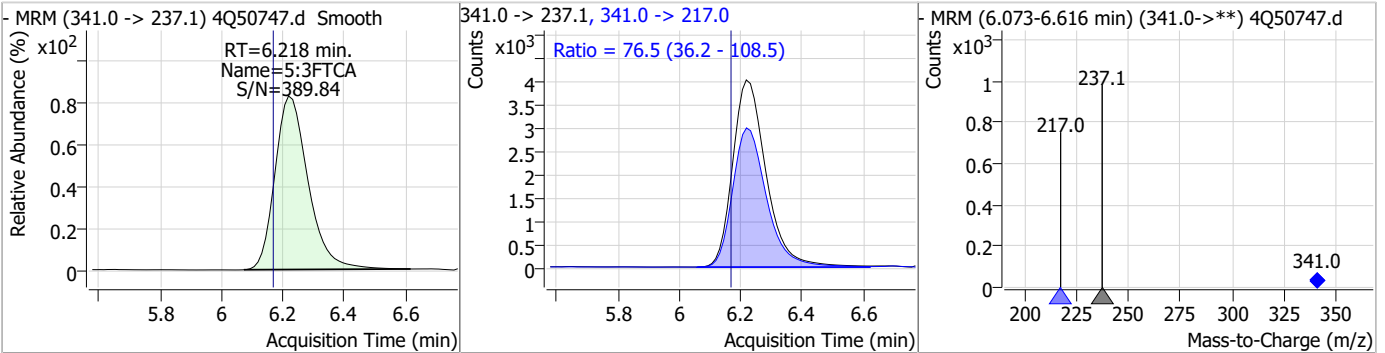
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.37	5.80	0.04	4370	284.9 -> 184.9	15.4	7.0	20.9



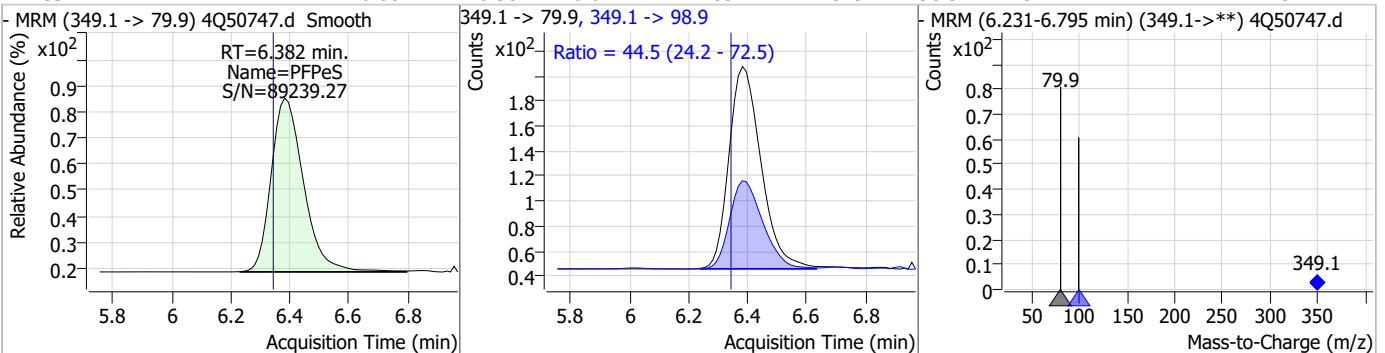
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	1.25	5.82	0.02	13498	314.8 -> 82.9	3.3	1.6	4.7



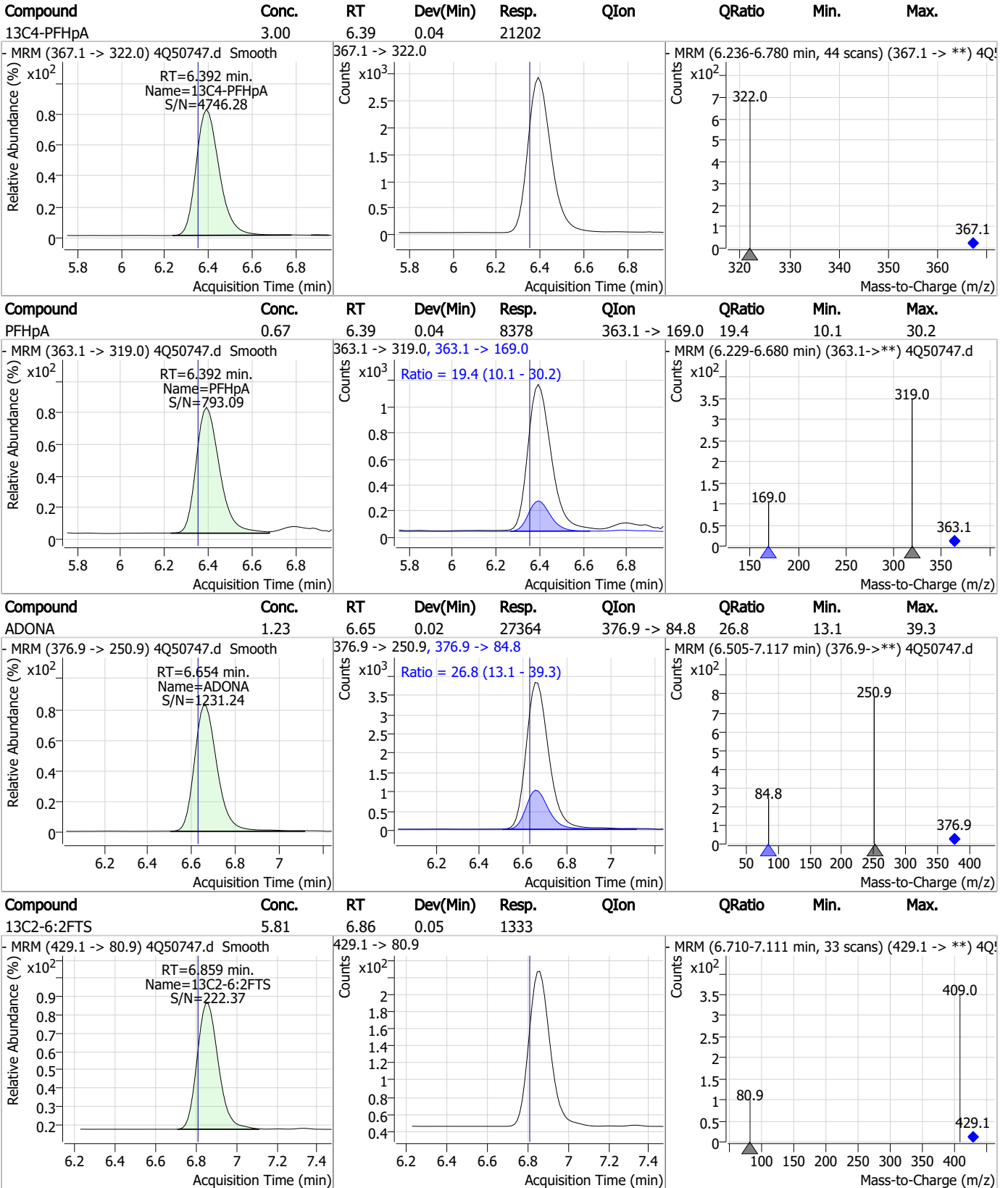
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	15.26	6.22	0.05	29820	341.0 -> 217.0	76.5	36.2	108.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.68	6.38	0.04	1239	349.1 -> 98.9	44.5	24.2	72.5



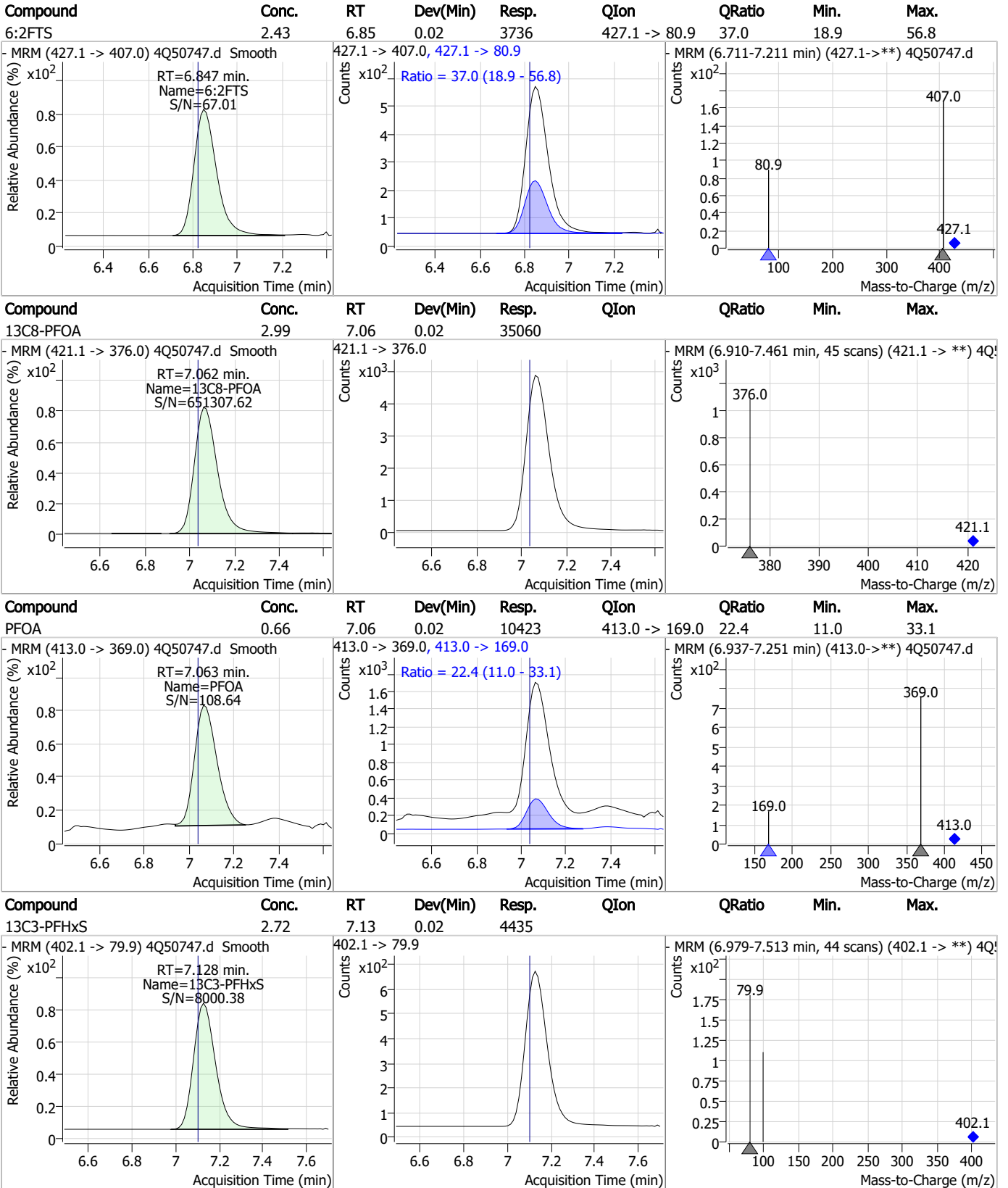
Perfluorinated Compounds by LC/MS/MS



7.3.4

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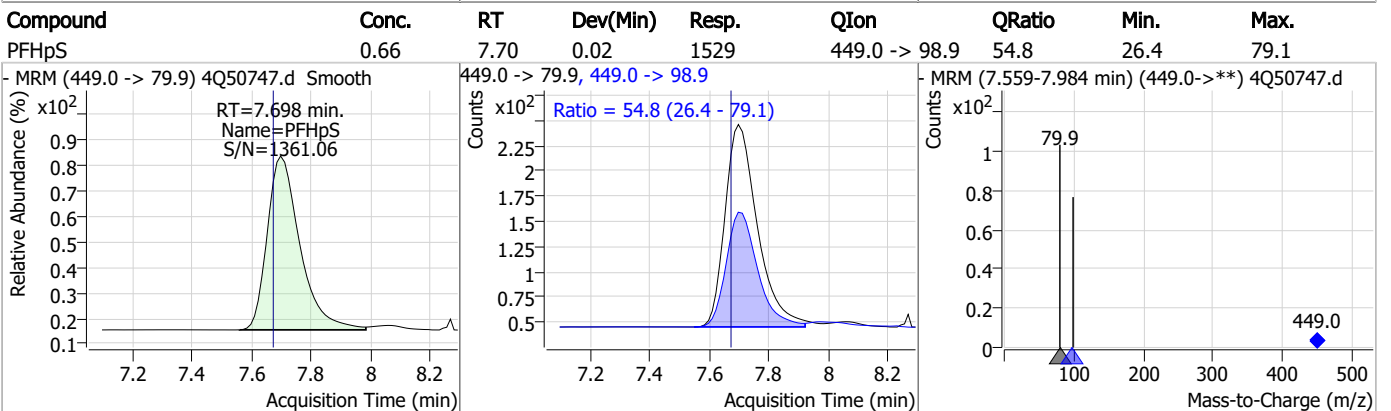
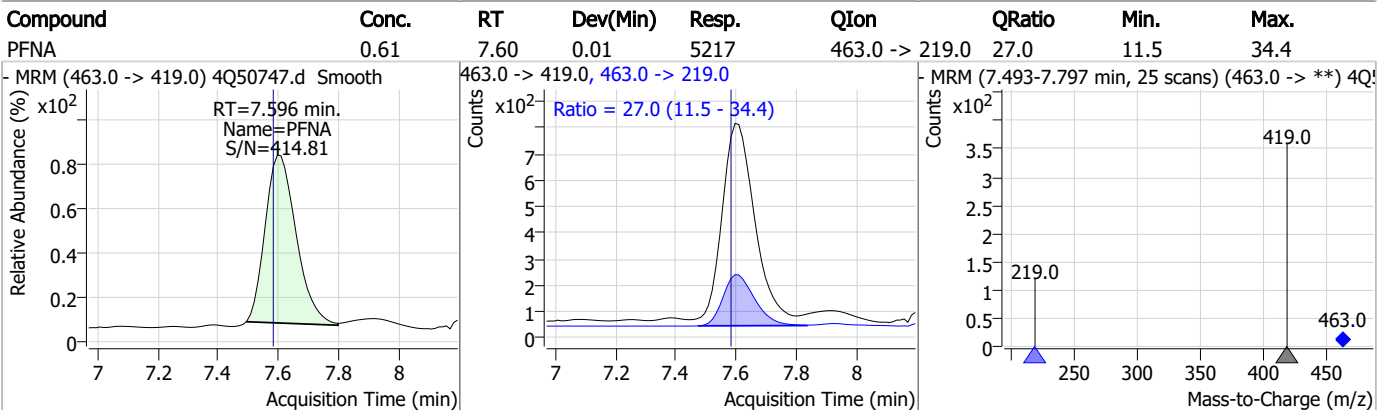
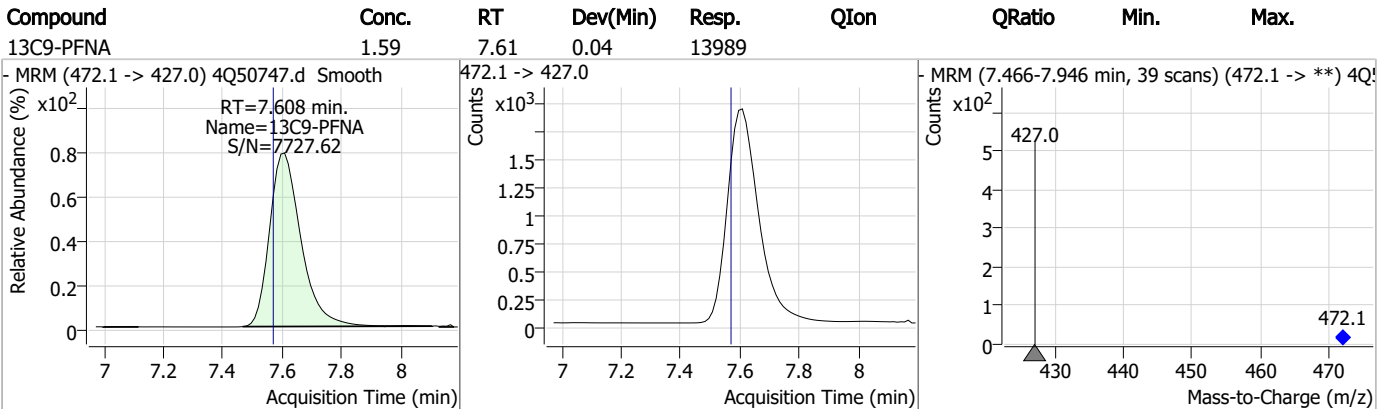
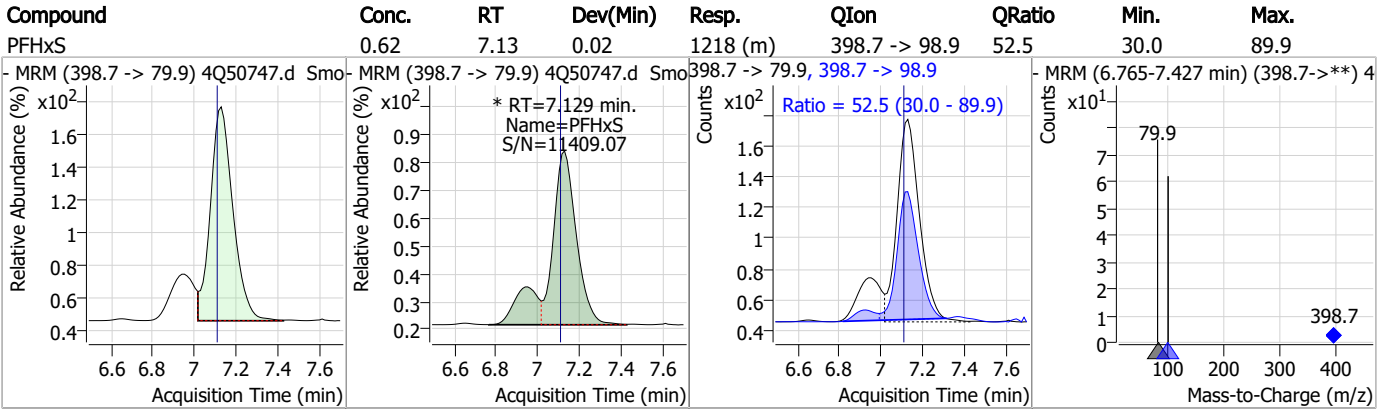
Perfluorinated Compounds by LC/MS/MS



7.3.4

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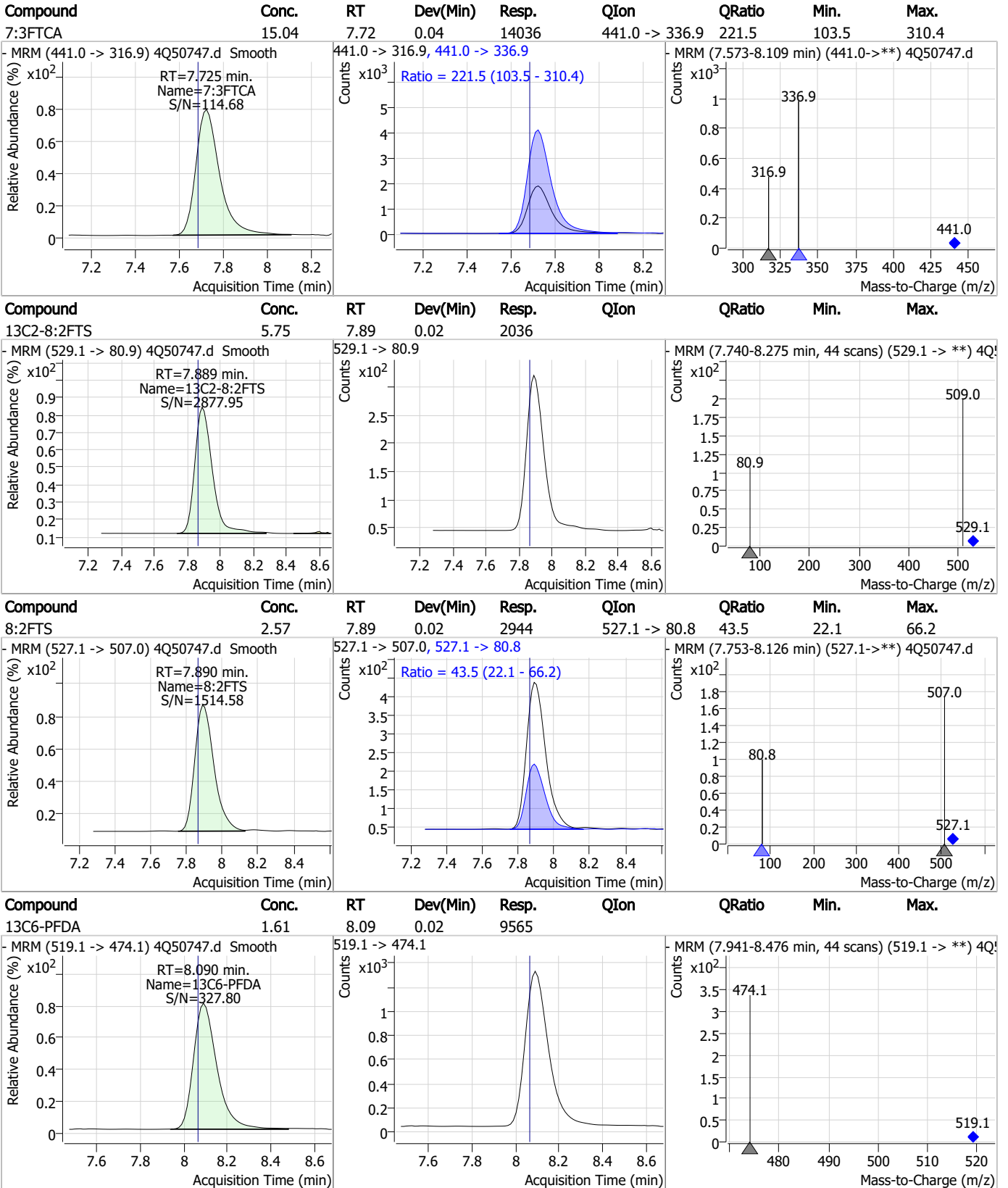
Perfluorinated Compounds by LC/MS/MS



7.3.4

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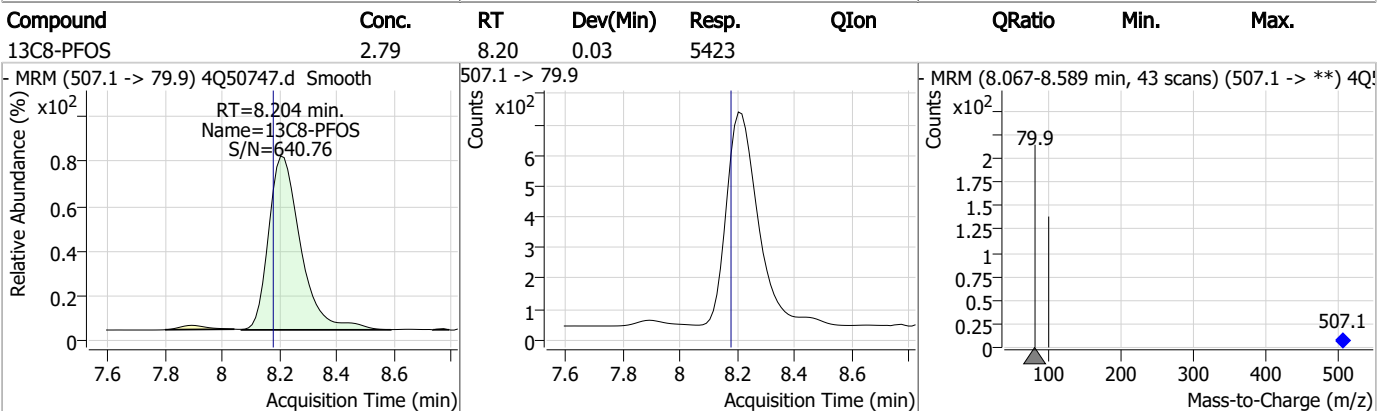
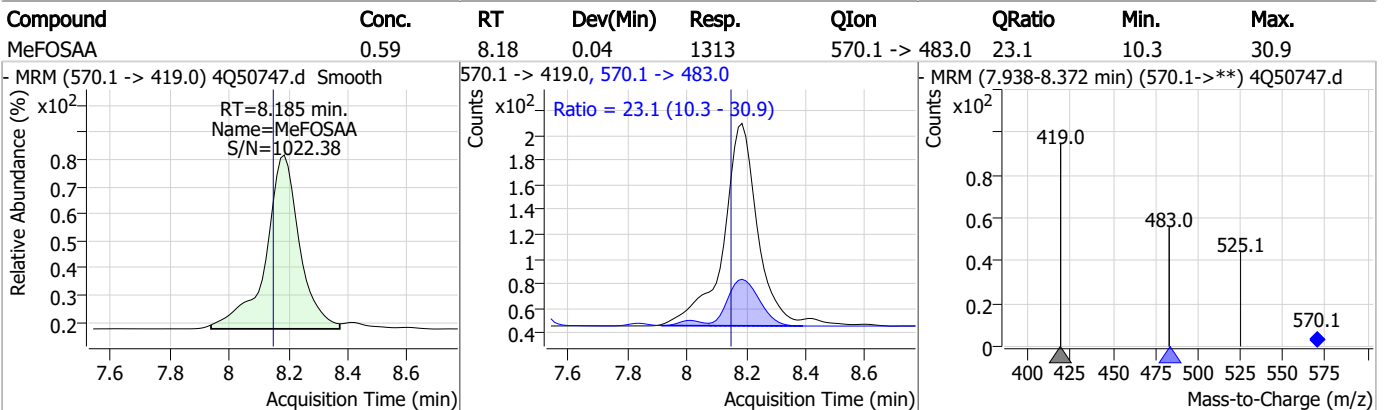
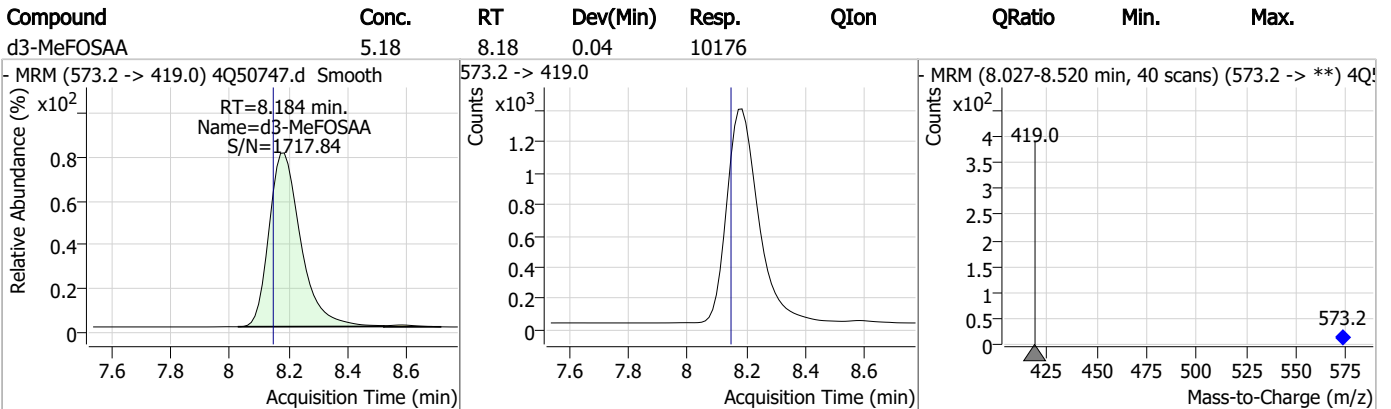
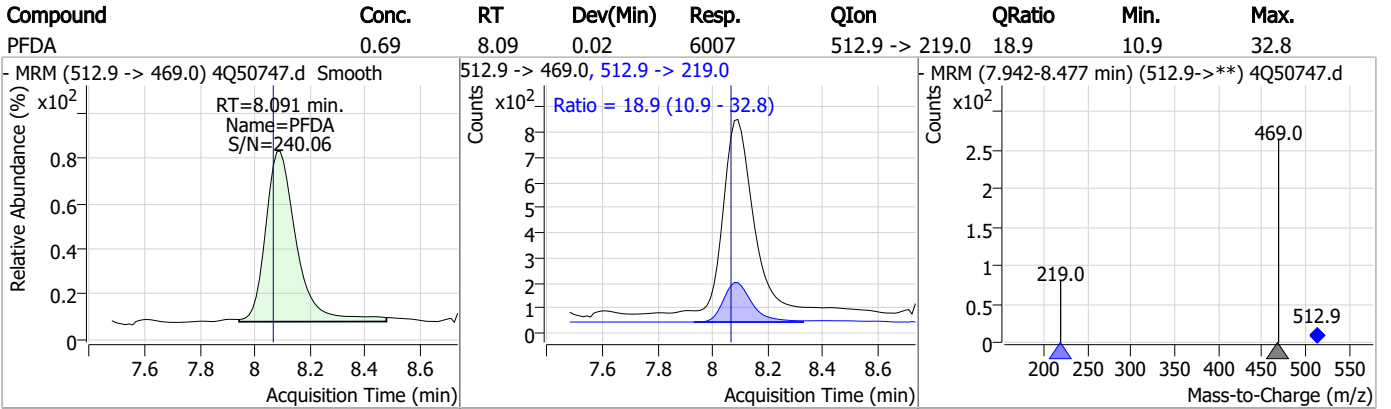
Perfluorinated Compounds by LC/MS/MS



7.3.4

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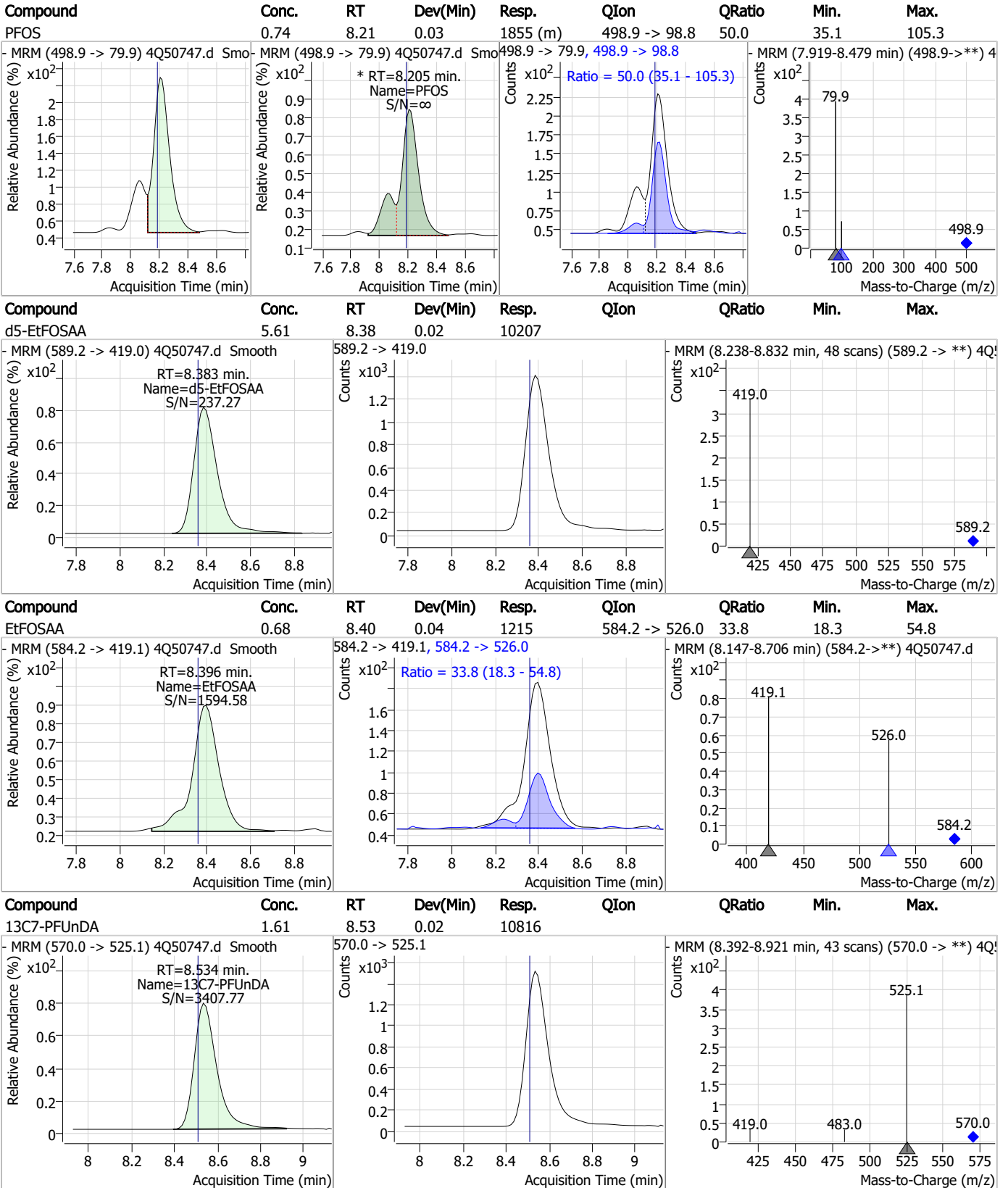
Perfluorinated Compounds by LC/MS/MS



7.3.4

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Perfluorinated Compounds by LC/MS/MS

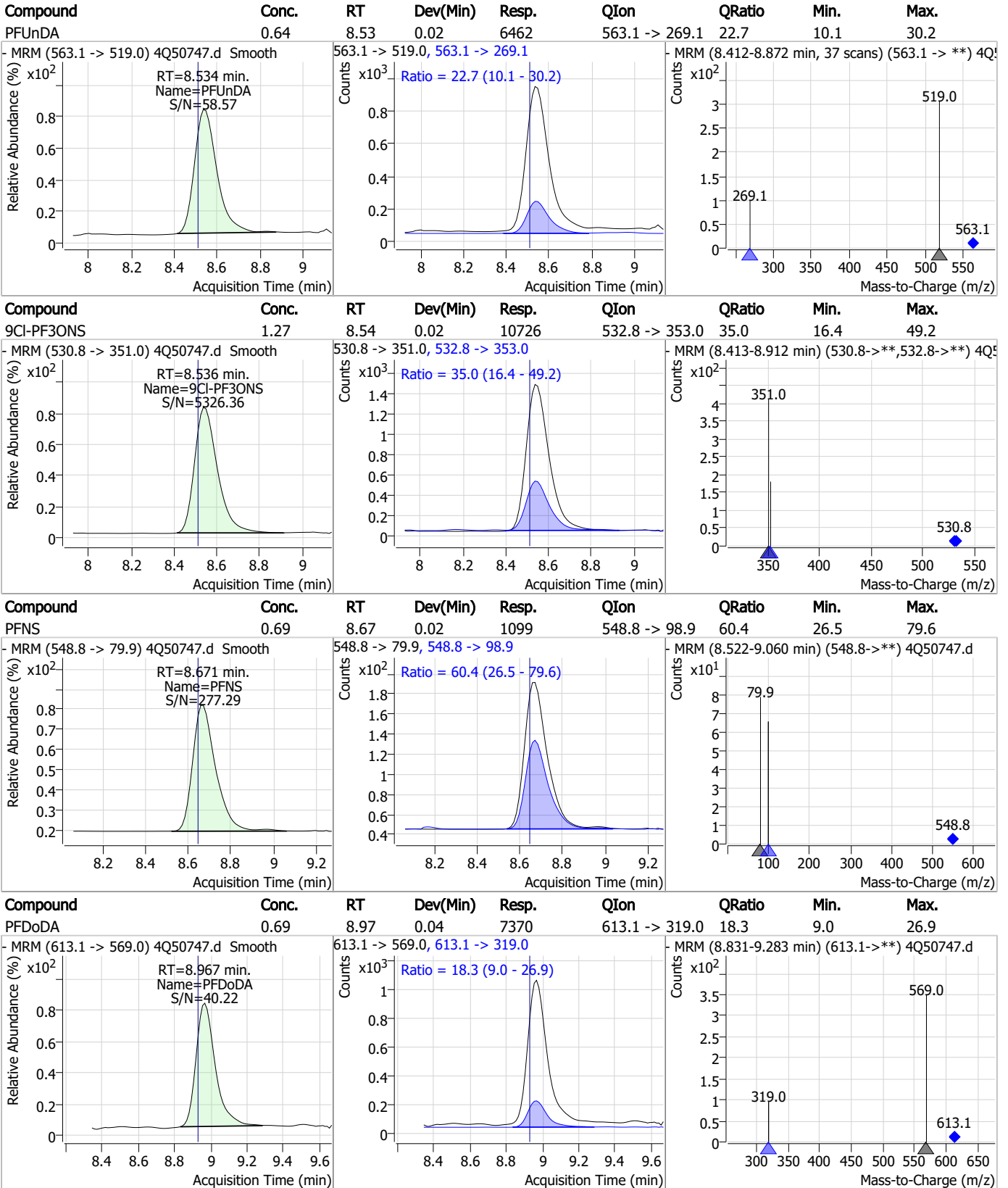


7.3.4

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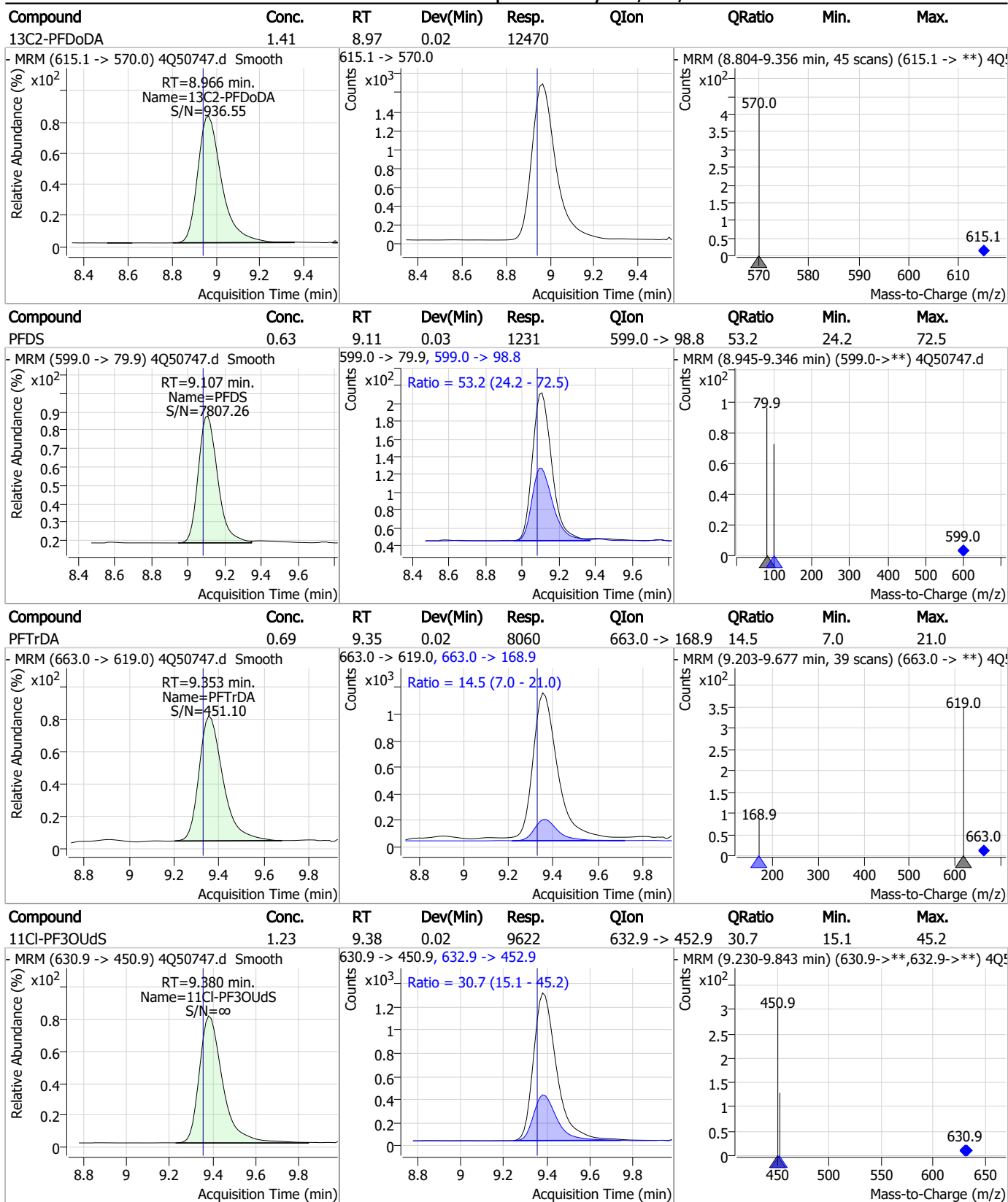
Perfluorinated Compounds by LC/MS/MS



7.3.4

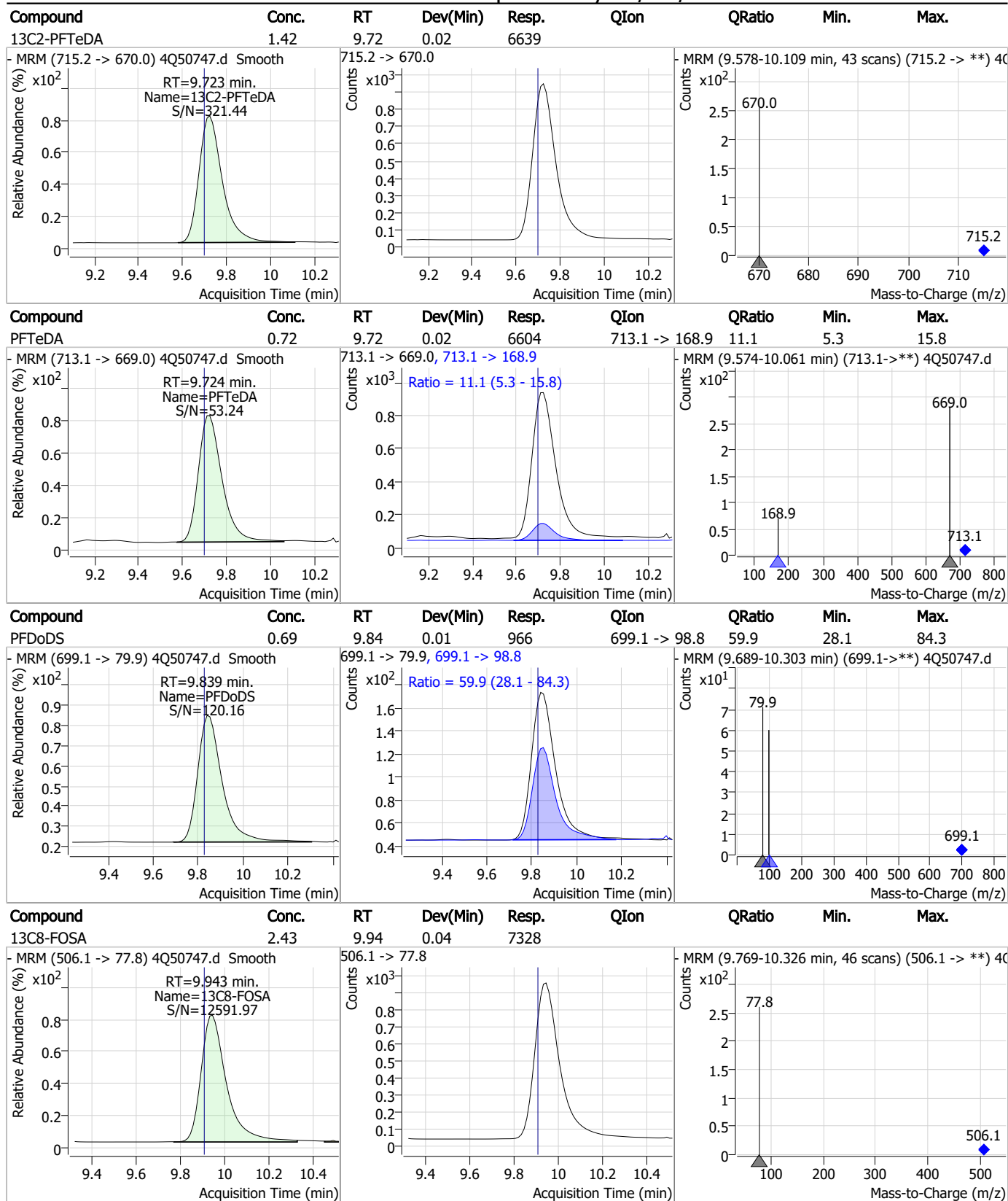
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Perfluorinated Compounds by LC/MS/MS



7.3.4
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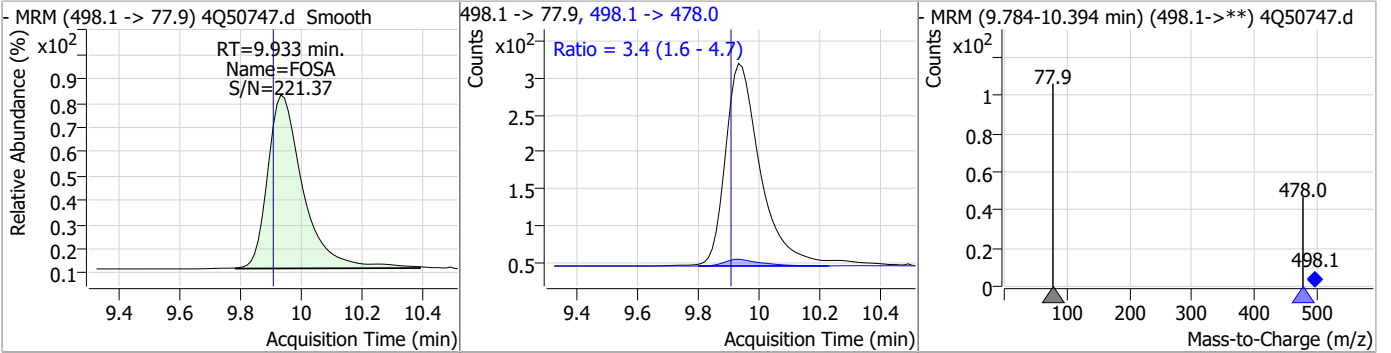
Perfluorinated Compounds by LC/MS/MS



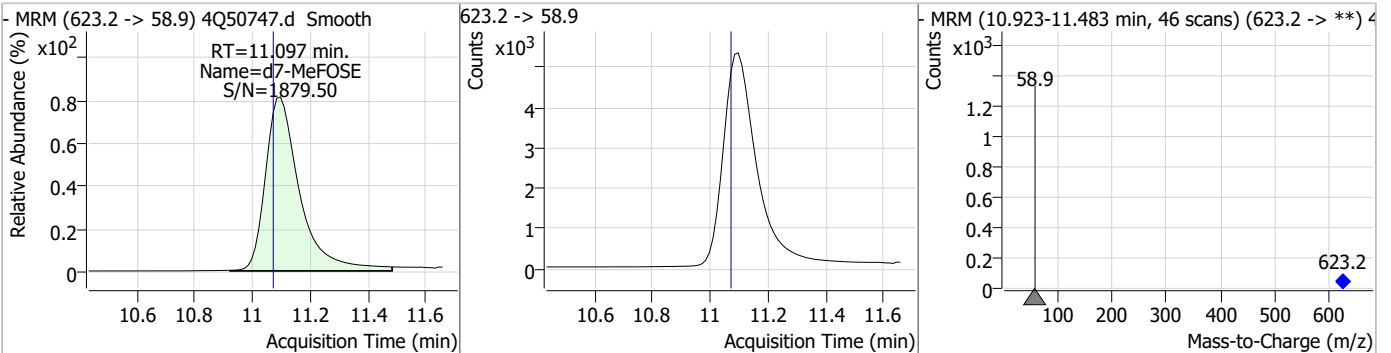
7.3.4
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Perfluorinated Compounds by LC/MS/MS

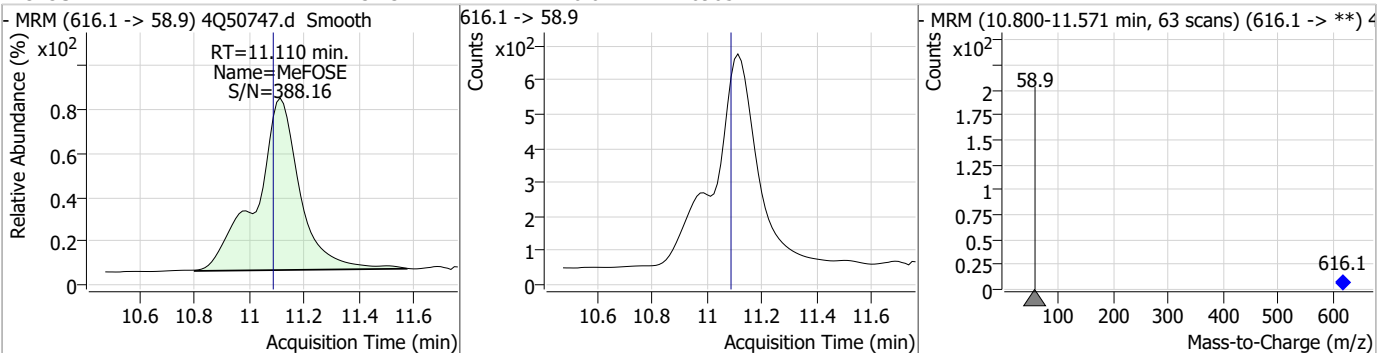
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.67	9.93	0.02	2227	498.1 -> 478.0	3.4	1.6	4.7



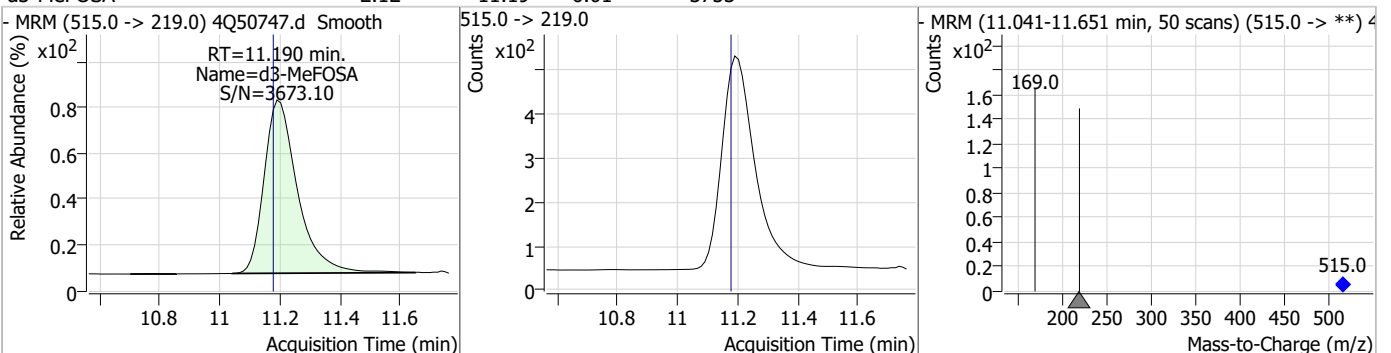
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.41	11.10	0.02	43884				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	3.23	11.11	0.02	6965				

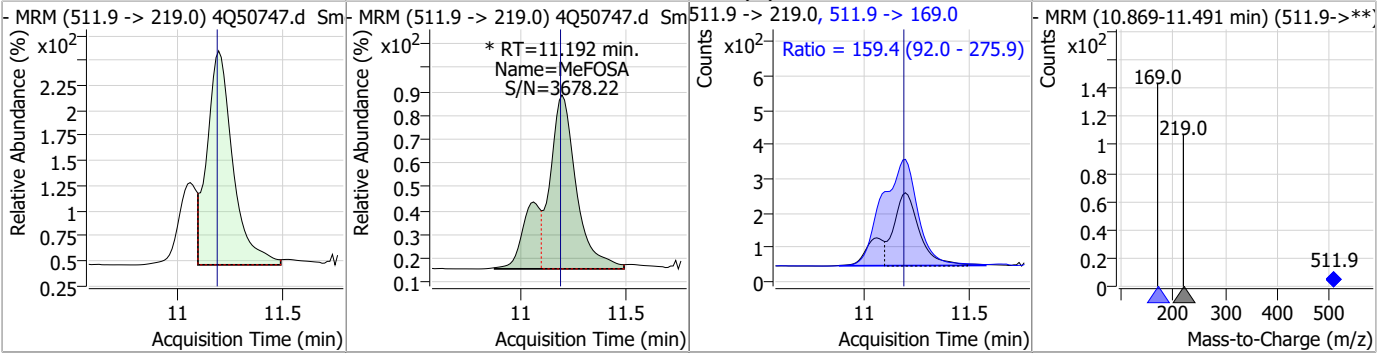


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.12	11.19	0.01	3753				

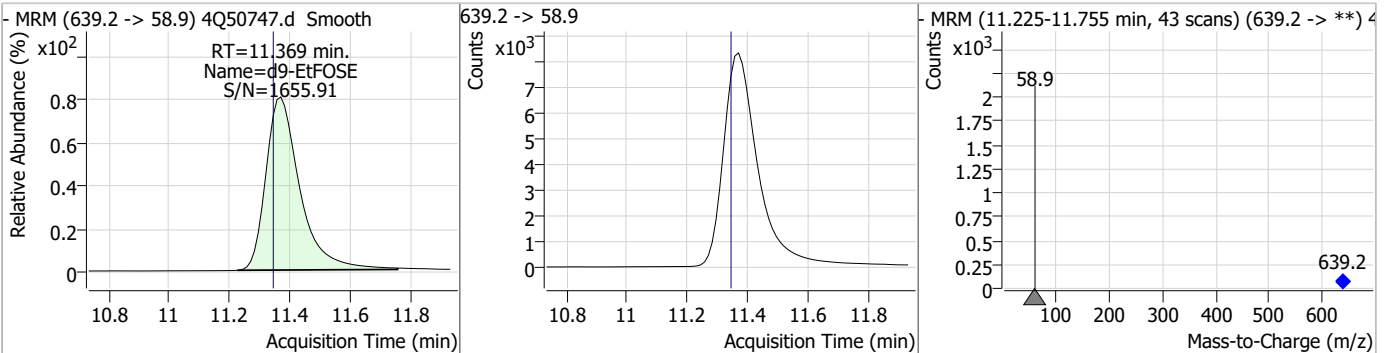


Perfluorinated Compounds by LC/MS/MS

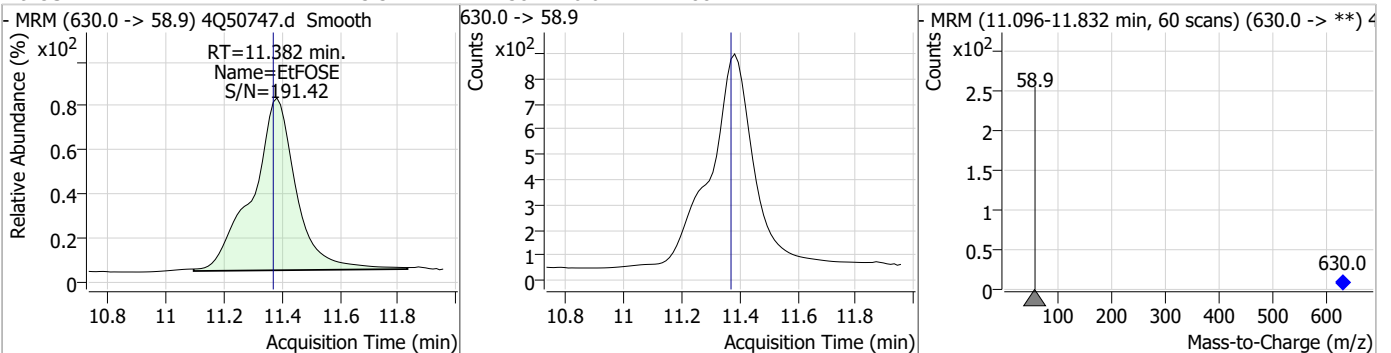
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	1.32	11.19	0.01	2341 (m)	511.9 -> 169.0	159.4	92.0	275.9



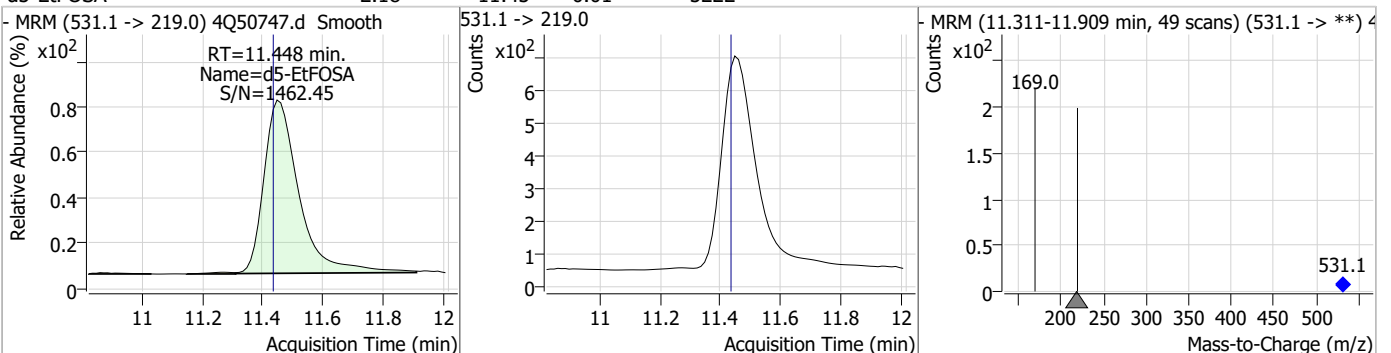
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.94	11.37	0.02	64626				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	3.31	11.38	0.01	8842				

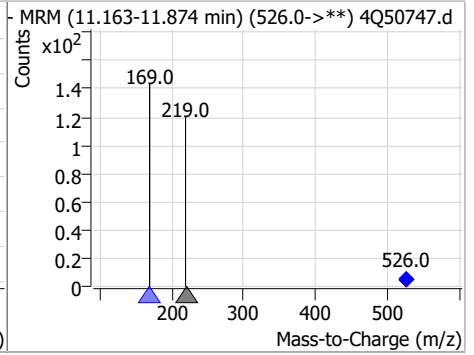
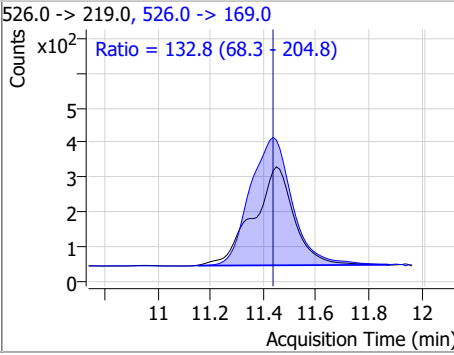
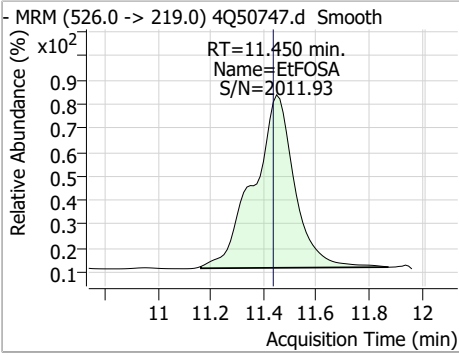


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.18	11.45	0.01	5222				



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	1.35	11.45	0.01	3077	526.0 -> 169.0	132.8	68.3	204.8



7.3.4

7

Manual Integration Approval Summary

Sample Number: OP99024-LLBS Method: EPA DRAFT 1633
Lab FileID: 4Q50747.D Analyst approved: 09/19/23 10:24 Anna Ludwig
Injection Time: 09/18/23 18:38 Supervisor approved: 09/19/23 13:27 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.13	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.21	Split peak
MeFOSA	31506-32-8		11.19	Split peak

7.3.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24603.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 1:53:34 PM
 Sample Name : OP99007-MS
 Vial : P4-C6
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP99007,S6Q353,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	182069	10.00 µg/L	0.041
M5-PFPeA	4.434	268.3 -> 223.0	30601	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	68485	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	60426	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	71810	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	29302	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	28228	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	31954	1.25 µg/L	-0.012
M2-PFDoDA	9.080	615.1 -> 570.0	29609	1.25 µg/L	-0.014
M2-PFTeDA	9.784	715.2 -> 670.0	10661	1.25 µg/L	-0.012
M8-FOSA	9.682	506.1 -> 77.8	19614	2.50 µg/L	0.024
M3-PFBS	5.584	302.1 -> 79.9	23000	2.50 µg/L	0.012
M3-PFHxS	7.313	402.1 -> 79.9	12828	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	10291	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	2510	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3498	5.00 µg/L	0.012
M2-8:2FTS	7.998	529.1 -> 80.9	3467	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	18582	5.00 µg/L	0.000
M3-HFPO-DA	6.031	286.9 -> 168.9	39231	10.00 µg/L	0.012
M5-EtFOSAA	8.452	589.2 -> 419.0	14995	5.00 µg/L	-0.012
M7-MeFOSE	10.690	623.2 -> 58.9	62919	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	92735	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	7247	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	7226	2.50 µg/L	0.012
13C4-PFOS	8.361	502.8 -> 79.9	13431	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	67941	5.00 µg/L	0.025
18O2-PFHxS	7.313	403.0 -> 83.9	8837	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	77118	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	23653	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	30189	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	49673	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2510	5.05 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3498	4.79 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3467	4.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.8%		
13C2-PFDoDA	9.080	615.1 -> 570.0	29609	1.17 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.4%		
13C2-PFTeDA	9.784	715.2 -> 670.0	10661	1.13 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.4%		
13C3-PFBS	5.584	302.1 -> 79.9	23000	2.81 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.6%		
13C3-PFHxS	7.313	402.1 -> 79.9	12828	2.64 µg/L	0.000

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C4-PFBA	3.025	216.8 -> 171.9	182069	10.61 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C4-PFHpA	6.581	367.1 -> 322.0	60426	2.83 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.3%	
13C5-PFHxA	5.654	318.0 -> 273.0	68485	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C5-PFPeA	4.434	268.3 -> 223.0	30601	4.57 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.4%	
13C6-PFDA	8.210	519.1 -> 474.1	28228	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C7-PFUnDA	8.651	570.0 -> 525.1	31954	1.16 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.6%	
13C8-FOSA	9.682	506.1 -> 77.8	19614	2.05 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.1%	
13C8-PFOA	7.211	421.1 -> 376.0	71810	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOS	8.361	507.1 -> 79.9	10291	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C9-PFNA	7.729	472.1 -> 427.0	29302	1.55 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 124.3%	
d3-MeFOSAA	8.256	573.2 -> 419.0	18582	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	39231	10.37 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
d3-MeFOSA	10.769	515.0 -> 219.0	7226	1.86 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.6%	
d5-EtFOSAA	8.452	589.2 -> 419.0	14995	4.15 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 83.0%	
d7-MeFOSE	10.690	623.2 -> 58.9	62919	17.82 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 71.3%	
d9-EtFOSE	10.923	639.2 -> 58.9	92735	19.51 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.1%	
d5-EtFOSA	10.989	531.1 -> 219.0	7247	2.01 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.2%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	37513	9.04 µg/L	97
		327.1 -> 80.9	14451		
6:2FTS	6.987	427.1 -> 407.0	29704	9.60 µg/L	97
		427.1 -> 80.9	11322		
8:2FTS	7.999	527.1 -> 507.0	20961	8.96 µg/L	98
		527.1 -> 80.8	7924		
EtFOSAA	8.465	584.2 -> 419.1	6057	2.86 µg/L	95
		584.2 -> 526.0	3729		
FOSA	9.672	498.1 -> 77.9	15566	2.16 µg/L	100
		498.1 -> 478.0	492		
MeFOSAA	8.257	570.1 -> 419.0	10867	2.46 µg/L	97
		570.1 -> 483.0	2346		
PFBA	3.018	212.8 -> 168.9	61475	10.22 µg/L	100
PFBS	5.585	298.7 -> 79.9	23224	2.06 µg/L	99
		298.7 -> 98.8	8688		
PFDA	8.198	512.9 -> 469.0	64246	2.50 µg/L	99
		512.9 -> 219.0	10087		
PFDODA	9.080	613.1 -> 569.0	49501	2.25 µg/L	97
		613.1 -> 319.0	6232		
PFDS	9.233	599.0 -> 79.9	6703	2.24 µg/L	99

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.582	599.0 -> 98.8	3159	2.13	µg/L	100
		363.1 -> 319.0	67984			
PFHpS	7.868	363.1 -> 169.0	9989	2.60	µg/L	99
		449.0 -> 79.9	12945			
PFHxA	5.657	449.0 -> 98.9	5929	2.24	µg/L	98
		313.0 -> 269.0	55836			
PFHxS	7.314	313.0 -> 118.9	2771	2.15	µg/L	m
		398.7 -> 79.9	17327			
PFNA	7.730	398.7 -> 98.9	8473	2.11	µg/L	99
		463.0 -> 419.0	46642			
PFNS	8.826	463.0 -> 219.0	10456	2.50	µg/L	92
		548.8 -> 79.9	12141			
PFOA	7.212	548.8 -> 98.9	6029	2.07	µg/L	98
		413.0 -> 369.0	76752			
PFOS	8.362	413.0 -> 169.0	13585	2.35	µg/L	m
		498.9 -> 79.9	13395			
PFPeA	4.436	498.9 -> 98.8	6944	4.89	µg/L	100
		263.0 -> 219.0	66646			
PFPeS	6.633	349.1 -> 79.9	15125	2.17	µg/L	100
		349.1 -> 98.9	7120			
PFTeDA	9.785	713.1 -> 669.0	33795	2.20	µg/L	99
		713.1 -> 168.9	2687			
PFTrDA	9.464	663.0 -> 619.0	53028	2.12	µg/L	99
		663.0 -> 168.9	4307			
PFUnDA	8.652	563.1 -> 519.0	43750	2.39	µg/L	98
		563.1 -> 269.1	6875			
11CI-PF3OUdS	9.504	630.9 -> 450.9	52131	3.64	µg/L	98
		632.9 -> 452.9	15630			
9CI-PF3ONS	8.690	530.8 -> 351.0	97705	3.98	µg/L	95
		532.8 -> 353.0	30078			
ADONA	6.829	376.9 -> 250.9	269283	4.74	µg/L	98
		376.9 -> 84.8	70348			
HFPO-DA	6.032	284.9 -> 168.9	17946	4.83	µg/L	96
		284.9 -> 184.9	2447			
3:3FTCA	3.902	241.0 -> 177.0	10238	9.84	µg/L	99
		241.0 -> 117.0	1012			
5:3FTCA	6.296	341.0 -> 237.1	252890	59.71	µg/L	95
		341.0 -> 217.0	169418			
7:3FTCA	7.682	441.0 -> 316.9	148653	59.39	µg/L	95
		441.0 -> 336.9	326583			
EtFOSA	10.990	526.0 -> 219.0	17707	4.49	µg/L	92
		526.0 -> 169.0	21715			
EtFOSE	10.937	630.0 -> 58.9	50712	11.51	µg/L	100
		511.9 -> 219.0	16119			
MeFOSA	10.771	511.9 -> 169.0	21543	5.26	µg/L	98
		616.1 -> 58.9	31987			
MeFOSE	10.691	699.1 -> 79.9	3116	11.76	µg/L	100
		699.1 -> 98.8	1805			
PFDoDS	9.910	295.0 -> 201.0	13364	1.90	µg/L	98
		295.0 -> 84.9	3623			
NFDHA	5.535	279.0 -> 85.1	52332	4.63	µg/L	92
		229.0 -> 84.9	38398			
PFMBA	4.863	314.8 -> 134.9	141807	5.27	µg/L	100
		314.8 -> 82.9	4450			
PFMPA	3.575			5.39	µg/L	100
PFEESA	6.124			4.55	µg/L	99

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

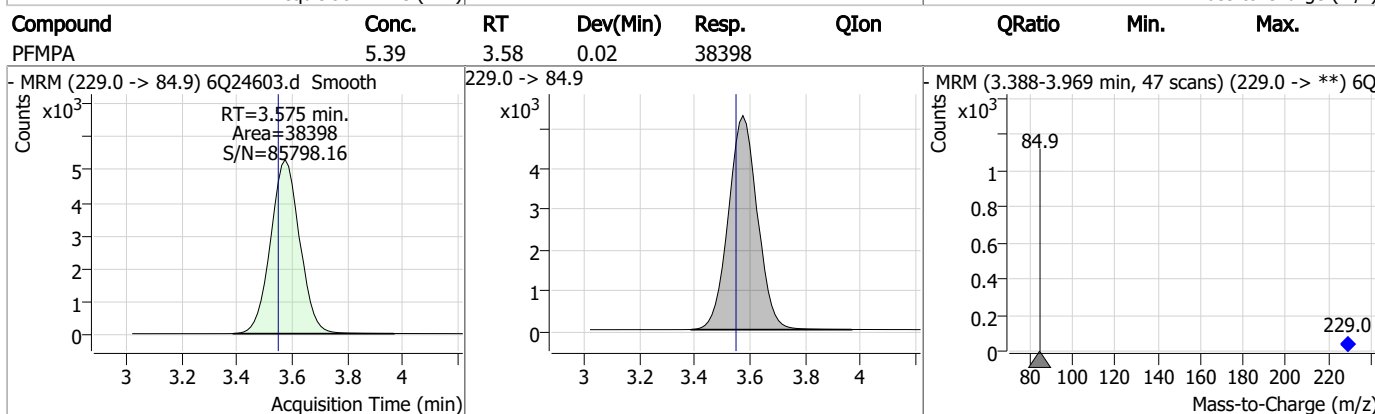
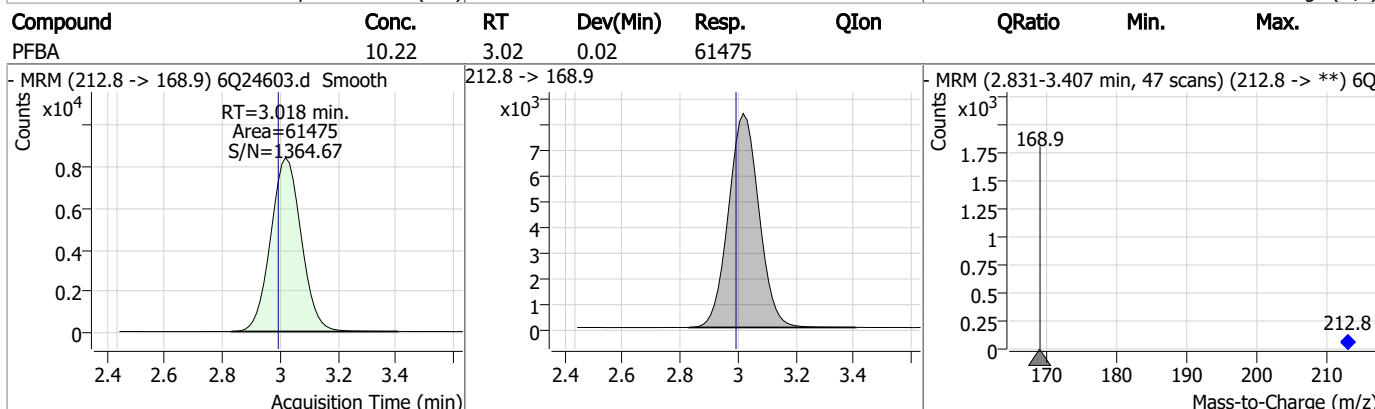
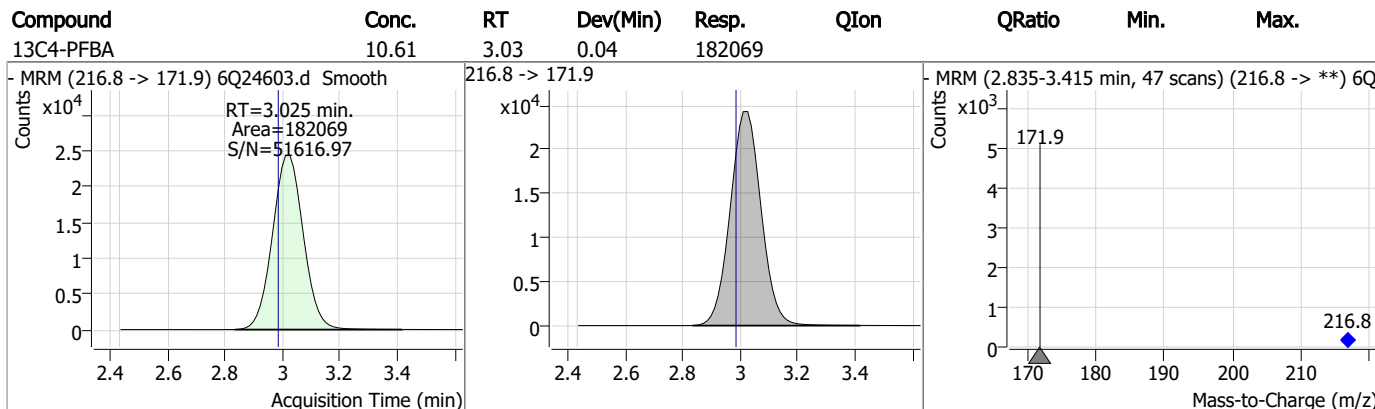
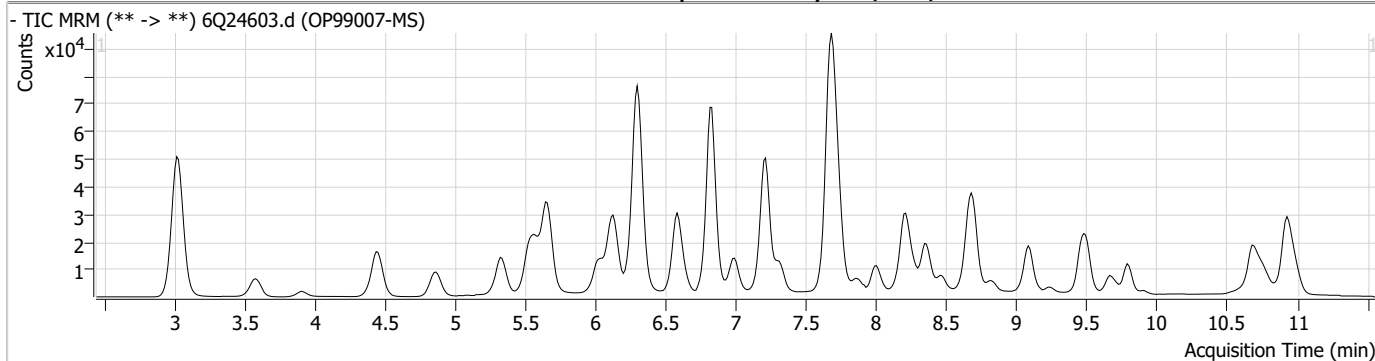
Perfluorinated Compounds by LC/MS/MS

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

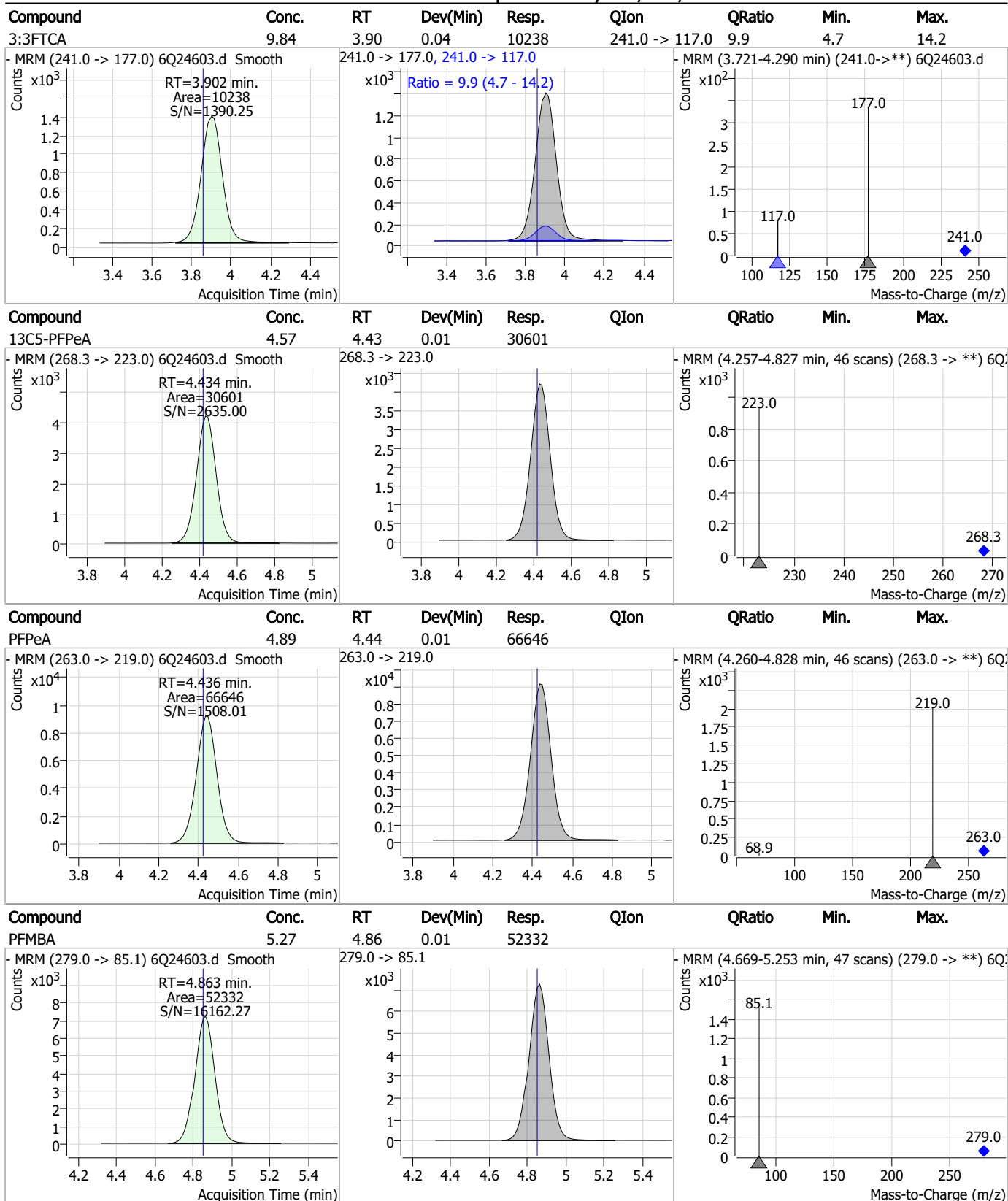
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Perfluorinated Compounds by LC/MS/MS



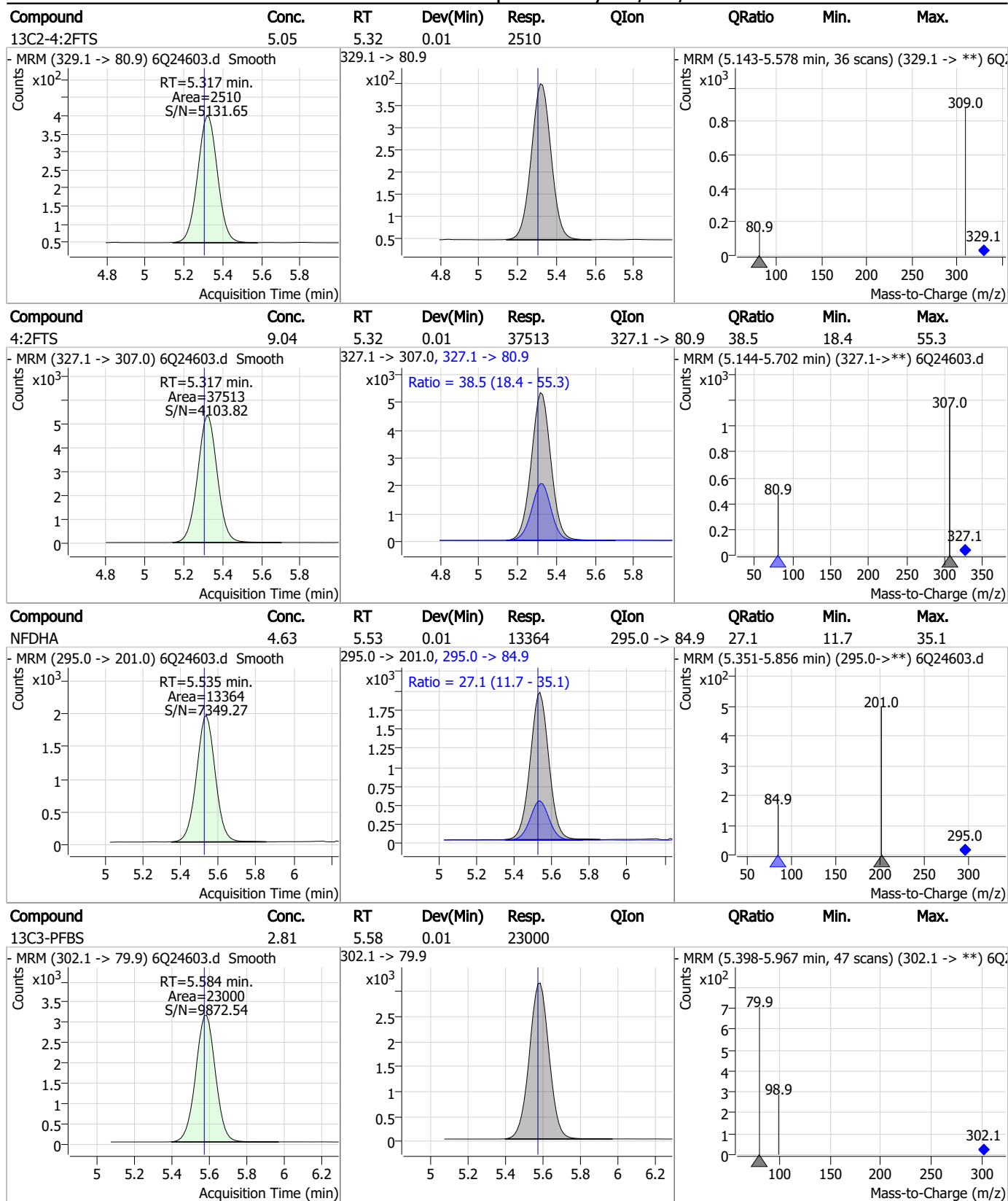
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Perfluorinated Compounds by LC/MS/MS



7.4.1
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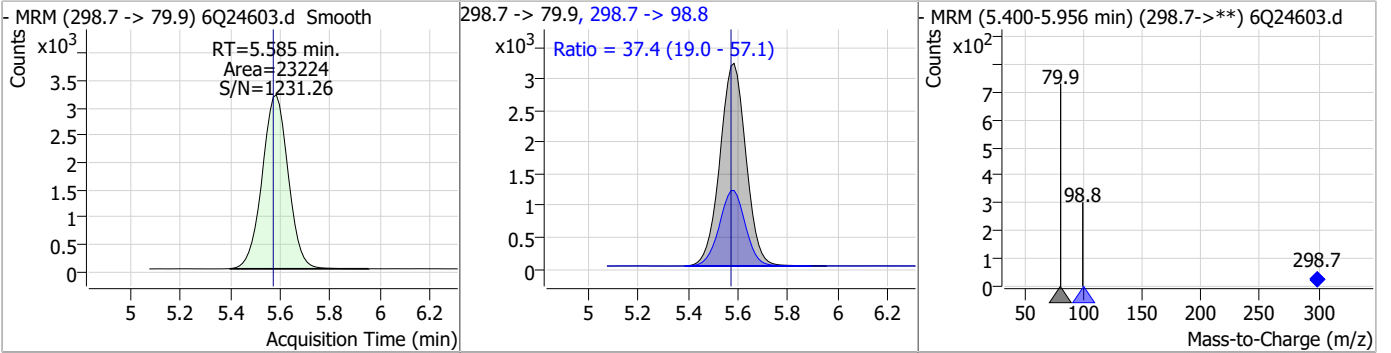
Perfluorinated Compounds by LC/MS/MS



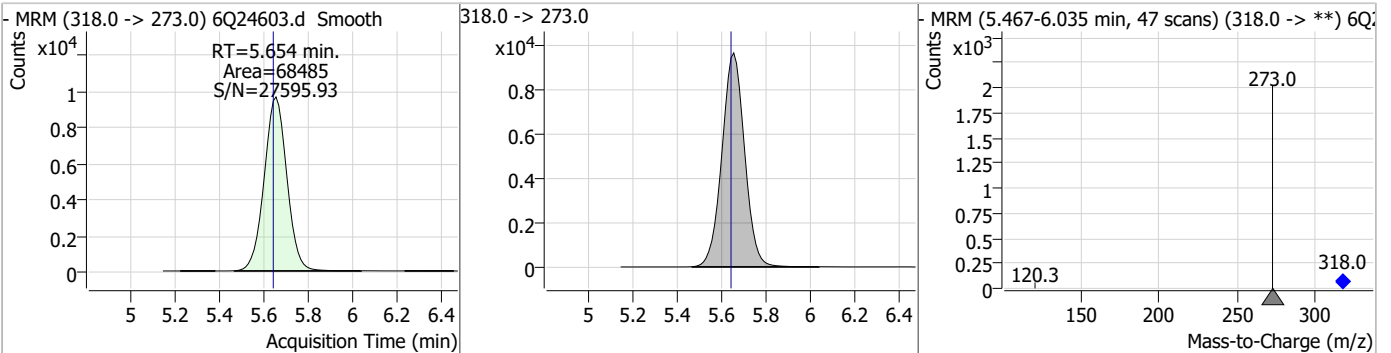
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Perfluorinated Compounds by LC/MS/MS

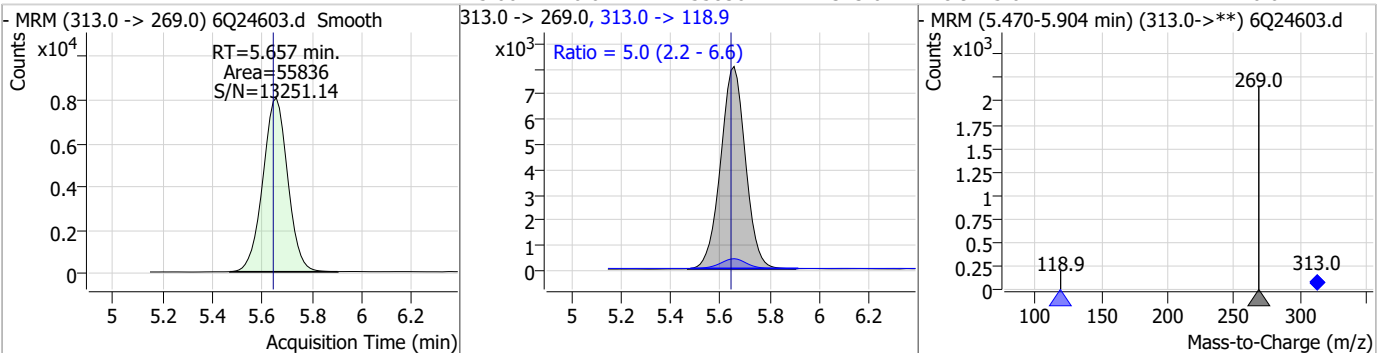
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.06	5.58	0.01	23224	298.7 -> 98.8	37.4	19.0	57.1



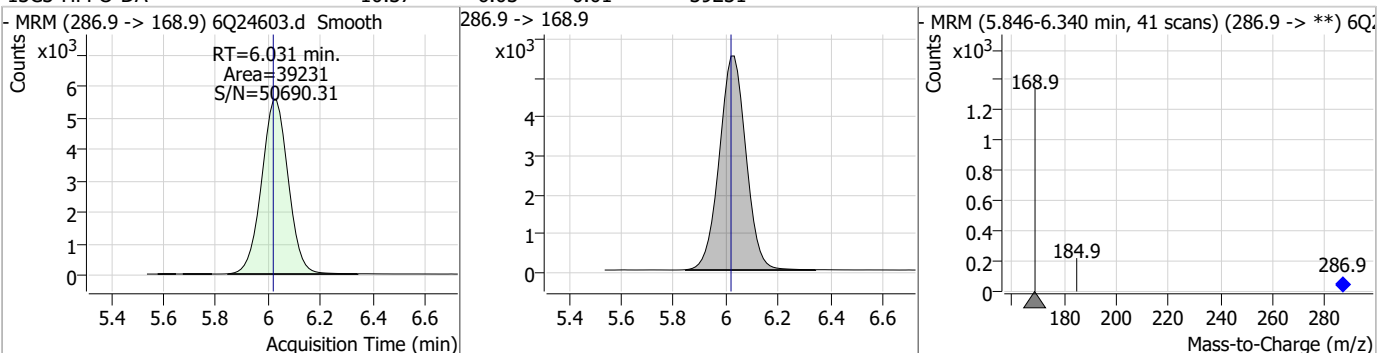
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.50	5.65	0.01	68485				



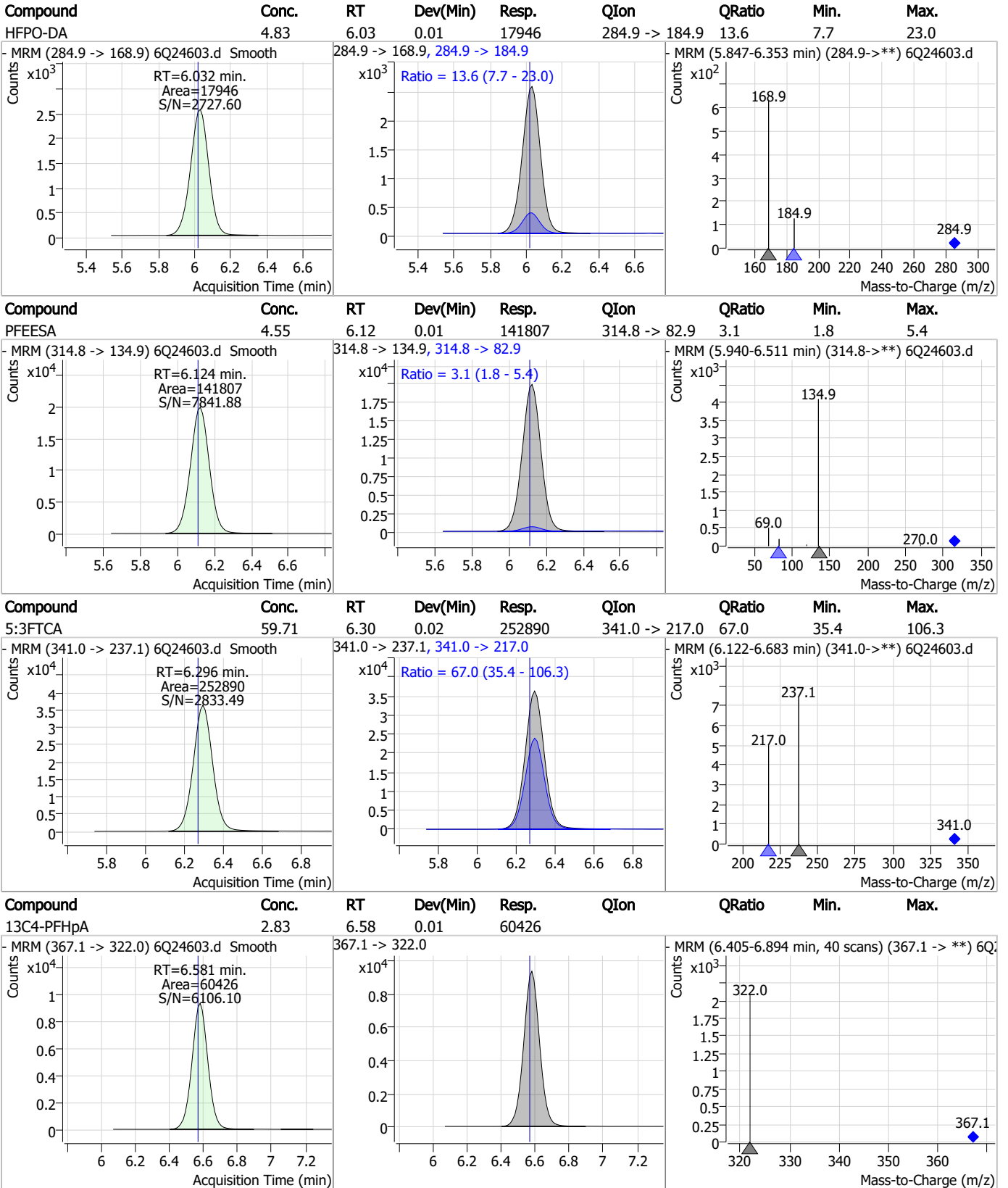
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.24	5.66	0.01	55836	313.0 -> 118.9	5.0	2.2	6.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.37	6.03	0.01	39231				



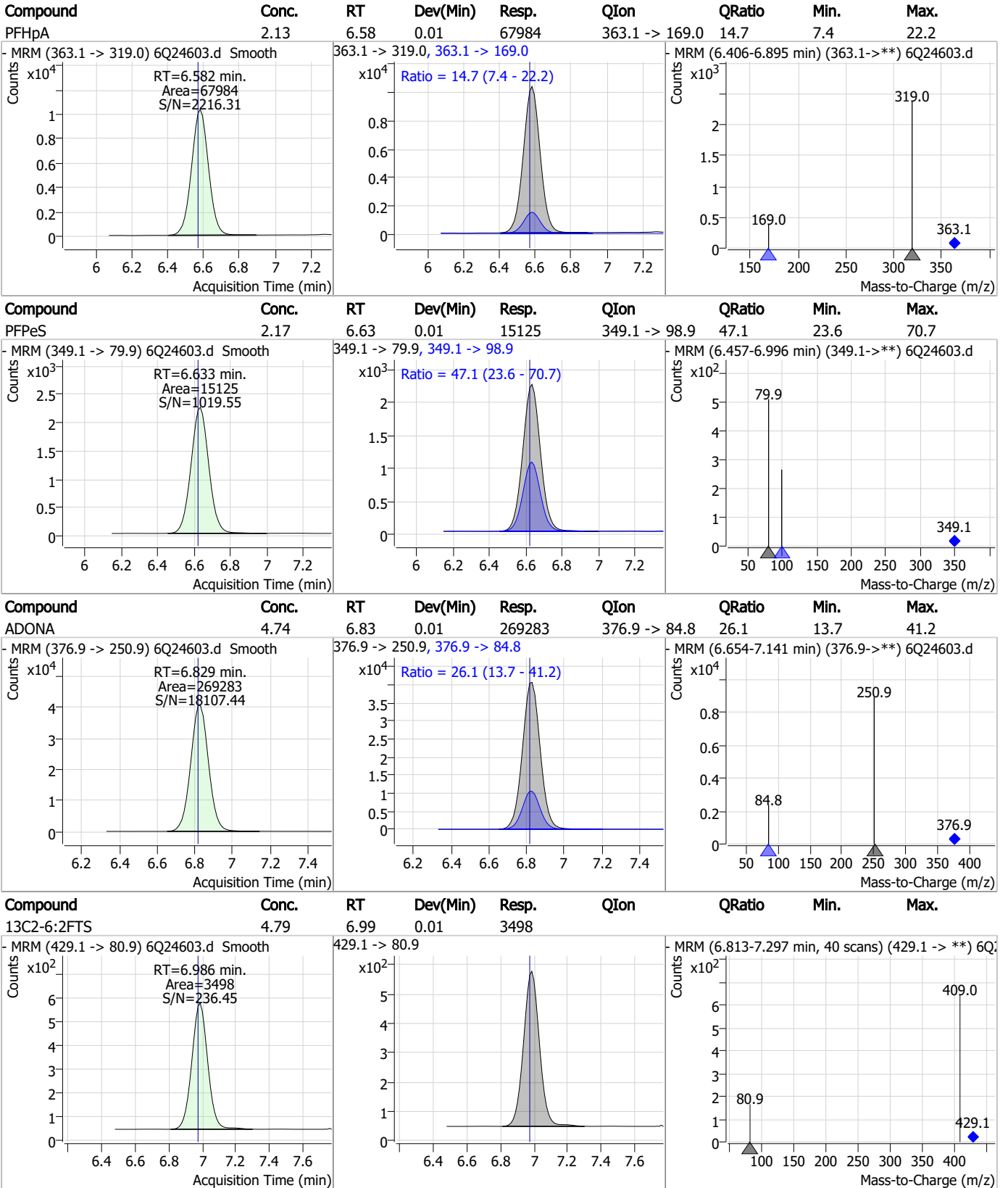
Perfluorinated Compounds by LC/MS/MS



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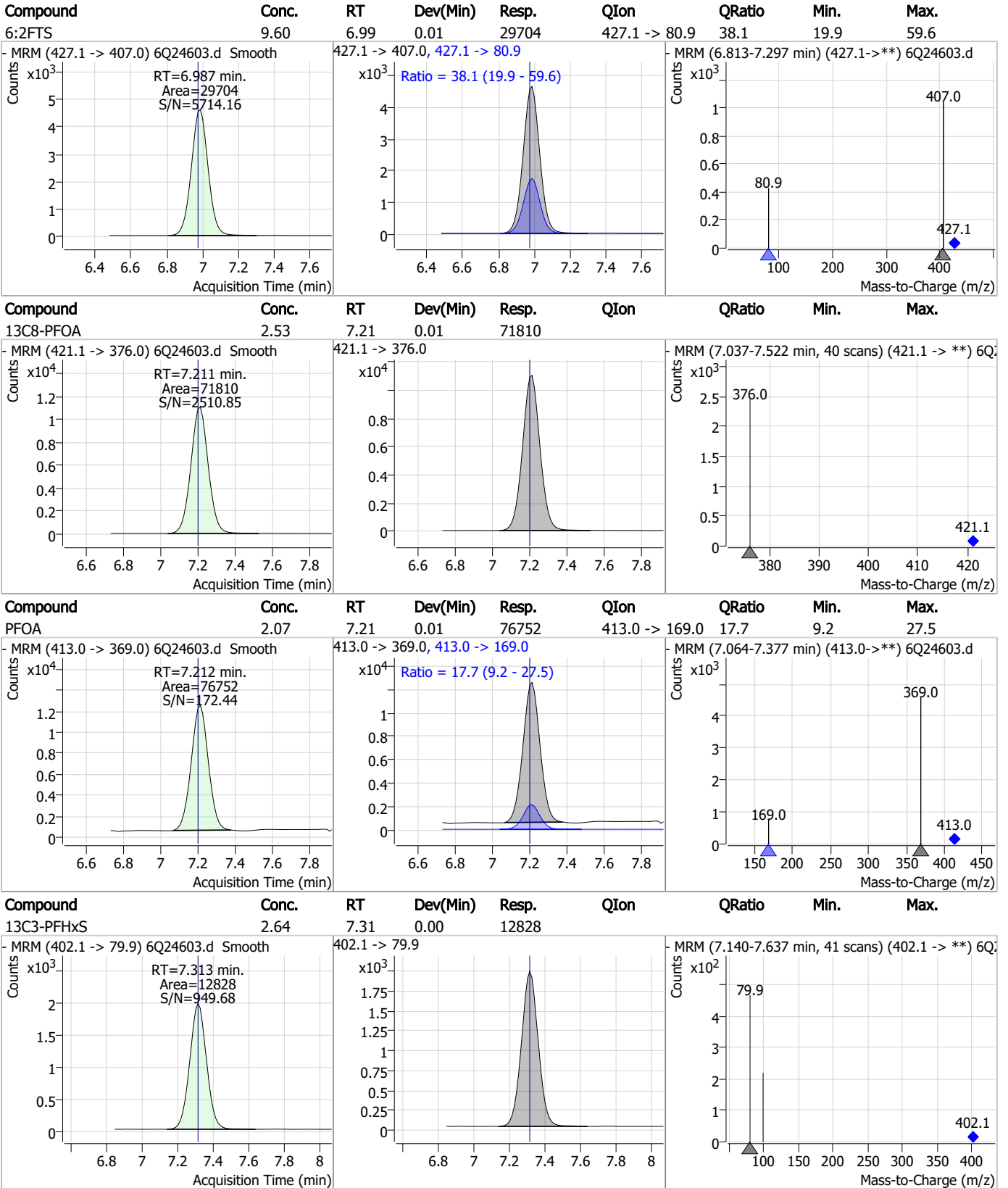
Perfluorinated Compounds by LC/MS/MS



7.4.1

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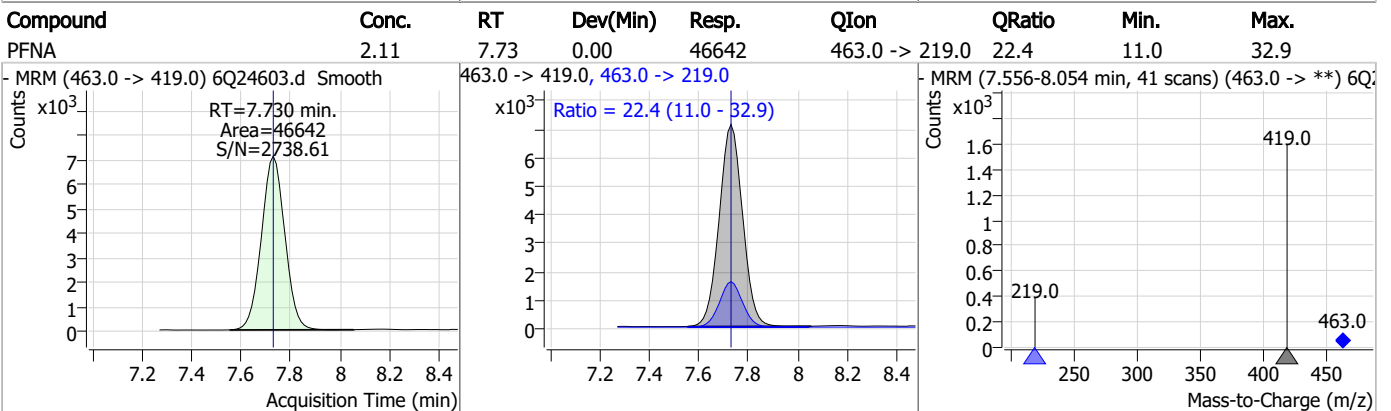
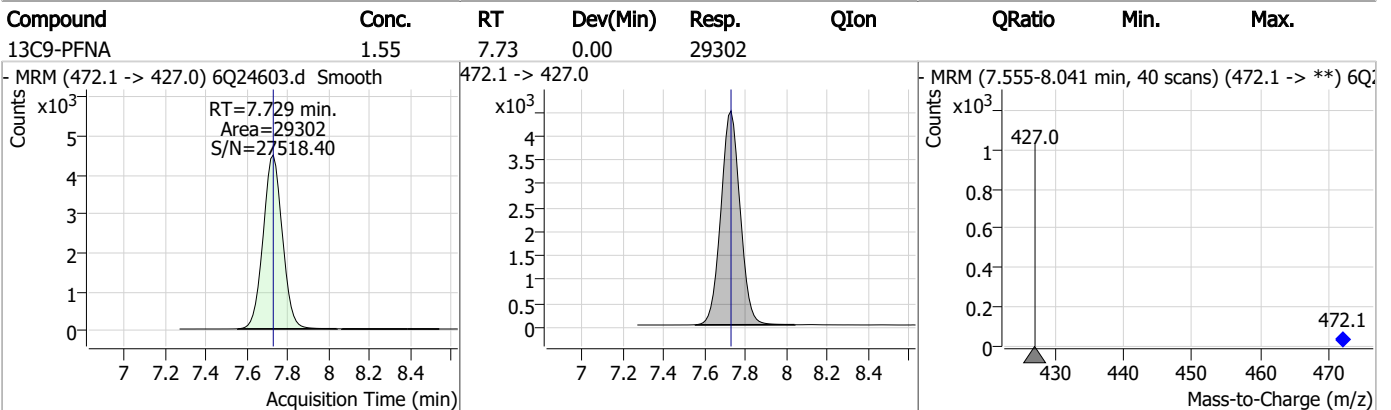
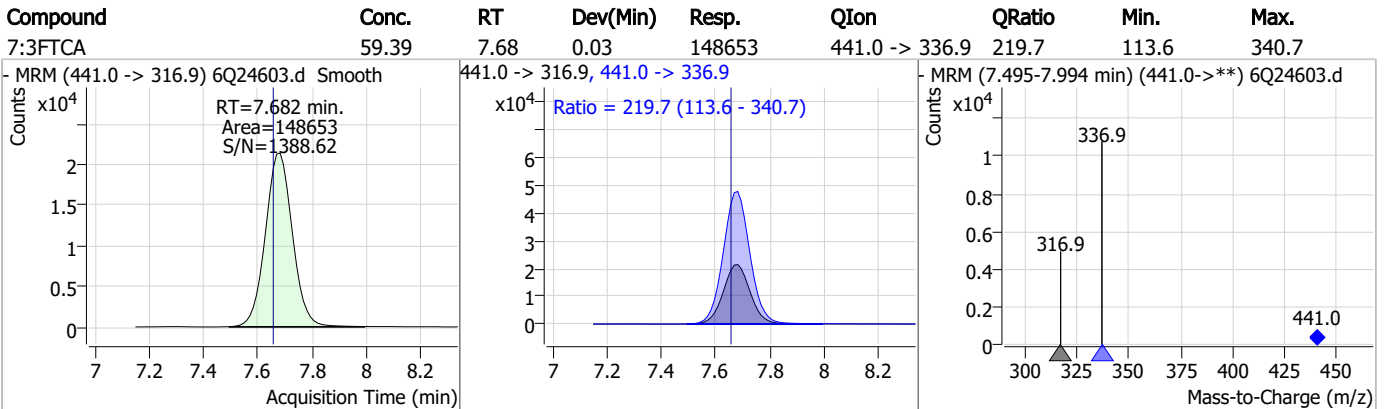
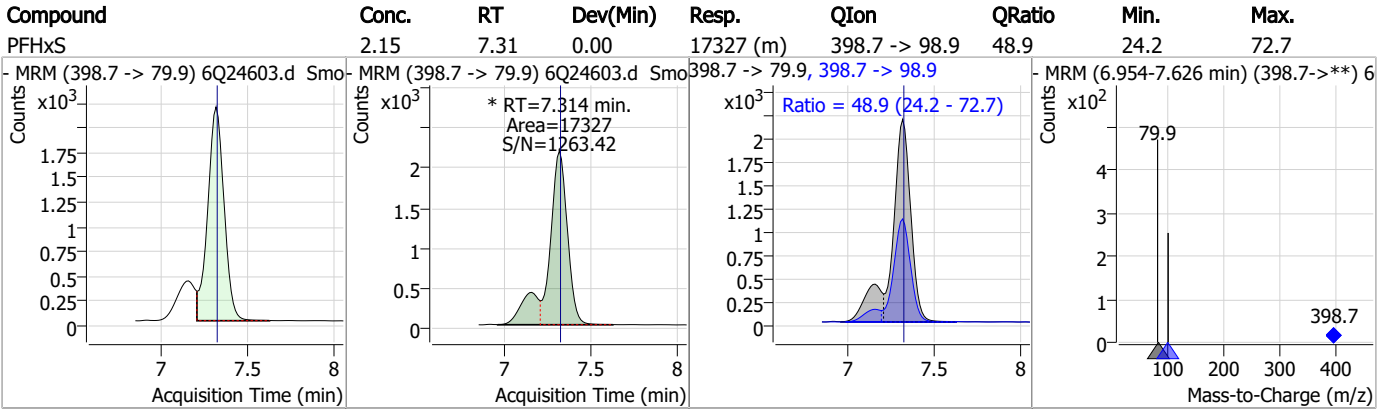
Perfluorinated Compounds by LC/MS/MS



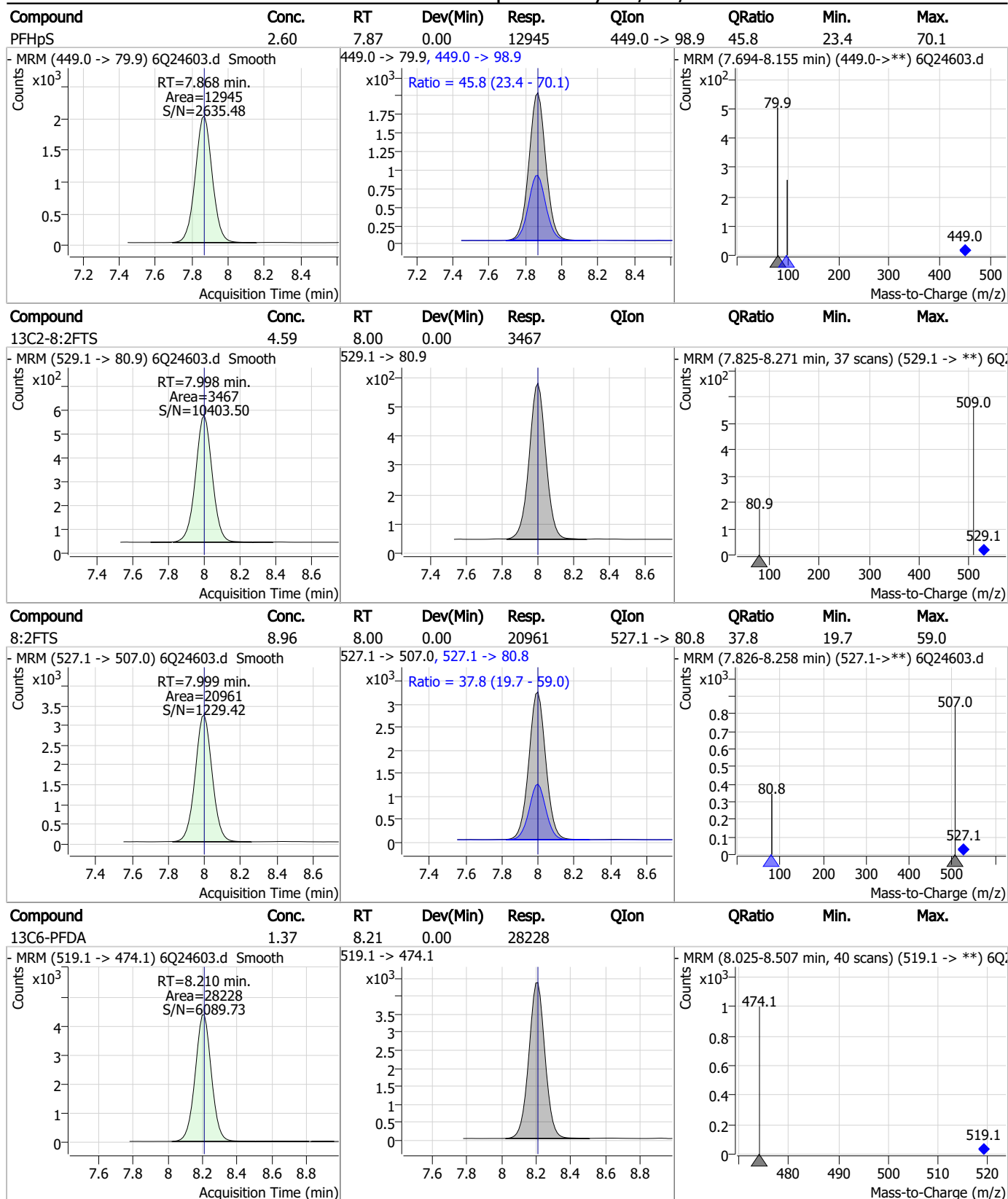
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Perfluorinated Compounds by LC/MS/MS

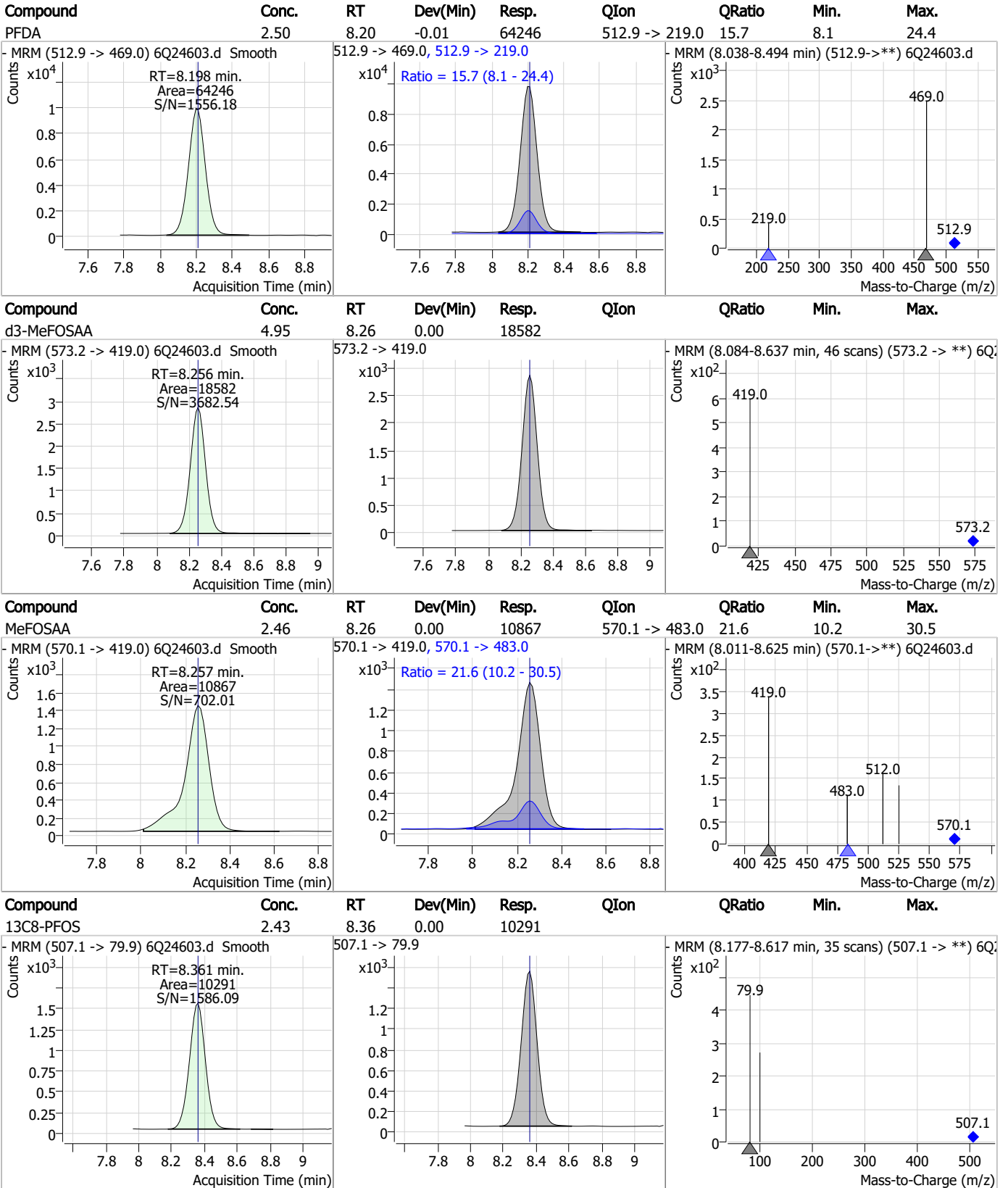


Perfluorinated Compounds by LC/MS/MS



7.4.1
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Perfluorinated Compounds by LC/MS/MS

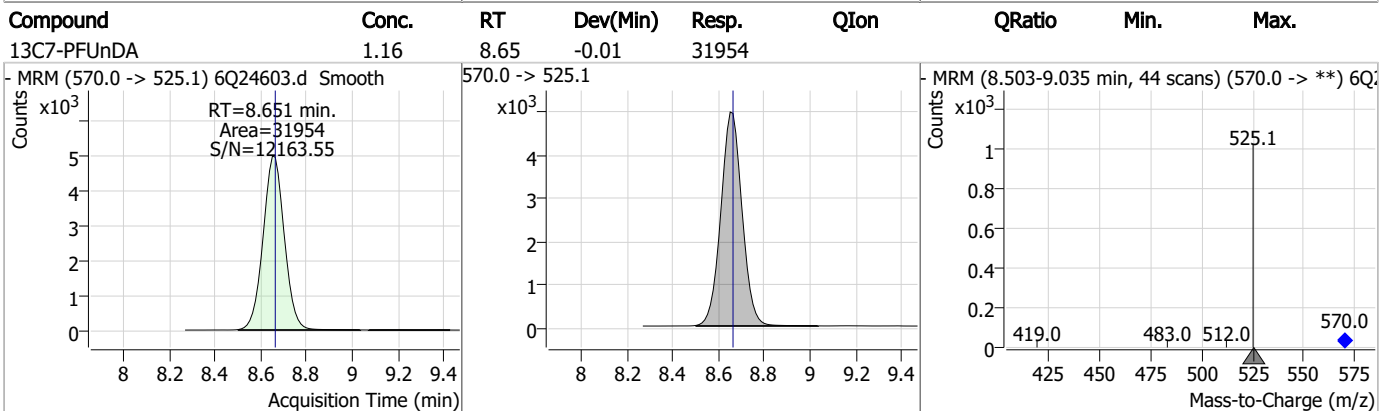
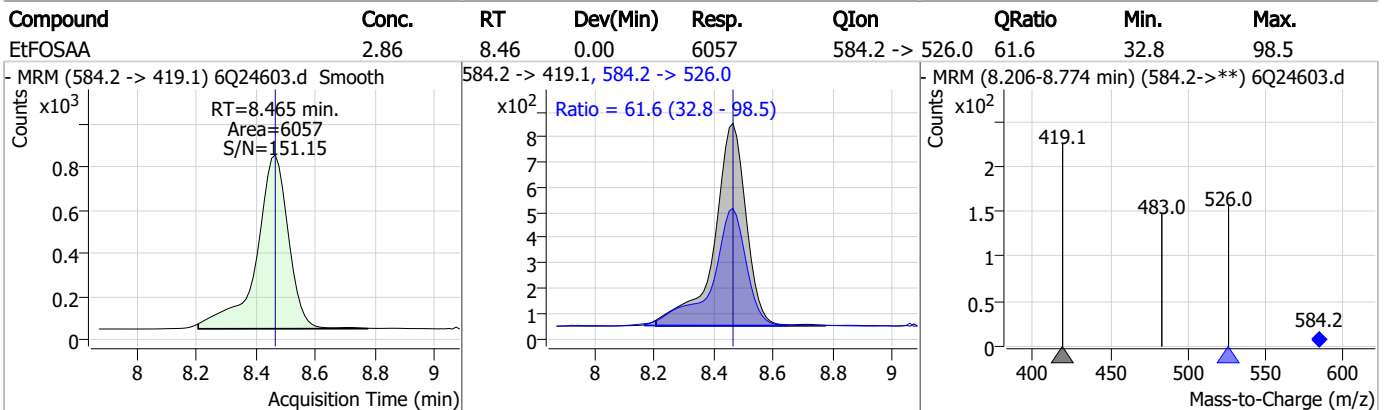
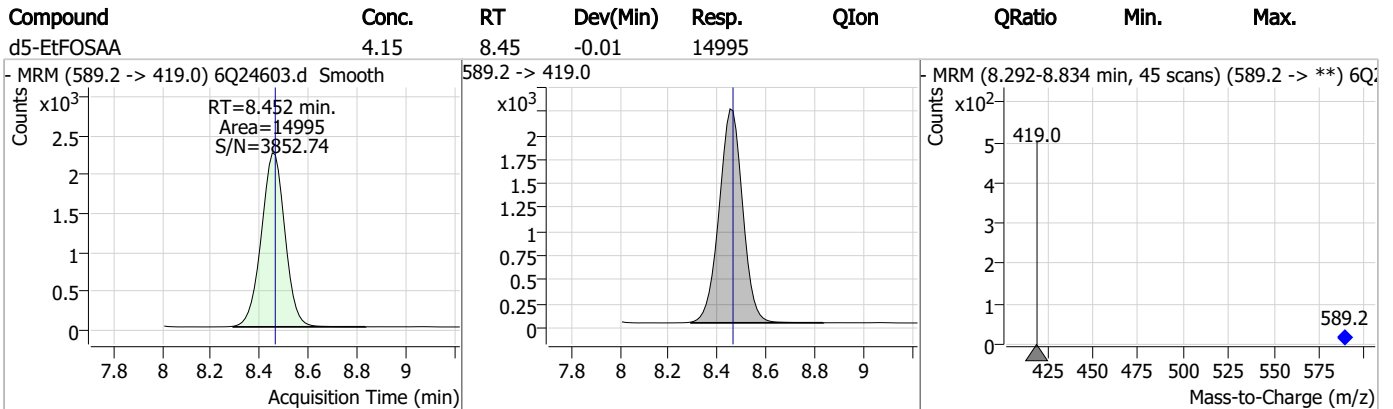
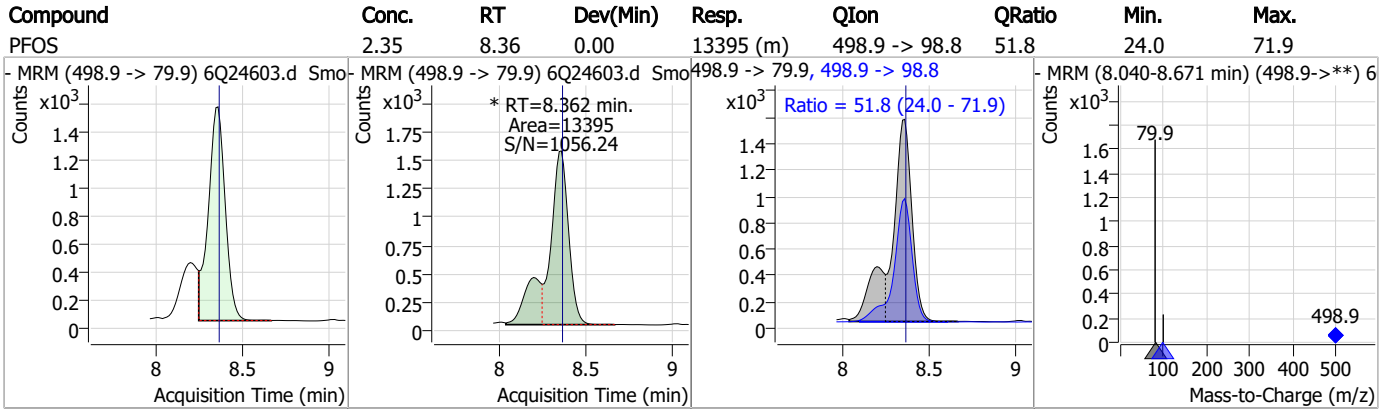


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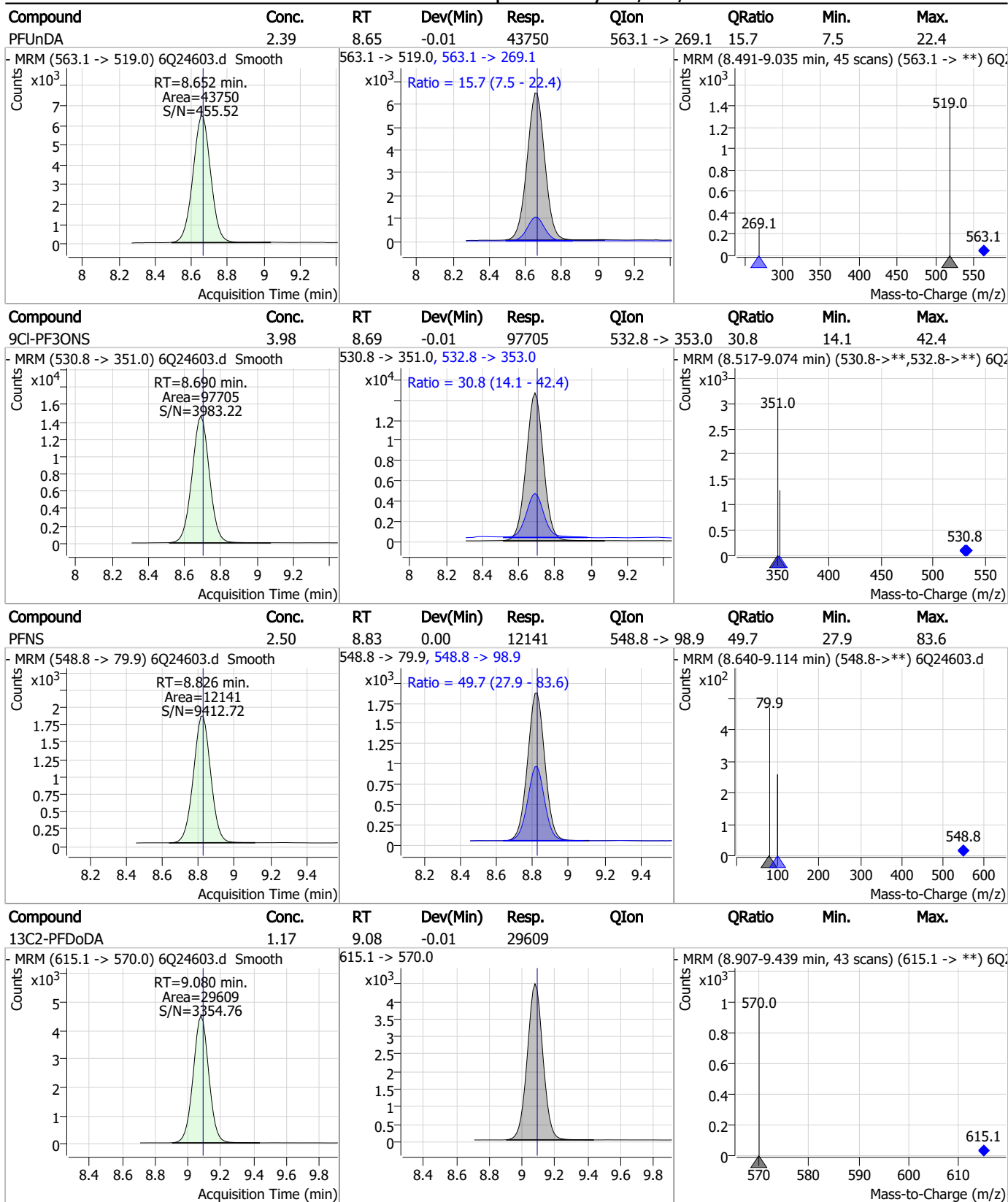
Perfluorinated Compounds by LC/MS/MS



7.4.1

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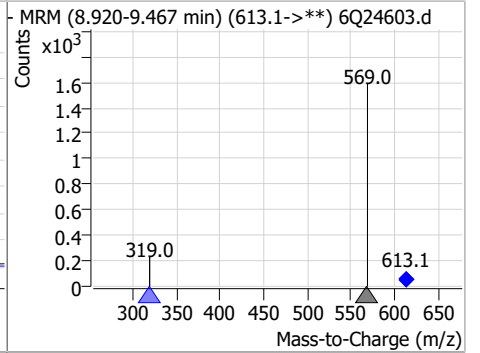
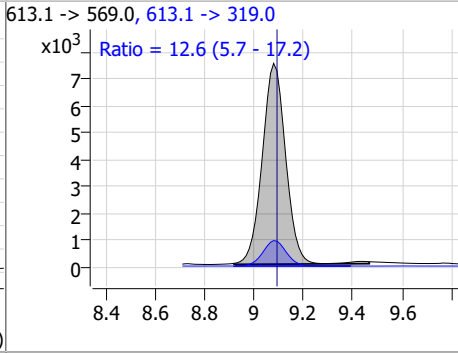
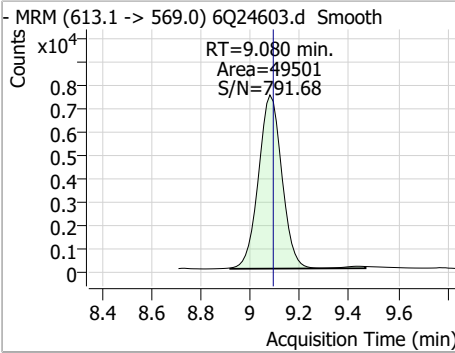
Perfluorinated Compounds by LC/MS/MS



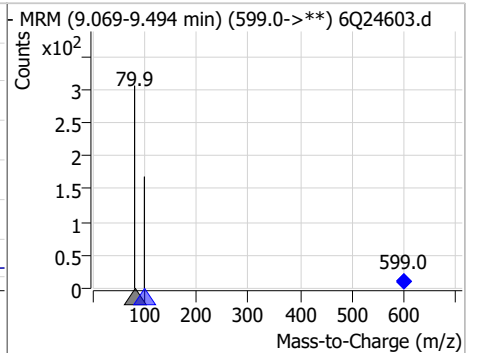
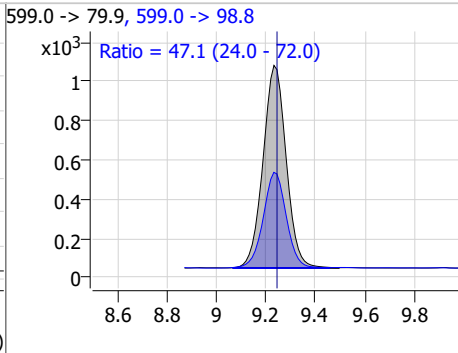
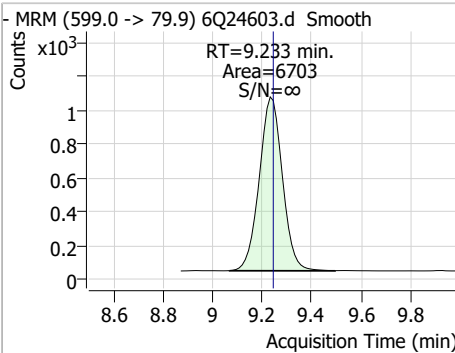
7.4.1
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Perfluorinated Compounds by LC/MS/MS

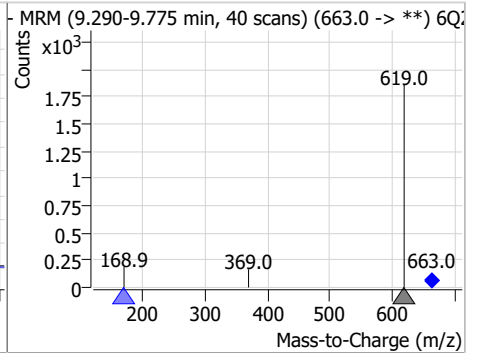
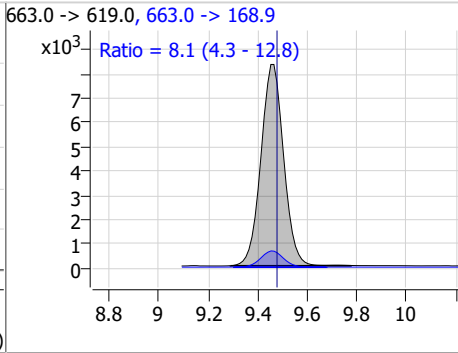
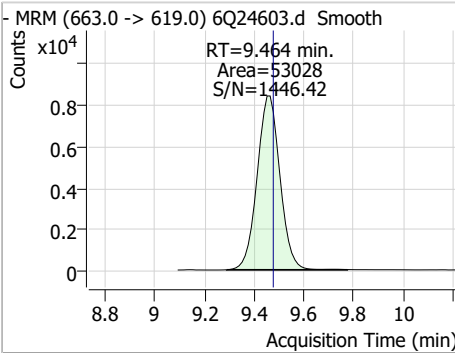
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	2.25	9.08	-0.01	49501	613.1 -> 319.0	12.6	5.7	17.2



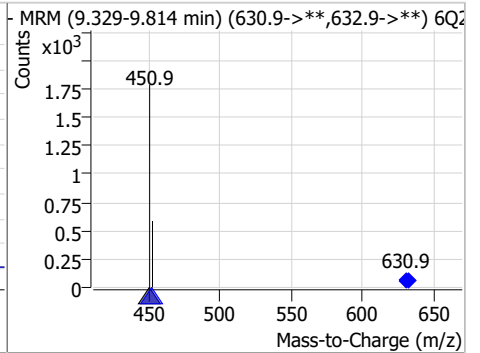
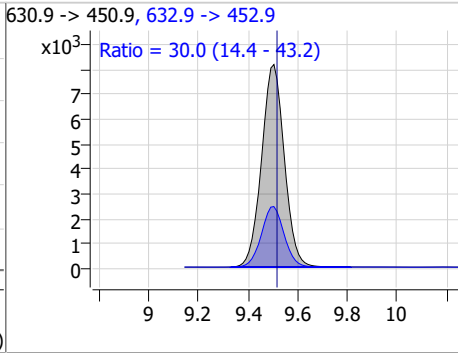
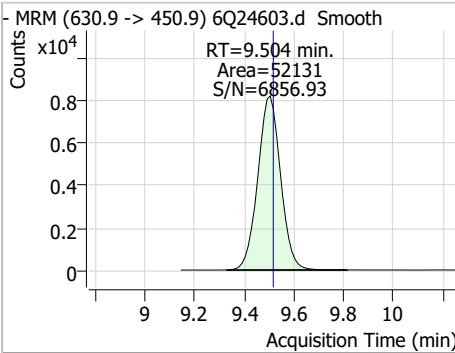
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDs	2.24	9.23	-0.01	6703	599.0 -> 98.8	47.1	24.0	72.0



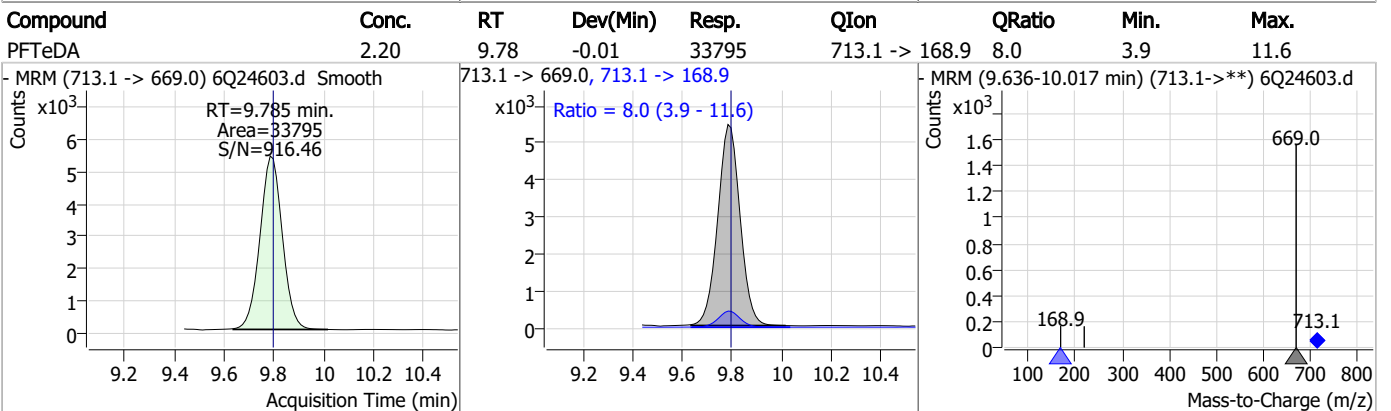
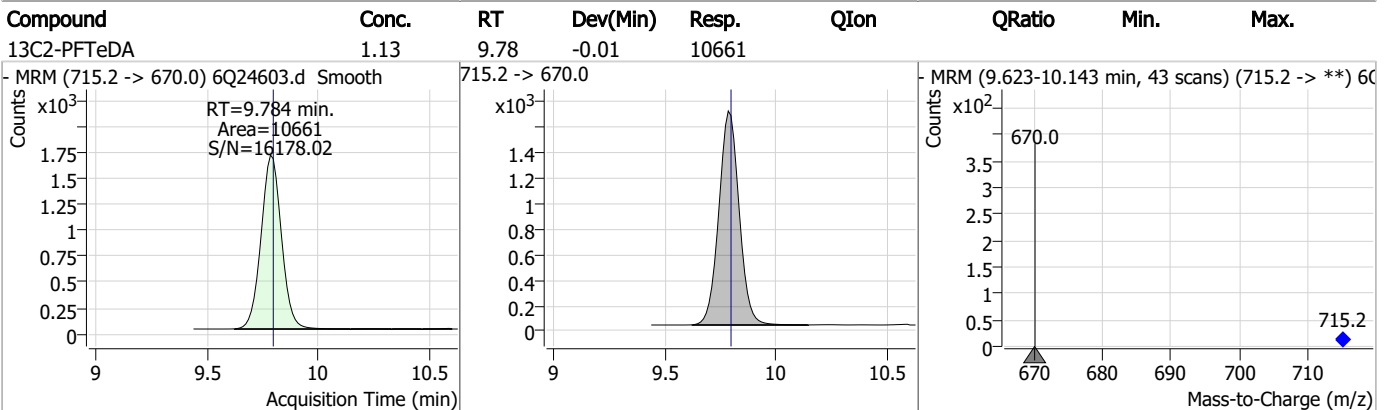
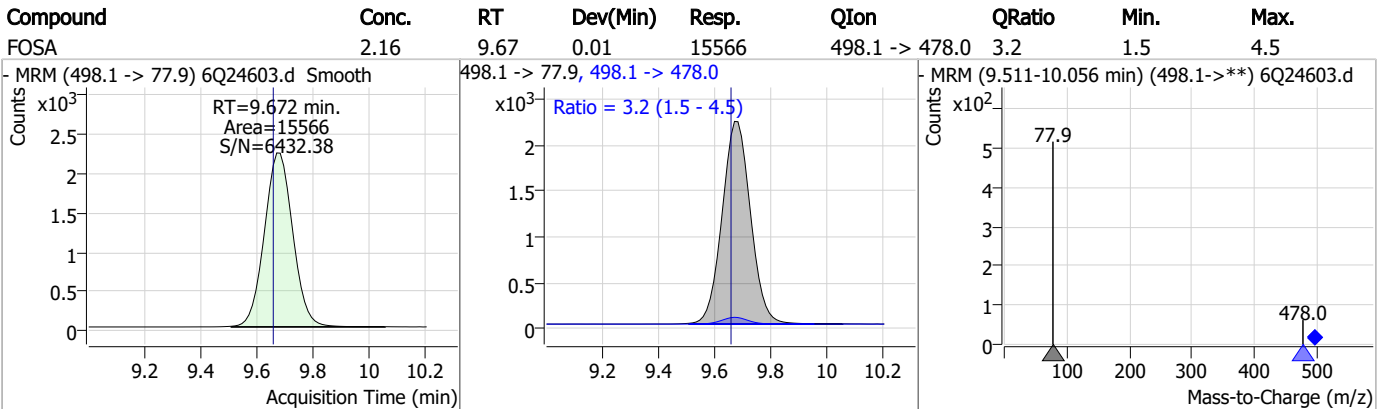
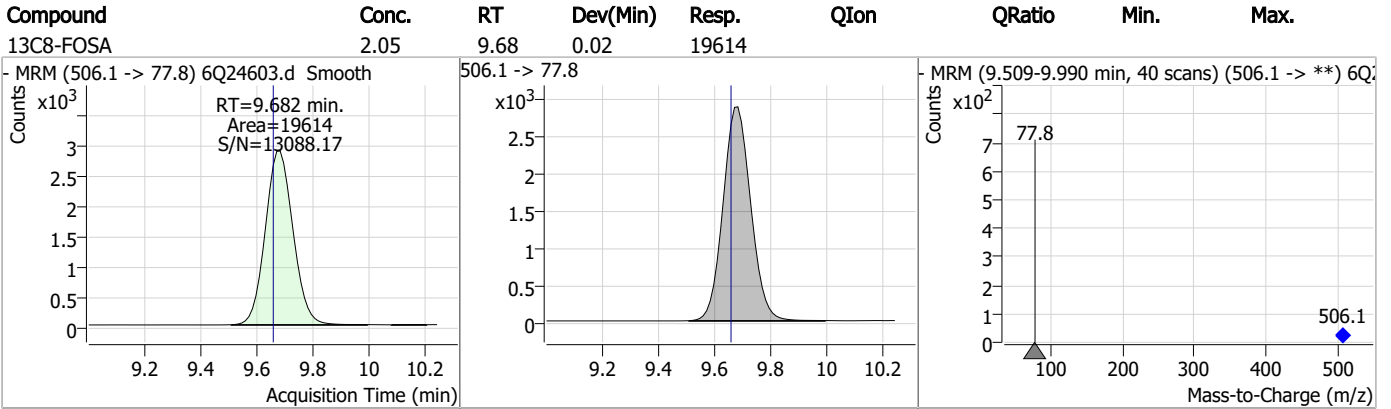
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	2.12	9.46	-0.01	53028	663.0 -> 168.9	8.1	4.3	12.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	3.64	9.50	-0.01	52131	632.9 -> 452.9	30.0	14.4	43.2



Perfluorinated Compounds by LC/MS/MS

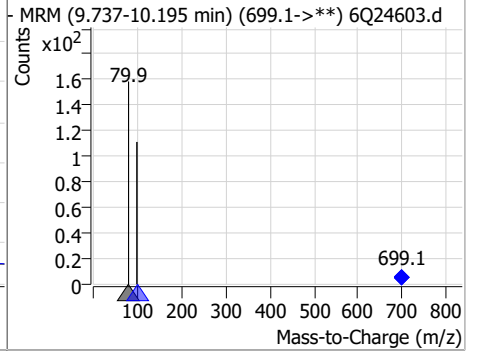
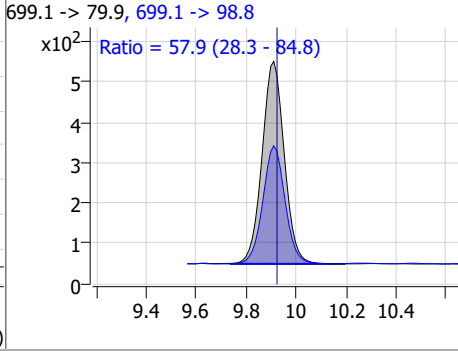
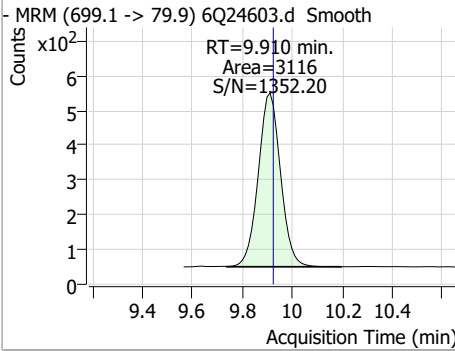


7.4.1

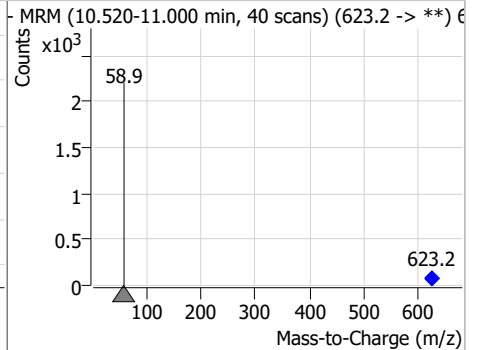
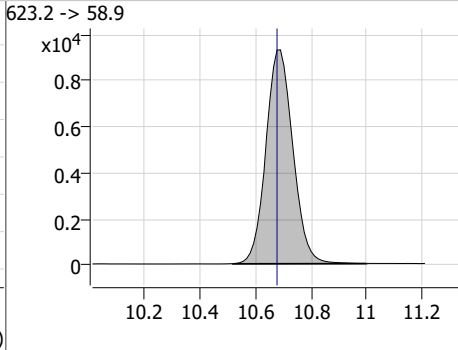
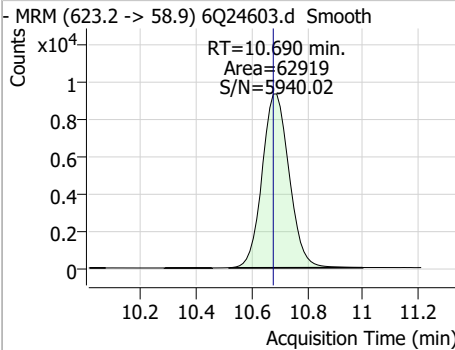
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Perfluorinated Compounds by LC/MS/MS

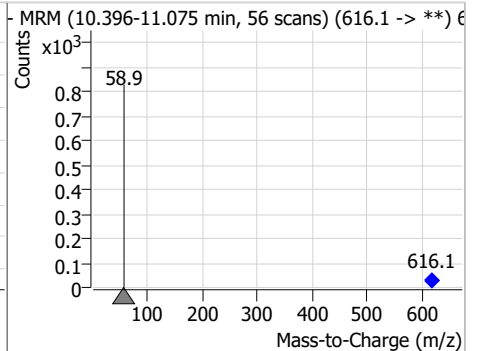
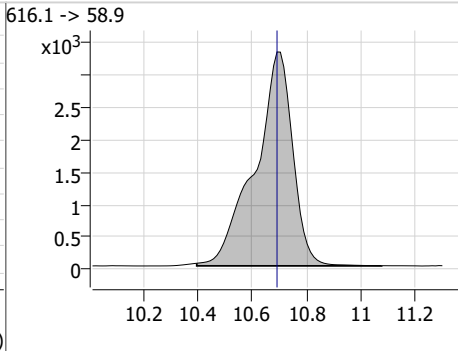
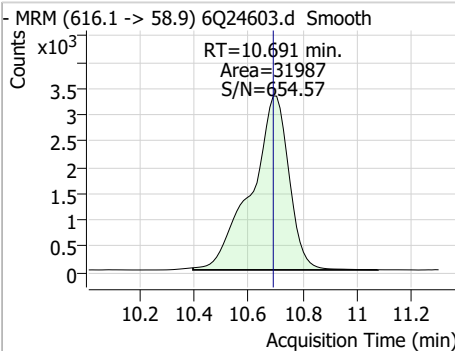
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.90	9.91	-0.01	3116	699.1 -> 98.8	57.9	28.3	84.8



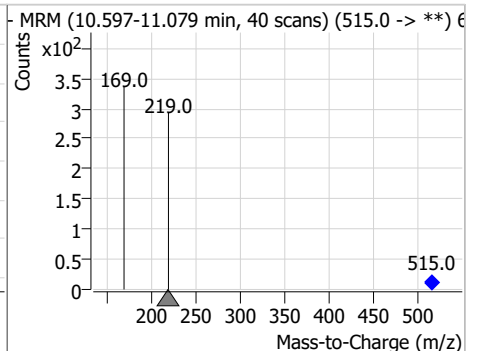
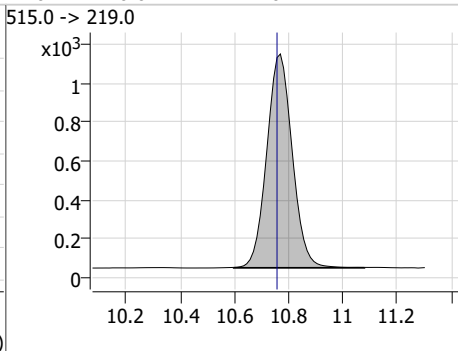
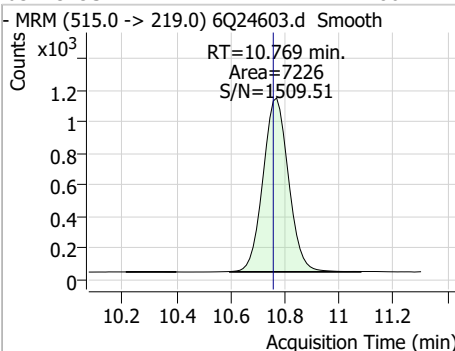
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	17.82	10.69	0.01	62919				



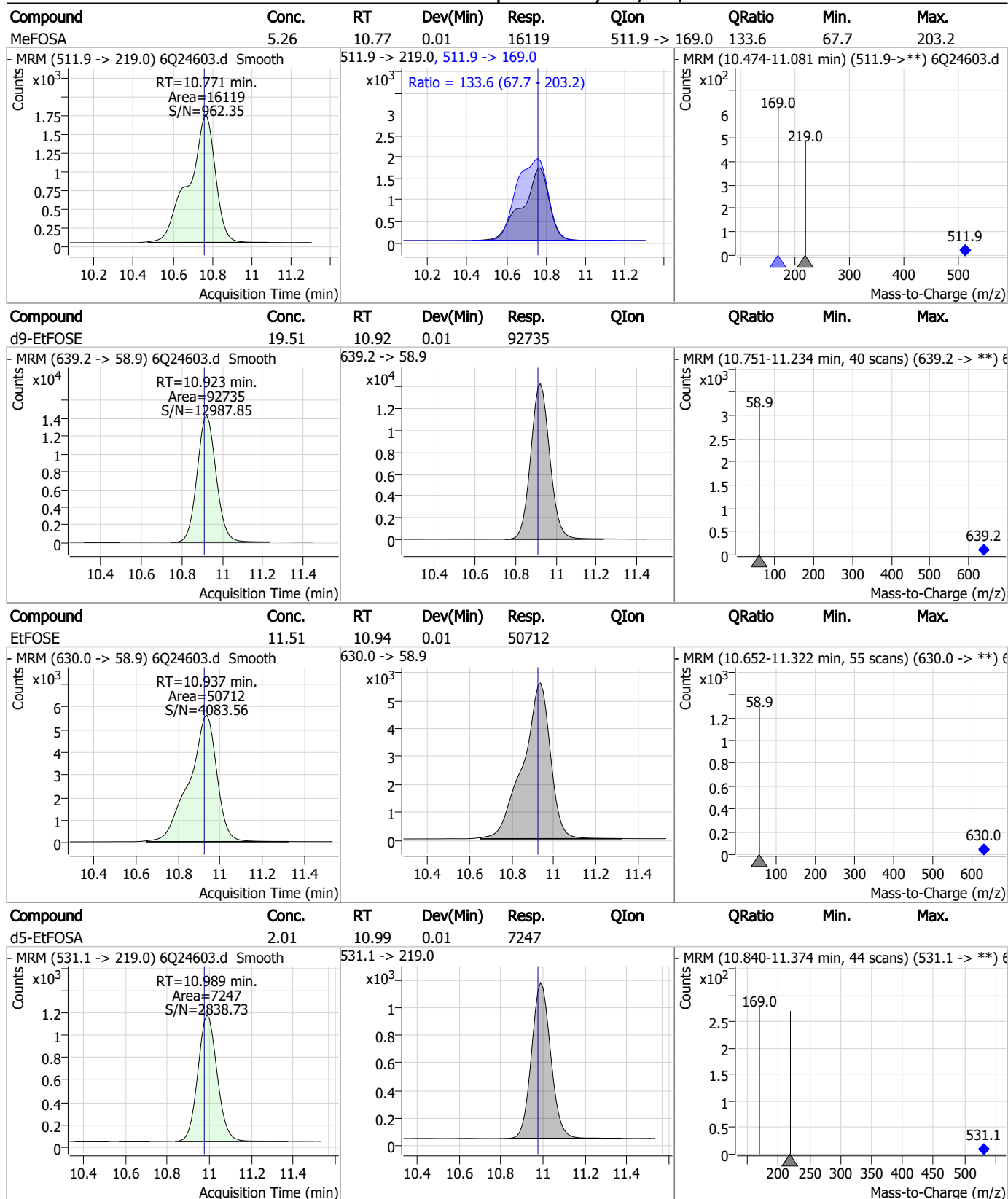
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.76	10.69	0.00	31987				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.86	10.77	0.01	7226				

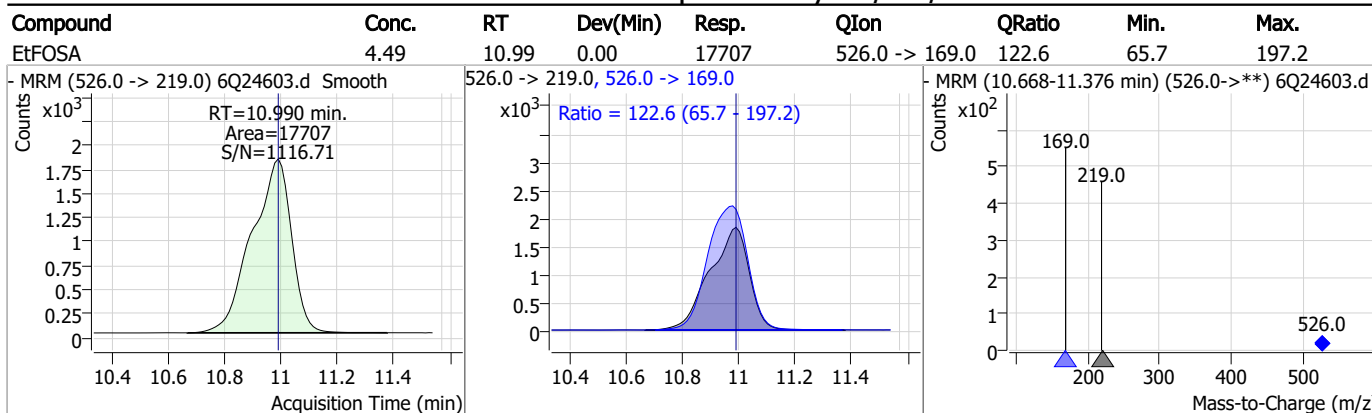


Perfluorinated Compounds by LC/MS/MS



7.4.1
7

Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Manual Integration Approval Summary

Sample Number: OP99007-MS Method: EPA DRAFT 1633
Lab FileID: 6Q24603.D Analyst approved: 09/20/23 10:04 Martha Valls
Injection Time: 09/18/23 13:53 Supervisor approved: 09/20/23 10:37 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak

7.4.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50751.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/18/2023 7:37:24 PM
 Sample Name : op99024-ms
 Vial : P1-D9
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q742.batch.bin
 Sample Information : OP99024,S4Q742,65,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.790	216.8 -> 171.9	87994	10.00 µg/L	0.078
M5-PFPeA	4.265	268.3 -> 223.0	32715	5.00 µg/L	0.050
M5-PFHxA	5.445	318.0 -> 273.0	30852	2.50 µg/L	0.037
M4-PFHpA	6.392	367.1 -> 322.0	21762	2.50 µg/L	0.038
M8-PFOA	7.062	421.1 -> 376.0	34939	2.50 µg/L	0.025
M9-PFNA	7.596	472.1 -> 427.0	14144	1.25 µg/L	0.026
M6-PFDA	8.090	519.1 -> 474.1	8213	1.25 µg/L	0.025
M7-PFUnDA	8.534	570.0 -> 525.1	10333	1.25 µg/L	0.025
M2-PFDoDA	8.954	615.1 -> 570.0	11159	1.25 µg/L	0.012
M2-PFTeDA	9.710	715.2 -> 670.0	6062	1.25 µg/L	0.012
M8-FOSA	9.931	506.1 -> 77.8	7490	2.50 µg/L	0.025
M3-PFBS	5.300	302.1 -> 79.9	7714	2.50 µg/L	0.037
M3-PFHxS	7.128	402.1 -> 79.9	4926	2.50 µg/L	0.025
M8-PFOS	8.204	507.1 -> 79.9	5256	2.50 µg/L	0.026
M2-4:2FTS	5.146	329.1 -> 80.9	869	5.00 µg/L	0.037
M2-6:2FTS	6.847	429.1 -> 80.9	1237	5.00 µg/L	0.037
M2-8:2FTS	7.889	529.1 -> 80.9	1482	5.00 µg/L	0.025
M3-MeFOSAA	8.172	573.2 -> 419.0	11234	5.00 µg/L	0.025
M3-HFPO-DA	5.800	286.9 -> 168.9	29396	10.00 µg/L	0.037
M5-EtFOSAA	8.370	589.2 -> 419.0	11059	5.00 µg/L	0.012
M7-MeFOSE	11.084	623.2 -> 58.9	43868	25.00 µg/L	0.012
M9-EtFOSE	11.357	639.2 -> 58.9	68595	25.00 µg/L	0.012
M5-EtFOSA	11.448	531.1 -> 219.0	5318	2.50 µg/L	0.012
M3-MeFOSA	11.190	515.0 -> 219.0	4104	2.50 µg/L	0.012
13C4-PFOS	8.205	502.8 -> 79.9	5358	2.50 µg/L	0.026
13C3-PFBA	2.793	216.0 -> 172.0	42213	5.00 µg/L	0.077
18O2-PFHxS	7.127	403.0 -> 83.9	3332	2.50 µg/L	0.025
13C4-PFOA	7.062	417.1 -> 372.0	36673	2.50 µg/L	0.025
13C2-PFDA	8.078	515.1 -> 470.1	9710	1.25 µg/L	0.012
13C5-PFNA	7.596	468.0 -> 423.0	11709	1.25 µg/L	0.026
13C2-PFHxA	5.446	315.1 -> 270.0	26522	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.146	329.1 -> 80.9	869	4.77 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C2-6:2FTS	6.847	429.1 -> 80.9	1237	4.39 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.8%		
13C2-8:2FTS	7.889	529.1 -> 80.9	1482	3.41 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 68.1%		
13C2-PFDoDA	8.954	615.1 -> 570.0	11159	1.02 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 81.5%		
13C2-PFTeDA	9.710	715.2 -> 670.0	6062	1.05 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 83.6%		
13C3-PFBS	5.300	302.1 -> 79.9	7714	2.42 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C3-PFHxS	7.128	402.1 -> 79.9	4926	2.46 µg/L	0.025

7.4.2
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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 = 98.4%		
13C4-PFBA	2.790	216.8 -> 171.9	87994	10.53 µg/L	0.078
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C4-PFHpA	6.392	367.1 -> 322.0	21762	2.59 µg/L	0.038
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C5-PFHxA	5.445	318.0 -> 273.0	30852	2.56 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C5-PFPeA	4.265	268.3 -> 223.0	32715	5.24 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C6-PFDA	8.090	519.1 -> 474.1	8213	1.11 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.9%		
13C7-PFUnDA	8.534	570.0 -> 525.1	10333	1.24 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C8-FOSA	9.931	506.1 -> 77.8	7490	2.02 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 80.9%		
13C8-PFOA	7.062	421.1 -> 376.0	34939	2.60 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C8-PFOS	8.204	507.1 -> 79.9	5256	2.21 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 88.3%		
13C9-PFNA	7.596	472.1 -> 427.0	14144	1.32 µg/L	0.026
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.8%		
d3-MeFOSAA	8.172	573.2 -> 419.0	11234	4.67 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.3%		
13C3-HFPO-DA	5.800	286.9 -> 168.9	29396	10.24 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
d3-MeFOSA	11.190	515.0 -> 219.0	4104	1.89 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 75.5%		
d5-EtFOSAA	8.370	589.2 -> 419.0	11059	4.96 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.2%		
d7-MeFOSE	11.084	623.2 -> 58.9	43868	20.72 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 82.9%		
d9-EtFOSE	11.357	639.2 -> 58.9	68595	22.46 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 89.8%		
d5-EtFOSA	11.448	531.1 -> 219.0	5318	1.81 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 72.5%		
Target Compounds					QValue
4:2FTS	5.147	327.1 -> 307.0	10992	7.47 µg/L	98
		327.1 -> 80.9	4542		
6:2FTS	6.847	427.1 -> 407.0	11139	7.80 µg/L	98
		427.1 -> 80.9	4049		
8:2FTS	7.890	527.1 -> 507.0	8075	9.67 µg/L	98
		527.1 -> 80.8	3478		
EtFOSAA	8.383	584.2 -> 419.1	3851	1.98 µg/L	79
		584.2 -> 526.0	1878		
FOSA	9.933	498.1 -> 77.9	6757	1.98 µg/L	100
		498.1 -> 478.0	223		
MeFOSAA	8.173	570.1 -> 419.0	4801	1.96 µg/L	93
		570.1 -> 483.0	1153		
PFBA	2.796	212.8 -> 168.9	27611	8.20 µg/L	100
PFBS	5.301	298.7 -> 79.9	7096	1.96 µg/L	93
		298.7 -> 98.8	2623		
PFDA	8.078	512.9 -> 469.0	17004	2.26 µg/L	100
		512.9 -> 219.0	3725		
PFDODA	8.954	613.1 -> 569.0	22190	2.33 µg/L	99
		613.1 -> 319.0	3888		
PFDS	9.094	599.0 -> 79.9	3510	1.84 µg/L	95

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1809			
PFHpA	6.392	363.1 -> 319.0	25968	2.01	µg/L	97
		363.1 -> 169.0	5524			
PFHpS	7.698	449.0 -> 79.9	4790	2.13	µg/L	99
		449.0 -> 98.9	2497			
PFHxA	5.448	313.0 -> 269.0	22246	2.04	µg/L	99
		313.0 -> 118.9	772			
PFHxS	7.129	398.7 -> 79.9	4252	1.96	µg/L	m 85
		398.7 -> 98.9	2049			
PFNA	7.609	463.0 -> 419.0	17390	2.02	µg/L	96
		463.0 -> 219.0	4299			
PFNS	8.659	548.8 -> 79.9	3343	2.16	µg/L	93
		548.8 -> 98.9	1603			
PFOA	7.063	413.0 -> 369.0	32203	2.05	µg/L	99
		413.0 -> 169.0	6879			
PFOS	8.205	498.9 -> 79.9	6195	2.54	µg/L	m 70
		498.9 -> 98.8	2807			
PFPeA	4.266	263.0 -> 219.0	42614	4.13	µg/L	100
PFPeS	6.382	349.1 -> 79.9	3823	1.89	µg/L	96
		349.1 -> 98.9	1749			
PFTeDA	9.711	713.1 -> 669.0	18437	2.20	µg/L	97
		713.1 -> 168.9	2114			
PFTrDA	9.353	663.0 -> 619.0	25822	2.47	µg/L	99
		663.0 -> 168.9	3497			
PFUnDA	8.534	563.1 -> 519.0	19473	2.02	µg/L	100
		563.1 -> 269.1	3954			
11Cl-PF3OUdS	9.380	630.9 -> 450.9	27777	3.57	µg/L	97
		632.9 -> 452.9	8795			
9Cl-PF3ONS	8.536	530.8 -> 351.0	33469	3.97	µg/L	99
		532.8 -> 353.0	10775			
ADONA	6.654	376.9 -> 250.9	88440	4.01	µg/L	98
		376.9 -> 84.8	22331			
HFPO-DA	5.801	284.9 -> 168.9	13332	4.18	µg/L	99
		284.9 -> 184.9	1818			
3:3FTCA	3.806	241.0 -> 177.0	4894	8.17	µg/L	98
		241.0 -> 117.0	582			
5:3FTCA	6.218	341.0 -> 237.1	98262	51.11	µg/L	96
		341.0 -> 217.0	74652			
7:3FTCA	7.725	441.0 -> 316.9	47715	51.96	µg/L	98
		441.0 -> 336.9	99992			
EtFOSA	11.450	526.0 -> 219.0	9883	4.25	µg/L	91
		526.0 -> 169.0	14529			
EtFOSE	11.370	630.0 -> 58.9	29560	10.44	µg/L	100
MeFOSA	11.192	511.9 -> 219.0	8243	4.26	µg/L	m 74
		511.9 -> 169.0	12109			
MeFOSE	11.098	616.1 -> 58.9	22828	10.61	µg/L	100
PFDoDS	9.839	699.1 -> 79.9	2688	1.97	µg/L	94
		699.1 -> 98.8	1629			
NFDHA	5.327	295.0 -> 201.0	2952	4.55	µg/L	99
		295.0 -> 84.9	649			
PFMBA	4.666	279.0 -> 85.1	22651	4.14	µg/L	100
PFMPA	3.408	229.0 -> 84.9	25969	4.23	µg/L	100
PFEESA	5.832	314.8 -> 134.9	41575	3.92	µg/L	98
		314.8 -> 82.9	1513			

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



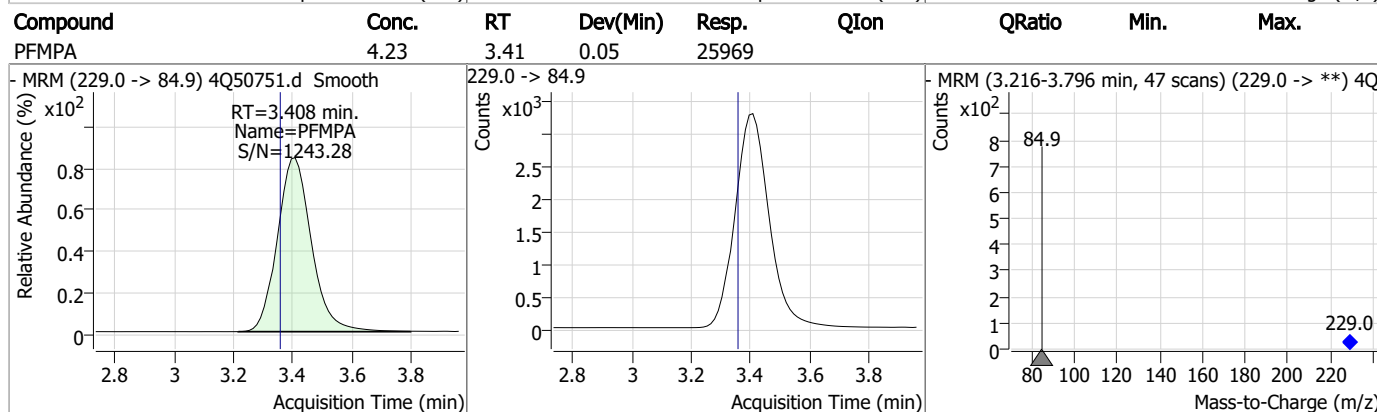
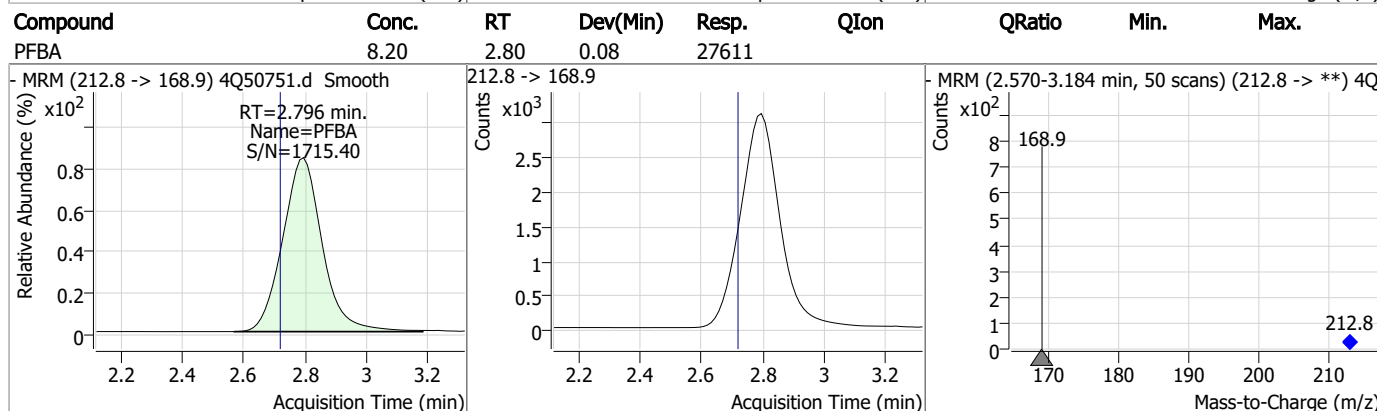
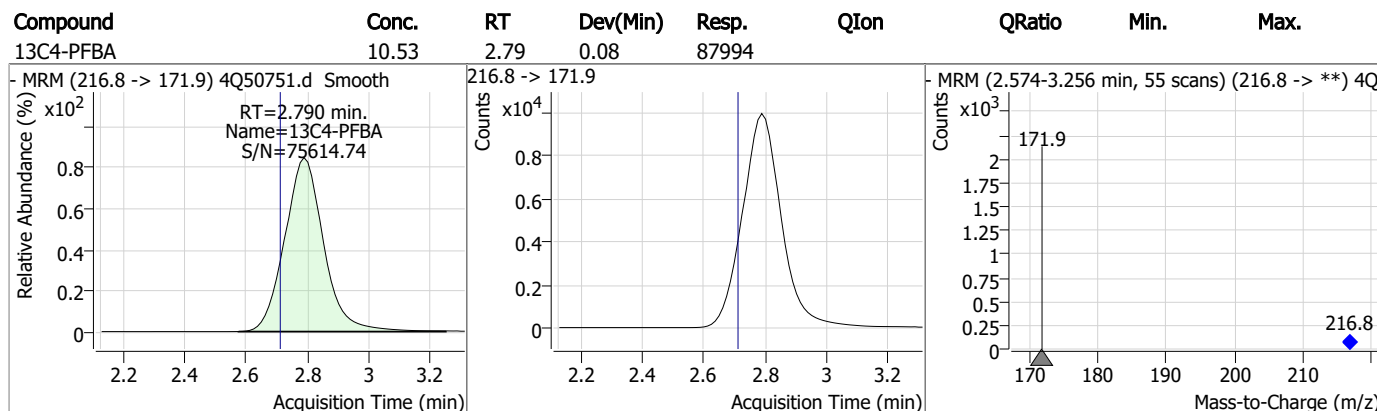
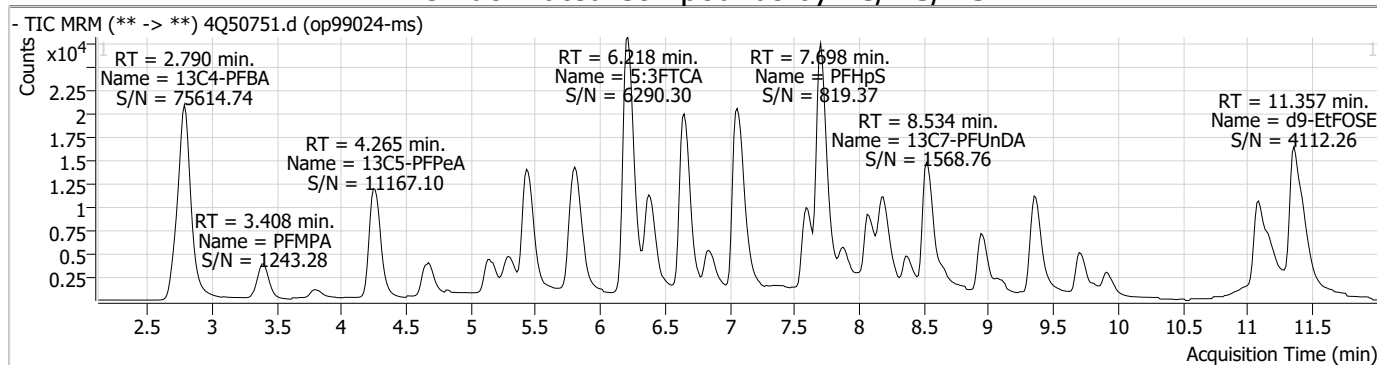
Perfluorinated Compounds by LC/MS/MS

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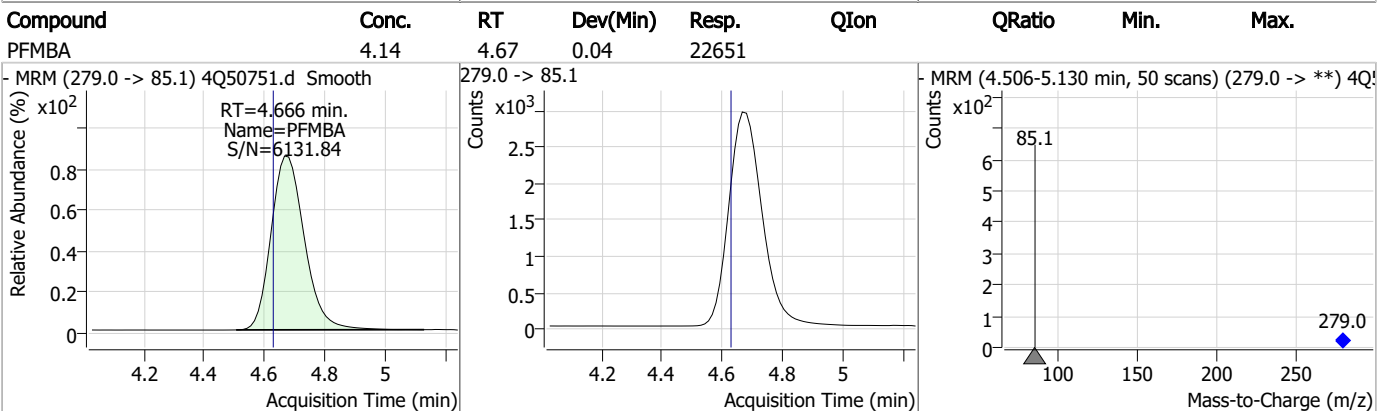
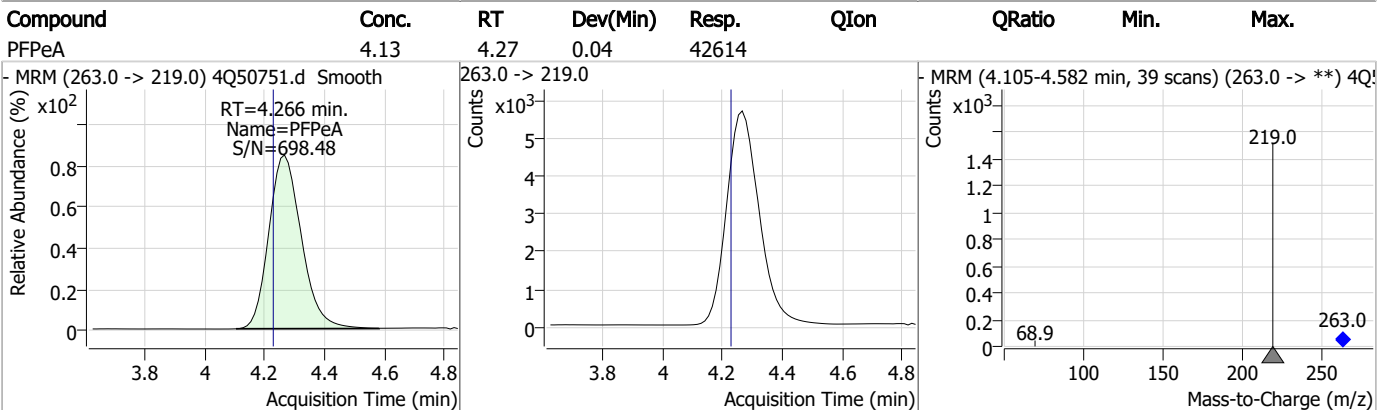
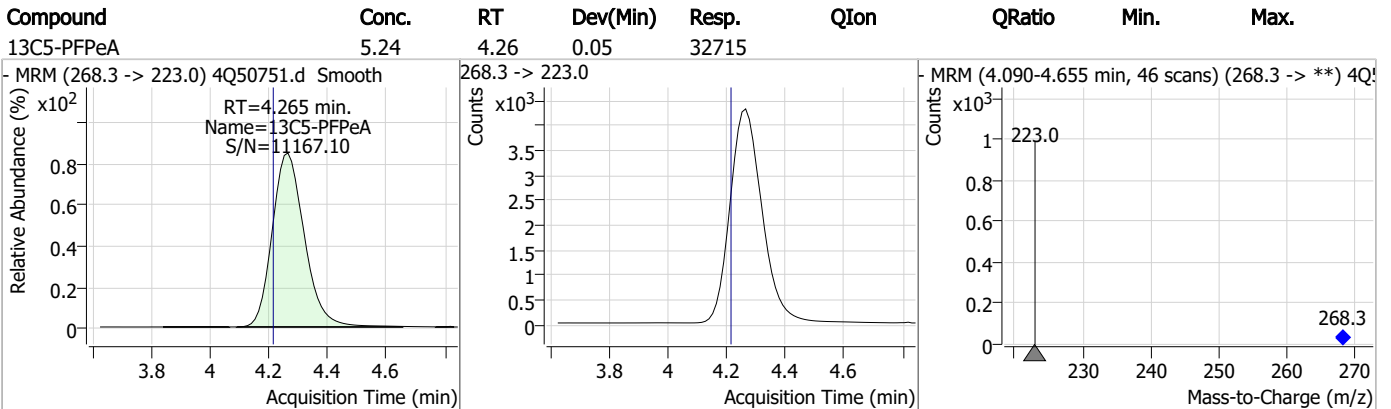
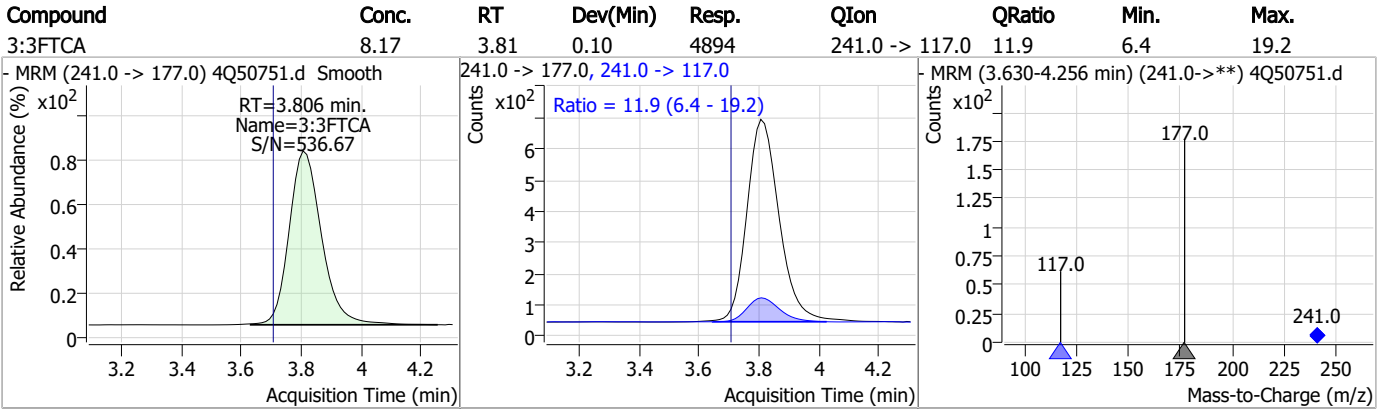
7.4.2

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Perfluorinated Compounds by LC/MS/MS



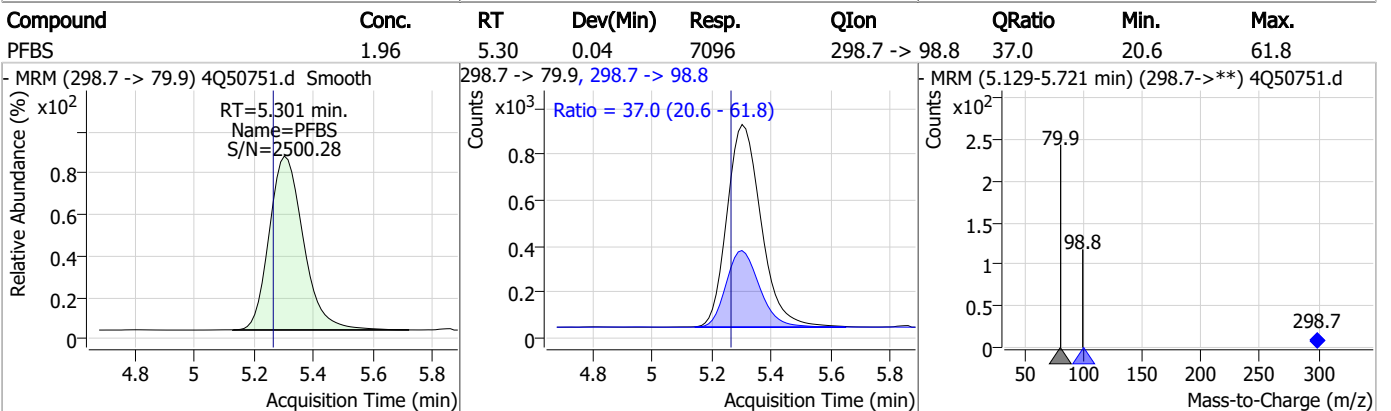
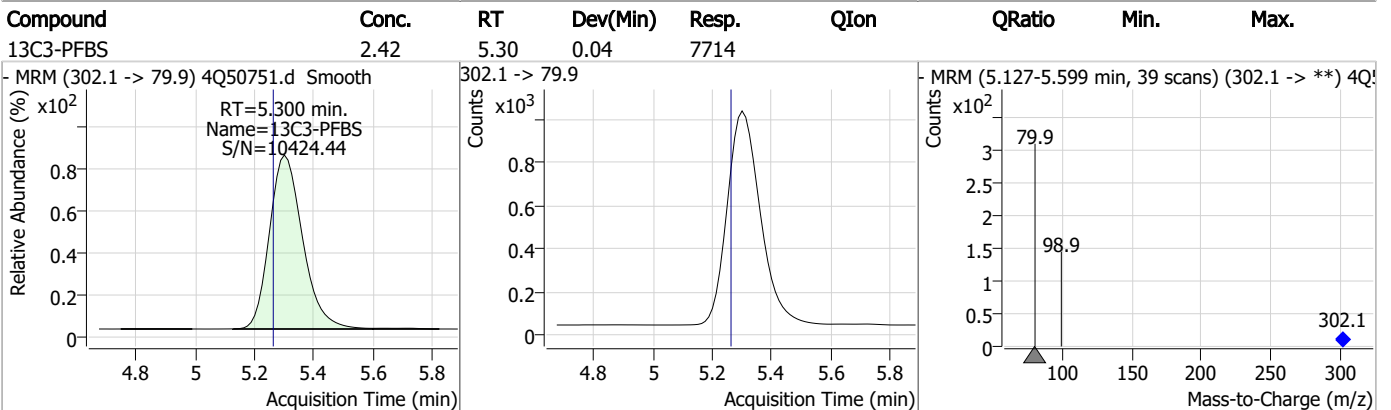
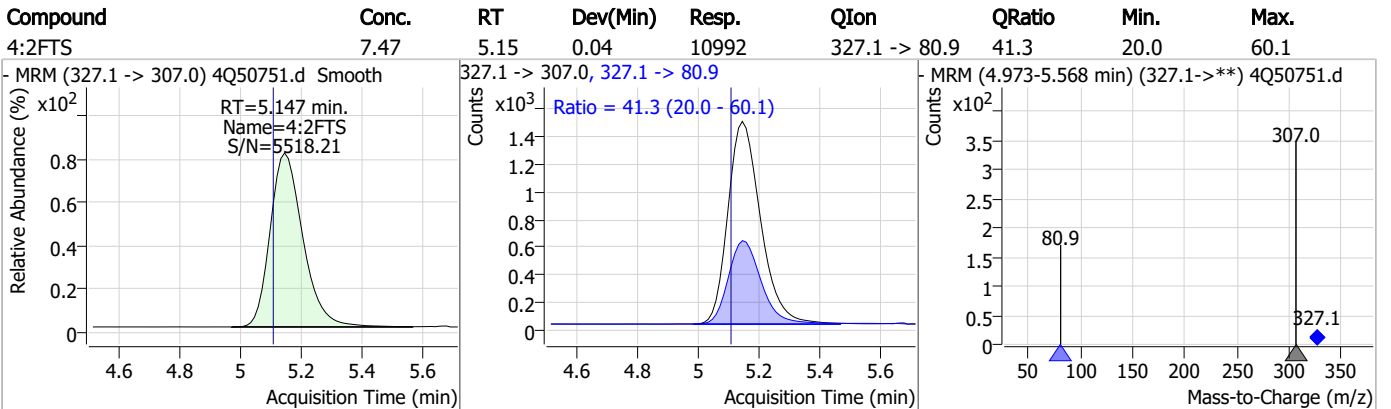
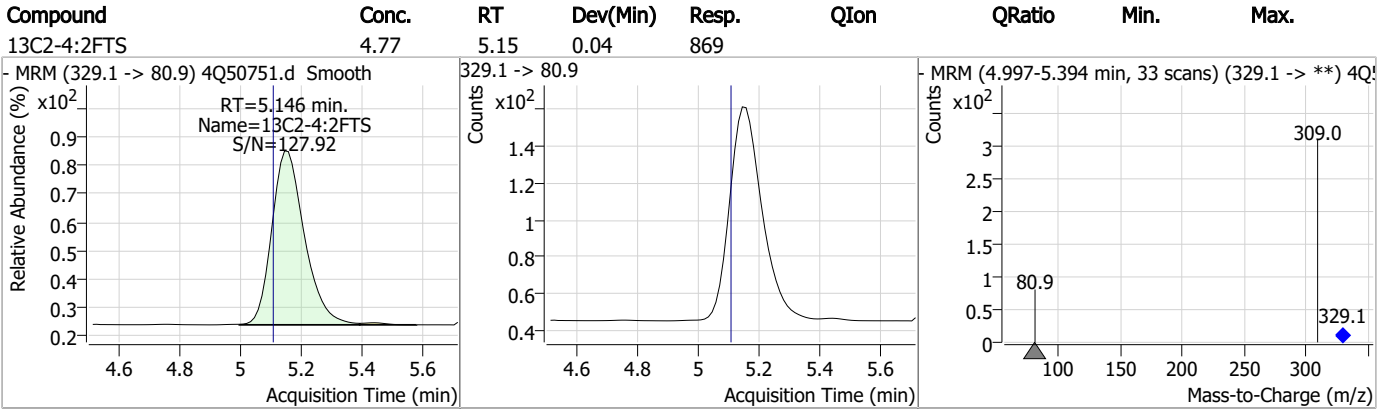
Perfluorinated Compounds by LC/MS/MS



7.4.2

7

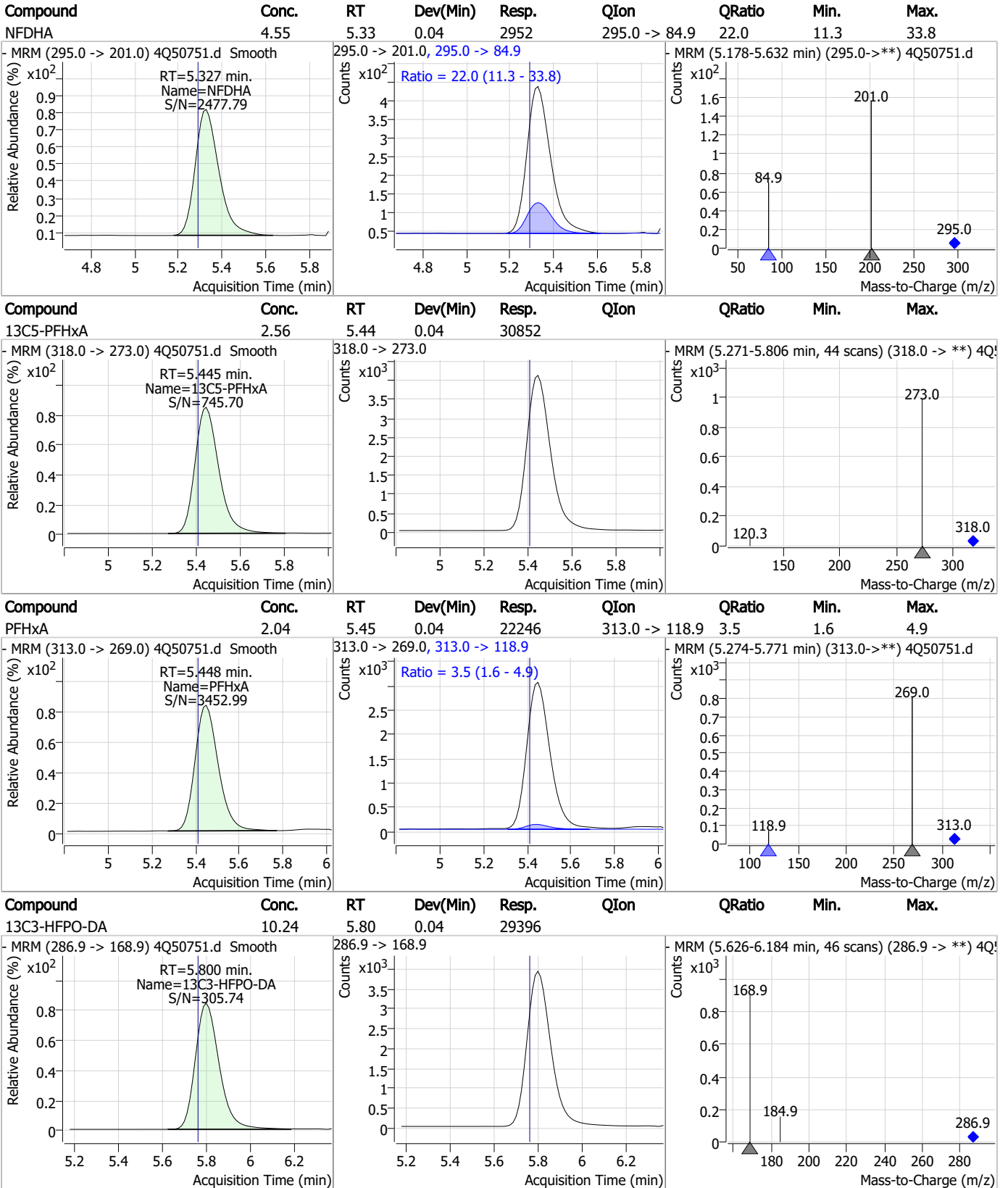
Perfluorinated Compounds by LC/MS/MS



7.4.2

7

Perfluorinated Compounds by LC/MS/MS

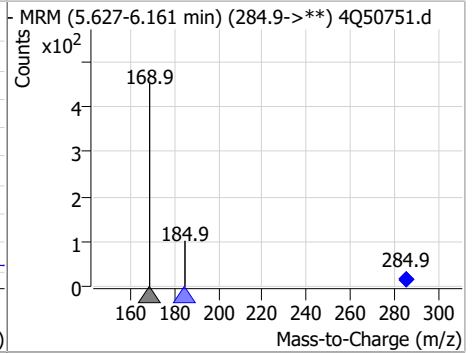
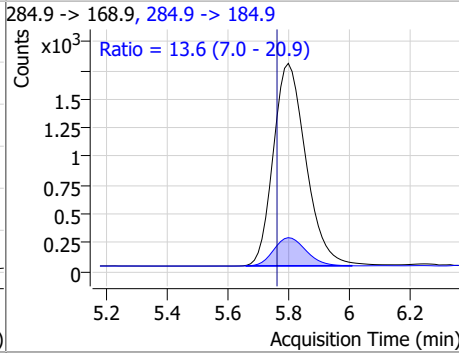
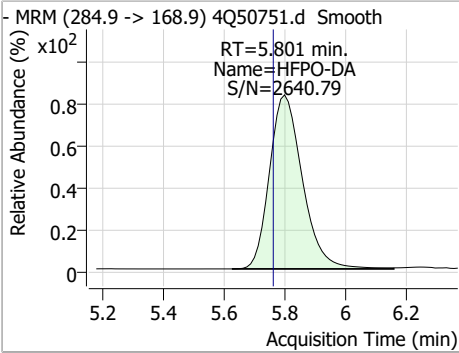


7.4.2

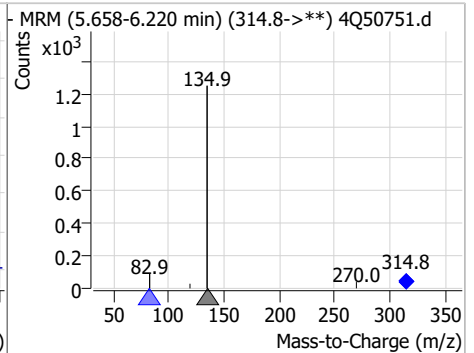
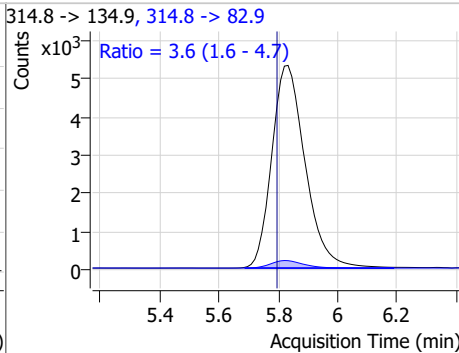
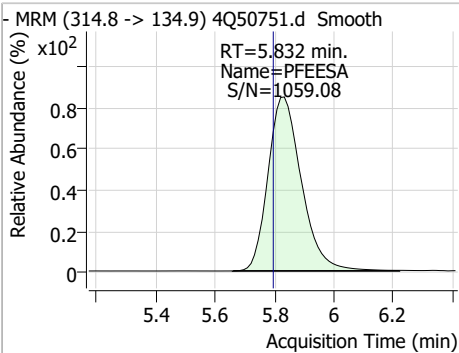
7

Perfluorinated Compounds by LC/MS/MS

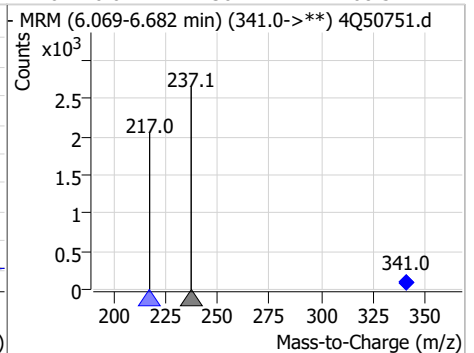
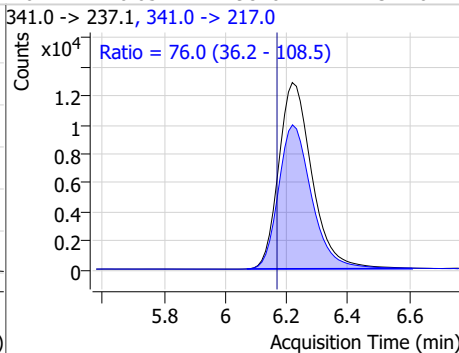
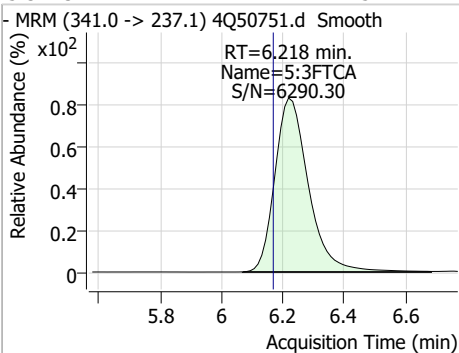
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.18	5.80	0.04	13332	284.9 -> 184.9	13.6	7.0	20.9



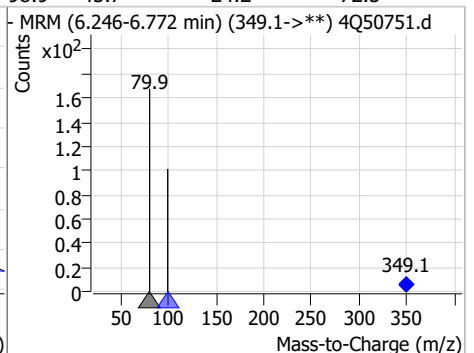
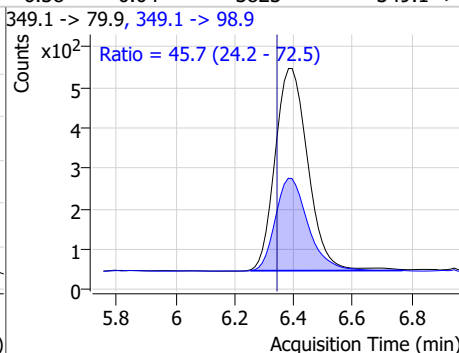
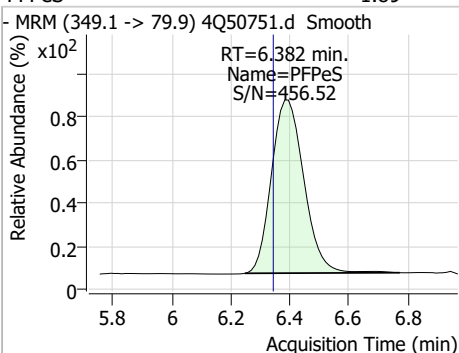
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	3.92	5.83	0.04	41575	314.8 -> 82.9	3.6	1.6	4.7



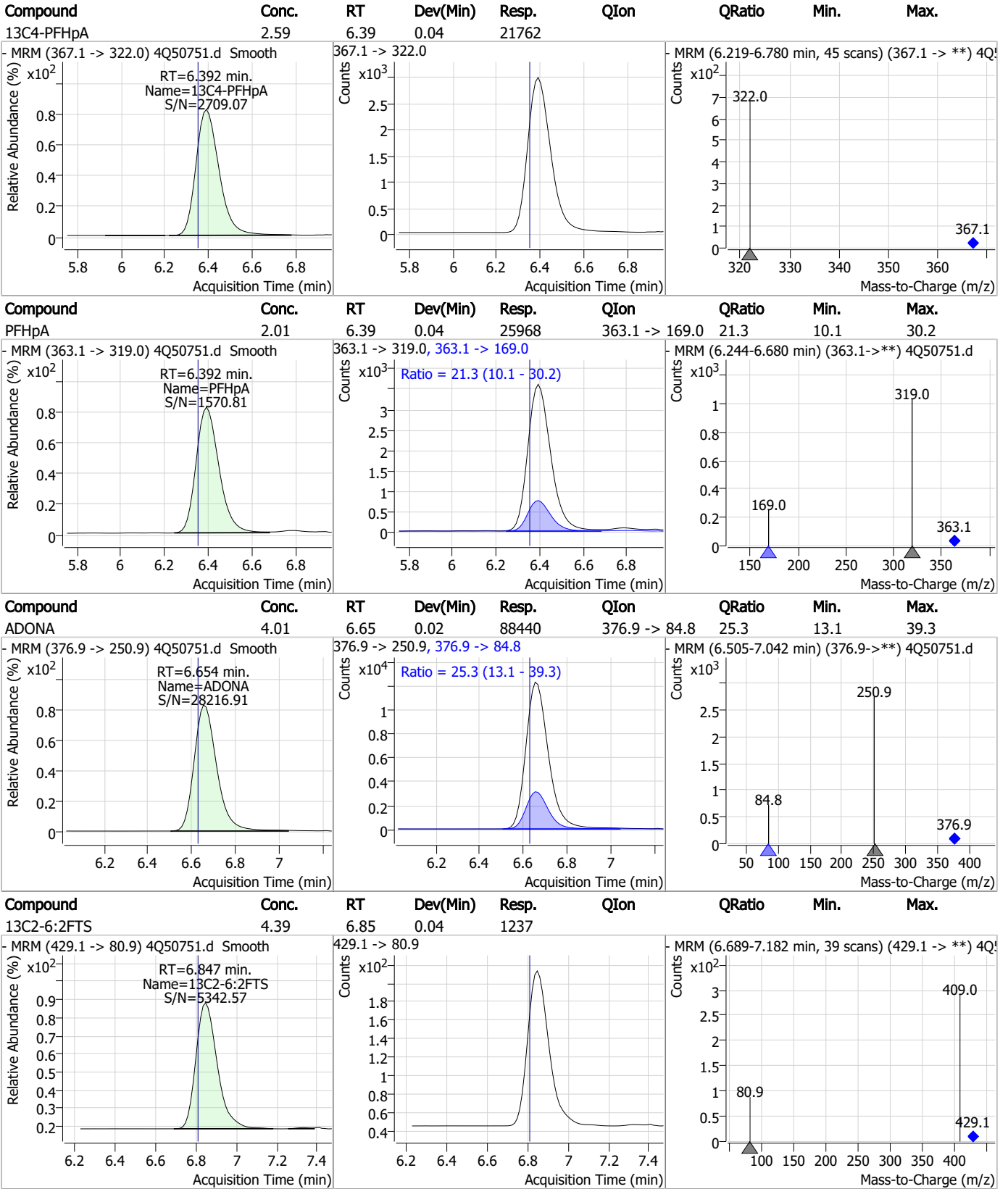
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	51.11	6.22	0.05	98262	341.0 -> 217.0	76.0	36.2	108.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.89	6.38	0.04	3823	349.1 -> 98.9	45.7	24.2	72.5



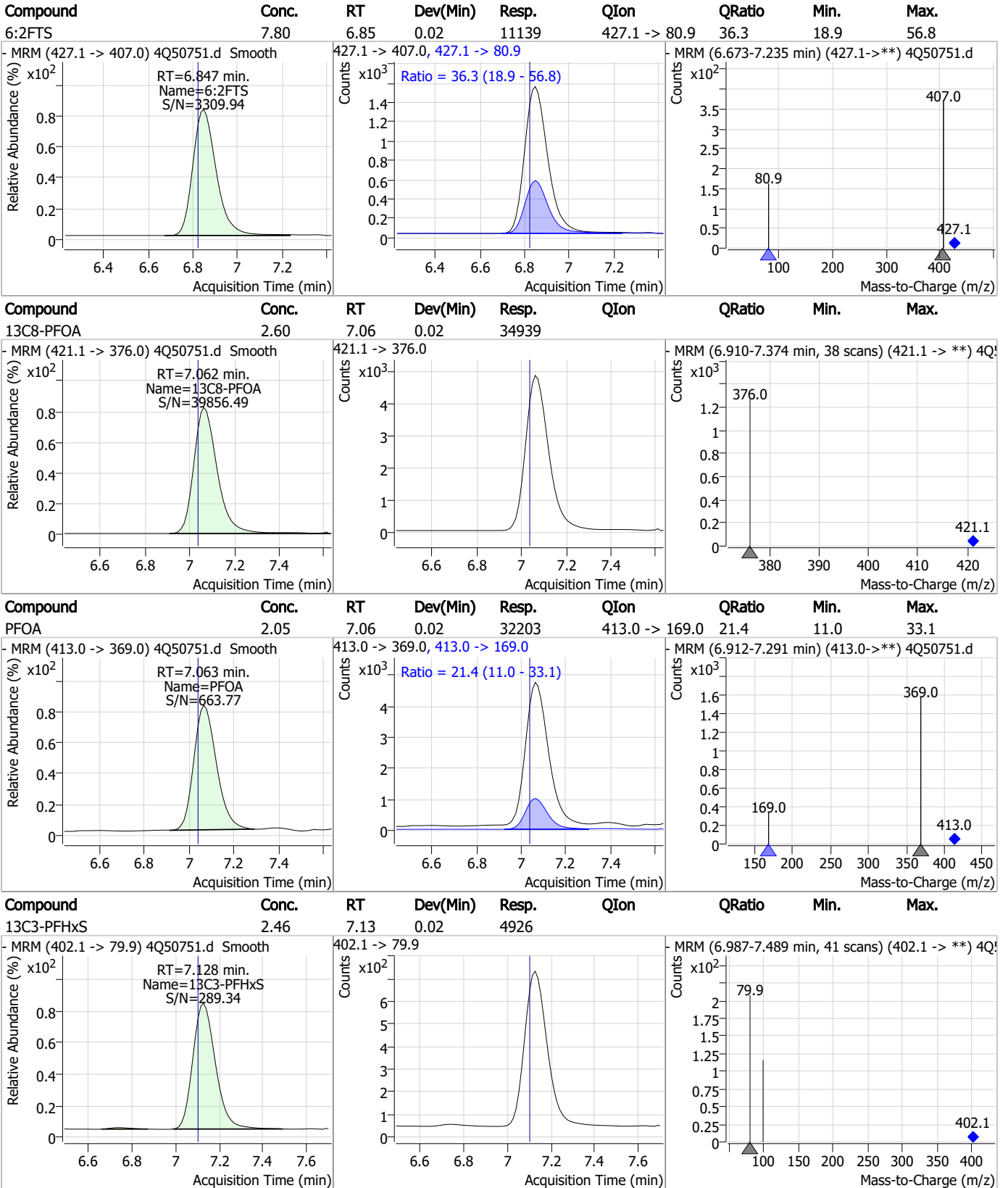
Perfluorinated Compounds by LC/MS/MS



7.4.2

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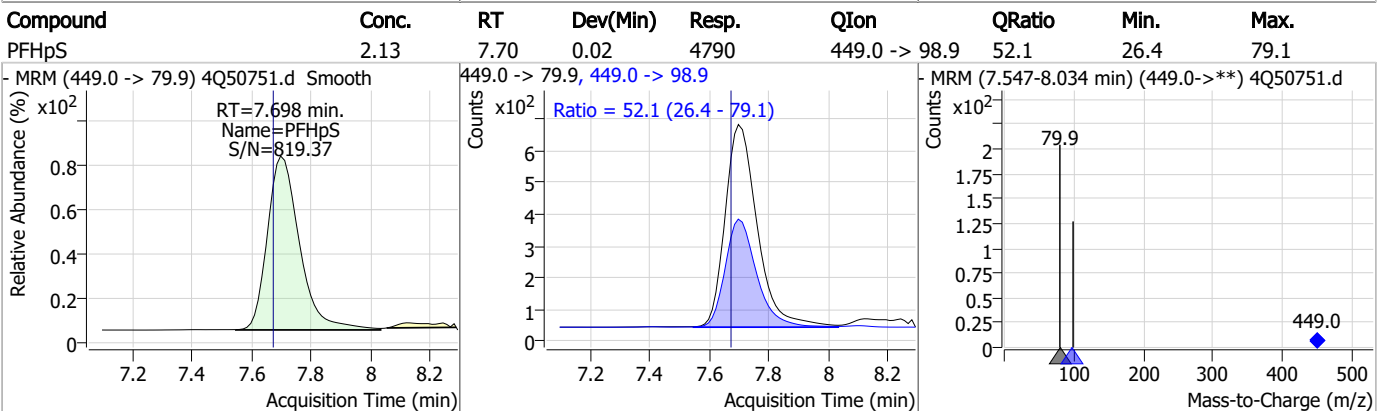
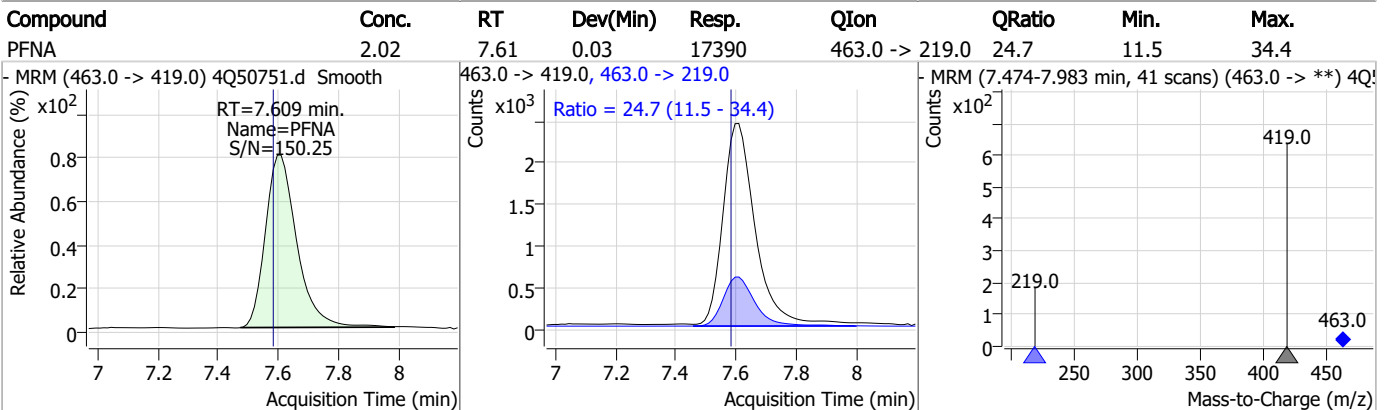
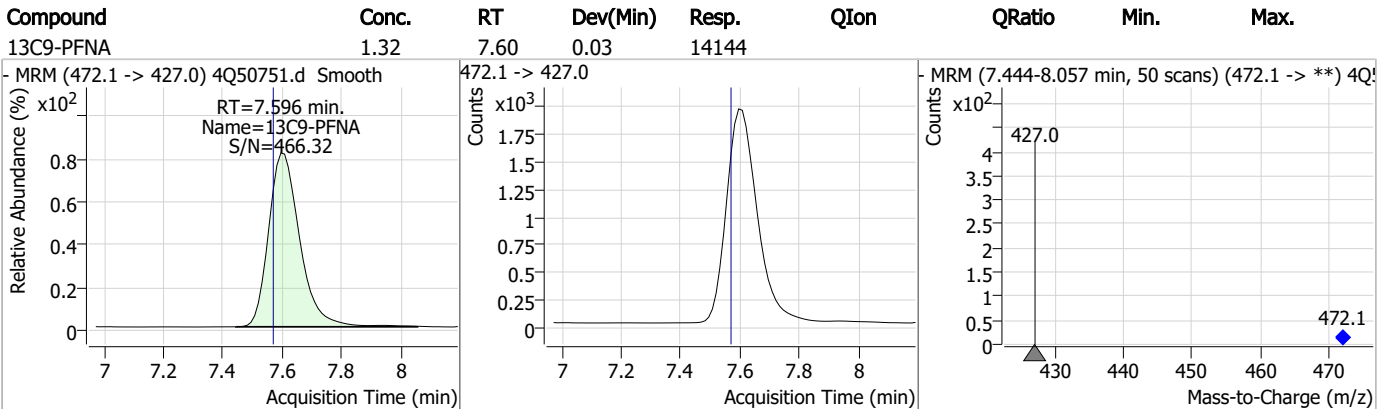
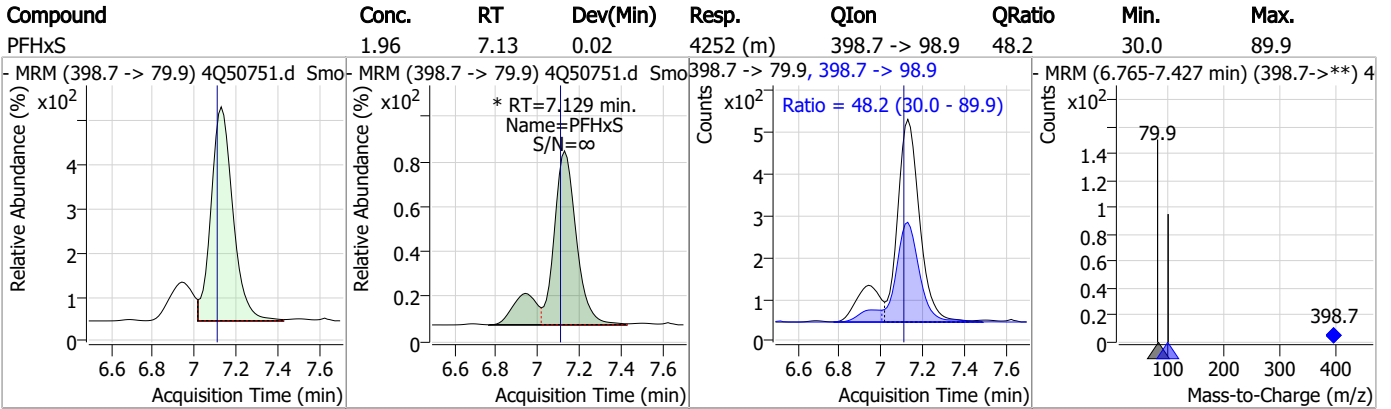
Perfluorinated Compounds by LC/MS/MS



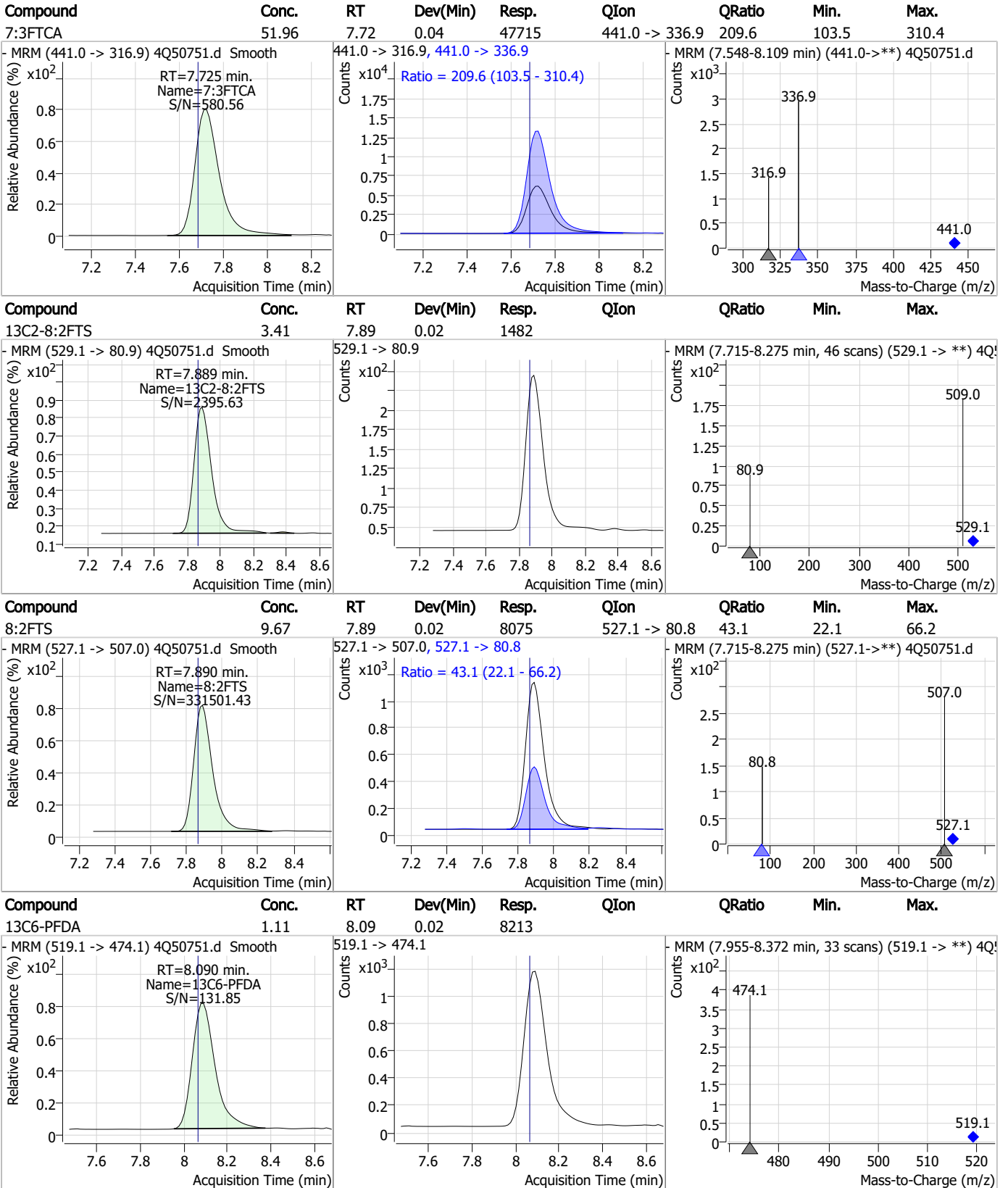
7.4.2

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Perfluorinated Compounds by LC/MS/MS



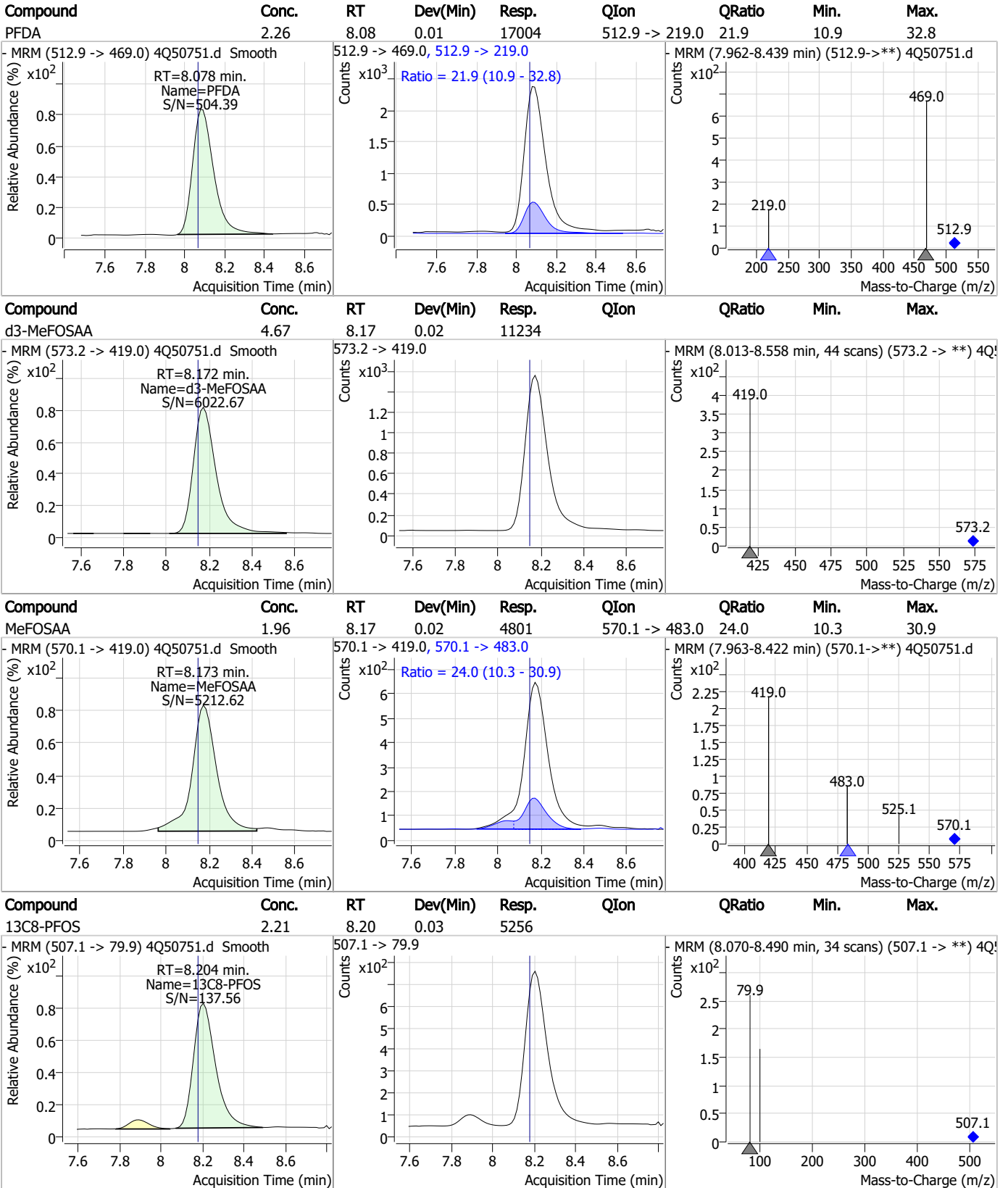
Perfluorinated Compounds by LC/MS/MS



7.4.2

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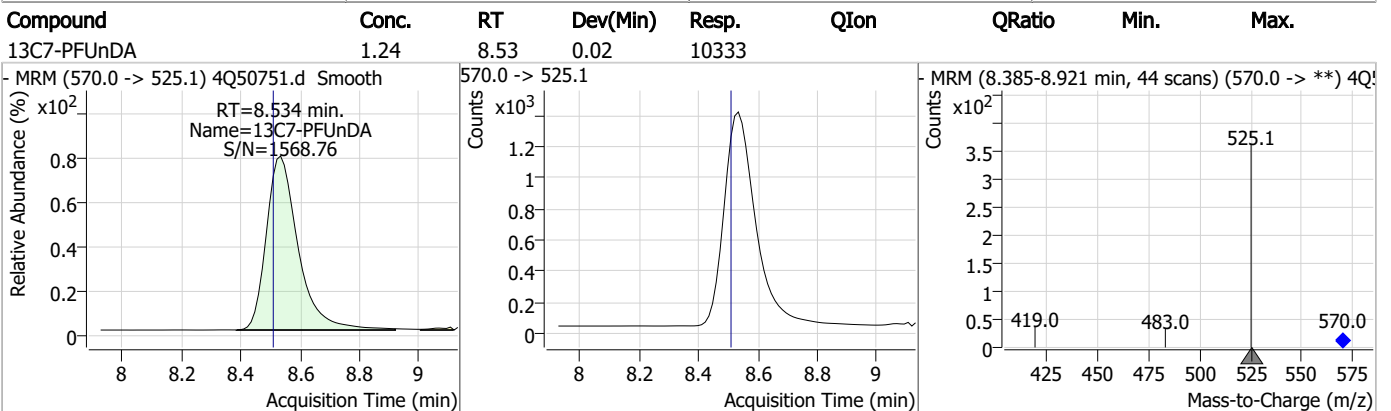
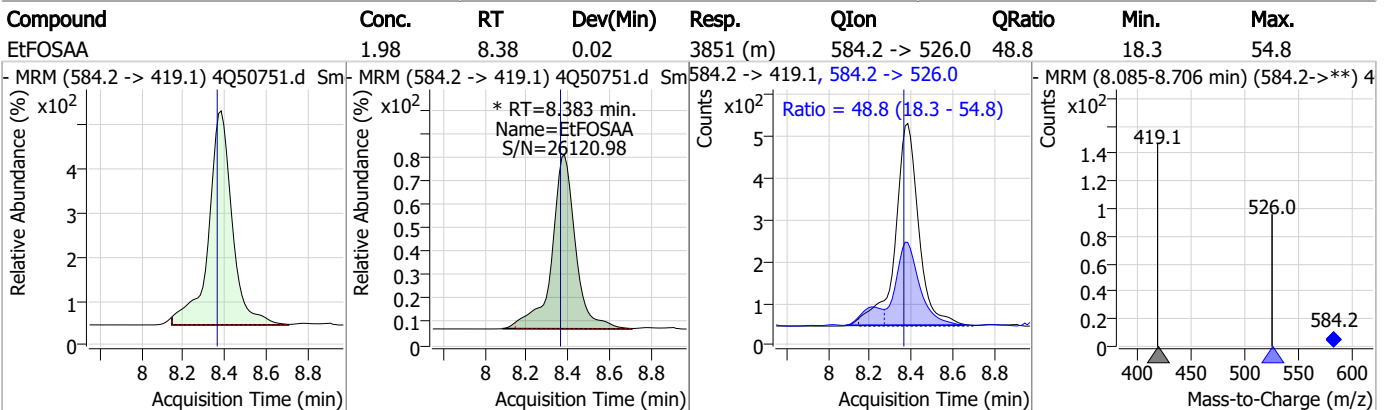
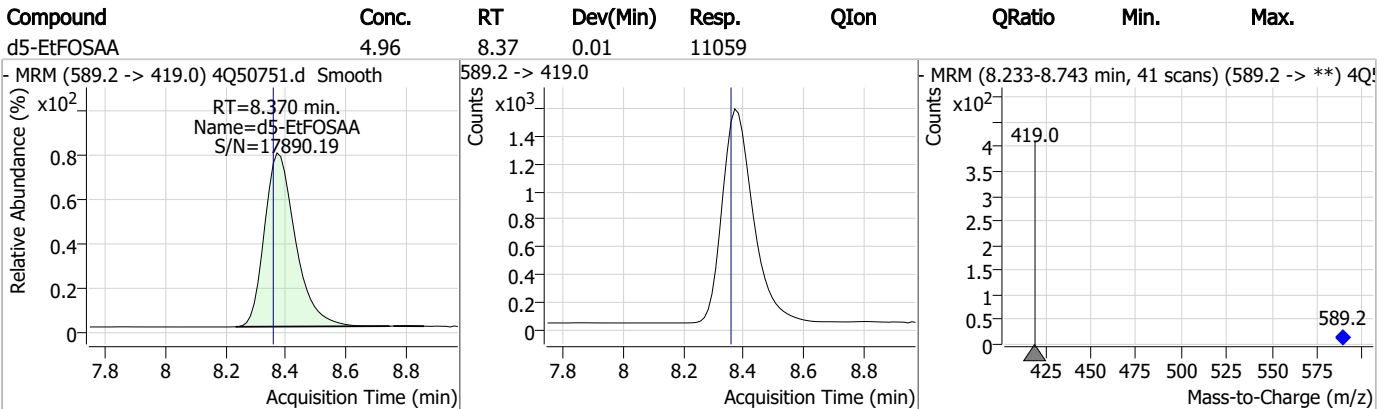
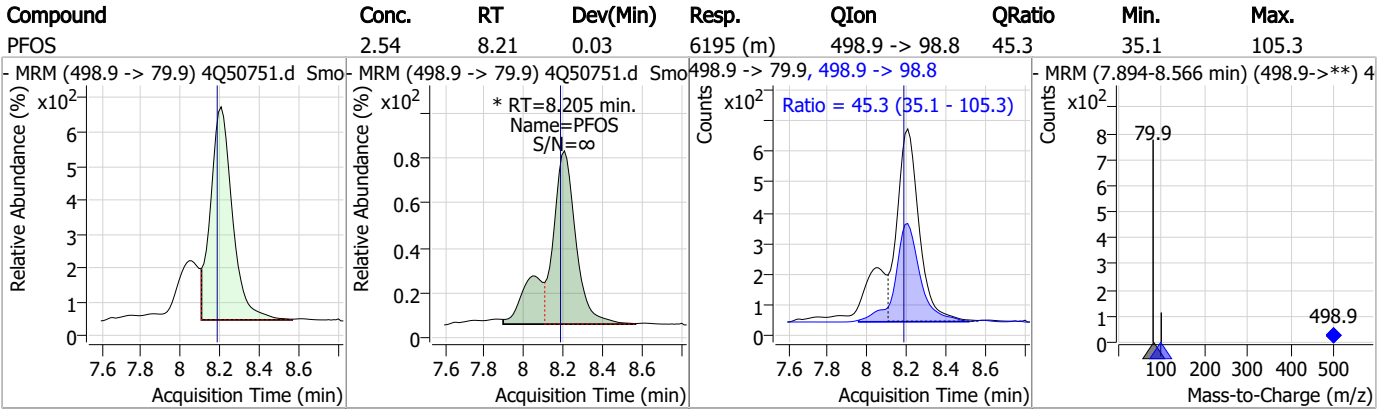
Perfluorinated Compounds by LC/MS/MS



7.4.2

7

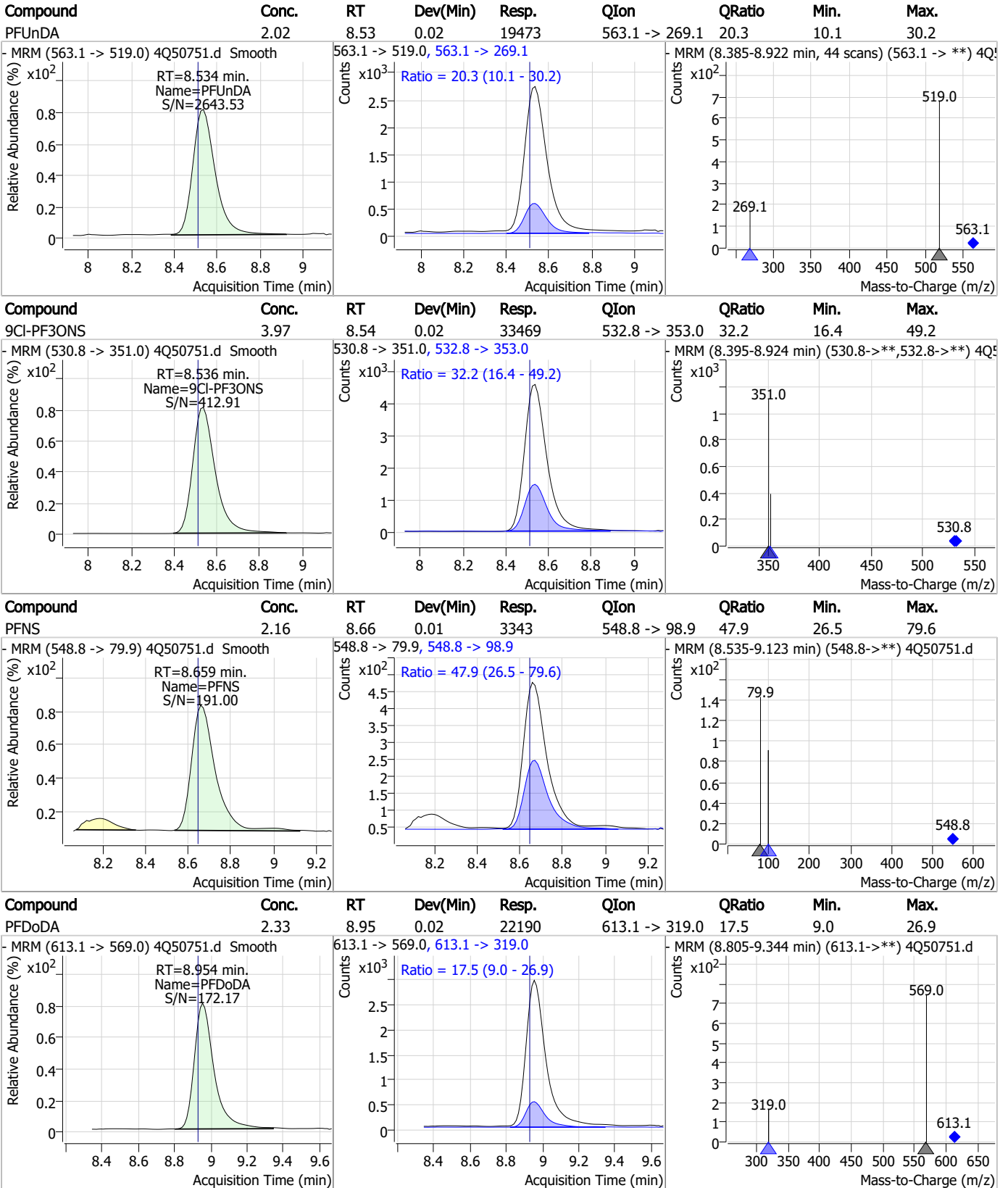
Perfluorinated Compounds by LC/MS/MS



7.4.2

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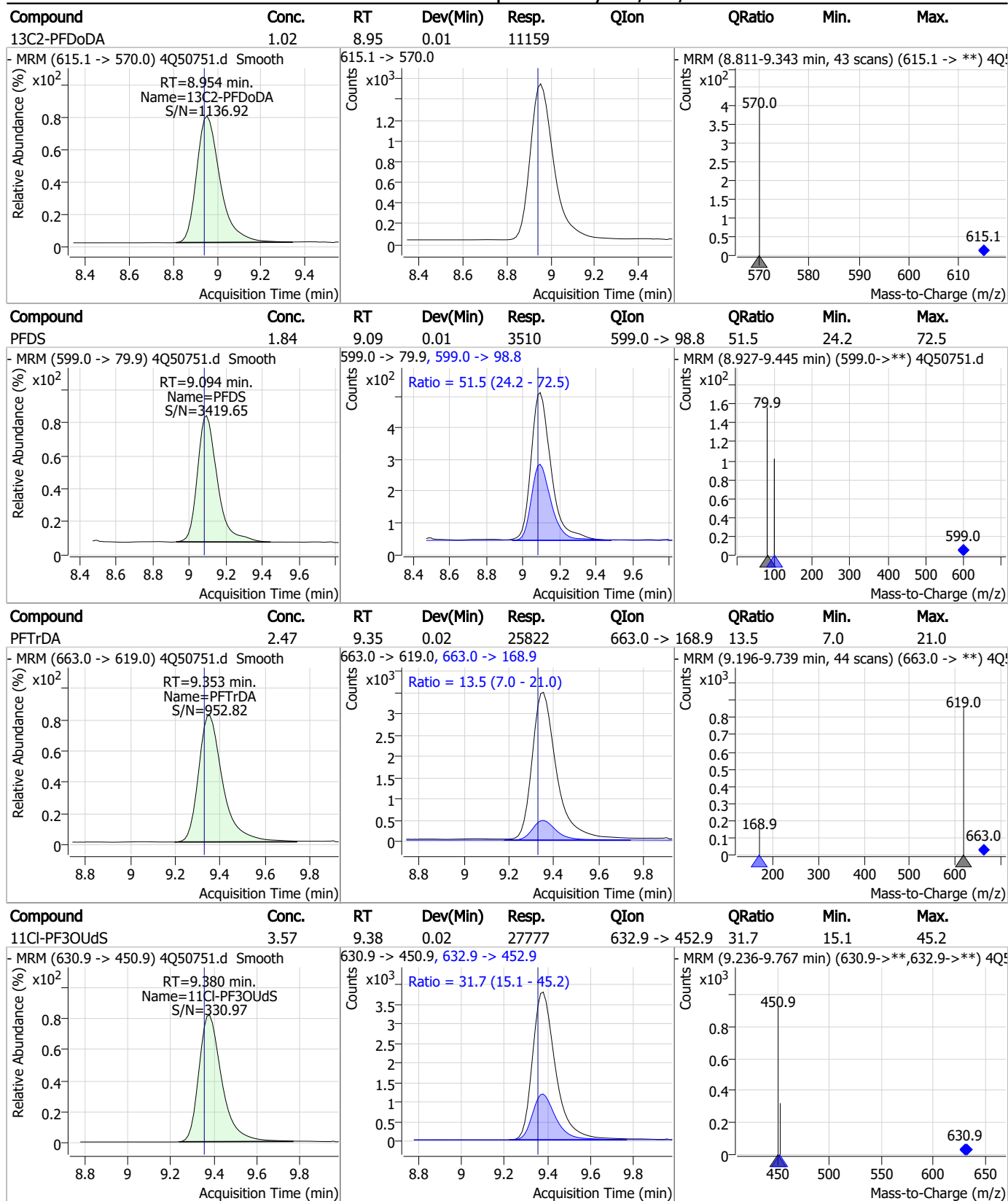
Perfluorinated Compounds by LC/MS/MS



7.4.2

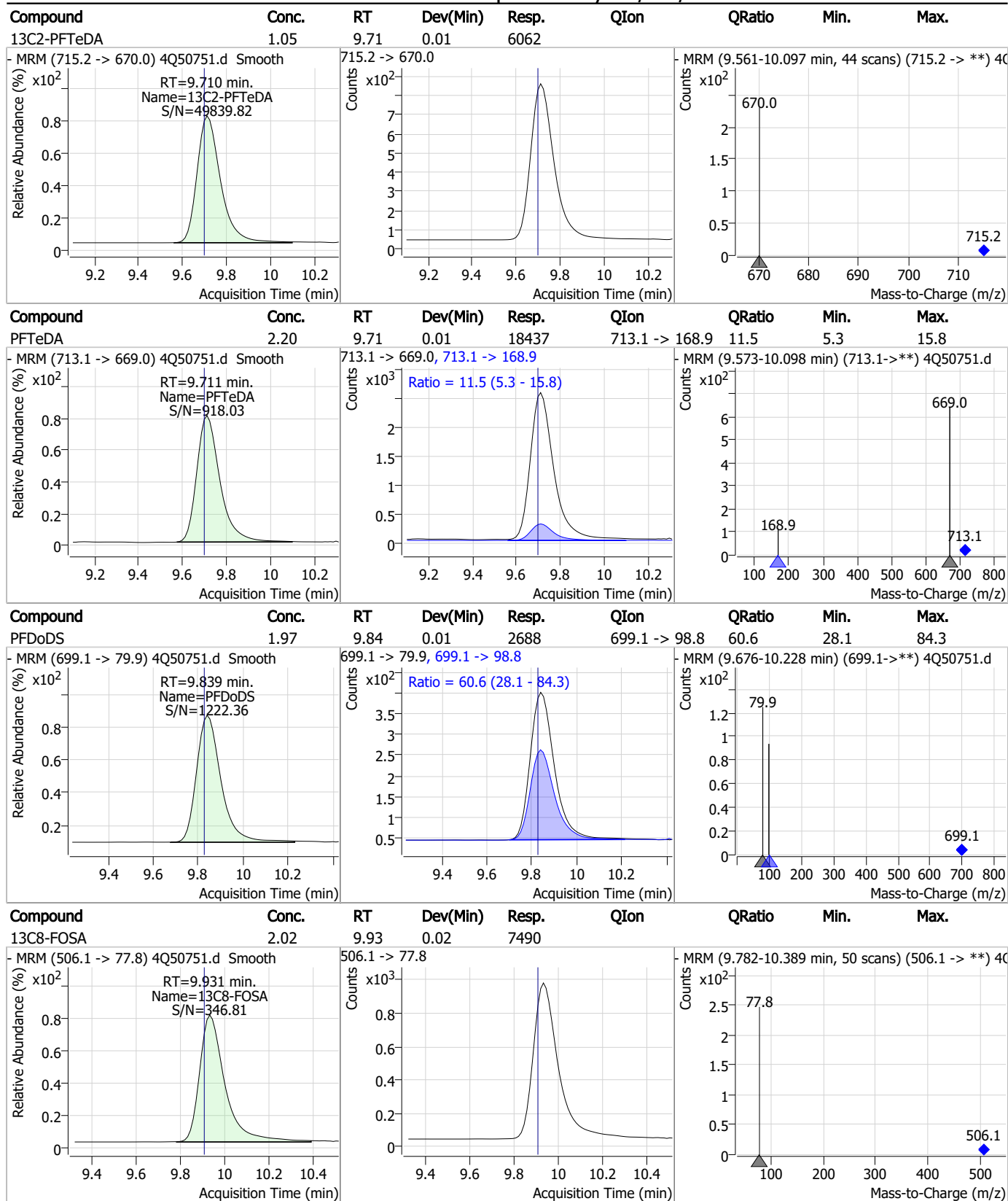
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Perfluorinated Compounds by LC/MS/MS



7.4.2
7

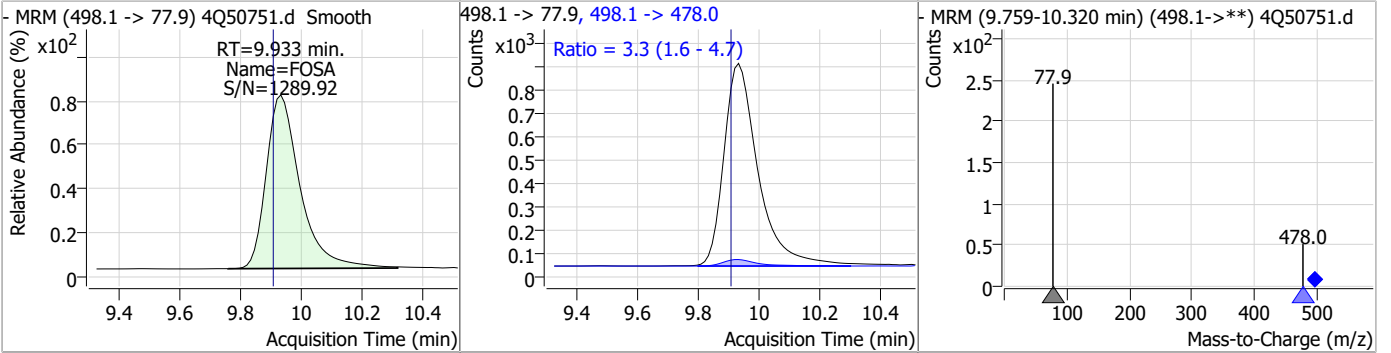
Perfluorinated Compounds by LC/MS/MS



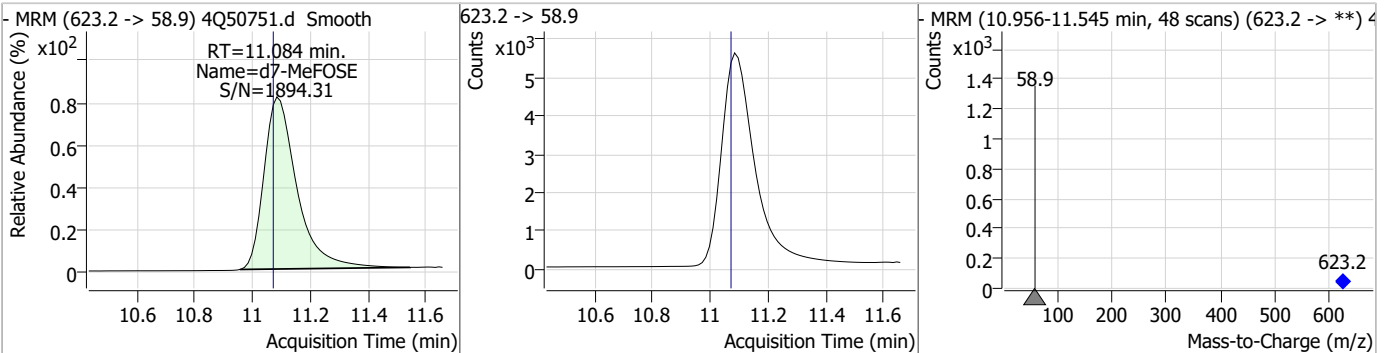
7.4.2
7

Perfluorinated Compounds by LC/MS/MS

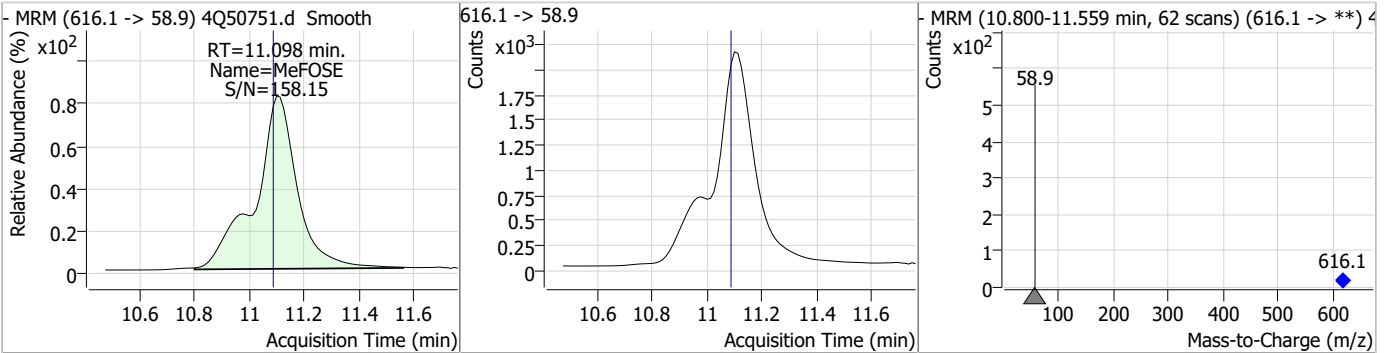
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.98	9.93	0.02	6757	498.1 -> 478.0	3.3	1.6	4.7



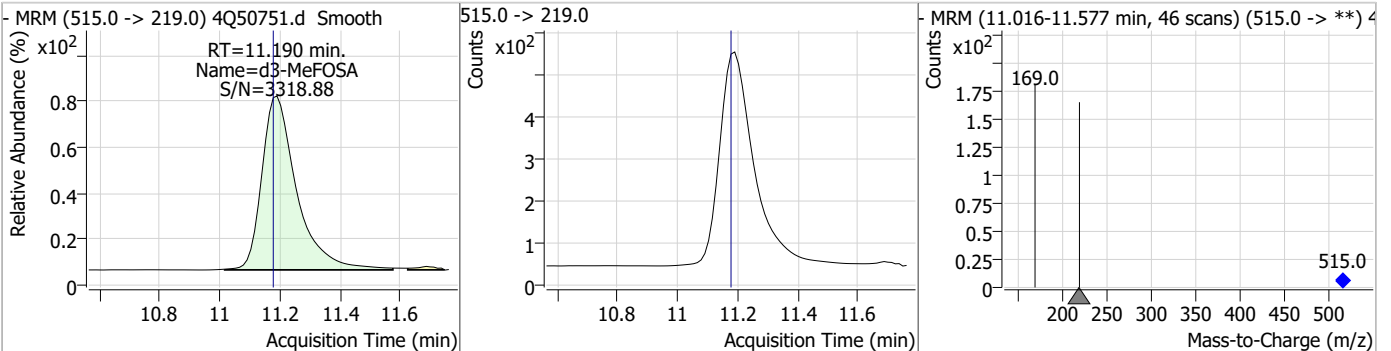
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.72	11.08	0.01	43868				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	10.61	11.10	0.01	22828				

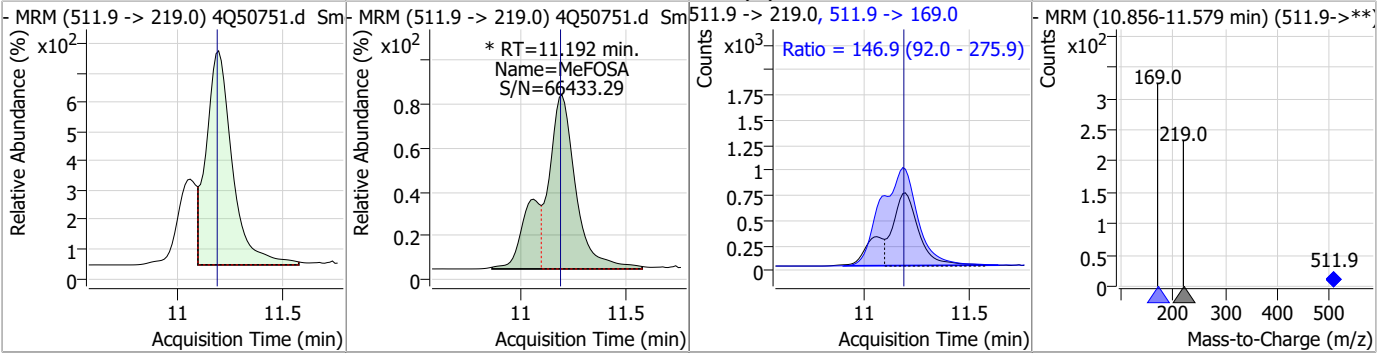


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.89	11.19	0.01	4104				

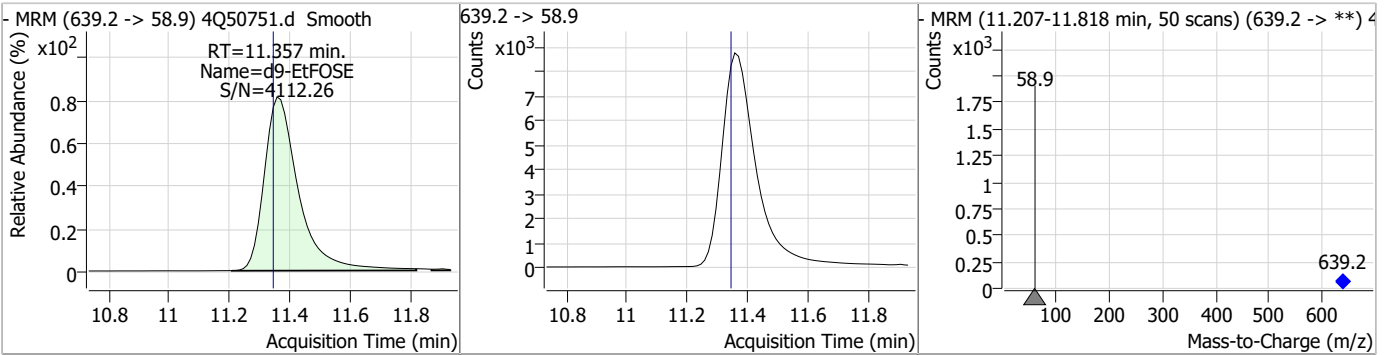


Perfluorinated Compounds by LC/MS/MS

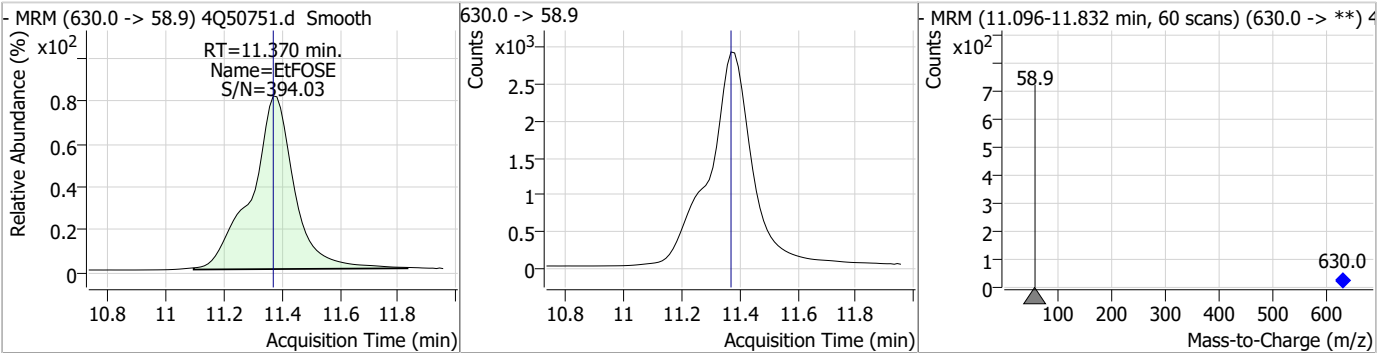
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.26	11.19	0.01	8243 (m)	511.9 -> 169.0	146.9	92.0	275.9



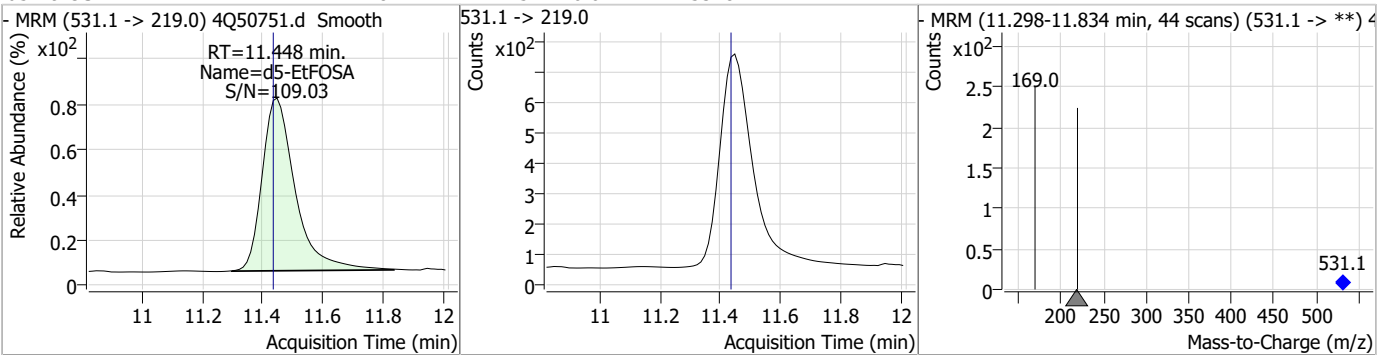
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	22.46	11.36	0.01	68595				



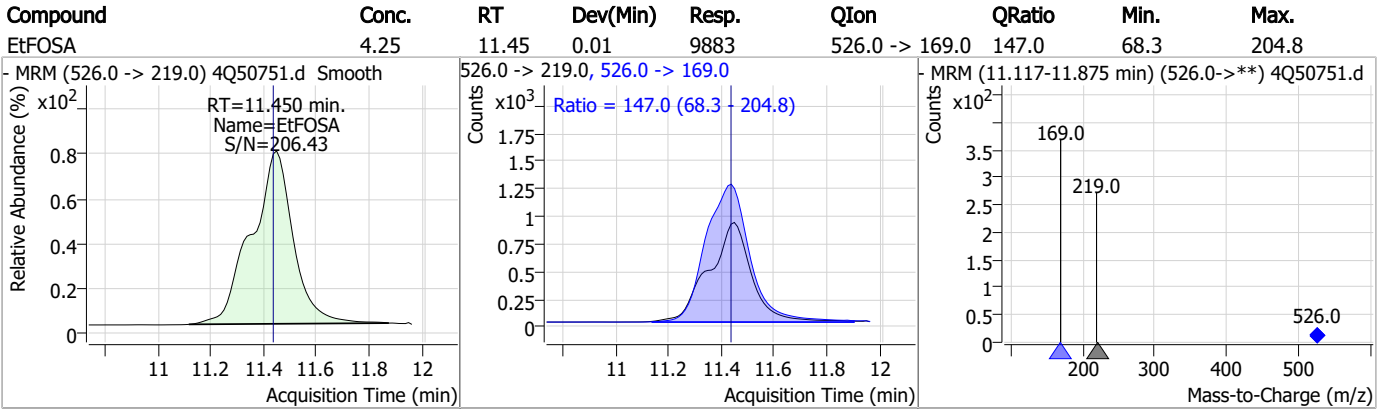
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	10.44	11.37	0.00	29560				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.81	11.45	0.01	5318				



Perfluorinated Compounds by LC/MS/MS



7.4.2

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Manual Integration Approval Summary

Sample Number: OP99024-MS Method: EPA DRAFT 1633
Lab FileID: 4Q50751.D Analyst approved: 09/19/23 10:33 Anna Ludwig
Injection Time: 09/18/23 19:37 Supervisor approved: 09/20/23 10:37 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.13	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.21	Split peak
EtFOSAA	2991-50-6		8.38	Split peak
MeFOSA	31506-32-8		11.19	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50752.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/18/2023 7:52:09 PM
 Sample Name : op99024-msd
 Vial : P1-E1
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q742.batch.bin
 Sample Information : OP99024,S4Q742,65,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.790	216.8 -> 171.9	91261	10.00 µg/L	0.078
M5-PFPeA	4.265	268.3 -> 223.0	33319	5.00 µg/L	0.050
M5-PFHxA	5.445	318.0 -> 273.0	31704	2.50 µg/L	0.037
M4-PFHpA	6.392	367.1 -> 322.0	21784	2.50 µg/L	0.038
M8-PFOA	7.062	421.1 -> 376.0	36657	2.50 µg/L	0.025
M9-PFNA	7.596	472.1 -> 427.0	13835	1.25 µg/L	0.026
M6-PFDA	8.078	519.1 -> 474.1	9397	1.25 µg/L	0.012
M7-PFUnDA	8.534	570.0 -> 525.1	10125	1.25 µg/L	0.025
M2-PFDoDA	8.954	615.1 -> 570.0	11792	1.25 µg/L	0.012
M2-PFTeDA	9.710	715.2 -> 670.0	6019	1.25 µg/L	0.012
M8-FOSA	9.931	506.1 -> 77.8	7163	2.50 µg/L	0.025
M3-PFBS	5.300	302.1 -> 79.9	7783	2.50 µg/L	0.037
M3-PFHxS	7.128	402.1 -> 79.9	4741	2.50 µg/L	0.025
M8-PFOS	8.204	507.1 -> 79.9	5466	2.50 µg/L	0.026
M2-4:2FTS	5.146	329.1 -> 80.9	866	5.00 µg/L	0.037
M2-6:2FTS	6.847	429.1 -> 80.9	1252	5.00 µg/L	0.037
M2-8:2FTS	7.889	529.1 -> 80.9	1699	5.00 µg/L	0.025
M3-MeFOSAA	8.172	573.2 -> 419.0	11551	5.00 µg/L	0.025
M3-HFPO-DA	5.788	286.9 -> 168.9	30474	10.00 µg/L	0.025
M5-EtFOSAA	8.370	589.2 -> 419.0	11644	5.00 µg/L	0.012
M7-MeFOSE	11.085	623.2 -> 58.9	44582	25.00 µg/L	0.012
M9-EtFOSE	11.357	639.2 -> 58.9	70282	25.00 µg/L	0.012
M5-EtFOSA	11.448	531.1 -> 219.0	6055	2.50 µg/L	0.012
M3-MeFOSA	11.190	515.0 -> 219.0	4398	2.50 µg/L	0.012
13C4-PFOS	8.205	502.8 -> 79.9	5921	2.50 µg/L	0.026
13C3-PFBA	2.793	216.0 -> 172.0	46026	5.00 µg/L	0.077
18O2-PFHxS	7.127	403.0 -> 83.9	3606	2.50 µg/L	0.025
13C4-PFOA	7.062	417.1 -> 372.0	41901	2.50 µg/L	0.025
13C2-PFDA	8.090	515.1 -> 470.1	10699	1.25 µg/L	0.025
13C5-PFNA	7.596	468.0 -> 423.0	13362	1.25 µg/L	0.026
13C2-PFHxA	5.433	315.1 -> 270.0	28834	2.50 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.146	329.1 -> 80.9	866	4.40 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.9%		
13C2-6:2FTS	6.847	429.1 -> 80.9	1252	4.11 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 82.2%		
13C2-8:2FTS	7.889	529.1 -> 80.9	1699	3.61 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 72.2%		
13C2-PFDoDA	8.954	615.1 -> 570.0	11792	0.98 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.2%		
13C2-PFTeDA	9.710	715.2 -> 670.0	6019	0.94 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 75.4%		
13C3-PFBS	5.300	302.1 -> 79.9	7783	2.25 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.2%		
13C3-PFHxS	7.128	402.1 -> 79.9	4741	2.19 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 87.5%		
13C4-PFBA	2.790	216.8 -> 171.9	91261	10.02 µg/L	0.078
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C4-PFHpA	6.392	367.1 -> 322.0	21784	2.39 µg/L	0.038
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C5-PFHxA	5.445	318.0 -> 273.0	31704	2.42 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C5-PFPeA	4.265	268.3 -> 223.0	33319	4.91 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C6-PFDA	8.078	519.1 -> 474.1	9397	1.15 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.4%		
13C7-PFUnDA	8.534	570.0 -> 525.1	10125	1.10 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.3%		
13C8-FOSA	9.931	506.1 -> 77.8	7163	1.75 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 70.0%		
13C8-PFOA	7.062	421.1 -> 376.0	36657	2.38 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C8-PFOS	8.204	507.1 -> 79.9	5466	2.08 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 83.1%		
13C9-PFNA	7.596	472.1 -> 427.0	13835	1.13 µg/L	0.026
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.7%		
d3-MeFOSAA	8.172	573.2 -> 419.0	11551	4.34 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.9%		
13C3-HFPO-DA	5.788	286.9 -> 168.9	30474	9.77 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.7%		
d3-MeFOSA	11.190	515.0 -> 219.0	4398	1.83 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 73.2%		
d5-EtFOSAA	8.370	589.2 -> 419.0	11644	4.73 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.5%		
d7-MeFOSE	11.085	623.2 -> 58.9	44582	19.06 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 76.2%		
d9-EtFOSE	11.357	639.2 -> 58.9	70282	20.82 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 83.3%		
d5-EtFOSA	11.448	531.1 -> 219.0	6055	1.87 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 74.7%		
Target Compounds					QValue
4:2FTS	5.147	327.1 -> 307.0	12162	8.29 µg/L	99
		327.1 -> 80.9	4940		
6:2FTS	6.847	427.1 -> 407.0	12640	8.74 µg/L	97
		427.1 -> 80.9	4587		
8:2FTS	7.890	527.1 -> 507.0	9059	9.46 µg/L	99
		527.1 -> 80.8	3914		
EtFOSAA	8.383	584.2 -> 419.1	5016	2.45 µg/L	96
		584.2 -> 526.0	1952		
FOSA	9.933	498.1 -> 77.9	7330	2.25 µg/L	99
		498.1 -> 478.0	256		
MeFOSAA	8.173	570.1 -> 419.0	5811	2.30 µg/L	96
		570.1 -> 483.0	1078		
PFBA	2.796	212.8 -> 168.9	30527	8.74 µg/L	100
PFBS	5.301	298.7 -> 79.9	7762	2.12 µg/L	96
		298.7 -> 98.8	3022		
PFDA	8.091	512.9 -> 469.0	19337	2.25 µg/L	97
		512.9 -> 219.0	3918		
PFDODA	8.954	613.1 -> 569.0	24872	2.47 µg/L	100
		613.1 -> 319.0	4417		
PFDS	9.094	599.0 -> 79.9	4035	2.04 µg/L	96

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2063			
PFHpA	6.392	363.1 -> 319.0	29025	2.24	µg/L	98
		363.1 -> 169.0	6042			
PFHpS	7.698	449.0 -> 79.9	5213	2.22	µg/L	98
		449.0 -> 98.9	2834			
PFHxA	5.435	313.0 -> 269.0	25234	2.25	µg/L	99
		313.0 -> 118.9	913			
PFHxS	7.129	398.7 -> 79.9	4600	2.20	µg/L	m 88
		398.7 -> 98.9	2326			
PFNA	7.596	463.0 -> 419.0	20118	2.39	µg/L	95
		463.0 -> 219.0	4106			
PFNS	8.659	548.8 -> 79.9	3645	2.27	µg/L	95
		548.8 -> 98.9	1804			
PFOA	7.063	413.0 -> 369.0	37565	2.28	µg/L	98
		413.0 -> 169.0	7818			
PFOS	8.205	498.9 -> 79.9	5889	2.32	µg/L	m 75
		498.9 -> 98.8	2902			
PFPeA	4.266	263.0 -> 219.0	47541	4.53	µg/L	100
PFPeS	6.382	349.1 -> 79.9	4271	2.19	µg/L	92
		349.1 -> 98.9	1843			
PFTeDA	9.711	713.1 -> 669.0	21582	2.60	µg/L	99
		713.1 -> 168.9	2216			
PFTrDA	9.353	663.0 -> 619.0	27884	2.52	µg/L	100
		663.0 -> 168.9	3931			
PFUnDA	8.534	563.1 -> 519.0	20866	2.21	µg/L	98
		563.1 -> 269.1	4390			
11Cl-PF3OUdS	9.380	630.9 -> 450.9	31195	3.87	µg/L	99
		632.9 -> 452.9	9578			
9Cl-PF3ONS	8.536	530.8 -> 351.0	35671	4.08	µg/L	98
		532.8 -> 353.0	11394			
ADONA	6.654	376.9 -> 250.9	97286	4.25	µg/L	99
		376.9 -> 84.8	25073			
HFPO-DA	5.801	284.9 -> 168.9	14949	4.53	µg/L	98
		284.9 -> 184.9	2221			
3:3FTCA	3.818	241.0 -> 177.0	5303	8.54	µg/L	95
		241.0 -> 117.0	579			
5:3FTCA	6.218	341.0 -> 237.1	107228	54.27	µg/L	96
		341.0 -> 217.0	81448			
7:3FTCA	7.712	441.0 -> 316.9	52824	55.98	µg/L	98
		441.0 -> 336.9	111135			
EtFOSA	11.450	526.0 -> 219.0	11652	4.40	µg/L	99
		526.0 -> 169.0	16100			
EtFOSE	11.370	630.0 -> 58.9	31711	10.93	µg/L	100
MeFOSA	11.192	511.9 -> 219.0	9015	4.35	µg/L	m 80
		511.9 -> 169.0	13925			
MeFOSE	11.098	616.1 -> 58.9	24861	11.37	µg/L	100
PFDoDS	9.839	699.1 -> 79.9	3094	2.19	µg/L	98
		699.1 -> 98.8	1703			
NFDHA	5.327	295.0 -> 201.0	3144	4.72	µg/L	91
		295.0 -> 84.9	841			
PFMBA	4.666	279.0 -> 85.1	25096	4.50	µg/L	100
PFMPA	3.408	229.0 -> 84.9	28713	4.59	µg/L	100
PFEESA	5.820	314.8 -> 134.9	44845	4.11	µg/L	100
		314.8 -> 82.9	1331			

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

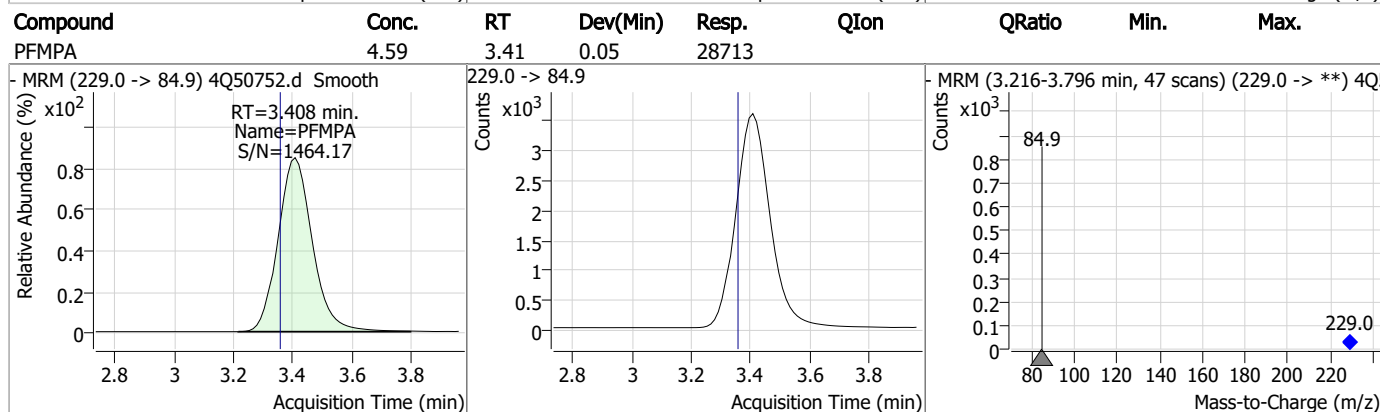
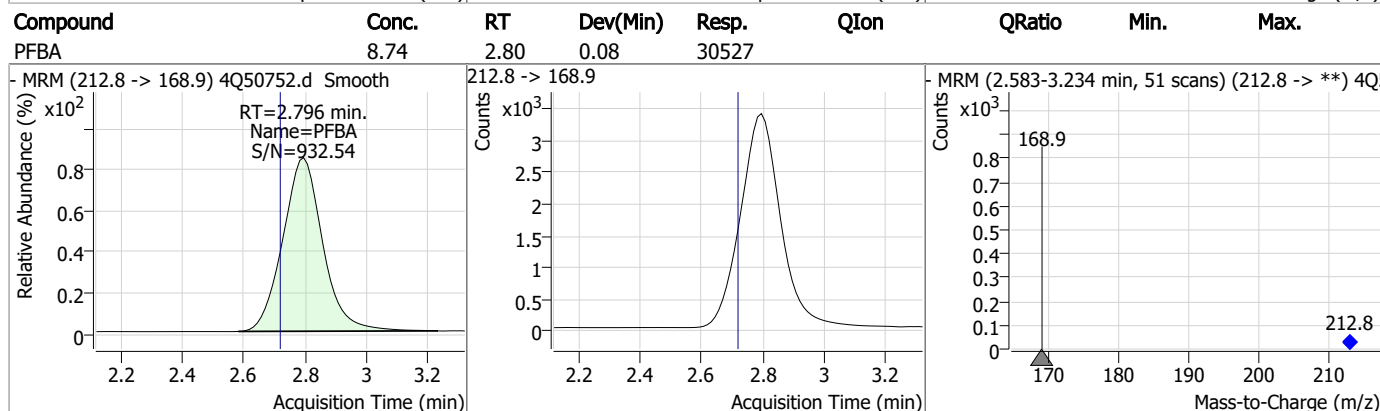
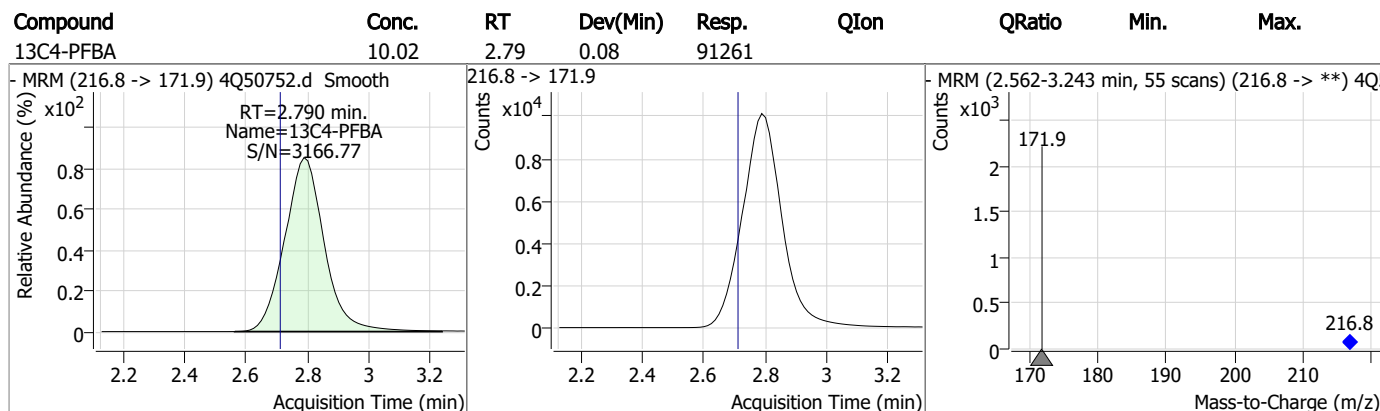
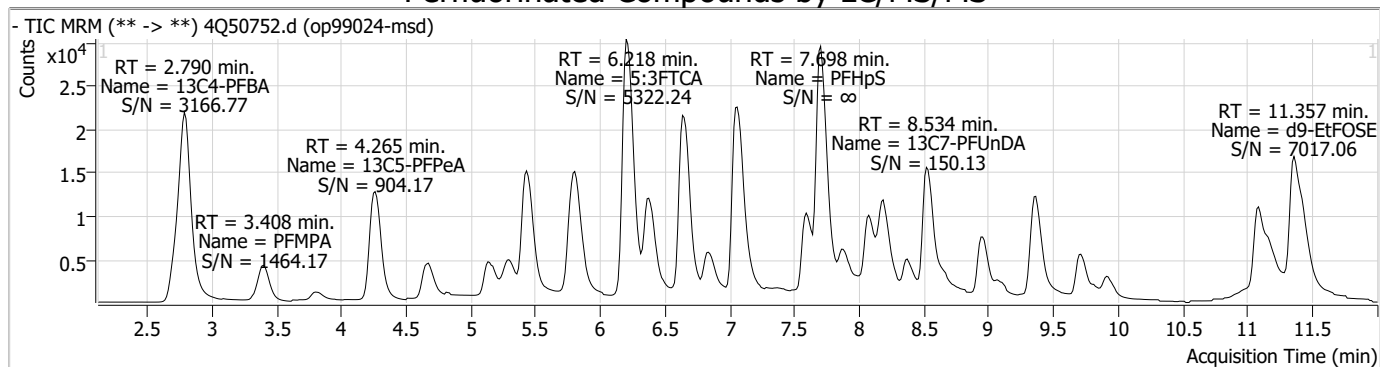
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.4.3
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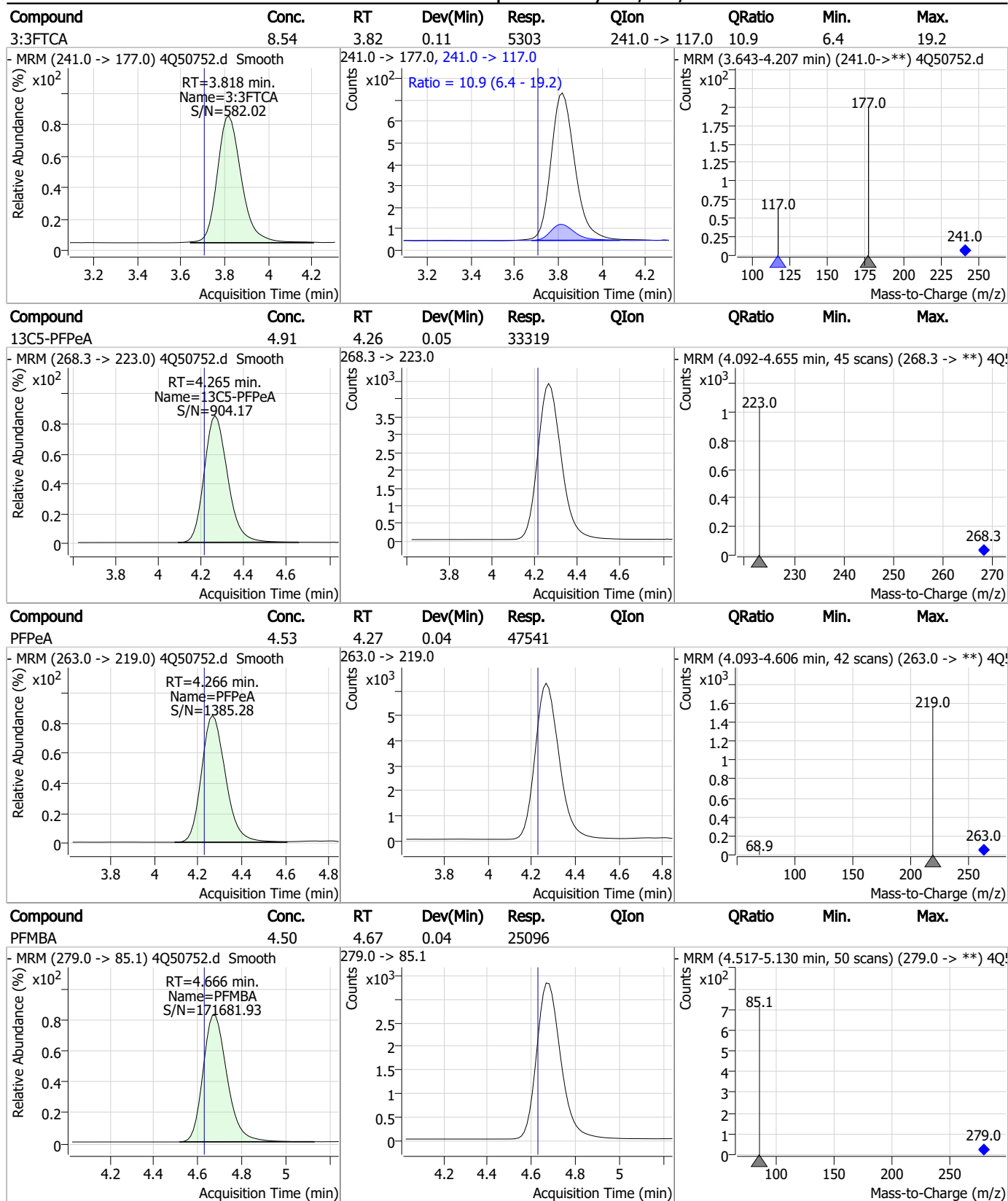


Perfluorinated Compounds by LC/MS/MS



7.4.3
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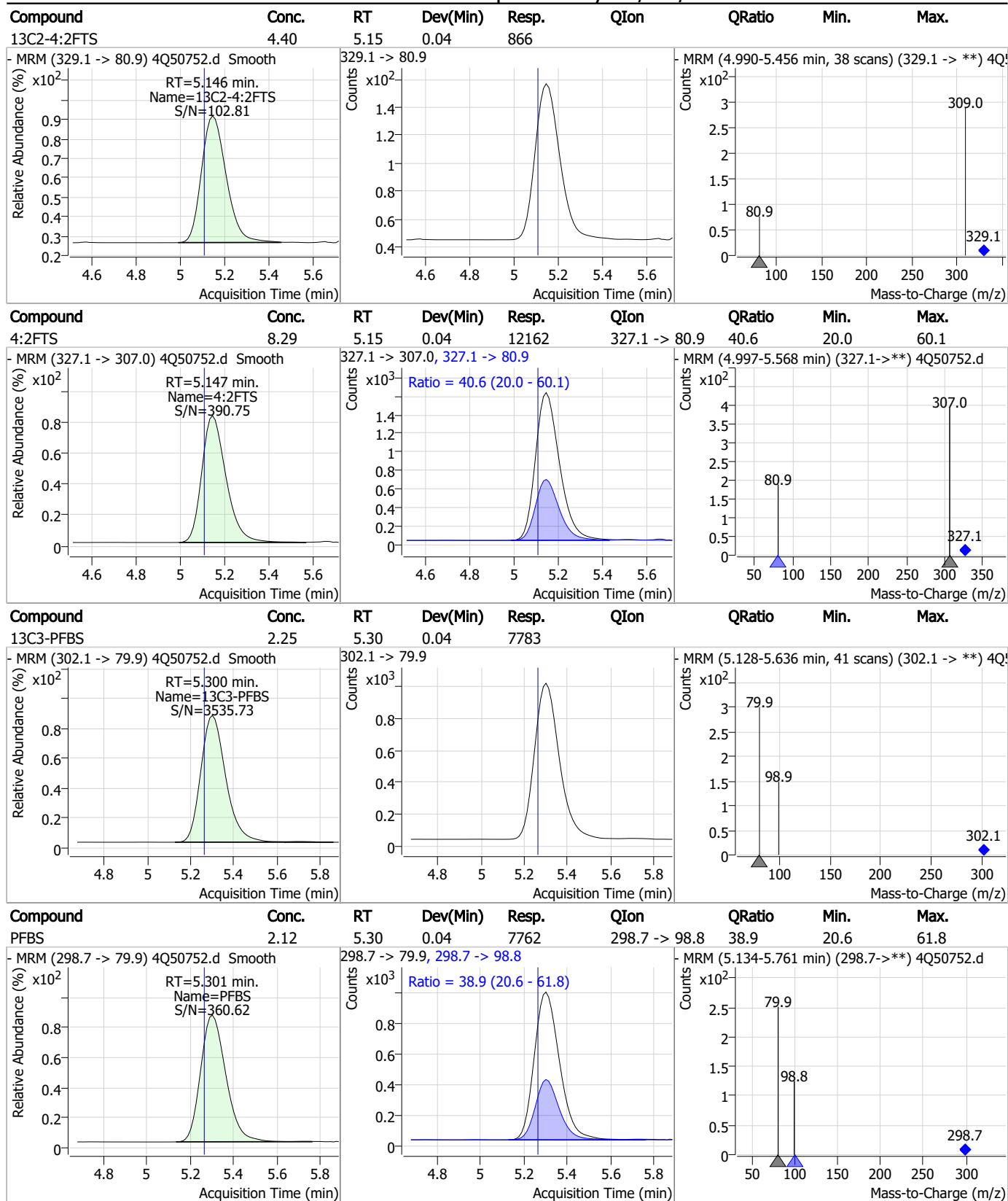
Perfluorinated Compounds by LC/MS/MS



7.4.3

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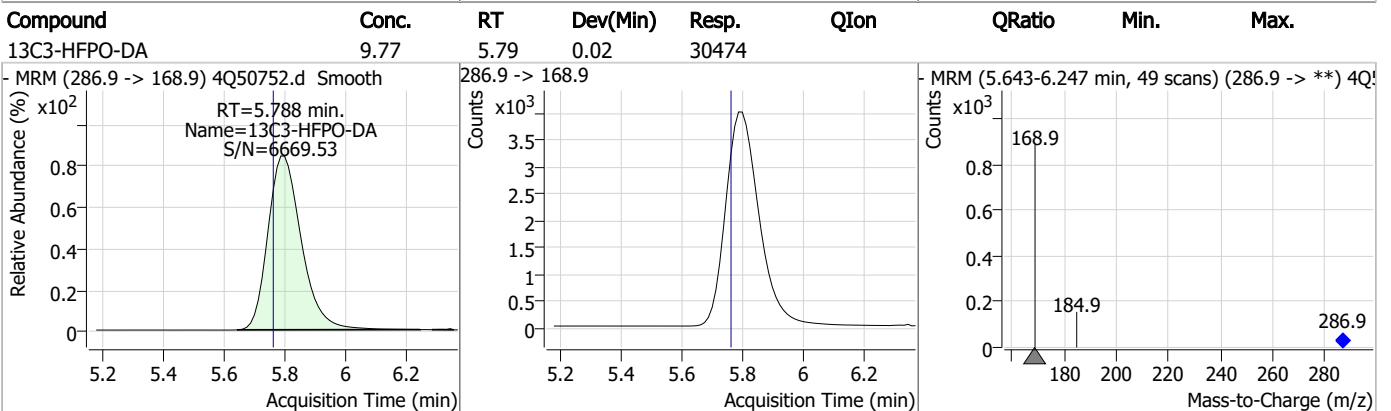
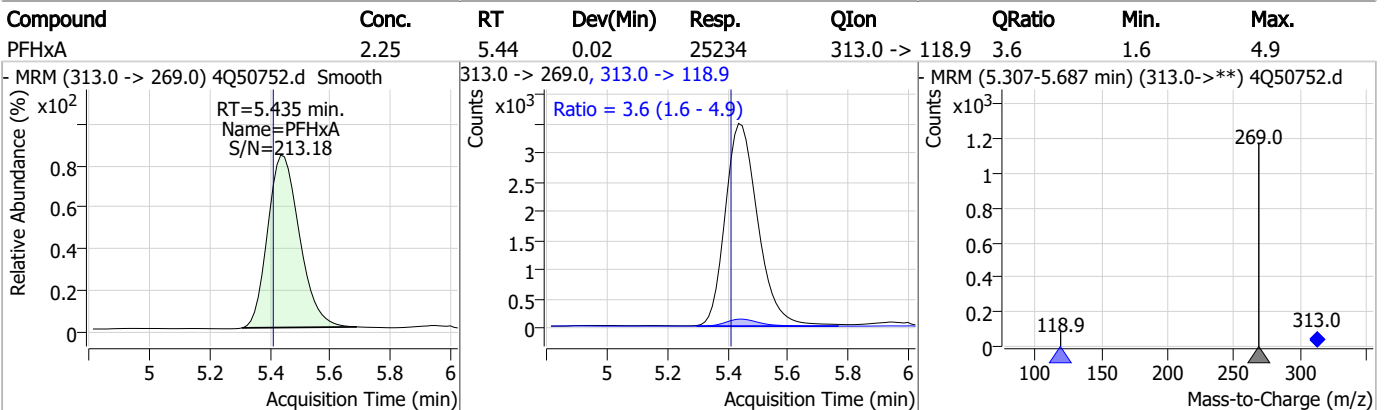
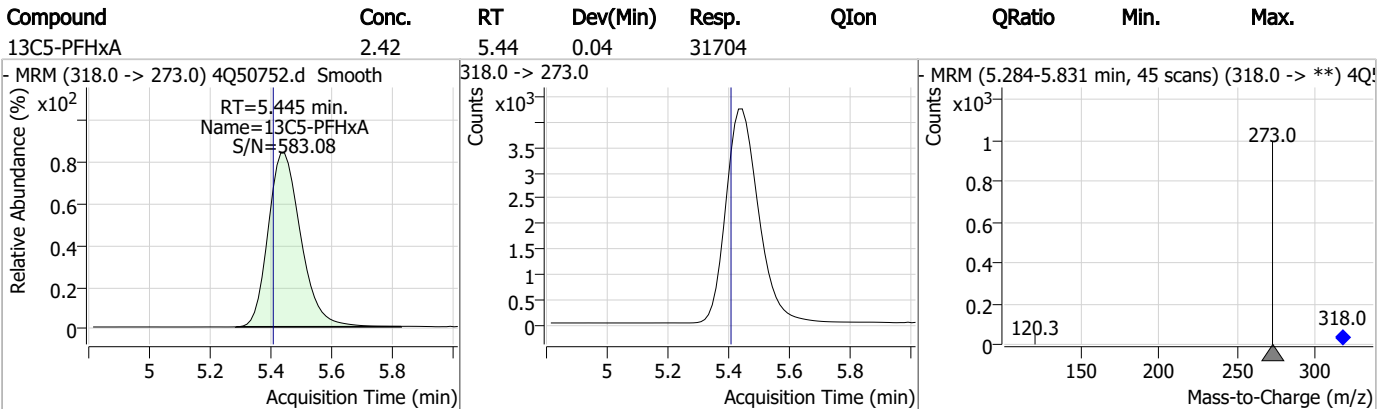
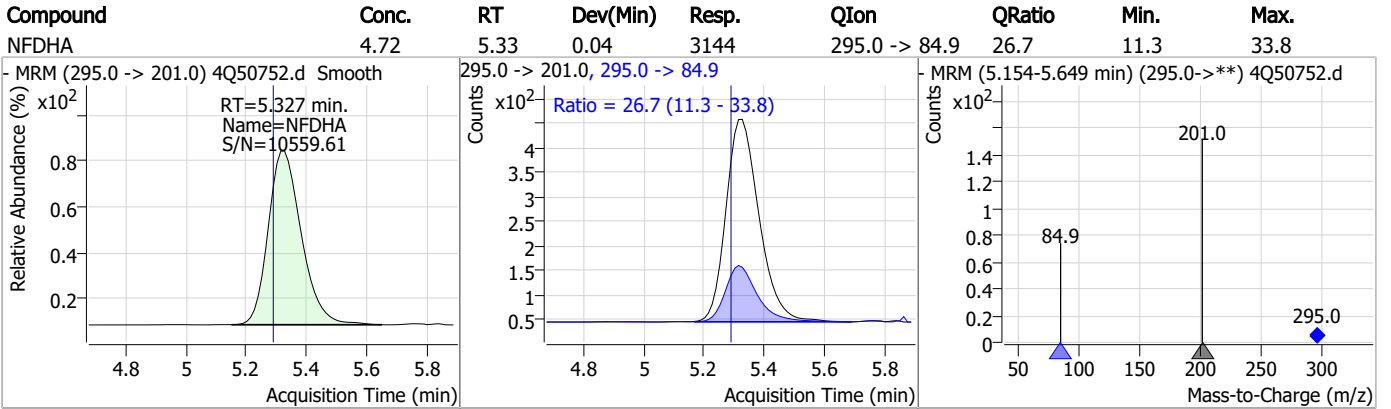
Perfluorinated Compounds by LC/MS/MS



7.4.3

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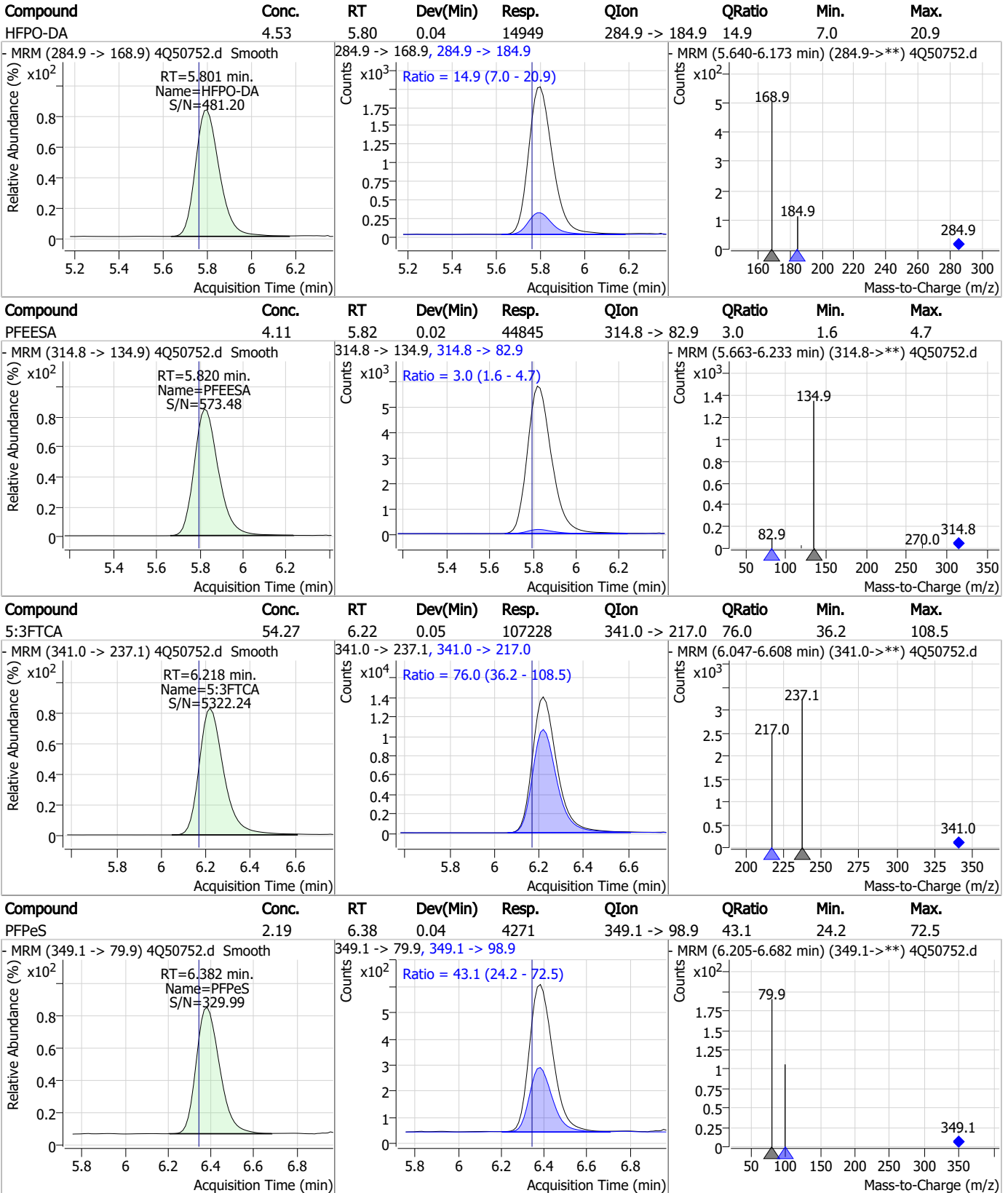
Perfluorinated Compounds by LC/MS/MS



7.4.3

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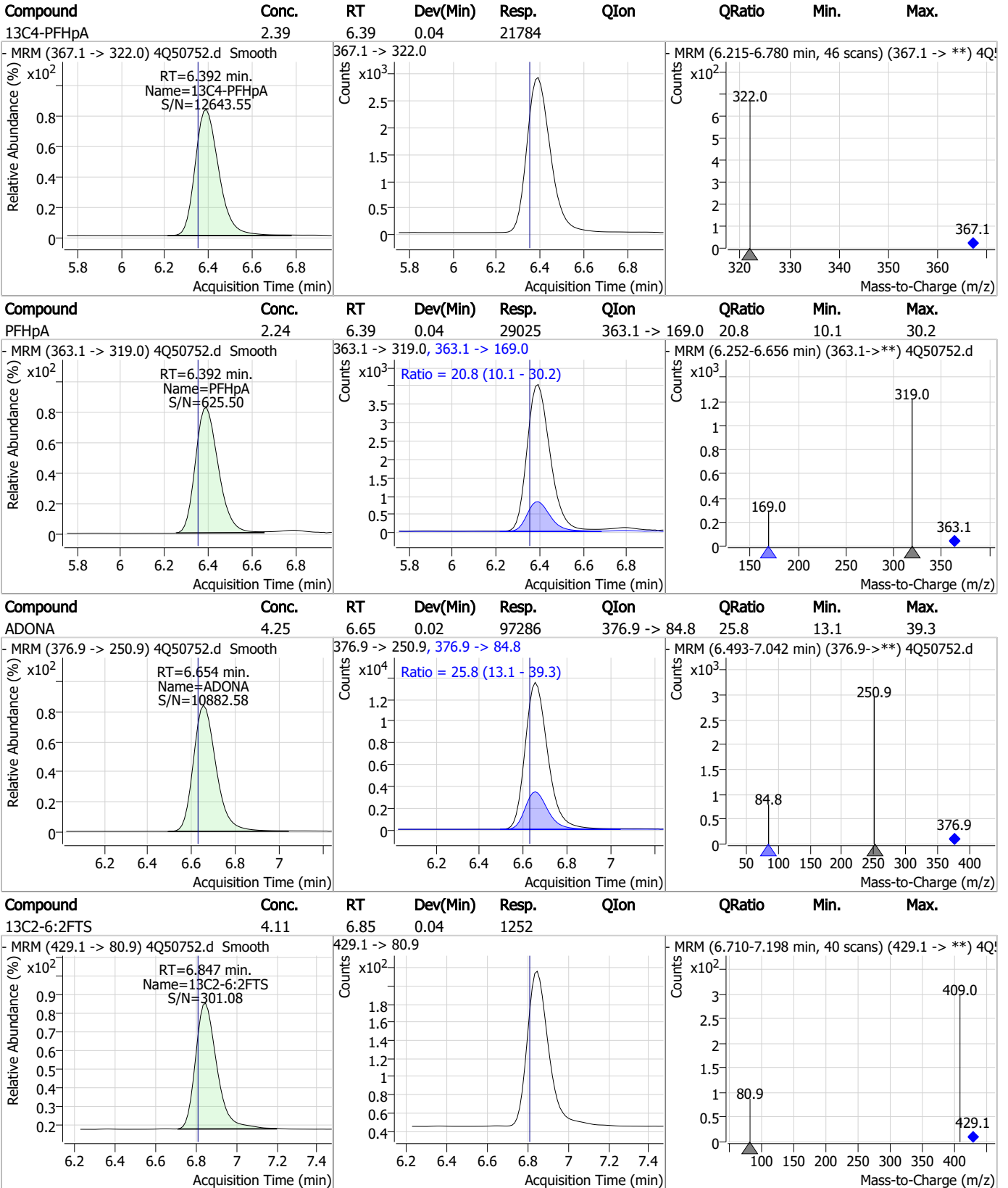
Perfluorinated Compounds by LC/MS/MS



7.4.3

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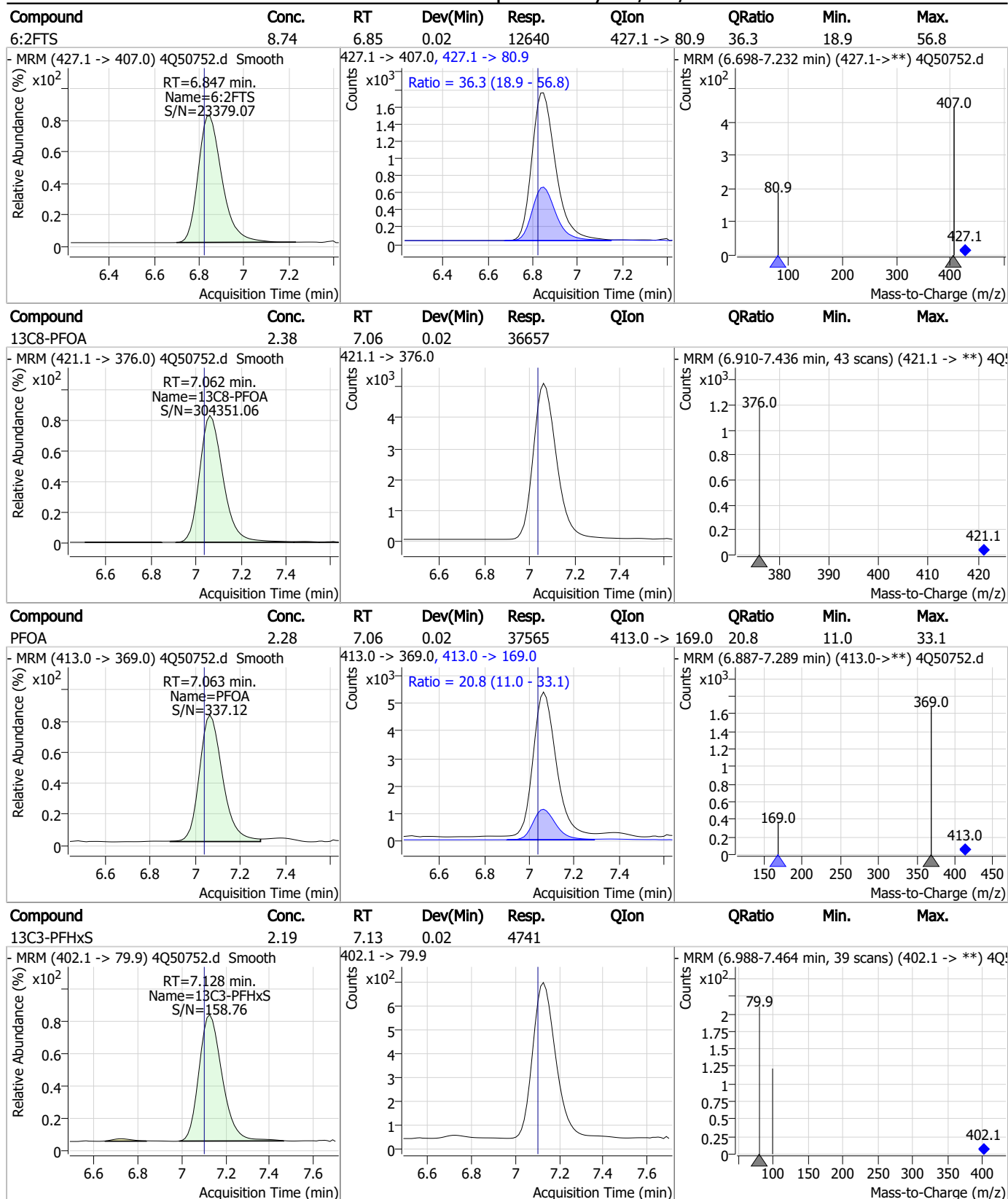
Perfluorinated Compounds by LC/MS/MS



7.4.3

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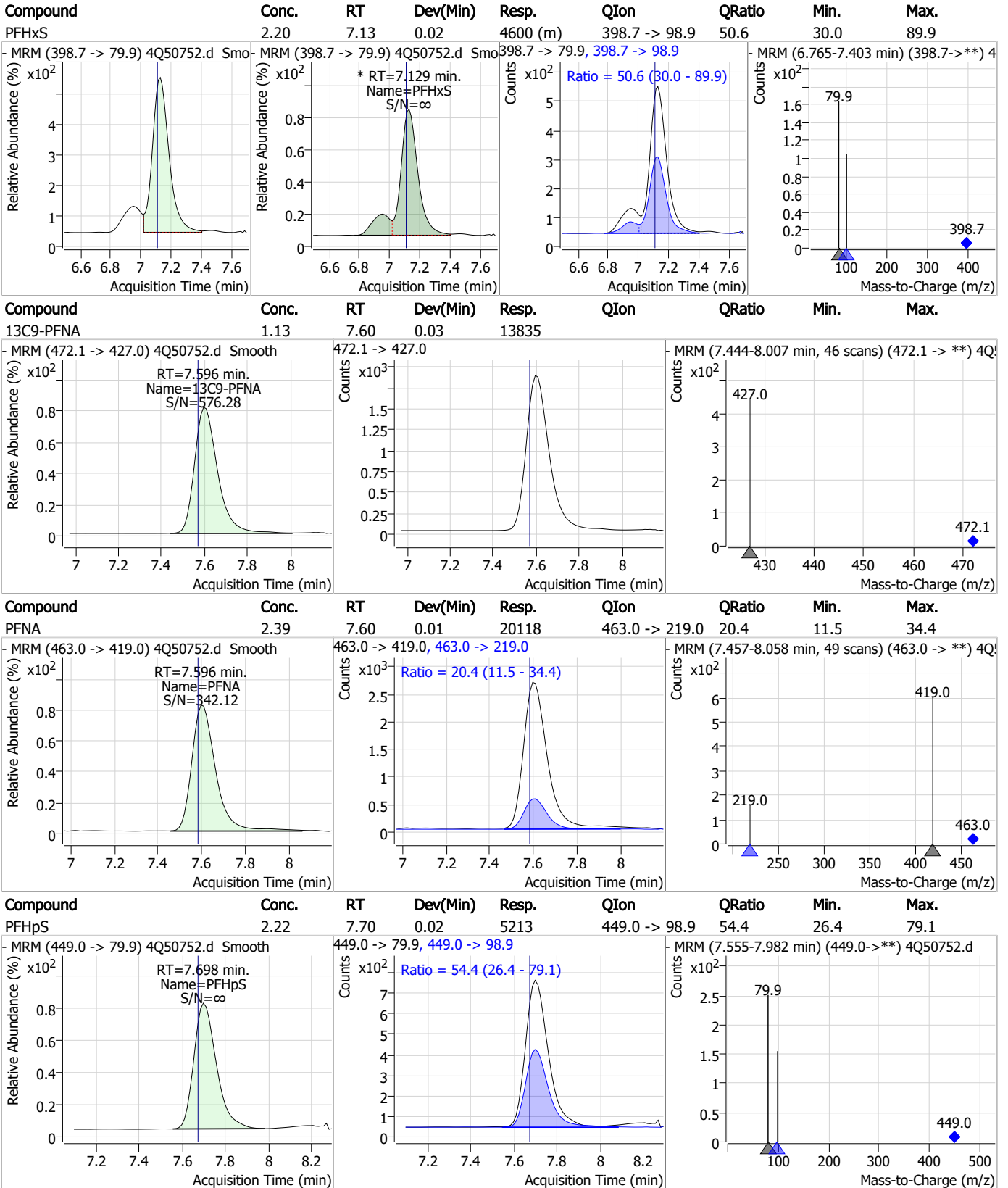
Perfluorinated Compounds by LC/MS/MS



7.4.3
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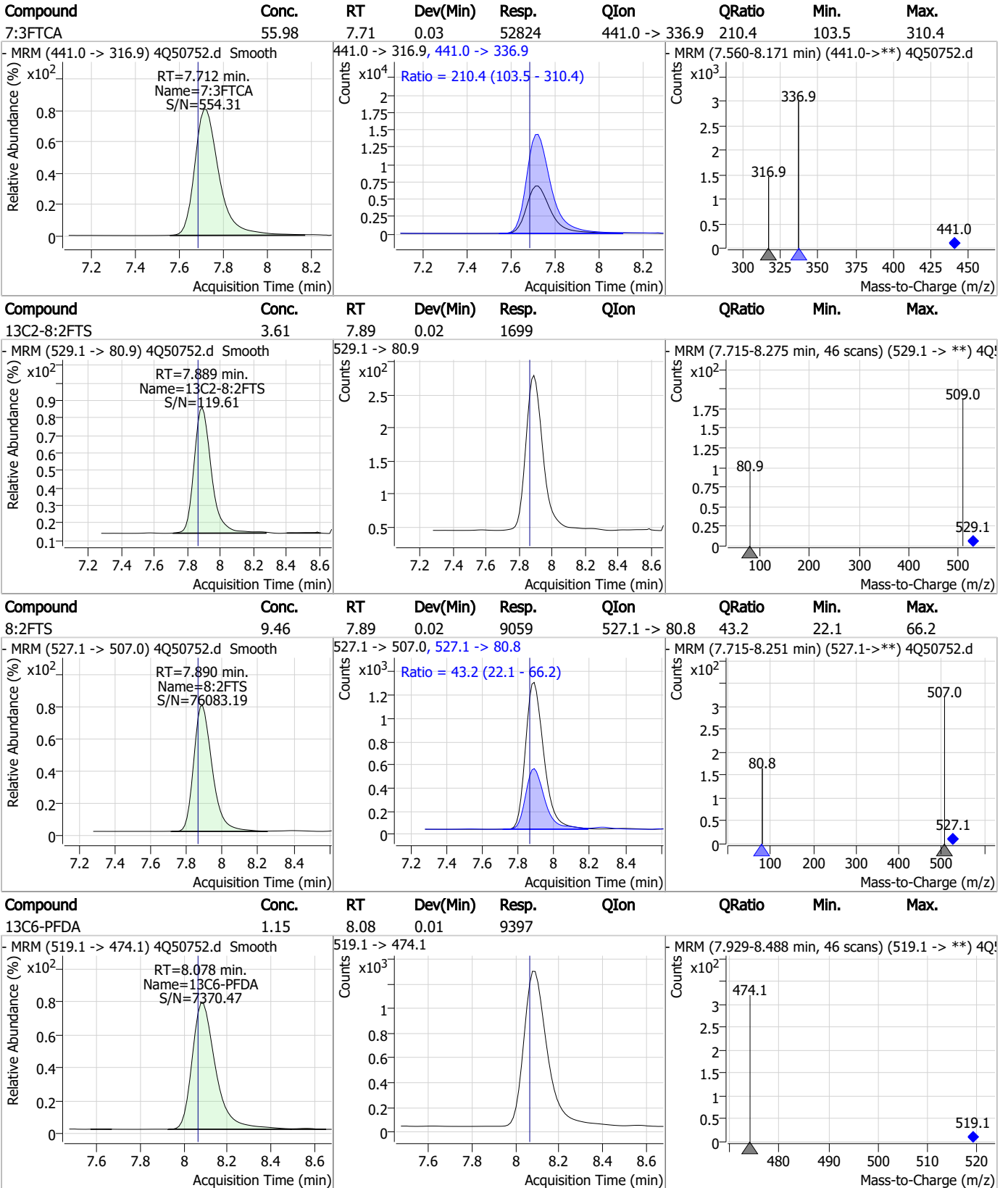
Perfluorinated Compounds by LC/MS/MS



7.4.3

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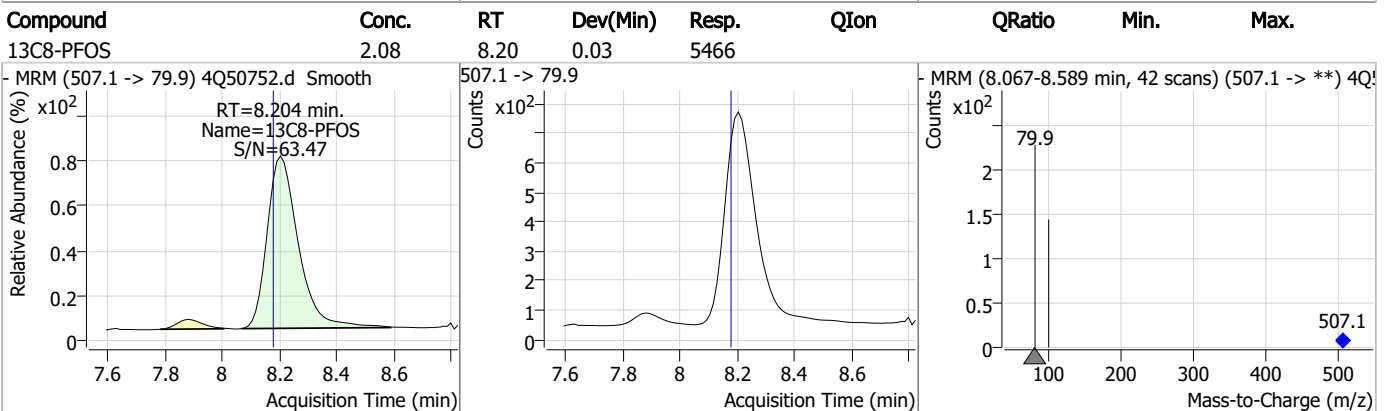
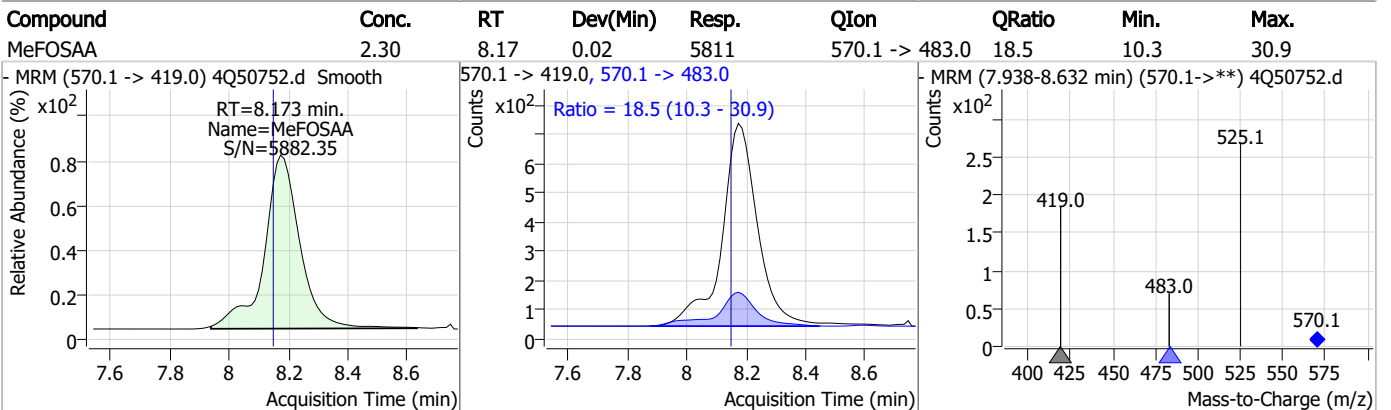
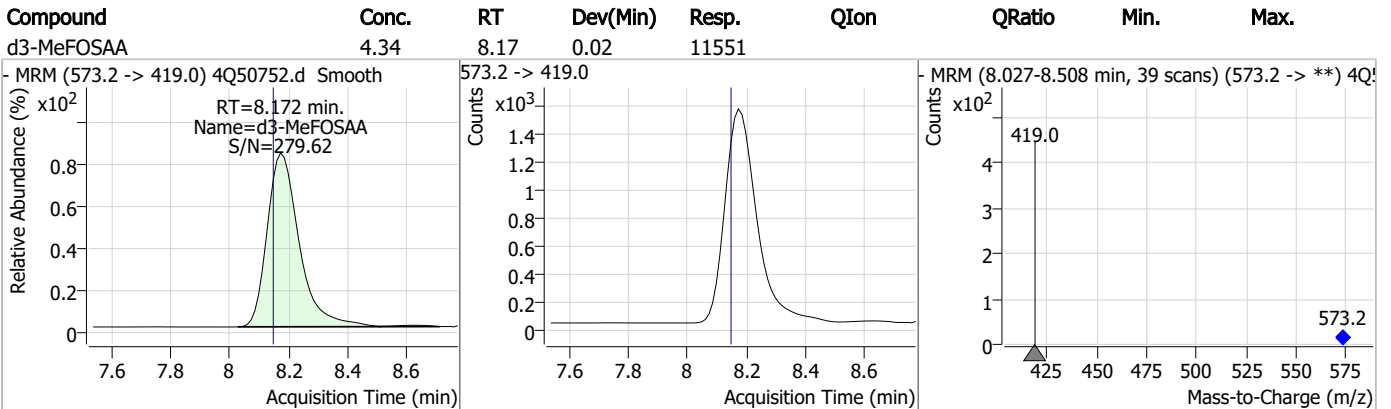
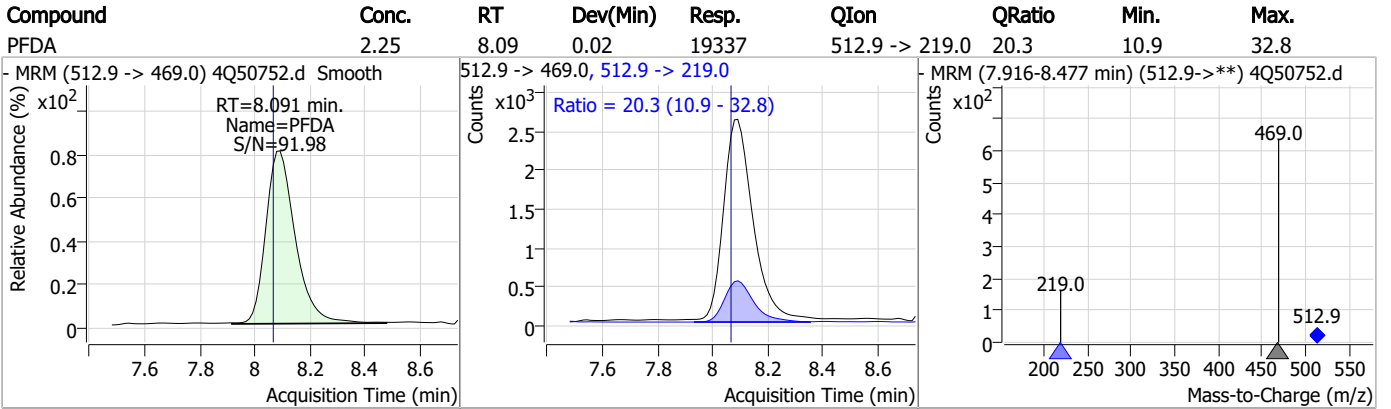
Perfluorinated Compounds by LC/MS/MS



7.4.3

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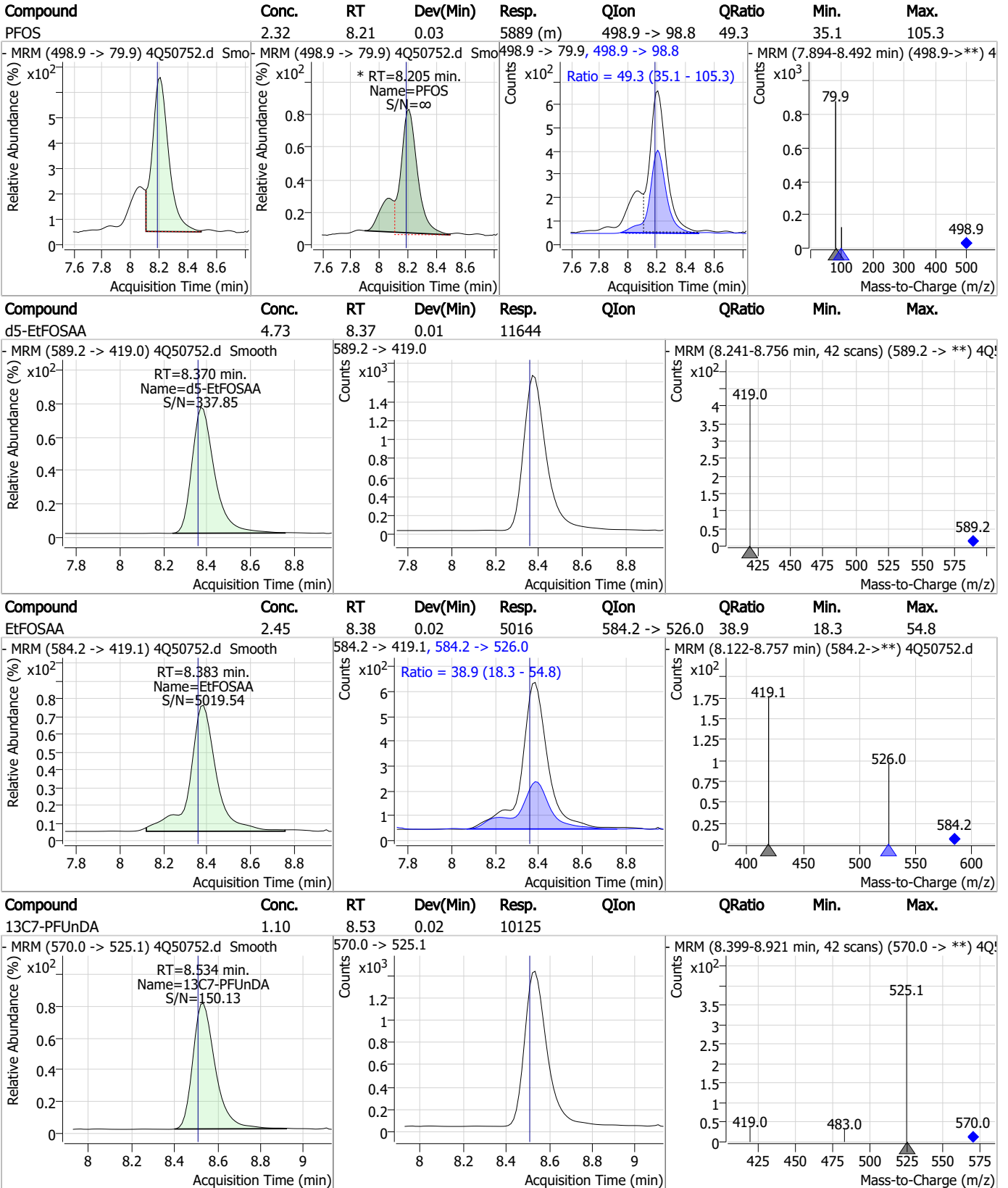
Perfluorinated Compounds by LC/MS/MS



7.4.3

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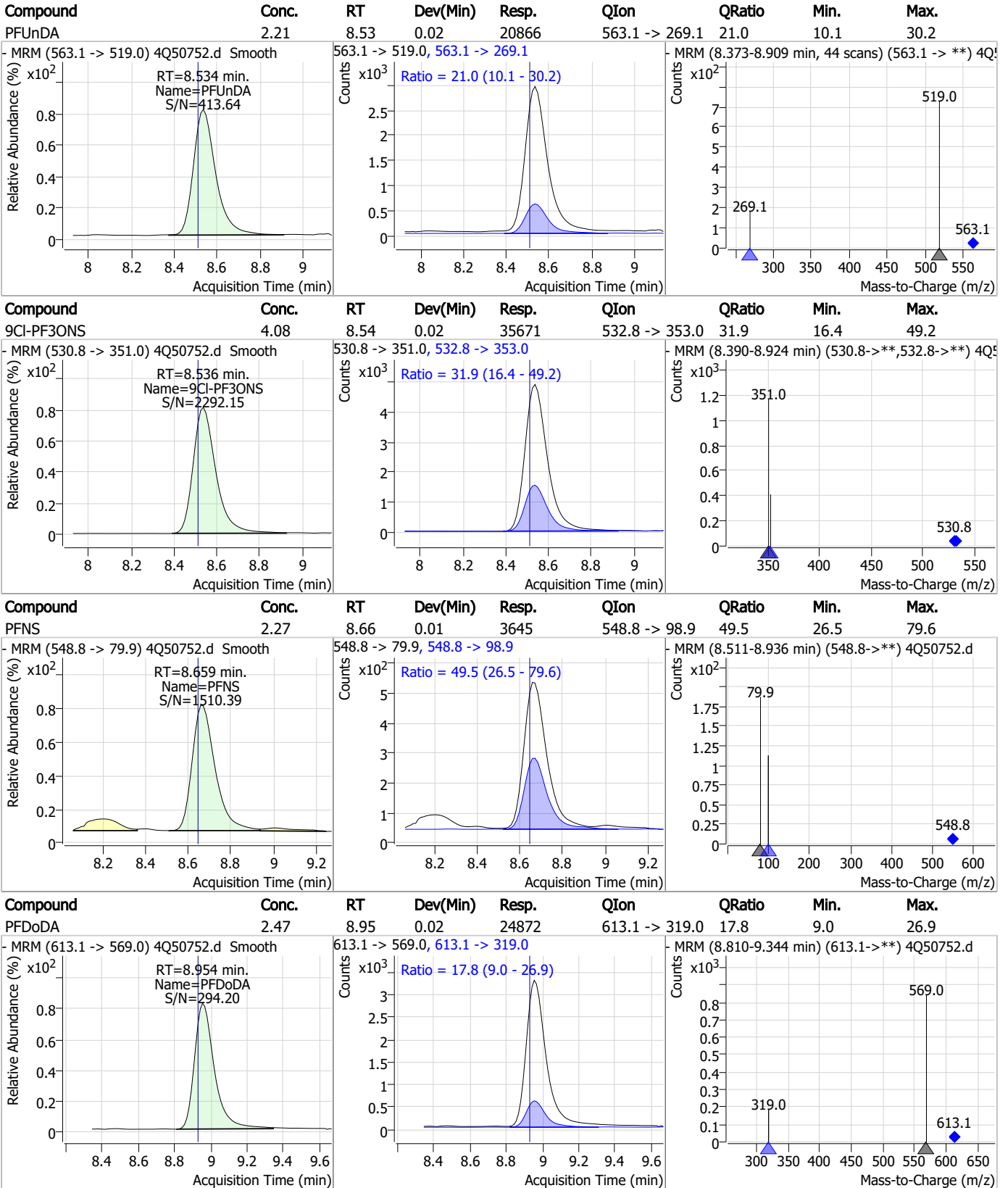
Perfluorinated Compounds by LC/MS/MS



7.4.3

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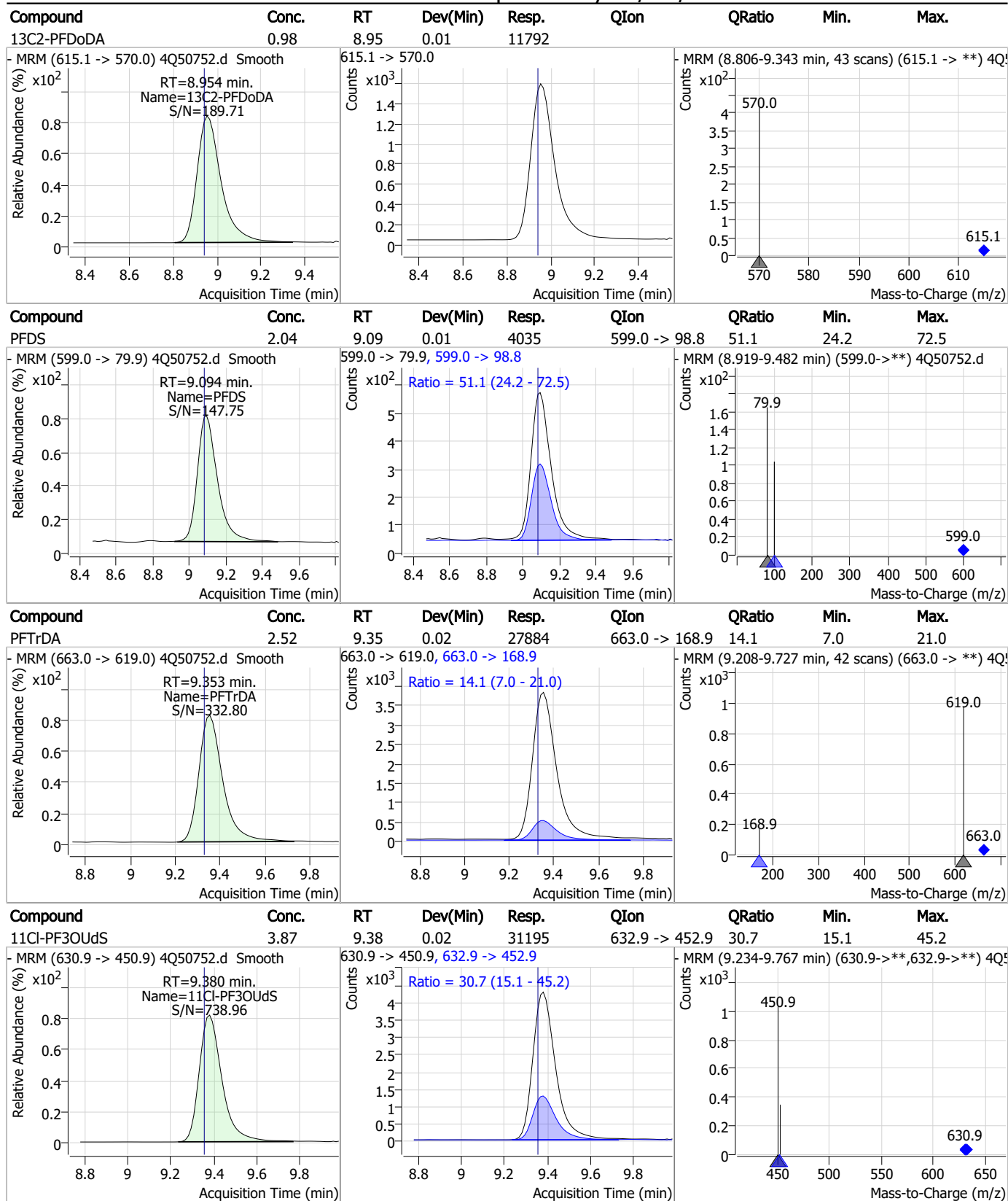
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7.4.3

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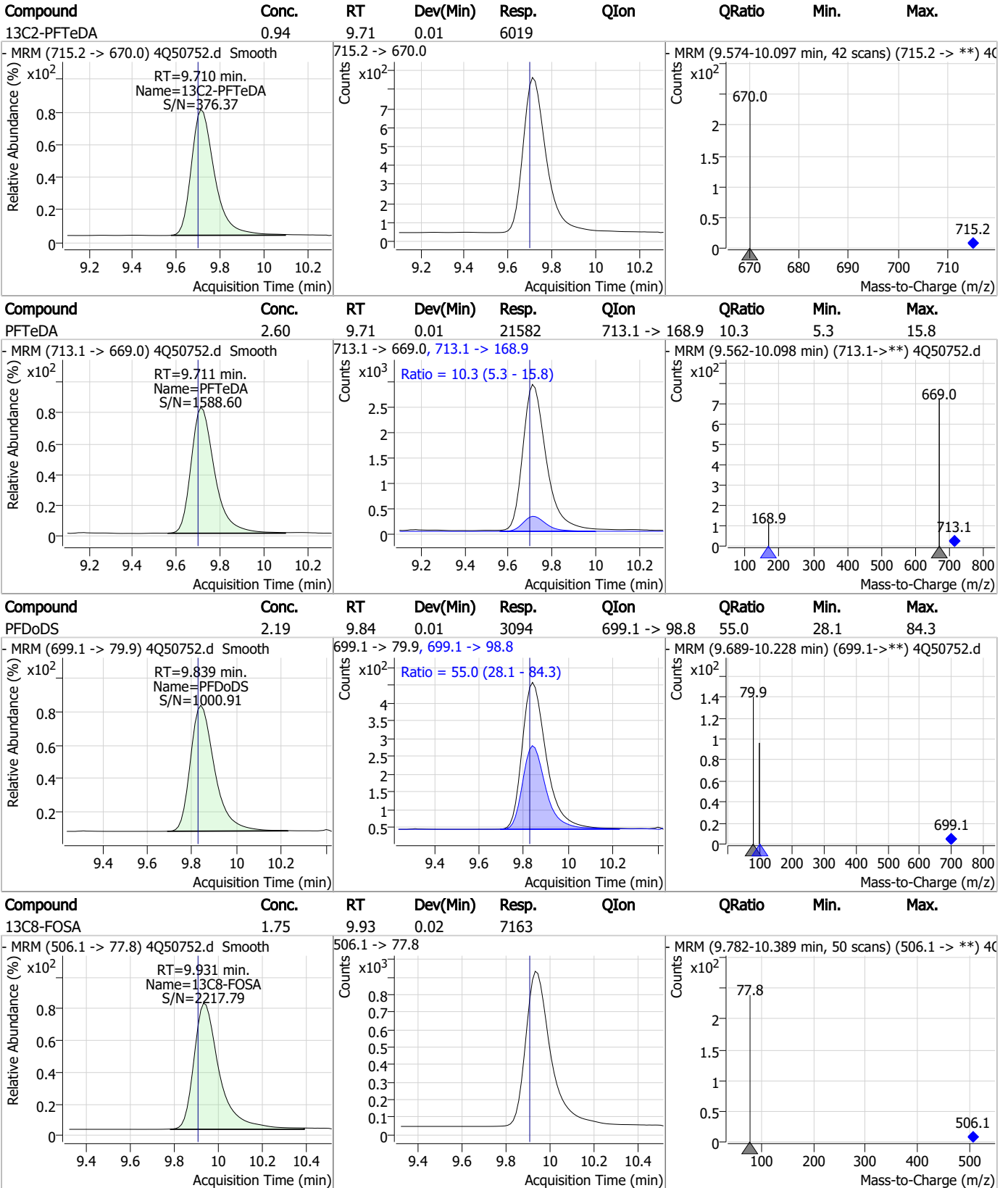
Perfluorinated Compounds by LC/MS/MS



7.4.3

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Perfluorinated Compounds by LC/MS/MS

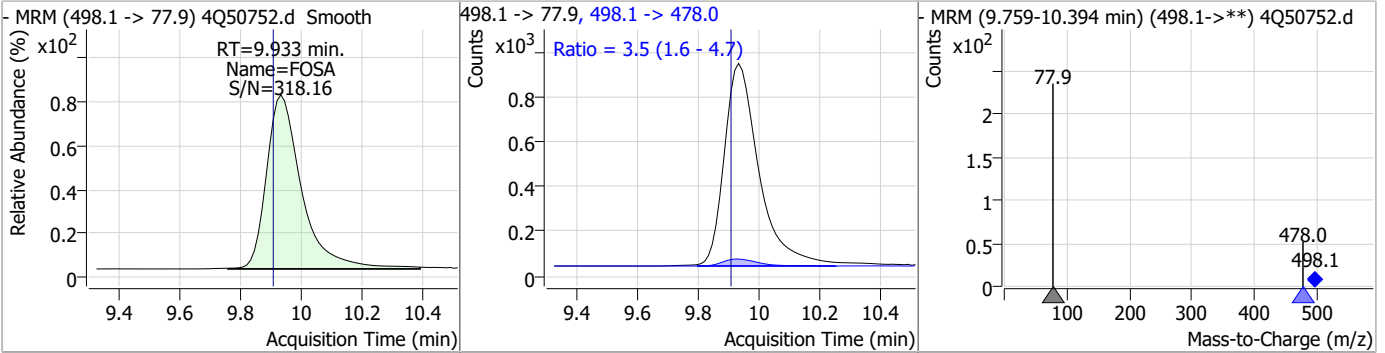


7.4.3

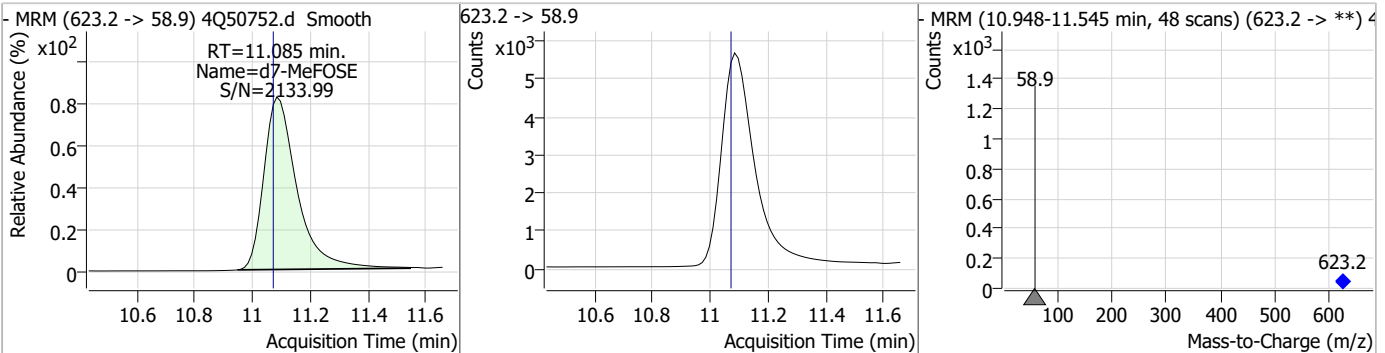
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Perfluorinated Compounds by LC/MS/MS

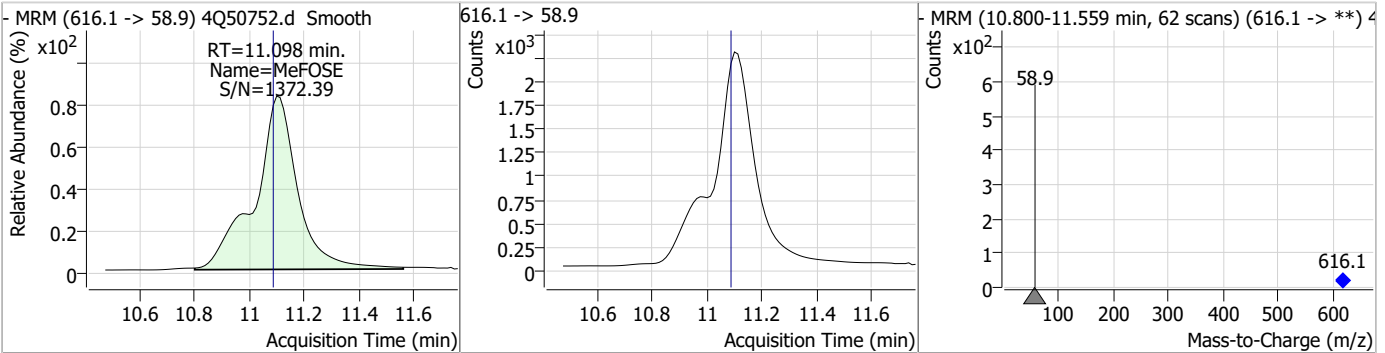
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.25	9.93	0.02	7330	498.1 -> 478.0	3.5	1.6	4.7



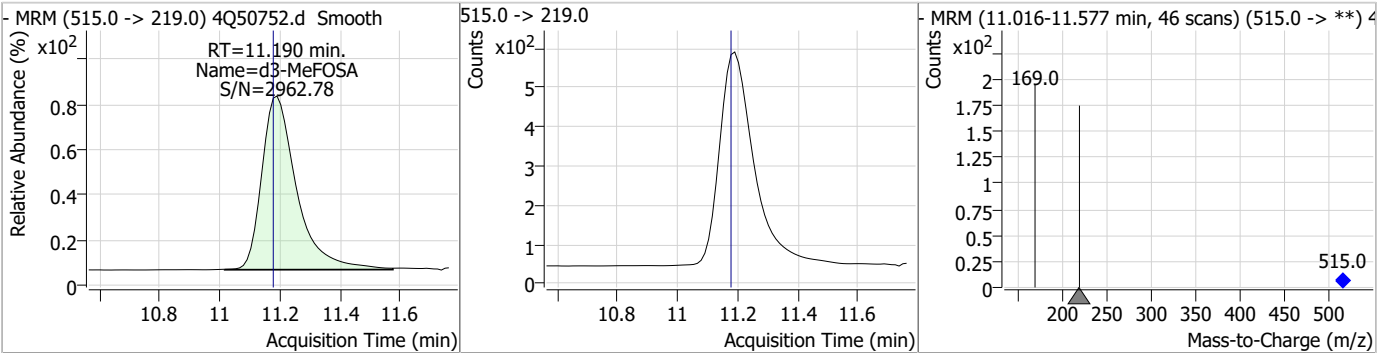
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.06	11.08	0.01	44582				



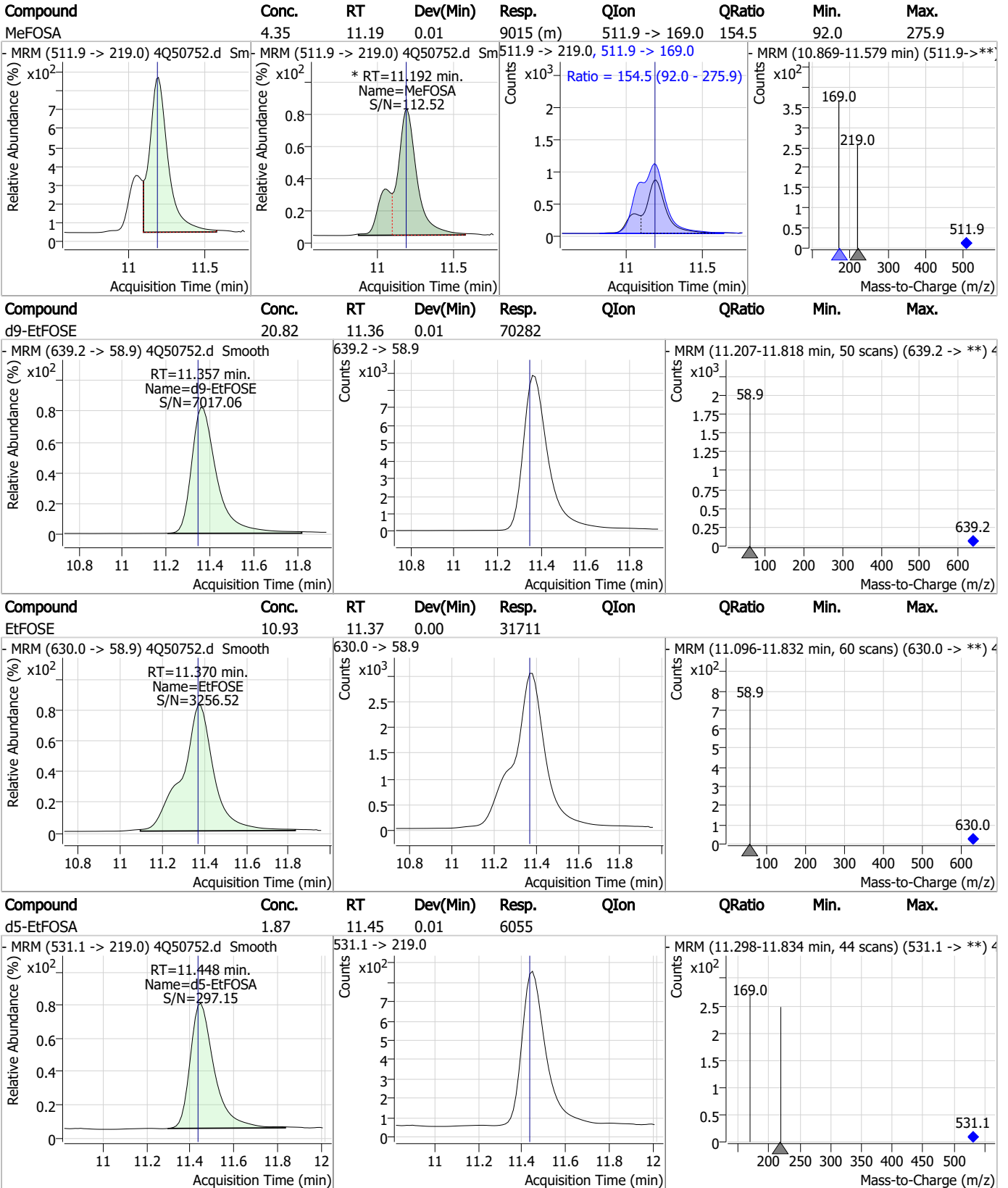
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.37	11.10	0.01	24861				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.83	11.19	0.01	4398				



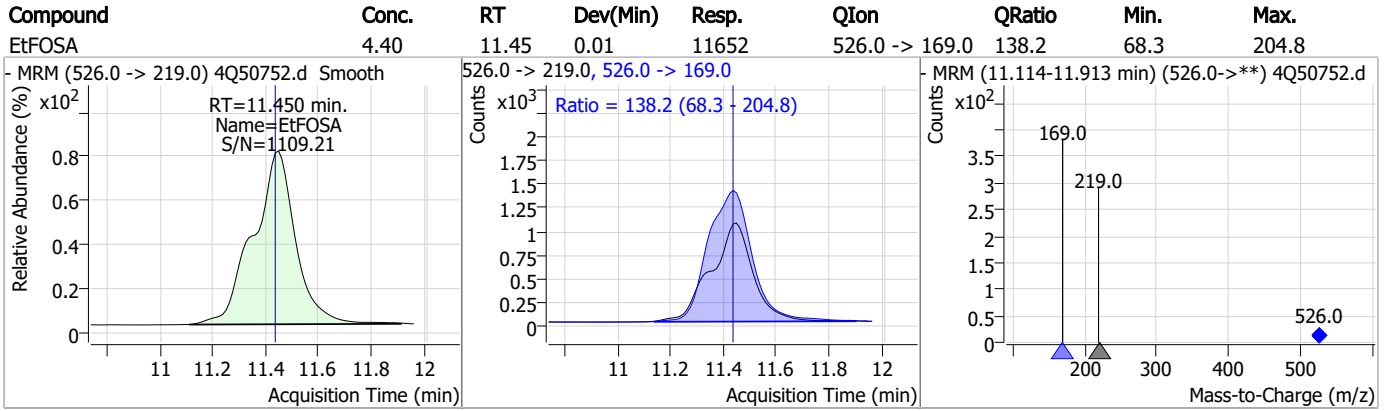
Perfluorinated Compounds by LC/MS/MS



7.4.3

7

Perfluorinated Compounds by LC/MS/MS



7.4.3

7

Manual Integration Approval Summary

Sample Number: OP99024-MSD Method: EPA DRAFT 1633
Lab FileID: 4Q50752.D Analyst approved: 09/19/23 10:33 Anna Ludwig
Injection Time: 09/18/23 19:52 Supervisor approved: 09/20/23 10:37 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.13	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.21	Split peak
MeFOSA	31506-32-8		11.19	Split peak

7.4.3.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24605.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 2:22:12 PM
 Sample Name : OP99007-DUP
 Vial : P4-C8
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP99007,S6Q353,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	94038	10.00 µg/L	0.025
M5-PFPeA	4.434	268.3 -> 223.0	30017	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	73763	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	57508	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	80082	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	32092	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	30066	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	35452	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	29410	1.25 µg/L	-0.014
M2-PFTeDA	9.784	715.2 -> 670.0	9772	1.25 µg/L	-0.012
M8-FOSA	9.682	506.1 -> 77.8	22071	2.50 µg/L	0.024
M3-PFBS	5.571	302.1 -> 79.9	23748	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	12442	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	12272	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	2442	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3216	5.00 µg/L	0.012
M2-8:2FTS	7.998	529.1 -> 80.9	3534	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	19081	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	37951	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	15312	5.00 µg/L	-0.012
M7-MeFOSE	10.690	623.2 -> 58.9	61979	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	89247	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	6780	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	7168	2.50 µg/L	0.012
13C4-PFOS	8.361	502.8 -> 79.9	14753	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	64993	5.00 µg/L	0.025
18O2-PFHxS	7.313	403.0 -> 83.9	8158	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	74610	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	24114	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	32443	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	49376	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2442	5.32 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3216	4.77 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3534	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C2-PFDoDA	9.080	615.1 -> 570.0	29410	1.14 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.0%		
13C2-PFTeDA	9.784	715.2 -> 670.0	9772	1.02 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 81.3%		
13C3-PFBS	5.571	302.1 -> 79.9	23748	3.15 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 125.9%		
13C3-PFHxS	7.313	402.1 -> 79.9	12442	2.78 µg/L	0.000

7.5.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.1%		
13C4-PFBA	3.010	216.8 -> 171.9	94038	5.73 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 57.3%		
13C4-PFHpA	6.581	367.1 -> 322.0	57508	2.71 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C5-PFHxA	5.654	318.0 -> 273.0	73763	2.71 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C5-PFPeA	4.434	268.3 -> 223.0	30017	4.51 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.2%		
13C6-PFDA	8.210	519.1 -> 474.1	30066	1.43 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 114.6%		
13C7-PFUnDA	8.663	570.0 -> 525.1	35452	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C8-FOSA	9.682	506.1 -> 77.8	22071	2.10 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 84.1%		
13C8-PFOA	7.211	421.1 -> 376.0	80082	2.92 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 116.7%		
13C8-PFOS	8.361	507.1 -> 79.9	12272	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C9-PFNA	7.729	472.1 -> 427.0	32092	1.58 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 126.6%		
d3-MeFOSAA	8.256	573.2 -> 419.0	19081	4.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.5%		
13C3-HFPO-DA	6.019	286.9 -> 168.9	37951	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
d3-MeFOSA	10.769	515.0 -> 219.0	7168	1.68 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 67.4%		
d5-EtFOSAA	8.452	589.2 -> 419.0	15312	3.86 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 77.2%		
d7-MeFOSE	10.690	623.2 -> 58.9	61979	15.98 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 63.9%		
d9-EtFOSE	10.923	639.2 -> 58.9	89247	17.10 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 68.4%		
d5-EtFOSA	10.989	531.1 -> 219.0	6780	1.71 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 68.3%		

Target Compounds						QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.		
		327.1 -> 80.9				
6:2FTS	-	427.1 -> 407.0	-	N.D.		
		427.1 -> 80.9				
8:2FTS	-	527.1 -> 507.0	-	N.D.		
		527.1 -> 80.8				
EtFOSAA	-	584.2 -> 419.1	-	N.D.		
		584.2 -> 526.0				
FOSA	-	498.1 -> 77.9	-	N.D.		
		498.1 -> 478.0				
MeFOSAA	-	570.1 -> 419.0	-	N.D.		
		570.1 -> 483.0				
PFBA	2.993	212.8 -> 168.9	3628	1.17 µg/L	m	100
PFBS	5.572	298.7 -> 79.9	618	0.05 µg/L	m	69
		298.7 -> 98.8	120			
PFDA	-	512.9 -> 469.0	-	N.D.		
		512.9 -> 219.0				
PFDODA	8.981	613.1 -> 569.0	0	µg/L	m	1
		613.1 -> 319.0	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	5.644	449.0 -> 98.9	2646	0.10 µg/L	#m	87
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	231	N.D.		
		398.7 -> 79.9				
PFNA	8.191	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	0	N.D.		
		548.8 -> 79.9				
PFOA	7.212	548.8 -> 98.9	3454	0.08 µg/L	m	97
		413.0 -> 369.0				
PFOS	8.362	413.0 -> 169.0	616	0.09 µg/L	m	95
		498.9 -> 79.9				
PFPeA	4.775	498.9 -> 98.8	317	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	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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



7.5.1
7

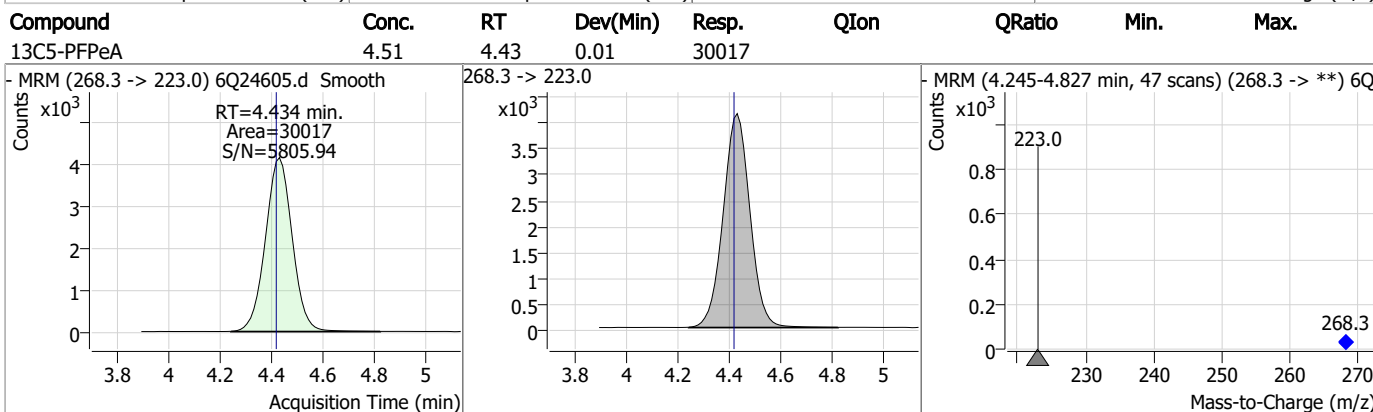
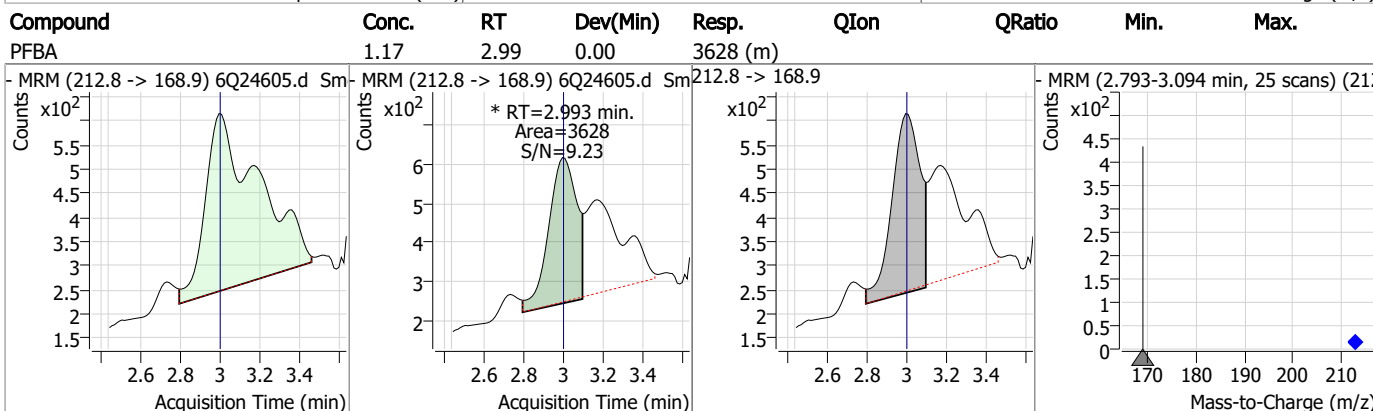
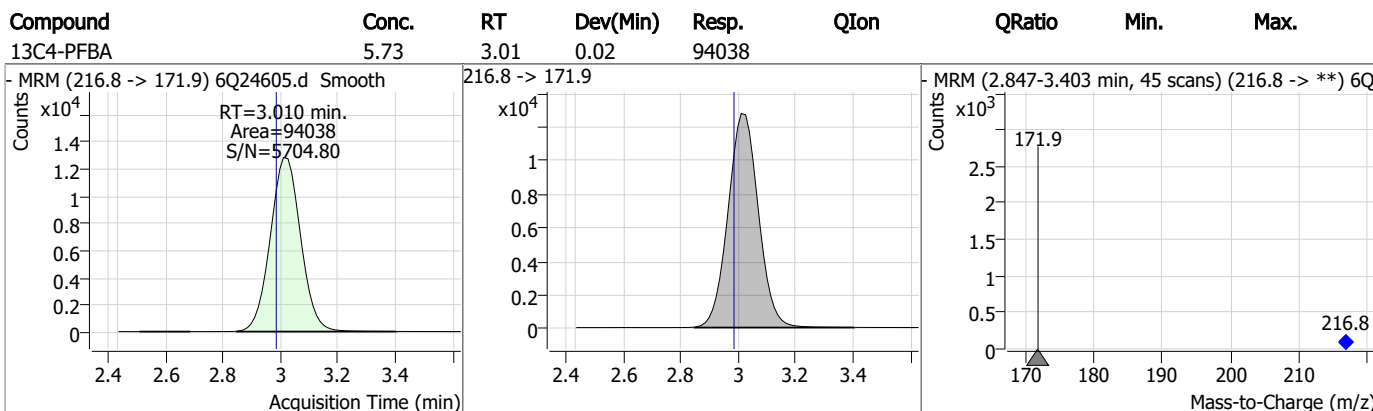
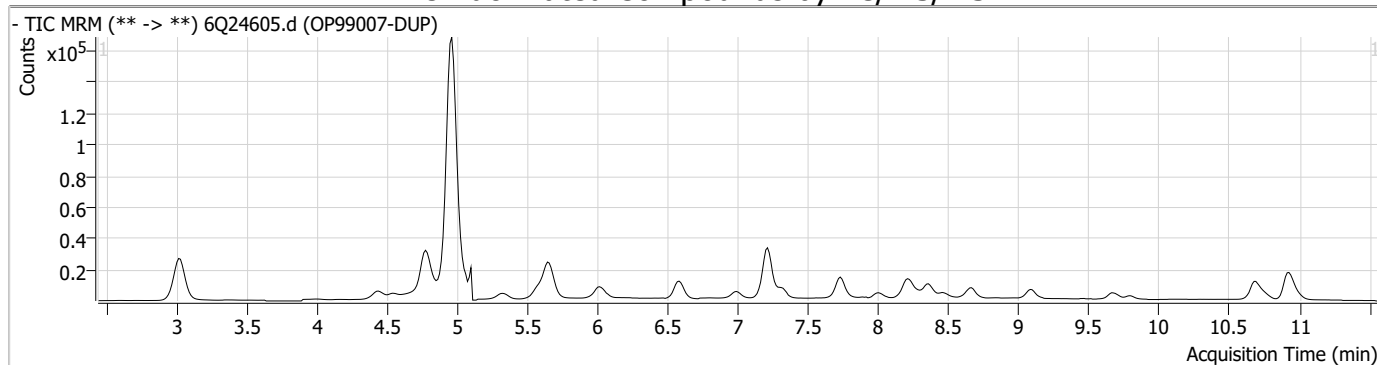
Perfluorinated Compounds by LC/MS/MS

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

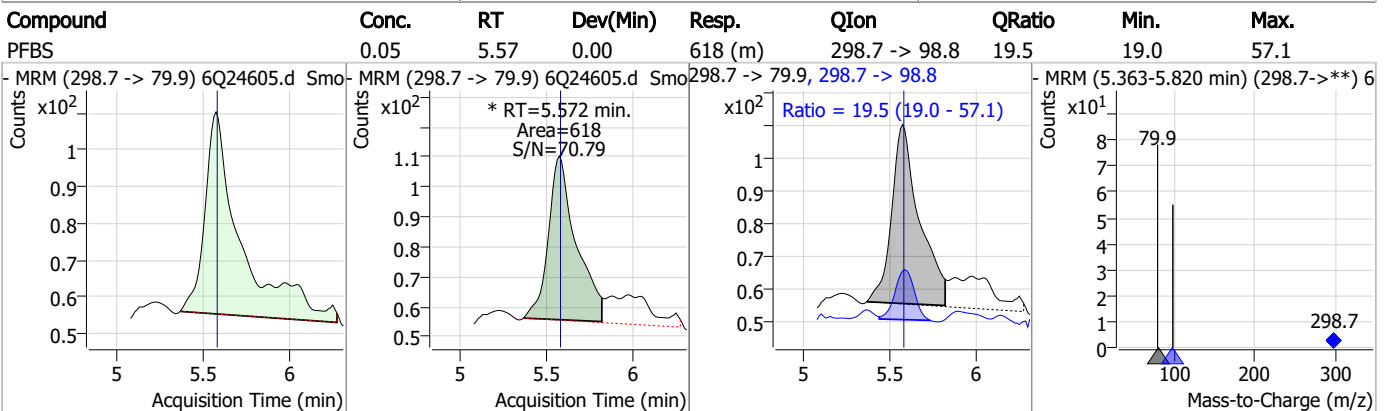
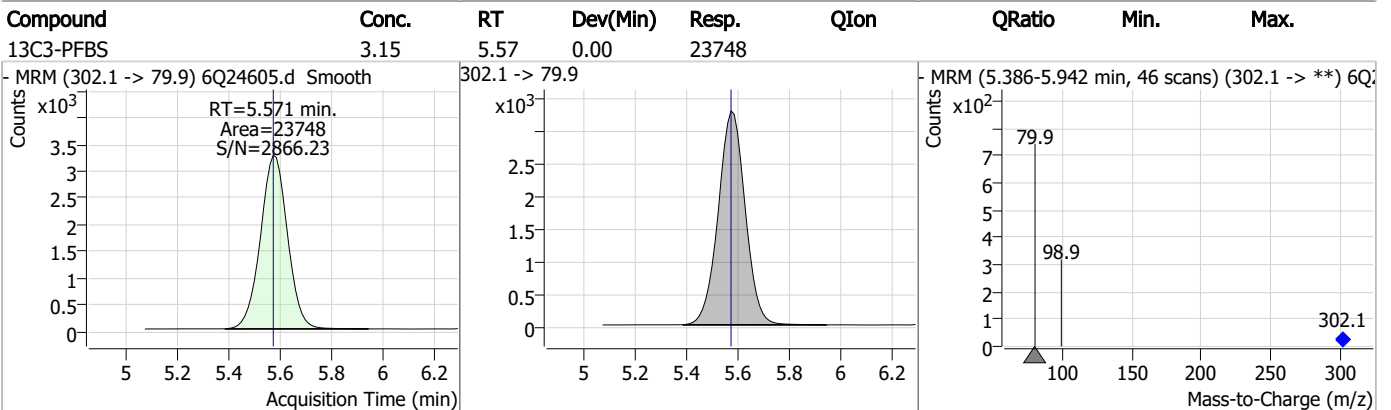
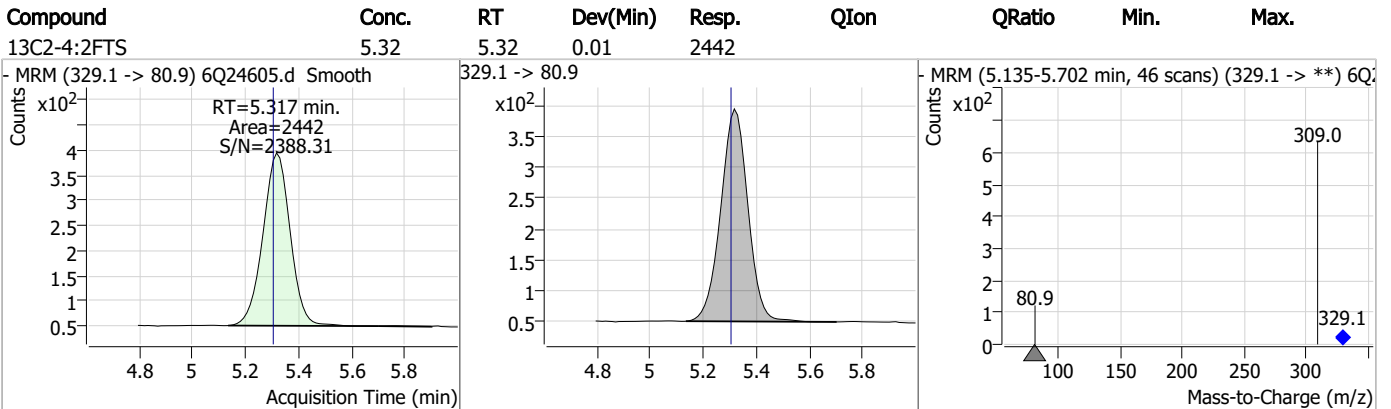
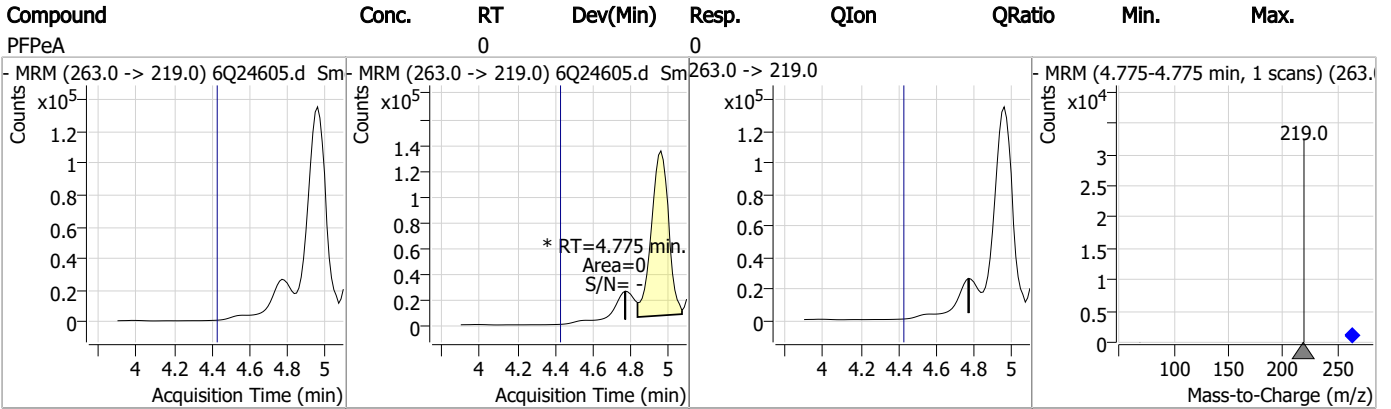
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Perfluorinated Compounds by LC/MS/MS

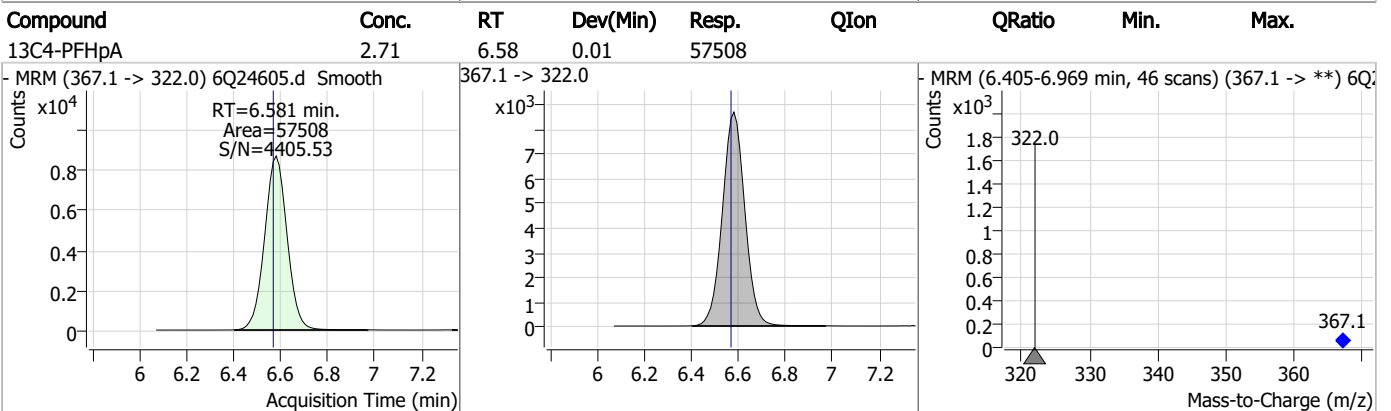
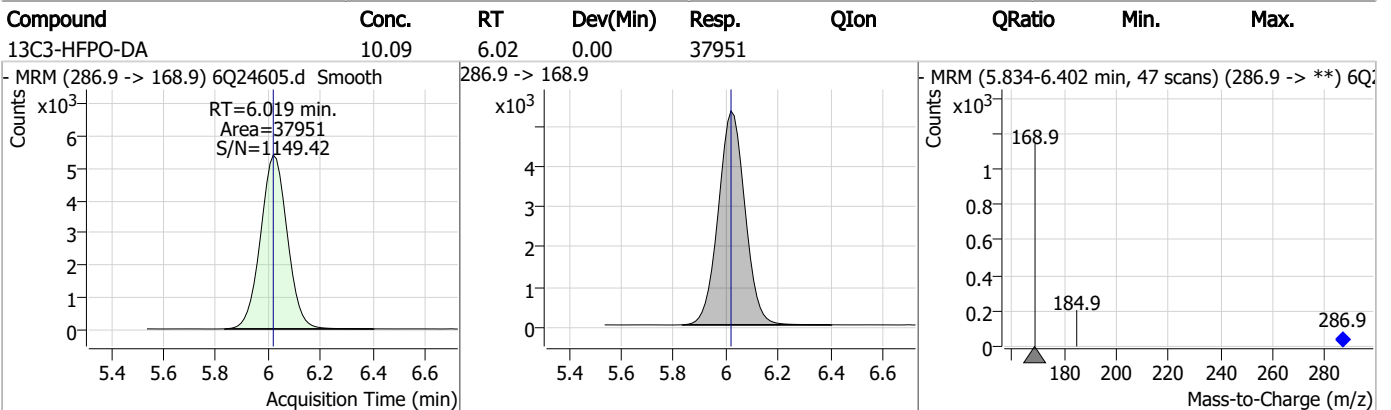
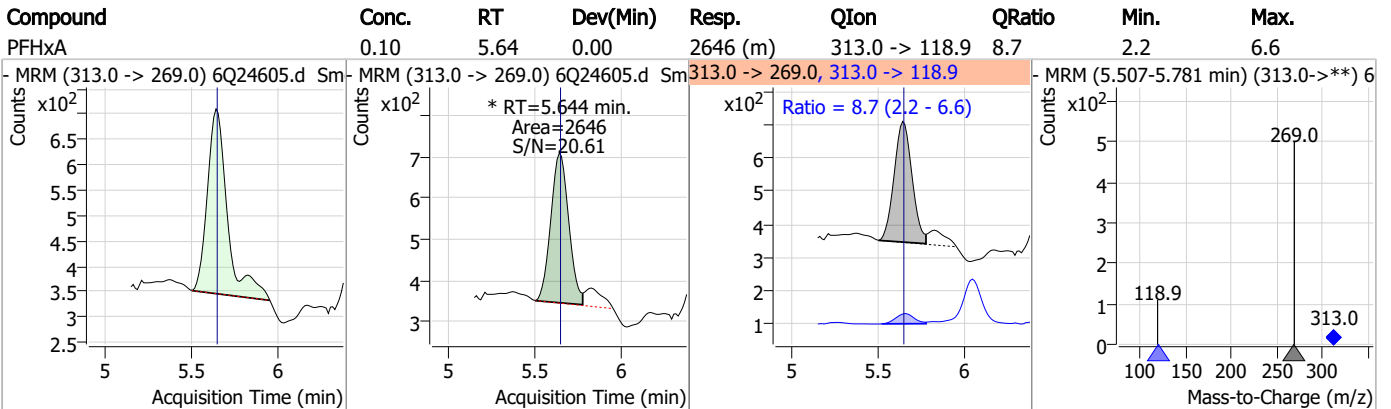
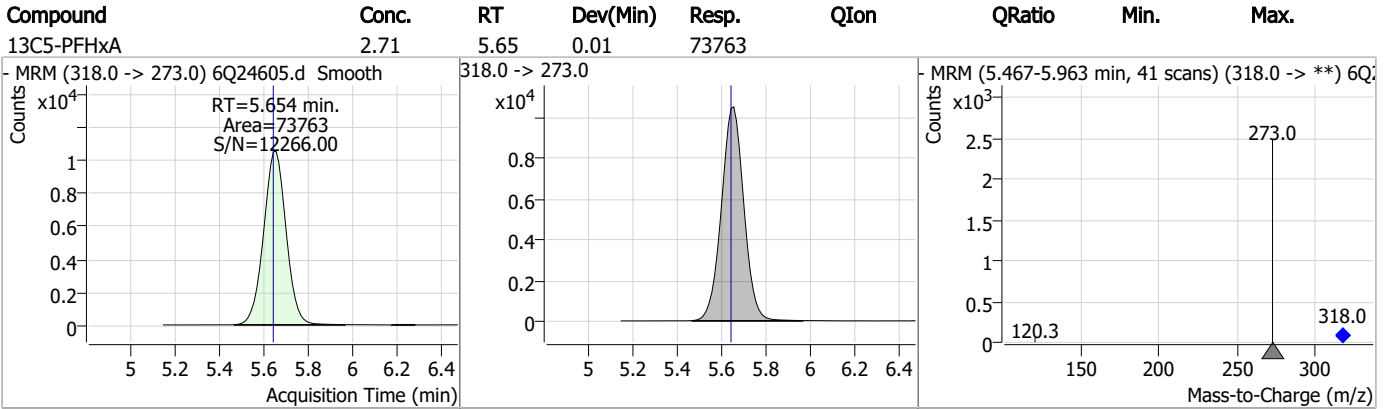


7.5.1
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Perfluorinated Compounds by LC/MS/MS



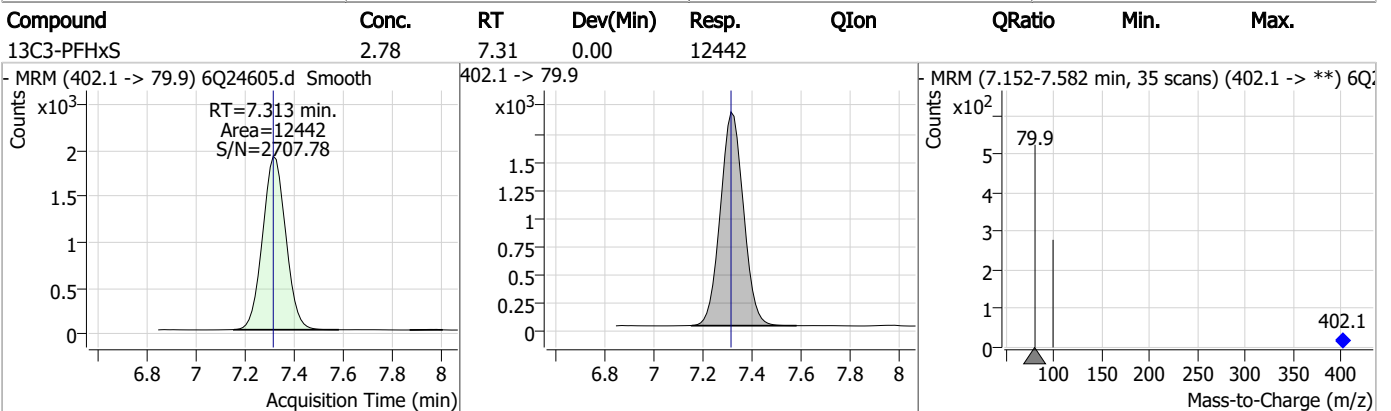
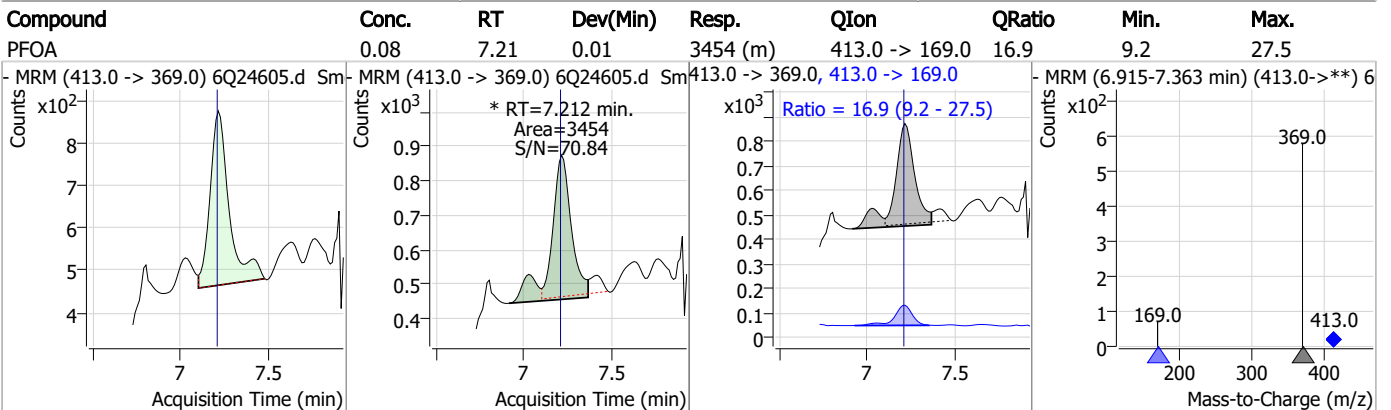
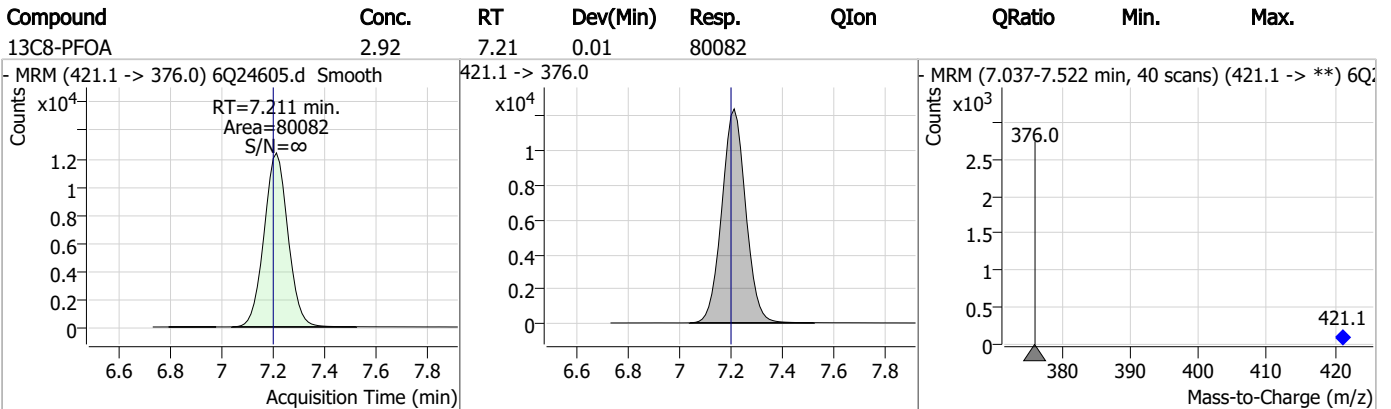
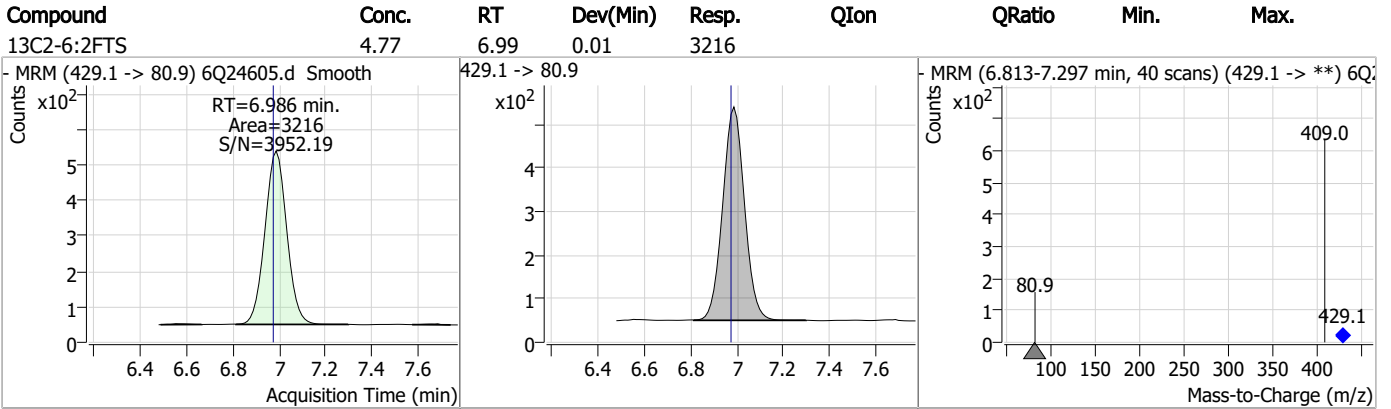
Perfluorinated Compounds by LC/MS/MS



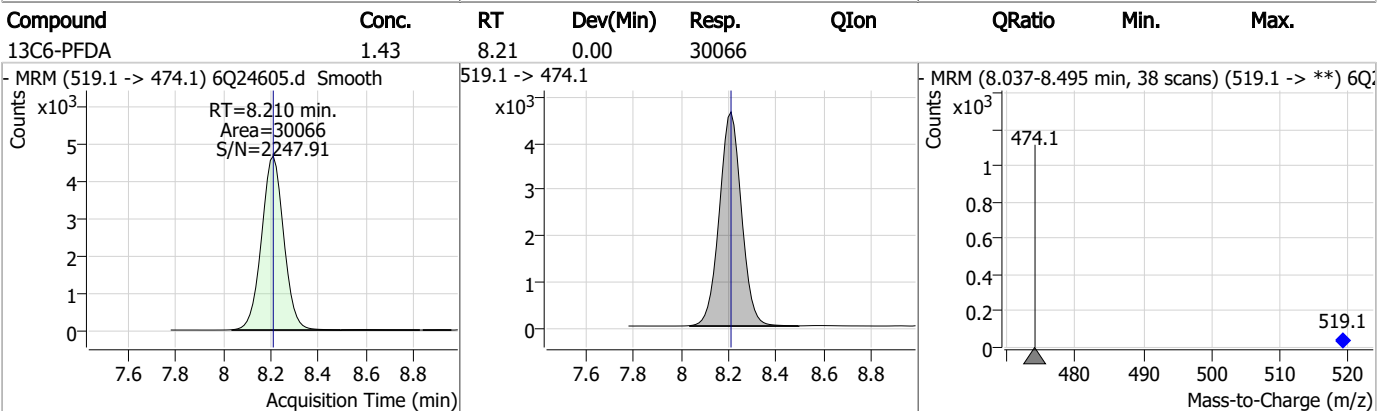
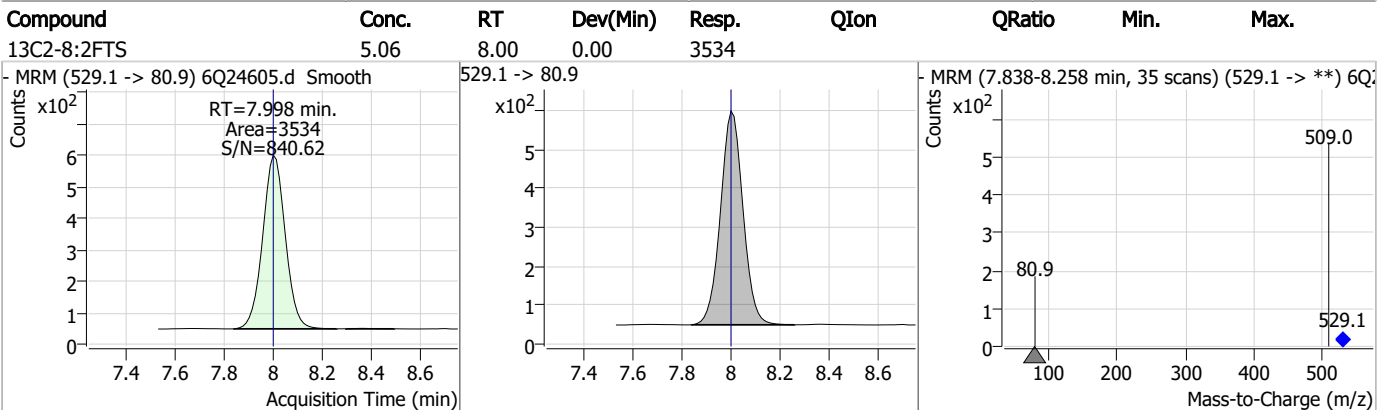
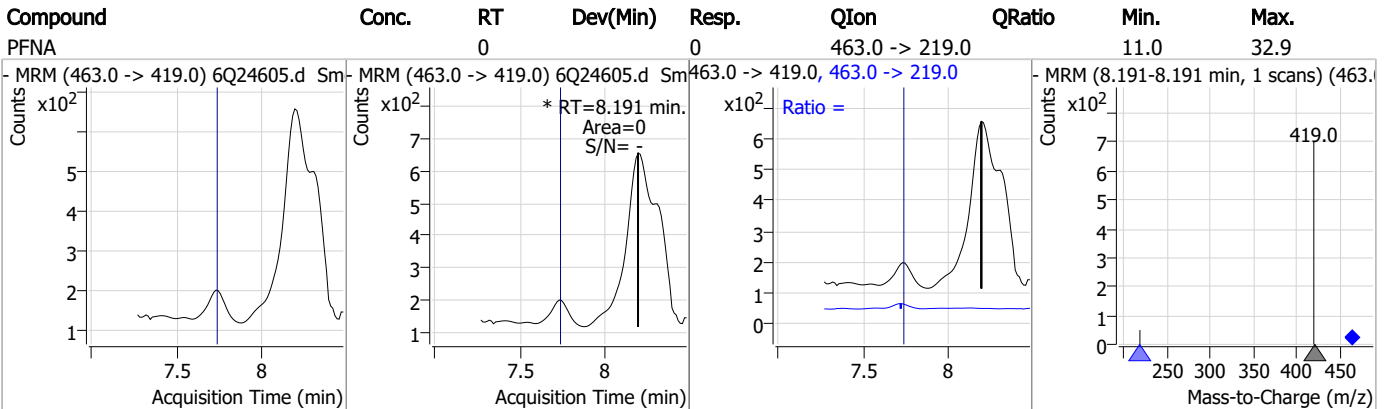
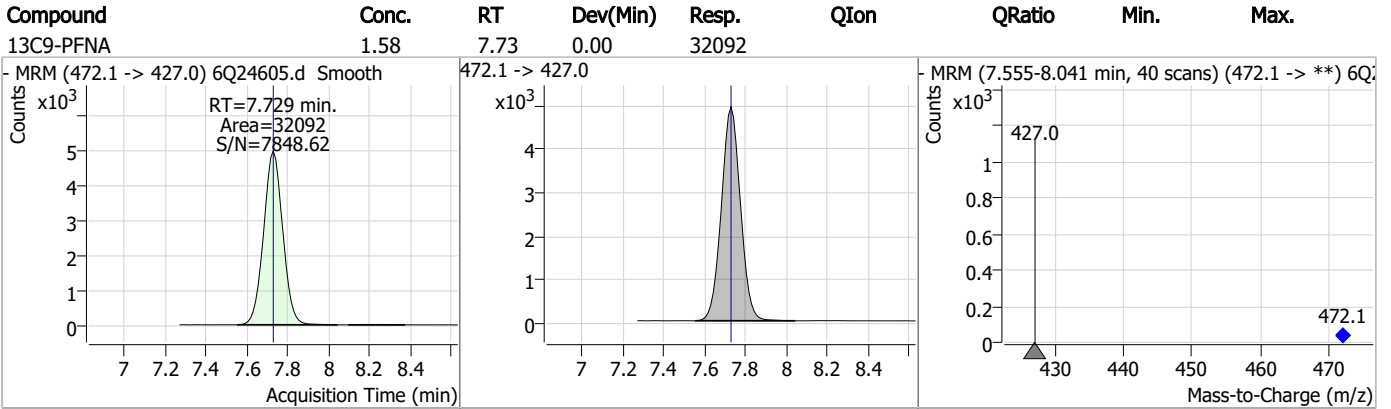
7.5.1

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

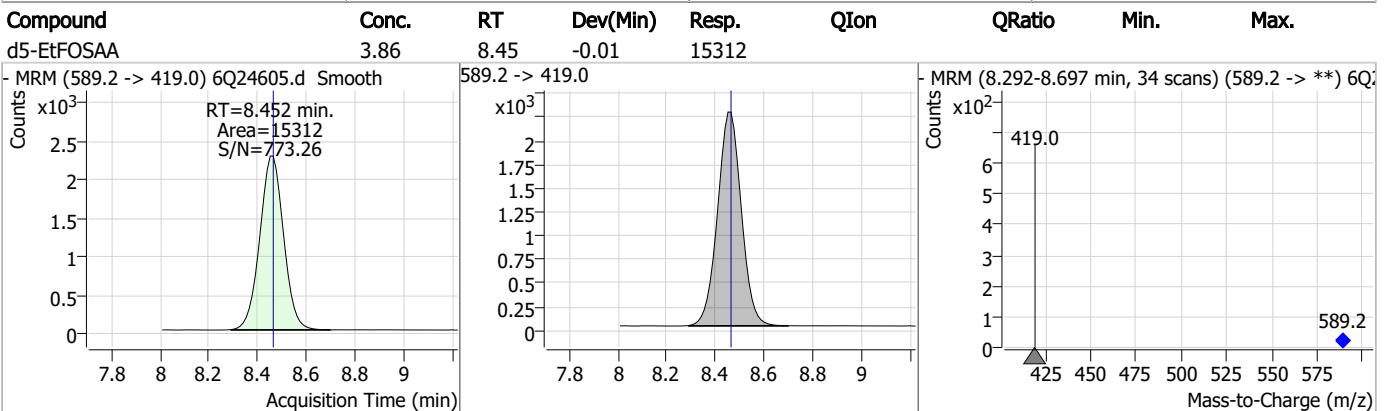
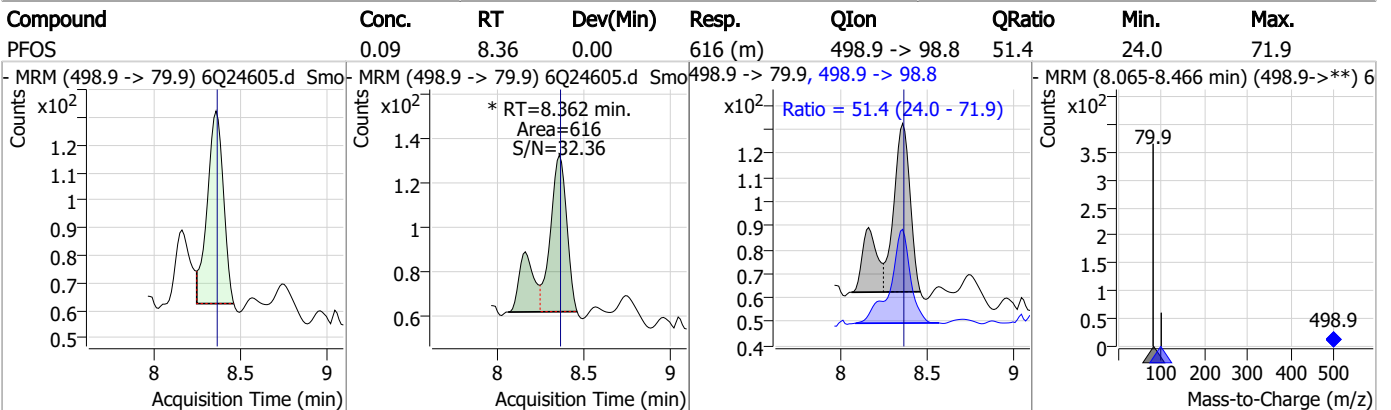
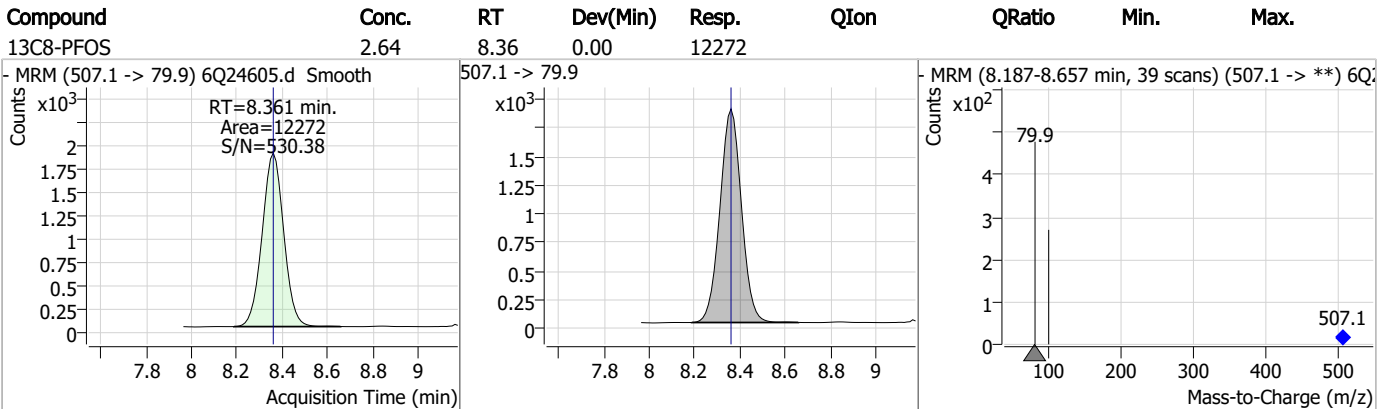
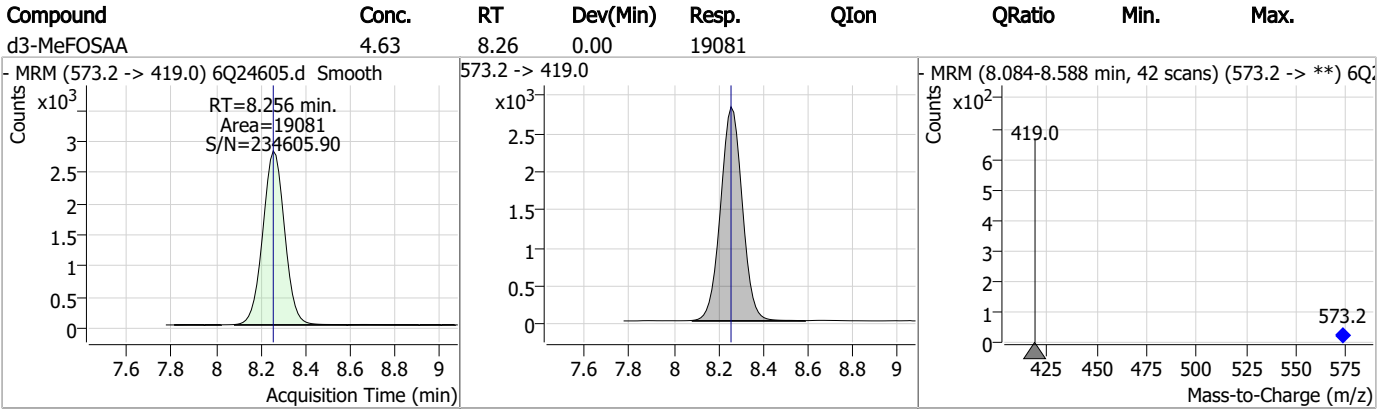


7.5.1

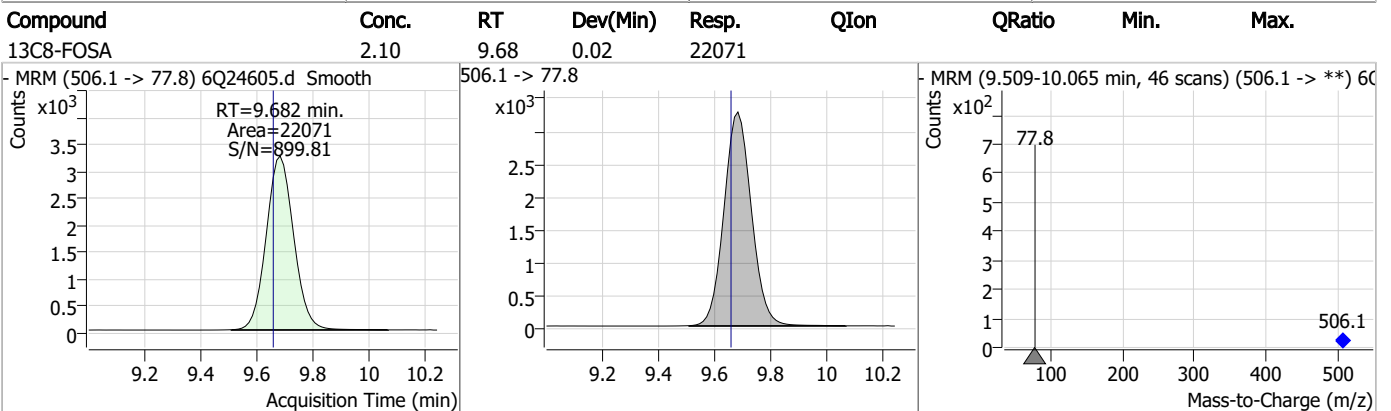
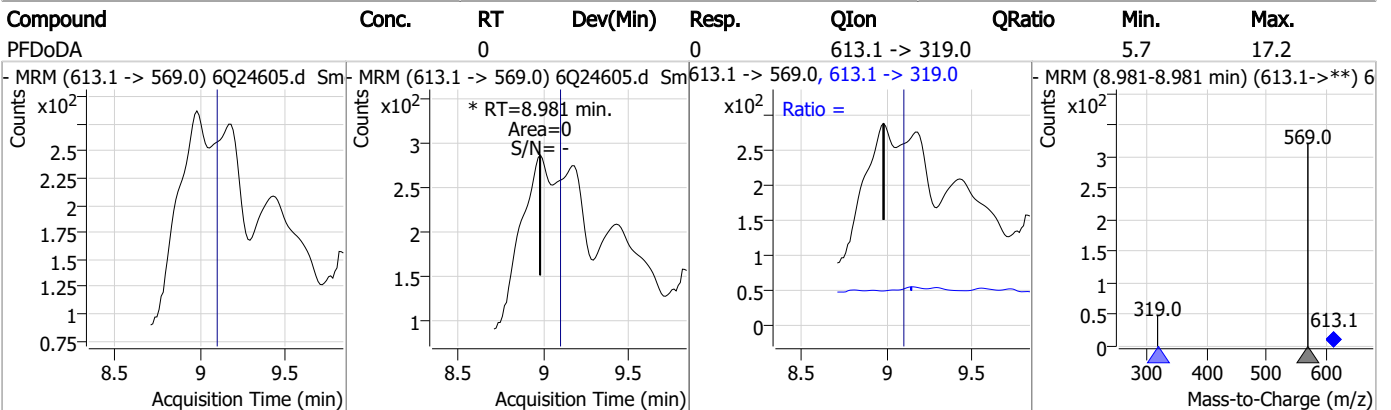
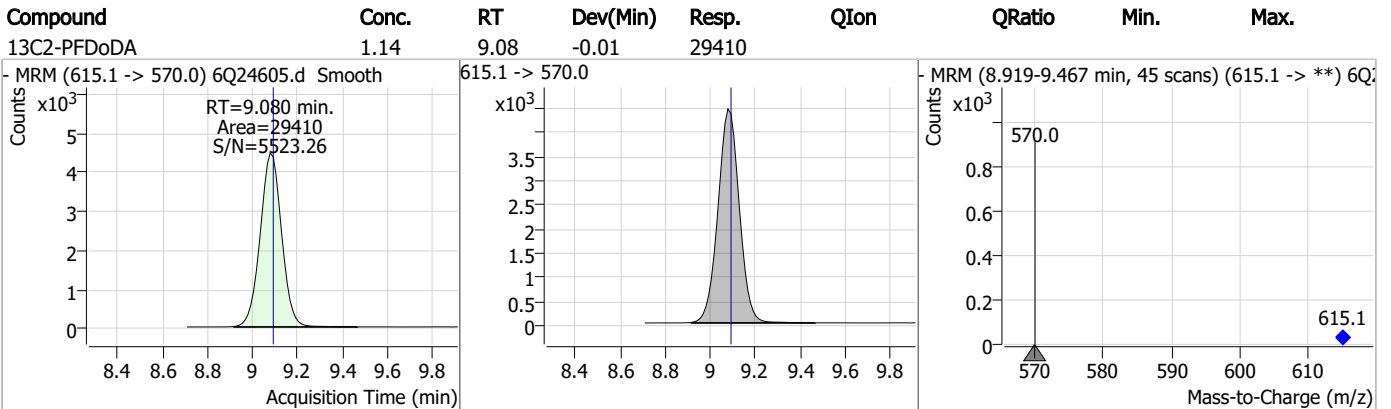
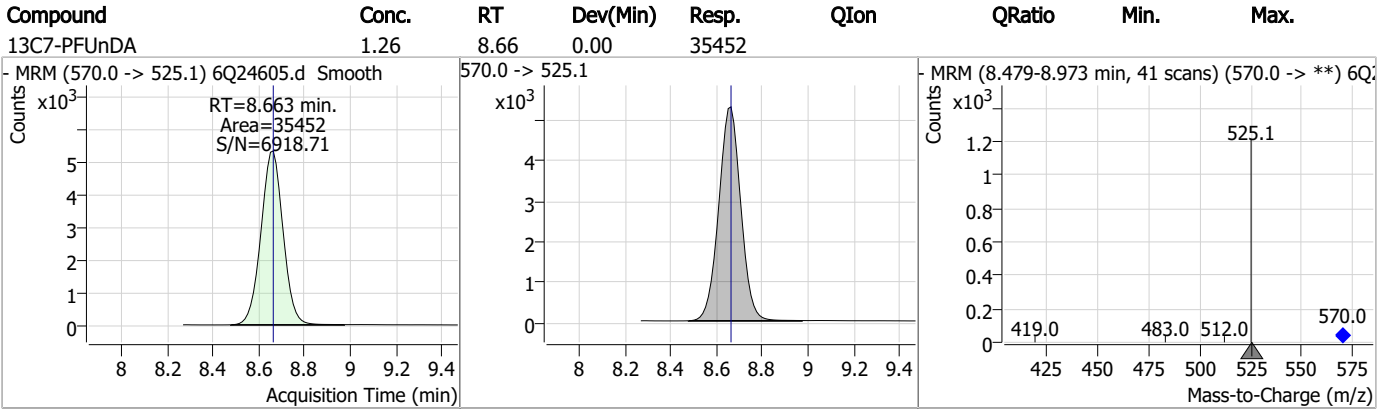
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

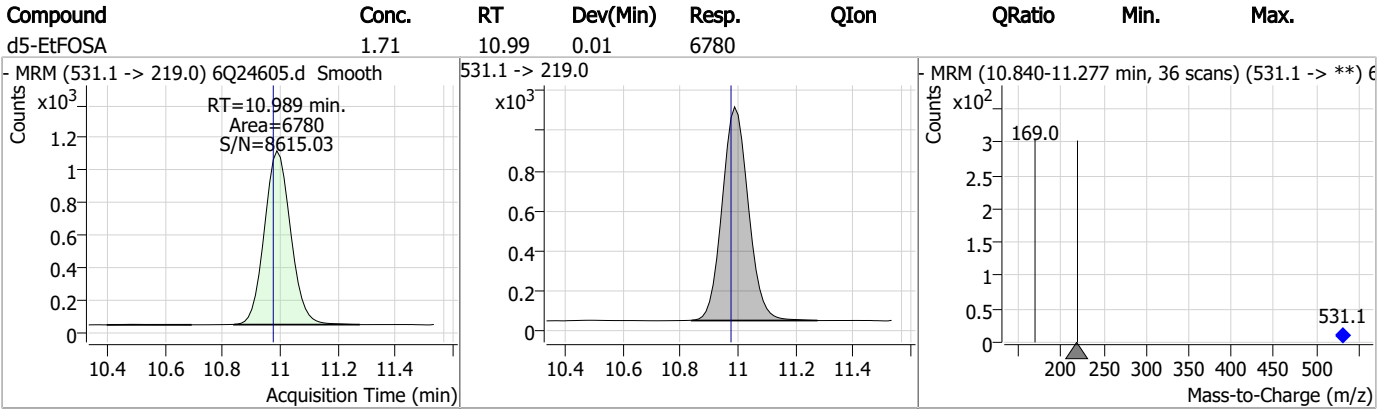


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.02	9.78	-0.01	9772				
d7-MeFOSE	15.98	10.69	0.01	61979				
d3-MeFOSA	1.68	10.77	0.01	7168				
d9-EtFOSE	17.10	10.92	0.01	89247				

7.5.1
7

Perfluorinated Compounds by LC/MS/MS



7.5.1

7

Manual Integration Approval Summary

Sample Number: OP99007-DUP
Lab FileID: 6Q24605.D
Injection Time: 09/18/23 14:22

Method: EPA DRAFT 1633
Analyst approved: 09/20/23 10:43 Martha Valls
Supervisor approved: 09/20/23 10:45 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanoic acid	375-22-4		2.99	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.57	Poor instrument integration
Perfluorohexanoic acid	307-24-4		5.64	Poor instrument integration
Perfluorooctanoic acid	335-67-1		7.21	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak

7.5.1.1

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Perfluorinated Compounds by LC/MS/MS

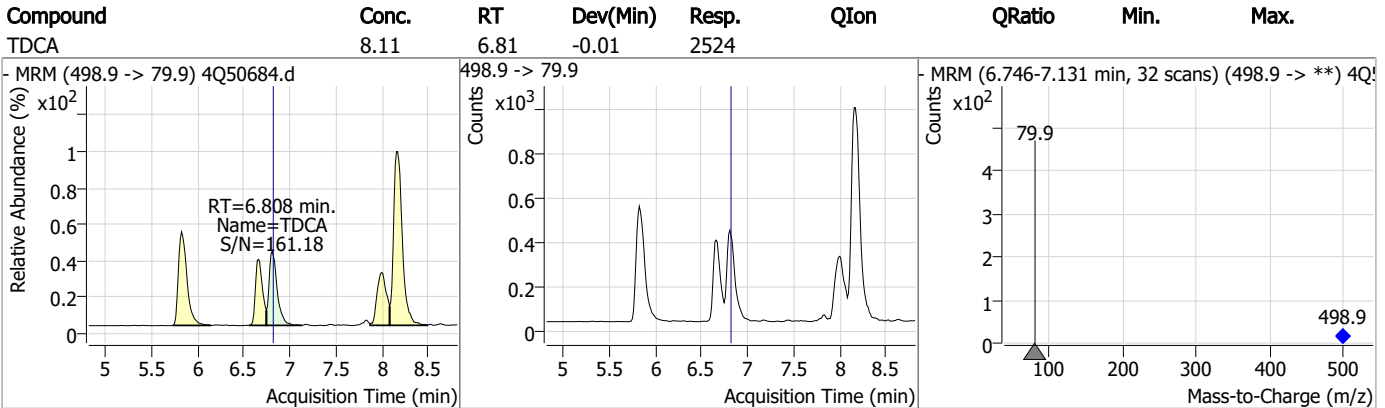
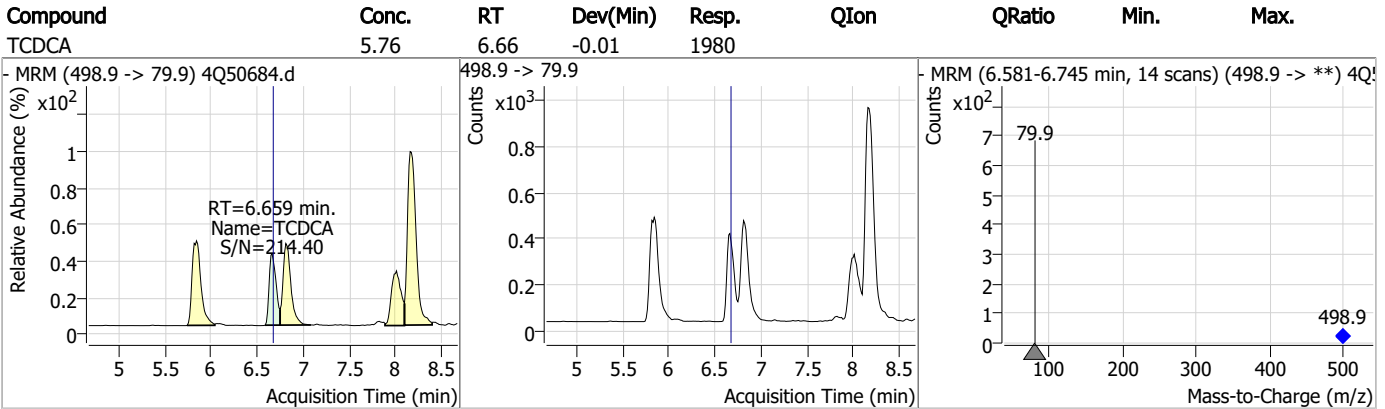
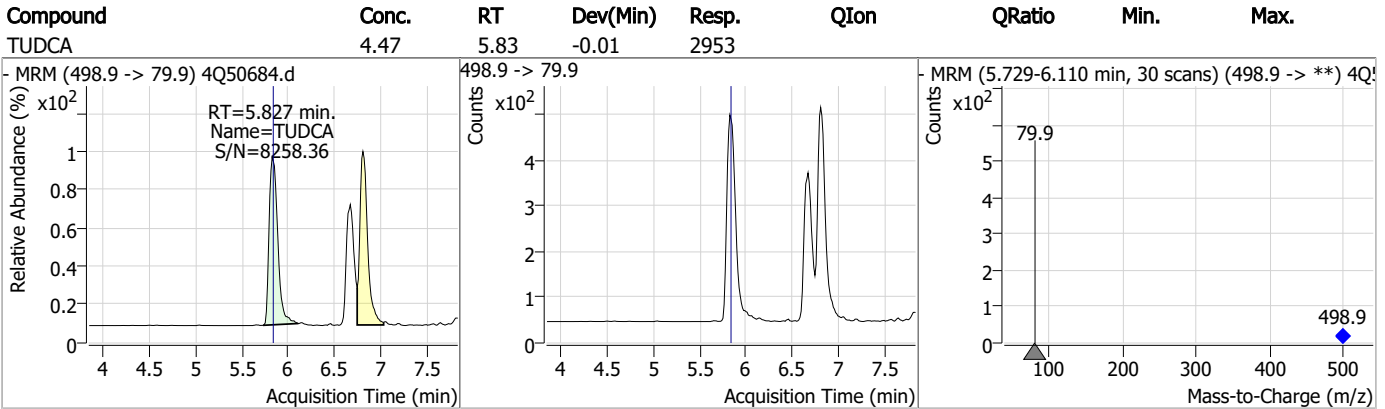
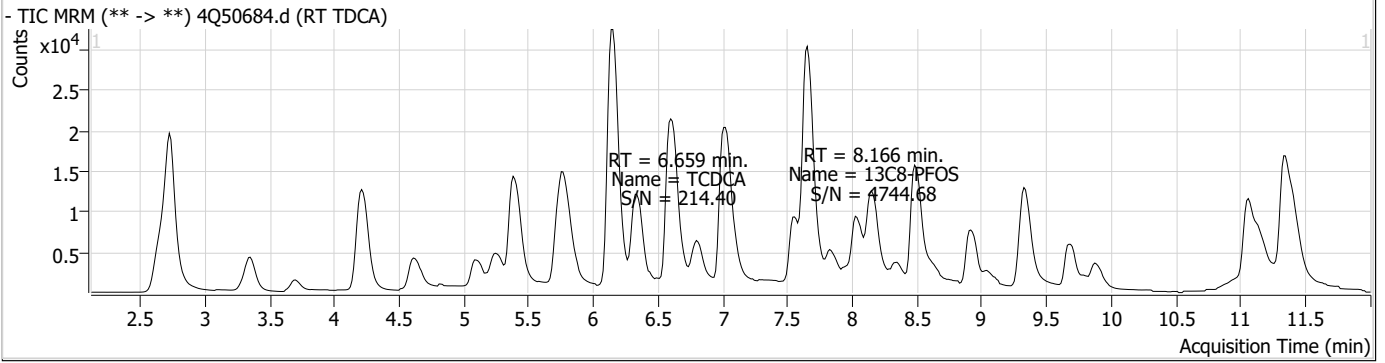
Data File : 4Q50684.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/17/2023 12:08:04 PM
 Sample Name : RT TDCA
 Vial : P1-B1
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s4q741_TDCA.batch.bin
 Sample Information : OP98180,S4Q741,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.166	507.1 -> 79.9	7449	2.50	µg/L	-0.038	
13C4-PFOS	8.166	502.8 -> 79.9	7284	2.50	µg/L	-0.038	
System Monitoring Compounds							
13C8-PFOS	8.166	507.1 -> 79.9	7449	2.59	µg/L	-0.038	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.7%				
Target Compounds							
PFOS	8.167	498.9 -> 79.9 498.9 -> 98.8	8014 3796	3.15	µg/L m		80
TCDCa	6.659	498.9 -> 79.9	1980	5.76	ng/ml		100
TDCA	6.808	498.9 -> 79.9	2524	8.11	ng/ml		100
TUDCA	5.827	498.9 -> 79.9	2953	4.47	ng/ml		100

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

7.6.1
7

Perfluorinated Compounds by LC/MS/MS

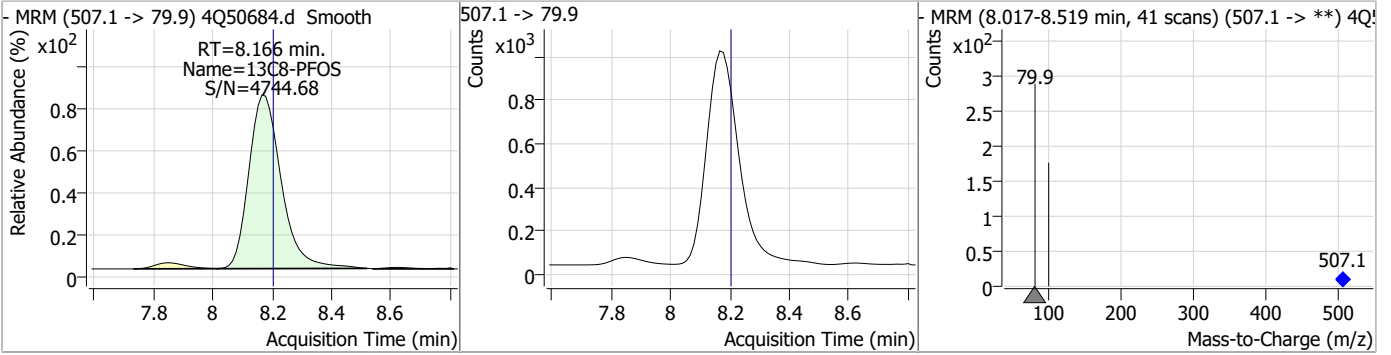


7.6.1

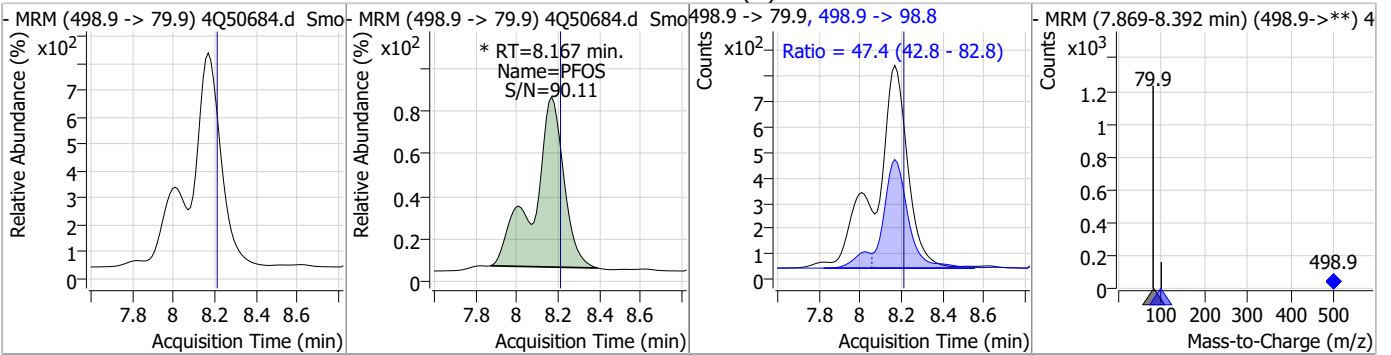
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.59	8.17	-0.04	7449				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.15	8.17	-0.04	8014 (m)	498.9 -> 98.8	47.4	42.8	82.8



7.6.1

7



Manual Integration Approval Summary

Sample Number: S4Q741-RT Method: EPA DRAFT 1633
Lab FileID: 4Q50684.D Analyst approved: 09/18/23 11:34 Anna Ludwig
Injection Time: 09/17/23 12:08 Supervisor approved: 09/18/23 14:43 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.17	Split peak

7.6.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50685.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/17/2023 12:22:55 PM
 Sample Name : RT_BR_LN
 Vial : P1-B2
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q741.batch.bin
 Sample Information : OP98180,S4Q741,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.740	216.8 -> 171.9	79068	10.00 µg/L	0.028
M5-PFPeA	4.215	268.3 -> 223.0	30956	5.00 µg/L	0.000
M5-PFHxA	5.395	318.0 -> 273.0	29670	2.50 µg/L	-0.012
M4-PFHpA	6.341	367.1 -> 322.0	20826	2.50 µg/L	-0.012
M8-PFOA	7.024	421.1 -> 376.0	33499	2.50 µg/L	-0.012
M9-PFNA	7.570	472.1 -> 427.0	12907	1.25 µg/L	0.000
M6-PFDA	8.053	519.1 -> 474.1	8863	1.25 µg/L	-0.013
M7-PFUnDA	8.497	570.0 -> 525.1	9426	1.25 µg/L	-0.012
M2-PFDoDA	8.929	615.1 -> 570.0	12724	1.25 µg/L	-0.012
M2-PFTeDA	9.685	715.2 -> 670.0	6948	1.25 µg/L	-0.012
M8-FOSA	9.906	506.1 -> 77.8	8072	2.50 µg/L	0.000
M3-PFBS	5.251	302.1 -> 79.9	7357	2.50 µg/L	-0.012
M3-PFHxS	7.090	402.1 -> 79.9	4592	2.50 µg/L	-0.013
M8-PFOS	8.166	507.1 -> 79.9	5349	2.50 µg/L	-0.012
M2-4:2FTS	5.096	329.1 -> 80.9	567	5.00 µg/L	-0.012
M2-6:2FTS	6.797	429.1 -> 80.9	925	5.00 µg/L	-0.012
M2-8:2FTS	7.852	529.1 -> 80.9	1674	5.00 µg/L	-0.012
M3-MeFOSAA	8.135	573.2 -> 419.0	9460	5.00 µg/L	-0.012
M3-HFPO-DA	5.750	286.9 -> 168.9	30272	10.00 µg/L	-0.013
M5-EtFOSAA	8.346	589.2 -> 419.0	8677	5.00 µg/L	-0.012
M7-MeFOSE	11.060	623.2 -> 58.9	45912	25.00 µg/L	-0.012
M9-EtFOSE	11.344	639.2 -> 58.9	62434	25.00 µg/L	0.000
M5-EtFOSA	11.423	531.1 -> 219.0	6227	2.50 µg/L	-0.012
M3-MeFOSA	11.165	515.0 -> 219.0	4895	2.50 µg/L	-0.012
13C4-PFOS	8.166	502.8 -> 79.9	4469	2.50 µg/L	-0.012
13C3-PFBA	2.743	216.0 -> 172.0	39314	5.00 µg/L	0.027
18O2-PFHxS	7.089	403.0 -> 83.9	2896	2.50 µg/L	-0.013
13C4-PFOA	7.025	417.1 -> 372.0	37155	2.50 µg/L	-0.012
13C2-PFDA	8.053	515.1 -> 470.1	8892	1.25 µg/L	-0.013
13C5-PFNA	7.570	468.0 -> 423.0	10748	1.25 µg/L	0.000
13C2-PFHxA	5.396	315.1 -> 270.0	26206	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.096	329.1 -> 80.9	567	3.59 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 71.7%		
13C2-6:2FTS	6.797	429.1 -> 80.9	925	3.78 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 75.6%		
13C2-8:2FTS	7.852	529.1 -> 80.9	1674	4.43 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.6%		
13C2-PFDoDA	8.929	615.1 -> 570.0	12724	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-PFTeDA	9.685	715.2 -> 670.0	6948	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C3-PFBS	5.251	302.1 -> 79.9	7357	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C3-PFHxS	7.090	402.1 -> 79.9	4592	2.64 µg/L	-0.013

7.62
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C4-PFBA	2.740	216.8 -> 171.9	79068	10.16 µg/L	0.028
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C4-PFHpA	6.341	367.1 -> 322.0	20826	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C5-PFHxA	5.395	318.0 -> 273.0	29670	2.49 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C5-PFPeA	4.215	268.3 -> 223.0	30956	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C6-PFDA	8.053	519.1 -> 474.1	8863	1.31 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C7-PFUnDA	8.497	570.0 -> 525.1	9426	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C8-FOSA	9.906	506.1 -> 77.8	8072	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C8-PFOA	7.024	421.1 -> 376.0	33499	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C8-PFOS	8.166	507.1 -> 79.9	5349	2.69 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C9-PFNA	7.570	472.1 -> 427.0	12907	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.1%	
d3-MeFOSAA	8.135	573.2 -> 419.0	9460	4.71 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C3-HFPO-DA	5.750	286.9 -> 168.9	30272	10.68 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.8%	
d3-MeFOSA	11.165	515.0 -> 219.0	4895	2.70 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.0%	
d5-EtFOSAA	8.346	589.2 -> 419.0	8677	4.67 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
d7-MeFOSE	11.060	623.2 -> 58.9	45912	26.00 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
d9-EtFOSE	11.344	639.2 -> 58.9	62434	24.51 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d5-EtFOSA	11.423	531.1 -> 219.0	6227	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
Target Compounds					QValue
4:2FTS	5.097	327.1 -> 307.0	57141	59.51 µg/L	98
		327.1 -> 80.9	22336		
6:2FTS	6.810	427.1 -> 407.0	56244	52.64 µg/L	99
		427.1 -> 80.9	20948		
8:2FTS	7.853	527.1 -> 507.0	41871	44.37 µg/L	99
		527.1 -> 80.8	18168		
EtFOSAA	8.346	584.2 -> 419.1	21592	14.14 µg/L	93
		584.2 -> 526.0	8839		
FOSA	9.896	498.1 -> 77.9	111364	30.31 µg/L	100
		498.1 -> 478.0	3563		
MeFOSAA	8.136	570.1 -> 419.0	25886	12.53 µg/L	100
		570.1 -> 483.0	5327		
PFBA	2.732	212.8 -> 168.9	162244	53.62 µg/L	100
PFBS	5.252	298.7 -> 79.9	42261	12.22 µg/L	96
		298.7 -> 98.8	16377		
PFDA	8.053	512.9 -> 469.0	104322	12.87 µg/L	98
		512.9 -> 219.0	21881		
PFDoDA	8.929	613.1 -> 569.0	144384	13.29 µg/L	98
		613.1 -> 319.0	24434		
PFDS	9.069	599.0 -> 79.9	24399	12.60 µg/L	94

7.6.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	12724			
PFHpA	6.341	363.1 -> 319.0	176541	14.27	µg/L	99
		363.1 -> 169.0	34931			
PFHpS	7.673	449.0 -> 79.9	27887	12.16	µg/L	99
		449.0 -> 98.9	14796			
PFHxA	5.398	313.0 -> 269.0	142571	13.59	µg/L	100
		313.0 -> 118.9	4787			
PFHxS	7.091	398.7 -> 79.9	24081	11.88	µg/L	m 90
		398.7 -> 98.9	12598			
PFNA	7.558	463.0 -> 419.0	205637	26.19	µg/L	m 96
		463.0 -> 219.0	51285			
PFNS	8.634	548.8 -> 79.9	18152	11.54	µg/L	99
		548.8 -> 98.9	9546			
PFOA	7.026	413.0 -> 369.0	408810	27.17	µg/L	m 100
		413.0 -> 169.0	90030			
PFOS	8.167	498.9 -> 79.9	33333	13.43	µg/L	m 75
		498.9 -> 98.8	16669			
PFPeA	4.216	263.0 -> 219.0	266654	27.32	µg/L	100
PFPeS	6.343	349.1 -> 79.9	23379	12.37	µg/L	92
		349.1 -> 98.9	10065			
PFTeDA	9.686	713.1 -> 669.0	128139	13.37	µg/L	100
		713.1 -> 168.9	13380			
PFTrDA	9.316	663.0 -> 619.0	163117	13.66	µg/L	99
		663.0 -> 168.9	22264			
PFUnDA	8.497	563.1 -> 519.0	121973	13.89	µg/L	98
		563.1 -> 269.1	25817			
11CI-PF3OUdS	9.355	630.9 -> 450.9	195121	24.35	µg/L	98
		632.9 -> 452.9	61121			
9CI-PF3ONS	8.499	530.8 -> 351.0	201254	23.16	µg/L	96
		532.8 -> 353.0	61665			
ADONA	6.617	376.9 -> 250.9	544774	23.96	µg/L	98
		376.9 -> 84.8	137827			
HFPO-DA	5.751	284.9 -> 168.9	85178	25.96	µg/L	97
		284.9 -> 184.9	10971			
3:3FTCA	3.718	241.0 -> 177.0	35453	65.89	µg/L	96
		241.0 -> 117.0	4000			
5:3FTCA	6.156	341.0 -> 237.1	626811	339.00	µg/L	96
		341.0 -> 217.0	473540			
7:3FTCA	7.674	441.0 -> 316.9	299050	338.62	µg/L	98
		441.0 -> 336.9	628246			
EtFOSA	11.438	526.0 -> 219.0	121230	44.56	µg/L	98
		526.0 -> 169.0	167814			
EtFOSE	11.358	630.0 -> 58.9	223523	86.73	µg/L	100
MeFOSA	11.168	511.9 -> 219.0	95257	41.27	µg/L	m 74
		511.9 -> 169.0	139733			
MeFOSE	11.086	616.1 -> 58.9	191967	85.21	µg/L	m 100
PFDoDS	9.813	699.1 -> 79.9	17906	12.92	µg/L	97
		699.1 -> 98.8	10445			
NFDHA	5.277	295.0 -> 201.0	16849	27.02	µg/L	94
		295.0 -> 84.9	4270			
PFMBA	4.629	279.0 -> 85.1	139660	26.95	µg/L	100
PFMPA	3.358	229.0 -> 84.9	155347	26.75	µg/L	100
PFEESA	5.783	314.8 -> 134.9	247774	24.28	µg/L	99
		314.8 -> 82.9	8304			

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

7.6.2
7

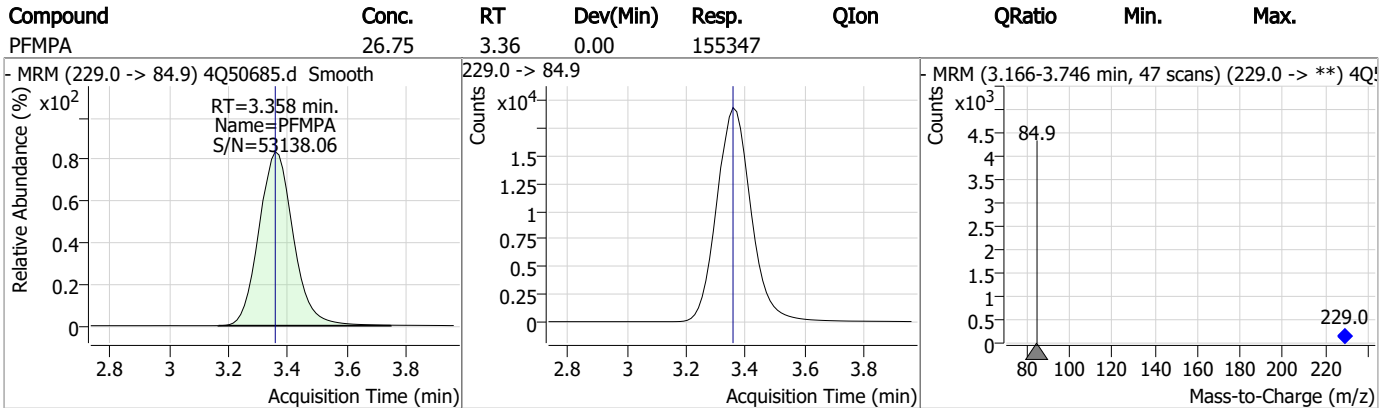
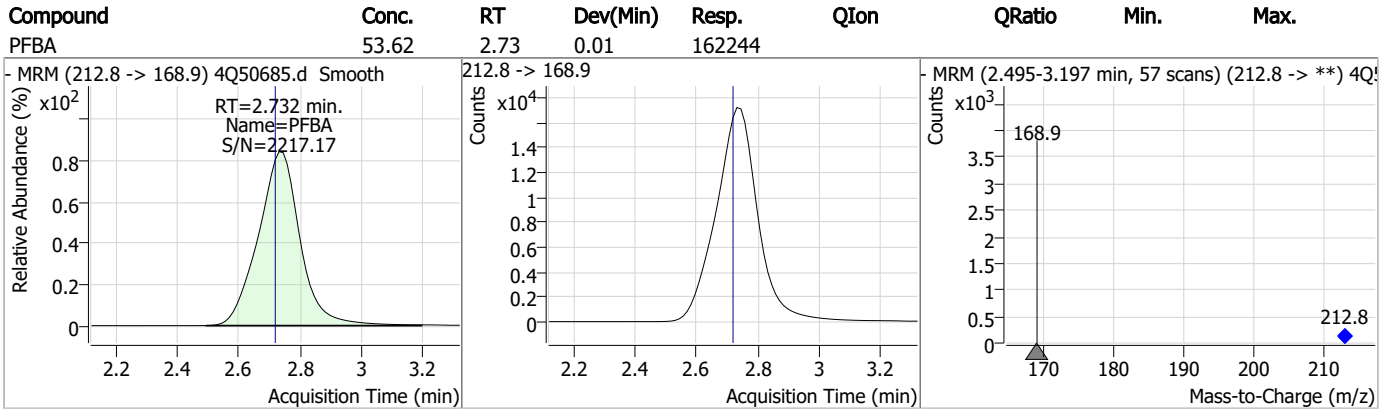
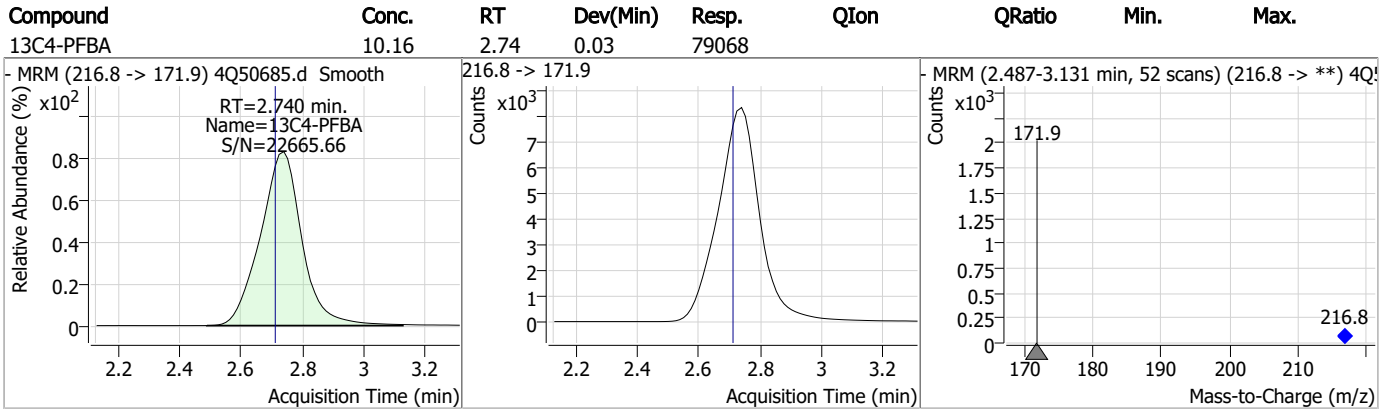
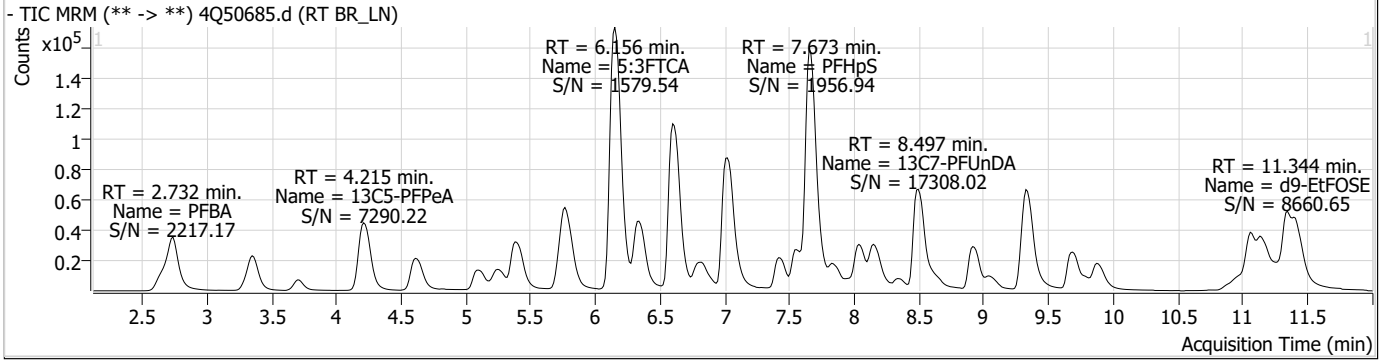
Perfluorinated Compounds by LC/MS/MS

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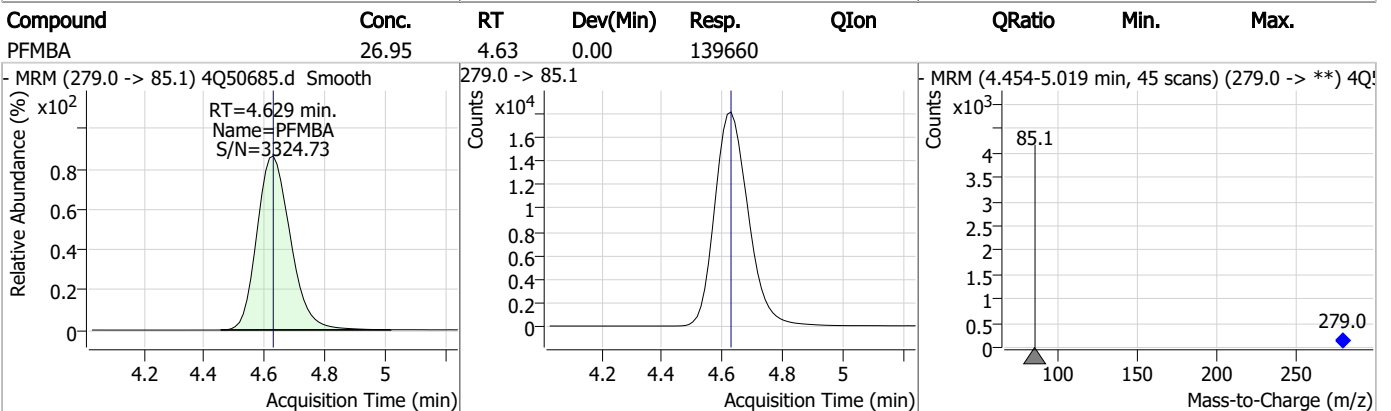
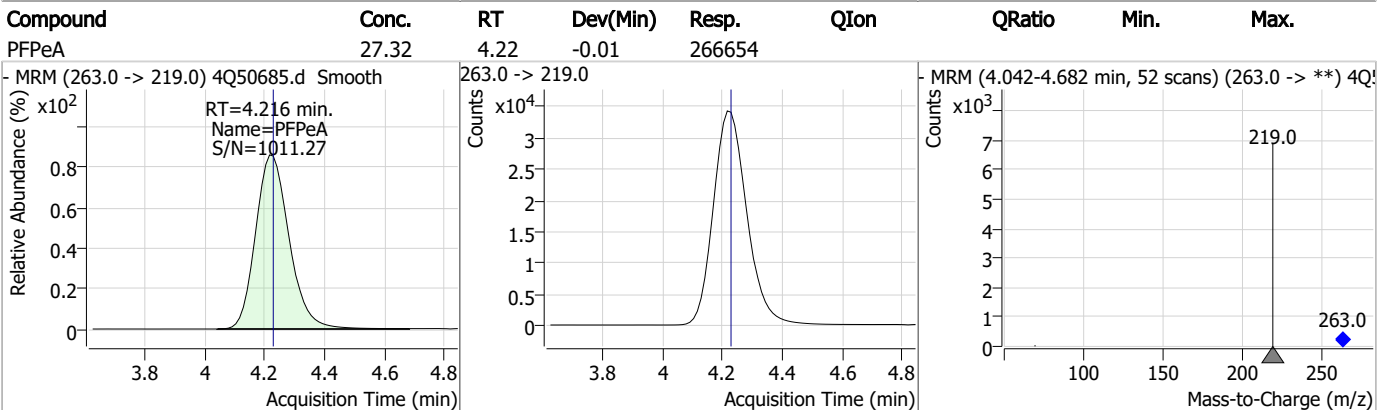
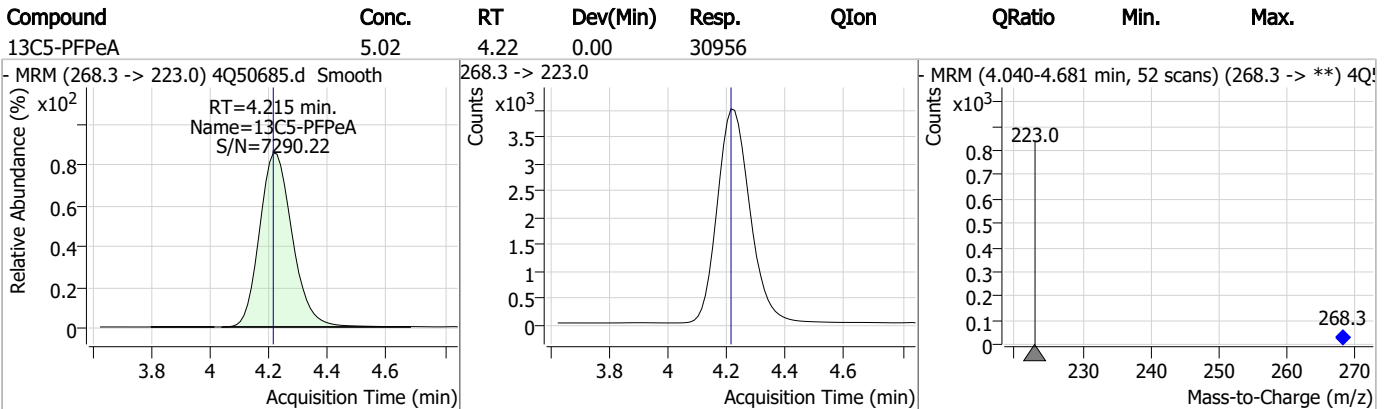
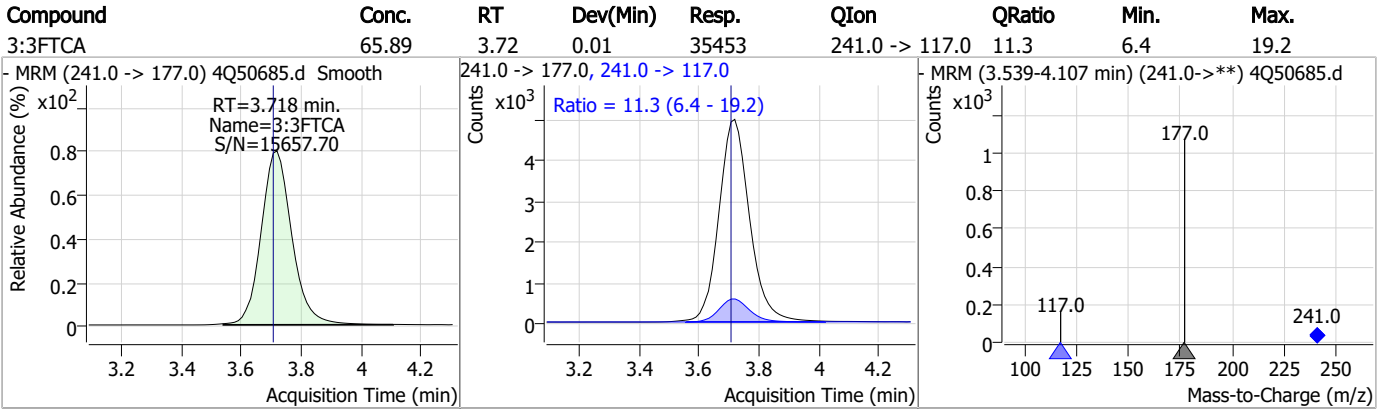
7.6.2

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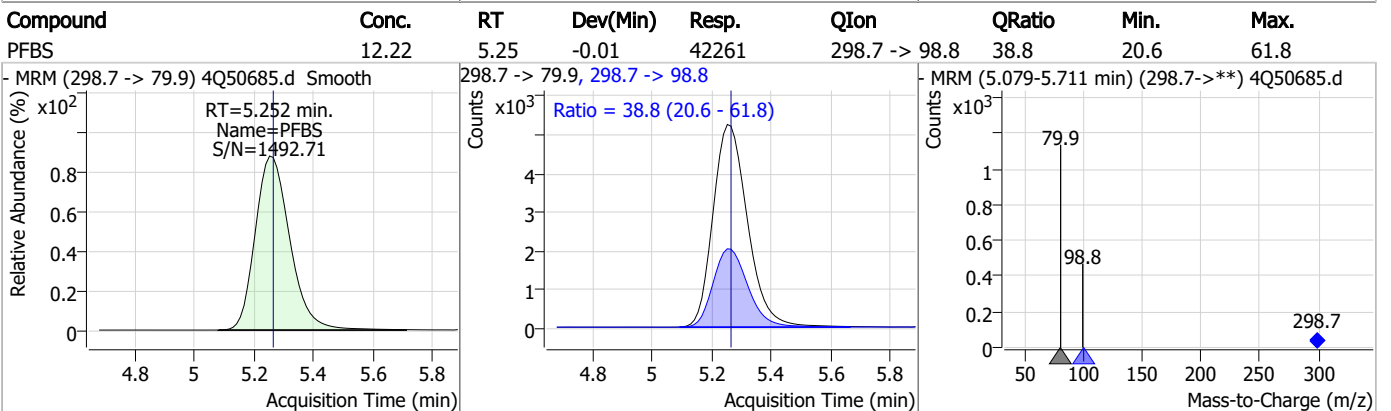
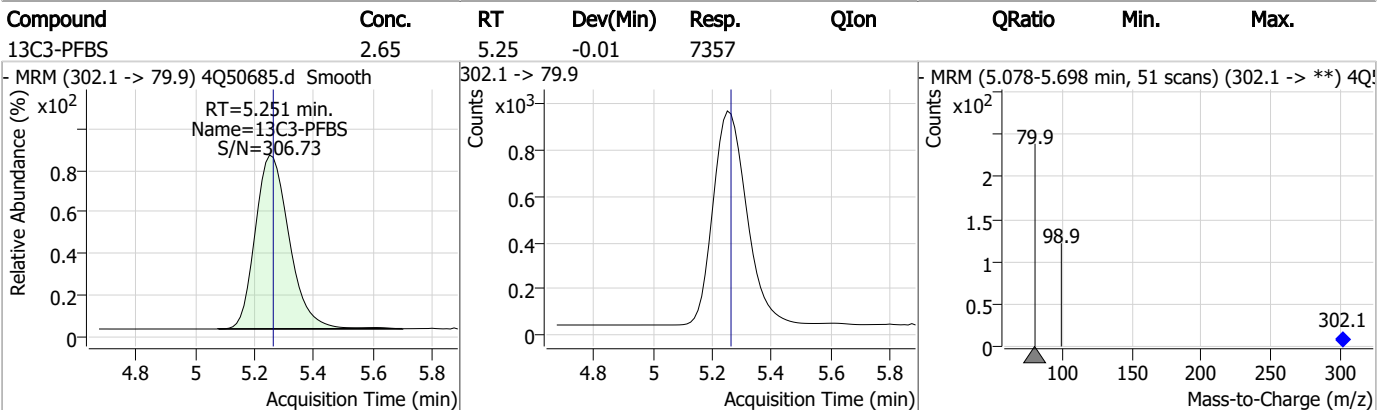
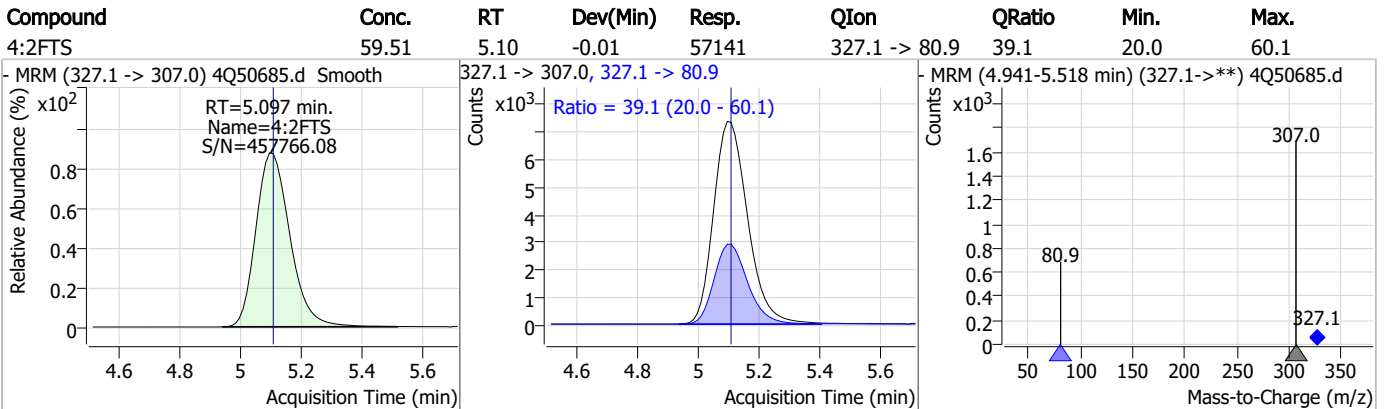
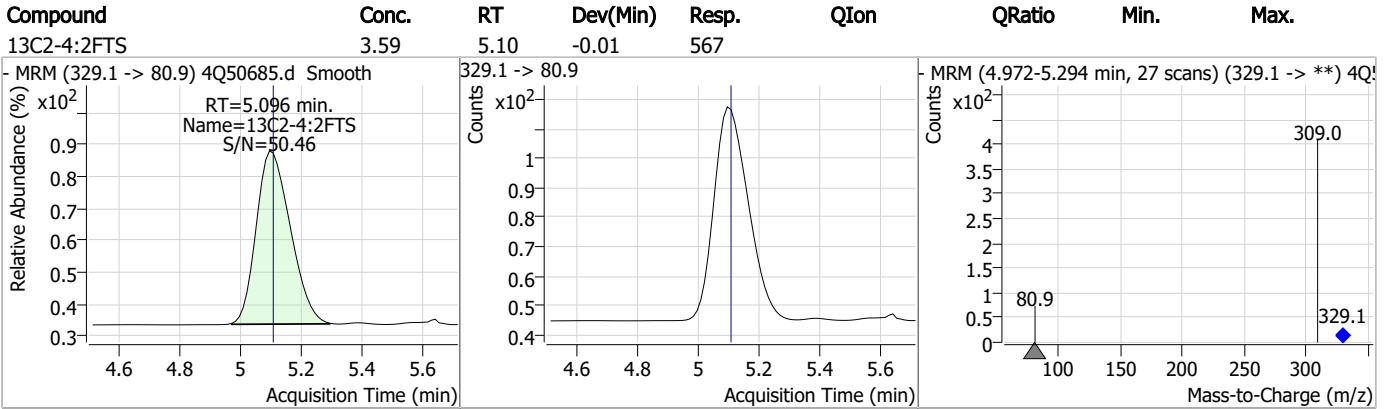
Perfluorinated Compounds by LC/MS/MS



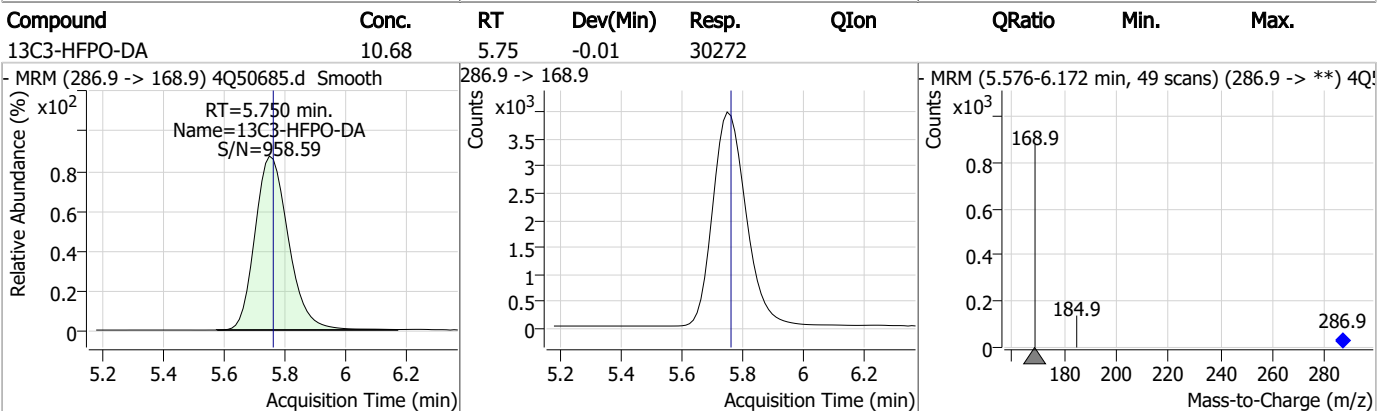
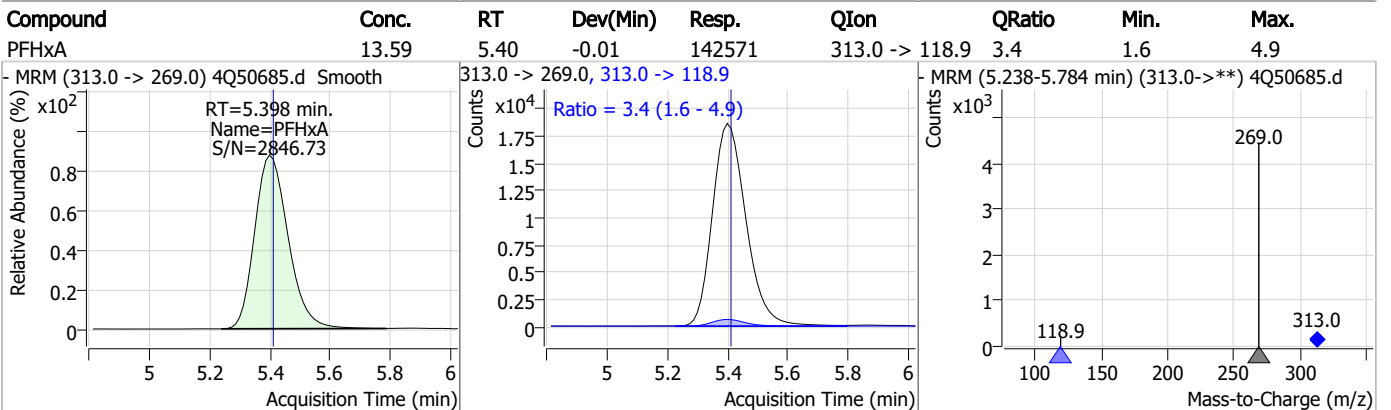
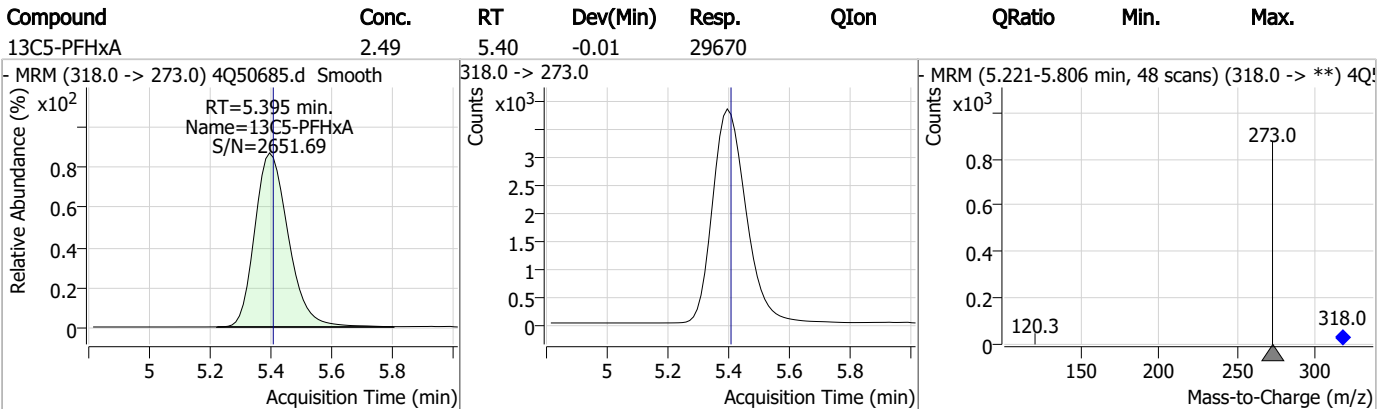
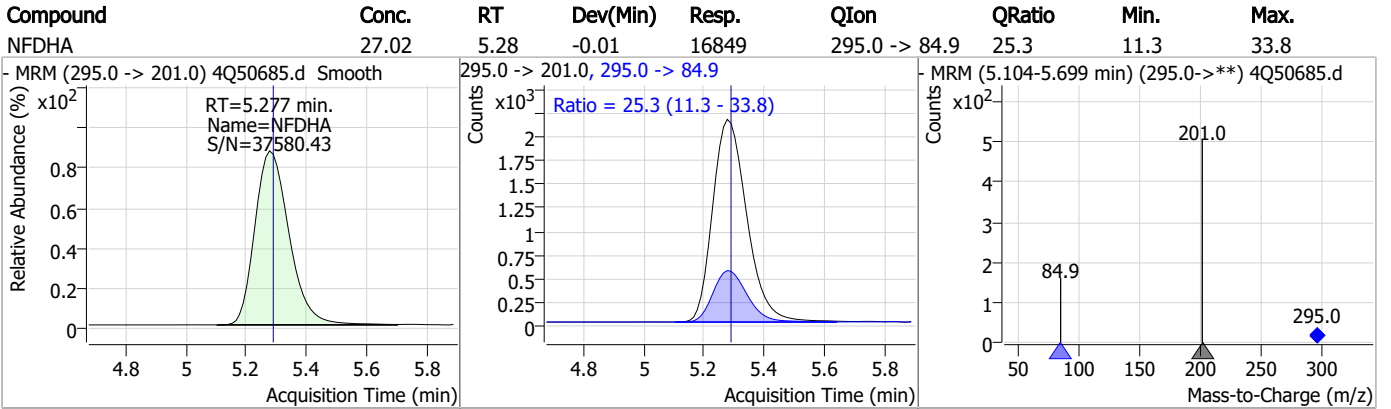
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

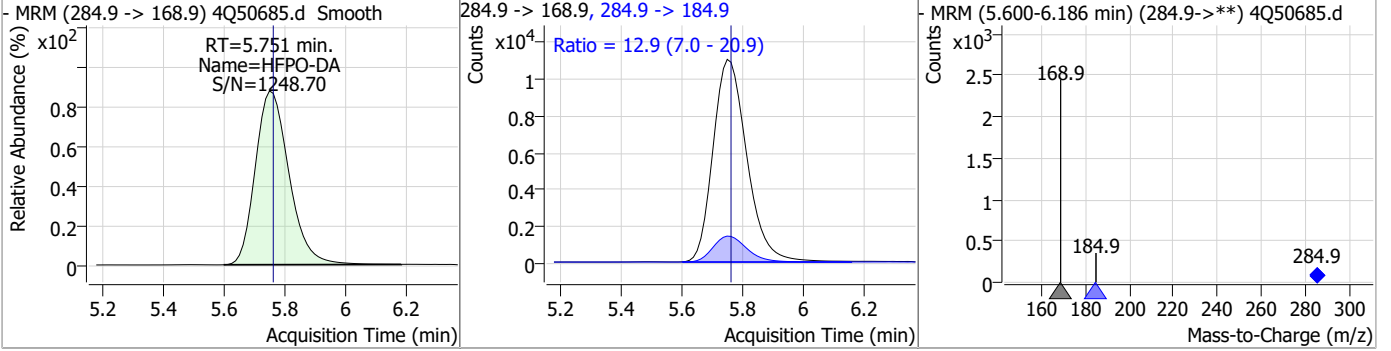


Perfluorinated Compounds by LC/MS/MS

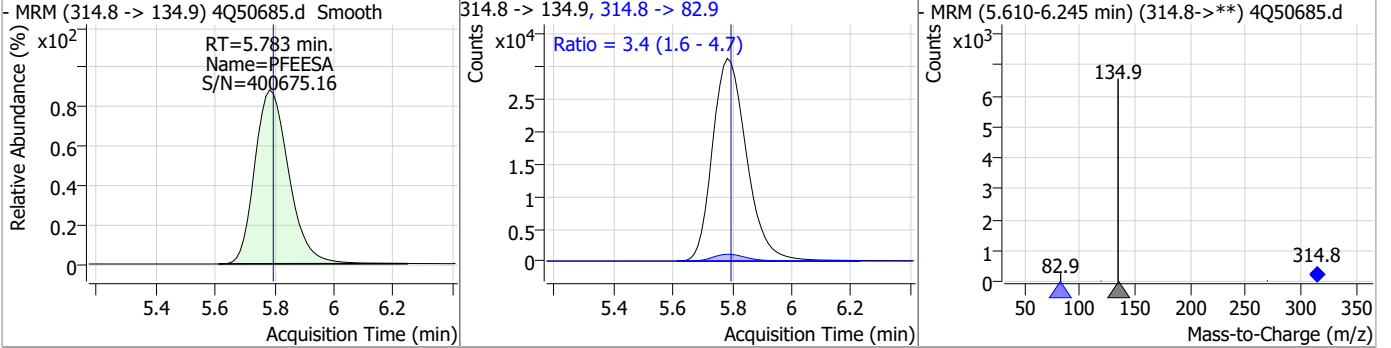


Perfluorinated Compounds by LC/MS/MS

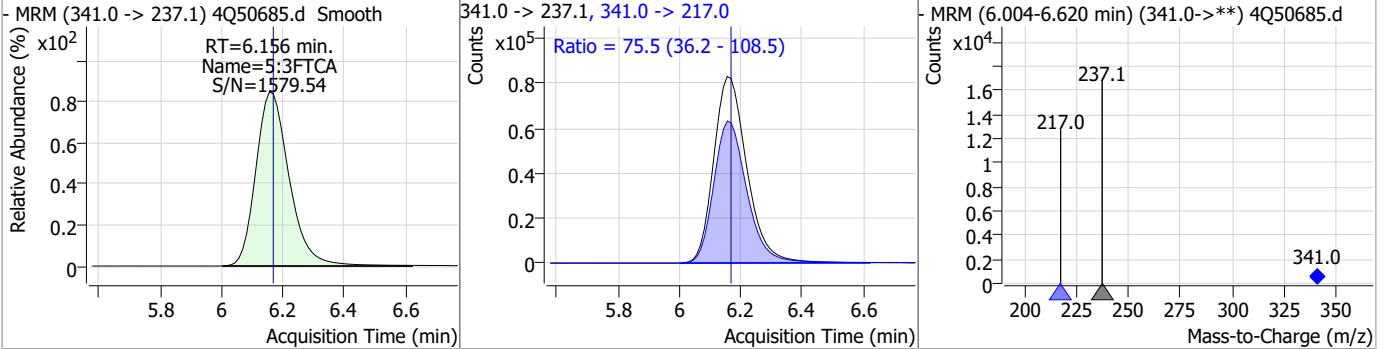
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	25.96	5.75	-0.01	85178	284.9 -> 184.9	12.9	7.0	20.9



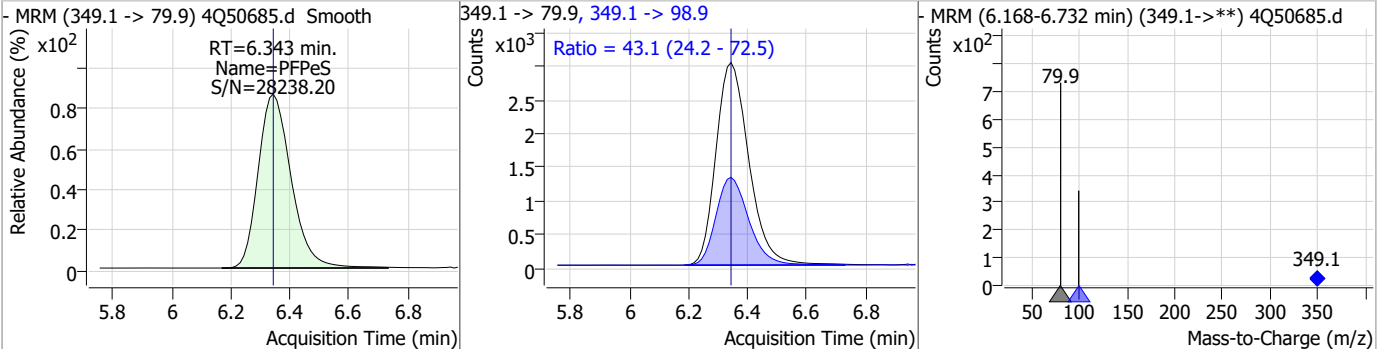
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	24.28	5.78	-0.01	247774	314.8 -> 82.9	3.4	1.6	4.7



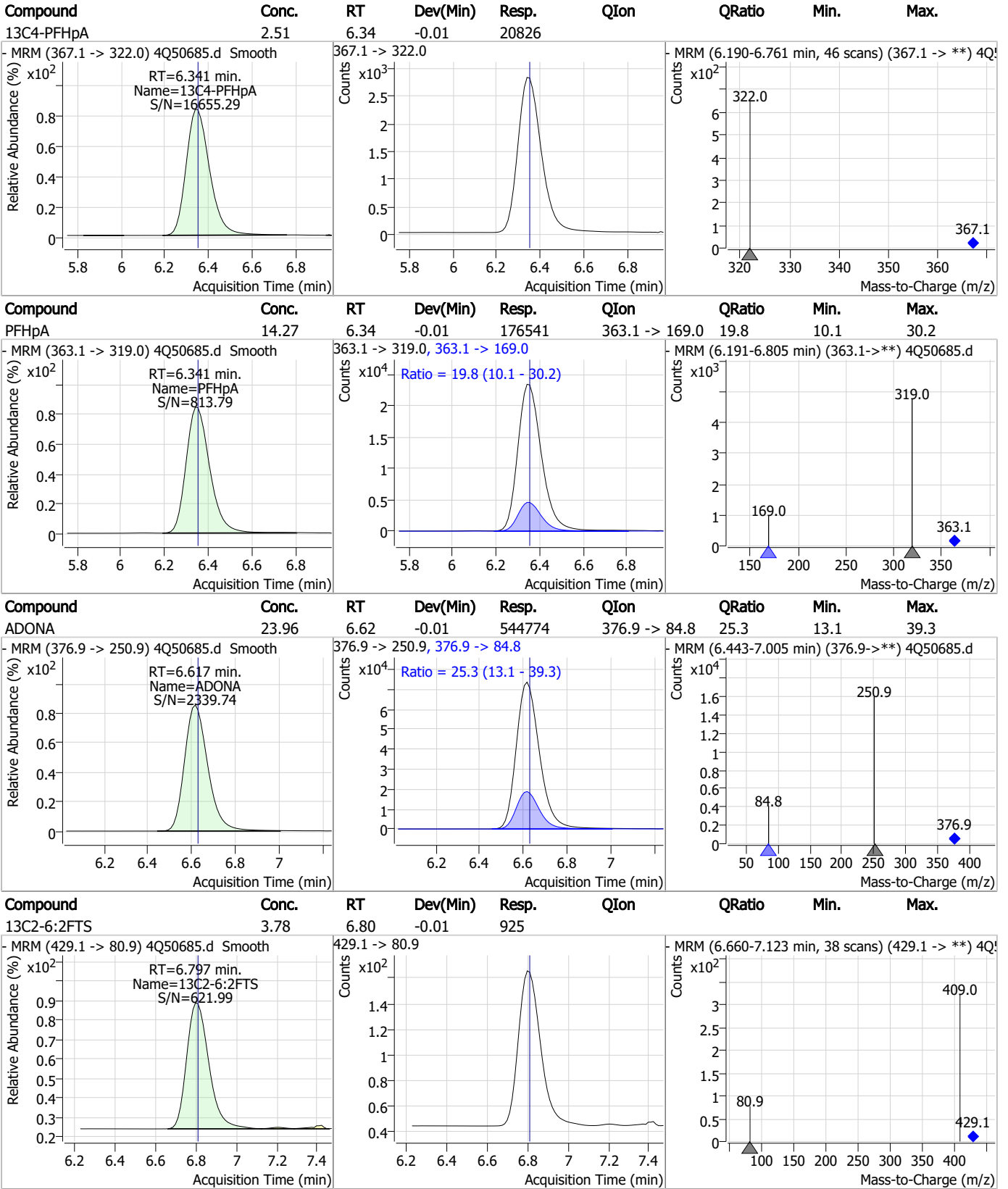
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	339.00	6.16	-0.01	626811	341.0 -> 217.0	75.5	36.2	108.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	12.37	6.34	0.00	23379	349.1 -> 98.9	43.1	24.2	72.5



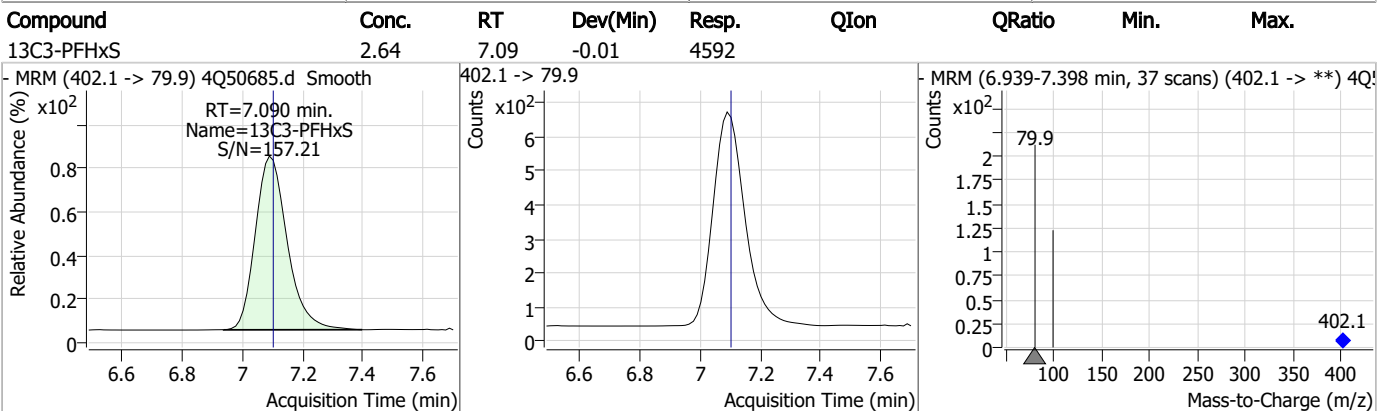
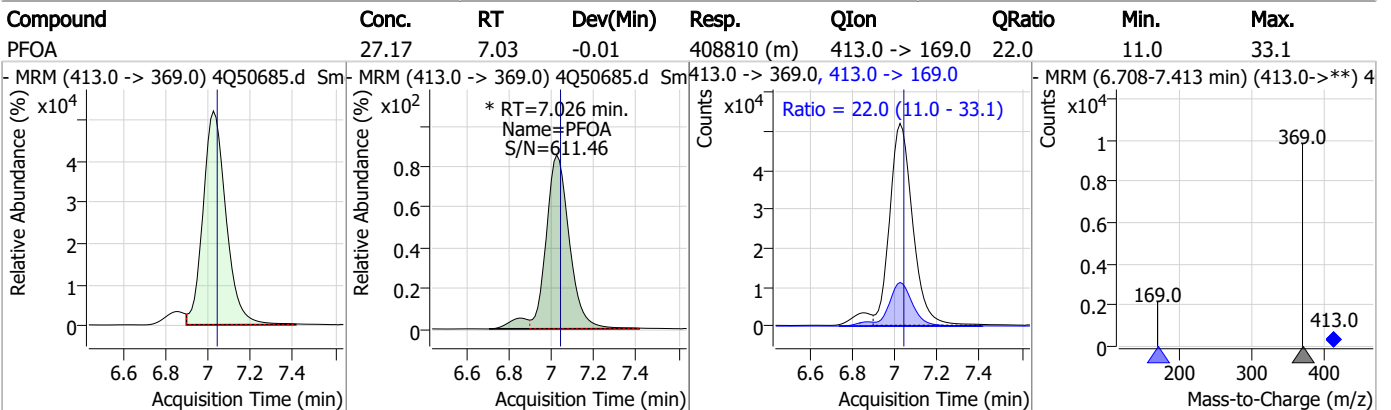
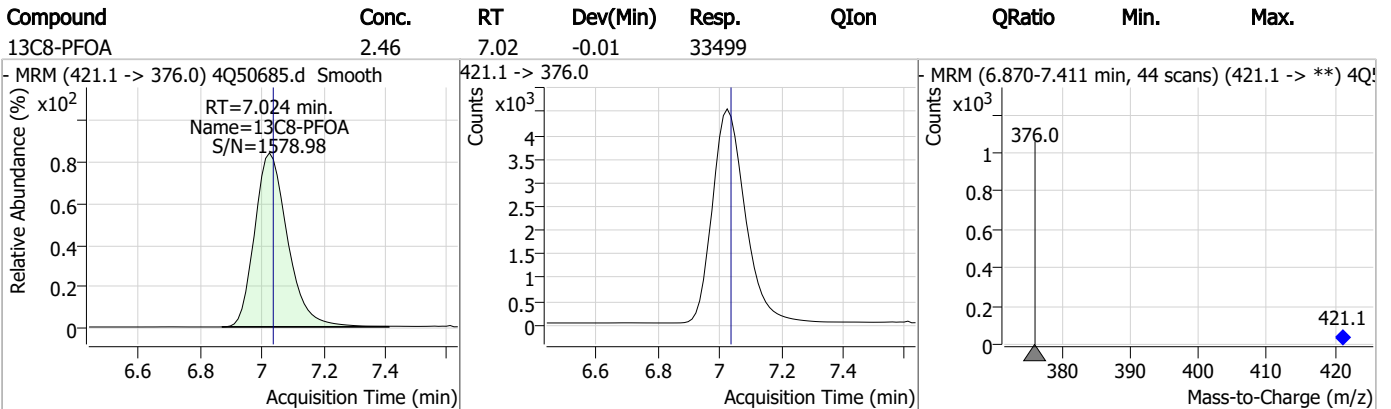
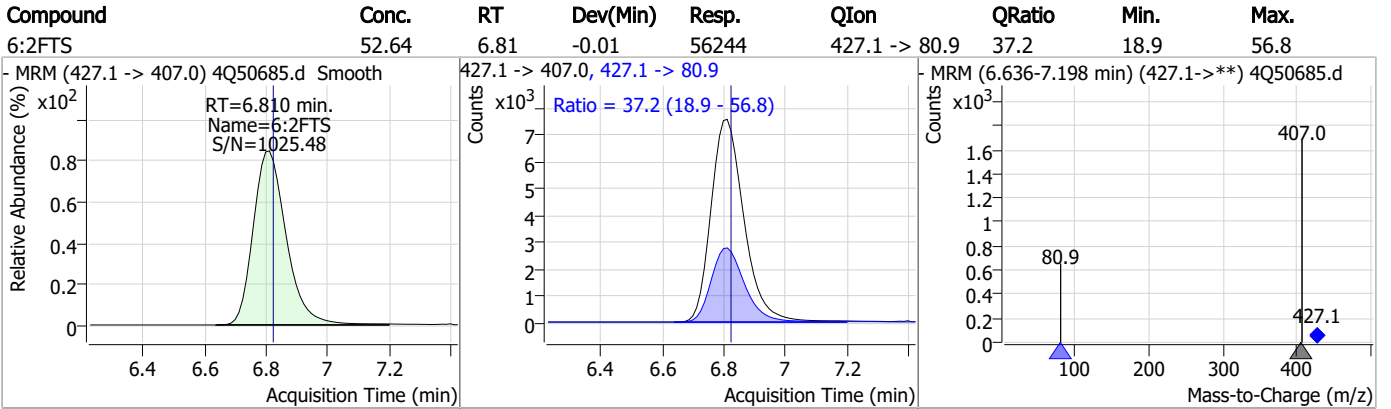
Perfluorinated Compounds by LC/MS/MS



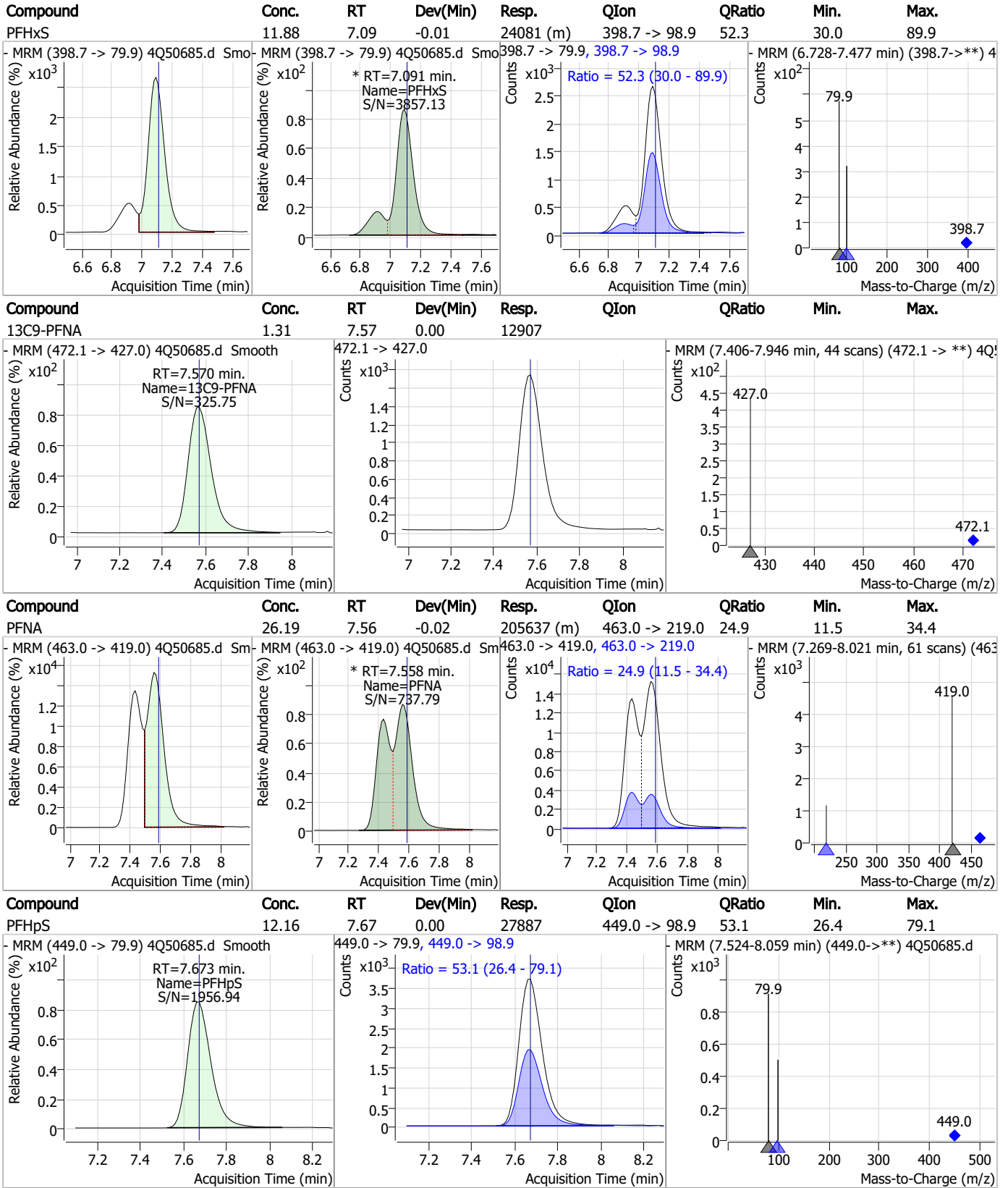
7.6.2

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Perfluorinated Compounds by LC/MS/MS



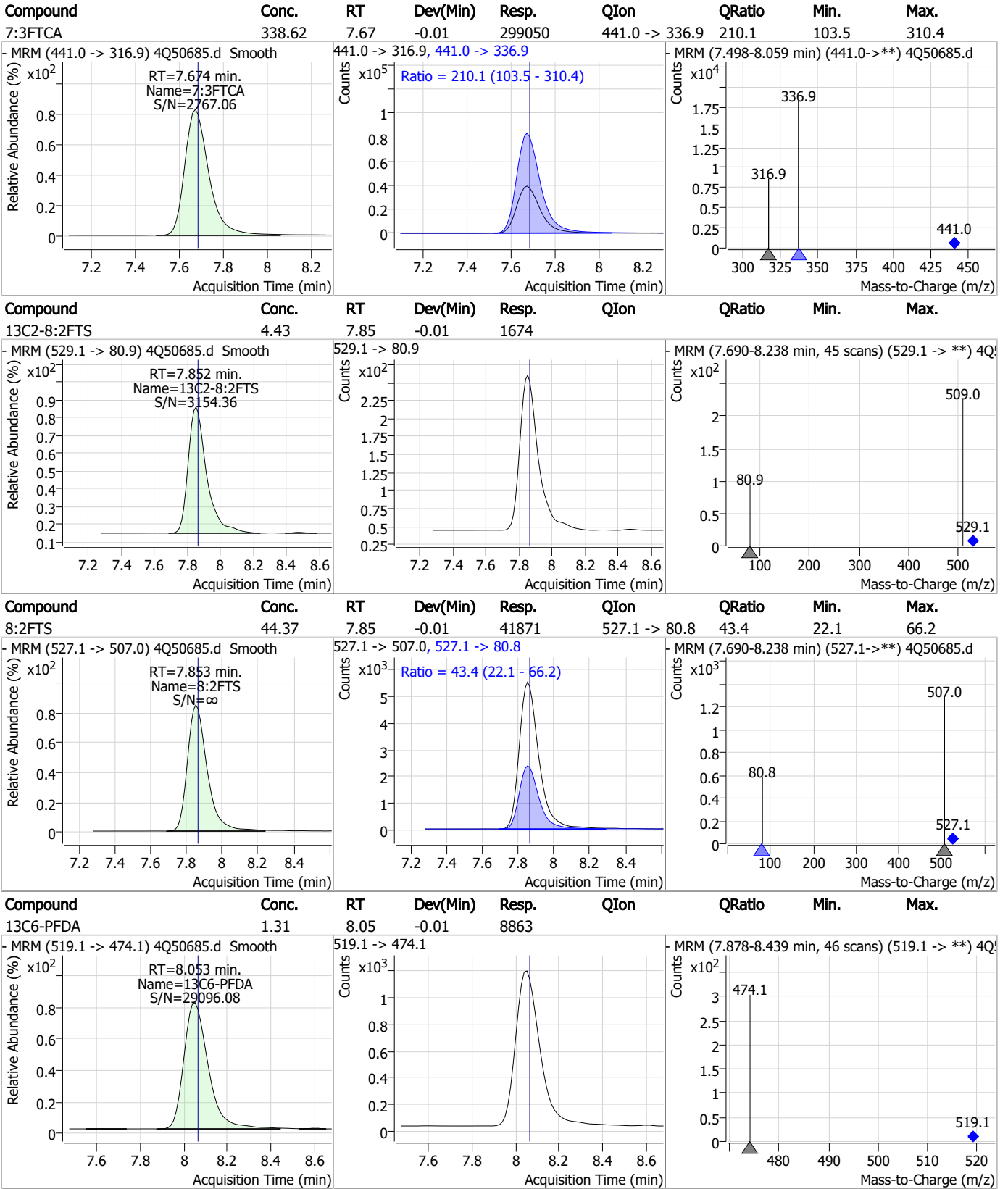
Perfluorinated Compounds by LC/MS/MS



7.6.2

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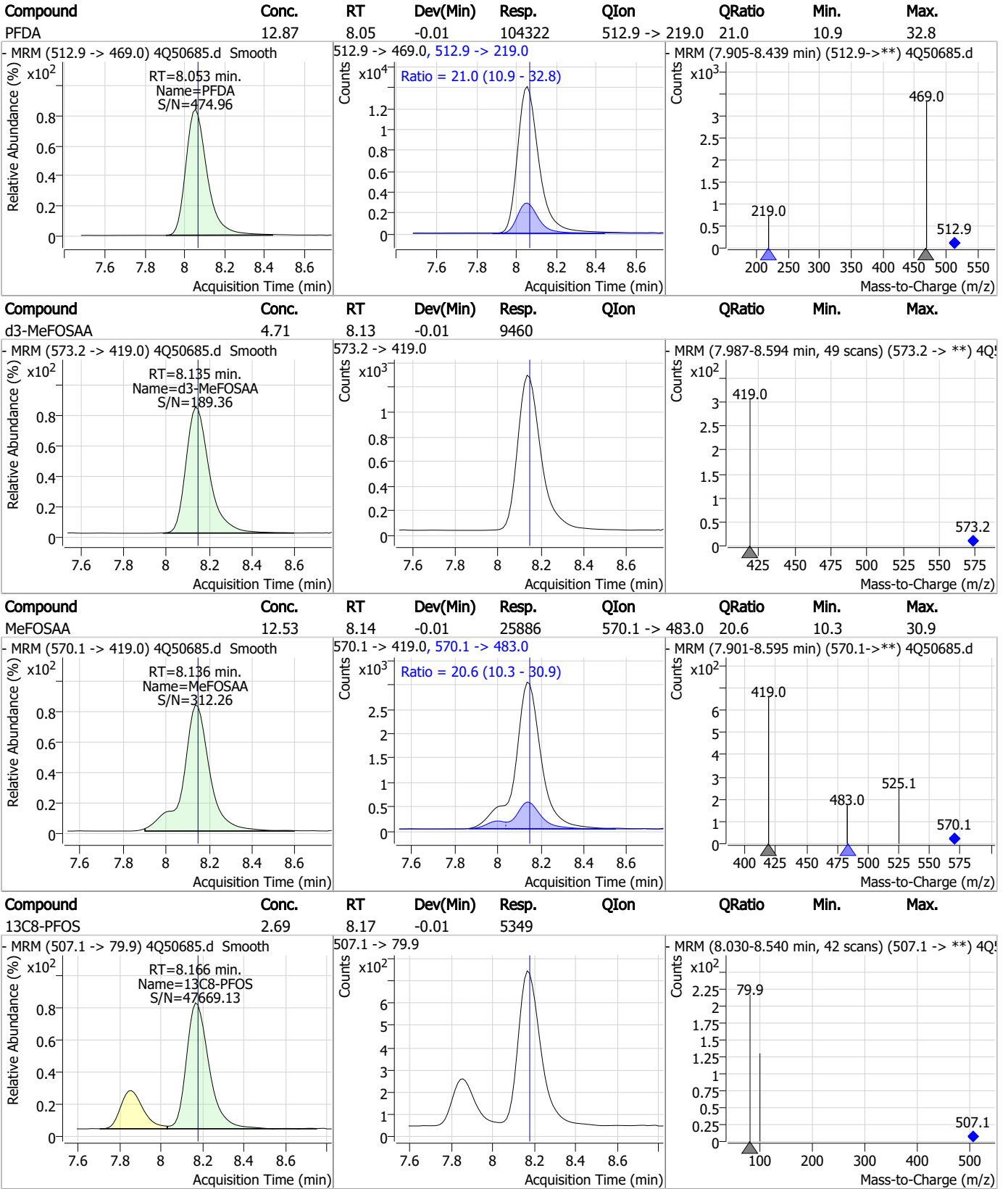
Perfluorinated Compounds by LC/MS/MS



7.6.2

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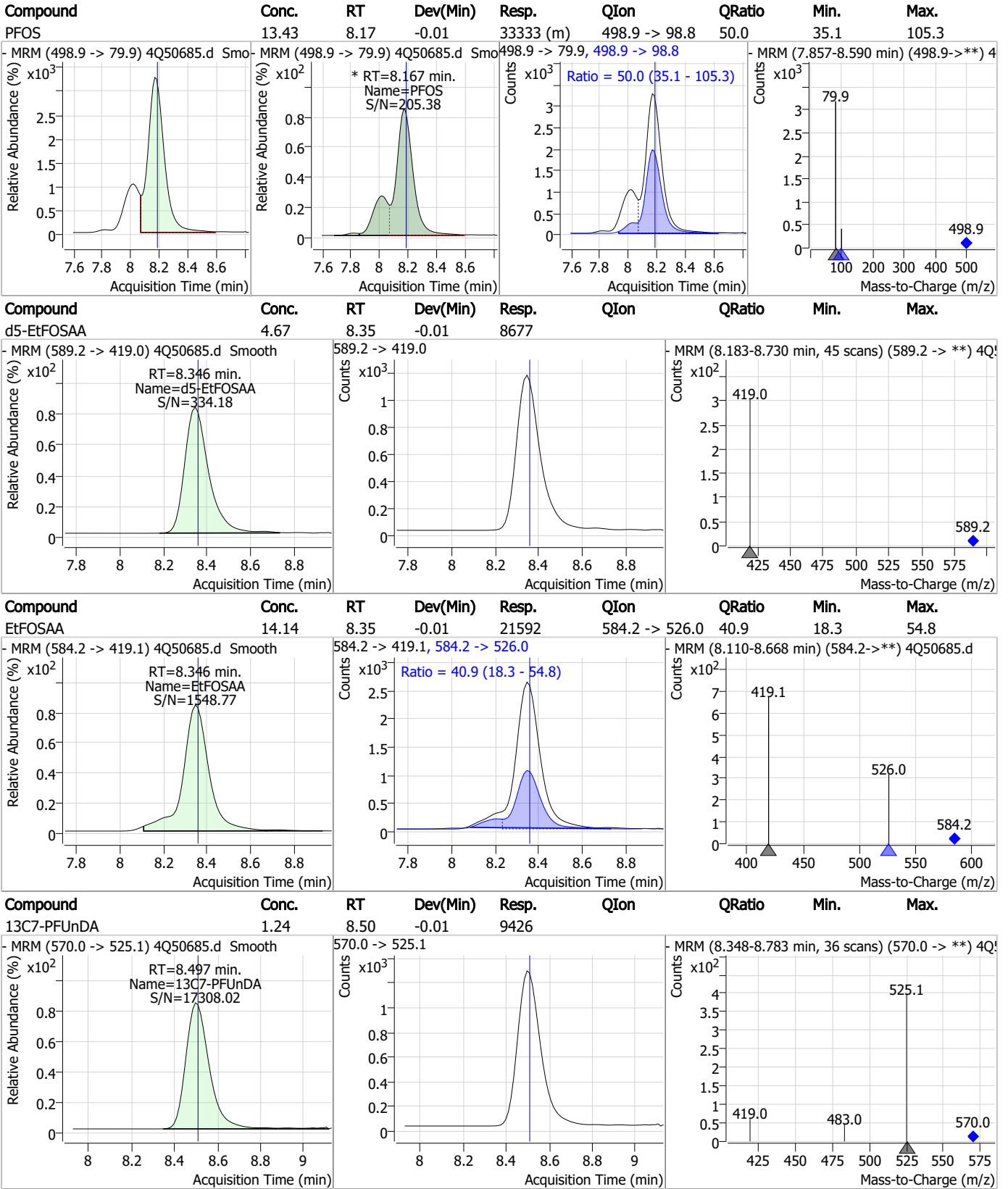
Perfluorinated Compounds by LC/MS/MS



7.6.2

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Perfluorinated Compounds by LC/MS/MS

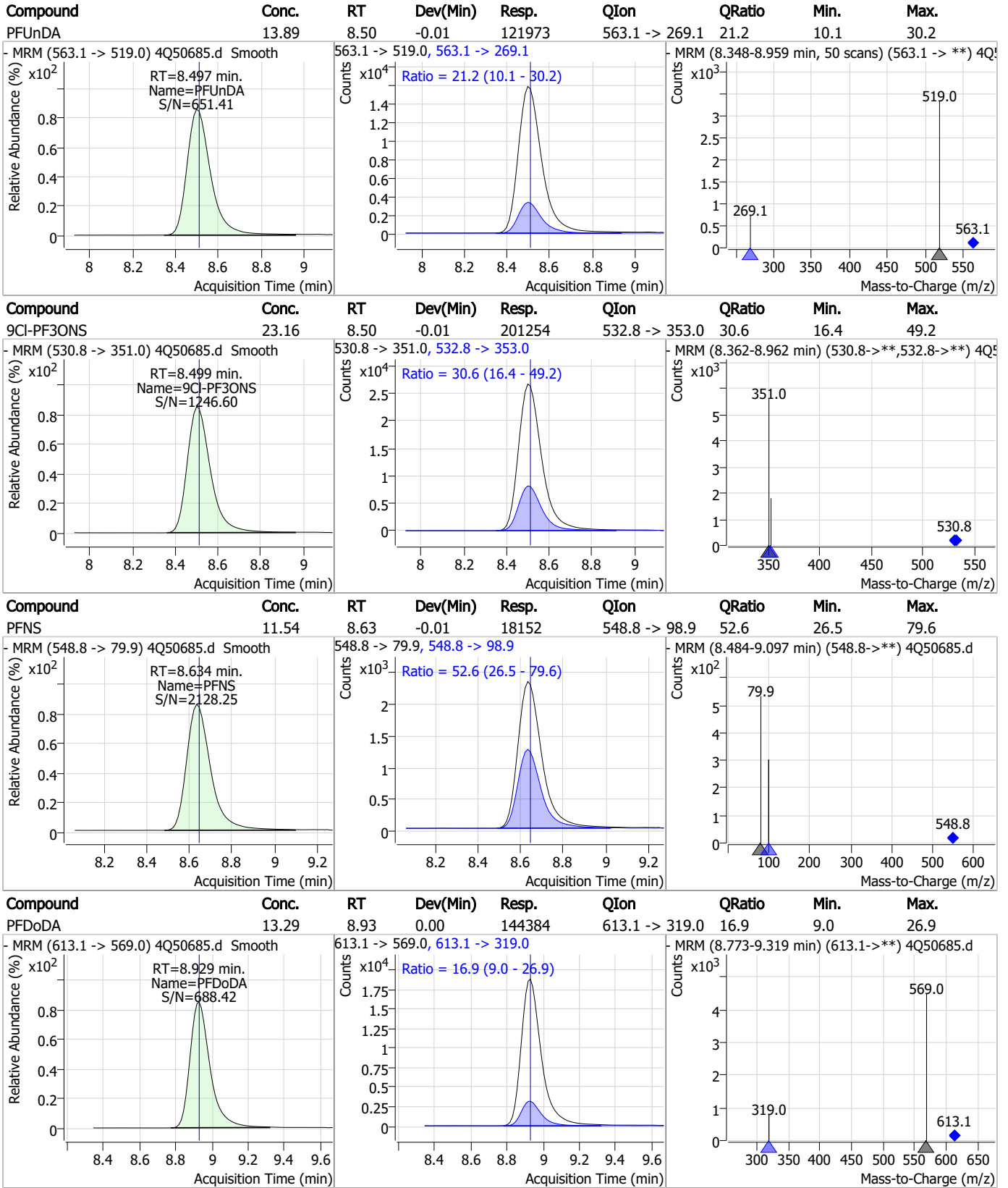


7.6.2

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Perfluorinated Compounds by LC/MS/MS

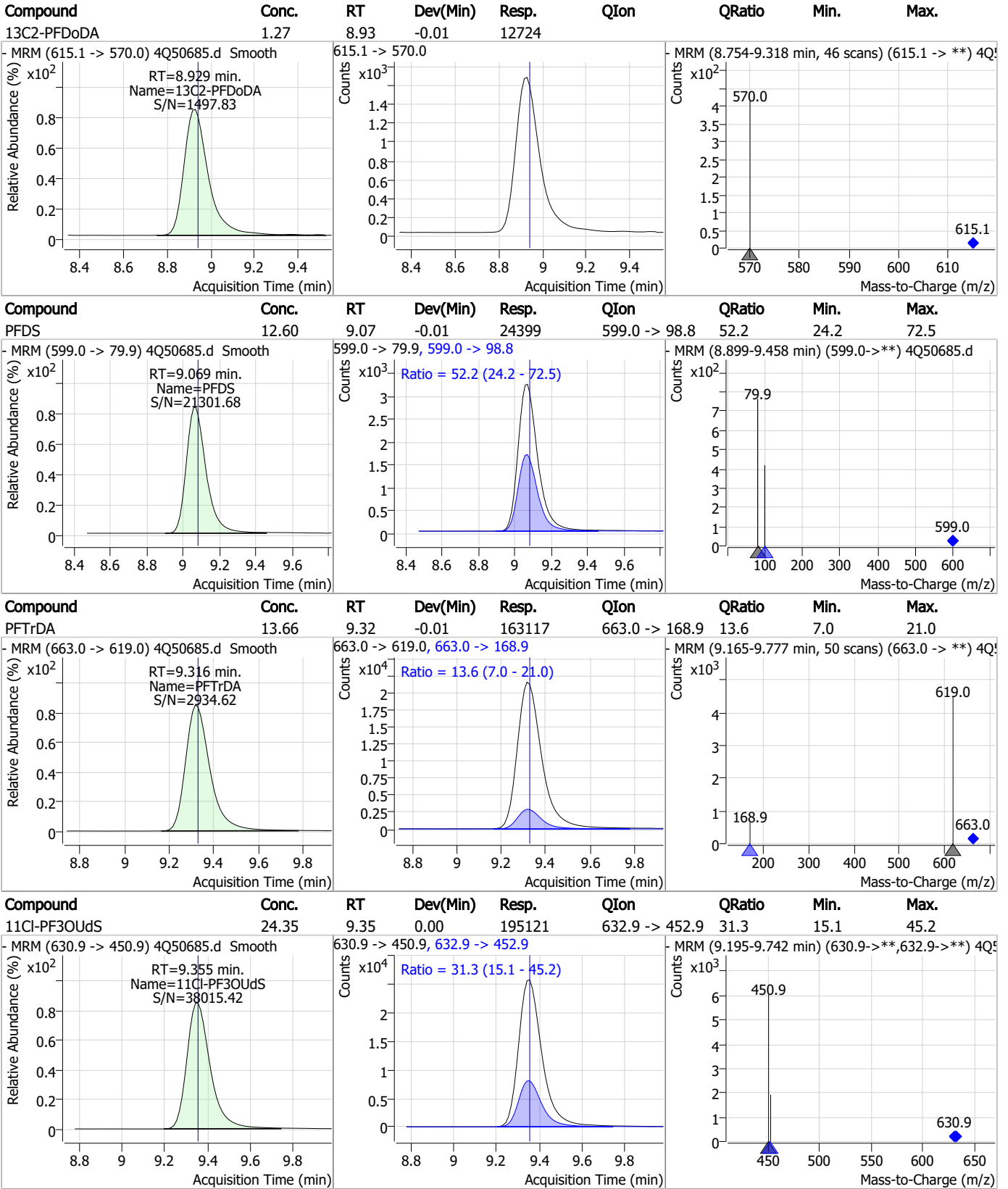


7.6.2

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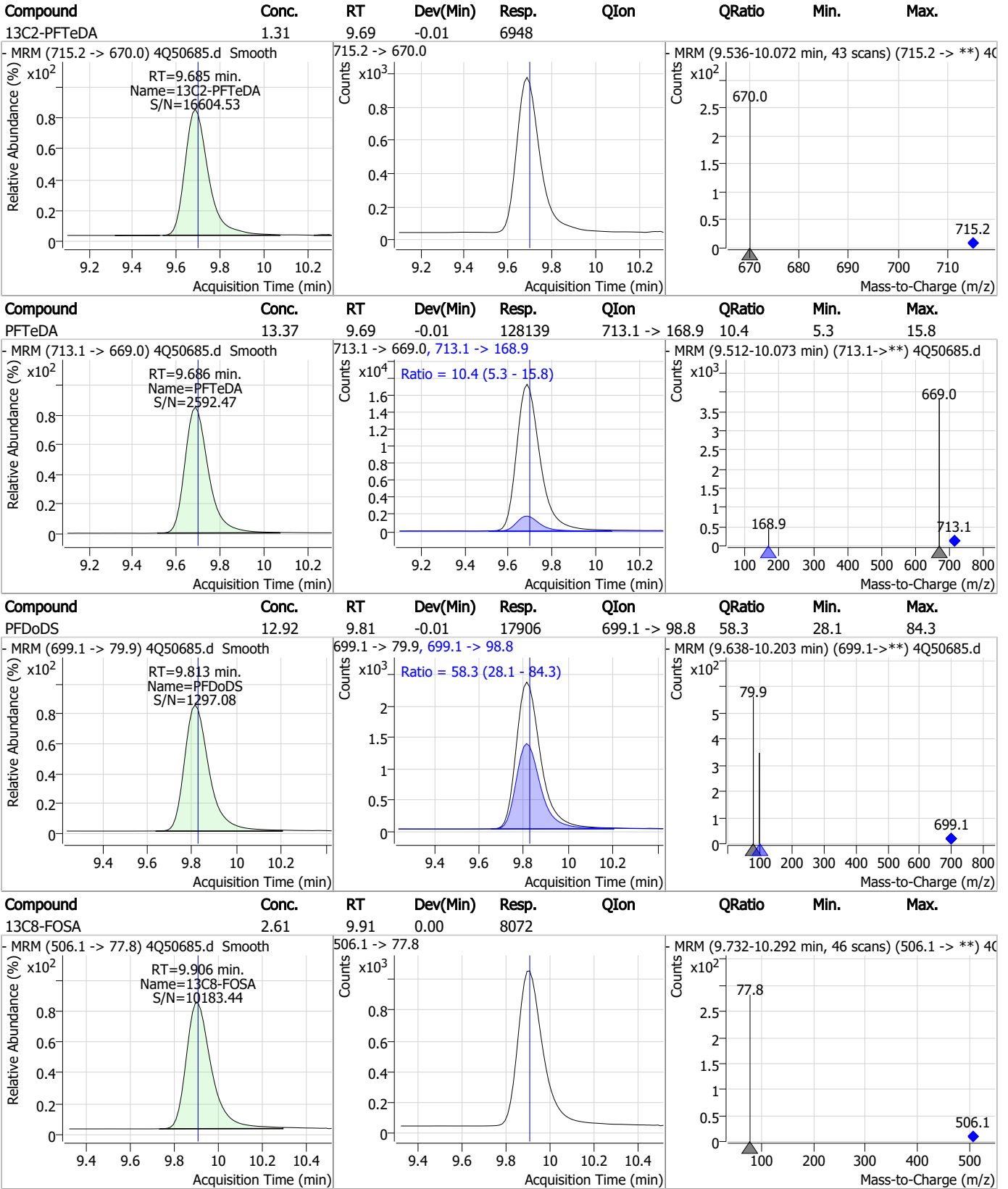
Perfluorinated Compounds by LC/MS/MS



7.6.2

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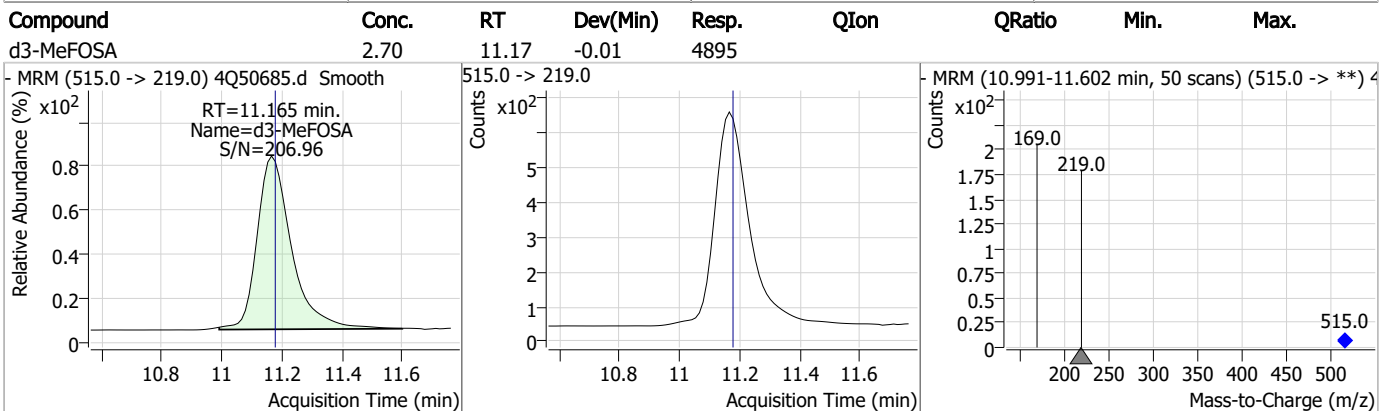
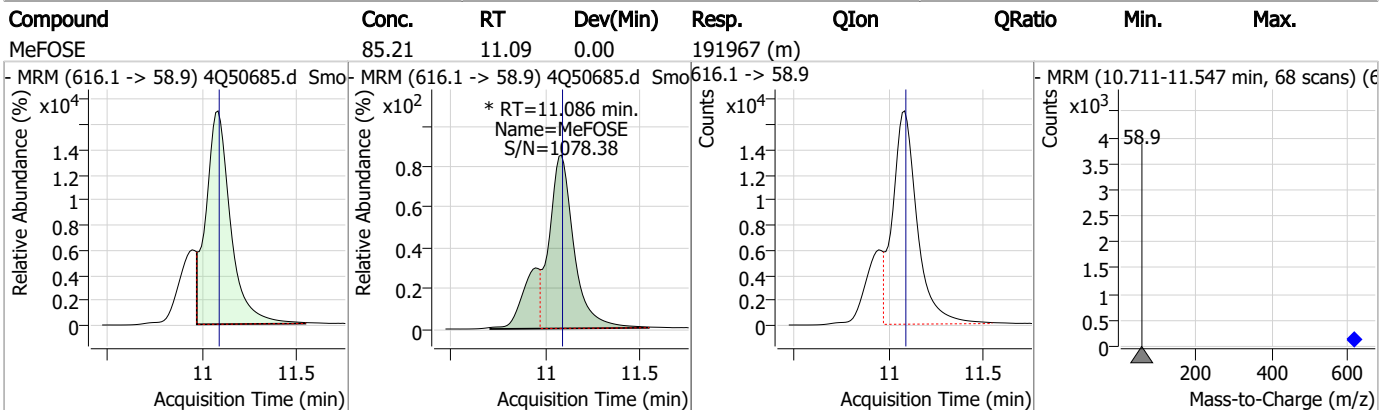
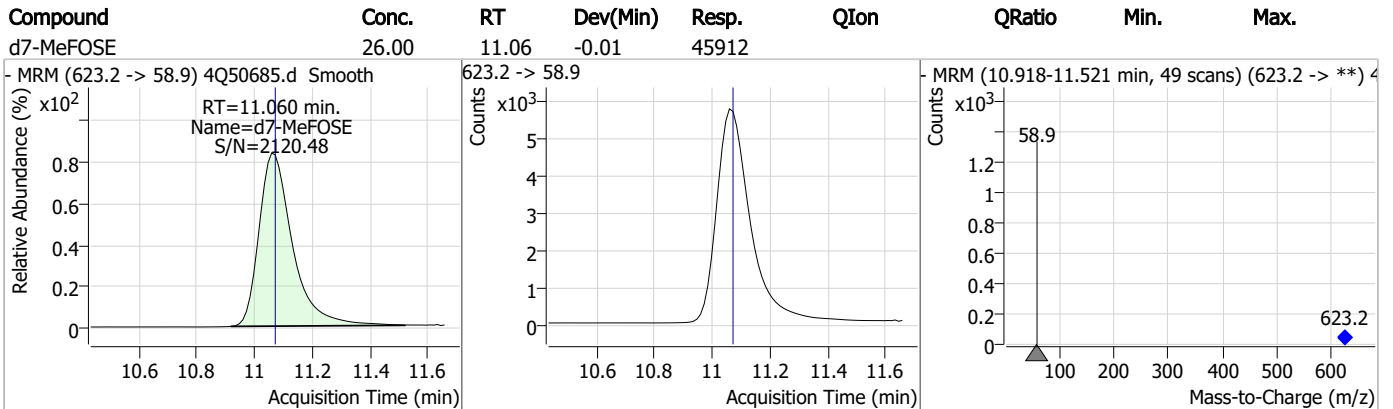
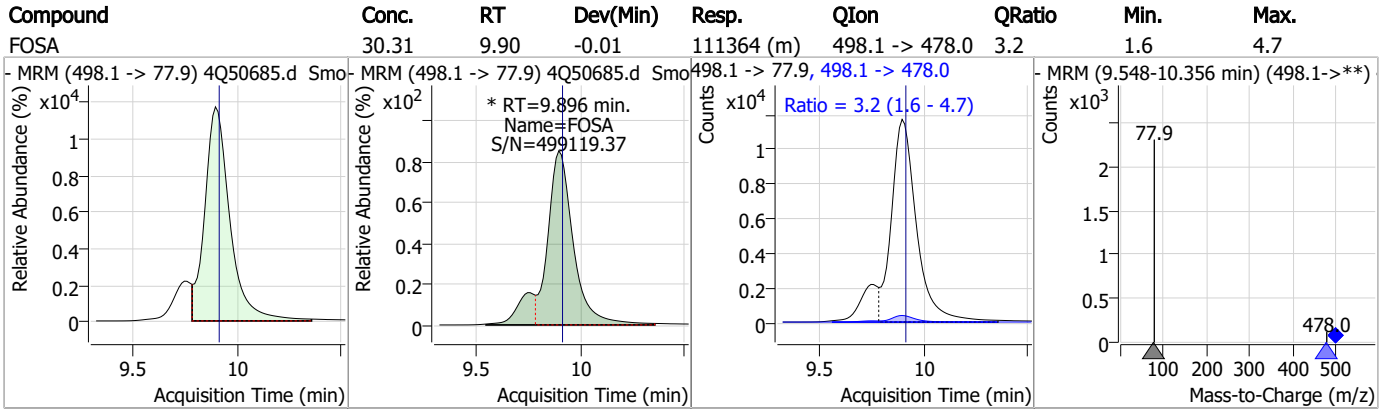
Perfluorinated Compounds by LC/MS/MS



7.6.2

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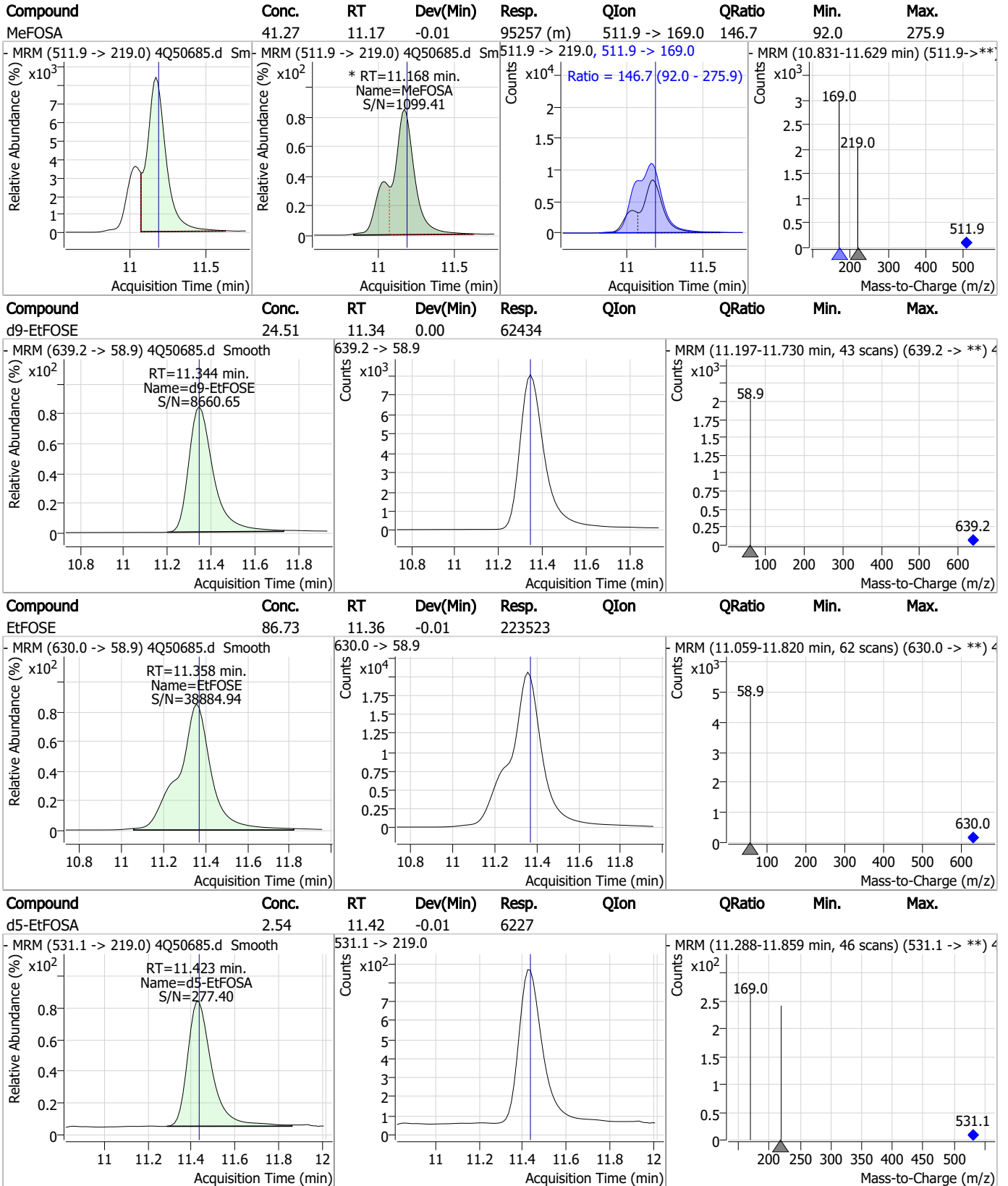
Perfluorinated Compounds by LC/MS/MS



7.6.2

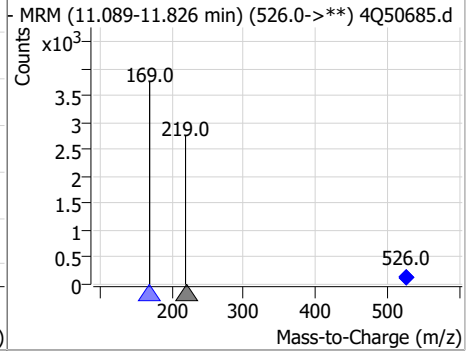
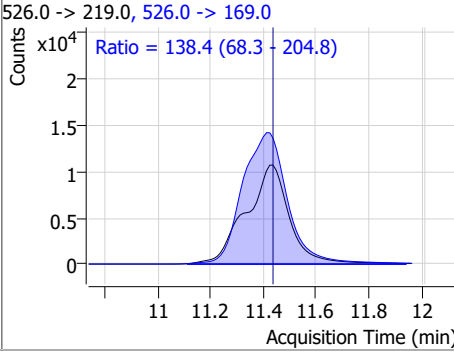
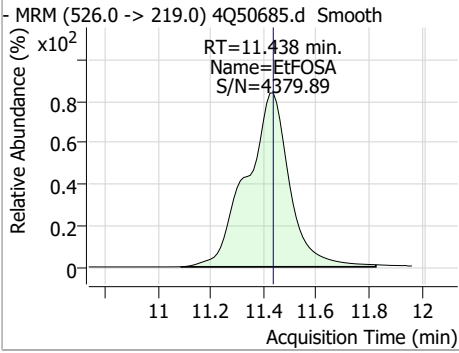
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	44.56	11.44	0.00	121230	526.0 -> 169.0	138.4	68.3	204.8



7.6.2

7



Manual Integration Approval Summary

Sample Number: S4Q741-RT Method: EPA DRAFT 1633
Lab FileID: 4Q50685.D Analyst approved: 09/18/23 11:34 Anna Ludwig
Injection Time: 09/17/23 12:22 Supervisor approved: 09/18/23 14:43 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.03	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.09	Split peak
Perfluorononanoic acid	375-95-1		7.56	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.17	Split peak
PFOSA	754-91-6		9.90	Split peak
MeFOSE	24448-09-7		11.09	Split peak
MeFOSA	31506-32-8		11.17	Split peak

7.6.2.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtie
 09/19/23 13:22

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50726.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/18/2023 12:11:34 PM
 Sample Name : RT TDCA
 Vial : P1-B1
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s4q742_TDCA.batch.bin
 Sample Information : OP98180,S4Q742,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.166	507.1 -> 79.9	7432	2.50	µg/L	-0.038	
13C4-PFOS	8.166	502.8 -> 79.9	6454	2.50	µg/L	-0.038	
System Monitoring Compounds							
13C8-PFOS	8.166	507.1 -> 79.9	7432	2.92	µg/L	-0.038	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 116.8%				
Target Compounds							
PFOS	8.167	498.9 -> 79.9 498.9 -> 98.8	7243 3309	2.85	µg/L	m	78
TCDCa	6.671	498.9 -> 79.9	1803	5.26	ng/ml		100
TDCA	6.820	498.9 -> 79.9	2620	8.44	ng/ml		100
TUDCA	5.815	498.9 -> 79.9	3063	4.65	ng/ml		100

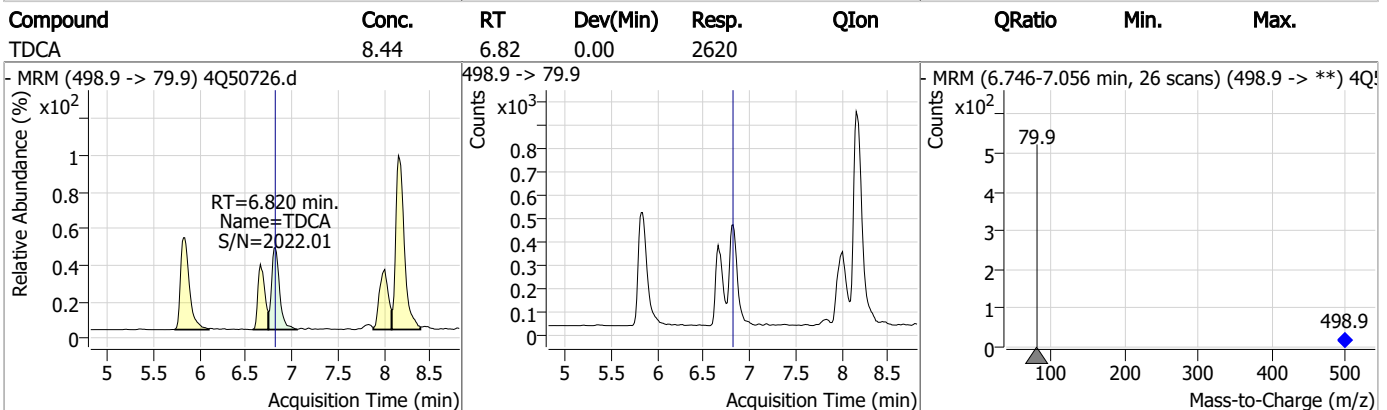
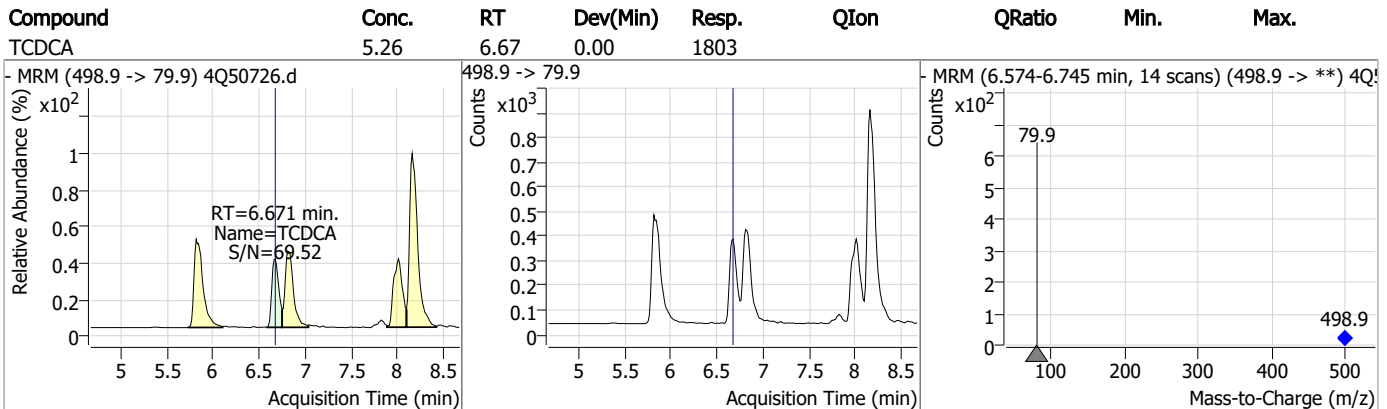
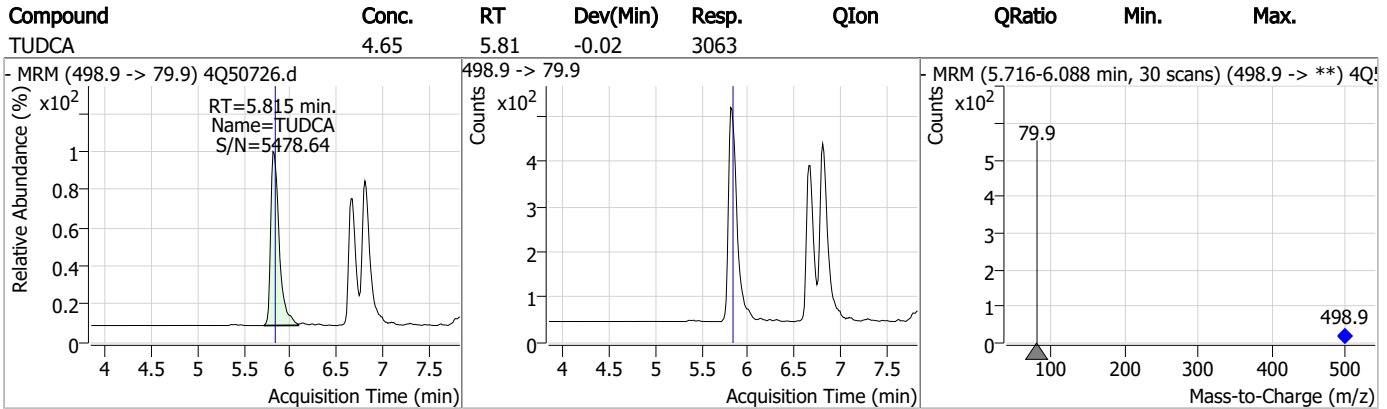
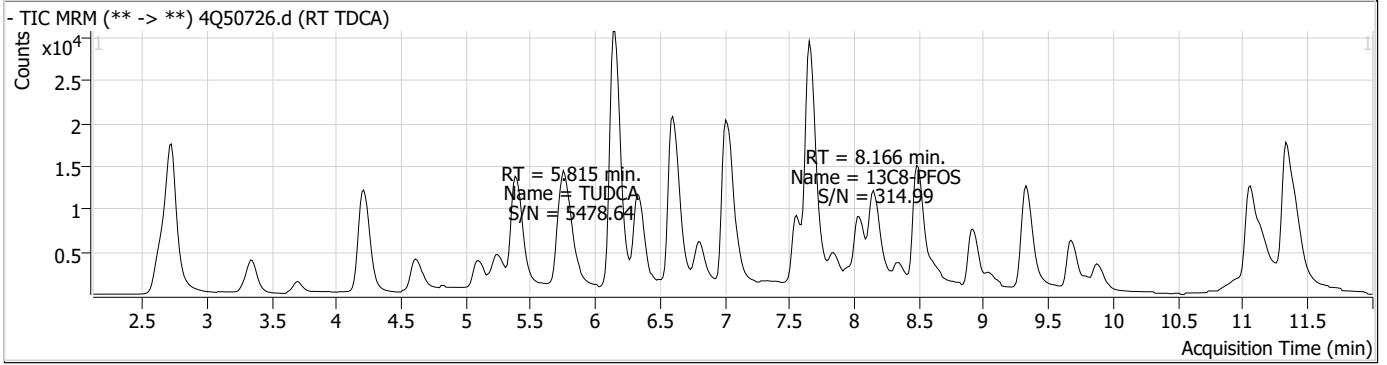
= Qualifier out of range, m = manually integrated, + = Area summed

7.6.3

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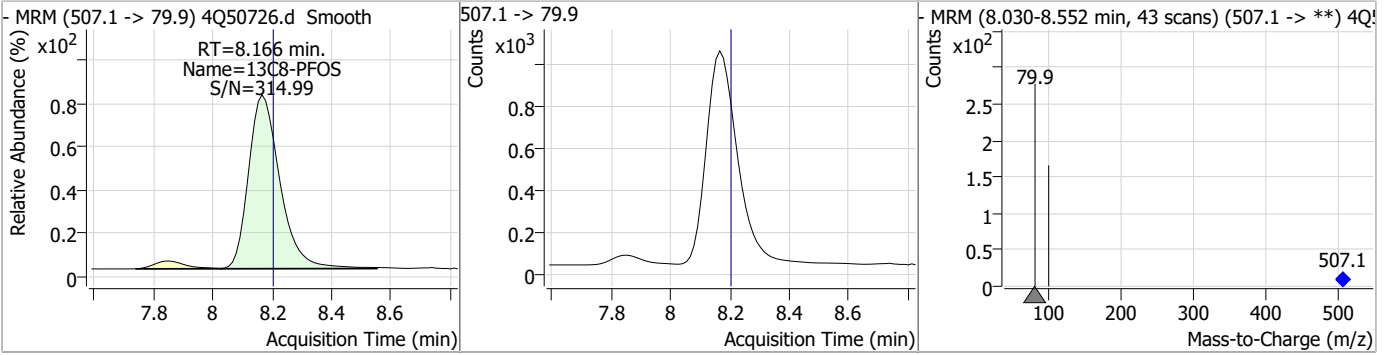


Perfluorinated Compounds by LC/MS/MS

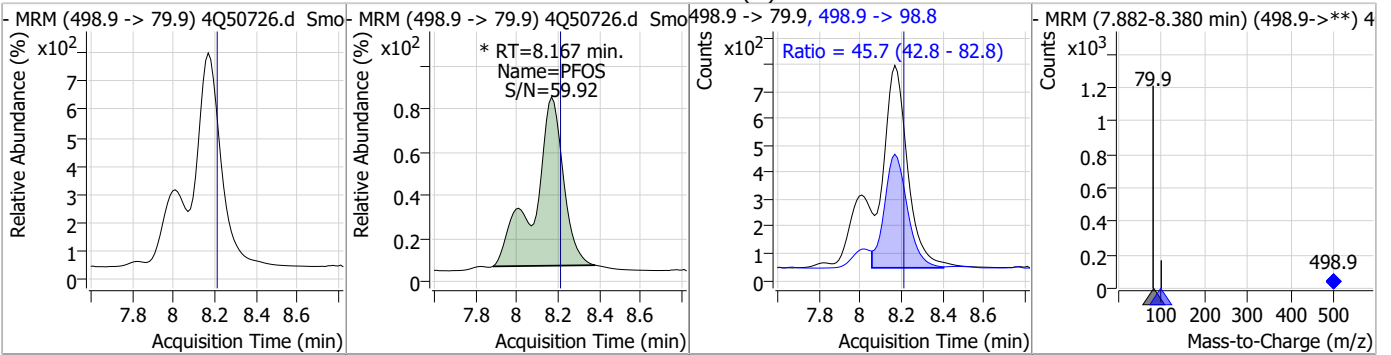


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.92	8.17	-0.04	7432				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.85	8.17	-0.04	7243 (m)	498.9 -> 98.8	45.7	42.8	82.8



7.6.3

7



Manual Integration Approval Summary

Sample Number: S4Q742-RT Method: EPA DRAFT 1633
Lab FileID: 4Q50726.D Analyst approved: 09/19/23 10:24 Anna Ludwig
Injection Time: 09/18/23 12:11 Supervisor approved: 09/19/23 13:22 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.17	Split peak

7.6.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50727.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/18/2023 12:29:48 PM
 Sample Name : RT_BR_LN
 Vial : P1-B2
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q742.batch.bin
 Sample Information : OP98180,S4Q742,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.777	216.8 -> 171.9	75430	10.00 µg/L	0.066
M5-PFPeA	4.240	268.3 -> 223.0	28556	5.00 µg/L	0.025
M5-PFHxA	5.420	318.0 -> 273.0	27052	2.50 µg/L	0.012
M4-PFHpA	6.366	367.1 -> 322.0	18840	2.50 µg/L	0.012
M8-PFOA	7.037	421.1 -> 376.0	31054	2.50 µg/L	0.000
M9-PFNA	7.570	472.1 -> 427.0	12619	1.25 µg/L	0.000
M6-PFDA	8.053	519.1 -> 474.1	8359	1.25 µg/L	-0.013
M7-PFUnDA	8.509	570.0 -> 525.1	8913	1.25 µg/L	0.000
M2-PFDoDA	8.941	615.1 -> 570.0	11512	1.25 µg/L	0.000
M2-PFTeDA	9.698	715.2 -> 670.0	7158	1.25 µg/L	0.000
M8-FOSA	9.919	506.1 -> 77.8	7736	2.50 µg/L	0.012
M3-PFBS	5.276	302.1 -> 79.9	6783	2.50 µg/L	0.012
M3-PFHxS	7.103	402.1 -> 79.9	4019	2.50 µg/L	0.000
M8-PFOS	8.178	507.1 -> 79.9	4800	2.50 µg/L	0.000
M2-4:2FTS	5.134	329.1 -> 80.9	611	5.00 µg/L	0.025
M2-6:2FTS	6.822	429.1 -> 80.9	905	5.00 µg/L	0.012
M2-8:2FTS	7.865	529.1 -> 80.9	1300	5.00 µg/L	0.000
M3-MeFOSAA	8.147	573.2 -> 419.0	8807	5.00 µg/L	0.000
M3-HFPO-DA	5.775	286.9 -> 168.9	28062	10.00 µg/L	0.012
M5-EtFOSAA	8.358	589.2 -> 419.0	7687	5.00 µg/L	0.000
M7-MeFOSE	11.060	623.2 -> 58.9	48890	25.00 µg/L	-0.012
M9-EtFOSE	11.344	639.2 -> 58.9	66277	25.00 µg/L	0.000
M5-EtFOSA	11.423	531.1 -> 219.0	5818	2.50 µg/L	-0.012
M3-MeFOSA	11.165	515.0 -> 219.0	4166	2.50 µg/L	-0.012
13C4-PFOS	8.179	502.8 -> 79.9	4539	2.50 µg/L	0.000
13C3-PFBA	2.780	216.0 -> 172.0	37368	5.00 µg/L	0.065
18O2-PFHxS	7.102	403.0 -> 83.9	2830	2.50 µg/L	0.000
13C4-PFOA	7.037	417.1 -> 372.0	33901	2.50 µg/L	0.000
13C2-PFDA	8.066	515.1 -> 470.1	8142	1.25 µg/L	0.000
13C5-PFNA	7.570	468.0 -> 423.0	9751	1.25 µg/L	0.000
13C2-PFHxA	5.421	315.1 -> 270.0	24011	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.134	329.1 -> 80.9	611	3.95 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 79.0%		
13C2-6:2FTS	6.822	429.1 -> 80.9	905	3.78 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 75.6%		
13C2-8:2FTS	7.865	529.1 -> 80.9	1300	3.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 70.3%		
13C2-PFDoDA	8.941	615.1 -> 570.0	11512	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C2-PFTeDA	9.698	715.2 -> 670.0	7158	1.47 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 117.8%		
13C3-PFBS	5.276	302.1 -> 79.9	6783	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	7.103	402.1 -> 79.9	4019	2.36 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 = 94.5%	
13C4-PFBA	2.777	216.8 -> 171.9	75430	10.20 µg/L	0.066
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C4-PFHpA	6.366	367.1 -> 322.0	18840	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C5-PFHxA	5.420	318.0 -> 273.0	27052	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C5-PFPeA	4.240	268.3 -> 223.0	28556	5.05 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C6-PFDA	8.053	519.1 -> 474.1	8359	1.35 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C7-PFUnDA	8.509	570.0 -> 525.1	8913	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C8-FOSA	9.919	506.1 -> 77.8	7736	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C8-PFOA	7.037	421.1 -> 376.0	31054	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C8-PFOS	8.178	507.1 -> 79.9	4800	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C9-PFNA	7.570	472.1 -> 427.0	12619	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.3%	
d3-MeFOSAA	8.147	573.2 -> 419.0	8807	4.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 86.4%	
13C3-HFPO-DA	5.775	286.9 -> 168.9	28062	10.80 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.0%	
d3-MeFOSA	11.165	515.0 -> 219.0	4166	2.26 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.5%	
d5-EtFOSAA	8.358	589.2 -> 419.0	7687	4.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 81.4%	
d7-MeFOSE	11.060	623.2 -> 58.9	48890	27.26 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
d9-EtFOSE	11.344	639.2 -> 58.9	66277	25.62 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
d5-EtFOSA	11.423	531.1 -> 219.0	5818	2.34 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.6%	
Target Compounds					QValue
4:2FTS	5.122	327.1 -> 307.0	51370	49.68 µg/L	100
		327.1 -> 80.9	20641		
6:2FTS	6.822	427.1 -> 407.0	50847	48.64 µg/L	96
		427.1 -> 80.9	18131		
8:2FTS	7.865	527.1 -> 507.0	37333	50.97 µg/L	97
		527.1 -> 80.8	15704		
EtFOSAA	8.359	584.2 -> 419.1	17881	13.21 µg/L	m 83
		584.2 -> 526.0	8363		
FOSA	9.909	498.1 -> 77.9	107987	30.67 µg/L	m 99
		498.1 -> 478.0	3173		
MeFOSAA	8.160	570.1 -> 419.0	24575	12.78 µg/L	98
		570.1 -> 483.0	4859		
PFBA	2.783	212.8 -> 168.9	151611	52.53 µg/L	100
PFBS	5.277	298.7 -> 79.9	38995	12.22 µg/L	97
		298.7 -> 98.8	15261		
PFDA	8.066	512.9 -> 469.0	97395	12.74 µg/L	96
		512.9 -> 219.0	19480		
PFDoDA	8.942	613.1 -> 569.0	136878	13.93 µg/L	98
		613.1 -> 319.0	23233		
PFDS	9.069	599.0 -> 79.9	22797	13.12 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	11870			
PFHpA	6.366	363.1 -> 319.0	160550	14.35	µg/L	99
		363.1 -> 169.0	31453			
PFHpS	7.673	449.0 -> 79.9	25905	12.59	µg/L	97
		449.0 -> 98.9	14121			
PFHxA	5.423	313.0 -> 269.0	134980	14.11	µg/L	99
		313.0 -> 118.9	4057			
PFHxS	7.104	398.7 -> 79.9	22171	12.50	µg/L	m 90
		398.7 -> 98.9	11564			
PFNA	7.571	463.0 -> 419.0	189684	24.71	µg/L	m 96
		463.0 -> 219.0	47004			
PFNS	8.647	548.8 -> 79.9	17568	12.45	µg/L	99
		548.8 -> 98.9	9146			
PFOA	7.038	413.0 -> 369.0	390017	27.97	µg/L	m 98
		413.0 -> 169.0	81693			
PFOS	8.179	498.9 -> 79.9	30347	13.62	µg/L	m 72
		498.9 -> 98.8	14317			
PFPeA	4.241	263.0 -> 219.0	253027	28.10	µg/L	100
PFPeS	6.355	349.1 -> 79.9	22008	13.31	µg/L	91
		349.1 -> 98.9	9248			
PFTeDA	9.699	713.1 -> 669.0	129204	13.09	µg/L	100
		713.1 -> 168.9	13520			
PFTrDA	9.328	663.0 -> 619.0	157584	14.59	µg/L	97
		663.0 -> 168.9	20416			
PFUnDA	8.510	563.1 -> 519.0	110216	13.27	µg/L	98
		563.1 -> 269.1	23164			
11CI-PF3OUdS	9.367	630.9 -> 450.9	180326	24.27	µg/L	99
		632.9 -> 452.9	55446			
9CI-PF3ONS	8.511	530.8 -> 351.0	190288	23.62	µg/L	96
		532.8 -> 353.0	58334			
ADONA	6.629	376.9 -> 250.9	511116	24.25	µg/L	97
		376.9 -> 84.8	126509			
HFPO-DA	5.776	284.9 -> 168.9	80718	26.53	µg/L	99
		284.9 -> 184.9	10904			
3:3FTCA	3.781	241.0 -> 177.0	33555	65.37	µg/L	96
		241.0 -> 117.0	3746			
5:3FTCA	6.193	341.0 -> 237.1	576753	342.12	µg/L	94
		341.0 -> 217.0	444104			
7:3FTCA	7.698	441.0 -> 316.9	276325	343.17	µg/L	96
		441.0 -> 336.9	588938			
EtFOSA	11.425	526.0 -> 219.0	108307	42.60	µg/L	97
		526.0 -> 169.0	151087			
EtFOSE	11.358	630.0 -> 58.9	231837	84.74	µg/L	100
MeFOSA	11.168	511.9 -> 219.0	88157	44.88	µg/L	m 75
		511.9 -> 169.0	130153			
MeFOSE	11.086	616.1 -> 58.9	202901	84.58	µg/L	m 100
PFDoS	9.826	699.1 -> 79.9	16973	13.65	µg/L	98
		699.1 -> 98.8	9817			
NFDHA	5.302	295.0 -> 201.0	15052	26.47	µg/L	95
		295.0 -> 84.9	3749			
PFMBA	4.654	279.0 -> 85.1	131685	27.55	µg/L	100
PFMPA	3.395	229.0 -> 84.9	144505	26.97	µg/L	100
PFEESA	5.795	314.8 -> 134.9	236002	25.37	µg/L	100
		314.8 -> 82.9	7516			

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

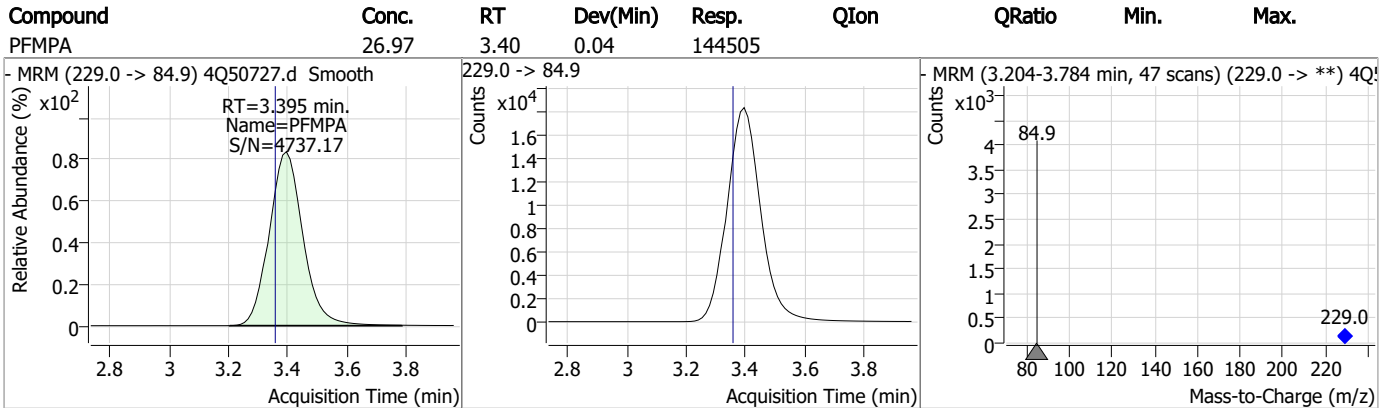
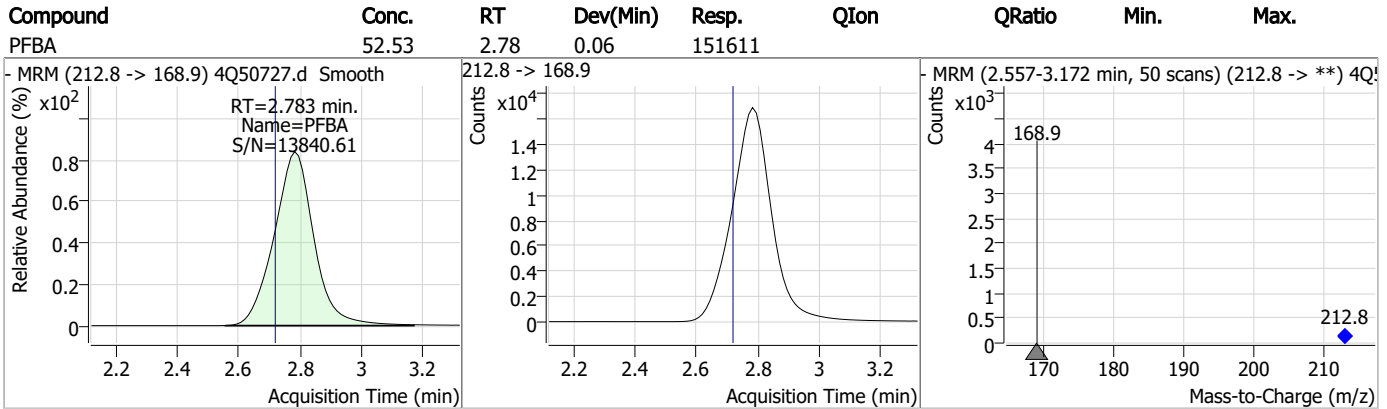
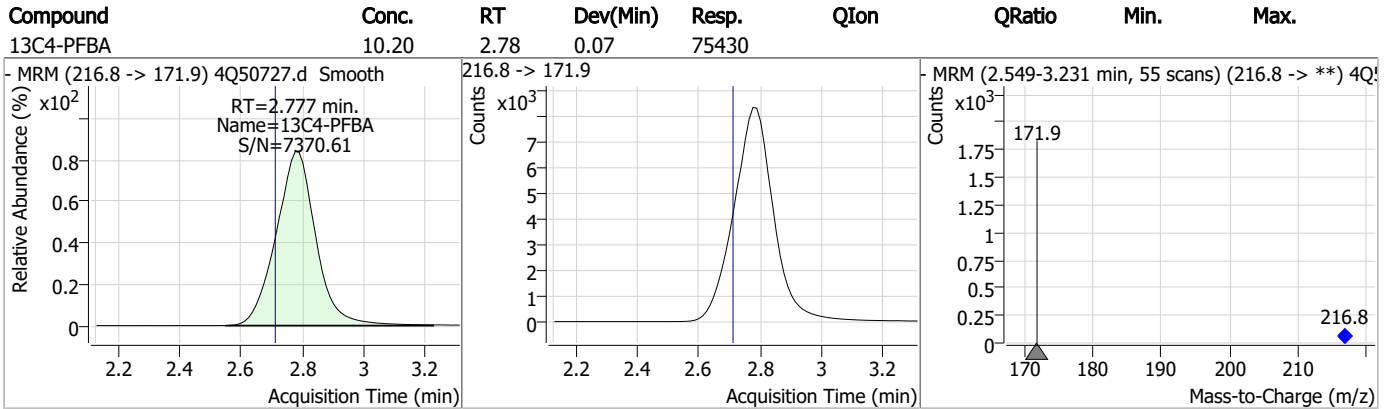
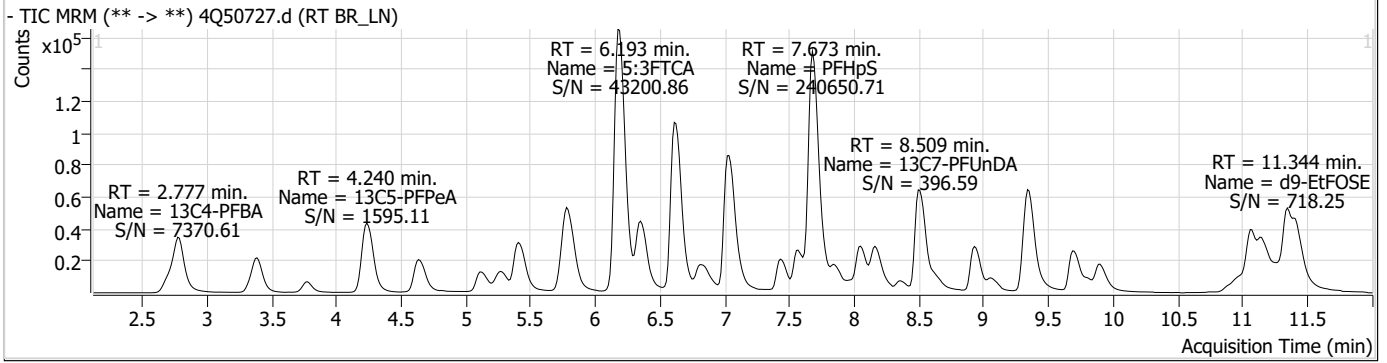
Perfluorinated Compounds by LC/MS/MS

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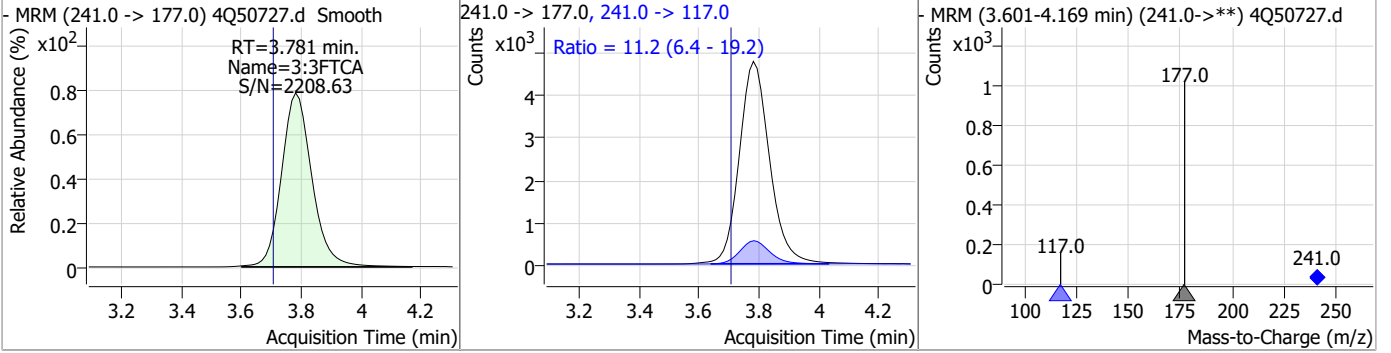
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Perfluorinated Compounds by LC/MS/MS

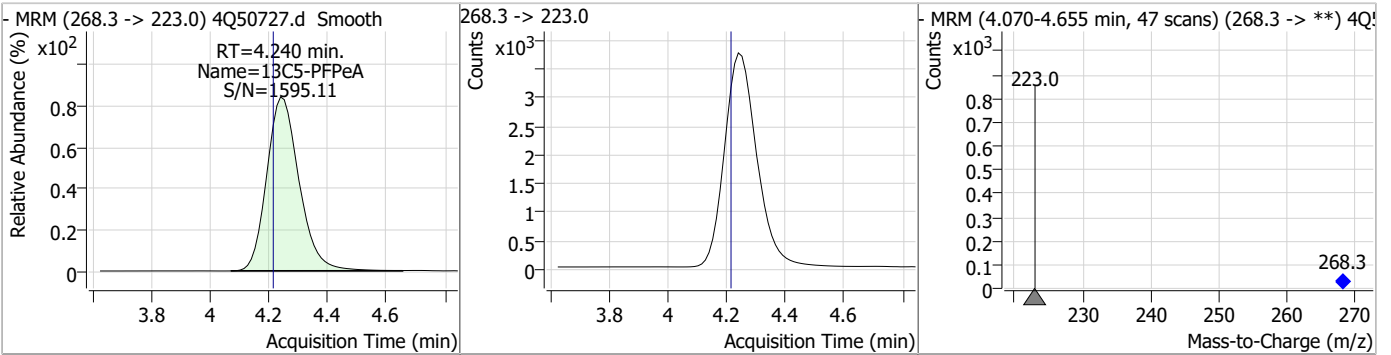


Perfluorinated Compounds by LC/MS/MS

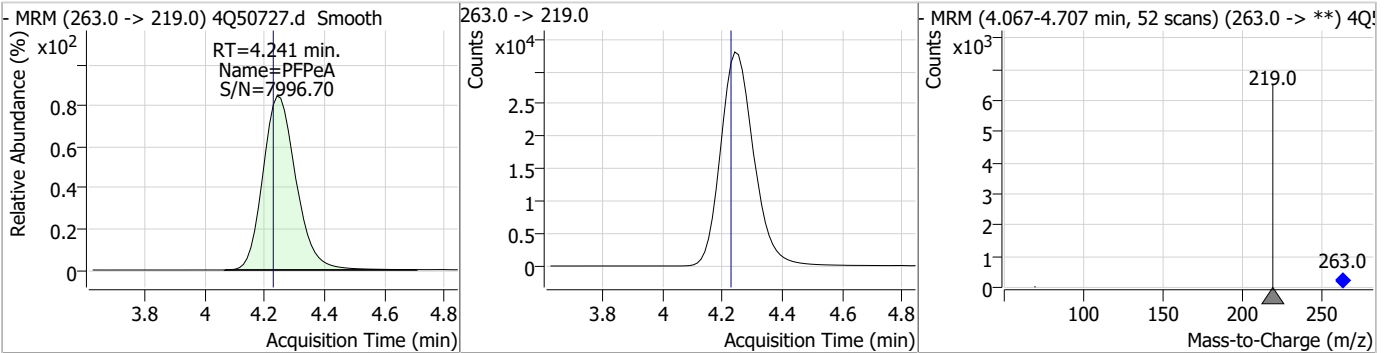
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	65.37	3.78	0.07	33555	241.0 -> 117.0	11.2	6.4	19.2



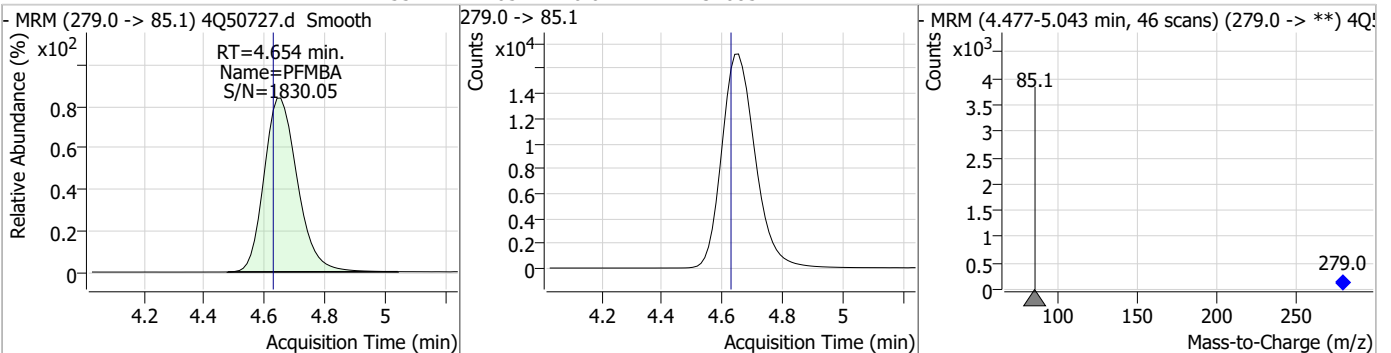
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.05	4.24	0.02	28556				



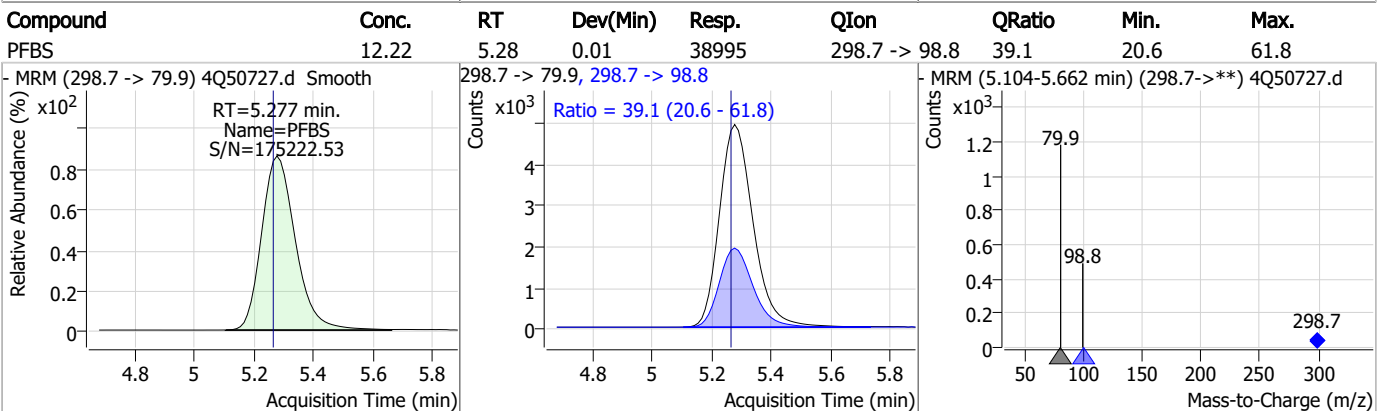
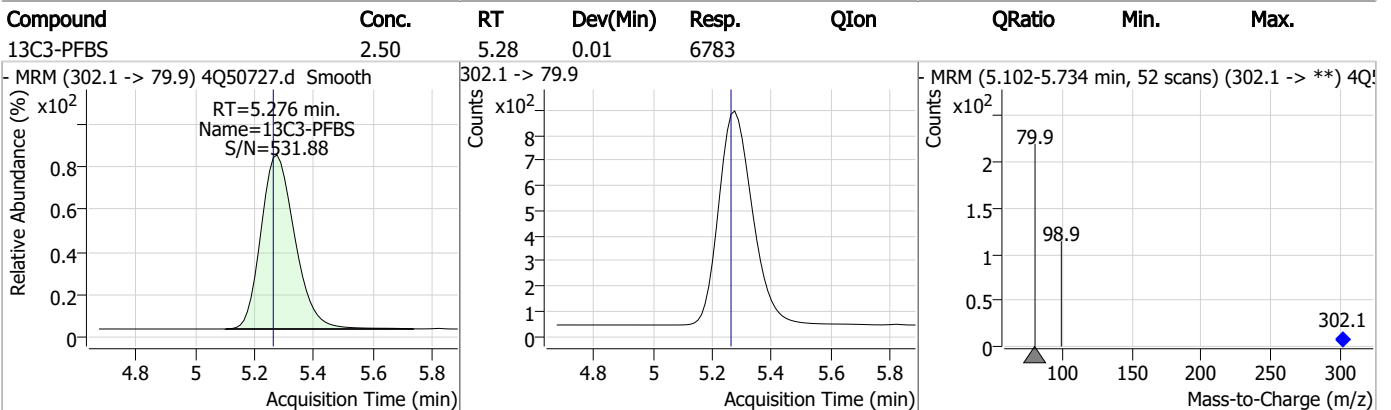
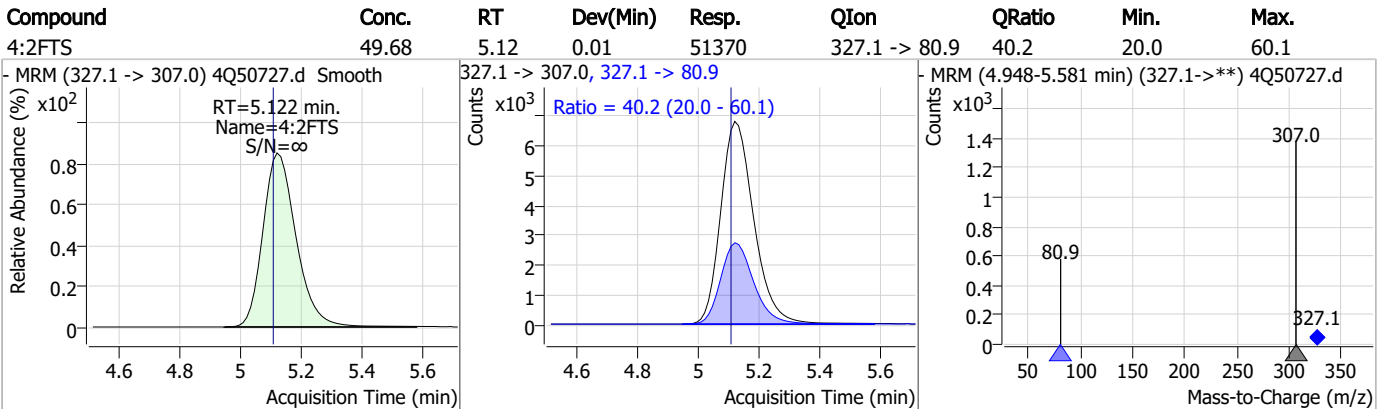
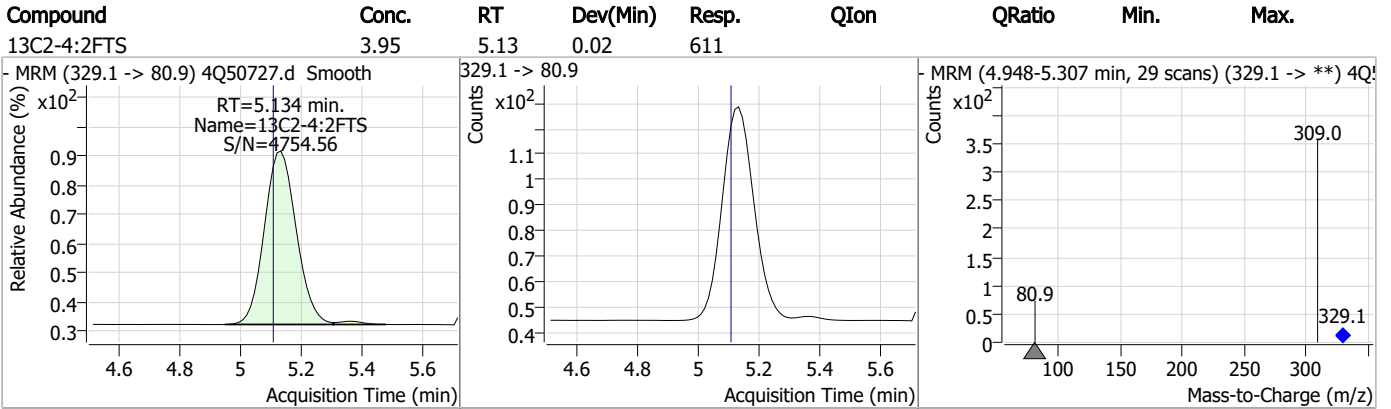
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	28.10	4.24	0.01	253027				



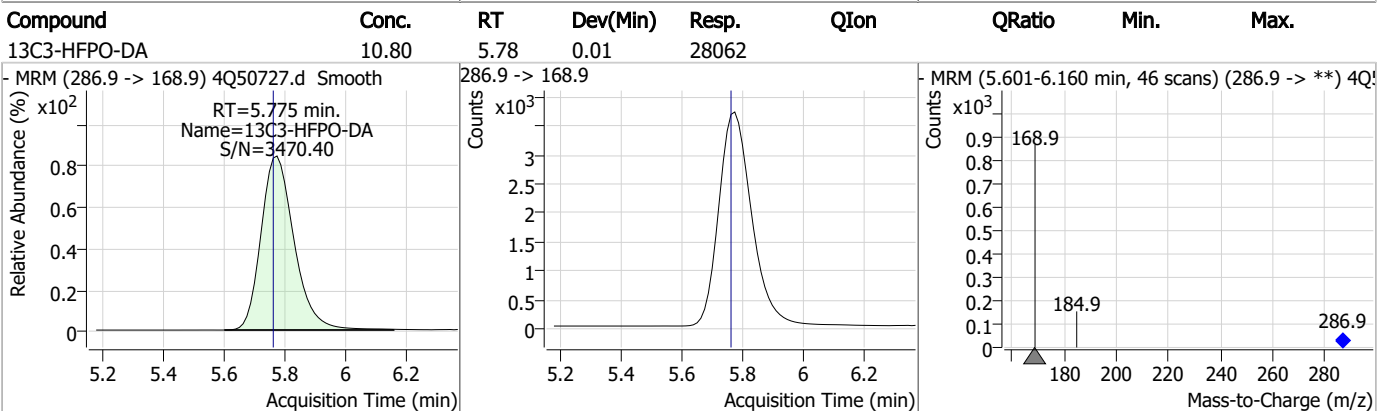
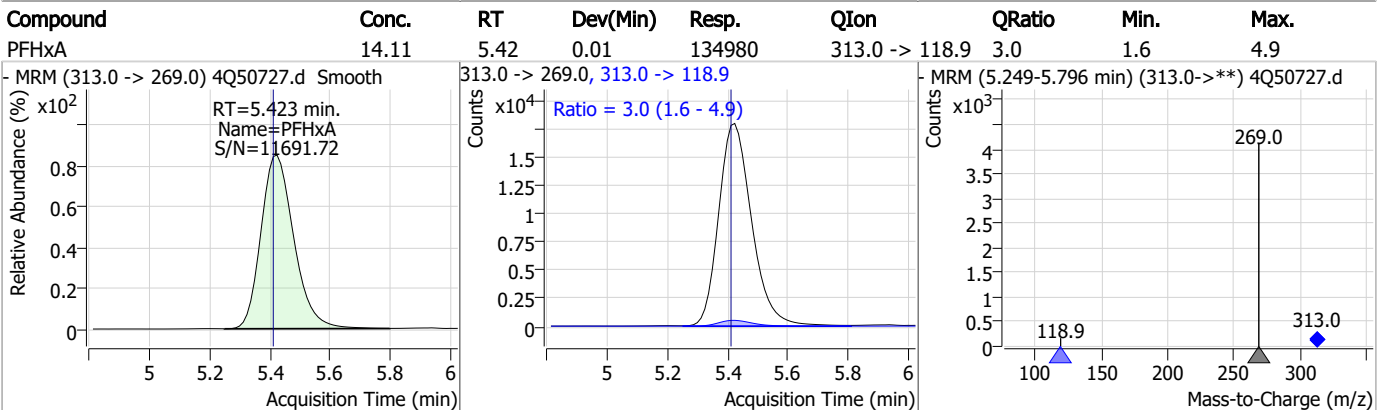
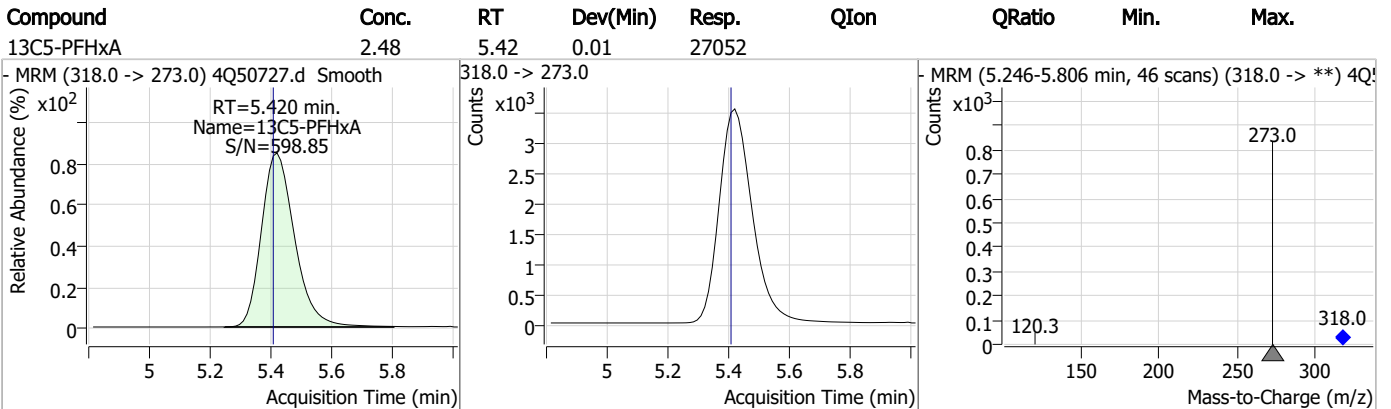
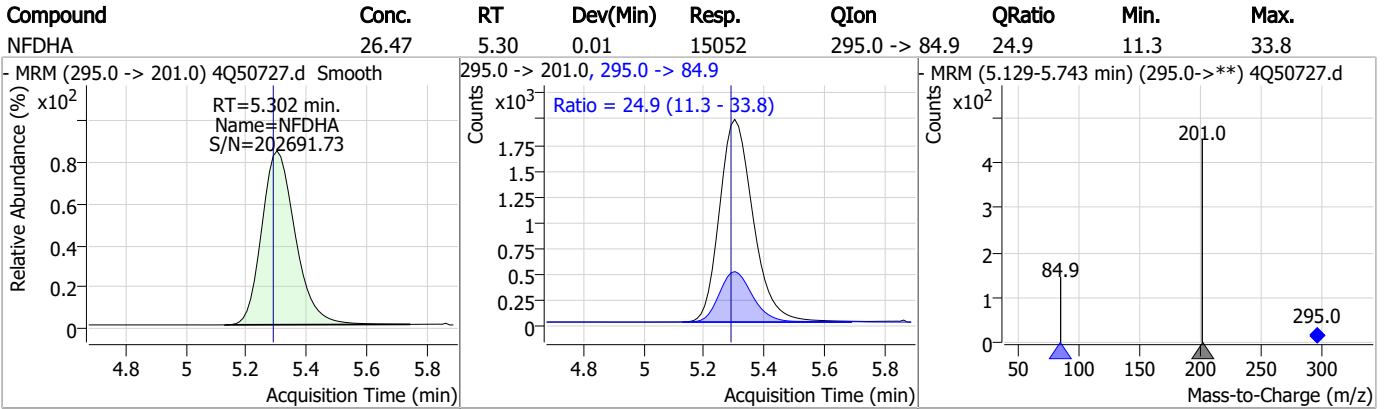
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	27.55	4.65	0.02	131685				



Perfluorinated Compounds by LC/MS/MS

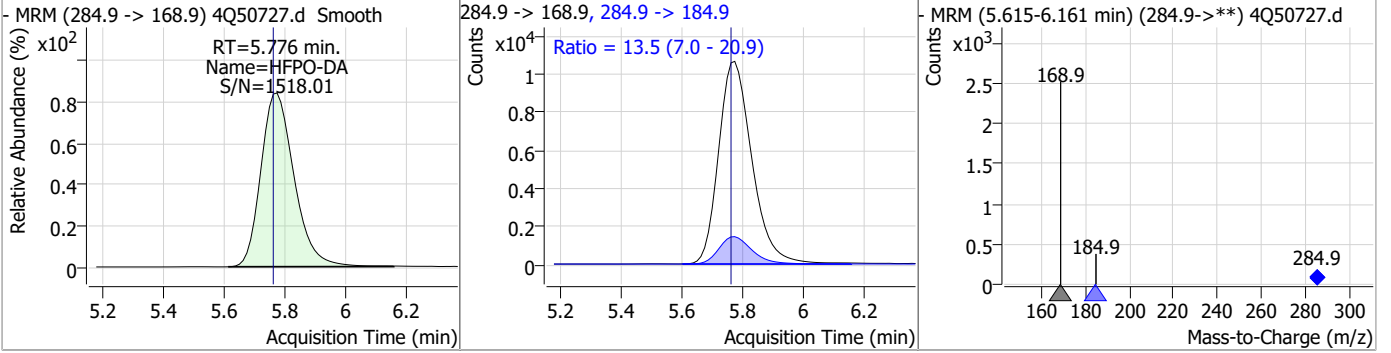


Perfluorinated Compounds by LC/MS/MS

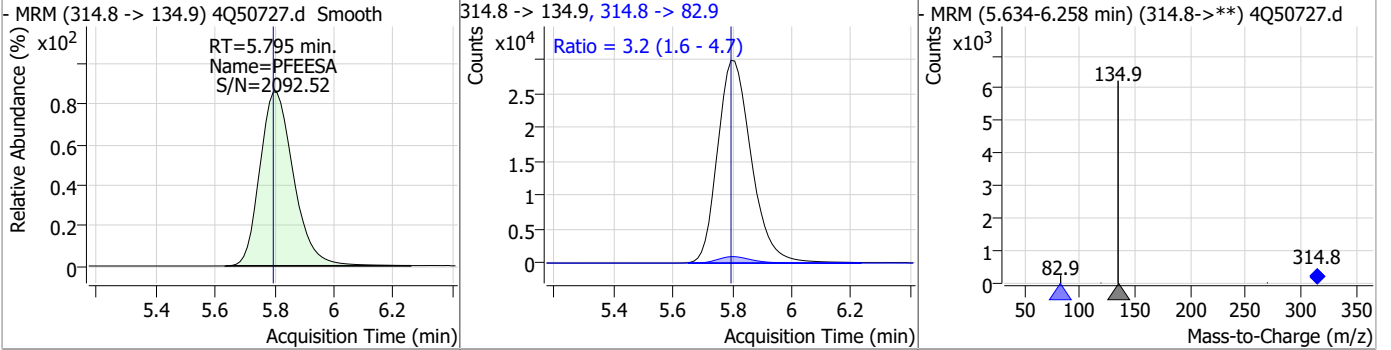


Perfluorinated Compounds by LC/MS/MS

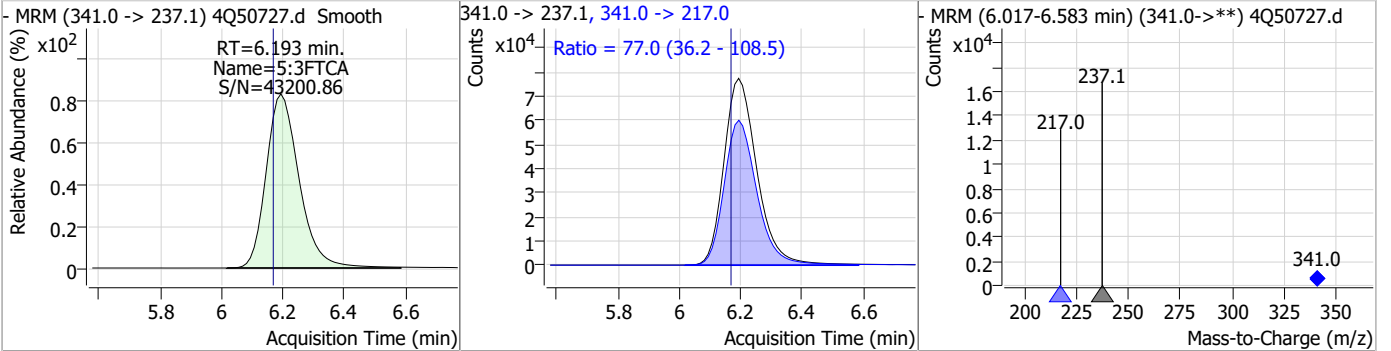
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	26.53	5.78	0.01	80718	284.9 -> 184.9	13.5	7.0	20.9



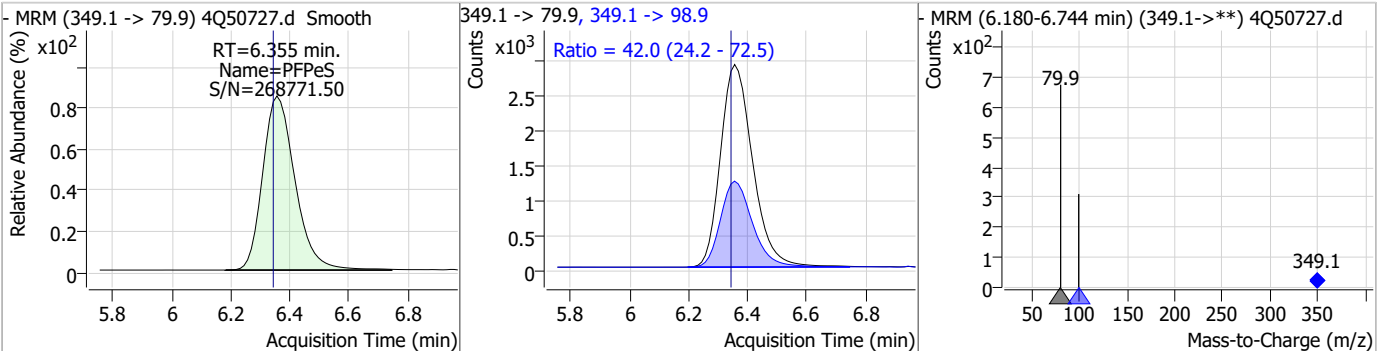
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	25.37	5.80	0.00	236002	314.8 -> 82.9	3.2	1.6	4.7



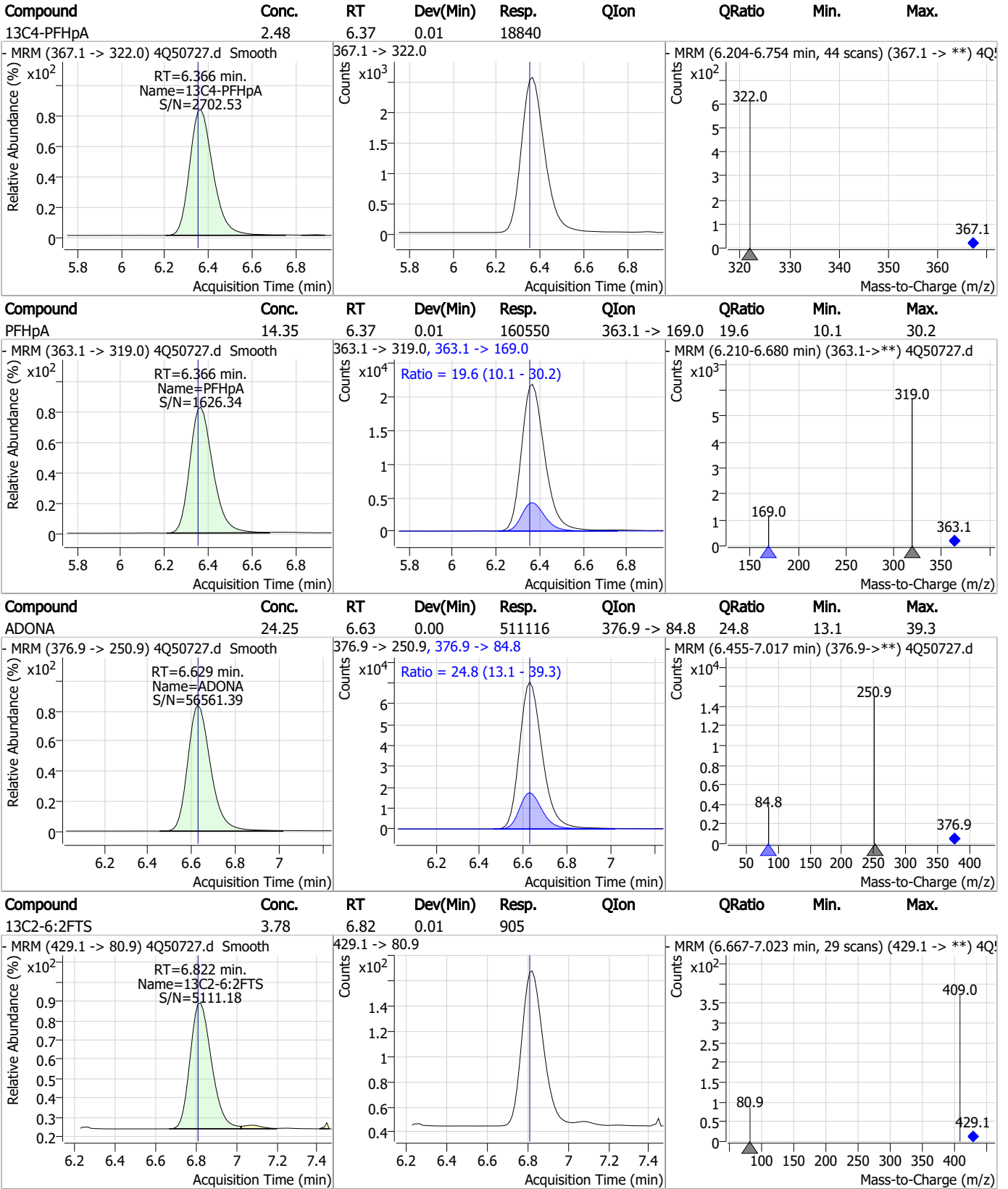
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	342.12	6.19	0.02	576753	341.0 -> 217.0	77.0	36.2	108.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	13.31	6.36	0.01	22008	349.1 -> 98.9	42.0	24.2	72.5



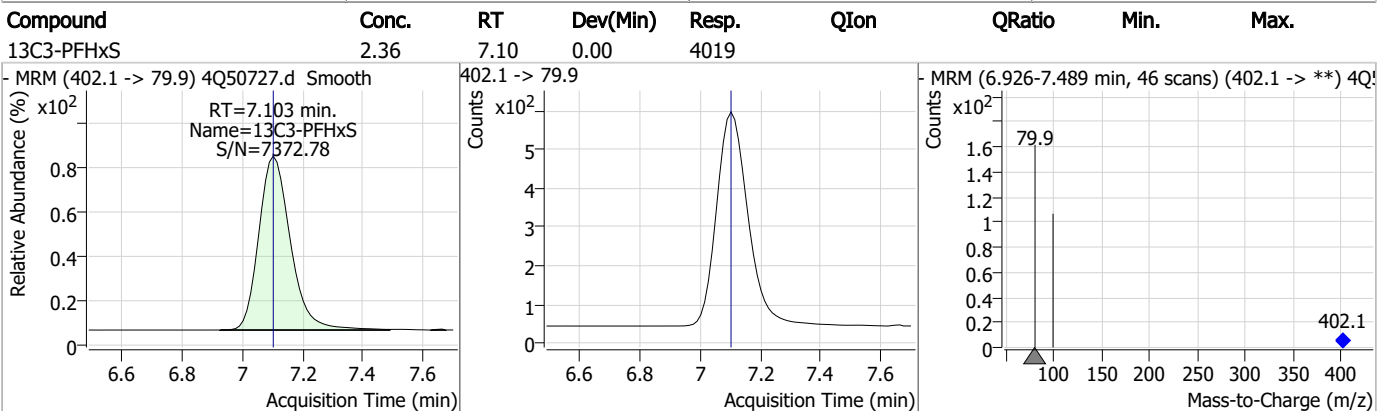
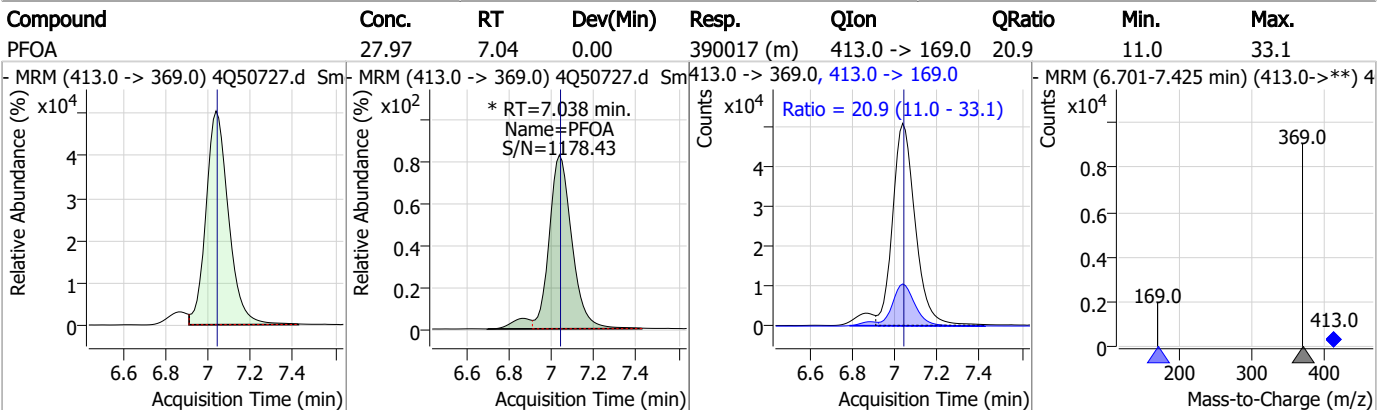
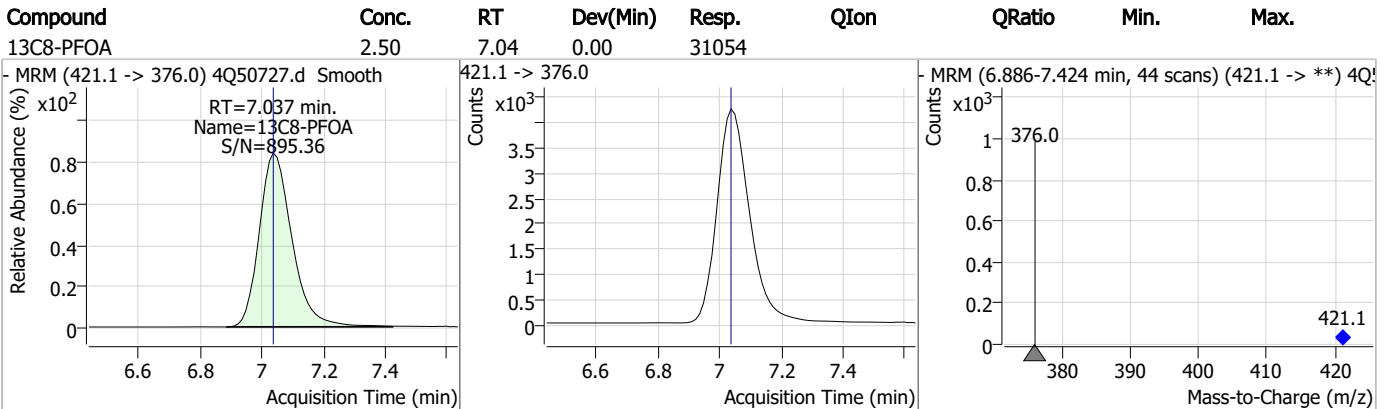
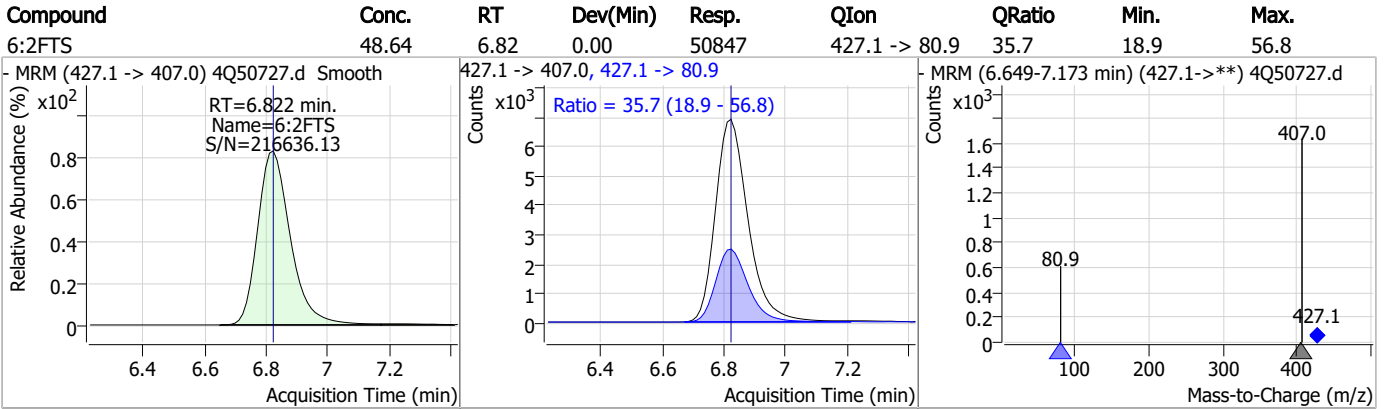
Perfluorinated Compounds by LC/MS/MS



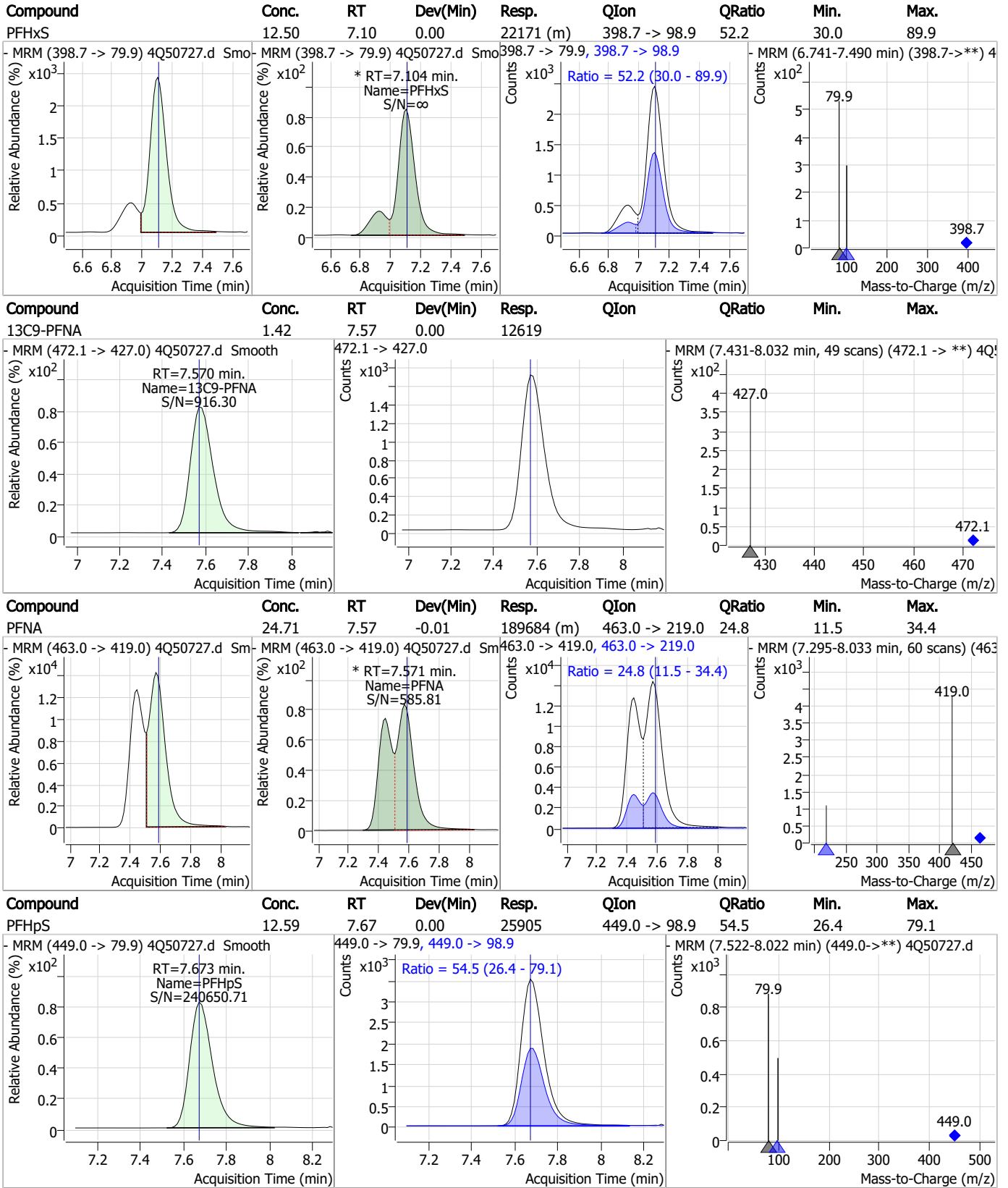
7.6.4

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Perfluorinated Compounds by LC/MS/MS



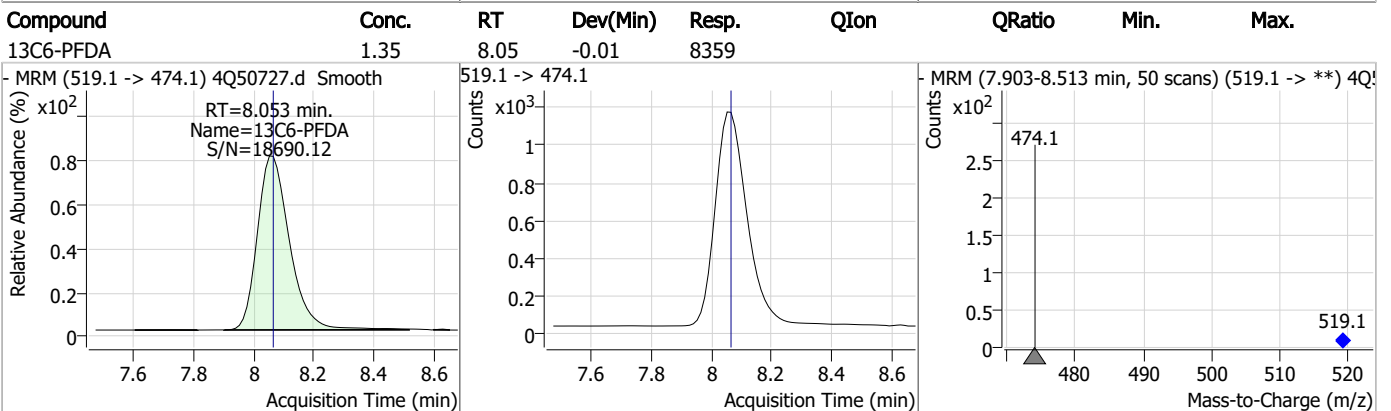
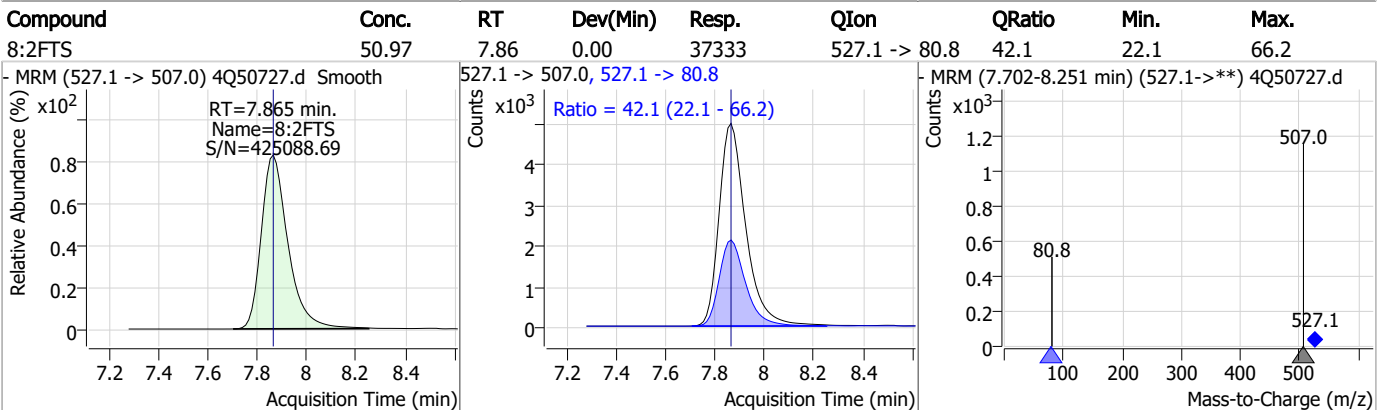
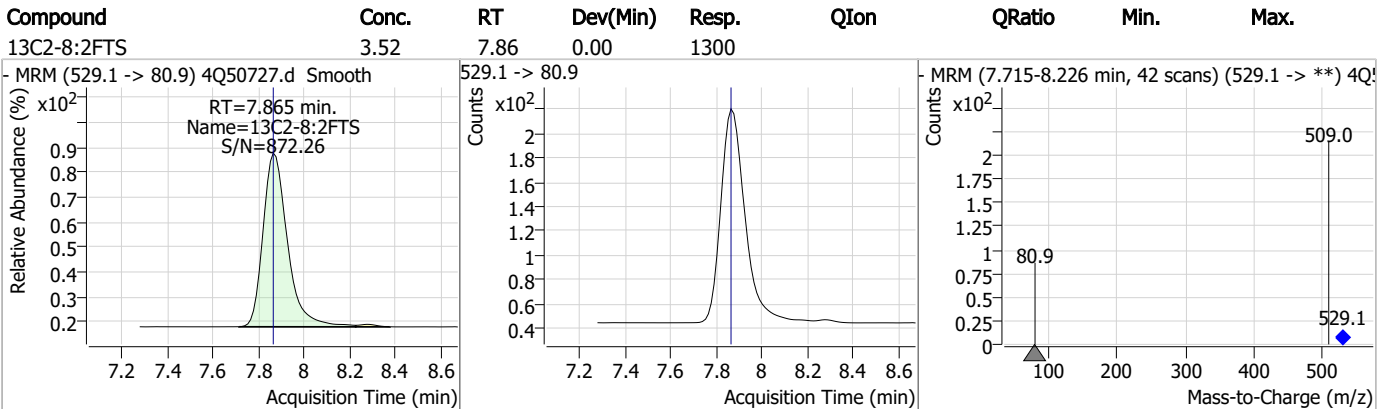
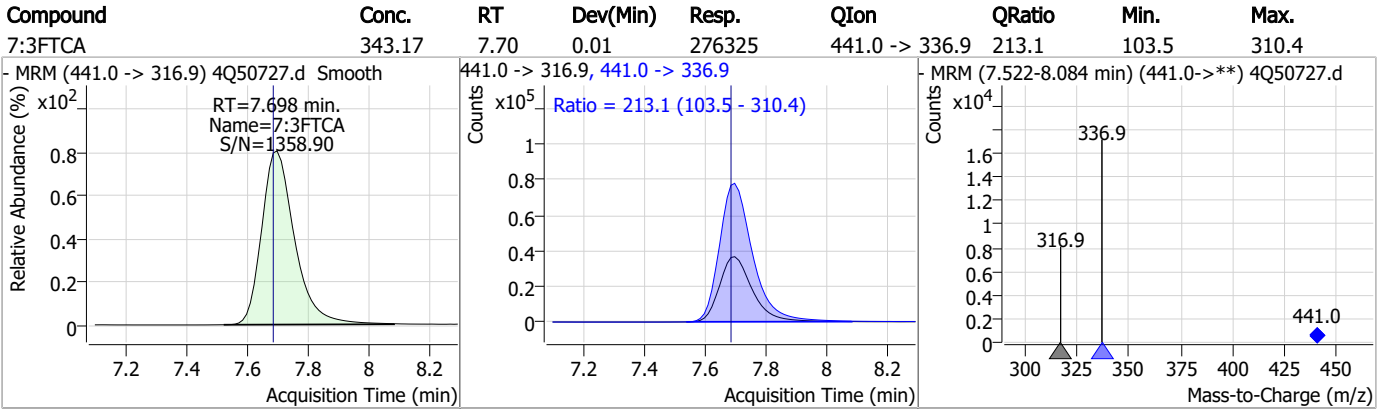
Perfluorinated Compounds by LC/MS/MS



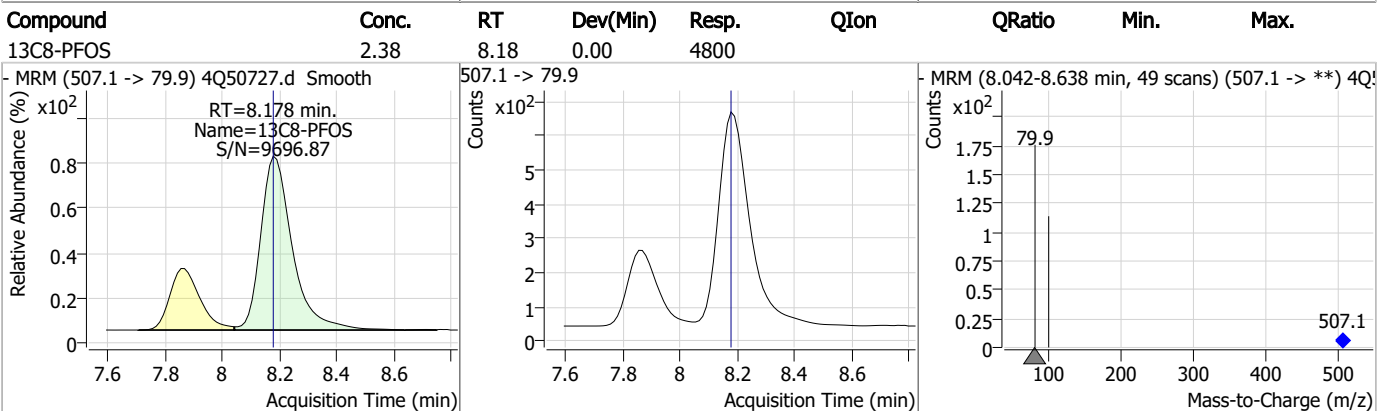
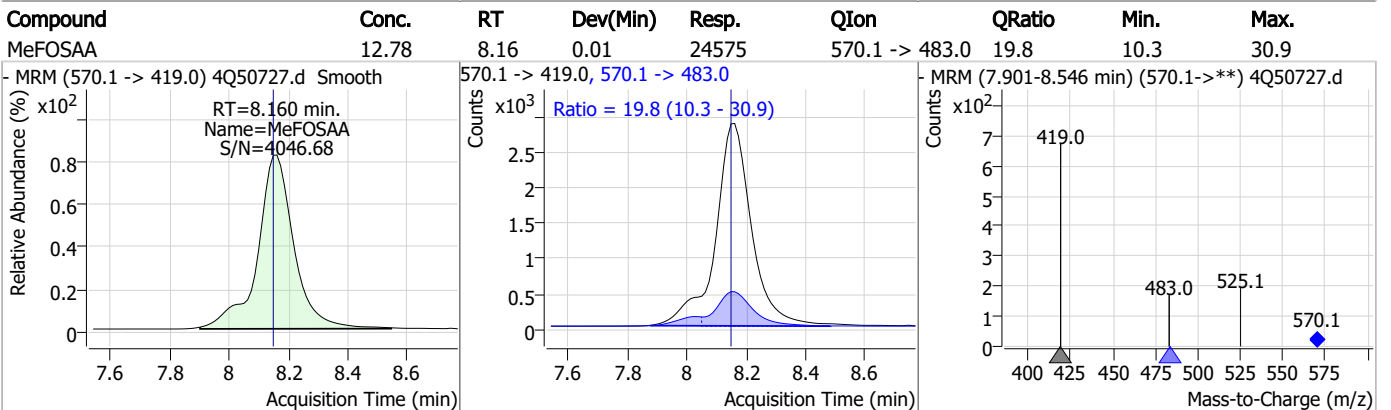
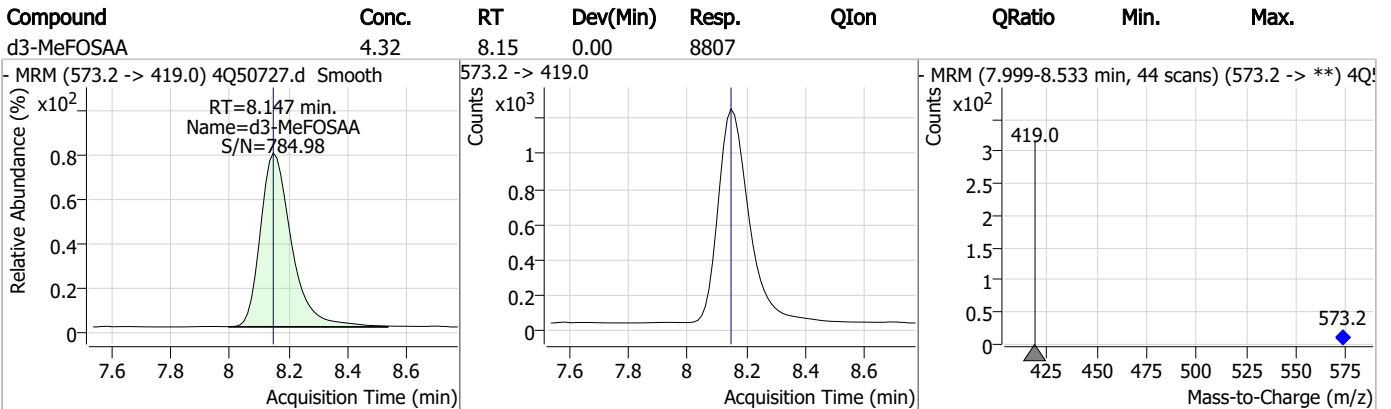
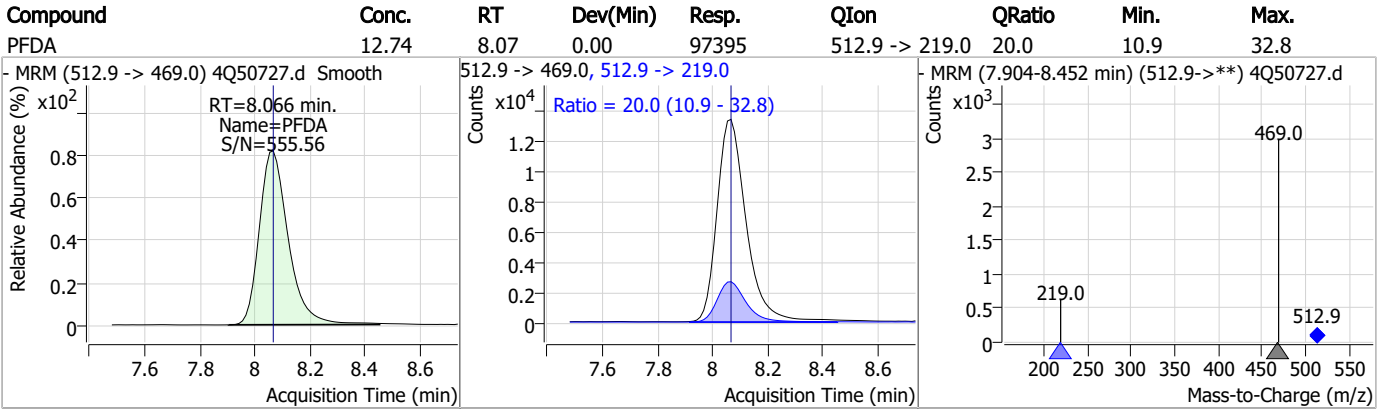
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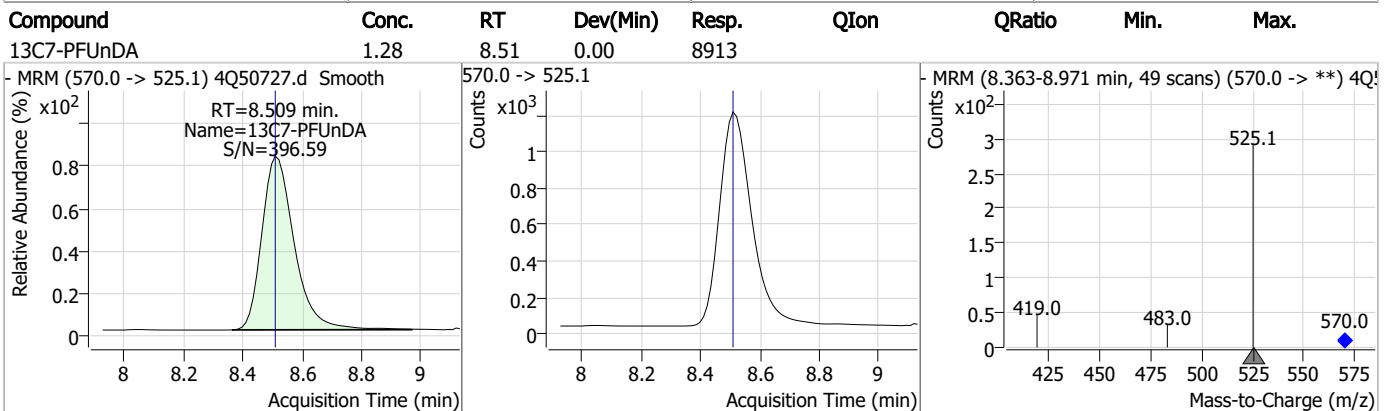
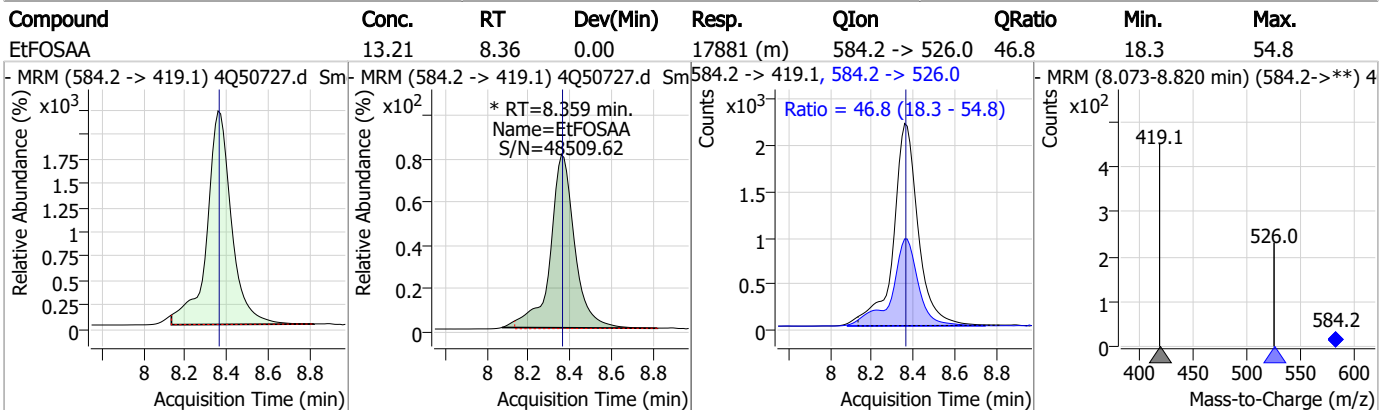
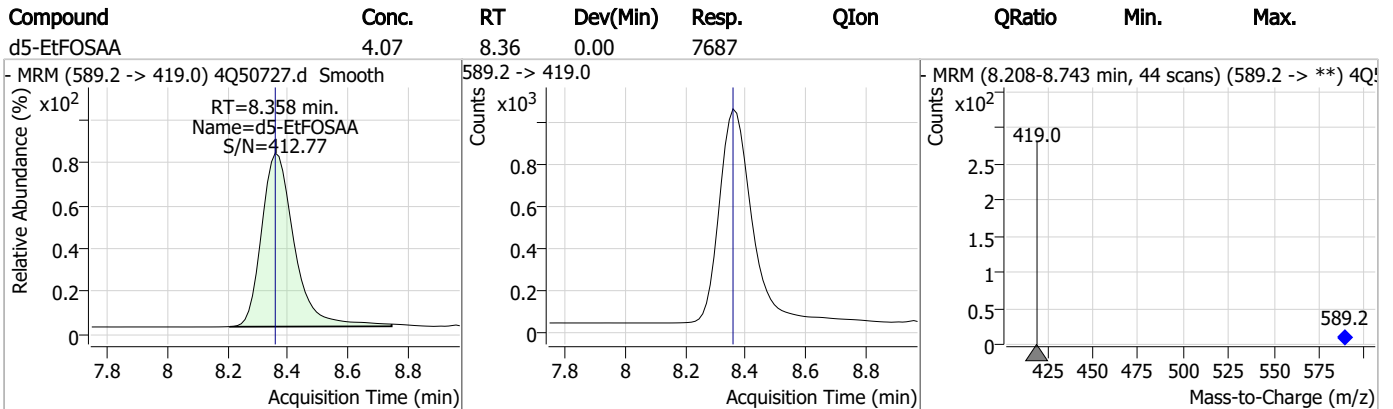
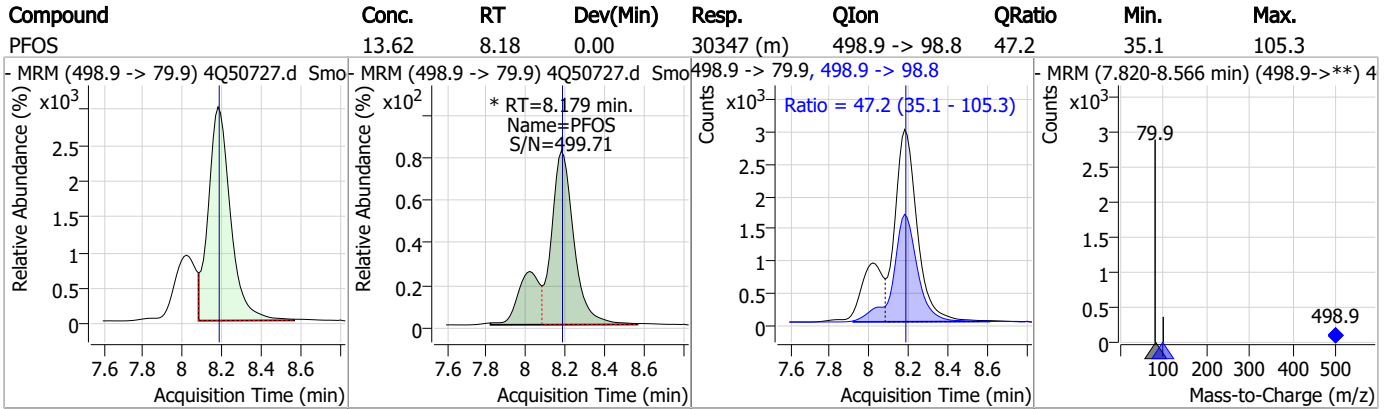
Perfluorinated Compounds by LC/MS/MS



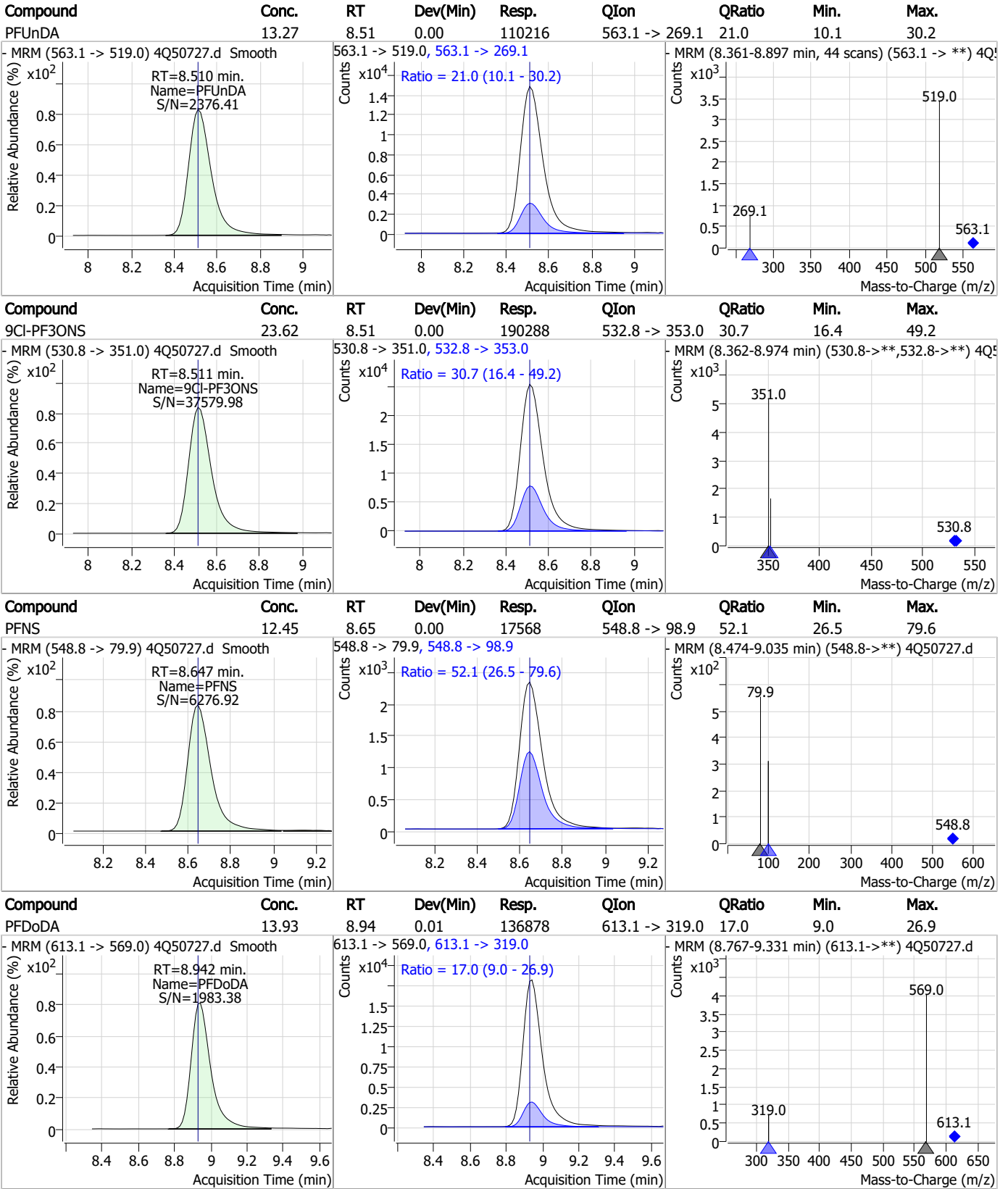
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

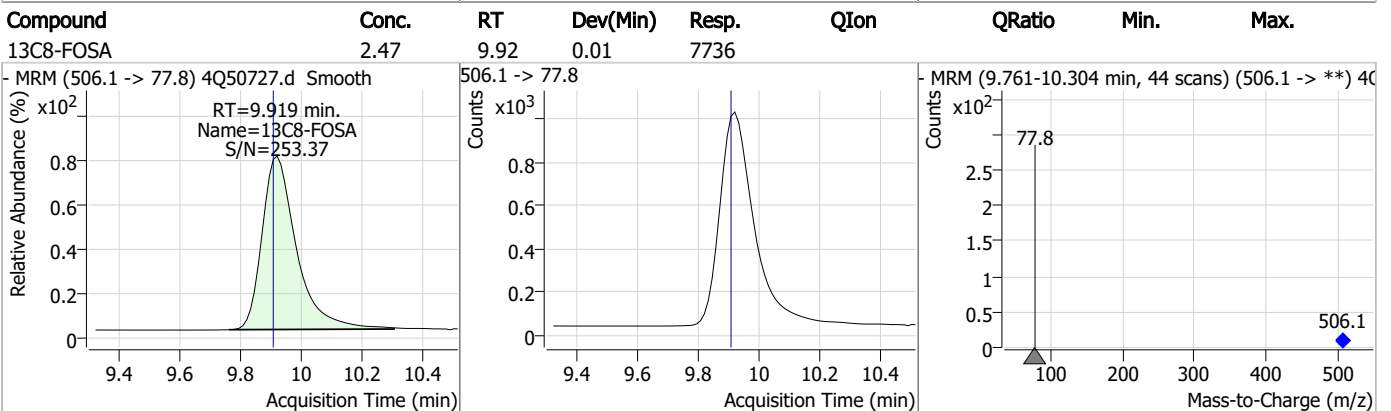
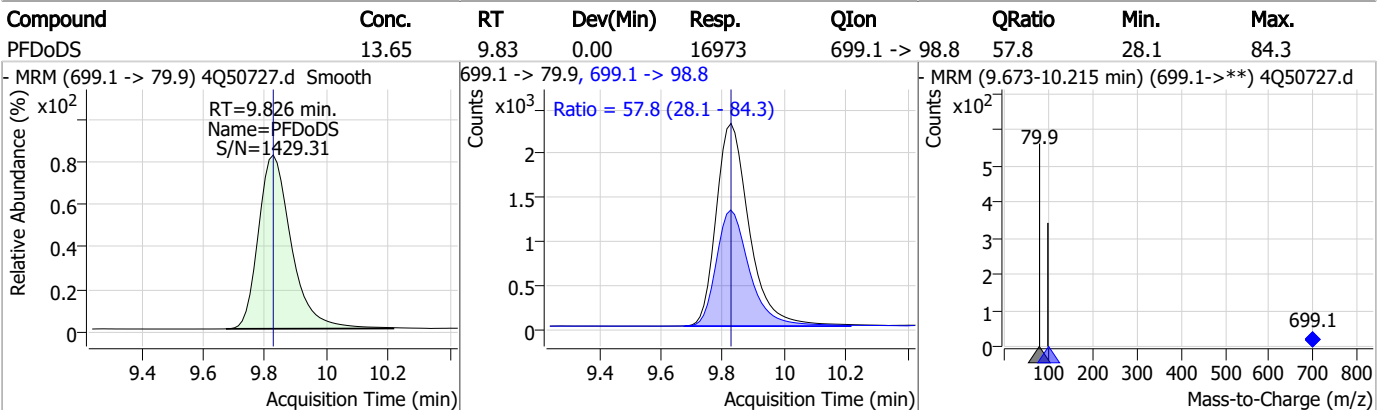
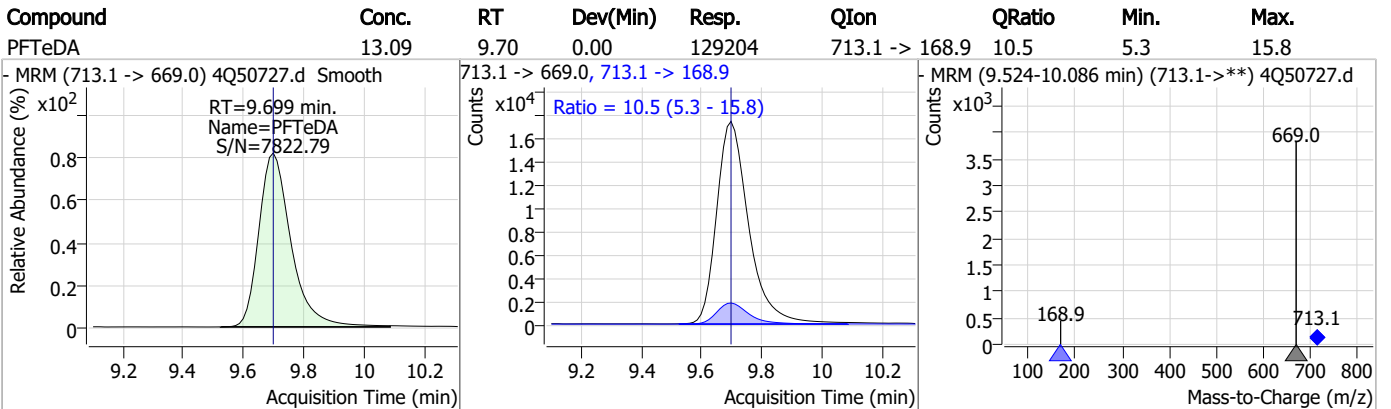
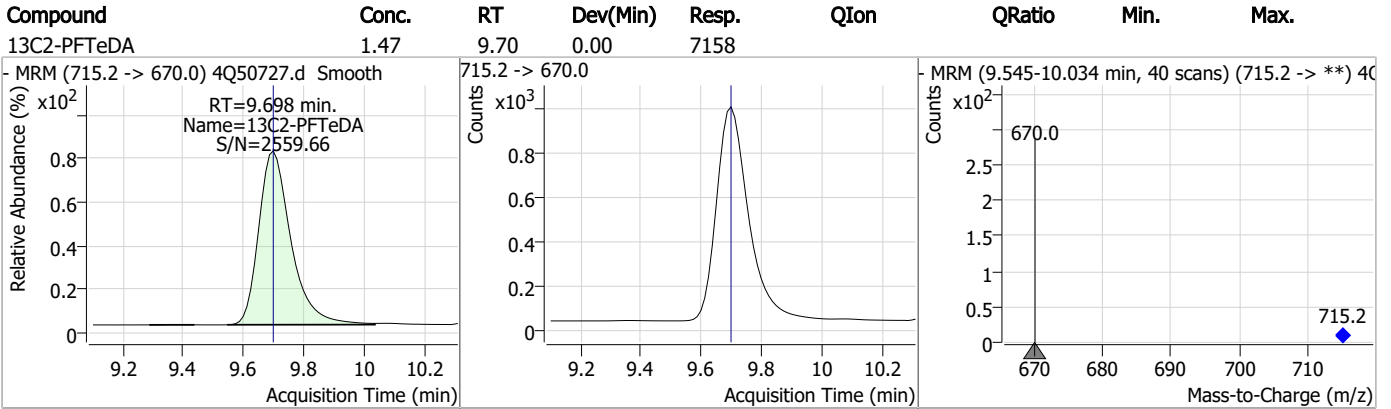
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.25	8.94	0.00	11512				
PFDS	13.12	9.07	-0.01	22797	599.0 -> 98.8	52.1	24.2	72.5
PFTrDA	14.59	9.33	0.00	157584	663.0 -> 168.9	13.0	7.0	21.0
11Cl-PF3OUdS	24.27	9.37	0.01	180326	632.9 -> 452.9	30.7	15.1	45.2

7.6.4

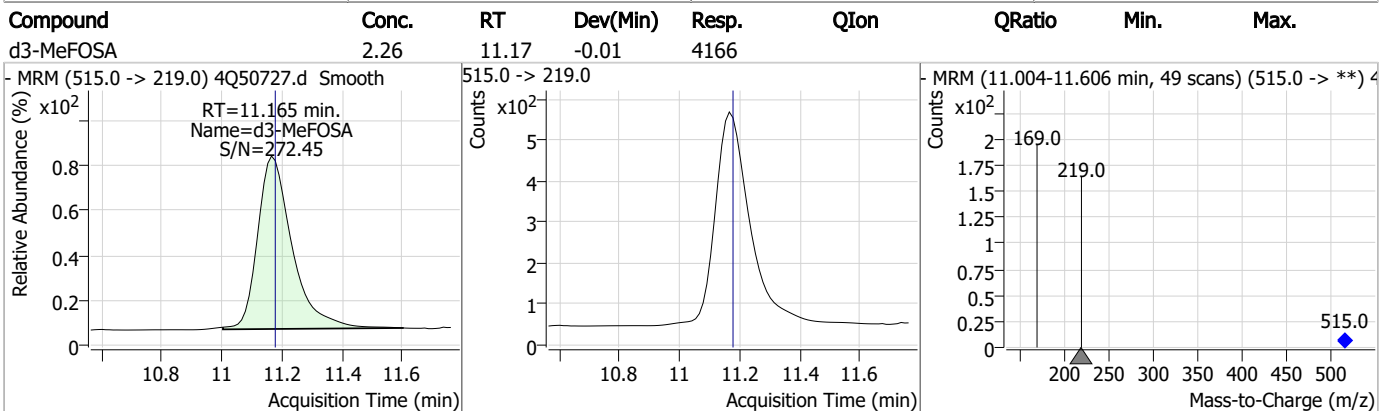
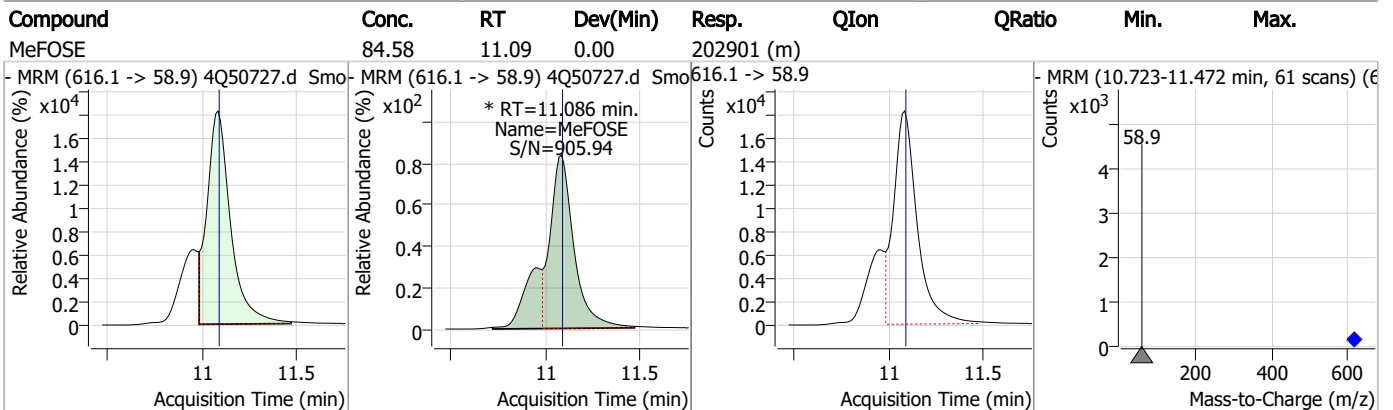
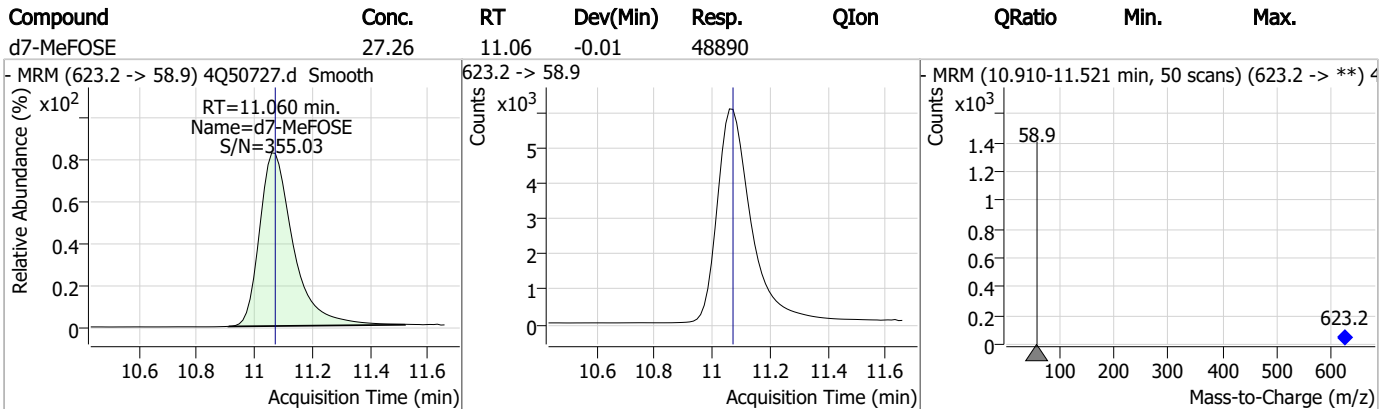
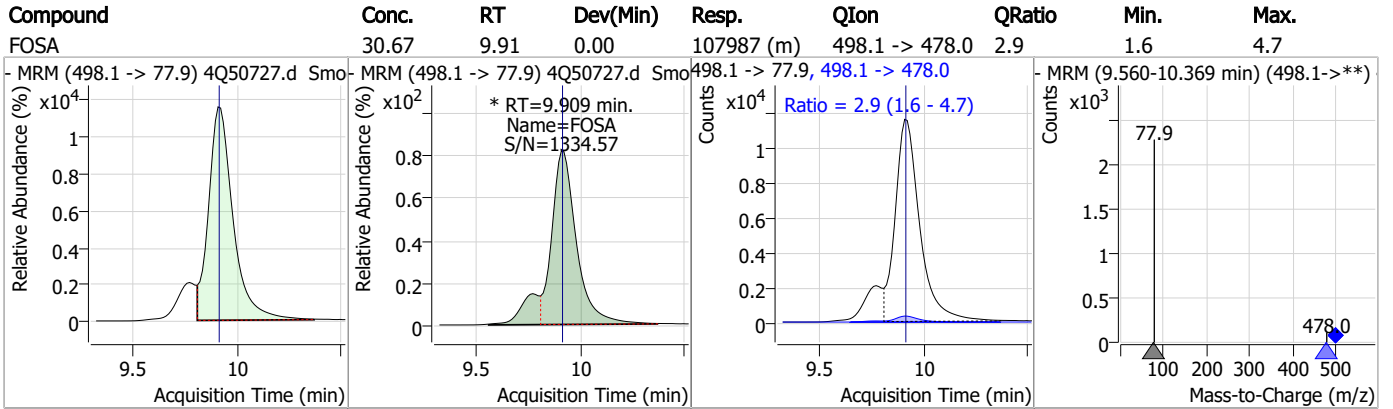
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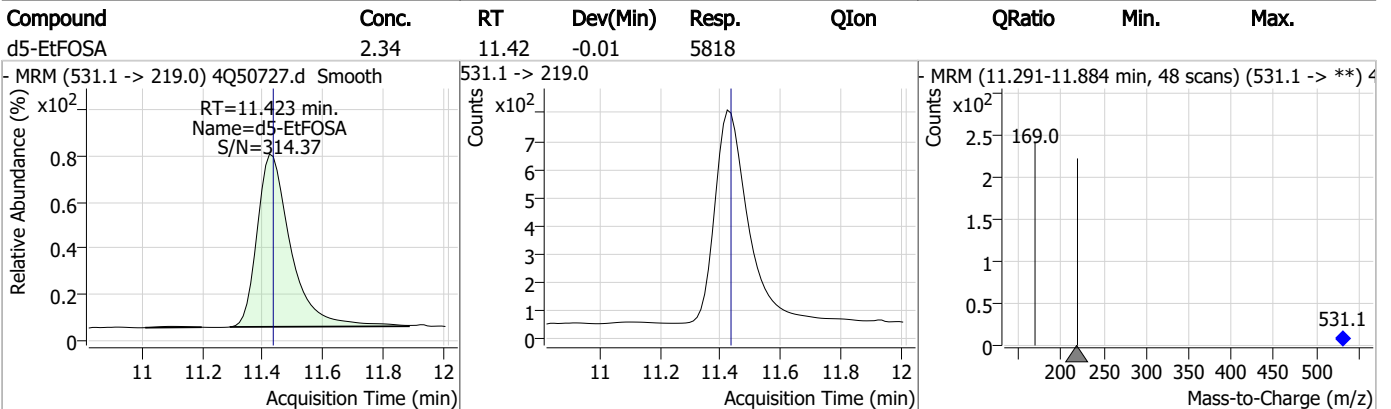
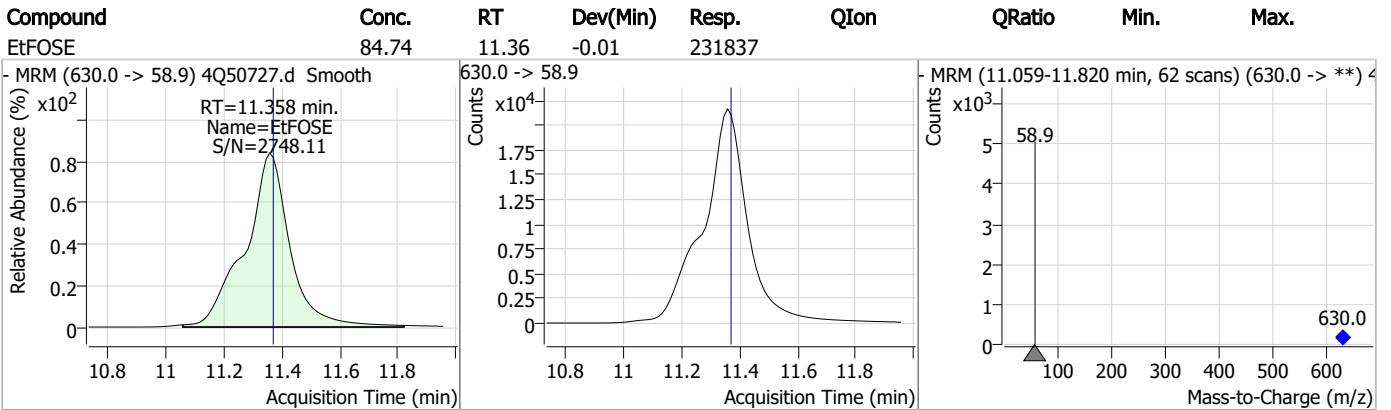
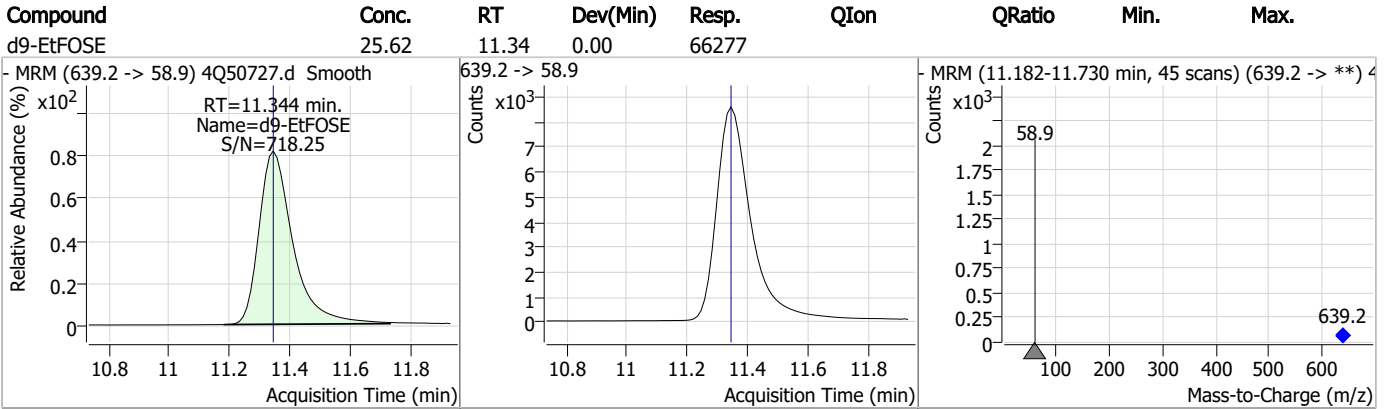
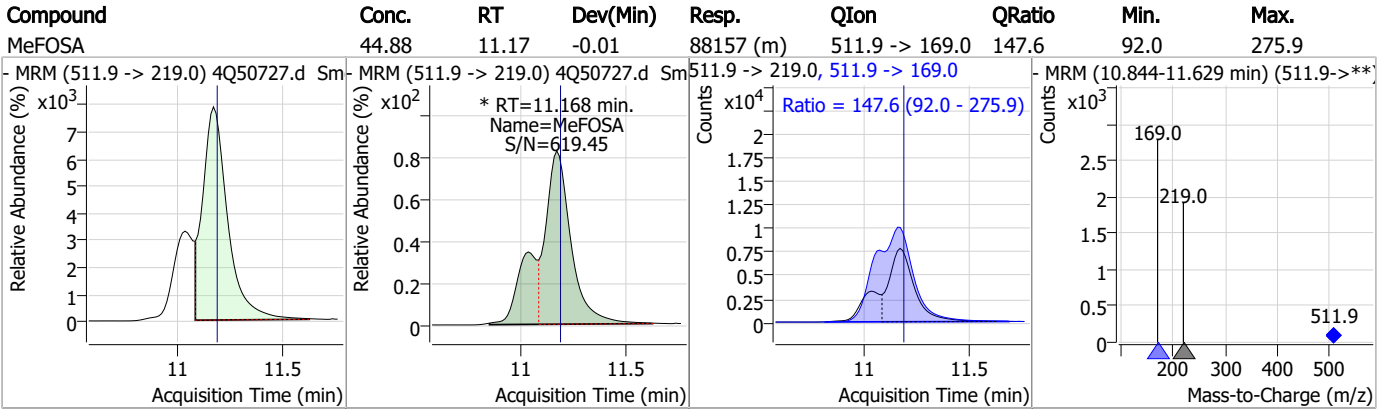
Perfluorinated Compounds by LC/MS/MS



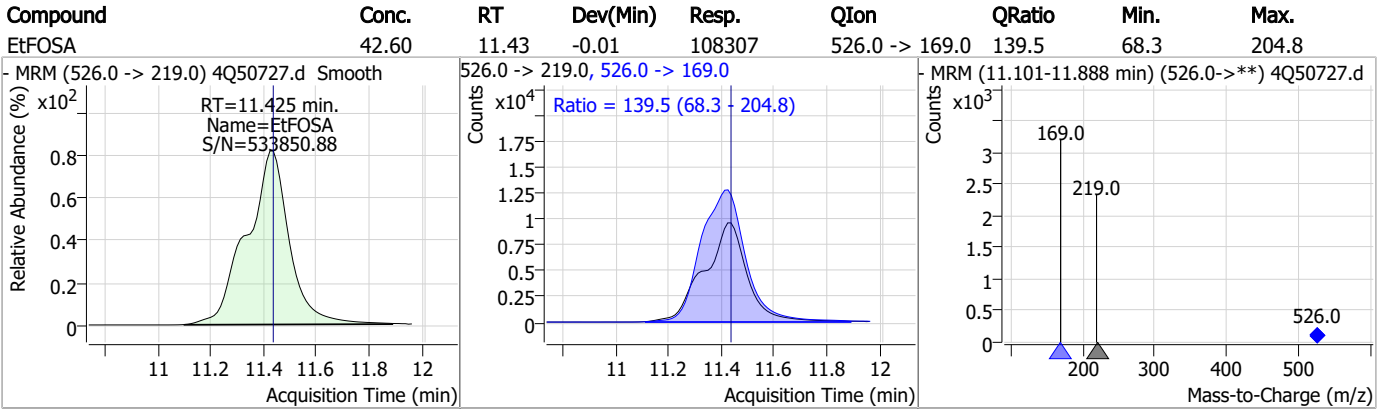
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Manual Integration Approval Summary

Sample Number: S4Q742-RT Method: EPA DRAFT 1633
Lab FileID: 4Q50727.D Analyst approved: 09/19/23 10:24 Anna Ludwig
Injection Time: 09/18/23 12:29 Supervisor approved: 09/19/23 13:22 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.04	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.10	Split peak
Perfluorononanoic acid	375-95-1		7.57	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.18	Split peak
EtFOSAA	2991-50-6		8.36	Split peak
PFOSA	754-91-6		9.91	Split peak
MeFOSE	24448-09-7		11.09	Split peak
MeFOSA	31506-32-8		11.17	Split peak

7.6.4.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 09/11/23 13:46

Perfluorinated Compounds by LC/MS/MS

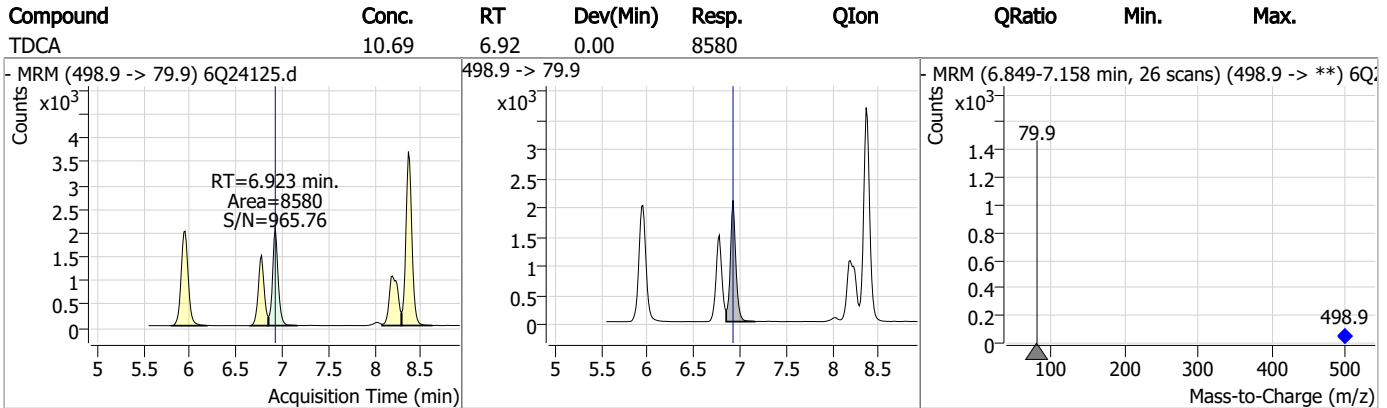
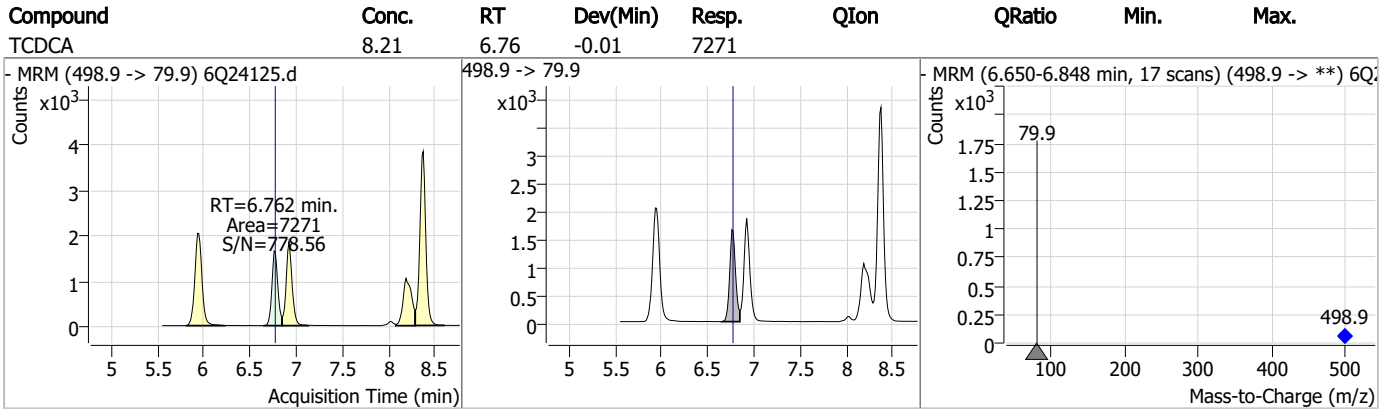
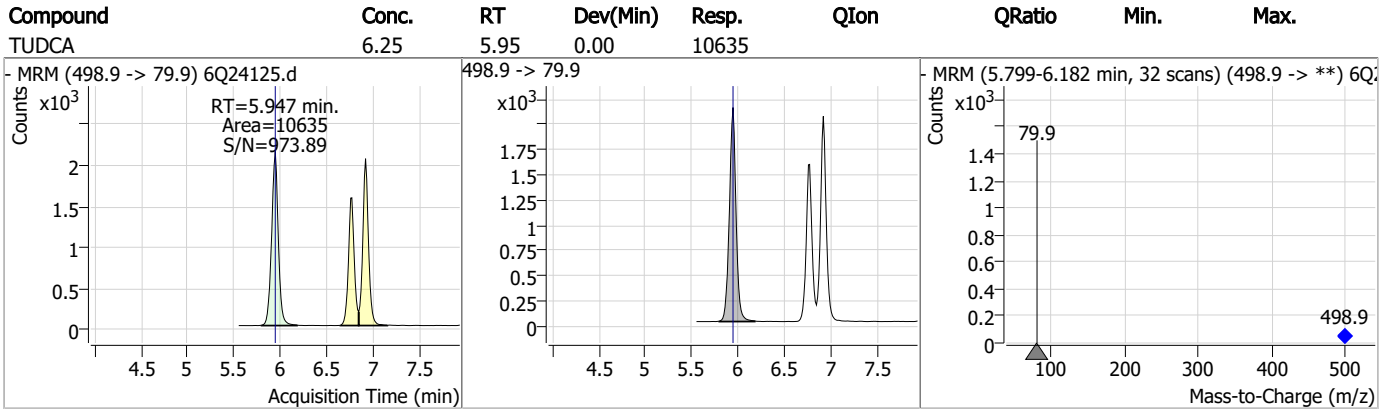
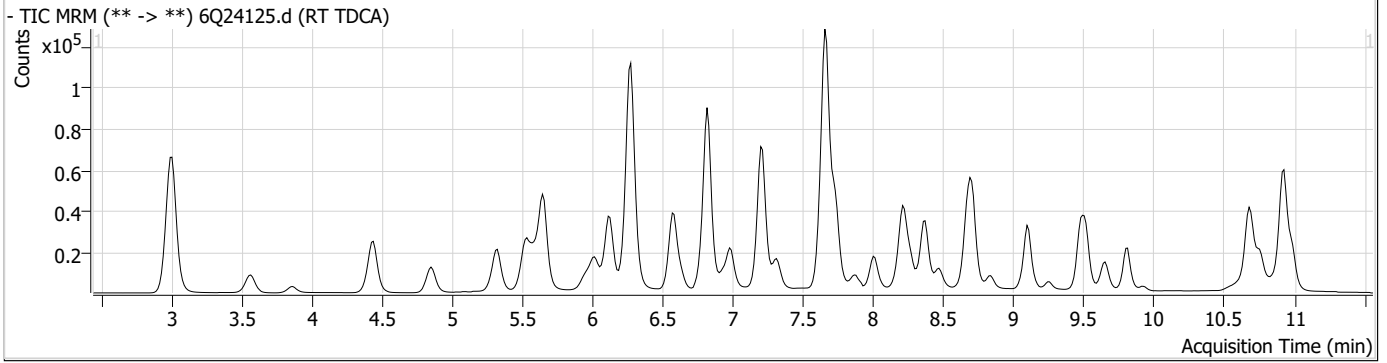
Data File : 6Q24125.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 8:03:16 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q347 TDCA.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M8-PFOS	8.373	507.1 -> 79.9	19204	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	25385	2.50 µg/L	0.000
System Monitoring Compounds					
13C8-PFOS	8.373	507.1 -> 79.9	19204	1.92 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 76.8%		
Target Compounds					
PFOS	8.374	498.9 -> 79.9 498.9 -> 98.8	23806 10842	3.63 µg/L m	99
TCDCa	6.762	498.9 -> 79.9	7271	8.21 ng/ml	100
TDCA	6.923	498.9 -> 79.9	8580	10.69 ng/ml	100
TUDCA	5.947	498.9 -> 79.9	10635	6.25 ng/ml	100

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

7.6.5
7

Perfluorinated Compounds by LC/MS/MS

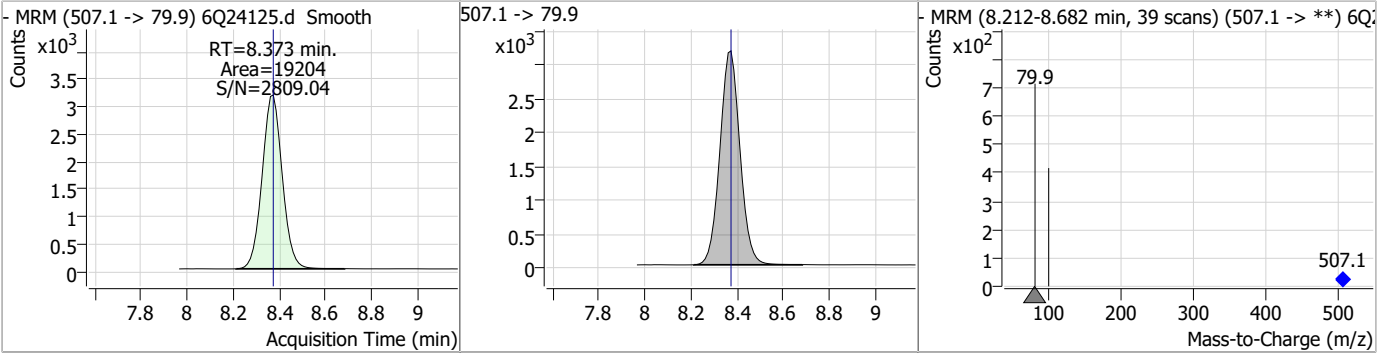


7.6.5

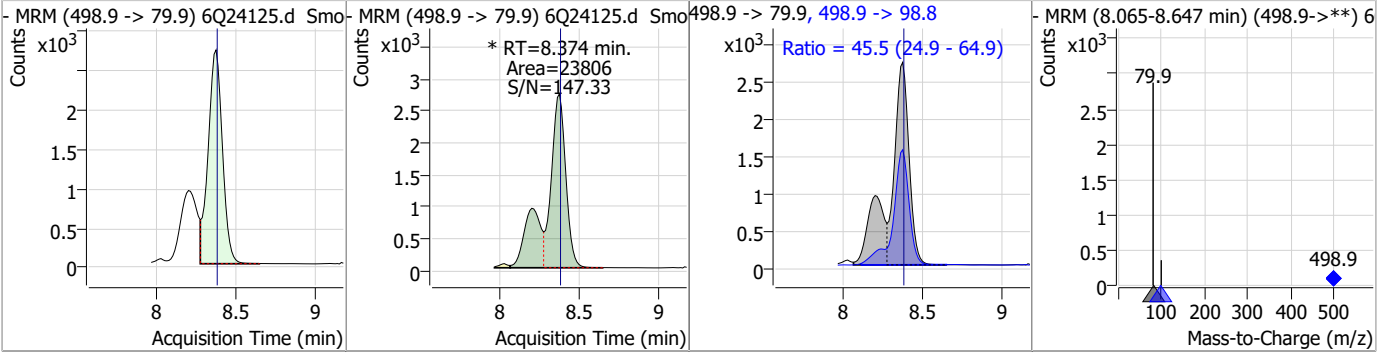
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	1.92	8.37	0.00	19204				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.63	8.37	0.00	23806 (m)	498.9 -> 98.8	45.5	24.9	64.9



7.6.5
7



Manual Integration Approval Summary

Sample Number: S6Q347-RT Method: EPA DRAFT 1633
Lab FileID: 6Q24125.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 20:03 Supervisor approved: 09/11/23 13:46 Norman Farmer

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

7.6.5.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24126.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 8:17:38 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	180561	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	33884	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	69787	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	54080	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	69584	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	30924	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	31709	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	42332	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	37718	1.25 µg/L	0.000
M2-PFTeDA	9.809	715.2 -> 670.0	14358	1.25 µg/L	0.012
M8-FOSA	9.657	506.1 -> 77.8	28474	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	22482	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	13033	2.50 µg/L	0.000
M8-PFOS	8.373	507.1 -> 79.9	13370	2.50 µg/L	0.012
M2-4:2FTS	5.304	329.1 -> 80.9	2603	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	3810	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	3704	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	22630	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	37940	10.00 µg/L	-0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	21570	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	108082	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	141795	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	10646	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	11285	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	16101	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	71699	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	9108	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	79276	2.50 µg/L	0.000
13C2-PFDA	8.210	515.1 -> 470.1	28082	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	37811	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	48868	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2603	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-6:2FTS	6.974	429.1 -> 80.9	3810	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3704	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C2-PFDoDA	9.093	615.1 -> 570.0	37718	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C2-PFTeDA	9.809	715.2 -> 670.0	14358	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C3-PFBS	5.571	302.1 -> 79.9	22482	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C3-PFHxS	7.313	402.1 -> 79.9	13033	2.60 µg/L	0.000

7.6.6
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C4-PFBA	2.985	216.8 -> 171.9	180561	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.569	367.1 -> 322.0	54080	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C5-PFHxA	5.641	318.0 -> 273.0	69787	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFPeA	4.422	268.3 -> 223.0	33884	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C6-PFDA	8.210	519.1 -> 474.1	31709	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C7-PFUnDA	8.663	570.0 -> 525.1	42332	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C8-FOSA	9.657	506.1 -> 77.8	28474	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C8-PFOA	7.198	421.1 -> 376.0	69584	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C8-PFOS	8.373	507.1 -> 79.9	13370	2.64 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C9-PFNA	7.729	472.1 -> 427.0	30924	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.7%	
d3-MeFOSAA	8.256	573.2 -> 419.0	22630	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	37940	10.19 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d3-MeFOSA	10.757	515.0 -> 219.0	11285	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
d5-EtFOSAA	8.464	589.2 -> 419.0	21570	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
d7-MeFOSE	10.678	623.2 -> 58.9	108082	25.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
d9-EtFOSE	10.911	639.2 -> 58.9	141795	24.89 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
d5-EtFOSA	10.976	531.1 -> 219.0	10646	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	207483	48.20 µg/L	97
		327.1 -> 80.9	80147		
6:2FTS	6.974	427.1 -> 407.0	175918	52.20 µg/L	97
		427.1 -> 80.9	66908		
8:2FTS	7.999	527.1 -> 507.0	140581	56.26 µg/L	89
		527.1 -> 80.8	45869		
EtFOSAA	8.465	584.2 -> 419.1	41024	13.47 µg/L	100
		584.2 -> 526.0	27014		
FOSA	9.660	498.1 -> 77.9	330335	31.53 µg/L	100
		498.1 -> 478.0	9630		
MeFOSAA	8.257	570.1 -> 419.0	71811	13.36 µg/L	99
		570.1 -> 483.0	14790		
PFBA	2.993	212.8 -> 168.9	327634	54.90 µg/L	100
PFBS	5.572	298.7 -> 79.9	130012	11.79 µg/L	96
		298.7 -> 98.8	46784		
PFDA	8.211	512.9 -> 469.0	370121	12.81 µg/L	100
		512.9 -> 219.0	59837		
PFDoDA	9.094	613.1 -> 569.0	365708	13.06 µg/L	98
		613.1 -> 319.0	44267		
PFDS	9.245	599.0 -> 79.9	50300	12.91 µg/L	97

7.6.6
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	23293			
PFHpA	6.569	363.1 -> 319.0	393289	13.74	µg/L	99
		363.1 -> 169.0	59635			
PFHpS	7.868	449.0 -> 79.9	77362	11.95	µg/L	98
		449.0 -> 98.9	37295			
PFHxA	5.644	313.0 -> 269.0	356797	14.05	µg/L	100
		313.0 -> 118.9	15291			
PFHxS	7.314	398.7 -> 79.9	101278	12.39	µg/L	m 95
		398.7 -> 98.9	45684			
PFNA	7.593	463.0 -> 419.0	665095	28.52	µg/L	m 90
		463.0 -> 219.0	175832			
PFNS	8.826	548.8 -> 79.9	85312	13.51	µg/L	91
		548.8 -> 98.9	42253			
PFOA	7.200	413.0 -> 369.0	1169199	32.60	µg/L	m 97
		413.0 -> 169.0	197554			
PFOS	8.362	498.9 -> 79.9	85116	11.49	µg/L	m 99
		498.9 -> 98.8	40137			
PFPeA	4.424	263.0 -> 219.0	415191	27.51	µg/L	100
PFPeS	6.620	349.1 -> 79.9	90831	12.81	µg/L	97
		349.1 -> 98.9	41041			
PFTeDA	9.809	713.1 -> 669.0	285865	13.82	µg/L	97
		713.1 -> 168.9	19438			
PFTrDA	9.464	663.0 -> 619.0	455350	14.31	µg/L	96
		663.0 -> 168.9	33379			
PFUnDA	8.664	563.1 -> 519.0	315392	13.01	µg/L	98
		563.1 -> 269.1	49248			
11CI-PF3OUdS	9.516	630.9 -> 450.9	371059	26.81	µg/L	94
		632.9 -> 452.9	117893			
9CI-PF3ONS	8.703	530.8 -> 351.0	607133	25.59	µg/L	93
		532.8 -> 353.0	195536			
ADONA	6.817	376.9 -> 250.9	1526909	27.79	µg/L	95
		376.9 -> 84.8	377838			
HFPO-DA	6.020	284.9 -> 168.9	102278	28.49	µg/L	98
		284.9 -> 184.9	14999			
3:3FTCA	3.858	241.0 -> 177.0	72456	70.21	µg/L	99
		241.0 -> 117.0	6663			
5:3FTCA	6.258	341.0 -> 237.1	1568300	363.40	µg/L	92
		341.0 -> 217.0	1012695			
7:3FTCA	7.657	441.0 -> 316.9	862398	338.15	µg/L	90
		441.0 -> 336.9	1824656			
EtFOSA	10.990	526.0 -> 219.0	282787	48.82	µg/L	96
		526.0 -> 169.0	358610			
EtFOSE	10.924	630.0 -> 58.9	607923	90.21	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	235691	49.21	µg/L	m 99
		511.9 -> 169.0	316424			
MeFOSE	10.691	616.1 -> 58.9	426262	91.20	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	27121	12.71	µg/L	96
		699.1 -> 98.8	14619			
NFDHA	5.524	295.0 -> 201.0	81418	27.66	µg/L	95
		295.0 -> 84.9	21183			
PFMBA	4.850	279.0 -> 85.1	305772	27.79	µg/L	100
PFMPA	3.551	229.0 -> 84.9	218995	27.76	µg/L	100
PFEESA	6.112	314.8 -> 134.9	799216	25.18	µg/L	100
		314.8 -> 82.9	27975			

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

7.6.6
7

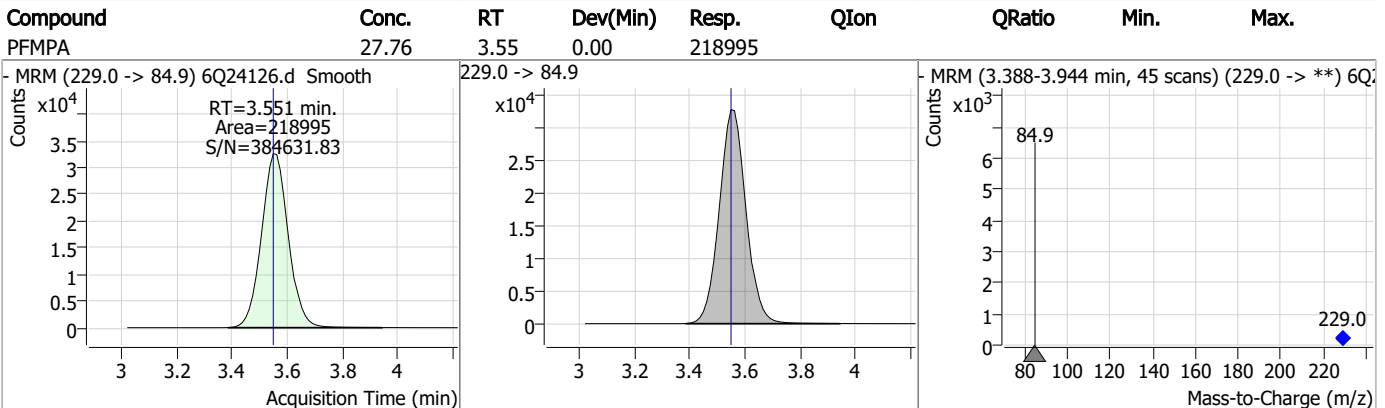
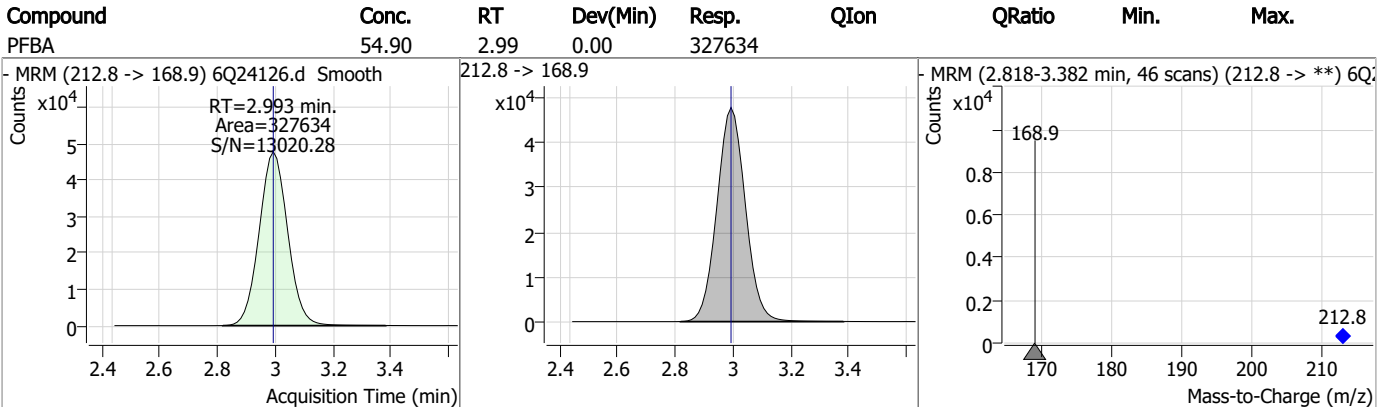
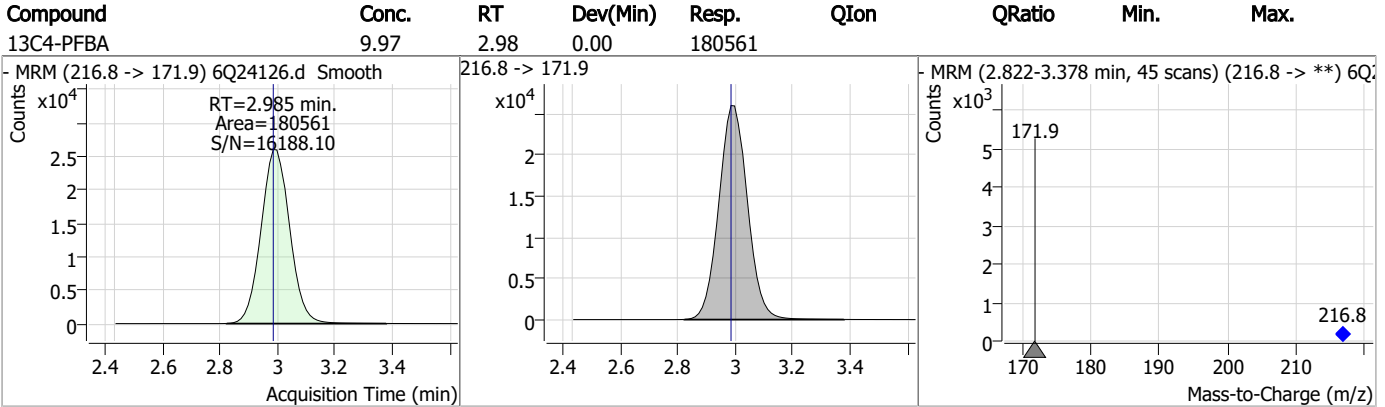
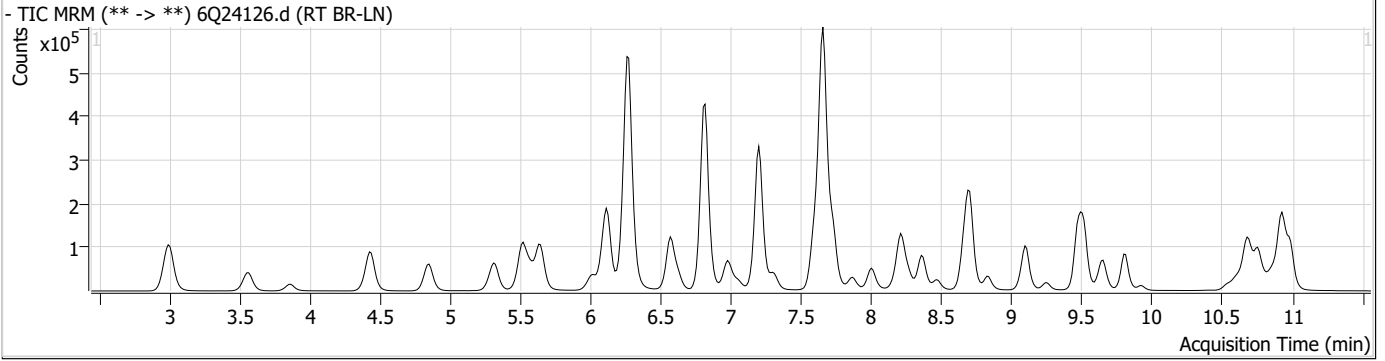
Perfluorinated Compounds by LC/MS/MS

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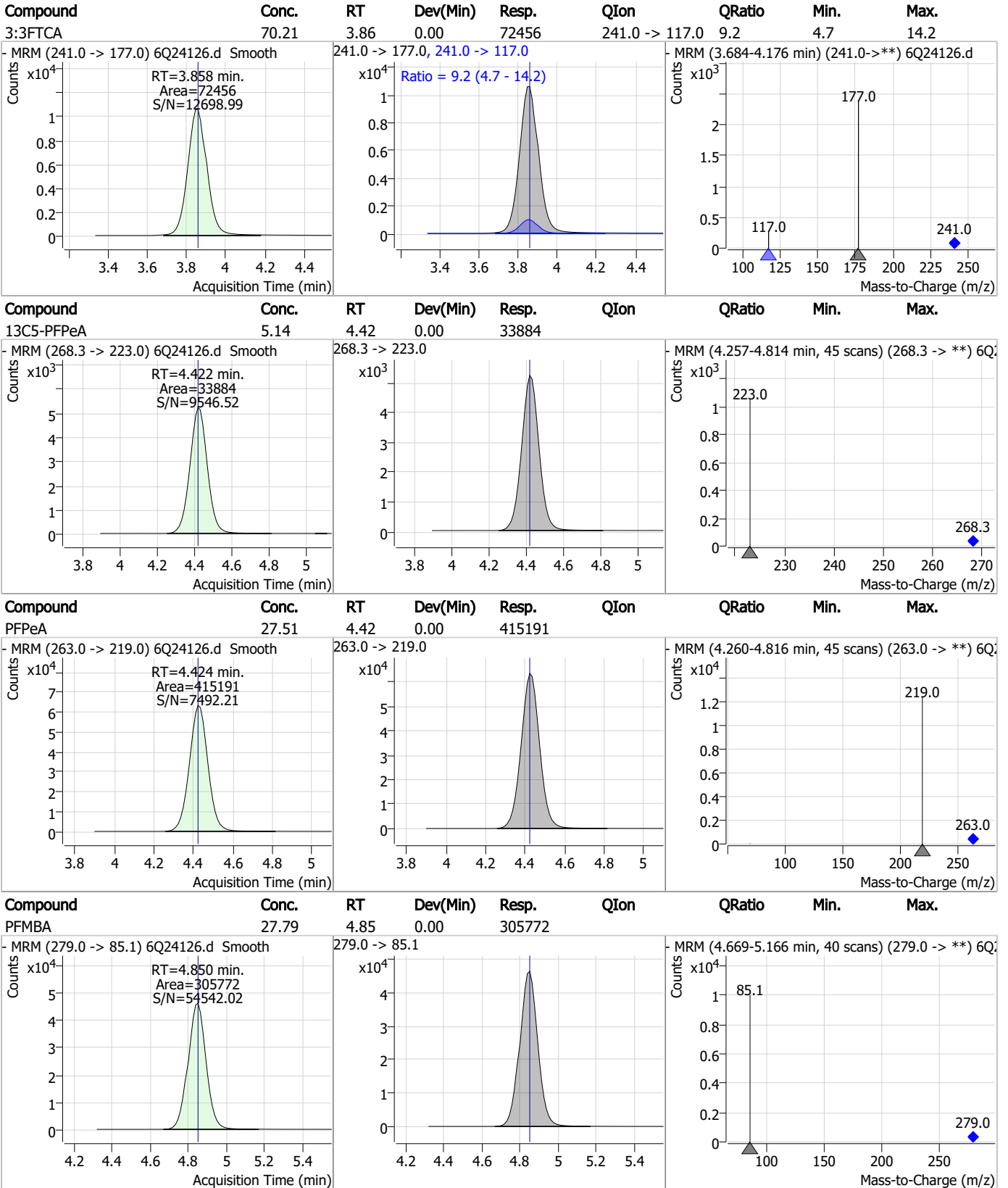
7.6.6

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Perfluorinated Compounds by LC/MS/MS



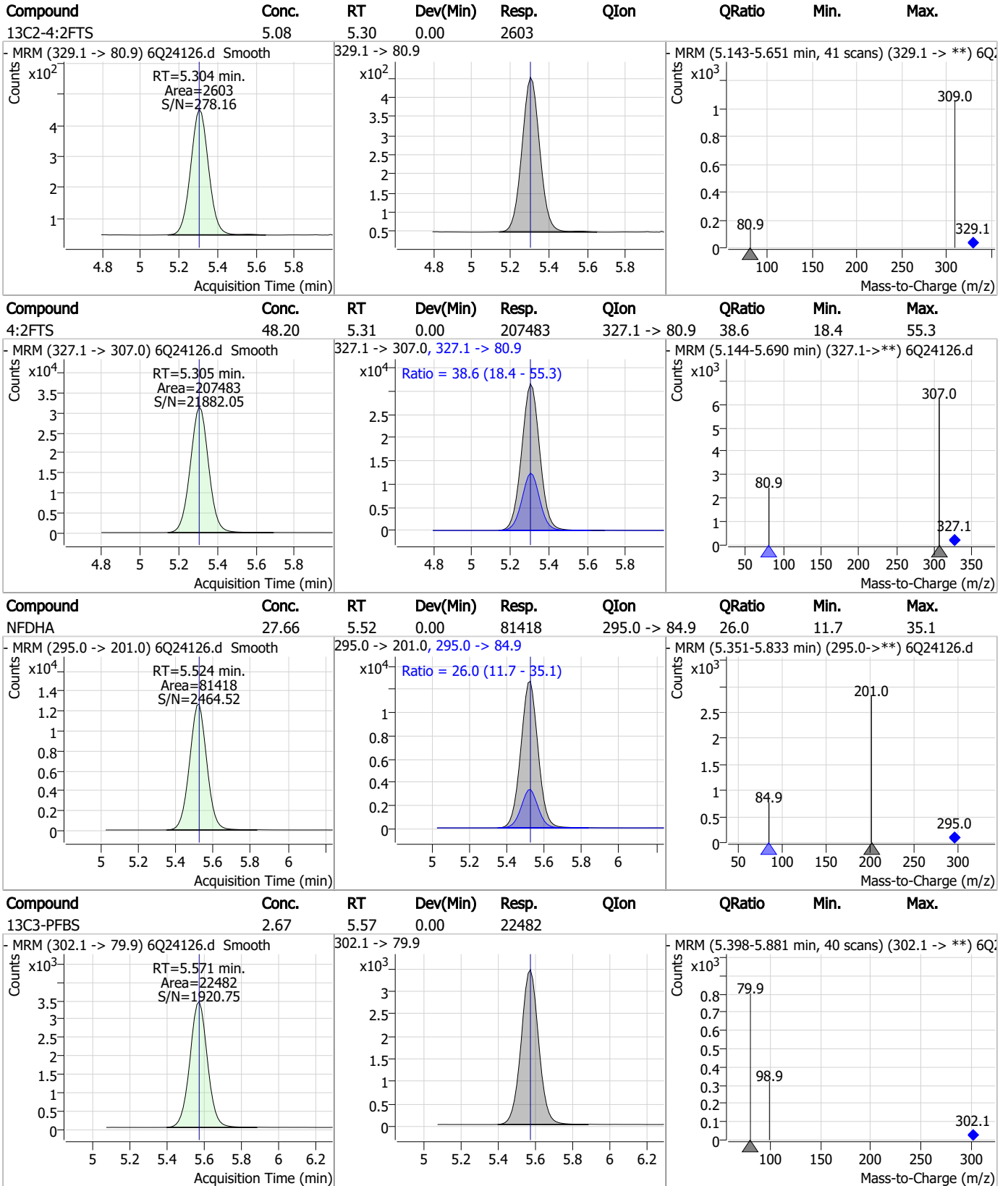
Perfluorinated Compounds by LC/MS/MS



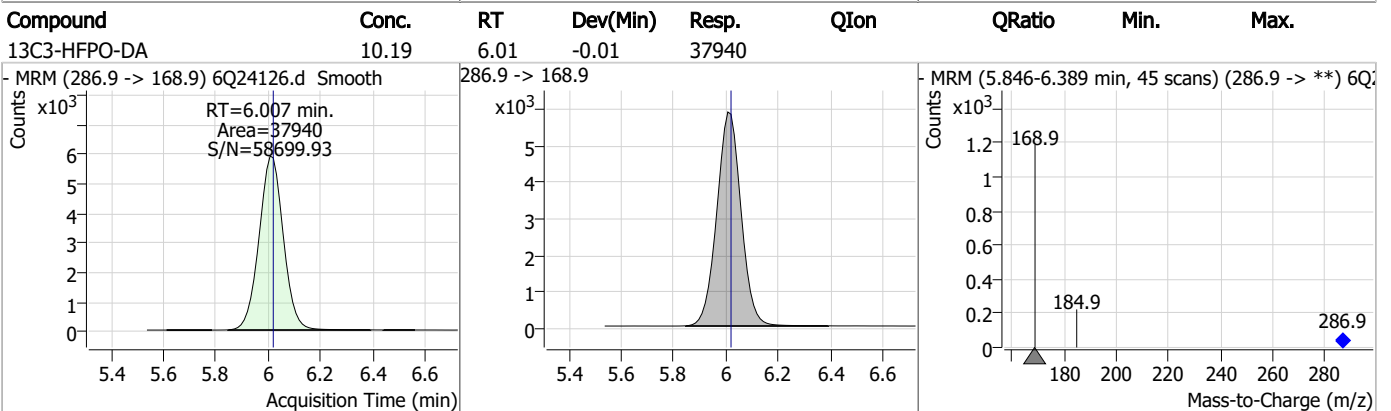
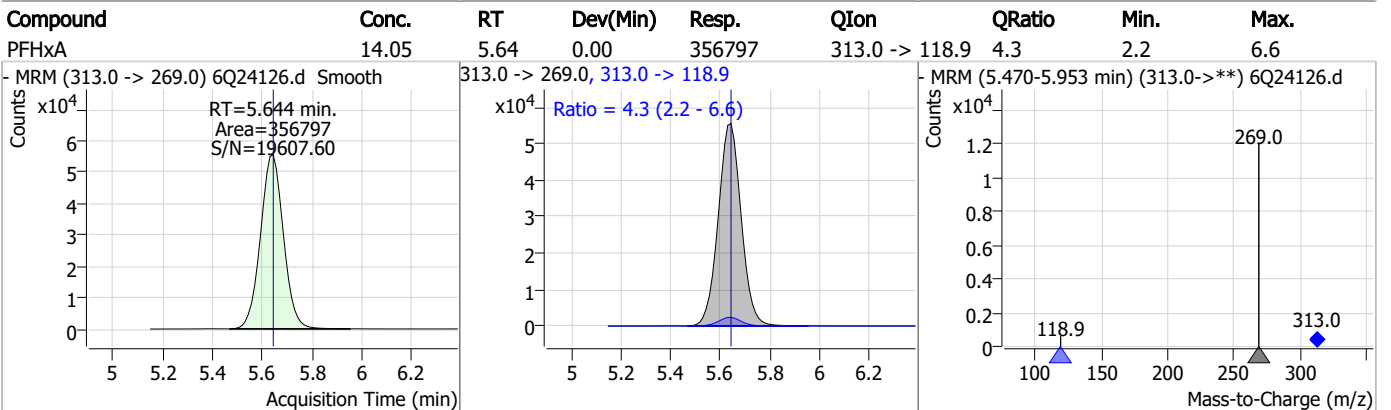
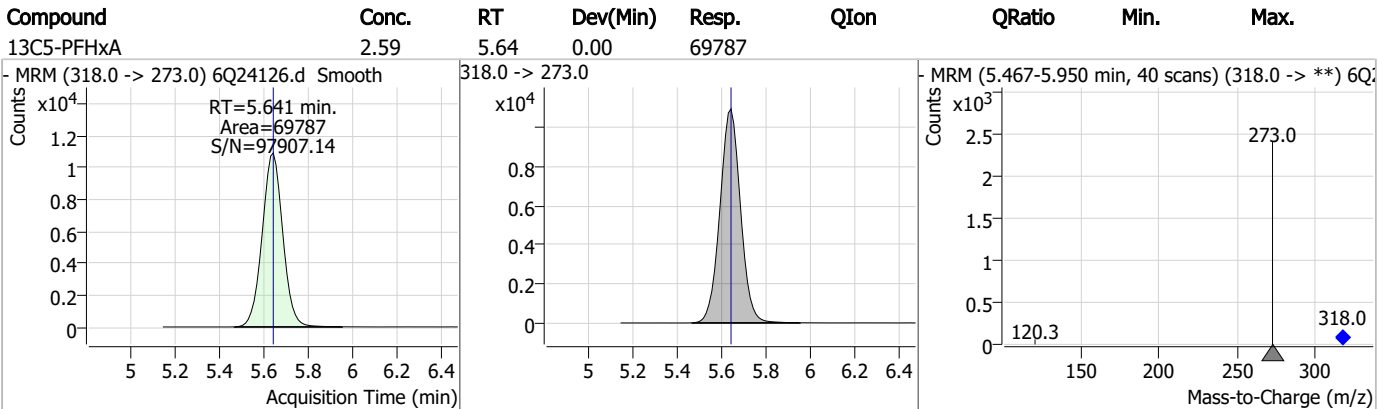
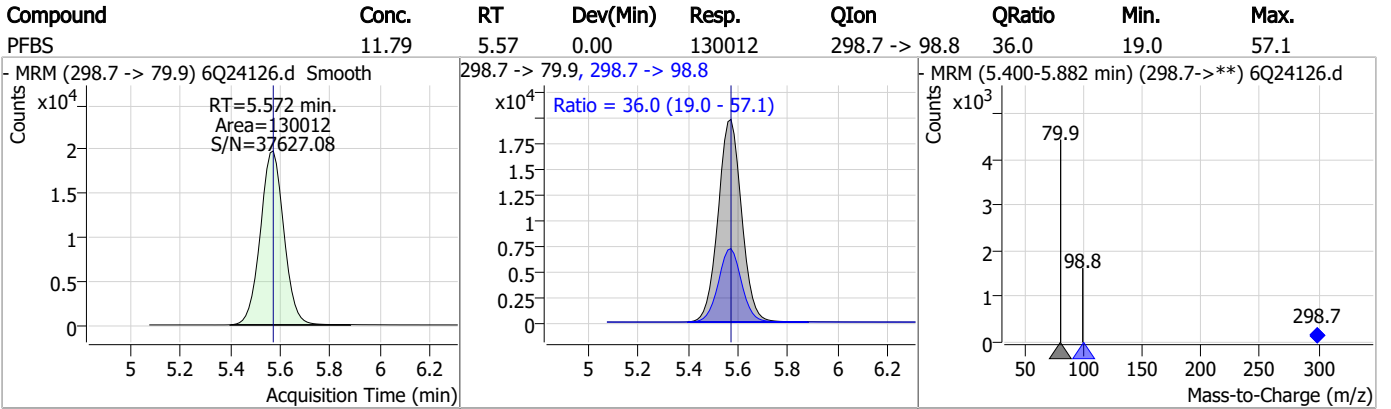
7.6.6

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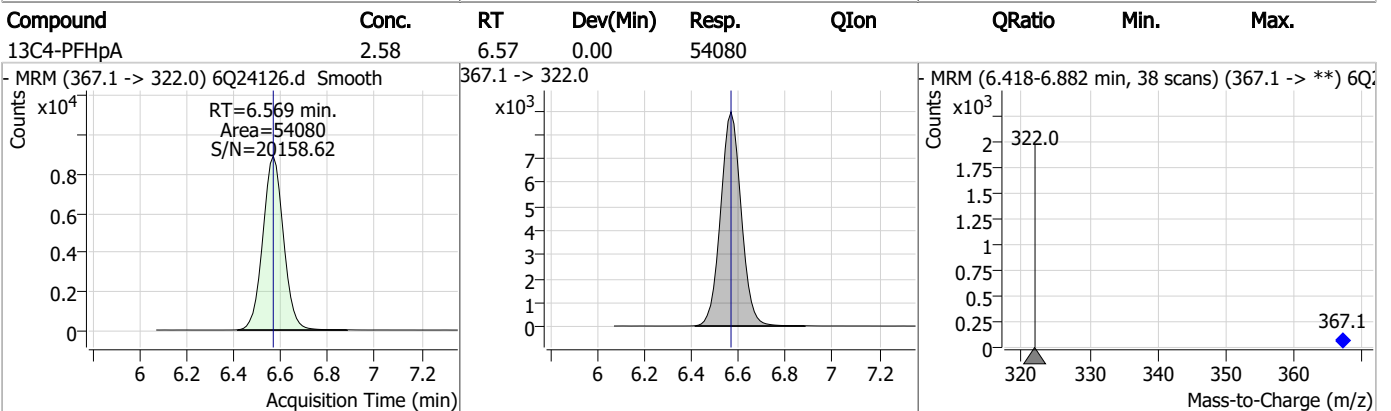
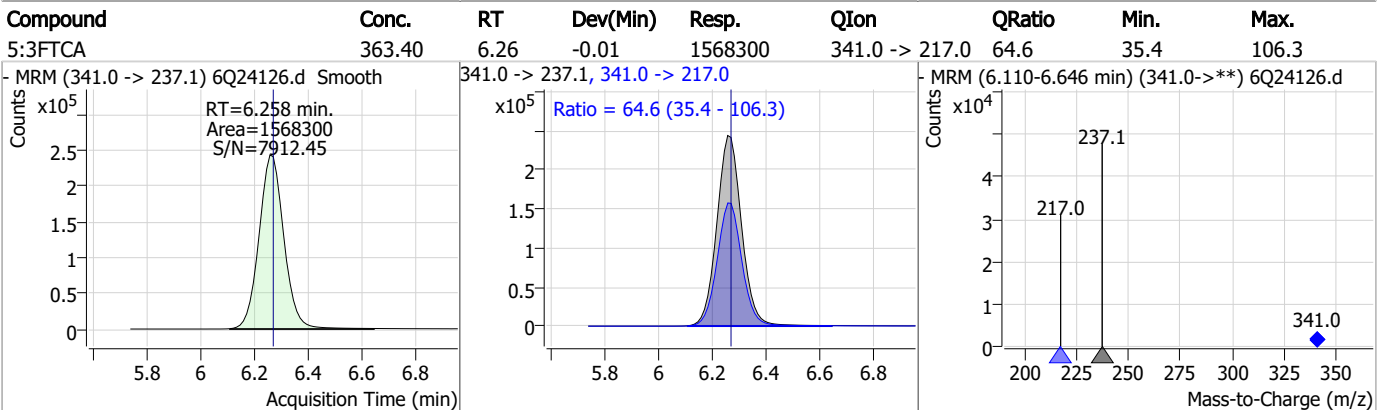
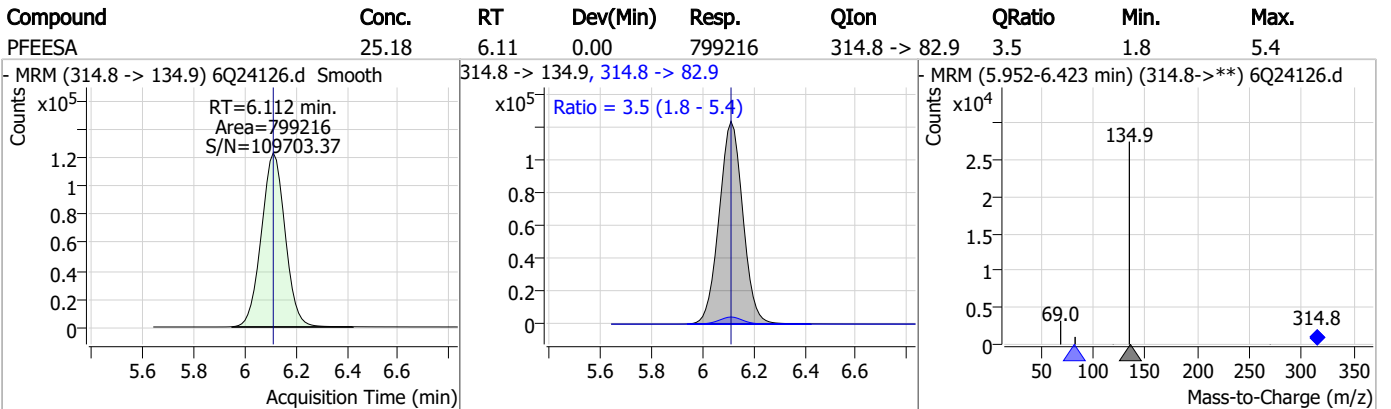
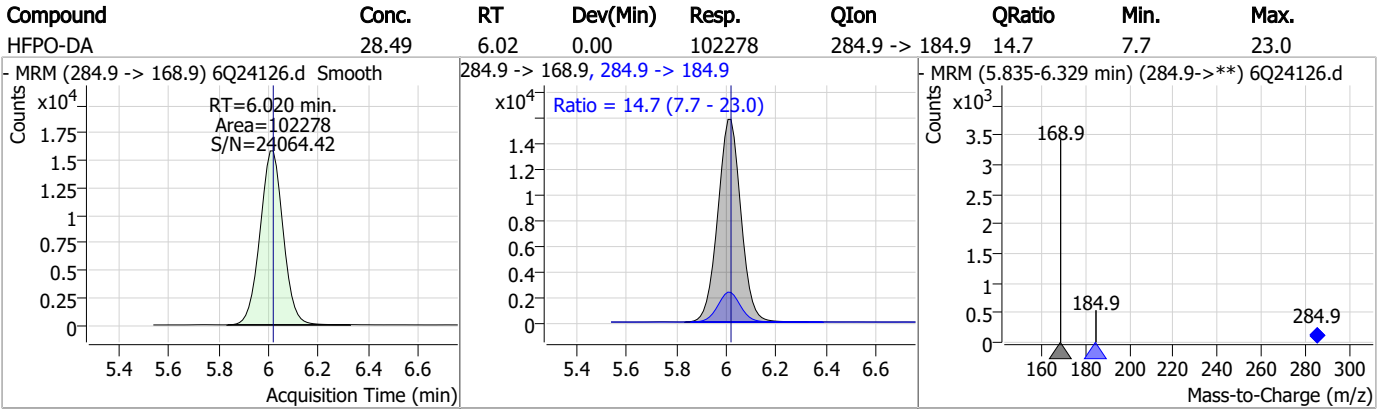
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



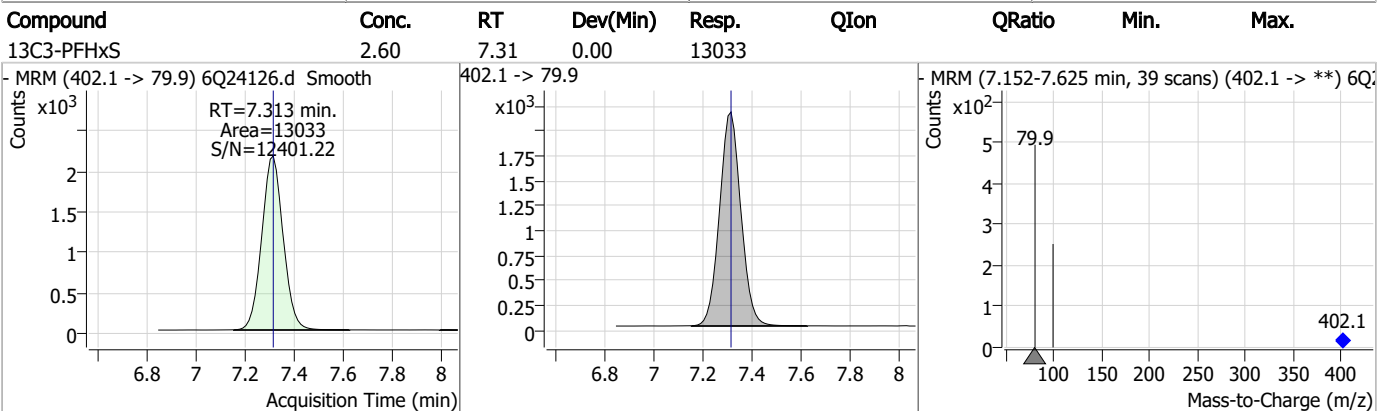
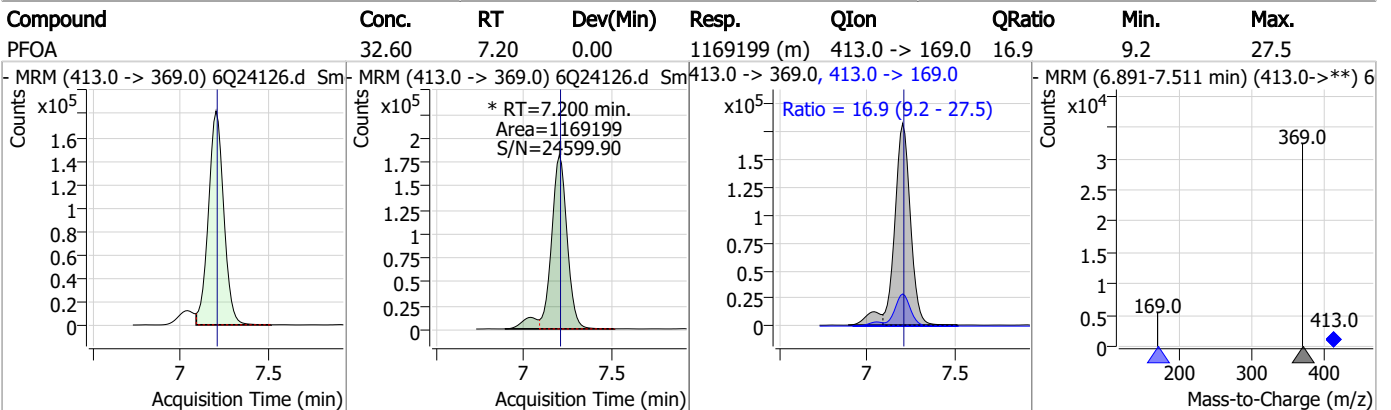
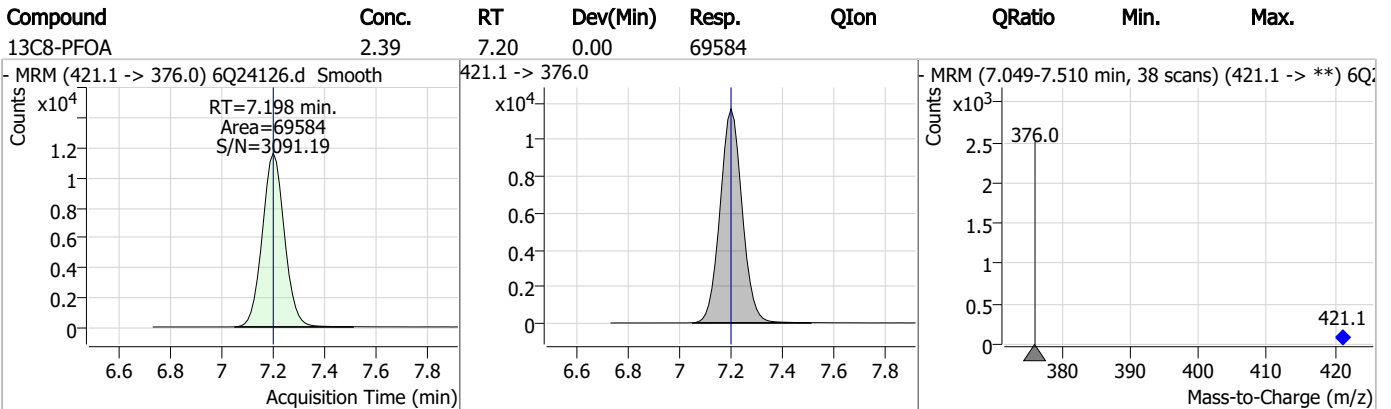
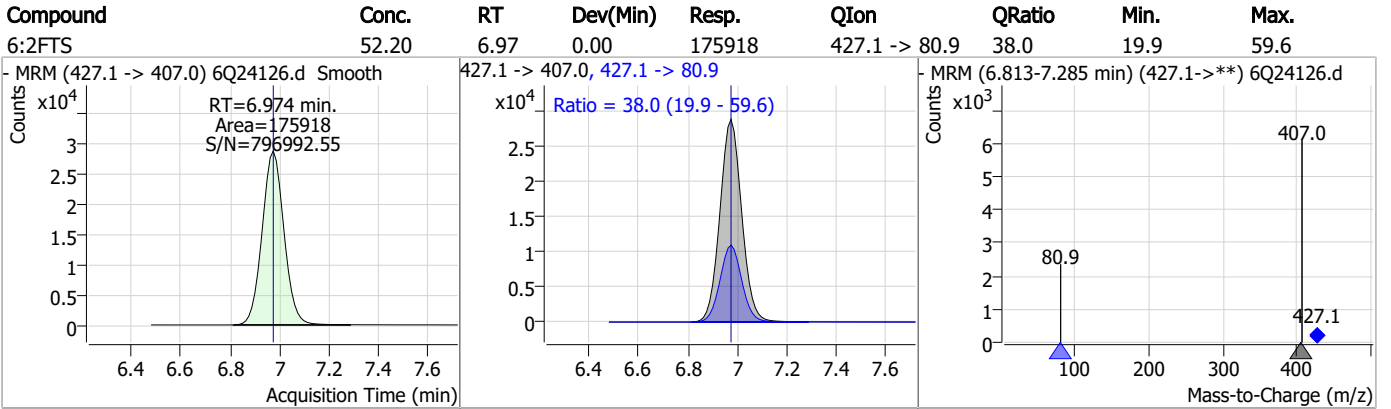
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	13.74	6.57	0.00	393289	363.1 -> 169.0	15.2	7.4	22.2
PFPeS	12.81	6.62	0.00	90831	349.1 -> 98.9	45.2	23.6	70.7
ADONA	27.79	6.82	0.00	1526909	376.9 -> 84.8	24.7	13.7	41.2
13C2-6:2FTS	5.06	6.97	0.00	3810	429.1 -> 80.9			

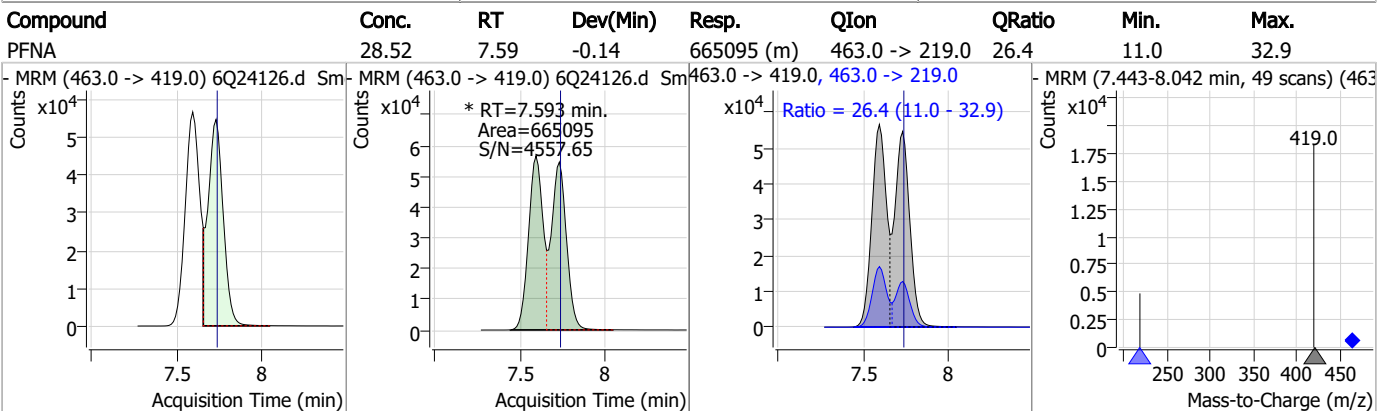
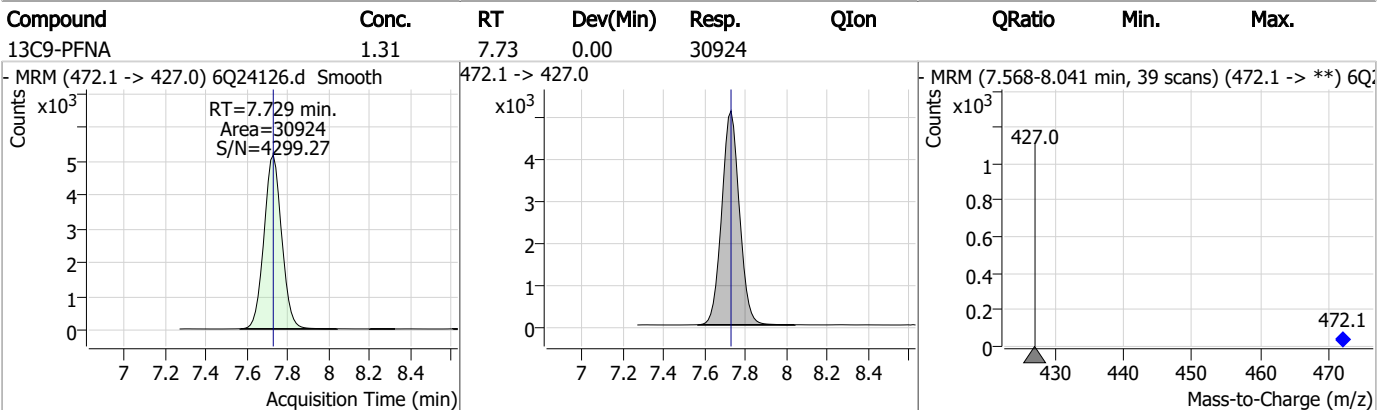
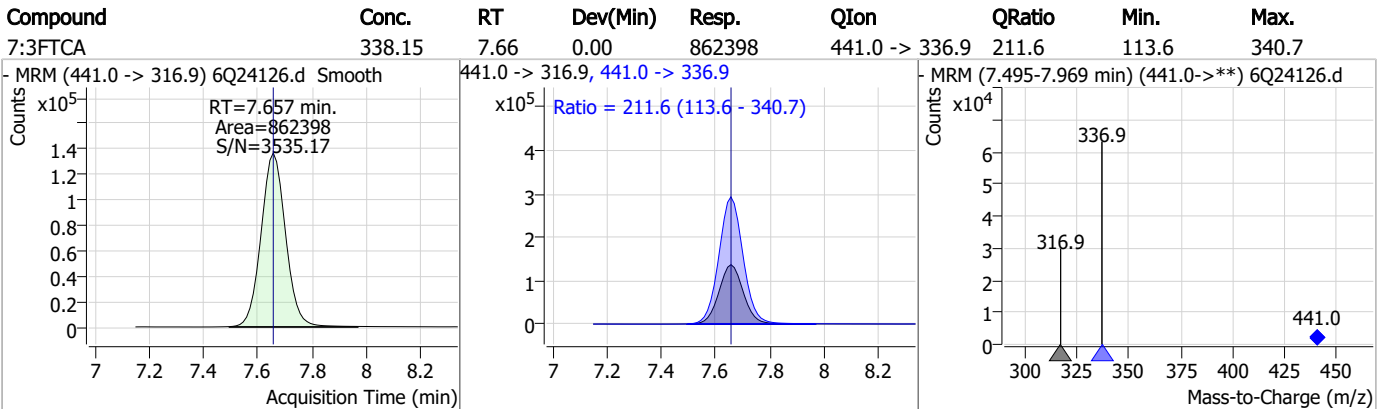
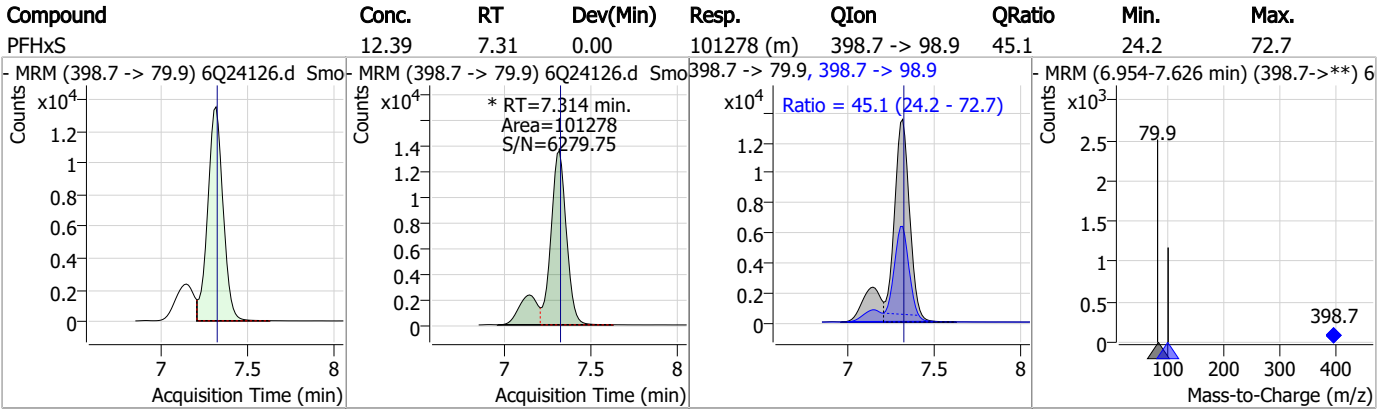
7.6.6

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

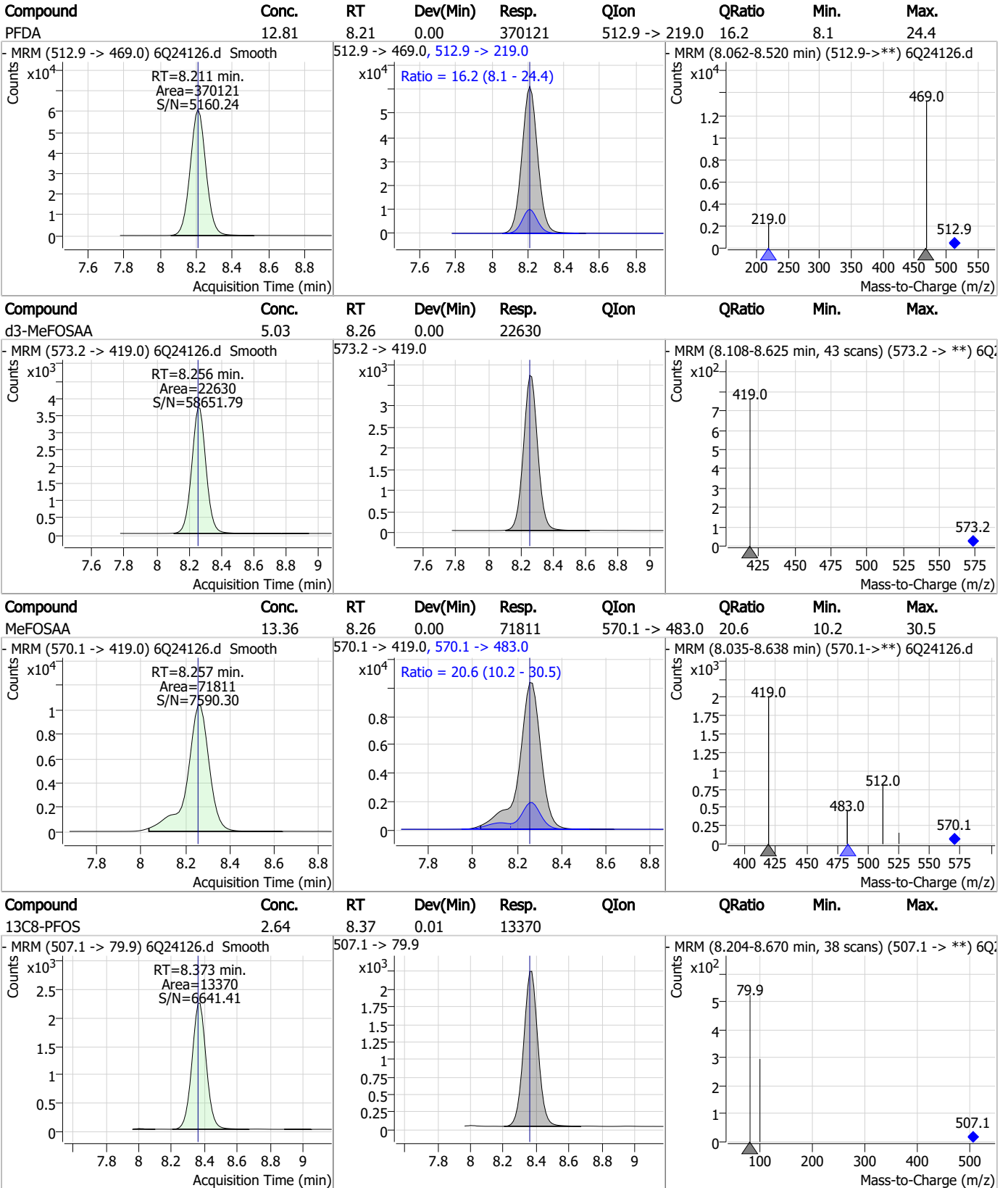
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	11.95	7.87	0.00	77362	449.0 -> 98.9	48.2	23.4	70.1
13C2-8:2FTS	4.76	8.00	0.00	3704				
8:2FTS	56.26	8.00	0.00	140581	527.1 -> 80.8	32.6	19.7	59.0
13C6-PFDA	1.30	8.21	0.00	31709				

7.6.6

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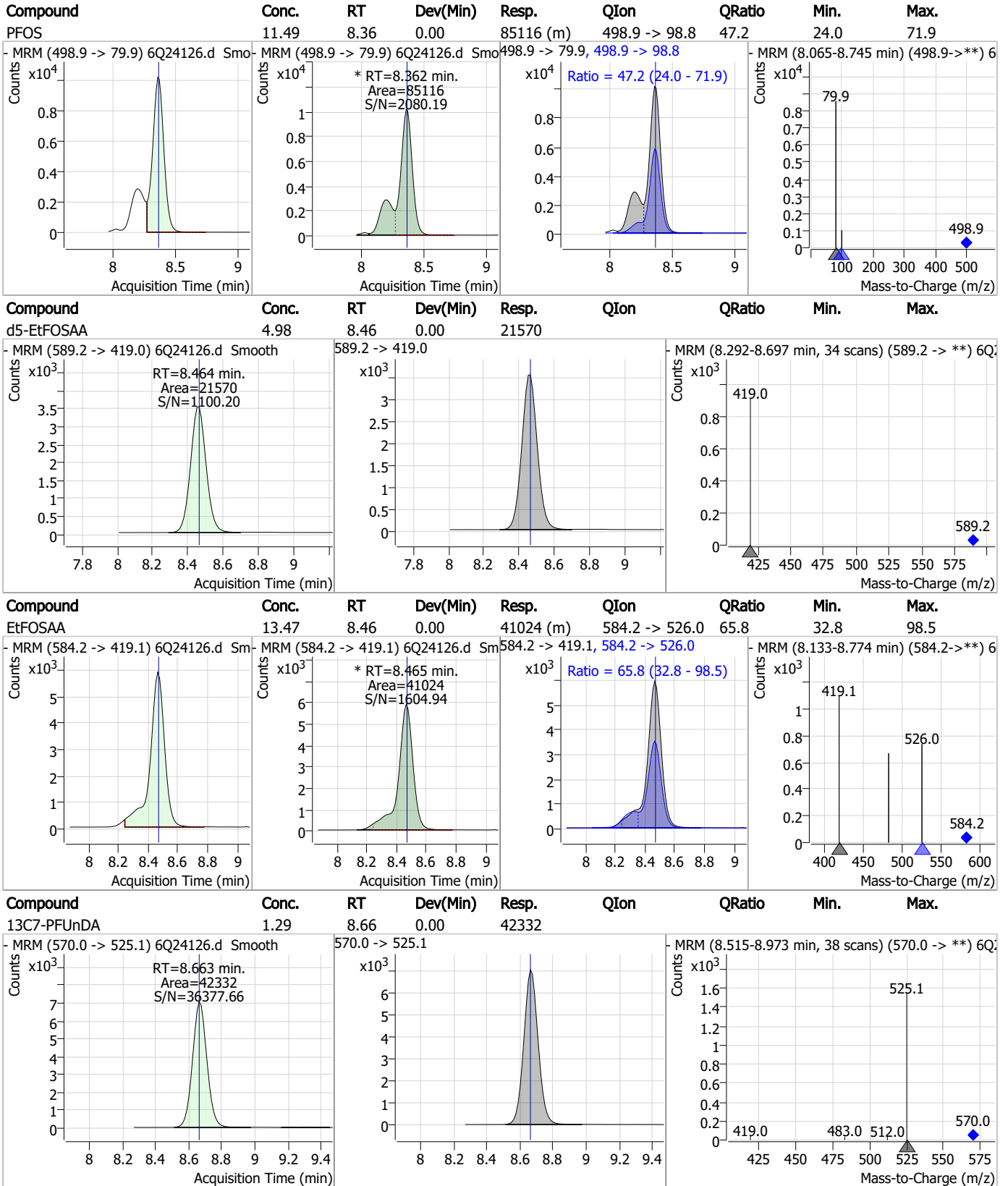
Perfluorinated Compounds by LC/MS/MS



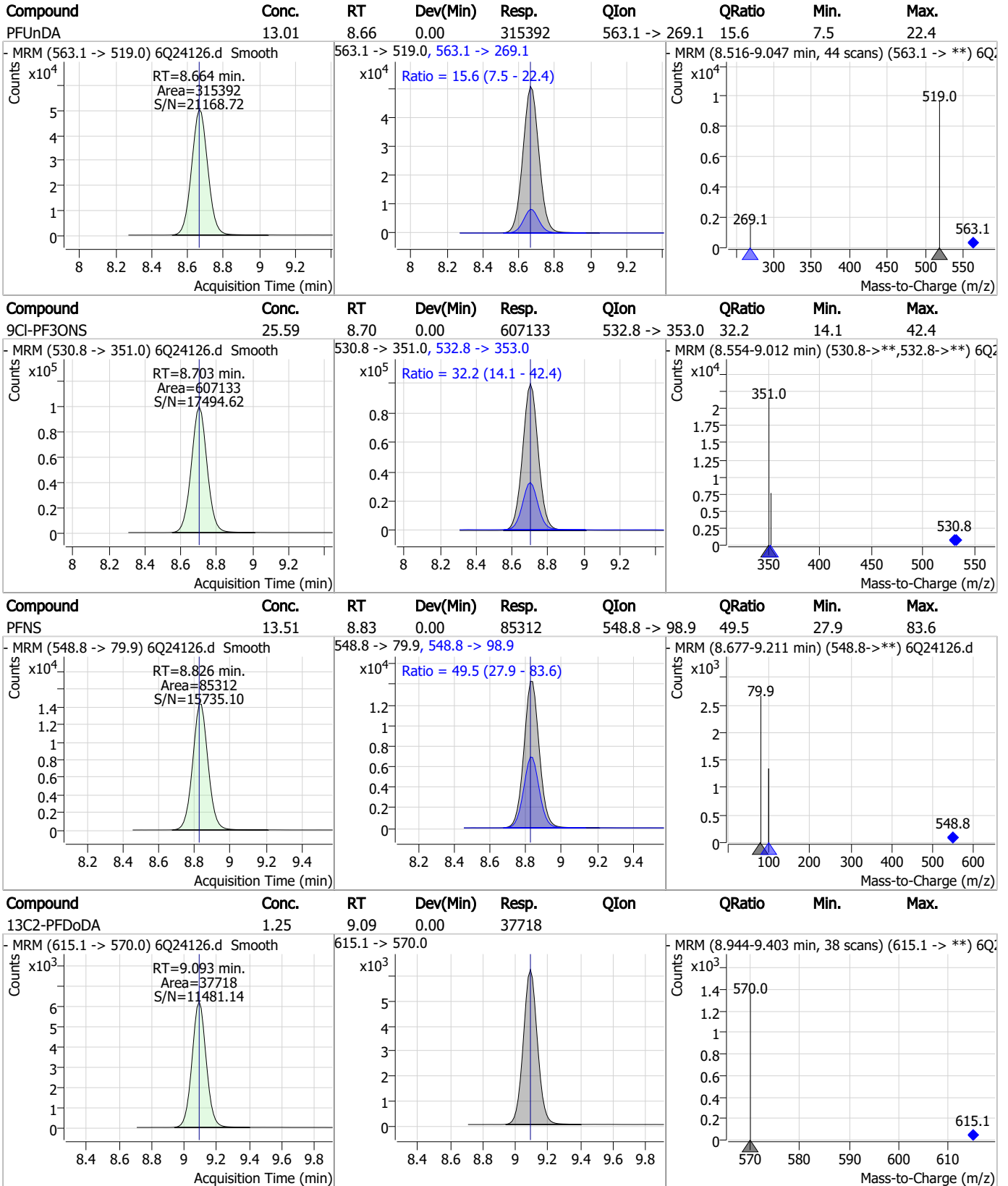
7.6.6

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

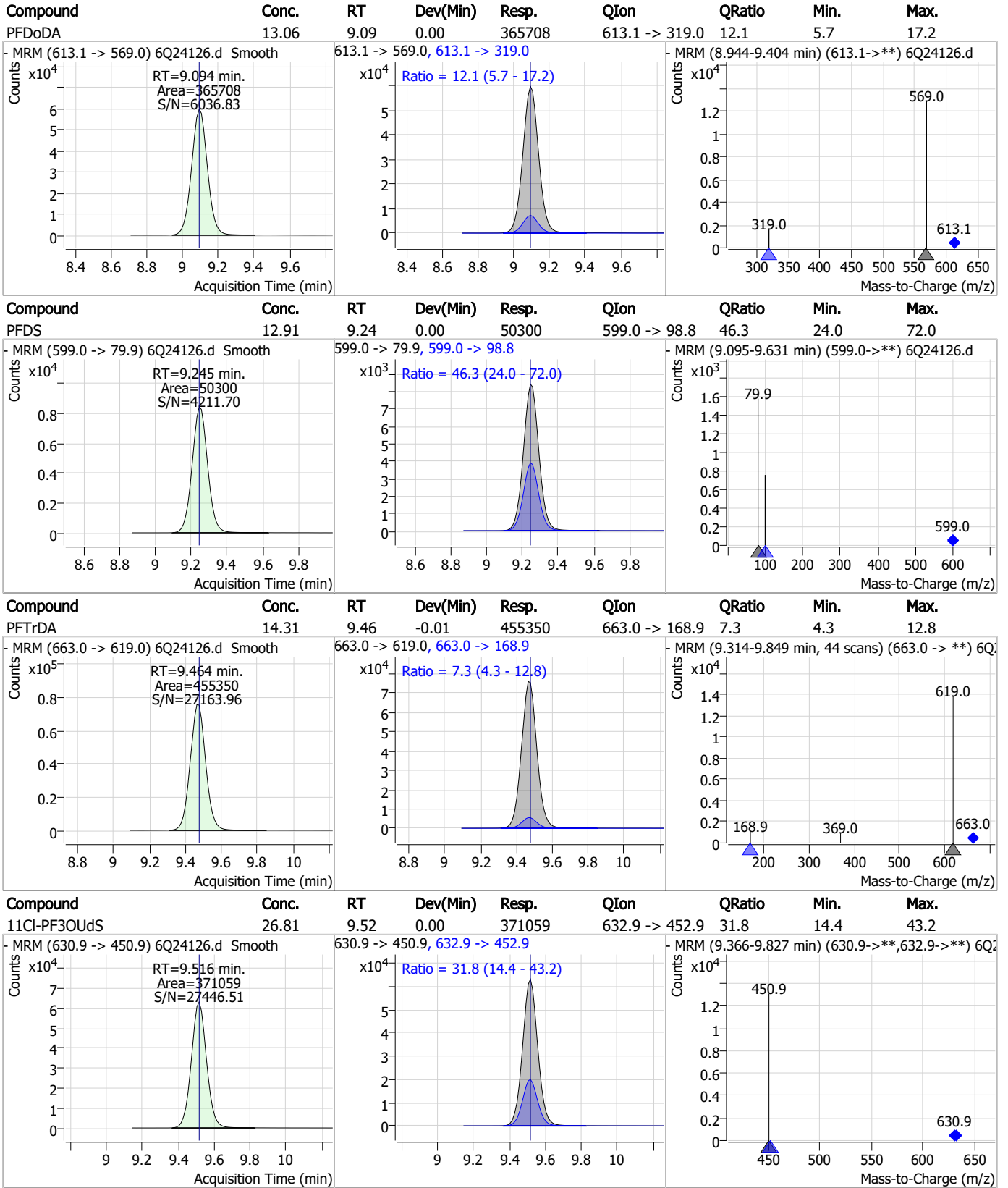


7.6.6

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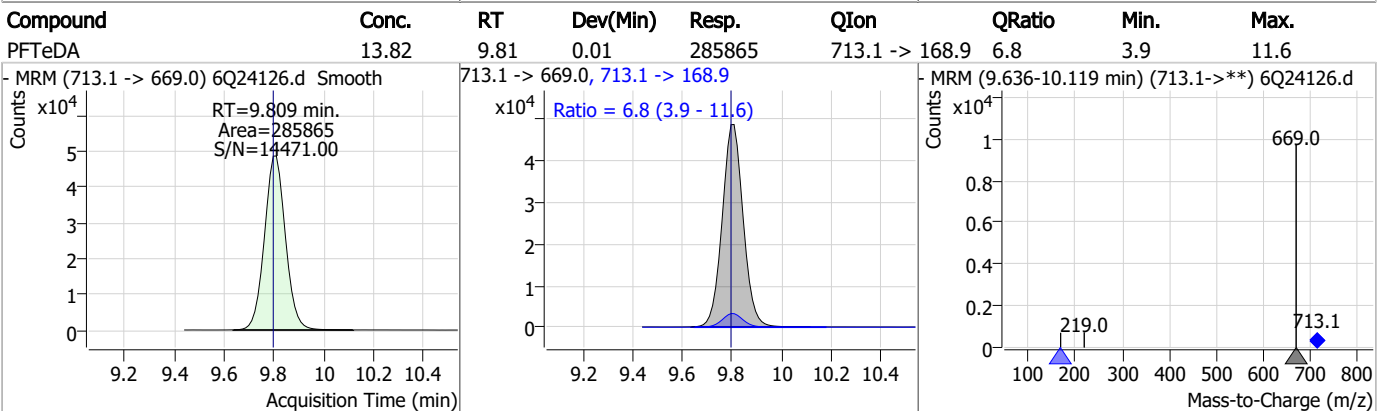
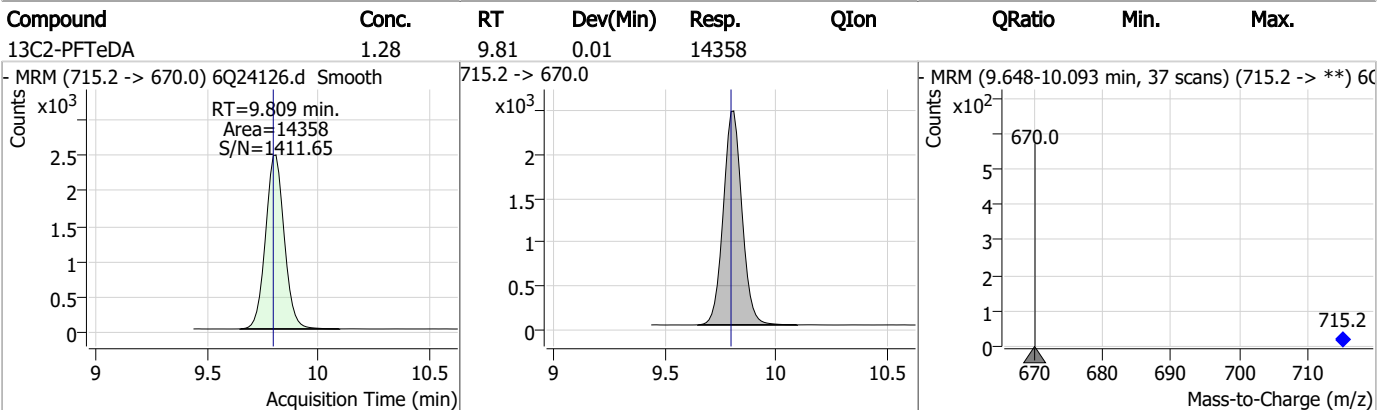
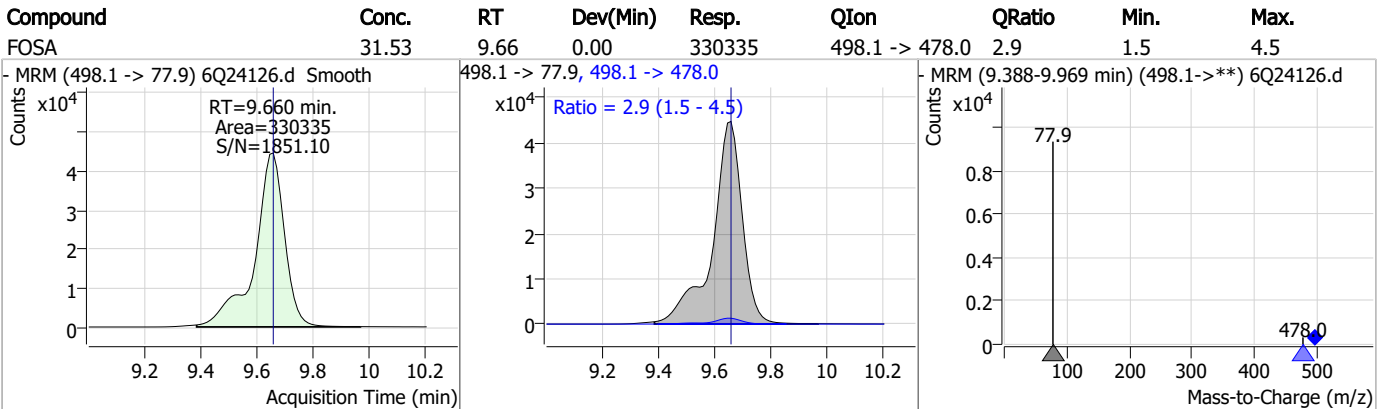
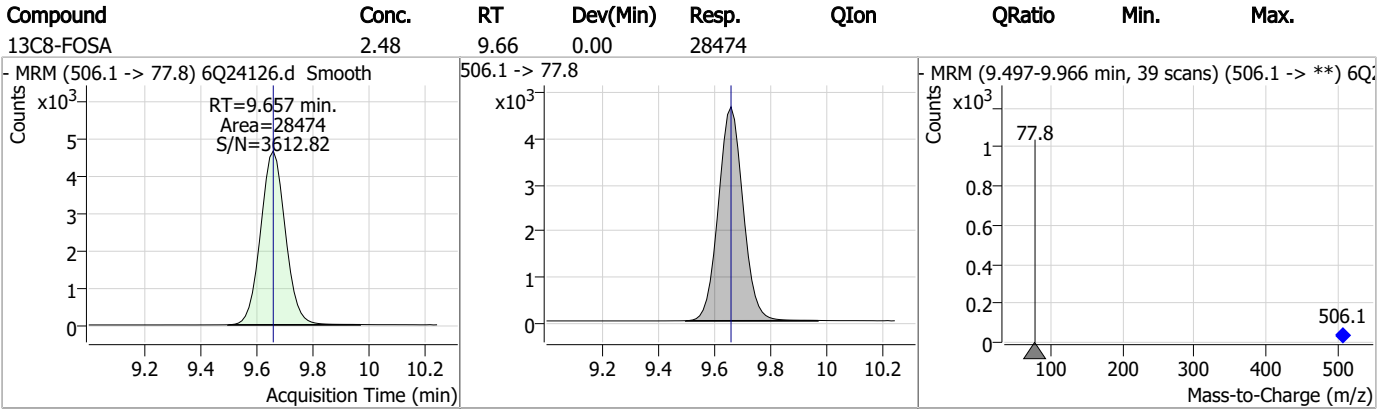
Perfluorinated Compounds by LC/MS/MS



7.6.6

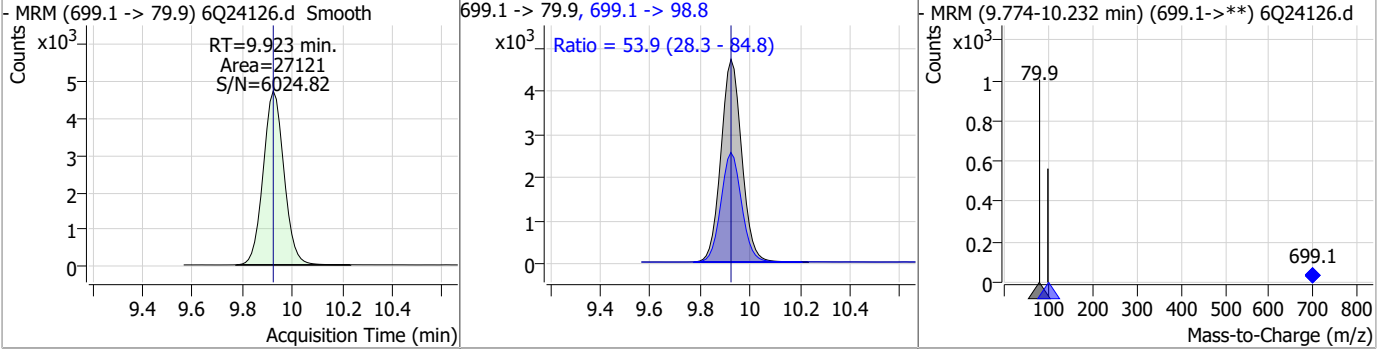
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Perfluorinated Compounds by LC/MS/MS

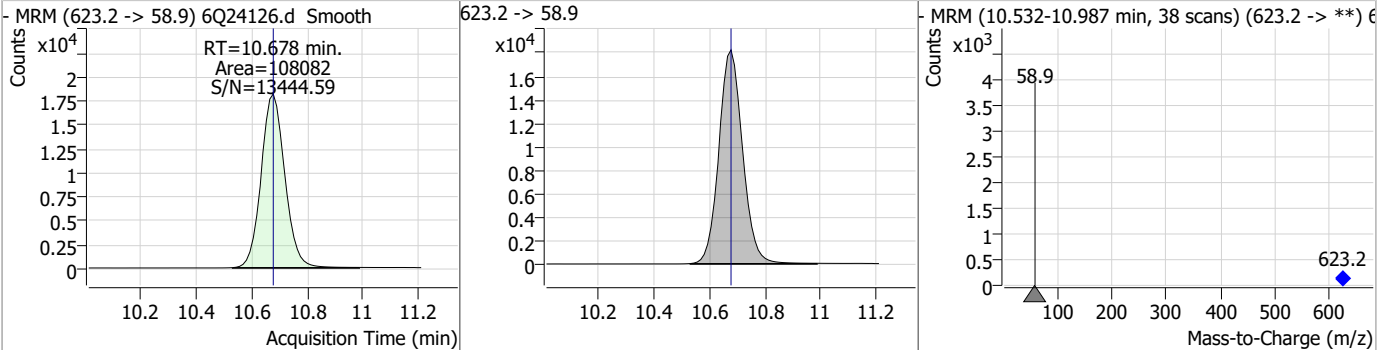


Perfluorinated Compounds by LC/MS/MS

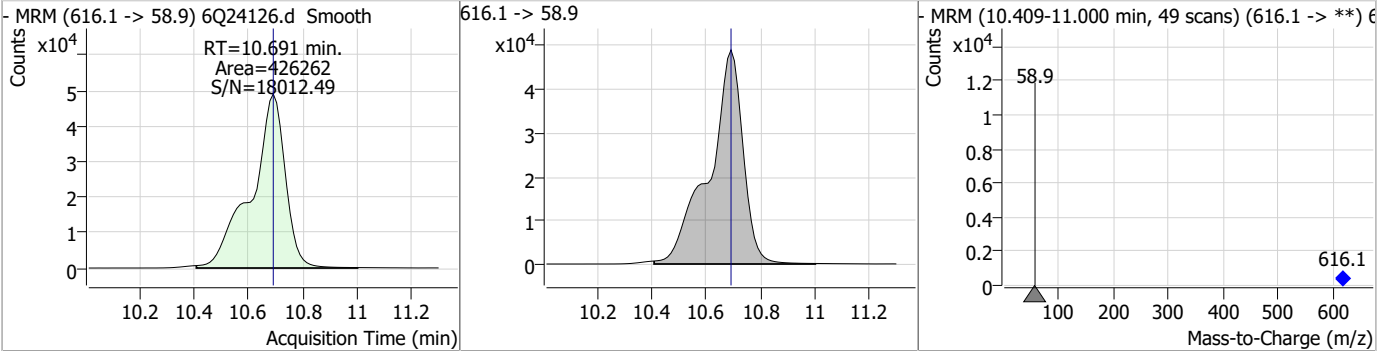
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	12.71	9.92	0.00	27121	699.1 -> 98.8	53.9	28.3	84.8



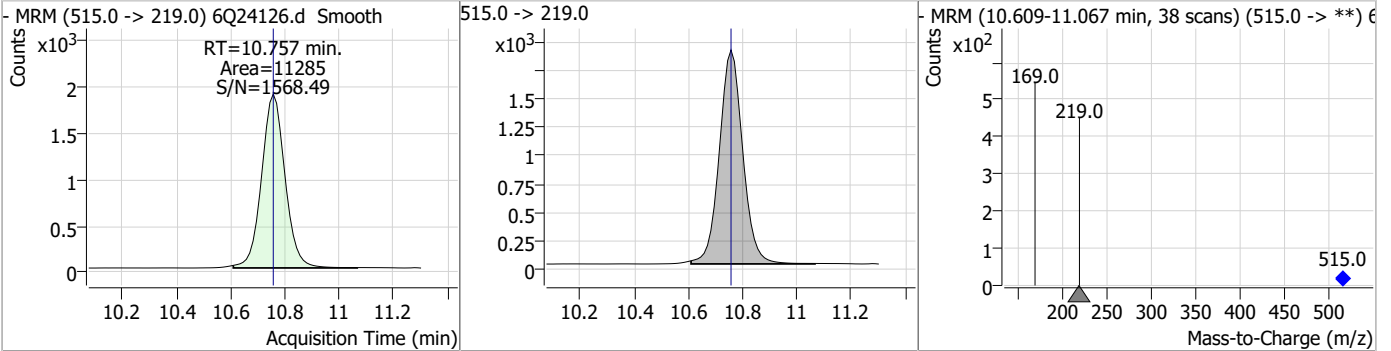
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.53	10.68	0.00	108082				



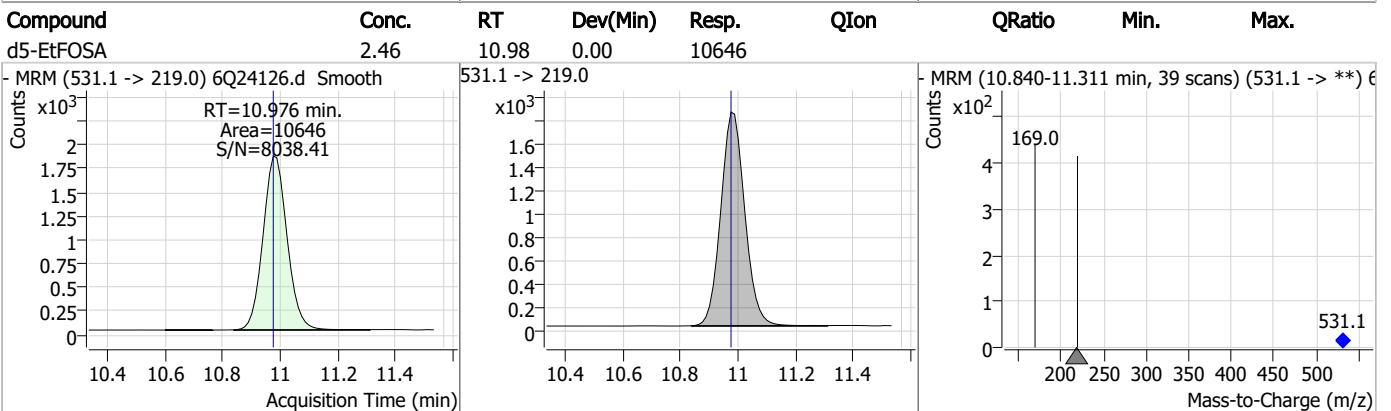
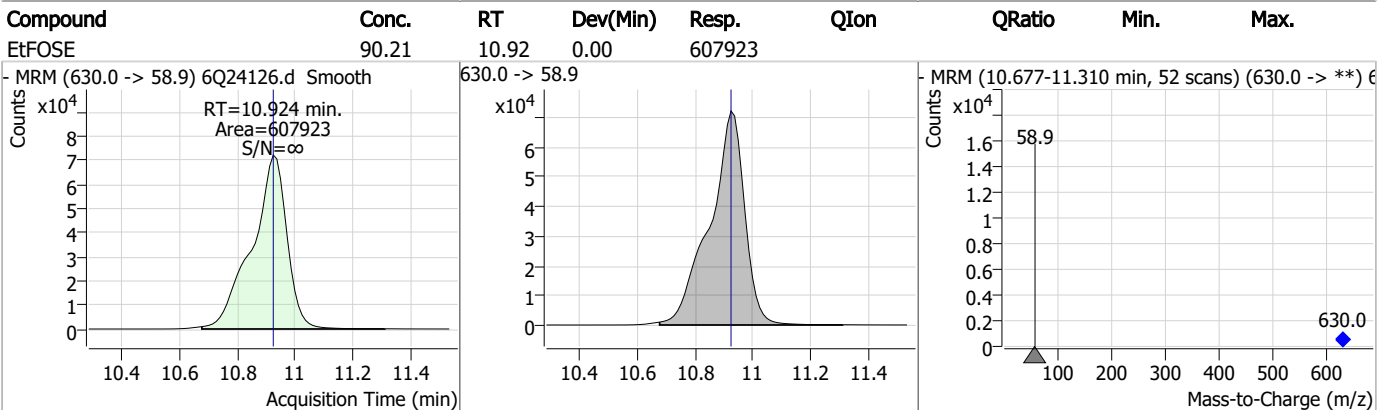
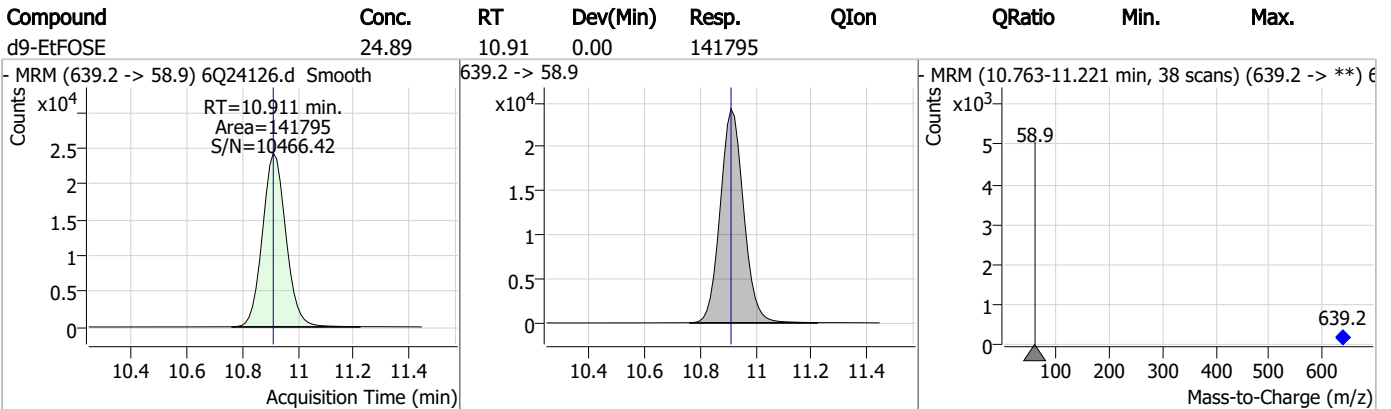
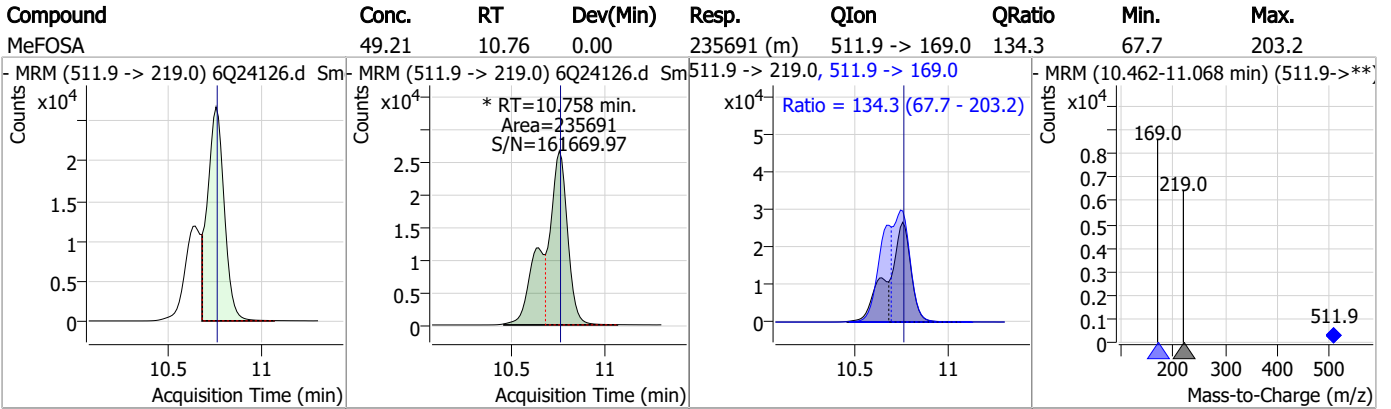
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	91.20	10.69	0.00	426262				



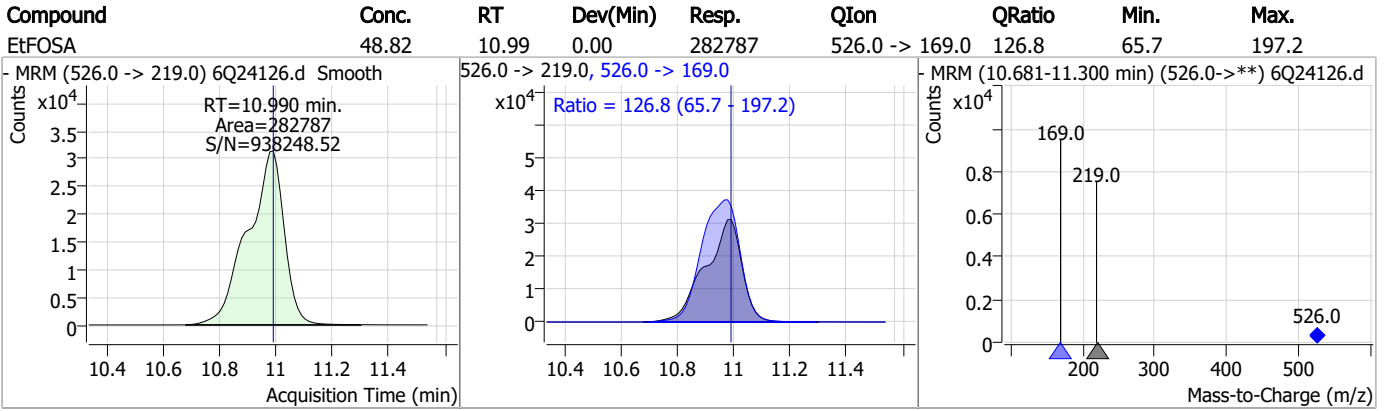
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.43	10.76	0.00	11285				



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: S6Q347-RT Method: EPA DRAFT 1633
Lab FileID: 6Q24126.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 20:17 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.20	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorononanoic acid	375-95-1		7.59	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

7.6.6.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Natasha Gumtie
 09/20/23 10:37

Perfluorinated Compounds by LC/MS/MS

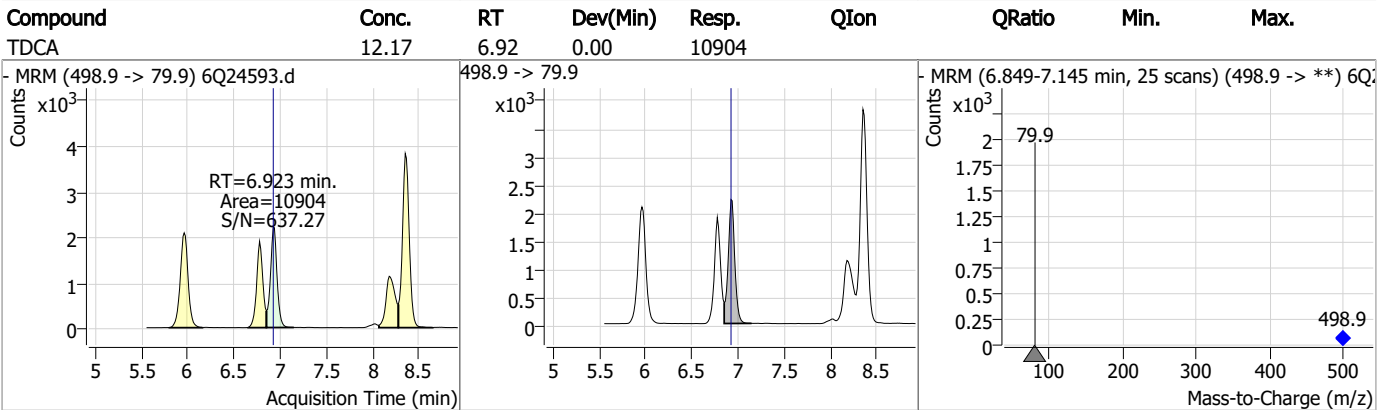
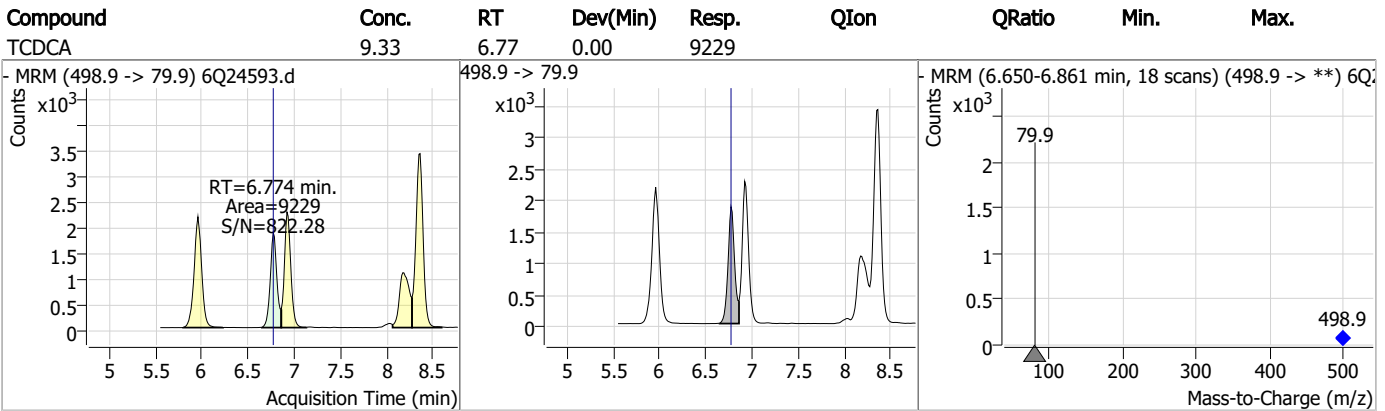
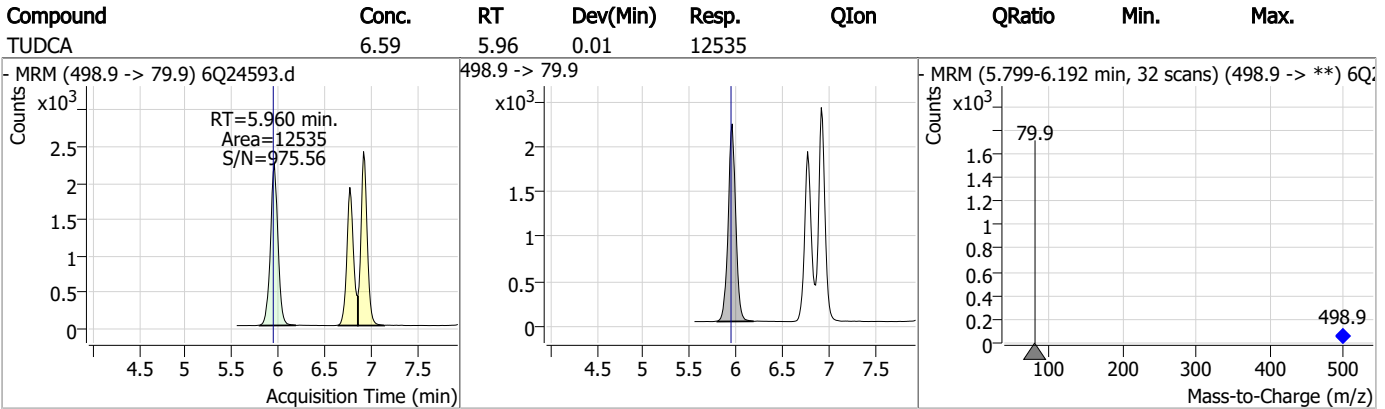
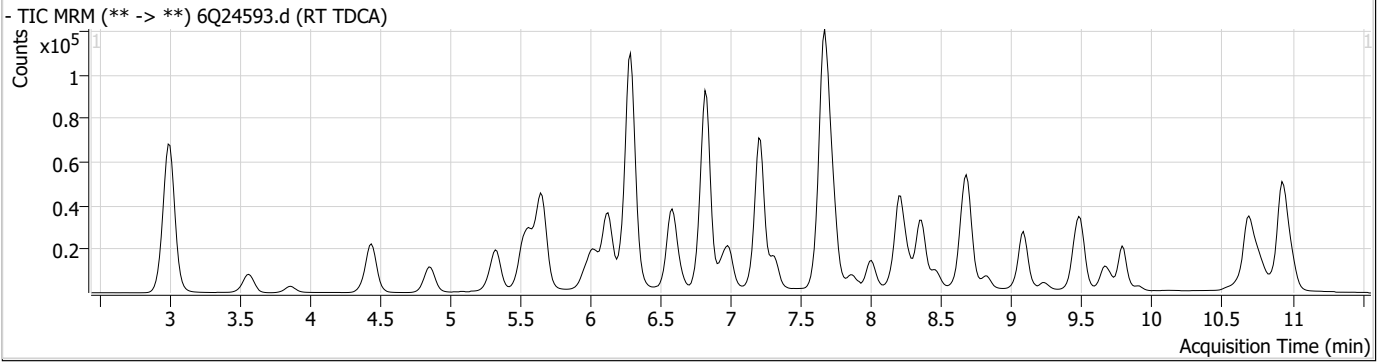
Data File : 6Q24593.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 11:26:37 AM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q353 TDCA.batch.bin
 Sample Information : OP98555,S6Q353,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.361	507.1 -> 79.9	21447	2.50	µg/L	-0.012	
13C4-PFOS	8.361	502.8 -> 79.9	28142	2.50	µg/L	-0.012	
System Monitoring Compounds							
13C8-PFOS	8.361	507.1 -> 79.9	21447	1.93	µg/L	-0.012	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 77.3%				
Target Compounds							
PFOS	8.362	498.9 -> 79.9 498.9 -> 98.8	25009 12858	3.41	µg/L m		90
TCDCa	6.774	498.9 -> 79.9	9229	9.33	ng/ml		100
TDCA	6.923	498.9 -> 79.9	10904	12.17	ng/ml		100
TUDCA	5.960	498.9 -> 79.9	12535	6.59	ng/ml		100

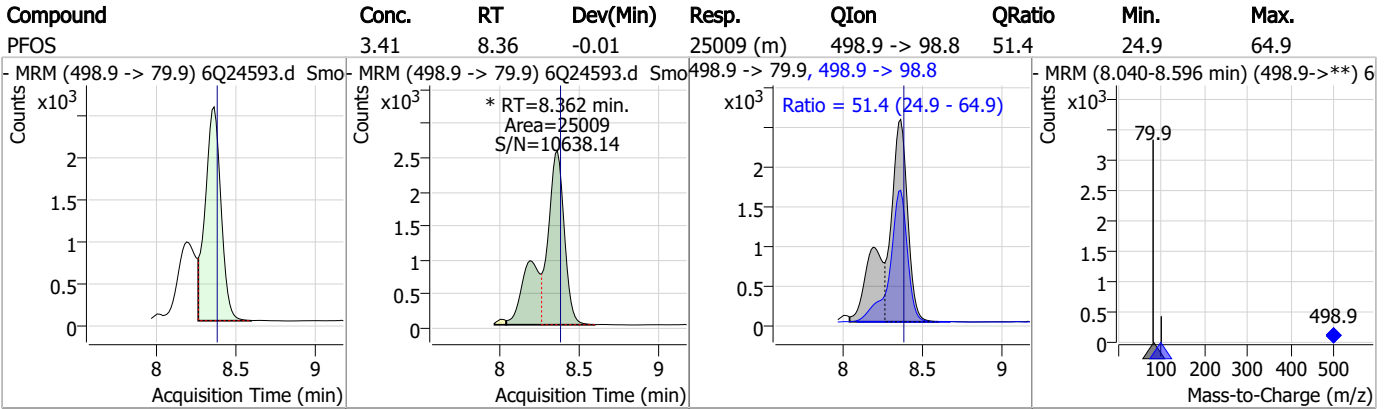
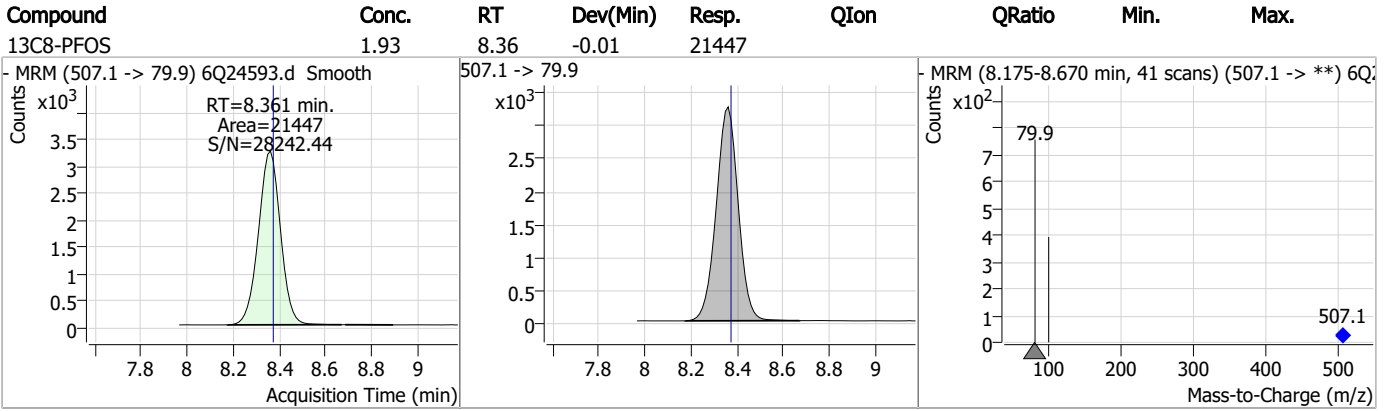
= Qualifier out of range, m = manually integrated, + = Area summed

7.6.7
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.7
7



Manual Integration Approval Summary

Sample Number: S6Q353-RT Method: EPA DRAFT 1633
Lab FileID: 6Q24593.D Analyst approved: 09/20/23 09:35 Martha Valls
Injection Time: 09/18/23 11:26 Supervisor approved: 09/20/23 10:37 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak

7.6.7.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24594.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 11:40:56 AM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP98555,S6Q353,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	202523	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	32633	5.00 µg/L	0.012
M5-PFHxA	5.641	318.0 -> 273.0	74358	2.50 µg/L	0.000
M4-PFHpA	6.581	367.1 -> 322.0	61886	2.50 µg/L	0.012
M8-PFOA	7.198	421.1 -> 376.0	80959	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	31925	1.25 µg/L	-0.012
M6-PFDA	8.198	519.1 -> 474.1	34227	1.25 µg/L	-0.012
M7-PFUnDA	8.651	570.0 -> 525.1	41143	1.25 µg/L	-0.012
M2-PFDoDA	9.080	615.1 -> 570.0	36395	1.25 µg/L	-0.014
M2-PFTeDA	9.784	715.2 -> 670.0	14343	1.25 µg/L	-0.012
M8-FOSA	9.670	506.1 -> 77.8	30286	2.50 µg/L	0.012
M3-PFBS	5.571	302.1 -> 79.9	26283	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	14043	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	13236	2.50 µg/L	-0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2579	5.00 µg/L	0.012
M2-6:2FTS	6.974	429.1 -> 80.9	3642	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	3480	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	21955	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	45294	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	19299	5.00 µg/L	-0.012
M7-MeFOSE	10.690	623.2 -> 58.9	95916	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	130628	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	9738	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	10556	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	18449	2.50 µg/L	-0.012
13C3-PFBA	2.989	216.0 -> 172.0	79635	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	10063	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	92791	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	30461	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	37784	1.25 µg/L	-0.012
13C2-PFHxA	5.654	315.1 -> 270.0	59079	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2579	4.55 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.1%		
13C2-6:2FTS	6.974	429.1 -> 80.9	3642	4.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.7%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3480	4.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 80.9%		
13C2-PFDoDA	9.080	615.1 -> 570.0	36395	1.11 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.1%		
13C2-PFTeDA	9.784	715.2 -> 670.0	14343	1.18 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.5%		
13C3-PFBS	5.571	302.1 -> 79.9	26283	2.82 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.0%		
13C3-PFHxS	7.313	402.1 -> 79.9	14043	2.54 µg/L	0.000

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 = 101.6%	
13C4-PFBA	2.985	216.8 -> 171.9	202523	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.581	367.1 -> 322.0	61886	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C5-PFHxA	5.641	318.0 -> 273.0	74358	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.3%	
13C5-PFPeA	4.434	268.3 -> 223.0	32633	4.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 82.0%	
13C6-PFDA	8.198	519.1 -> 474.1	34227	1.29 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C7-PFUnDA	8.651	570.0 -> 525.1	41143	1.16 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.6%	
13C8-FOSA	9.670	506.1 -> 77.8	30286	2.31 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C8-PFOA	7.198	421.1 -> 376.0	80959	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C8-PFOS	8.348	507.1 -> 79.9	13236	2.28 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.1%	
13C9-PFNA	7.717	472.1 -> 427.0	31925	1.35 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.2%	
d3-MeFOSAA	8.256	573.2 -> 419.0	21955	4.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 85.1%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	45294	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
d3-MeFOSA	10.769	515.0 -> 219.0	10556	1.98 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 79.3%	
d5-EtFOSAA	8.452	589.2 -> 419.0	19299	3.89 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 77.8%	
d7-MeFOSE	10.690	623.2 -> 58.9	95916	19.77 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.1%	
d9-EtFOSE	10.923	639.2 -> 58.9	130628	20.01 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.0%	
d5-EtFOSA	10.989	531.1 -> 219.0	9738	1.96 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.5%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	229658	53.85 µg/L	95
		327.1 -> 80.9	91973		
6:2FTS	6.974	427.1 -> 407.0	173474	53.83 µg/L	99
		427.1 -> 80.9	70131		
8:2FTS	7.987	527.1 -> 507.0	123261	52.51 µg/L	99
		527.1 -> 80.8	47335		
EtFOSAA	8.452	584.2 -> 419.1	39523	14.50 µg/L	92
		584.2 -> 526.0	28471		
FOSA	9.672	498.1 -> 77.9	320996	28.80 µg/L	100
		498.1 -> 478.0	9124		
MeFOSAA	8.245	570.1 -> 419.0	70292	13.48 µg/L	95
		570.1 -> 483.0	16015		
PFBA	2.993	212.8 -> 168.9	396234	59.20 µg/L	100
PFBS	5.572	298.7 -> 79.9	153382	11.90 µg/L	97
		298.7 -> 98.8	55238		
PFDA	8.198	512.9 -> 469.0	405206	13.00 µg/L	99
		512.9 -> 219.0	67442		
PFDoDA	9.080	613.1 -> 569.0	395280	14.63 µg/L	100
		613.1 -> 319.0	45225		
PFDS	9.233	599.0 -> 79.9	52197	13.54 µg/L	93

7.6.8
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	22574			
PFHpA	6.569	363.1 -> 319.0	471707	14.40	µg/L	99
		363.1 -> 169.0	66997			
PFHpS	7.856	449.0 -> 79.9	84739	13.23	µg/L	97
		449.0 -> 98.9	41188			
PFHxA	5.644	313.0 -> 269.0	357870	13.22	µg/L	99
		313.0 -> 118.9	16402			
PFHxS	7.314	398.7 -> 79.9	112560	12.78	µg/L	m 100
		398.7 -> 98.9	54614			
PFNA	7.593	463.0 -> 419.0	669598	27.81	µg/L	m 92
		463.0 -> 219.0	171521			
PFNS	8.814	548.8 -> 79.9	87109	13.94	µg/L	93
		548.8 -> 98.9	43900			
PFOA	7.200	413.0 -> 369.0	1160454	27.81	µg/L	m 99
		413.0 -> 169.0	210657			
PFOS	8.350	498.9 -> 79.9	95754	13.06	µg/L	m 97
		498.9 -> 98.8	43738			
PFPeA	4.436	263.0 -> 219.0	425926	29.30	µg/L	100
PFPeS	6.633	349.1 -> 79.9	96645	12.65	µg/L	97
		349.1 -> 98.9	43511			
PFTeDA	9.785	713.1 -> 669.0	291365	14.10	µg/L	98
		713.1 -> 168.9	20851			
PFTrDA	9.452	663.0 -> 619.0	415732	13.54	µg/L	97
		663.0 -> 168.9	31042			
PFUnDA	8.652	563.1 -> 519.0	306698	13.01	µg/L	97
		563.1 -> 269.1	49241			
11CI-PF3OUdS	9.491	630.9 -> 450.9	394557	23.88	µg/L	96
		632.9 -> 452.9	123076			
9CI-PF3ONS	8.690	530.8 -> 351.0	691091	24.40	µg/L	98
		532.8 -> 353.0	203367			
ADONA	6.817	376.9 -> 250.9	1654735	25.23	µg/L	99
		376.9 -> 84.8	463199			
HFPO-DA	6.020	284.9 -> 168.9	113014	26.37	µg/L	96
		284.9 -> 184.9	15189			
3:3FTCA	3.858	241.0 -> 177.0	78033	67.41	µg/L	99
		241.0 -> 117.0	7751			
5:3FTCA	6.283	341.0 -> 237.1	1701756	370.09	µg/L	94
		341.0 -> 217.0	1121552			
7:3FTCA	7.657	441.0 -> 316.9	934533	343.90	µg/L	91
		441.0 -> 336.9	1978158			
EtFOSA	10.990	526.0 -> 219.0	244165	46.08	µg/L	100
		526.0 -> 169.0	322156			
EtFOSE	10.937	630.0 -> 58.9	573010	92.30	µg/L	100
MeFOSA	10.771	511.9 -> 219.0	222724	49.72	µg/L	98
		511.9 -> 169.0	306844			
MeFOSE	10.703	616.1 -> 58.9	394547	95.13	µg/L	100
PFDoDS	9.910	699.1 -> 79.9	26141	12.37	µg/L	97
		699.1 -> 98.8	14170			
NFDHA	5.524	295.0 -> 201.0	84869	27.06	µg/L	95
		295.0 -> 84.9	21926			
PFMBA	4.850	279.0 -> 85.1	325226	30.69	µg/L	100
PFMPA	3.563	229.0 -> 84.9	238300	31.37	µg/L	100
PFEESA	6.112	314.8 -> 134.9	854408	25.26	µg/L	100
		314.8 -> 82.9	29714			

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

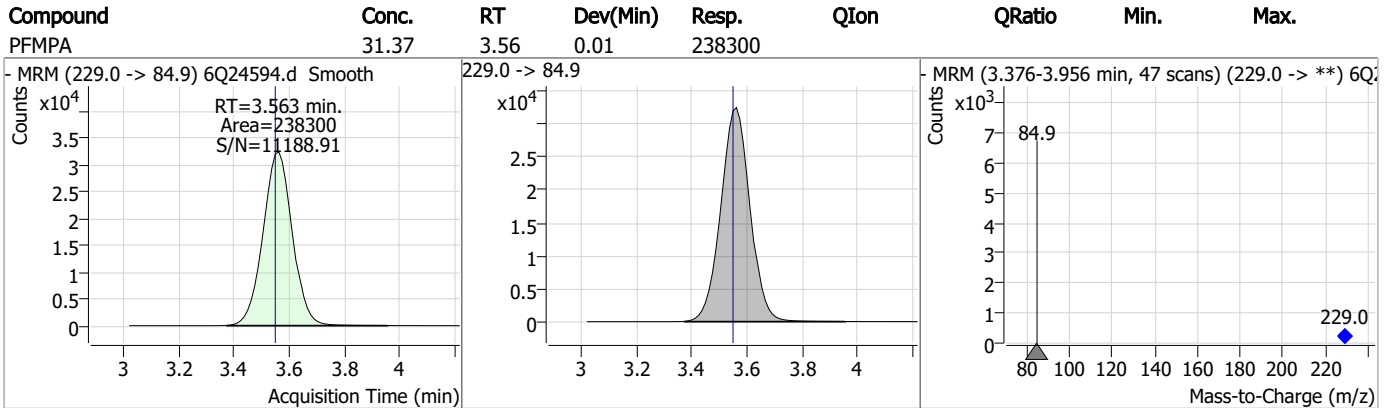
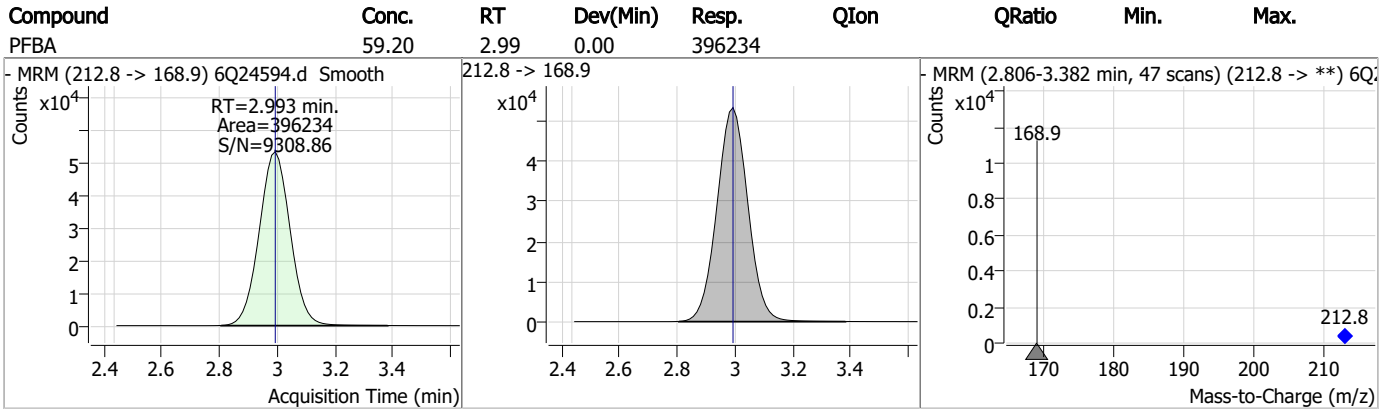
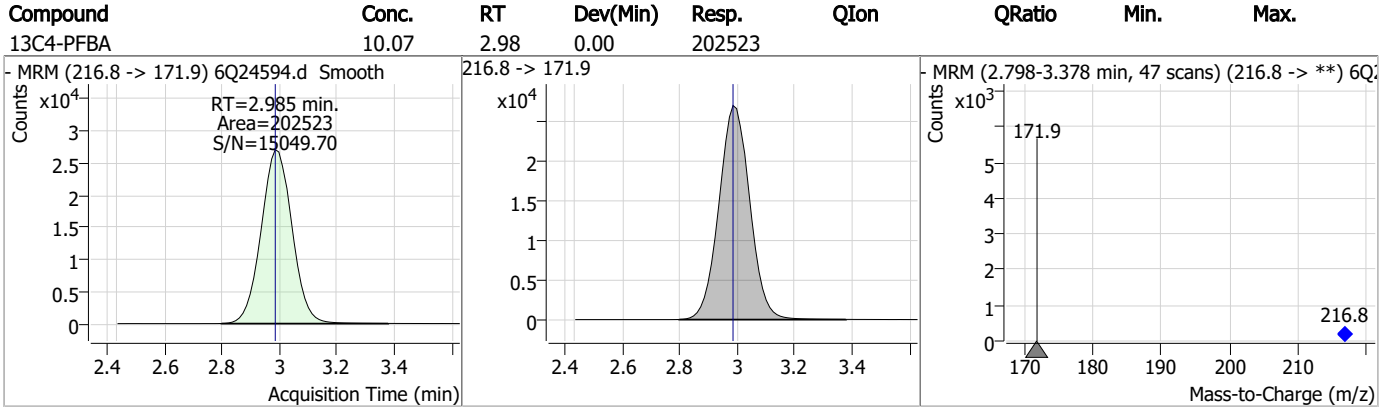
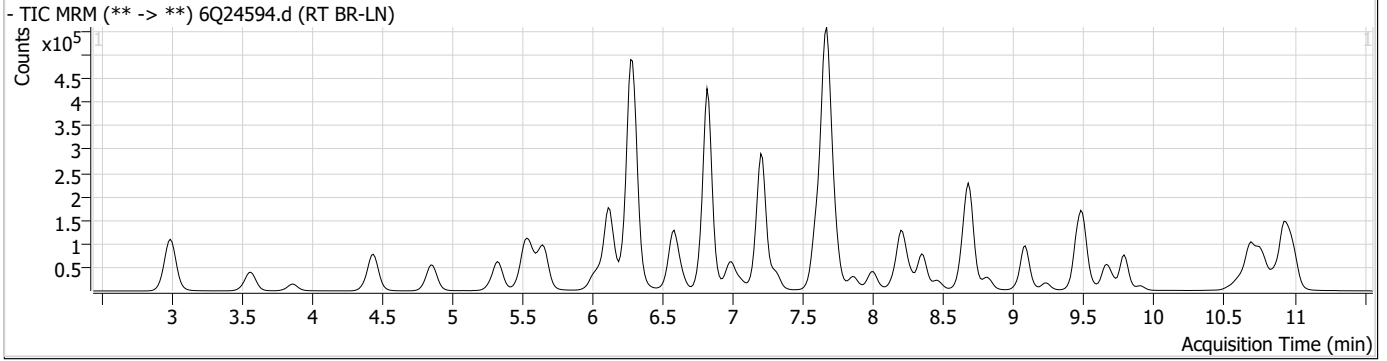
Perfluorinated Compounds by LC/MS/MS

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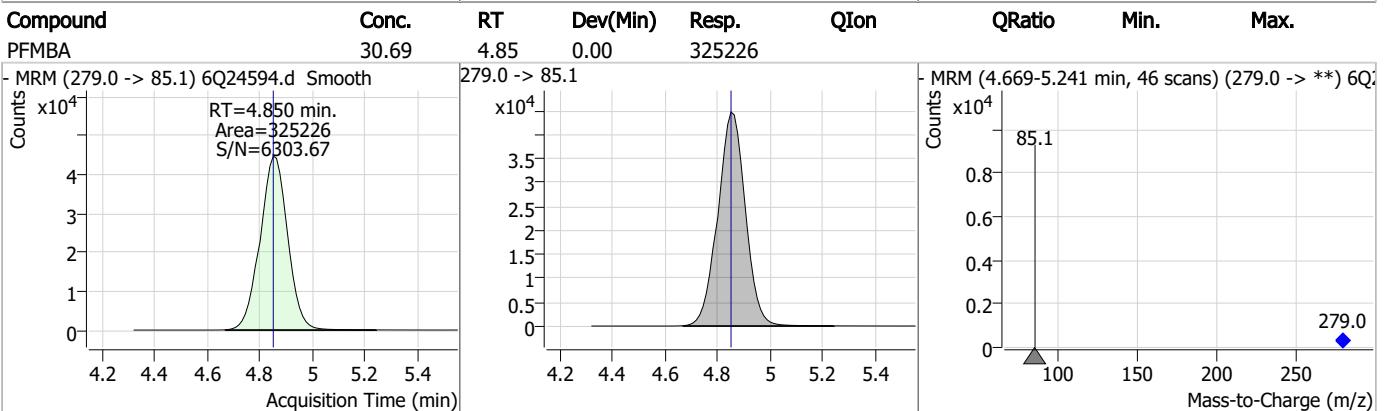
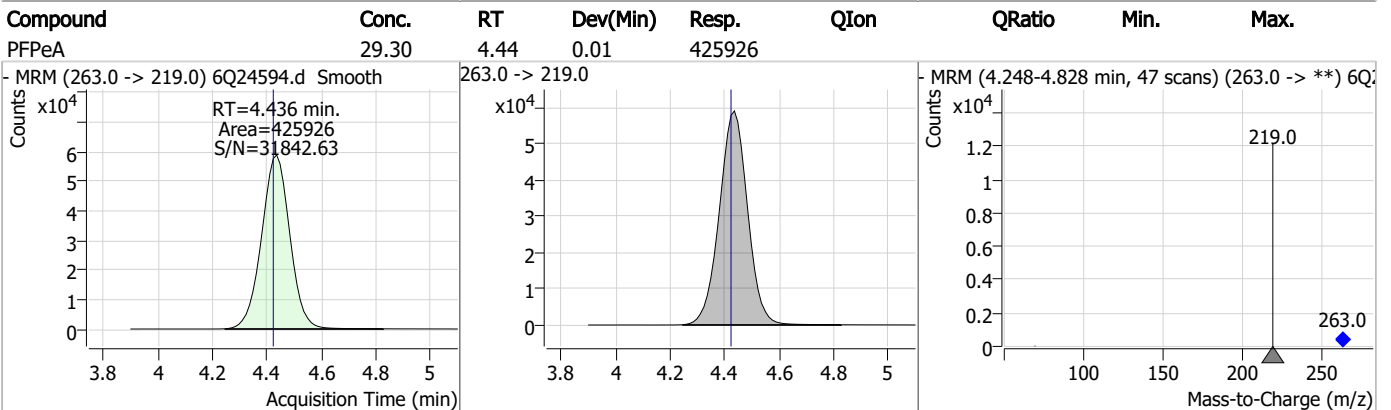
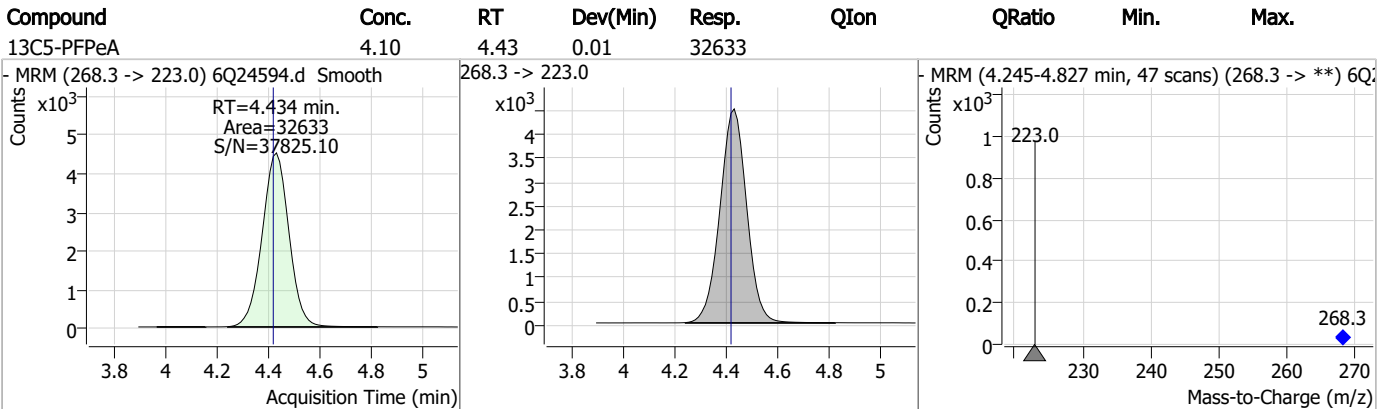
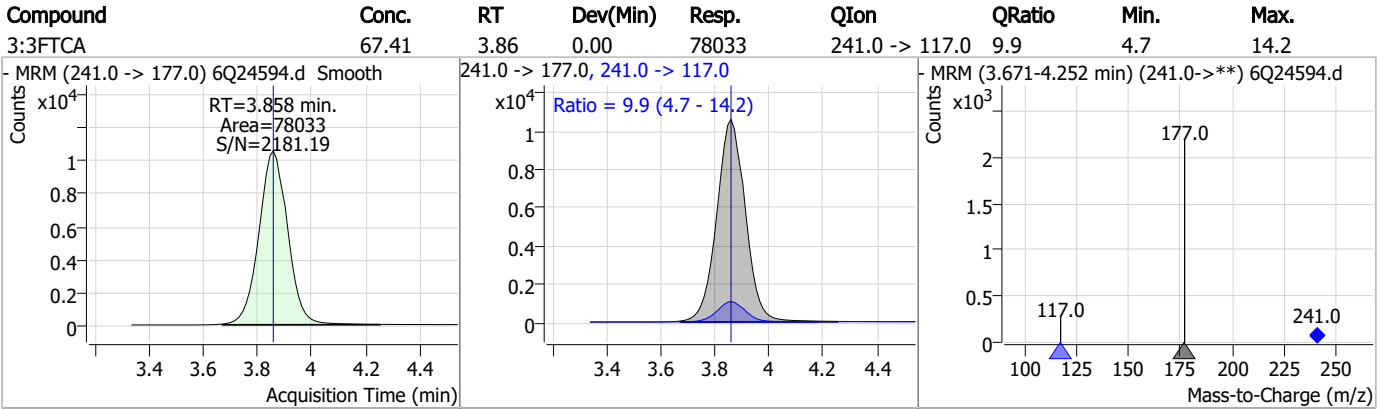
7.6.8

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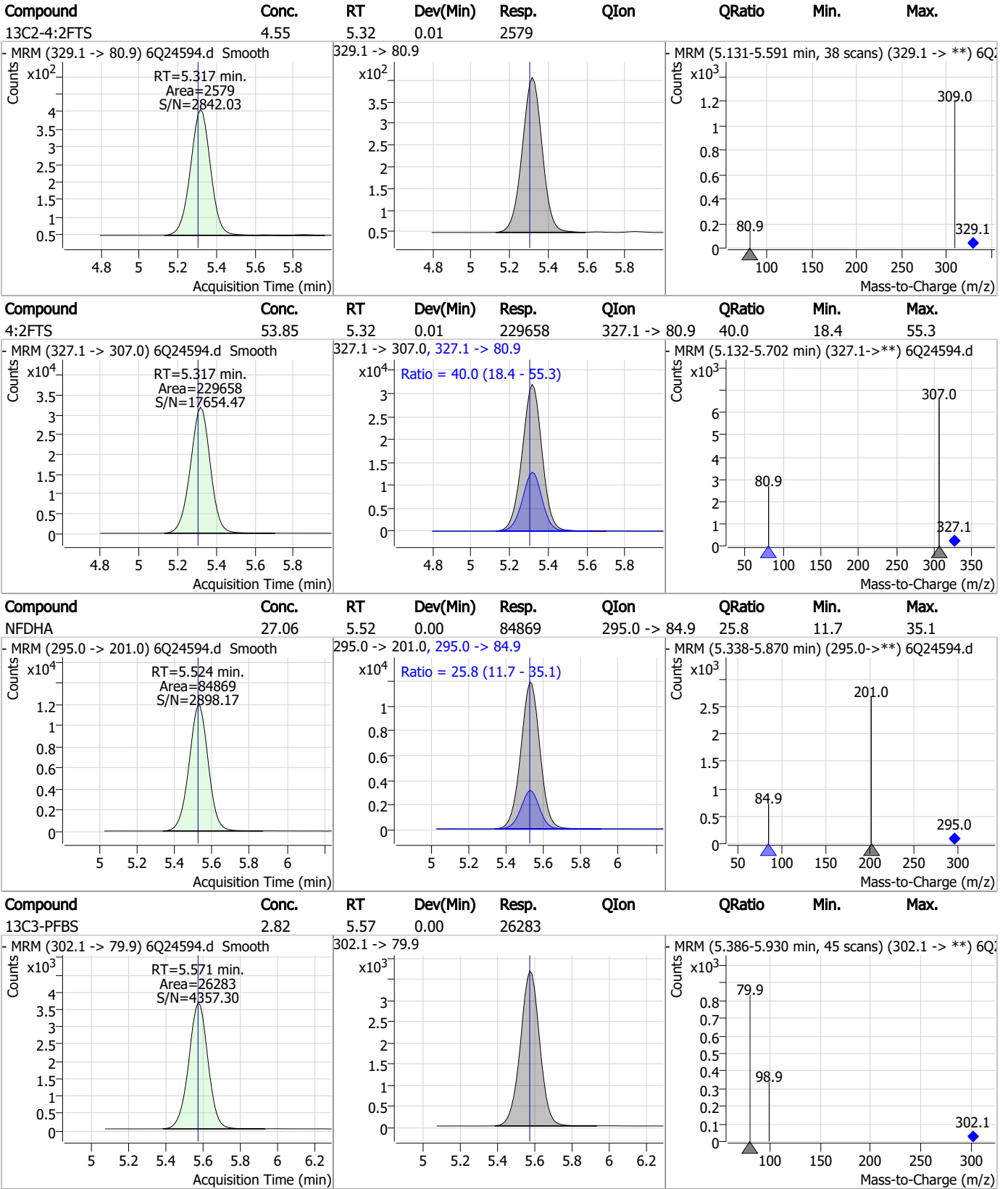
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



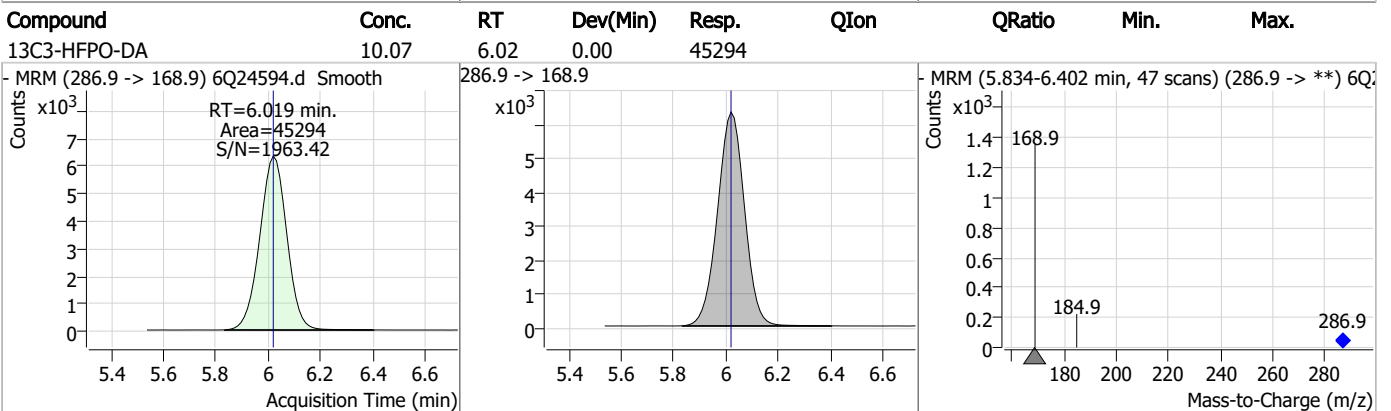
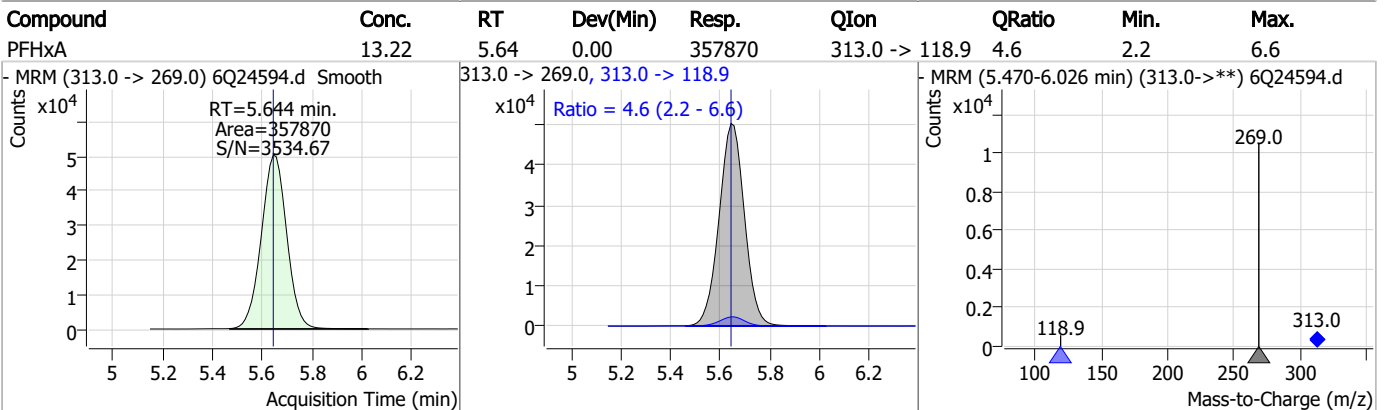
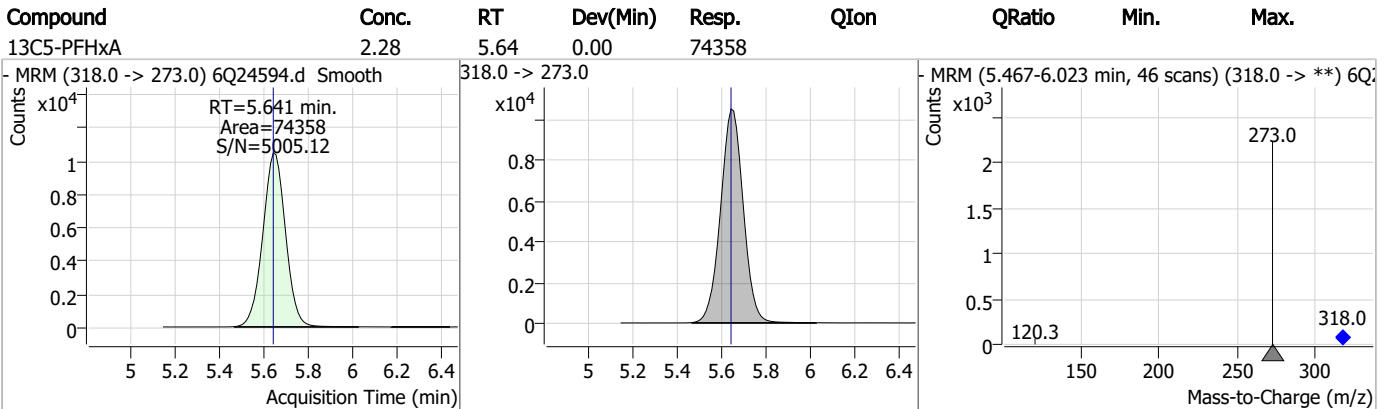
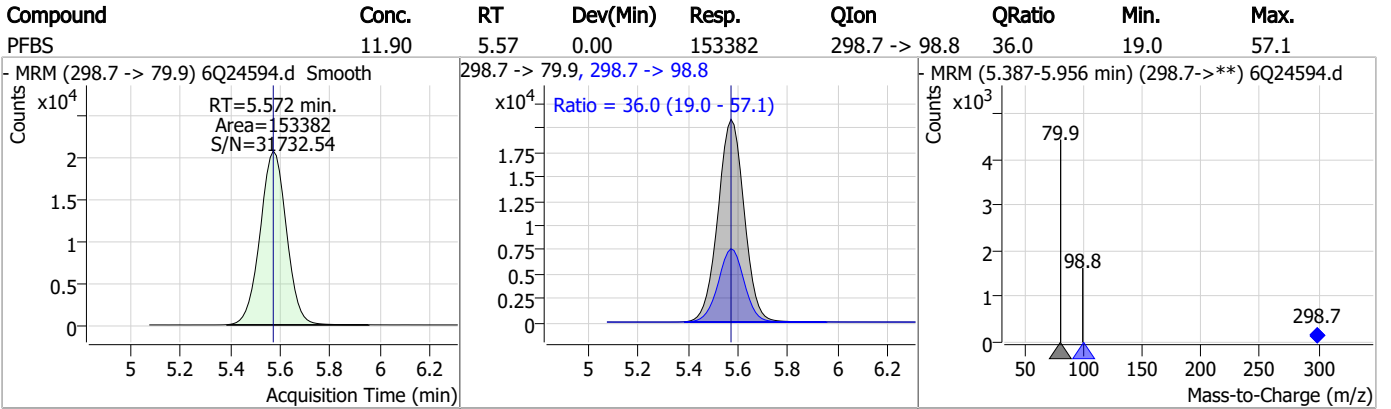
Perfluorinated Compounds by LC/MS/MS



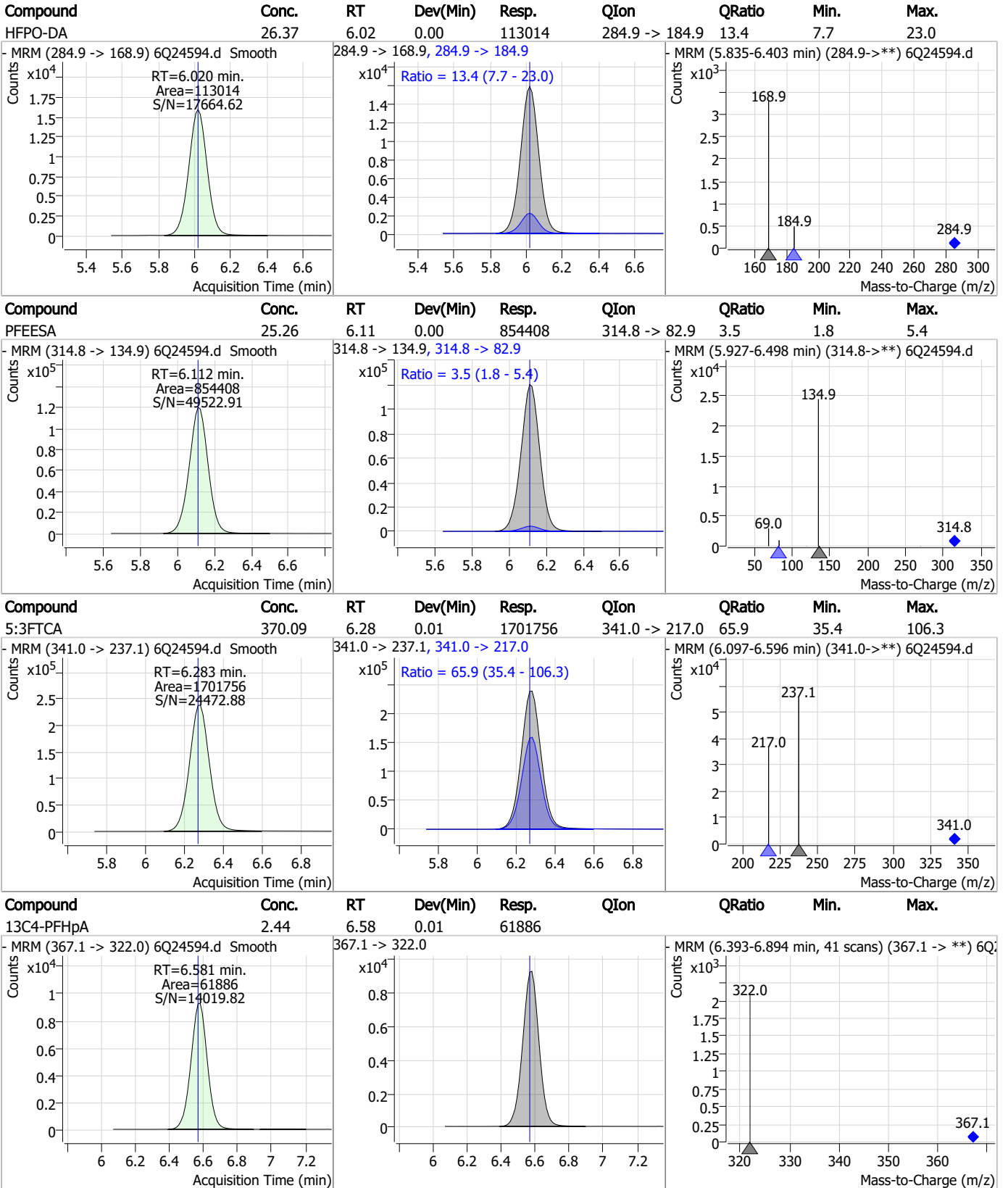
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Perfluorinated Compounds by LC/MS/MS



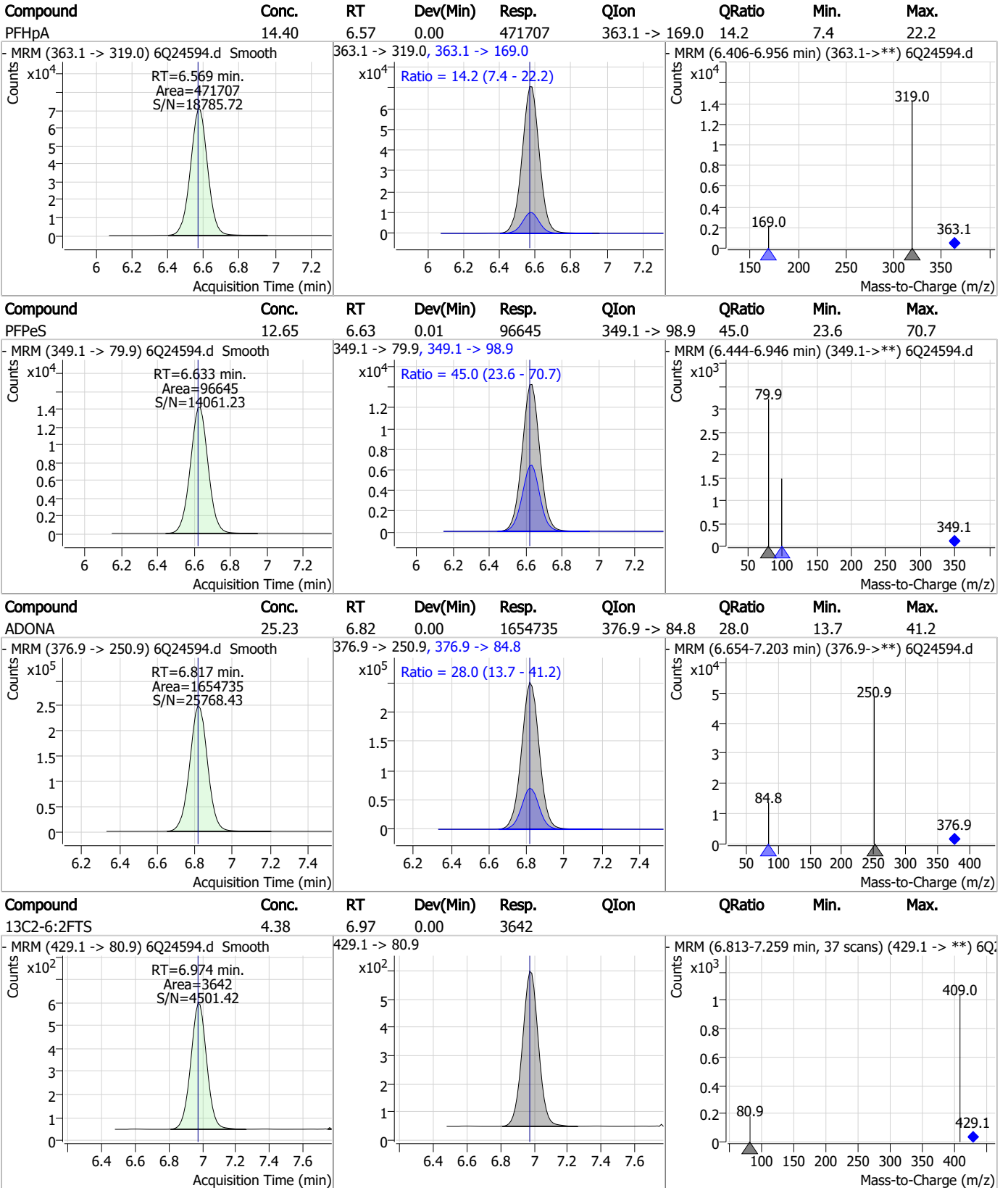
Perfluorinated Compounds by LC/MS/MS



7.6.8

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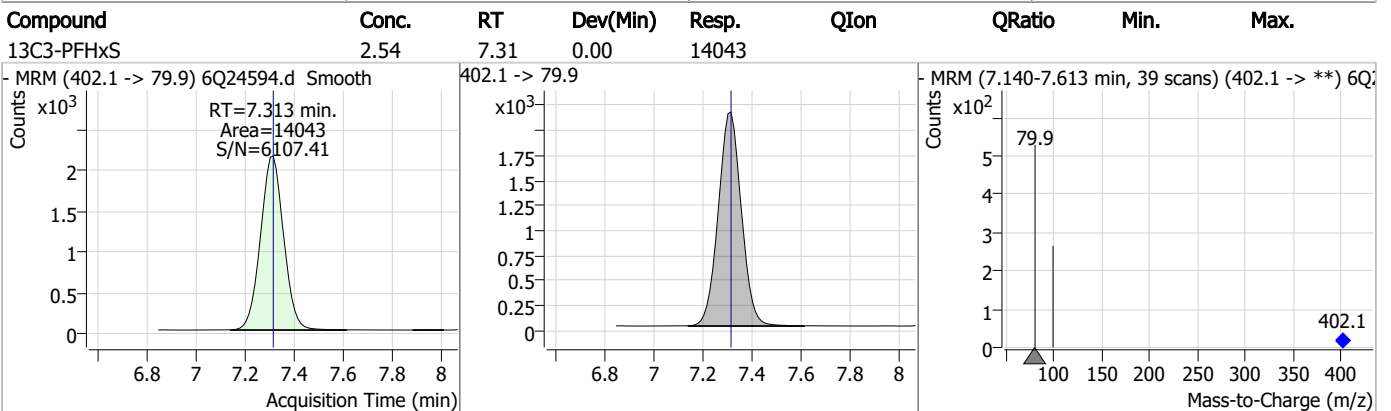
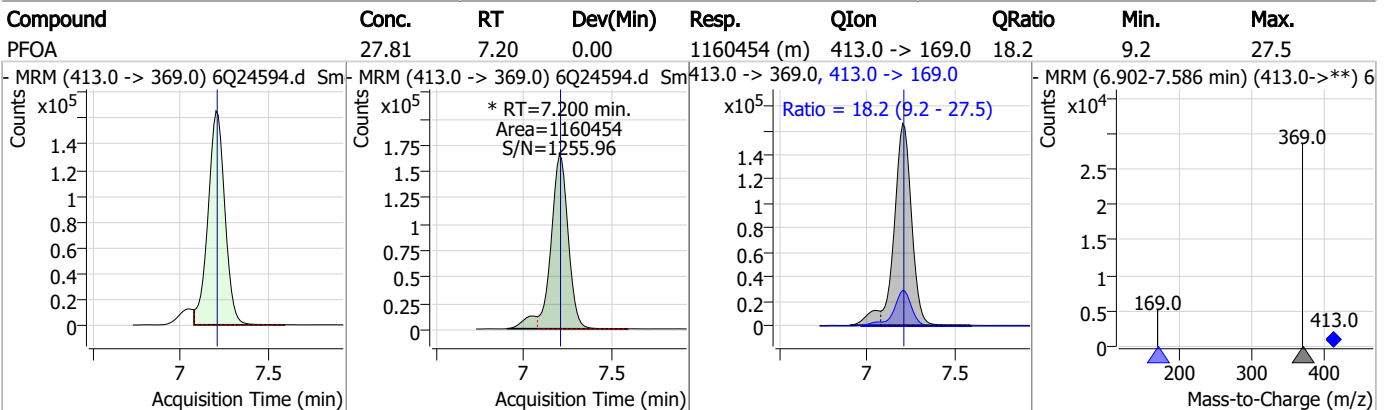
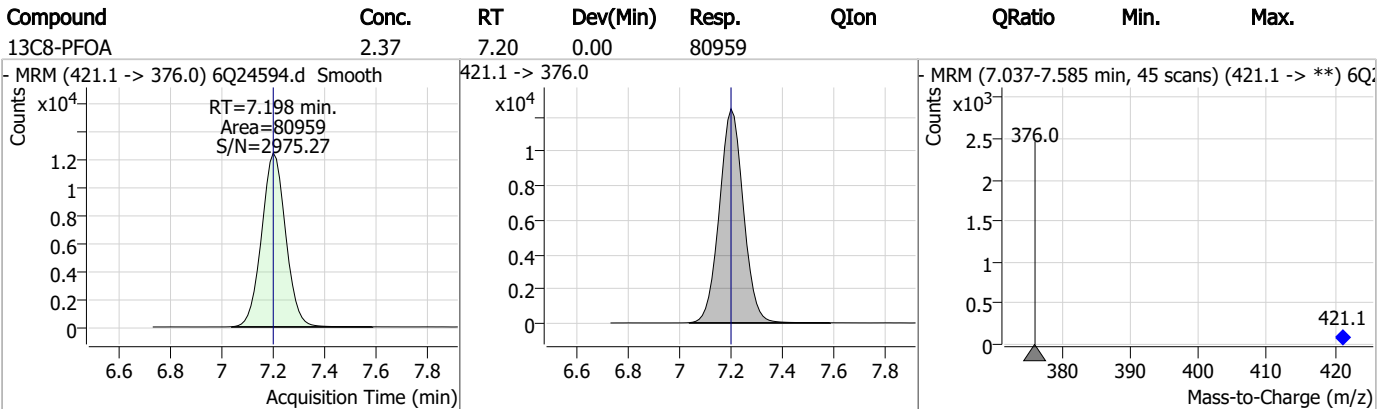
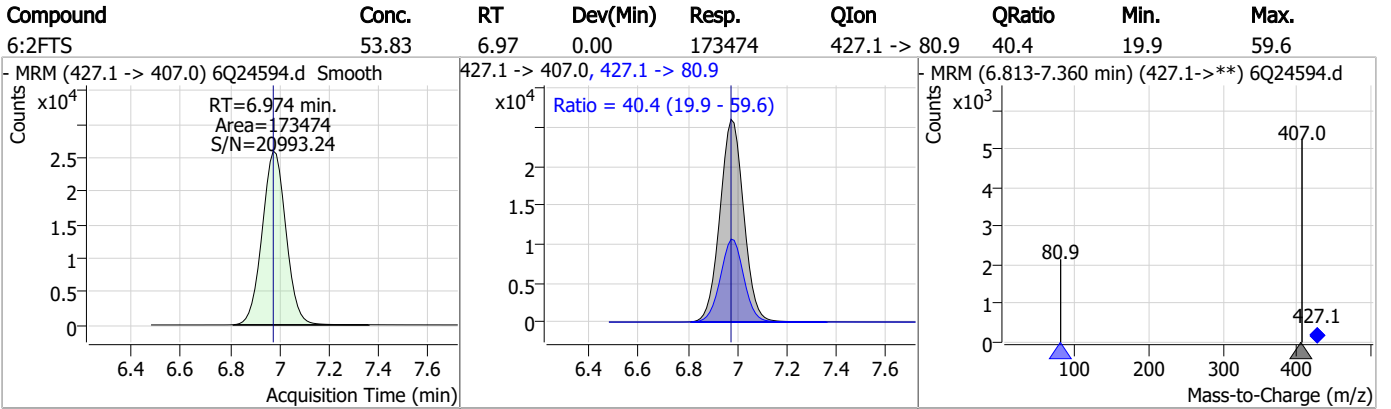
Perfluorinated Compounds by LC/MS/MS



7.6.8

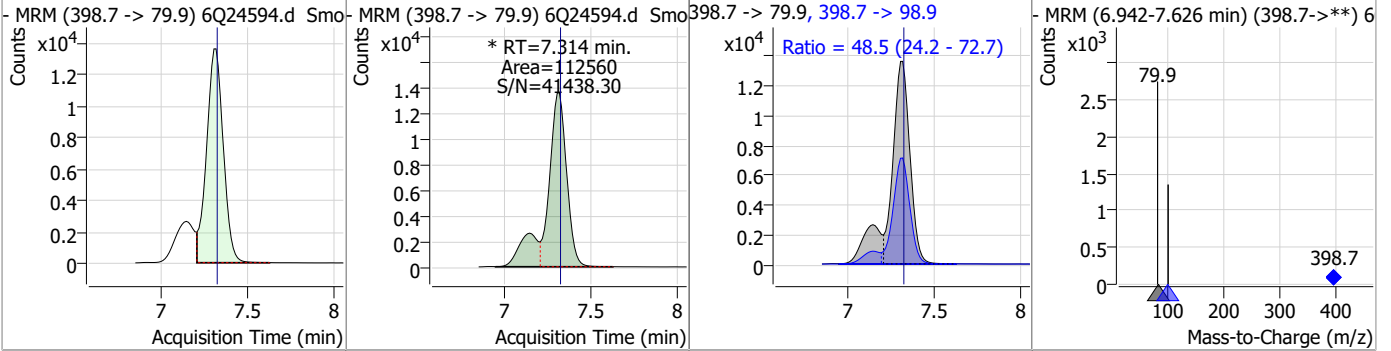
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Perfluorinated Compounds by LC/MS/MS

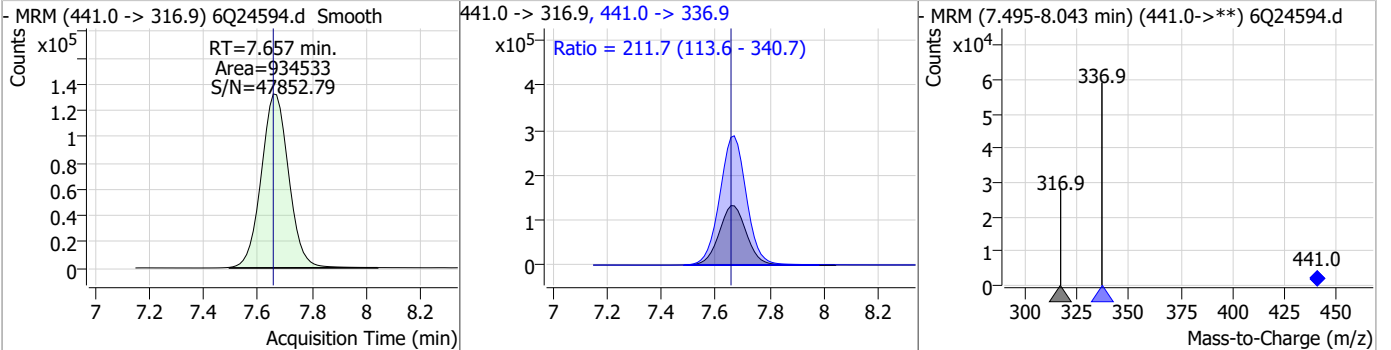


Perfluorinated Compounds by LC/MS/MS

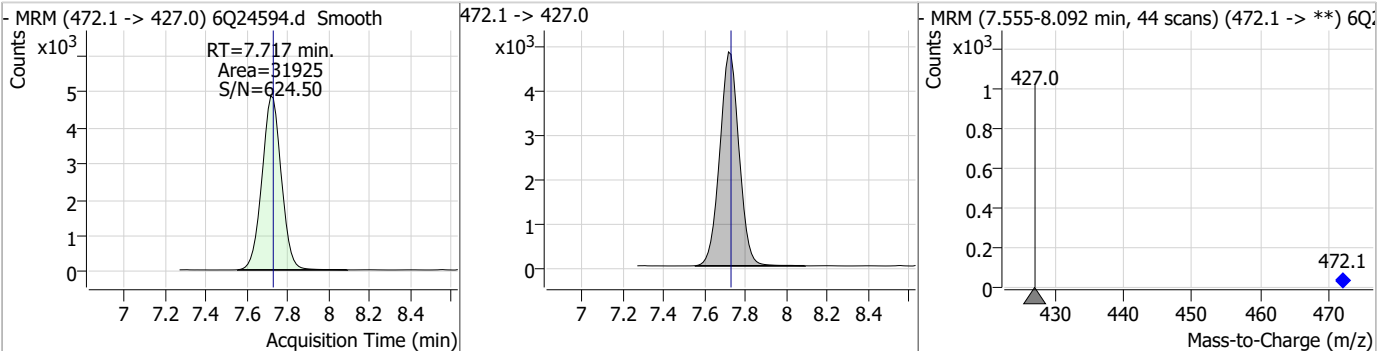
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	12.78	7.31	0.00	112560 (m)	398.7 -> 98.9	48.5	24.2	72.7



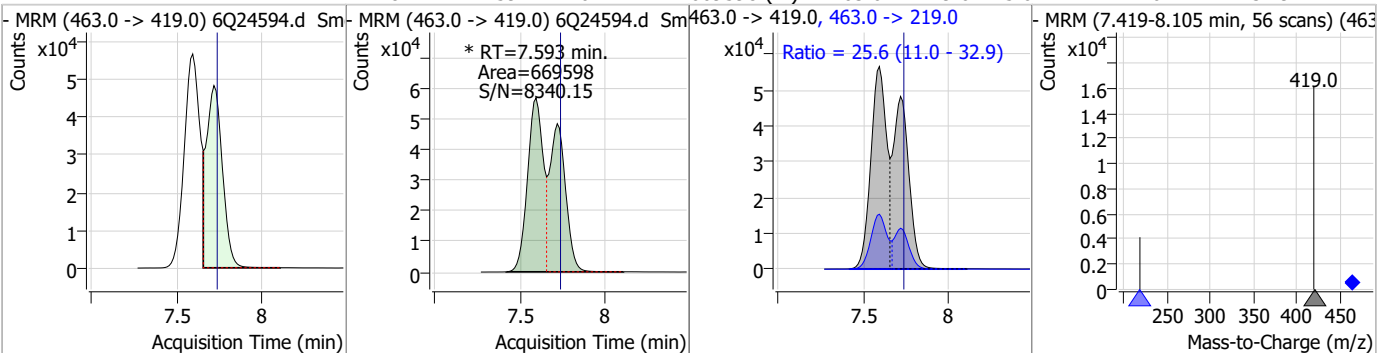
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	343.90	7.66	0.00	934533	441.0 -> 336.9	211.7	113.6	340.7



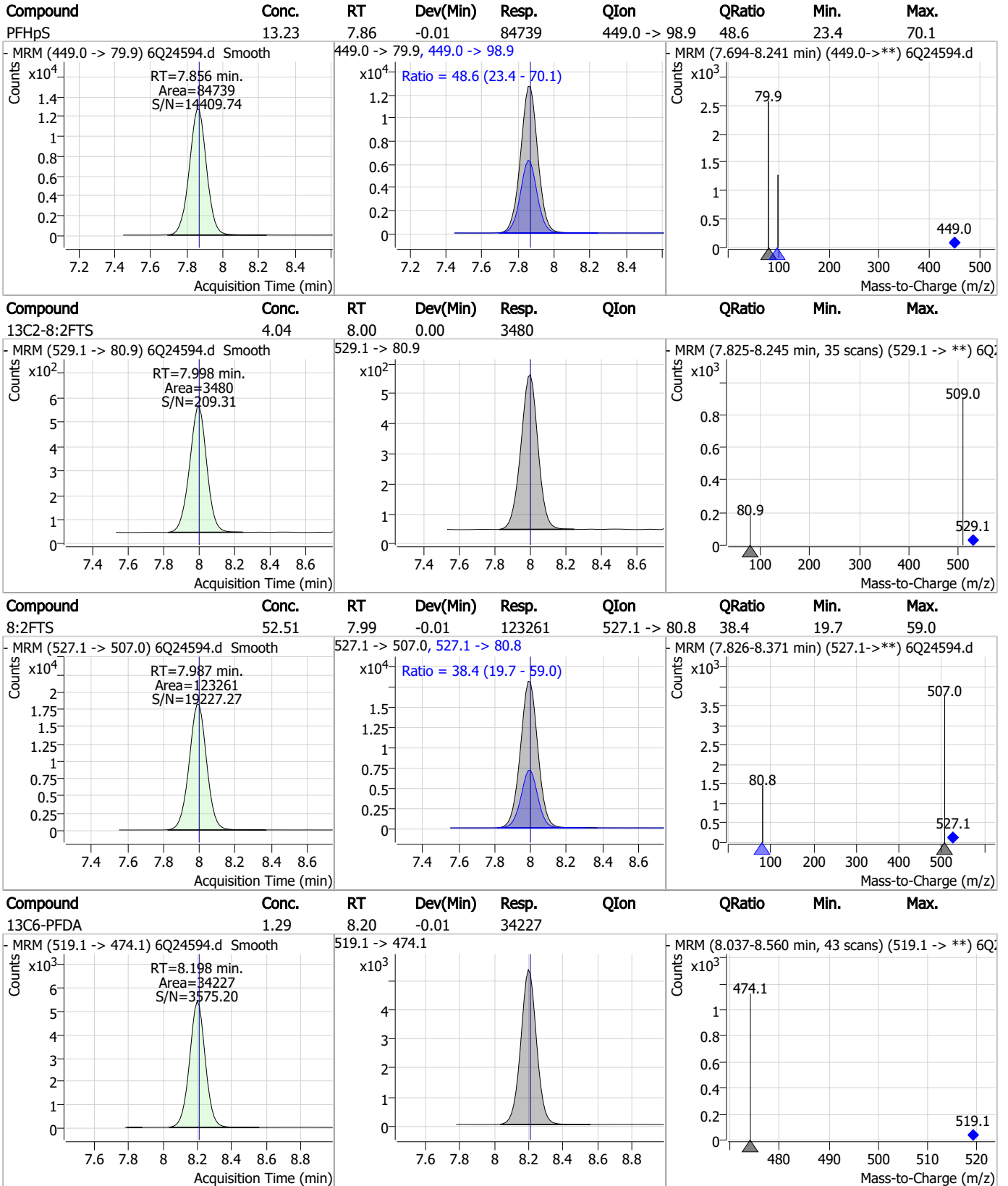
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.35	7.72	-0.01	31925	472.1 -> 427.0	44	472.1	427.0



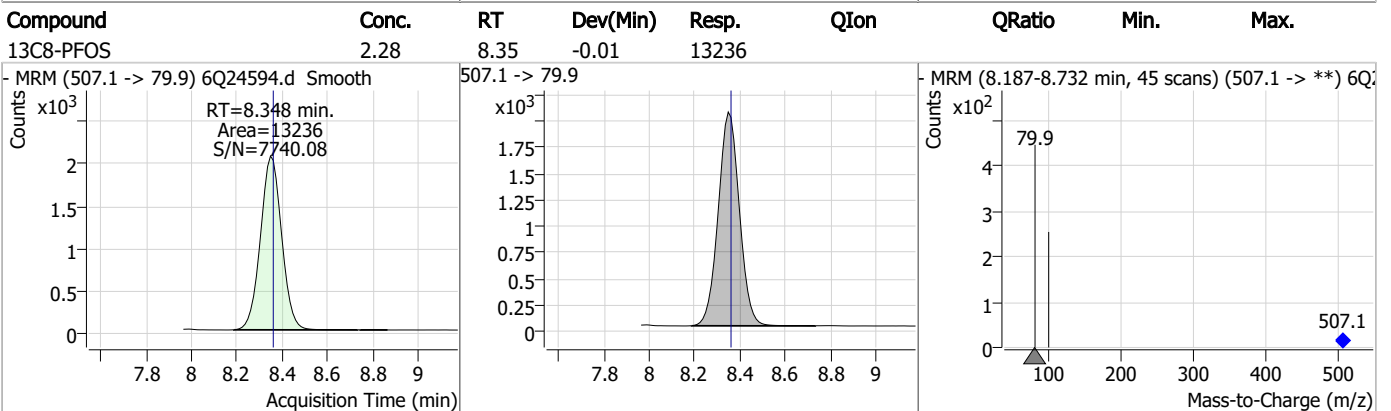
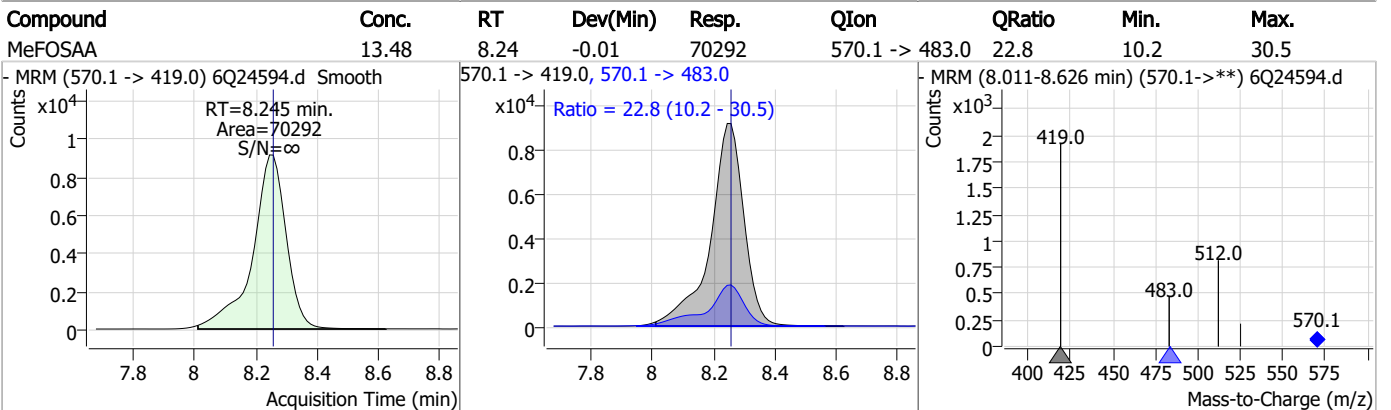
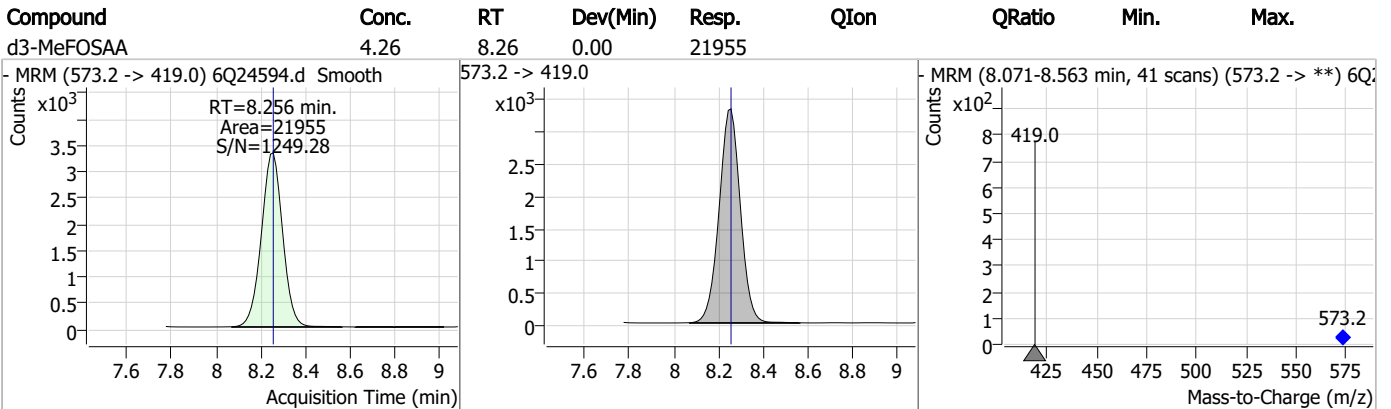
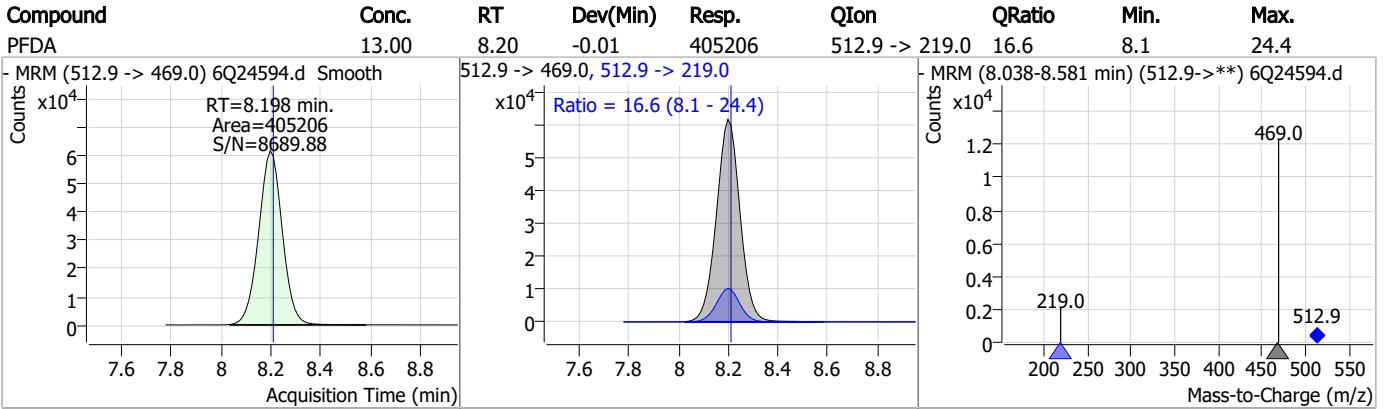
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	27.81	7.59	-0.14	669598 (m)	463.0 -> 219.0	25.6	11.0	32.9



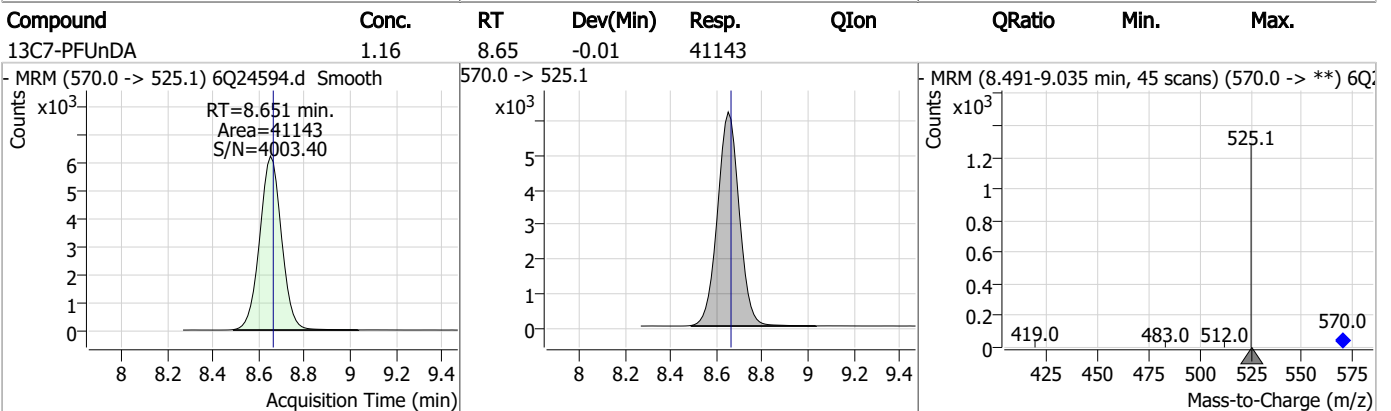
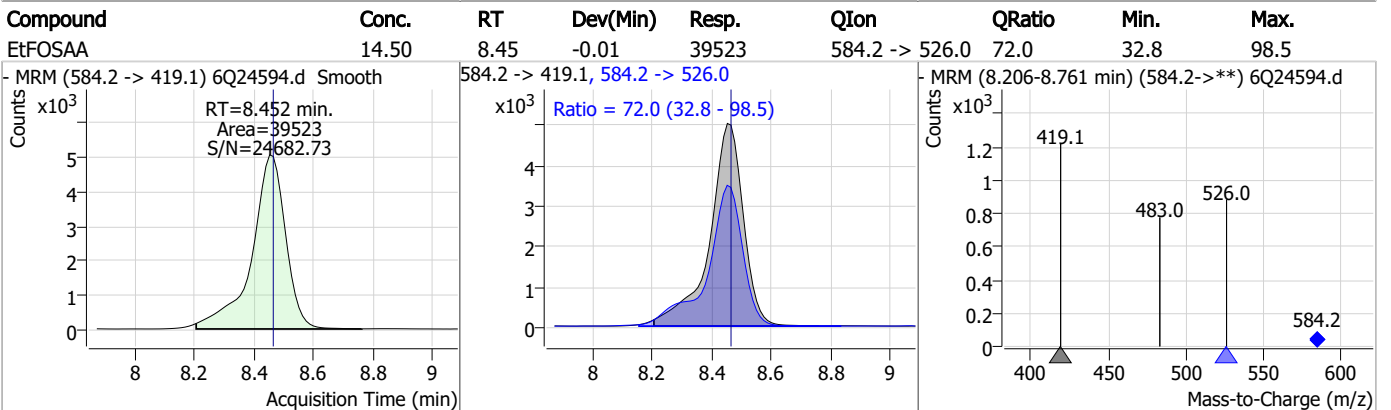
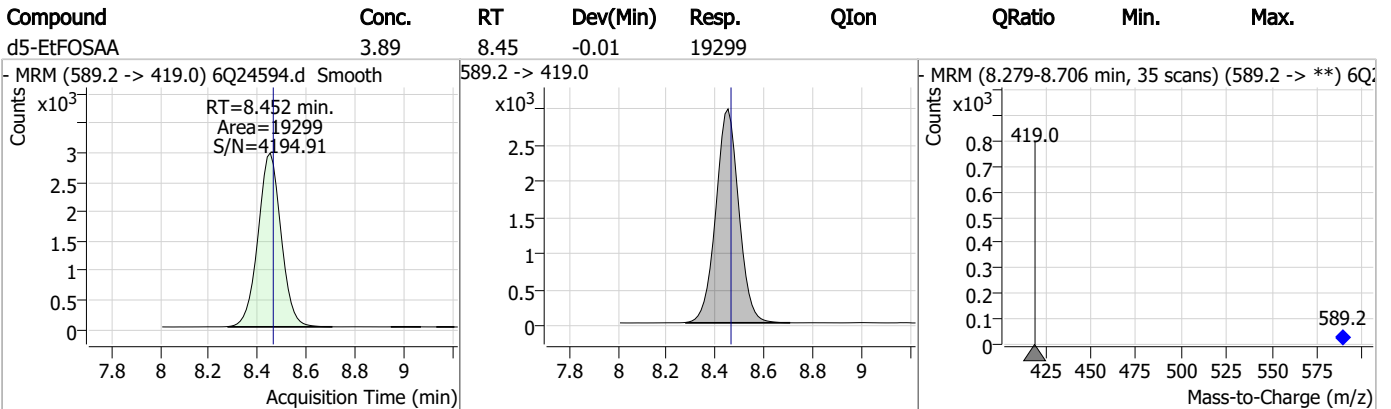
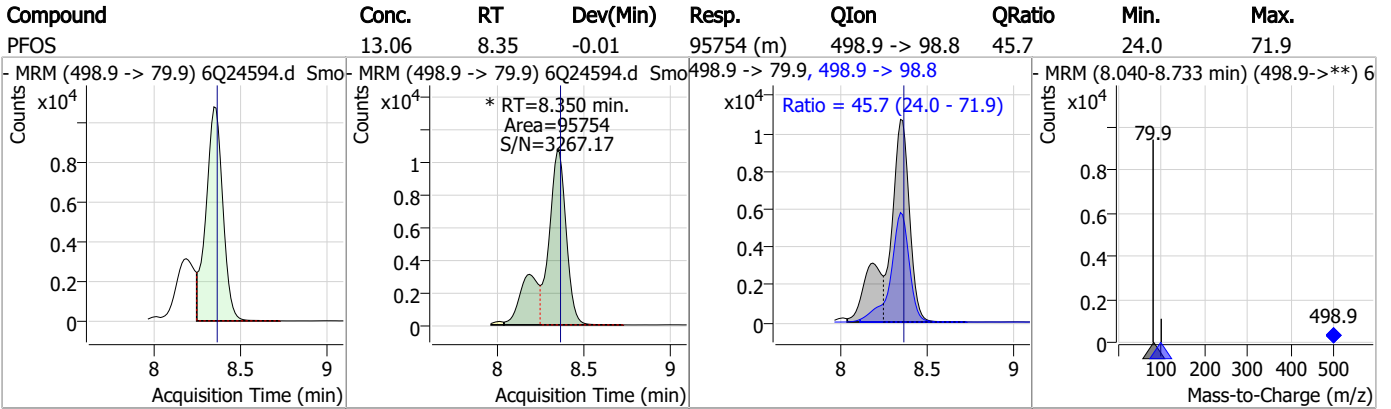
Perfluorinated Compounds by LC/MS/MS



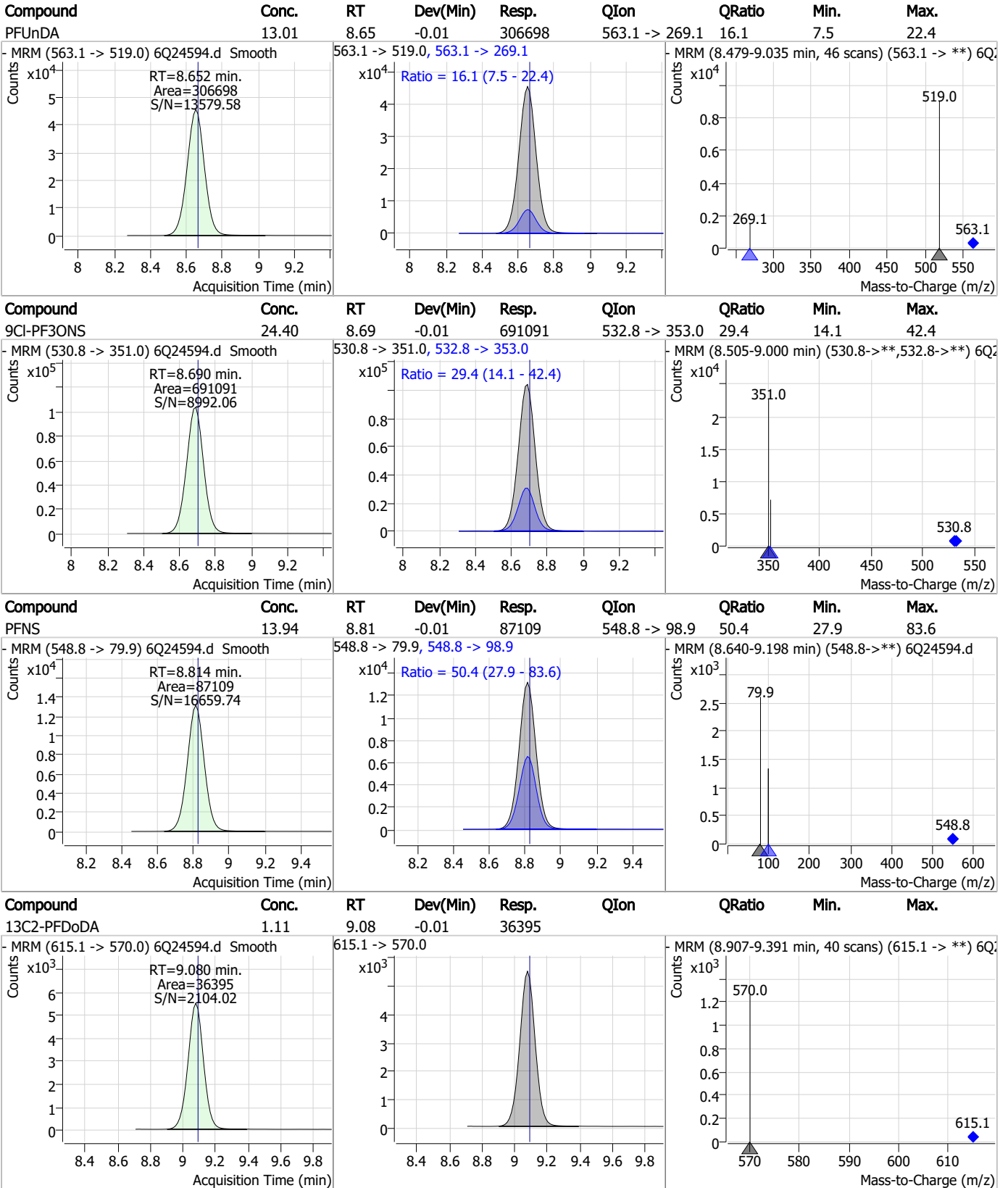
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



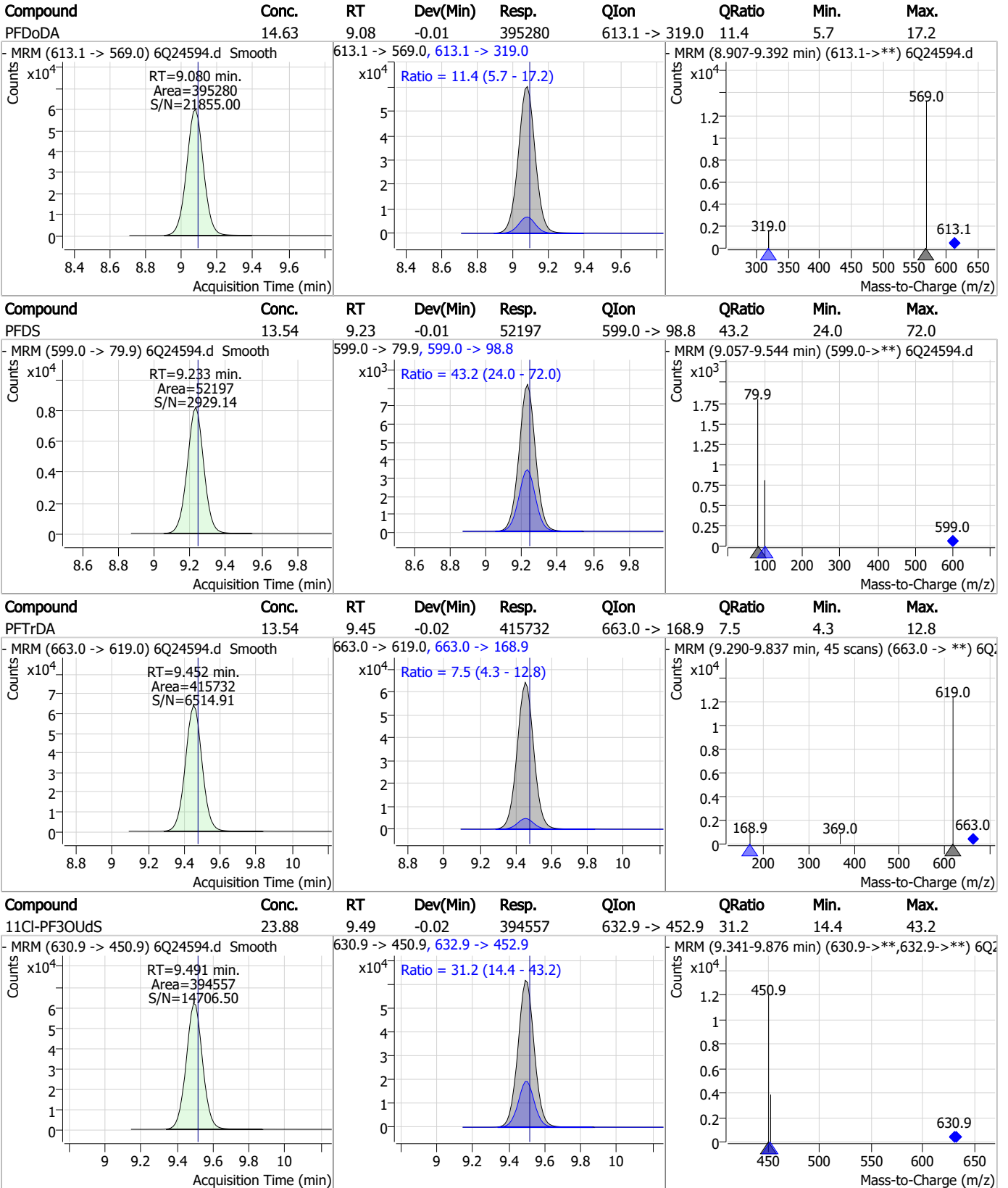
Perfluorinated Compounds by LC/MS/MS



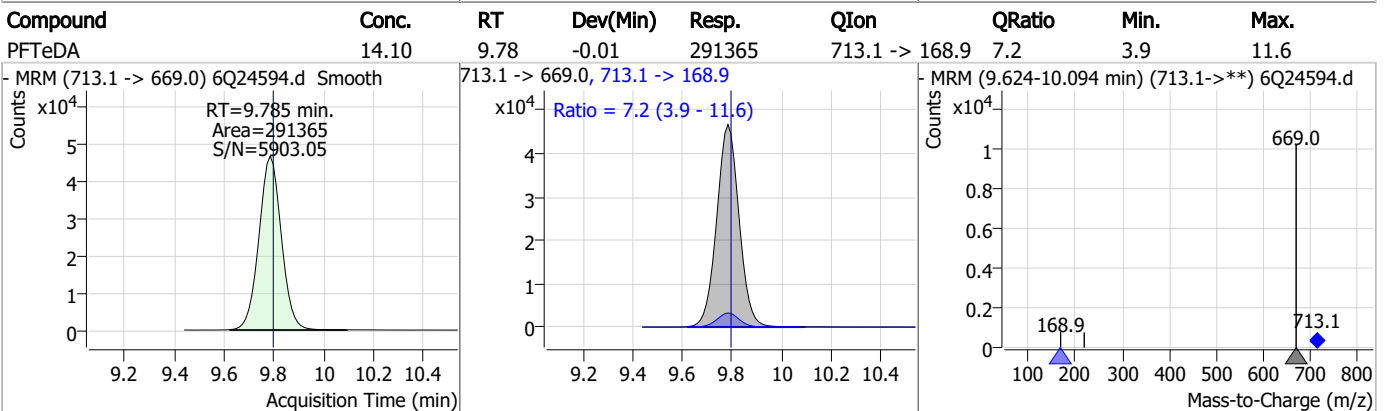
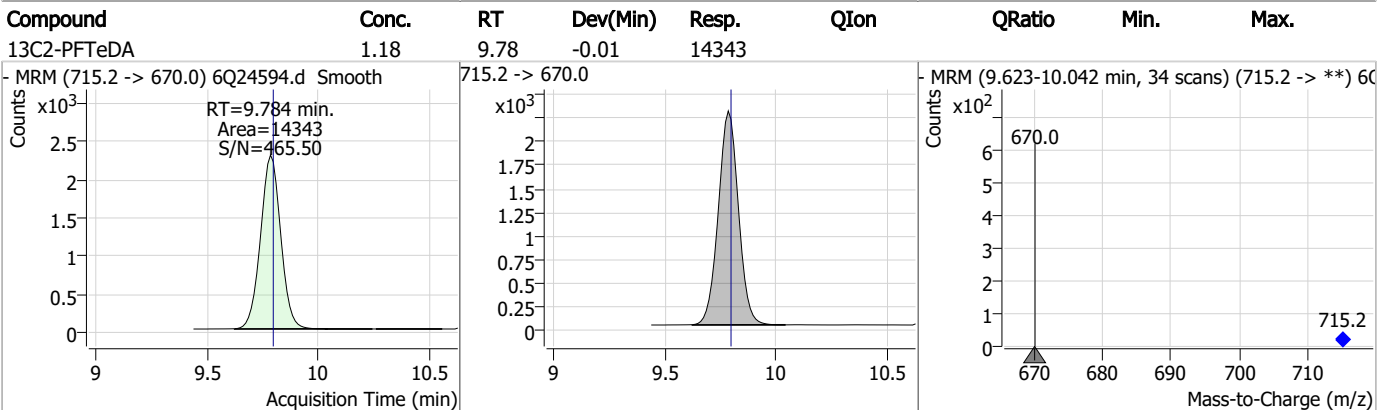
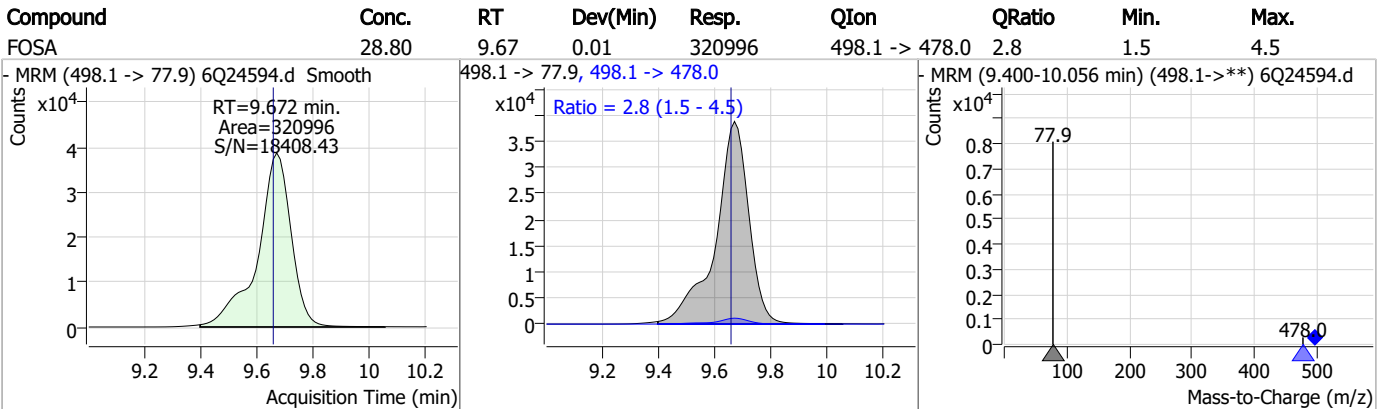
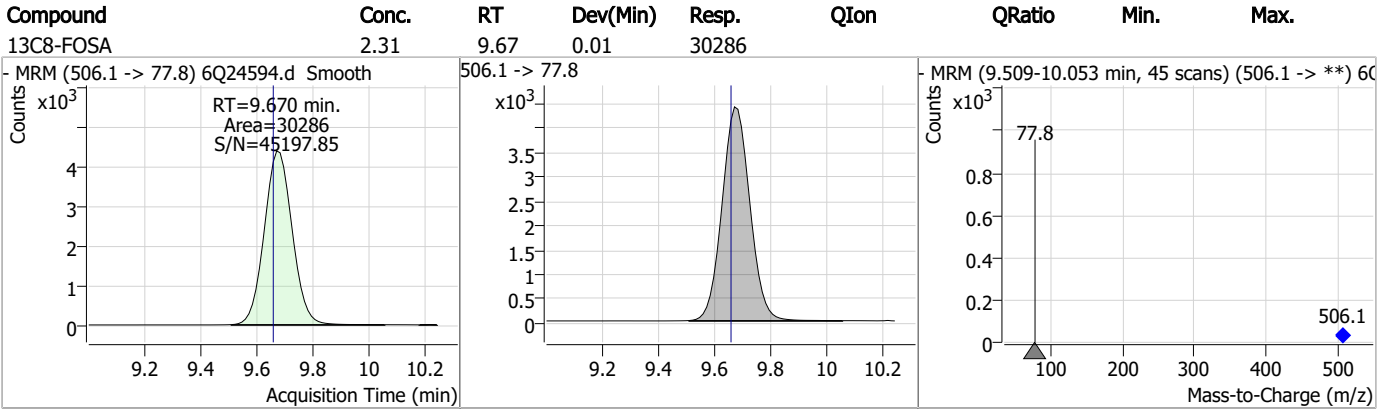
7.6.8

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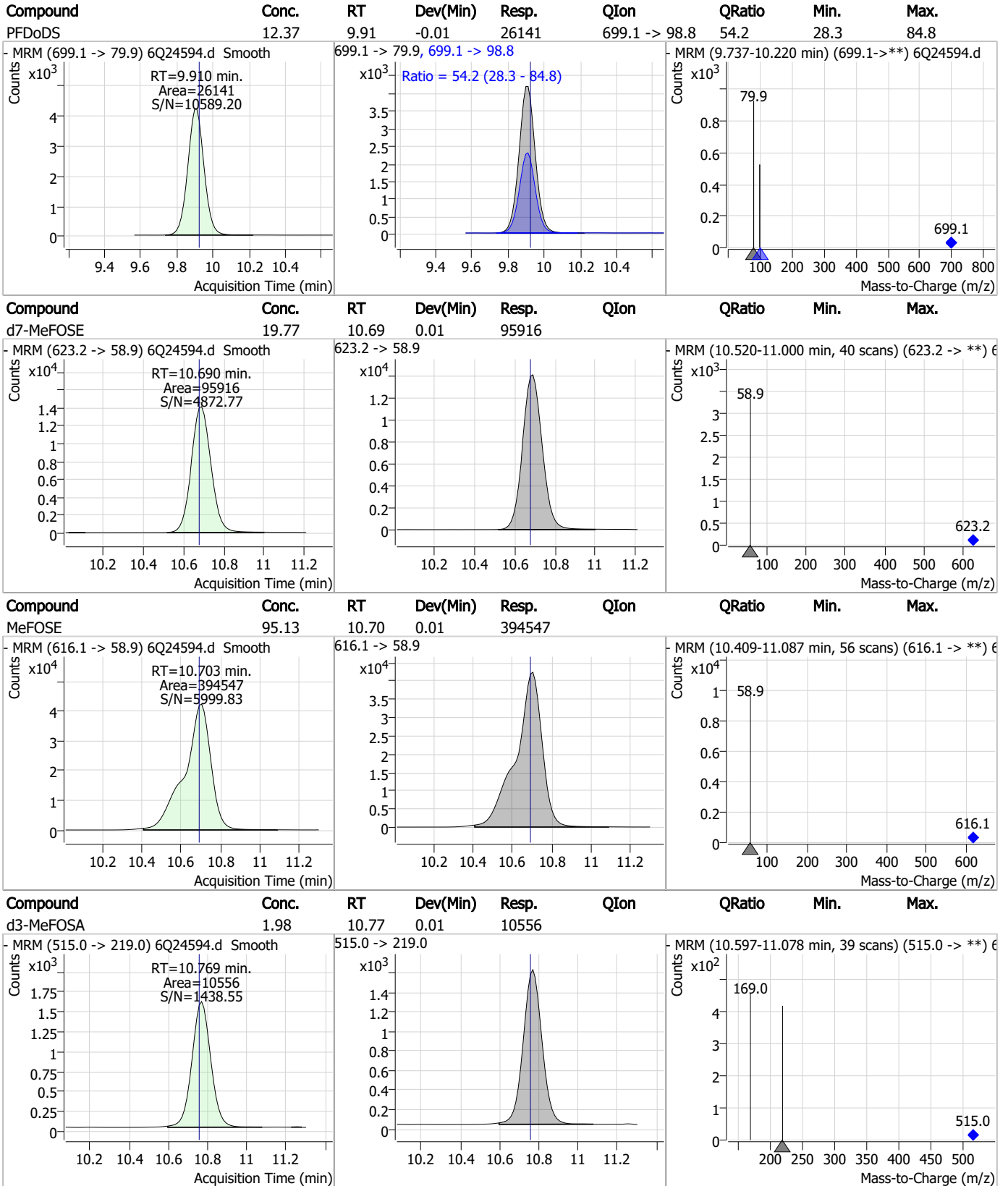
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



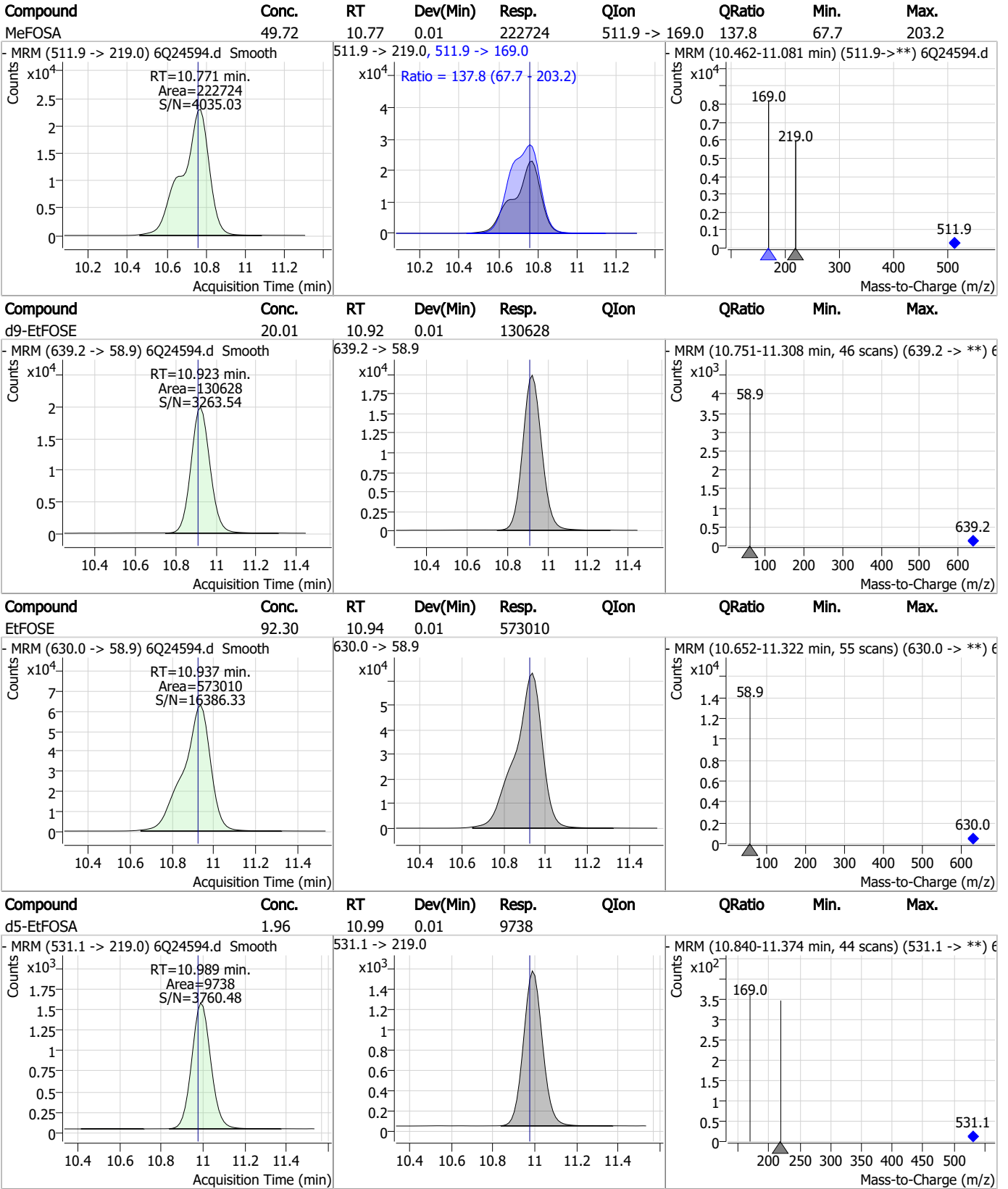
Perfluorinated Compounds by LC/MS/MS



7.6.8

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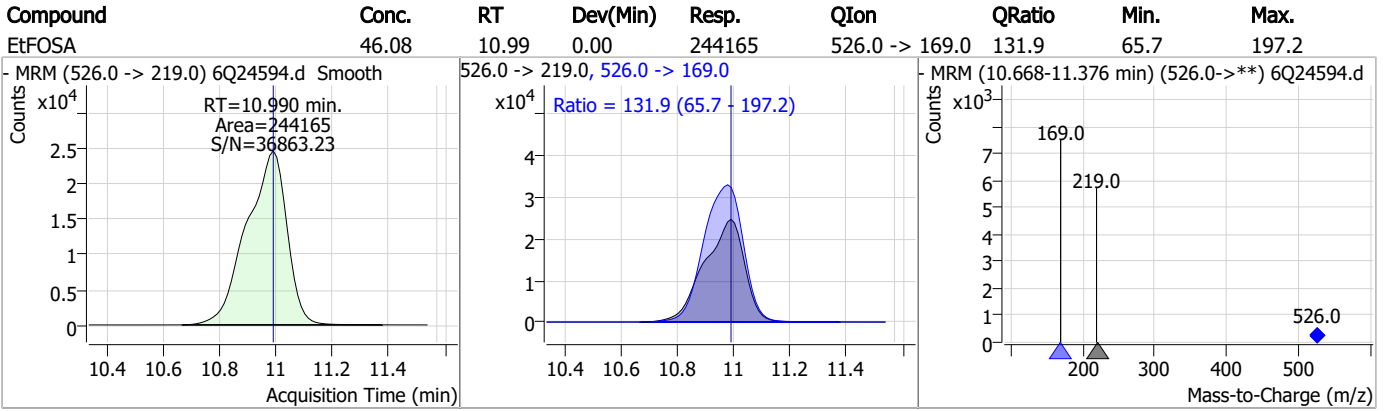
Perfluorinated Compounds by LC/MS/MS



7.6.8

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Perfluorinated Compounds by LC/MS/MS



7.6.8

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Manual Integration Approval Summary

Sample Number: S6Q353-RT Method: EPA DRAFT 1633
Lab FileID: 6Q24594.D Analyst approved: 09/20/23 09:35 Martha Valls
Injection Time: 09/18/23 11:40 Supervisor approved: 09/20/23 10:37 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.20	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorononanoic acid	375-95-1		7.59	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.6.8.1
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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 12 September 2023 12:00:58
Data Path D:\MassHunter\Tune\QQQ\G6470A\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.64E+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	112.98	-0.01	Pass	0.70	0.66	-0.04	Pass	259323
302.00	301.92	-0.08	Pass	0.70	0.71	0.01	Pass	107592
601.98	601.88	-0.10	Pass	0.70	0.70	0.00	Pass	225506
1033.99	1033.81	-0.18	Pass	0.70	0.73	0.03	Pass	444223
1633.95	1633.68	-0.27	Adjust	0.70	0.72	0.02	Pass	1018320
2233.91	2233.52	-0.39	Adjust	0.70	0.73	0.03	Pass	555453

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.00	0.08	Pass	0.70	0.60	-0.10	Pass	56783
112.99	112.95	-0.04	Pass	0.70	0.71	0.01	Pass	168710
302.00	301.98	-0.02	Pass	0.70	0.68	-0.02	Pass	109913
601.98	601.90	-0.08	Pass	0.70	0.66	-0.04	Pass	167045
1033.99	1033.85	-0.14	Pass	0.70	0.71	0.01	Pass	308127
1633.95	1633.75	-0.20	Pass	0.70	0.68	-0.02	Pass	615437
2233.91	2233.61	-0.30	Pass	0.70	0.75	0.05	Pass	505771

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	1.20	1.24	0.04	Pass	317402
302.00	301.91	-0.09	Pass	1.20	1.04	-0.16	Pass	136474
601.98	601.82	-0.16	Pass	1.20	0.93	-0.27	Pass	279501
1033.99	1033.77	-0.22	Pass	1.20	0.98	-0.22	Pass	635295
1633.95	1633.61	-0.34	Pass	1.20	1.11	-0.09	Pass	1618223
2233.91	2233.45	-0.46	Pass	1.20	1.22	0.02	Pass	1219602

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	1.09	-0.11	Pass	80508
112.99	112.94	-0.05	Pass	1.20	1.17	-0.03	Pass	265054
302.00	301.94	-0.06	Pass	1.20	1.36	0.16	Pass	159575
601.98	601.87	-0.11	Pass	1.20	1.43	0.23	Pass	308406
1033.99	1033.81	-0.18	Pass	1.20	1.55	0.35	Pass	657812
1633.95	1633.67	-0.28	Pass	1.20	1.41	0.21	Pass	1989918
2233.91	2233.60	-0.31	Pass	1.20	1.34	0.14	Pass	1786658

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.94	-0.05	Pass	2.50	2.47	-0.03	Pass	369339
302.00	301.90	-0.10	Pass	2.50	2.21	-0.29	Pass	175547
601.98	601.86	-0.12	Pass	2.50	2.11	-0.39	Pass	449795
1033.99	1033.79	-0.20	Pass	2.50	2.20	-0.30	Pass	1233803
1633.95	1633.64	-0.31	Pass	2.50	2.32	-0.18	Pass	4057532
2233.91	2233.39	-0.52	Pass	2.50	2.44	-0.06	Pass	3686812

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	2.41	-0.09	Pass	100342
112.99	112.95	-0.04	Pass	2.50	2.44	-0.06	Pass	341049
302.00	301.91	-0.09	Pass	2.50	2.62	0.12	Pass	214756
601.98	601.84	-0.14	Pass	2.50	2.76	0.26	Pass	464774
1033.99	1033.85	-0.14	Pass	2.50	2.80	0.30	Pass	1257895
1633.95	1633.62	-0.33	Pass	2.50	2.59	0.09	Pass	4679476
2233.91	2233.55	-0.36	Pass	2.50	2.34	-0.16	Pass	5664221

7.7.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50687.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/17/2023 12:52:27 PM
 Sample Name : ic741-1
 Vial : P1-A2
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q741.batch.bin
 Sample Information : OP98180,S4Q741,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.724	216.8 -> 171.9	86590	10.00 µg/L	0.012
M5-PFPeA	4.215	268.3 -> 223.0	33435	5.00 µg/L	0.000
M5-PFHxA	5.408	318.0 -> 273.0	32160	2.50 µg/L	0.000
M4-PFHpA	6.353	367.1 -> 322.0	22480	2.50 µg/L	0.000
M8-PFOA	7.037	421.1 -> 376.0	35880	2.50 µg/L	0.000
M9-PFNA	7.570	472.1 -> 427.0	14240	1.25 µg/L	0.000
M6-PFDA	8.053	519.1 -> 474.1	9686	1.25 µg/L	-0.013
M7-PFUnDA	8.509	570.0 -> 525.1	11045	1.25 µg/L	0.000
M2-PFDoDA	8.929	615.1 -> 570.0	13753	1.25 µg/L	-0.012
M2-PFTeDA	9.685	715.2 -> 670.0	7111	1.25 µg/L	-0.012
M8-FOSA	9.906	506.1 -> 77.8	8747	2.50 µg/L	0.000
M3-PFBS	5.263	302.1 -> 79.9	7563	2.50 µg/L	0.000
M3-PFHxS	7.103	402.1 -> 79.9	4897	2.50 µg/L	0.000
M8-PFOS	8.178	507.1 -> 79.9	5698	2.50 µg/L	0.000
M2-4:2FTS	5.109	329.1 -> 80.9	833	5.00 µg/L	0.000
M2-6:2FTS	6.809	429.1 -> 80.9	1226	5.00 µg/L	0.000
M2-8:2FTS	7.852	529.1 -> 80.9	2015	5.00 µg/L	-0.012
M3-MeFOSAA	8.147	573.2 -> 419.0	11273	5.00 µg/L	0.000
M3-HFPO-DA	5.763	286.9 -> 168.9	31198	10.00 µg/L	0.000
M5-EtFOSAA	8.346	589.2 -> 419.0	10707	5.00 µg/L	-0.012
M7-MeFOSE	11.072	623.2 -> 58.9	51014	25.00 µg/L	0.000
M9-EtFOSE	11.344	639.2 -> 58.9	76120	25.00 µg/L	0.000
M5-EtFOSA	11.435	531.1 -> 219.0	7139	2.50 µg/L	0.000
M3-MeFOSA	11.165	515.0 -> 219.0	4909	2.50 µg/L	-0.012
13C4-PFOS	8.179	502.8 -> 79.9	5134	2.50 µg/L	0.000
13C3-PFBA	2.716	216.0 -> 172.0	44037	5.00 µg/L	0.000
18O2-PFHxS	7.089	403.0 -> 83.9	3394	2.50 µg/L	-0.013
13C4-PFOA	7.025	417.1 -> 372.0	39219	2.50 µg/L	-0.012
13C2-PFDA	8.053	515.1 -> 470.1	10230	1.25 µg/L	-0.013
13C5-PFNA	7.570	468.0 -> 423.0	12129	1.25 µg/L	0.000
13C2-PFHxA	5.396	315.1 -> 270.0	28105	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.109	329.1 -> 80.9	833	4.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.9%		
13C2-6:2FTS	6.809	429.1 -> 80.9	1226	4.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.5%		
13C2-8:2FTS	7.852	529.1 -> 80.9	2015	4.55 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.9%		
13C2-PFDoDA	8.929	615.1 -> 570.0	13753	1.19 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C2-PFTeDA	9.685	715.2 -> 670.0	7111	1.16 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C3-PFBS	5.263	302.1 -> 79.9	7563	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C3-PFHxS	7.103	402.1 -> 79.9	4897	2.40 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 = 96.0%		
13C4-PFBA	2.724	216.8 -> 171.9	86590	9.93 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C4-PFHpA	6.353	367.1 -> 322.0	22480	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C5-PFHxA	5.408	318.0 -> 273.0	32160	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C5-PFPeA	4.215	268.3 -> 223.0	33435	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C6-PFDA	8.053	519.1 -> 474.1	9686	1.24 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C7-PFUnDA	8.509	570.0 -> 525.1	11045	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C8-FOSA	9.906	506.1 -> 77.8	8747	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C8-PFOA	7.037	421.1 -> 376.0	35880	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C8-PFOS	8.178	507.1 -> 79.9	5698	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C9-PFNA	7.570	472.1 -> 427.0	14240	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.8%		
d3-MeFOSAA	8.147	573.2 -> 419.0	11273	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-HFPO-DA	5.763	286.9 -> 168.9	31198	10.26 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
d3-MeFOSA	11.165	515.0 -> 219.0	4909	2.36 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.3%		
d5-EtFOSAA	8.346	589.2 -> 419.0	10707	5.01 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
d7-MeFOSE	11.072	623.2 -> 58.9	51014	25.15 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
d9-EtFOSE	11.344	639.2 -> 58.9	76120	26.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 104.0%		
d5-EtFOSA	11.435	531.1 -> 219.0	7139	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.5%		
Target Compounds					QValue
4:2FTS	5.109	327.1 -> 307.0	930	0.66 µg/L	85
		327.1 -> 80.9	460		
6:2FTS	6.810	427.1 -> 407.0	1112	0.78 µg/L	94
		427.1 -> 80.9	380		
8:2FTS	7.865	527.1 -> 507.0	674	0.59 µg/L	88
		527.1 -> 80.8	349		
EtFOSAA	8.359	584.2 -> 419.1	295	0.16 µg/L	100
		584.2 -> 526.0	107		
FOSA	9.908	498.1 -> 77.9	774	0.19 µg/L	99
		498.1 -> 478.0	27		
MeFOSAA	8.148	570.1 -> 419.0	494	0.20 µg/L	83
		570.1 -> 483.0	64		
PFBA	2.720	212.8 -> 168.9	2440	0.74 µg/L	100
PFBS	5.252	298.7 -> 79.9	580	0.16 µg/L	97
		298.7 -> 98.8	229		
PFDA	8.053	512.9 -> 469.0	1556	0.18 µg/L	84
		512.9 -> 219.0	224		
PFDODA	8.929	613.1 -> 569.0	2131	0.18 µg/L	99
		613.1 -> 319.0	368		
PFDS	9.069	599.0 -> 79.9	407	0.20 µg/L	87

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	160			
PFHpA	6.354	363.1 -> 319.0	2208	0.17	µg/L	94
		363.1 -> 169.0	505			
PFHpS	7.685	449.0 -> 79.9	446	0.18	µg/L	90
		449.0 -> 98.9	266			
PFHxA	5.411	313.0 -> 269.0	1878	0.17	µg/L	97
		313.0 -> 118.9	80			
PFHxS	7.091	398.7 -> 79.9	414	0.19	µg/L	m 83
		398.7 -> 98.9	193			
PFNA	7.571	463.0 -> 419.0	1494	0.17	µg/L	99
		463.0 -> 219.0	336			
PFNS	8.634	548.8 -> 79.9	320	0.19	µg/L	86
		548.8 -> 98.9	138			
PFOA	7.026	413.0 -> 369.0	3098	0.19	µg/L	96
		413.0 -> 169.0	629			
PFOS	8.167	498.9 -> 79.9	503	0.19	µg/L	m 89
		498.9 -> 98.8	307			
PFPeA	4.229	263.0 -> 219.0	3681	0.35	µg/L	100
PFPeS	6.368	349.1 -> 79.9	398	0.20	µg/L	78
		349.1 -> 98.9	132			
PFTeDA	9.686	713.1 -> 669.0	1704	0.17	µg/L	88
		713.1 -> 168.9	255			
PFTrDA	9.328	663.0 -> 619.0	2060	0.16	µg/L	96
		663.0 -> 168.9	318			
PFUnDA	8.510	563.1 -> 519.0	2074	0.20	µg/L	99
		563.1 -> 269.1	406			
11Cl-PF3OUdS	9.355	630.9 -> 450.9	2664	0.32	µg/L	100
		632.9 -> 452.9	795			
9Cl-PF3ONS	8.511	530.8 -> 351.0	2906	0.32	µg/L	95
		532.8 -> 353.0	866			
ADONA	6.617	376.9 -> 250.9	7416	0.32	µg/L	97
		376.9 -> 84.8	2053			
HFPO-DA	5.764	284.9 -> 168.9	1119	0.33	µg/L	95
		284.9 -> 184.9	178			
3:3FTCA	3.706	241.0 -> 177.0	515	0.87	µg/L	99
		241.0 -> 117.0	67			
5:3FTCA	6.169	341.0 -> 237.1	7931	3.96	µg/L	94
		341.0 -> 217.0	6115			
7:3FTCA	7.674	441.0 -> 316.9	3848	4.02	µg/L	100
		441.0 -> 336.9	7950			
EtFOSA	11.438	526.0 -> 219.0	1184	0.38	µg/L	92
		526.0 -> 169.0	1728			
EtFOSE	11.358	630.0 -> 58.9	2843	0.90	µg/L	100
MeFOSA	11.168	511.9 -> 219.0	942	0.41	µg/L	m 68
		511.9 -> 169.0	1298			
MeFOSE	11.086	616.1 -> 58.9	2166	0.87	µg/L	100
PFDoDS	9.826	699.1 -> 79.9	249	0.17	µg/L	92
		699.1 -> 98.8	154			
NFDHA	5.277	295.0 -> 201.0	294	0.44	µg/L	90
		295.0 -> 84.9	53			
PFMBA	4.629	279.0 -> 85.1	1962	0.35	µg/L	100
PFMPA	3.358	229.0 -> 84.9	2238	0.36	µg/L	100
PFEESA	5.795	314.8 -> 134.9	3327	0.30	µg/L	96
		314.8 -> 82.9	149			

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

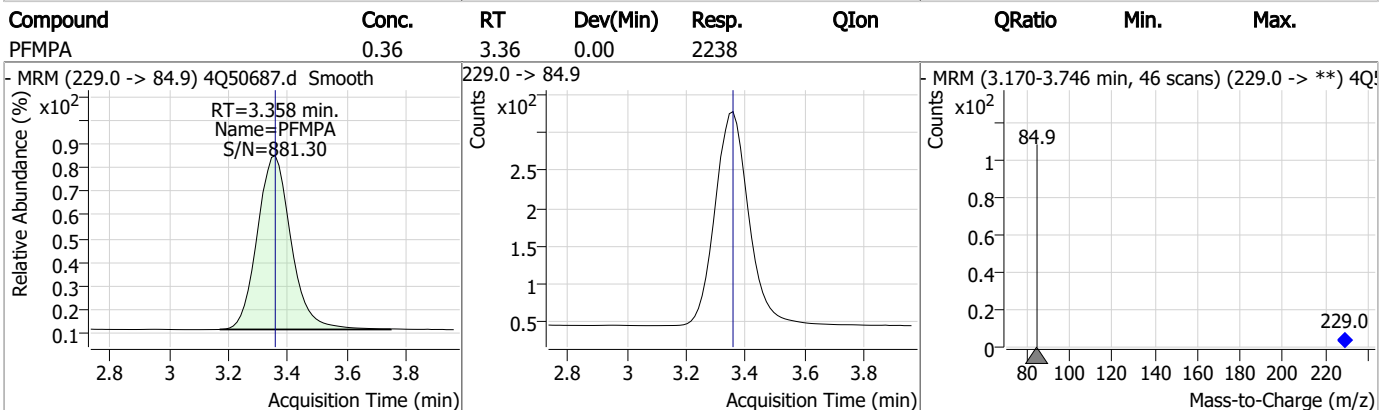
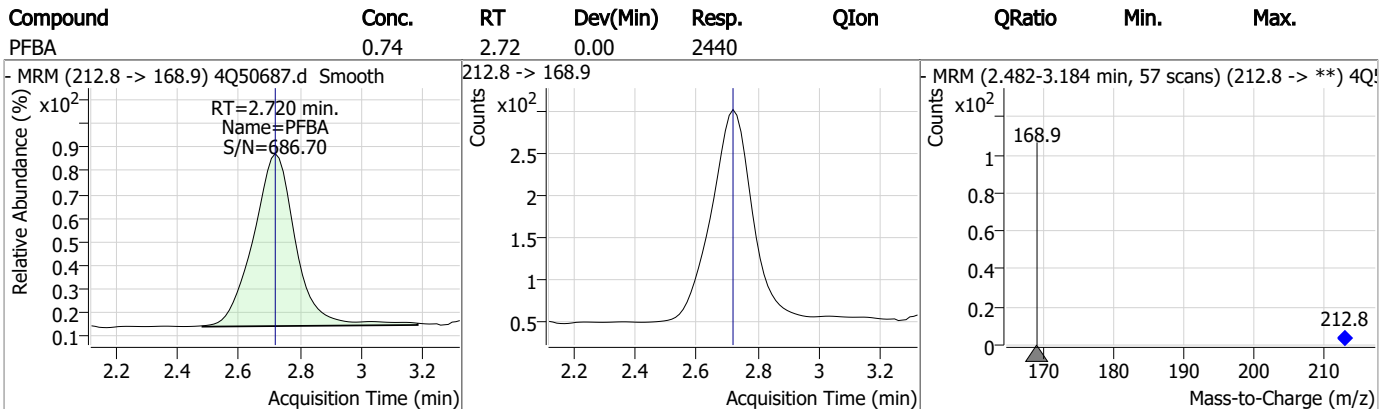
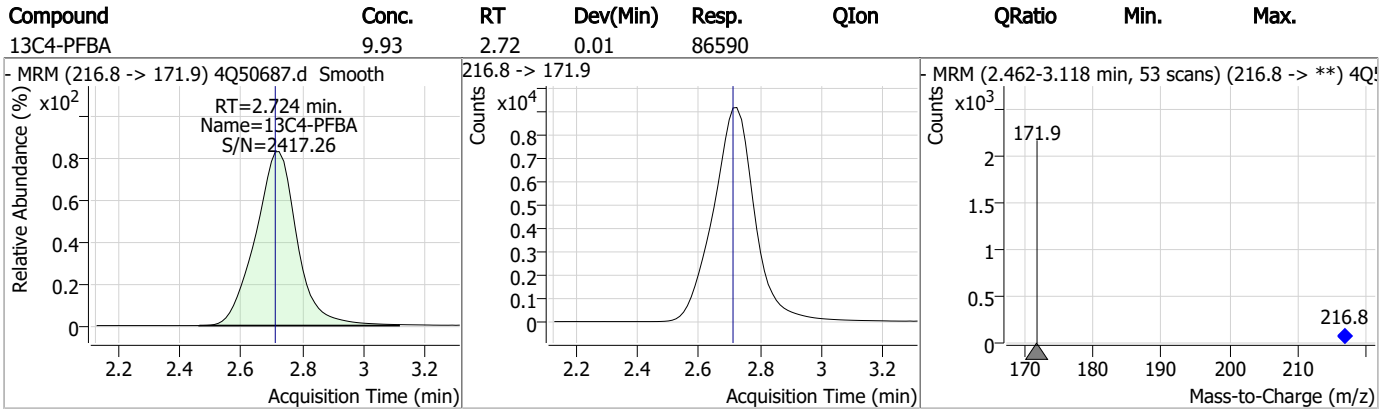
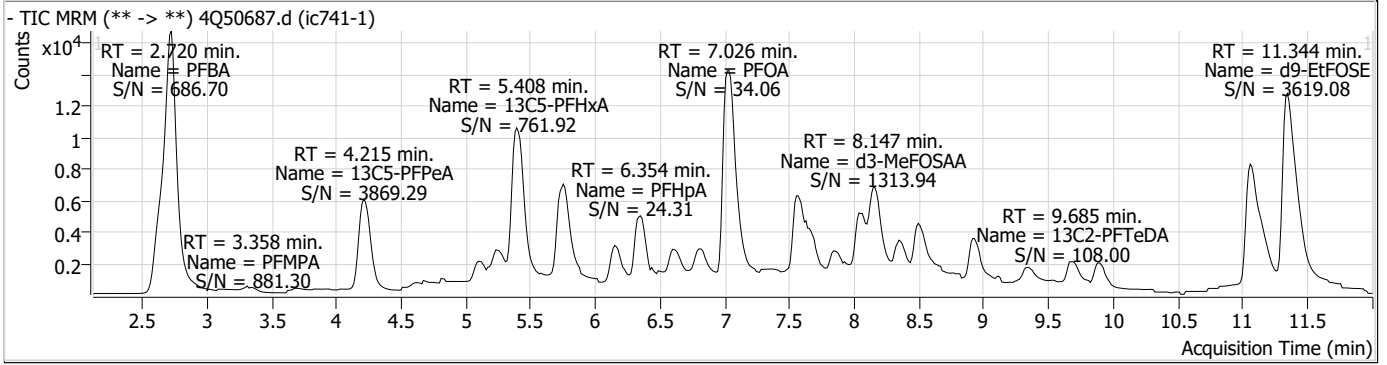
Perfluorinated Compounds by LC/MS/MS

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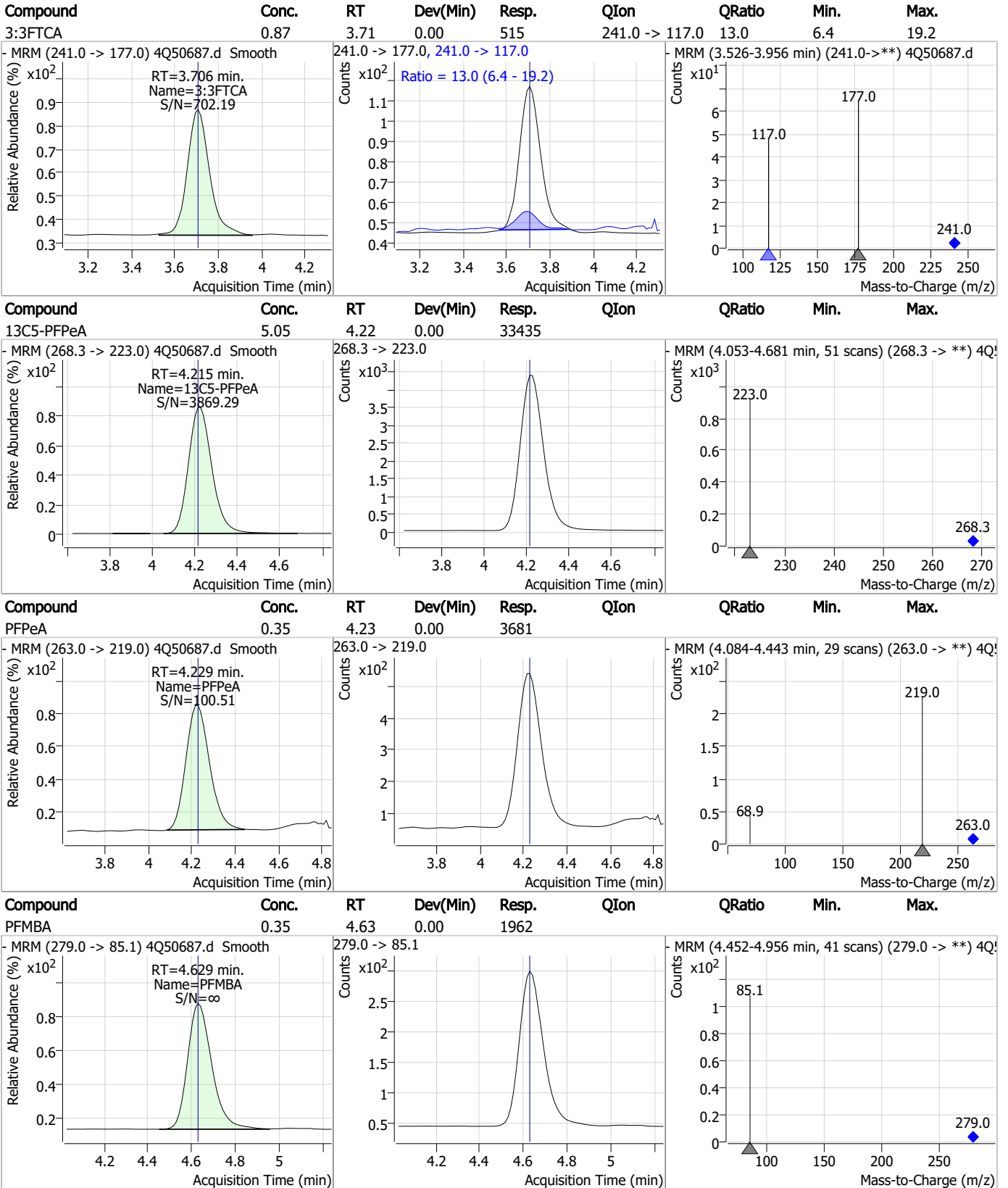
Perfluorinated Compounds by LC/MS/MS



7.7.2

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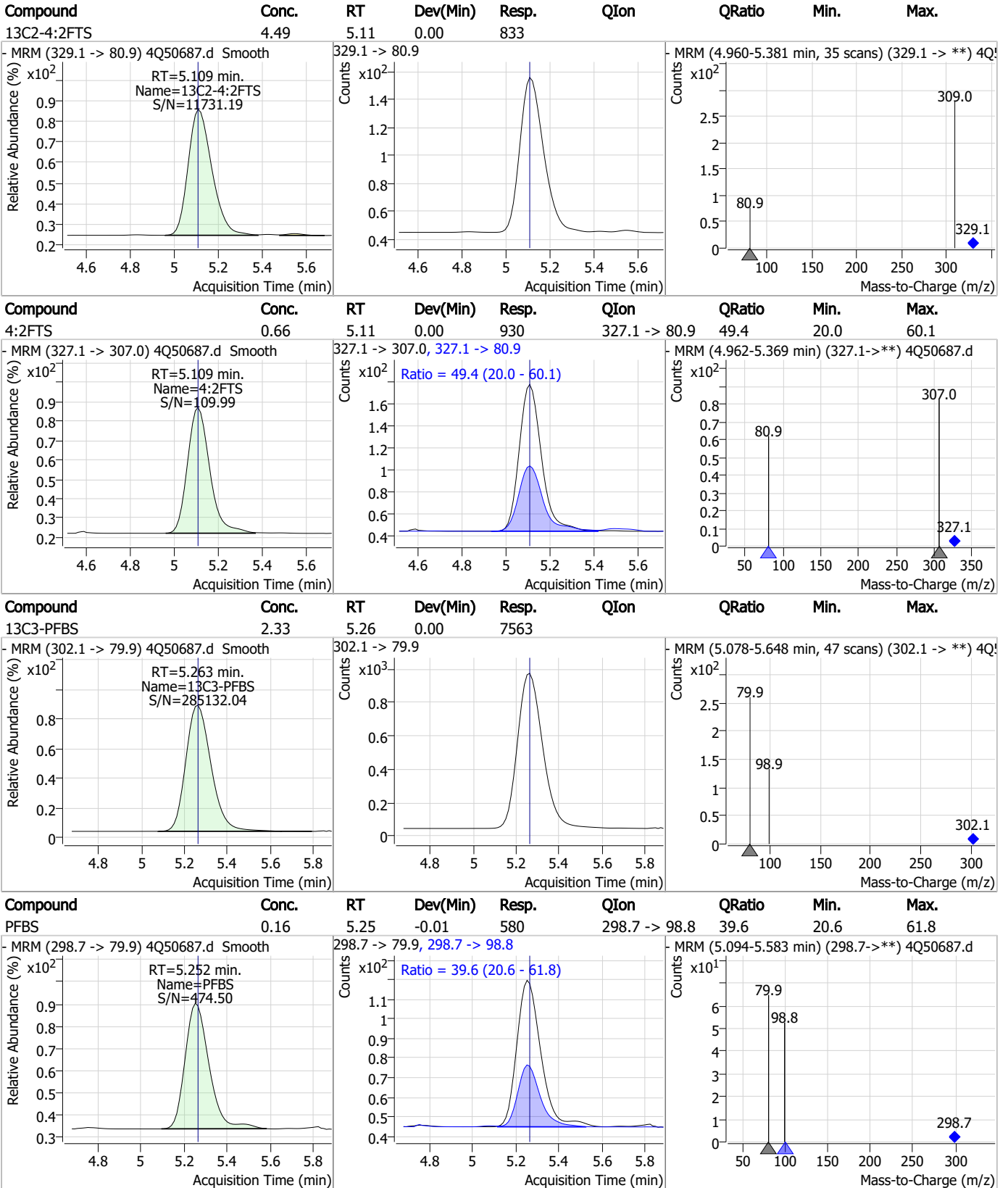
Perfluorinated Compounds by LC/MS/MS



7.7.2

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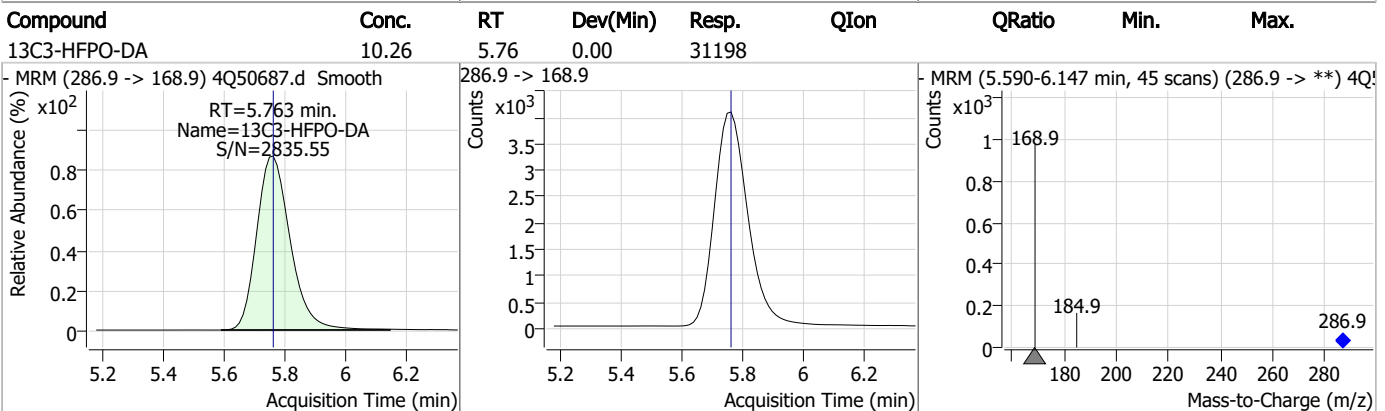
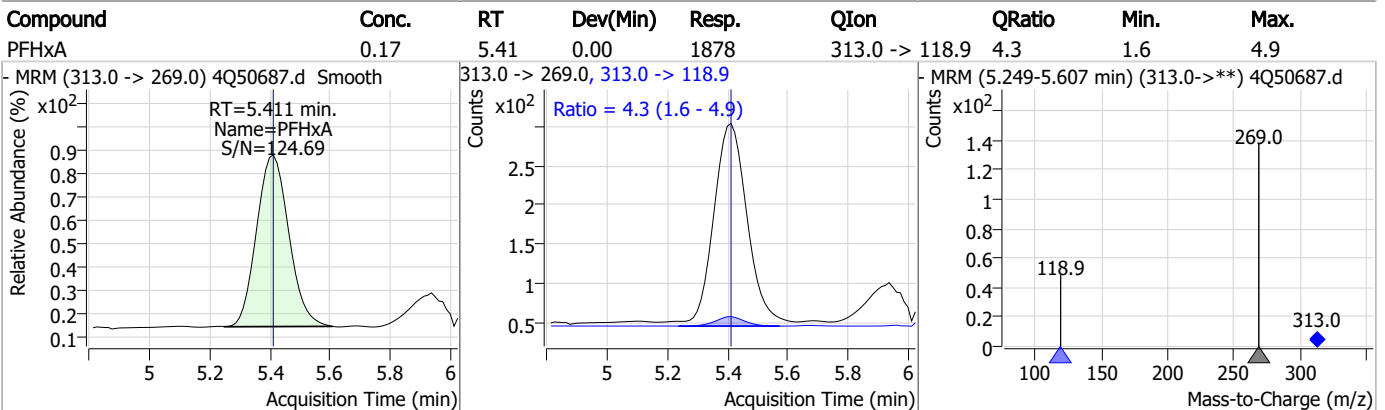
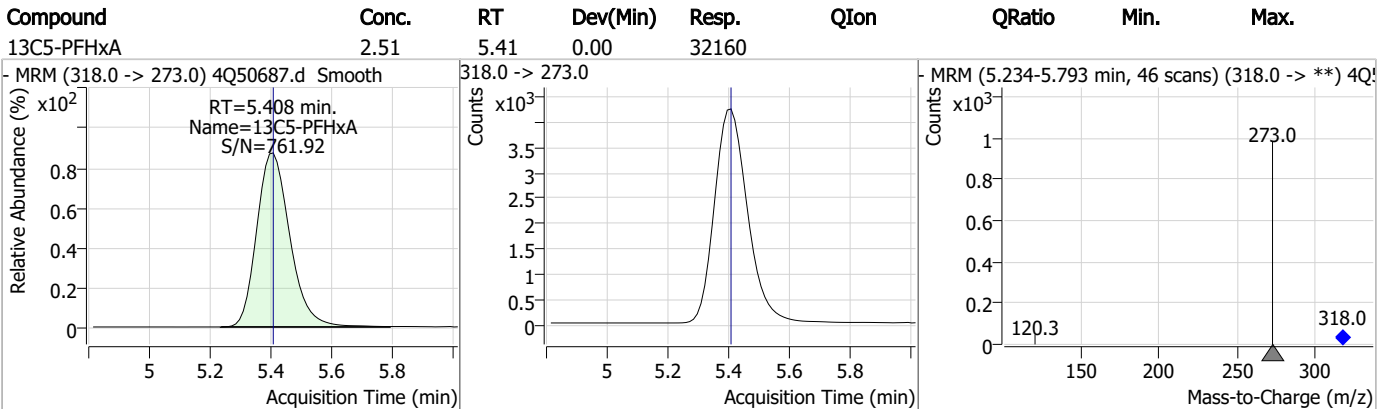
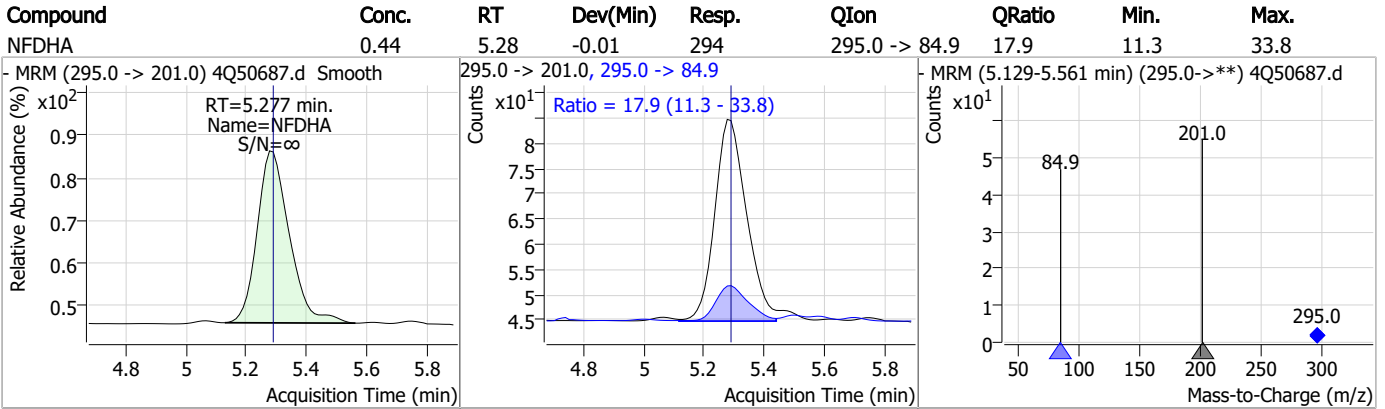
Perfluorinated Compounds by LC/MS/MS



7.7.2

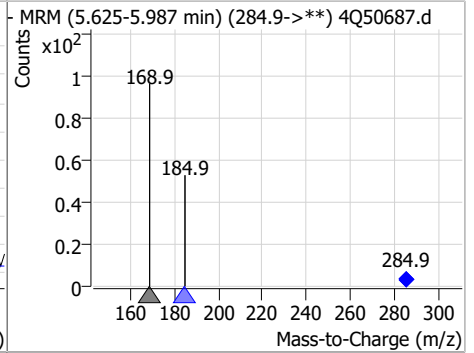
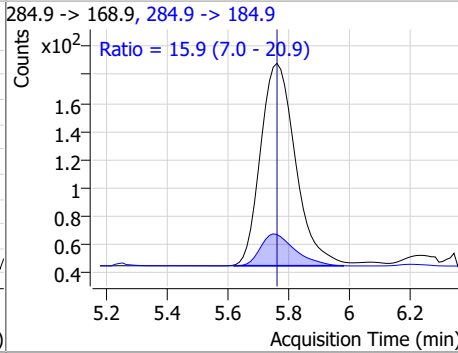
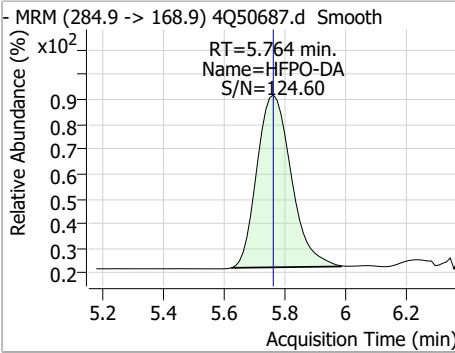
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Perfluorinated Compounds by LC/MS/MS

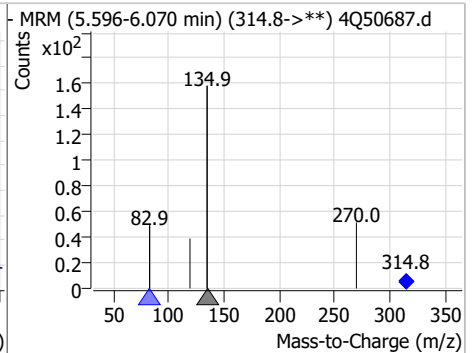
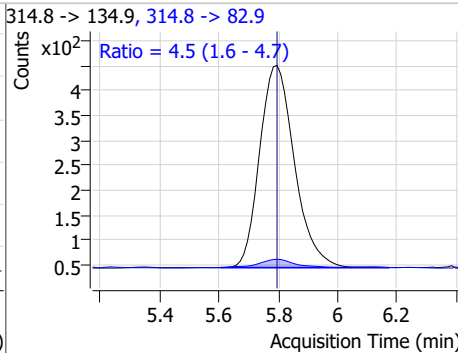
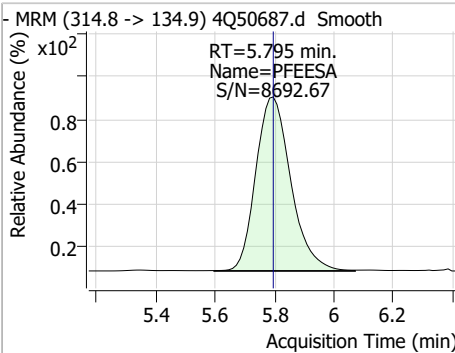


Perfluorinated Compounds by LC/MS/MS

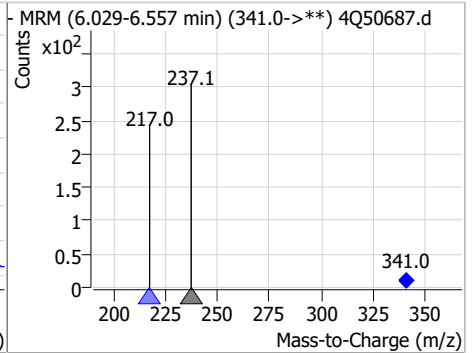
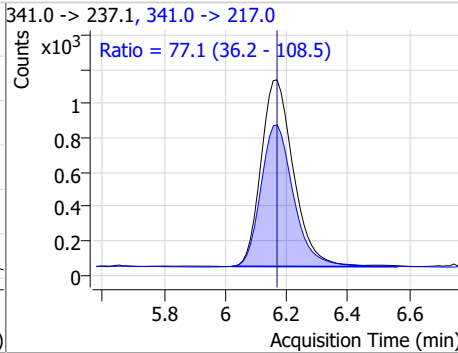
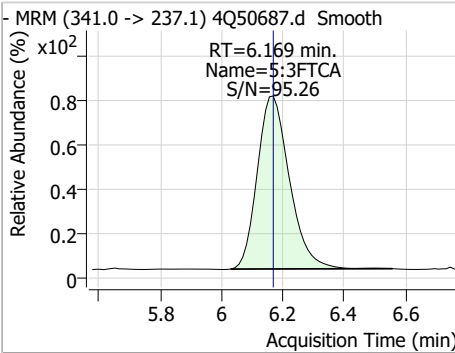
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.33	5.76	0.00	1119	284.9 -> 184.9	15.9	7.0	20.9



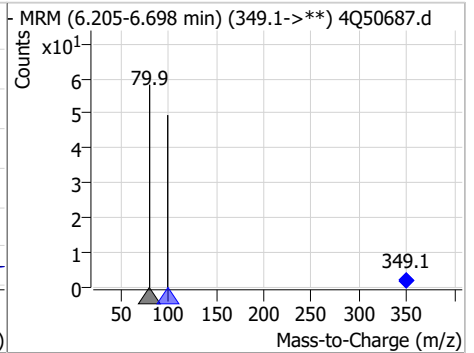
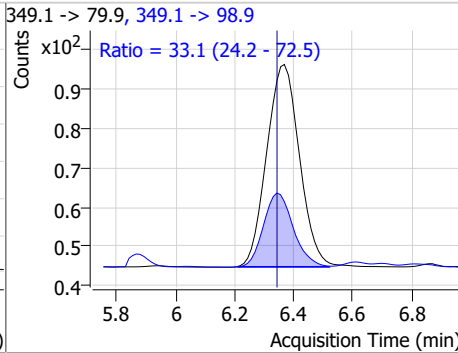
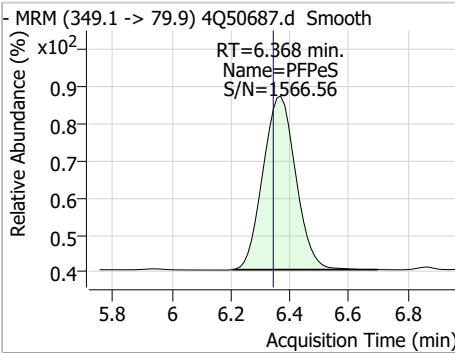
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.30	5.80	0.00	3327	314.8 -> 82.9	4.5	1.6	4.7



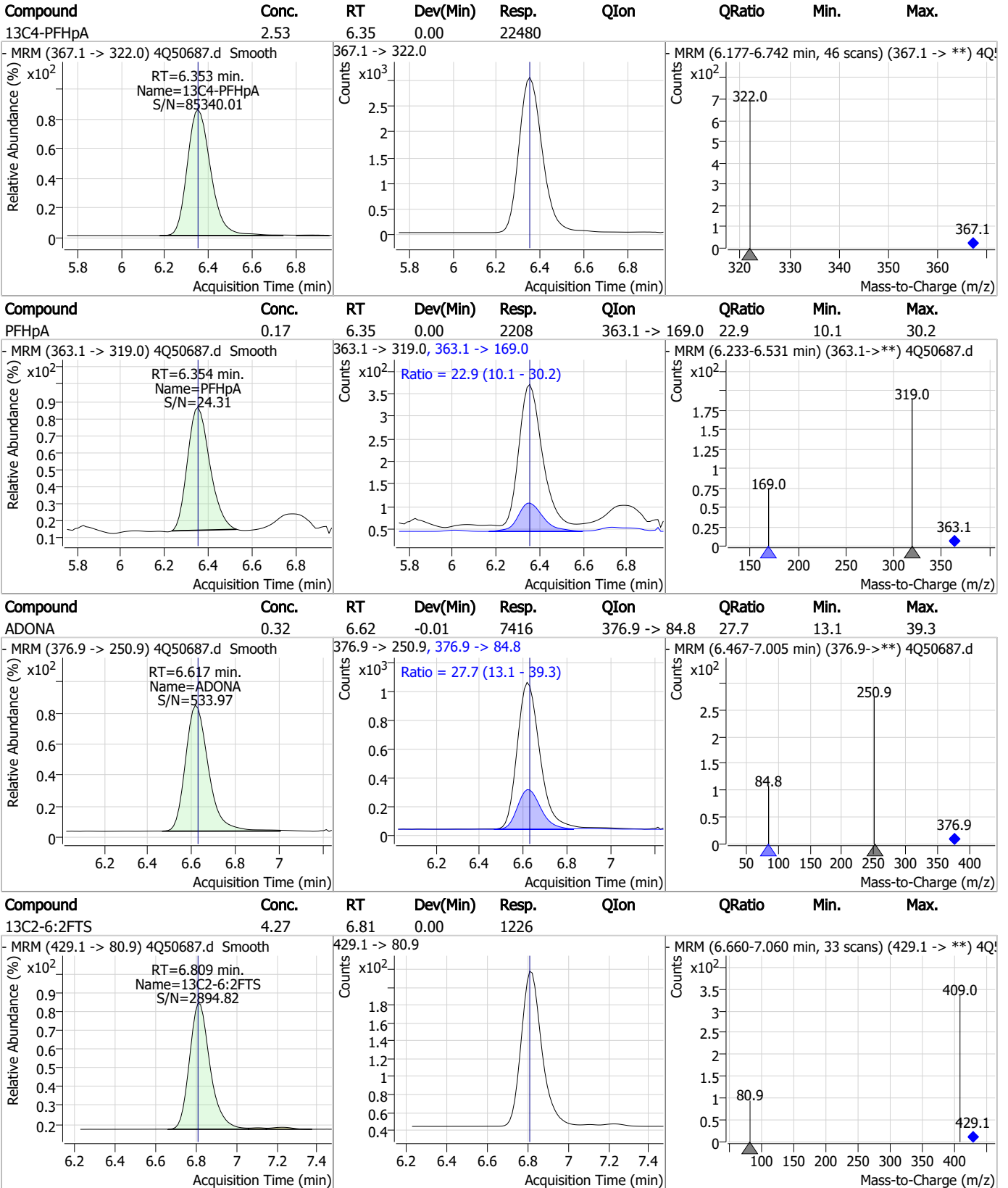
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	3.96	6.17	0.00	7931	341.0 -> 217.0	77.1	36.2	108.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.20	6.37	0.02	398	349.1 -> 98.9	33.1	24.2	72.5



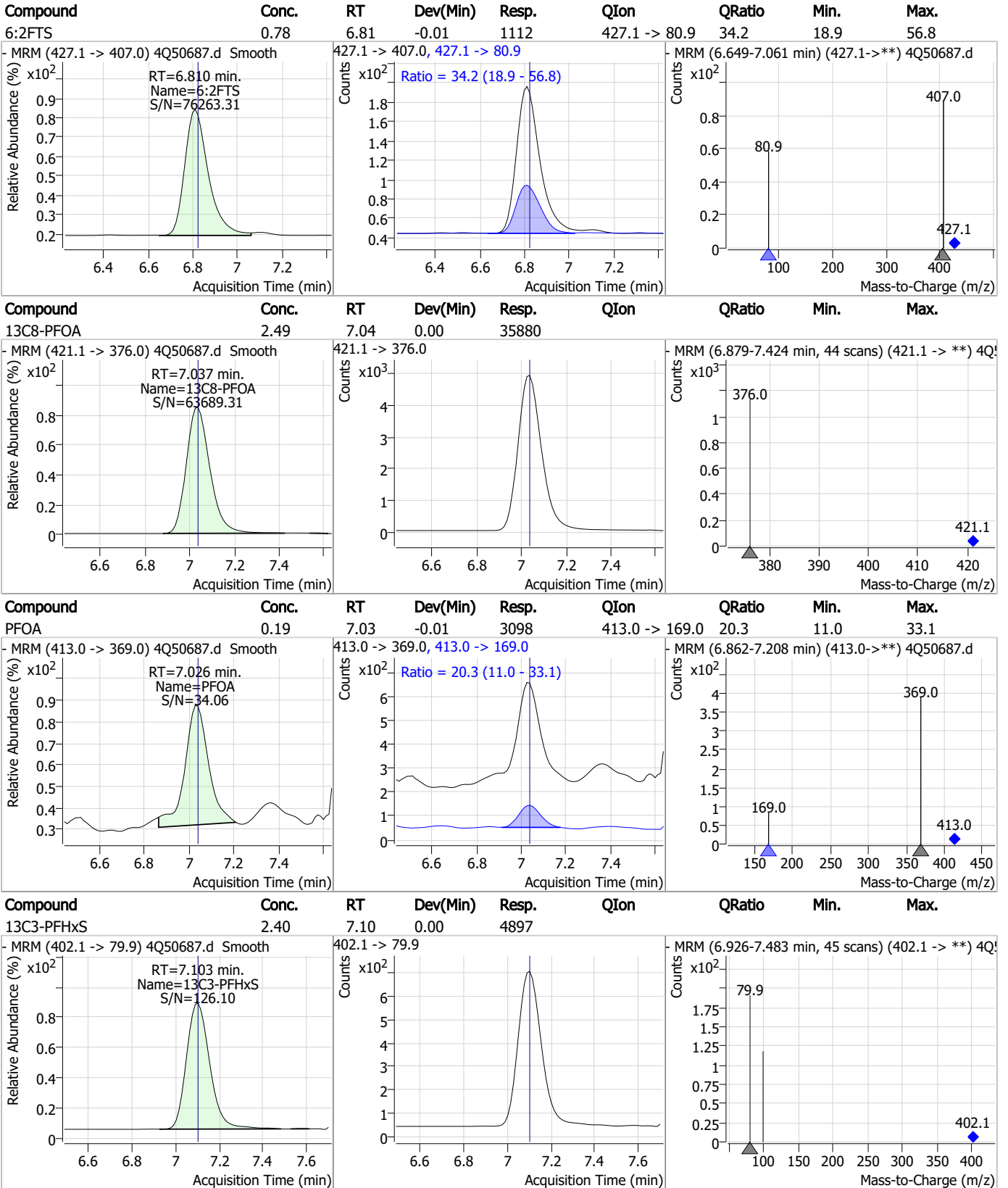
Perfluorinated Compounds by LC/MS/MS



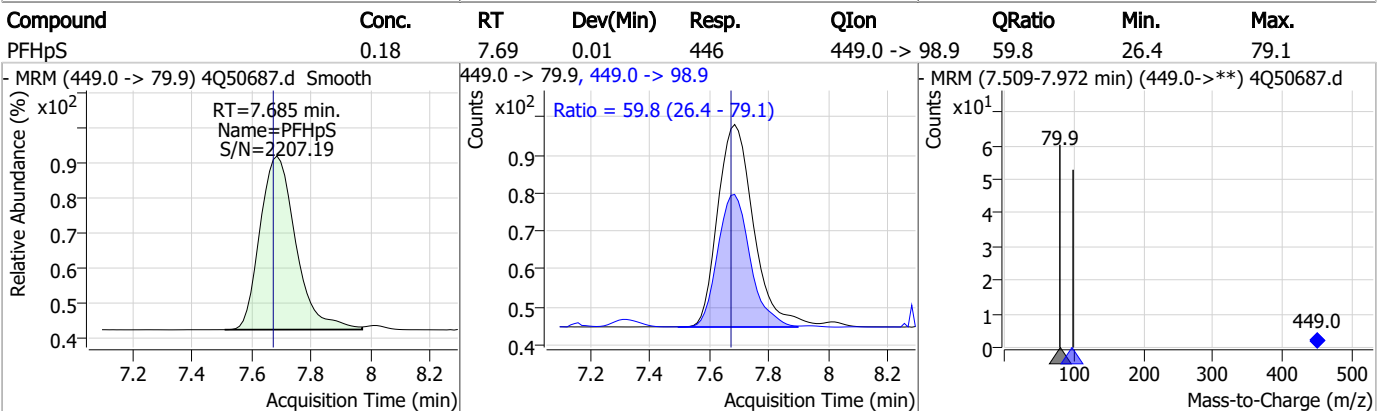
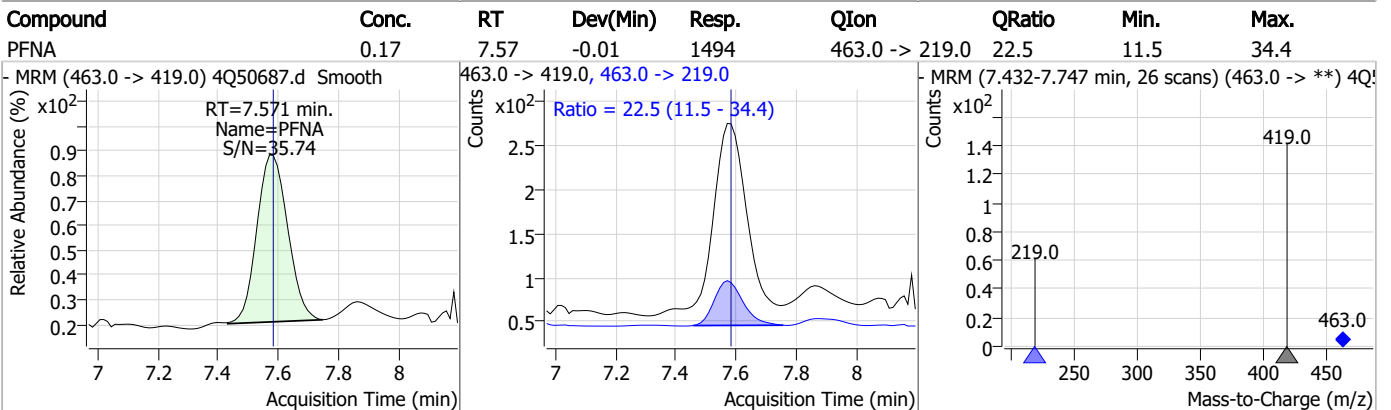
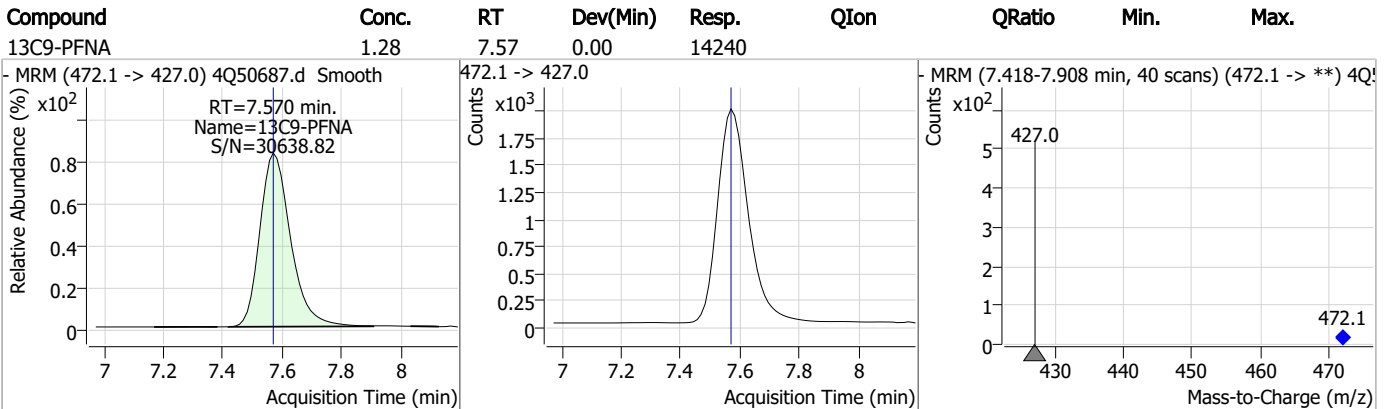
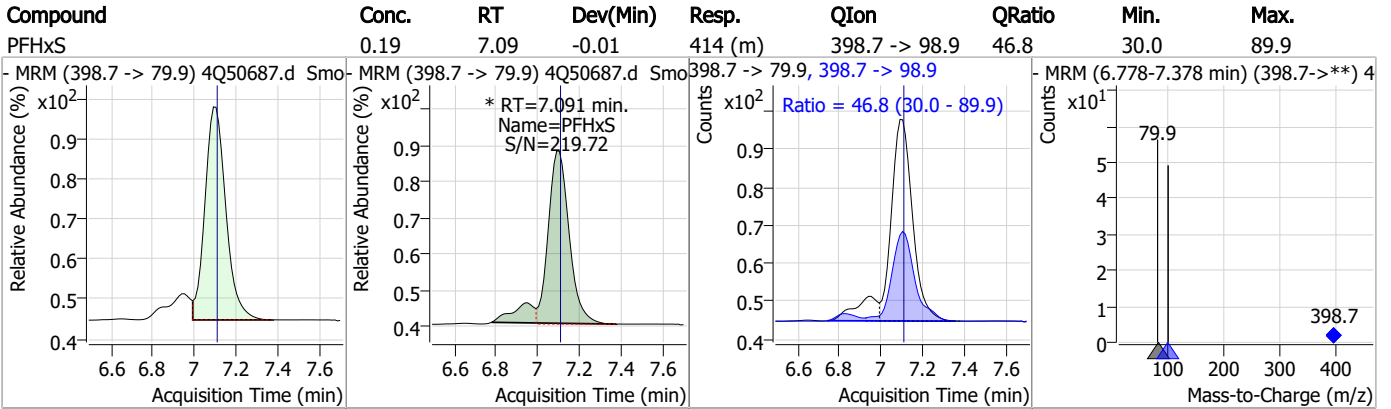
7.7.2

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Perfluorinated Compounds by LC/MS/MS



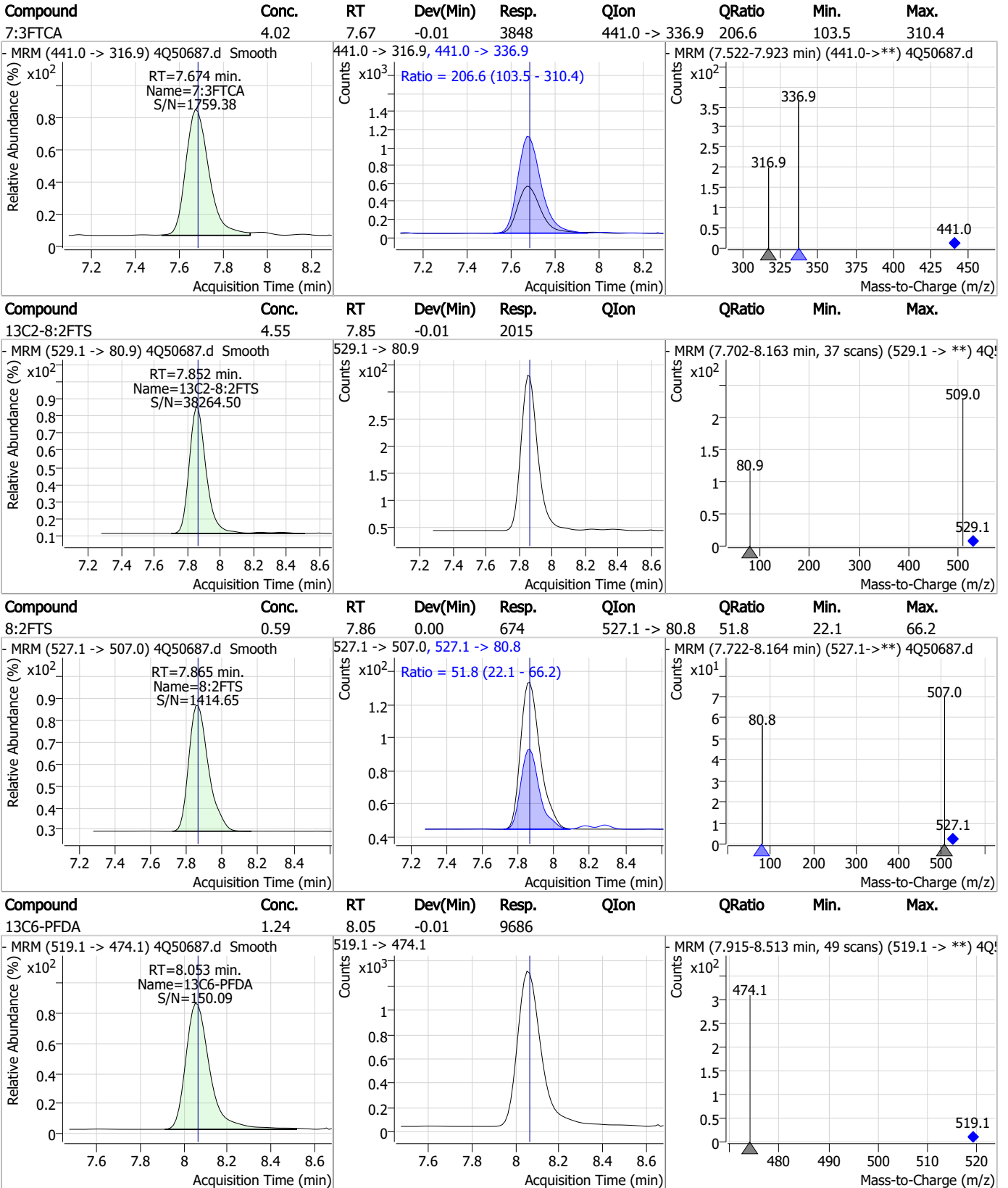
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

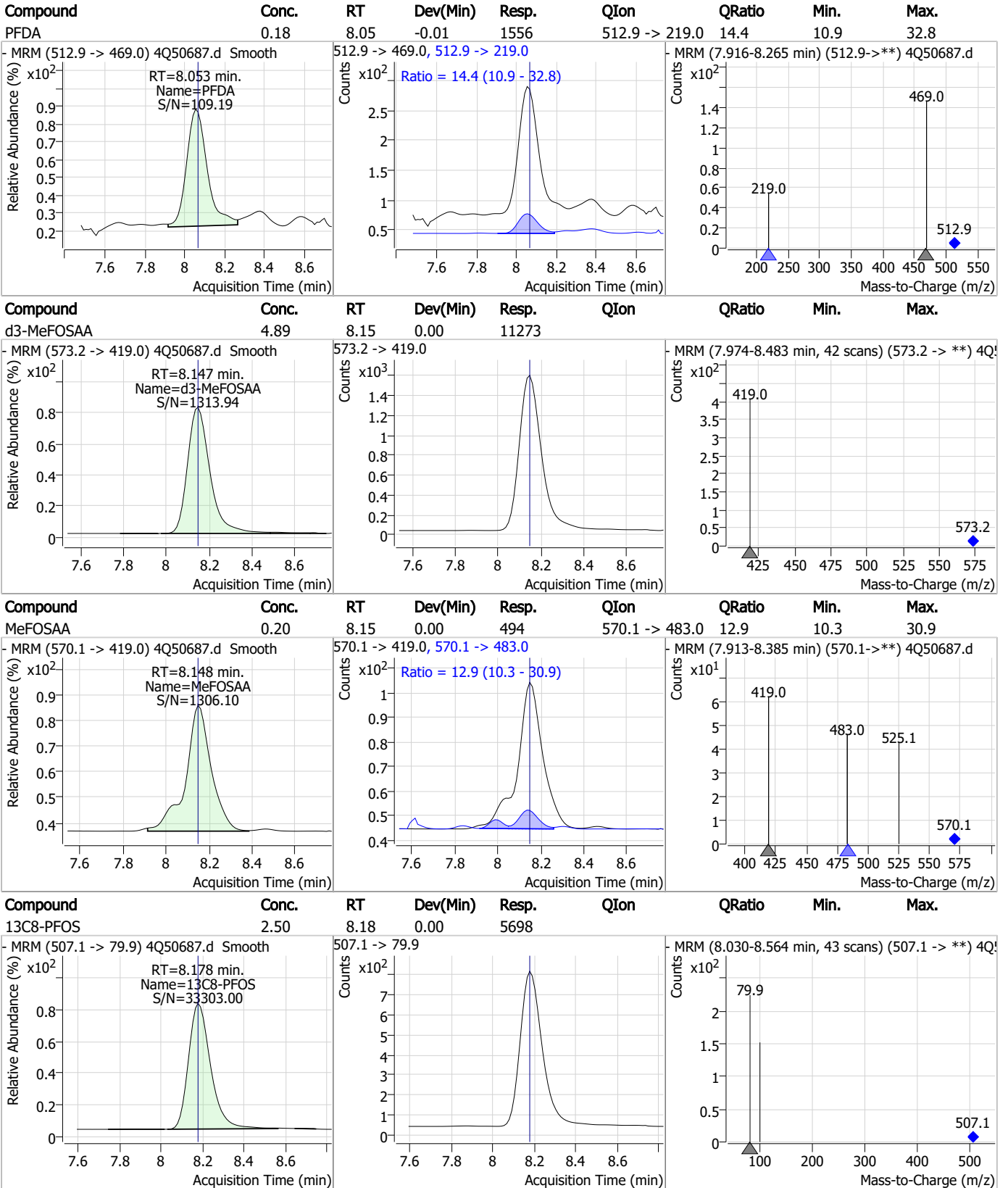


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Perfluorinated Compounds by LC/MS/MS

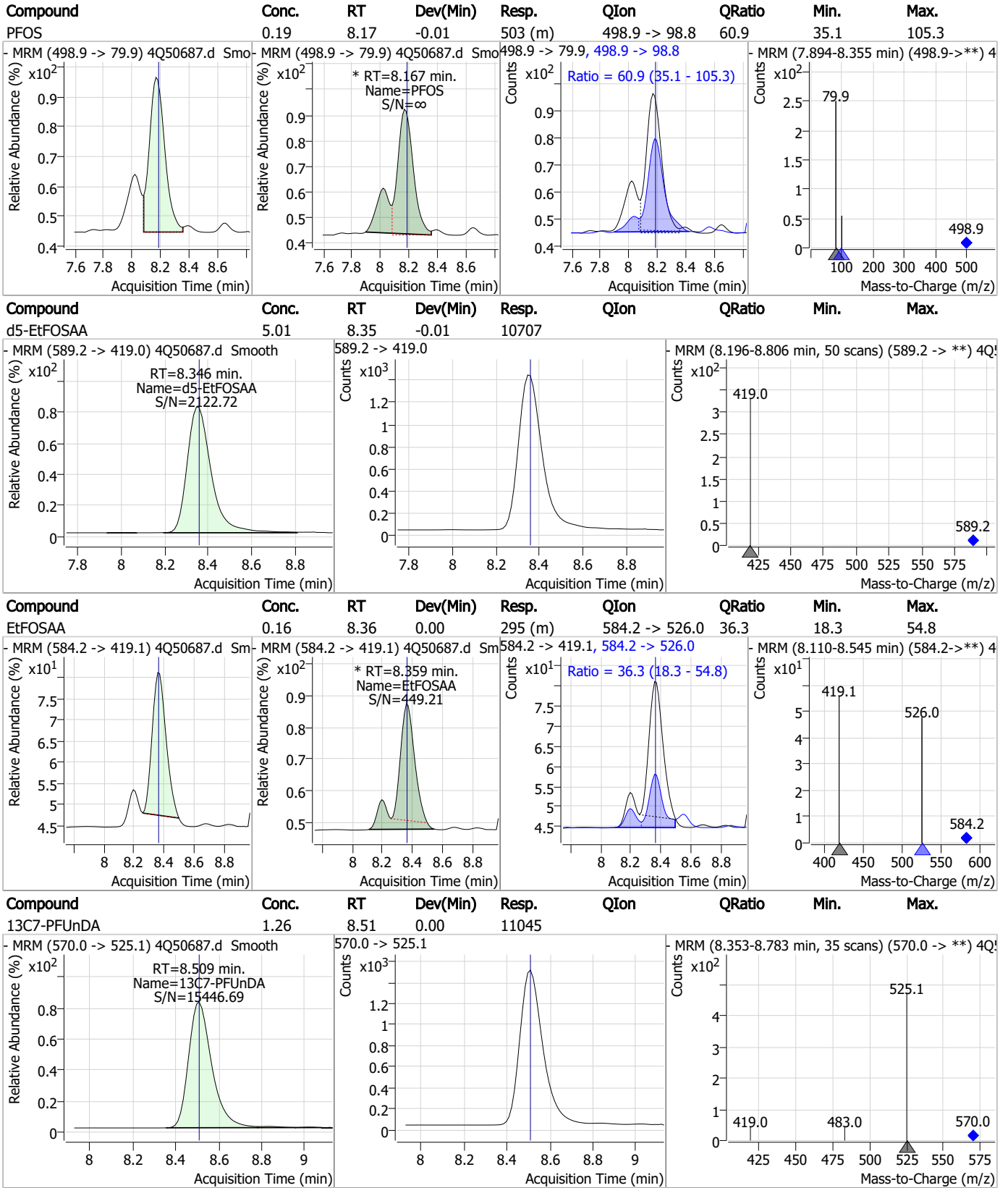


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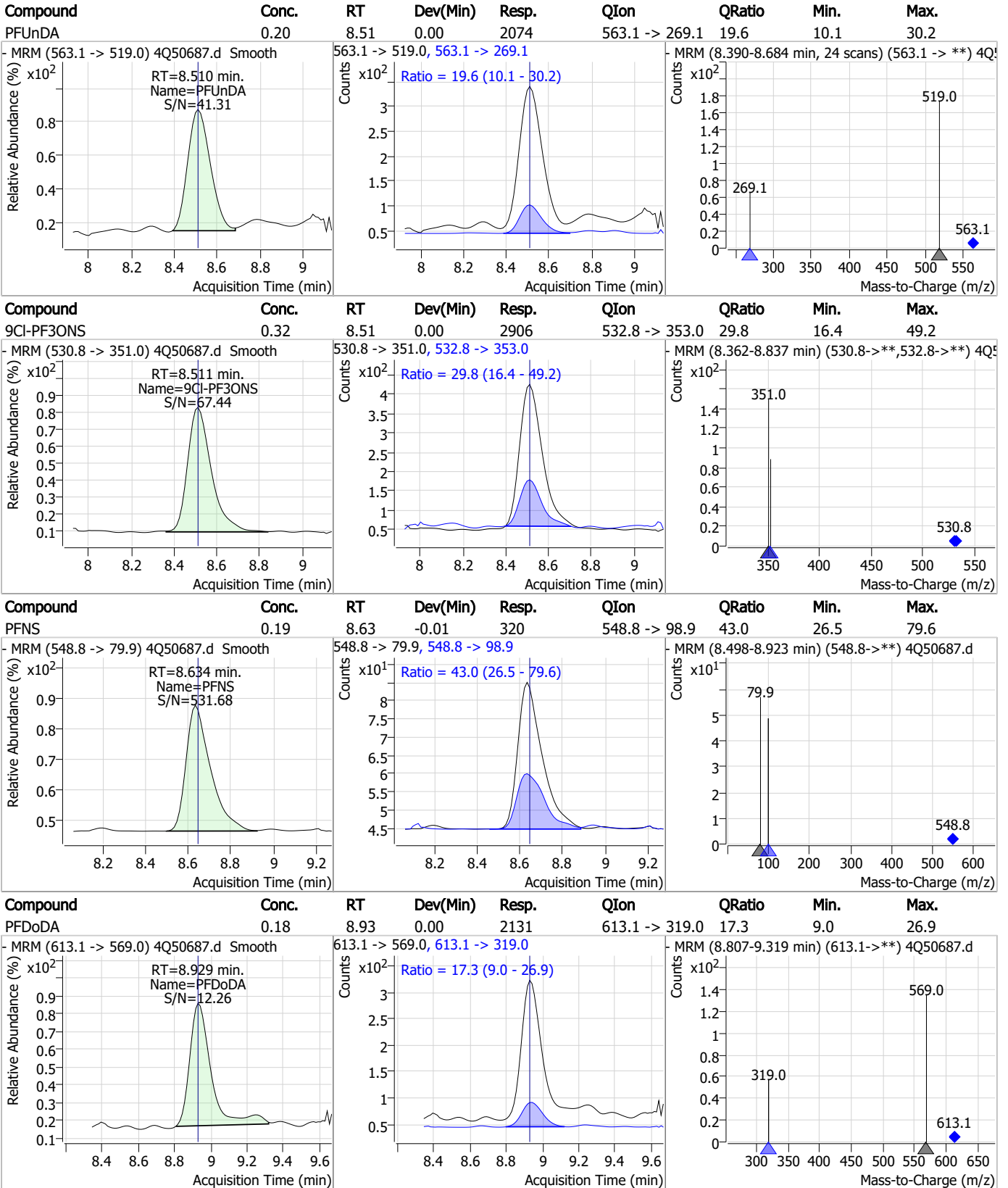
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

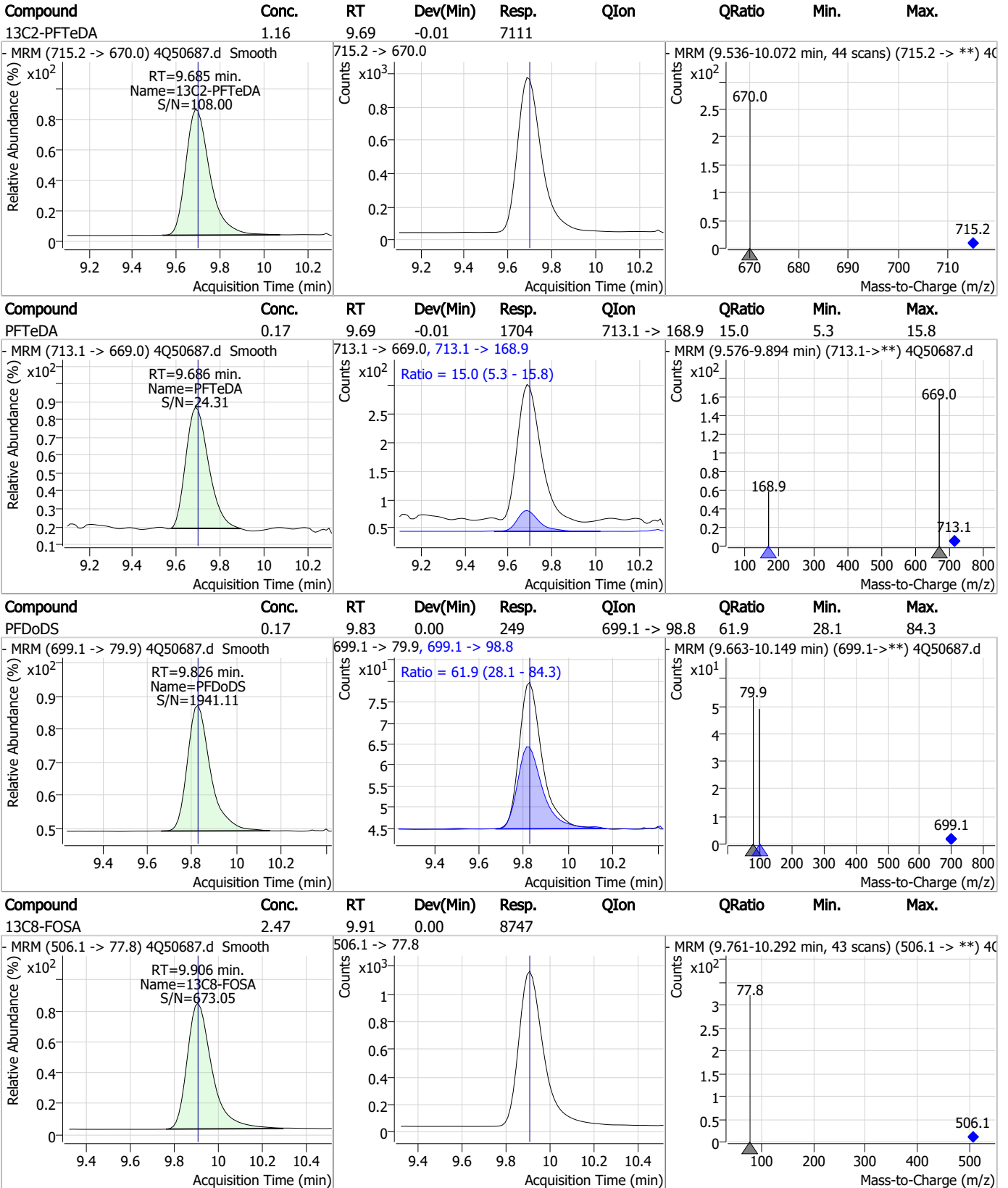


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.19	8.93	-0.01	13753				
PFDS	0.20	9.07	-0.01	407	599.0 -> 98.8	39.3	24.2	72.5
PFTrDA	0.16	9.33	0.00	2060	663.0 -> 168.9	15.4	7.0	21.0
11Cl-PF3OUds	0.32	9.35	0.00	2664	632.9 -> 452.9	29.8	15.1	45.2

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Perfluorinated Compounds by LC/MS/MS



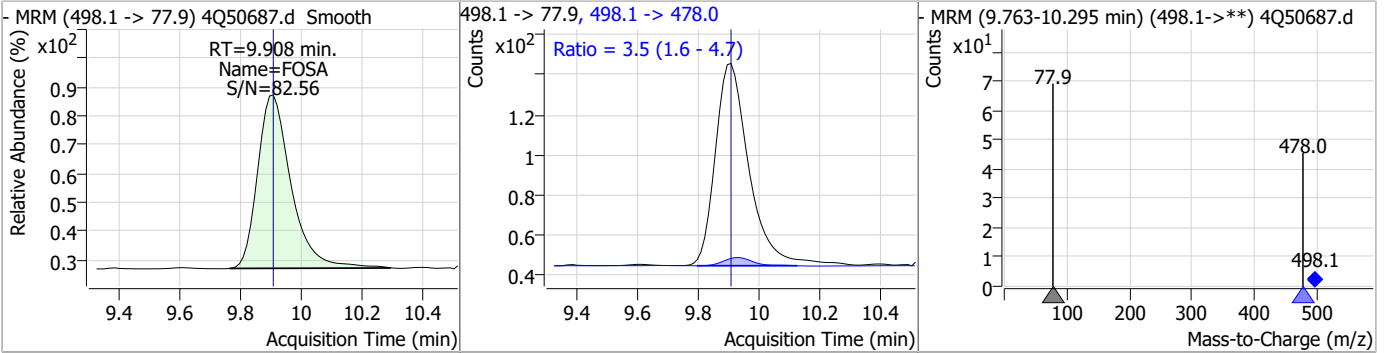
7.7.2

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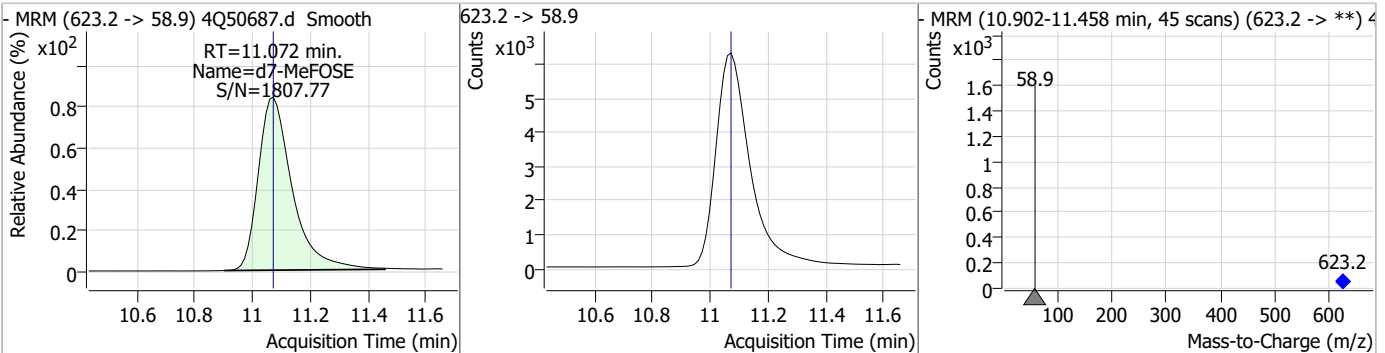


Perfluorinated Compounds by LC/MS/MS

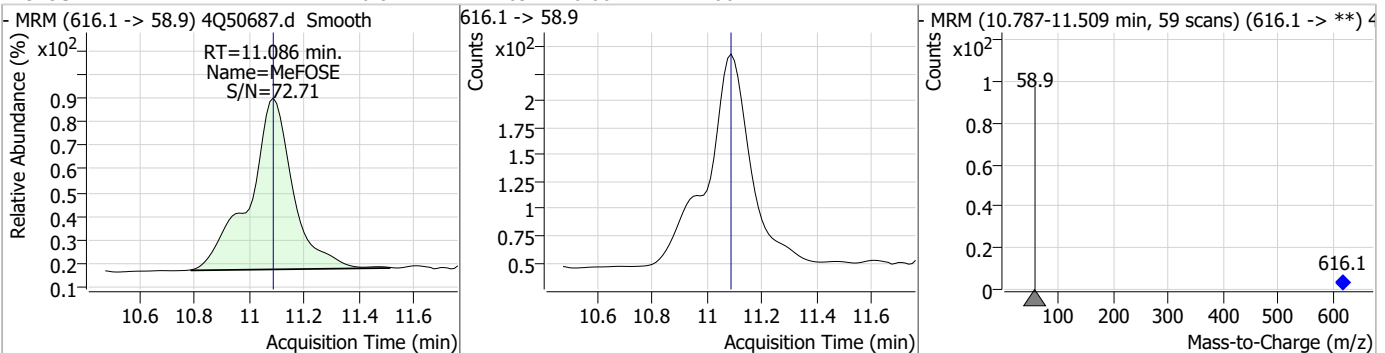
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.19	9.91	0.00	774	498.1 -> 478.0	3.5	1.6	4.7



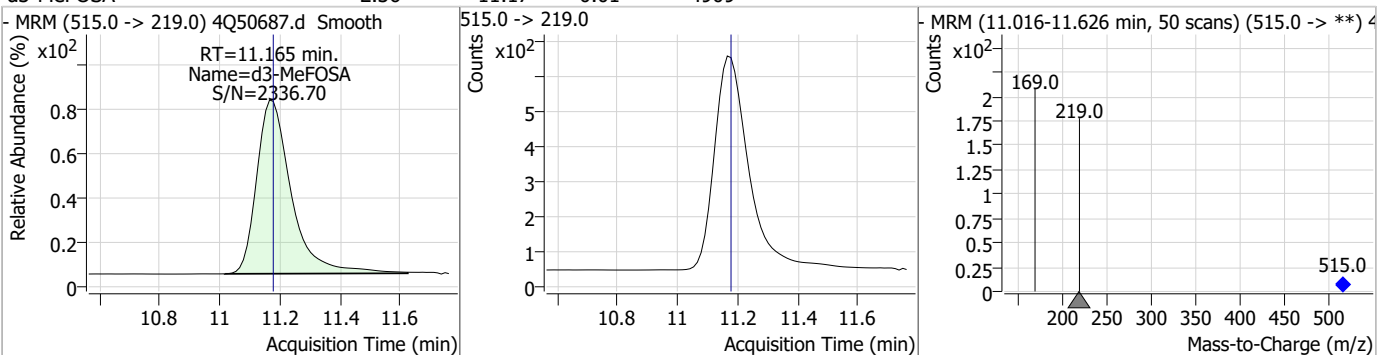
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.15	11.07	0.00	51014				



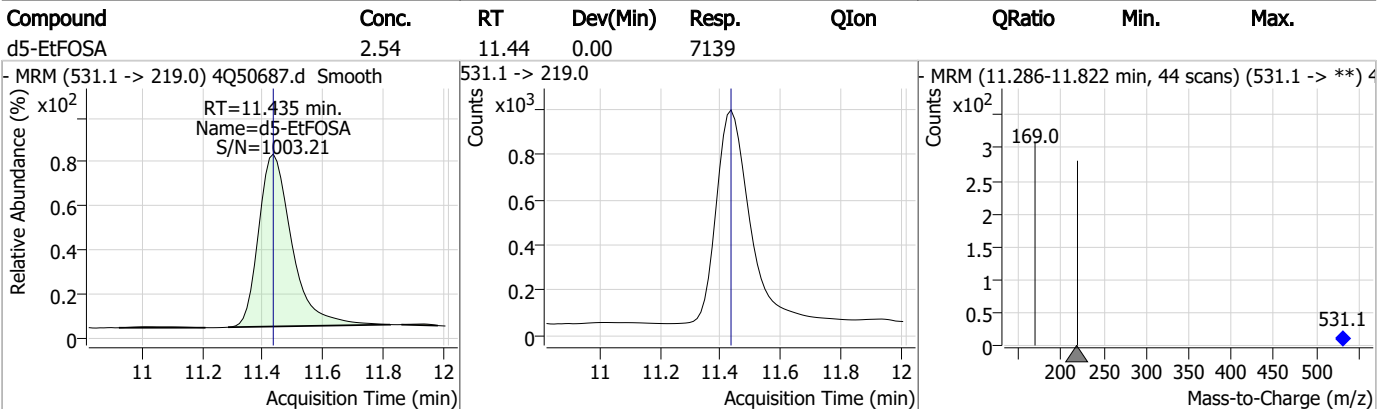
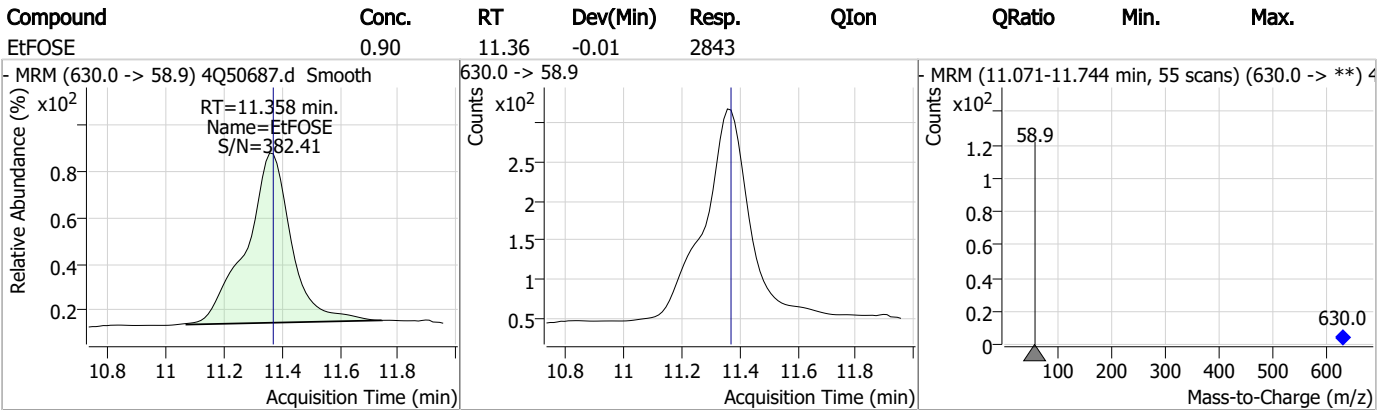
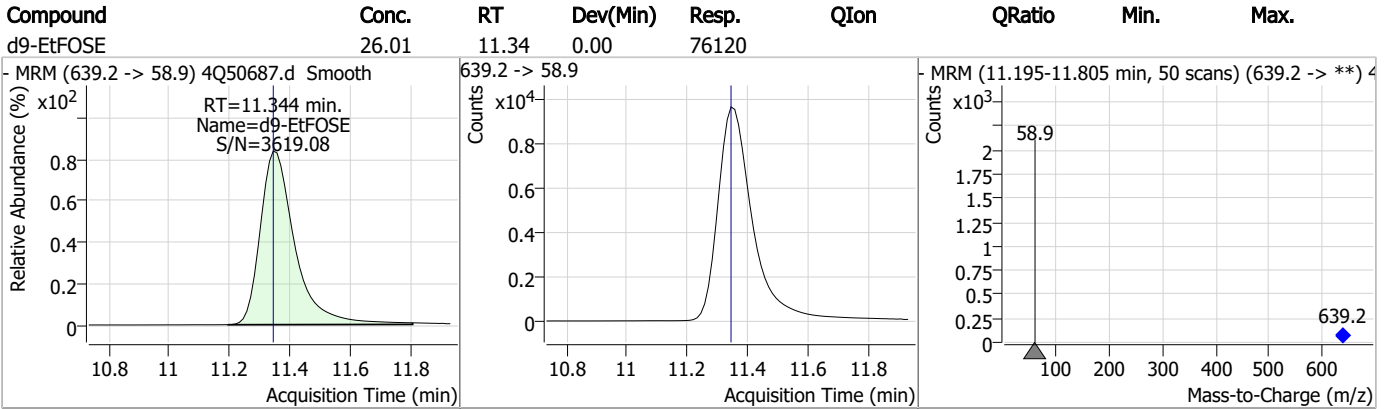
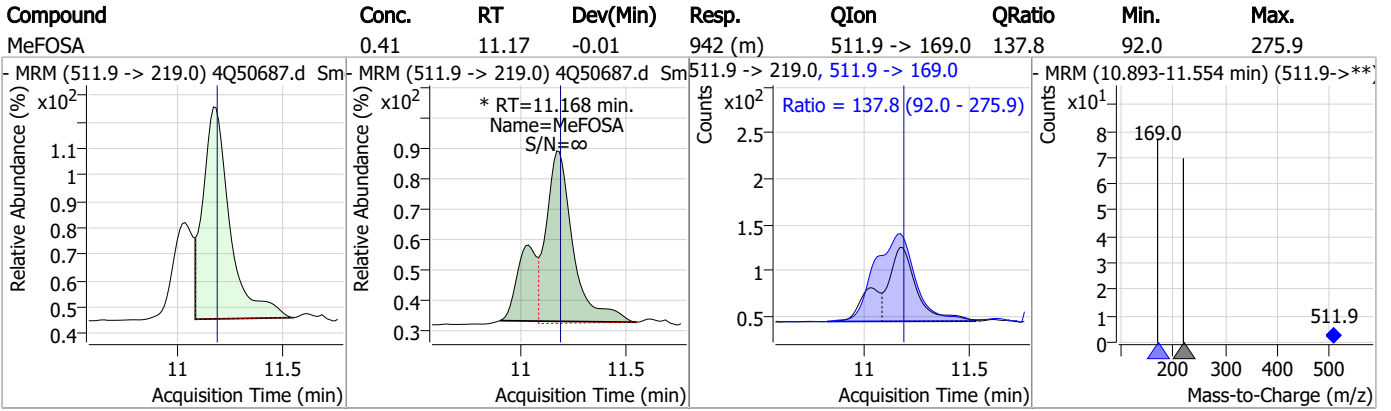
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.87	11.09	0.00	2166				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.36	11.17	-0.01	4909				



Perfluorinated Compounds by LC/MS/MS

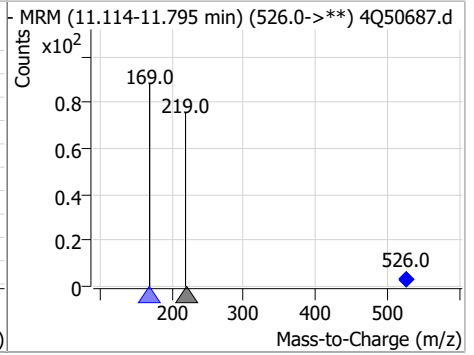
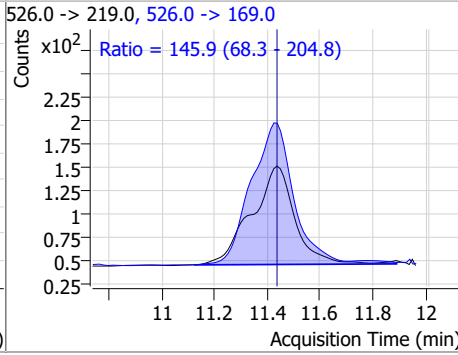
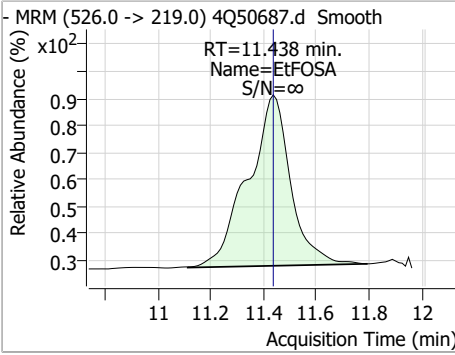


7.7.2

7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	0.38	11.44	0.00	1184	526.0 -> 169.0	145.9	68.3	204.8



7.7.2

7

Manual Integration Approval Summary

Sample Number: S4Q741-IC741 Method: EPA DRAFT 1633
Lab FileID: 4Q50687.D Analyst approved: 09/18/23 11:34 Anna Ludwig
Injection Time: 09/17/23 12:52 Supervisor approved: 09/18/23 14:43 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.09	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.17	Split peak
EtFOSAA	2991-50-6		8.36	Split peak
MeFOSA	31506-32-8		11.17	Split peak

7.7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50688.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/17/2023 1:07:13 PM
 Sample Name : ic741-2
 Vial : P1-A3
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q741.batch.bin
 Sample Information : OP98180,S4Q741,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.724	216.8 -> 171.9	85547	10.00 µg/L	0.012
M5-PFPeA	4.228	268.3 -> 223.0	33487	5.00 µg/L	0.012
M5-PFHxA	5.408	318.0 -> 273.0	31150	2.50 µg/L	0.000
M4-PFHpA	6.353	367.1 -> 322.0	22042	2.50 µg/L	0.000
M8-PFOA	7.037	421.1 -> 376.0	36636	2.50 µg/L	0.000
M9-PFNA	7.570	472.1 -> 427.0	14044	1.25 µg/L	0.000
M6-PFDA	8.065	519.1 -> 474.1	9692	1.25 µg/L	0.000
M7-PFUnDA	8.509	570.0 -> 525.1	11196	1.25 µg/L	0.000
M2-PFDoDA	8.929	615.1 -> 570.0	13952	1.25 µg/L	-0.012
M2-PFTeDA	9.698	715.2 -> 670.0	7198	1.25 µg/L	0.000
M8-FOSA	9.906	506.1 -> 77.8	9228	2.50 µg/L	0.000
M3-PFBS	5.263	302.1 -> 79.9	7916	2.50 µg/L	0.000
M3-PFHxS	7.090	402.1 -> 79.9	4858	2.50 µg/L	-0.013
M8-PFOS	8.178	507.1 -> 79.9	5633	2.50 µg/L	0.000
M2-4:2FTS	5.109	329.1 -> 80.9	917	5.00 µg/L	0.000
M2-6:2FTS	6.809	429.1 -> 80.9	1320	5.00 µg/L	0.000
M2-8:2FTS	7.865	529.1 -> 80.9	2028	5.00 µg/L	0.000
M3-MeFOSAA	8.147	573.2 -> 419.0	11668	5.00 µg/L	0.000
M3-HFPO-DA	5.763	286.9 -> 168.9	30408	10.00 µg/L	0.000
M5-EtFOSAA	8.358	589.2 -> 419.0	10464	5.00 µg/L	0.000
M7-MeFOSE	11.072	623.2 -> 58.9	51986	25.00 µg/L	0.000
M9-EtFOSE	11.344	639.2 -> 58.9	73612	25.00 µg/L	0.000
M5-EtFOSA	11.435	531.1 -> 219.0	7175	2.50 µg/L	0.000
M3-MeFOSA	11.165	515.0 -> 219.0	5057	2.50 µg/L	-0.012
13C4-PFOS	8.179	502.8 -> 79.9	5514	2.50 µg/L	0.000
13C3-PFBA	2.716	216.0 -> 172.0	42906	5.00 µg/L	0.000
18O2-PFHxS	7.102	403.0 -> 83.9	3264	2.50 µg/L	0.000
13C4-PFOA	7.037	417.1 -> 372.0	40123	2.50 µg/L	0.000
13C2-PFDA	8.066	515.1 -> 470.1	9819	1.25 µg/L	0.000
13C5-PFNA	7.570	468.0 -> 423.0	12335	1.25 µg/L	0.000
13C2-PFHxA	5.409	315.1 -> 270.0	27636	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.109	329.1 -> 80.9	917	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C2-6:2FTS	6.809	429.1 -> 80.9	1320	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C2-8:2FTS	7.865	529.1 -> 80.9	2028	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.2%		
13C2-PFDoDA	8.929	615.1 -> 570.0	13952	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C2-PFTeDA	9.698	715.2 -> 670.0	7198	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C3-PFBS	5.263	302.1 -> 79.9	7916	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C3-PFHxS	7.090	402.1 -> 79.9	4858	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 = 99.0%	
13C4-PFBA	2.724	216.8 -> 171.9	85547	10.07 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.353	367.1 -> 322.0	22042	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C5-PFHxA	5.408	318.0 -> 273.0	31150	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C5-PFPeA	4.228	268.3 -> 223.0	33487	5.15 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C6-PFDA	8.065	519.1 -> 474.1	9692	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C7-PFUnDA	8.509	570.0 -> 525.1	11196	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C8-FOSA	9.906	506.1 -> 77.8	9228	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C8-PFOA	7.037	421.1 -> 376.0	36636	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C8-PFOS	8.178	507.1 -> 79.9	5633	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.9%	
13C9-PFNA	7.570	472.1 -> 427.0	14044	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.7%	
d3-MeFOSAA	8.147	573.2 -> 419.0	11668	4.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C3-HFPO-DA	5.763	286.9 -> 168.9	30408	10.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
d3-MeFOSA	11.165	515.0 -> 219.0	5057	2.26 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.4%	
d5-EtFOSAA	8.358	589.2 -> 419.0	10464	4.56 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.2%	
d7-MeFOSE	11.072	623.2 -> 58.9	51986	23.86 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.4%	
d9-EtFOSE	11.344	639.2 -> 58.9	73612	23.42 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.7%	
d5-EtFOSA	11.435	531.1 -> 219.0	7175	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.0%	
Target Compounds					QValue
4:2FTS	5.109	327.1 -> 307.0	2044	1.32 µg/L	99
		327.1 -> 80.9	828		
6:2FTS	6.822	427.1 -> 407.0	2202	1.45 µg/L	99
		427.1 -> 80.9	843		
8:2FTS	7.865	527.1 -> 507.0	1645	1.44 µg/L	98
		527.1 -> 80.8	750		
EtFOSAA	8.359	584.2 -> 419.1	659	0.36 µg/L	76
		584.2 -> 526.0	335	m	
FOSA	9.909	498.1 -> 77.9	1405	0.33 µg/L	97
		498.1 -> 478.0	33		
MeFOSAA	8.148	570.1 -> 419.0	778	0.31 µg/L	93
		570.1 -> 483.0	186		
PFBA	2.720	212.8 -> 168.9	4581	1.40 µg/L	100
PFBS	5.264	298.7 -> 79.9	1088	0.29 µg/L	92
		298.7 -> 98.8	506		
PFDA	8.066	512.9 -> 469.0	3082	0.35 µg/L	97
		512.9 -> 219.0	636		
PFDODA	8.929	613.1 -> 569.0	4338	0.36 µg/L	96
		613.1 -> 319.0	708		
PFDS	9.069	599.0 -> 79.9	706	0.35 µg/L	84

7.7.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	418			
PFHpA	6.354	363.1 -> 319.0	4157	0.32	µg/L	96
		363.1 -> 169.0	911			
PFHpS	7.673	449.0 -> 79.9	878	0.36	µg/L	98
		449.0 -> 98.9	450			
PFHxA	5.411	313.0 -> 269.0	4078	0.37	µg/L	99
		313.0 -> 118.9	142			
PFHxS	7.091	398.7 -> 79.9	675	0.31	µg/L	m 92
		398.7 -> 98.9	364			
PFNA	7.571	463.0 -> 419.0	2940	0.34	µg/L	92
		463.0 -> 219.0	784			
PFNS	8.634	548.8 -> 79.9	650	0.39	µg/L	90
		548.8 -> 98.9	298			
PFOA	7.038	413.0 -> 369.0	5770	0.35	µg/L	98
		413.0 -> 169.0	1203			
PFOS	8.179	498.9 -> 79.9	872	0.33	µg/L	m 94
		498.9 -> 98.8	567			
PFPeA	4.229	263.0 -> 219.0	7310	0.69	µg/L	100
PFPeS	6.355	349.1 -> 79.9	654	0.33	µg/L	92
		349.1 -> 98.9	281			
PFTeDA	9.686	713.1 -> 669.0	3435	0.35	µg/L	95
		713.1 -> 168.9	425			
PFTrDA	9.328	663.0 -> 619.0	4443	0.34	µg/L	98
		663.0 -> 168.9	654			
PFUnDA	8.510	563.1 -> 519.0	3056	0.29	µg/L	80
		563.1 -> 269.1	893			
11Cl-PF3OUdS	9.355	630.9 -> 450.9	5254	0.65	µg/L	97
		632.9 -> 452.9	1674			
9Cl-PF3ONS	8.511	530.8 -> 351.0	5895	0.68	µg/L	94
		532.8 -> 353.0	2143			
ADONA	6.629	376.9 -> 250.9	15139	0.66	µg/L	97
		376.9 -> 84.8	3743			
HFPO-DA	5.764	284.9 -> 168.9	2476	0.75	µg/L	99
		284.9 -> 184.9	337			
3:3FTCA	3.706	241.0 -> 177.0	988	1.70	µg/L	99
		241.0 -> 117.0	132			
5:3FTCA	6.169	341.0 -> 237.1	17624	9.08	µg/L	99
		341.0 -> 217.0	12837			
7:3FTCA	7.686	441.0 -> 316.9	8050	8.68	µg/L	93
		441.0 -> 336.9	17569			
EtFOSA	11.438	526.0 -> 219.0	2200	0.70	µg/L	99
		526.0 -> 169.0	3026			
EtFOSE	11.370	630.0 -> 58.9	5402	1.78	µg/L	100
MeFOSA	11.168	511.9 -> 219.0	1801	0.76	µg/L	m 71
		511.9 -> 169.0	2560			
MeFOSE	11.086	616.1 -> 58.9	4486	1.76	µg/L	100
PFDoDS	9.826	699.1 -> 79.9	509	0.35	µg/L	98
		699.1 -> 98.8	293			
NFDHA	5.290	295.0 -> 201.0	451	0.69	µg/L	84
		295.0 -> 84.9	136			
PFMBA	4.629	279.0 -> 85.1	3895	0.69	µg/L	100
PFMPA	3.358	229.0 -> 84.9	4384	0.70	µg/L	100
PFEESA	5.795	314.8 -> 134.9	6734	0.63	µg/L	99
		314.8 -> 82.9	183			

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

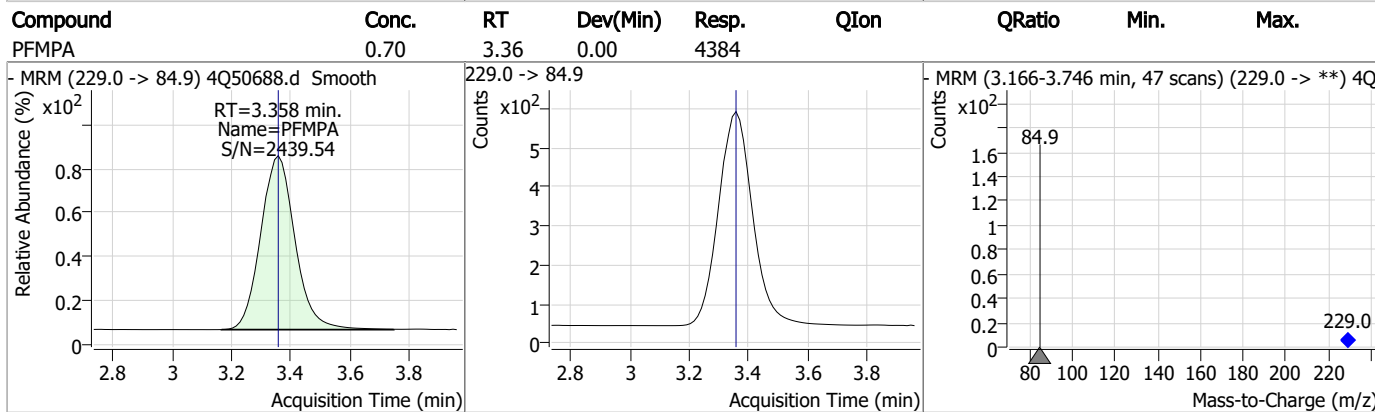
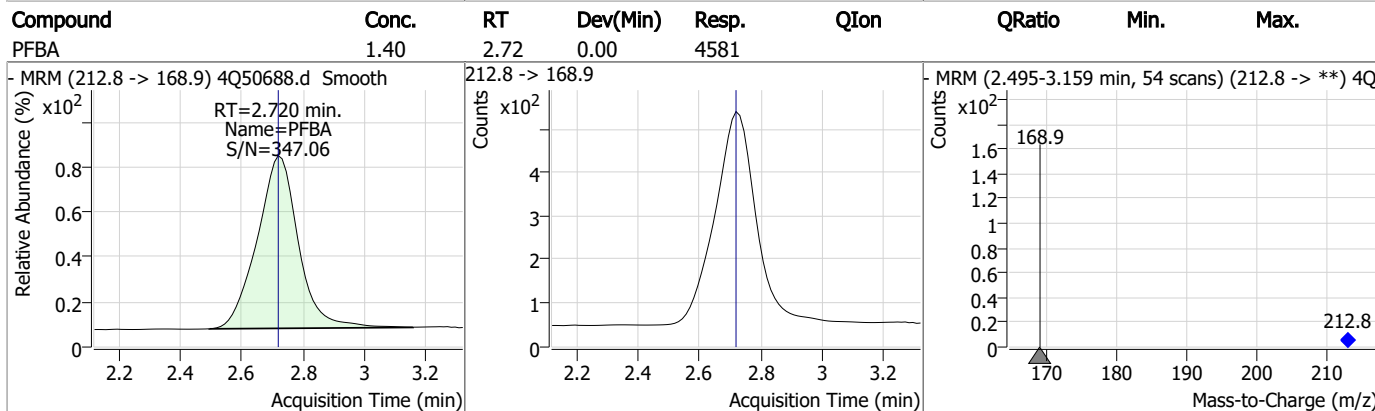
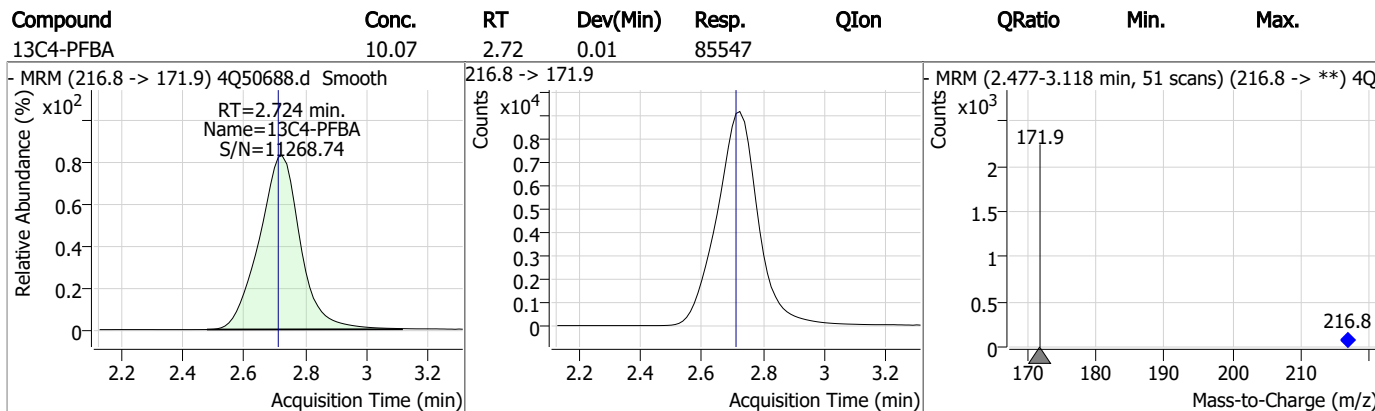
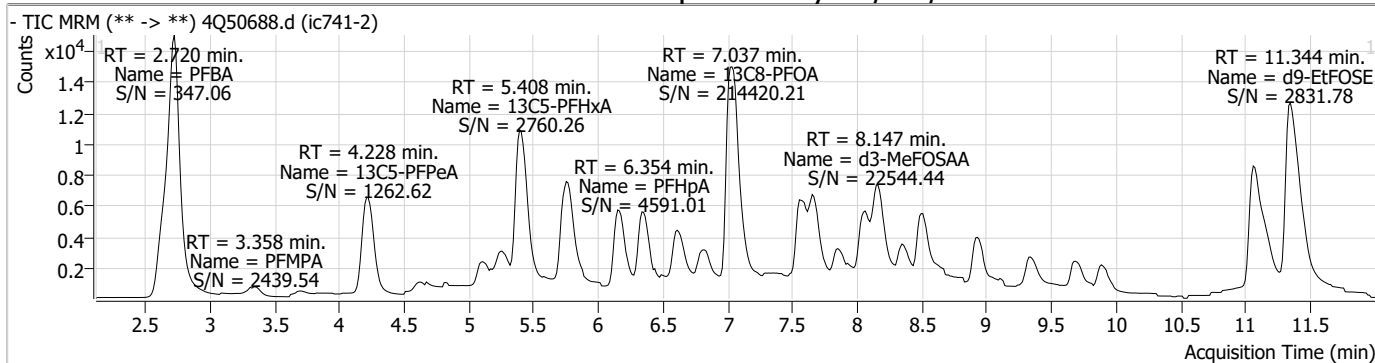
Perfluorinated Compounds by LC/MS/MS

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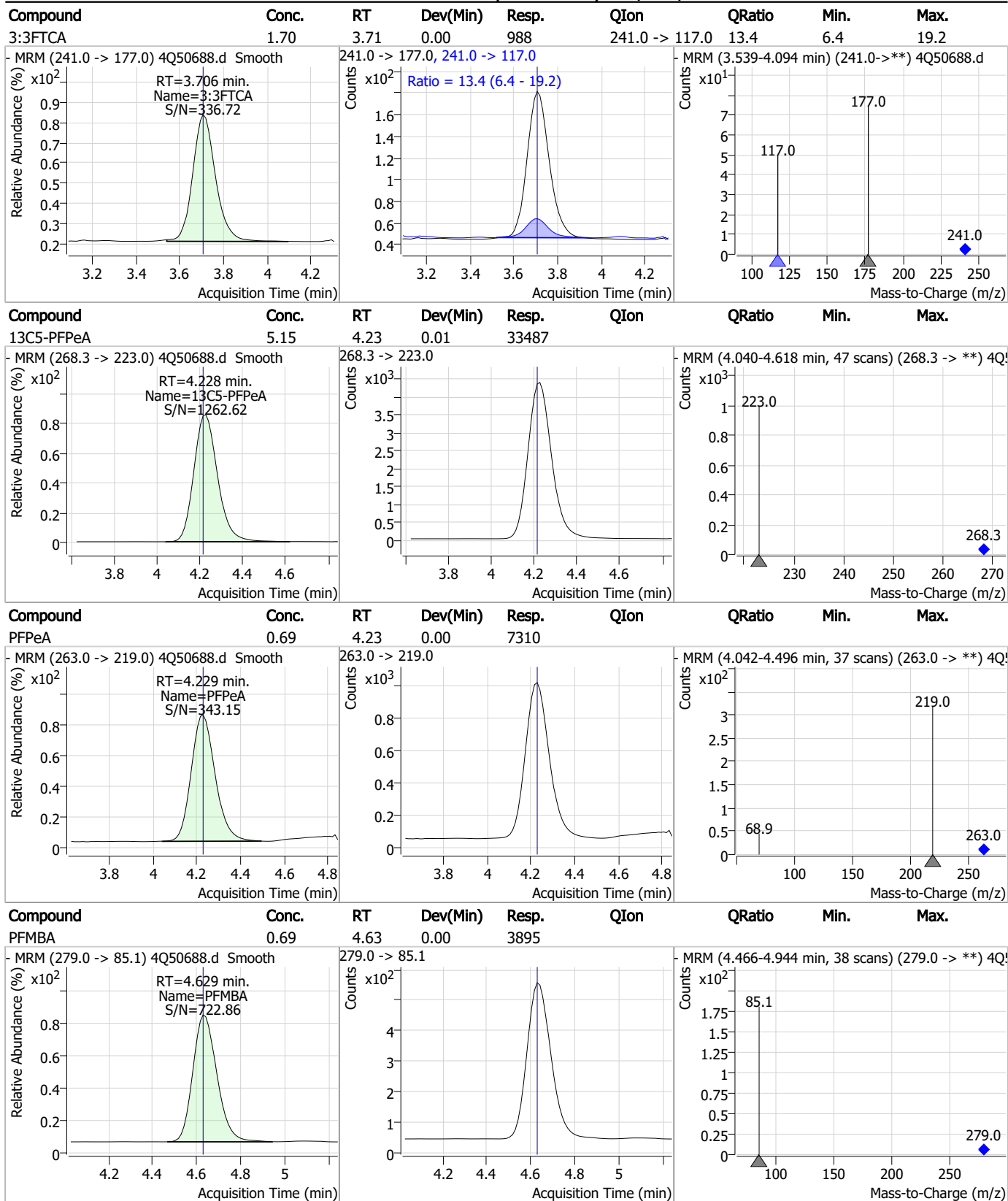
7.7.3

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Perfluorinated Compounds by LC/MS/MS

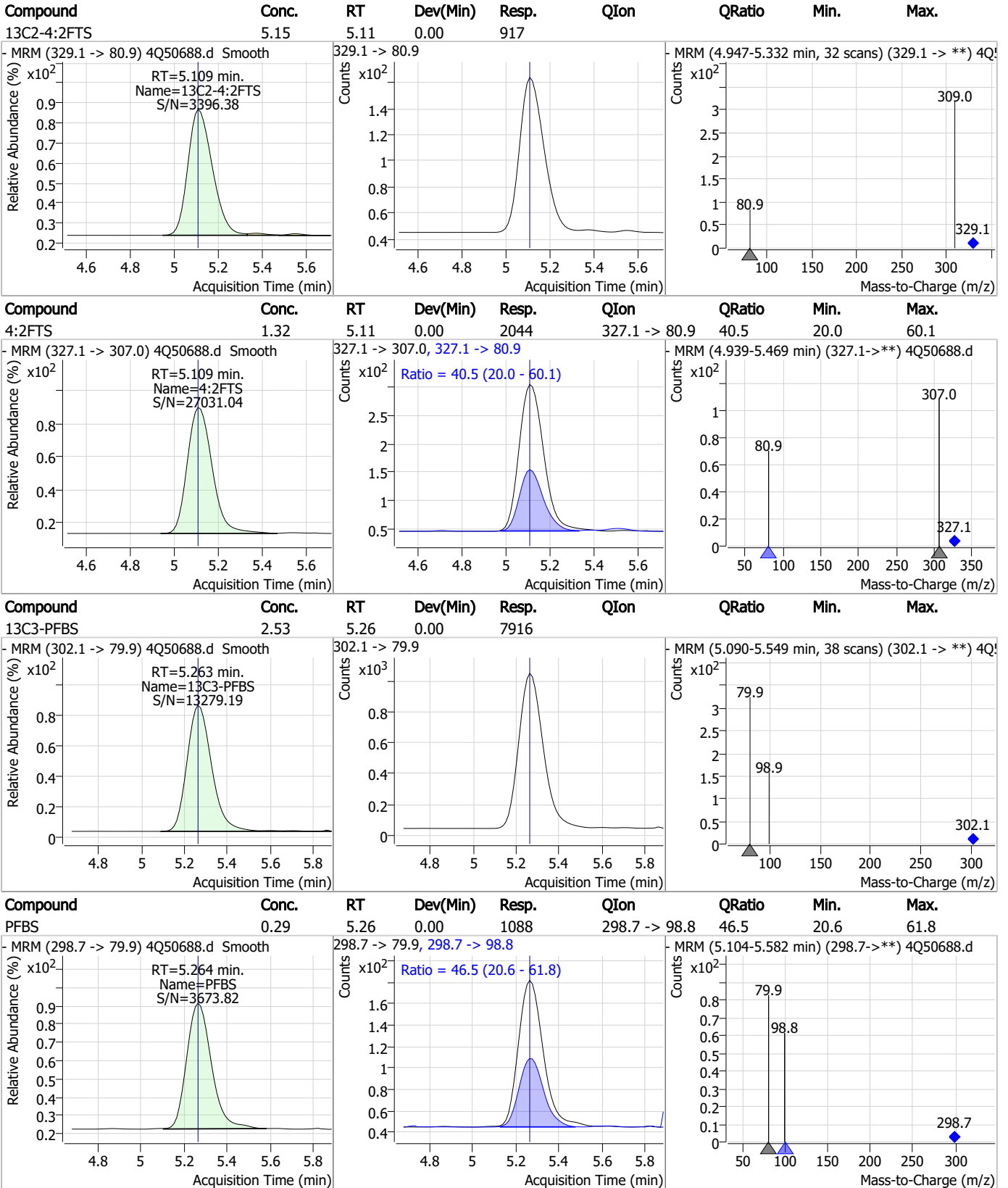


Perfluorinated Compounds by LC/MS/MS



7.7.3
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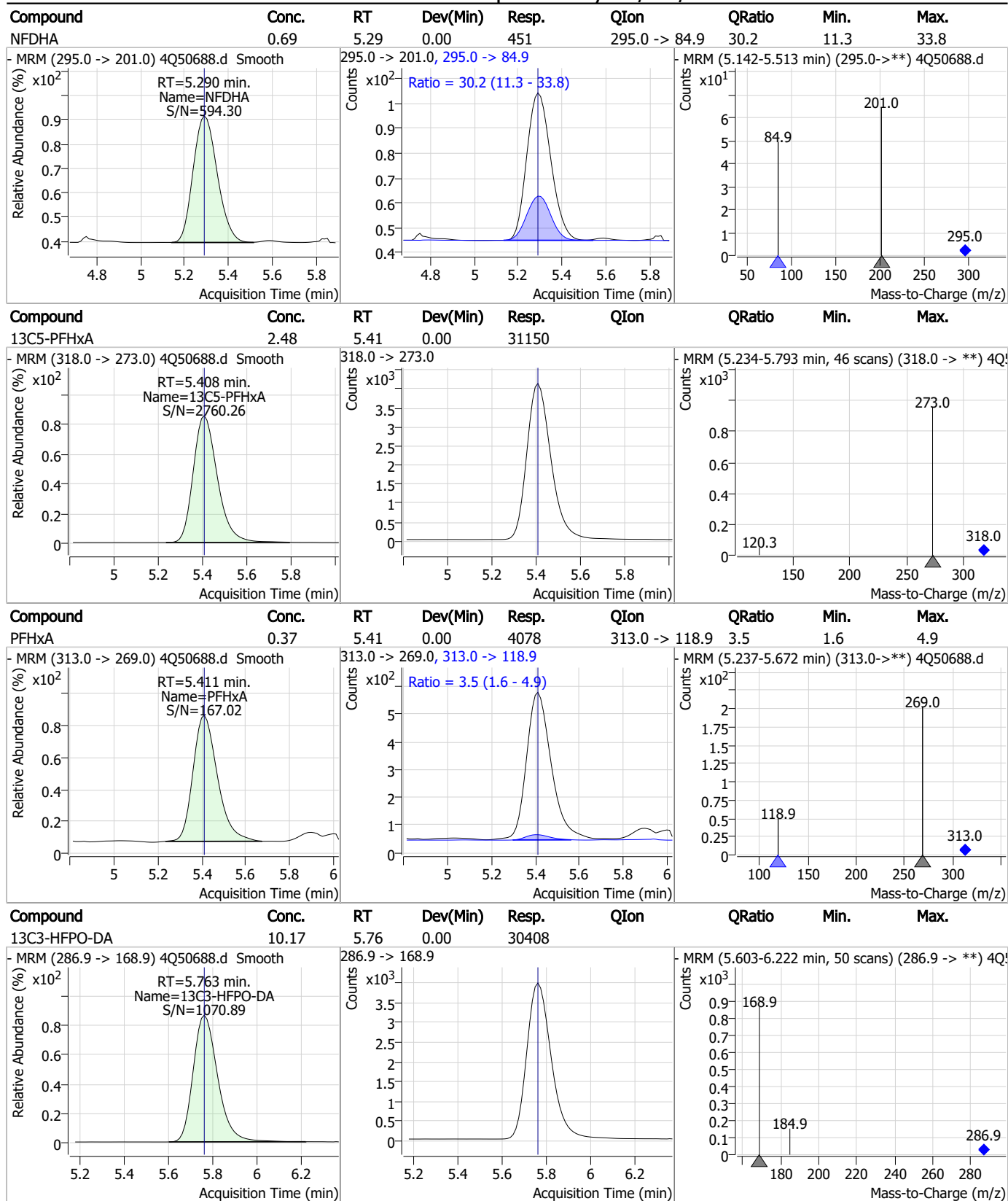
Perfluorinated Compounds by LC/MS/MS



7.7.3

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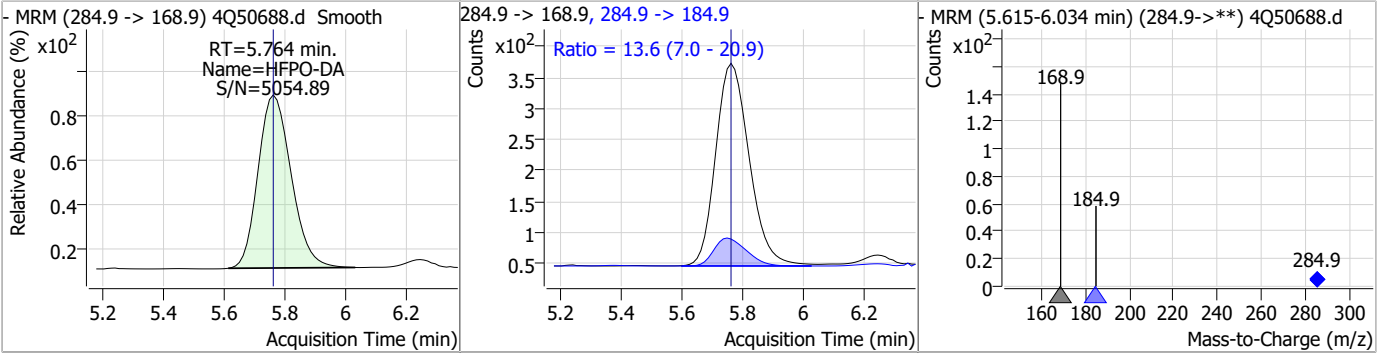
Perfluorinated Compounds by LC/MS/MS



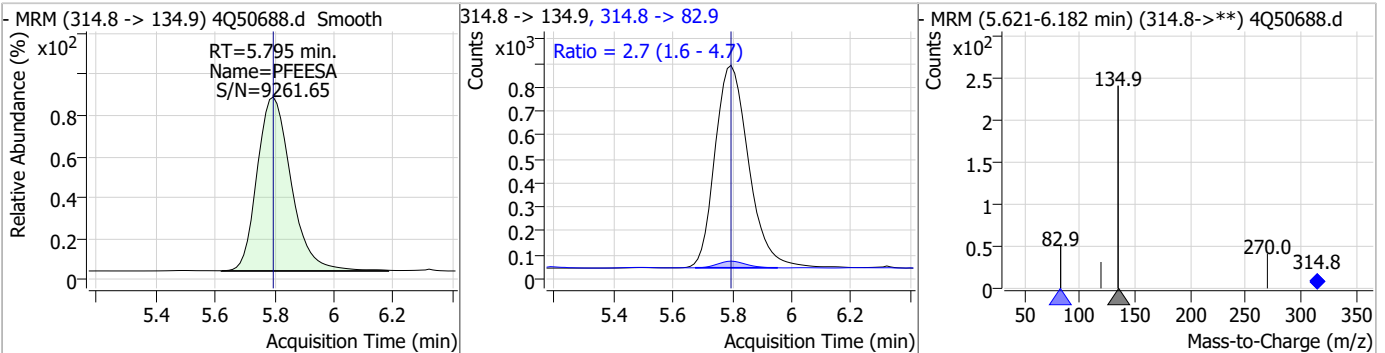
7.7.3
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Perfluorinated Compounds by LC/MS/MS

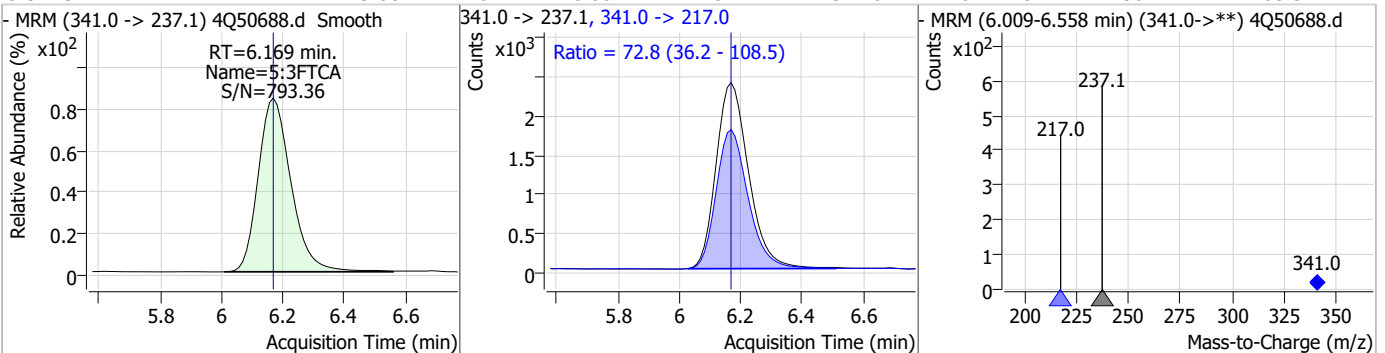
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.75	5.76	0.00	2476	284.9 -> 184.9	13.6	7.0	20.9



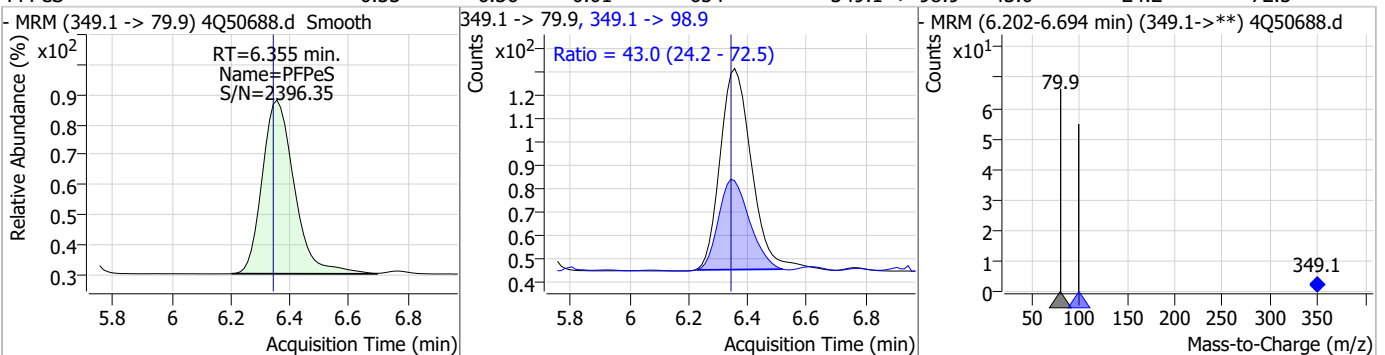
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.63	5.80	0.00	6734	314.8 -> 82.9	2.7	1.6	4.7



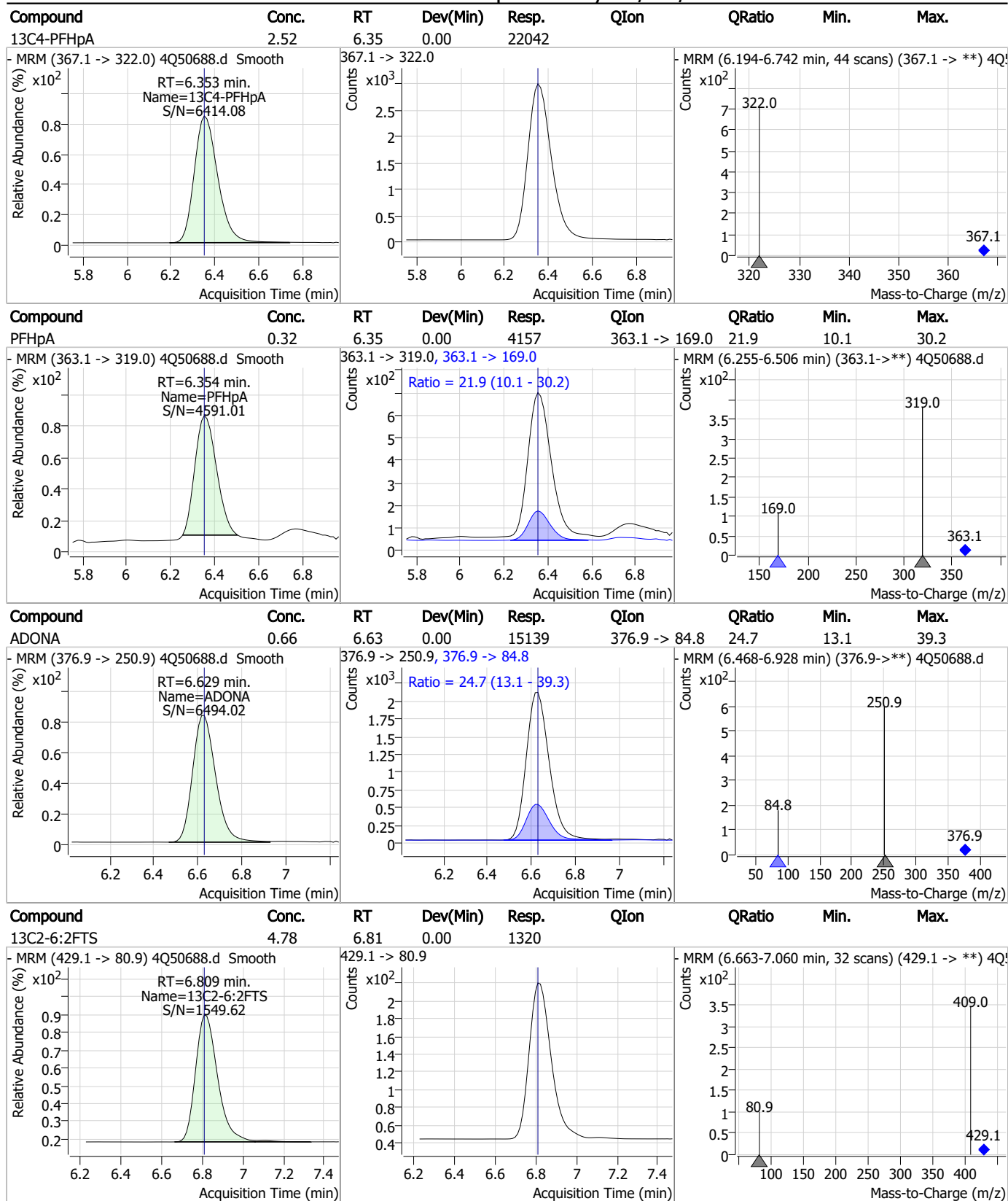
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	9.08	6.17	0.00	17624	341.0 -> 217.0	72.8	36.2	108.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.33	6.36	0.01	654	349.1 -> 98.9	43.0	24.2	72.5



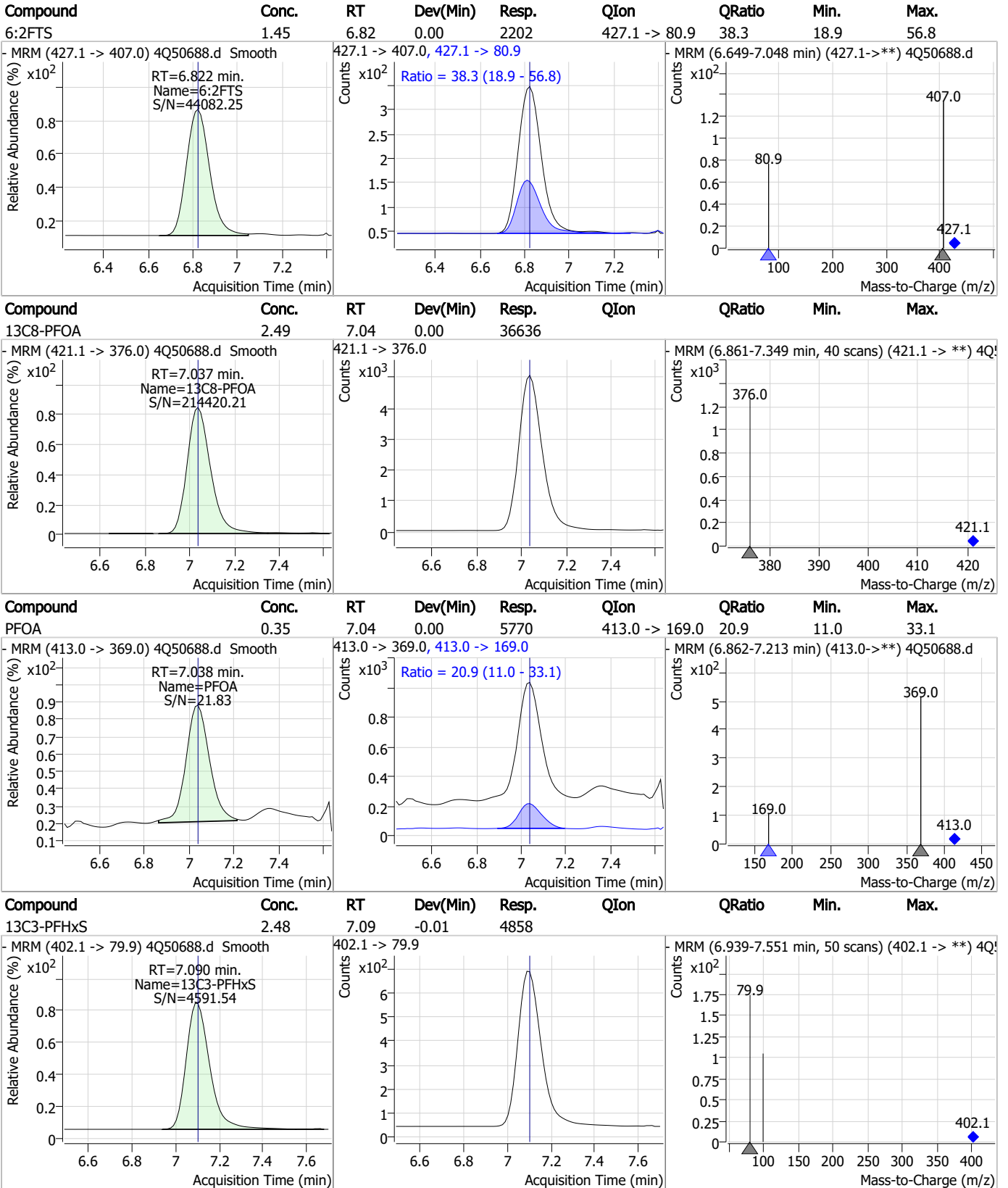
Perfluorinated Compounds by LC/MS/MS



7.7.3

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Perfluorinated Compounds by LC/MS/MS

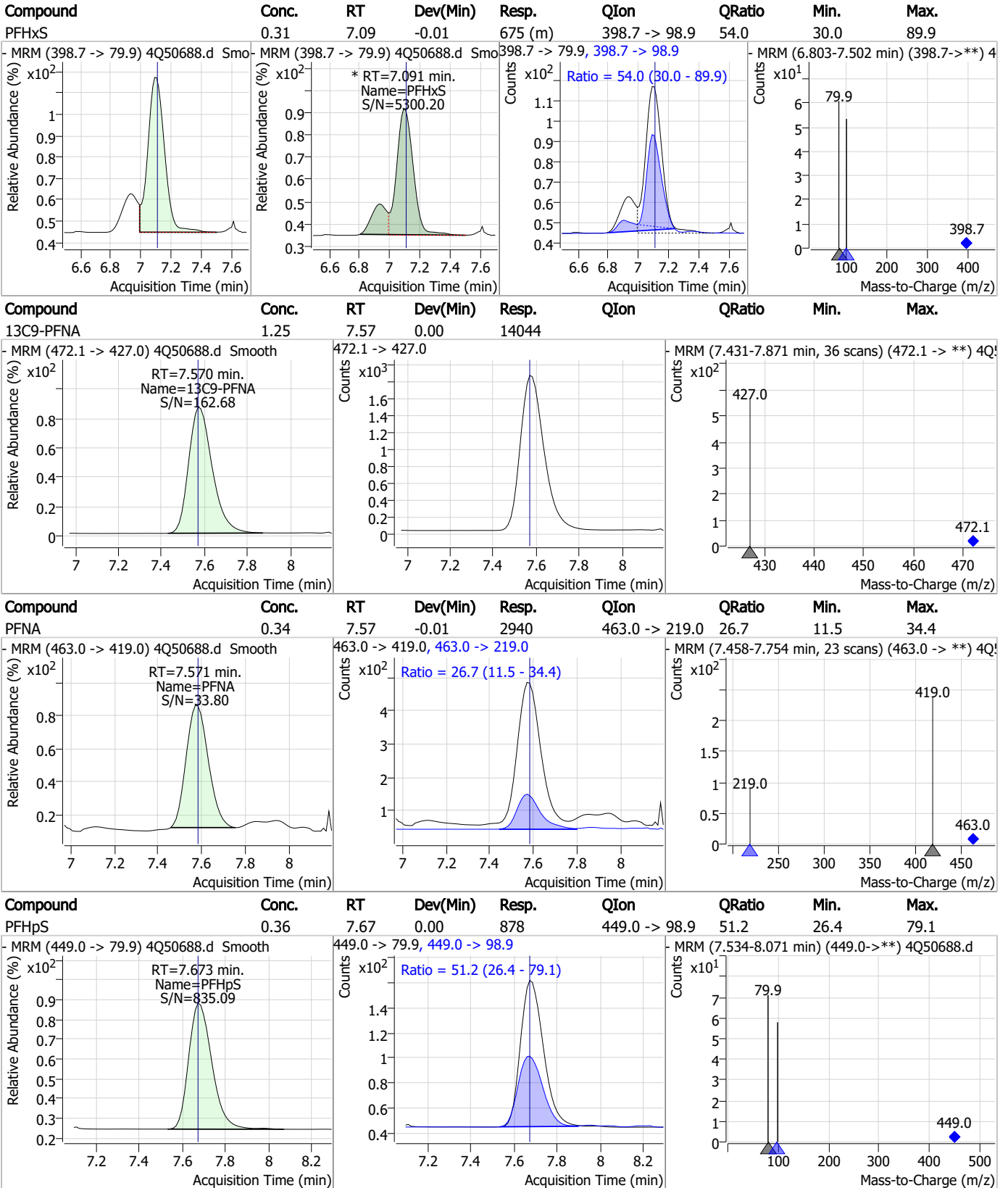


7.7.3

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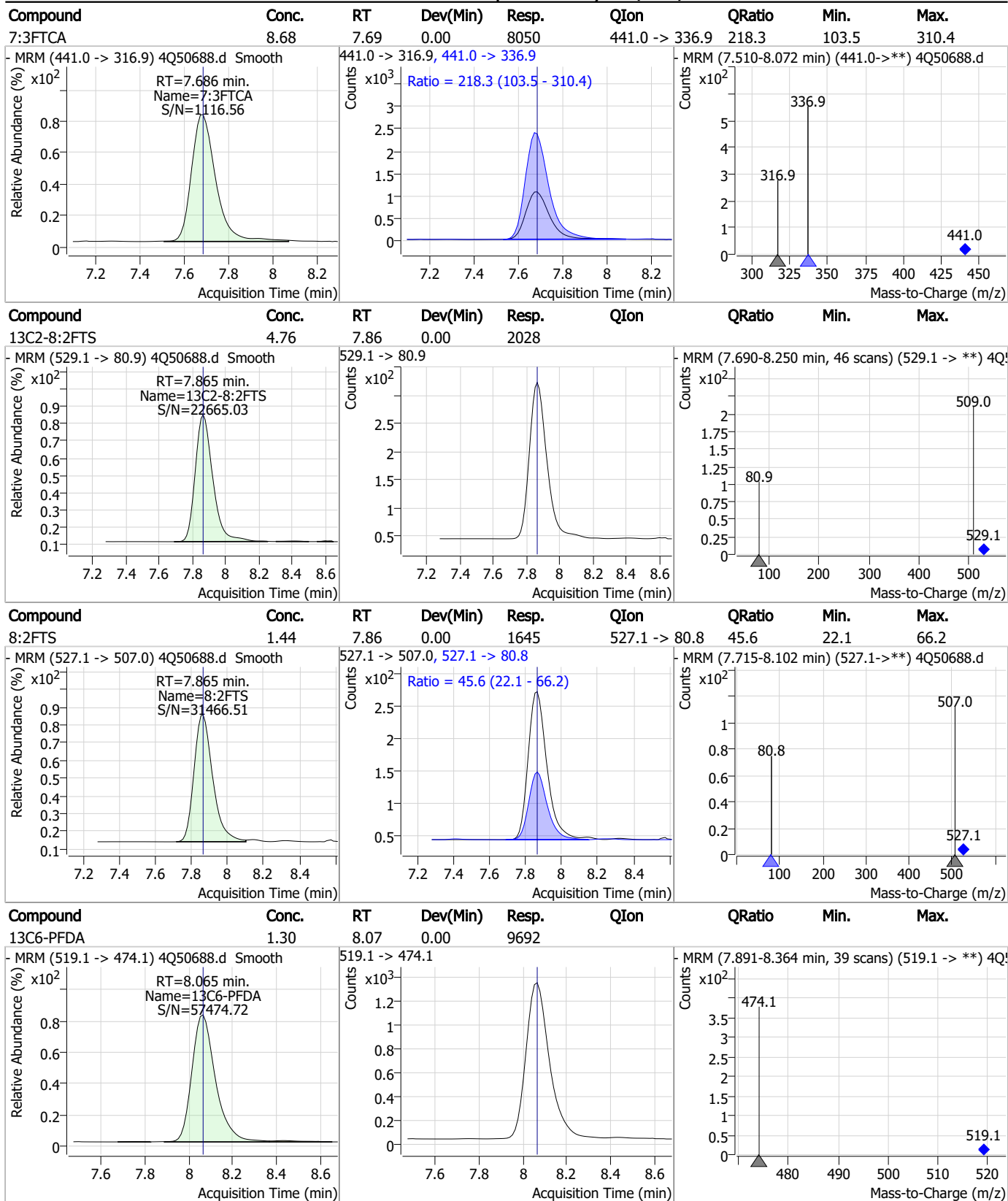
Perfluorinated Compounds by LC/MS/MS



7.7.3

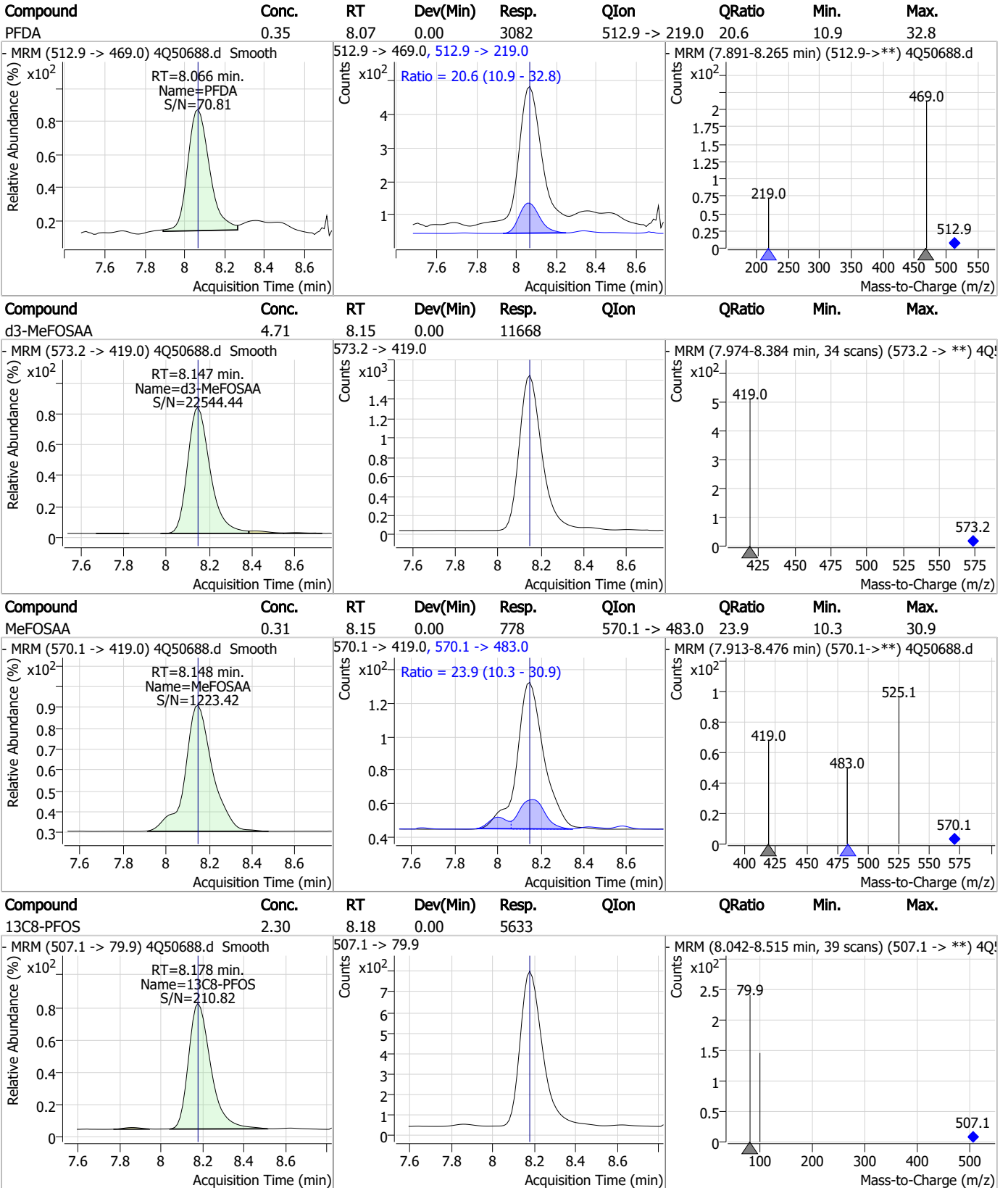
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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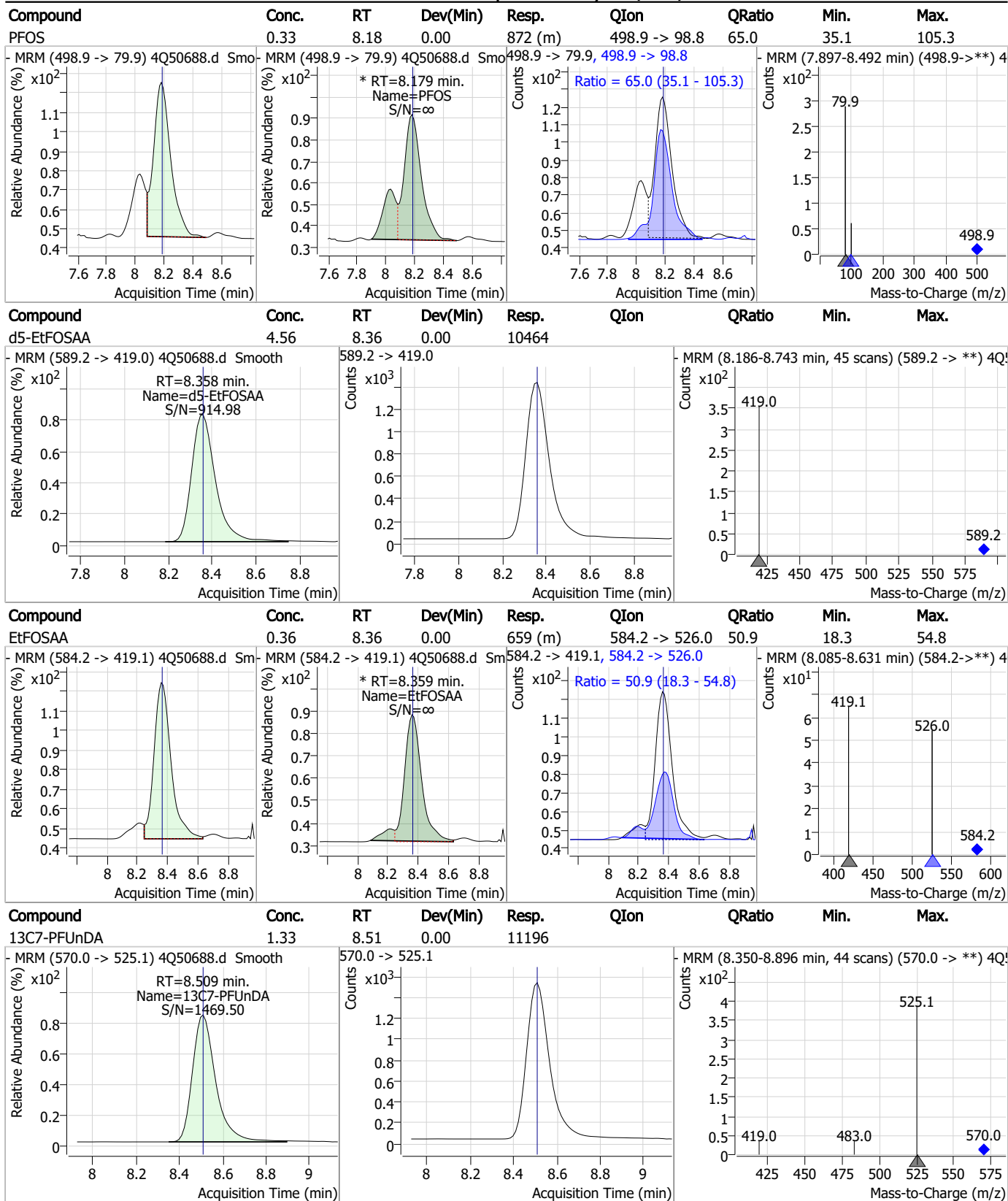
Perfluorinated Compounds by LC/MS/MS



7.7.3

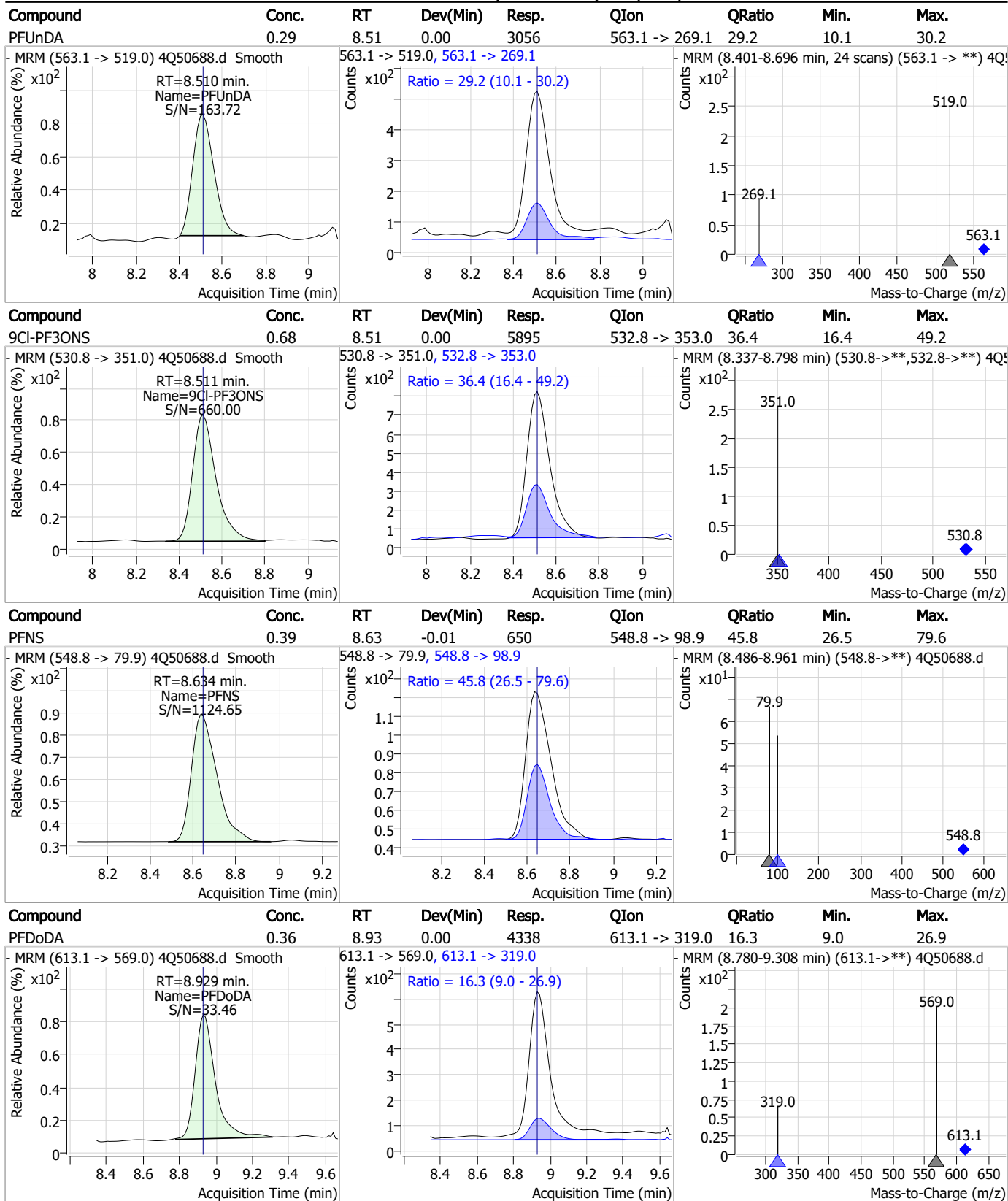
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Perfluorinated Compounds by LC/MS/MS



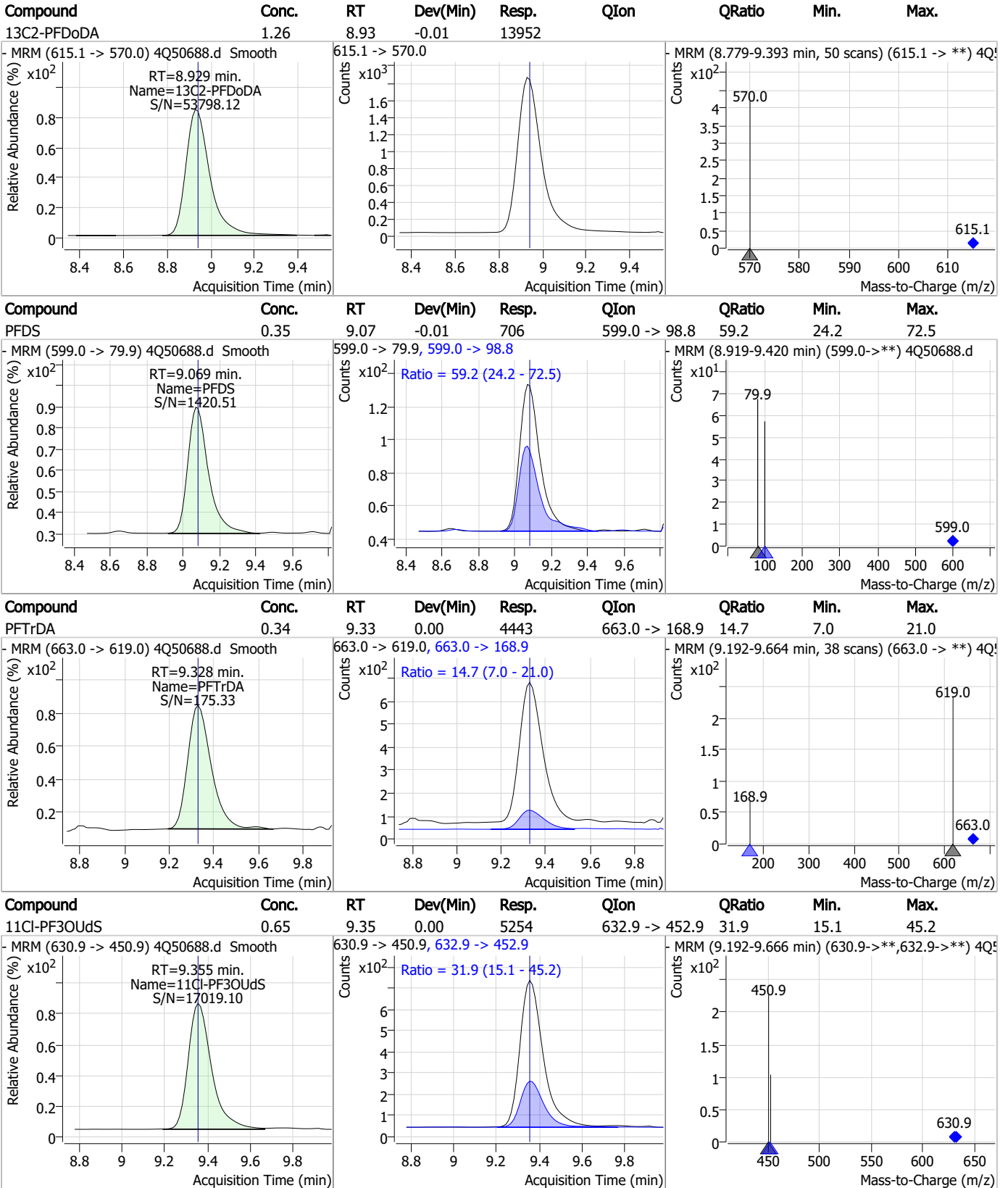
7.7.3
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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Perfluorinated Compounds by LC/MS/MS

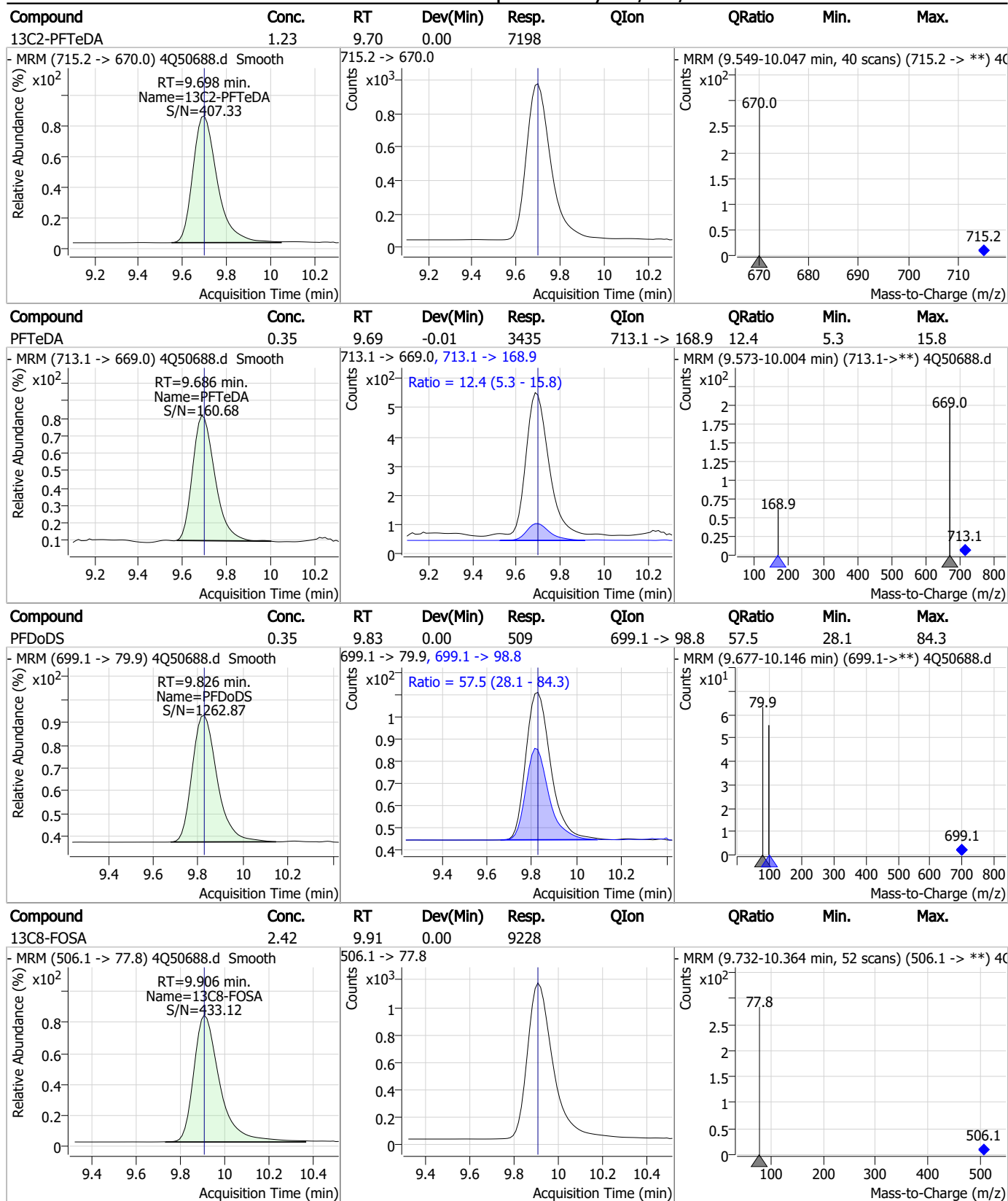


7.7.3

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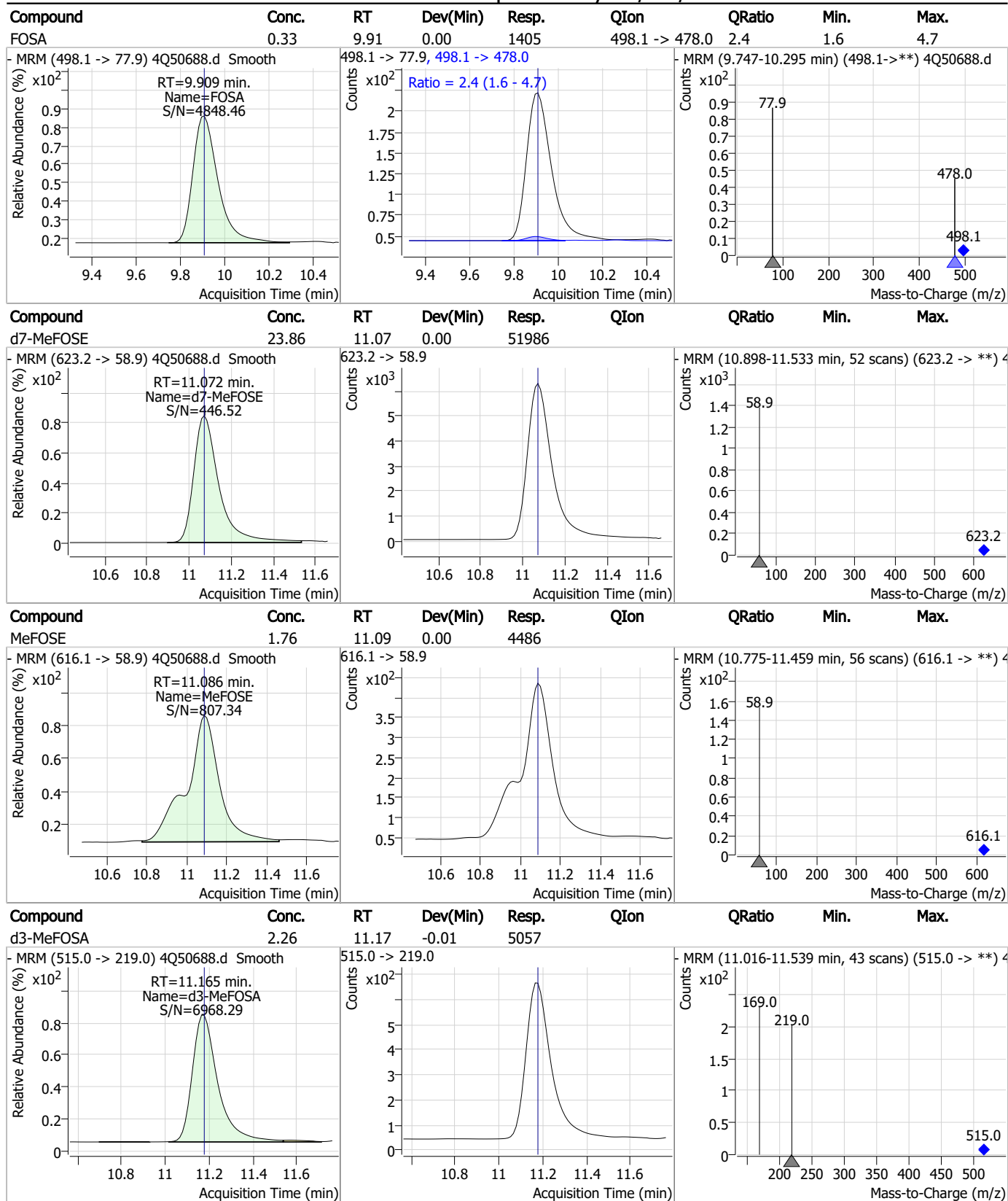
Perfluorinated Compounds by LC/MS/MS



7.7.3

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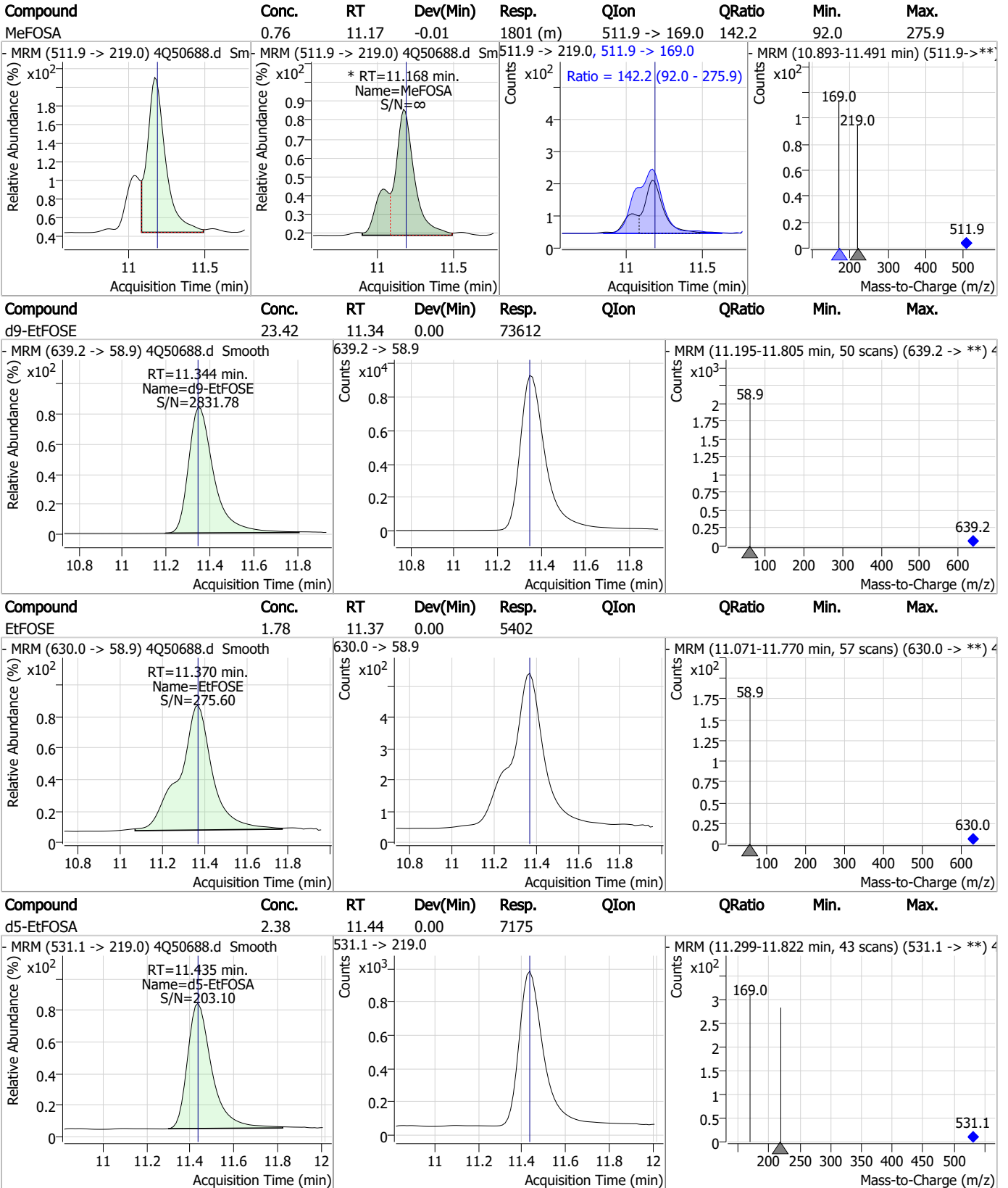
Perfluorinated Compounds by LC/MS/MS



7.7.3

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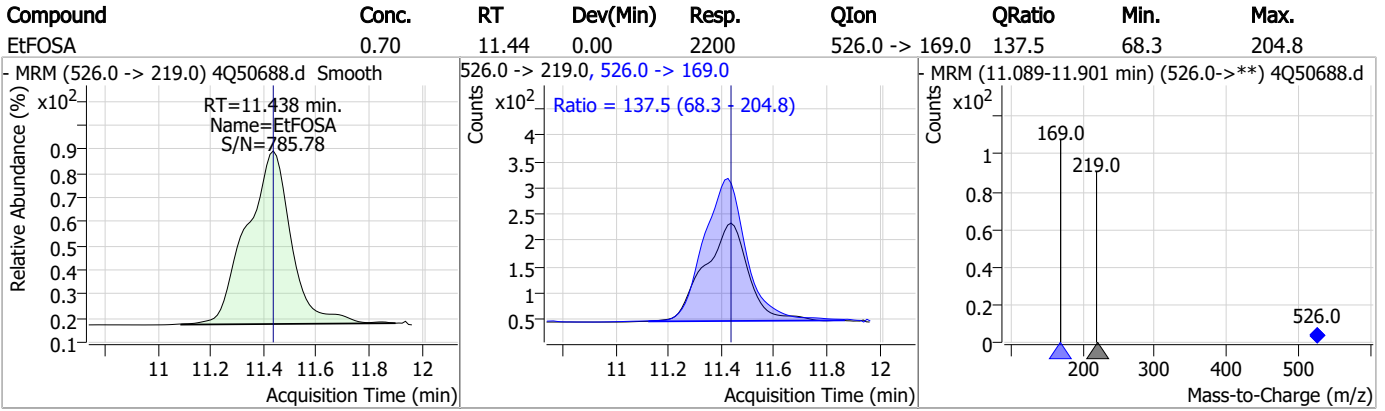
Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Manual Integration Approval Summary

Sample Number: S4Q741-IC741 Method: EPA DRAFT 1633
Lab FileID: 4Q50688.D Analyst approved: 09/18/23 11:34 Anna Ludwig
Injection Time: 09/17/23 13:07 Supervisor approved: 09/18/23 14:43 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.09	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.18	Split peak
EtFOSAA	2991-50-6		8.36	Split peak
MeFOSA	31506-32-8		11.17	Split peak

7.7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50689.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/17/2023 1:22:00 PM
 Sample Name : ic741-3
 Vial : P1-A4
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q741.batch.bin
 Sample Information : OP98180,S4Q741,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.724	216.8 -> 171.9	86442	10.00 µg/L	0.012
M5-PFPeA	4.228	268.3 -> 223.0	33564	5.00 µg/L	0.012
M5-PFHxA	5.408	318.0 -> 273.0	32380	2.50 µg/L	0.000
M4-PFHpA	6.353	367.1 -> 322.0	22226	2.50 µg/L	0.000
M8-PFOA	7.037	421.1 -> 376.0	37442	2.50 µg/L	0.000
M9-PFNA	7.570	472.1 -> 427.0	14423	1.25 µg/L	0.000
M6-PFDA	8.065	519.1 -> 474.1	9560	1.25 µg/L	0.000
M7-PFUnDA	8.509	570.0 -> 525.1	11418	1.25 µg/L	0.000
M2-PFDoDA	8.941	615.1 -> 570.0	14342	1.25 µg/L	0.000
M2-PFTeDA	9.698	715.2 -> 670.0	8142	1.25 µg/L	0.000
M8-FOSA	9.906	506.1 -> 77.8	9015	2.50 µg/L	0.000
M3-PFBS	5.263	302.1 -> 79.9	8069	2.50 µg/L	0.000
M3-PFHxS	7.103	402.1 -> 79.9	4694	2.50 µg/L	0.000
M8-PFOS	8.178	507.1 -> 79.9	6058	2.50 µg/L	0.000
M2-4:2FTS	5.109	329.1 -> 80.9	1031	5.00 µg/L	0.000
M2-6:2FTS	6.809	429.1 -> 80.9	1422	5.00 µg/L	0.000
M2-8:2FTS	7.865	529.1 -> 80.9	2110	5.00 µg/L	0.000
M3-MeFOSAA	8.147	573.2 -> 419.0	11663	5.00 µg/L	0.000
M3-HFPO-DA	5.763	286.9 -> 168.9	30814	10.00 µg/L	0.000
M5-EtFOSAA	8.358	589.2 -> 419.0	10821	5.00 µg/L	0.000
M7-MeFOSE	11.072	623.2 -> 58.9	52681	25.00 µg/L	0.000
M9-EtFOSE	11.357	639.2 -> 58.9	75532	25.00 µg/L	0.012
M5-EtFOSA	11.435	531.1 -> 219.0	7090	2.50 µg/L	0.000
M3-MeFOSA	11.178	515.0 -> 219.0	5287	2.50 µg/L	0.000
13C4-PFOS	8.191	502.8 -> 79.9	5133	2.50 µg/L	0.012
13C3-PFBA	2.728	216.0 -> 172.0	44726	5.00 µg/L	0.012
18O2-PFHxS	7.102	403.0 -> 83.9	3473	2.50 µg/L	0.000
13C4-PFOA	7.037	417.1 -> 372.0	40835	2.50 µg/L	0.000
13C2-PFDA	8.066	515.1 -> 470.1	10421	1.25 µg/L	0.000
13C5-PFNA	7.570	468.0 -> 423.0	13065	1.25 µg/L	0.000
13C2-PFHxA	5.409	315.1 -> 270.0	28708	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.109	329.1 -> 80.9	1031	5.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.7%		
13C2-6:2FTS	6.809	429.1 -> 80.9	1422	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C2-8:2FTS	7.865	529.1 -> 80.9	2110	4.65 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C2-PFDoDA	8.941	615.1 -> 570.0	14342	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C2-PFTeDA	9.698	715.2 -> 670.0	8142	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C3-PFBS	5.263	302.1 -> 79.9	8069	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C3-PFHxS	7.103	402.1 -> 79.9	4694	2.25 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 = 89.9%		
13C4-PFBA	2.724	216.8 -> 171.9	86442	9.76 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C4-PFHpA	6.353	367.1 -> 322.0	22226	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C5-PFHxA	5.408	318.0 -> 273.0	32380	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C5-PFPeA	4.228	268.3 -> 223.0	33564	4.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C6-PFDA	8.065	519.1 -> 474.1	9560	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C7-PFUnDA	8.509	570.0 -> 525.1	11418	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C8-FOSA	9.906	506.1 -> 77.8	9015	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C8-PFOA	7.037	421.1 -> 376.0	37442	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C8-PFOS	8.178	507.1 -> 79.9	6058	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C9-PFNA	7.570	472.1 -> 427.0	14423	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.7%		
d3-MeFOSAA	8.147	573.2 -> 419.0	11663	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C3-HFPO-DA	5.763	286.9 -> 168.9	30814	9.92 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.2%		
d3-MeFOSA	11.178	515.0 -> 219.0	5287	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.5%		
d5-EtFOSAA	8.358	589.2 -> 419.0	10821	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
d7-MeFOSE	11.072	623.2 -> 58.9	52681	25.97 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
d9-EtFOSE	11.357	639.2 -> 58.9	75532	25.81 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.3%		
d5-EtFOSA	11.435	531.1 -> 219.0	7090	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
Target Compounds					QValue
4:2FTS	5.109	327.1 -> 307.0	7463	4.27 µg/L	99
		327.1 -> 80.9	3025		
6:2FTS	6.810	427.1 -> 407.0	7735	4.71 µg/L	96
		427.1 -> 80.9	2747		
8:2FTS	7.865	527.1 -> 507.0	6443	5.42 µg/L	97
		527.1 -> 80.8	2700		
EtFOSAA	8.359	584.2 -> 419.1	2305	1.21 µg/L	94
		584.2 -> 526.0	919		
FOSA	9.908	498.1 -> 77.9	4997	1.22 µg/L	99
		498.1 -> 478.0	149		
MeFOSAA	8.160	570.1 -> 419.0	3257	1.28 µg/L	94
		570.1 -> 483.0	583		
PFBA	2.720	212.8 -> 168.9	15908	4.81 µg/L	100
PFBS	5.264	298.7 -> 79.9	3944	1.04 µg/L	95
		298.7 -> 98.8	1503		
PFDA	8.066	512.9 -> 469.0	10690	1.22 µg/L	94
		512.9 -> 219.0	2018		
PFDODA	8.942	613.1 -> 569.0	14834	1.21 µg/L	98
		613.1 -> 319.0	2511		
PFDS	9.081	599.0 -> 79.9	2371	1.08 µg/L	94

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1238			
PFHpA	6.354	363.1 -> 319.0	15792	1.20	µg/L	97
		363.1 -> 169.0	3428			
PFHpS	7.673	449.0 -> 79.9	2681	1.03	µg/L	93
		449.0 -> 98.9	1536			
PFHxA	5.411	313.0 -> 269.0	13100	1.14	µg/L	100
		313.0 -> 118.9	435			
PFHxS	7.104	398.7 -> 79.9	2252	1.09	µg/L	m 88
		398.7 -> 98.9	1146			
PFNA	7.583	463.0 -> 419.0	10316	1.18	µg/L	95
		463.0 -> 219.0	2631			
PFNS	8.647	548.8 -> 79.9	2044	1.15	µg/L	91
		548.8 -> 98.9	950			
PFOA	7.038	413.0 -> 369.0	19097	1.14	µg/L	100
		413.0 -> 169.0	4188			
PFOS	8.179	498.9 -> 79.9	3473	1.24	µg/L	m 75
		498.9 -> 98.8	1716			
PFPeA	4.229	263.0 -> 219.0	24909	2.35	µg/L	100
PFPeS	6.355	349.1 -> 79.9	2330	1.21	µg/L	90
		349.1 -> 98.9	961			
PFTeDA	9.699	713.1 -> 669.0	12427	1.11	µg/L	98
		713.1 -> 168.9	1397			
PFTrDA	9.328	663.0 -> 619.0	16299	1.21	µg/L	99
		663.0 -> 168.9	2237			
PFUnDA	8.510	563.1 -> 519.0	12802	1.20	µg/L	93
		563.1 -> 269.1	3007			
11CI-PF3OUdS	9.355	630.9 -> 450.9	18525	2.27	µg/L	99
		632.9 -> 452.9	5657			
9CI-PF3ONS	8.511	530.8 -> 351.0	20897	2.36	µg/L	96
		532.8 -> 353.0	6400			
ADONA	6.629	376.9 -> 250.9	52807	2.28	µg/L	98
		376.9 -> 84.8	13410			
HFPO-DA	5.764	284.9 -> 168.9	8140	2.44	µg/L	100
		284.9 -> 184.9	1125			
3:3FTCA	3.706	241.0 -> 177.0	3434	5.84	µg/L	97
		241.0 -> 117.0	401			
5:3FTCA	6.169	341.0 -> 237.1	60678	30.07	µg/L	97
		341.0 -> 217.0	45149			
7:3FTCA	7.686	441.0 -> 316.9	28651	29.73	µg/L	94
		441.0 -> 336.9	61769			
EtFOSA	11.438	526.0 -> 219.0	7405	2.39	µg/L	100
		526.0 -> 169.0	10144			
EtFOSE	11.370	630.0 -> 58.9	18524	5.94	µg/L	100
MeFOSA	11.180	511.9 -> 219.0	6097	2.45	µg/L	m 72
		511.9 -> 169.0	8779			
MeFOSE	11.086	616.1 -> 58.9	15138	5.86	µg/L	100
PFDoDS	9.826	699.1 -> 79.9	1779	1.13	µg/L	99
		699.1 -> 98.8	1018			
NFDHA	5.290	295.0 -> 201.0	1839	2.70	µg/L	98
		295.0 -> 84.9	435			
PFMBA	4.642	279.0 -> 85.1	13488	2.40	µg/L	100
PFMPA	3.358	229.0 -> 84.9	15008	2.38	µg/L	100
PFEESA	5.795	314.8 -> 134.9	24144	2.17	µg/L	99
		314.8 -> 82.9	840			

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

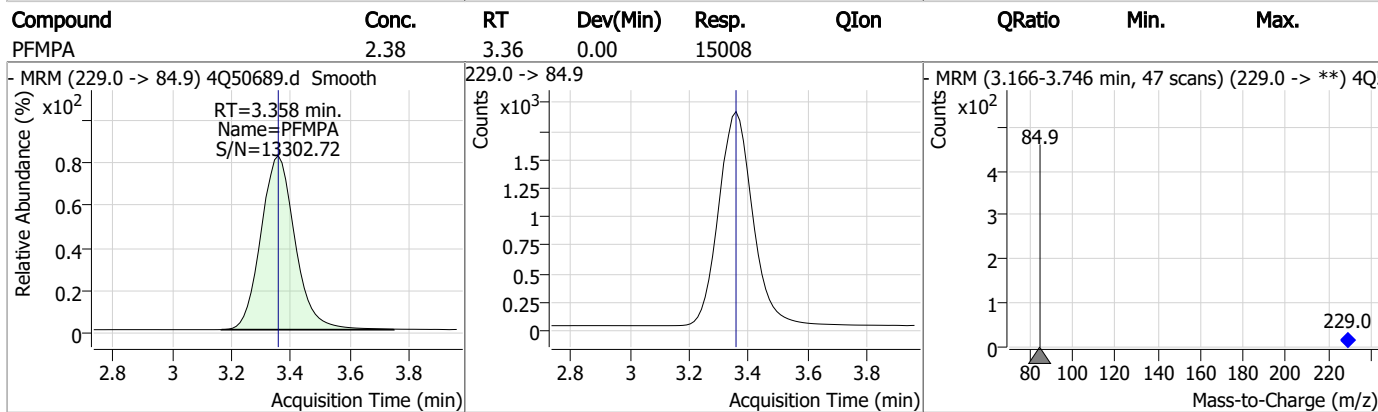
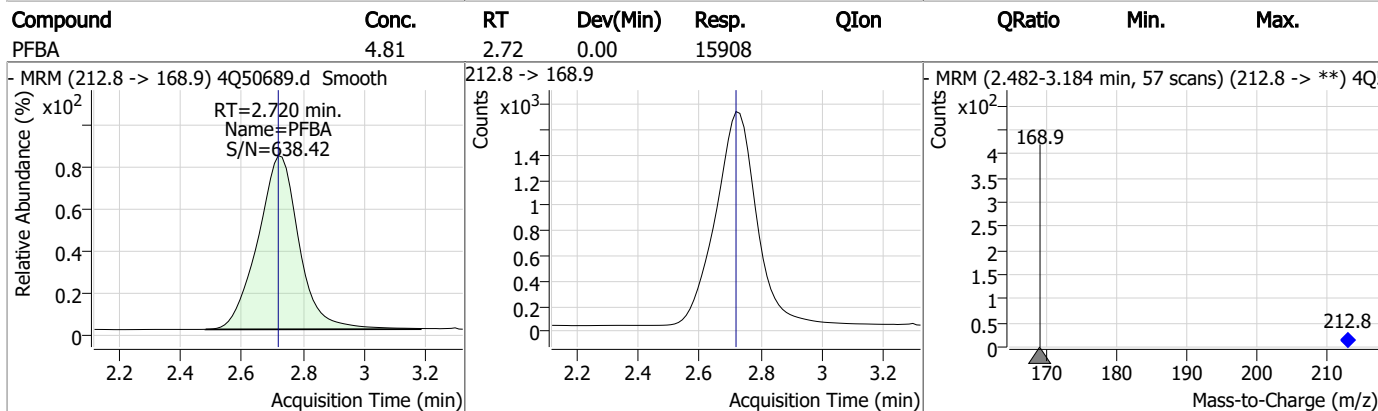
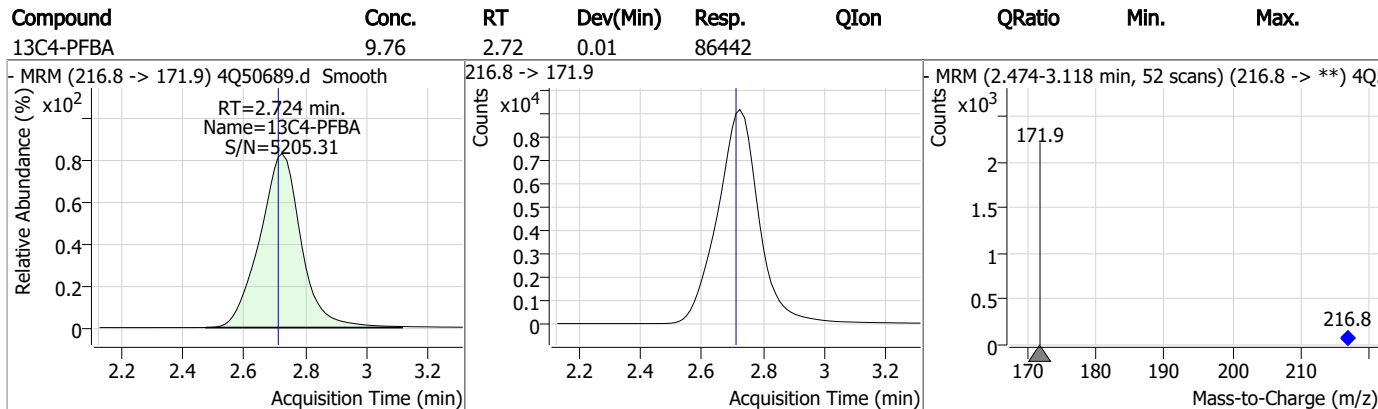
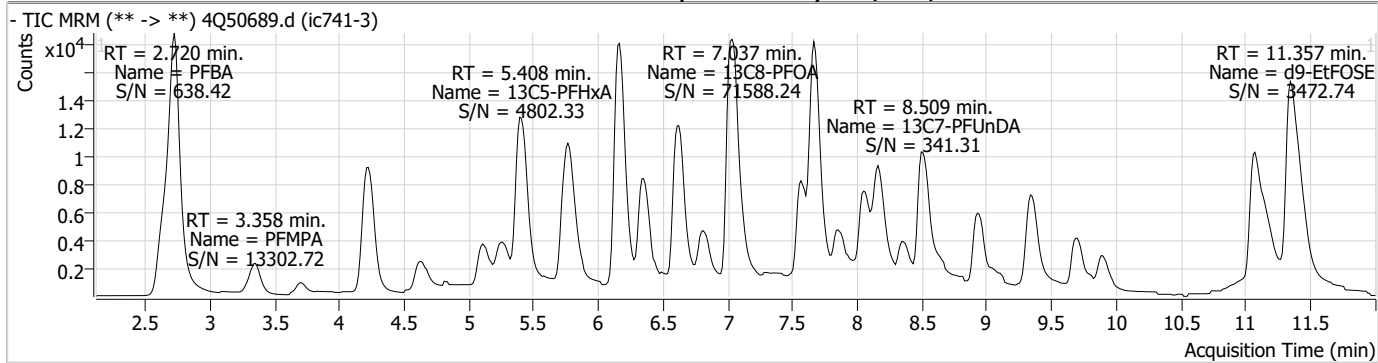
Perfluorinated Compounds by LC/MS/MS

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

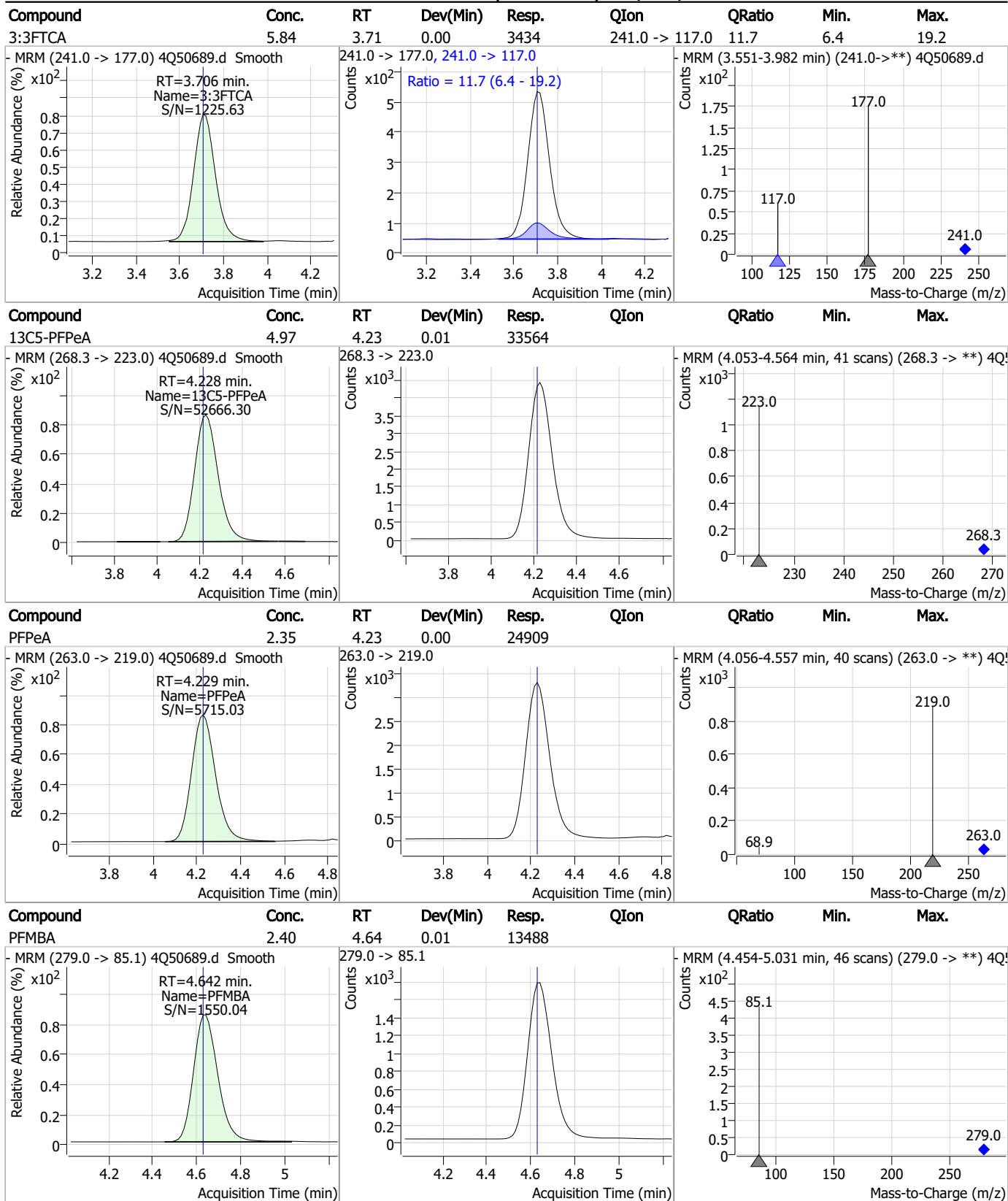
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Perfluorinated Compounds by LC/MS/MS

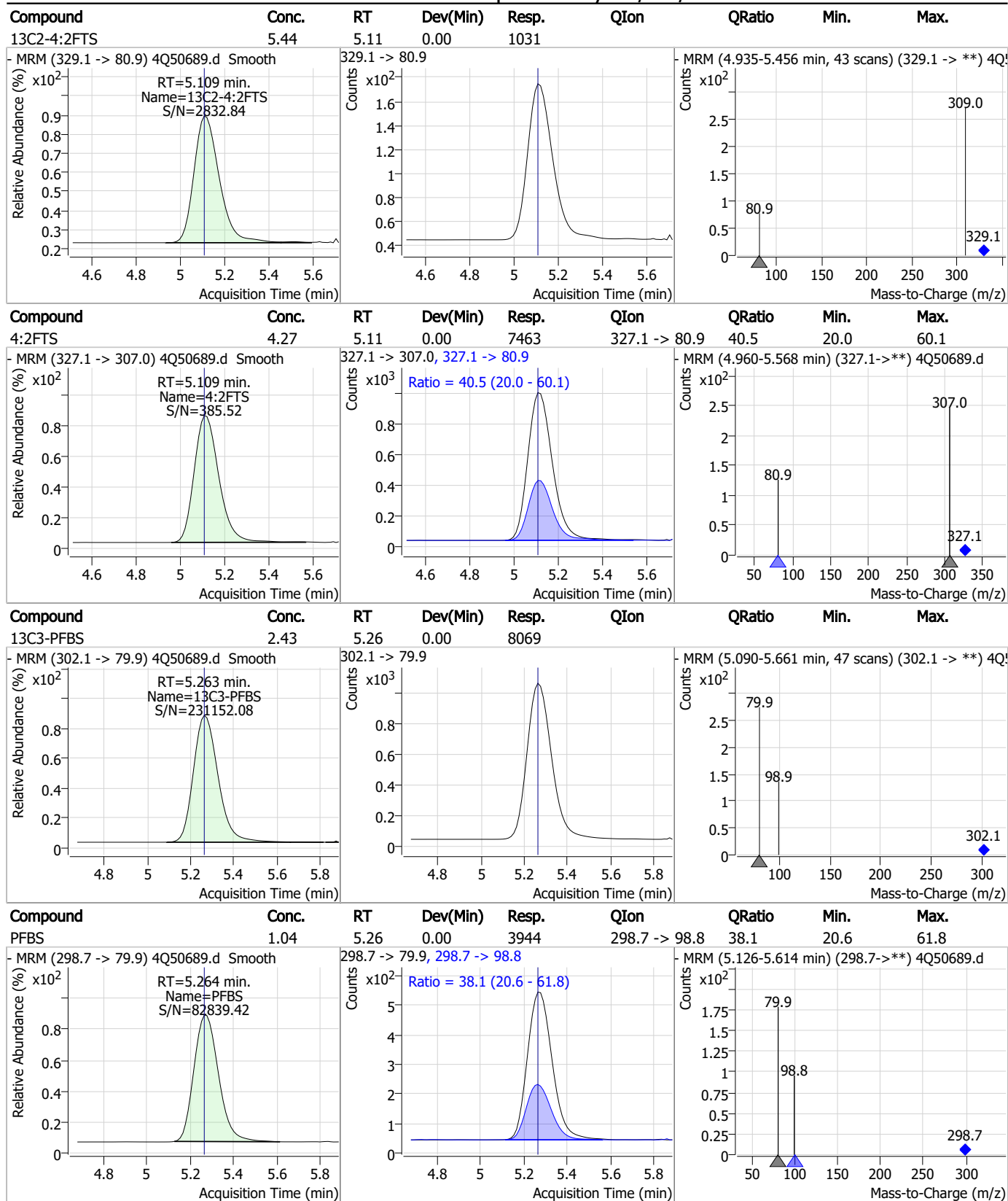


7.7.4
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Perfluorinated Compounds by LC/MS/MS



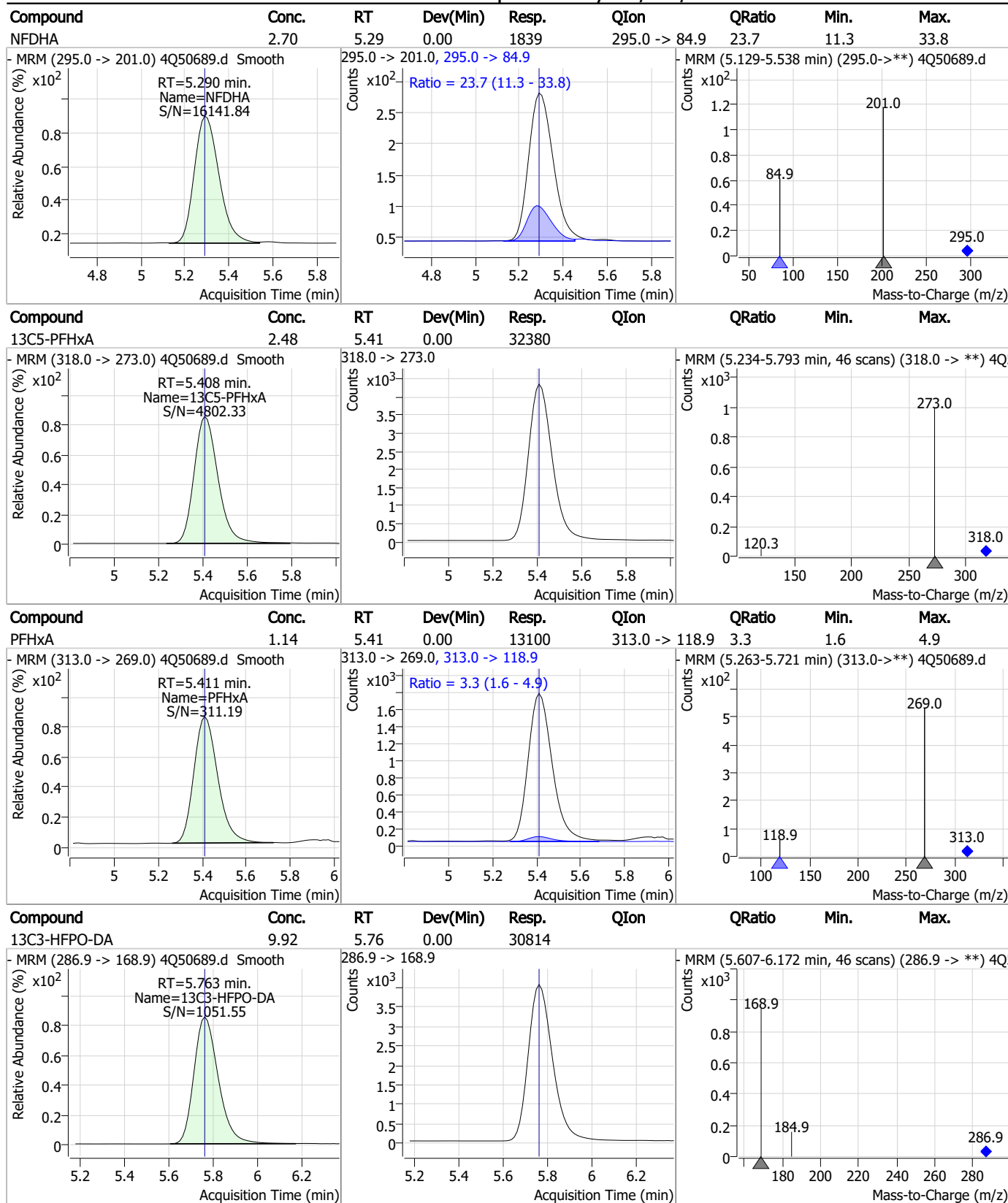
Perfluorinated Compounds by LC/MS/MS



7.7.4

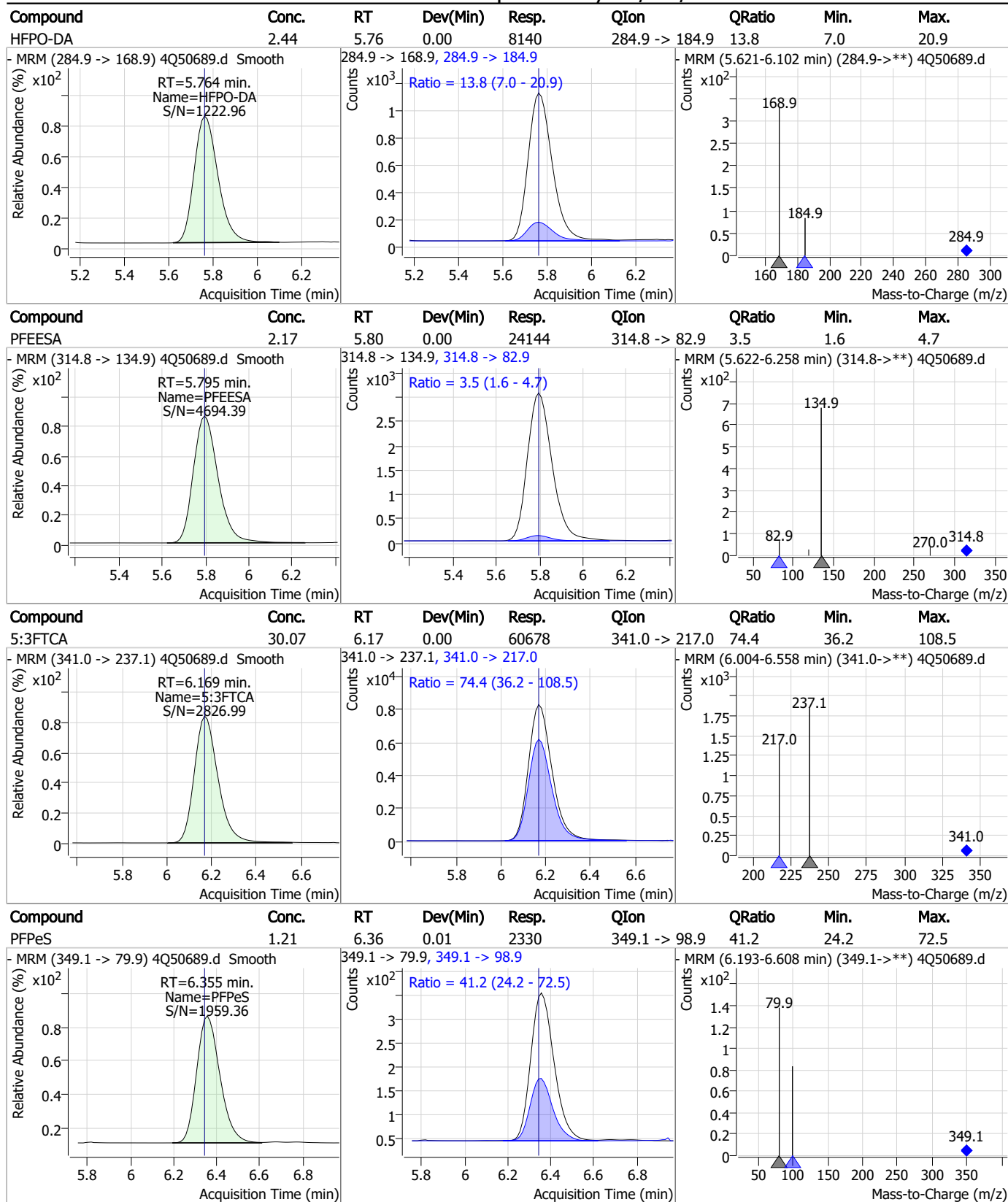
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Perfluorinated Compounds by LC/MS/MS



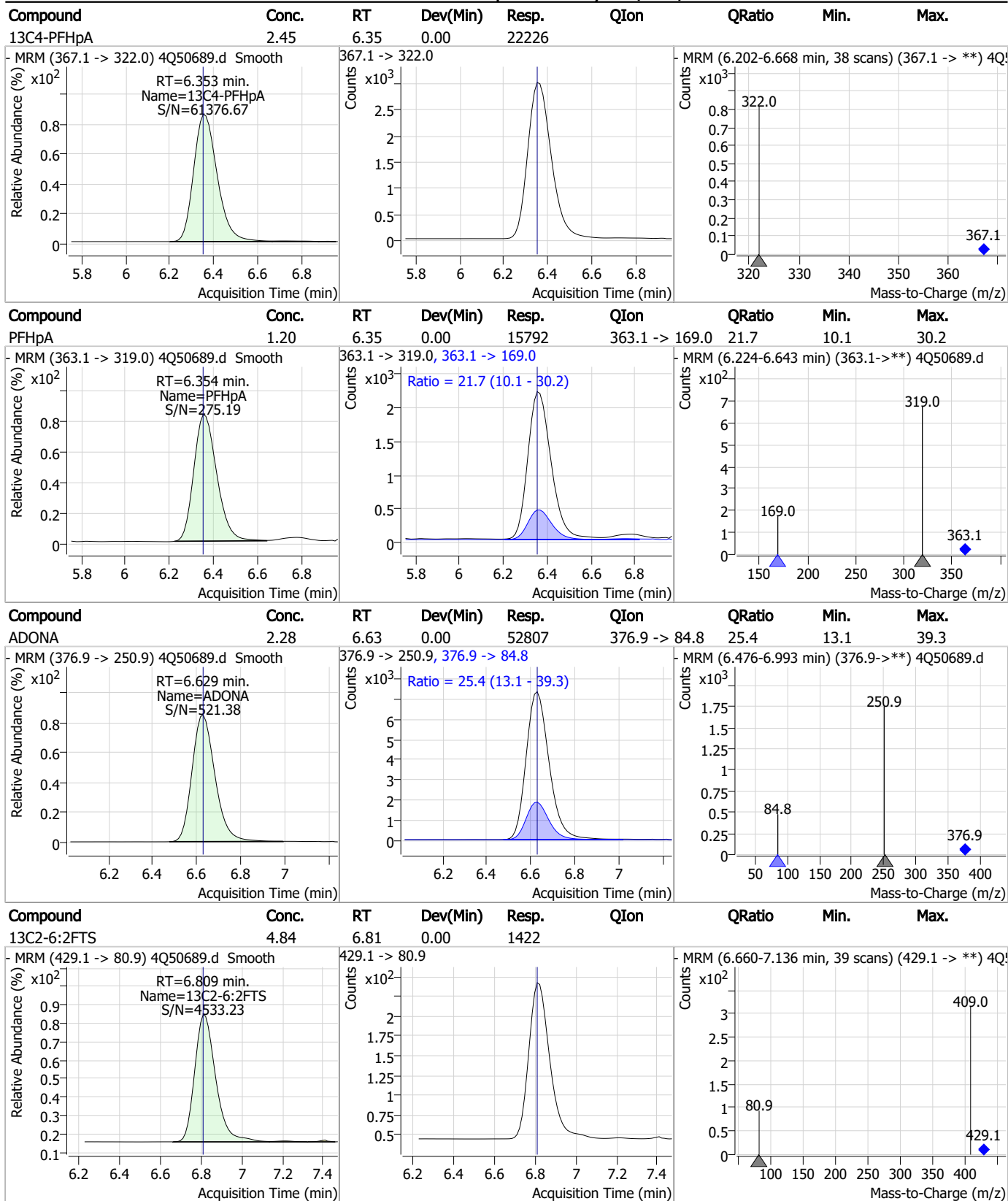
7.7.4
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Perfluorinated Compounds by LC/MS/MS



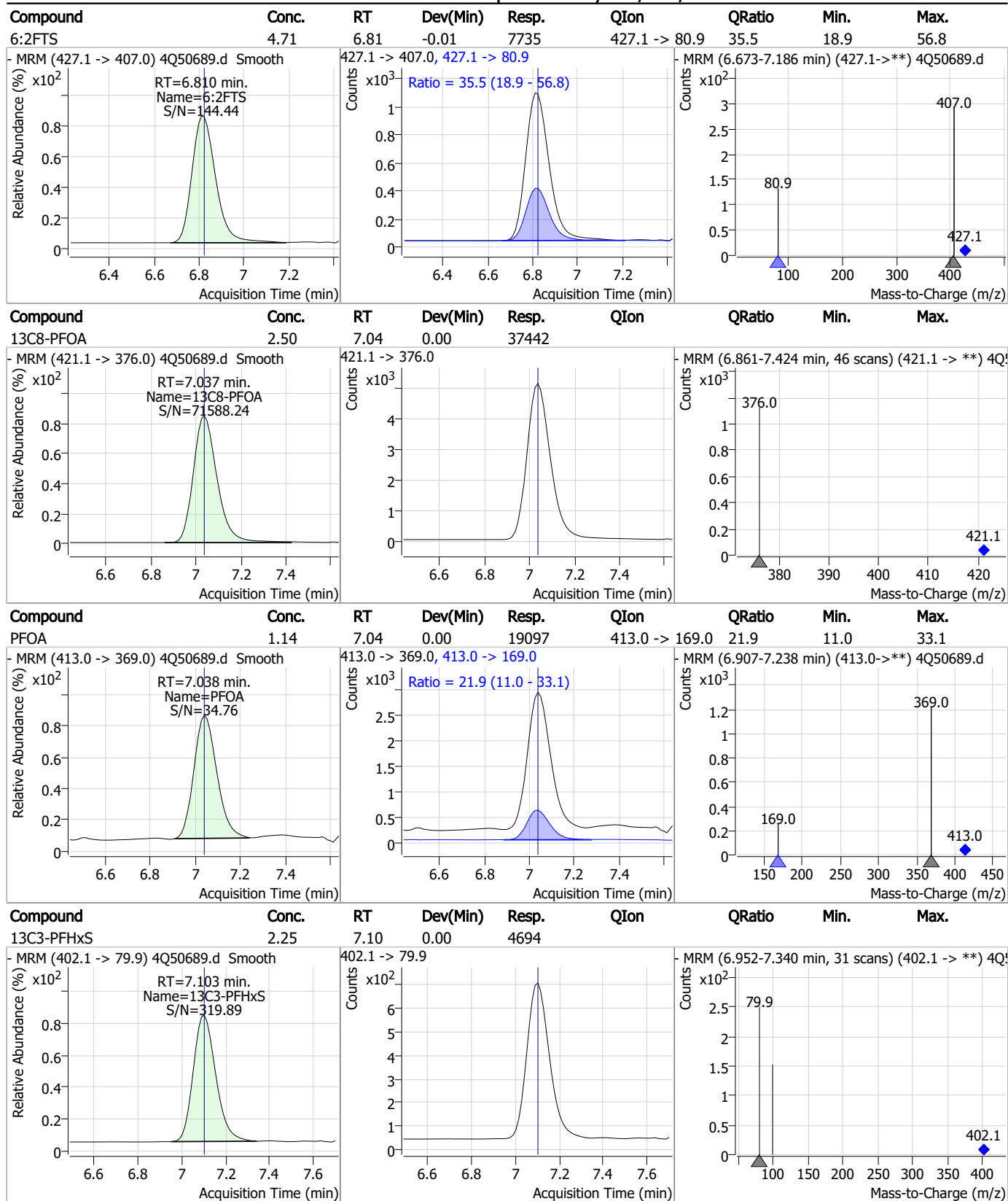
7.7.4
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Perfluorinated Compounds by LC/MS/MS



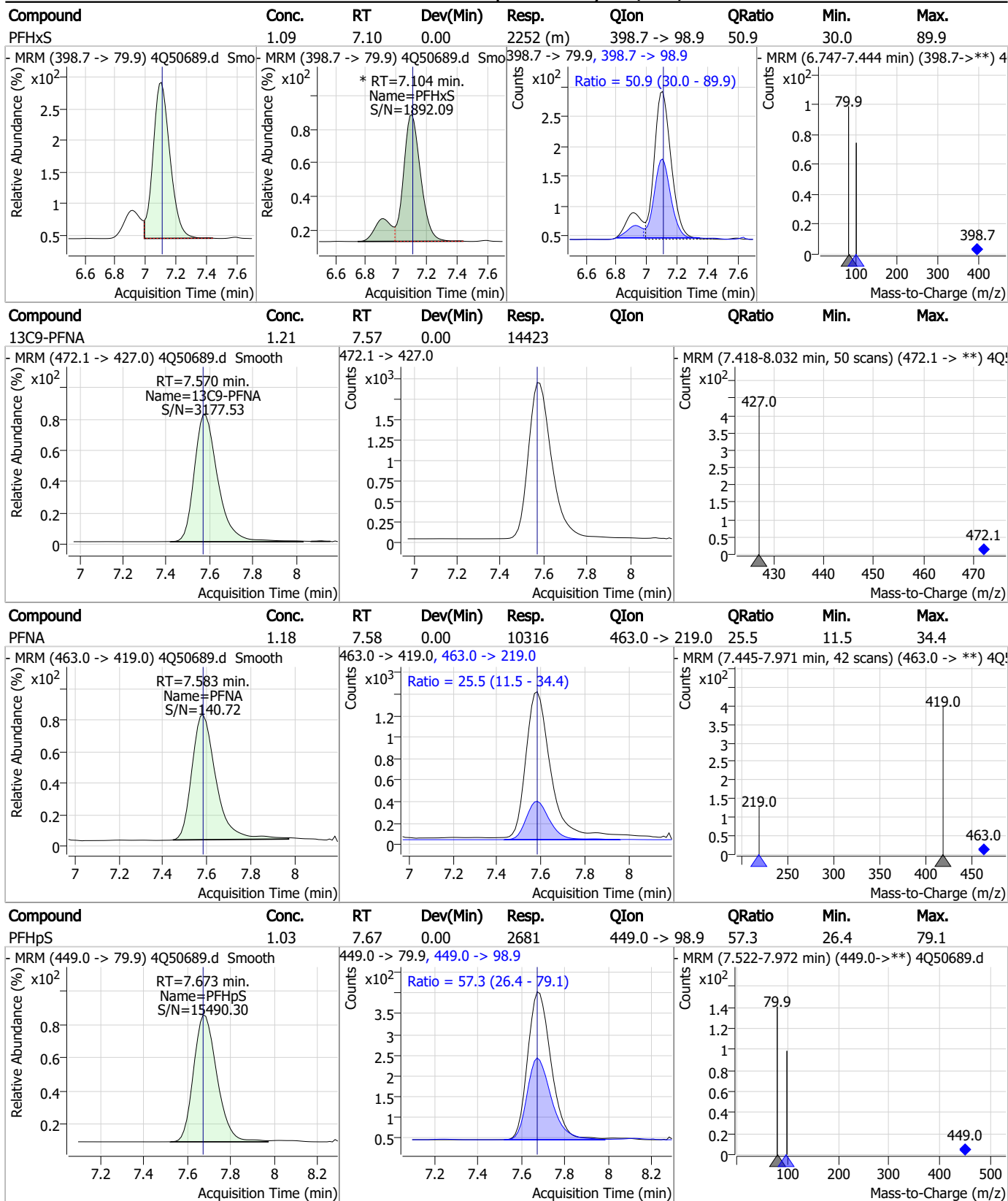
7.7.4
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Perfluorinated Compounds by LC/MS/MS



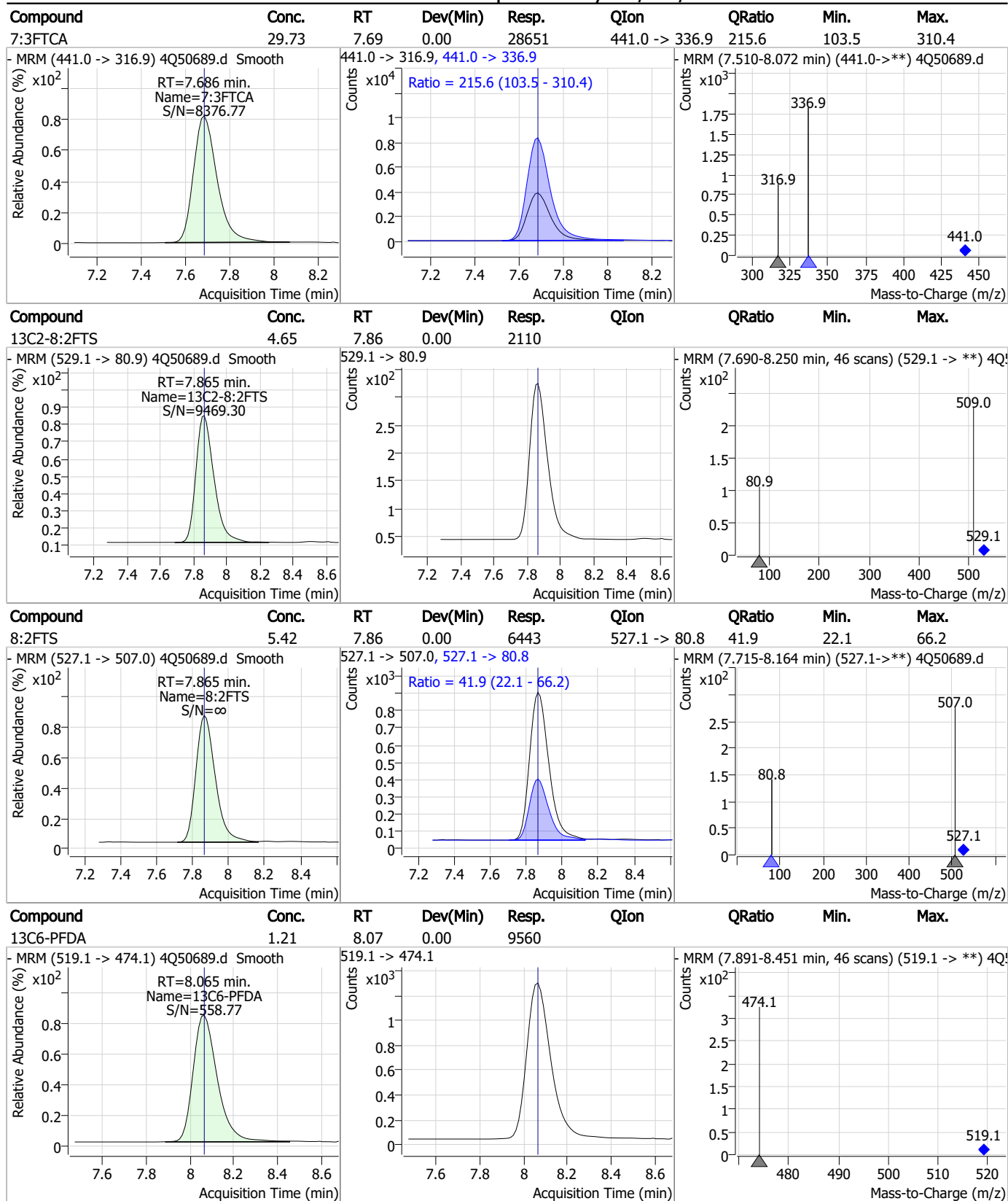
7.7.4
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Perfluorinated Compounds by LC/MS/MS



7.7.4

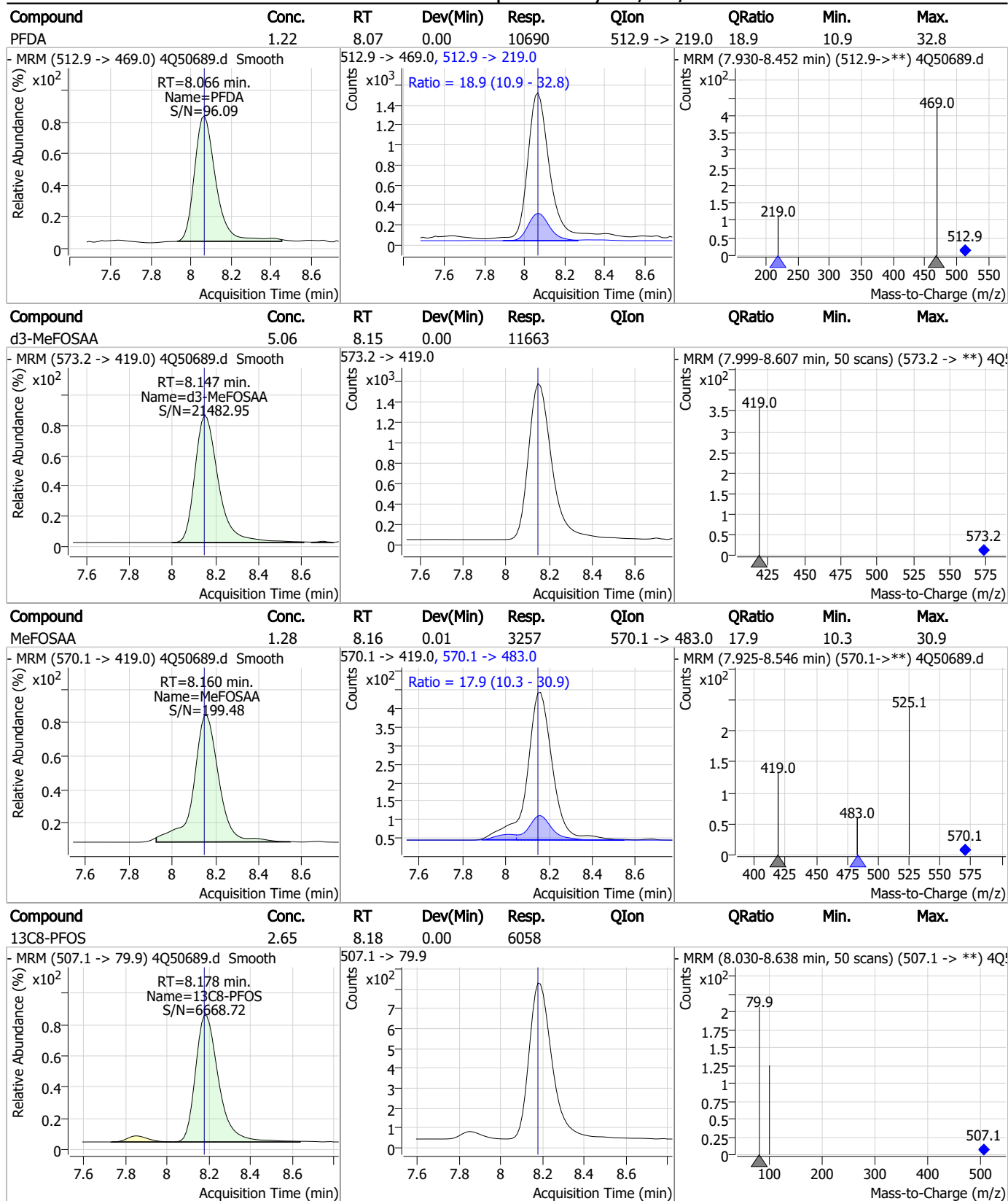
Perfluorinated Compounds by LC/MS/MS



7.7.4

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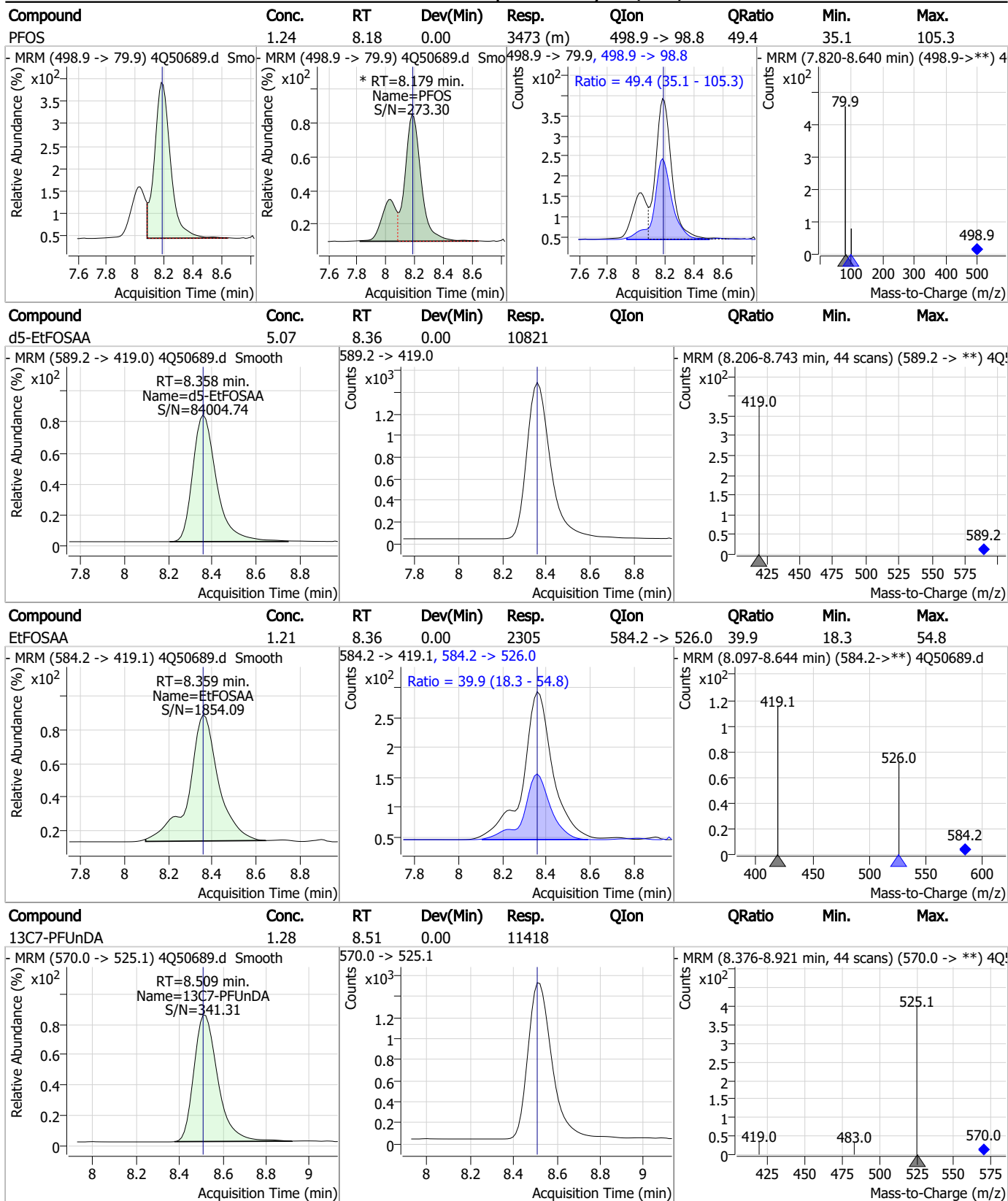
Perfluorinated Compounds by LC/MS/MS



7.7.4

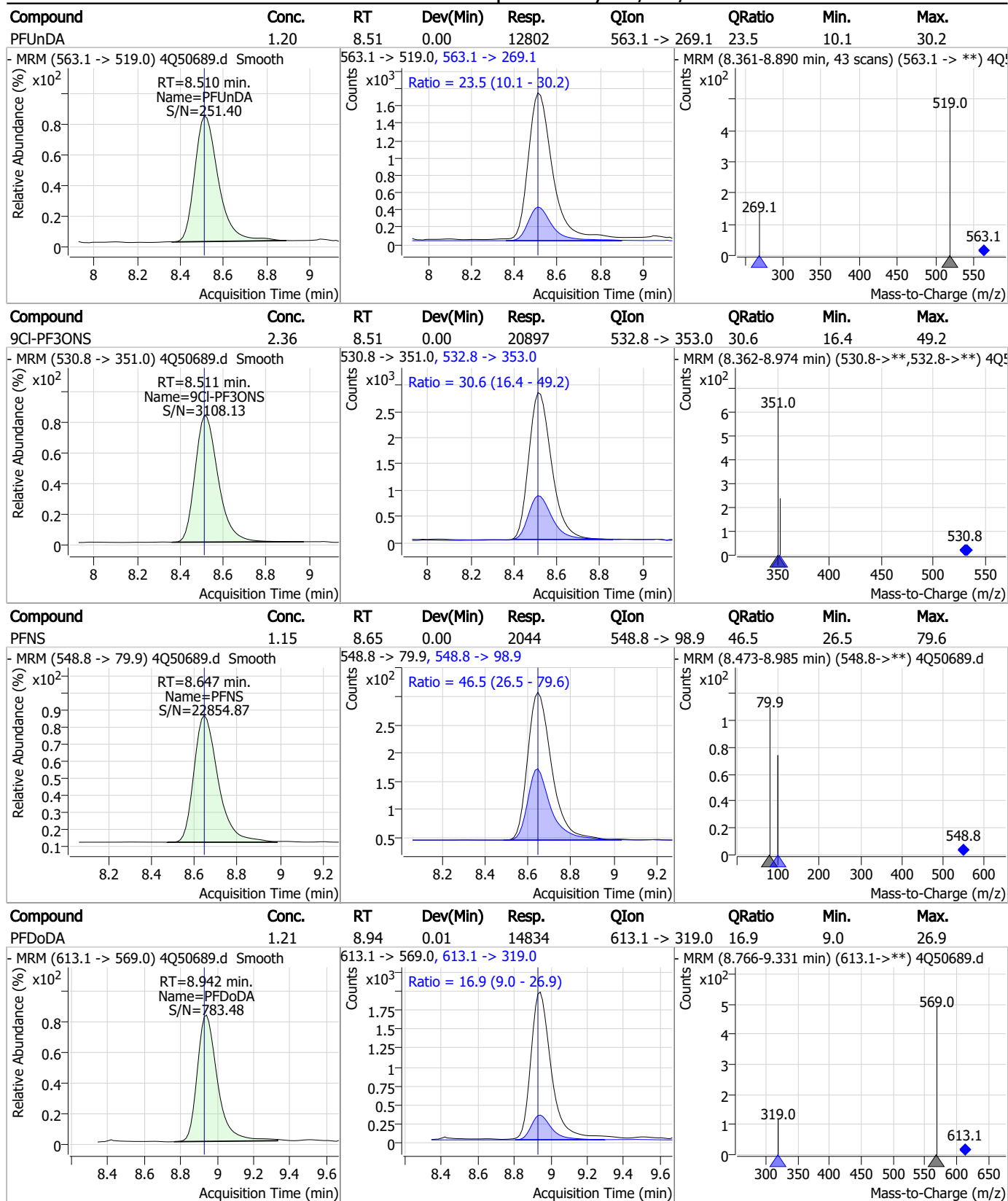
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Perfluorinated Compounds by LC/MS/MS



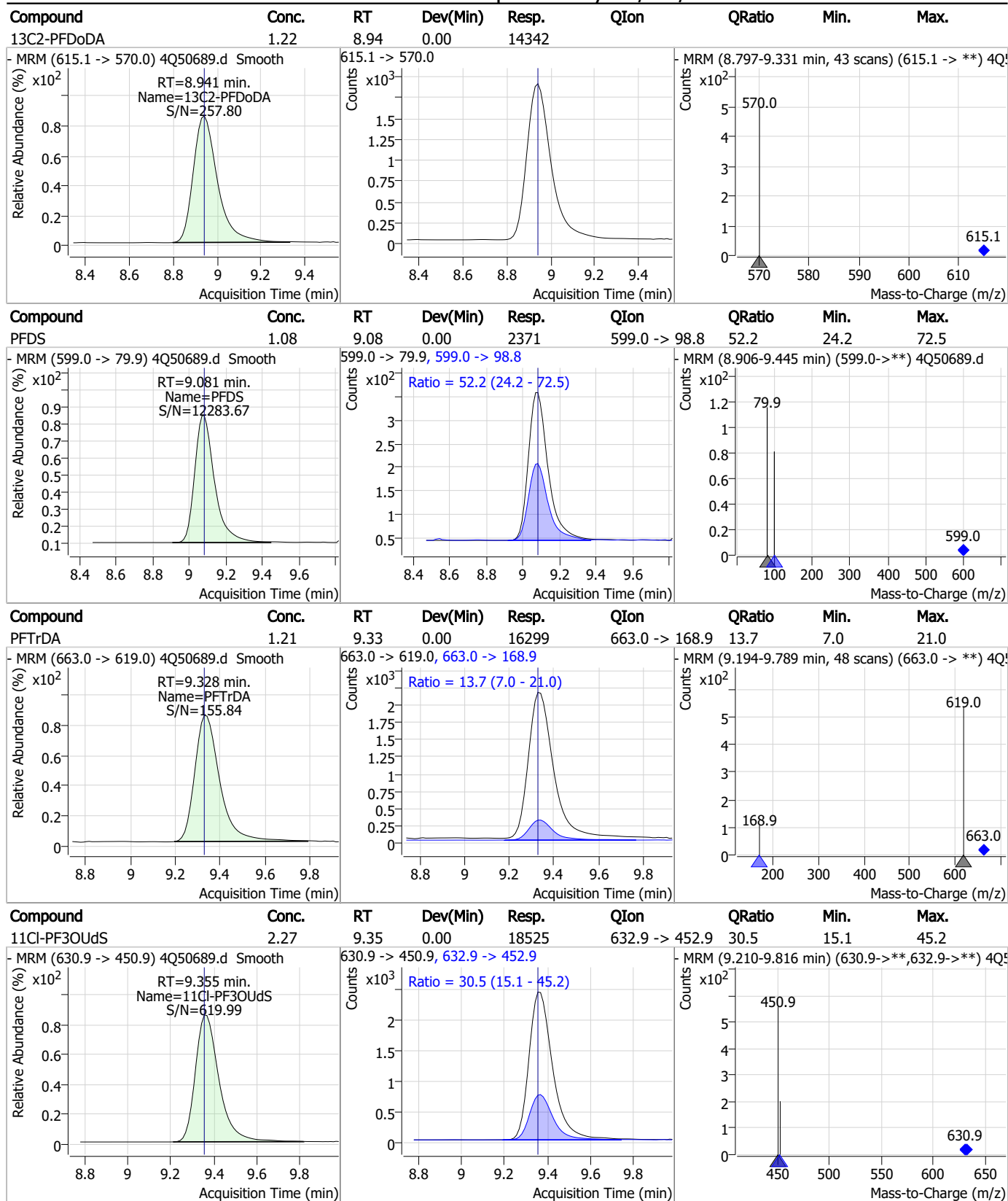
7.7.4
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Perfluorinated Compounds by LC/MS/MS



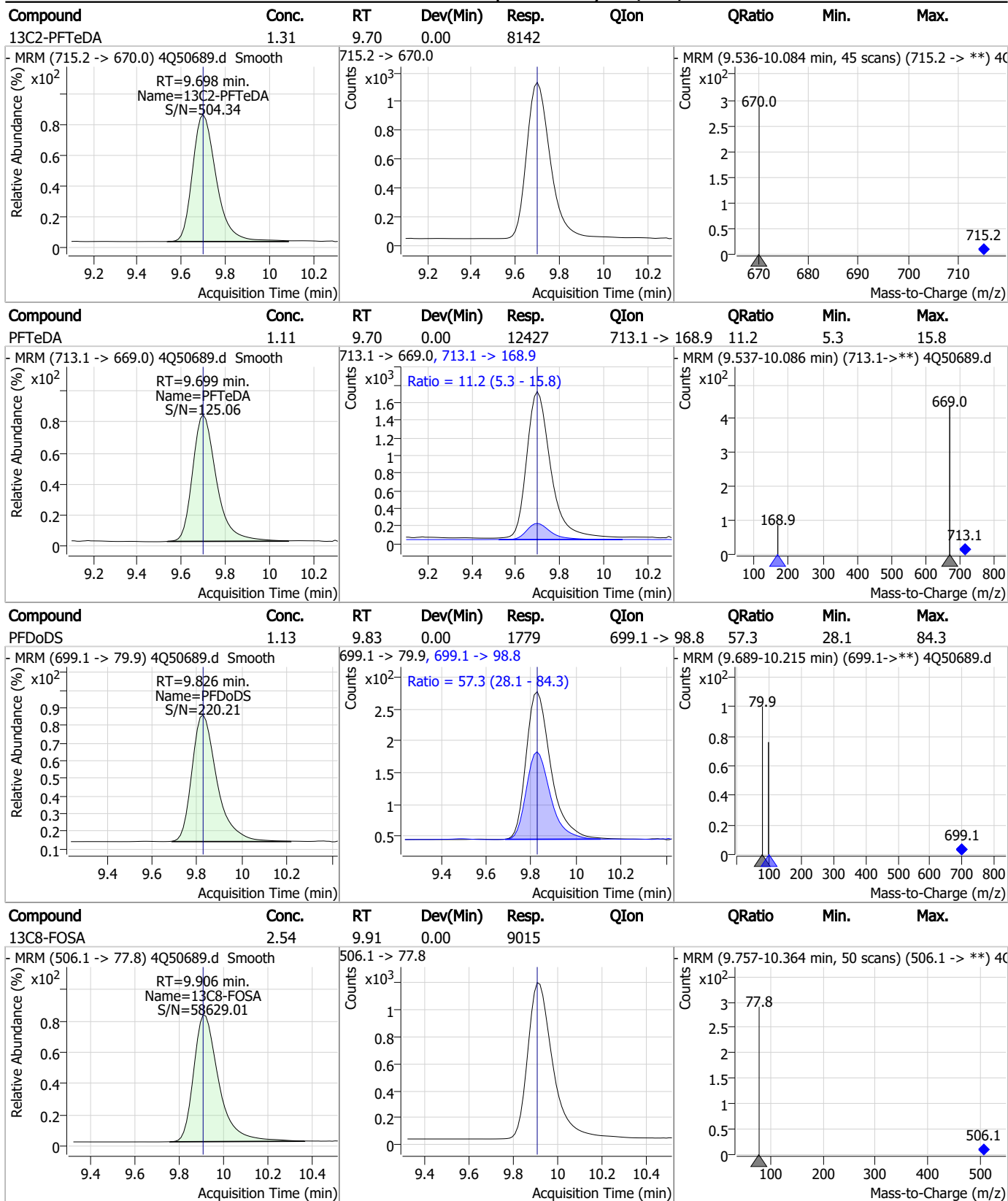
7.7.4
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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Perfluorinated Compounds by LC/MS/MS

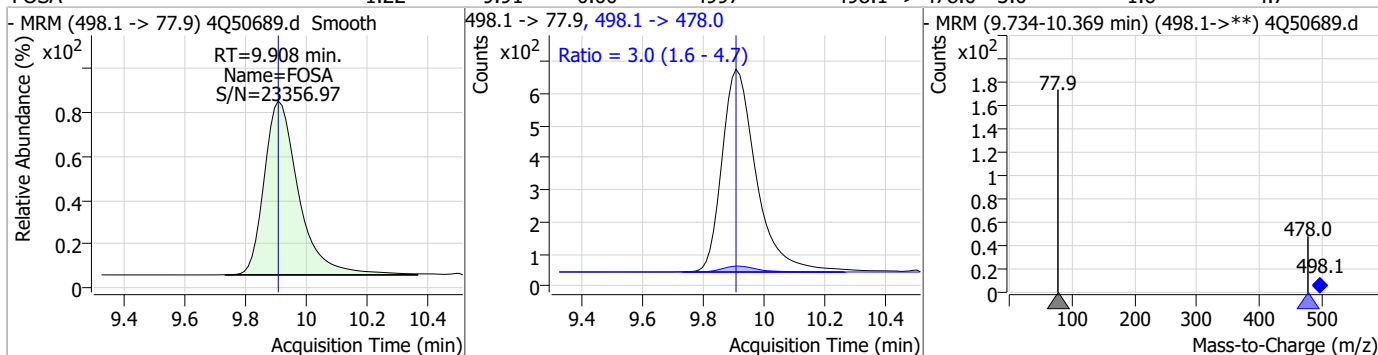


7.7.4

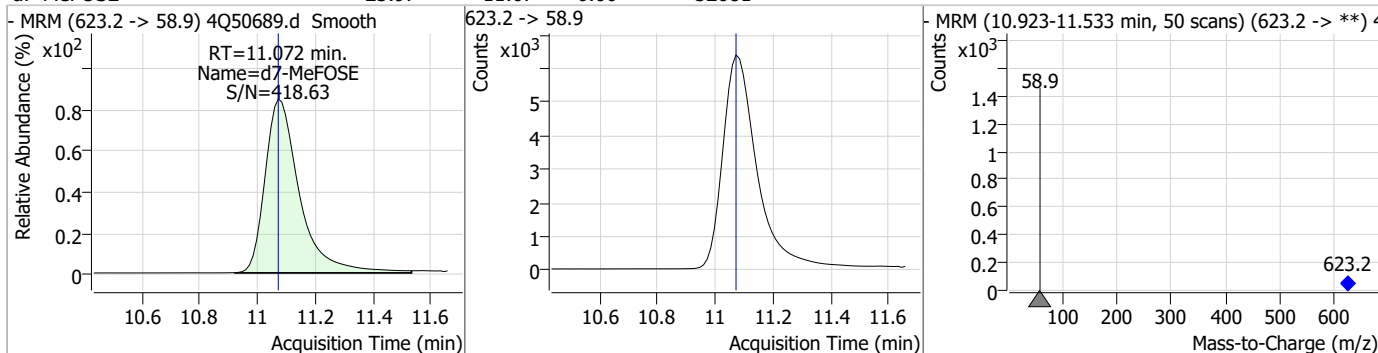
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Perfluorinated Compounds by LC/MS/MS

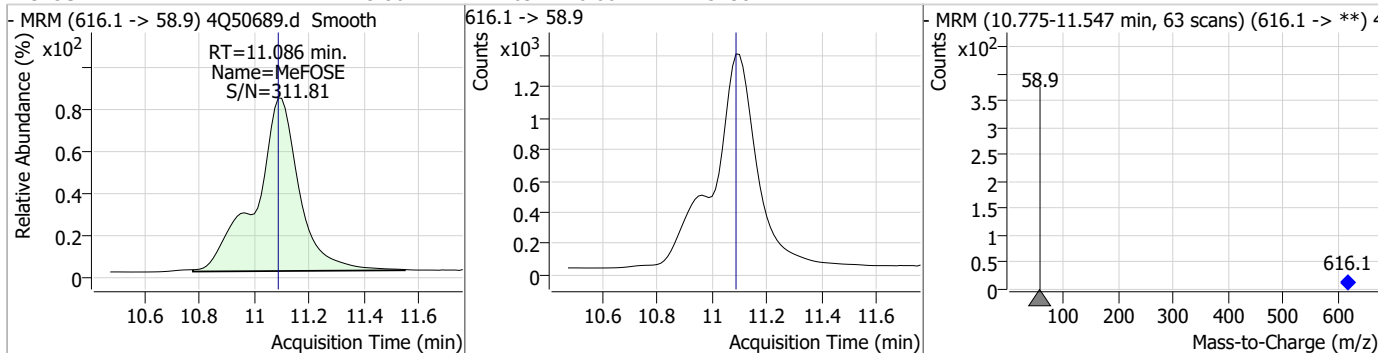
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.22	9.91	0.00	4997	498.1 -> 478.0	3.0	1.6	4.7



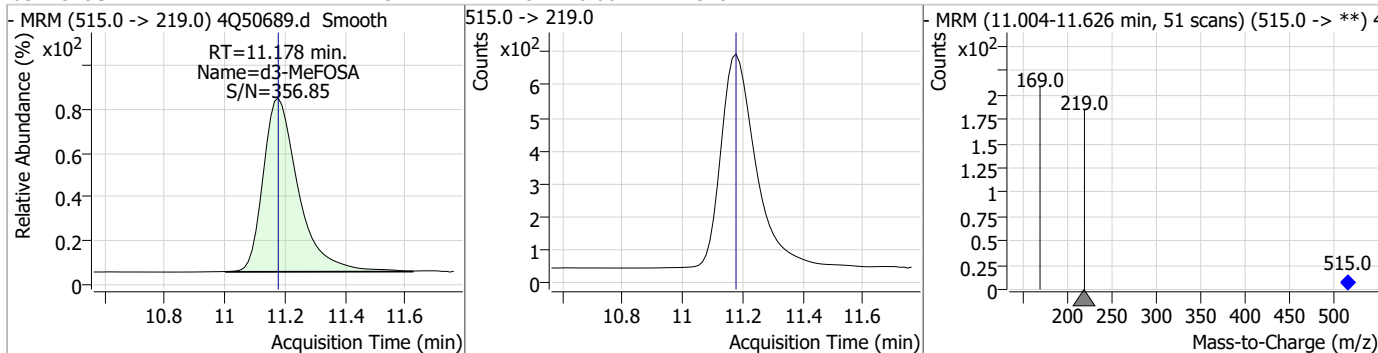
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.97	11.07	0.00	52681	623.2 -> 58.9			



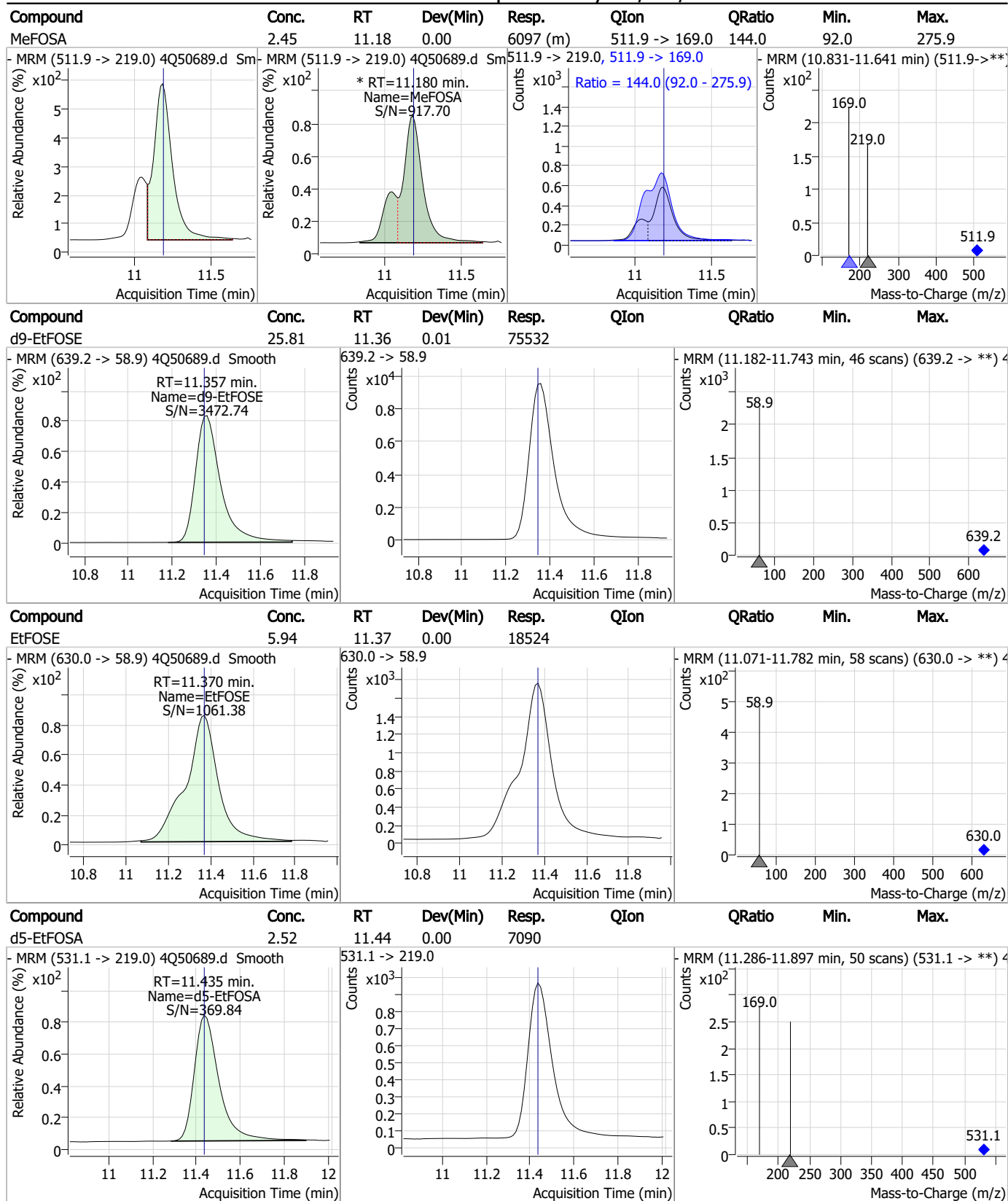
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	5.86	11.09	0.00	15138	616.1 -> 58.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.54	11.18	0.00	5287	515.0 -> 219.0			



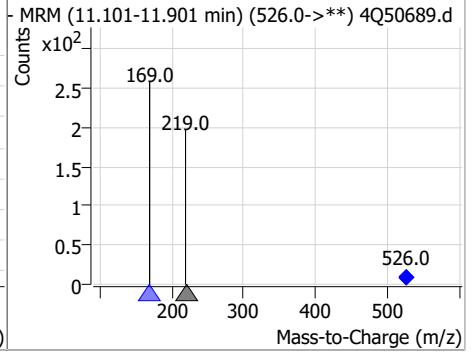
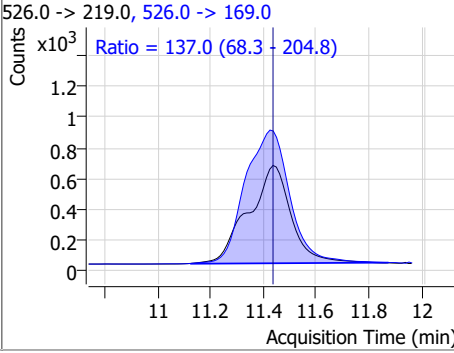
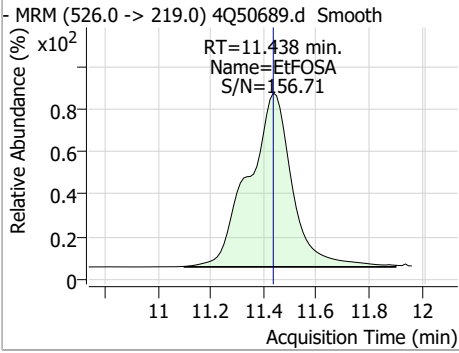
Perfluorinated Compounds by LC/MS/MS



7.7.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	2.39	11.44	0.00	7405	526.0 -> 169.0	137.0	68.3	204.8



7.7.4

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Manual Integration Approval Summary

Sample Number: S4Q741-IC741 Method: EPA DRAFT 1633
Lab FileID: 4Q50689.D Analyst approved: 09/18/23 11:34 Anna Ludwig
Injection Time: 09/17/23 13:22 Supervisor approved: 09/18/23 14:43 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.10	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.18	Split peak
MeFOSA	31506-32-8		11.18	Split peak

7.7.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50690.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/17/2023 1:36:45 PM
 Sample Name : icc741-4
 Vial : P1-A5
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q741.batch.bin
 Sample Information : OP98180,S4Q741,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.711	216.8 -> 171.9	83023	10.00 µg/L	0.000
M5-PFPeA	4.215	268.3 -> 223.0	32222	5.00 µg/L	0.000
M5-PFHxA	5.408	318.0 -> 273.0	30879	2.50 µg/L	0.000
M4-PFHpA	6.353	367.1 -> 322.0	22104	2.50 µg/L	0.000
M8-PFOA	7.037	421.1 -> 376.0	36293	2.50 µg/L	0.000
M9-PFNA	7.570	472.1 -> 427.0	14304	1.25 µg/L	0.000
M6-PFDA	8.065	519.1 -> 474.1	9052	1.25 µg/L	0.000
M7-PFUnDA	8.509	570.0 -> 525.1	10835	1.25 µg/L	0.000
M2-PFDoDA	8.941	615.1 -> 570.0	13567	1.25 µg/L	0.000
M2-PFTeDA	9.698	715.2 -> 670.0	6887	1.25 µg/L	0.000
M8-FOSA	9.906	506.1 -> 77.8	8682	2.50 µg/L	0.000
M3-PFBS	5.263	302.1 -> 79.9	7402	2.50 µg/L	0.000
M3-PFHxS	7.103	402.1 -> 79.9	4677	2.50 µg/L	0.000
M8-PFOS	8.178	507.1 -> 79.9	5763	2.50 µg/L	0.000
M2-4:2FTS	5.109	329.1 -> 80.9	913	5.00 µg/L	0.000
M2-6:2FTS	6.809	429.1 -> 80.9	1380	5.00 µg/L	0.000
M2-8:2FTS	7.865	529.1 -> 80.9	2100	5.00 µg/L	0.000
M3-MeFOSAA	8.147	573.2 -> 419.0	11285	5.00 µg/L	0.000
M3-HFPO-DA	5.763	286.9 -> 168.9	29196	10.00 µg/L	0.000
M5-EtFOSAA	8.358	589.2 -> 419.0	10136	5.00 µg/L	0.000
M7-MeFOSE	11.072	623.2 -> 58.9	49035	25.00 µg/L	0.000
M9-EtFOSE	11.344	639.2 -> 58.9	74438	25.00 µg/L	0.000
M5-EtFOSA	11.435	531.1 -> 219.0	6820	2.50 µg/L	0.000
M3-MeFOSA	11.178	515.0 -> 219.0	4963	2.50 µg/L	0.000
13C4-PFOS	8.179	502.8 -> 79.9	5137	2.50 µg/L	0.000
13C3-PFBA	2.716	216.0 -> 172.0	41923	5.00 µg/L	0.000
18O2-PFHxS	7.102	403.0 -> 83.9	3025	2.50 µg/L	0.000
13C4-PFOA	7.037	417.1 -> 372.0	39770	2.50 µg/L	0.000
13C2-PFDA	8.066	515.1 -> 470.1	9567	1.25 µg/L	0.000
13C5-PFNA	7.570	468.0 -> 423.0	12422	1.25 µg/L	0.000
13C2-PFHxA	5.409	315.1 -> 270.0	27464	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.109	329.1 -> 80.9	913	5.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.6%		
13C2-6:2FTS	6.809	429.1 -> 80.9	1380	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.9%		
13C2-8:2FTS	7.865	529.1 -> 80.9	2100	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C2-PFDoDA	8.941	615.1 -> 570.0	13567	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-PFTeDA	9.698	715.2 -> 670.0	6887	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C3-PFBS	5.263	302.1 -> 79.9	7402	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C3-PFHxS	7.103	402.1 -> 79.9	4677	2.57 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 = 102.9%		
13C4-PFBA	2.711	216.8 -> 171.9	83023	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C4-PFHpA	6.353	367.1 -> 322.0	22104	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C5-PFHxA	5.408	318.0 -> 273.0	30879	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C5-PFPeA	4.215	268.3 -> 223.0	32222	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C6-PFDA	8.065	519.1 -> 474.1	9052	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C7-PFUnDA	8.509	570.0 -> 525.1	10835	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C8-FOSA	9.906	506.1 -> 77.8	8682	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C8-PFOA	7.037	421.1 -> 376.0	36293	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C8-PFOS	8.178	507.1 -> 79.9	5763	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C9-PFNA	7.570	472.1 -> 427.0	14304	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.8%		
d3-MeFOSAA	8.147	573.2 -> 419.0	11285	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-HFPO-DA	5.763	286.9 -> 168.9	29196	9.82 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
d3-MeFOSA	11.178	515.0 -> 219.0	4963	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.3%		
d5-EtFOSAA	8.358	589.2 -> 419.0	10136	4.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.9%		
d7-MeFOSE	11.072	623.2 -> 58.9	49035	24.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
d9-EtFOSE	11.344	639.2 -> 58.9	74438	25.42 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
d5-EtFOSA	11.435	531.1 -> 219.0	6820	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.9%		
Target Compounds					QValue
4:2FTS	5.109	327.1 -> 307.0	14367	9.29 µg/L	100
		327.1 -> 80.9	5756		
6:2FTS	6.822	427.1 -> 407.0	15034	9.43 µg/L	100
		427.1 -> 80.9	5690		
8:2FTS	7.865	527.1 -> 507.0	12102	10.23 µg/L	100
		527.1 -> 80.8	5340		
EtFOSAA	8.359	584.2 -> 419.1	4876	2.73 µg/L	88
		584.2 -> 526.0	2133		
FOSA	9.908	498.1 -> 77.9	9805	2.48 µg/L	100
		498.1 -> 478.0	310		
MeFOSAA	8.148	570.1 -> 419.0	6227	2.53 µg/L	100
		570.1 -> 483.0	1282		
PFBA	2.720	212.8 -> 168.9	31730	9.99 µg/L	100
PFBS	5.264	298.7 -> 79.9	8151	2.34 µg/L	100
		298.7 -> 98.8	3358		
PFDA	8.066	512.9 -> 469.0	21703	2.62 µg/L	100
		512.9 -> 219.0	4747		
PFDODA	8.929	613.1 -> 569.0	28366	2.45 µg/L	100
		613.1 -> 319.0	5087		
PFDS	9.081	599.0 -> 79.9	4776	2.29 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2310			
PFHpA	6.354	363.1 -> 319.0	33330	2.54	µg/L	100
		363.1 -> 169.0	6701			
PFHpS	7.673	449.0 -> 79.9	5701	2.31	µg/L	100
		449.0 -> 98.9	3007			
PFHxA	5.411	313.0 -> 269.0	26921	2.47	µg/L	100
		313.0 -> 118.9	872			
PFHxS	7.104	398.7 -> 79.9	4662	2.26	µg/L	m 94
		398.7 -> 98.9	2589			
PFNA	7.583	463.0 -> 419.0	21451	2.47	µg/L	100
		463.0 -> 219.0	4922			
PFNS	8.647	548.8 -> 79.9	4173	2.46	µg/L	100
		548.8 -> 98.9	2214			
PFOA	7.038	413.0 -> 369.0	40208	2.47	µg/L	100
		413.0 -> 169.0	8860			
PFOS	8.179	498.9 -> 79.9	6357	2.38	µg/L	m 83
		498.9 -> 98.8	3556			
PFPeA	4.229	263.0 -> 219.0	51130	5.03	µg/L	100
PFPeS	6.343	349.1 -> 79.9	4426	2.30	µg/L	100
		349.1 -> 98.9	2140			
PFTeDA	9.699	713.1 -> 669.0	25477	2.68	µg/L	100
		713.1 -> 168.9	2677			
PFTrDA	9.328	663.0 -> 619.0	33464	2.63	µg/L	100
		663.0 -> 168.9	4679			
PFUnDA	8.510	563.1 -> 519.0	25754	2.55	µg/L	100
		563.1 -> 269.1	5185			
11CI-PF3OUdS	9.355	630.9 -> 450.9	37482	4.85	µg/L	100
		632.9 -> 452.9	11296			
9CI-PF3ONS	8.511	530.8 -> 351.0	42180	5.03	µg/L	100
		532.8 -> 353.0	13827			
ADONA	6.629	376.9 -> 250.9	104653	4.77	µg/L	100
		376.9 -> 84.8	27388			
HFPO-DA	5.764	284.9 -> 168.9	16028	5.06	µg/L	100
		284.9 -> 184.9	2238			
3:3FTCA	3.706	241.0 -> 177.0	6793	12.02	µg/L	100
		241.0 -> 117.0	870			
5:3FTCA	6.169	341.0 -> 237.1	123421	64.14	µg/L	100
		341.0 -> 217.0	89289			
7:3FTCA	7.686	441.0 -> 316.9	60652	65.99	µg/L	100
		441.0 -> 336.9	125495			
EtFOSA	11.438	526.0 -> 219.0	14960	5.02	µg/L	100
		526.0 -> 169.0	20428			
EtFOSE	11.370	630.0 -> 58.9	37441	12.19	µg/L	100
MeFOSA	11.180	511.9 -> 219.0	12198	5.21	µg/L	m 71
		511.9 -> 169.0	17270			
MeFOSE	11.086	616.1 -> 58.9	30439	12.65	µg/L	100
PFDoDS	9.826	699.1 -> 79.9	3394	2.27	µg/L	100
		699.1 -> 98.8	1907			
NFDHA	5.290	295.0 -> 201.0	3334	5.14	µg/L	100
		295.0 -> 84.9	752			
PFMBA	4.629	279.0 -> 85.1	26847	4.98	µg/L	100
PFMPA	3.358	229.0 -> 84.9	29880	4.94	µg/L	100
PFEESA	5.795	314.8 -> 134.9	48428	4.56	µg/L	100
		314.8 -> 82.9	1511			

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

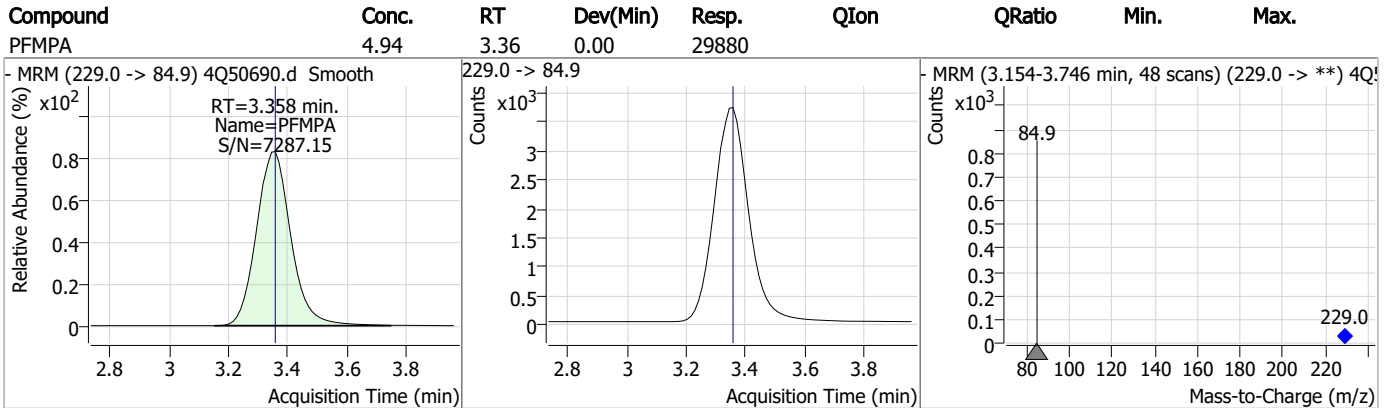
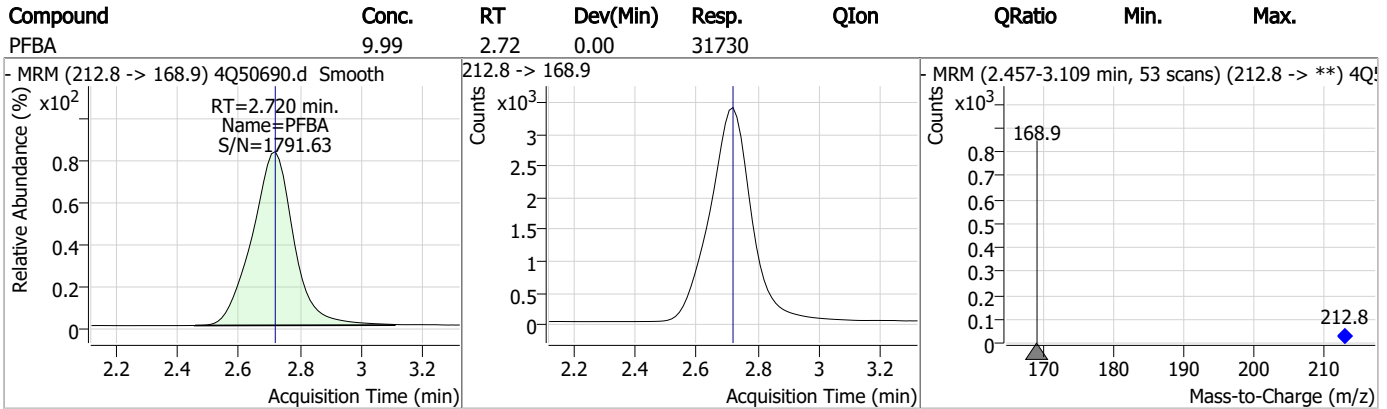
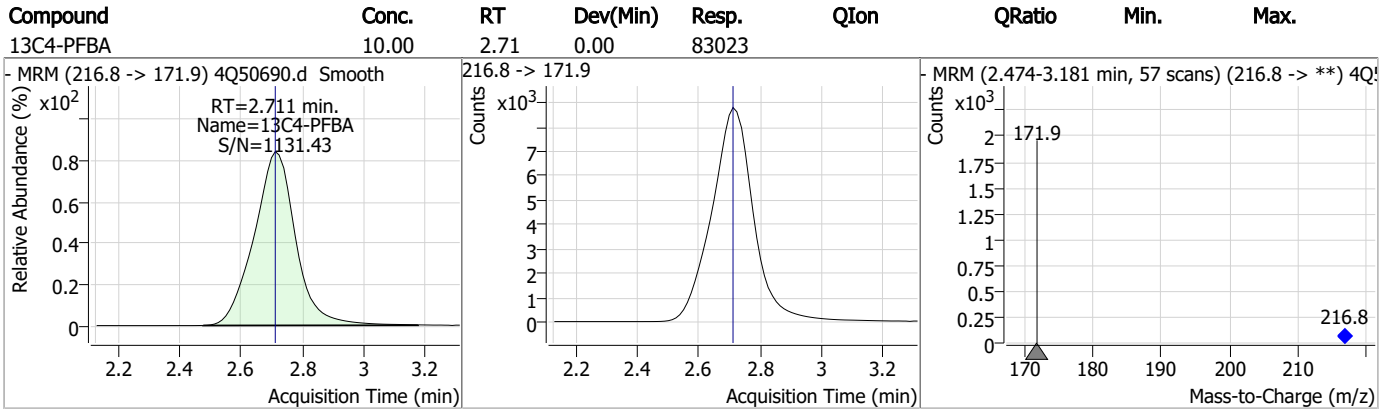
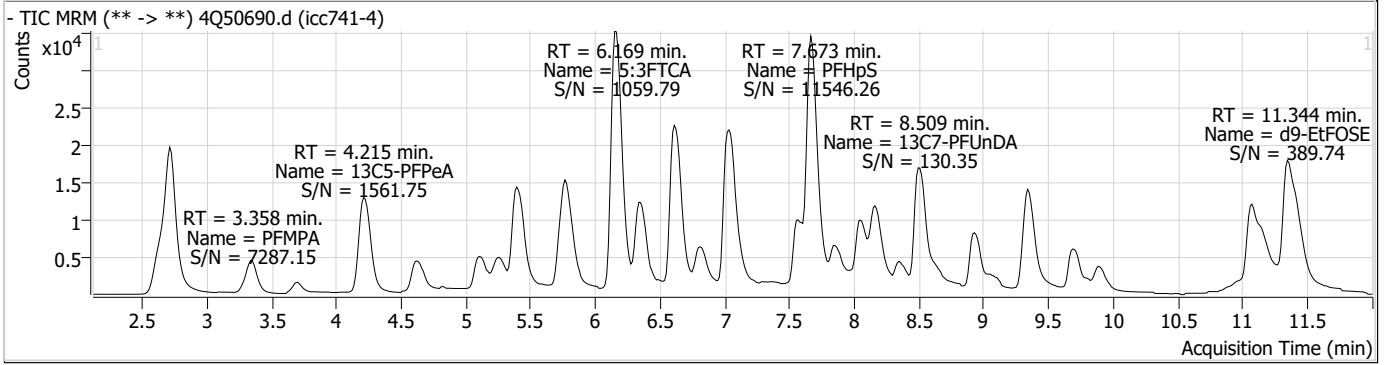
Perfluorinated Compounds by LC/MS/MS

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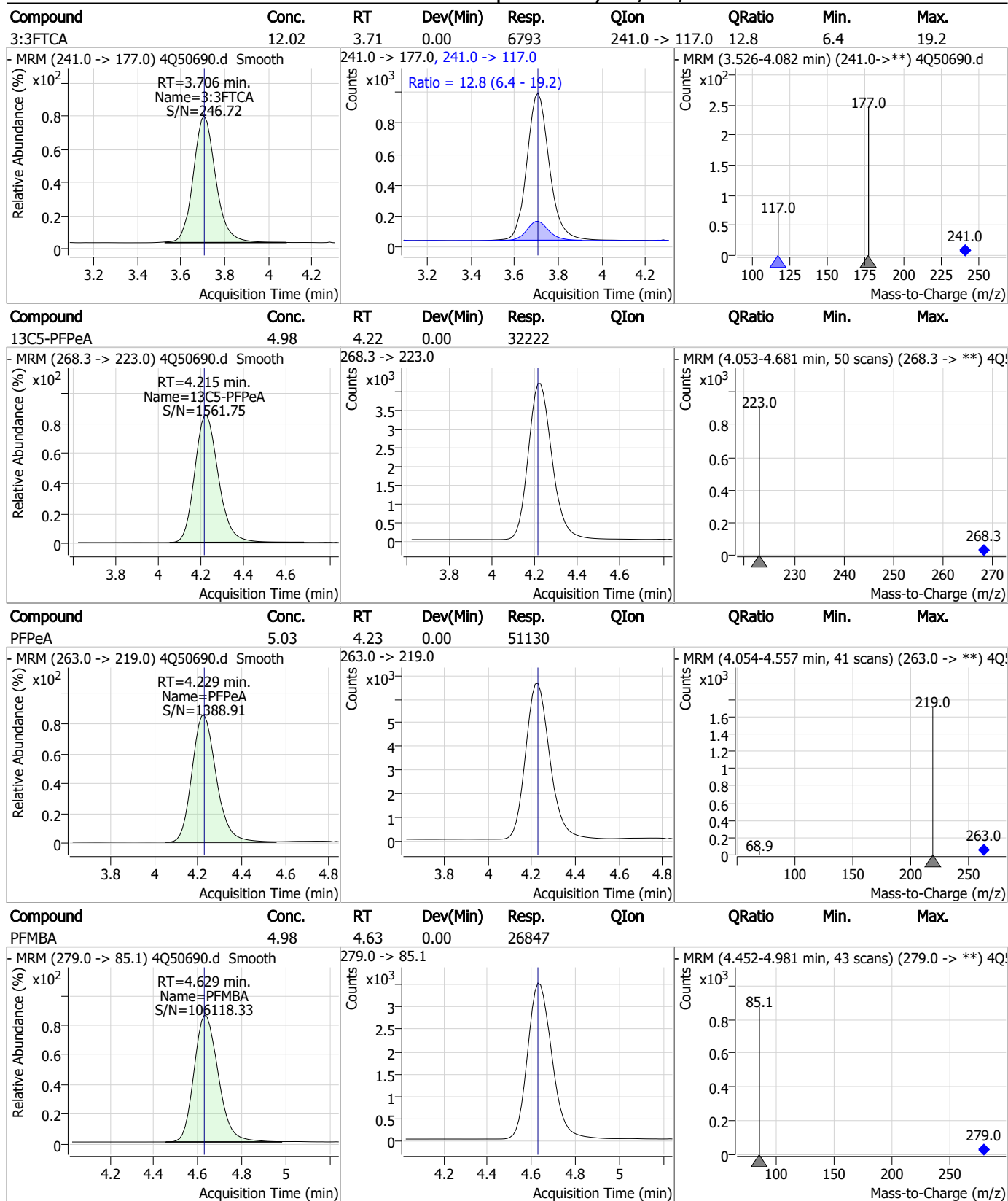
7.7.5

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Perfluorinated Compounds by LC/MS/MS

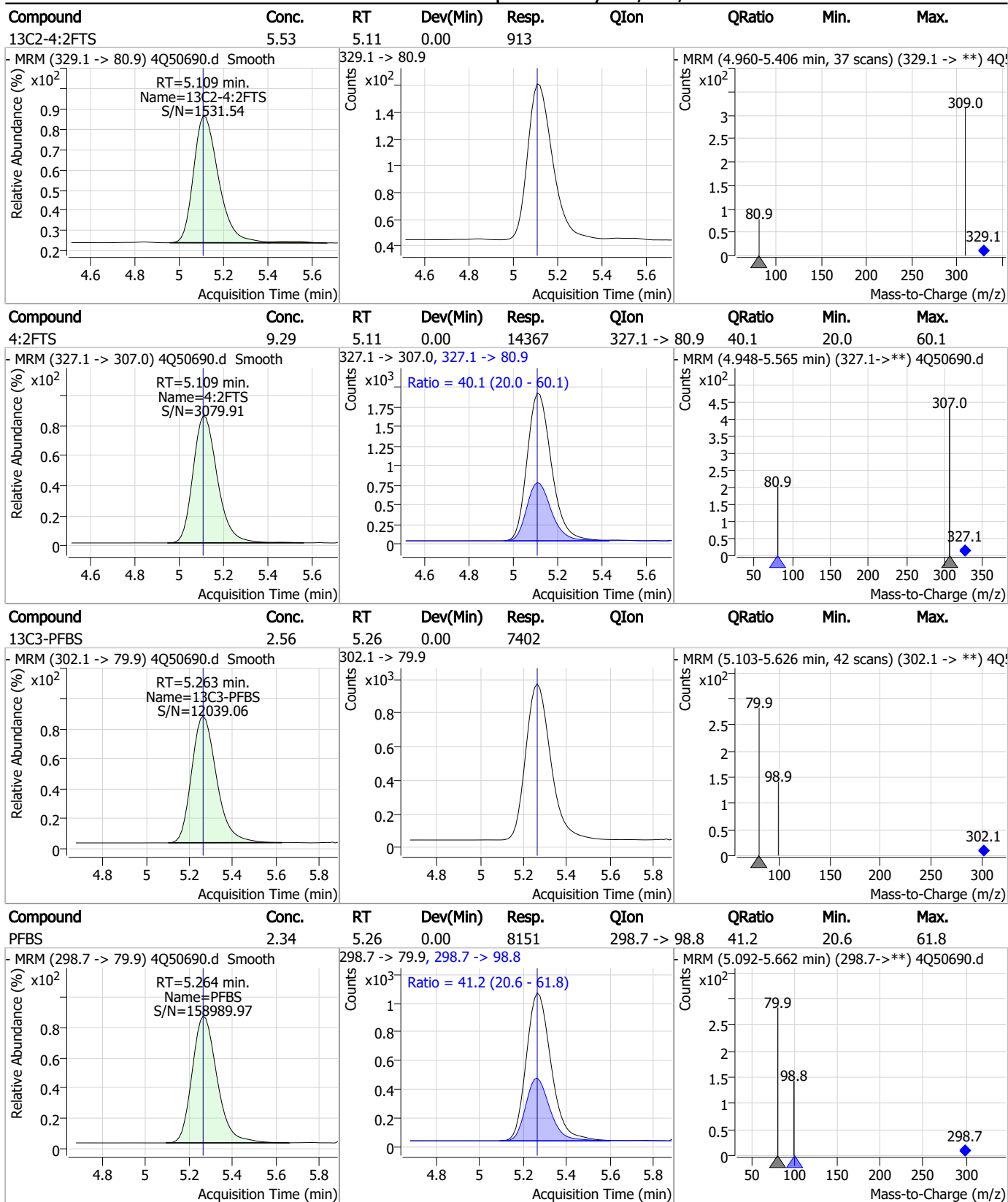


Perfluorinated Compounds by LC/MS/MS



7.7.5
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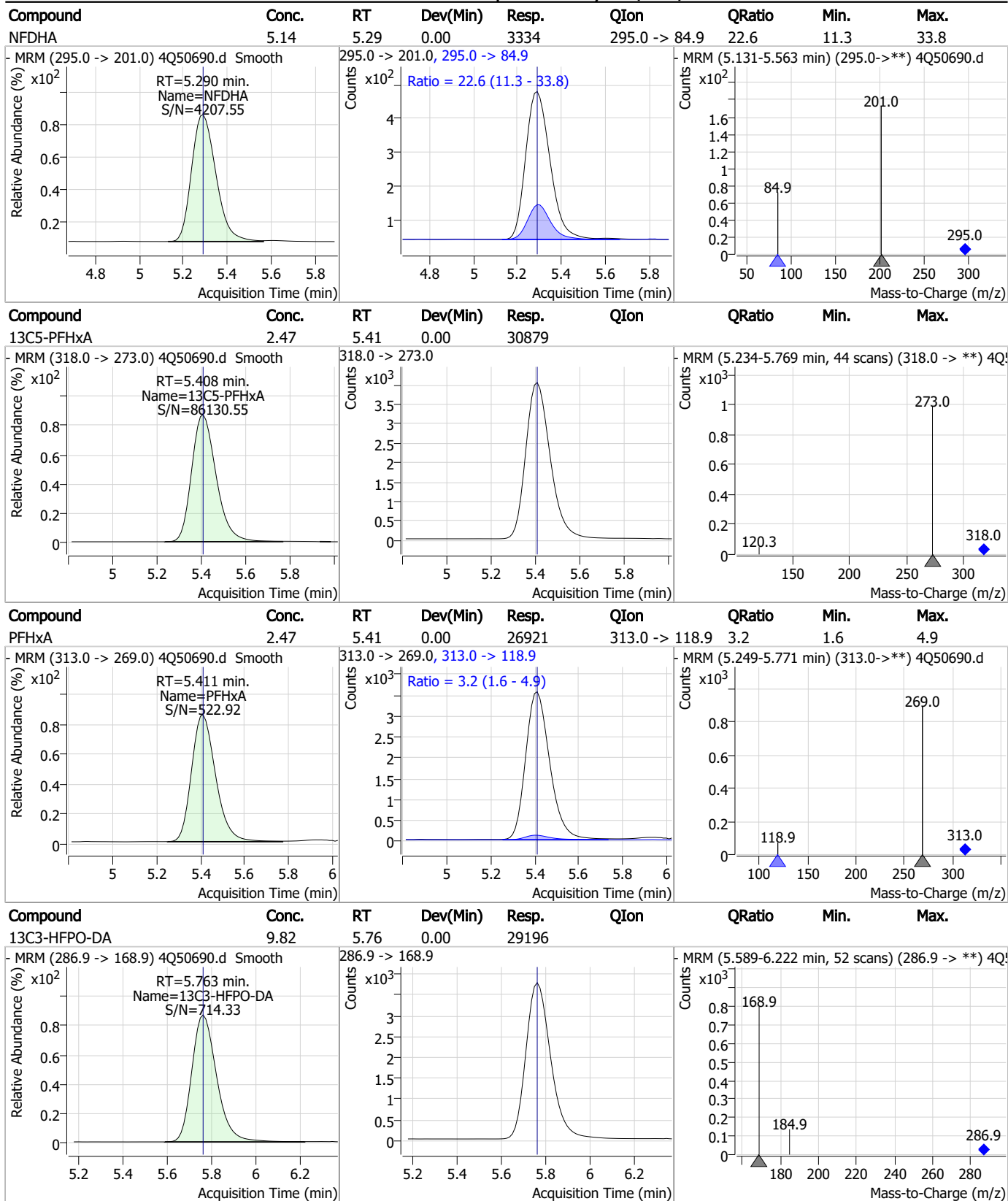
Perfluorinated Compounds by LC/MS/MS



7.7.5

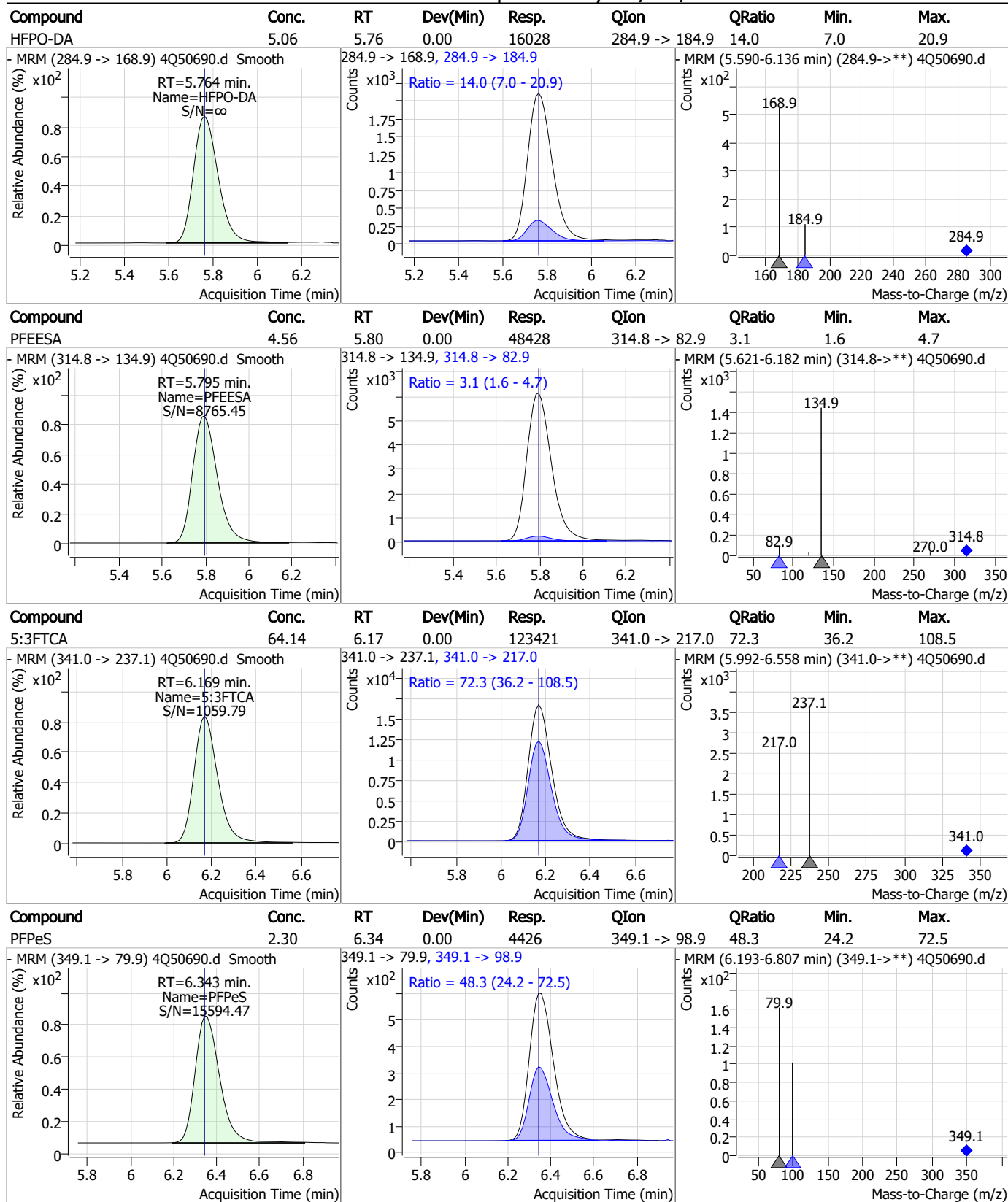
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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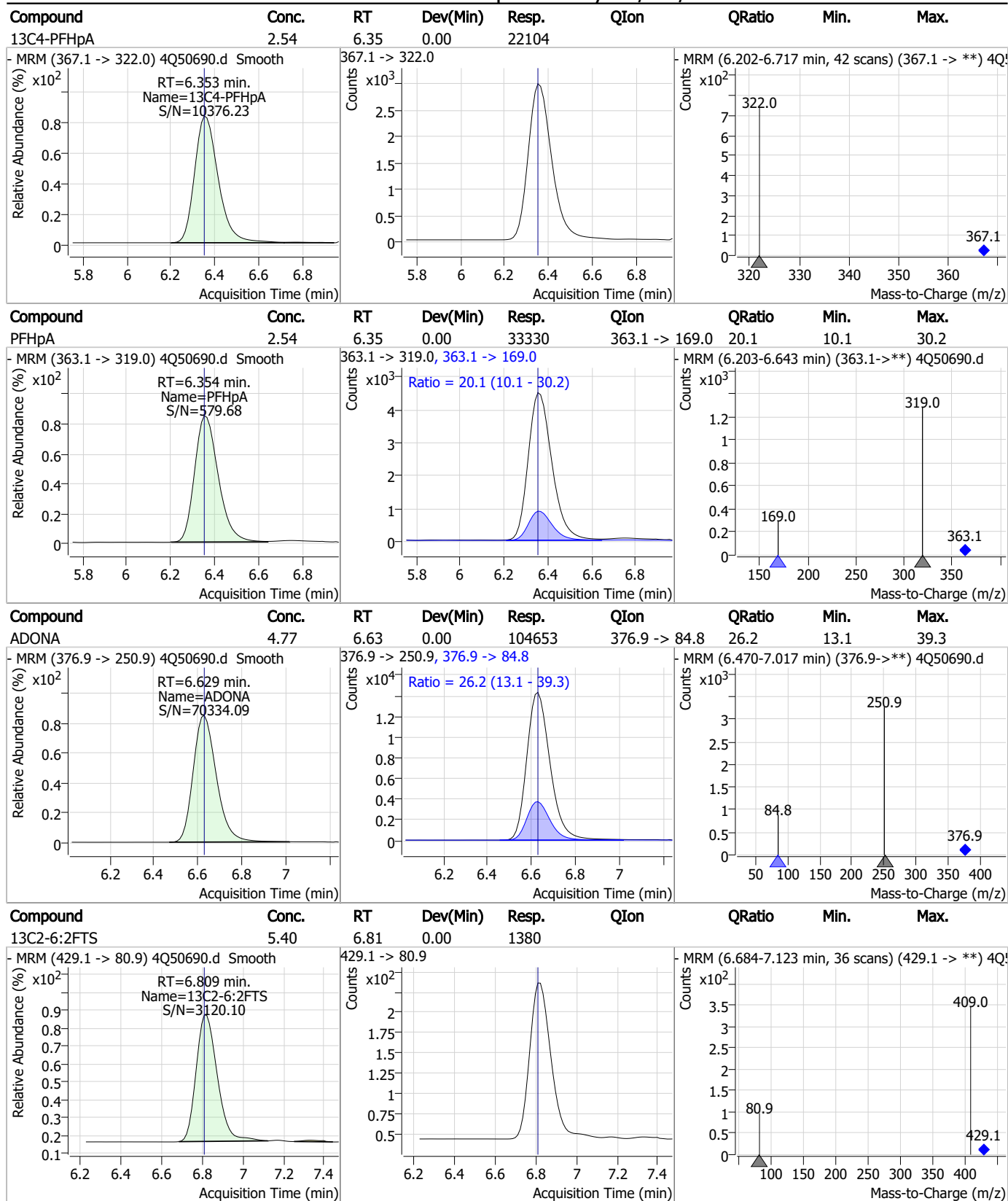
Perfluorinated Compounds by LC/MS/MS



7.7.5

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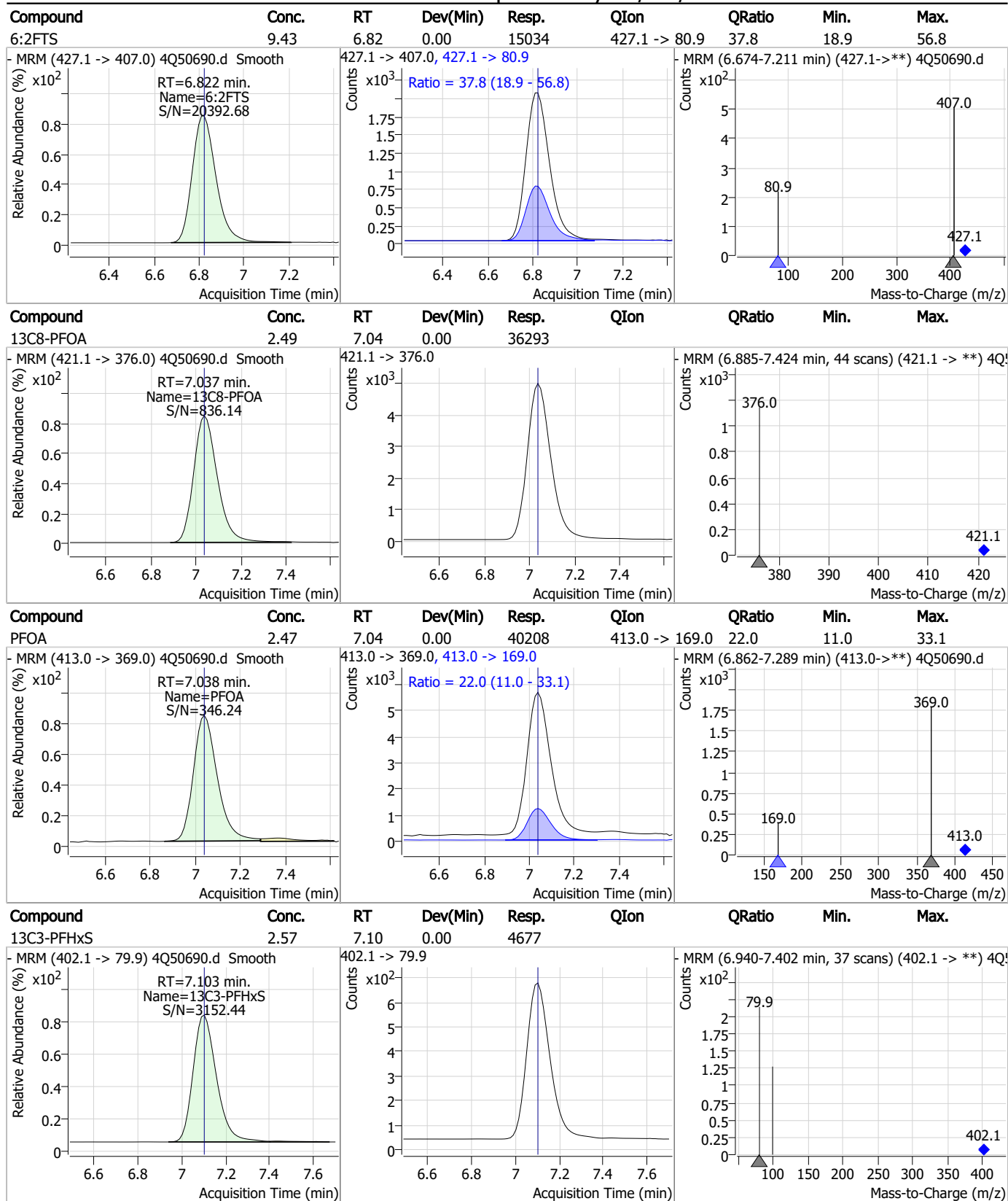
Perfluorinated Compounds by LC/MS/MS



7.7.5

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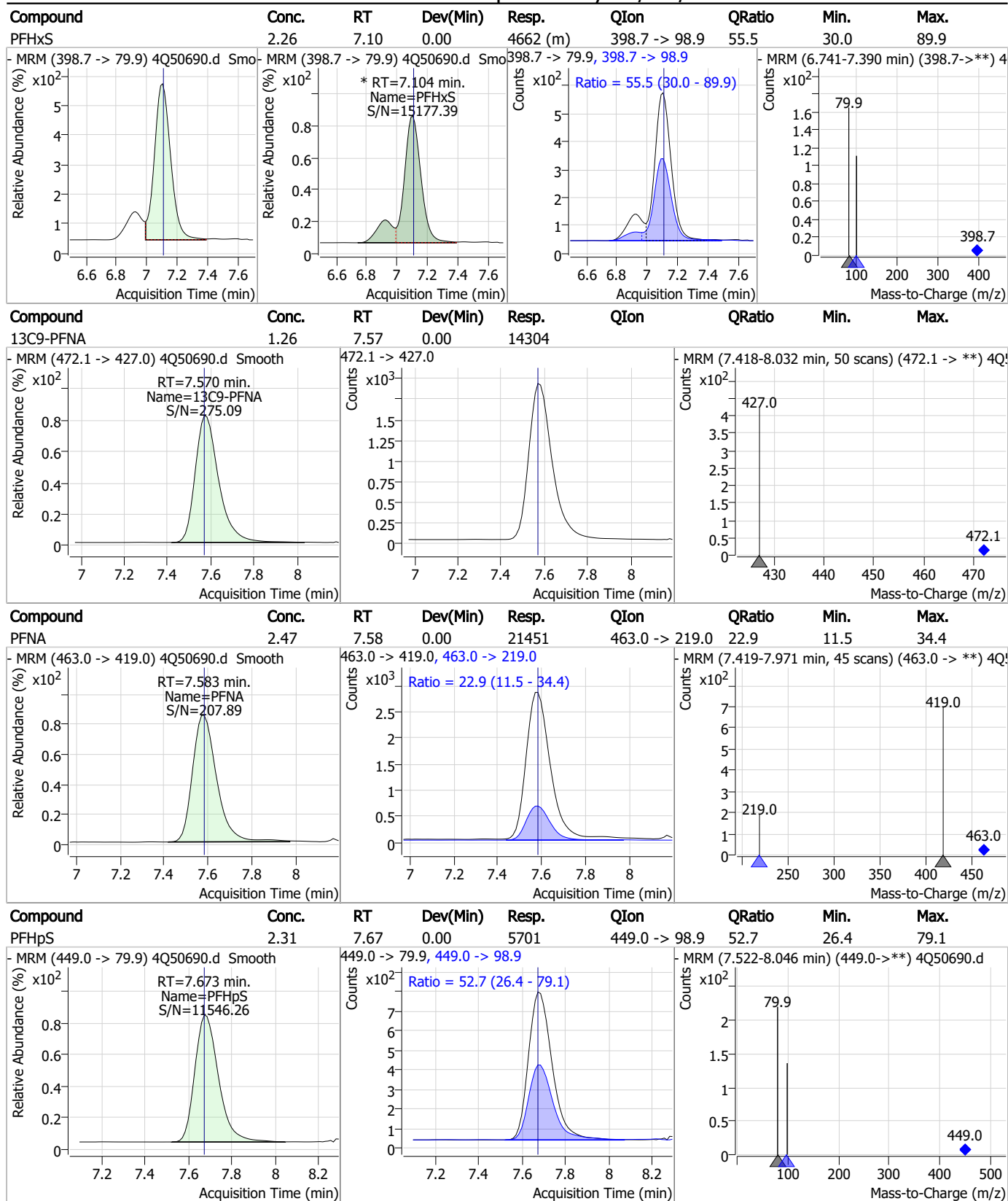
Perfluorinated Compounds by LC/MS/MS



7.7.5

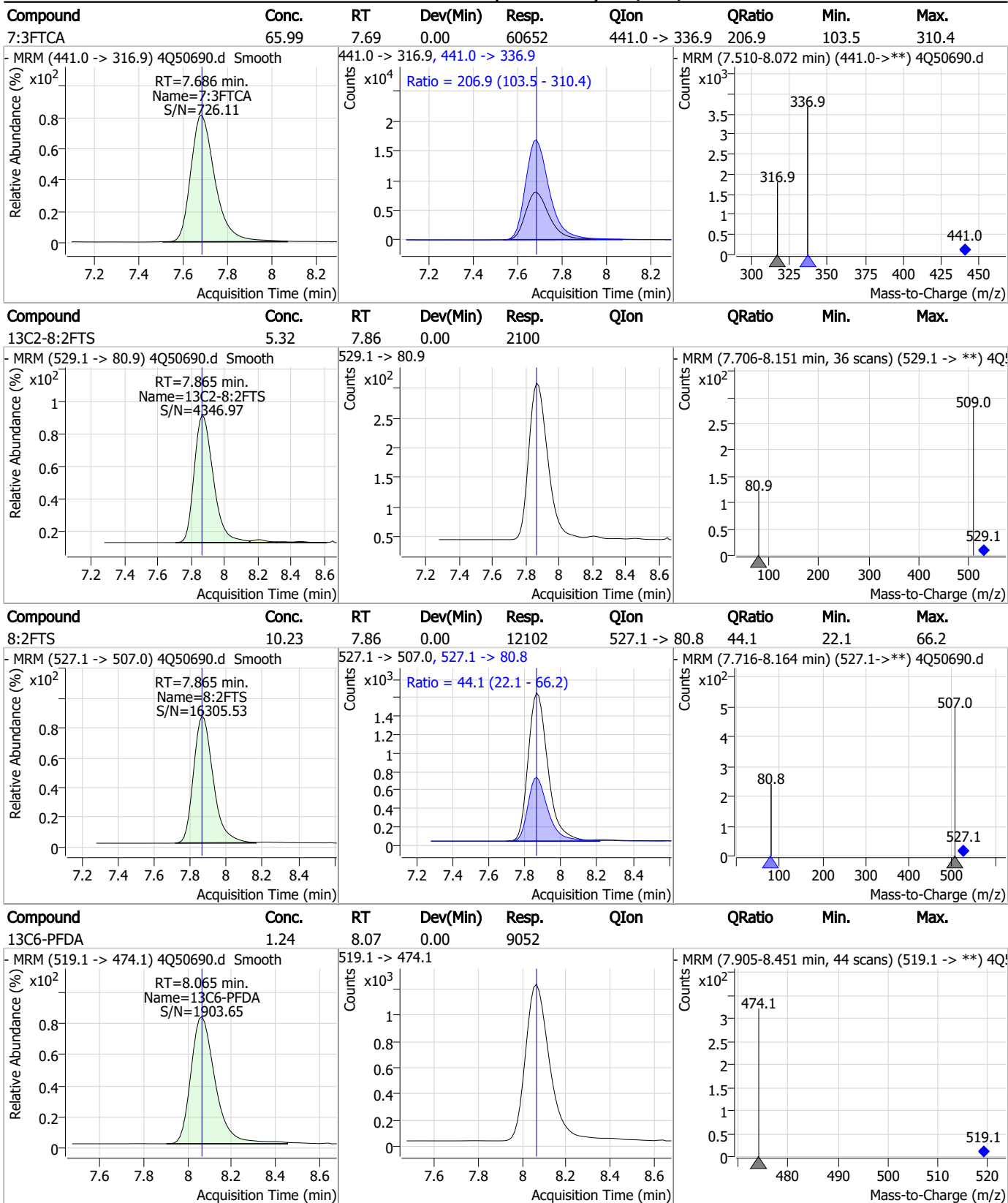
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Perfluorinated Compounds by LC/MS/MS



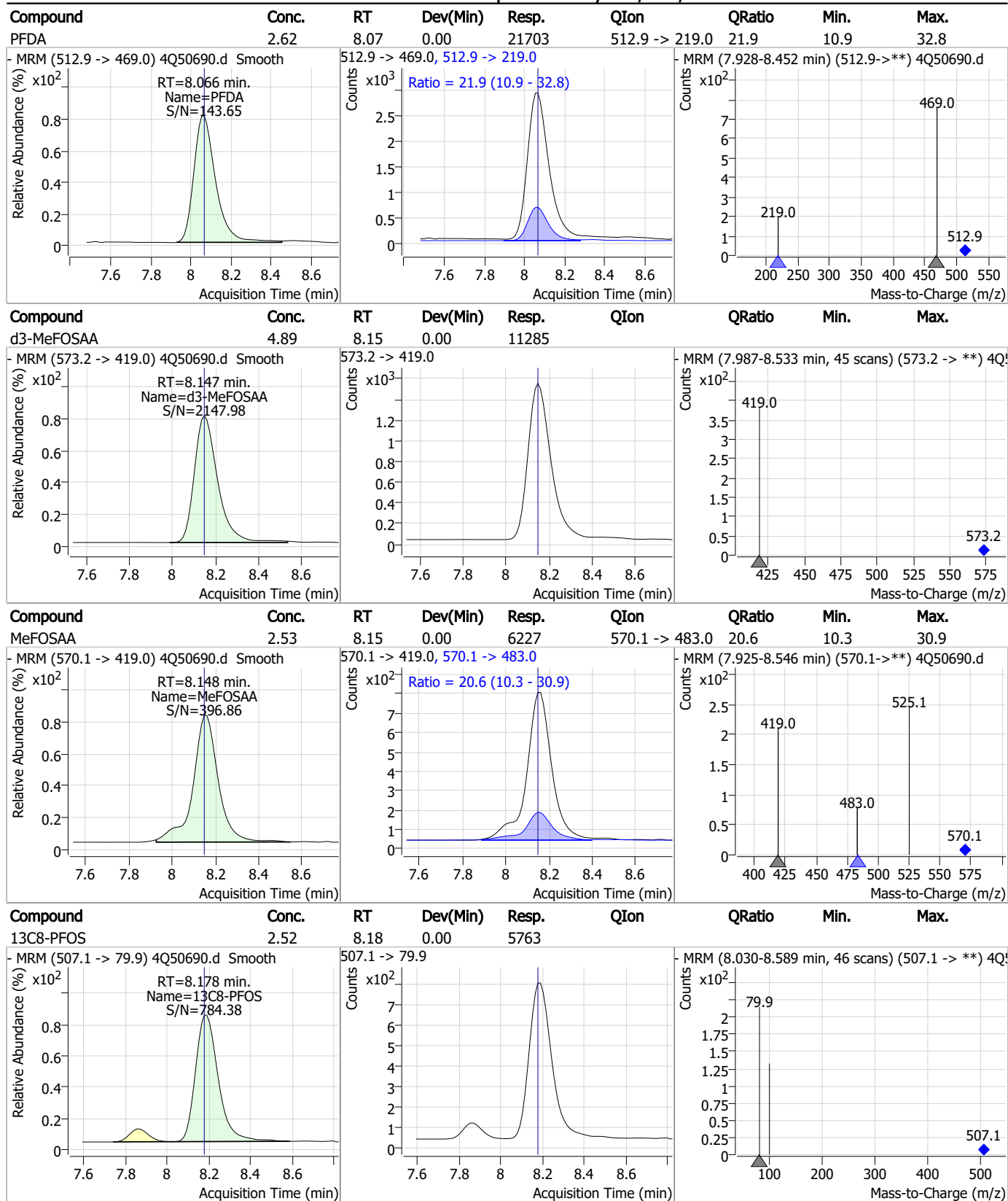
7.7.5
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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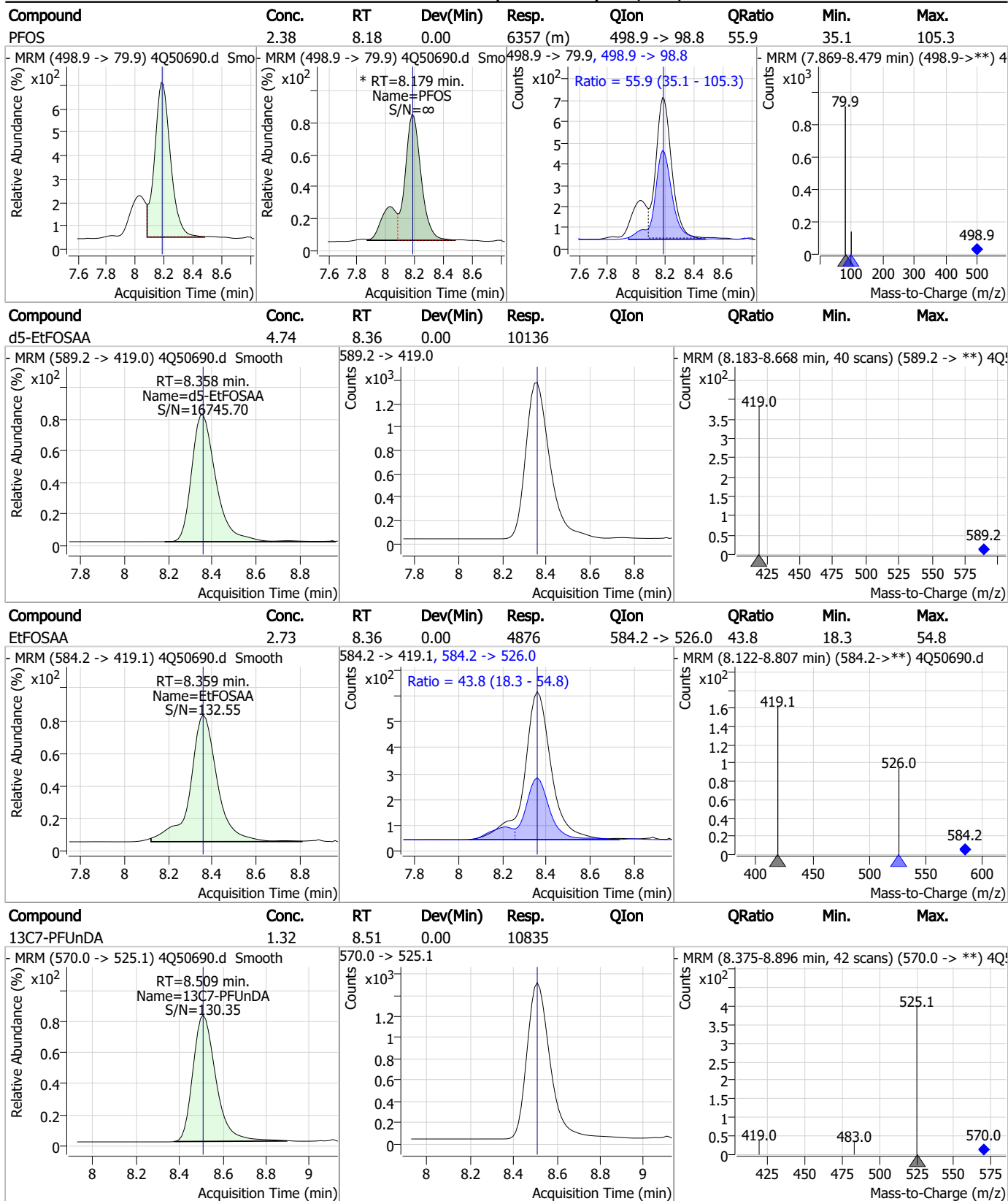
Perfluorinated Compounds by LC/MS/MS



7.7.5

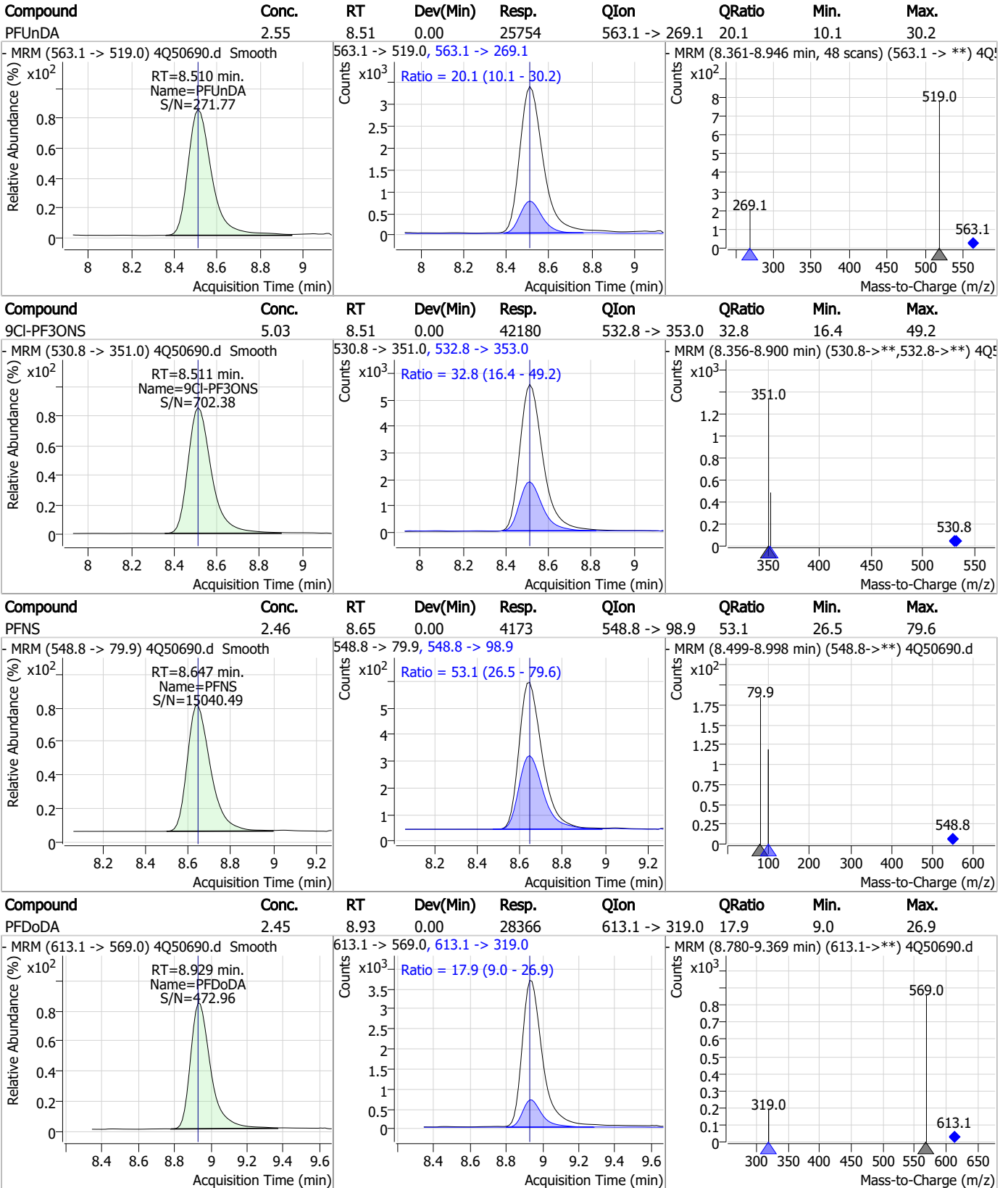
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Perfluorinated Compounds by LC/MS/MS



7.7.5
7

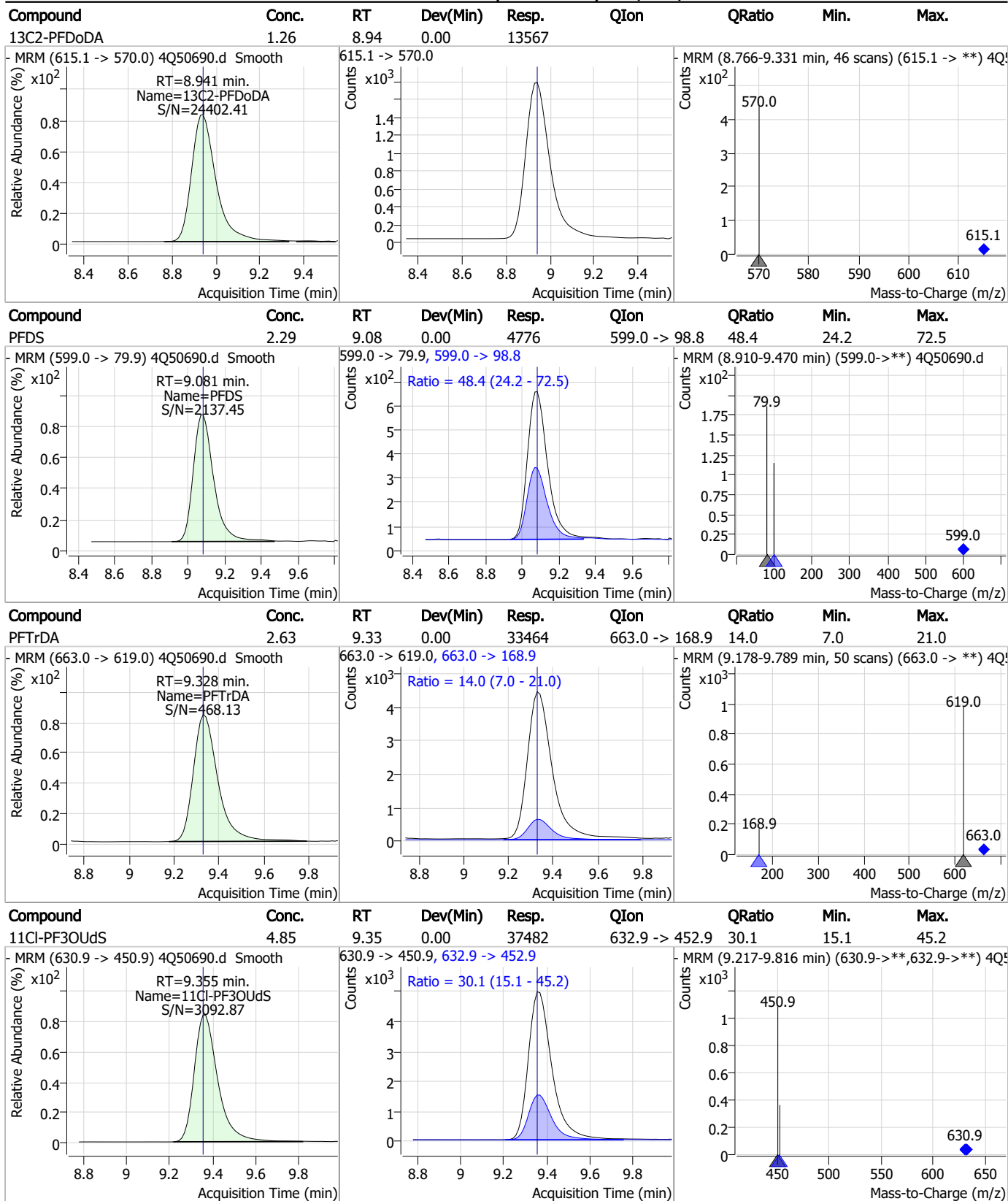
Perfluorinated Compounds by LC/MS/MS



7.7.5

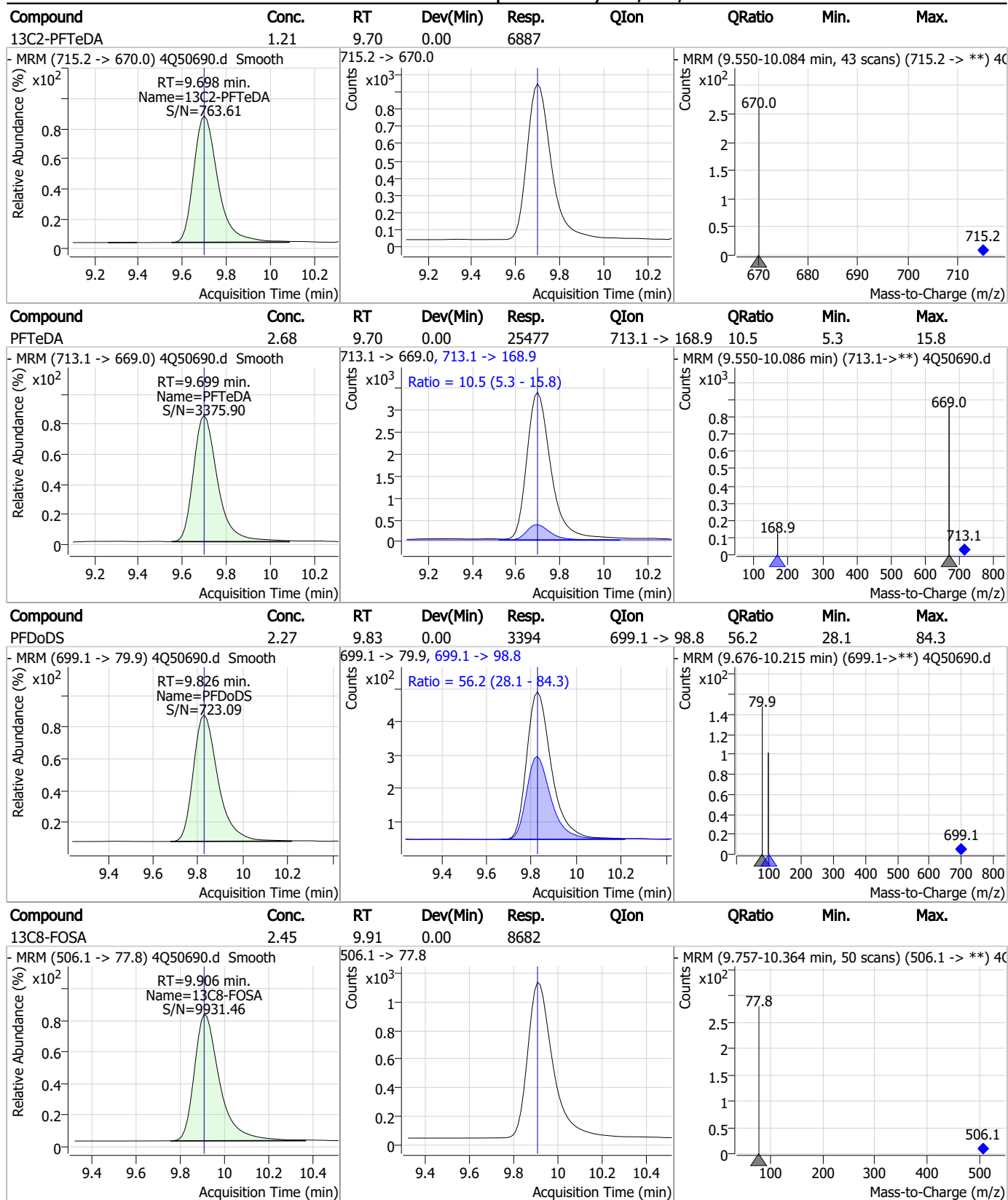
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Perfluorinated Compounds by LC/MS/MS



7.7.5
7

Perfluorinated Compounds by LC/MS/MS

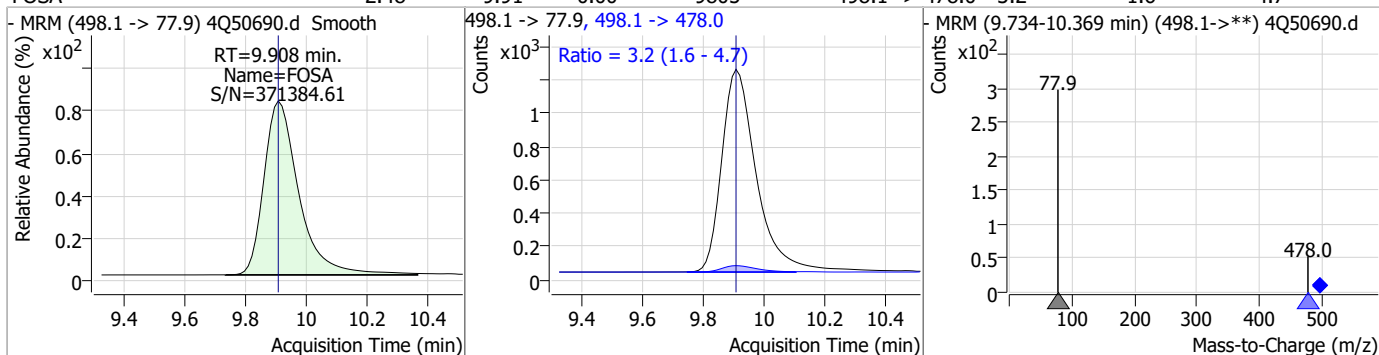


7.7.5

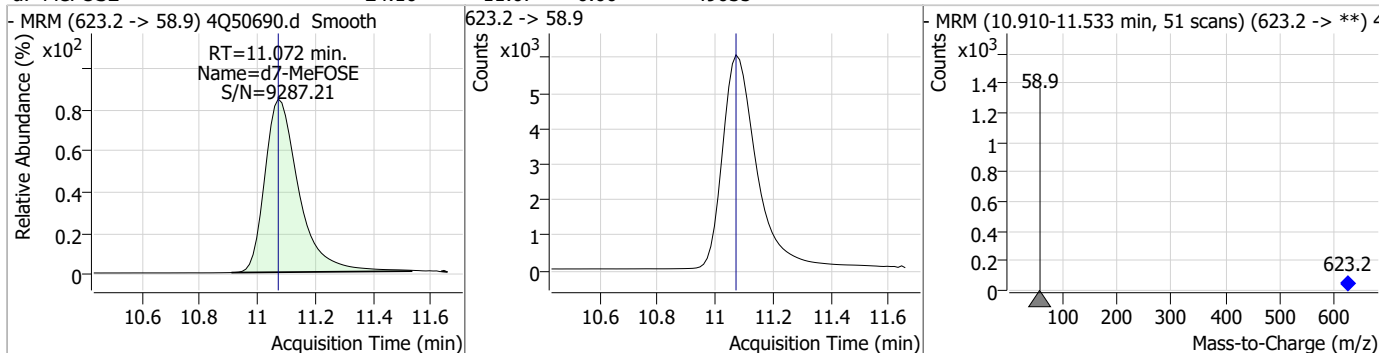
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Perfluorinated Compounds by LC/MS/MS

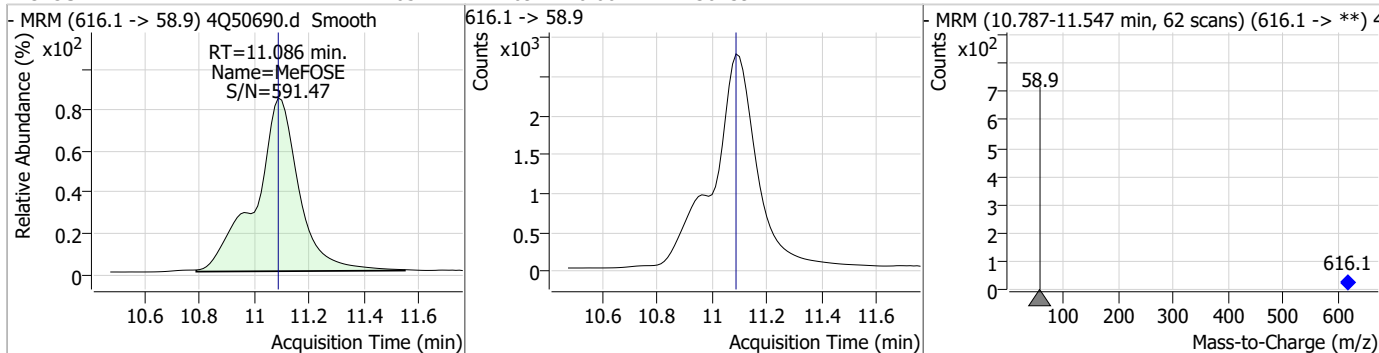
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.48	9.91	0.00	9805	498.1 -> 478.0	3.2	1.6	4.7



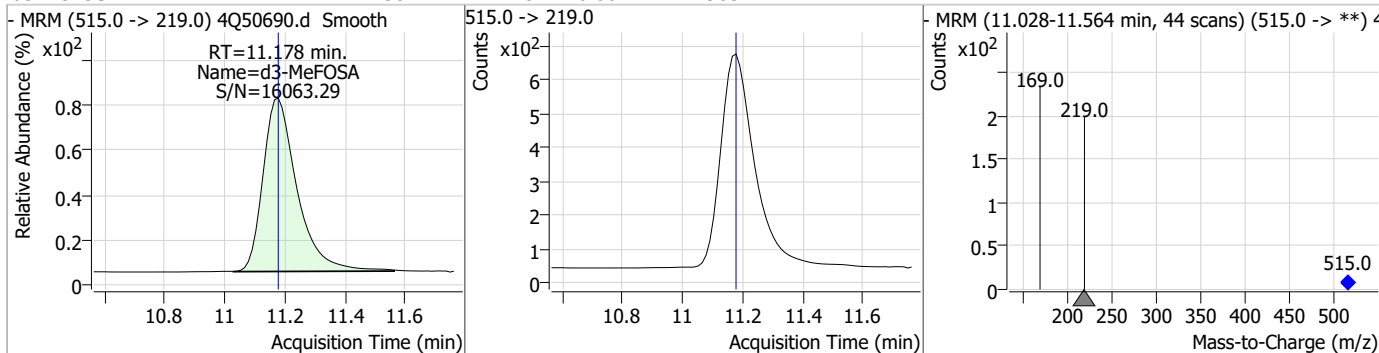
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.16	11.07	0.00	49035				



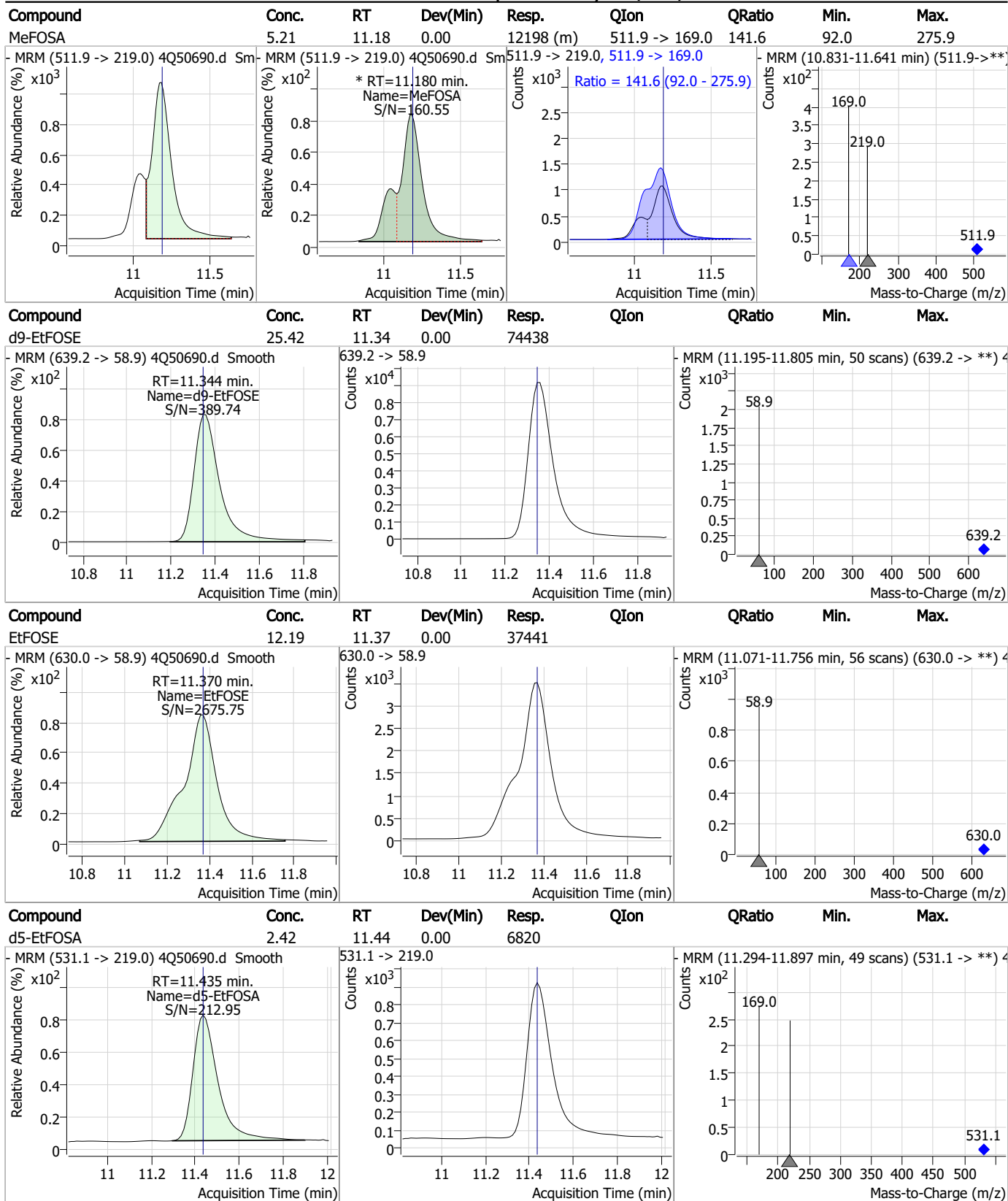
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.65	11.09	0.00	30439				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.38	11.18	0.00	4963				



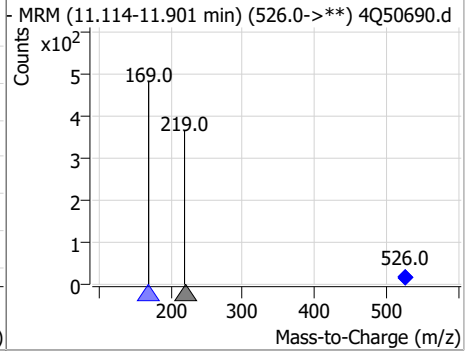
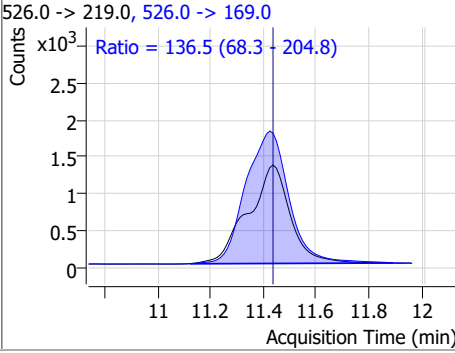
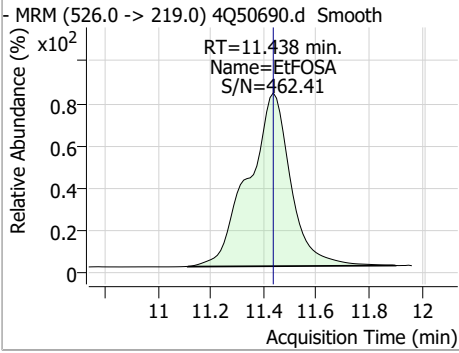
Perfluorinated Compounds by LC/MS/MS



7.7.5
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	5.02	11.44	0.00	14960	526.0 -> 169.0	136.5	68.3	204.8



7.7.5

7

Manual Integration Approval Summary

Sample Number: S4Q741-ICC741 Method: EPA DRAFT 1633
Lab FileID: 4Q50690.D Analyst approved: 09/18/23 11:34 Anna Ludwig
Injection Time: 09/17/23 13:36 Supervisor approved: 09/18/23 14:43 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.10	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.18	Split peak
MeFOSA	31506-32-8		11.18	Split peak

7.7.5.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 09/18/23 14:43

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50691.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/17/2023 1:52:10 PM
 Sample Name : ic741-5
 Vial : P1-A6
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q741.batch.bin
 Sample Information : OP98180,S4Q741,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.777	216.8 -> 171.9	85268	10.00 µg/L	0.066
M5-PFPeA	4.240	268.3 -> 223.0	32146	5.00 µg/L	0.025
M5-PFHxA	5.420	318.0 -> 273.0	31549	2.50 µg/L	0.012
M4-PFHpA	6.365	367.1 -> 322.0	21989	2.50 µg/L	0.012
M8-PFOA	7.037	421.1 -> 376.0	35583	2.50 µg/L	0.000
M9-PFNA	7.582	472.1 -> 427.0	14003	1.25 µg/L	0.012
M6-PFDA	8.065	519.1 -> 474.1	8837	1.25 µg/L	0.000
M7-PFUnDA	8.522	570.0 -> 525.1	10897	1.25 µg/L	0.012
M2-PFDoDA	8.941	615.1 -> 570.0	13818	1.25 µg/L	0.000
M2-PFTeDA	9.698	715.2 -> 670.0	6915	1.25 µg/L	0.000
M8-FOSA	9.919	506.1 -> 77.8	8729	2.50 µg/L	0.012
M3-PFBS	5.276	302.1 -> 79.9	7730	2.50 µg/L	0.012
M3-PFHxS	7.103	402.1 -> 79.9	4782	2.50 µg/L	0.000
M8-PFOS	8.191	507.1 -> 79.9	5507	2.50 µg/L	0.012
M2-4:2FTS	5.121	329.1 -> 80.9	930	5.00 µg/L	0.012
M2-6:2FTS	6.834	429.1 -> 80.9	1399	5.00 µg/L	0.025
M2-8:2FTS	7.865	529.1 -> 80.9	2218	5.00 µg/L	0.000
M3-MeFOSAA	8.160	573.2 -> 419.0	11592	5.00 µg/L	0.012
M3-HFPO-DA	5.775	286.9 -> 168.9	29613	10.00 µg/L	0.012
M5-EtFOSAA	8.370	589.2 -> 419.0	10439	5.00 µg/L	0.012
M7-MeFOSE	11.072	623.2 -> 58.9	51451	25.00 µg/L	0.000
M9-EtFOSE	11.357	639.2 -> 58.9	74468	25.00 µg/L	0.012
M5-EtFOSA	11.435	531.1 -> 219.0	7112	2.50 µg/L	0.000
M3-MeFOSA	11.178	515.0 -> 219.0	4919	2.50 µg/L	0.000
13C4-PFOS	8.191	502.8 -> 79.9	5310	2.50 µg/L	0.012
13C3-PFBA	2.768	216.0 -> 172.0	42889	5.00 µg/L	0.052
18O2-PFHxS	7.102	403.0 -> 83.9	3179	2.50 µg/L	0.000
13C4-PFOA	7.037	417.1 -> 372.0	38449	2.50 µg/L	0.000
13C2-PFDA	8.066	515.1 -> 470.1	9593	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	12070	1.25 µg/L	0.012
13C2-PFHxA	5.421	315.1 -> 270.0	26470	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.121	329.1 -> 80.9	930	5.35 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.1%		
13C2-6:2FTS	6.834	429.1 -> 80.9	1399	5.21 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C2-8:2FTS	7.865	529.1 -> 80.9	2218	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C2-PFDoDA	8.941	615.1 -> 570.0	13818	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C2-PFTeDA	9.698	715.2 -> 670.0	6915	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C3-PFBS	5.276	302.1 -> 79.9	7730	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C3-PFHxS	7.103	402.1 -> 79.9	4782	2.50 µg/L	0.000

7.7.6
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C4-PFBA	2.777	216.8 -> 171.9	85268	10.04 µg/L	0.066
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C4-PFHpA	6.365	367.1 -> 322.0	21989	2.63 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C5-PFHxA	5.420	318.0 -> 273.0	31549	2.62 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C5-PFPeA	4.240	268.3 -> 223.0	32146	5.16 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C6-PFDA	8.065	519.1 -> 474.1	8837	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C7-PFUnDA	8.522	570.0 -> 525.1	10897	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C8-FOSA	9.919	506.1 -> 77.8	8729	2.38 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.2%		
13C8-PFOA	7.037	421.1 -> 376.0	35583	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C8-PFOS	8.191	507.1 -> 79.9	5507	2.33 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.3%		
13C9-PFNA	7.582	472.1 -> 427.0	14003	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.6%		
d3-MeFOSAA	8.160	573.2 -> 419.0	11592	4.86 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C3-HFPO-DA	5.775	286.9 -> 168.9	29613	10.34 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 103.4%		
d3-MeFOSA	11.178	515.0 -> 219.0	4919	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.3%		
d5-EtFOSAA	8.370	589.2 -> 419.0	10439	4.73 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.5%		
d7-MeFOSE	11.072	623.2 -> 58.9	51451	24.52 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.1%		
d9-EtFOSE	11.357	639.2 -> 58.9	74468	24.60 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.4%		
d5-EtFOSA	11.435	531.1 -> 219.0	7112	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.8%		
Target Compounds					QValue
4:2FTS	5.122	327.1 -> 307.0	31595	20.07 µg/L	97
		327.1 -> 80.9	12000		
6:2FTS	6.822	427.1 -> 407.0	31954	19.77 µg/L	96
		427.1 -> 80.9	11390		
8:2FTS	7.865	527.1 -> 507.0	24685	19.75 µg/L	98
		527.1 -> 80.8	10564		
EtFOSAA	8.371	584.2 -> 419.1	9237	5.03 µg/L	m 83
		584.2 -> 526.0	4324		
FOSA	9.921	498.1 -> 77.9	20360	5.12 µg/L	99
		498.1 -> 478.0	594		
MeFOSAA	8.160	570.1 -> 419.0	12518	4.95 µg/L	100
		570.1 -> 483.0	2569		
PFBA	2.771	212.8 -> 168.9	67314	20.63 µg/L	100
PFBS	5.277	298.7 -> 79.9	16732	4.60 µg/L	99
		298.7 -> 98.8	6793		
PFDA	8.066	512.9 -> 469.0	44583	5.52 µg/L	98
		512.9 -> 219.0	9316		
PFDODA	8.942	613.1 -> 569.0	60236	5.11 µg/L	98
		613.1 -> 319.0	10239		
PFDS	9.081	599.0 -> 79.9	9870	4.95 µg/L	93

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	5223			
PFHpA	6.366	363.1 -> 319.0	69194	5.30	µg/L	99
		363.1 -> 169.0	13640			
PFHpS	7.685	449.0 -> 79.9	11623	4.92	µg/L	99
		449.0 -> 98.9	6242			
PFHxA	5.423	313.0 -> 269.0	59179	5.30	µg/L	100
		313.0 -> 118.9	1821			
PFHxS	7.104	398.7 -> 79.9	10104	4.79	µg/L	m 85
		398.7 -> 98.9	4901			
PFNA	7.583	463.0 -> 419.0	44853	5.27	µg/L	100
		463.0 -> 219.0	10320			
PFNS	8.659	548.8 -> 79.9	7999	4.94	µg/L	99
		548.8 -> 98.9	4187			
PFOA	7.038	413.0 -> 369.0	86020	5.38	µg/L	99
		413.0 -> 169.0	18562			
PFOS	8.192	498.9 -> 79.9	14453	5.65	µg/L	m 72
		498.9 -> 98.8	6820			
PFPeA	4.241	263.0 -> 219.0	107095	10.57	µg/L	100
PFPeS	6.355	349.1 -> 79.9	9529	4.84	µg/L	95
		349.1 -> 98.9	4310			
PFTeDA	9.699	713.1 -> 669.0	52222	5.47	µg/L	99
		713.1 -> 168.9	5701			
PFTrDA	9.340	663.0 -> 619.0	71400	5.51	µg/L	100
		663.0 -> 168.9	10096			
PFUnDA	8.522	563.1 -> 519.0	51696	5.09	µg/L	95
		563.1 -> 269.1	11571			
11CI-PF3OUdS	9.367	630.9 -> 450.9	80083	10.21	µg/L	98
		632.9 -> 452.9	24879			
9CI-PF3ONS	8.524	530.8 -> 351.0	86597	10.19	µg/L	98
		532.8 -> 353.0	27293			
ADONA	6.629	376.9 -> 250.9	224293	10.08	µg/L	98
		376.9 -> 84.8	56319			
HFPO-DA	5.776	284.9 -> 168.9	33619	10.47	µg/L	98
		284.9 -> 184.9	4457			
3:3FTCA	3.743	241.0 -> 177.0	14346	24.72	µg/L	99
		241.0 -> 117.0	1755			
5:3FTCA	6.181	341.0 -> 237.1	257794	131.12	µg/L	96
		341.0 -> 217.0	194965			
7:3FTCA	7.686	441.0 -> 316.9	123337	131.34	µg/L	96
		441.0 -> 336.9	261876			
EtFOSA	11.438	526.0 -> 219.0	30962	9.96	µg/L	98
		526.0 -> 169.0	41603			
EtFOSE	11.370	630.0 -> 58.9	80221	26.10	µg/L	100
MeFOSA	11.180	511.9 -> 219.0	24802	10.69	µg/L	m 73
		511.9 -> 169.0	35896			
MeFOSE	11.098	616.1 -> 58.9	65323	25.88	µg/L	100
PFDoDS	9.826	699.1 -> 79.9	7382	5.18	µg/L	98
		699.1 -> 98.8	4242			
NFDHA	5.302	295.0 -> 201.0	7113	10.73	µg/L	99
		295.0 -> 84.9	1631			
PFMBA	4.642	279.0 -> 85.1	56919	10.58	µg/L	100
PFMPA	3.383	229.0 -> 84.9	63501	10.53	µg/L	100
PFEESA	5.808	314.8 -> 134.9	103100	9.50	µg/L	100
		314.8 -> 82.9	3316			

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

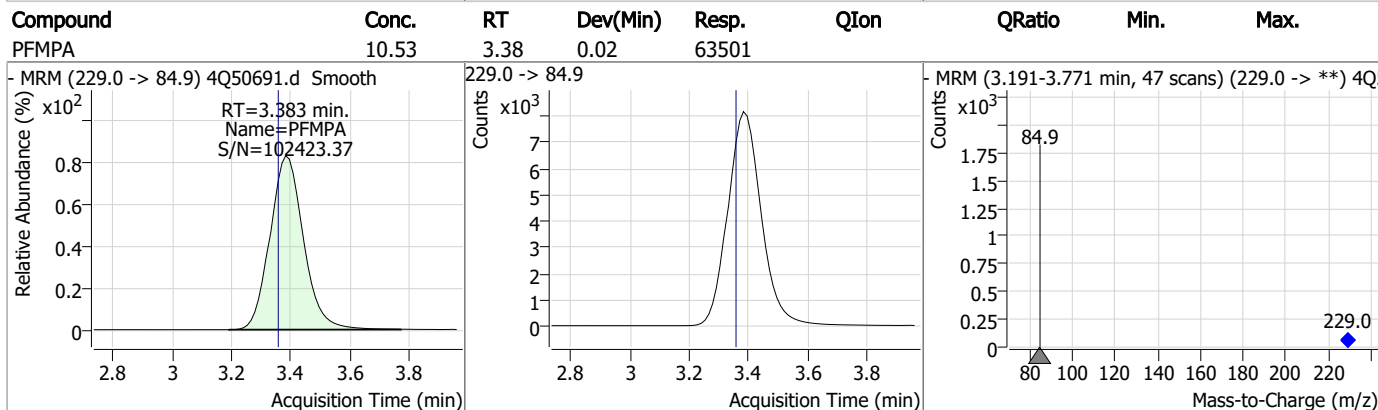
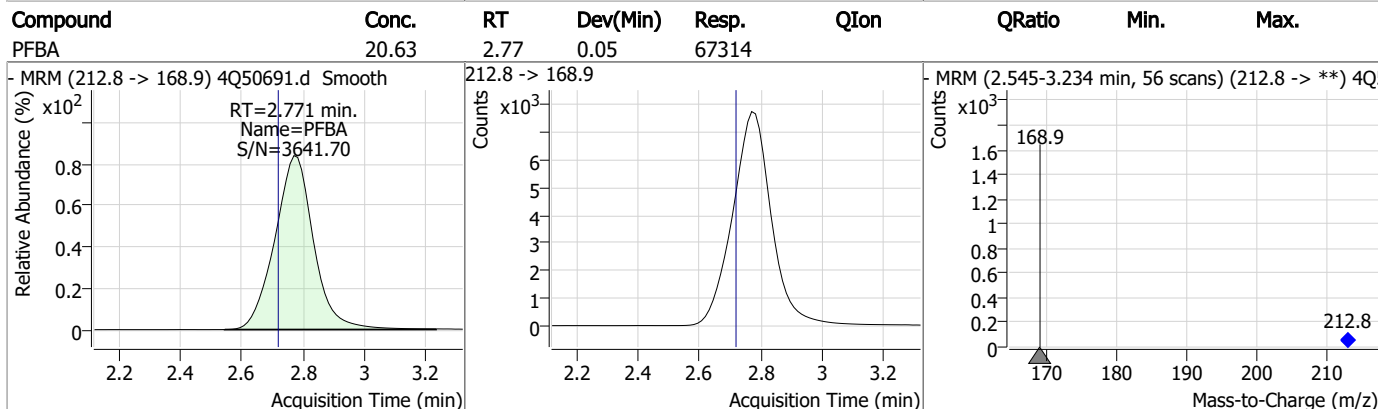
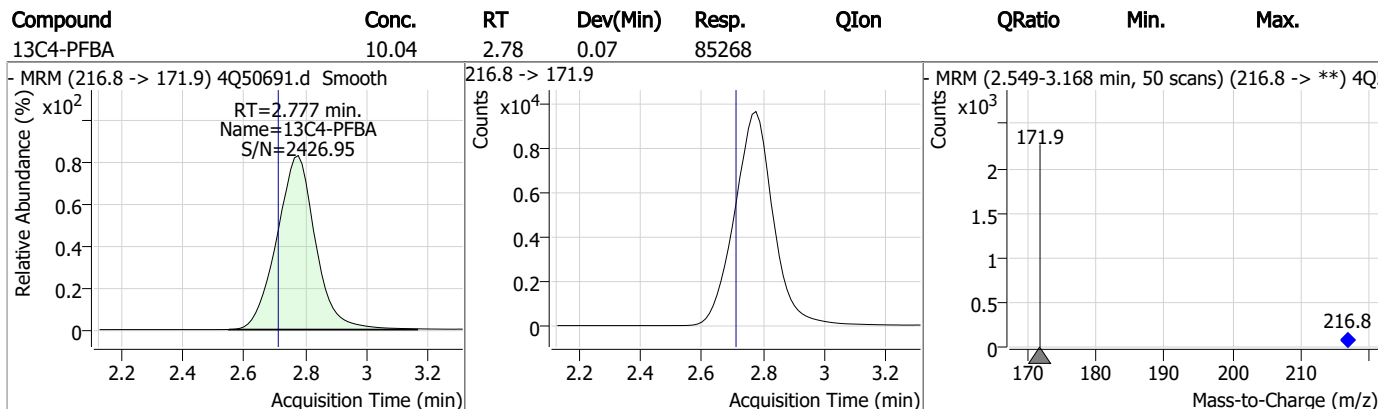
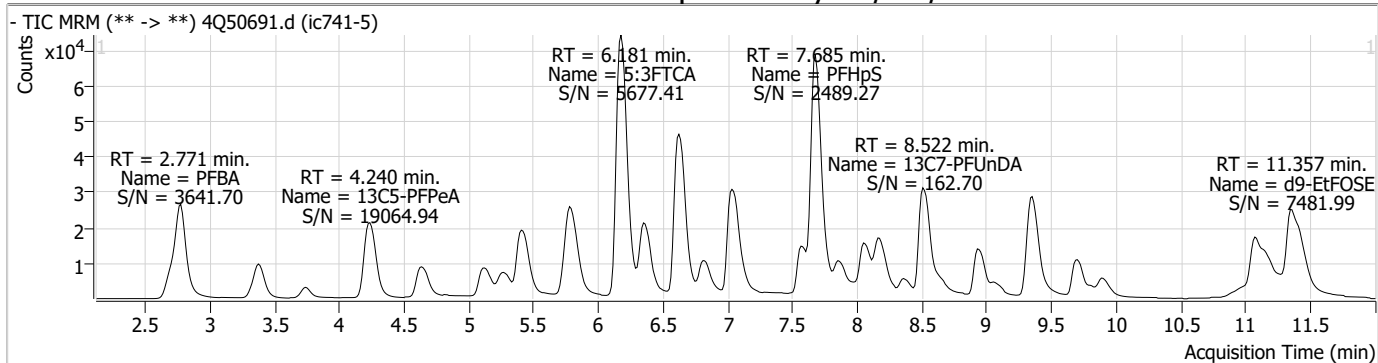
Perfluorinated Compounds by LC/MS/MS

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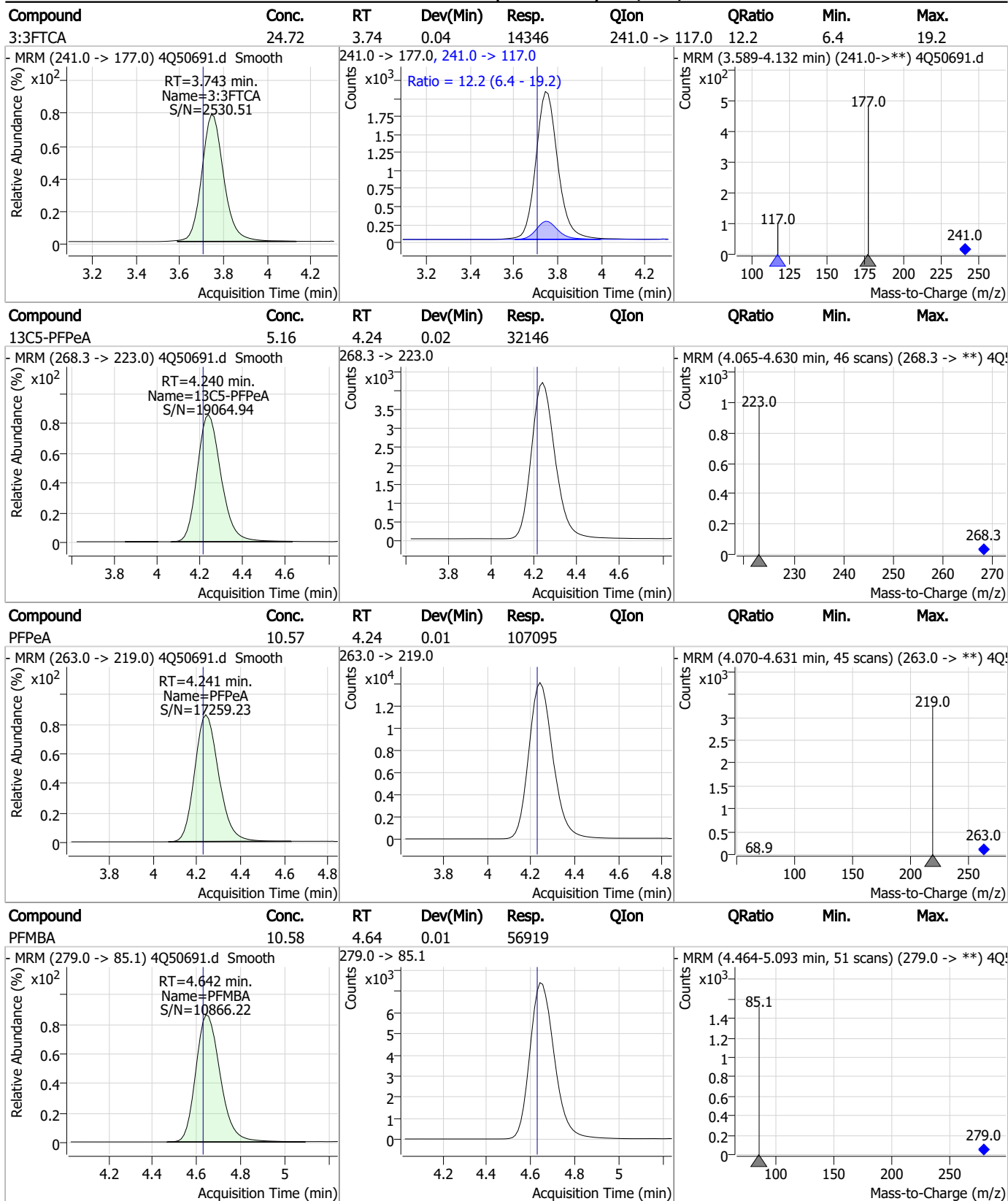
7.7.6

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Perfluorinated Compounds by LC/MS/MS

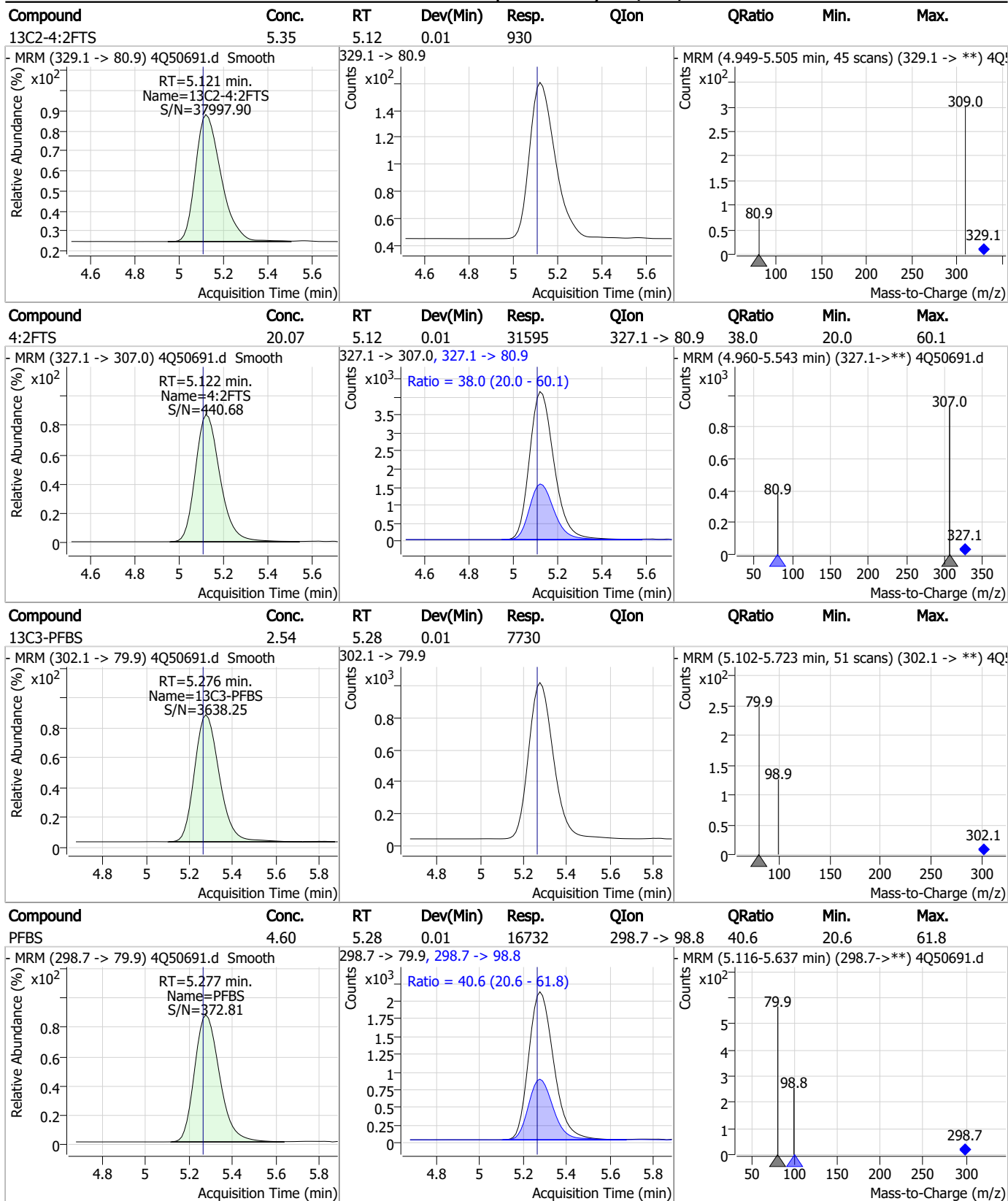


Perfluorinated Compounds by LC/MS/MS



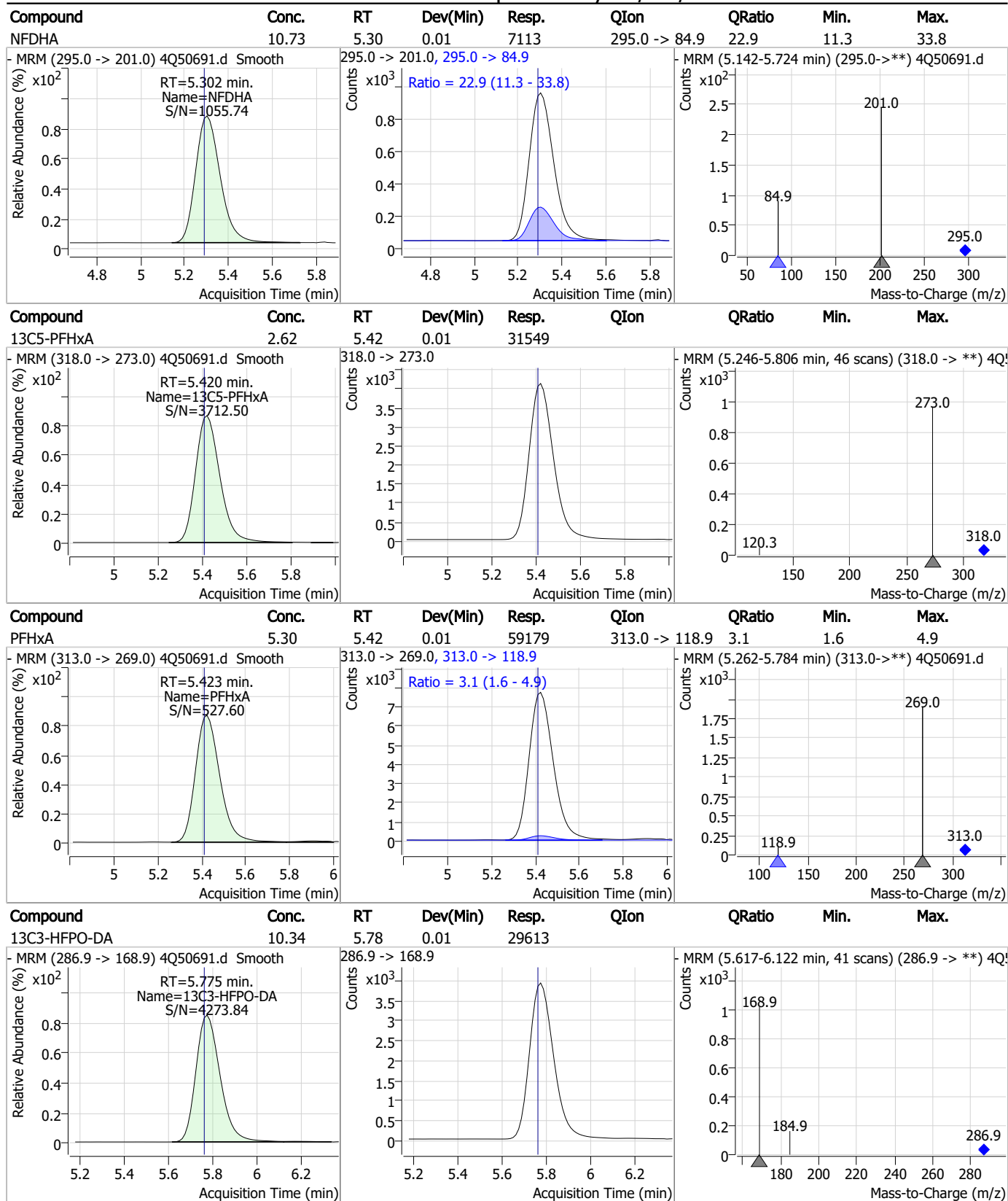
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Perfluorinated Compounds by LC/MS/MS



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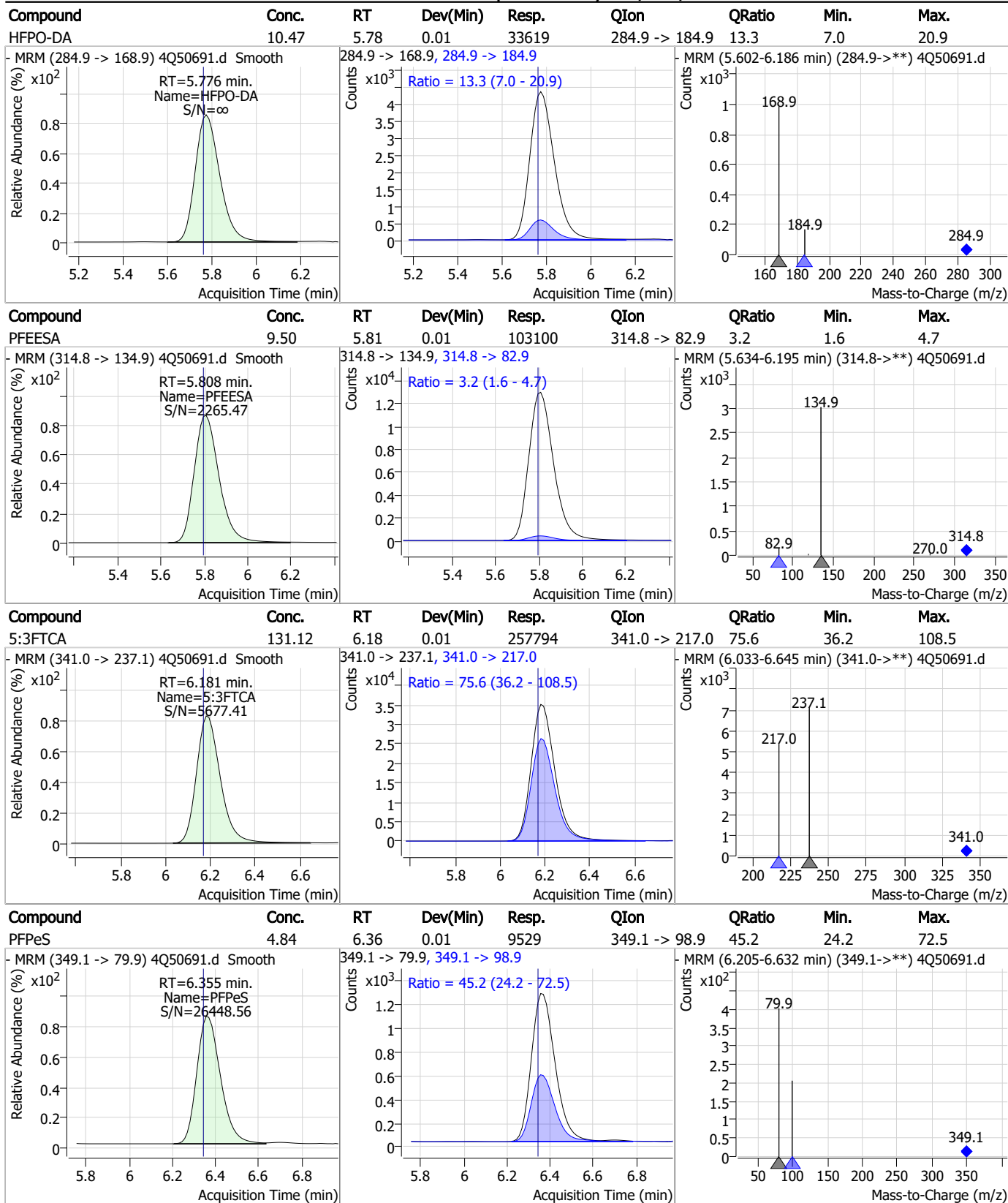
Perfluorinated Compounds by LC/MS/MS



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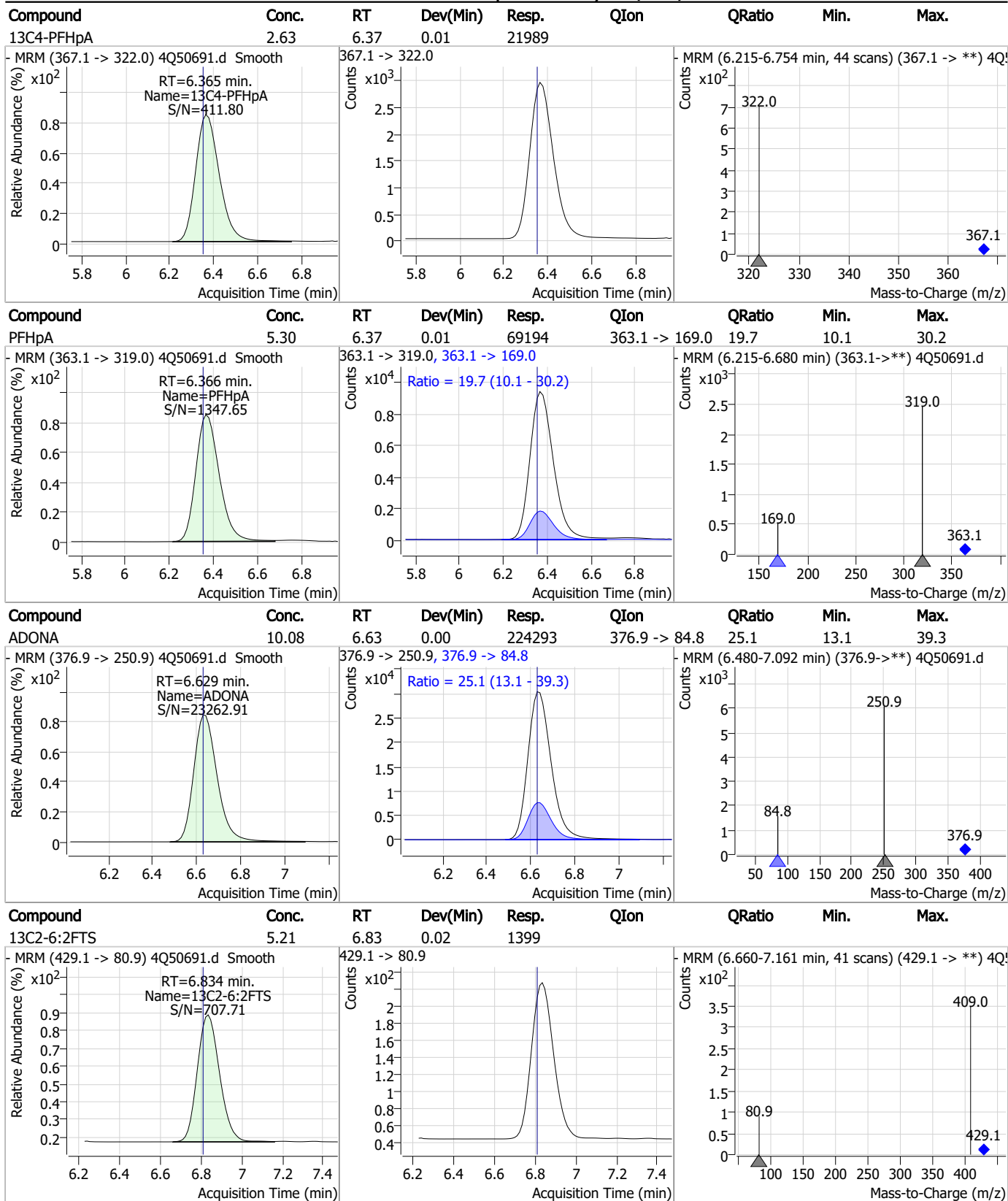
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Perfluorinated Compounds by LC/MS/MS



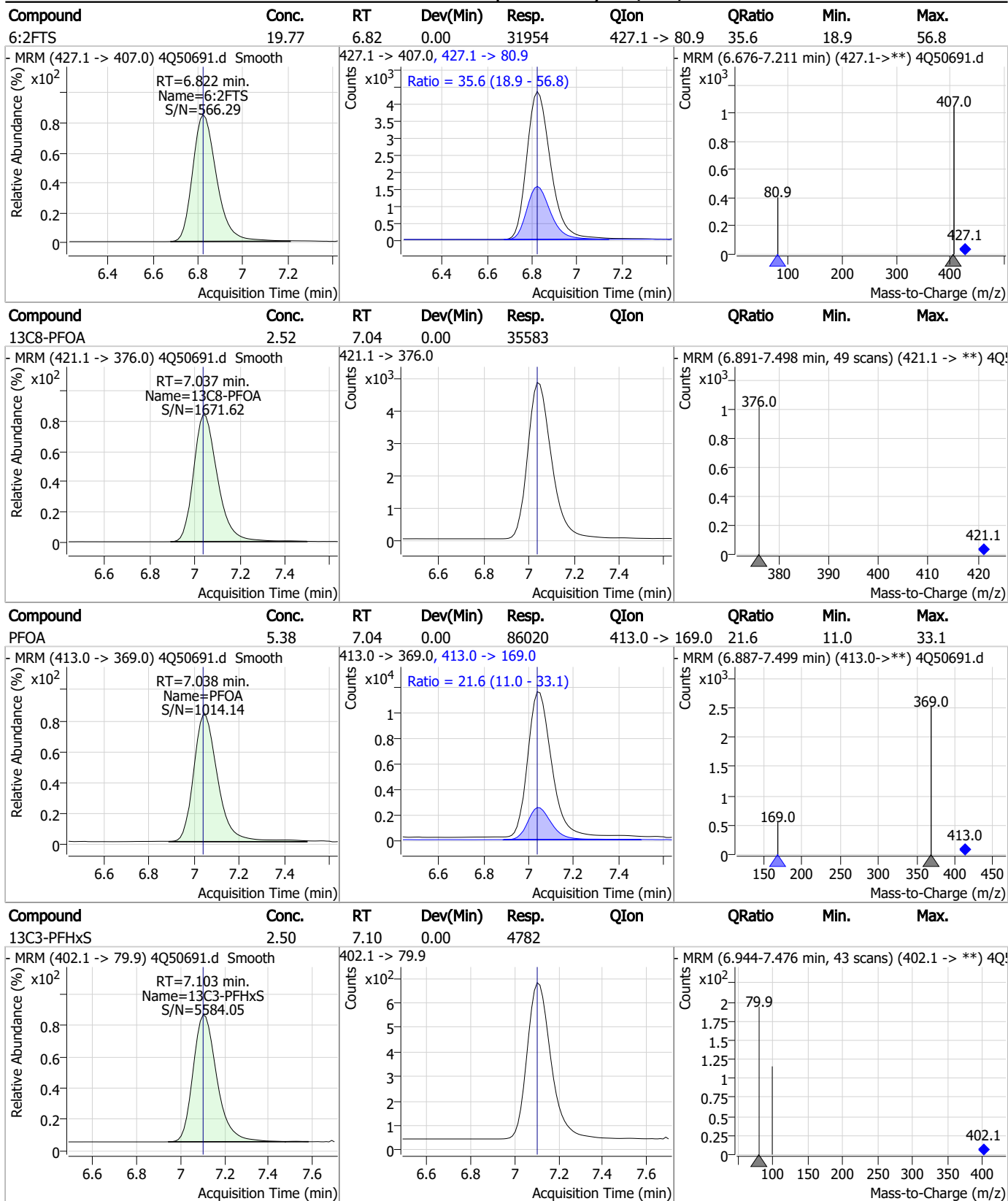
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Perfluorinated Compounds by LC/MS/MS



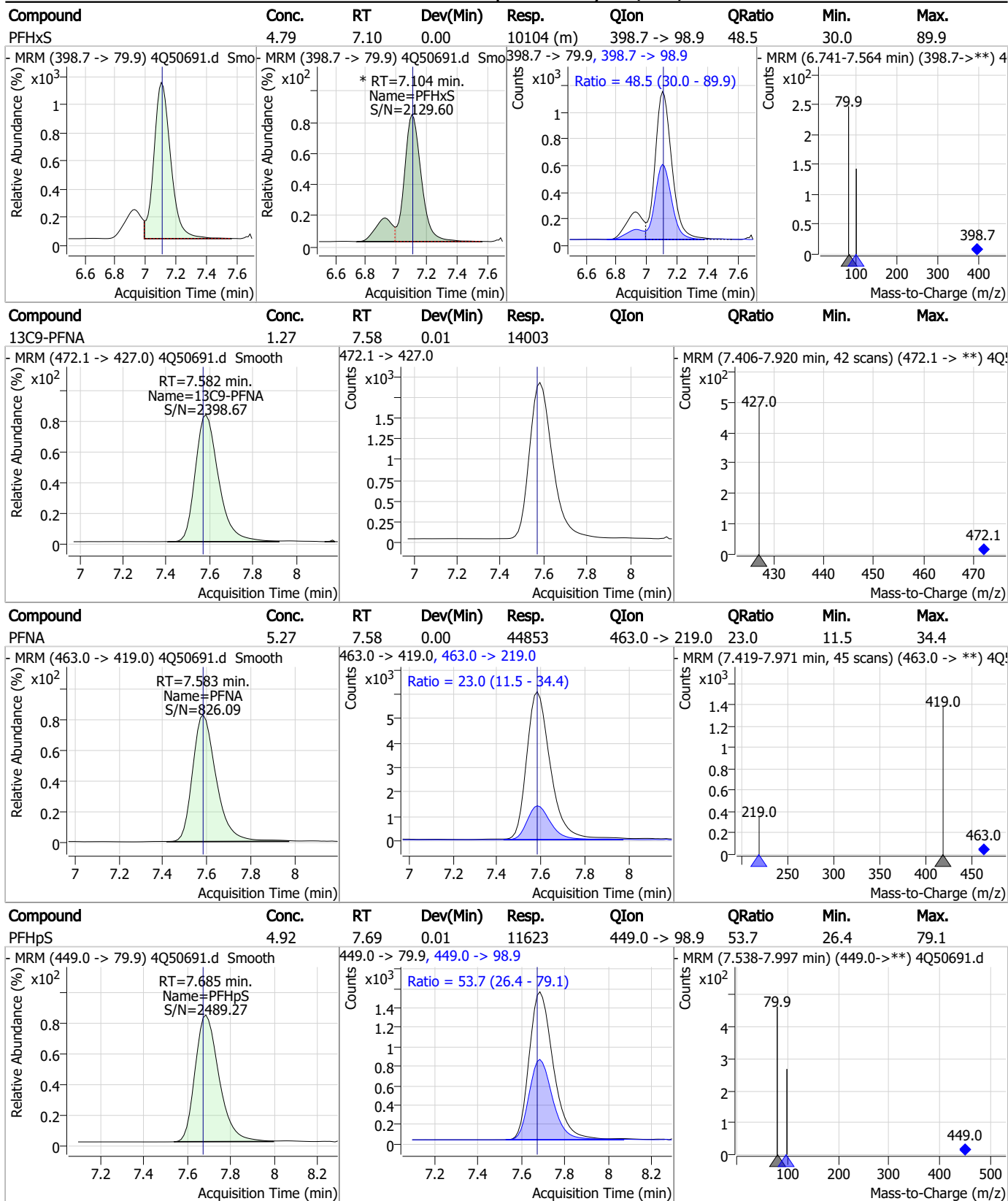
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Perfluorinated Compounds by LC/MS/MS



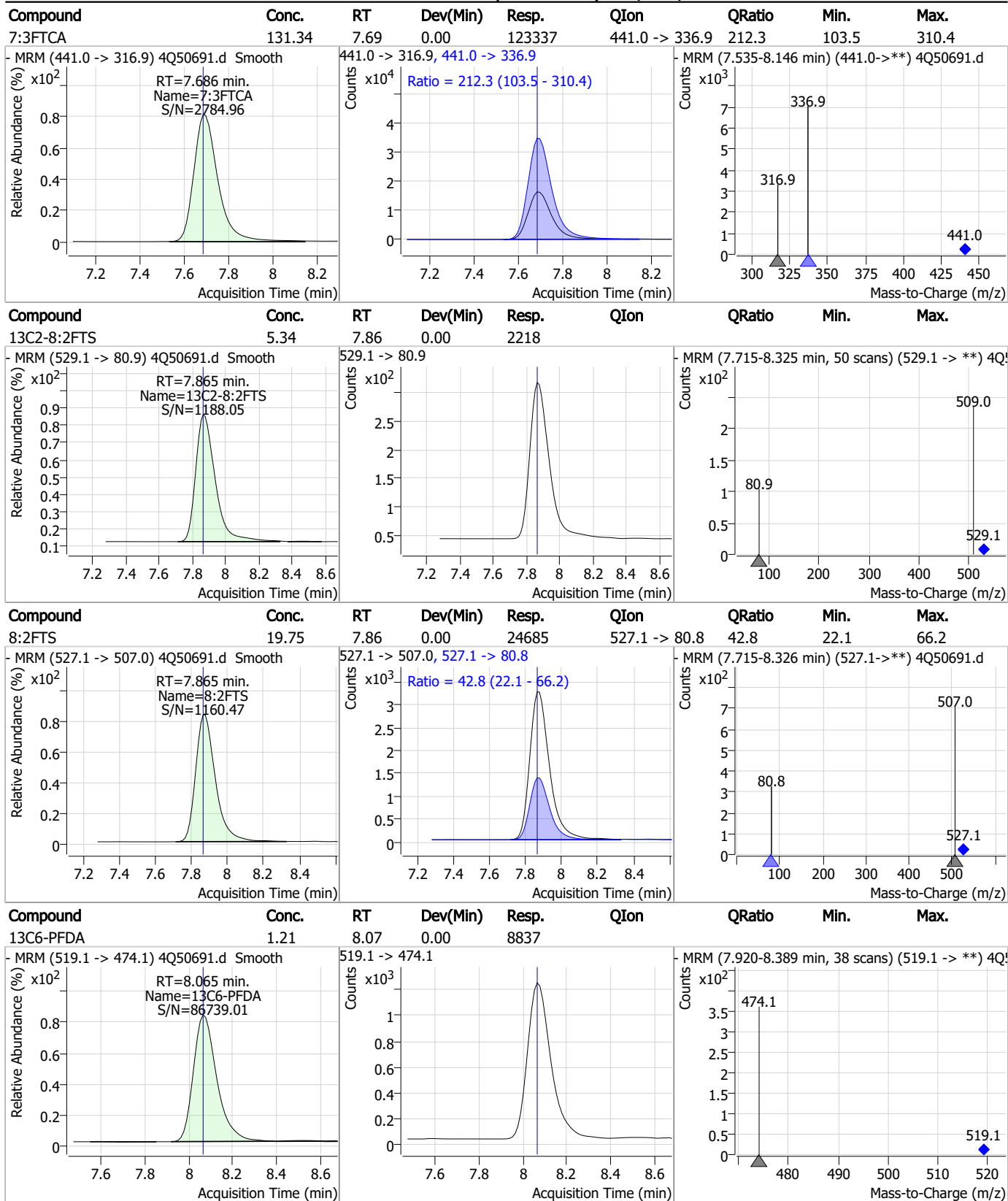
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Perfluorinated Compounds by LC/MS/MS



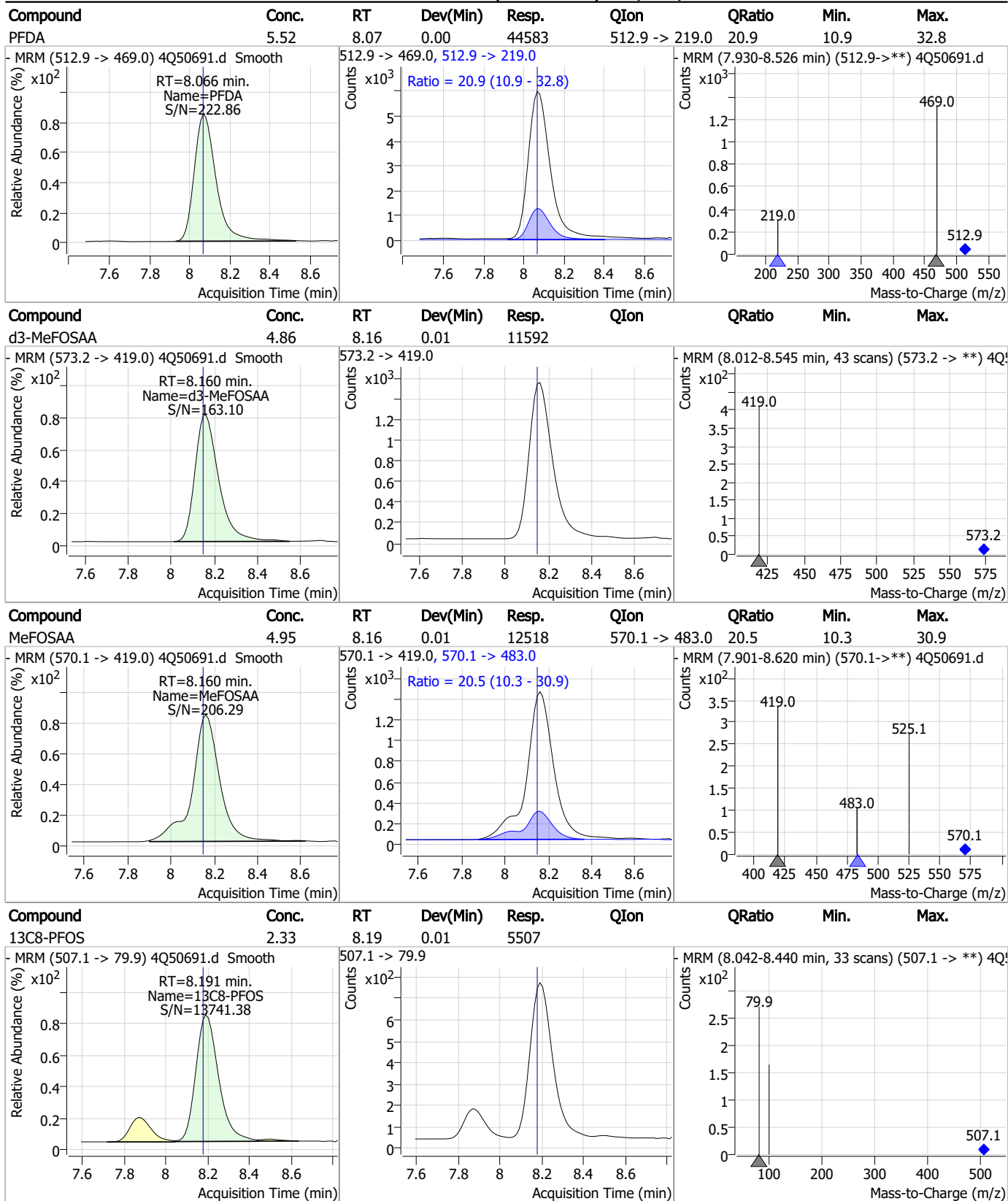
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Perfluorinated Compounds by LC/MS/MS



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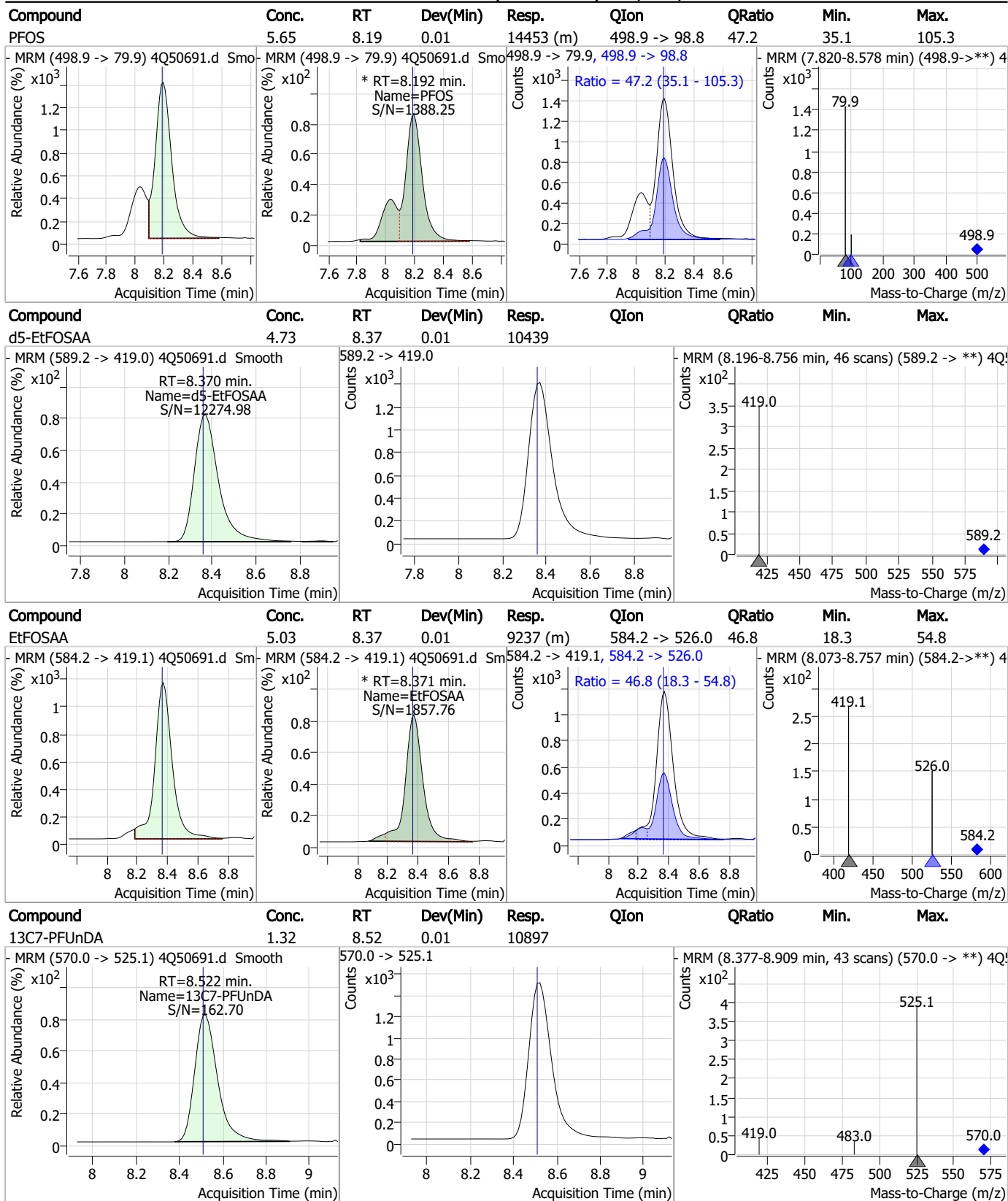
Perfluorinated Compounds by LC/MS/MS



7.7.6

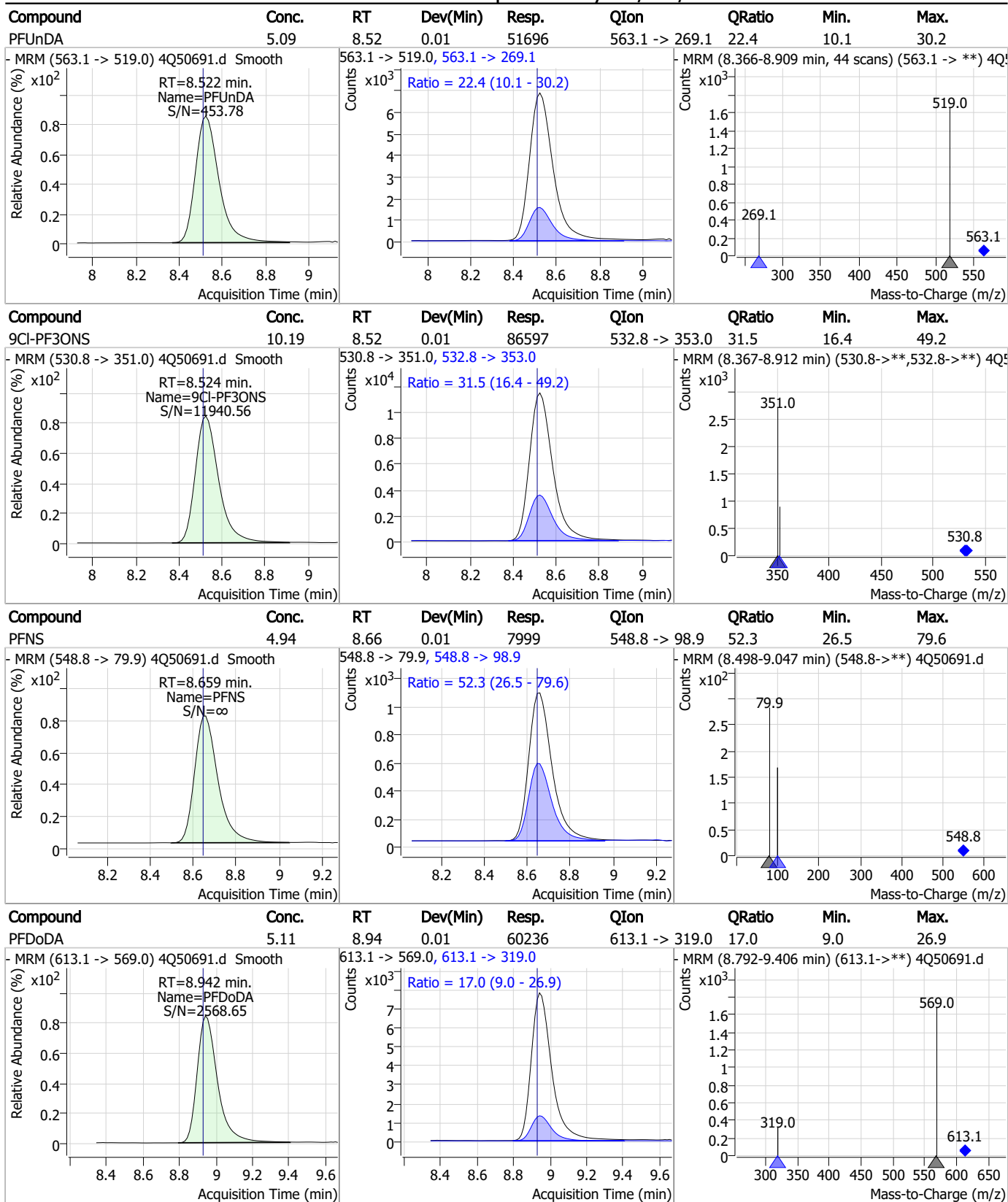
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Perfluorinated Compounds by LC/MS/MS



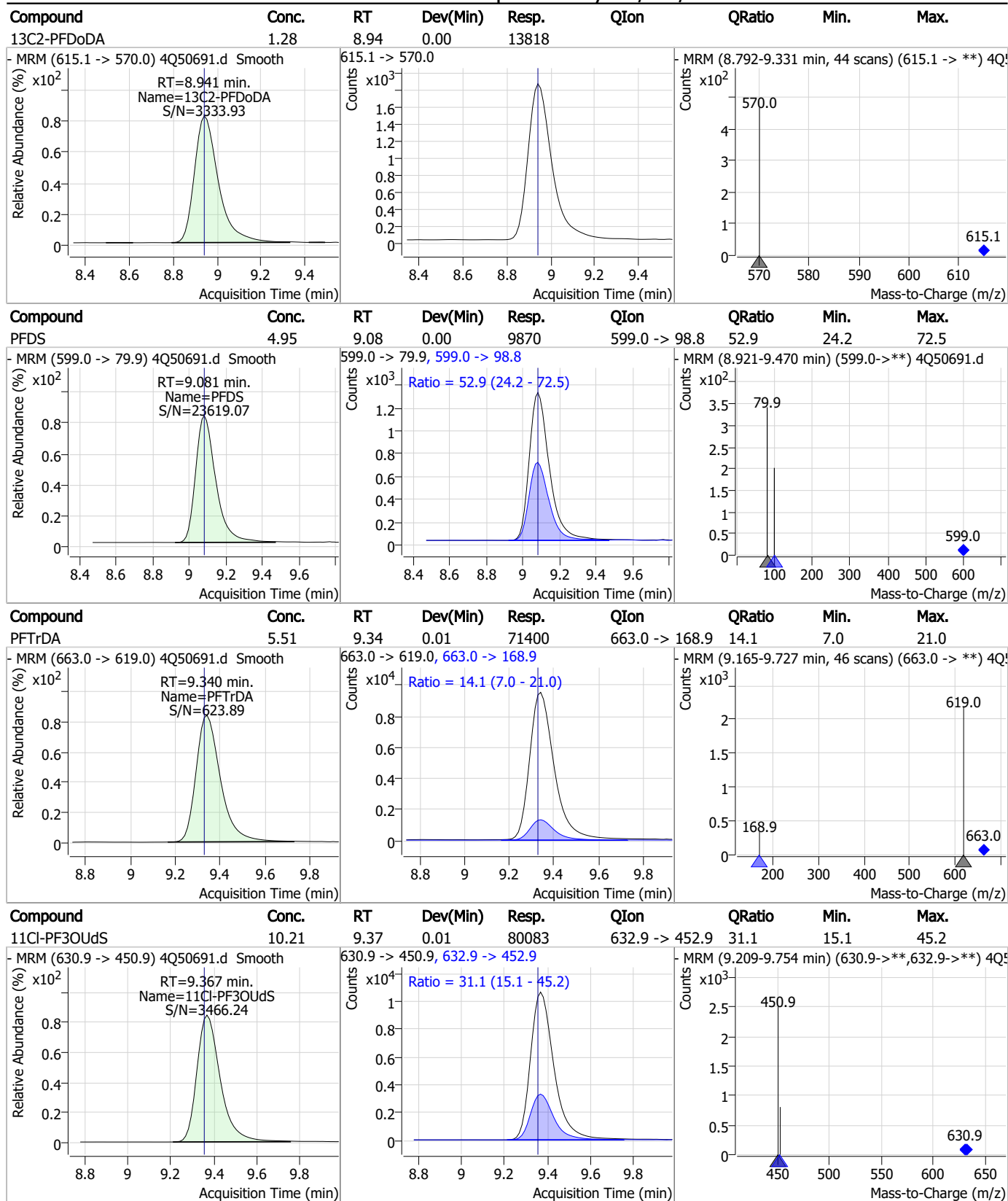
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Perfluorinated Compounds by LC/MS/MS



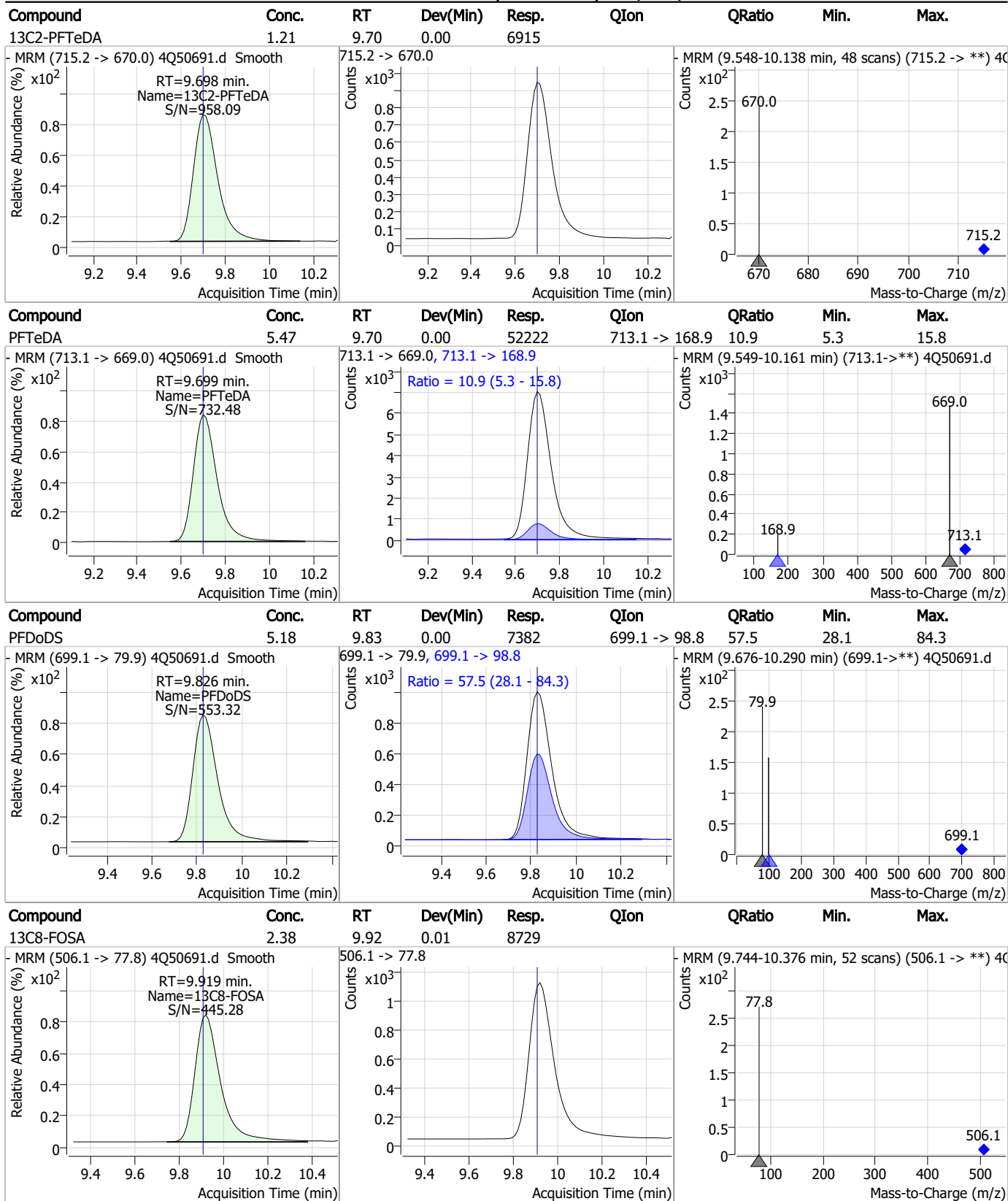
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Perfluorinated Compounds by LC/MS/MS



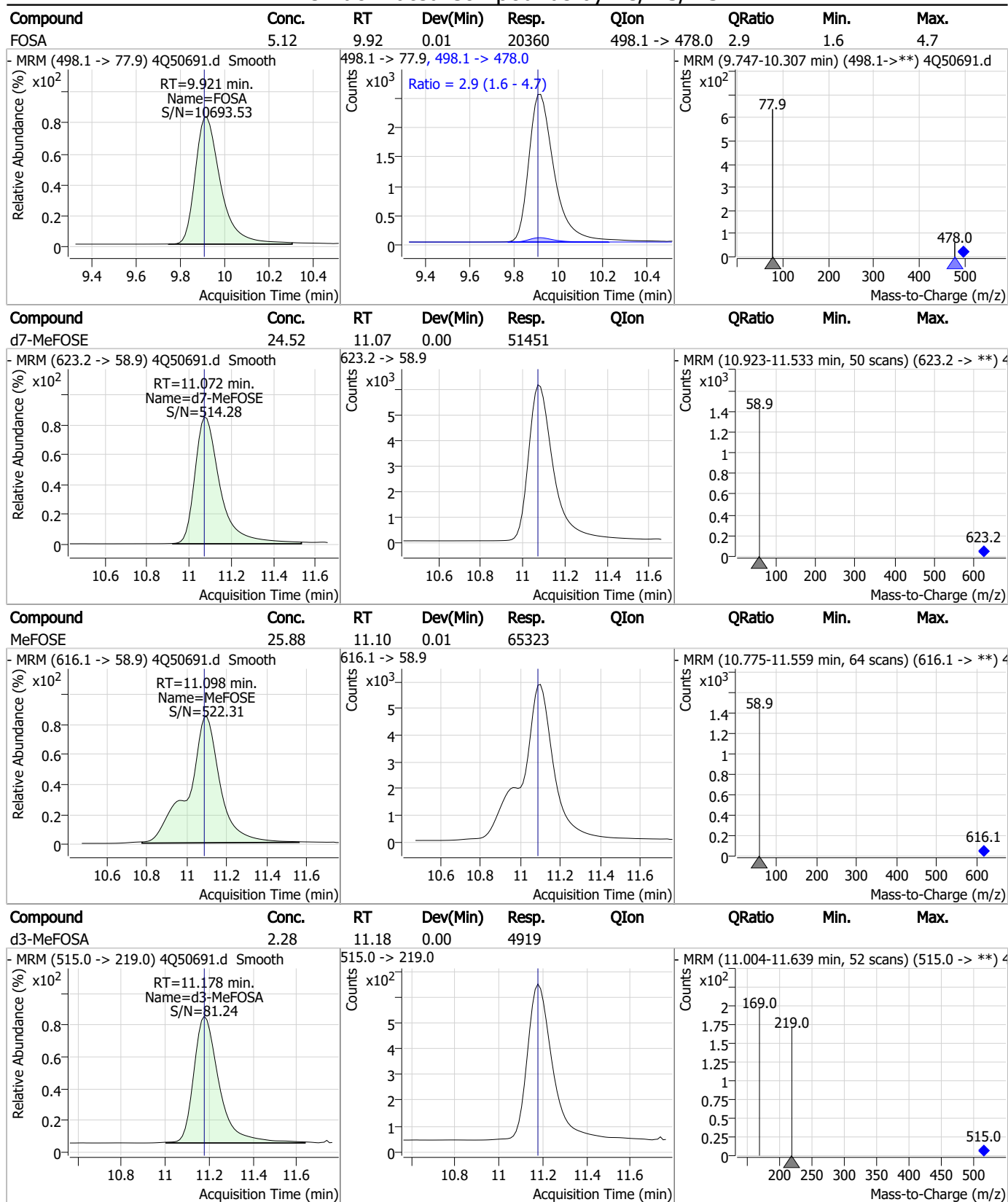
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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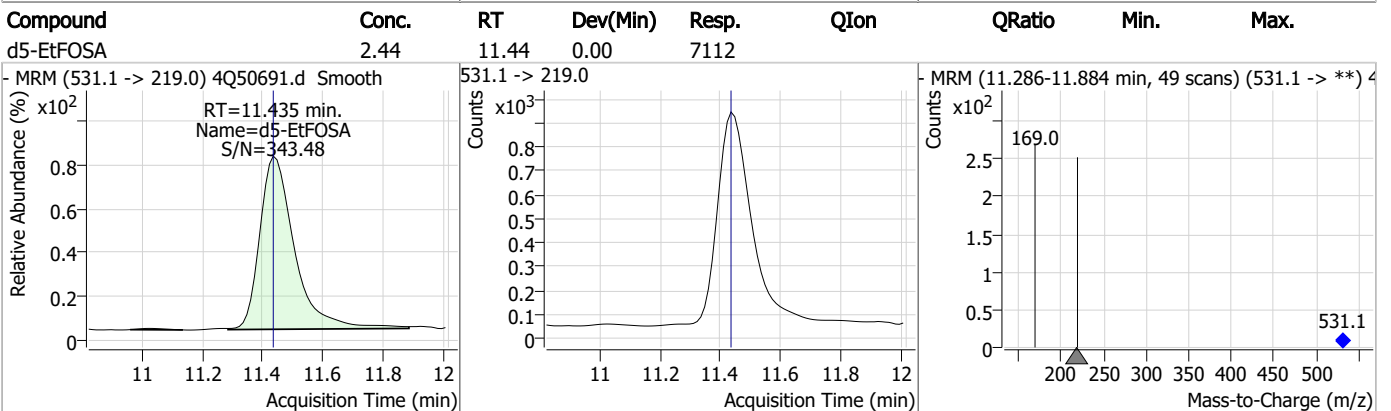
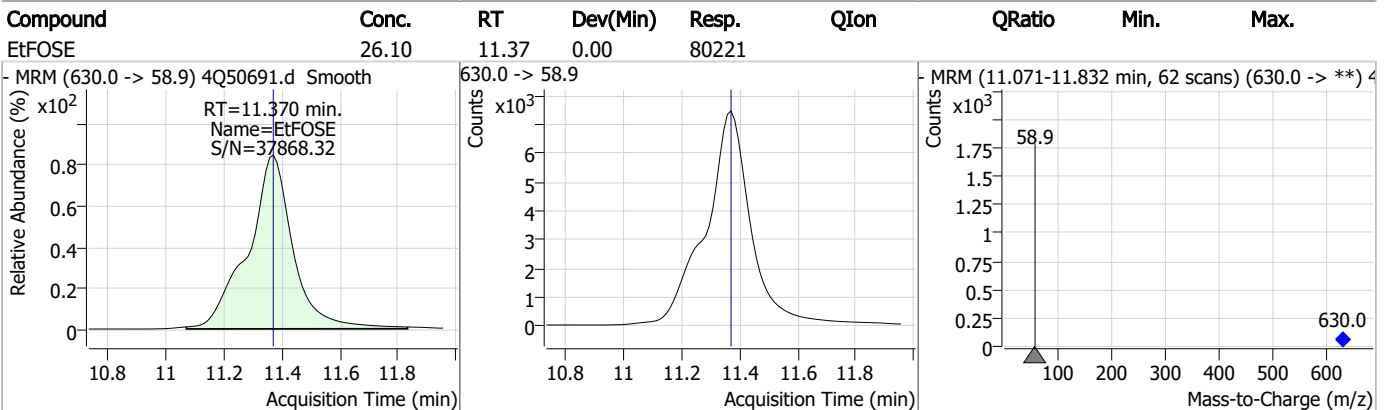
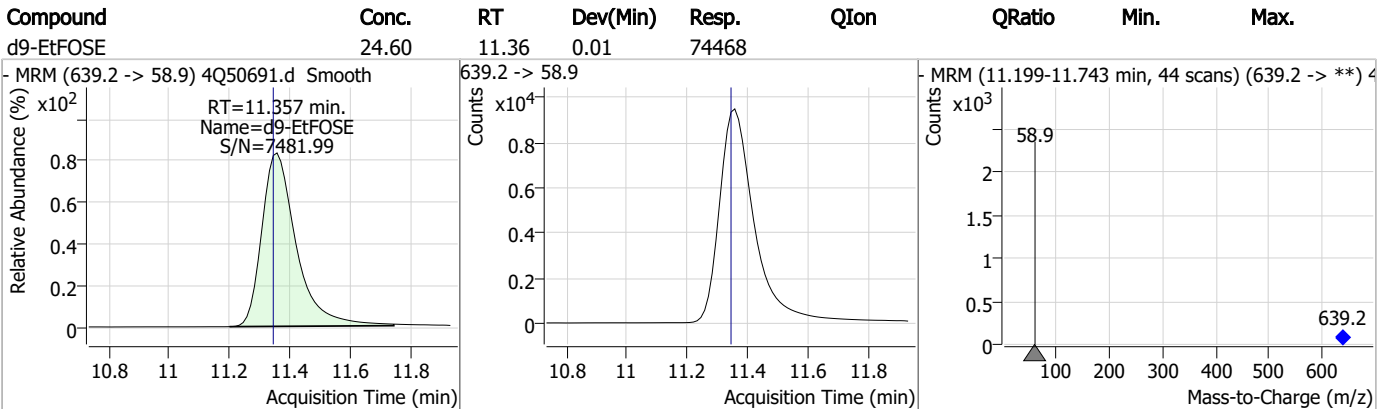
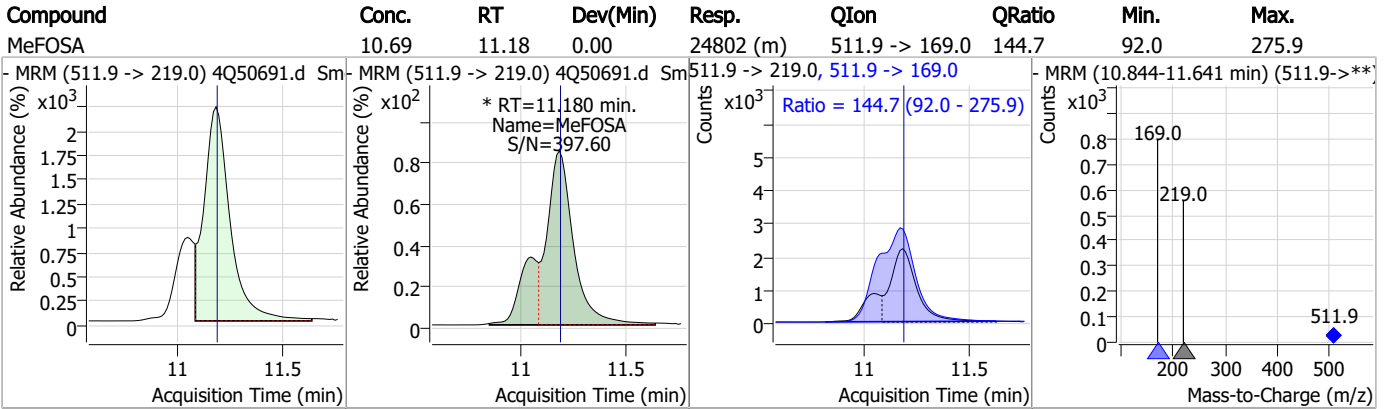
Perfluorinated Compounds by LC/MS/MS



7.7.6

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Perfluorinated Compounds by LC/MS/MS

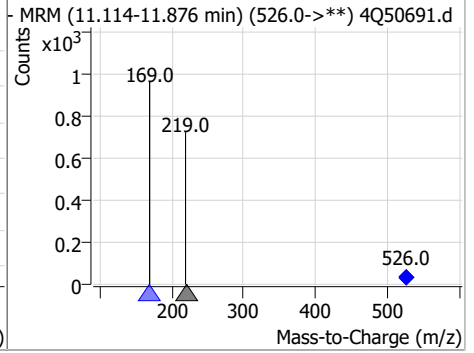
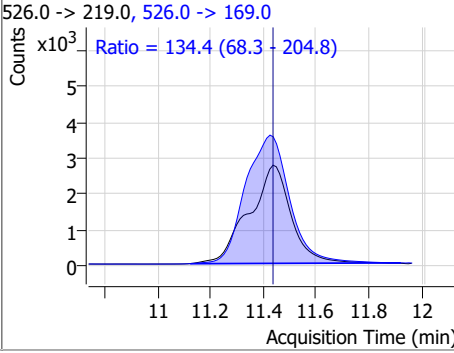
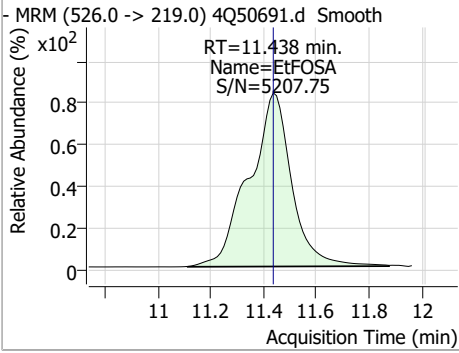


7.7.6

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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	9.96	11.44	0.00	30962	526.0 -> 169.0	134.4	68.3	204.8



7.7.6

7

Manual Integration Approval Summary

Sample Number: S4Q741-IC741 Method: EPA DRAFT 1633
Lab FileID: 4Q50691.D Analyst approved: 09/18/23 11:34 Anna Ludwig
Injection Time: 09/17/23 13:52 Supervisor approved: 09/18/23 14:43 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.10	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.19	Split peak
EtFOSAA	2991-50-6		8.37	Split peak
MeFOSA	31506-32-8		11.18	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50692.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/17/2023 2:06:54 PM
 Sample Name : ic741-6
 Vial : P1-A7
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q741.batch.bin
 Sample Information : OP98180,S4Q741,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.711	216.8 -> 171.9	80217	10.00 µg/L	0.000
M5-PFPeA	4.228	268.3 -> 223.0	31300	5.00 µg/L	0.012
M5-PFHxA	5.408	318.0 -> 273.0	31854	2.50 µg/L	0.000
M4-PFHpA	6.366	367.1 -> 322.0	21244	2.50 µg/L	0.012
M8-PFOA	7.037	421.1 -> 376.0	36716	2.50 µg/L	0.000
M9-PFNA	7.582	472.1 -> 427.0	13178	1.25 µg/L	0.012
M6-PFDA	8.065	519.1 -> 474.1	8894	1.25 µg/L	0.000
M7-PFUnDA	8.522	570.0 -> 525.1	10277	1.25 µg/L	0.012
M2-PFDoDA	8.941	615.1 -> 570.0	13456	1.25 µg/L	0.000
M2-PFTeDA	9.698	715.2 -> 670.0	7499	1.25 µg/L	0.000
M8-FOSA	9.919	506.1 -> 77.8	8402	2.50 µg/L	0.012
M3-PFBS	5.276	302.1 -> 79.9	7490	2.50 µg/L	0.012
M3-PFHxS	7.103	402.1 -> 79.9	4703	2.50 µg/L	0.000
M8-PFOS	8.191	507.1 -> 79.9	5601	2.50 µg/L	0.012
M2-4:2FTS	5.109	329.1 -> 80.9	817	5.00 µg/L	0.000
M2-6:2FTS	6.822	429.1 -> 80.9	1315	5.00 µg/L	0.012
M2-8:2FTS	7.877	529.1 -> 80.9	1950	5.00 µg/L	0.012
M3-MeFOSAA	8.160	573.2 -> 419.0	10979	5.00 µg/L	0.012
M3-HFPO-DA	5.763	286.9 -> 168.9	28772	10.00 µg/L	0.000
M5-EtFOSAA	8.358	589.2 -> 419.0	11272	5.00 µg/L	0.000
M7-MeFOSE	11.072	623.2 -> 58.9	49897	25.00 µg/L	0.000
M9-EtFOSE	11.357	639.2 -> 58.9	71671	25.00 µg/L	0.012
M5-EtFOSA	11.435	531.1 -> 219.0	6669	2.50 µg/L	0.000
M3-MeFOSA	11.178	515.0 -> 219.0	5148	2.50 µg/L	0.000
13C4-PFOS	8.191	502.8 -> 79.9	5057	2.50 µg/L	0.012
13C3-PFBA	2.716	216.0 -> 172.0	40353	5.00 µg/L	0.000
18O2-PFHxS	7.102	403.0 -> 83.9	3039	2.50 µg/L	0.000
13C4-PFOA	7.037	417.1 -> 372.0	39208	2.50 µg/L	0.000
13C2-PFDA	8.066	515.1 -> 470.1	9940	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	12245	1.25 µg/L	0.012
13C2-PFHxA	5.409	315.1 -> 270.0	26854	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.109	329.1 -> 80.9	817	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C2-6:2FTS	6.822	429.1 -> 80.9	1315	5.12 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-8:2FTS	7.877	529.1 -> 80.9	1950	4.91 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C2-PFDoDA	8.941	615.1 -> 570.0	13456	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-PFTeDA	9.698	715.2 -> 670.0	7499	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C3-PFBS	5.276	302.1 -> 79.9	7490	2.57 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C3-PFHxS	7.103	402.1 -> 79.9	4703	2.57 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 = 103.0%		
13C4-PFBA	2.711	216.8 -> 171.9	80217	10.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C4-PFHpA	6.366	367.1 -> 322.0	21244	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C5-PFHxA	5.408	318.0 -> 273.0	31854	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C5-PFPeA	4.228	268.3 -> 223.0	31300	4.95 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C6-PFDA	8.065	519.1 -> 474.1	8894	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.1%		
13C7-PFUnDA	8.522	570.0 -> 525.1	10277	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C8-FOSA	9.919	506.1 -> 77.8	8402	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C8-PFOA	7.037	421.1 -> 376.0	36716	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C8-PFOS	8.191	507.1 -> 79.9	5601	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C9-PFNA	7.582	472.1 -> 427.0	13178	1.18 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.2%		
d3-MeFOSAA	8.160	573.2 -> 419.0	10979	4.83 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C3-HFPO-DA	5.763	286.9 -> 168.9	28772	9.90 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
d3-MeFOSA	11.178	515.0 -> 219.0	5148	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%		
d5-EtFOSAA	8.358	589.2 -> 419.0	11272	5.36 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.1%		
d7-MeFOSE	11.072	623.2 -> 58.9	49897	24.97 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
d9-EtFOSE	11.357	639.2 -> 58.9	71671	24.86 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
d5-EtFOSA	11.435	531.1 -> 219.0	6669	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.3%		
Target Compounds					QValue
4:2FTS	5.122	327.1 -> 307.0	73268	52.94 µg/L	98
		327.1 -> 80.9	28684		
6:2FTS	6.822	427.1 -> 407.0	79026	52.02 µg/L	94
		427.1 -> 80.9	27214		
8:2FTS	7.865	527.1 -> 507.0	61746	56.20 µg/L	95
		527.1 -> 80.8	25271		
EtFOSAA	8.371	584.2 -> 419.1	24185	12.19 µg/L	m 90
		584.2 -> 526.0	10195		
FOSA	9.909	498.1 -> 77.9	50407	13.18 µg/L	100
		498.1 -> 478.0	1566		
MeFOSAA	8.160	570.1 -> 419.0	32977	13.76 µg/L	95
		570.1 -> 483.0	6044		
PFBA	2.720	212.8 -> 168.9	163016	53.11 µg/L	100
PFBS	5.264	298.7 -> 79.9	41699	11.84 µg/L	97
		298.7 -> 98.8	16436		
PFDA	8.066	512.9 -> 469.0	109409	13.45 µg/L	97
		512.9 -> 219.0	22601		
PFDoDA	8.942	613.1 -> 569.0	155326	13.52 µg/L	97
		613.1 -> 319.0	26082		
PFDS	9.081	599.0 -> 79.9	24719	12.19 µg/L	98

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	12260			
PFHpA	6.366	363.1 -> 319.0	169629	13.44	µg/L	99
		363.1 -> 169.0	34698			
PFHpS	7.685	449.0 -> 79.9	28834	12.01	µg/L	98
		449.0 -> 98.9	15591			
PFHxA	5.411	313.0 -> 269.0	144981	12.87	µg/L	100
		313.0 -> 118.9	4536			
PFHxS	7.104	398.7 -> 79.9	25192	12.14	µg/L	m 86
		398.7 -> 98.9	12483			
PFNA	7.583	463.0 -> 419.0	111947	13.96	µg/L	98
		463.0 -> 219.0	26456			
PFNS	8.647	548.8 -> 79.9	19886	12.07	µg/L	95
		548.8 -> 98.9	9836			
PFOA	7.038	413.0 -> 369.0	210012	12.74	µg/L	99
		413.0 -> 169.0	44800			
PFOS	8.192	498.9 -> 79.9	33419	12.86	µg/L	m 74
		498.9 -> 98.8	16395			
PFPeA	4.229	263.0 -> 219.0	266732	27.03	µg/L	100
PFPeS	6.355	349.1 -> 79.9	23447	12.12	µg/L	91
		349.1 -> 98.9	9955			
PFTeDA	9.699	713.1 -> 669.0	135164	13.07	µg/L	100
		713.1 -> 168.9	14277			
PFTrDA	9.340	663.0 -> 619.0	175609	13.91	µg/L	98
		663.0 -> 168.9	23191			
PFUnDA	8.522	563.1 -> 519.0	128768	13.45	µg/L	99
		563.1 -> 269.1	26713			
11CI-PF3OUdS	9.367	630.9 -> 450.9	197044	25.87	µg/L	98
		632.9 -> 452.9	61423			
9CI-PF3ONS	8.524	530.8 -> 351.0	209377	25.35	µg/L	96
		532.8 -> 353.0	64321			
ADONA	6.629	376.9 -> 250.9	548816	25.40	µg/L	99
		376.9 -> 84.8	140589			
HFPO-DA	5.764	284.9 -> 168.9	83502	26.77	µg/L	99
		284.9 -> 184.9	11202			
3:3FTCA	3.706	241.0 -> 177.0	35888	65.74	µg/L	96
		241.0 -> 117.0	4035			
5:3FTCA	6.169	341.0 -> 237.1	642840	323.83	µg/L	97
		341.0 -> 217.0	480647			
7:3FTCA	7.686	441.0 -> 316.9	310771	327.77	µg/L	97
		441.0 -> 336.9	656973			
EtFOSA	11.438	526.0 -> 219.0	77768	26.69	µg/L	100
		526.0 -> 169.0	105779			
EtFOSE	11.370	630.0 -> 58.9	197959	66.91	µg/L	100
MeFOSA	11.180	511.9 -> 219.0	59236	24.41	µg/L	m 75
		511.9 -> 169.0	87691			
MeFOSE	11.098	616.1 -> 58.9	162465	66.36	µg/L	100
PFDoDS	9.826	699.1 -> 79.9	18130	12.50	µg/L	98
		699.1 -> 98.8	10414			
NFDHA	5.290	295.0 -> 201.0	16085	24.03	µg/L	95
		295.0 -> 84.9	4057			
PFMBA	4.642	279.0 -> 85.1	140638	26.84	µg/L	100
PFMPA	3.358	229.0 -> 84.9	157731	26.86	µg/L	100
PFEESA	5.795	314.8 -> 134.9	251646	22.97	µg/L	99
		314.8 -> 82.9	8317			

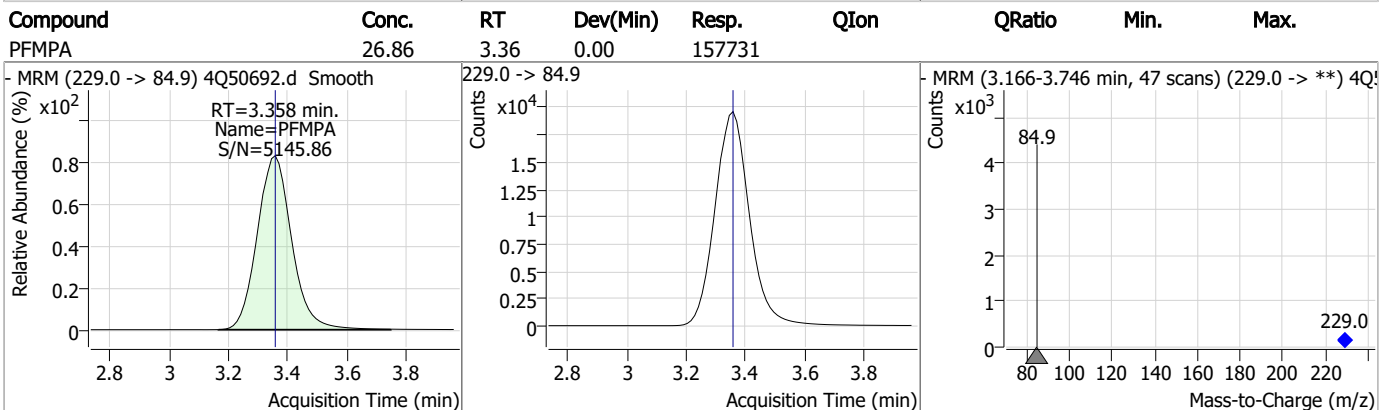
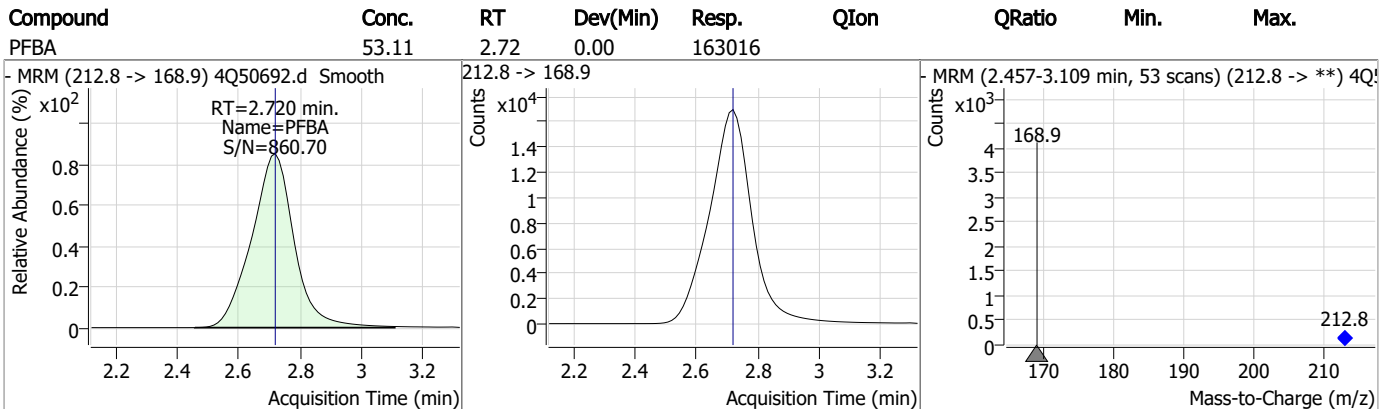
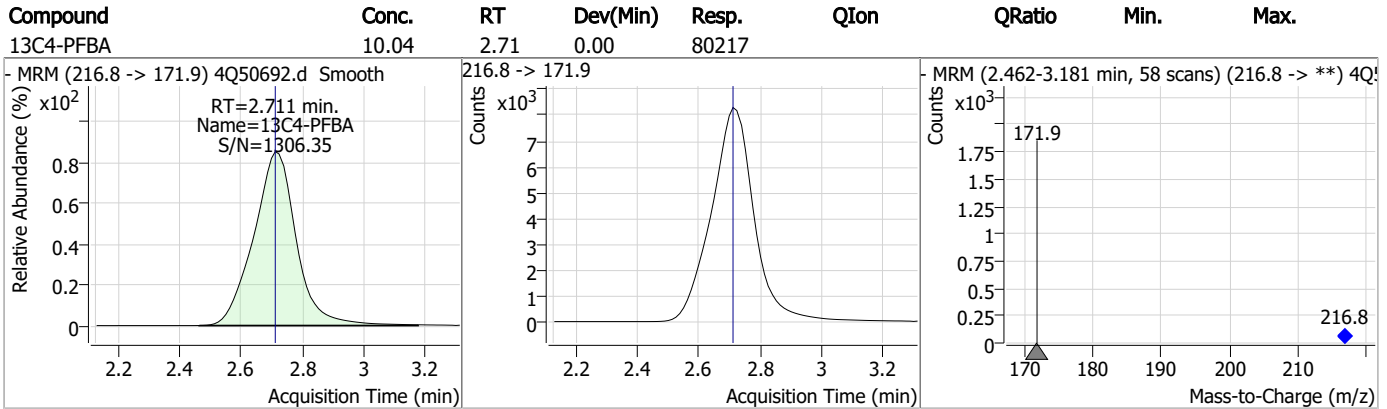
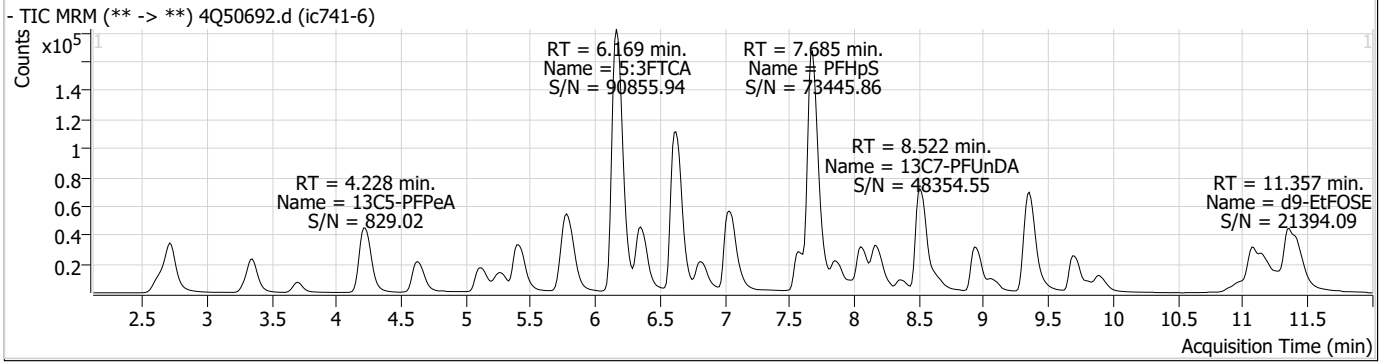
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

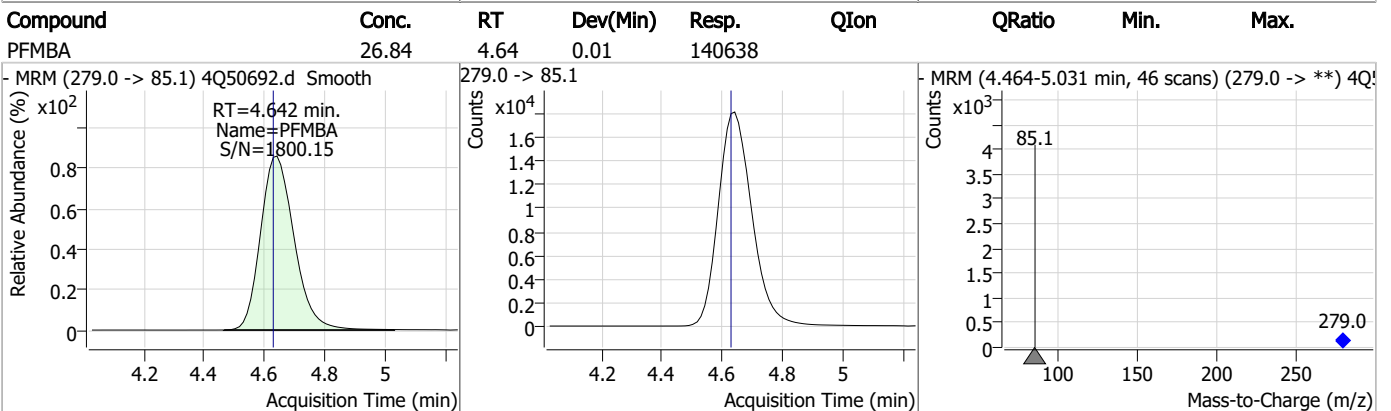
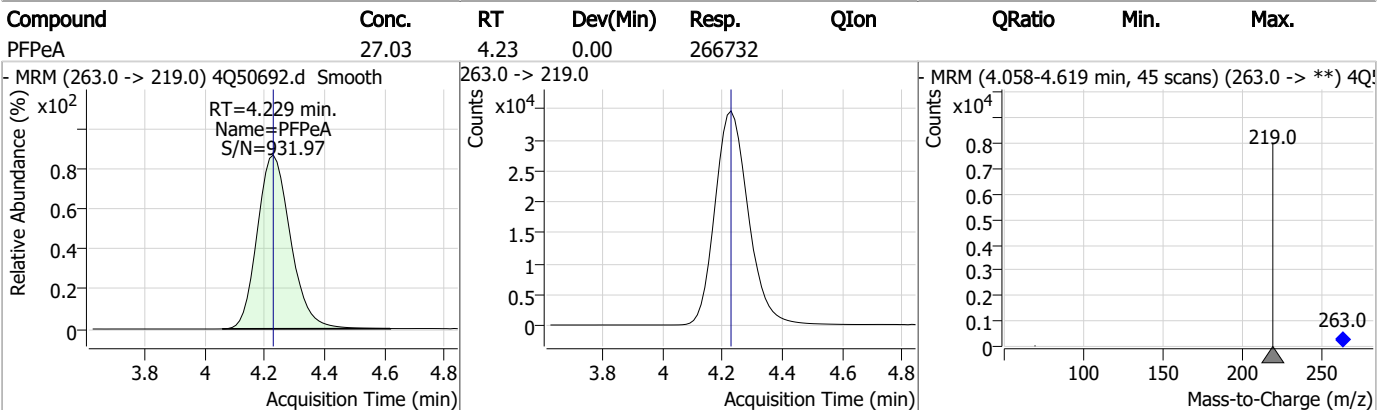
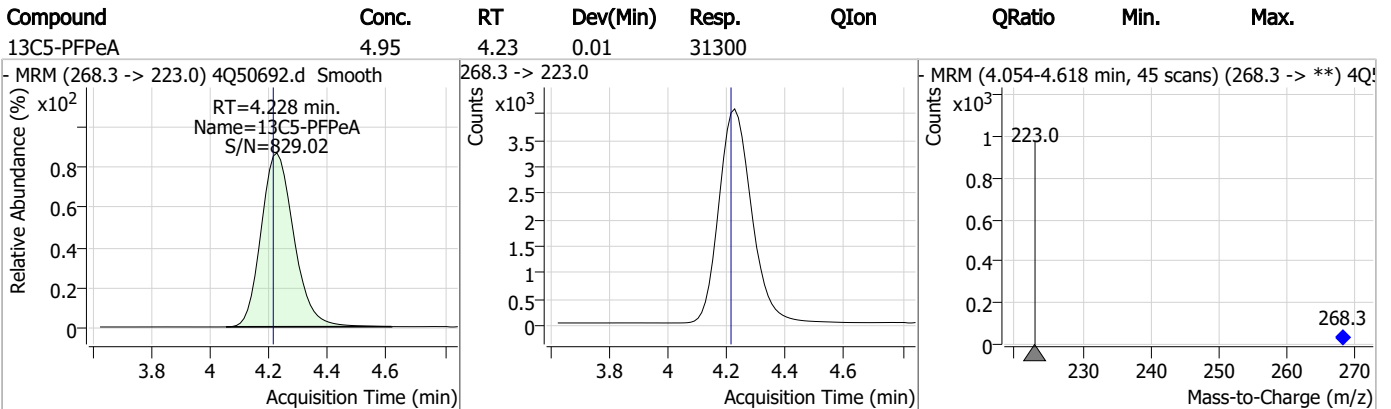
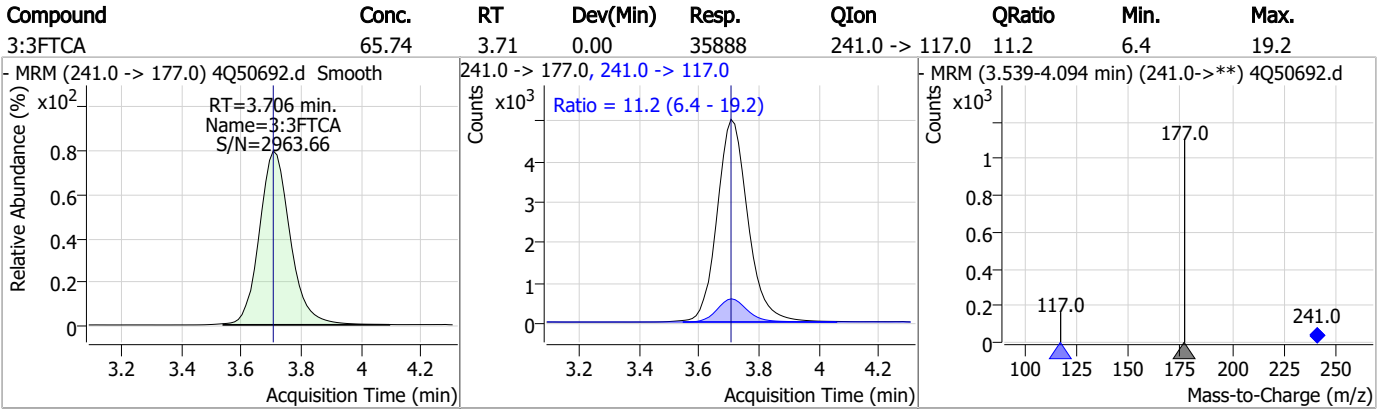
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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7.7.7
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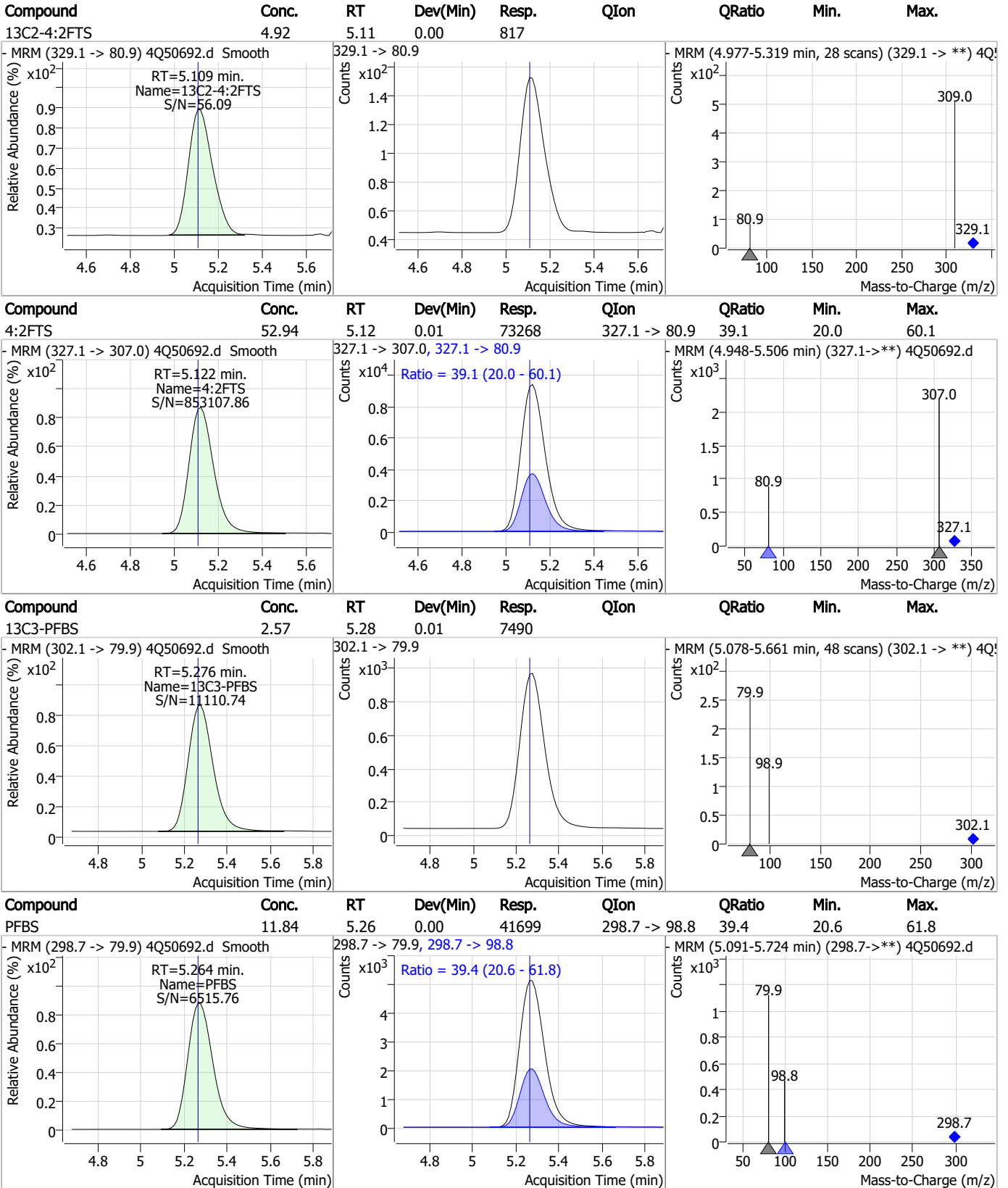
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



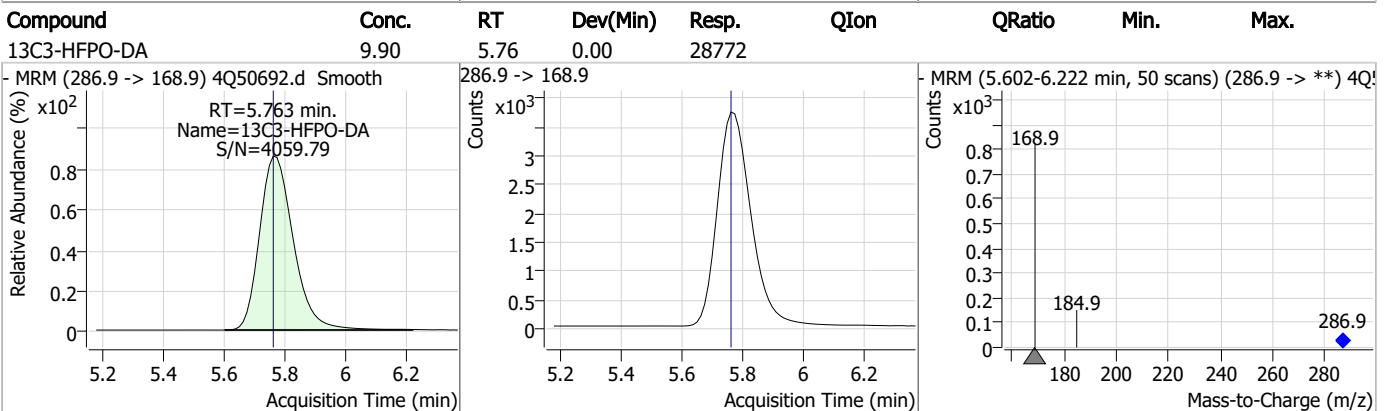
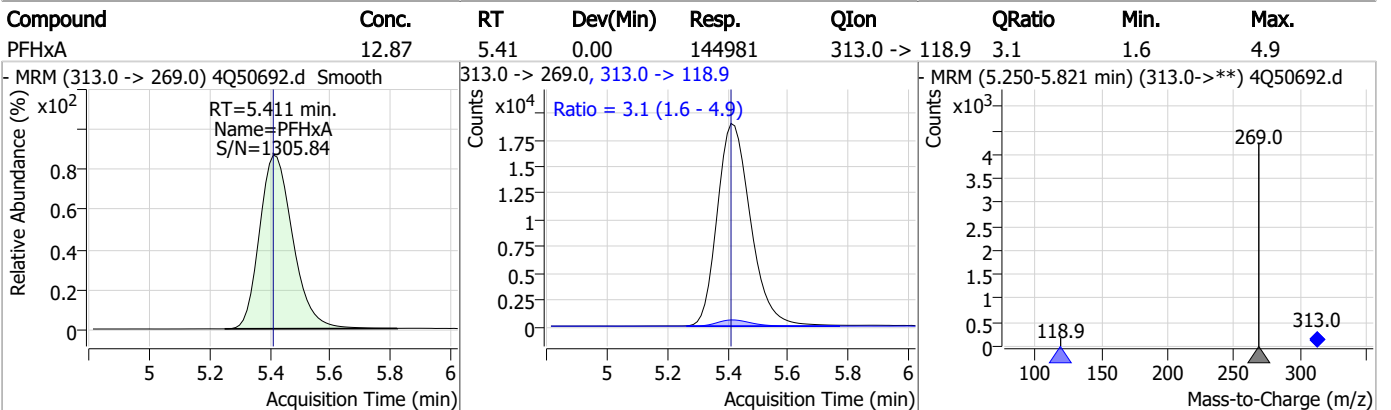
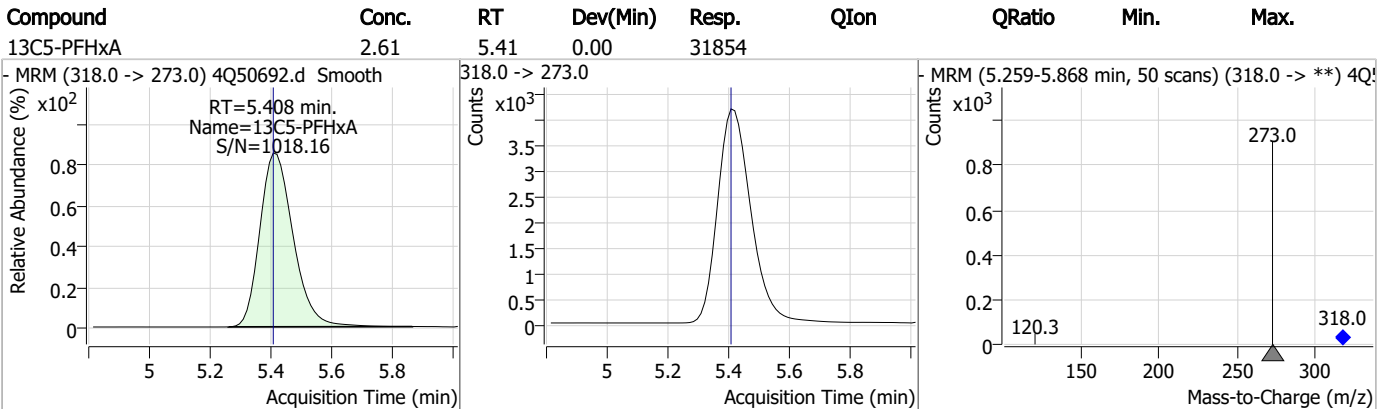
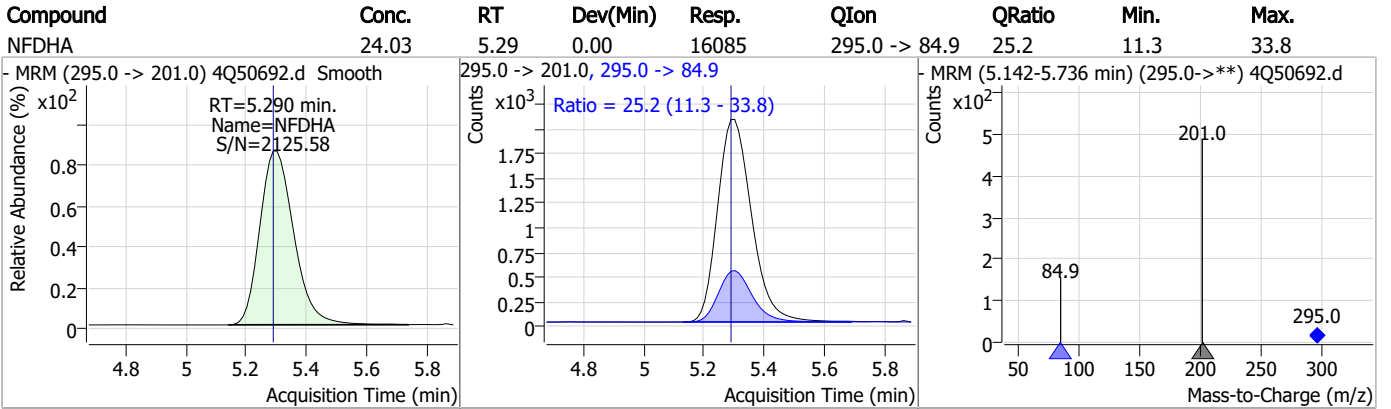
Perfluorinated Compounds by LC/MS/MS



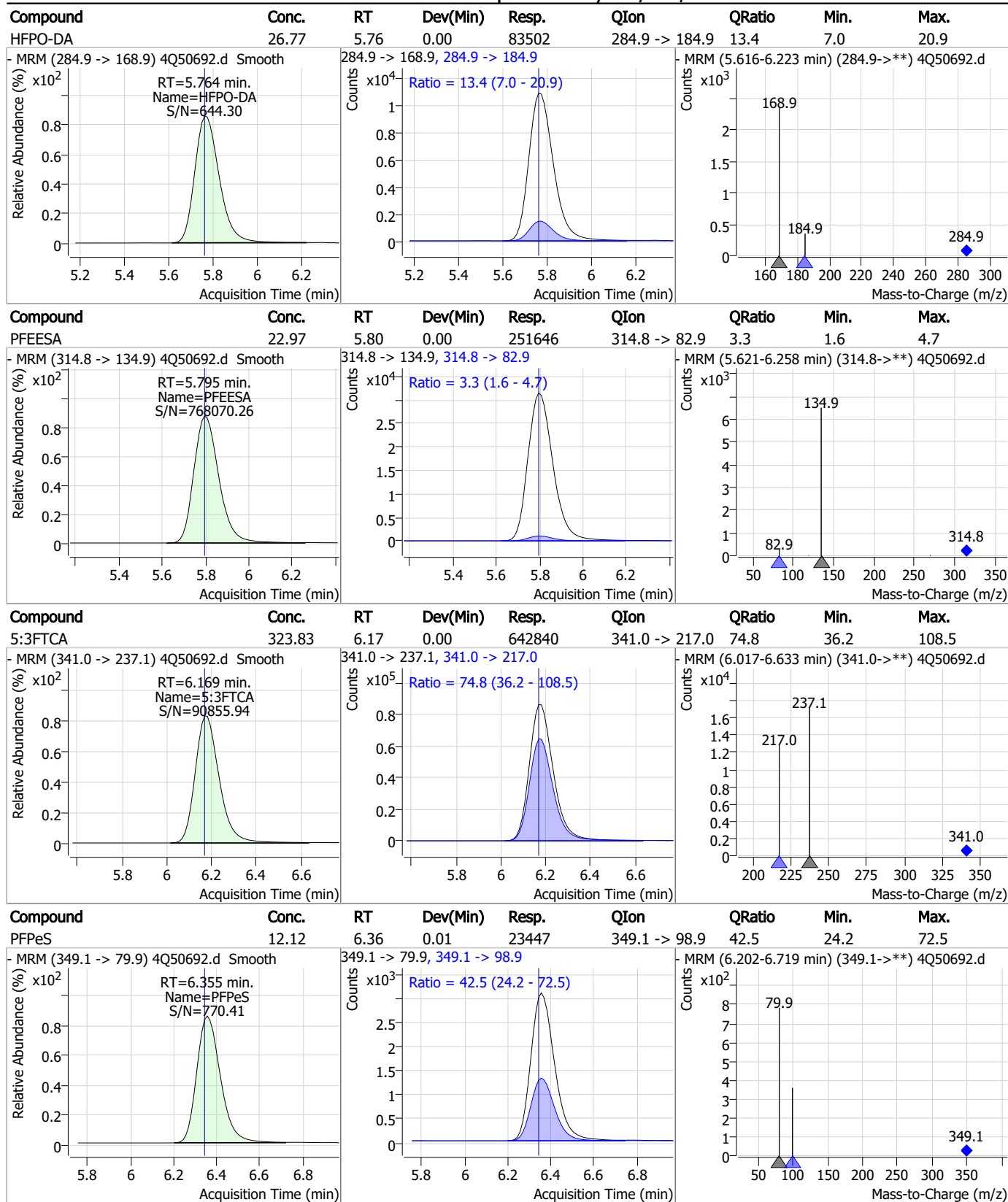
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Perfluorinated Compounds by LC/MS/MS

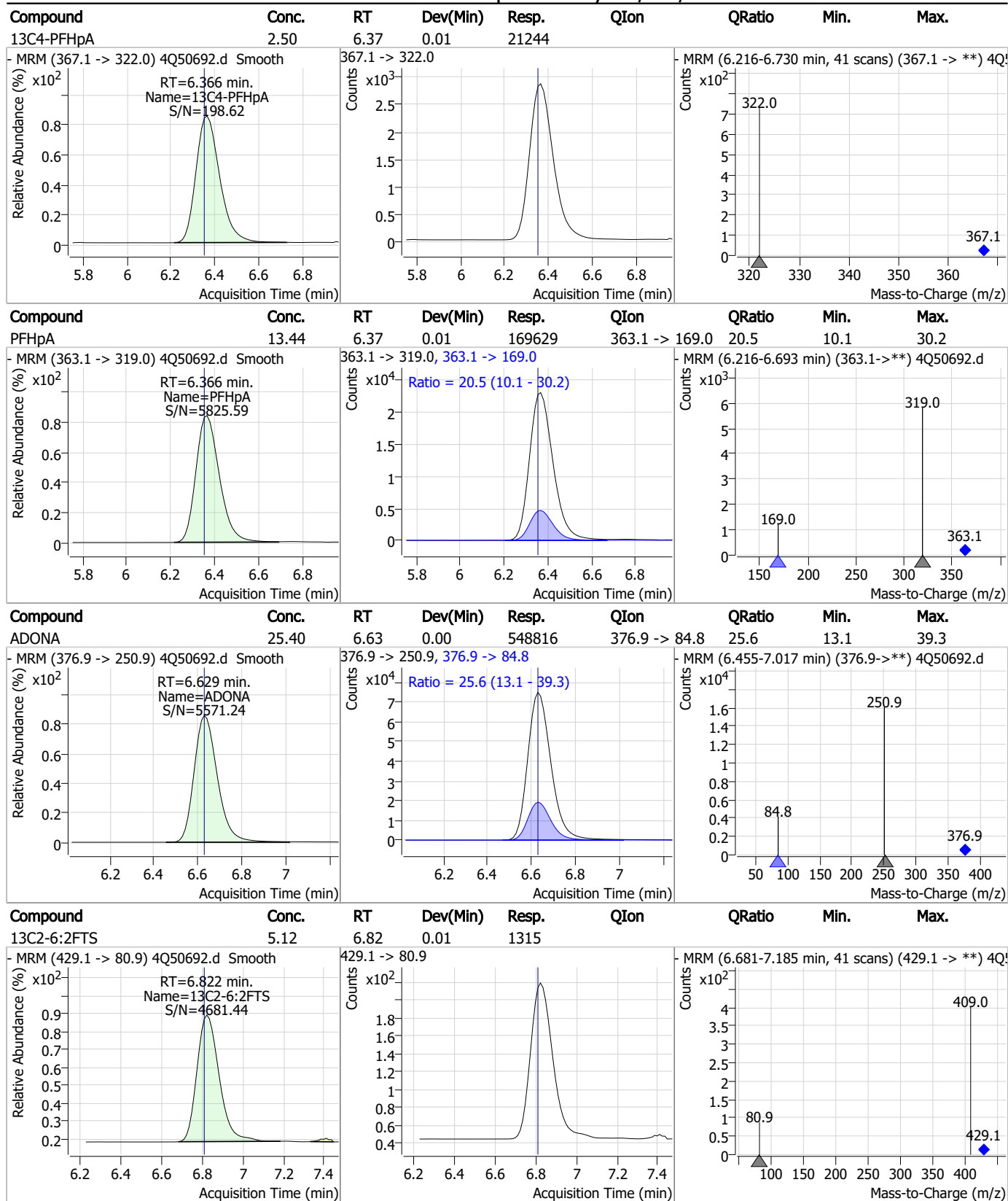


Perfluorinated Compounds by LC/MS/MS



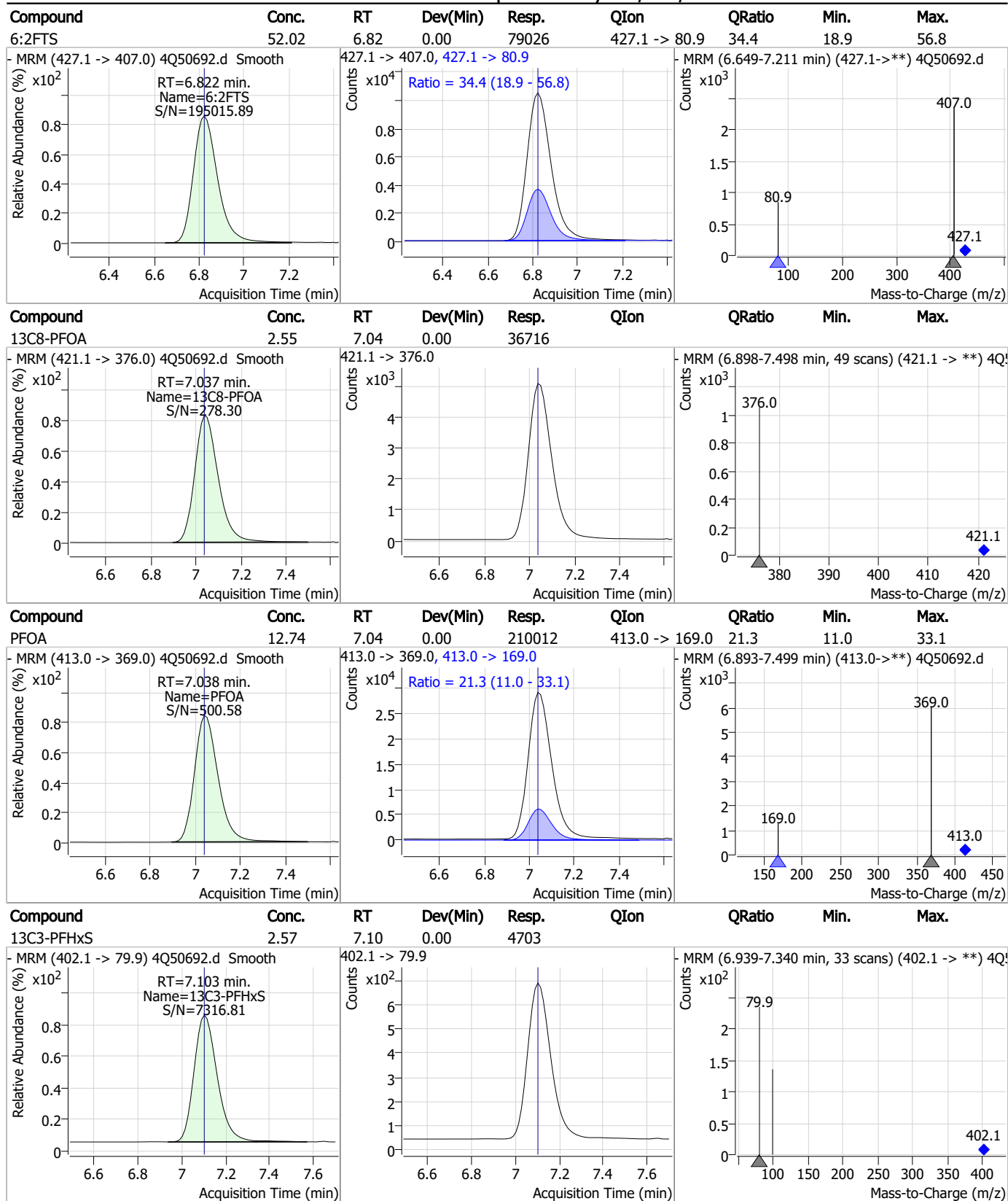
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Perfluorinated Compounds by LC/MS/MS



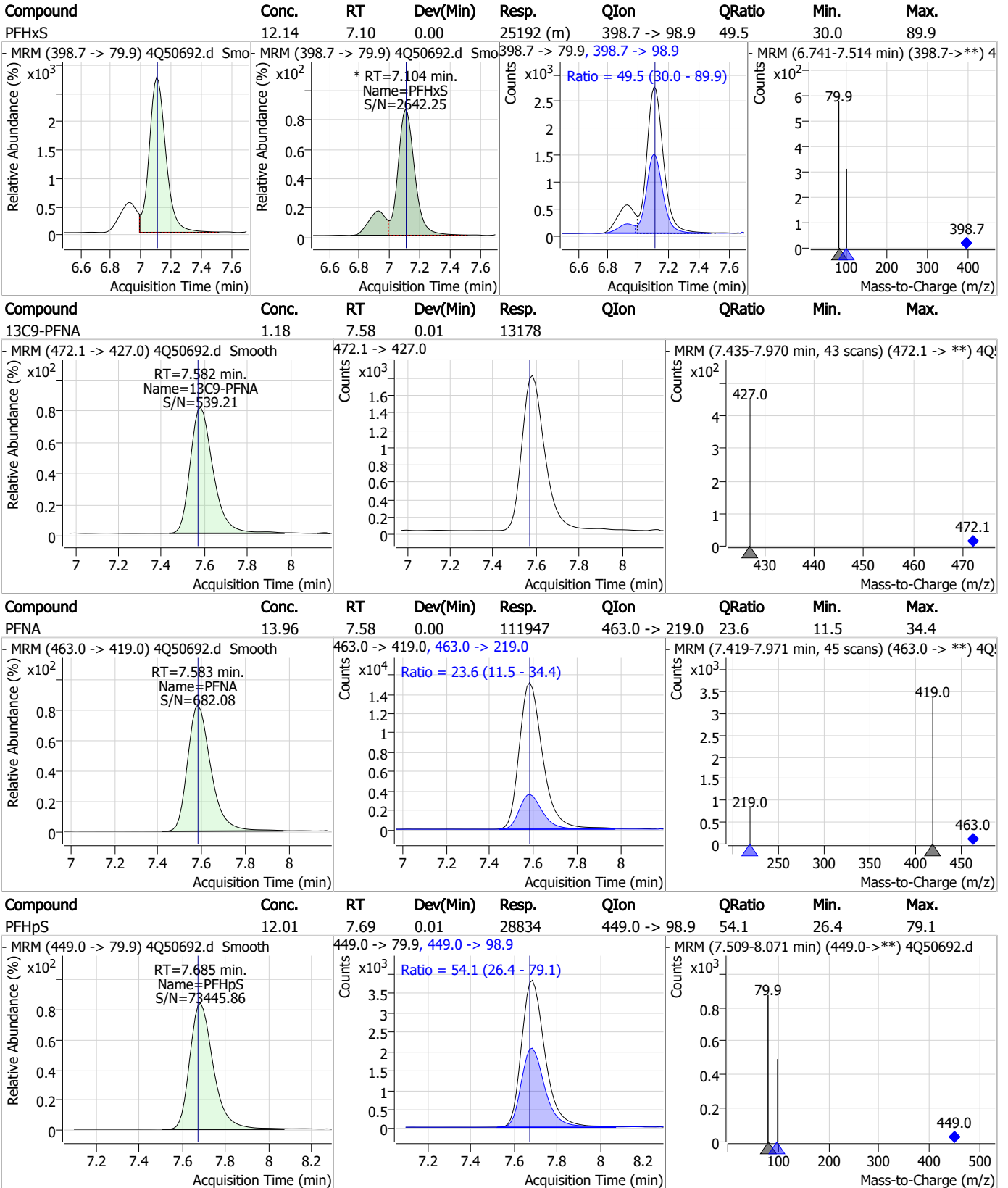
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Perfluorinated Compounds by LC/MS/MS



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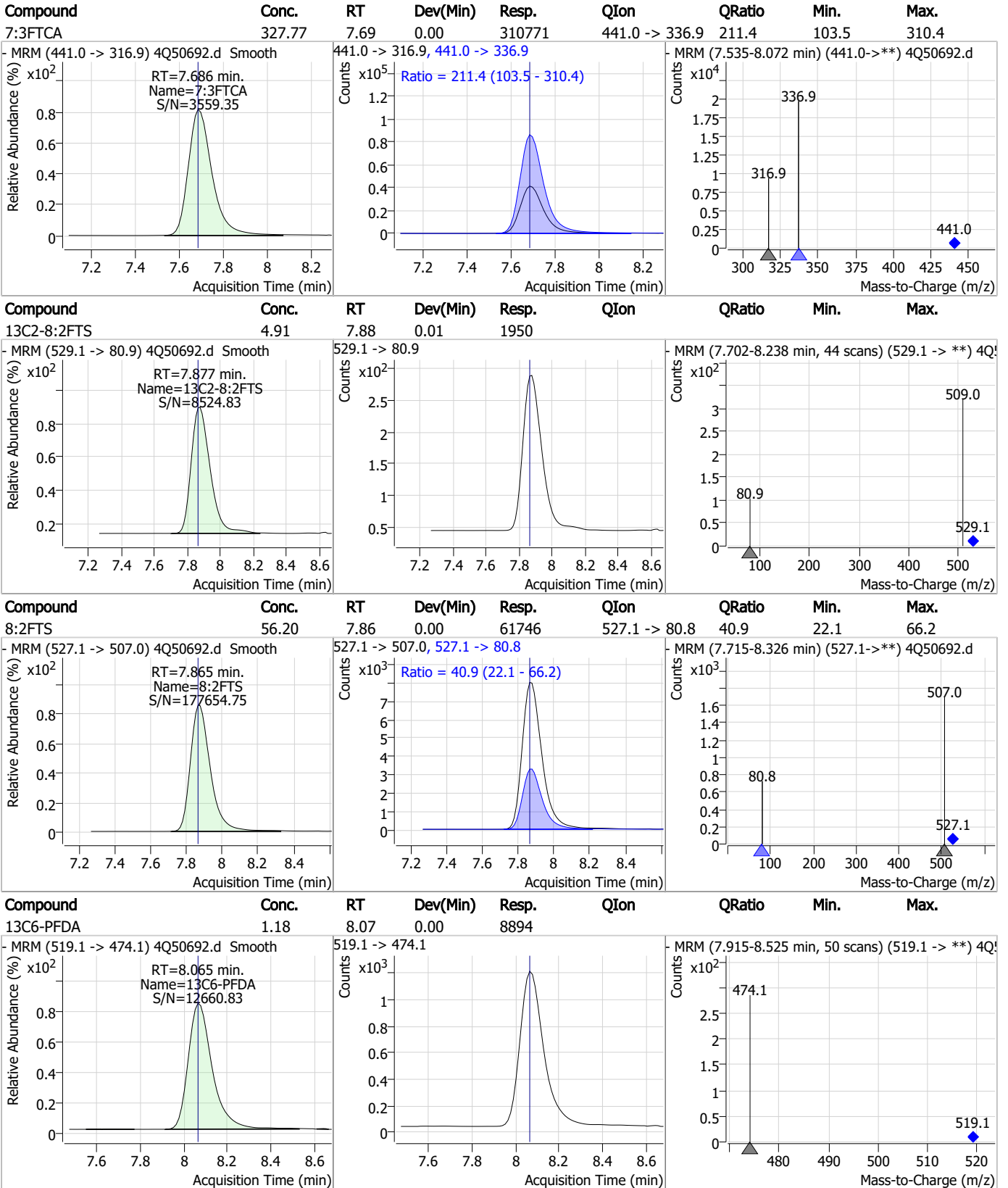
Perfluorinated Compounds by LC/MS/MS



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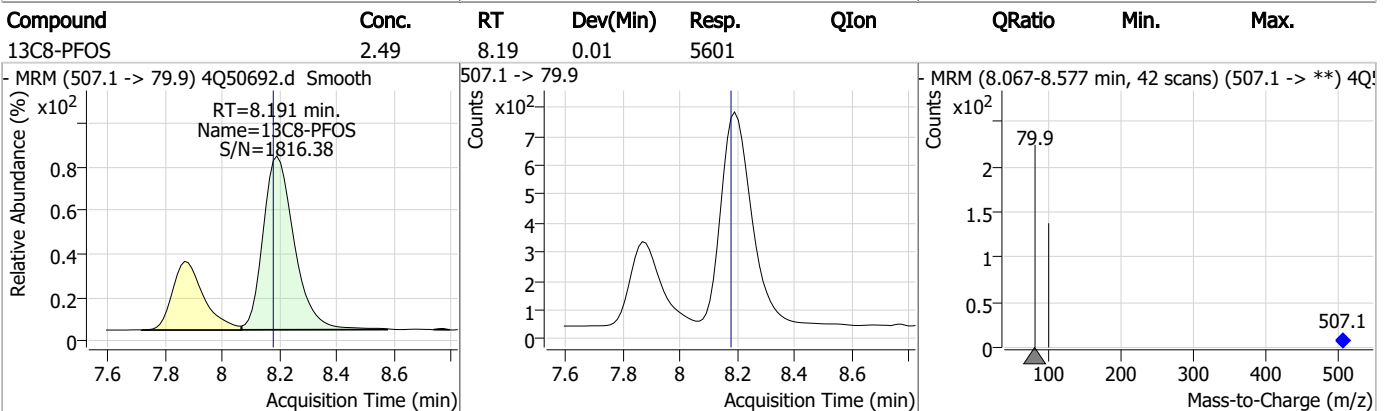
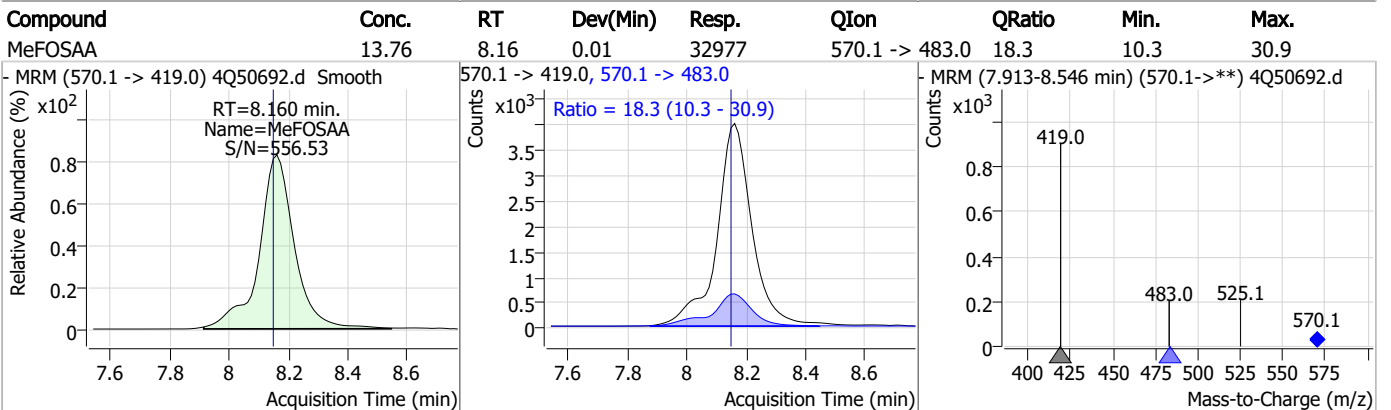
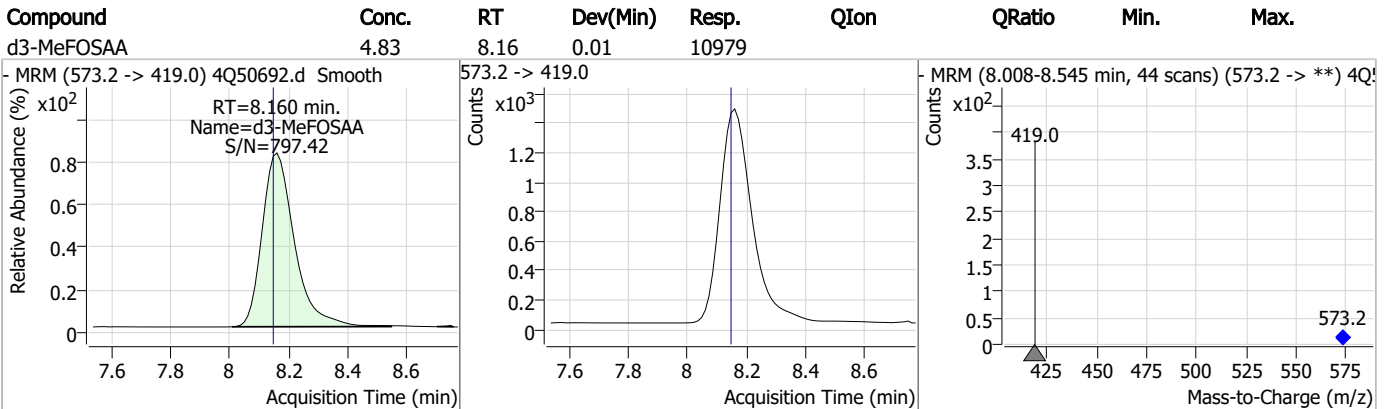
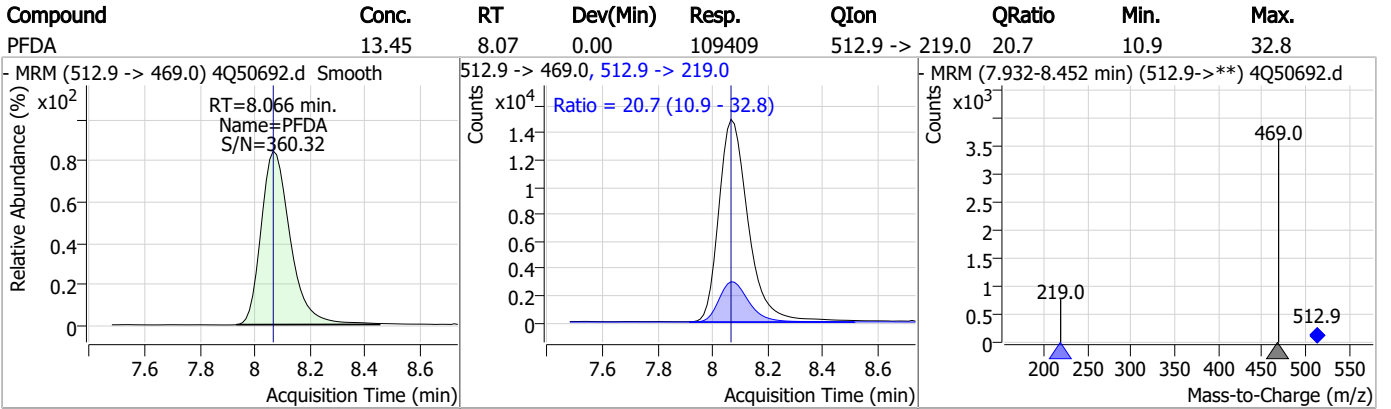
Perfluorinated Compounds by LC/MS/MS



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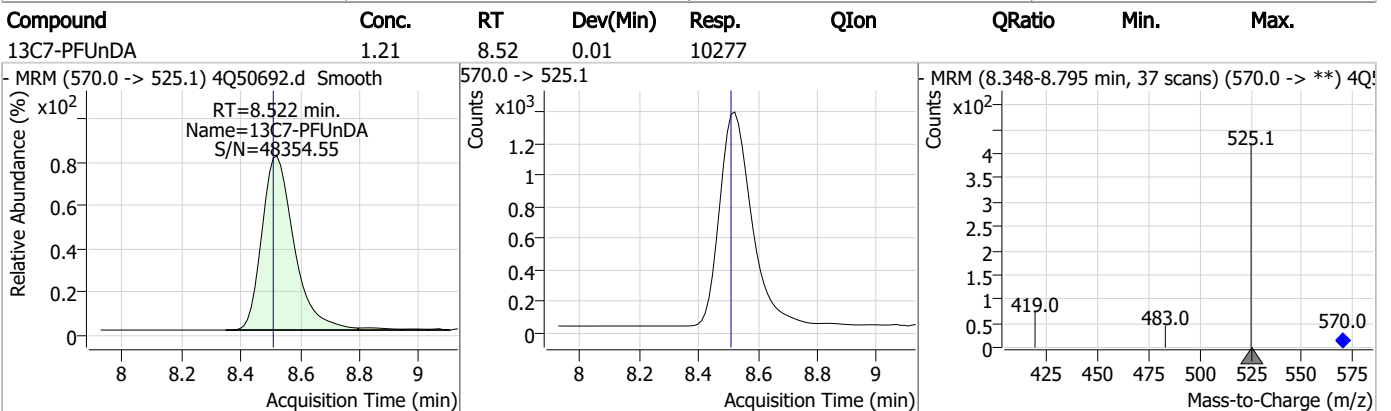
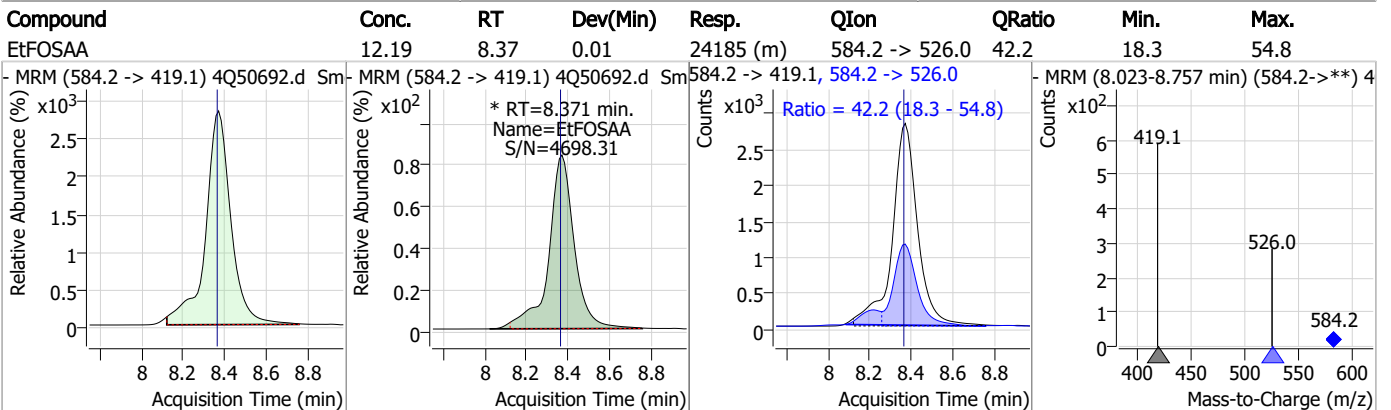
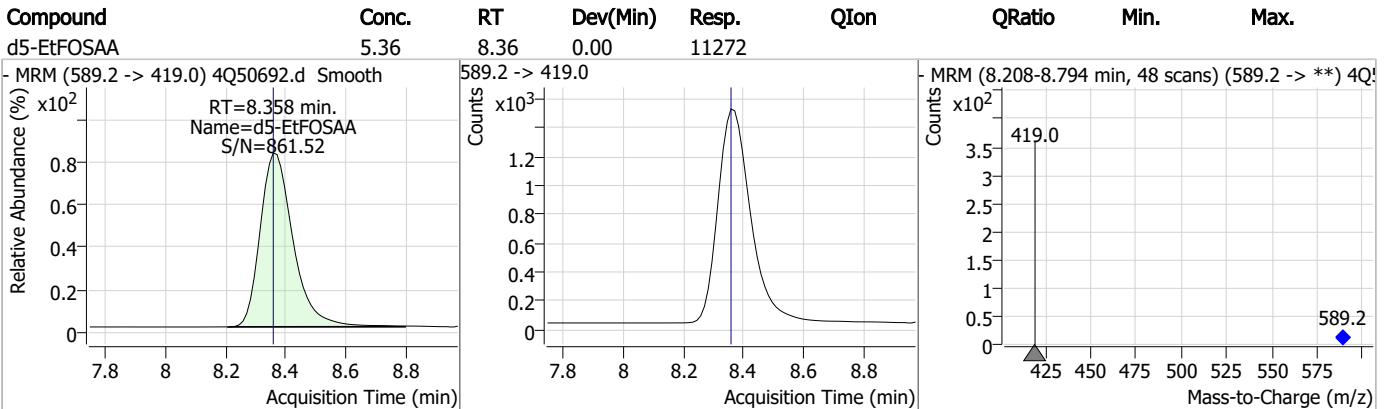
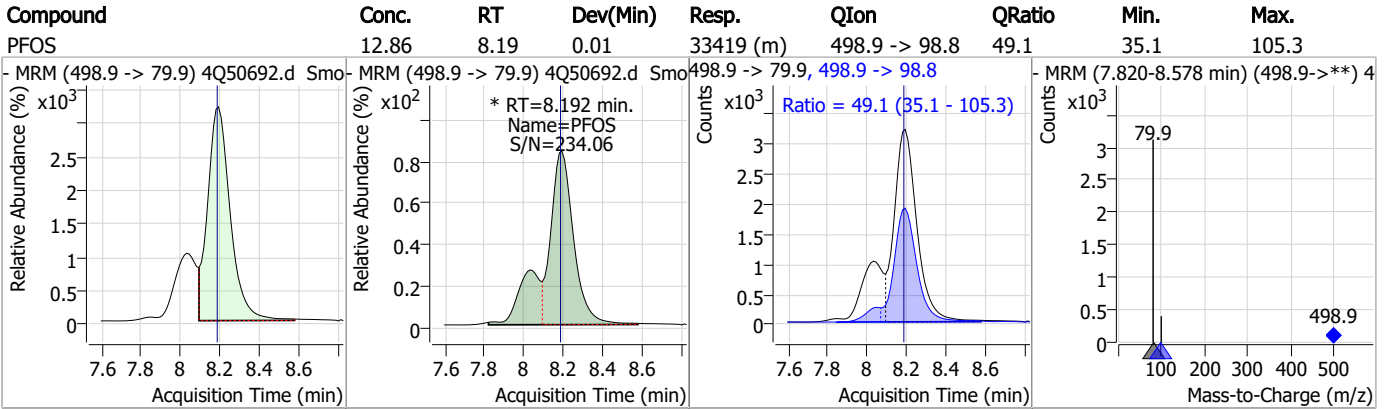
Perfluorinated Compounds by LC/MS/MS



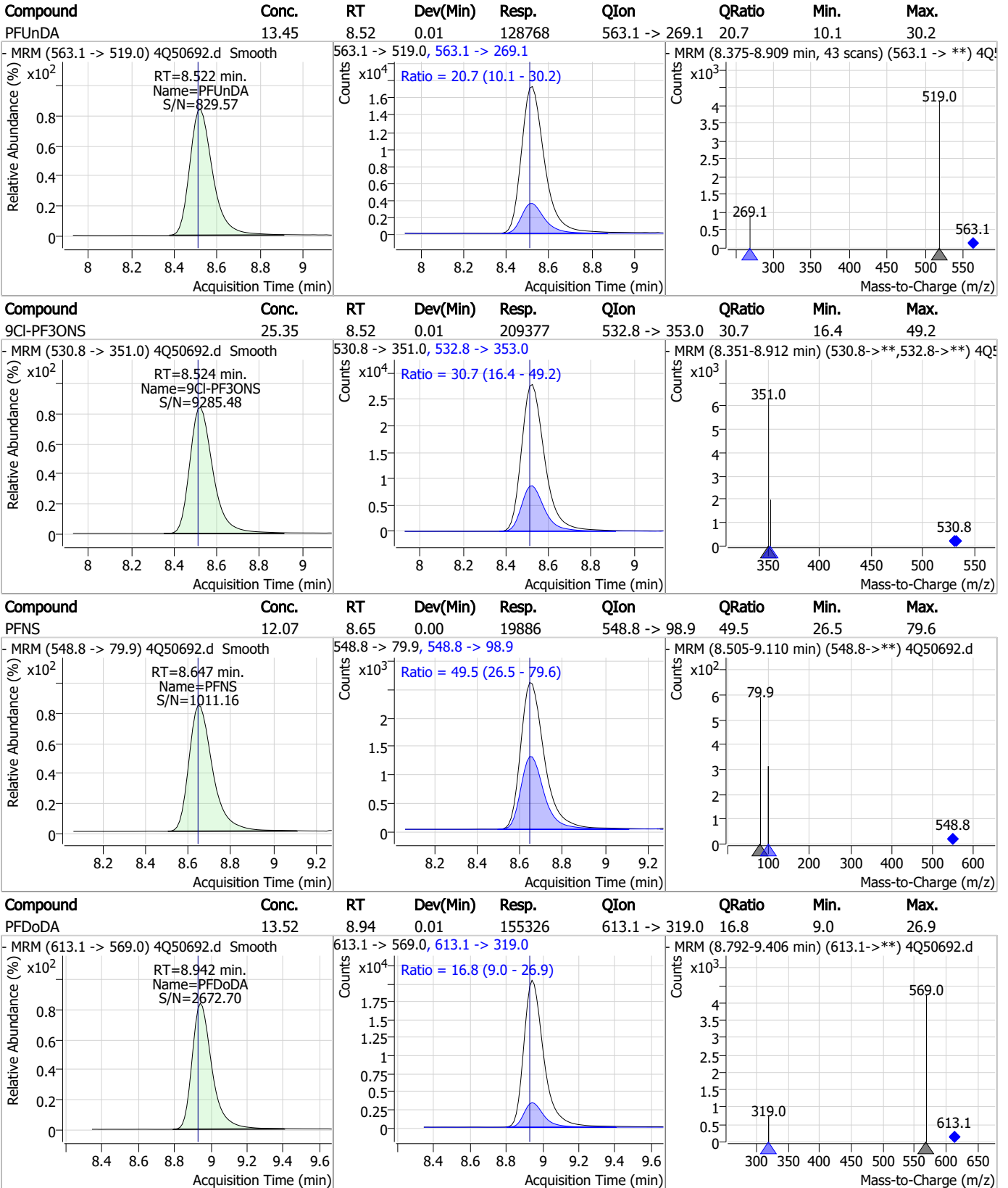
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Perfluorinated Compounds by LC/MS/MS



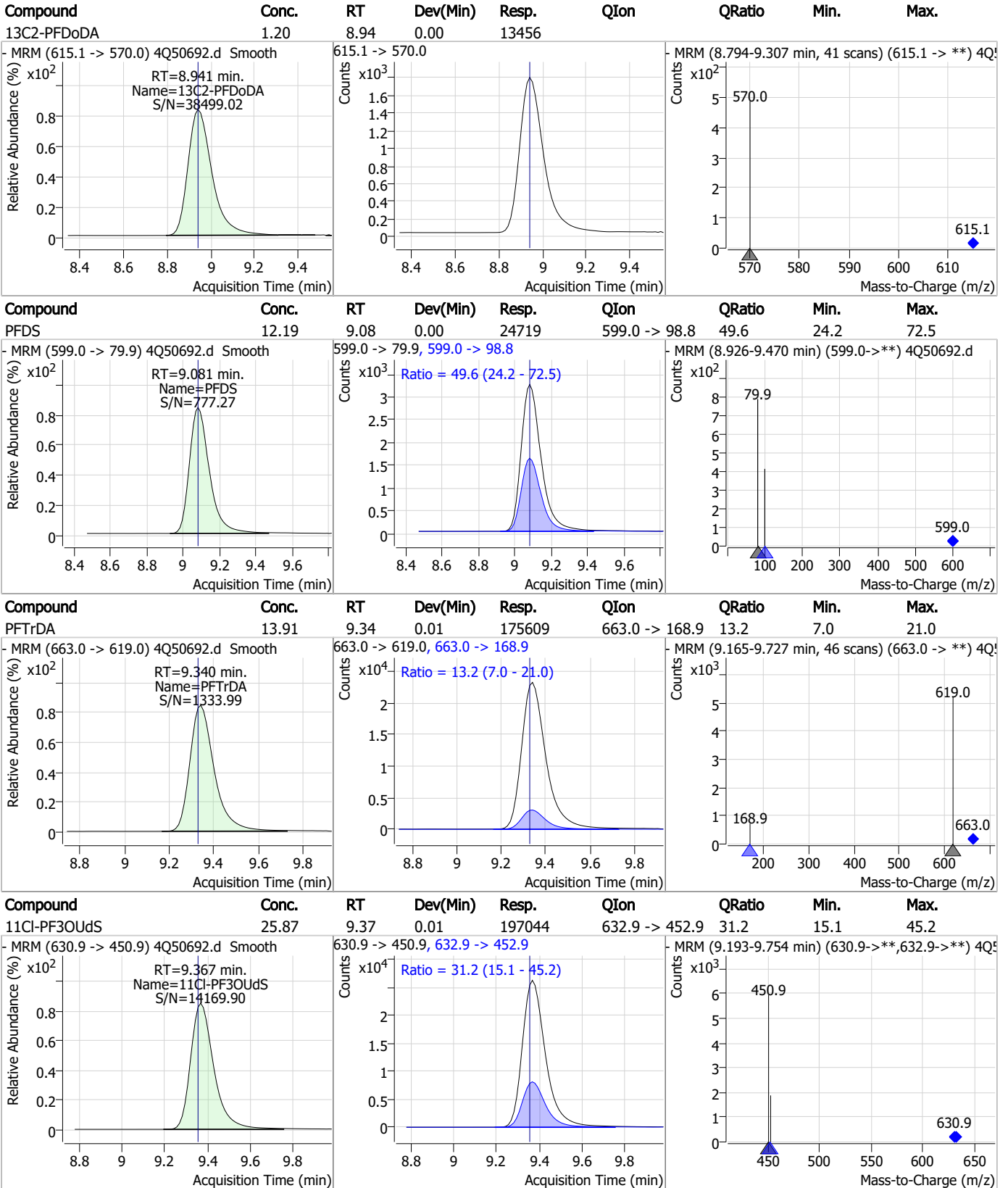
Perfluorinated Compounds by LC/MS/MS



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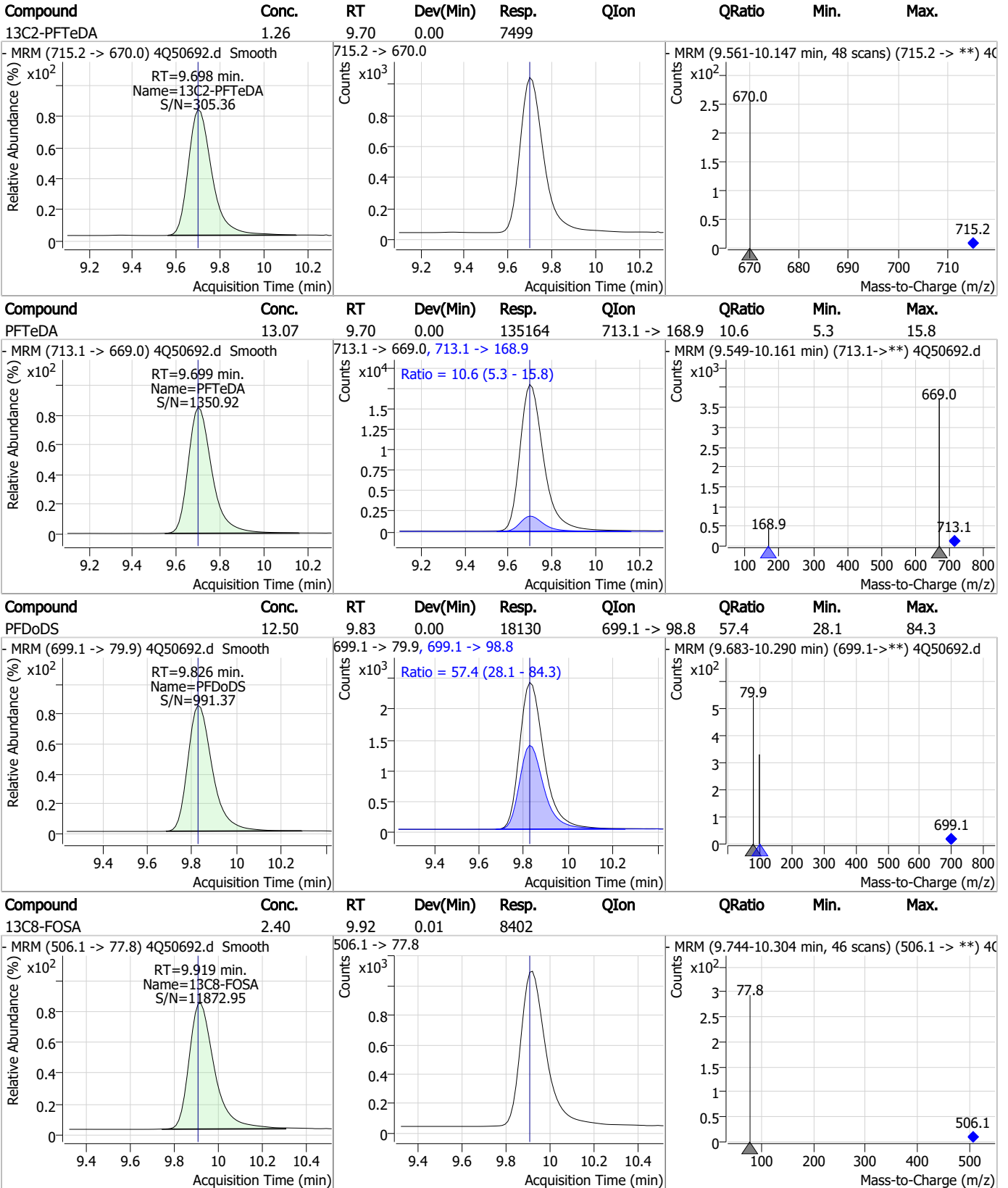
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

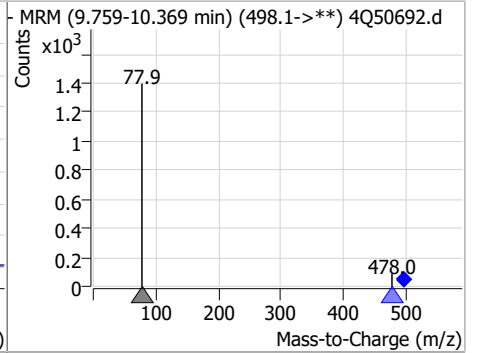
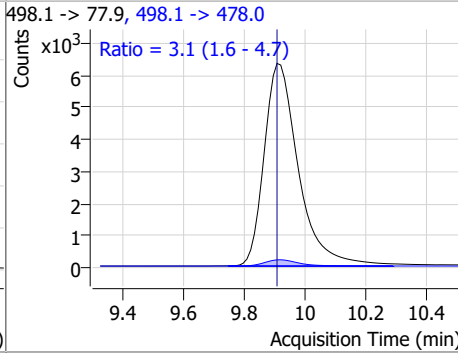
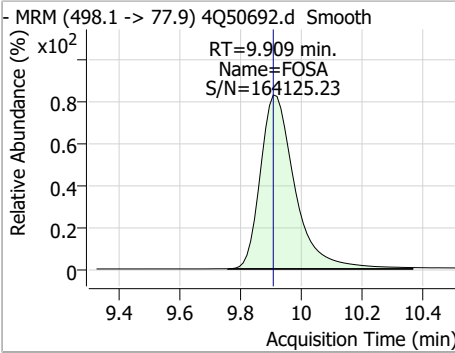


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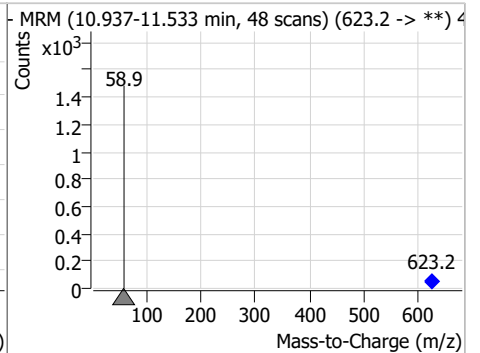
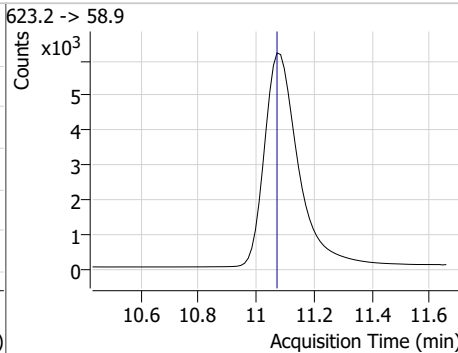
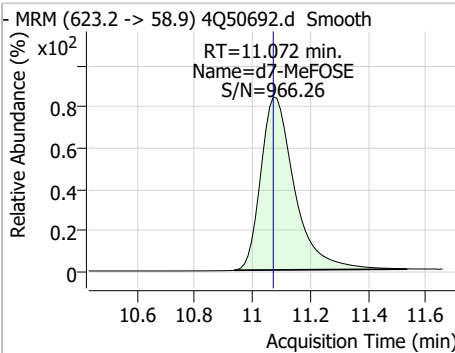
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Perfluorinated Compounds by LC/MS/MS

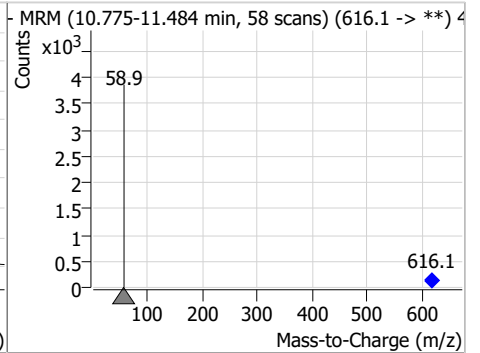
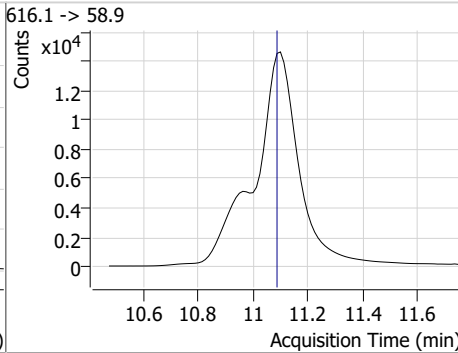
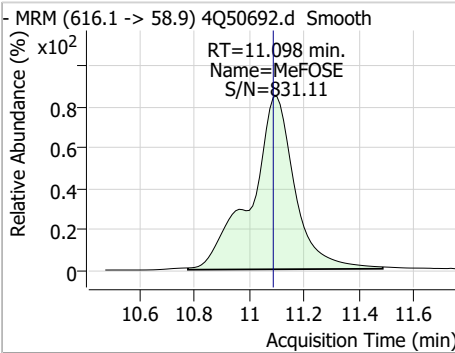
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	13.18	9.91	0.00	50407	498.1 -> 478.0	3.1	1.6	4.7



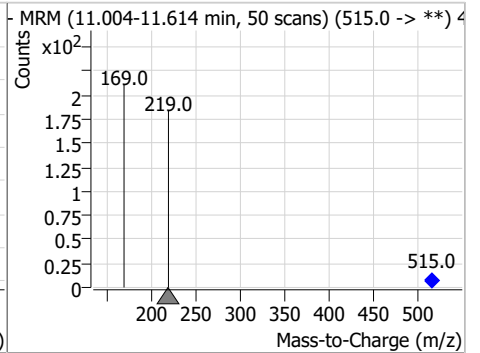
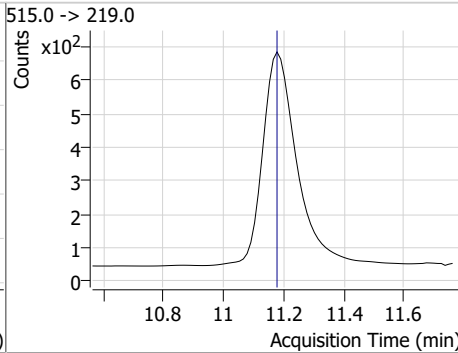
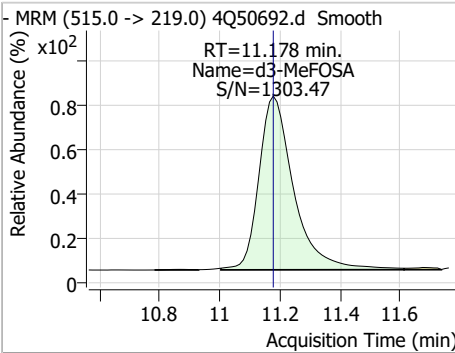
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.97	11.07	0.00	49897				



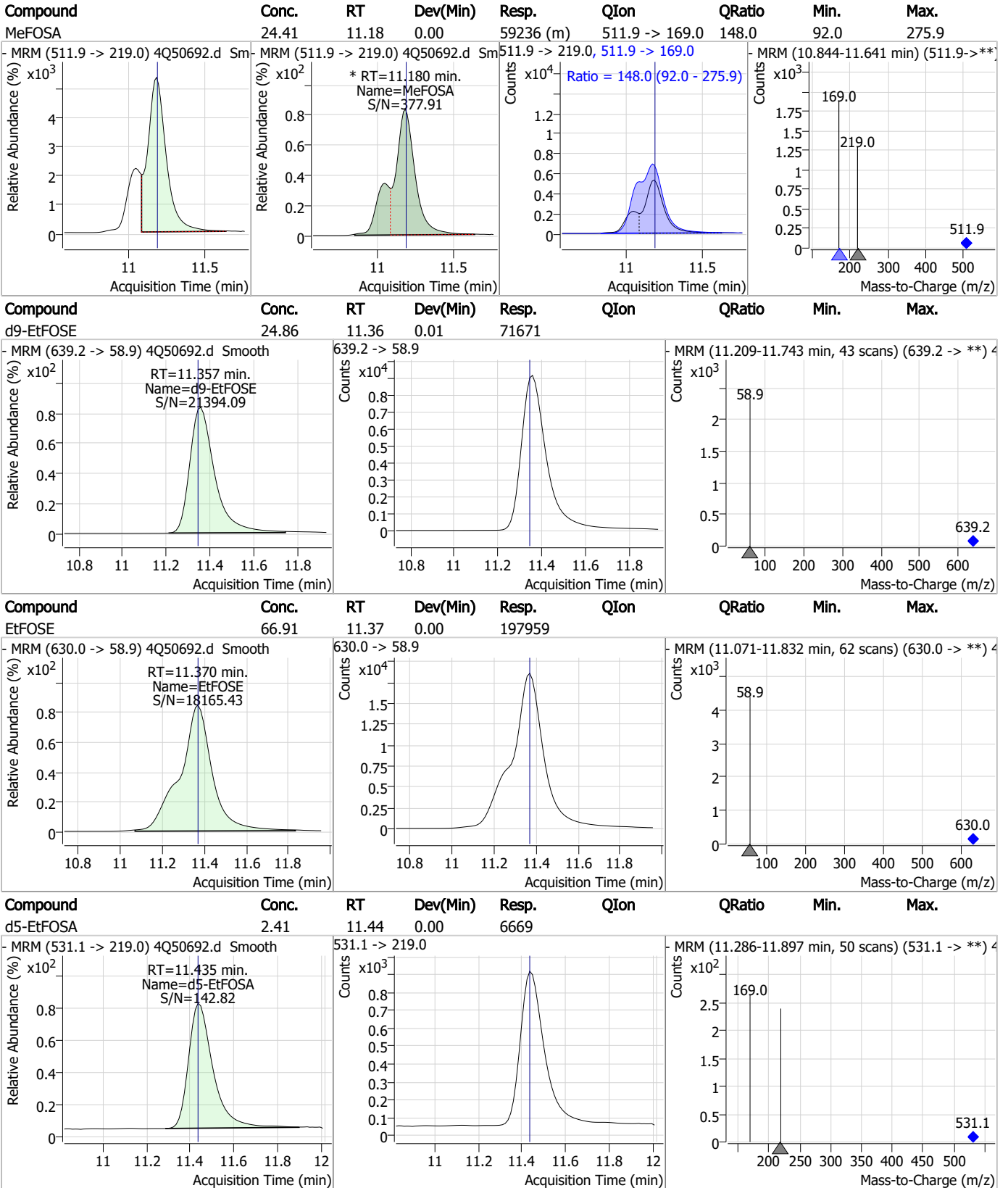
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	66.36	11.10	0.01	162465				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.51	11.18	0.00	5148				



Perfluorinated Compounds by LC/MS/MS

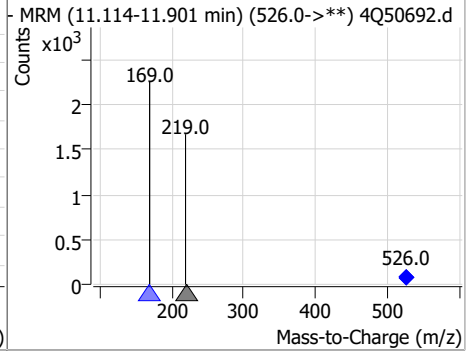
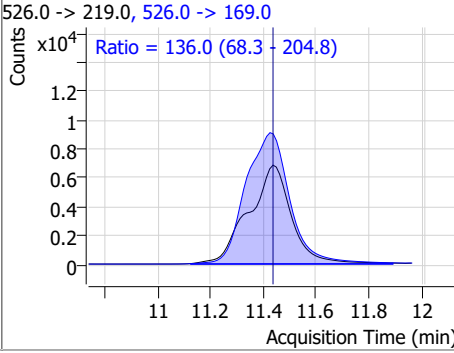
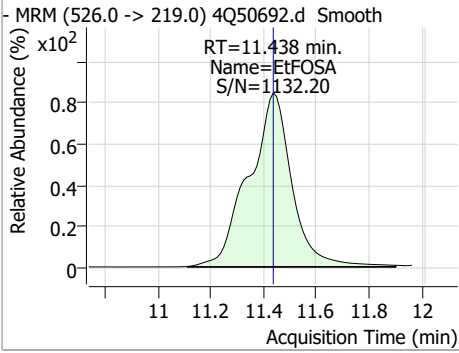


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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	26.69	11.44	0.00	77768	526.0 -> 169.0	136.0	68.3	204.8



7.7.7
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Manual Integration Approval Summary

Sample Number: S4Q741-IC741 Method: EPA DRAFT 1633
Lab FileID: 4Q50692.D Analyst approved: 09/18/23 11:34 Anna Ludwig
Injection Time: 09/17/23 14:06 Supervisor approved: 09/18/23 14:43 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.10	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.19	Split peak
EtFOSAA	2991-50-6		8.37	Split peak
MeFOSA	31506-32-8		11.18	Split peak

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 09/18/23 14:43

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50693.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/17/2023 2:21:40 PM
 Sample Name : ic741-7
 Vial : P1-A8
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q741.batch.bin
 Sample Information : OP98180,S4Q741,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.724	216.8 -> 171.9	77350	10.00 µg/L	0.012
M5-PFPeA	4.228	268.3 -> 223.0	31209	5.00 µg/L	0.012
M5-PFHxA	5.420	318.0 -> 273.0	29294	2.50 µg/L	0.012
M4-PFHpA	6.366	367.1 -> 322.0	20503	2.50 µg/L	0.012
M8-PFOA	7.037	421.1 -> 376.0	35155	2.50 µg/L	0.000
M9-PFNA	7.582	472.1 -> 427.0	13413	1.25 µg/L	0.012
M6-PFDA	8.065	519.1 -> 474.1	9455	1.25 µg/L	0.000
M7-PFUnDA	8.522	570.0 -> 525.1	9723	1.25 µg/L	0.012
M2-PFDoDA	8.941	615.1 -> 570.0	13466	1.25 µg/L	0.000
M2-PFTeDA	9.698	715.2 -> 670.0	6930	1.25 µg/L	0.000
M8-FOSA	9.919	506.1 -> 77.8	8057	2.50 µg/L	0.012
M3-PFBS	5.276	302.1 -> 79.9	7567	2.50 µg/L	0.012
M3-PFHxS	7.103	402.1 -> 79.9	4840	2.50 µg/L	0.000
M8-PFOS	8.191	507.1 -> 79.9	4788	2.50 µg/L	0.012
M2-4:2FTS	5.121	329.1 -> 80.9	839	5.00 µg/L	0.012
M2-6:2FTS	6.822	429.1 -> 80.9	1288	5.00 µg/L	0.012
M2-8:2FTS	7.877	529.1 -> 80.9	2019	5.00 µg/L	0.012
M3-MeFOSAA	8.160	573.2 -> 419.0	10961	5.00 µg/L	0.012
M3-HFPO-DA	5.775	286.9 -> 168.9	28713	10.00 µg/L	0.012
M5-EtFOSAA	8.370	589.2 -> 419.0	10048	5.00 µg/L	0.012
M7-MeFOSE	11.072	623.2 -> 58.9	45566	25.00 µg/L	0.000
M9-EtFOSE	11.357	639.2 -> 58.9	65588	25.00 µg/L	0.012
M5-EtFOSA	11.435	531.1 -> 219.0	6407	2.50 µg/L	0.000
M3-MeFOSA	11.178	515.0 -> 219.0	4814	2.50 µg/L	0.000
13C4-PFOS	8.191	502.8 -> 79.9	4528	2.50 µg/L	0.012
13C3-PFBA	2.716	216.0 -> 172.0	39062	5.00 µg/L	0.000
18O2-PFHxS	7.102	403.0 -> 83.9	3189	2.50 µg/L	0.000
13C4-PFOA	7.037	417.1 -> 372.0	38321	2.50 µg/L	0.000
13C2-PFDA	8.066	515.1 -> 470.1	9387	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	11591	1.25 µg/L	0.012
13C2-PFHxA	5.421	315.1 -> 270.0	26669	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.121	329.1 -> 80.9	839	4.82 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C2-6:2FTS	6.822	429.1 -> 80.9	1288	4.78 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C2-8:2FTS	7.877	529.1 -> 80.9	2019	4.85 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C2-PFDoDA	8.941	615.1 -> 570.0	13466	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-PFTeDA	9.698	715.2 -> 670.0	6930	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C3-PFBS	5.276	302.1 -> 79.9	7567	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C3-PFHxS	7.103	402.1 -> 79.9	4840	2.52 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 = 101.0%	
13C4-PFBA	2.724	216.8 -> 171.9	77350	10.00 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.366	367.1 -> 322.0	20503	2.43 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C5-PFHxA	5.420	318.0 -> 273.0	29294	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C5-PFPeA	4.228	268.3 -> 223.0	31209	4.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C6-PFDA	8.065	519.1 -> 474.1	9455	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C7-PFUnDA	8.522	570.0 -> 525.1	9723	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C8-FOSA	9.919	506.1 -> 77.8	8057	2.58 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C8-PFOA	7.037	421.1 -> 376.0	35155	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-PFOS	8.191	507.1 -> 79.9	4788	2.38 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C9-PFNA	7.582	472.1 -> 427.0	13413	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%	
d3-MeFOSAA	8.160	573.2 -> 419.0	10961	5.39 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.8%	
13C3-HFPO-DA	5.775	286.9 -> 168.9	28713	9.95 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
d3-MeFOSA	11.178	515.0 -> 219.0	4814	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
d5-EtFOSAA	8.370	589.2 -> 419.0	10048	5.33 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.7%	
d7-MeFOSE	11.072	623.2 -> 58.9	45566	25.47 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d9-EtFOSE	11.357	639.2 -> 58.9	65588	25.41 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
d5-EtFOSA	11.435	531.1 -> 219.0	6407	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
Target Compounds					QValue
4:2FTS	5.122	327.1 -> 307.0	136920	96.35 µg/L	98
		327.1 -> 80.9	53233		
6:2FTS	6.822	427.1 -> 407.0	146532	98.50 µg/L	95
		427.1 -> 80.9	51246		
8:2FTS	7.865	527.1 -> 507.0	113840	100.03 µg/L	95
		527.1 -> 80.8	46480		
EtFOSAA	8.371	584.2 -> 419.1	47486	26.85 µg/L	91
		584.2 -> 526.0	19779		
FOSA	9.921	498.1 -> 77.9	97498	26.58 µg/L	100
		498.1 -> 478.0	2987		
MeFOSAA	8.160	570.1 -> 419.0	62571	26.14 µg/L	96
		570.1 -> 483.0	11751		
PFBA	2.720	212.8 -> 168.9	315576	106.62 µg/L	100
PFBS	5.277	298.7 -> 79.9	82654	23.23 µg/L	96
		298.7 -> 98.8	32099		
PFDA	8.066	512.9 -> 469.0	216857	25.08 µg/L	96
		512.9 -> 219.0	43641		
PFDoDA	8.942	613.1 -> 569.0	304405	26.48 µg/L	98
		613.1 -> 319.0	51847		
PFDS	9.081	599.0 -> 79.9	48364	27.91 µg/L	94

7.7.8

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	25501			
PFHpA	6.366	363.1 -> 319.0	346866	28.48	µg/L	99
		363.1 -> 169.0	67542			
PFHpS	7.685	449.0 -> 79.9	56599	27.58	µg/L	99
		449.0 -> 98.9	29439			
PFHxA	5.411	313.0 -> 269.0	289504	27.94	µg/L	100
		313.0 -> 118.9	9193			
PFHxS	7.104	398.7 -> 79.9	48103	22.52	µg/L	m 91
		398.7 -> 98.9	25516			
PFNA	7.583	463.0 -> 419.0	220268	26.99	µg/L	98
		463.0 -> 219.0	52848			
PFNS	8.659	548.8 -> 79.9	37495	26.63	µg/L	94
		548.8 -> 98.9	18414			
PFOA	7.038	413.0 -> 369.0	415592	26.32	µg/L	99
		413.0 -> 169.0	88864			
PFOS	8.192	498.9 -> 79.9	66995	30.15	µg/L	m 71
		498.9 -> 98.8	31198			
PFPeA	4.229	263.0 -> 219.0	524948	53.35	µg/L	100
PFPeS	6.355	349.1 -> 79.9	46467	23.33	µg/L	92
		349.1 -> 98.9	19772			
PFTeDA	9.699	713.1 -> 669.0	266713	27.90	µg/L	100
		713.1 -> 168.9	27608			
PFTrDA	9.340	663.0 -> 619.0	338091	26.76	µg/L	99
		663.0 -> 168.9	45282			
PFUnDA	8.522	563.1 -> 519.0	239243	26.41	µg/L	99
		563.1 -> 269.1	49669			
11CI-PF3OUdS	9.367	630.9 -> 450.9	382840	50.36	µg/L	99
		632.9 -> 452.9	117148			
9CI-PF3ONS	8.524	530.8 -> 351.0	394518	47.86	µg/L	97
		532.8 -> 353.0	122055			
ADONA	6.629	376.9 -> 250.9	1097425	50.89	µg/L	99
		376.9 -> 84.8	280383			
HFPO-DA	5.776	284.9 -> 168.9	164273	52.78	µg/L	99
		284.9 -> 184.9	22137			
3:3FTCA	3.718	241.0 -> 177.0	71987	136.75	µg/L	97
		241.0 -> 117.0	8311			
5:3FTCA	6.181	341.0 -> 237.1	1267746	694.44	µg/L	95
		341.0 -> 217.0	965152			
7:3FTCA	7.686	441.0 -> 316.9	606217	695.24	µg/L	96
		441.0 -> 336.9	1290244			
EtFOSA	11.438	526.0 -> 219.0	148305	52.98	µg/L	98
		526.0 -> 169.0	206348			
EtFOSE	11.370	630.0 -> 58.9	359763	132.88	µg/L	100
MeFOSA	11.180	511.9 -> 219.0	115869	51.05	µg/L	m 74
		511.9 -> 169.0	170051			
MeFOSE	11.098	616.1 -> 58.9	304756	136.31	µg/L	100
PFDoDS	9.826	699.1 -> 79.9	35849	28.91	µg/L	97
		699.1 -> 98.8	20936			
NFDHA	5.302	295.0 -> 201.0	31099	50.51	µg/L	94
		295.0 -> 84.9	7951			
PFMBA	4.642	279.0 -> 85.1	278803	53.36	µg/L	100
PFMPA	3.358	229.0 -> 84.9	310214	52.98	µg/L	100
PFEESA	5.795	314.8 -> 134.9	498101	49.44	µg/L	99
		314.8 -> 82.9	16556			

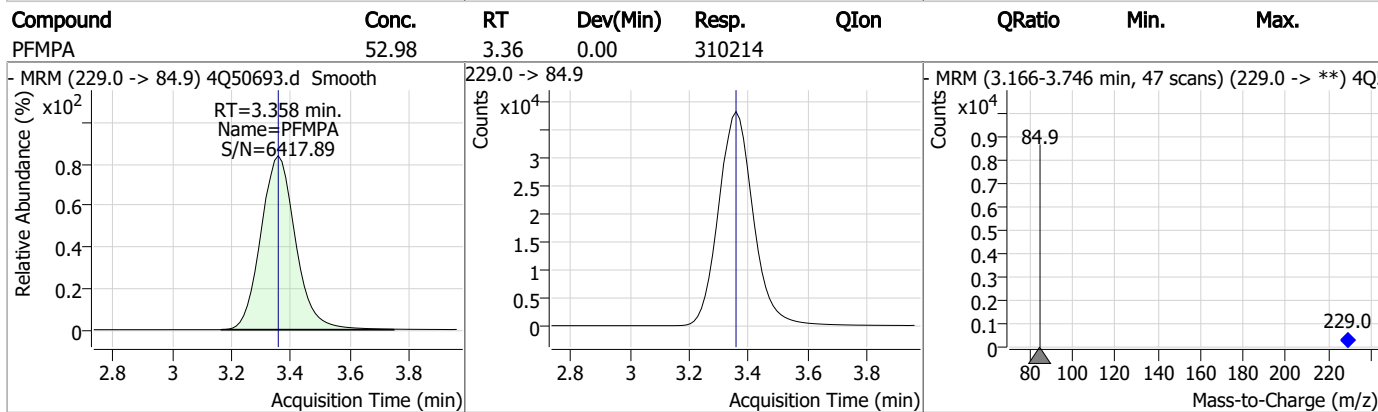
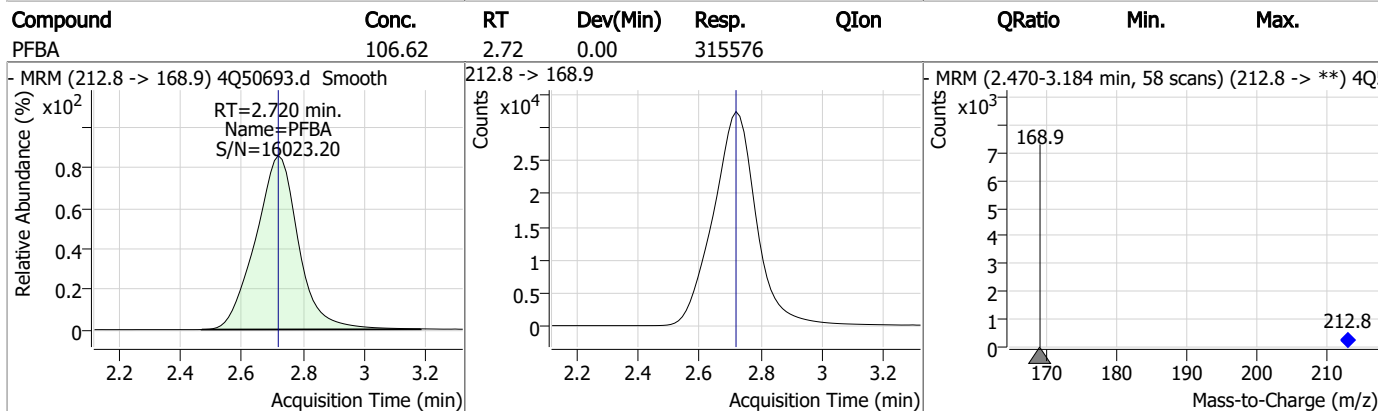
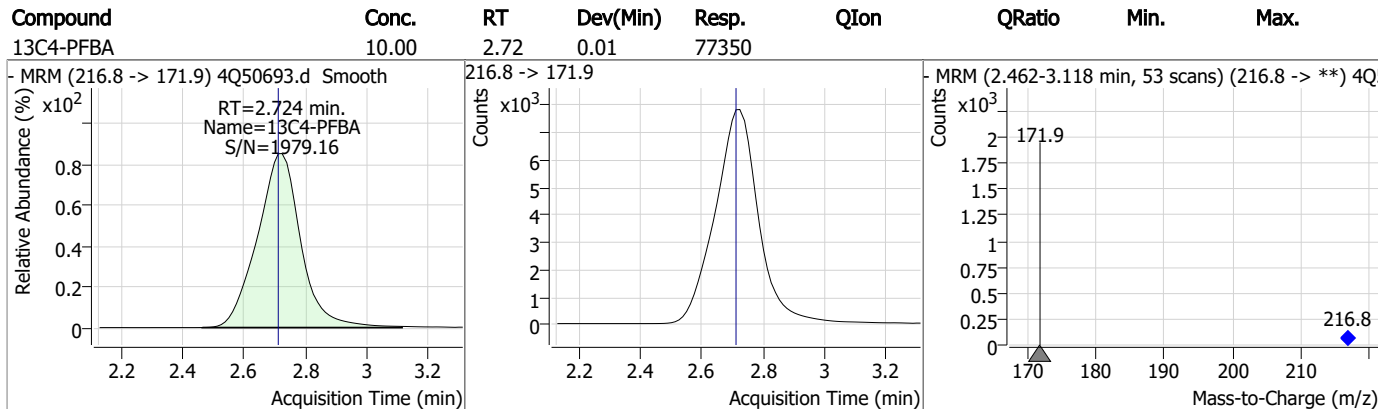
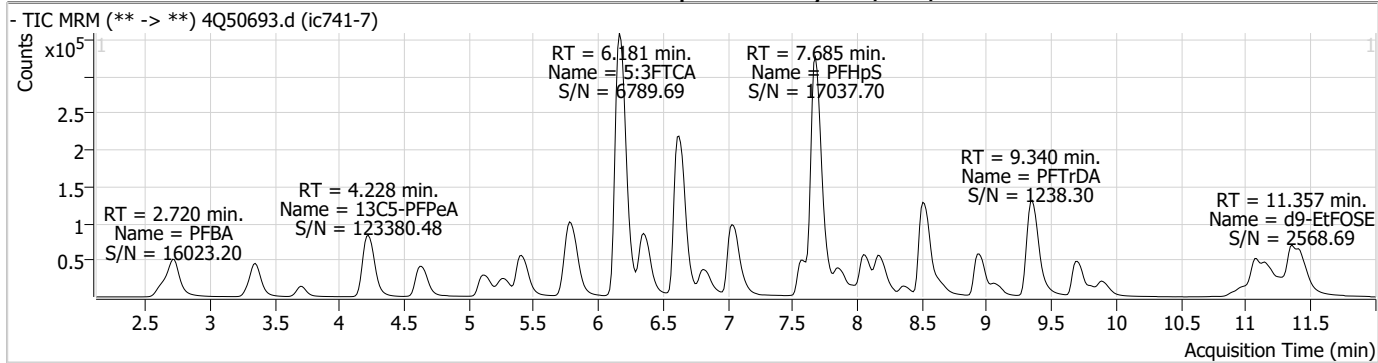
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

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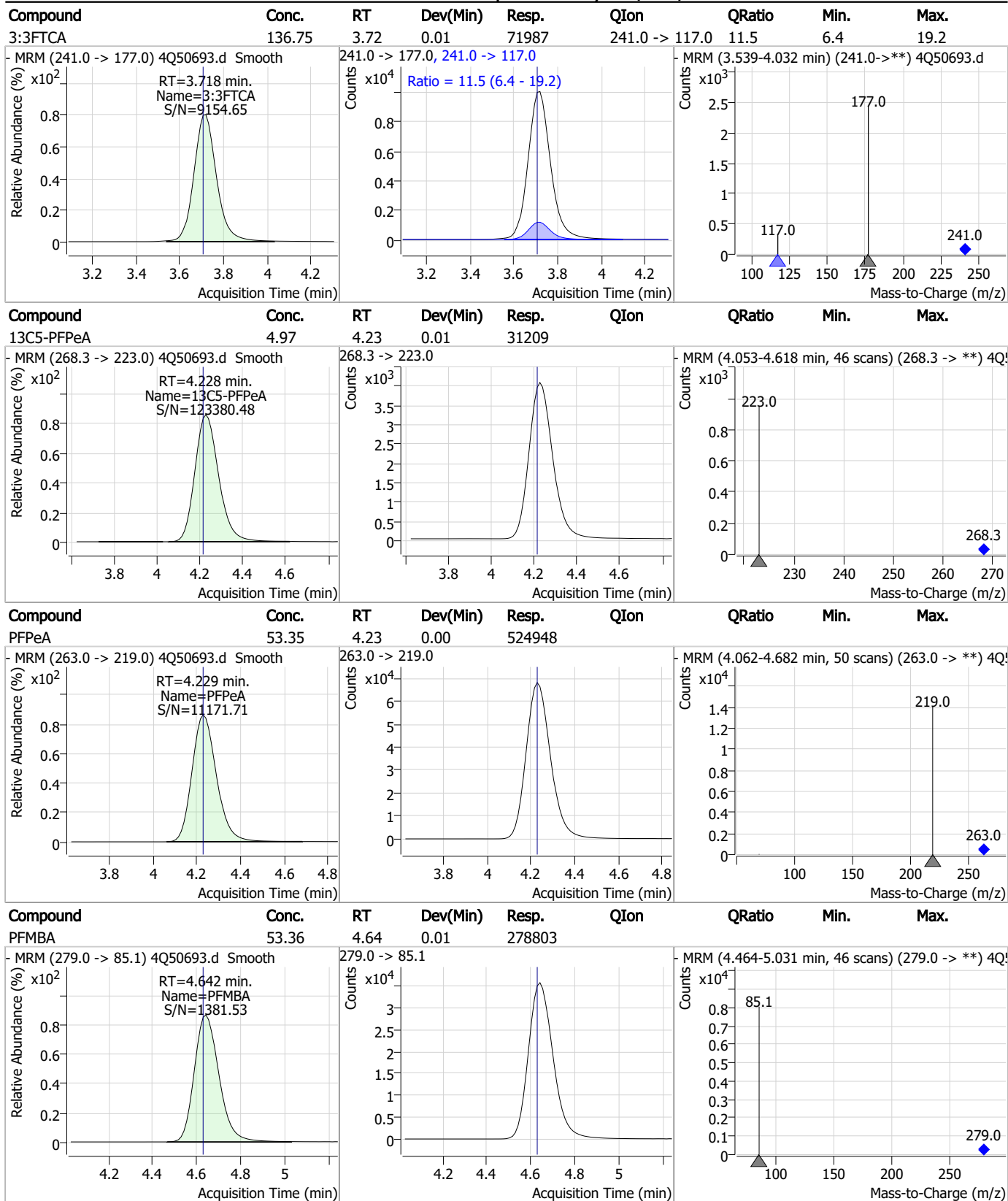
7.7.8
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Perfluorinated Compounds by LC/MS/MS



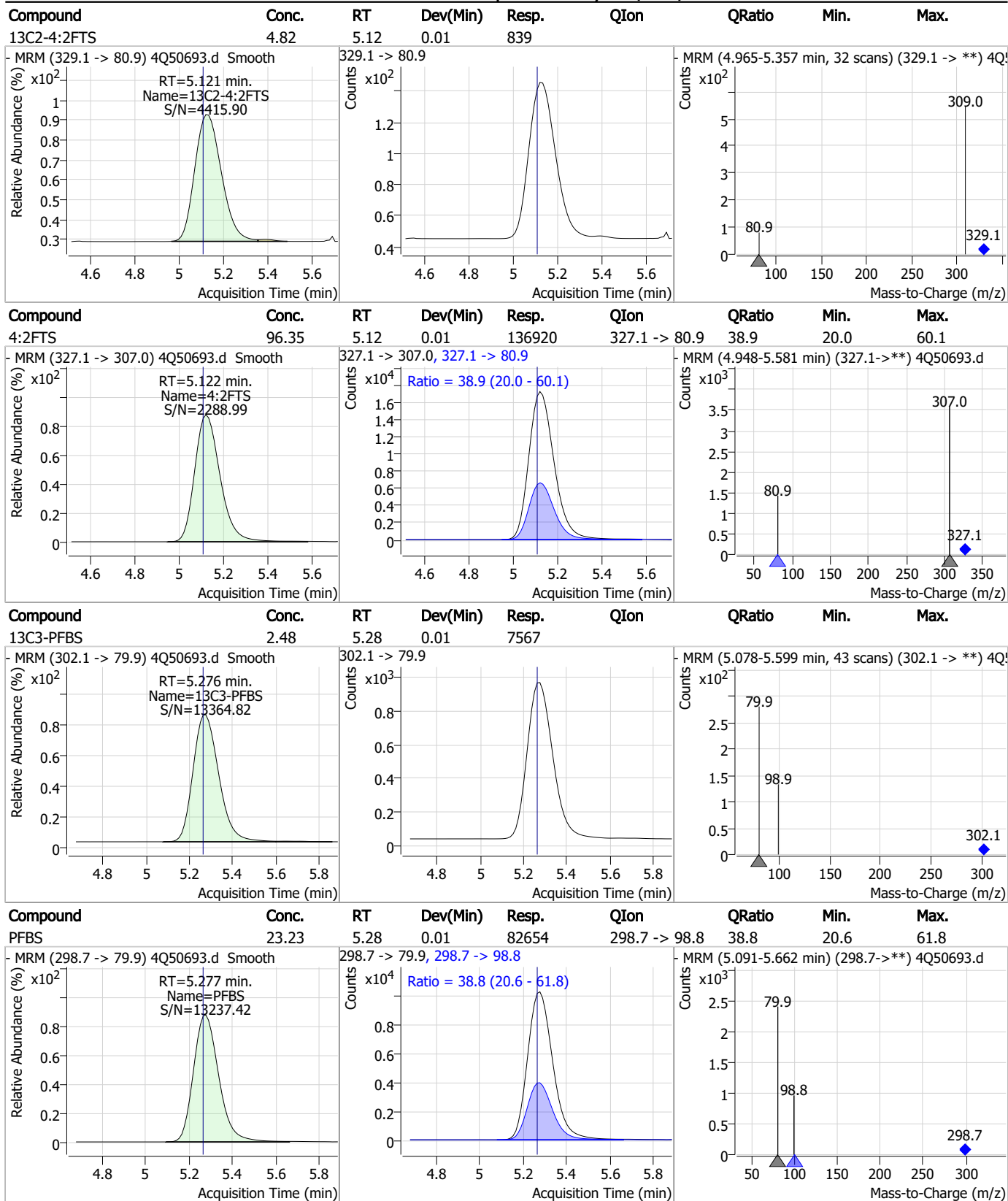
7.7.8
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Perfluorinated Compounds by LC/MS/MS



7.7.8
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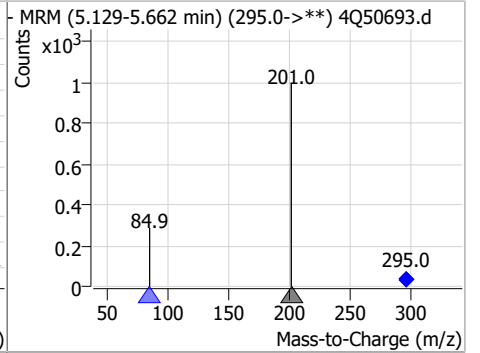
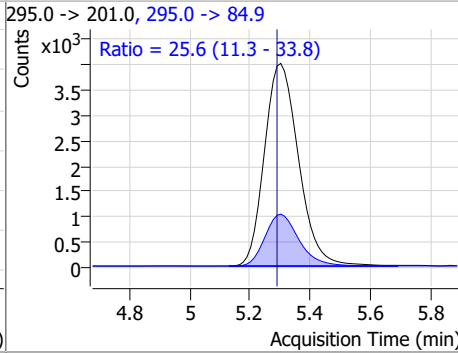
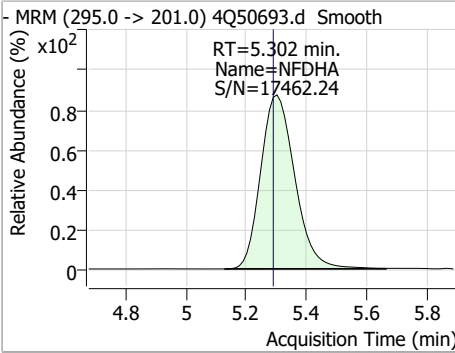
Perfluorinated Compounds by LC/MS/MS



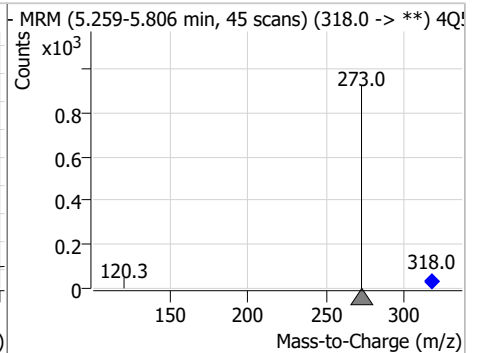
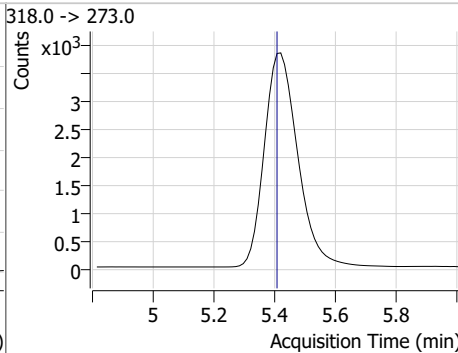
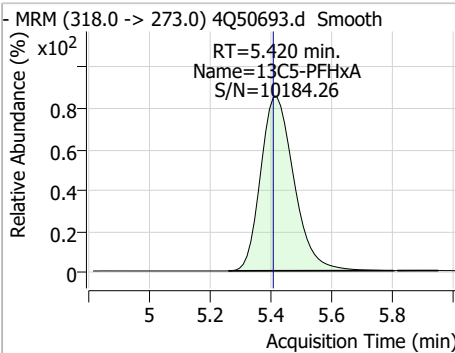
7.7.8
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Perfluorinated Compounds by LC/MS/MS

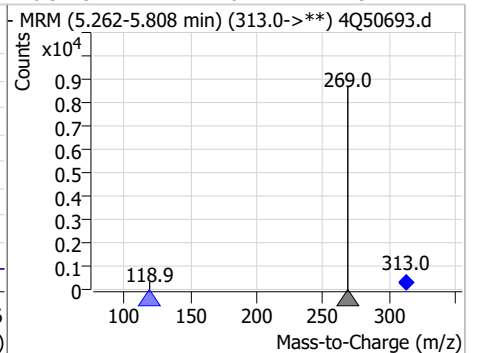
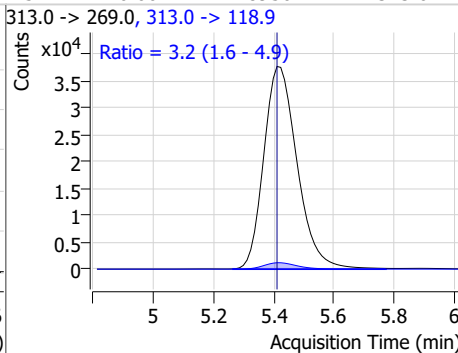
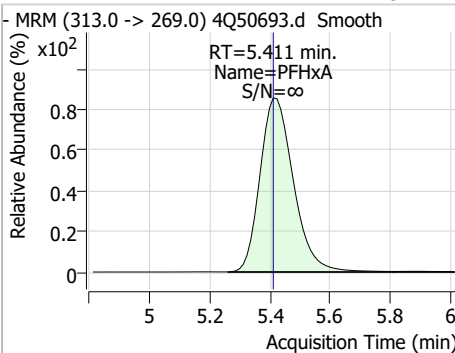
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	50.51	5.30	0.01	31099	295.0 -> 84.9	25.6	11.3	33.8



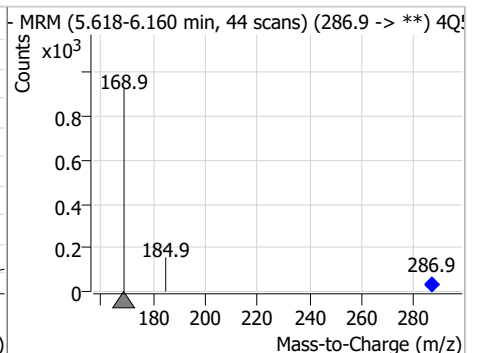
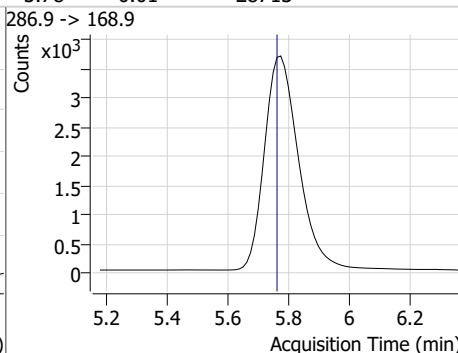
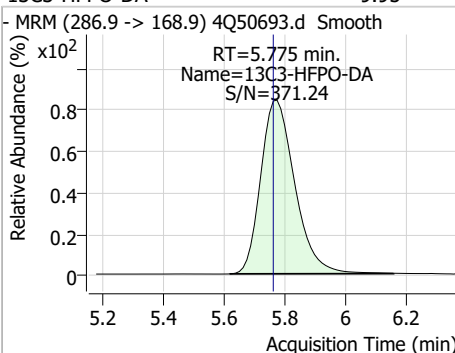
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.41	5.42	0.01	29294				



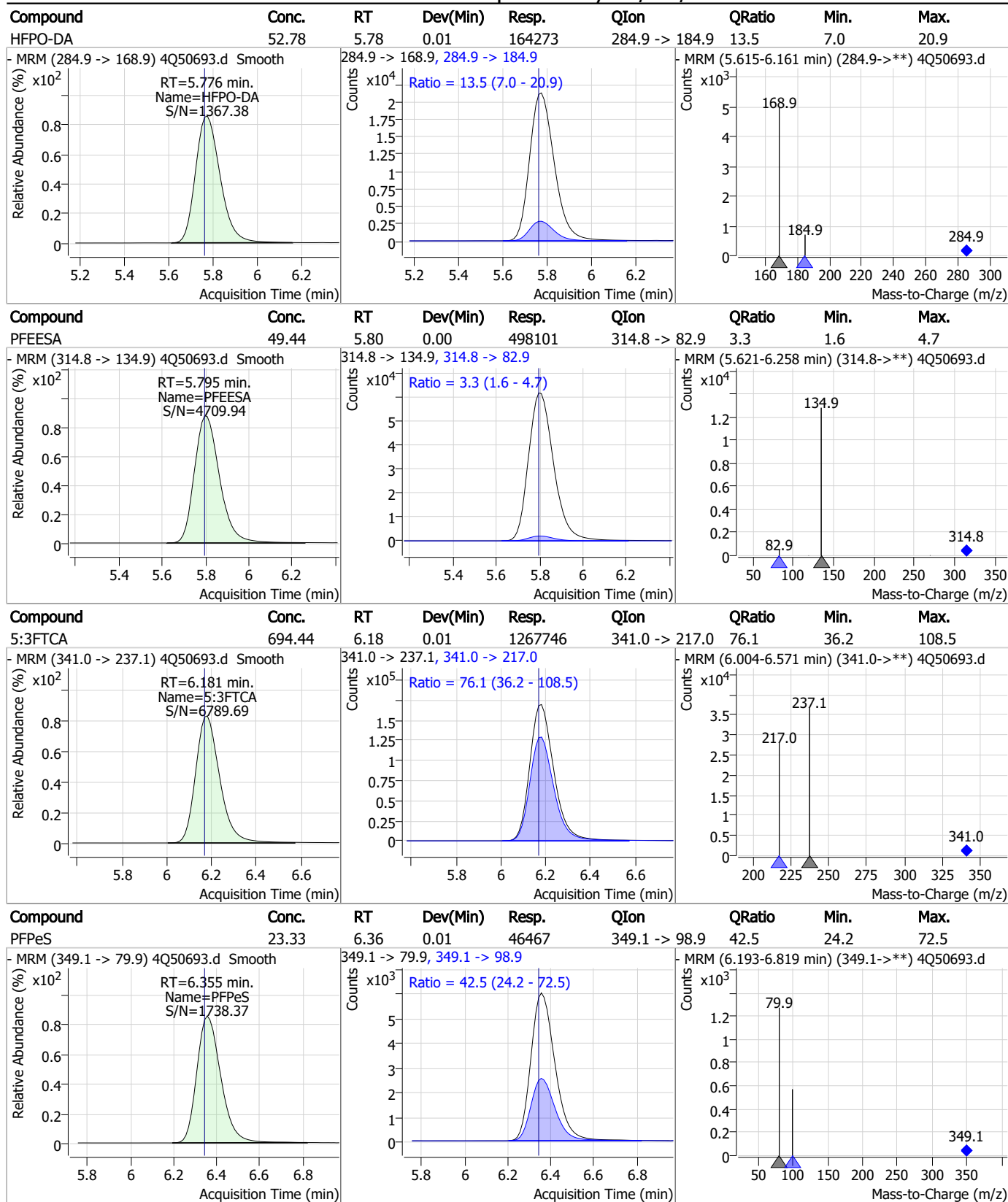
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	27.94	5.41	0.00	289504	313.0 -> 118.9	3.2	1.6	4.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.95	5.78	0.01	28713				

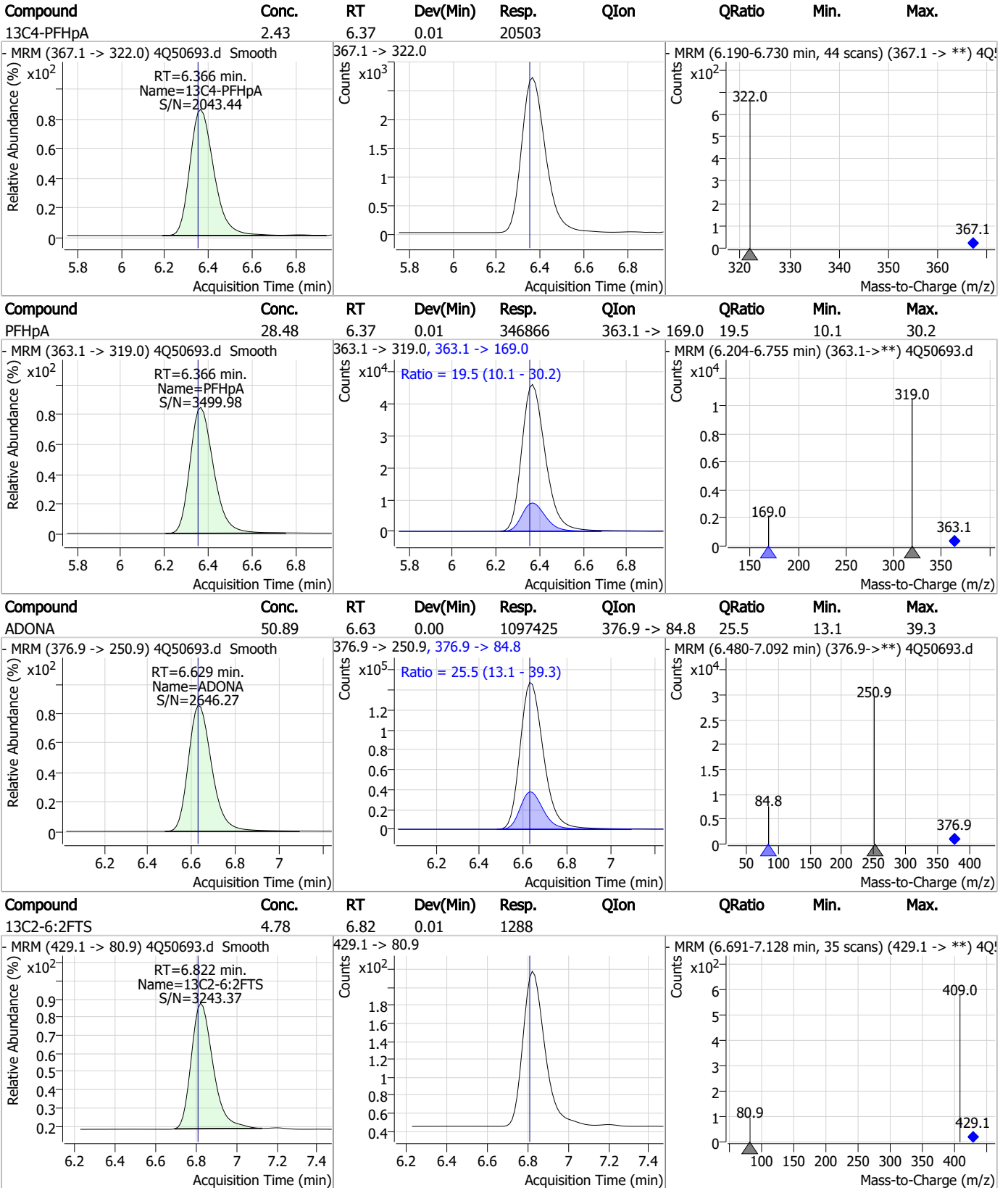


Perfluorinated Compounds by LC/MS/MS



7.7.8
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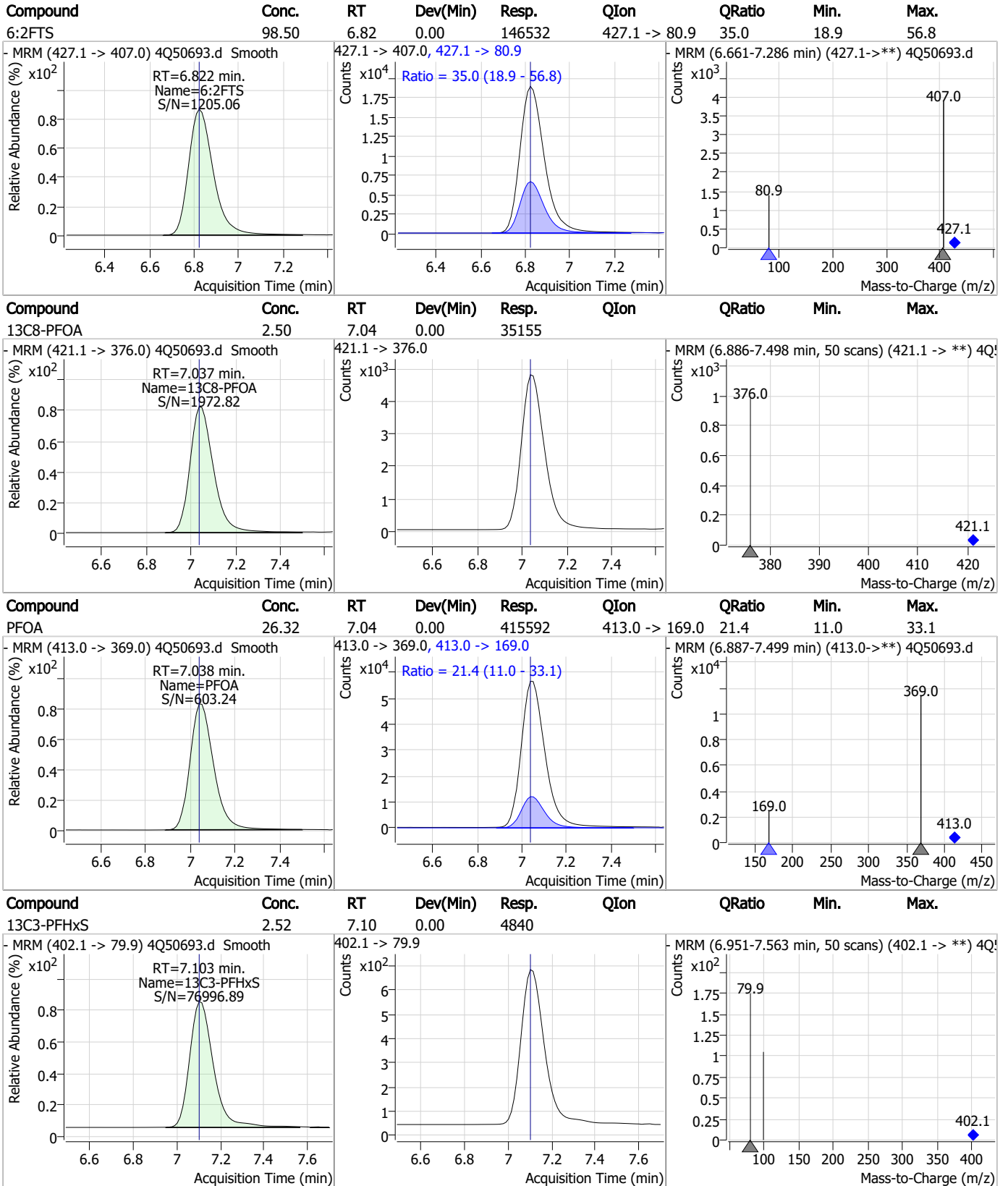
Perfluorinated Compounds by LC/MS/MS



7.7.8

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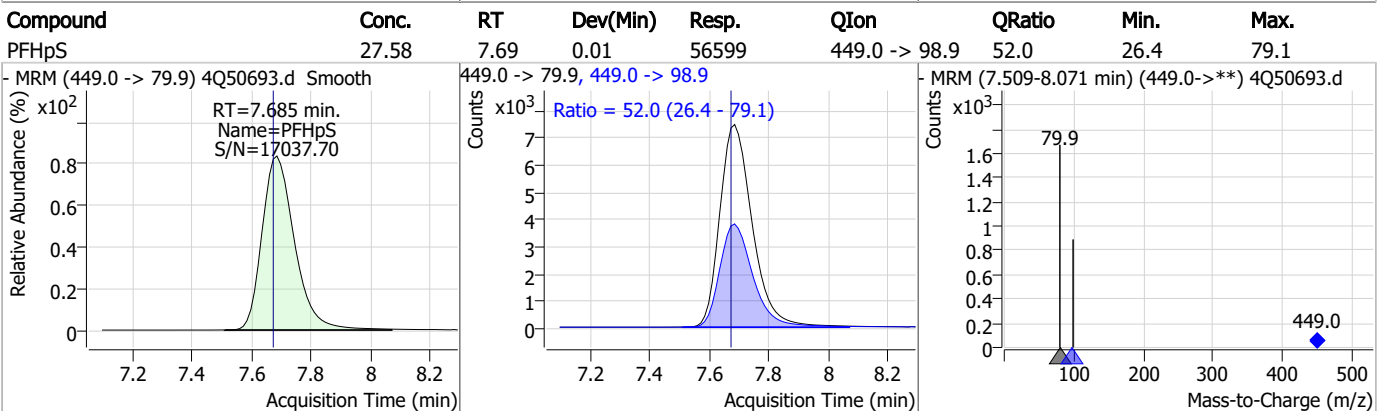
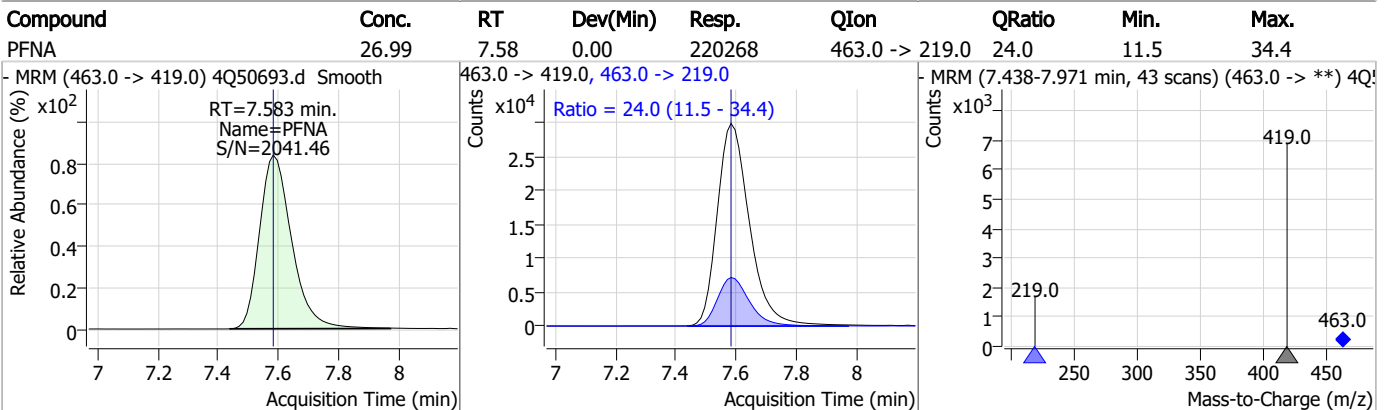
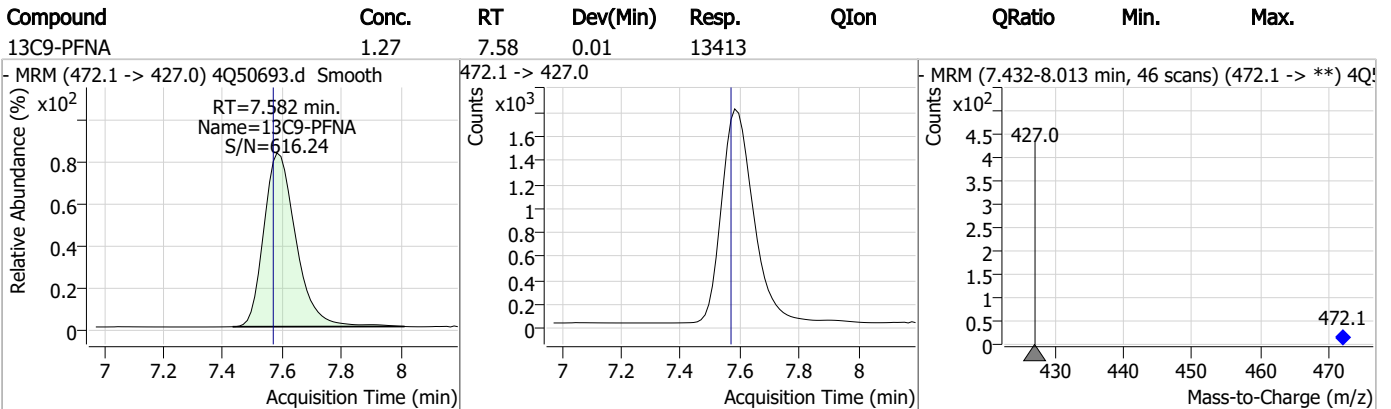
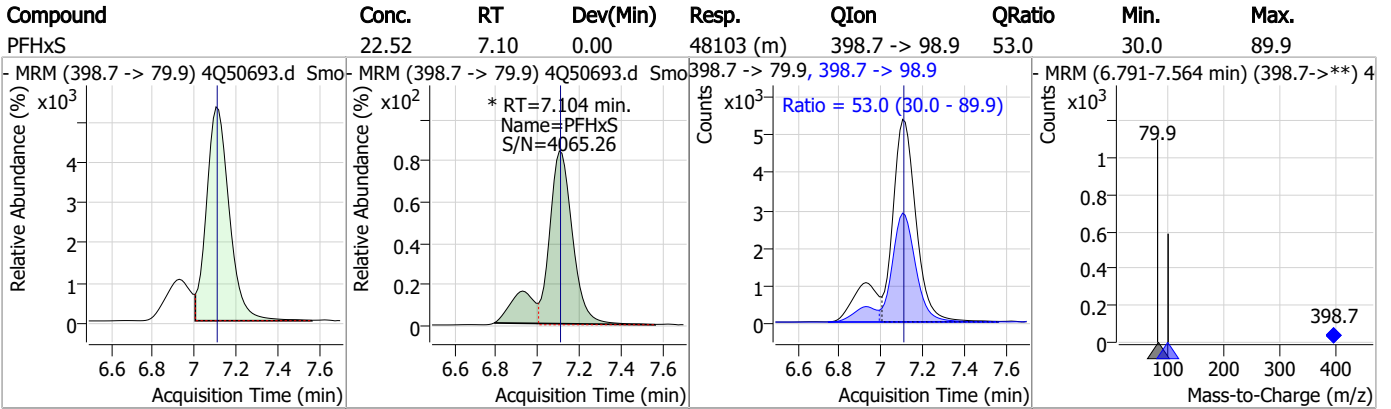
Perfluorinated Compounds by LC/MS/MS



7.7.8

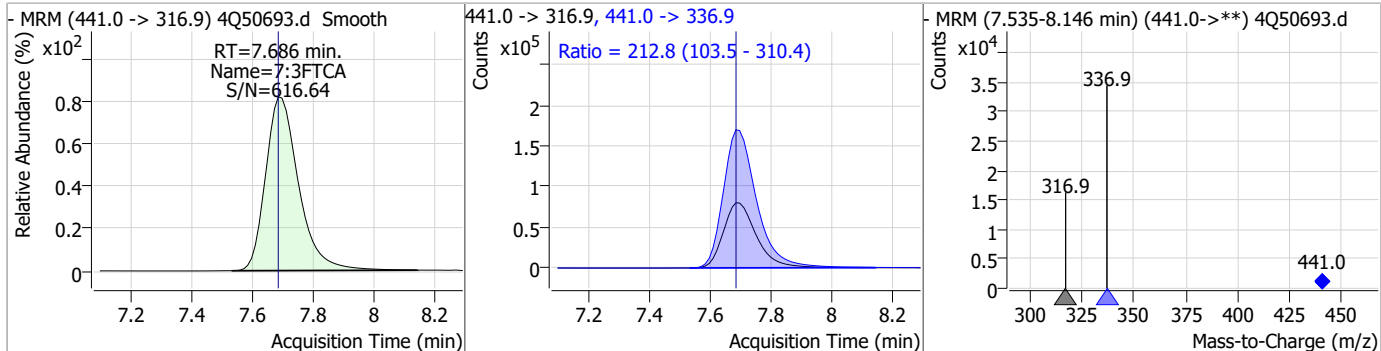
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Perfluorinated Compounds by LC/MS/MS

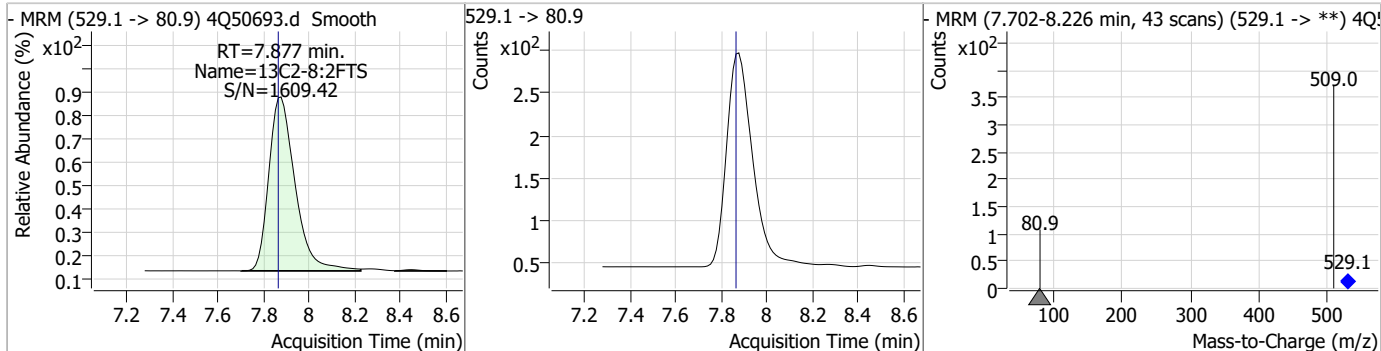


Perfluorinated Compounds by LC/MS/MS

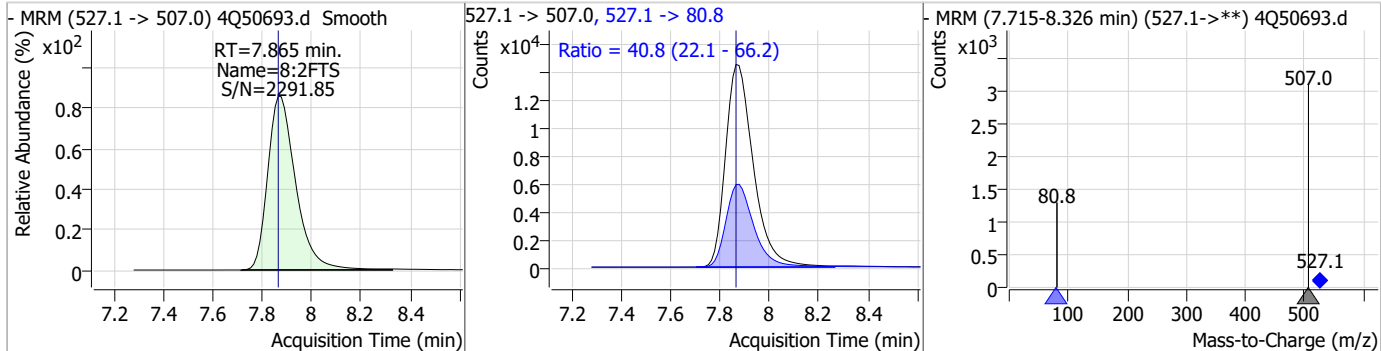
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	695.24	7.69	0.00	606217	441.0 -> 336.9	212.8	103.5	310.4



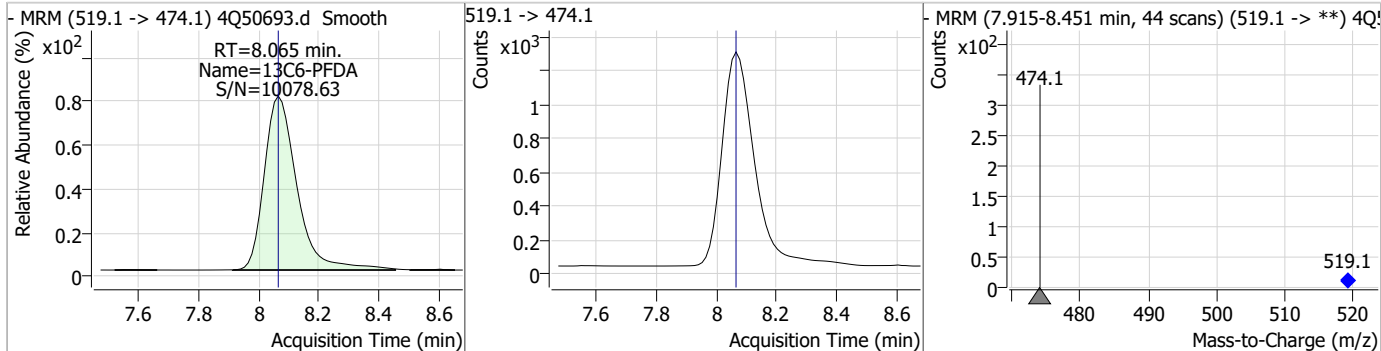
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.85	7.88	0.01	2019				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	100.03	7.86	0.00	113840	527.1 -> 80.8	40.8	22.1	66.2

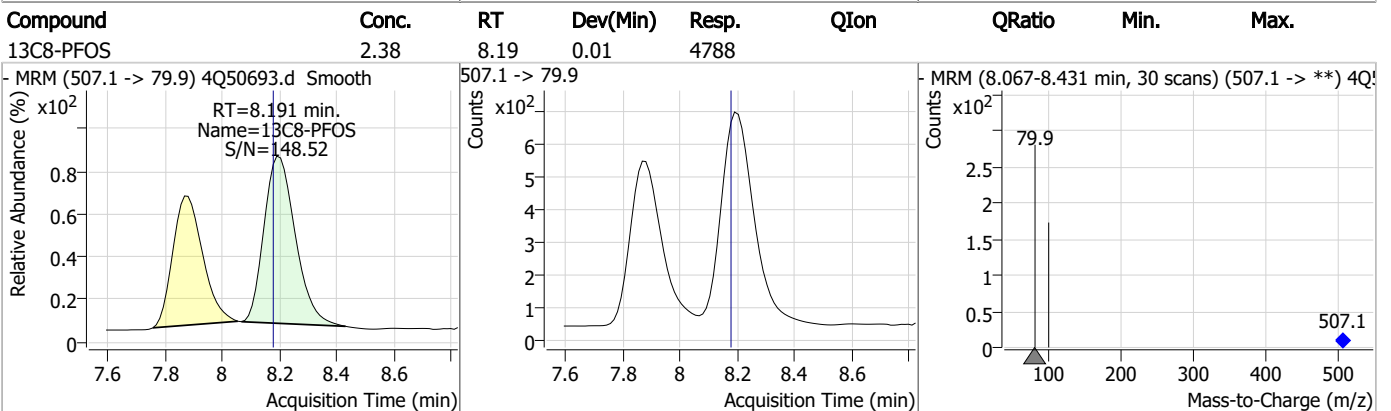
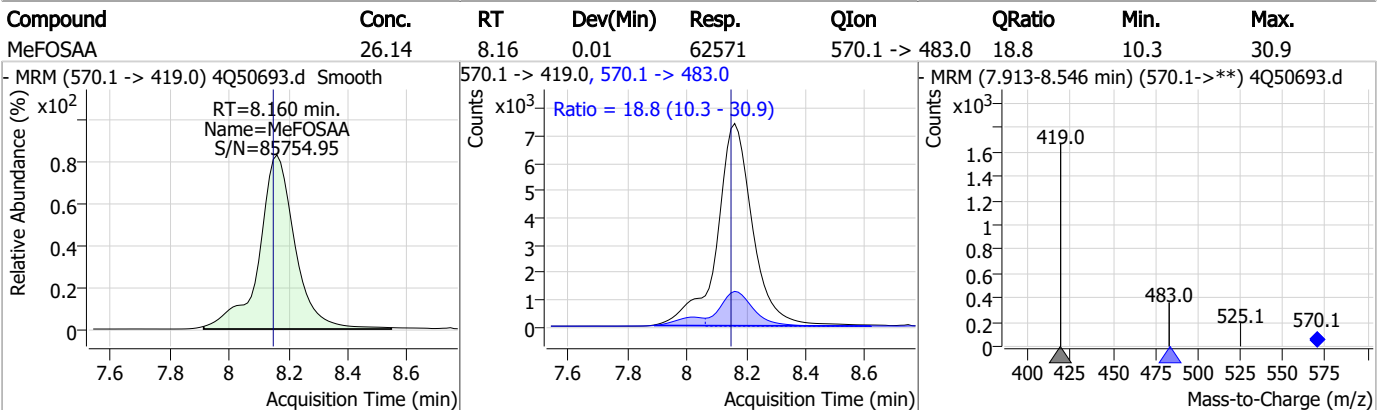
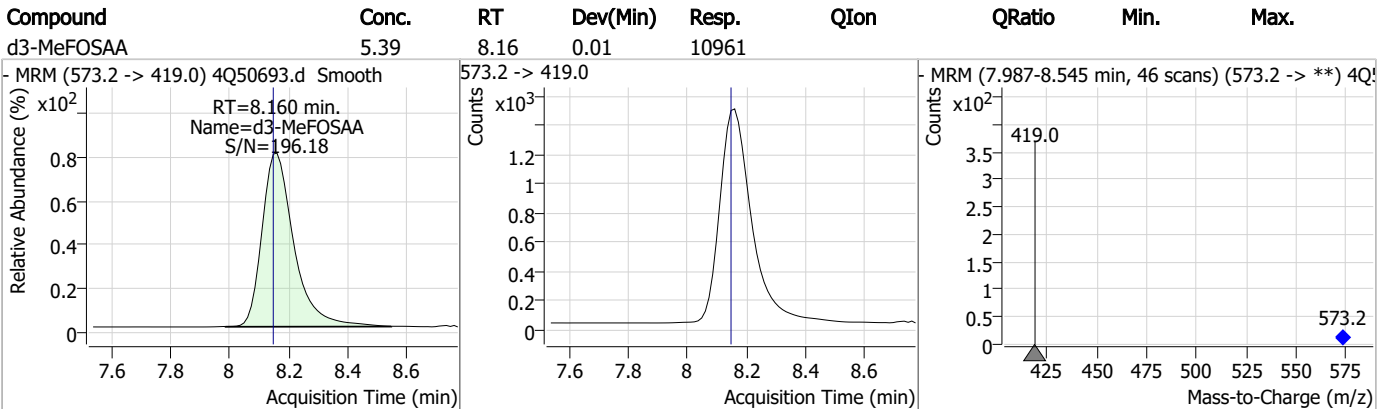
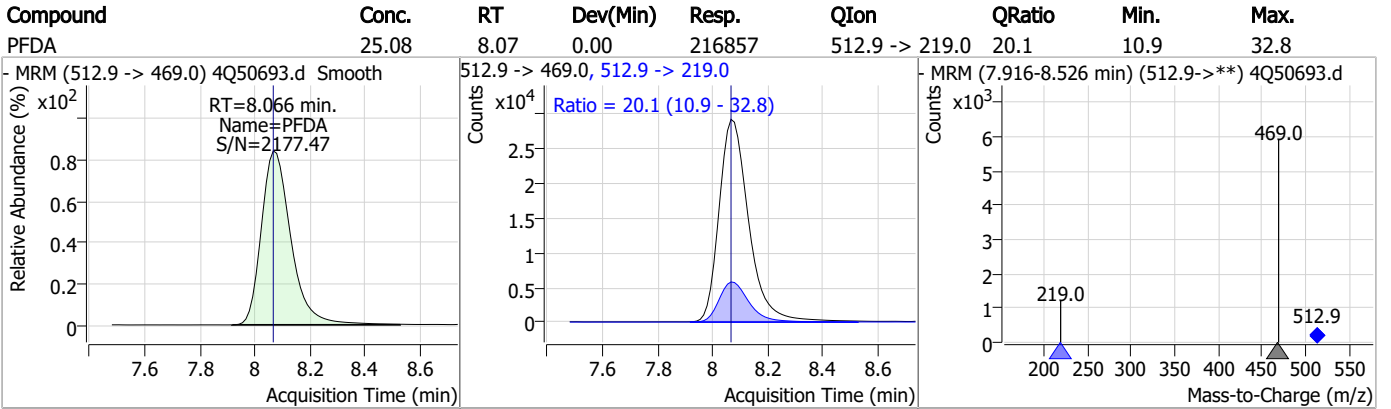


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.32	8.07	0.00	9455				



7.7.8
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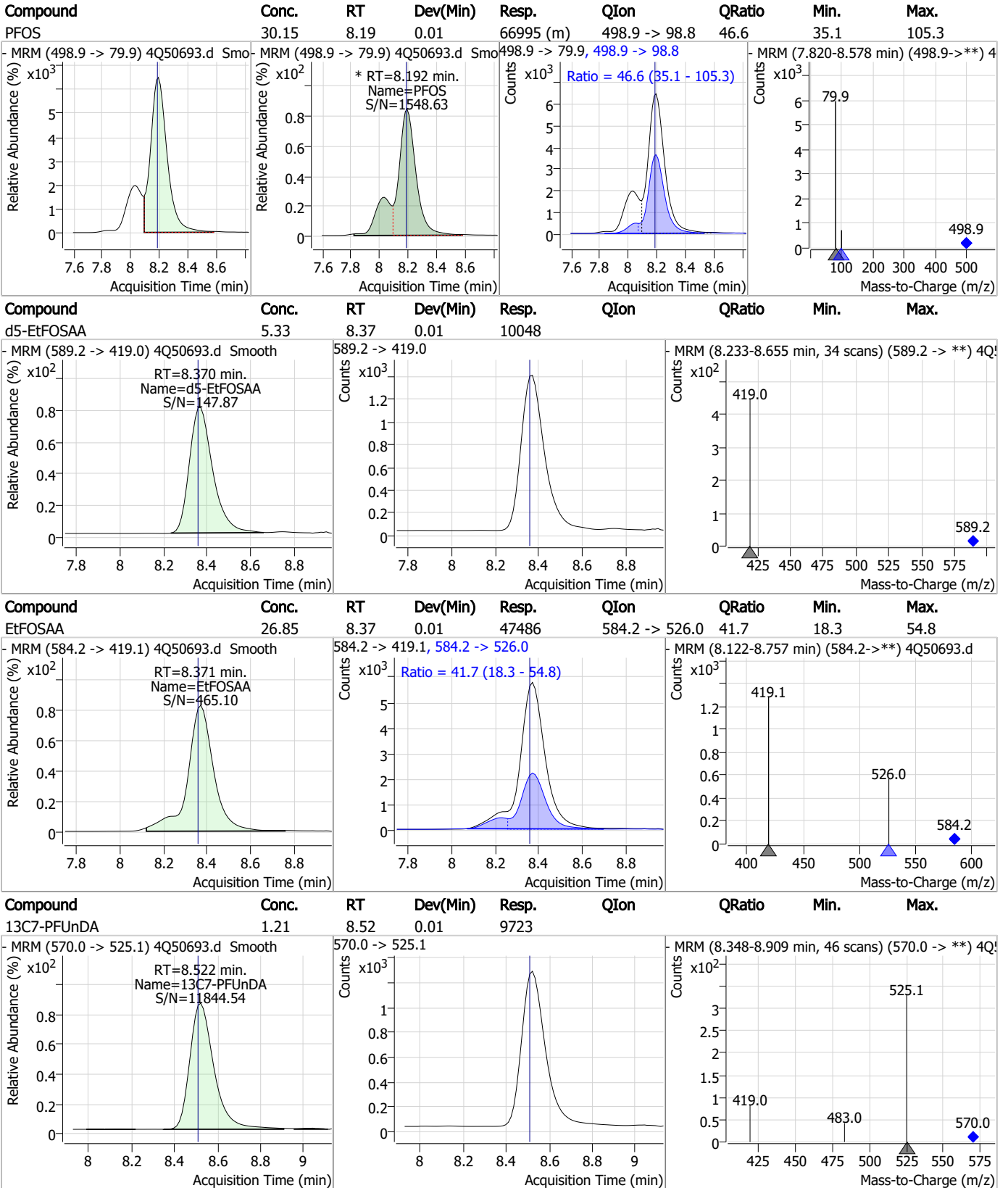
Perfluorinated Compounds by LC/MS/MS



7.7.8

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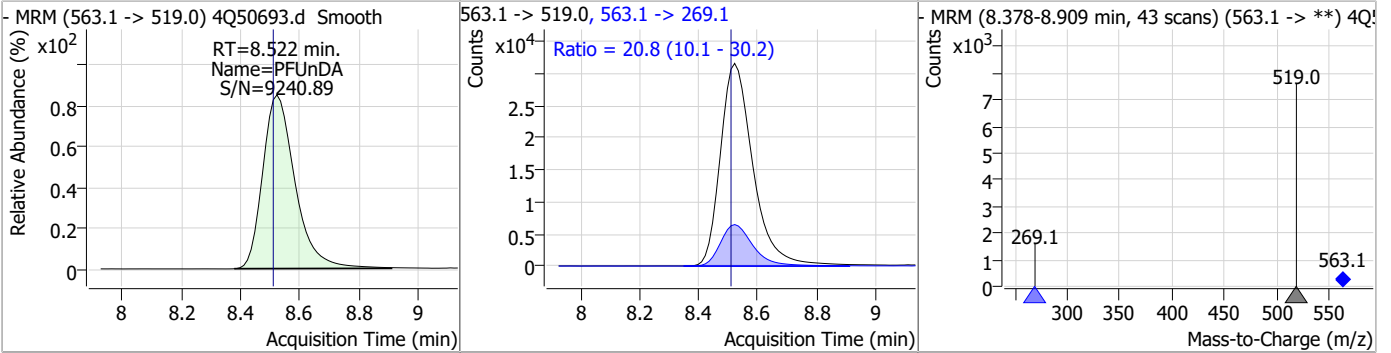
Perfluorinated Compounds by LC/MS/MS



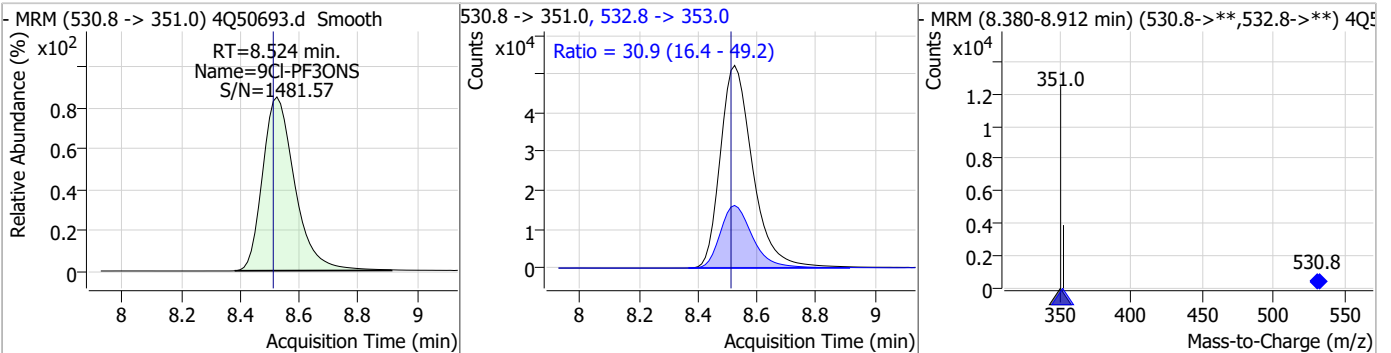
7.7.8
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Perfluorinated Compounds by LC/MS/MS

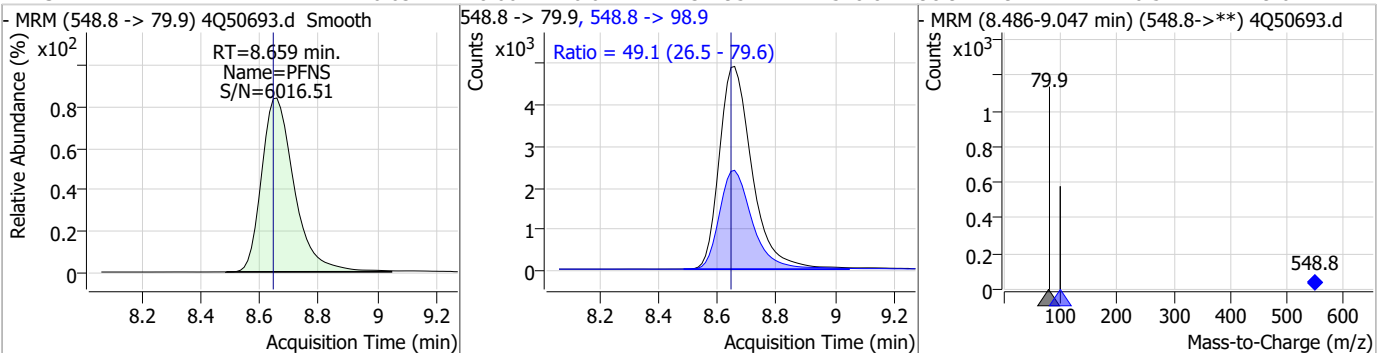
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	26.41	8.52	0.01	239243	563.1 -> 269.1	20.8	10.1	30.2



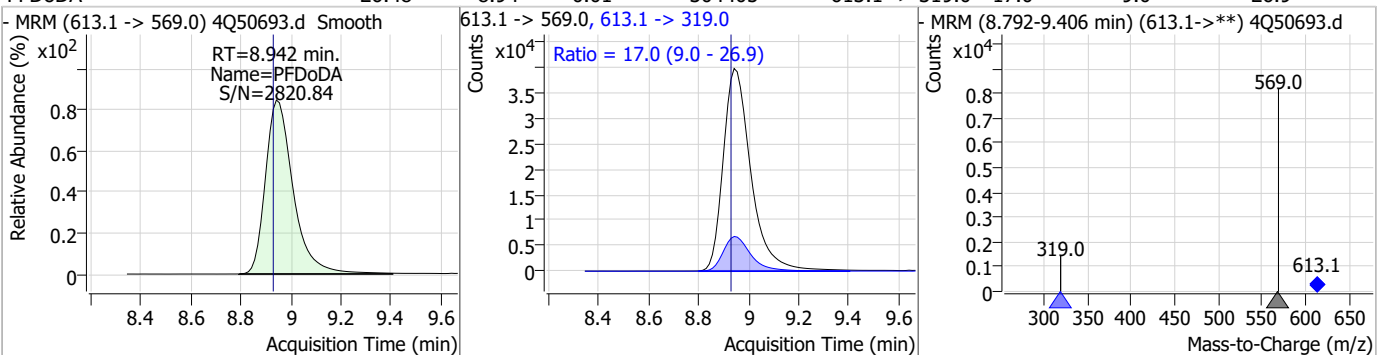
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	47.86	8.52	0.01	394518	532.8 -> 353.0	30.9	16.4	49.2



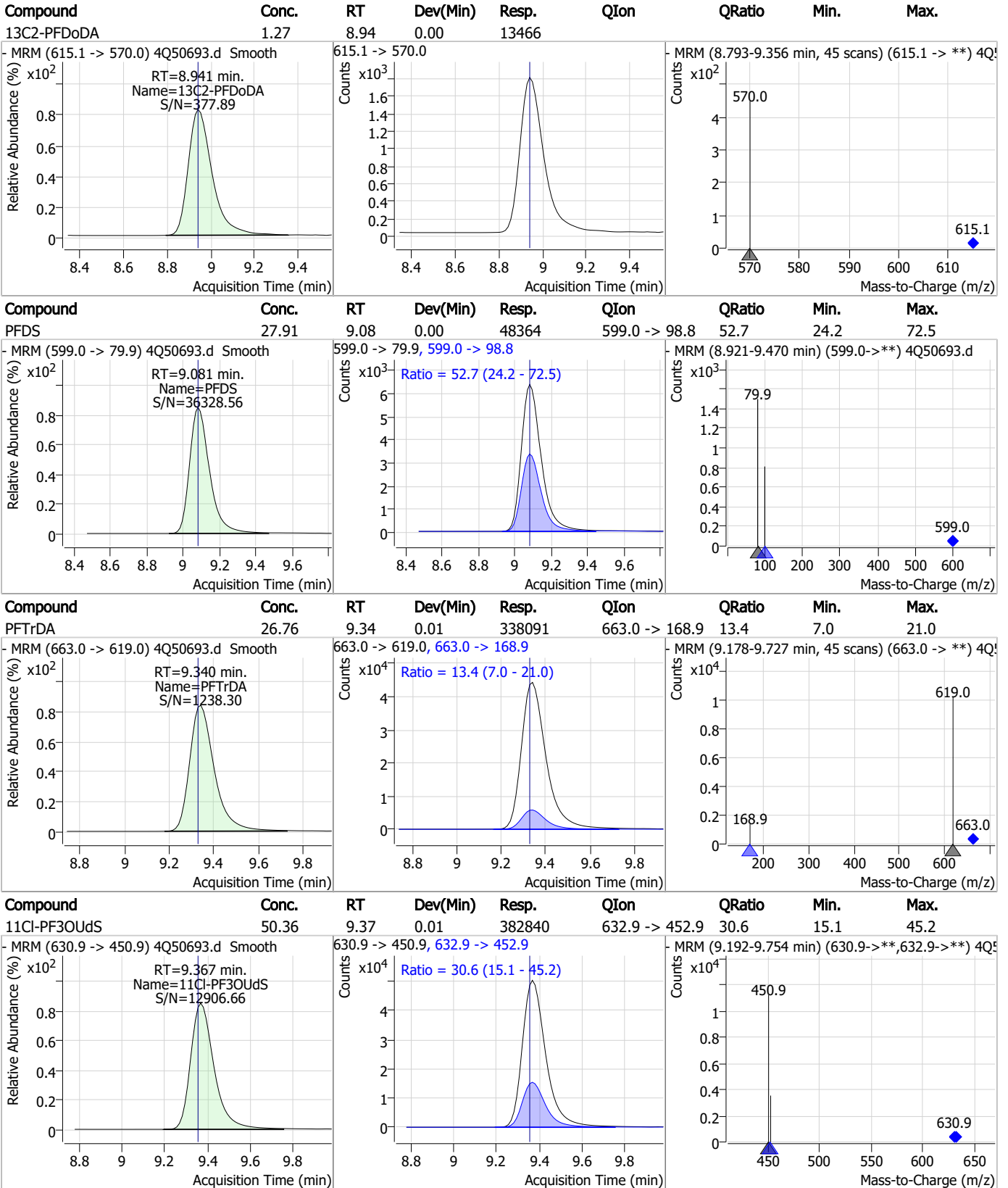
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	26.63	8.66	0.01	37495	548.8 -> 98.9	49.1	26.5	79.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	26.48	8.94	0.01	304405	613.1 -> 319.0	17.0	9.0	26.9

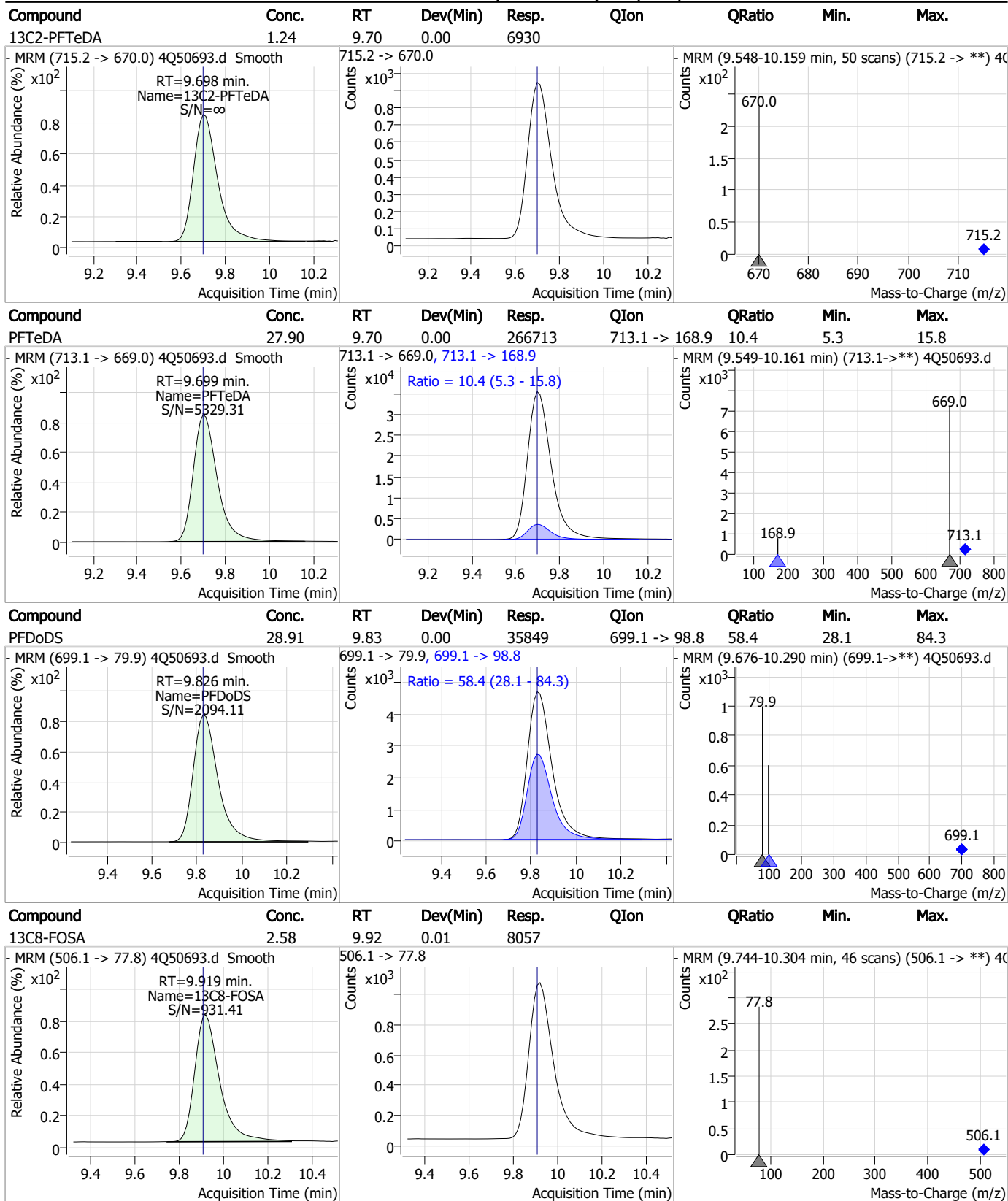


Perfluorinated Compounds by LC/MS/MS



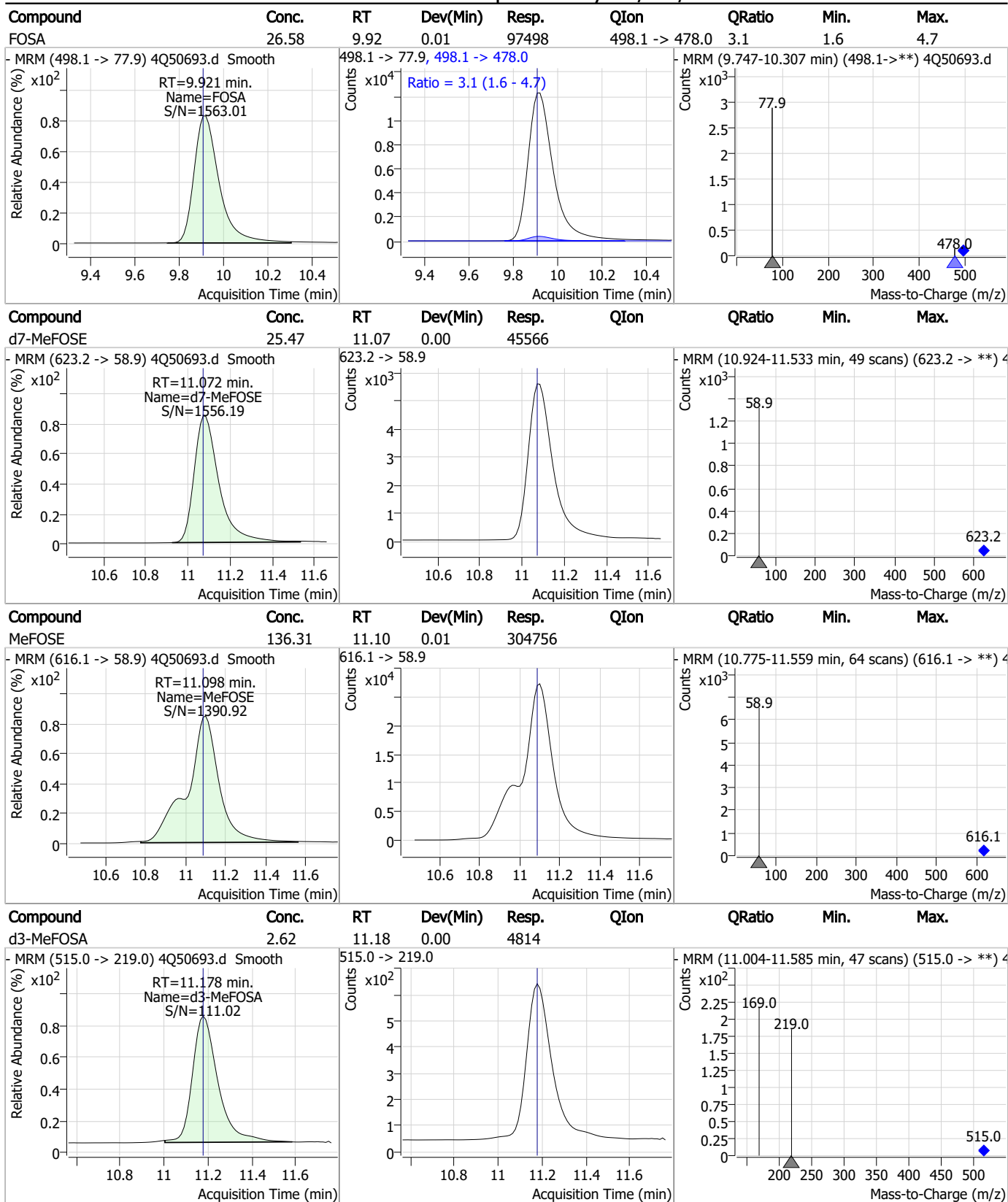
7.7.8
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Perfluorinated Compounds by LC/MS/MS



7.7.8
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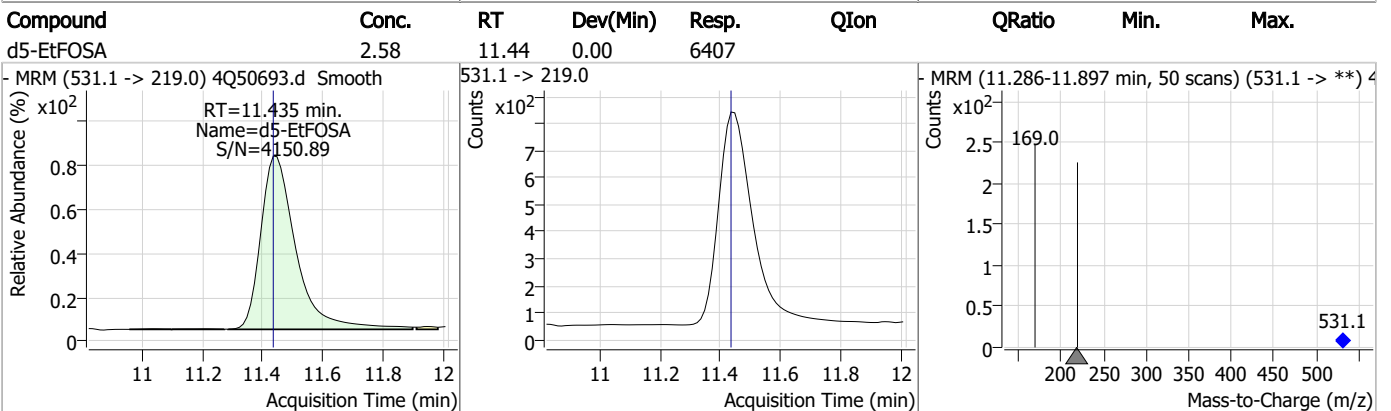
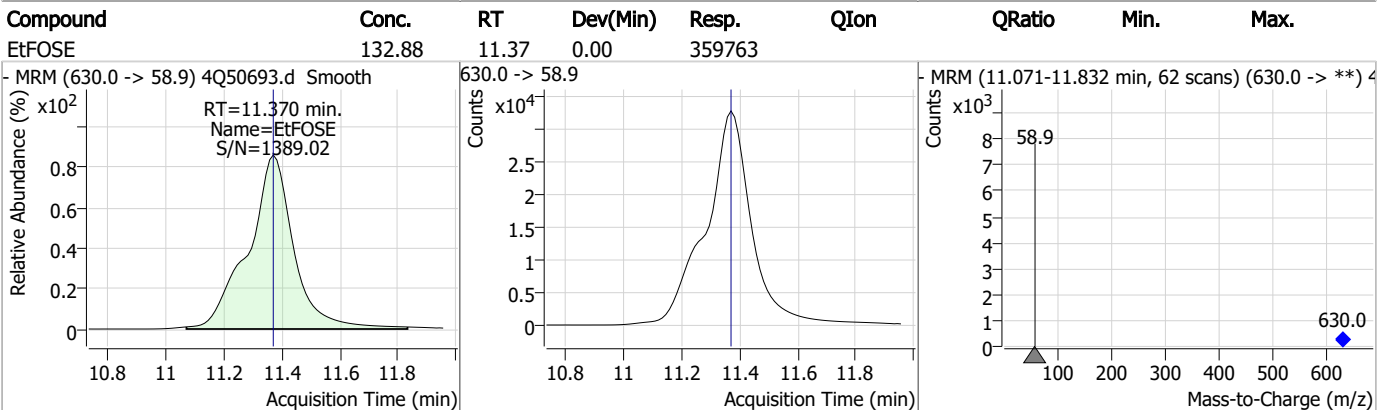
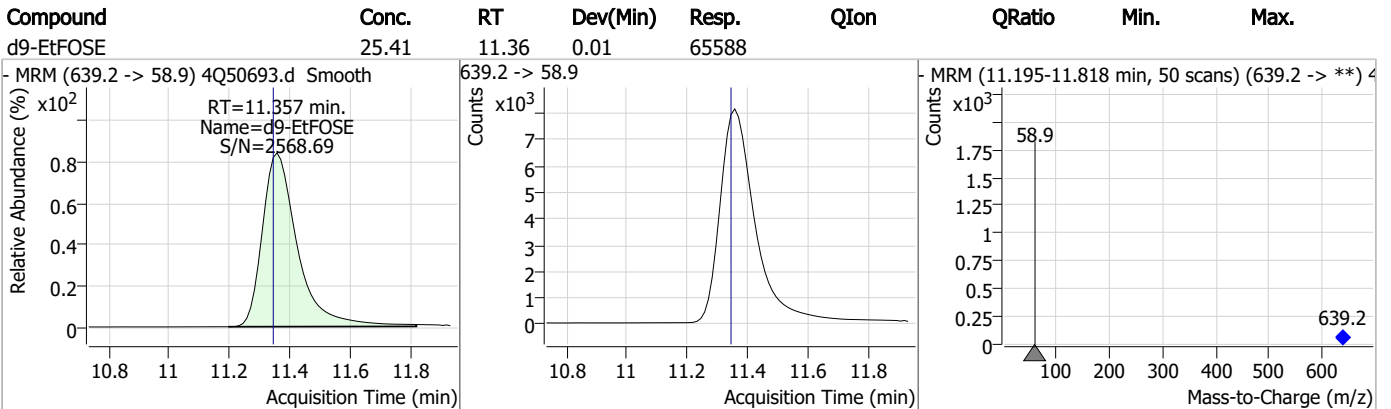
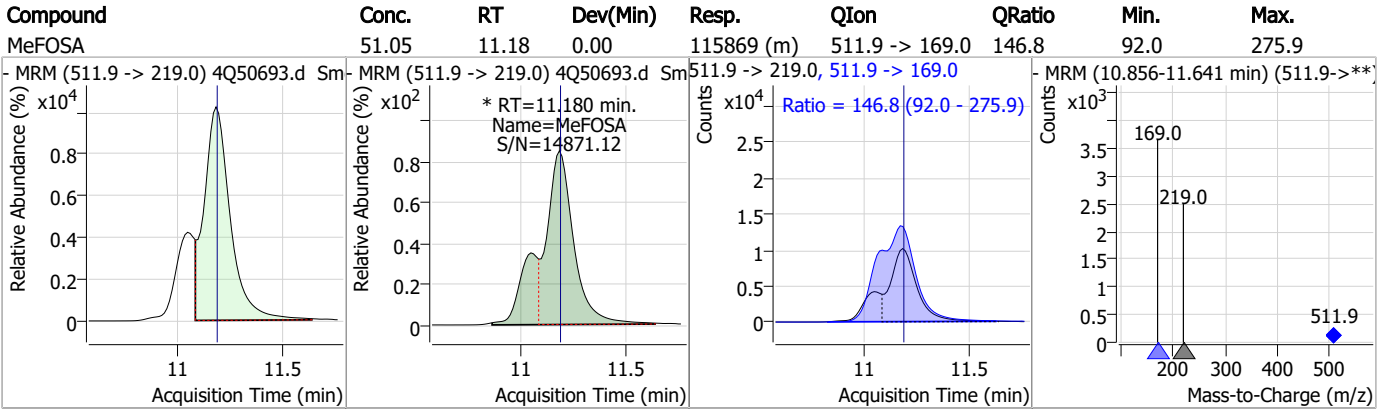
Perfluorinated Compounds by LC/MS/MS



7.7.8

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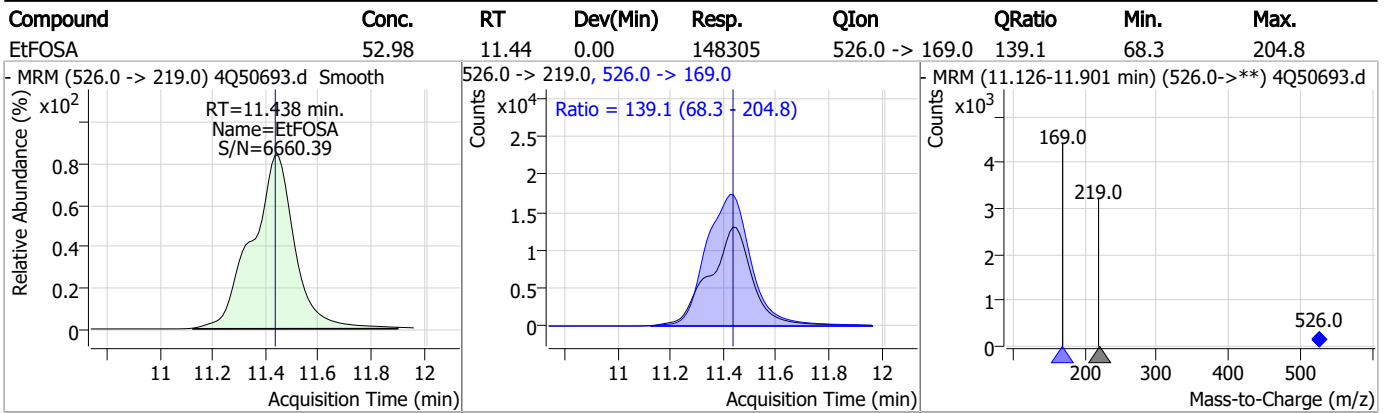
Perfluorinated Compounds by LC/MS/MS



7.7.8

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Perfluorinated Compounds by LC/MS/MS



7.7.8

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Manual Integration Approval Summary

Sample Number: S4Q741-IC741 Method: EPA DRAFT 1633
Lab FileID: 4Q50693.D Analyst approved: 09/18/23 11:34 Anna Ludwig
Injection Time: 09/17/23 14:21 Supervisor approved: 09/18/23 14:43 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.10	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.19	Split peak
MeFOSA	31506-32-8		11.18	Split peak

7.7.8.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50694.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/17/2023 2:36:26 PM
 Sample Name : ic741-8
 Vial : P1-A9
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q741.batch.bin
 Sample Information : OP98180,S4Q741,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.724	216.8 -> 171.9	68976	10.00 µg/L	0.012
M5-PFPeA	4.228	268.3 -> 223.0	28478	5.00 µg/L	0.012
M5-PFHxA	5.420	318.0 -> 273.0	28037	2.50 µg/L	0.012
M4-PFHpA	6.366	367.1 -> 322.0	19310	2.50 µg/L	0.012
M8-PFOA	7.049	421.1 -> 376.0	30806	2.50 µg/L	0.012
M9-PFNA	7.582	472.1 -> 427.0	12437	1.25 µg/L	0.012
M6-PFDA	8.078	519.1 -> 474.1	8176	1.25 µg/L	0.012
M7-PFUnDA	8.522	570.0 -> 525.1	7628	1.25 µg/L	0.012
M2-PFDoDA	8.941	615.1 -> 570.0	12342	1.25 µg/L	0.000
M2-PFTeDA	9.710	715.2 -> 670.0	6847	1.25 µg/L	0.012
M8-FOSA	9.919	506.1 -> 77.8	7594	2.50 µg/L	0.012
M3-PFBS	5.263	302.1 -> 79.9	6621	2.50 µg/L	0.000
M3-PFHxS	7.103	402.1 -> 79.9	4386	2.50 µg/L	0.000
M8-PFOS	8.191	507.1 -> 79.9	4995	2.50 µg/L	0.012
M2-4:2FTS	5.121	329.1 -> 80.9	634	5.00 µg/L	0.012
M2-6:2FTS	6.822	429.1 -> 80.9	1279	5.00 µg/L	0.012
M2-8:2FTS	7.877	529.1 -> 80.9	1981	5.00 µg/L	0.012
M3-MeFOSAA	8.160	573.2 -> 419.0	9596	5.00 µg/L	0.012
M3-HFPO-DA	5.775	286.9 -> 168.9	26485	10.00 µg/L	0.012
M5-EtFOSAA	8.370	589.2 -> 419.0	8603	5.00 µg/L	0.012
M7-MeFOSE	11.072	623.2 -> 58.9	40696	25.00 µg/L	0.000
M9-EtFOSE	11.357	639.2 -> 58.9	55459	25.00 µg/L	0.012
M5-EtFOSA	11.435	531.1 -> 219.0	5904	2.50 µg/L	0.000
M3-MeFOSA	11.178	515.0 -> 219.0	4918	2.50 µg/L	0.000
13C4-PFOS	8.191	502.8 -> 79.9	3977	2.50 µg/L	0.012
13C3-PFBA	2.728	216.0 -> 172.0	34337	5.00 µg/L	0.012
18O2-PFHxS	7.115	403.0 -> 83.9	2700	2.50 µg/L	0.012
13C4-PFOA	7.037	417.1 -> 372.0	34182	2.50 µg/L	0.000
13C2-PFDA	8.066	515.1 -> 470.1	8278	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	10579	1.25 µg/L	0.012
13C2-PFHxA	5.409	315.1 -> 270.0	25398	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.121	329.1 -> 80.9	634	4.30 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.0%		
13C2-6:2FTS	6.822	429.1 -> 80.9	1279	5.60 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.1%		
13C2-8:2FTS	7.877	529.1 -> 80.9	1981	5.62 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.4%		
13C2-PFDoDA	8.941	615.1 -> 570.0	12342	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C2-PFTeDA	9.710	715.2 -> 670.0	6847	1.39 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.8%		
13C3-PFBS	5.263	302.1 -> 79.9	6621	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C3-PFHxS	7.103	402.1 -> 79.9	4386	2.70 µg/L	0.000

7.7.9
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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 = 108.1%	
13C4-PFBA	2.724	216.8 -> 171.9	68976	10.15 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C4-PFHpA	6.366	367.1 -> 322.0	19310	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C5-PFHxA	5.420	318.0 -> 273.0	28037	2.43 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C5-PFPeA	4.228	268.3 -> 223.0	28478	4.76 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C6-PFDA	8.078	519.1 -> 474.1	8176	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C7-PFUnDA	8.522	570.0 -> 525.1	7628	1.07 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 86.0%	
13C8-FOSA	9.919	506.1 -> 77.8	7594	2.76 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.6%	
13C8-PFOA	7.049	421.1 -> 376.0	30806	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C8-PFOS	8.191	507.1 -> 79.9	4995	2.83 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.0%	
13C9-PFNA	7.582	472.1 -> 427.0	12437	1.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.9%	
d3-MeFOSAA	8.160	573.2 -> 419.0	9596	5.37 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C3-HFPO-DA	5.775	286.9 -> 168.9	26485	9.64 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
d3-MeFOSA	11.178	515.0 -> 219.0	4918	3.05 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 122.0%	
d5-EtFOSAA	8.370	589.2 -> 419.0	8603	5.20 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
d7-MeFOSE	11.072	623.2 -> 58.9	40696	25.90 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
d9-EtFOSE	11.357	639.2 -> 58.9	55459	24.46 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
d5-EtFOSA	11.435	531.1 -> 219.0	5904	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.4%	
Target Compounds					QValue
4:2FTS	5.122	327.1 -> 307.0	280007	260.89 µg/L	97
		327.1 -> 80.9	107381		
6:2FTS	6.822	427.1 -> 407.0	301660	204.16 µg/L	95
		427.1 -> 80.9	105546		
8:2FTS	7.877	527.1 -> 507.0	228904	205.00 µg/L	92
		527.1 -> 80.8	89507		
EtFOSAA	8.371	584.2 -> 419.1	114341	75.49 µg/L	91
		584.2 -> 526.0	47733		
FOSA	9.921	498.1 -> 77.9	233804	67.64 µg/L	99
		498.1 -> 478.0	6795		
MeFOSAA	8.160	570.1 -> 419.0	139161	66.42 µg/L	97
		570.1 -> 483.0	26838		
PFBA	2.720	212.8 -> 168.9	715556	271.11 µg/L	100
PFBS	5.264	298.7 -> 79.9	191616	61.54 µg/L	96
		298.7 -> 98.8	73888		
PFDA	8.066	512.9 -> 469.0	487767	65.22 µg/L	97
		512.9 -> 219.0	100403		
PFDoDA	8.942	613.1 -> 569.0	705251	66.93 µg/L	98
		613.1 -> 319.0	118849		
PFDS	9.081	599.0 -> 79.9	113593	62.83 µg/L	95

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	59067			
PFHpA	6.366	363.1 -> 319.0	812393	70.83	µg/L	99
		363.1 -> 169.0	160884			
PFHpS	7.685	449.0 -> 79.9	134680	62.91	µg/L	100
		449.0 -> 98.9	71032			
PFHxA	5.411	313.0 -> 269.0	706309	71.23	µg/L	100
		313.0 -> 118.9	22016			
PFHxS	7.104	398.7 -> 79.9	117215	60.54	µg/L	m 88
		398.7 -> 98.9	59820			
PFNA	7.583	463.0 -> 419.0	520711	68.82	µg/L	98
		463.0 -> 219.0	123306			
PFNS	8.647	548.8 -> 79.9	82628	56.25	µg/L	96
		548.8 -> 98.9	41501			
PFOA	7.051	413.0 -> 369.0	966570	69.87	µg/L	99
		413.0 -> 169.0	205869			
PFOS	8.192	498.9 -> 79.9	153363	66.16	µg/L	m 74
		498.9 -> 98.8	74691			
PFPeA	4.229	263.0 -> 219.0	1244877	138.64	µg/L	100
PFPeS	6.355	349.1 -> 79.9	108655	60.20	µg/L	92
		349.1 -> 98.9	46921			
PFTeDA	9.699	713.1 -> 669.0	621561	65.81	µg/L	100
		713.1 -> 168.9	64123			
PFTrDA	9.340	663.0 -> 619.0	759006	65.54	µg/L	98
		663.0 -> 168.9	100167			
PFUnDA	8.522	563.1 -> 519.0	500027	70.36	µg/L	99
		563.1 -> 269.1	102426			
11Cl-PF3OUdS	9.367	630.9 -> 450.9	873418	124.56	µg/L	99
		632.9 -> 452.9	269358			
9Cl-PF3ONS	8.524	530.8 -> 351.0	839668	110.43	µg/L	98
		532.8 -> 353.0	264420			
ADONA	6.629	376.9 -> 250.9	2563235	128.86	µg/L	99
		376.9 -> 84.8	653520			
HFPO-DA	5.764	284.9 -> 168.9	384897	134.06	µg/L	98
		284.9 -> 184.9	50392			
3:3FTCA	3.718	241.0 -> 177.0	181074	385.75	µg/L	96
		241.0 -> 117.0	20569			
5:3FTCA	6.181	341.0 -> 237.1	2995451	1714.43	µg/L	96
		341.0 -> 217.0	2271000			
7:3FTCA	7.698	441.0 -> 316.9	1421775	1703.72	µg/L	95
		441.0 -> 336.9	3043758			
EtFOSA	11.438	526.0 -> 219.0	351705	136.32	µg/L	100
		526.0 -> 169.0	481320			
EtFOSE	11.370	630.0 -> 58.9	789198	344.74	µg/L	100
MeFOSA	11.180	511.9 -> 219.0	275716	118.89	µg/L	m 74
		511.9 -> 169.0	405398			
MeFOSE	11.098	616.1 -> 58.9	698314	349.72	µg/L	m 100
PFDoDS	9.839	699.1 -> 79.9	83904	64.85	µg/L	99
		699.1 -> 98.8	47970			
NFDHA	5.302	295.0 -> 201.0	66148	112.26	µg/L	97
		295.0 -> 84.9	15912			
PFMBA	4.642	279.0 -> 85.1	655945	137.60	µg/L	100
PFMPA	3.358	229.0 -> 84.9	739166	138.35	µg/L	100
PFEESA	5.795	314.8 -> 134.9	1138879	118.12	µg/L	100
		314.8 -> 82.9	37187			

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

7.7.9
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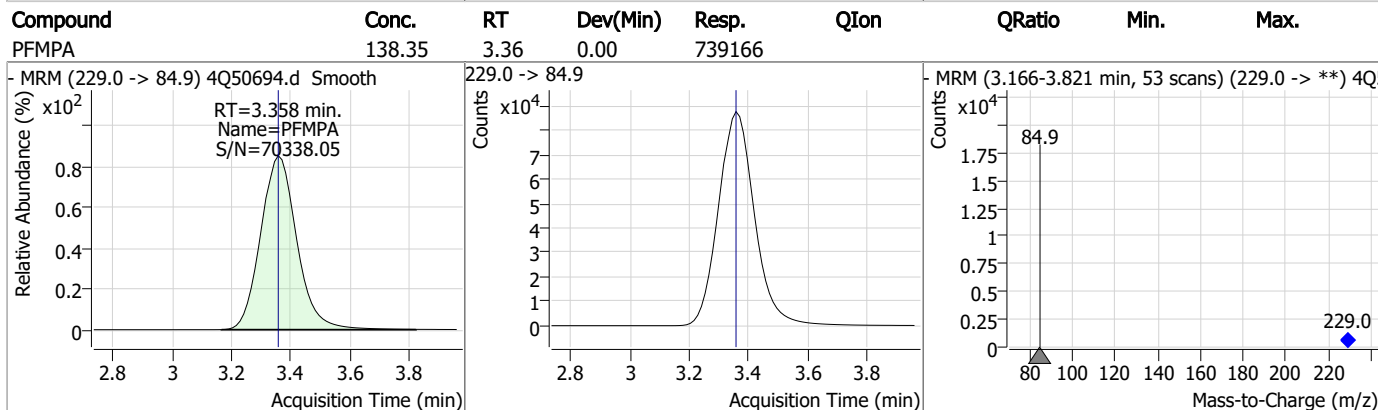
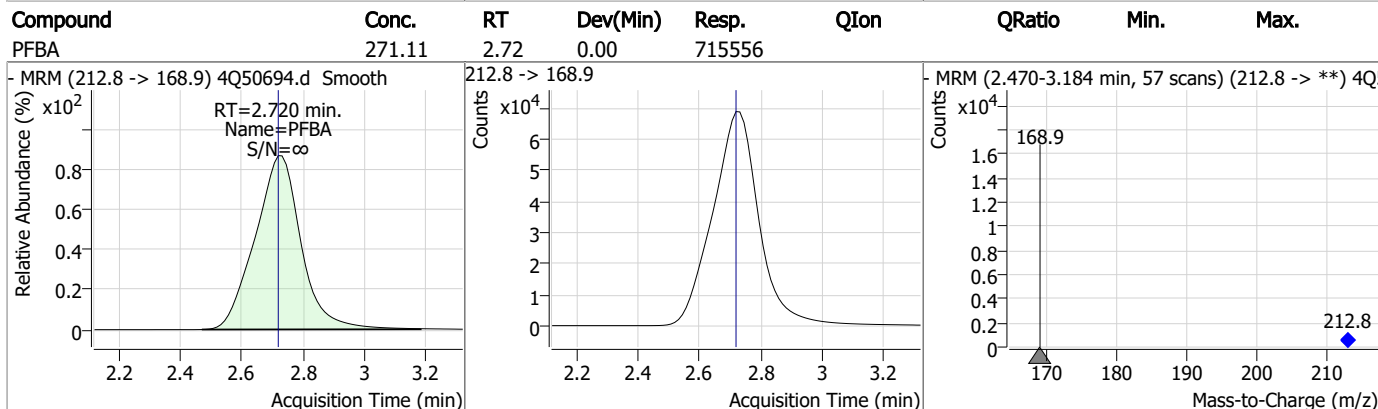
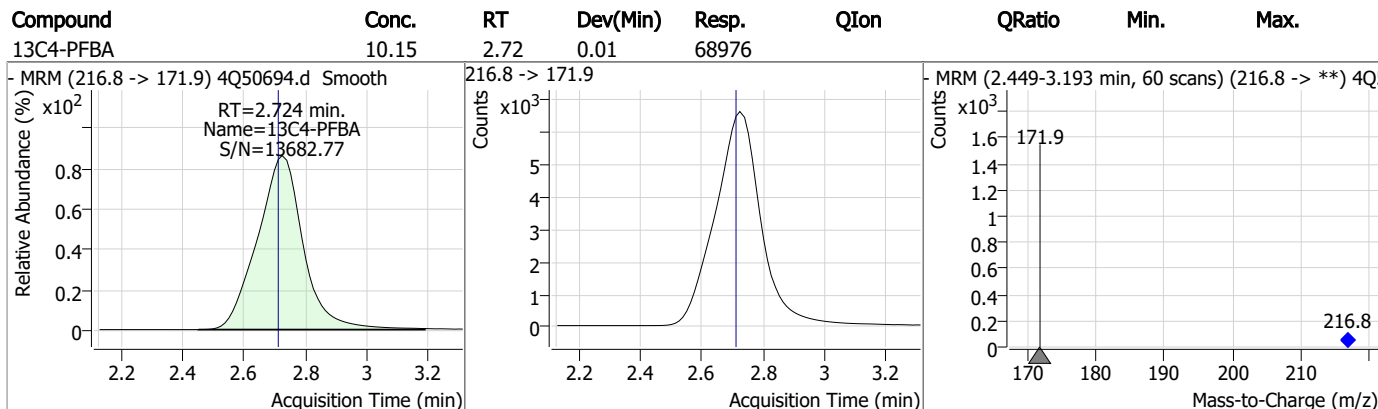
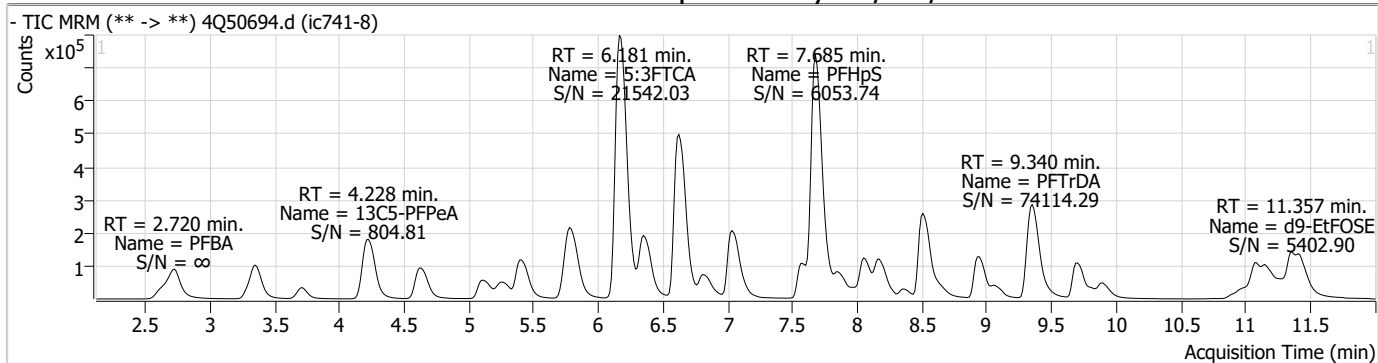
Perfluorinated Compounds by LC/MS/MS

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

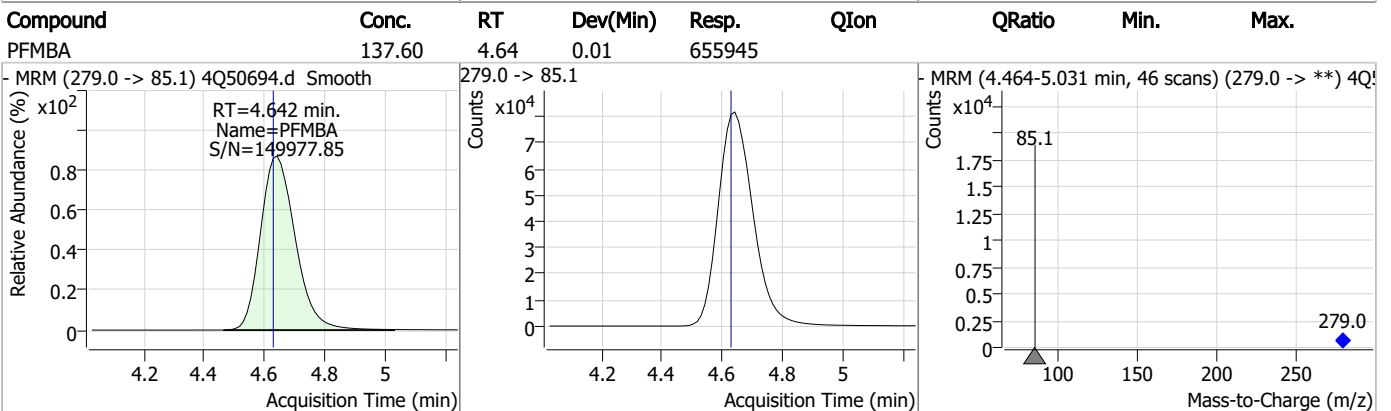
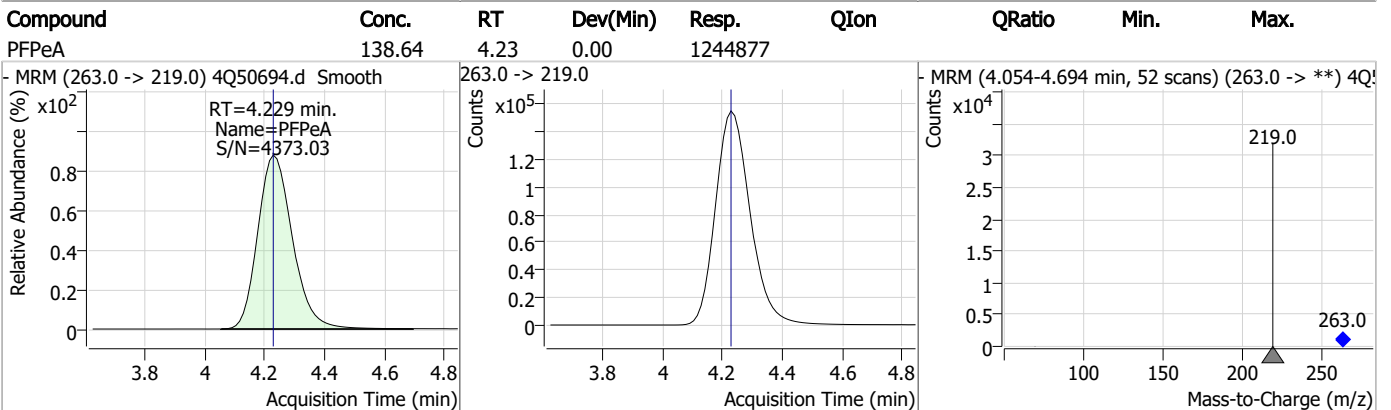
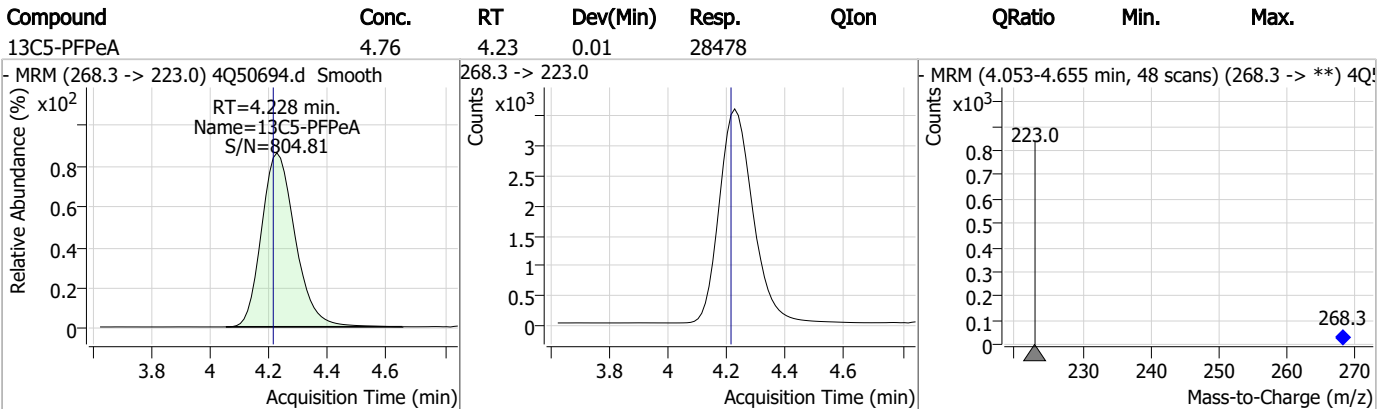
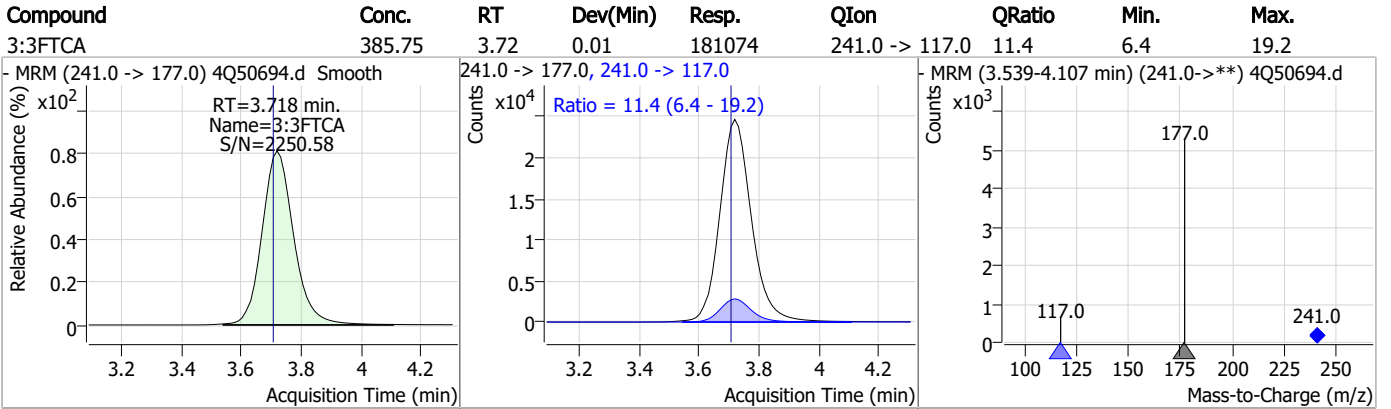
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Perfluorinated Compounds by LC/MS/MS



7.7.9
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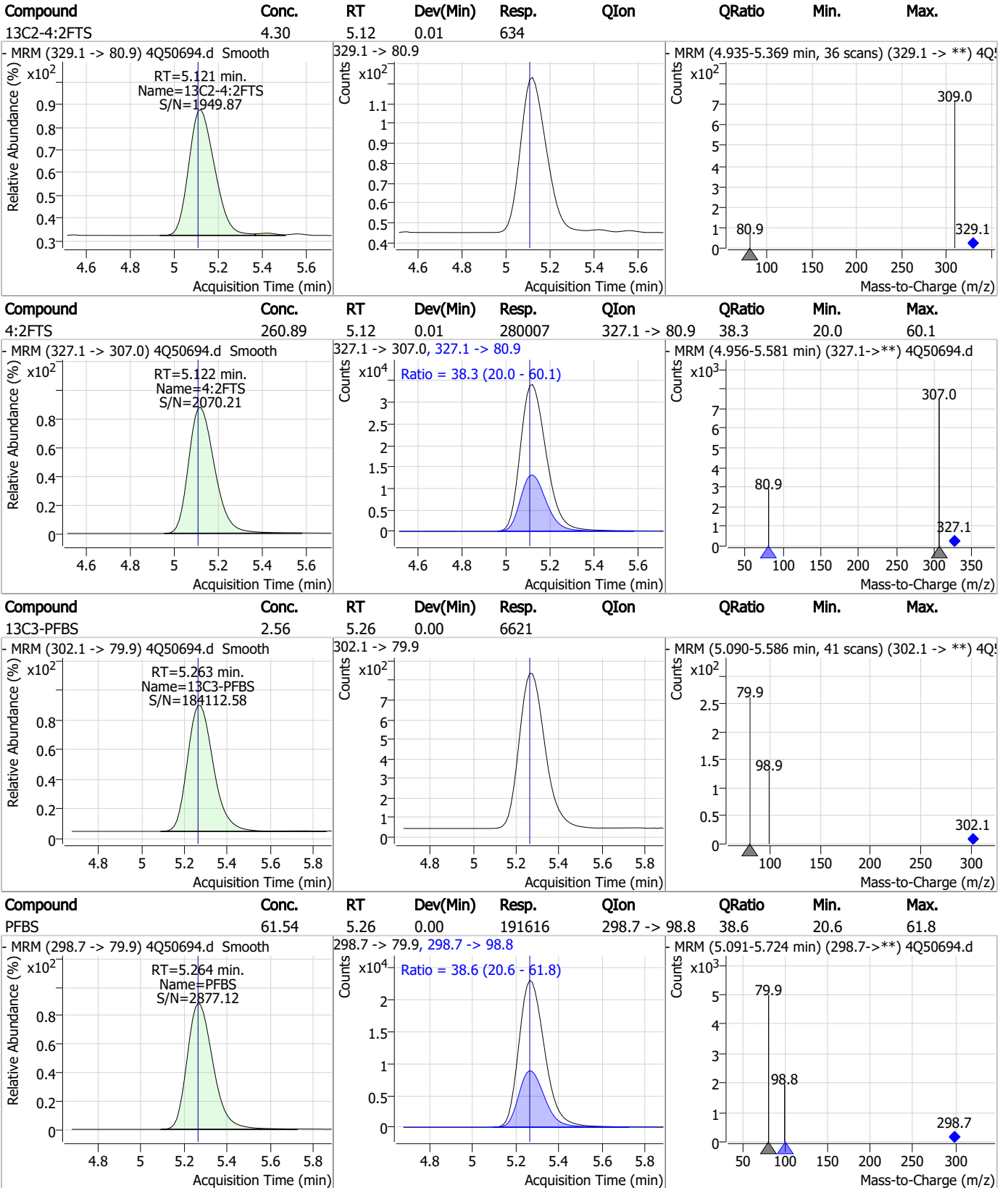
Perfluorinated Compounds by LC/MS/MS



7.7.9

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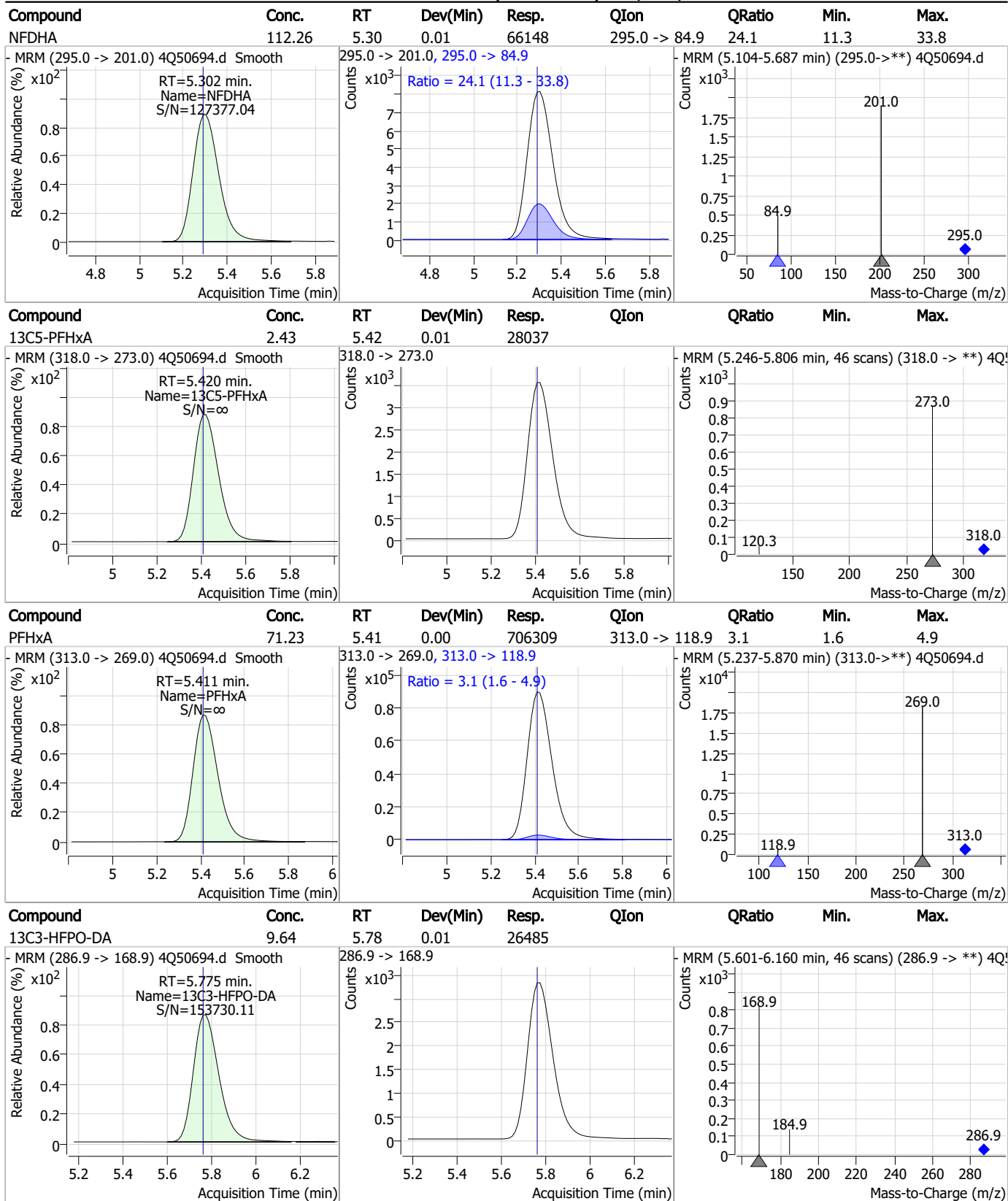
Perfluorinated Compounds by LC/MS/MS



7.7.9

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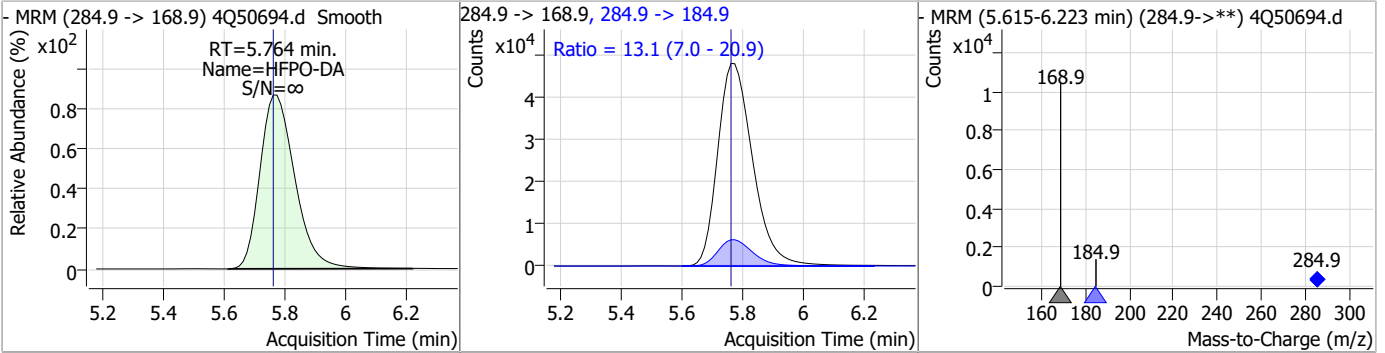
Perfluorinated Compounds by LC/MS/MS



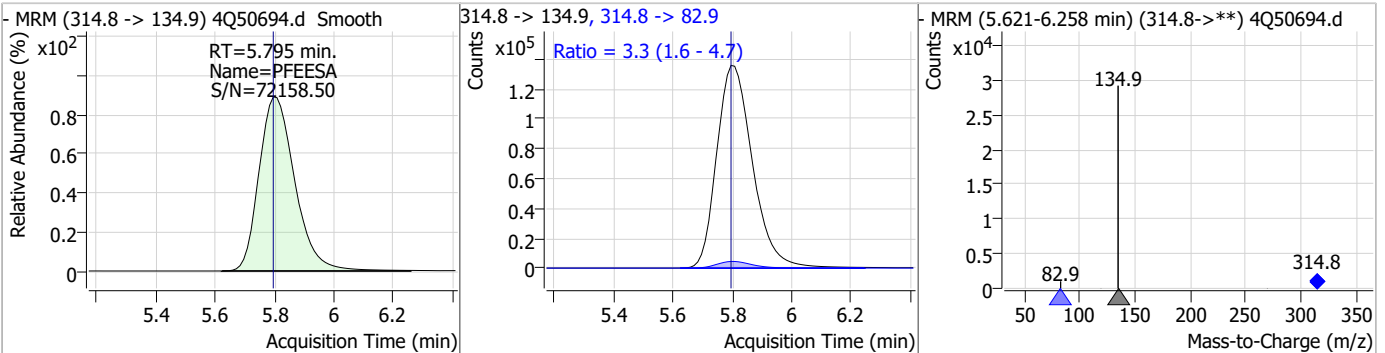
7.7.9
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Perfluorinated Compounds by LC/MS/MS

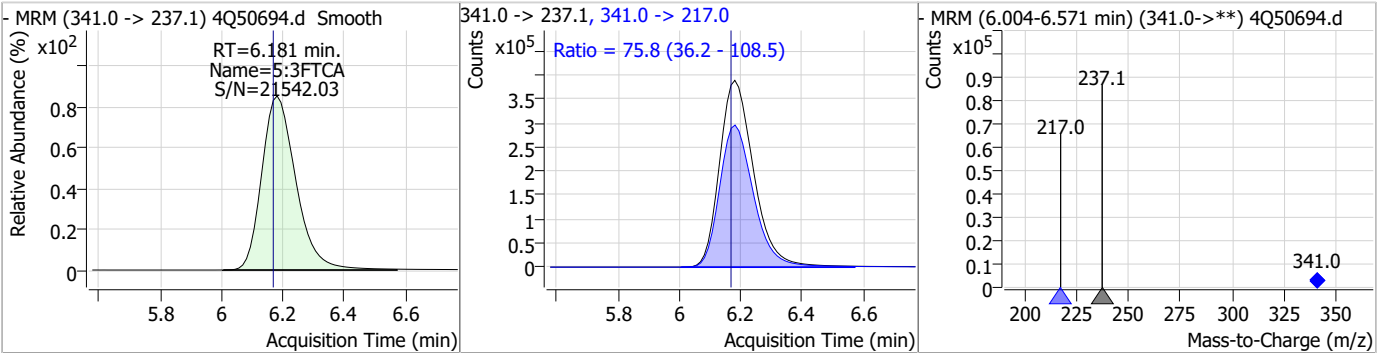
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	134.06	5.76	0.00	384897	284.9 -> 184.9	13.1	7.0	20.9



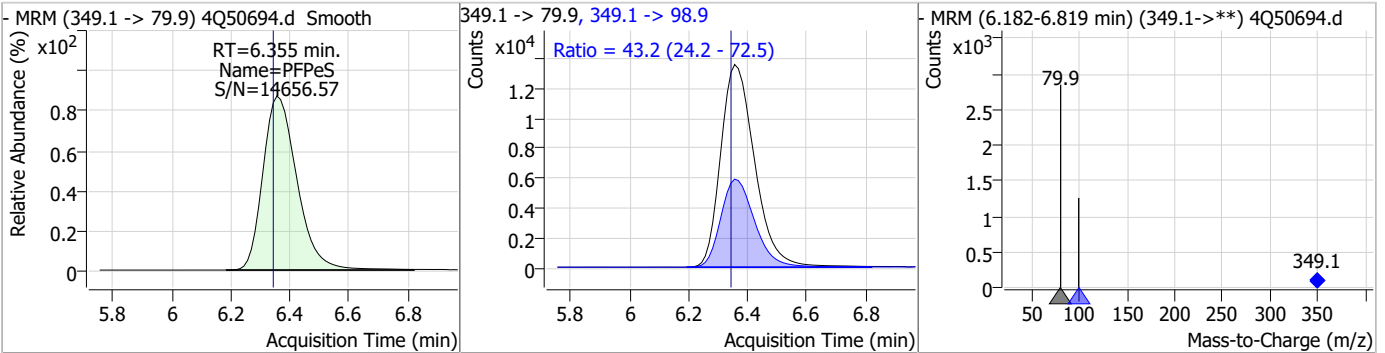
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	118.12	5.80	0.00	1138879	314.8 -> 82.9	3.3	1.6	4.7



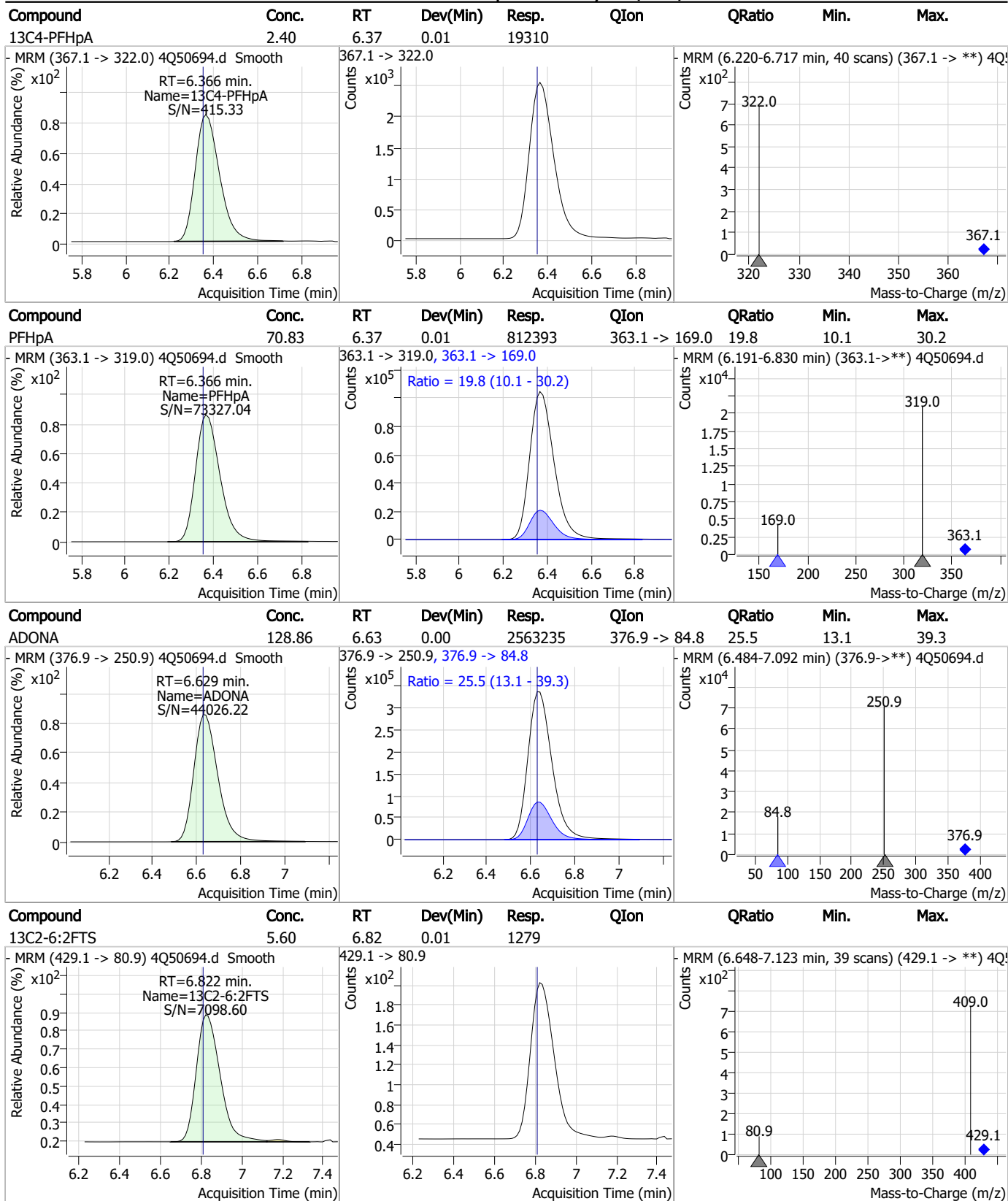
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1714.43	6.18	0.01	2995451	341.0 -> 217.0	75.8	36.2	108.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	60.20	6.36	0.01	108655	349.1 -> 98.9	43.2	24.2	72.5

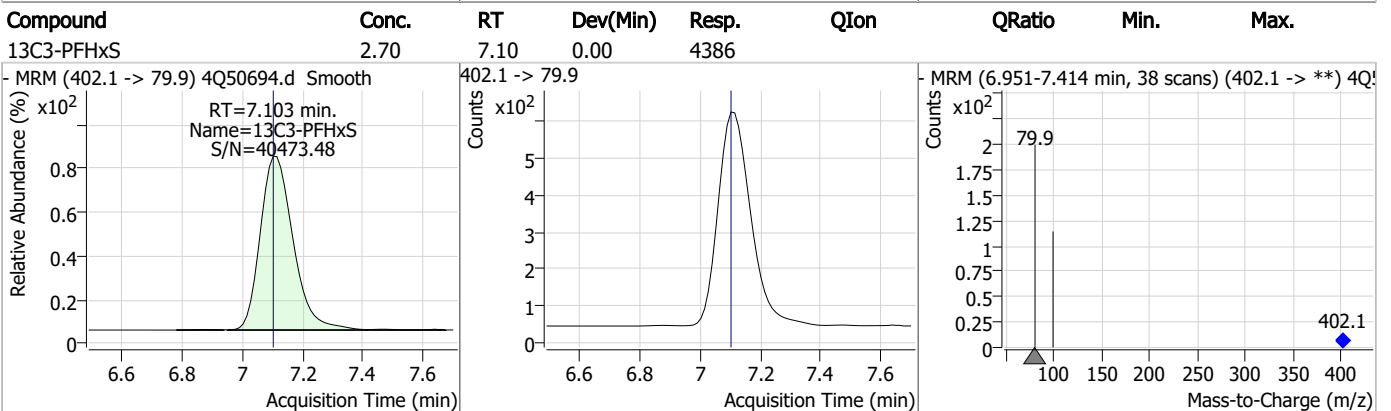
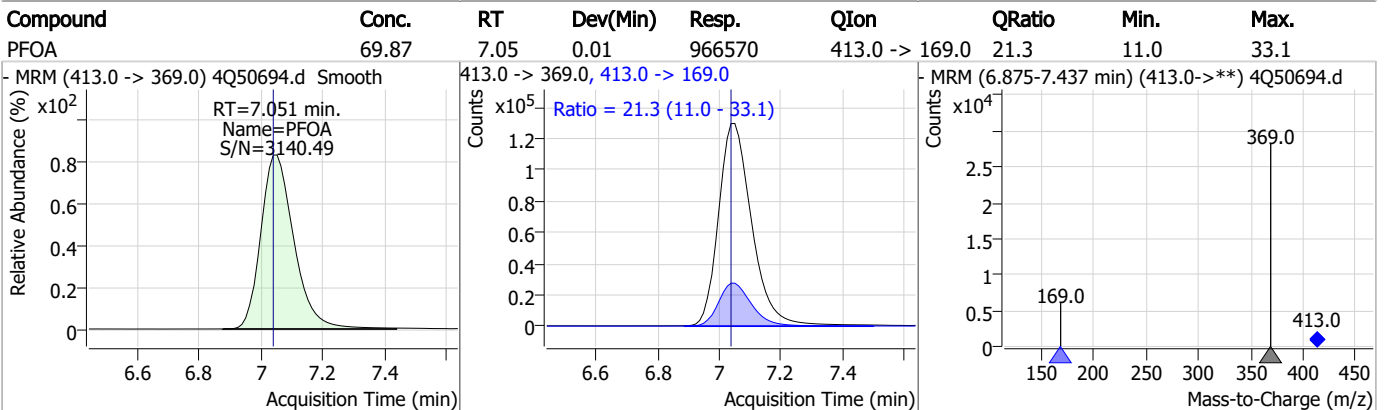
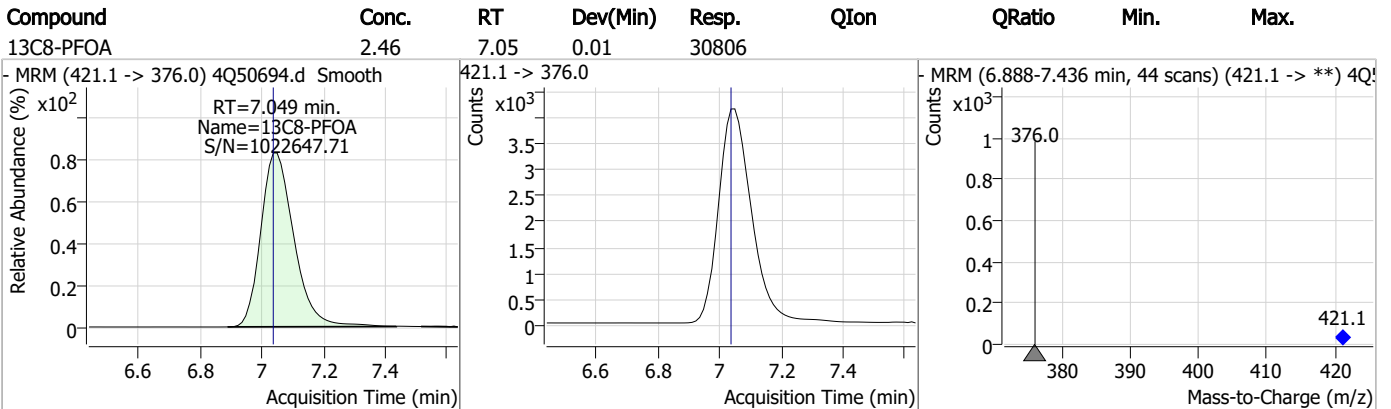
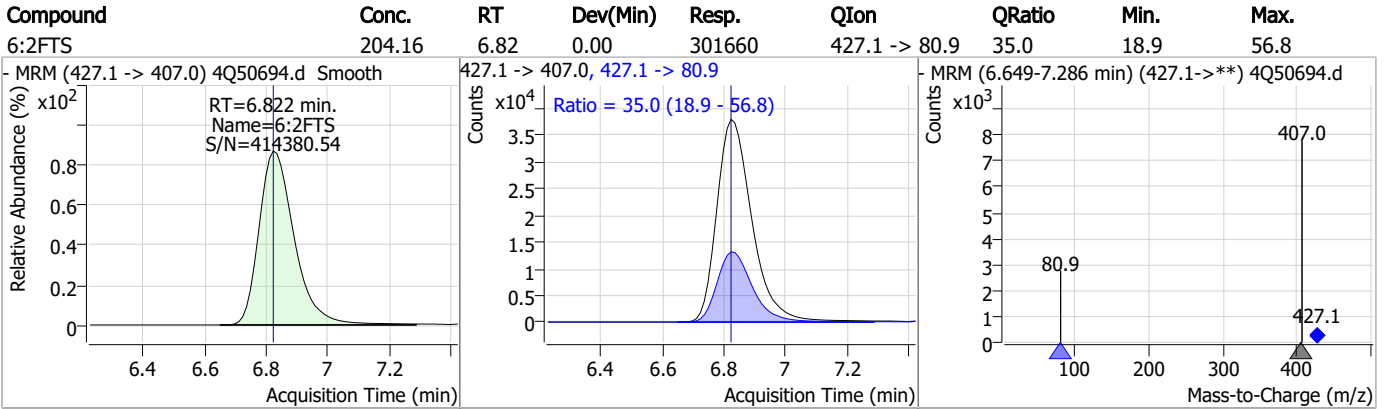


Perfluorinated Compounds by LC/MS/MS

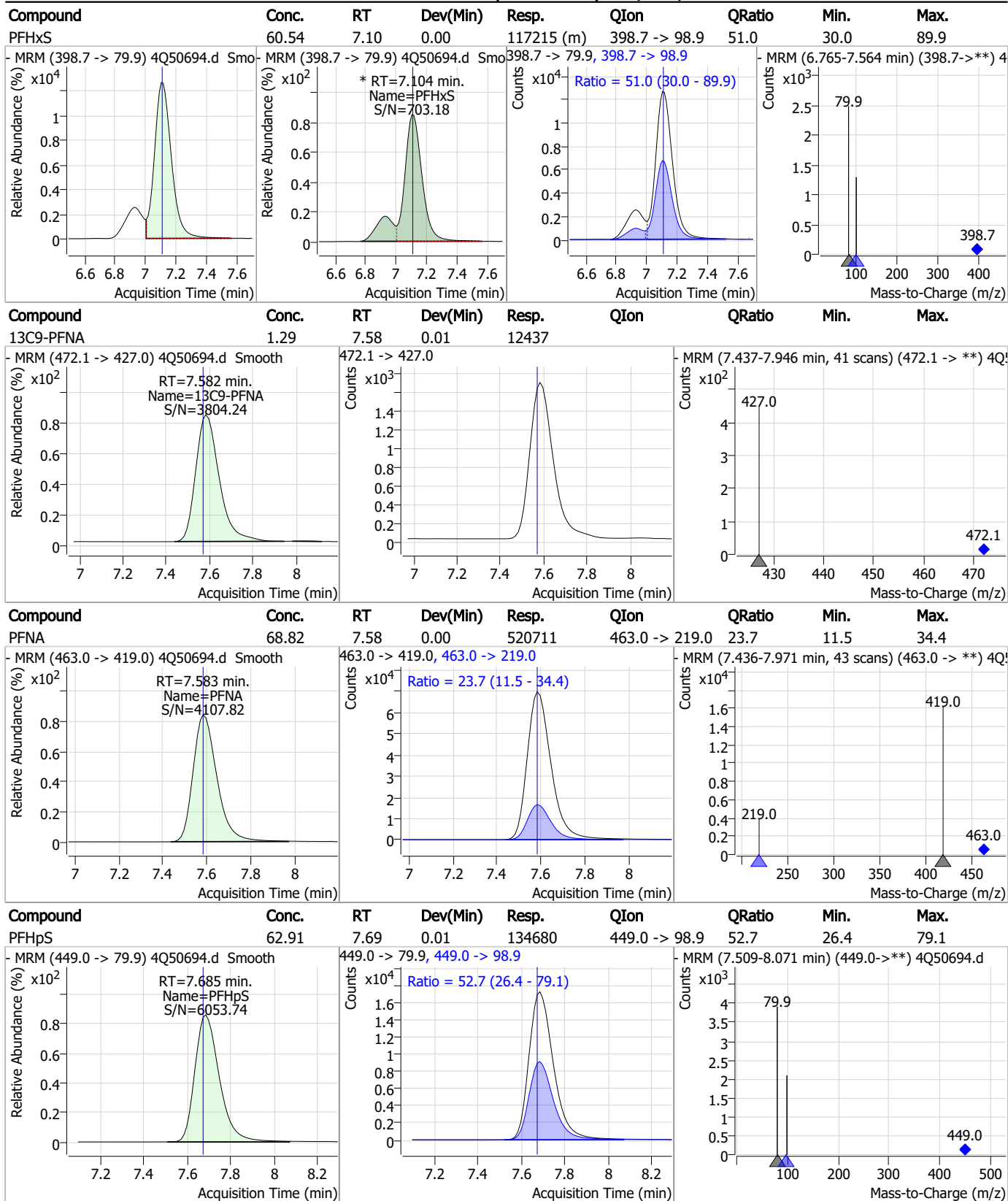


7.7.9
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Perfluorinated Compounds by LC/MS/MS

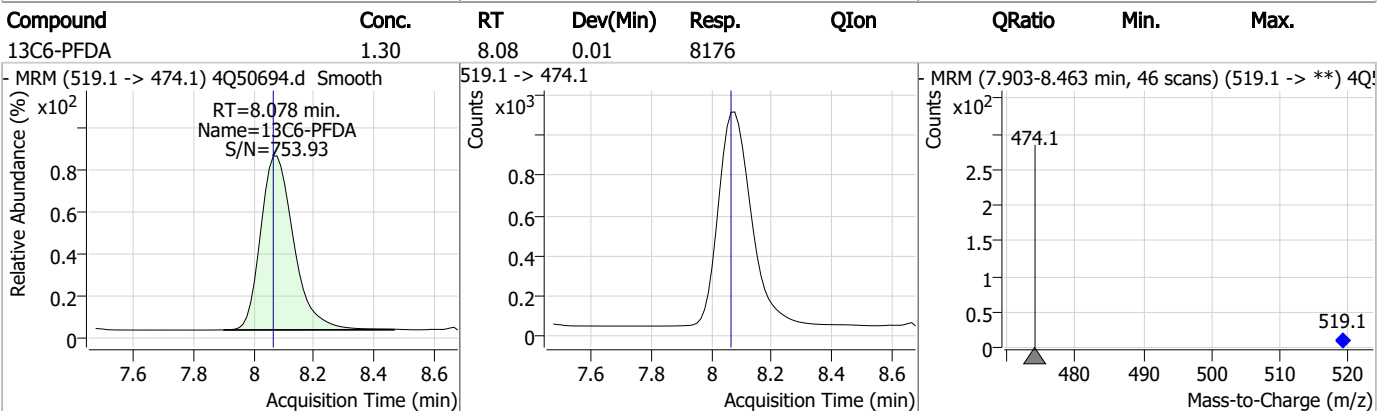
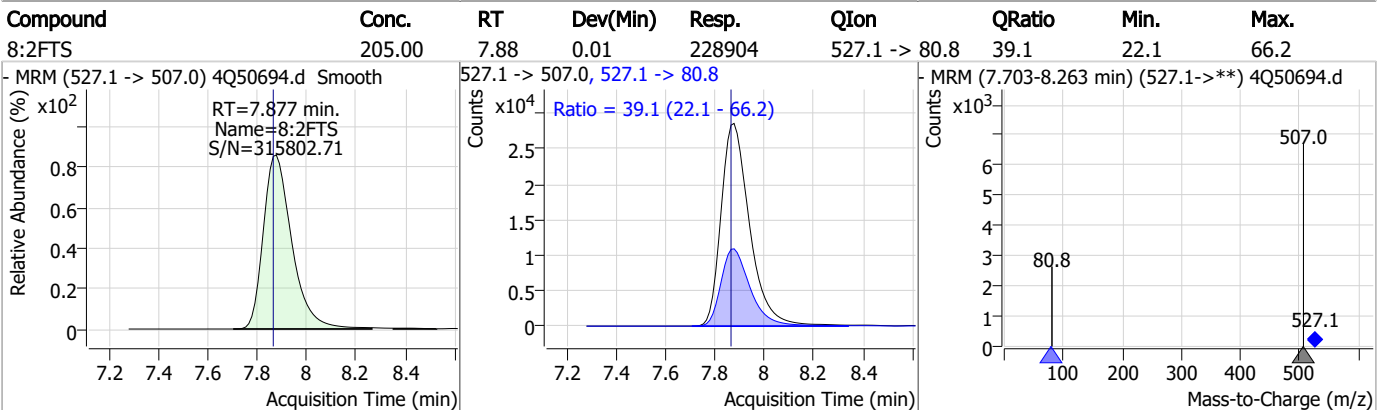
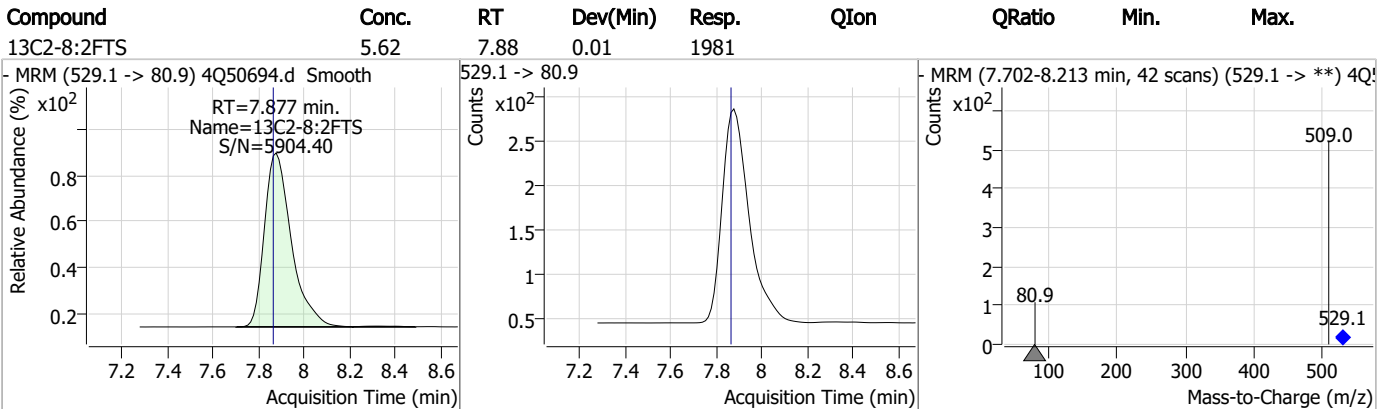
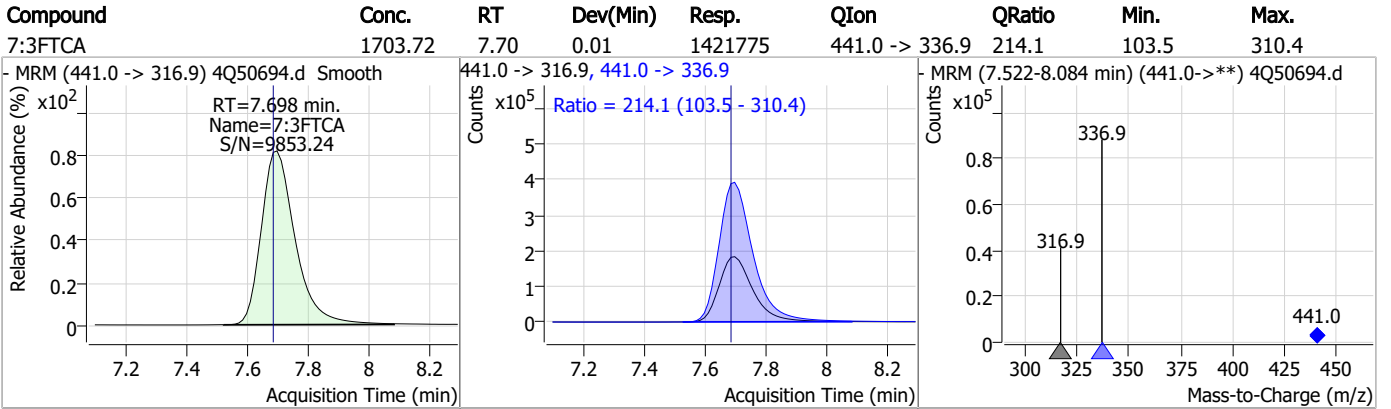


Perfluorinated Compounds by LC/MS/MS

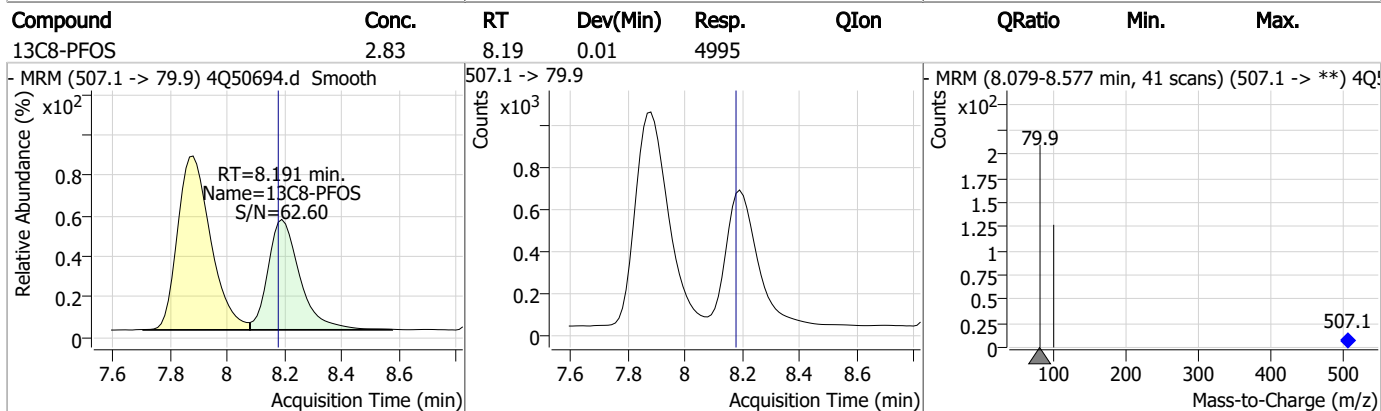
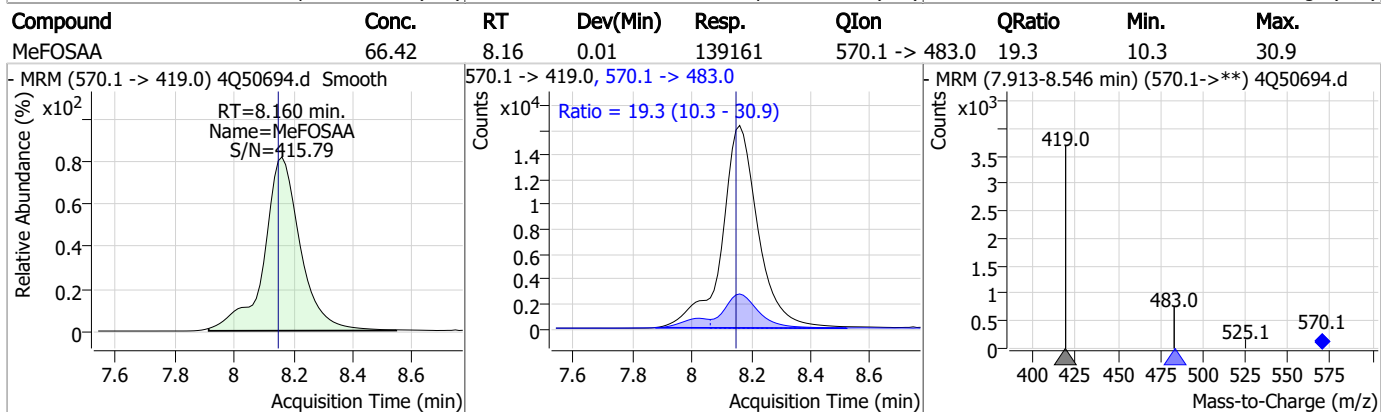
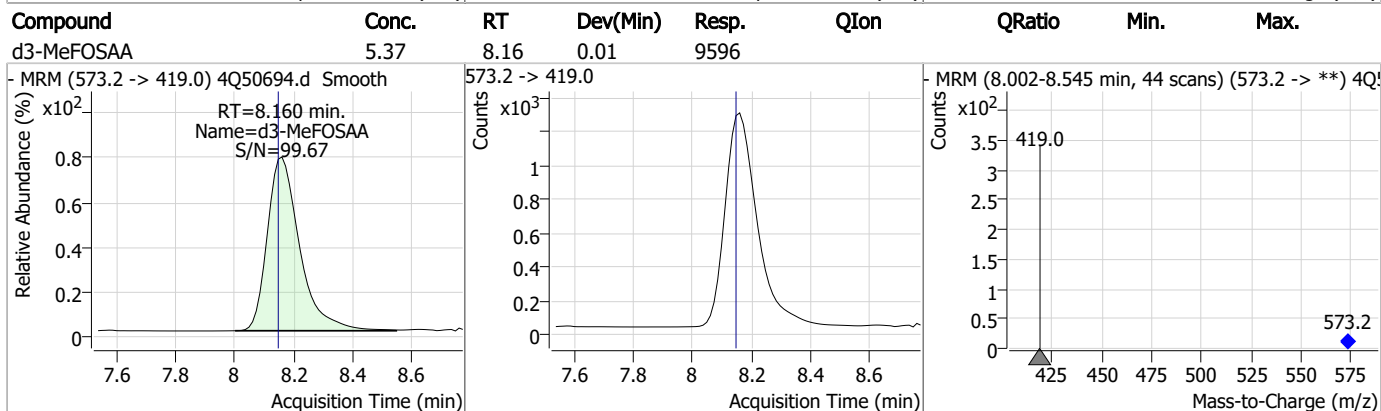
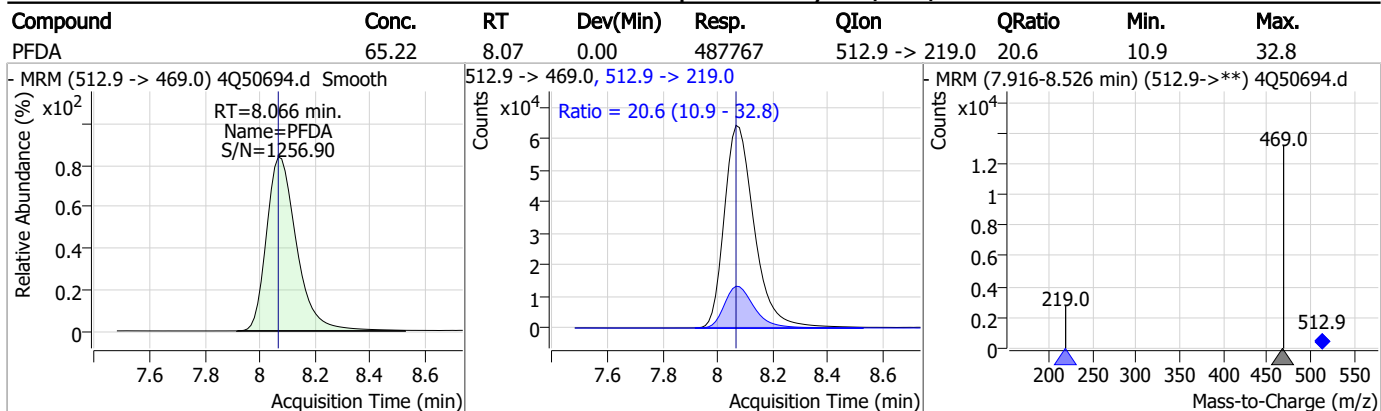


7.7.9
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Perfluorinated Compounds by LC/MS/MS

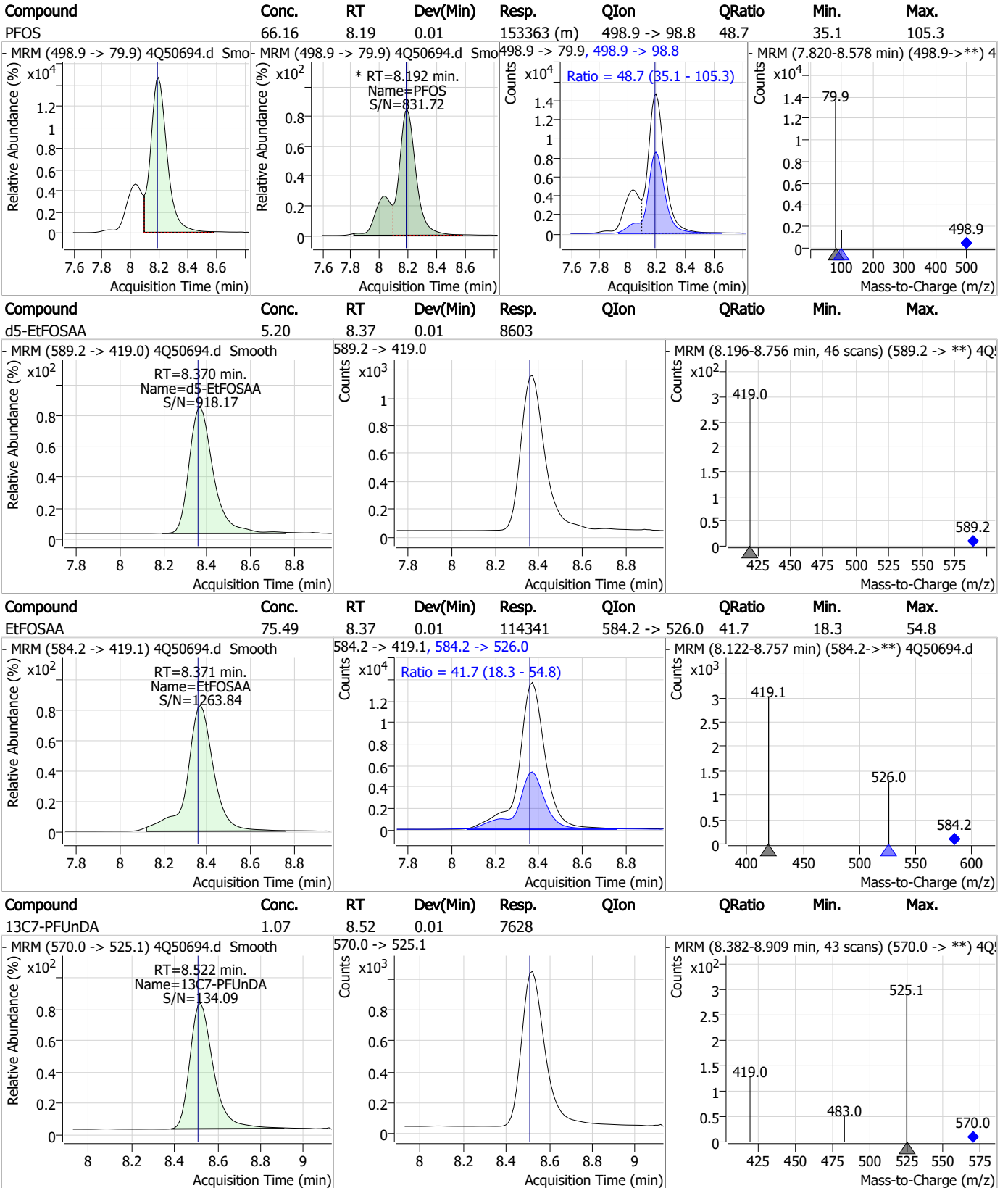


Perfluorinated Compounds by LC/MS/MS



7.7.9
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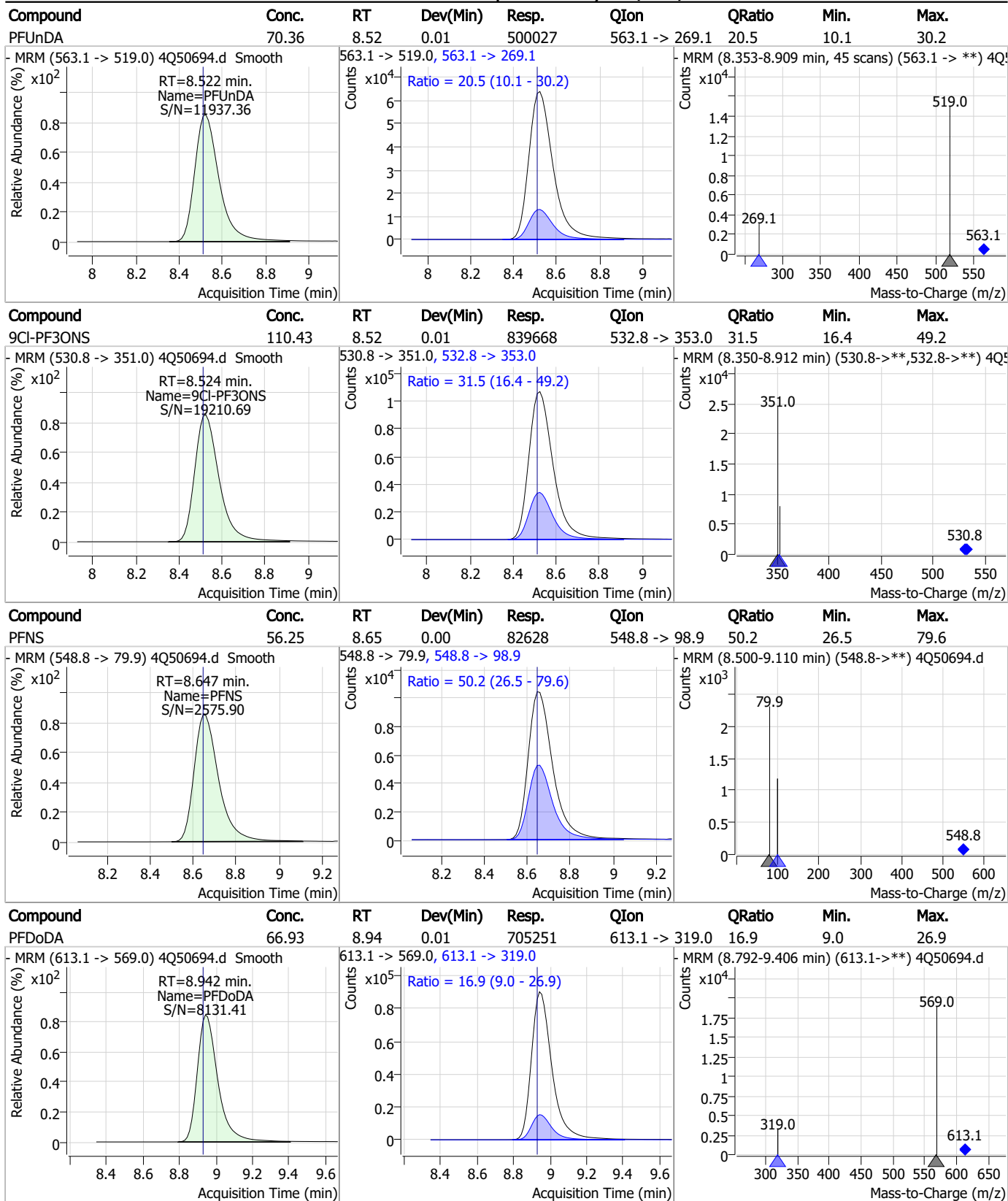
Perfluorinated Compounds by LC/MS/MS



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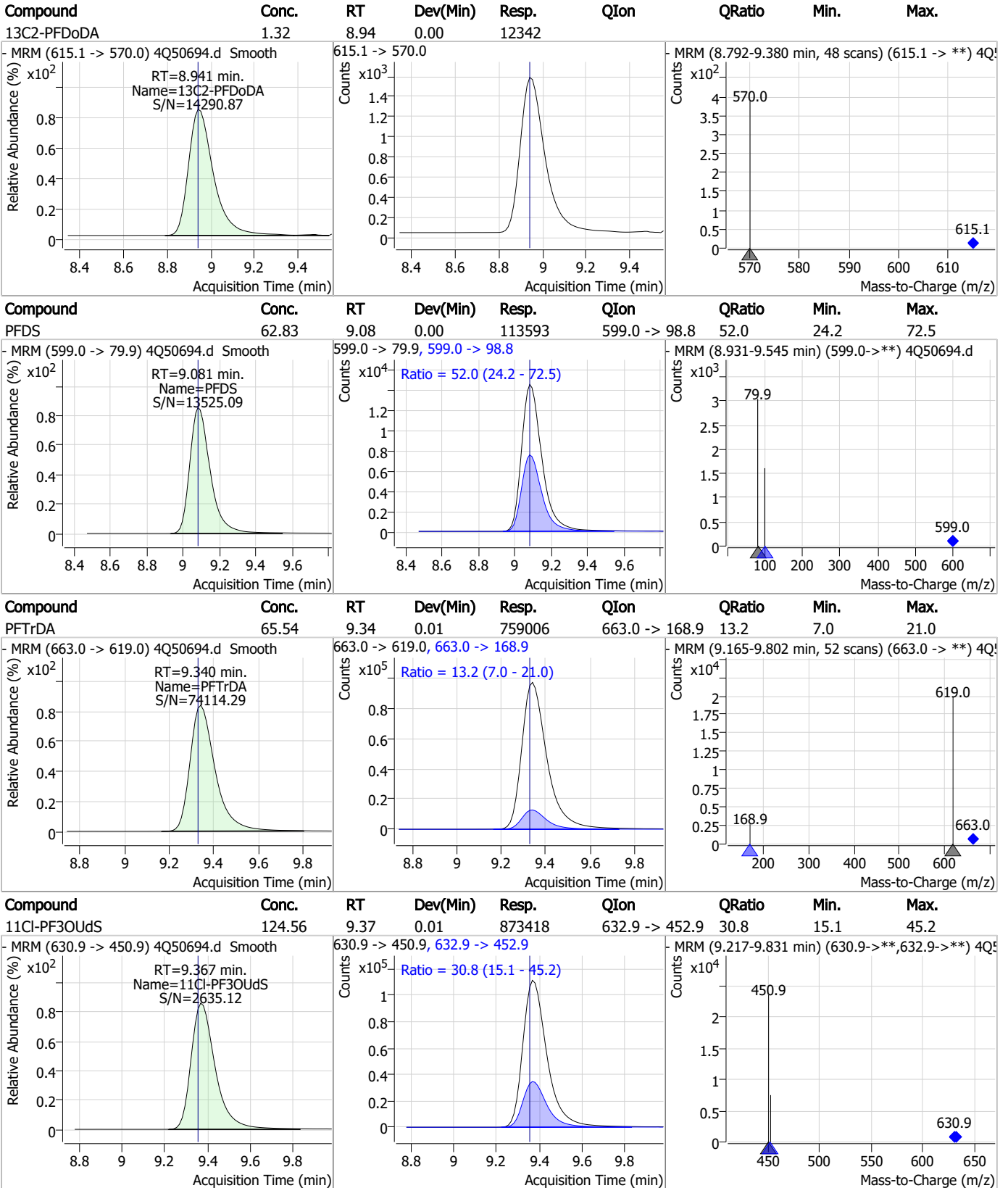
Perfluorinated Compounds by LC/MS/MS



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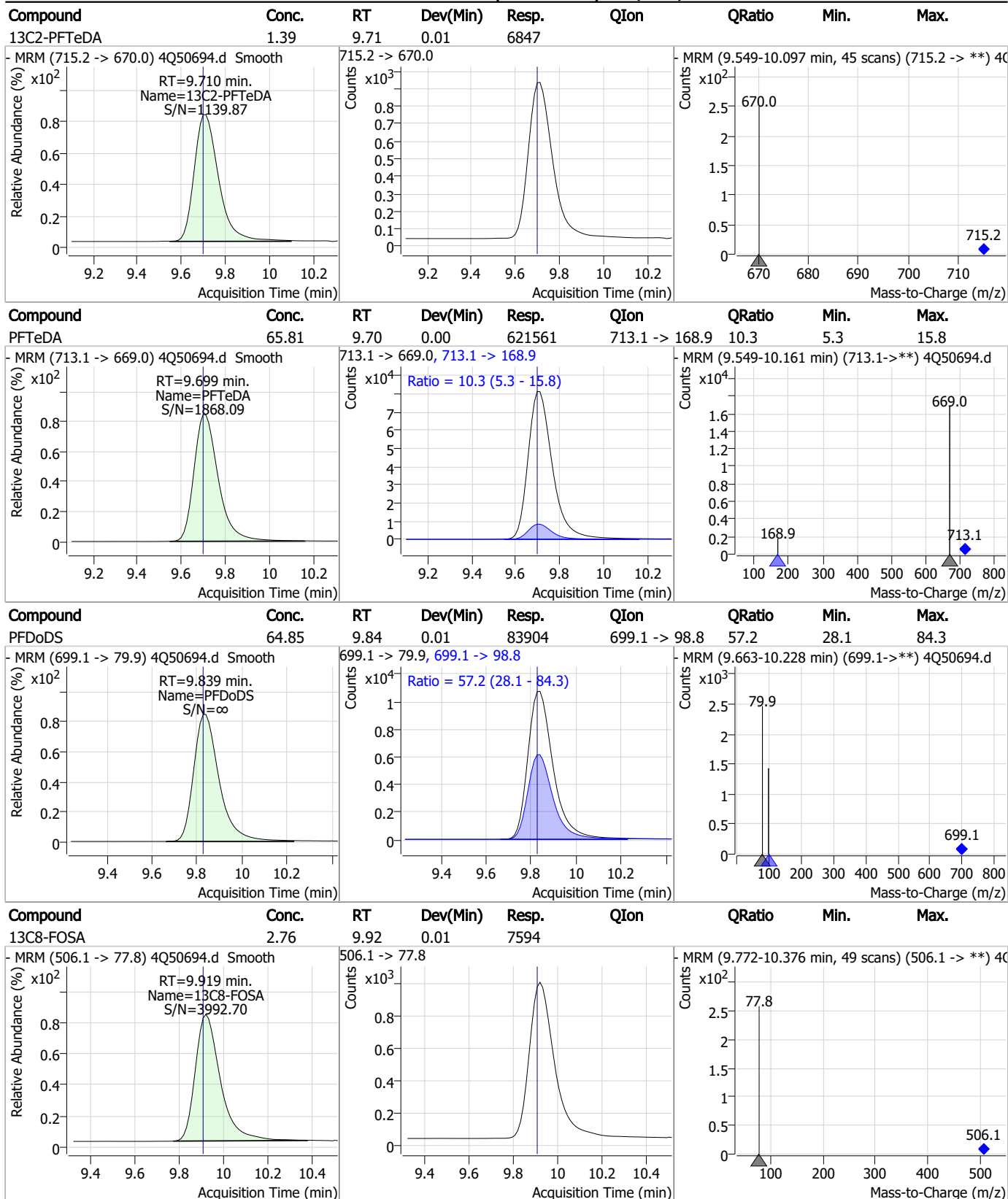
Perfluorinated Compounds by LC/MS/MS



7.7.9

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Perfluorinated Compounds by LC/MS/MS

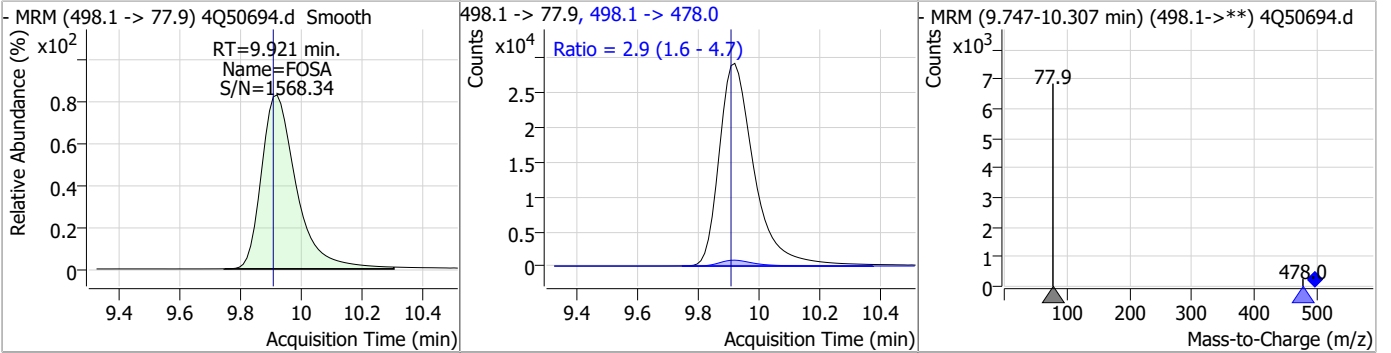


7.7.9

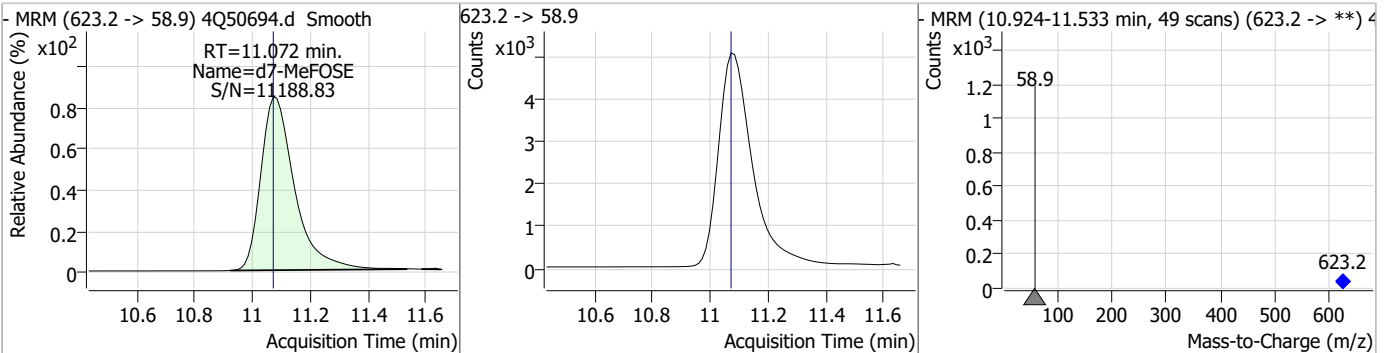
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Perfluorinated Compounds by LC/MS/MS

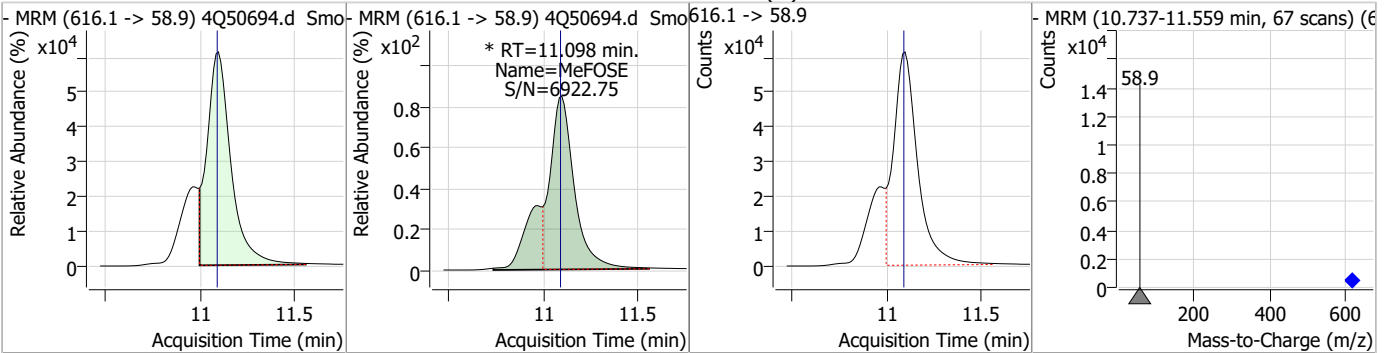
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	67.64	9.92	0.01	233804	498.1 -> 478.0	2.9	1.6	4.7



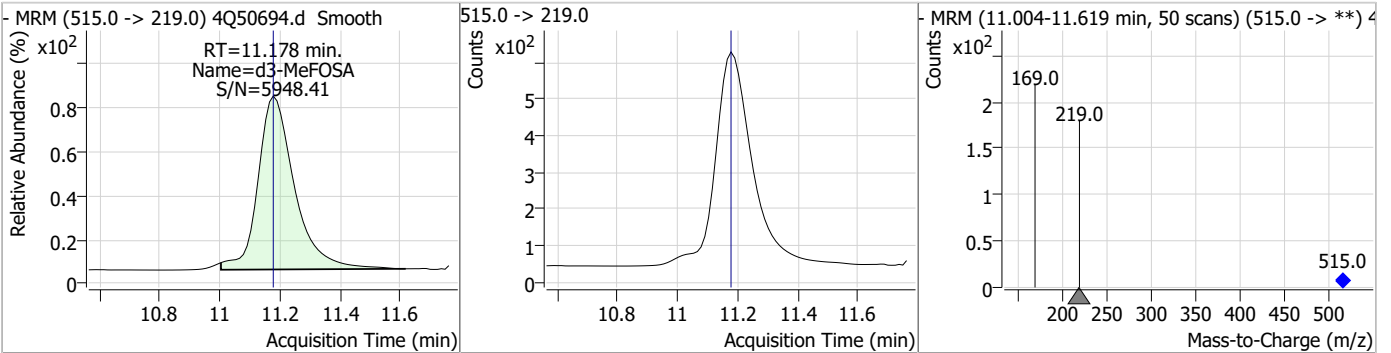
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.90	11.07	0.00	40696				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	349.72	11.10	0.01	698314 (m)				

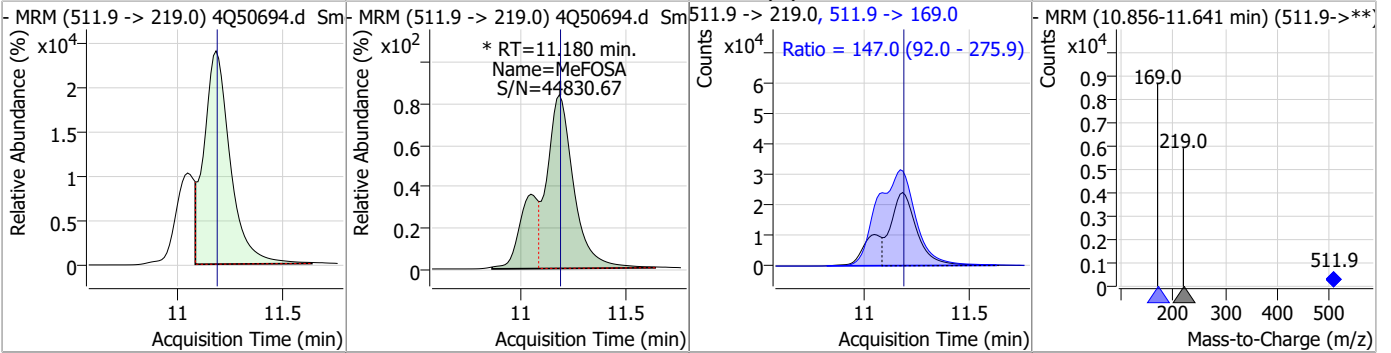


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	3.05	11.18	0.00	4918				

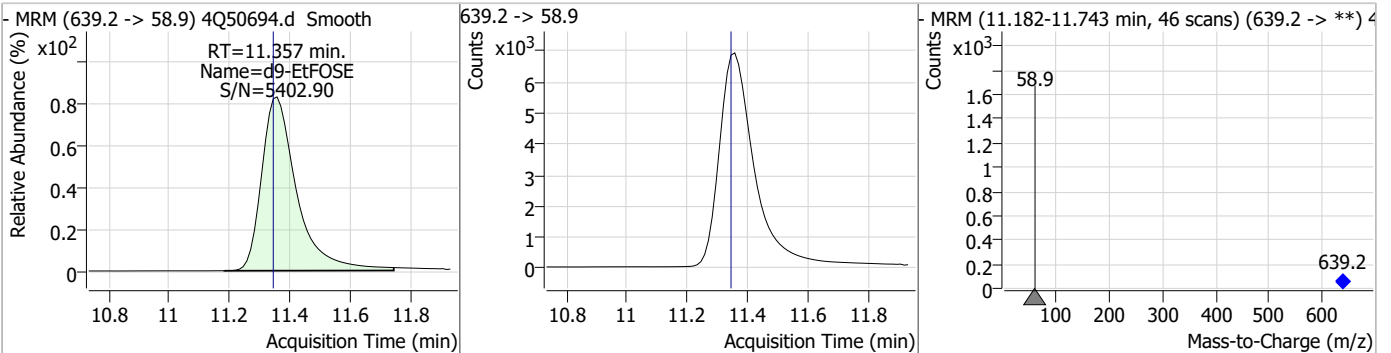


Perfluorinated Compounds by LC/MS/MS

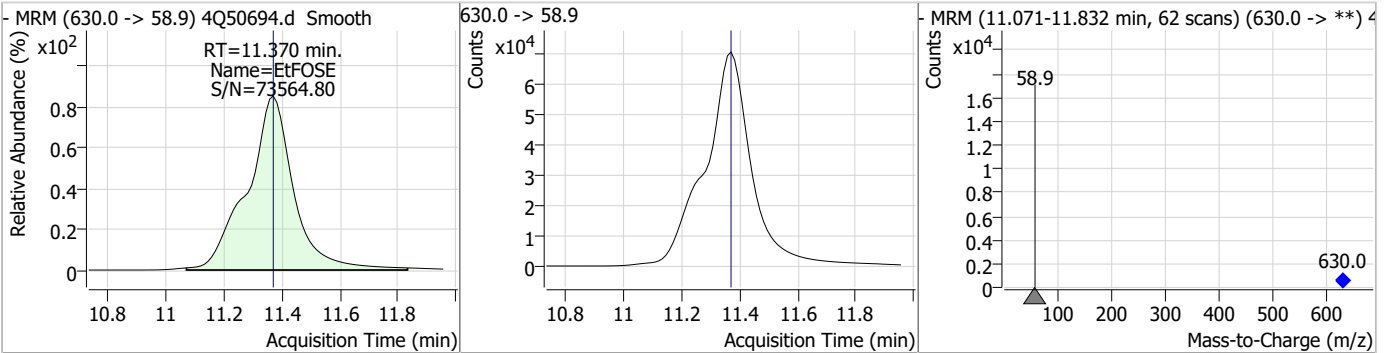
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	118.89	11.18	0.00	275716 (m)	511.9 -> 169.0	147.0	92.0	275.9



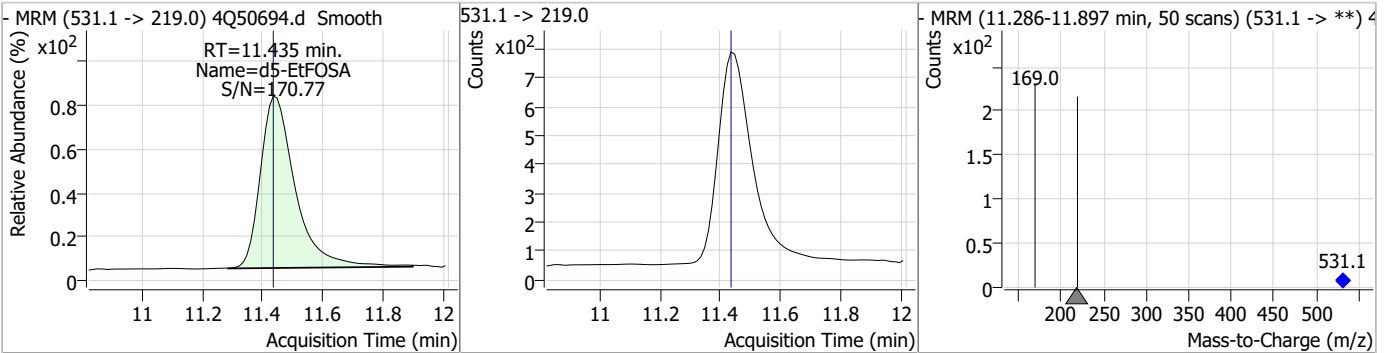
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.46	11.36	0.01	55459				



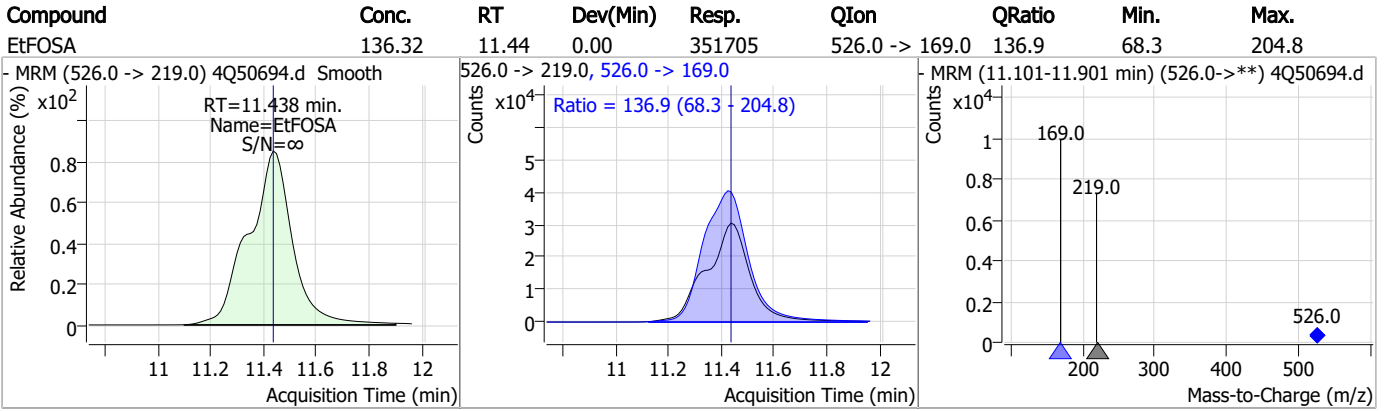
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	344.74	11.37	0.00	789198				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.71	11.44	0.00	5904				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q741-IC741 Method: EPA DRAFT 1633
Lab FileID: 4Q50694.D Analyst approved: 09/18/23 11:34 Anna Ludwig
Injection Time: 09/17/23 14:36 Supervisor approved: 09/18/23 14:43 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.10	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.19	Split peak
MeFOSE	24448-09-7		11.10	Split peak
MeFOSA	31506-32-8		11.18	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50696.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/17/2023 3:05:57 PM
 Sample Name : icv741-4
 Vial : P1-B3
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q741.batch.bin
 Sample Information : OP98180,S4Q741,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.711	216.8 -> 171.9	79970	10.00 µg/L	0.000
M5-PFPeA	4.228	268.3 -> 223.0	30551	5.00 µg/L	0.012
M5-PFHxA	5.408	318.0 -> 273.0	29692	2.50 µg/L	0.000
M4-PFHpA	6.366	367.1 -> 322.0	20715	2.50 µg/L	0.012
M8-PFOA	7.049	421.1 -> 376.0	34486	2.50 µg/L	0.012
M9-PFNA	7.596	472.1 -> 427.0	14152	1.25 µg/L	0.026
M6-PFDA	8.078	519.1 -> 474.1	9151	1.25 µg/L	0.012
M7-PFUnDA	8.522	570.0 -> 525.1	10641	1.25 µg/L	0.012
M2-PFDoDA	8.941	615.1 -> 570.0	12829	1.25 µg/L	0.000
M2-PFTeDA	9.710	715.2 -> 670.0	6946	1.25 µg/L	0.012
M8-FOSA	9.919	506.1 -> 77.8	8381	2.50 µg/L	0.012
M3-PFBS	5.263	302.1 -> 79.9	7161	2.50 µg/L	0.000
M3-PFHxS	7.103	402.1 -> 79.9	4758	2.50 µg/L	0.000
M8-PFOS	8.191	507.1 -> 79.9	4933	2.50 µg/L	0.012
M2-4:2FTS	5.121	329.1 -> 80.9	965	5.00 µg/L	0.012
M2-6:2FTS	6.822	429.1 -> 80.9	1560	5.00 µg/L	0.012
M2-8:2FTS	7.877	529.1 -> 80.9	2213	5.00 µg/L	0.012
M3-MeFOSAA	8.160	573.2 -> 419.0	11133	5.00 µg/L	0.012
M3-HFPO-DA	5.763	286.9 -> 168.9	27793	10.00 µg/L	0.000
M5-EtFOSAA	8.358	589.2 -> 419.0	10532	5.00 µg/L	0.000
M7-MeFOSE	11.085	623.2 -> 58.9	47807	25.00 µg/L	0.012
M9-EtFOSE	11.357	639.2 -> 58.9	67585	25.00 µg/L	0.012
M5-EtFOSA	11.435	531.1 -> 219.0	6547	2.50 µg/L	0.000
M3-MeFOSA	11.178	515.0 -> 219.0	4797	2.50 µg/L	0.000
13C4-PFOS	8.191	502.8 -> 79.9	4904	2.50 µg/L	0.012
13C3-PFBA	2.716	216.0 -> 172.0	40406	5.00 µg/L	0.000
18O2-PFHxS	7.115	403.0 -> 83.9	3191	2.50 µg/L	0.012
13C4-PFOA	7.050	417.1 -> 372.0	38607	2.50 µg/L	0.012
13C2-PFDA	8.078	515.1 -> 470.1	9443	1.25 µg/L	0.012
13C5-PFNA	7.583	468.0 -> 423.0	11014	1.25 µg/L	0.012
13C2-PFHxA	5.409	315.1 -> 270.0	26054	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.121	329.1 -> 80.9	965	5.54 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.7%		
13C2-6:2FTS	6.822	429.1 -> 80.9	1560	5.78 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.7%		
13C2-8:2FTS	7.877	529.1 -> 80.9	2213	5.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-PFDoDA	8.941	615.1 -> 570.0	12829	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C2-PFTeDA	9.710	715.2 -> 670.0	6946	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C3-PFBS	5.263	302.1 -> 79.9	7161	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C3-PFHxS	7.103	402.1 -> 79.9	4758	2.48 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 = 99.2%	
13C4-PFBA	2.711	216.8 -> 171.9	79970	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.366	367.1 -> 322.0	20715	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C5-PFHxA	5.408	318.0 -> 273.0	29692	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C5-PFPeA	4.228	268.3 -> 223.0	30551	4.98 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C6-PFDA	8.078	519.1 -> 474.1	9151	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C7-PFUnDA	8.522	570.0 -> 525.1	10641	1.31 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C8-FOSA	9.919	506.1 -> 77.8	8381	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C8-PFOA	7.049	421.1 -> 376.0	34486	2.43 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C8-PFOS	8.191	507.1 -> 79.9	4933	2.26 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.5%	
13C9-PFNA	7.596	472.1 -> 427.0	14152	1.41 µg/L	0.026
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.5%	
d3-MeFOSAA	8.160	573.2 -> 419.0	11133	5.05 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C3-HFPO-DA	5.763	286.9 -> 168.9	27793	9.86 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
d3-MeFOSA	11.178	515.0 -> 219.0	4797	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
d5-EtFOSAA	8.358	589.2 -> 419.0	10532	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
d7-MeFOSE	11.085	623.2 -> 58.9	47807	24.67 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
d9-EtFOSE	11.357	639.2 -> 58.9	67585	24.18 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
d5-EtFOSA	11.435	531.1 -> 219.0	6547	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
Target Compounds					QValue
4:2FTS	5.122	327.1 -> 307.0	16649	10.19 µg/L	100
		327.1 -> 80.9	6660		
6:2FTS	6.822	427.1 -> 407.0	17500	9.71 µg/L	96
		427.1 -> 80.9	6214		
8:2FTS	7.877	527.1 -> 507.0	13605	10.91 µg/L	96
		527.1 -> 80.8	5644		
EtFOSAA	8.371	584.2 -> 419.1	5143	2.77 µg/L	93
		584.2 -> 526.0	2094		
FOSA	9.921	498.1 -> 77.9	9627	2.52 µg/L	100
		498.1 -> 478.0	313		
MeFOSAA	8.160	570.1 -> 419.0	6618	2.72 µg/L	94
		570.1 -> 483.0	1184		
PFBA	2.720	212.8 -> 168.9	31343	10.24 µg/L	100
PFBS	5.264	298.7 -> 79.9	8114	2.41 µg/L	96
		298.7 -> 98.8	3145		
PFDA	8.078	512.9 -> 469.0	21565	2.58 µg/L	96
		512.9 -> 219.0	4318		
PFDODA	8.942	613.1 -> 569.0	28528	2.60 µg/L	98
		613.1 -> 319.0	5396		
PFDS	9.081	599.0 -> 79.9	4767	2.67 µg/L	95

7.7.10
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2483			
PFHpA	6.366	363.1 -> 319.0	32230	2.62	µg/L	99
		363.1 -> 169.0	6618			
PFHpS	7.685	449.0 -> 79.9	5486	2.59	µg/L	97
		449.0 -> 98.9	2761			
PFHxA	5.411	313.0 -> 269.0	26212	2.50	µg/L	100
		313.0 -> 118.9	844			
PFHxS	7.116	398.7 -> 79.9	4938	2.35	µg/L	m 83
		398.7 -> 98.9	2334			
PFNA	7.583	463.0 -> 419.0	21159	2.46	µg/L	97
		463.0 -> 219.0	5105			
PFNS	8.647	548.8 -> 79.9	3989	2.75	µg/L	95
		548.8 -> 98.9	1970			
PFOA	7.051	413.0 -> 369.0	38688	2.50	µg/L	100
		413.0 -> 169.0	8441			
PFOS	8.192	498.9 -> 79.9	6798	2.97	µg/L	m 79
		498.9 -> 98.8	3592			
PFPeA	4.229	263.0 -> 219.0	50140	5.21	µg/L	100
PFPeS	6.355	349.1 -> 79.9	4320	2.21	µg/L	95
		349.1 -> 98.9	1951			
PFTeDA	9.711	713.1 -> 669.0	24200	2.53	µg/L	97
		713.1 -> 168.9	2819			
PFTrDA	9.340	663.0 -> 619.0	32999	2.74	µg/L	99
		663.0 -> 168.9	4739			
PFUnDA	8.522	563.1 -> 519.0	25234	2.55	µg/L	95
		563.1 -> 269.1	5627			
11CI-PF3OUdS	9.367	630.9 -> 450.9	36523	4.96	µg/L	98
		632.9 -> 452.9	11458			
9CI-PF3ONS	8.524	530.8 -> 351.0	42046	5.27	µg/L	95
		532.8 -> 353.0	12559			
ADONA	6.629	376.9 -> 250.9	103311	4.95	µg/L	99
		376.9 -> 84.8	26309			
HFPO-DA	5.764	284.9 -> 168.9	15111	5.02	µg/L	98
		284.9 -> 184.9	1976			
3:3FTCA	3.706	241.0 -> 177.0	6785	12.47	µg/L	97
		241.0 -> 117.0	784			
5:3FTCA	6.181	341.0 -> 237.1	119037	64.33	µg/L	96
		341.0 -> 217.0	89698			
7:3FTCA	7.698	441.0 -> 316.9	57458	65.01	µg/L	94
		441.0 -> 336.9	124388			
EtFOSA	11.438	526.0 -> 219.0	15069	5.27	µg/L	99
		526.0 -> 169.0	20786			
EtFOSE	11.370	630.0 -> 58.9	37003	13.26	µg/L	100
MeFOSA	11.180	511.9 -> 219.0	11875	5.25	µg/L	m 73
		511.9 -> 169.0	17270			
MeFOSE	11.098	616.1 -> 58.9	30297	12.92	µg/L	m 100
PFDoDS	9.839	699.1 -> 79.9	3502	2.74	µg/L	99
		699.1 -> 98.8	1997			
NFDHA	5.290	295.0 -> 201.0	3257	5.22	µg/L	93
		295.0 -> 84.9	839			
PFMBA	4.629	279.0 -> 85.1	26628	5.21	µg/L	100
PFMPA	3.358	229.0 -> 84.9	29603	5.16	µg/L	100
PFEESA	5.795	314.8 -> 134.9	47683	4.67	µg/L	100
		314.8 -> 82.9	1463			

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

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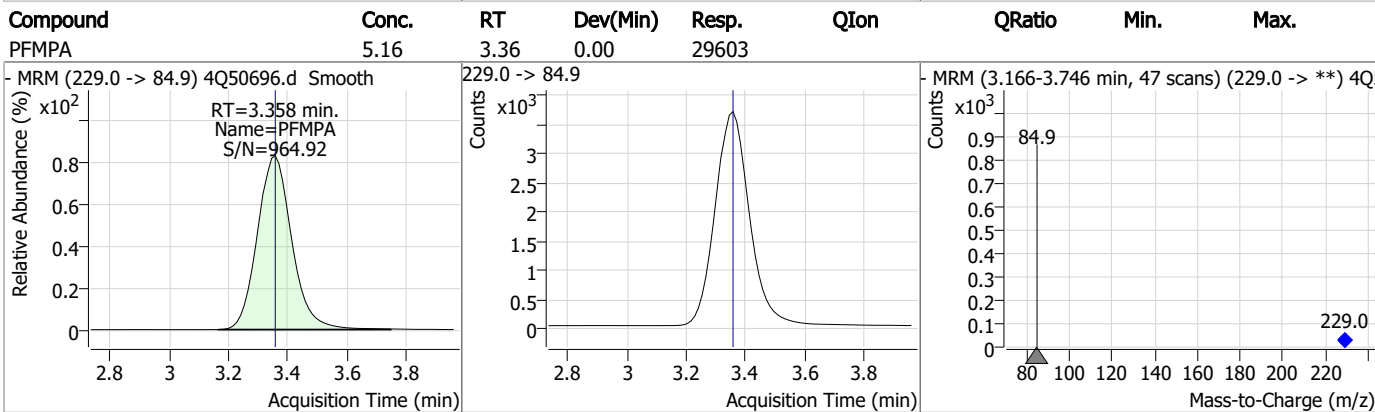
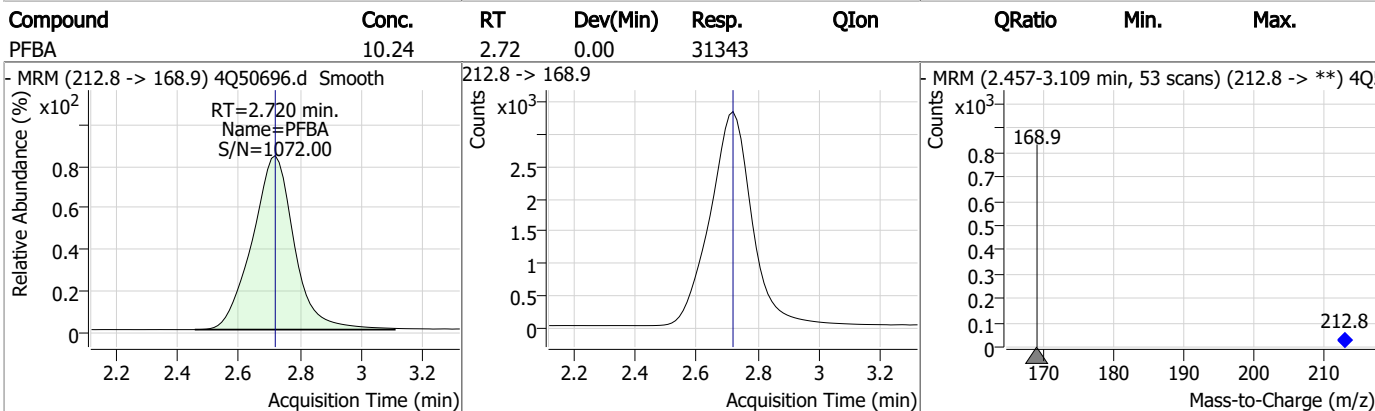
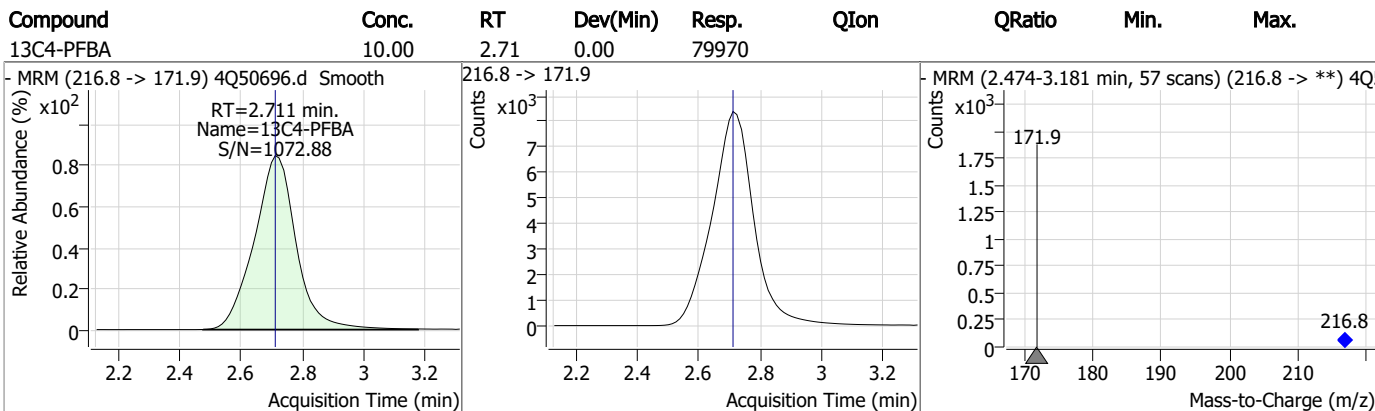
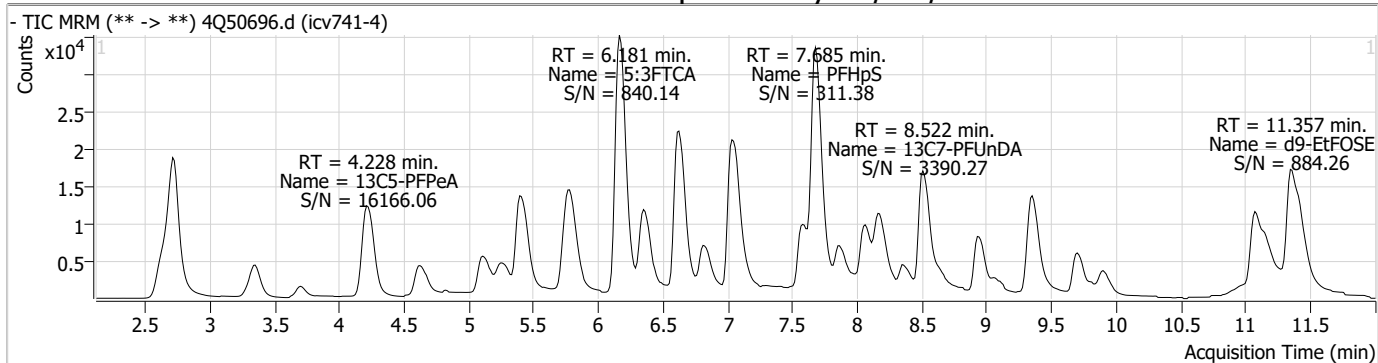
Perfluorinated Compounds by LC/MS/MS

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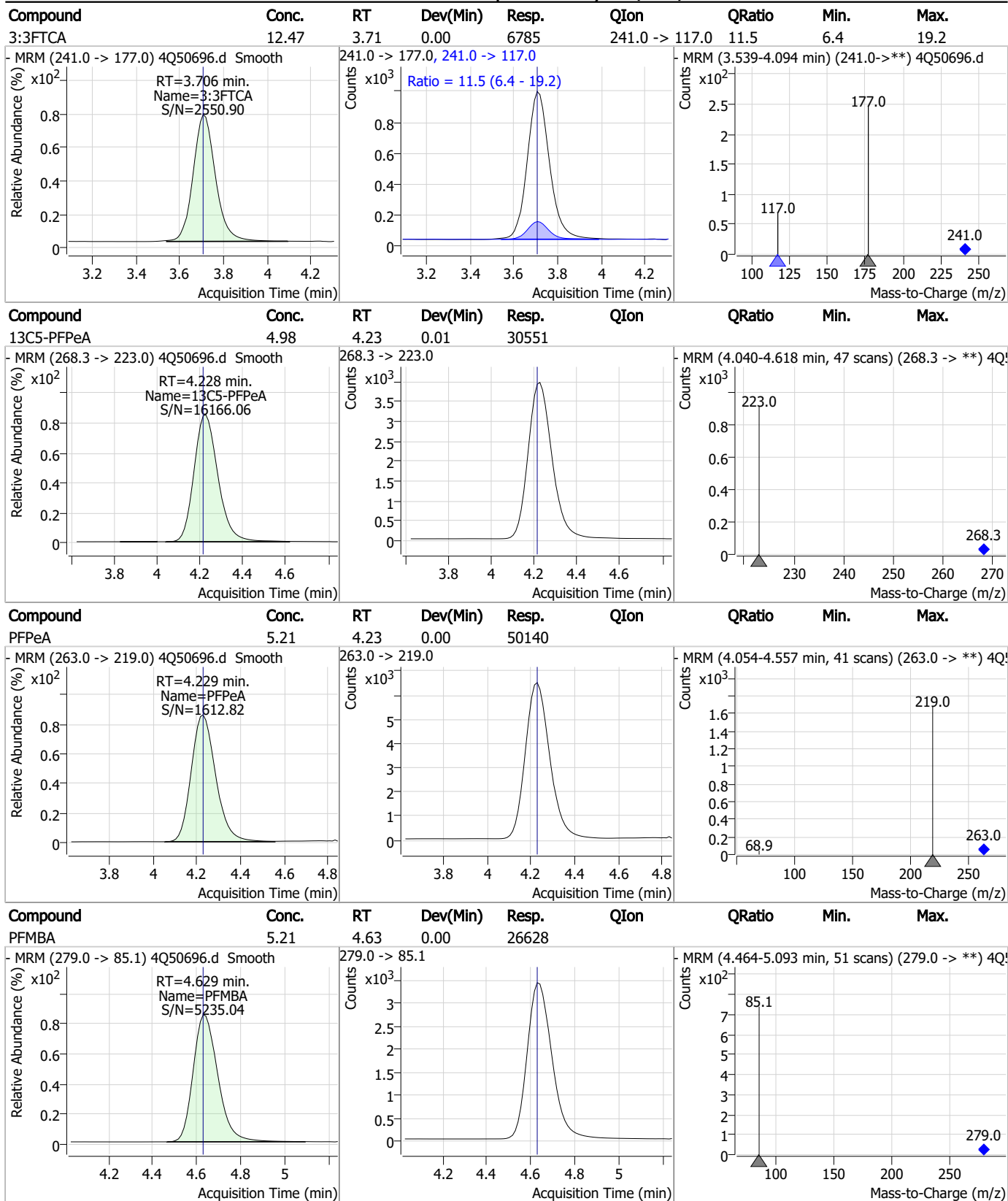
7.7.10

7

Perfluorinated Compounds by LC/MS/MS

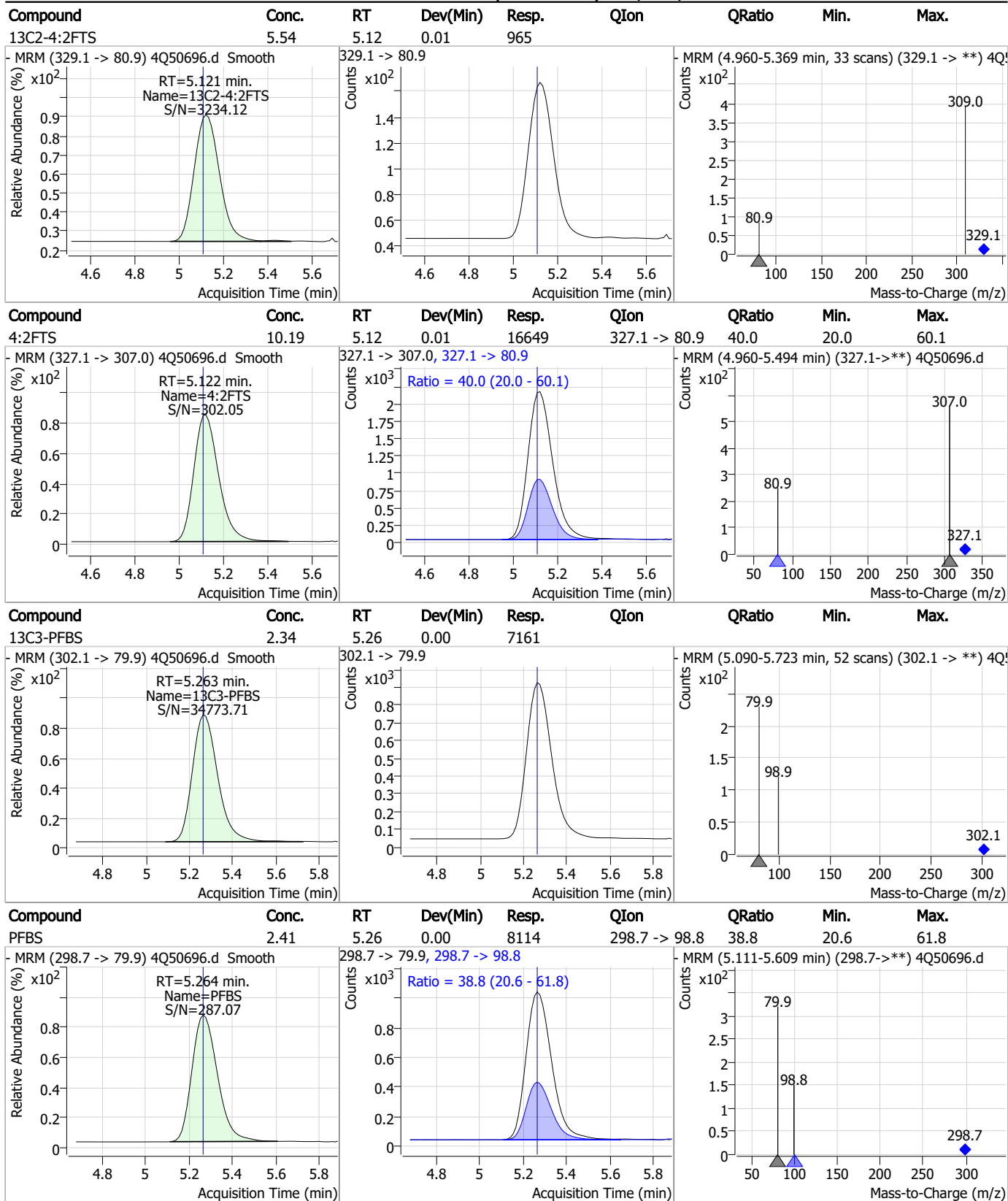


Perfluorinated Compounds by LC/MS/MS



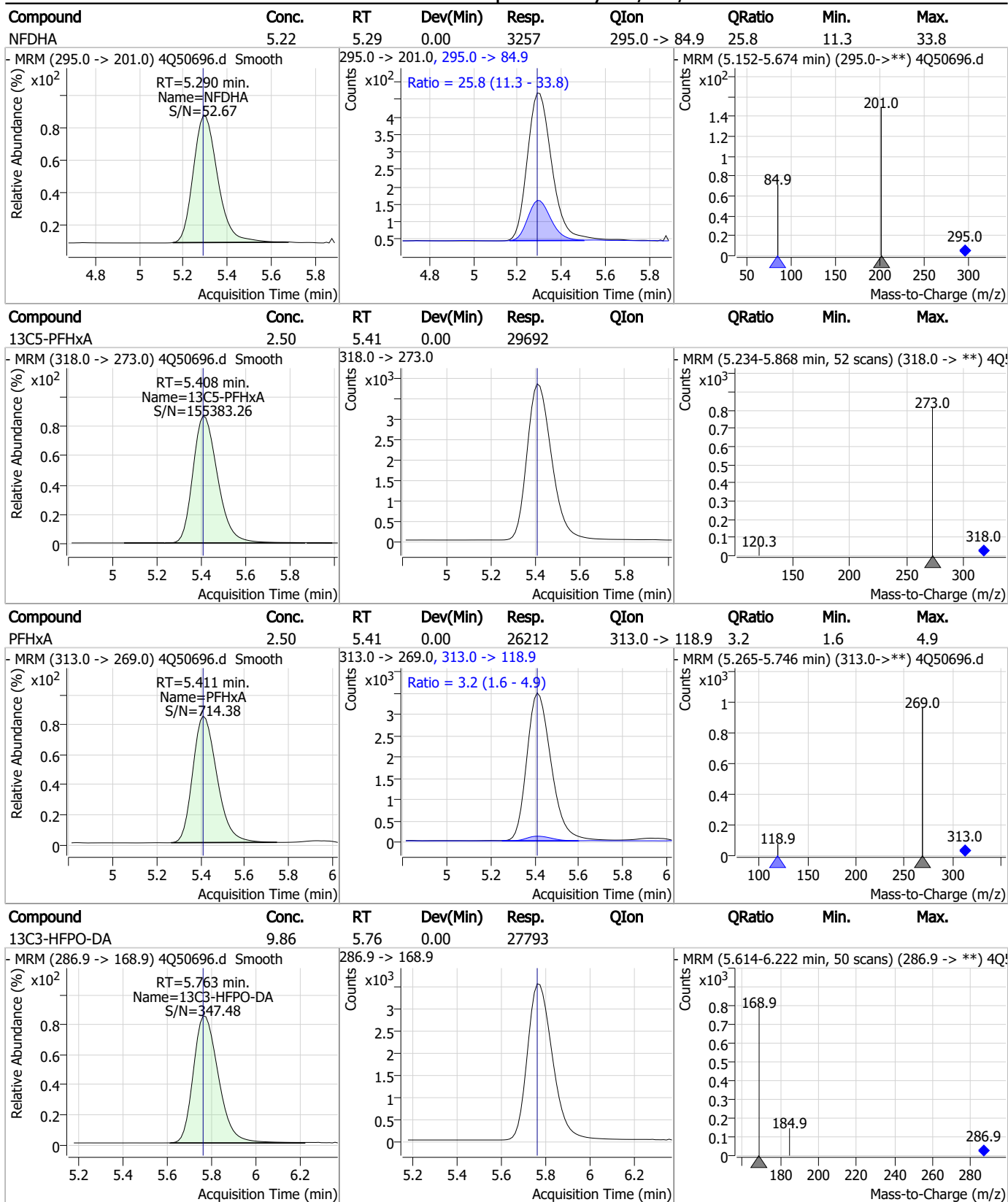
7.7.10
7

Perfluorinated Compounds by LC/MS/MS



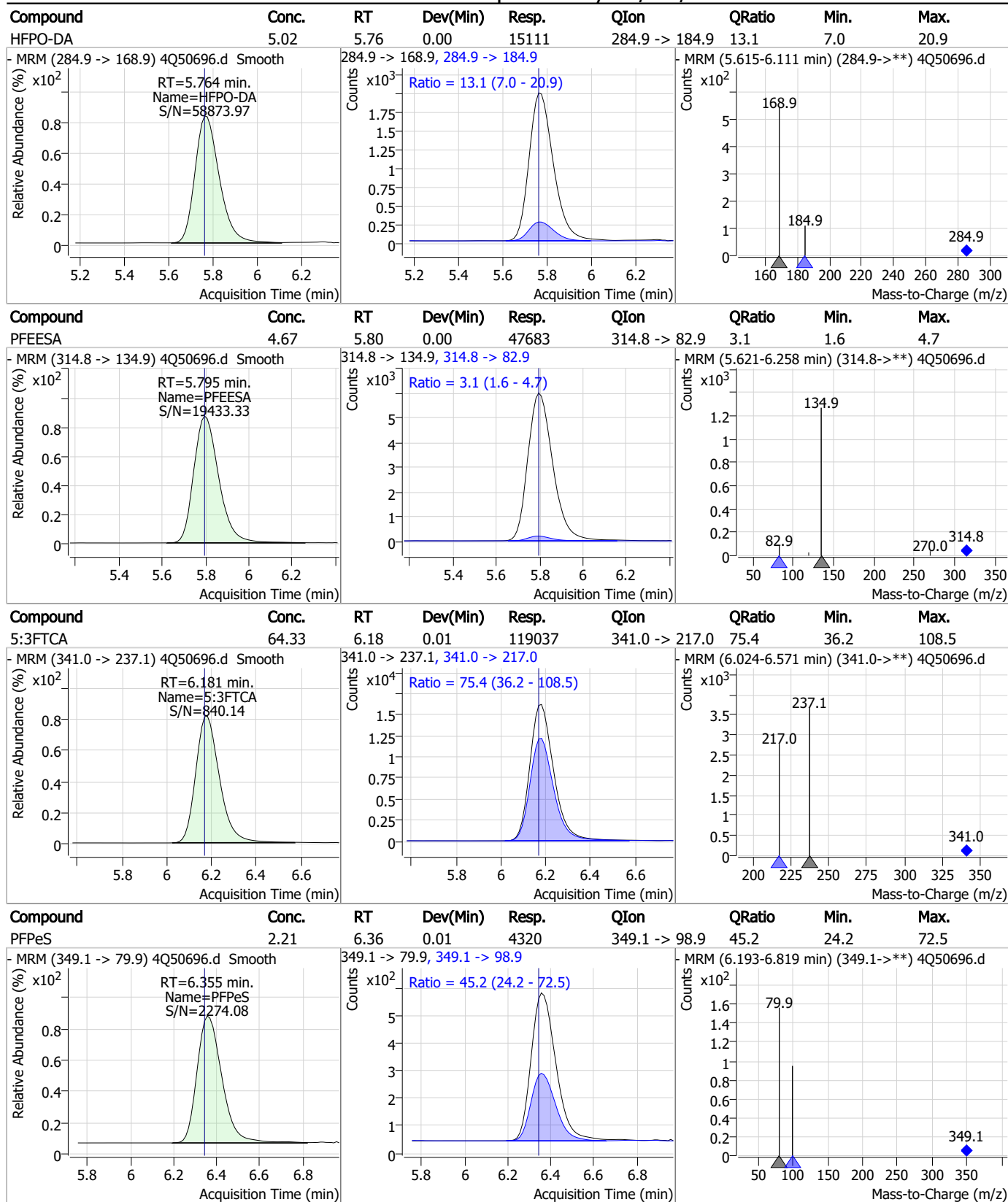
7.7.10
7

Perfluorinated Compounds by LC/MS/MS



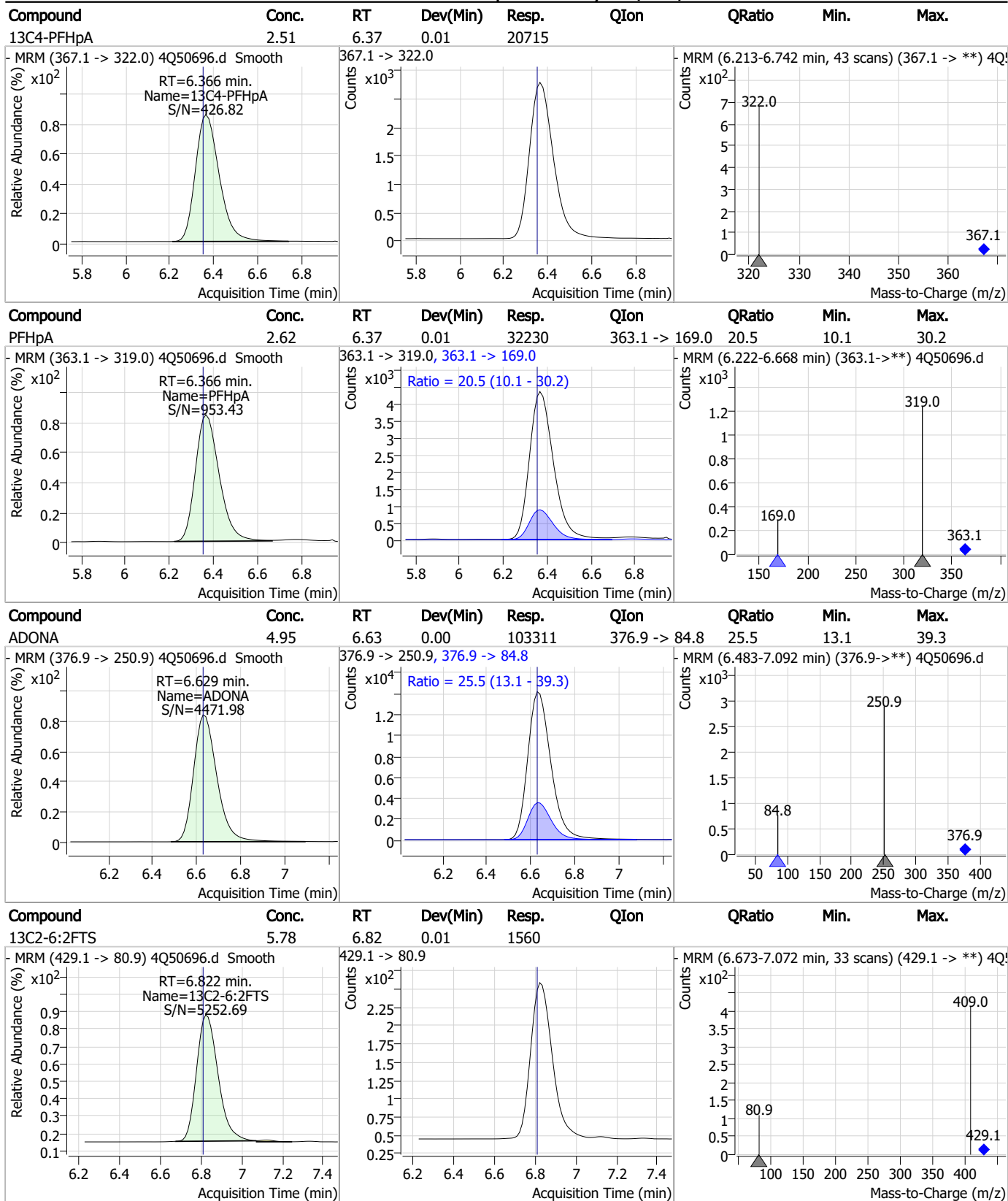
7.7.10
7

Perfluorinated Compounds by LC/MS/MS



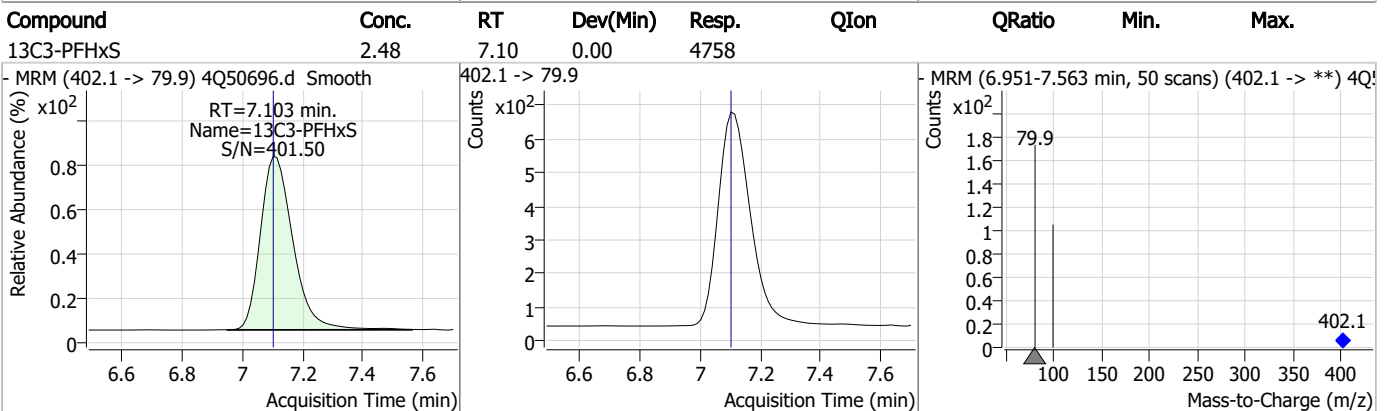
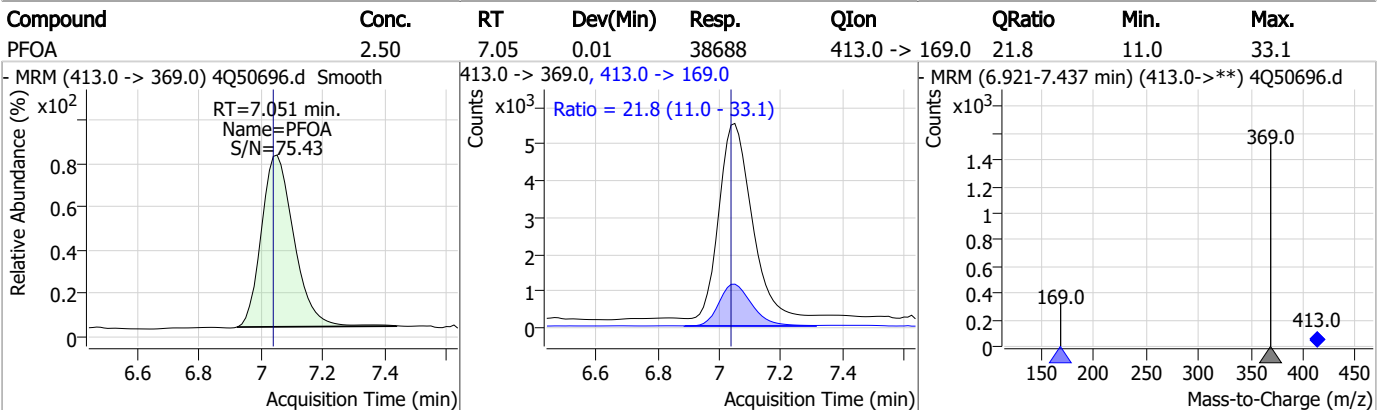
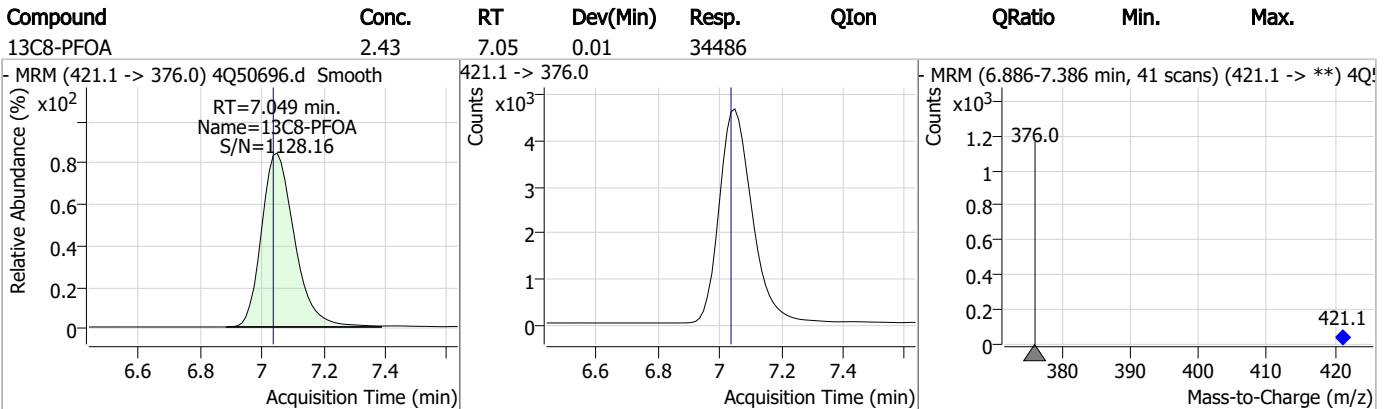
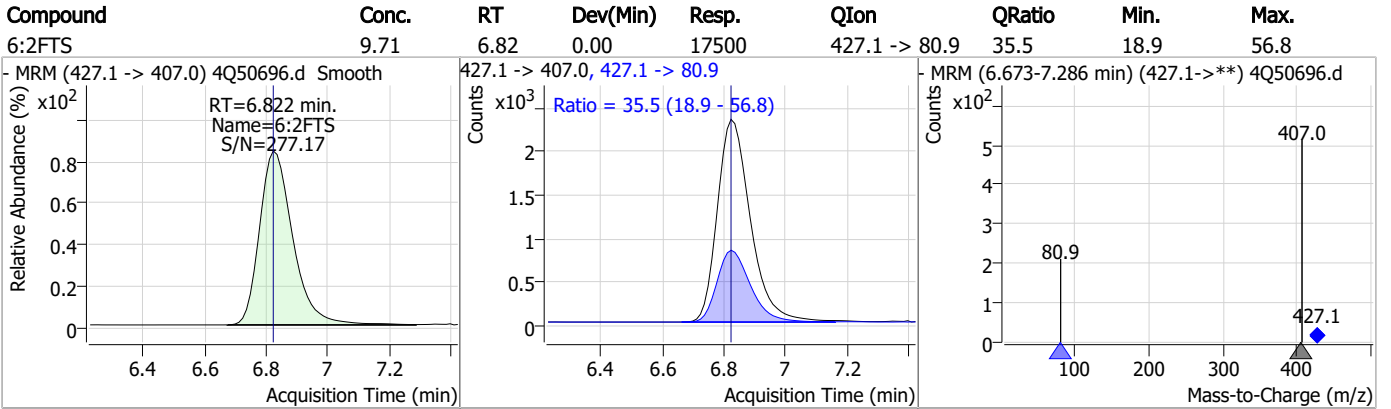
7.7.10
7

Perfluorinated Compounds by LC/MS/MS

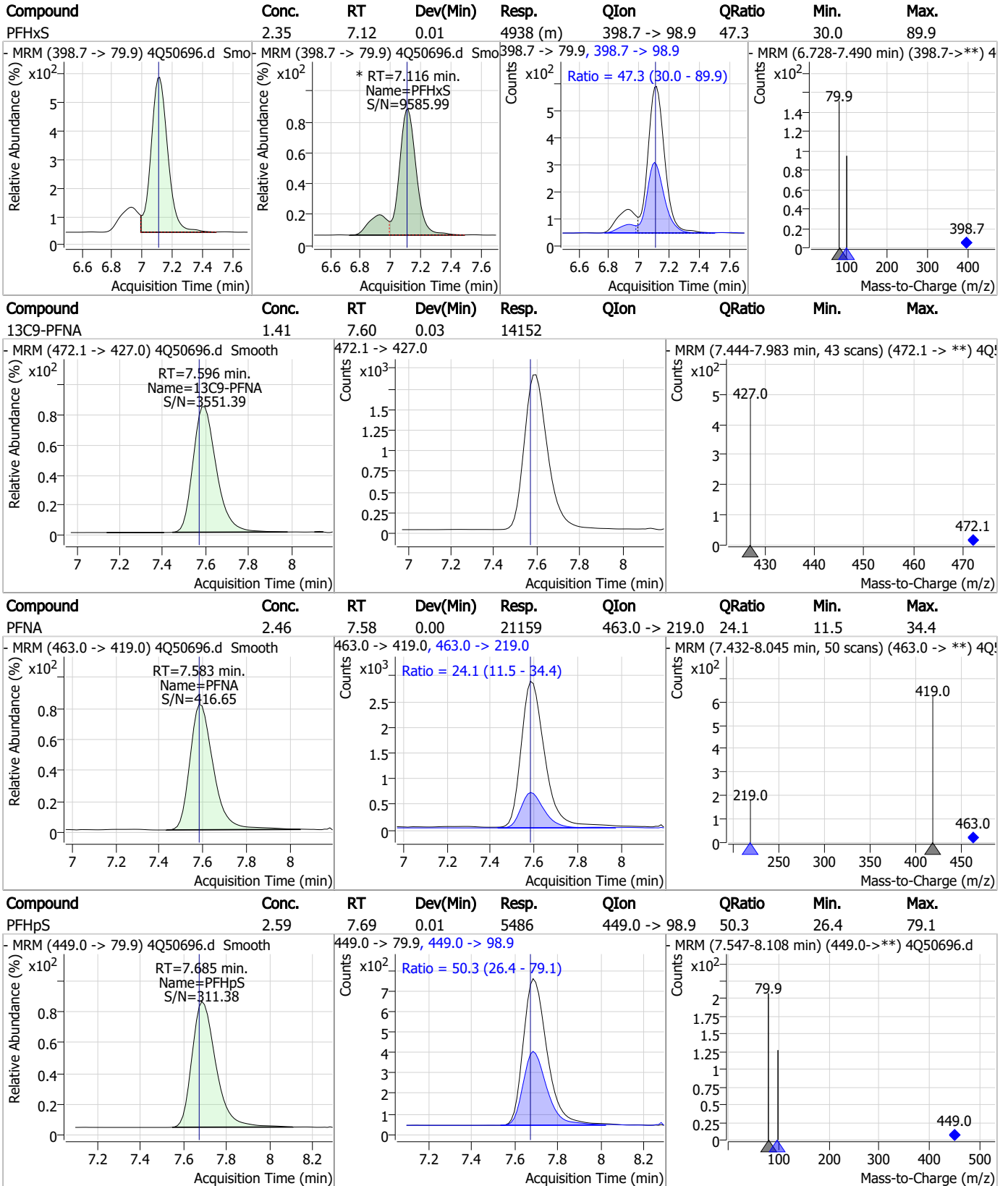


7.7.10 7

Perfluorinated Compounds by LC/MS/MS



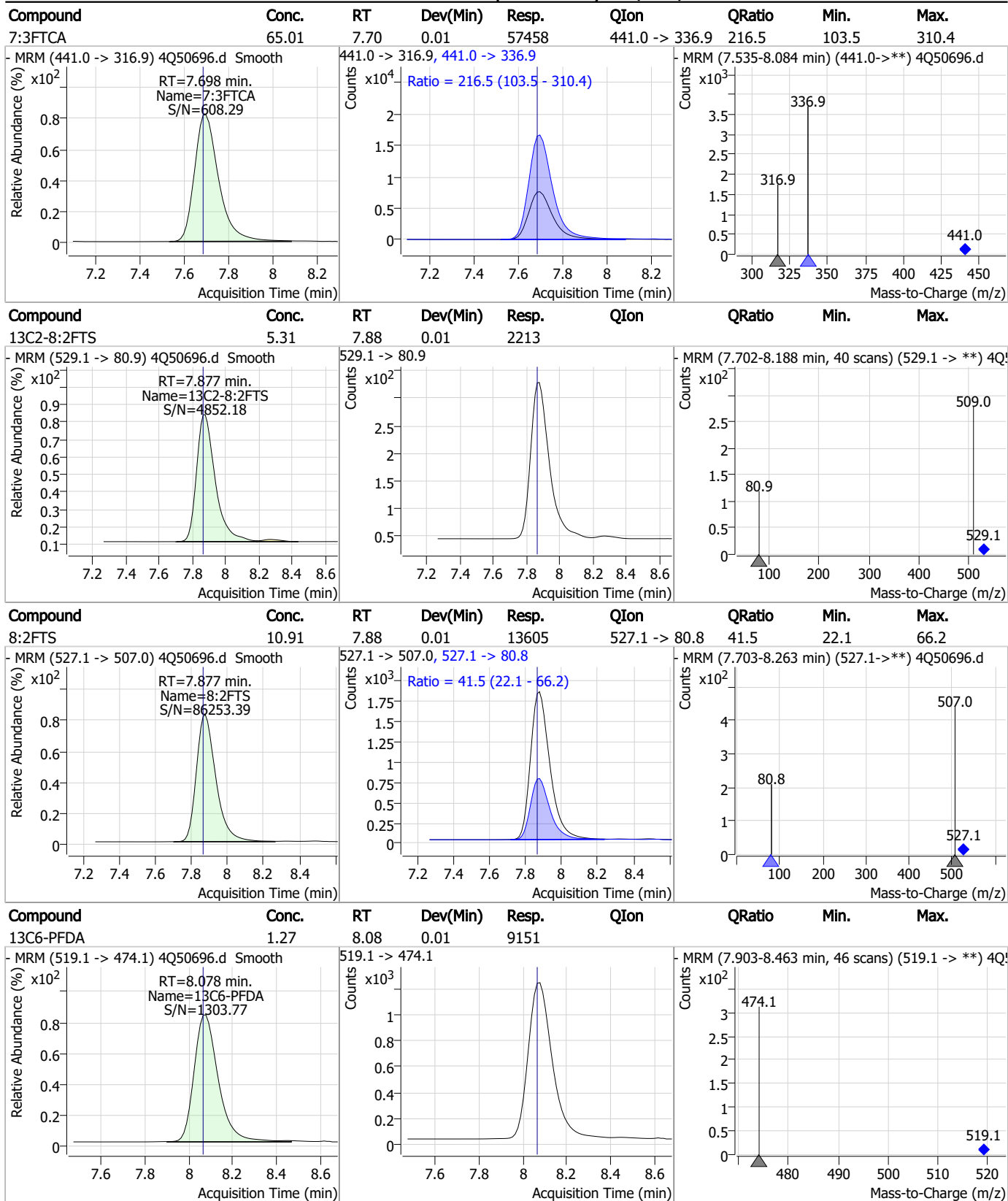
Perfluorinated Compounds by LC/MS/MS



7.7.10 7

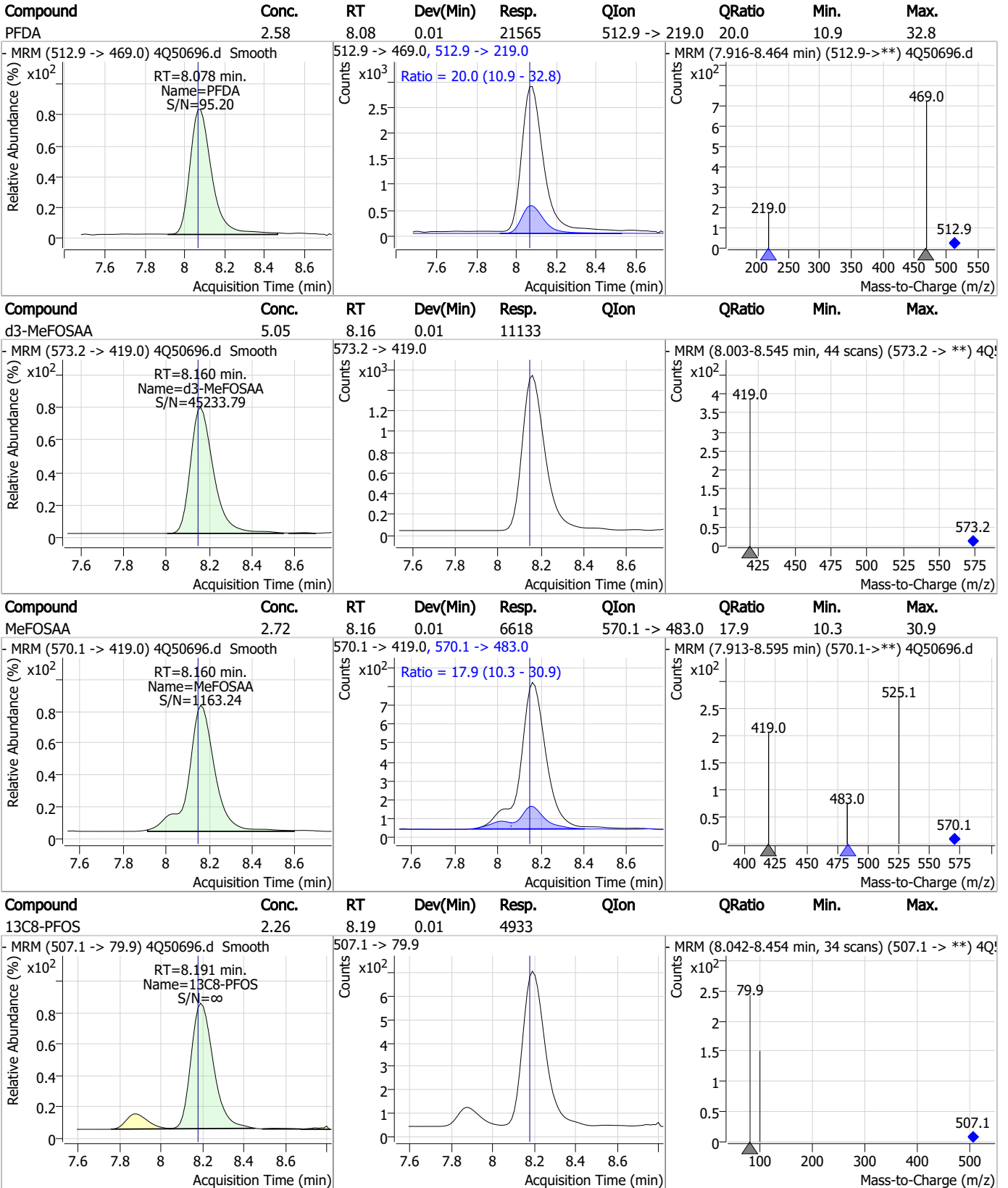


Perfluorinated Compounds by LC/MS/MS



7.7.10
7

Perfluorinated Compounds by LC/MS/MS

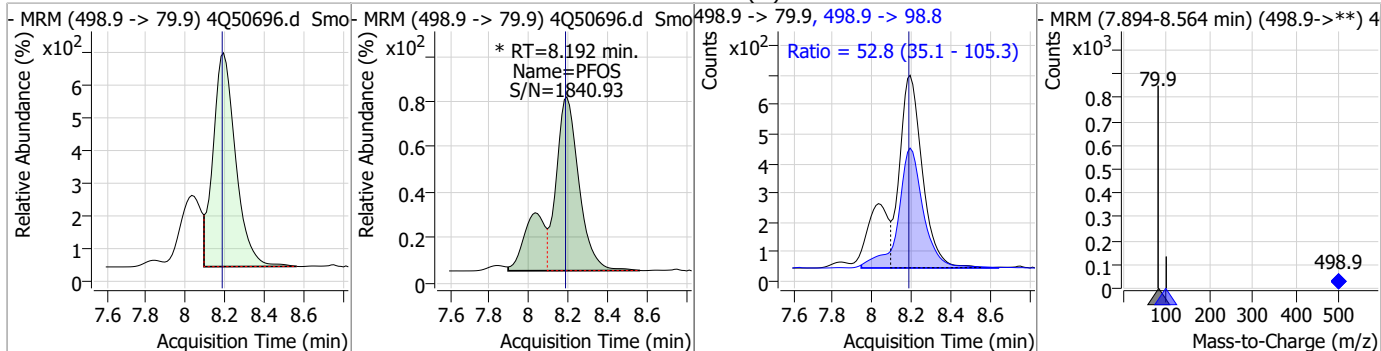


7.7.10 7

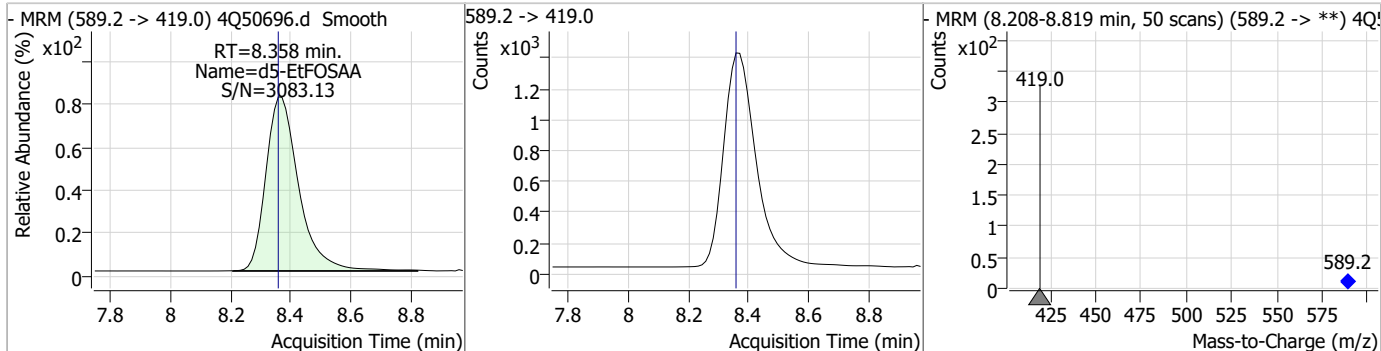


Perfluorinated Compounds by LC/MS/MS

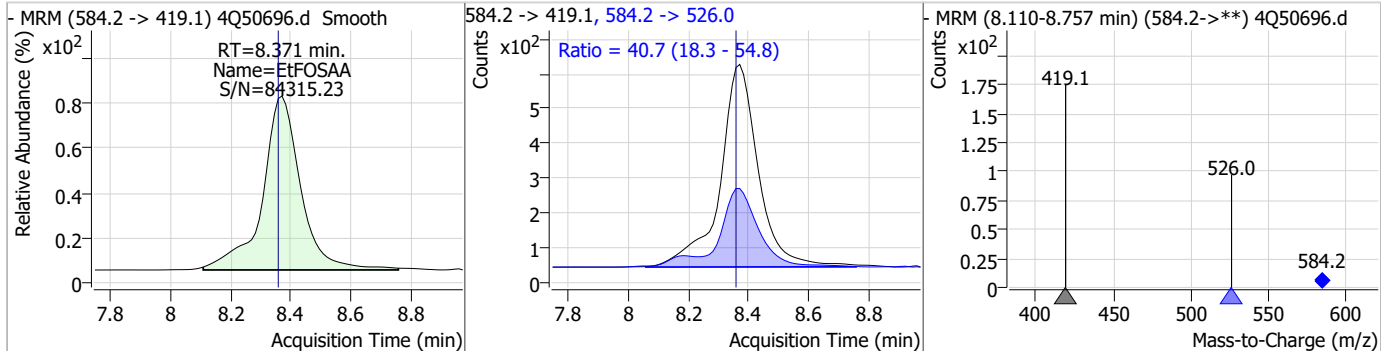
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.97	8.19	0.01	6798 (m)	498.9 -> 98.8	52.8	35.1	105.3



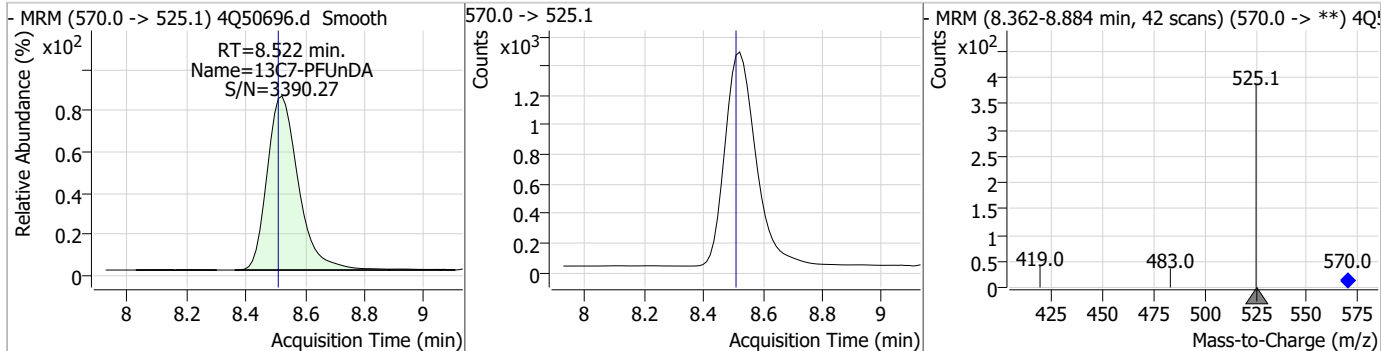
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.16	8.36	0.00	10532				



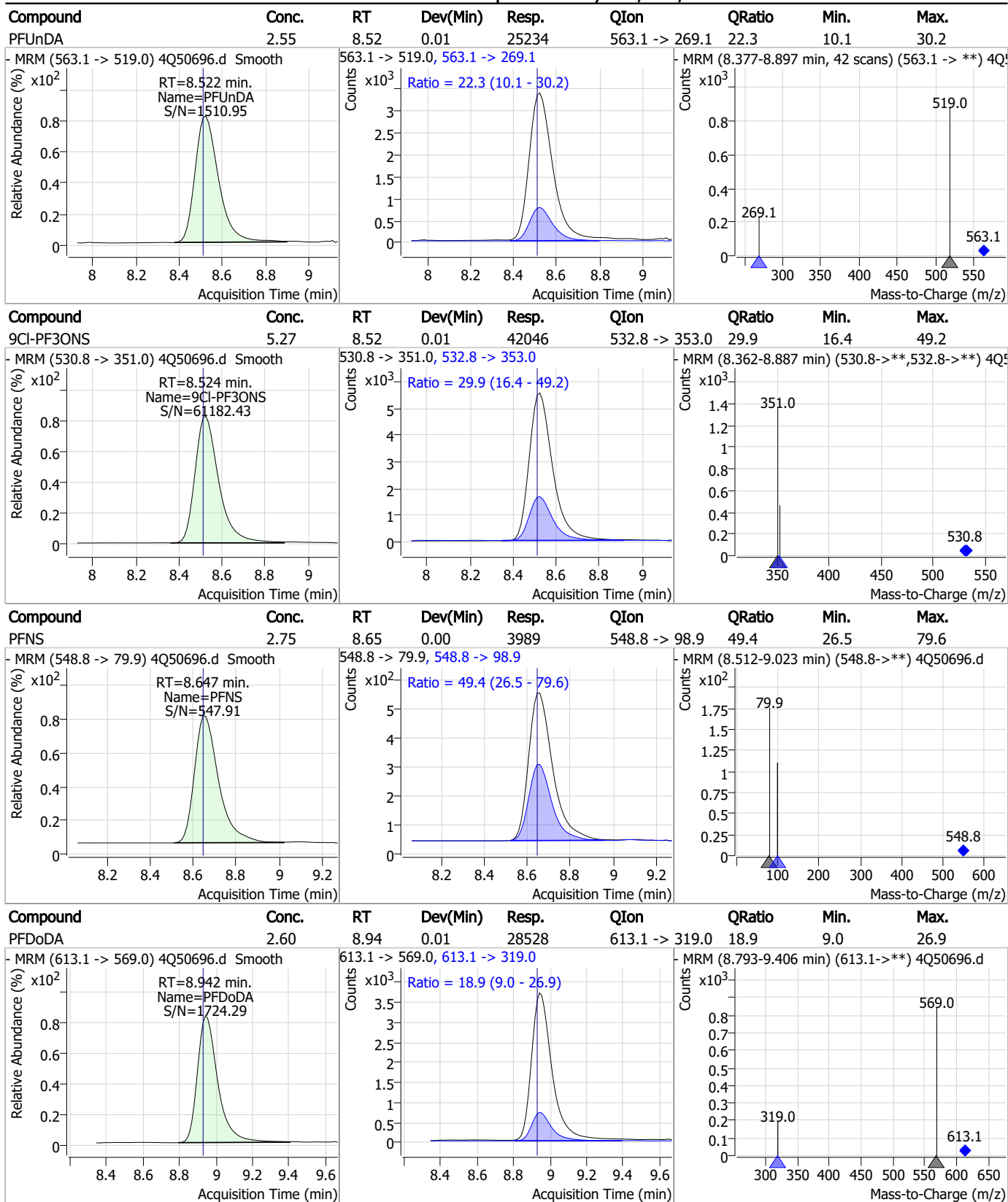
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.77	8.37	0.01	5143	584.2 -> 526.0	40.7	18.3	54.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.31	8.52	0.01	10641				



Perfluorinated Compounds by LC/MS/MS



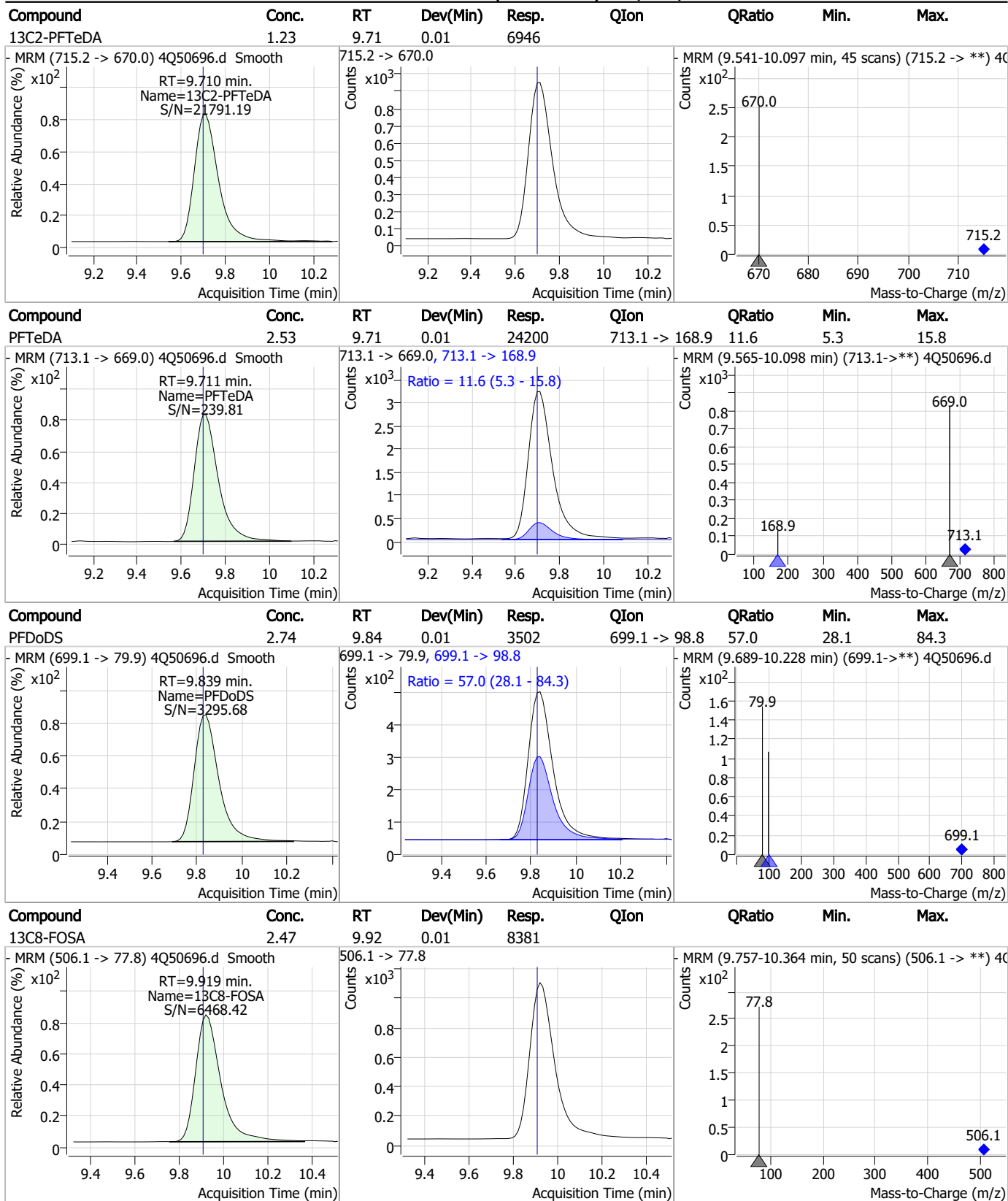
7.7.10
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.20	8.94	0.00	12829				
PFDS	2.67	9.08	0.00	4767	599.0 -> 98.8	52.1	24.2	72.5
PFTrDA	2.74	9.34	0.01	32999	663.0 -> 168.9	14.4	7.0	21.0
11Cl-PF3OUdS	4.96	9.37	0.01	36523	632.9 -> 452.9	31.4	15.1	45.2

7.7.10
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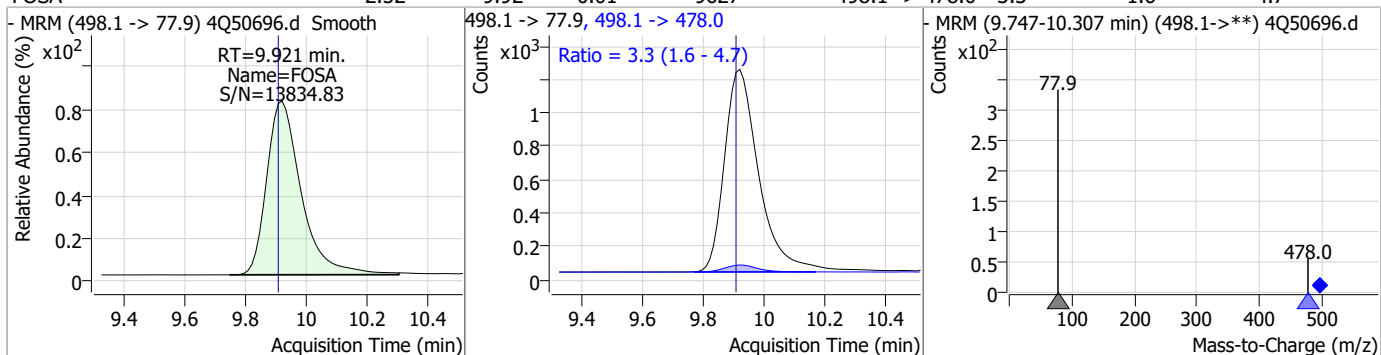
Perfluorinated Compounds by LC/MS/MS



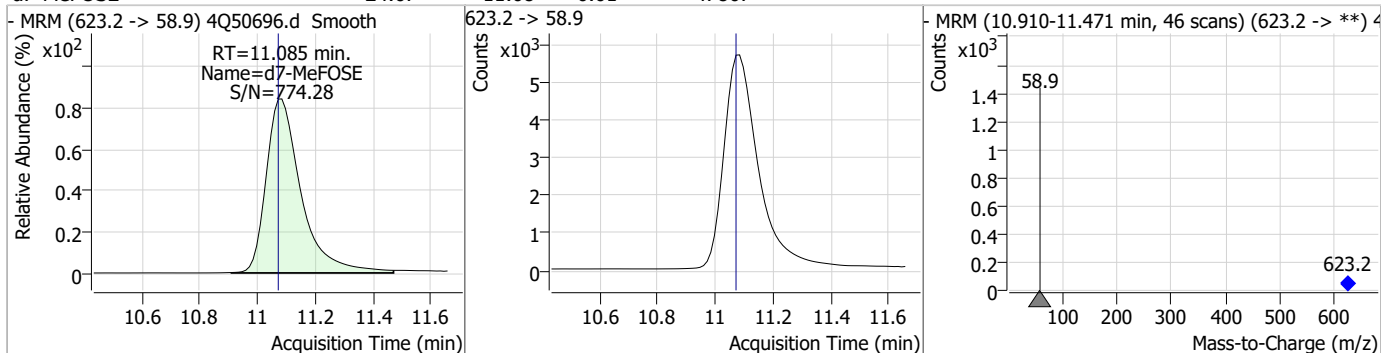
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

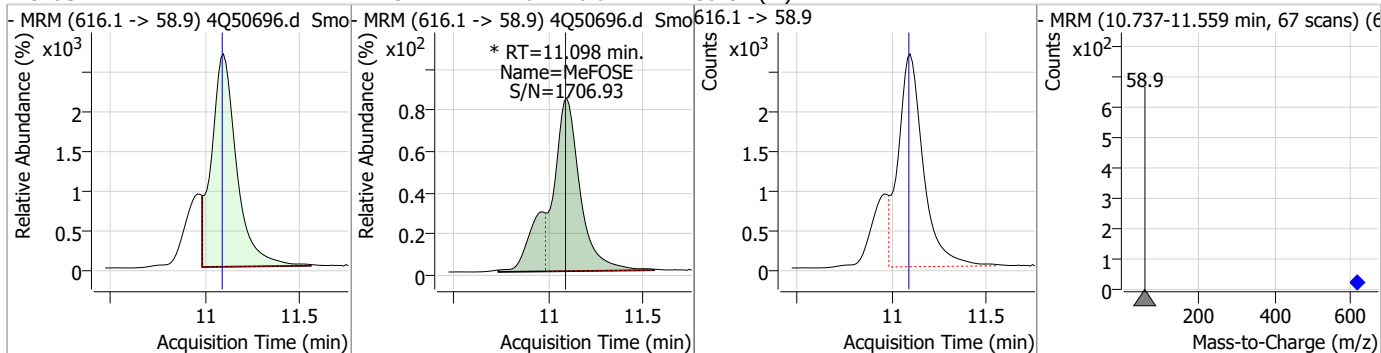
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.52	9.92	0.01	9627	498.1 -> 478.0	3.3	1.6	4.7



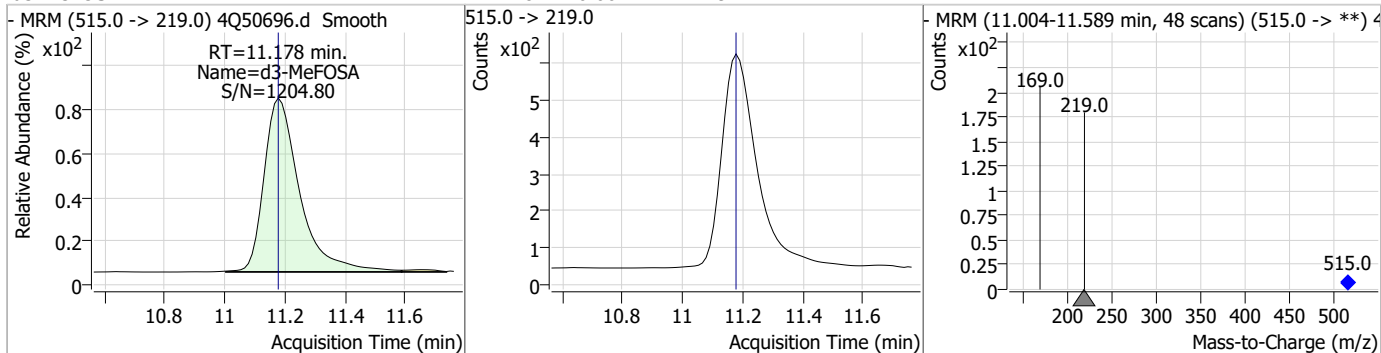
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.67	11.08	0.01	47807				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.92	11.10	0.01	30297 (m)				

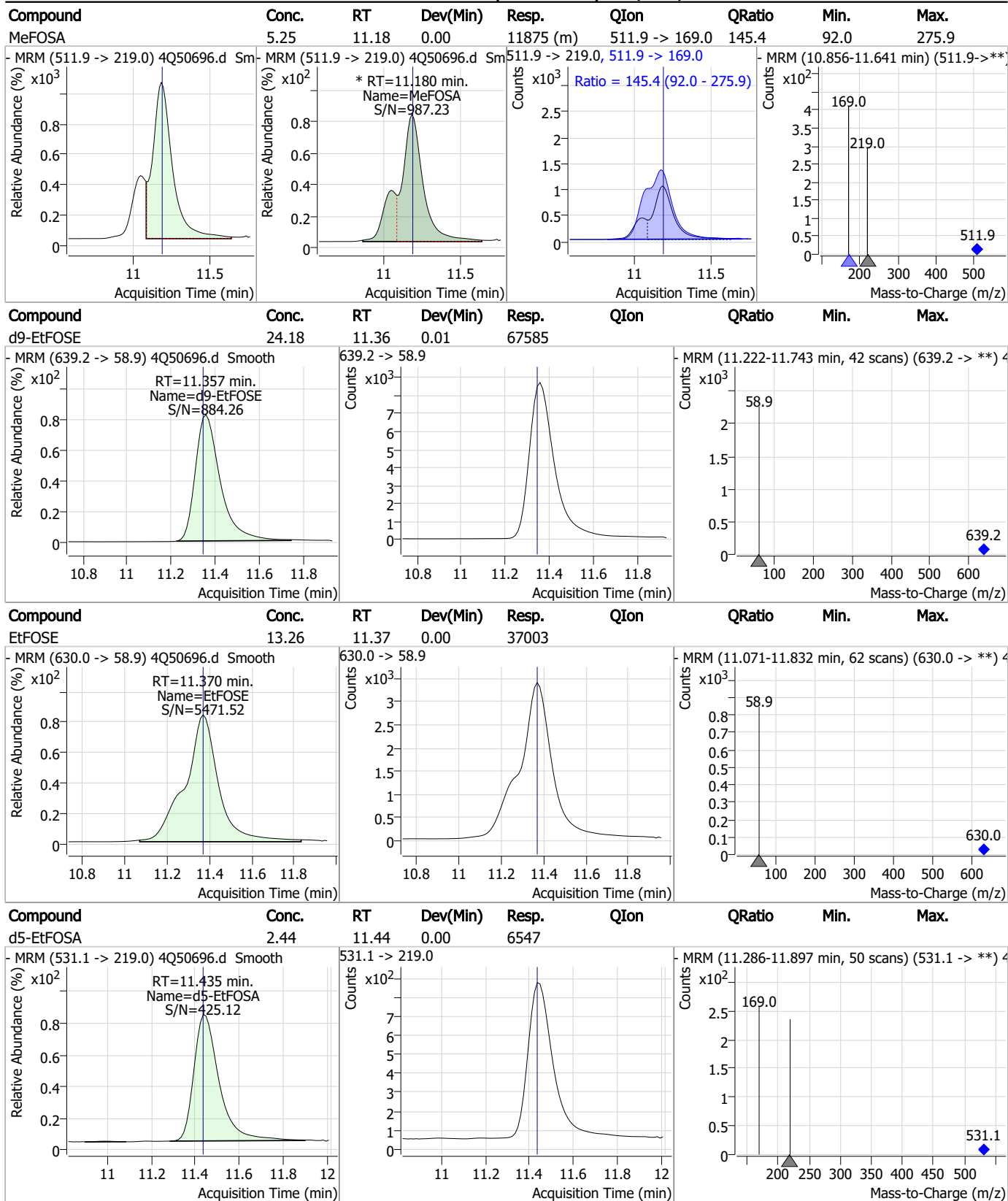


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.41	11.18	0.00	4797				



7.7.10
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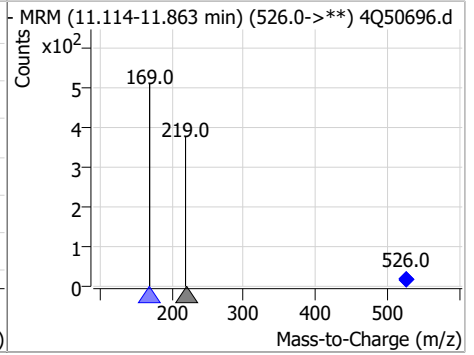
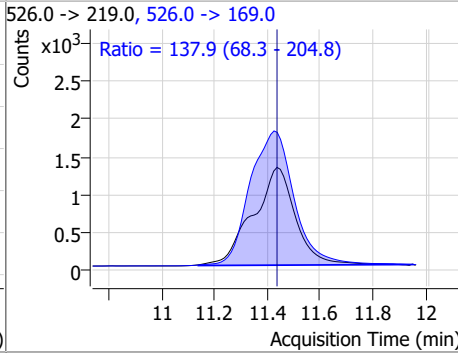
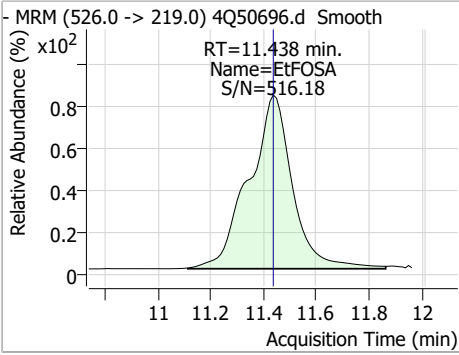
Perfluorinated Compounds by LC/MS/MS



7.7.10
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	5.27	11.44	0.00	15069	526.0 -> 169.0	137.9	68.3	204.8



7.7.10
7



Manual Integration Approval Summary

Sample Number: S4Q741-ICV741 Method: EPA DRAFT 1633
Lab FileID: 4Q50696.D Analyst approved: 09/18/23 11:34 Anna Ludwig
Injection Time: 09/17/23 15:05 Supervisor approved: 09/18/23 14:43 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.12	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.19	Split peak
MeFOSE	24448-09-7		11.10	Split peak
MeFOSA	31506-32-8		11.18	Split peak

7.7.10.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50697.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/17/2023 3:20:43 PM
 Sample Name : icv741-20
 Vial : P1-B4
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q741.batch.bin
 Sample Information : OP98180,S4Q741,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.724	216.8 -> 171.9	85880	10.00 µg/L	0.012
M5-PFPeA	4.228	268.3 -> 223.0	33251	5.00 µg/L	0.012
M5-PFHxA	5.420	318.0 -> 273.0	31924	2.50 µg/L	0.012
M4-PFHpA	6.366	367.1 -> 322.0	21692	2.50 µg/L	0.012
M8-PFOA	7.049	421.1 -> 376.0	36593	2.50 µg/L	0.012
M9-PFNA	7.582	472.1 -> 427.0	13286	1.25 µg/L	0.012
M6-PFDA	8.065	519.1 -> 474.1	9797	1.25 µg/L	0.000
M7-PFUnDA	8.522	570.0 -> 525.1	11026	1.25 µg/L	0.012
M2-PFDoDA	8.941	615.1 -> 570.0	13760	1.25 µg/L	0.000
M2-PFTeDA	9.710	715.2 -> 670.0	7406	1.25 µg/L	0.012
M8-FOSA	9.919	506.1 -> 77.8	8357	2.50 µg/L	0.012
M3-PFBS	5.276	302.1 -> 79.9	7653	2.50 µg/L	0.012
M3-PFHxS	7.103	402.1 -> 79.9	4839	2.50 µg/L	0.000
M8-PFOS	8.191	507.1 -> 79.9	5587	2.50 µg/L	0.012
M2-4:2FTS	5.121	329.1 -> 80.9	929	5.00 µg/L	0.012
M2-6:2FTS	6.834	429.1 -> 80.9	1631	5.00 µg/L	0.025
M2-8:2FTS	7.877	529.1 -> 80.9	2538	5.00 µg/L	0.012
M3-MeFOSAA	8.160	573.2 -> 419.0	11704	5.00 µg/L	0.012
M3-HFPO-DA	5.775	286.9 -> 168.9	29508	10.00 µg/L	0.012
M5-EtFOSAA	8.370	589.2 -> 419.0	10738	5.00 µg/L	0.012
M7-MeFOSE	11.085	623.2 -> 58.9	47037	25.00 µg/L	0.012
M9-EtFOSE	11.357	639.2 -> 58.9	67972	25.00 µg/L	0.012
M5-EtFOSA	11.448	531.1 -> 219.0	6590	2.50 µg/L	0.012
M3-MeFOSA	11.178	515.0 -> 219.0	5131	2.50 µg/L	0.000
13C4-PFOS	8.191	502.8 -> 79.9	5106	2.50 µg/L	0.012
13C3-PFBA	2.728	216.0 -> 172.0	43263	5.00 µg/L	0.012
18O2-PFHxS	7.115	403.0 -> 83.9	3040	2.50 µg/L	0.012
13C4-PFOA	7.050	417.1 -> 372.0	39522	2.50 µg/L	0.012
13C2-PFDA	8.078	515.1 -> 470.1	10219	1.25 µg/L	0.012
13C5-PFNA	7.583	468.0 -> 423.0	11540	1.25 µg/L	0.012
13C2-PFHxA	5.421	315.1 -> 270.0	27916	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.121	329.1 -> 80.9	929	5.59 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.9%		
13C2-6:2FTS	6.834	429.1 -> 80.9	1631	6.35 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 126.9%		
13C2-8:2FTS	7.877	529.1 -> 80.9	2538	6.39 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 127.9%		
13C2-PFDoDA	8.941	615.1 -> 570.0	13760	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C2-PFTeDA	9.710	715.2 -> 670.0	7406	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C3-PFBS	5.276	302.1 -> 79.9	7653	2.63 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C3-PFHxS	7.103	402.1 -> 79.9	4839	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 = 105.9%	
13C4-PFBA	2.724	216.8 -> 171.9	85880	10.03 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C4-PFHpA	6.366	367.1 -> 322.0	21692	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C5-PFHxA	5.420	318.0 -> 273.0	31924	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C5-PFPeA	4.228	268.3 -> 223.0	33251	5.06 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C6-PFDA	8.065	519.1 -> 474.1	9797	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C7-PFUnDA	8.522	570.0 -> 525.1	11026	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C8-FOSA	9.919	506.1 -> 77.8	8357	2.37 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C8-PFOA	7.049	421.1 -> 376.0	36593	2.52 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C8-PFOS	8.191	507.1 -> 79.9	5587	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C9-PFNA	7.582	472.1 -> 427.0	13286	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.8%	
d3-MeFOSAA	8.160	573.2 -> 419.0	11704	5.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C3-HFPO-DA	5.775	286.9 -> 168.9	29508	9.77 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d3-MeFOSA	11.178	515.0 -> 219.0	5131	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
d5-EtFOSAA	8.370	589.2 -> 419.0	10738	5.05 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
d7-MeFOSE	11.085	623.2 -> 58.9	47037	23.31 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
d9-EtFOSE	11.357	639.2 -> 58.9	67972	23.35 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.4%	
d5-EtFOSA	11.448	531.1 -> 219.0	6590	2.36 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.2%	
Target Compounds					QValue
4:2FTS	5.122	327.1 -> 307.0	39443	25.08 µg/L	99
		327.1 -> 80.9	15535		
6:2FTS	6.822	427.1 -> 407.0	40922	21.72 µg/L	96
		427.1 -> 80.9	14553		
8:2FTS	7.877	527.1 -> 507.0	28420	19.87 µg/L	96
		527.1 -> 80.8	11835		
EtFOSAA	8.371	584.2 -> 419.1	39828	21.07 µg/L	90
		584.2 -> 526.0	17007		
FOSA	9.921	498.1 -> 77.9	76243	20.04 µg/L	99
		498.1 -> 478.0	2234		
MeFOSAA	8.160	570.1 -> 419.0	53754	21.04 µg/L	94
		570.1 -> 483.0	9491		
PFBA	2.720	212.8 -> 168.9	66429	20.21 µg/L	100
PFBS	5.277	298.7 -> 79.9	80253	22.30 µg/L	96
		298.7 -> 98.8	30807		
PFDA	8.078	512.9 -> 469.0	181136	20.21 µg/L	97
		512.9 -> 219.0	37283		
PFDoDA	8.942	613.1 -> 569.0	230340	19.61 µg/L	97
		613.1 -> 319.0	37799		
PFDS	9.081	599.0 -> 79.9	41498	20.52 µg/L	94

7.7.11
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.366	599.0 -> 98.8	21714	21.97	µg/L	99
		363.1 -> 319.0	283144			
PFHpS	7.685	363.1 -> 169.0	55211	20.99	µg/L	98
		449.0 -> 79.9	50263			
PFHxA	5.423	449.0 -> 98.9	25734	21.76	µg/L	100
		313.0 -> 269.0	245661			
PFHxS	7.116	313.0 -> 118.9	7791	22.22	µg/L	m
		398.7 -> 79.9	47463			
PFNA	7.583	398.7 -> 98.9	23478	22.94	µg/L	98
		463.0 -> 419.0	185423			
PFNS	8.659	463.0 -> 219.0	44538	19.54	µg/L	99
		548.8 -> 79.9	32105			
PFOA	7.051	548.8 -> 98.9	16780	20.08	µg/L	99
		413.0 -> 369.0	330012			
PFOS	8.192	413.0 -> 169.0	70903	21.98	µg/L	m
		498.9 -> 79.9	57000			
PFPeA	4.229	498.9 -> 98.8	25937	21.53	µg/L	100
		263.0 -> 219.0	225759			
PFPeS	6.355	349.1 -> 79.9	40765	20.47	µg/L	94
		349.1 -> 98.9	18159			
PFTeDA	9.699	713.1 -> 669.0	220067	21.54	µg/L	100
		713.1 -> 168.9	23454			
PFTrDA	9.340	663.0 -> 619.0	252826	19.58	µg/L	99
		663.0 -> 168.9	34202			
PFUnDA	8.522	563.1 -> 519.0	199298	19.40	µg/L	97
		563.1 -> 269.1	42654			
11Cl-PF3OUdS	9.367	630.9 -> 450.9	173871	22.26	µg/L	100
		632.9 -> 452.9	52699			
9Cl-PF3ONS	8.524	530.8 -> 351.0	183372	21.65	µg/L	96
		532.8 -> 353.0	56258			
ADONA	6.642	376.9 -> 250.9	430930	19.44	µg/L	99
		376.9 -> 84.8	109818			
HFPO-DA	5.776	284.9 -> 168.9	66045	20.65	µg/L	99
		284.9 -> 184.9	8901			
3:3FTCA	3.718	241.0 -> 177.0	11138	19.06	µg/L	98
		241.0 -> 117.0	1346			
5:3FTCA	6.181	341.0 -> 237.1	40205	20.21	µg/L	96
		341.0 -> 217.0	30544			
7:3FTCA	7.698	441.0 -> 316.9	18388	19.35	µg/L	98
		441.0 -> 336.9	38751			
EtFOSA	11.450	526.0 -> 219.0	55323	19.21	µg/L	79
		526.0 -> 169.0	61625			
EtFOSE	11.370	630.0 -> 58.9	309625	110.35	µg/L	100
		511.9 -> 219.0	42406			
MeFOSA	11.180	511.9 -> 169.0	49766	17.53	µg/L	54
		616.1 -> 58.9	263649			
MeFOSE	11.098	699.1 -> 79.9	28797	114.24	µg/L	100
		699.1 -> 98.8	16373			
PFDoDS	9.826	295.0 -> 201.0	13092	19.90	µg/L	99
		295.0 -> 84.9	3177			
NFDHA	5.302	279.0 -> 85.1	115282	20.71	µg/L	100
		229.0 -> 84.9	129169			
PFMBA	4.642	314.8 -> 134.9	205408	20.71	µg/L	100
		314.8 -> 82.9	6886			
PFMPA	3.358			18.71	µg/L	99
PFEESA	5.808					

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



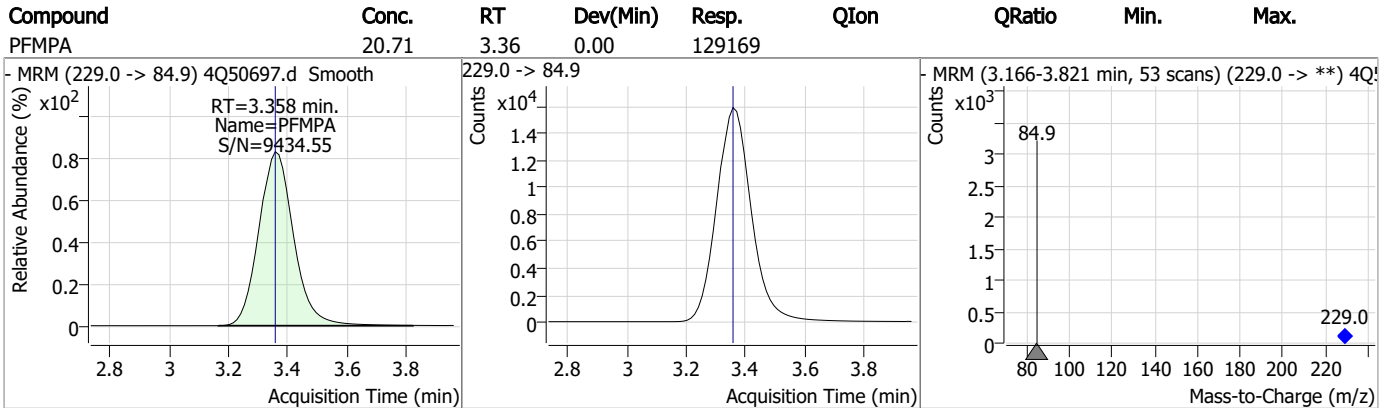
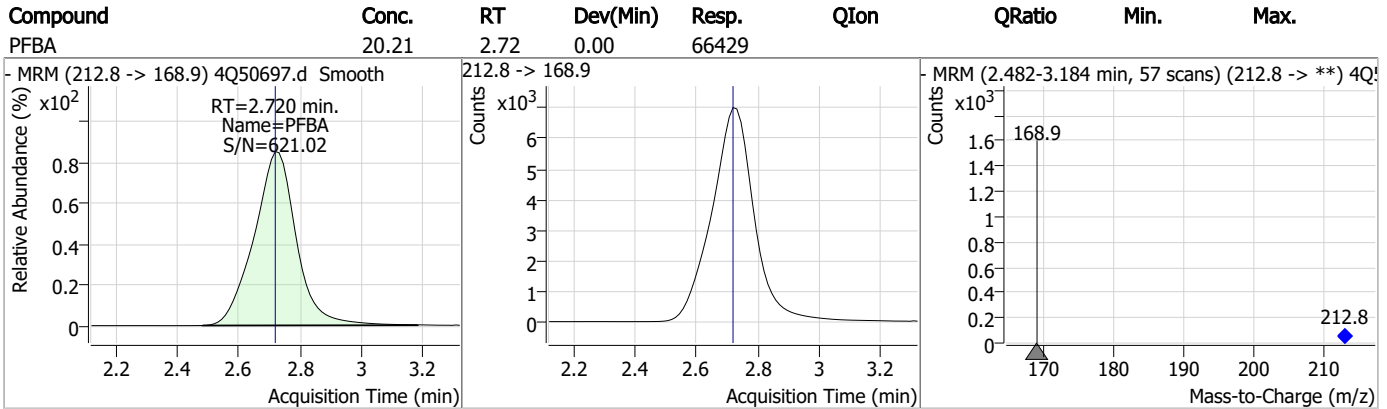
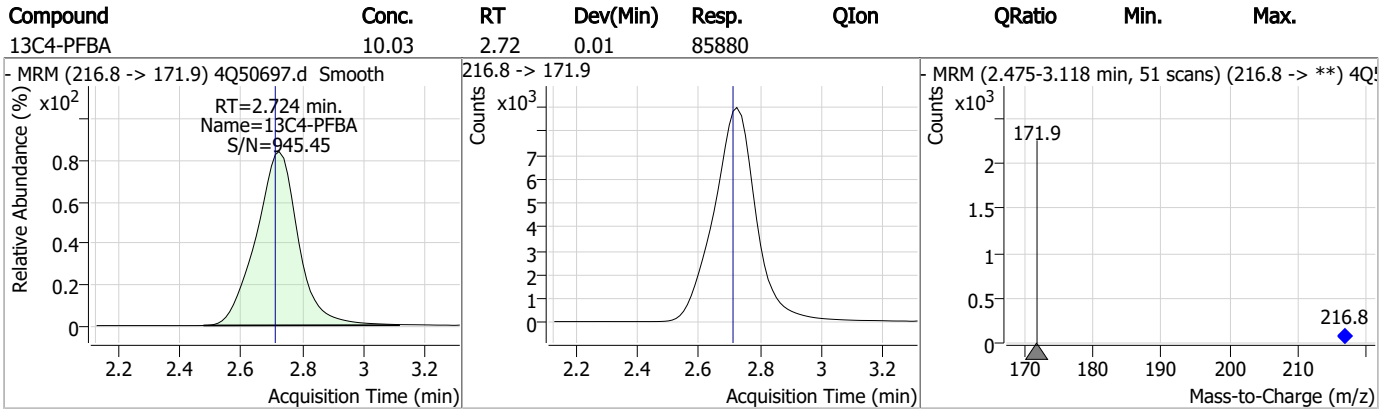
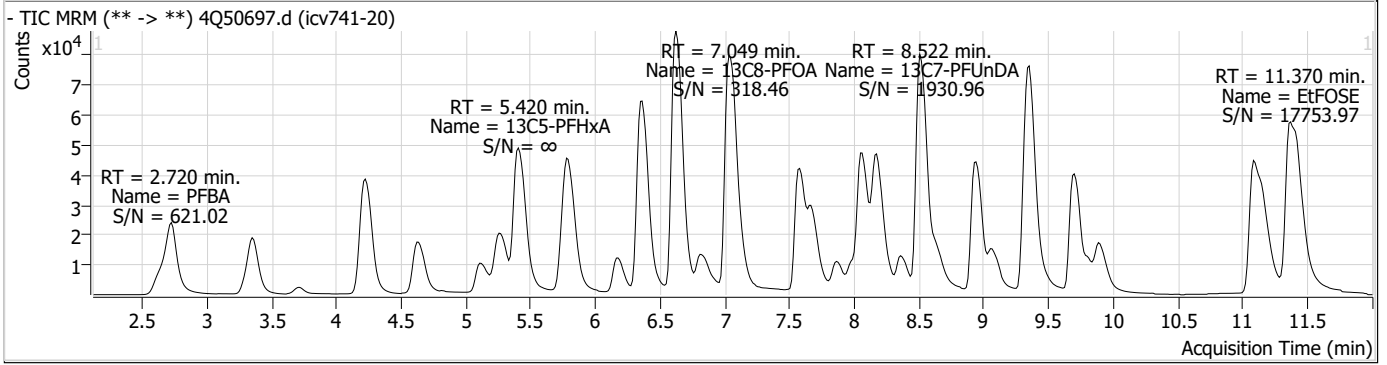
Perfluorinated Compounds by LC/MS/MS

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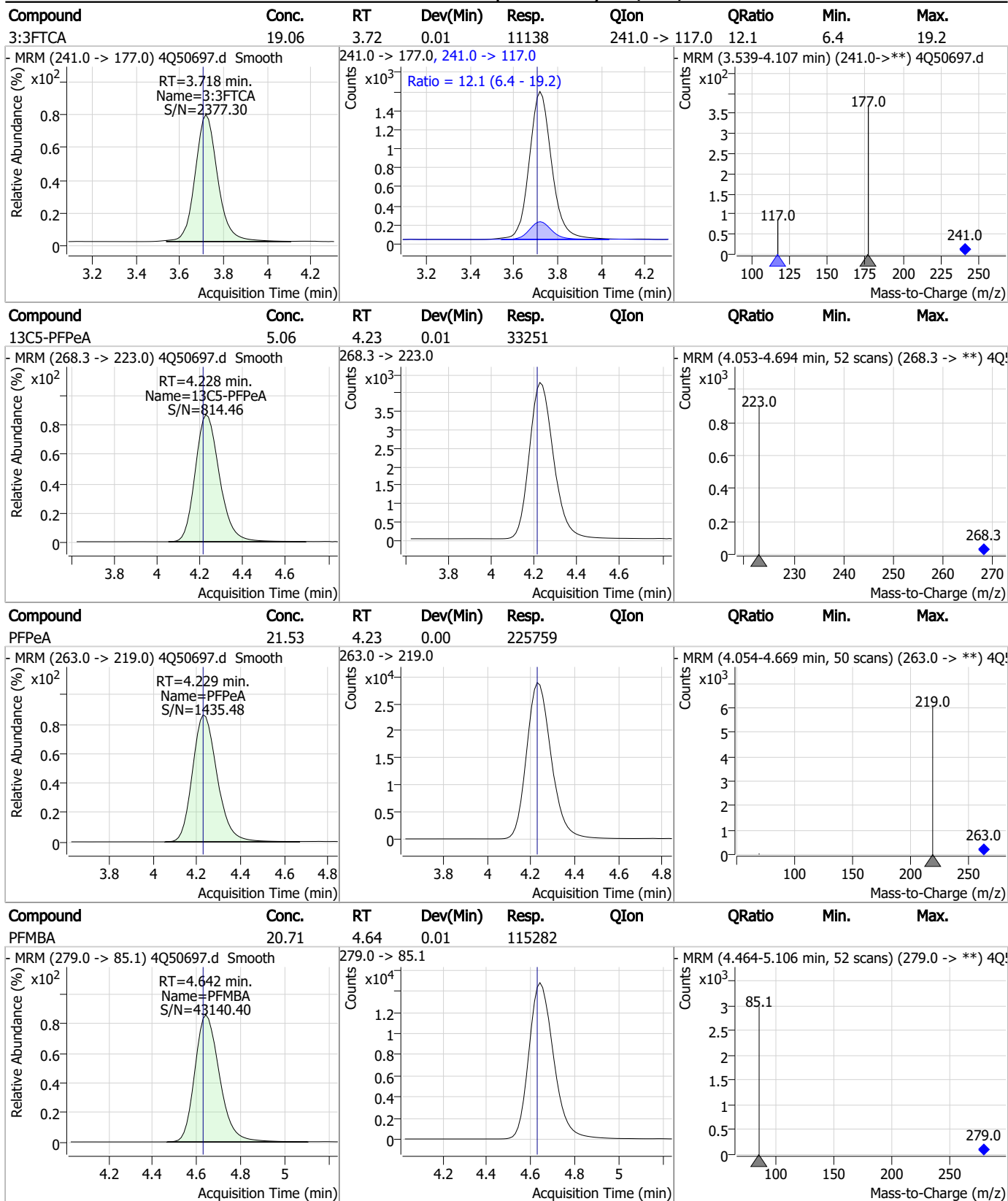
7.7.11

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Perfluorinated Compounds by LC/MS/MS



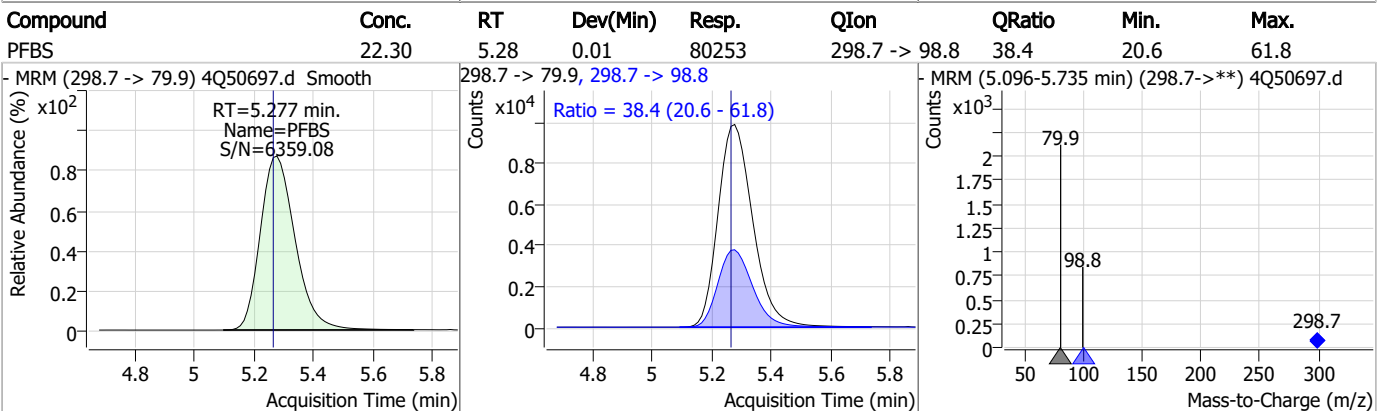
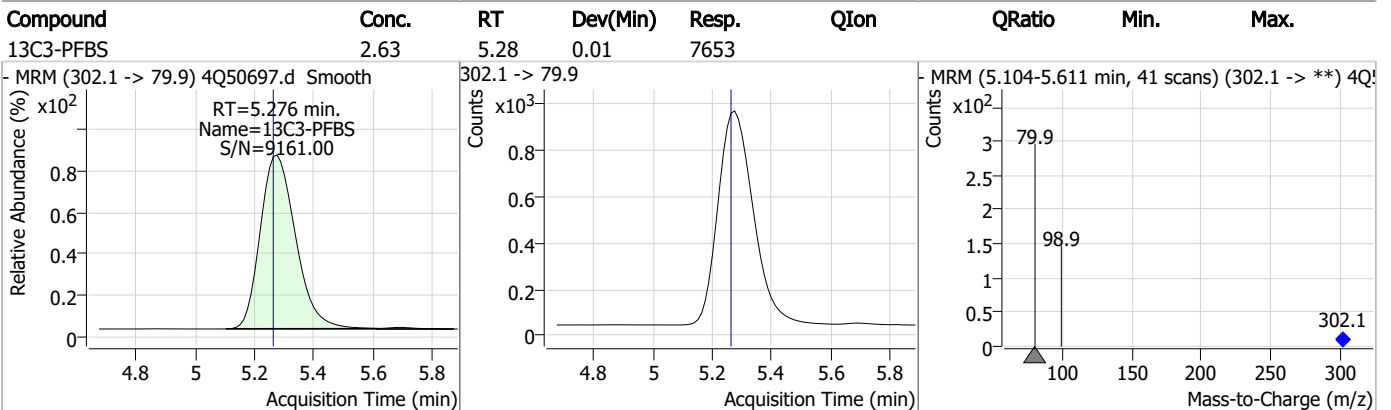
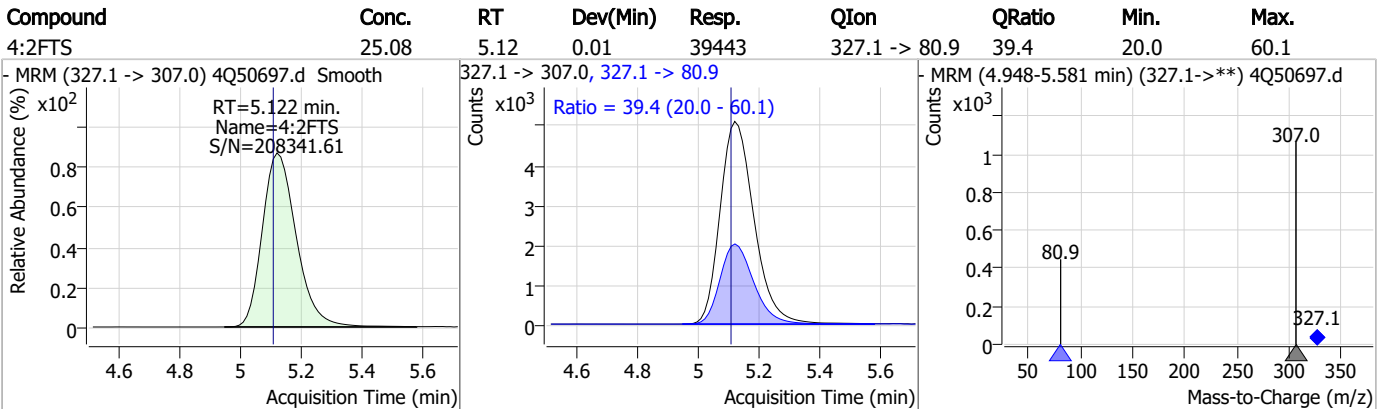
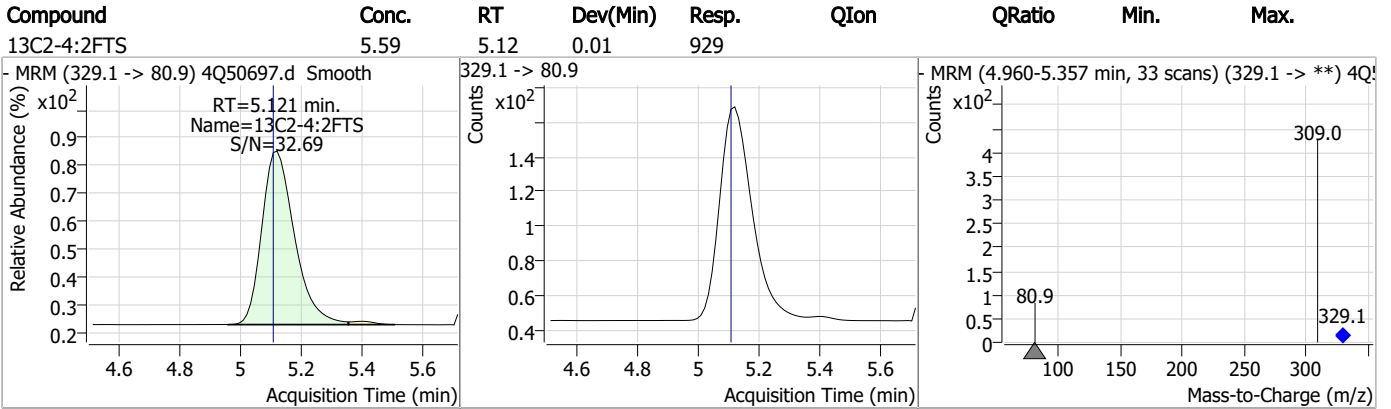
Perfluorinated Compounds by LC/MS/MS



7.7.11

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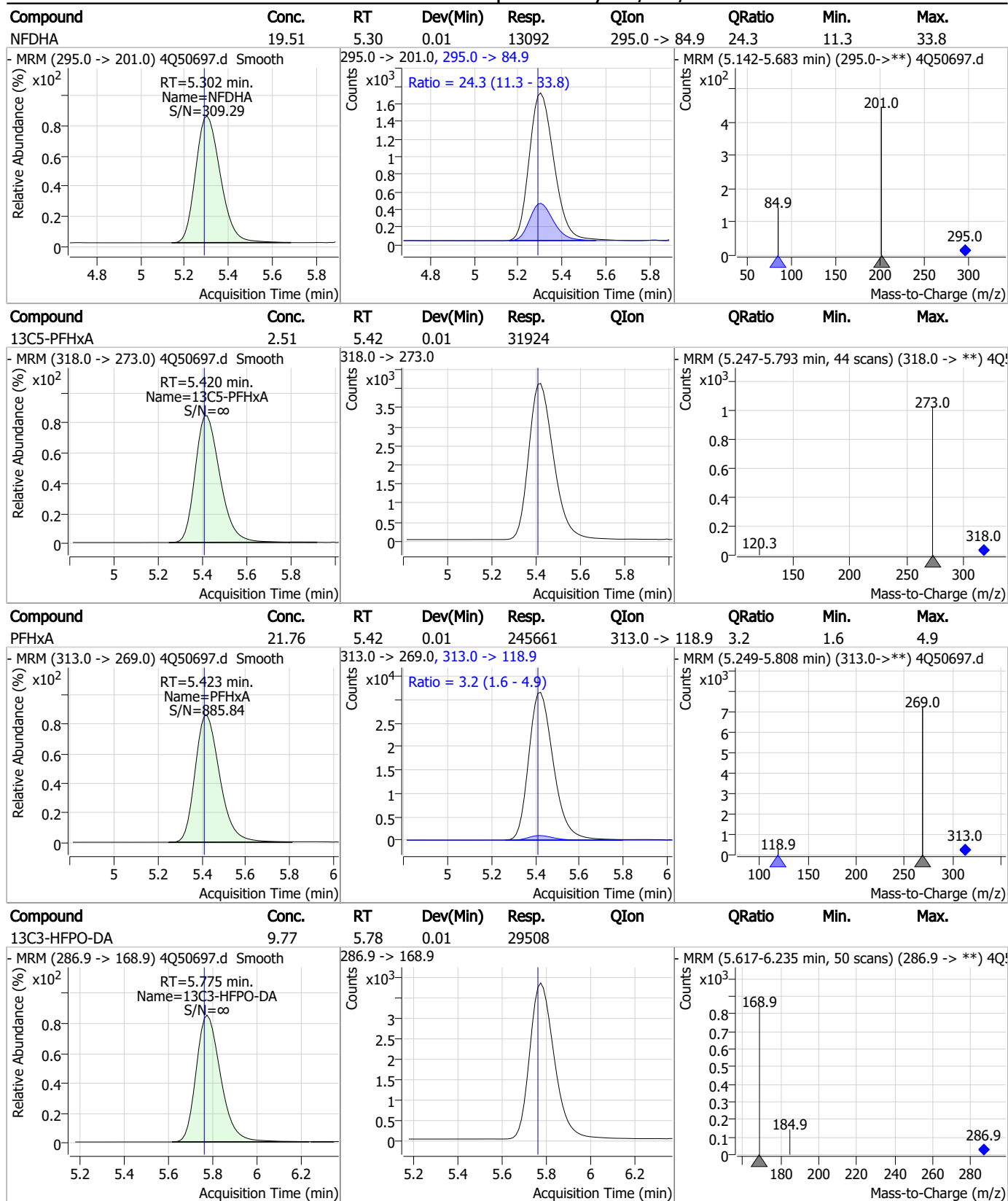
Perfluorinated Compounds by LC/MS/MS



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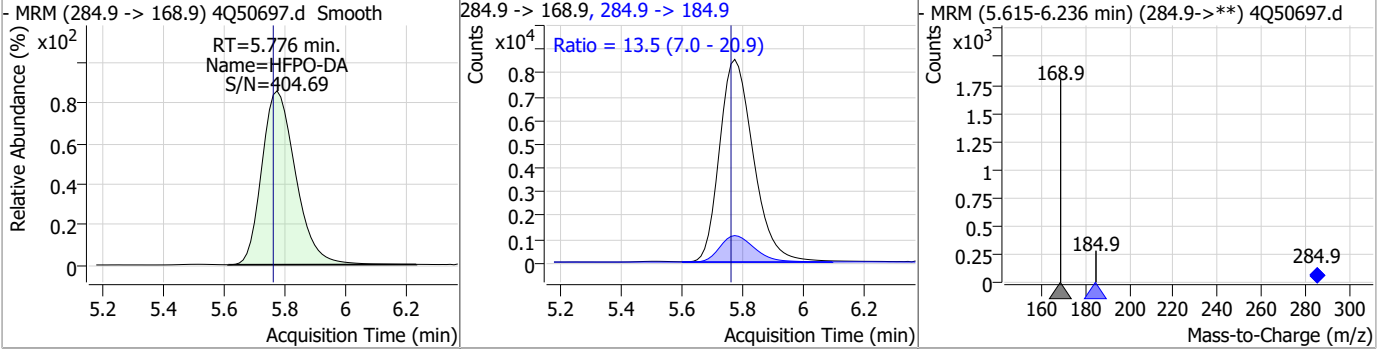
Perfluorinated Compounds by LC/MS/MS



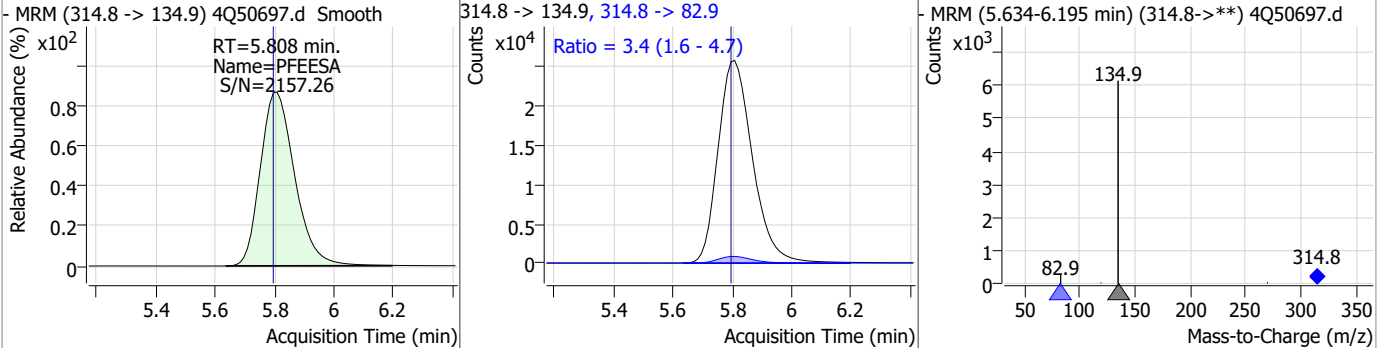
7.7.11
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Perfluorinated Compounds by LC/MS/MS

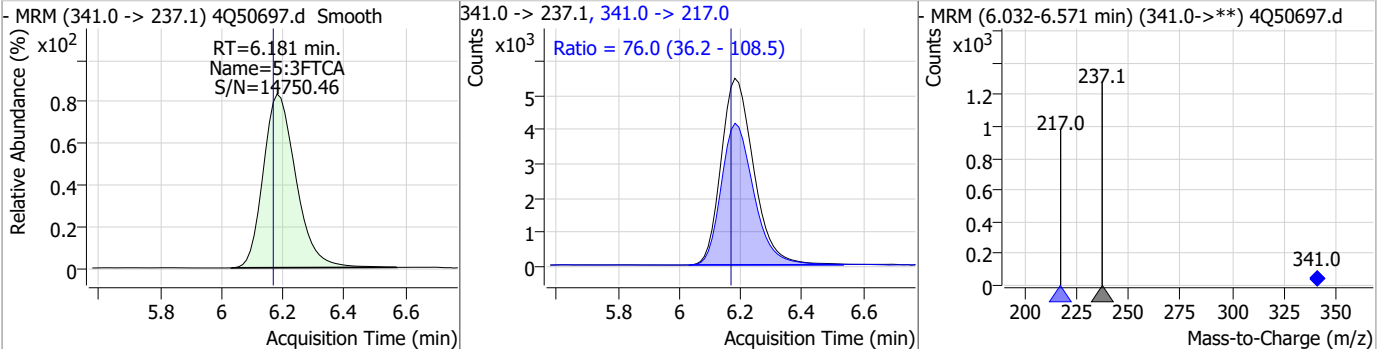
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	20.65	5.78	0.01	66045	284.9 -> 184.9	13.5	7.0	20.9



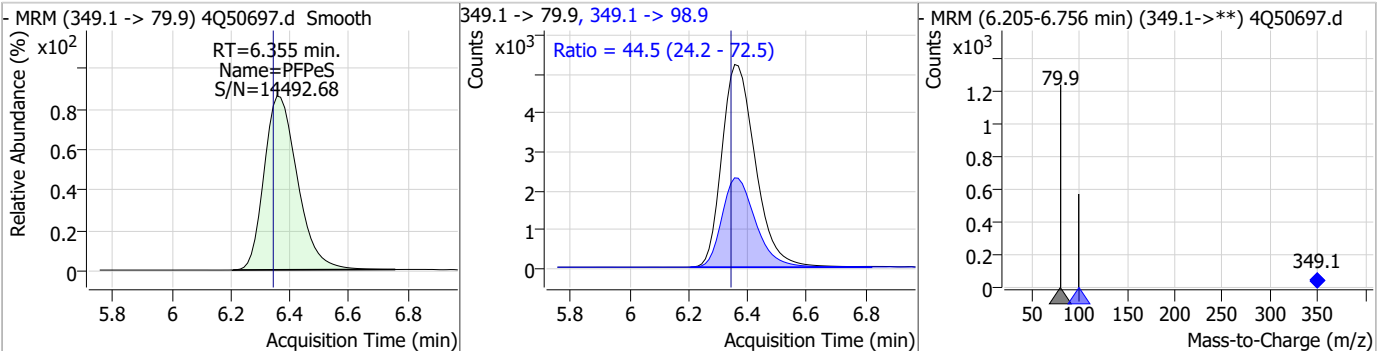
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	18.71	5.81	0.01	205408	314.8 -> 82.9	3.4	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	20.21	6.18	0.01	40205	341.0 -> 217.0	76.0	36.2	108.5

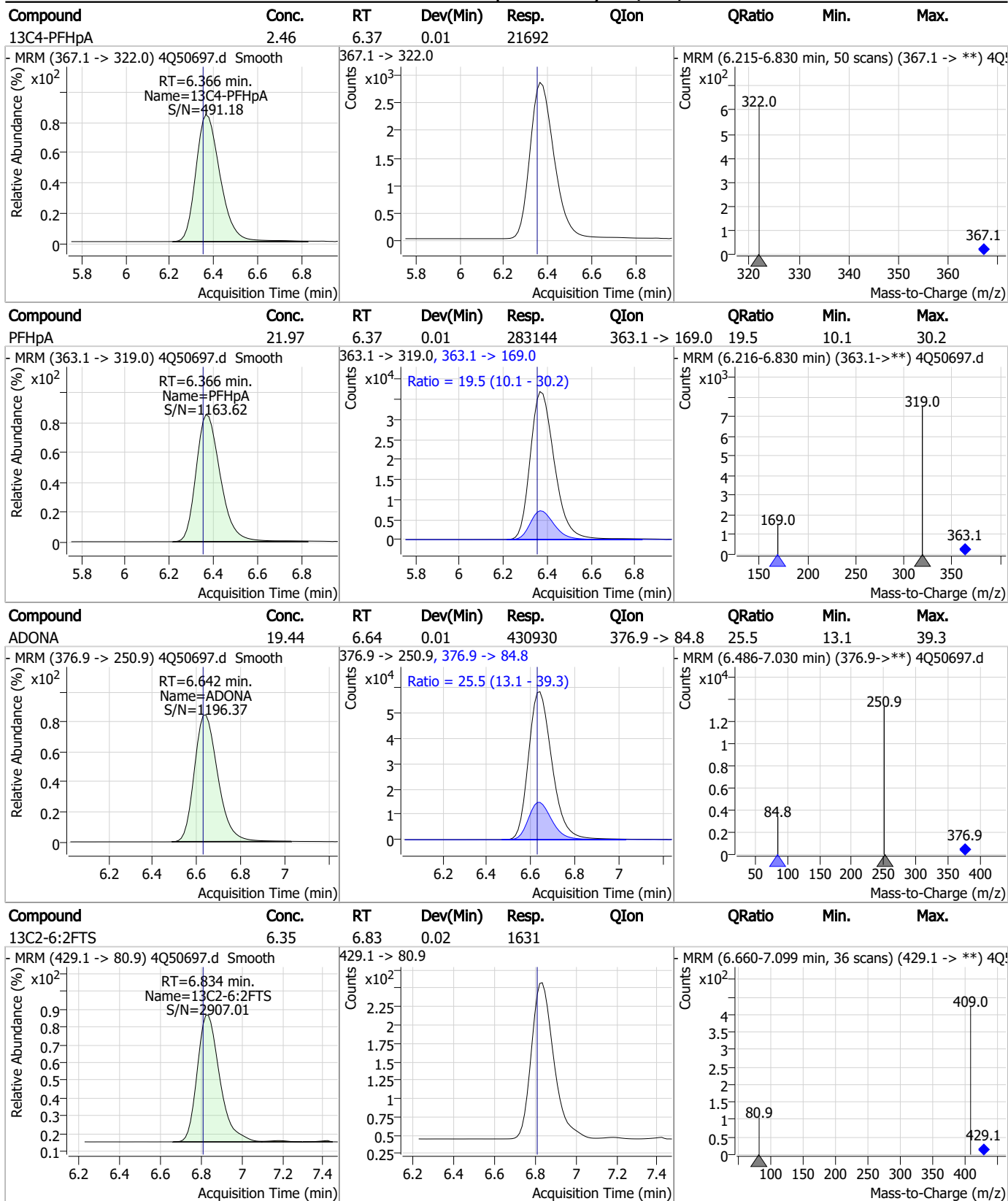


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.47	6.36	0.01	40765	349.1 -> 98.9	44.5	24.2	72.5



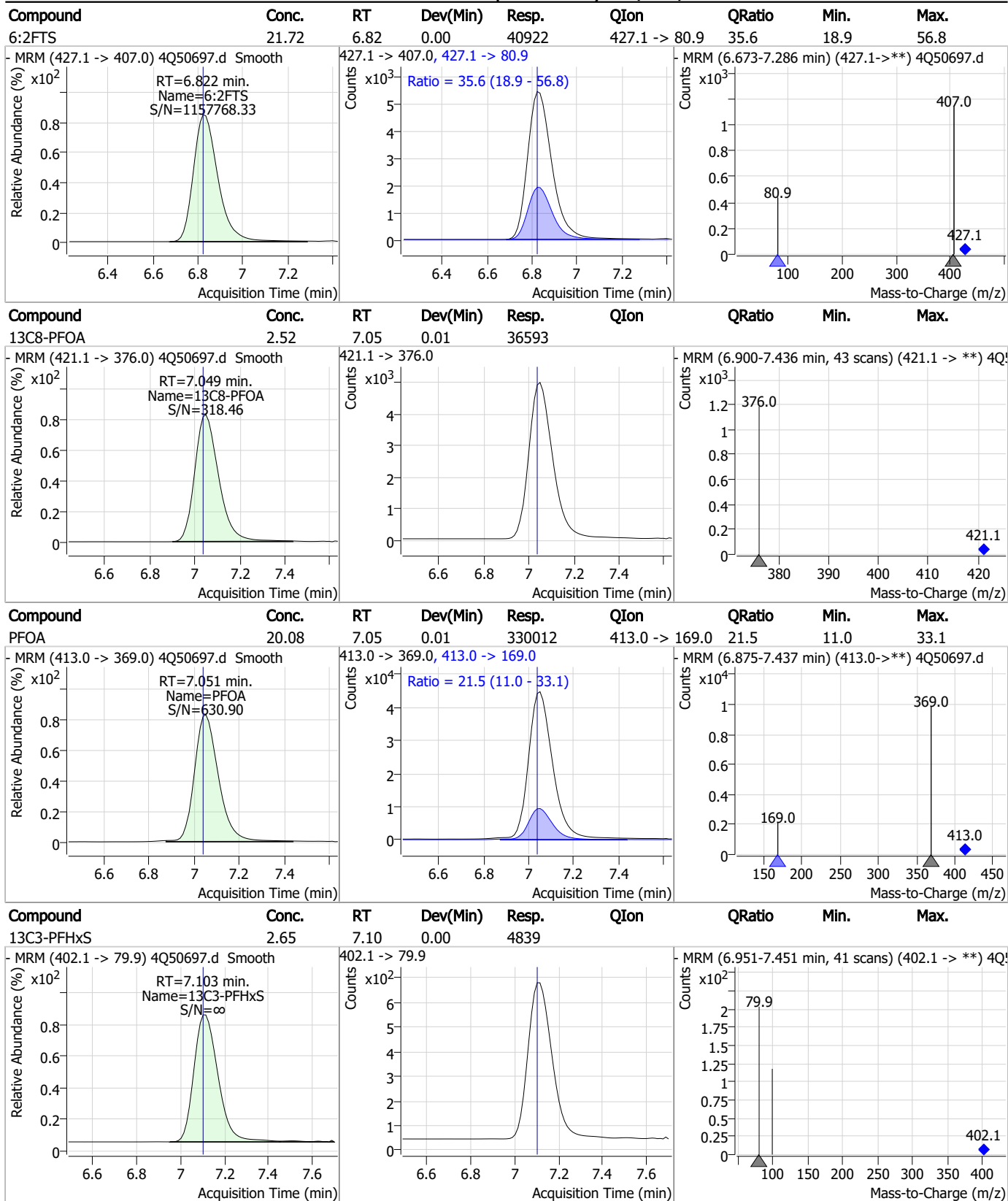
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Perfluorinated Compounds by LC/MS/MS



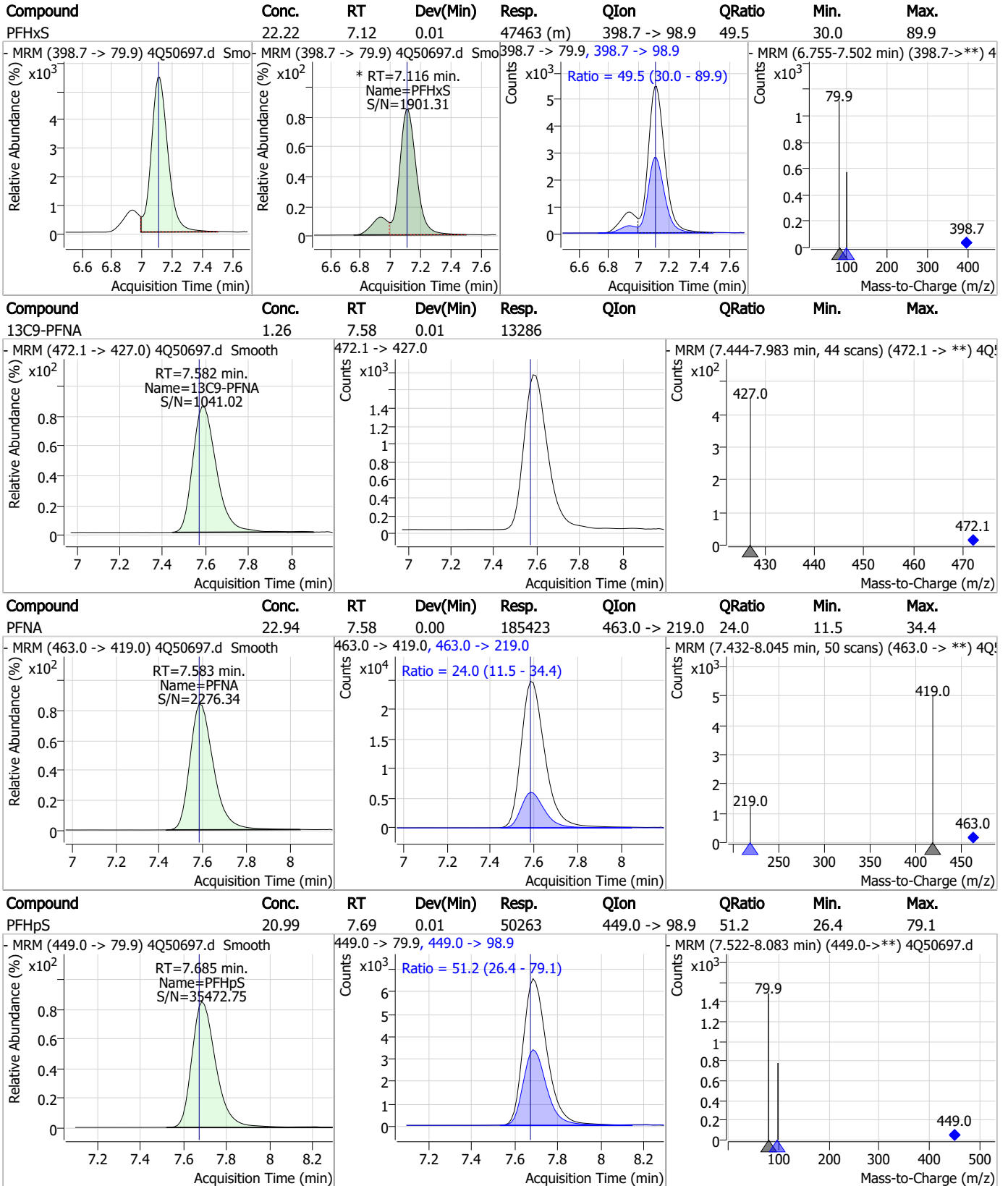
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Perfluorinated Compounds by LC/MS/MS



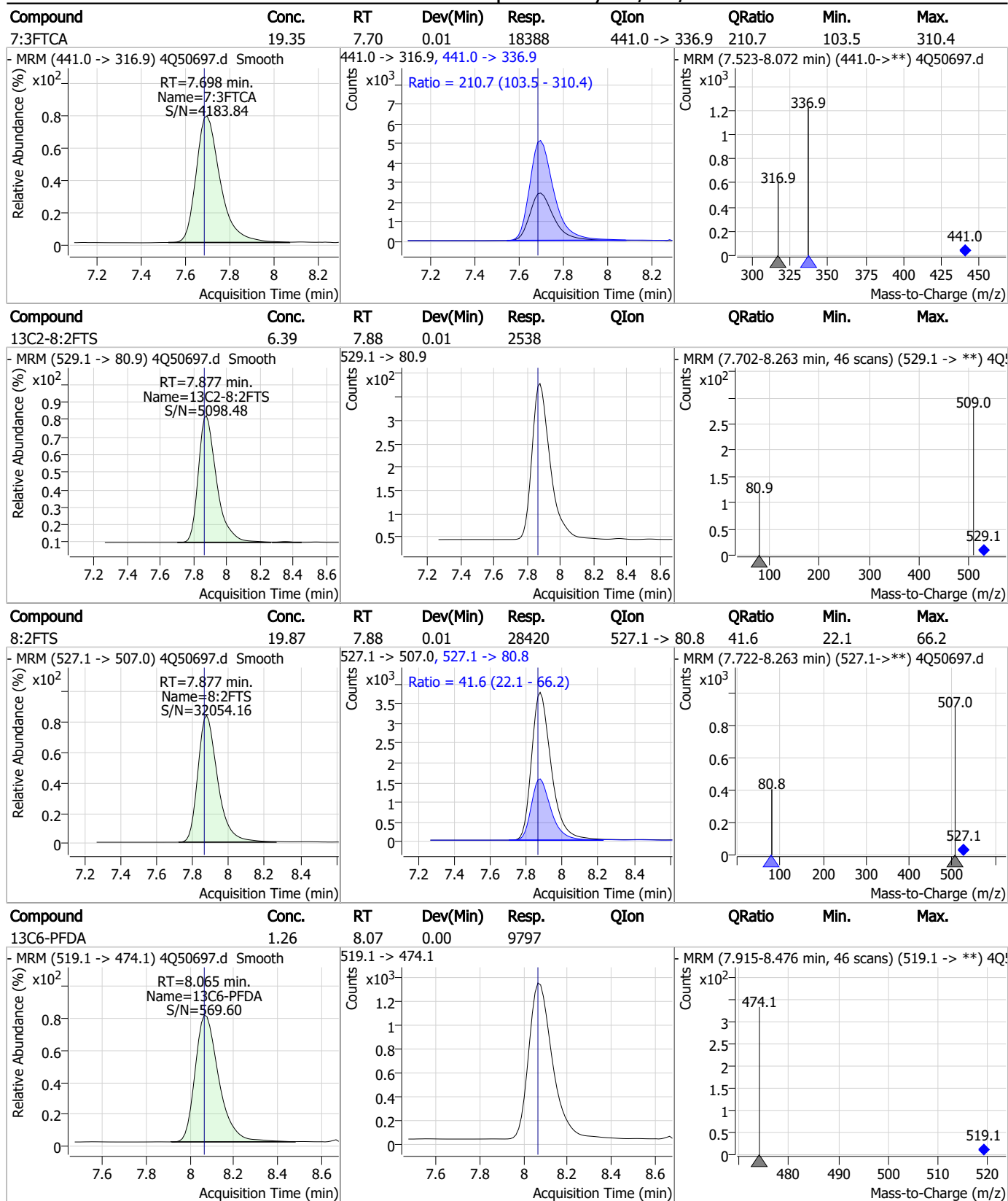
7.7.11
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Perfluorinated Compounds by LC/MS/MS



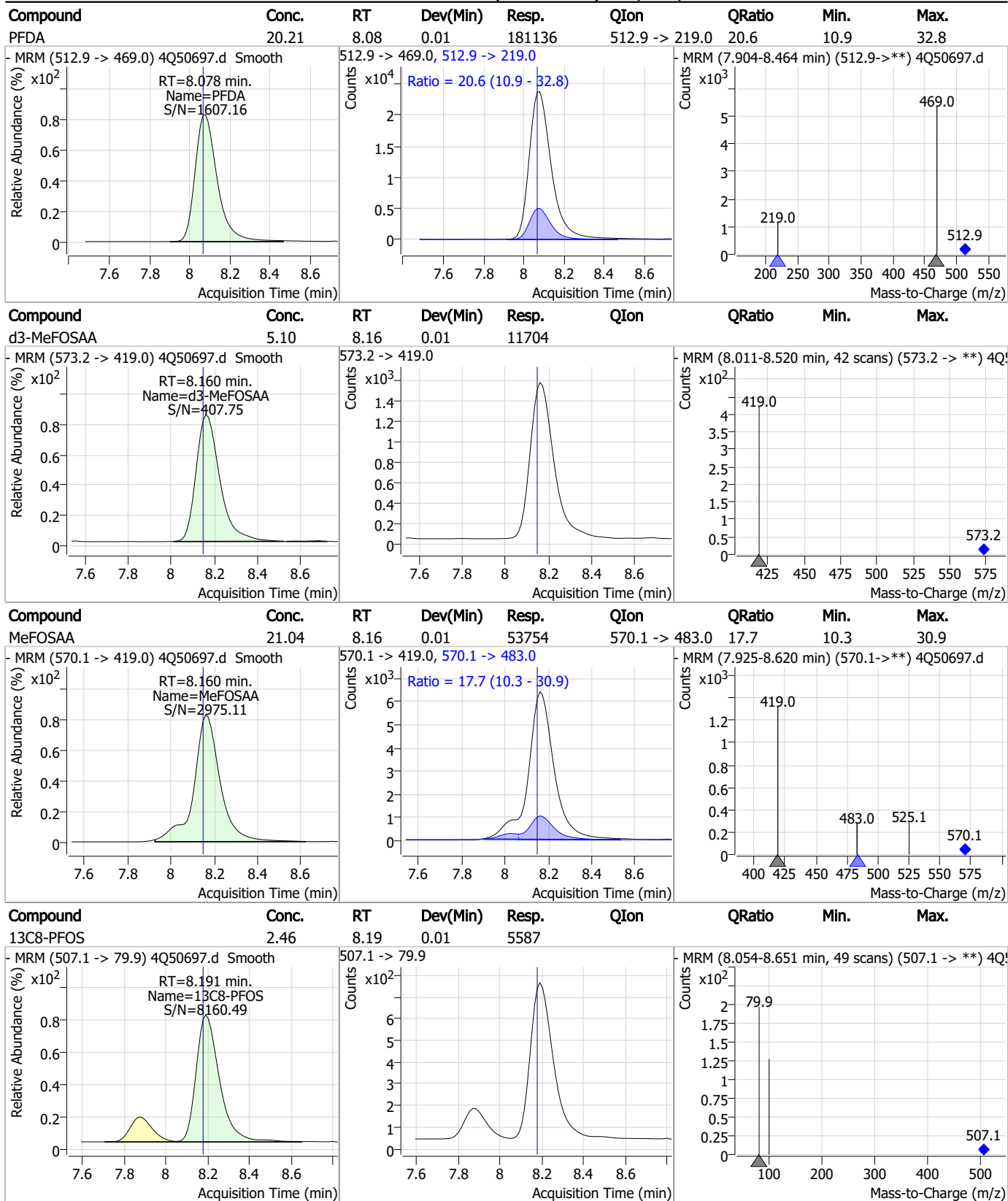
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Perfluorinated Compounds by LC/MS/MS



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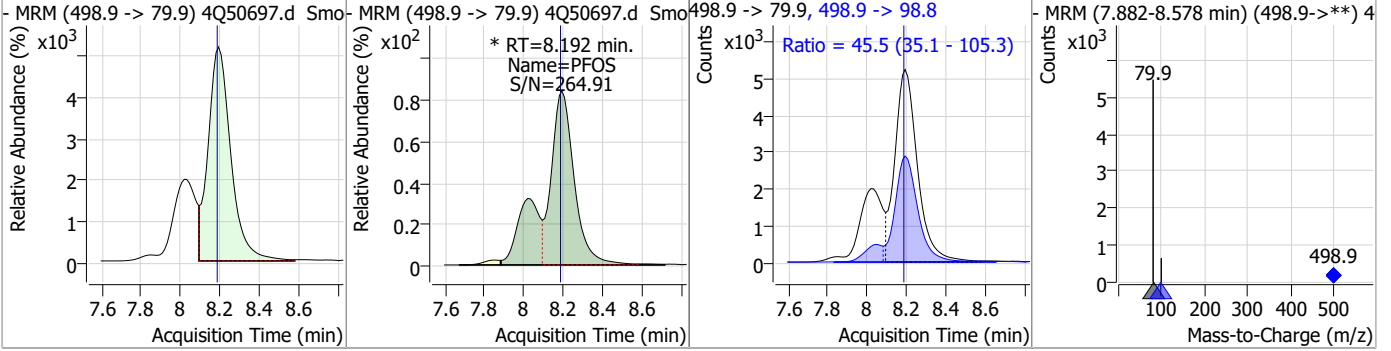
Perfluorinated Compounds by LC/MS/MS



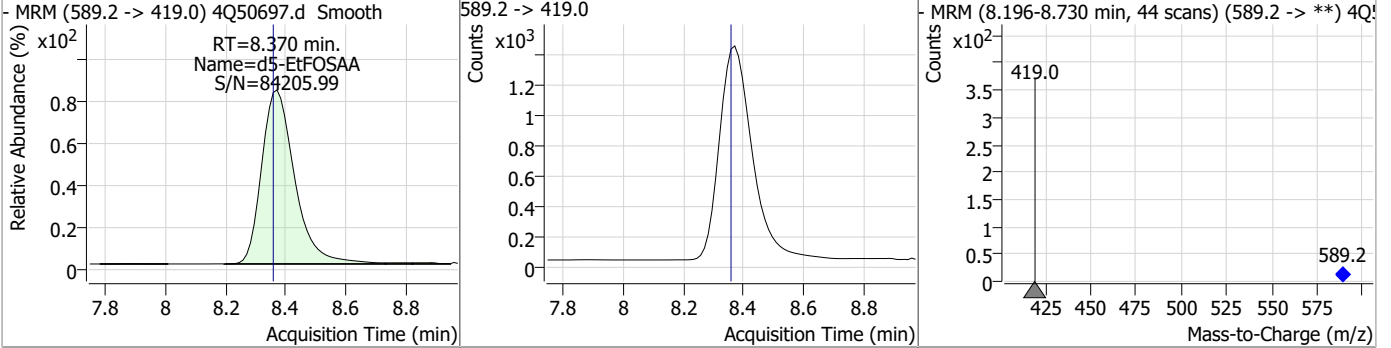
7.7.11
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Perfluorinated Compounds by LC/MS/MS

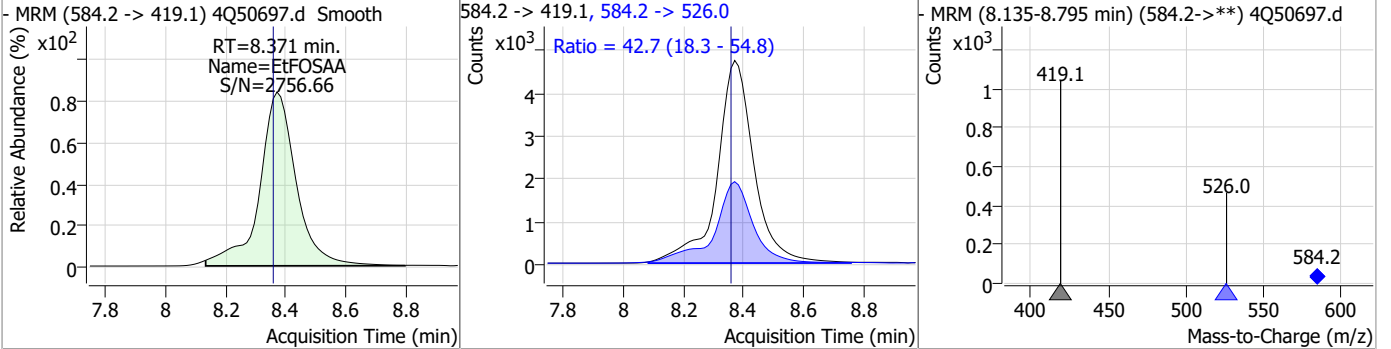
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	21.98	8.19	0.01	57000 (m)	498.9 -> 98.8	45.5	35.1	105.3



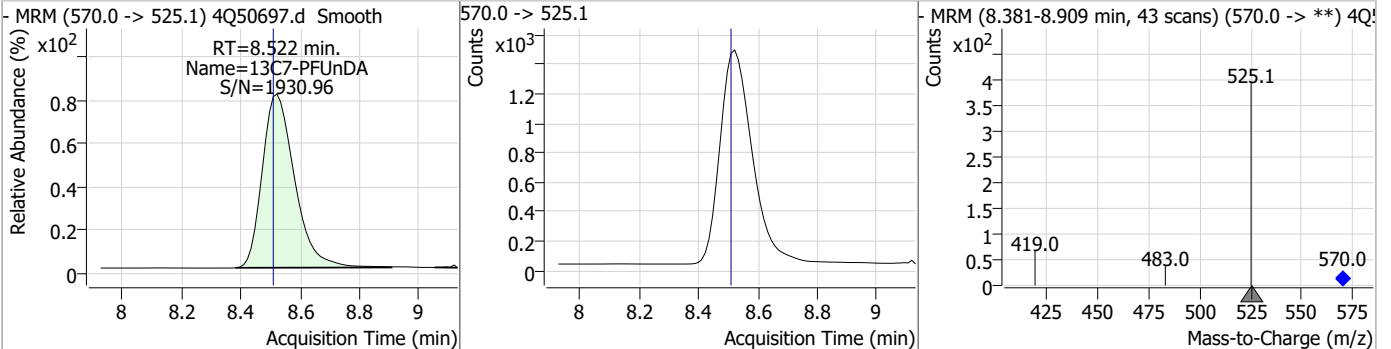
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.05	8.37	0.01	10738				



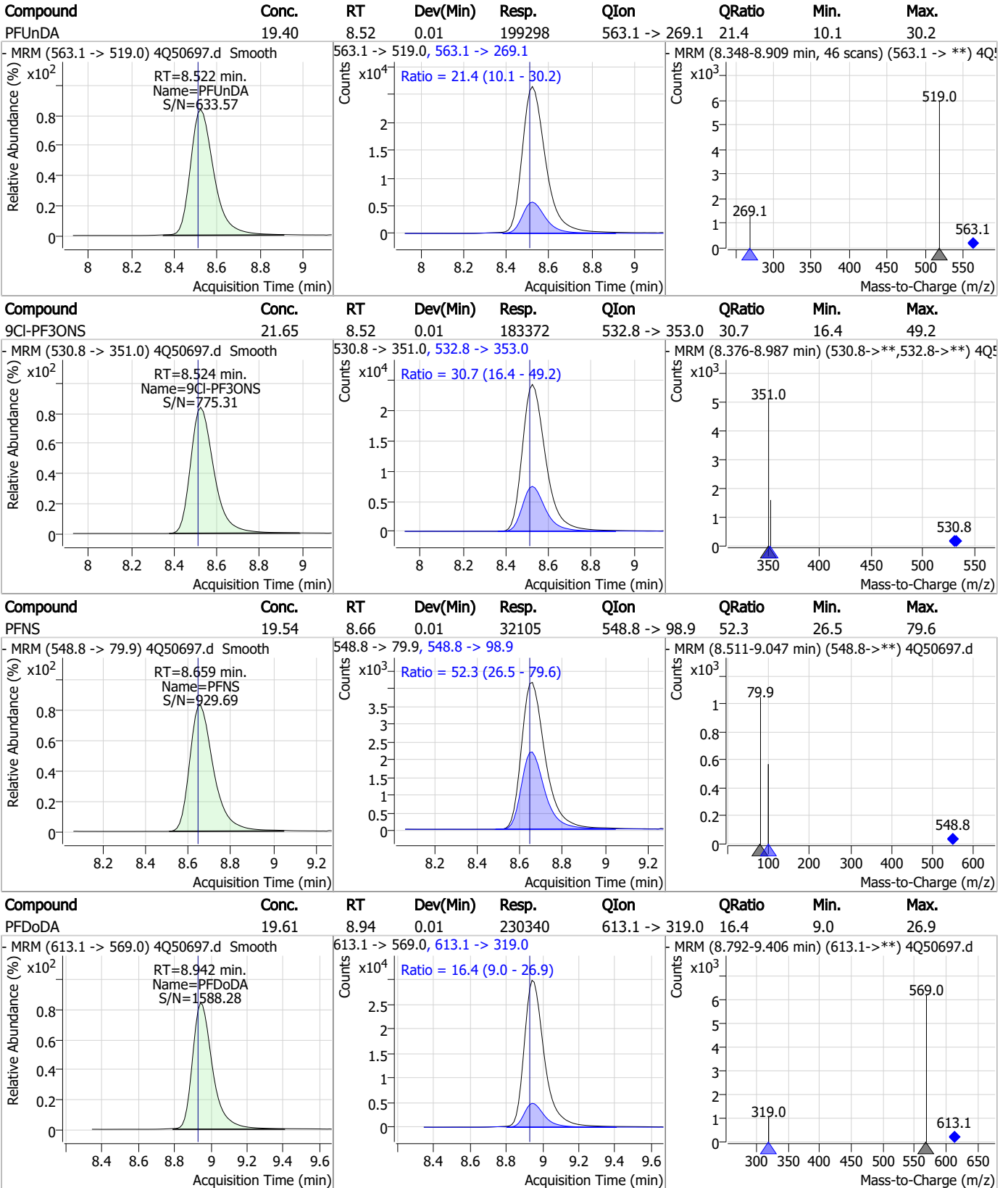
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	21.07	8.37	0.01	39828	584.2 -> 526.0	42.7	18.3	54.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.26	8.52	0.01	11026				

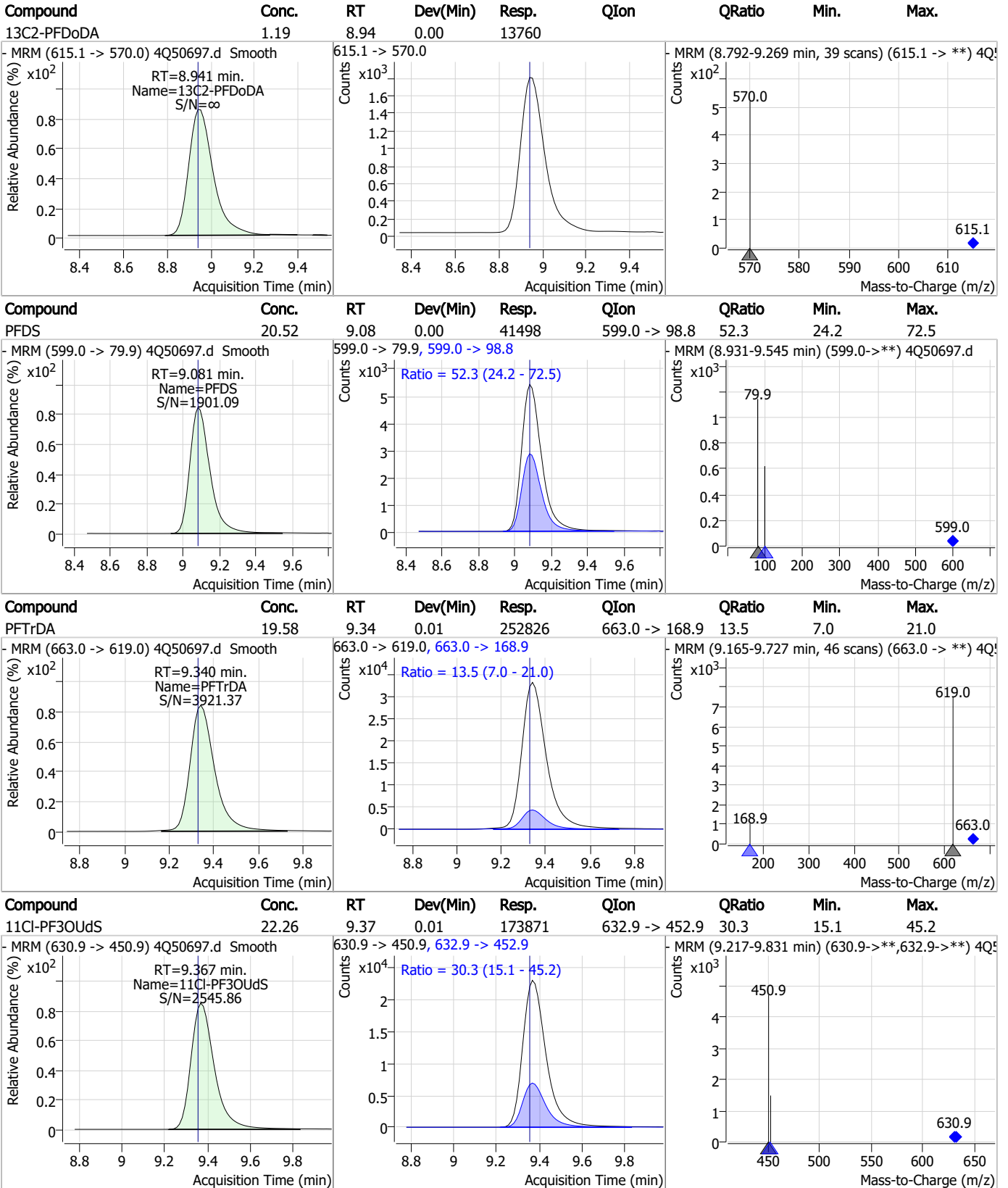


Perfluorinated Compounds by LC/MS/MS



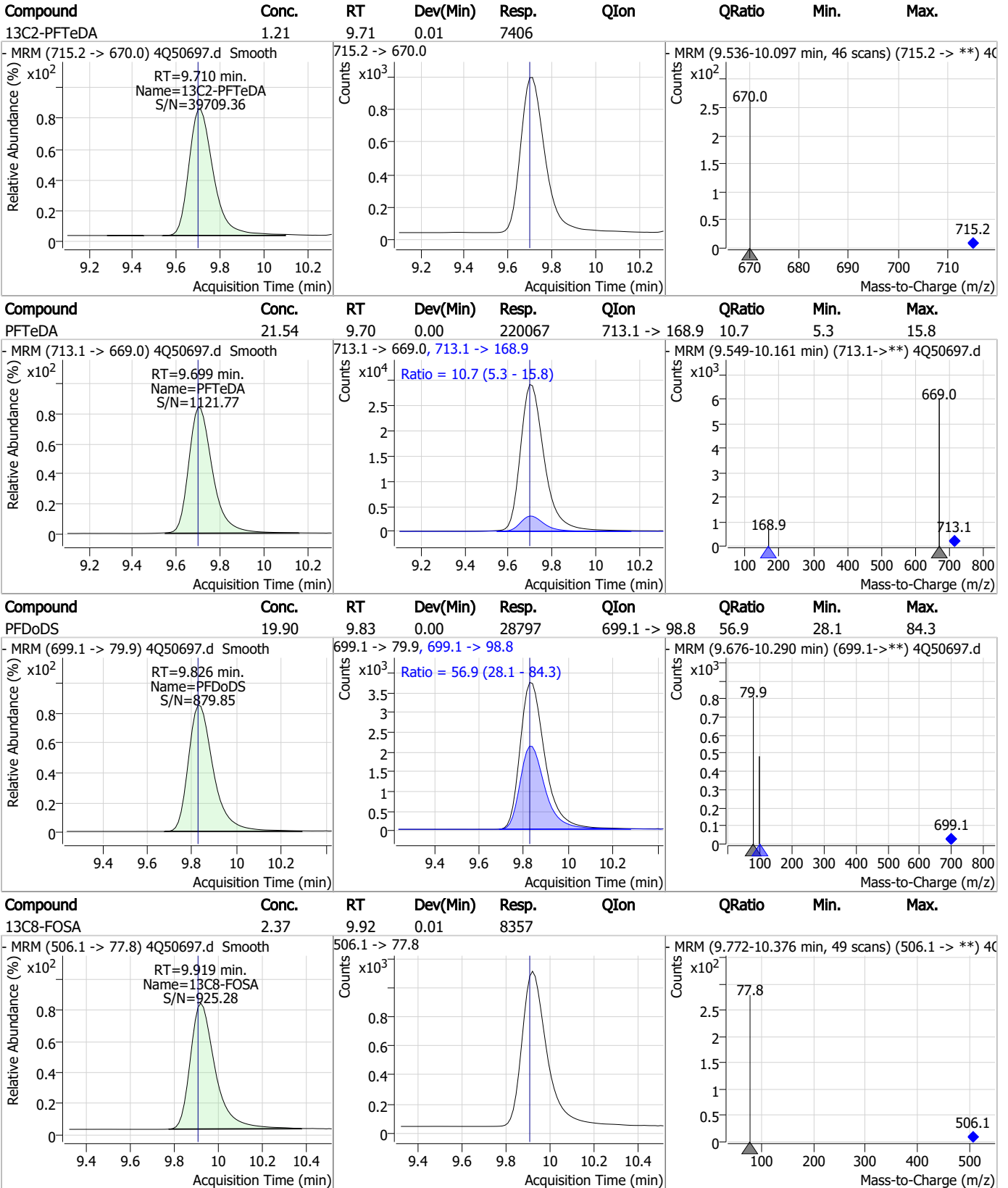
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Perfluorinated Compounds by LC/MS/MS



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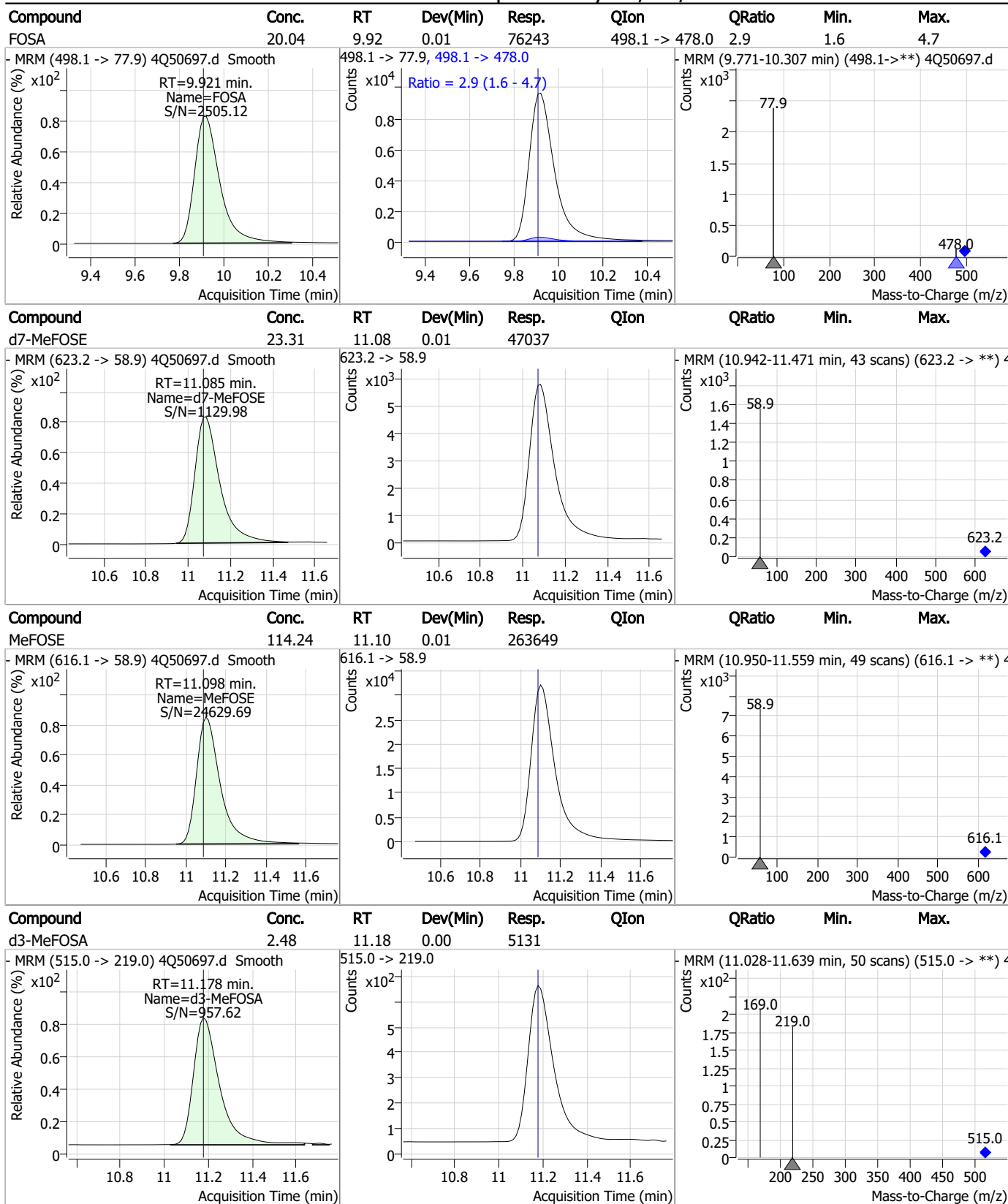
Perfluorinated Compounds by LC/MS/MS



7.7.11

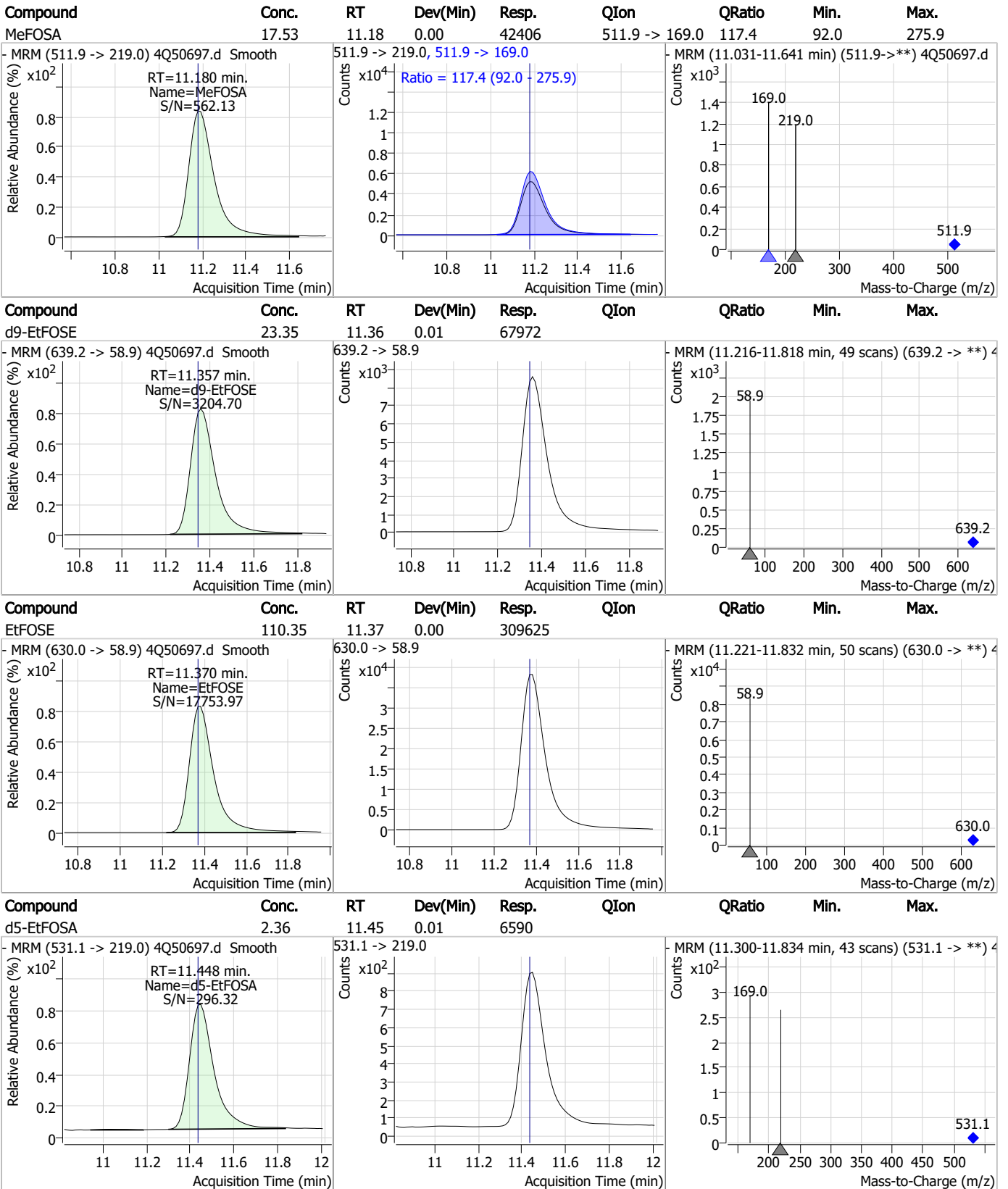
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

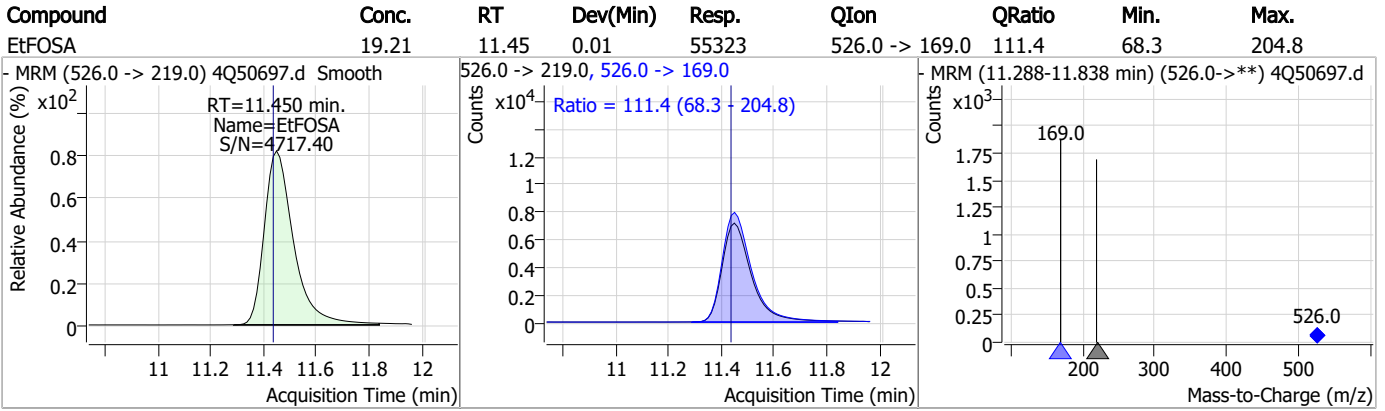


7.7.11

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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q741-ICV741 Method: EPA DRAFT 1633
Lab FileID: 4Q50697.D Analyst approved: 09/18/23 11:34 Anna Ludwig
Injection Time: 09/17/23 15:20 Supervisor approved: 09/18/23 14:43 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.12	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.19	Split peak

7.7.11.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50733.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/18/2023 3:11:44 PM
 Sample Name : cc741-1.0LL
 Vial : P1-A2
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q742.batch.bin
 Sample Information : OP98180,S4Q742,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.802	216.8 -> 171.9	86078	10.00 µg/L	0.091
M5-PFPeA	4.277	268.3 -> 223.0	31871	5.00 µg/L	0.062
M5-PFHxA	5.457	318.0 -> 273.0	31098	2.50 µg/L	0.050
M4-PFHpA	6.404	367.1 -> 322.0	21661	2.50 µg/L	0.051
M8-PFOA	7.074	421.1 -> 376.0	34997	2.50 µg/L	0.037
M9-PFNA	7.620	472.1 -> 427.0	13482	1.25 µg/L	0.051
M6-PFDA	8.102	519.1 -> 474.1	9050	1.25 µg/L	0.037
M7-PFUnDA	8.546	570.0 -> 525.1	10625	1.25 µg/L	0.037
M2-PFDoDA	8.966	615.1 -> 570.0	13191	1.25 µg/L	0.025
M2-PFTeDA	9.723	715.2 -> 670.0	7787	1.25 µg/L	0.025
M8-FOSA	9.943	506.1 -> 77.8	9050	2.50 µg/L	0.037
M3-PFBS	5.313	302.1 -> 79.9	7546	2.50 µg/L	0.050
M3-PFHxS	7.140	402.1 -> 79.9	4852	2.50 µg/L	0.037
M8-PFOS	8.216	507.1 -> 79.9	5321	2.50 µg/L	0.038
M2-4:2FTS	5.158	329.1 -> 80.9	808	5.00 µg/L	0.050
M2-6:2FTS	6.859	429.1 -> 80.9	1098	5.00 µg/L	0.050
M2-8:2FTS	7.902	529.1 -> 80.9	1911	5.00 µg/L	0.037
M3-MeFOSAA	8.184	573.2 -> 419.0	10247	5.00 µg/L	0.037
M3-HFPO-DA	5.812	286.9 -> 168.9	29031	10.00 µg/L	0.050
M5-EtFOSAA	8.395	589.2 -> 419.0	9955	5.00 µg/L	0.037
M7-MeFOSE	11.085	623.2 -> 58.9	52867	25.00 µg/L	0.012
M9-EtFOSE	11.357	639.2 -> 58.9	75048	25.00 µg/L	0.012
M5-EtFOSA	11.448	531.1 -> 219.0	6657	2.50 µg/L	0.012
M3-MeFOSA	11.190	515.0 -> 219.0	4637	2.50 µg/L	0.012
13C4-PFOS	8.217	502.8 -> 79.9	4980	2.50 µg/L	0.038
13C3-PFBA	2.793	216.0 -> 172.0	42974	5.00 µg/L	0.077
18O2-PFHxS	7.139	403.0 -> 83.9	3159	2.50 µg/L	0.037
13C4-PFOA	7.075	417.1 -> 372.0	38266	2.50 µg/L	0.037
13C2-PFDA	8.090	515.1 -> 470.1	9365	1.25 µg/L	0.025
13C5-PFNA	7.621	468.0 -> 423.0	12213	1.25 µg/L	0.051
13C2-PFHxA	5.458	315.1 -> 270.0	27008	2.50 µg/L	0.050
System Monitoring Compounds					
13C2-4:2FTS	5.158	329.1 -> 80.9	808	4.68 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C2-6:2FTS	6.859	429.1 -> 80.9	1098	4.11 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 82.2%		
13C2-8:2FTS	7.902	529.1 -> 80.9	1911	4.63 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.7%		
13C2-PFDoDA	8.966	615.1 -> 570.0	13191	1.25 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C2-PFTeDA	9.723	715.2 -> 670.0	7787	1.39 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.4%		
13C3-PFBS	5.313	302.1 -> 79.9	7546	2.50 µg/L	0.050
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C3-PFHxS	7.140	402.1 -> 79.9	4852	2.55 µg/L	0.037

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C4-PFBA	2.802	216.8 -> 171.9	86078	10.12 µg/L	0.091
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C4-PFHpA	6.404	367.1 -> 322.0	21661	2.54 µg/L	0.051
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C5-PFHxA	5.457	318.0 -> 273.0	31098	2.53 µg/L	0.050
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C5-PFPeA	4.277	268.3 -> 223.0	31871	5.01 µg/L	0.062
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C6-PFDA	8.102	519.1 -> 474.1	9050	1.27 µg/L	0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C7-PFUnDA	8.546	570.0 -> 525.1	10625	1.32 µg/L	0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C8-FOSA	9.943	506.1 -> 77.8	9050	2.63 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C8-PFOA	7.074	421.1 -> 376.0	34997	2.49 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C8-PFOS	8.216	507.1 -> 79.9	5321	2.40 µg/L	0.038
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C9-PFNA	7.620	472.1 -> 427.0	13482	1.21 µg/L	0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.6%		
d3-MeFOSAA	8.184	573.2 -> 419.0	10247	4.58 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.6%		
13C3-HFPO-DA	5.812	286.9 -> 168.9	29031	9.93 µg/L	0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
d3-MeFOSA	11.190	515.0 -> 219.0	4637	2.30 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.8%		
d5-EtFOSAA	8.395	589.2 -> 419.0	9955	4.80 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.1%		
d7-MeFOSE	11.085	623.2 -> 58.9	52867	26.87 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 107.5%		
d9-EtFOSE	11.357	639.2 -> 58.9	75048	26.43 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 105.7%		
d5-EtFOSA	11.448	531.1 -> 219.0	6657	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.6%		
Target Compounds					QValue
4:2FTS	5.159	327.1 -> 307.0	866	0.63 µg/L	90
		327.1 -> 80.9	404		
6:2FTS	6.860	427.1 -> 407.0	954	0.75 µg/L	97
		427.1 -> 80.9	381		
8:2FTS	7.902	527.1 -> 507.0	664	0.62 µg/L	89
		527.1 -> 80.8	341		
EtFOSAA	8.408	584.2 -> 419.1	255	0.15 µg/L	#m 41
		584.2 -> 526.0	182		
FOSA	9.946	498.1 -> 77.9	699	0.17 µg/L	97
		498.1 -> 478.0	28		
MeFOSAA	8.198	570.1 -> 419.0	445	0.20 µg/L	88
		570.1 -> 483.0	66		
PFBA	2.796	212.8 -> 168.9	2273	0.69 µg/L	100
PFBS	5.326	298.7 -> 79.9	516	0.15 µg/L	90
		298.7 -> 98.8	245		
PFDA	8.091	512.9 -> 469.0	1410	0.17 µg/L	94
		512.9 -> 219.0	267		
PFDODA	8.967	613.1 -> 569.0	2106	0.19 µg/L	99
		613.1 -> 319.0	384		
PFDS	9.107	599.0 -> 79.9	339	0.18 µg/L	88

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	192			
PFHpA	6.405	363.1 -> 319.0	2399	0.19	µg/L	97
		363.1 -> 169.0	514			
PFHpS	7.724	449.0 -> 79.9	436	0.19	µg/L	79
		449.0 -> 98.9	164			
PFHxA	5.460	313.0 -> 269.0	1544	0.14	µg/L	99
		313.0 -> 118.9	54			
PFHxS	7.129	398.7 -> 79.9	281	0.13	µg/L	m 90
		398.7 -> 98.9	147			
PFNA	7.609	463.0 -> 419.0	1359	0.17	µg/L	83
		463.0 -> 219.0	426			
PFNS	8.671	548.8 -> 79.9	302	0.19	µg/L	82
		548.8 -> 98.9	198			
PFOA	7.088	413.0 -> 369.0	3182	0.20	µg/L	93
		413.0 -> 169.0	594			
PFOS	8.218	498.9 -> 79.9	466	0.19	µg/L	78
		498.9 -> 98.8	243			
PFPeA	4.279	263.0 -> 219.0	3556	0.35	µg/L	100
PFPeS	6.394	349.1 -> 79.9	302	0.15	µg/L	92
		349.1 -> 98.9	162			
PFTeDA	9.724	713.1 -> 669.0	1557	0.14	µg/L	97
		713.1 -> 168.9	182			
PFTrDA	9.365	663.0 -> 619.0	2267	0.18	µg/L	98
		663.0 -> 168.9	296			
PFUnDA	8.547	563.1 -> 519.0	1572	0.16	µg/L	88
		563.1 -> 269.1	400			
11Cl-PF3OUdS	9.380	630.9 -> 450.9	2736	0.36	µg/L	98
		632.9 -> 452.9	788			
9Cl-PF3ONS	8.536	530.8 -> 351.0	2779	0.33	µg/L	84
		532.8 -> 353.0	666			
ADONA	6.679	376.9 -> 250.9	7123	0.33	µg/L	94
		376.9 -> 84.8	2067			
HFPO-DA	5.813	284.9 -> 168.9	1074	0.34	µg/L	95
		284.9 -> 184.9	171			
3:3FTCA	3.806	241.0 -> 177.0	471	0.80	µg/L	91
		241.0 -> 117.0	77			
5:3FTCA	6.244	341.0 -> 237.1	7812	4.03	µg/L	95
		341.0 -> 217.0	5960			
7:3FTCA	7.737	441.0 -> 316.9	3781	4.08	µg/L	98
		441.0 -> 336.9	7686			
EtFOSA	11.450	526.0 -> 219.0	1066	0.37	µg/L	98
		526.0 -> 169.0	1431			
EtFOSE	11.382	630.0 -> 58.9	2664	0.86	µg/L	100
MeFOSA	11.192	511.9 -> 219.0	735	0.34	µg/L	m 85
		511.9 -> 169.0	1192			
MeFOSE	11.110	616.1 -> 58.9	2062	0.79	µg/L	m 100
PFDoDS	9.851	699.1 -> 79.9	267	0.19	µg/L	96
		699.1 -> 98.8	142			
NFDHA	5.339	295.0 -> 201.0	244	0.37	µg/L	94
		295.0 -> 84.9	62			
PFMBA	4.681	279.0 -> 85.1	1888	0.35	µg/L	100
PFMPA	3.408	229.0 -> 84.9	2144	0.36	µg/L	100
PFEESA	5.845	314.8 -> 134.9	3583	0.33	µg/L	100
		314.8 -> 82.9	110			

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

7.7.12
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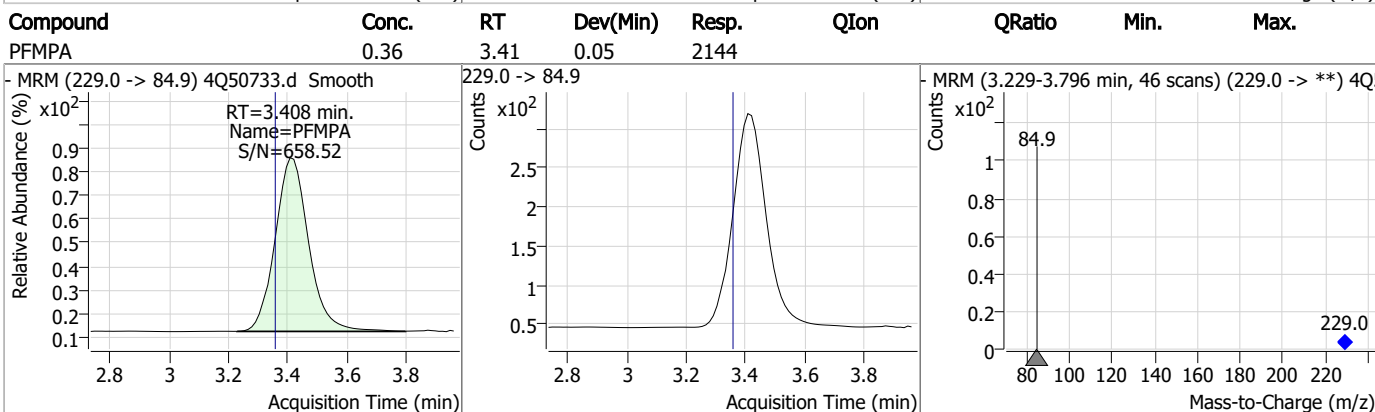
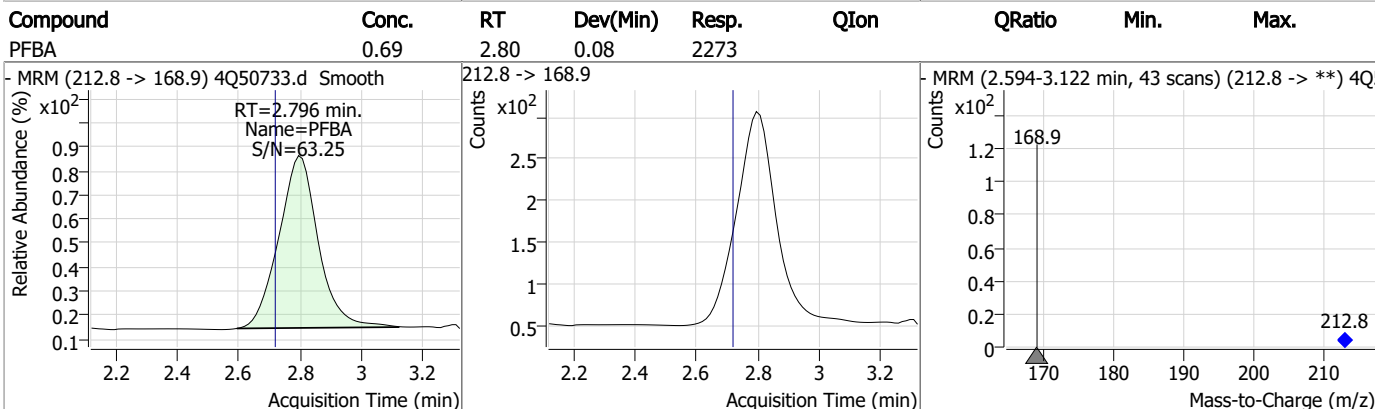
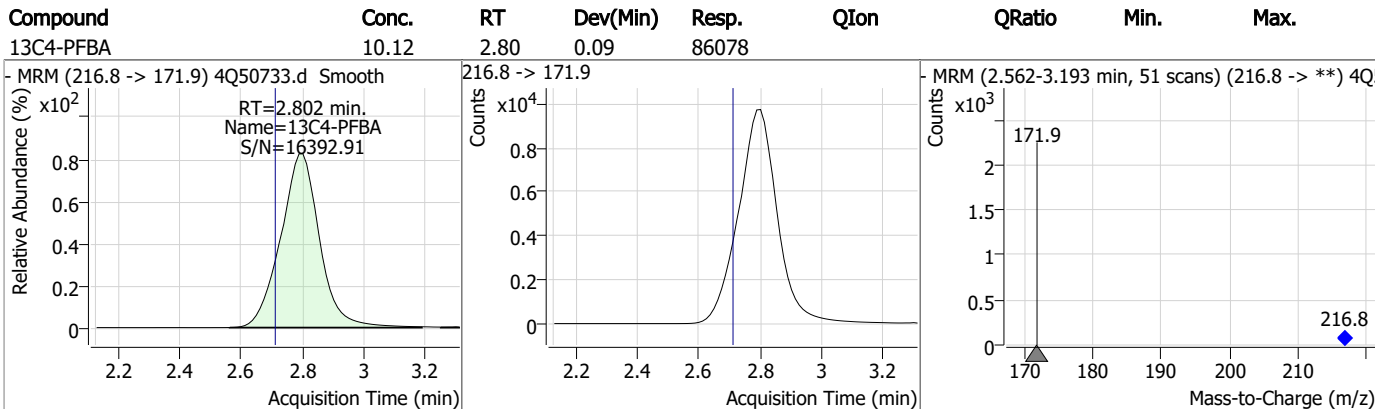
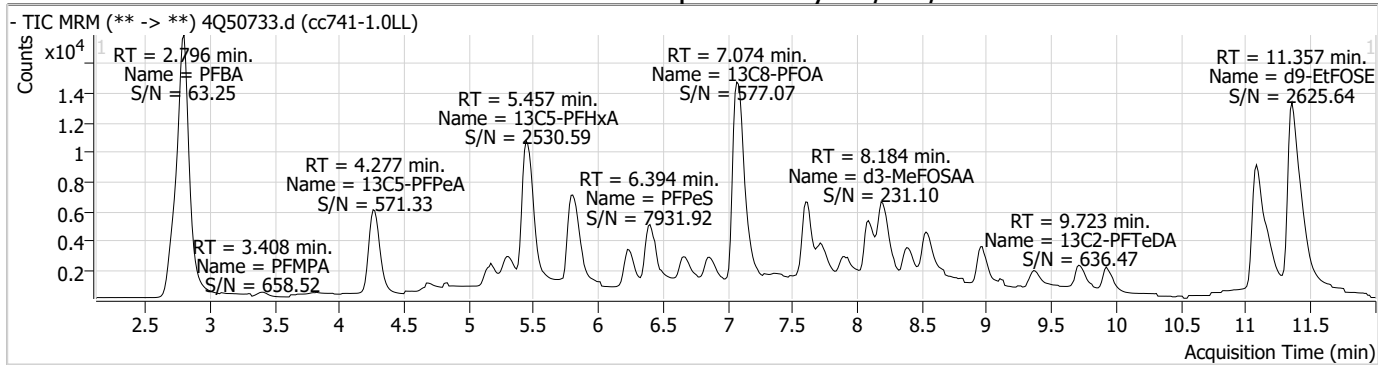
Perfluorinated Compounds by LC/MS/MS

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

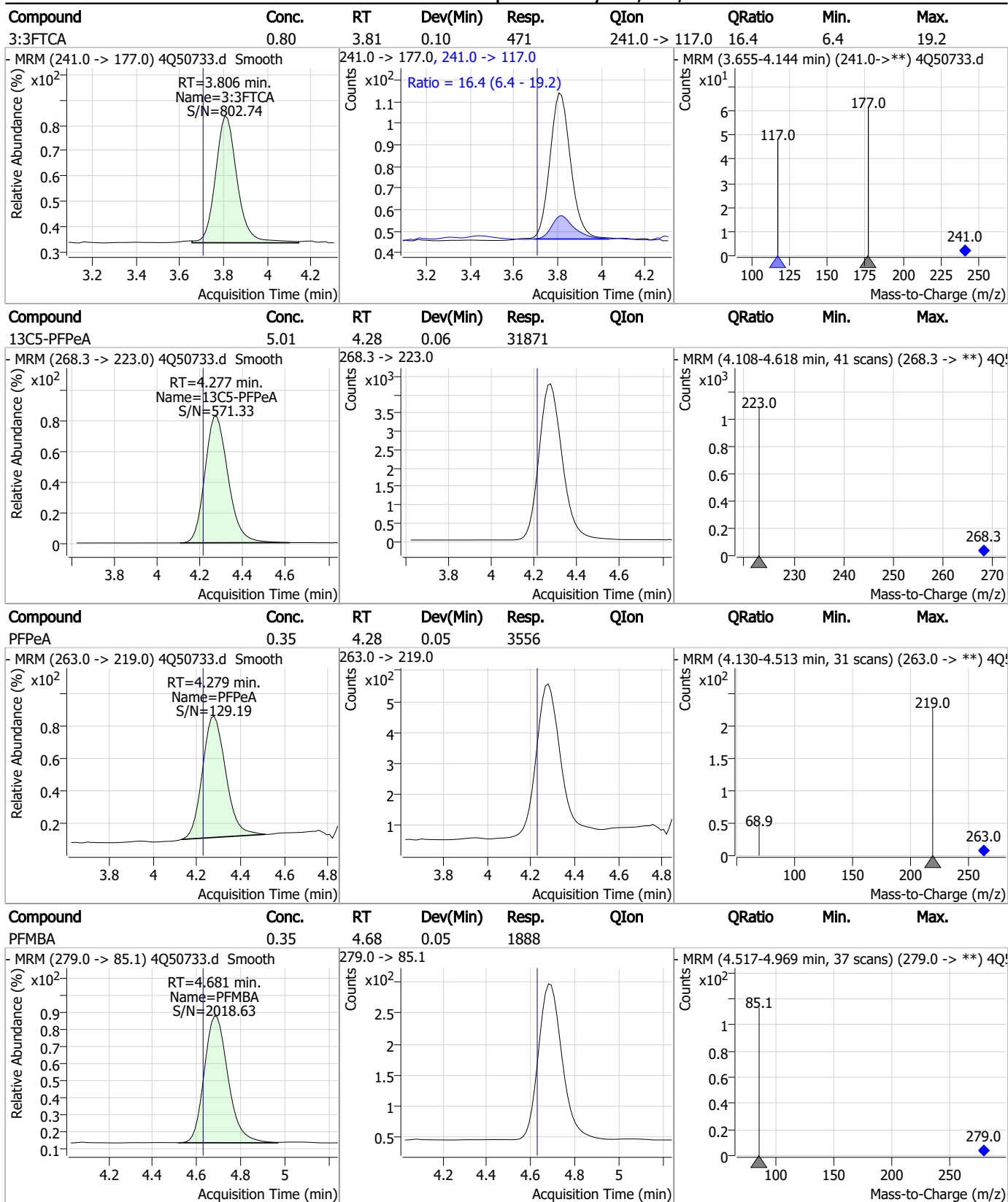
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Perfluorinated Compounds by LC/MS/MS



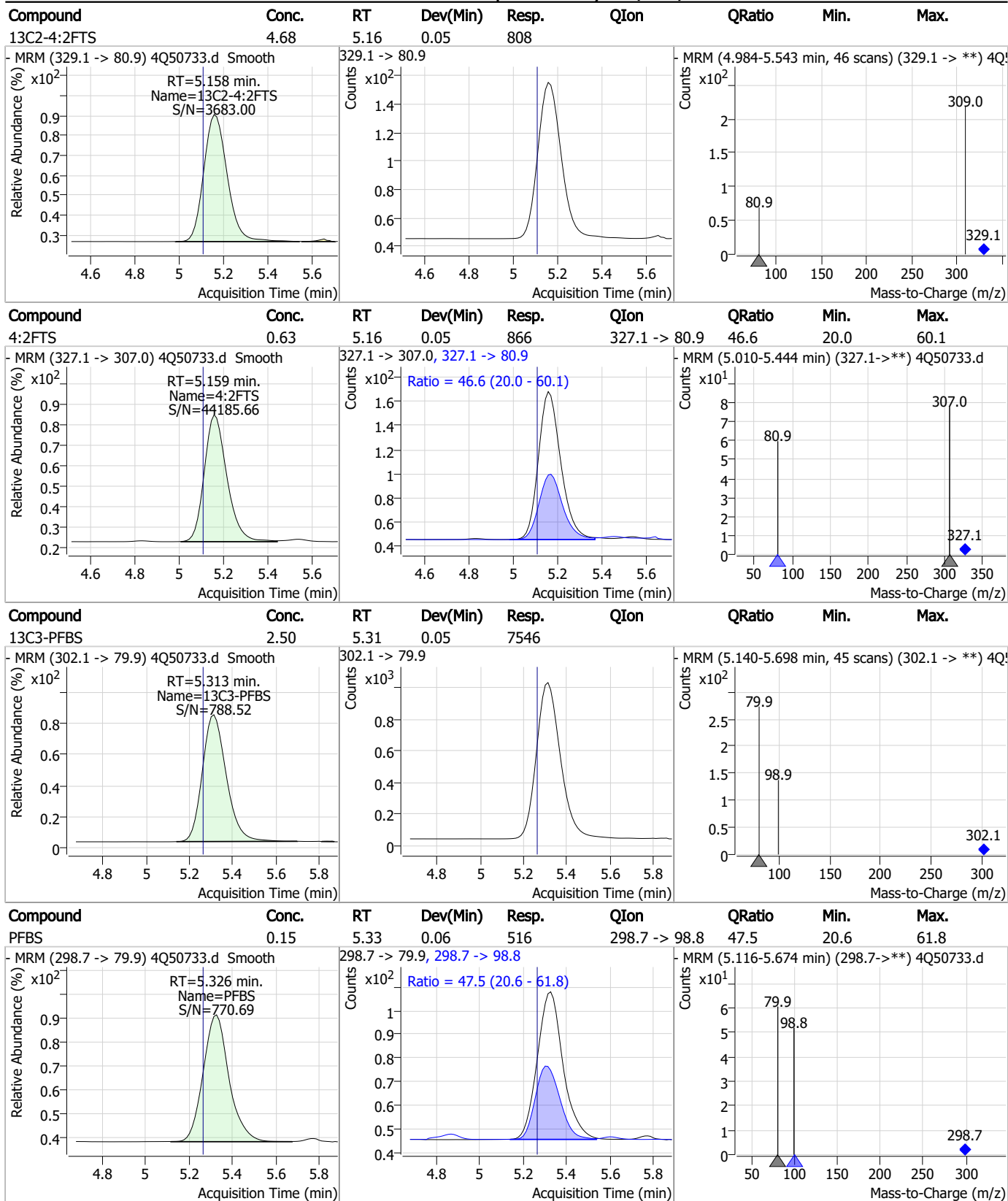
7.7.12
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.7.12
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Perfluorinated Compounds by LC/MS/MS

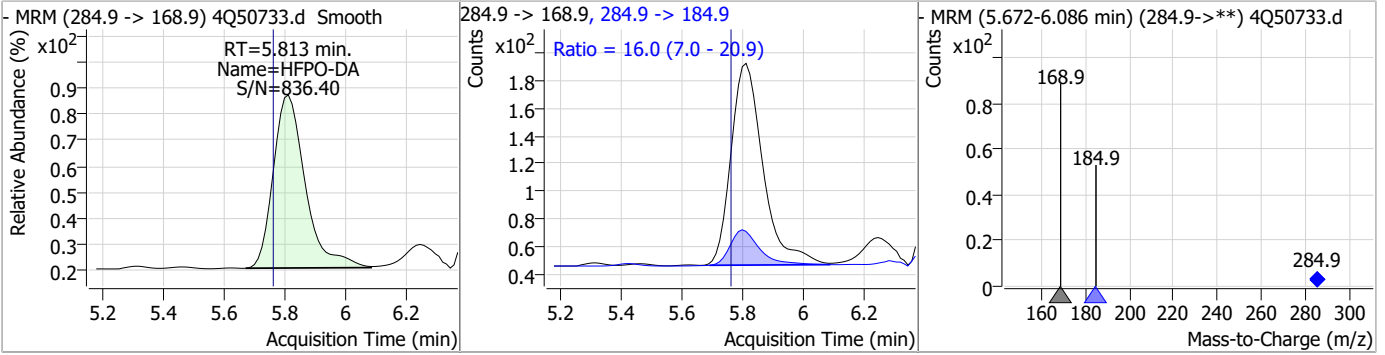
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	0.37	5.34	0.05	244	295.0 -> 84.9	25.6	11.3	33.8
13C5-PFHxA	2.53	5.46	0.05	31098				
PFHxA	0.14	5.46	0.05	1544	313.0 -> 118.9	3.5	1.6	4.9
13C3-HFPO-DA	9.93	5.81	0.05	29031				

7.7.12
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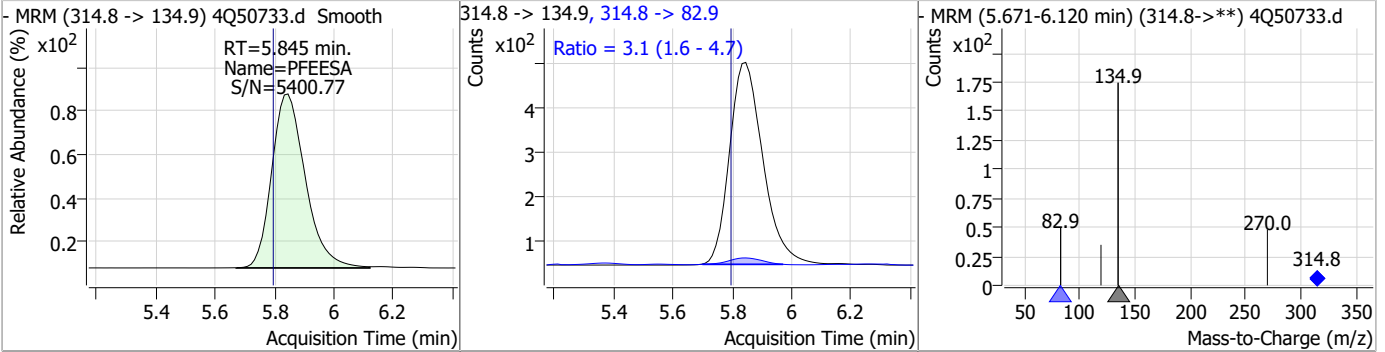


Perfluorinated Compounds by LC/MS/MS

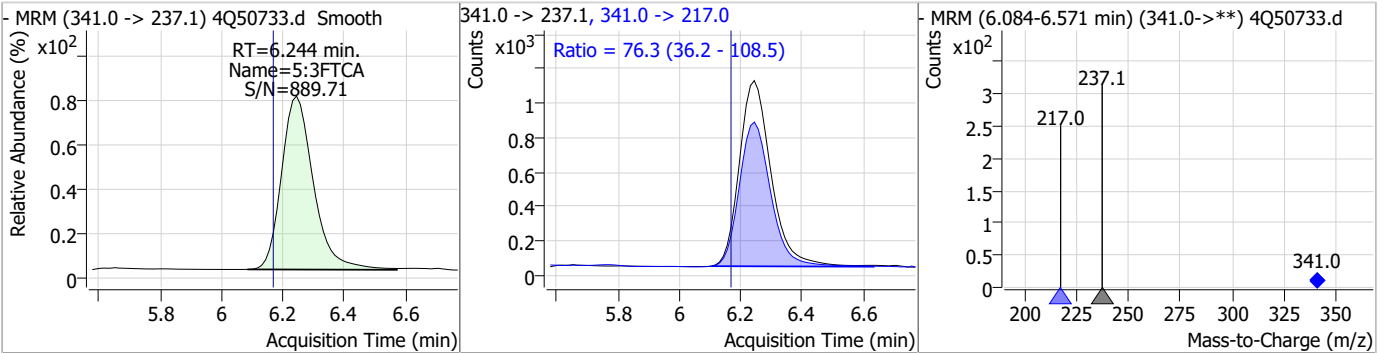
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.34	5.81	0.05	1074	284.9 -> 184.9	16.0	7.0	20.9



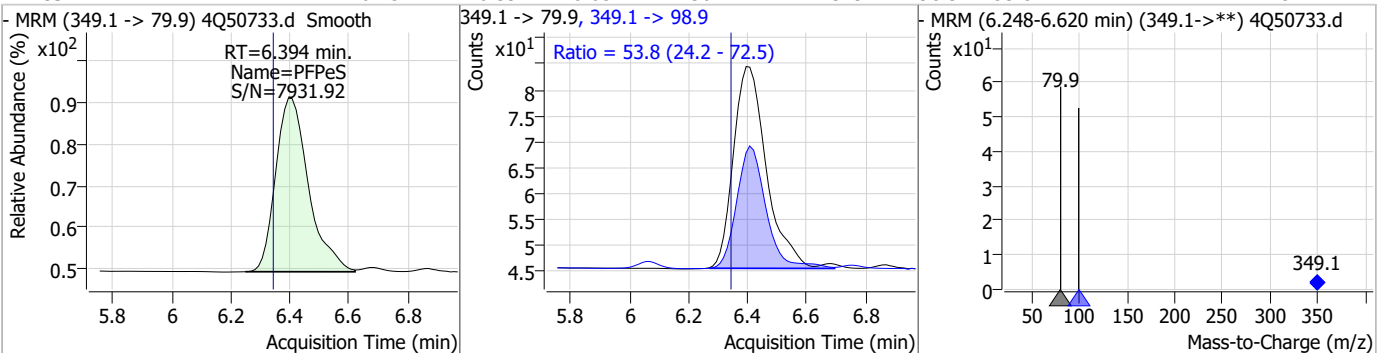
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.33	5.84	0.05	3583	314.8 -> 82.9	3.1	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.03	6.24	0.08	7812	341.0 -> 217.0	76.3	36.2	108.5

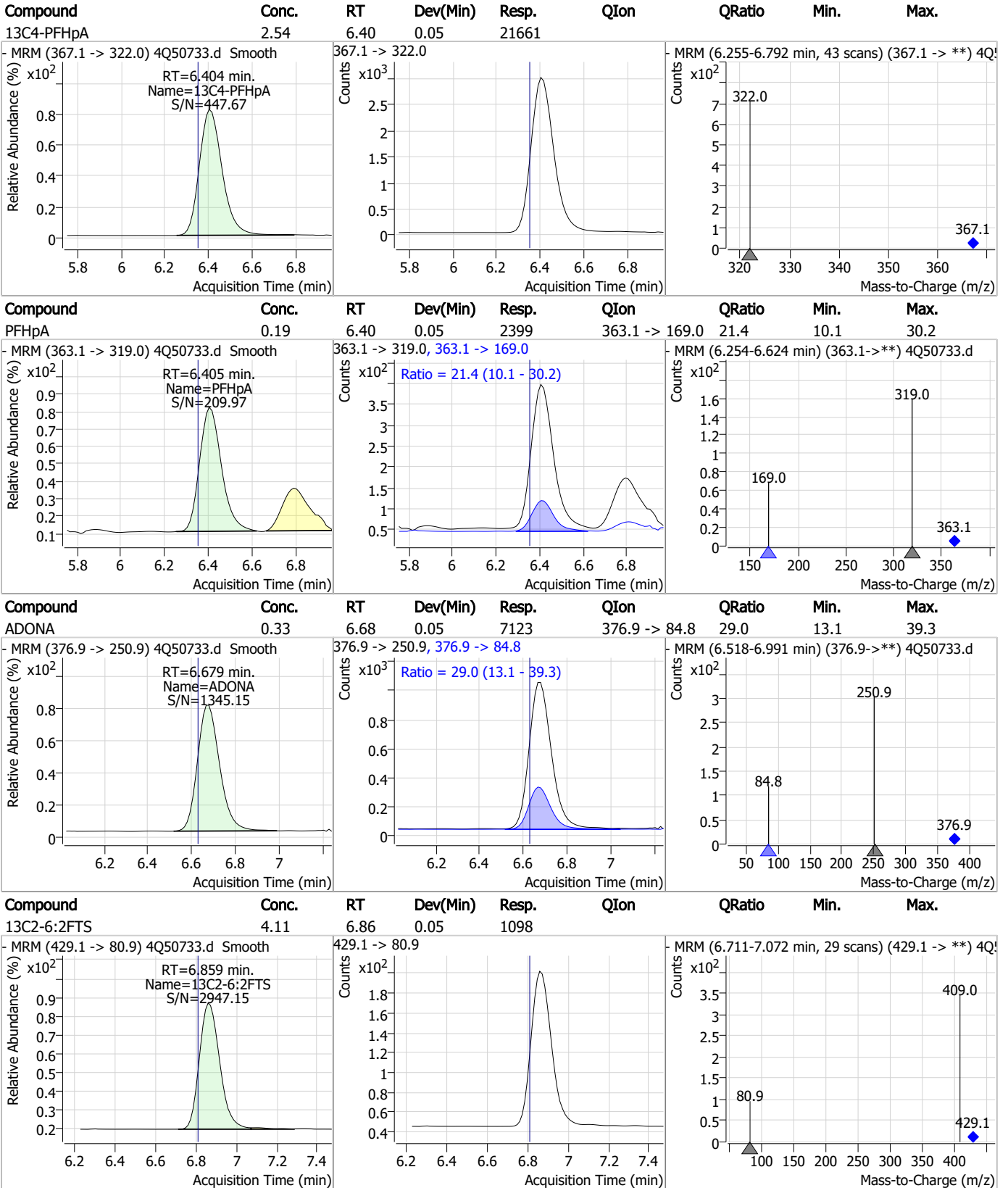


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.15	6.39	0.05	302	349.1 -> 98.9	53.8	24.2	72.5



7.7.12
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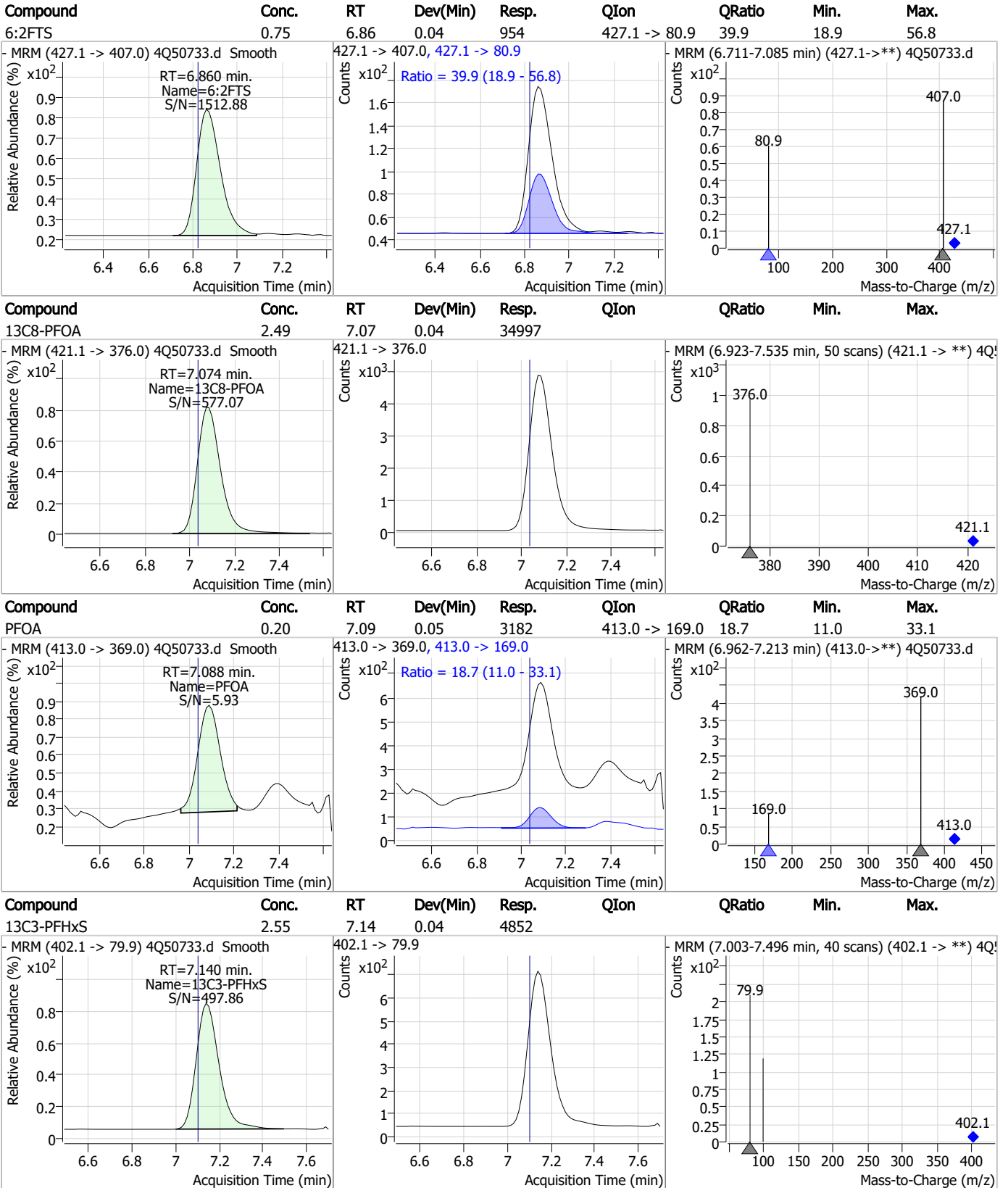
Perfluorinated Compounds by LC/MS/MS



7.7.12 7



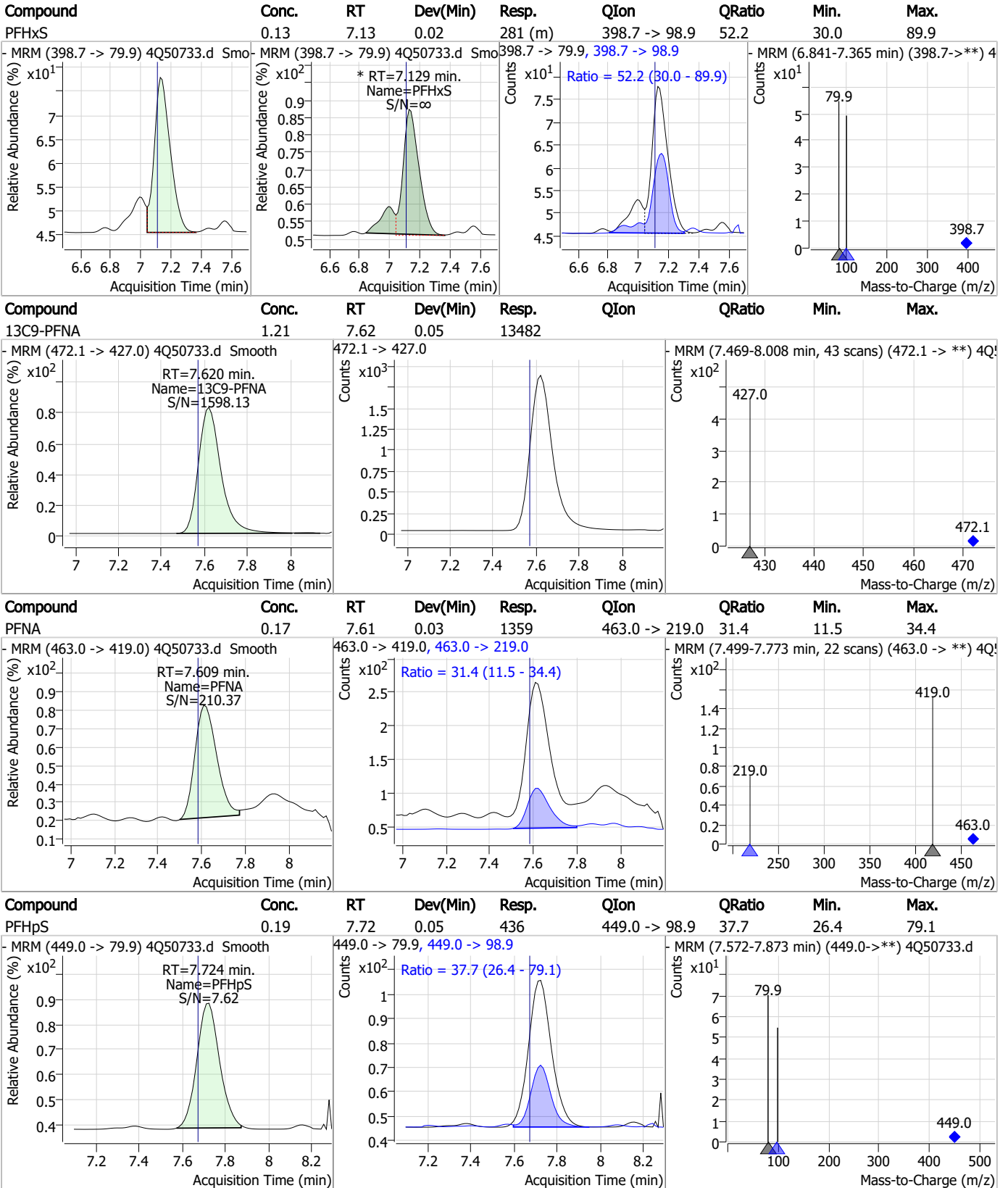
Perfluorinated Compounds by LC/MS/MS



7.7.12
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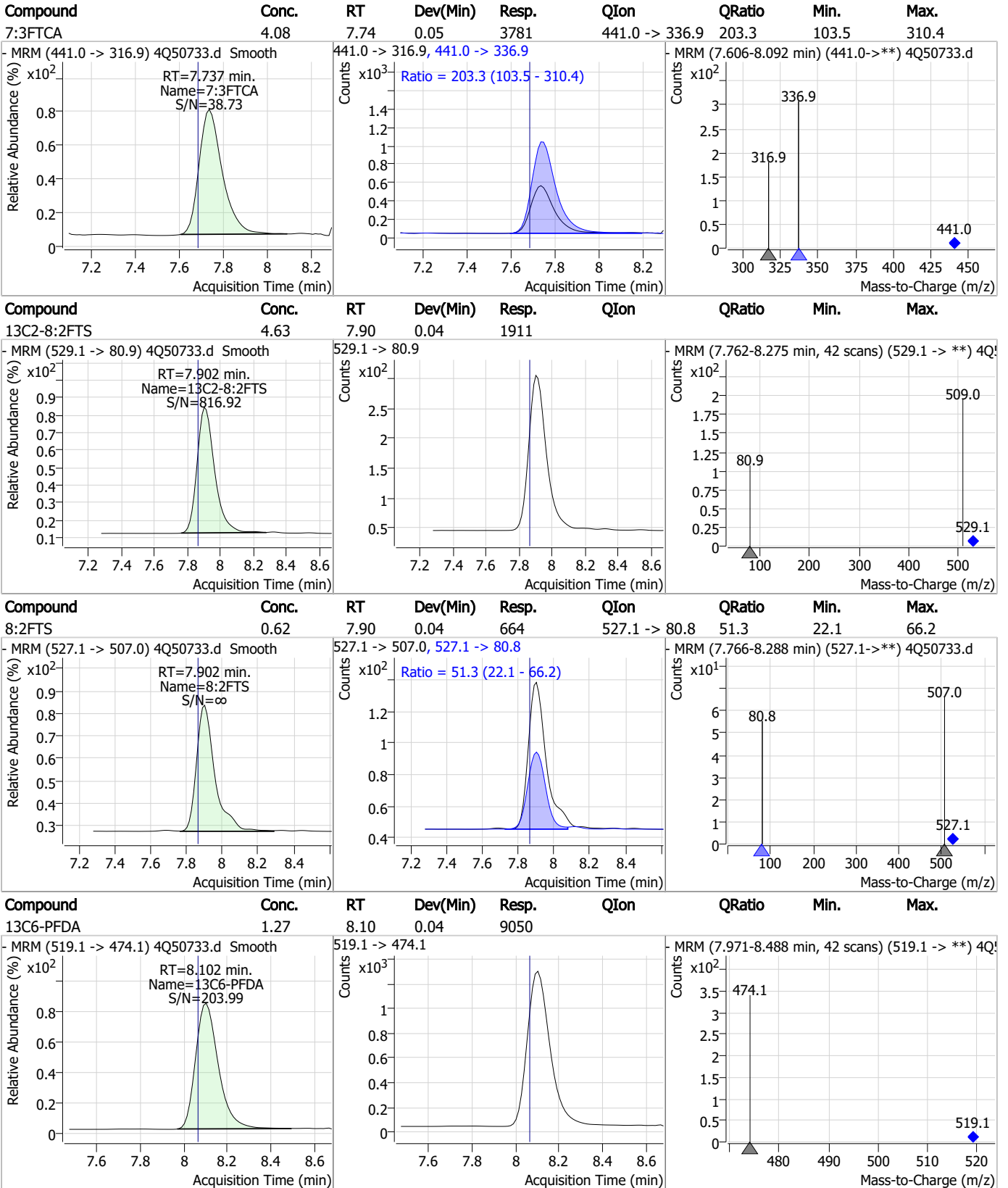
Perfluorinated Compounds by LC/MS/MS



7.7.12 7



Perfluorinated Compounds by LC/MS/MS

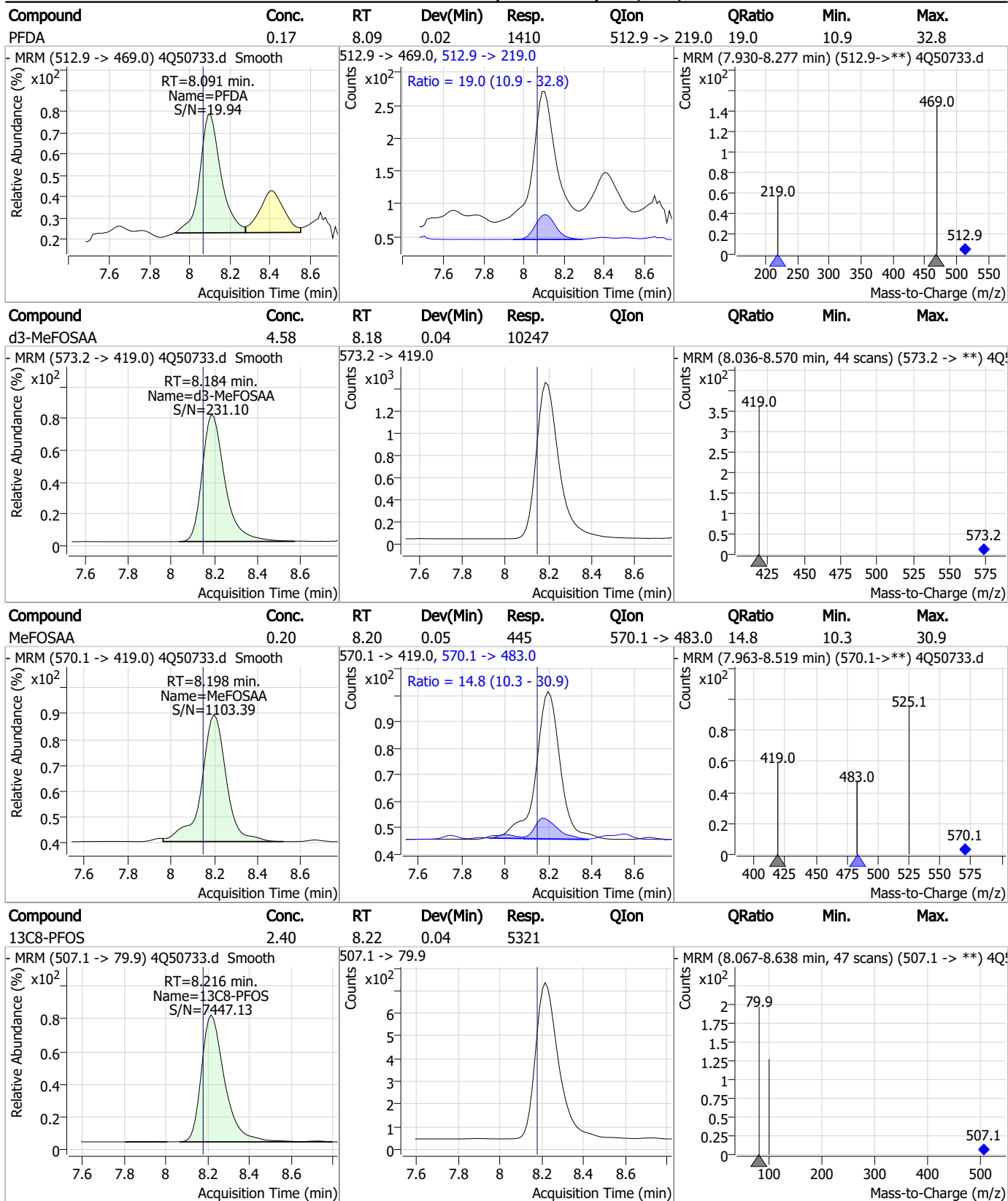


7.7.12

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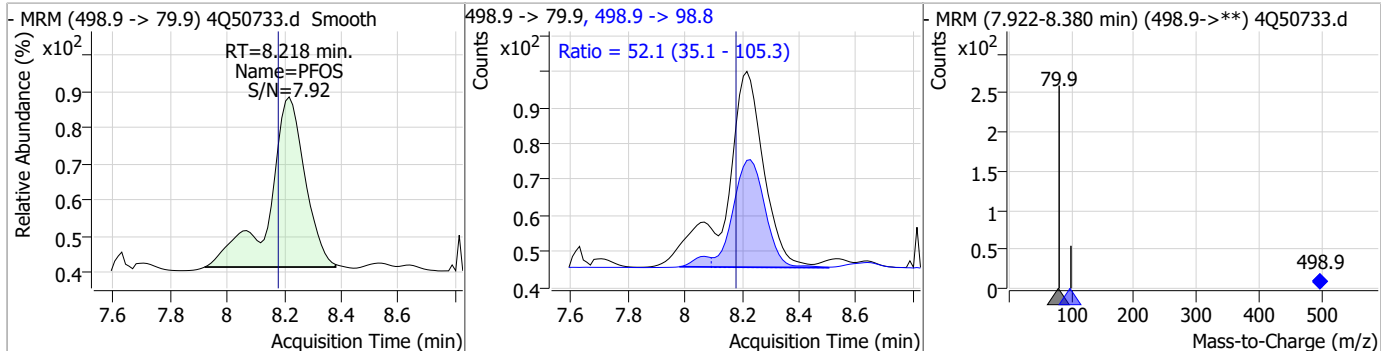
Perfluorinated Compounds by LC/MS/MS



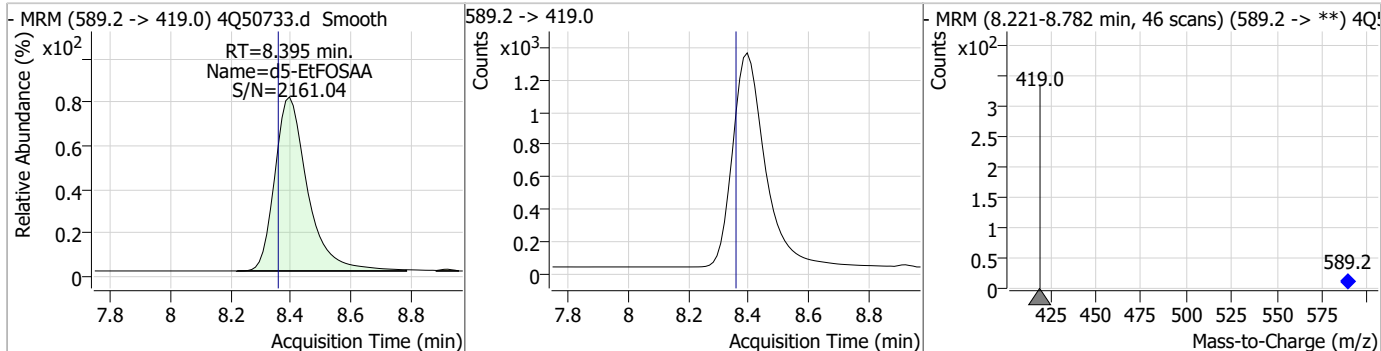
7.7.12
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Perfluorinated Compounds by LC/MS/MS

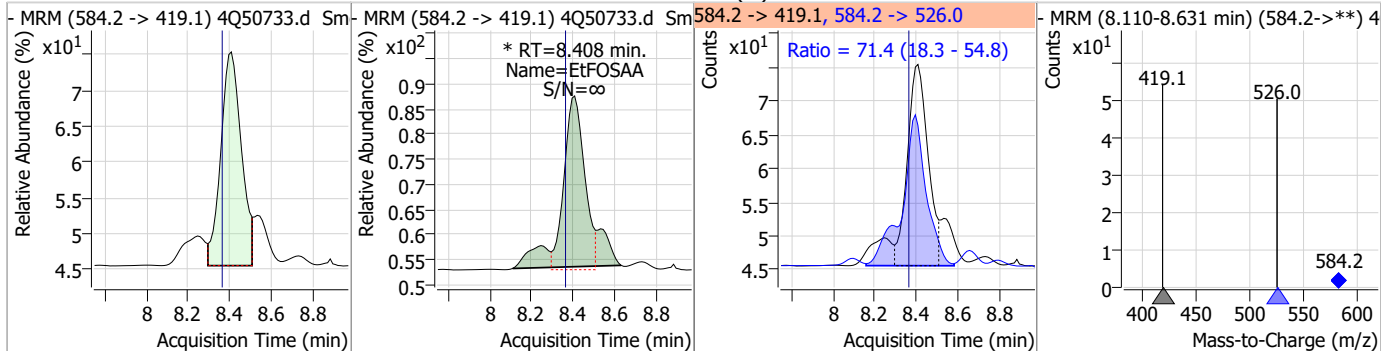
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.19	8.22	0.04	466	498.9 -> 98.8	52.1	35.1	105.3



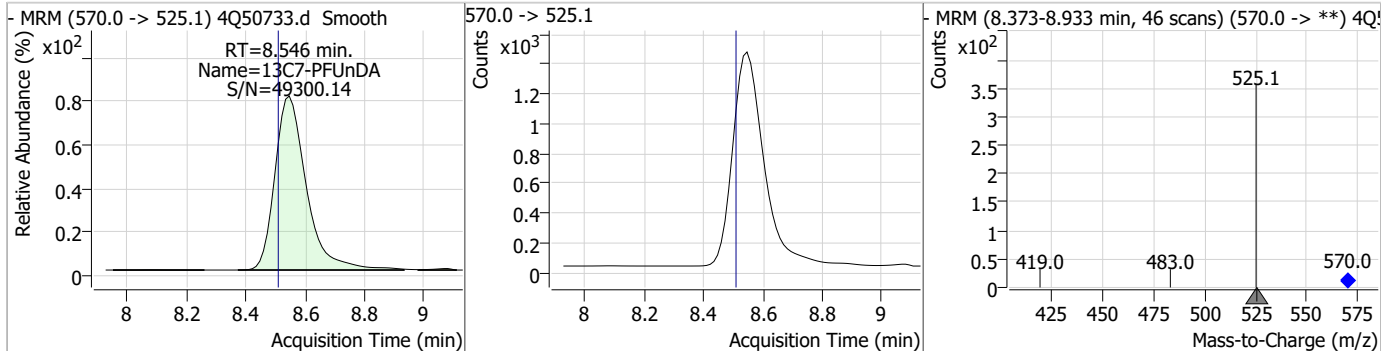
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.80	8.40	0.04	9955				



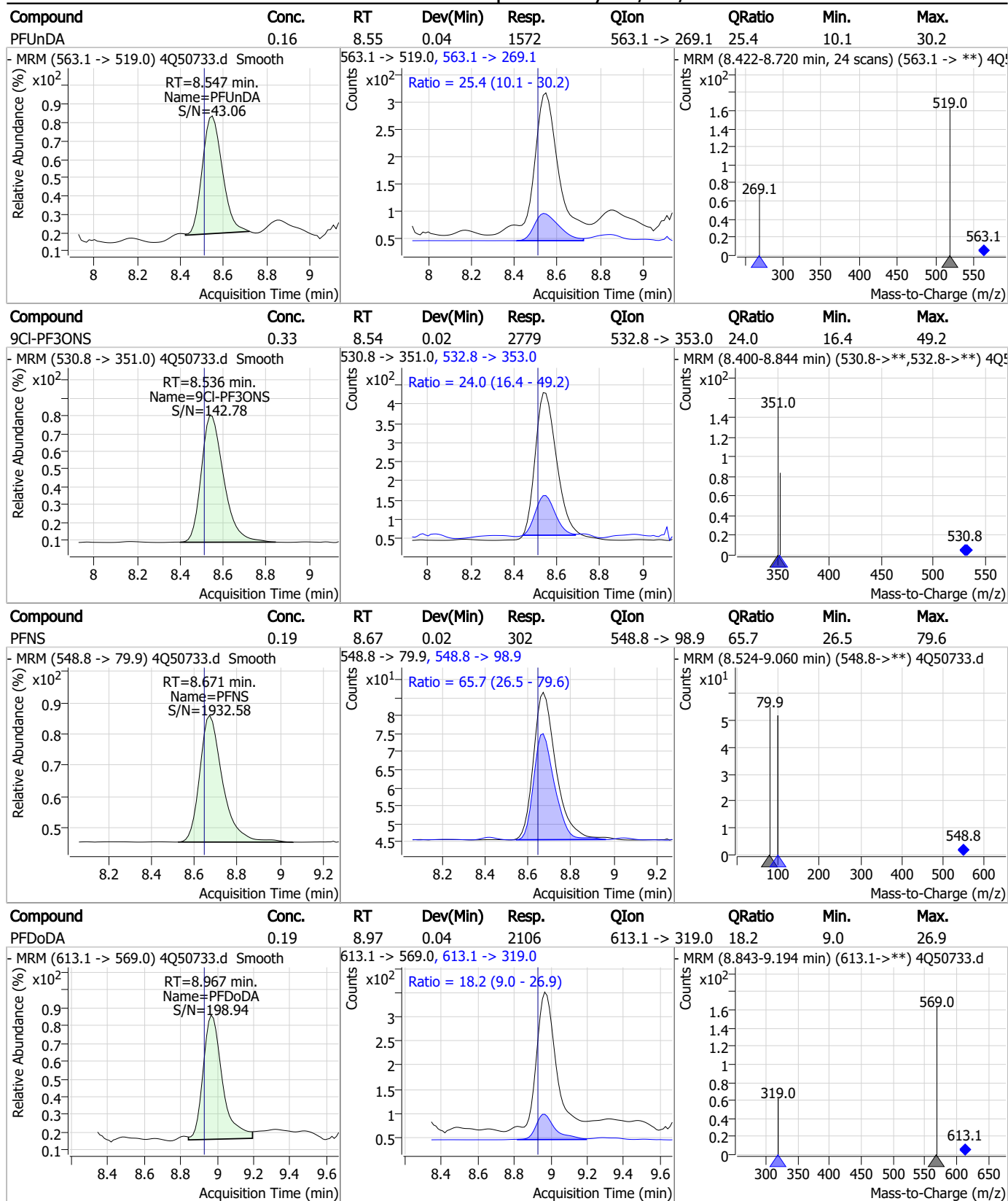
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.15	8.41	0.05	255 (m)	584.2 -> 526.0	71.4	18.3	54.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.32	8.55	0.04	10625				

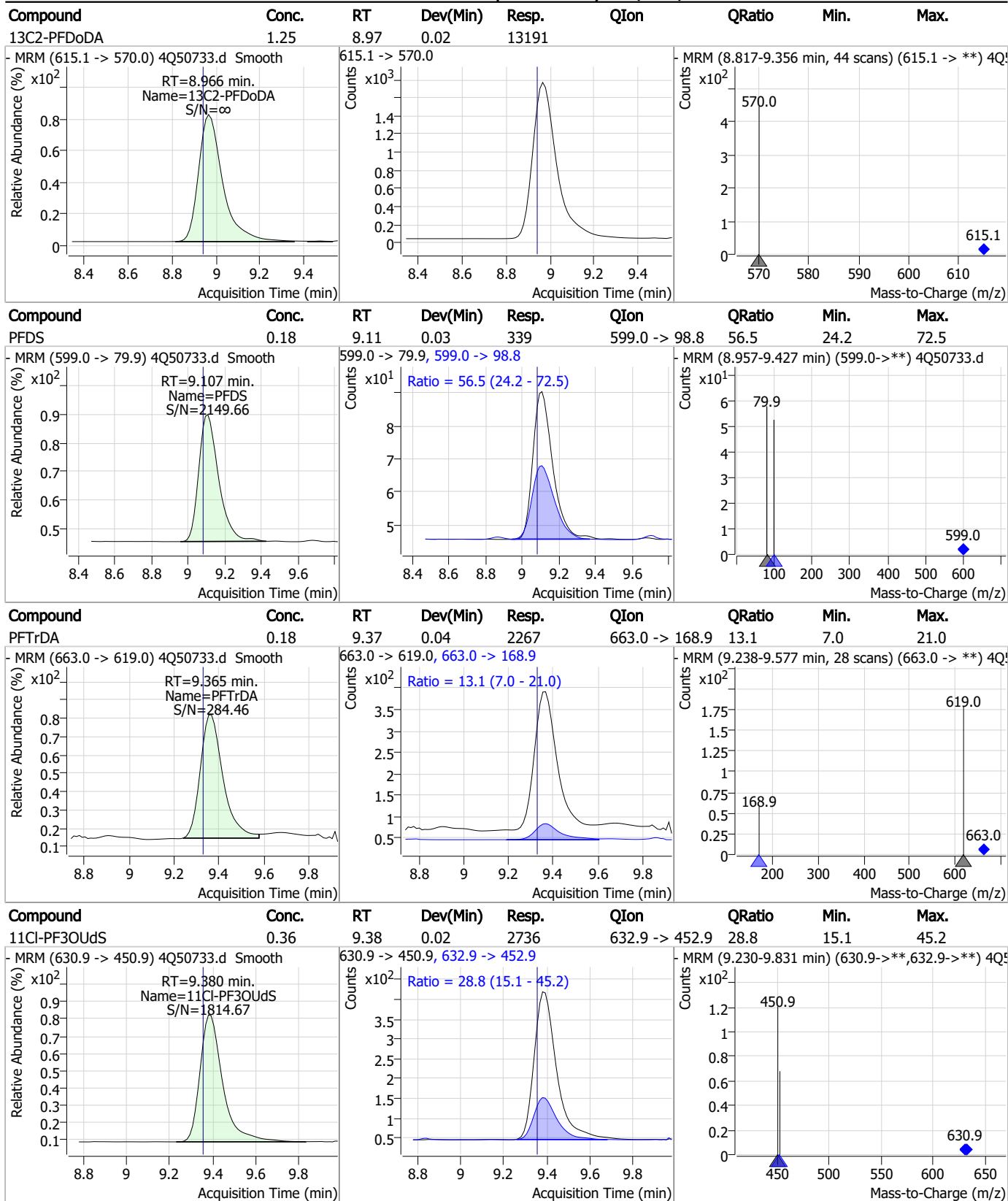


Perfluorinated Compounds by LC/MS/MS



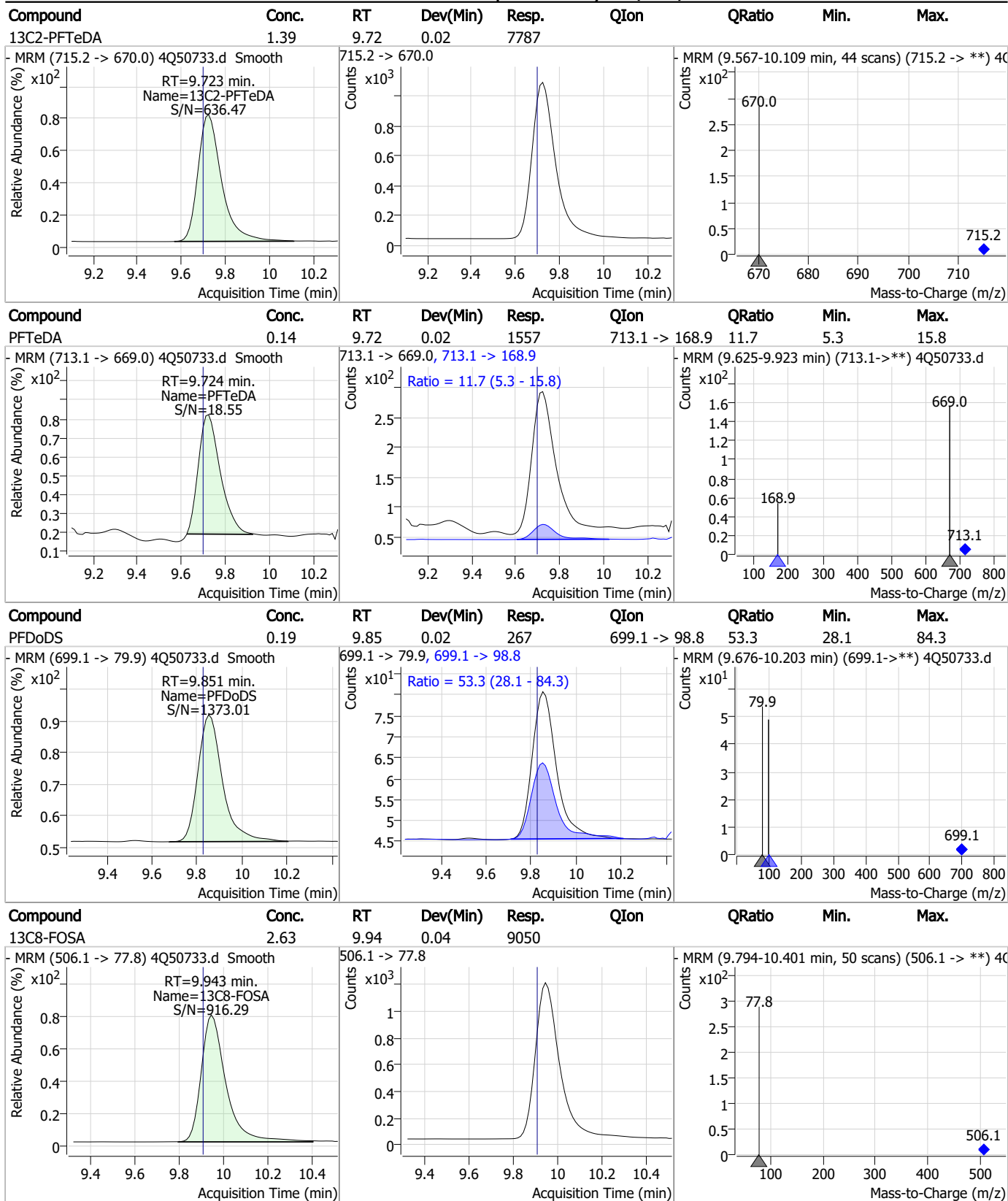
7.7.12
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Perfluorinated Compounds by LC/MS/MS



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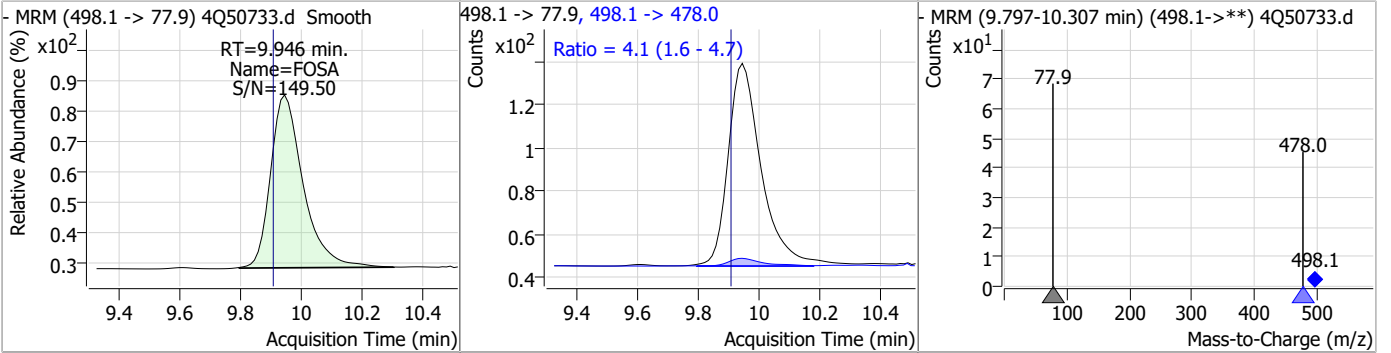
Perfluorinated Compounds by LC/MS/MS



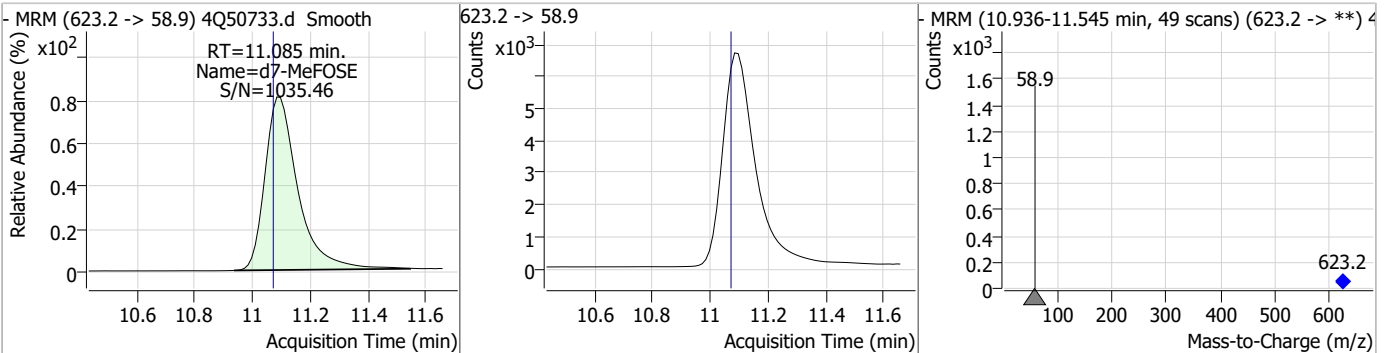
7.7.12
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Perfluorinated Compounds by LC/MS/MS

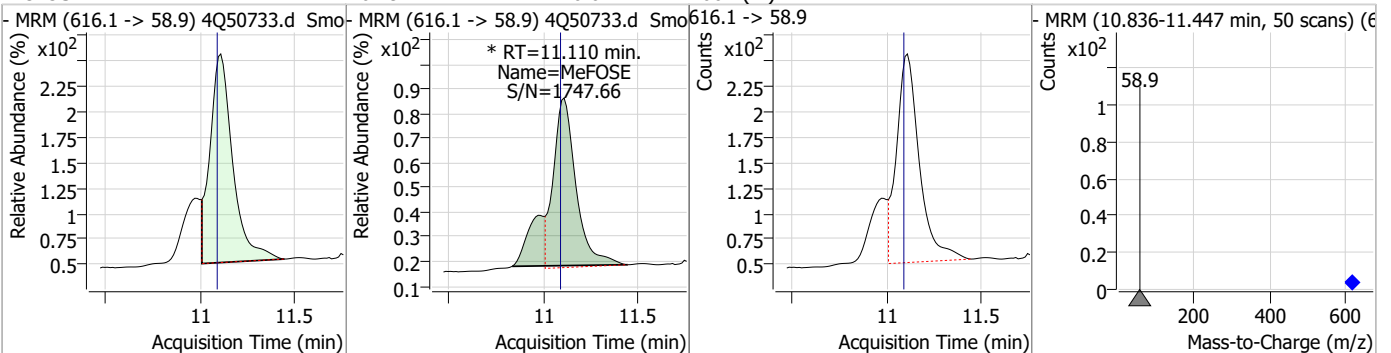
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.17	9.95	0.04	699	498.1 -> 478.0	4.1	1.6	4.7



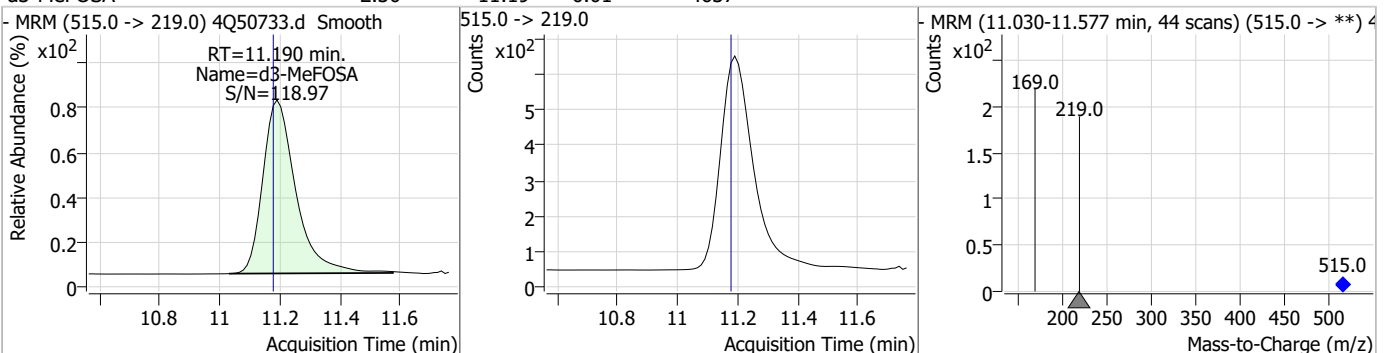
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.87	11.08	0.01	52867				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.79	11.11	0.02	2062 (m)				

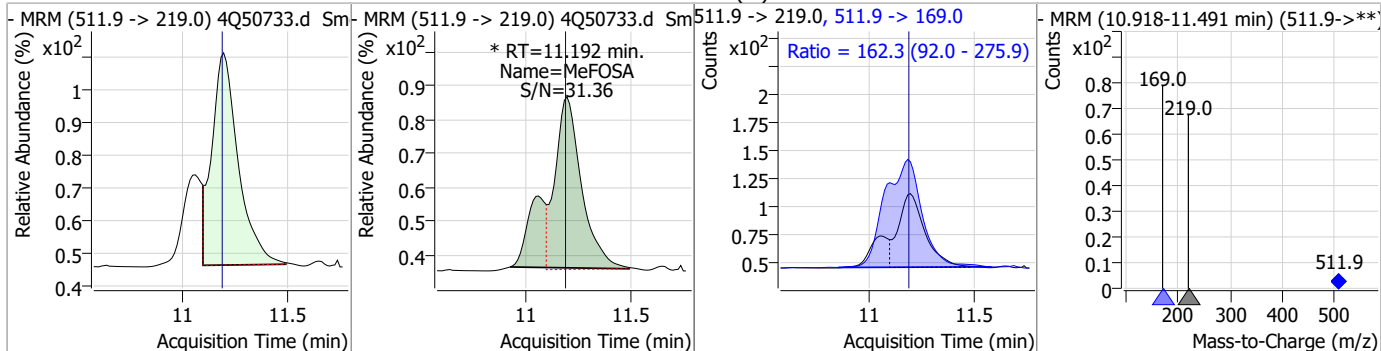


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.30	11.19	0.01	4637				

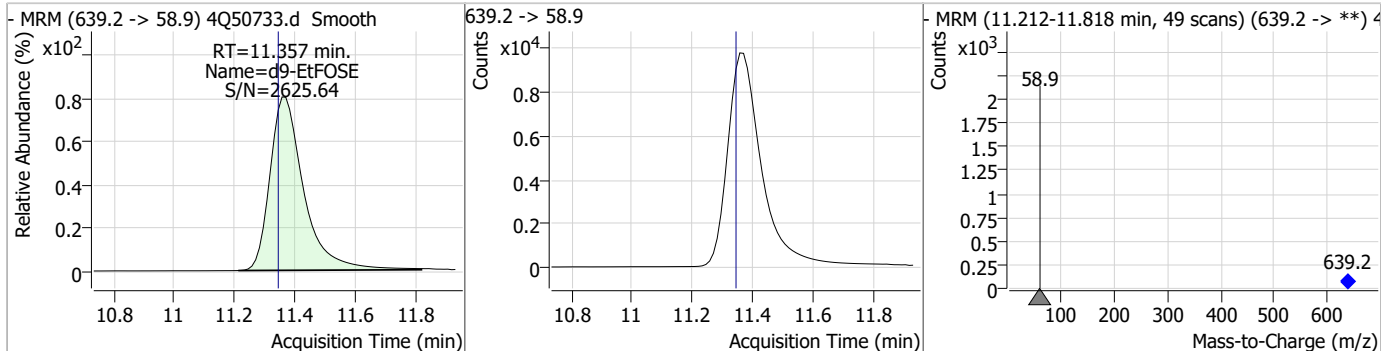


Perfluorinated Compounds by LC/MS/MS

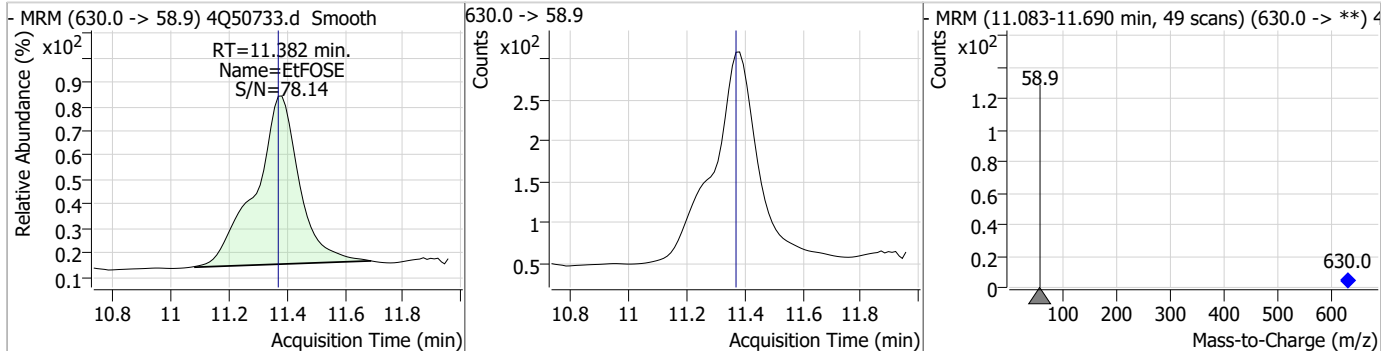
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.34	11.19	0.01	735 (m)	511.9 -> 169.0	162.3	92.0	275.9



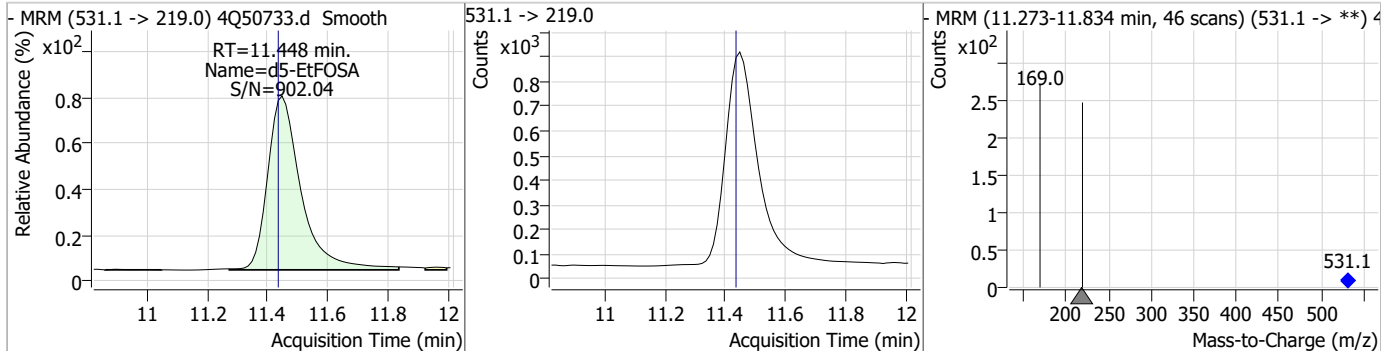
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.43	11.36	0.01	75048				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.86	11.38	0.01	2664				

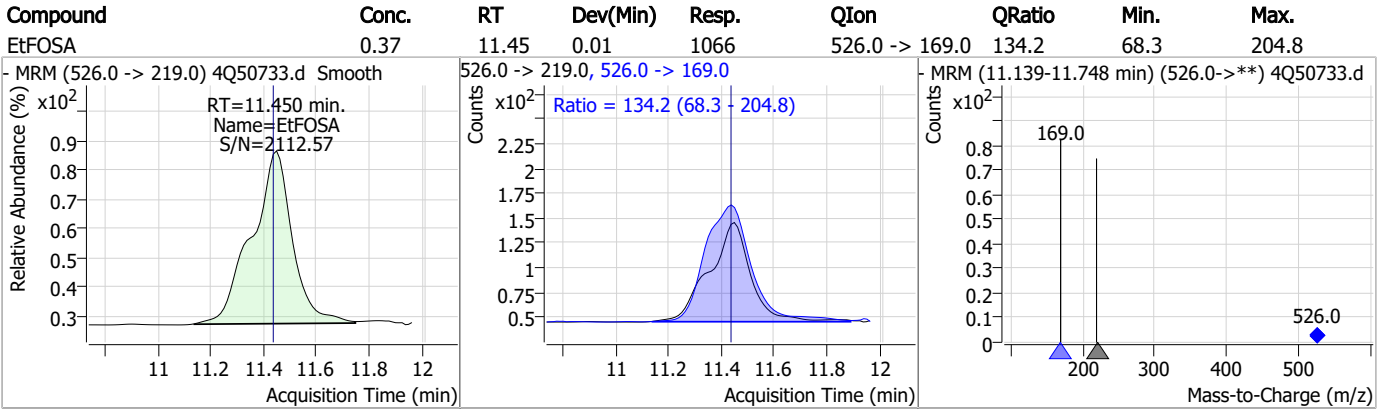


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.44	11.45	0.01	6657				



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q742-CC741 Method: EPA DRAFT 1633
Lab FileID: 4Q50733.D Analyst approved: 09/19/23 10:24 Anna Ludwig
Injection Time: 09/18/23 15:11 Supervisor approved: 09/19/23 13:22 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.13	Split peak
EtFOSAA	2991-50-6		8.41	Split peak
MeFOSE	24448-09-7		11.11	Split peak
MeFOSA	31506-32-8		11.19	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50744.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/18/2023 5:54:06 PM
 Sample Name : cc741-4
 Vial : P1-A5
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q742.batch.bin
 Sample Information : OP98180,S4Q742,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.740	216.8 -> 171.9	80622	10.00 µg/L	0.028
M5-PFPeA	4.252	268.3 -> 223.0	30362	5.00 µg/L	0.037
M5-PFHxA	5.432	318.0 -> 273.0	29852	2.50 µg/L	0.025
M4-PFHpA	6.392	367.1 -> 322.0	19895	2.50 µg/L	0.038
M8-PFOA	7.062	421.1 -> 376.0	33435	2.50 µg/L	0.025
M9-PFNA	7.596	472.1 -> 427.0	13661	1.25 µg/L	0.026
M6-PFDA	8.090	519.1 -> 474.1	8882	1.25 µg/L	0.025
M7-PFUnDA	8.534	570.0 -> 525.1	10870	1.25 µg/L	0.025
M2-PFDoDA	8.966	615.1 -> 570.0	13515	1.25 µg/L	0.025
M2-PFTeDA	9.710	715.2 -> 670.0	7880	1.25 µg/L	0.012
M8-FOSA	9.931	506.1 -> 77.8	8779	2.50 µg/L	0.025
M3-PFBS	5.288	302.1 -> 79.9	7215	2.50 µg/L	0.025
M3-PFHxS	7.128	402.1 -> 79.9	4641	2.50 µg/L	0.025
M8-PFOS	8.204	507.1 -> 79.9	5548	2.50 µg/L	0.026
M2-4:2FTS	5.146	329.1 -> 80.9	859	5.00 µg/L	0.037
M2-6:2FTS	6.847	429.1 -> 80.9	1261	5.00 µg/L	0.037
M2-8:2FTS	7.889	529.1 -> 80.9	1783	5.00 µg/L	0.025
M3-MeFOSAA	8.172	573.2 -> 419.0	10170	5.00 µg/L	0.025
M3-HFPO-DA	5.788	286.9 -> 168.9	28818	10.00 µg/L	0.025
M5-EtFOSAA	8.383	589.2 -> 419.0	10016	5.00 µg/L	0.025
M7-MeFOSE	11.085	623.2 -> 58.9	53871	25.00 µg/L	0.012
M9-EtFOSE	11.369	639.2 -> 58.9	72426	25.00 µg/L	0.025
M5-EtFOSA	11.448	531.1 -> 219.0	6116	2.50 µg/L	0.012
M3-MeFOSA	11.190	515.0 -> 219.0	4607	2.50 µg/L	0.012
13C4-PFOS	8.205	502.8 -> 79.9	4835	2.50 µg/L	0.026
13C3-PFBA	2.743	216.0 -> 172.0	40167	5.00 µg/L	0.027
18O2-PFHxS	7.127	403.0 -> 83.9	3206	2.50 µg/L	0.025
13C4-PFOA	7.062	417.1 -> 372.0	37311	2.50 µg/L	0.025
13C2-PFDA	8.090	515.1 -> 470.1	9177	1.25 µg/L	0.025
13C5-PFNA	7.608	468.0 -> 423.0	11111	1.25 µg/L	0.038
13C2-PFHxA	5.433	315.1 -> 270.0	25769	2.50 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.146	329.1 -> 80.9	859	4.91 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-6:2FTS	6.847	429.1 -> 80.9	1261	4.65 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.0%		
13C2-8:2FTS	7.889	529.1 -> 80.9	1783	4.26 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.2%		
13C2-PFDoDA	8.966	615.1 -> 570.0	13515	1.31 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C2-PFTeDA	9.710	715.2 -> 670.0	7880	1.44 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 115.1%		
13C3-PFBS	5.288	302.1 -> 79.9	7215	2.35 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C3-PFHxS	7.128	402.1 -> 79.9	4641	2.41 µg/L	0.025

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C4-PFBA	2.740	216.8 -> 171.9	80622	10.14 µg/L	0.028
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C4-PFHpA	6.392	367.1 -> 322.0	19895	2.44 µg/L	0.038
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C5-PFHxA	5.432	318.0 -> 273.0	29852	2.54 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C5-PFPeA	4.252	268.3 -> 223.0	30362	5.01 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C6-PFDA	8.090	519.1 -> 474.1	8882	1.27 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C7-PFUnDA	8.534	570.0 -> 525.1	10870	1.38 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.5%		
13C8-FOSA	9.931	506.1 -> 77.8	8779	2.63 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C8-PFOA	7.062	421.1 -> 376.0	33435	2.44 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C8-PFOS	8.204	507.1 -> 79.9	5548	2.58 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C9-PFNA	7.596	472.1 -> 427.0	13661	1.35 µg/L	0.026
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.7%		
d3-MeFOSAA	8.172	573.2 -> 419.0	10170	4.68 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C3-HFPO-DA	5.788	286.9 -> 168.9	28818	10.34 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 103.4%		
d3-MeFOSA	11.190	515.0 -> 219.0	4607	2.35 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.9%		
d5-EtFOSAA	8.383	589.2 -> 419.0	10016	4.98 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.6%		
d7-MeFOSE	11.085	623.2 -> 58.9	53871	28.20 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 112.8%		
d9-EtFOSE	11.369	639.2 -> 58.9	72426	26.28 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 105.1%		
d5-EtFOSA	11.448	531.1 -> 219.0	6116	2.31 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.3%		
Target Compounds					QValue
4:2FTS	5.147	327.1 -> 307.0	13027	8.96 µg/L	100
		327.1 -> 80.9	5254		
6:2FTS	6.847	427.1 -> 407.0	13220	9.08 µg/L	96
		427.1 -> 80.9	4691		
8:2FTS	7.890	527.1 -> 507.0	9731	9.69 µg/L	98
		527.1 -> 80.8	4179		
EtFOSAA	8.383	584.2 -> 419.1	4536	2.57 µg/L	m 88
		584.2 -> 526.0	1965		
FOSA	9.933	498.1 -> 77.9	10033	2.51 µg/L	99
		498.1 -> 478.0	286		
MeFOSAA	8.185	570.1 -> 419.0	5458	2.46 µg/L	99
		570.1 -> 483.0	1100		
PFBA	2.746	212.8 -> 168.9	30423	9.86 µg/L	100
PFBS	5.289	298.7 -> 79.9	7651	2.25 µg/L	100
		298.7 -> 98.8	3161		
PFDA	8.091	512.9 -> 469.0	19972	2.46 µg/L	93
		512.9 -> 219.0	3755		
PFDoDA	8.967	613.1 -> 569.0	28609	2.48 µg/L	99
		613.1 -> 319.0	5018		
PFDS	9.094	599.0 -> 79.9	4569	2.28 µg/L	94

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2388			
PFHpA	6.392	363.1 -> 319.0	30406	2.57	µg/L	97
		363.1 -> 169.0	6519			
PFHpS	7.698	449.0 -> 79.9	5249	2.21	µg/L	96
		449.0 -> 98.9	2902			
PFHxA	5.435	313.0 -> 269.0	27023	2.56	µg/L	99
		313.0 -> 118.9	999			
PFHxS	7.129	398.7 -> 79.9	4779	2.33	µg/L	m 85
		398.7 -> 98.9	2329			
PFNA	7.609	463.0 -> 419.0	18794	2.26	µg/L	95
		463.0 -> 219.0	4732			
PFNS	8.671	548.8 -> 79.9	3564	2.18	µg/L	91
		548.8 -> 98.9	2116			
PFOA	7.063	413.0 -> 369.0	36878	2.46	µg/L	99
		413.0 -> 169.0	8371			
PFOS	8.205	498.9 -> 79.9	6587	2.56	µg/L	m 72
		498.9 -> 98.8	3125			
PFPeA	4.254	263.0 -> 219.0	49287	5.15	µg/L	100
PFPeS	6.382	349.1 -> 79.9	4151	2.17	µg/L	92
		349.1 -> 98.9	1787			
PFTeDA	9.711	713.1 -> 669.0	25410	2.34	µg/L	98
		713.1 -> 168.9	2876			
PFTrDA	9.353	663.0 -> 619.0	33916	2.67	µg/L	99
		663.0 -> 168.9	4664			
PFUnDA	8.534	563.1 -> 519.0	24909	2.46	µg/L	98
		563.1 -> 269.1	4778			
11CI-PF3OUdS	9.380	630.9 -> 450.9	35931	4.71	µg/L	99
		632.9 -> 452.9	10993			
9CI-PF3ONS	8.536	530.8 -> 351.0	40898	4.94	µg/L	95
		532.8 -> 353.0	12317			
ADONA	6.654	376.9 -> 250.9	99344	4.59	µg/L	99
		376.9 -> 84.8	25366			
HFPO-DA	5.801	284.9 -> 168.9	15605	5.00	µg/L	97
		284.9 -> 184.9	2002			
3:3FTCA	3.731	241.0 -> 177.0	6403	11.67	µg/L	98
		241.0 -> 117.0	764			
5:3FTCA	6.206	341.0 -> 237.1	114494	61.55	µg/L	96
		341.0 -> 217.0	86505			
7:3FTCA	7.712	441.0 -> 316.9	54282	61.09	µg/L	95
		441.0 -> 336.9	116872			
EtFOSA	11.450	526.0 -> 219.0	13394	5.01	µg/L	97
		526.0 -> 169.0	18702			
EtFOSE	11.382	630.0 -> 58.9	38067	12.73	µg/L	100
MeFOSA	11.192	511.9 -> 219.0	11199	5.16	µg/L	m 73
		511.9 -> 169.0	16210			
MeFOSE	11.110	616.1 -> 58.9	34815	13.17	µg/L	m 100
PFDoDS	9.839	699.1 -> 79.9	3481	2.42	µg/L	97
		699.1 -> 98.8	2036			
NFDHA	5.314	295.0 -> 201.0	3412	5.44	µg/L	95
		295.0 -> 84.9	859			
PFMBA	4.666	279.0 -> 85.1	25610	5.04	µg/L	100
PFMPA	3.370	229.0 -> 84.9	28976	5.09	µg/L	100
PFEESA	5.820	314.8 -> 134.9	47547	4.63	µg/L	99
		314.8 -> 82.9	1595			

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

7.7.13
7

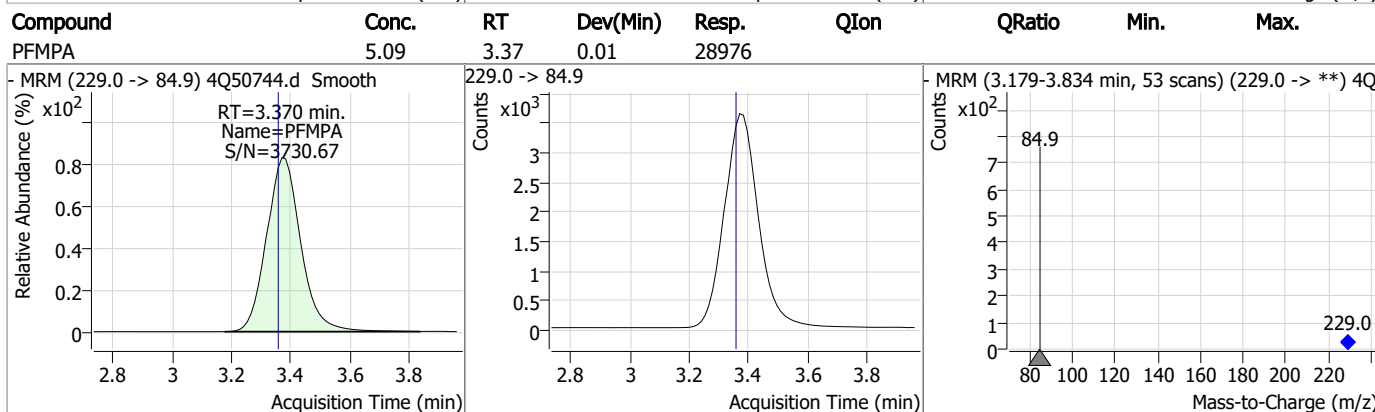
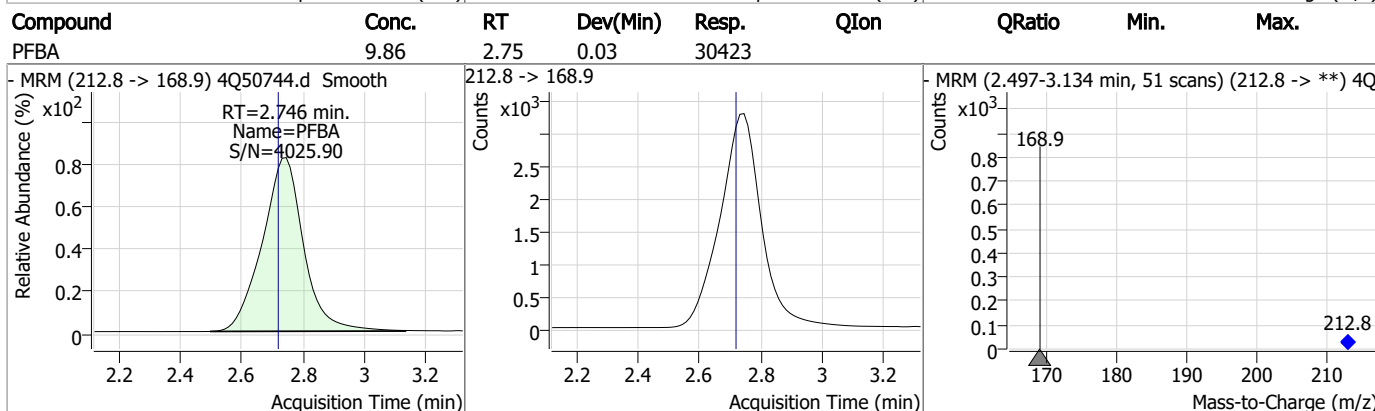
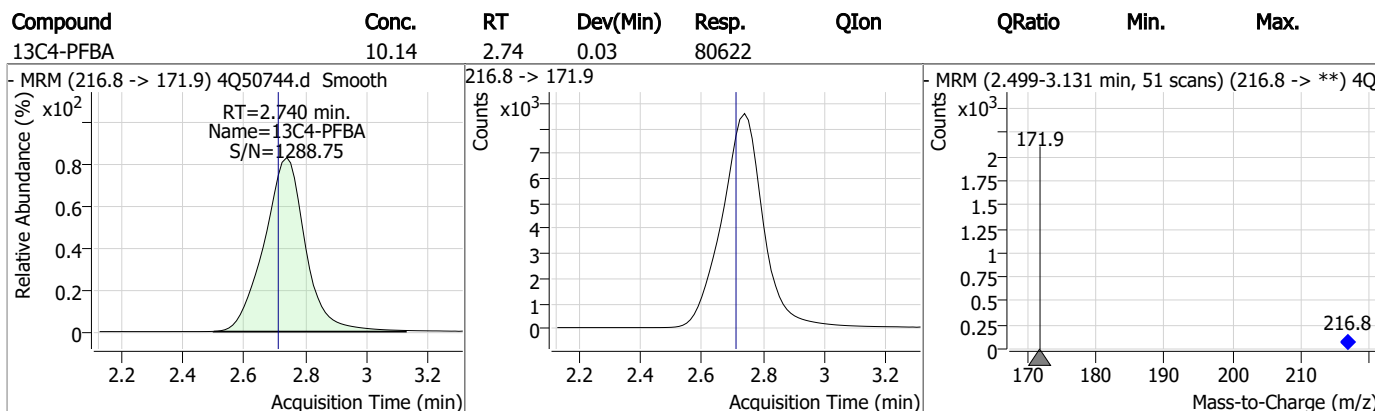
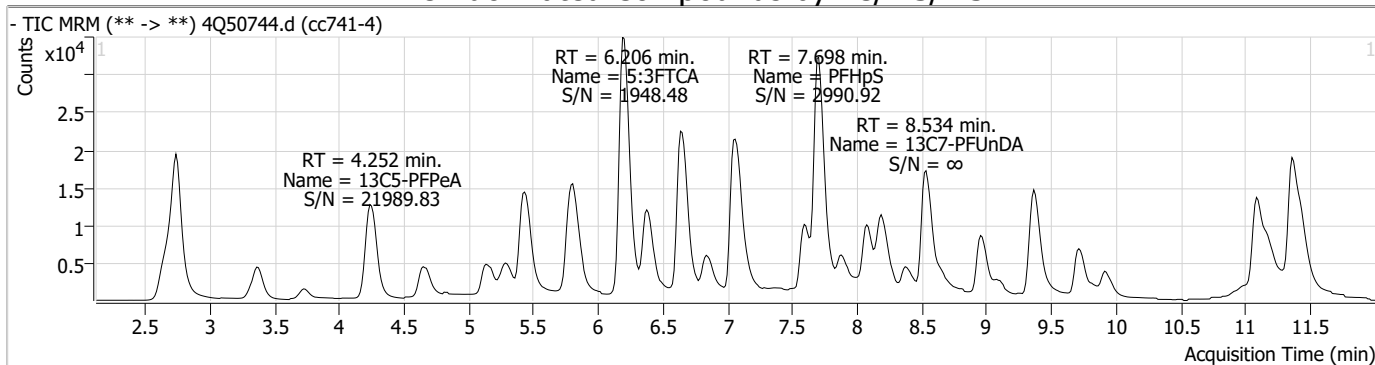
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.13

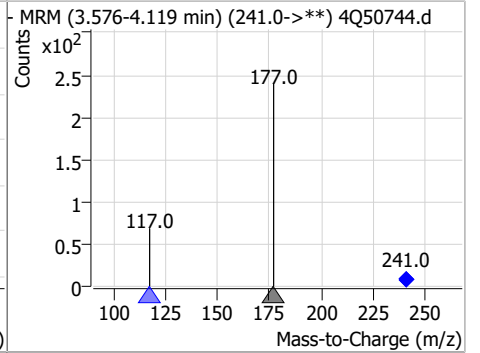
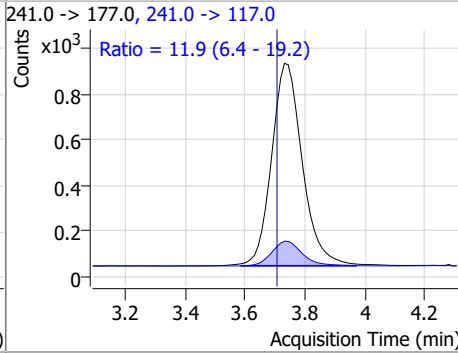
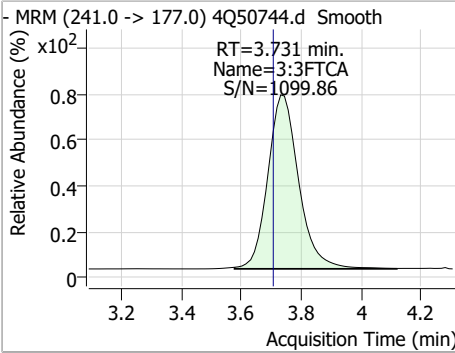
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Perfluorinated Compounds by LC/MS/MS

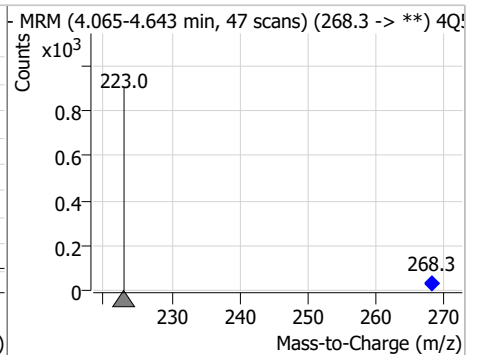
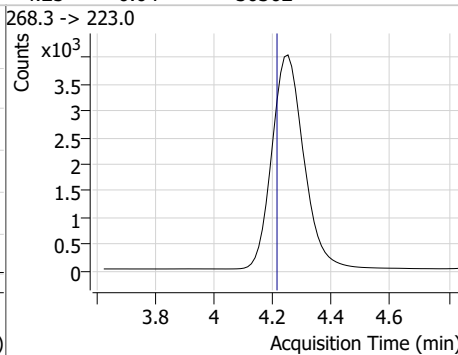
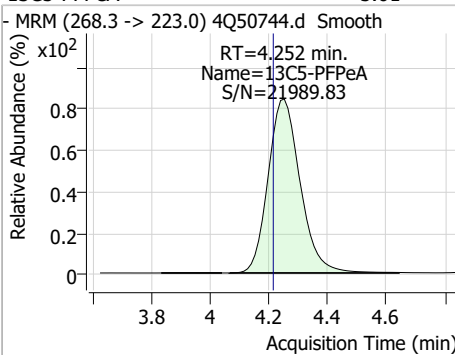


Perfluorinated Compounds by LC/MS/MS

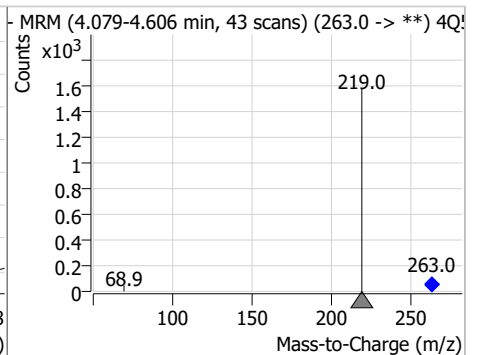
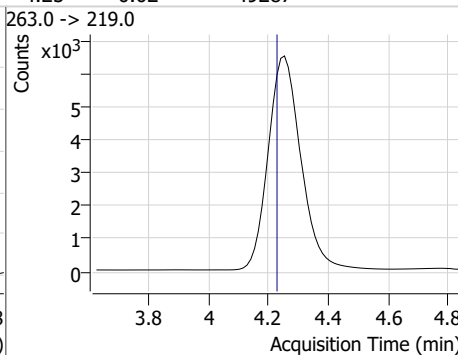
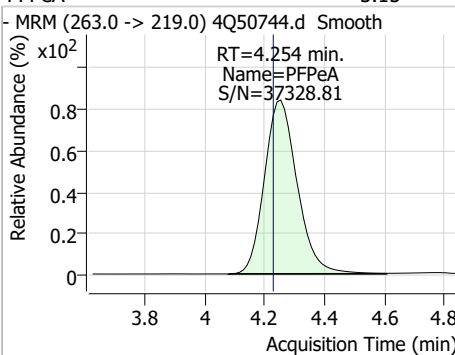
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.67	3.73	0.02	6403	241.0 -> 117.0	11.9	6.4	19.2



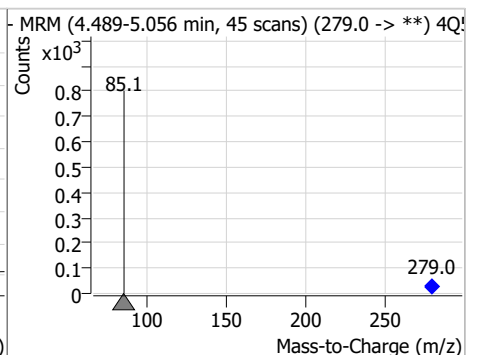
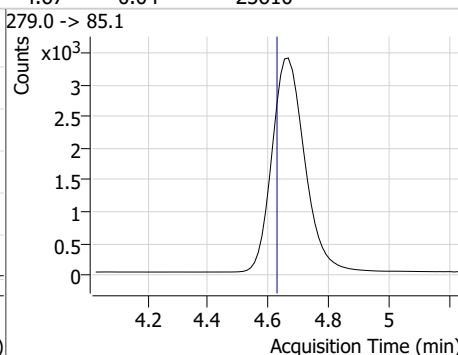
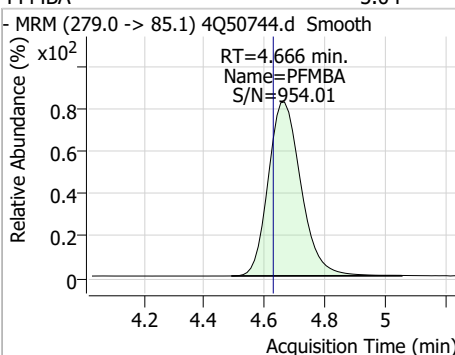
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.01	4.25	0.04	30362				



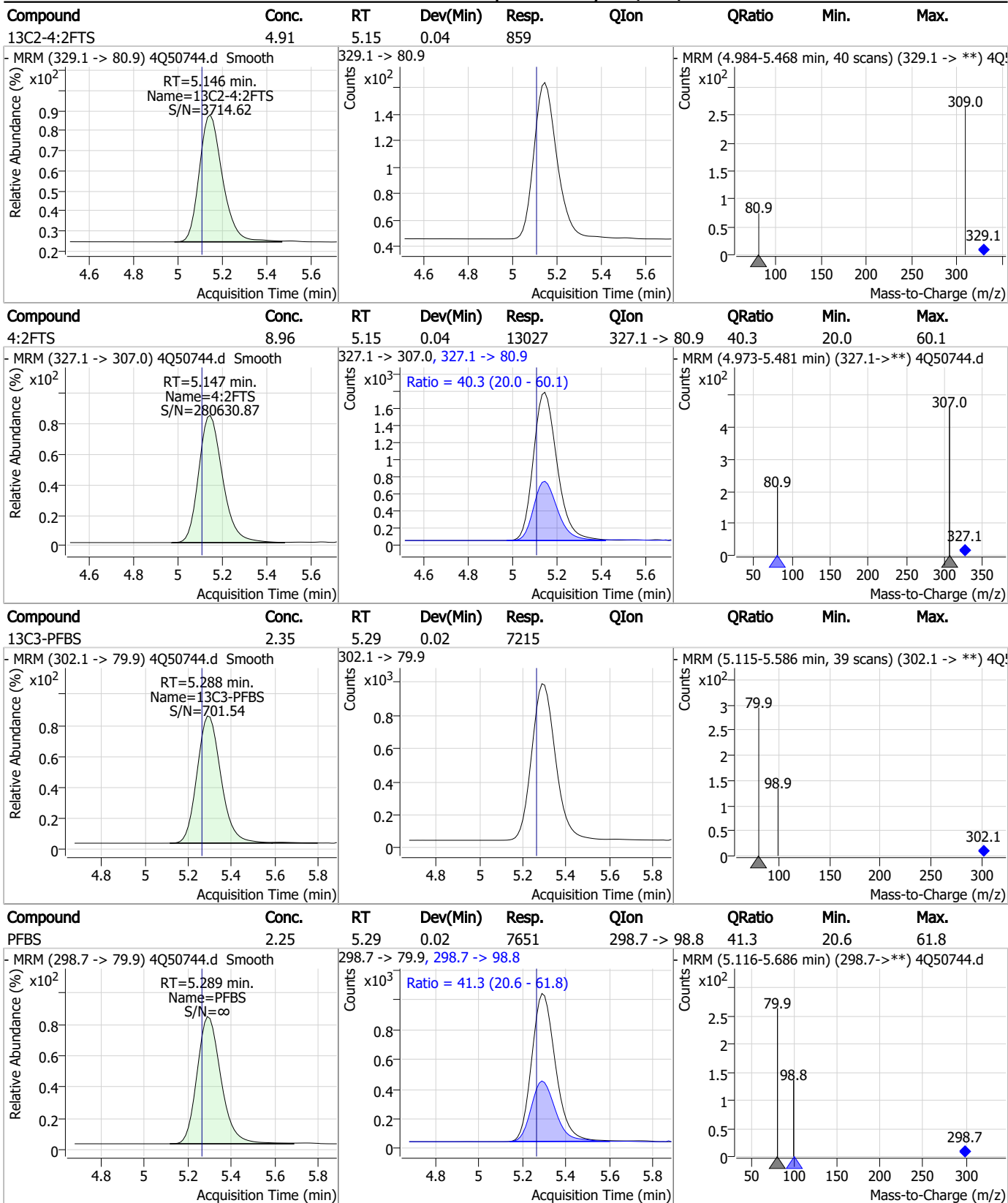
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.15	4.25	0.02	49287				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.04	4.67	0.04	25610				

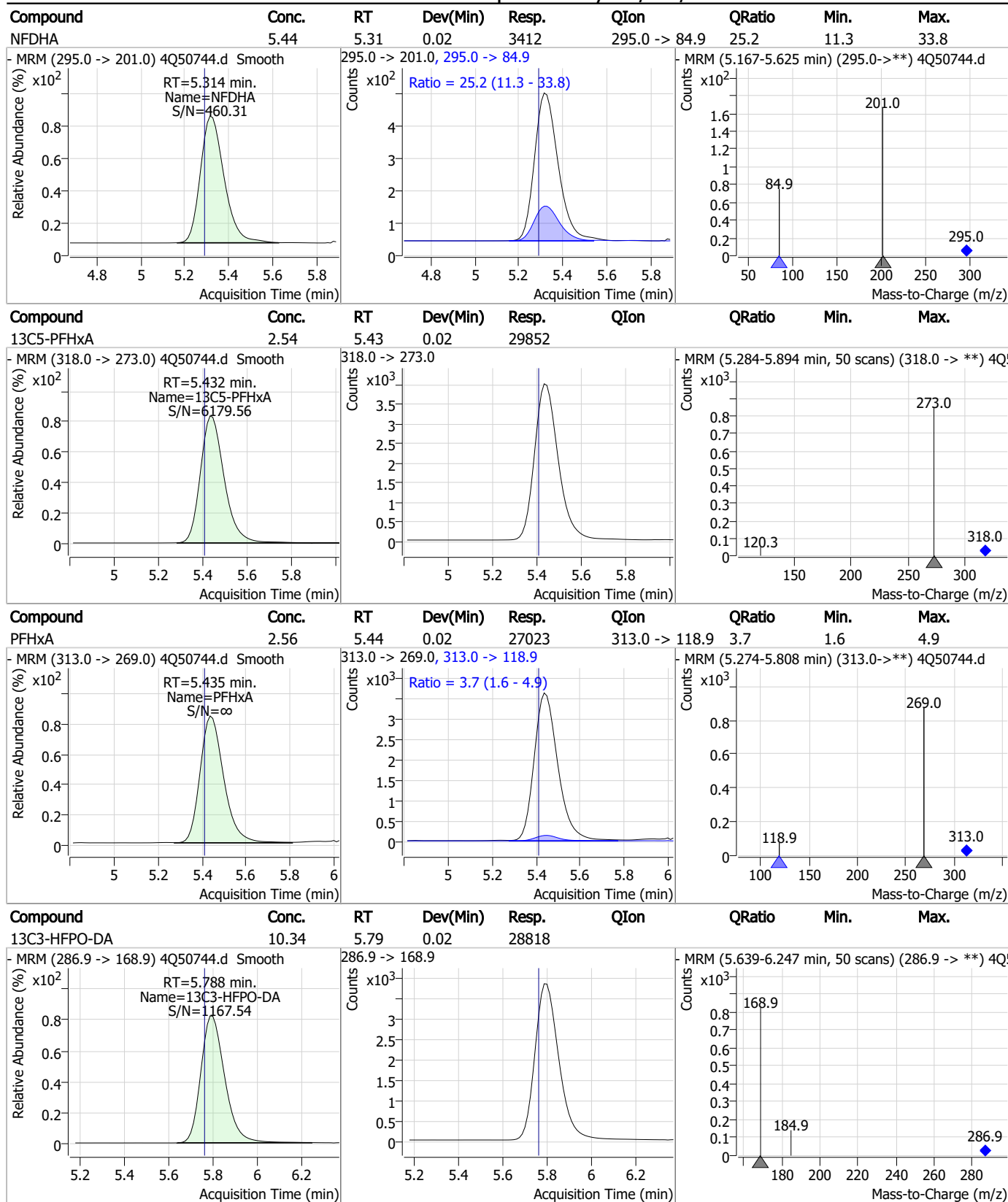


Perfluorinated Compounds by LC/MS/MS



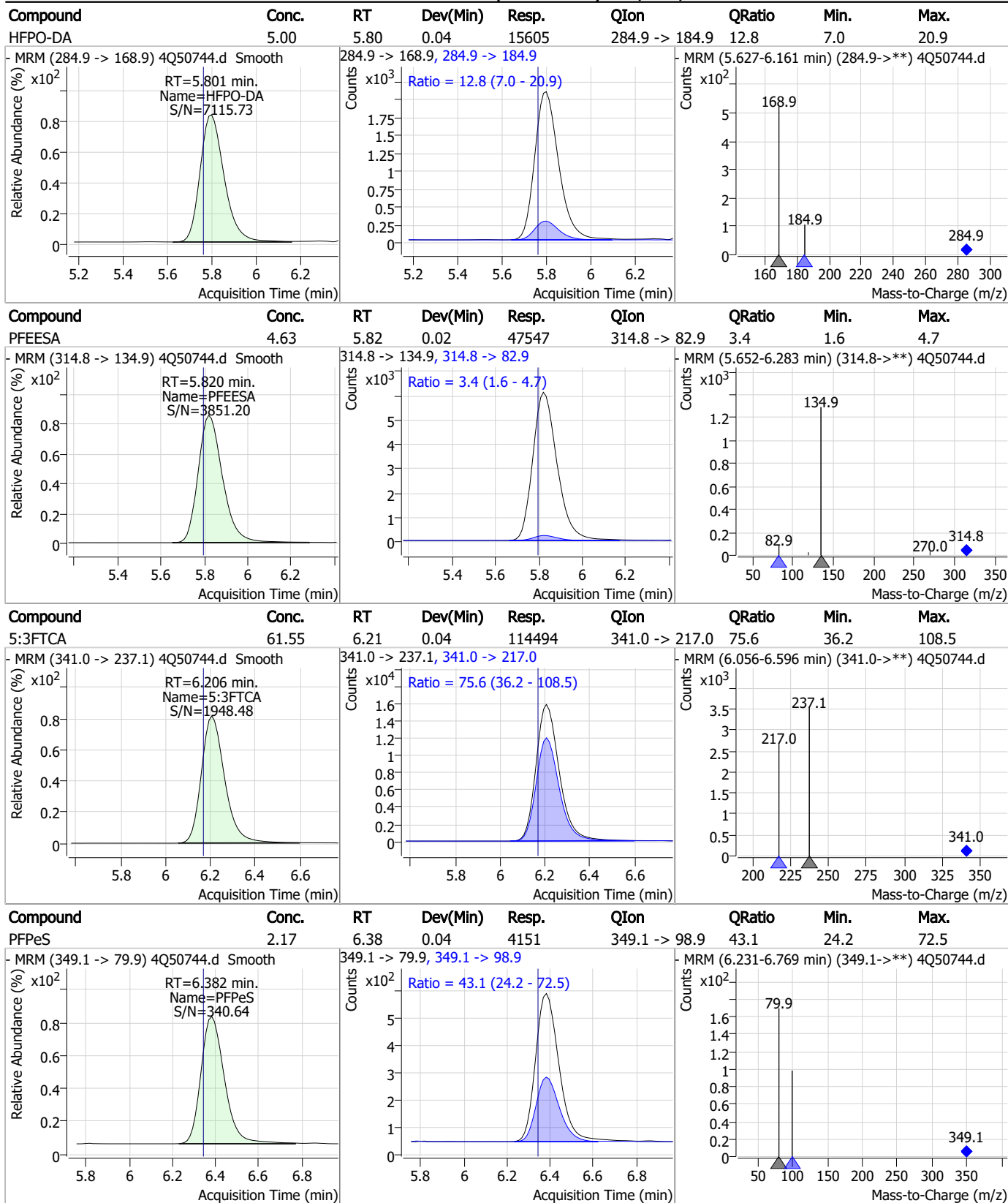
7.7.13
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Perfluorinated Compounds by LC/MS/MS



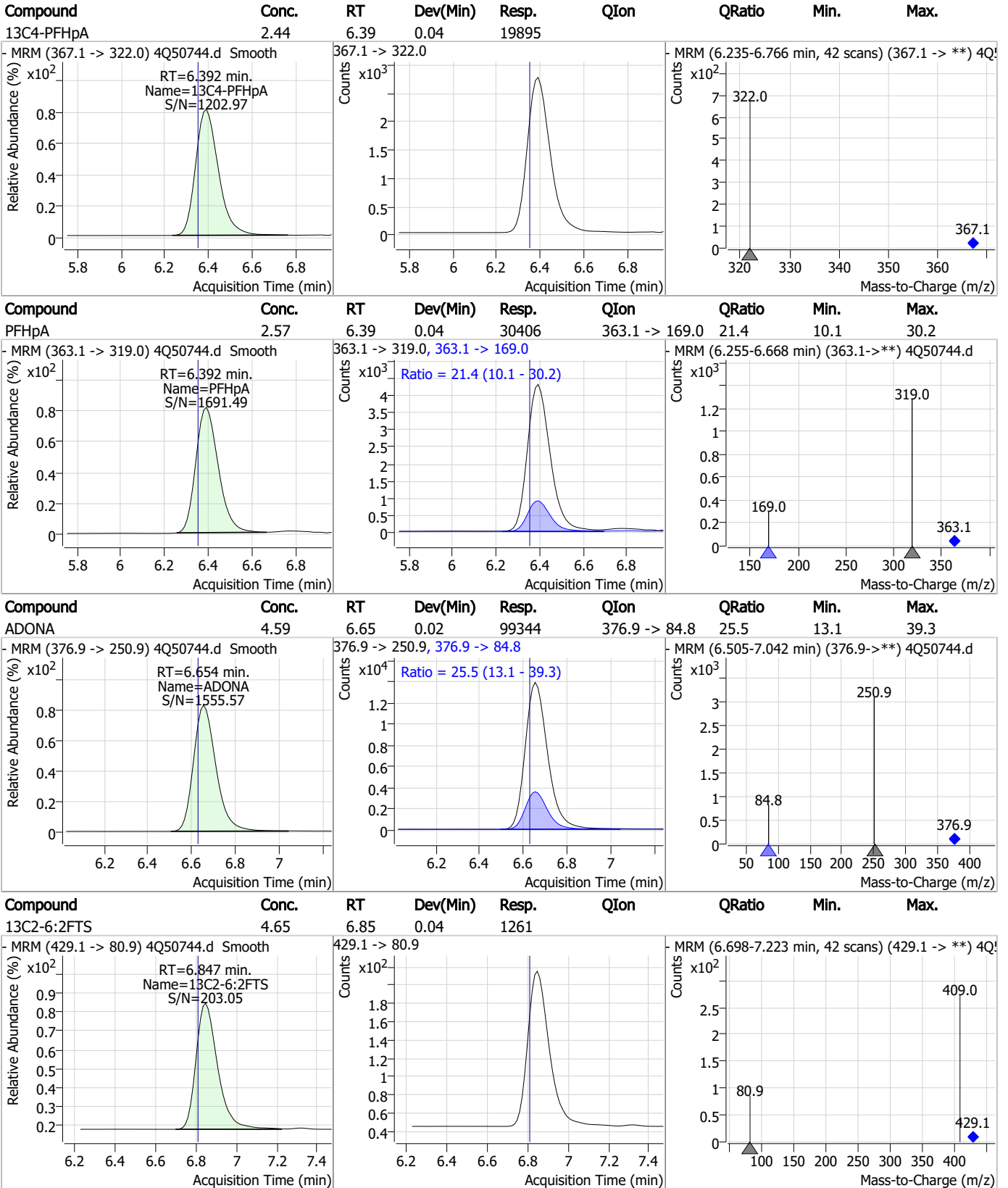
7.7.13
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Perfluorinated Compounds by LC/MS/MS



7.7.13
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Perfluorinated Compounds by LC/MS/MS



7.7.13 7

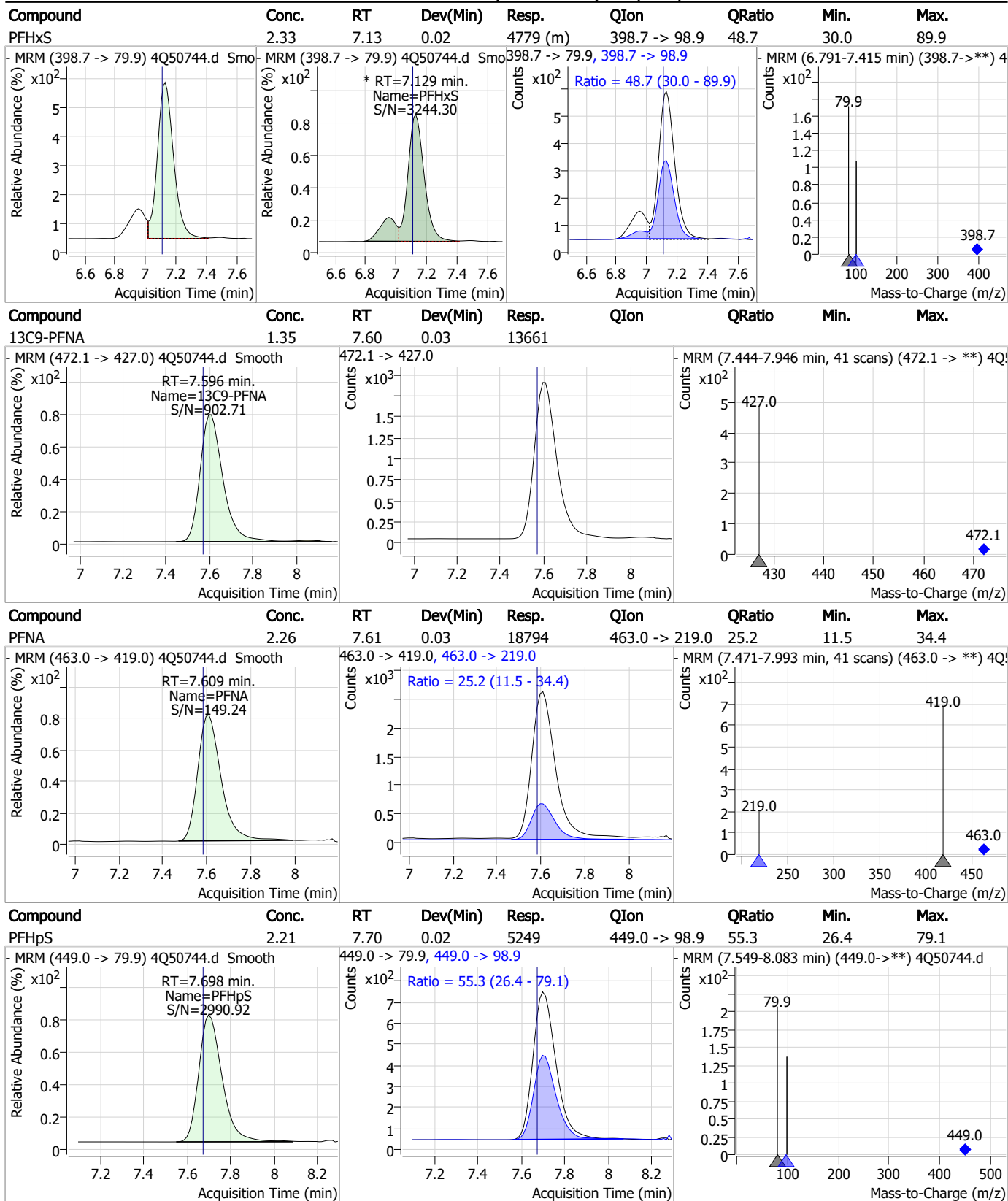
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	9.08	6.85	0.02	13220	427.1 -> 80.9	35.5	18.9	56.8
<p>MRM (427.1 -> 407.0) 4Q50744.d Smooth RT=6.847 min. Name=6:2FTS S/N=366.51</p>			<p>427.1 -> 407.0, 427.1 -> 80.9 Ratio = 35.5 (18.9 - 56.8)</p>			<p>MRM (6.673-7.235 min) (427.1->**) 4Q50744.d</p>		
13C8-PFOA	2.44	7.06	0.02	33435	421.1 -> 376.0	22.7	11.0	33.1
<p>MRM (421.1 -> 376.0) 4Q50744.d Smooth RT=7.062 min. Name=13C8-PFOA S/N=51299.51</p>			<p>421.1 -> 376.0</p>			<p>MRM (6.913-7.448 min, 43 scans) (421.1 -> **) 4Q50744.d</p>		
PFOA	2.46	7.06	0.02	36878	413.0 -> 169.0	22.7	11.0	33.1
<p>MRM (413.0 -> 369.0) 4Q50744.d Smooth RT=7.063 min. Name=PFOA S/N=1044.94</p>			<p>413.0 -> 369.0, 413.0 -> 169.0 Ratio = 22.7 (11.0 - 33.1)</p>			<p>MRM (6.912-7.301 min) (413.0->**) 4Q50744.d</p>		
13C3-PFHxS	2.41	7.13	0.02	4641	402.1 -> 79.9	22.7	11.0	33.1
<p>MRM (402.1 -> 79.9) 4Q50744.d Smooth RT=7.128 min. Name=13C3-PFHxS S/N=1188.72</p>			<p>402.1 -> 79.9</p>			<p>MRM (6.973-7.514 min, 44 scans) (402.1 -> **) 4Q50744.d</p>		

7.7.13

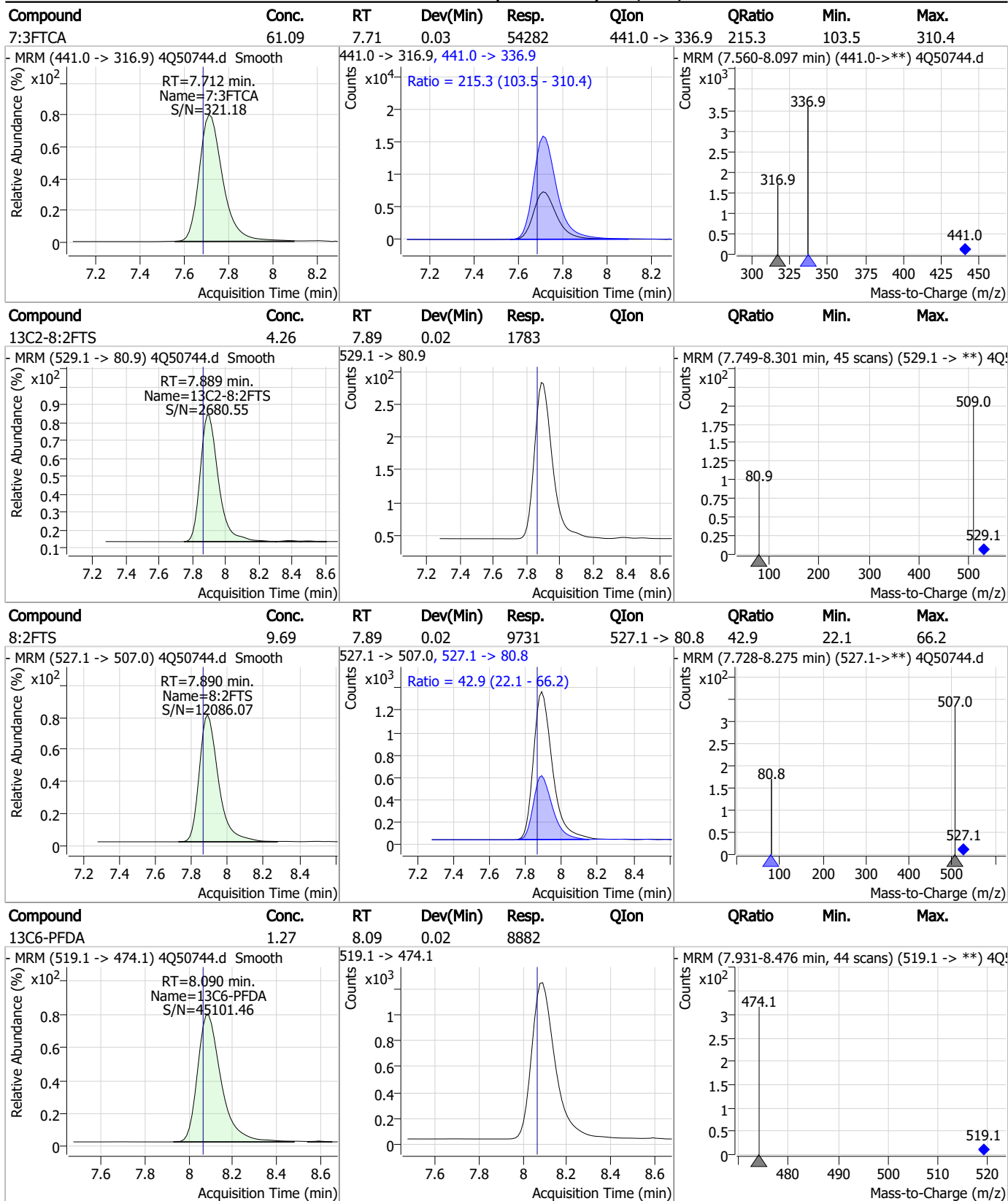
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Perfluorinated Compounds by LC/MS/MS



7.7.13
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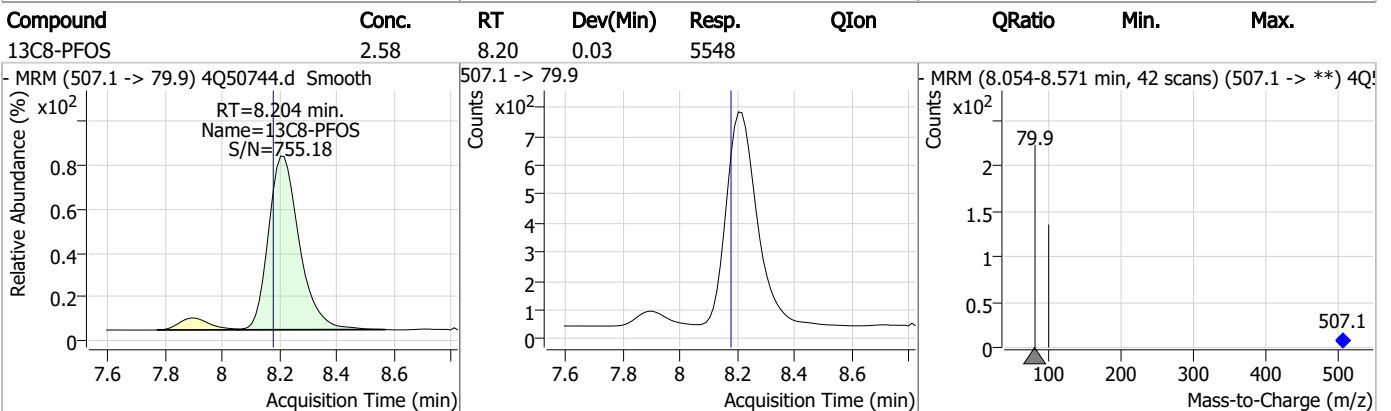
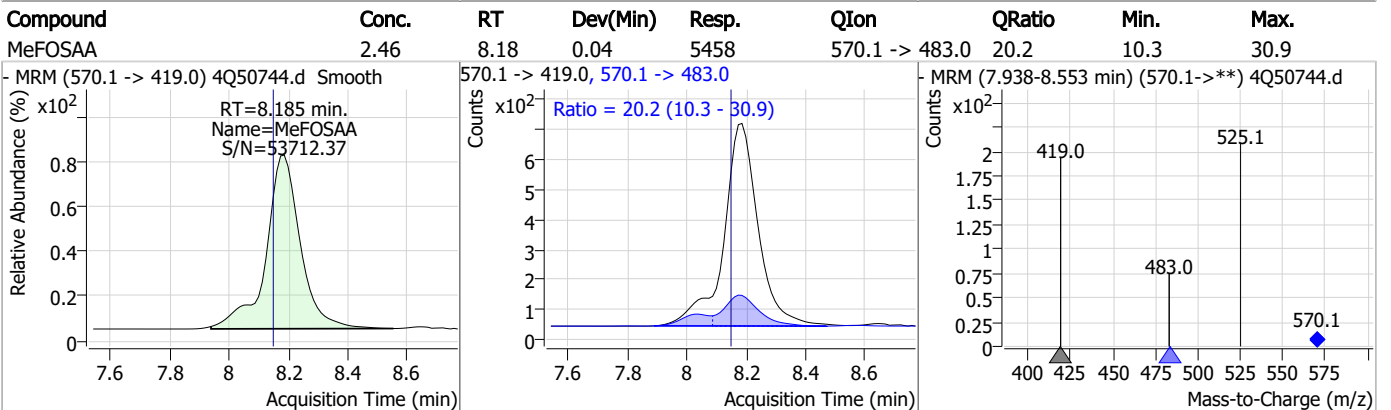
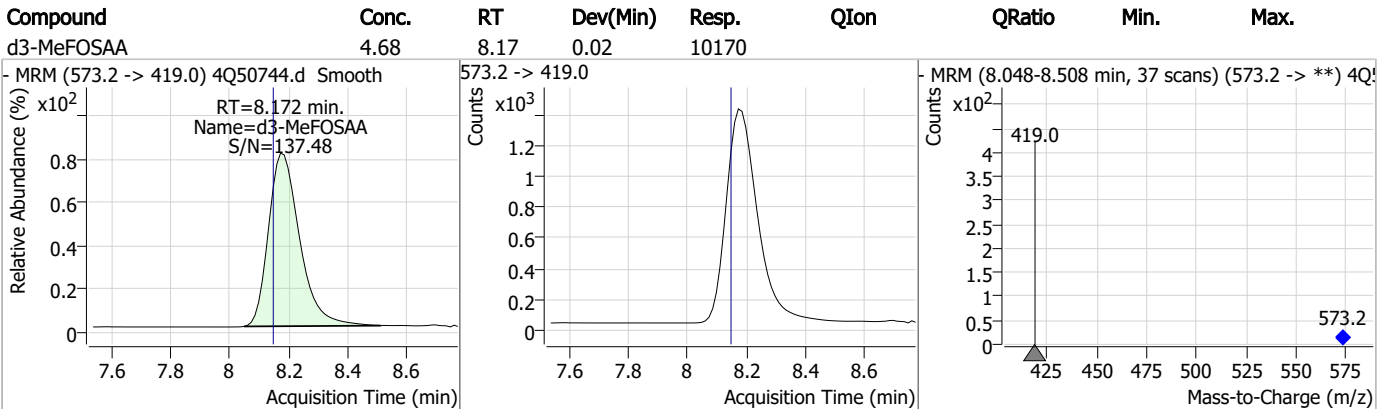
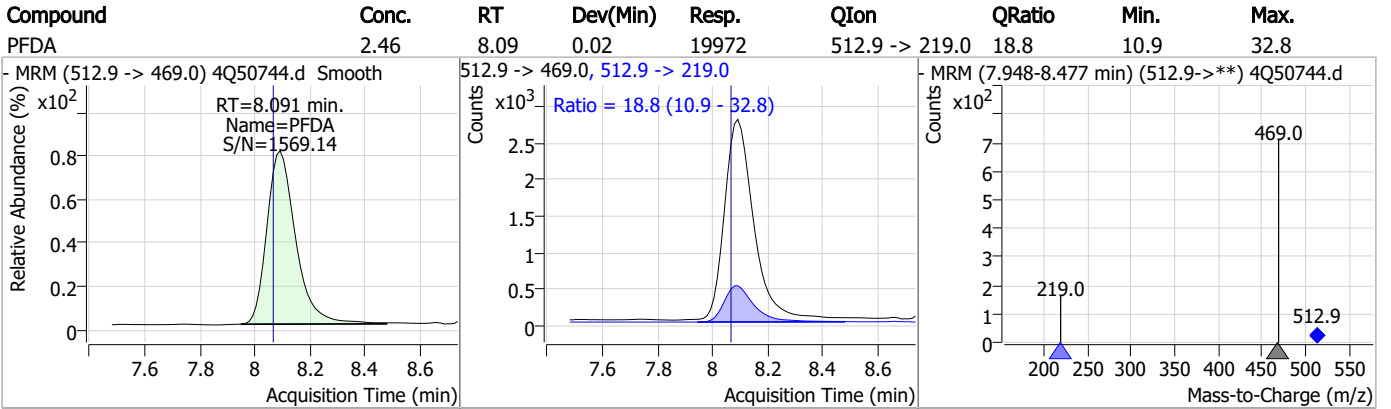
Perfluorinated Compounds by LC/MS/MS



7.7.13

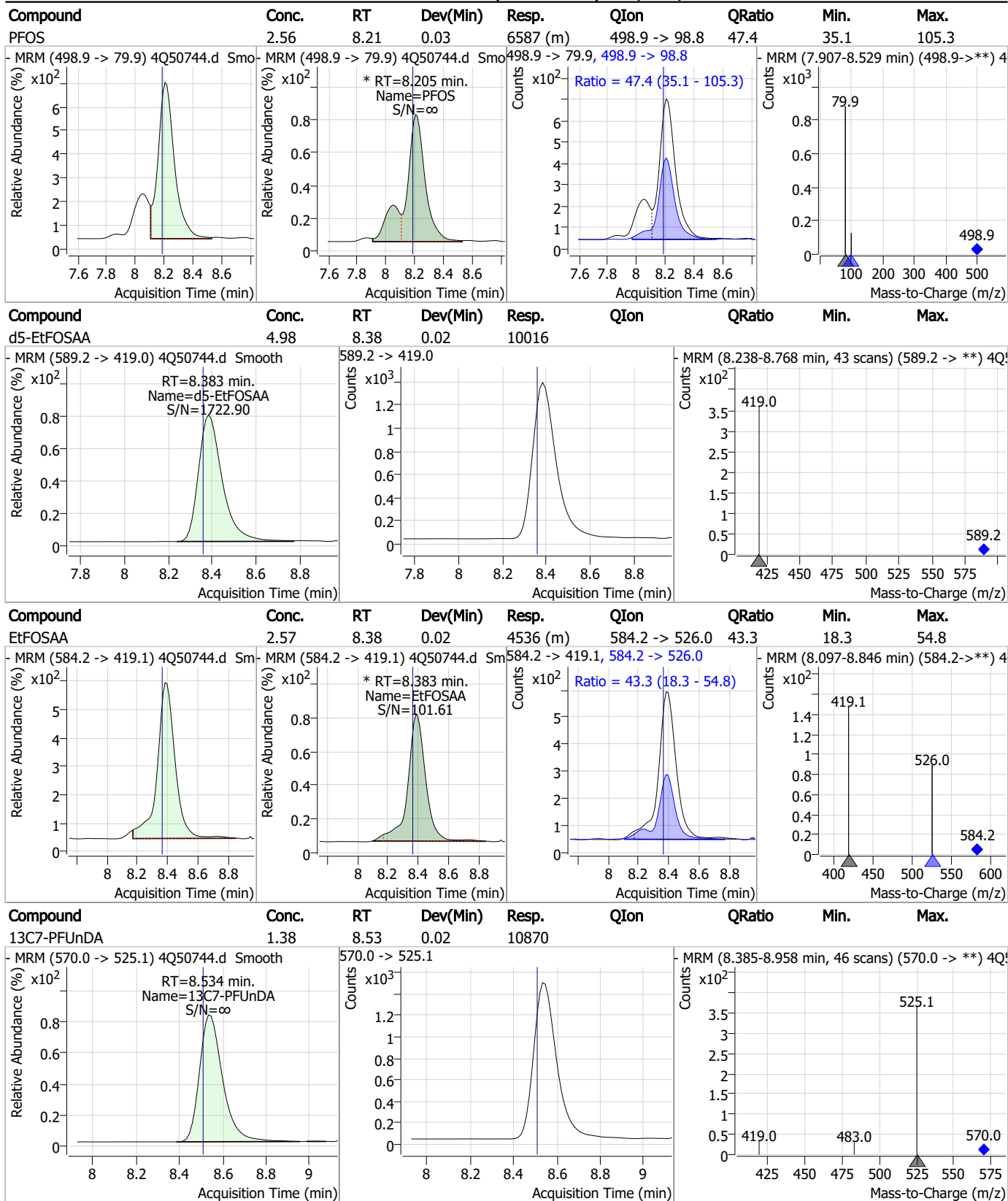
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Perfluorinated Compounds by LC/MS/MS



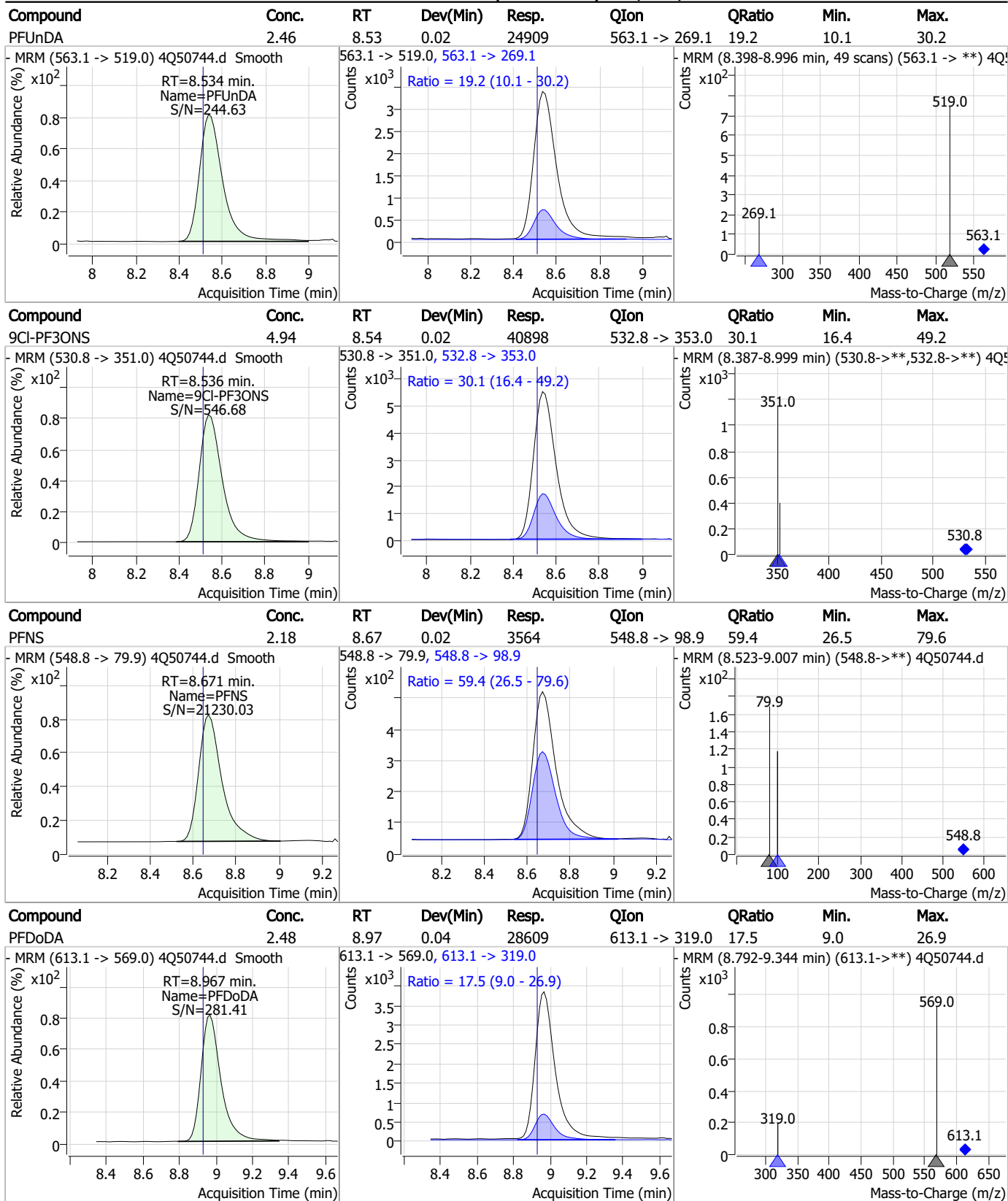
7.7.13
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Perfluorinated Compounds by LC/MS/MS



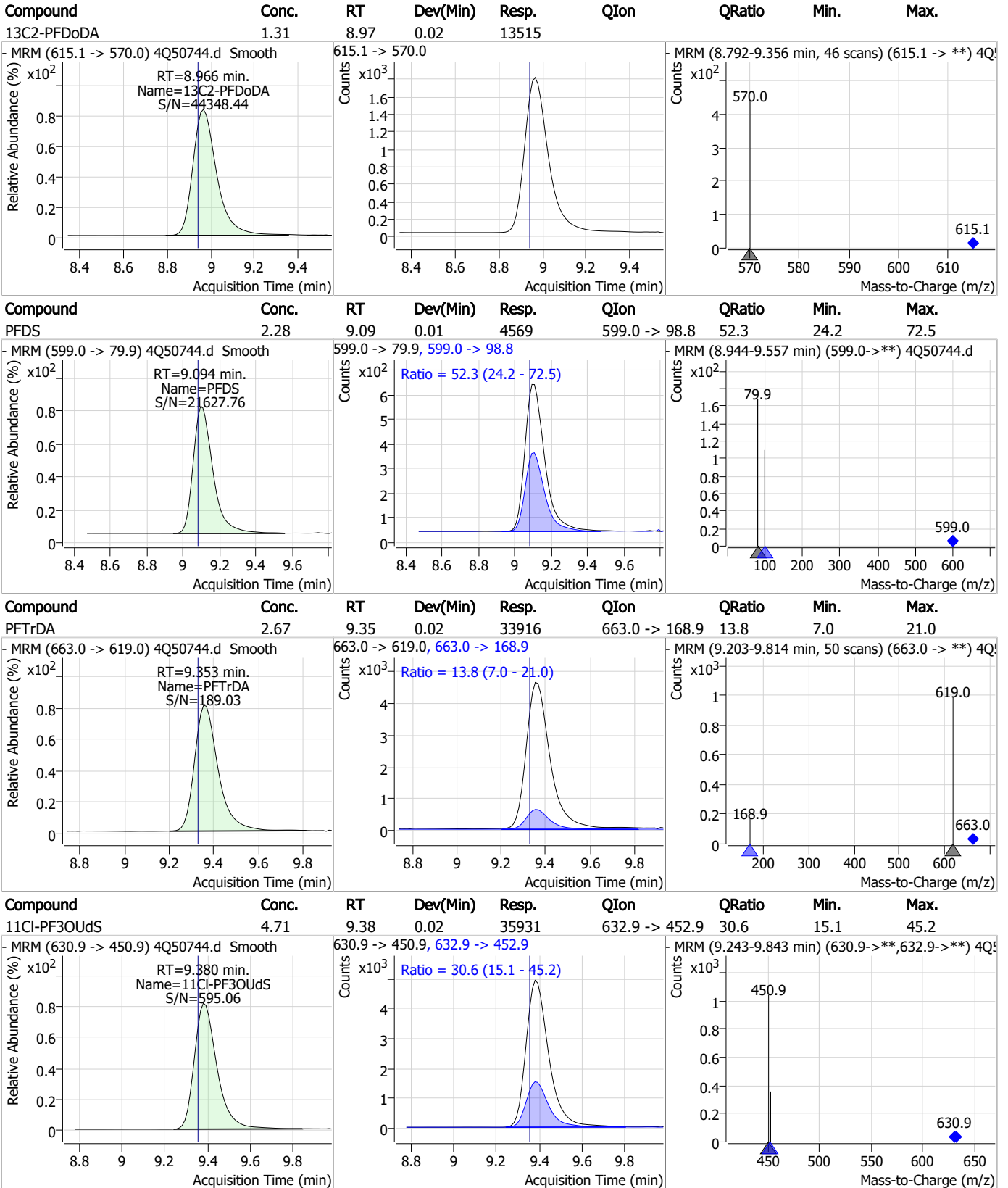
7.7.13
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Perfluorinated Compounds by LC/MS/MS



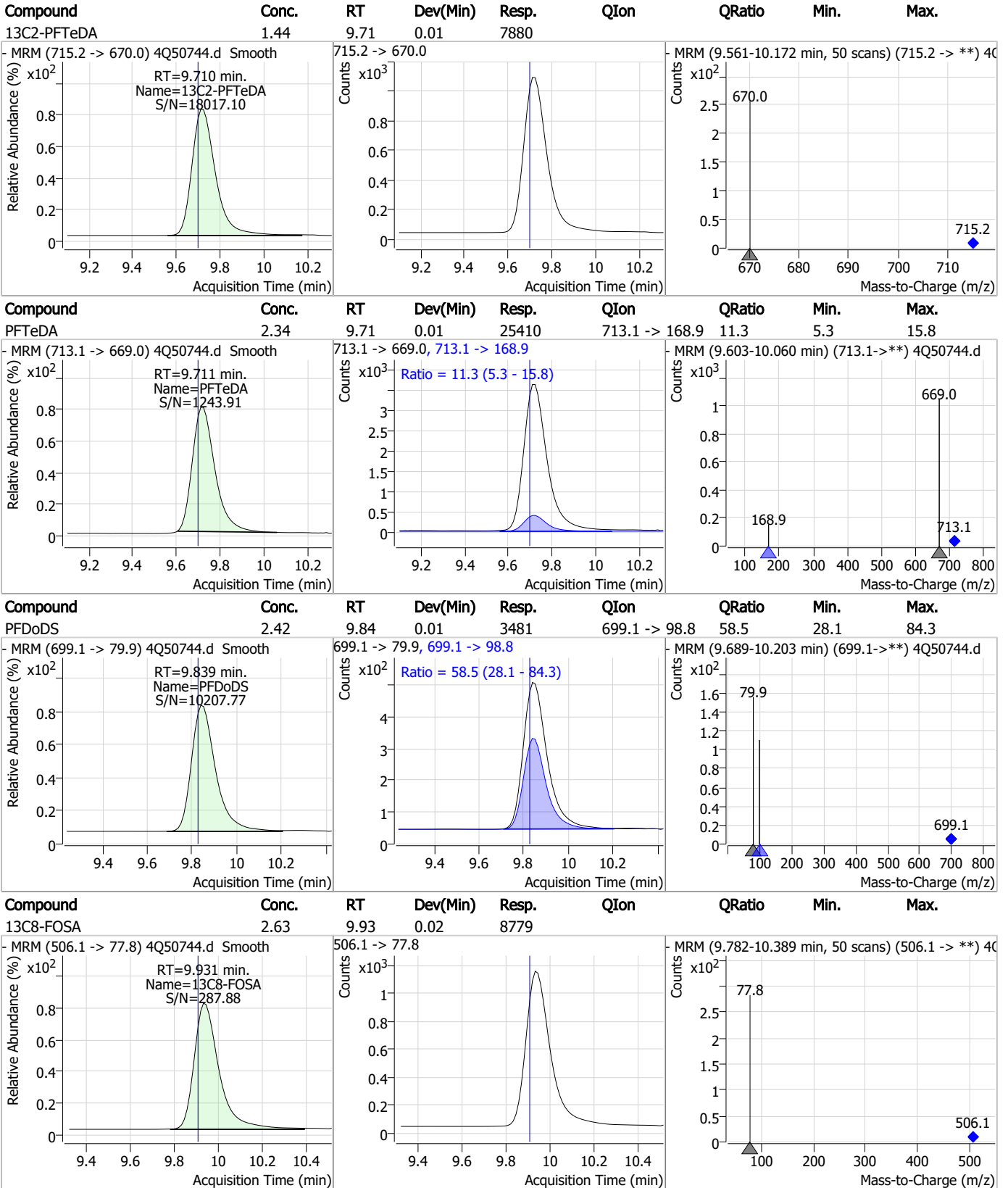
7.7.13
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Perfluorinated Compounds by LC/MS/MS



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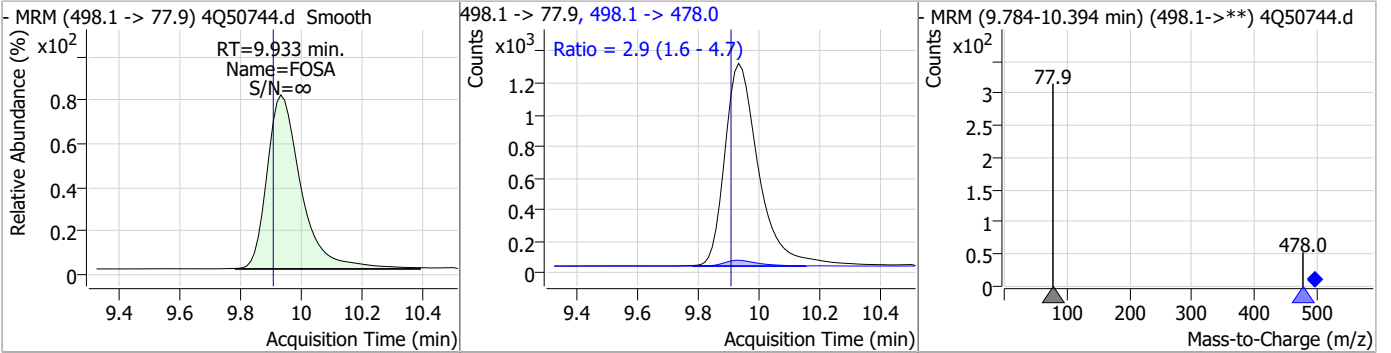
Perfluorinated Compounds by LC/MS/MS



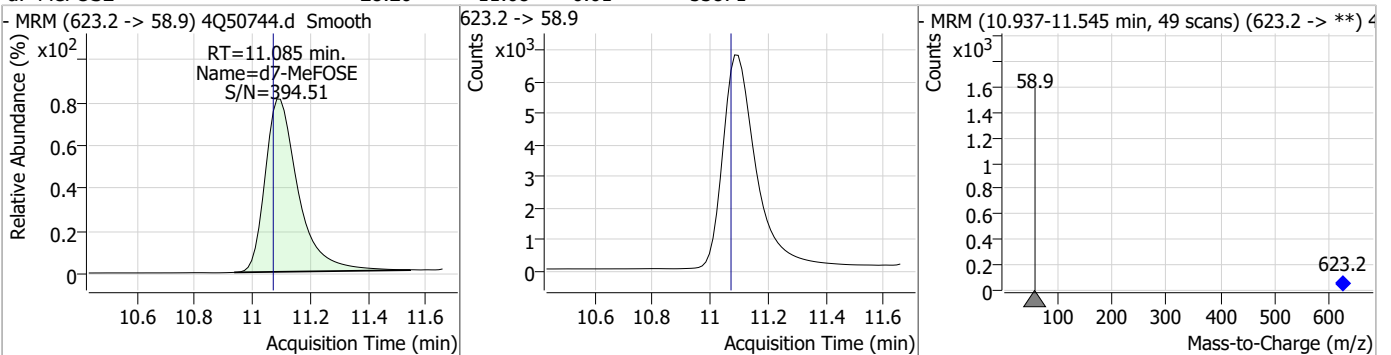
7.7.13
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Perfluorinated Compounds by LC/MS/MS

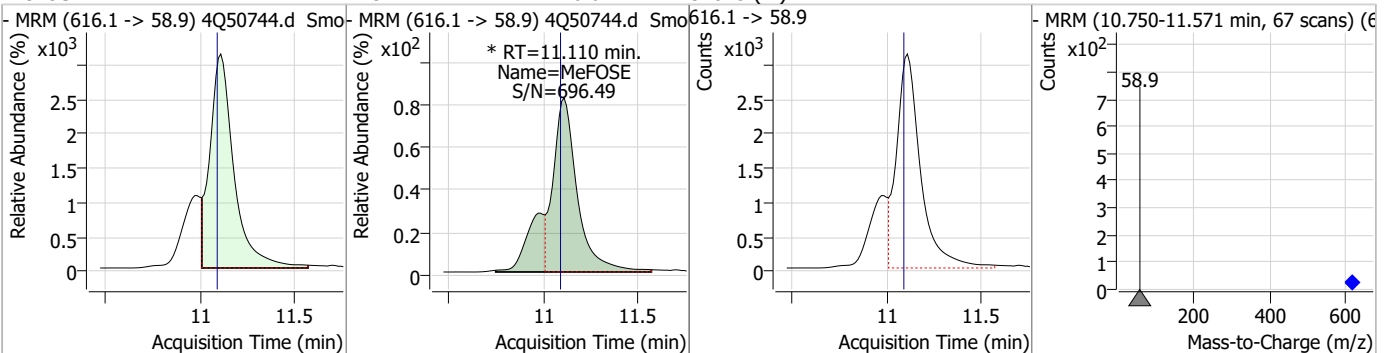
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.51	9.93	0.02	10033	498.1 -> 478.0	2.9	1.6	4.7



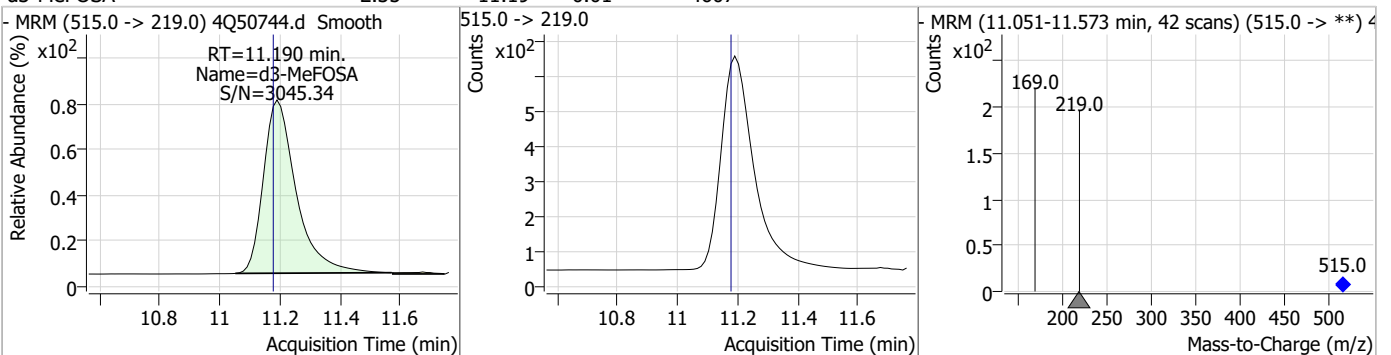
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	28.20	11.08	0.01	53871				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	13.17	11.11	0.02	34815 (m)				

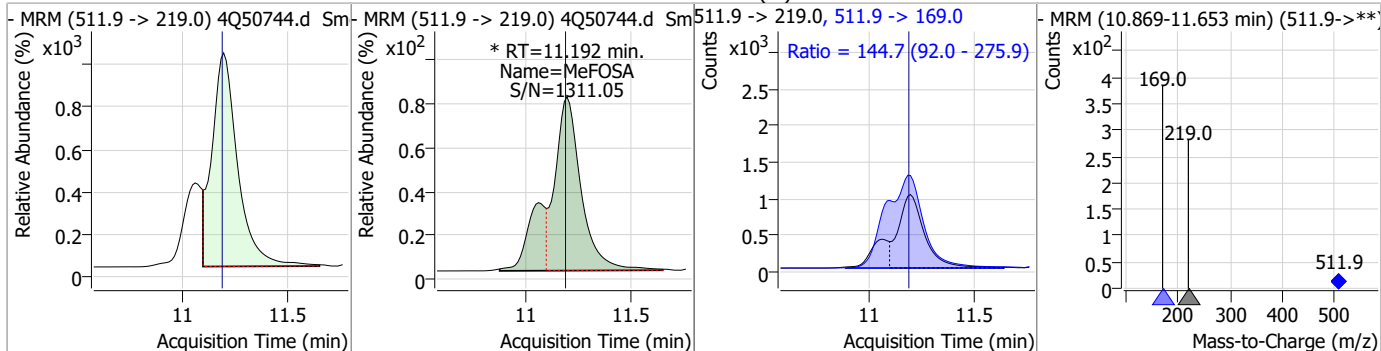


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.35	11.19	0.01	4607				

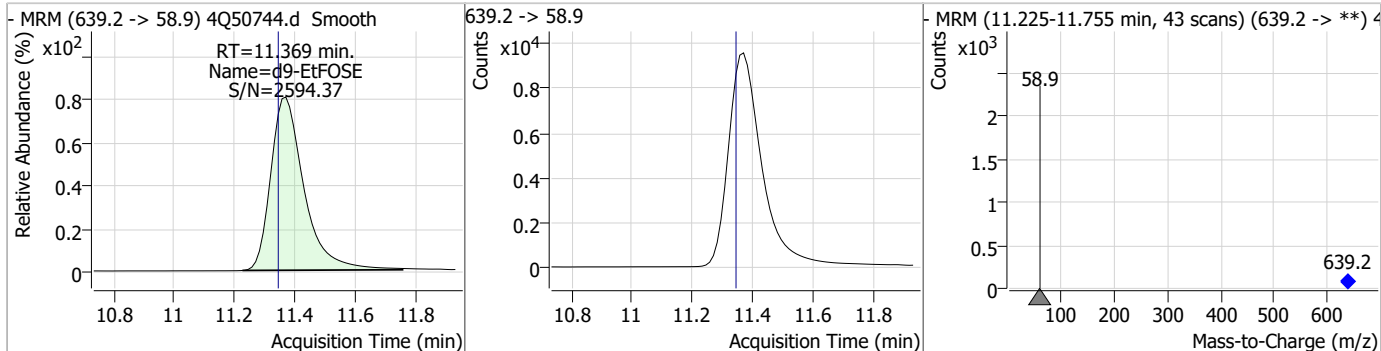


Perfluorinated Compounds by LC/MS/MS

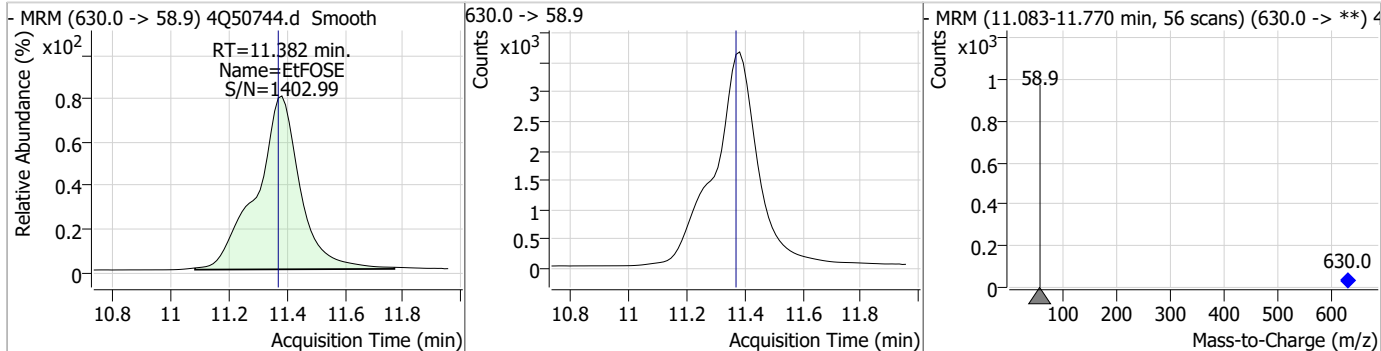
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.16	11.19	0.01	11199 (m)	511.9 -> 169.0	144.7	92.0	275.9



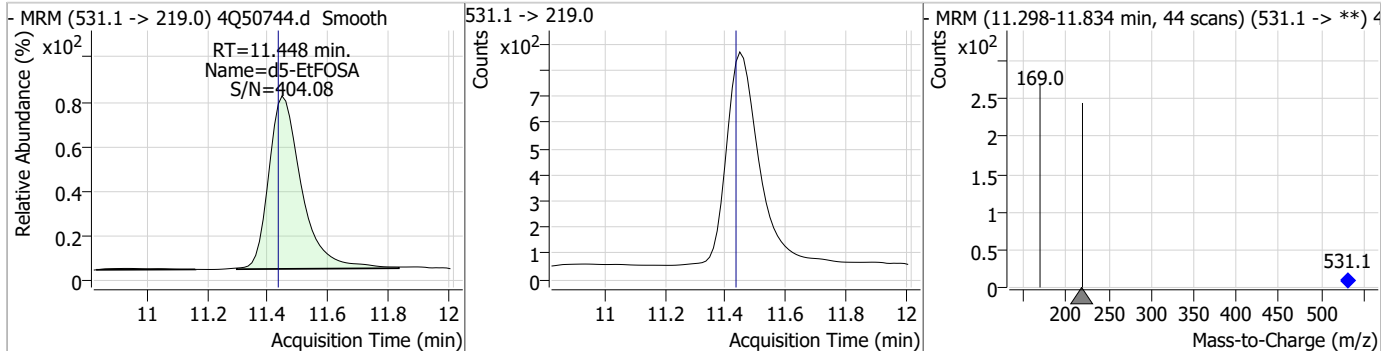
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.28	11.37	0.02	72426				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.73	11.38	0.01	38067				



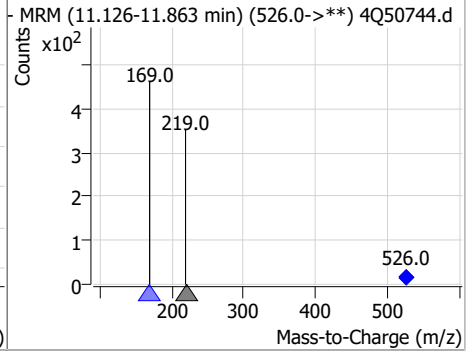
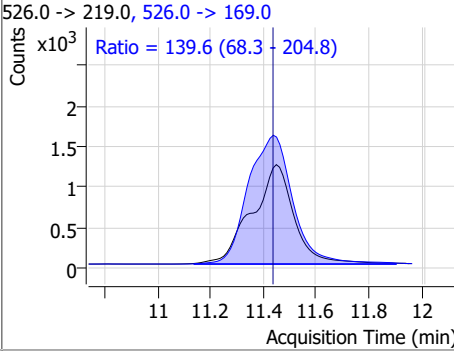
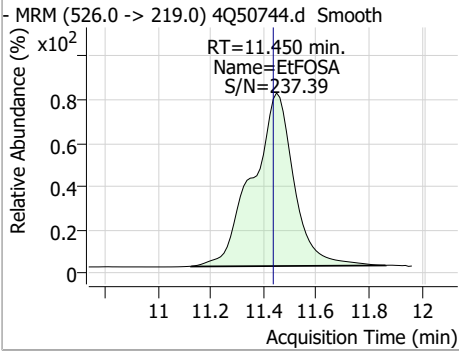
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.31	11.45	0.01	6116				



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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	5.01	11.45	0.01	13394	526.0 -> 169.0	139.6	68.3	204.8



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Manual Integration Approval Summary

Sample Number: S4Q742-CC741 Method: EPA DRAFT 1633
Lab FileID: 4Q50744.D Analyst approved: 09/19/23 10:24 Anna Ludwig
Injection Time: 09/18/23 17:54 Supervisor approved: 09/19/23 13:22 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.13	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.21	Split peak
EtFOSAA	2991-50-6		8.38	Split peak
MeFOSE	24448-09-7		11.11	Split peak
MeFOSA	31506-32-8		11.19	Split peak

7.7.13.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q50756.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 9/18/2023 8:51:08 PM
 Sample Name : cc741-4
 Vial : P1-A5
 DA Method File : 1633_091723_S4Q741.quantmethod.xml
 Batch Name : s4q742.batch.bin
 Sample Information : OP98180,S4Q742,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.740	216.8 -> 171.9	82363	10.00 µg/L	0.028
M5-PFPeA	4.252	268.3 -> 223.0	31384	5.00 µg/L	0.037
M5-PFHxA	5.432	318.0 -> 273.0	30156	2.50 µg/L	0.025
M4-PFHpA	6.379	367.1 -> 322.0	20930	2.50 µg/L	0.026
M8-PFOA	7.049	421.1 -> 376.0	35270	2.50 µg/L	0.012
M9-PFNA	7.596	472.1 -> 427.0	13223	1.25 µg/L	0.026
M6-PFDA	8.078	519.1 -> 474.1	8841	1.25 µg/L	0.012
M7-PFUnDA	8.522	570.0 -> 525.1	11171	1.25 µg/L	0.012
M2-PFDoDA	8.954	615.1 -> 570.0	13499	1.25 µg/L	0.012
M2-PFTeDA	9.710	715.2 -> 670.0	7197	1.25 µg/L	0.012
M8-FOSA	9.919	506.1 -> 77.8	8480	2.50 µg/L	0.012
M3-PFBS	5.288	302.1 -> 79.9	7505	2.50 µg/L	0.025
M3-PFHxS	7.116	402.1 -> 79.9	4440	2.50 µg/L	0.012
M8-PFOS	8.191	507.1 -> 79.9	5374	2.50 µg/L	0.012
M2-4:2FTS	5.146	329.1 -> 80.9	980	5.00 µg/L	0.037
M2-6:2FTS	6.834	429.1 -> 80.9	1441	5.00 µg/L	0.025
M2-8:2FTS	7.877	529.1 -> 80.9	2131	5.00 µg/L	0.012
M3-MeFOSAA	8.160	573.2 -> 419.0	10698	5.00 µg/L	0.012
M3-HFPO-DA	5.788	286.9 -> 168.9	28318	10.00 µg/L	0.025
M5-EtFOSAA	8.370	589.2 -> 419.0	10115	5.00 µg/L	0.012
M7-MeFOSE	11.084	623.2 -> 58.9	51781	25.00 µg/L	0.012
M9-EtFOSE	11.356	639.2 -> 58.9	76393	25.00 µg/L	0.012
M5-EtFOSA	11.435	531.1 -> 219.0	6714	2.50 µg/L	0.000
M3-MeFOSA	11.178	515.0 -> 219.0	4789	2.50 µg/L	0.000
13C4-PFOS	8.205	502.8 -> 79.9	4898	2.50 µg/L	0.026
13C3-PFBA	2.743	216.0 -> 172.0	40831	5.00 µg/L	0.027
18O2-PFHxS	7.115	403.0 -> 83.9	3075	2.50 µg/L	0.012
13C4-PFOA	7.050	417.1 -> 372.0	38586	2.50 µg/L	0.012
13C2-PFDA	8.078	515.1 -> 470.1	9931	1.25 µg/L	0.012
13C5-PFNA	7.596	468.0 -> 423.0	11520	1.25 µg/L	0.026
13C2-PFHxA	5.433	315.1 -> 270.0	26327	2.50 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.146	329.1 -> 80.9	980	5.84 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.8%		
13C2-6:2FTS	6.834	429.1 -> 80.9	1441	5.54 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.9%		
13C2-8:2FTS	7.877	529.1 -> 80.9	2131	5.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-PFDoDA	8.954	615.1 -> 570.0	13499	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C2-PFTeDA	9.710	715.2 -> 670.0	7197	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C3-PFBS	5.288	302.1 -> 79.9	7505	2.55 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C3-PFHxS	7.116	402.1 -> 79.9	4440	2.40 µg/L	0.012

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C4-PFBA	2.740	216.8 -> 171.9	82363	10.19 µg/L	0.028
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C4-PFHpA	6.379	367.1 -> 322.0	20930	2.51 µg/L	0.026
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C5-PFHxA	5.432	318.0 -> 273.0	30156	2.52 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C5-PFPeA	4.252	268.3 -> 223.0	31384	5.06 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C6-PFDA	8.078	519.1 -> 474.1	8841	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C7-PFUnDA	8.522	570.0 -> 525.1	11171	1.31 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C8-FOSA	9.919	506.1 -> 77.8	8480	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C8-PFOA	7.049	421.1 -> 376.0	35270	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C8-PFOS	8.191	507.1 -> 79.9	5374	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C9-PFNA	7.596	472.1 -> 427.0	13223	1.26 µg/L	0.026
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
d3-MeFOSAA	8.160	573.2 -> 419.0	10698	4.86 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C3-HFPO-DA	5.788	286.9 -> 168.9	28318	9.94 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
d3-MeFOSA	11.178	515.0 -> 219.0	4789	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
d5-EtFOSAA	8.370	589.2 -> 419.0	10115	4.96 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
d7-MeFOSE	11.084	623.2 -> 58.9	51781	26.75 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 107.0%		
d9-EtFOSE	11.356	639.2 -> 58.9	76393	27.36 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 109.4%		
d5-EtFOSA	11.435	531.1 -> 219.0	6714	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
Target Compounds					QValue
4:2FTS	5.147	327.1 -> 307.0	15708	9.46 µg/L	100
		327.1 -> 80.9	6264		
6:2FTS	6.835	427.1 -> 407.0	15648	9.40 µg/L	97
		427.1 -> 80.9	5672		
8:2FTS	7.877	527.1 -> 507.0	11692	9.73 µg/L	99
		527.1 -> 80.8	5110		
EtFOSAA	8.371	584.2 -> 419.1	4582	2.57 µg/L	98
		584.2 -> 526.0	1725	m	
FOSA	9.921	498.1 -> 77.9	9524	2.47 µg/L	98
		498.1 -> 478.0	253		
MeFOSAA	8.173	570.1 -> 419.0	6208	2.66 µg/L	89
		570.1 -> 483.0	960		
PFBA	2.746	212.8 -> 168.9	30995	9.83 µg/L	100
PFBS	5.289	298.7 -> 79.9	8137	2.31 µg/L	95
		298.7 -> 98.8	3119		
PFDA	8.078	512.9 -> 469.0	20964	2.59 µg/L	97
		512.9 -> 219.0	4316		
PFDODA	8.954	613.1 -> 569.0	28076	2.44 µg/L	99
		613.1 -> 319.0	4936		
PFDS	9.081	599.0 -> 79.9	4513	2.32 µg/L	92

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2424			
PFHpA	6.380	363.1 -> 319.0	31198	2.51	µg/L	99
		363.1 -> 169.0	6066			
PFHpS	7.698	449.0 -> 79.9	5730	2.49	µg/L	99
		449.0 -> 98.9	2970			
PFHxA	5.435	313.0 -> 269.0	27444	2.57	µg/L	99
		313.0 -> 118.9	985			
PFHxS	7.116	398.7 -> 79.9	4576	2.33	µg/L	m 94
		398.7 -> 98.9	2521			
PFNA	7.596	463.0 -> 419.0	19955	2.48	µg/L	98
		463.0 -> 219.0	4802			
PFNS	8.659	548.8 -> 79.9	4065	2.57	µg/L	96
		548.8 -> 98.9	2040			
PFOA	7.051	413.0 -> 369.0	39140	2.47	µg/L	97
		413.0 -> 169.0	8132			
PFOS	8.205	498.9 -> 79.9	6726	2.70	µg/L	m 70
		498.9 -> 98.8	3045			
PFPeA	4.254	263.0 -> 219.0	49811	5.03	µg/L	100
PFPeS	6.382	349.1 -> 79.9	4523	2.48	µg/L	91
		349.1 -> 98.9	1918			
PFTeDA	9.711	713.1 -> 669.0	24591	2.48	µg/L	99
		713.1 -> 168.9	2675			
PFTrDA	9.340	663.0 -> 619.0	33410	2.64	µg/L	99
		663.0 -> 168.9	4538			
PFUnDA	8.522	563.1 -> 519.0	24707	2.37	µg/L	96
		563.1 -> 269.1	5422			
11CI-PF3OUdS	9.367	630.9 -> 450.9	35986	4.80	µg/L	99
		632.9 -> 452.9	11117			
9CI-PF3ONS	8.524	530.8 -> 351.0	40191	4.94	µg/L	97
		532.8 -> 353.0	12587			
ADONA	6.642	376.9 -> 250.9	102015	4.80	µg/L	99
		376.9 -> 84.8	26438			
HFPO-DA	5.788	284.9 -> 168.9	16062	5.23	µg/L	99
		284.9 -> 184.9	2311			
3:3FTCA	3.743	241.0 -> 177.0	6770	12.08	µg/L	98
		241.0 -> 117.0	821			
5:3FTCA	6.193	341.0 -> 237.1	117144	62.34	µg/L	95
		341.0 -> 217.0	89473			
7:3FTCA	7.698	441.0 -> 316.9	56496	62.94	µg/L	97
		441.0 -> 336.9	119604			
EtFOSA	11.450	526.0 -> 219.0	14572	4.97	µg/L	98
		526.0 -> 169.0	19600			
EtFOSE	11.370	630.0 -> 58.9	39047	12.38	µg/L	100
MeFOSA	11.180	511.9 -> 219.0	11566	5.12	µg/L	m 73
		511.9 -> 169.0	16771			
MeFOSE	11.098	616.1 -> 58.9	31204	12.28	µg/L	100
PFDoDS	9.839	699.1 -> 79.9	3262	2.34	µg/L	90
		699.1 -> 98.8	2072			
NFDHA	5.314	295.0 -> 201.0	3421	5.40	µg/L	92
		295.0 -> 84.9	900			
PFMBA	4.666	279.0 -> 85.1	26262	5.00	µg/L	100
PFMPA	3.383	229.0 -> 84.9	29415	5.00	µg/L	100
PFEESA	5.820	314.8 -> 134.9	48113	4.64	µg/L	99
		314.8 -> 82.9	1703			

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

7.7.14
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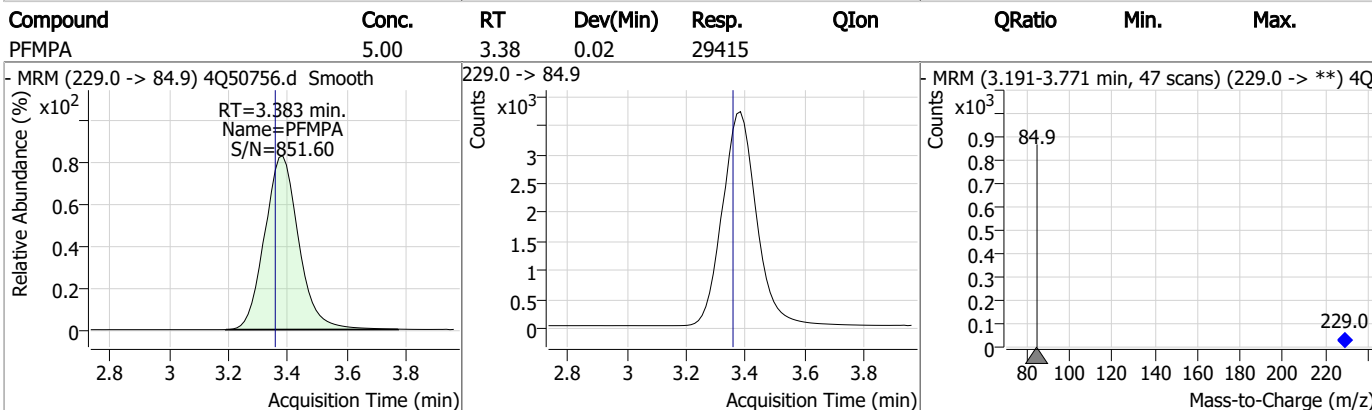
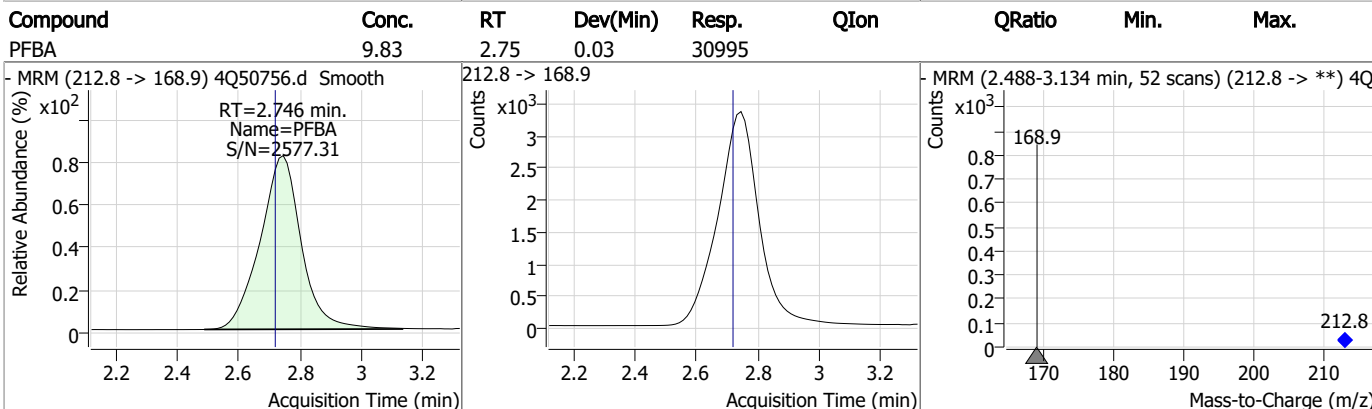
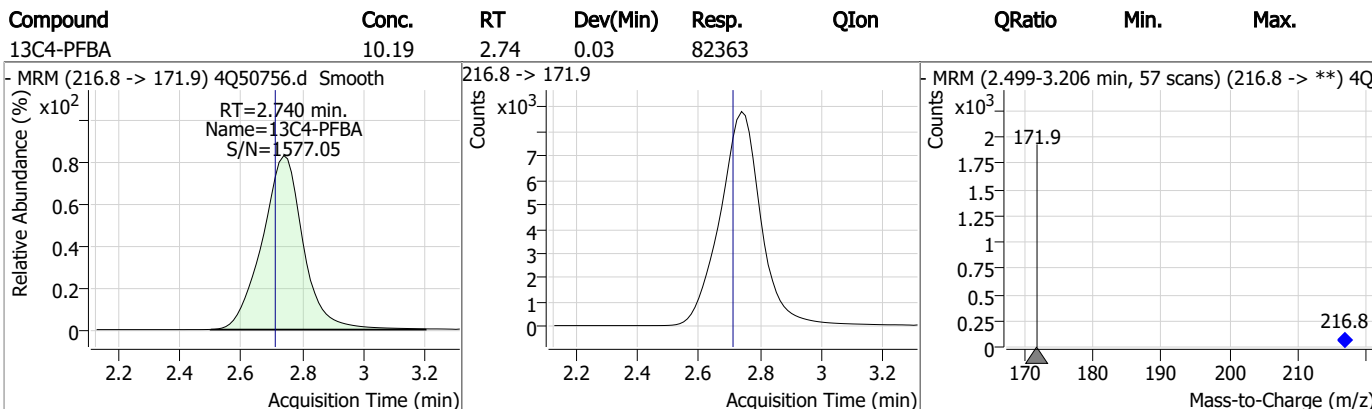
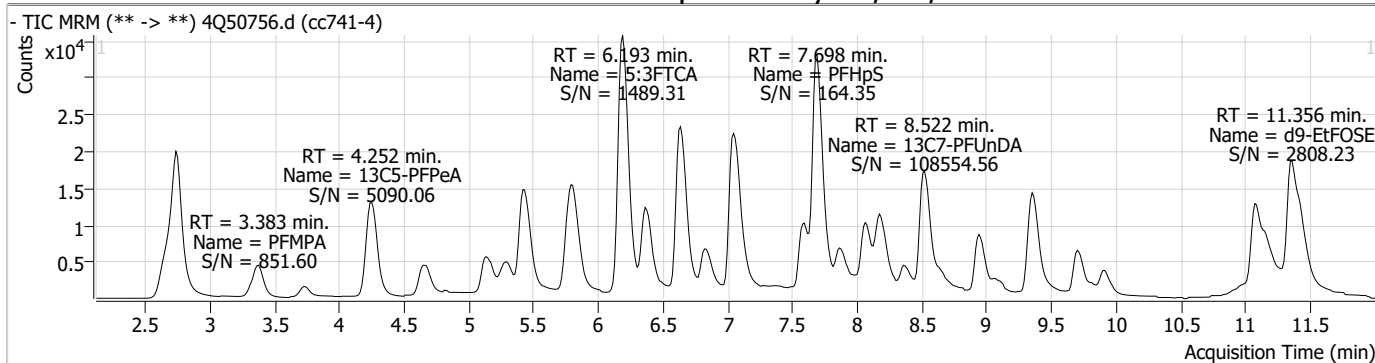
Perfluorinated Compounds by LC/MS/MS

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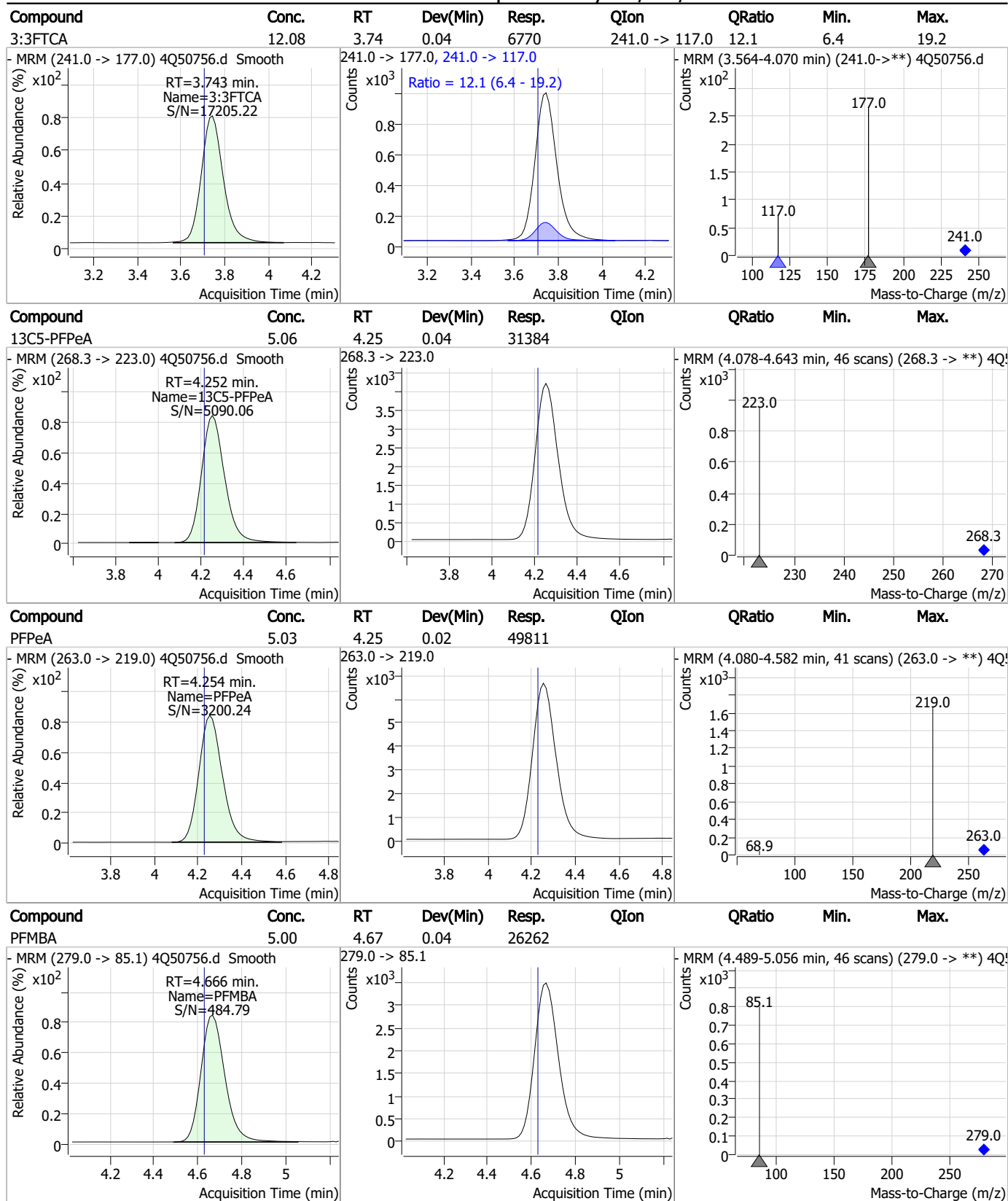
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Perfluorinated Compounds by LC/MS/MS



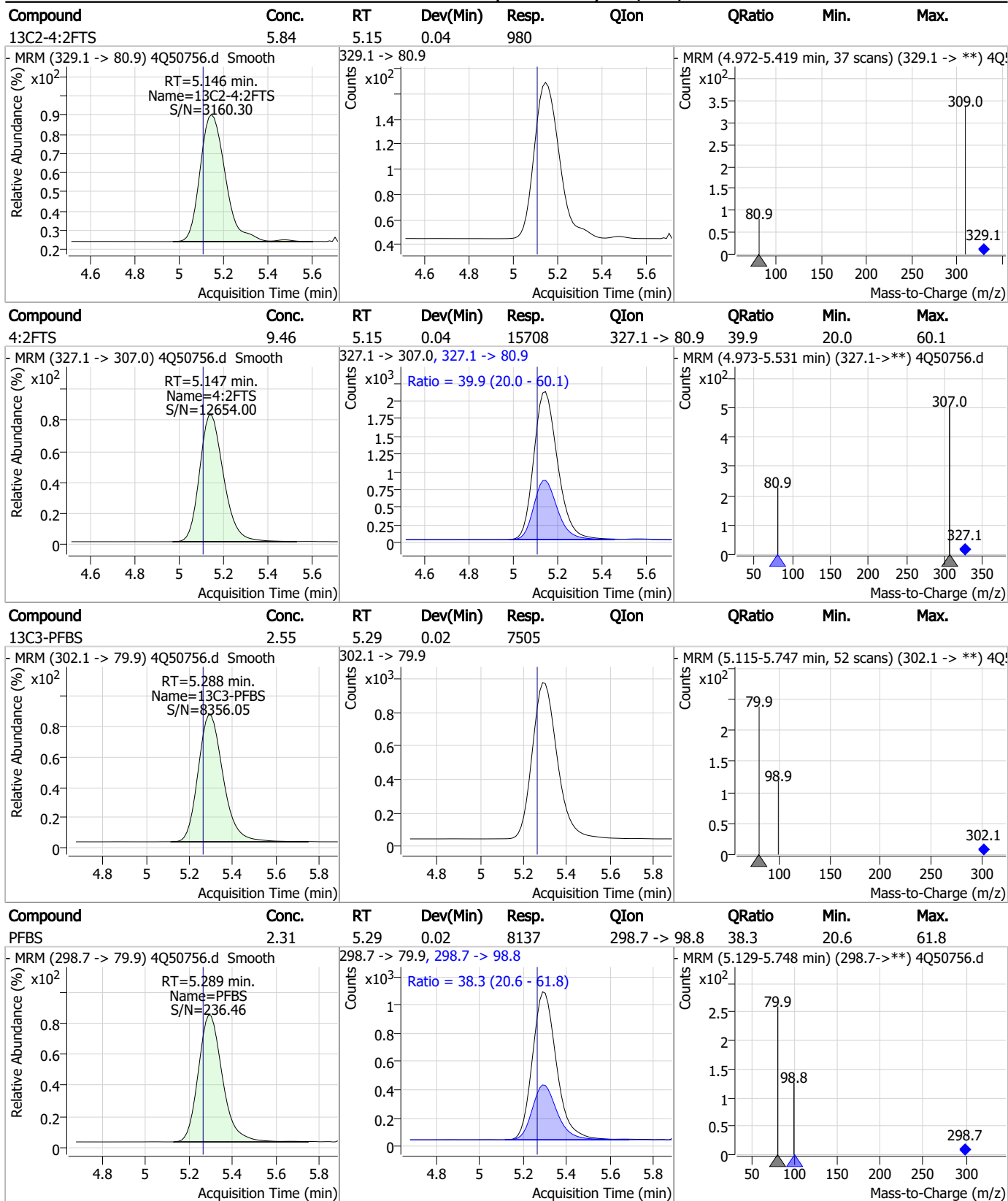
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Perfluorinated Compounds by LC/MS/MS



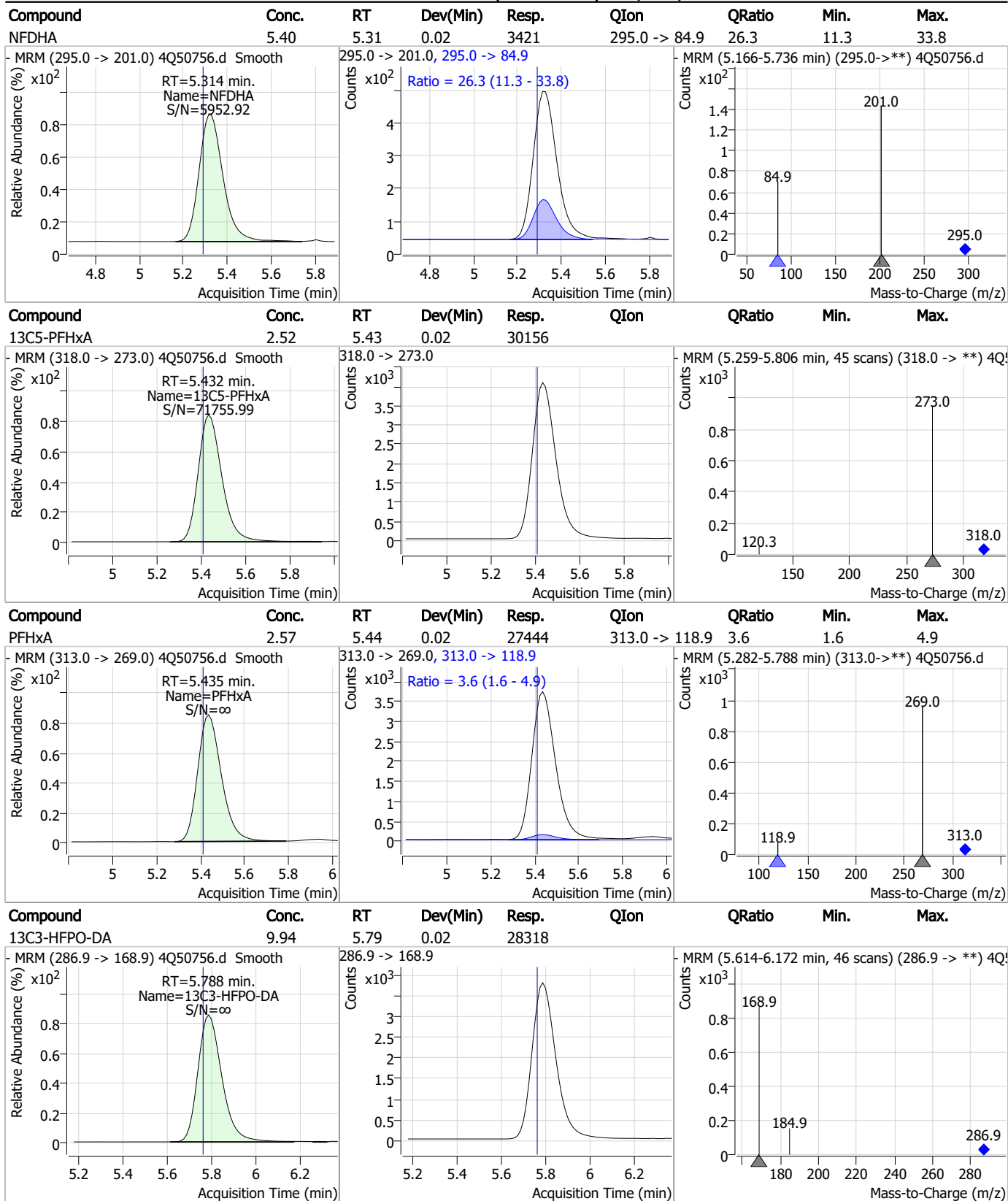
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Perfluorinated Compounds by LC/MS/MS



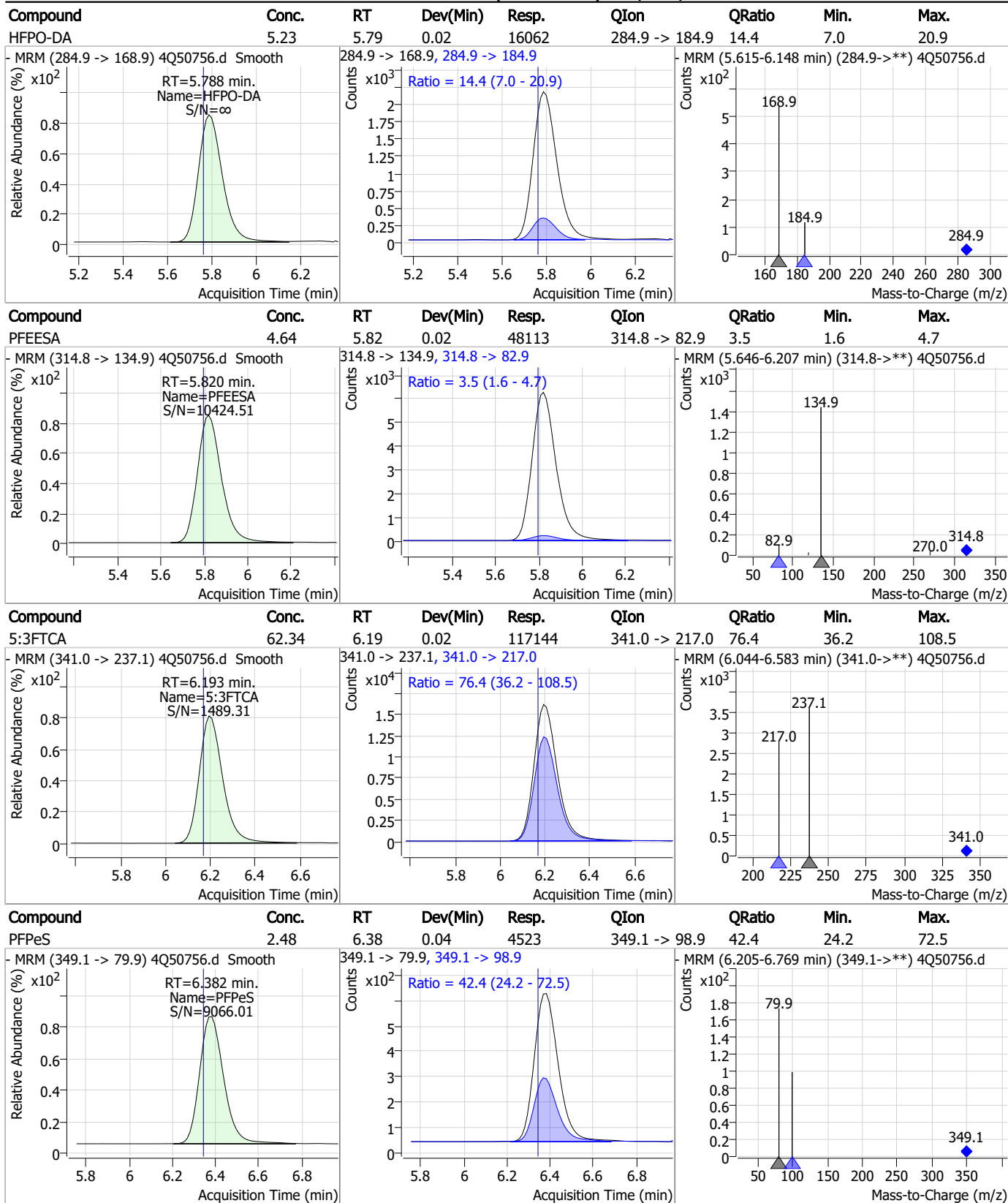
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Perfluorinated Compounds by LC/MS/MS



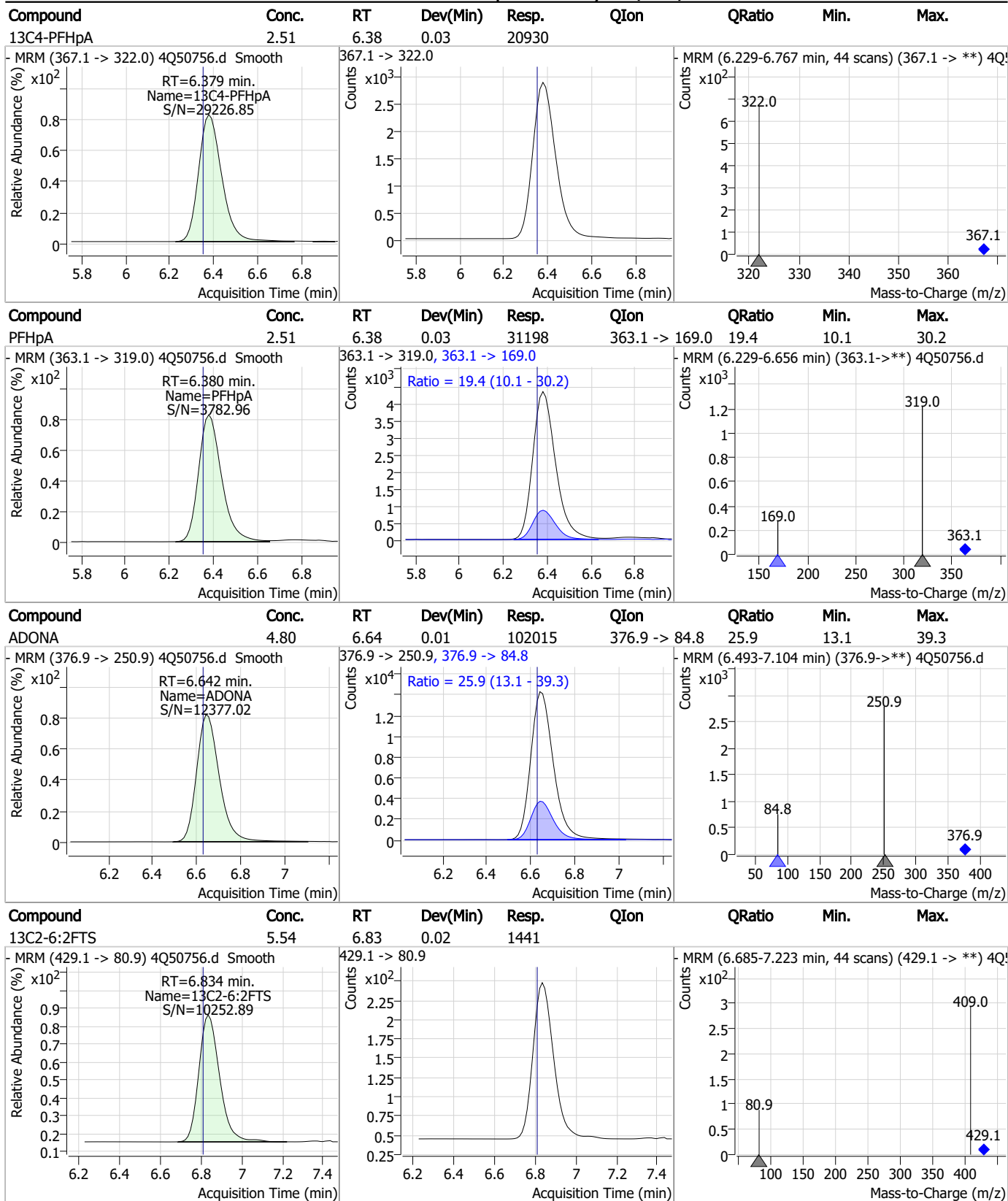
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Perfluorinated Compounds by LC/MS/MS



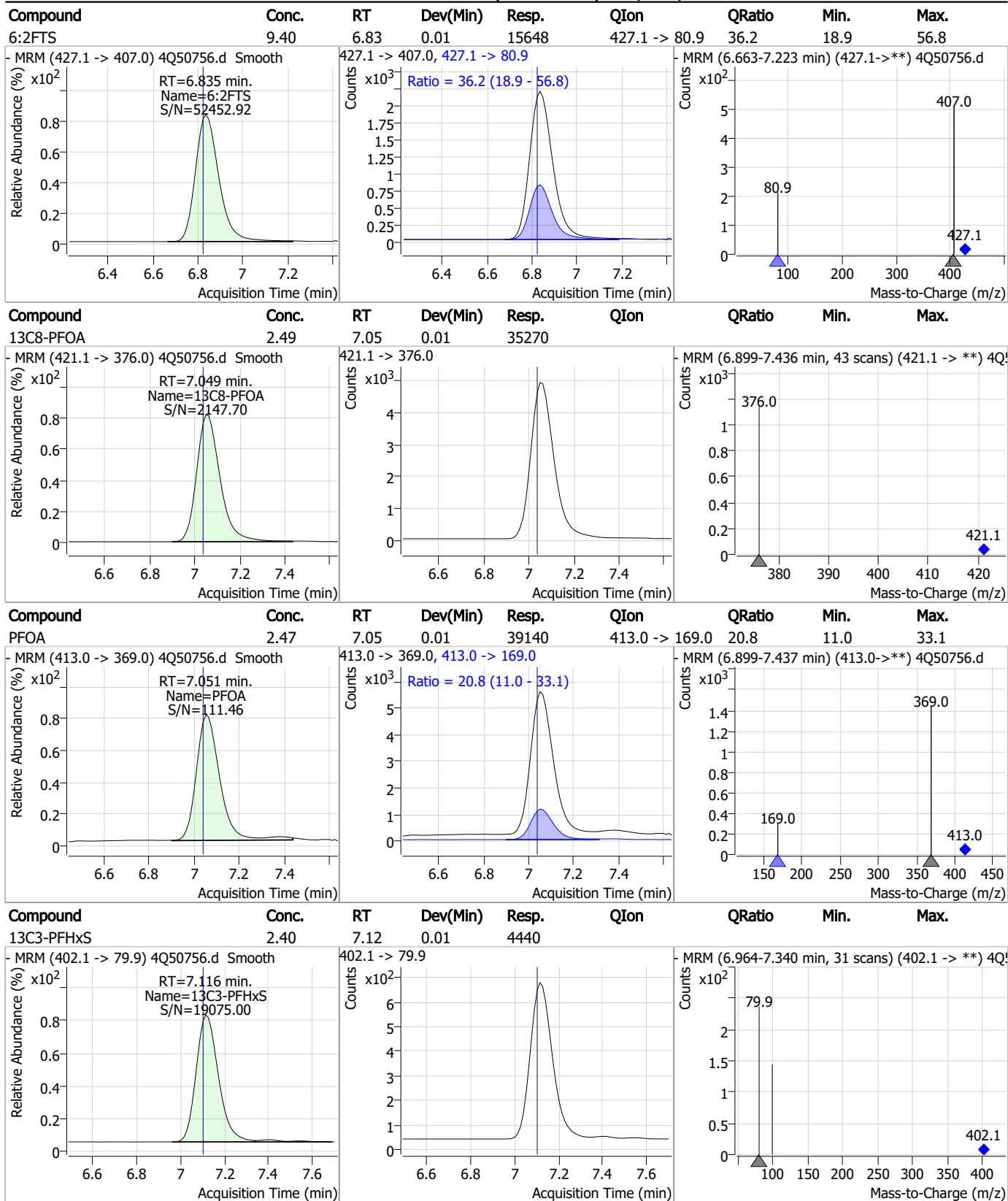
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Perfluorinated Compounds by LC/MS/MS



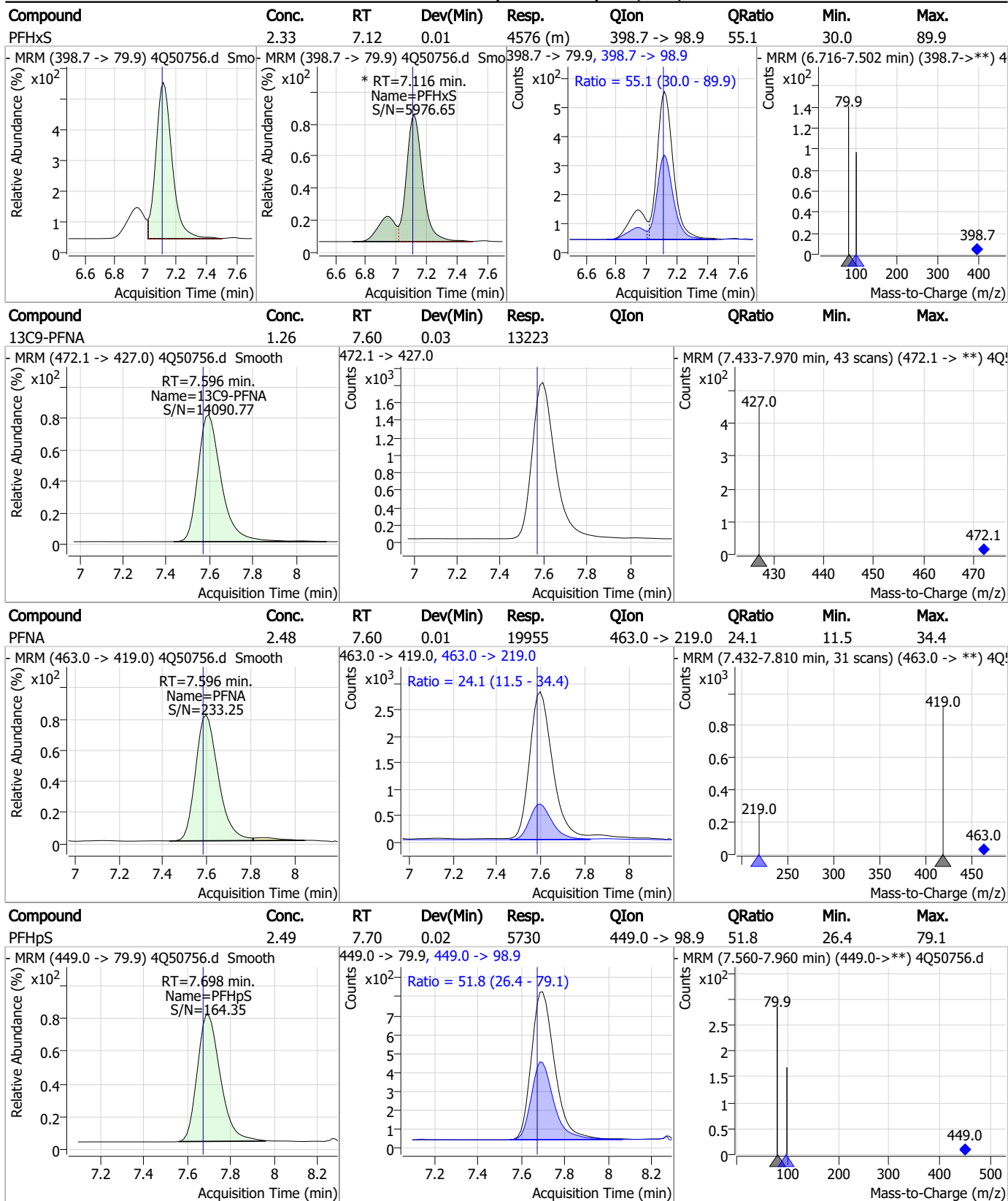
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Perfluorinated Compounds by LC/MS/MS



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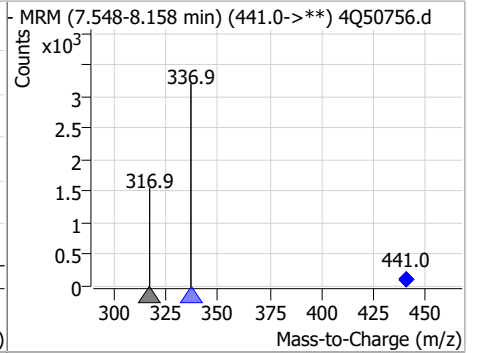
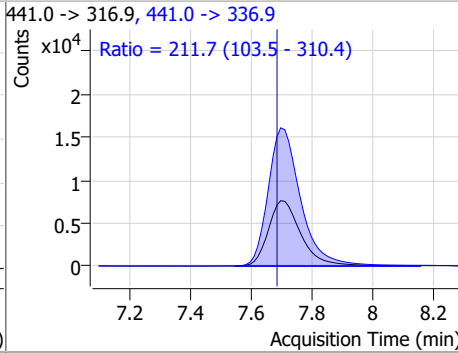
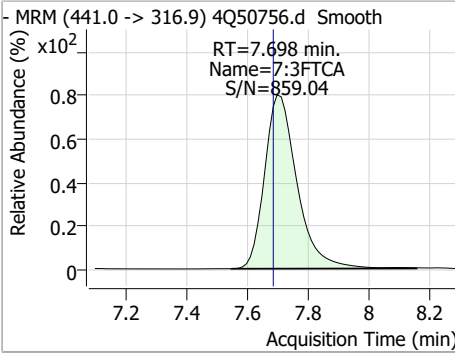
Perfluorinated Compounds by LC/MS/MS



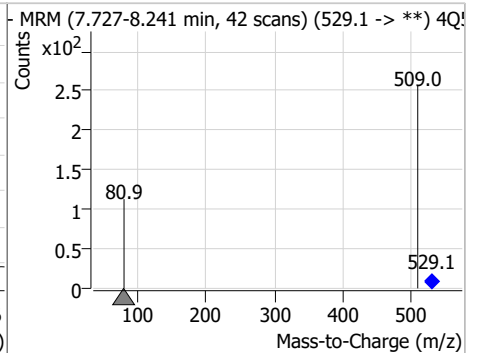
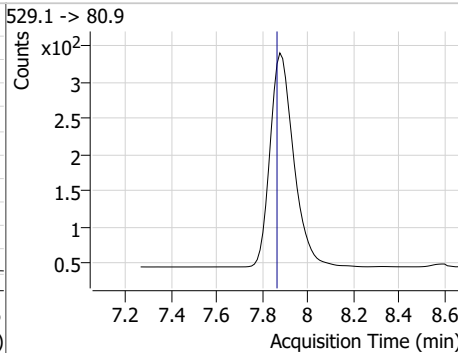
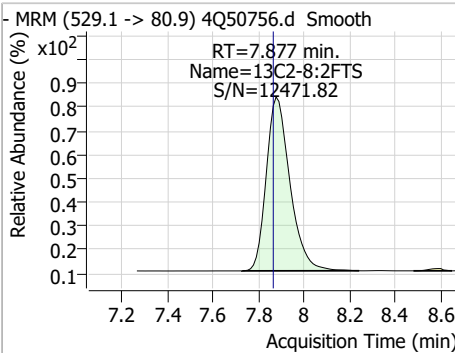
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Perfluorinated Compounds by LC/MS/MS

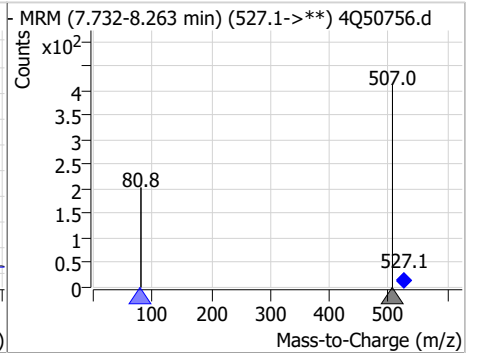
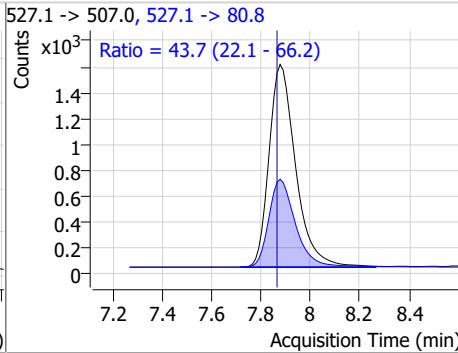
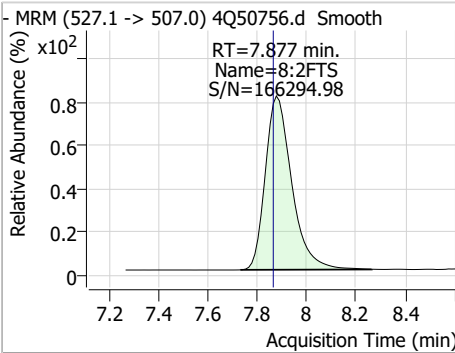
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	62.94	7.70	0.01	56496	441.0 -> 336.9	211.7	103.5	310.4



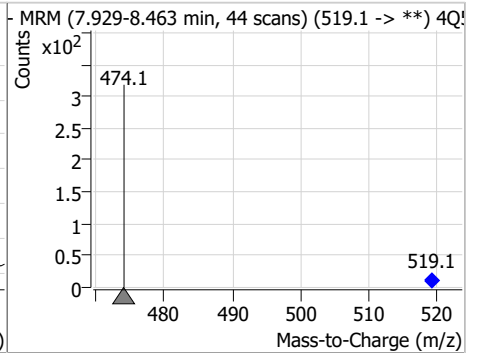
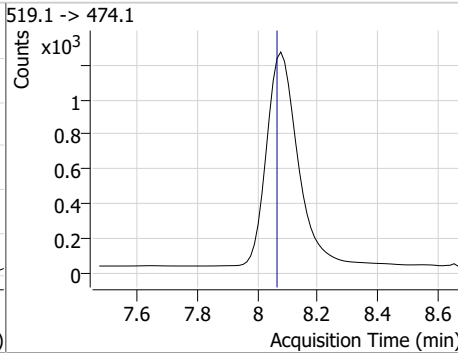
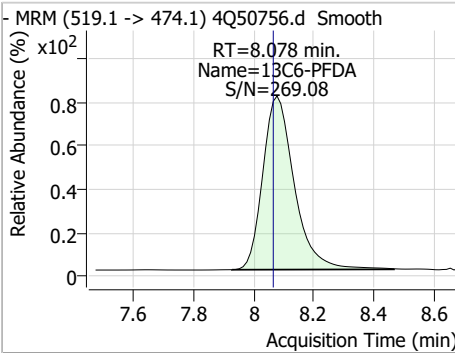
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.31	7.88	0.01	2131	529.1 -> 80.9	43.7	22.1	66.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	9.73	7.88	0.01	11692	527.1 -> 80.8	43.7	22.1	66.2

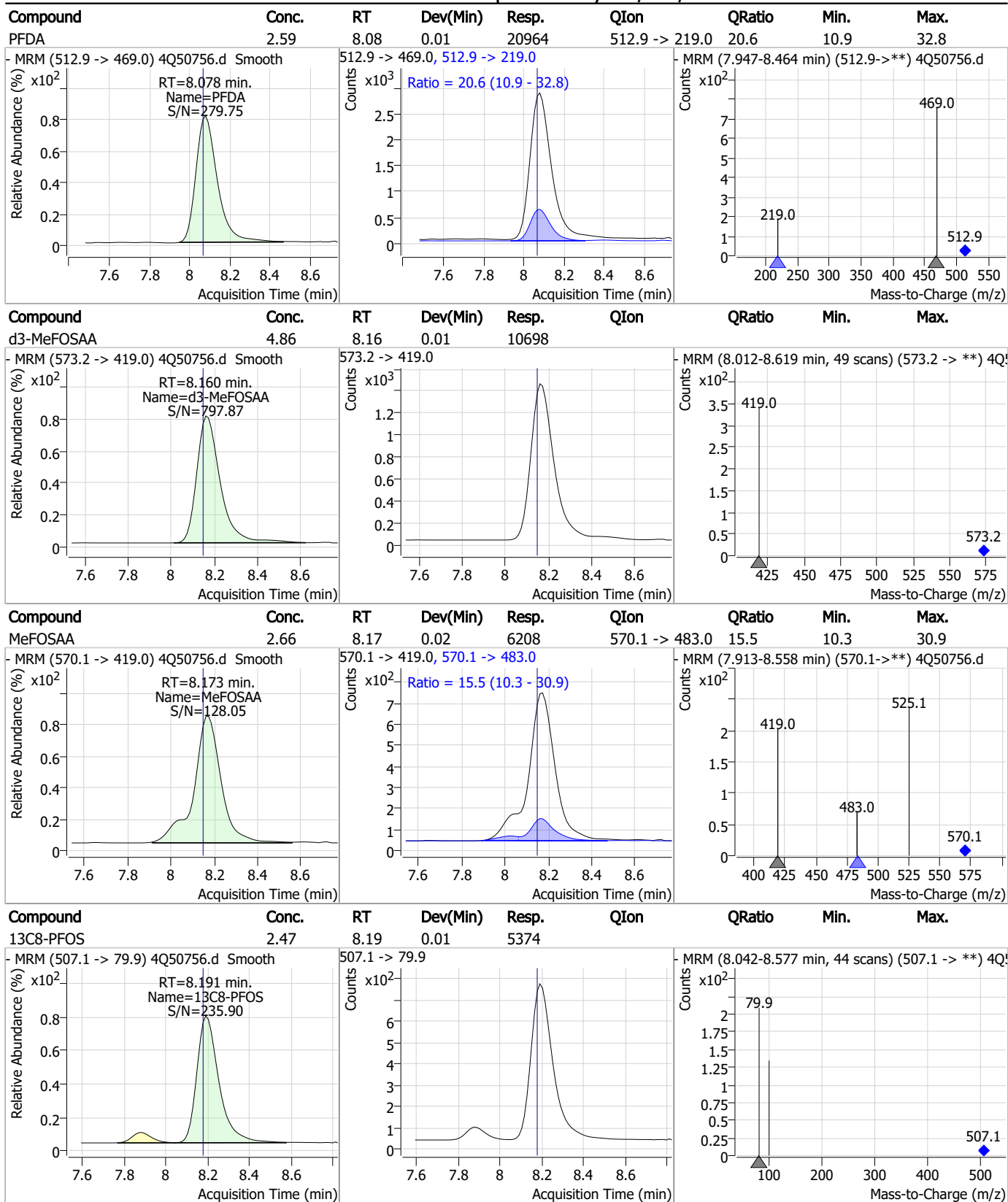


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.17	8.08	0.01	8841	519.1 -> 474.1	43.7	22.1	66.2



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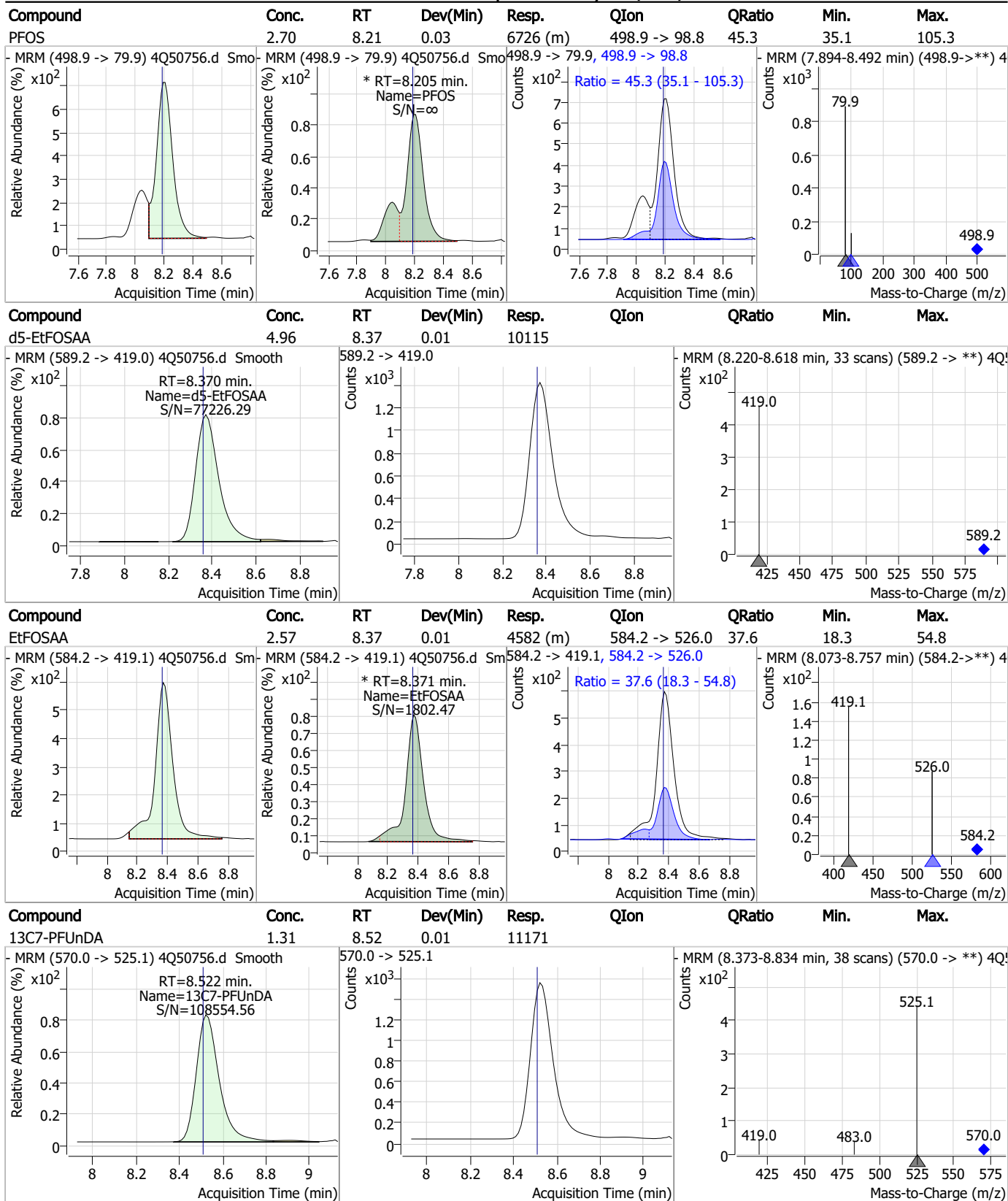
Perfluorinated Compounds by LC/MS/MS



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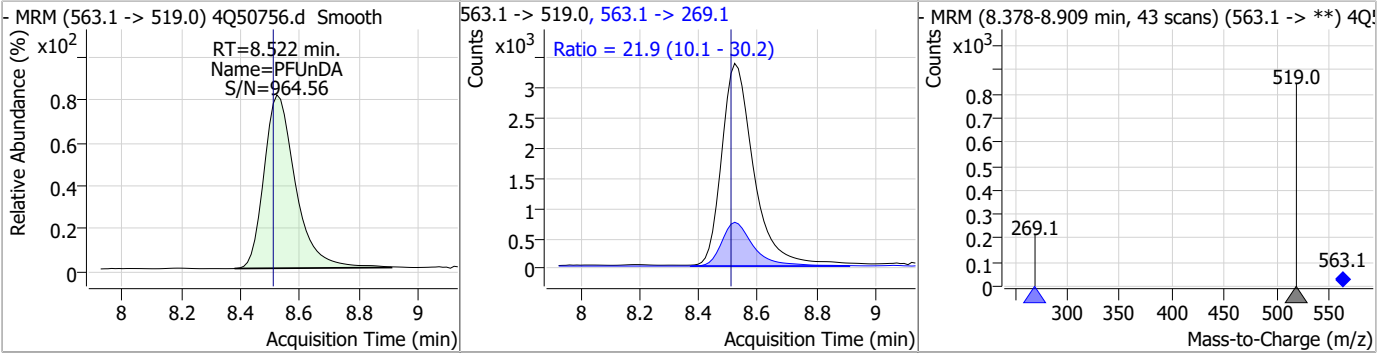
Perfluorinated Compounds by LC/MS/MS



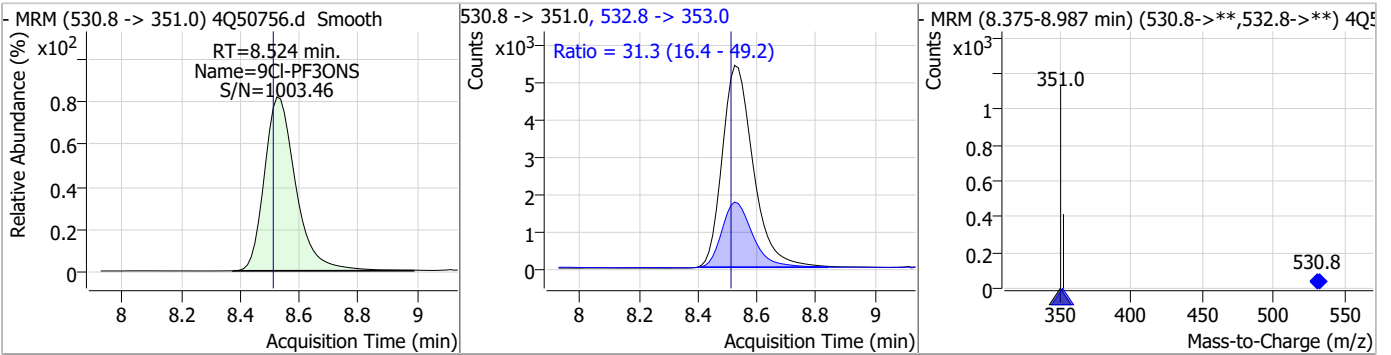
7.7.14
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Perfluorinated Compounds by LC/MS/MS

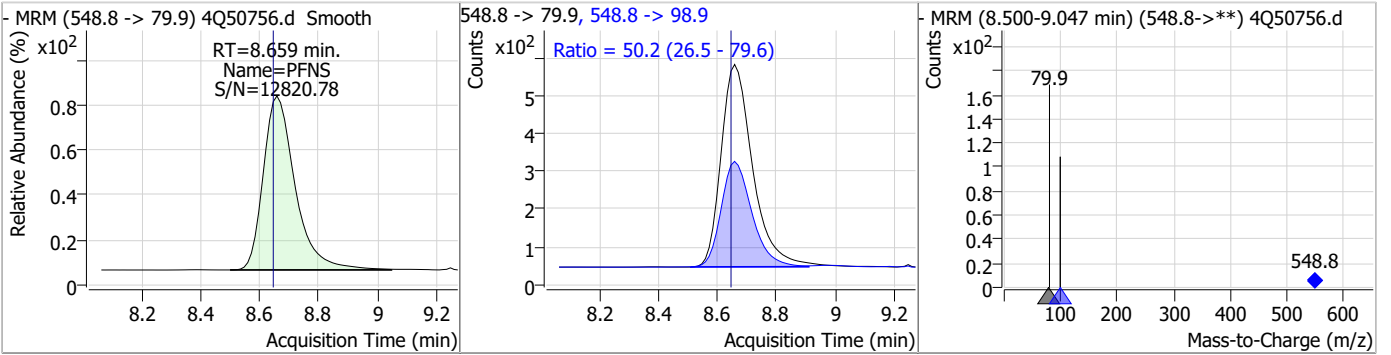
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.37	8.52	0.01	24707	563.1 -> 269.1	21.9	10.1	30.2



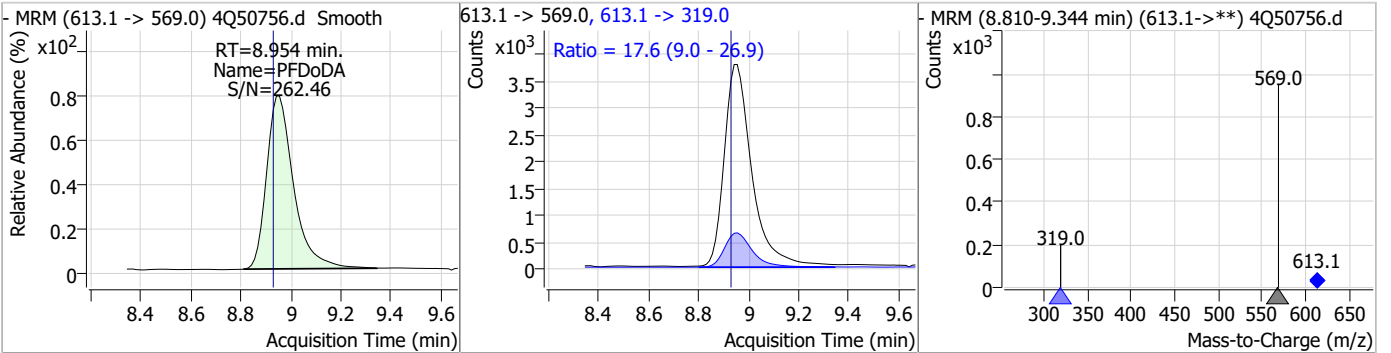
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	4.94	8.52	0.01	40191	532.8 -> 353.0	31.3	16.4	49.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.57	8.66	0.01	4065	548.8 -> 98.9	50.2	26.5	79.6

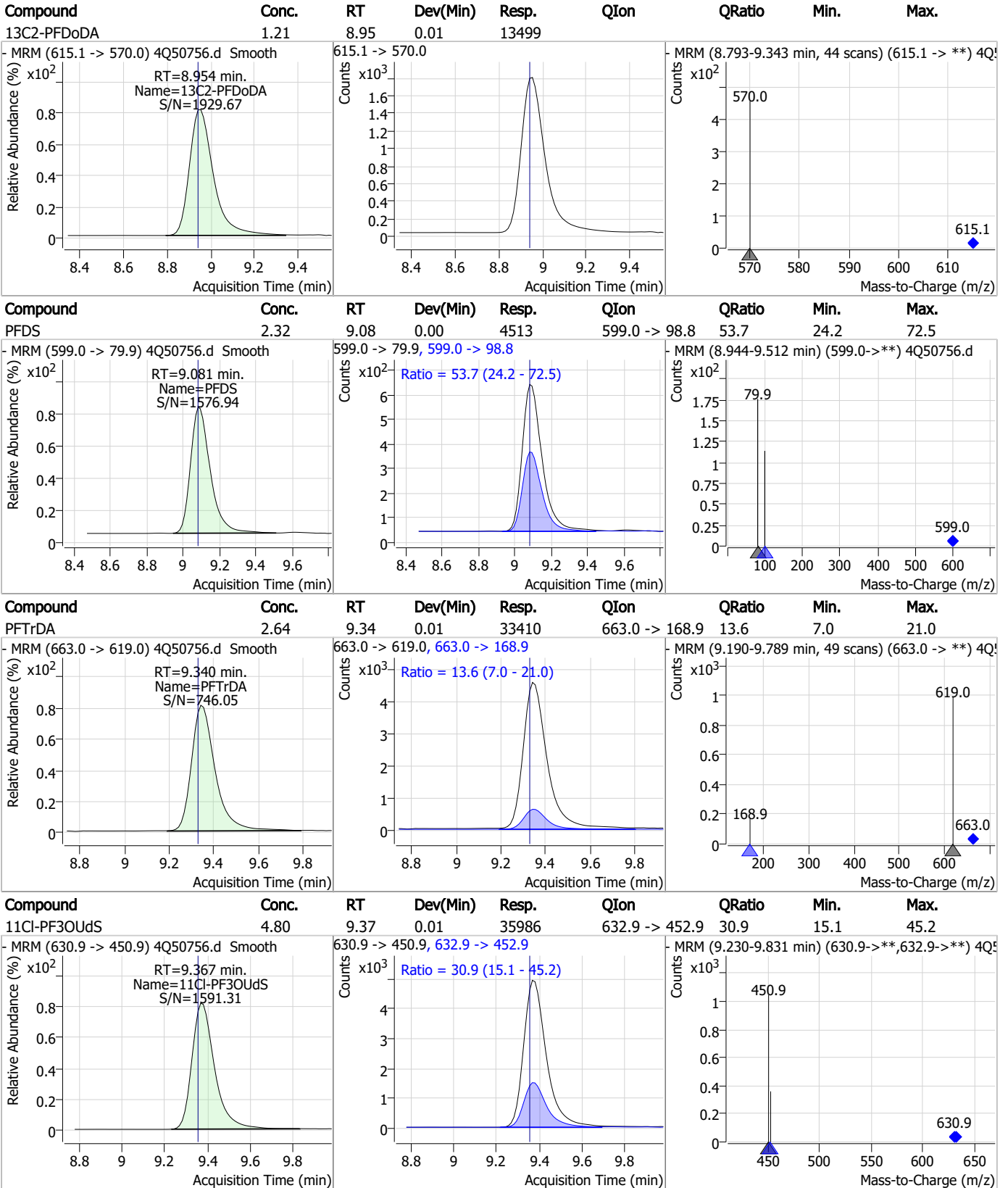


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	2.44	8.95	0.02	28076	613.1 -> 319.0	17.6	9.0	26.9



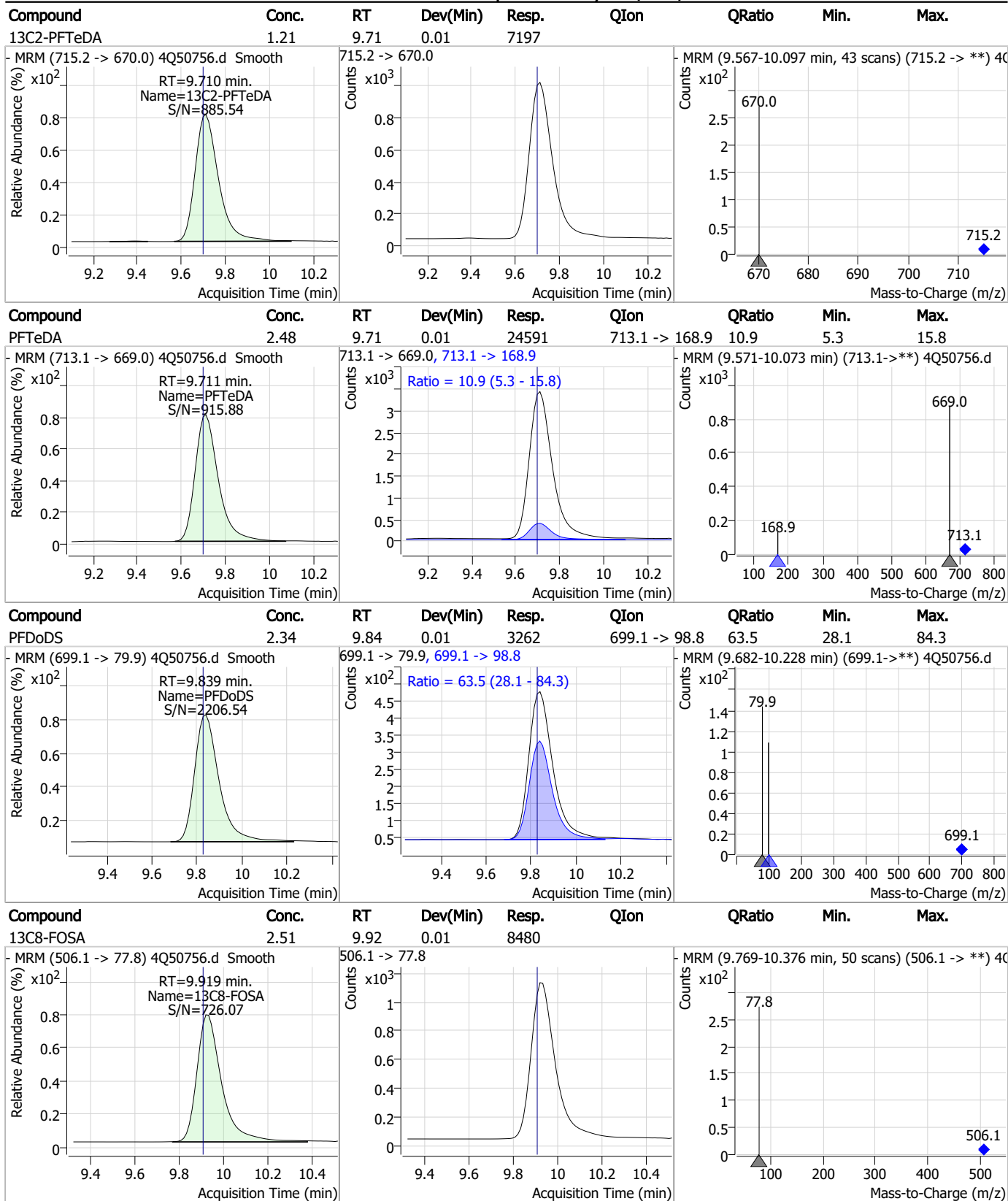
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Perfluorinated Compounds by LC/MS/MS



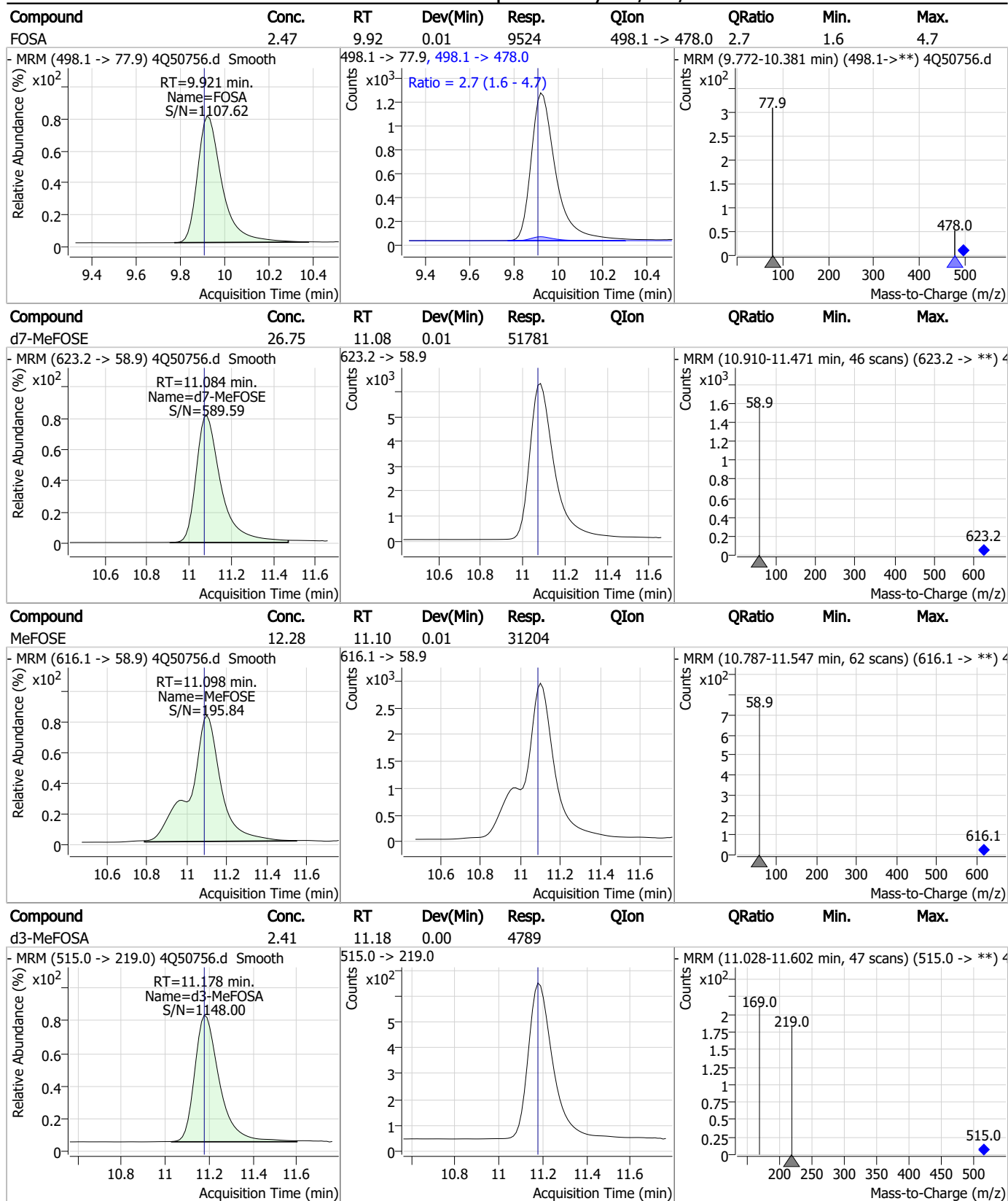
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Perfluorinated Compounds by LC/MS/MS



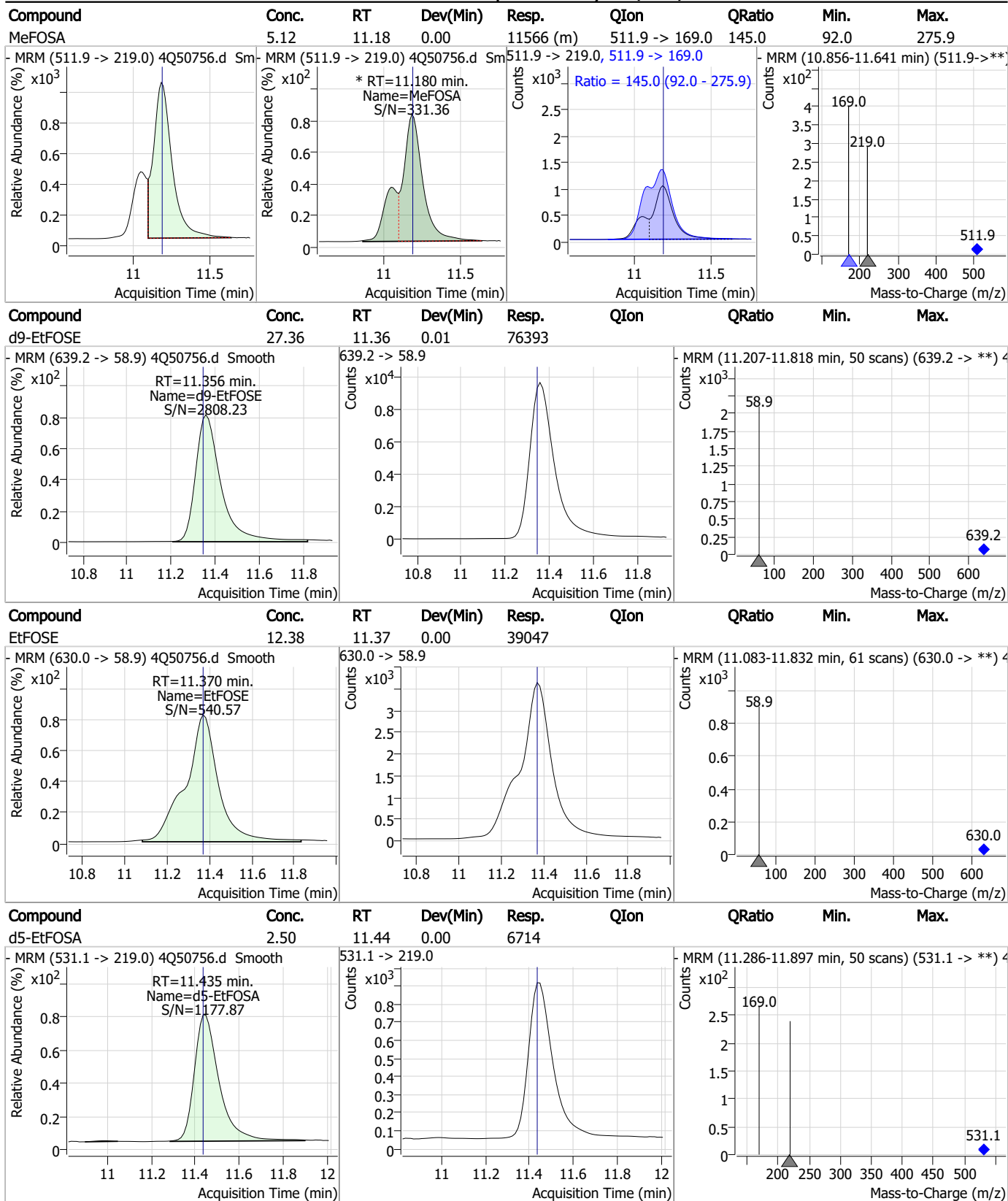
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Perfluorinated Compounds by LC/MS/MS



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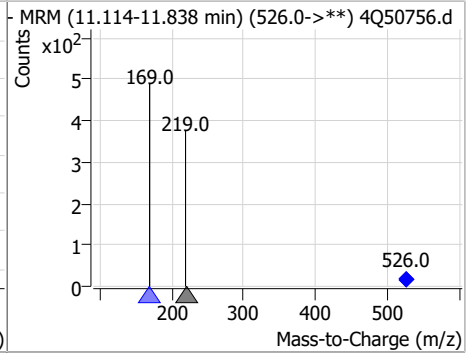
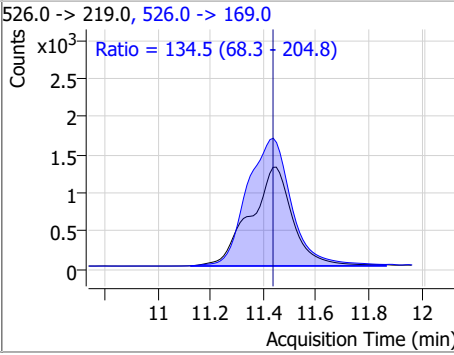
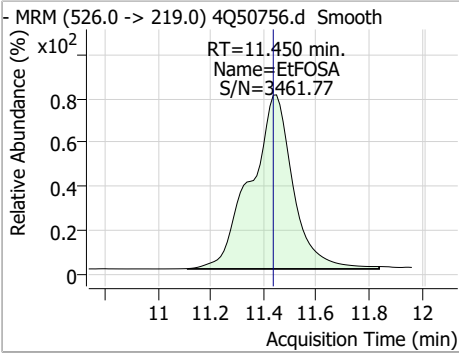
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	4.97	11.45	0.01	14572	526.0 -> 169.0	134.5	68.3	204.8



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Manual Integration Approval Summary

Sample Number: S4Q742-CC741 Method: EPA DRAFT 1633
Lab FileID: 4Q50756.D Analyst approved: 09/19/23 10:24 Anna Ludwig
Injection Time: 09/18/23 20:51 Supervisor approved: 09/19/23 13:22 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.12	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.21	Split peak
EtFOSAA	2991-50-6		8.37	Split peak
MeFOSA	31506-32-8		11.18	Split peak

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7

QQQ Check Tune Report



Instrument Name LCMS Q6
MS Model G6495B
MS Instrument Serial SG1752D103
Software_Firmware Version 10.1.67, FW: A.00.08.112
Tune Date & Time 08 September 2023 10:38:10
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.81E+0 [R] (Torr); 2.89E-5 [H] (Torr)

Source Parameters

Parameter	Negative
Gas Temp (°C)	220
Gas Flow (l/min)	14
Nebulizer (psi)	20
Capillary (V)	3000
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	11

QQQ Check Tune Report



Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.92	-0.07	Pass	0.70	0.75	0.05	Pass	589408
302.00	301.90	-0.10	Pass	0.70	0.82	0.12	Pass	2012303
601.98	601.87	-0.11	Pass	0.70	0.78	0.08	Pass	2774400
1033.99	1033.92	-0.07	Pass	0.70	0.69	-0.01	Pass	1828876
1633.95	1633.92	-0.03	Pass	0.70	0.78	0.08	Pass	1214432
2233.91	2233.80	-0.11	Pass	0.70	0.82	0.12	Pass	615071

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.05	0.05	Pass	0.70	0.63	-0.07	Pass	207094
112.99	112.98	-0.01	Pass	0.70	0.73	0.03	Pass	703374
302.00	301.98	-0.02	Pass	0.70	0.72	0.02	Pass	1830422
601.98	602.01	0.03	Pass	0.70	0.68	-0.02	Pass	2651956
1033.99	1033.99	0.00	Pass	0.70	0.72	0.02	Pass	1332855
1633.95	1633.95	0.00	Pass	0.70	0.73	0.03	Pass	1015072
2233.91	2233.83	-0.08	Pass	0.70	0.70	0.00	Pass	430759

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.91	-0.08	Pass	1.20	1.34	0.14	Pass	688563
302.00	301.83	-0.17	Pass	1.20	1.61	0.41	Pass	2815407
601.98	601.82	-0.16	Pass	1.20	1.74	0.54	Pass	4213825
1033.99	1033.88	-0.11	Pass	1.20	1.71	0.51	Pass	3045914
1633.95	1633.89	-0.06	Pass	1.20	1.67	0.47	Pass	2571946
2233.91	2233.73	-0.18	Pass	1.20	1.50	0.30	Pass	1157215

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.05	0.05	Pass	1.20	1.15	-0.05	Pass	263040
112.99	112.97	-0.02	Pass	1.20	1.21	0.01	Pass	1036516
302.00	301.90	-0.10	Pass	1.20	1.41	0.21	Pass	2387216
601.98	601.95	-0.03	Pass	1.20	1.41	0.21	Pass	3443771
1033.99	1033.94	-0.05	Pass	1.20	1.40	0.20	Pass	2419136
1633.95	1633.91	-0.04	Pass	1.20	1.30	0.10	Pass	2300119
2233.91	2233.84	-0.07	Pass	1.20	1.17	-0.03	Pass	1137390

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.83	-0.16	Pass	2.50	2.66	0.16	Pass	714524
302.00	301.85	-0.15	Pass	2.50	2.98	0.48	Pass	3305801
601.98	601.77	-0.21	Pass	2.50	3.03	0.53	Pass	4346811
1033.99	1033.78	-0.21	Pass	2.50	3.04	0.54	Pass	4542787
1633.95	1633.78	-0.17	Pass	2.50	3.14	0.64	Pass	4299429
2233.91	2233.82	-0.09	Pass	2.50	2.46	-0.04	Pass	2697015

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.99	-0.01	Pass	2.50	2.45	-0.05	Pass	283898
112.99	112.96	-0.03	Pass	2.50	2.57	0.07	Pass	1214436
302.00	301.85	-0.15	Pass	2.50	2.56	0.06	Pass	3299787
601.98	602.05	0.07	Pass	2.50	2.79	0.29	Pass	4553553
1033.99	1033.94	-0.05	Pass	2.50	2.86	0.36	Pass	3846373
1633.95	1633.95	0.00	Pass	2.50	2.62	0.12	Pass	4259139
2233.91	2233.85	-0.06	Pass	2.50	2.77	0.27	Pass	2967219

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24128.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 8:46:16 PM
 Sample Name : ic347-1
 Vial : P1-A2
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	194516	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	36701	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	73013	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	58104	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	79352	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	31850	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	31149	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	44241	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	39856	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	14521	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	29898	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	23895	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	14162	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	13548	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3037	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4295	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4450	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	24818	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	41009	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	23552	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	111762	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	156674	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	11540	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	12120	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	18312	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	77157	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	10026	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	83510	2.50 µg/L	0.000
13C2-PFDA	8.210	515.1 -> 470.1	29784	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	39656	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	52061	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3037	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4295	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4450	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C2-PFDoDA	9.093	615.1 -> 570.0	39856	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C2-PFTeDA	9.796	715.2 -> 670.0	14521	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-PFBS	5.571	302.1 -> 79.9	23895	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C3-PFHxS	7.313	402.1 -> 79.9	14162	2.57 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 = 102.9%	
13C4-PFBA	2.985	216.8 -> 171.9	194516	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.569	367.1 -> 322.0	58104	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C5-PFHxA	5.641	318.0 -> 273.0	73013	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C5-PFPeA	4.422	268.3 -> 223.0	36701	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C6-PFDA	8.210	519.1 -> 474.1	31149	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C7-PFUnDA	8.663	570.0 -> 525.1	44241	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-FOSA	9.657	506.1 -> 77.8	29898	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.7%	
13C8-PFOA	7.198	421.1 -> 376.0	79352	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C8-PFOS	8.361	507.1 -> 79.9	13548	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C9-PFNA	7.729	472.1 -> 427.0	31850	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.8%	
d3-MeFOSAA	8.256	573.2 -> 419.0	24818	4.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	41009	10.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
d3-MeFOSA	10.757	515.0 -> 219.0	12120	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.8%	
d5-EtFOSAA	8.464	589.2 -> 419.0	23552	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.6%	
d7-MeFOSE	10.678	623.2 -> 58.9	111762	23.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.9%	
d9-EtFOSE	10.911	639.2 -> 58.9	156674	24.18 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
d5-EtFOSA	10.976	531.1 -> 219.0	11540	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	3834	0.76 µg/L	98
		327.1 -> 80.9	1471		
6:2FTS	6.974	427.1 -> 407.0	2918	0.77 µg/L	97
		427.1 -> 80.9	1211		
8:2FTS	7.999	527.1 -> 507.0	2450	0.82 µg/L	96
		527.1 -> 80.8	908		
EtFOSAA	8.465	584.2 -> 419.1	697	0.21 µg/L	m 87
		584.2 -> 526.0	383		
FOSA	9.660	498.1 -> 77.9	2125	0.19 µg/L	98
		498.1 -> 478.0	79		
MeFOSAA	8.269	570.1 -> 419.0	1257	0.21 µg/L	m 95
		570.1 -> 483.0	226		
PFBA	2.993	212.8 -> 168.9	5036	0.78 µg/L	100
PFBS	5.572	298.7 -> 79.9	2038	0.17 µg/L	99
		298.7 -> 98.8	788		
PFDA	8.211	512.9 -> 469.0	5499	0.19 µg/L	95
		512.9 -> 219.0	1020		
PFDODA	9.094	613.1 -> 569.0	5925	0.20 µg/L	100
		613.1 -> 319.0	689		
PFDS	9.245	599.0 -> 79.9	745	0.19 µg/L	100

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	359			
PFHpA	6.569	363.1 -> 319.0	5812	0.19	µg/L	98
		363.1 -> 169.0	913			
PFHpS	7.868	449.0 -> 79.9	1426	0.22	µg/L	93
		449.0 -> 98.9	596			
PFHxA	5.644	313.0 -> 269.0	5204	0.20	µg/L	100
		313.0 -> 118.9	222			
PFHxS	7.314	398.7 -> 79.9	1583	0.18	µg/L	m 90
		398.7 -> 98.9	875			
PFNA	7.730	463.0 -> 419.0	5010	0.21	µg/L	95
		463.0 -> 219.0	1227			
PFNS	8.826	548.8 -> 79.9	1263	0.20	µg/L	86
		548.8 -> 98.9	579			
PFOA	7.200	413.0 -> 369.0	7507	0.18	µg/L	98
		413.0 -> 169.0	1465			
PFOS	8.374	498.9 -> 79.9	1426	0.19	µg/L	m 91
		498.9 -> 98.8	767			
PFPeA	4.424	263.0 -> 219.0	6424	0.39	µg/L	100
PFPeS	6.620	349.1 -> 79.9	1428	0.19	µg/L	96
		349.1 -> 98.9	638			
PFTeDA	9.797	713.1 -> 669.0	4381	0.21	µg/L	99
		713.1 -> 168.9	317			
PFTrDA	9.464	663.0 -> 619.0	6751	0.20	µg/L	99
		663.0 -> 168.9	605			
PFUnDA	8.664	563.1 -> 519.0	4626	0.18	µg/L	98
		563.1 -> 269.1	733			
11CI-PF3OUdS	9.516	630.9 -> 450.9	5452	0.36	µg/L	97
		632.9 -> 452.9	1670			
9CI-PF3ONS	8.703	530.8 -> 351.0	8295	0.32	µg/L	89
		532.8 -> 353.0	1852			
ADONA	6.817	376.9 -> 250.9	21253	0.36	µg/L	99
		376.9 -> 84.8	5955			
HFPO-DA	6.020	284.9 -> 168.9	1433	0.37	µg/L	92
		284.9 -> 184.9	264			
3:3FTCA	3.846	241.0 -> 177.0	1004	0.90	µg/L	96
		241.0 -> 117.0	110			
5:3FTCA	6.271	341.0 -> 237.1	21641	4.79	µg/L	98
		341.0 -> 217.0	15680			
7:3FTCA	7.657	441.0 -> 316.9	13268	4.97	µg/L	89
		441.0 -> 336.9	27809			
EtFOSA	10.990	526.0 -> 219.0	2380	0.38	µg/L	99
		526.0 -> 169.0	3109			
EtFOSE	10.924	630.0 -> 58.9	6920	0.93	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	2001	0.39	µg/L	m 95
		511.9 -> 169.0	2601			
MeFOSE	10.691	616.1 -> 58.9	4713	0.98	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	387	0.18	µg/L	87
		699.1 -> 98.8	257			
NFDHA	5.524	295.0 -> 201.0	1240	0.40	µg/L	93
		295.0 -> 84.9	331			
PFMBA	4.850	279.0 -> 85.1	4591	0.39	µg/L	100
PFMPA	3.551	229.0 -> 84.9	3314	0.39	µg/L	100
PFEESA	6.112	314.8 -> 134.9	11884	0.36	µg/L	100
		314.8 -> 82.9	410			

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

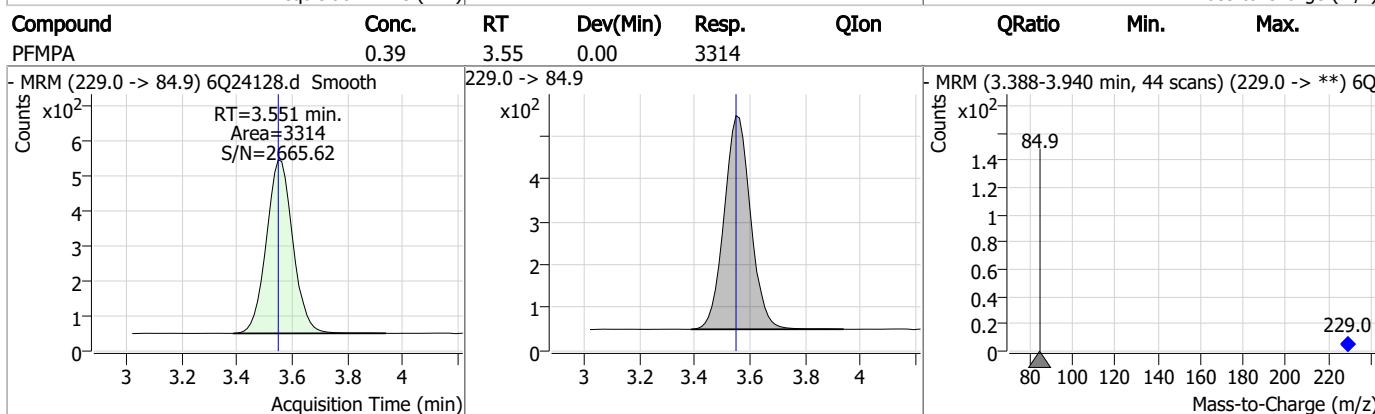
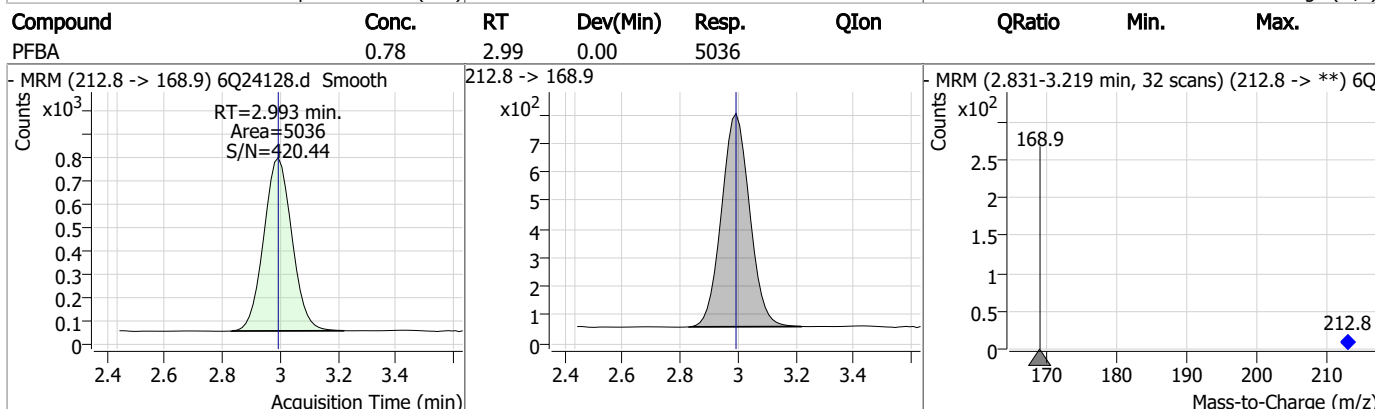
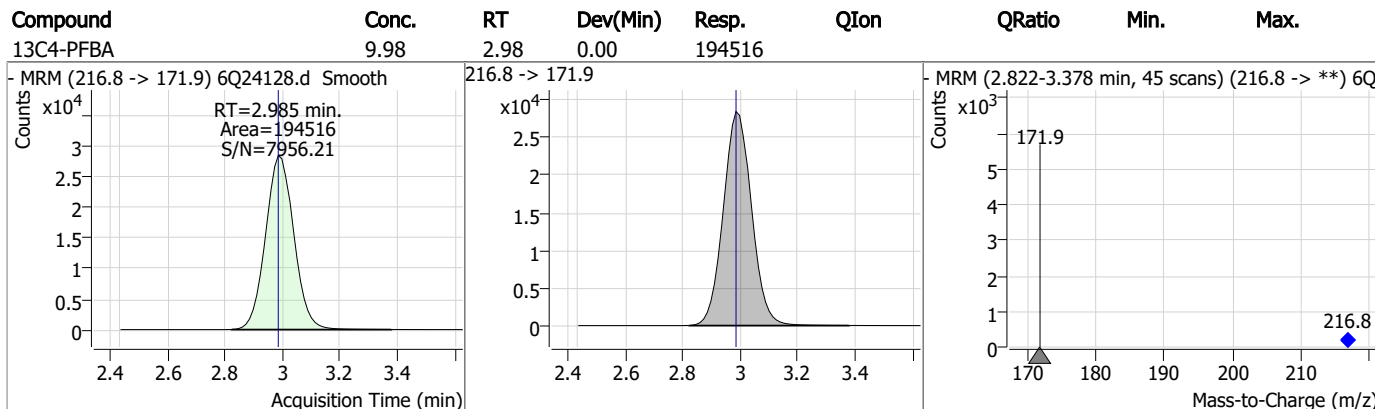
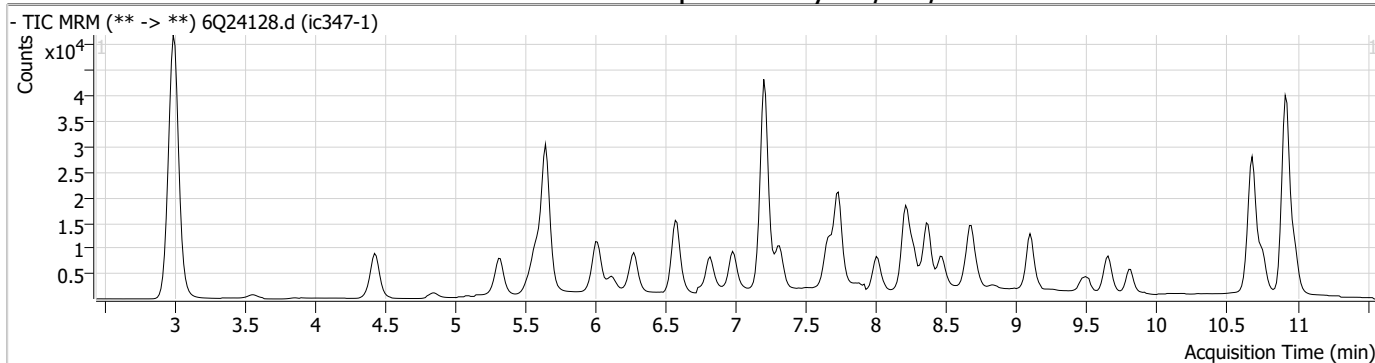
Perfluorinated Compounds by LC/MS/MS

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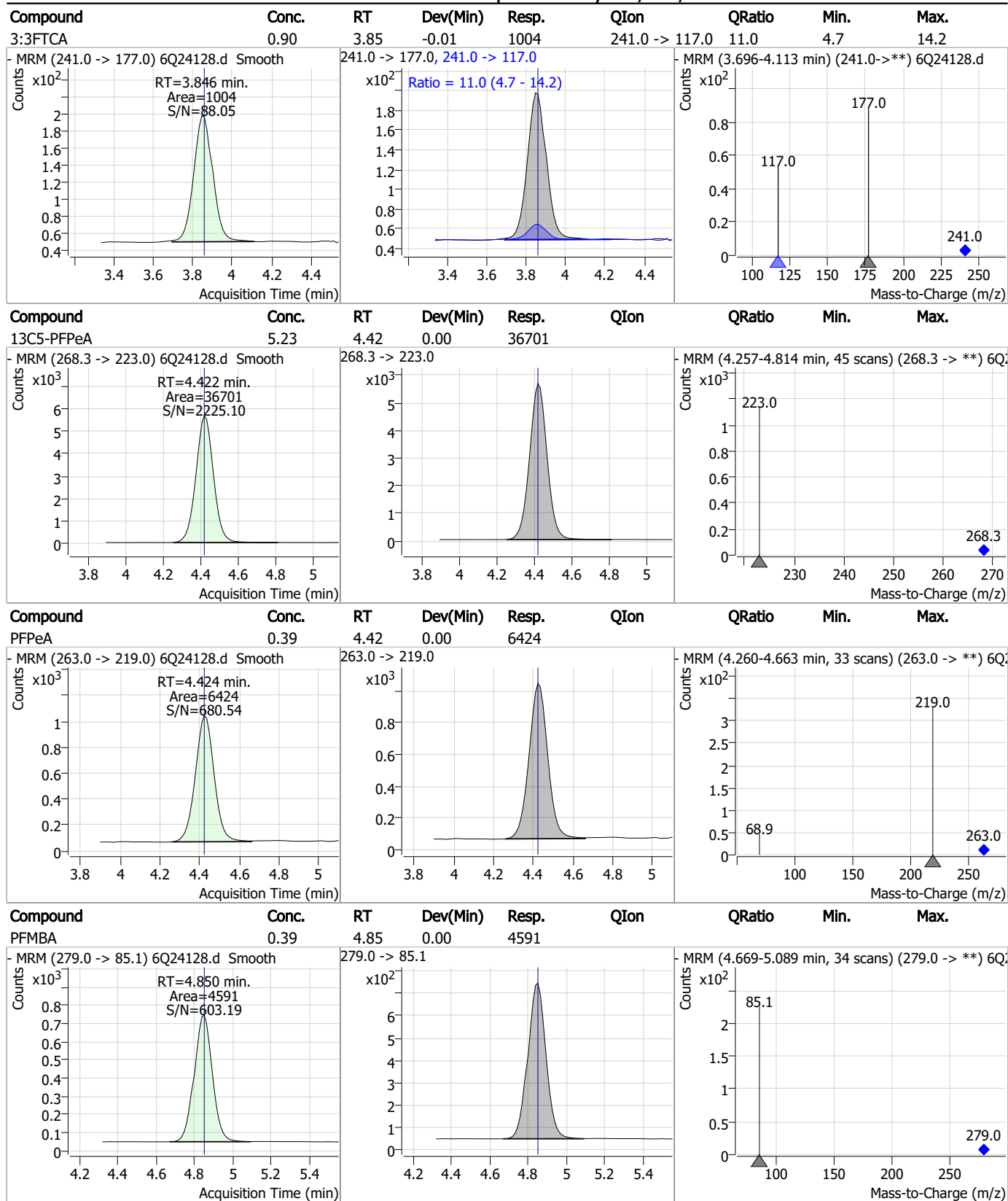
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Perfluorinated Compounds by LC/MS/MS



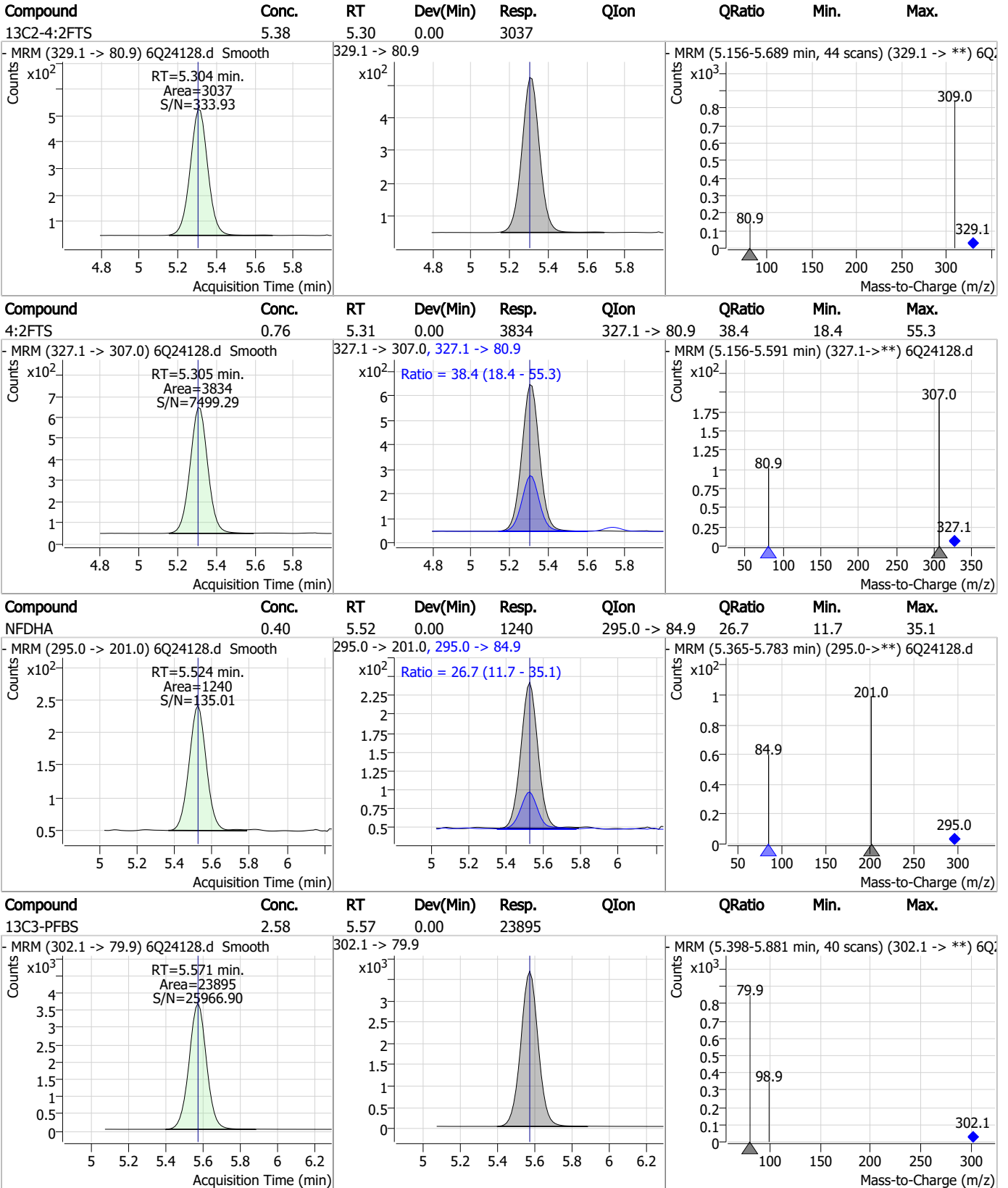
Perfluorinated Compounds by LC/MS/MS



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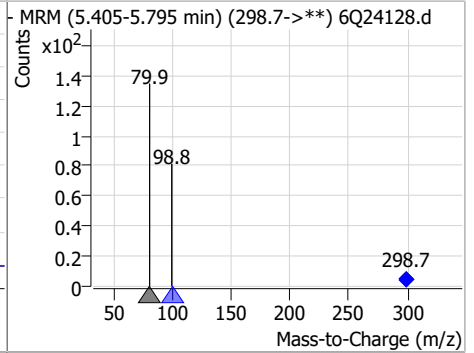
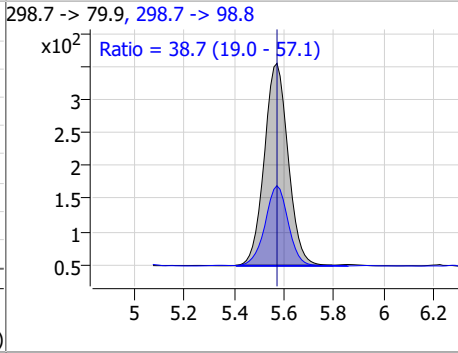
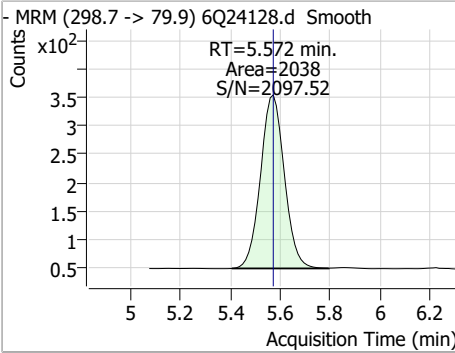
Perfluorinated Compounds by LC/MS/MS



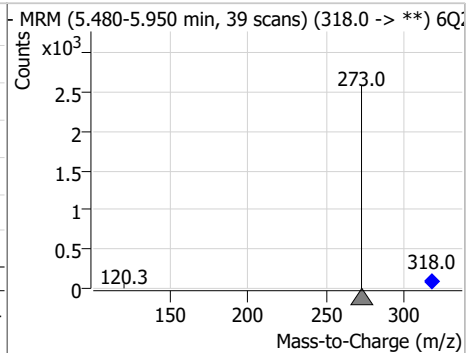
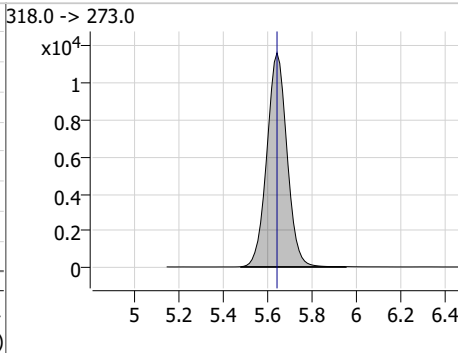
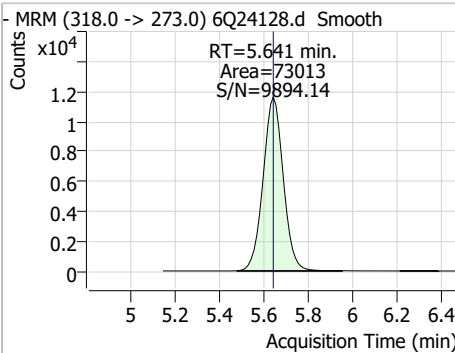
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Perfluorinated Compounds by LC/MS/MS

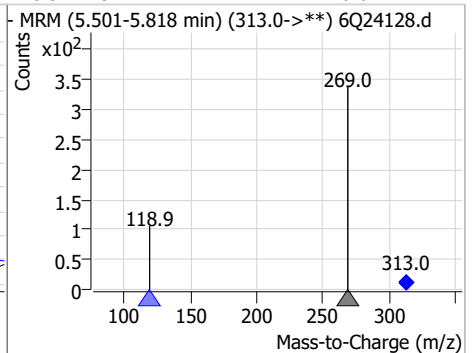
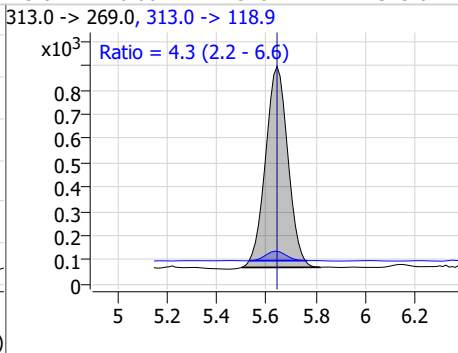
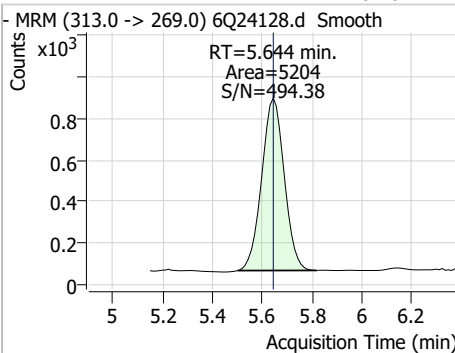
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.17	5.57	0.00	2038	298.7 -> 98.8	38.7	19.0	57.1



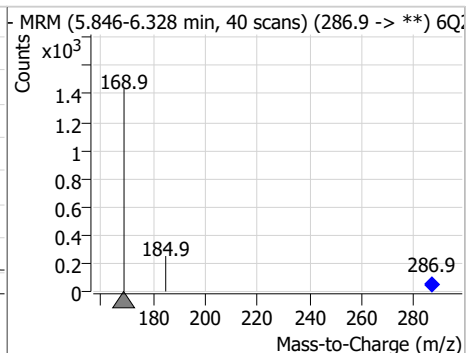
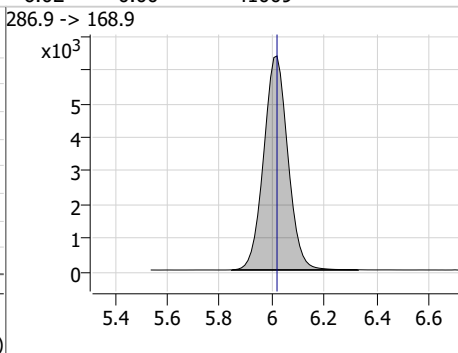
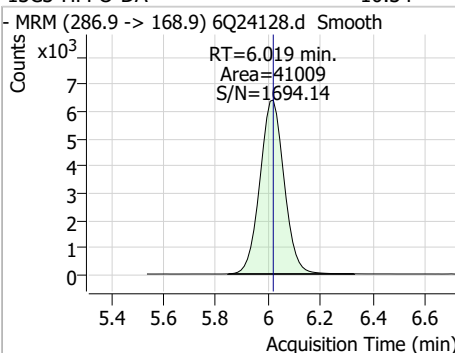
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.54	5.64	0.00	73013	318.0 -> 273.0	4.3	2.2	6.6



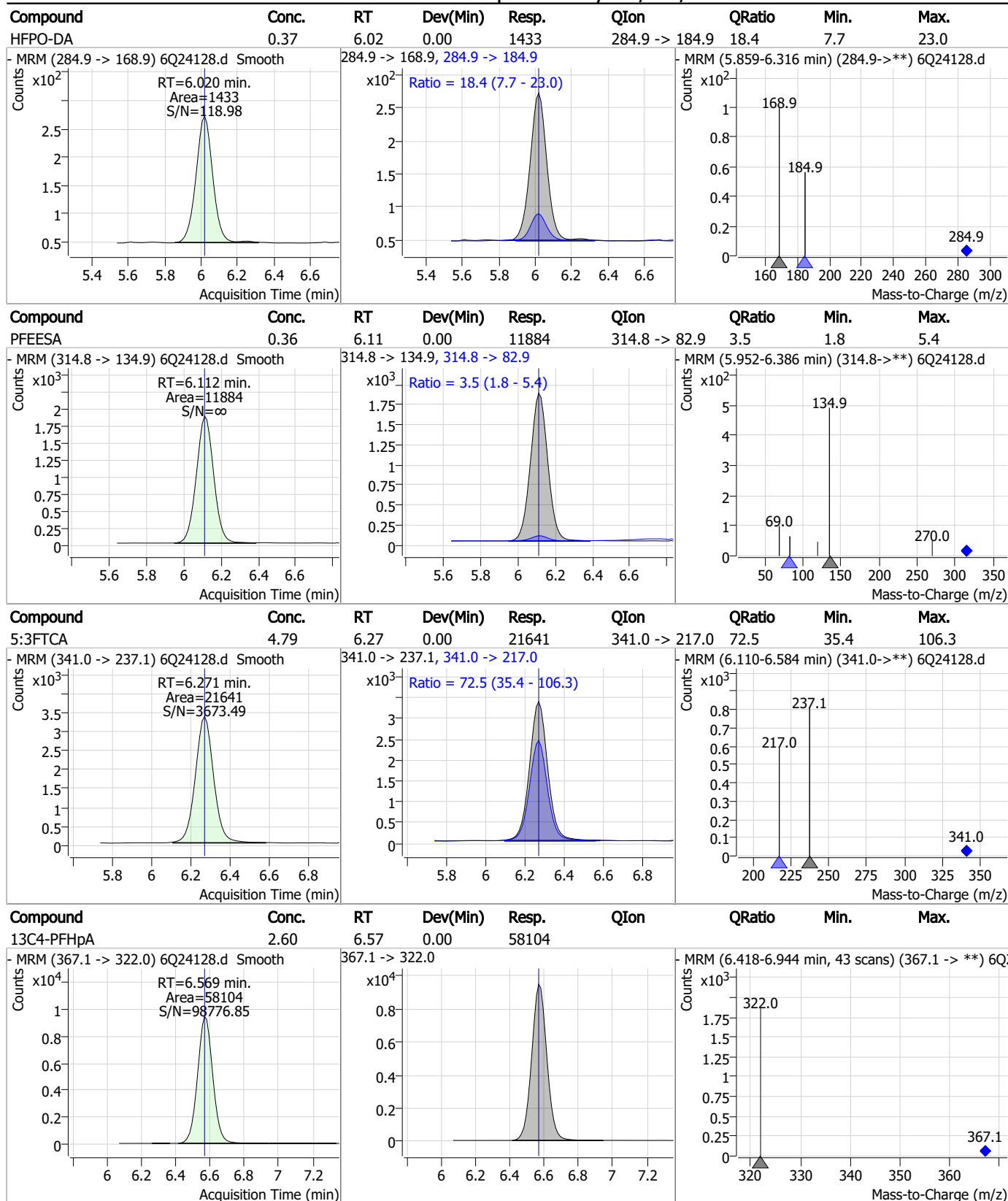
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.20	5.64	0.00	5204	313.0 -> 118.9	4.3	2.2	6.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.34	6.02	0.00	41009	286.9 -> 168.9	4.3	2.2	6.6

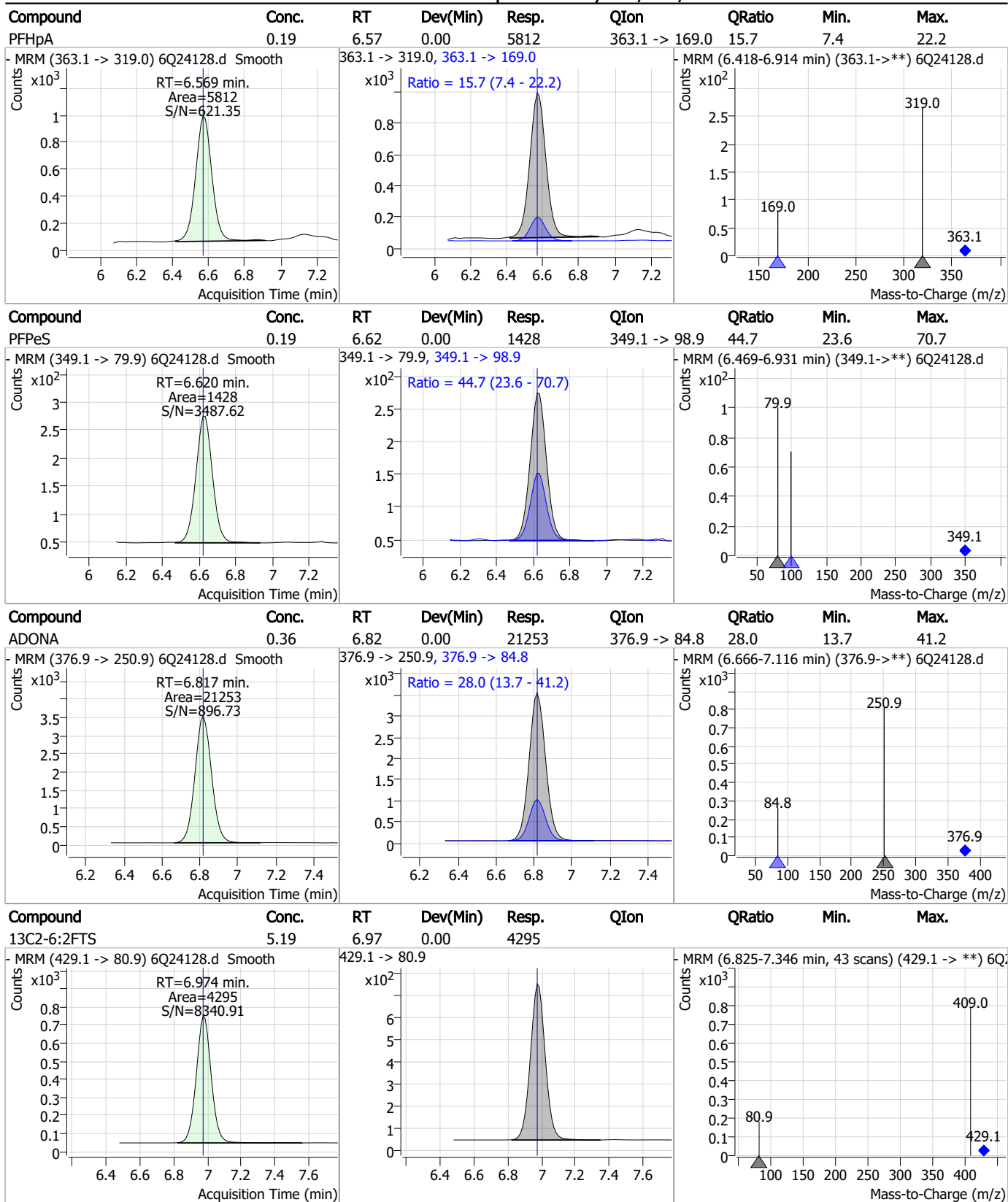


Perfluorinated Compounds by LC/MS/MS



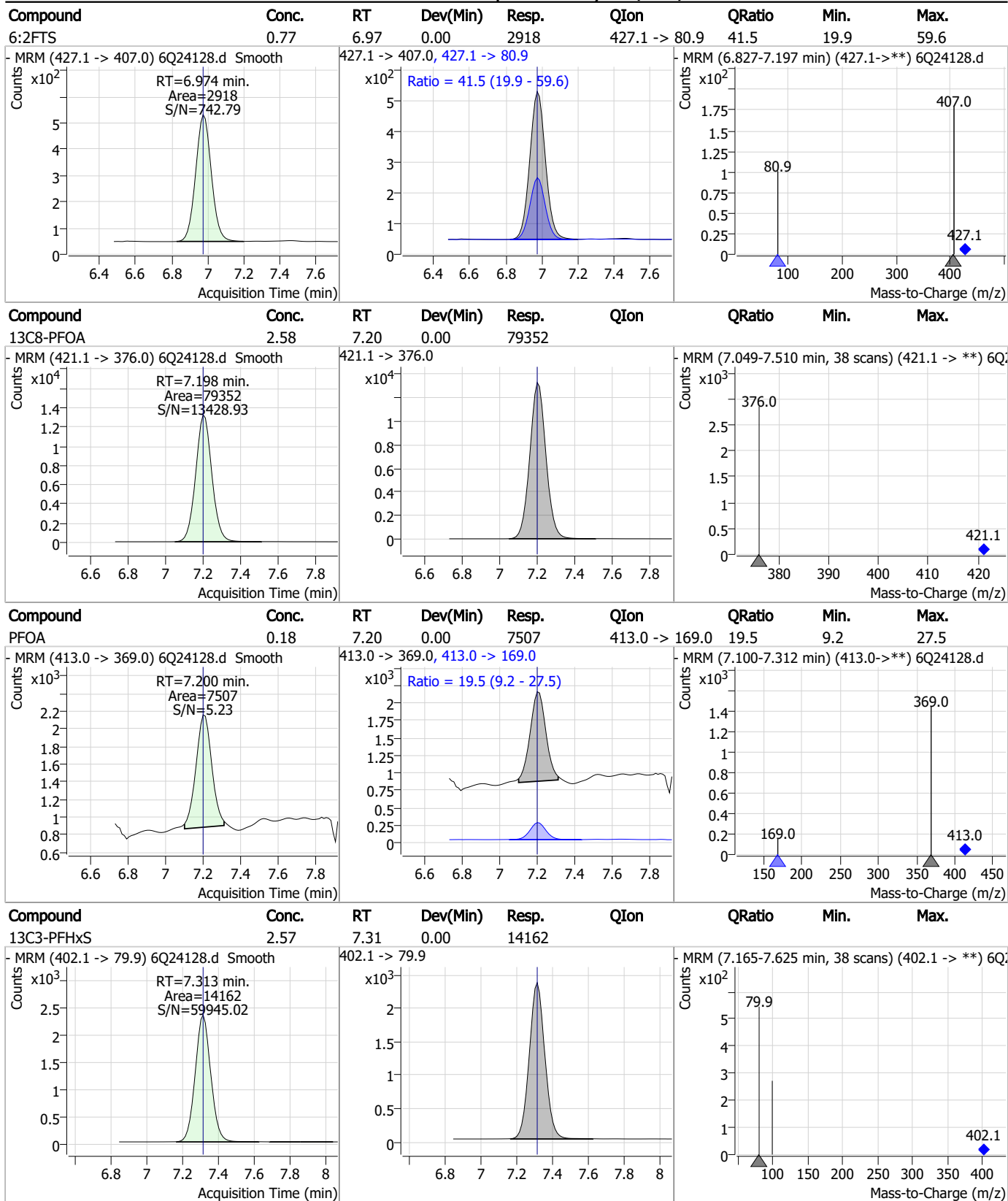
7.7.16
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Perfluorinated Compounds by LC/MS/MS



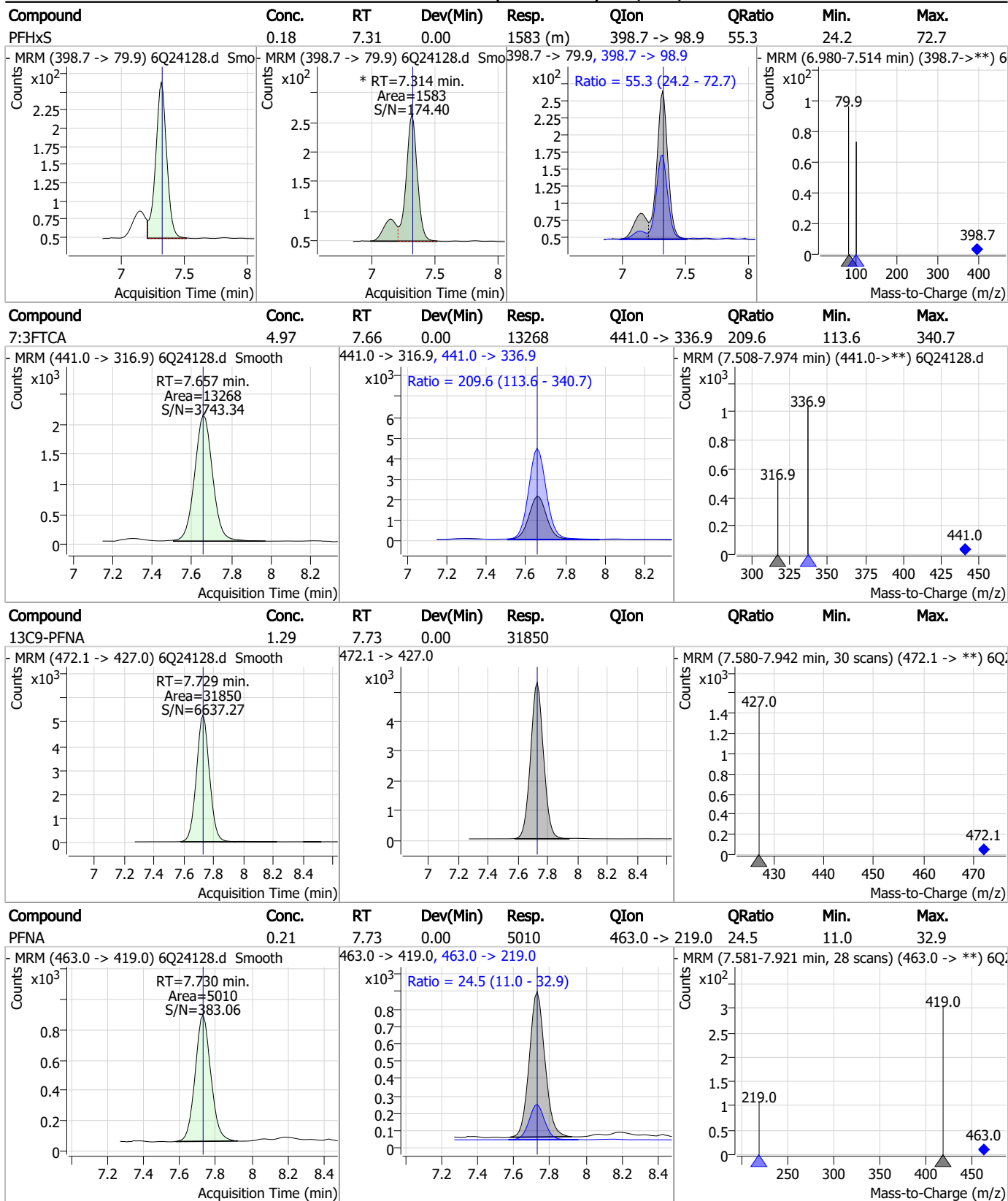
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Perfluorinated Compounds by LC/MS/MS



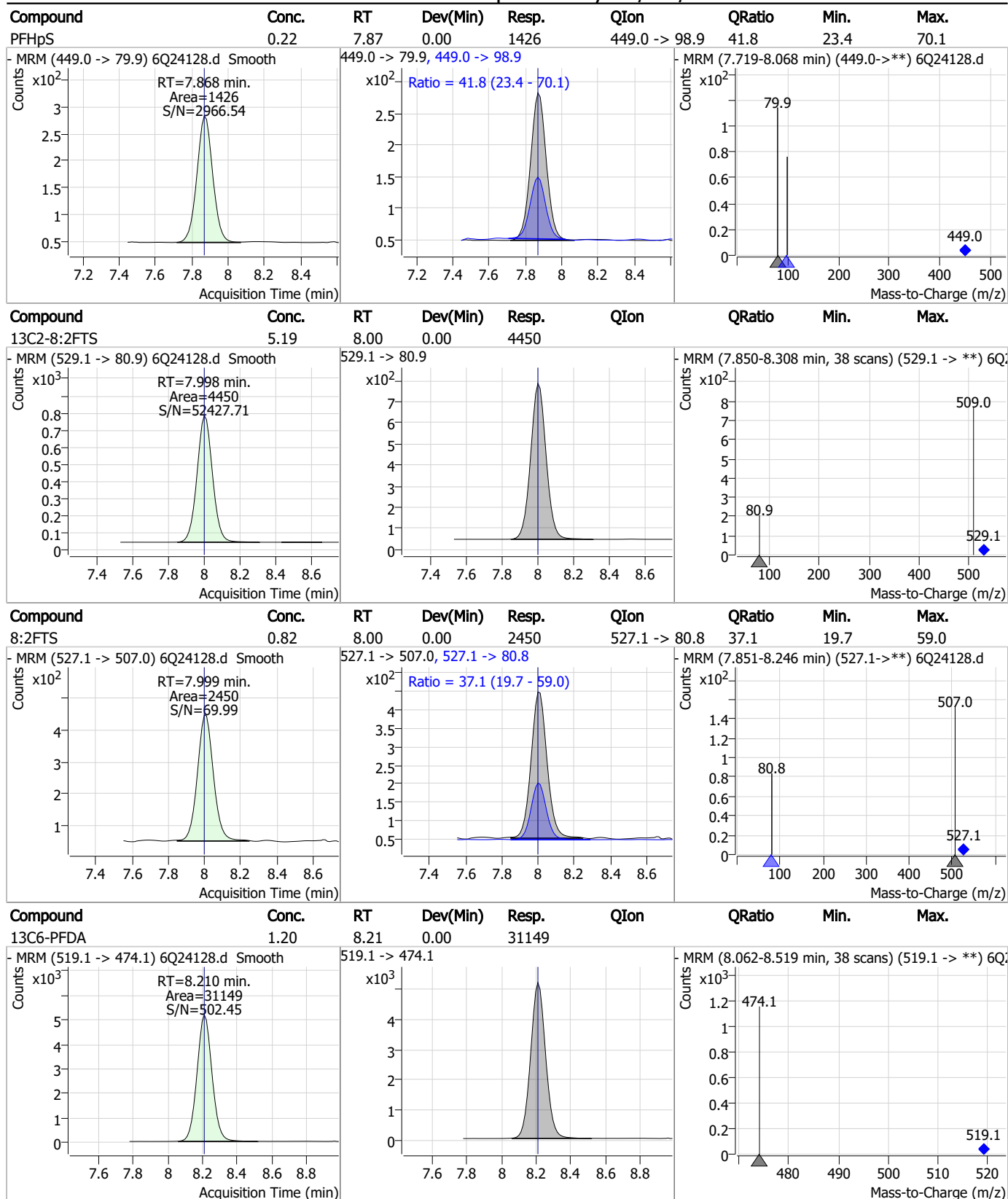
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Perfluorinated Compounds by LC/MS/MS



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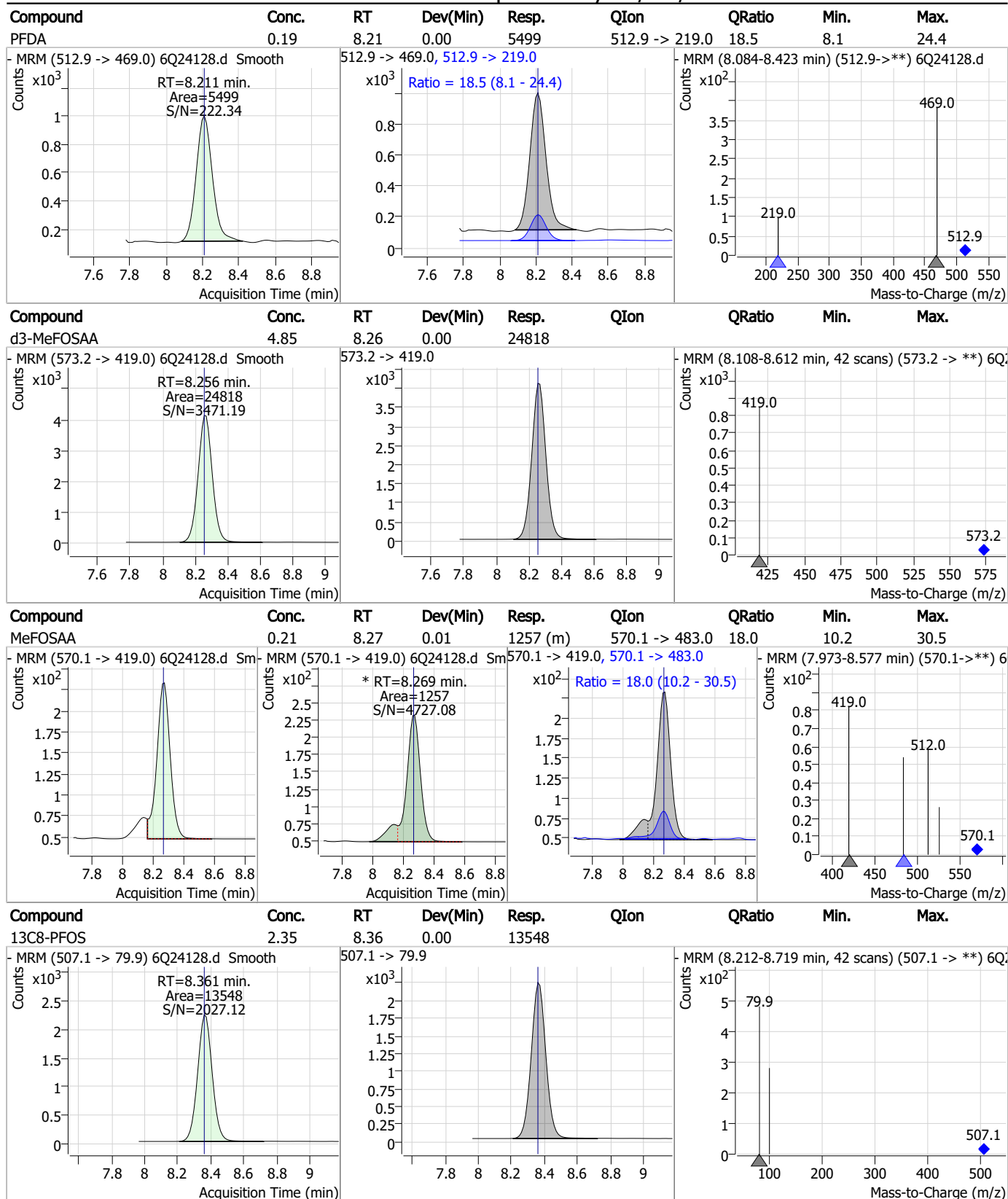
Perfluorinated Compounds by LC/MS/MS



7.7.16

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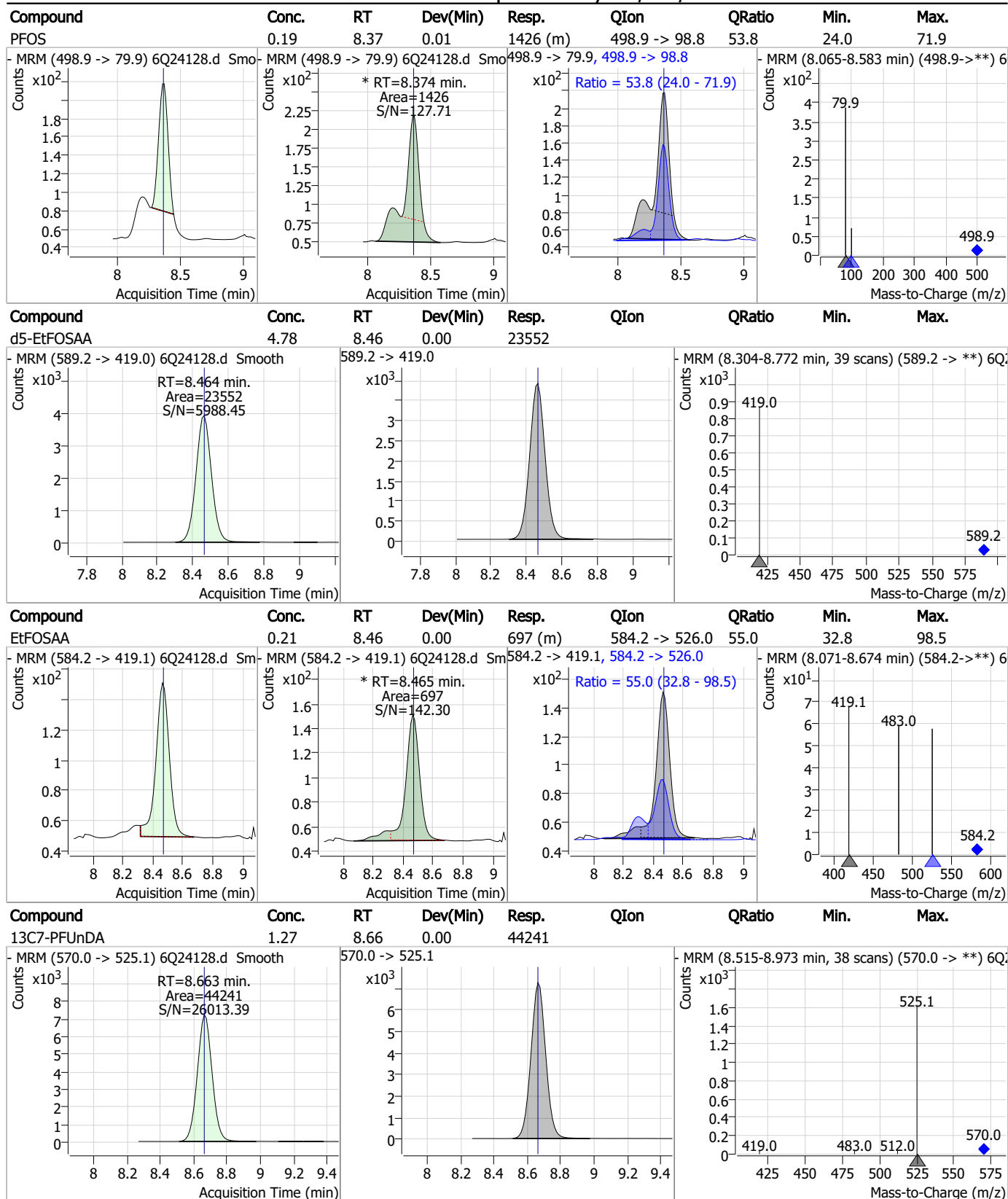
Perfluorinated Compounds by LC/MS/MS



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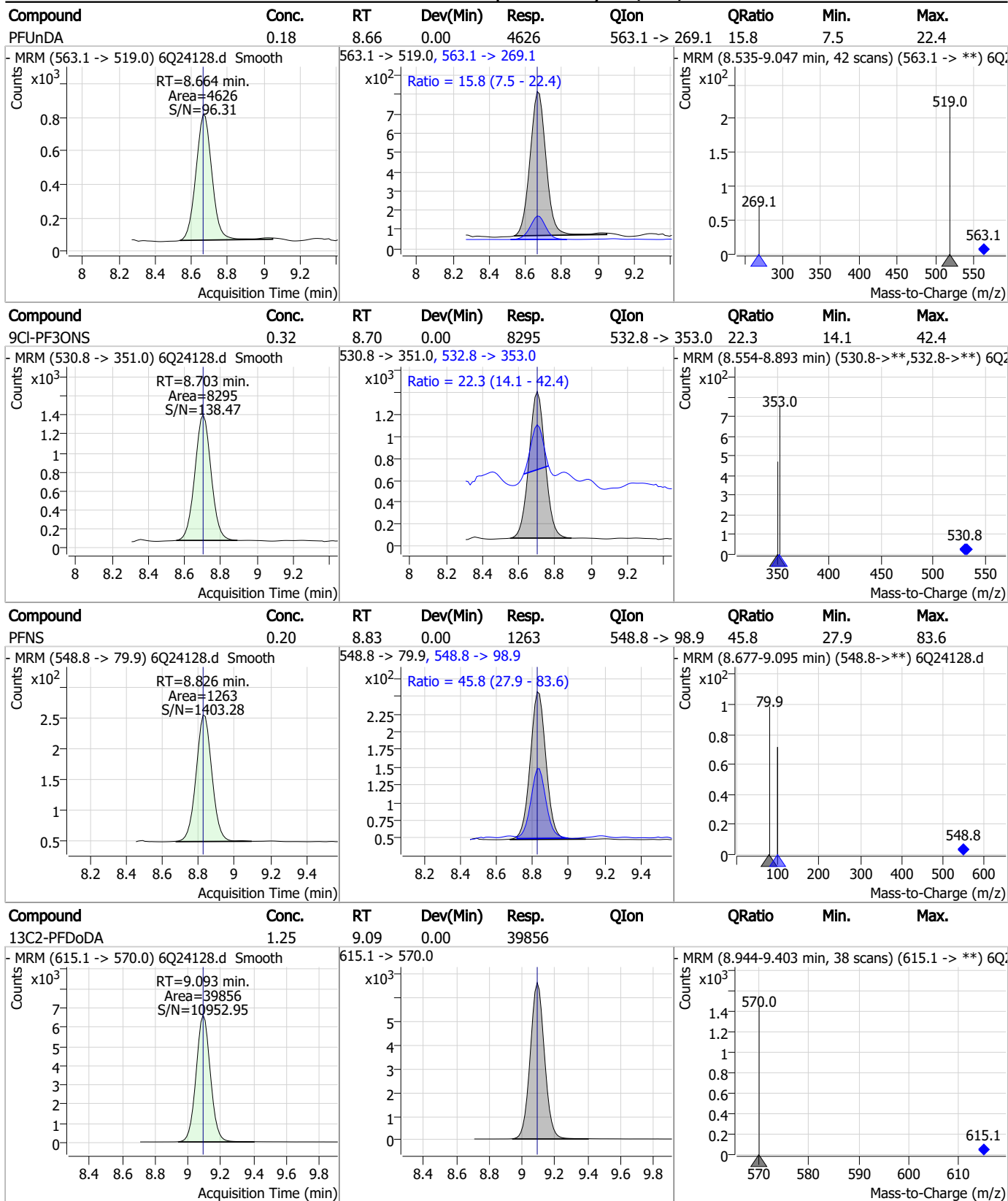
Perfluorinated Compounds by LC/MS/MS



7.7.16

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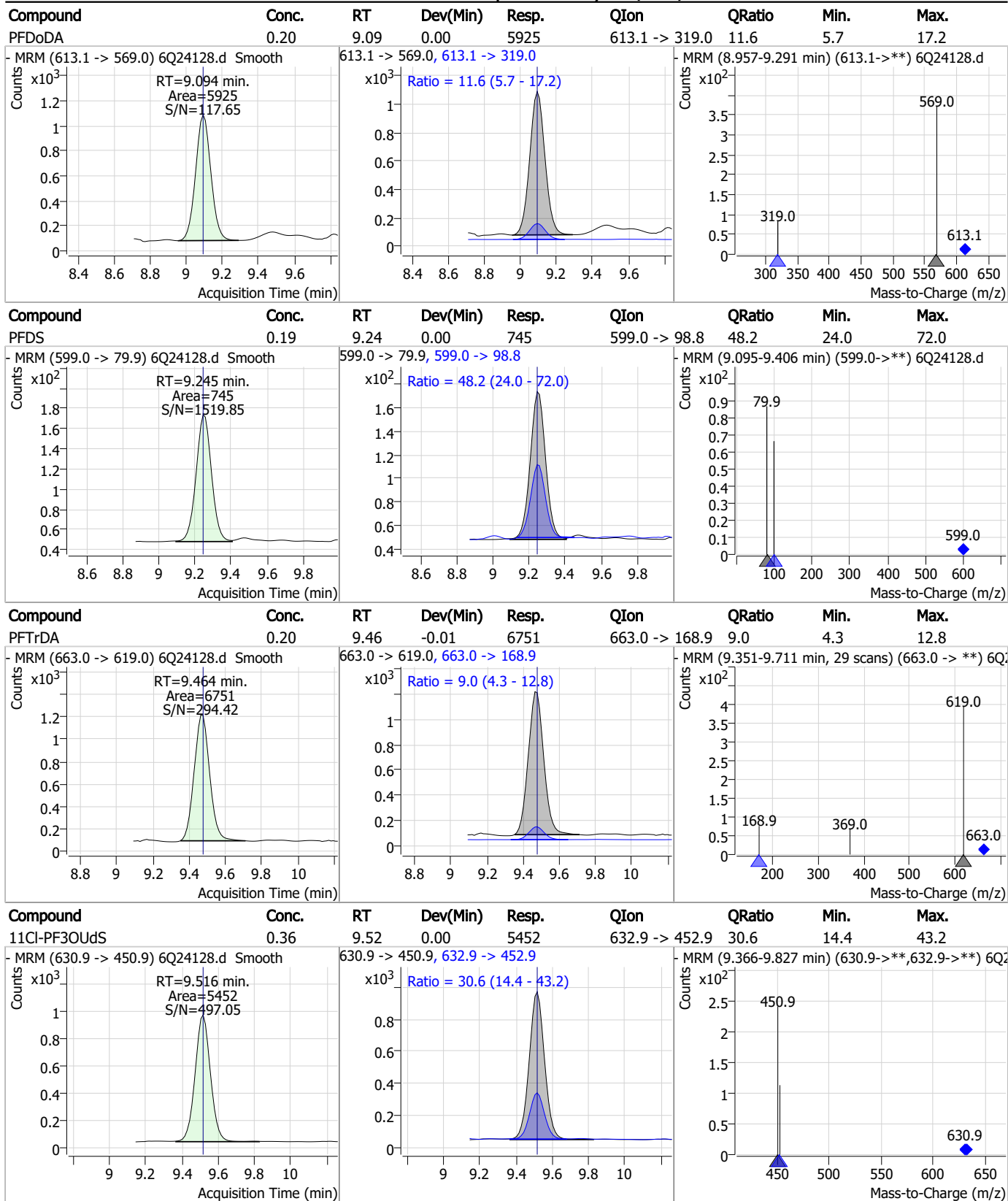
Perfluorinated Compounds by LC/MS/MS



7.7.16

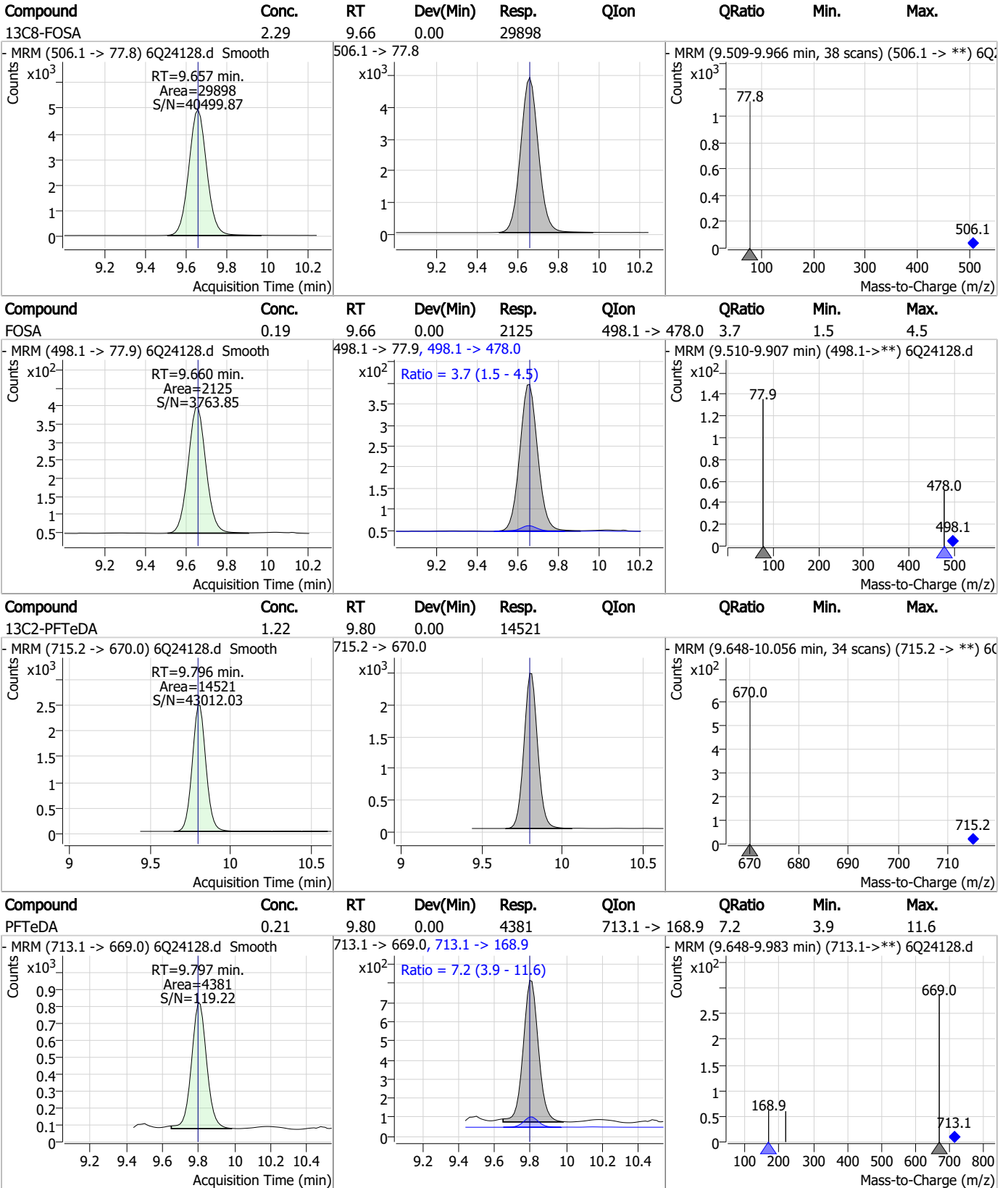
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Perfluorinated Compounds by LC/MS/MS



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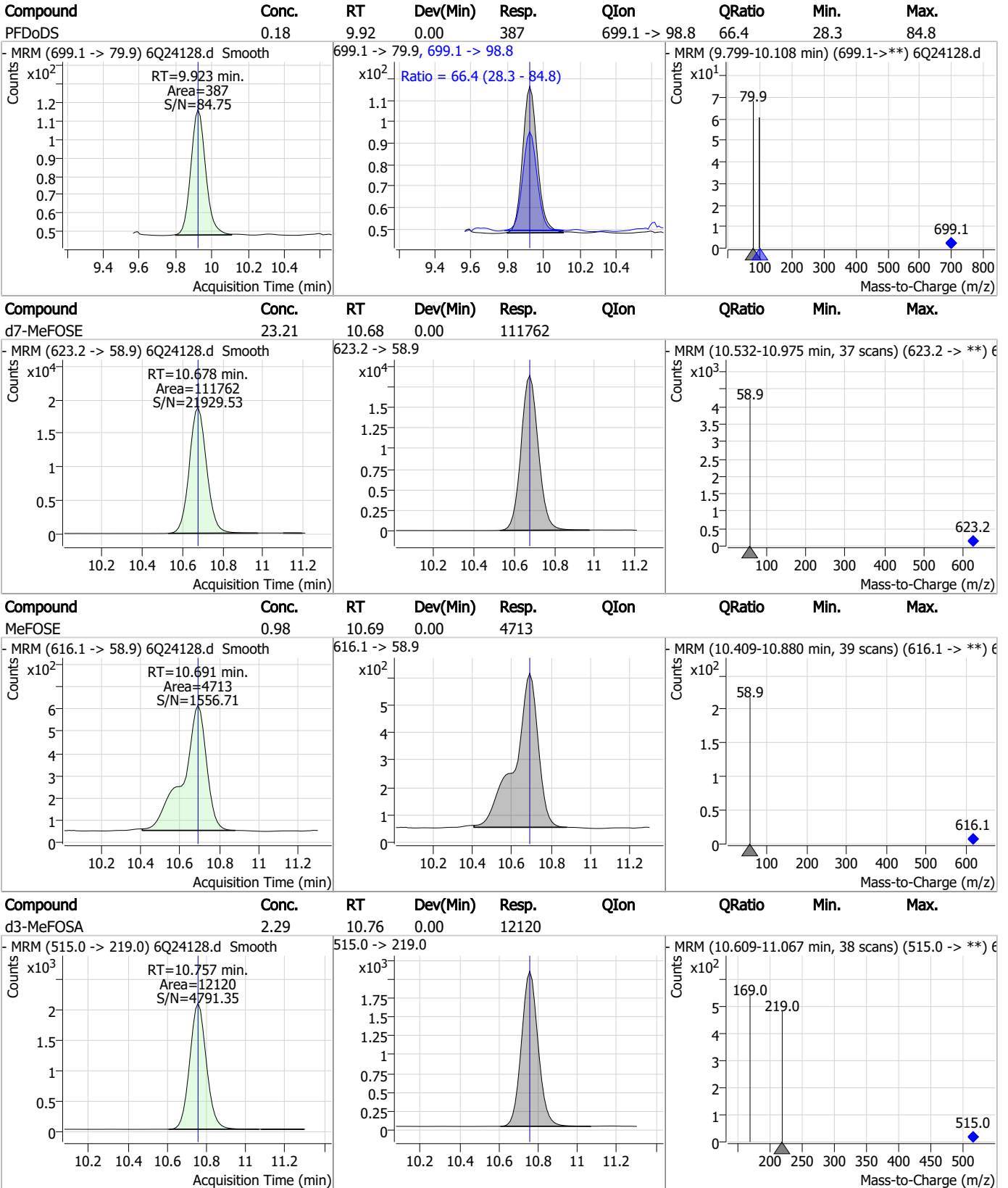
Perfluorinated Compounds by LC/MS/MS



7.7.16 7



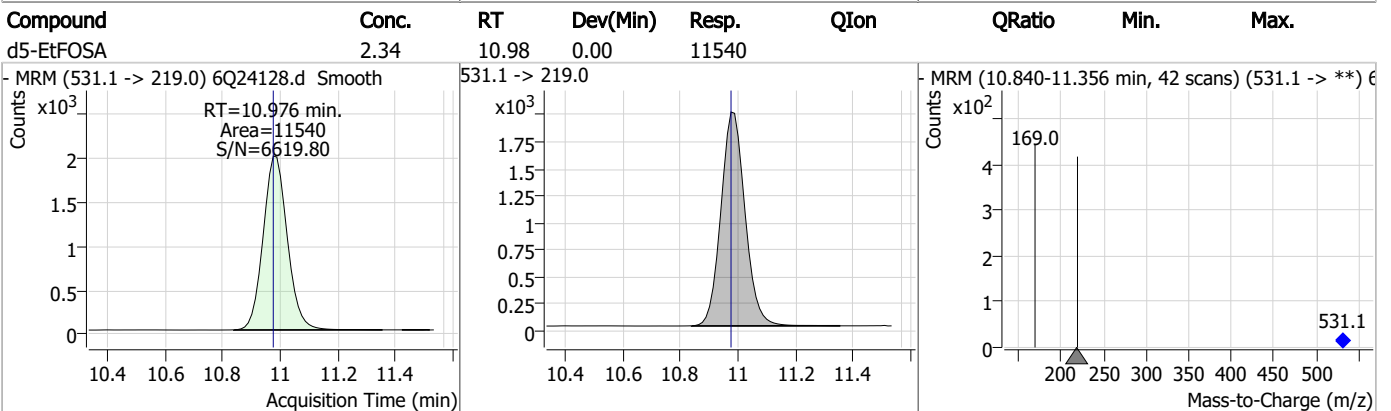
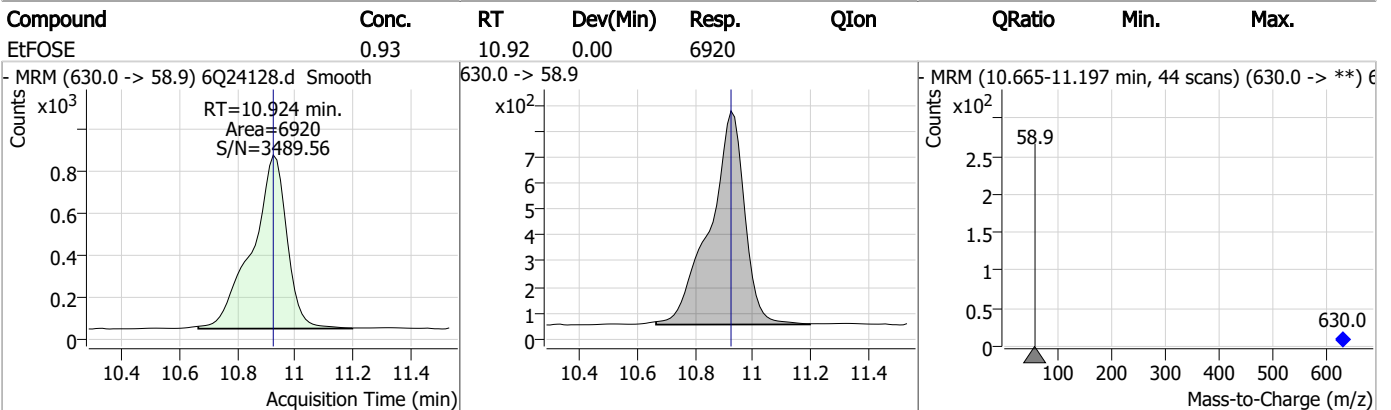
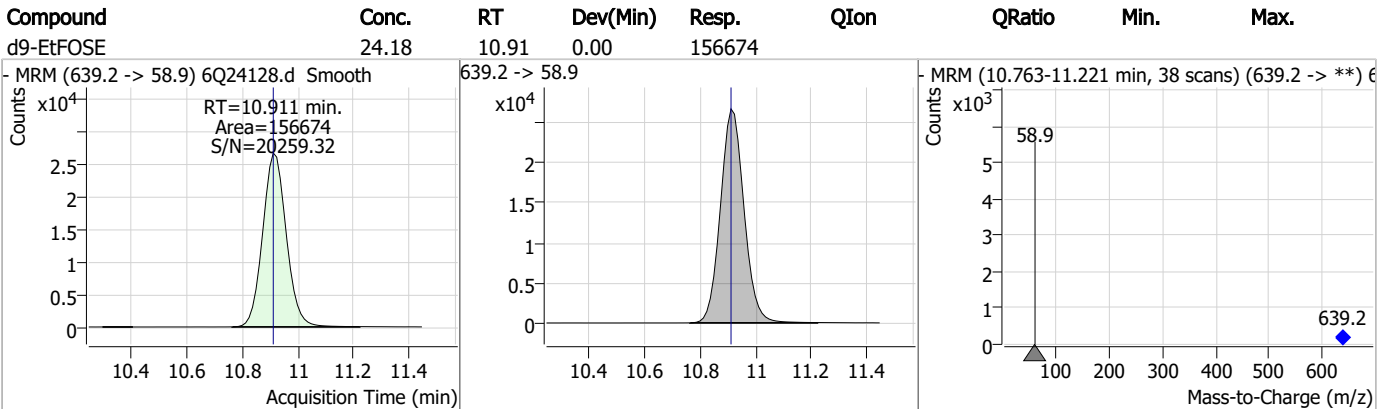
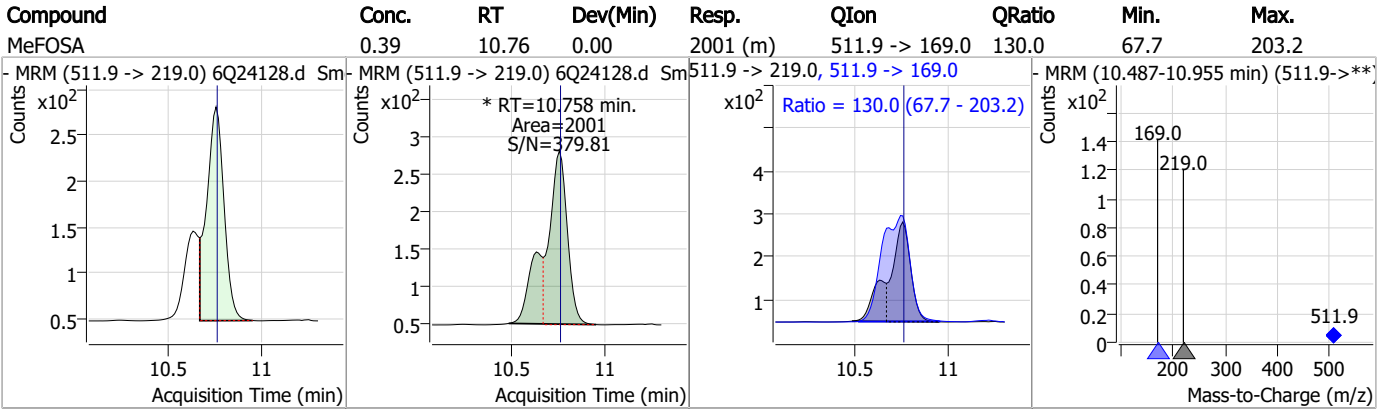
Perfluorinated Compounds by LC/MS/MS



7.7.16 7

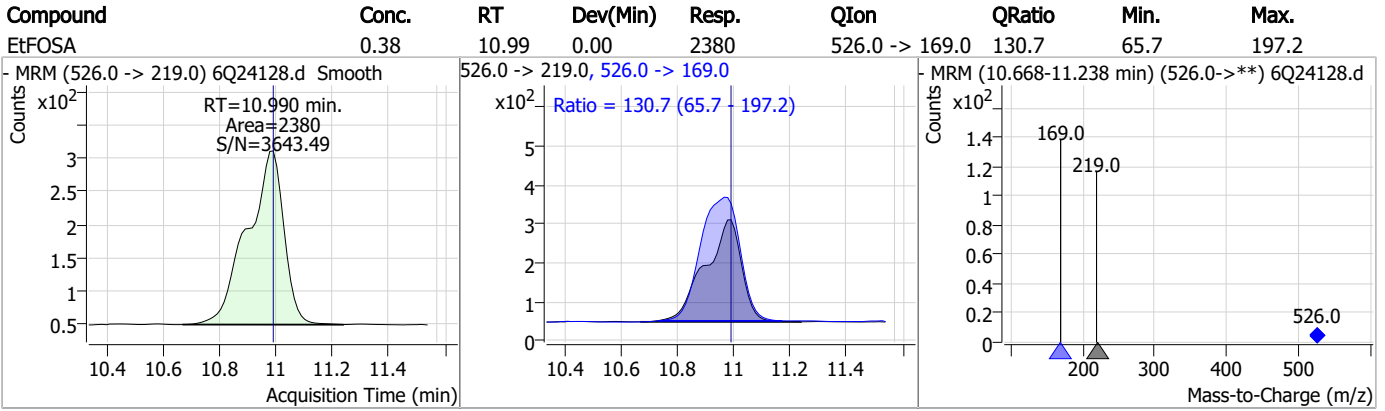


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q347-IC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24128.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 20:46 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24129.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 9:00:35 PM
 Sample Name : ic347-2
 Vial : P1-A3
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	195540	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	35818	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	72838	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	57342	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	77964	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	32156	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	31739	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	43894	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	40577	1.25 µg/L	0.000
M2-PFTeDA	9.809	715.2 -> 670.0	14529	1.25 µg/L	0.012
M8-FOSA	9.657	506.1 -> 77.8	30968	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	22949	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	13405	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	13068	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3093	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4676	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4452	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	24965	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	41331	10.00 µg/L	-0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	23368	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	112994	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	148321	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	12202	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	12156	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	17624	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	77368	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	10322	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	91276	2.50 µg/L	0.000
13C2-PFDA	8.210	515.1 -> 470.1	28773	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	41647	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	53358	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3093	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.5%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4676	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4452	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-PFDoDA	9.093	615.1 -> 570.0	40577	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C2-PFTeDA	9.809	715.2 -> 670.0	14529	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C3-PFBS	5.571	302.1 -> 79.9	22949	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C3-PFHxS	7.313	402.1 -> 79.9	13405	2.36 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 = 94.6%	
13C4-PFBA	2.985	216.8 -> 171.9	195540	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.569	367.1 -> 322.0	57342	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C5-PFHxA	5.641	318.0 -> 273.0	72838	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C5-PFPeA	4.422	268.3 -> 223.0	35818	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C6-PFDA	8.210	519.1 -> 474.1	31739	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C7-PFUnDA	8.663	570.0 -> 525.1	43894	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C8-FOSA	9.657	506.1 -> 77.8	30968	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C8-PFOA	7.198	421.1 -> 376.0	77964	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C8-PFOS	8.361	507.1 -> 79.9	13068	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.1%	
13C9-PFNA	7.729	472.1 -> 427.0	32156	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.8%	
d3-MeFOSAA	8.256	573.2 -> 419.0	24965	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	41331	10.17 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	12156	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
d5-EtFOSAA	8.464	589.2 -> 419.0	23368	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
d7-MeFOSE	10.678	623.2 -> 58.9	112994	24.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
d9-EtFOSE	10.911	639.2 -> 58.9	148321	23.79 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
d5-EtFOSA	10.976	531.1 -> 219.0	12202	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	7971	1.56 µg/L	99
		327.1 -> 80.9	2905		
6:2FTS	6.974	427.1 -> 407.0	6325	1.53 µg/L	97
		427.1 -> 80.9	2635		
8:2FTS	7.999	527.1 -> 507.0	4767	1.59 µg/L	97
		527.1 -> 80.8	1775		
EtFOSAA	8.465	584.2 -> 419.1	1379	0.42 µg/L	m 97
		584.2 -> 526.0	870		
FOSA	9.647	498.1 -> 77.9	4699	0.41 µg/L	99
		498.1 -> 478.0	158		
MeFOSAA	8.257	570.1 -> 419.0	2338	0.39 µg/L	92
		570.1 -> 483.0	391		
PFBA	2.993	212.8 -> 168.9	10285	1.59 µg/L	100
PFBS	5.572	298.7 -> 79.9	4088	0.36 µg/L	97
		298.7 -> 98.8	1486		
PFDA	8.211	512.9 -> 469.0	11393	0.39 µg/L	97
		512.9 -> 219.0	1720		
PFDODA	9.094	613.1 -> 569.0	11707	0.39 µg/L	97
		613.1 -> 319.0	1475		
PFDS	9.245	599.0 -> 79.9	1562	0.41 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	729			
PFHpA	6.569	363.1 -> 319.0	11809	0.39	µg/L	97
		363.1 -> 169.0	1893			
PFHpS	7.868	449.0 -> 79.9	2532	0.40	µg/L	99
		449.0 -> 98.9	1191			
PFHxA	5.644	313.0 -> 269.0	10150	0.38	µg/L	98
		313.0 -> 118.9	507			
PFHxS	7.314	398.7 -> 79.9	3241	0.39	µg/L	m 95
		398.7 -> 98.9	1671			
PFNA	7.730	463.0 -> 419.0	9255	0.38	µg/L	99
		463.0 -> 219.0	2061			
PFNS	8.826	548.8 -> 79.9	2332	0.38	µg/L	99
		548.8 -> 98.9	1313			
PFOA	7.200	413.0 -> 369.0	17663	0.44	µg/L	92
		413.0 -> 169.0	2629			
PFOS	8.362	498.9 -> 79.9	3040	0.42	µg/L	m 96
		498.9 -> 98.8	1373			
PFPeA	4.424	263.0 -> 219.0	12795	0.80	µg/L	100
PFPeS	6.620	349.1 -> 79.9	2775	0.38	µg/L	94
		349.1 -> 98.9	1199			
PFTeDA	9.797	713.1 -> 669.0	8143	0.39	µg/L	98
		713.1 -> 168.9	568			
PFTrDA	9.464	663.0 -> 619.0	13528	0.40	µg/L	95
		663.0 -> 168.9	942			
PFUnDA	8.664	563.1 -> 519.0	10021	0.40	µg/L	95
		563.1 -> 269.1	1297			
11CI-PF3OUdS	9.516	630.9 -> 450.9	11491	0.76	µg/L	97
		632.9 -> 452.9	3516			
9CI-PF3ONS	8.703	530.8 -> 351.0	18446	0.71	µg/L	79
		532.8 -> 353.0	7249			
ADONA	6.817	376.9 -> 250.9	44652	0.75	µg/L	99
		376.9 -> 84.8	12483			
HFPO-DA	6.007	284.9 -> 168.9	3202	0.82	µg/L	96
		284.9 -> 184.9	441			
3:3FTCA	3.858	241.0 -> 177.0	2199	1.97	µg/L	100
		241.0 -> 117.0	208			
5:3FTCA	6.271	341.0 -> 237.1	44811	9.95	µg/L	96
		341.0 -> 217.0	30303			
7:3FTCA	7.657	441.0 -> 316.9	27227	10.23	µg/L	84
		441.0 -> 336.9	54669			
EtFOSA	10.990	526.0 -> 219.0	5125	0.77	µg/L	93
		526.0 -> 169.0	6328			
EtFOSE	10.924	630.0 -> 58.9	14617	2.07	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	4172	0.81	µg/L	m 99
		511.9 -> 169.0	5713			
MeFOSE	10.691	616.1 -> 58.9	9359	1.92	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	862	0.41	µg/L	98
		699.1 -> 98.8	502			
NFDHA	5.524	295.0 -> 201.0	2534	0.82	µg/L	93
		295.0 -> 84.9	677			
PFMBA	4.850	279.0 -> 85.1	9206	0.79	µg/L	100
PFMPA	3.551	229.0 -> 84.9	6609	0.79	µg/L	100
PFEESA	6.112	314.8 -> 134.9	24044	0.73	µg/L	98
		314.8 -> 82.9	699			

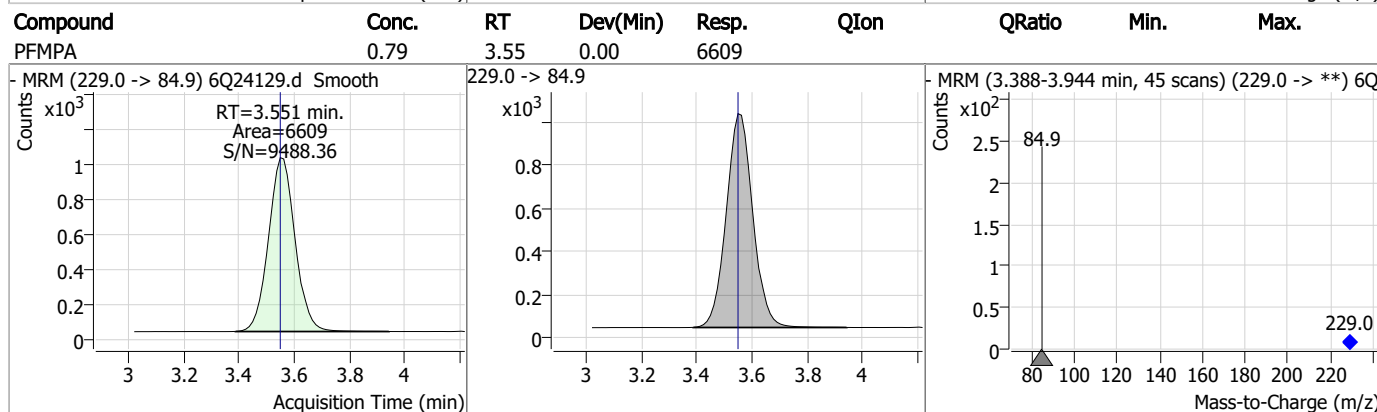
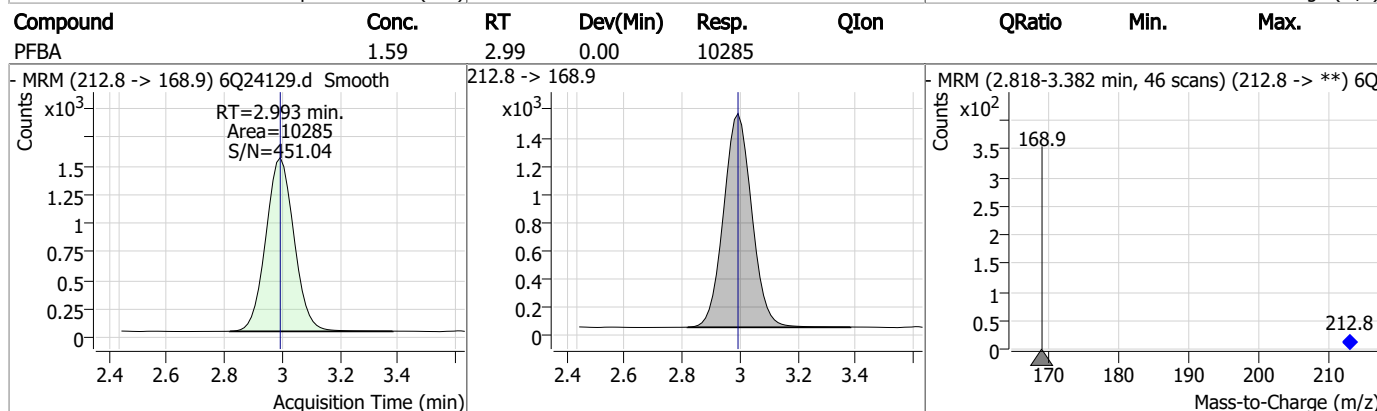
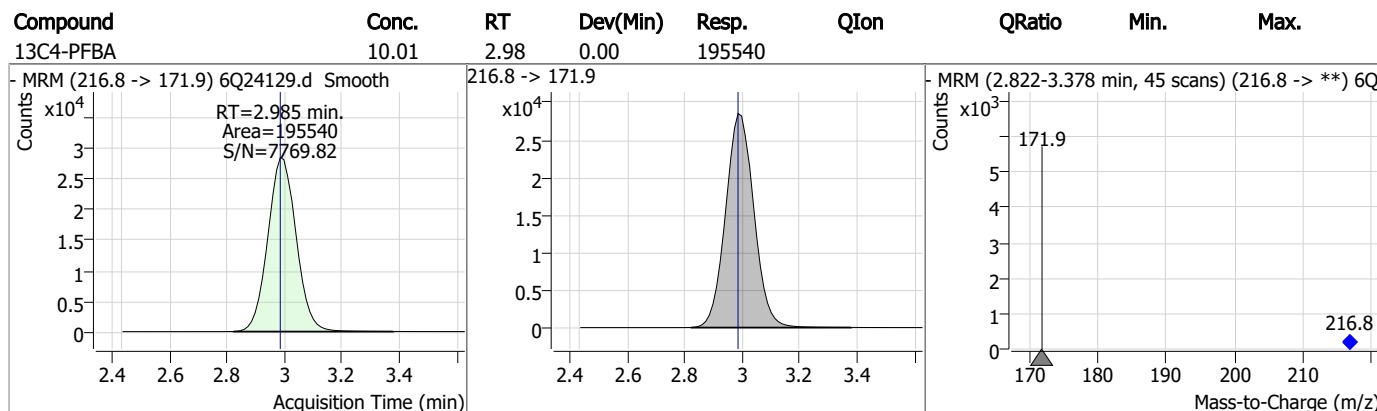
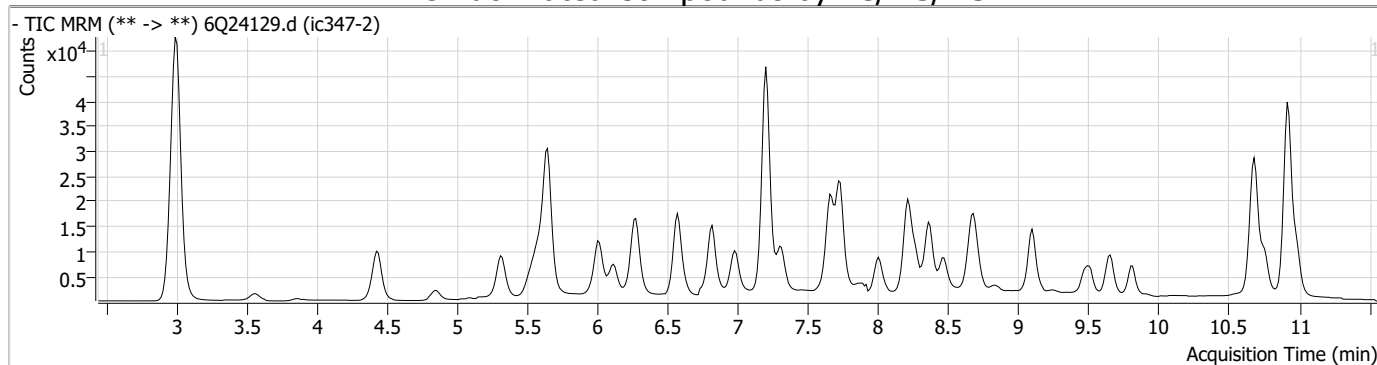
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

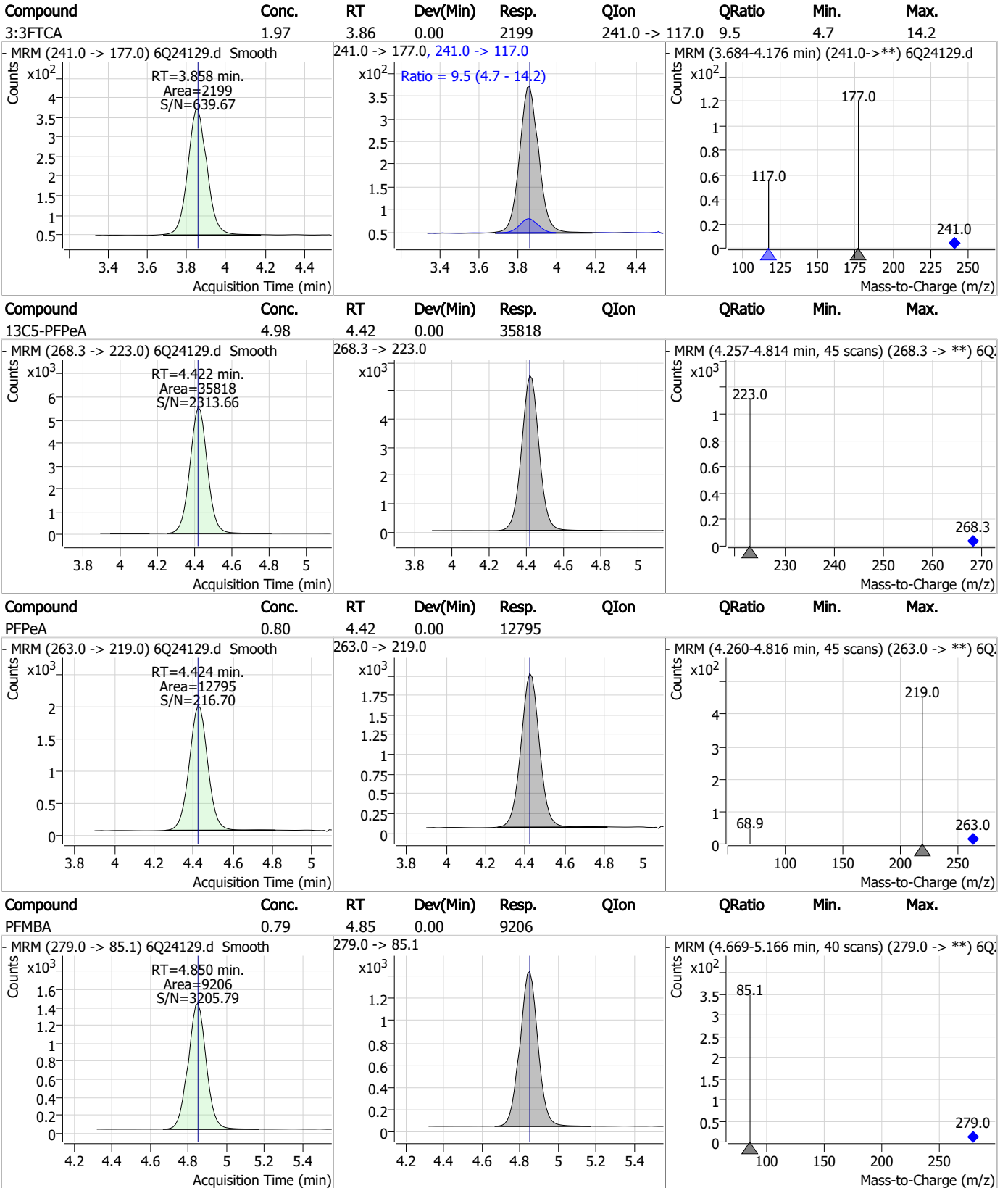
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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Perfluorinated Compounds by LC/MS/MS

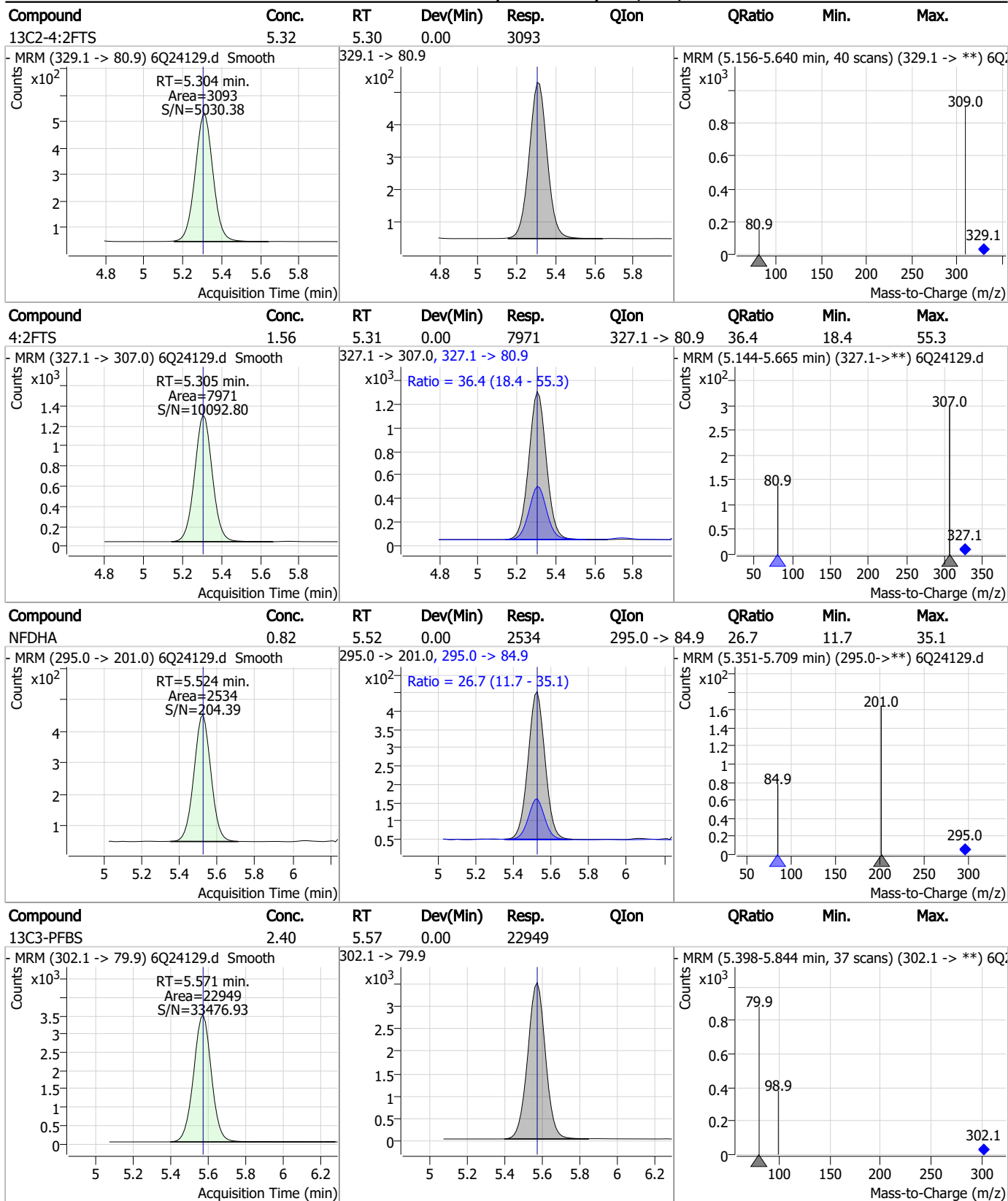


Perfluorinated Compounds by LC/MS/MS



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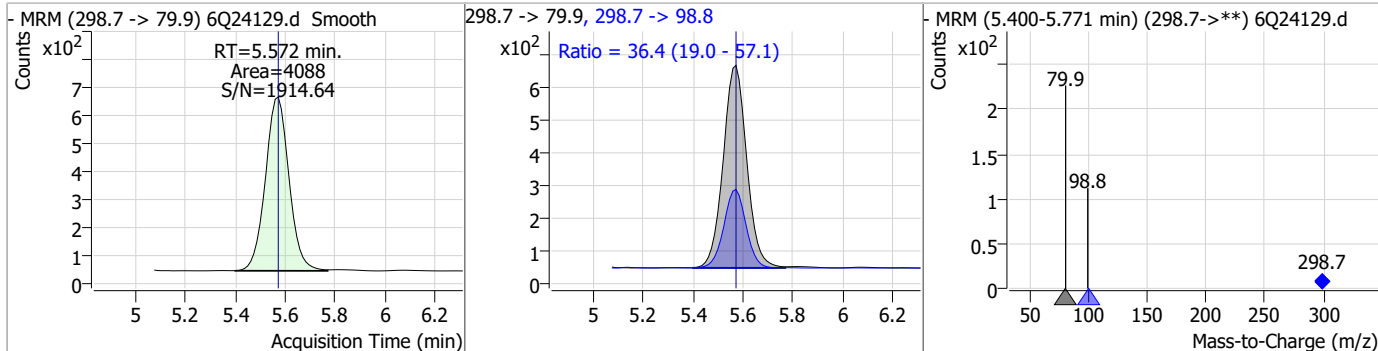
Perfluorinated Compounds by LC/MS/MS



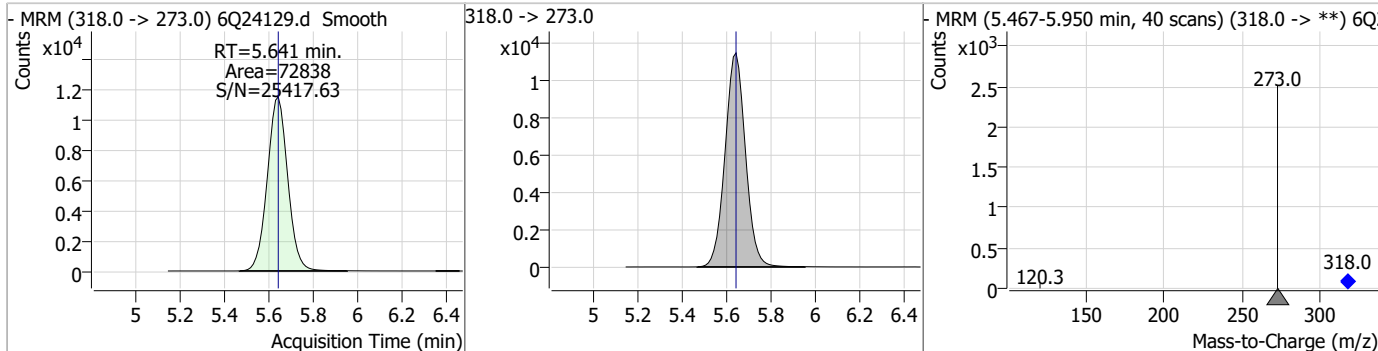
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Perfluorinated Compounds by LC/MS/MS

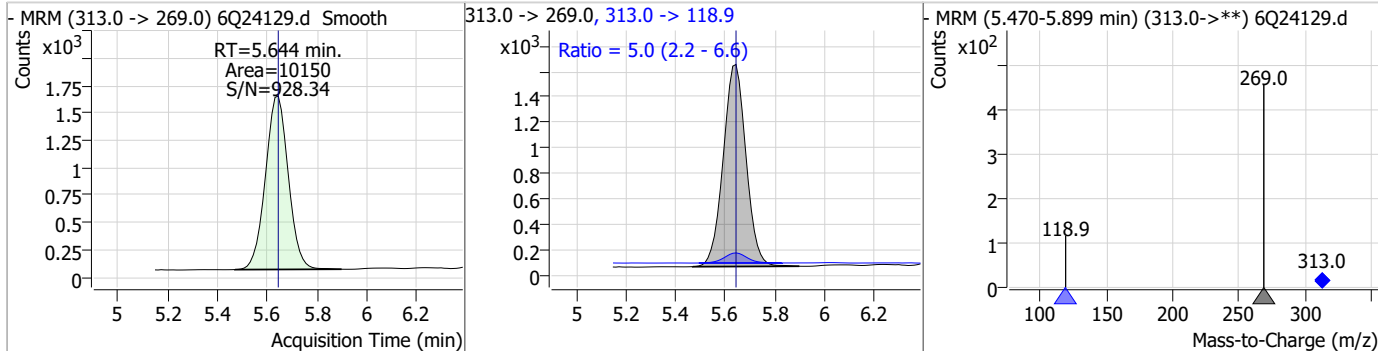
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.36	5.57	0.00	4088	298.7 -> 98.8	36.4	19.0	57.1



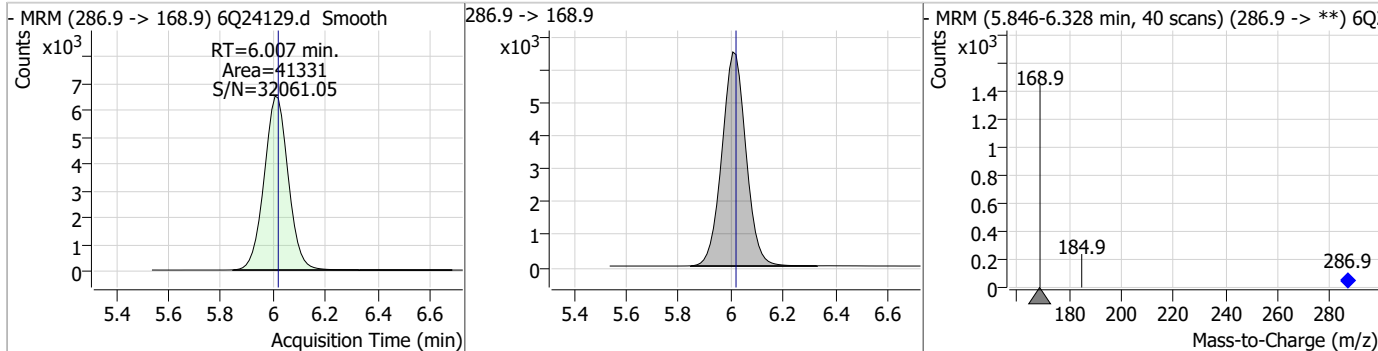
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.48	5.64	0.00	72838				



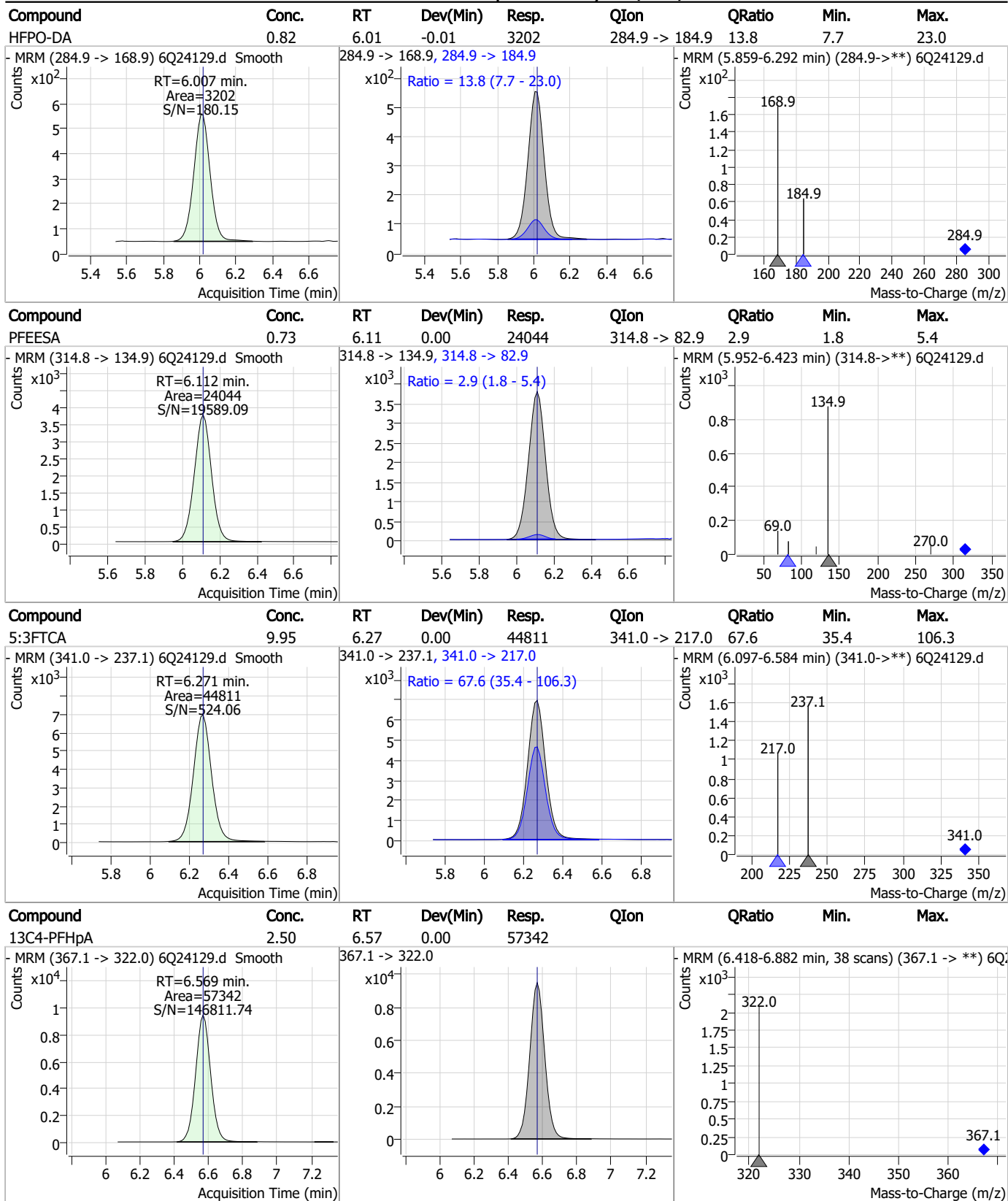
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.38	5.64	0.00	10150	313.0 -> 118.9	5.0	2.2	6.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.17	6.01	-0.01	41331				

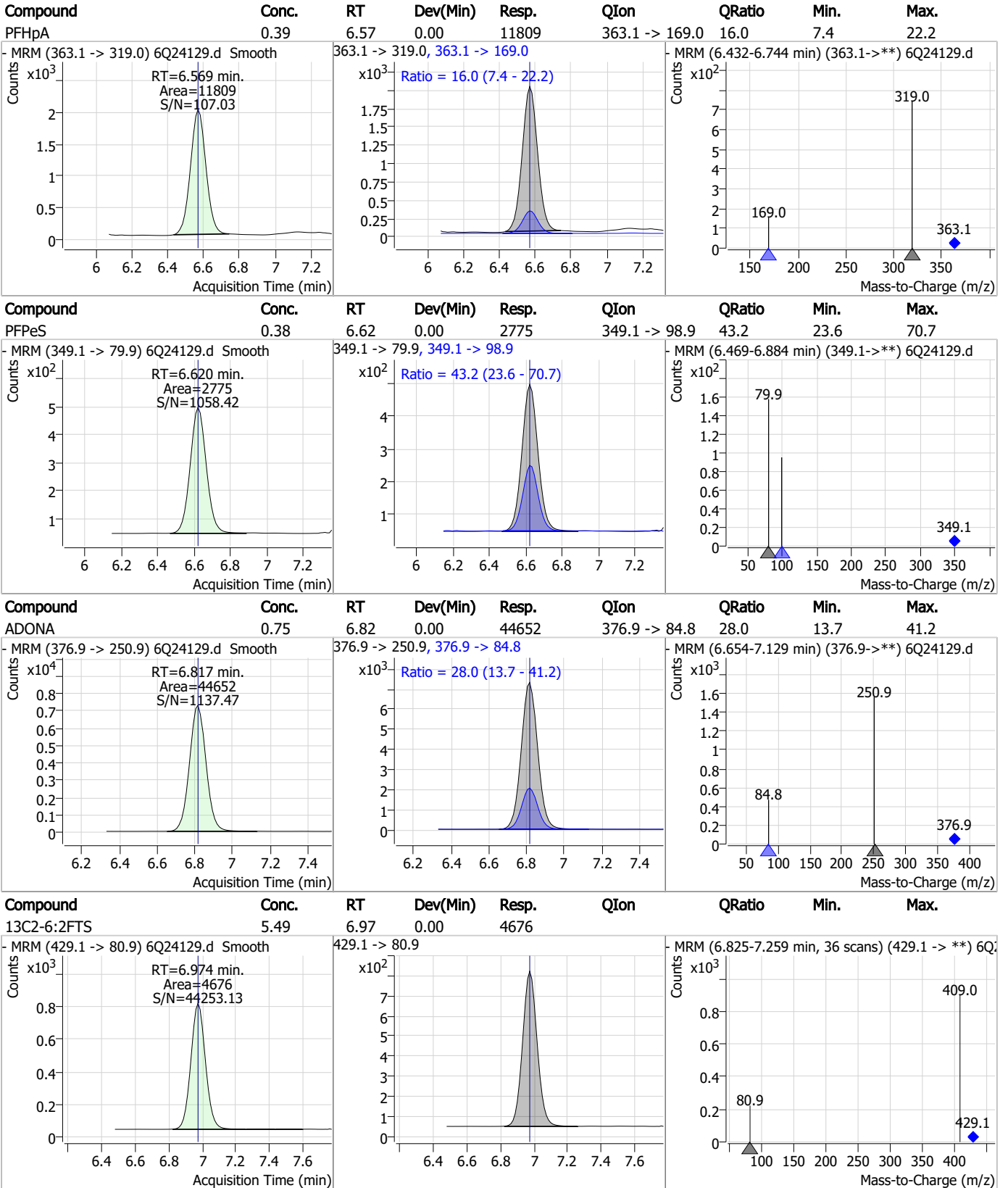


Perfluorinated Compounds by LC/MS/MS



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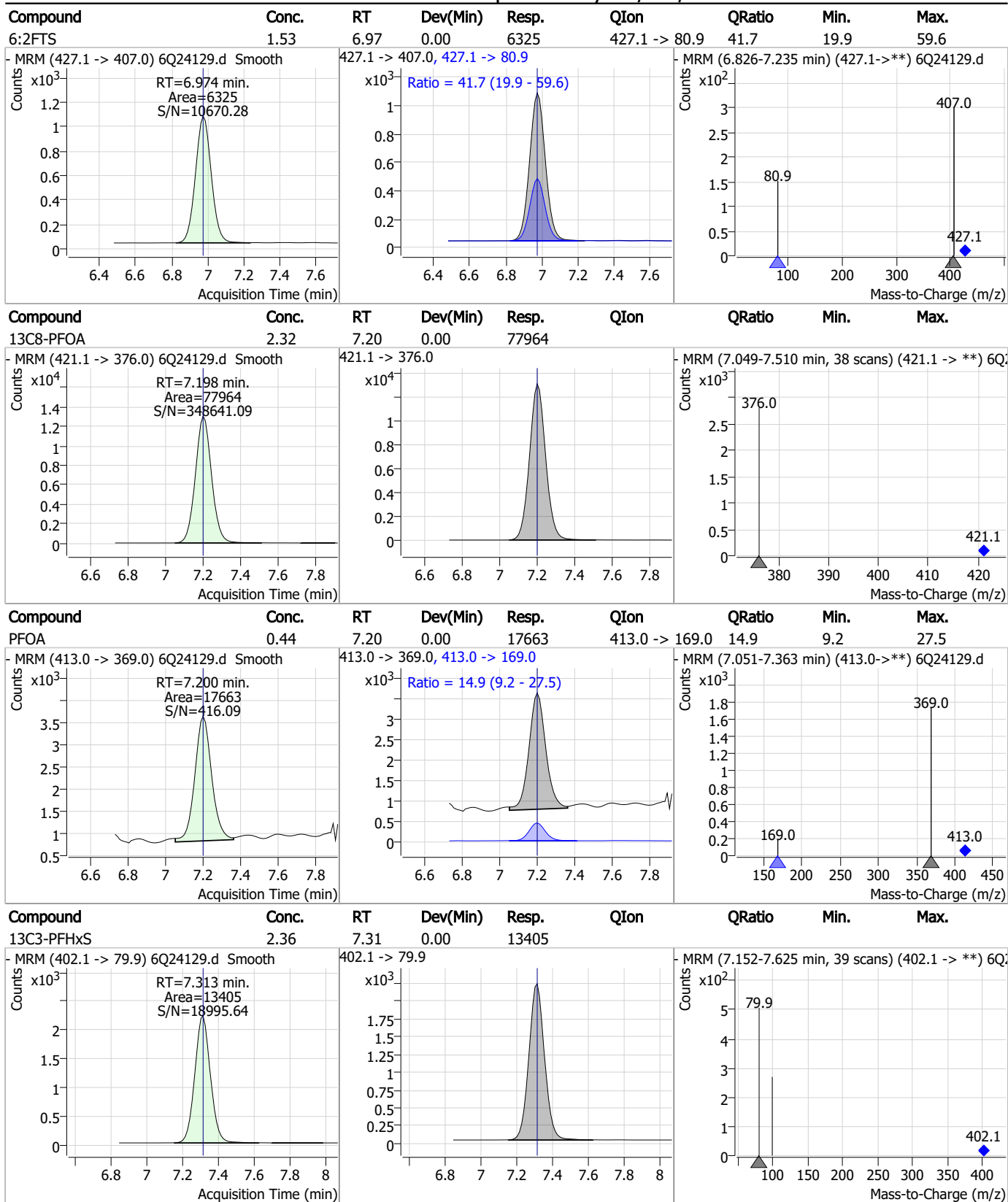
Perfluorinated Compounds by LC/MS/MS



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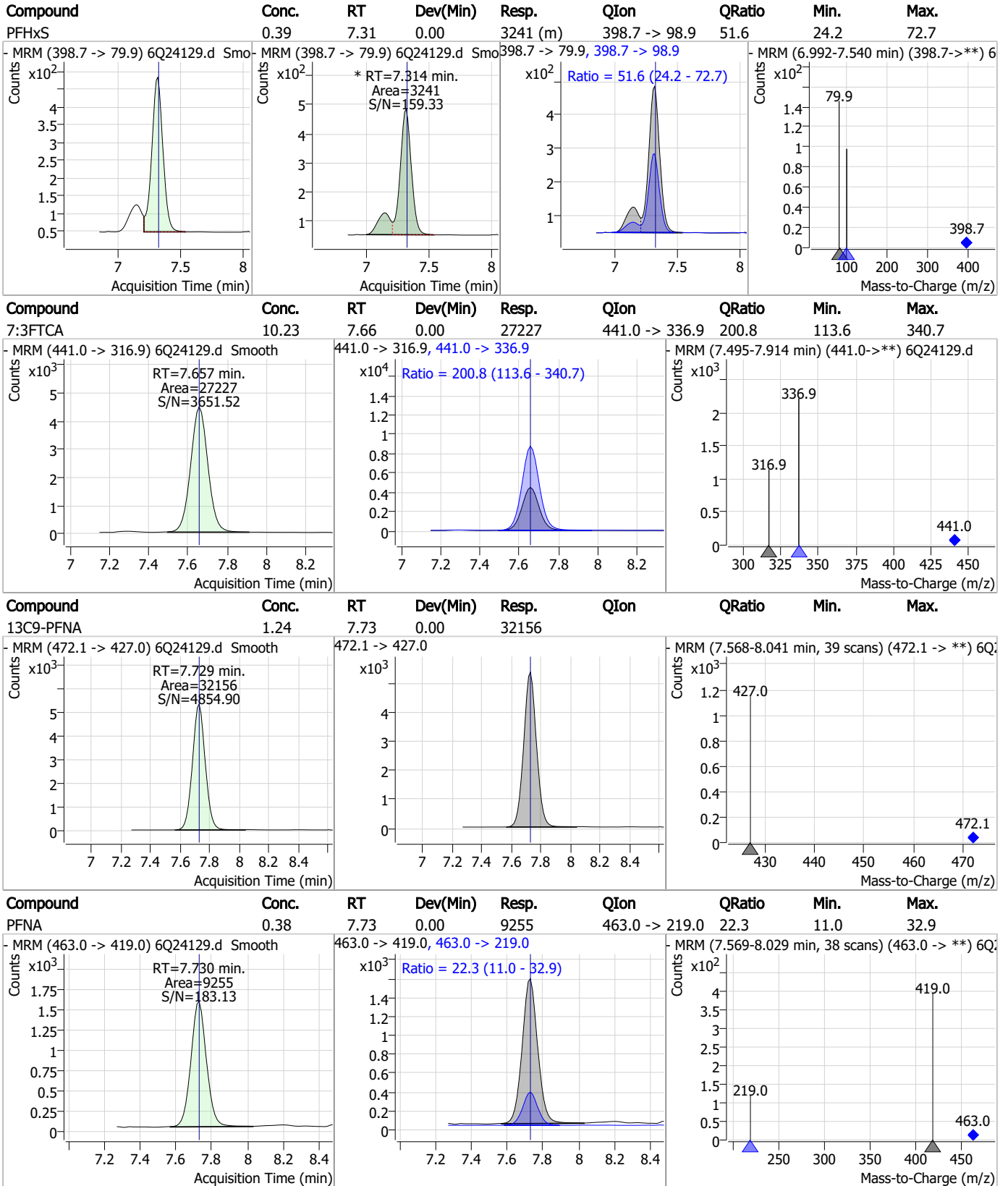


Perfluorinated Compounds by LC/MS/MS



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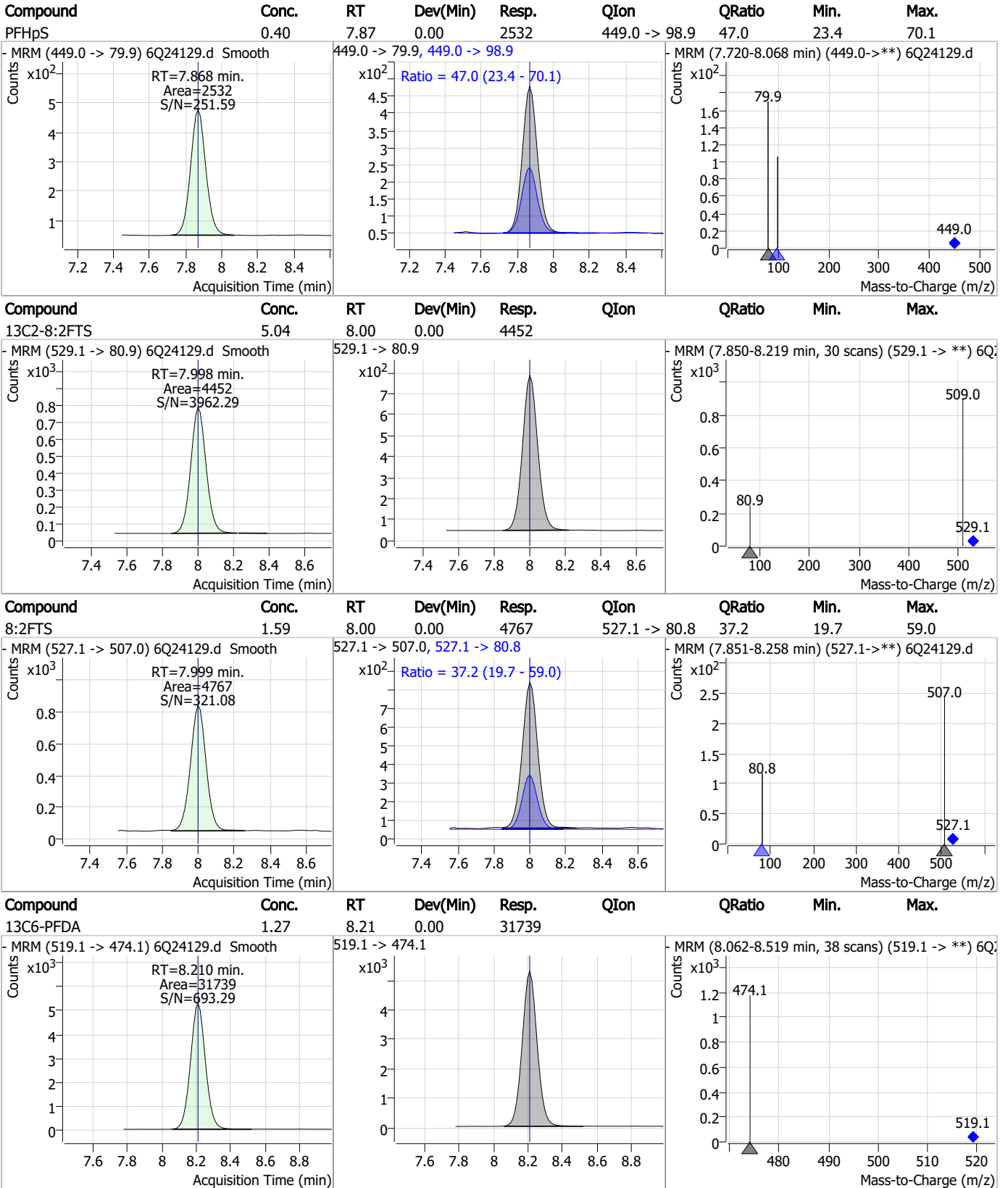
Perfluorinated Compounds by LC/MS/MS



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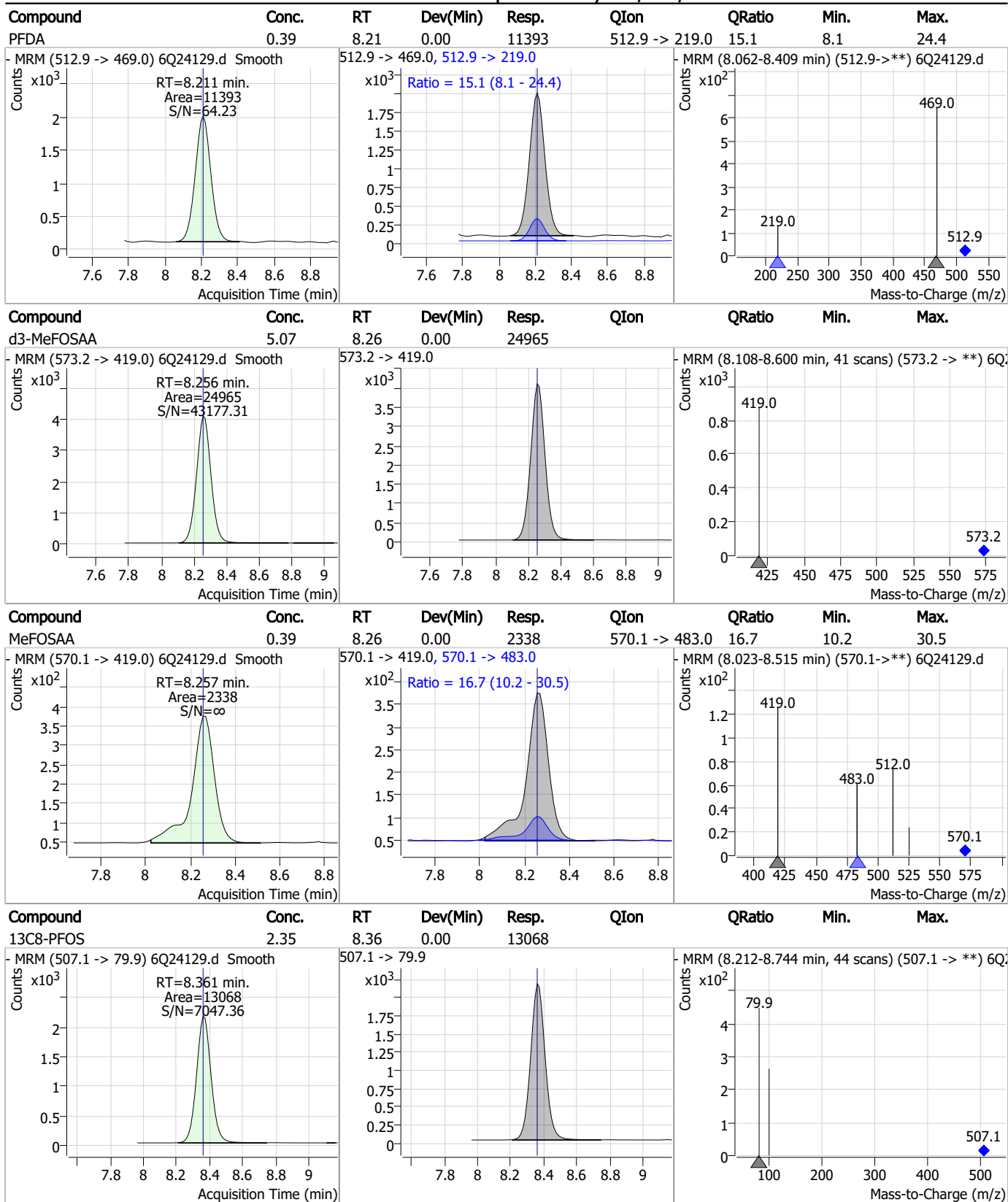
Perfluorinated Compounds by LC/MS/MS



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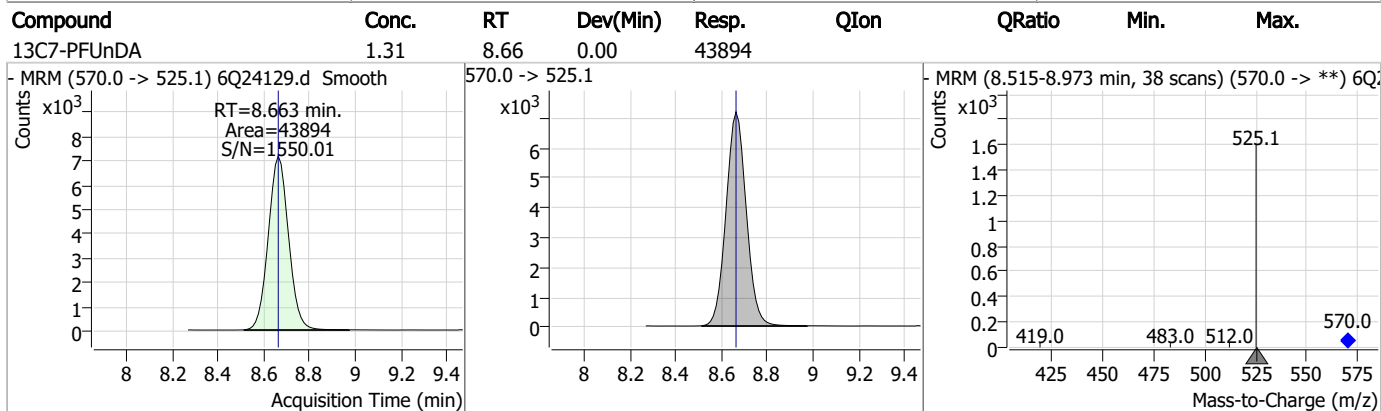
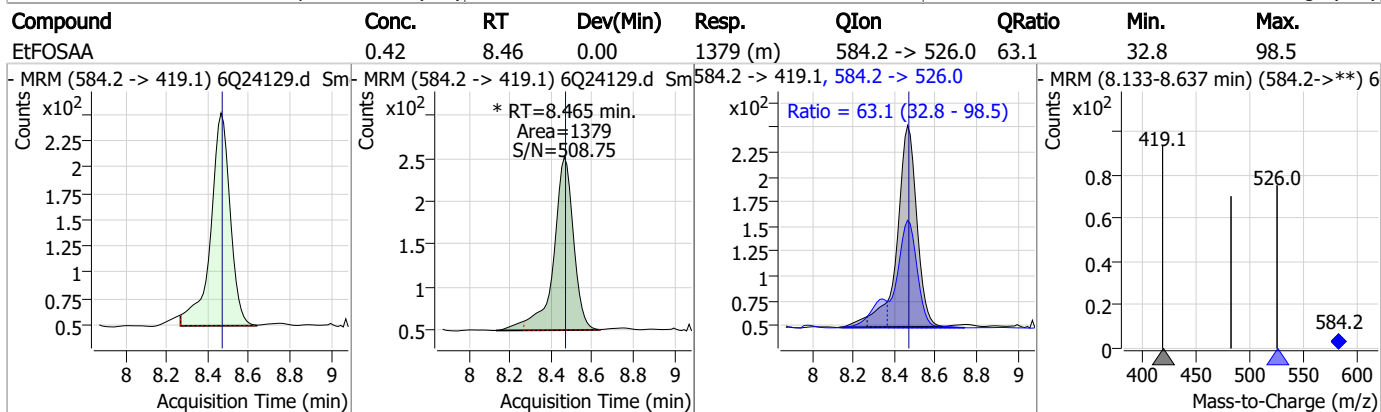
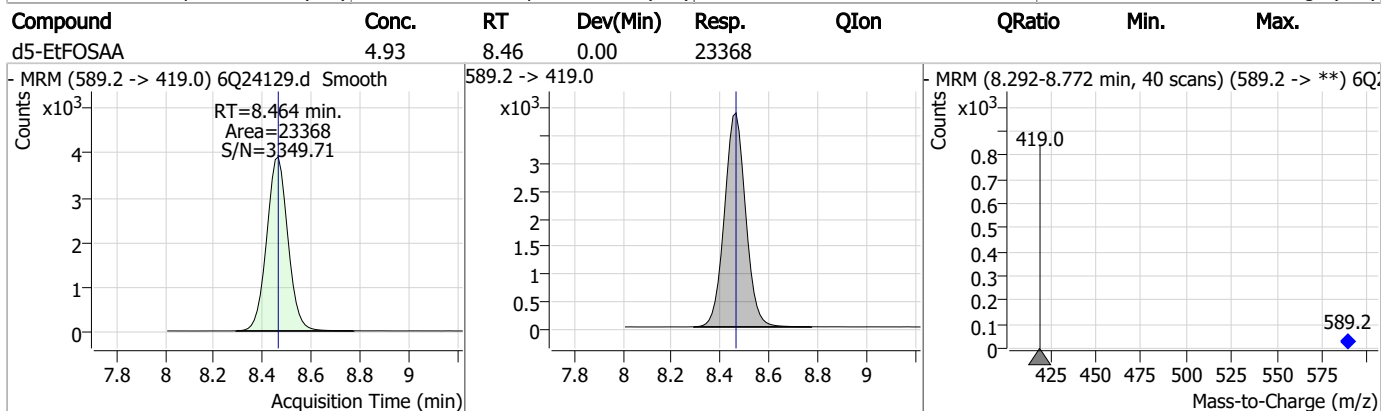
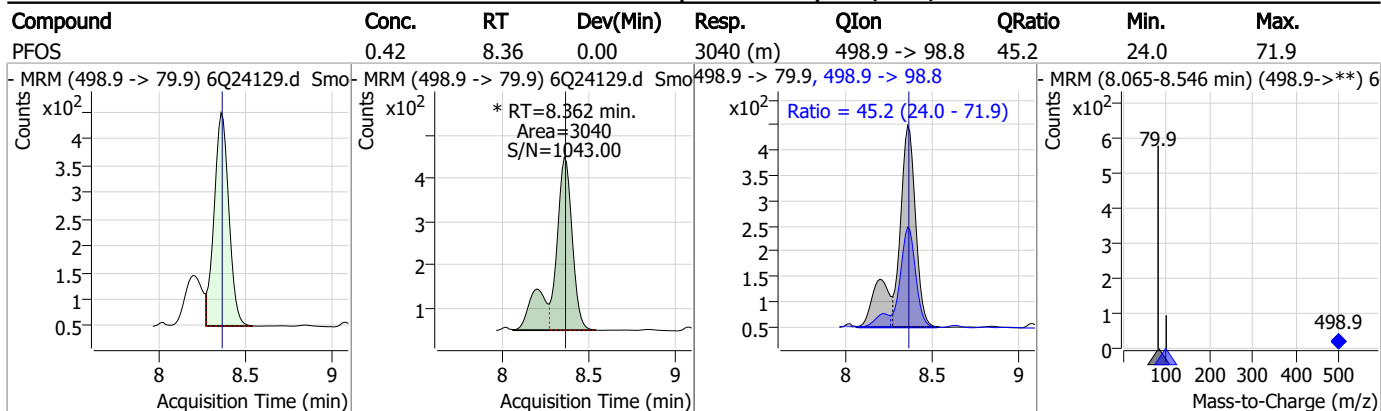
Perfluorinated Compounds by LC/MS/MS



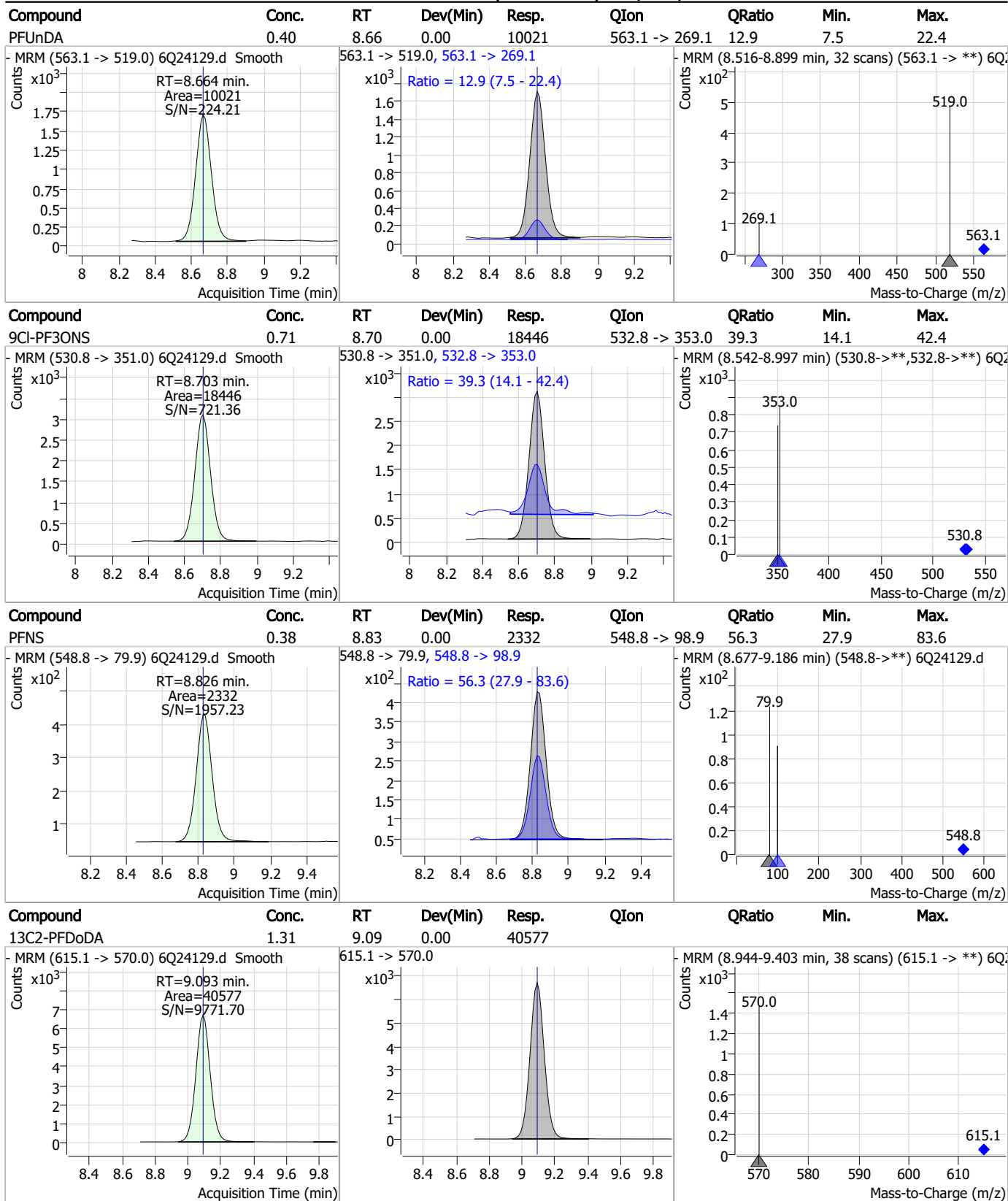
7.7.17



Perfluorinated Compounds by LC/MS/MS

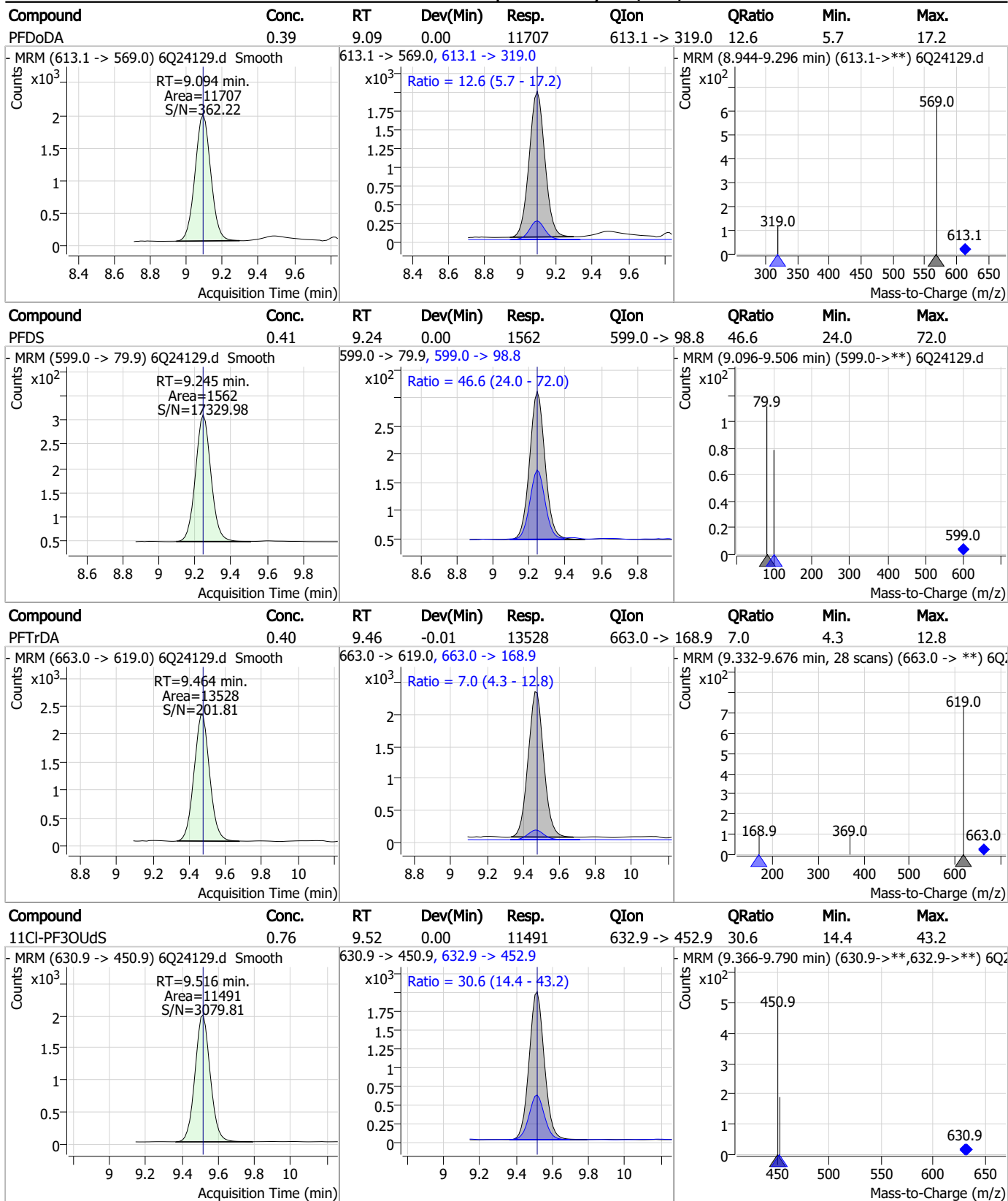


Perfluorinated Compounds by LC/MS/MS



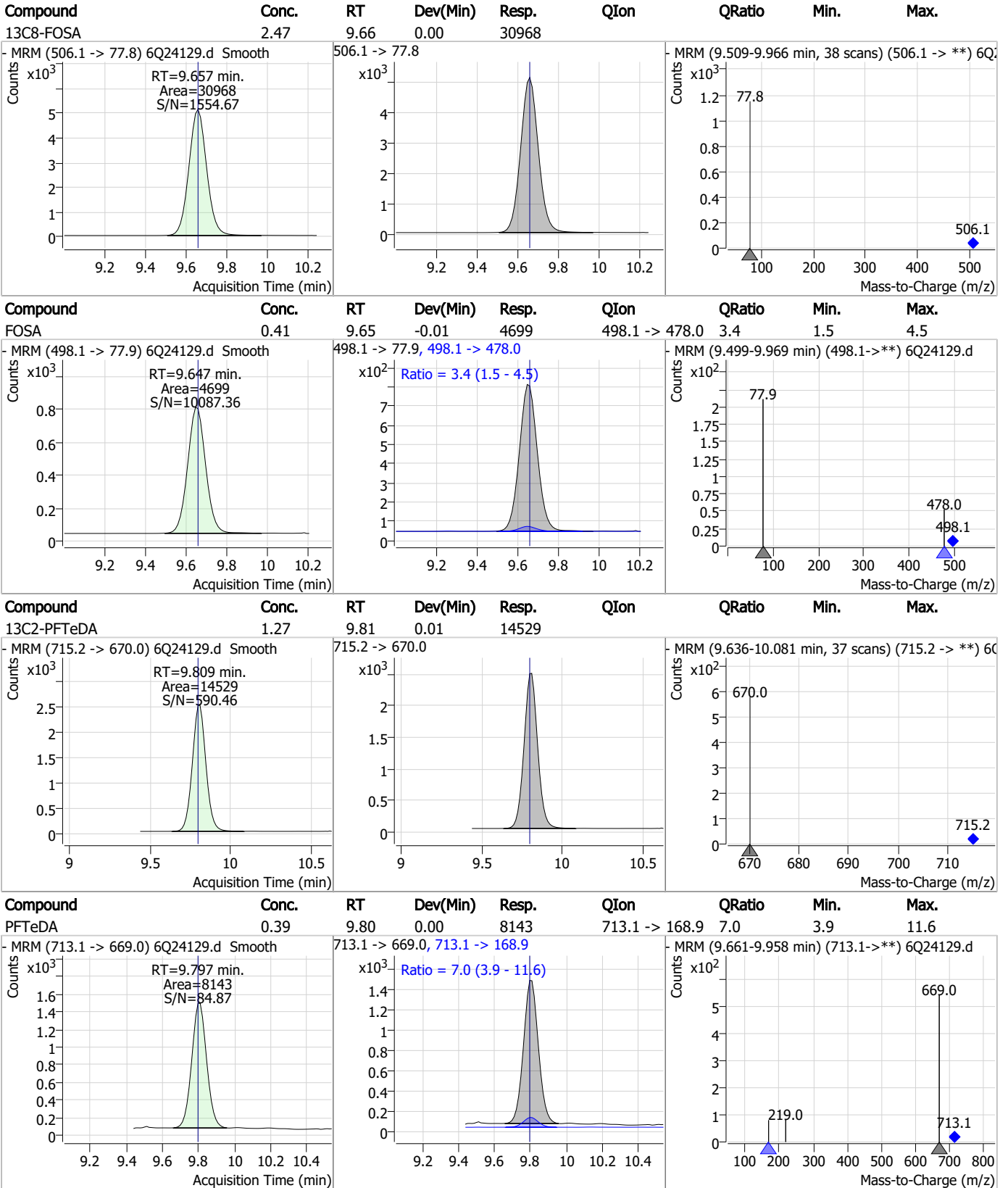
7.7.17

Perfluorinated Compounds by LC/MS/MS



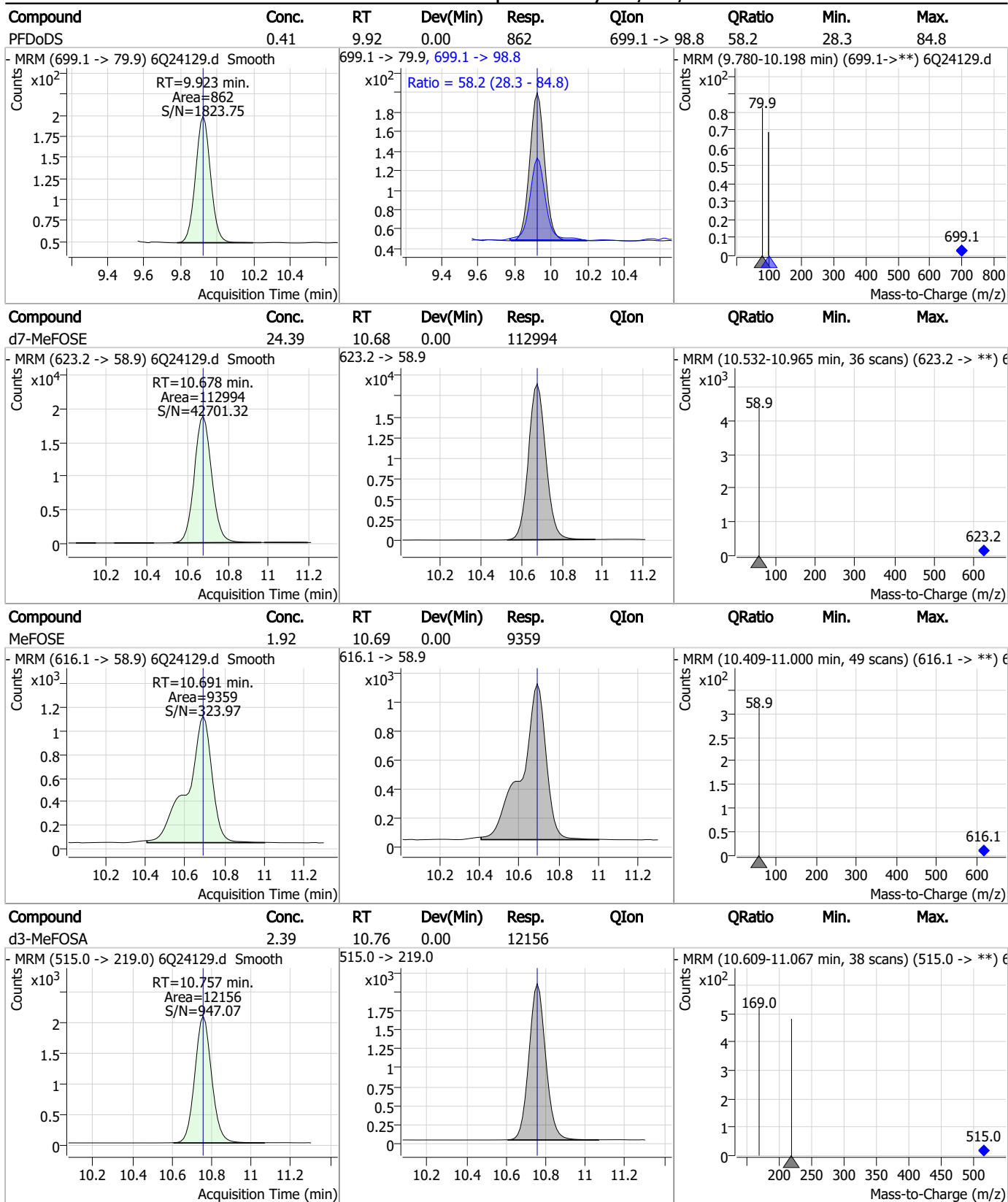
7.7.17

Perfluorinated Compounds by LC/MS/MS



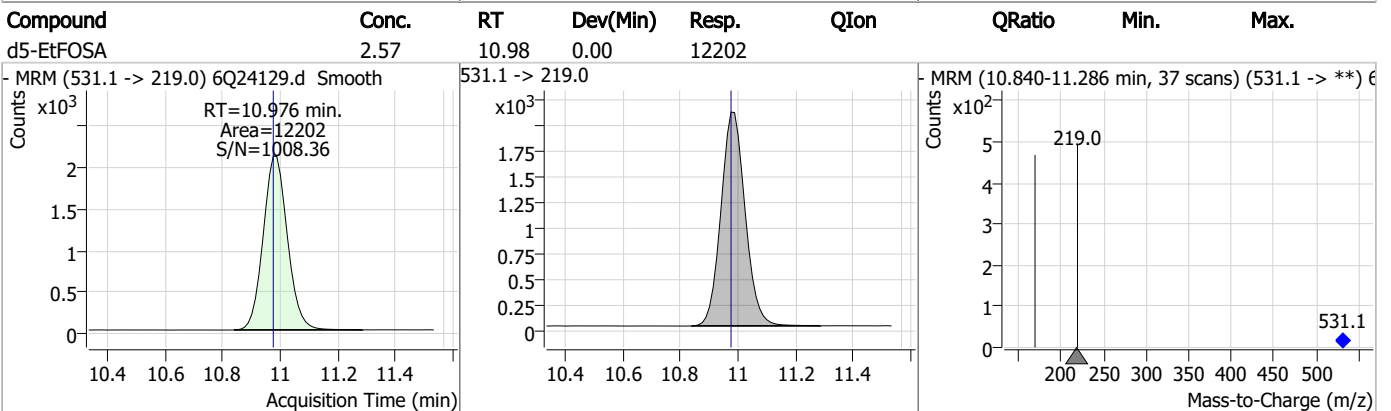
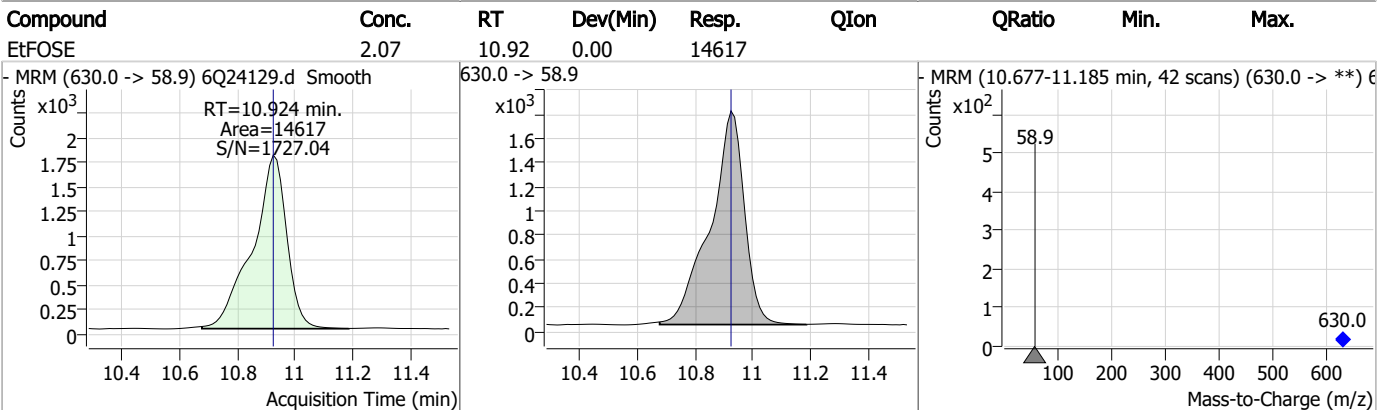
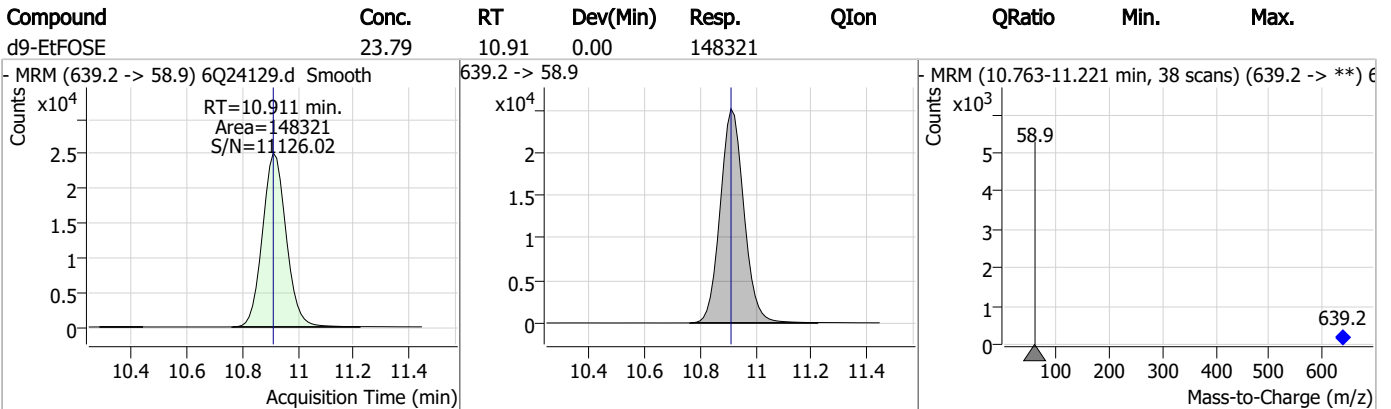
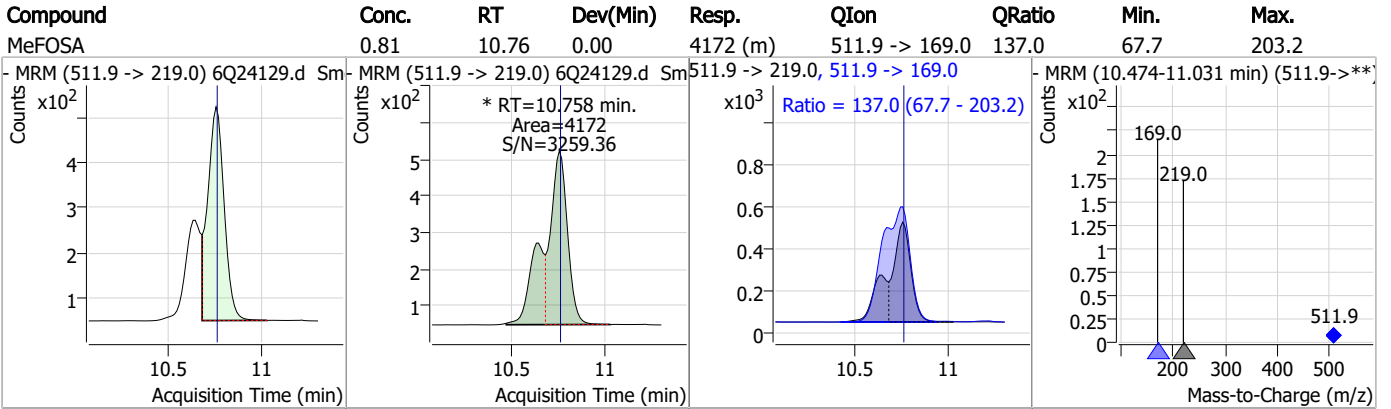
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Perfluorinated Compounds by LC/MS/MS



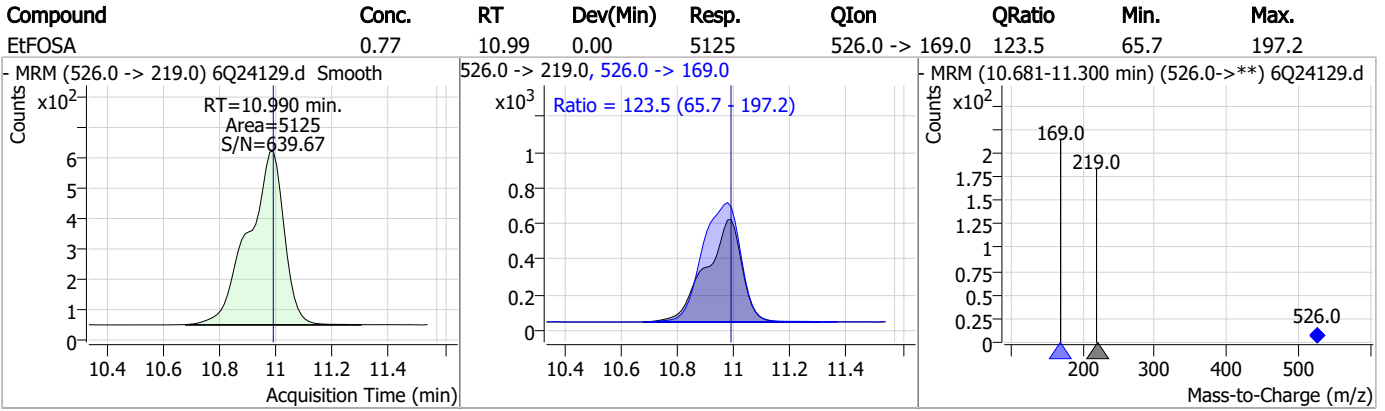
7.7.17

Perfluorinated Compounds by LC/MS/MS



7.7.17

Perfluorinated Compounds by LC/MS/MS



7.7.17
7

Manual Integration Approval Summary

Sample Number: S6Q347-IC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24129.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 21:00 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

7.7.17.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24130.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 9:14:54 PM
 Sample Name : ic347-3
 Vial : P1-A4
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	210847	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	38605	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	78518	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	62493	2.50 µg/L	0.000
M8-PFOA	7.211	421.1 -> 376.0	86000	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	35728	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	34218	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	45496	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	40717	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	15841	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	31766	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	25864	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	15243	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	15484	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3390	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4936	5.00 µg/L	0.000
M2-8:2FTS	8.011	529.1 -> 80.9	4722	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	24060	5.00 µg/L	0.012
M3-HFPO-DA	6.019	286.9 -> 168.9	43093	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	23943	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	119426	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	159109	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	12361	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	12466	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	17951	2.50 µg/L	0.012
13C3-PFBA	2.989	216.0 -> 172.0	82539	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	10970	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	90110	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	31115	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	45638	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	57950	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3390	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.8%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4936	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.0%		
13C2-8:2FTS	8.011	529.1 -> 80.9	4722	5.03 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-PFDoDA	9.093	615.1 -> 570.0	40717	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C2-PFTeDA	9.796	715.2 -> 670.0	15841	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C3-PFBS	5.571	302.1 -> 79.9	25864	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C3-PFHxS	7.313	402.1 -> 79.9	15243	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 = 101.2%	
13C4-PFBA	2.985	216.8 -> 171.9	210847	10.12 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C4-PFHpA	6.569	367.1 -> 322.0	62493	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFHxA	5.641	318.0 -> 273.0	78518	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C5-PFPeA	4.422	268.3 -> 223.0	38605	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C6-PFDA	8.210	519.1 -> 474.1	34218	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C7-PFUnDA	8.663	570.0 -> 525.1	45496	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C8-FOSA	9.657	506.1 -> 77.8	31766	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C8-PFOA	7.211	421.1 -> 376.0	86000	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C8-PFOS	8.361	507.1 -> 79.9	15484	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.5%	
13C9-PFNA	7.729	472.1 -> 427.0	35728	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.2%	
d3-MeFOSAA	8.268	573.2 -> 419.0	24060	4.79 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	43093	9.76 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
d3-MeFOSA	10.757	515.0 -> 219.0	12466	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
d5-EtFOSAA	8.464	589.2 -> 419.0	23943	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d7-MeFOSE	10.678	623.2 -> 58.9	119426	25.30 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
d9-EtFOSE	10.911	639.2 -> 58.9	159109	25.05 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d5-EtFOSA	10.976	531.1 -> 219.0	12361	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	24796	4.42 µg/L	98
		327.1 -> 80.9	9386		
6:2FTS	6.974	427.1 -> 407.0	20530	4.70 µg/L	96
		427.1 -> 80.9	7666		
8:2FTS	7.999	527.1 -> 507.0	16664	5.23 µg/L	91
		527.1 -> 80.8	5619		
EtFOSAA	8.465	584.2 -> 419.1	4346	1.29 µg/L	m 90
		584.2 -> 526.0	2508		
FOSA	9.660	498.1 -> 77.9	14445	1.24 µg/L	99
		498.1 -> 478.0	458		
MeFOSAA	8.269	570.1 -> 419.0	7418	1.30 µg/L	99
		570.1 -> 483.0	1475		
PFBA	2.993	212.8 -> 168.9	32733	4.70 µg/L	100
PFBS	5.572	298.7 -> 79.9	13147	1.04 µg/L	98
		298.7 -> 98.8	4855		
PFDA	8.211	512.9 -> 469.0	37917	1.22 µg/L	99
		512.9 -> 219.0	6085		
PFDODA	9.094	613.1 -> 569.0	34501	1.14 µg/L	94
		613.1 -> 319.0	4719		
PFDS	9.245	599.0 -> 79.9	4587	1.02 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2234			
PFHpA	6.569	363.1 -> 319.0	38992	1.18	µg/L	98
		363.1 -> 169.0	6034			
PFHpS	7.868	449.0 -> 79.9	8164	1.09	µg/L	97
		449.0 -> 98.9	3664			
PFHxA	5.644	313.0 -> 269.0	35338	1.24	µg/L	99
		313.0 -> 118.9	1424			
PFHxS	7.314	398.7 -> 79.9	10807	1.13	µg/L	m 91
		398.7 -> 98.9	4546			
PFNA	7.730	463.0 -> 419.0	30839	1.14	µg/L	93
		463.0 -> 219.0	7781			
PFNS	8.826	548.8 -> 79.9	7867	1.08	µg/L	97
		548.8 -> 98.9	4206			
PFOA	7.212	413.0 -> 369.0	54134	1.22	µg/L	95
		413.0 -> 169.0	8823			
PFOS	8.374	498.9 -> 79.9	8989	1.05	µg/L	m 95
		498.9 -> 98.8	4013			
PFPeA	4.424	263.0 -> 219.0	41423	2.41	µg/L	100
PFPeS	6.633	349.1 -> 79.9	8746	1.05	µg/L	98
		349.1 -> 98.9	4262			
PFTeDA	9.797	713.1 -> 669.0	26490	1.16	µg/L	100
		713.1 -> 168.9	2019			
PFTrDA	9.464	663.0 -> 619.0	43038	1.25	µg/L	100
		663.0 -> 168.9	3698			
PFUnDA	8.664	563.1 -> 519.0	32476	1.25	µg/L	98
		563.1 -> 269.1	4563			
11CI-PF3OUdS	9.516	630.9 -> 450.9	36653	2.33	µg/L	93
		632.9 -> 452.9	11898			
9CI-PF3ONS	8.703	530.8 -> 351.0	60202	2.23	µg/L	92
		532.8 -> 353.0	19669			
ADONA	6.817	376.9 -> 250.9	145989	2.34	µg/L	97
		376.9 -> 84.8	37493			
HFPO-DA	6.020	284.9 -> 168.9	9936	2.44	µg/L	97
		284.9 -> 184.9	1412			
3:3FTCA	3.858	241.0 -> 177.0	6850	5.68	µg/L	99
		241.0 -> 117.0	628			
5:3FTCA	6.271	341.0 -> 237.1	147003	30.28	µg/L	98
		341.0 -> 217.0	101346			
7:3FTCA	7.657	441.0 -> 316.9	86477	30.14	µg/L	90
		441.0 -> 336.9	181583			
EtFOSA	10.978	526.0 -> 219.0	15937	2.37	µg/L	96
		526.0 -> 169.0	20251			
EtFOSE	10.924	630.0 -> 58.9	47560	6.29	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	13418	2.54	µg/L	m 98
		511.9 -> 169.0	18460			
MeFOSE	10.691	616.1 -> 58.9	31854	6.17	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	2805	1.13	µg/L	89
		699.1 -> 98.8	1352			
NFDHA	5.524	295.0 -> 201.0	8068	2.44	µg/L	94
		295.0 -> 84.9	2132			
PFMBA	4.850	279.0 -> 85.1	30048	2.40	µg/L	100
PFMPA	3.551	229.0 -> 84.9	21315	2.37	µg/L	100
PFEESA	6.112	314.8 -> 134.9	76933	2.15	µg/L	100
		314.8 -> 82.9	2820			

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

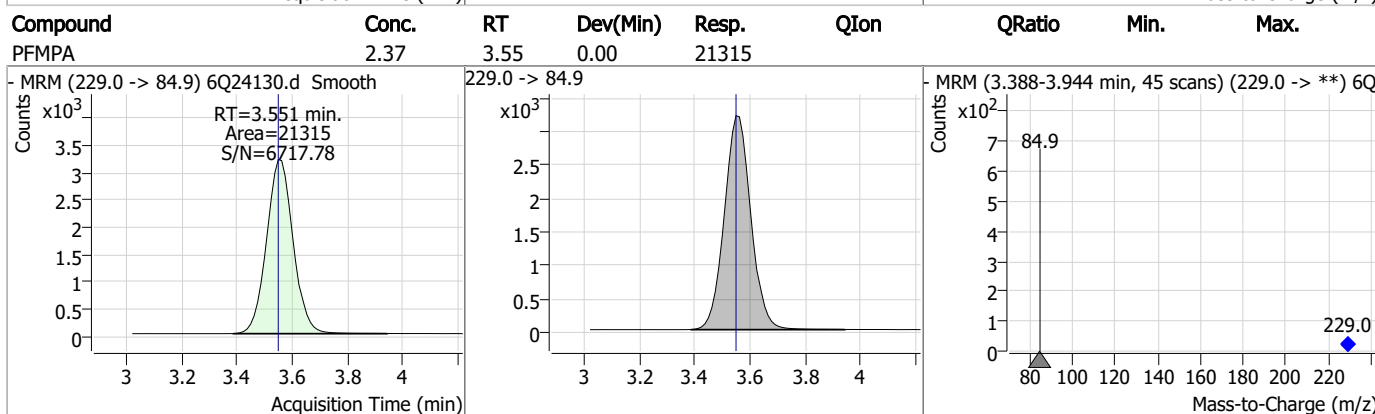
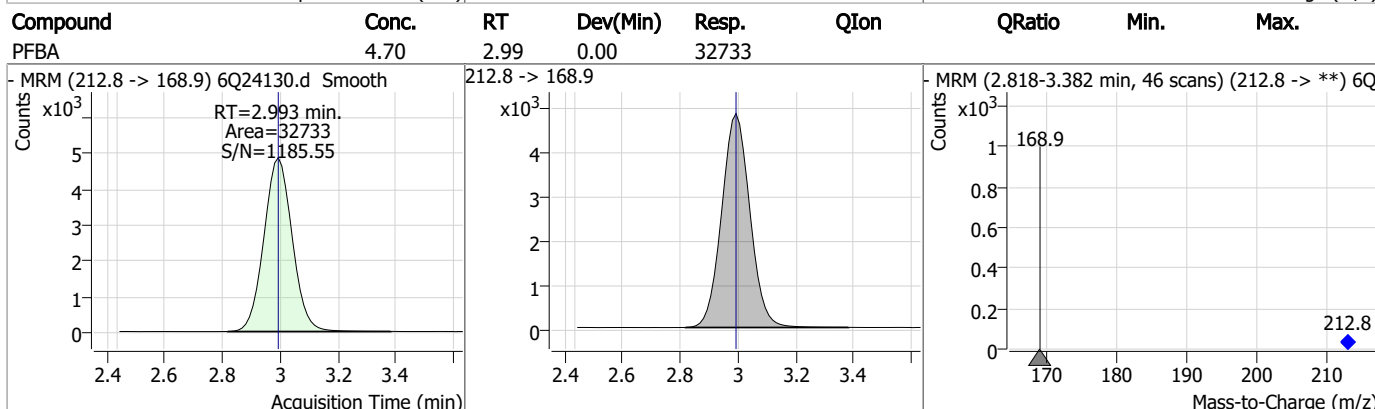
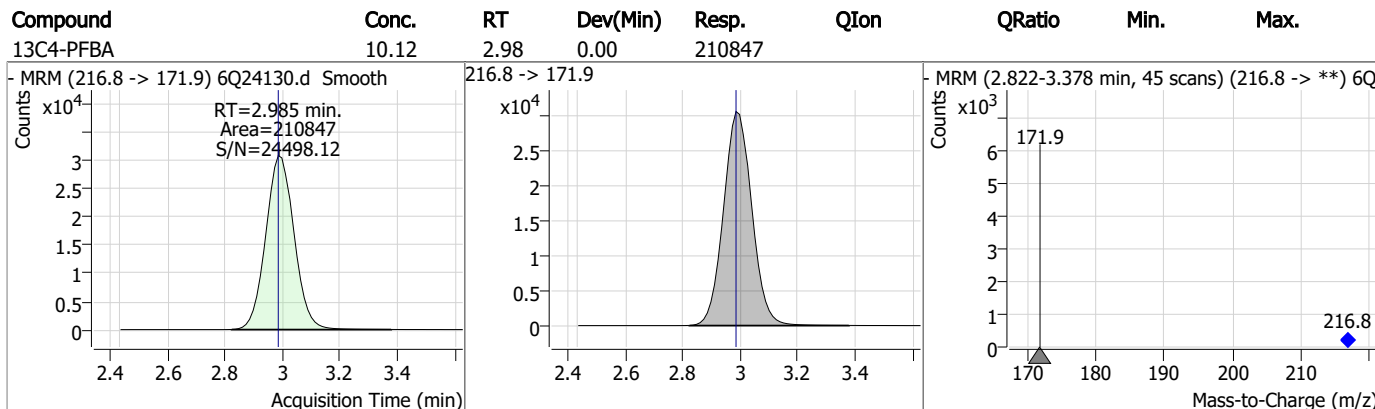
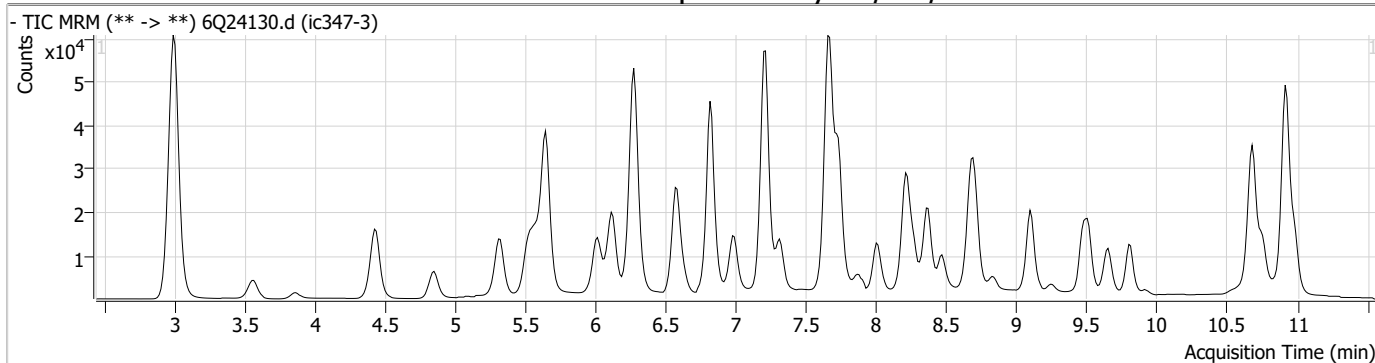
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.18

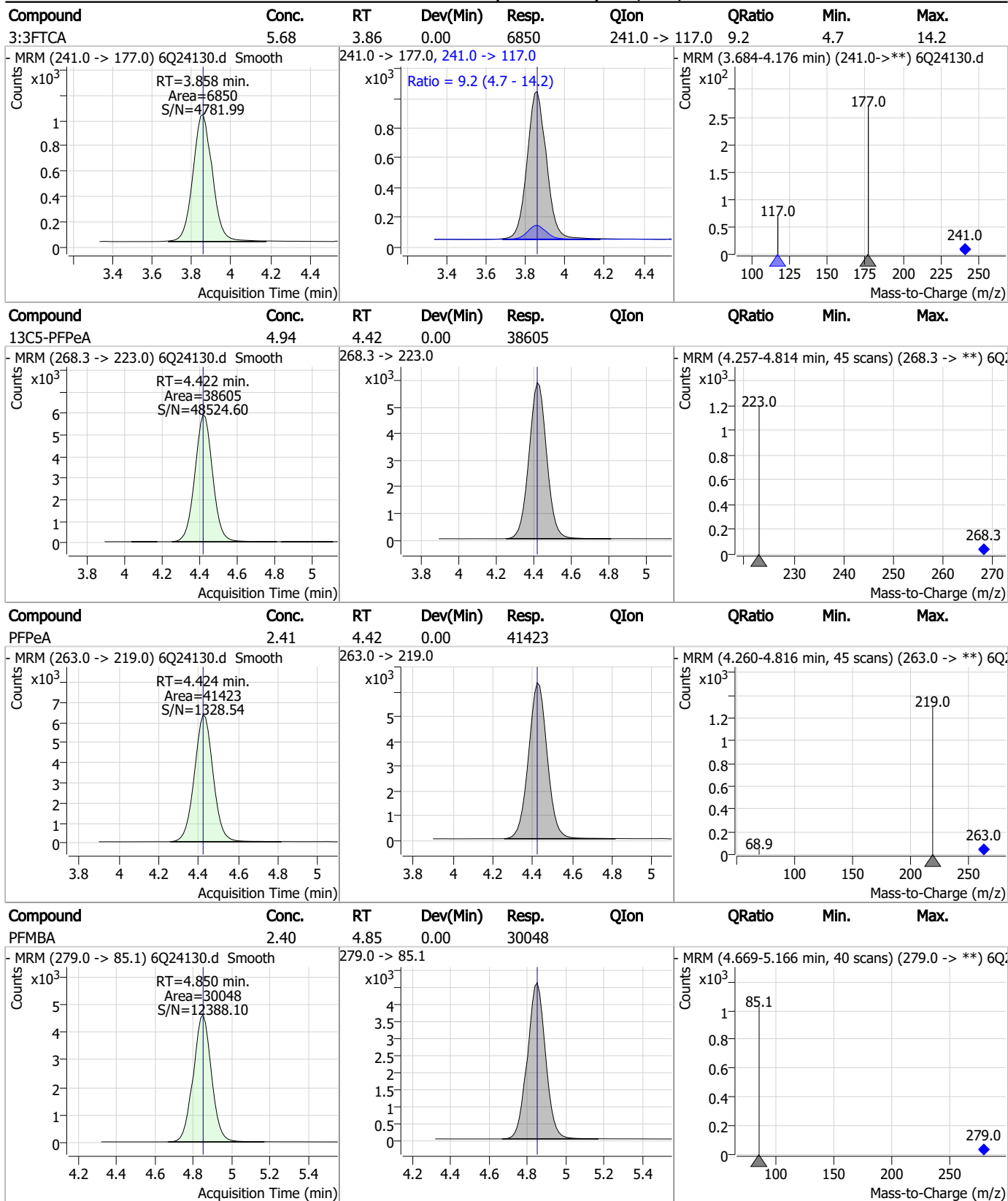
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Perfluorinated Compounds by LC/MS/MS



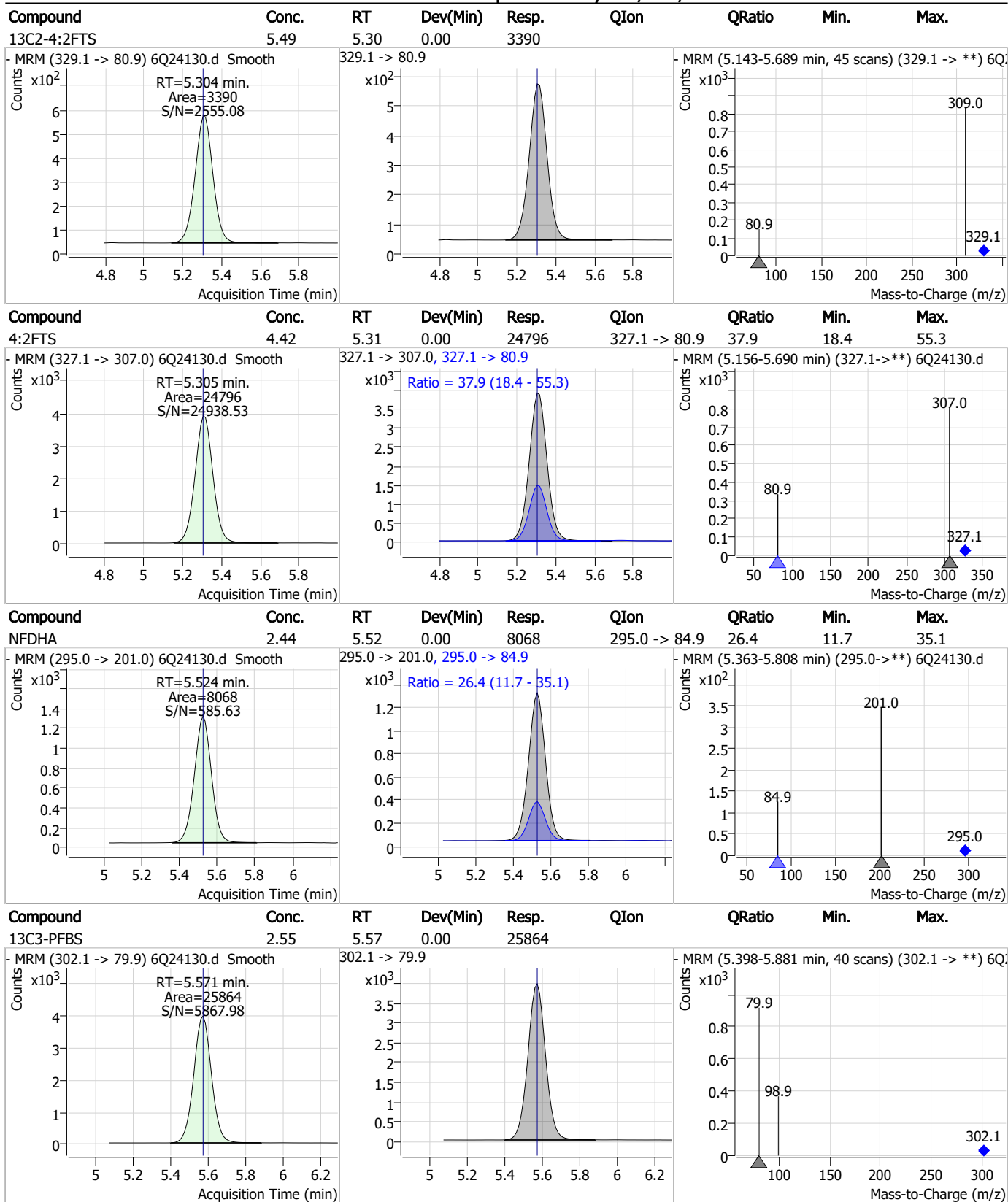
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Perfluorinated Compounds by LC/MS/MS



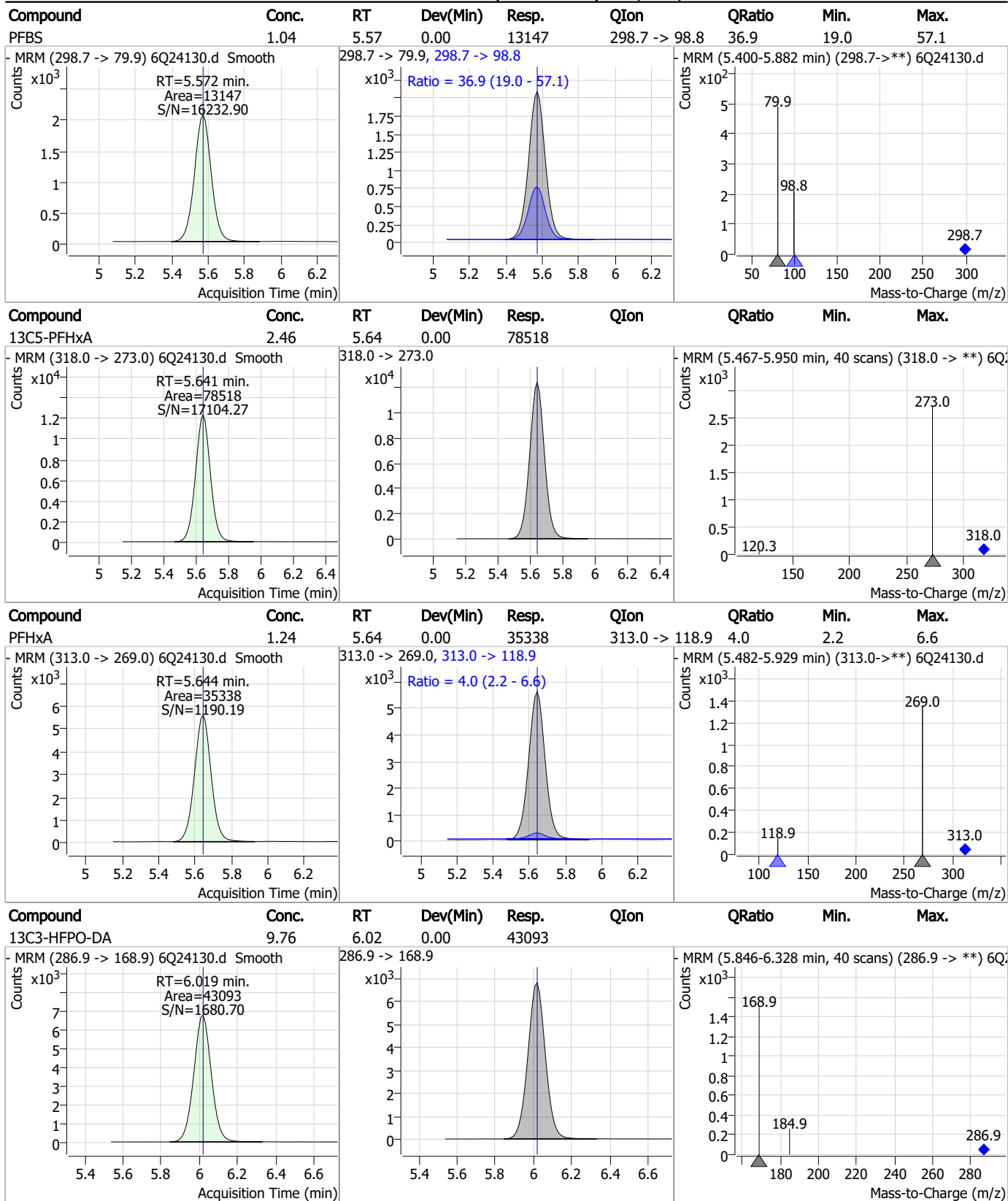
7.7.18

Perfluorinated Compounds by LC/MS/MS



7.7.18 7

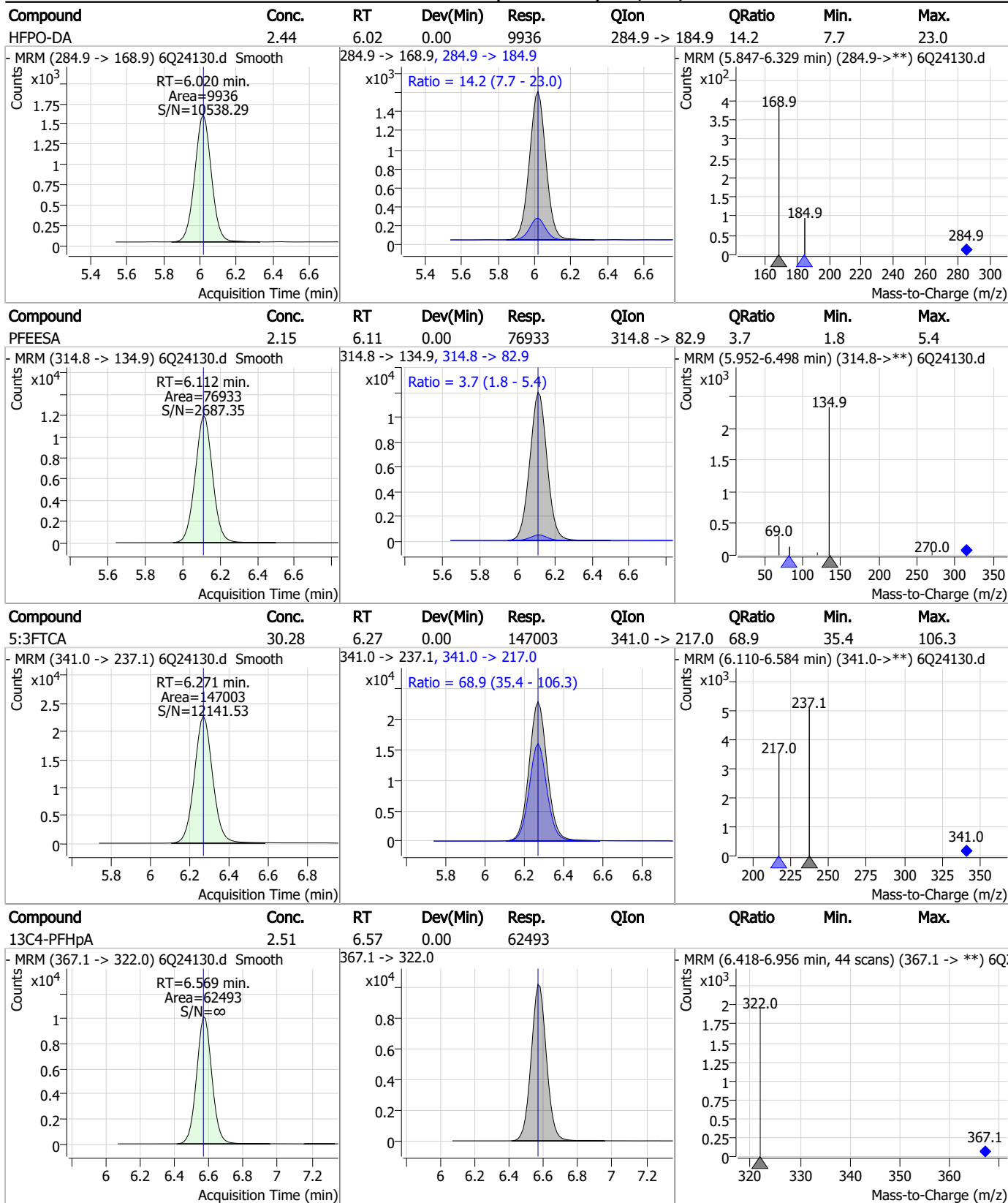
Perfluorinated Compounds by LC/MS/MS



7.7.18

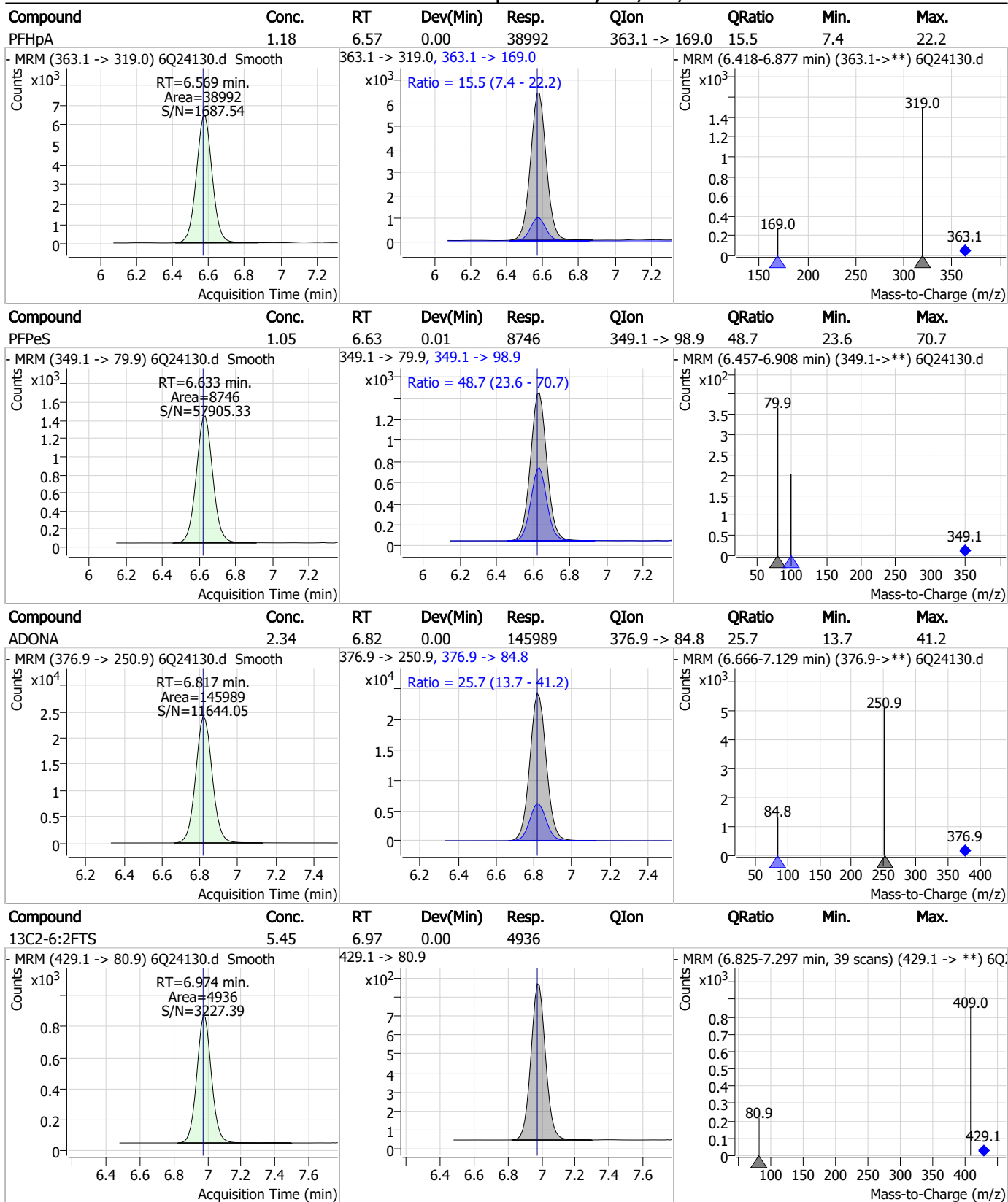
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Perfluorinated Compounds by LC/MS/MS



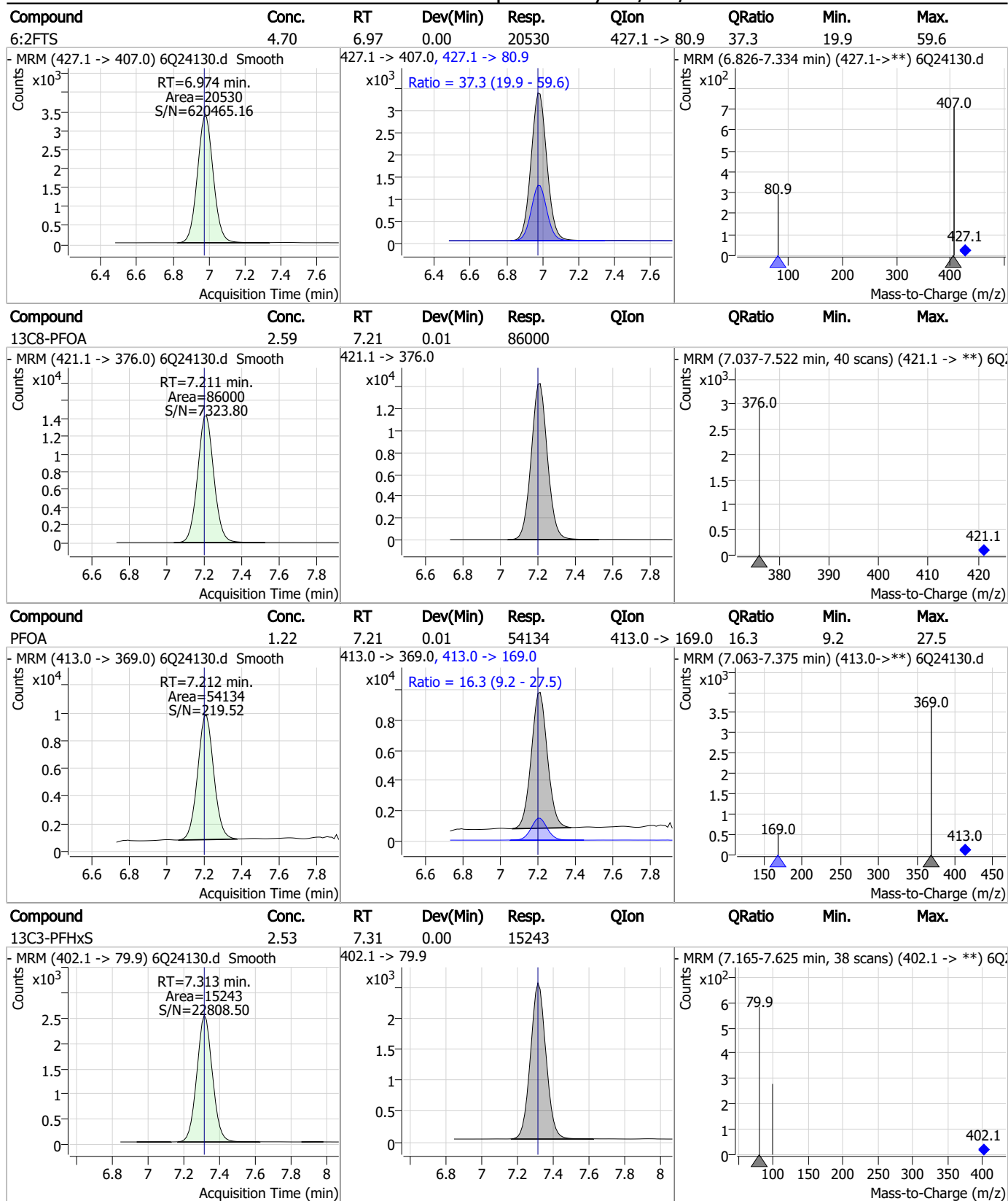
7.7.18

Perfluorinated Compounds by LC/MS/MS



7.7.18 7

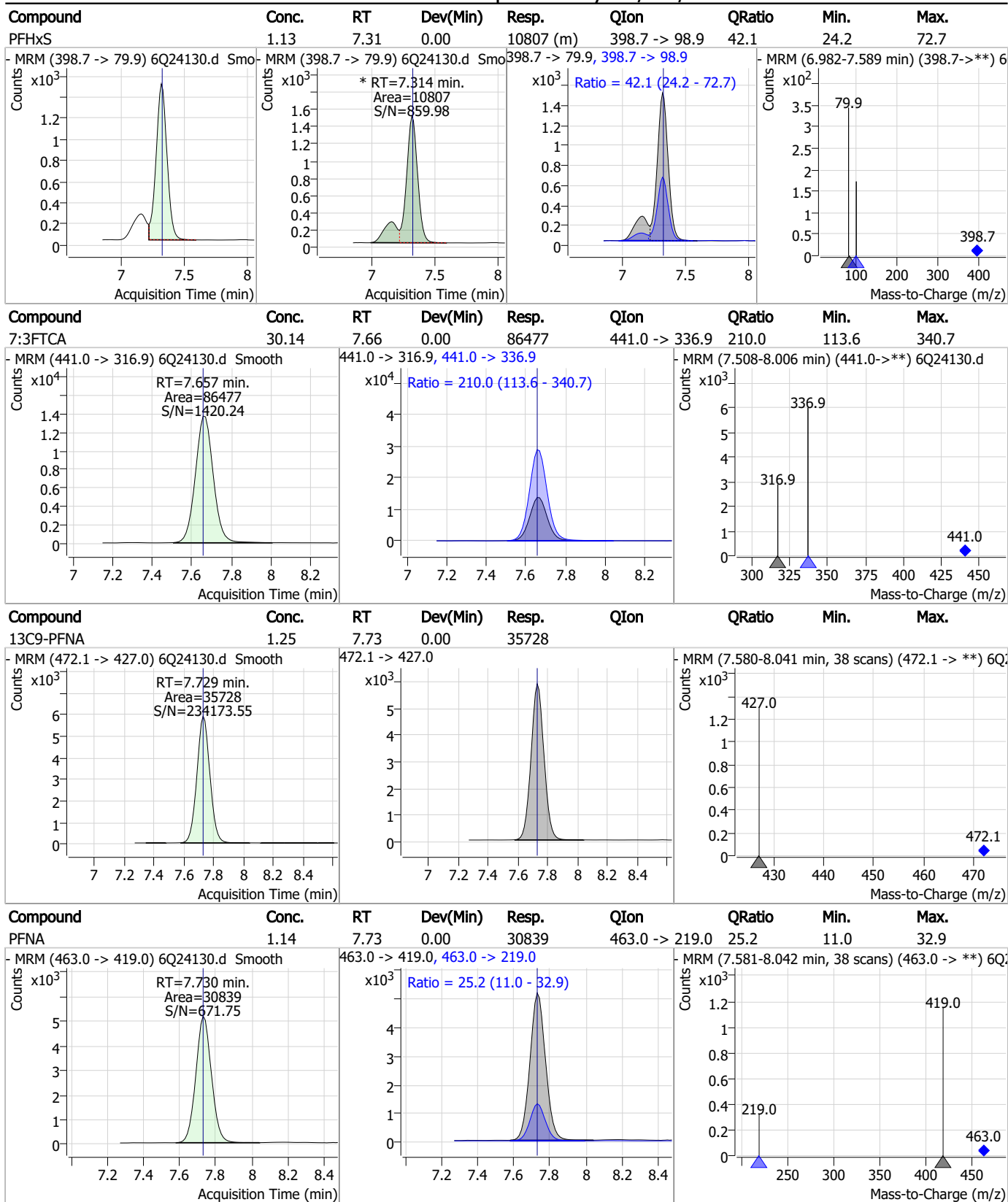
Perfluorinated Compounds by LC/MS/MS



7.7.18

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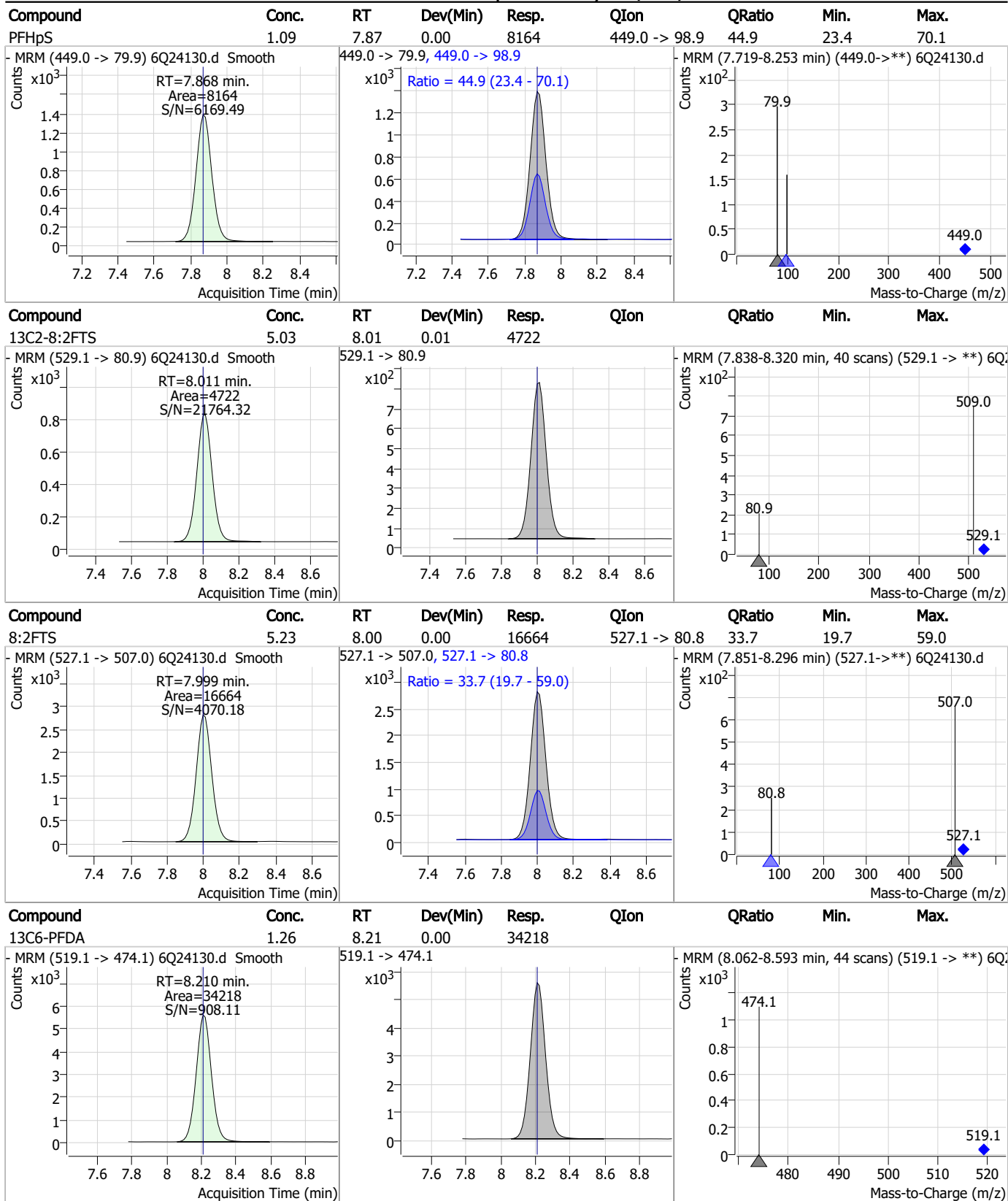
Perfluorinated Compounds by LC/MS/MS



7.7.18

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Perfluorinated Compounds by LC/MS/MS



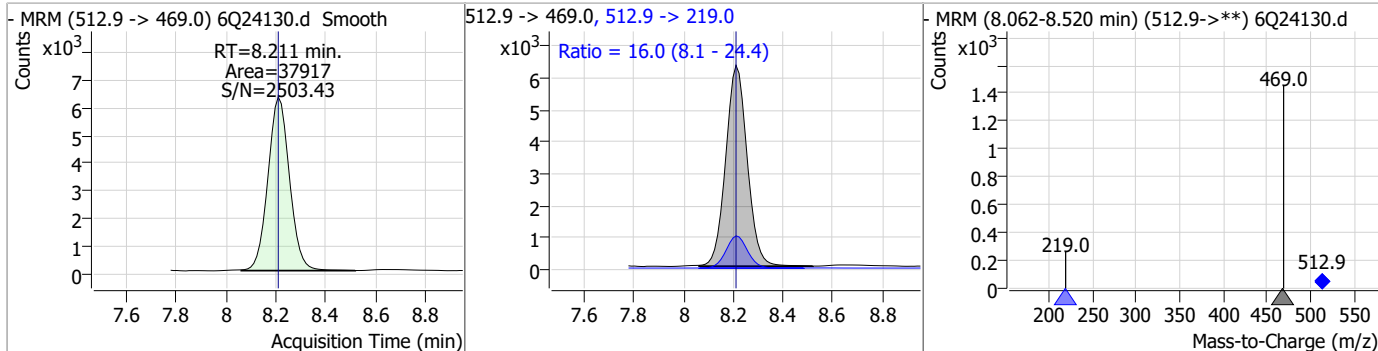
7.7.18

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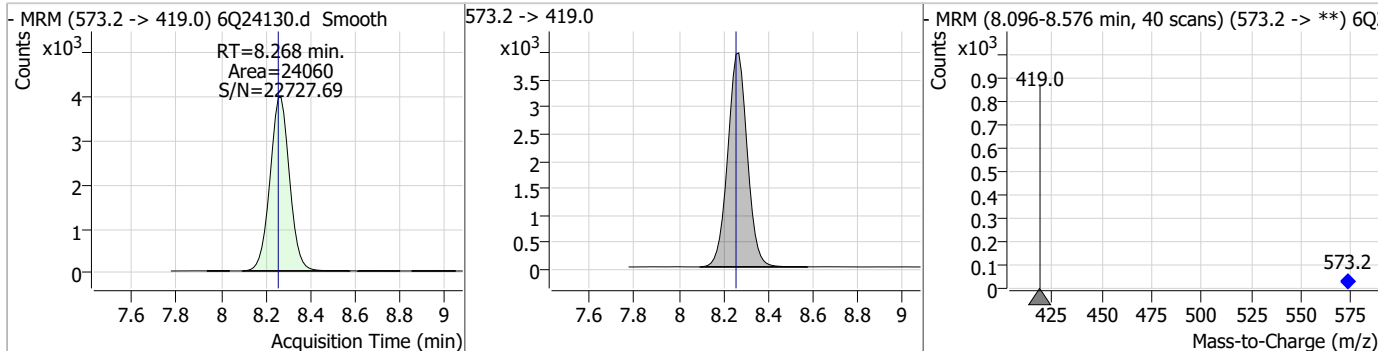


Perfluorinated Compounds by LC/MS/MS

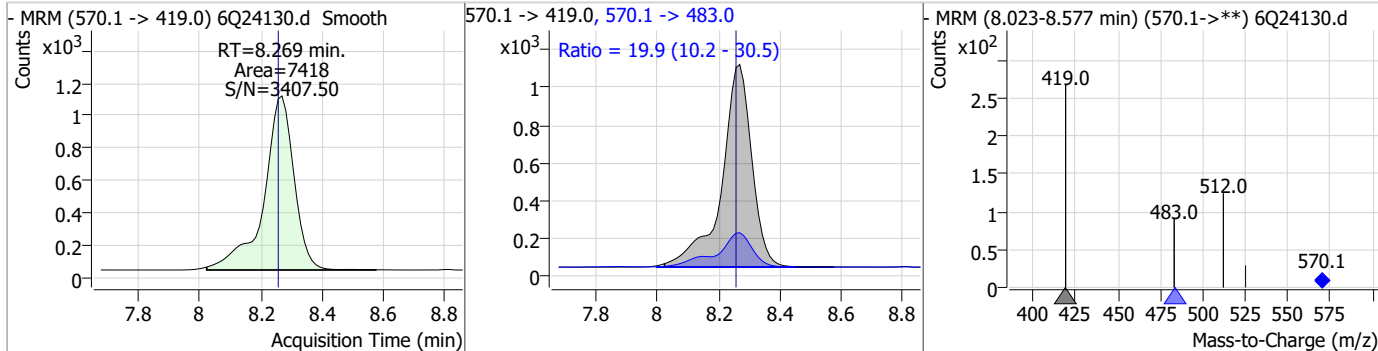
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.22	8.21	0.00	37917	512.9 -> 219.0	16.0	8.1	24.4



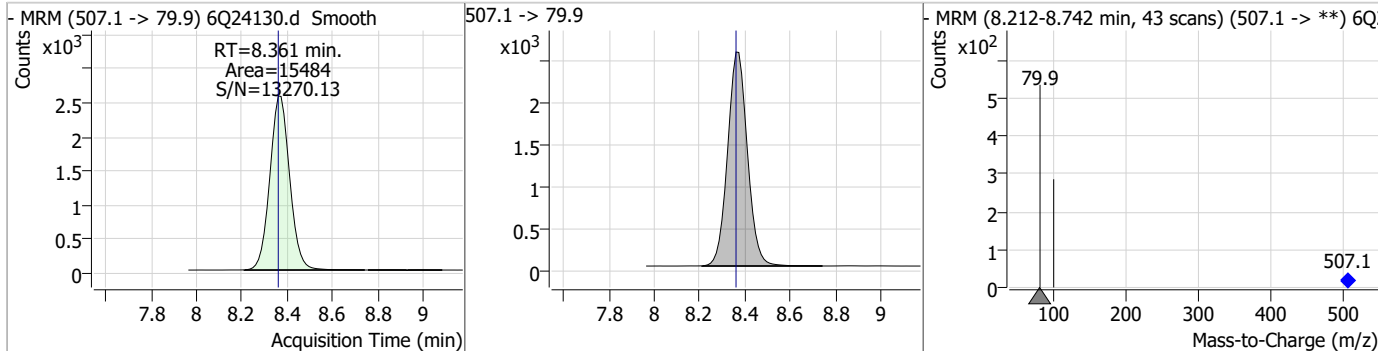
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.79	8.27	0.01	24060				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.30	8.27	0.01	7418	570.1 -> 483.0	19.9	10.2	30.5



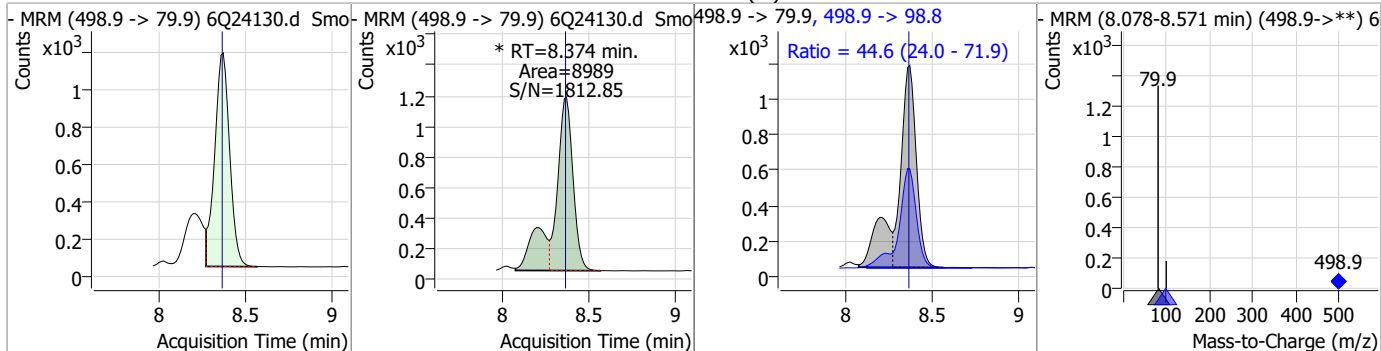
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.74	8.36	0.00	15484				



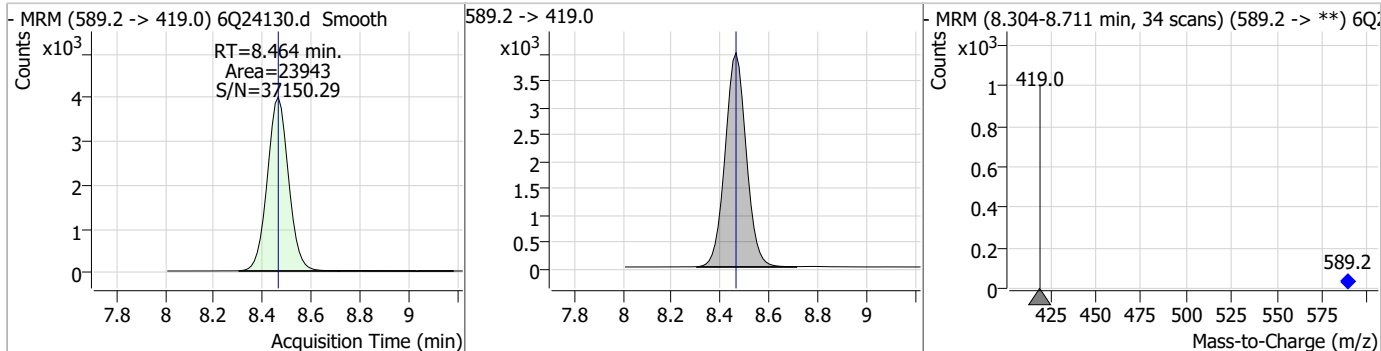
7.7.18
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Perfluorinated Compounds by LC/MS/MS

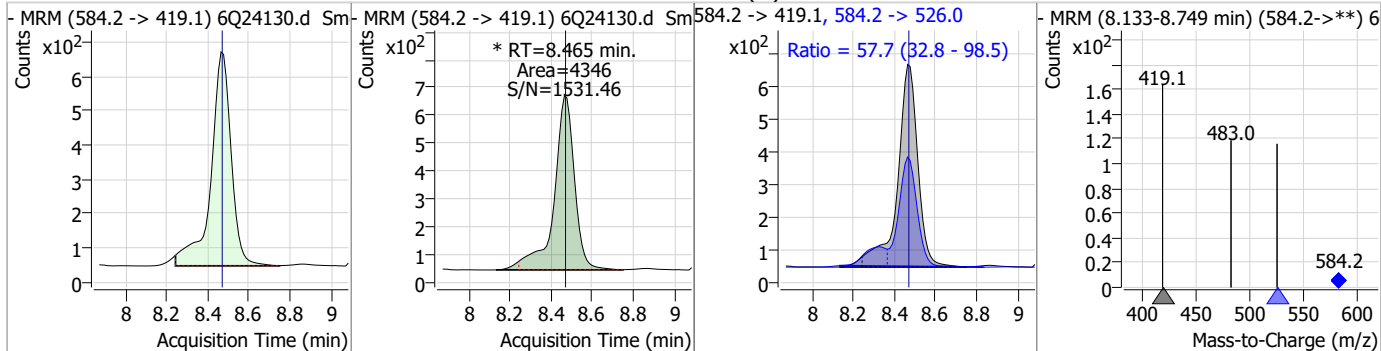
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.05	8.37	0.01	8989 (m)	498.9 -> 98.8	44.6	24.0	71.9



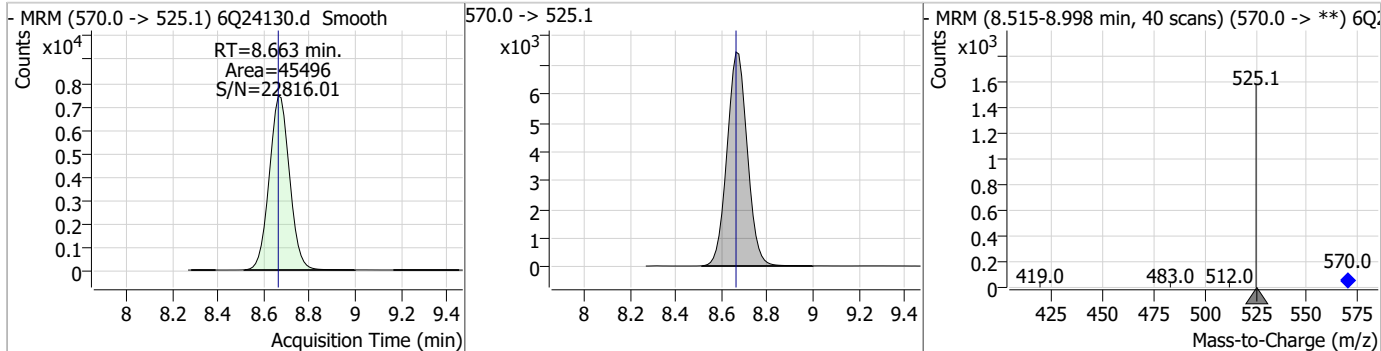
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.96	8.46	0.00	23943				



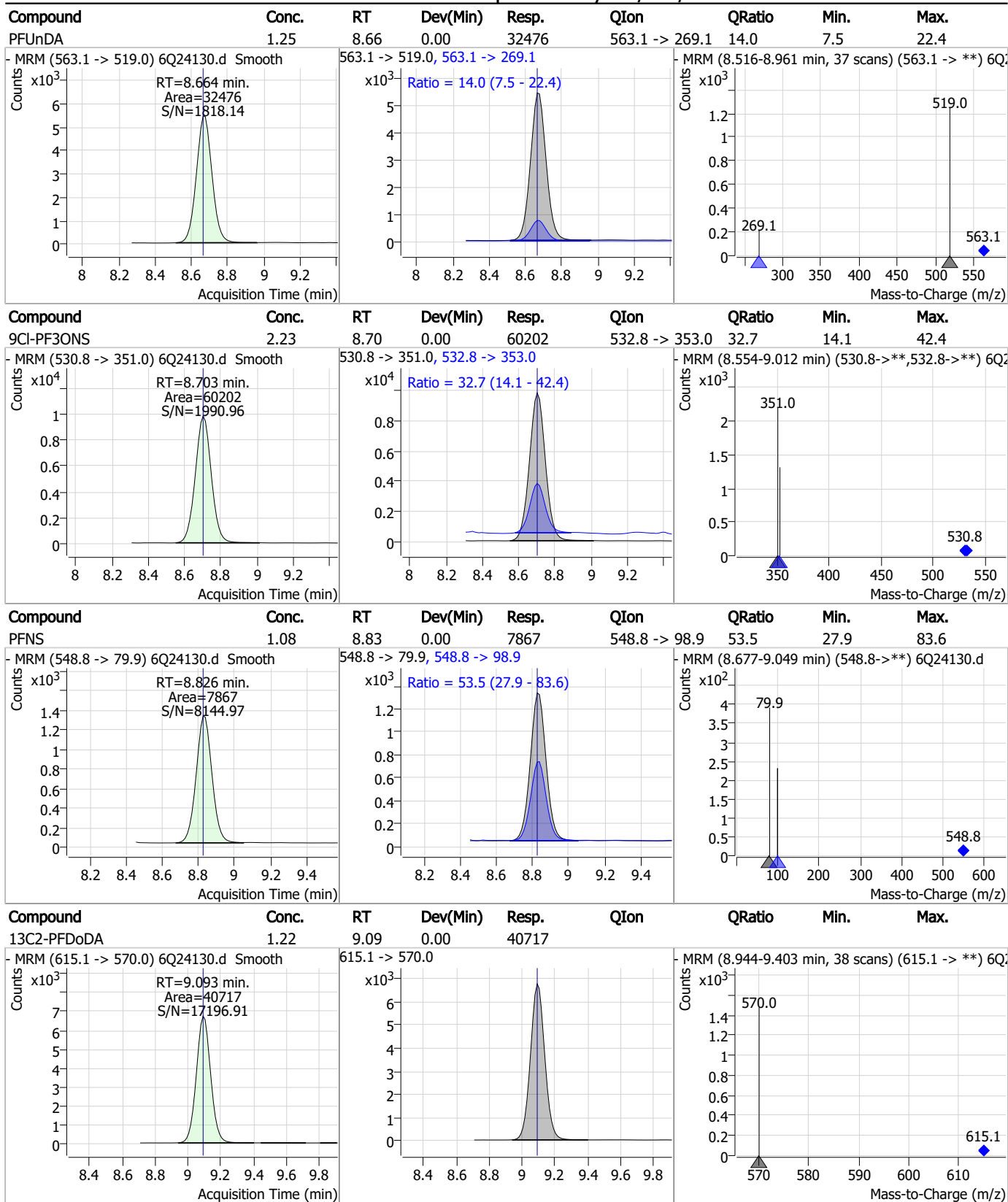
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.29	8.46	0.00	4346 (m)	584.2 -> 526.0	57.7	32.8	98.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.25	8.66	0.00	45496				



Perfluorinated Compounds by LC/MS/MS

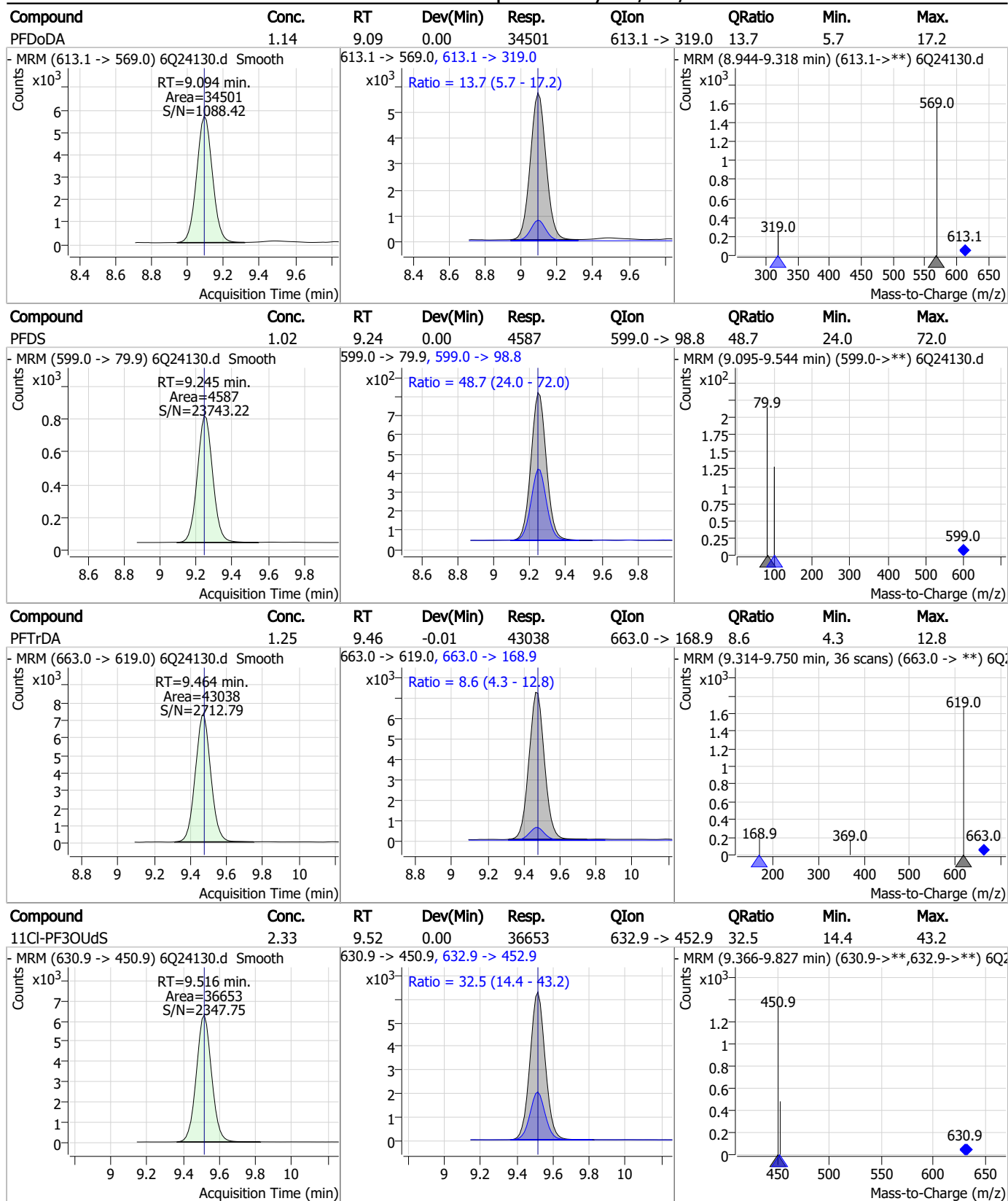


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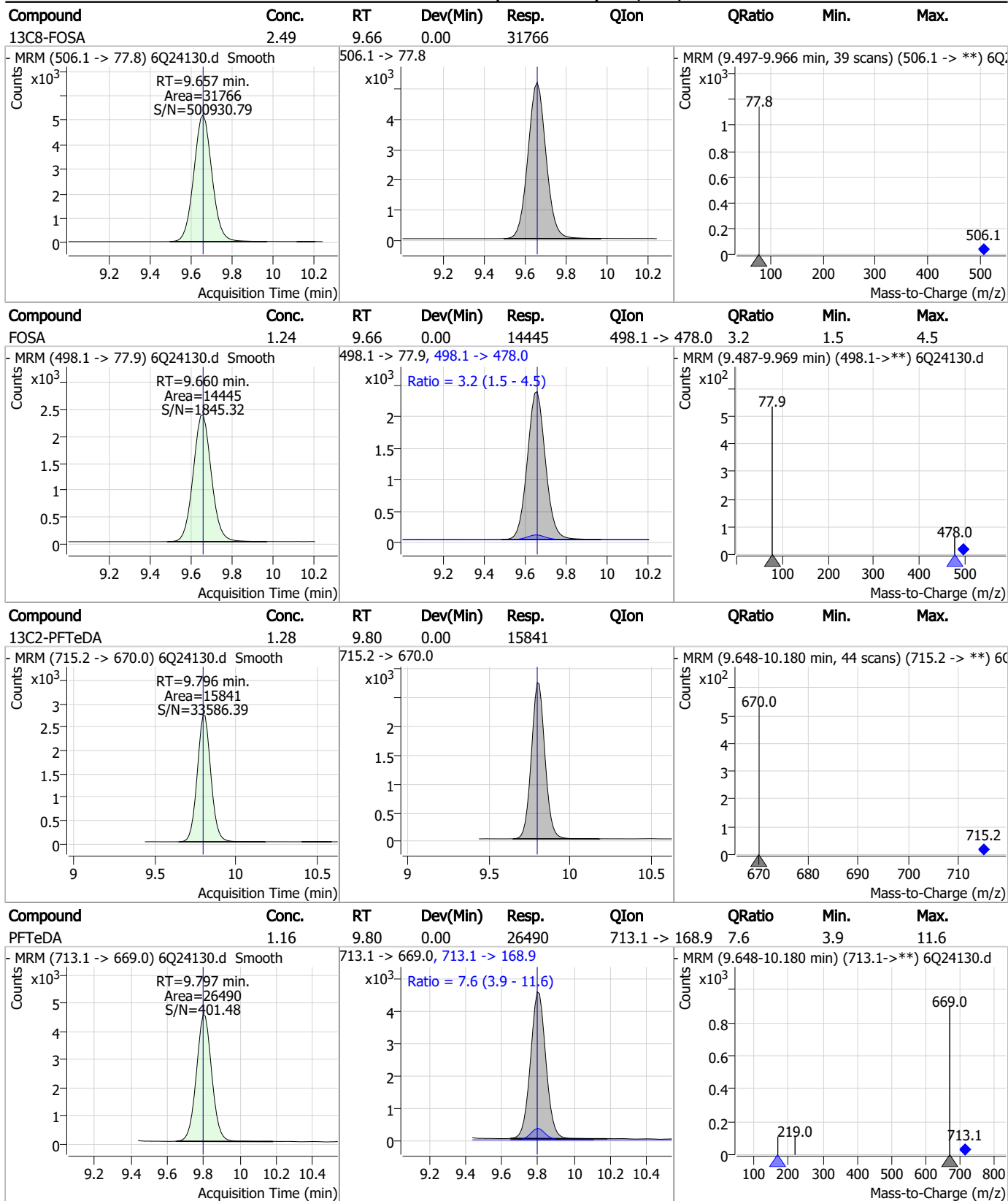
Perfluorinated Compounds by LC/MS/MS



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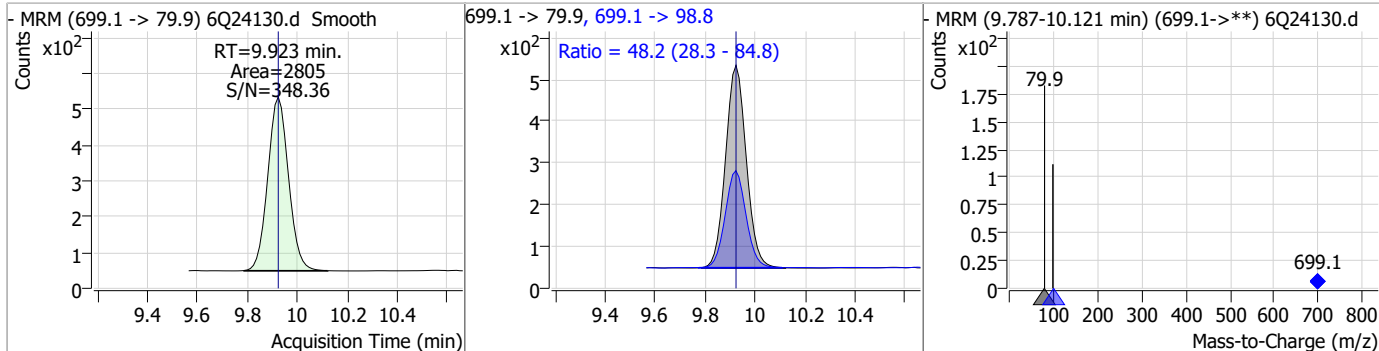
Perfluorinated Compounds by LC/MS/MS



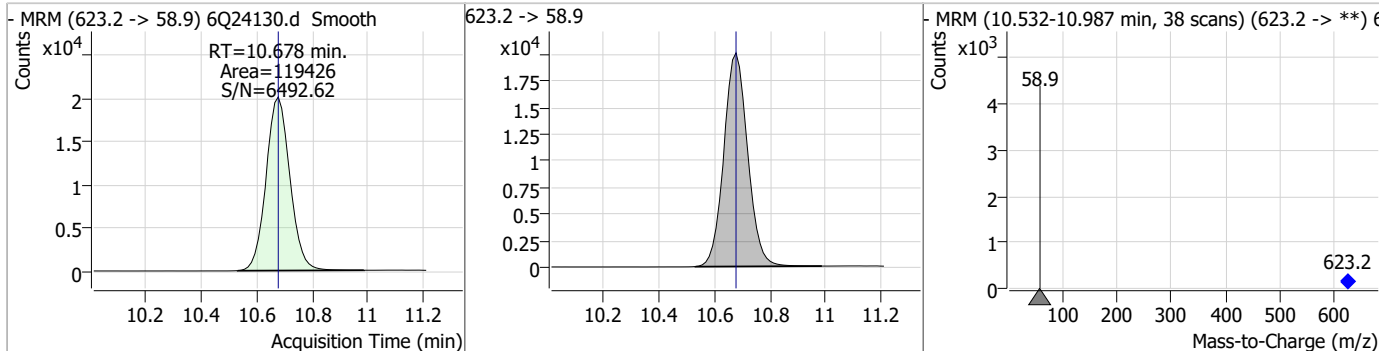
7.7.18 7

Perfluorinated Compounds by LC/MS/MS

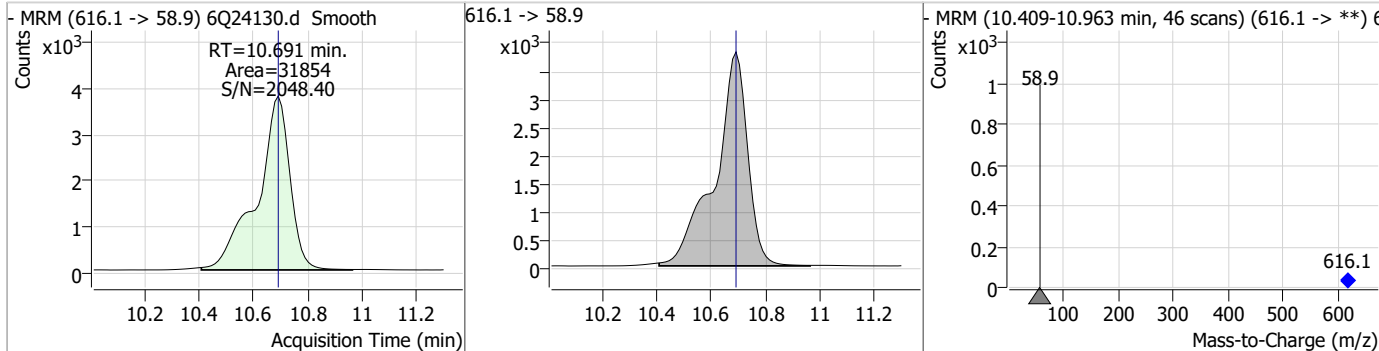
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.13	9.92	0.00	2805	699.1 -> 98.8	48.2	28.3	84.8



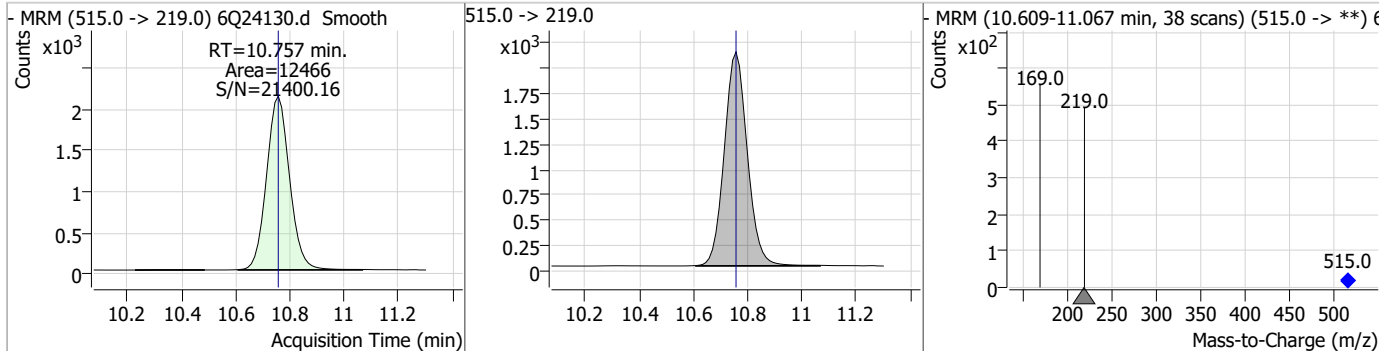
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.30	10.68	0.00	119426				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	6.17	10.69	0.00	31854				

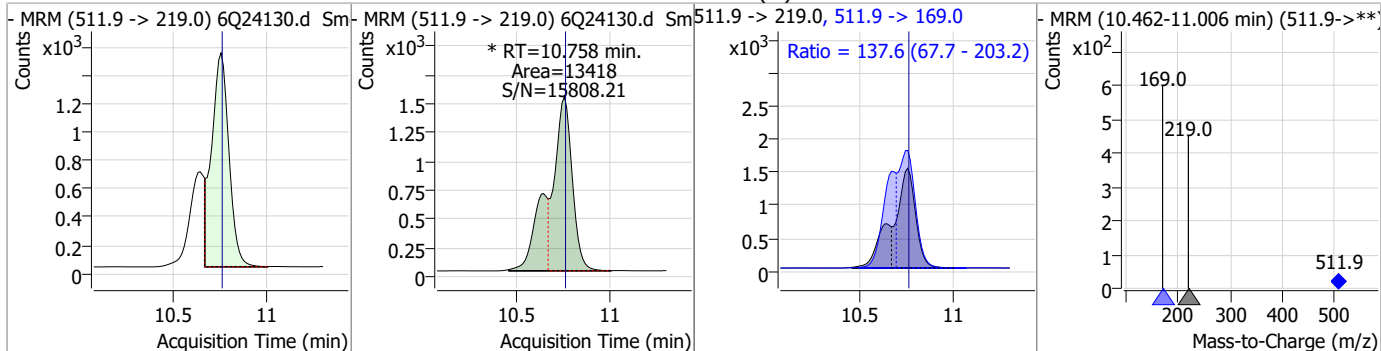


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.41	10.76	0.00	12466				

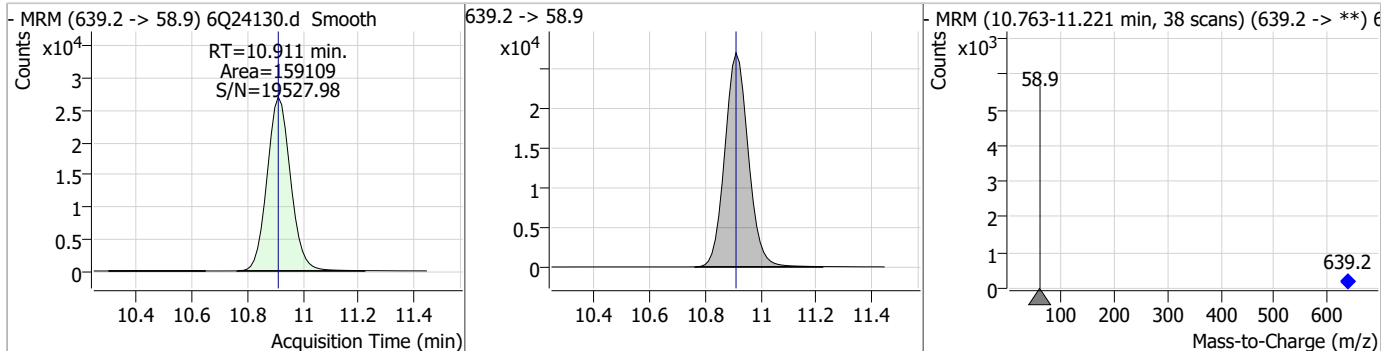


Perfluorinated Compounds by LC/MS/MS

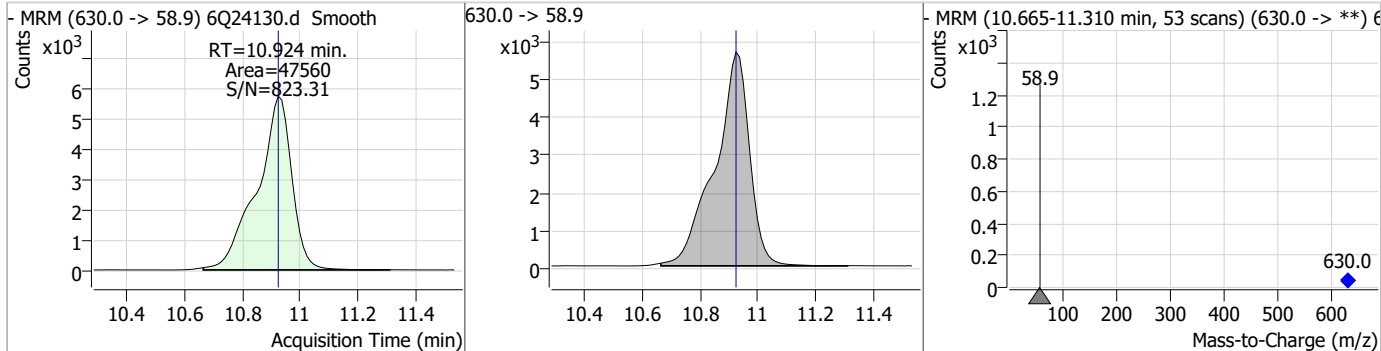
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.54	10.76	0.00	13418 (m)	511.9 -> 169.0	137.6	67.7	203.2



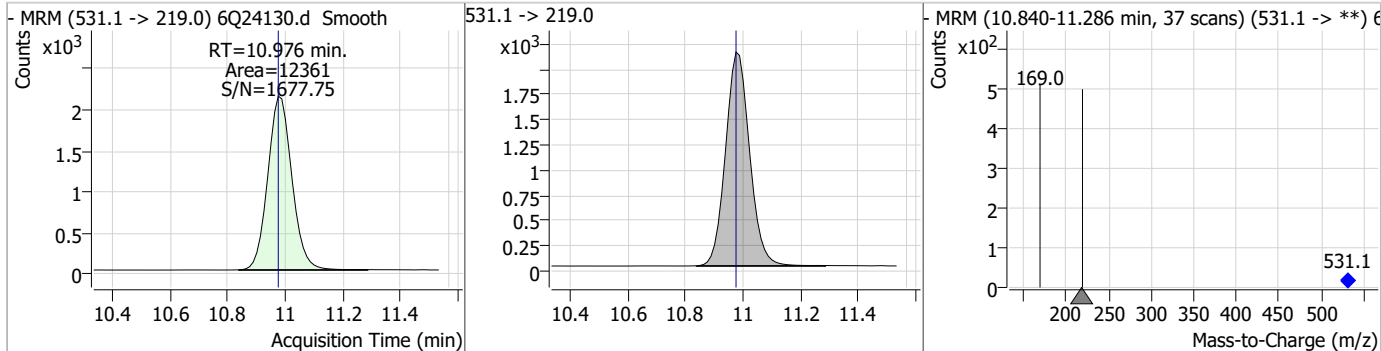
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.05	10.91	0.00	159109				



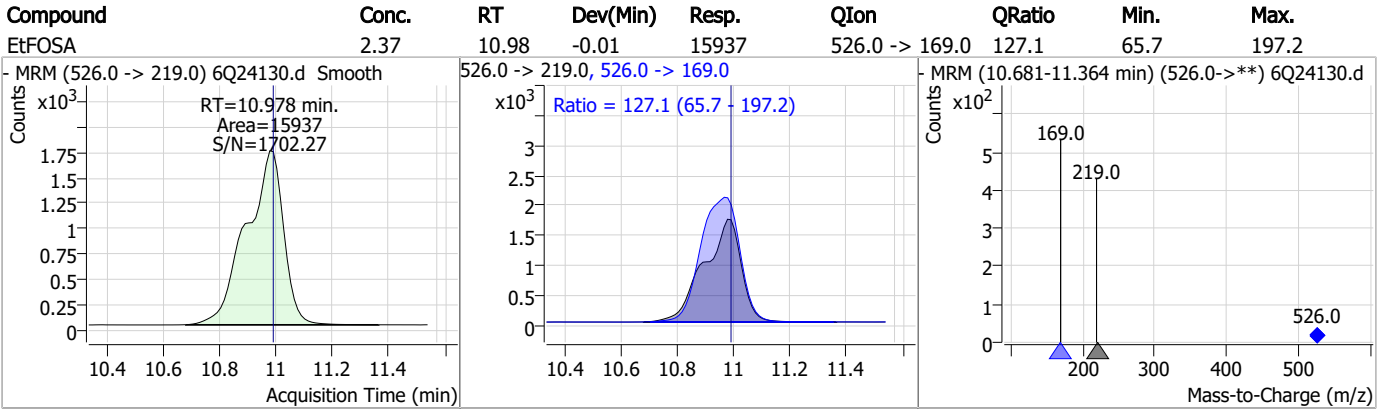
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	6.29	10.92	0.00	47560				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.56	10.98	0.00	12361				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q347-IC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24130.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 21:14 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 09/11/23 13:46

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24131.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 9:29:14 PM
 Sample Name : icc347-4
 Vial : P1-A5
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	194945	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	35702	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	73008	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	56527	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	77097	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	32711	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	32774	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	45887	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	39912	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	14783	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	30256	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	22914	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	14053	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	13542	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3138	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4604	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4789	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	23699	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	37909	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	22874	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	110675	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	152005	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	11278	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	11893	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	18348	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	77082	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	9719	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	85391	2.50 µg/L	0.000
13C2-PFDA	8.210	515.1 -> 470.1	28432	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	39212	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	54280	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3138	5.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.7%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4604	5.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.7%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4789	5.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.2%		
13C2-PFDoDA	9.093	615.1 -> 570.0	39912	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-PFTeDA	9.796	715.2 -> 670.0	14783	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C3-PFBS	5.571	302.1 -> 79.9	22914	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C3-PFHxS	7.313	402.1 -> 79.9	14053	2.63 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 = 105.3%	
13C4-PFBA	2.985	216.8 -> 171.9	194945	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.569	367.1 -> 322.0	56527	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C5-PFHxA	5.641	318.0 -> 273.0	73008	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C5-PFPeA	4.422	268.3 -> 223.0	35702	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C6-PFDA	8.210	519.1 -> 474.1	32774	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C7-PFUnDA	8.663	570.0 -> 525.1	45887	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.7%	
13C8-FOSA	9.657	506.1 -> 77.8	30256	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.7%	
13C8-PFOA	7.198	421.1 -> 376.0	77097	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C8-PFOS	8.361	507.1 -> 79.9	13542	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C9-PFNA	7.729	472.1 -> 427.0	32711	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.8%	
d3-MeFOSAA	8.256	573.2 -> 419.0	23699	4.62 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	37909	9.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	11893	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.9%	
d5-EtFOSAA	8.464	589.2 -> 419.0	22874	4.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.7%	
d7-MeFOSE	10.678	623.2 -> 58.9	110675	22.94 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
d9-EtFOSE	10.911	639.2 -> 58.9	152005	23.41 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.7%	
d5-EtFOSA	10.976	531.1 -> 219.0	11278	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.4%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	47960	9.24 µg/L	100
		327.1 -> 80.9	17687		
6:2FTS	6.974	427.1 -> 407.0	38345	9.41 µg/L	100
		427.1 -> 80.9	15230		
8:2FTS	7.999	527.1 -> 507.0	28666	8.87 µg/L	100
		527.1 -> 80.8	11268		
EtFOSAA	8.465	584.2 -> 419.1	7943	2.46 µg/L	100
		584.2 -> 526.0	5216	m	
FOSA	9.660	498.1 -> 77.9	26625	2.39 µg/L	100
		498.1 -> 478.0	798		
MeFOSAA	8.257	570.1 -> 419.0	13814	2.45 µg/L	100
		570.1 -> 483.0	2804		
PFBA	2.993	212.8 -> 168.9	62494	9.70 µg/L	100
PFBS	5.572	298.7 -> 79.9	24302	2.16 µg/L	100
		298.7 -> 98.8	9251		
PFDA	8.211	512.9 -> 469.0	71320	2.39 µg/L	100
		512.9 -> 219.0	11622		
PFDODA	9.094	613.1 -> 569.0	73119	2.47 µg/L	100
		613.1 -> 319.0	8396		
PFDS	9.245	599.0 -> 79.9	9071	2.30 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	4357			
PFHpA	6.569	363.1 -> 319.0	74879	2.50	µg/L	100
		363.1 -> 169.0	11076			
PFHpS	7.868	449.0 -> 79.9	15071	2.30	µg/L	100
		449.0 -> 98.9	7042			
PFHxA	5.644	313.0 -> 269.0	64748	2.44	µg/L	100
		313.0 -> 118.9	2845			
PFHxS	7.314	398.7 -> 79.9	17947	2.04	µg/L	m 100
		398.7 -> 98.9	8693			
PFNA	7.730	463.0 -> 419.0	60473	2.45	µg/L	100
		463.0 -> 219.0	13245			
PFNS	8.826	548.8 -> 79.9	14799	2.31	µg/L	100
		548.8 -> 98.9	8251			
PFOA	7.200	413.0 -> 369.0	91944	2.31	µg/L	100
		413.0 -> 169.0	16877			
PFOS	8.362	498.9 -> 79.9	16196	2.16	µg/L	m 100
		498.9 -> 98.8	7761			
PFPeA	4.424	263.0 -> 219.0	78666	4.95	µg/L	100
PFPeS	6.620	349.1 -> 79.9	17522	2.29	µg/L	100
		349.1 -> 98.9	8258			
PFTeDA	9.797	713.1 -> 669.0	53078	2.49	µg/L	100
		713.1 -> 168.9	4087			
PFTrDA	9.477	663.0 -> 619.0	79667	2.37	µg/L	100
		663.0 -> 168.9	6816			
PFUnDA	8.664	563.1 -> 519.0	60985	2.32	µg/L	100
		563.1 -> 269.1	9088			
11CI-PF3OUdS	9.516	630.9 -> 450.9	74991	5.42	µg/L	100
		632.9 -> 452.9	21606			
9CI-PF3ONS	8.703	530.8 -> 351.0	126215	5.32	µg/L	100
		532.8 -> 353.0	35665			
ADONA	6.817	376.9 -> 250.9	276162	5.03	µg/L	100
		376.9 -> 84.8	75780			
HFPO-DA	6.020	284.9 -> 168.9	18017	5.02	µg/L	100
		284.9 -> 184.9	2762			
3:3FTCA	3.858	241.0 -> 177.0	13136	11.79	µg/L	100
		241.0 -> 117.0	1240			
5:3FTCA	6.271	341.0 -> 237.1	276310	61.20	µg/L	100
		341.0 -> 217.0	195769			
7:3FTCA	7.657	441.0 -> 316.9	161457	60.51	µg/L	100
		441.0 -> 336.9	366751			
EtFOSA	10.990	526.0 -> 219.0	30132	4.91	µg/L	100
		526.0 -> 169.0	39623			
EtFOSE	10.924	630.0 -> 58.9	91756	12.70	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	25684	5.09	µg/L	m 100
		511.9 -> 169.0	34792			
MeFOSE	10.691	616.1 -> 58.9	58852	12.30	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	5093	2.36	µg/L	100
		699.1 -> 98.8	2879			
NFDHA	5.524	295.0 -> 201.0	15286	4.96	µg/L	100
		295.0 -> 84.9	3580			
PFMBA	4.850	279.0 -> 85.1	57430	4.95	µg/L	100
PFMPA	3.551	229.0 -> 84.9	41005	4.93	µg/L	100
PFEESA	6.112	314.8 -> 134.9	144134	4.34	µg/L	100
		314.8 -> 82.9	5170			

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

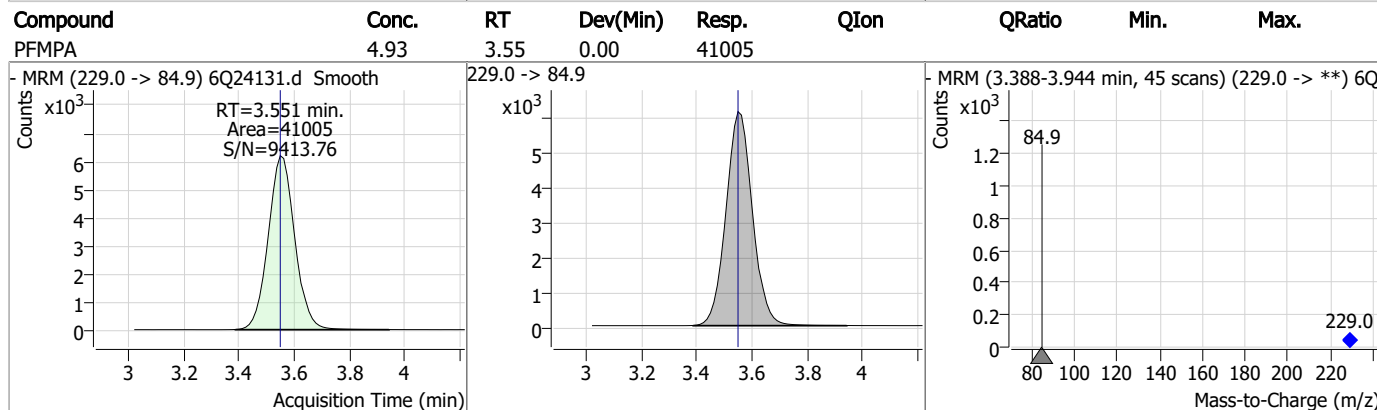
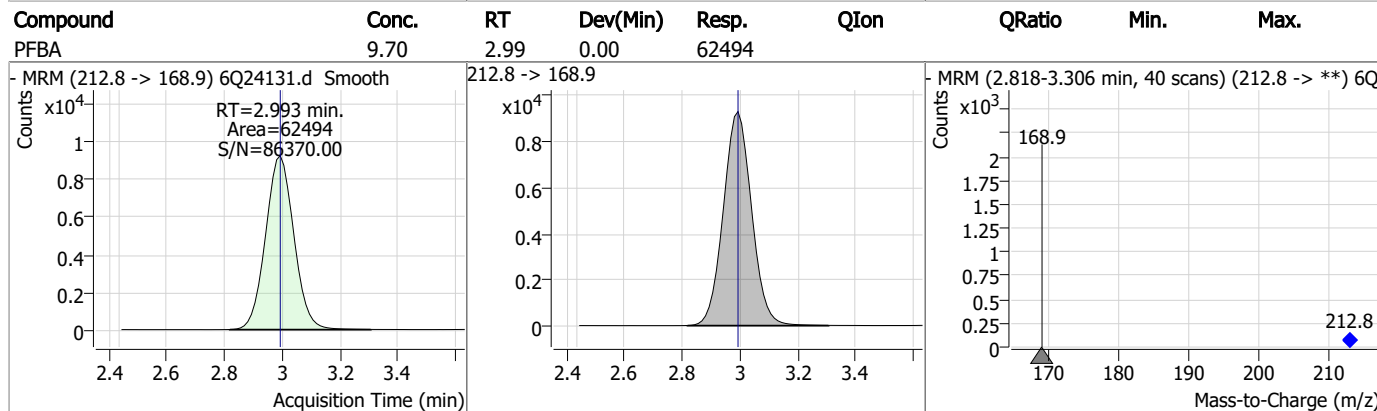
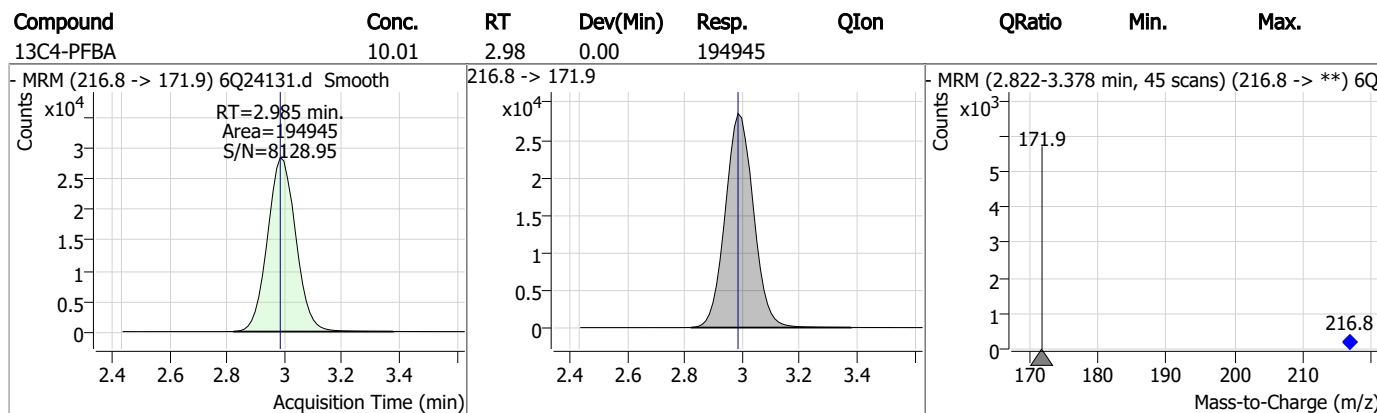
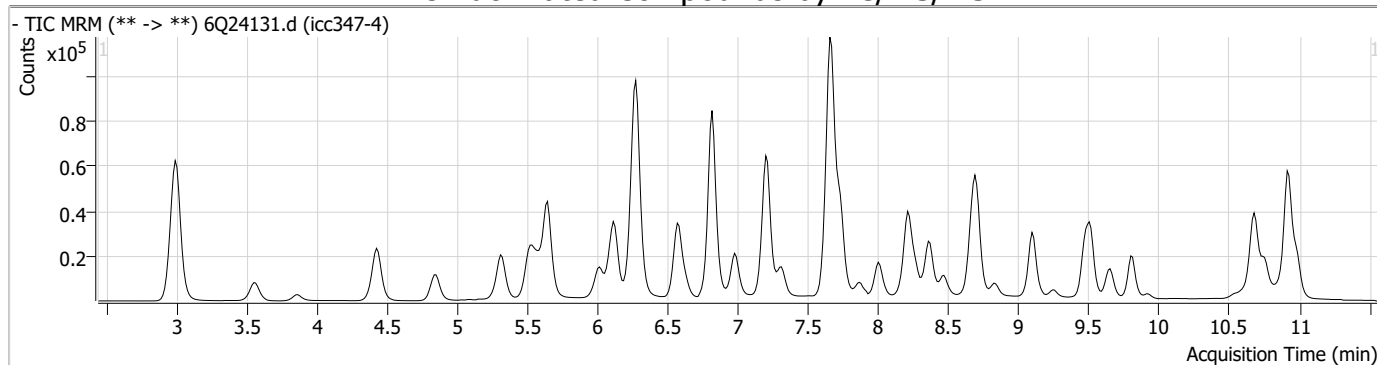
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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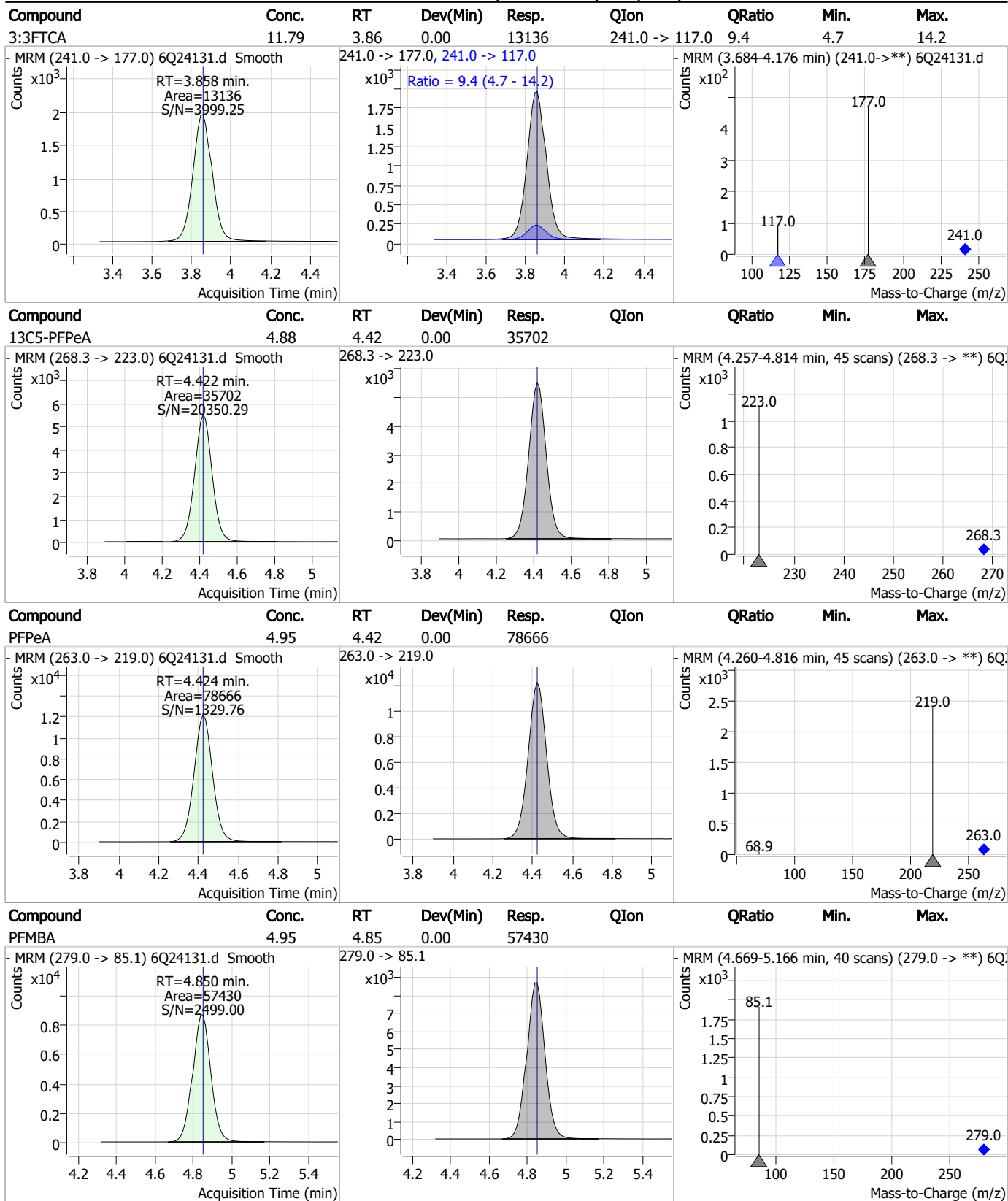
7.7.19

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Perfluorinated Compounds by LC/MS/MS

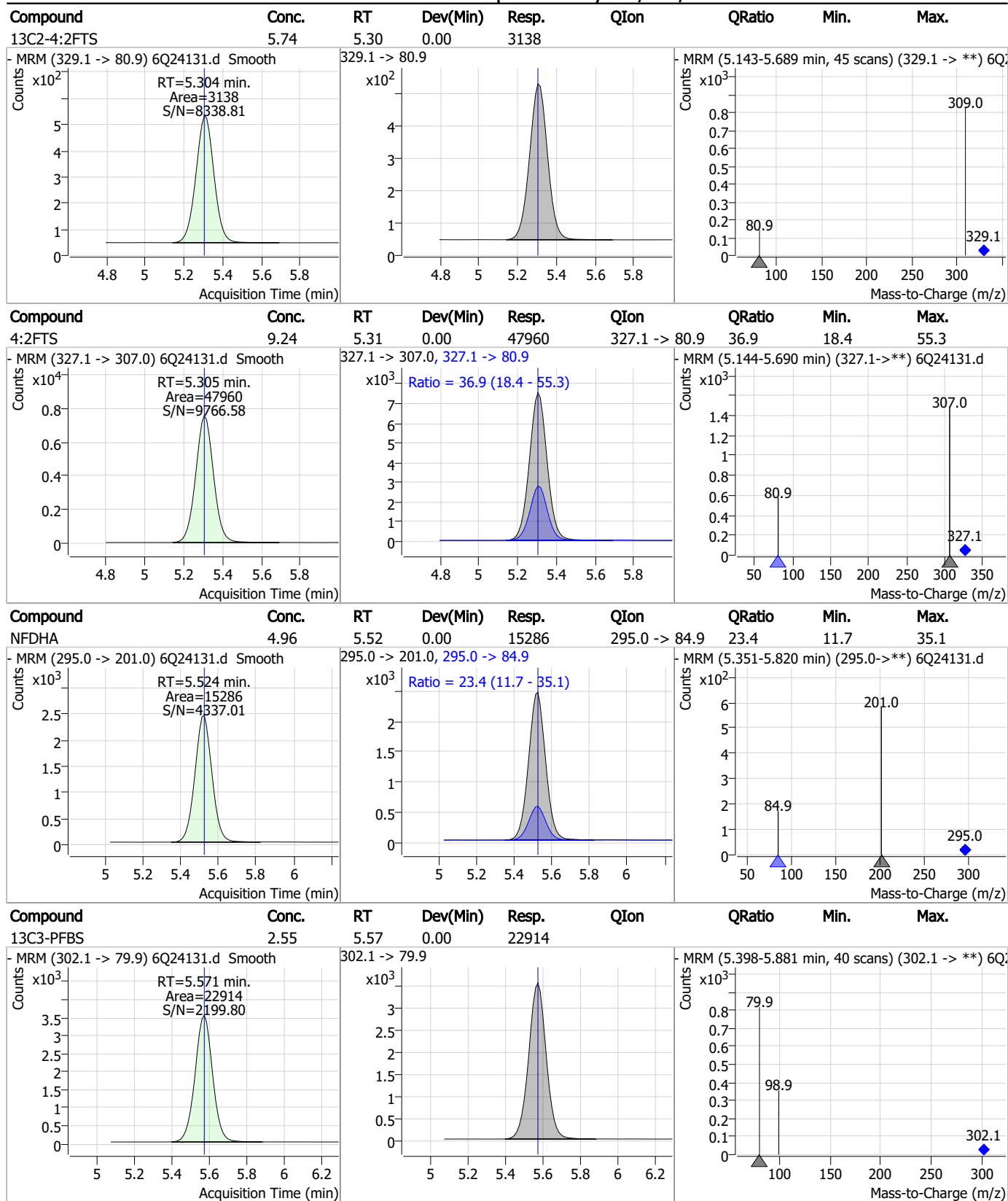


Perfluorinated Compounds by LC/MS/MS



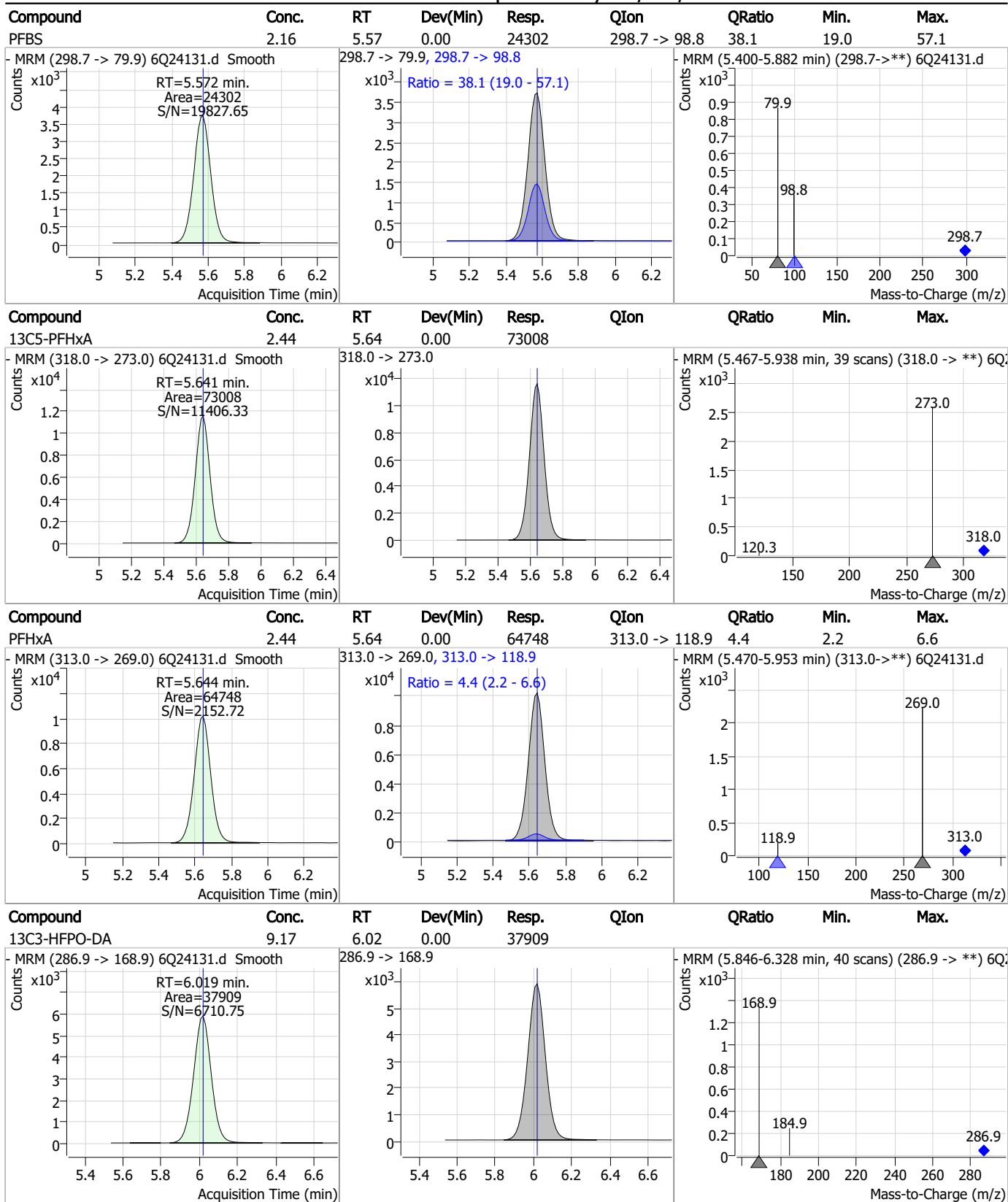
7.7.19 7

Perfluorinated Compounds by LC/MS/MS



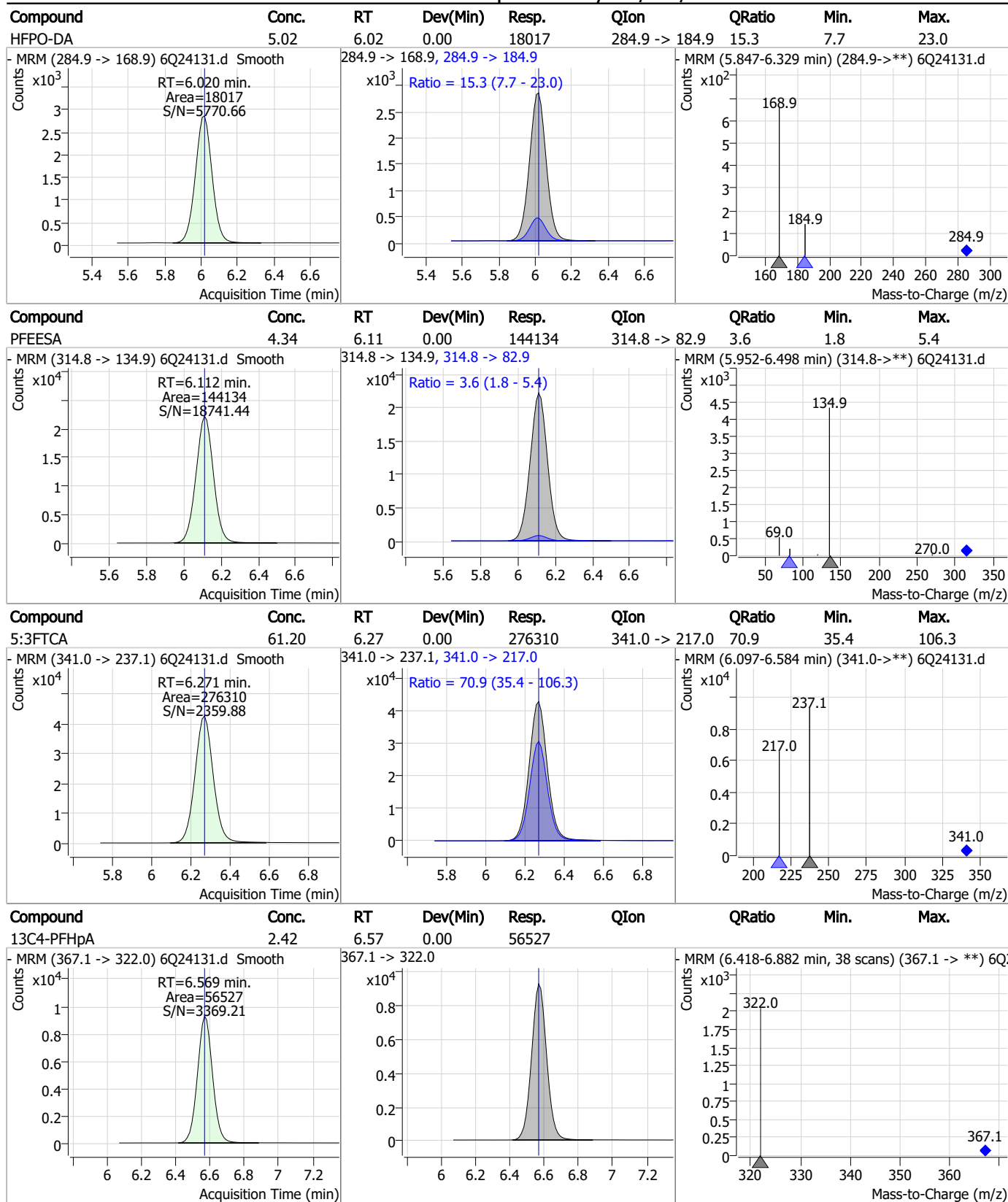
7.7.19 7

Perfluorinated Compounds by LC/MS/MS



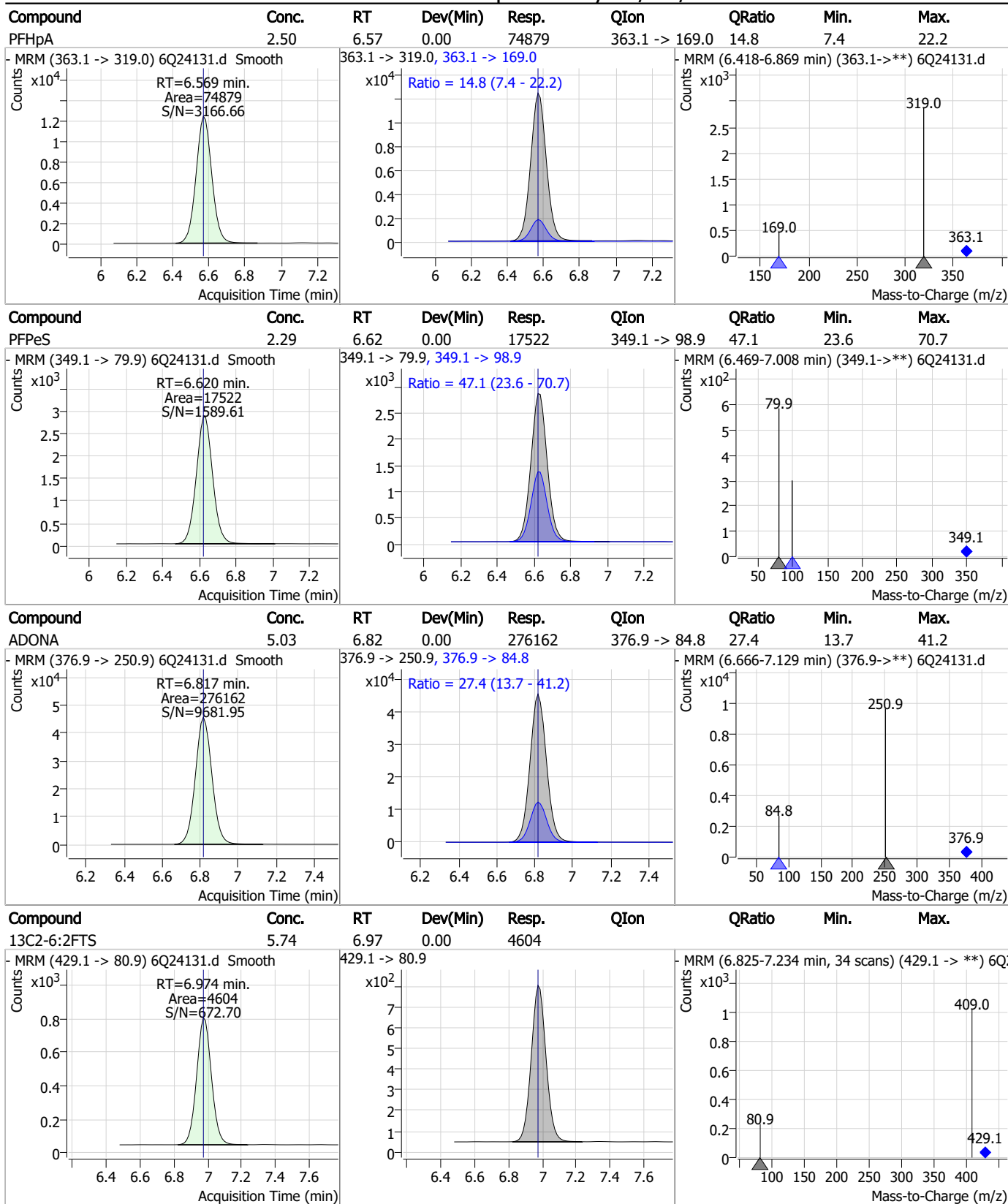
7.7.19

Perfluorinated Compounds by LC/MS/MS



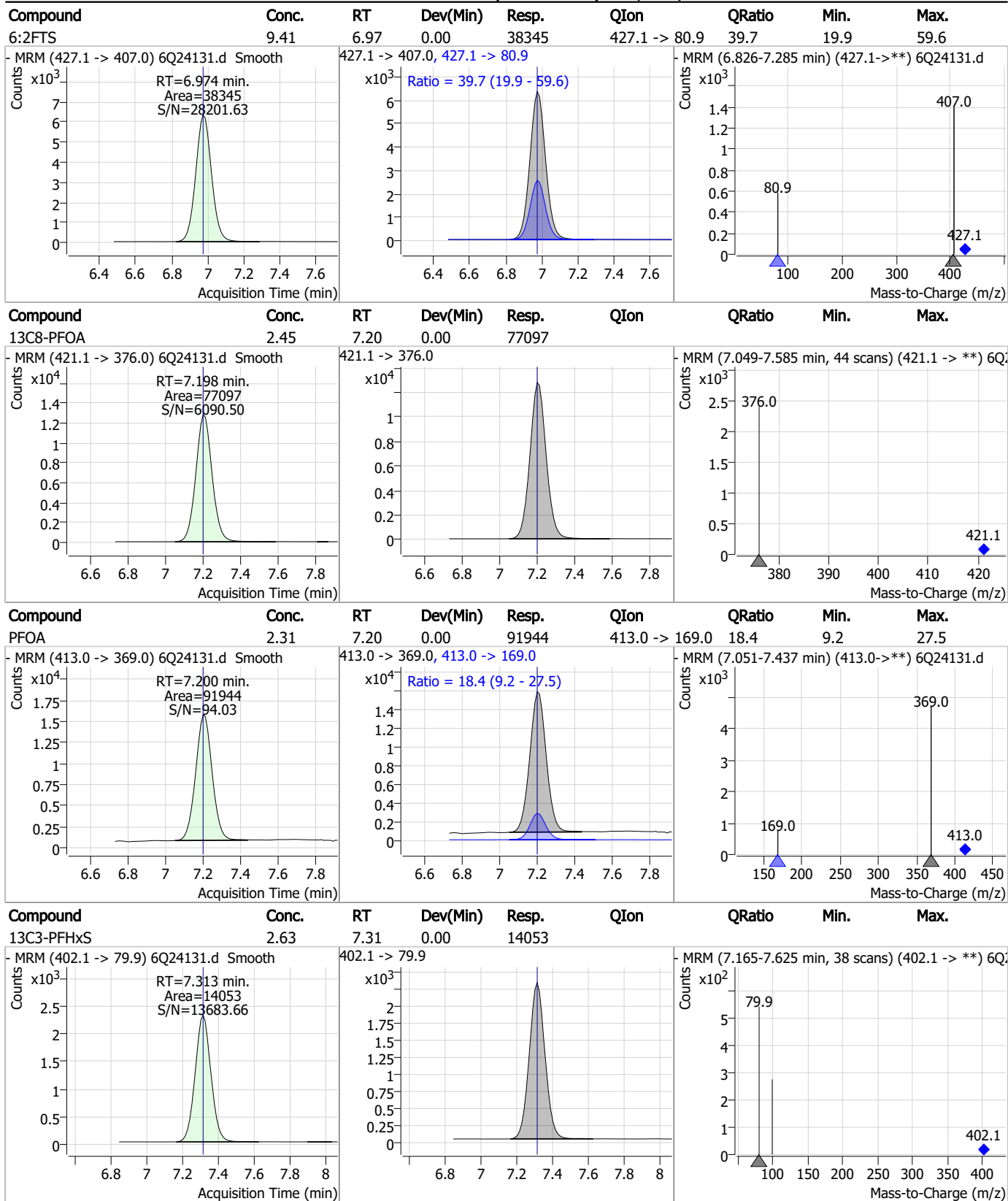
7.7.19 7

Perfluorinated Compounds by LC/MS/MS



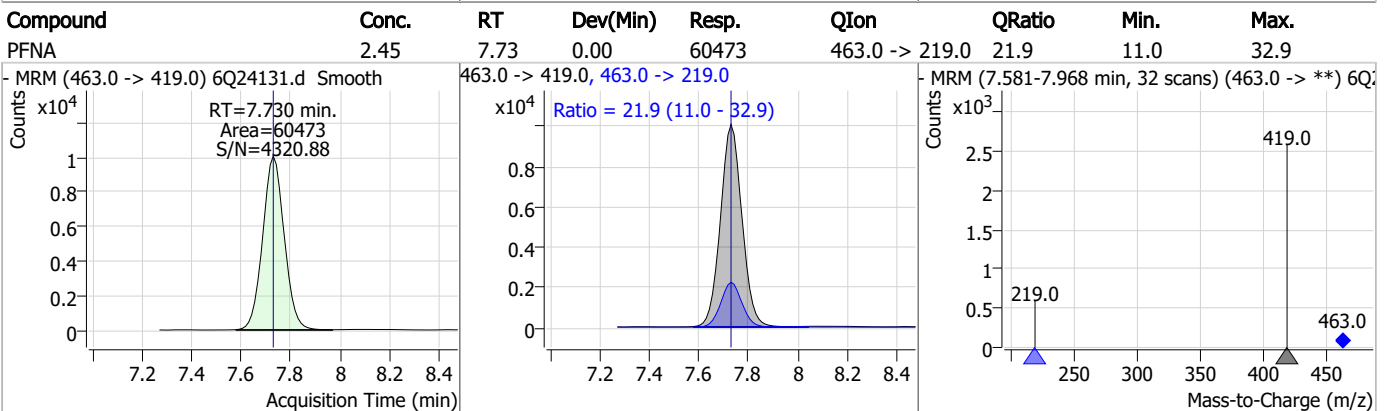
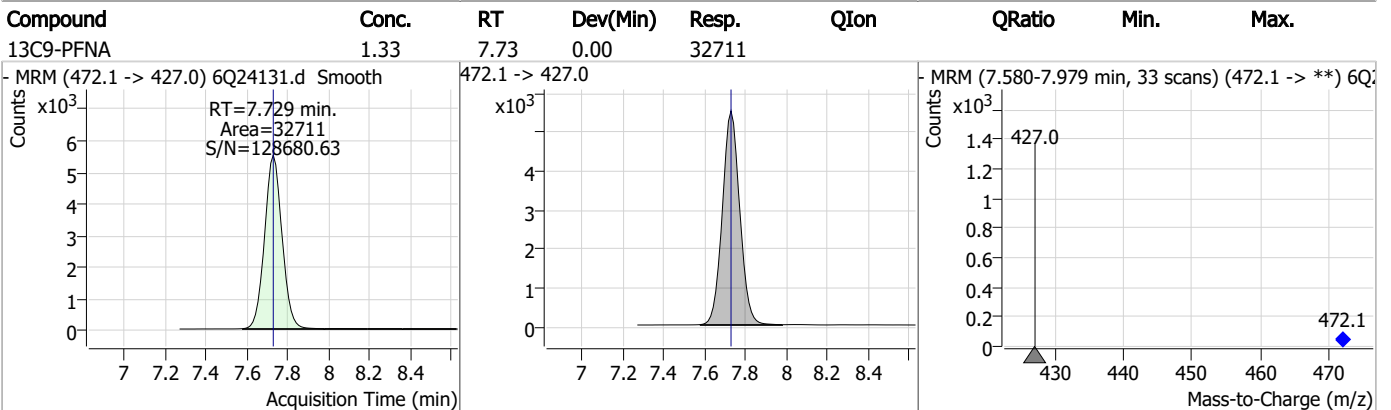
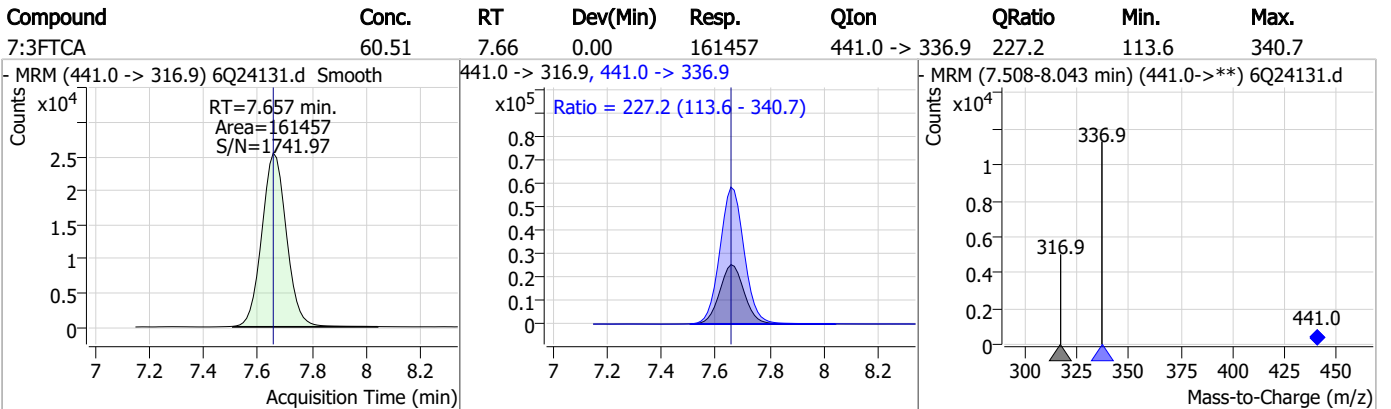
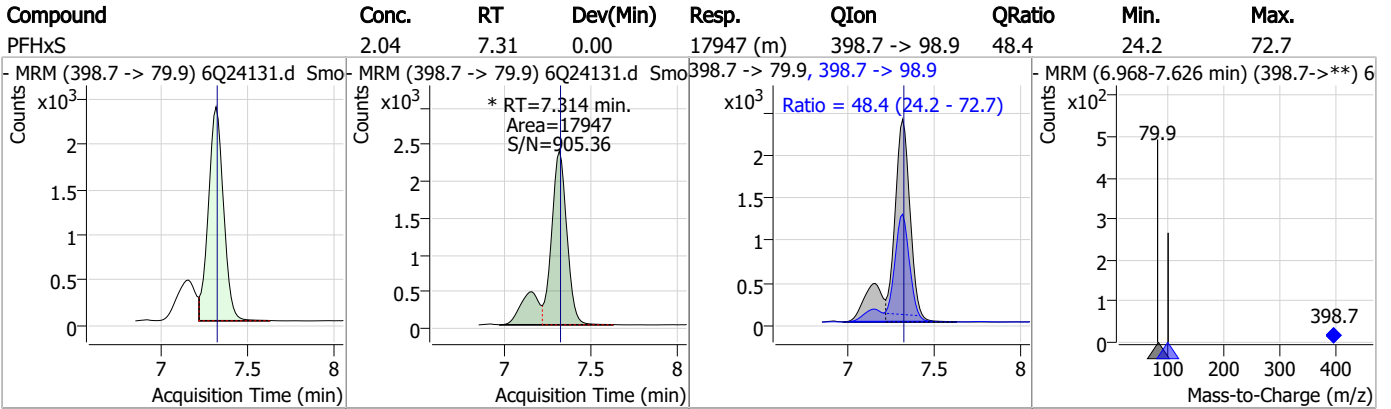
7.7.19
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Perfluorinated Compounds by LC/MS/MS



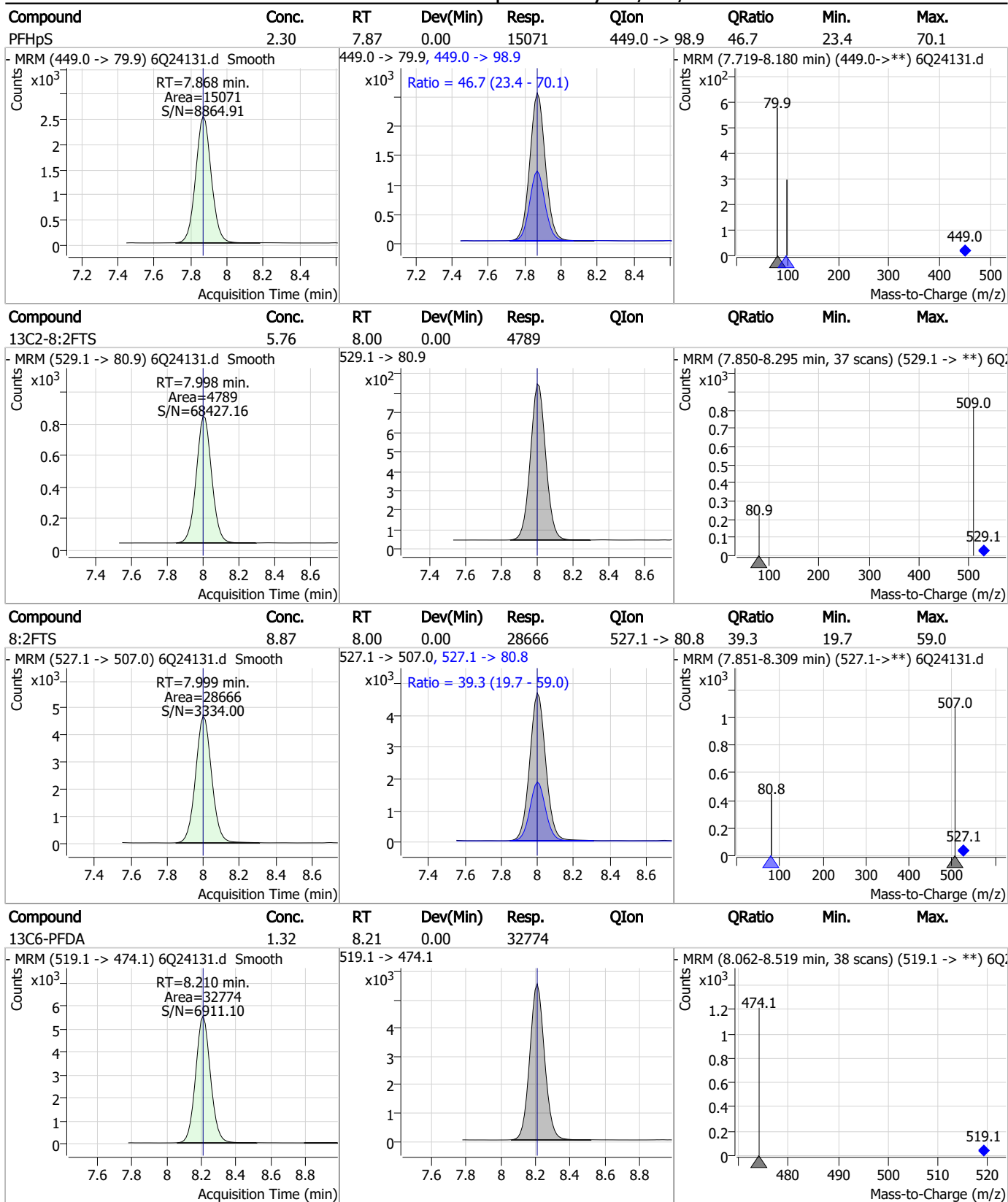
7.7.19 7

Perfluorinated Compounds by LC/MS/MS



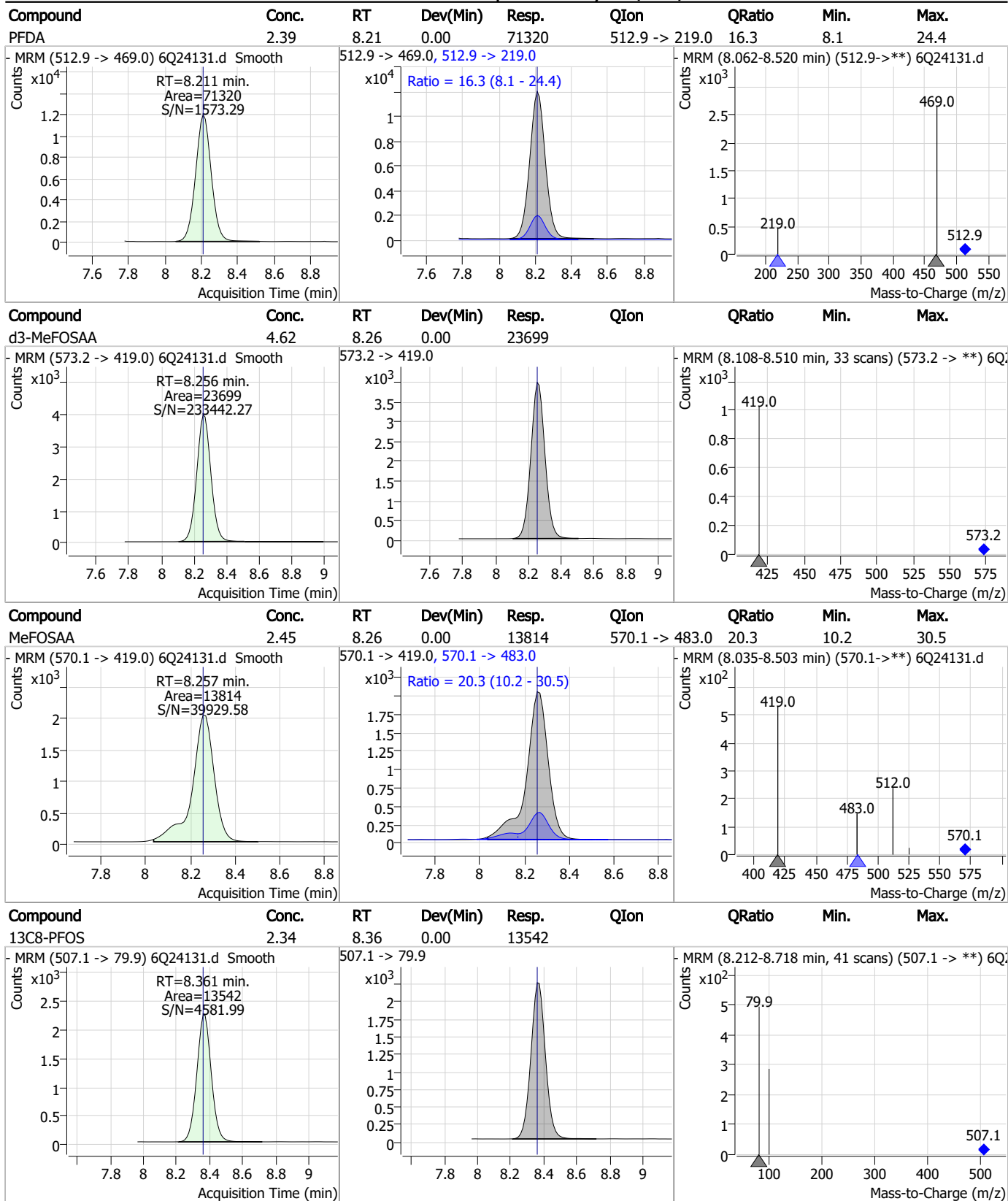
7.7.19 7

Perfluorinated Compounds by LC/MS/MS



7.7.19

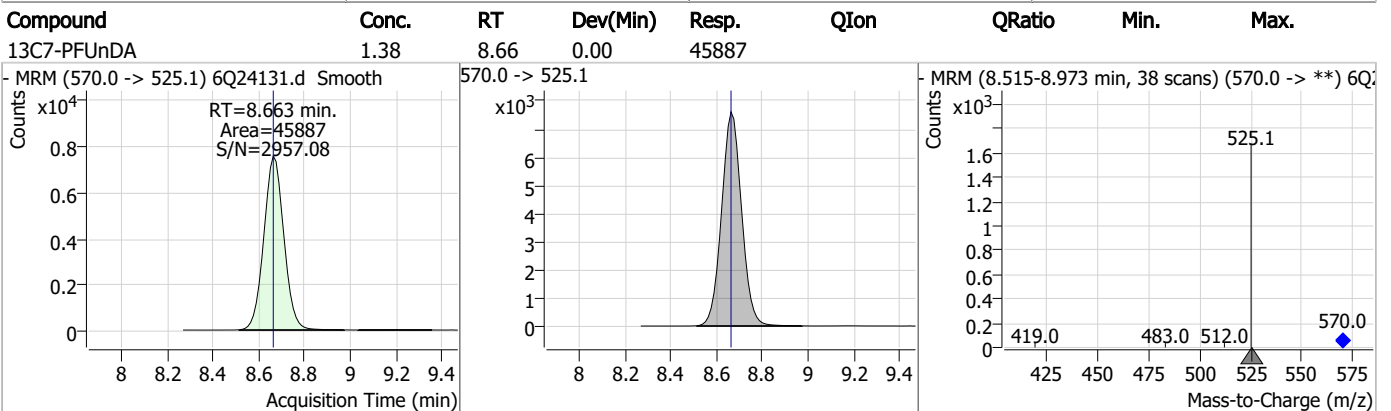
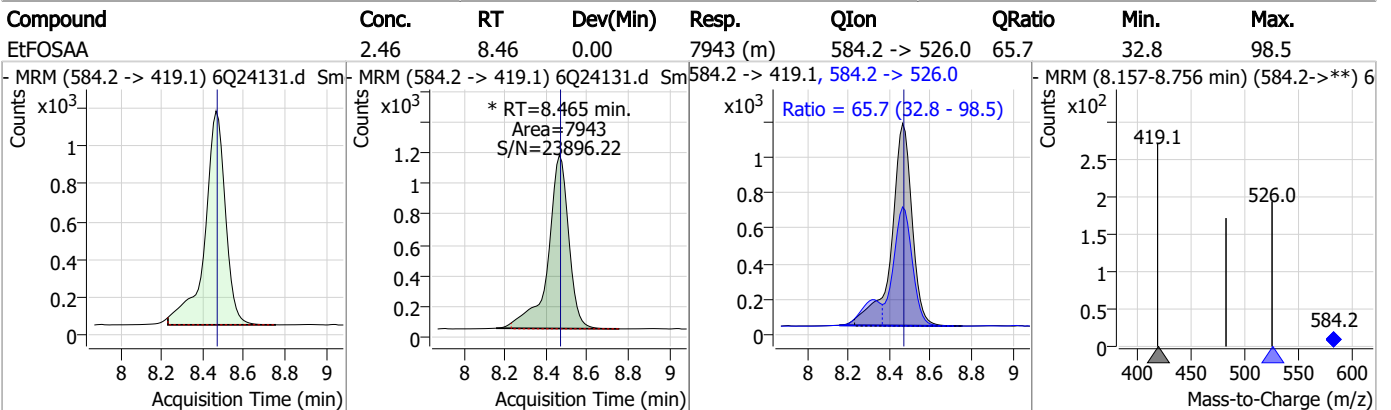
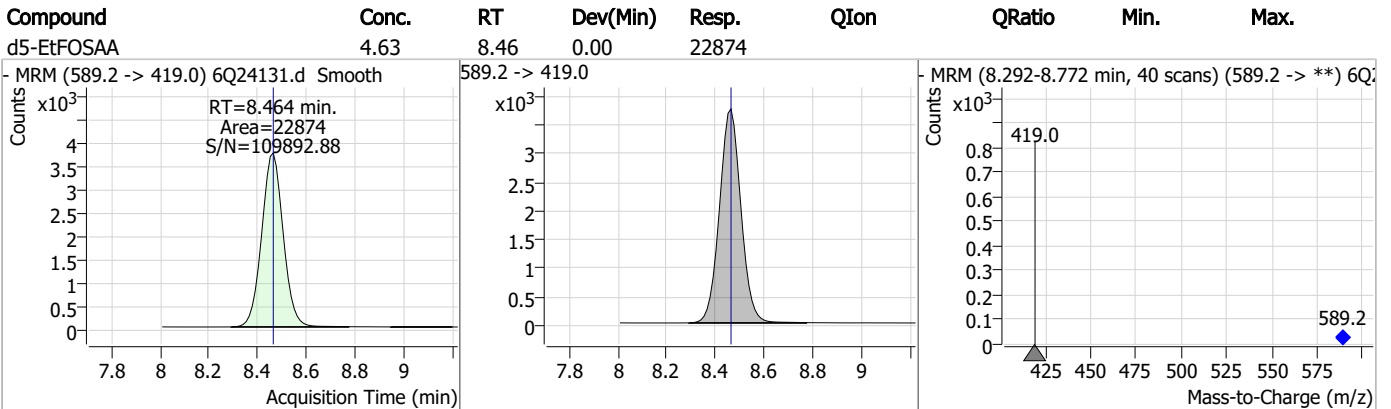
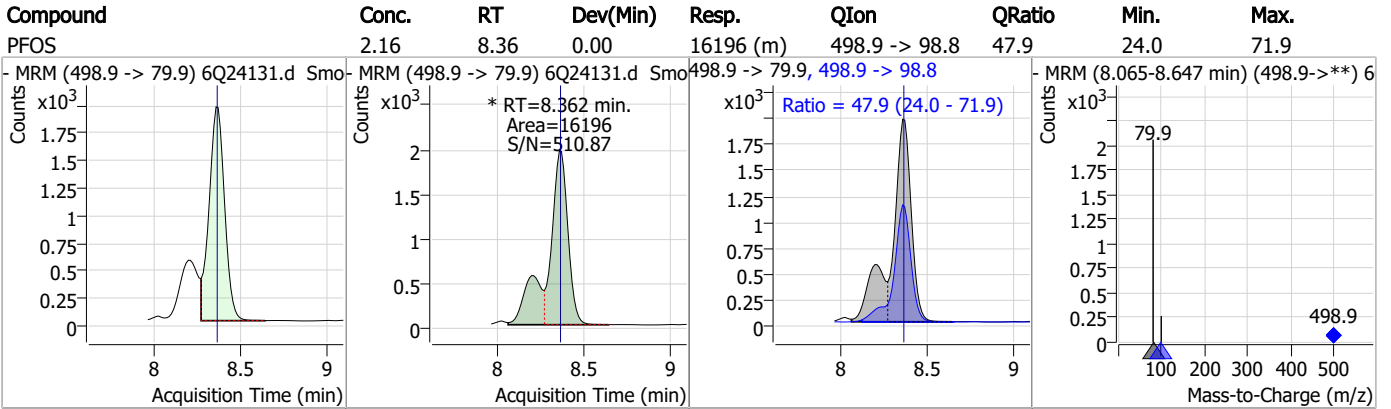
Perfluorinated Compounds by LC/MS/MS



7.7.19

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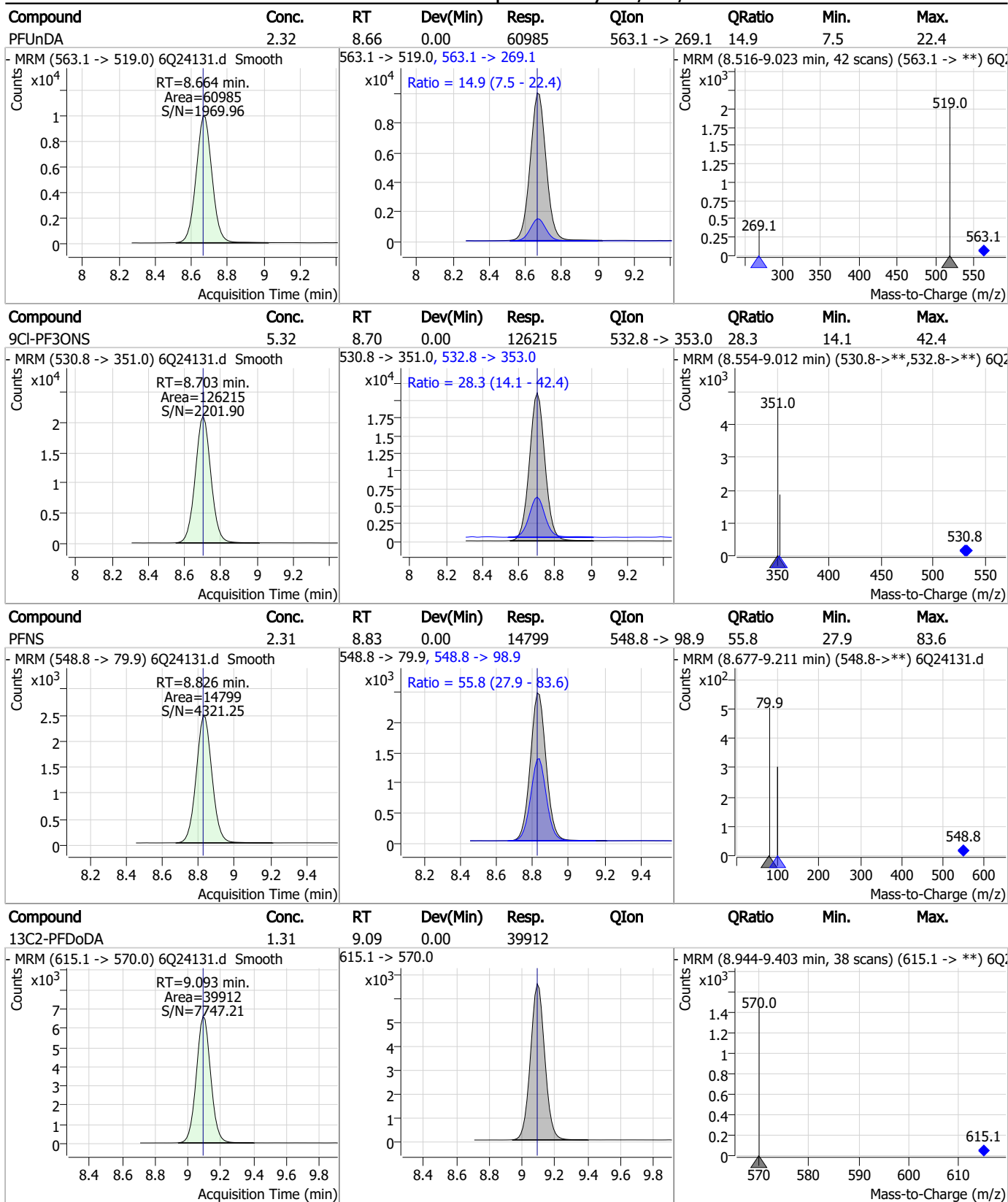
Perfluorinated Compounds by LC/MS/MS



7.7.19

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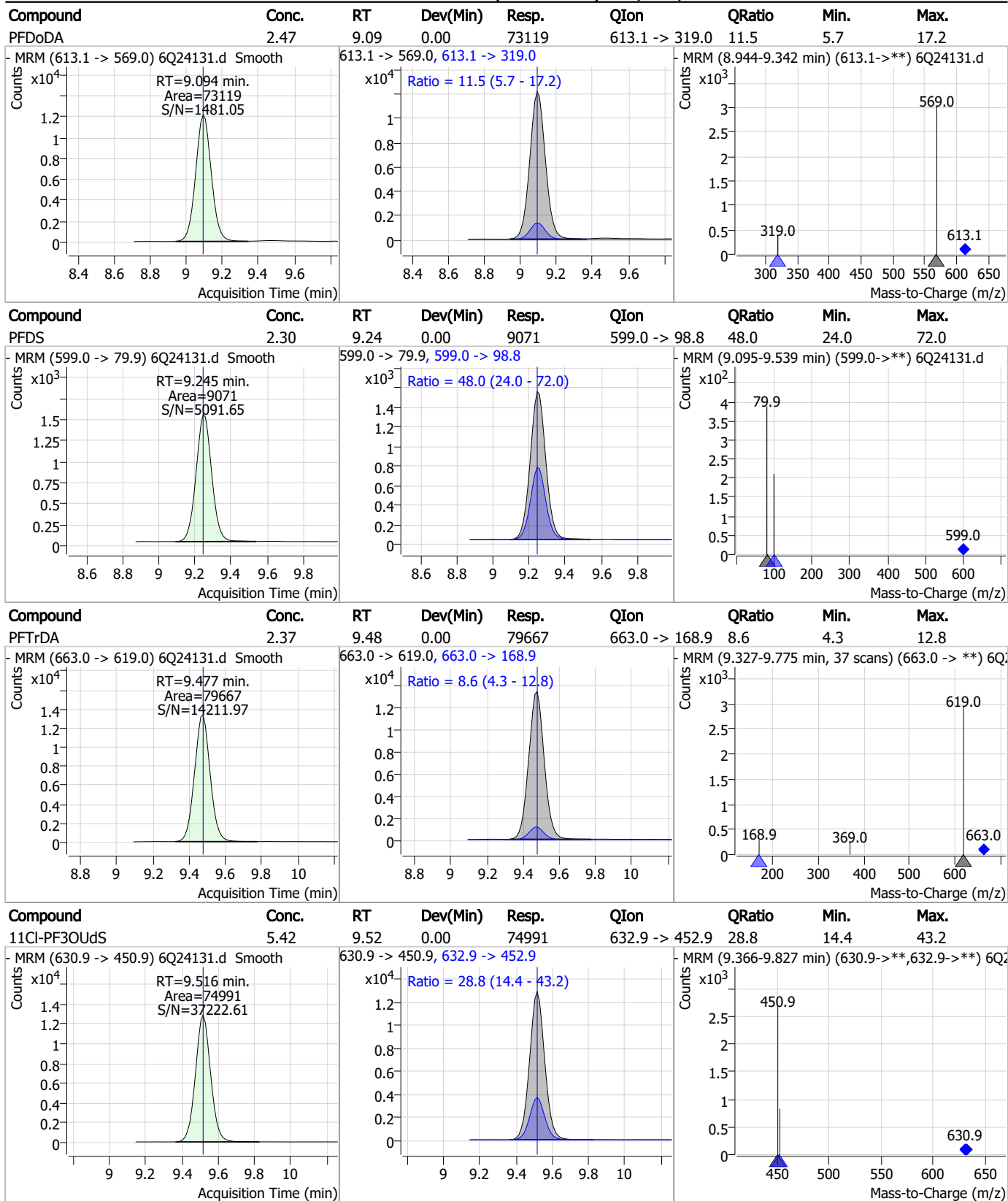
Perfluorinated Compounds by LC/MS/MS



7.7.19

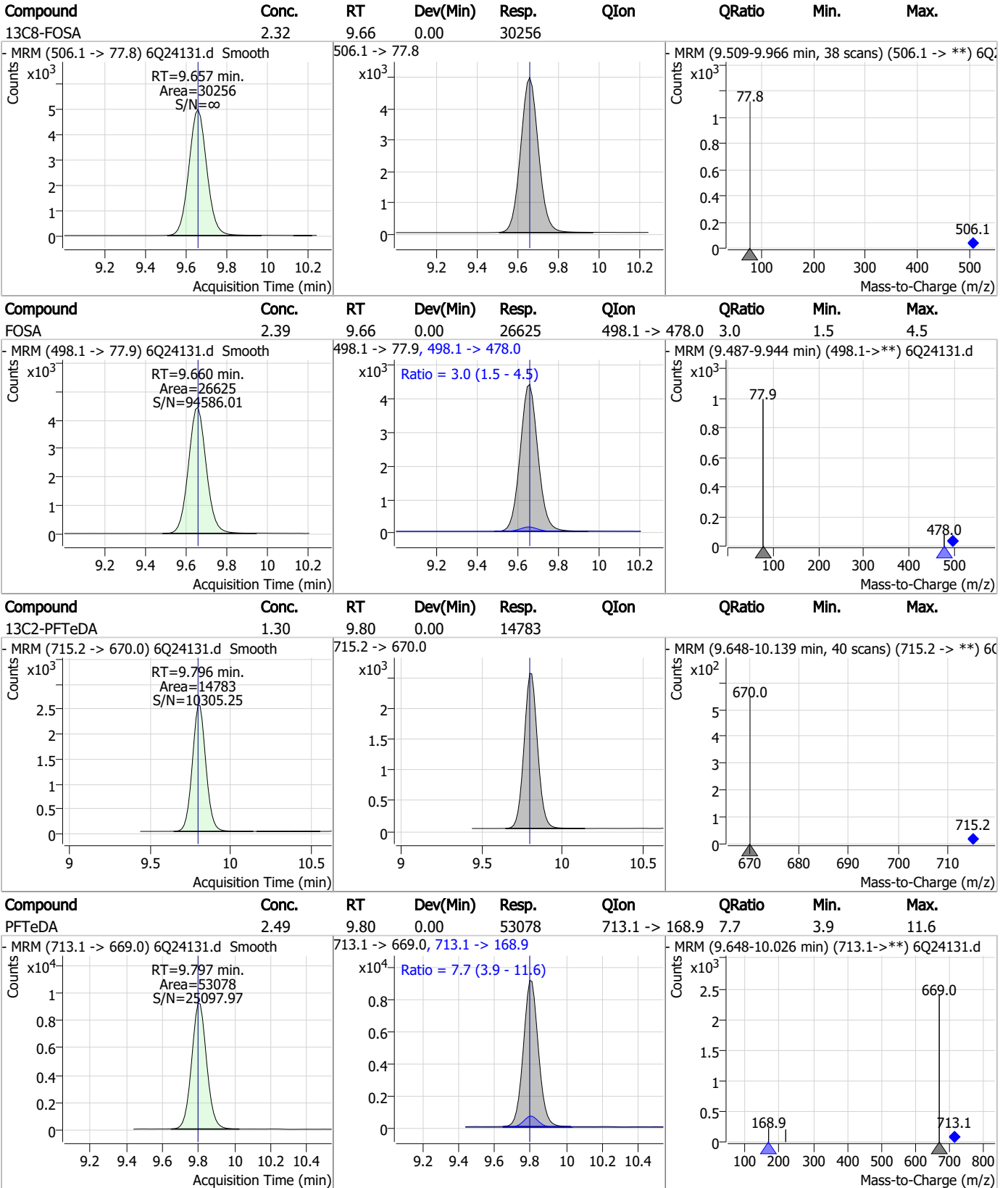
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Perfluorinated Compounds by LC/MS/MS



7.7.19 7

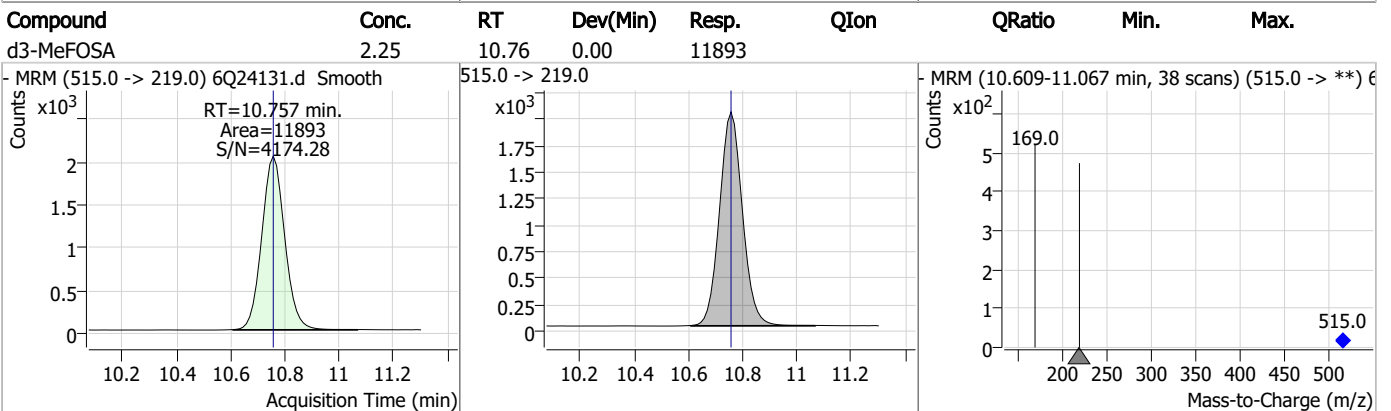
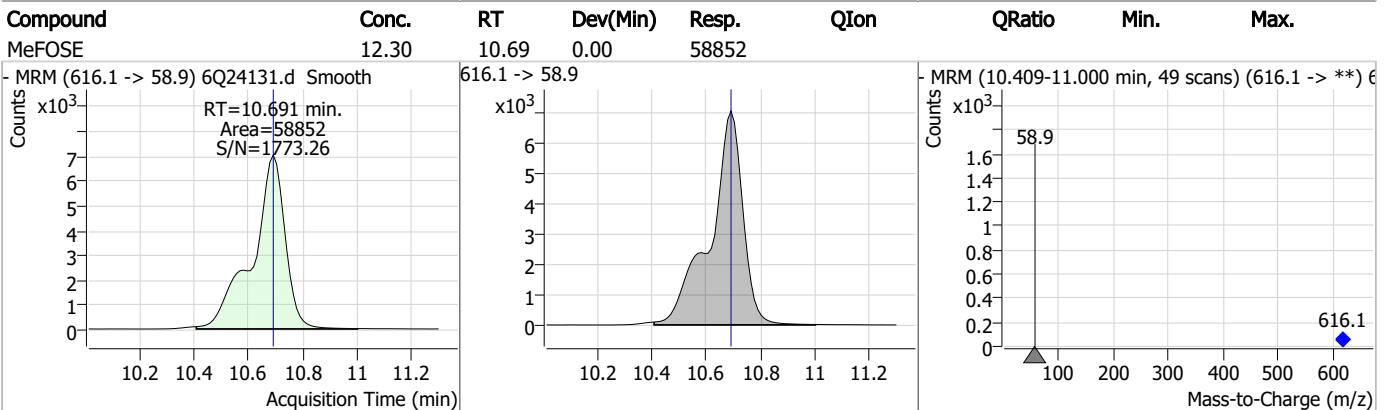
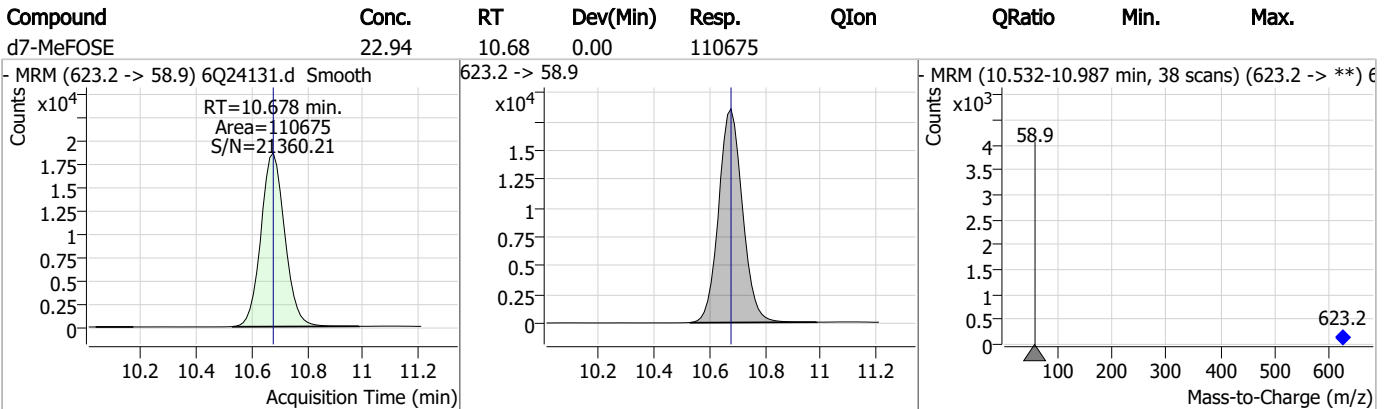
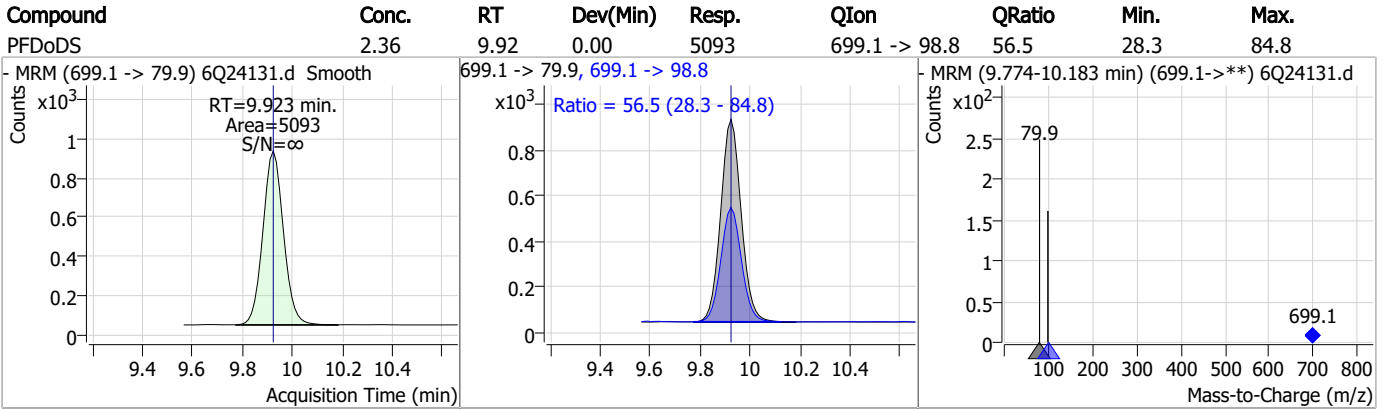
Perfluorinated Compounds by LC/MS/MS



7.7.19 7

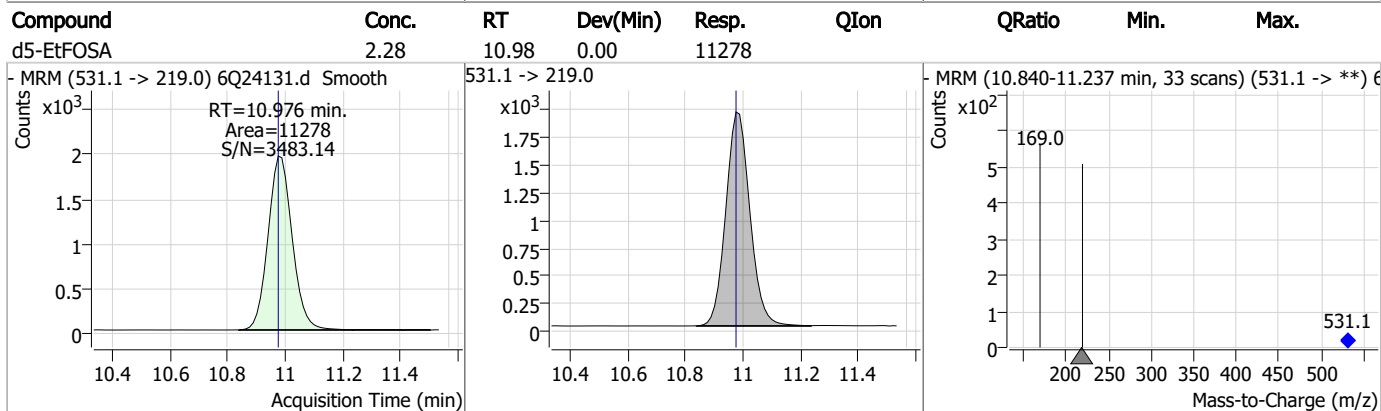
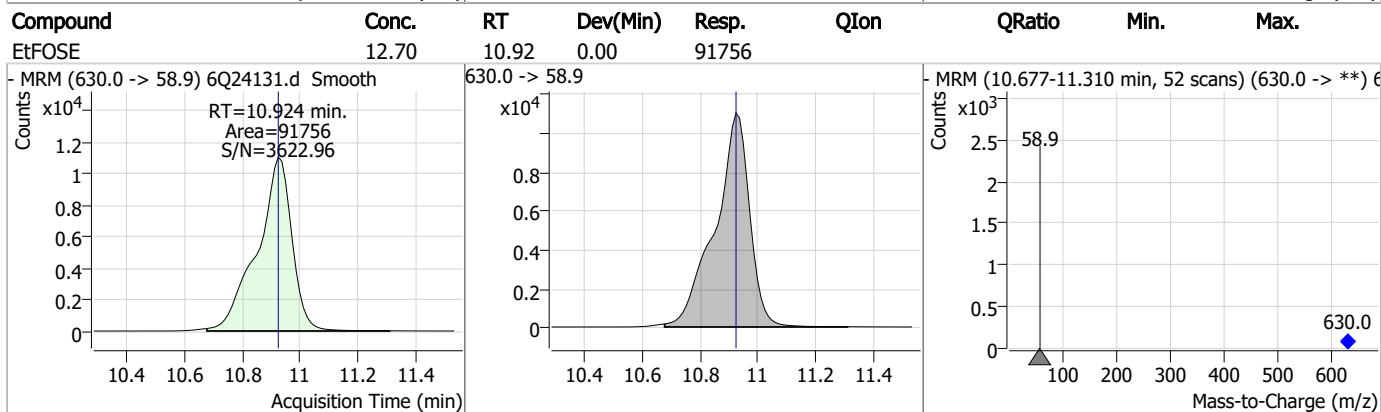
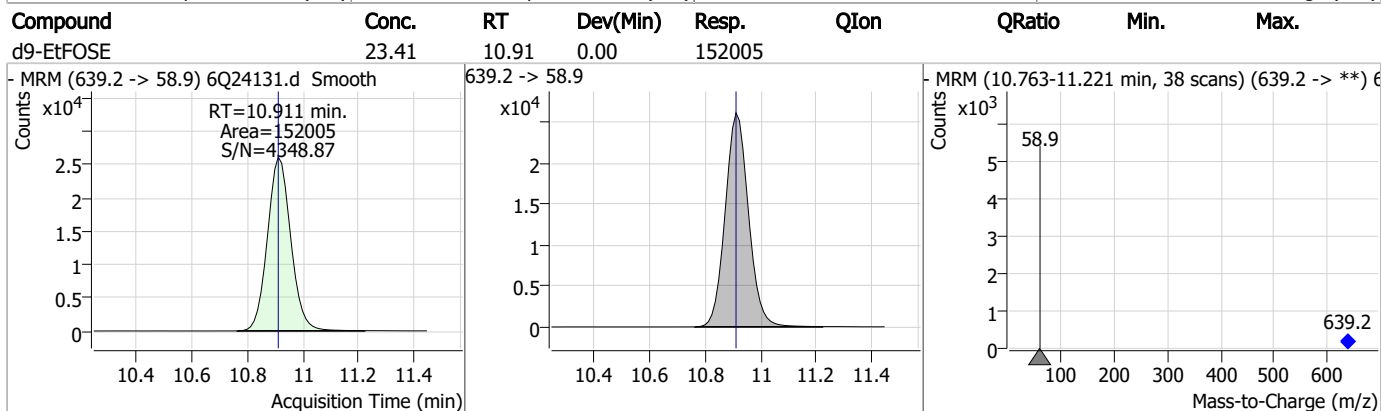
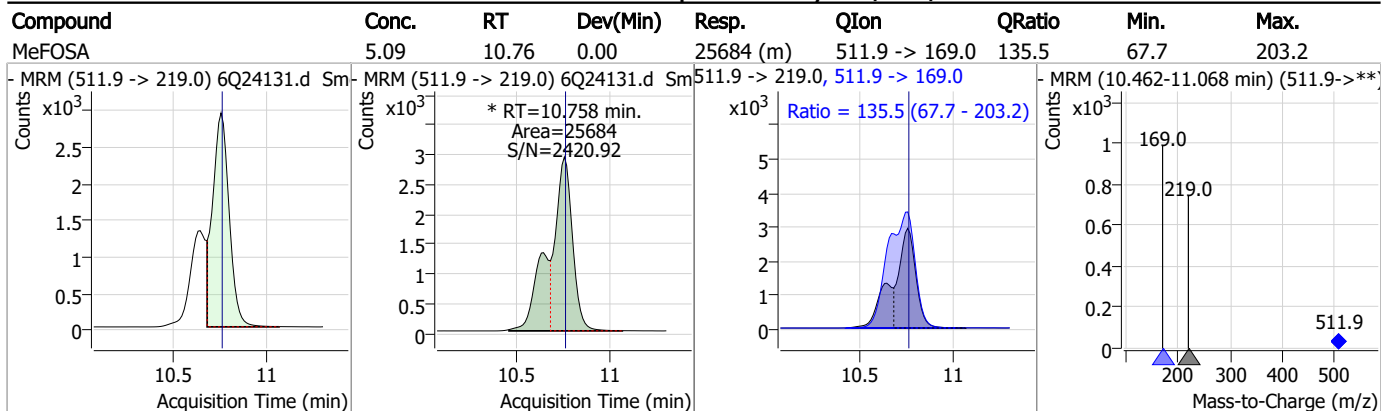


Perfluorinated Compounds by LC/MS/MS



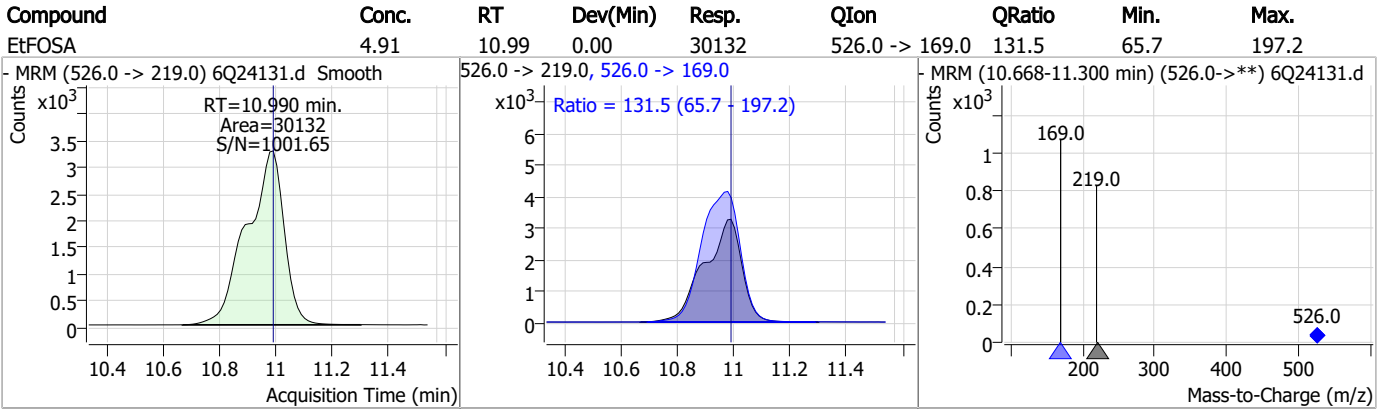
7.7.19 7

Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q347-ICC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24131.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 21:29 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 09/11/23 13:46

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24132.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 9:43:33 PM
 Sample Name : ic347-5
 Vial : P1-A6
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	194322	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	36396	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	74636	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	56595	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	77788	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	33776	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	31458	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	44185	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	40715	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	14113	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	28864	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	24553	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	13055	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	12679	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2875	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4079	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4708	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	26426	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	40257	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	21922	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	112992	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	150799	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	11162	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	12370	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	16832	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	77076	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	9932	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	82933	2.50 µg/L	0.000
13C2-PFDA	8.210	515.1 -> 470.1	29840	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	40146	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	53259	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2875	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4079	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4708	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.9%		
13C2-PFDoDA	9.093	615.1 -> 570.0	40715	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C2-PFTeDA	9.796	715.2 -> 670.0	14113	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.9%		
13C3-PFBS	5.571	302.1 -> 79.9	24553	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C3-PFHxS	7.313	402.1 -> 79.9	13055	2.39 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 = 95.7%		
13C4-PFBA	2.985	216.8 -> 171.9	194322	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C4-PFHpA	6.569	367.1 -> 322.0	56595	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C5-PFHxA	5.641	318.0 -> 273.0	74636	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C5-PFPeA	4.422	268.3 -> 223.0	36396	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C6-PFDA	8.210	519.1 -> 474.1	31458	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C7-PFUnDA	8.663	570.0 -> 525.1	44185	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C8-FOSA	9.657	506.1 -> 77.8	28864	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C8-PFOA	7.198	421.1 -> 376.0	77788	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C8-PFOS	8.361	507.1 -> 79.9	12679	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C9-PFNA	7.729	472.1 -> 427.0	33776	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.7%		
d3-MeFOSAA	8.256	573.2 -> 419.0	26426	5.62 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.3%		
13C3-HFPO-DA	6.019	286.9 -> 168.9	40257	9.92 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.2%		
d3-MeFOSA	10.757	515.0 -> 219.0	12370	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
d5-EtFOSAA	8.464	589.2 -> 419.0	21922	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.8%		
d7-MeFOSE	10.678	623.2 -> 58.9	112992	25.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
d9-EtFOSE	10.911	639.2 -> 58.9	150799	25.32 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
d5-EtFOSA	10.976	531.1 -> 219.0	11162	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	89313	18.79 µg/L	99
		327.1 -> 80.9	33576		
6:2FTS	6.974	427.1 -> 407.0	73088	20.25 µg/L	100
		427.1 -> 80.9	29004		
8:2FTS	7.999	527.1 -> 507.0	56836	17.89 µg/L	92
		527.1 -> 80.8	19652		
EtFOSAA	8.465	584.2 -> 419.1	14897	4.81 µg/L	m 87
		584.2 -> 526.0	11358		
FOSA	9.647	498.1 -> 77.9	53389	5.03 µg/L	99
		498.1 -> 478.0	1782		
MeFOSAA	8.257	570.1 -> 419.0	27013	4.30 µg/L	98
		570.1 -> 483.0	5720		
PFBA	2.993	212.8 -> 168.9	127128	19.80 µg/L	100
PFBS	5.572	298.7 -> 79.9	51107	4.24 µg/L	97
		298.7 -> 98.8	18392		
PFDA	8.211	512.9 -> 469.0	148868	5.19 µg/L	98
		512.9 -> 219.0	23061		
PFDoDA	9.094	613.1 -> 569.0	149865	4.96 µg/L	100
		613.1 -> 319.0	17448		
PFDS	9.245	599.0 -> 79.9	19117	5.17 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	9284			
PFHpA	6.569	363.1 -> 319.0	152393	5.09	µg/L	100
		363.1 -> 169.0	22350			
PFHpS	7.868	449.0 -> 79.9	29288	4.77	µg/L	94
		449.0 -> 98.9	14845			
PFHxA	5.644	313.0 -> 269.0	133386	4.91	µg/L	100
		313.0 -> 118.9	5688			
PFHxS	7.314	398.7 -> 79.9	39583	4.83	µg/L	m 98
		398.7 -> 98.9	18603			
PFNA	7.730	463.0 -> 419.0	120572	4.73	µg/L	97
		463.0 -> 219.0	28112			
PFNS	8.826	548.8 -> 79.9	29011	4.85	µg/L	98
		548.8 -> 98.9	16552			
PFOA	7.200	413.0 -> 369.0	187081	4.67	µg/L	98
		413.0 -> 169.0	32630			
PFOS	8.362	498.9 -> 79.9	34051	4.85	µg/L	m 98
		498.9 -> 98.8	15874			
PFPeA	4.424	263.0 -> 219.0	160163	9.88	µg/L	100
PFPeS	6.620	349.1 -> 79.9	36493	5.14	µg/L	92
		349.1 -> 98.9	15355			
PFTeDA	9.797	713.1 -> 669.0	106026	5.22	µg/L	98
		713.1 -> 168.9	7548			
PFTrDA	9.464	663.0 -> 619.0	170717	4.97	µg/L	97
		663.0 -> 168.9	12889			
PFUnDA	8.664	563.1 -> 519.0	126118	4.98	µg/L	100
		563.1 -> 269.1	18540			
11Cl-PF3OUdS	9.516	630.9 -> 450.9	136464	9.29	µg/L	94
		632.9 -> 452.9	43709			
9Cl-PF3ONS	8.703	530.8 -> 351.0	249575	9.91	µg/L	100
		532.8 -> 353.0	70986			
ADONA	6.817	376.9 -> 250.9	544860	9.35	µg/L	100
		376.9 -> 84.8	148280			
HFPO-DA	6.020	284.9 -> 168.9	38007	9.98	µg/L	97
		284.9 -> 184.9	5410			
3:3FTCA	3.858	241.0 -> 177.0	26639	23.98	µg/L	100
		241.0 -> 117.0	2538			
5:3FTCA	6.271	341.0 -> 237.1	561724	121.70	µg/L	96
		341.0 -> 217.0	381387			
7:3FTCA	7.657	441.0 -> 316.9	343407	125.90	µg/L	91
		441.0 -> 336.9	730771			
EtFOSA	10.990	526.0 -> 219.0	63058	10.38	µg/L	96
		526.0 -> 169.0	80186			
EtFOSE	10.924	630.0 -> 58.9	178421	24.90	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	51136	9.74	µg/L	m 100
		511.9 -> 169.0	69484			
MeFOSE	10.691	616.1 -> 58.9	122226	25.02	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	10383	5.13	µg/L	97
		699.1 -> 98.8	5629			
NFDHA	5.524	295.0 -> 201.0	30641	9.73	µg/L	93
		295.0 -> 84.9	8148			
PFMBA	4.850	279.0 -> 85.1	116250	9.84	µg/L	100
PFMPA	3.551	229.0 -> 84.9	83524	9.86	µg/L	100
PFEESA	6.112	314.8 -> 134.9	300099	8.84	µg/L	100
		314.8 -> 82.9	10436			

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

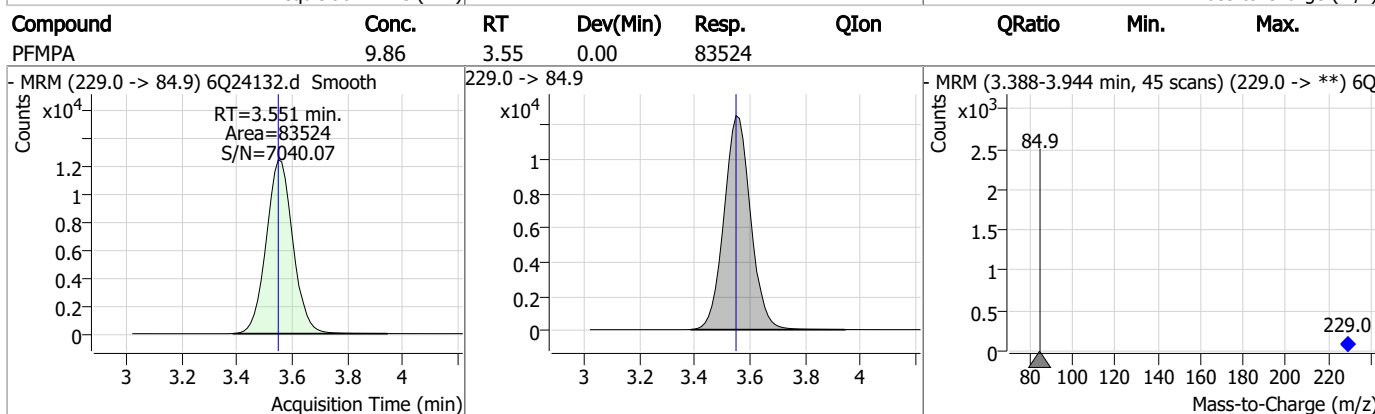
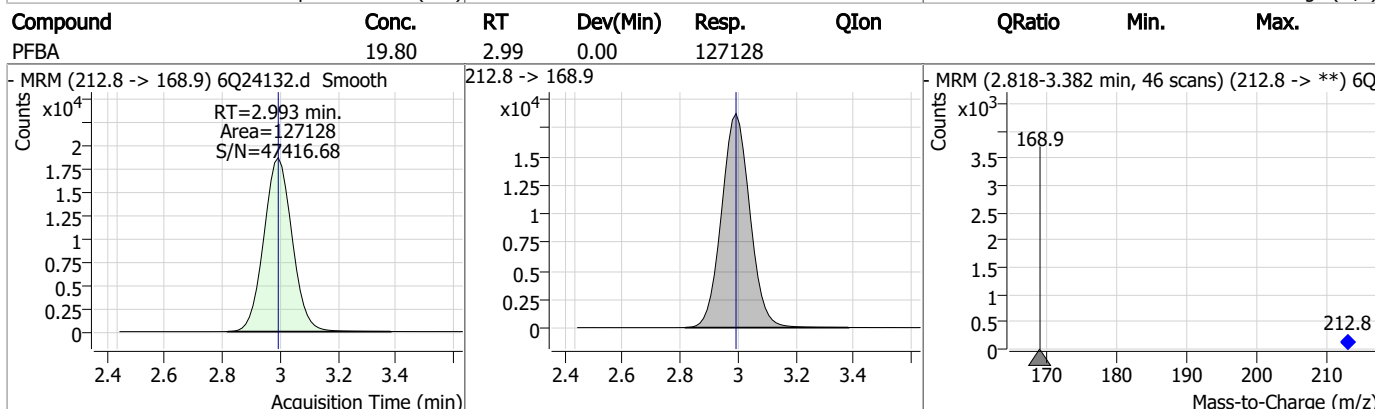
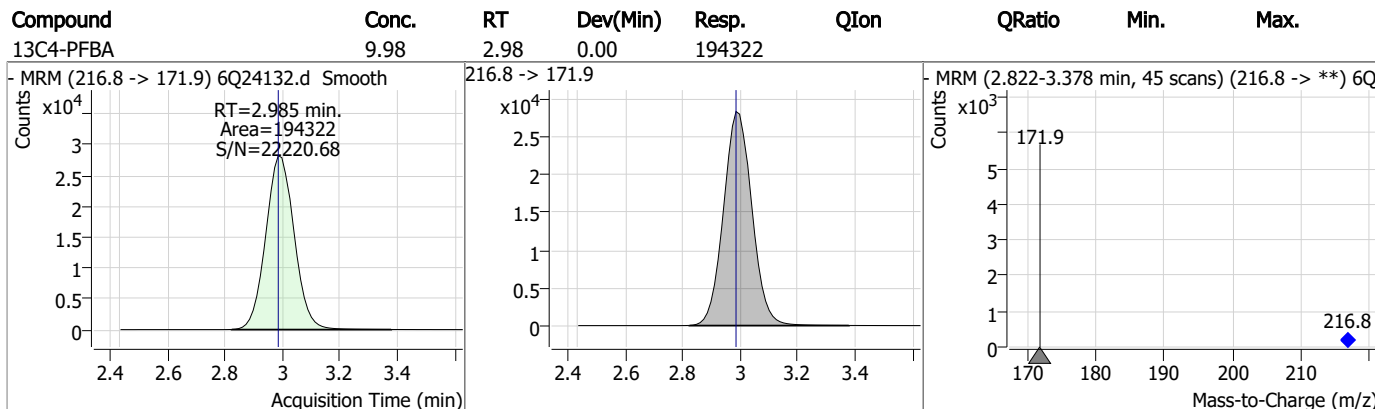
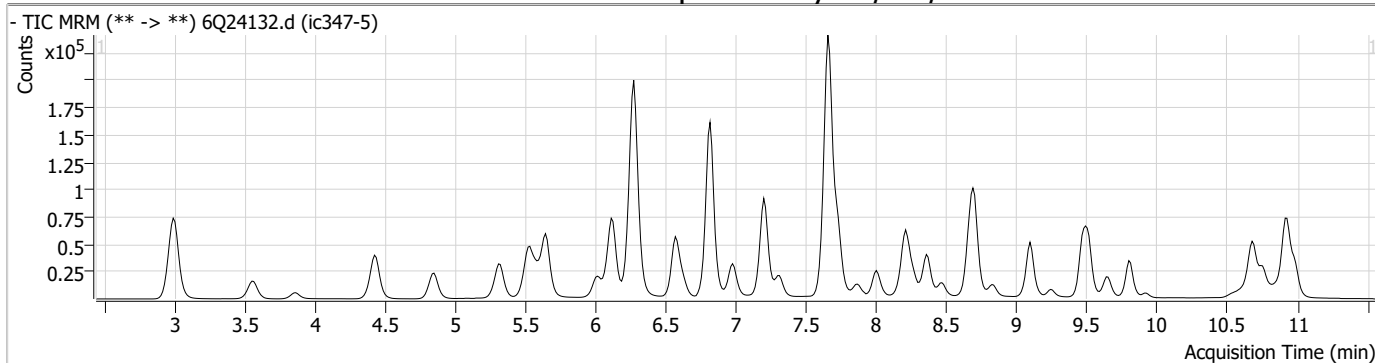
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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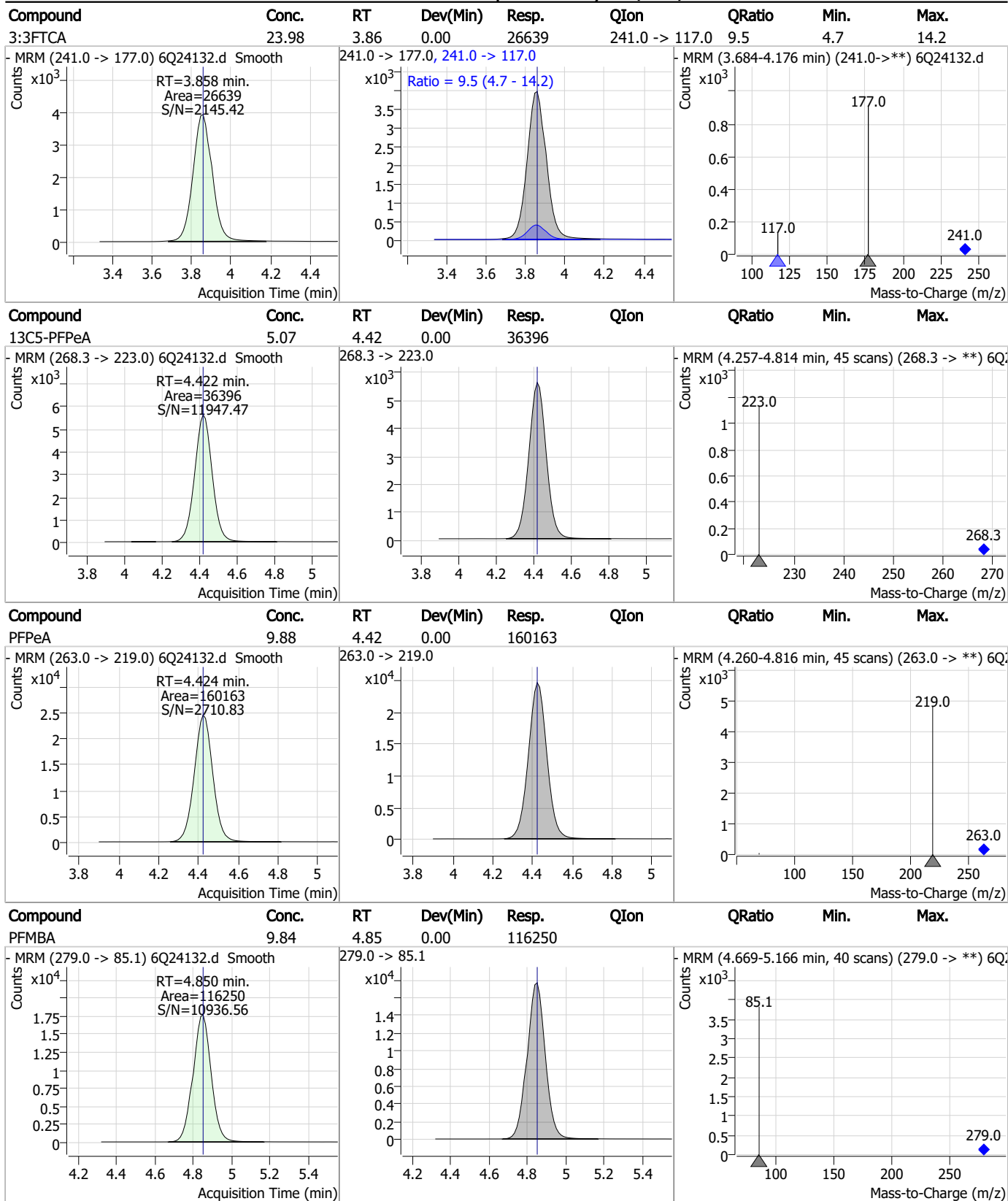
7.7.20

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Perfluorinated Compounds by LC/MS/MS



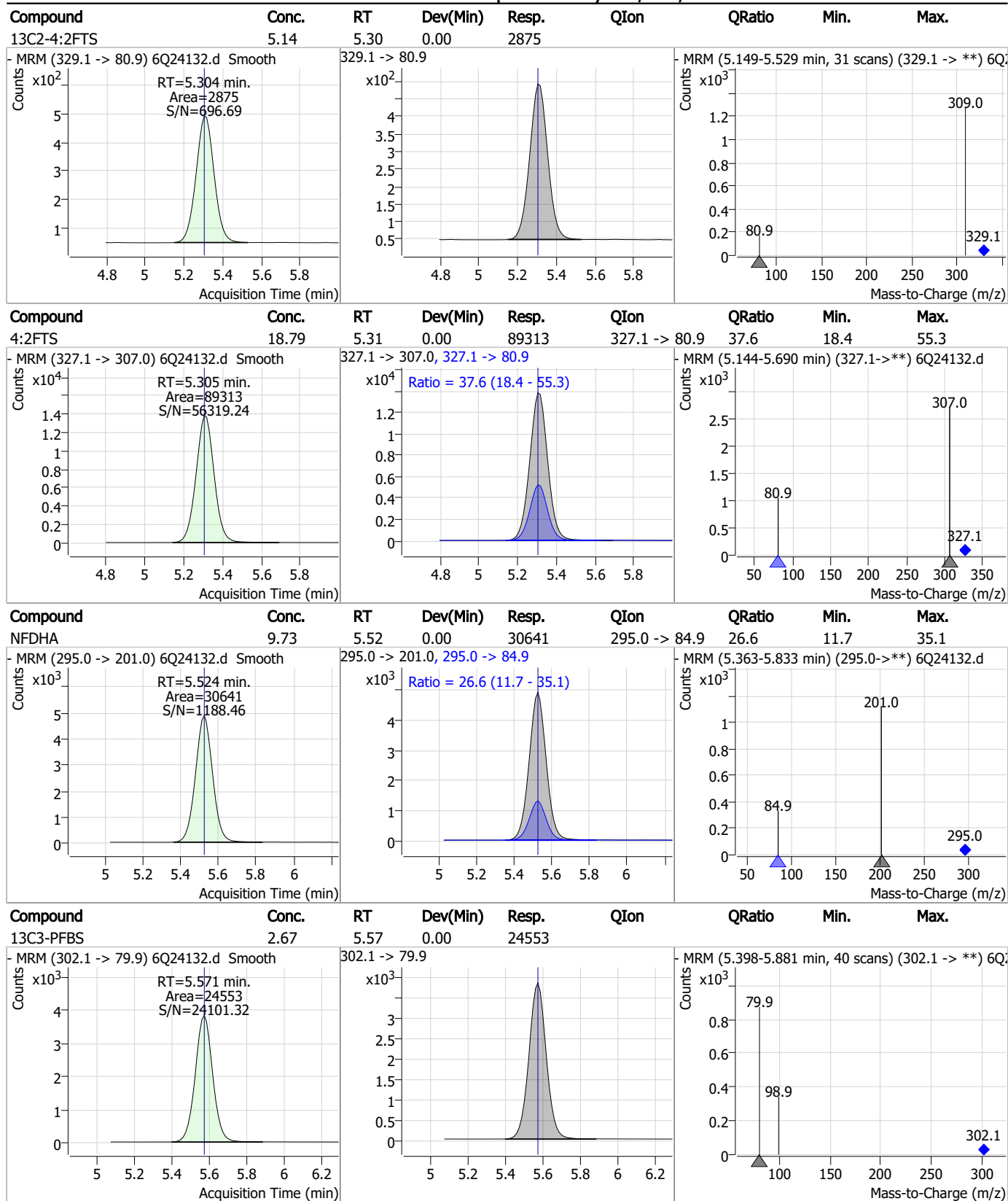
Perfluorinated Compounds by LC/MS/MS



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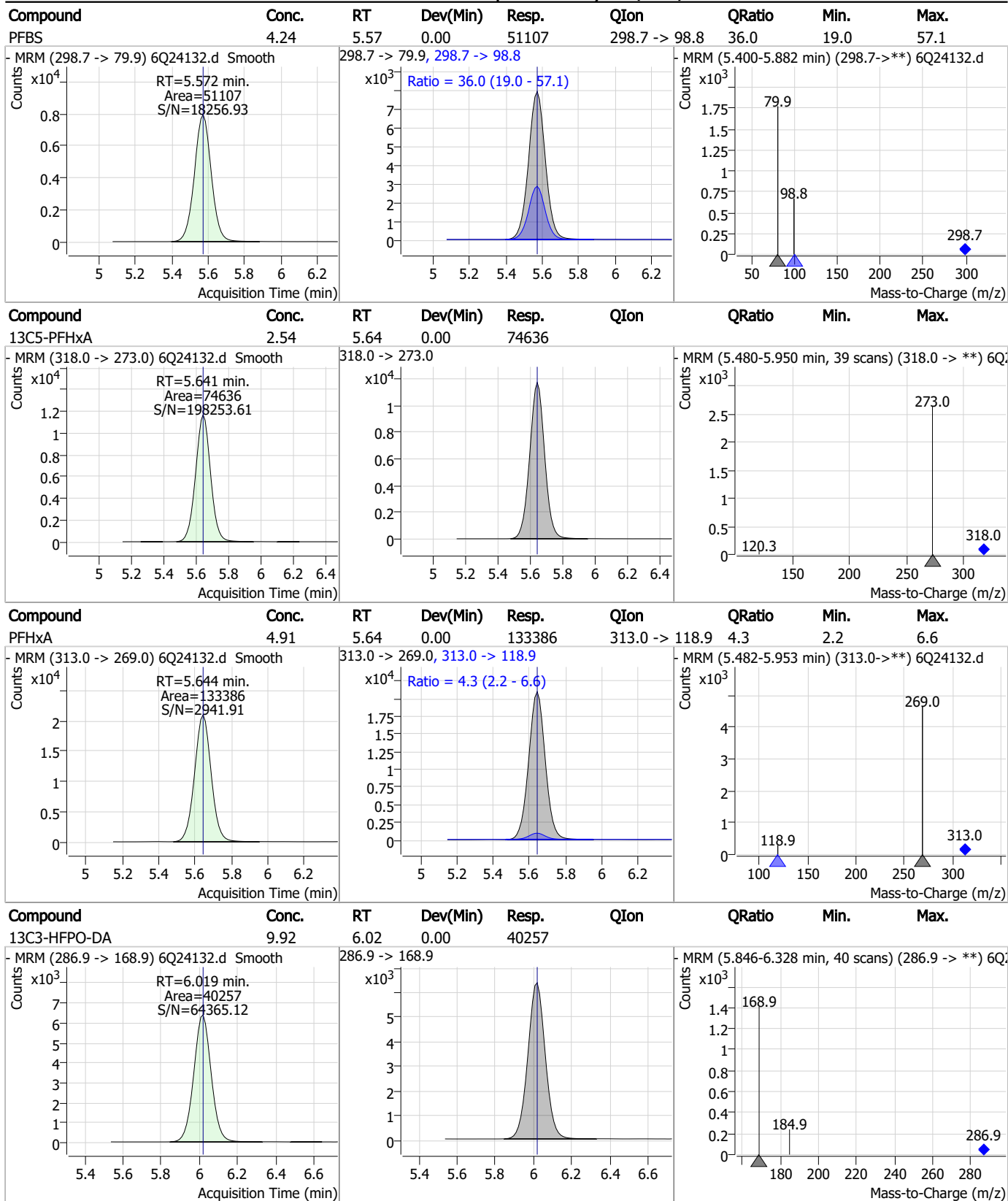
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

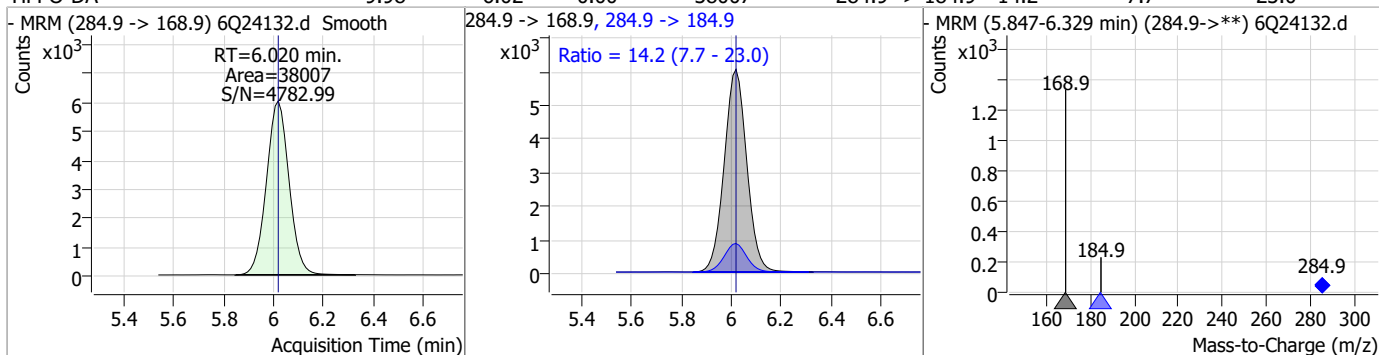


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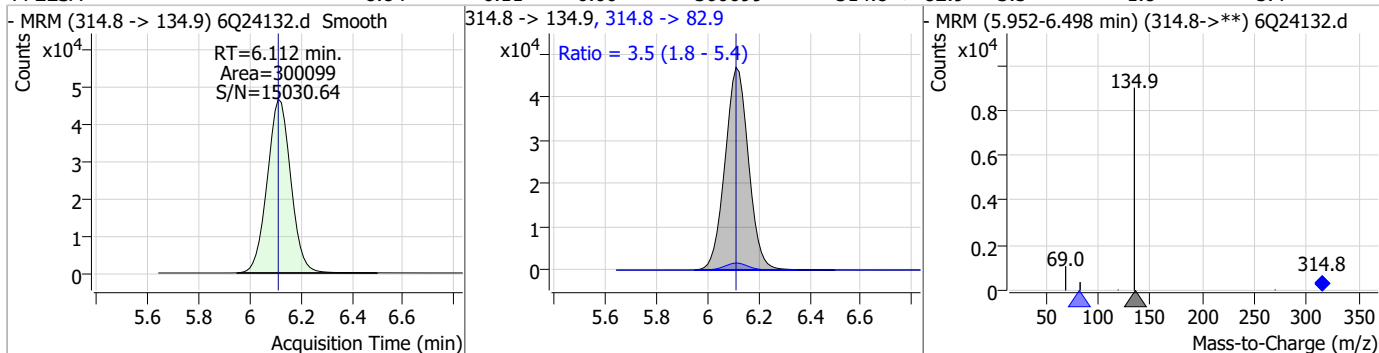
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Perfluorinated Compounds by LC/MS/MS

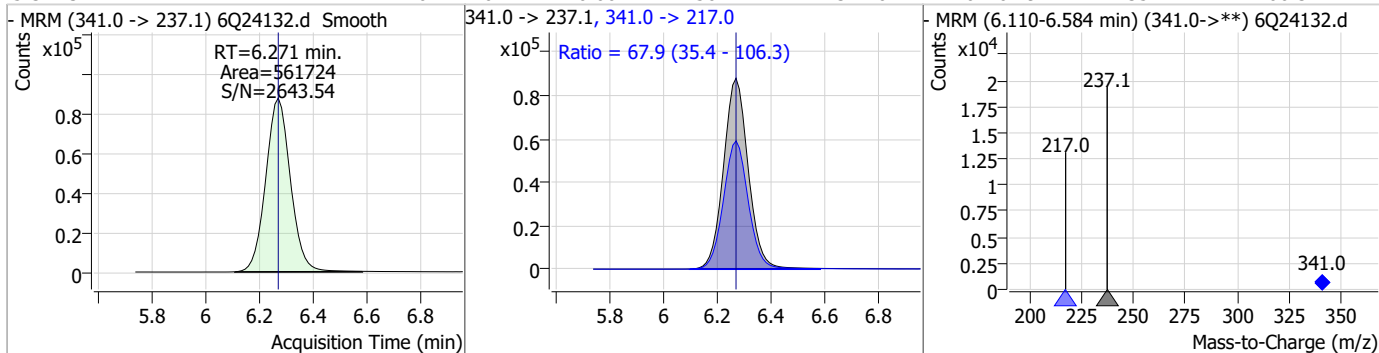
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.98	6.02	0.00	38007	284.9 -> 184.9	14.2	7.7	23.0



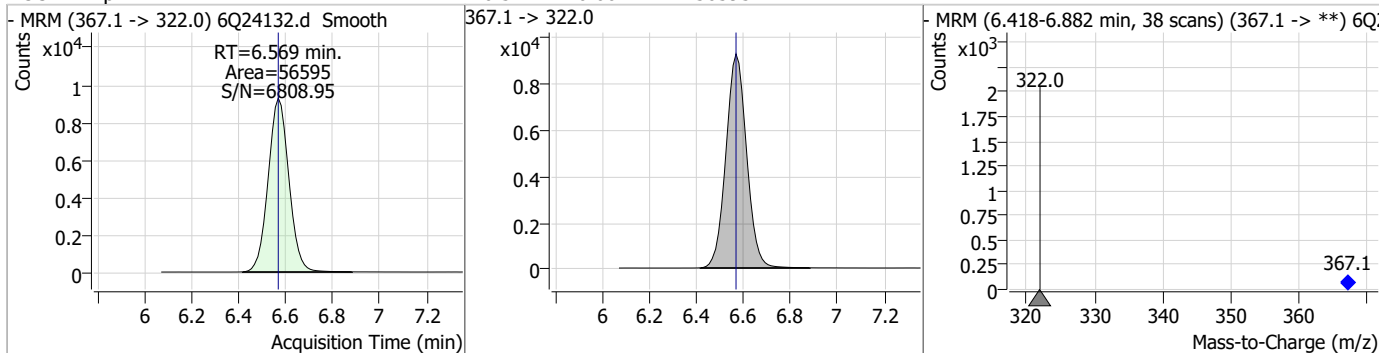
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	8.84	6.11	0.00	300099	314.8 -> 82.9	3.5	1.8	5.4



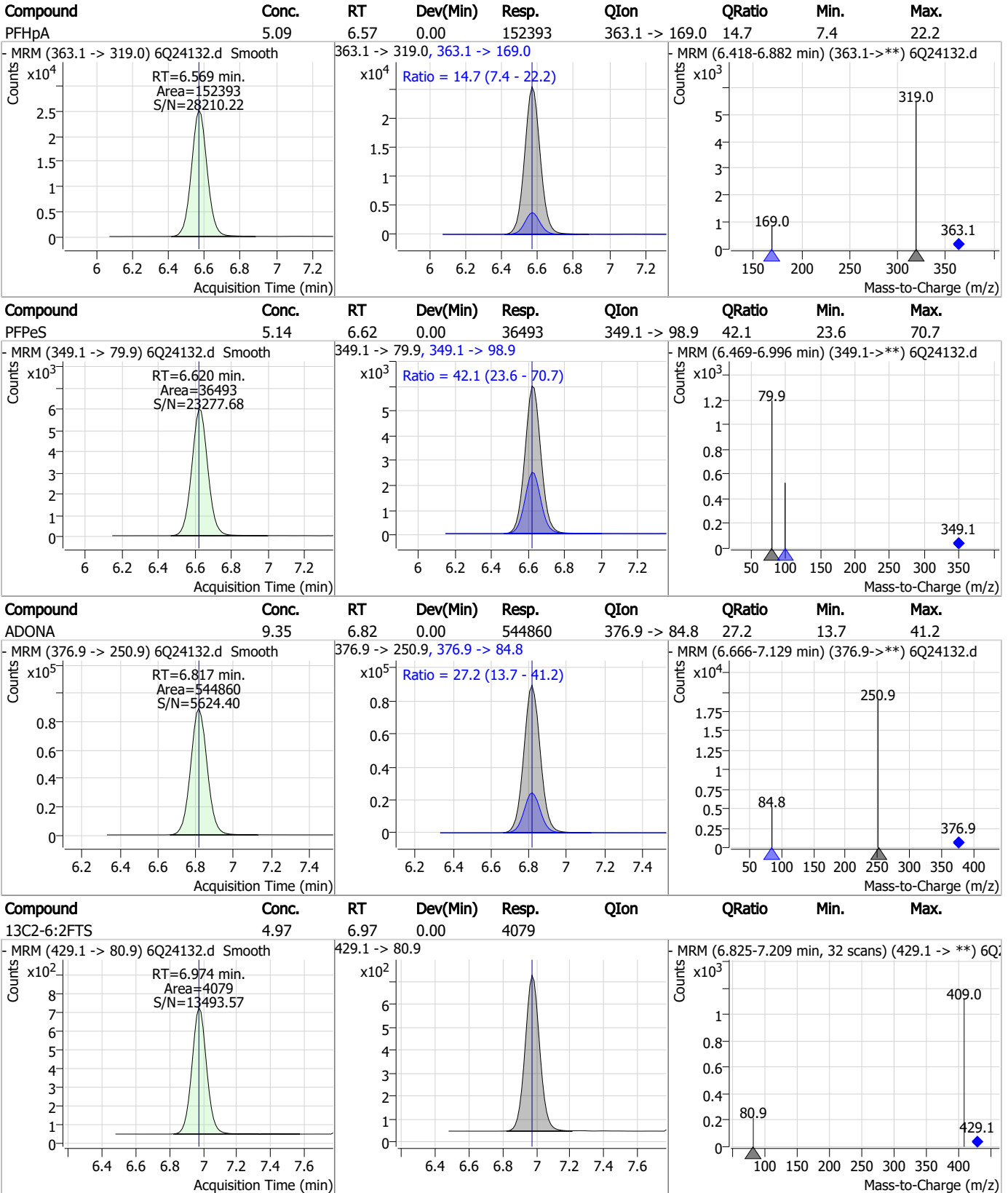
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	121.70	6.27	0.00	561724	341.0 -> 217.0	67.9	35.4	106.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.47	6.57	0.00	56595	367.1 -> 322.0			

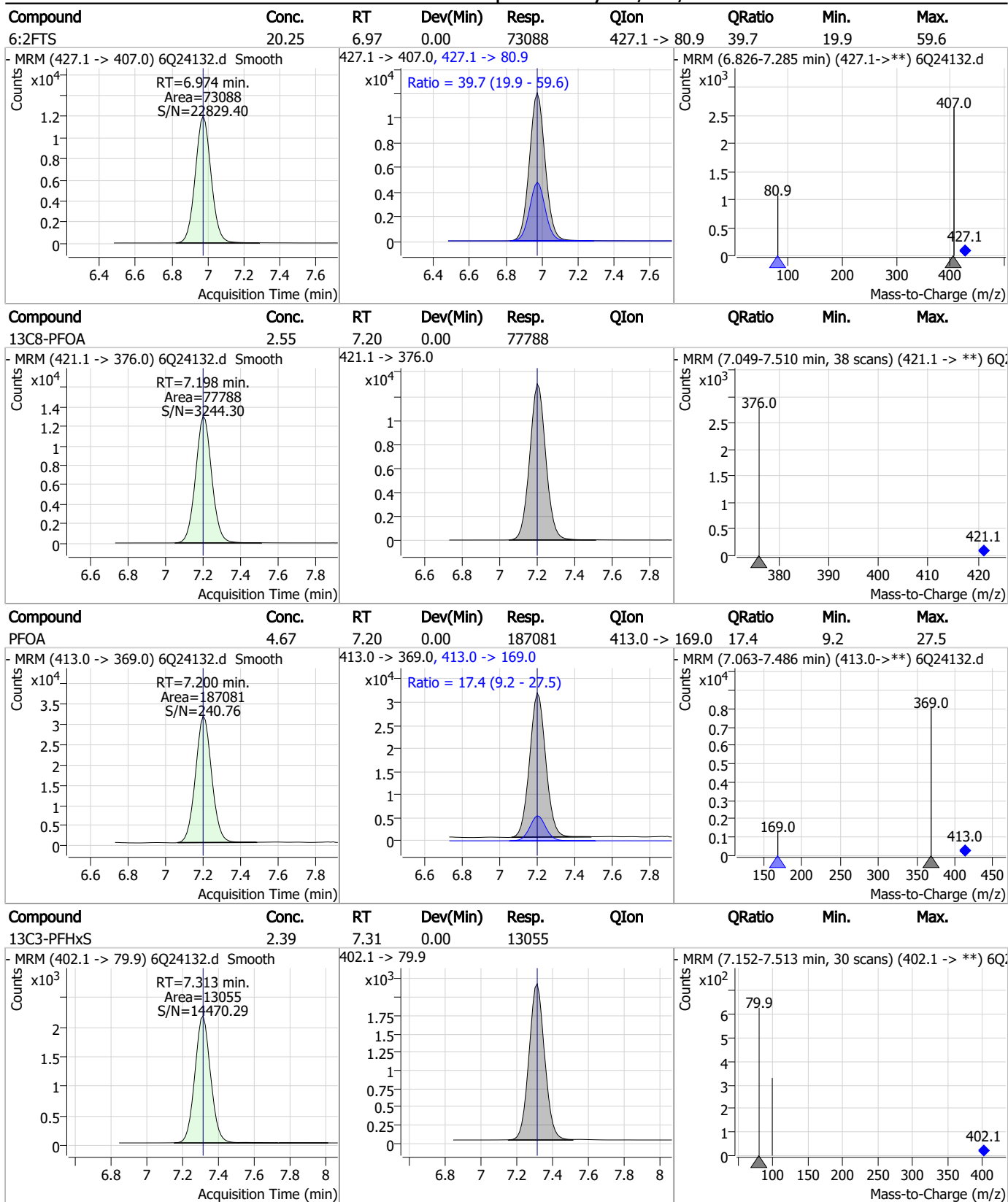


Perfluorinated Compounds by LC/MS/MS



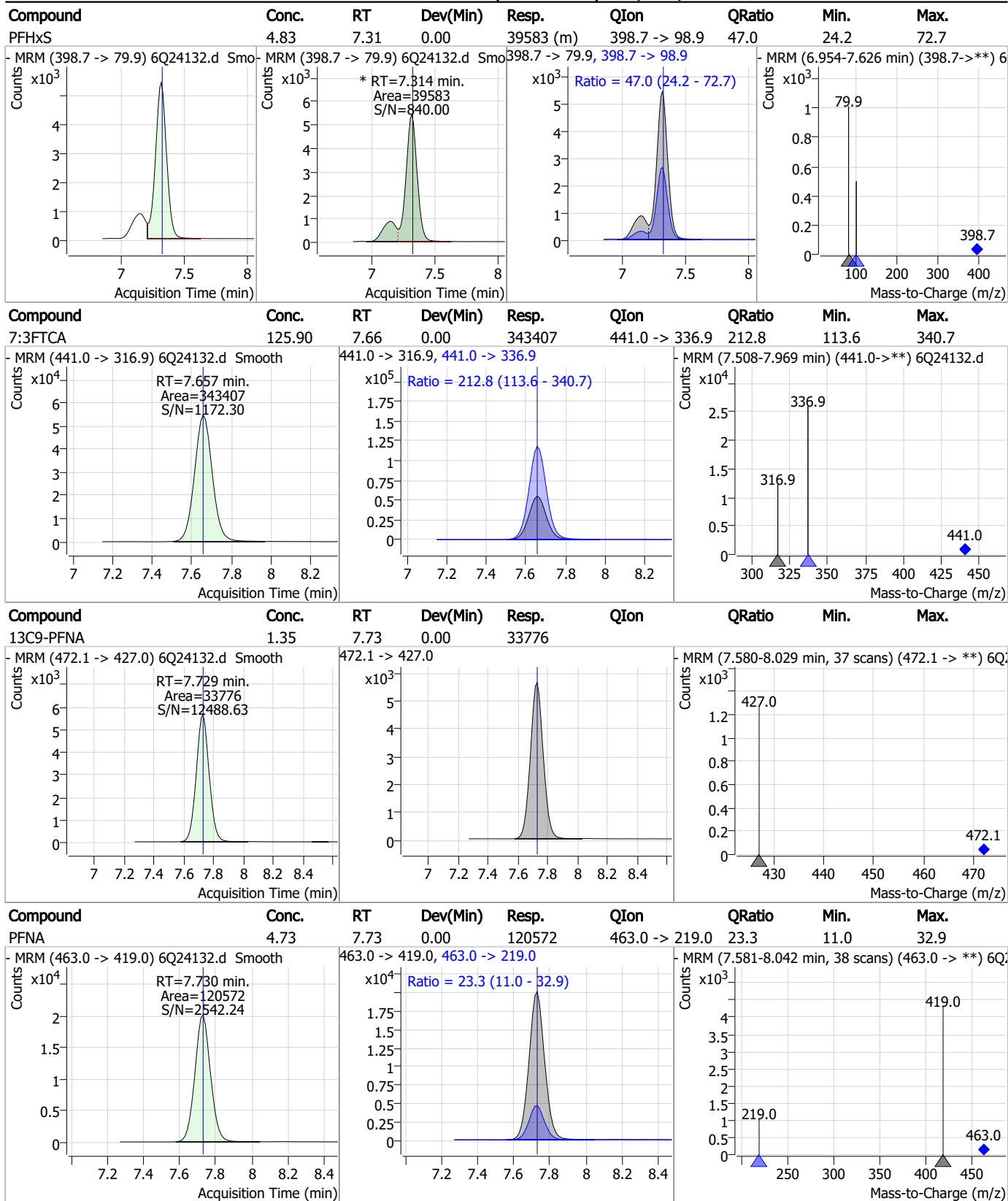
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Perfluorinated Compounds by LC/MS/MS



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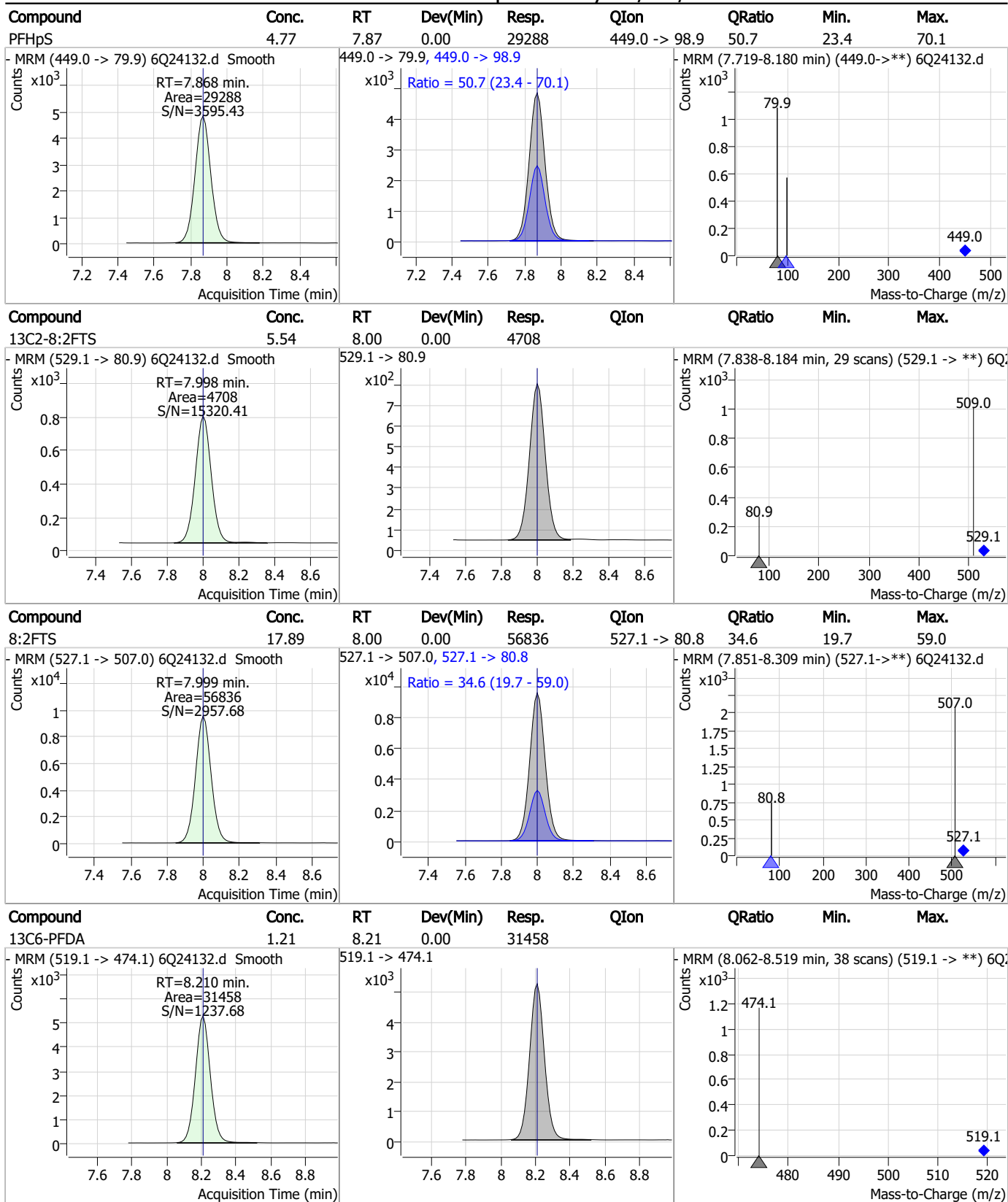
Perfluorinated Compounds by LC/MS/MS



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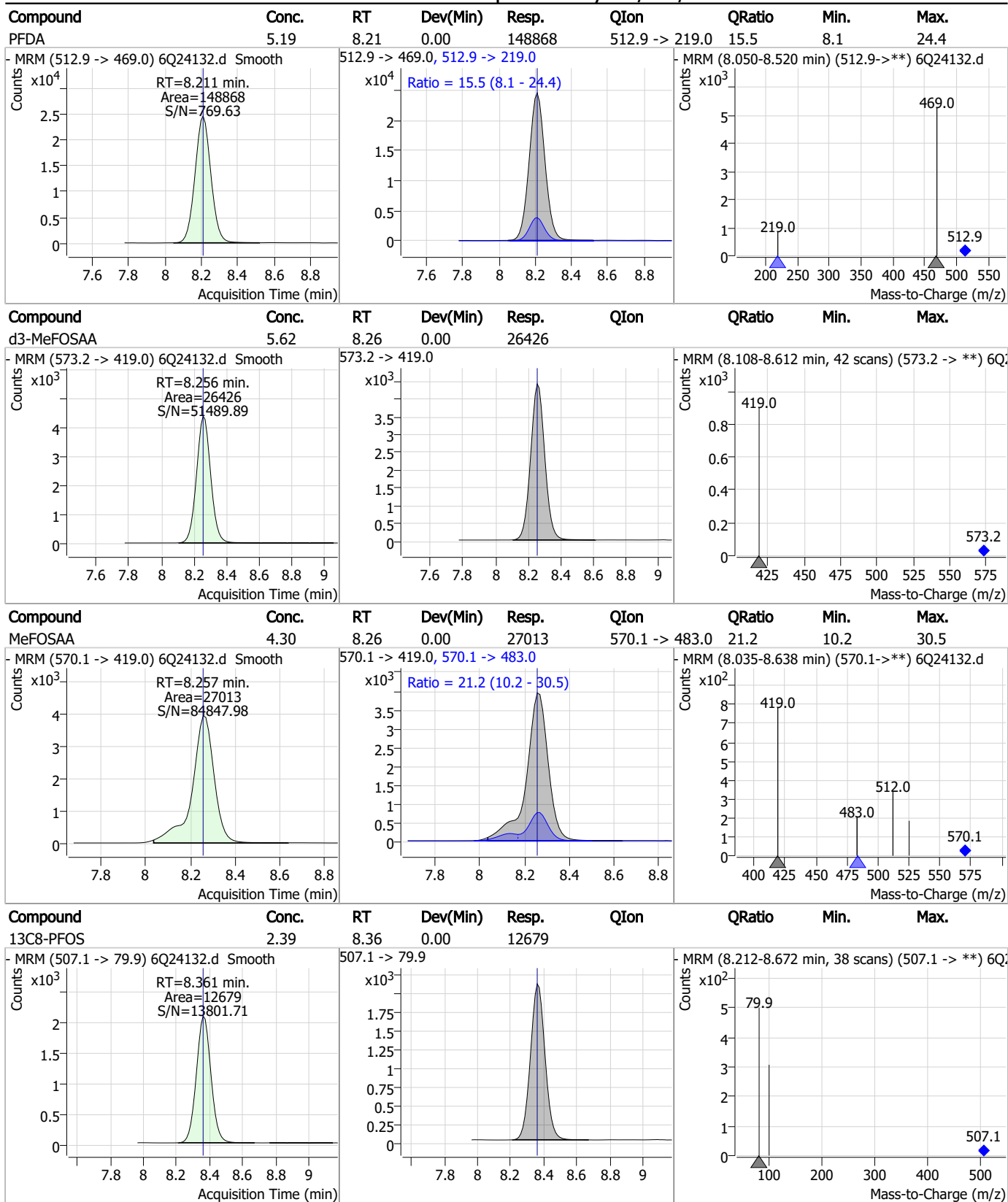
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Perfluorinated Compounds by LC/MS/MS



7.7.20 7

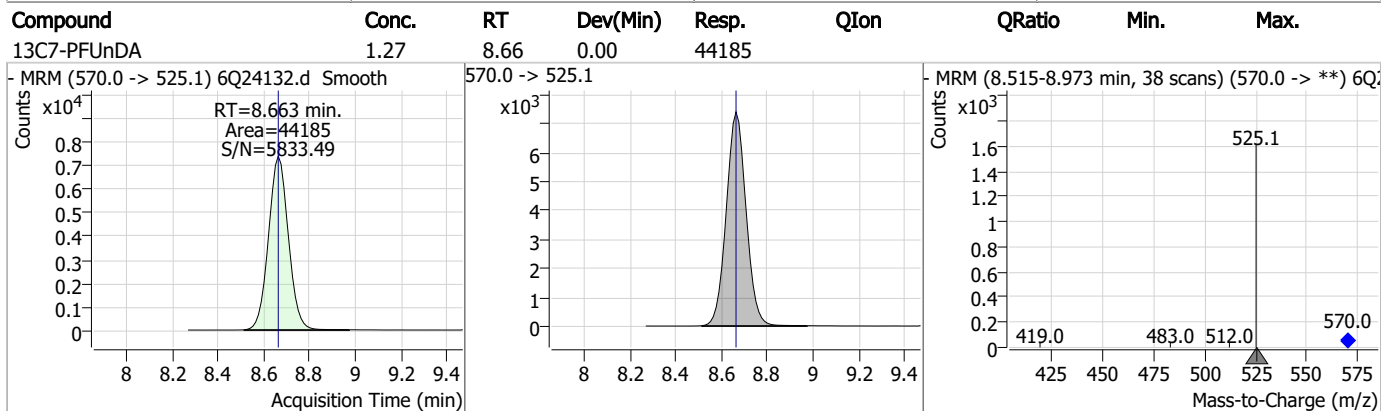
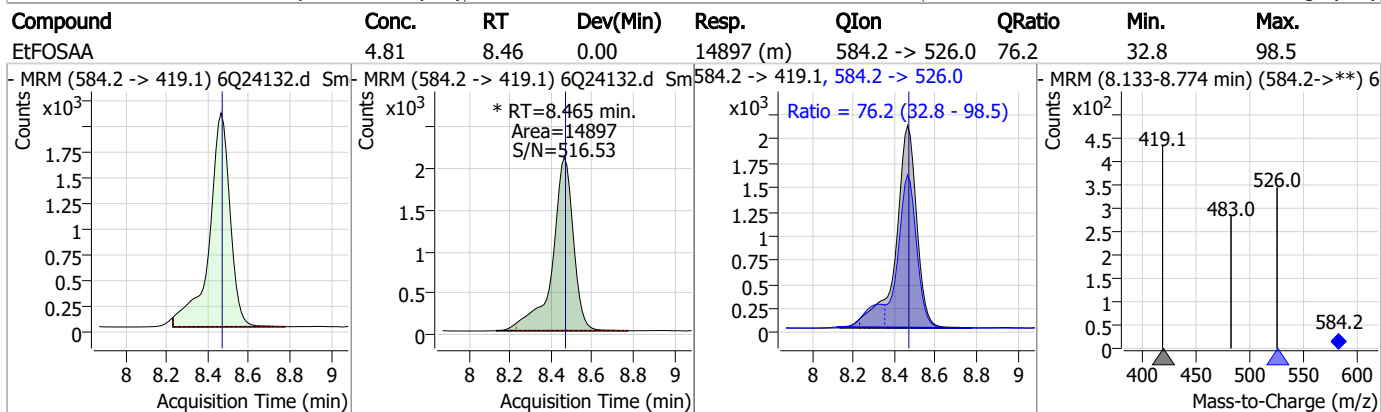
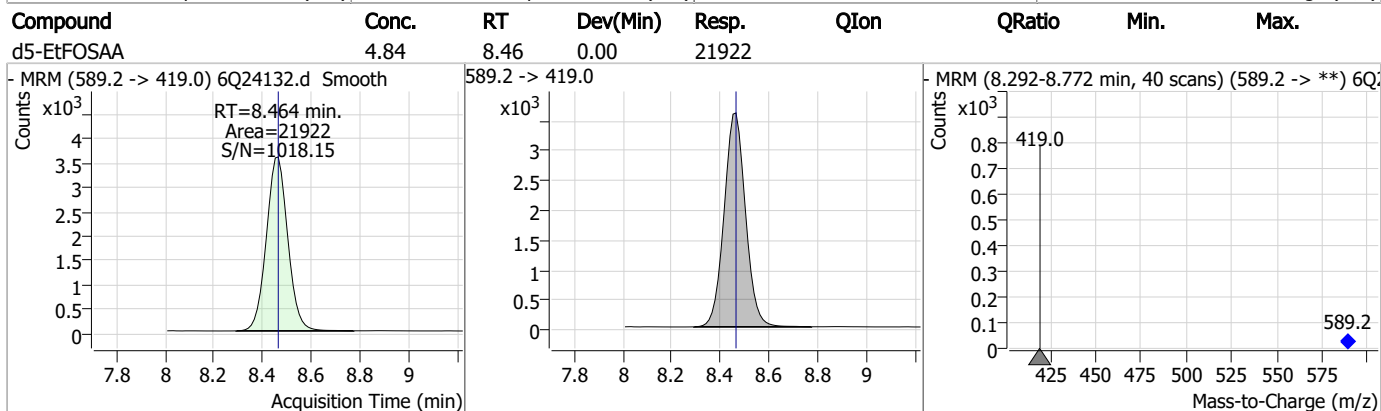
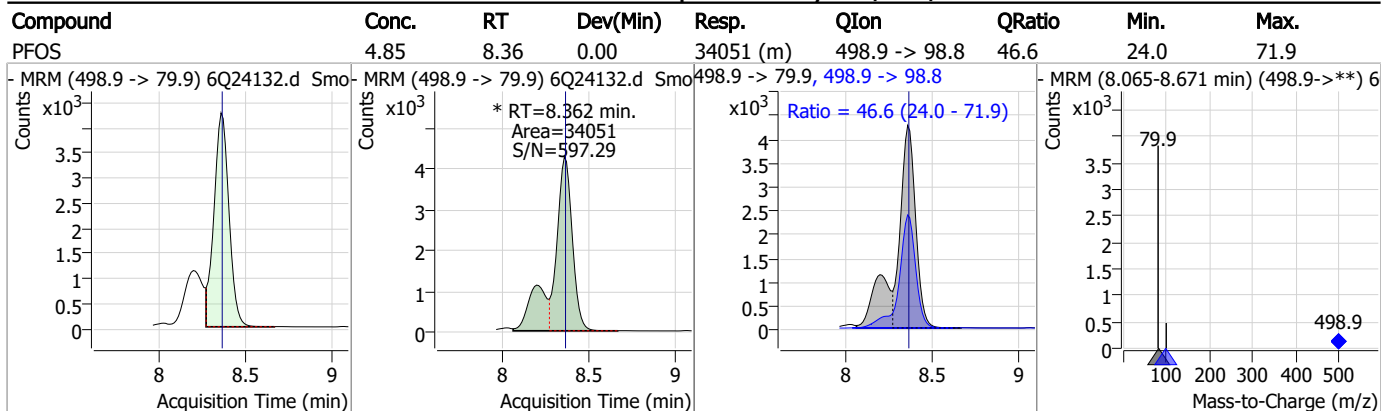
Perfluorinated Compounds by LC/MS/MS



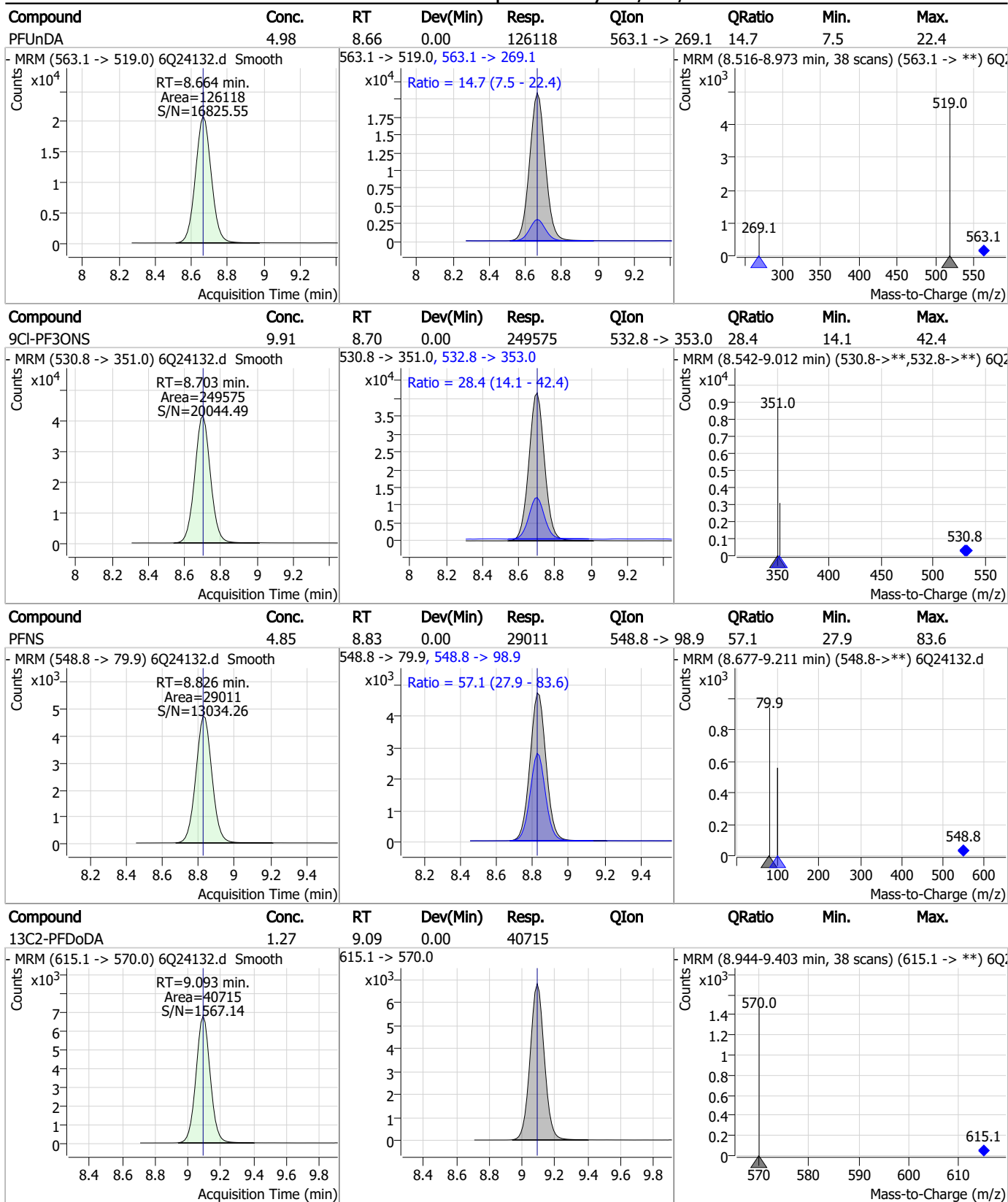
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

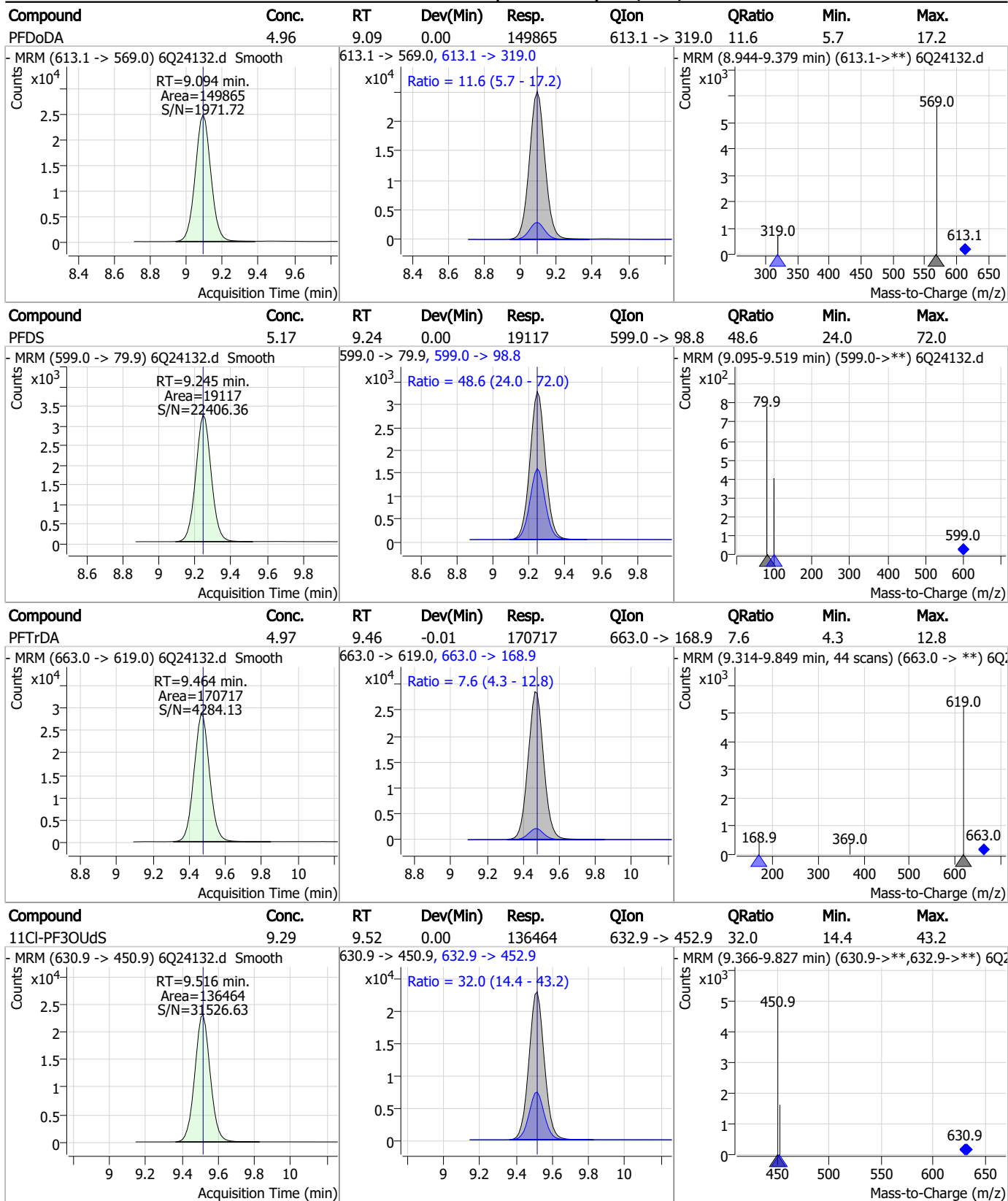


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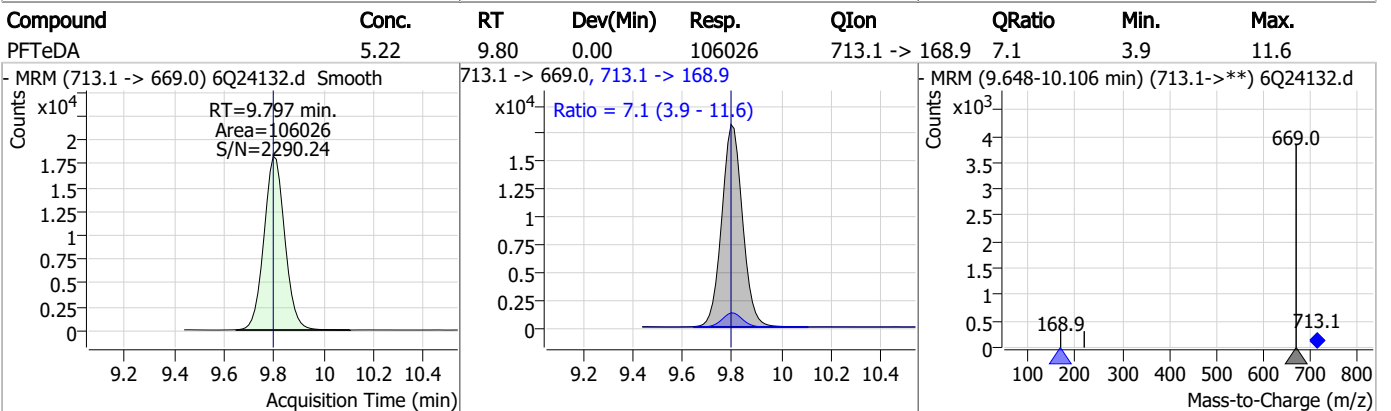
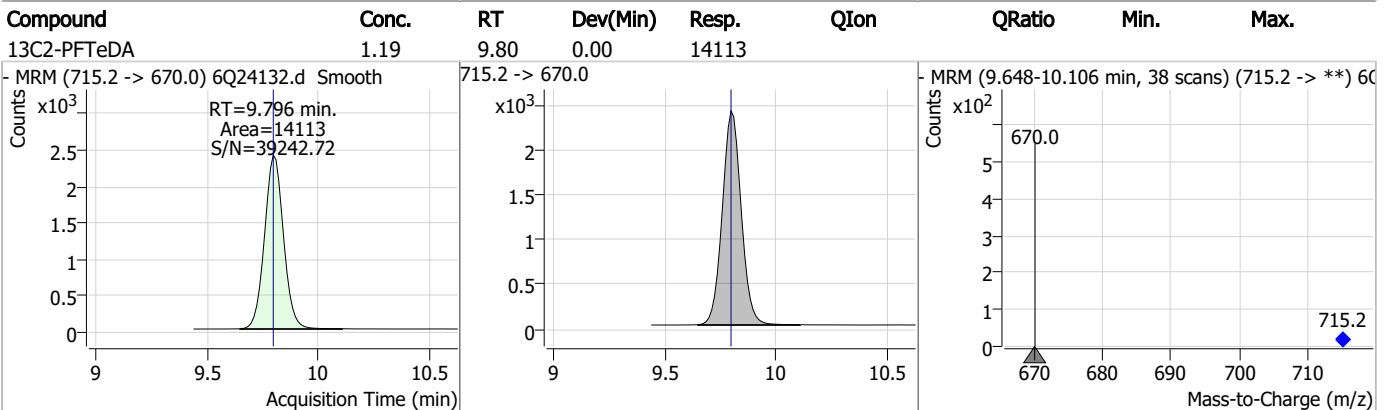
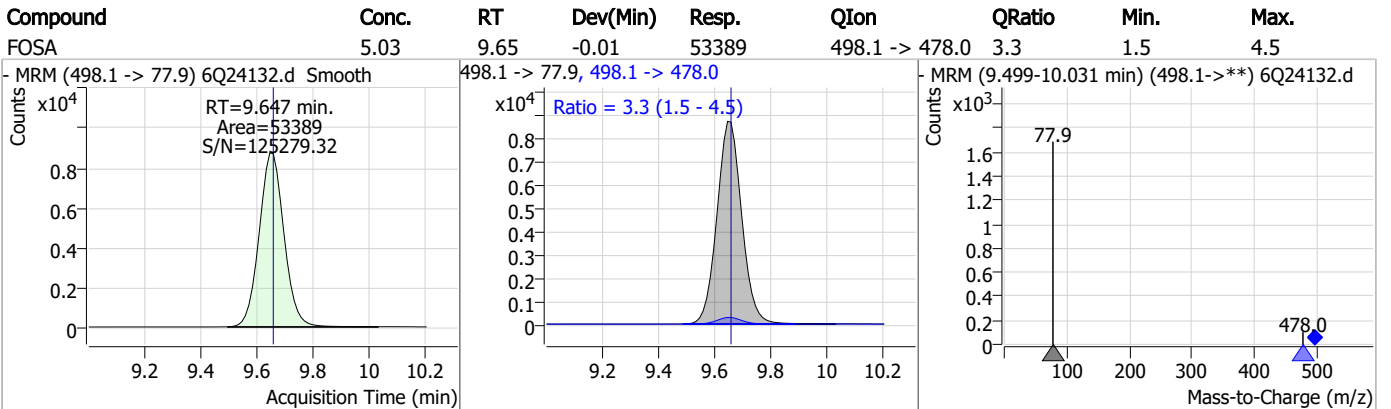
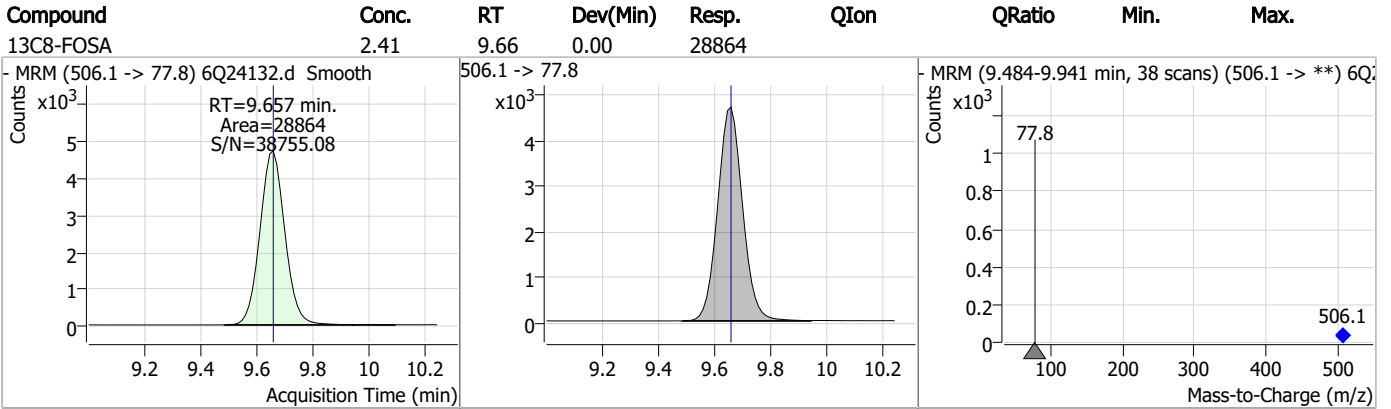


Perfluorinated Compounds by LC/MS/MS



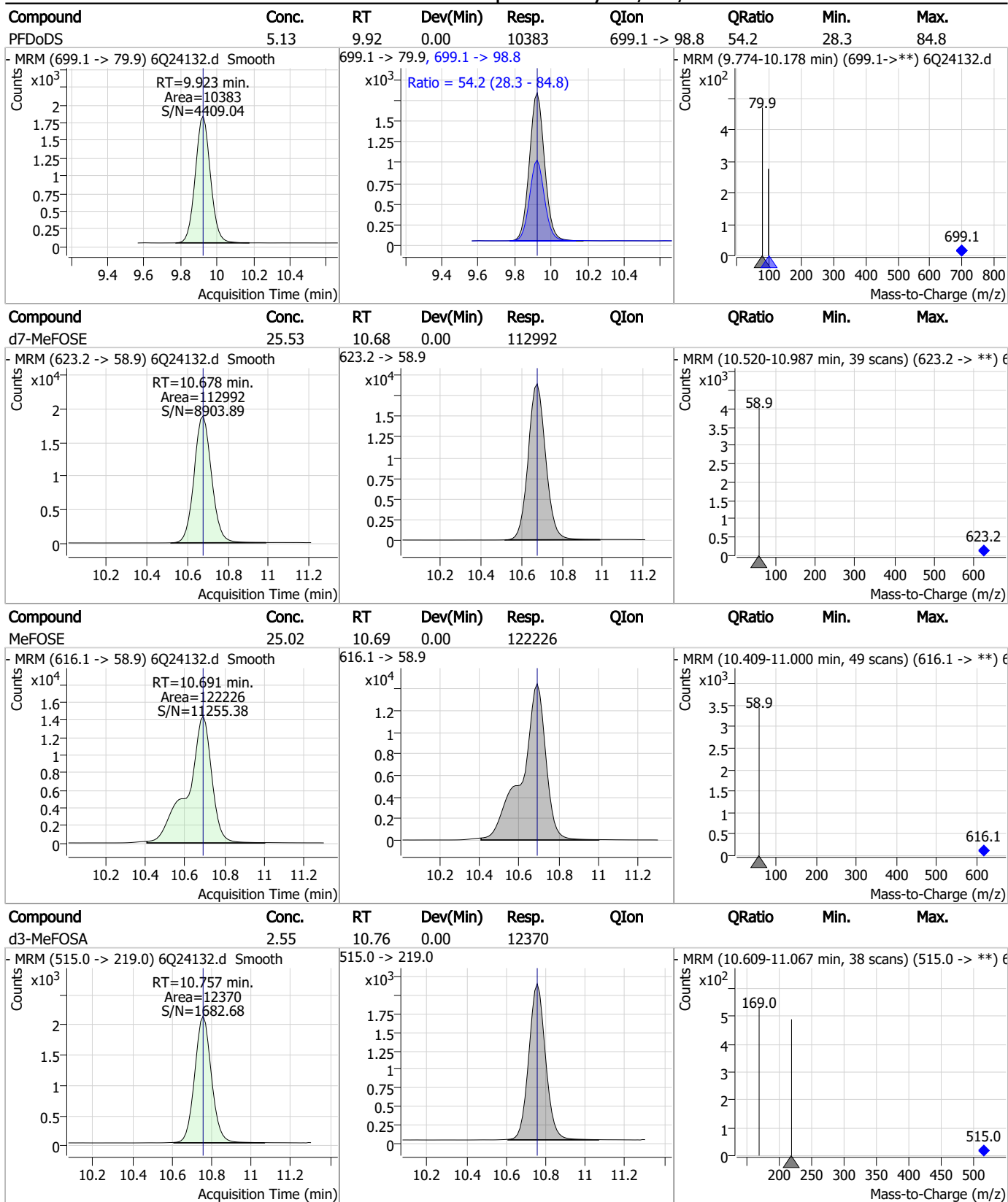
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Perfluorinated Compounds by LC/MS/MS



7.7.20 7

Perfluorinated Compounds by LC/MS/MS

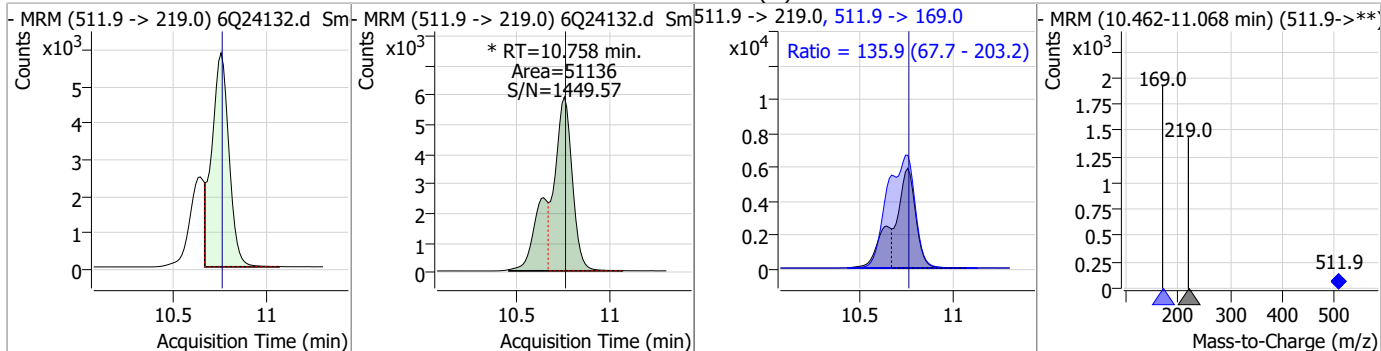


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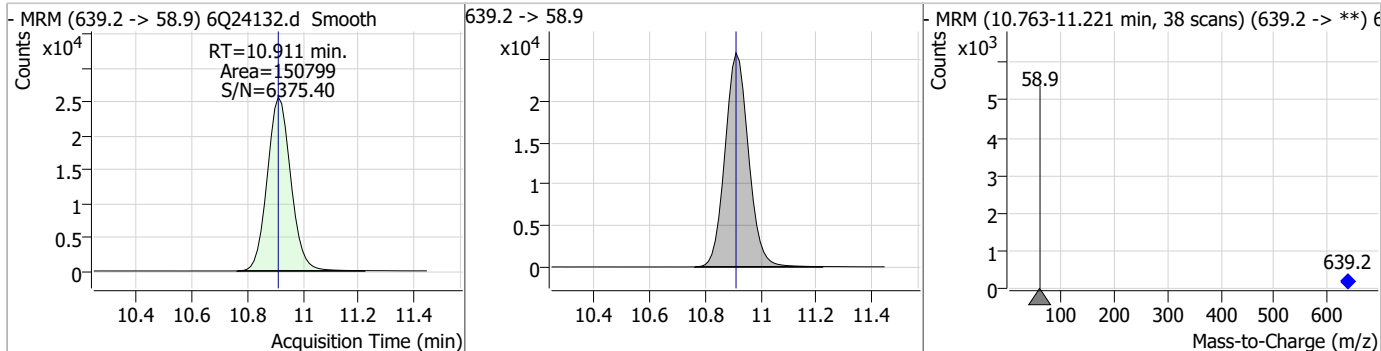
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Perfluorinated Compounds by LC/MS/MS

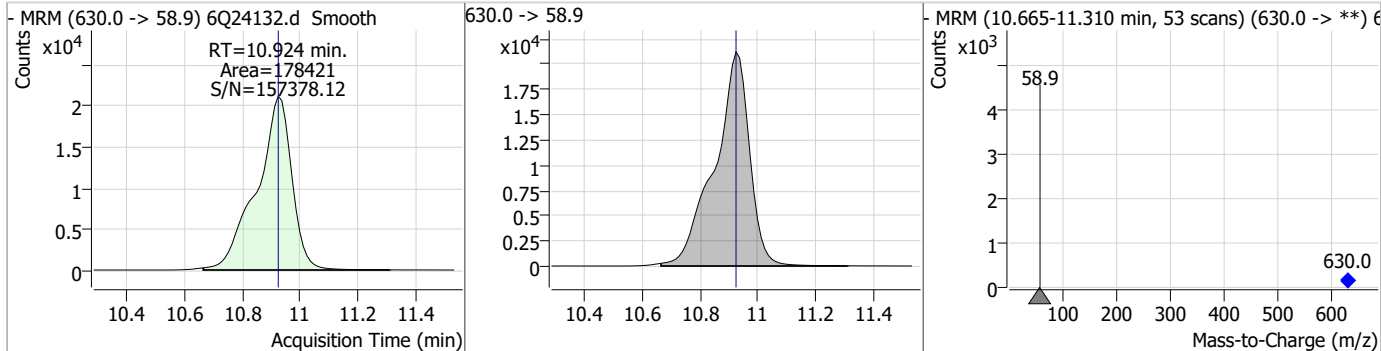
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	9.74	10.76	0.00	51136 (m)	511.9 -> 169.0	135.9	67.7	203.2



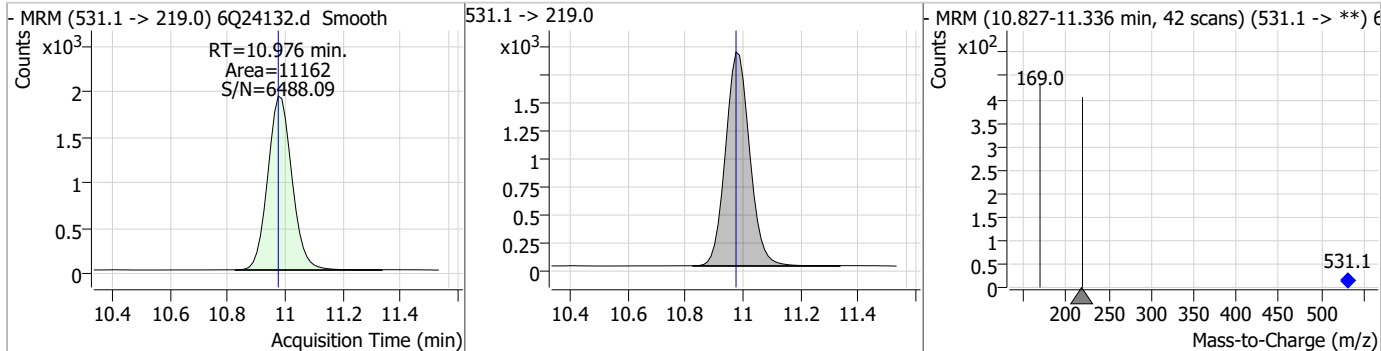
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.32	10.91	0.00	150799				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	24.90	10.92	0.00	178421				

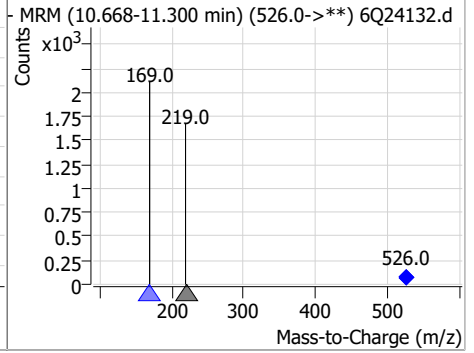
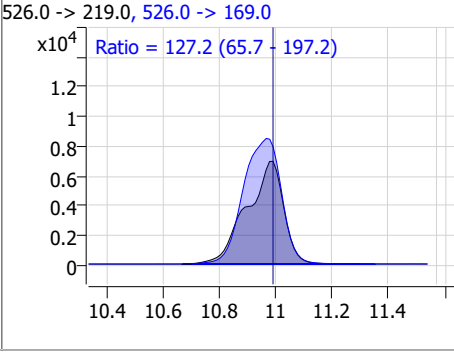
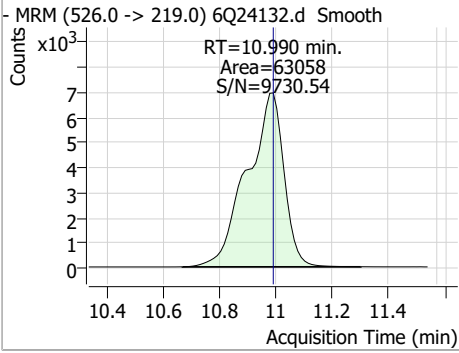


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.46	10.98	0.00	11162				



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	10.38	10.99	0.00	63058	526.0 -> 169.0	127.2	65.7	197.2



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Manual Integration Approval Summary

Sample Number: S6Q347-IC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24132.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 21:43 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 09/11/23 13:46

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24133.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 9:57:53 PM
 Sample Name : ic347-6
 Vial : P1-A7
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	180391	10.00 µg/L	0.013
M5-PFPeA	4.422	268.3 -> 223.0	34266	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	66353	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	54527	2.50 µg/L	0.000
M8-PFOA	7.211	421.1 -> 376.0	73624	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	30030	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	31415	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	40783	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	35468	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	13514	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	28682	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	22086	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	13941	2.50 µg/L	0.000
M8-PFOS	8.373	507.1 -> 79.9	12409	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2598	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3766	5.00 µg/L	0.012
M2-8:2FTS	7.998	529.1 -> 80.9	3901	5.00 µg/L	0.000
M3-MeFOSAA	8.268	573.2 -> 419.0	21568	5.00 µg/L	0.012
M3-HFPO-DA	6.019	286.9 -> 168.9	40768	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	23964	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	104187	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	143170	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	11099	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	11674	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	16181	2.50 µg/L	0.012
13C3-PFBA	2.989	216.0 -> 172.0	71565	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	10073	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	75583	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	27053	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	41229	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	52140	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2598	4.58 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.7%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3766	4.53 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.5%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3901	4.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.6%		
13C2-PFDoDA	9.093	615.1 -> 570.0	35468	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C2-PFTeDA	9.796	715.2 -> 670.0	13514	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C3-PFBS	5.571	302.1 -> 79.9	22086	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C3-PFHxS	7.313	402.1 -> 79.9	13941	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 = 100.8%	
13C4-PFBA	2.997	216.8 -> 171.9	180391	9.98 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.569	367.1 -> 322.0	54527	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C5-PFHxA	5.641	318.0 -> 273.0	66353	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.3%	
13C5-PFPeA	4.422	268.3 -> 223.0	34266	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C6-PFDA	8.210	519.1 -> 474.1	31415	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C7-PFUnDA	8.663	570.0 -> 525.1	40783	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C8-FOSA	9.657	506.1 -> 77.8	28682	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C8-PFOA	7.211	421.1 -> 376.0	73624	2.65 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C8-PFOS	8.373	507.1 -> 79.9	12409	2.43 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C9-PFNA	7.729	472.1 -> 427.0	30030	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.2%	
d3-MeFOSAA	8.268	573.2 -> 419.0	21568	4.77 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	40768	10.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	11674	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
d5-EtFOSAA	8.464	589.2 -> 419.0	23964	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.1%	
d7-MeFOSE	10.678	623.2 -> 58.9	104187	24.49 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d9-EtFOSE	10.911	639.2 -> 58.9	143170	25.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d5-EtFOSA	10.976	531.1 -> 219.0	11099	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	206949	48.16 µg/L	99
		327.1 -> 80.9	76988		
6:2FTS	6.987	427.1 -> 407.0	160327	48.13 µg/L	95
		427.1 -> 80.9	68239		
8:2FTS	8.012	527.1 -> 507.0	135599	51.52 µg/L	91
		527.1 -> 80.8	45715		
EtFOSAA	8.465	584.2 -> 419.1	35944	10.62 µg/L	m 94
		584.2 -> 526.0	25356		
FOSA	9.660	498.1 -> 77.9	139263	13.19 µg/L	99
		498.1 -> 478.0	3572		
MeFOSAA	8.269	570.1 -> 419.0	67222	13.12 µg/L	m 100
		570.1 -> 483.0	13575		
PFBA	2.993	212.8 -> 168.9	310779	52.13 µg/L	100
PFBS	5.572	298.7 -> 79.9	123050	11.36 µg/L	98
		298.7 -> 98.8	45278		
PFDA	8.211	512.9 -> 469.0	359744	12.57 µg/L	99
		512.9 -> 219.0	57342		
PFDoDA	9.094	613.1 -> 569.0	367886	13.98 µg/L	99
		613.1 -> 319.0	41275		
PFDS	9.245	599.0 -> 79.9	45223	12.51 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	22142			
PFHpA	6.582	363.1 -> 319.0	368343	12.77	µg/L	99
		363.1 -> 169.0	55663			
PFHpS	7.868	449.0 -> 79.9	71482	11.90	µg/L	96
		449.0 -> 98.9	35469			
PFHxA	5.644	313.0 -> 269.0	329142	13.63	µg/L	100
		313.0 -> 118.9	13956			
PFHxS	7.314	398.7 -> 79.9	91678	10.49	µg/L	m 99
		398.7 -> 98.9	44834			
PFNA	7.730	463.0 -> 419.0	292769	12.93	µg/L	96
		463.0 -> 219.0	69145			
PFNS	8.838	548.8 -> 79.9	79872	13.63	µg/L	93
		548.8 -> 98.9	40602			
PFOA	7.212	413.0 -> 369.0	503057	13.26	µg/L	95
		413.0 -> 169.0	81684			
PFOS	8.374	498.9 -> 79.9	78788	11.46	µg/L	m 98
		498.9 -> 98.8	36740			
PFPeA	4.424	263.0 -> 219.0	389244	25.50	µg/L	100
PFPeS	6.633	349.1 -> 79.9	87380	11.52	µg/L	96
		349.1 -> 98.9	38620			
PFTeDA	9.797	713.1 -> 669.0	247222	12.70	µg/L	99
		713.1 -> 168.9	19544			
PFTrDA	9.464	663.0 -> 619.0	410884	13.73	µg/L	96
		663.0 -> 168.9	29175			
PFUnDA	8.676	563.1 -> 519.0	308368	13.20	µg/L	99
		563.1 -> 269.1	44709			
11Cl-PF3OUdS	9.516	630.9 -> 450.9	346039	23.27	µg/L	94
		632.9 -> 452.9	111089			
9Cl-PF3ONS	8.703	530.8 -> 351.0	590310	23.15	µg/L	99
		532.8 -> 353.0	171312			
ADONA	6.817	376.9 -> 250.9	1354994	22.95	µg/L	98
		376.9 -> 84.8	357055			
HFPO-DA	6.020	284.9 -> 168.9	94716	24.55	µg/L	97
		284.9 -> 184.9	13394			
3:3FTCA	3.858	241.0 -> 177.0	66485	64.48	µg/L	100
		241.0 -> 117.0	6236			
5:3FTCA	6.271	341.0 -> 237.1	1402378	341.77	µg/L	95
		341.0 -> 217.0	935160			
7:3FTCA	7.669	441.0 -> 316.9	779941	321.64	µg/L	97
		441.0 -> 336.9	1810510			
EtFOSA	10.978	526.0 -> 219.0	150862	24.98	µg/L	97
		526.0 -> 169.0	193581			
EtFOSE	10.924	630.0 -> 58.9	438292	64.42	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	127843	25.80	µg/L	m 97
		511.9 -> 169.0	167923			
MeFOSE	10.691	616.1 -> 58.9	292041	64.82	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	24460	12.35	µg/L	98
		699.1 -> 98.8	13547			
NFDHA	5.524	295.0 -> 201.0	76081	27.18	µg/L	96
		295.0 -> 84.9	19190			
PFMBA	4.850	279.0 -> 85.1	285219	25.64	µg/L	100
PFMPA	3.551	229.0 -> 84.9	205098	25.71	µg/L	100
PFEESA	6.112	314.8 -> 134.9	706454	23.41	µg/L	100
		314.8 -> 82.9	26389			

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

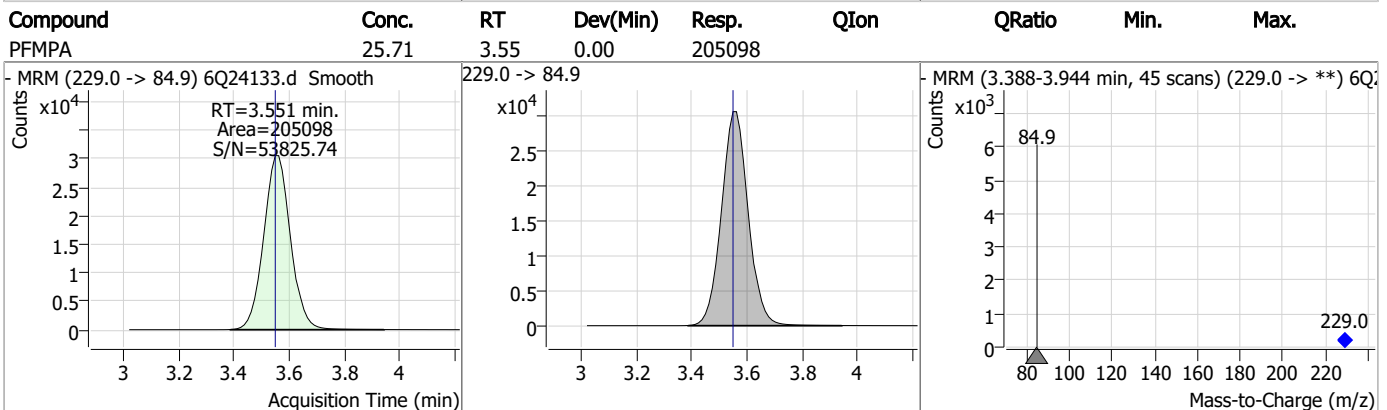
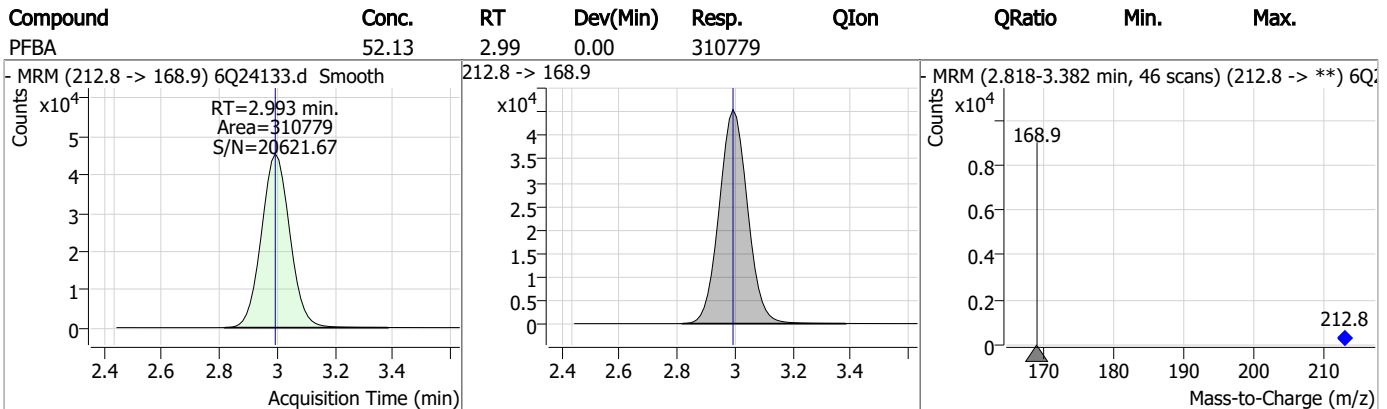
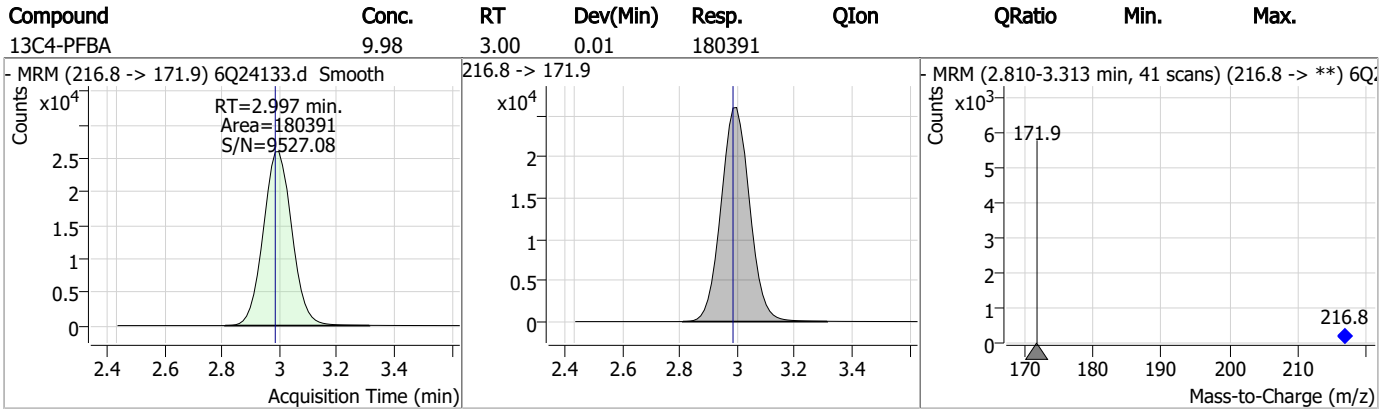
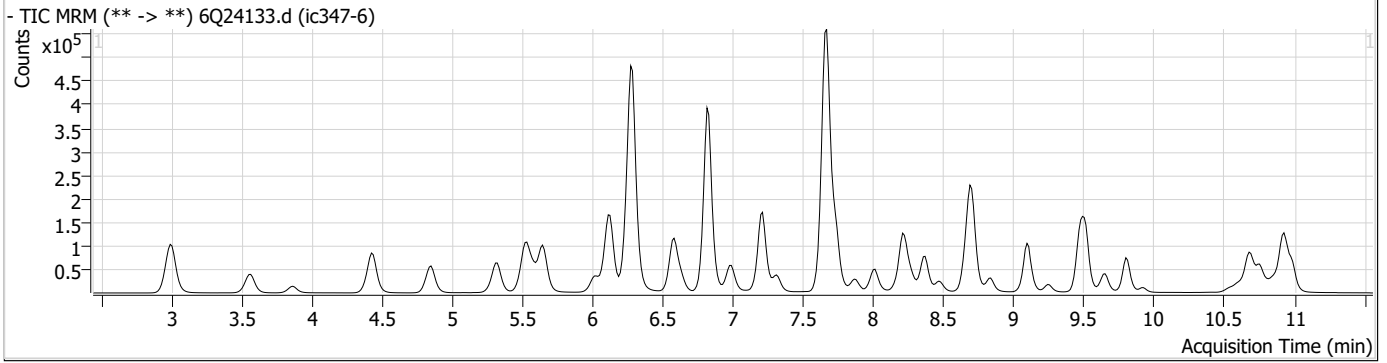
Perfluorinated Compounds by LC/MS/MS

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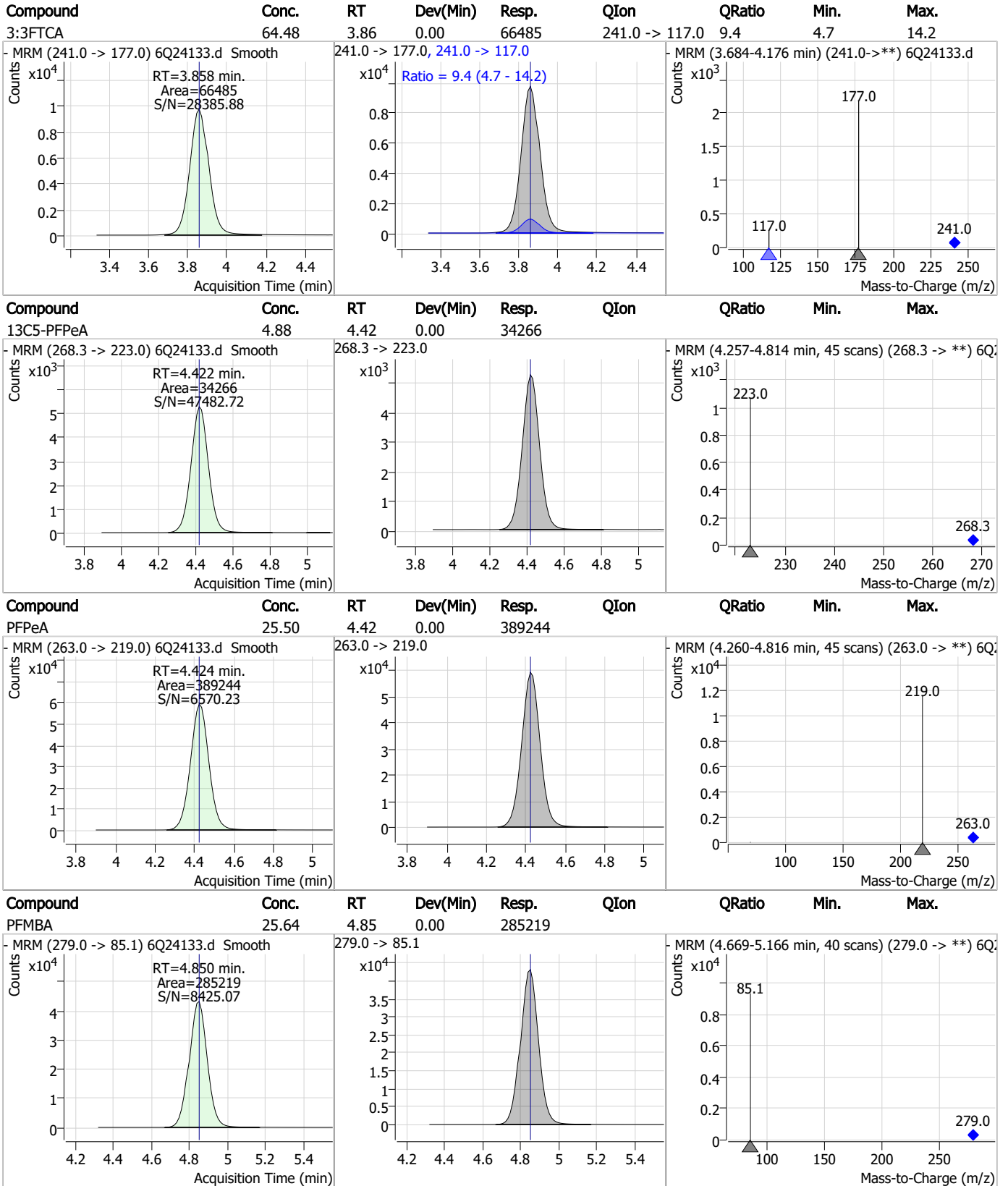
Perfluorinated Compounds by LC/MS/MS



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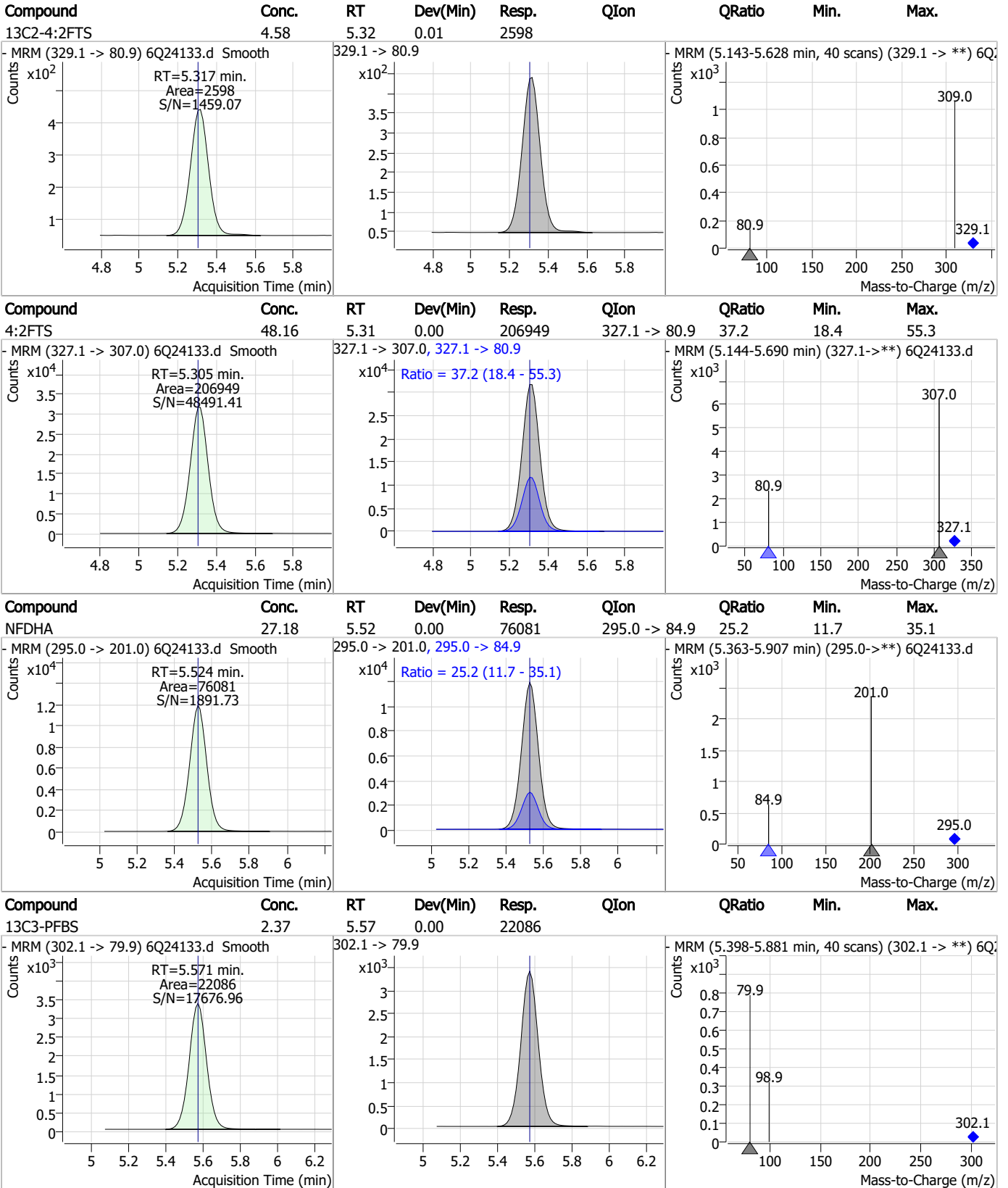
Perfluorinated Compounds by LC/MS/MS



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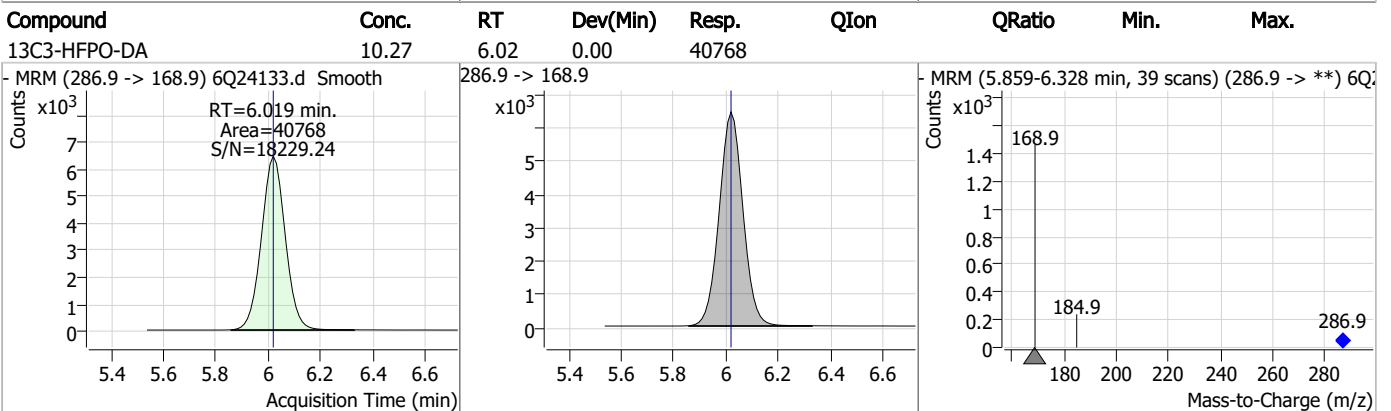
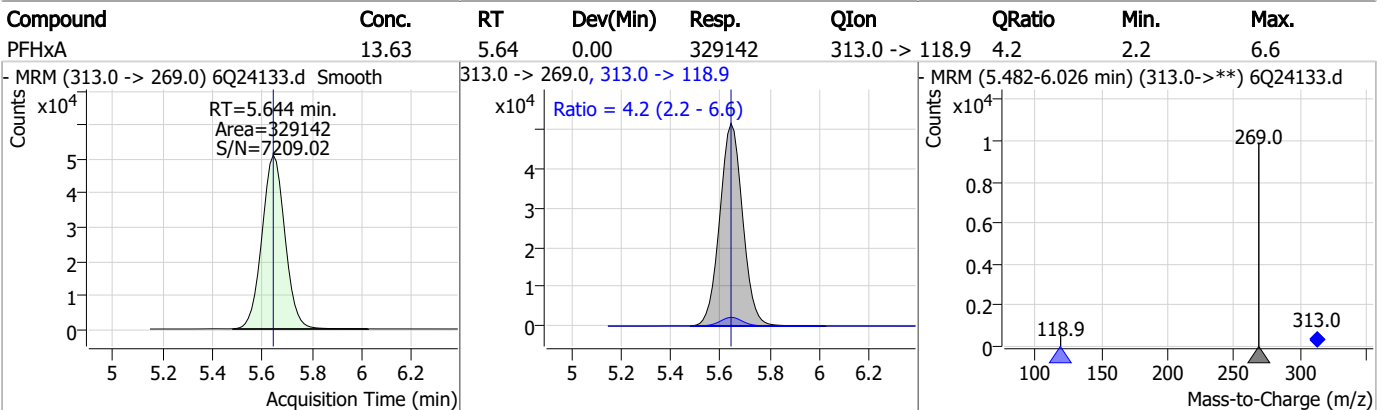
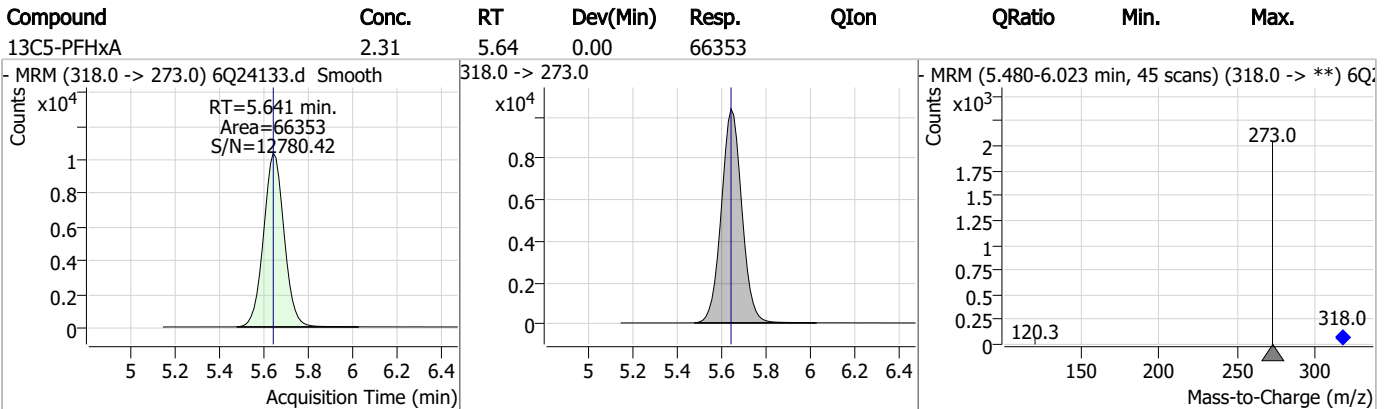
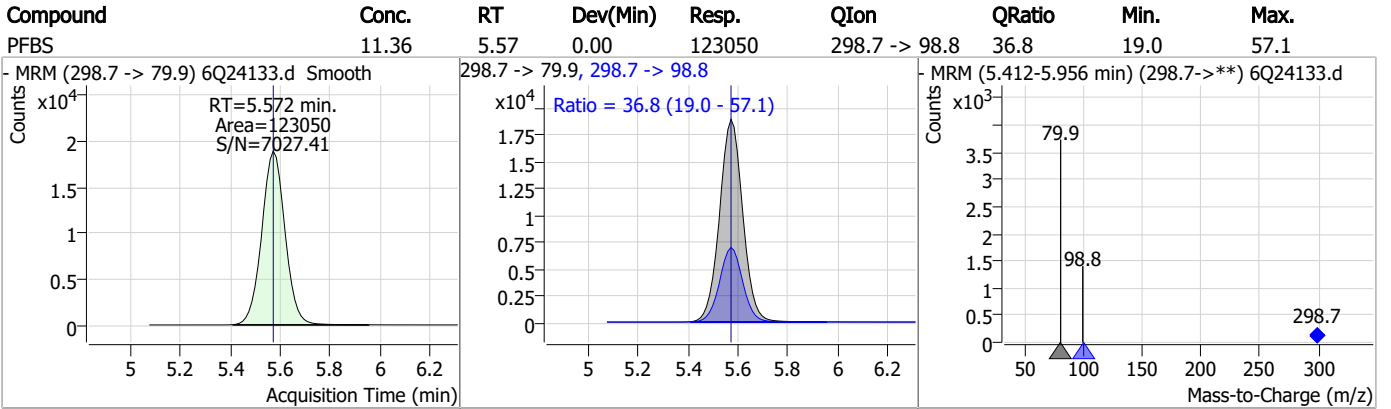
Perfluorinated Compounds by LC/MS/MS



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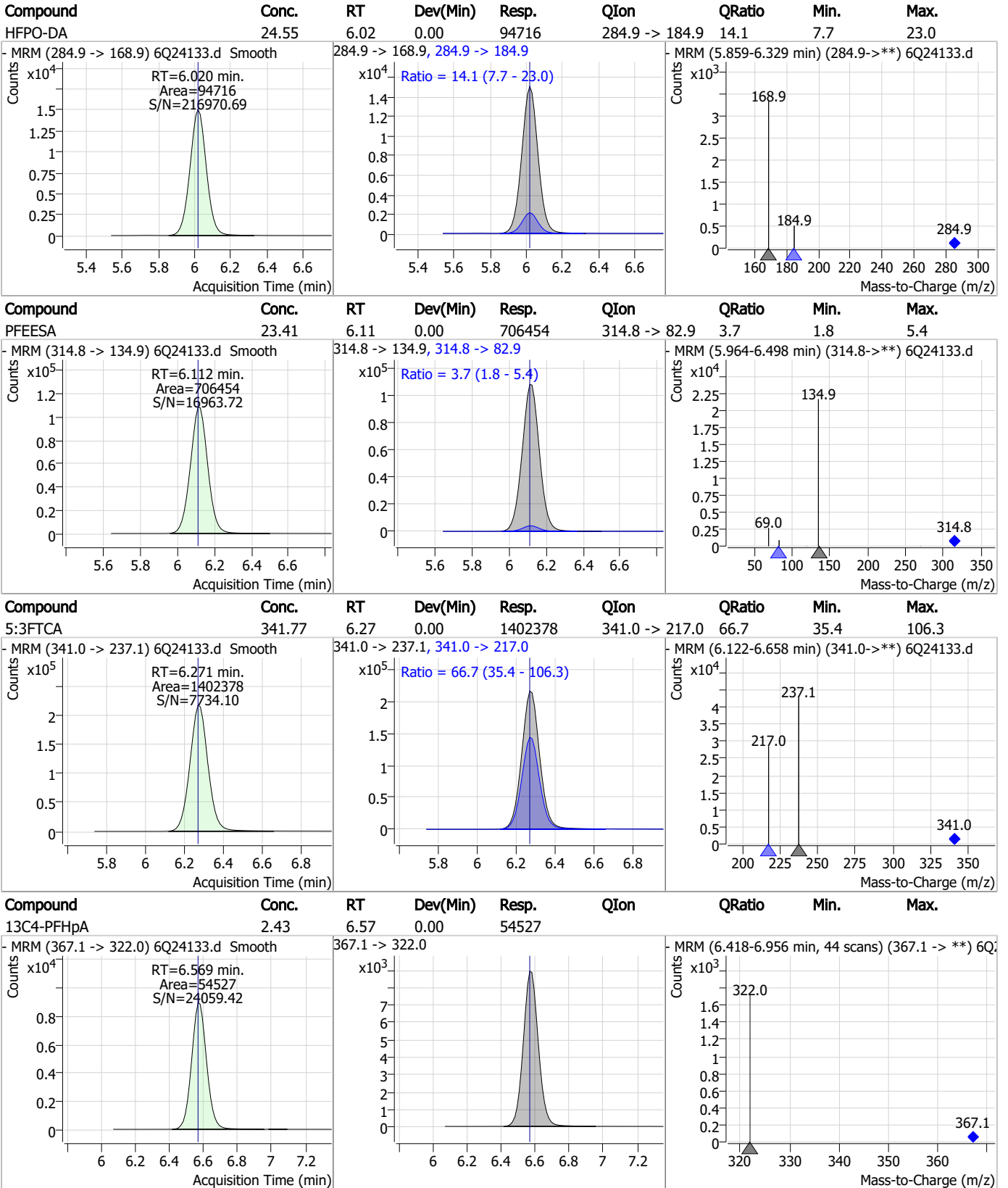
Perfluorinated Compounds by LC/MS/MS



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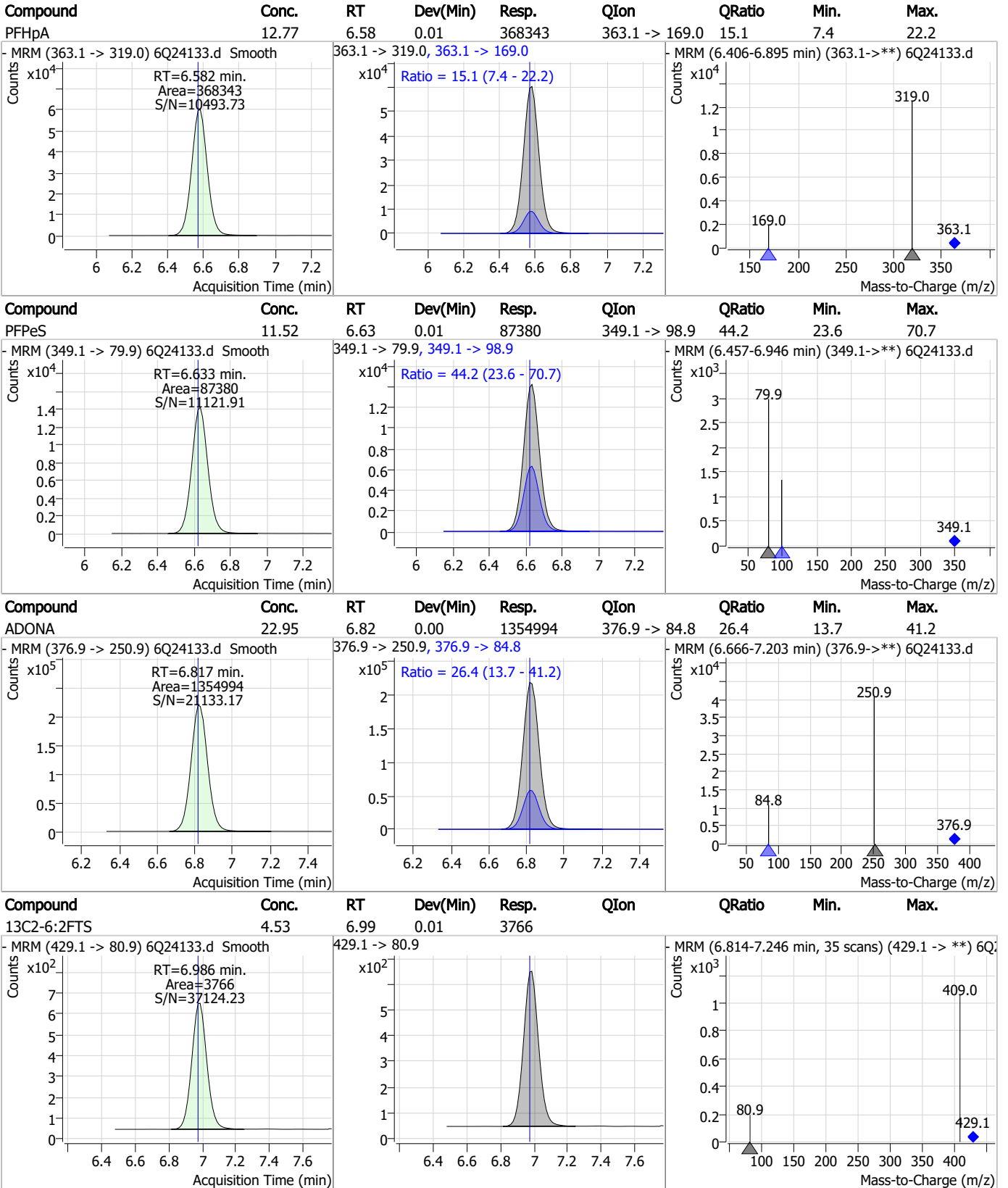
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

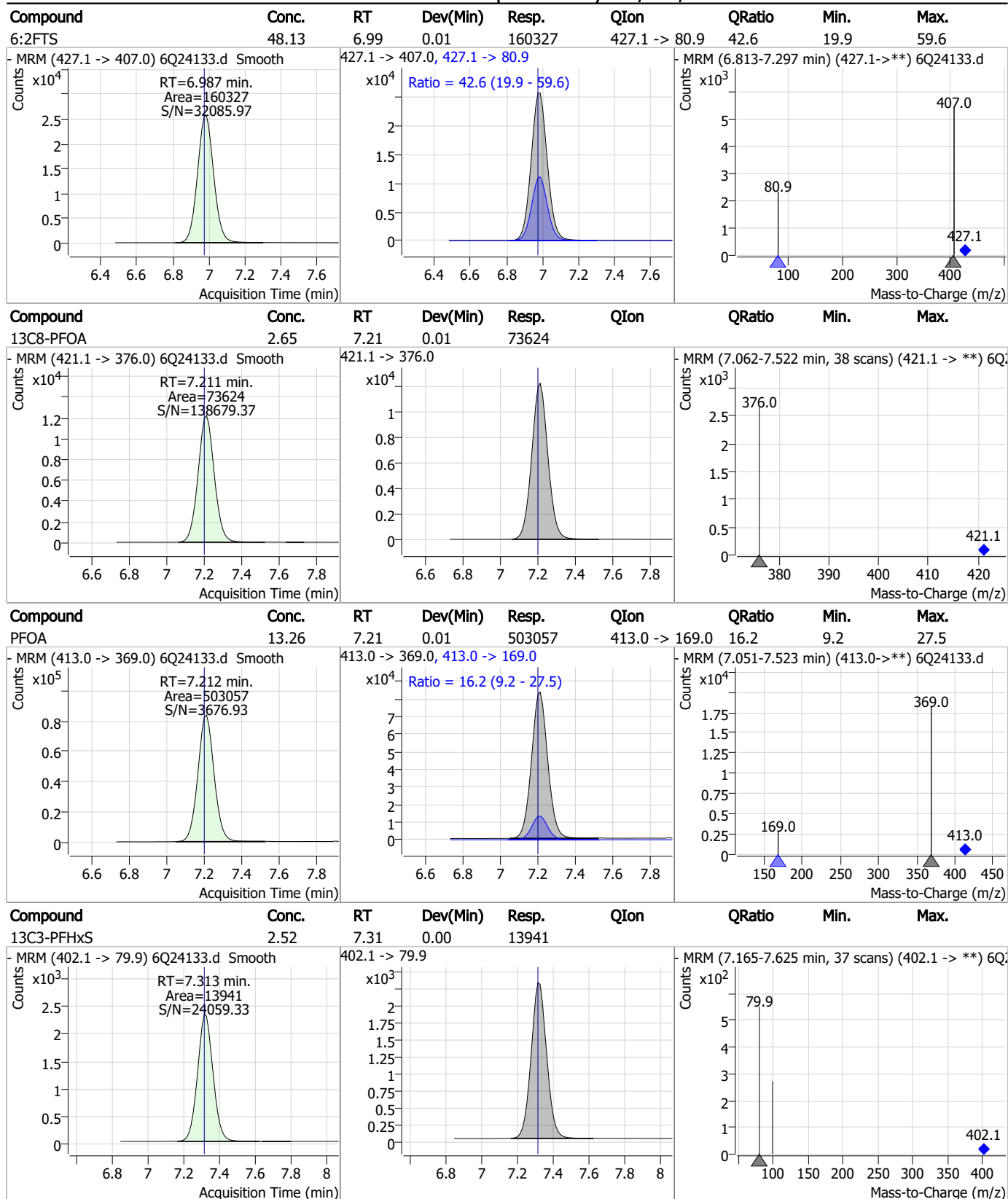


7.7.21

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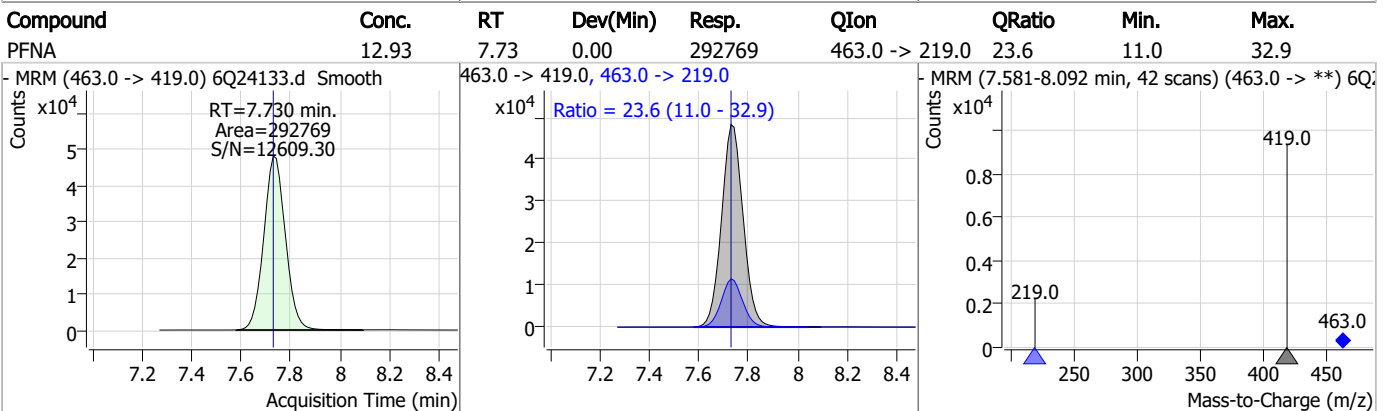
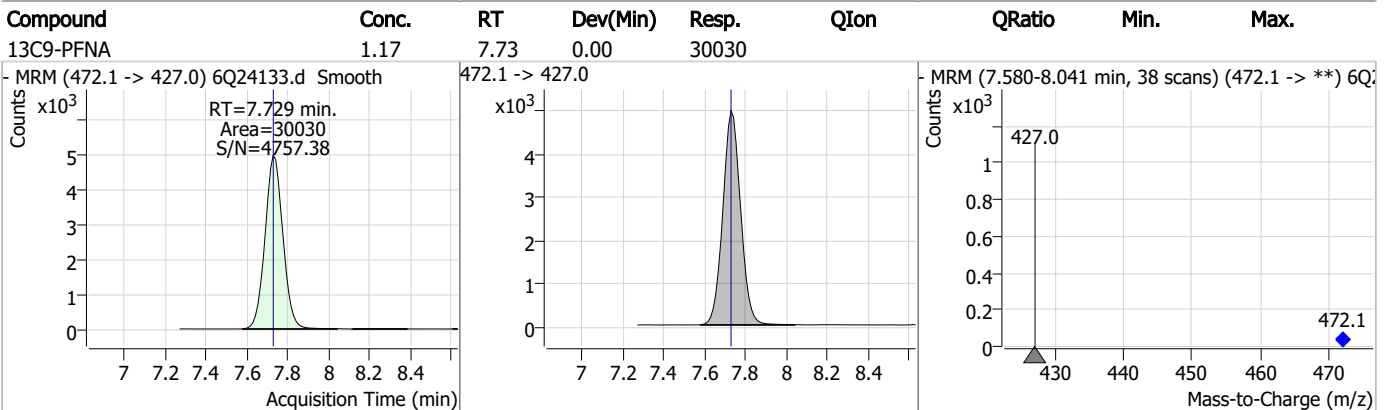
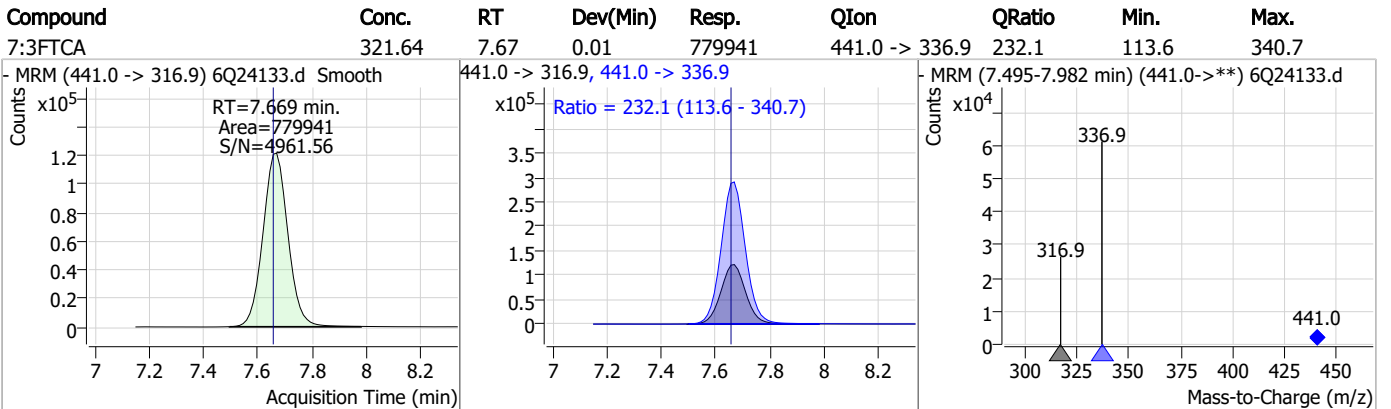
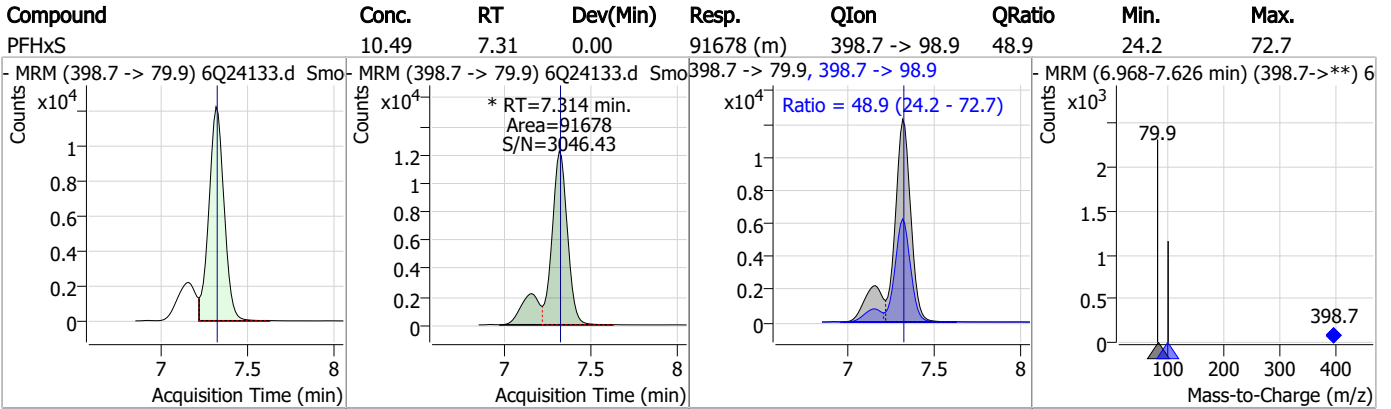
Perfluorinated Compounds by LC/MS/MS



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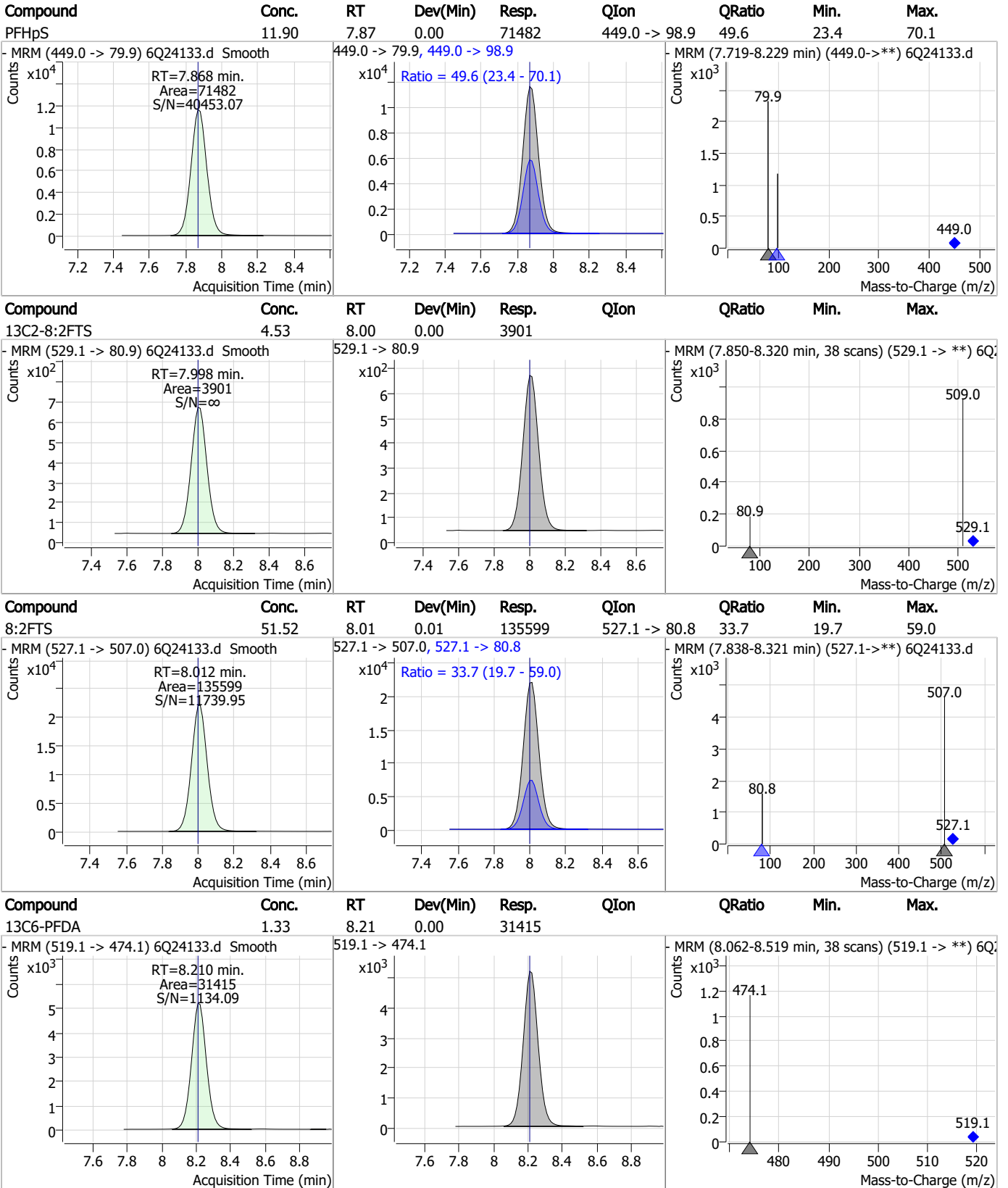
Perfluorinated Compounds by LC/MS/MS



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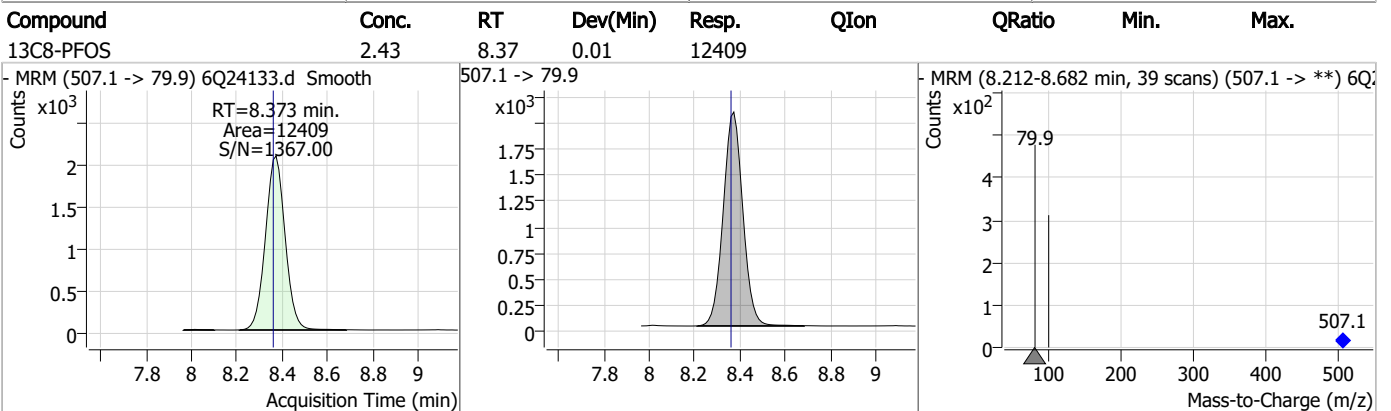
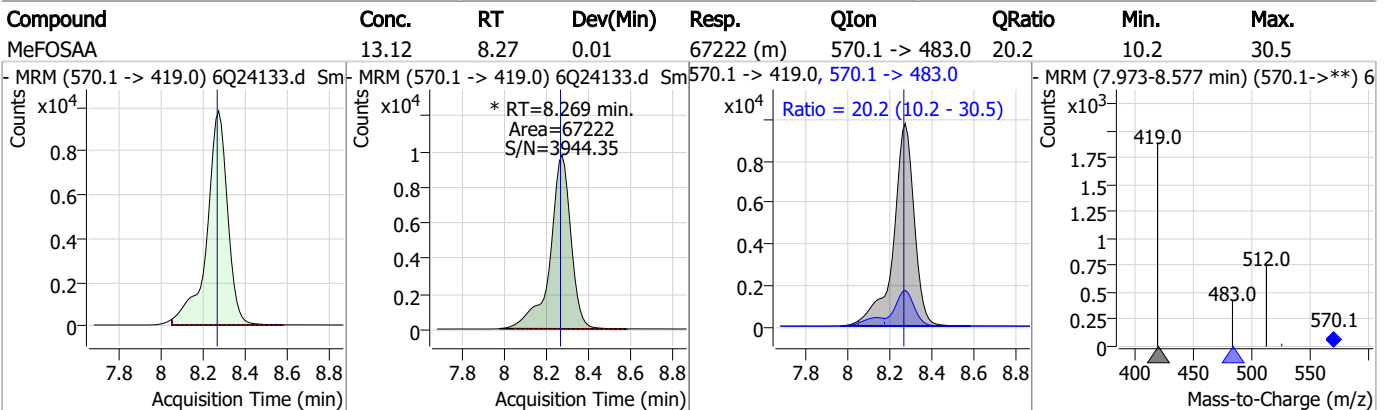
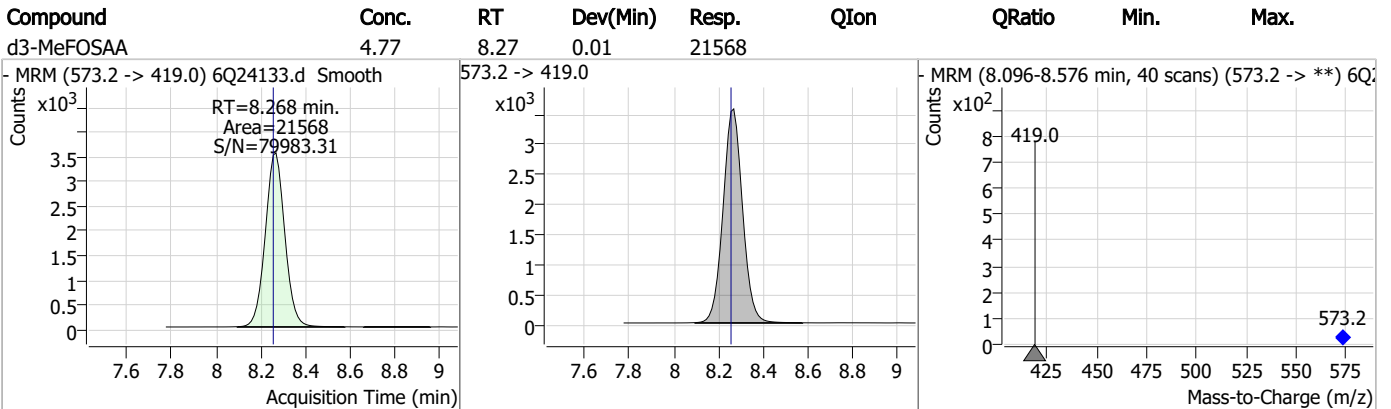
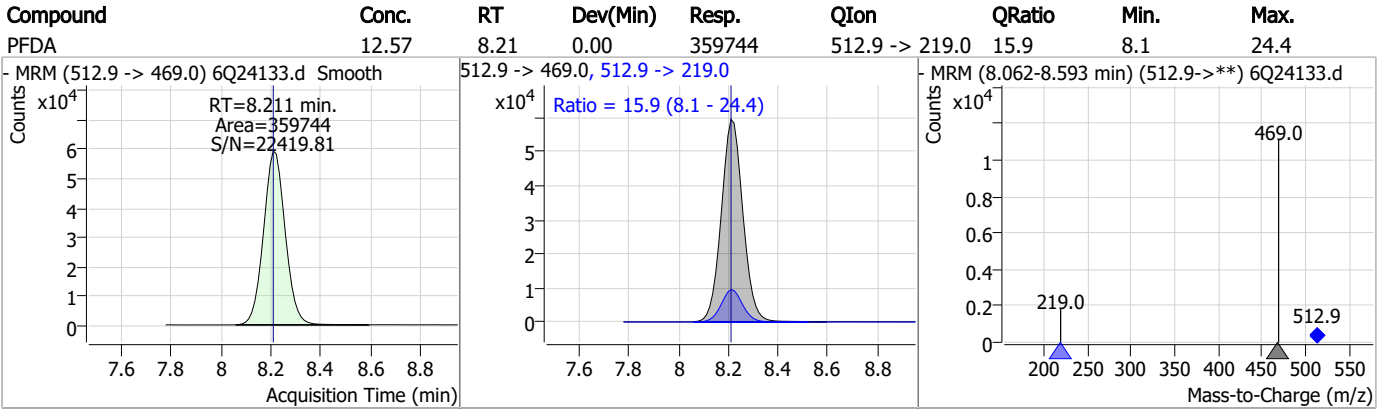
Perfluorinated Compounds by LC/MS/MS



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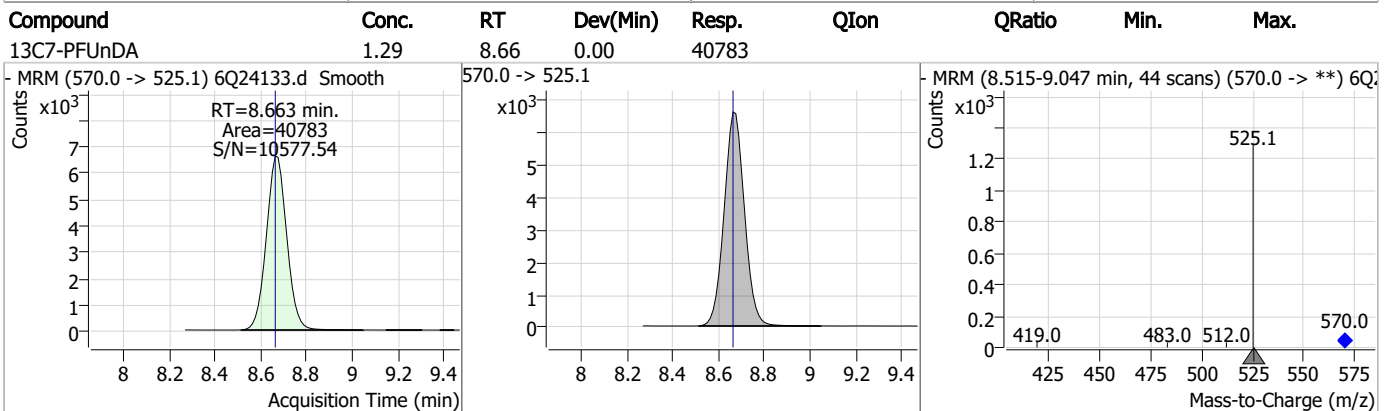
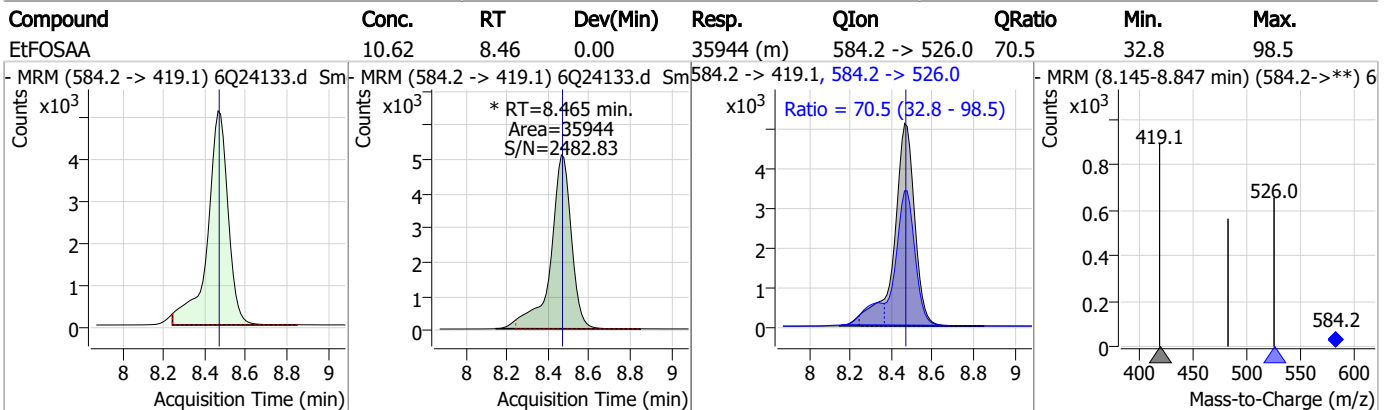
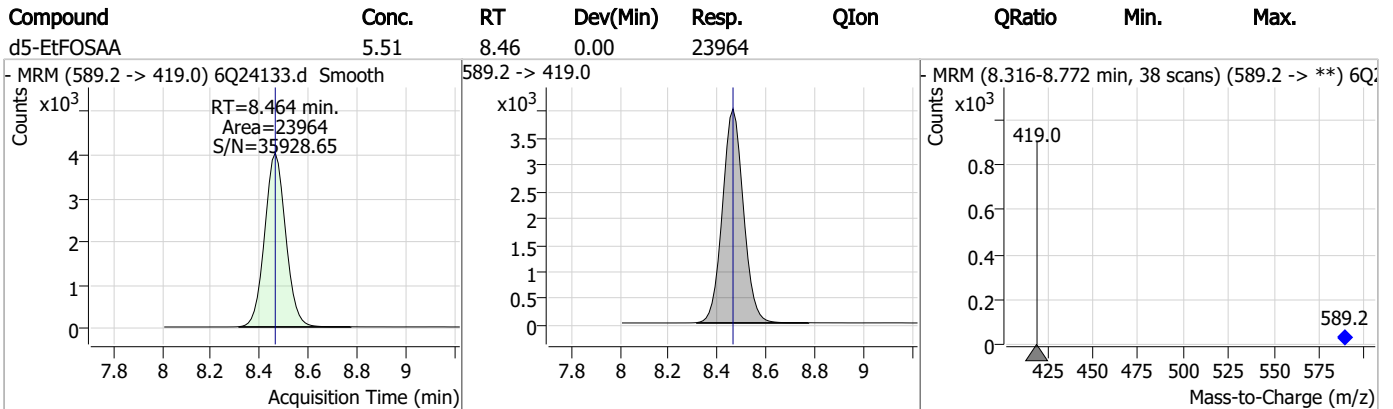
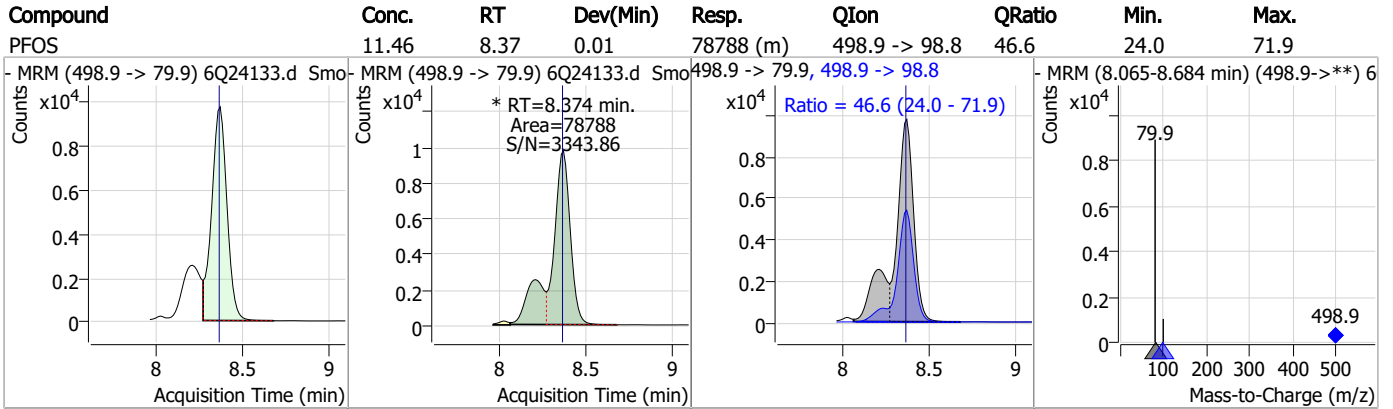
Perfluorinated Compounds by LC/MS/MS



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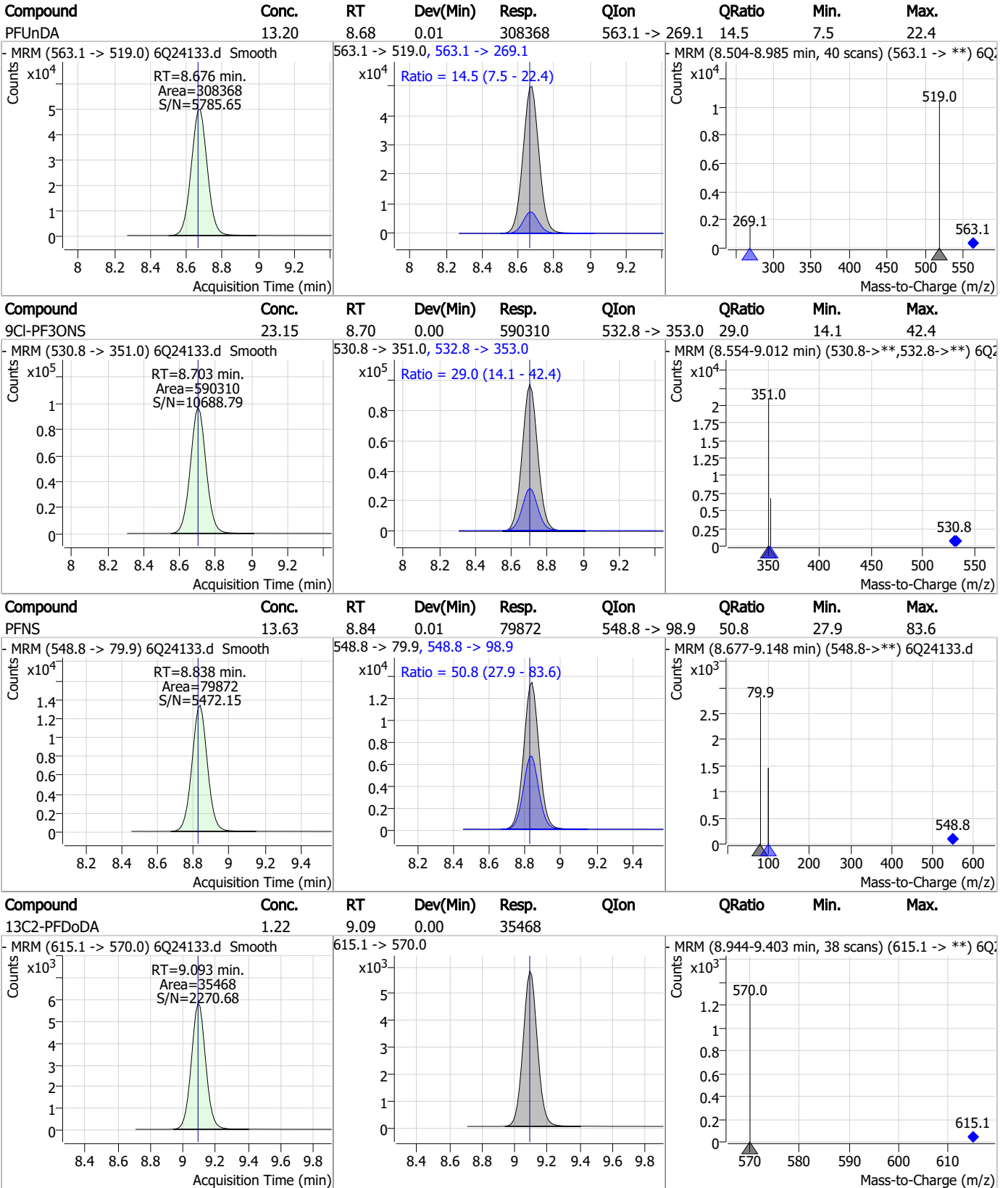
Perfluorinated Compounds by LC/MS/MS



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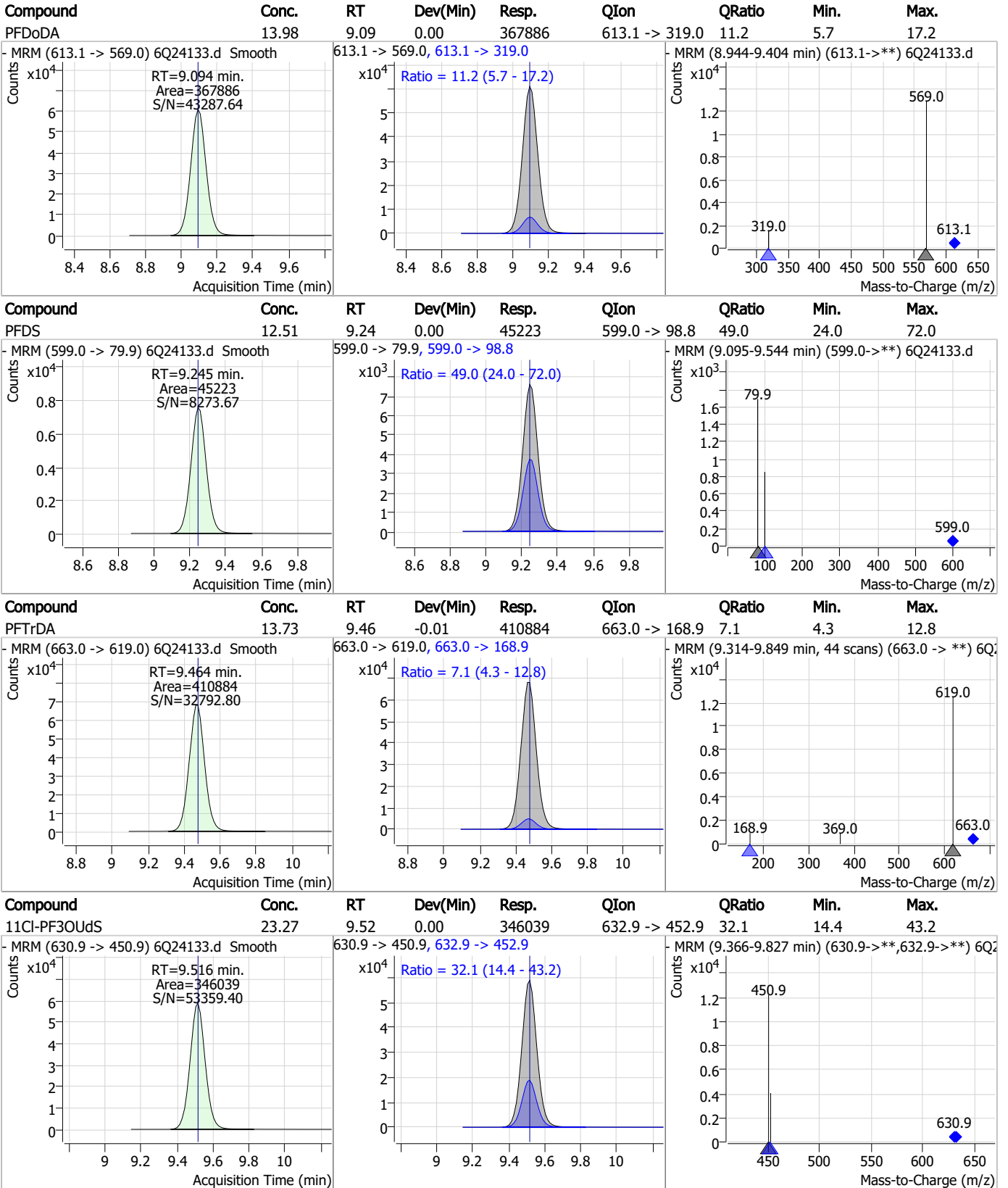
Perfluorinated Compounds by LC/MS/MS



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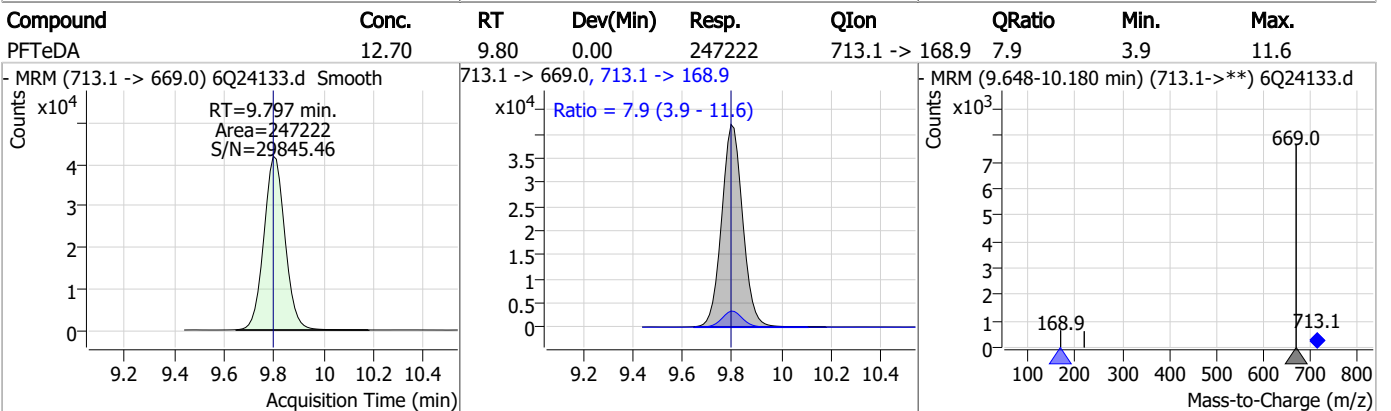
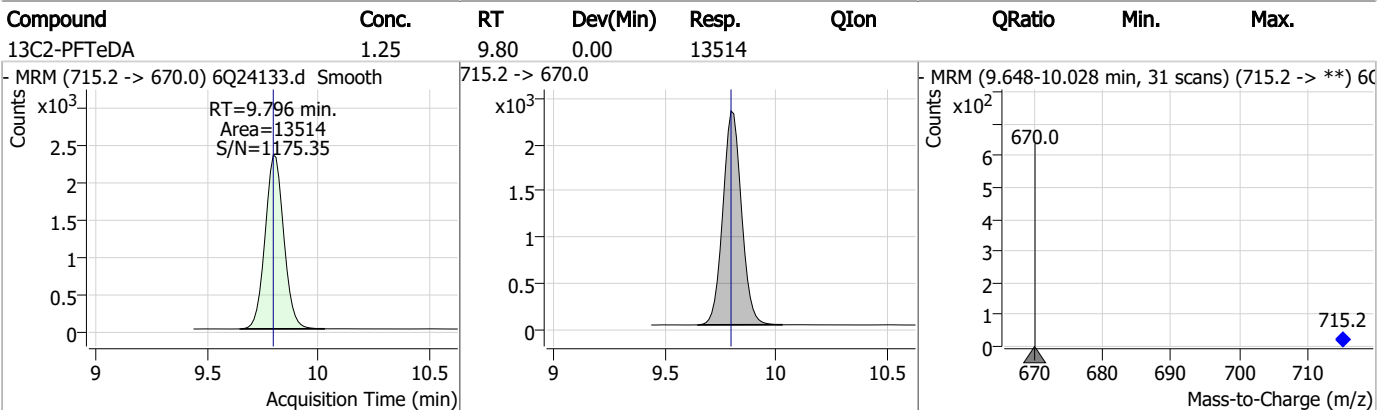
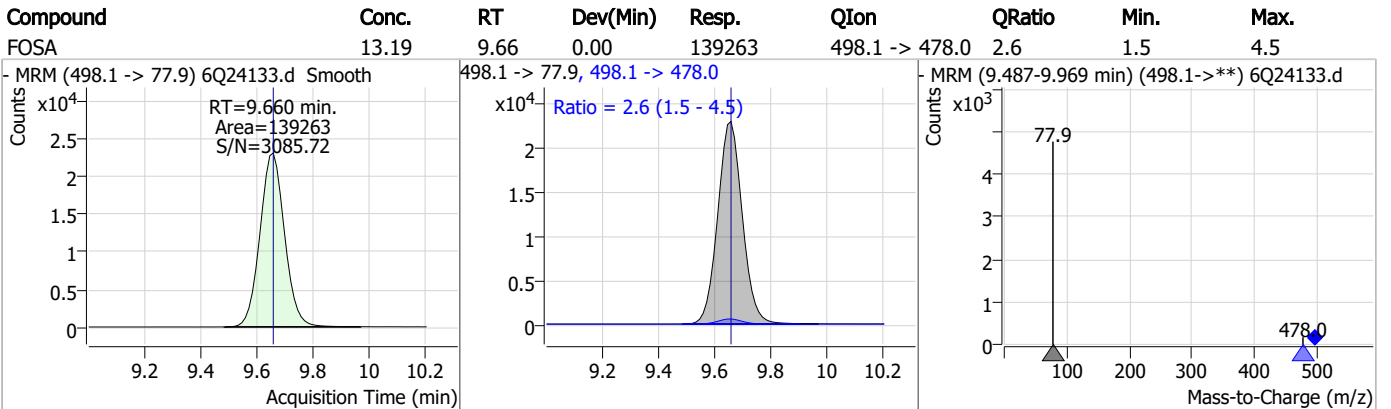
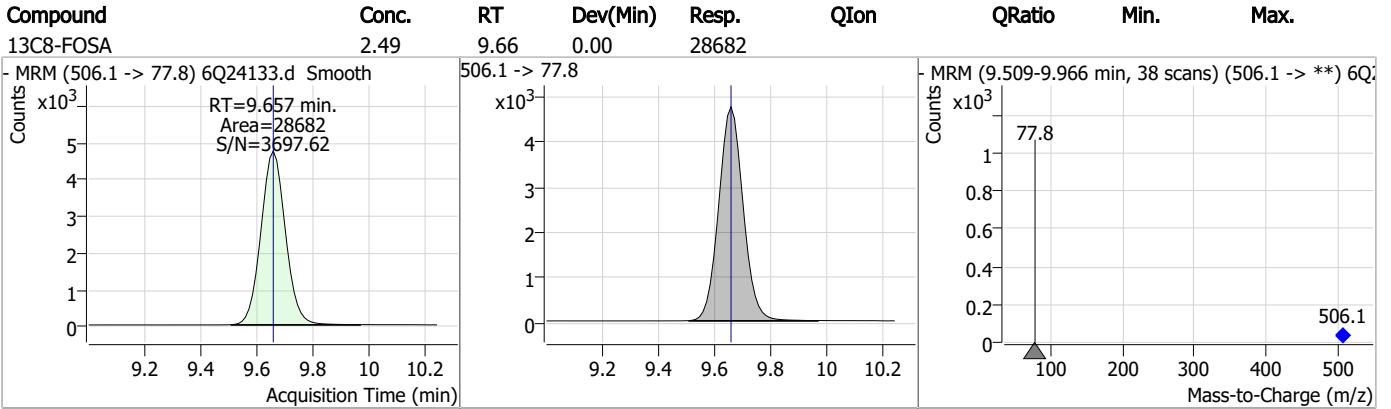
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Perfluorinated Compounds by LC/MS/MS



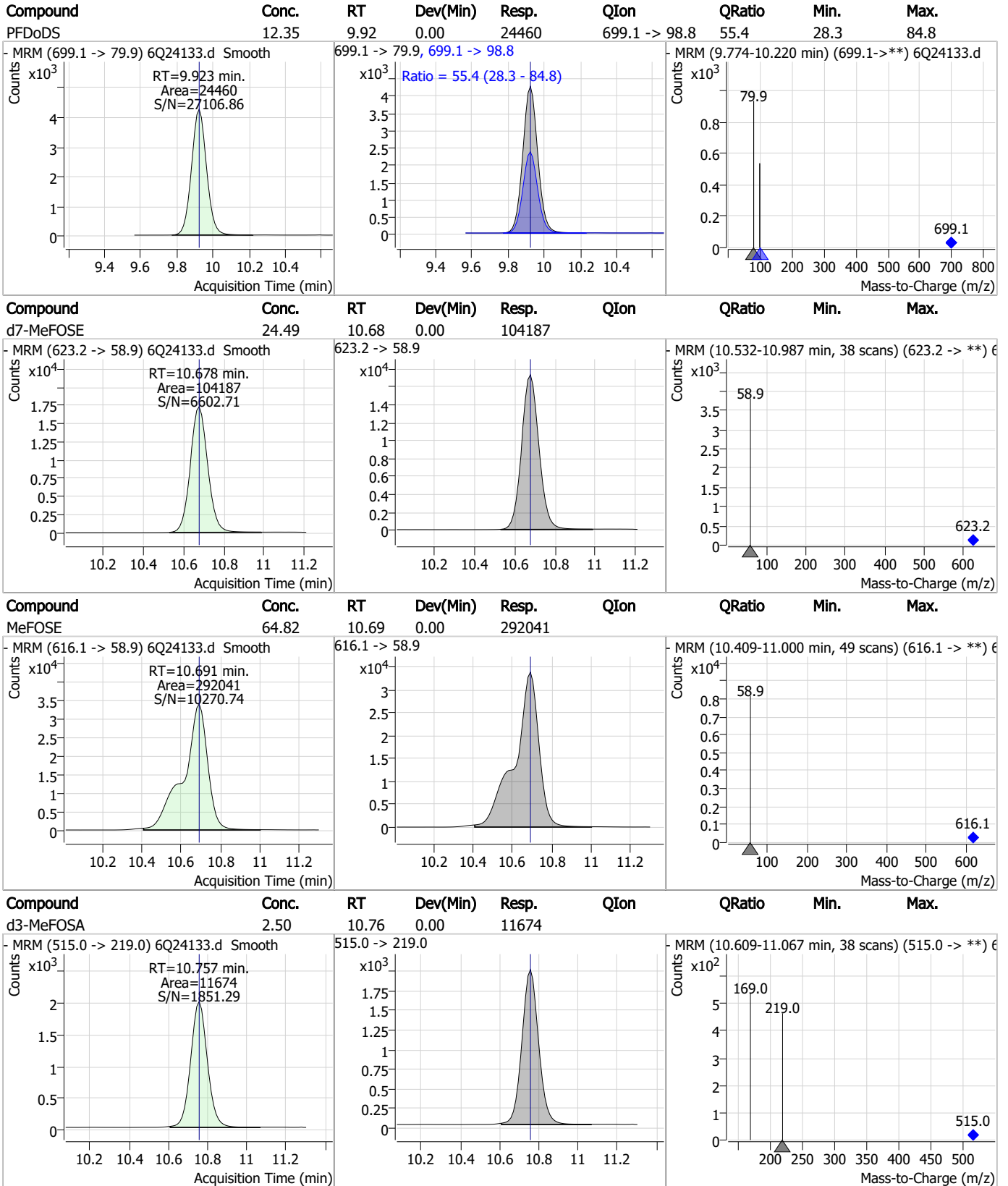
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

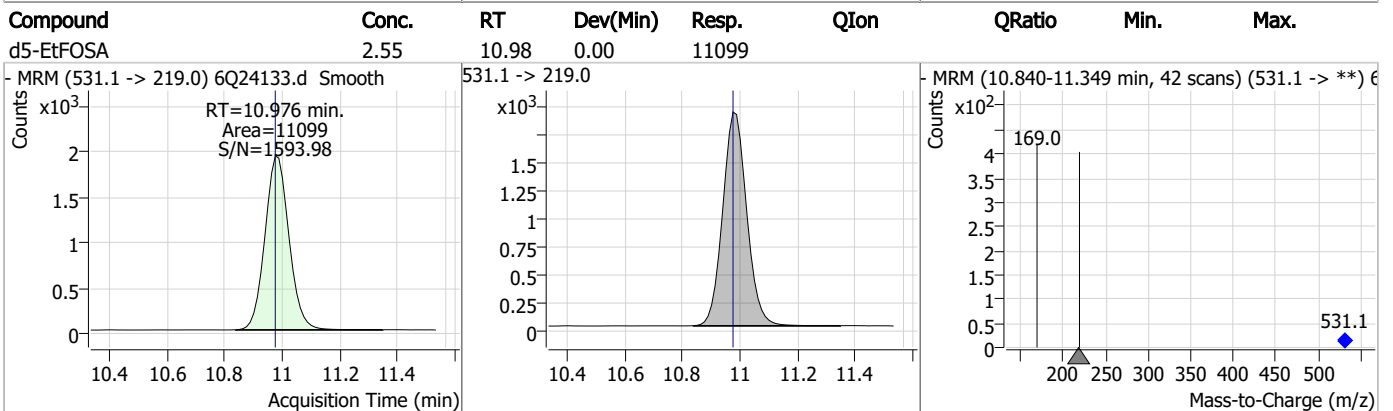
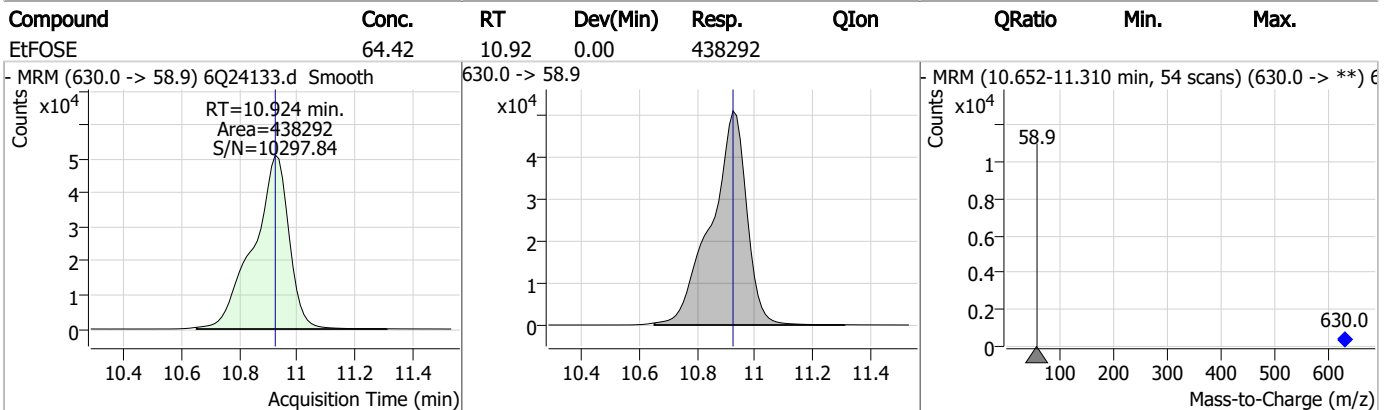
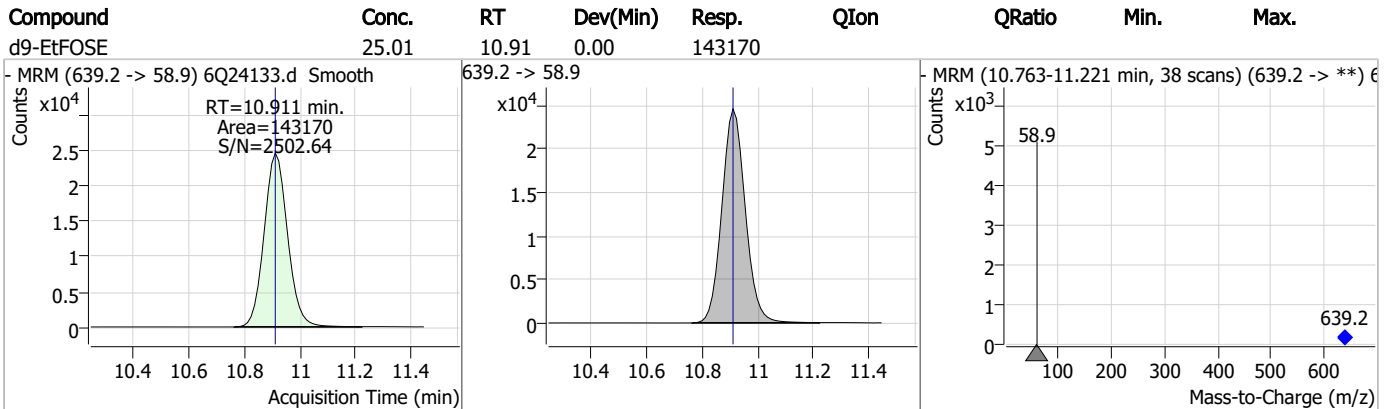
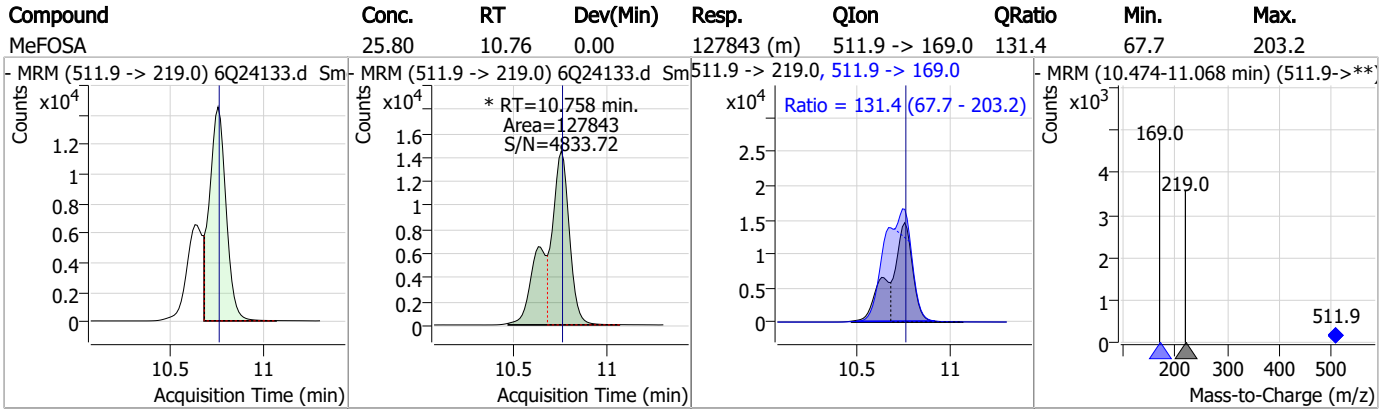


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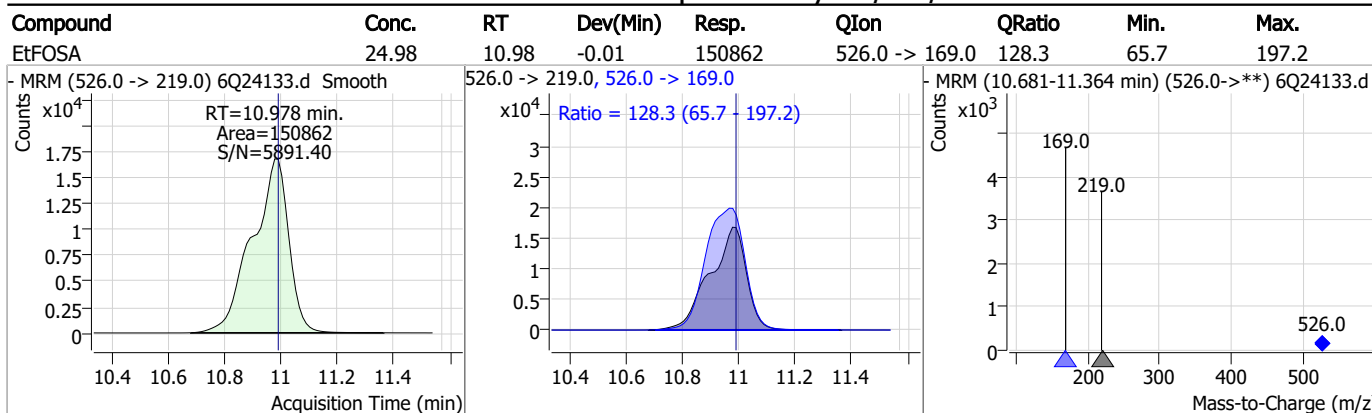
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q347-IC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24133.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 21:57 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 09/11/23 13:46

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24134.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 10:12:14 PM
 Sample Name : ic347-7
 Vial : P1-A8
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	170965	10.00 µg/L	0.013
M5-PFPeA	4.422	268.3 -> 223.0	33036	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	70298	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	51652	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	69892	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	29213	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	29845	1.25 µg/L	0.000
M7-PFUnDA	8.676	570.0 -> 525.1	37162	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	36815	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	14166	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	29009	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	21327	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	12787	2.50 µg/L	0.000
M8-PFOS	8.373	507.1 -> 79.9	12950	2.50 µg/L	0.012
M2-4:2FTS	5.304	329.1 -> 80.9	2244	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	3537	5.00 µg/L	0.000
M2-8:2FTS	8.011	529.1 -> 80.9	3676	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	21429	5.00 µg/L	0.012
M3-HFPO-DA	6.019	286.9 -> 168.9	36832	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	19549	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	105738	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	142973	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	10571	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	11712	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	14840	2.50 µg/L	0.012
13C3-PFBA	2.989	216.0 -> 172.0	68041	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	9073	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	82194	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	28602	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	38005	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	47890	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2244	4.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.9%		
13C2-6:2FTS	6.974	429.1 -> 80.9	3537	4.72 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.4%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3676	4.74 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C2-PFDoDA	9.093	615.1 -> 570.0	36815	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-PFTeDA	9.796	715.2 -> 670.0	14166	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C3-PFBS	5.571	302.1 -> 79.9	21327	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C3-PFHxS	7.313	402.1 -> 79.9	12787	2.57 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 = 102.6%	
13C4-PFBA	2.997	216.8 -> 171.9	170965	9.95 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.569	367.1 -> 322.0	51652	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFHxA	5.641	318.0 -> 273.0	70298	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C5-PFPeA	4.422	268.3 -> 223.0	33036	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C6-PFDA	8.210	519.1 -> 474.1	29845	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C7-PFUnDA	8.676	570.0 -> 525.1	37162	1.11 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.1%	
13C8-FOSA	9.657	506.1 -> 77.8	29009	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C8-PFOA	7.198	421.1 -> 376.0	69892	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C8-PFOS	8.373	507.1 -> 79.9	12950	2.77 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.8%	
13C9-PFNA	7.729	472.1 -> 427.0	29213	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.4%	
d3-MeFOSAA	8.268	573.2 -> 419.0	21429	5.16 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	36832	10.10 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d3-MeFOSA	10.757	515.0 -> 219.0	11712	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.4%	
d5-EtFOSAA	8.464	589.2 -> 419.0	19549	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d7-MeFOSE	10.678	623.2 -> 58.9	105738	27.10 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
d9-EtFOSE	10.911	639.2 -> 58.9	142973	27.23 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.9%	
d5-EtFOSA	10.976	531.1 -> 219.0	10571	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	374653	100.93 µg/L	100
		327.1 -> 80.9	138480		
6:2FTS	6.974	427.1 -> 407.0	290385	92.81 µg/L	99
		427.1 -> 80.9	117556		
8:2FTS	7.999	527.1 -> 507.0	251275	101.32 µg/L	88
		527.1 -> 80.8	80203		
EtFOSAA	8.465	584.2 -> 419.1	77711	28.15 µg/L	m 96
		584.2 -> 526.0	53729		
FOSA	9.660	498.1 -> 77.9	270716	25.36 µg/L	99
		498.1 -> 478.0	7653		
MeFOSAA	8.269	570.1 -> 419.0	132541	26.04 µg/L	m 98
		570.1 -> 483.0	27907		
PFBA	2.993	212.8 -> 168.9	600145	106.22 µg/L	100
PFBS	5.572	298.7 -> 79.9	242394	23.17 µg/L	94
		298.7 -> 98.8	83471		
PFDA	8.211	512.9 -> 469.0	731170	26.89 µg/L	96
		512.9 -> 219.0	107274		
PFDoDA	9.094	613.1 -> 569.0	715477	26.19 µg/L	99
		613.1 -> 319.0	83799		
PFDS	9.245	599.0 -> 79.9	93803	24.86 µg/L	97

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	43012			
PFHpA	6.569	363.1 -> 319.0	741357	27.12	µg/L	100
		363.1 -> 169.0	109127			
PFHpS	7.868	449.0 -> 79.9	145143	23.16	µg/L	96
		449.0 -> 98.9	71496			
PFHxA	5.644	313.0 -> 269.0	642553	25.11	µg/L	100
		313.0 -> 118.9	27982			
PFHxS	7.314	398.7 -> 79.9	200149	24.96	µg/L	m 93
		398.7 -> 98.9	87979			
PFNA	7.730	463.0 -> 419.0	594153	26.97	µg/L	99
		463.0 -> 219.0	134179			
PFNS	8.838	548.8 -> 79.9	148025	24.21	µg/L	98
		548.8 -> 98.9	79972			
PFOA	7.200	413.0 -> 369.0	949246	26.35	µg/L	98
		413.0 -> 169.0	164884			
PFOS	8.374	498.9 -> 79.9	162915	22.71	µg/L	m 96
		498.9 -> 98.8	82044			
PFPeA	4.424	263.0 -> 219.0	765809	52.04	µg/L	100
PFPeS	6.633	349.1 -> 79.9	170694	24.54	µg/L	99
		349.1 -> 98.9	79408			
PFTeDA	9.809	713.1 -> 669.0	521712	25.56	µg/L	97
		713.1 -> 168.9	34681			
PFTrDA	9.477	663.0 -> 619.0	808552	26.03	µg/L	96
		663.0 -> 168.9	57888			
PFUnDA	8.676	563.1 -> 519.0	587189	27.58	µg/L	98
		563.1 -> 269.1	91396			
11Cl-PF3OUdS	9.516	630.9 -> 450.9	647633	48.20	µg/L	94
		632.9 -> 452.9	207948			
9Cl-PF3ONS	8.703	530.8 -> 351.0	1085370	47.12	µg/L	91
		532.8 -> 353.0	358874			
ADONA	6.817	376.9 -> 250.9	2721698	51.03	µg/L	97
		376.9 -> 84.8	709553			
HFPO-DA	6.020	284.9 -> 168.9	186033	53.38	µg/L	100
		284.9 -> 184.9	28216			
3:3FTCA	3.858	241.0 -> 177.0	134077	137.21	µg/L	100
		241.0 -> 117.0	12612			
5:3FTCA	6.271	341.0 -> 237.1	2690365	618.87	µg/L	97
		341.0 -> 217.0	1851445			
7:3FTCA	7.657	441.0 -> 316.9	1627884	633.65	µg/L	96
		441.0 -> 336.9	3582290			
EtFOSA	10.990	526.0 -> 219.0	309918	53.89	µg/L	95
		526.0 -> 169.0	389310			
EtFOSE	10.924	630.0 -> 58.9	866372	127.51	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	254497	51.20	µg/L	m 100
		511.9 -> 169.0	344920			
MeFOSE	10.691	616.1 -> 58.9	582535	127.40	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	50315	24.34	µg/L	91
		699.1 -> 98.8	25089			
NFDHA	5.524	295.0 -> 201.0	147737	49.82	µg/L	96
		295.0 -> 84.9	37572			
PFMBA	4.850	279.0 -> 85.1	564577	52.63	µg/L	100
PFMPA	3.551	229.0 -> 84.9	404398	52.58	µg/L	100
PFEESA	6.112	314.8 -> 134.9	1431735	44.78	µg/L	100
		314.8 -> 82.9	51051			

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

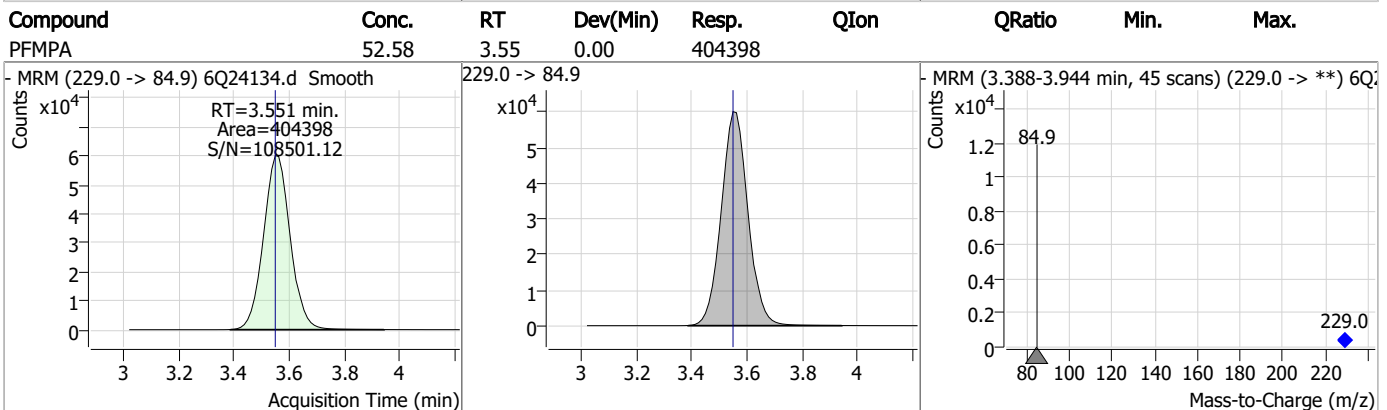
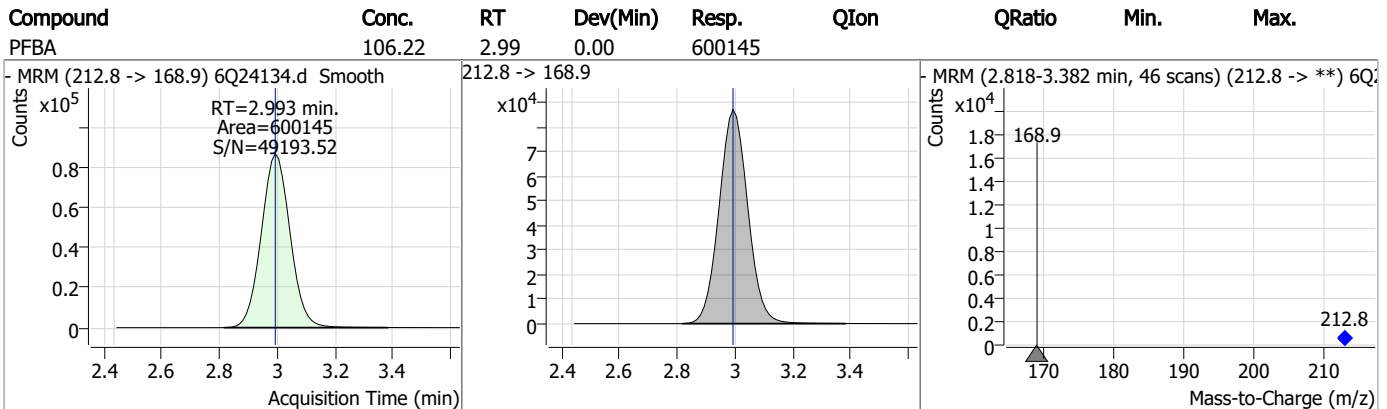
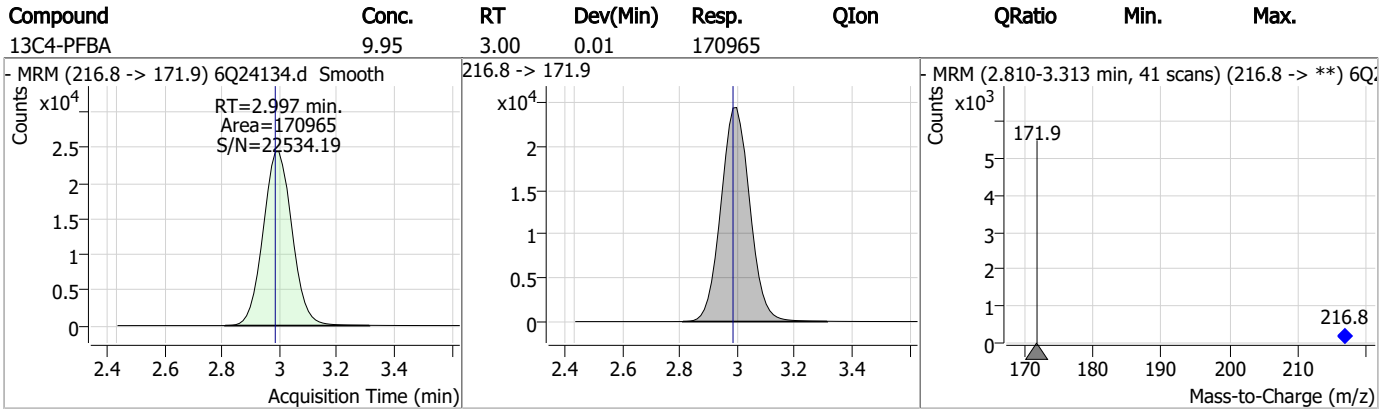
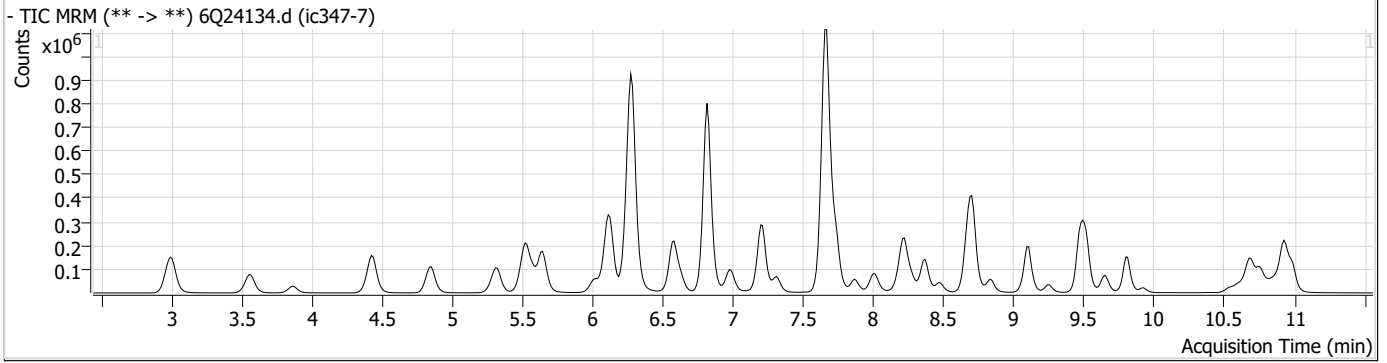
Perfluorinated Compounds by LC/MS/MS

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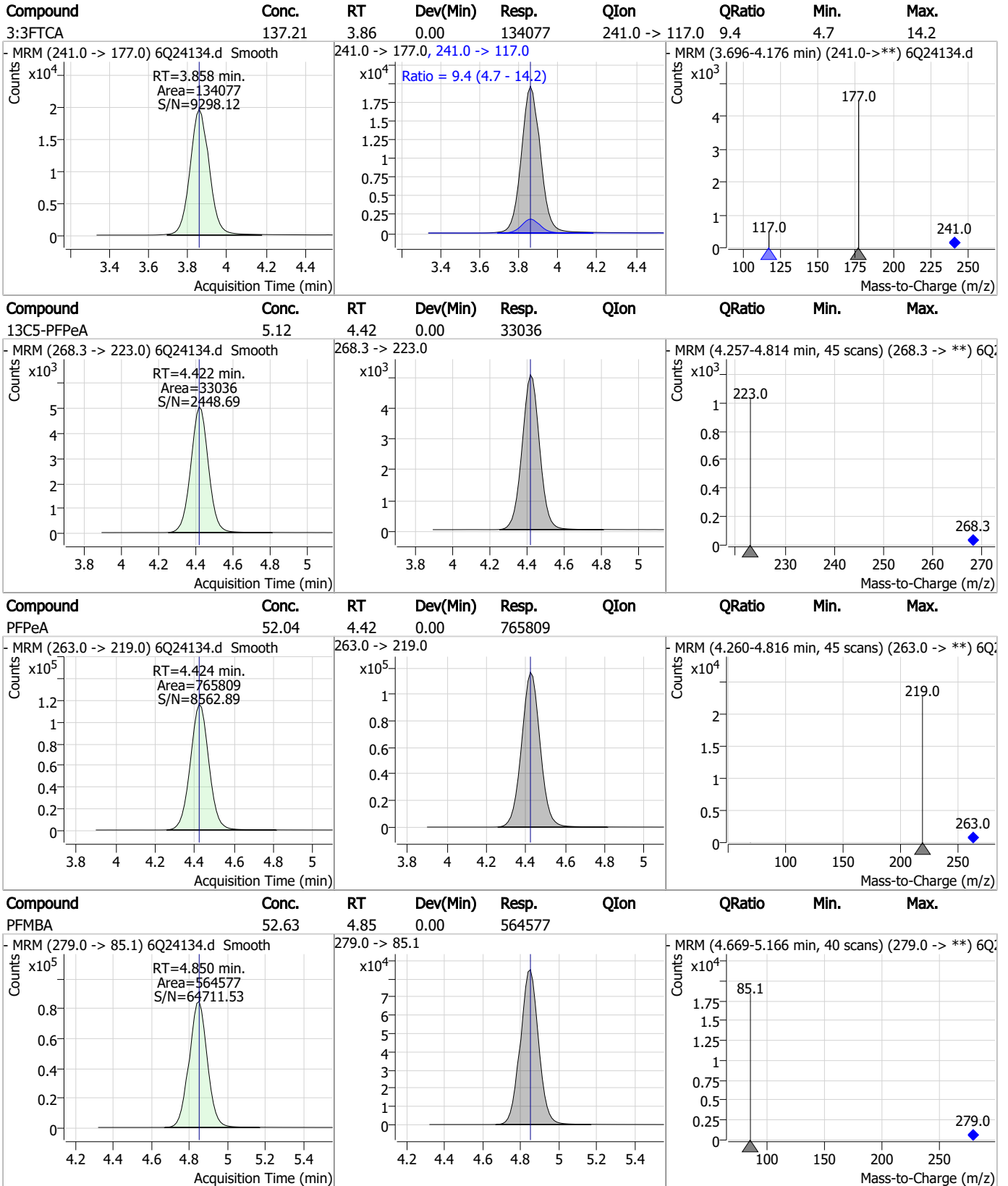
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Perfluorinated Compounds by LC/MS/MS



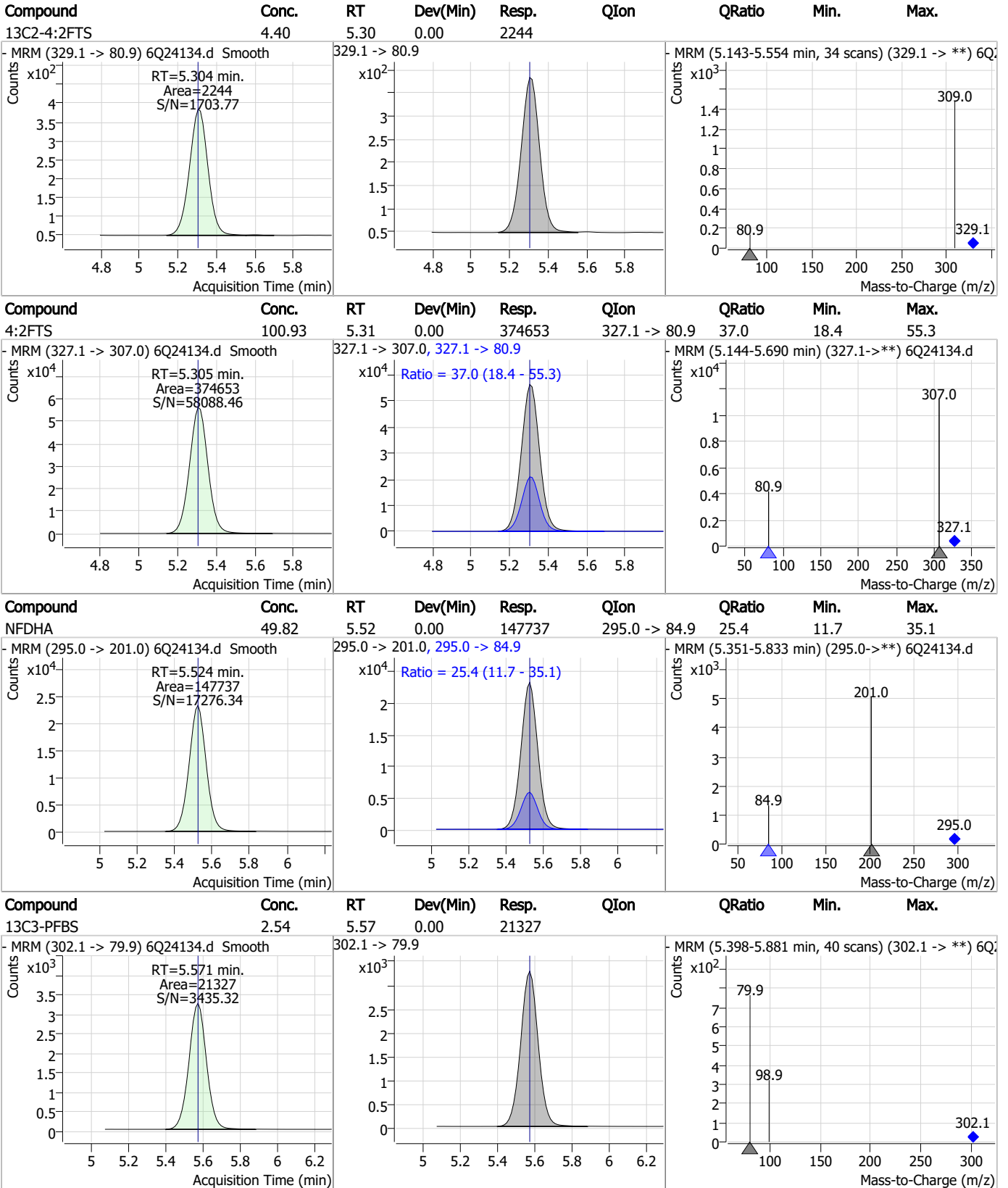
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Perfluorinated Compounds by LC/MS/MS



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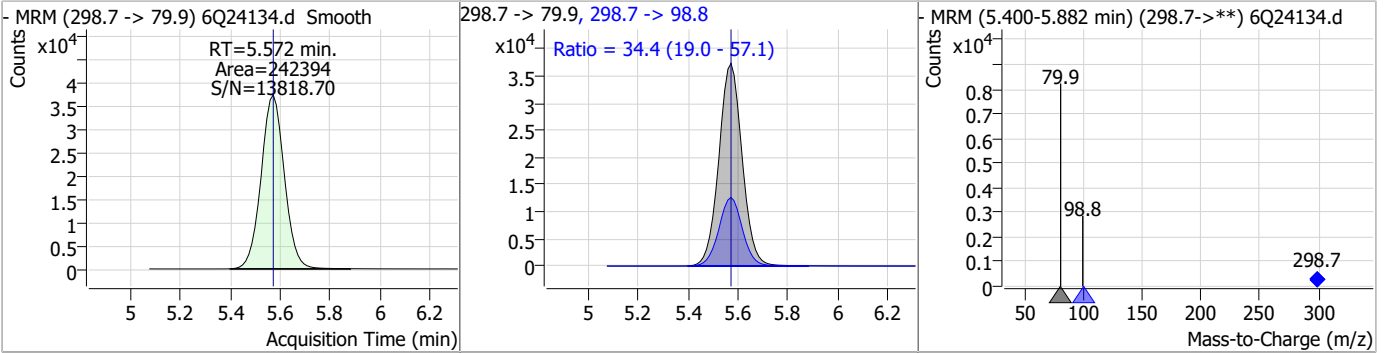
Perfluorinated Compounds by LC/MS/MS



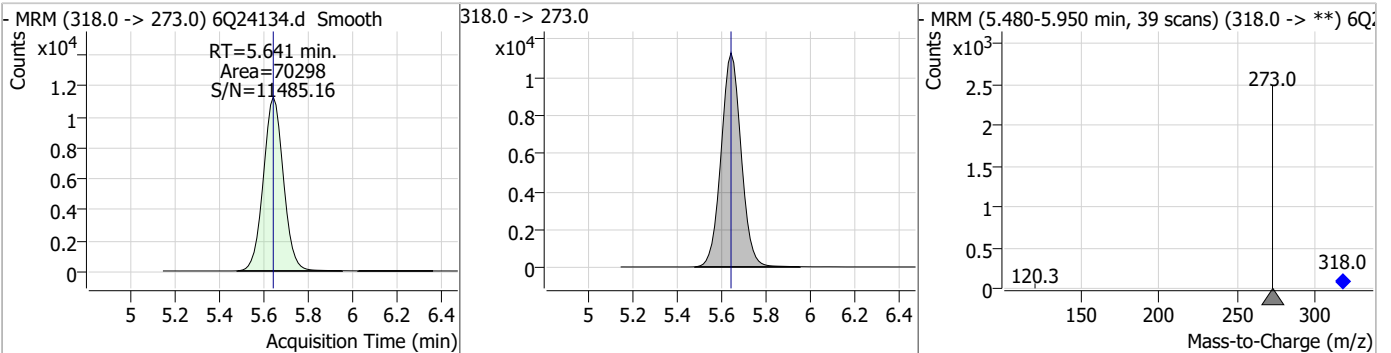
7.7.22 7

Perfluorinated Compounds by LC/MS/MS

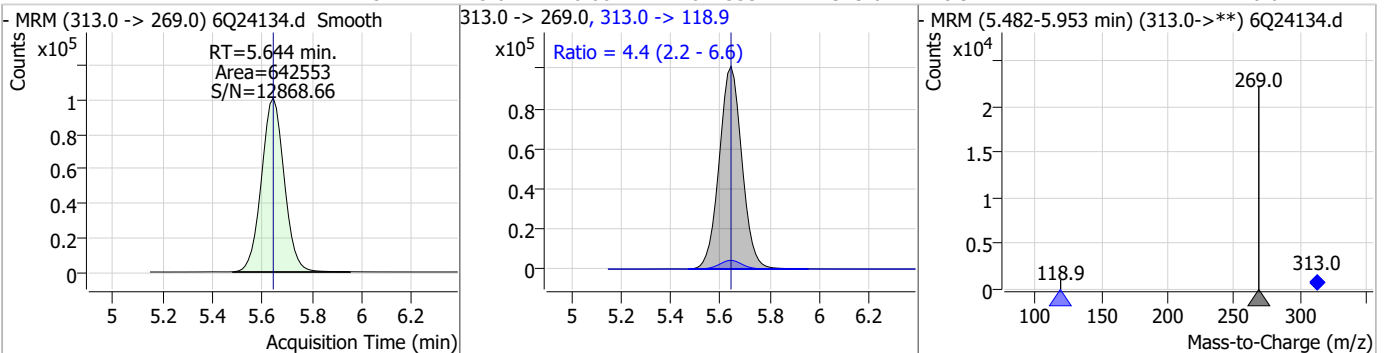
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	23.17	5.57	0.00	242394	298.7 -> 98.8	34.4	19.0	57.1



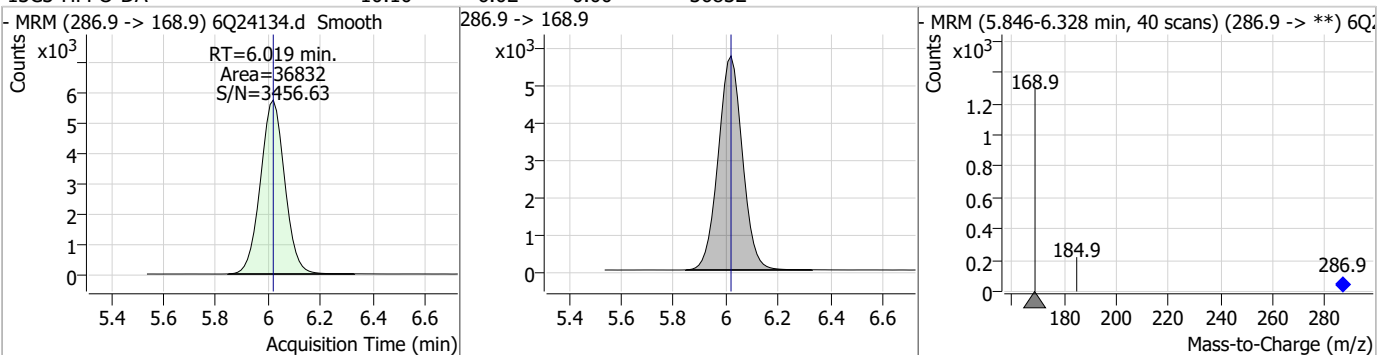
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.66	5.64	0.00	70298				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	25.11	5.64	0.00	642553	313.0 -> 118.9	4.4	2.2	6.6



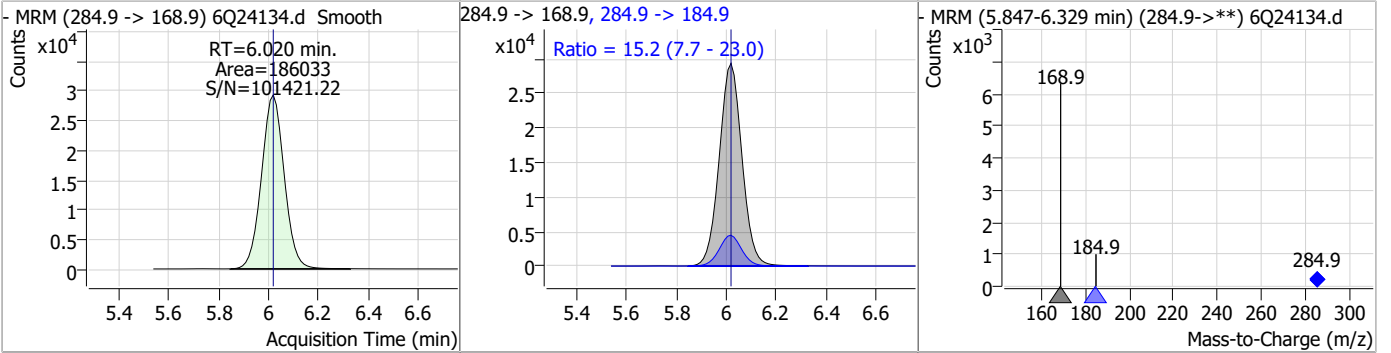
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.10	6.02	0.00	36832				



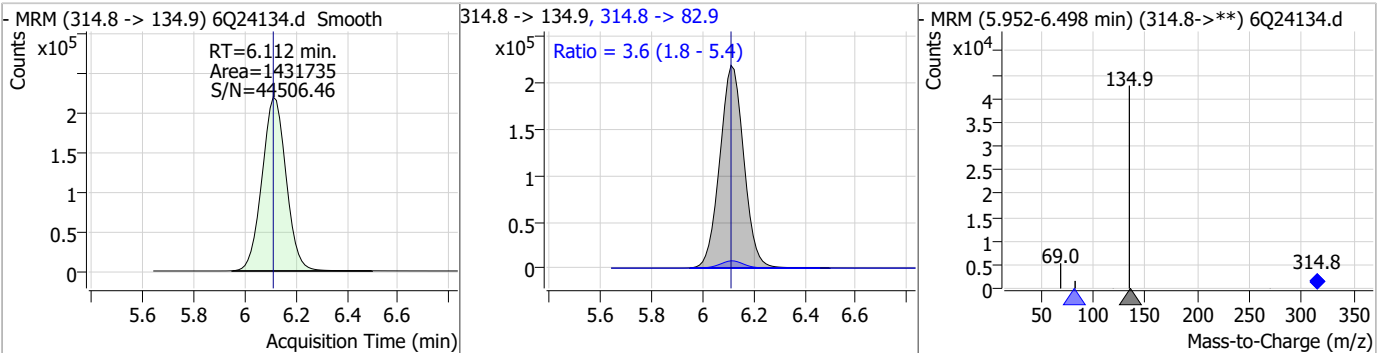
7.7.22 7

Perfluorinated Compounds by LC/MS/MS

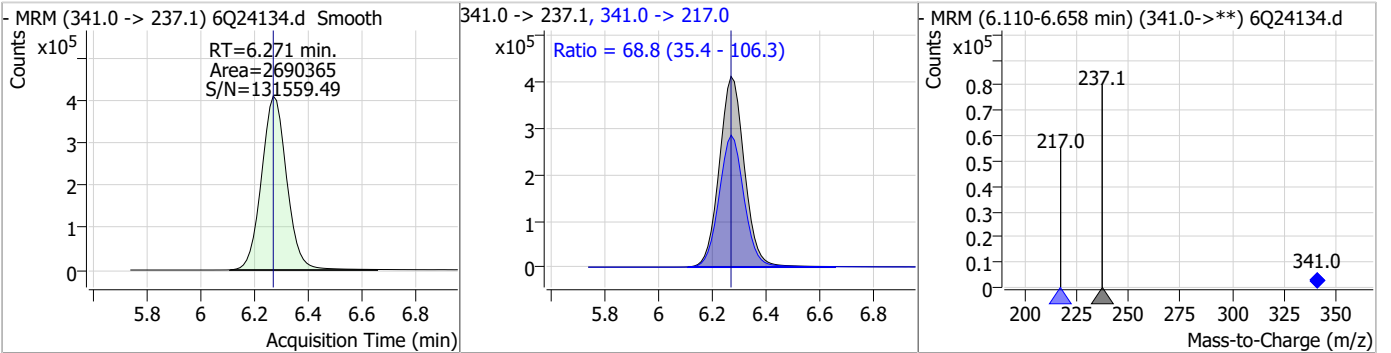
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	53.38	6.02	0.00	186033	284.9 -> 184.9	15.2	7.7	23.0



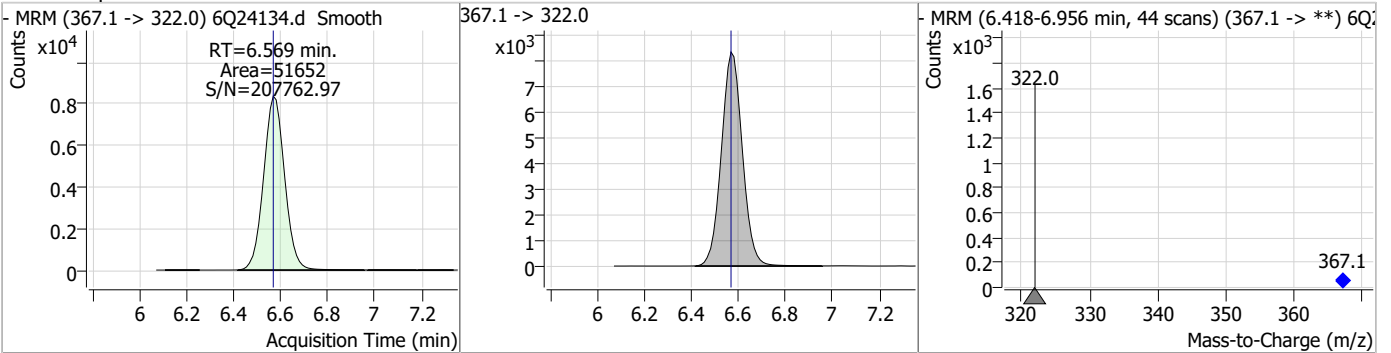
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	44.78	6.11	0.00	1431735	314.8 -> 82.9	3.6	1.8	5.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	618.87	6.27	0.00	2690365	341.0 -> 217.0	68.8	35.4	106.3

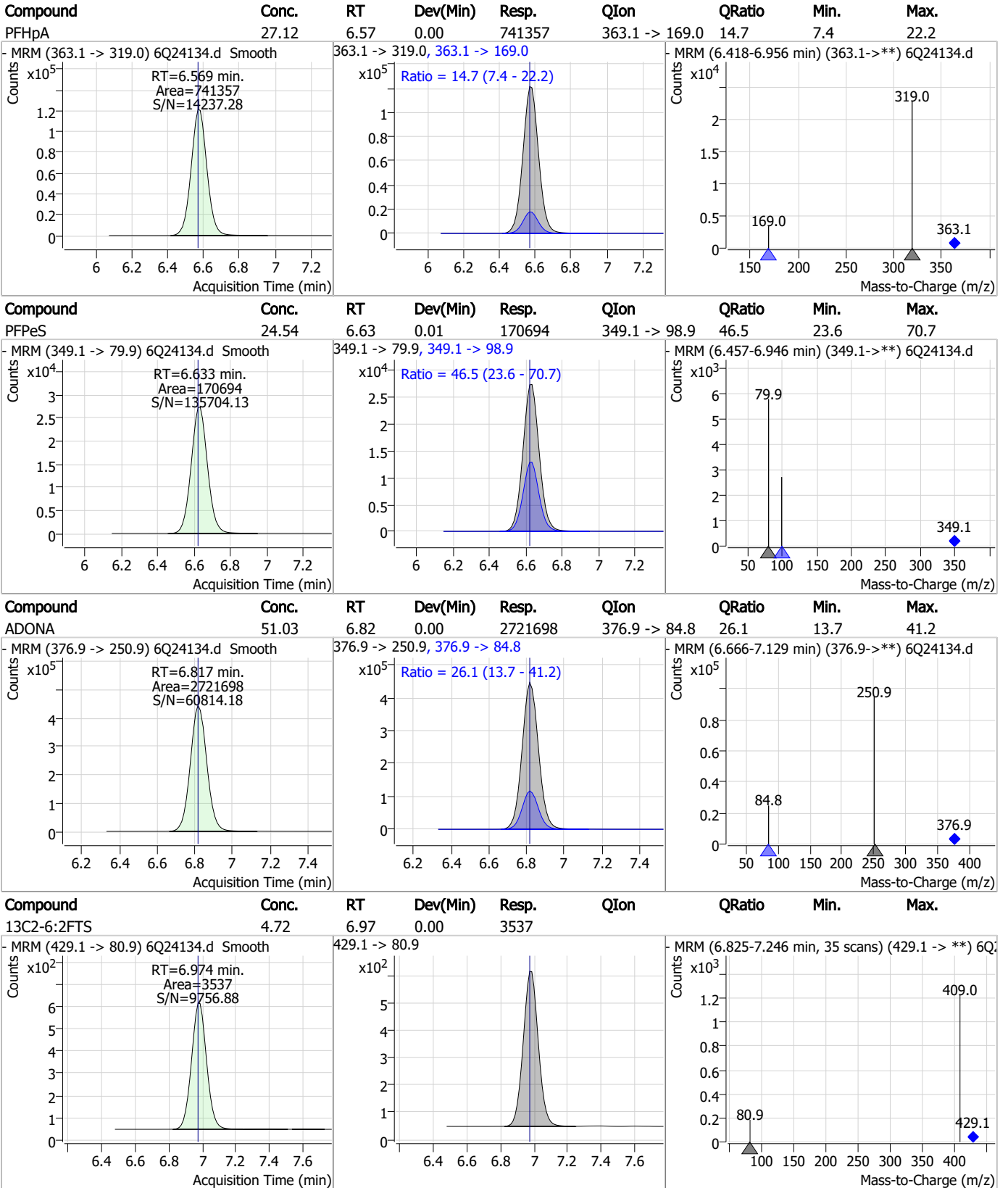


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.51	6.57	0.00	51652	367.1 -> 322.0			



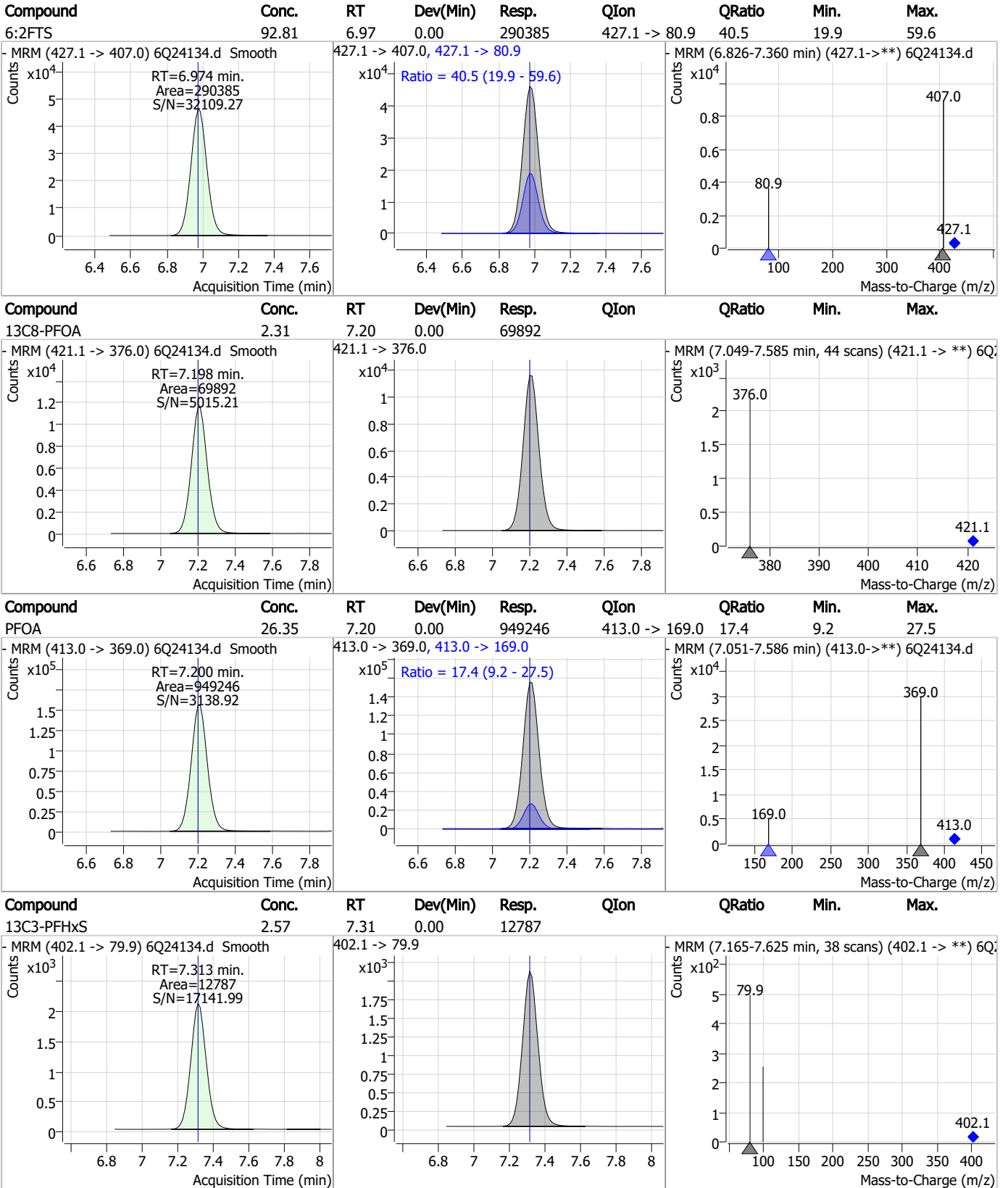
7.7.22 7

Perfluorinated Compounds by LC/MS/MS



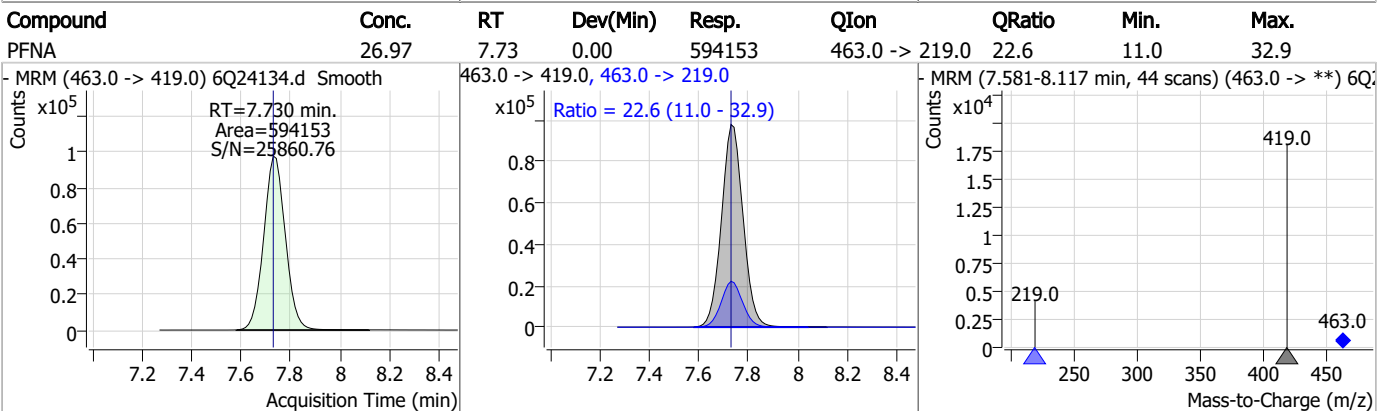
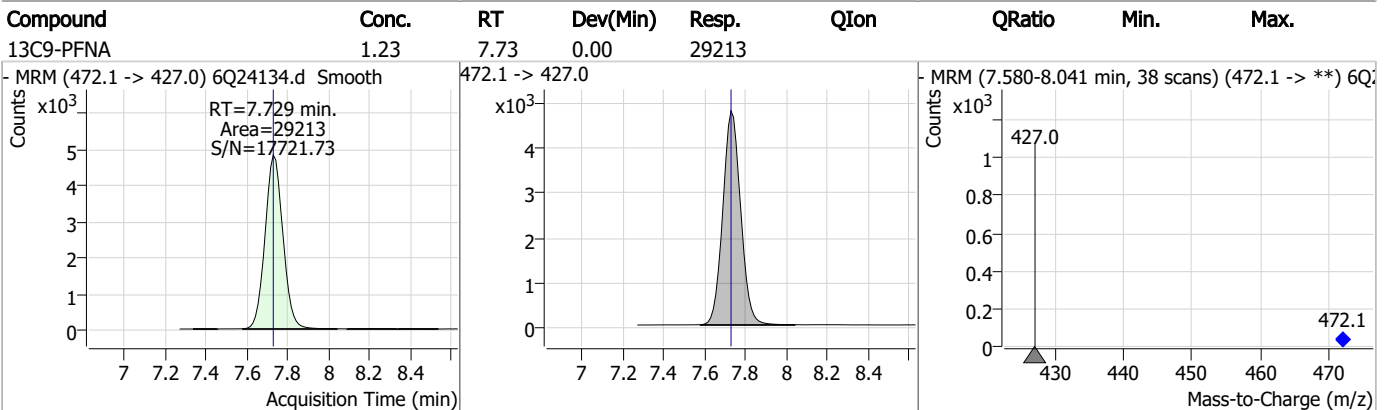
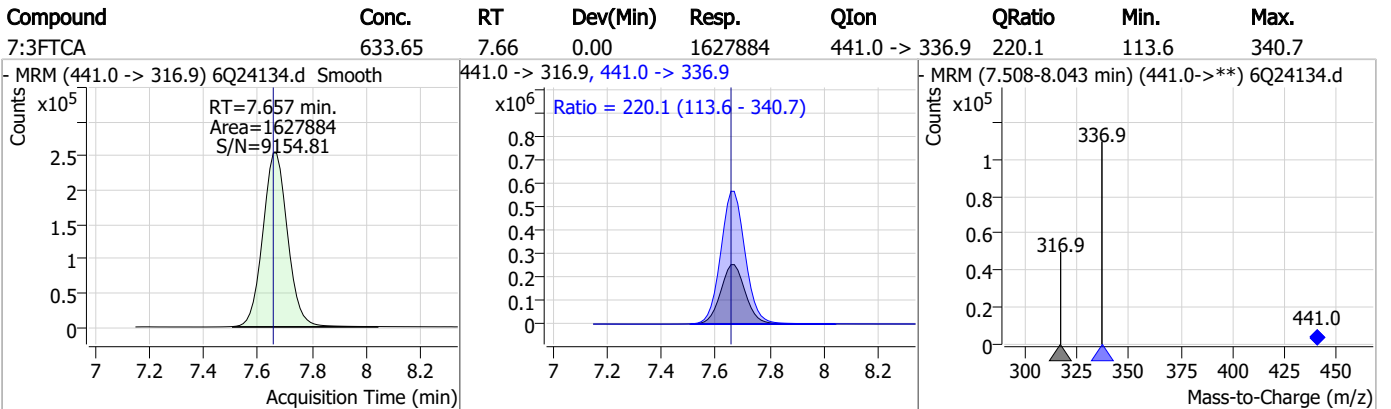
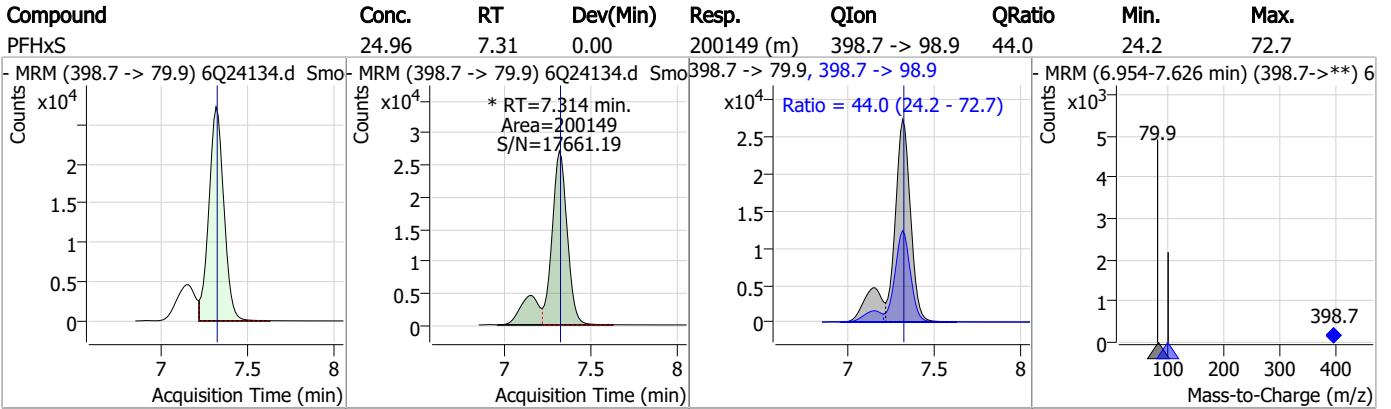
7.7.22 7

Perfluorinated Compounds by LC/MS/MS



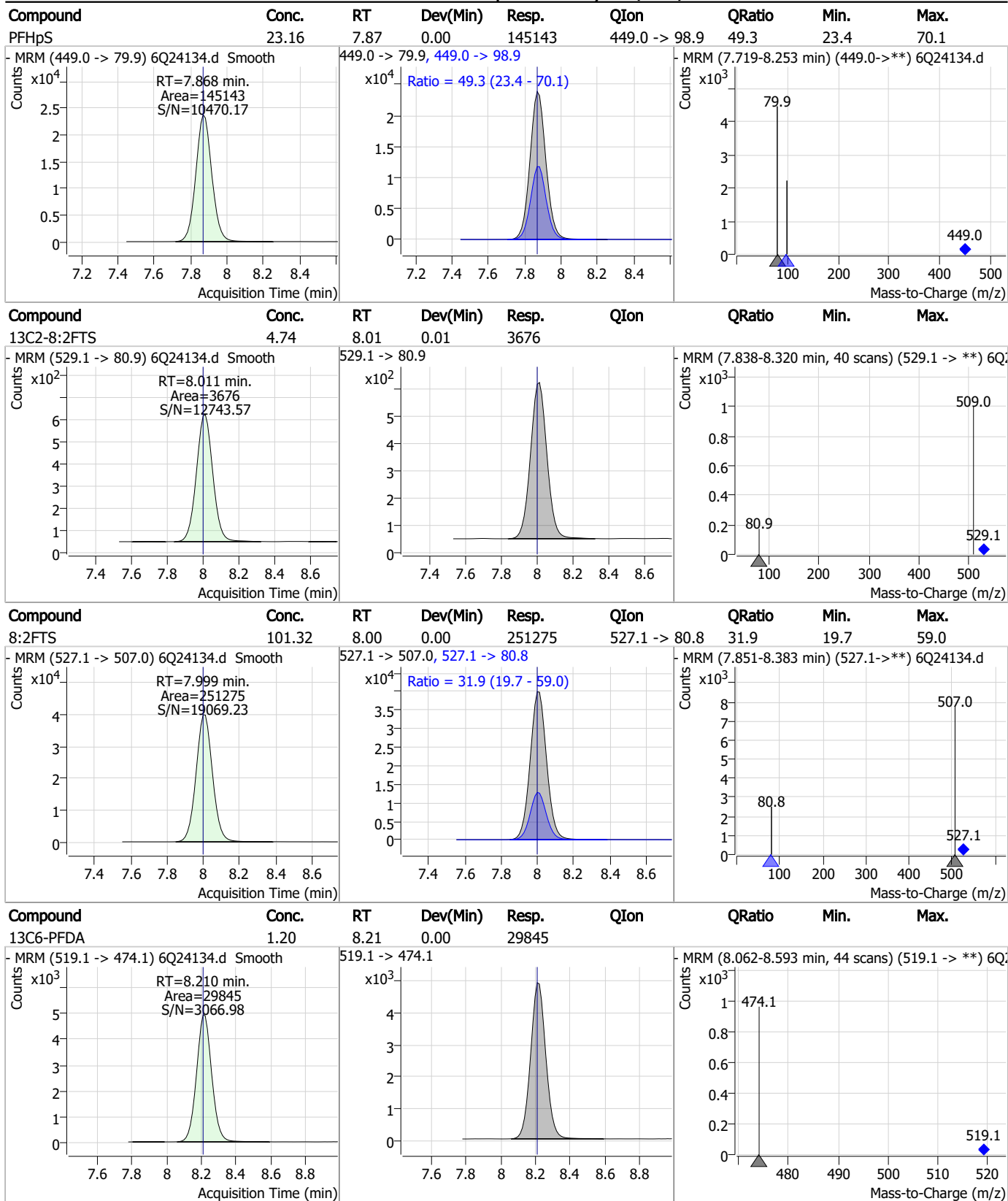
7.7.22 7

Perfluorinated Compounds by LC/MS/MS



7.7.22 7

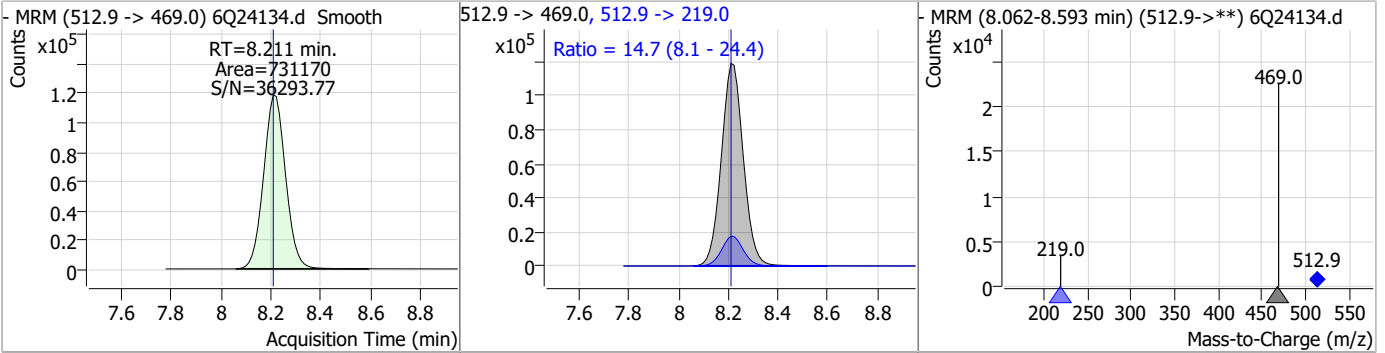
Perfluorinated Compounds by LC/MS/MS



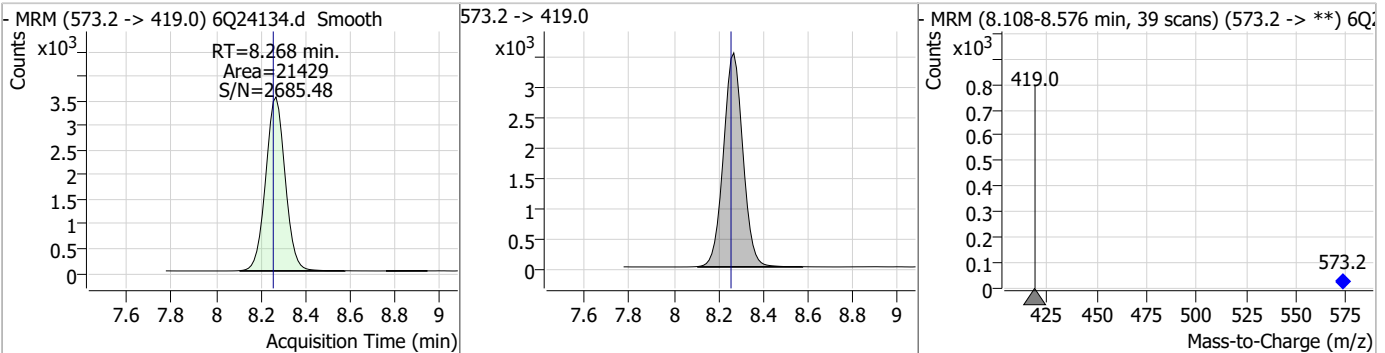
7.7.22 7

Perfluorinated Compounds by LC/MS/MS

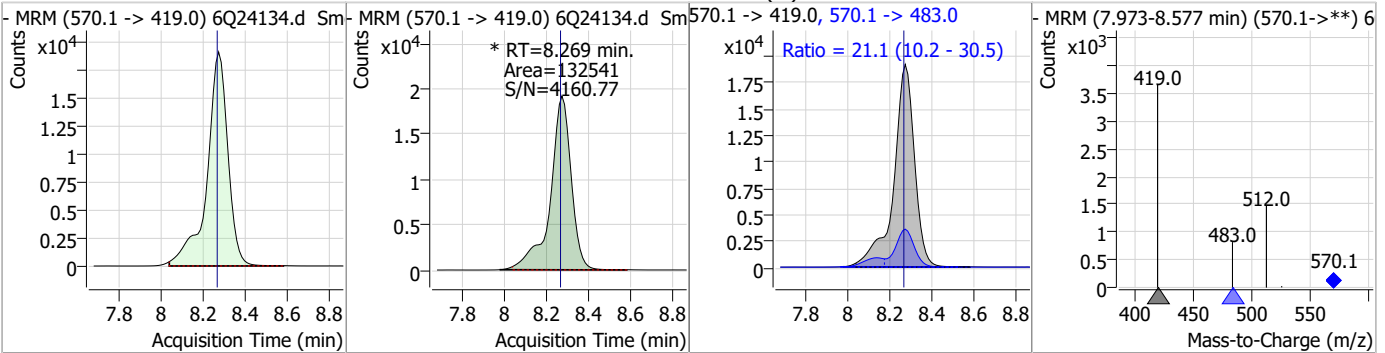
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	26.89	8.21	0.00	731170	512.9 -> 219.0	14.7	8.1	24.4



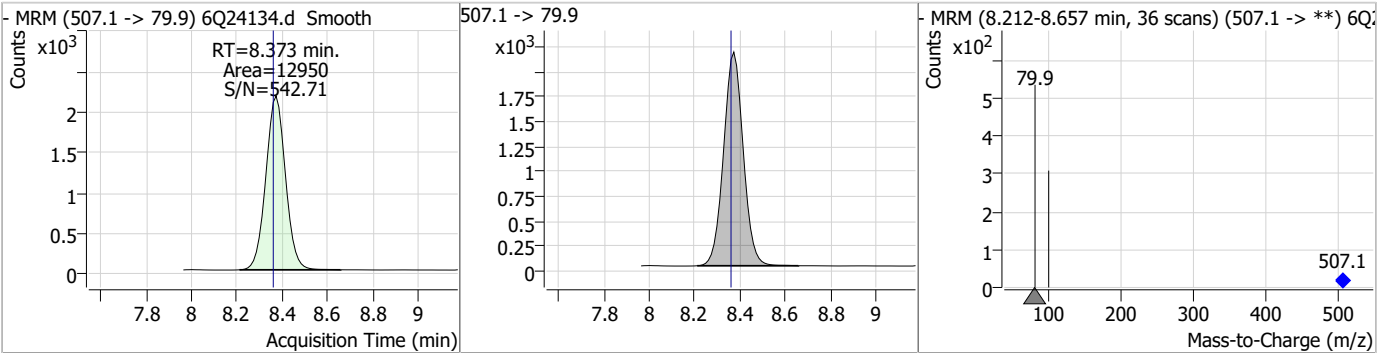
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.16	8.27	0.01	21429				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	26.04	8.27	0.01	132541 (m)	570.1 -> 483.0	21.1	10.2	30.5

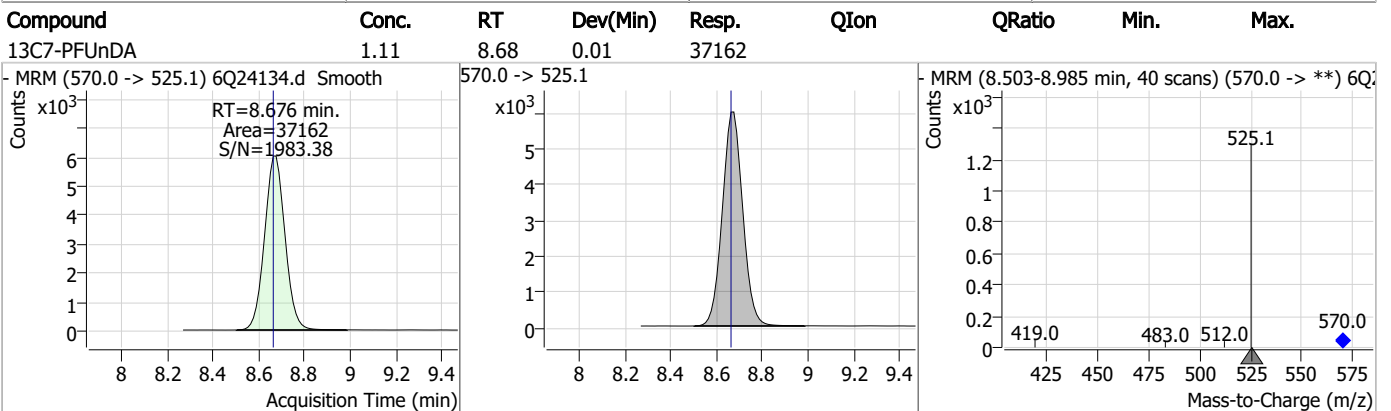
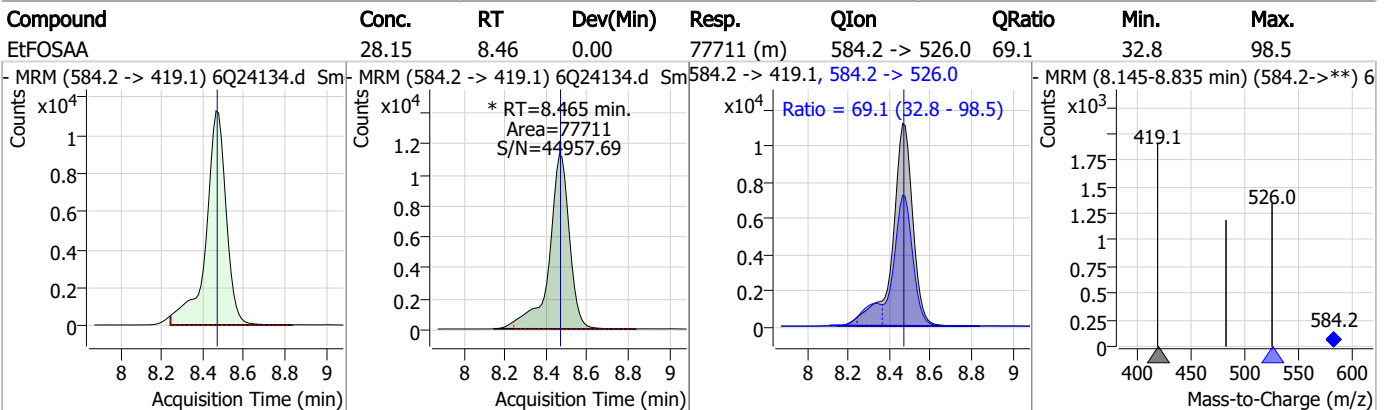
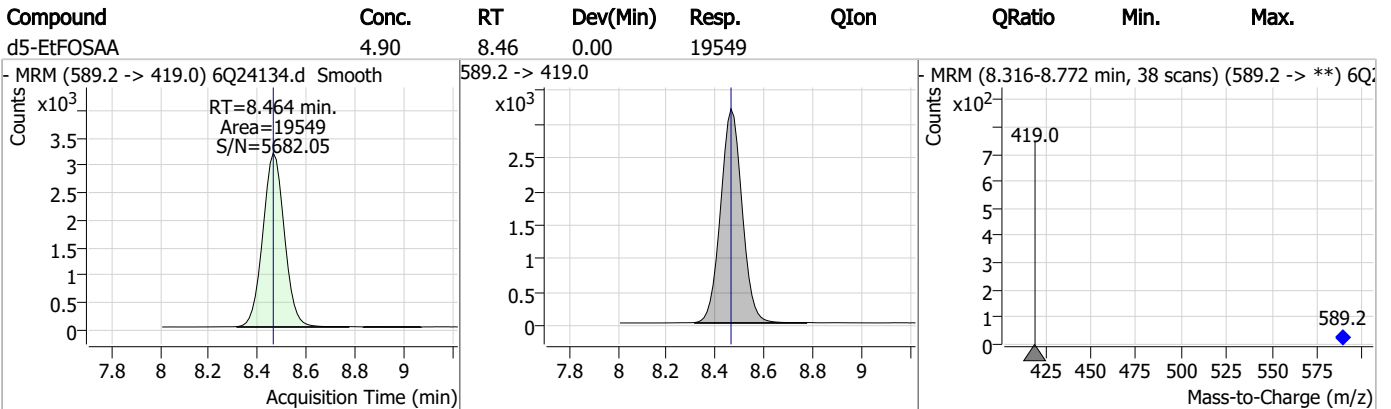
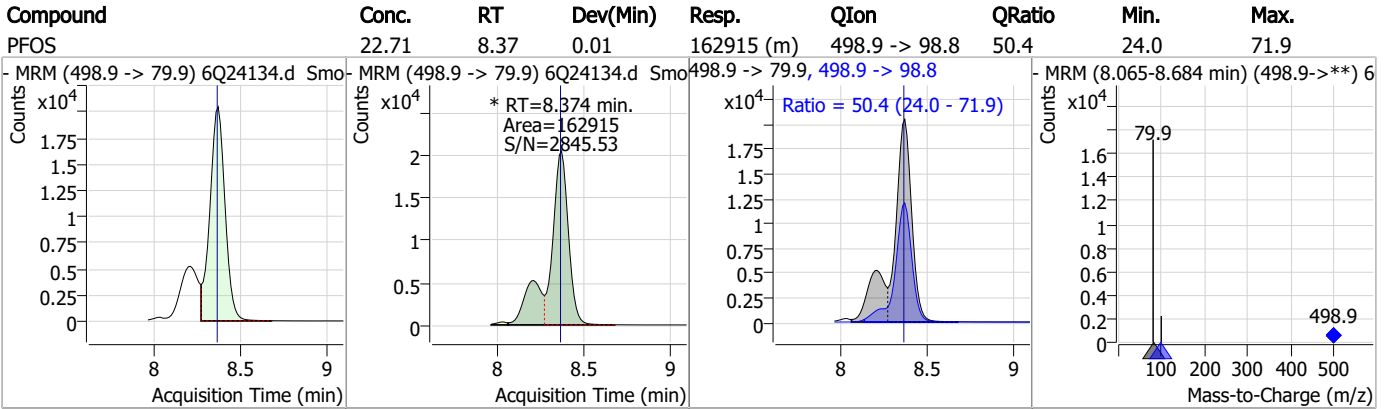


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.77	8.37	0.01	12950				



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Perfluorinated Compounds by LC/MS/MS

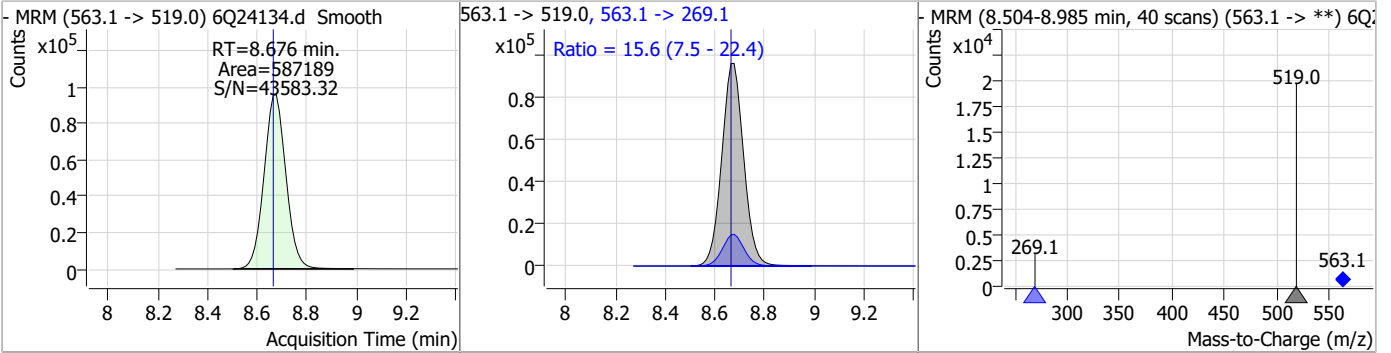


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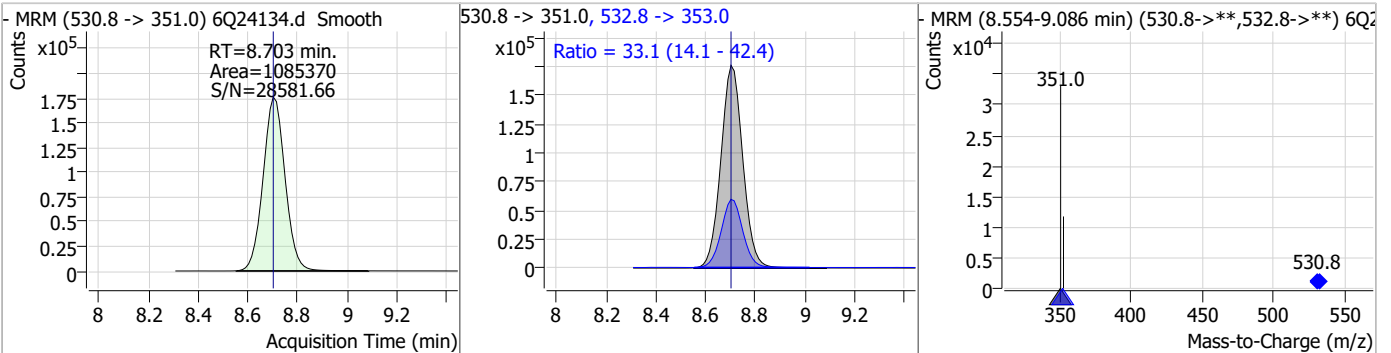
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Perfluorinated Compounds by LC/MS/MS

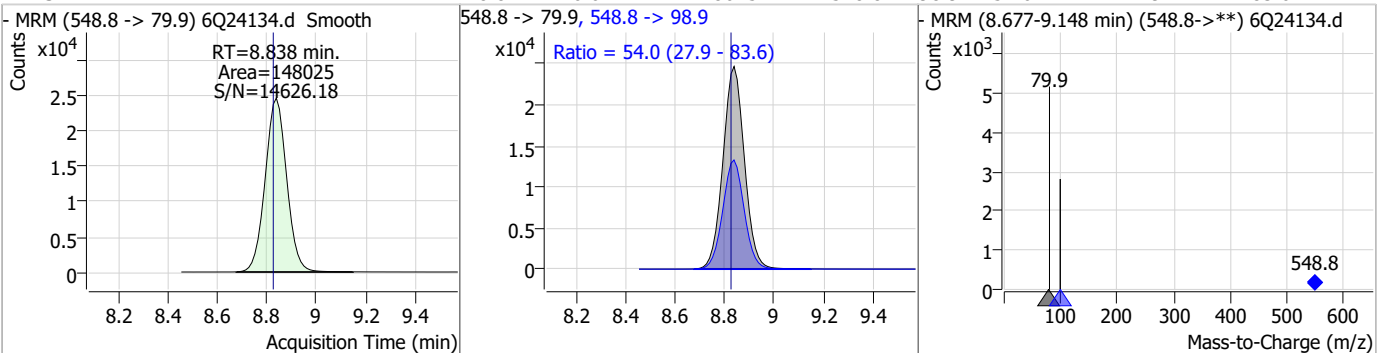
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	27.58	8.68	0.01	587189	563.1 -> 269.1	15.6	7.5	22.4



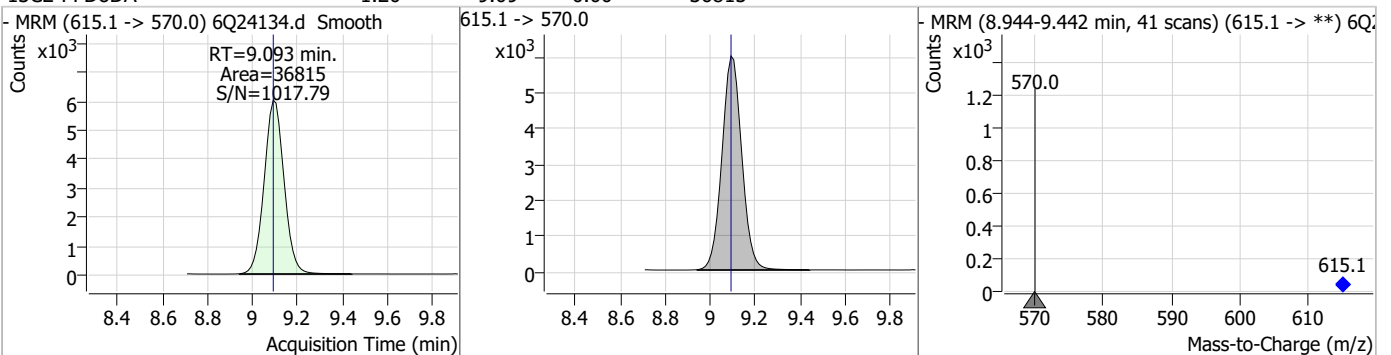
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	47.12	8.70	0.00	1085370	532.8 -> 353.0	33.1	14.1	42.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	24.21	8.84	0.01	148025	548.8 -> 98.9	54.0	27.9	83.6

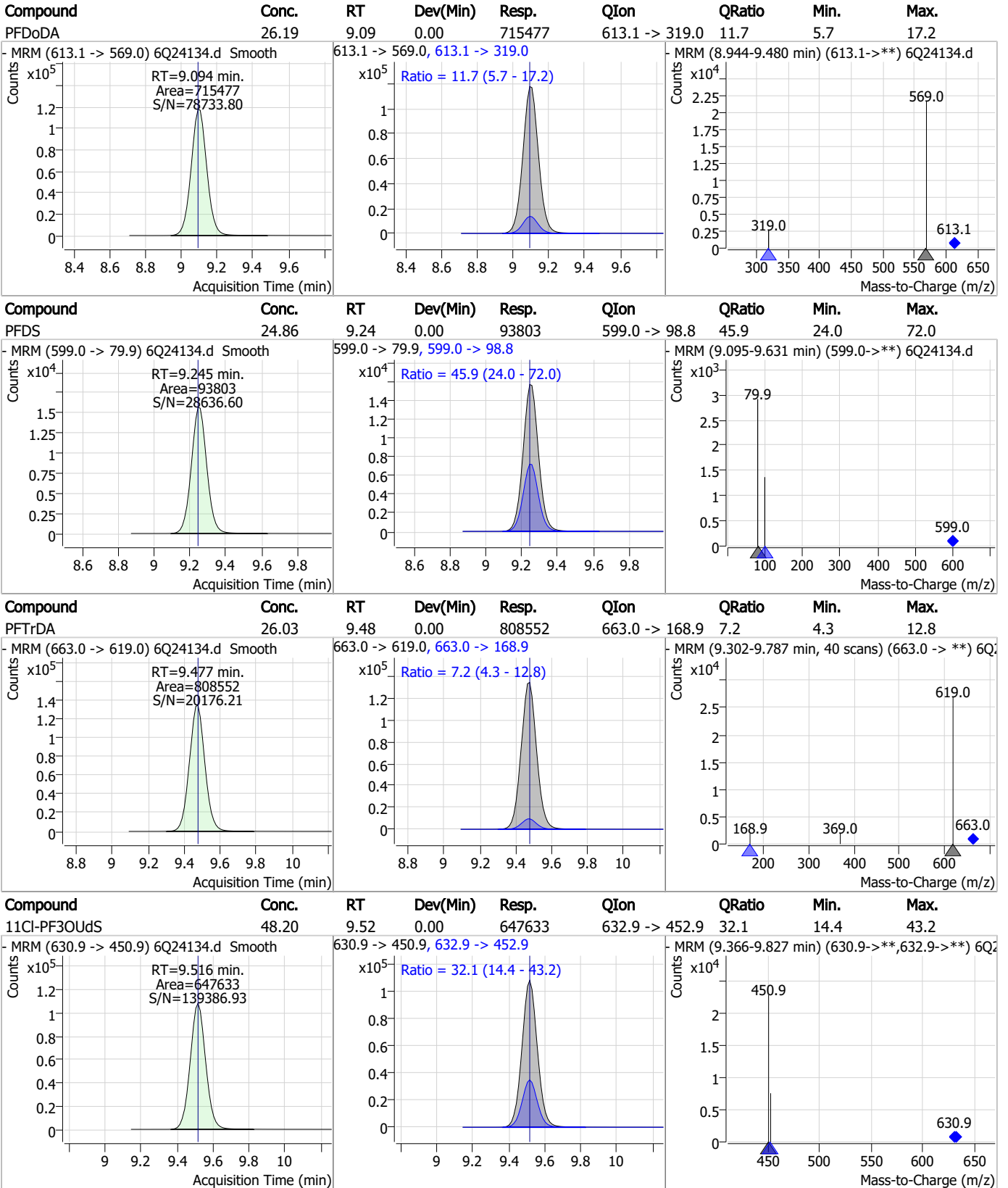


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.20	9.09	0.00	36815	615.1 -> 570.0			



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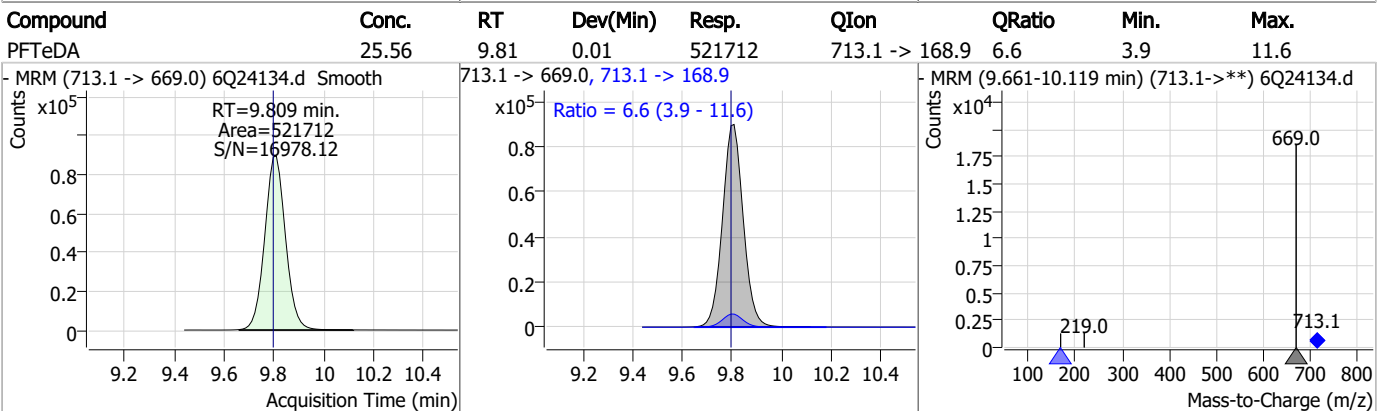
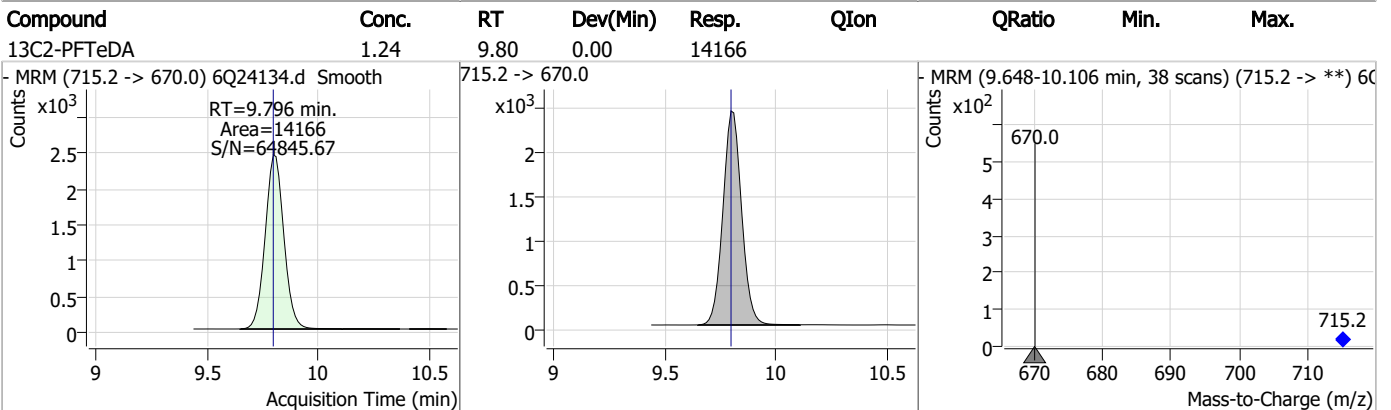
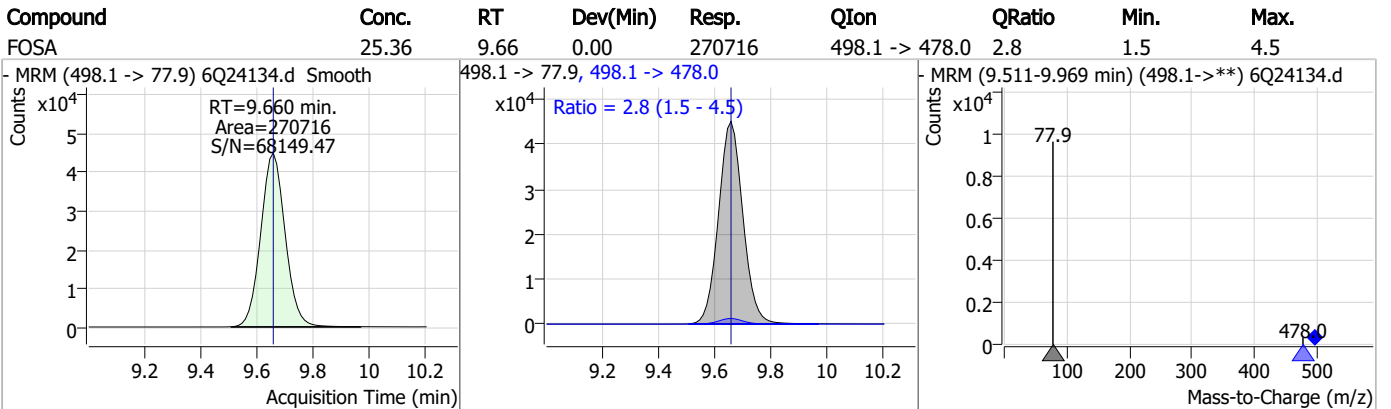
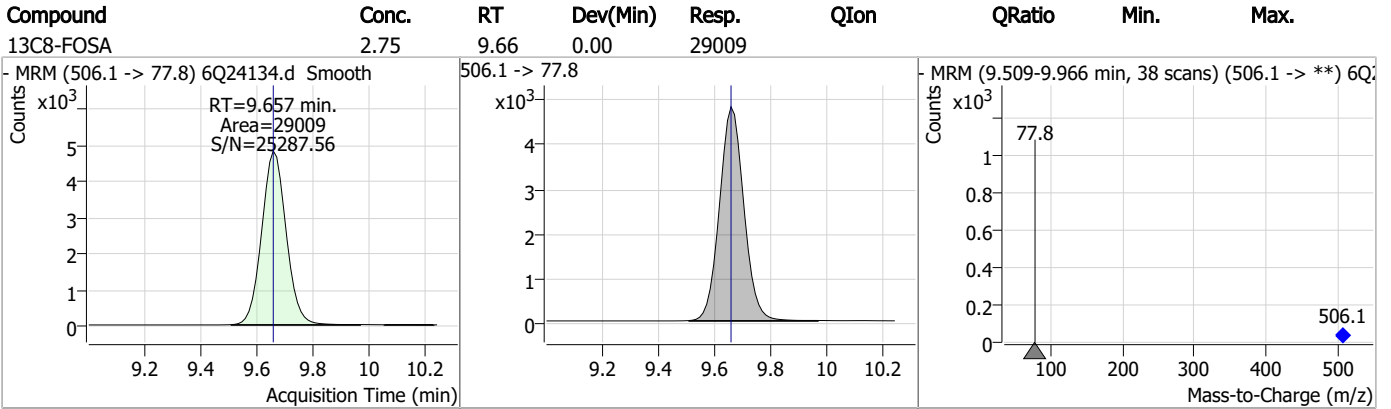
Perfluorinated Compounds by LC/MS/MS



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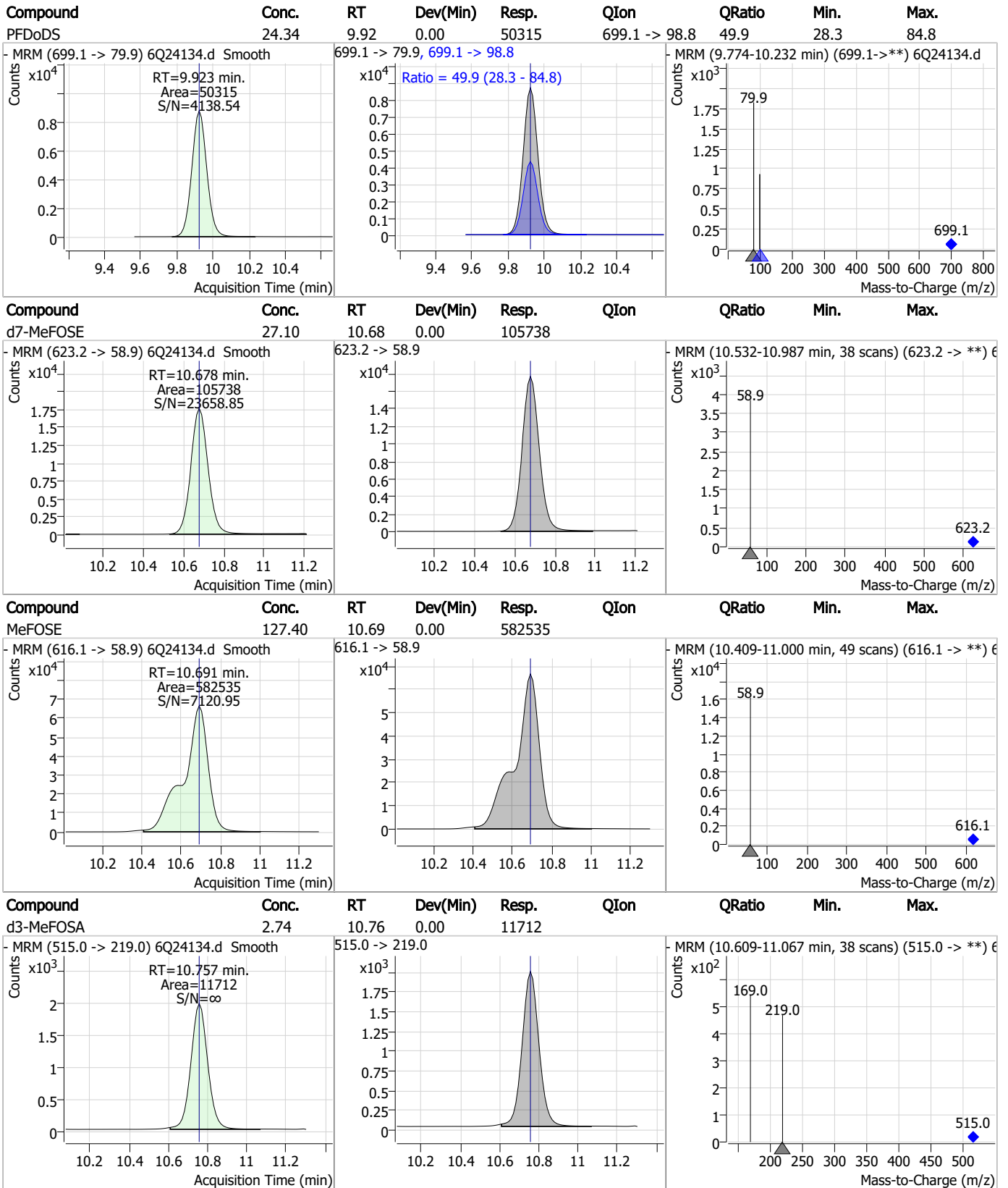


Perfluorinated Compounds by LC/MS/MS



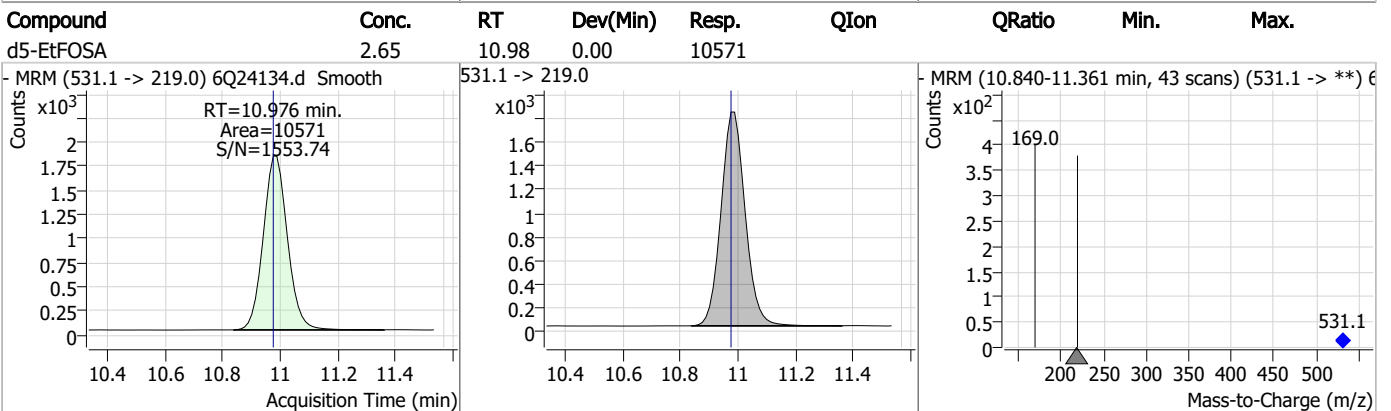
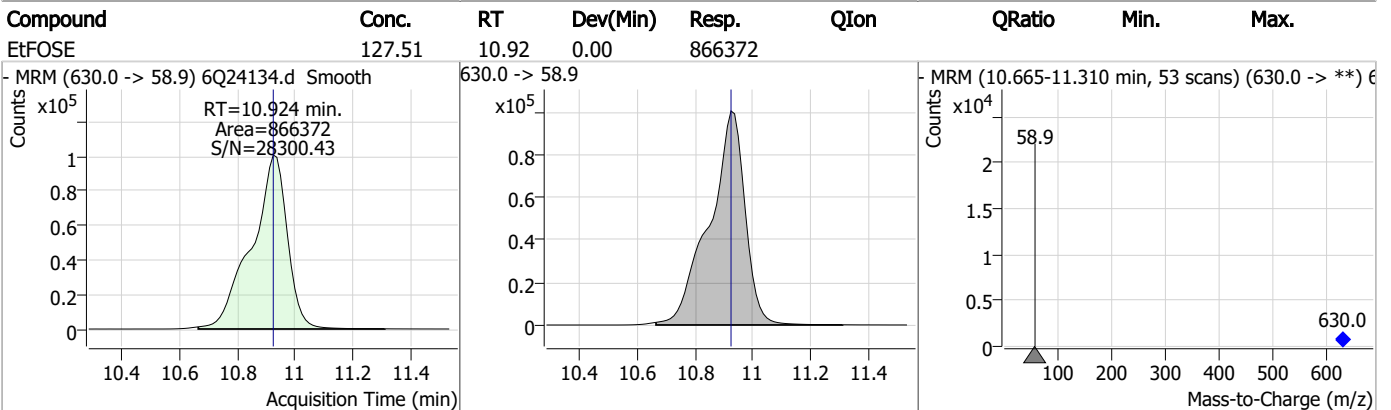
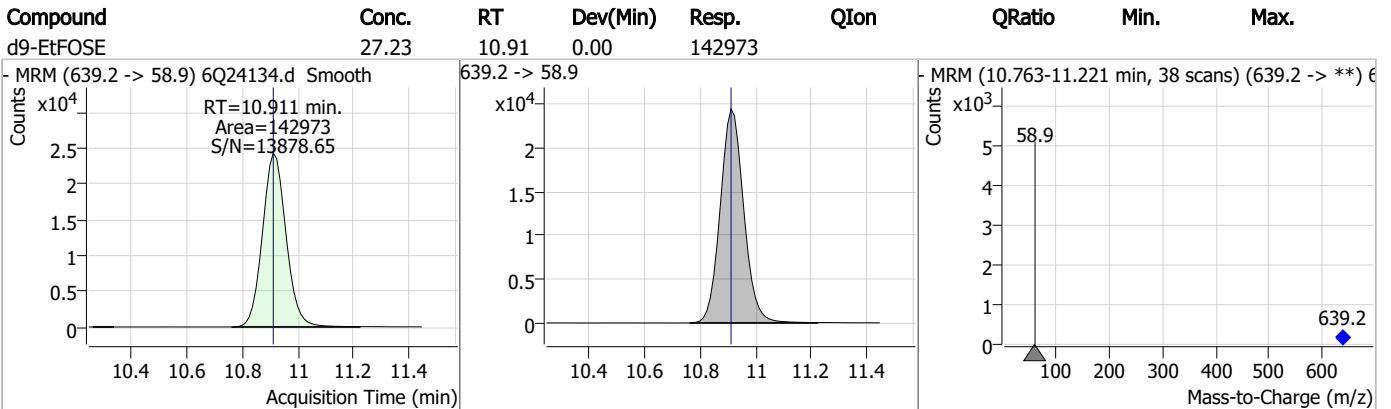
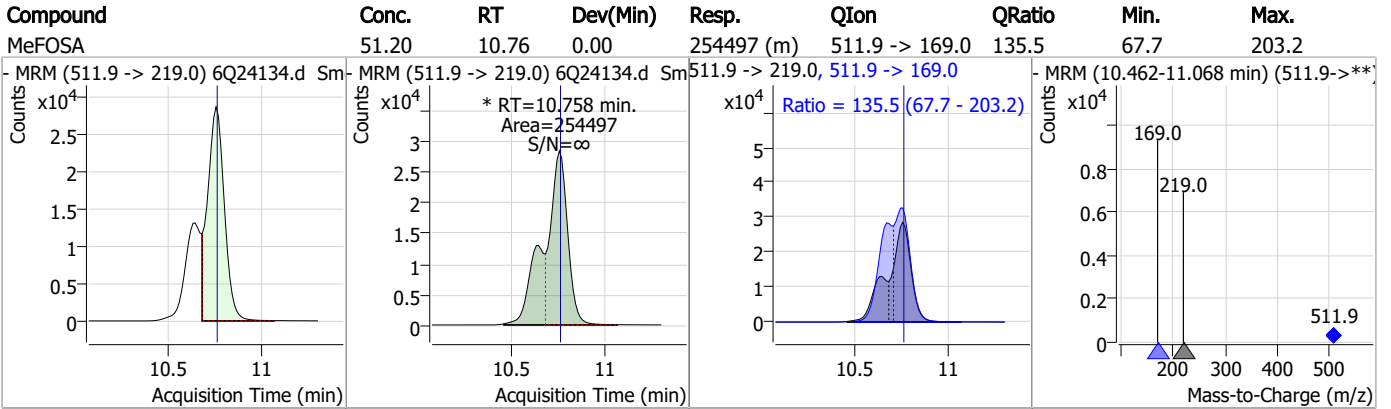
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Perfluorinated Compounds by LC/MS/MS



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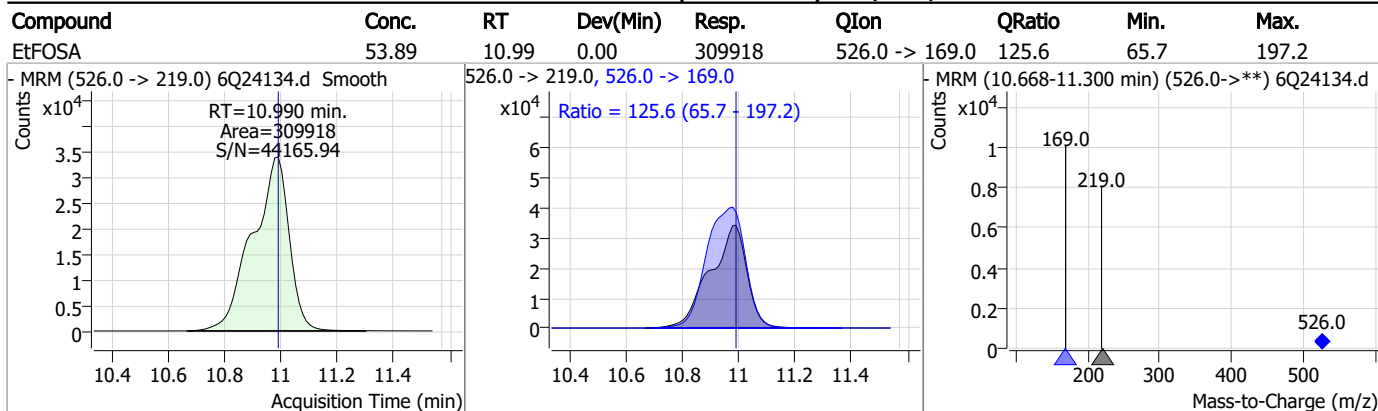
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q347-IC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24134.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 22:12 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24135.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 10:26:35 PM
 Sample Name : ic347-8
 Vial : P1-A9
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	152309	10.00 µg/L	0.025
M5-PFPeA	4.434	268.3 -> 223.0	30072	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	64430	2.50 µg/L	0.012
M4-PFHpA	6.569	367.1 -> 322.0	49796	2.50 µg/L	0.000
M8-PFOA	7.211	421.1 -> 376.0	67860	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	26662	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	28563	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	35225	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	35532	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	13590	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	28041	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	19365	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	11947	2.50 µg/L	0.000
M8-PFOS	8.373	507.1 -> 79.9	11657	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	1989	5.00 µg/L	0.012
M2-6:2FTS	6.974	429.1 -> 80.9	2906	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	3191	5.00 µg/L	0.000
M3-MeFOSAA	8.268	573.2 -> 419.0	20218	5.00 µg/L	0.012
M3-HFPO-DA	6.019	286.9 -> 168.9	35620	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	20679	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	100276	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	129846	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	9796	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	11728	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	14110	2.50 µg/L	0.012
13C3-PFBA	3.014	216.0 -> 172.0	60509	5.00 µg/L	0.025
18O2-PFHxS	7.313	403.0 -> 83.9	8970	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	72506	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	27282	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	37097	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	45526	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	1989	3.94 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 78.8%		
13C2-6:2FTS	6.974	429.1 -> 80.9	2906	3.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 78.4%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3191	4.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 83.2%		
13C2-PFDoDA	9.093	615.1 -> 570.0	35532	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-PFTeDA	9.796	715.2 -> 670.0	13590	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C3-PFBS	5.571	302.1 -> 79.9	19365	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.4%		
13C3-PFHxS	7.313	402.1 -> 79.9	11947	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 = 97.0%	
13C4-PFBA	3.010	216.8 -> 171.9	152309	9.97 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.569	367.1 -> 322.0	49796	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFHxA	5.654	318.0 -> 273.0	64430	2.57 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C5-PFPeA	4.434	268.3 -> 223.0	30072	4.90 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C6-PFDA	8.210	519.1 -> 474.1	28563	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C7-PFUnDA	8.663	570.0 -> 525.1	35225	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 88.5%	
13C8-FOSA	9.657	506.1 -> 77.8	28041	2.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.7%	
13C8-PFOA	7.211	421.1 -> 376.0	67860	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C8-PFOS	8.373	507.1 -> 79.9	11657	2.62 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C9-PFNA	7.729	472.1 -> 427.0	26662	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.0%	
d3-MeFOSAA	8.268	573.2 -> 419.0	20218	5.13 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	35620	10.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	11728	2.88 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.2%	
d5-EtFOSAA	8.464	589.2 -> 419.0	20679	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
d7-MeFOSE	10.678	623.2 -> 58.9	100276	27.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.1%	
d9-EtFOSE	10.911	639.2 -> 58.9	129846	26.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
d5-EtFOSA	10.976	531.1 -> 219.0	9796	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	700140	212.84 µg/L	97
		327.1 -> 80.9	269168		
6:2FTS	6.974	427.1 -> 407.0	577862	224.81 µg/L	97
		427.1 -> 80.9	218204		
8:2FTS	7.999	527.1 -> 507.0	428310	199.00 µg/L	97
		527.1 -> 80.8	176203		
EtFOSAA	8.465	584.2 -> 419.1	174859	59.87 µg/L	m 99
		584.2 -> 526.0	113624		
FOSA	9.660	498.1 -> 77.9	633892	61.43 µg/L	99
		498.1 -> 478.0	17313		
MeFOSAA	8.269	570.1 -> 419.0	293229	61.06 µg/L	98
		570.1 -> 483.0	62499		
PFBA	3.018	212.8 -> 168.9	1286191	255.52 µg/L	100
PFBS	5.572	298.7 -> 79.9	557963	58.74 µg/L	97
		298.7 -> 98.8	204077		
PFDA	8.211	512.9 -> 469.0	1621177	62.31 µg/L	97
		512.9 -> 219.0	243573		
PFDoDA	9.094	613.1 -> 569.0	1595930	60.52 µg/L	99
		613.1 -> 319.0	192095		
PFDS	9.245	599.0 -> 79.9	209574	61.71 µg/L	98

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.582	599.0 -> 98.8	102812	63.32	µg/L	100
		363.1 -> 319.0	1668443			
PFHpS	7.868	363.1 -> 169.0	245707	57.10	µg/L	93
		449.0 -> 79.9	322182			
PFHxA	5.644	449.0 -> 98.9	165870	63.92	µg/L	99
		313.0 -> 269.0	1499026			
PFHxS	7.314	313.0 -> 118.9	62381	58.54	µg/L	96
		398.7 -> 79.9	438576			
PFNA	7.730	398.7 -> 98.9	201005	65.46	µg/L	99
		463.0 -> 419.0	1316266			
PFNS	8.838	463.0 -> 219.0	292647	59.26	µg/L	100
		548.8 -> 79.9	326185			
PFOA	7.200	548.8 -> 98.9	181012	64.55	µg/L	97
		413.0 -> 369.0	2257752			
PFOS	8.362	413.0 -> 169.0	383148	58.11	µg/L	96
		498.9 -> 79.9	375275			
PFPeA	4.436	498.9 -> 98.8	170425	126.75	µg/L	100
		263.0 -> 219.0	1698027			
PFPeS	6.633	349.1 -> 79.9	388412	59.76	µg/L	97
		349.1 -> 98.9	175086			
PFTeDA	9.797	713.1 -> 669.0	1190816	60.83	µg/L	97
		713.1 -> 168.9	80517			
PFTrDA	9.464	663.0 -> 619.0	1738013	57.96	µg/L	97
		663.0 -> 168.9	130058			
PFUnDA	8.664	563.1 -> 519.0	1274607	63.16	µg/L	99
		563.1 -> 269.1	183543			
11Cl-PF3OUdS	9.516	630.9 -> 450.9	1390316	106.98	µg/L	89
		632.9 -> 452.9	480393			
9Cl-PF3ONS	8.703	530.8 -> 351.0	2677283	120.18	µg/L	100
		532.8 -> 353.0	761976			
ADONA	6.817	376.9 -> 250.9	5910544	114.60	µg/L	99
		376.9 -> 84.8	1578262			
HFPO-DA	6.020	284.9 -> 168.9	432596	128.35	µg/L	97
		284.9 -> 184.9	61656			
3:3FTCA	3.883	241.0 -> 177.0	315415	362.32	µg/L	100
		241.0 -> 117.0	29805			
5:3FTCA	6.283	341.0 -> 237.1	6361403	1596.60	µg/L	98
		341.0 -> 217.0	4385075			
7:3FTCA	7.657	441.0 -> 316.9	3606648	1531.74	µg/L	99
		441.0 -> 336.9	8280618			
EtFOSA	10.990	526.0 -> 219.0	694397	130.29	µg/L	100
		526.0 -> 169.0	910620			
EtFOSE	10.924	630.0 -> 58.9	1860346	301.48	µg/L	100
		511.9 -> 219.0	593764			
MeFOSA	10.758	511.9 -> 169.0	806315	119.29	µg/L	100
		616.1 -> 58.9	1408353			
MeFOSE	10.691	699.1 -> 79.9	115697	324.79	µg/L	100
		699.1 -> 98.8	60207			
PFDoDS	9.923	295.0 -> 201.0	318808	62.18	µg/L	94
		295.0 -> 84.9	82583			
NFDHA	5.524	279.0 -> 85.1	1264212	117.31	µg/L	95
		229.0 -> 84.9	908638			
PFMBA	4.850	314.8 -> 134.9	3195310	129.48	µg/L	100
PFMPA	3.563	314.8 -> 82.9	112015	129.79	µg/L	100
PFEESA	6.124			109.04	µg/L	100

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

7.7.23
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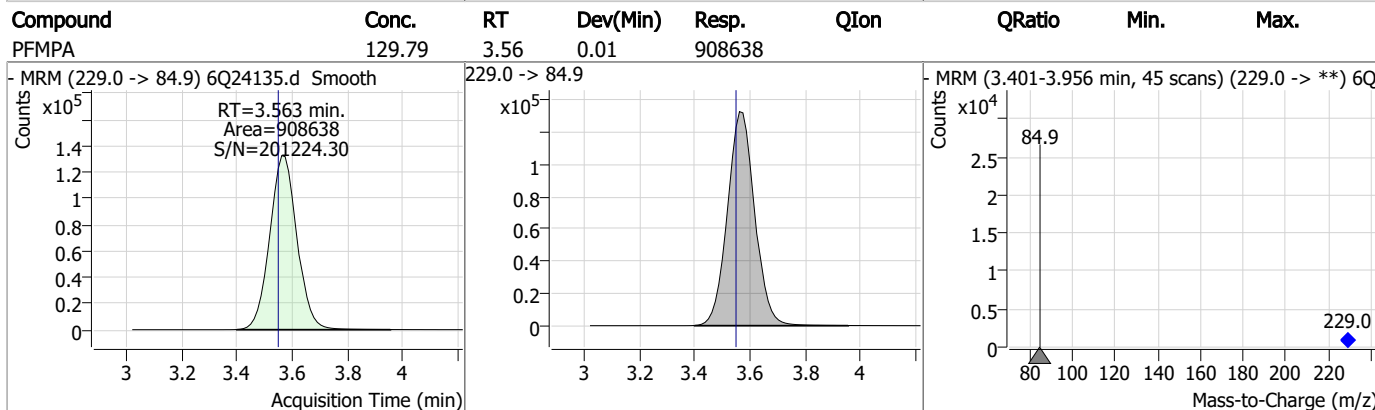
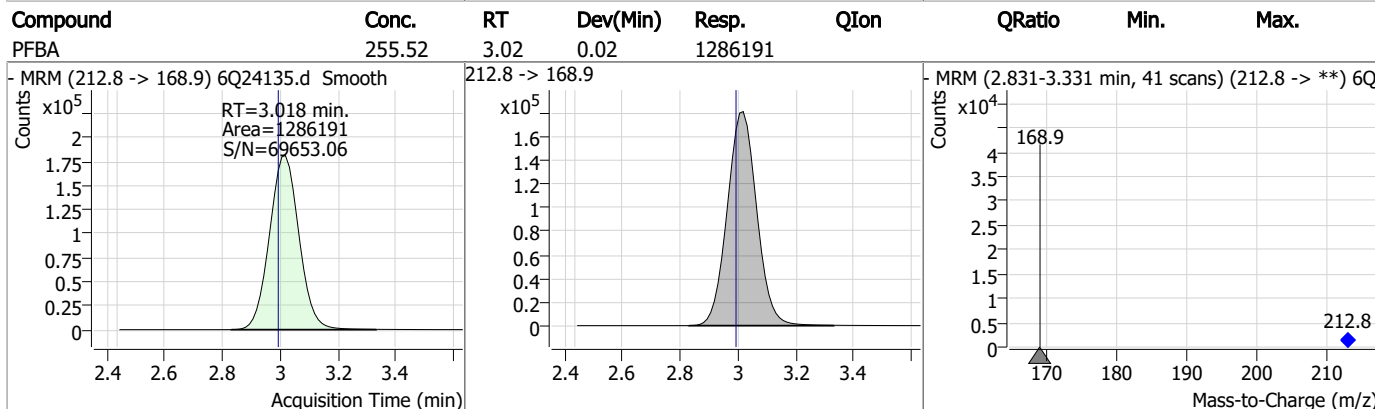
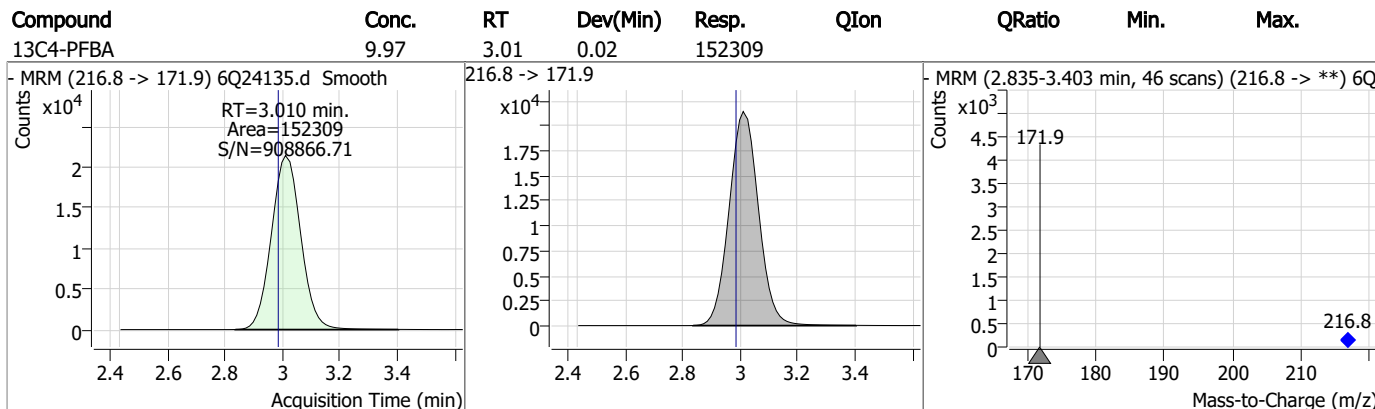
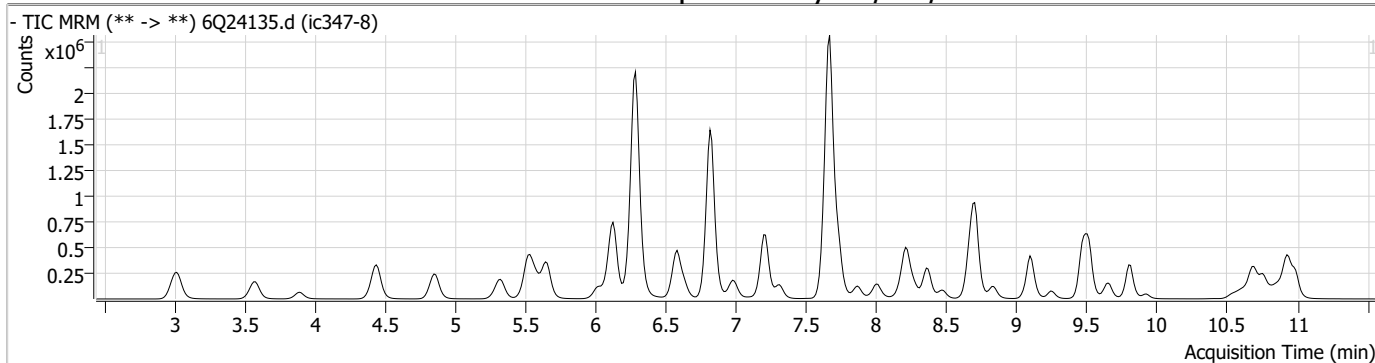
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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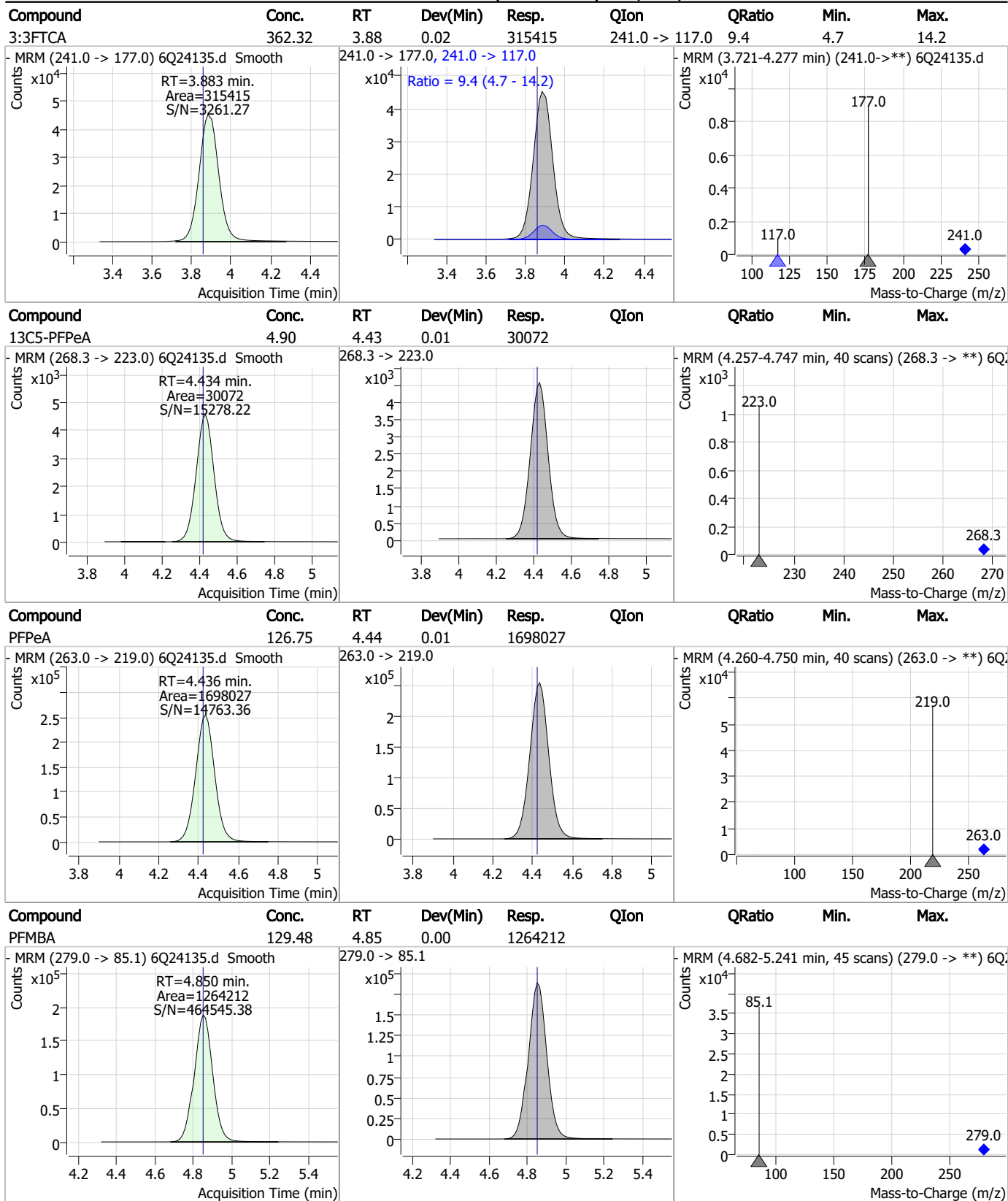
7.7.23

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Perfluorinated Compounds by LC/MS/MS

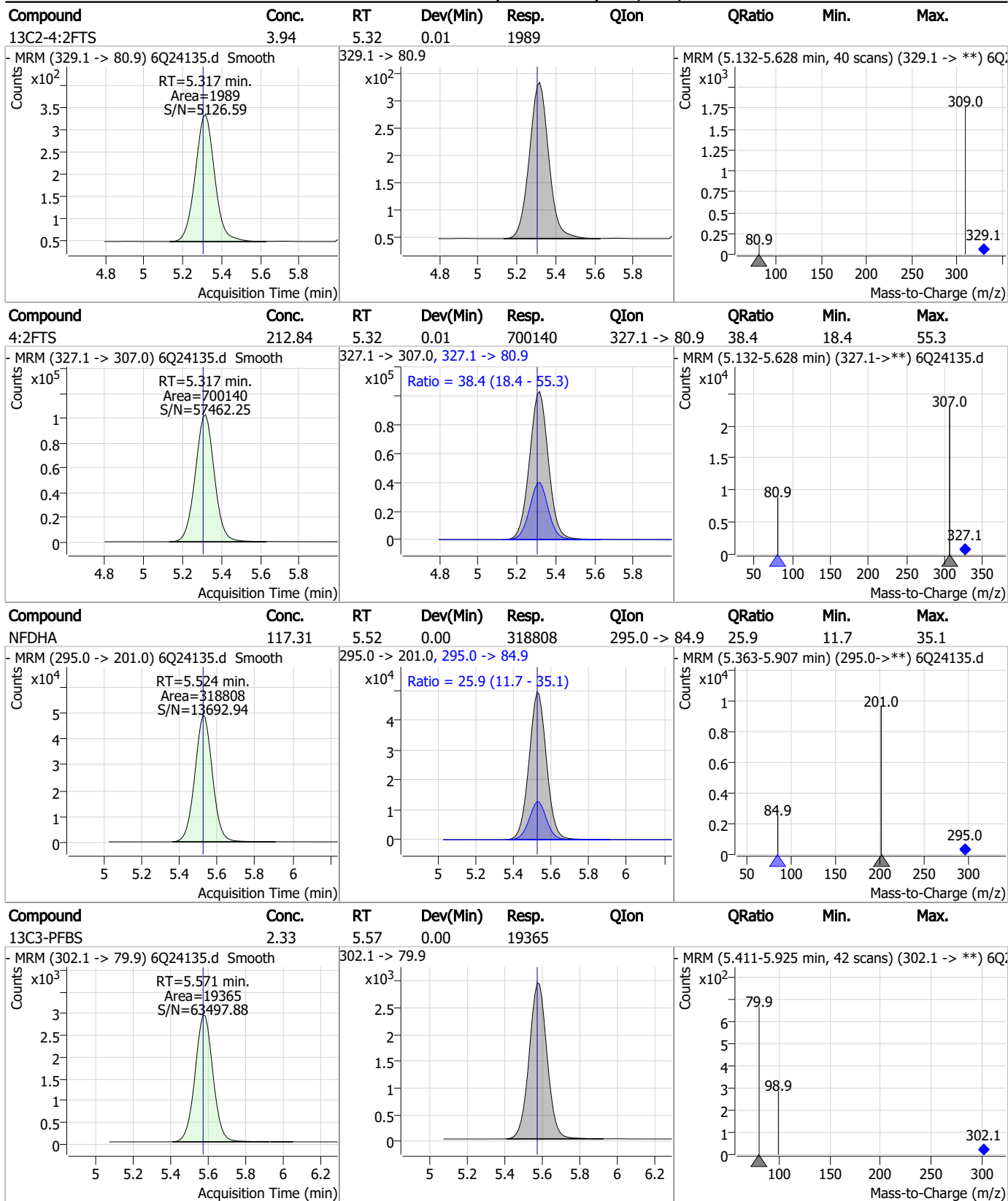


Perfluorinated Compounds by LC/MS/MS



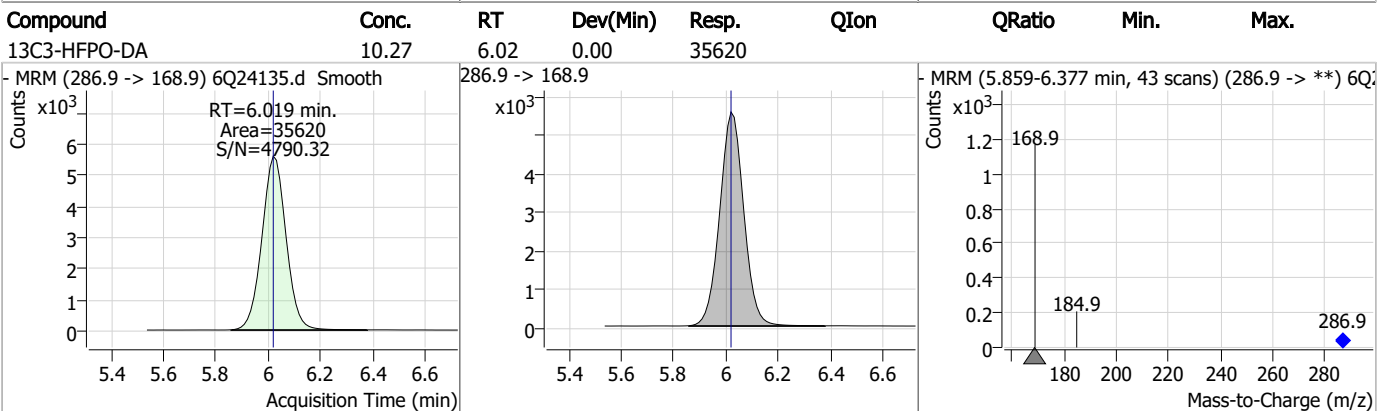
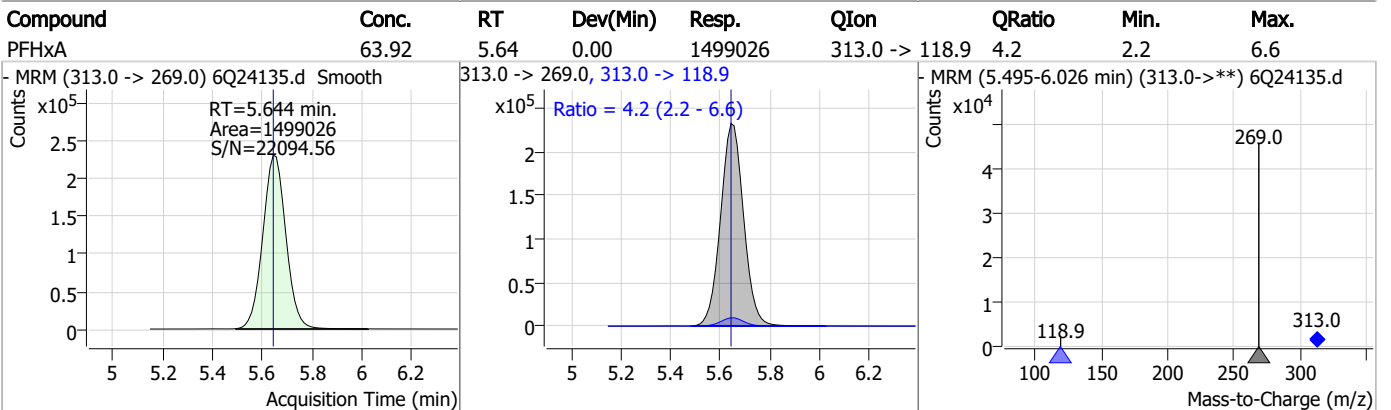
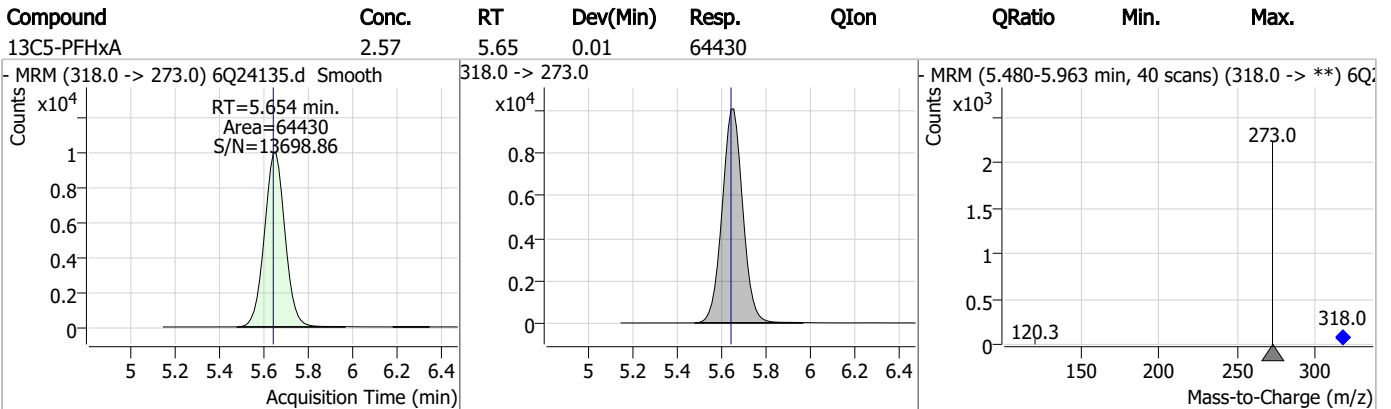
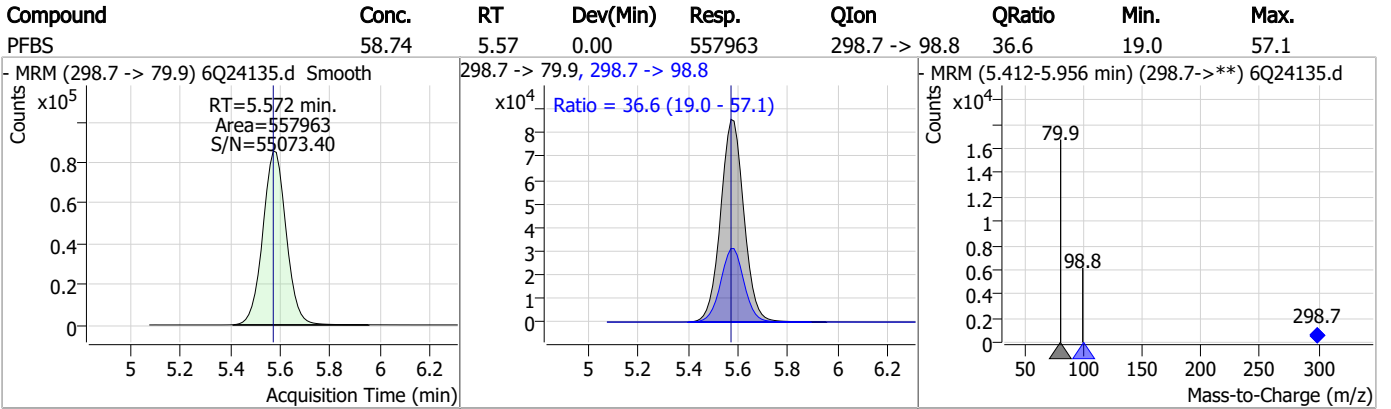
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Perfluorinated Compounds by LC/MS/MS



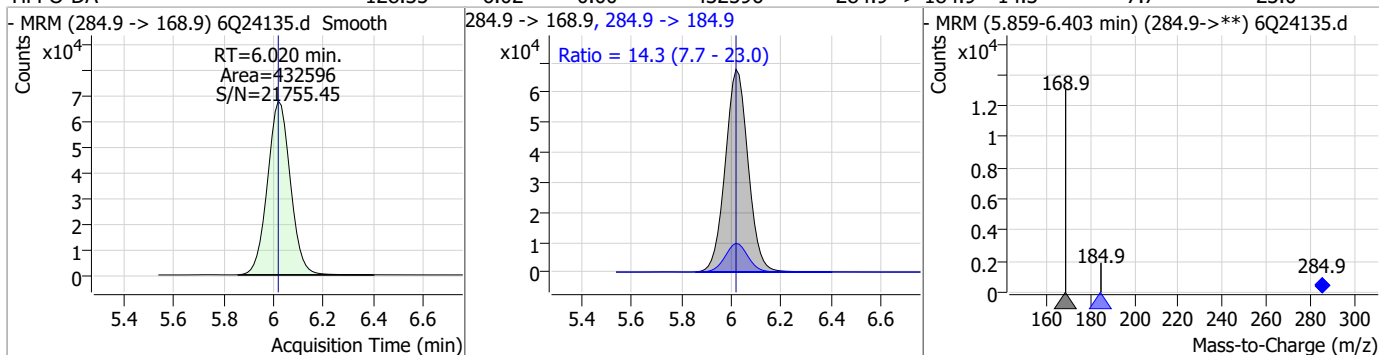
7.7.23
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Perfluorinated Compounds by LC/MS/MS

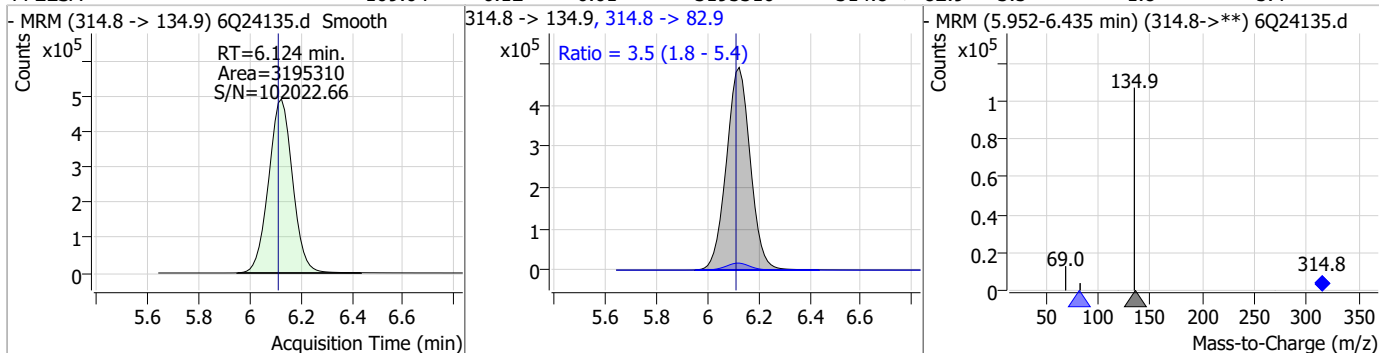


Perfluorinated Compounds by LC/MS/MS

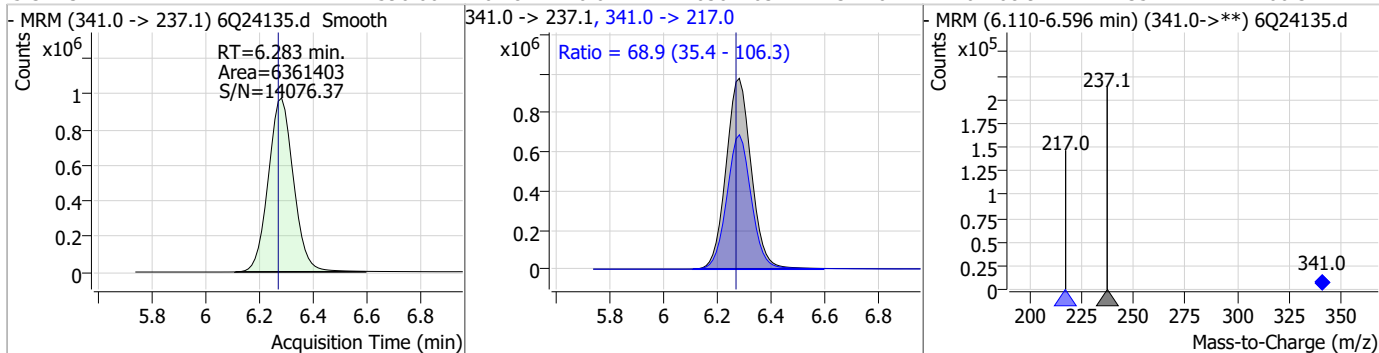
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	128.35	6.02	0.00	432596	284.9 -> 184.9	14.3	7.7	23.0



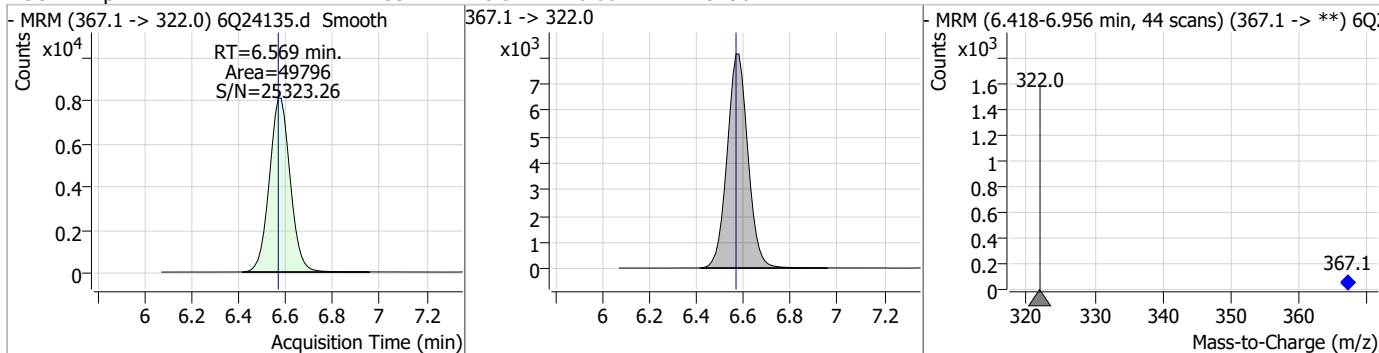
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	109.04	6.12	0.01	3195310	314.8 -> 82.9	3.5	1.8	5.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1596.60	6.28	0.01	6361403	341.0 -> 217.0	68.9	35.4	106.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.55	6.57	0.00	49796	367.1 -> 322.0			



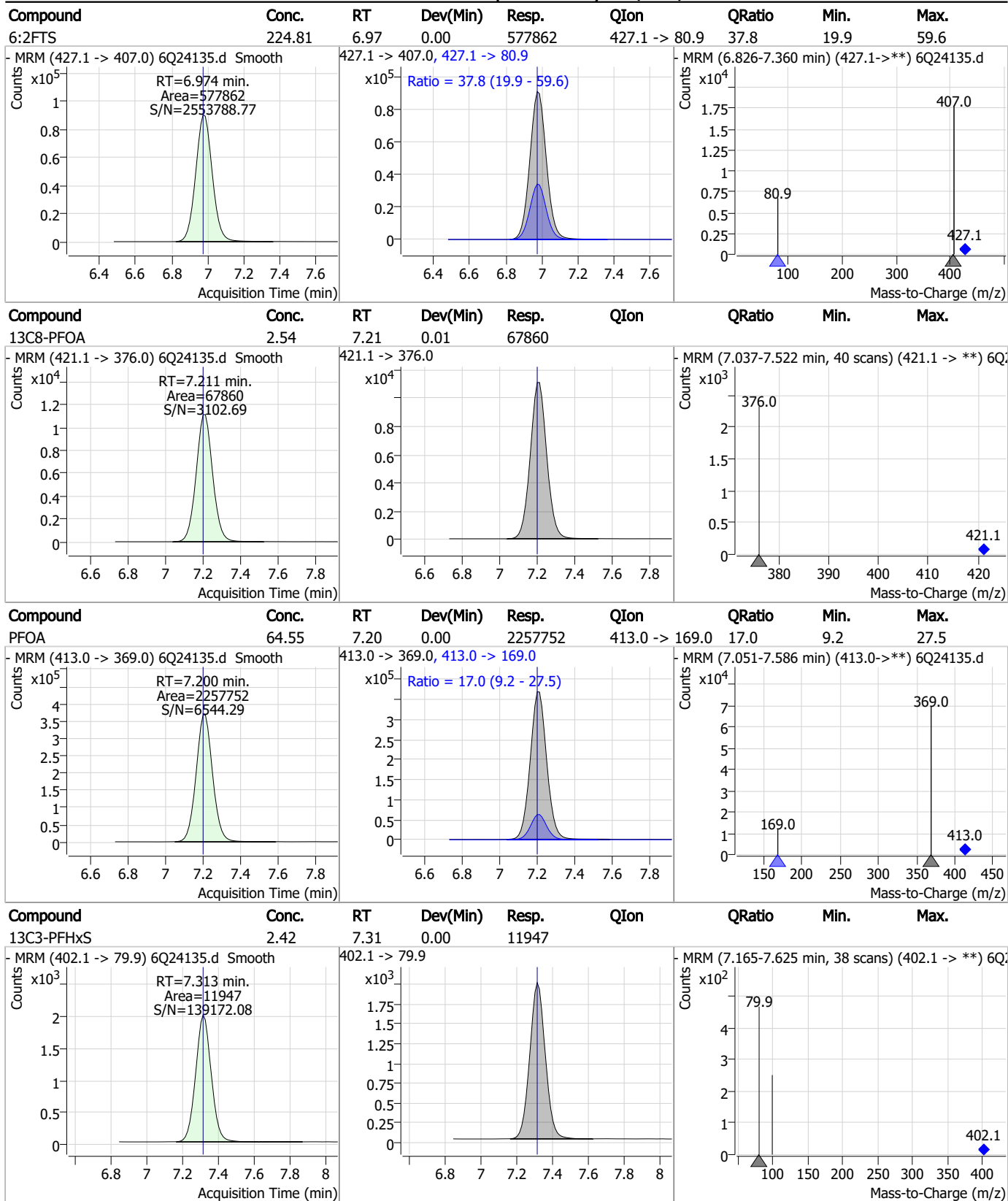
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	63.32	6.58	0.01	1668443	363.1 -> 169.0	14.7	7.4	22.2
PFPeS	59.76	6.63	0.01	388412	349.1 -> 98.9	45.1	23.6	70.7
ADONA	114.60	6.82	0.00	5910544	376.9 -> 84.8	26.7	13.7	41.2
13C2-6-2FTS	3.92	6.97	0.00	2906	429.1 -> 80.9	-	-	-

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Perfluorinated Compounds by LC/MS/MS

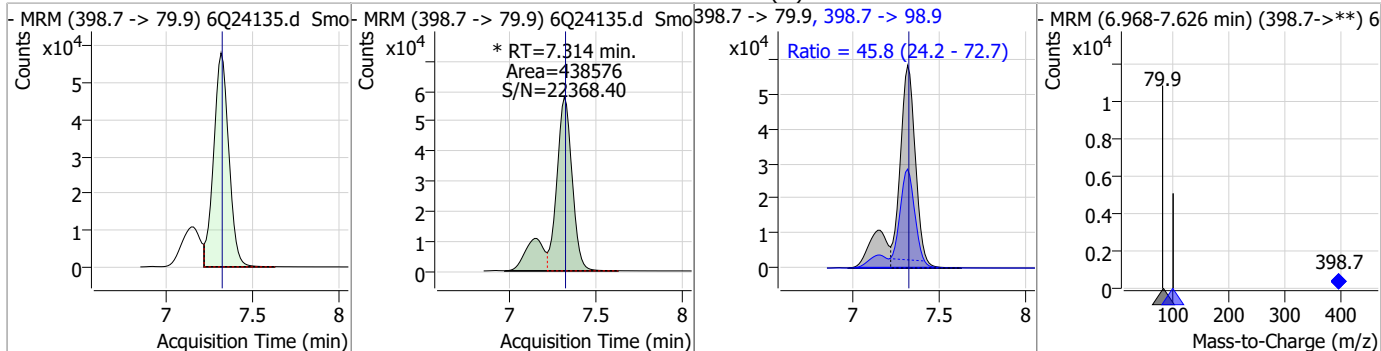


7.7.23
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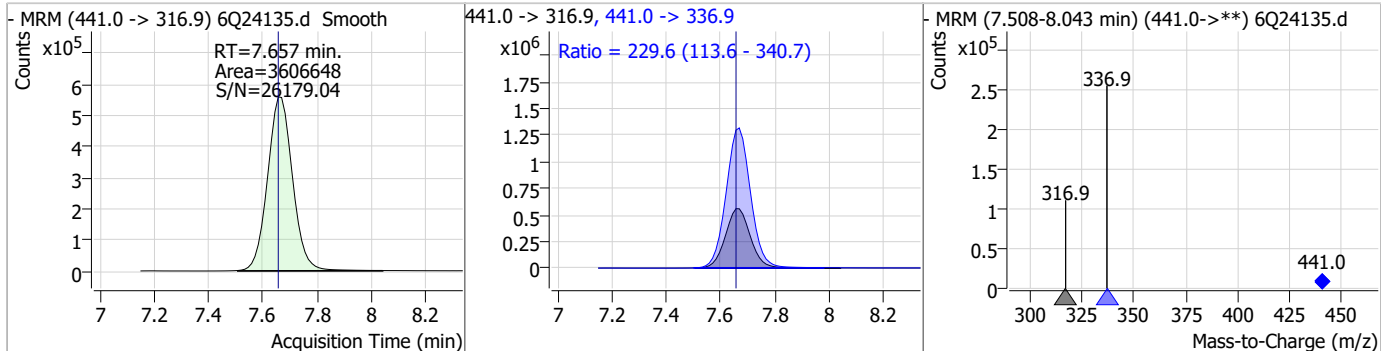


Perfluorinated Compounds by LC/MS/MS

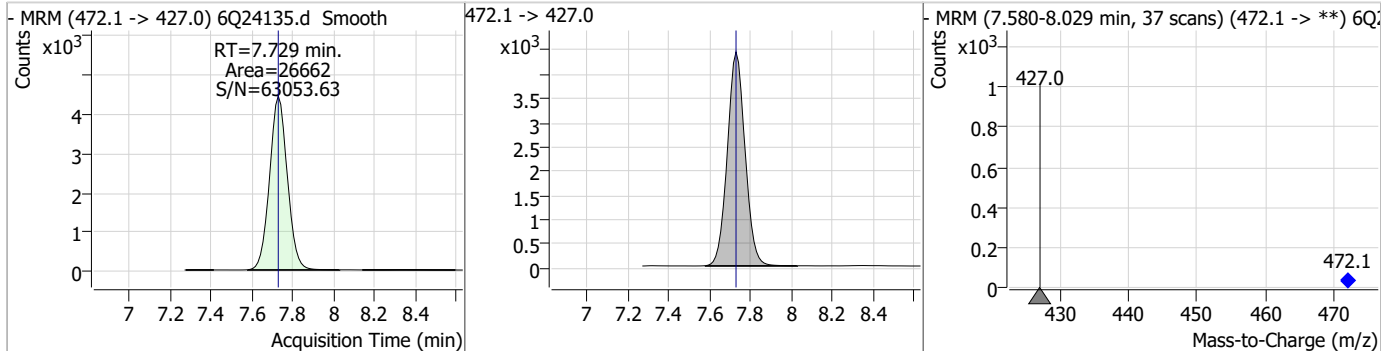
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	58.54	7.31	0.00	438576 (m)	398.7 -> 98.9	45.8	24.2	72.7



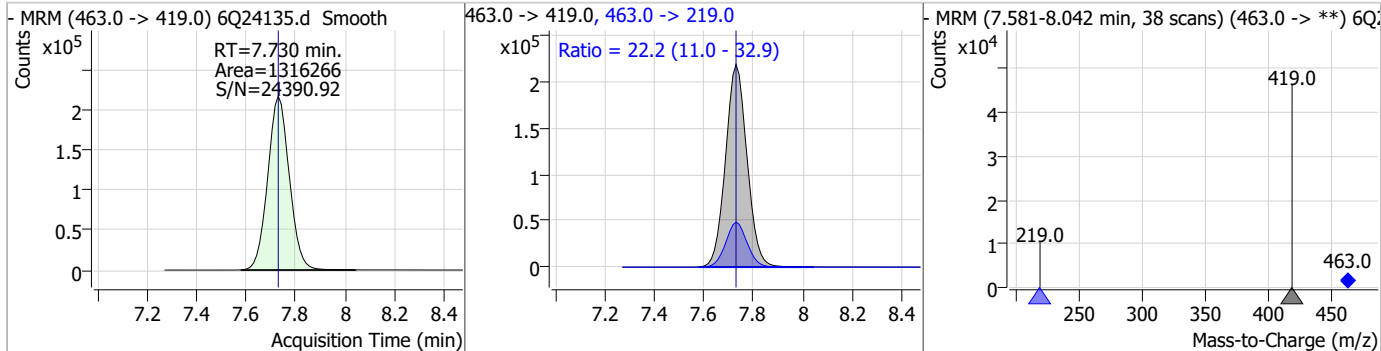
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	1531.74	7.66	0.00	3606648	441.0 -> 336.9	229.6	113.6	340.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.15	7.73	0.00	26662	472.1 -> 427.0			

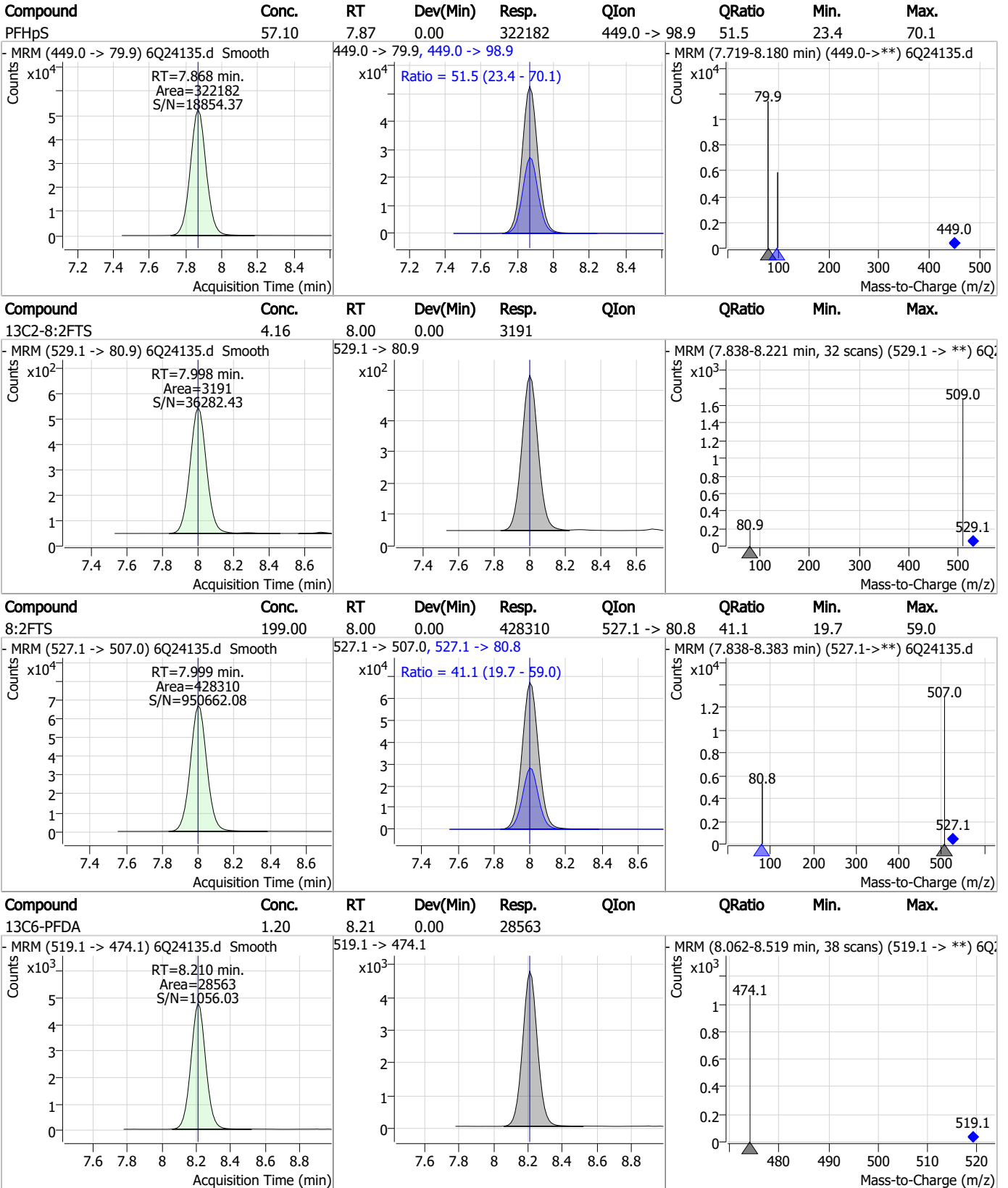


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	65.46	7.73	0.00	1316266	463.0 -> 219.0	22.2	11.0	32.9



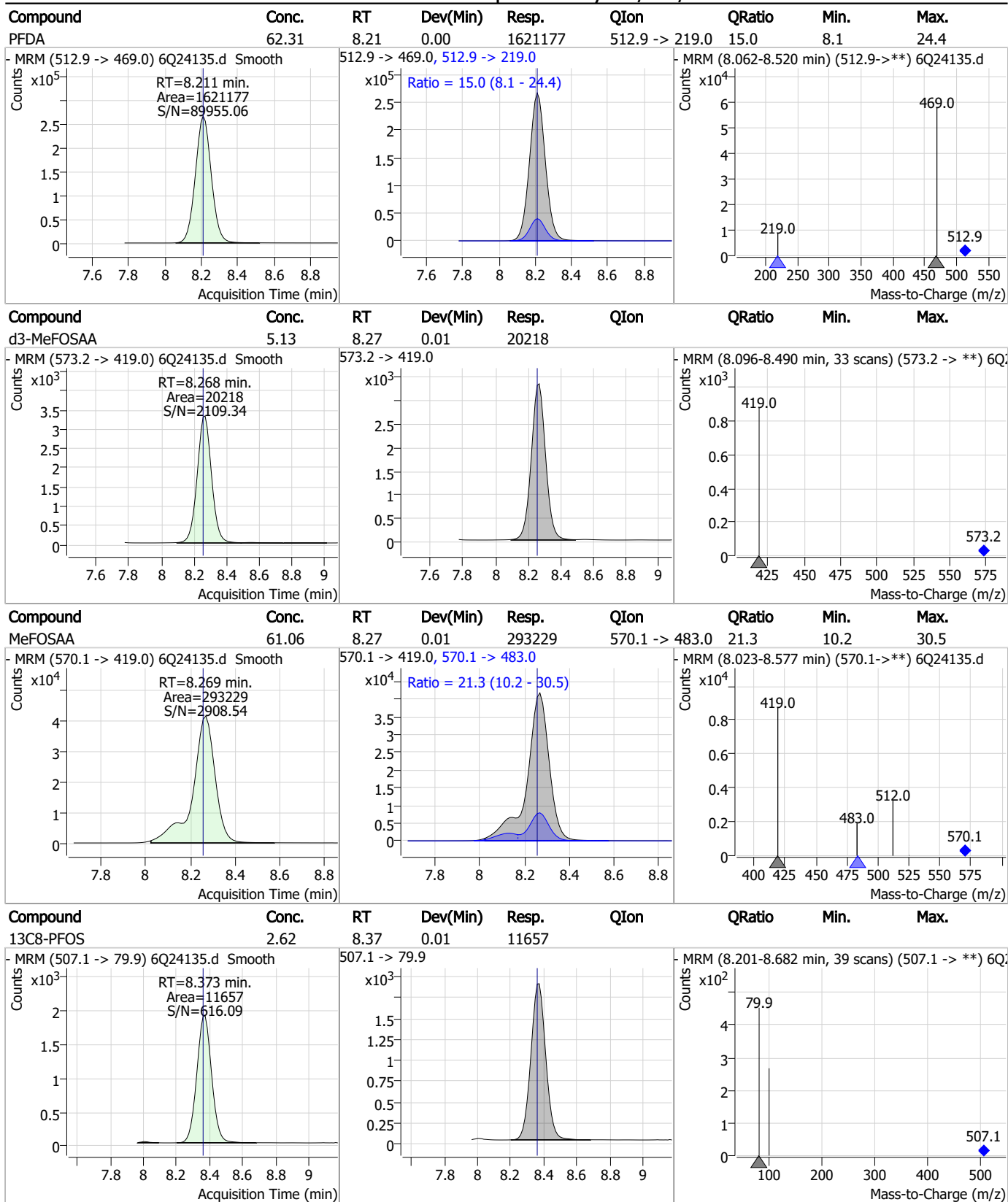
7.7.23 7

Perfluorinated Compounds by LC/MS/MS



7.7.23 7

Perfluorinated Compounds by LC/MS/MS

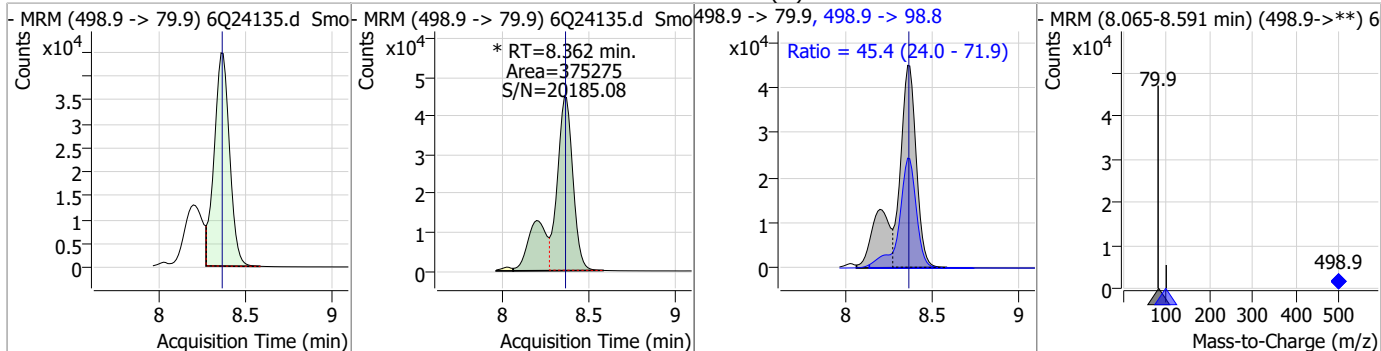


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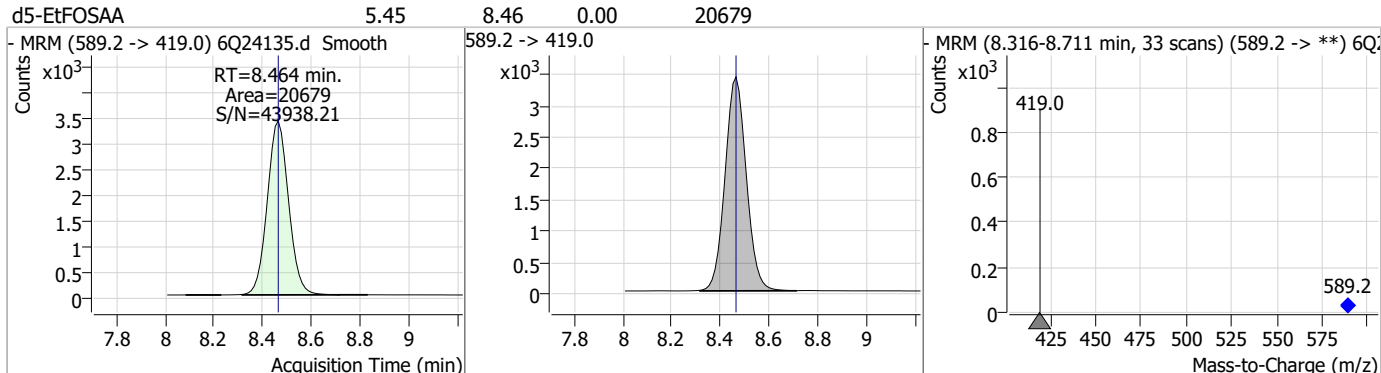
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Perfluorinated Compounds by LC/MS/MS

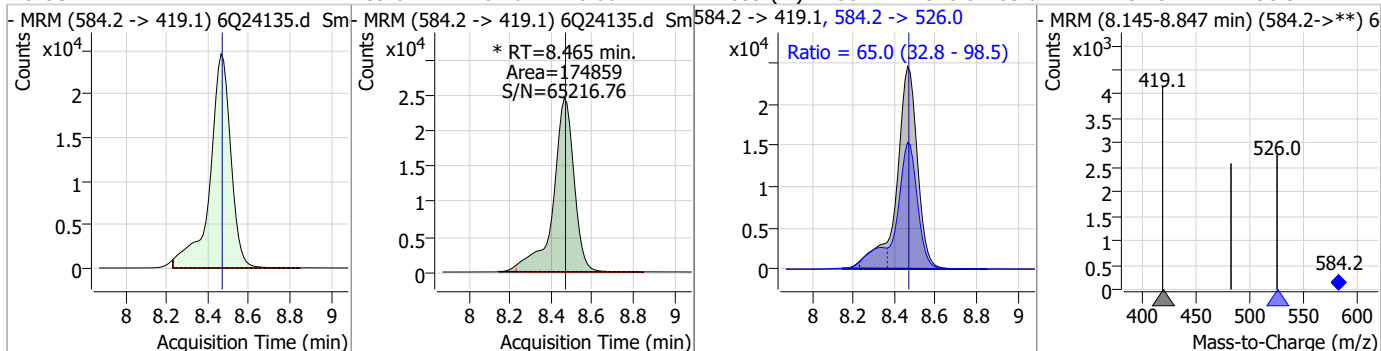
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	58.11	8.36	0.00	375275 (m)	498.9 -> 98.8	45.4	24.0	71.9



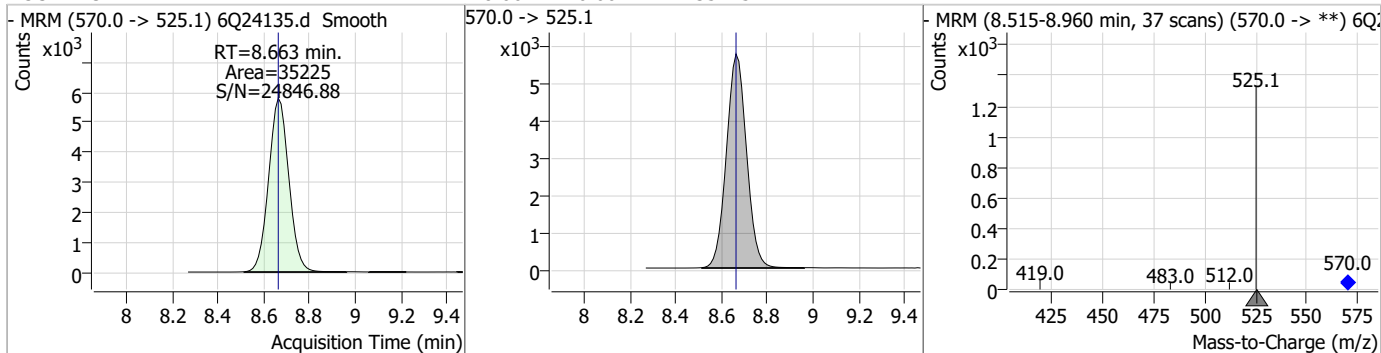
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.45	8.46	0.00	20679				



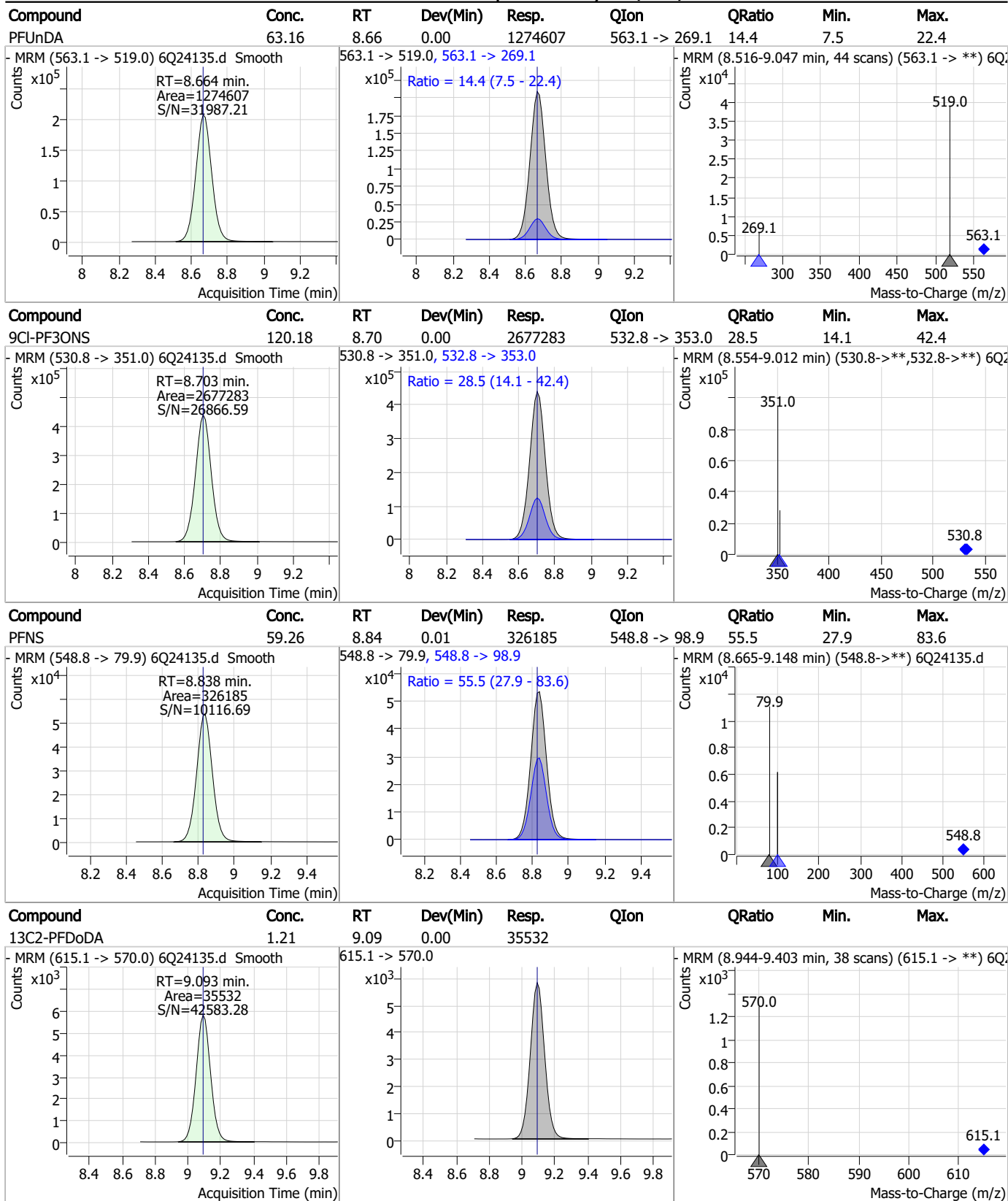
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	59.87	8.46	0.00	174859 (m)	584.2 -> 526.0	65.0	32.8	98.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.11	8.66	0.00	35225				



Perfluorinated Compounds by LC/MS/MS

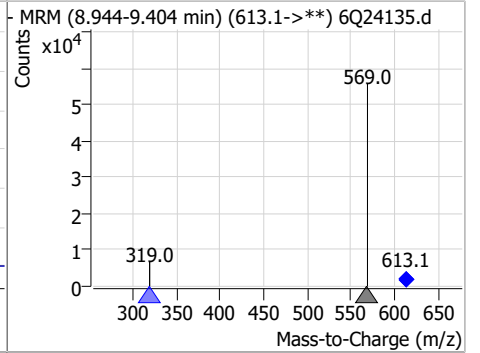
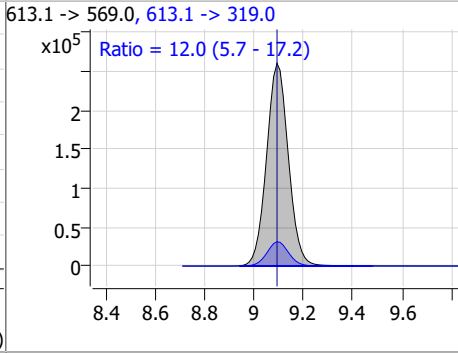
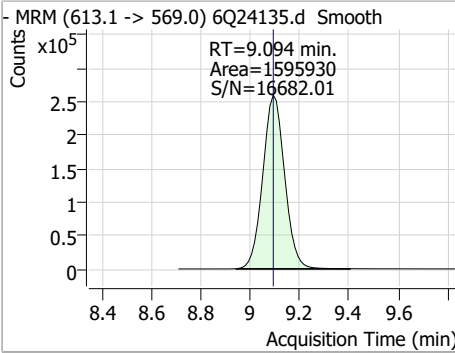


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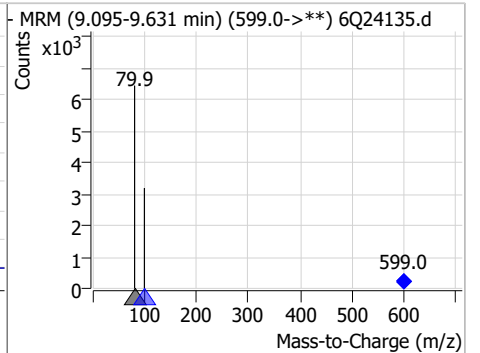
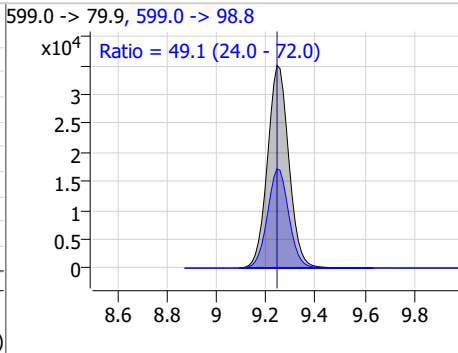
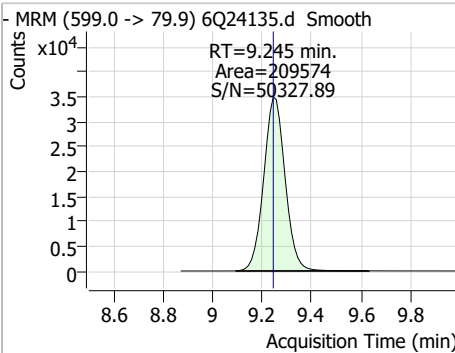


Perfluorinated Compounds by LC/MS/MS

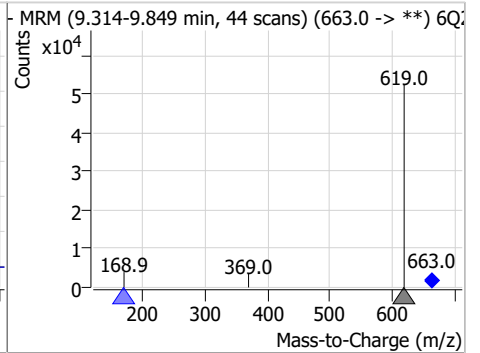
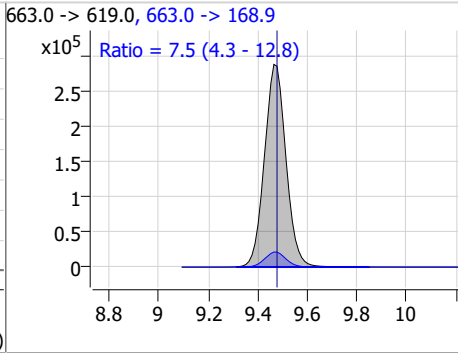
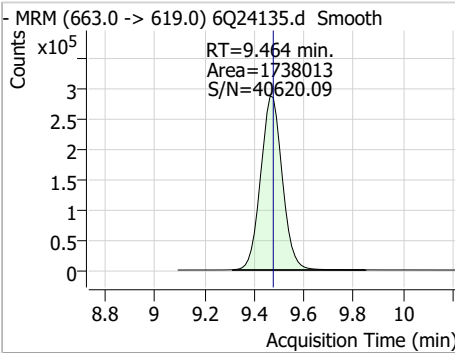
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	60.52	9.09	0.00	1595930	613.1 -> 319.0	12.0	5.7	17.2



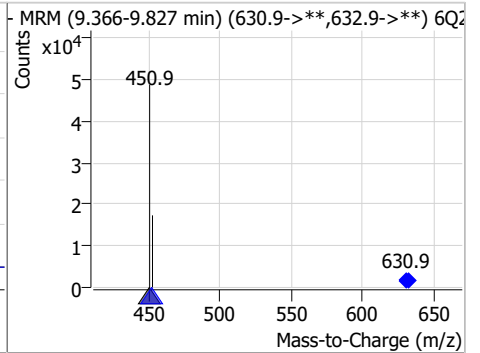
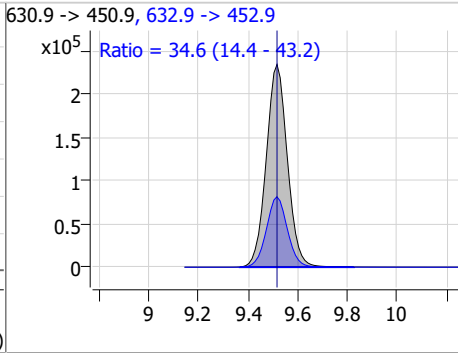
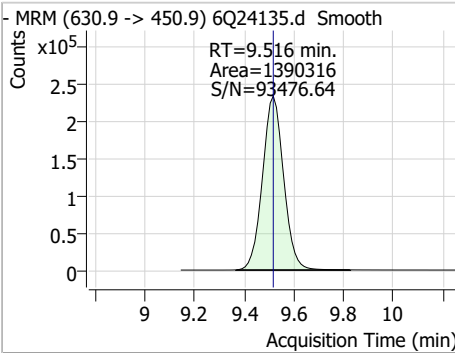
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	61.71	9.24	0.00	209574	599.0 -> 98.8	49.1	24.0	72.0



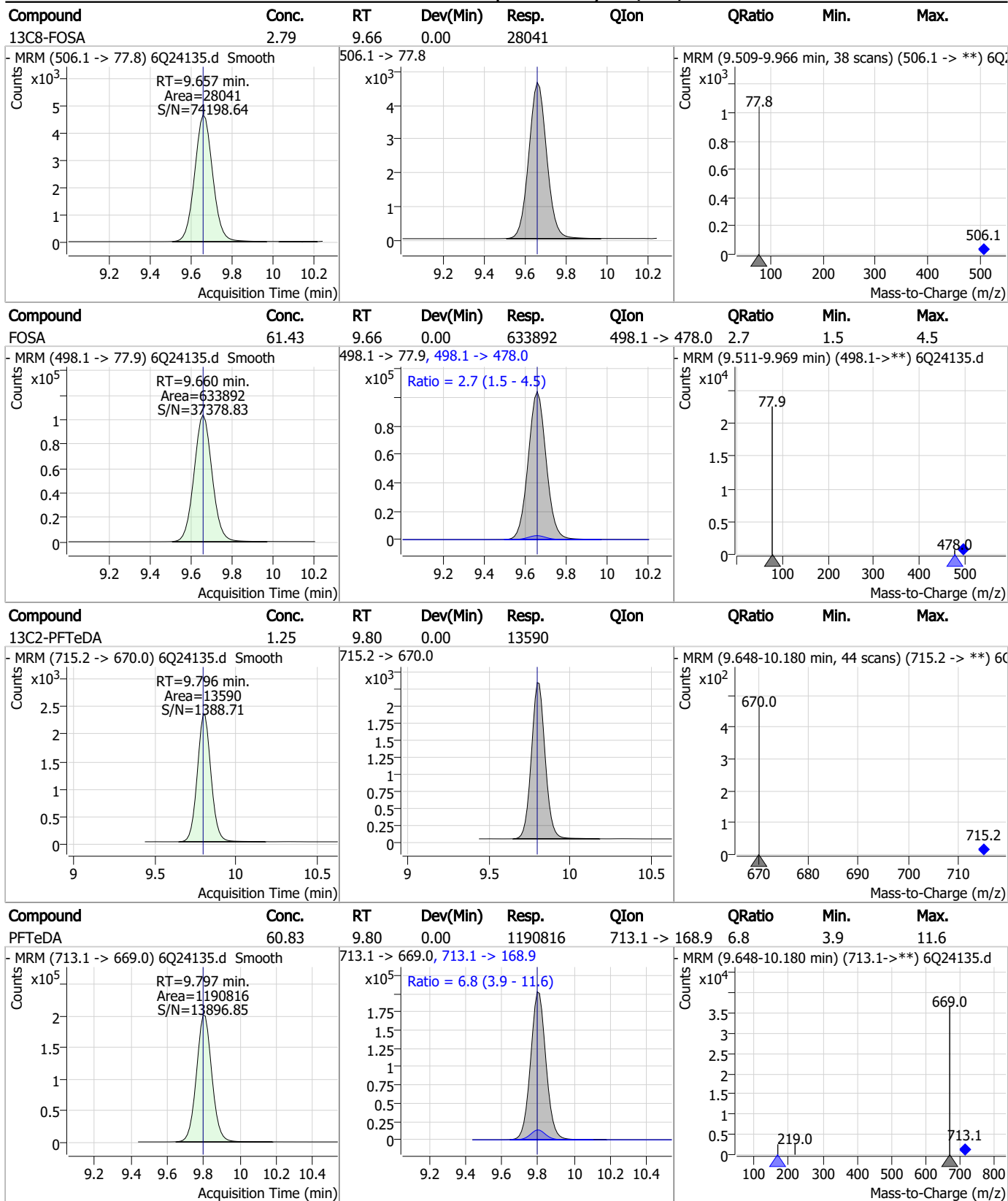
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	57.96	9.46	-0.01	1738013	663.0 -> 168.9	7.5	4.3	12.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	106.98	9.52	0.00	1390316	632.9 -> 452.9	34.6	14.4	43.2



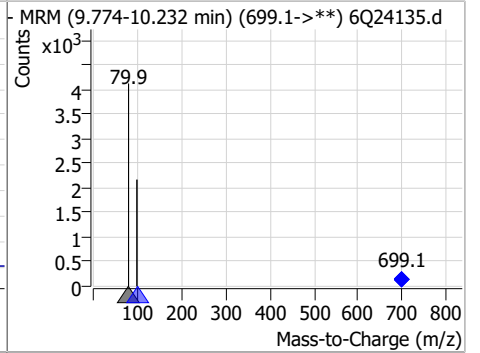
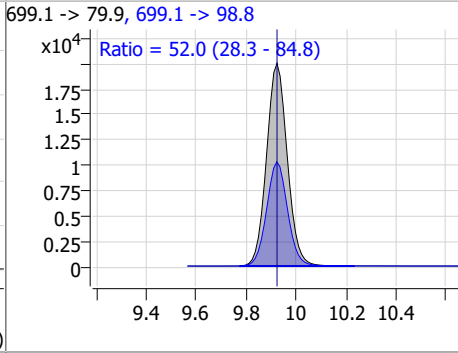
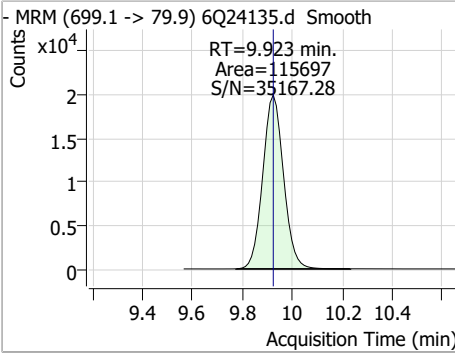
Perfluorinated Compounds by LC/MS/MS



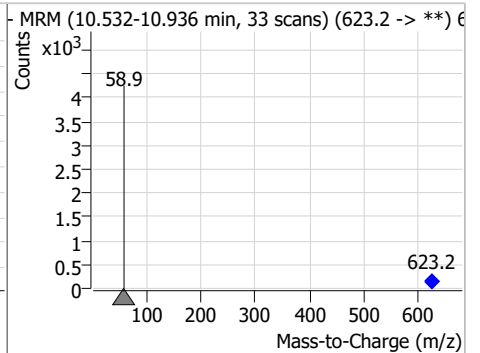
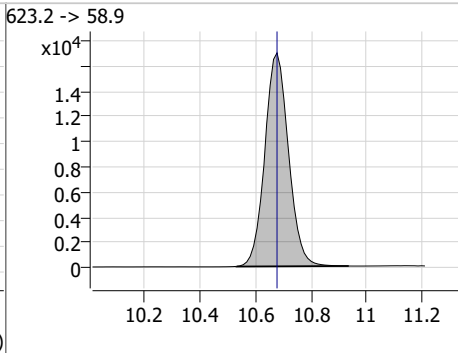
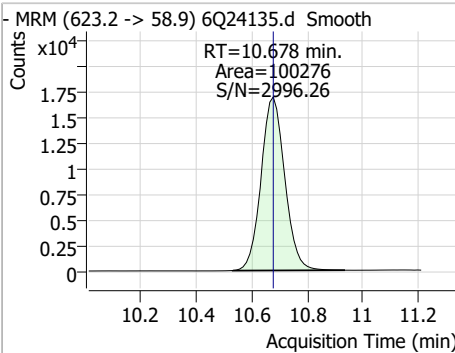
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Perfluorinated Compounds by LC/MS/MS

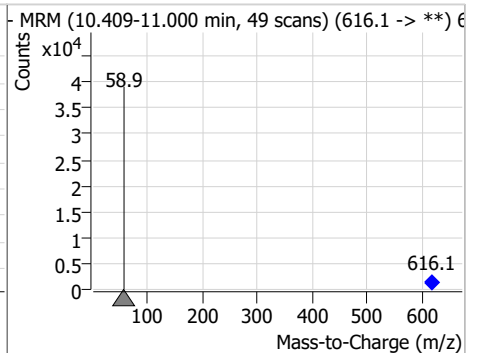
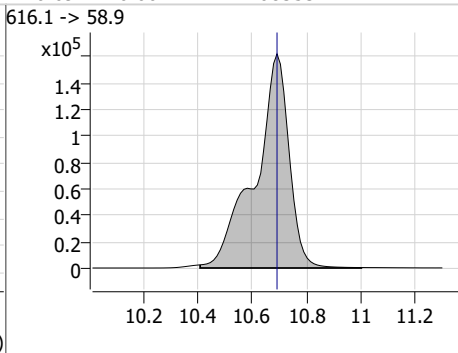
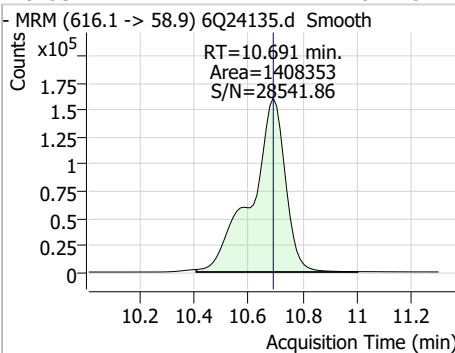
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	62.18	9.92	0.00	115697	699.1 -> 98.8	52.0	28.3	84.8



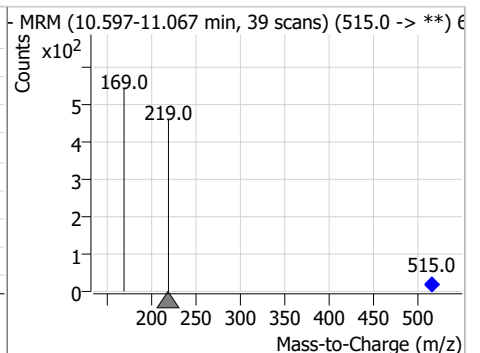
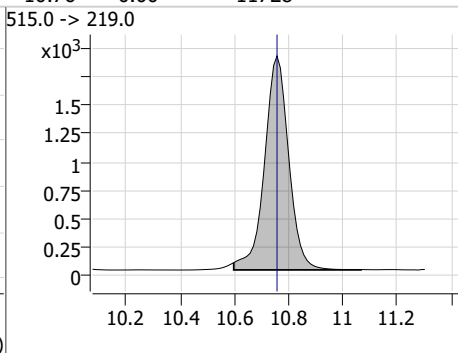
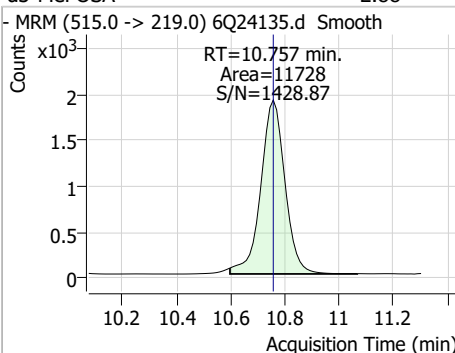
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.03	10.68	0.00	100276				



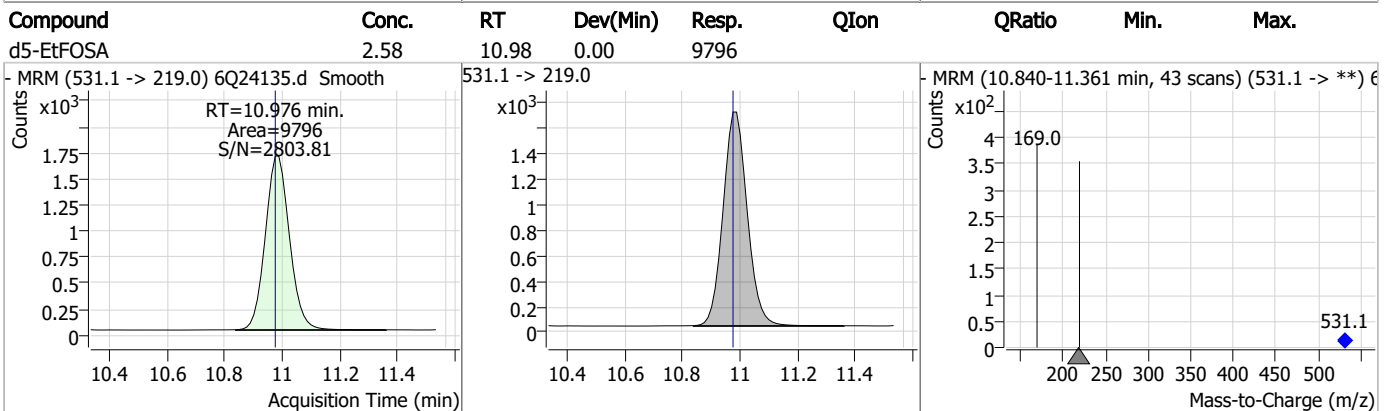
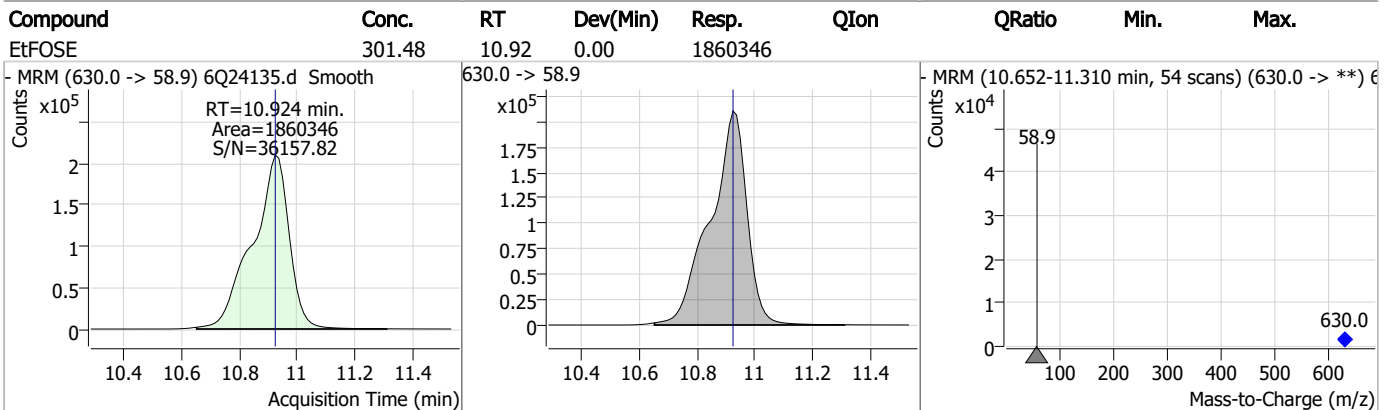
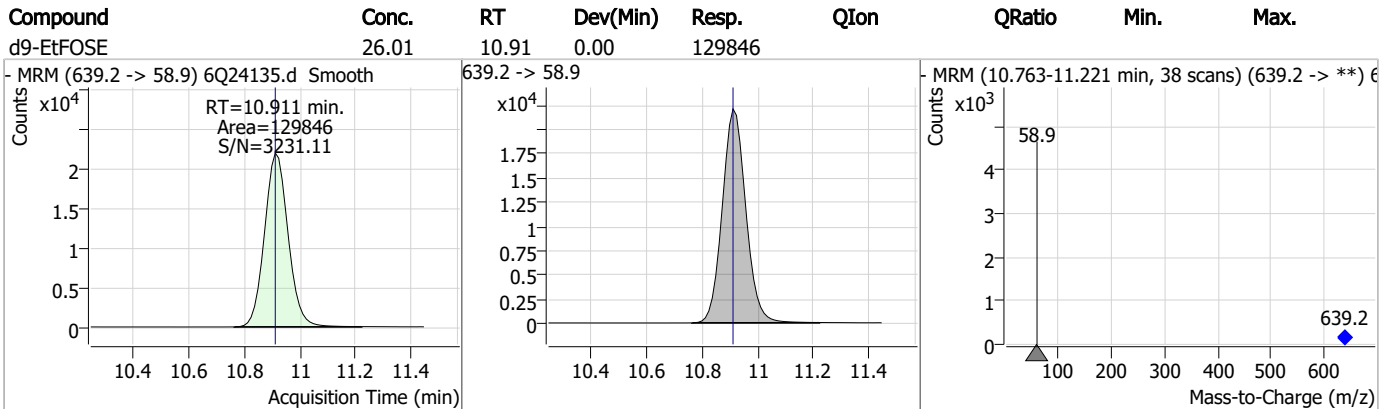
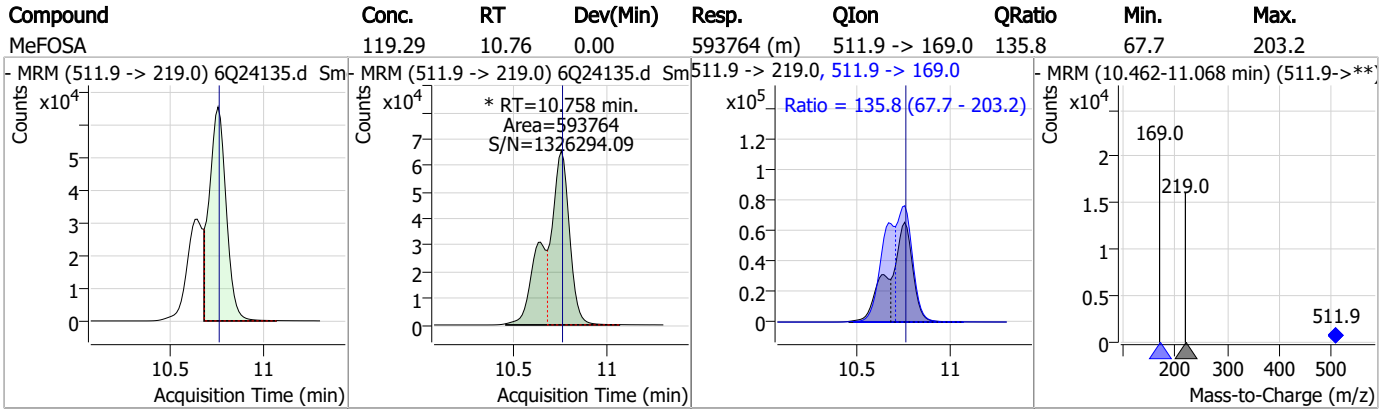
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	324.79	10.69	0.00	1408353				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.88	10.76	0.00	11728				



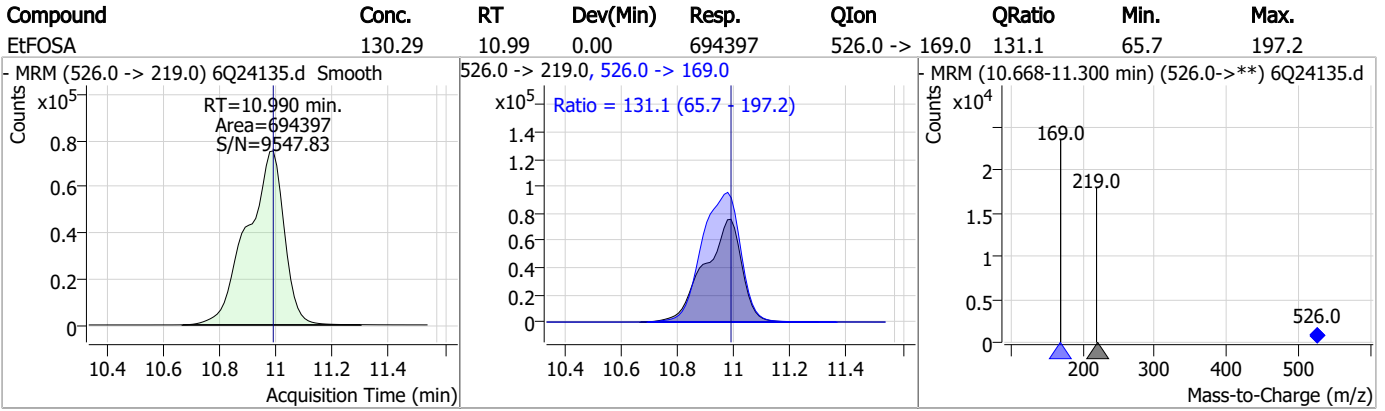
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q347-IC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24135.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 22:26 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

7.7.23.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24137.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 10:55:19 PM
 Sample Name : icv347-4
 Vial : P1-B1
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	190485	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	35664	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	72347	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	55521	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	73483	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	33307	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	33568	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	43008	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	37646	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	14810	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	29788	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	23973	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	13952	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	12914	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3212	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4336	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4505	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	25244	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	38089	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	22591	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	109593	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	145065	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	11314	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	11947	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	17060	2.50 µg/L	0.012
13C3-PFBA	2.989	216.0 -> 172.0	75083	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	9411	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	88033	2.50 µg/L	0.000
13C2-PFDA	8.210	515.1 -> 470.1	27471	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	39573	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	51143	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3212	6.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.3%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4336	5.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.6%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4505	5.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.0%		
13C2-PFDoDA	9.093	615.1 -> 570.0	37646	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C2-PFTeDA	9.796	715.2 -> 670.0	14810	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C3-PFBS	5.571	302.1 -> 79.9	23973	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C3-PFHxS	7.313	402.1 -> 79.9	13952	2.70 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 = 108.0%	
13C4-PFBA	2.985	216.8 -> 171.9	190485	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFHpA	6.569	367.1 -> 322.0	55521	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C5-PFHxA	5.641	318.0 -> 273.0	72347	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C5-PFPeA	4.422	268.3 -> 223.0	35664	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C6-PFDA	8.210	519.1 -> 474.1	33568	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.3%	
13C7-PFUnDA	8.663	570.0 -> 525.1	43008	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C8-FOSA	9.657	506.1 -> 77.8	29788	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C8-PFOA	7.198	421.1 -> 376.0	73483	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.7%	
13C8-PFOS	8.361	507.1 -> 79.9	12914	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C9-PFNA	7.729	472.1 -> 427.0	33307	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.7%	
d3-MeFOSAA	8.256	573.2 -> 419.0	25244	5.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	38089	9.78 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.8%	
d3-MeFOSA	10.757	515.0 -> 219.0	11947	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
d5-EtFOSAA	8.464	589.2 -> 419.0	22591	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
d7-MeFOSE	10.678	623.2 -> 58.9	109593	24.43 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d9-EtFOSE	10.911	639.2 -> 58.9	145065	24.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
d5-EtFOSA	10.976	531.1 -> 219.0	11314	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	46395	8.73 µg/L	99
		327.1 -> 80.9	17284		
6:2FTS	6.974	427.1 -> 407.0	37463	9.77 µg/L	99
		427.1 -> 80.9	14581		
8:2FTS	7.999	527.1 -> 507.0	29599	9.74 µg/L	92
		527.1 -> 80.8	10202		
EtFOSAA	8.465	584.2 -> 419.1	7642	2.40 µg/L	m 100
		584.2 -> 526.0	5021		
FOSA	9.660	498.1 -> 77.9	25663	2.34 µg/L	99
		498.1 -> 478.0	849		
MeFOSAA	8.257	570.1 -> 419.0	12969	2.16 µg/L	m 93
		570.1 -> 483.0	3047		
PFBA	2.993	212.8 -> 168.9	63584	10.10 µg/L	100
PFBS	5.572	298.7 -> 79.9	25442	2.16 µg/L	95
		298.7 -> 98.8	8945		
PFDA	8.211	512.9 -> 469.0	75273	2.46 µg/L	99
		512.9 -> 219.0	12039		
PFDODA	9.094	613.1 -> 569.0	71866	2.57 µg/L	100
		613.1 -> 319.0	8187		
PFDS	9.245	599.0 -> 79.9	9483	2.52 µg/L	99

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8	4510	2.59	µg/L	99
		363.1 -> 319.0	75988			
PFHpS	7.868	363.1 -> 169.0	10992	2.40	µg/L	96
		449.0 -> 79.9	14990			
PFHxA	5.644	449.0 -> 98.9	7351	2.55	µg/L	99
		313.0 -> 269.0	67040			
PFHxS	7.314	313.0 -> 118.9	3151	2.15	µg/L	m
		398.7 -> 79.9	18790			
PFNA	7.730	398.7 -> 98.9	9028	2.50	µg/L	96
		463.0 -> 419.0	62800			
PFNS	8.826	463.0 -> 219.0	12562	2.46	µg/L	95
		548.8 -> 79.9	15027			
PFOA	7.200	548.8 -> 98.9	7864	2.62	µg/L	98
		413.0 -> 369.0	99110			
PFOS	8.374	413.0 -> 169.0	17170	2.28	µg/L	m
		498.9 -> 79.9	16329			
PFPeA	4.424	498.9 -> 98.8	7879	4.94	µg/L	100
		263.0 -> 219.0	78444			
PFPeS	6.620	349.1 -> 79.9	17087	2.25	µg/L	98
		349.1 -> 98.9	7862			
PFTeDA	9.797	713.1 -> 669.0	53321	2.50	µg/L	98
		713.1 -> 168.9	3812			
PFTrDA	9.477	663.0 -> 619.0	80051	2.52	µg/L	99
		663.0 -> 168.9	6536			
PFUnDA	8.664	563.1 -> 519.0	59697	2.42	µg/L	98
		563.1 -> 269.1	9458			
11CI-PF3OUdS	9.516	630.9 -> 450.9	72108	5.19	µg/L	96
		632.9 -> 452.9	22263			
9CI-PF3ONS	8.703	530.8 -> 351.0	116359	4.88	µg/L	98
		532.8 -> 353.0	34095			
ADONA	6.817	376.9 -> 250.9	268961	4.88	µg/L	100
		376.9 -> 84.8	73628			
HFPO-DA	6.020	284.9 -> 168.9	18459	5.12	µg/L	95
		284.9 -> 184.9	2460			
3:3FTCA	3.858	241.0 -> 177.0	13238	12.16	µg/L	100
		241.0 -> 117.0	1242			
5:3FTCA	6.271	341.0 -> 237.1	273196	61.06	µg/L	99
		341.0 -> 217.0	190912			
7:3FTCA	7.657	441.0 -> 316.9	163478	61.83	µg/L	94
		441.0 -> 336.9	355224			
EtFOSA	10.978	526.0 -> 219.0	30987	5.03	µg/L	95
		526.0 -> 169.0	39111			
EtFOSE	10.924	630.0 -> 58.9	86898	12.60	µg/L	100
		511.9 -> 219.0	25666			
MeFOSA	10.758	511.9 -> 169.0	34100	5.06	µg/L	m
		616.1 -> 58.9	60985			
MeFOSE	10.691	699.1 -> 79.9	5003	12.87	µg/L	100
		699.1 -> 98.8	2722			
PFDoDS	9.923	295.0 -> 201.0	15116	2.43	µg/L	97
		295.0 -> 84.9	3934			
NFDHA	5.524	279.0 -> 85.1	57727	4.99	µg/L	100
		229.0 -> 84.9	40889			
PFMBA	4.850	314.8 -> 134.9	140013	4.26	µg/L	100
		314.8 -> 82.9	5162			

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

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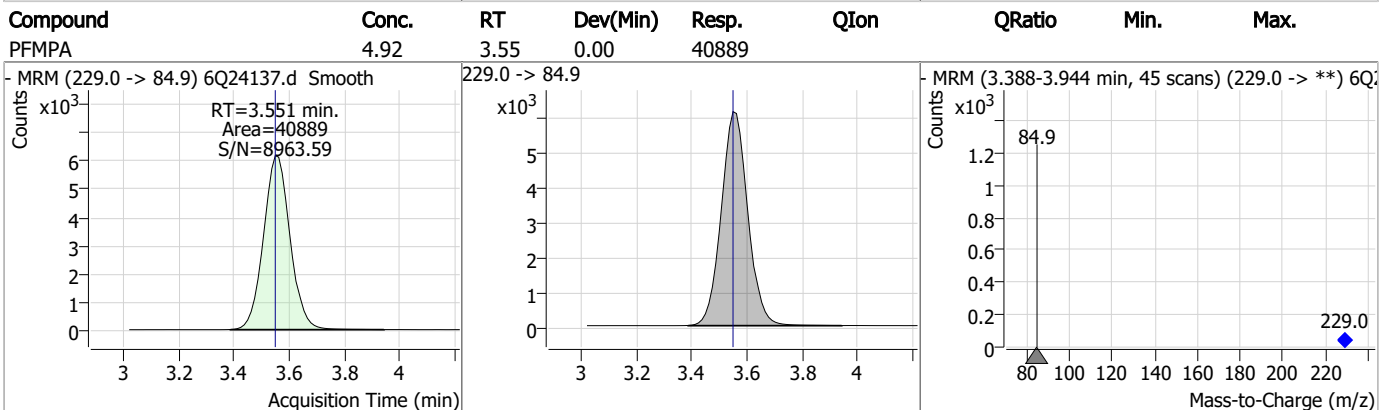
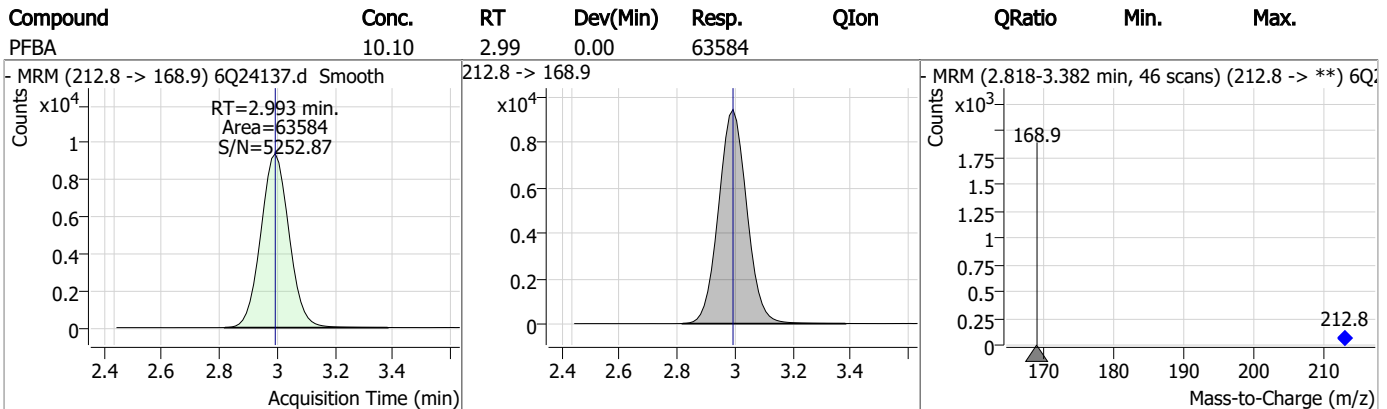
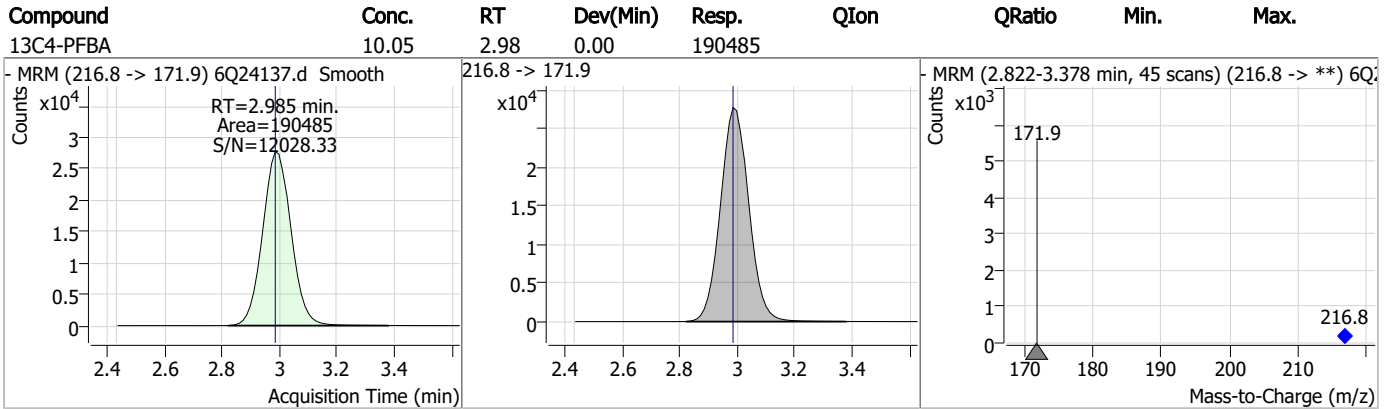
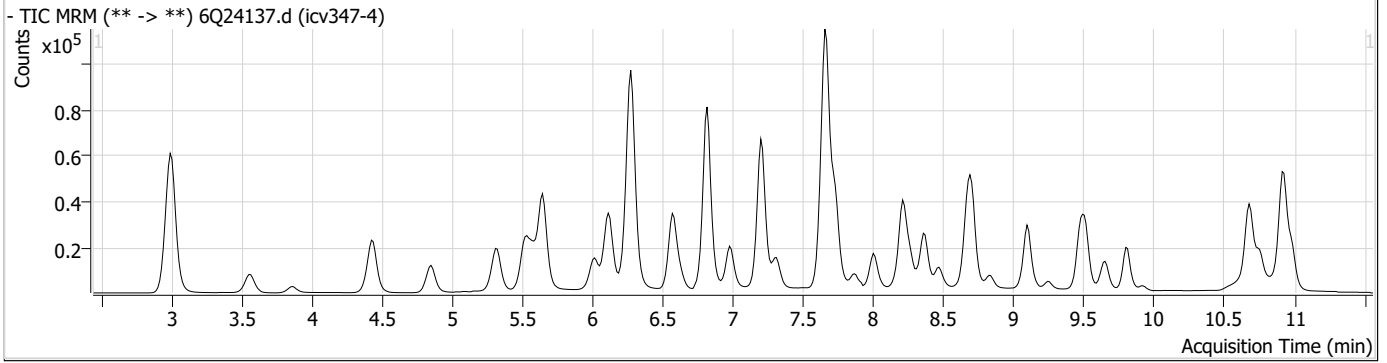
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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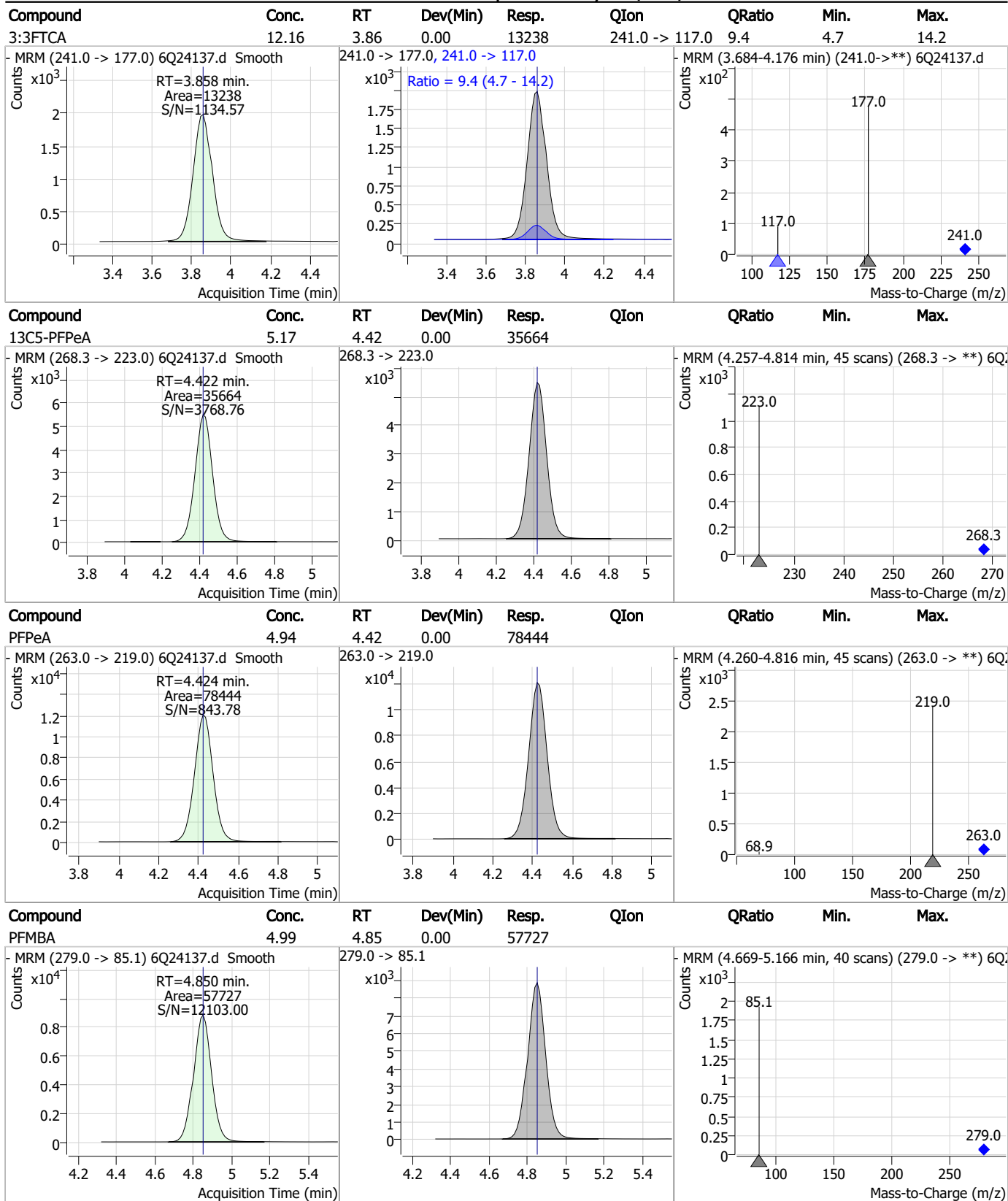
7.7.24

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Perfluorinated Compounds by LC/MS/MS

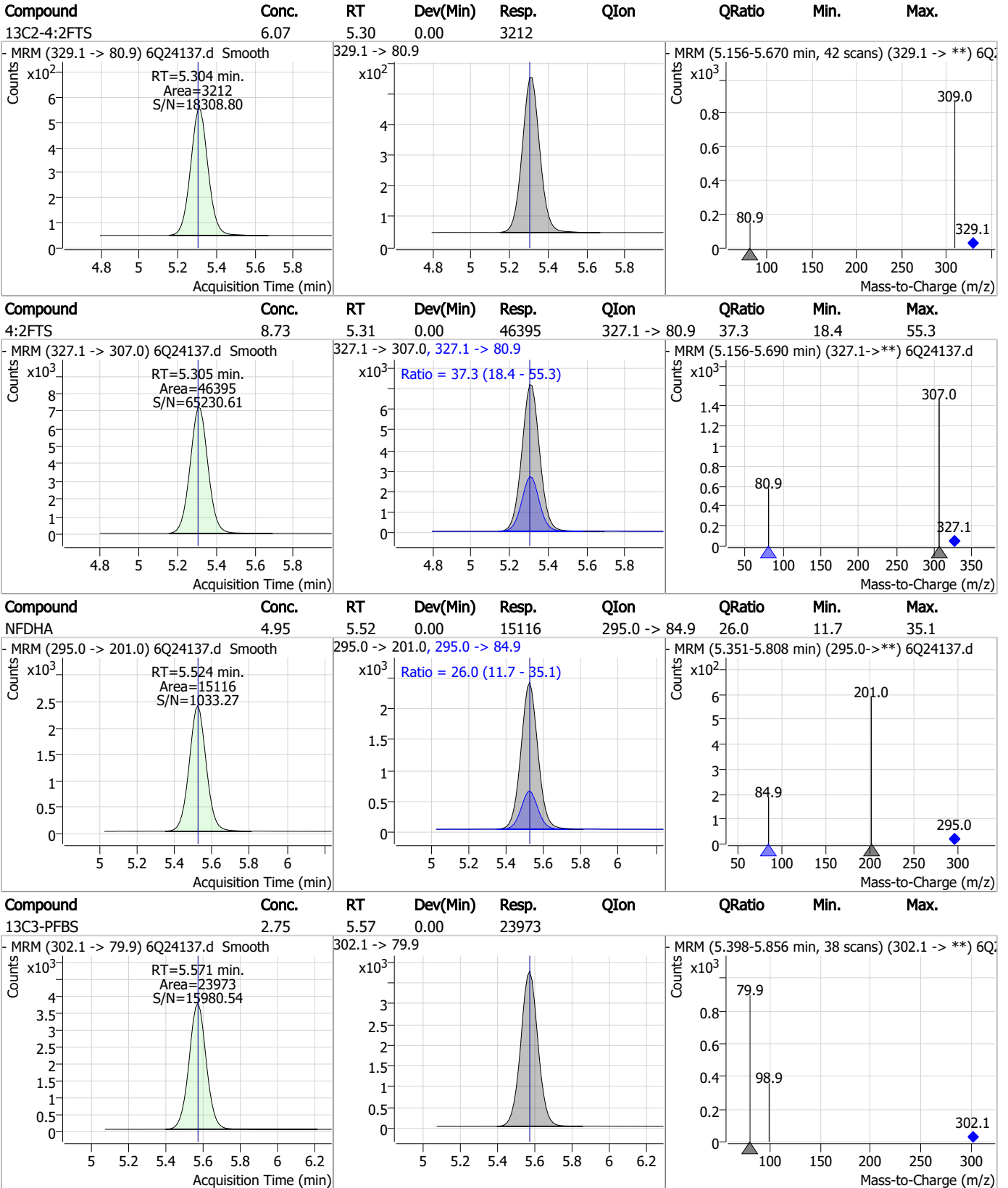


Perfluorinated Compounds by LC/MS/MS



7.7.24
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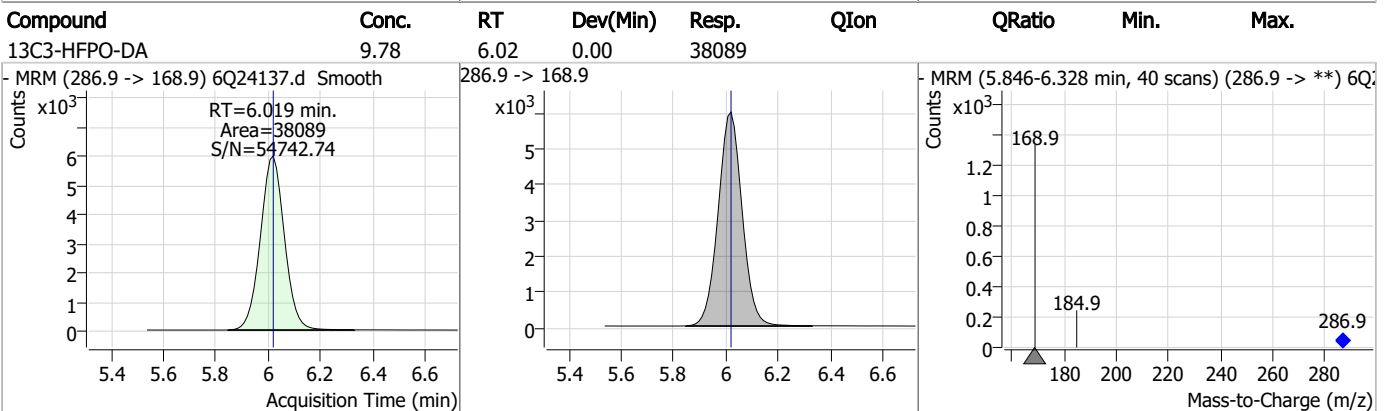
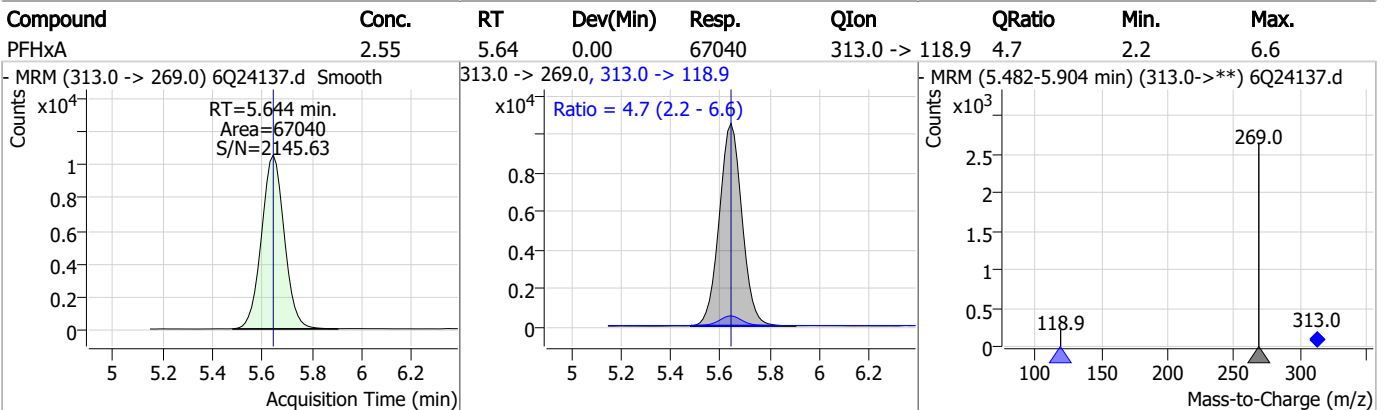
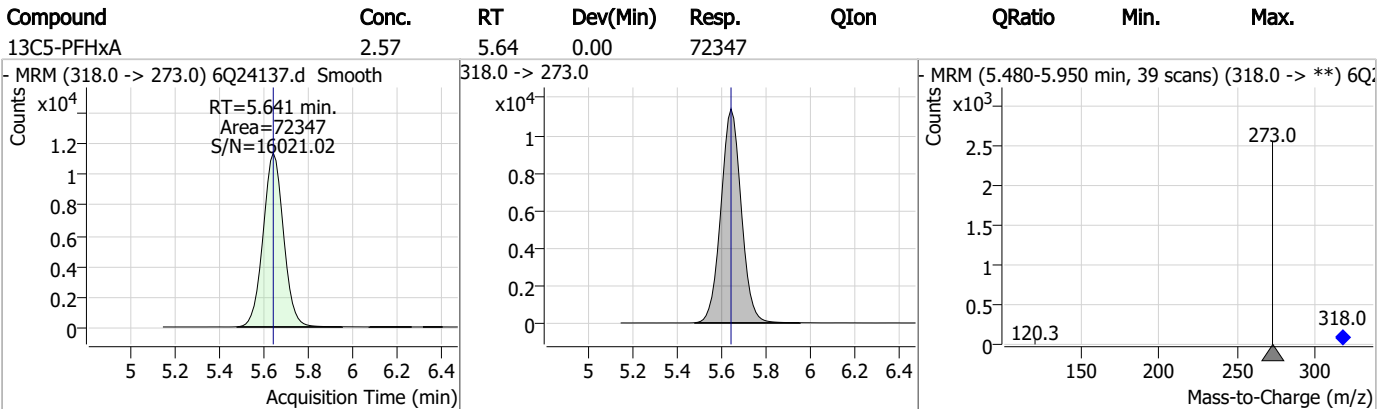
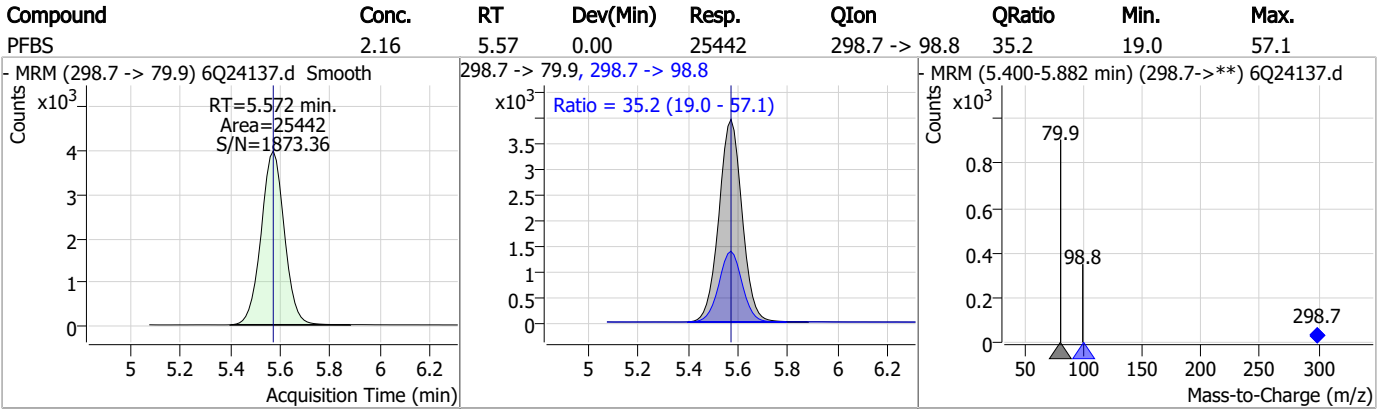
Perfluorinated Compounds by LC/MS/MS



7.7.24 7

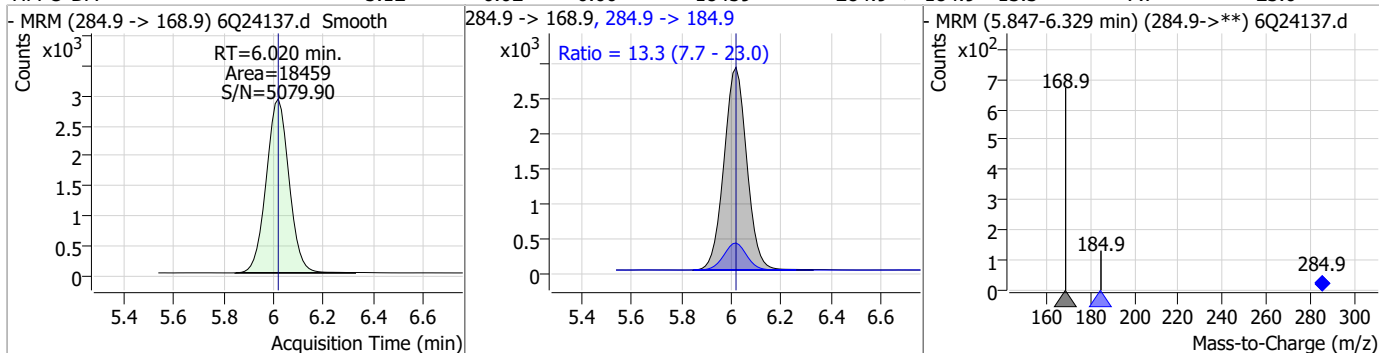


Perfluorinated Compounds by LC/MS/MS

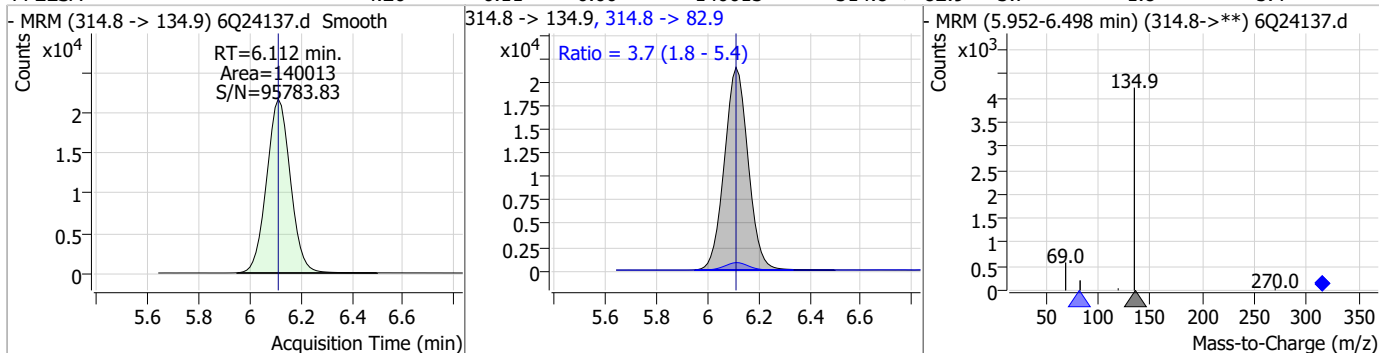


Perfluorinated Compounds by LC/MS/MS

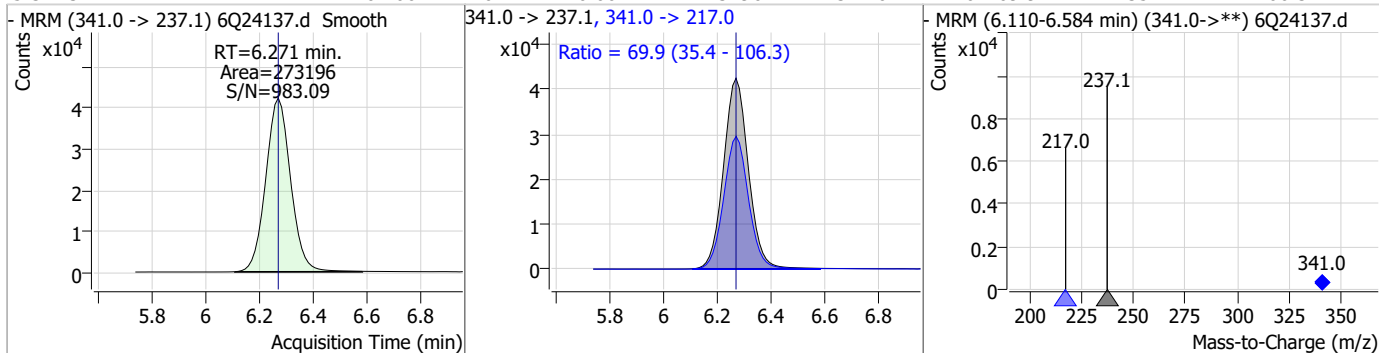
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.12	6.02	0.00	18459	284.9 -> 184.9	13.3	7.7	23.0



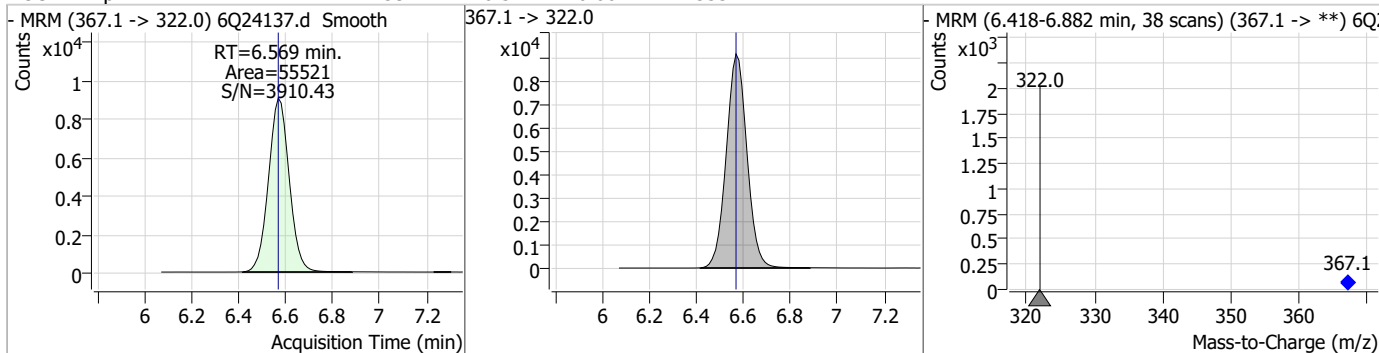
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.26	6.11	0.00	140013	314.8 -> 82.9	3.7	1.8	5.4



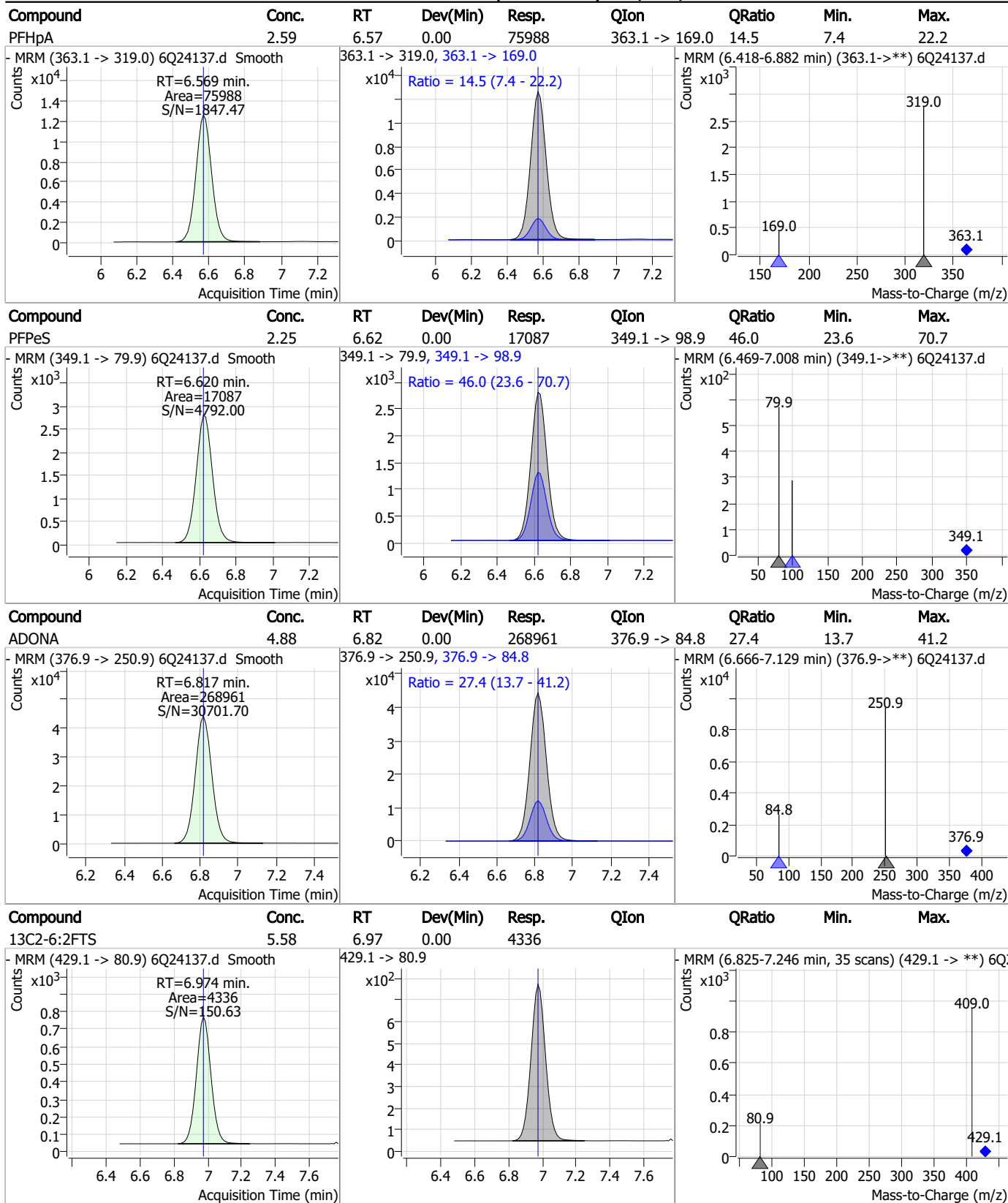
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	61.06	6.27	0.00	273196	341.0 -> 217.0	69.9	35.4	106.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.53	6.57	0.00	55521	367.1 -> 322.0			



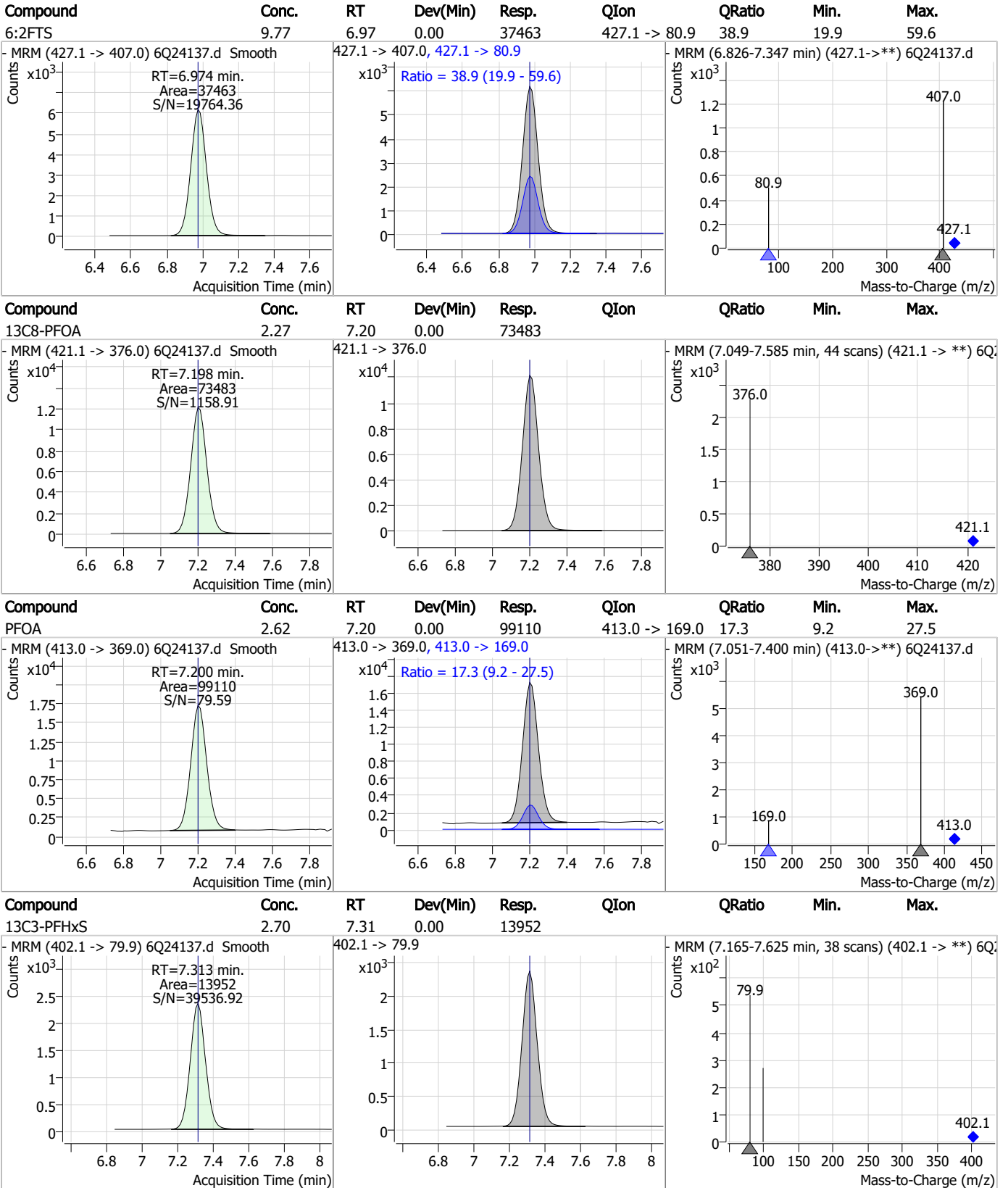
Perfluorinated Compounds by LC/MS/MS



7.7.24 7

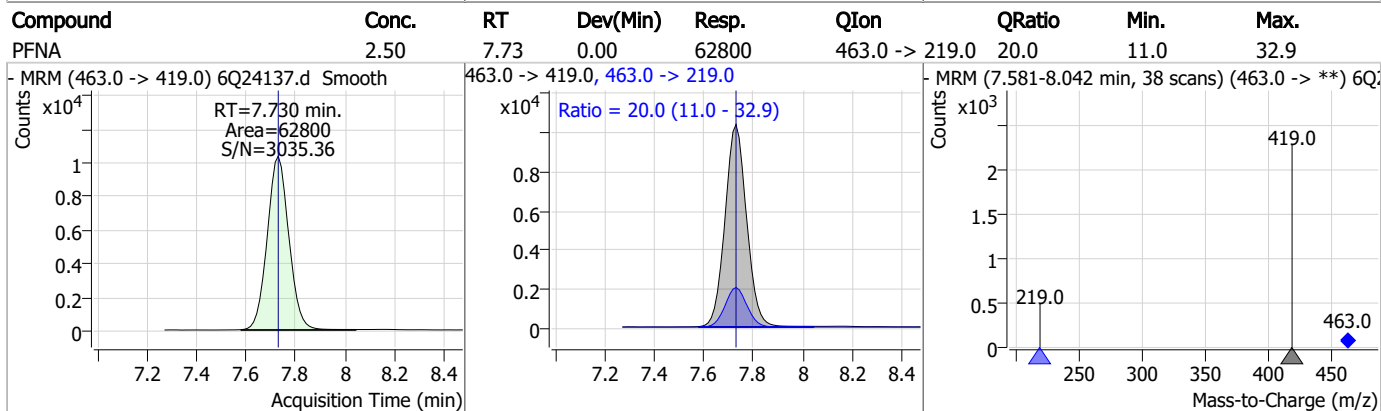
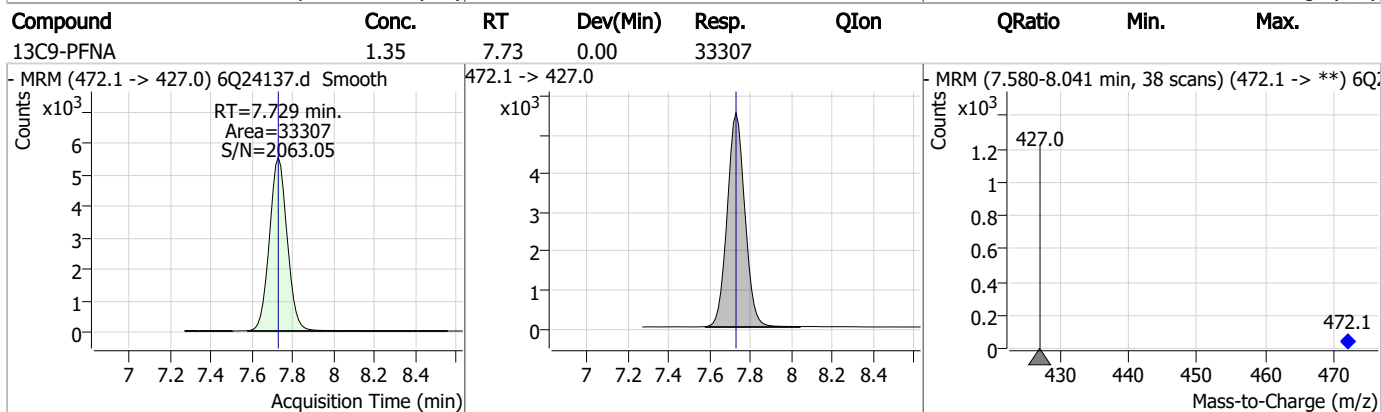
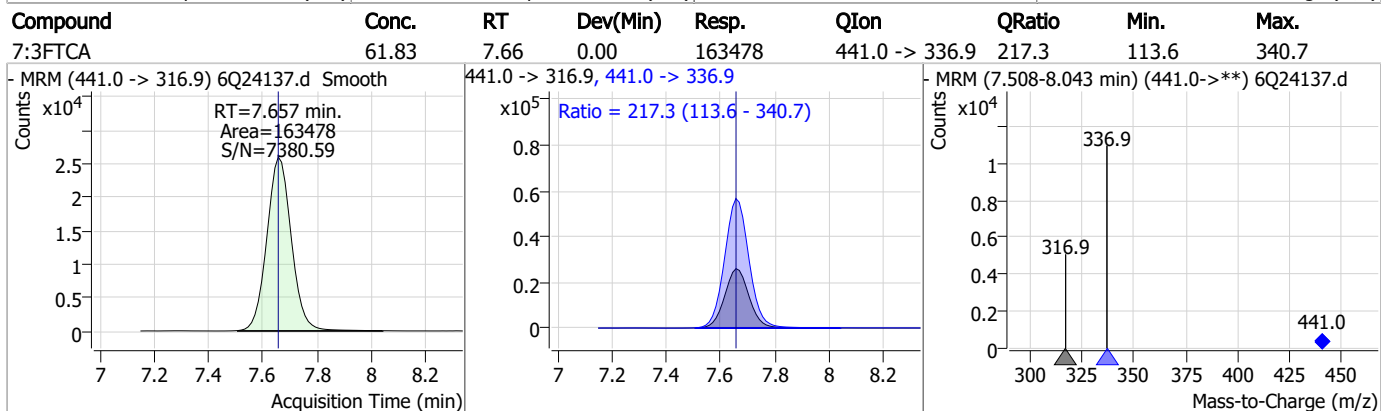
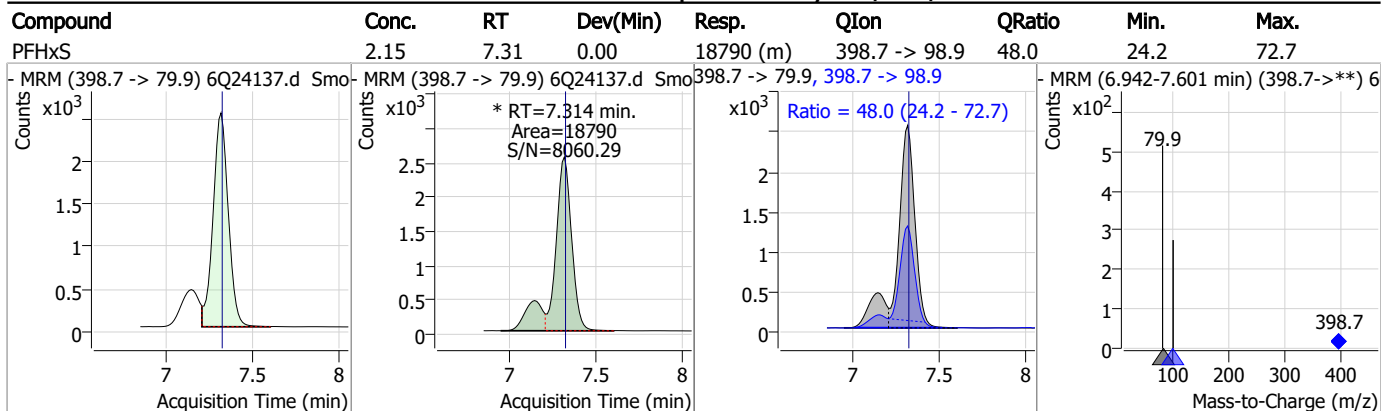


Perfluorinated Compounds by LC/MS/MS



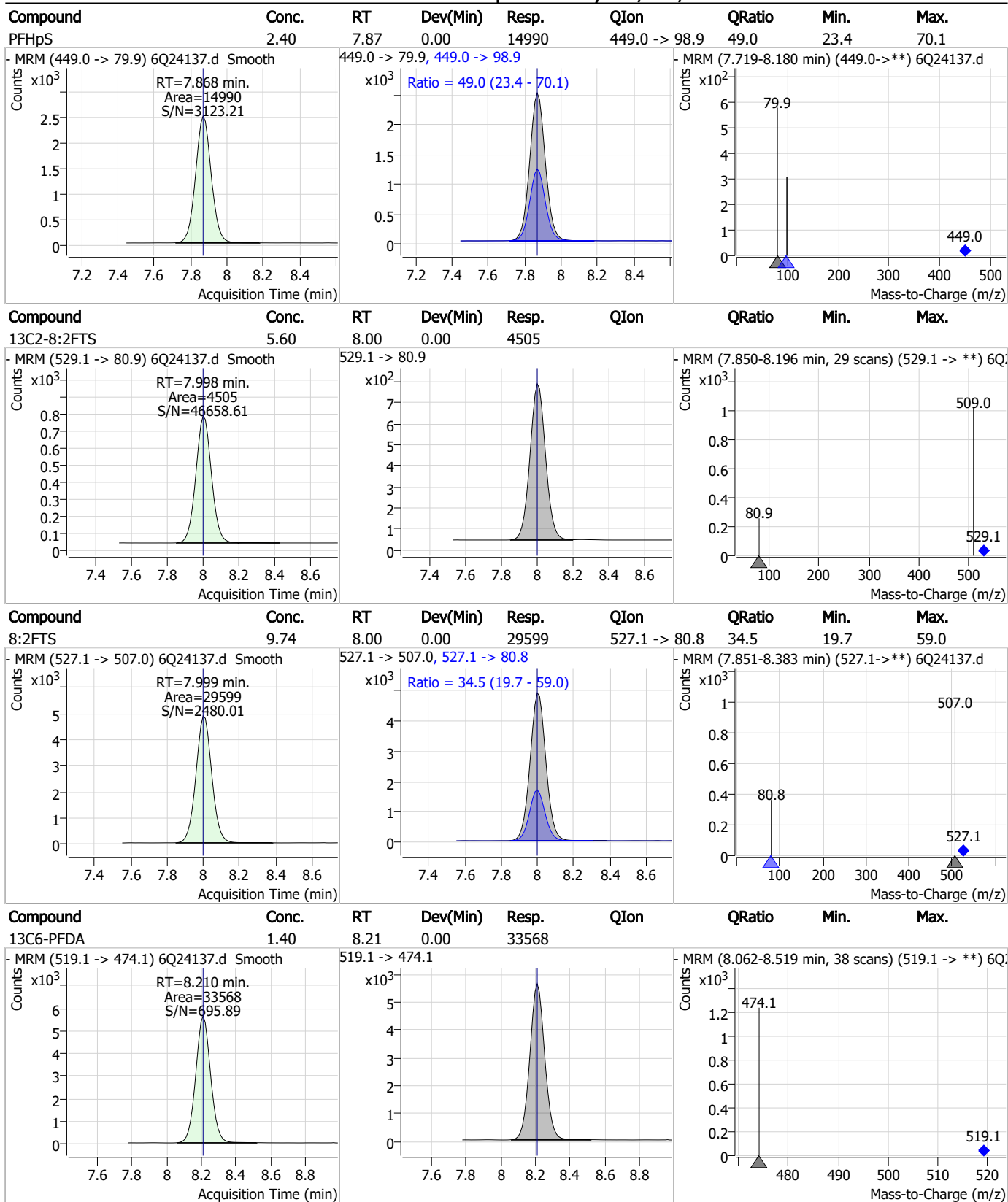
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Perfluorinated Compounds by LC/MS/MS



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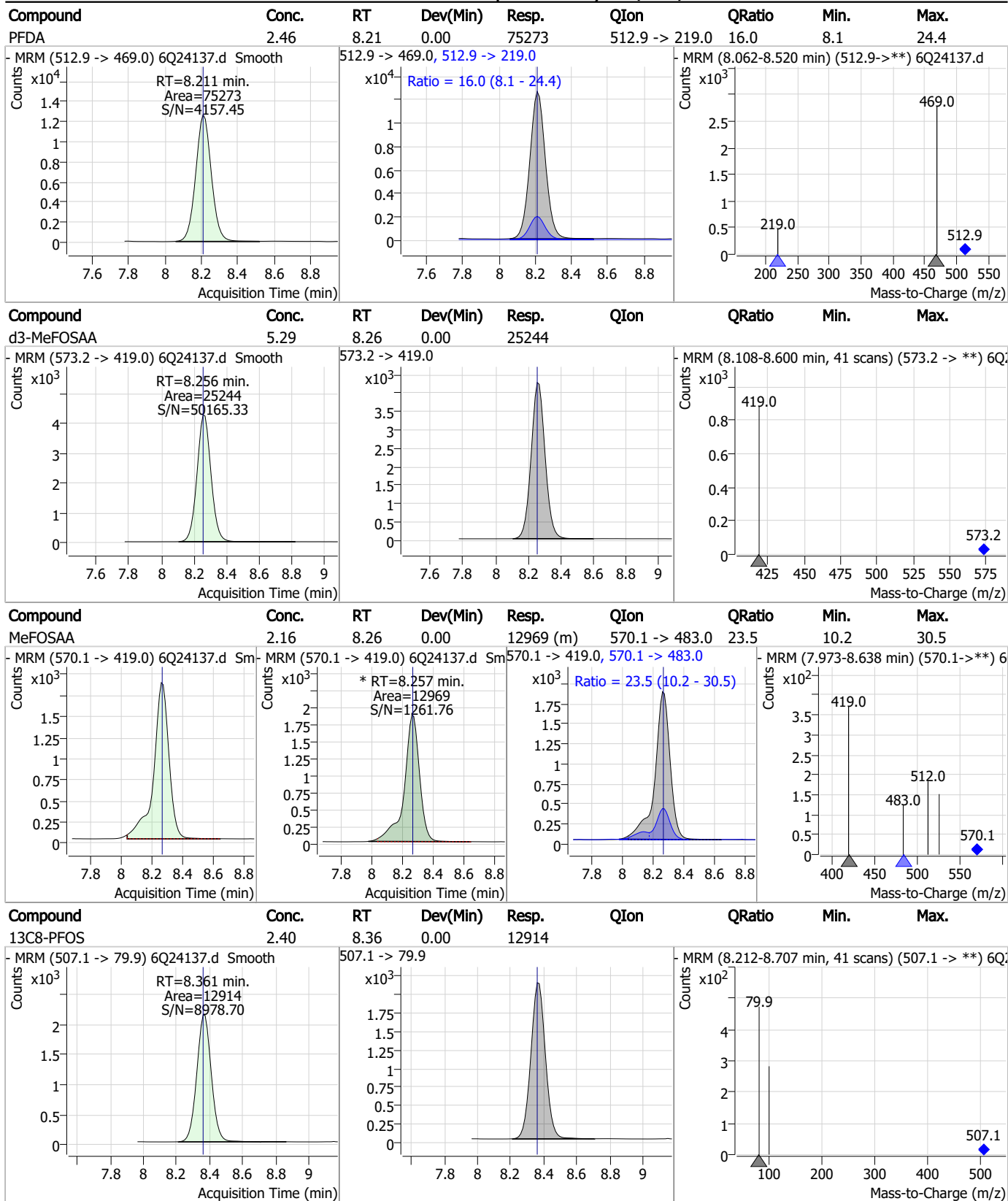
Perfluorinated Compounds by LC/MS/MS



7.7.24

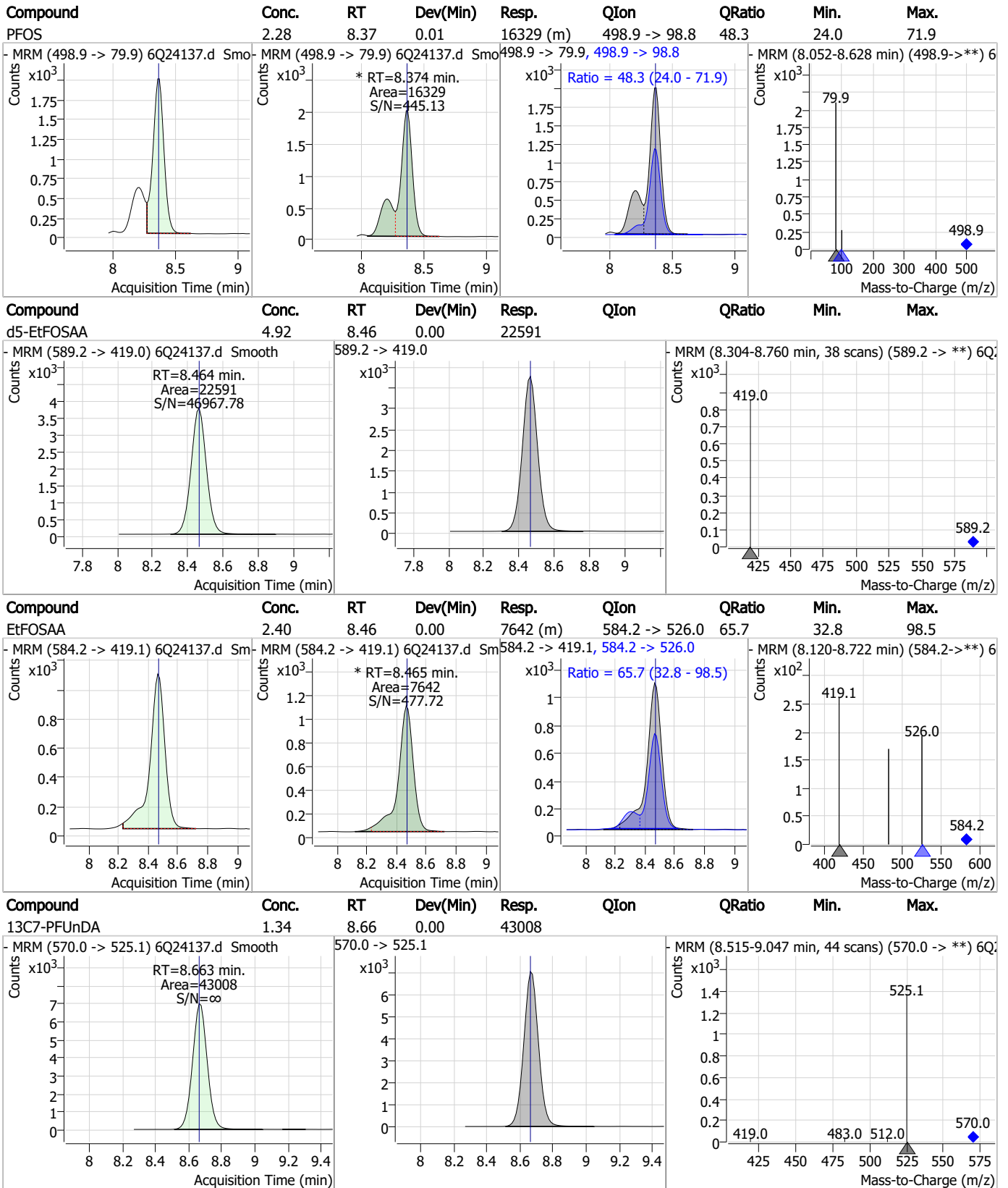
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Perfluorinated Compounds by LC/MS/MS



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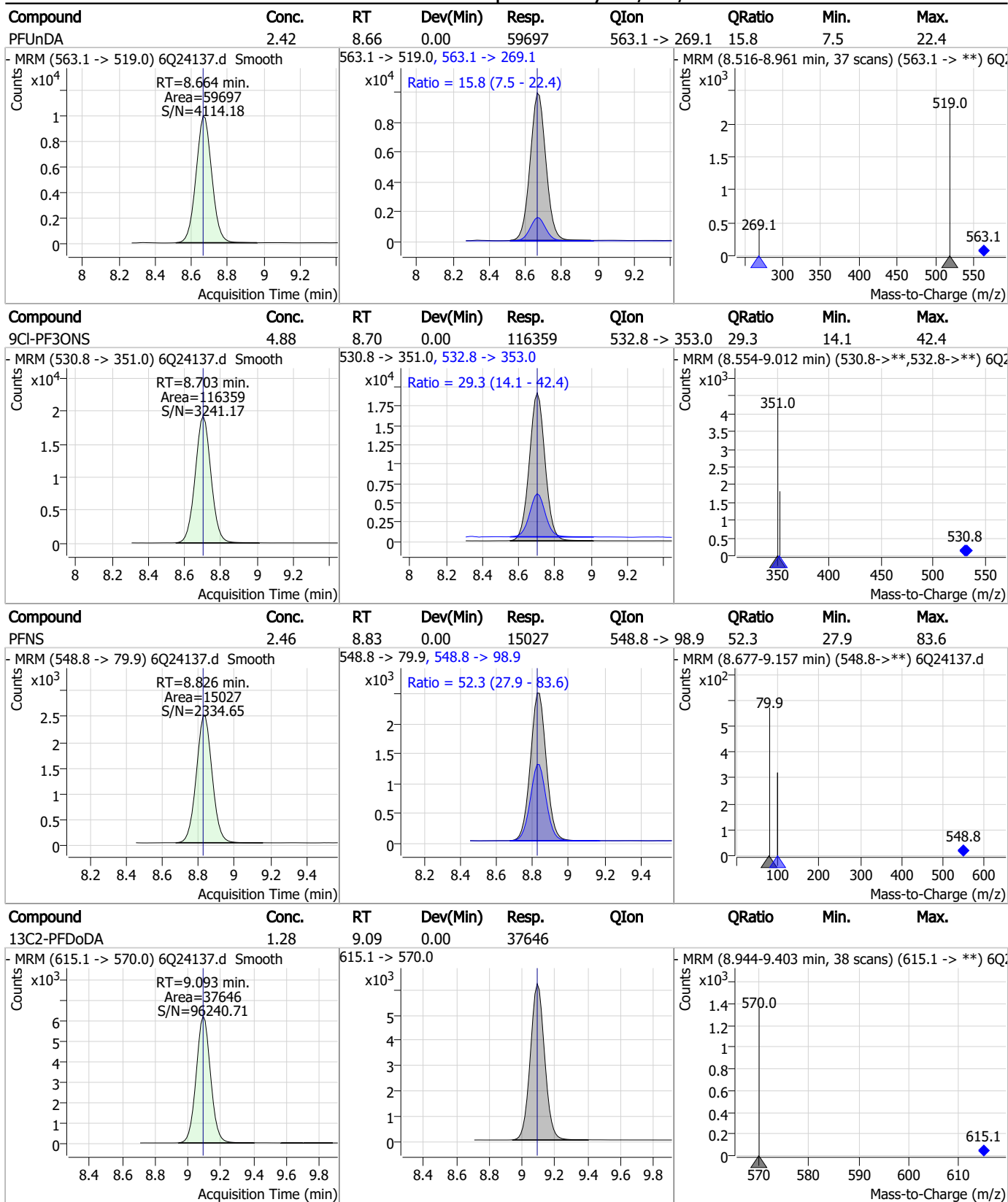
Perfluorinated Compounds by LC/MS/MS



7.7.24

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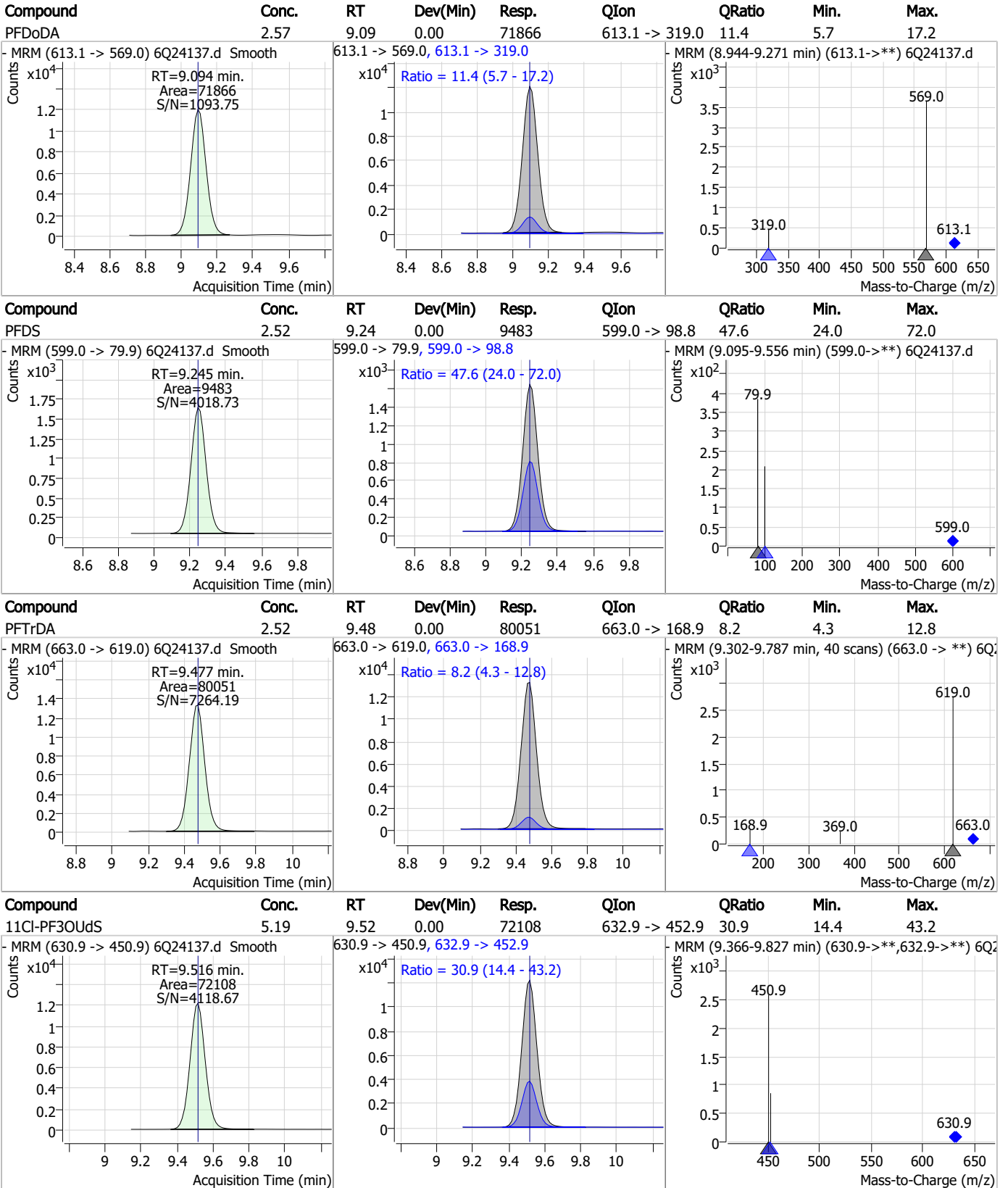
Perfluorinated Compounds by LC/MS/MS



7.7.24

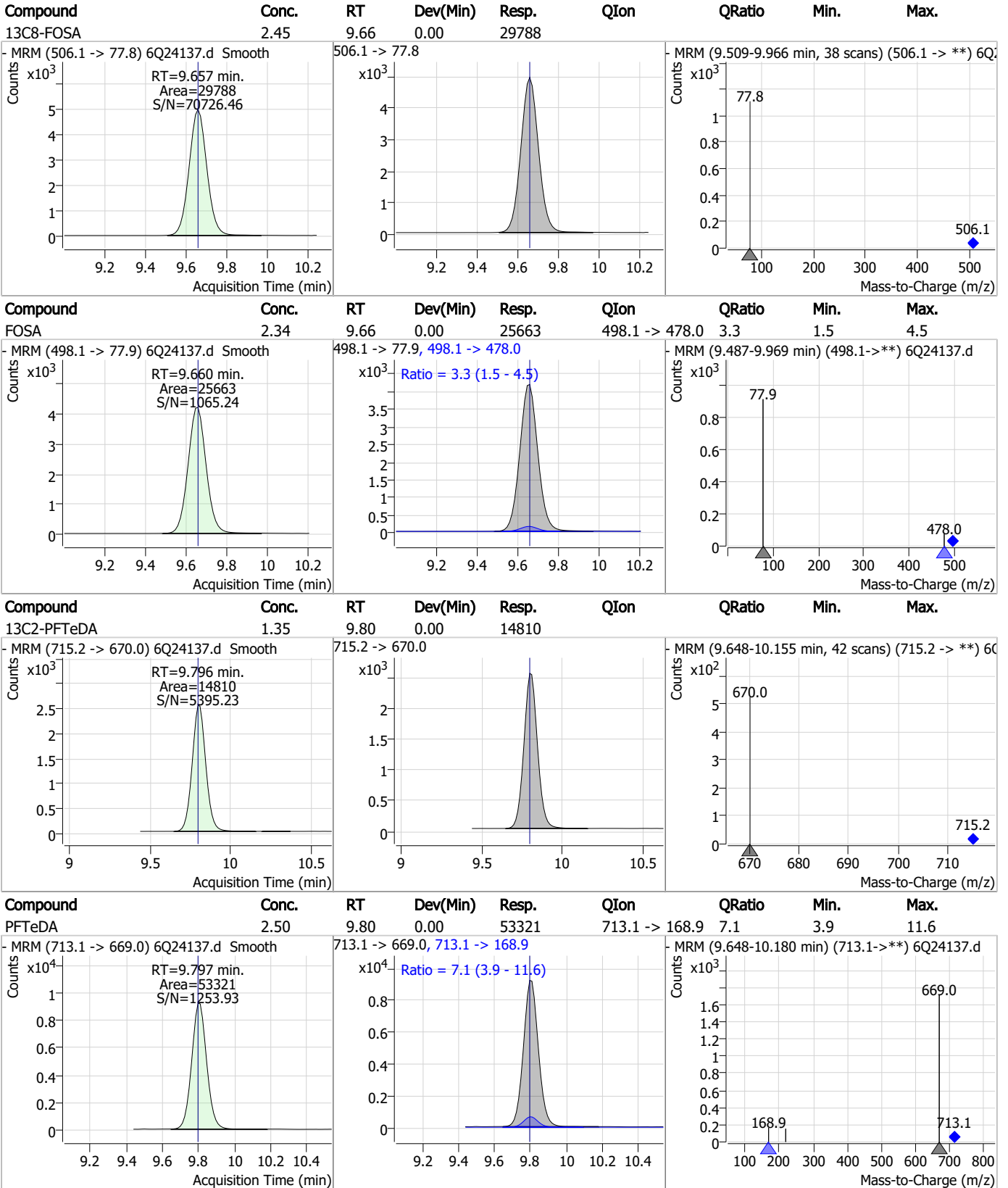
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Perfluorinated Compounds by LC/MS/MS



7.7.24 7

Perfluorinated Compounds by LC/MS/MS

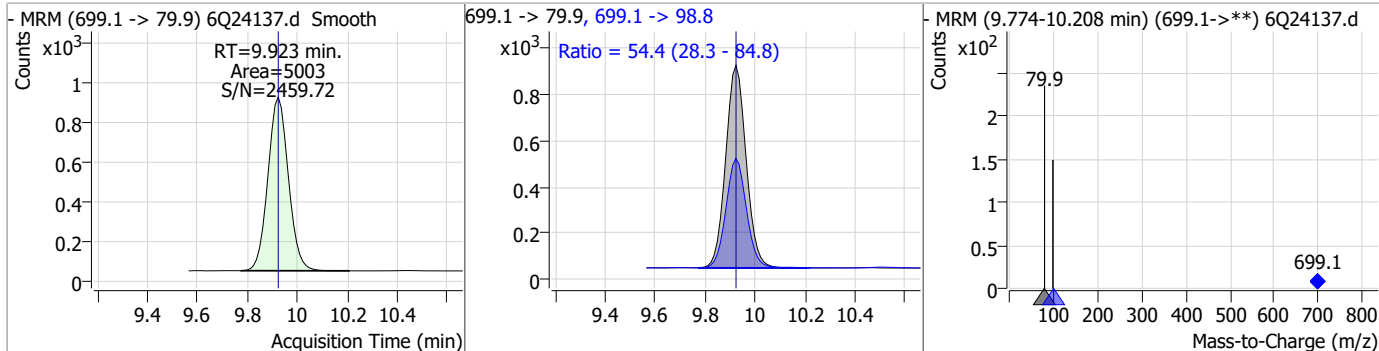


7.7.24 7

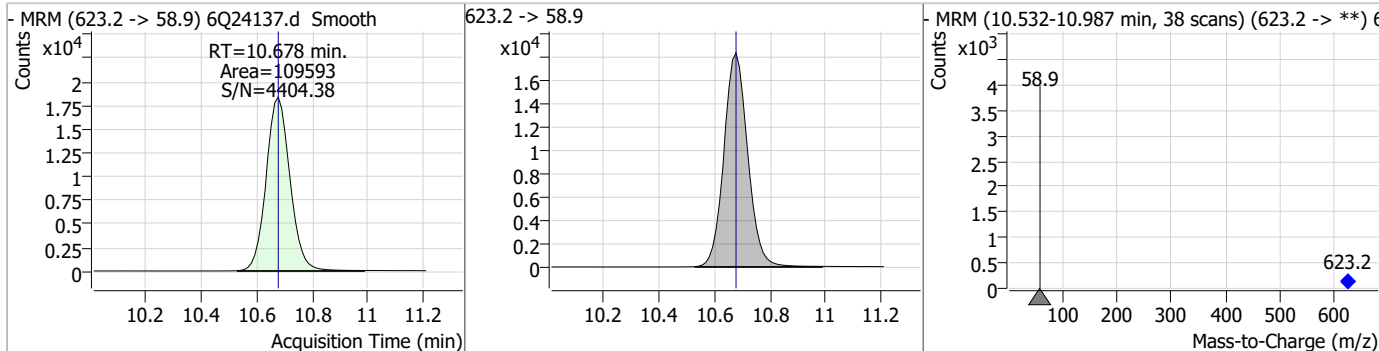


Perfluorinated Compounds by LC/MS/MS

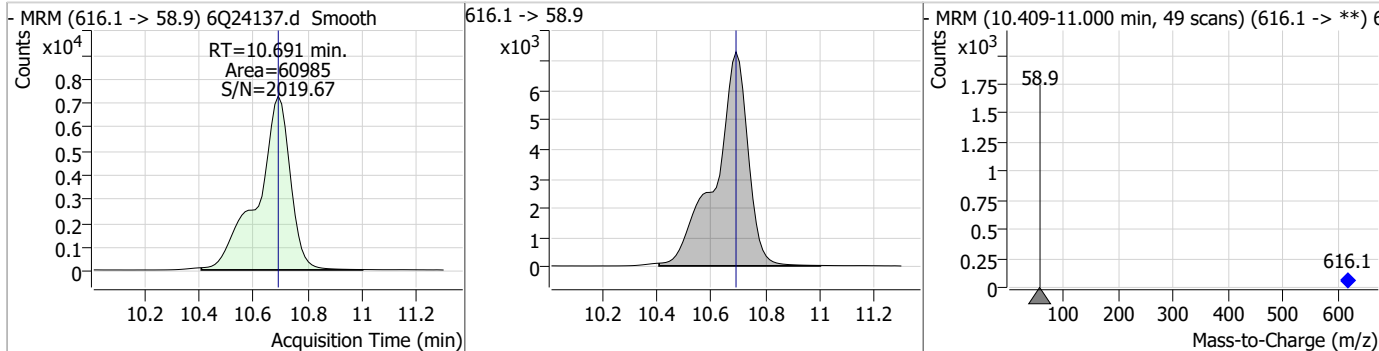
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.43	9.92	0.00	5003	699.1 -> 98.8	54.4	28.3	84.8



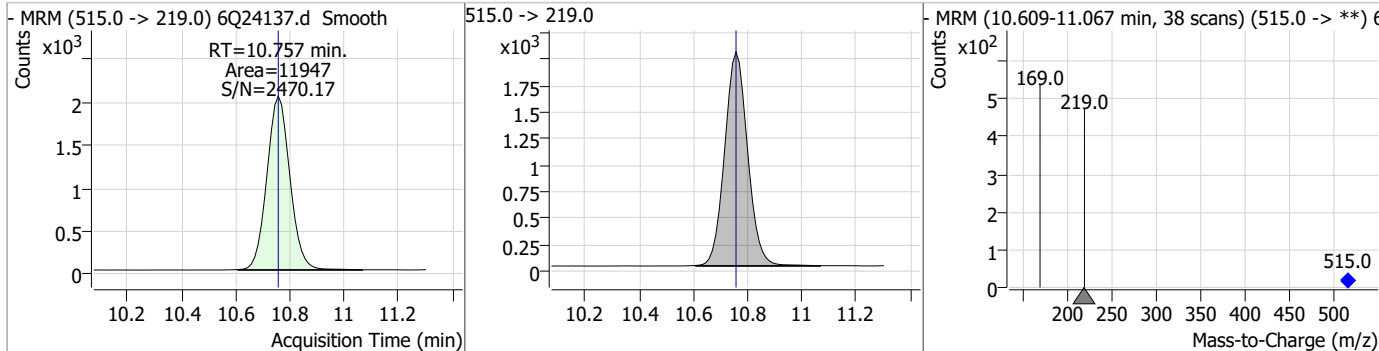
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.43	10.68	0.00	109593				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.87	10.69	0.00	60985				



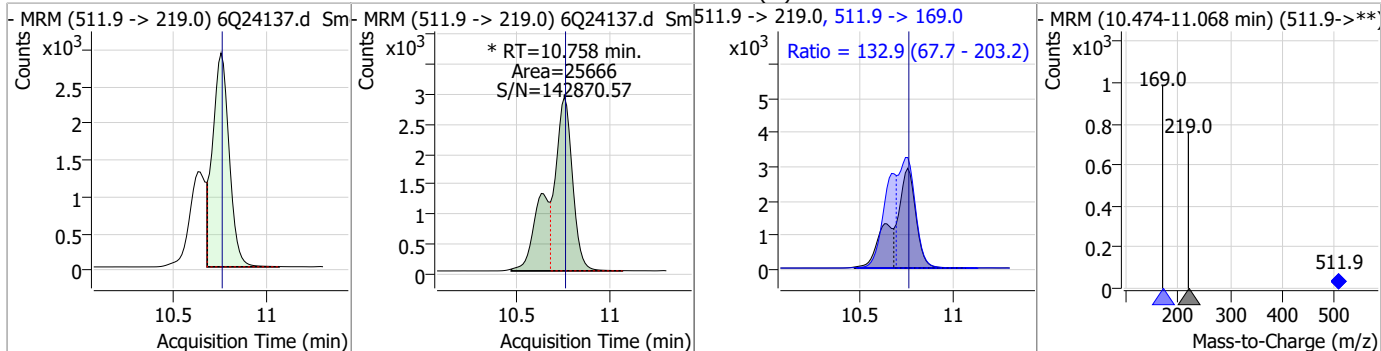
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.43	10.76	0.00	11947				



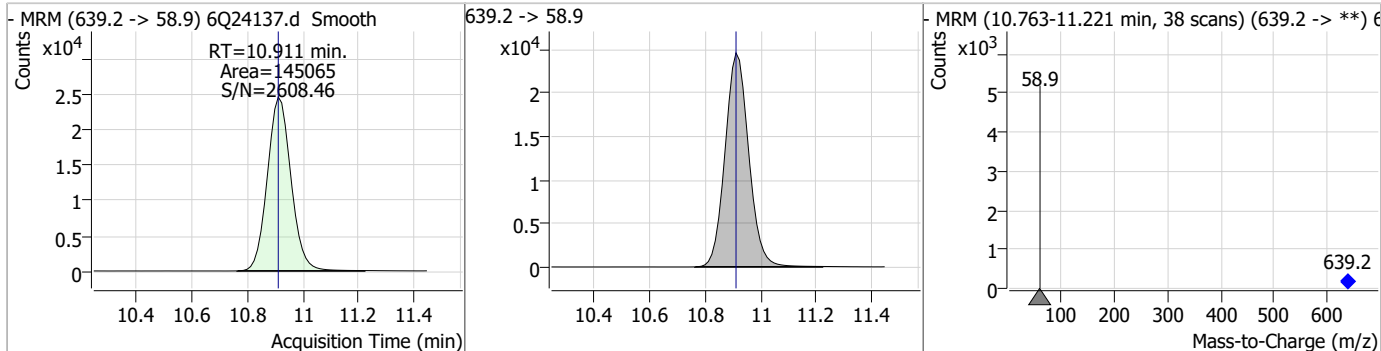
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Perfluorinated Compounds by LC/MS/MS

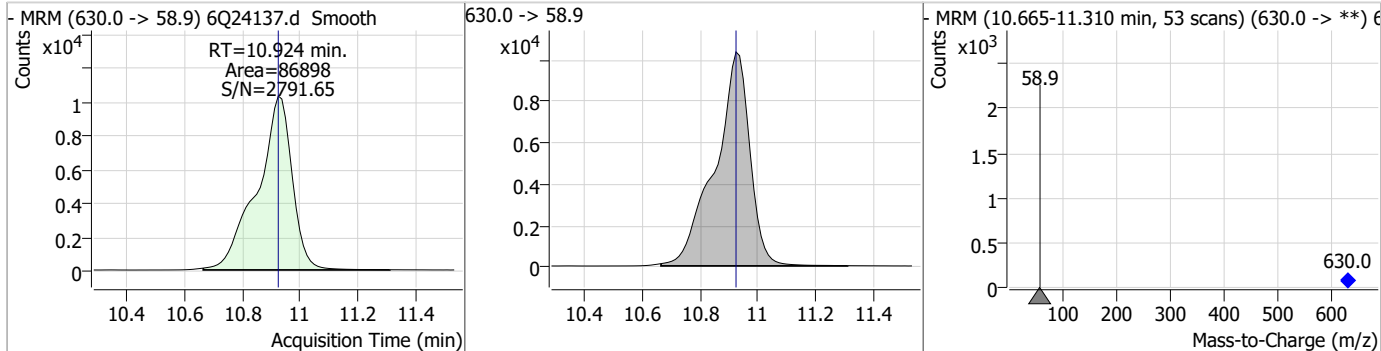
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.06	10.76	0.00	25666 (m)	511.9 -> 169.0	132.9	67.7	203.2



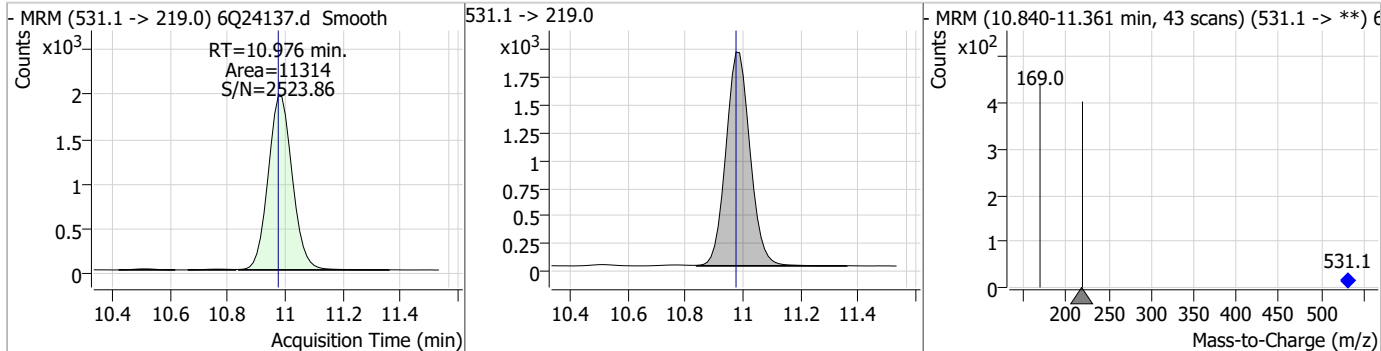
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.03	10.91	0.00	145065				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.60	10.92	0.00	86898				

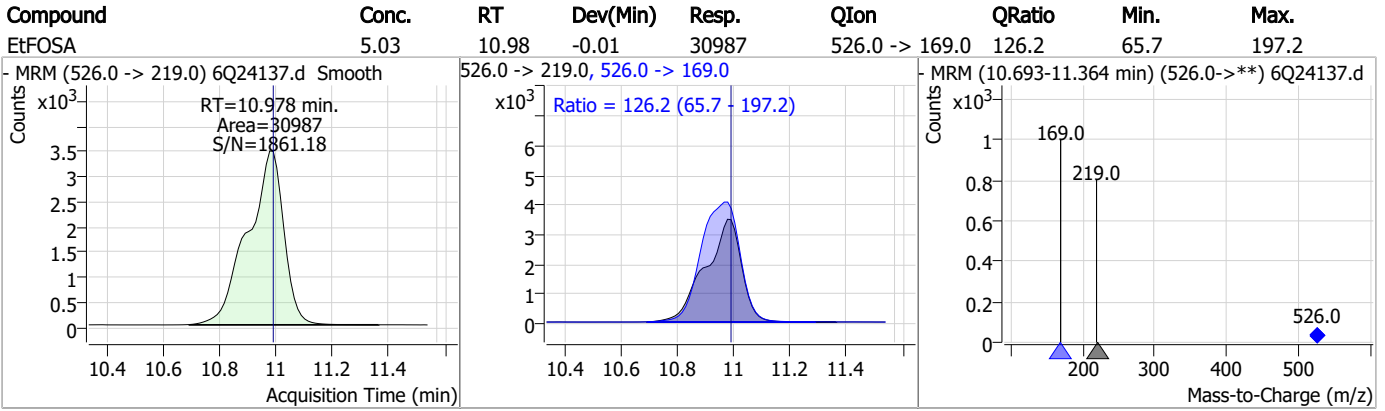


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.46	10.98	0.00	11314				



7.7.24
7

Perfluorinated Compounds by LC/MS/MS



7.7.24

7



Manual Integration Approval Summary

Sample Number: S6Q347-ICV347 Method: EPA DRAFT 1633
Lab FileID: 6Q24137.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 22:55 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
MeFOSAA	2355-31-9		8.26	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

7.7.24.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24138.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 11:09:38 PM
 Sample Name : icv347-20
 Vial : P1-B2
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	179417	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	32878	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	63931	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	52436	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	70783	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	29316	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	26815	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	39237	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	35425	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	13278	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	27232	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	21054	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	12623	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	11385	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2674	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	3899	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	3992	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	20707	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	36589	10.00 µg/L	-0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	21201	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	96337	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	126306	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	10366	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	10832	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	13358	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	70541	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	8751	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	77049	2.50 µg/L	0.000
13C2-PFDA	8.210	515.1 -> 470.1	27047	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	36418	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	49542	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2674	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.6%		
13C2-6:2FTS	6.974	429.1 -> 80.9	3899	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.9%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3992	5.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C2-PFDoDA	9.093	615.1 -> 570.0	35425	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C2-PFTeDA	9.796	715.2 -> 670.0	13278	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C3-PFBS	5.571	302.1 -> 79.9	21054	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C3-PFHxS	7.313	402.1 -> 79.9	12623	2.63 µg/L	0.000

7.7.25
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C4-PFBA	2.985	216.8 -> 171.9	179417	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.569	367.1 -> 322.0	52436	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C5-PFHxA	5.641	318.0 -> 273.0	63931	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C5-PFPeA	4.422	268.3 -> 223.0	32878	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C6-PFDA	8.210	519.1 -> 474.1	26815	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.1%	
13C7-PFUnDA	8.663	570.0 -> 525.1	39237	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C8-FOSA	9.657	506.1 -> 77.8	27232	2.86 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.5%	
13C8-PFOA	7.198	421.1 -> 376.0	70783	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C8-PFOS	8.361	507.1 -> 79.9	11385	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C9-PFNA	7.729	472.1 -> 427.0	29316	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%	
d3-MeFOSAA	8.256	573.2 -> 419.0	20707	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.9%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	36589	9.70 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
d3-MeFOSA	10.757	515.0 -> 219.0	10832	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.4%	
d5-EtFOSAA	8.464	589.2 -> 419.0	21201	5.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.0%	
d7-MeFOSE	10.678	623.2 -> 58.9	96337	27.43 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 109.7%	
d9-EtFOSE	10.911	639.2 -> 58.9	126306	26.72 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.9%	
d5-EtFOSA	10.976	531.1 -> 219.0	10366	2.88 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.4%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	94917	21.46 µg/L	98
		327.1 -> 80.9	36329		
6:2FTS	6.974	427.1 -> 407.0	78300	22.70 µg/L	100
		427.1 -> 80.9	31050		
8:2FTS	7.999	527.1 -> 507.0	52827	19.62 µg/L	97
		527.1 -> 80.8	19671		
EtFOSAA	8.465	584.2 -> 419.1	56843	18.98 µg/L	m 99
		584.2 -> 526.0	37860		
FOSA	9.660	498.1 -> 77.9	193424	19.30 µg/L	100
		498.1 -> 478.0	5640		
MeFOSAA	8.269	570.1 -> 419.0	111409	22.65 µg/L	97
		570.1 -> 483.0	20853		
PFBA	2.993	212.8 -> 168.9	120303	20.29 µg/L	100
PFBS	5.572	298.7 -> 79.9	214565	20.78 µg/L	97
		298.7 -> 98.8	77668		
PFDA	8.211	512.9 -> 469.0	579112	23.71 µg/L	97
		512.9 -> 219.0	86003		
PFDoDA	9.094	613.1 -> 569.0	530946	20.20 µg/L	99
		613.1 -> 319.0	58850		
PFDS	9.245	599.0 -> 79.9	74954	22.60 µg/L	98

7.7.25
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	34877			
PFHpA	6.569	363.1 -> 319.0	570512	20.56	µg/L	99
		363.1 -> 169.0	82907			
PFHpS	7.868	449.0 -> 79.9	113113	20.53	µg/L	99
		449.0 -> 98.9	53389			
PFHxA	5.644	313.0 -> 269.0	523174	22.48	µg/L	100
		313.0 -> 118.9	22359			
PFHxS	7.314	398.7 -> 79.9	163773	20.69	µg/L	m 95
		398.7 -> 98.9	73736			
PFNA	7.730	463.0 -> 419.0	471192	21.31	µg/L	93
		463.0 -> 219.0	118919			
PFNS	8.826	548.8 -> 79.9	115493	21.48	µg/L	96
		548.8 -> 98.9	61285			
PFOA	7.200	413.0 -> 369.0	711692	19.51	µg/L	98
		413.0 -> 169.0	123250			
PFOS	8.362	498.9 -> 79.9	124216	19.69	µg/L	m 97
		498.9 -> 98.8	56601			
PFPeA	4.424	263.0 -> 219.0	308408	21.06	µg/L	100
PFPeS	6.620	349.1 -> 79.9	144916	21.10	µg/L	94
		349.1 -> 98.9	62687			
PFTeDA	9.797	713.1 -> 669.0	379097	19.82	µg/L	99
		713.1 -> 168.9	30065			
PFTrDA	9.477	663.0 -> 619.0	536304	17.94	µg/L	98
		663.0 -> 168.9	42093			
PFUnDA	8.664	563.1 -> 519.0	445591	19.82	µg/L	99
		563.1 -> 269.1	64631			
11Cl-PF3OUdS	9.516	630.9 -> 450.9	276739	20.73	µg/L	92
		632.9 -> 452.9	91483			
9Cl-PF3ONS	8.703	530.8 -> 351.0	478844	20.93	µg/L	95
		532.8 -> 353.0	147077			
ADONA	6.817	376.9 -> 250.9	1020576	19.26	µg/L	99
		376.9 -> 84.8	273409			
HFPO-DA	6.020	284.9 -> 168.9	68775	19.86	µg/L	99
		284.9 -> 184.9	10140			
3:3FTCA	3.858	241.0 -> 177.0	19896	19.40	µg/L	100
		241.0 -> 117.0	1895			
5:3FTCA	6.271	341.0 -> 237.1	87293	22.08	µg/L	98
		341.0 -> 217.0	60441			
7:3FTCA	7.657	441.0 -> 316.9	48868	20.92	µg/L	95
		441.0 -> 336.9	107327			
EtFOSA	10.990	526.0 -> 219.0	103430	18.34	µg/L	80
		526.0 -> 169.0	112205			
EtFOSE	10.924	630.0 -> 58.9	668592	111.38	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	89956	19.57	µg/L	75
		511.9 -> 169.0	94548			
MeFOSE	10.691	616.1 -> 58.9	497110	119.33	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	36612	20.14	µg/L	95
		699.1 -> 98.8	19456			
NFDHA	5.524	295.0 -> 201.0	57248	21.23	µg/L	96
		295.0 -> 84.9	14595			
PFMBA	4.850	279.0 -> 85.1	219332	20.55	µg/L	100
PFMPA	3.551	229.0 -> 84.9	157764	20.61	µg/L	100
PFEESA	6.112	314.8 -> 134.9	566832	19.49	µg/L	99
		314.8 -> 82.9	19424			

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

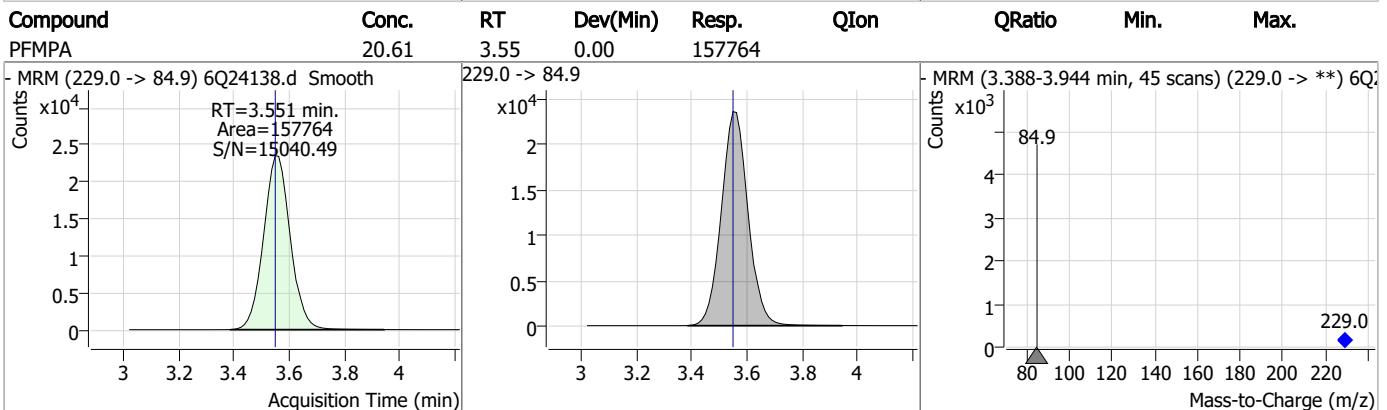
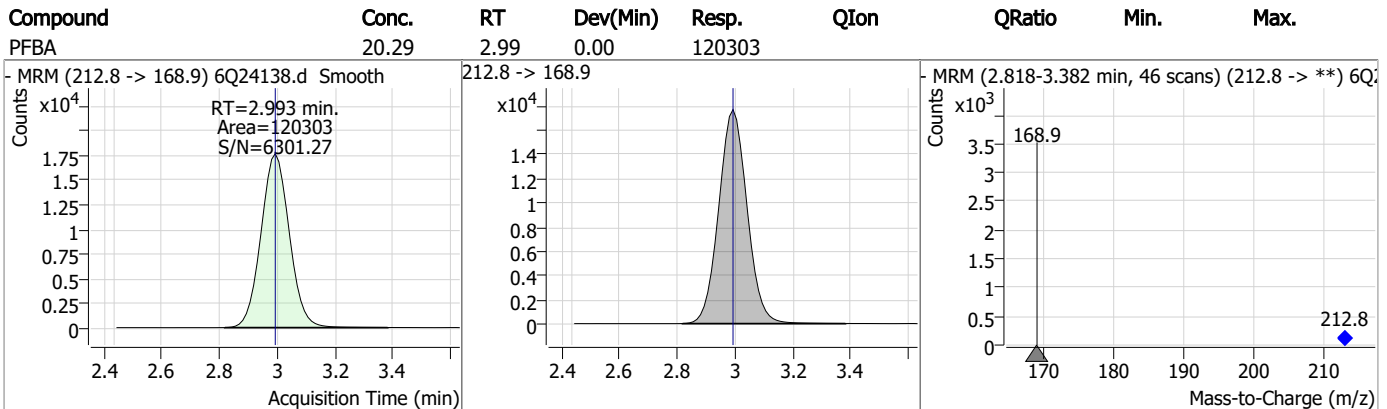
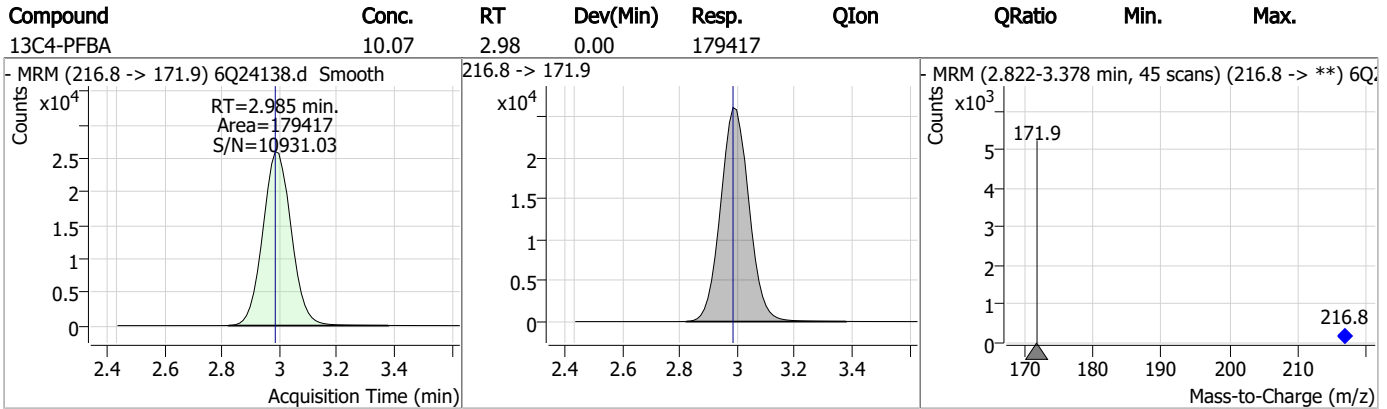
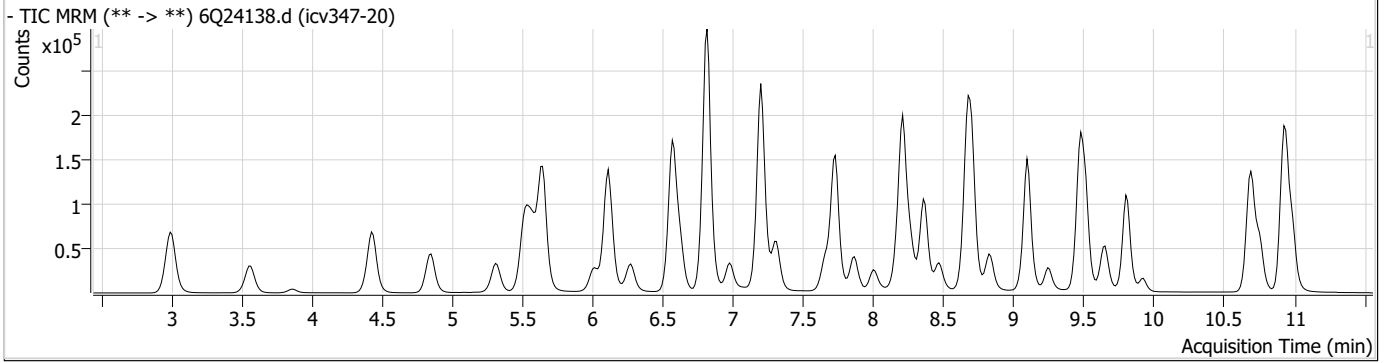
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.25

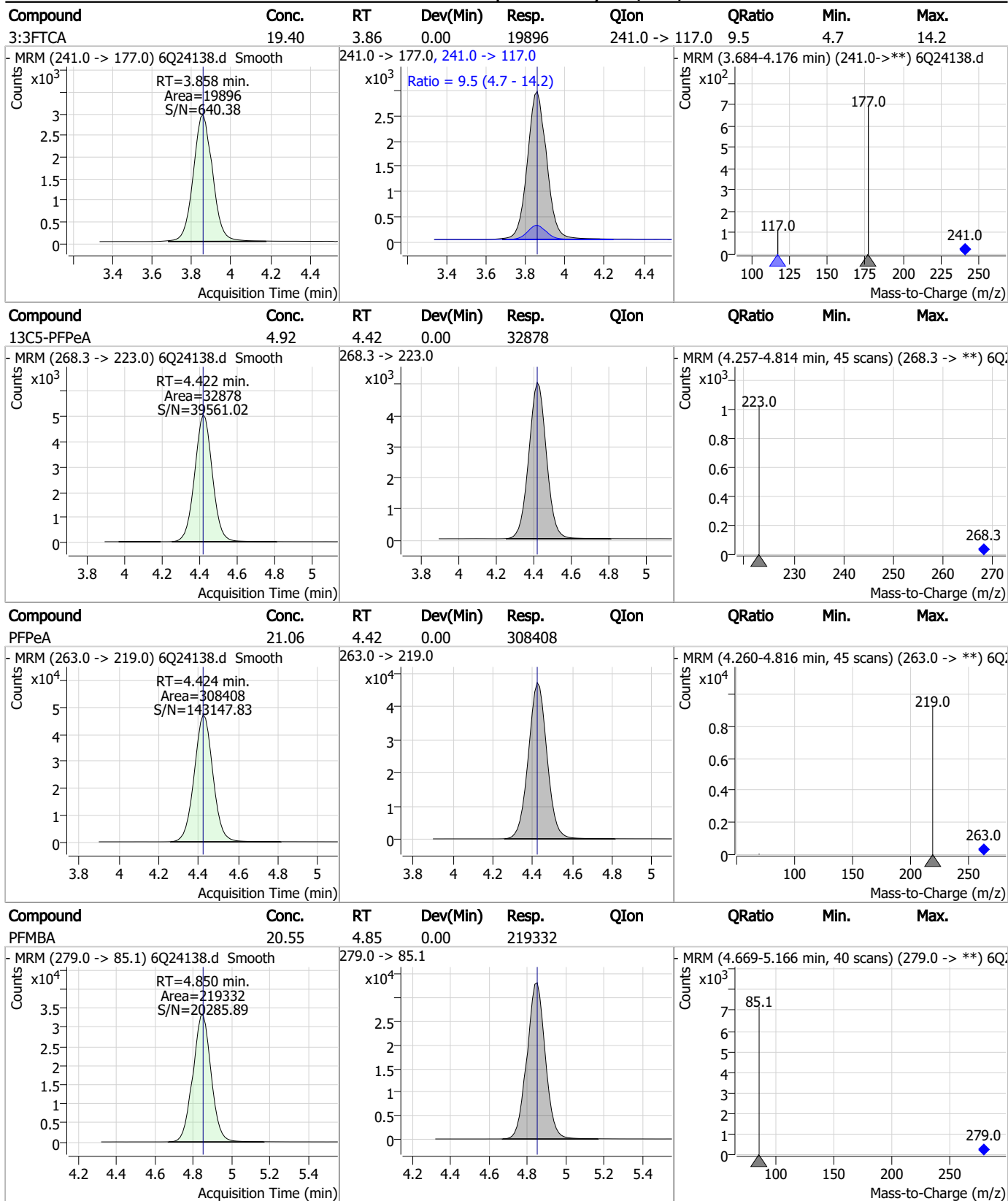
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Perfluorinated Compounds by LC/MS/MS



7.7.25
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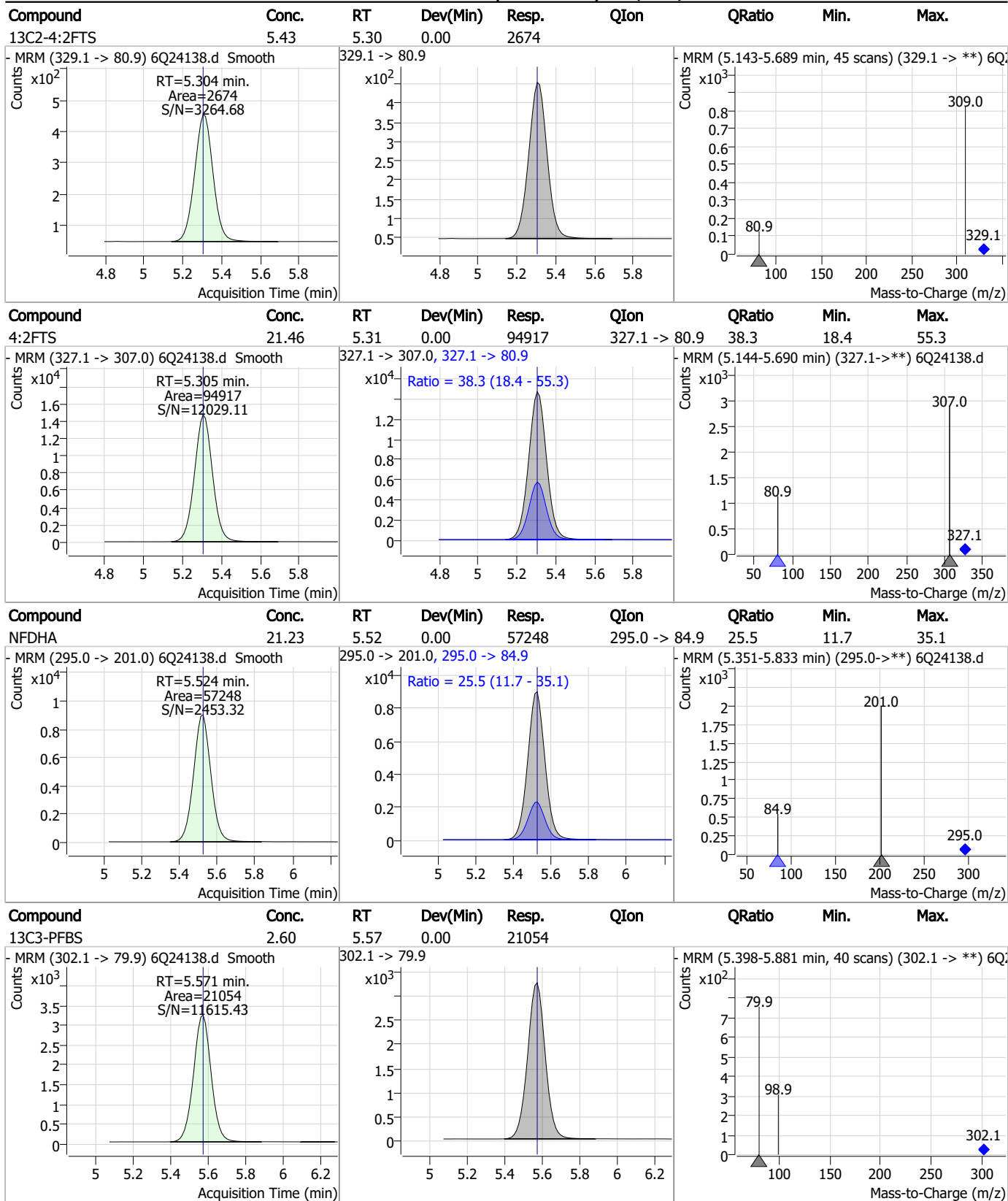
Perfluorinated Compounds by LC/MS/MS



7.7.25

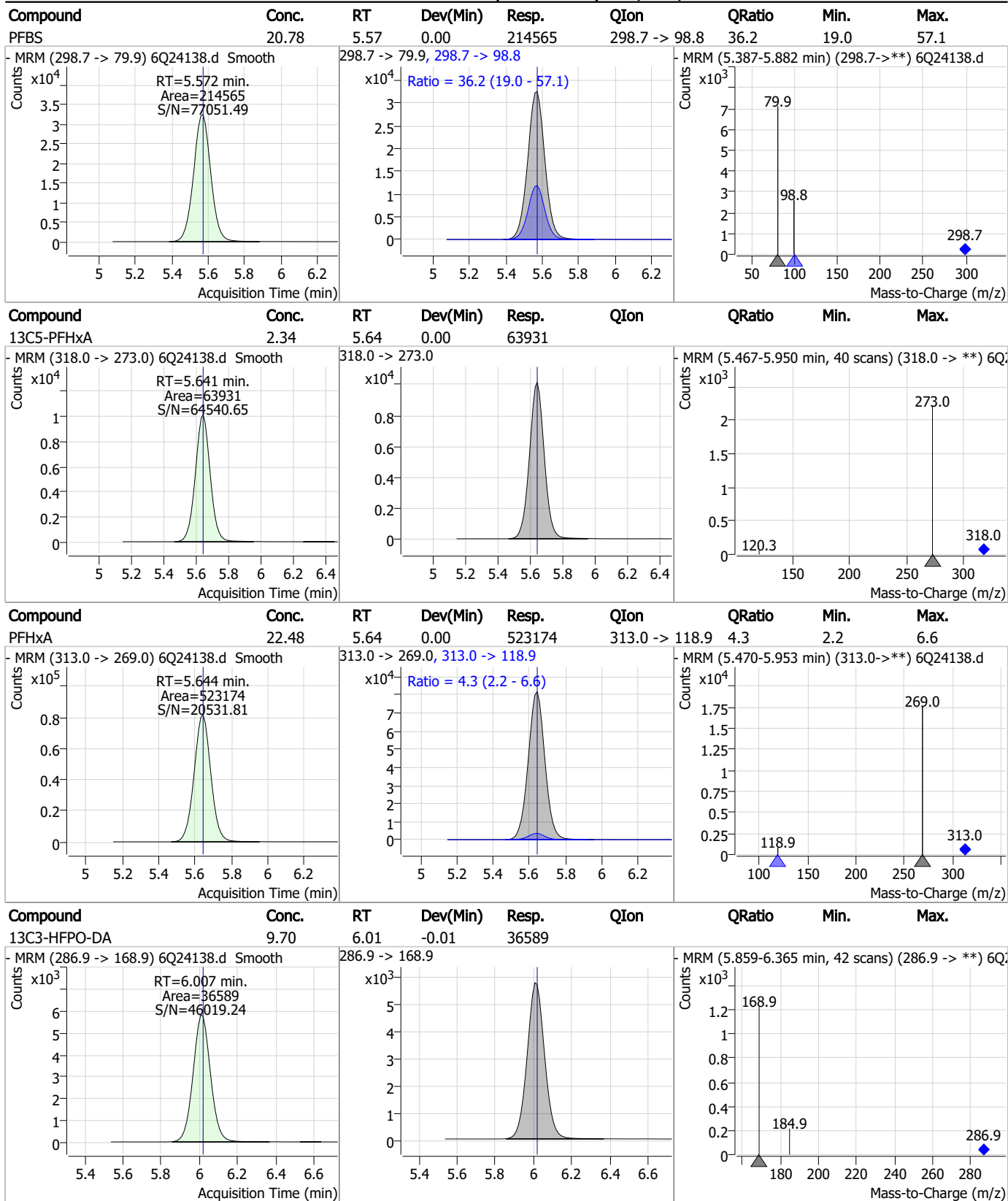
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Perfluorinated Compounds by LC/MS/MS



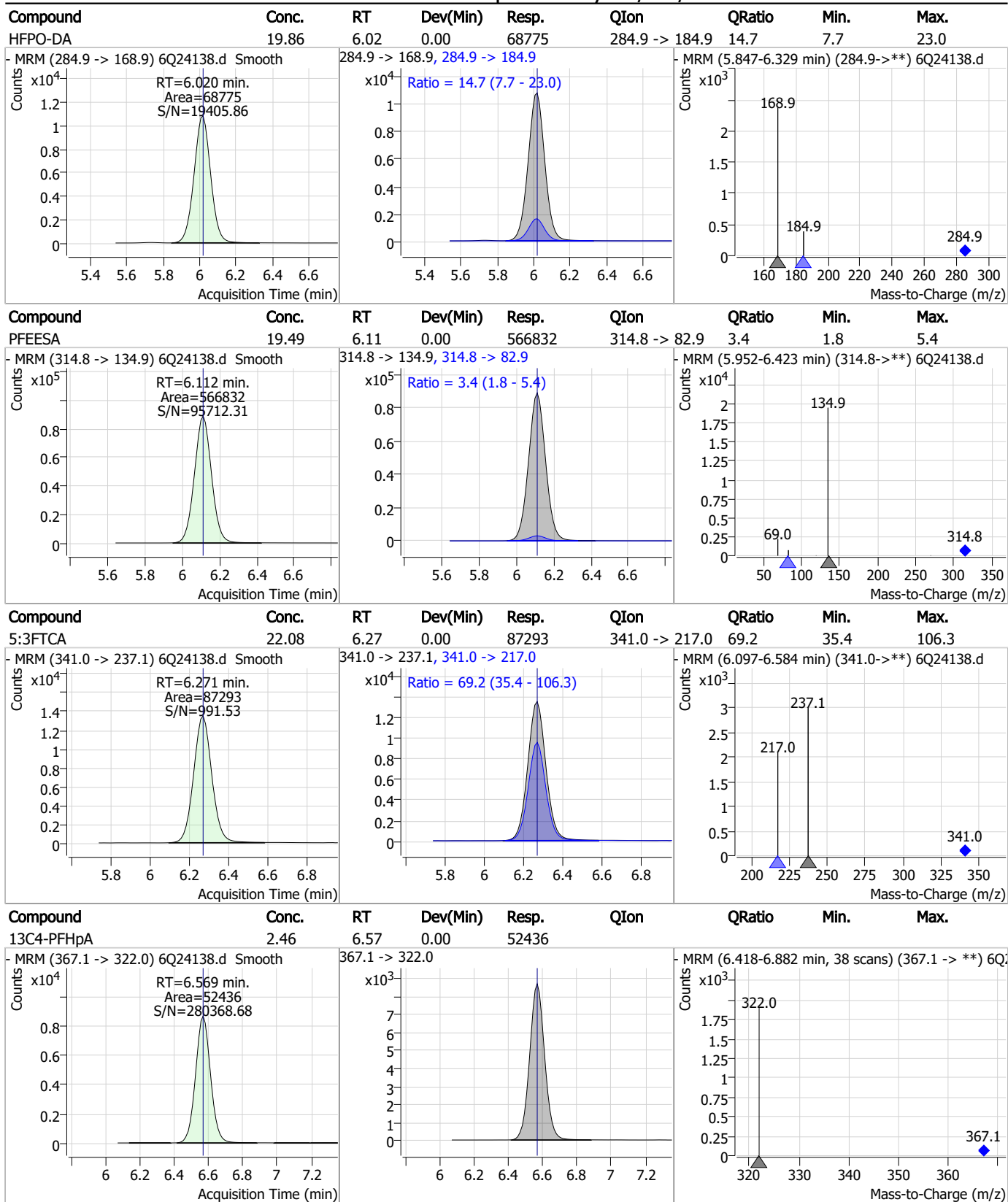
7.7.25
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Perfluorinated Compounds by LC/MS/MS



7.7.25
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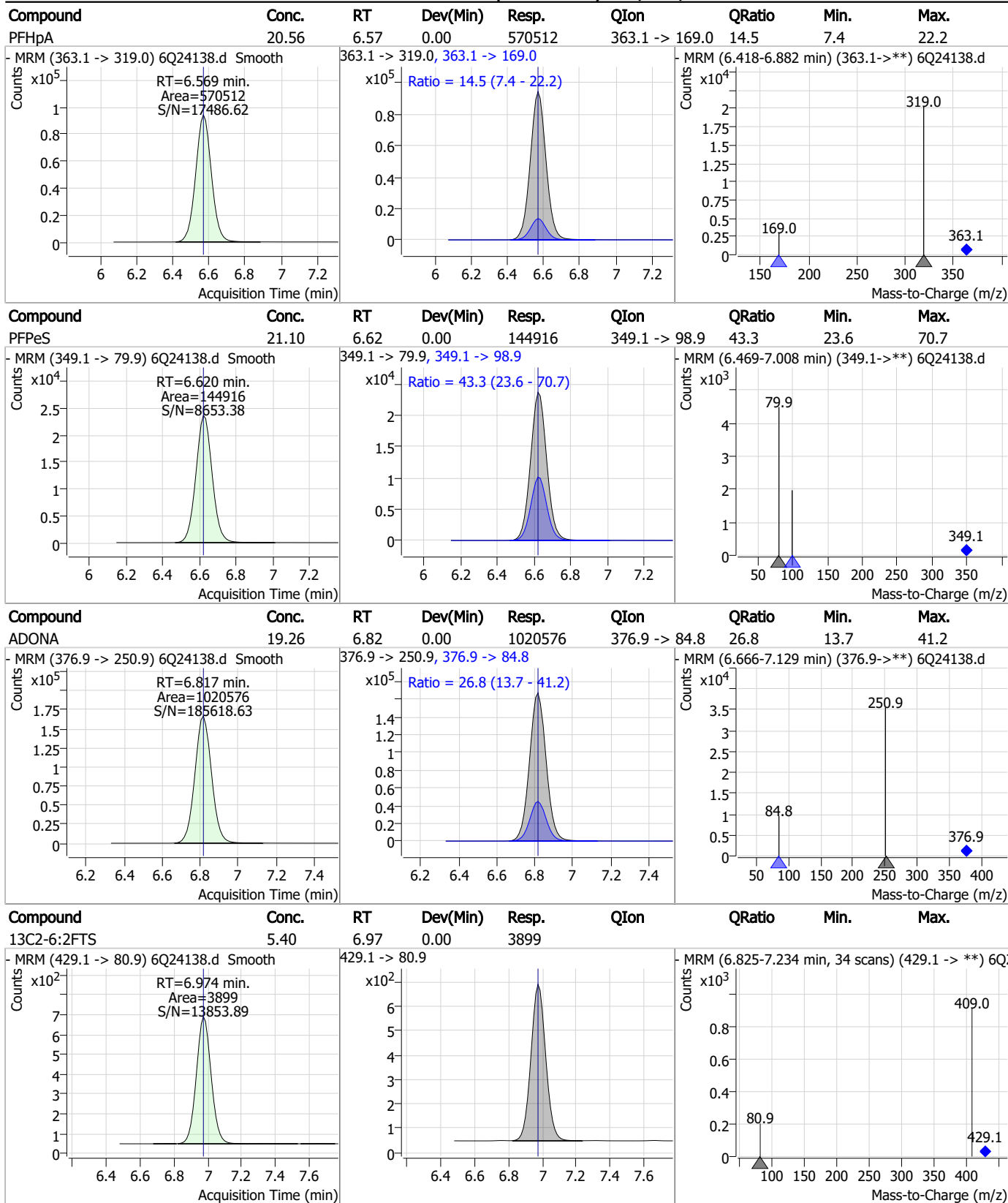
Perfluorinated Compounds by LC/MS/MS



7.7.25

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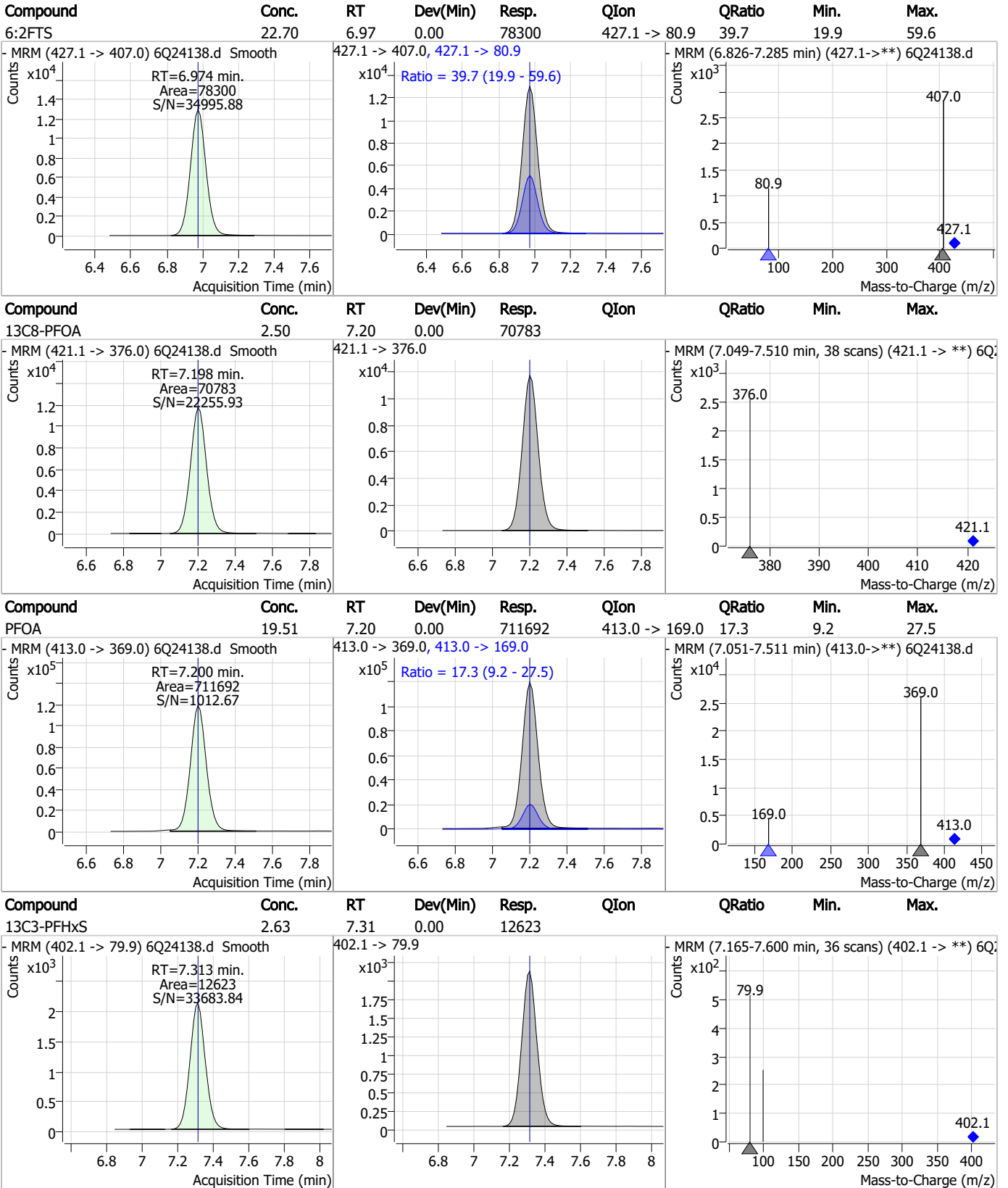
Perfluorinated Compounds by LC/MS/MS



7.7.25
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Perfluorinated Compounds by LC/MS/MS

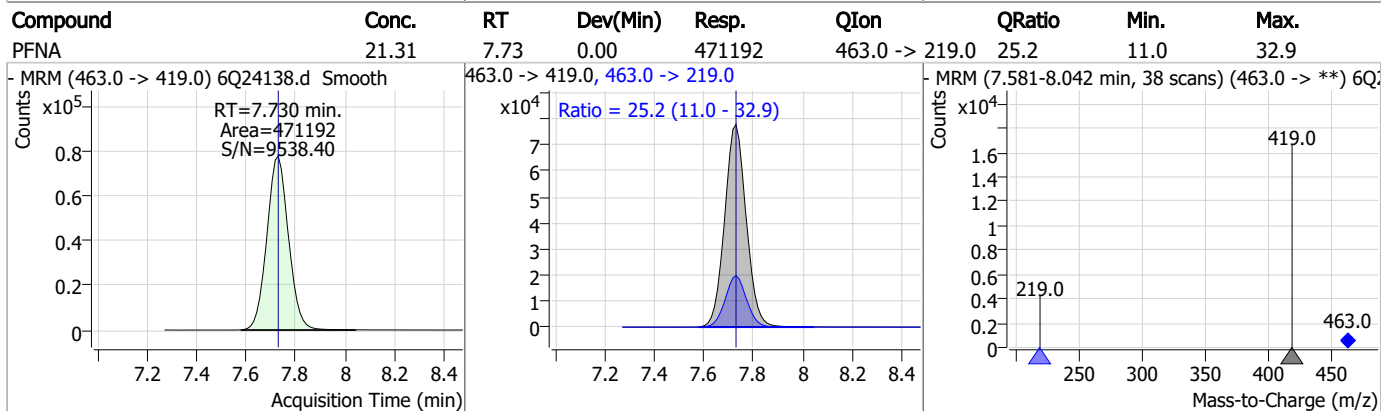
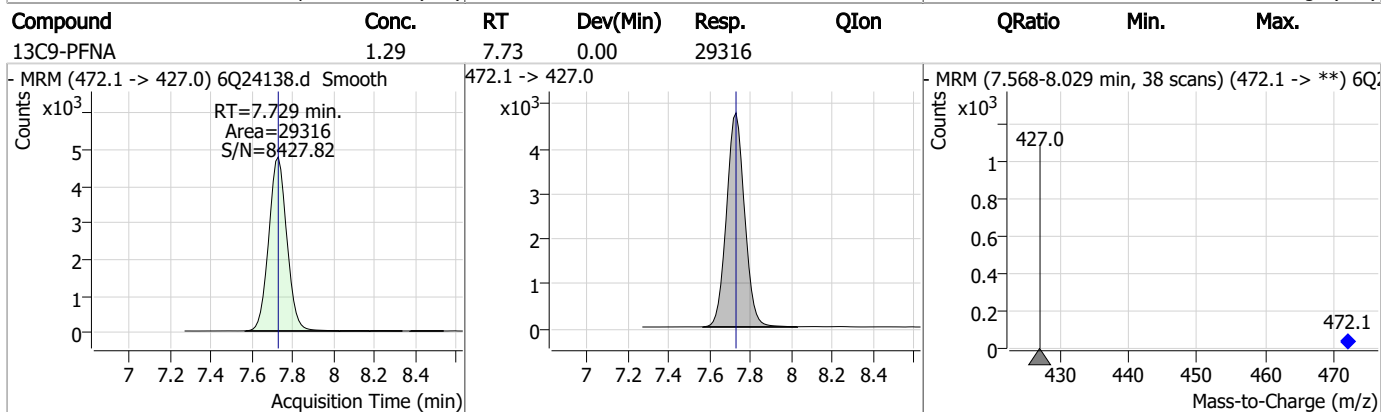
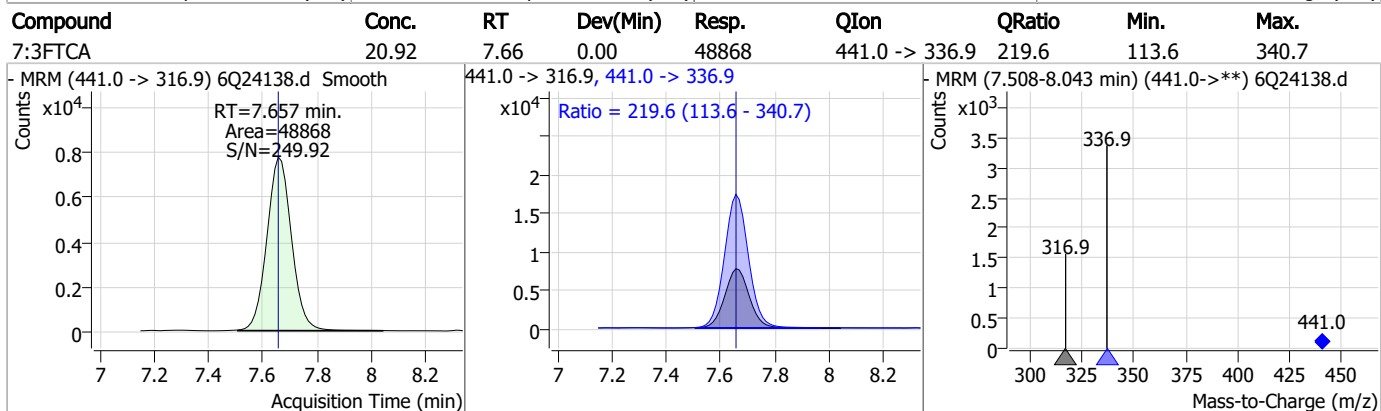
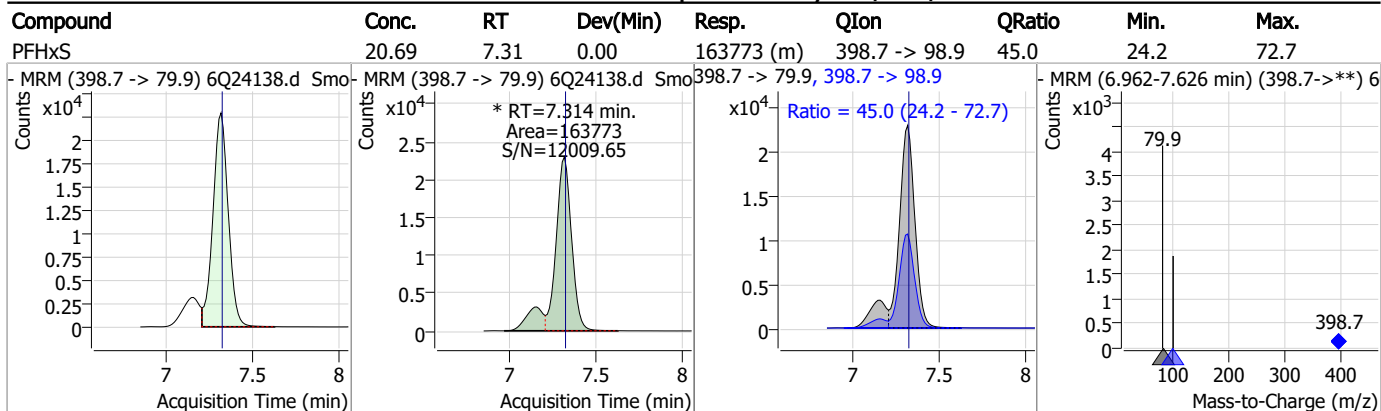


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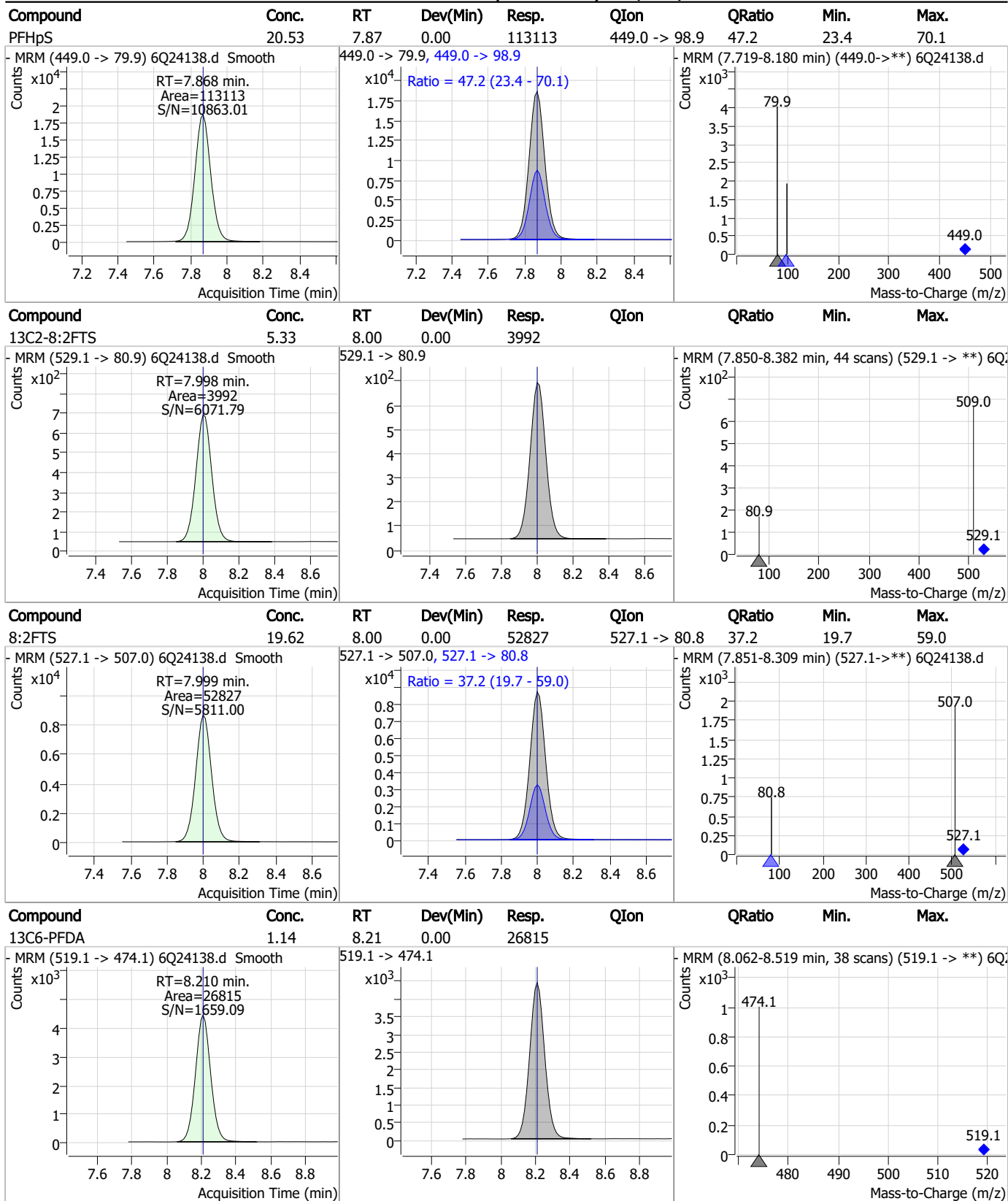
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Perfluorinated Compounds by LC/MS/MS



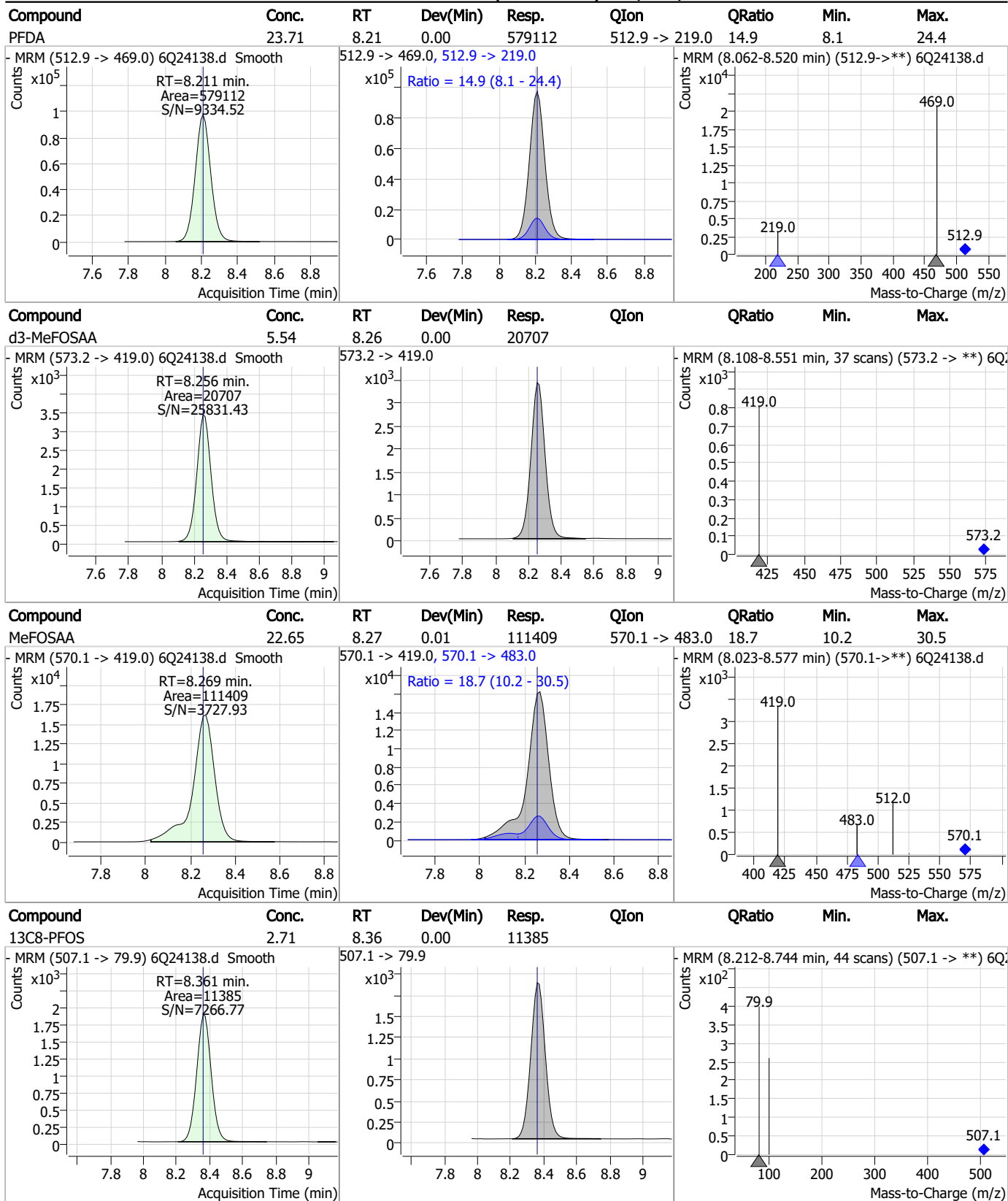
Perfluorinated Compounds by LC/MS/MS



7.7.25
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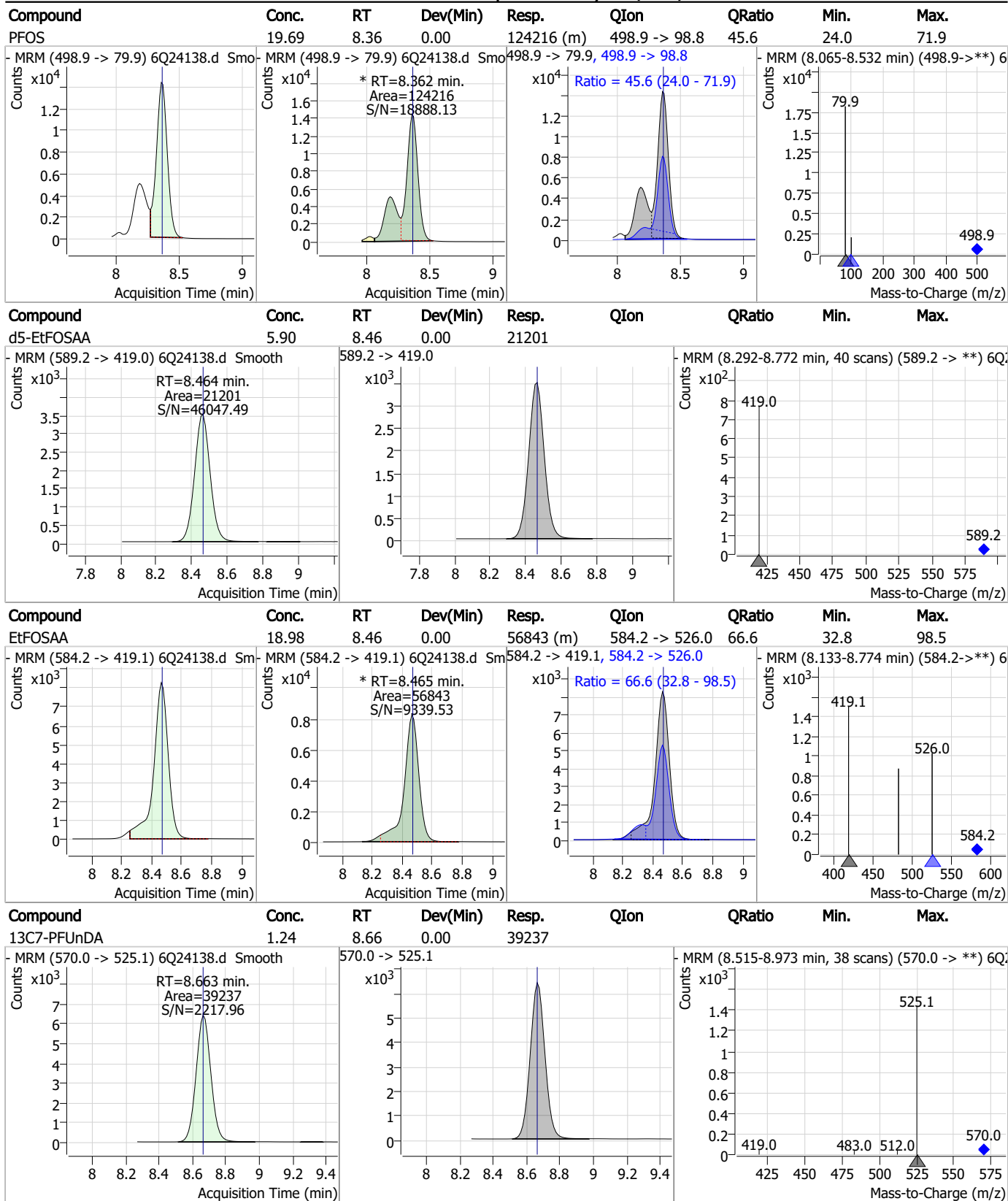
Perfluorinated Compounds by LC/MS/MS



7.7.25

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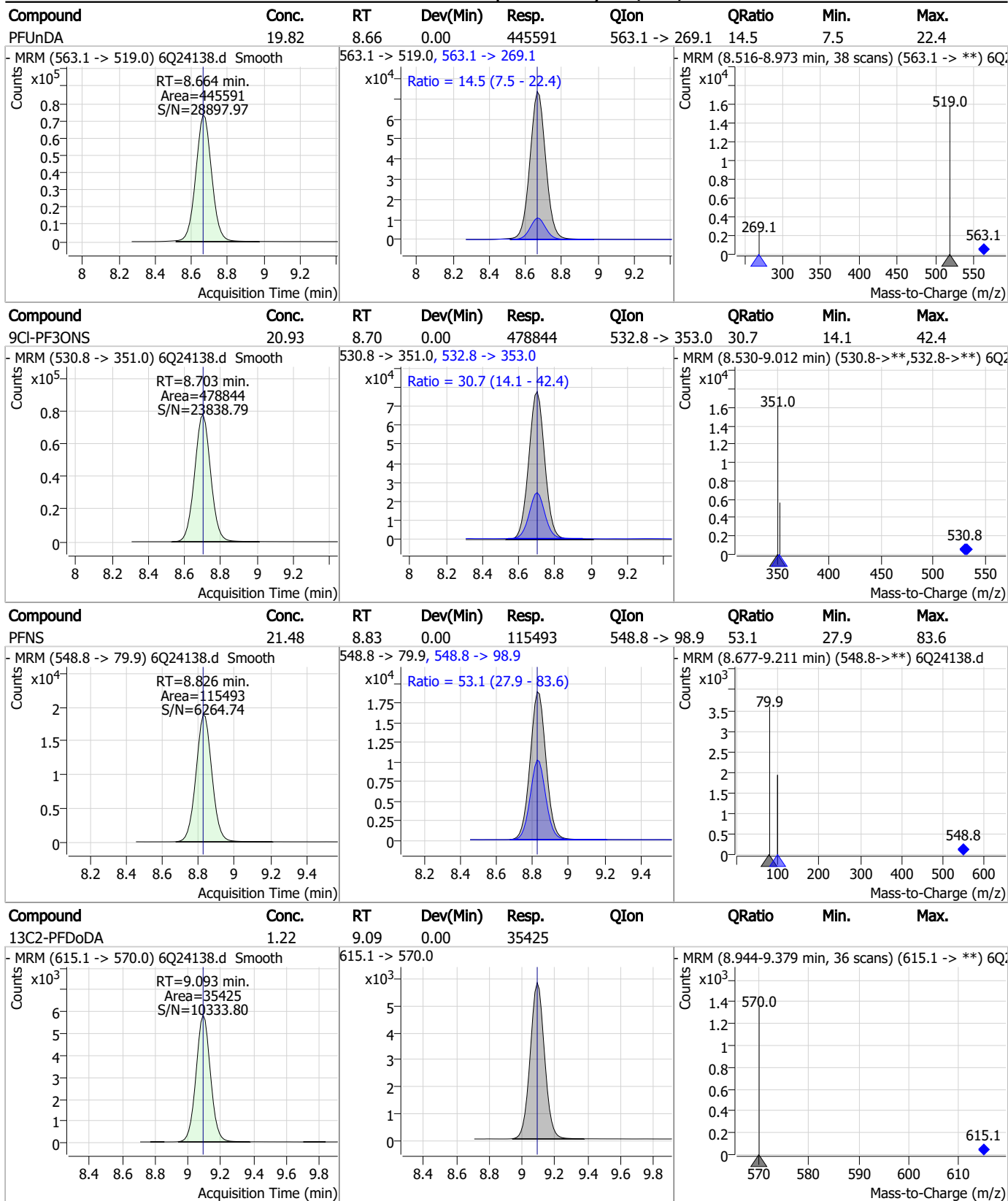
Perfluorinated Compounds by LC/MS/MS



7.7.25

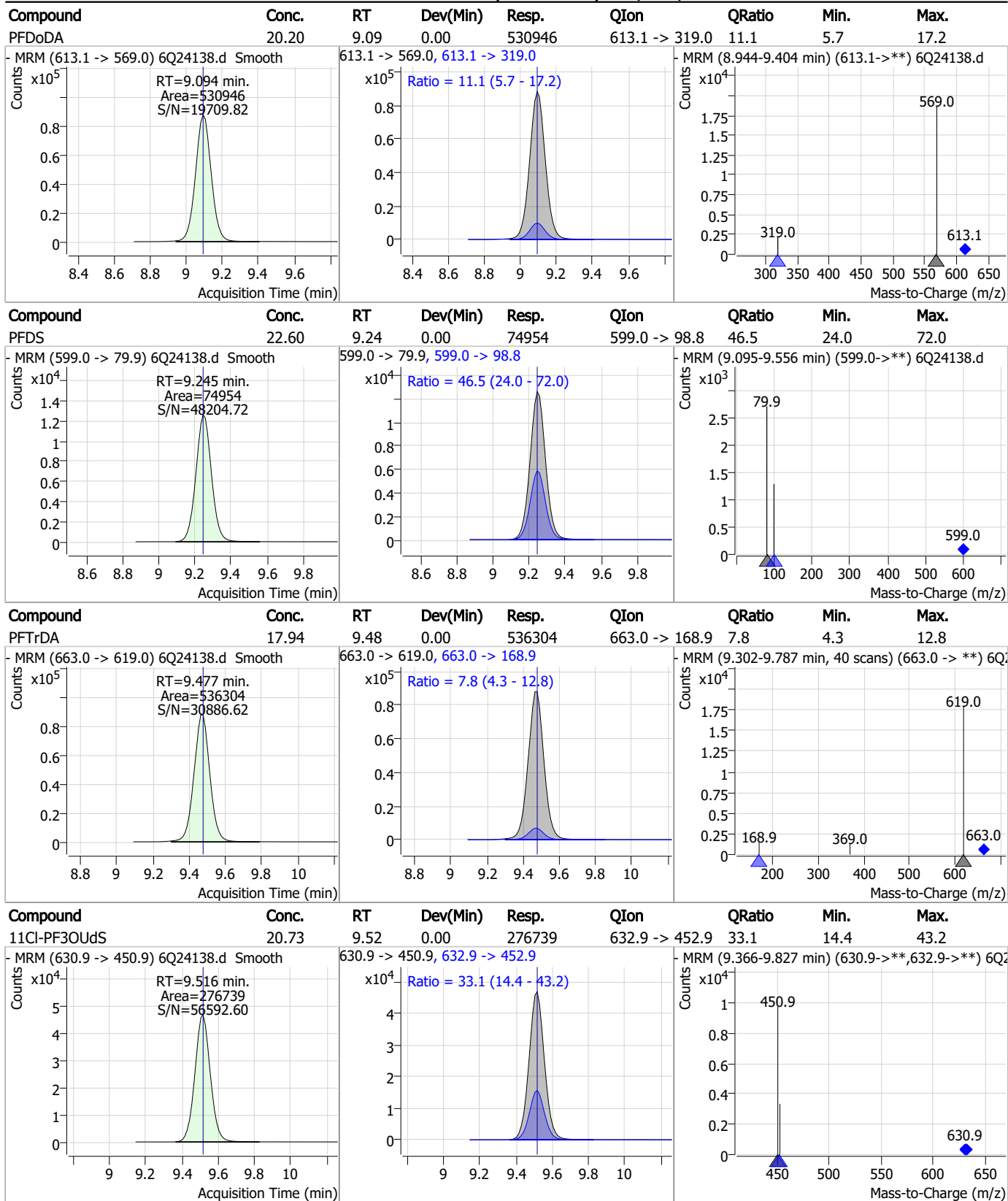
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Perfluorinated Compounds by LC/MS/MS



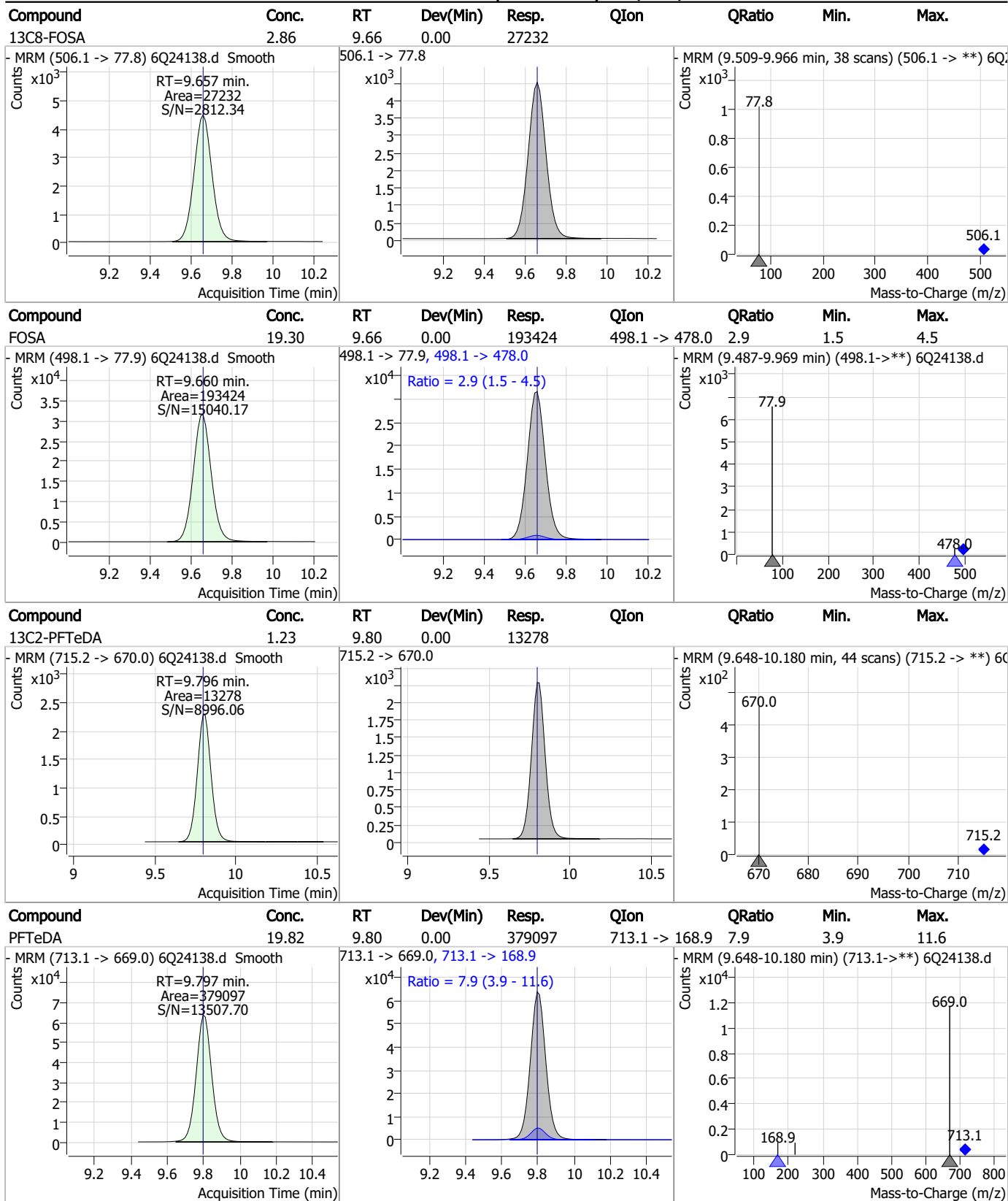
7.7.25
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Perfluorinated Compounds by LC/MS/MS



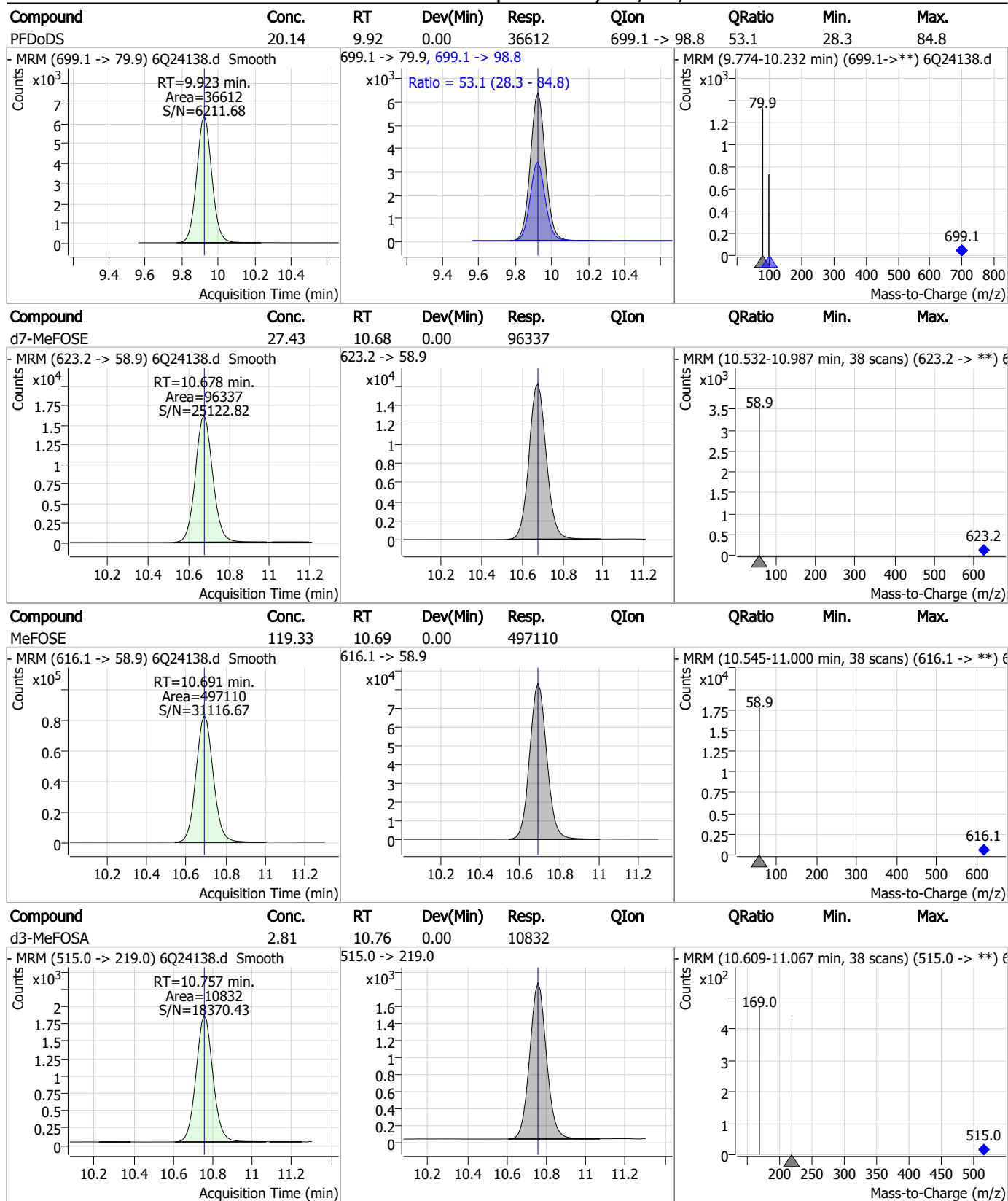
7.7.25
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Perfluorinated Compounds by LC/MS/MS



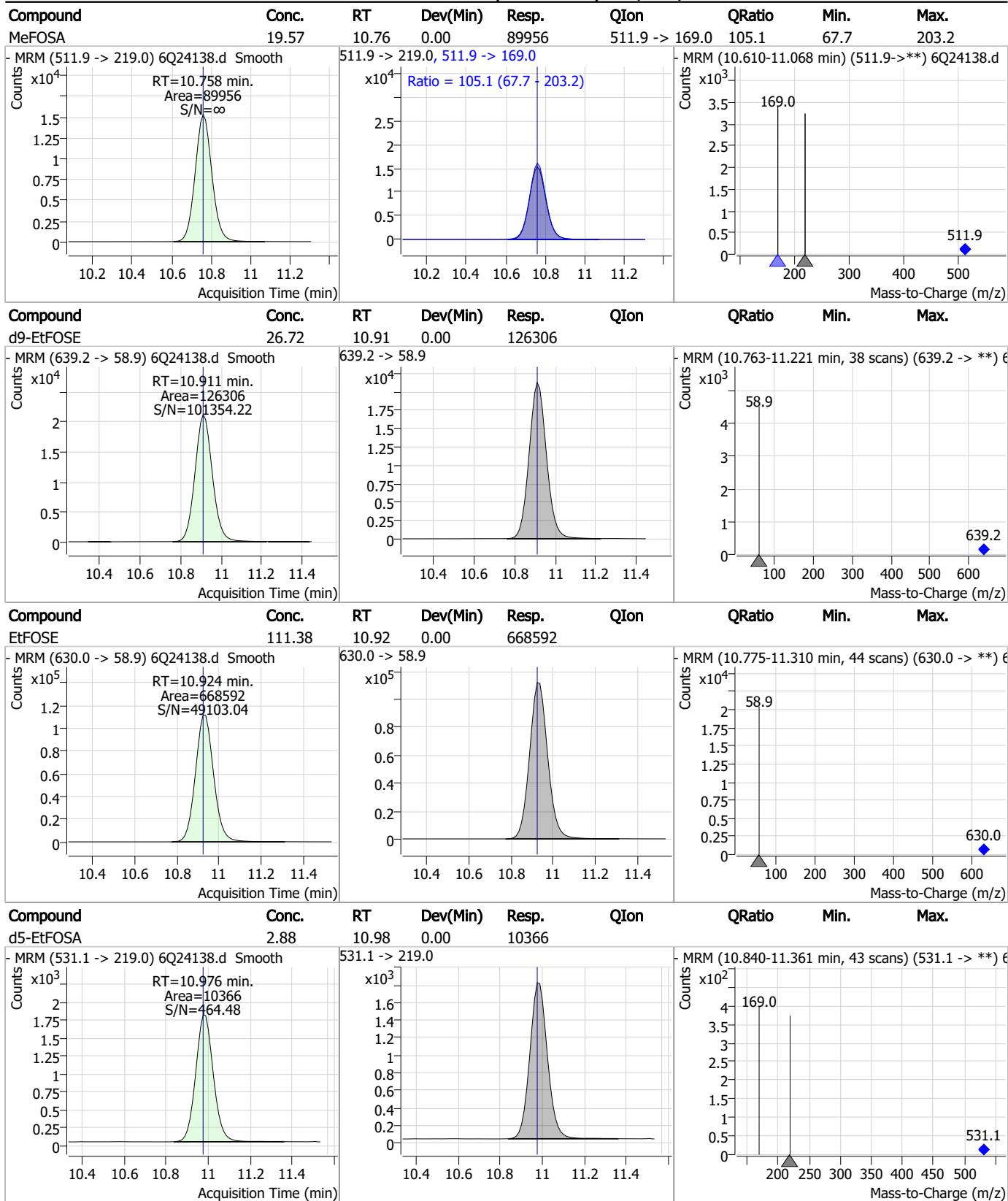
7.7.25
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Perfluorinated Compounds by LC/MS/MS



7.7.25
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Perfluorinated Compounds by LC/MS/MS

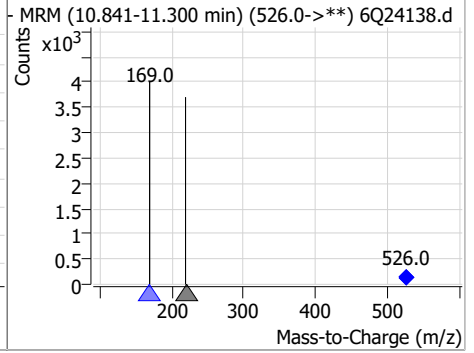
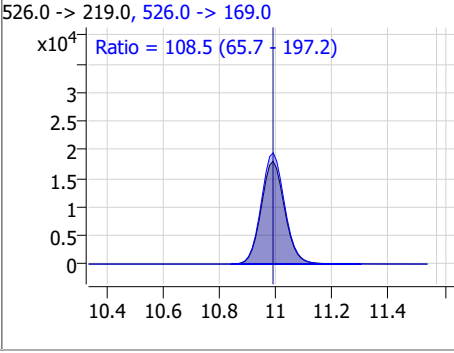
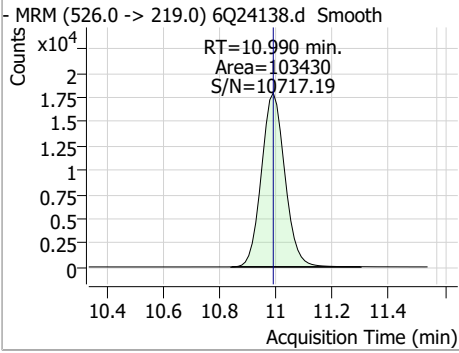


7.7.25

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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	18.34	10.99	0.00	103430	526.0 -> 169.0	108.5	65.7	197.2



7.7.25
7



Manual Integration Approval Summary

Sample Number: S6Q347-ICV347 Method: EPA DRAFT 1633
Lab FileID: 6Q24138.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 23:09 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.46	Split peak

7.7.25.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24597.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 12:24:26 PM
 Sample Name : cc347-4
 Vial : P1-A5
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP98555,S6Q353,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	214016	10.00 µg/L	0.013
M5-PFPeA	4.434	268.3 -> 223.0	32483	5.00 µg/L	0.012
M5-PFHxA	5.641	318.0 -> 273.0	78057	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	65934	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	82870	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	33678	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	34177	1.25 µg/L	-0.012
M7-PFUnDA	8.651	570.0 -> 525.1	39604	1.25 µg/L	-0.012
M2-PFDoDA	9.080	615.1 -> 570.0	39940	1.25 µg/L	-0.014
M2-PFTeDA	9.784	715.2 -> 670.0	14881	1.25 µg/L	-0.012
M8-FOSA	9.670	506.1 -> 77.8	29394	2.50 µg/L	0.012
M3-PFBS	5.571	302.1 -> 79.9	26354	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	13600	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	13784	2.50 µg/L	-0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2789	5.00 µg/L	0.012
M2-6:2FTS	6.974	429.1 -> 80.9	3880	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4040	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	21885	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	46670	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	20014	5.00 µg/L	-0.012
M7-MeFOSE	10.690	623.2 -> 58.9	120802	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	177770	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	11082	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	10901	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	17741	2.50 µg/L	-0.012
13C3-PFBA	3.001	216.0 -> 172.0	83986	5.00 µg/L	0.012
18O2-PFHxS	7.313	403.0 -> 83.9	10229	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	96157	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	29807	1.25 µg/L	-0.012
13C5-PFNA	7.729	468.0 -> 423.0	39352	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	59265	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2789	4.84 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C2-6:2FTS	6.974	429.1 -> 80.9	3880	4.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4040	4.62 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.4%		
13C2-PFDoDA	9.080	615.1 -> 570.0	39940	1.25 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C2-PFTeDA	9.784	715.2 -> 670.0	14881	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C3-PFBS	5.571	302.1 -> 79.9	26354	2.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.4%		
13C3-PFHxS	7.313	402.1 -> 79.9	13600	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 = 96.8%	
13C4-PFBA	2.997	216.8 -> 171.9	214016	10.09 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C4-PFHpA	6.569	367.1 -> 322.0	65934	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFHxA	5.641	318.0 -> 273.0	78057	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C5-PFPeA	4.434	268.3 -> 223.0	32483	4.07 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 81.3%	
13C6-PFDA	8.198	519.1 -> 474.1	34177	1.32 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C7-PFUnDA	8.651	570.0 -> 525.1	39604	1.14 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.1%	
13C8-FOSA	9.670	506.1 -> 77.8	29394	2.33 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C8-PFOA	7.198	421.1 -> 376.0	82870	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C8-PFOS	8.348	507.1 -> 79.9	13784	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C9-PFNA	7.729	472.1 -> 427.0	33678	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.6%	
d3-MeFOSAA	8.256	573.2 -> 419.0	21885	4.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.2%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	46670	10.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
d3-MeFOSA	10.769	515.0 -> 219.0	10901	2.13 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.2%	
d5-EtFOSAA	8.452	589.2 -> 419.0	20014	4.19 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 83.9%	
d7-MeFOSE	10.690	623.2 -> 58.9	120802	25.90 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
d9-EtFOSE	10.923	639.2 -> 58.9	177770	28.32 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 113.3%	
d5-EtFOSA	10.989	531.1 -> 219.0	11082	2.32 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.9%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	45584	9.88 µg/L	99
		327.1 -> 80.9	17012		
6:2FTS	6.974	427.1 -> 407.0	34764	10.13 µg/L	97
		427.1 -> 80.9	13132		
8:2FTS	7.999	527.1 -> 507.0	24791	9.10 µg/L	98
		527.1 -> 80.8	9389		
EtFOSAA	8.465	584.2 -> 419.1	7684	2.72 µg/L	97
		584.2 -> 526.0	5253		
FOSA	9.672	498.1 -> 77.9	25461	2.35 µg/L	100
		498.1 -> 478.0	759		
MeFOSAA	8.257	570.1 -> 419.0	13112	2.52 µg/L	94
		570.1 -> 483.0	3022		
PFBA	2.993	212.8 -> 168.9	75992	10.74 µg/L	100
PFBS	5.572	298.7 -> 79.9	28233	2.18 µg/L	96
		298.7 -> 98.8	10078		
PFDA	8.198	512.9 -> 469.0	76758	2.47 µg/L	98
		512.9 -> 219.0	13128		
PFDODA	9.080	613.1 -> 569.0	66708	2.25 µg/L	97
		613.1 -> 319.0	8329		
PFDS	9.233	599.0 -> 79.9	8831	2.20 µg/L	94

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8	4589	2.47	µg/L	99
		363.1 -> 319.0	86292			
PFHpS	7.856	363.1 -> 169.0	12289	2.39	µg/L	100
		449.0 -> 79.9	15935			
PFHxA	5.644	449.0 -> 98.9	7427	2.29	µg/L	98
		313.0 -> 269.0	65060			
PFHxS	7.302	313.0 -> 118.9	3191	2.48	µg/L	99
		398.7 -> 79.9	21190			
PFNA	7.730	398.7 -> 98.9	10075	2.11	µg/L	94
		463.0 -> 419.0	53631			
PFNS	8.814	463.0 -> 219.0	13402	2.24	µg/L	97
		548.8 -> 79.9	14571			
PFOA	7.200	548.8 -> 98.9	8493	2.27	µg/L	97
		413.0 -> 369.0	97075			
PFOS	8.362	413.0 -> 169.0	16371	2.38	µg/L	100
		498.9 -> 79.9	18212			
PFPeA	4.436	498.9 -> 98.8	8682	5.46	µg/L	100
		263.0 -> 219.0	79072			
PFPeS	6.620	349.1 -> 79.9	17469	2.36	µg/L	97
		349.1 -> 98.9	7826			
PFTeDA	9.785	713.1 -> 669.0	53253	2.48	µg/L	99
		713.1 -> 168.9	3981			
PFTrDA	9.452	663.0 -> 619.0	77743	2.31	µg/L	98
		663.0 -> 168.9	6003			
PFUnDA	8.652	563.1 -> 519.0	59232	2.61	µg/L	98
		563.1 -> 269.1	9253			
11CI-PF3OUdS	9.491	630.9 -> 450.9	70424	4.14	µg/L	98
		632.9 -> 452.9	20917			
9CI-PF3ONS	8.690	530.8 -> 351.0	122663	4.20	µg/L	95
		532.8 -> 353.0	37746			
ADONA	6.817	376.9 -> 250.9	309029	4.57	µg/L	96
		376.9 -> 84.8	78293			
HFPO-DA	6.020	284.9 -> 168.9	21697	4.91	µg/L	93
		284.9 -> 184.9	2685			
3:3FTCA	3.871	241.0 -> 177.0	14319	11.71	µg/L	99
		241.0 -> 117.0	1403			
5:3FTCA	6.283	341.0 -> 237.1	300485	62.25	µg/L	96
		341.0 -> 217.0	221969			
7:3FTCA	7.669	441.0 -> 316.9	181564	63.65	µg/L	84
		441.0 -> 336.9	363757			
EtFOSA	10.990	526.0 -> 219.0	28743	4.77	µg/L	96
		526.0 -> 169.0	36347			
EtFOSE	10.937	630.0 -> 58.9	105177	12.45	µg/L	100
		511.9 -> 219.0	26019			
MeFOSA	10.771	511.9 -> 169.0	34788	5.62	µg/L	98
		616.1 -> 58.9	66123			
MeFOSE	10.703	699.1 -> 79.9	4838	12.66	µg/L	100
		699.1 -> 98.8	2698			
PFDoDS	9.910	295.0 -> 201.0	16024	2.20	µg/L	99
		295.0 -> 84.9	4257			
NFDHA	5.524	279.0 -> 85.1	60999	4.87	µg/L	94
		229.0 -> 84.9	44283			
PFMBA	4.850	314.8 -> 134.9	158967	5.78	µg/L	100
		314.8 -> 82.9	5813			
PFMPA	3.563			5.86	µg/L	100
PFEESA	6.112			4.48	µg/L	100

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



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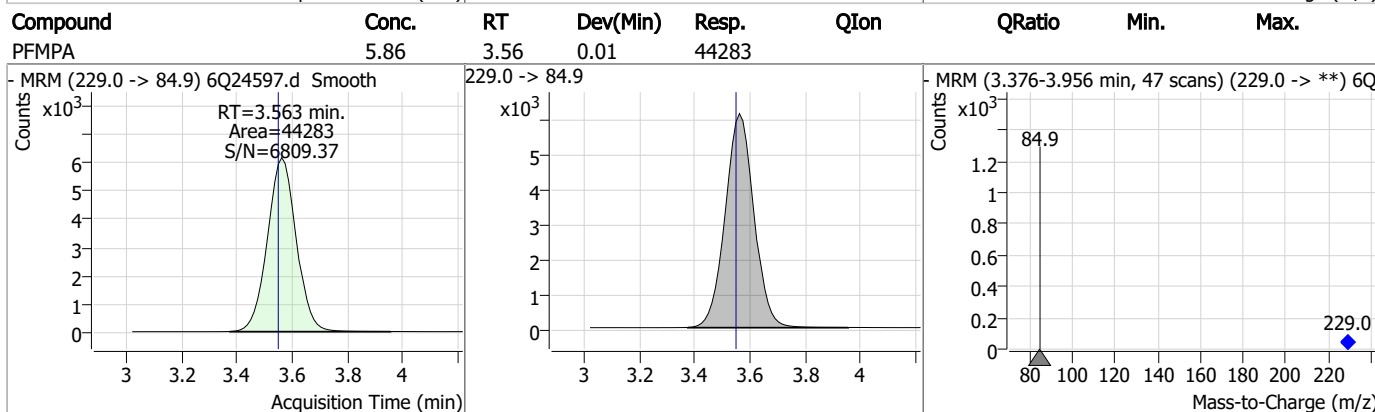
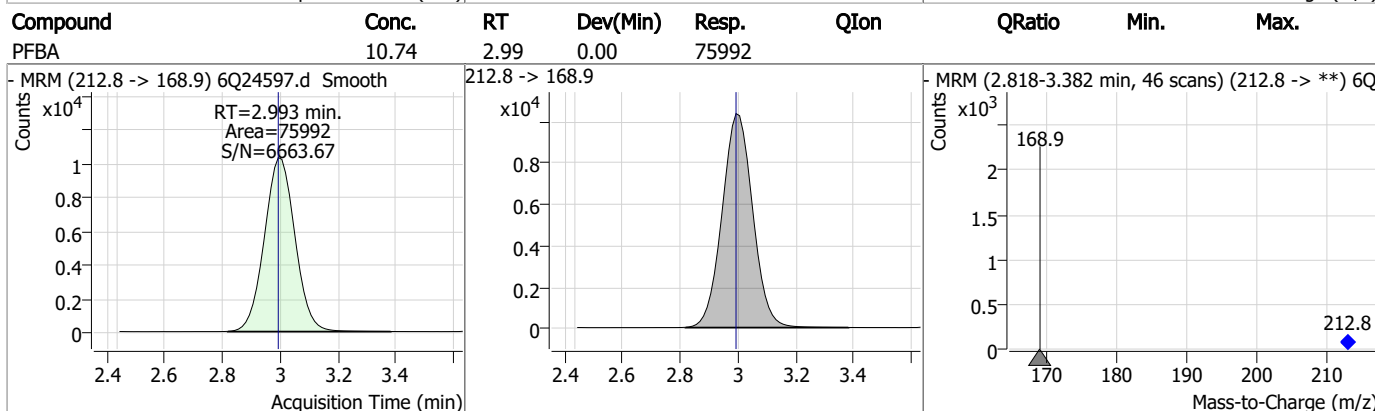
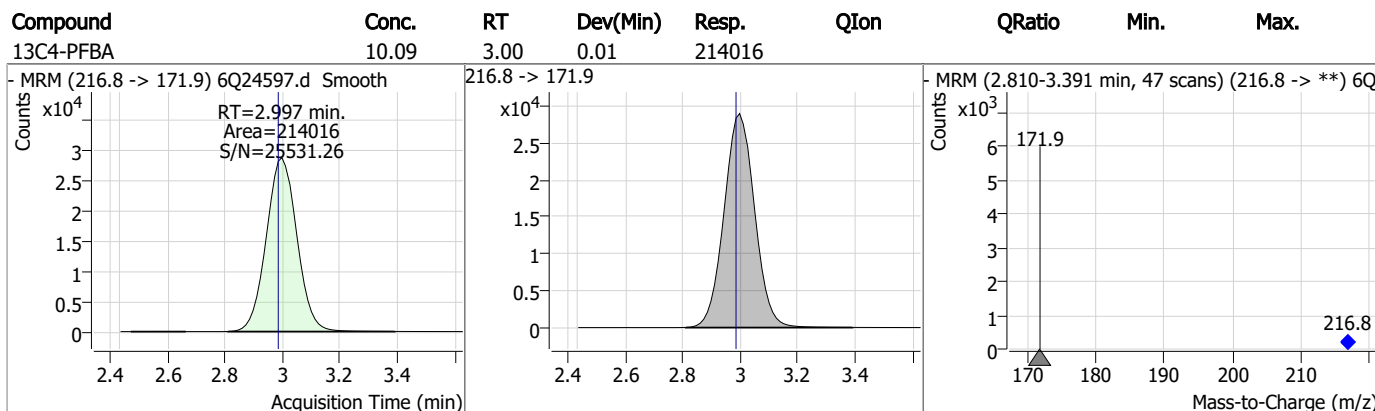
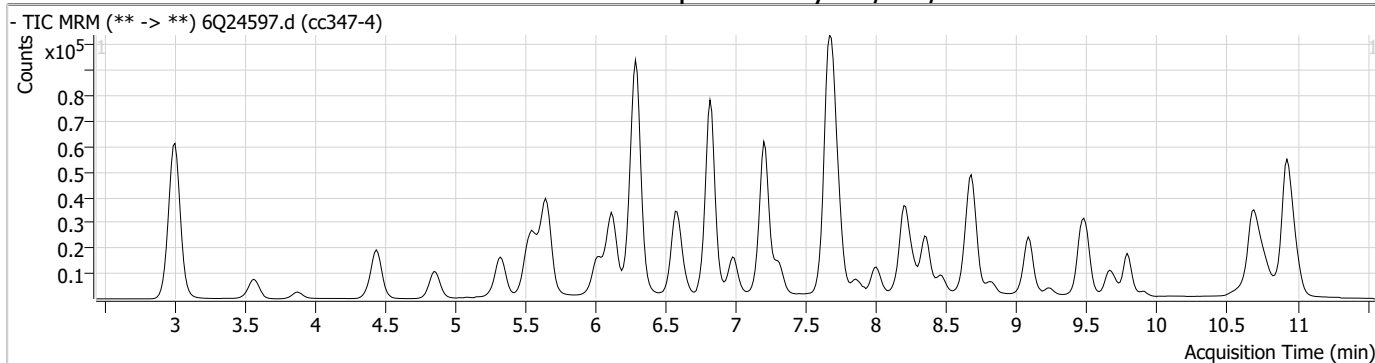
Perfluorinated Compounds by LC/MS/MS

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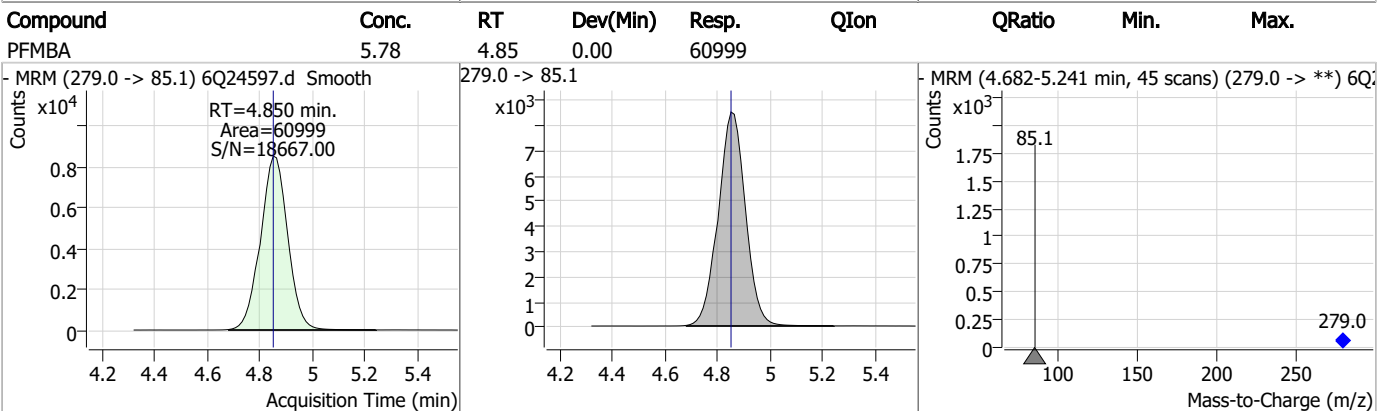
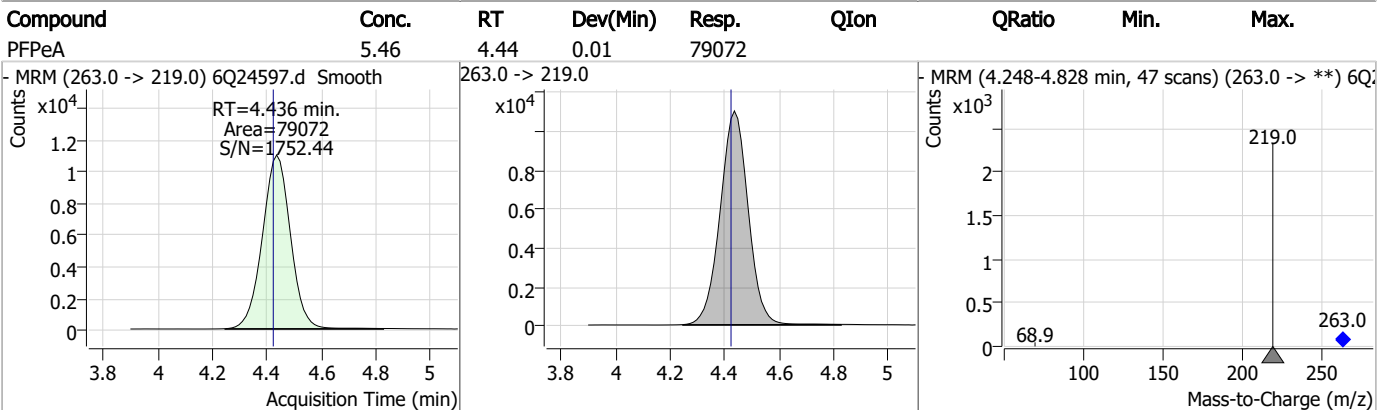
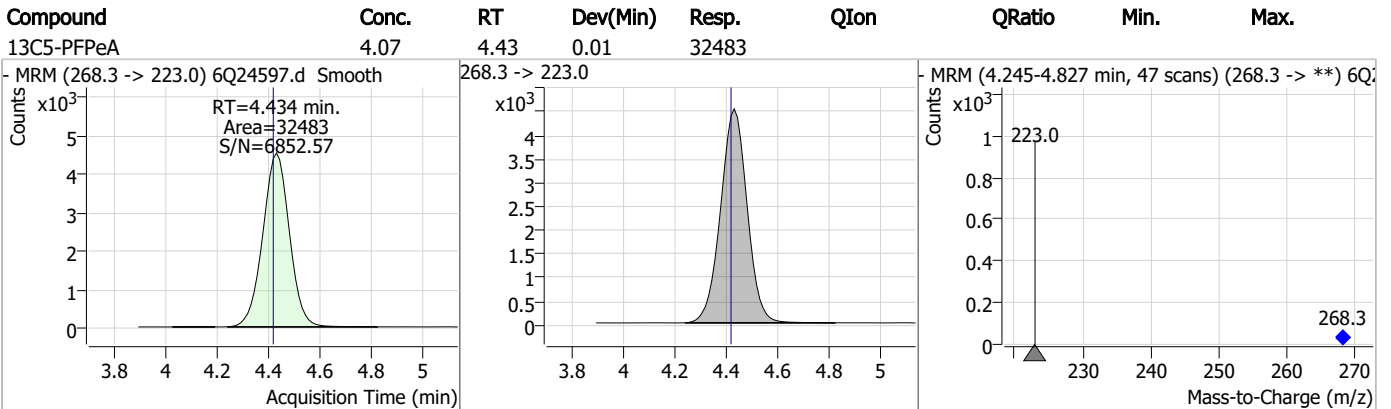
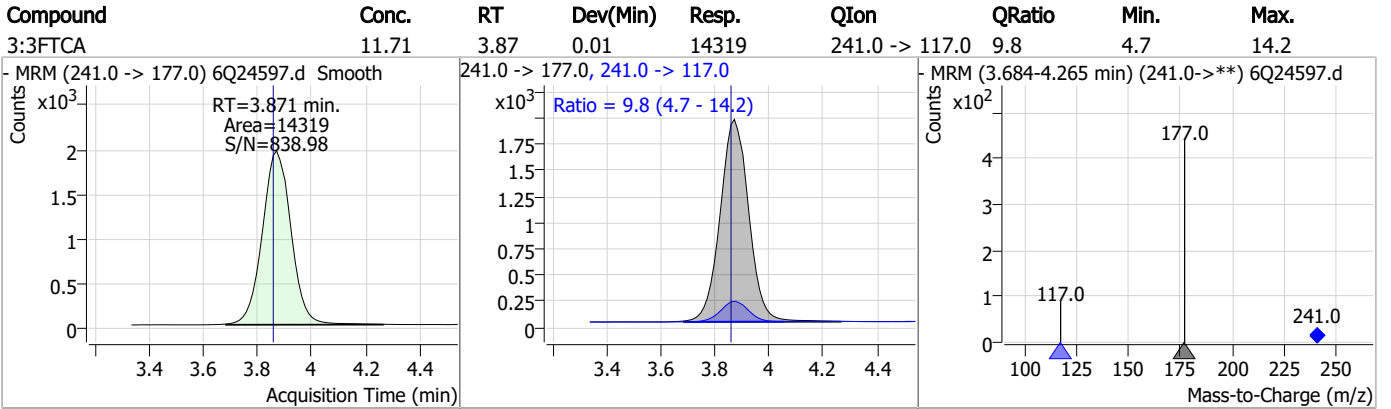
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Perfluorinated Compounds by LC/MS/MS

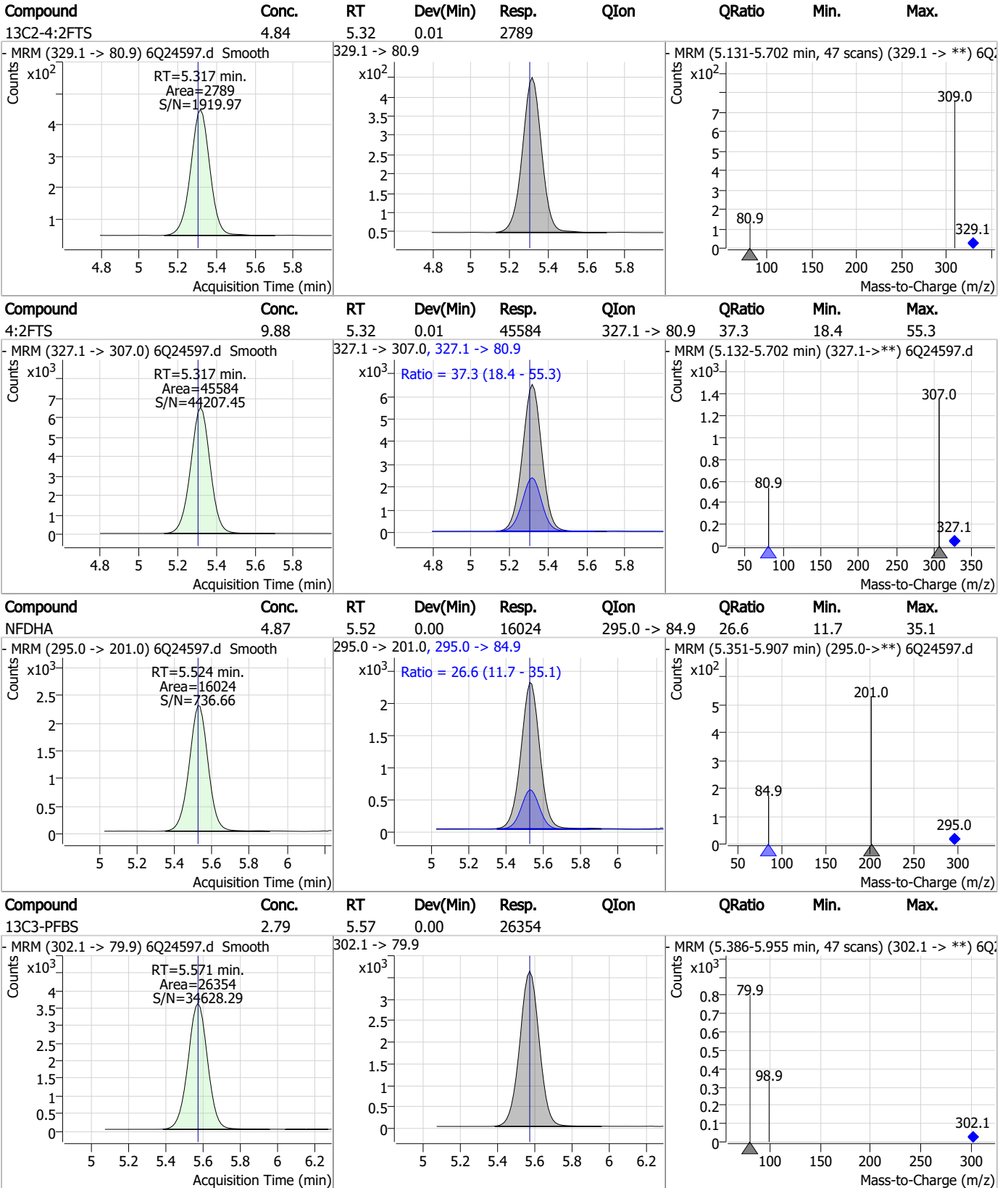


Perfluorinated Compounds by LC/MS/MS



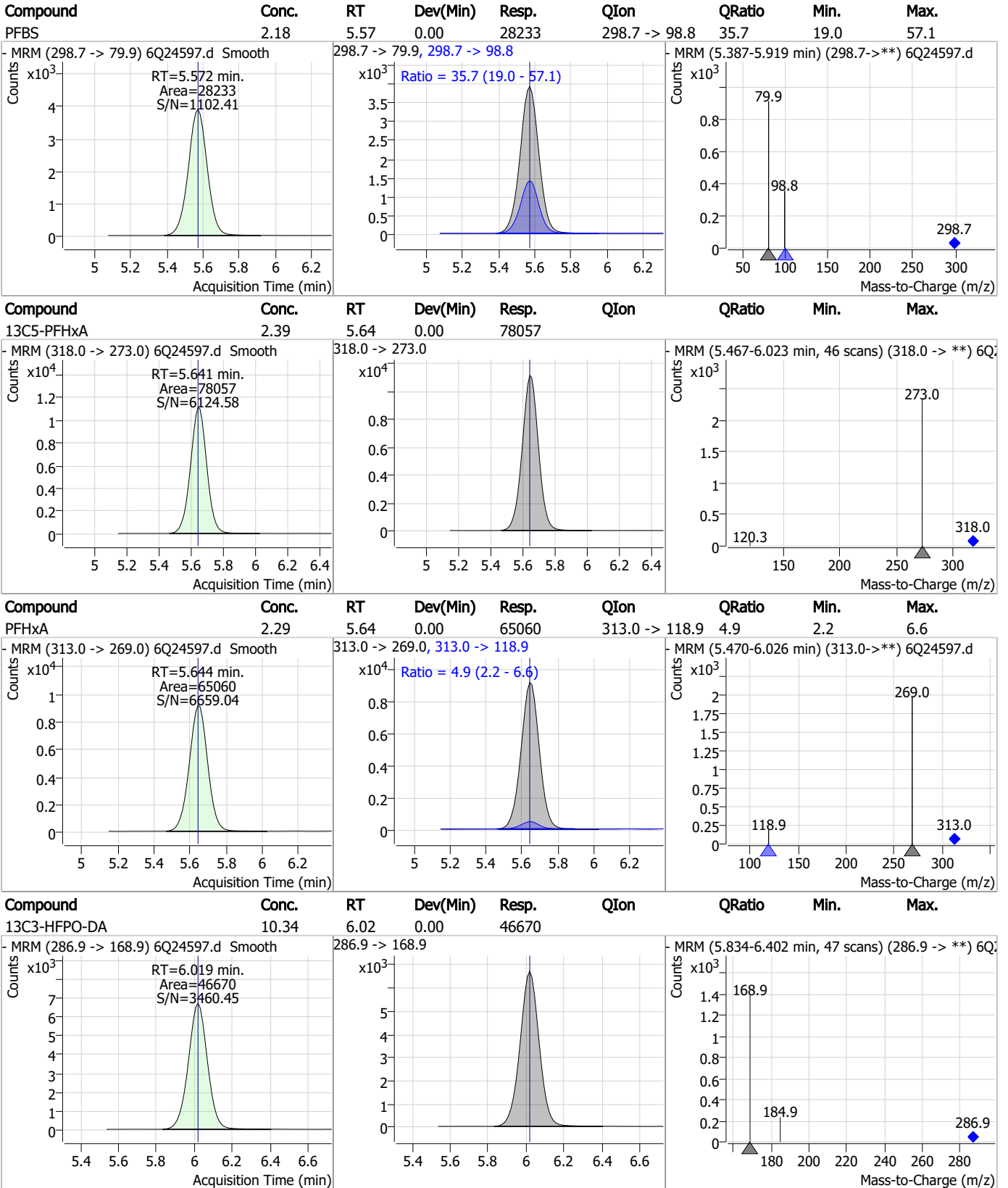
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

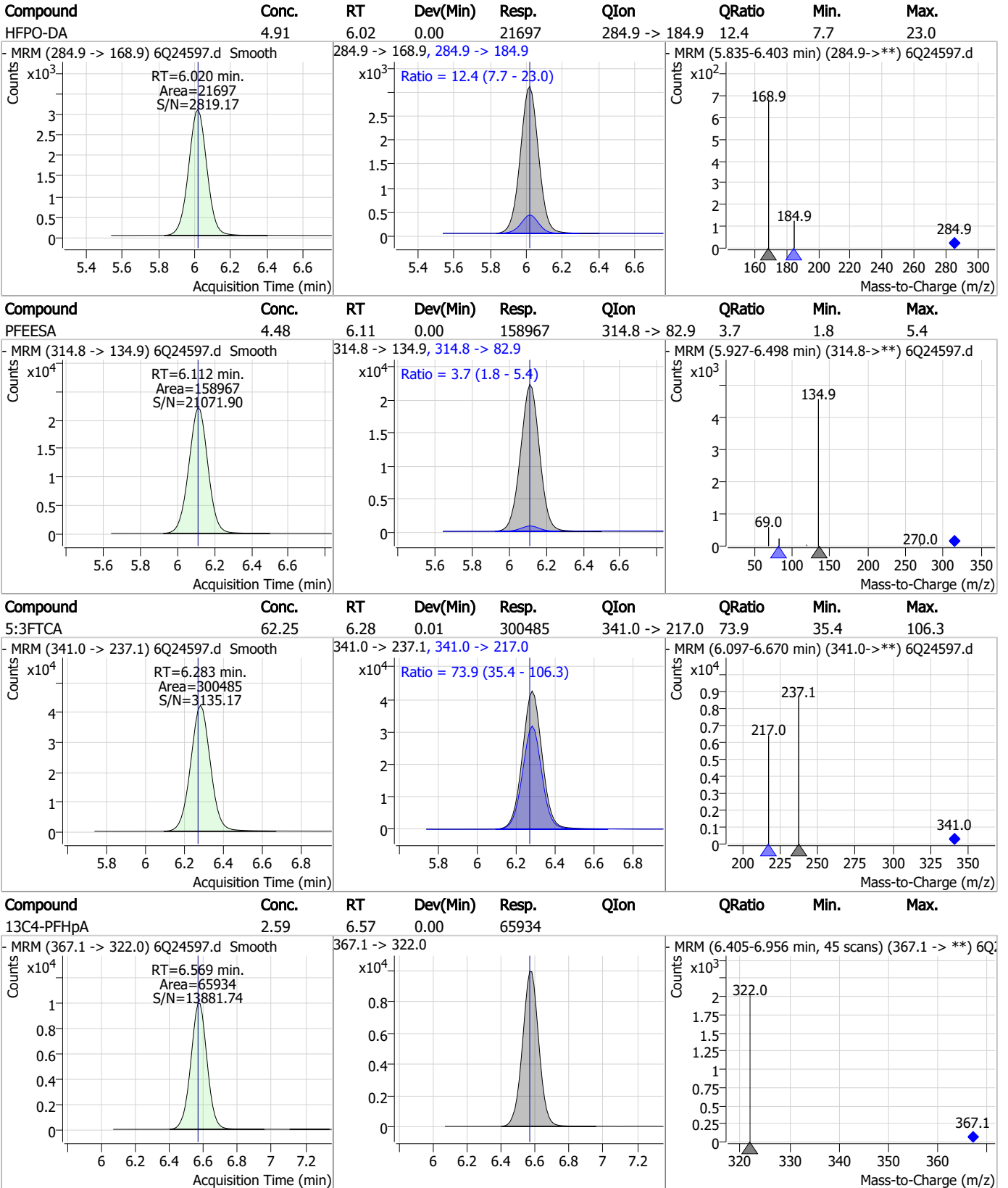


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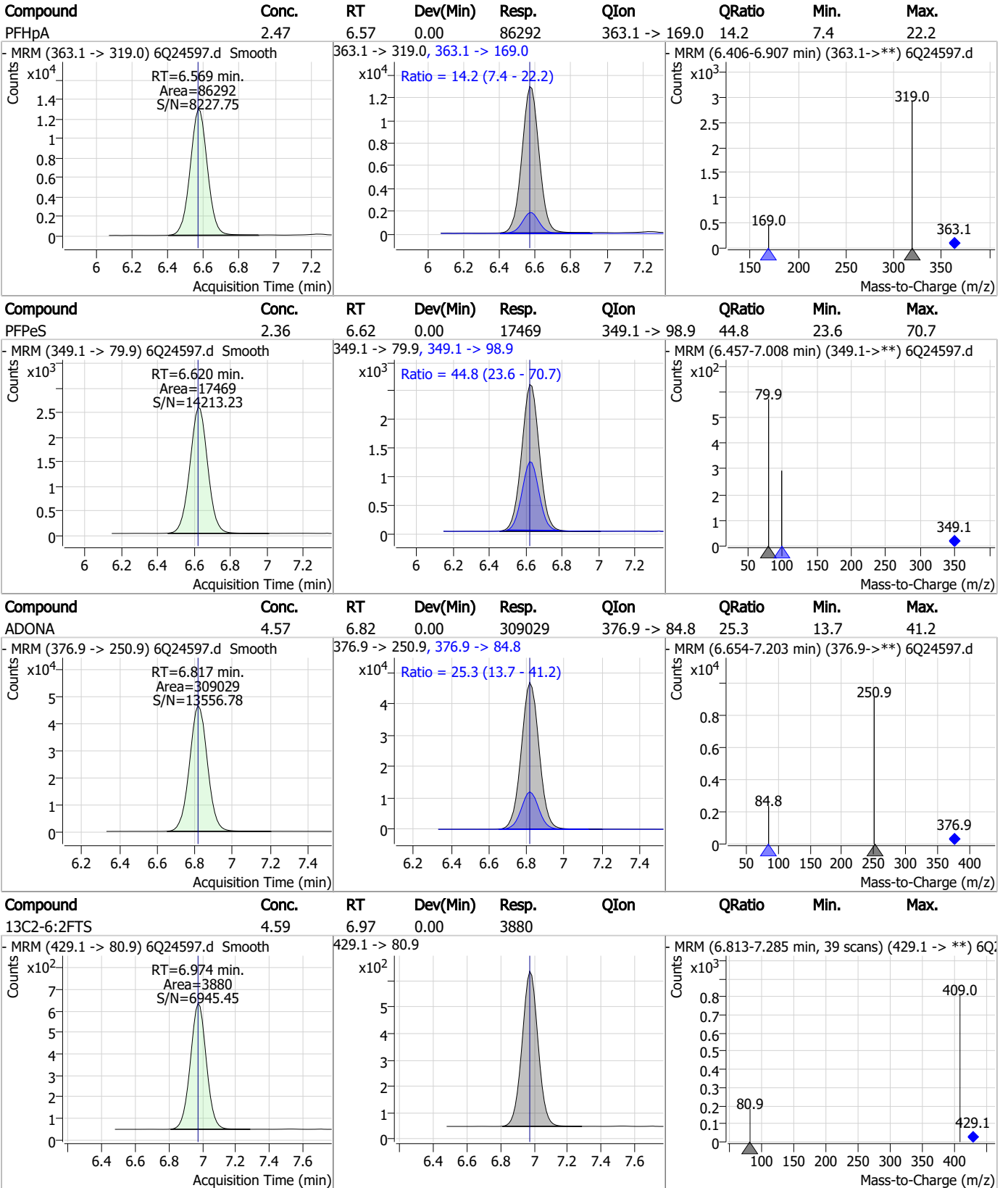


Perfluorinated Compounds by LC/MS/MS



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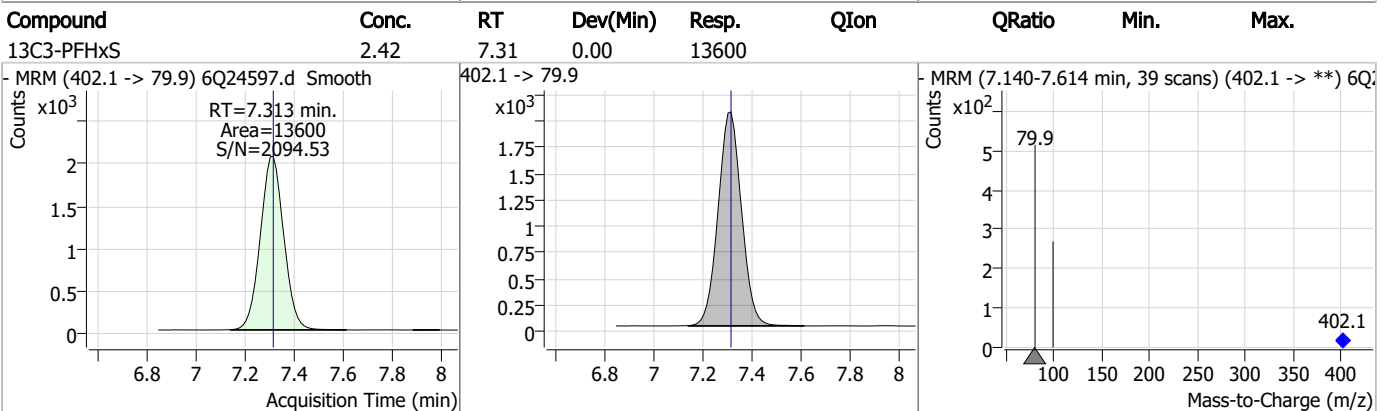
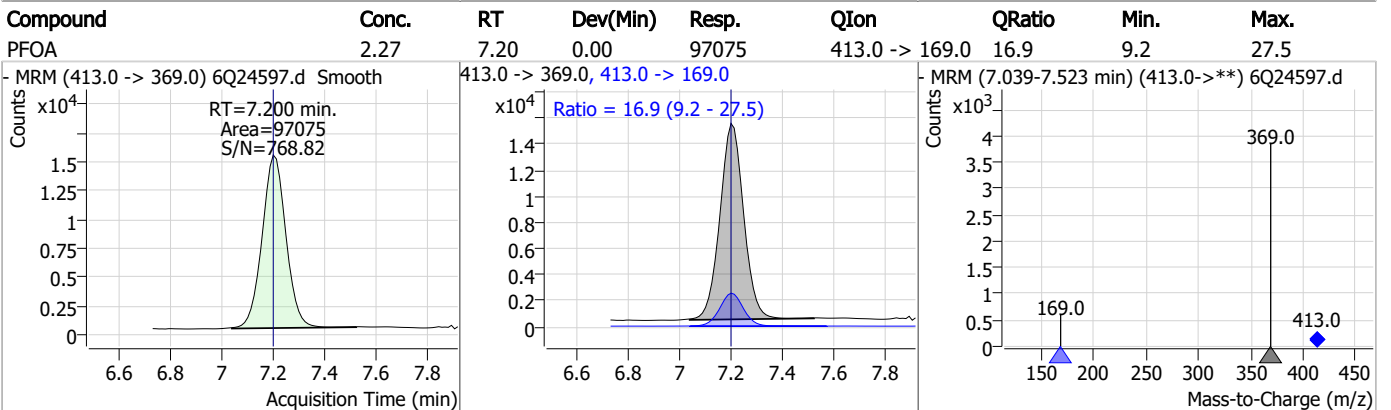
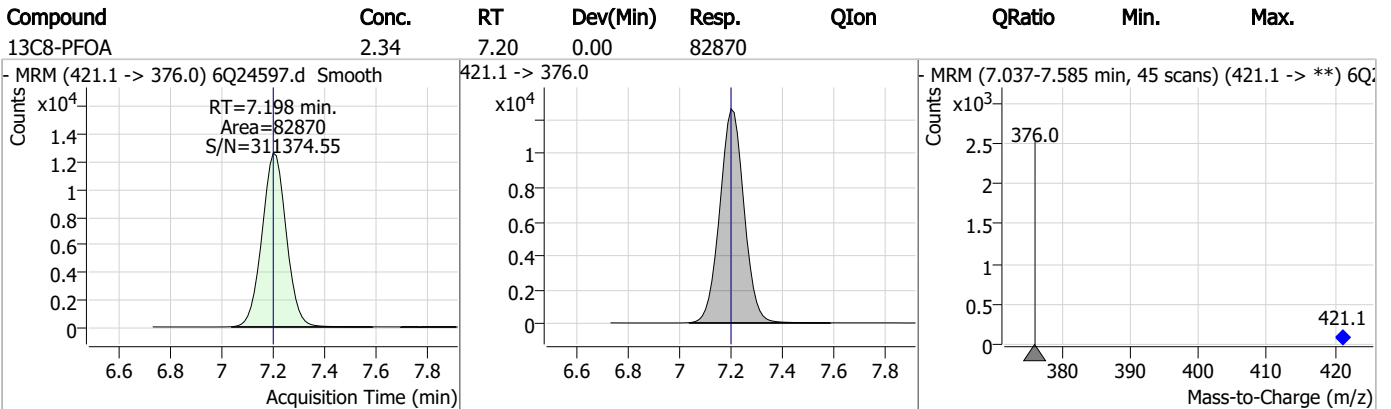
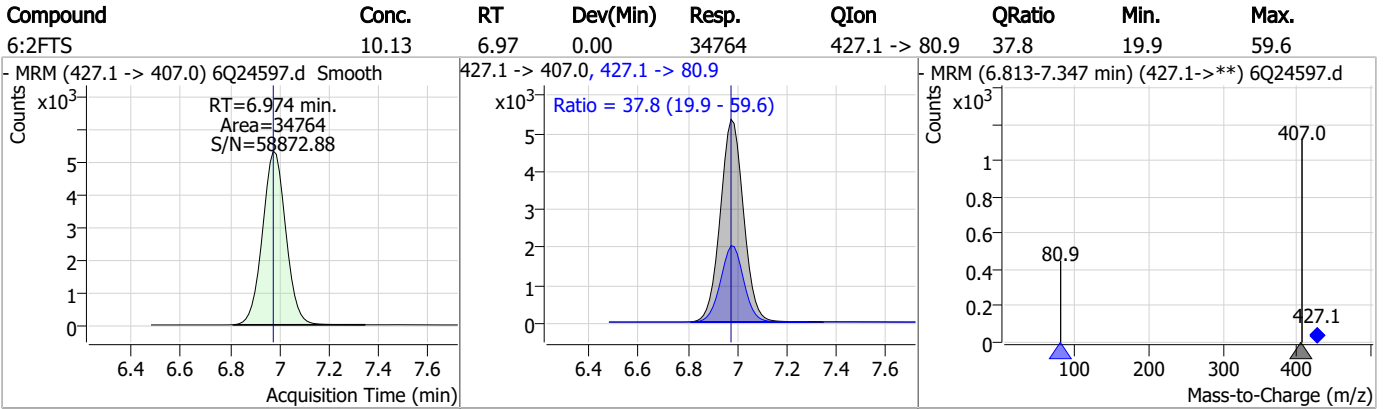
Perfluorinated Compounds by LC/MS/MS



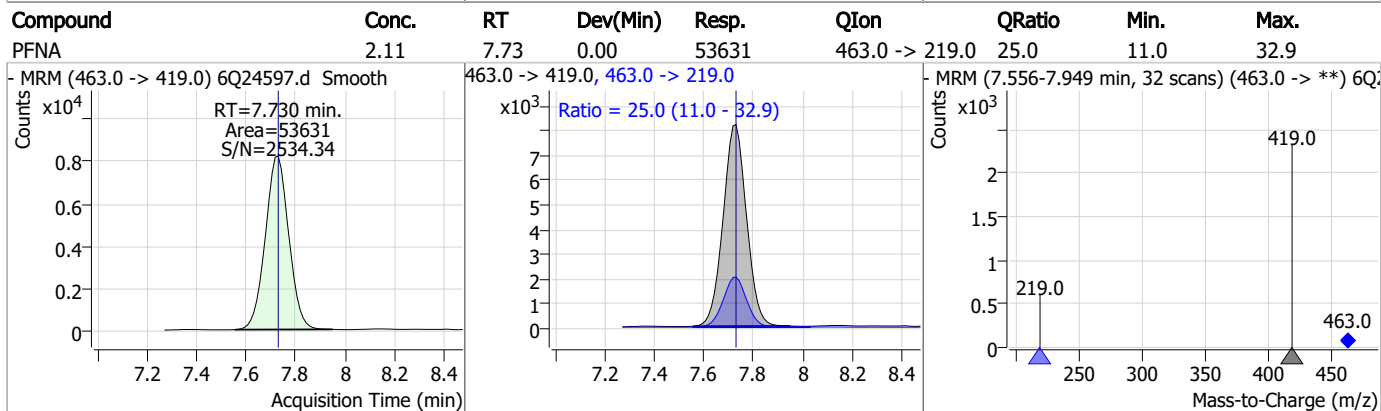
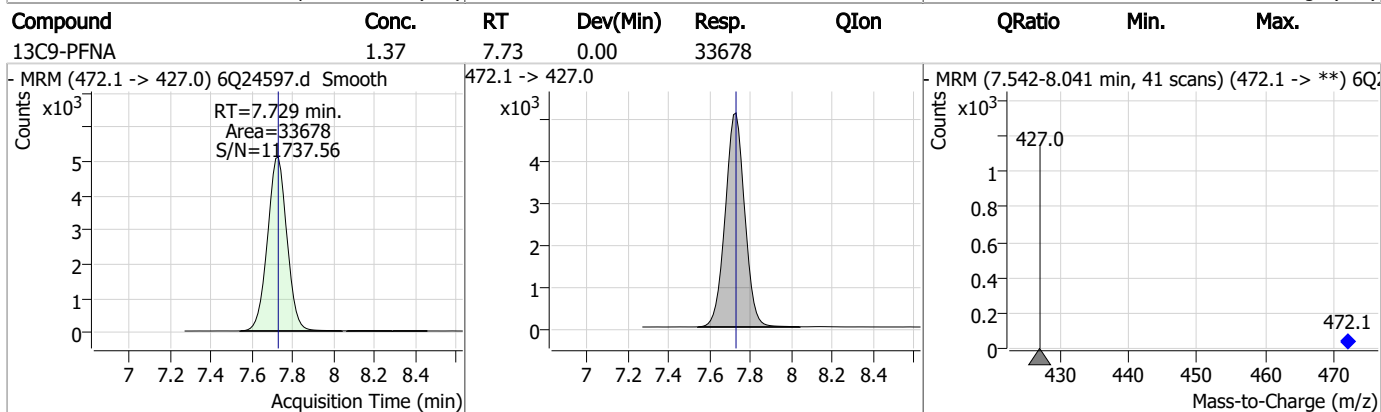
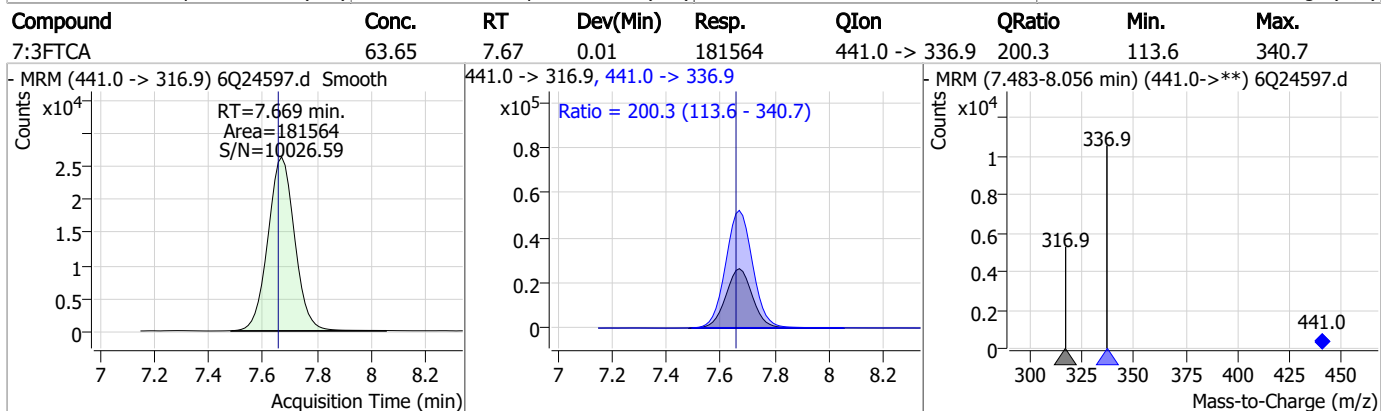
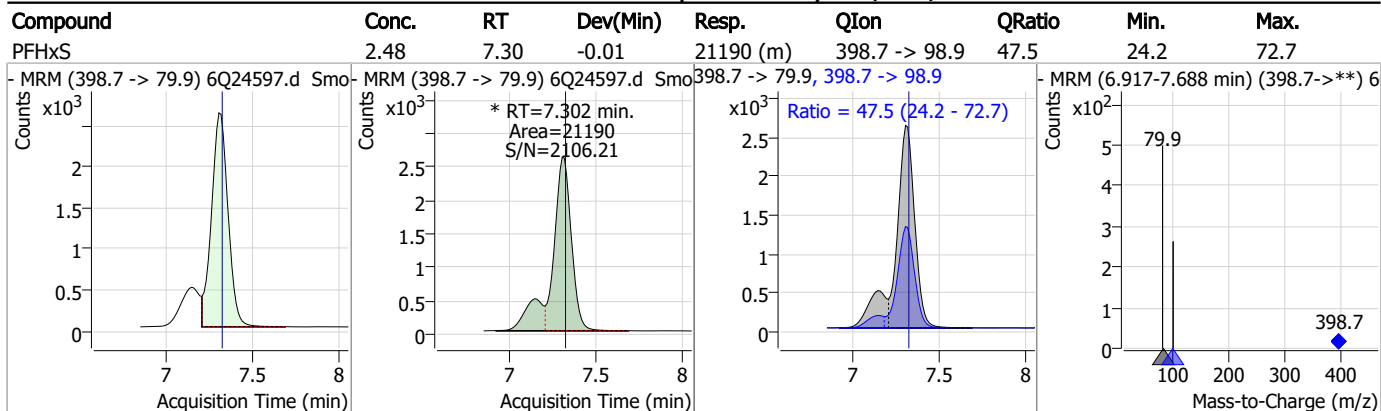
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Perfluorinated Compounds by LC/MS/MS

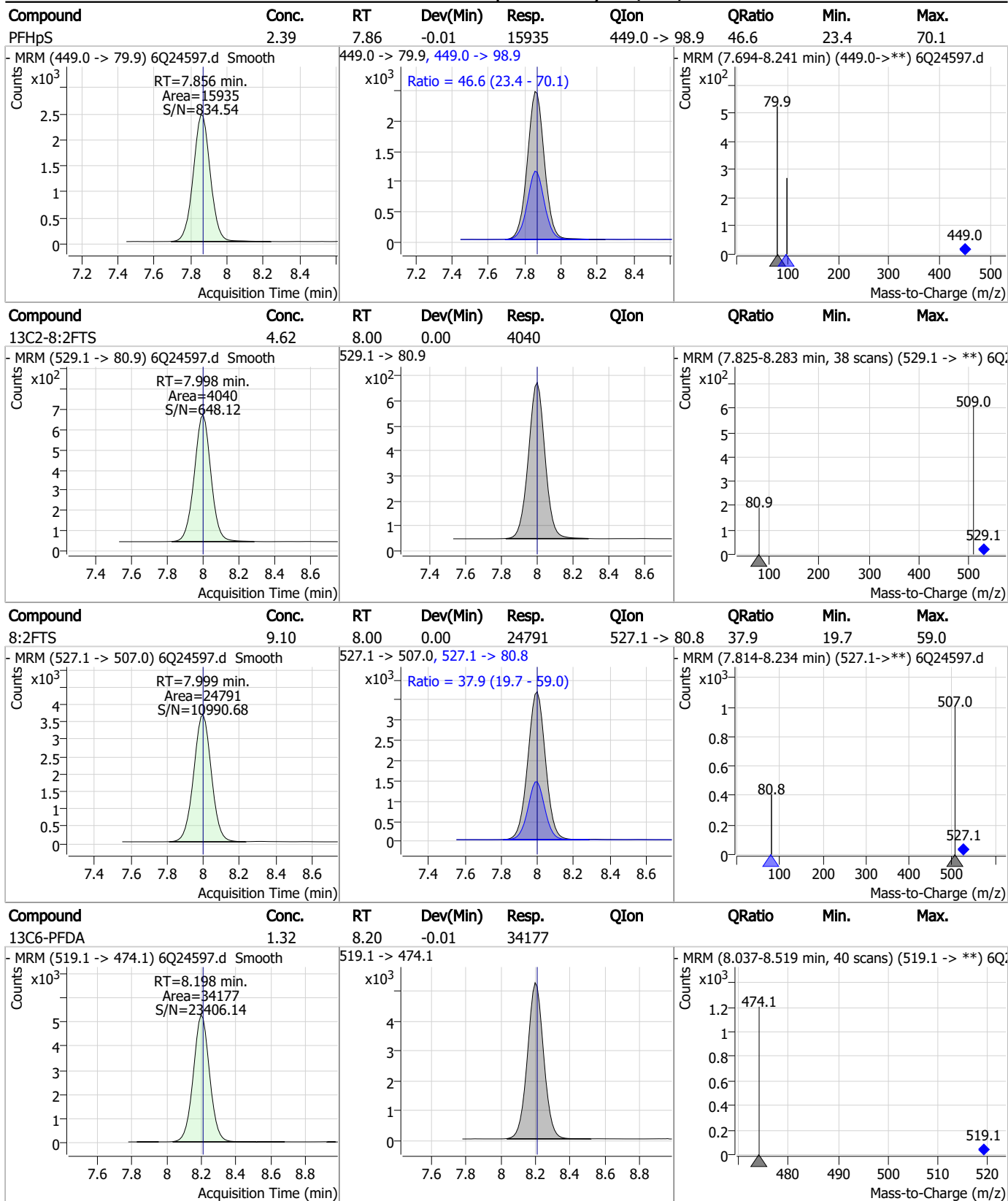


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

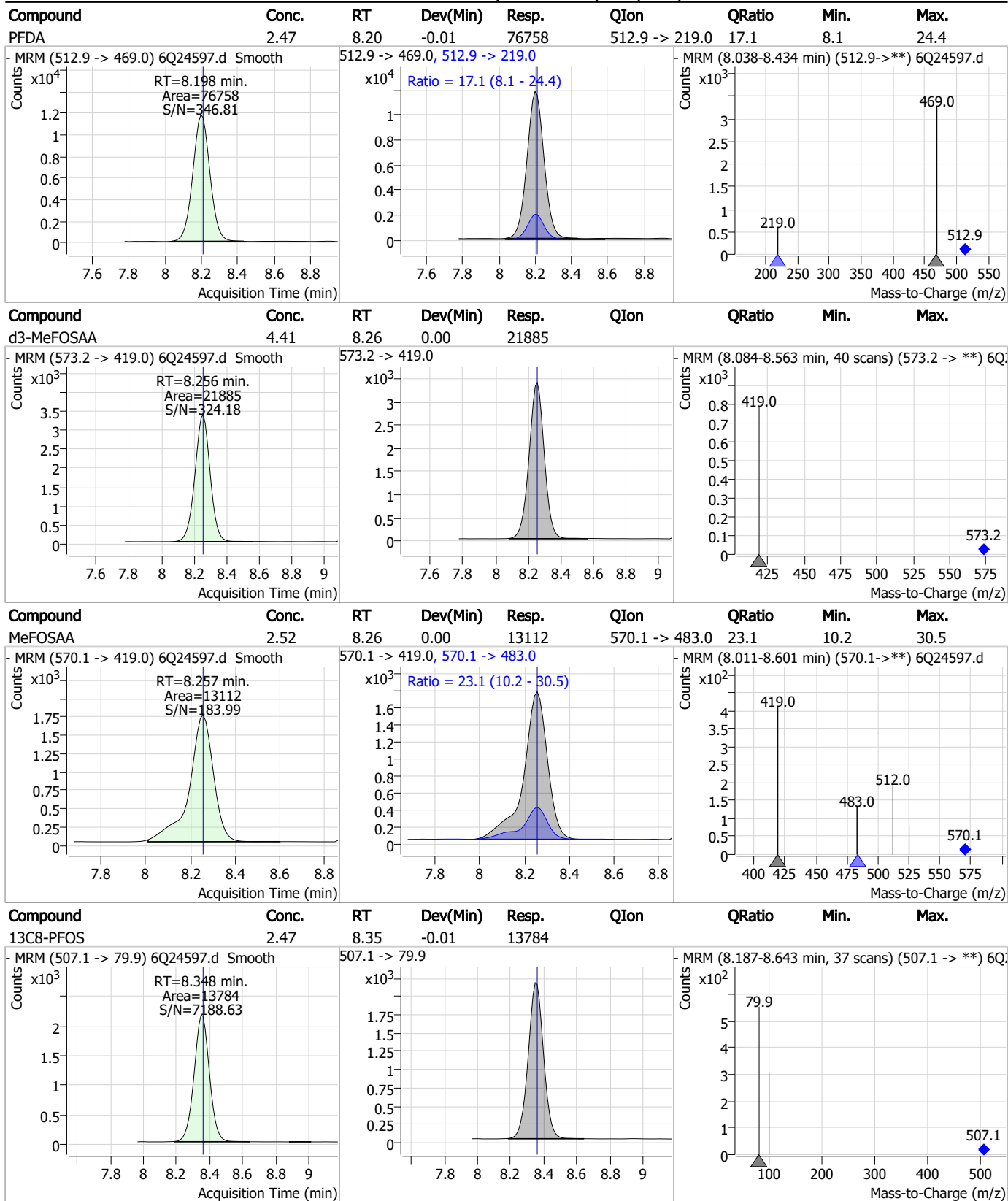


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Perfluorinated Compounds by LC/MS/MS

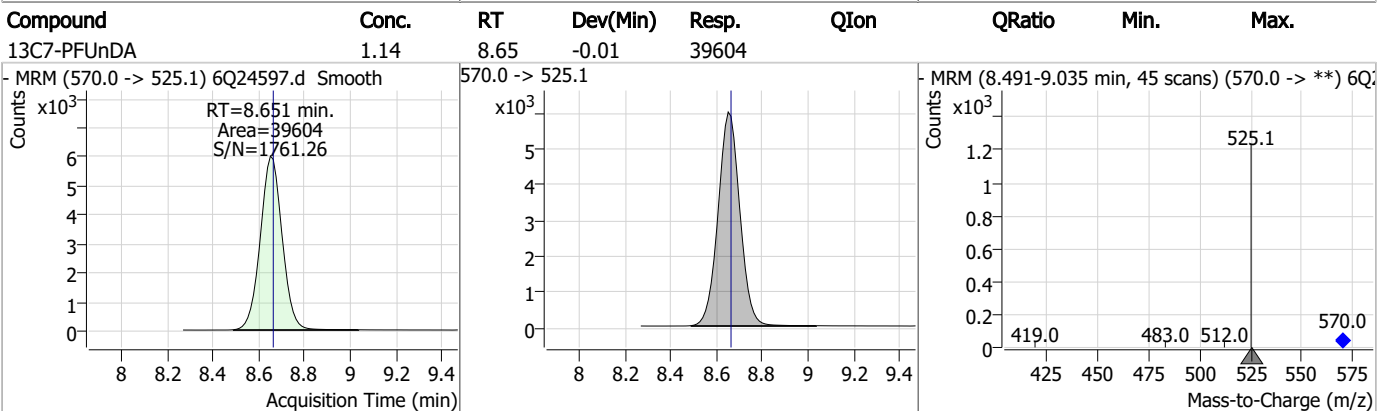
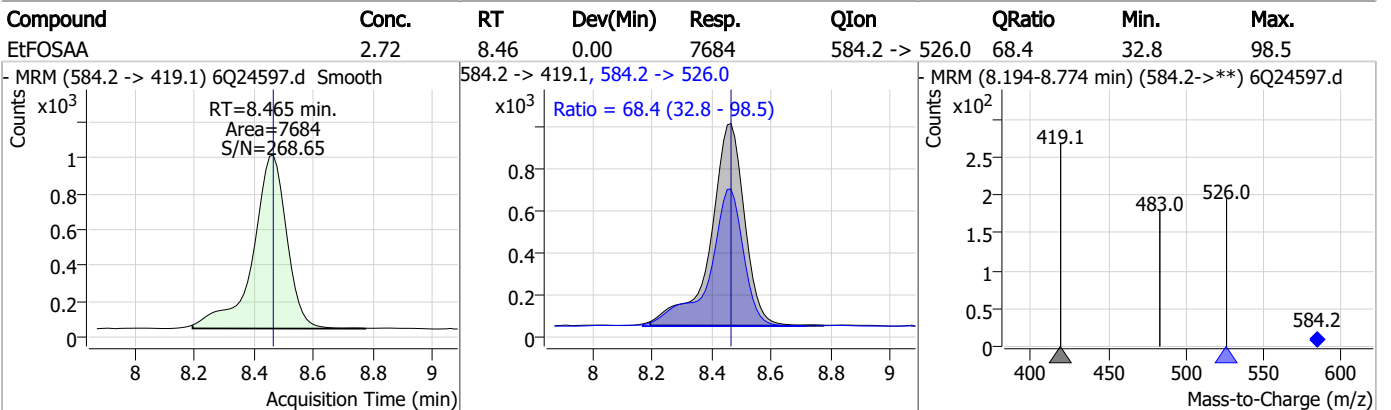
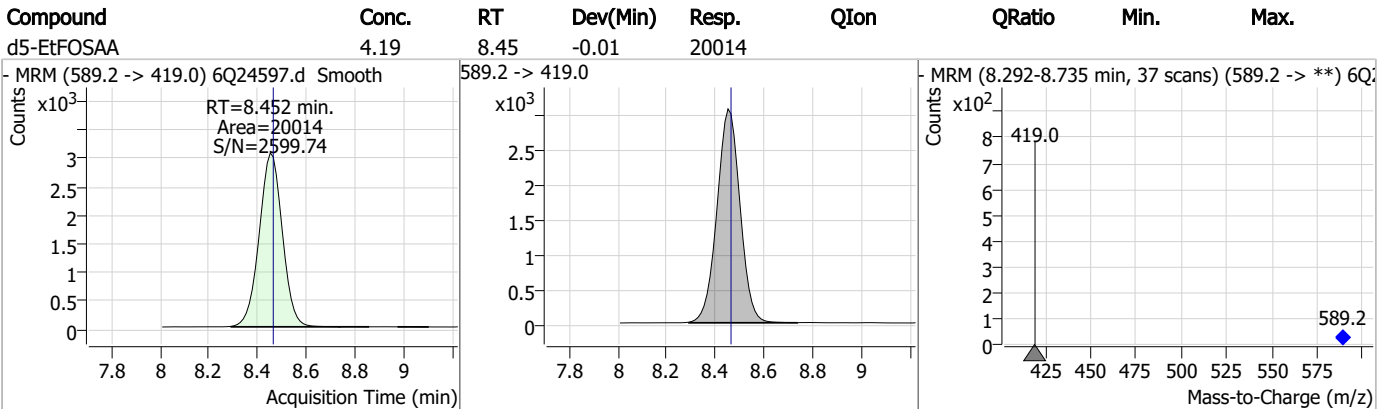
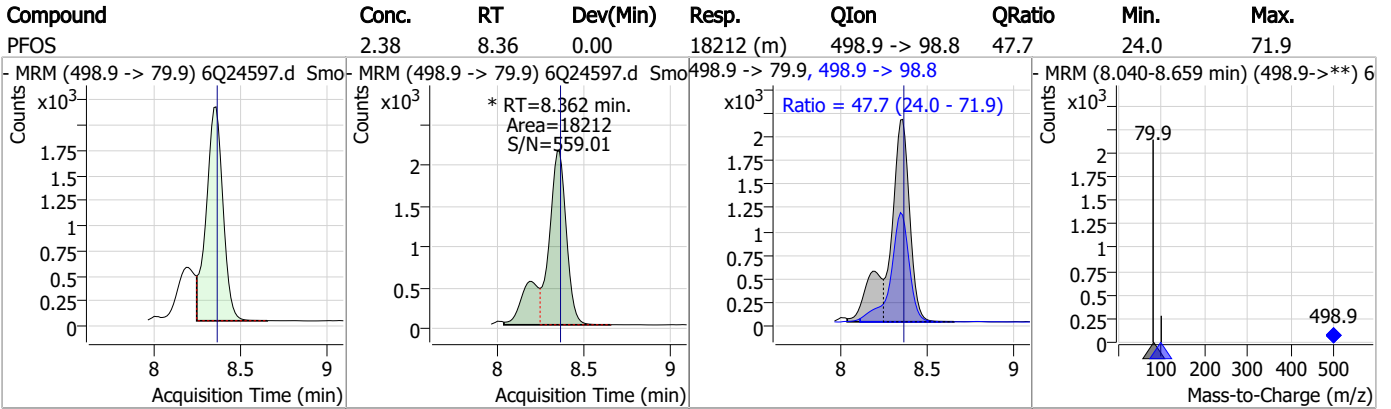


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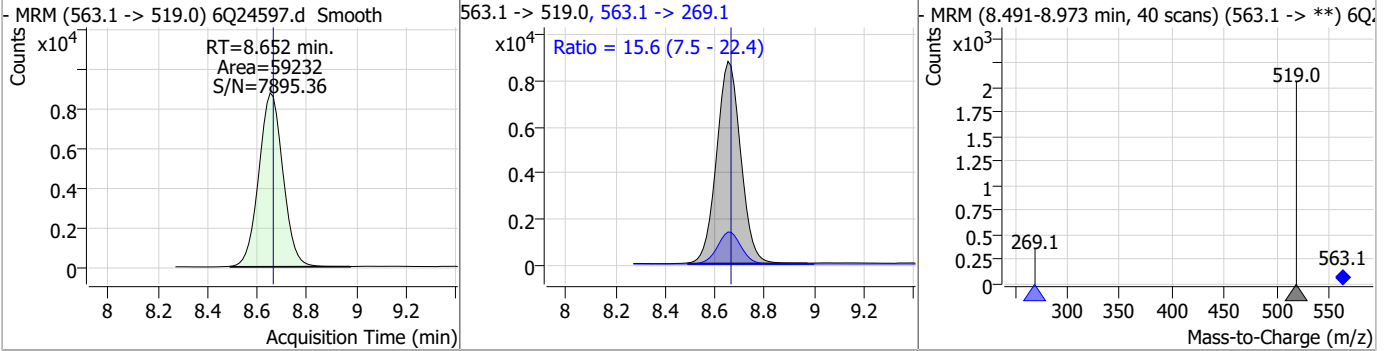
Perfluorinated Compounds by LC/MS/MS



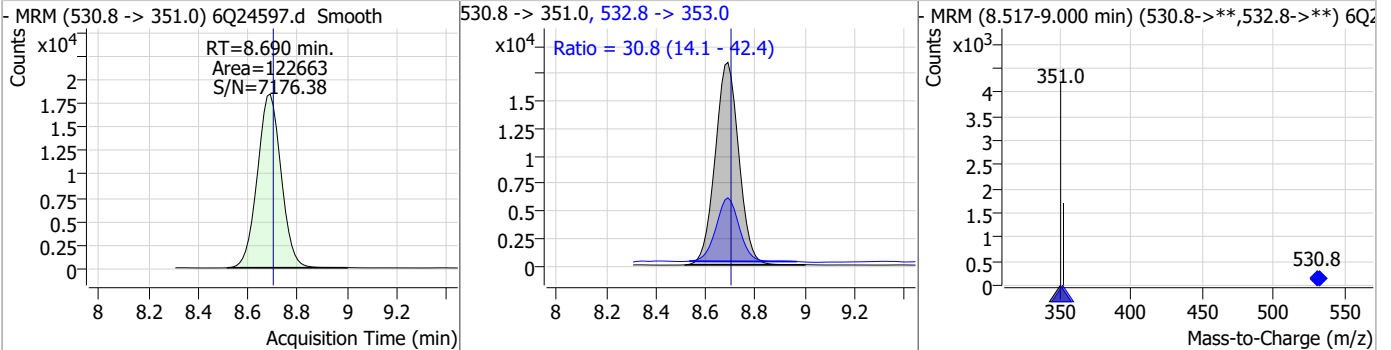
7.7.26
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Perfluorinated Compounds by LC/MS/MS

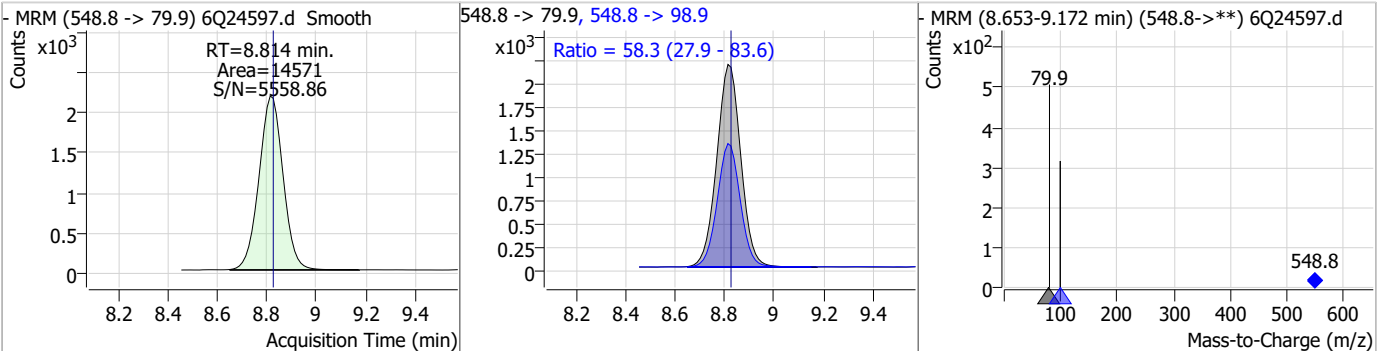
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.61	8.65	-0.01	59232	563.1 -> 269.1	15.6	7.5	22.4



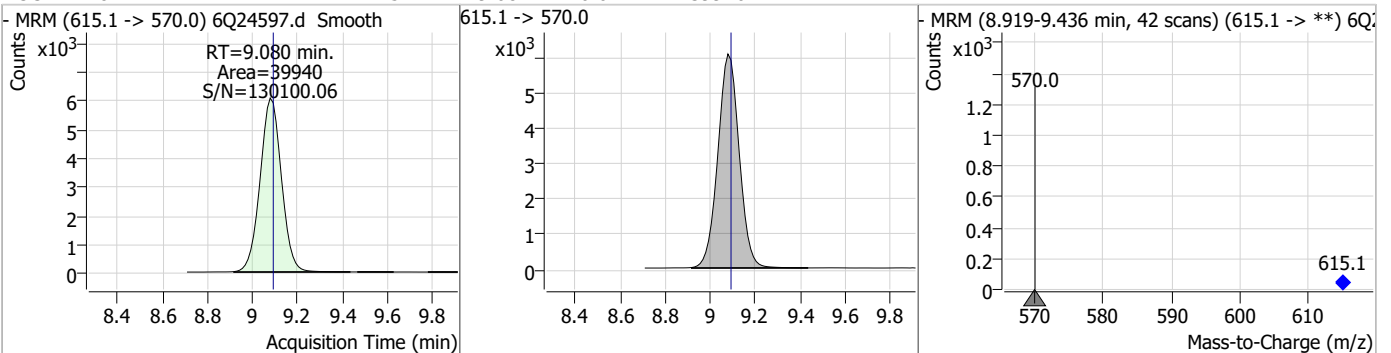
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	4.20	8.69	-0.01	122663	532.8 -> 353.0	30.8	14.1	42.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.24	8.81	-0.01	14571	548.8 -> 98.9	58.3	27.9	83.6

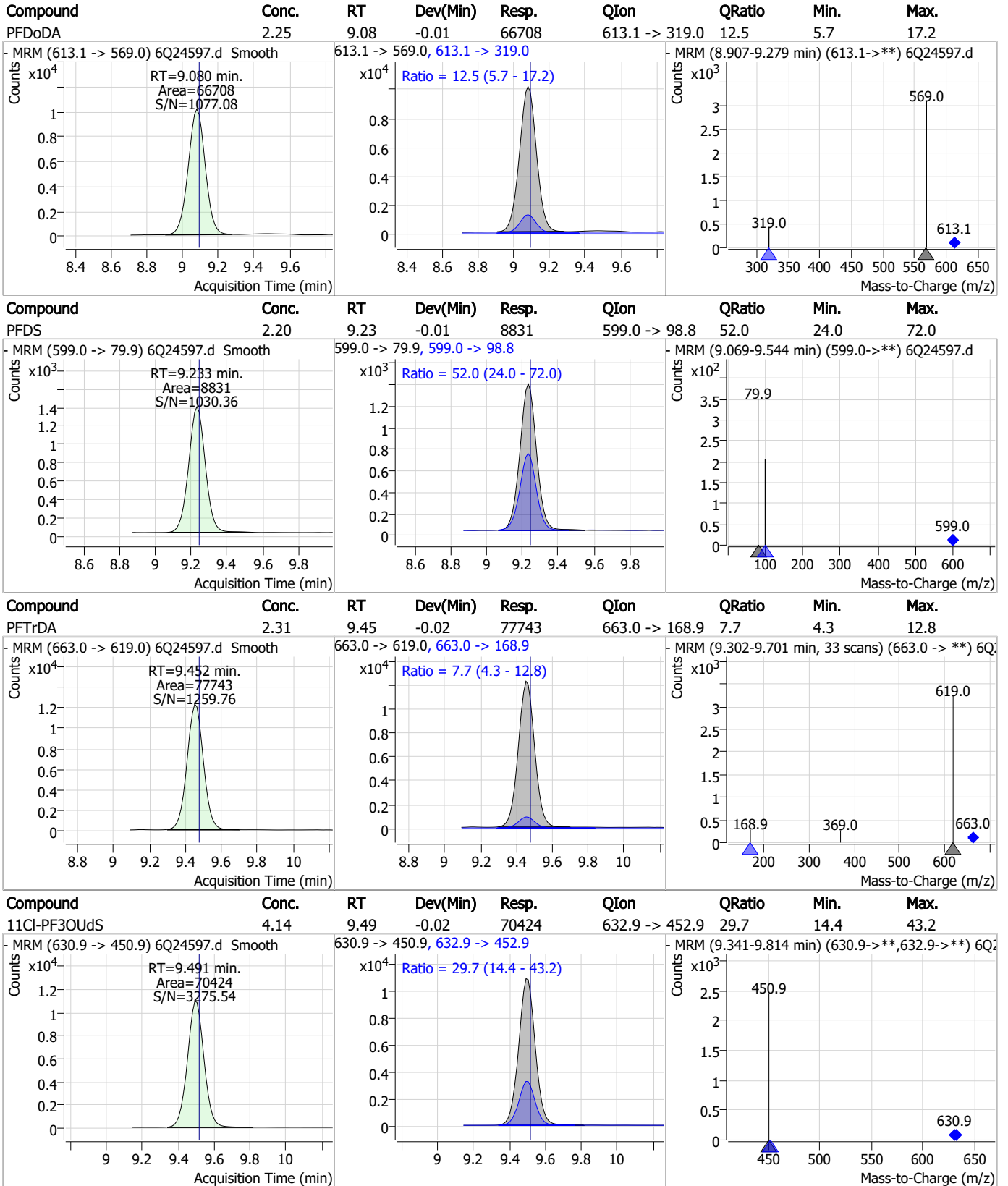


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.25	9.08	-0.01	39940	615.1 -> 570.0			



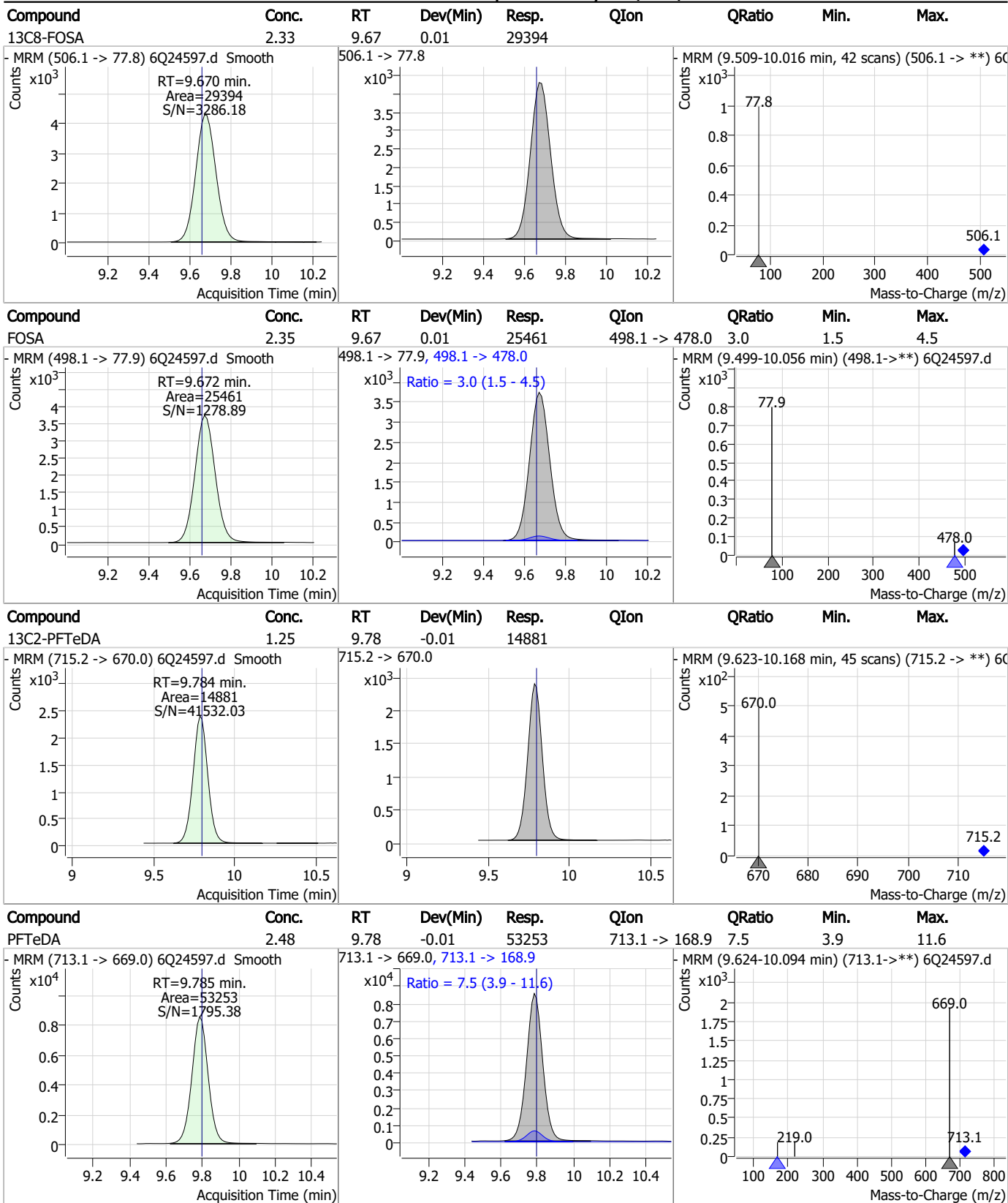
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Perfluorinated Compounds by LC/MS/MS



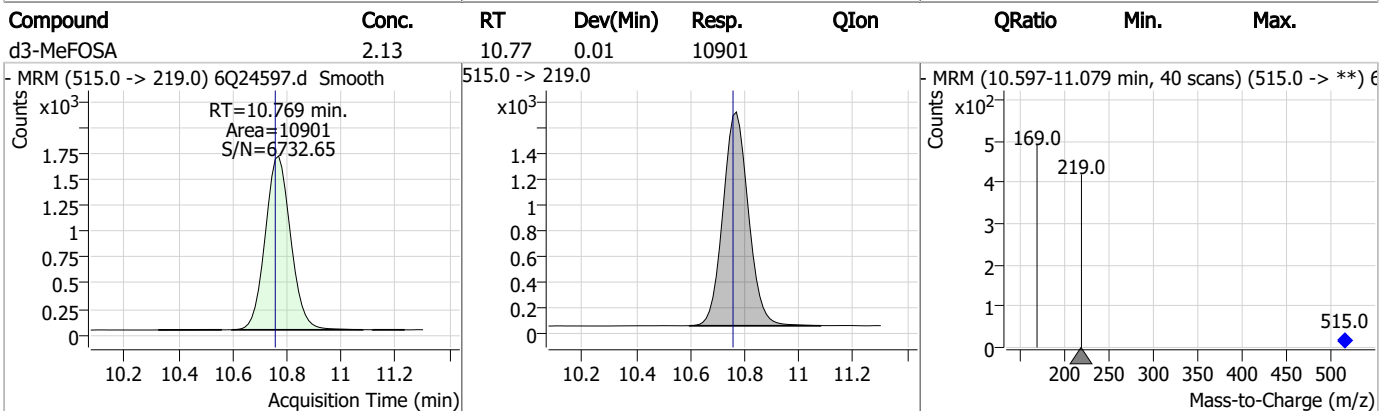
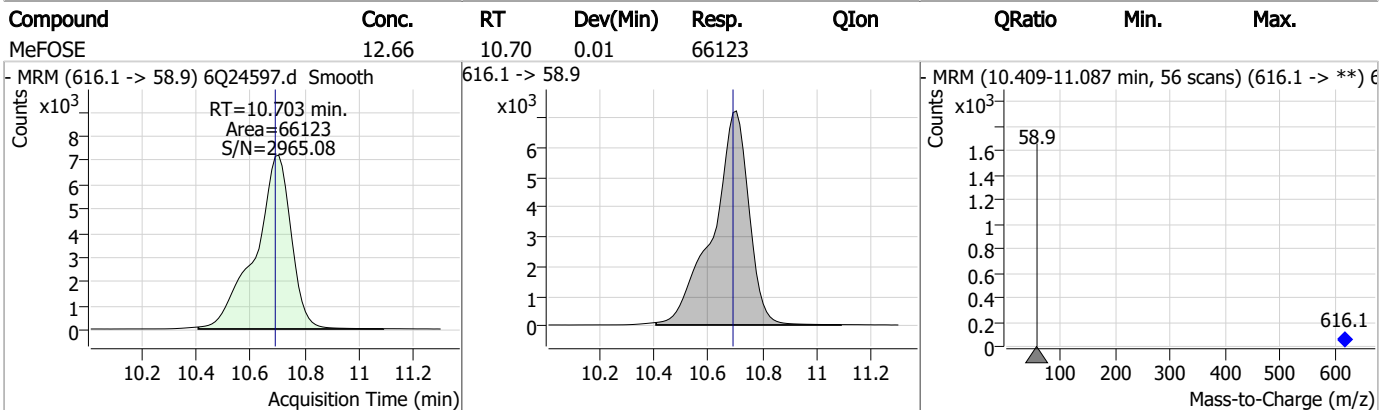
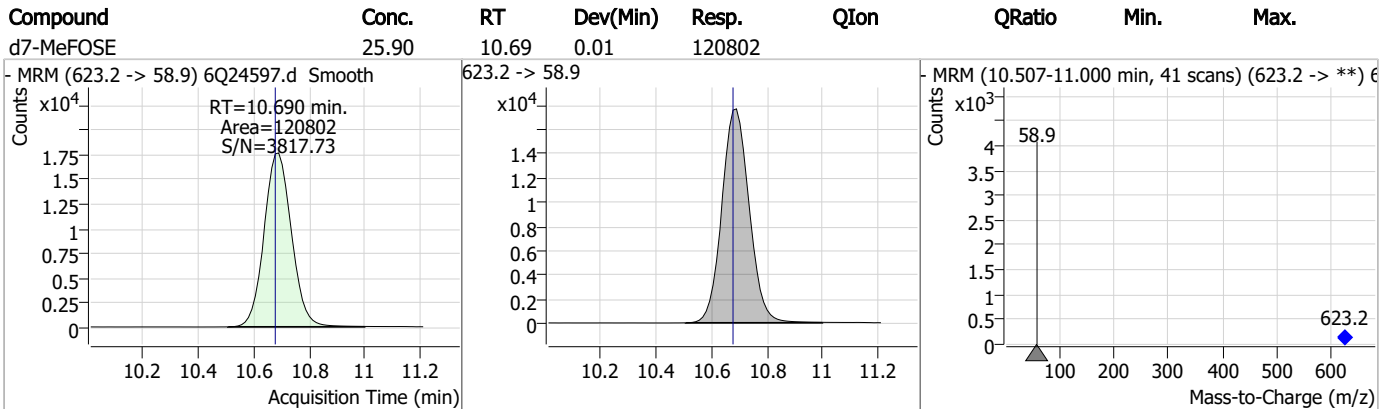
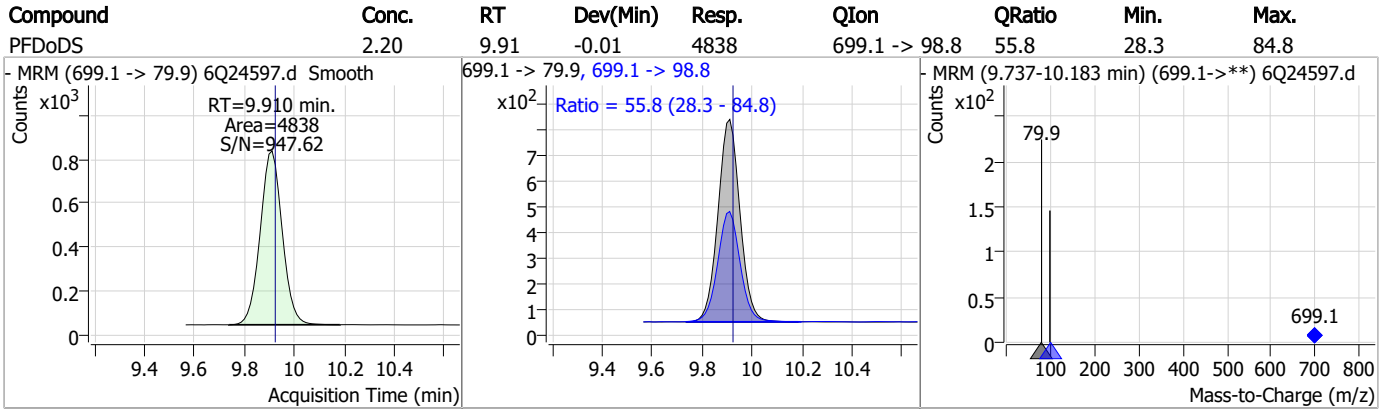
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Perfluorinated Compounds by LC/MS/MS



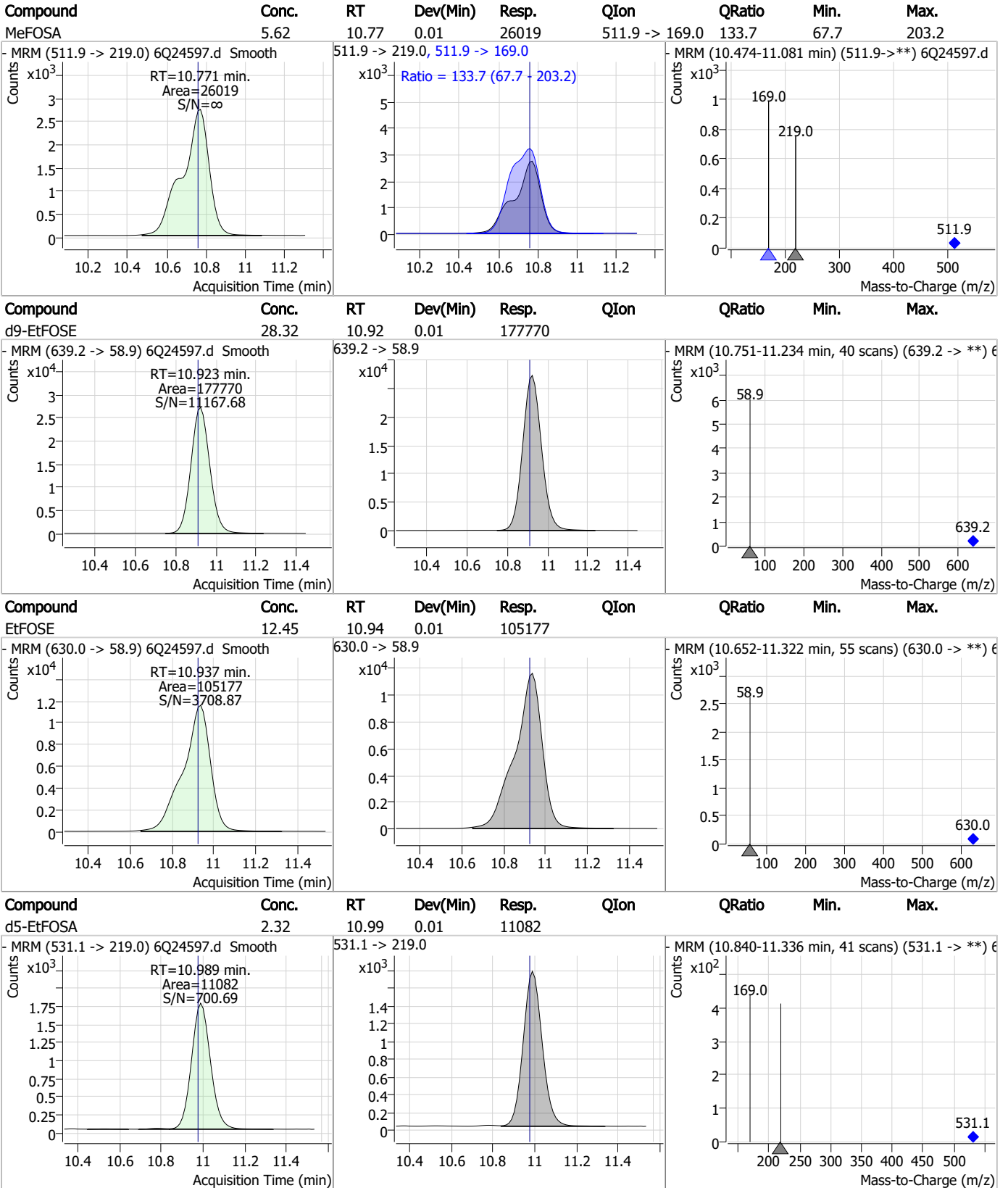
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Perfluorinated Compounds by LC/MS/MS



7.7.26
7

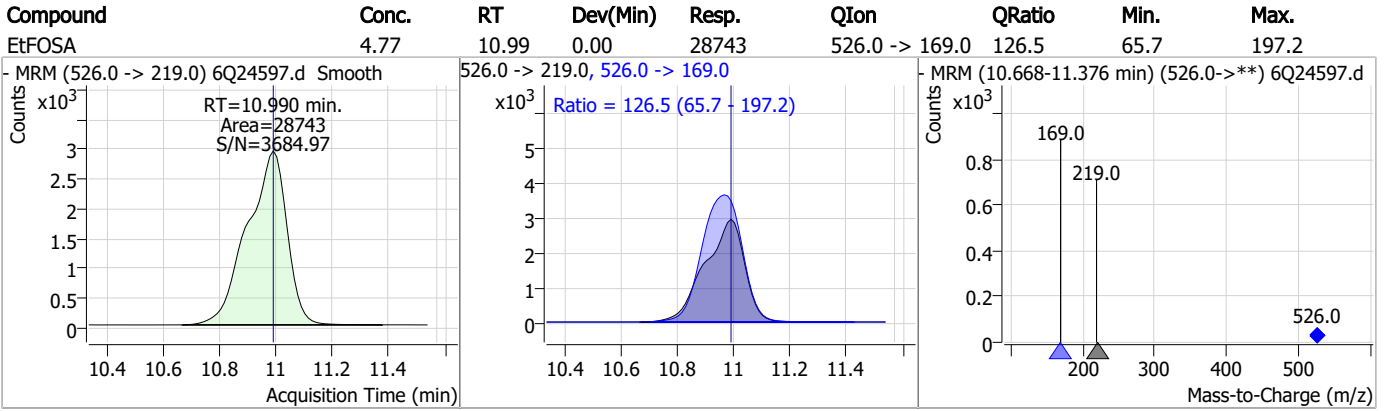
Perfluorinated Compounds by LC/MS/MS



7.7.26
7



Perfluorinated Compounds by LC/MS/MS



7.7.26

7

Manual Integration Approval Summary

Sample Number: S6Q353-CC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24597.D Analyst approved: 09/20/23 09:35 Martha Valls
Injection Time: 09/18/23 12:24 Supervisor approved: 09/20/23 10:37 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak

7.7.26.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24598.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 12:41:57 PM
 Sample Name : cc347-1.0LL
 Vial : P1-A2
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP98555,S6Q353,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	218961	10.00 µg/L	0.025
M5-PFPeA	4.434	268.3 -> 223.0	35210	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	76913	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	63977	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	87138	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	35769	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	36131	1.25 µg/L	0.000
M7-PFUnDA	8.664	570.0 -> 525.1	42442	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	40299	1.25 µg/L	-0.014
M2-PFTeDA	9.784	715.2 -> 670.0	16763	1.25 µg/L	-0.012
M8-FOSA	9.670	506.1 -> 77.8	32738	2.50 µg/L	0.012
M3-PFBS	5.571	302.1 -> 79.9	27378	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	14265	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	13517	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	3072	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	4258	5.00 µg/L	0.012
M2-8:2FTS	7.998	529.1 -> 80.9	4145	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	23719	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	44999	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	21158	5.00 µg/L	-0.012
M7-MeFOSE	10.690	623.2 -> 58.9	145616	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	201170	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	12327	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	12185	2.50 µg/L	0.012
13C4-PFOS	8.361	502.8 -> 79.9	19124	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	85548	5.00 µg/L	0.025
18O2-PFHxS	7.313	403.0 -> 83.9	9926	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	94044	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	29385	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	41072	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	61024	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	3072	5.50 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C2-6:2FTS	6.986	429.1 -> 80.9	4258	5.19 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4145	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C2-PFDoDA	9.080	615.1 -> 570.0	40299	1.28 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C2-PFTeDA	9.784	715.2 -> 670.0	16763	1.43 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 114.5%		
13C3-PFBS	5.571	302.1 -> 79.9	27378	2.98 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 119.3%		
13C3-PFHxS	7.313	402.1 -> 79.9	14265	2.62 µg/L	0.000

7.7.27
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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 = 104.6%	
13C4-PFBA	3.010	216.8 -> 171.9	218961	10.13 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C4-PFHpA	6.581	367.1 -> 322.0	63977	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C5-PFHxA	5.654	318.0 -> 273.0	76913	2.29 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.5%	
13C5-PFPeA	4.434	268.3 -> 223.0	35210	4.28 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 85.6%	
13C6-PFDA	8.210	519.1 -> 474.1	36131	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.0%	
13C7-PFUnDA	8.664	570.0 -> 525.1	42442	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C8-FOSA	9.670	506.1 -> 77.8	32738	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C8-PFOA	7.211	421.1 -> 376.0	87138	2.52 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C8-PFOS	8.361	507.1 -> 79.9	13517	2.24 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.7%	
13C9-PFNA	7.729	472.1 -> 427.0	35769	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.5%	
d3-MeFOSAA	8.256	573.2 -> 419.0	23719	4.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.7%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	44999	9.68 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
d3-MeFOSA	10.769	515.0 -> 219.0	12185	2.21 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.3%	
d5-EtFOSAA	8.452	589.2 -> 419.0	21158	4.11 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 82.3%	
d7-MeFOSE	10.690	623.2 -> 58.9	145616	28.96 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 115.8%	
d9-EtFOSE	10.923	639.2 -> 58.9	201170	29.73 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 118.9%	
d5-EtFOSA	10.989	531.1 -> 219.0	12327	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	3851	0.76 µg/L	97
		327.1 -> 80.9	1501		
6:2FTS	6.987	427.1 -> 407.0	2718	0.72 µg/L	100
		427.1 -> 80.9	1075		
8:2FTS	7.987	527.1 -> 507.0	2226	0.80 µg/L	93
		527.1 -> 80.8	784		
EtFOSAA	8.465	584.2 -> 419.1	689	0.23 µg/L	m 87
		584.2 -> 526.0	380		
FOSA	9.672	498.1 -> 77.9	2079	0.17 µg/L	99
		498.1 -> 478.0	73		
MeFOSAA	8.257	570.1 -> 419.0	1201	0.21 µg/L	87
		570.1 -> 483.0	316		
PFBA	3.006	212.8 -> 168.9	5897	0.81 µg/L	100
PFBS	5.585	298.7 -> 79.9	2344	0.17 µg/L	99
		298.7 -> 98.8	873		
PFDA	8.211	512.9 -> 469.0	6446	0.20 µg/L	98
		512.9 -> 219.0	1107		
PFDODA	9.080	613.1 -> 569.0	5409	0.18 µg/L	96
		613.1 -> 319.0	710		
PFDS	9.233	599.0 -> 79.9	871	0.22 µg/L	96

7.7.27
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.582	599.0 -> 98.8	393	0.20	µg/L	96
		363.1 -> 319.0	6671			
PFHpS	7.868	363.1 -> 169.0	1105	0.17	µg/L	91
		449.0 -> 79.9	1133			
PFHxA	5.657	449.0 -> 98.9	600	0.18	µg/L	97
		313.0 -> 269.0	5011			
PFHxS	7.314	313.0 -> 118.9	264	0.20	µg/L	95
		398.7 -> 79.9	1808			
PFNA	7.730	398.7 -> 98.9	939	0.17	µg/L	99
		463.0 -> 419.0	4626			
PFNS	8.814	463.0 -> 219.0	1027	0.23	µg/L	88
		548.8 -> 79.9	1496			
PFOA	7.212	548.8 -> 98.9	700	0.17	µg/L	99
		413.0 -> 369.0	7794			
PFOS	8.362	413.0 -> 169.0	1398	0.21	µg/L	99
		498.9 -> 79.9	1549			
PFPeA	4.436	498.9 -> 98.8	755	0.41	µg/L	100
		263.0 -> 219.0	6391			
PFPeS	6.633	349.1 -> 79.9	1508	0.19	µg/L	94
		349.1 -> 98.9	650			
PFTeDA	9.785	713.1 -> 669.0	4301	0.18	µg/L	98
		713.1 -> 168.9	368			
PFTrDA	9.452	663.0 -> 619.0	6788	0.20	µg/L	99
		663.0 -> 168.9	557			
PFUnDA	8.664	563.1 -> 519.0	5519	0.23	µg/L	97
		563.1 -> 269.1	760			
11Cl-PF3OUdS	9.504	630.9 -> 450.9	5914	0.36	µg/L	97
		632.9 -> 452.9	1798			
9Cl-PF3ONS	8.690	530.8 -> 351.0	9545	0.34	µg/L	99
		532.8 -> 353.0	2751			
ADONA	6.817	376.9 -> 250.9	24356	0.37	µg/L	99
		376.9 -> 84.8	6551			
HFPO-DA	6.020	284.9 -> 168.9	2010	0.47	µg/L	98
		284.9 -> 184.9	289			
3:3FTCA	3.883	241.0 -> 177.0	1120	0.89	µg/L	98
		241.0 -> 117.0	99			
5:3FTCA	6.296	341.0 -> 237.1	25593	5.38	µg/L	94
		341.0 -> 217.0	16925			
7:3FTCA	7.669	441.0 -> 316.9	14095	5.01	µg/L	88
		441.0 -> 336.9	29215			
EtFOSA	10.990	526.0 -> 219.0	2271	0.34	µg/L	96
		526.0 -> 169.0	3081			
EtFOSE	10.937	630.0 -> 58.9	8752	0.92	µg/L	100
		511.9 -> 219.0	2177			
MeFOSA	10.771	511.9 -> 169.0	2910	0.42	µg/L	98
		616.1 -> 58.9	5878			
MeFOSE	10.703	699.1 -> 79.9	422	0.93	µg/L	100
		699.1 -> 98.8	197			
PFDoDS	9.910	295.0 -> 201.0	1278	0.20	µg/L	87
		295.0 -> 84.9	340			
NFDHA	5.535	279.0 -> 85.1	4939	0.39	µg/L	93
		229.0 -> 84.9	3622			
PFMBA	4.863	314.8 -> 134.9	12532	0.44	µg/L	100
		314.8 -> 82.9	508			
PFMPA	3.575			0.36	µg/L	99
PFEESA	6.112					

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

7.7.27
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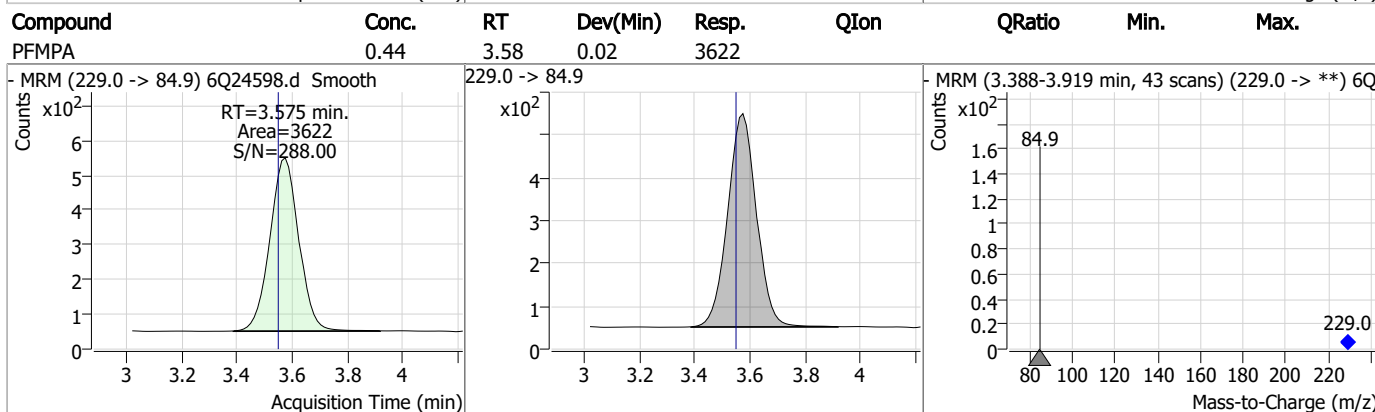
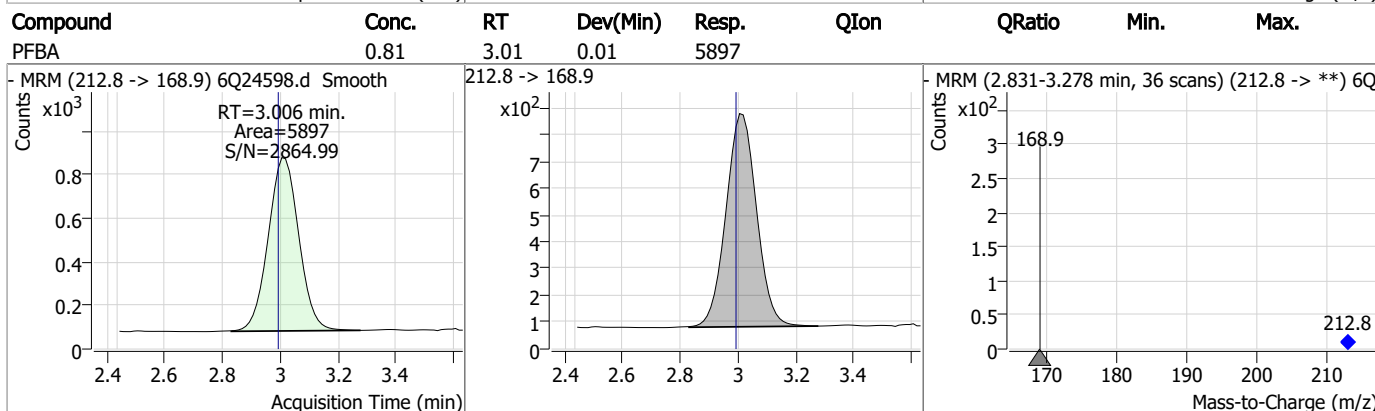
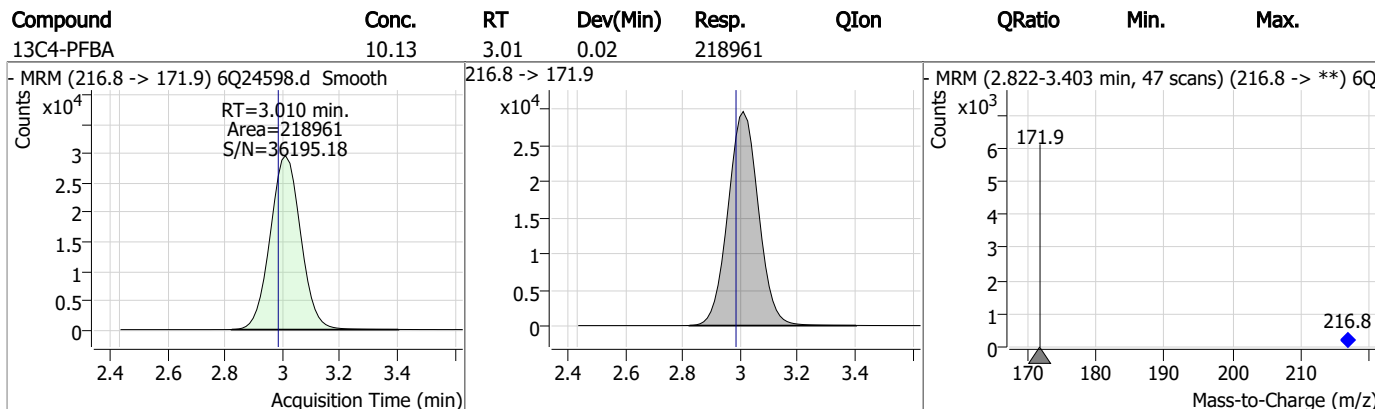
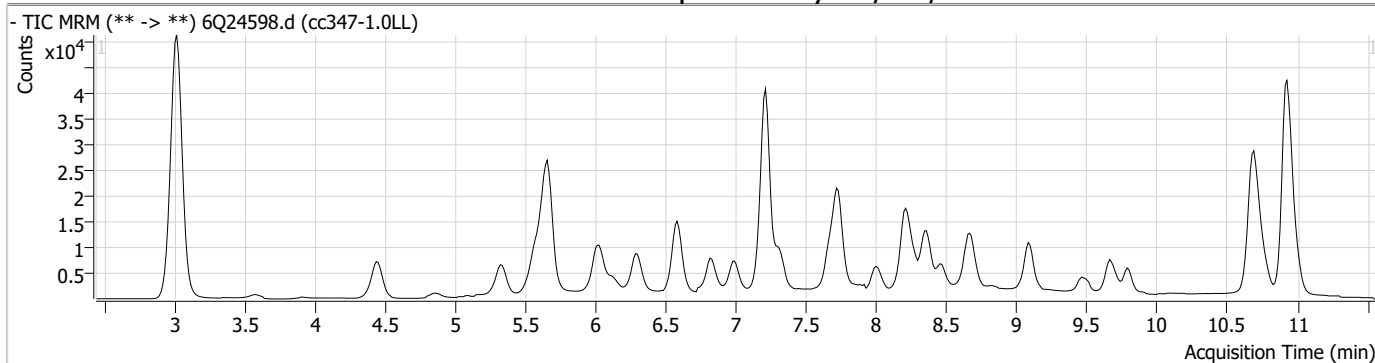
Perfluorinated Compounds by LC/MS/MS

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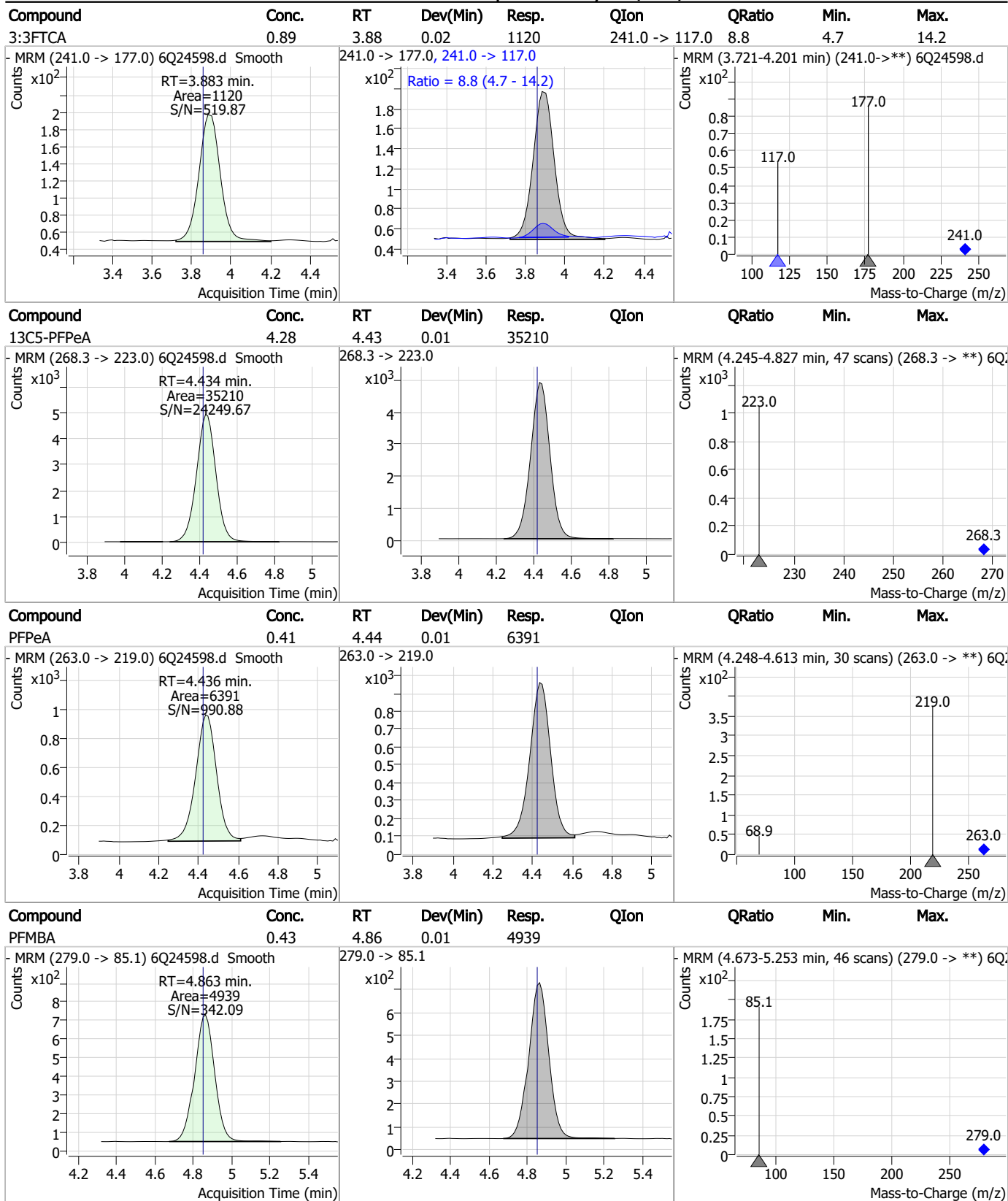
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Perfluorinated Compounds by LC/MS/MS

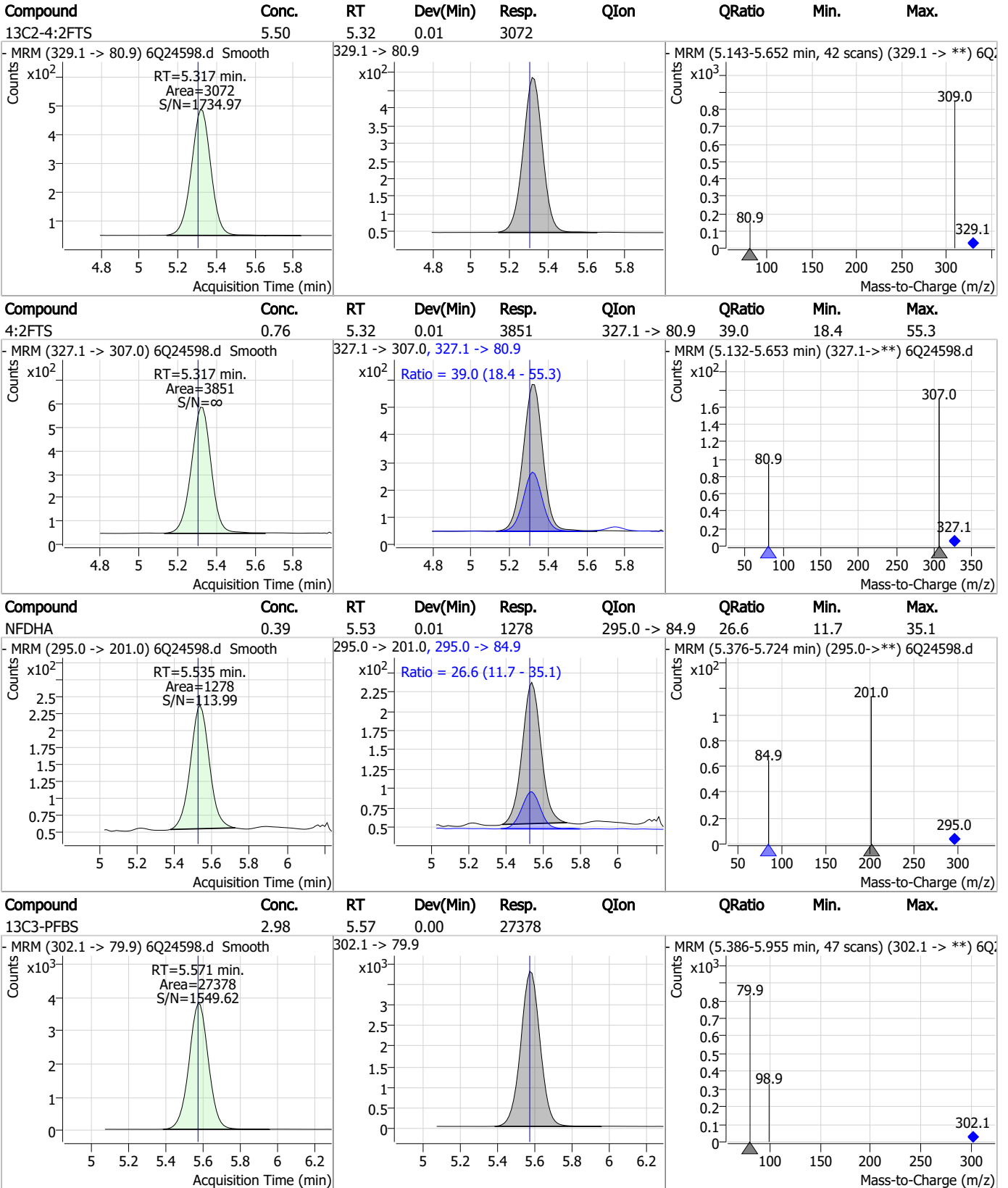


Perfluorinated Compounds by LC/MS/MS



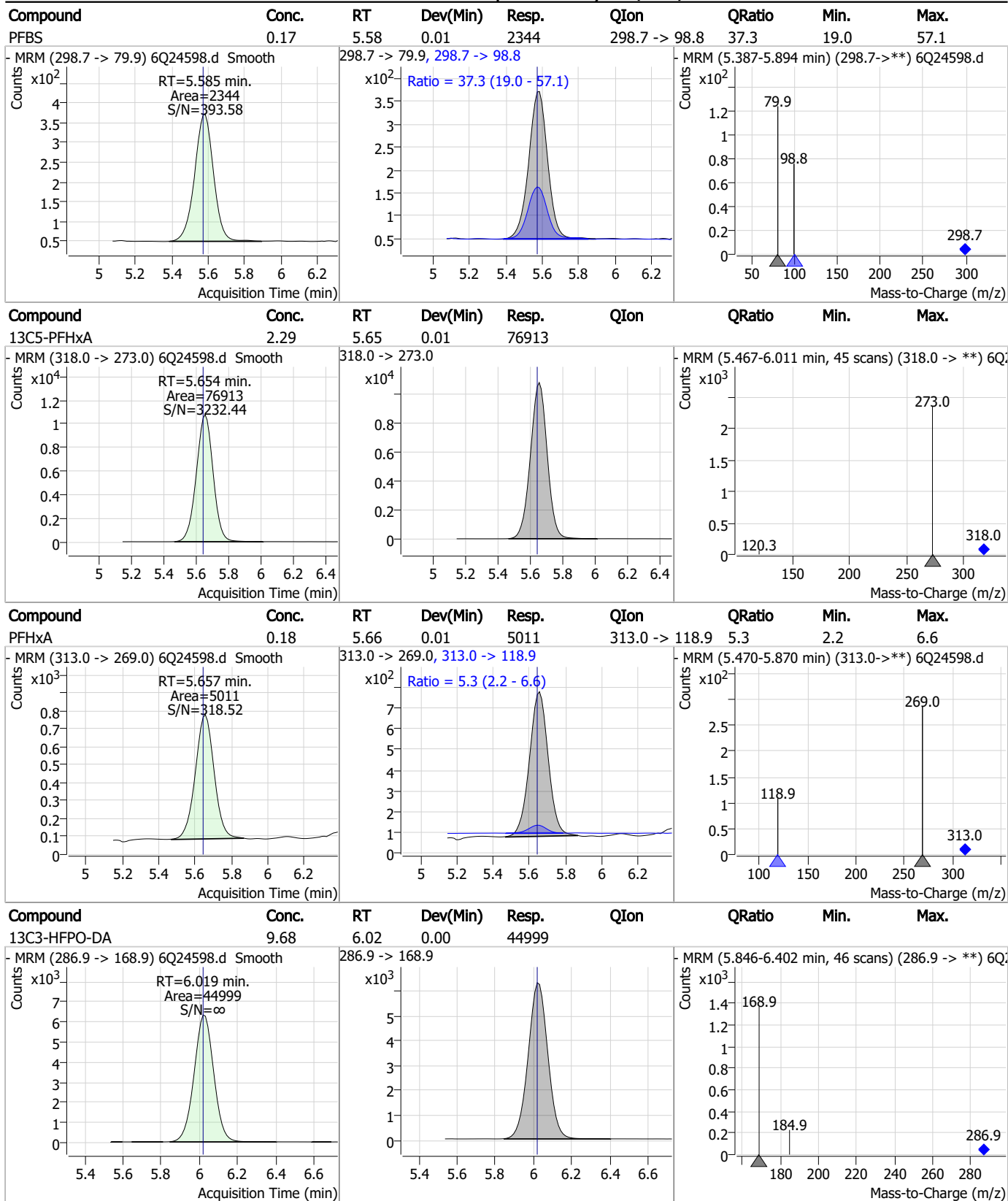
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Perfluorinated Compounds by LC/MS/MS



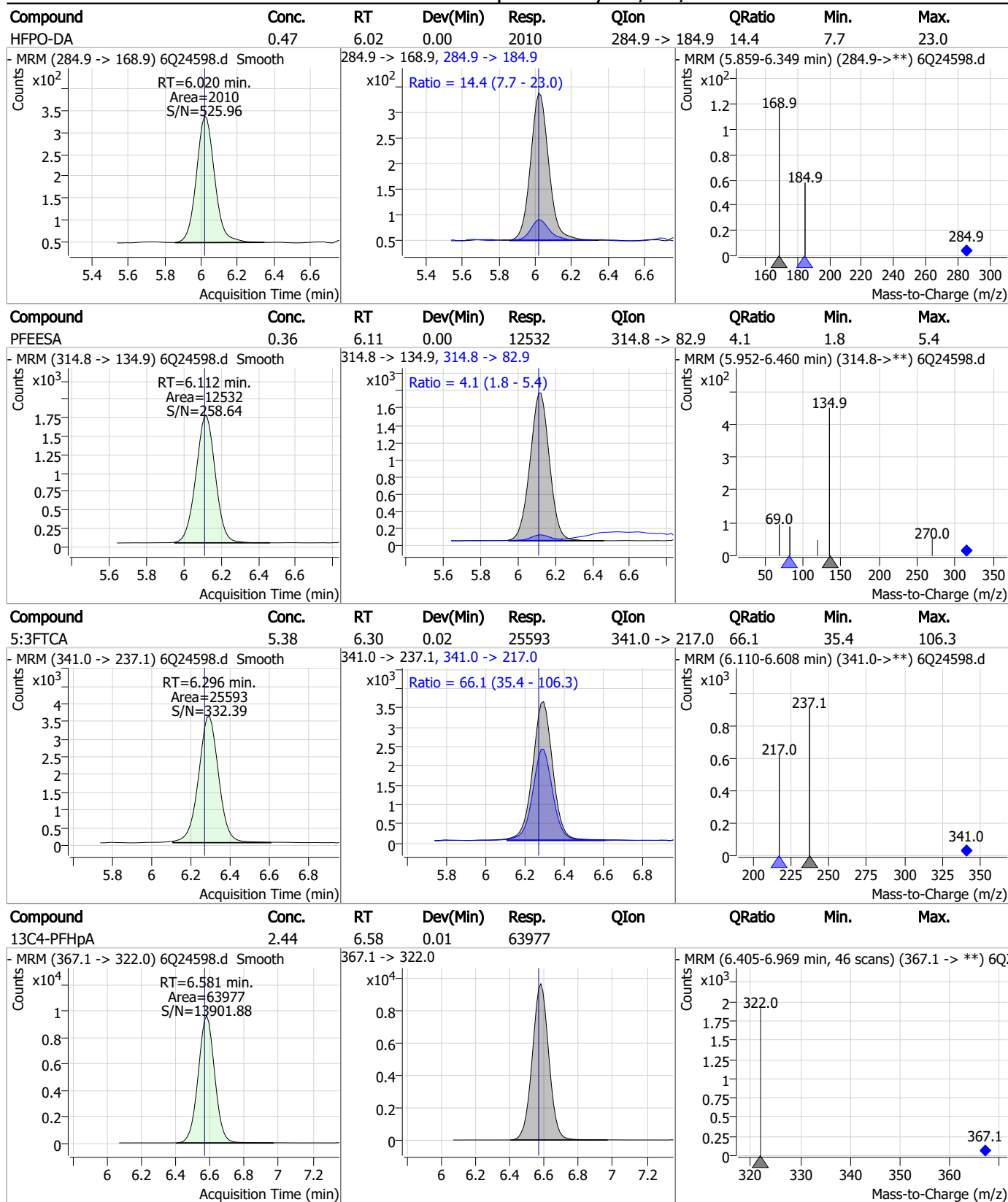
7.7.27 7

Perfluorinated Compounds by LC/MS/MS



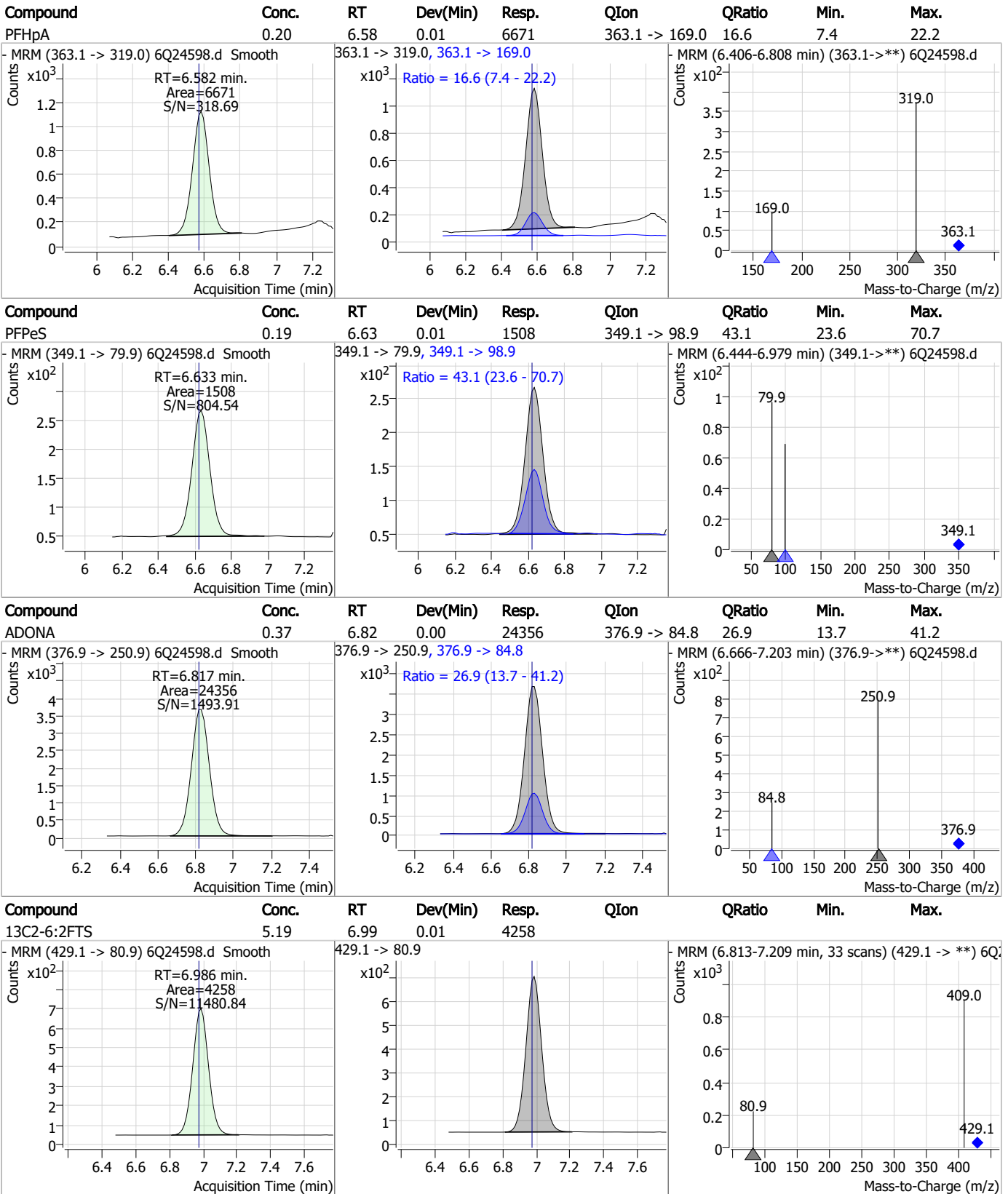
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Perfluorinated Compounds by LC/MS/MS



7.7.27

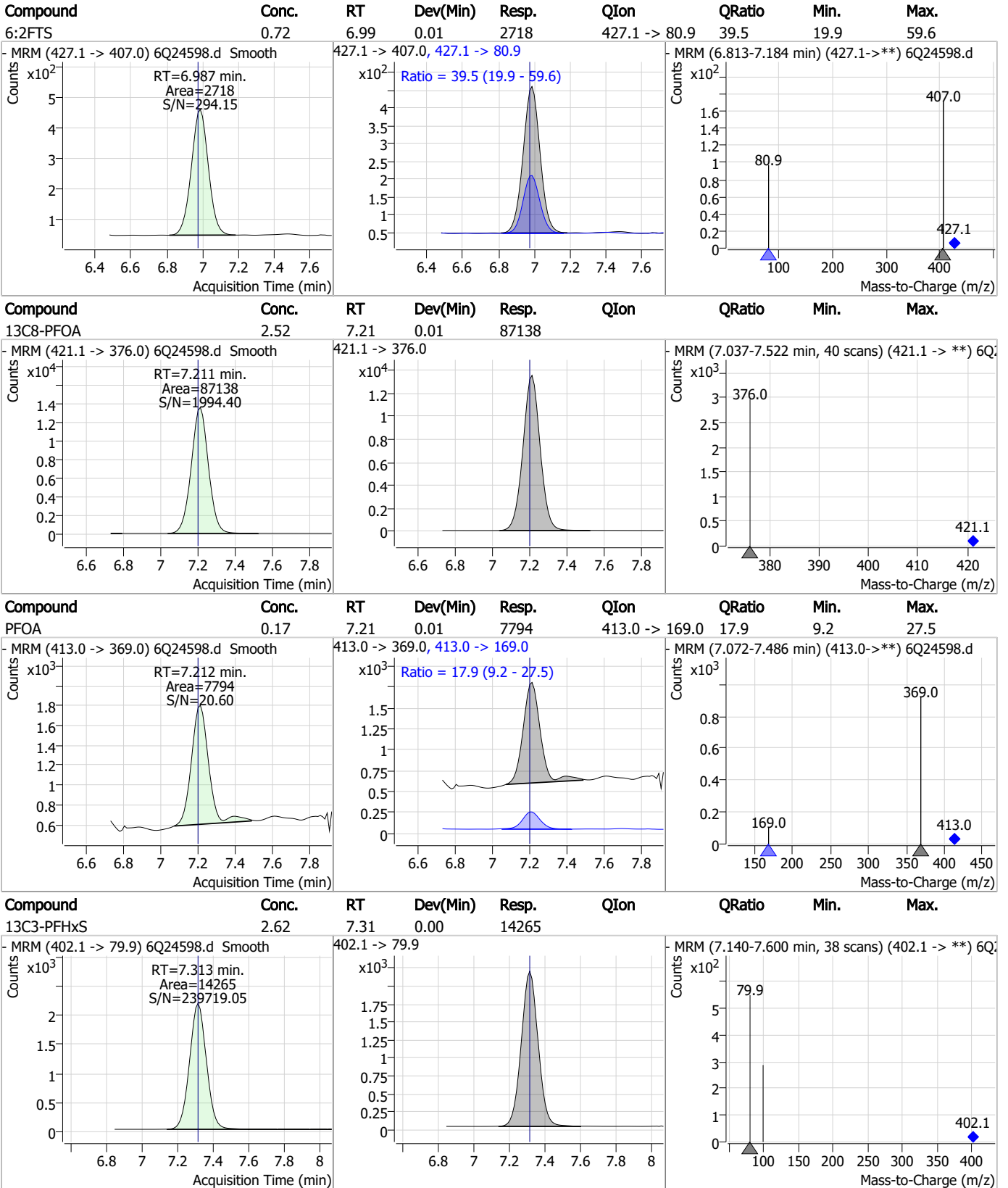
Perfluorinated Compounds by LC/MS/MS



7.7.27



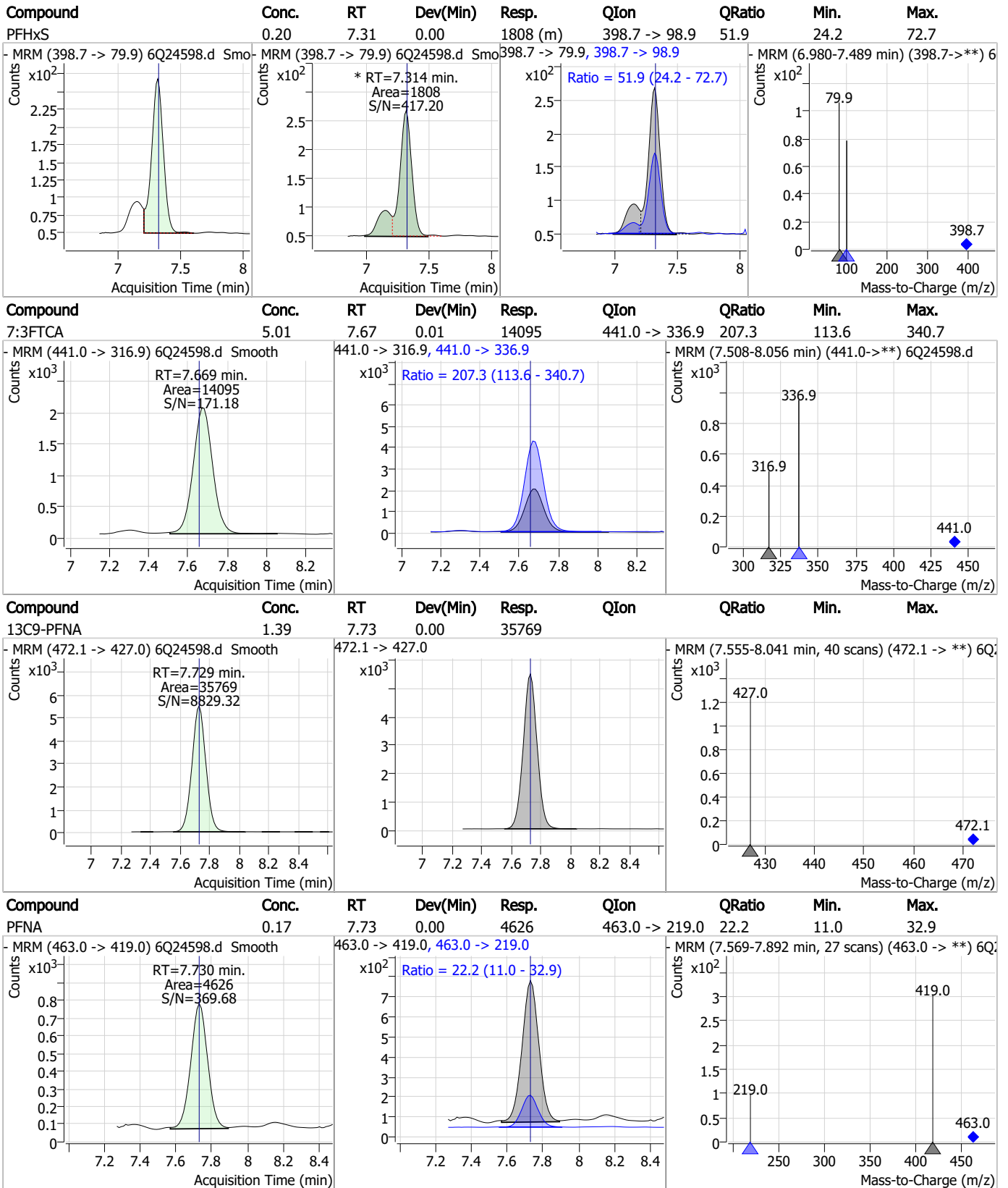
Perfluorinated Compounds by LC/MS/MS



7.7.27



Perfluorinated Compounds by LC/MS/MS



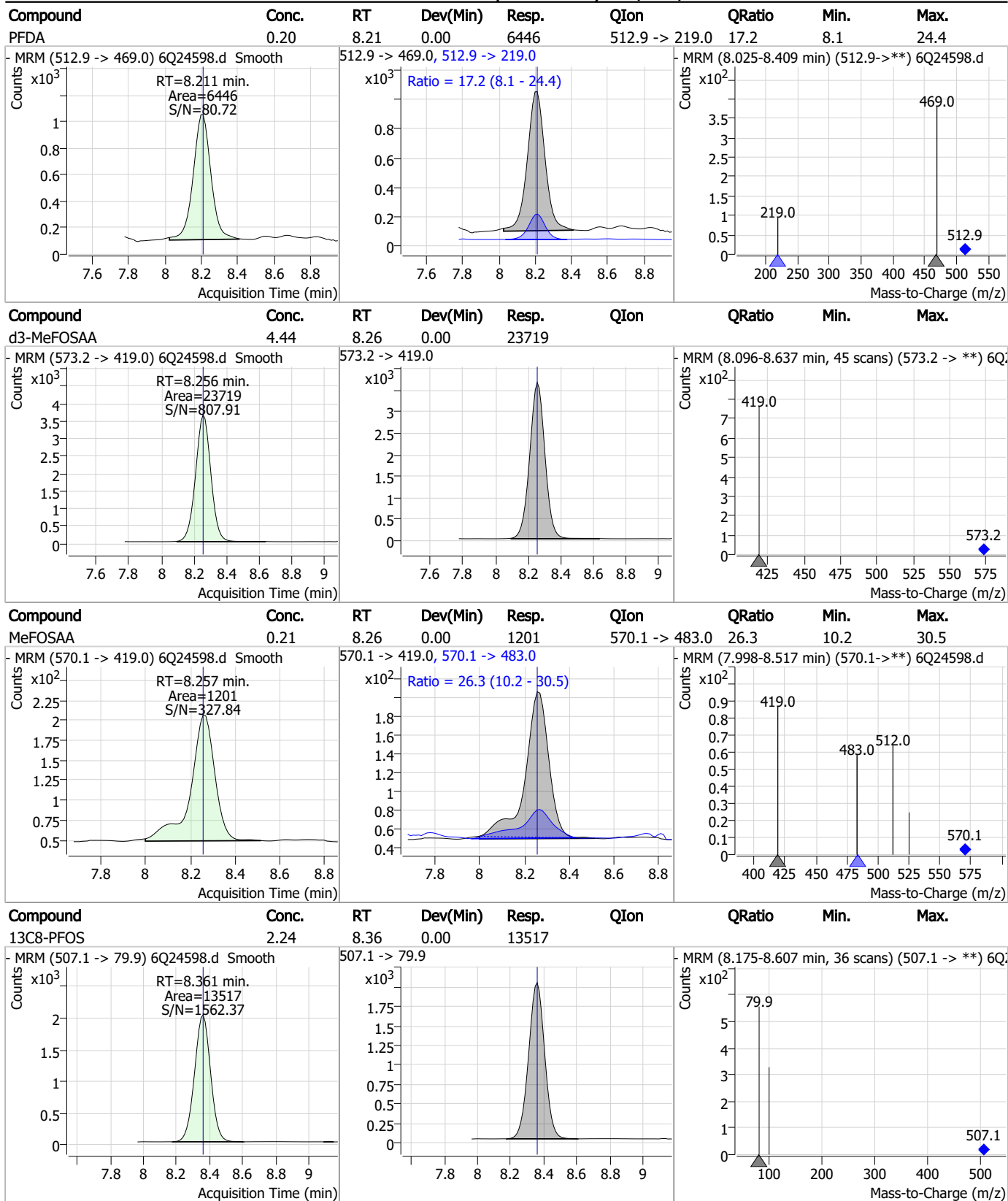
7.7.27

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.17	7.87	0.00	1133	449.0 -> 98.9	52.9	23.4	70.1
13C2-8:2FTS	4.88	8.00	0.00	4145	529.1 -> 80.9	35.2	19.7	59.0
8:2FTS	0.80	7.99	-0.01	2226	527.1 -> 80.8	35.2	19.7	59.0
13C6-PFDA	1.41	8.21	0.00	36131	519.1 -> 474.1	35.2	19.7	59.0

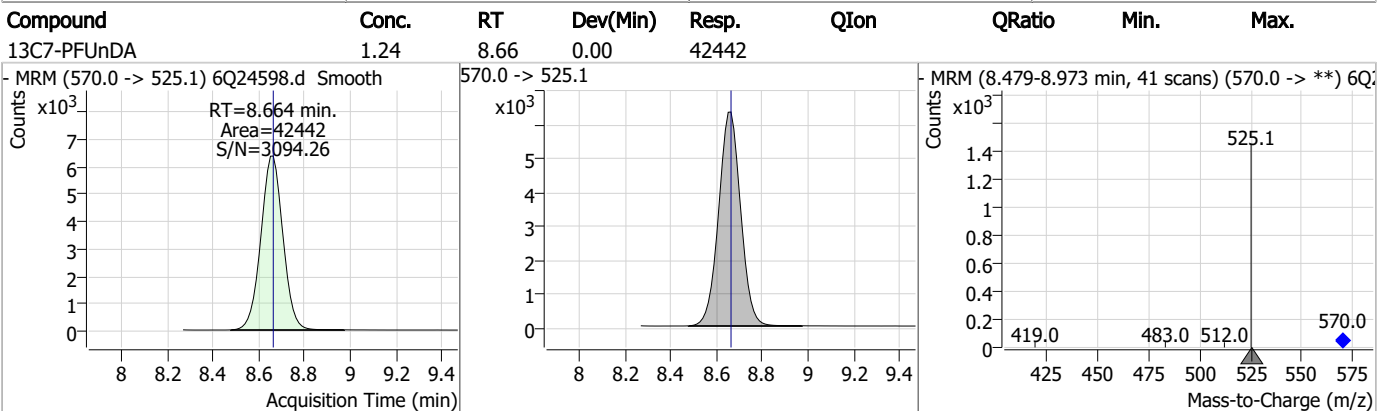
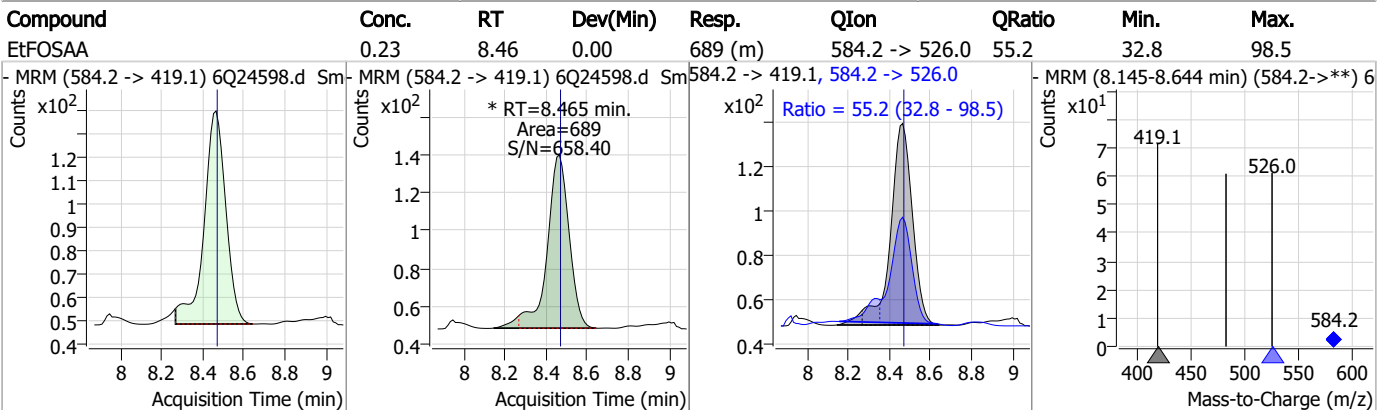
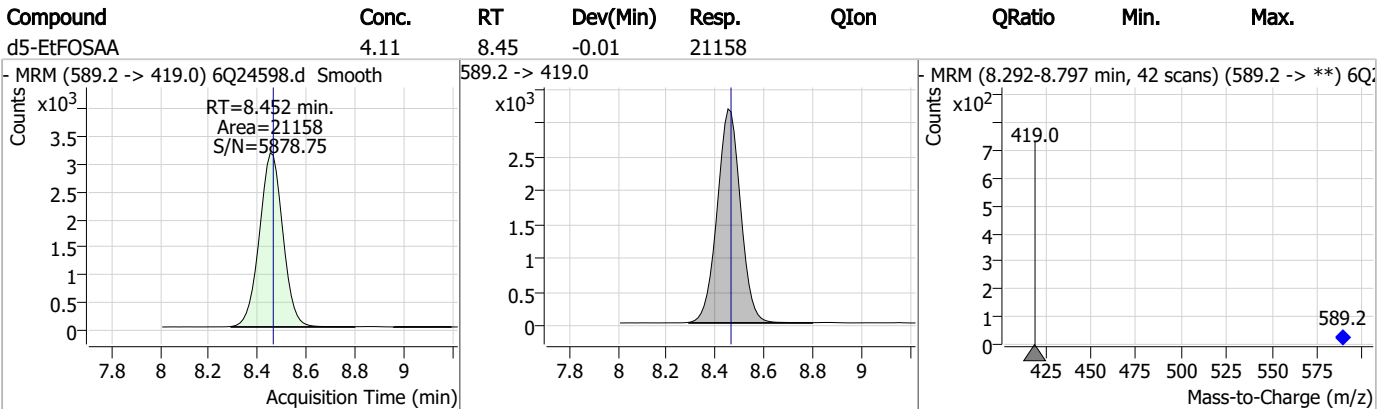
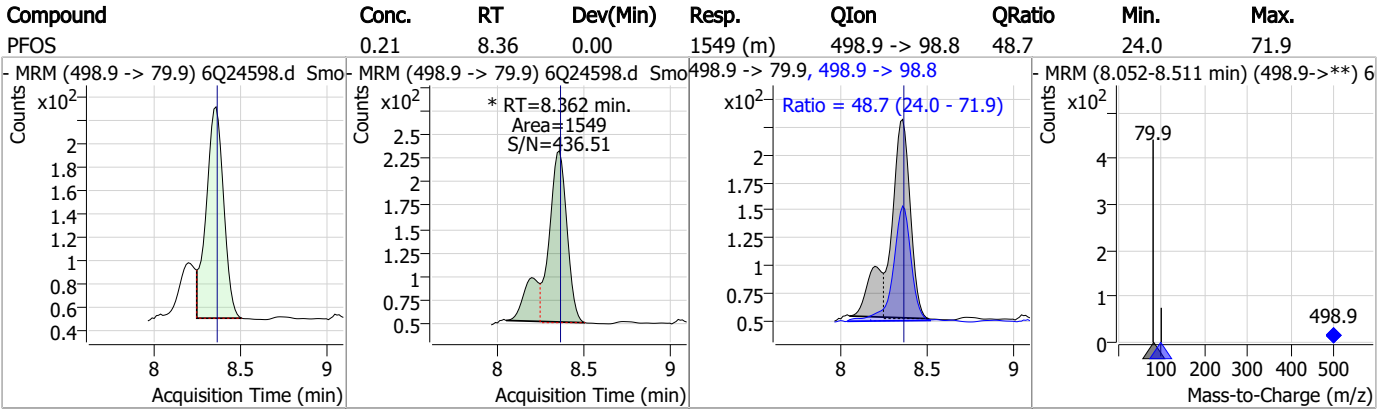
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Perfluorinated Compounds by LC/MS/MS



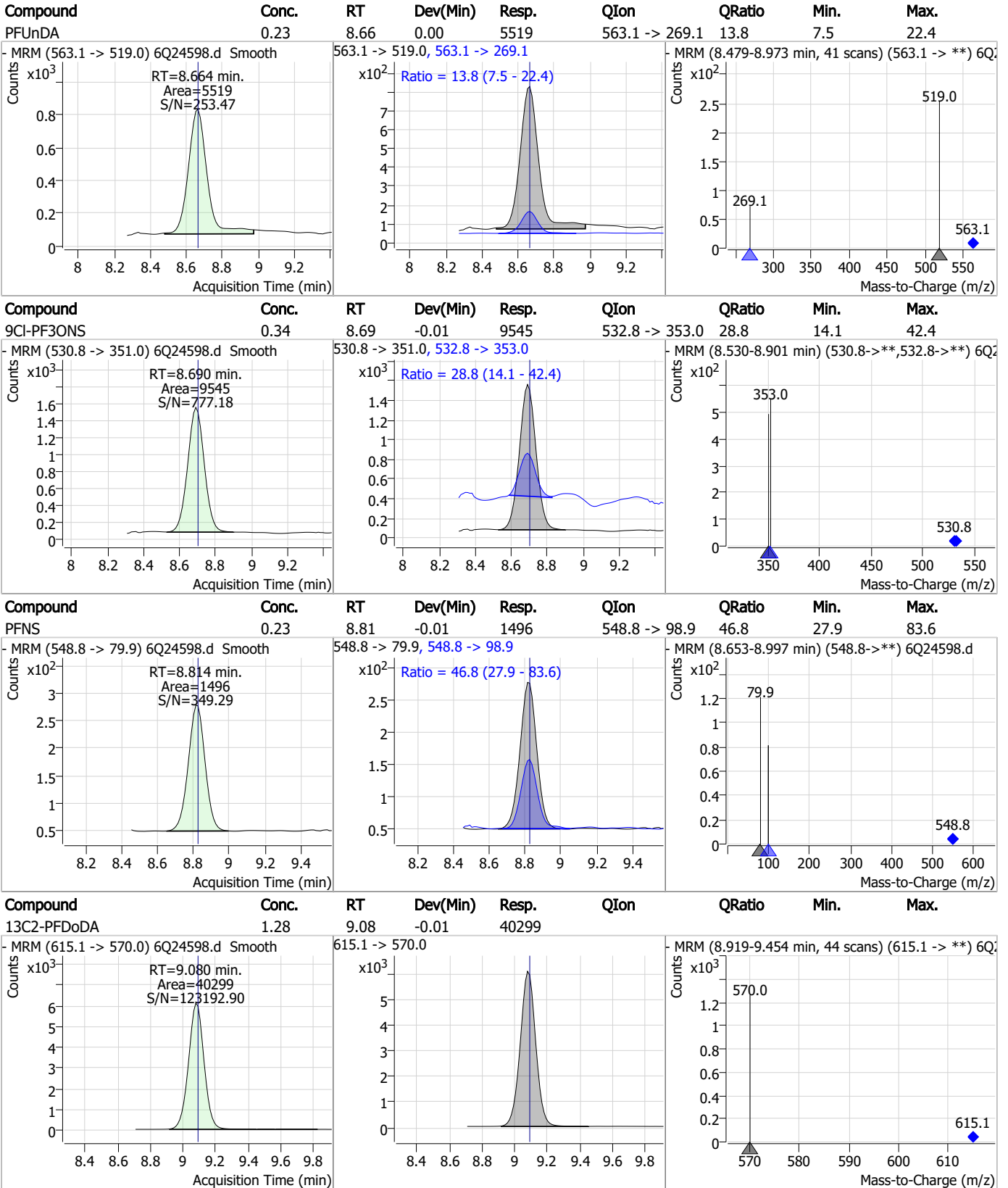
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Perfluorinated Compounds by LC/MS/MS



7.7.27
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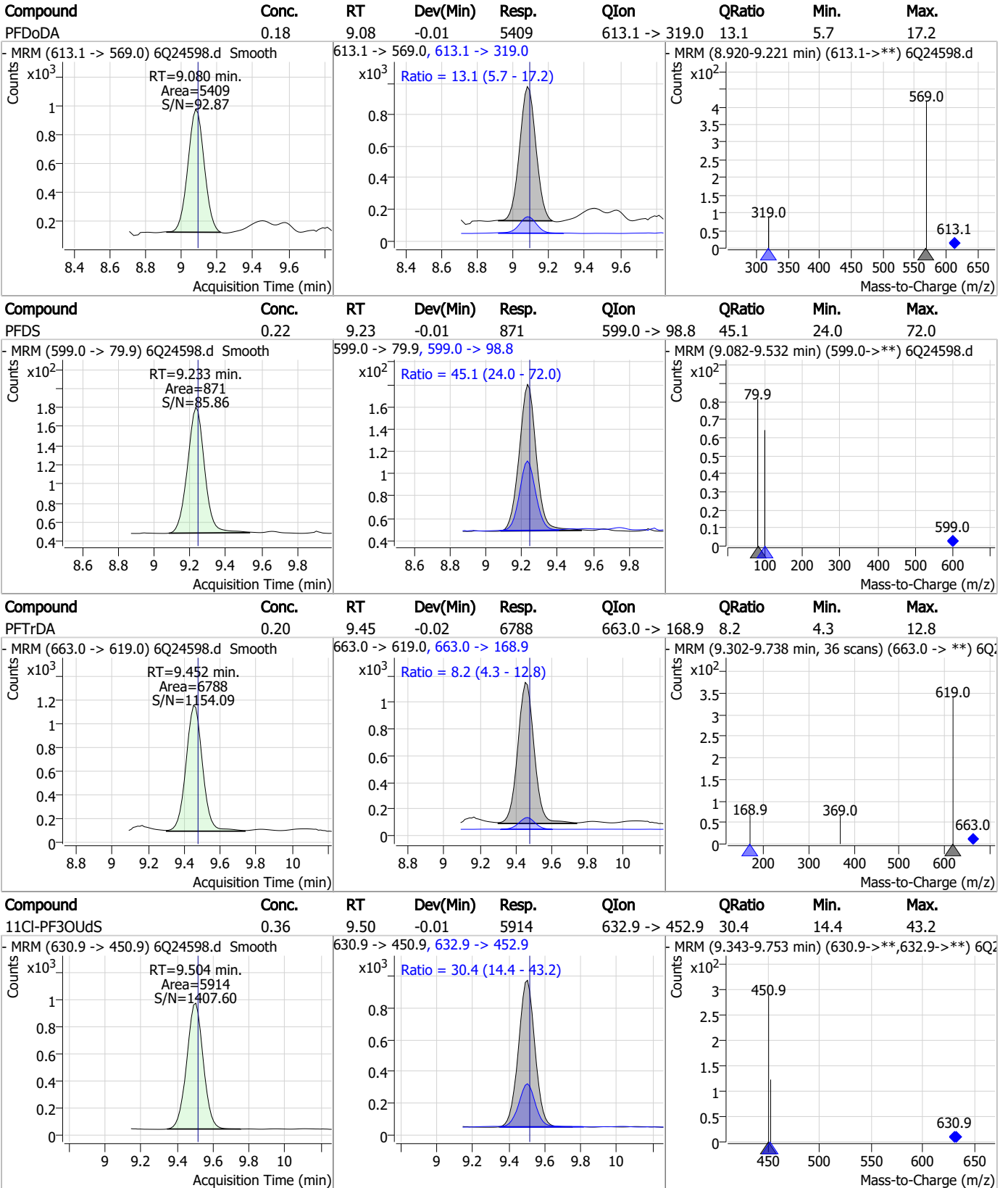
Perfluorinated Compounds by LC/MS/MS



7.7.27

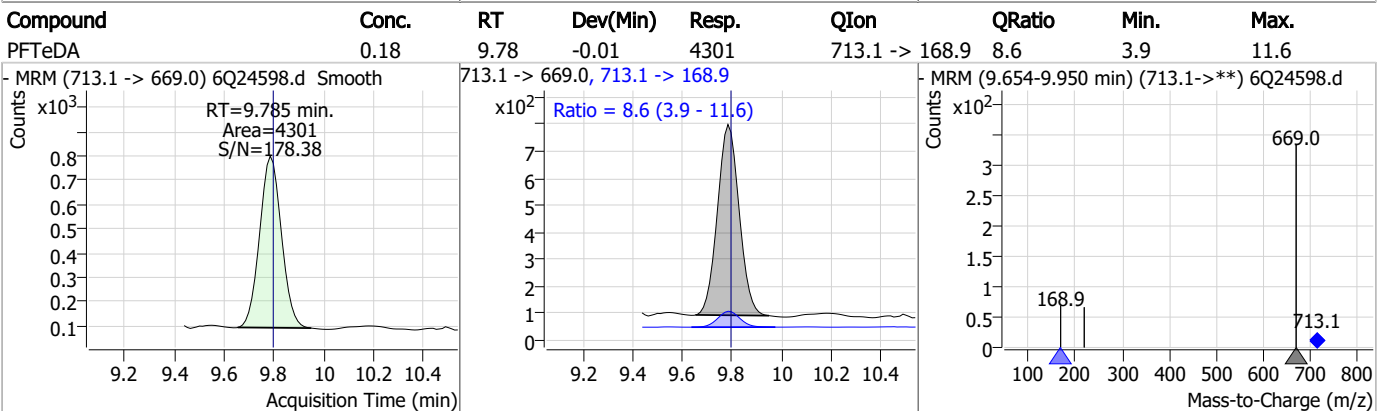
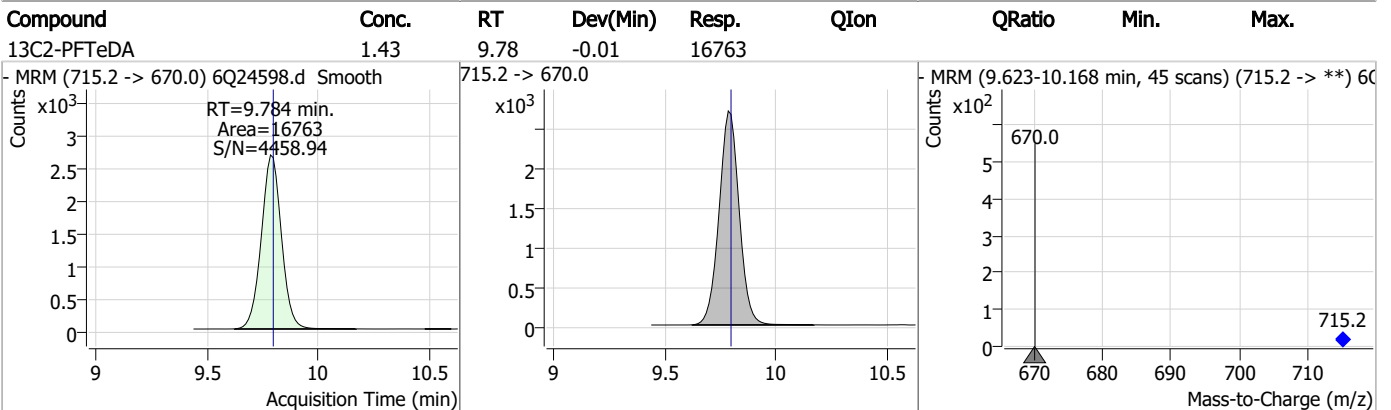
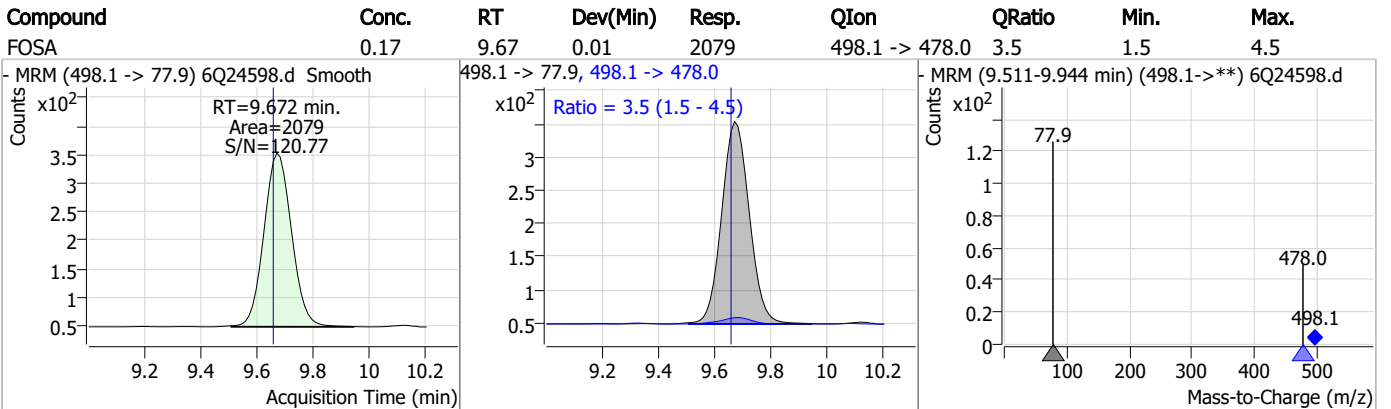
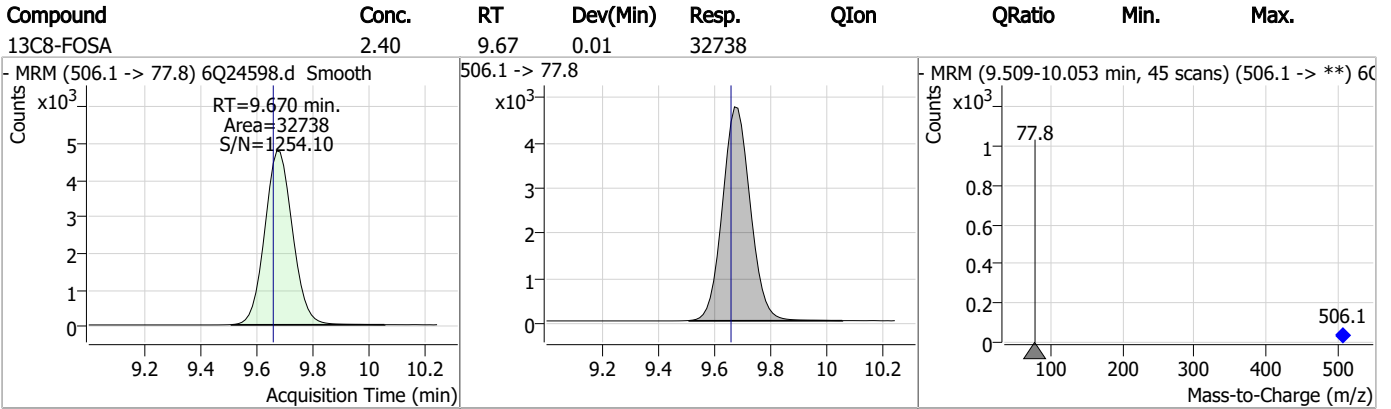


Perfluorinated Compounds by LC/MS/MS



7.7.27 7

Perfluorinated Compounds by LC/MS/MS



7.7.27

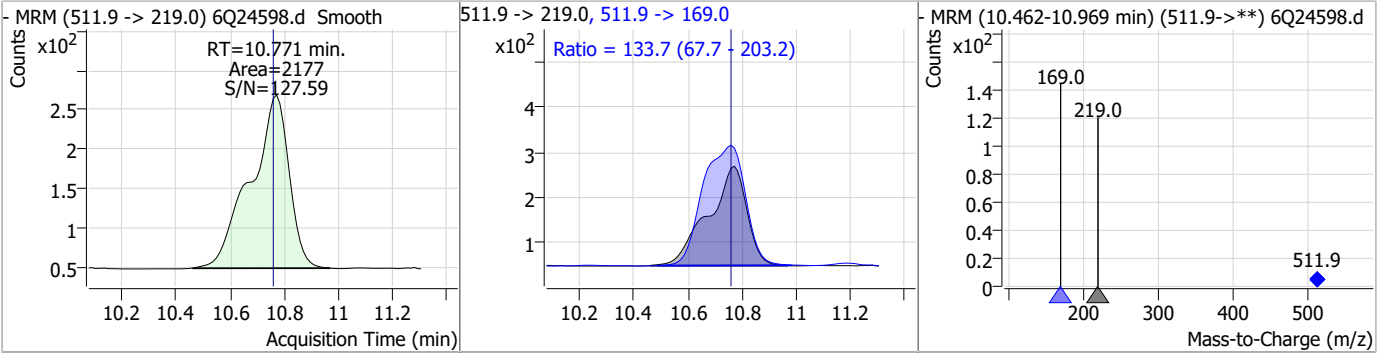
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	0.20	9.91	-0.01	422	699.1 -> 98.8	46.7	28.3	84.8
d7-MeFOSE	28.96	10.69	0.01	145616				
MeFOSE	0.93	10.70	0.01	5878				
d3-MeFOSA	2.21	10.77	0.01	12185				

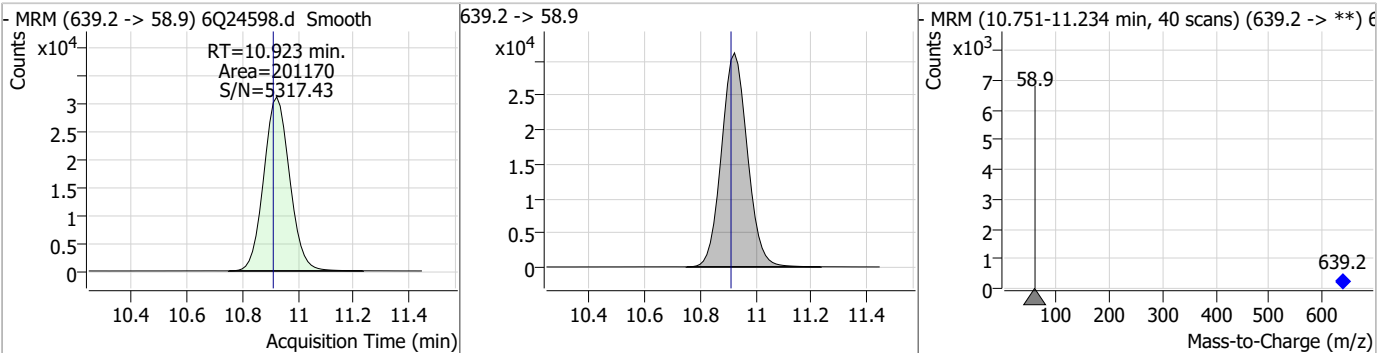
7.7.27

Perfluorinated Compounds by LC/MS/MS

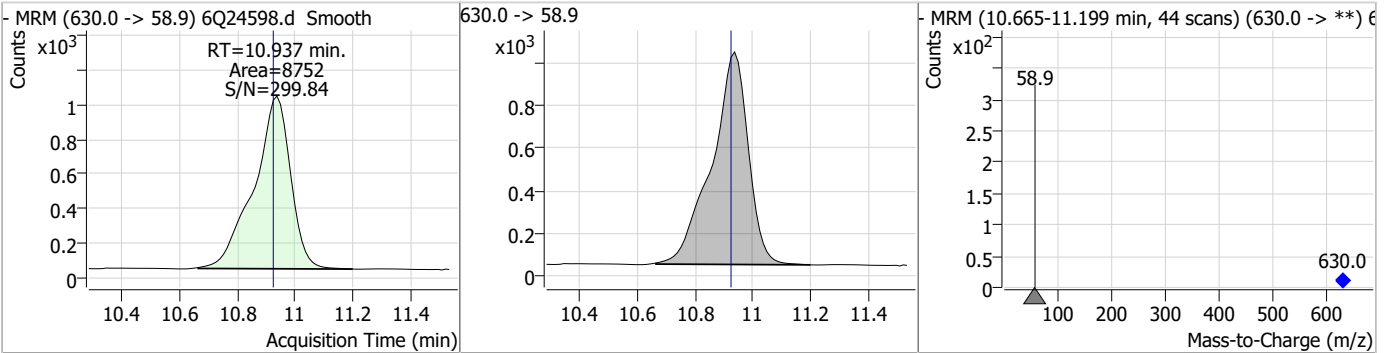
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.42	10.77	0.01	2177	511.9 -> 169.0	133.7	67.7	203.2



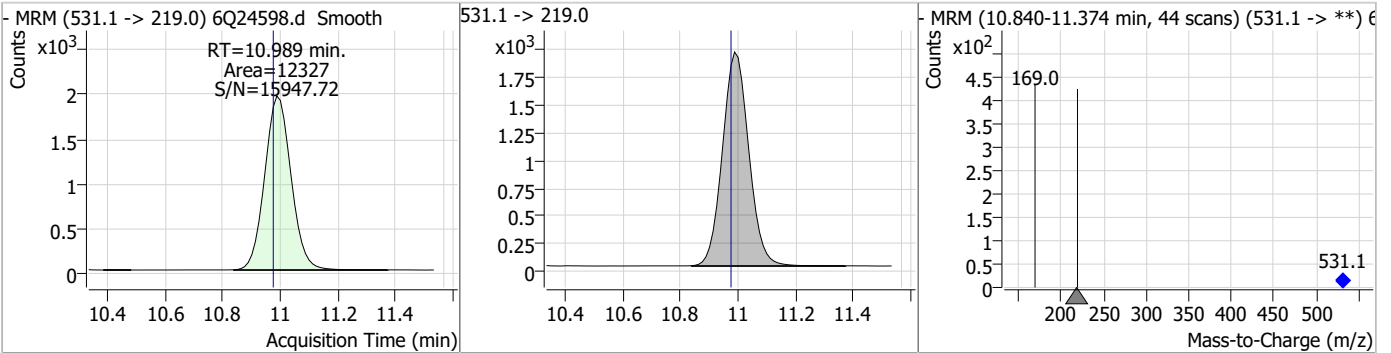
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	29.73	10.92	0.01	201170				



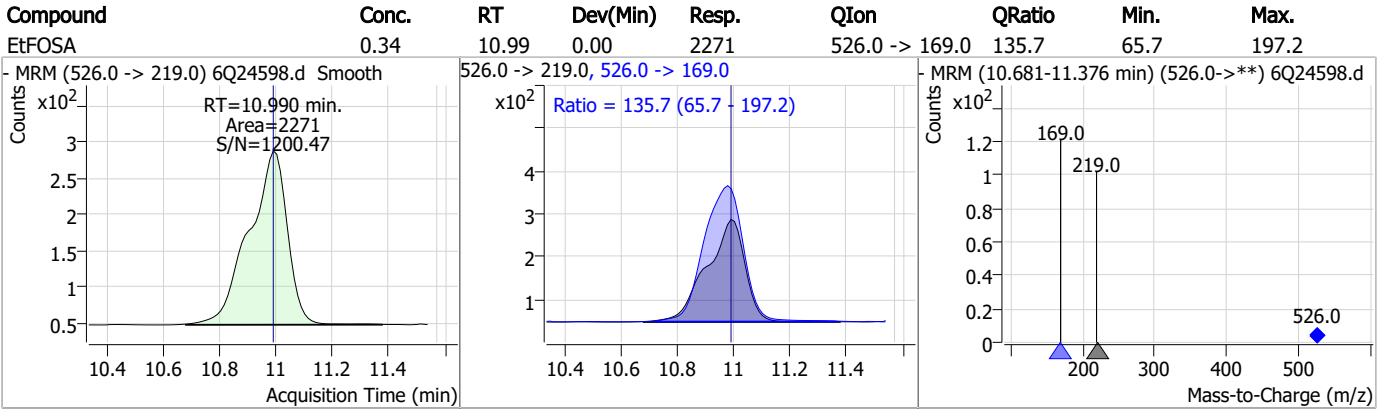
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.92	10.94	0.01	8752				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.40	10.99	0.01	12327				



Perfluorinated Compounds by LC/MS/MS



7.7.27
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Manual Integration Approval Summary

Sample Number: S6Q353-CC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24598.D Analyst approved: 09/20/23 09:35 Martha Valls
Injection Time: 09/18/23 12:41 Supervisor approved: 09/20/23 10:37 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.46	Split peak

7.7.27.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24609.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 3:19:30 PM
 Sample Name : cc347-4
 Vial : P1-A5
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP98555,S6Q353,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	218683	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	34971	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	80211	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	65054	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	84778	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	34456	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	33799	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	39258	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	37022	1.25 µg/L	-0.014
M2-PFTeDA	9.784	715.2 -> 670.0	13536	1.25 µg/L	-0.012
M8-FOSA	9.682	506.1 -> 77.8	29111	2.50 µg/L	0.024
M3-PFBS	5.571	302.1 -> 79.9	26751	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	13696	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	14467	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	2912	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	4134	5.00 µg/L	0.012
M2-8:2FTS	7.998	529.1 -> 80.9	3948	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	21683	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	47904	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	21120	5.00 µg/L	-0.012
M7-MeFOSE	10.690	623.2 -> 58.9	95182	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	123007	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	9359	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	9742	2.50 µg/L	0.012
13C4-PFOS	8.361	502.8 -> 79.9	18192	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	85244	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	10556	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	97155	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	29909	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	39001	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	59211	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2912	4.90 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-6:2FTS	6.986	429.1 -> 80.9	4134	4.74 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3948	4.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.5%		
13C2-PFDoDA	9.080	615.1 -> 570.0	37022	1.15 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C2-PFTeDA	9.784	715.2 -> 670.0	13536	1.13 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.8%		
13C3-PFBS	5.571	302.1 -> 79.9	26751	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.6%		
13C3-PFHxS	7.313	402.1 -> 79.9	13696	2.36 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 = 94.5%	
13C4-PFBA	2.985	216.8 -> 171.9	218683	10.16 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C4-PFHpA	6.581	367.1 -> 322.0	65054	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C5-PFHxA	5.654	318.0 -> 273.0	80211	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C5-PFPeA	4.434	268.3 -> 223.0	34971	4.38 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 87.6%	
13C6-PFDA	8.210	519.1 -> 474.1	33799	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C7-PFUnDA	8.663	570.0 -> 525.1	39258	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.0%	
13C8-FOSA	9.682	506.1 -> 77.8	29111	2.25 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.9%	
13C8-PFOA	7.211	421.1 -> 376.0	84778	2.37 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C8-PFOS	8.361	507.1 -> 79.9	14467	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C9-PFNA	7.729	472.1 -> 427.0	34456	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.1%	
d3-MeFOSAA	8.256	573.2 -> 419.0	21683	4.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 85.3%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	47904	10.62 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.2%	
d3-MeFOSA	10.769	515.0 -> 219.0	9742	1.86 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.2%	
d5-EtFOSAA	8.452	589.2 -> 419.0	21120	4.32 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 86.3%	
d7-MeFOSE	10.690	623.2 -> 58.9	95182	19.90 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.6%	
d9-EtFOSE	10.923	639.2 -> 58.9	123007	19.11 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.4%	
d5-EtFOSA	10.989	531.1 -> 219.0	9359	1.91 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.5%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	45451	9.44 µg/L	97
		327.1 -> 80.9	17550		
6:2FTS	6.987	427.1 -> 407.0	35370	9.67 µg/L	98
		427.1 -> 80.9	14466		
8:2FTS	7.999	527.1 -> 507.0	25493	9.57 µg/L	96
		527.1 -> 80.8	9453		
EtFOSAA	8.465	584.2 -> 419.1	7508	2.52 µg/L	90
		584.2 -> 526.0	5503		
FOSA	9.672	498.1 -> 77.9	24271	2.27 µg/L	99
		498.1 -> 478.0	794		
MeFOSAA	8.257	570.1 -> 419.0	13895	2.70 µg/L	97
		570.1 -> 483.0	3021		
PFBA	2.993	212.8 -> 168.9	75818	10.49 µg/L	100
PFBS	5.572	298.7 -> 79.9	27621	2.10 µg/L	98
		298.7 -> 98.8	10160		
PFDA	8.211	512.9 -> 469.0	76641	2.49 µg/L	97
		512.9 -> 219.0	11672		
PFDODA	9.080	613.1 -> 569.0	68508	2.49 µg/L	99
		613.1 -> 319.0	7647		
PFDS	9.233	599.0 -> 79.9	8548	2.03 µg/L	92

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.582	599.0 -> 98.8	4565	2.46	µg/L	99
		363.1 -> 319.0	84769			
PFHpS	7.868	363.1 -> 169.0	12162	2.19	µg/L	96
		449.0 -> 79.9	15357			
PFHxA	5.657	449.0 -> 98.9	7628	2.23	µg/L	99
		313.0 -> 269.0	65149			
PFHxS	7.314	313.0 -> 118.9	2979	2.45	µg/L	m
		398.7 -> 79.9	21002			
PFNA	7.730	398.7 -> 98.9	10012	2.14	µg/L	96
		463.0 -> 419.0	55737			
PFNS	8.826	463.0 -> 219.0	13399	2.26	µg/L	91
		548.8 -> 79.9	15429			
PFOA	7.212	548.8 -> 98.9	7633	2.25	µg/L	95
		413.0 -> 369.0	98426			
PFOS	8.362	413.0 -> 169.0	16090	2.07	µg/L	m
		498.9 -> 79.9	16601			
PFPeA	4.436	498.9 -> 98.8	8599	5.12	µg/L	100
		263.0 -> 219.0	79821			
PFPeS	6.633	349.1 -> 79.9	17904	2.40	µg/L	98
		349.1 -> 98.9	8216			
PFTeDA	9.785	713.1 -> 669.0	47753	2.45	µg/L	99
		713.1 -> 168.9	3523			
PFTrDA	9.464	663.0 -> 619.0	71776	2.30	µg/L	99
		663.0 -> 168.9	5812			
PFUnDA	8.664	563.1 -> 519.0	59114	2.63	µg/L	98
		563.1 -> 269.1	9356			
11CI-PF3OUdS	9.504	630.9 -> 450.9	66249	3.79	µg/L	92
		632.9 -> 452.9	21747			
9CI-PF3ONS	8.690	530.8 -> 351.0	118566	3.96	µg/L	91
		532.8 -> 353.0	39141			
ADONA	6.817	376.9 -> 250.9	316122	4.56	µg/L	96
		376.9 -> 84.8	79673			
HFPO-DA	6.020	284.9 -> 168.9	21407	4.72	µg/L	97
		284.9 -> 184.9	2973			
3:3FTCA	3.858	241.0 -> 177.0	14592	11.67	µg/L	99
		241.0 -> 117.0	1450			
5:3FTCA	6.283	341.0 -> 237.1	314611	63.43	µg/L	94
		341.0 -> 217.0	207194			
7:3FTCA	7.669	441.0 -> 316.9	166765	56.89	µg/L	92
		441.0 -> 336.9	358209			
EtFOSA	10.990	526.0 -> 219.0	24857	4.88	µg/L	97
		526.0 -> 169.0	31915			
EtFOSE	10.937	630.0 -> 58.9	74851	12.80	µg/L	100
		511.9 -> 219.0	23498			
MeFOSA	10.771	511.9 -> 169.0	31063	5.68	µg/L	97
		616.1 -> 58.9	50654			
MeFOSE	10.703	699.1 -> 79.9	4708	12.31	µg/L	100
		699.1 -> 98.8	2536			
PFDoDS	9.910	295.0 -> 201.0	15848	2.04	µg/L	96
		295.0 -> 84.9	3991			
NFDHA	5.524	279.0 -> 85.1	61609	4.68	µg/L	96
		229.0 -> 84.9	45125			
PFMBA	4.850	314.8 -> 134.9	161194	5.43	µg/L	100
		314.8 -> 82.9	5287			
PFMPA	3.563			5.54	µg/L	100
PFEESA	6.112			4.42	µg/L	99

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

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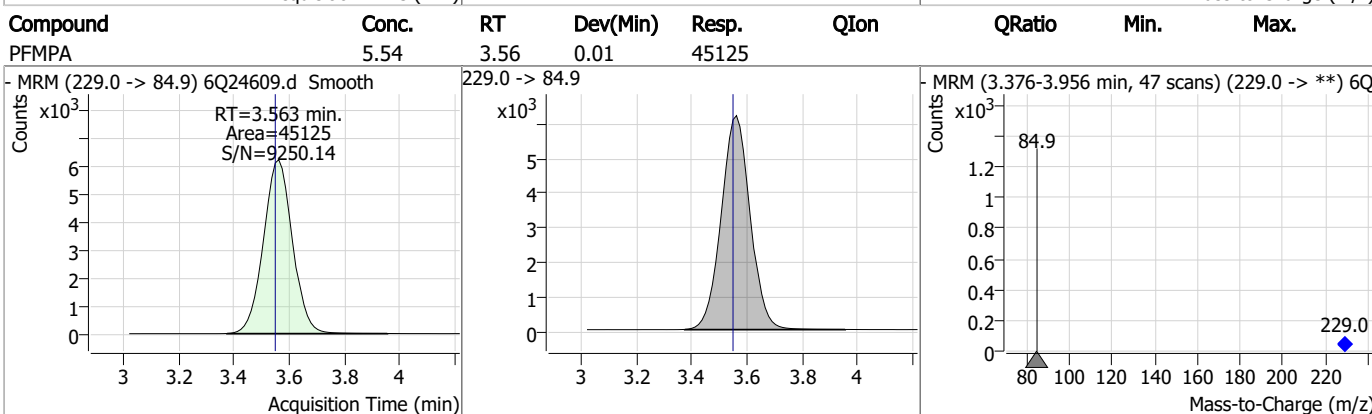
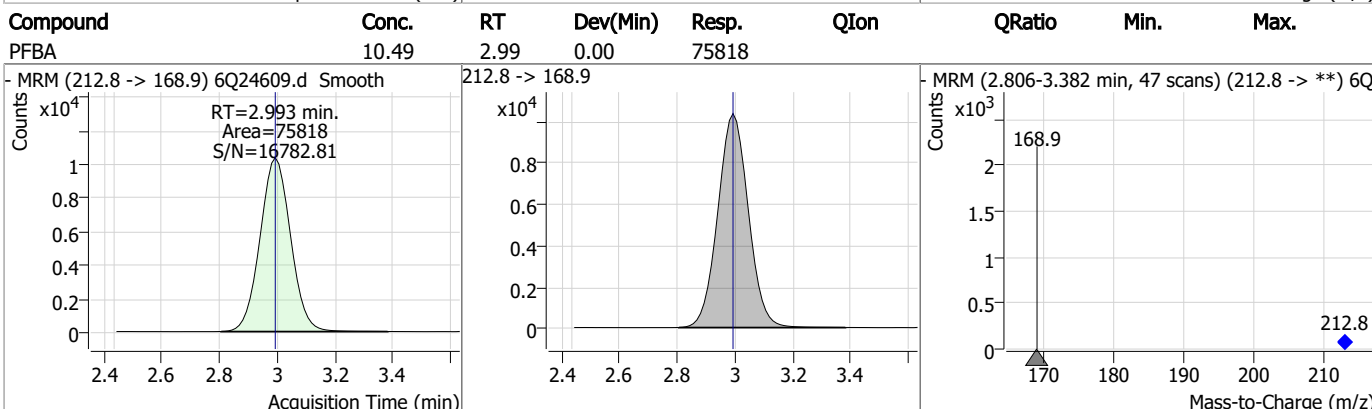
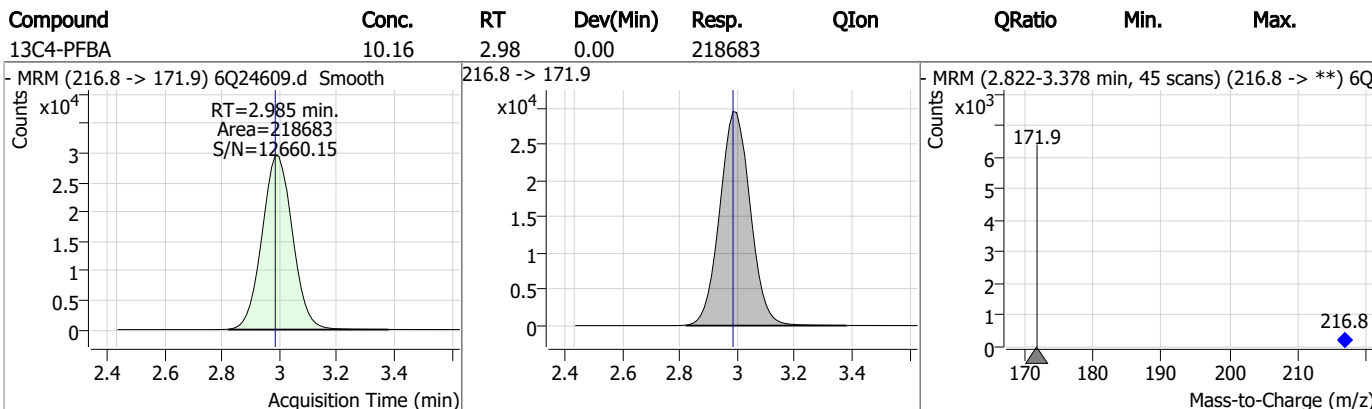
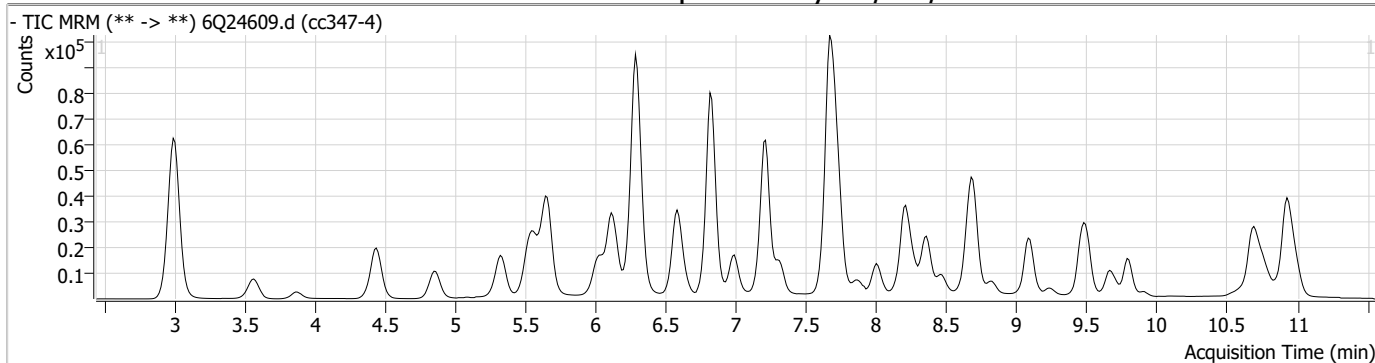
Perfluorinated Compounds by LC/MS/MS

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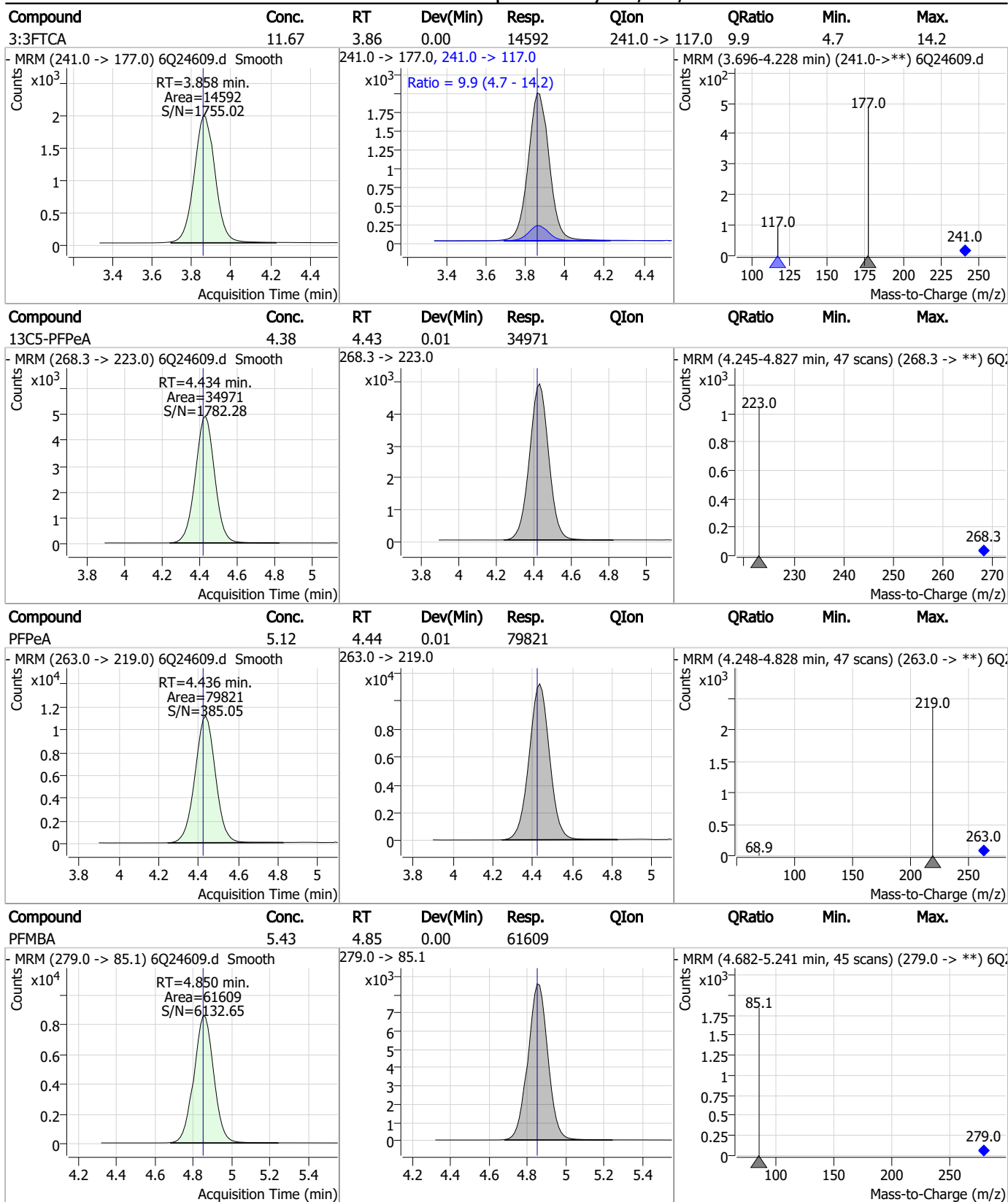
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Perfluorinated Compounds by LC/MS/MS



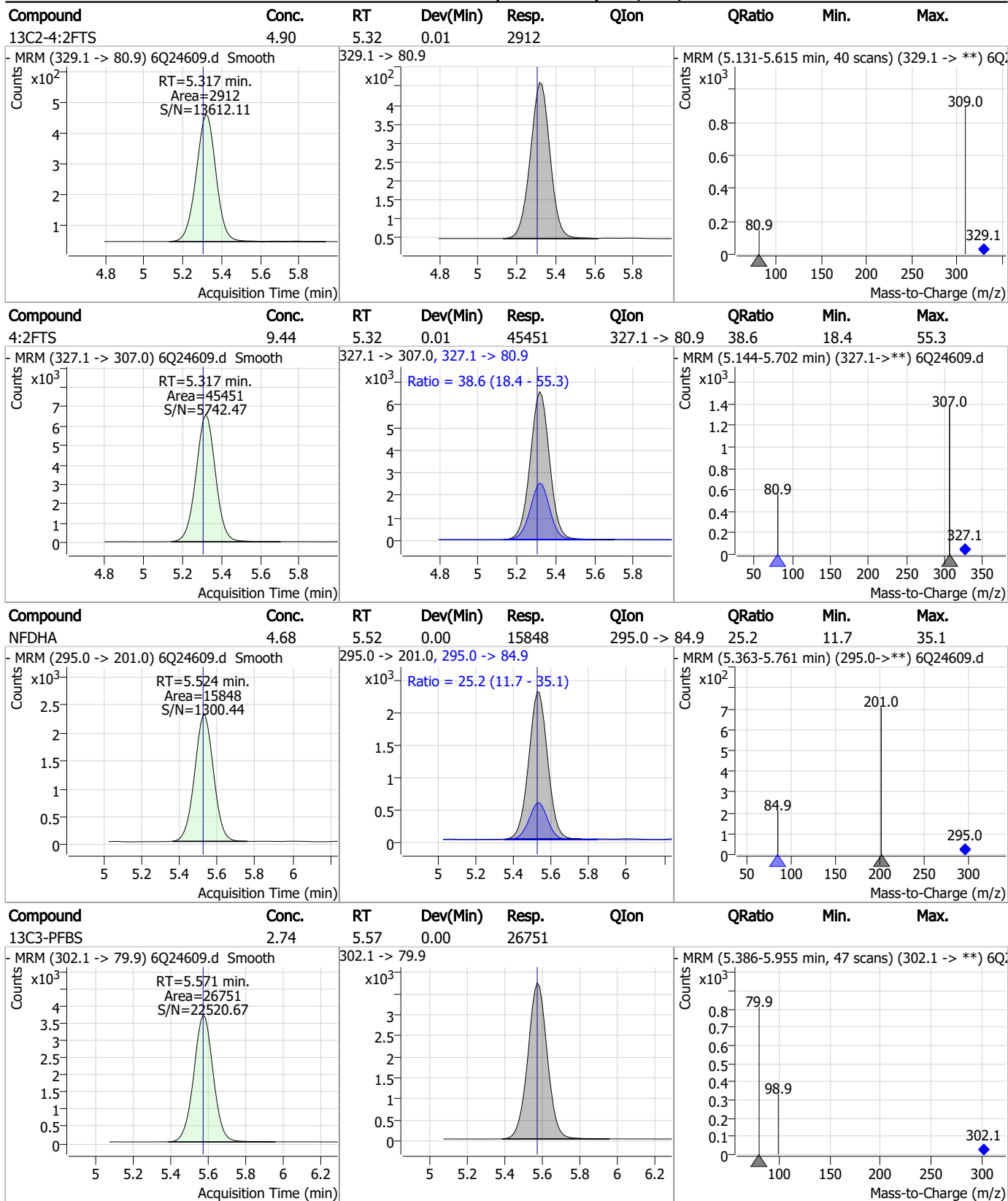
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



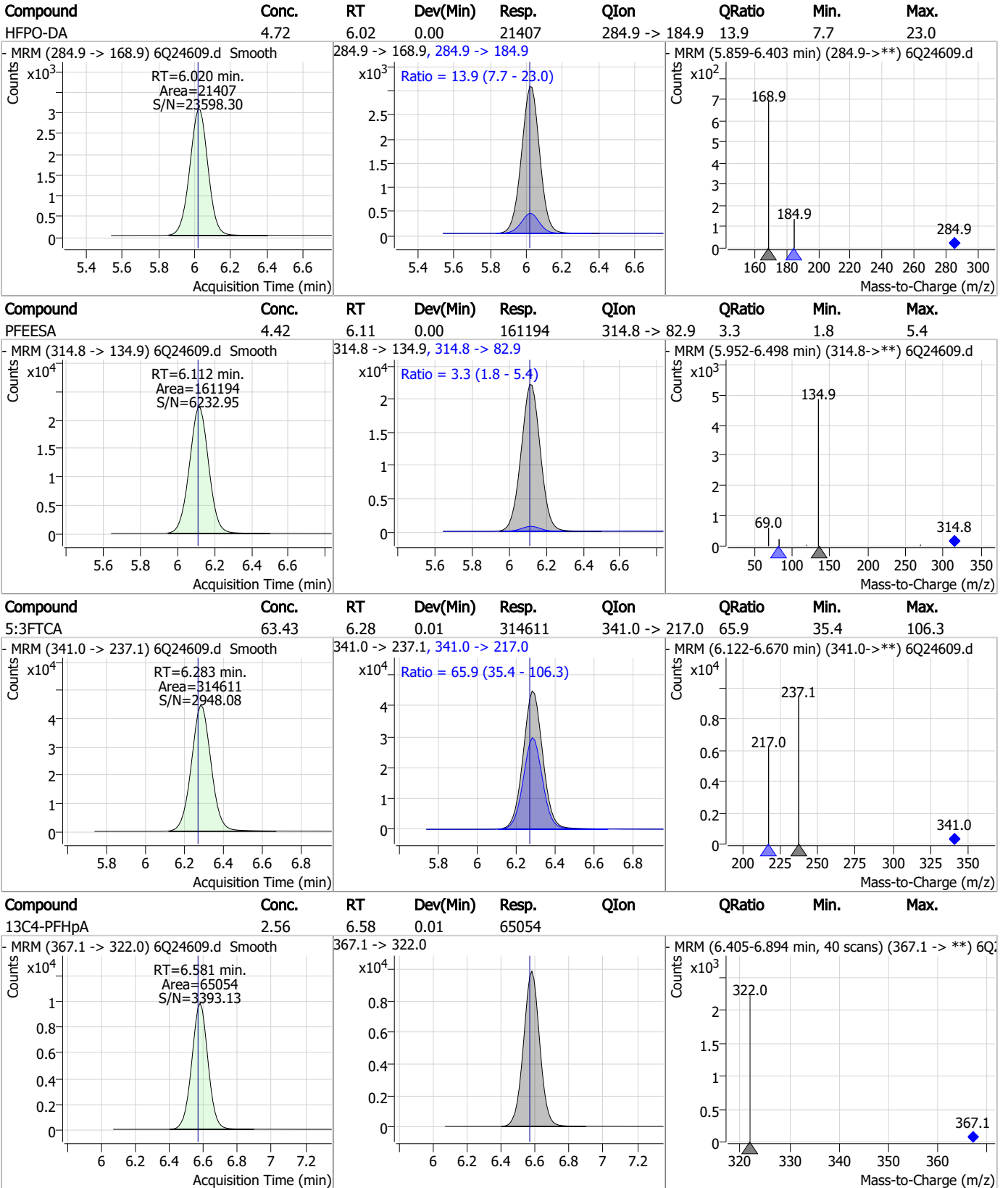
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.10	5.57	0.00	27621	298.7 -> 98.8	36.8	19.0	57.1
13C5-PFHxA	2.46	5.65	0.01	80211				
PFHxA	2.23	5.66	0.01	65149	313.0 -> 118.9	4.6	2.2	6.6
13C3-HFPO-DA	10.62	6.02	0.00	47904				

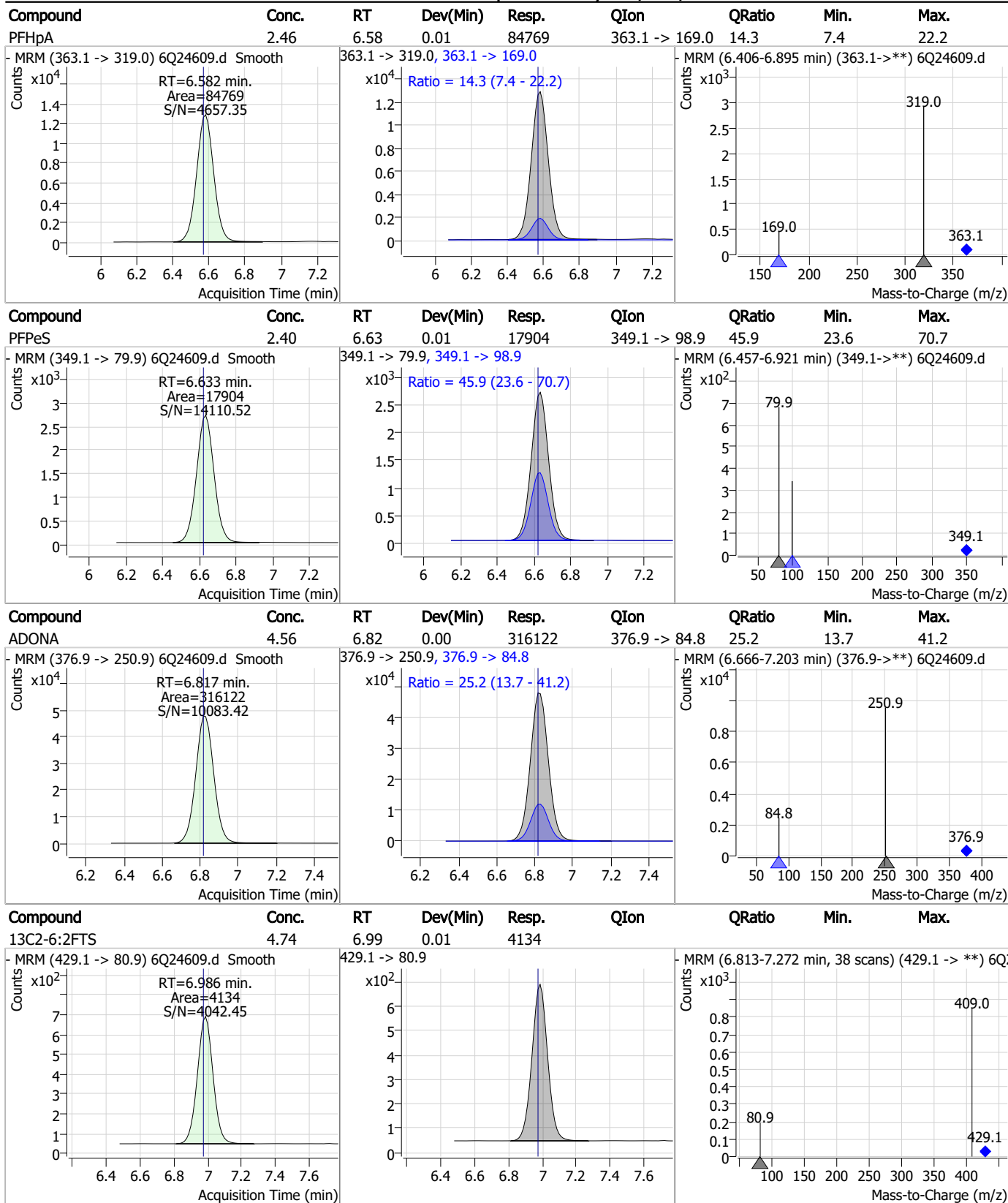
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Perfluorinated Compounds by LC/MS/MS



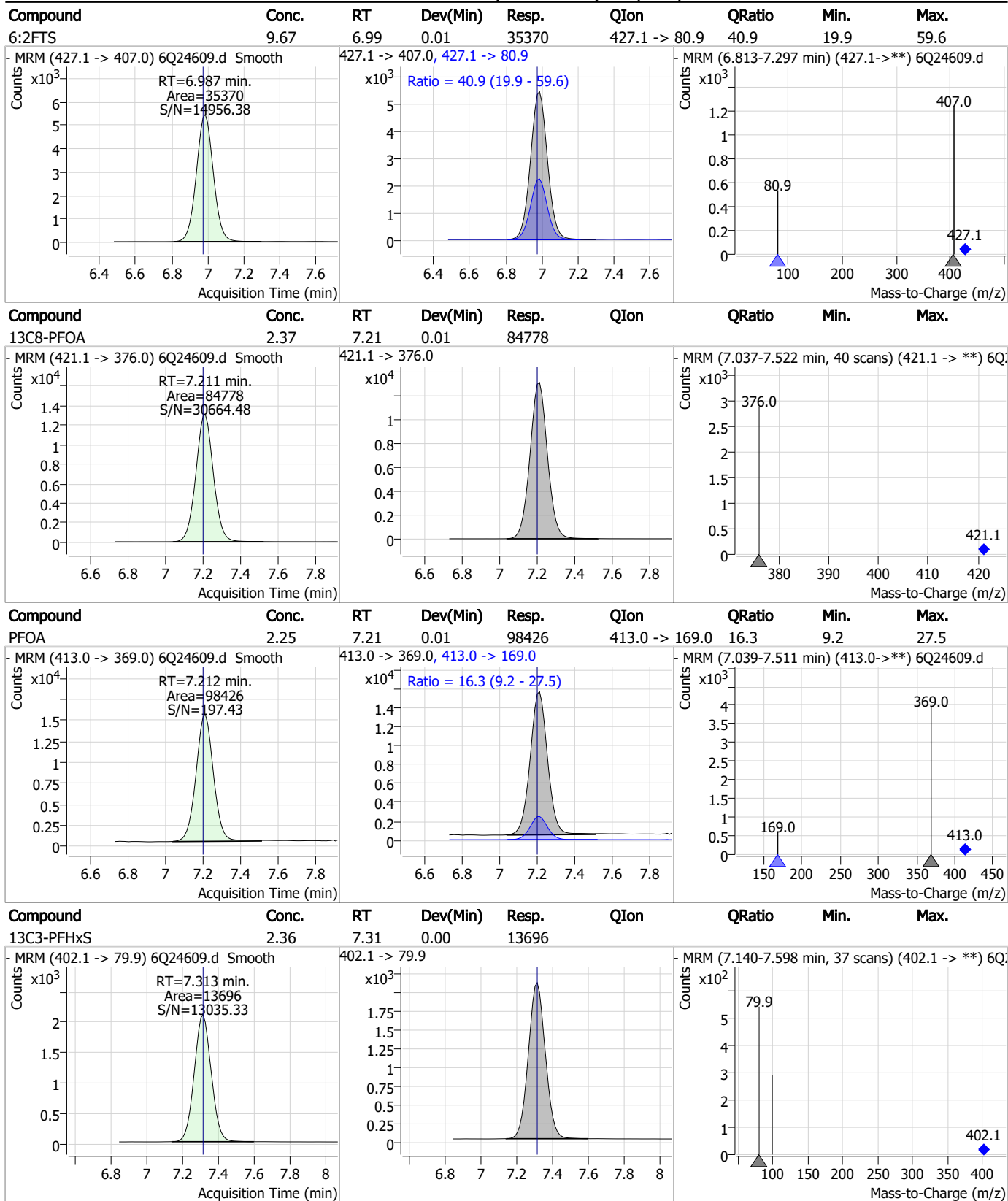
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Perfluorinated Compounds by LC/MS/MS



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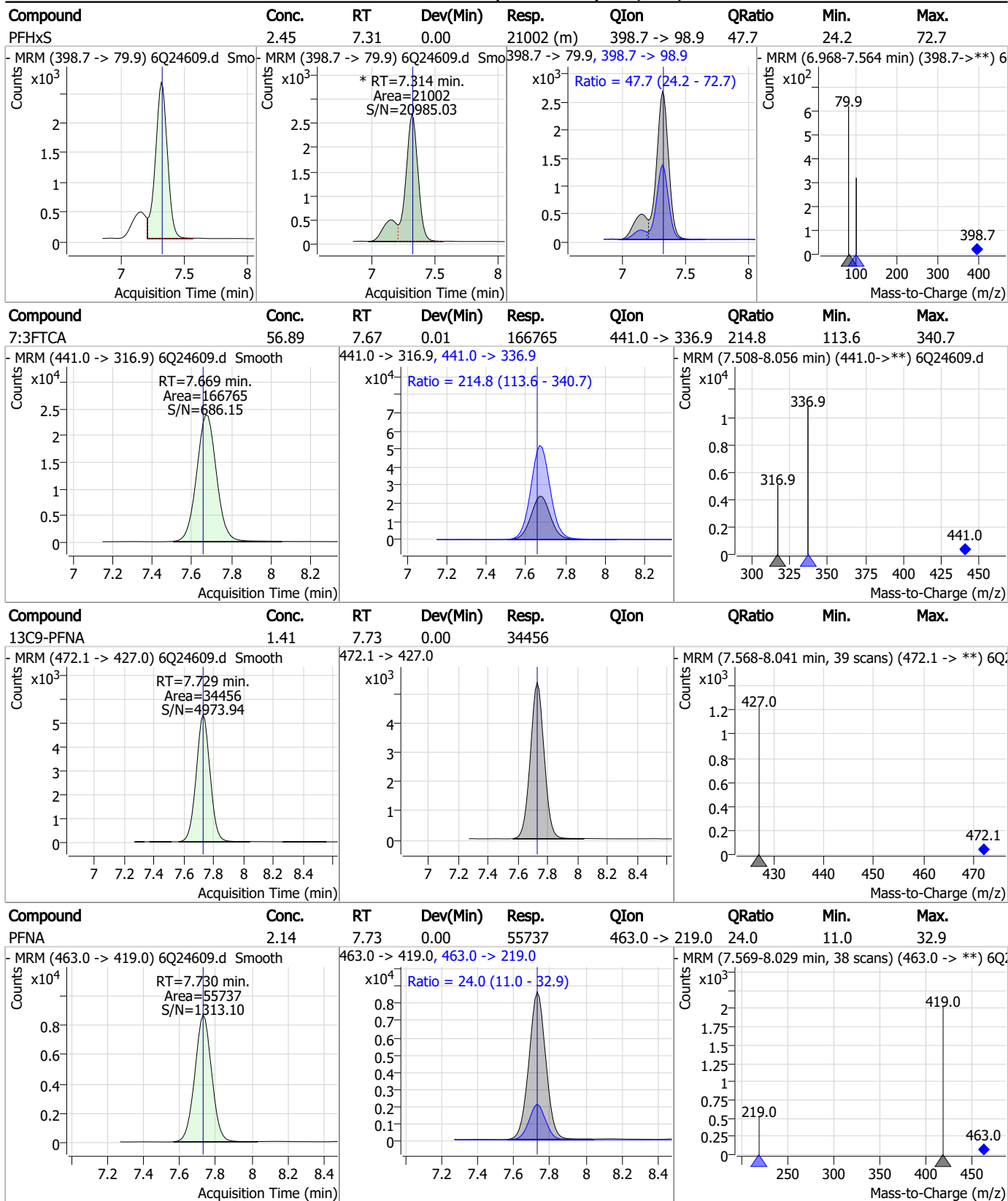
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



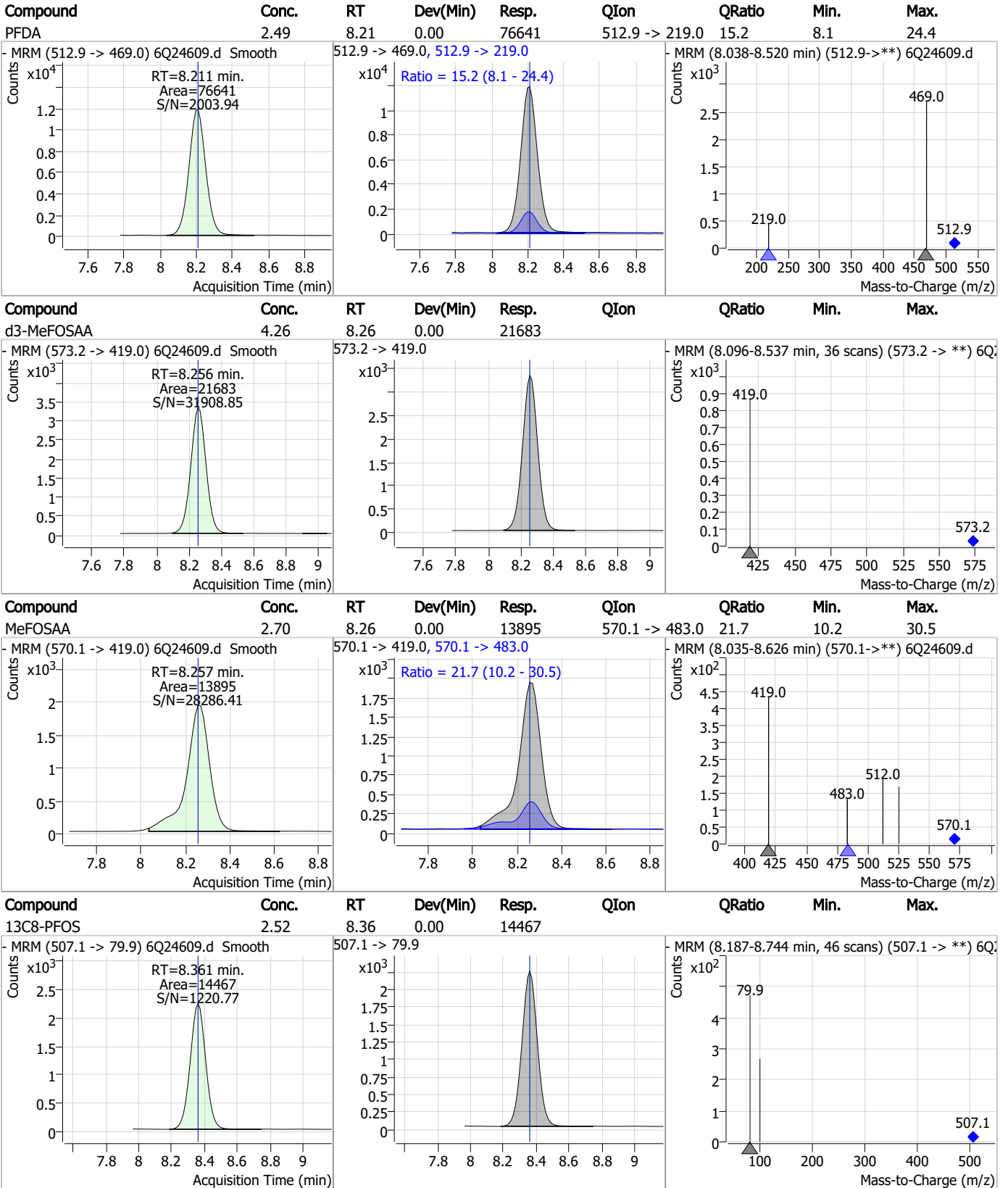
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.19	7.87	0.00	15357	449.0 -> 98.9	49.7	23.4	70.1
13C2-8:2FTS	4.37	8.00	0.00	3948	529.1 -> 80.9	37.1	19.7	59.0
8:2FTS	9.57	8.00	0.00	25493	527.1 -> 80.8	37.1	19.7	59.0
13C6-PFDA	1.30	8.21	0.00	33799	519.1 -> 474.1	37.1	19.7	59.0

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Perfluorinated Compounds by LC/MS/MS

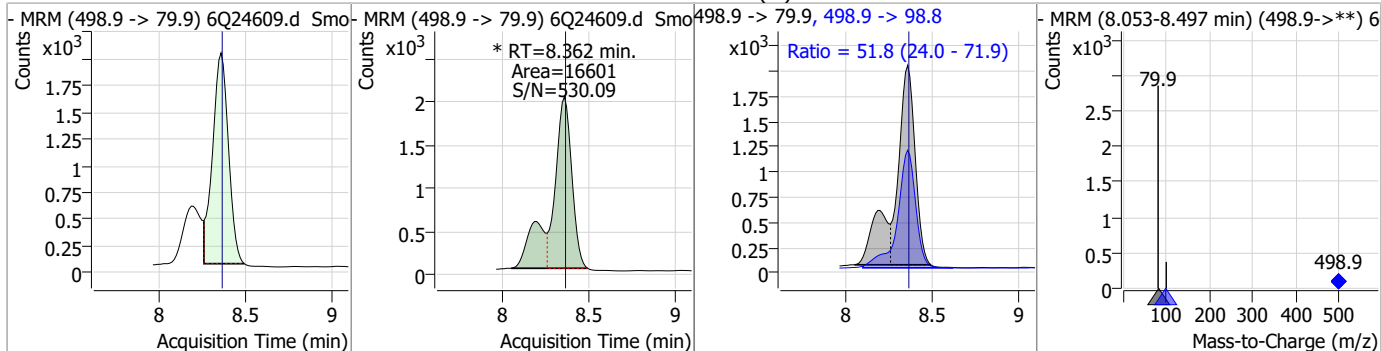


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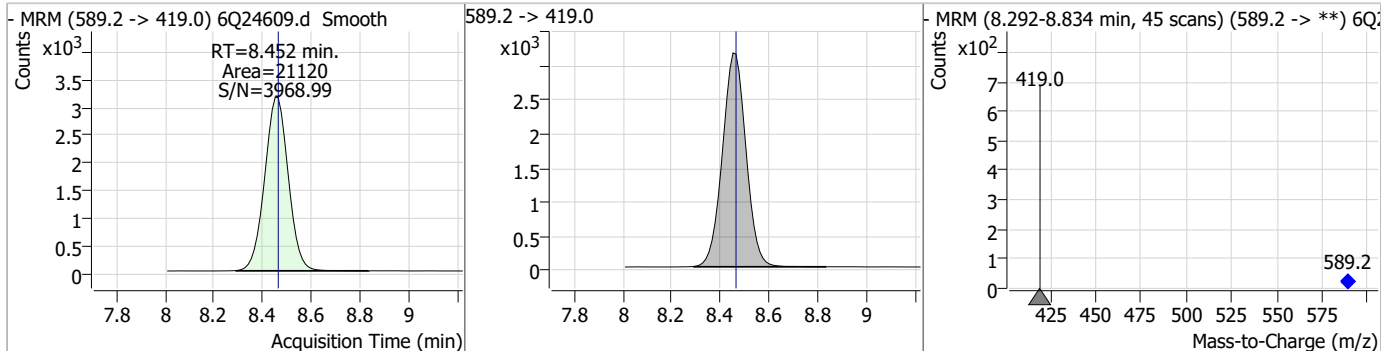
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Perfluorinated Compounds by LC/MS/MS

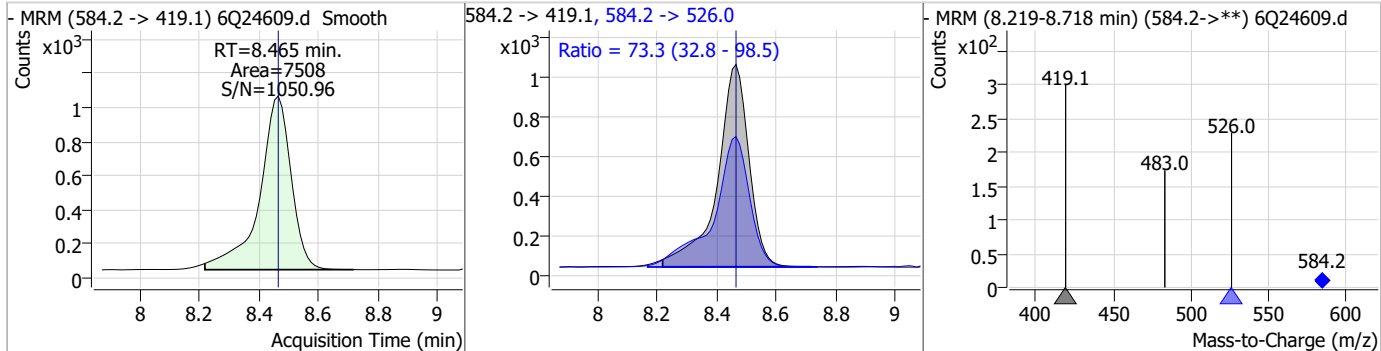
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.07	8.36	0.00	16601 (m)	498.9 -> 98.8	51.8	24.0	71.9



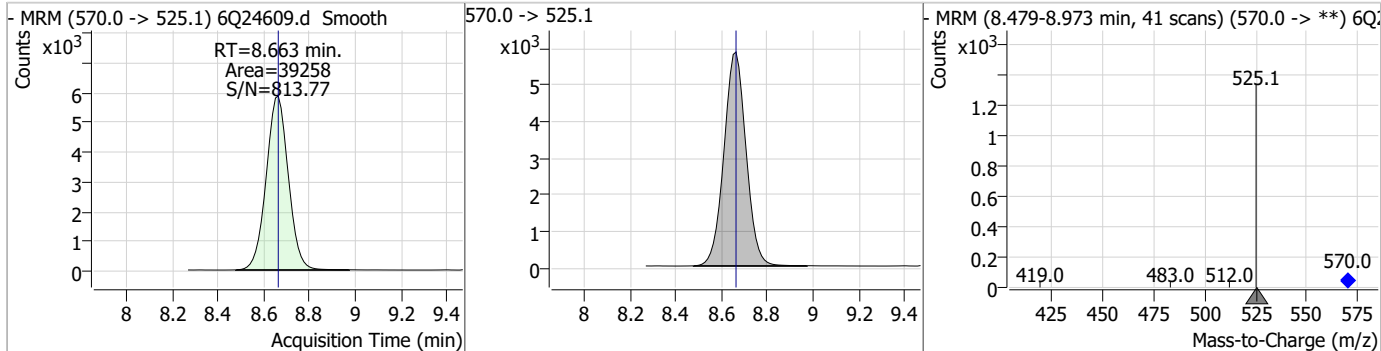
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.32	8.45	-0.01	21120				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.52	8.46	0.00	7508	584.2 -> 526.0	73.3	32.8	98.5

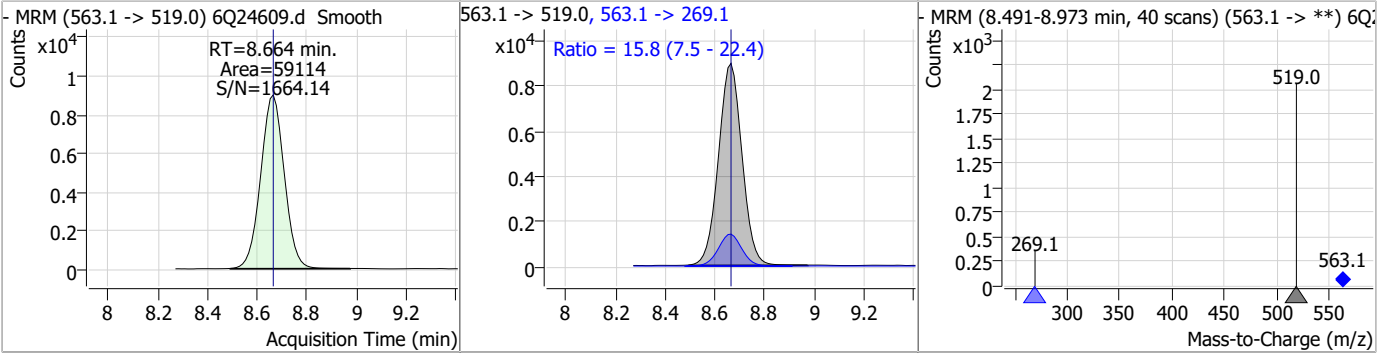


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.13	8.66	0.00	39258				

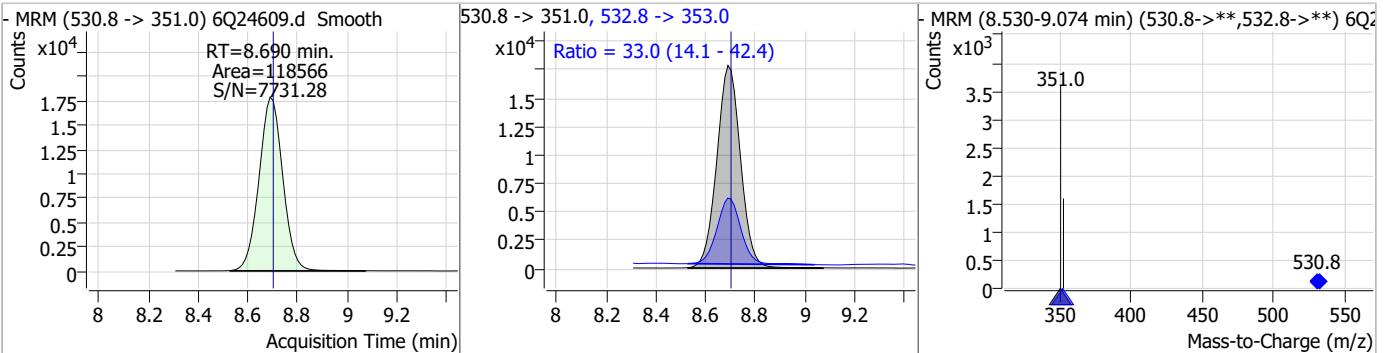


Perfluorinated Compounds by LC/MS/MS

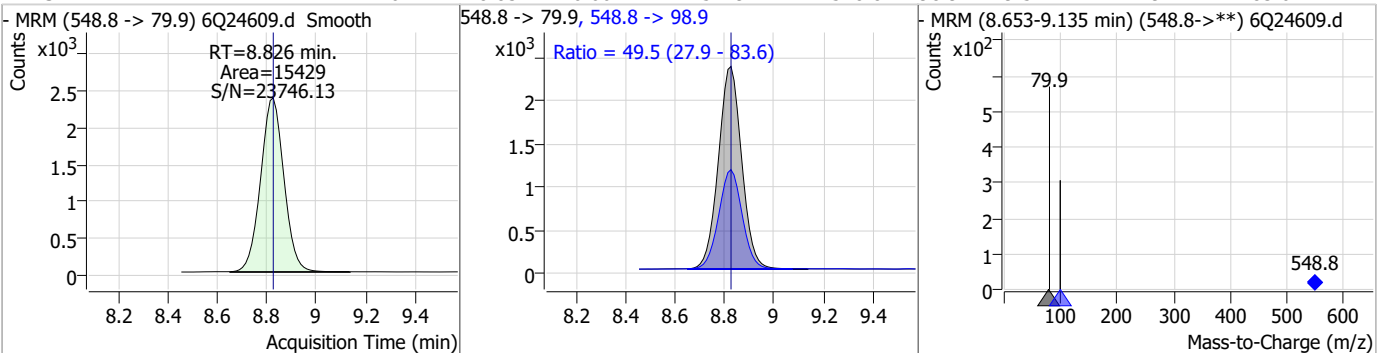
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.63	8.66	0.00	59114	563.1 -> 269.1	15.8	7.5	22.4



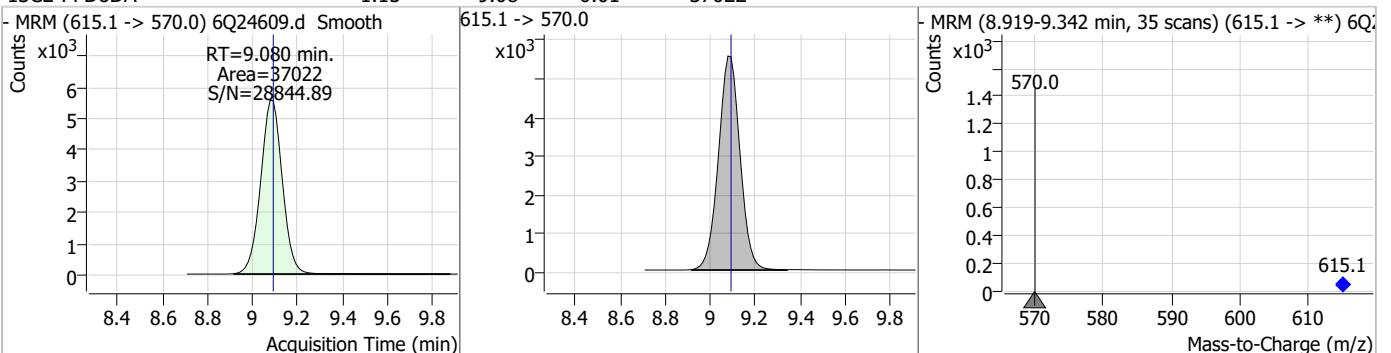
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	3.96	8.69	-0.01	118566	532.8 -> 353.0	33.0	14.1	42.4



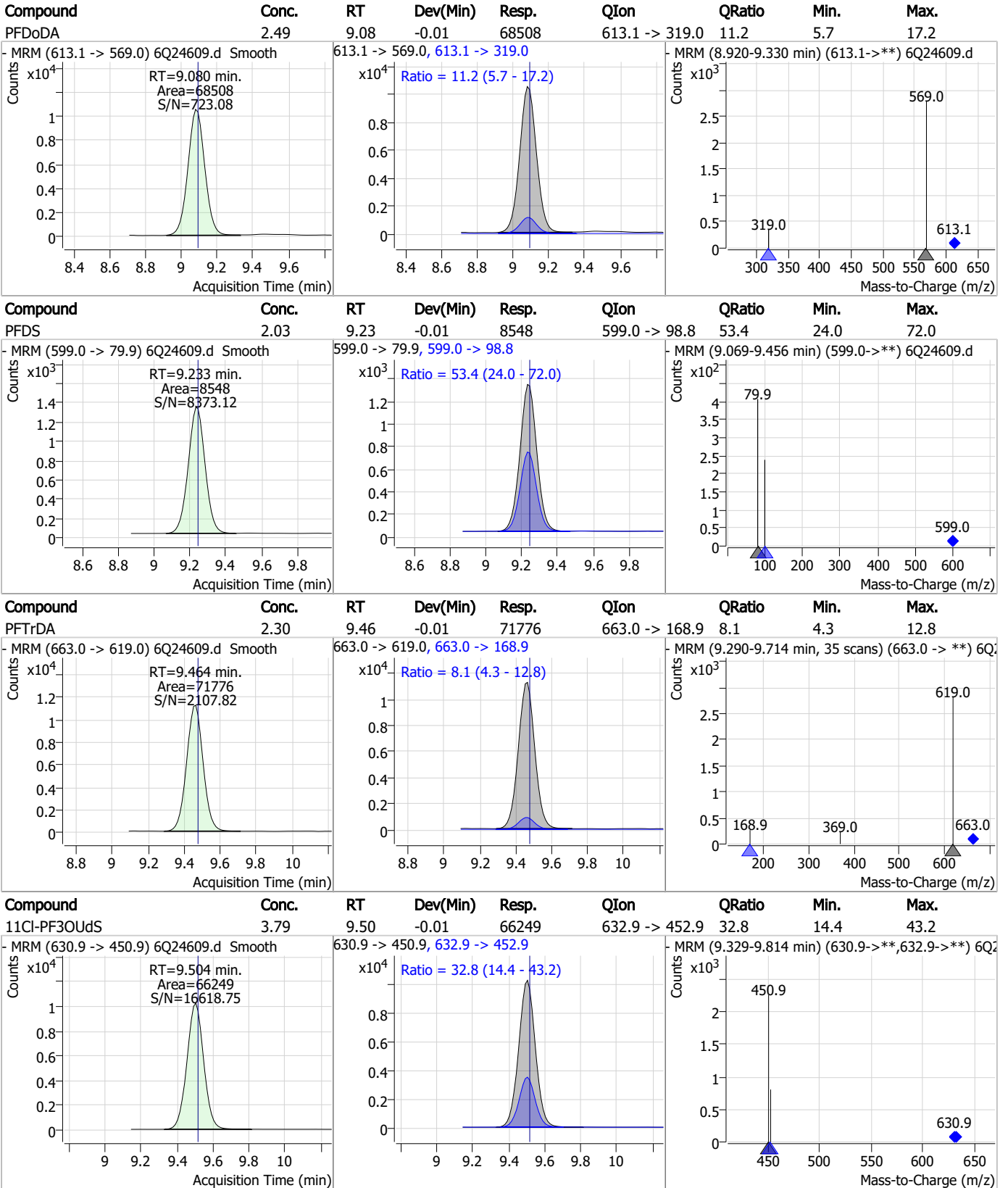
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.26	8.83	0.00	15429	548.8 -> 98.9	49.5	27.9	83.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.15	9.08	-0.01	37022	615.1 -> 570.0			



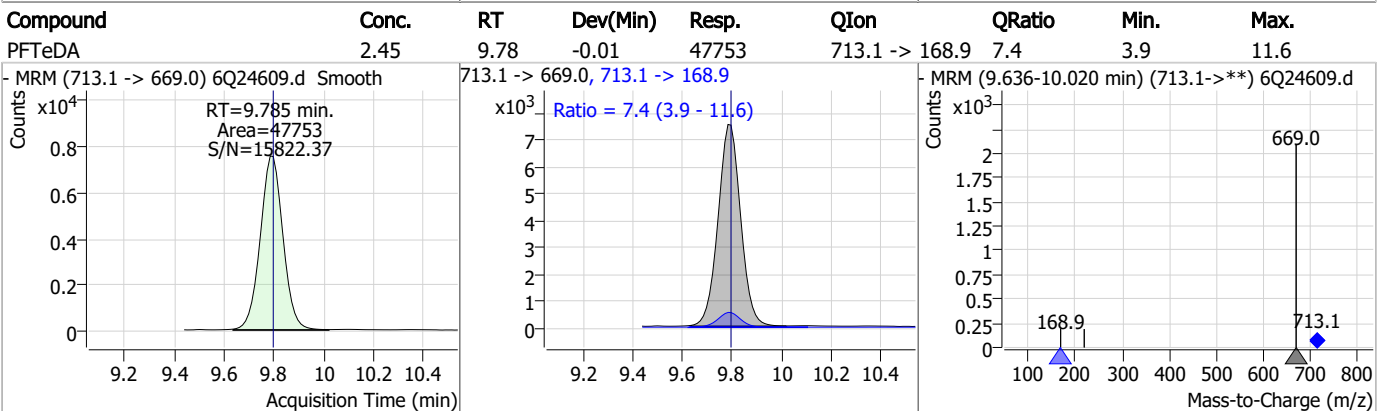
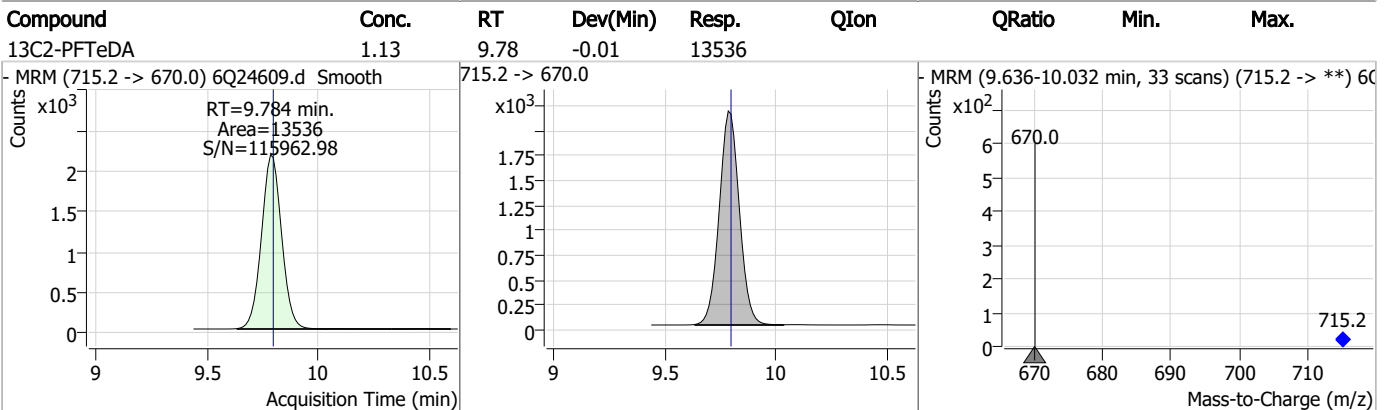
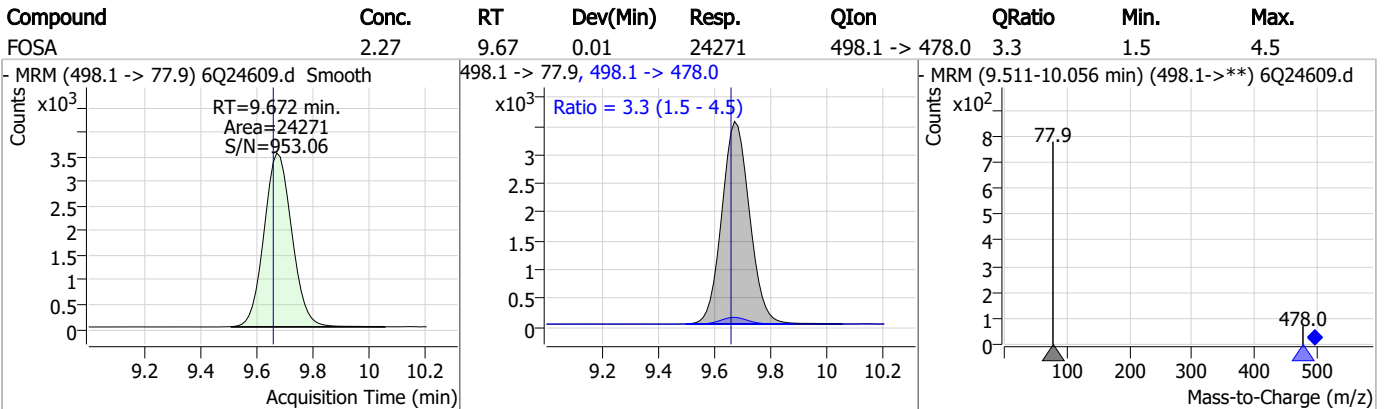
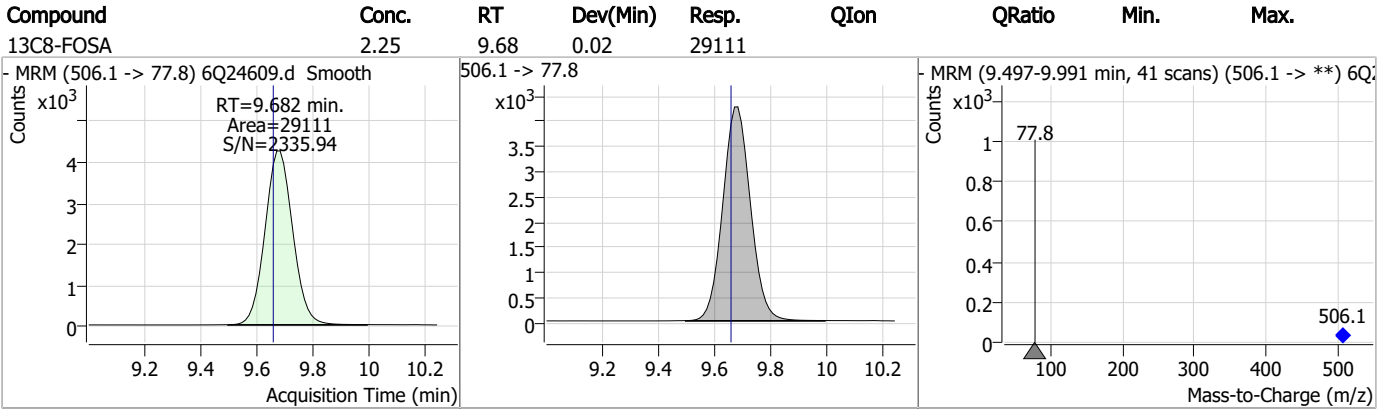
Perfluorinated Compounds by LC/MS/MS



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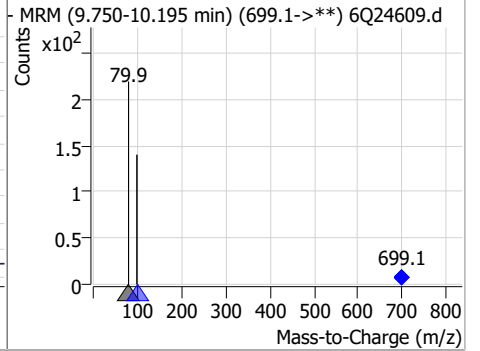
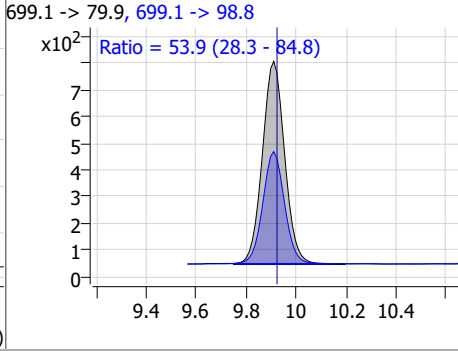
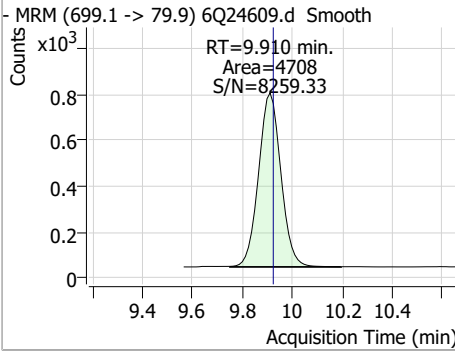
Perfluorinated Compounds by LC/MS/MS



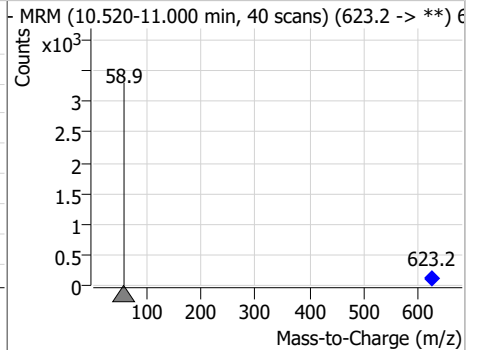
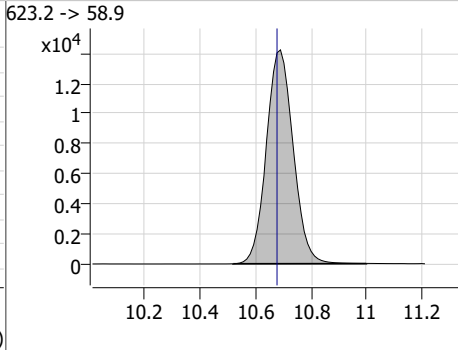
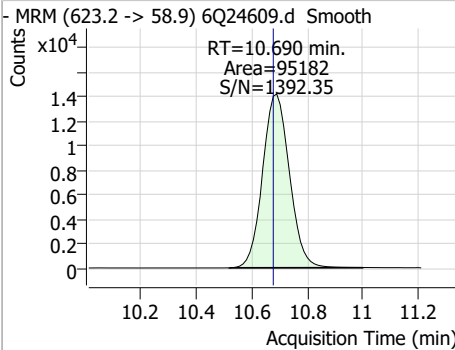
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Perfluorinated Compounds by LC/MS/MS

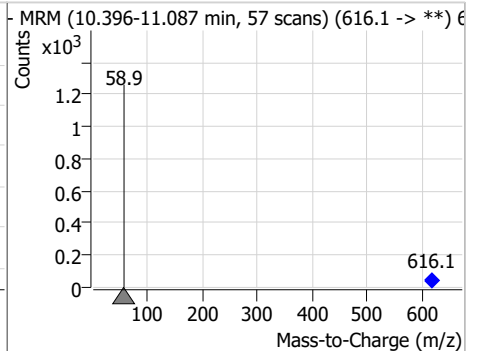
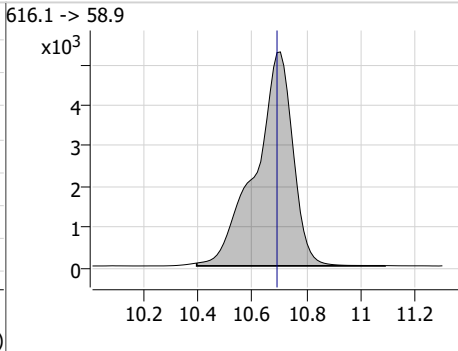
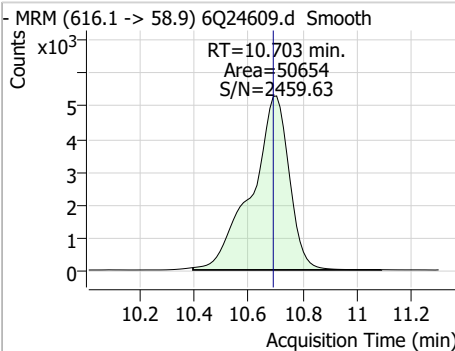
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.04	9.91	-0.01	4708	699.1 -> 98.8	53.9	28.3	84.8



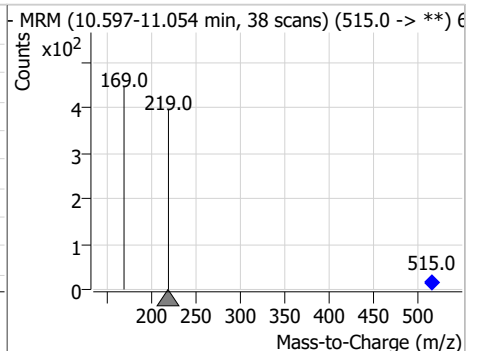
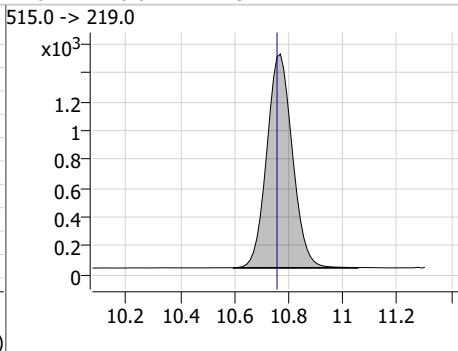
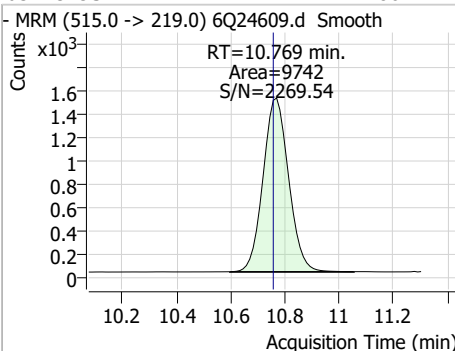
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.90	10.69	0.01	95182				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.31	10.70	0.01	50654				

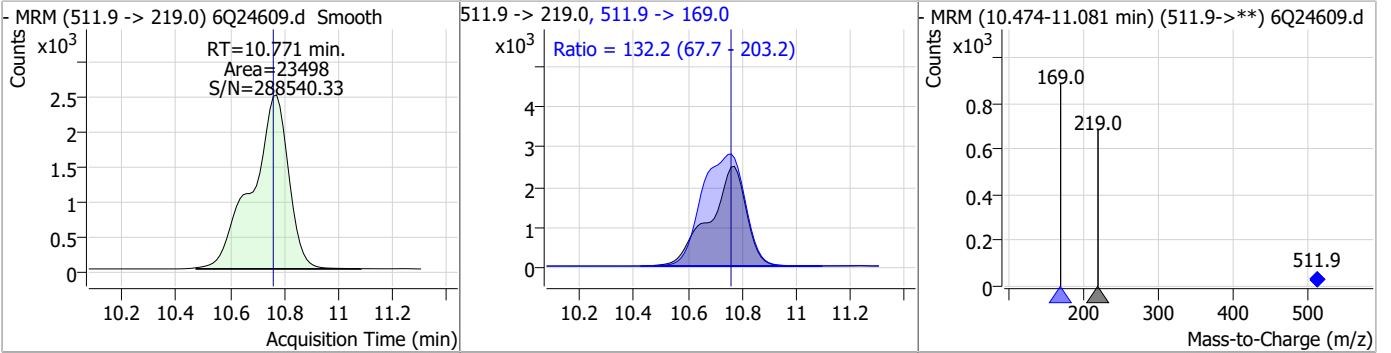


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.86	10.77	0.01	9742				

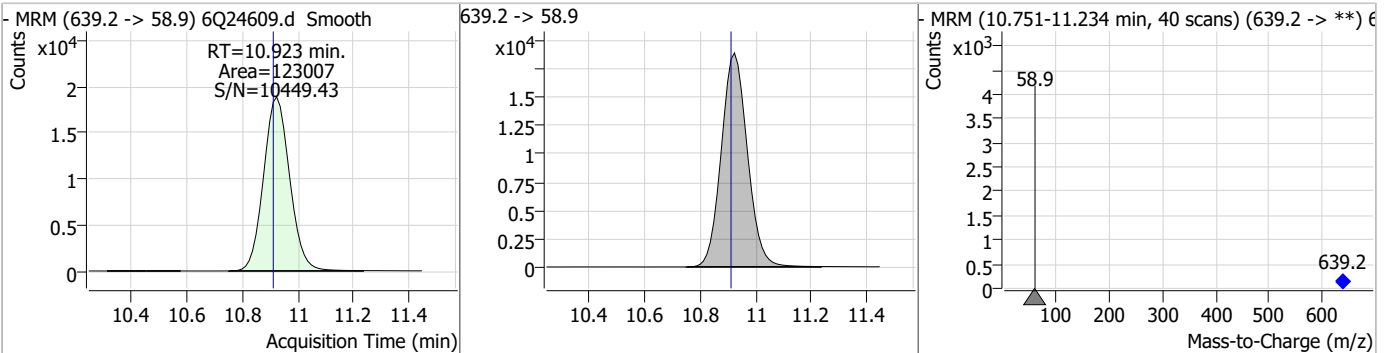


Perfluorinated Compounds by LC/MS/MS

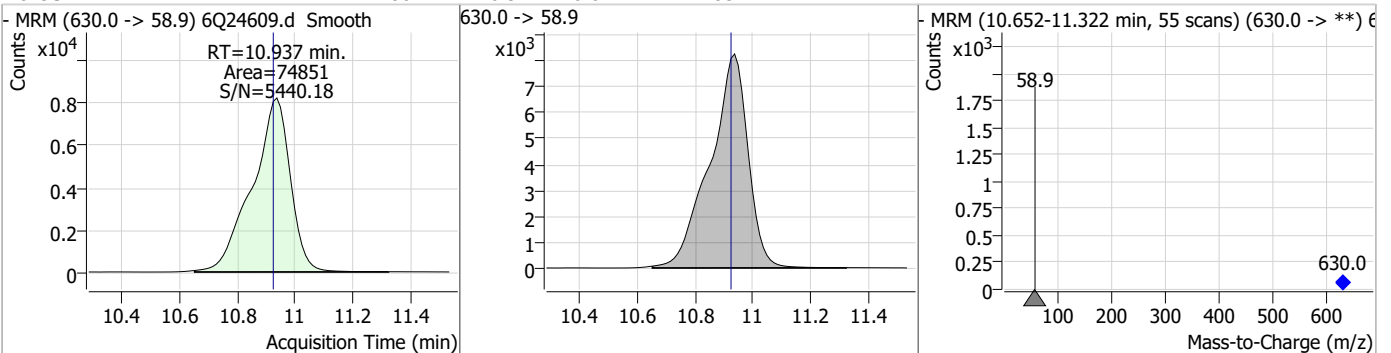
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.68	10.77	0.01	23498	511.9 -> 169.0	132.2	67.7	203.2



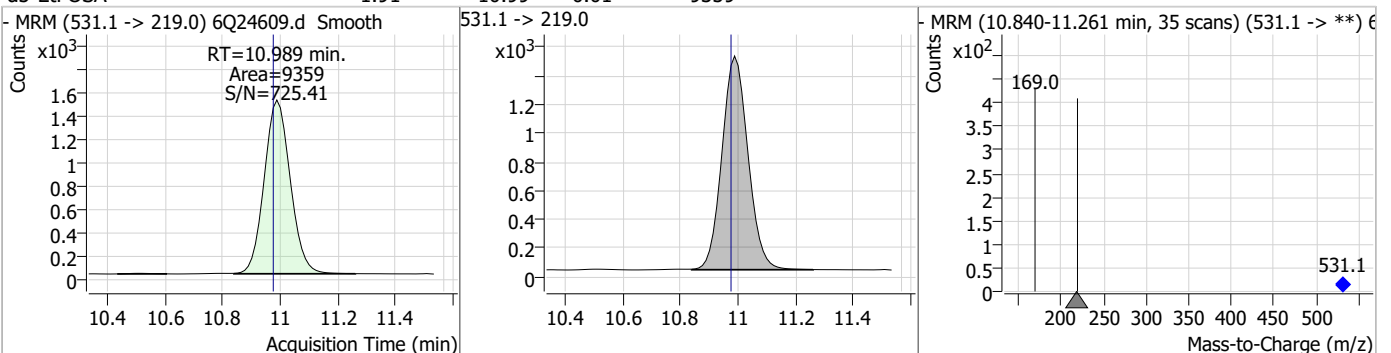
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.11	10.92	0.01	123007				



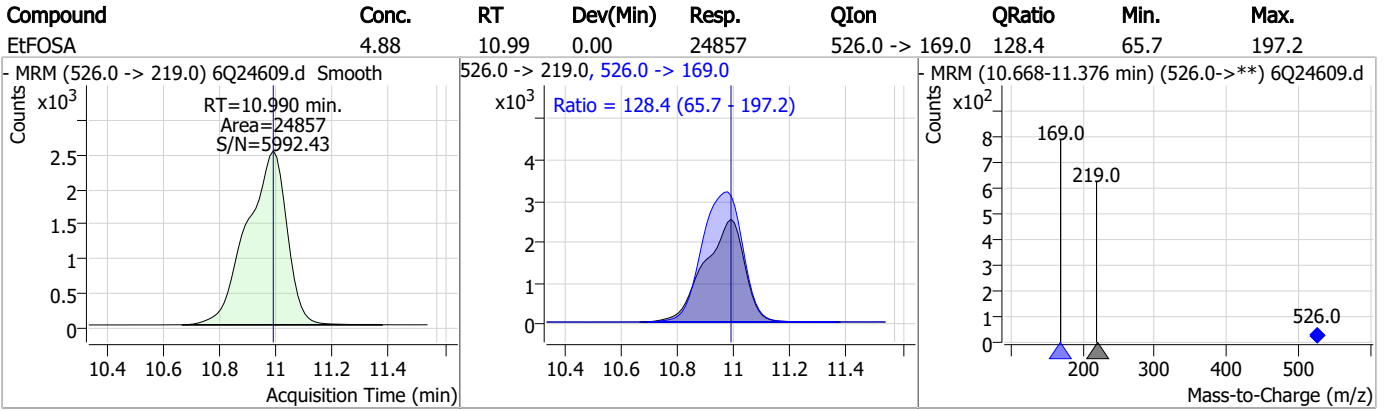
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.80	10.94	0.01	74851				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.91	10.99	0.01	9359				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q353-CC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24609.D Analyst approved: 09/20/23 09:35 Martha Valls
Injection Time: 09/18/23 15:19 Supervisor approved: 09/20/23 10:37 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24618.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/18/2023 5:28:28 PM
 Sample Name : cc347-4
 Vial : P1-A5
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : S6Q353.batch.bin
 Sample Information : OP98555,S6Q353,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	217921	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	35037	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	78302	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	63647	2.50 µg/L	0.012
M8-PFOA	7.198	421.1 -> 376.0	81360	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	34330	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	32921	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	38540	1.25 µg/L	-0.012
M2-PFDoDA	9.080	615.1 -> 570.0	34639	1.25 µg/L	-0.014
M2-PFTeDA	9.784	715.2 -> 670.0	13494	1.25 µg/L	-0.012
M8-FOSA	9.670	506.1 -> 77.8	27913	2.50 µg/L	0.012
M3-PFBS	5.571	302.1 -> 79.9	25495	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	14209	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	12391	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	2885	5.00 µg/L	0.012
M2-6:2FTS	6.974	429.1 -> 80.9	3711	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4208	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	22710	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	47275	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	19266	5.00 µg/L	-0.012
M7-MeFOSE	10.690	623.2 -> 58.9	91702	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	123632	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	9654	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	10102	2.50 µg/L	0.012
13C4-PFOS	8.361	502.8 -> 79.9	17534	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	84741	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	10950	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	93506	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	28098	1.25 µg/L	-0.012
13C5-PFNA	7.729	468.0 -> 423.0	39412	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	58810	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2885	4.68 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C2-6:2FTS	6.974	429.1 -> 80.9	3711	4.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 82.1%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4208	4.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.9%		
13C2-PFDoDA	9.080	615.1 -> 570.0	34639	1.15 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C2-PFTeDA	9.784	715.2 -> 670.0	13494	1.20 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C3-PFBS	5.571	302.1 -> 79.9	25495	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C3-PFHxS	7.313	402.1 -> 79.9	14209	2.36 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 = 94.5%	
13C4-PFBA	2.985	216.8 -> 171.9	217921	10.18 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C4-PFHpA	6.581	367.1 -> 322.0	63647	2.52 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C5-PFHxA	5.654	318.0 -> 273.0	78302	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C5-PFPeA	4.434	268.3 -> 223.0	35037	4.42 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.4%	
13C6-PFDA	8.210	519.1 -> 474.1	32921	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C7-PFUnDA	8.651	570.0 -> 525.1	38540	1.18 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.1%	
13C8-FOSA	9.670	506.1 -> 77.8	27913	2.24 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.4%	
13C8-PFOA	7.198	421.1 -> 376.0	81360	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C8-PFOS	8.361	507.1 -> 79.9	12391	2.24 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.7%	
13C9-PFNA	7.729	472.1 -> 427.0	34330	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.5%	
d3-MeFOSAA	8.256	573.2 -> 419.0	22710	4.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.6%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	47275	10.55 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
d3-MeFOSA	10.769	515.0 -> 219.0	10102	2.00 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 79.9%	
d5-EtFOSAA	8.452	589.2 -> 419.0	19266	4.09 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 81.7%	
d7-MeFOSE	10.690	623.2 -> 58.9	91702	19.89 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.6%	
d9-EtFOSE	10.923	639.2 -> 58.9	123632	19.93 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.7%	
d5-EtFOSA	10.989	531.1 -> 219.0	9654	2.05 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.8%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	45088	9.45 µg/L	98
		327.1 -> 80.9	17221		
6:2FTS	6.987	427.1 -> 407.0	36089	10.99 µg/L	98
		427.1 -> 80.9	13944		
8:2FTS	7.999	527.1 -> 507.0	25730	9.06 µg/L	97
		527.1 -> 80.8	10515		
EtFOSAA	8.465	584.2 -> 419.1	7147	2.63 µg/L	97
		584.2 -> 526.0	4857		
FOSA	9.672	498.1 -> 77.9	23462	2.28 µg/L	98
		498.1 -> 478.0	851		
MeFOSAA	8.257	570.1 -> 419.0	14460	2.68 µg/L	99
		570.1 -> 483.0	2889		
PFBA	2.993	212.8 -> 168.9	77177	10.72 µg/L	100
PFBS	5.572	298.7 -> 79.9	28223	2.26 µg/L	99
		298.7 -> 98.8	10625		
PFDA	8.211	512.9 -> 469.0	80761	2.69 µg/L	98
		512.9 -> 219.0	12342		
PFDODA	9.080	613.1 -> 569.0	65704	2.56 µg/L	97
		613.1 -> 319.0	8287		
PFDS	9.233	599.0 -> 79.9	9449	2.62 µg/L	96

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.582	599.0 -> 98.8	4260	2.51	µg/L	98
		363.1 -> 319.0	84694			
PFHpS	7.868	363.1 -> 169.0	11827	2.57	µg/L	96
		449.0 -> 79.9	15440			
PFHxA	5.657	449.0 -> 98.9	7620	2.34	µg/L	100
		313.0 -> 269.0	66553			
PFHxS	7.314	313.0 -> 118.9	2924	2.29	µg/L	100
		398.7 -> 79.9	20372			
PFNA	7.730	398.7 -> 98.9	9805	2.12	µg/L	96
		463.0 -> 419.0	54993			
PFNS	8.814	463.0 -> 219.0	13118	2.65	µg/L	98
		548.8 -> 79.9	15500			
PFOA	7.212	548.8 -> 98.9	8367	2.20	µg/L	98
		413.0 -> 369.0	92255			
PFOS	8.362	413.0 -> 169.0	16347	2.58	µg/L	96
		498.9 -> 79.9	17678			
PFPeA	4.436	498.9 -> 98.8	8021	5.13	µg/L	100
		263.0 -> 219.0	80128			
PFPeS	6.633	349.1 -> 79.9	17449	2.26	µg/L	98
		349.1 -> 98.9	8021			
PFTeDA	9.785	713.1 -> 669.0	45301	2.33	µg/L	100
		713.1 -> 168.9	3466			
PFTrDA	9.452	663.0 -> 619.0	69270	2.37	µg/L	98
		663.0 -> 168.9	5470			
PFUnDA	8.652	563.1 -> 519.0	55778	2.53	µg/L	97
		563.1 -> 269.1	9056			
11CI-PF3OUdS	9.491	630.9 -> 450.9	66131	3.83	µg/L	92
		632.9 -> 452.9	21855			
9CI-PF3ONS	8.690	530.8 -> 351.0	117396	3.97	µg/L	90
		532.8 -> 353.0	39483			
ADONA	6.817	376.9 -> 250.9	315137	4.60	µg/L	96
		376.9 -> 84.8	79177			
HFPO-DA	6.020	284.9 -> 168.9	21545	4.82	µg/L	96
		284.9 -> 184.9	2912			
3:3FTCA	3.858	241.0 -> 177.0	14728	11.82	µg/L	99
		241.0 -> 117.0	1455			
5:3FTCA	6.283	341.0 -> 237.1	298582	61.66	µg/L	99
		341.0 -> 217.0	214369			
7:3FTCA	7.669	441.0 -> 316.9	180931	63.23	µg/L	84
		441.0 -> 336.9	364883			
EtFOSA	10.990	526.0 -> 219.0	24691	4.70	µg/L	94
		526.0 -> 169.0	30694			
EtFOSE	10.937	630.0 -> 58.9	74922	12.75	µg/L	100
		511.9 -> 219.0	22930			
MeFOSA	10.758	511.9 -> 169.0	31811	5.35	µg/L	97
		616.1 -> 58.9	51432			
MeFOSE	10.703	699.1 -> 79.9	4465	12.97	µg/L	100
		699.1 -> 98.8	2379			
PFDoDS	9.910	295.0 -> 201.0	15674	2.26	µg/L	96
		295.0 -> 84.9	4372			
NFDHA	5.524	279.0 -> 85.1	60658	4.75	µg/L	91
		229.0 -> 84.9	44955			
PFMBA	4.850	314.8 -> 134.9	159914	5.51	µg/L	100
		314.8 -> 82.9	5715			
PFMPA	3.563			4.49	µg/L	100
PFEESA	6.124					

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

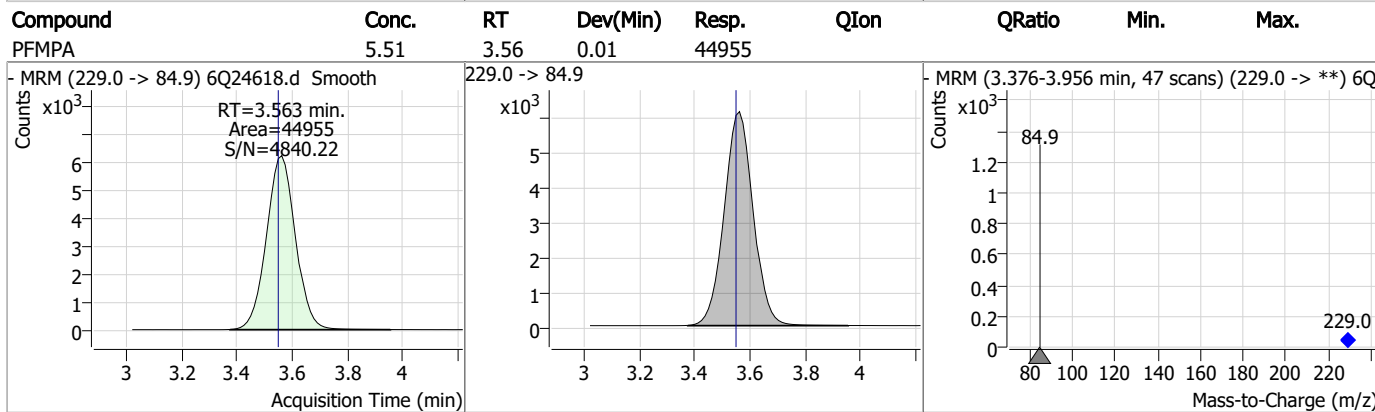
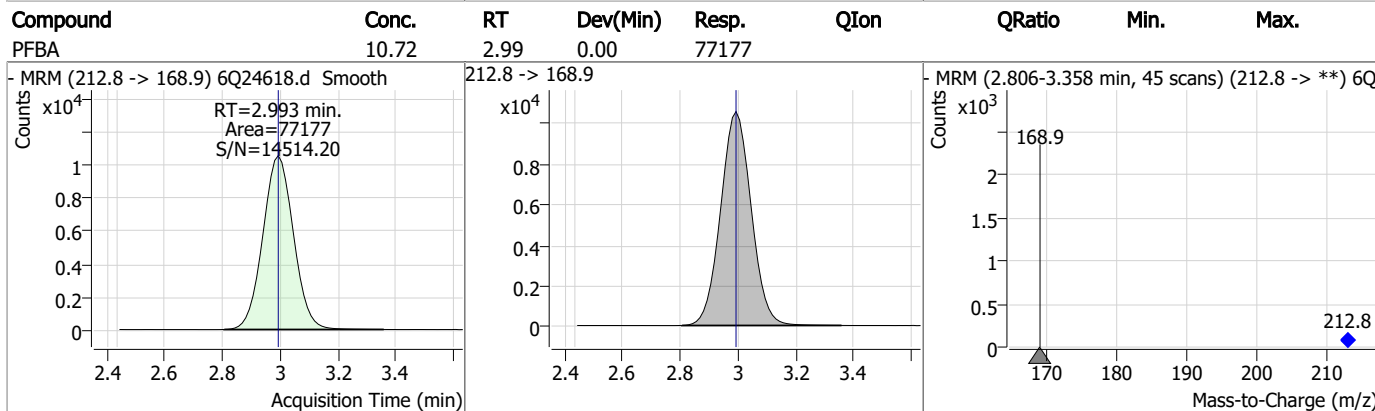
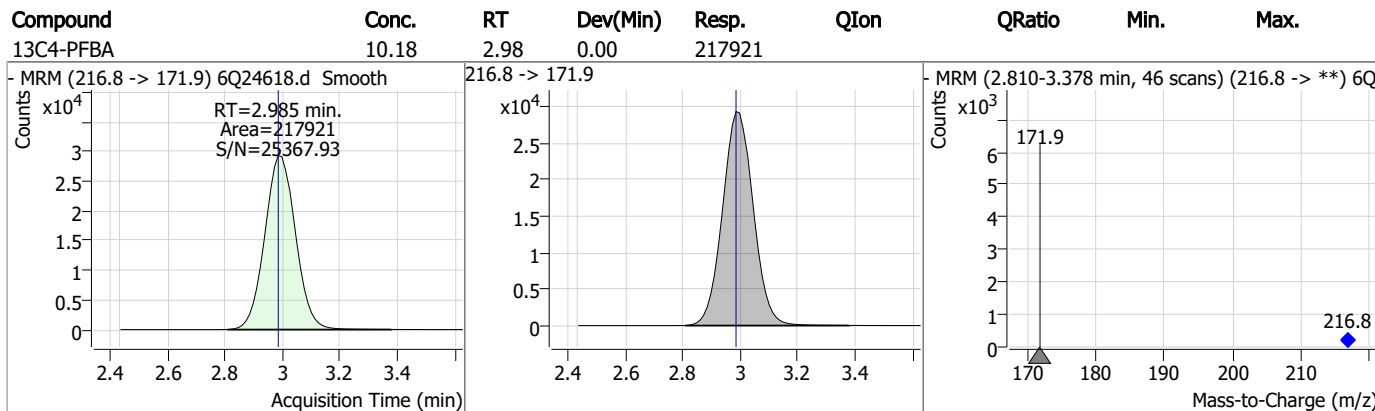
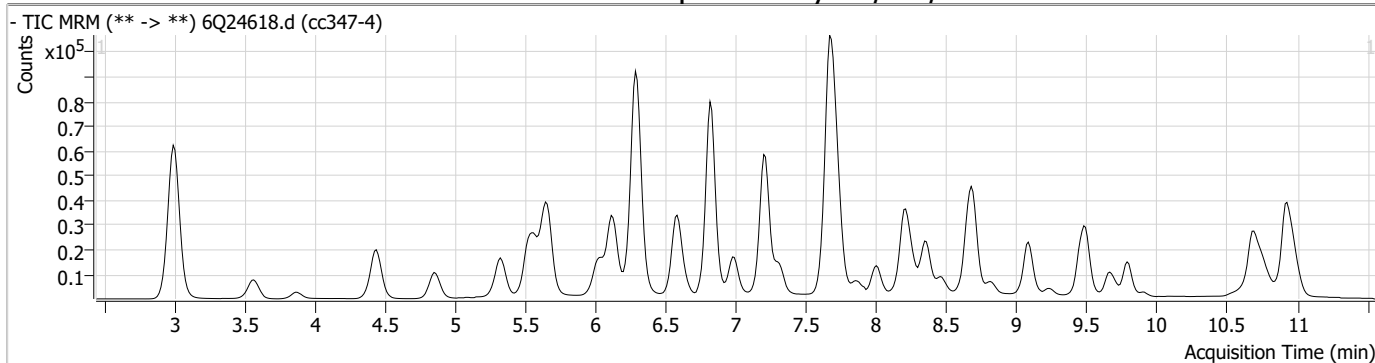
Perfluorinated Compounds by LC/MS/MS

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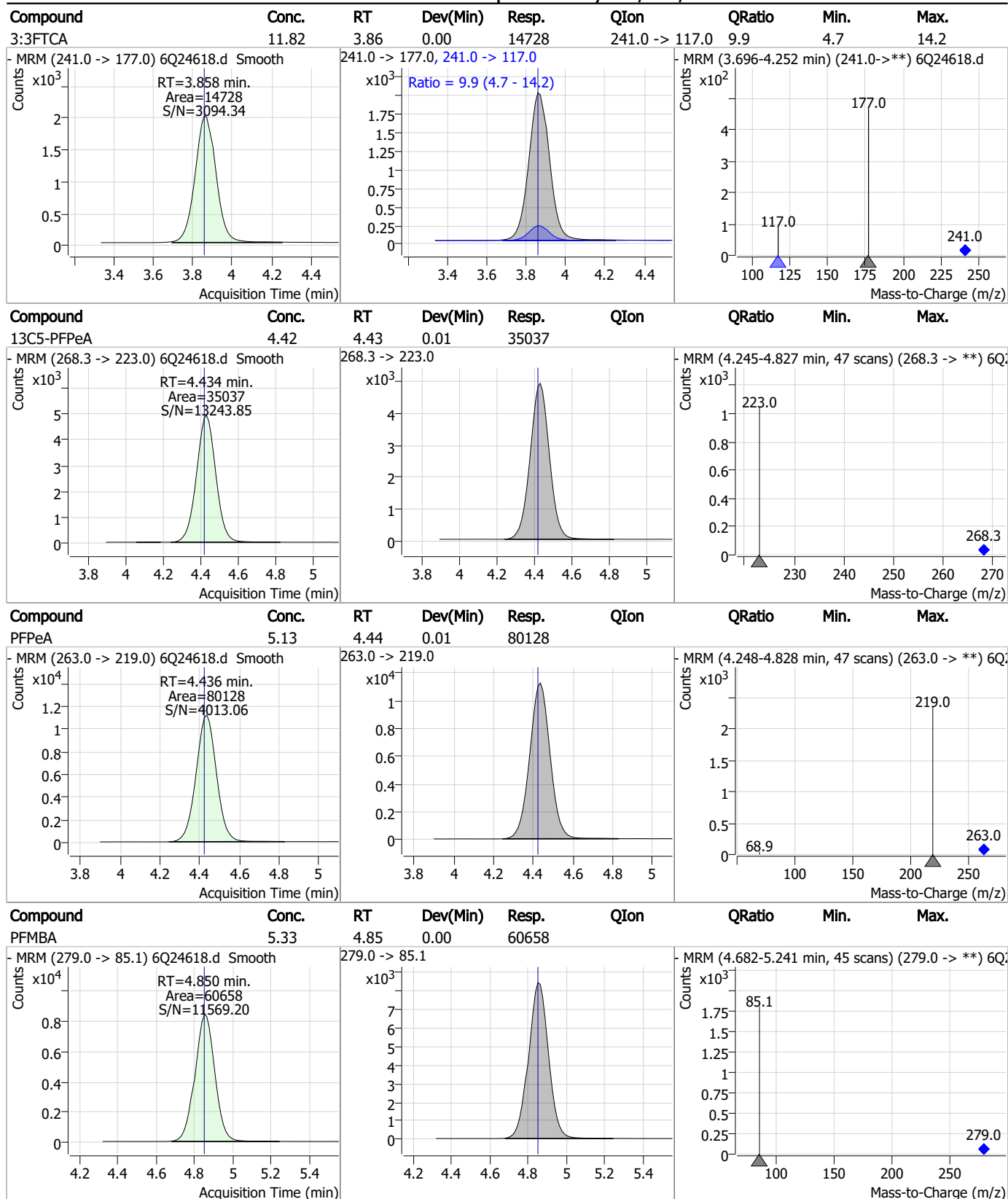
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Perfluorinated Compounds by LC/MS/MS



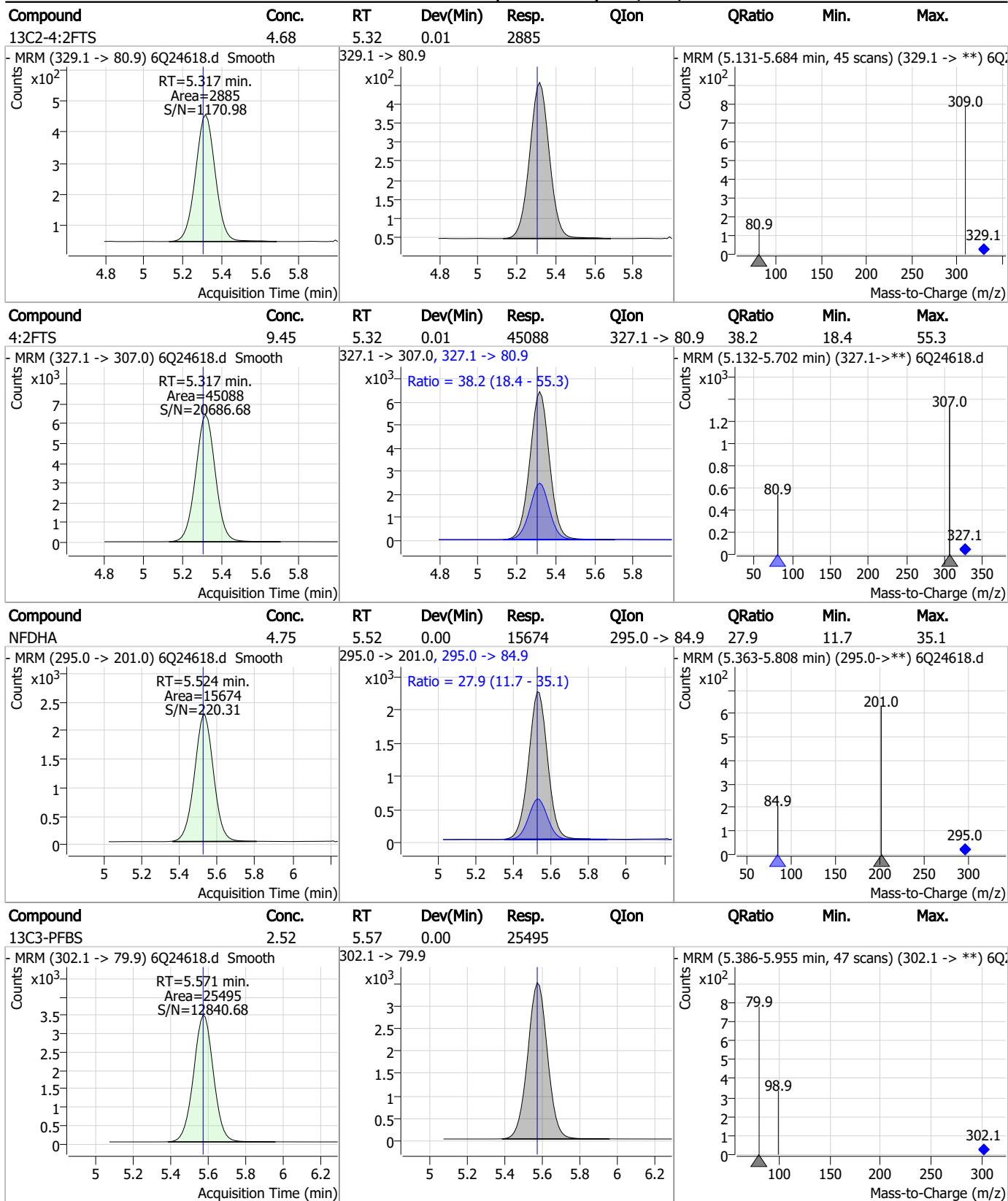
Perfluorinated Compounds by LC/MS/MS



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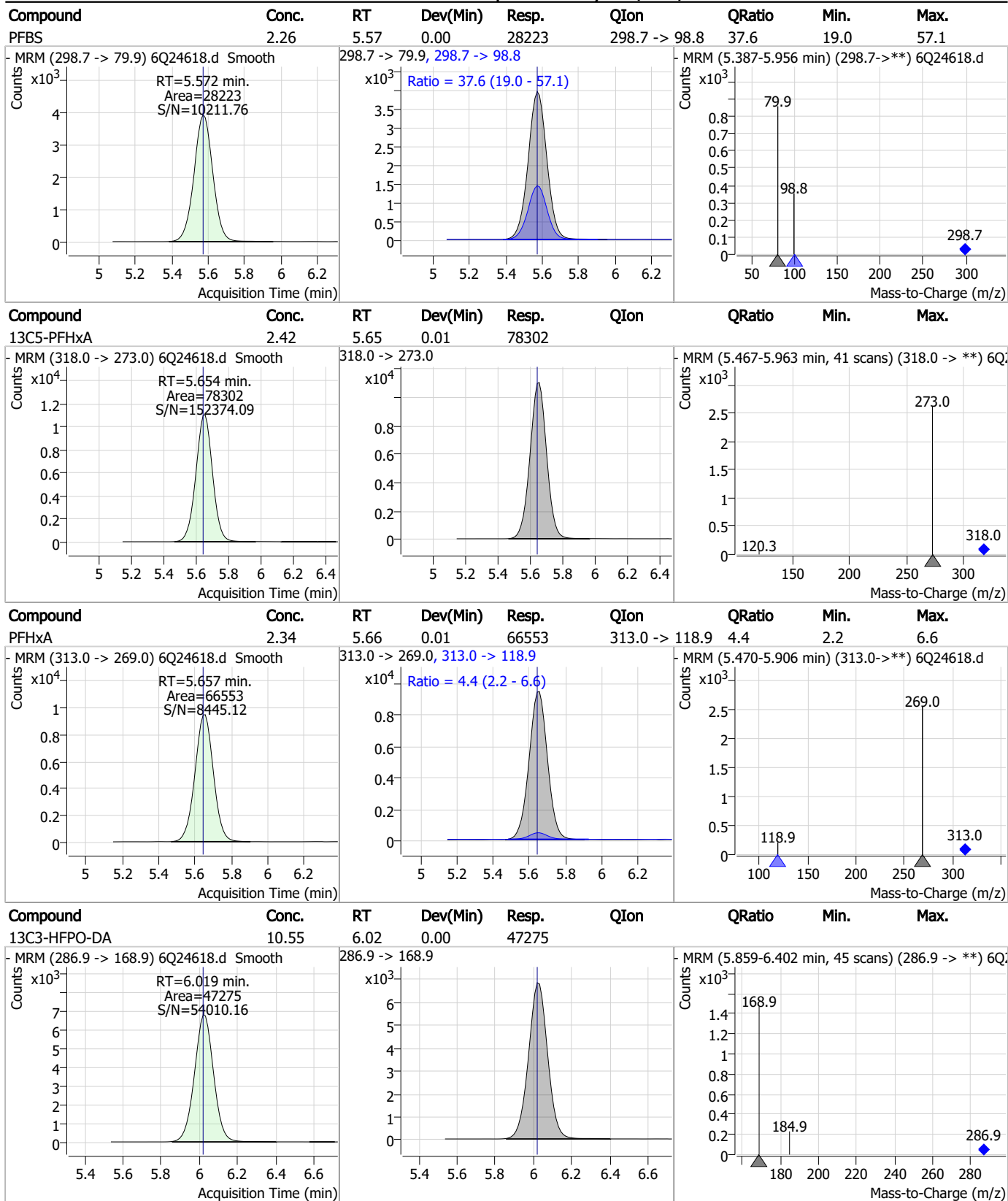
Perfluorinated Compounds by LC/MS/MS



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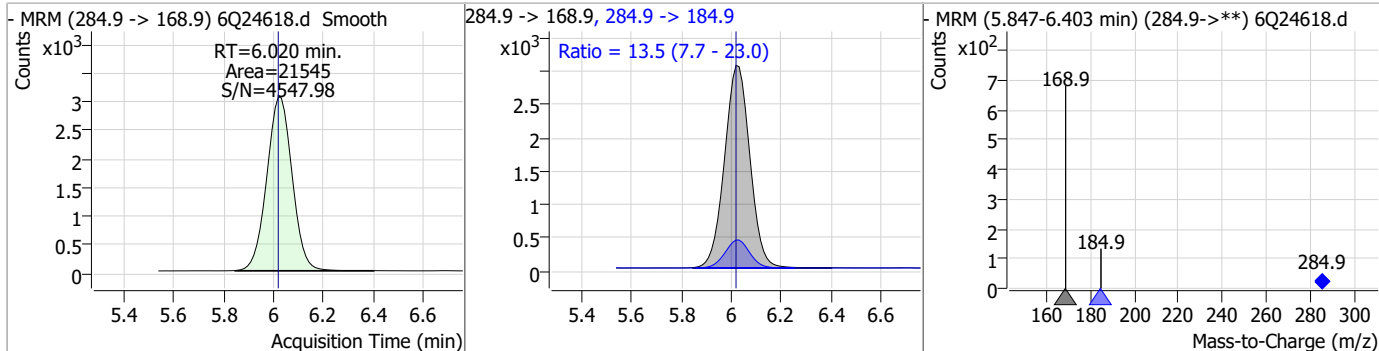
Perfluorinated Compounds by LC/MS/MS



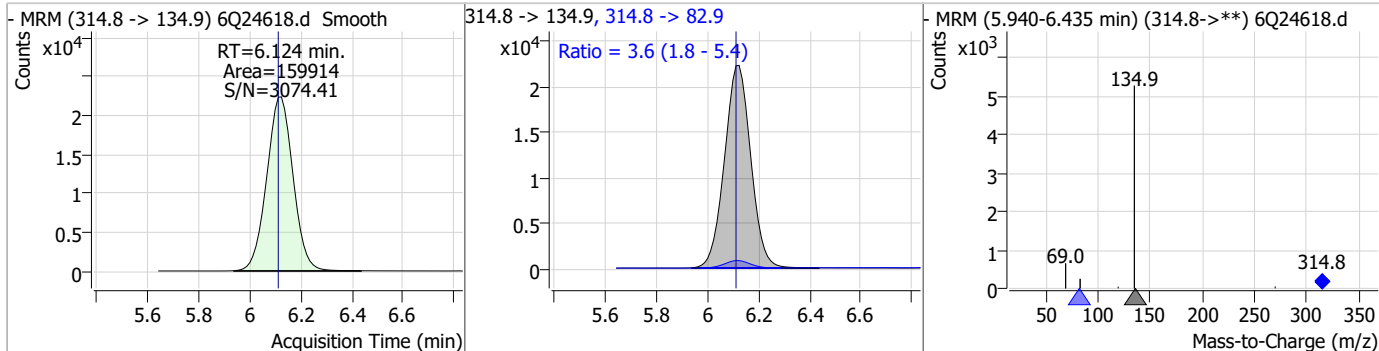
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Perfluorinated Compounds by LC/MS/MS

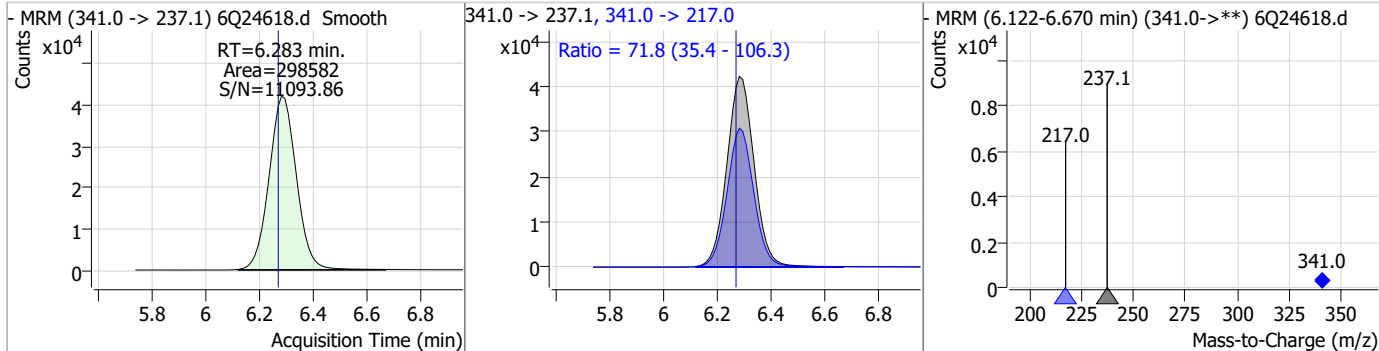
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.82	6.02	0.00	21545	284.9 -> 184.9	13.5	7.7	23.0



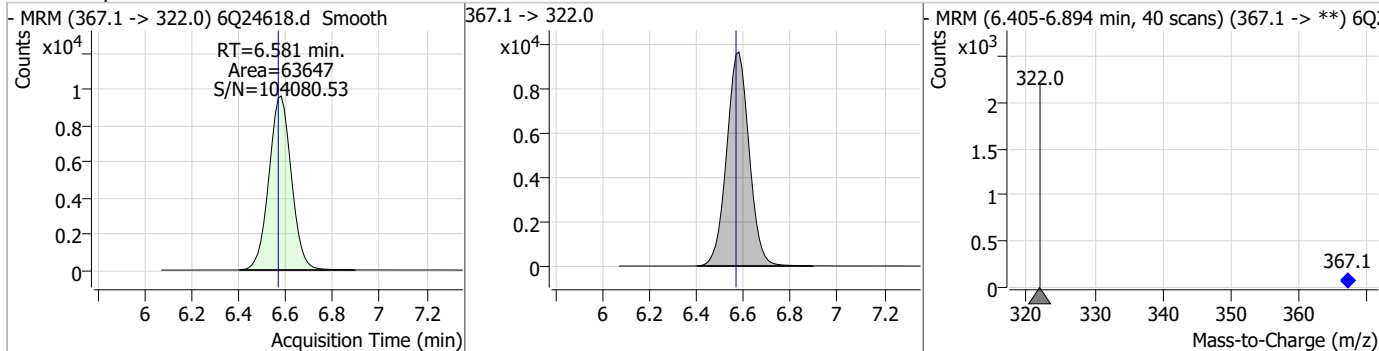
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.49	6.12	0.01	159914	314.8 -> 82.9	3.6	1.8	5.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	61.66	6.28	0.01	298582	341.0 -> 217.0	71.8	35.4	106.3

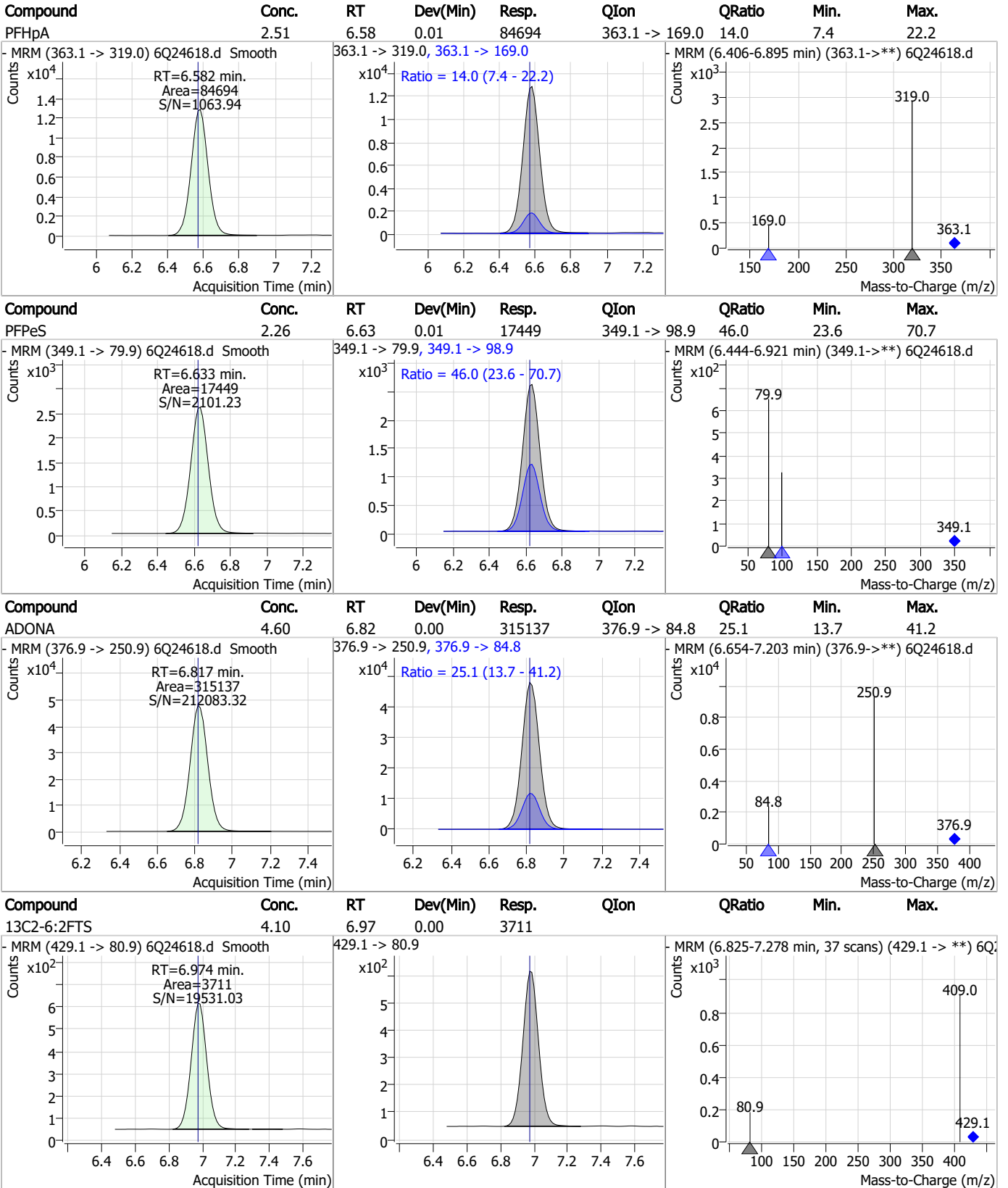


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.52	6.58	0.01	63647	367.1 -> 322.0			



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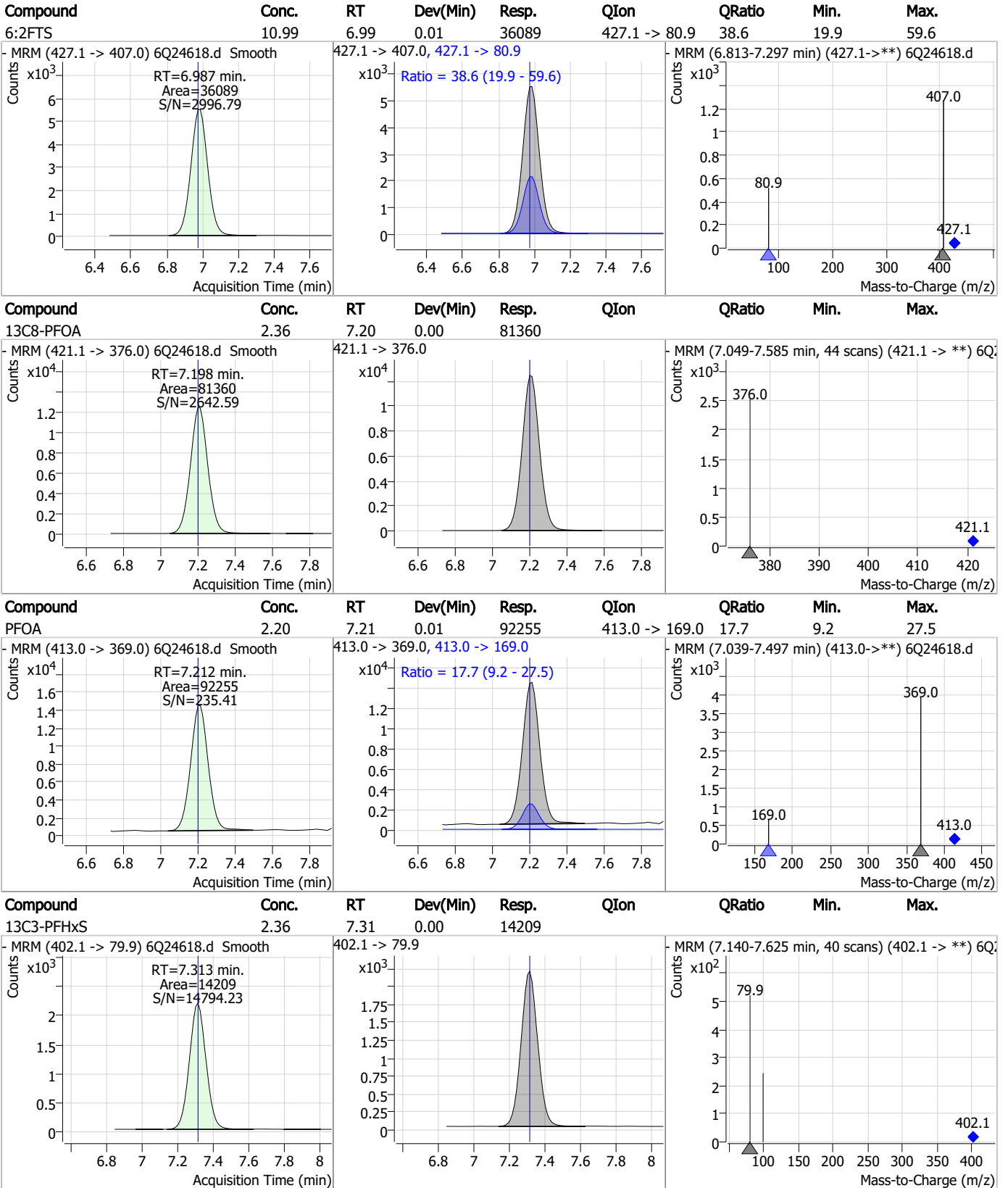
Perfluorinated Compounds by LC/MS/MS



7.7.29

7

Perfluorinated Compounds by LC/MS/MS

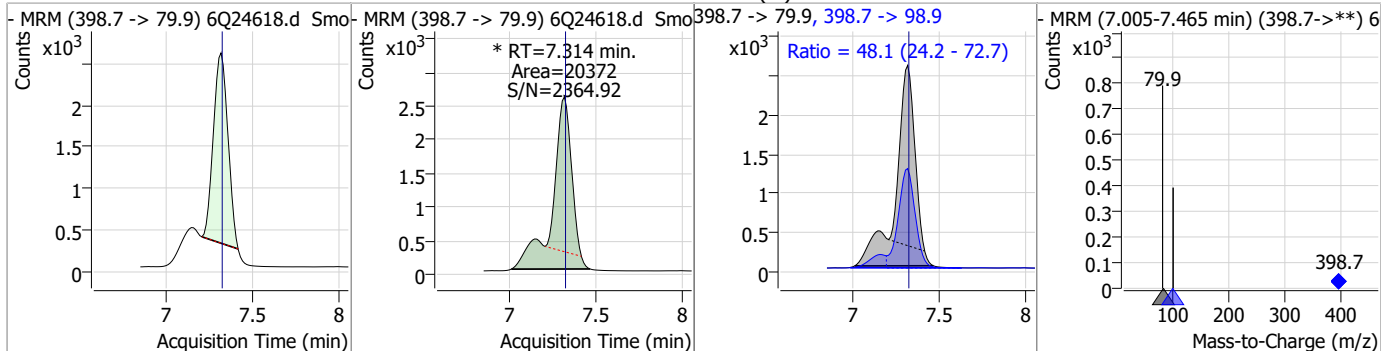


7.7.29

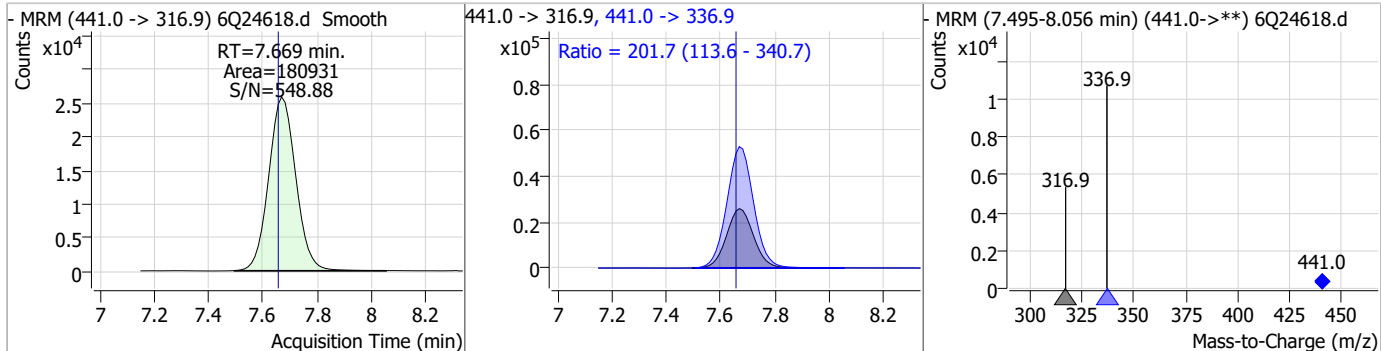
7

Perfluorinated Compounds by LC/MS/MS

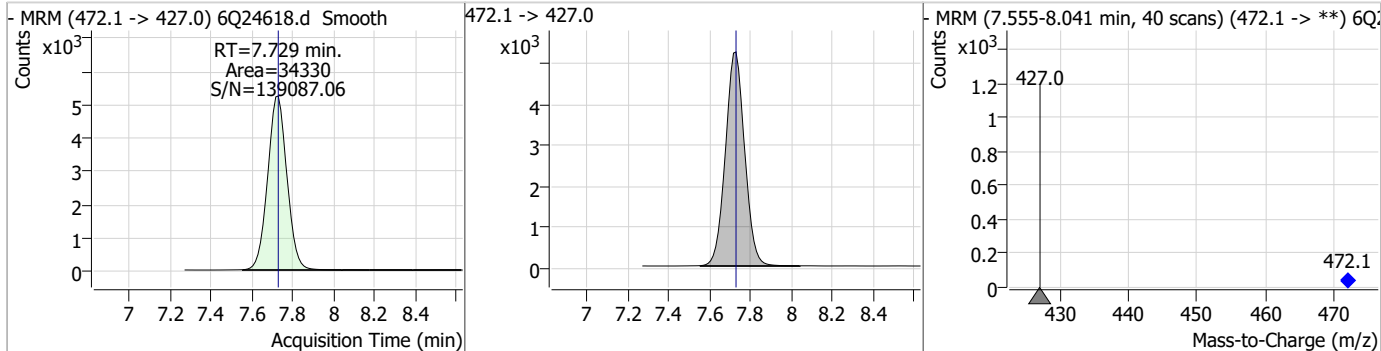
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.29	7.31	0.00	20372 (m)	398.7 -> 98.9	48.1	24.2	72.7



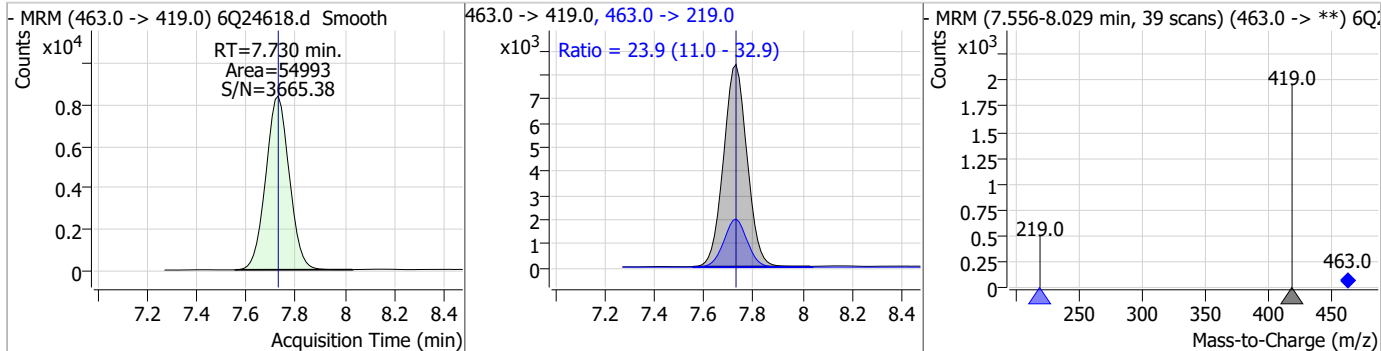
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	63.23	7.67	0.01	180931	441.0 -> 336.9	201.7	113.6	340.7



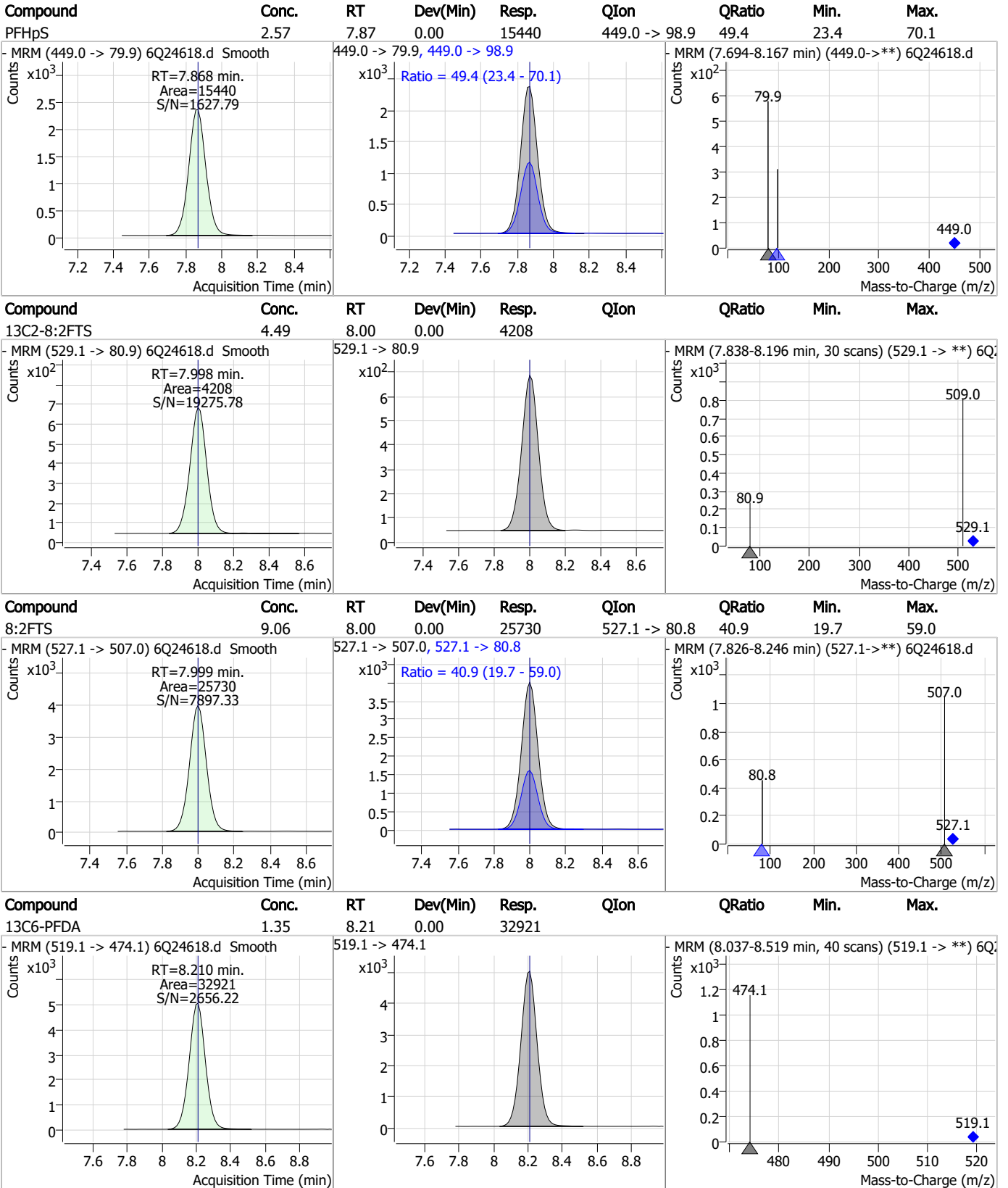
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.39	7.73	0.00	34330	472.1 -> 427.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.12	7.73	0.00	54993	463.0 -> 219.0	23.9	11.0	32.9



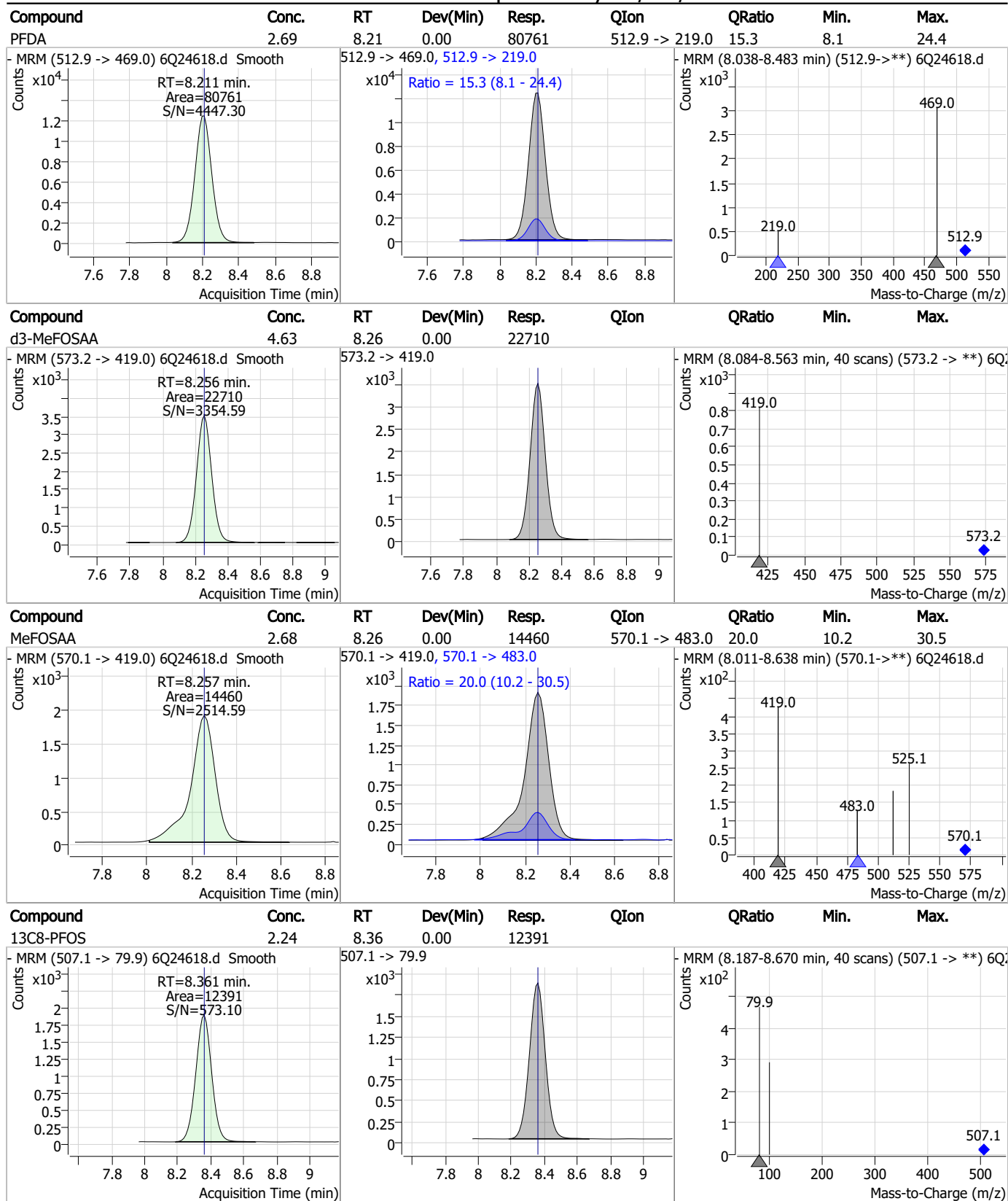
Perfluorinated Compounds by LC/MS/MS



7.7.29

7

Perfluorinated Compounds by LC/MS/MS

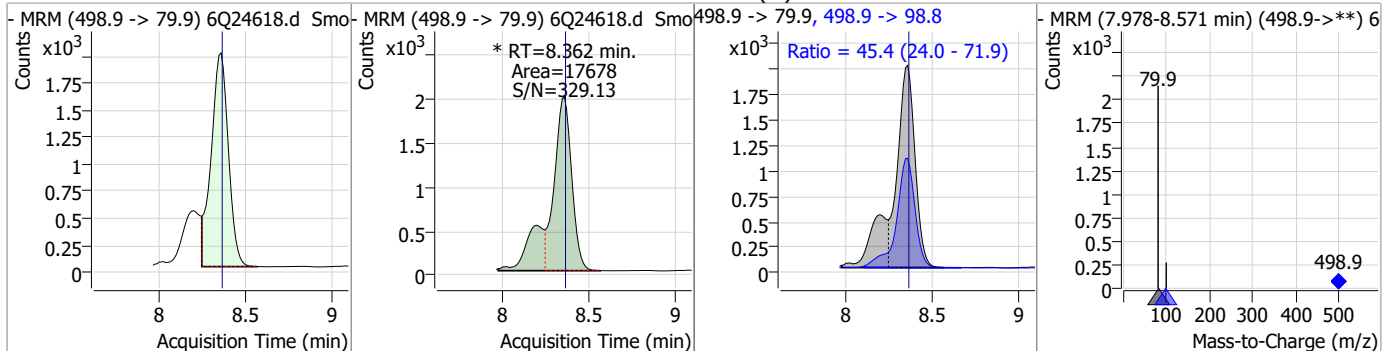


7.7.29

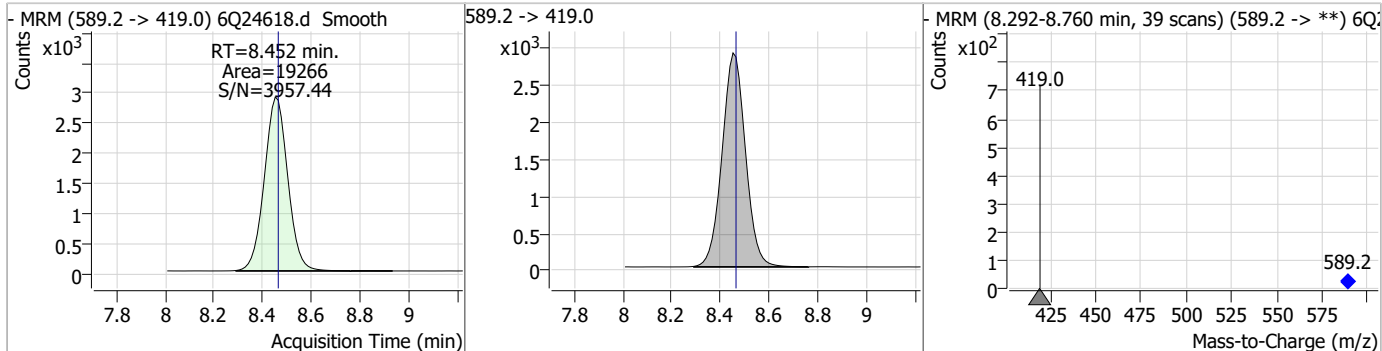
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Perfluorinated Compounds by LC/MS/MS

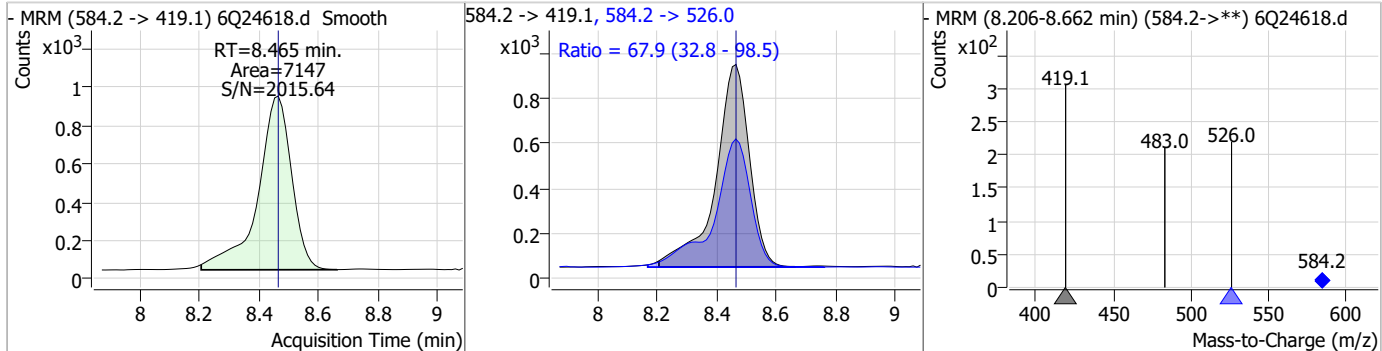
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.58	8.36	0.00	17678 (m)	498.9 -> 98.8	45.4	24.0	71.9



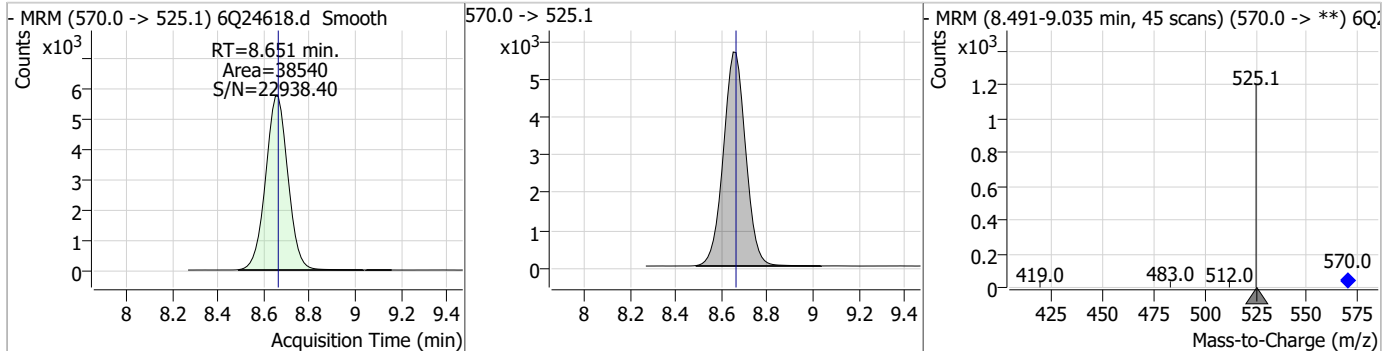
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.09	8.45	-0.01	19266				



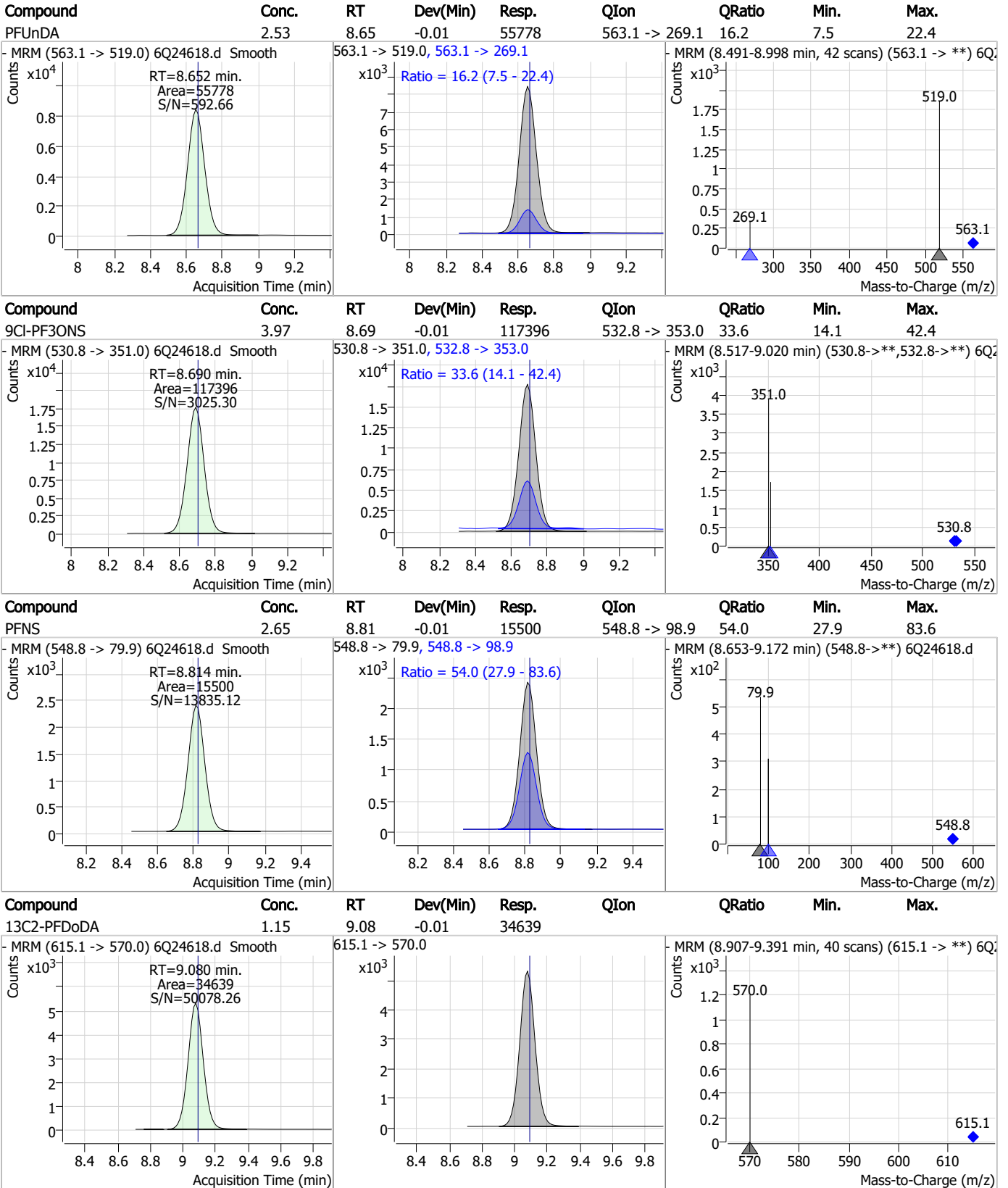
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.63	8.46	0.00	7147	584.2 -> 526.0	67.9	32.8	98.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.18	8.65	-0.01	38540				



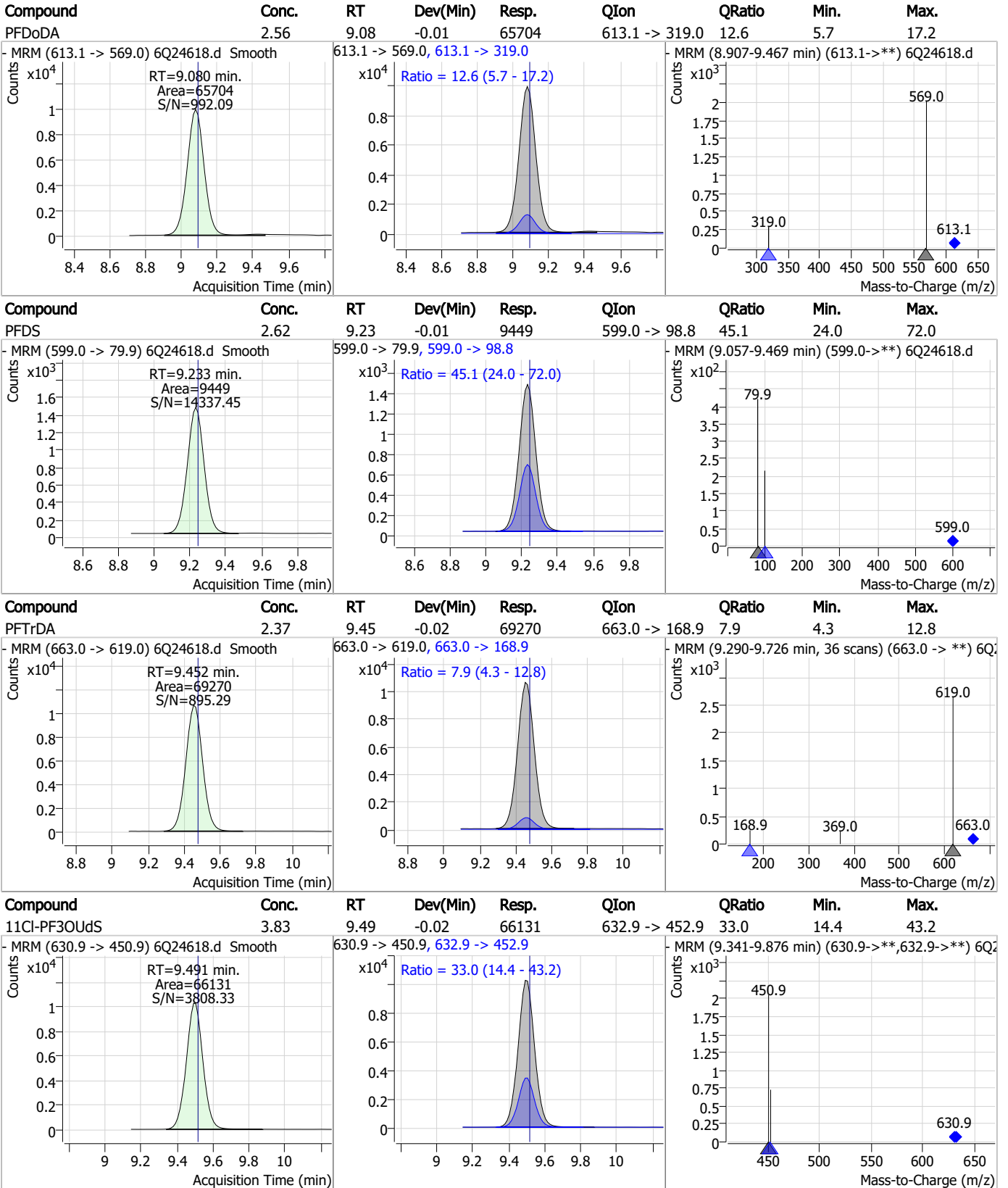
Perfluorinated Compounds by LC/MS/MS



7.7.29
7

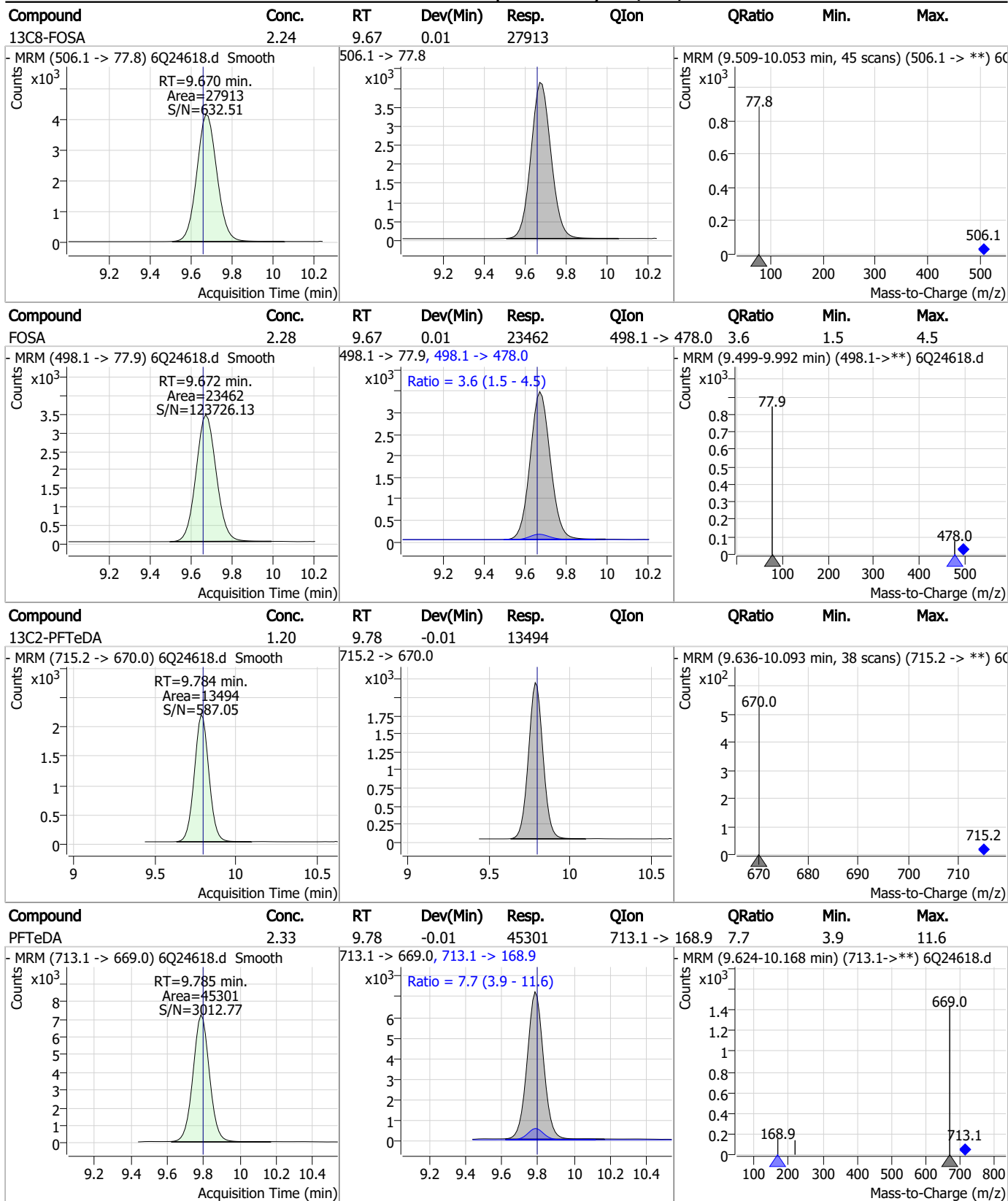


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

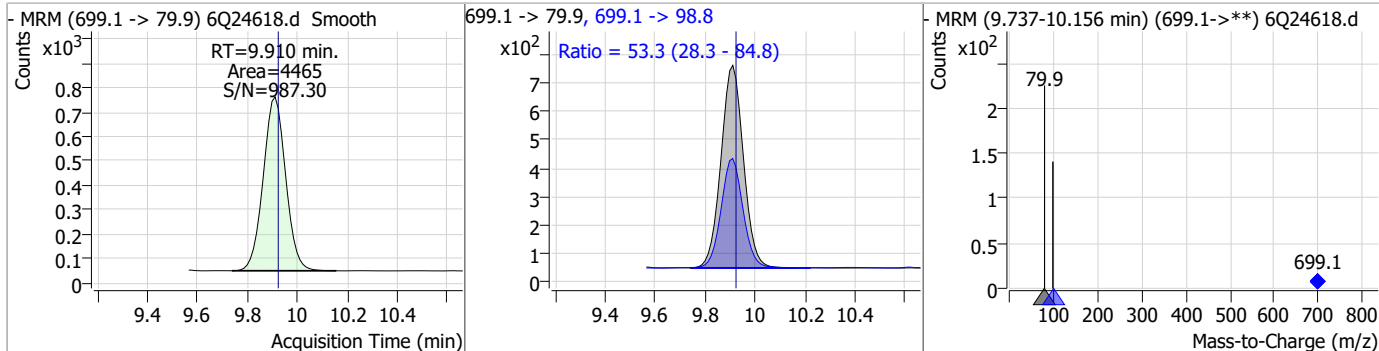


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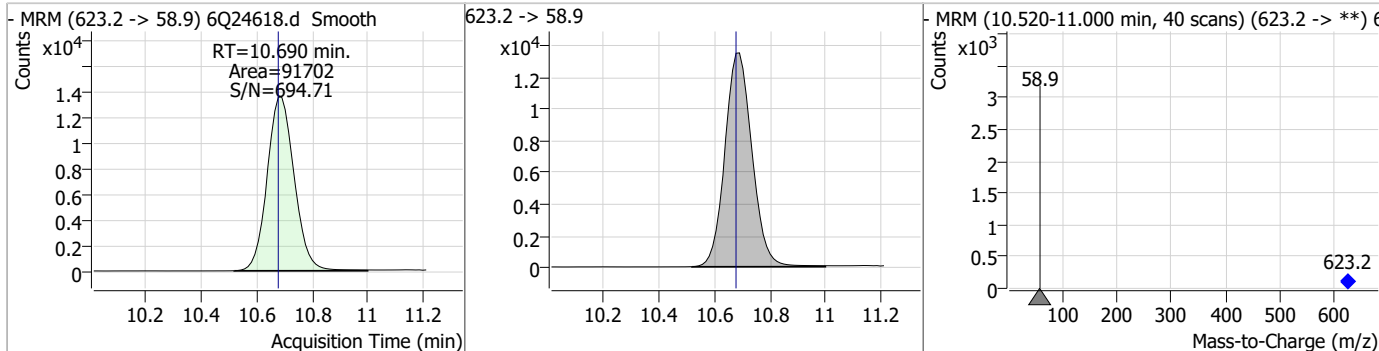
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Perfluorinated Compounds by LC/MS/MS

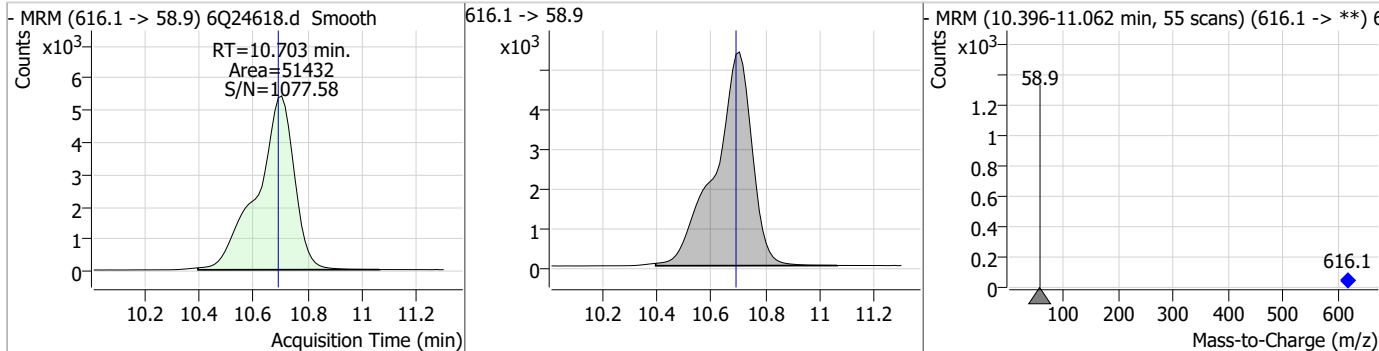
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.26	9.91	-0.01	4465	699.1 -> 98.8	53.3	28.3	84.8



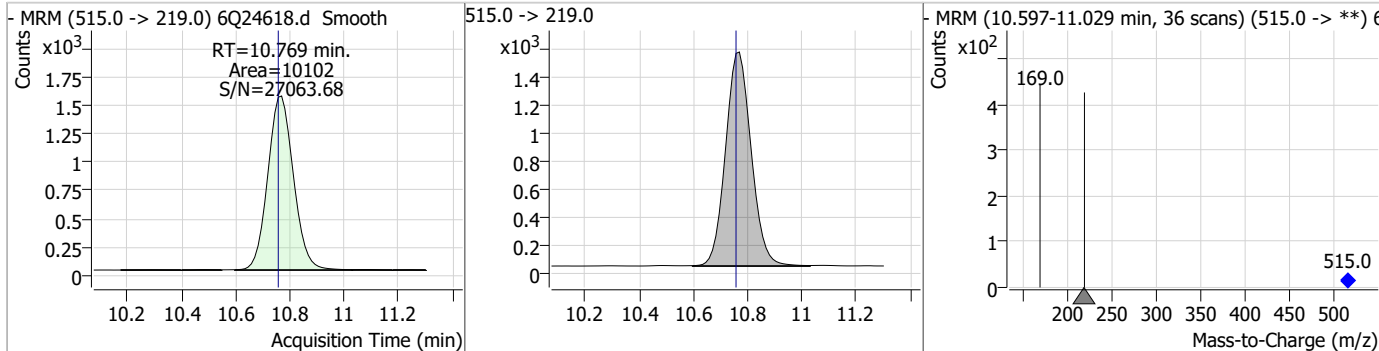
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.89	10.69	0.01	91702				



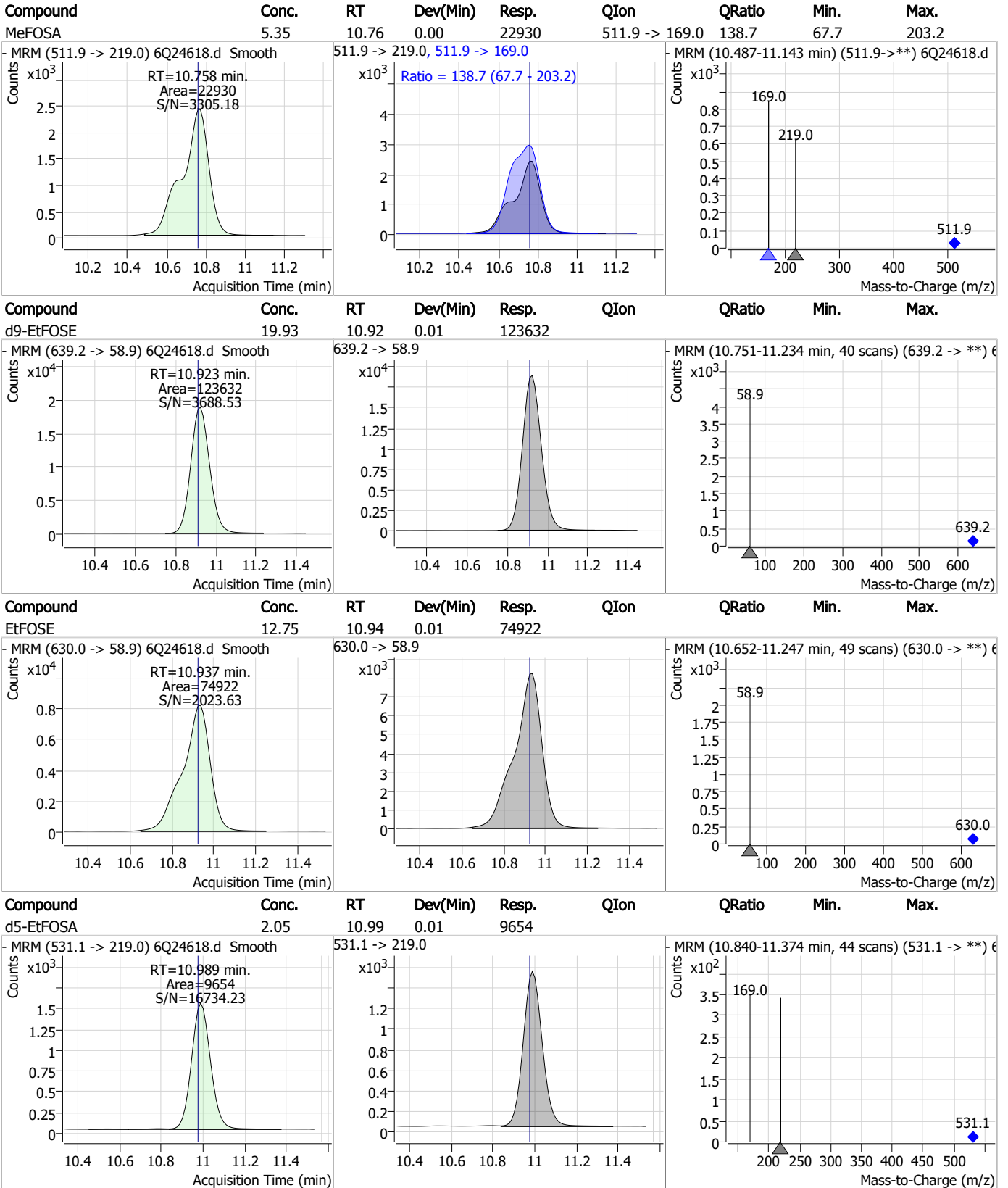
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.97	10.70	0.01	51432				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.00	10.77	0.01	10102				

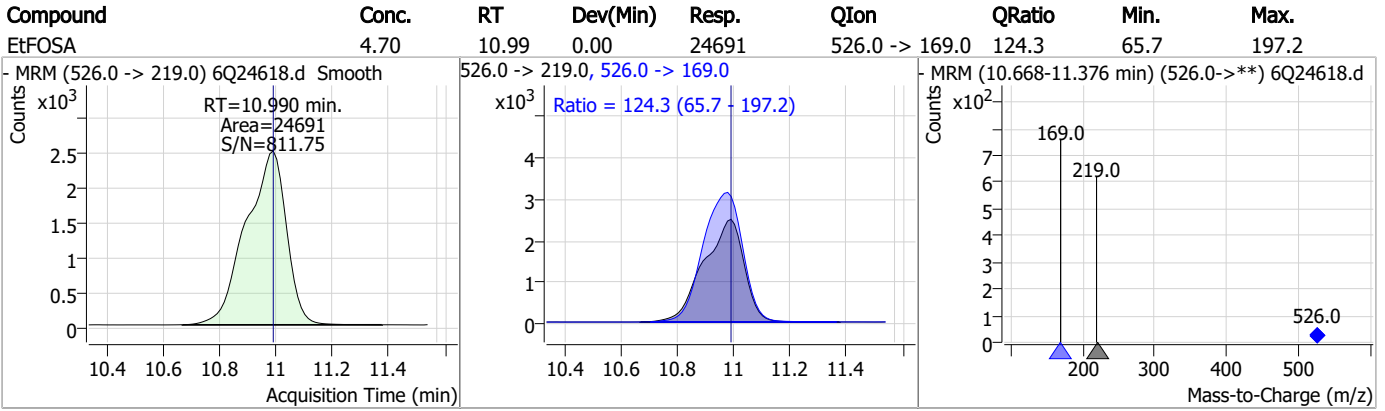


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q353-CC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24618.D Analyst approved: 09/20/23 09:35 Martha Valls
Injection Time: 09/18/23 17:28 Supervisor approved: 09/20/23 10:37 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak

7.7.29.1

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SGS ORLANDO

DATE:	09/17/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_091723_S4Q741
CAL DATE:	09/17/23
ANALYST:	AL
RUN BATCH:	S4Q741

ELUENT A LOT #:	232318 W5%ACN 232980 2mMAMAC.11387
ELUENT B LOT #:	ACN 232980
IC/CC STD LOT #:	LCMS 2166E
ICV STD LOT #:	LCMS 2159/11966A
ISTD/ID STD LOT #:	11987F/11988I

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q50682.d	P1-B9	CCB	1633full_4Q.m	Sample		OP98180,S4Q741,500,,,5.0,1,water	nd
2	4Q50683.d	P1-B9	CCB	1633full_4Q.m	Sample		OP98180,S4Q741,500,,,5.0,1,water	nd
3	4Q50684.d	P1-B1	RT TDCA	1633full_4Q.m	Sample		OP98180,S4Q741,500,,,5.0,1,water	pass
4	4Q50685.d	P1-B2	RT BR_LN	1633full_4Q.m	Sample		OP98180,S4Q741,500,,,5.0,1,water	pass
5	4Q50686.d	P1-A1	ic741-0	1633full_4Q.m	Sample		OP98180,S4Q741,500,,,5.0,1,water	check tune file
6	4Q50687.d	P1-A2	ic741-1	1633full_4Q.m	Calibration	1.6/500	OP98180,S4Q741,500,,,5.0,1,water	pass
7	4Q50688.d	P1-A3	ic741-2	1633full_4Q.m	Calibration	3.2/500	OP98180,S4Q741,500,,,5.0,1,water	pass
8	4Q50689.d	P1-A4	ic741-3	1633full_4Q.m	Calibration	10/500	OP98180,S4Q741,500,,,5.0,1,water	pass
9	4Q50690.d	P1-A5	icc741-4	1633full_4Q.m	Calibration	20/500	OP98180,S4Q741,500,,,5.0,1,water	pass
10	4Q50691.d	P1-A6	ic741-5	1633full_4Q.m	Calibration	40/500	OP98180,S4Q741,500,,,5.0,1,water	pass
11	4Q50692.d	P1-A7	ic741-6	1633full_4Q.m	Calibration	100/500	OP98180,S4Q741,500,,,5.0,1,water	pass
12	4Q50693.d	P1-A8	ic741-7	1633full_4Q.m	Calibration	200/500	OP98180,S4Q741,500,,,5.0,1,water	pass
13	4Q50694.d	P1-A9	ic741-8	1633full_4Q.m	Calibration	1x	OP98180,S4Q741,500,,,5.0,1,water	pass
14	4Q50695.d	P1-A1	iblk	1633full_4Q.m	Sample		OP98180,S4Q741,500,,,5.0,1,water	nd
15	4Q50696.d	P1-B3	icv741-4	1633full_4Q.m	QC	20/500	OP98180,S4Q741,500,,,5.0,1,water	pass
16	4Q50697.d	P1-B4	icv741-20	1633full_4Q.m	QC	100/500	OP98180,S4Q741,500,,,5.0,1,water	pass
17	4Q50698.d	P1-A5	cc741-4	1633full_4Q.m	QC	20/500	OP98180,S4Q741,500,,,5.0,1,water	pass
18	4Q50699.d	P1-A2	cc741-1,0LL	1633full_4Q.m	QC	1.6/500	OP98180,S4Q741,500,,,5.0,1,water	ndfha low - ok
19	4Q50700.d	P6-C3	fc9131-10	1633full_4Q.m	Sample	50/500	OP98959,S4Q741,4.99,,,5.0,10,soil	✓
20	4Q50701.d	P6-E7	op98976-bs	1633full_4Q.m	Sample		OP98976,S4Q741,5.00,,,5.0,1,soil	✓
21	4Q50702.d	P6-E8	op98976-llbs:3	1633full_4Q.m	Sample		OP98976,S4Q741,5.00,,,5.0,1,soil	✓
22	4Q50703.d	P6-E9	op98976-mb	1633full_4Q.m	Sample		OP98976,S4Q741,5.00,,,5.0,1,soil	✓
23	4Q50704.d	P6-F1	fc9222-7	1633full_4Q.m	Sample		OP98976,S4Q741,4.99,,,5.0,1,soil	rr 5x e flag
24	4Q50705.d	P6-F2	op98976-ms	1633full_4Q.m	Sample		OP98976,S4Q741,4.99,,,5.0,1,soil	rr 5x e flag
25	4Q50706.d	P6-F3	op98976-mnsd	1633full_4Q.m	Sample		OP98976,S4Q741,4.98,,,5.0,1,soil	rr 5x e flag
26	4Q50707.d	P6-F4	fc9222-8	1633full_4Q.m	Sample		OP98976,S4Q741,5.02,,,5.0,1,soil	rr 5x e flag
27	4Q50708.d	P6-F5	fc9222-9	1633full_4Q.m	Sample		OP98976,S4Q741,4.96,,,5.0,1,soil	rr 10x e flag
28	4Q50709.d	P6-F6	fc9222-10	1633full_4Q.m	Sample		OP98976,S4Q741,4.99,,,5.0,1,soil	rr 10x e flag
29	4Q50710.d	P1-A5	cc741-4	1633full_4Q.m	QC	20/500	OP98180,S4Q741,500,,,5.0,1,water	pass
30	4Q50711.d	P1-A1	iccb	1633full_4Q.m	Sample		OP98180,S4Q741,500,,,5.0,1,water	nd
31	4Q50712.d	P6-F7	fc9222-11	1633full_4Q.m	Sample		OP98976,S4Q741,5.05,,,5.0,1,soil	rr 10x e flag
32	4Q50713.d	P6-F8	fc9222-12	1633full_4Q.m	Sample		OP98976,S4Q741,5.01,,,5.0,1,soil	rr 5x e flag
33	4Q50714.d	P6-F9	fc9222-20	1633full_4Q.m	Sample		OP98976,S4Q741,4.95,,,5.0,1,soil	rr 1x co, 5x low eis
34	4Q50715.d	P1-C1	fc9222-21	1633full_4Q.m	Sample		OP98976,S4Q741,5.04,,,5.0,1,soil	✓
35	4Q50716.d	P1-C2	fc9222-22	1633full_4Q.m	Sample		OP98976,S4Q741,5.04,,,5.0,1,soil	✓

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36	4Q50717.d	P1-A5	cc741-4	1633full_4Q.m	QC	20/500	OP98180,S4Q741,500,,,5.0,1,water	pass
37	4Q50718.d	P1-A1	iccb	1633full_4Q.m	Sample		OP98180,S4Q741,500,,,5.0,1,water	nd
38	4Q50719.d	P6-D4	fc9406-2	1633full_4Q.m	Sample		OP99010,S4Q741,580,,,5.0,1,water	redo
39	4Q50720.d	P6-D5	op99010-ms	1633full_4Q.m	Sample		OP99010,S4Q741,580,,,5.0,1,water	redo
40	4Q50721.d	P6-D6	op99010-msd	1633full_4Q.m	Sample		OP99010,S4Q741,580,,,5.0,1,water	redo
41	4Q50722.d	P1-A5	ecc741-4	1633full_4Q.m	QC	20/500	OP98180,S4Q741,500,,,5.0,1,water	pass
42	4Q50723.d	P1-A1	iccb	1633full_4Q.m	Sample		OP98180,S4Q741,500,,,5.0,1,water	nd

SGS ORLANDO

DATE:	09/18/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_091723_S4Q741
CAL DATE:	09/17/23
ANALYST:	AL
RUN BATCH:	S4Q742

ELUENT A LOT #:	232318 W5%ACN 232980 2mmMAMAC.11387
ELUENT B LOT #:	ACN 232980
IC/CC STD LOT #:	LCMS 2166E
ICV STD LOT #:	LCMS 2159
ISTD/ID STD LOT #:	11987F/11988I

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q50724.d	P1-B9	CCB	1633full_4Q.m	Sample		OP98180,S4Q742,500,,,5.0,1,water	nd
2	4Q50725.d	P1-B9	CCB	1633full_4Q.m	Sample		OP98180,S4Q742,500,,,5.0,1,water	nd
3	4Q50726.d	P1-B1	RT TDCA	1633full_4Q.m	Sample		OP98180,S4Q742,500,,,5.0,1,water	pass
4	4Q50727.d	P1-B2	RT BR_LN	1633full_4Q.m	Sample		OP98180,S4Q742,500,,,5.0,1,water	pass
5	4Q50728.d	P1-A9	high std	1633full_4Q.m	Sample		OP98180,S4Q742,500,,,5.0,1,water	pass
6	4Q50729.d	P1-A1	iblk	1633full_4Q.m	Sample		OP98180,S4Q742,500,,,5.0,1,water	nd
7	4Q50730.d	P1-A5	cc741-4	1633full_4Q.m	QC	20/500	OP98180,S4Q742,500,,,5.0,1,water	pass
8	4Q50731.d	P1-A2	cc741-1.0LL	1633full_4Q.m	QC	1.6/500	OP98180,S4Q742,500,,,5.0,1,water	4:2 fail low
9	4Q50732.d	P1-A2	cc741-1.0LL	1633full_4Q.m	QC	1.6/500	OP98180,S4Q742,500,,,5.0,1,water	pass
10	4Q50733.d	P1-A2	cc741-1.0LL	1633full_4Q.m	QC	1.6/500	OP98180,S4Q742,500,,,5.0,1,water	pass
11	4Q50734.d	P1-C3	fc9222-7	1633full_4Q.m	Sample	100/500	OP98976,S4Q742,4.99,,,5.0,5.0,soil	✓
12	4Q50735.d	P1-C4	op98976-ms	1633full_4Q.m	Sample	100/500	OP98976,S4Q742,4.98,,,5.0,5.0,soil	✓
13	4Q50736.d	P1-C5	op98976-msd	1633full_4Q.m	Sample	100/500	OP98976,S4Q742,4.98,,,5.0,5.0,soil	✓
14	4Q50737.d	P1-C6	fc9222-8	1633full_4Q.m	Sample	100/500	OP98976,S4Q742,5.02,,,5.0,5.0,soil	✓
15	4Q50738.d	P1-D1	fc9222-12	1633full_4Q.m	Sample	100/500	OP98976,S4Q742,5.01,,,5.0,5.0,soil	✓
16	4Q50739.d	P6-F9	fc9227-20	1633full_4Q.m	Sample		OP98976,S4Q742,4.95,,,5.0,1,soil	✓
17	4Q50740.d	P1-D3	fc9227-20	1633full_4Q.m	Sample	100/500	OP98976,S4Q742,4.95,,,5.0,5.0,soil	✓
18	4Q50741.d	P1-C7	fc9222-9	1633full_4Q.m	Sample	50/500	OP98976,S4Q742,4.96,,,5.0,10,soil	redo
19	4Q50742.d	P1-C8	fc9222-10	1633full_4Q.m	Sample	50/500	OP98976,S4Q742,4.99,,,5.0,10,soil	redo
20	4Q50743.d	P1-C9	fc9222-11	1633full_4Q.m	Sample	50/500	OP98976,S4Q742,5.05,,,5.0,10,soil	redo
21	4Q50744.d	P1-A5	cc741-4	1633full_4Q.m	QC	20/500	OP98180,S4Q742,500,,,5.0,1,water	pass
22	4Q50745.d	P1-A1	iccb	1633full_4Q.m	Sample		OP98180,S4Q742,500,,,5.0,1,water	nd
23	4Q50746.d	P1-D4	op99024-bs	1633full_4Q.m	Sample		OP99024,S4Q742,500,,,5.0,1,water	✓
24	4Q50747.d	P1-D5	op99024-llbs:3	1633full_4Q.m	Sample		OP99024,S4Q742,500,,,5.0,1,water	✓
25	4Q50748.d	P1-D6	op99024-mb	1633full_4Q.m	Sample		OP99024,S4Q742,500,,,5.0,1,water	✓
26	4Q50749.d	P1-D7	fc9130-42	1633full_4Q.m	Sample		OP99024,S4Q742,540,,,5.0,1,water	✓
27	4Q50750.d	P1-D8	fc9496-4	1633full_4Q.m	Sample		OP99024,S4Q742,65,,,5.0,1,water	✓
28	4Q50751.d	P1-D9	op99024-ms	1633full_4Q.m	Sample		OP99024,S4Q742,65,,,5.0,1,water	✓
29	4Q50752.d	P1-E1	op99024-msd	1633full_4Q.m	Sample		OP99024,S4Q742,65,,,5.0,1,water	✓
30	4Q50753.d	P1-E2	op98977-bs	1633full_4Q.m	Sample		OP98977,S4Q742,5.00,,,5.0,1,soil	✓
31	4Q50754.d	P1-E3	op98977-llbs:3	1633full_4Q.m	Sample		OP98977,S4Q742,5.00,,,5.0,1,soil	✓
32	4Q50755.d	P1-E4	op98977-mb	1633full_4Q.m	Sample		OP98977,S4Q742,5.00,,,5.0,1,soil	✓
33	4Q50756.d	P1-A5	cc741-4	1633full_4Q.m	QC	20/500	OP98180,S4Q742,500,,,5.0,1,water	pass
34	4Q50757.d	P1-A1	iccb	1633full_4Q.m	Sample		OP98180,S4Q742,500,,,5.0,1,water	nd
35	4Q50758.d	P1-E5	fc9227-1	1633full_4Q.m	Sample		OP98977,S4Q742,5.04,,,5.0,1,soil	✓

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LCMS4-4Q ANALYSIS LOG

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36	4Q50759.d	P1-E6	fc9227-2	1633full_4Q.m	Sample	OP98977,S4Q742,4.95,,5.0,1,soil	✓
37	4Q50760.d	P1-E7	fc9227-3	1633full_4Q.m	Sample	OP98977,S4Q742,4.96,,5.0,1,soil	✓
38	4Q50761.d	P1-E8	fc9227-4	1633full_4Q.m	Sample	OP98977,S4Q742,4.99,,5.0,1,soil	rr 5x
39	4Q50762.d	P1-E9	fc9227-5	1633full_4Q.m	Sample	OP98977,S4Q742,4.99,,5.0,1,soil	✓
40	4Q50763.d	P1-F1	fc9227-6	1633full_4Q.m	Sample	OP98977,S4Q742,5.02,,5.0,1,soil	✓
41	4Q50764.d	P1-F2	fc9227-7	1633full_4Q.m	Sample	OP98977,S4Q742,4.99,,5.0,1,soil	rr 5x
42	4Q50765.d	P1-F3	fc9227-8	1633full_4Q.m	Sample	OP98977,S4Q742,5.02,,5.0,1,soil	✓
43	4Q50766.d	P1-F4	fc9227-9	1633full_4Q.m	Sample	OP98977,S4Q742,5.01,,5.0,1,soil	rr 5x
44	4Q50767.d	P1-F5	fc9227-10	1633full_4Q.m	Sample	OP98977,S4Q742,5.02,,5.0,1,soil	rr 5x
45	4Q50768.d	P1-A5	cc741-4	1633full_4Q.m	QC	OP98180,S4Q742,500,,5.0,1,water	pass
46	4Q50769.d	P1-A1	iccb	1633full_4Q.m	Sample	OP98180,S4Q742,500,,5.0,1,water	nd
47	4Q50770.d	P1-F6	fc9227-11	1633full_4Q.m	Sample	OP98977,S4Q742,5.05,,5.0,1,soil	✓
48	4Q50771.d	P1-F7	fc9227-12	1633full_4Q.m	Sample	OP98977,S4Q742,5.05,,5.0,1,soil	✓
49	4Q50772.d	P1-F8	fc9227-13	1633full_4Q.m	Sample	OP98977,S4Q742,5.03,,5.0,1,soil	✓
50	4Q50773.d	P1-F9	fc9227-14	1633full_4Q.m	Sample	OP98977,S4Q742,5.01,,5.0,1,soil	rr 5x
51	4Q50774.d	P2-A1	op98977-ms	1633full_4Q.m	Sample	OP98977,S4Q742,5.03,,5.0,1,soil	wait
52	4Q50775.d	P2-A2	op98977-msd	1633full_4Q.m	Sample	OP98977,S4Q742,5.01,,5.0,1,soil	wait
53	4Q50776.d	P2-A3	fc9227-15	1633full_4Q.m	Sample	OP98977,S4Q742,5.01,,5.0,1,soil	✓
54	4Q50777.d	P2-A4	fc9227-16	1633full_4Q.m	Sample	OP98977,S4Q742,4.95,,5.0,1,soil	rr 5x
55	4Q50778.d	P2-A5	fc9227-17	1633full_4Q.m	Sample	OP98977,S4Q742,5.00,,5.0,1,soil	rr 5x
56	4Q50779.d	P2-A6	fc9227-18	1633full_4Q.m	Sample	OP98977,S4Q742,4.95,,5.0,1,soil	rr 5x
57	4Q50780.d	P1-A5	cc741-4	1633full_4Q.m	QC	OP98180,S4Q742,500,,5.0,1,water	pass
58	4Q50781.d	P1-A1	iccb	1633full_4Q.m	Sample	OP98180,S4Q742,500,,5.0,1,water	nd
59	4Q50782.d	P2-A7	fc9227-19	1633full_4Q.m	Sample	OP98977,S4Q742,5.00,,5.0,1,soil	✓
60	4Q50783.d	P1-A5	ecc741-4	1633full_4Q.m	QC	OP98180,S4Q742,500,,5.0,1,water	pass
61	4Q50784.d	P1-A1	iccb	1633full_4Q.m	Sample	OP98180,S4Q742,500,,5.0,1,water	nd

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SGS ORLANDO

DATE:	09/09/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_090923_S6Q347
CAL DATE:	09/09/23
ANALYST:	M. Valls
RUN BATCH:	S6Q347

ELUENT A LOT #:	ACN 232980
ELUENT B LOT #:	HPLC WATER:231331 W5% Acetonitrile: 232980 2mM AMAC.
IC/CC STD LOT #:	LCMS 2151-E
ICV STD LOT #:	LCMS 2151B/2159
ISTD/ID STD LOT #:	11966A/11967A

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q24123.d	P1-B9	CCB	1633full.m	Sample		OP98555,S6Q347,500,,,5.0,1,,water	✓
2	6Q24124.d	P1-B9	CCB	1633full.m	Sample		OP98555,S6Q347,500,,,5.0,1,,water	✓
3	6Q24125.d	P1-B3	RT TDCA	1633full.m	Sample		OP98555,S6Q347,500,,,5.0,1,,water	✓
4	6Q24126.d	P1-B4	RT BR-LN	1633full.m	Sample		OP98555,S6Q347,500,,,5.0,1,,water	✓
5	6Q24127.d	P1-A1	ic347-0	1633full.m	Sample		OP98555,S6Q347,500,,,5.0,1,,water	✓
6	6Q24128.d	P1-A2	ic347-1	1633full.m	Calibration	1.6/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
7	6Q24129.d	P1-A3	ic347-2	1633full.m	Calibration	3.2/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
8	6Q24130.d	P1-A4	ic347-3	1633full.m	Calibration	10/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
9	6Q24131.d	P1-A5	icc347-4	1633full.m	Calibration	20/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
10	6Q24132.d	P1-A6	ic347-5	1633full.m	Calibration	40/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
11	6Q24133.d	P1-A7	ic347-6	1633full.m	Calibration	100/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
12	6Q24134.d	P1-A8	ic347-7	1633full.m	Calibration	200/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
13	6Q24135.d	P1-A9	ic347-8	1633full.m	Calibration	1x	OP98555,S6Q347,500,,,5.0,1,,water	✓
14	6Q24136.d	P1-A1	IBLK	1633full.m	Sample		OP98555,S6Q347,500,,,5.0,1,,water	✓
15	6Q24137.d	P1-B1	icv347-4	1633full.m	QC	20/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
16	6Q24138.d	P1-B2	icv347-20	1633full.m	QC	100/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
17	6Q24139.d	P1-A5	cc347-4	1633full.m	QC	20/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
18	6Q24140.d	P1-A2	cc347-1,0LL	1633full.m	QC	1.6/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
19	6Q24141.d	P3-A1	OP98824-BS	1633full.m	Sample		OP98824,S6Q347,5.00,,,5.0,1,soil	✓
20	6Q24142.d	P3-A2	OP98824-L,LBS:2	1633full.m	Sample		OP98824,S6Q347,5.00,,,5.0,1,soil	✓
21	6Q24143.d	P3-A3	OP98824-MB	1633full.m	Sample		OP98824,S6Q347,5.00,,,5.0,1,soil	✓
22	6Q24144.d	P3-B2	FC8986-6	1633full.m	Sample		OP98824,S6Q347,4.99,,,5.0,1,soil	✓
23	6Q24145.d	P3-B3	FC8986-7	1633full.m	Sample		OP98824,S6Q347,5.05,,,5.0,1,soil	✓
24	6Q24146.d	P3-B4	FC8986-8	1633full.m	Sample		OP98824,S6Q347,5.03,,,5.0,1,soil	✓
25	6Q24147.d	P3-B5	FC8986-9	1633full.m	Sample		OP98824,S6Q347,5.02,,,5.0,1,soil	✓
26	6Q24148.d	P3-B6	FC8986-10	1633full.m	Sample		OP98824,S6Q347,5.02,,,5.0,1,soil	✓
27	6Q24149.d	P3-B7	FC8986-11	1633full.m	Sample		OP98824,S6Q347,5.03,,,5.0,1,soil	✓
28	6Q24150.d	P3-B8	FC8986-12	1633full.m	Sample		OP98824,S6Q347,5.03,,,5.0,1,soil	✓
29	6Q24151.d	P1-A5	cc347-4	1633full.m	QC	20/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
30	6Q24152.d	P1-A1	iccb	1633full.m	Sample		OP98555,S6Q347,500,,,5.0,1,,water	✓
31	6Q24153.d	P3-B9	FC8986-13	1633full.m	Sample		OP98824,S6Q347,4.95,,,5.0,1,soil	✓
32	6Q24154.d	P3-C1	FC8986-14	1633full.m	Sample		OP98824,S6Q347,4.95,,,5.0,1,soil	✓
33	6Q24155.d	P3-C2	FC8986-15	1633full.m	Sample		OP98824,S6Q347,4.96,,,5.0,1,soil	✓
34	6Q24156.d	P3-C3	FC8986-16	1633full.m	Sample		OP98824,S6Q347,5.00,,,5.0,1,soil	✓
35	6Q24157.d	P1-A5	Ecc347-4	1633full.m	QC	20/500	OP98555,S6Q347,500,,,5.0,1,,water	✓



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36	6Q24158.d	P1-A1	iccb	1633full.m	Sample	OP98555.S6Q347.500,,,5.0,1,water	✓
37	6Q24159.d	P1-C1	Test LCMS2175-A	1633full.m	QC	OP98555.S6Q347.500,,,5.0,1,water	Pass
38	6Q24160.d	P1-C2	Test LCMS2175-B	1633full.m	QC	OP98555.S6Q347.500,,,5.0,1,water	Pass
39	6Q24161.d	P1-C3	Test LCMS2175-C	1633full.m	QC	OP98555.S6Q347.500,,,5.0,1,water	Pass
40	6Q24162.d	P1-C4	Test LCMS2175-D	1633full.m	QC	OP98555.S6Q347.500,,,5.0,1,water	Pass
41	6Q24163.d	P1-C5	Test LCMS2175-E	1633full.m	QC	OP98555.S6Q347.500,,,5.0,1,water	Pass
42	6Q24164.d	P1-C6	Test LCMS2175-F	1633full.m	QC	OP98555.S6Q347.500,,,5.0,1,water	Pass

SGS ORLANDO

DATE:	09/18/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_090923_S6Q347
CAL DATE:	09/09/23
ANALYST:	M. Valls
RUN BATCH:	S6Q353

ELUENT A LOT #:	ACN 232980
ELUENT B LOT #:	HPLC WATER:231331 WB% Acetonitrile: 232980 2mM AMAC.
IC/CC STD LOT #:	LCMS 2151-E
ICV STD LOT #:	LCMS 2151B/2159
ISTD/ID STD LOT #:	11966A/11967A

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q24591.d	P1-B9	CCB	1633full.m	Sample		OP98555:S6Q353,500,,,5.0,1,water	✓
2	6Q24592.d	P1-B9	CCB	1633full.m	Sample		OP98555:S6Q353,500,,,5.0,1,water	✓
3	6Q24593.d	P1-B3	RT TDCA	1633full.m	Sample		OP98555:S6Q353,500,,,5.0,1,water	✓
4	6Q24594.d	P1-B4	RT BR-LN	1633full.m	Sample		OP98555:S6Q353,500,,,5.0,1,water	✓
5	6Q24595.d	P1-A9	High Std	1633full.m	Sample		OP98555:S6Q353,500,,,5.0,1,water	✓
6	6Q24596.d	P1-A1	IBLK	1633full.m	Sample		OP98555:S6Q353,500,,,5.0,1,water	✓
7	6Q24597.d	P1-A5	cc347-4	1633full.m	QC	20/500	OP98555:S6Q353,500,,,5.0,1,water	✓
8	6Q24598.d	P1-A2	cc347-1,0LL	1633full.m	QC	1.6/500	OP98555:S6Q353,500,,,5.0,1,water	✓
9	6Q24599.d	P4-C2	OP99007-BS	1633full.m	Sample		OP99007:S6Q353,500,,,5.0,1,water	✓
10	6Q24600.d	P4-C3	OP99007-LLBS:3	1633full.m	Sample		OP99007:S6Q353,500,,,5.0,1,water	✓
11	6Q24601.d	P4-C4	OP99007-MB	1633full.m	Sample		OP99007:S6Q353,500,,,5.0,1,water	✓
12	6Q24602.d	P4-C5	FC9496-1	1633full.m	Sample		OP99007:S6Q353,550,,,5.0,1,water	✓
13	6Q24603.d	P4-C6	OP99007-MS	1633full.m	Sample		OP99007:S6Q353,550,,,5.0,1,water	✓
14	6Q24604.d	P4-C7	FC9496-2	1633full.m	Sample		OP99007:S6Q353,520,,,5.0,1,water	✓
15	6Q24605.d	P4-C8	OP99007-DUP	1633full.m	Sample		OP99007:S6Q353,570,,,5.0,1,water	✓
16	6Q24606.d	P4-C9	FC9496-3	1633full.m	Sample		OP99007:S6Q353,550,,,5.0,1,water	✓
17	6Q24607.d	P4-D1	FC9496-4	1633full.m	Sample		OP99007:S6Q353,520,,,5.0,1,water	✓
18	6Q24608.d	P4-D2	FC9496-5	1633full.m	Sample		OP99007:S6Q353,570,,,5.0,1,water	✓
19	6Q24609.d	P1-A5	cc347-4	1633full.m	QC	20/500	OP98555:S6Q353,500,,,5.0,1,water	✓
20	6Q24610.d	P1-A1	iccb	1633full.m	Sample		OP98555:S6Q353,500,,,5.0,1,water	✓
21	6Q24611.d	P4-D3	FC9496-6	1633full.m	Sample		OP98555:S6Q353,500,,,5.0,1,water	✓
22	6Q24612.d	P4-D4	FC9496-7	1633full.m	Sample		OP99007:S6Q353,550,,,5.0,1,water	✓
23	6Q24613.d	P4-B9	FC9224-4	1633full.m	Sample		OP99007:S6Q353,570,,,5.0,1,water	✓
24	6Q24614.d	P4-C1	FC9224-5	1633full.m	Sample	250/500	OP98896:S6Q353,510,,,5.0,2,water	✓
25	6Q24615.d	P3-F9	FC9224-6	1633full.m	Sample	250/500	OP98896:S6Q353,520,,,5.0,2,water	✓
26	6Q24616.d	P5-A9	FC9131-1	1633full.m	Sample		OP98896:S6Q353,510,,,5.0,1,water	✓
27	6Q24617.d	P3-D5	FC9163-5	1633full.m	Sample		OP98896:S6Q353,520,,,5.0,1,water	✓
28	6Q24618.d	P1-A5	cc347-4	1633full.m	QC	20/500	OP98555:S6Q353,500,,,5.0,1,water	✓
29	6Q24619.d	P1-A1	iccb	1633full.m	Sample		OP98555:S6Q353,500,,,5.0,1,water	✓
30	6Q24620.d	P4-A1	OP99025-BS	1633full.m	Sample		OP98555:S6Q353,500,,,5.0,1,water	✓
31	6Q24621.d	P4-A2	OP99025-LLBS:3	1633full.m	Sample		OP99025:S6Q353,125,,,5.0,1,water	✓
32	6Q24622.d	P4-A3	OP99025-MB	1633full.m	Sample		OP99025:S6Q353,125,,,5.0,1,water	✓
33	6Q24623.d	P4-A4	FC9451-1	1633full.m	Sample		OP99025:S6Q353,115,,,5.0,1,water	rr10x
34	6Q24624.d	P4-A5	FC9451-2	1633full.m	Sample		OP99025:S6Q353,115,,,5.0,1,water	rr10x
35	6Q24625.d	P4-A6	FC9451-3	1633full.m	Sample		OP99025:S6Q353,115,,,5.0,1,water	rr1 x co

LCMS6-6Q ANALYSIS LOG

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36	6Q24626.d	P4-A7	FC9451-4	1633full.m	Sample	OP99025.S6Q353.110,,,5.0,1,water	rr5x surr high
37	6Q24627.d	P4-A8	FC9451-5	1633full.m	Sample	OP99025.S6Q353.115,,,5.0,1,water	✓
38	6Q24628.d	P4-A9	FC9451-6	1633full.m	Sample	OP99025.S6Q353.115,,,5.0,1,water	✓
39	6Q24629.d	P4-B1	FC9451-7	1633full.m	Sample	OP99025.S6Q353.115,,,5.0,1,water	✓
40	6Q24630.d	P1-A5	cc347-4	1633full.m	QC	20/500	✓
41	6Q24631.d	P1-A1	iccb	1633full.m	Sample	OP98555.S6Q353.500,,,5.0,1,water	✓
42	6Q24632.d	P4-B2	FC9451-8	1633full.m	Sample	OP99025.S6Q353.110,,,5.0,1,water	✓
43	6Q24633.d	P4-B3	FC9451-9	1633full.m	Sample	OP99025.S6Q353.115,,,5.0,1,water	✓
44	6Q24634.d	P4-B4	FC9451-10	1633full.m	Sample	OP99025.S6Q353.120,,,5.0,1,water	rr5x surr high
45	6Q24635.d	P4-B5	FC9451-11	1633full.m	Sample	OP99025.S6Q353.120,,,5.0,1,water	✓
46	6Q24636.d	P4-B6	FC9451-12	1633full.m	Sample	OP99025.S6Q353.120,,,5.0,1,water	✓
47	6Q24637.d	P4-B7	FC9451-13	1633full.m	Sample	OP99025.S6Q353.120,,,5.0,1,water	rr5x surr high
48	6Q24638.d	P4-B8	FC9451-14	1633full.m	Sample	OP99025.S6Q353.120,,,5.0,1,water	✓
49	6Q24639.d	P1-A5	cc347-4	1633full.m	QC	20/500	✓
50	6Q24640.d	P1-A1	iccb	1633full.m	Sample	OP98555.S6Q353.500,,,5.0,1,water	✓
51	6Q24641.d	P4-D5	OP99028-BS	1633full.m	Sample	OP98555.S6Q353.500,,,5.0,1,water	✓
52	6Q24642.d	P4-D6	OP99028-LLBS:3	1633full.m	Sample	OP99028.S6Q353.500,,,5.0,1,water	✓
53	6Q24643.d	P4-D7	OP99028-MB	1633full.m	Sample	OP99028.S6Q353.500,,,5.0,1,water	✓
54	6Q24644.d	P4-D8	FC9440-1	1633full.m	Sample	OP99028.S6Q353.515,,,5.0,1,water	✓
55	6Q24645.d	P4-D9	FC9440-2	1633full.m	Sample	OP99028.S6Q353.445,,,5.0,1,water	rr10x and Redo lower volume
56	6Q24646.d	P4-E1	FC9440-3	1633full.m	Sample	OP99028.S6Q353.450,,,5.0,1,water	rr10x co rr10x and Redo lower volume
57	6Q24647.d	P4-E2	FC9440-4	1633full.m	Sample	OP99028.S6Q353.490,,,5.0,1,water	rr1x for co
58	6Q24648.d	P4-E3	FC9440-5	1633full.m	Sample	OP99028.S6Q353.485,,,5.0,1,water	✓
59	6Q24649.d	P4-E4	OP99028-MS	1633full.m	Sample	OP99028.S6Q353.465,,,5.0,1,water	✓
60	6Q24650.d	P1-A5	cc347-4	1633full.m	QC	20/500	✓
61	6Q24651.d	P1-A1	iccb	1633full.m	Sample	OP98555.S6Q353.500,,,5.0,1,water	✓
62	6Q24652.d	P4-E5	FC9440-6	1633full.m	Sample	OP98555.S6Q353.500,,,5.0,1,water	✓
63	6Q24653.d	P4-E6	OP99028-DUP	1633full.m	Sample	OP99028.S6Q353.505,,,5.0,1,water	rr10x and Redo lower volume
64	6Q24654.d	P4-E7	FC9440-7	1633full.m	Sample	OP99028.S6Q353.505,,,5.0,1,water	rr10x and Redo lower volume
65	6Q24655.d	P4-E8	FC9440-8	1633full.m	Sample	OP99028.S6Q353.440,,,5.0,1,water	rr10x and Redo lower volume
66	6Q24656.d	P4-E9	FC9440-9	1633full.m	Sample	OP99028.S6Q353.455,,,5.0,1,water	rr1x for co, 10x
67	6Q24657.d	P4-F1	OP99029-BS	1633full.m	Sample	OP99029.S6Q353.125,,,5.0,1,water	✓
68	6Q24658.d	P4-F2	OP99029-LLBS:2	1633full.m	Sample	OP99029.S6Q353.125,,,5.0,1,water	✓
69	6Q24659.d	P4-F3	OP99029-MB	1633full.m	Sample	OP99029.S6Q353.125,,,5.0,1,water	✓
70	6Q24660.d	P4-F4	FC9451-15	1633full.m	Sample	OP99029.S6Q353.120,,,5.0,1,water	rr10x and Redo lower volume
71	6Q24661.d	P4-F5	FC9451-16	1633full.m	Sample	OP99029.S6Q353.120,,,5.0,1,water	rr10x and Redo lower volume
72	6Q24662.d	P1-A5	cc347-4	1633full.m	QC	20/500	✓
73	6Q24663.d	P1-A1	iccb	1633full.m	Sample	OP98555.S6Q353.500,,,5.0,1,water	✓
74	6Q24664.d	P1-F6	FC9451-17	1633full.m	Sample	OP99029.S6Q353.115,,,5.0,1,water	wrong position, rr1x
75	6Q24665.d	P1-F7	FC9451-18	1633full.m	Sample	OP99029.S6Q353.120,,,5.0,1,water	wrong position, rr1x
76	6Q24666.d	P1-F8	FC9451-19	1633full.m	Sample	OP99029.S6Q353.120,,,5.0,1,water	wrong position, rr1x
77	6Q24667.d	P1-F9	FC9451-20	1633full.m	Sample	OP99029.S6Q353.120,,,5.0,1,water	wrong position, rr1x
78	6Q24668.d	P5-A1	FC9451-21	1633full.m	Sample	OP99029.S6Q353.120,,,5.0,1,water	✓

SGS ORLANDO LCMS6-6Q ANALYSIS LOG

79	6Q24669.d	P5-A2	FC9451-22	1633full.m	Sample	OP99029.S6Q353.120,,,5.0,1,water	✓
80	6Q24670.d	P5-A3	FC9451-23	1633full.m	Sample	OP99029.S6Q353.120,,,5.0,1,water	✓
81	6Q24671.d	P5-A4	FC9451-24	1633full.m	Sample	OP99029.S6Q353.120,,,5.0,1,water	✓
82	6Q24672.d	P5-A5	FC9451-25	1633full.m	Sample	OP99029.S6Q353.120,,,5.0,1,water	✓
83	6Q24673.d	P5-A6	FC9451-26	1633full.m	Sample	OP99029.S6Q353.120,,,5.0,1,water	✓
84	6Q24674.d	P1-A5	cc347-4	1633full.m	QC	OP98555.S6Q353.500,,,5.0,1,water	✓
85	6Q24675.d	P1-A1	iccb	1633full.m	Sample	OP98555.S6Q353.500,,,5.0,1,water	✓
86	6Q24676.d	P5-A7	FC9451-27	1633full.m	Sample	OP99029.S6Q353.120,,,5.0,1,water	✓
87	6Q24677.d	P5-A8	FC9451-28	1633full.m	Sample	OP99029.S6Q353.120,,,5.0,1,water	✓
88	6Q24678.d	P1-A5	Ecc347-4	1633full.m	QC	OP98555.S6Q353.500,,,5.0,1,water	✓
89	6Q24679.d	P1-A1	iccb	1633full.m	Sample	OP98555.S6Q353.500,,,5.0,1,water	✓

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2160A-E	1633 Cal std. Spike	19308	PFAC	SGS Labo	MA	12/28/23	2 ppm	250 uL	4 mL	125	1633 (mix) (24884)	8/20/23	12/28/23	MJS
		1953	MxH	Wellington	4/19/28	8/7/24	1-4 ppm			125				
		1931B	PFAC		3/24/26	8/20/24	2 ppm			250 ppb				
		1954	Mx F		12/11/27	8/20/24	2 ppm			125 ppb				
		1932A	PFAC		3/28/28	8/17/24	2 ppm			125 ppb				
		1932B	Mx G		3/13/28	8/20/24	4-20 ppm	312 uL		312				
		1935B	PFAC		3/13/28	8/10/24	1.0 ppm	2 mL	5 mL	400 ppb	95% MeOH 5% H ₂ O	8/23/23	02/25/24	RR
		1944A	Mx J		02/28/27	3/13/24	50 ppm	40 uL						RR
LCMS 2167	PFC Spike	11894	PF0A-DOB (28 comp)	Wellington Labs	02/28/27	8/08/24								RR
		11432	N-M-FSA M		02/01/28	8/08/24								RR
		11793	FOSA-1		12/01/27	8/08/24								RR
		11792	PHxSA-1		3/28/27	4/18/24								RR
		11882	PFECHS		04/08/28	08/24/24	1.0 ppm	1.2 mL	~ 2.5 mL	0.5 ppm	95% MeOH 5% H ₂ O	08/24/23	02/24/24	RR
LCMS 2168 A-K	PFC ID SURV (1996)	11950	MPFAC-24ES	Wellington Labs	11/08/25	08/12/24	50 ug/mL	24 uL						RR
		11635B	M-SHFO-DA		11/11/27	08/12/24								RR
		11709	d-N-Me FOSA-M											RR

* 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 215/A-E	1033 Cal Std. (opike)	LCMS 2140	Br-LN Et-me	SGS LABS	M/A	12/28/23	2 ppm	250 uL	4 mL	125	1033 mix	7/31/23	12/28/23	MV
		11899	PFAC MxH	Wellington	4/19/28	7/31/24	1-4 ppm			125	(2.1088uL)			
		11900	PFAC MxH		3-24-26	7-19-24	2 ppm			125				
		11931A	PFAC MxH		12-1-27	7-31-24	2 ppm			125				
		11892	PFAC MxG		3-28-28	7-19-24	4-20 ppm			312				
		11901	PFAC MxJ		3-28-28	7-31-24	4-20 ppm	312 uL	Y	1100	ppb		Y	Y
		11893	PFAC MxJ		3-28-28	7-19-24	4-20 ppm			100	ppb		Y	Y
		11902	PFAC MxJ		3-28-28	7-27-24	4-20 ppm			100	ppb		Y	Y
		11933A	PFAC MxJ		3-28-28	7-31-24	4-20 ppm			100	ppb		Y	Y
LCMS 2152	Full List 40 Spike (Cal Std)	11894/ 11872	PFAC (28 comp)	Absolute	3/15/28	8/1/24	1.0 ppm	400 uL	4.0 mL	100	ppb	75% MeOH 5% H2O	8/23/23	JR
		LCMS 2067	40 List Add-on #1	SGS Std	-	8/23/23	1.0 ppm			100	ppb			JR
		LCMS 2117	40 List Add-on #2		-	11/08/23	1.0 ppm			100	ppb			JR
		LCMS 2101	FOSE Std		-	9/19/23	5.0 ppm	200 uL		500	ppb			JR
		LCMS 2153	FOSE Std		-	9/19/23	5.0 ppm	200 uL		500	ppb			JR
LCMS 2153	FOSE Std.	11336	N-Me-FOSE	Wellington Labs	5/13/27	9/19/23	50 ppm	200 uL	2.0 mL	5 ppm	96% MeOH 4% H2O	6/1/23	9/19/23	JR
		11338	N-Me-FOSE		5/13/27	7/19/23								JR
LCMS 2154	1033 BR-LN Me + Et (fosa)	11497	Br-N Etfosa	Wellington LABS	8/23/27	12/28/23	50 ppm	200 uL	5 mL	2 ppm	1033 mix	8/7/23	12/28/23	MV
		11795	Br-N Me fosa		10/7/27	6/28/24		500 uL		5 ppm	(300 uL)			
		11498	Br-N Et fosa		10/7/27	12/28/23		200 uL		2 ppm				
		11796	Br-N Et fosa		10/7/27	6/28/24		500 uL	Y	5 ppm			Y	Y

* based on date opened as specified in each SGS - Orlando SOP. * JR 8/1/23

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 2156	LIST 40 ADD ON #2	11513	FBSA-1	Wellington	11/10/26	4/18/24	50 ppm	80 uL	4.0 mL	1 ppm	95% formic acid 5% H2O (8760)	8/7/23	2/7/24	MW
↓	↓	11514	FHSA1	↓	12/29/26	4/18/24	↓	↓	↓	↓	↓	↓	↓	↓
↓	↓	11140B	L-PFAS	↓	7/12/26	5/9/24	↓	↓	↓	↓	↓	↓	↓	↓
LCMS 2157	1033 RT BR-LN	11496	br-Fosa	Wellington	10/7/27	12/28/23	50 ppm	10 uL 5 uL per	5 mL	100 ppb	1033 mix (4930)	8/7/23	12/28/23	MW
↓	↓	11497	br-N metose	↓	8/23/27	↓	↓	10 uL	↓	↓	↓	↓	↓	↓
↓	↓	11498	br-N EtFose	↓	10/7/27	↓	↓	↓	↓	↓	↓	↓	↓	↓
↓	↓	11494	br-N metose	↓	10/7/27	↓	↓	↓	↓	↓	↓	↓	↓	↓
↓	↓	11495	br-N EtFose	↓	10/7/27	↓	↓	↓	↓	↓	↓	↓	↓	↓
↓	↓	11502	T-PTOA	↓	01/27/27	↓	↓	↓	↓	↓	↓	↓	↓	↓
↓	↓	11527	IP-PFA	↓	01/10/27	↓	↓	↓	↓	↓	↓	↓	↓	↓
LCMS 2158 AE	1033 Cal. std. Spike	LCMS 2190	Br-LN Et-me	SGS LABO	N/A	12/28/23	2 ppm 5 ppm	250 uL	4 mL	125 312.5 ppb	1033 mix 2038 uL	8/7/23	12/28/23	MW
↓	↓	11930	PFAC MxH	Wellington	4/19/28	7/31/24 8/7/24	1-4 ppm	↓	↓	62.5 125 250 ppb	↓	↓	↓	↓
↓	↓	11931A	PFAC Mx F	↓	3/24/26	7-31-24 8-7-24	2 ppm	↓	↓	125 ppb	↓	↓	↓	↓
↓	↓	11907	PFAC Mx G	↓	12/1/27	7-31-24 8-7-24	2 ppm	↓	↓	125 ppb	↓	↓	↓	↓
↓	↓	11932A	PFAC Mx G	↓	3-28-28	7-31-24 8-7-24	4-20 ppm	312 uL	↓	312 1160 ppb	↓	↓	↓	↓
↓	↓	11933A	PFAC Mx J	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
↓	↓	11933B	PFAC Mx J	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
↓	↓					Ma Confirave next page 8/7/23								

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

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2151A-E	1033 Cal std. (capike)	LCMS 2140	BR-LN Et-Me	SGS LABS	MA	12/28/23	2ppm	250NL	4mL	125	1033 mix	7/31/23	12/28/23	MV
		11899	PFAC	Wellington	4/9/28	7/31/24	1-4 ppm			62.5	(2.068M)			
		11930A	MXH							250ppb				
		11900	PFAC		3-24-26	7-19-24	2ppm			125ppb				
		11931A	MXF			7-31-24								
		11892	PFAC		12-1-27	7-19-24	2ppm	✓		125ppb				
		11901	MXG			7-31-24								
		11893	PFAC		3-28-28	7/19/24	4-20 ppm	3/2NL	✓	312		✓	✓	✓
		11902	MXJ			7-31-24				1100ppb				
		11933A												
LCMS 2152	Full List 40 Spike (Cal std)	11849/11872	PFOA (28 comp)	Absolute	3/15/28	6/21/24	1.0ppm	400µL	4.0mL	100ppb	95% MeOH 5% H ₂ O	8/6/23	8/23/23	LR
		LCMS 2047	40 List Add-on #1	SGS Std	-	8/23/23	1.0ppm			100ppb				LR
		LCMS 2117	40 List Add-on #2		-	11/08/23	1.0ppm			100ppb				LR
		LCMS 2101	FOSE Std		-	9/19/23	5.0ppm	200µL*		500ppb				LR
		LCMS 2153	FOSE Std	SGS Std	-	9/19/23	5.0ppm	200µL*		500ppb				LR
LCMS 2153	FOSE Std.	11336	N- et- FOSE	Wellington Labs	5/13/27	9/19/23	50ppm	200µL	2.0mL	5ppm	95% MeOH 5% H ₂ O	8/6/23	9/19/23	LR
		11338	N- Me- FOSE		5/13/27	9/19/23	✓							LR
LCMS 2154	1033 BR-LN Me + Et (fosa)	11497	BR-N Et-fosa	Wellington Labs	8/23/27	12/28/23	50ppm	200NL	5mL	2ppm	1033 mix	8/7/23	12/28/23	MV
		11795	BR-N Me-fosa		10/7/27	6/28/24		500NL		5ppm	(3.6cc/mL)			
		11498	BR-N Et-fosa		10/7/27	12/28/23	✓	200NL		2ppm				
		11796	BR-N Et-fosa		10/7/27	6/28/24	✓	500NL		5ppm				

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

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

11497



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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSA

N-Methylperfluorooctanesulfonamide Isomeric Mix

<u>PRODUCT CODE:</u>	br-NMeFOSA
<u>LOT NUMBER:</u>	brNMeFOSA0822
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/18/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	08/23/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	08/23/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
 Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
 Figure 2: LC/MS Data (SIR)
 Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 31506-32-8 (for linear isomer).

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519-822-2436 • Fax: 519-822-2849 • info@well-labs.com**

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

brNMeFOSA0822 (1 of 6)
rev1

7.9.1
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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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Revision#:9, Revised 2020-12-23

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11795
rec'd 10/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSE

2-(N-Methylperfluorooctanesulfonamido)ethanol
Isomeric Mix

PRODUCT CODE: br-NMeFOSE
LOT NUMBER: brNMeFOSE0922
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 09/02/2022
LAST TESTED: (mm/dd/yyyy) 09/07/2022 (HRGC/LRMS)
 10/07/2022 (LC/MS)
EXPIRY DATE: (mm/dd/yyyy) 10/07/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-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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Revision#: 9, Revised 2020-12-23

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rev1

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rec'd: 05/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSE

2-(N-Ethylperfluorooctanesulfonamido)ethanol
Isomeric Mix

PRODUCT CODE:	br-NEtFOSE
LOT NUMBER:	brNEtFOSE1022
CONCENTRATION:	50.0 ± 2.5 µg/mL
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/12/2022
LAST TESTED: (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
EXPIRY DATE: (mm/dd/yyyy)	10/07/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
Figure 3: LC/MS Data (SIR)
Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

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

brNEtFOSE1022 (1 of 7)
rev1

7.9.1

7



CERTIFIED WEIGHT REPORT

Part Number: 64029A
Lot Number: 031323
Description: PFOA-DOD
26 components
Expiration Date: 03/1323
Recommended Storage: Freezer (0 °C)
1.0
Net Weight Concentration (µg/mL): 1.0
NIST Test ID: 64029A

Volume(s) shown below were combined and diluted to (mL):
Note: All assigned values are sodium concentrations.

Formulated By: Prashant Chauhan
Reviewed By: Pedro L. Renteria

031323 DATE
031323 DATE

11872
rec'd: 06/19/23

Compound	Part Number	Lot Number	Division	Factor	Initial Vol. (mL)	Final Vol. (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (k=2)	Free Acid CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid (PFBA)	99542	110422	0.02	2.00	0.017	50.1	1.00	0.02	0.02	375-22-4	N/A	N/A
2. Perfluoro-pentanoic acid (PFPA)	99543	011723	0.02	2.00	0.017	50.3	1.01	0.02	2766-80-3	N/A	N/A	
3. Perfluoro-hexanoic acid (PFHA)	99189	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4	N/A	N/A	
4. Perfluoroheptanoic acid (PFHeA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-58-9	N/A	N/A	
5. Perfluorooctanoic acid (br-PFOA)*	99502	086522	0.02	2.00	0.017	50.2	1.00	0.02	335-87-1 (L)	N/A	skin irritant/eye irritant	
6. Perfluorononanoic acid (PFNA)	99500	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	335-78-2	N/A	N/A	
8. Perfluoroundecanoic acid (PFUdA)	99205	071522	0.02	2.00	0.017	50.2	1.00	0.02	2068-84-8	N/A	N/A	
9. Perfluorododecanoic acid (PFDDA)	99198	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A	
10. Perfluorotridecanoic acid (PFTrDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	27839-84-9	N/A	N/A	
11. Perfluorotetradecanoic acid (PFTrDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	375-08-7	N/A	N/A	
12. Perfluoro-1-iodooctanoic acid (br-PFOIA)*	3677	FQSA0221	0.02	2.00	0.017	50.0	1.00	0.05	744-81-8	N/A	N/A	
13. N-ethylperfluorooctanesulfonamide acid (br-NMFOEA)*	4162	INMFOEA0422	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A	
14. N-ethylperfluorodecane sulfonamide acid (br-NMFOEA)*	4163	INMFOEA1121	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-8 (L)	N/A	N/A	
15. Perfluorobutanoic acid (PFBS)	99194	086522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5	N/A	N/A	
16. Perfluoro-1-pentanoic acid (PFPA5)	99544	091822	0.02	2.00	0.017	50.1	1.00	0.02	2766-91-4	N/A	N/A	
17. Perfluorohexanoic acid (br-PFHx5)	99198	030923	0.02	2.00	0.017	50.0	1.00	0.02	355-48-4 (L)	N/A	N/A	
18. Perfluoro-1-heptanoic acid (br-PFH5)	3672	LPHF050622	0.02	2.10	0.017	47.8	1.00	0.05	375-52-8	N/A	N/A	
19. Heptafluorooctanoic acid (br-PFO5)*	99201	030923	0.02	2.00	0.017	50.1	1.00	0.02	1783-23-1 (L)	N/A	N/A	
20. Perfluoro-1-nonanoic acid (PFNS)	3957	LFFNS1122	0.02	2.10	0.017	48.0	1.01	0.05	8259-12-1	N/A	N/A	
21. Perfluoro-1-decanoic acid (PFDS)	3671	086522	0.02	2.10	0.017	48.2	1.01	0.05	335-77-3	N/A	N/A	
22. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (br-PFO5S)	65271	086522	0.02	2.00	0.017	50.2	1.00	0.05	787124-72-4	N/A	N/A	
23. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (br-PFDS)	65272	031023	0.02	2.10	0.017	50.3	1.00	0.05	27819-87-2	N/A	N/A	
24. 1H,1H,2H,2H-Perfluoroundecane sulfonic acid (br-PFDDA)	3662	BF150622	0.02	2.10	0.017	47.9	1.01	0.05	81108-34-4	N/A	N/A	
25. 2-Heptafluoropropyl-2,3,3,3-tetrafluorooctanoic acid (PFPODA)	99669	086522	0.02	2.00	0.017	50.1	1.00	0.02	53232-13-5	N/A	N/A	
26. 11-Chloroheptafluoro-3-oxooctanoic acid (11C-HPFOA5)	4165	11CFFPOA5022	0.02	2.12	0.017	47.1	1.00	0.05	78305-182-9	N/A	N/A	
27. 3-Chlorooctadecanoic acid (br-PCFOA5)	4164	9CFPOA51022	0.02	2.14	0.017	46.6	1.00	0.05	79649-56-1	N/A	N/A	
28. Dodecafluoro-3H,4-B-dioxanone acid (ADONA)	4103	NADONA0922	0.02	2.12	0.017	47.1	1.00	0.05	818035-14-4	N/A	N/A	
Perfluorooctanoic acid (linear)*	99502	086522	0.02	2.00	0.004	49.8	0.99	0.010	335-67-1 (L)	N/A	skin irritant/eye irritant	
Perfluorooctanoic acid (branched isomer)*	99502	086522	0.02	2.00	0.004	0.6	0.01	0.001	335-67-1 (L)	N/A	skin irritant/eye irritant	
Perfluorohexanoic acid (linear)*	99198	030923	0.02	2.00	0.017	44.0	0.95	0.02	355-48-4 (L)	N/A	N/A	
Perfluorohexanoic acid (branched isomer)*	99198	030923	0.02	2.00	0.017	0.0	0.12	0.000	355-48-4 (L)	N/A	N/A	
Heptafluorooctanoic acid (linear)*	99501	030923	0.02	2.00	0.017	38.1	0.76	0.02	1783-23-1 (L)	N/A	N/A	
Heptafluorooctanoic acid (branched isomer)*	99501	030923	0.02	2.00	0.017	7.5	0.15	0.003	1783-23-1 (L)	N/A	N/A	
Heptafluorodecanoic acid (linear)*	99503	030923	0.02	2.00	0.017	4.0	0.08	0.002	1783-23-1 (L)	N/A	N/A	
Heptafluorodecanoic acid (branched isomer)*	99503	030923	0.02	2.00	0.017	0.5	0.010	0.0002	1783-23-1 (L)	N/A	N/A	
N-ethylperfluorooctanesulfonamide acid (linear)*	4162	INMFOEA0422	0.02	2.00	0.017	38.0	0.72	0.04	2355-31-9 (L)	N/A	N/A	
N-ethylperfluorodecane sulfonamide acid (linear)*	4163	INMFOEA1121	0.02	2.00	0.017	36.8	0.73	0.04	2991-50-8 (L)	N/A	N/A	
N-ethylperfluoroundecane sulfonamide acid (linear)*	4163	INMFOEA1121	0.02	2.00	0.017	7.7	0.15	0.008	2991-50-8 (L)	N/A	N/A	
N-ethylperfluorododecane sulfonamide acid (linear)*	4163	INMFOEA1121	0.02	2.00	0.017	5.3	0.11	0.005	2991-50-8 (L)	N/A	N/A	
N-ethylperfluorotridecane sulfonamide acid (linear)*	4163	INMFOEA1121	0.02	2.00	0.017	0.4	0.007	0.0005	2991-50-8 (L)	N/A	N/A	

*Concentrations for branched and linear isomers are based on LC/MS 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).
 * All values are certified for 100% of the stated concentration, with the exception of the branched isomers, which are certified for 95% of the stated concentration.
 * All values are certified for 100% of the stated concentration, with the exception of the branched isomers, which are certified for 95% of the stated concentration.
 * University Reference: Taylor, K.N., and Kopy, C.E., "Guidelines for Preparing and Expanding the Uncertainty of NIST Measurement Bank," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

11930A-B
Rec # 120/23
mw



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXH
LOT NUMBER: PFACMXH0423
SOLVENT(S): Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 04/06/2023
LAST TESTED: (mm/dd/yyyy) 04/19/2023
EXPIRY DATE: (mm/dd/yyyy) 04/19/2028
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; C₅ and C₆ linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide. The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Table B: Isomeric Components and Percent Composition of N-MeFOSAA
- Table C: Isomeric Components and Percent Composition of N-EtFOSAA
- Table D: Isomeric Components and Percent Composition of PFHxSK
- Table E: Isomeric Components and Percent Composition of PFOSK
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Table A: PFAC-MXH; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFUdA	1000		23
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTrDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		24
N-Methylperfluorooctanesulfonamidoacetic acid ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-Ethylperfluorooctanesulfonamidoacetic acid ^b	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1000	962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4000	3840	16

^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.

^b See Table C for percent composition of linear and branched N-EtFOSAA isomers.

^c See Table D for percent composition of linear and branched PFHxSK isomers.

^d See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 05/11/2023
(mm/dd/yyyy)

11931 A-B
Rec 7/26/23 MW



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXF
LOT NUMBER: PFACMXF0323
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 03/23/2023
LAST TESTED: (mm/dd/yyyy) 03/24/2023
EXPIRY DATE: (mm/dd/yyyy) 03/24/2026
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxananoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

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Form#: 13, Issued 2004-11-10
Revision#: 3, Revised 2020-12-23

PFACMXF0323 (1 of 5)
rev0

7.9.1

7


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-dioxanonoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroicosafafluoro-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: 03/29/2023
(mm/dd/yyyy)

11932 A-B
Rec 7/26/23
mw



WELLINGTON LABORATORIES

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

PFACMXG1122 (1 of 5)
rev0

7.9.1

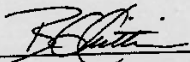
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Table A

PFACs and Concentrations (ng/mL; ± 5% in methanol/water (<1%))

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

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 12/09/2022
(mm/dd/yyyy)

7.9.1
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11933 A-B
Rec 7/26/23
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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE: PFAC-MXJ
LOT NUMBER: PFACMXJ0323
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 03/27/2023
LAST TESTED: (mm/dd/yyyy) 03/28/2023
EXPIRY DATE: (mm/dd/yyyy) 03/28/2028
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

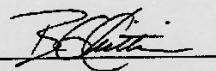
- See page 2 for further details.

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Table A: PFAC-MXJ; Components and Concentrations ($\mu\text{g/mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g/mL}$)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By: 
B.G. Chittim, General Manager

Date: 04/12/2023
(mm/dd/yyyy)

11949 A-B
rec'd: 08/09/23



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>	PFACMXJ0323
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	03/27/2023
<u>LAST TESTED:</u> (mm/dd/yyyy)	03/28/2023
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	03/28/2028
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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

PFACMXJ0323 (1 of 5)
rev0

7.9.1
7

Table A:

PFAC-MXJ; Components and Concentrations (µg/mL; ± 5% in methanol)

Compound	Acronym	Concentration (µg/mL)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By: _____

B.G. Chittim, General Manager

Date: 04/12/2023

(mm/dd/yyyy)

11953
rec'd: 08/11/23

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXH
LOT NUMBER: PFACMXH0423
SOLVENT(S): Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 04/06/2023
LAST TESTED: (mm/dd/yyyy) 04/19/2023
EXPIRY DATE: (mm/dd/yyyy) 04/19/2028
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, C₈, C₁₀ and C₁₂ linear; C₆ and C₈ linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide. The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Table B: Isomeric Components and Percent Composition of N-MeFOSAA
- Table C: Isomeric Components and Percent Composition of N-EtFOSAA
- Table D: Isomeric Components and Percent Composition of PFHxSK
- Table E: Isomeric Components and Percent Composition of PFOSK
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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

7.9.1
7

Table A:

PFAC-MXH; Components and Concentrations
(ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFUdA	1000		23
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTrDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		24
N-Methylperfluorooctanesulfonamidoacetic acid ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-Ethylperfluorooctanesulfonamidoacetic acid ^b	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1000	962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4000	3840	16

^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.

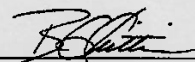
^b See Table C for percent composition of linear and branched N-EtFOSAA isomers.

^c See Table D for percent composition of linear and branched PFHxSK isomers.

^d See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Certified By:


B.G. Chittim, General Manager

Date: 05/11/2023

(mm/dd/yyyy)

11954
rec'd: 08/11/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

PRODUCT CODE: PFAC-MXF
LOT NUMBER: PFACMXF0323
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 03/23/2023
LAST TESTED: (mm/dd/yyyy) 03/24/2023
EXPIRY DATE: (mm/dd/yyyy) 03/24/2026
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

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Revision#: 9, Revised 2020-12-23

PFACMXF0323 (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-dioxanonanoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 03/29/2023
(mm/dd/yyyy)

11956
rec'd 08/11/23



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>	PFACMXJ0323
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	03/27/2023
<u>LAST TESTED:</u> (mm/dd/yyyy)	03/28/2023
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	03/28/2028
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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PFACMXJ0323 (1 of 5)
rev0

7.9.1
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PFAC-MXJ; Components and Concentrations (µg/mL) ± 5% in methanol

Compound	Acronym	Concentration (µg/mL)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By: 
B.G. Chittim, General Manager

Date: 04/12/2023
(mm/dd/yyyy)

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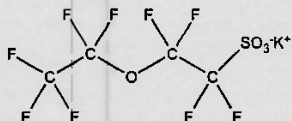
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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFEESA *rec'd
8/20/21
WPH* **LOT NUMBER:** PFEESA0520

COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate

STRUCTURE: **CAS #:** 117205-07-9



MOLECULAR FORMULA: C₄F₈SO₄K **MOLECULAR WEIGHT:** 354.19

CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol

44.6 ± 2.2 µg/ml (PFEESA acid)

44.5 ± 2.2 µg/ml (PFEESA anion)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 05/13/2020

EXPIRY DATE: (mm/dd/yyyy) 05/13/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

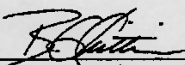
Figure 1: LC/MS Data (TIC and Mass Spectrum)

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

ADDITIONAL INFORMATION:

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

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Certified By:  **Date:** 05/29/2020
(mm/dd/yyyy)
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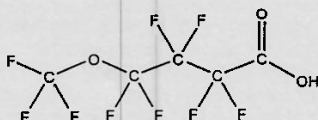
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

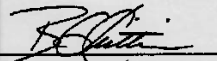
DOCUMENTATION/ DATA ATTACHED:

- 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: 
B.G. Chittim, General Manager

Date: 12/21/2020
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
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PF5OHxA0320 (1 of 4)
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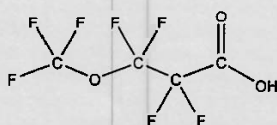
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

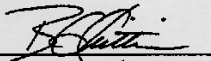
DOCUMENTATION/ DATA ATTACHED:

- 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.

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Certified By: 
B.G. Chittim, General Manager

Date: 12/21/2020
(mm/dd/yyyy)

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10765 A-13



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PRODUCT CODE:

3,6-OPFHpA

rec'd
WPH
8/20/21

LOT NUMBER:

36OPFHpA0320

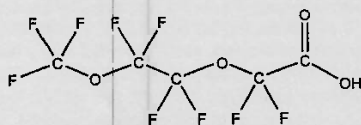
COMPOUND:

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.

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Certified By:

B.G. Chittim, General Manager

Date: 05/27/2020
(mm/dd/yyyy)

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PRODUCT CODE:

N-EtFOSA-M

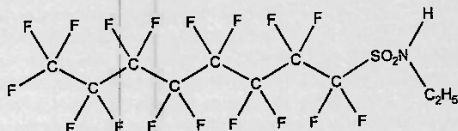
10837

LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:



CAS #: 4151-50-2

MOLECULAR FORMULA:

C₁₀H₉F₁₇NO₂S

MOLECULAR WEIGHT:

527.20

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/12/2021

EXPIRY DATE: (mm/dd/yyyy)

08/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

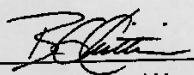
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:


B.G. Chittim, General Manager

Date: 08/16/2021

(mm/dd/yyyy)

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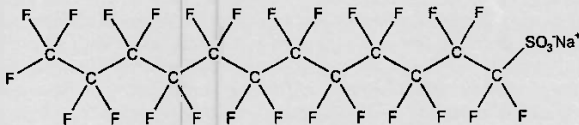
10840

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

LOT NUMBER: LPFDoS0721

STRUCTURE:

CAS #: 1260224-54-1



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

MOLECULAR WEIGHT: 722.14
SOLVENT(S): Methanol


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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10847 NS 01/18/23

PRODUCT CODE:

PFODA

LOT NUMBER:

PFODA0821

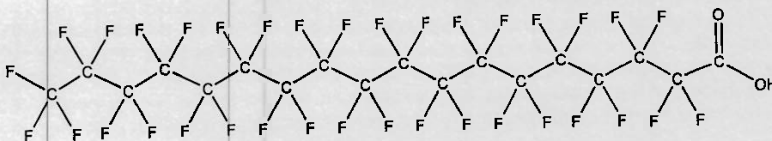
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

C₁₈H₃₅O₂

MOLECULAR WEIGHT:

914.14

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

09/03/2021

EXPIRY DATE: (mm/dd/yyyy)

09/03/2026

RECOMMENDED STORAGE:

Store ampoule at ambient temperature in a dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 09/28/2021

(mm/dd/yyyy)

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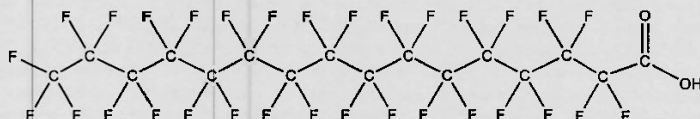
CERTIFICATE OF ANALYSIS
DOCUMENTATION

10842 * NG 01/18/23

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0421

COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆HF₃₁O₂ **MOLECULAR WEIGHT:** 814.13
CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
 Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/07/2021
EXPIRY DATE: (mm/dd/yyyy) 05/07/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

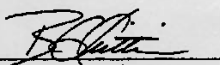
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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PFHxDA0421 (1 of 4)
 rev0

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

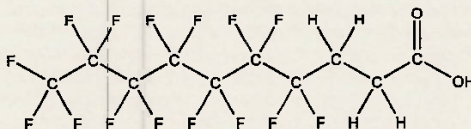
COMPOUND:

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

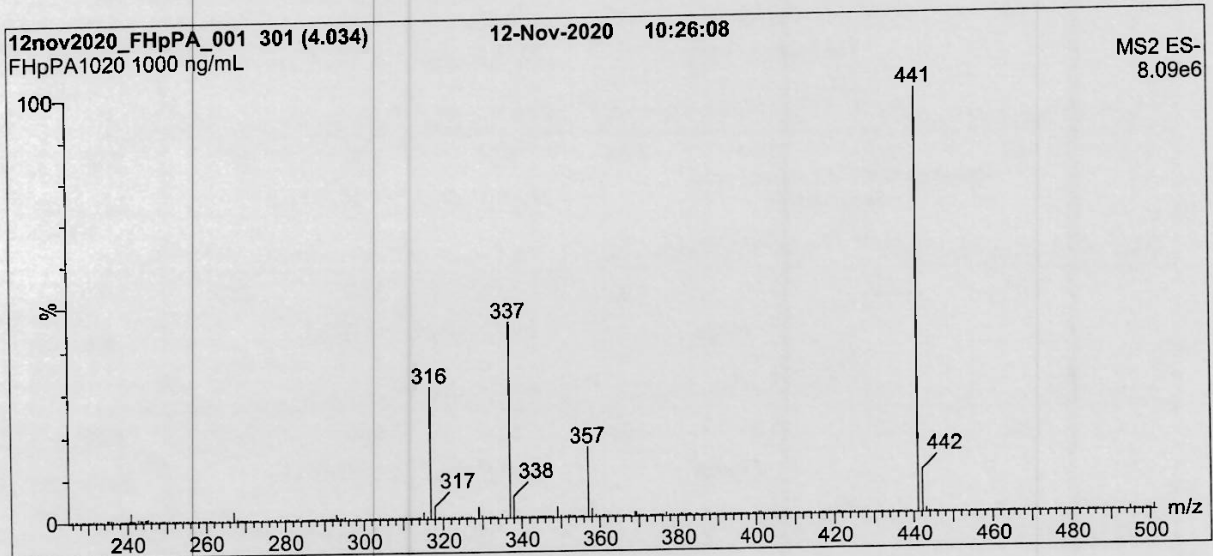
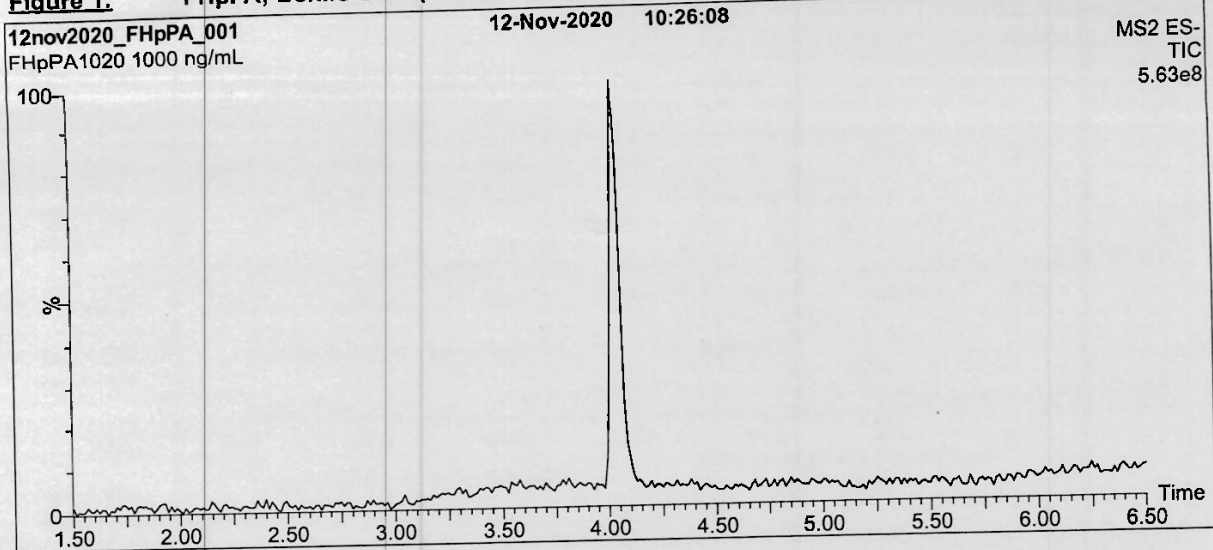
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Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

FHpPA1020 (1 of 4)
rev0

7.9.1
7

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

FPa PA(3:3 FTA) 1116 B



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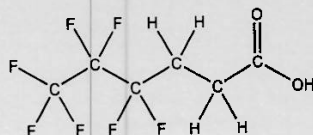
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FPrPA
COMPOUND: 3-Perfluoropropyl propanoic acid

LOT NUMBER: FPrPA0122

STRUCTURE:

CAS #: 356-02-5



MOLECULAR FORMULA: C₆H₅F₇O₂
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/03/2022
EXPIRY DATE: (mm/dd/yyyy) 02/03/2027
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 242.09
SOLVENT(S): Methanol

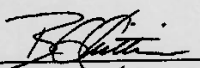
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid (C₆H₃F₇O₂) as an impurity determined by ¹⁹F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 02/04/2022
(mm/dd/yyyy)

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11140



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

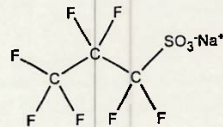
COMPOUND:

Sodium perfluoro-1-propanesulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₃F₇SO₃Na

MOLECULAR WEIGHT:

272.07

CONCENTRATION:

50.0 ± 2.5 µg/mL (Na salt)

46.0 ± 2.3 µg/mL (PFPrS acid)

45.8 ± 2.3 µg/mL (PFPrS anion)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/12/2021

EXPIRY DATE: (mm/dd/yyyy)

07/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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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11338



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

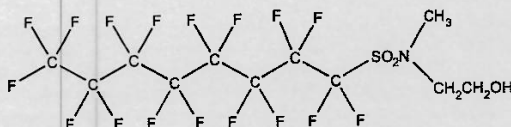
NMeFOSE0522M

COMPOUND:

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

STRUCTURE:**CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C₁₁H₈F₁₇NO₃S**MOLECULAR WEIGHT:**

557.22

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy)

05/13/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS Data (Full Scan and Mass Spectrum)

Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

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Certified By:

B.G. Chittim, General Manager
Date: 06/14/2022
(mm/dd/yyyy)

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11514 rec'd 11/14/22

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PRODUCT CODE:

FHxSA-I

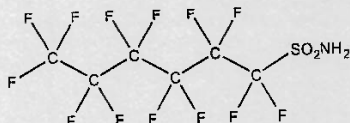
LOT NUMBER: FHxSA1221I

COMPOUND:

Perfluoro-1-hexanesulfonamide

CAS #: 41997-13-1

STRUCTURE:



MOLECULAR FORMULA:

C₆H₂F₁₃NO₂S

MOLECULAR WEIGHT: 399.13

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Isopropanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

12/29/2021

EXPIRY DATE: (mm/dd/yyyy)

12/29/2026

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

Date: 01/10/2022
(mm/dd/yyyy)

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FHxSA1221I (1 of 4)

11710
rec'd: 03/17/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSA-M

LOT NUMBER:

NMeFOSA1122M

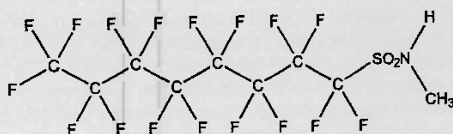
COMPOUND:

N-Methylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #:

31506-32-8



MOLECULAR FORMULA:

C₉H₄F₁₇NO₂S

MOLECULAR WEIGHT:

513.17

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/11/2022

EXPIRY DATE: (mm/dd/yyyy)

11/11/2027

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.

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Certified By:

B.G. Chittim, General Manager

Date: 11/25/2022

(mm/dd/yyyy)

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7



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CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:

M3PFPeA

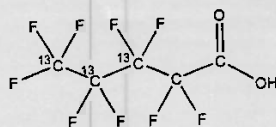
LOT NUMBER: M3PFPeA0720

COMPOUND:

Perfluoro-n-[3,4,5-¹³C₃]pentanoic acid

CAS #: Not available

STRUCTURE:



MOLECULAR FORMULA:

¹³C₃¹²C₂HF₉O₂

MOLECULAR WEIGHT: 267.02

CONCENTRATION:

50.0 ± 2.5 µg/ml

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

≥99% ¹³C
(3,4,5-¹³C₃)

LAST TESTED: (mm/dd/yyyy)

07/22/2020

EXPIRY DATE: (mm/dd/yyyy)

07/22/2025

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.
- Contains ~ 0.95% of perfluoro-n-[¹³C₃]butanoic acid and 0.05% of perfluoro-1-pentanoic acid.

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Certified By:

B.G. Chittim, General Manager

Date: 08/04/2020

(mm/dd/yyyy)

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11794
rec'd: 05/15/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

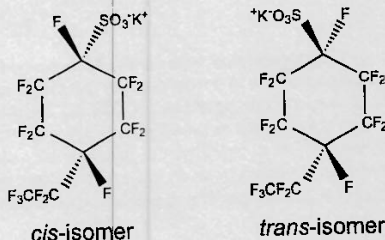
PFECHS

LOT NUMBER: PFECHS0223

COMPOUND:

Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

STRUCTURE:



CAS #: 335-24-0

MOLECULAR FORMULA:

C₉F₁₅SO₃K

MOLECULAR WEIGHT: 500.22

CONCENTRATION:

50.0 ± 2.5 µg/mL (K salt)
46.2 ± 2.3 µg/mL (PFECHS acid)
46.1 ± 2.3 µg/mL (PFECHS anion)

SOLVENT(S): Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/14/2023

EXPIRY DATE: (mm/dd/yyyy)

03/14/2028

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*, by ¹⁹F NMR).

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Certified By:

B.G. Chittim, General Manager

Date: 03/16/2023
(mm/dd/yyyy)

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11987A-J
rec'd: 08/13/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

Mass-Labelled PFAS Injection
Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-IS
LOT NUMBER: MPFACHIFIS0723
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 07/05/2023
LAST TESTED: (mm/dd/yyyy) 07/05/2023
EXPIRY DATE: (mm/dd/yyyy) 07/05/2028
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4 , C_6 , C_8 - C_{10}) and two mass-labelled (^{18}O and ^{13}C) perfluoroalkanesulfonates (C_6 and C_8). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of $\geq 99\%$ per ^{13}C or >94% per ^{18}O .

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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

MPFACHIFIS0723 (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: 07/07/2023
(mm/dd/yyyy)

7.9.1
7

11988 A-5
rec'd: 08/31/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction Standard Solution/Mixture

<u>PRODUCT CODE:</u>	MPFAC-HIF-ES
<u>LOT NUMBER:</u>	MPFACHIFES0623
<u>SOLVENT(S):</u>	Methanol/Isopropanol (1%)/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	06/19/2023
<u>LAST TESTED:</u> (mm/dd/yyyy)	06/20/2023
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	06/20/2026
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄-C₁₂, C₁₄), three mass-labelled (¹³C) perfluoroalkanesulfonates (C₄, C₆, and C₈), three mass-labelled (one ¹³C and two ²H) perfluoro-1-octanesulfonamides, three mass-labelled (¹³C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (²H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (²H) perfluorooctanesulfonamidoethanols, and mass-labelled (¹³C) hexafluoropropylene oxide dimer acid (¹³C₃-GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ¹³C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual ²H-labelled components all have chemical purities >98% and isotopic purities of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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

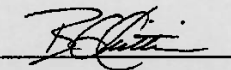
MPFACHIFES0623 (1 of 7)
rev0

7.9.1
7

Table A: MPFAC-HIF-ES; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(¹³ C ₄)butanoic acid	MPFBA	2000		1
Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- ¹³ C ₅)hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- ¹³ C ₆)heptanoic acid	M4PFHpA	500		7
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	500		10
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₆)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₇)undecanoic acid	M7PFUdA	250		18
Perfluoro-n-(1,2- ¹³ C ₂)dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- ¹³ C ₂)tetradecanoic acid	M2PFTeDA	250		24
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		16
N-Methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-Ethyl-d ₅ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		23
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		17
2-(N-Methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₄ -ol	d7-N-MeFOSE	5000		20
2-(N-Ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₄ -ol	d9-N-EtFOSE	5000		22
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₃)propanoic acid	M3HFPO-DA	2000		6
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)decanesulfonate	M2-8:2FTS	1000	960	13

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 06/22/2023
(mm/dd/yyyy)

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 2151A-E	1033 Cal std. (epike)	LCMS 2140	BR-LN Et-Me	SGS LABS	N/A	12/28/23	2 ppm	250uL	4 mL	125	1033 mix	7/31/23	12/28/23	MV
		11899	PFAC MXH	Wellington	4/9/28	7/31/24	1-4 ppm			62.5	(210884)			
		11930A	PFAC MXH							125				
		11900	PFAC MXF		3/24/26	7/19/24	2 ppm			250ppb				
		11931A	PFAC MXF		7/31/24	7/31/24	2 ppm			125ppb				
		11892	PFAC MXG		12-1-27	7/19/24	2 ppm	✓		125ppb				
		11901	PFAC MXG		7/31/24	7/31/24	2 ppm			312				✓
		11893	PFAC MXJ		3-28-28	7/19/24	4-20 ppm	3/2NL	✓	1100ppb				✓
		11902	PFAC MXJ		7-27-24	7-27-24	4-20 ppm							
		11933A	PFAC MXJ		7-27-24	7-27-24	4-20 ppm							
LCMS 2152	Full List 40 Spike (cal std)	11849/11872	PROA (28comp)	Absolute	3/13/28	8/1/24	1.0ppm	400uL	4.0mL	100ppb	75% MeOH 5% H2O	8/6/23	8/23/23	JR
		LCMS 2047	40 List Add-on #1	SGS Std	-	8/23/23	1.0ppm			100ppb				JR
		LCMS 2117	40 List Add-on #2		-	11/06/23	1.0ppm			100ppb				JR
		LCMS 2101	FOSE Std		-	9/19/23	5.0ppm	200uL*		500ppb				JR
		LCMS 2153	FOSE Std		-	9/19/23	5.0ppm	200uL*		500ppb				JR
LCMS 2153	FOSE std.	11336	N-Me-FOSE	SGS Std	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	8/6/23	9/19/23	JR
		11338	N-Me-FOSE	Wellington Labs	5/13/27	7/19/23								JR
LCMS 2154	1033 BR-LN Me + Et (fosa)	11497	BR-N Et-fosa	Wellington LABS	8/23/27	12/28/23	50ppm	200uL	5mL	2ppm	1033 mix (3000uL)	8/7/23	12/28/23	MV
		11795	BR-N Me-fosa		10/7/27	6/28/24				5ppm				
		11498	BR-N Et-fosa		10/7/27	12/28/23				2ppm				
		11796	BR-N Et-fosa		10/7/27	6/28/24				5ppm				

* based on date opened as specified in each SGS - Orlando SOP. * JR 8/11/23

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2139	1033 RT BR-LN	11496	br-Fosa	Wellington Labs	10/7/27	12/28/23	50ppm	5uL	2.5mL	100ppb	1033 mix	6/28/23	12/28/23	MU
		11497	br-N-MeFosa		8/23/27									
		11498	bc		10/7/27									
		11494	br-N-MeFosa		10/7/27									
		11495	br-N-MeFosa		10/7/27									
		11502	7-PFA		01/27/27									
		11527	IP PFNA		01/10/27									
LCMS 2140	1033 BR-LN Me + Et	11497	br-N MeFosa	Wellington Labs	8/23/27	12/28/23	50ppm	200uL	5mL	2ppm	1033 mix (3000uL)	6/28/23	12/28/23	MU
		11498	br-N EtFosa		10/7/27	12/28/23		200uL		2ppm				
		11795	br-N MeFosa		10/7/27	6/28/24		500uL		5ppm				
		11796	br-N EtFosa		10/7/27	6/28/24		500uL		5ppm				
LCMS 2141	List 40 Sum ADD-ON Isotope	11523	dt-N-MeFosa	Wellington Labs	1/27/27	5/9/24	50ppm	400uL	4mL	5ppm	95% MeOH 5% H2O	7/11/23	01/11/24	MU
		11537	dg-N EtFosa		1/27/27	6/1/24		400uL		5ppm				
		11334	M2-PFHDA		11/23/26	6/1/24		80uL		1ppm				
		11335	D-N-EtFosa		3/7/27	6/1/24		80uL		1ppm				
						PR 7/12/23								

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

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2155	40 List Std. ADD-CN #1	11649	10:2 FTS	Wellington	12/1/27	8/7/24	50 ppm	80 uL	4.0 mL	1 ppm	95% MeOH 570720 (2880 uL)	8/7/23	10/18/23	MW
		10840	L- PFDOs		7/9/26	10/18/23	50 ppm							
		11710	N-MEFS9-m		11/11/27	8/7/24	50 ppm							
		10837	N- EFFOSA-m		8/3/26	8/3/24								
		10842	PFHXDA		9/3/26	10/18/23								
		10841	PFODA		5/7/26	10/18/23								
		11116B	3:3 FTCA FP-PAL(PHFA)		2/3/27	2/8/24								
		11761	5:3 FTCA M3PFPA		7/22/25	8/7/24								
		11116A	7:3 FTCA FHPA		11/12/25	2/8/24								
		11794	PFECHS		3/4/28	8/7/24								
		10762B	PFEESA		5/13/25	10/18/23								
		10763B	PFMBA PF50HKA		3/31/25	10/18/23								
		10764	PFMPA PF400FA		3/31/25	2/8/24								
		10765B	NFHDA 3:6 OPHPA		3/5/25	10/18/23								
							MW Confirave next page 8/7/23							

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

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

11338



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

7.9.2
7**PRODUCT CODE:**

N-MeFOSE-M

LOT NUMBER:

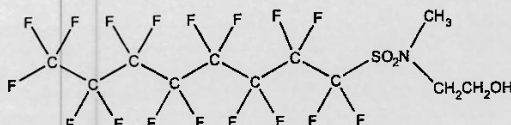
NMeFOSE0522M

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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11892
rec'd: 06/09/23



WELLINGTON LABORATORIES

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

PFACMXG1122 (1 of 5)
rev0


7.9.2
7

Table A:

PFAC-MVG: Components and Concentrations (ng/mL) ± 5% in methanol/water (<1%)

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHxA	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)

11893
rec'd: 06/29/23



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>	PFACMXJ0323
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	03/27/2023
<u>LAST TESTED:</u> (mm/dd/yyyy)	03/28/2023
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	03/28/2028
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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

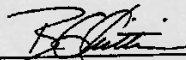
PFACMXJ0323 (1 of 5)
rev0

7.9.2
7

Table A:

PFAC-MXJ; Components and Concentrations ($\mu\text{g/mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g/mL}$)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By: 
B.G. Chittim, General Manager

Date: 04/12/2023
(mm/dd/yyyy)

11899
rec'd: 07/11/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXH
LOT NUMBER: PFACMXH0423
SOLVENT(S): Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 04/06/2023
LAST TESTED: (mm/dd/yyyy) 04/19/2023
EXPIRY DATE: (mm/dd/yyyy) 04/19/2028
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. 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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7.9.2
7

Title A:

**PFAC-MXH; Components and Concentrations
(ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))**

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFuDA	1000		23
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTrDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		24
N-Methylperfluorooctanesulfonamidoacetic acid ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-Ethylperfluorooctanesulfonamidoacetic acid ^b	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNs	1000	962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4000	3840	16

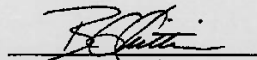
^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.

^b See Table C for percent composition of linear and branched N-EtFOSAA isomers.

^c See Table D for percent composition of linear and branched PFHxSK isomers.

^d See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 05/11/2023
(mm/dd/yyyy)

11900
rec'd: 07/11/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

PRODUCT CODE: PFAC-MXF
LOT NUMBER: PFACMXF0323
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 03/23/2023
LAST TESTED: (mm/dd/yyyy) 03/24/2023
EXPIRY DATE: (mm/dd/yyyy) 03/24/2026
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

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

PFACMXF0323 (1 of 5)
rev0

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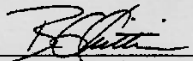


Table A:

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-dioxanonoate	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: 03/29/2023
(mm/dd/yyyy)

11901
rec'd: 07/11/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic Acids and Sulfonate Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXG
<u>LOT NUMBER:</u>	PFACMXG1122
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	11/30/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	12/01/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	12/01/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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

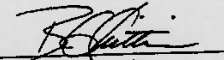
PFACMXG1122 (1 of 5)
rev0

7.9.2
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PFAC-MXG: Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))

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

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 12/09/2022
(mm/dd/yyyy)

7.9.2
7

11902
rec'd: 07/11/23



**WELLINGTON
LABORATORIES**

**CERTIFICATE OF ANALYSIS
DOCUMENTATION**

PFAC-MXJ

**Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture**

PRODUCT CODE: PFAC-MXJ
LOT NUMBER: PFACMXJ0323
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 03/27/2023
LAST TESTED: (mm/dd/yyyy) 03/28/2023
EXPIRY DATE: (mm/dd/yyyy) 03/28/2028
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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

PFACMXJ0323 (1 of 5)
rev0

7.9.2

7

Table A:

PFAC-MXJ; Components and Concentrations (µg/mL; ± 5% in methanol)

Compound	Acronym	Concentration (µg/mL)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By:


B.G. Chittim, General Manager

Date: 04/12/2023
(mm/dd/yyyy)

11930 A-B
Rec # 120/23
mw



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXH
LOT NUMBER: PFACMXH0423
SOLVENT(S): Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 04/06/2023
LAST TESTED: (mm/dd/yyyy) 04/19/2023
EXPIRY DATE: (mm/dd/yyyy) 04/19/2028
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; C₅ and C₆ linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide. The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Table B: Isomeric Components and Percent Composition of N-MeFOSAA
- Table C: Isomeric Components and Percent Composition of N-EtFOSAA
- Table D: Isomeric Components and Percent Composition of PFHxSK
- Table E: Isomeric Components and Percent Composition of PFOSK
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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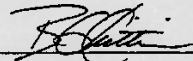
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Table A: PFAC-MXH; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFUdA	1000		23
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTrDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		24
N-Methylperfluorooctanesulfonamidoacetic acid ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-Ethylperfluorooctanesulfonamidoacetic acid ^b	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNs	1000	962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FtS	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FtS	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FtS	4000	3840	16

^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.
^b See Table C for percent composition of linear and branched N-EtFOSAA isomers.
^c See Table D for percent composition of linear and branched PFHxSK isomers.
^d See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 05/11/2023
(mm/dd/yyyy)

11931 A-B
Rec 7/26/23 MW



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

PRODUCT CODE: PFAC-MXF
LOT NUMBER: PFACMXF0323
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 03/23/2023
LAST TESTED: (mm/dd/yyyy) 03/24/2023
EXPIRY DATE: (mm/dd/yyyy) 03/24/2026
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

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Form#: 13, Issued 2004-11-10
Revision#: 3, Revised 2020-12-23

PFACMXF0323 (1 of 5)
rev0

7.9.2
7

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-dioxanonoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroicosafafluoro-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: 03/29/2023

(mm/dd/yyyy)

11933 A-B
Rec 7/26/23
mw



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE: PFAC-MXJ
LOT NUMBER: PFACMXJ0323
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 03/27/2023
LAST TESTED: (mm/dd/yyyy) 03/28/2023
EXPIRY DATE: (mm/dd/yyyy) 03/28/2028
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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

PFACMXJ0323 (1 of 5)
rev0

7.9.2

7

Table A: PFAC-MXJ; Components and Concentrations ($\mu\text{g}/\text{mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g}/\text{mL}$)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By: 
 B.G. Chittim, General Manager

Date: 04/12/2023
(mm/dd/yyyy)

11966 A-J
rec'd: 08/22/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

**Mass-Labelled PFAS Injection
Standard Solution/Mixture**

PRODUCT CODE: MPFAC-HIF-IS
LOT NUMBER: MPFACHIFIS0723
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 07/05/2023
LAST TESTED: (mm/dd/yyyy) 07/05/2023
EXPIRY DATE: (mm/dd/yyyy) 07/05/2028
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 perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of ≥99% per ¹³C or >94% per ¹⁸O.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SiR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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

MPFACHIFIS0723 (1 of 5)
rev0

7.9.2
7



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: 07/07/2023
(mm/dd/yyyy)

7.9.2
 7

11967 A-J
rec'd: 08/22/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-ES
LOT NUMBER: MPFACHIFES0623
SOLVENT(S): Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 06/19/2023
LAST TESTED: (mm/dd/yyyy) 06/20/2023
EXPIRY DATE: (mm/dd/yyyy) 06/20/2026
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4 - C_{12} , C_{14}), three mass-labelled (^{13}C) perfluoroalkanesulfonates (C_4 , C_6 , and C_8), three mass-labelled (one ^{13}C and two ^2H) perfluoro-1-octanesulfonamides, three mass-labelled (^{13}C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (^2H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (^2H) perfluorooctanesulfonamidoethanols, and mass-labelled (^{13}C) hexafluoropropylene oxide dimer acid ($^{13}\text{C}_3$ -GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ^{13}C -labelled components all have chemical purities >98% and isotopic purities of $\geq 99\%$. The individual ^2H -labelled components all have chemical purities >98% and isotopic purities of $\geq 98\%$.

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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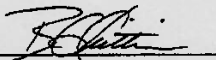
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1. e A:

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 ₇)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	MPFD _o A	250		19
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	250		24
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		16
N-Methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-Ethyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		23
N-Methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-Ethyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		17
2-(N-Methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₂ -ol	d7-N-MeFOSE	5000		20
2-(N-Ethyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₂ -ol	d9-N-EtFOSE	5000		22
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₃)propanoic acid	M3HFPO-DA	2000		6
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)decanesulfonate	M2-8:2FTS	1000	960	13

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 06/22/2023
(mm/dd/yyyy)



CERTIFIED WEIGHT REPORT

Part Number: 64029A
Lot Number: 031323
Description: PFOA-DOD
26 components
031323
Expiration Date: 1.0
Recommended Storage: 6 UITS
Refrigerator (0 °C)
NIST Test ID: 6 UITS

Solvent(s): Methanol (1 mL KOH) 2-Propanol
Lot# 107722 (86%) 32600 (2%)

Formulated By: Prashant Chauhan
Reviewed By: Pedro L. Rencas

11872
rec'd: 06/19/23

Volume(s) shown below were combined and diluted to (mL):
Note: All assigned values are sodium concentrations.

Compound	Part Number	Lot Number	Division Factor	Initial Volume (mL)	Final Volume (mL)	Initial Concentration (µg/mL)	Final Concentration (µg/mL)	Expanded Uncertainty (k=2)	Free Acid CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butyric acid (PFBA)	99542	110422	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A
2. Perfluoro-pentanoic acid (PFPA)	99543	011723	0.02	2.00	0.017	50.3	1.01	0.02	2706-80-3	N/A	N/A
3. Perfluoro-hexanoic acid (PFHA)	99189	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid (PFHxA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-585-9	N/A	N/A
5. Perfluorooctanoic acid (br-PFOA)*	99202	086522	0.02	2.00	0.017	50.2	1.00	0.02	335-87-1 (L)	N/A	spec. following
6. Perfluorononanoic acid (br-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	335-78-2	N/A	N/A
8. Perfluoroundecanoic acid (PFUdA)	99205	071522	0.02	2.00	0.017	50.2	1.00	0.02	2068-84-8	N/A	N/A
9. Perfluorododecanoic acid (PFDDA)	99198	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid (PFTrDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	27839-84-9	N/A	N/A
11. Perfluorotetradecanoic acid (PFTrDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	375-08-7	N/A	N/A
12. Perfluoropentadecanoic acid (PFPeDA)	3677	FQSA0221	0.02	2.00	0.017	50.0	1.00	0.05	744-81-8	N/A	N/A
13. Hexafluoroisooctanoic acid (br-HECFOAA)*	4162	INHEFOSA0422	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A
14. Hexafluoroheptanoic acid (br-HEFOAA)*	4163	INHEFOSA1121	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-8 (L)	N/A	N/A
15. Perfluorobutanoic acid (PFBS)	99194	086522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5	N/A	N/A
16. Perfluoro-1-pentanoic acid (PFPA5)	99544	091822	0.02	2.00	0.017	50.1	1.00	0.02	2706-91-4	N/A	N/A
17. Perfluoroheptanoic acid (br-PFHx5)	99198	030923	0.02	2.00	0.017	50.0	1.00	0.02	355-48-4 (L)	N/A	N/A
18. Perfluoro-1-heptanoic acid (br-PFH5)	3672	LPHF050922	0.02	2.10	0.017	47.8	1.00	0.05	375-52-8	N/A	N/A
19. Heptafluorooctanoic acid (br-PFOS)*	99201	030923	0.02	2.00	0.017	50.1	1.00	0.02	1783-23-1 (L)	N/A	N/A
20. Perfluoro-1-nonanoic acid (PFNS)	3957	LFFNS1122	0.02	2.10	0.017	48.0	1.01	0.05	8259-12-1	N/A	N/A
21. Perfluoro-1-decanoic acid (PFDS)	3671	086522	0.02	2.10	0.017	48.2	1.01	0.05	335-77-3	N/A	N/A
22. 1H,1H,2H,2H-Perfluorodecanoic acid (br-PFDD5)	65271	065522	0.02	2.00	0.017	50.2	1.00	0.05	787124-72-4	N/A	N/A
23. 1H,1H,2H,2H-Perfluoroundecanoic acid (br-PFUD5)	65272	031023	0.02	2.10	0.017	50.3	1.00	0.05	27819-87-2	N/A	N/A
24. 1H,1H,2H,2H-Perfluorododecanoic acid (br-PFD5)	3662	BF150822	0.02	2.10	0.017	47.9	1.01	0.05	81108-34-4	N/A	N/A
25. 2-Heptafluoropropyl-2,3,3,3-tetrafluorodecanoic acid (PFPO-DA)	99669	086522	0.02	2.00	0.017	50.1	1.00	0.02	53232-13-5	N/A	N/A
26. 11-Chloroheptafluoro-3-oxoheptanoic acid (11Cl-PFO-DA)	4165	11ClPF050522	0.02	2.12	0.017	47.1	1.00	0.05	78305-182-9	N/A	N/A
27. 3-Chlorooctafluoro-3-oxooctanoic acid (3Cl-PFO-DA)	4164	9ClPF051022	0.02	2.14	0.017	46.6	1.00	0.05	79649-56-1	N/A	N/A
28. Dodecafluoro-3H,4-B-dioxanone acid (ADONA)	4103	NADONA0922	0.02	2.12	0.017	47.1	1.00	0.05	818035-14-4	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	086522	0.02	2.00	0.004	49.8	0.99	0.010	335-67-1 (L)	N/A	spec. following
Perfluorooctanoic acid (branched isomer)*	99202	086522	0.02	2.00	0.004	0.6	0.01	0.001	335-67-1 (L)	N/A	spec. following
Perfluorohexanoic acid (linear)*	99198	030923	0.02	2.00	0.017	44.0	0.95	0.02	355-48-4 (L)	N/A	N/A
Perfluorohexanoic acid (branched isomer)*	99198	030923	0.02	2.00	0.017	0.0	0.12	0.000	355-48-4 (L)	N/A	N/A
Heptafluorooctanoic acid (linear)*	99201	030923	0.02	2.00	0.017	38.1	0.76	0.02	1783-23-1 (L)	N/A	N/A
Heptafluorooctanoic acid (branched isomer)*	99201	030923	0.02	2.00	0.017	7.5	0.15	0.003	1783-23-1 (L)	N/A	N/A
Heptafluorooctanoic acid (branched isomer)*	99201	030923	0.02	2.00	0.017	4.0	0.08	0.002	1783-23-1 (L)	N/A	N/A
Heptafluorooctanoic acid (branched isomer)*	99201	030923	0.02	2.00	0.017	0.5	0.010	0.0002	1783-23-1 (L)	N/A	N/A
Nonylperfluoro-1-octanoic acid (linear)*	4162	INHEFOSA0422	0.02	2.00	0.017	38.0	0.72	0.04	2355-31-9 (L)	N/A	N/A
Nonylperfluoro-1-octanoic acid (branched)*	4162	INHEFOSA0422	0.02	2.00	0.017	6.5	0.13	0.011	2355-31-9 (L)	N/A	N/A
Nonylperfluoro-1-octanoic acid (branched)*	4162	INHEFOSA0422	0.02	2.00	0.017	5.0	0.10	0.005	2355-31-9 (L)	N/A	N/A
Nonylperfluoro-1-octanoic acid (branched)*	4162	INHEFOSA0422	0.02	2.00	0.017	2.5	0.05	0.0009	2355-31-9 (L)	N/A	N/A
Nonylperfluoro-1-octanoic acid (branched)*	4163	INHEFOSA1121	0.02	2.00	0.017	38.6	0.73	0.04	2991-50-8 (L)	N/A	N/A
Nonylperfluoro-1-octanoic acid (branched)*	4163	INHEFOSA1121	0.02	2.00	0.017	7.7	0.15	0.008	2991-50-8 (L)	N/A	N/A
Nonylperfluoro-1-octanoic acid (branched)*	4163	INHEFOSA1121	0.02	2.00	0.017	5.3	0.11	0.005	2991-50-8 (L)	N/A	N/A
Nonylperfluoro-1-octanoic acid (branched)*	4163	INHEFOSA1121	0.02	2.00	0.017	0.4	0.007	0.0005	2991-50-8 (L)	N/A	N/A

*Concentrations for branched and linear isomers are based on LC/MS 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).
* All values are certified for 100% purity unless otherwise stated.
* All values are certified for 100% purity unless otherwise stated.
* University Reference: Taylor, K.N., and Kopy, C.E., "Guidelines for Formulating and Expanding the Uncertainty of NIST Measurement Results," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

11796
rec'd: 05/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSE

2-(N-Ethylperfluorooctanesulfonamido)ethanol
Isomeric Mix

PRODUCT CODE:	br-NEtFOSE
LOT NUMBER:	brNEtFOSE1022
CONCENTRATION:	50.0 ± 2.5 µg/mL
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/12/2022
LAST TESTED: (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
EXPIRY DATE: (mm/dd/yyyy)	10/07/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
Figure 3: LC/MS Data (SIR)
Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

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

brNEtFOSE1022 (1 of 7)
rev1

7.9.2

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11795
rec'd 10/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSE

2-(N-Methylperfluorooctanesulfonamido)ethanol
Isomeric Mix

PRODUCT CODE: br-NMeFOSE
LOT NUMBER: brNMeFOSE0922
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 09/02/2022
LAST TESTED: (mm/dd/yyyy) 09/07/2022 (HRGC/LRMS)
 10/07/2022 (LC/MS)
EXPIRY DATE: (mm/dd/yyyy) 10/07/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-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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11794
rec'd: 05/15/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

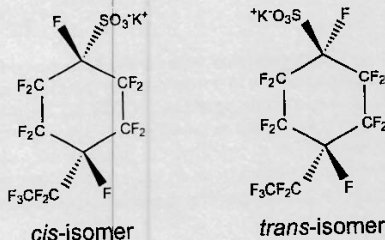
PFECHS

LOT NUMBER: PFECHS0223

COMPOUND:

Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

STRUCTURE:



CAS #: 335-24-0

MOLECULAR FORMULA:

C₉F₁₅SO₃K

MOLECULAR WEIGHT: 500.22

CONCENTRATION:

50.0 ± 2.5 µg/mL (K salt)
46.2 ± 2.3 µg/mL (PFECHS acid)
46.1 ± 2.3 µg/mL (PFECHS anion)

SOLVENT(S): Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/14/2023

EXPIRY DATE: (mm/dd/yyyy)

03/14/2028

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*, by ¹⁹F NMR).

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Certified By:

B.G. Chittim, General Manager

Date: 03/16/2023
(mm/dd/yyyy)

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DOCUMENTATION

PRODUCT CODE:

M3PFPeA

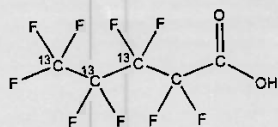
LOT NUMBER: M3PFPeA0720

COMPOUND:

Perfluoro-n-[3,4,5-¹³C₃]pentanoic acid

CAS #: Not available

STRUCTURE:



MOLECULAR FORMULA:

¹³C₃¹²C₂HF₉O₂

MOLECULAR WEIGHT: 267.02

CONCENTRATION:

50.0 ± 2.5 µg/ml

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

≥99% ¹³C
(3,4,5-¹³C₃)

LAST TESTED: (mm/dd/yyyy)

07/22/2020

EXPIRY DATE: (mm/dd/yyyy)

07/22/2025

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.
- Contains ~ 0.95% of perfluoro-n-[¹³C₃]butanoic acid and 0.05% of perfluoro-1-pentanoic acid.

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Certified By:

B.G. Chittim, General Manager

Date: 08/04/2020

(mm/dd/yyyy)

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11710
rec'd: 03/17/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSA-M

LOT NUMBER:

NMeFOSA1122M

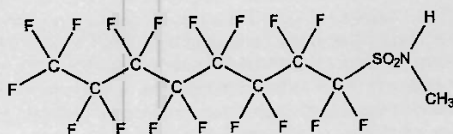
COMPOUND:

N-Methylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #:

31506-32-8



MOLECULAR FORMULA:

C₉H₄F₁₇NO₂S

MOLECULAR WEIGHT:

513.17

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/11/2022

EXPIRY DATE: (mm/dd/yyyy)

11/11/2027

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.

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Certified By:

B.G. Chittim, General Manager

Date: 11/25/2022

(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSA

N-Ethylperfluorooctanesulfonamide Isomeric Mix

<u>PRODUCT CODE:</u>	br-NEtFOSA
<u>LOT NUMBER:</u>	brNEtFOSA0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/23/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	10/07/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-ethylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (SIR)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 4151-50-2 (for linear isomer).

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Revision#:9, Revised 2020-12-23

brNEtFOSA0922 (1 of 6)
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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSA

N-Methylperfluorooctanesulfonamide Isomeric Mix

<u>PRODUCT CODE:</u>	br-NMeFOSA
<u>LOT NUMBER:</u>	brNMeFOSA0822
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/18/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	08/23/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	08/23/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
 Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
 Figure 2: LC/MS Data (SIR)
 Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 31506-32-8 (for linear isomer).

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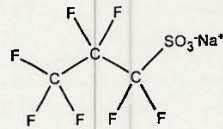
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFPrS
COMPOUND: Sodium perfluoro-1-propanesulfonate

LOT NUMBER: LPFPrS0721

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: C₃F₇SO₃Na
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt)
46.0 ± 2.3 µg/mL (PFPrS acid)
45.8 ± 2.3 µg/mL (PFPrS anion)

MOLECULAR WEIGHT: 272.07
SOLVENT(S): Methanol

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/12/2021
EXPIRY DATE: (mm/dd/yyyy) 07/12/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

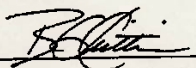
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: 
B.G. Chittim, General Manager

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

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

LPFPrS0721 (1 of 4)
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FPPrPA(3:3FTCA) 1116 B



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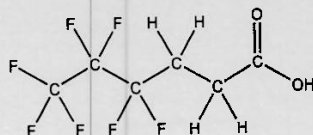
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

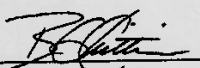
DOCUMENTATION/ DATA ATTACHED:

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.

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Certified By: 
B.G. Chittim, General Manager

Date: 02/04/2022
(mm/dd/yyyy)

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1116 A.B NW

1116B on the back NW



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

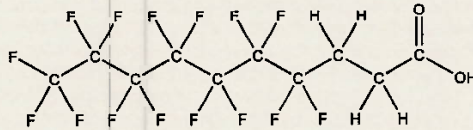
COMPOUND:

3-Perfluoroheptyl propanoic acid

STRUCTURE:

CAS #:

812-70-4



MOLECULAR FORMULA:

C₁₀H₅F₁₅O₂

MOLECULAR WEIGHT:

442.12

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/12/2020

EXPIRY DATE: (mm/dd/yyyy)

11/12/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

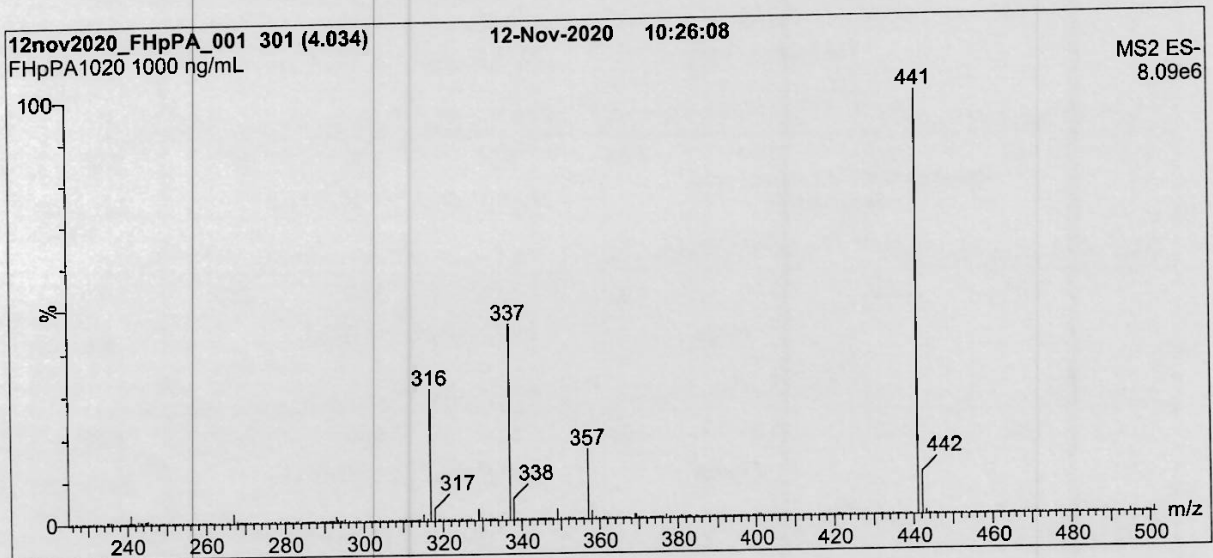
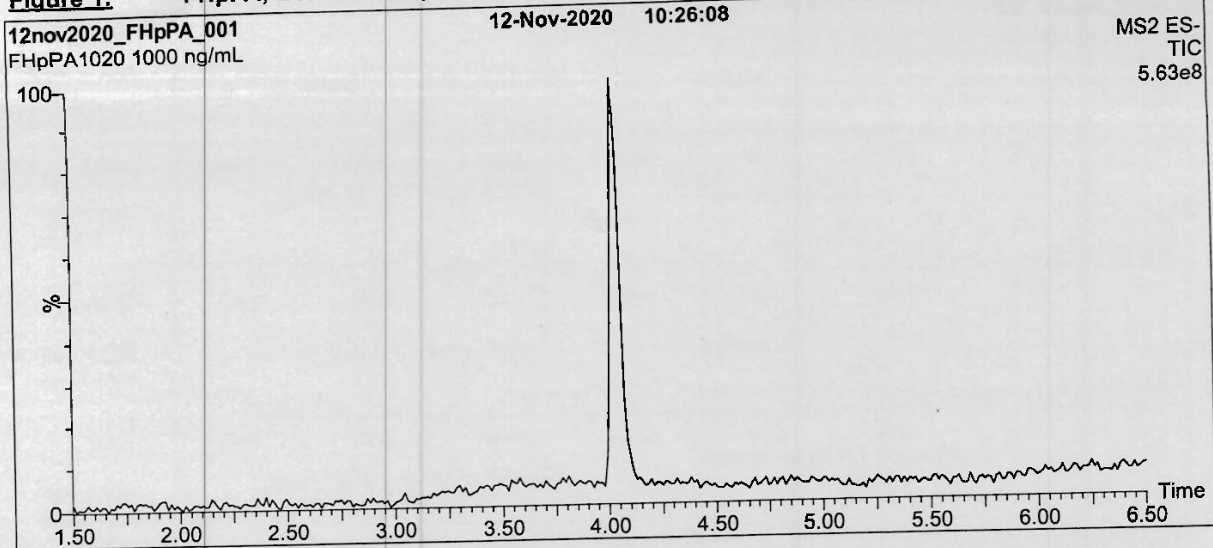
Date: 11/27/2020

(mm/dd/yyyy)

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Revision#: 8, Revised 2020-09-10

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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



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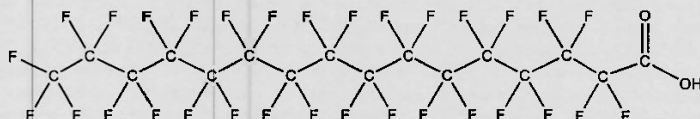
CERTIFICATE OF ANALYSIS DOCUMENTATION

10842 * NG 01/18/23

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0421

COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆HF₃₁O₂ **MOLECULAR WEIGHT:** 814.13
CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
 Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/07/2021
EXPIRY DATE: (mm/dd/yyyy) 05/07/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

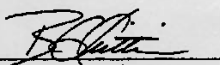
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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 Revision#:9, Revised 2020-12-23

PFHxDA0421 (1 of 4)
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CERTIFICATE OF ANALYSIS DOCUMENTATION

10847 NG 01/18/23

PRODUCT CODE:

PFODA

LOT NUMBER:

PFODA0821

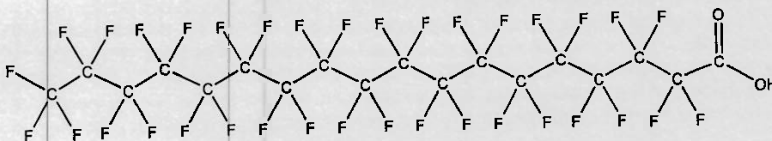
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

C₁₈H₃₅O₂

MOLECULAR WEIGHT:

914.14

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

09/03/2021

EXPIRY DATE: (mm/dd/yyyy)

09/03/2026

RECOMMENDED STORAGE:

Store ampoule at ambient temperature in a dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

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Certified By:

B.G. Chittim, General Manager

Date: 09/28/2021

(mm/dd/yyyy)

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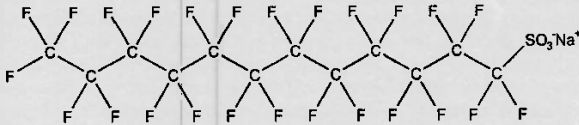
WELLINGTON LABORATORIES

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:

N-EtFOSA-M

10837

LOT NUMBER:

NEtFOSA0821M

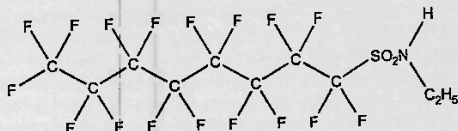
COMPOUND:

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)

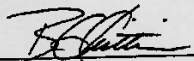
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:


B.G. Chittim, General Manager

Date: 08/16/2021

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA

7.9.2
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10765 A-13



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

*rec'd
WPH
8/20/21*

LOT NUMBER:

36OPFHpA0320

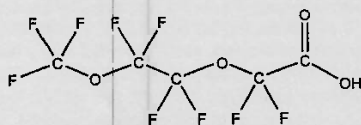
COMPOUND:

Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₉O₄

MOLECULAR WEIGHT:

296.04

CONCENTRATION:

50.0 ± 2.5 µg/ml

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/31/2020

EXPIRY DATE: (mm/dd/yyyy)

03/31/2025

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 05/27/2020
(mm/dd/yyyy)

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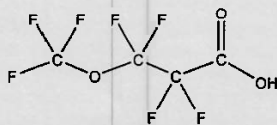
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 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

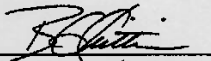
DOCUMENTATION/ DATA ATTACHED:

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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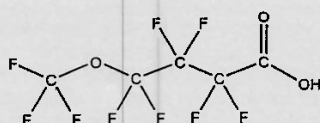
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

COMPOUND: Perfluoro-5-oxahexanoic acid

SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)

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



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

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

CHEMICAL PURITY: >98%

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

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

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

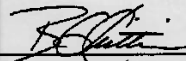
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 12/21/2020
(mm/dd/yyyy)

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

PF5OHxA0320 (1 of 4)
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10762 A-B

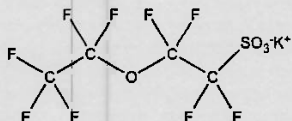


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFEESA *rec'd 8/20/21 WPH* **LOT NUMBER:** PFEESA0520
COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate

STRUCTURE: **CAS #:** 117205-07-9



MOLECULAR FORMULA: C₄F₈SO₄K **MOLECULAR WEIGHT:** 354.19
CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol
44.6 ± 2.2 µg/ml (PFEESA acid)
44.5 ± 2.2 µg/ml (PFEESA anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/13/2020
EXPIRY DATE: (mm/dd/yyyy) 05/13/2025
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

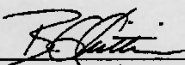
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager **Date:** 05/29/2020
(mm/dd/yyyy)

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Form#:27, Issued 2004-11-10
Revision#:7, Revised 2020-01-09

PFEESA0520 (1 of 4)
rev0

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7

11514 rec'd 11/14/22

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

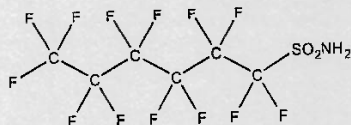
LOT NUMBER: FHxSA1221I

COMPOUND:

Perfluoro-1-hexanesulfonamide

CAS #: 41997-13-1

STRUCTURE:



MOLECULAR FORMULA:

C₆H₂F₁₃NO₂S

MOLECULAR WEIGHT: 399.13

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Isopropanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

12/29/2021

EXPIRY DATE: (mm/dd/yyyy)

12/29/2026

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 01/10/2022
(mm/dd/yyyy)

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FHxSA1221I (1 of 4)

11649 Rec. 02/13/23

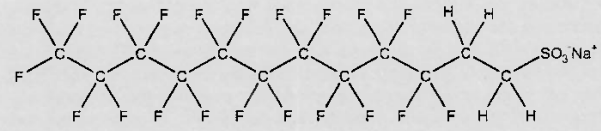


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 10:2FTS **LOT NUMBER:** 102FTS1122
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) 12/01/2022
EXPIRY DATE: (mm/dd/yyyy) 12/01/2027
RECOMMENDED STORAGE: Refrigerate ampoule

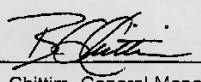
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 12/09/2022
B.G. Chittim, General Manager (mm/dd/yyyy)

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

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rev0

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7

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 09/14/23 10:00
 Started (mm/dd/yy 24:00)

Method: EPA 1633 Draft (QSM)

Date/Time: 09/15/23 16:11
 Finished (mm/dd/yy 24:00)

Balance ID: _____

Batch#: OP98995 Ext. By: GH

Conc. By: _____ Viald By: _____

09/14/23
 GH
 OP99007
 OP99007
 OP99007
 GH
 09/14/23

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount (ul)	Spike Amount (ul)	Final Volume (ml)	Manifold ID	Comments
OP 98995 MB	/	500	7	N/A	25		5	E	
OP 98995 BS	/	500	7			200			
OP 98995 LBS	/	500	7			60			
FC9496-1	2	550	7						
	2	520							
	2	550							
	02	520							
	2	570							
	2	550							
	2	570	7	N/A	25		5	E	
OPFC94961MS	3	550	7	N/A	25	200	5	E	
OP MSD									
OPFC9496-2DUP	3	570	7	N/A	25		5	E	

Comments:

EIS (SURR) ID: 11988A-C Conc: 250-5000ng/ml Exp. Date: 09/07/24 Inj. By: GH Ver. By: Jca
 SPIKE.1 ID: LCMS2175B Conc: VARIED Exp. Date: 12/28/23 Inj. By: GH Ver. By: Jca
 SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 11951 (J) Conc: 250-1000ng/ml Exp. Date: 08/31/24 Inj. By: AL Ver. By: JL

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot# 232031 1% NH4OH MeOH PF596 SPE Lot# 6744688-01
 Water Lot# OP98930 0.3M Formic Acid PF585 Syringe filter Lot# _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 205423
 0.1M Formic PF593 5% Formic Acid _____ Carbon Lot# 49687

Relinquished By: Gabrielle Vachon
 Accepted By: [Signature]

Date: 09/14/23
 Date: 09/15/23

7.10.1
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SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 09/15/23 08:30
Started (mm/dd/yy 24:00)

Method: EPA 1633 Draft (QSM) List 410

Date/Time: 09/17/23 16:15
Finished (mm/dd/yy 24:00)

Balance ID: _____

Batch#: OP99024 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
OP99024 MB	/	500	7	N/A	25		5	A4	
OP99024 BS	/	500	7	N/A	25	200	1		
OP99024 LLBS	/	500	7	N/A	25	60	1		
FC9053-272	-	-	-	-	-		-	-	
FC9130-422C	3	540	7	N/A	25		↓	↓	
FC9496-4	1	65	8	7	25		5	A4	
GH 09/15/23									
OPFC9496-4MS	4	65	8	7	25	200	5	A4	
OPFC9496-4MSD	5	65	8	7	25	200	5	A4	
OP DUP									

Comments:

EIS (SURR) ID: 11967F-H Conc: 250-5000ng/ml Exp. Date: 09/07/24 Inj. By: GH Ver. By: KG
 SPIKE.1 ID: LQMS2172C Conc: VARIOUS Exp. Date: 12/28/23 Inj. By: GH Ver. By: KG
 SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 11944 M-0 Conc: 250-1000ng/ml Exp. Date: 08/22/24 Inj. By: AL Ver. By: JL

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

GH 09/15/23

Methanol Lot# 232031 1% NH4OH MeOH PF598 599 SPE Lot# 0744683-01
 Water Lot# 0P98930 0.3M Formic Acid PF585 Syringe filter Lot# _____
 Acetic Acid# 194003 3% NH4OH Sol pH paper Lot# 205423
 0.1M Formic PF598 5% Formic Acid PF490 Carbon Lot# 99687

Relinquished By: [Signature]
 Accepted By: [Signature]

Date: 09/15/23
 Date: 09/17/23

1633 AQ extraction 042222.xls NF

7.102
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