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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC6699

Sampling Date: 06/06/23



Report to:

AECOM, Inc
7595 Technology Way
Denver, CO 80237
katie.abbott@aecom.com; mark.kromis@aecom.com;
watson.tanji@aecom.com; kristin.rutherford@aecom.com
ATTN: Katie Abbott

Total number of pages in report: 685



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

Norm Farmer
Technical Director

Client Service contact: Elvin Kumar 407-425-6700

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: FC6699

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC6699-1	06/06/23	09:40	CPAL 06/07/23	AQ	Ground Water	AF-HDMW225303-WGN01LF-2306
FC6699-2	06/06/23	11:10	CPAL 06/07/23	AQ	Ground Water	AF-RHMW12A-WGN01LF-2306
FC6699-3	06/06/23	11:10	CPAL 06/07/23	AQ	Ground Water	AF-RHMW12A-WGFD01LF-2306

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC6699

Site: N6274223F0104 RH Fire Suppression System

Report Date: 6/13/2023 3:35:49 PM

On 06/07/2023, 3 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 2.2 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC6699 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method EPA DRAFT 1633

Matrix: AQ

Batch ID: OP97275

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

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

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

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

FC6699-1 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits.

FC6699-1 for MeFOSAA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6699-1 for Perfluorodecanesulfonic acid: Associated Low Level CCV outside of control limits high, sample was ND.

FC6699-1 for PFEESA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6699-2 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits.

FC6699-2 for MeFOSAA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6699-2 for Perfluorodecanesulfonic acid: Associated Low Level CCV outside of control limits high, sample was ND.

FC6699-2 for PFEESA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6699-3 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits.

FC6699-3 for MeFOSAA: Associated Low Level CCV outside of control limits high, sample was ND.

FC6699-3 for Perfluorodecanesulfonic acid: Associated Low Level CCV outside of control limits high, sample was ND.

FC6699-3 for PFEESA: Associated Low Level CCV outside of control limits high, sample was ND.

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

Narrative prepared by:

Kim Benham, Client Services (Signature on File)

Summary of Hits

Job Number: FC6699
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 06/06/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC6699-1 AF-HDMW225303-WGN01LF-2306

No hits reported in this sample.

FC6699-2 AF-RHMW12A-WGN01LF-2306

Perfluoropentanoic acid	2.0 J	7.1	1.8	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	0.70 J	3.6	1.8	ng/l	EPA DRAFT 1633

FC6699-3 AF-RHMW12A-WGFD01LF-2306

Perfluoropentanoic acid	1.8 J	7.1	1.8	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	0.63 J	3.6	1.8	ng/l	EPA DRAFT 1633

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-HDMW225303-WGN01LF-2306		
Lab Sample ID:	FC6699-1	Date Sampled:	06/06/23
Matrix:	AQ - Ground Water	Date Received:	06/07/23
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	6Q19283.D	1	06/13/23 01:49	MV	06/09/23 11:30	OP97275	S6Q287
Run #2							

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

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

375-22-4	Perfluorobutanoic acid	3.6 U	15	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.3	1.8	0.85	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.91 U	3.6	0.91	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.6	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.6	1.8	0.49	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid ^a	1.8 U	3.6	1.8	0.58	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.3 U	18	7.3	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.7	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.8 U	3.6	1.8	0.61	ng/l	
31506-32-8	MeFOSA	3.6 U	7.3	3.6	0.91	ng/l	
4151-50-2	EtFOSA	3.6 U	7.3	3.6	0.91	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-HDMW225303-WGN01LF-2306		
Lab Sample ID:	FC6699-1	Date Sampled:	06/06/23
Matrix:	AQ - Ground Water	Date Received:	06/07/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

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

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

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

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	113%		20-150%
	13C5-PFPeA	110%		20-150%
	13C5-PFHxA	111%		20-150%
	13C4-PFHpA	106%		20-150%
	13C8-PFOA	111%		20-150%
	13C9-PFNA	113%		20-150%
	13C6-PFDA	117%		20-150%
	13C7-PFUnDA	99%		20-150%
	13C2-PFDoDA	99%		20-150%
	13C2-PFTeDA	90%		20-150%
	13C3-PFBS	112%		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-HDMW225303-WGN01LF-2306		
Lab Sample ID:	FC6699-1	Date Sampled:	06/06/23
Matrix:	AQ - Ground Water	Date Received:	06/07/23
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	90%		20-150%
	d3-MeFOSA	90%		20-150%
	d5-EtFOSA	93%		20-150%
	d3-MeFOSAA	103%		20-150%
	d5-EtFOSAA	99%		20-150%
	d7-MeFOSE	75%		20-150%
	d9-EtFOSE	78%		20-150%
	13C2-4:2FTS	118%		20-180%
	13C2-6:2FTS	113%		20-180%
	13C2-8:2FTS	108%		20-180%
	13C3-HFPO-DA	106%		20-150%

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

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

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-RHMW12A-WGN01LF-2306		
Lab Sample ID:	FC6699-2	Date Sampled:	06/06/23
Matrix:	AQ - Ground Water	Date Received:	06/07/23
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	6Q19286.D	1	06/13/23 02:31	MV	06/09/23 11:30	OP97275	S6Q287
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.6 U	14	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	2.0	7.1	1.8	0.84	ng/l	J
307-24-4	Perfluorohexanoic acid	0.70	3.6	1.8	0.45	ng/l	J
375-85-9	Perfluoroheptanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.89 U	3.6	0.89	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.6	1.8	0.54	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.54	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.75	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.6	1.8	0.62	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.6	1.8	0.48	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.51	ng/l	
335-77-3	Perfluorodecanesulfonic acid ^a	1.8 U	3.6	1.8	0.57	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.1 U	18	7.1	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.1 U	18	7.1	3.1	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.1 U	18	7.1	3.7	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.6	1.8	0.60	ng/l	
31506-32-8	MeFOSA	3.6 U	7.1	3.6	0.89	ng/l	
4151-50-2	EtFOSA	3.6 U	7.1	3.6	0.89	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGN01LF-2306		
Lab Sample ID:	FC6699-2	Date Sampled:	06/06/23
Matrix:	AQ - Ground Water	Date Received:	06/07/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

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

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	18 U	36	18	3.9	ng/l	
1691-99-2	EtFOSE	18 U	36	18	6.6	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	73%		20-150%
	13C5-PFPeA	125%		20-150%
	13C5-PFHxA	121%		20-150%
	13C4-PFHpA	119%		20-150%
	13C8-PFOA	119%		20-150%
	13C9-PFNA	122%		20-150%
	13C6-PFDA	114%		20-150%
	13C7-PFUnDA	105%		20-150%
	13C2-PFDoDA	103%		20-150%
	13C2-PFTeDA	83%		20-150%
	13C3-PFBS	120%		20-150%
	13C3-PFHxS	125%		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-RHMW12A-WGN01LF-2306		
Lab Sample ID:	FC6699-2	Date Sampled:	06/06/23
Matrix:	AQ - Ground Water	Date Received:	06/07/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	112%		20-150%
	13C8-FOSA	101%		20-150%
	d3-MeFOSA	91%		20-150%
	d5-EtFOSA	91%		20-150%
	d3-MeFOSAA	97%		20-150%
	d5-EtFOSAA	98%		20-150%
	d7-MeFOSE	74%		20-150%
	d9-EtFOSE	74%		20-150%
	13C2-4:2FTS	134%		20-180%
	13C2-6:2FTS	130%		20-180%
	13C2-8:2FTS	111%		20-180%
	13C3-HFPO-DA	123%		20-150%

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

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

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW12A-WGFD01LF-2306		
Lab Sample ID:	FC6699-3	Date Sampled:	06/06/23
Matrix:	AQ - Ground Water	Date Received:	06/07/23
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	6Q19287.D	1	06/13/23 02:45	MV	06/09/23 11:30	OP97275	S6Q287
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.6 U	14	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8	7.1	1.8	0.84	ng/l	J
307-24-4	Perfluorohexanoic acid	0.63	3.6	1.8	0.45	ng/l	J
375-85-9	Perfluoroheptanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.89 U	3.6	0.89	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.6	1.8	0.54	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.54	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.75	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.6	1.8	0.62	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.6	1.8	0.48	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.51	ng/l	
335-77-3	Perfluorodecanesulfonic acid ^a	1.8 U	3.6	1.8	0.57	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.1 U	18	7.1	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.1 U	18	7.1	3.1	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.1 U	18	7.1	3.7	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.6	1.8	0.60	ng/l	
31506-32-8	MeFOSA	3.6 U	7.1	3.6	0.89	ng/l	
4151-50-2	EtFOSA	3.6 U	7.1	3.6	0.89	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGFD01LF-2306	
Lab Sample ID:	FC6699-3	Date Sampled: 06/06/23
Matrix:	AQ - Ground Water	Date Received: 06/07/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

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

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

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	18 U	36	18	3.9	ng/l	
1691-99-2	EtFOSE	18 U	36	18	6.6	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

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

13C4-PFBA	70%			20-150%
13C5-PFPeA	114%			20-150%
13C5-PFHxA	107%			20-150%
13C4-PFHpA	110%			20-150%
13C8-PFOA	115%			20-150%
13C9-PFNA	119%			20-150%
13C6-PFDA	112%			20-150%
13C7-PFUnDA	97%			20-150%
13C2-PFDoDA	94%			20-150%
13C2-PFTeDA	79%			20-150%
13C3-PFBS	115%			20-150%
13C3-PFHxS	114%			20-150%

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

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGFD01LF-2306		Date Sampled:	06/06/23
Lab Sample ID:	FC6699-3		Date Received:	06/07/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	110%		20-150%
	13C8-FOSA	96%		20-150%
	d3-MeFOSA	86%		20-150%
	d5-EtFOSA	91%		20-150%
	d3-MeFOSAA	103%		20-150%
	d5-EtFOSAA	100%		20-150%
	d7-MeFOSE	71%		20-150%
	d9-EtFOSE	76%		20-150%
	13C2-4:2FTS	133%		20-180%
	13C2-6:2FTS	123%		20-180%
	13C2-8:2FTS	114%		20-180%
	13C3-HFPO-DA	111%		20-150%

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

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

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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



SGS North America Inc - Orlando

Chain of Custody

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

COC #: 2306AFSG04

SGS - ORLANDO JOB #:

PAGE 1 OF 1

SGS - ORLANDO Quote #

SKIFF #

FC6699

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 # 60697810																								
Project Manager: Watson Tanji Email: watson.tanji@aecom.com				Fax #																								
Phone #: 303-796-4624 / 808-954-4512				Client Purchase Order #																								
Sampler(s) Name(s) (Printed)				Sampler 1: Anthony L Sampler 2: Cristian P																								
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION				CONTAINER INFORMATION											PFAS EPA Draft 1683	INITIAL ASSESSMENT	LABEL VERIFICATION	LAB USE ONLY								
		DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	PHOS	PEROX	NaOH/NaAC	DI WATER	MEQ													
1	AF-HDMW225303-WGN01LF-2306	6/6/23	0940	CP,AL	GW	3		X																				
Turnaround Time (Business days)				Data Deliverable Information											Comments / Remarks													
10 Day (Business) Approved By: / Date: _____ 7 Day _____ <input checked="" type="checkbox"/> 5 Day _____ 3 Day RUSH _____ 2 Day RUSH _____ 1 Day RUSH _____ Other _____				<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S											EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW UNITED ANB 0169522466													
Rush T/A Data Available VIA Email or Lablink				Sample Custody must be documented below each time samples change possession, including courier delivery.																								
Relinquished By/Affiliation		Date Time:		Received By/Affiliation		Date Time:		Relinquished By/Affiliation		Date Time:		Received By/Affiliation		Date Time:		Received By/Affiliation												
1 Anthony Lopez AL		6/6/23 1240		JOSIAH LINDQUIST		6/6/23 1370		3 JOSIAH LINDQUIST		6/6/23 1370		United Cargo																
5 United Cargo				6 [Signature]		06/07/23 1730		7				8																
Lab Use Only: Cooler Temperature (s) Celsius (corrected):				2.2 IR #1											http://www.sgs.com/en/terms-and-conditions													

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FC6699: Chain of Custody

Page 1 of 3





Chain of Custody

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

FC6699

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 CL - 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 # 60697810																			
Phone #: 303-796-4624 / 808-954-4512		Fax #																			
Sampler(s) Name(s) (Printed)		Client Purchase Order #																			
Sampler 1: <u>Anthony L</u> Sampler 2: <u>Cristian P</u>																					
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY:	CONTAINER INFORMATION													PFAS EPA Draft 1633	LAB USE ONLY		
					MATRIX	TOTAL # OF BOTTLES	OTHER	MNE	FC	NI0H	NI03	NI0C4	NI0H+ZINC	DI WATER	MESH						
2	AF-RHMW12A-WGN01LF-2306	6/6/23	1110	CP	GW	3		X													
3	AF-RHMW12A-WGFD01LF-2306	6/6/23	1110	CP	GW	3		X													
														AL 6/6/23							

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
7 Day				United AWB 0169522466
5 Day				
3 Day RUSH				
2 Day RUSH				
1 Day RUSH				
Other				
Rush TIA 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 Anthony Laycock AECOM	6/6/23 1110	Jordan Lindquist AECOM	Jordan Lindquist AECOM	6/6/23 1930	United Carex
5 United Carex					

Lab Use Only : Cooler temperature (s) Celsius (corrected): _____ http://www.sgs.com/en/terms-and-conditions

PFAS_COCS_ALL.xls Rev 031318

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5



SGS Sample Receipt Summary

Job Number: FC6699

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 6/7/2023 5:30:00 PM

Delivery Method: United Cargo/Airspace

Airbill #'s: United Cargo AWB #: 016-09522446

Therm ID: IR 1;

Therm CF: -0.1;

of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (2.3);

Cooler Temps (Corrected) °C: Cooler 1: (2.2);

Cooler Information

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

Trip Blank Information

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

Sample Information

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

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____
 Test Strip Lot #: pH 0-3 _____ 230320 _____ pH 10-12 _____ Other: (Specify) pH 1.0 - 12.0 _____ 222221 _____
 Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: SHAYLAP

Date: 6/7/2023 5:30:00 PM

Reviewer: SP

Date: 6/9/2023

FC6699: Chain of Custody

Page 3 of 3

QC Evaluation: DOD QSM5.x Limits

Job Number: FC6699
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 06/06/23

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

* Sample used for QC is not from job FC6699

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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: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-1, FC6699-2, FC6699-3

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

Instrument Blank

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-1, FC6699-2, FC6699-3

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

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

6.1.1
6

Continuing Calibration Blank

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-1

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: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-1

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

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

Continuing Calibration Blank

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q287-ICCB	6Q19285.D	1	06/13/23	MV	n/a	n/a	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-2, FC6699-3

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

Continuing Calibration Blank

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q287-ICCB	6Q19285.D	1	06/13/23	MV	n/a	n/a	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-2, FC6699-3

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	97% 20-150%
	13C5-PFHxA	91% 20-150%
	13C4-PFHpA	96% 20-150%
	13C8-PFOA	100% 20-150%
	13C9-PFNA	96% 20-150%
	13C6-PFDA	103% 20-150%
	13C7-PFUnDA	97% 20-150%
	13C2-PFDoDA	108% 20-150%
	13C2-PFTeDA	91% 20-150%
	13C3-PFBS	101% 20-150%
	13C3-PFHxS	102% 20-150%
	13C8-PFOS	100% 20-150%
	13C8-FOSA	99% 20-150%
	d3-MeFOSA	91% 20-150%
	d5-EtFOSA	97% 20-150%
	d3-MeFOSAA	109% 20-150%
	d5-EtFOSAA	97% 20-150%
	d7-MeFOSE	92% 20-150%
	d9-EtFOSE	82% 20-150%
	13C2-4:2FTS	108% 20-180%
	13C2-6:2FTS	117% 20-180%
	13C2-8:2FTS	105% 20-180%
	13C3-HFPO-DA	98% 20-150%

Continuing Calibration Blank

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q287-ICCB	6Q19289.D	1	06/13/23	MV	n/a	n/a	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-2, FC6699-3

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

Continuing Calibration Blank

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q287-ICCB	6Q19289.D	1	06/13/23	MV	n/a	n/a	S6Q287

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-2, FC6699-3

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

CAS No.	ID Standard Recoveries	Limits	
	13C4-PFBA	101%	20-150%
	13C5-PFPeA	99%	20-150%
	13C5-PFHxA	93%	20-150%
	13C4-PFHpA	97%	20-150%
	13C8-PFOA	96%	20-150%
	13C9-PFNA	106%	20-150%
	13C6-PFDA	115%	20-150%
	13C7-PFUnDA	112%	20-150%
	13C2-PFDoDA	103%	20-150%
	13C2-PFTeDA	105%	20-150%
	13C3-PFBS	97%	20-150%
	13C3-PFHxS	97%	20-150%
	13C8-PFOS	106%	20-150%
	13C8-FOSA	99%	20-150%
	d3-MeFOSA	96%	20-150%
	d5-EtFOSA	95%	20-150%
	d3-MeFOSAA	98%	20-150%
	d5-EtFOSAA	98%	20-150%
	d7-MeFOSE	89%	20-150%
	d9-EtFOSE	81%	20-150%
	13C2-4:2FTS	111%	20-180%
	13C2-6:2FTS	107%	20-180%
	13C2-8:2FTS	101%	20-180%
	13C3-HFPO-DA	88%	20-150%

6.1.4

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Method Blank Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-1, FC6699-2, FC6699-3

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

Method Blank Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-1, FC6699-2, FC6699-3

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

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

6.1.5
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Continuing Calibration Blank

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

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

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

Continuing Calibration Blank

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

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

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

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

Blank Spike Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-1, FC6699-2, FC6699-3

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

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-1, FC6699-2, FC6699-3

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

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

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-1, FC6699-2, FC6699-3

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

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-1, FC6699-2, FC6699-3

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

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

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-1, FC6699-2, FC6699-3

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

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-1, FC6699-2, FC6699-3

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

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

(a) Outside control limits.

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-1, FC6699-2, FC6699-3

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

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6699-1, FC6699-2, FC6699-3

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

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

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal ^b	56985	3.09	46125	5.79	78650	7.34	43214	7.88	28356	8.39
Check Std ^c	60775	3.09	48200	5.79	83698	7.35	45724	7.89	31467	8.39
Upper Limit ^d	113970	3.49	92250	6.19	157300	7.75	86428	8.29	56712	8.79
Lower Limit ^e	17096	2.69	13838	5.39	23595	6.95	12964	7.49	8507	7.99

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF ^a
S6Q287-ICCB	64089	3.09	50198	5.79	90846	7.35	46265	7.89	31314	8.39	1
S6Q287-ICCB	64089	3.09	50198	5.79	90846	7.35	46265	7.89	31314	8.39	1
OP97275-BS	59615	3.10	46772	5.79	81494	7.35	45973	7.89	26613	8.39	1
OP97275-LLBS	56789	3.10	45791	5.79	72380	7.35	44401	7.89	26372	8.39	1
OP97275-MB	57001	3.10	47645	5.79	76706	7.35	40607	7.89	28010	8.39	1
ZZZZZZ	58857	3.10	47232	5.79	78154	7.35	43105	7.89	27350	8.39	1
ZZZZZZ	58894	3.10	49747	5.79	73271	7.35	40681	7.89	28269	8.39	1
FC6649-1	60621	3.10	49547	5.79	78348	7.35	43631	7.88	29192	8.39	1
OP97275-MS	60540	3.10	46959	5.79	74385	7.35	46890	7.88	29907	8.39	1
ZZZZZZ	59358	3.10	49442	5.80	76564	7.35	43109	7.89	28079	8.39	1
ZZZZZZ	56674	3.10	46298	5.79	72995	7.35	44227	7.89	26049	8.39	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q287-ICCB 6Q19243.D 06/12/23 16:30. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1
6

Injection Standard Area Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

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

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

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q287-ICC287 6Q19243.D 06/12/23 16:30. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

Injection Standard Area Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal ^b	56985	3.09	46125	5.79	78650	7.34	43214	7.88	28356	8.39
Check Std ^c	61662	3.09	50016	5.79	83204	7.35	46757	7.89	31042	8.39
Upper Limit ^d	113970	3.49	92250	6.19	157300	7.75	86428	8.29	56712	8.79
Lower Limit ^e	17096	2.69	13838	5.39	23595	6.95	12964	7.49	8507	7.99

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF ^a
S6Q287-ICCB	64953	3.09	53563	5.79	85286	7.35	50193	7.89	31424	8.39	1
FC6649-4	58568	3.10	46367	5.79	77542	7.35	42250	7.89	26672	8.39	1
OP97275-DUP	60101	3.10	48351	5.80	80015	7.35	43269	7.89	29208	8.39	1
ZZZZZZ	61800	3.10	48754	5.80	81859	7.35	48410	7.89	32446	8.40	1
ZZZZZZ	56464	3.10	45605	5.80	72120	7.35	40697	7.89	27764	8.39	1
ZZZZZZ	49189	3.10	44087	5.79	77344	7.34	38719	7.89	26988	8.39	1
ZZZZZZ	57651	3.10	44683	5.80	78578	7.35	41826	7.89	27161	8.39	1
ZZZZZZ	45502	3.09	51475	5.78	87318	7.35	50390	7.89	30634	8.39	1
ZZZZZZ	57602	3.10	47341	5.79	80713	7.35	44569	7.89	26517	8.39	1
ZZZZZZ	59083	3.10	48829	5.79	83833	7.35	41265	7.89	31033	8.39	1
FC6699-1	58699	3.10	48321	5.80	77974	7.35	43601	7.89	28360	8.39	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q287-ICCB 6Q19243.D 06/12/23 16:30. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.2
6

Injection Standard Area Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

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

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q287-ICCB	9356	7.48	16410	8.56	1
FC6649-4	8045	7.48	14653	8.58	1
OP97275-DUP	9141	7.49	14400	8.56	1
ZZZZZZ	8802	7.49	14595	8.58	1
ZZZZZZ	8240	7.49	13950	8.58	1
ZZZZZZ	8407	7.48	13470	8.56	1
ZZZZZZ	8482	7.48	14373	8.58	1
ZZZZZZ	8594	7.48	14310	8.58	1
ZZZZZZ	8612	7.48	13258	8.58	1
ZZZZZZ	8194	7.48	13740	8.58	1
FC6699-1	8784	7.49	14821	8.58	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q287-ICCB 6Q19243.D 06/12/23 16:30. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to + 100% of initial cal area.
- (d) Upper Limit = + 100% of initial standard area; Retention time + 0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

Injection Standard Area Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q287-CC287	Injection Date:	06/13/23
Lab File ID:	6Q19284.D	Injection Time:	02:03
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal ^b	56985	3.09	46125	5.79	78650	7.34	43214	7.88	28356	8.39
Check Std ^c	62519	3.09	49285	5.79	83736	7.35	45270	7.89	28601	8.39
Upper Limit ^d	113970	3.49	92250	6.19	157300	7.75	86428	8.29	56712	8.79
Lower Limit ^e	17096	2.69	13838	5.39	23595	6.95	12964	7.49	8507	7.99

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF ^a
S6Q287-ICCB	64891	3.09	53653	5.79	87706	7.35	50586	7.89	31720	8.39	1
FC6699-2	57653	3.10	42683	5.80	76106	7.35	41876	7.89	27098	8.39	1
FC6699-3	58402	3.10	45846	5.80	77632	7.35	43713	7.89	27580	8.39	1
S6Q287-ECC287	62234	3.09	49701	5.79	82141	7.35	44794	7.89	30020	8.39	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q287-ICCB 6Q19284.D 06/12/23 16:30. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.3
6

Injection Standard Area Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q287-CC287	Injection Date:	06/13/23
Lab File ID:	6Q19284.D	Injection Time:	02:03
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	8622	7.48	14418	8.56
Check Std ^c	9143	7.49	15818	8.58
Upper Limit ^d	17244	7.89	28836	8.98
Lower Limit ^e	2587	7.09	4325	8.18

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q287-ICCB	9329	7.48	16220	8.58	1
FC6699-2	8089	7.48	14286	8.58	1
FC6699-3	8332	7.48	14360	8.58	1
S6Q287-ECC287	8296	7.48	15133	8.58	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q287-ICCB 6Q19284.D 06/12/23 16:30. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.3
6

TDCA Retention Time Check

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.564	--	--
TDCA	7.025	1.539	1.000
TCDCA	6.863	1.701	1.000
TUDCA	6.048	2.516	1.000

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q287-IC287	6Q19239.D	06/12/23	15:34	00:28	Mass Calibration Verification
S6Q287-IC287	6Q19240.D	06/12/23	15:48	00:42	Initial cal 1
S6Q287-IC287	6Q19241.D	06/12/23	16:02	00:56	Initial cal 2
S6Q287-IC287	6Q19242.D	06/12/23	16:16	01:10	Initial cal 3
S6Q287-ICC287	6Q19243.D	06/12/23	16:30	01:24	Initial cal 4
S6Q287-IC287	6Q19244.D	06/12/23	16:44	01:38	Initial cal 5
S6Q287-IC287	6Q19245.D	06/12/23	16:58	01:52	Initial cal 6
S6Q287-IC287	6Q19246.D	06/12/23	17:12	02:06	Initial cal 7
S6Q287-IC287	6Q19247.D	06/12/23	17:26	02:20	Initial cal 8
S6Q287-IBLK	6Q19248.D	06/12/23	17:40	02:34	Instrument Blank
S6Q287-IBLK	6Q19248.D	06/12/23	17:40	02:34	Instrument Blank
S6Q287-ICV287	6Q19249.D	06/12/23	17:54	02:48	Initial cal verification 4
S6Q287-ICV287	6Q19250.D	06/12/23	18:08	03:02	Initial cal verification 20
S6Q287-CC287	6Q19251.D	06/12/23	18:22	03:16	Continuing cal 4
S6Q287-CC287	6Q19252.D	06/12/23	18:36	03:30	Continuing cal 1.0LL
ZZZZZZ	6Q19253.D	06/12/23	18:50	03:44	(unrelated sample)
FC6342-11	6Q19254.D	06/12/23	19:04	03:58	(used for QC only; not part of job FC6699)
OP97215-DUP	6Q19255.D	06/12/23	19:18	04:12	Duplicate
ZZZZZZ	6Q19256.D	06/12/23	19:32	04:26	(unrelated sample)
JD66240-1	6Q19257.D	06/12/23	19:46	04:40	(used for QC only; not part of job FC6699)
ZZZZZZ	6Q19258.D	06/12/23	20:00	04:54	(unrelated sample)
FC6342-10	6Q19259.D	06/12/23	20:14	05:08	(used for QC only; not part of job FC6699)
OP97215-MS	6Q19260.D	06/12/23	20:28	05:22	Matrix Spike
S6Q287-CC287	6Q19261.D	06/12/23	20:42	05:36	Continuing cal 4
S6Q287-ICCB	6Q19262.D	06/12/23	20:56	05:50	Continuing Calibration Blank
S6Q287-ICCB	6Q19262.D	06/12/23	20:56	05:50	Continuing Calibration Blank
OP97275-BS	6Q19263.D	06/12/23	21:10	06:04	Blank Spike
OP97275-LLBS	6Q19264.D	06/12/23	21:24	06:18	Blank Spike
OP97275-MB	6Q19265.D	06/12/23	21:37	06:31	Method Blank
ZZZZZZ	6Q19266.D	06/12/23	21:51	06:45	(unrelated sample)
ZZZZZZ	6Q19267.D	06/12/23	22:05	06:59	(unrelated sample)
FC6649-1	6Q19268.D	06/12/23	22:19	07:13	(used for QC only; not part of job FC6699)
OP97275-MS	6Q19269.D	06/12/23	22:33	07:27	Matrix Spike
ZZZZZZ	6Q19270.D	06/12/23	22:47	07:41	(unrelated sample)

TDCA Retention Time Check

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q19271.D	06/12/23	23:01	07:55	(unrelated sample)
S6Q287-CC287	6Q19272.D	06/12/23	23:15	08:09	Continuing cal 4
S6Q287-ICCB	6Q19273.D	06/12/23	23:29	08:23	Continuing Calibration Blank
FC6649-4	6Q19274.D	06/12/23	23:43	08:37	(used for QC only; not part of job FC6699)
OP97275-DUP	6Q19275.D	06/12/23	23:57	08:51	Duplicate
ZZZZZZ	6Q19276.D	06/13/23	00:11	09:05	(unrelated sample)
ZZZZZZ	6Q19277.D	06/13/23	00:25	09:19	(unrelated sample)
ZZZZZZ	6Q19278.D	06/13/23	00:39	09:33	(unrelated sample)
ZZZZZZ	6Q19279.D	06/13/23	00:53	09:47	(unrelated sample)
ZZZZZZ	6Q19280.D	06/13/23	01:07	10:01	(unrelated sample)
ZZZZZZ	6Q19281.D	06/13/23	01:21	10:15	(unrelated sample)
ZZZZZZ	6Q19282.D	06/13/23	01:35	10:29	(unrelated sample)
FC6699-1	6Q19283.D	06/13/23	01:49	10:43	AF-HDMW225303-WGN01LF-2306
S6Q287-CC287	6Q19284.D	06/13/23	02:03	10:57	Continuing cal 4
S6Q287-ICCB	6Q19285.D	06/13/23	02:17	11:11	Continuing Calibration Blank
FC6699-2	6Q19286.D	06/13/23	02:31	11:25	AF-RHMW12A-WGN01LF-2306
FC6699-3	6Q19287.D	06/13/23	02:45	11:39	AF-RHMW12A-WGFD01LF-2306
S6Q287-ECC287	6Q19288.D	06/13/23	02:59	11:53	Ending cal 4
S6Q287-ICCB	6Q19289.D	06/13/23	03:13	12:07	Continuing Calibration Blank

6.6.1
6

Ion Ratio Summary

Job Number: FC6699
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q287	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios	
		PFPeA	PFHxA
S6Q287-ICC287	6Q19243.D	0	5.4
FC6699-1	6Q19283.D		
FC6699-2	6Q19286.D	0	4.8
FC6699-3	6Q19287.D	0	5.4

Isotope Dilution Standard Recovery Summary

Job Number: FC6699
 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
FC6699-1	6Q19283.D	113	110	111	106	111	113	117	99
FC6699-2	6Q19286.D	73	125	121	119	119	122	114	105
FC6699-3	6Q19287.D	70	114	107	110	115	119	112	97
OP97275-BS	6Q19263.D	30	102	99	108	97	106	127	112
OP97275-DUP	6Q19275.D	114	116	113	115	110	127	123	94
OP97275-LLBS	6Q19264.D	115	113	107	114	122	116	130	114
OP97275-MB	6Q19265.D	105	101	99	98	103	116	107	101
OP97275-MS	6Q19269.D	4* a	26	98	107	117	105	109	97
S6Q287-IBLK	6Q19248.D	100	97	99	100	97	100	100	89
S6Q287-ICCB	6Q19273.D	100	96	92	100	100	96	100	101
S6Q287-ICCB	6Q19285.D	100	97	91	96	100	96	103	97
S6Q287-ICCB	6Q19289.D	101	99	93	97	96	106	115	112
S6Q287-ICCB	6Q19262.D	100	103	98	104	96	109	101	100

Isotope Dilution Standards **Recovery Limits**

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

(a) Outside control limits.

6.8.1
6

Isotope Dilution Standard Recovery Summary

Job Number: FC6699
 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
FC6699-1	6Q19283.D	99	90	112	108	107	90	90	93
FC6699-2	6Q19286.D	103	83	120	125	112	101	91	91
FC6699-3	6Q19287.D	94	79	115	114	110	96	86	91
OP97275-BS	6Q19263.D	106	98	116	117	108	86	82	81
OP97275-DUP	6Q19275.D	94	89	119	109	106	94	86	97
OP97275-LLBS	6Q19264.D	115	106	113	109	120	92	81	87
OP97275-MB	6Q19265.D	99	86	97	97	101	76	72	81
OP97275-MS	6Q19269.D	96	70	109	110	100	84	85	87
S6Q287-IBLK	6Q19248.D	93	91	103	101	102	101	103	107
S6Q287-ICCB	6Q19273.D	98	88	101	102	97	100	91	97
S6Q287-ICCB	6Q19285.D	108	91	101	102	100	99	91	97
S6Q287-ICCB	6Q19289.D	103	105	97	97	106	99	96	95
S6Q287-ICCB	6Q19262.D	96	96	109	108	104	100	96	99

Isotope Dilution Standards

Recovery Limits

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

Isotope Dilution Standard Recovery Summary

Job Number: FC6699
 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
FC6699-1	6Q19283.D	103	99	75	78	118	113	108	106
FC6699-2	6Q19286.D	97	98	74	74	134	130	111	123
FC6699-3	6Q19287.D	103	100	71	76	133	123	114	111
OP97275-BS	6Q19263.D	109	105	64	73	135	119	120	108
OP97275-DUP	6Q19275.D	107	110	71	84	134	130	114	105
OP97275-LLBS	6Q19264.D	114	117	68	78	131	125	114	116
OP97275-MB	6Q19265.D	104	92	58	68	119	119	99	95
OP97275-MS	6Q19269.D	114	116	63	68	149	102	114	90
S6Q287-IBLK	6Q19248.D	99	109	100	95	121	122	118	93
S6Q287-ICCB	6Q19273.D	102	94	86	82	113	123	108	90
S6Q287-ICCB	6Q19285.D	109	97	92	82	108	117	105	98
S6Q287-ICCB	6Q19289.D	98	98	89	81	111	107	101	88
S6Q287-ICCB	6Q19262.D	105	101	100	86	128	124	112	96

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

Initial Calibration Summary

Job Number: FC6699
 Account: AECOM/CD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

Initial Calibration Report

Method Path	Method File	Batch Name	Last Calib Update	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD	Level Last Update Time
D:\MassHunter\Methods	1633_061223_S6Q287_quantmethod.xml	D:\MassHunter\Data\061223_1633_S6Q287	6/13/2023 10:11:35 AM	D:\MassHunter\Data\061223_1633_S6Q287\6Q19240.d	Avg RF	0.4590	0.4046	0.3848	0.3812	0.3816	0.3921	0.3949	0.3917	0.3987	6.405	6/12/2023 3:48:29 PM
D:\MassHunter\Data\061223_1633_S6Q287	6Q19241.d	D:\MassHunter\Data\061223_1633_S6Q287\6Q19241.d	6/13/2023 10:11:35 AM	D:\MassHunter\Data\061223_1633_S6Q287\6Q19242.d	Avg RF	0.9509	0.8227	0.7905	0.7836	0.7724	0.8155	0.8116	0.8135	0.8201	6.795	6/12/2023 4:02:28 PM
D:\MassHunter>Data\061223_1633_S6Q287	6Q19243.d	D:\MassHunter\Data\061223_1633_S6Q287\6Q19243.d	6/13/2023 10:11:35 AM	D:\MassHunter\Data\061223_1633_S6Q287\6Q19244.d	Avg RF	1.1141	1.0115	0.9956	0.9944	0.9935	0.9996	1.0094	1.0106	1.0066	6.737	6/12/2023 4:16:26 PM
D:\MassHunter>Data\061223_1633_S6Q287	6Q19245.d	D:\MassHunter\Data\061223_1633_S6Q287\6Q19245.d	6/13/2023 10:11:35 AM	D:\MassHunter\Data\061223_1633_S6Q287\6Q19246.d	Avg RF	1.7355	1.5292	1.4214	1.3898	1.3814	1.4490	1.4293	1.4352	1.4713	7.873	6/12/2023 4:30:26 PM
D:\MassHunter>Data\061223_1633_S6Q287	6Q19247.d	D:\MassHunter\Data\061223_1633_S6Q287\6Q19247.d	6/13/2023 10:11:35 AM		Avg RF	1.2304	1.0650	1.0216	0.9890	0.9850	1.0548	1.0376	1.0603	1.0555	7.302	6/12/2023 4:44:24 PM
I M4-PFBA	T PFBA				Avg RF	0.1578	0.1264	0.1276	0.1179	0.1209	0.1237	0.1255	0.1142	0.1268	10.524	6/12/2023 5:12:24 PM
I M5-PFPeA	T PFMPA				Avg RF	1.1064	1.0235	0.9988	0.9379	0.9295	0.9904	1.0383	0.9877	1.0016	5.647	6/12/2023 5:26:22 PM
T 3:3FTCA	T PFEEA				Linear	1.5599	1.3055	1.3766	1.3046	1.1969	1.2637	1.3531	1.2120	1.3215	8.686	6/12/2023 5:26:22 PM
T 5:3FTCA	T PFVNA				Avg RF	0.2348	0.1993	0.1974	0.1902	0.1836	0.1875	0.1857	0.1753	0.1942	9.301	6/12/2023 5:26:22 PM
T 7:3FTCA	T PFHDA				Avg RF	0.1650	0.1471	0.1442	0.1333	0.1243	0.1224	0.1313	0.1445	0.1390	10.116	6/12/2023 5:26:22 PM
I M4-PFHpA	T PFHDA				Avg RF	1.6425	1.4085	1.2436	1.3209	1.2116	1.3706	1.2085	1.3037	1.3387	10.635	6/12/2023 5:26:22 PM
I M8-PFOA	T PFOA				Avg RF	1.4893	1.3729	1.2496	1.2202	1.1336	1.2635	1.2867	1.2412	1.2821	8.346	6/12/2023 5:26:22 PM
I M9-PFNA	T PFNA				Avg RF	1.4157	1.1801	1.0696	1.1596	1.1182	1.0935	1.0657	1.0742	1.1471	10.158	6/12/2023 5:26:22 PM
I M6-PFDA	T PFDA				Avg RF	2.1105	1.8465	1.7834	1.7059	1.8218	1.9033	1.7628	2.0150	1.8687	7.258	6/12/2023 5:26:22 PM
I M7-PFUnDA	T PFUnDA				Avg RF	1.0516	0.8916	0.9418	0.9070	0.9073	0.8276	0.8372	0.9738	0.9172	7.943	6/12/2023 5:26:22 PM
I M2-PFDODA																6/13/2023 10:11:35 AM

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

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Initial Calibration Summary

Job Number: FC6699
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

Initial Calibration Report

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

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

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Initial Calibration Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

Initial Calibration Report

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

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

Initial Calibration Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

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

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

Initial Calibration Verification

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

Continuing Calibration Report

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

Level ID: Calibration File

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

Data File: 6Q19249
 Type : QC
 Level : 4

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

Initial Calibration Verification

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

PFPeA	5.000	4.960	-0.8	99.2
PFPeS	2.353	2.387	1.4	101.4
PFTeDA	2.500	2.542	1.7	101.7
PFTTrDA	2.500	2.386	-4.6	95.4
PFUnDA	2.500	2.515	0.6	100.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.609	-2.5	97.5
13C3-HFPO-DA	10.000	10.104	1.0	101.0
9C1-PF3ONS	4.675	4.765	1.9	101.9
ADONA	4.725	4.579	-3.1	96.9
HFPO-DA	5.000	4.862	-2.8	97.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.098	-3.1	96.9
5:3FTCA	62.400	65.442	4.9	104.9
7:3FTCA	62.400	66.793	7.0	107.0
d3-MeFOSA	2.500	2.622	4.9	104.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.740	-5.2	94.8
EtFOSE	12.500	12.686	1.5	101.5
MeFOSA	5.000	4.927	-1.5	98.5
MeFOSE	12.500	12.192	-2.5	97.5
PFDoDS	2.425	2.478	2.2	102.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.298	6.0	106.0
d7-MeFOSE	25.000	25.262	1.0	101.0
d9-EtFOSE	25.000	22.972	-8.1	91.9
d5-EtFOSA	2.500	2.702	8.1	108.1
NFDHA	5.000	5.224	4.5	104.5
PFMBA	5.000	4.953	-0.9	99.1
PFMPA	5.000	4.928	-1.4	98.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	5.277	18.6	118.6

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

Continuing Calibration Report

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

Level ID: Calibration File

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

Data File: 6Q19250
 Type : QC
 Level : 20

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

Initial Calibration Verification

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

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

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

Continuing Calibration Report

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

Level ID: Calibration File

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

Data File: 6Q19251
 Type : QC
 Level : 4

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

Continuing Calibration Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

PFPeA	5.000	4.740	-5.2	94.8
PFPeS	2.353	2.336	-0.7	99.3
PFTeDA	2.500	2.417	-3.3	96.7
PFTTrDA	2.500	2.417	-3.3	96.7
PFUnDA	2.500	2.282	-8.7	91.3
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.659	-1.4	98.6
13C3-HFPO-DA	10.000	9.943	-0.6	99.4
9C1-PF3ONS	4.675	4.504	-3.7	96.3
ADONA	4.725	4.155	-12.1	87.9
HFPO-DA	5.000	4.456	-10.9	89.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.617	-6.9	93.1
5:3FTCA	62.400	62.903	0.8	100.8
7:3FTCA	62.400	61.077	-2.1	97.9
d3-MeFOSA	2.500	2.084	-16.6	83.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.653	-6.9	93.1
EtFOSE	12.500	11.311	-9.5	90.5
MeFOSA	5.000	5.120	2.4	102.4
MeFOSE	12.500	12.158	-2.7	97.3
PFDoDS	2.425	2.300	-5.2	94.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.479	-10.4	89.6
d7-MeFOSE	25.000	21.074	-15.7	84.3
d9-EtFOSE	25.000	20.721	-17.1	82.9
d5-EtFOSA	2.500	2.285	-8.6	91.4
NFDHA	5.000	4.814	-3.7	96.3
PFMBA	5.000	4.717	-5.7	94.3
PFMPA	5.000	4.747	-5.1	94.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.788	7.6	107.6

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

Continuing Calibration Report

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

Level ID: Calibration File

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

Data File: 6Q19252
 Type : QC
 Level : 1

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

Continuing Calibration Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

PFPeA	0.400	0.472	17.9	117.9
PFPeS	0.188	0.223	18.7	118.7
PFTeDA	0.200	0.245	22.3	122.3
PFTTrDA	0.200	0.250	24.8	124.8
PFUnDA	0.200	0.239	19.7	119.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.437	15.7	115.7
13C3-HFPO-DA	10.000	10.216	2.2	102.2
9C1-PF3ONS	0.367	0.445	21.1	121.1
ADONA	0.378	0.449	18.7	118.7
HFPO-DA	0.400	0.465	16.1	116.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.131	13.3	113.3
5:3FTCA	4.992	6.257	25.3	125.3
7:3FTCA	4.992	6.062	21.4	121.4
d3-MeFOSA	2.500	2.465	-1.4	98.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.420	5.0	105.0
EtFOSE	1.000	1.126	12.6	112.6
MeFOSA	0.400	0.481	20.2	120.2
MeFOSE	1.000	1.062	6.2	106.2
PFDODS	0.194	0.246	26.7	126.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.010	0.2	100.2
d7-MeFOSE	25.000	25.538	2.2	102.2
d9-EtFOSE	25.000	22.627	-9.5	90.5
d5-EtFOSA	2.500	2.616	4.6	104.6
NFDHA	0.400	0.459	14.8	114.8
PFMBA	0.400	0.470	17.5	117.5
PFMPA	0.400	0.460	15.0	115.0
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.485	# 36.3	136.3

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

Continuing Calibration Report

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

Level ID: Calibration File

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

Data File: 6Q19261
 Type : QC
 Level : 4

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

Continuing Calibration Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

PFPeA	5.000	4.771	-4.6	95.4
PFPeS	2.353	2.282	-3.0	97.0
PFTeDA	2.500	2.520	0.8	100.8
PFTrDA	2.500	2.386	-4.6	95.4
PFUnDA	2.500	2.411	-3.5	96.5
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.519	-4.4	95.6
13C3-HFPO-DA	10.000	9.604	-4.0	96.0
9C1-PF3ONS	4.675	4.479	-4.2	95.8
ADONA	4.725	4.709	-0.3	99.7
HFPO-DA	5.000	4.905	-1.9	98.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.946	-4.3	95.7
5:3FTCA	62.400	66.281	6.2	106.2
7:3FTCA	62.400	59.833	-4.1	95.9
d3-MeFOSA	2.500	2.367	-5.3	94.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.807	-3.9	96.1
EtFOSE	12.500	12.316	-1.5	98.5
MeFOSA	5.000	4.706	-5.9	94.1
MeFOSE	12.500	11.779	-5.8	94.2
PFDoDS	2.425	2.306	-4.9	95.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.498	-10.0	90.0
d7-MeFOSE	25.000	21.868	-12.5	87.5
d9-EtFOSE	25.000	19.778	-20.9	79.1
d5-EtFOSA	2.500	2.329	-6.9	93.1
NFDHA	5.000	4.704	-5.9	94.1
PFMBA	5.000	4.875	-2.5	97.5
PFMPA	5.000	4.814	-3.7	96.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	5.052	13.5	113.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

Continuing Calibration Report

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

Level ID: Calibration File

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

Data File: 6Q19272
 Type : QC
 Level : 4

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

Continuing Calibration Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

PFPeA	5.000	4.765	-4.7	95.3
PFPeS	2.353	2.312	-1.7	98.3
PFTeDA	2.500	2.407	-3.7	96.3
PFTTrDA	2.500	2.368	-5.3	94.7
PFUnDA	2.500	2.655	6.2	106.2
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.623	-2.2	97.8
13C3-HFPO-DA	10.000	9.735	-2.7	97.3
9C1-PF3ONS	4.675	4.352	-6.9	93.1
ADONA	4.725	4.541	-3.9	96.1
HFPO-DA	5.000	4.341	-13.2	86.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.623	-6.9	93.1
5:3FTCA	62.400	59.558	-4.6	95.4
7:3FTCA	62.400	58.160	-6.8	93.2
d3-MeFOSA	2.500	2.314	-7.4	92.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.764	-4.7	95.3
EtFOSE	12.500	12.259	-1.9	98.1
MeFOSA	5.000	4.940	-1.2	98.8
MeFOSE	12.500	12.065	-3.5	96.5
PFDODS	2.425	2.258	-6.9	93.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.938	-1.2	98.8
d7-MeFOSE	25.000	21.846	-12.6	87.4
d9-EtFOSE	25.000	19.894	-20.4	79.6
d5-EtFOSA	2.500	2.353	-5.9	94.1
NFDHA	5.000	4.750	-5.0	95.0
PFMBA	5.000	4.719	-5.6	94.4
PFMPA	5.000	4.838	-3.2	96.8
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.491	0.9	100.9

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

Continuing Calibration Report

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

Level ID: Calibration File

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

Data File: 6Q19284
 Type : QC
 Level : 4

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

Continuing Calibration Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

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

PFPeA	5.000	4.706	-5.9	94.1
PFPeS	2.353	2.458	4.5	104.5
PFTeDA	2.500	2.618	4.7	104.7
PFTTrDA	2.500	2.511	0.4	100.4
PFUnDA	2.500	2.656	6.2	106.2
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.331	-8.3	91.7
13C3-HFPO-DA	10.000	10.069	0.7	100.7
9C1-PF3ONS	4.675	4.340	-7.2	92.8
ADONA	4.725	4.215	-10.8	89.2
HFPO-DA	5.000	4.819	-3.6	96.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.535	-7.6	92.4
5:3FTCA	62.400	55.033	-11.8	88.2
7:3FTCA	62.400	53.786	-13.8	86.2
d3-MeFOSA	2.500	2.196	-12.1	87.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.598	-8.0	92.0
EtFOSE	12.500	11.172	-10.6	89.4
MeFOSA	5.000	5.076	1.5	101.5
MeFOSE	12.500	11.367	-9.1	90.9
PFDoDS	2.425	2.260	-6.8	93.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.836	-3.3	96.7
d7-MeFOSE	25.000	21.925	-12.3	87.7
d9-EtFOSE	25.000	20.345	-18.6	81.4
d5-EtFOSA	2.500	2.440	-2.4	97.6
NFDHA	5.000	4.115	-17.7	82.3
PFMBA	5.000	4.647	-7.1	92.9
PFMPA	5.000	4.715	-5.7	94.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.254	-4.4	95.6

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-ECC287
 Lab FileID: 6Q19288.D

Continuing Calibration Report

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

Level ID: Calibration File

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

Data File: 6Q19288
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	6.117	22.3	122.3
13C2-6:2FTS	5.000	6.058	21.2	121.2
13C2-8:2FTS	5.000	5.544	10.9	110.9
13C2-PFDoDA	1.250	1.278	2.3	102.3
13C2-PFTeDA	1.250	1.212	-3.0	97.0
13C3-PFBS	2.500	2.616	4.6	104.6
13C3-PFHxS	2.500	2.630	5.2	105.2
13C4-PFBA	10.000	10.011	0.1	100.1
13C4-PFHpA	2.500	2.538	1.5	101.5
13C5-PFHxA	2.500	2.528	1.1	101.1
13C5-PFPeA	5.000	5.034	0.7	100.7
13C6-PFDA	1.250	1.245	-0.4	99.6
13C7-PFUnDA	1.250	1.206	-3.5	96.5
13C8-FOSA	2.500	2.471	-1.2	98.8
13C8-PFOA	2.500	2.529	1.2	101.2
13C8-PFOS	2.500	2.680	7.2	107.2
13C9-PFNA	1.250	1.287	3.0	103.0
4:2FTS	9.375	8.356	-10.9	89.1
6:2FTS	9.500	9.247	-2.7	97.3
8:2FTS	9.600	9.653	0.5	100.5
d3-MeFOSAA	5.000	5.214	4.3	104.3
EtFOSAA	2.500	2.440	-2.4	97.6
FOSA	2.500	2.322	-7.1	92.9
MeFOSAA	2.500	2.342	-6.3	93.7
PFBA	10.000	9.589	-4.1	95.9
PFBS	2.218	2.069	-6.7	93.3
PFDA	2.500	2.467	-1.3	98.7
PFDoDA	2.500	2.454	-1.8	98.2
PFDS	2.413	2.138	-11.4	88.6
PFHpA	2.500	2.266	-9.4	90.6
PFHpS	2.383	2.186	-8.3	91.7
PFHxA	2.500	2.342	-6.3	93.7
PFHxS	2.285	2.112	-7.6	92.4
PFNA	2.500	2.335	-6.6	93.4
PFNS	2.405	2.138	-11.1	88.9
PFOA	2.500	2.537	1.5	101.5
PFOS	2.320	2.028	-12.6	87.4

Continuing Calibration Summary

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q287-ECC287
 Lab FileID: 6Q19288.D

PFPeA	5.000	4.753	-4.9	95.1
PFPeS	2.353	2.326	-1.1	98.9
PFTeDA	2.500	2.412	-3.5	96.5
PFTTrDA	2.500	2.391	-4.4	95.6
PFUnDA	2.500	2.595	3.8	103.8
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	4.892	3.5	103.5
13C3-HFPO-DA	10.000	9.431	-5.7	94.3
9C1-PF3ONS	4.675	4.755	1.7	101.7
ADONA	4.725	4.656	-1.5	98.5
HFPO-DA	5.000	4.753	-4.9	95.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.454	-8.2	91.8
5:3FTCA	62.400	58.361	-6.5	93.5
7:3FTCA	62.400	57.545	-7.8	92.2
d3-MeFOSA	2.500	2.400	-4.0	96.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.666	-6.7	93.3
EtFOSE	12.500	11.761	-5.9	94.1
MeFOSA	5.000	4.826	-3.5	96.5
MeFOSE	12.500	12.124	-3.0	97.0
PFDODS	2.425	2.098	-13.5	86.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.731	-5.4	94.6
d7-MeFOSE	25.000	22.052	-11.8	88.2
d9-EtFOSE	25.000	20.862	-16.6	83.4
d5-EtFOSA	2.500	2.521	0.9	100.9
NFDHA	5.000	4.491	-10.2	89.8
PFMBA	5.000	4.705	-5.9	94.1
PFMPA	5.000	4.715	-5.7	94.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.559	2.5	102.5

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC6699
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q287	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q287-RT	6Q19237.D	06/12/23 15:06	n/a	Retention Time Marker
S6Q287-RT	6Q19238.D	06/12/23 15:20	n/a	Retention Time Marker
S6Q287-IC287	6Q19239.D	06/12/23 15:34	n/a	Mass Calibration Verification
S6Q287-IC287	6Q19240.D	06/12/23 15:48	n/a	Initial cal 1
S6Q287-IC287	6Q19241.D	06/12/23 16:02	n/a	Initial cal 2
S6Q287-IC287	6Q19242.D	06/12/23 16:16	n/a	Initial cal 3
S6Q287-ICC287	6Q19243.D	06/12/23 16:30	n/a	Initial cal 4
S6Q287-IC287	6Q19244.D	06/12/23 16:44	n/a	Initial cal 5
S6Q287-IC287	6Q19245.D	06/12/23 16:58	n/a	Initial cal 6
S6Q287-IC287	6Q19246.D	06/12/23 17:12	n/a	Initial cal 7
S6Q287-IC287	6Q19247.D	06/12/23 17:26	n/a	Initial cal 8
S6Q287-IBLK	6Q19248.D	06/12/23 17:40	n/a	Instrument Blank
S6Q287-IBLK	6Q19248.D	06/12/23 17:40	n/a	Instrument Blank
S6Q287-ICV287	6Q19249.D	06/12/23 17:54	n/a	Initial cal verification 4
S6Q287-ICV287	6Q19250.D	06/12/23 18:08	n/a	Initial cal verification 20
S6Q287-CC287	6Q19251.D	06/12/23 18:22	n/a	Continuing cal 4
S6Q287-CC287	6Q19252.D	06/12/23 18:36	n/a	Continuing cal 1.0LL
ZZZZZZ	6Q19253.D	06/12/23 18:50	OP97120	(unrelated sample)
FC6342-11	6Q19254.D	06/12/23 19:04	OP97215	(used for QC only; not part of job FC6699)
OP97215-DUP	6Q19255.D	06/12/23 19:18	OP97215	Duplicate
ZZZZZZ	6Q19256.D	06/12/23 19:32	OP97160	(unrelated sample)
JD66240-1	6Q19257.D	06/12/23 19:46	OP97160	(used for QC only; not part of job FC6699)
ZZZZZZ	6Q19258.D	06/12/23 20:00	OP97160	(unrelated sample)
FC6342-10	6Q19259.D	06/12/23 20:14	OP97215	(used for QC only; not part of job FC6699)
OP97215-MS	6Q19260.D	06/12/23 20:28	OP97215	Matrix Spike
S6Q287-CC287	6Q19261.D	06/12/23 20:42	n/a	Continuing cal 4
S6Q287-ICCB	6Q19262.D	06/12/23 20:56	n/a	Continuing Calibration Blank
S6Q287-ICCB	6Q19262.D	06/12/23 20:56	n/a	Continuing Calibration Blank
OP97275-BS	6Q19263.D	06/12/23 21:10	OP97275	Blank Spike
OP97275-LLBS	6Q19264.D	06/12/23 21:24	OP97275	Blank Spike
OP97275-MB	6Q19265.D	06/12/23 21:37	OP97275	Method Blank
ZZZZZZ	6Q19266.D	06/12/23 21:51	OP97275	(unrelated sample)
ZZZZZZ	6Q19267.D	06/12/23 22:05	OP97275	(unrelated sample)
FC6649-1	6Q19268.D	06/12/23 22:19	OP97275	(used for QC only; not part of job FC6699)
OP97275-MS	6Q19269.D	06/12/23 22:33	OP97275	Matrix Spike
ZZZZZZ	6Q19270.D	06/12/23 22:47	OP97275	(unrelated sample)
ZZZZZZ	6Q19271.D	06/12/23 23:01	OP97275	(unrelated sample)
S6Q287-CC287	6Q19272.D	06/12/23 23:15	n/a	Continuing cal 4
S6Q287-ICCB	6Q19273.D	06/12/23 23:29	n/a	Continuing Calibration Blank
FC6649-4	6Q19274.D	06/12/23 23:43	OP97275	(used for QC only; not part of job FC6699)
OP97275-DUP	6Q19275.D	06/12/23 23:57	OP97275	Duplicate
ZZZZZZ	6Q19276.D	06/13/23 00:11	OP97275	(unrelated sample)
ZZZZZZ	6Q19277.D	06/13/23 00:25	OP97275	(unrelated sample)
ZZZZZZ	6Q19278.D	06/13/23 00:39	OP97275	(unrelated sample)
ZZZZZZ	6Q19279.D	06/13/23 00:53	OP97275	(unrelated sample)
ZZZZZZ	6Q19280.D	06/13/23 01:07	OP97275	(unrelated sample)

Run Sequence Report

Job Number: FC6699
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q287	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	6Q19281.D	06/13/23 01:21	OP97275	(unrelated sample)
ZZZZZZ	6Q19282.D	06/13/23 01:35	OP97275	(unrelated sample)
FC6699-1	6Q19283.D	06/13/23 01:49	OP97275	AF-HDMW225303-WGN01LF-2306
S6Q287-CC287	6Q19284.D	06/13/23 02:03	n/a	Continuing cal 4
S6Q287-ICCB	6Q19285.D	06/13/23 02:17	n/a	Continuing Calibration Blank
FC6699-2	6Q19286.D	06/13/23 02:31	OP97275	AF-RHMW12A-WGN01LF-2306
FC6699-3	6Q19287.D	06/13/23 02:45	OP97275	AF-RHMW12A-WGFD01LF-2306
S6Q287-ECC287	6Q19288.D	06/13/23 02:59	n/a	Ending cal 4
S6Q287-ICCB	6Q19289.D	06/13/23 03:13	n/a	Continuing Calibration Blank

6.10.1

6

MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19283.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/13/2023 1:49:41 AM
 Sample Name : FC6699-1
 Vial : P2-D1
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97275,S6Q287,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	156087	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	51571	5.00 µg/L	0.000
M5-PFHxA	5.804	318.0 -> 273.0	57813	2.50 µg/L	0.012
M4-PFHpA	6.719	367.1 -> 322.0	51585	2.50 µg/L	0.012
M8-PFOA	7.352	421.1 -> 376.0	80377	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	37713	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	22906	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	27349	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	23365	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	12430	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	24738	2.50 µg/L	0.000
M3-PFBS	5.759	302.1 -> 79.9	20784	2.50 µg/L	0.012
M3-PFHxS	7.478	402.1 -> 79.9	12584	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	11635	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	3186	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	4578	5.00 µg/L	0.000
M2-8:2FTS	8.175	529.1 -> 80.9	4200	5.00 µg/L	0.012
M3-MeFOSAA	8.420	573.2 -> 419.0	28738	5.00 µg/L	0.012
M3-HFPO-DA	6.181	286.9 -> 168.9	35117	10.00 µg/L	0.012
M5-EtFOSAA	8.628	589.2 -> 419.0	23163	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	101875	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	132677	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	11138	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	11090	2.50 µg/L	0.000
13C4-PFOS	8.576	502.8 -> 79.9	14821	2.50 µg/L	0.012
13C3-PFBA	3.101	216.0 -> 172.0	58699	5.00 µg/L	0.012
18O2-PFHxS	7.490	403.0 -> 83.9	8784	2.50 µg/L	0.012
13C4-PFOA	7.352	417.1 -> 372.0	77974	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	28360	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	43601	1.25 µg/L	0.013
13C2-PFHxA	5.805	315.1 -> 270.0	48321	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3186	5.89 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.8%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4578	5.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.6%		
13C2-8:2FTS	8.175	529.1 -> 80.9	4200	5.39 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.9%		
13C2-PFDoDA	9.297	615.1 -> 570.0	23365	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-PFTeDA	10.012	715.2 -> 670.0	12430	1.13 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.4%		
13C3-PFBS	5.759	302.1 -> 79.9	20784	2.80 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.0%		
13C3-PFHxS	7.478	402.1 -> 79.9	12584	2.70 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C4-PFBA	3.097	216.8 -> 171.9	156087	11.33 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.3%	
13C4-PFHpA	6.719	367.1 -> 322.0	51585	2.66 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C5-PFHxA	5.804	318.0 -> 273.0	57813	2.77 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.7%	
13C5-PFPeA	4.560	268.3 -> 223.0	51571	5.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.5%	
13C6-PFDA	8.387	519.1 -> 474.1	22906	1.46 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 117.1%	
13C7-PFUnDA	8.866	570.0 -> 525.1	27349	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-FOSA	9.674	506.1 -> 77.8	24738	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.1%	
13C8-PFOA	7.352	421.1 -> 376.0	80377	2.76 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.5%	
13C8-PFOS	8.575	507.1 -> 79.9	11635	2.68 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C9-PFNA	7.895	472.1 -> 427.0	37713	1.42 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.4%	
d3-MeFOSAA	8.420	573.2 -> 419.0	28738	5.17 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C3-HFPO-DA	6.181	286.9 -> 168.9	35117	10.60 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
d3-MeFOSA	10.775	515.0 -> 219.0	11090	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.0%	
d5-EtFOSAA	8.628	589.2 -> 419.0	23163	4.94 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
d7-MeFOSE	10.685	623.2 -> 58.9	101875	18.73 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.9%	
d9-EtFOSE	10.930	639.2 -> 58.9	132677	19.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.1%	
d5-EtFOSA	10.996	531.1 -> 219.0	11138	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.3%	

Target Compounds

QValue

4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	-	427.1 -> 407.0 427.1 -> 80.9	-	N.D.	
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.	
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	9.685	613.1 -> 569.0 613.1 -> 319.0	0 0	µg/L	m 1
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

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

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

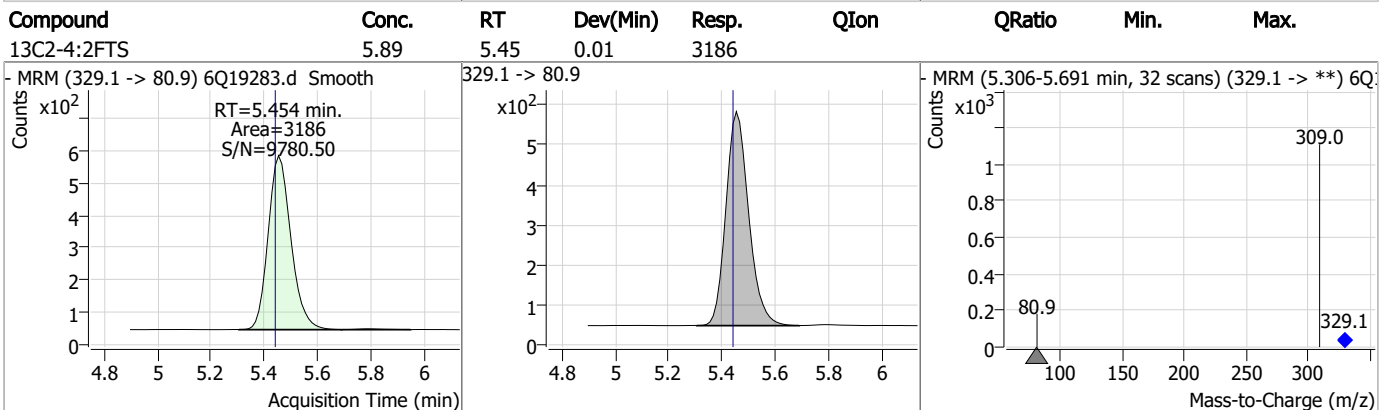
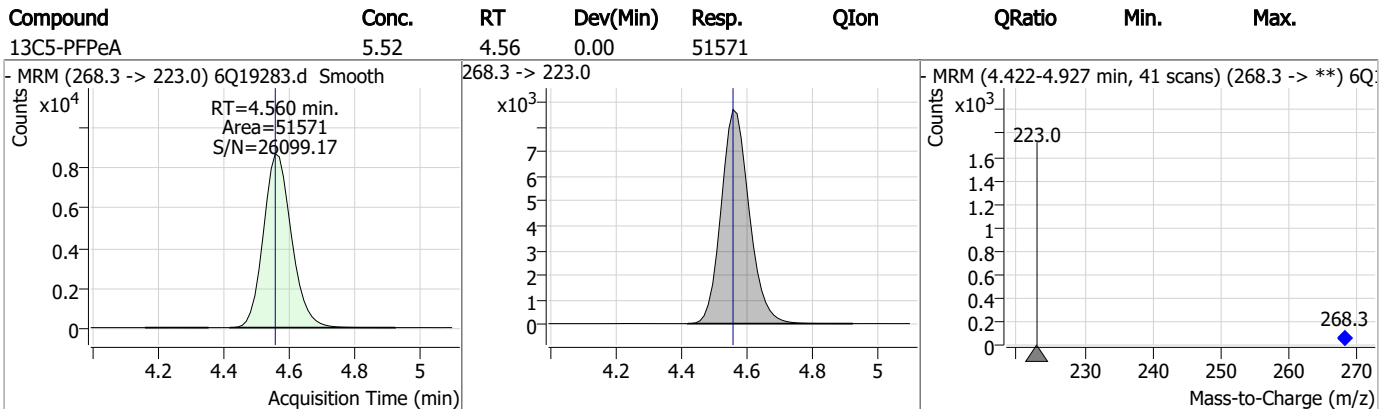
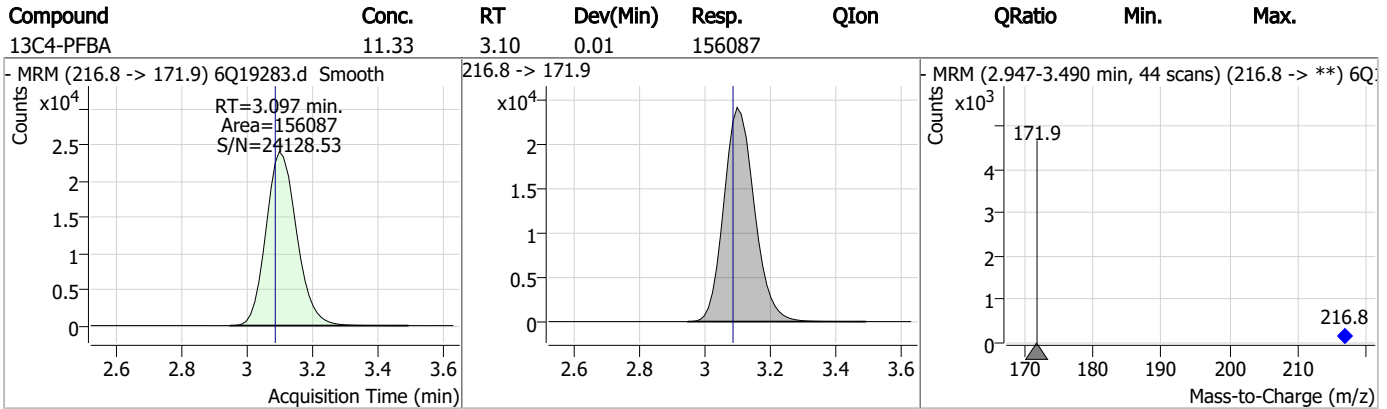
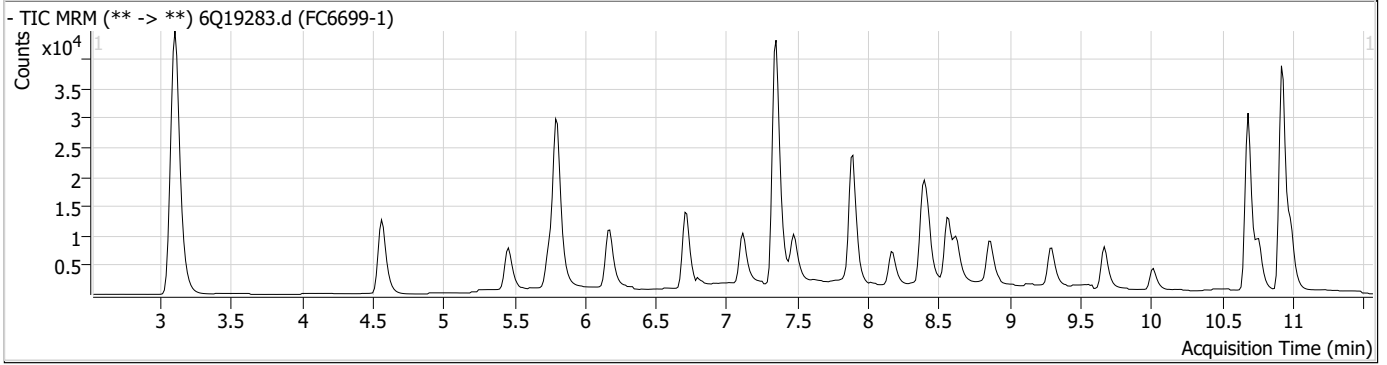
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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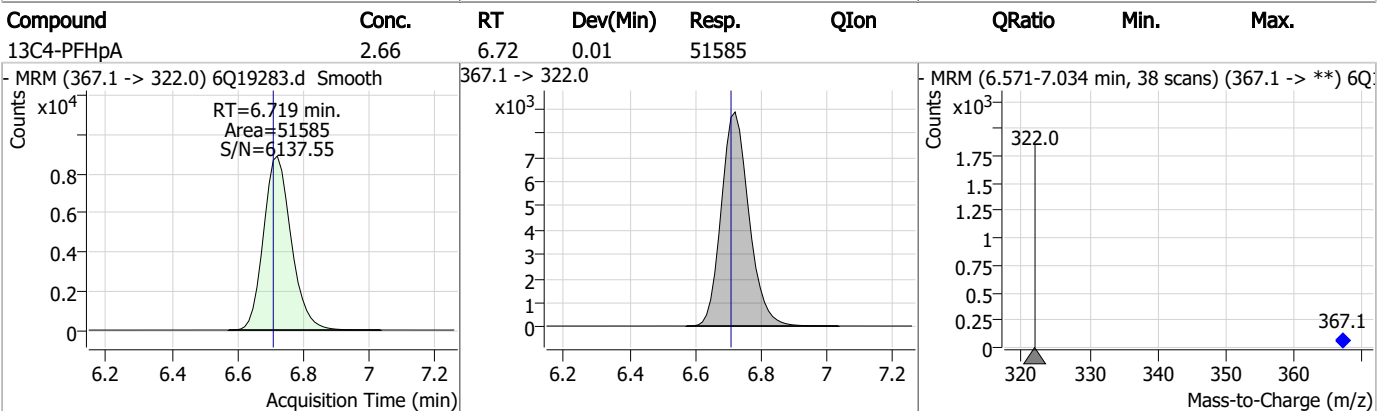
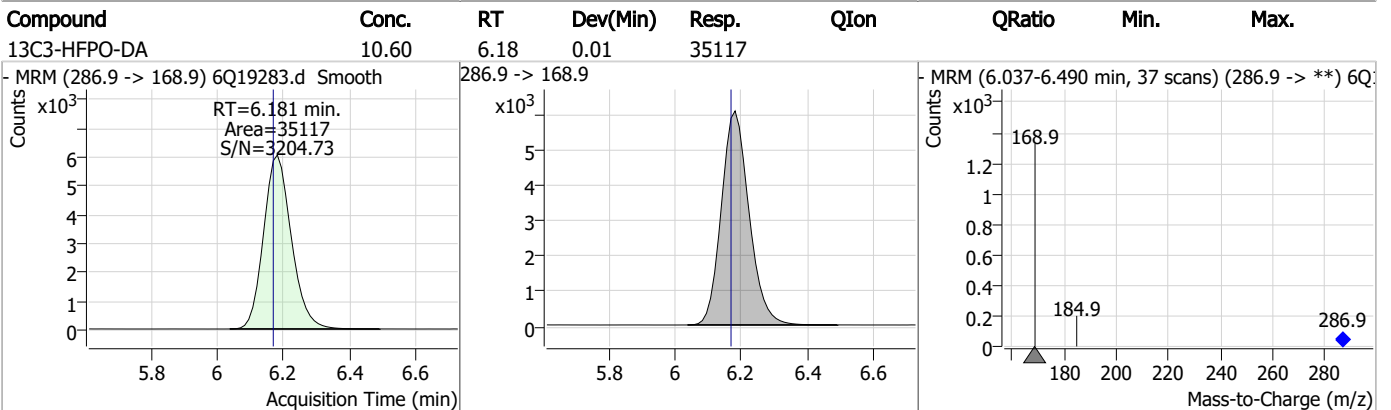
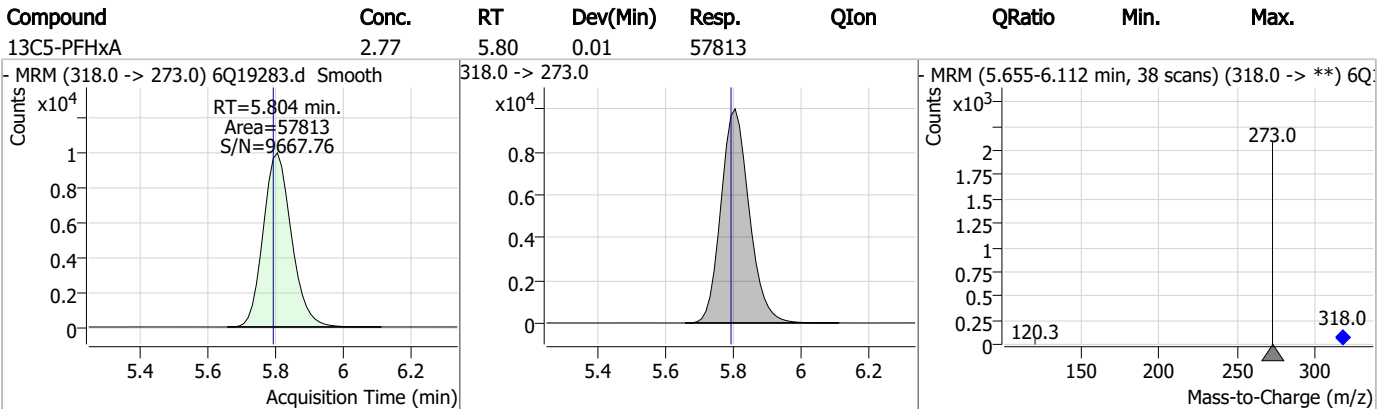
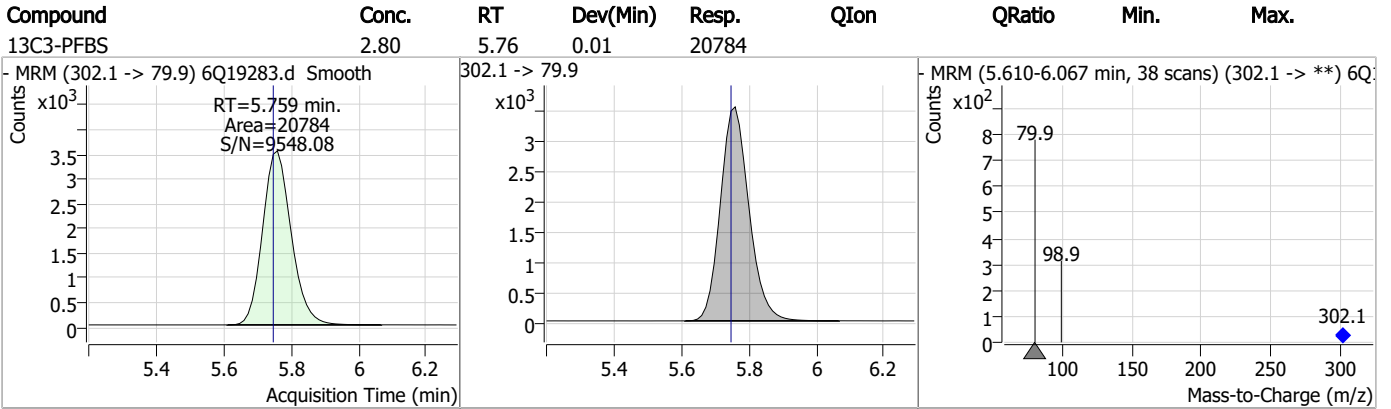
7.1.1
7



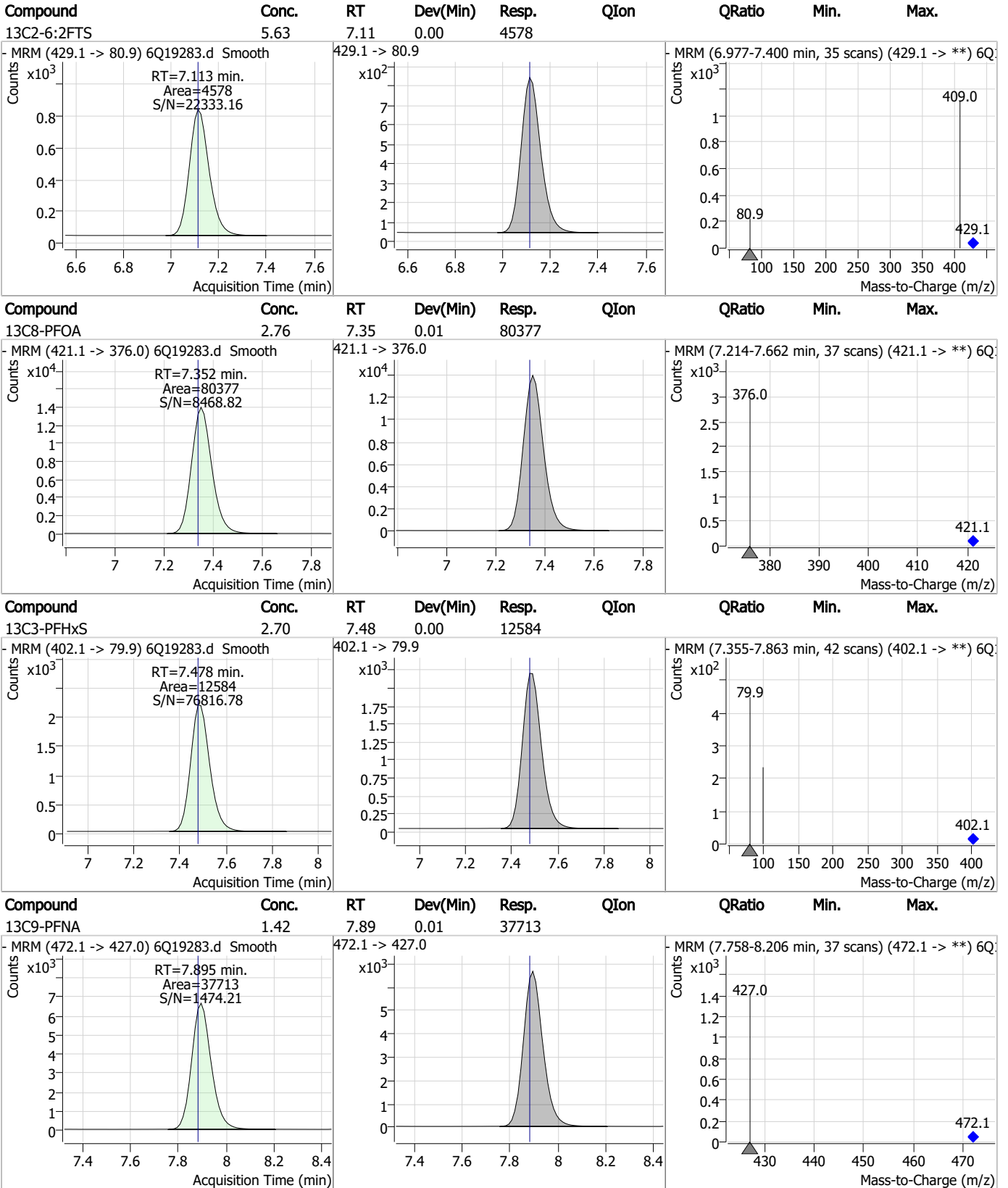
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



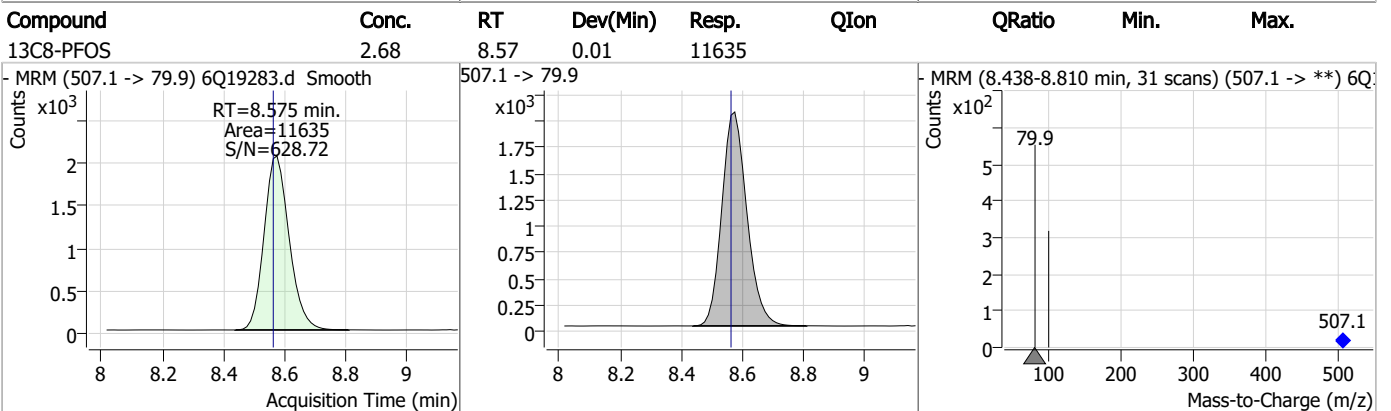
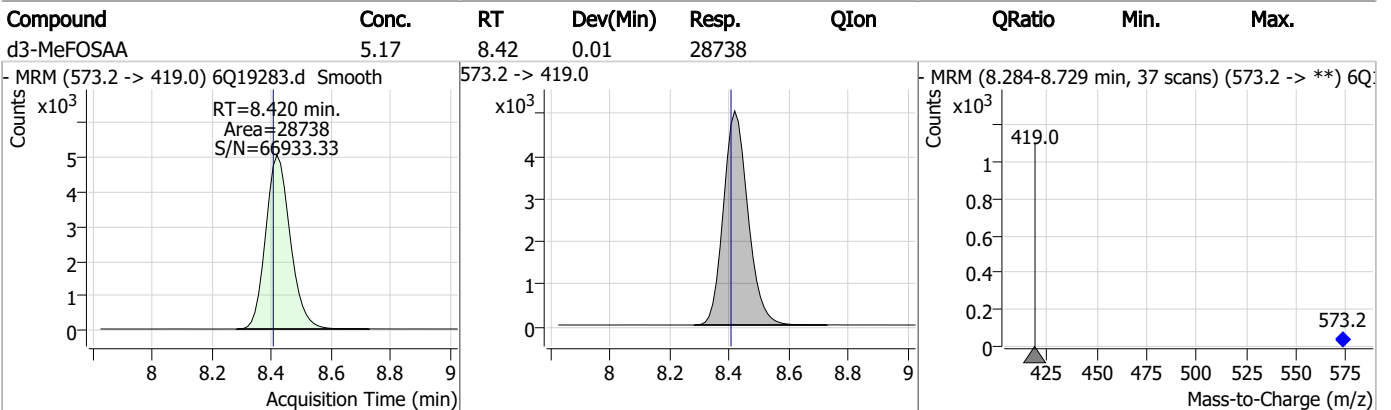
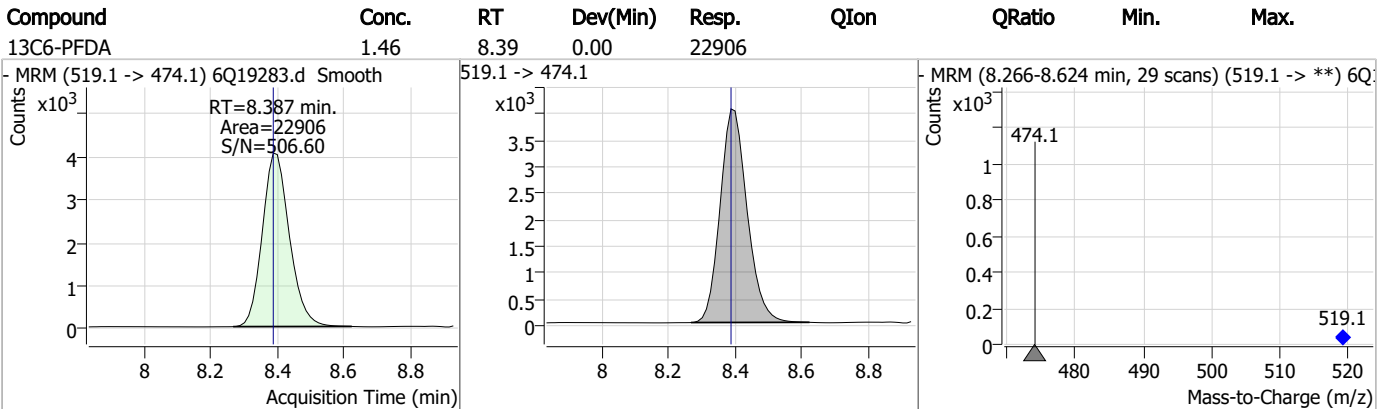
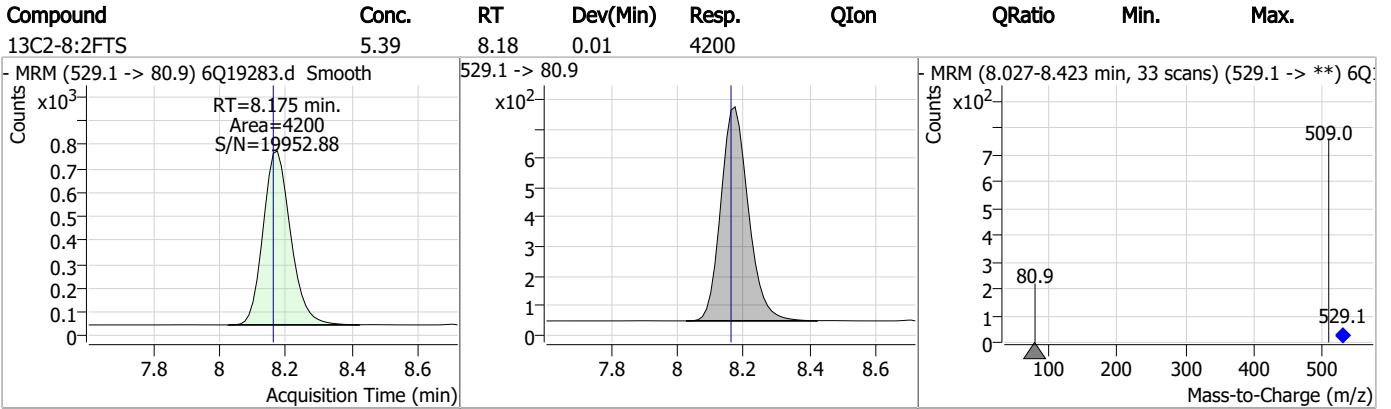
Perfluorinated Compounds by LC/MS/MS



7.1.1

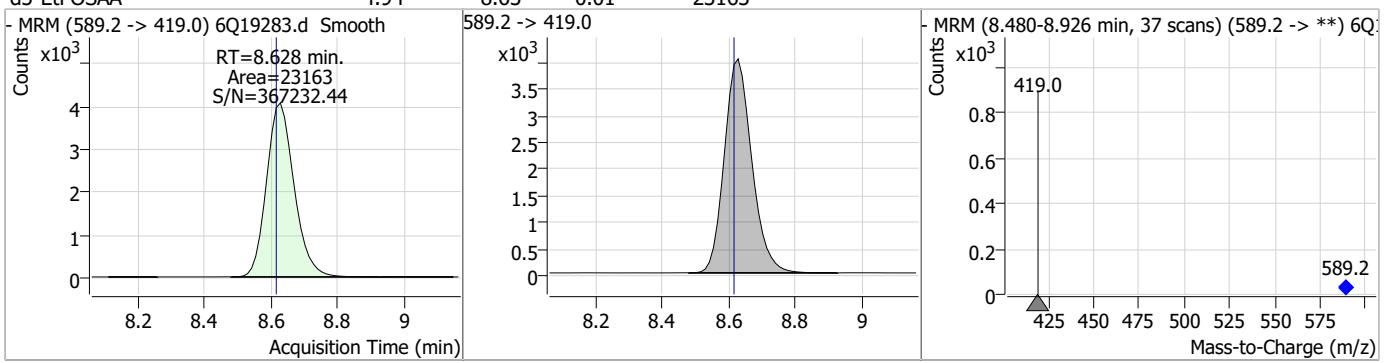
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Perfluorinated Compounds by LC/MS/MS

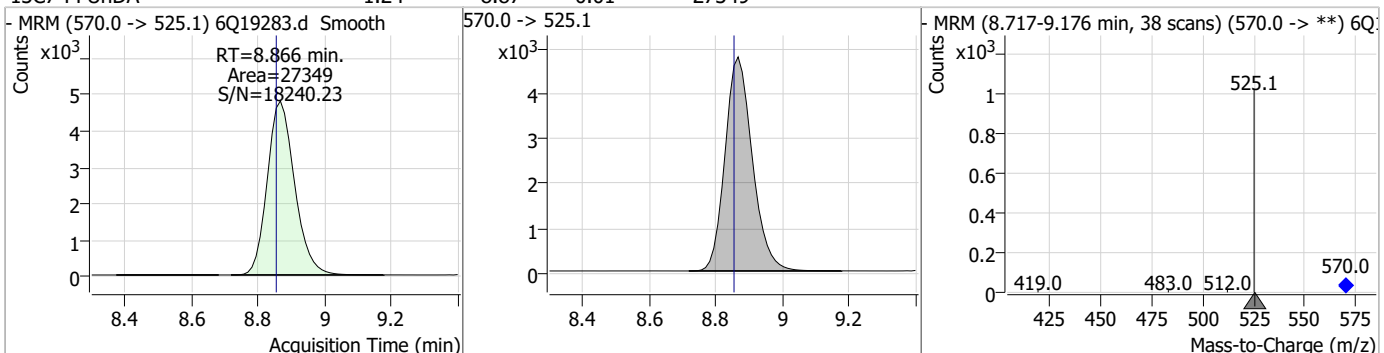


Perfluorinated Compounds by LC/MS/MS

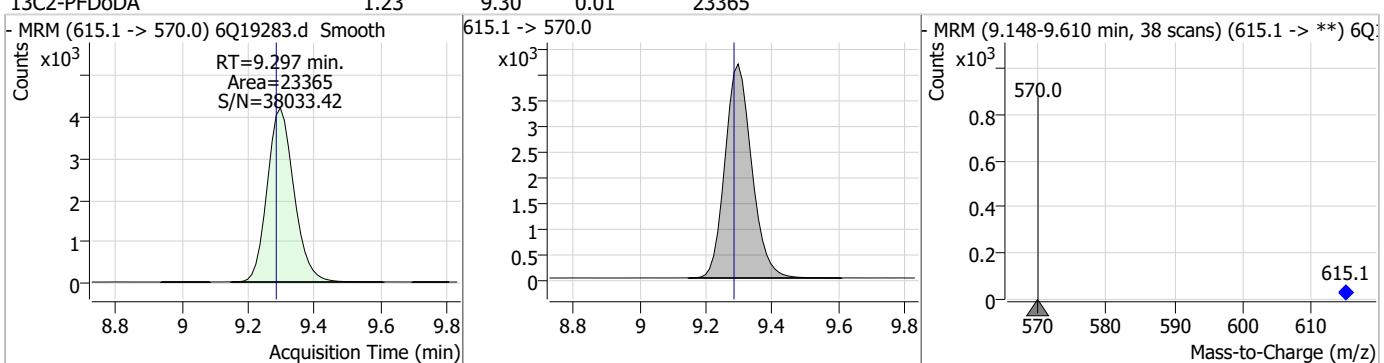
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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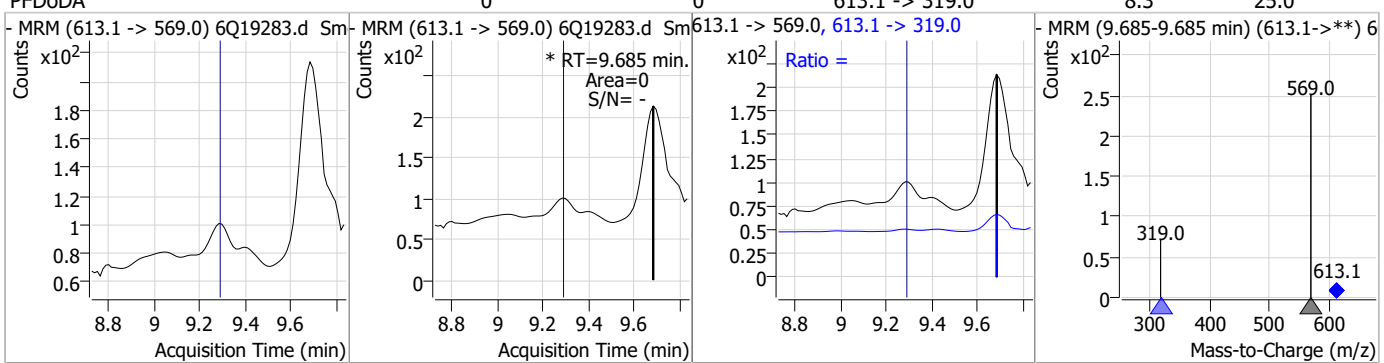
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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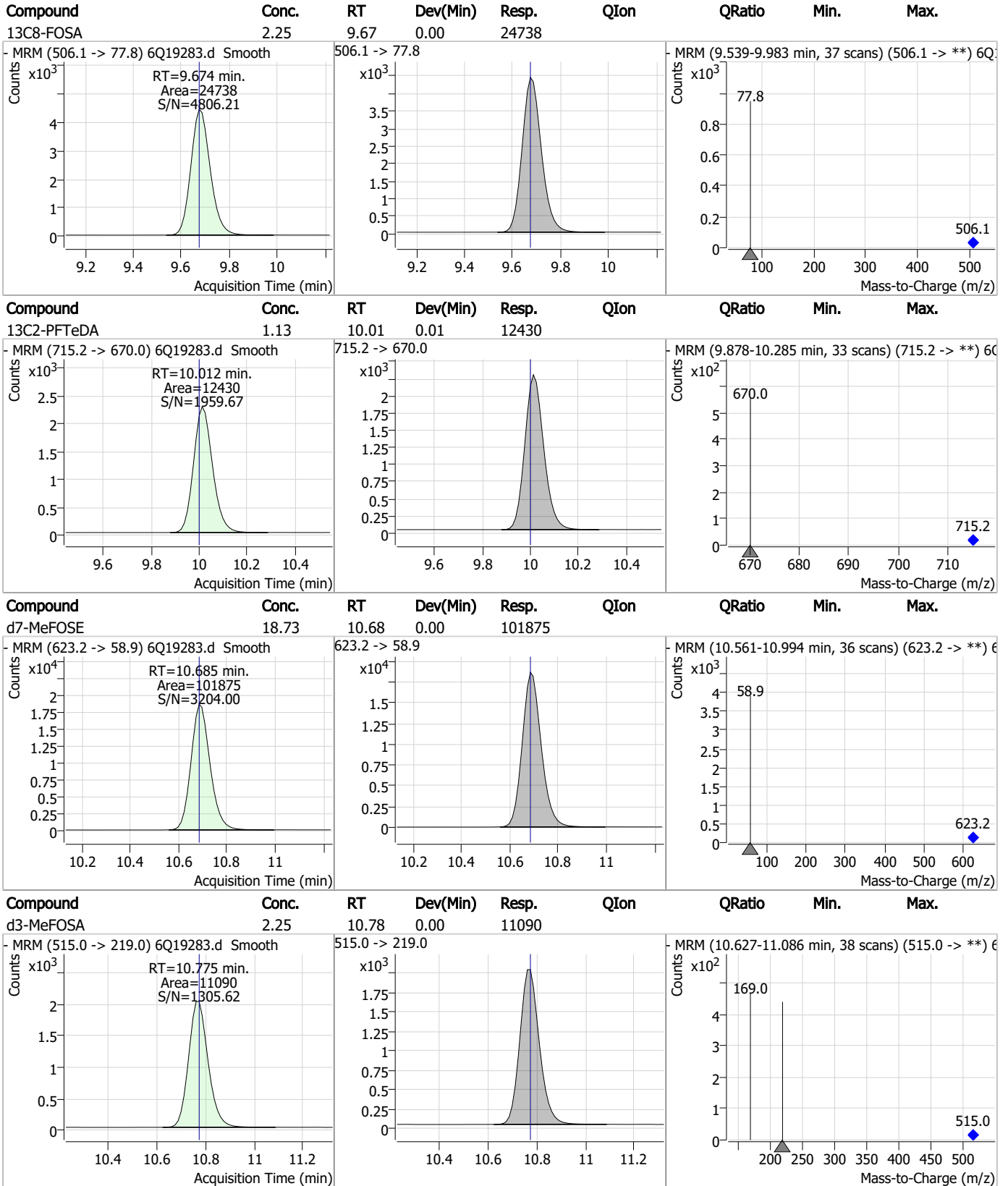
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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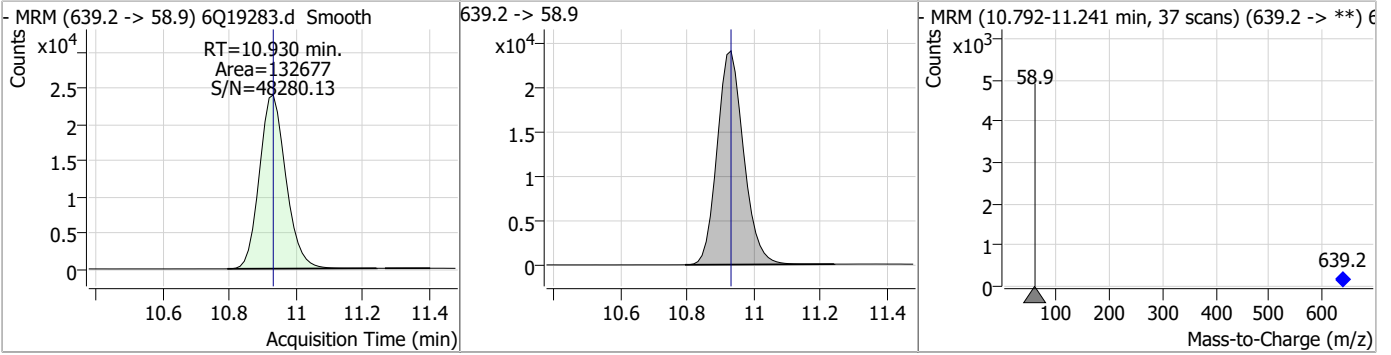


Perfluorinated Compounds by LC/MS/MS

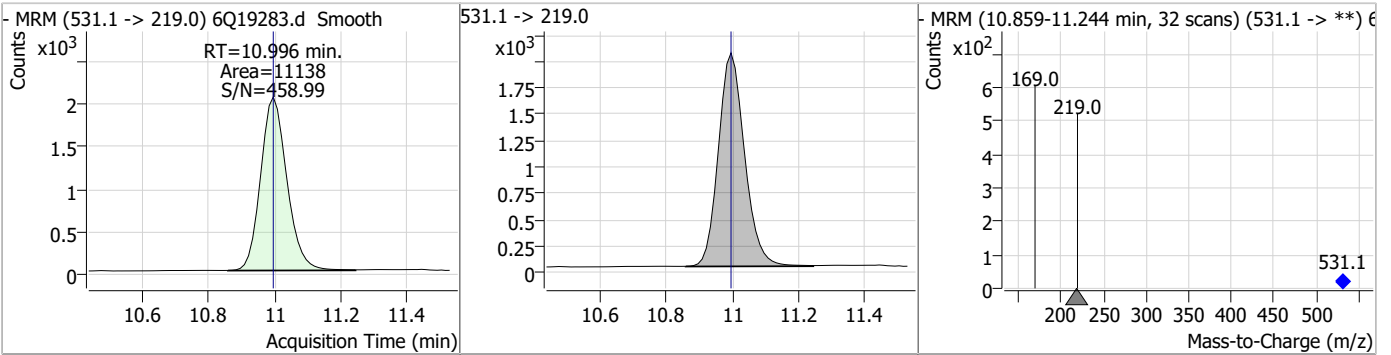


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.53	10.93	0.00	132677				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.33	11.00	0.00	11138				



7.1.1

7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19286.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/13/2023 2:31:36 AM
 Sample Name : FC6699-2
 Vial : P2-D2
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97275,S6Q287,560,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	98583	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	51716	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	55659	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	51080	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	84485	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	39057	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	21393	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	27654	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	23396	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	10921	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	26690	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	20534	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	13443	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	11735	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	3326	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	4883	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	3970	5.00 µg/L	0.000
M3-MeFOSAA	8.420	573.2 -> 419.0	25902	5.00 µg/L	0.012
M3-HFPO-DA	6.181	286.9 -> 168.9	36082	10.00 µg/L	0.012
M5-EtFOSAA	8.628	589.2 -> 419.0	22193	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	96394	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	120438	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	10412	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	10800	2.50 µg/L	0.000
13C4-PFOS	8.576	502.8 -> 79.9	14286	2.50 µg/L	0.012
13C3-PFBA	3.101	216.0 -> 172.0	57653	5.00 µg/L	0.012
18O2-PFHxS	7.477	403.0 -> 83.9	8089	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	76106	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	27098	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	41876	1.25 µg/L	0.013
13C2-PFHxA	5.805	315.1 -> 270.0	42683	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3326	6.68 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 133.6%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4883	6.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 130.5%		
13C2-8:2FTS	8.163	529.1 -> 80.9	3970	5.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.7%		
13C2-PFDoDA	9.297	615.1 -> 570.0	23396	1.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C2-PFTeDA	10.012	715.2 -> 670.0	10921	1.04 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 83.1%		
13C3-PFBS	5.746	302.1 -> 79.9	20534	3.00 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 120.1%		
13C3-PFHxS	7.478	402.1 -> 79.9	13443	3.13 µg/L	0.000

7.12
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 125.2%	
13C4-PFBA	3.097	216.8 -> 171.9	98583	7.28 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.8%	
13C4-PFHpA	6.707	367.1 -> 322.0	51080	2.98 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.1%	
13C5-PFHxA	5.792	318.0 -> 273.0	55659	3.02 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 120.6%	
13C5-PFPeA	4.560	268.3 -> 223.0	51716	6.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 125.4%	
13C6-PFDA	8.387	519.1 -> 474.1	21393	1.43 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.4%	
13C7-PFUnDA	8.866	570.0 -> 525.1	27654	1.31 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C8-FOSA	9.674	506.1 -> 77.8	26690	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C8-PFOA	7.352	421.1 -> 376.0	84485	2.98 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.0%	
13C8-PFOS	8.575	507.1 -> 79.9	11735	2.80 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C9-PFNA	7.895	472.1 -> 427.0	39057	1.53 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 122.3%	
d3-MeFOSAA	8.420	573.2 -> 419.0	25902	4.83 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C3-HFPO-DA	6.181	286.9 -> 168.9	36082	12.33 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 123.3%	
d3-MeFOSA	10.775	515.0 -> 219.0	10800	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.0%	
d5-EtFOSAA	8.628	589.2 -> 419.0	22193	4.91 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d7-MeFOSE	10.685	623.2 -> 58.9	96394	18.38 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.5%	
d9-EtFOSE	10.930	639.2 -> 58.9	120438	18.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.6%	
d5-EtFOSA	10.996	531.1 -> 219.0	10412	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.5%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.845	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

7.12

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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	5.795	449.0 -> 98.9	1742	0.08 µg/L	98
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	84	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		463.0 -> 419.0			
PFNS	-	463.0 -> 219.0	-	N.D.	
		548.8 -> 79.9			
PFOA	-	548.8 -> 98.9	-	N.D.	
		413.0 -> 369.0			
PFOS	-	413.0 -> 169.0	-	N.D.	
		498.9 -> 79.9			
PFPeA	4.563	498.9 -> 98.8	3472	0.23 µg/L	100
		263.0 -> 219.0			
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
		511.9 -> 219.0			
MeFOSA	-	511.9 -> 169.0	-	N.D.	
		616.1 -> 58.9			
MeFOSE	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
PFDoDS	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
NFDHA	-	279.0 -> 85.1	-	N.D.	
		229.0 -> 84.9			
PFMBA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

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

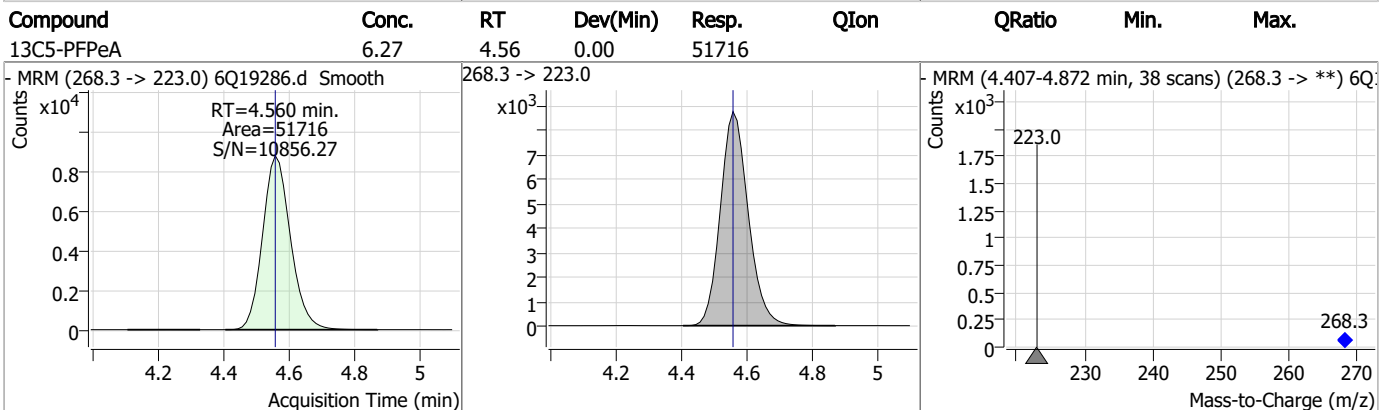
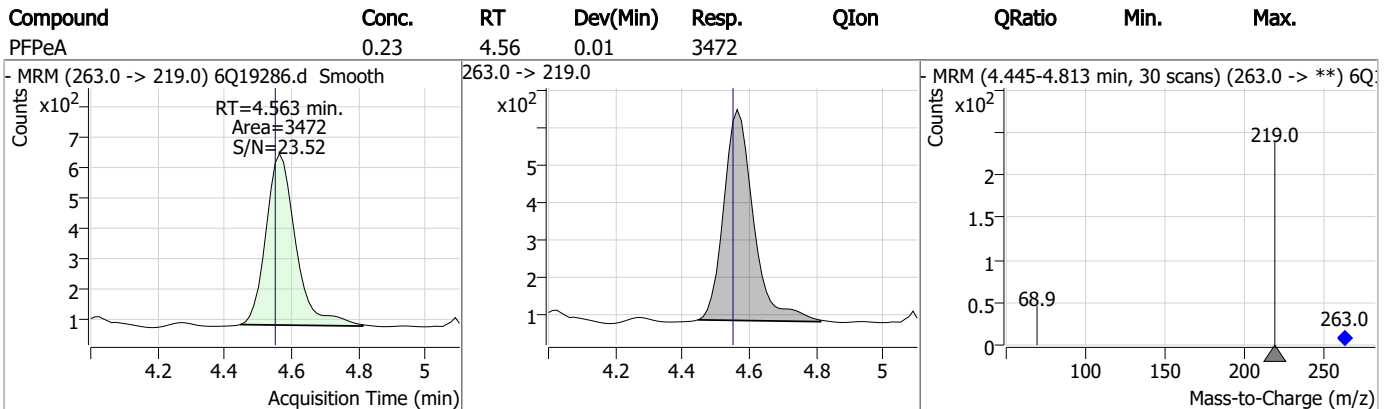
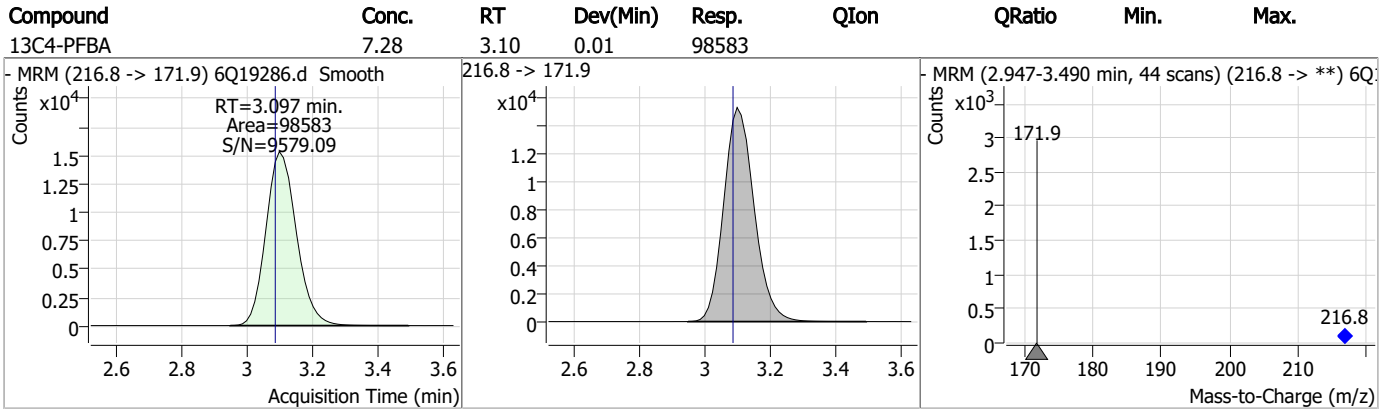
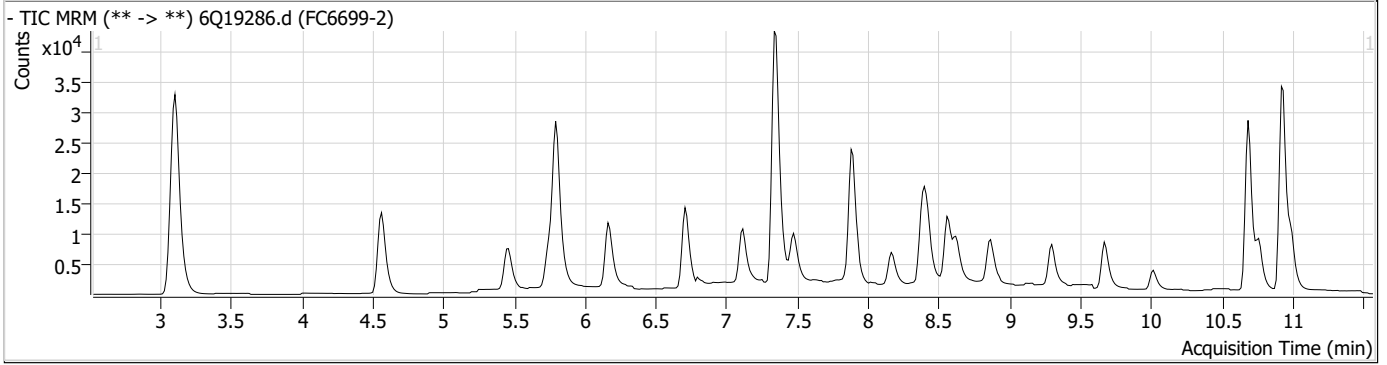
Perfluorinated Compounds by LC/MS/MS

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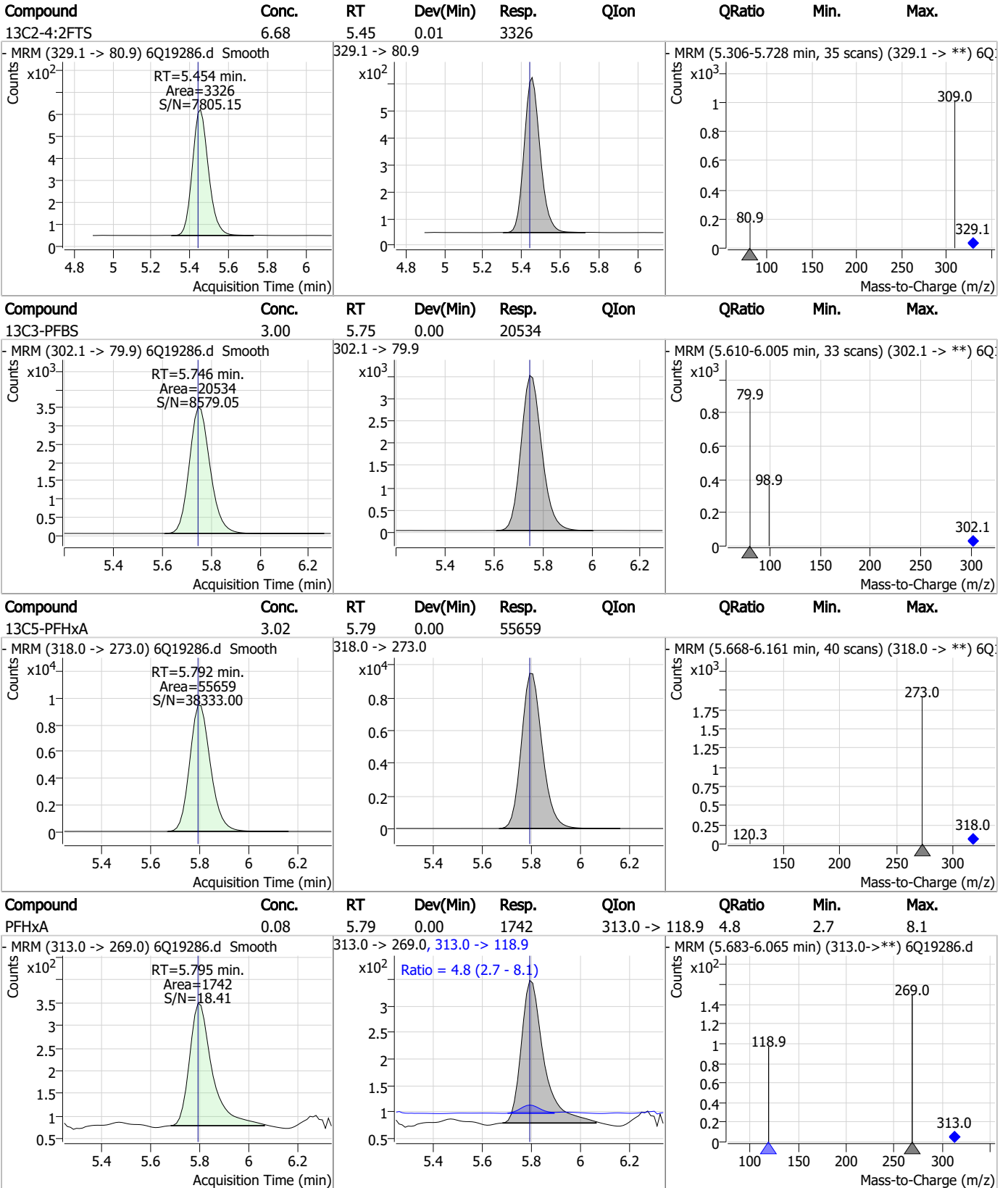
7.1.2
7



Perfluorinated Compounds by LC/MS/MS



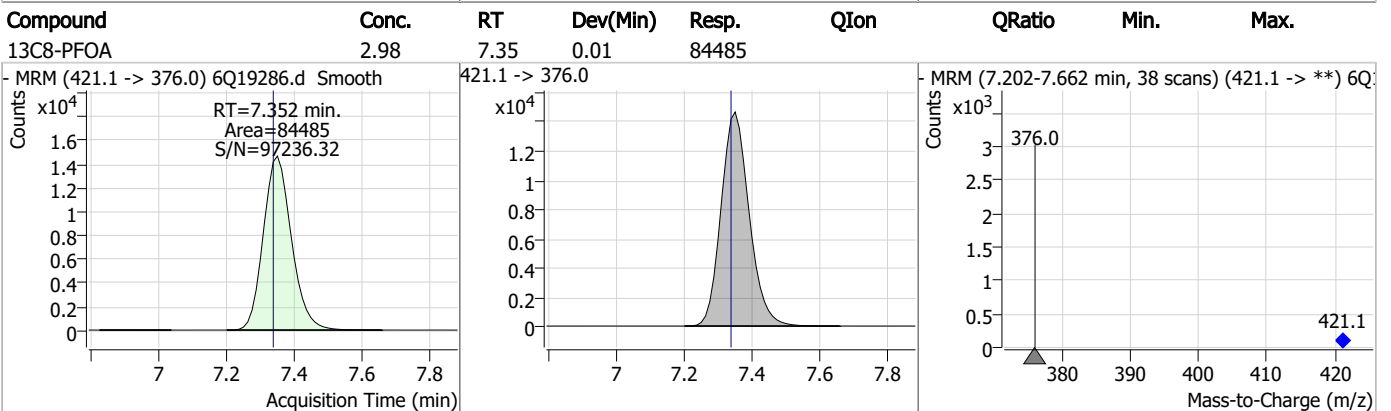
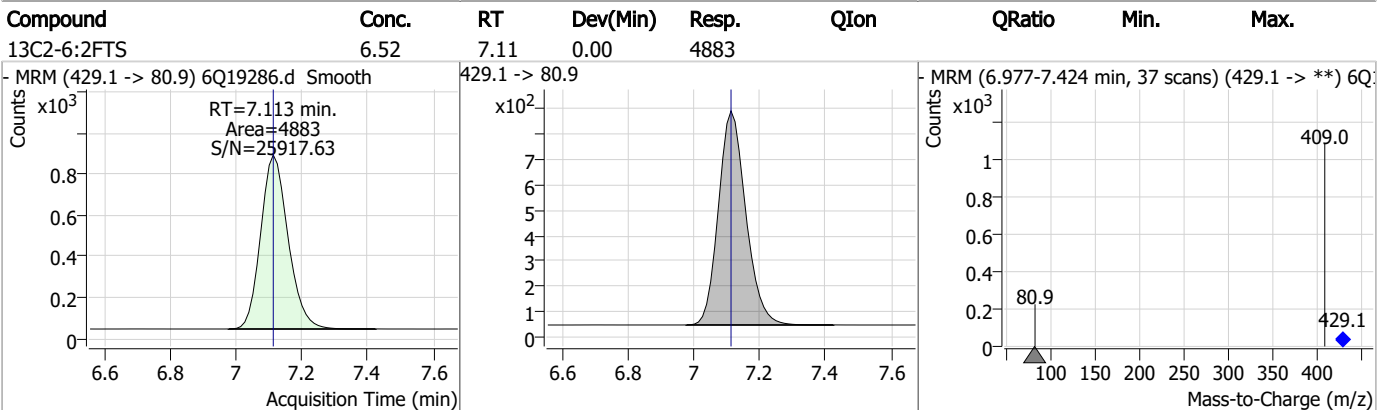
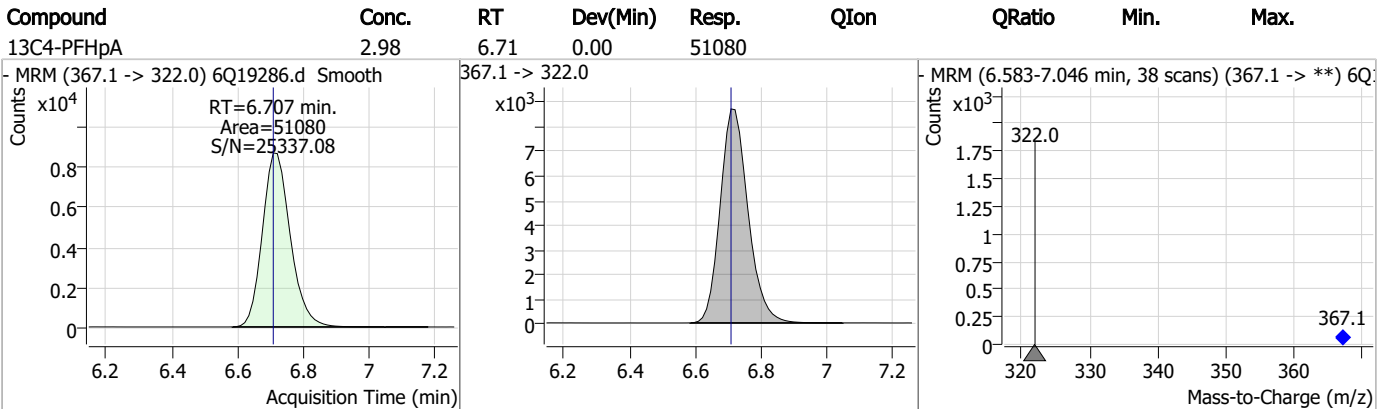
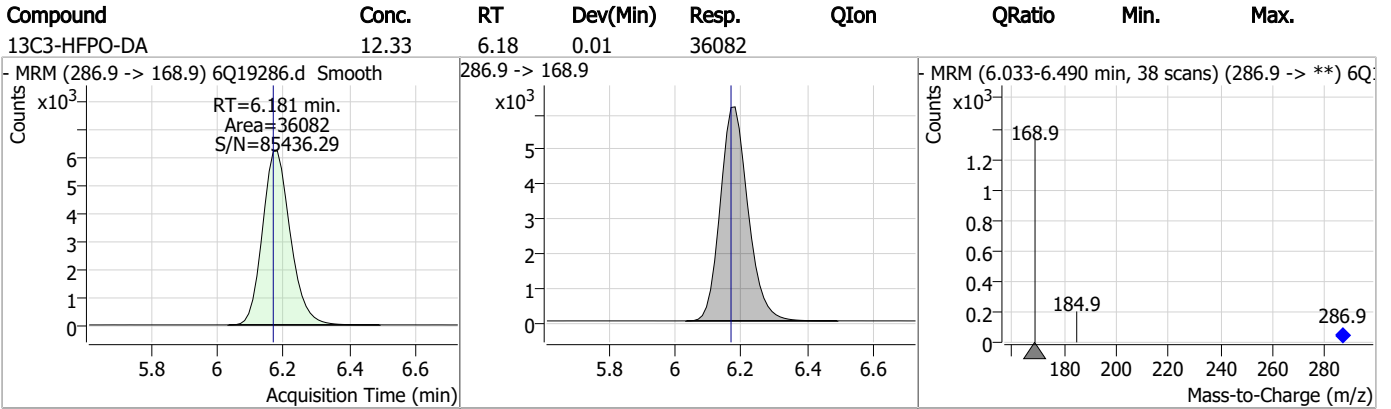
Perfluorinated Compounds by LC/MS/MS



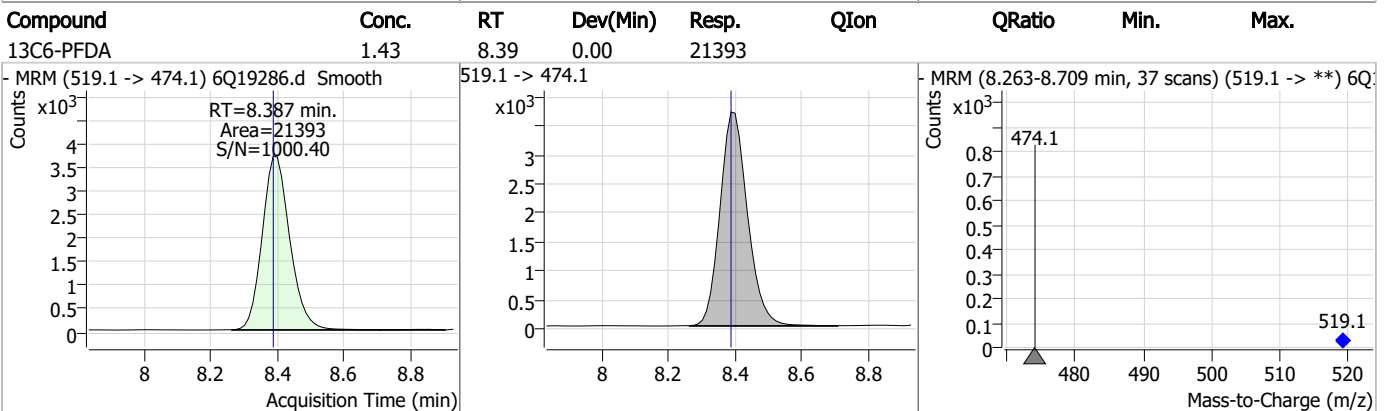
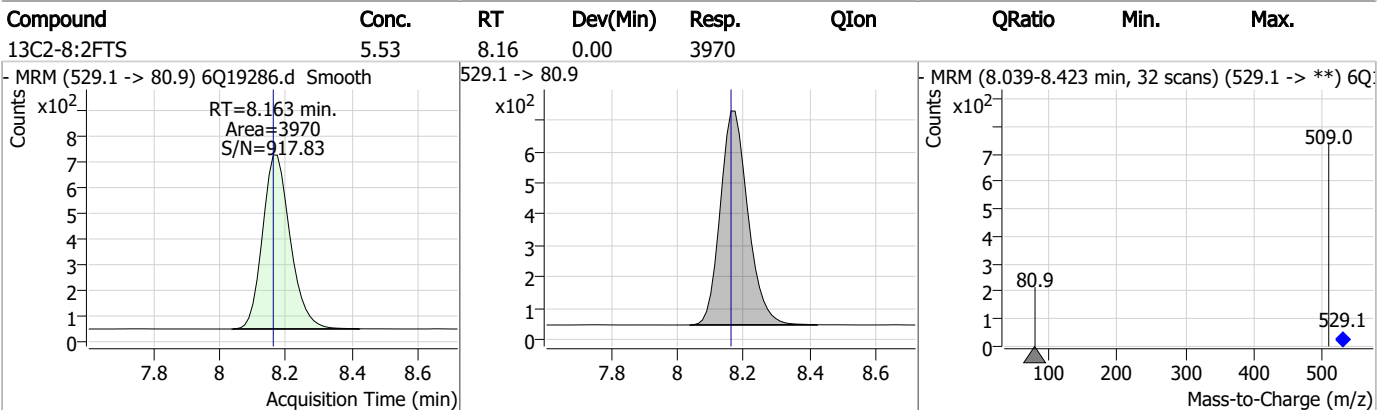
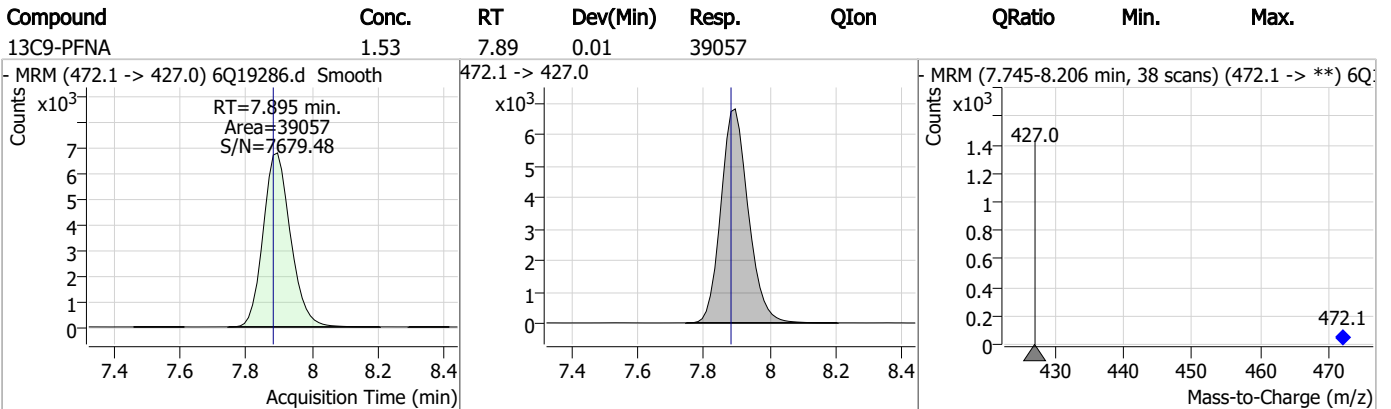
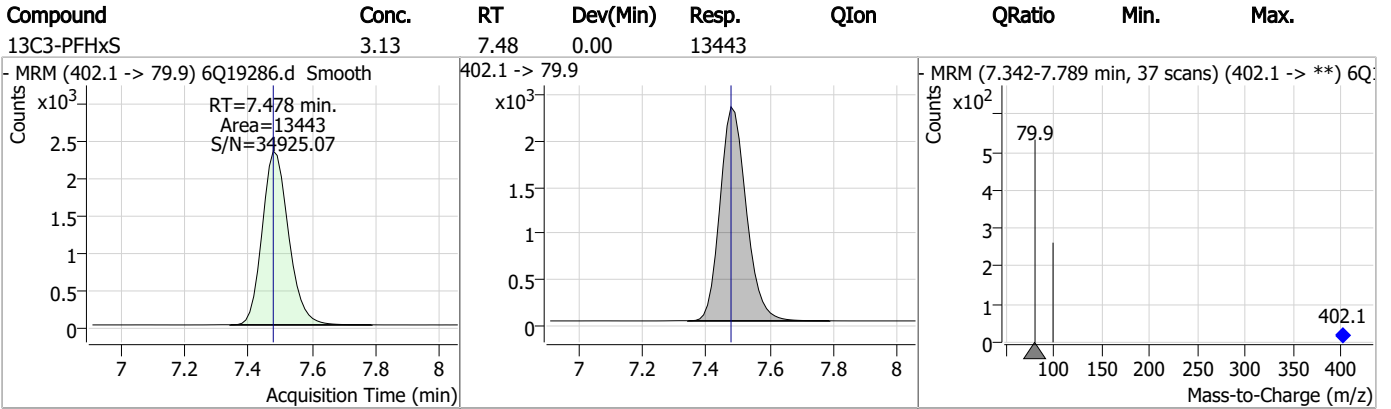
7.1.2

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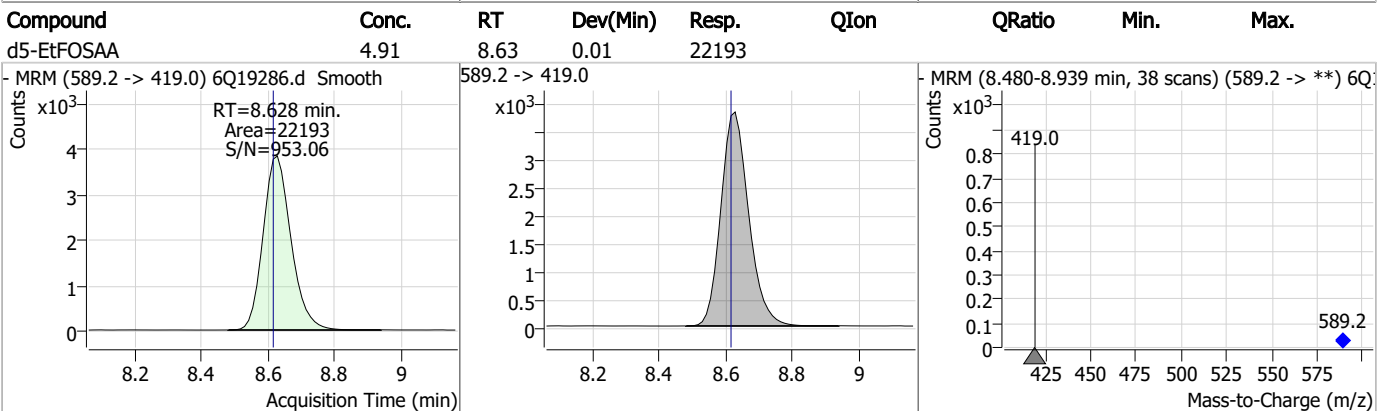
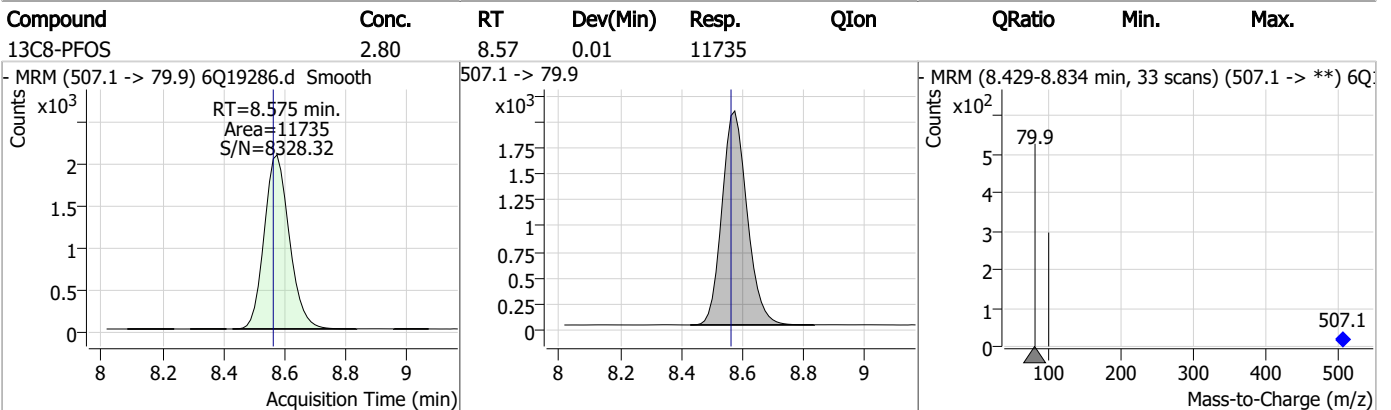
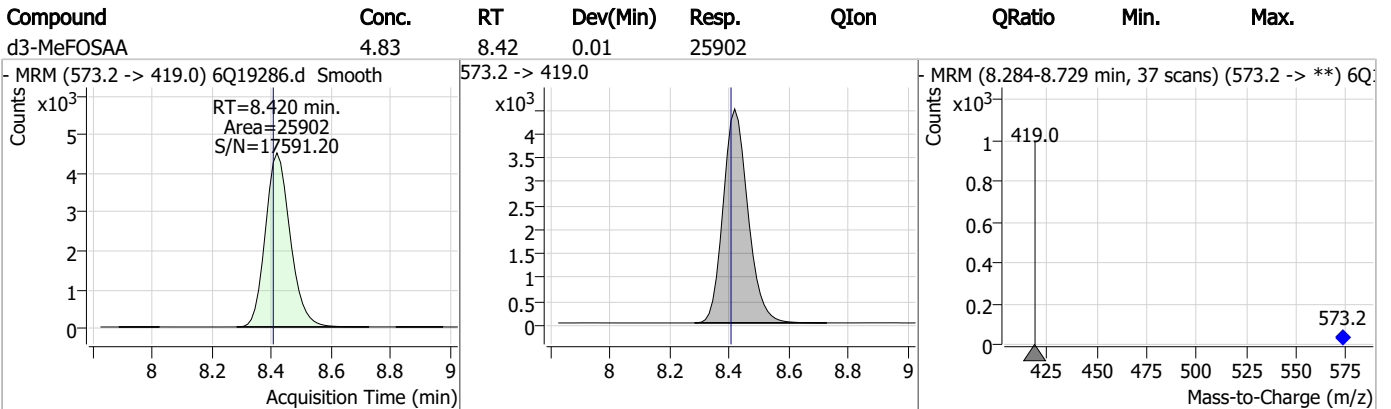
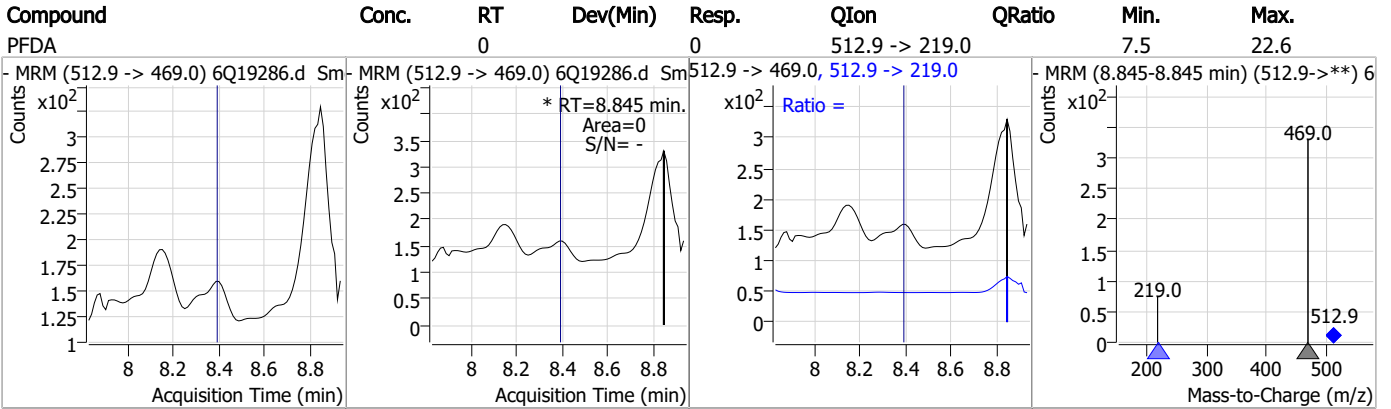
Perfluorinated Compounds by LC/MS/MS



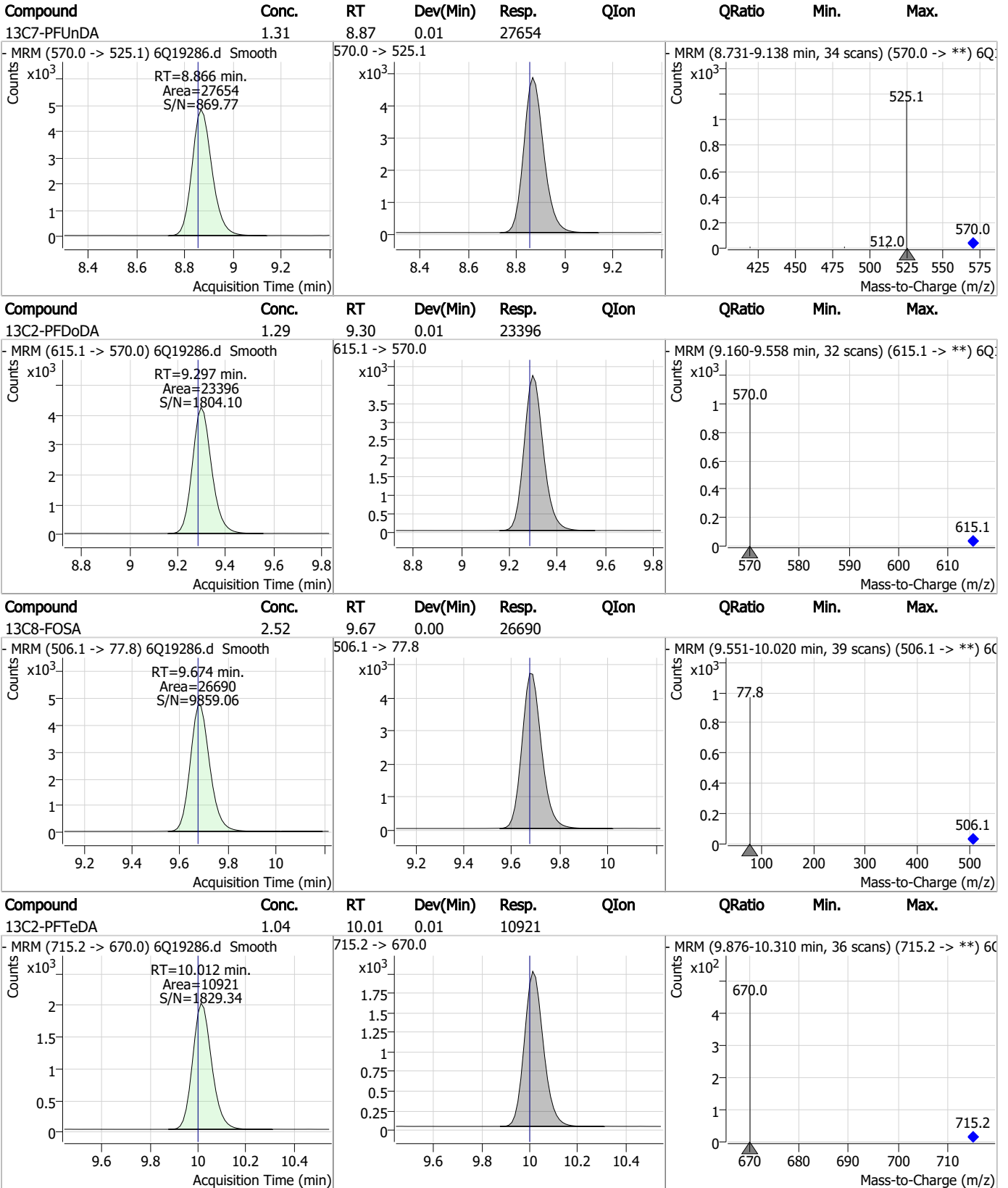
Perfluorinated Compounds by LC/MS/MS



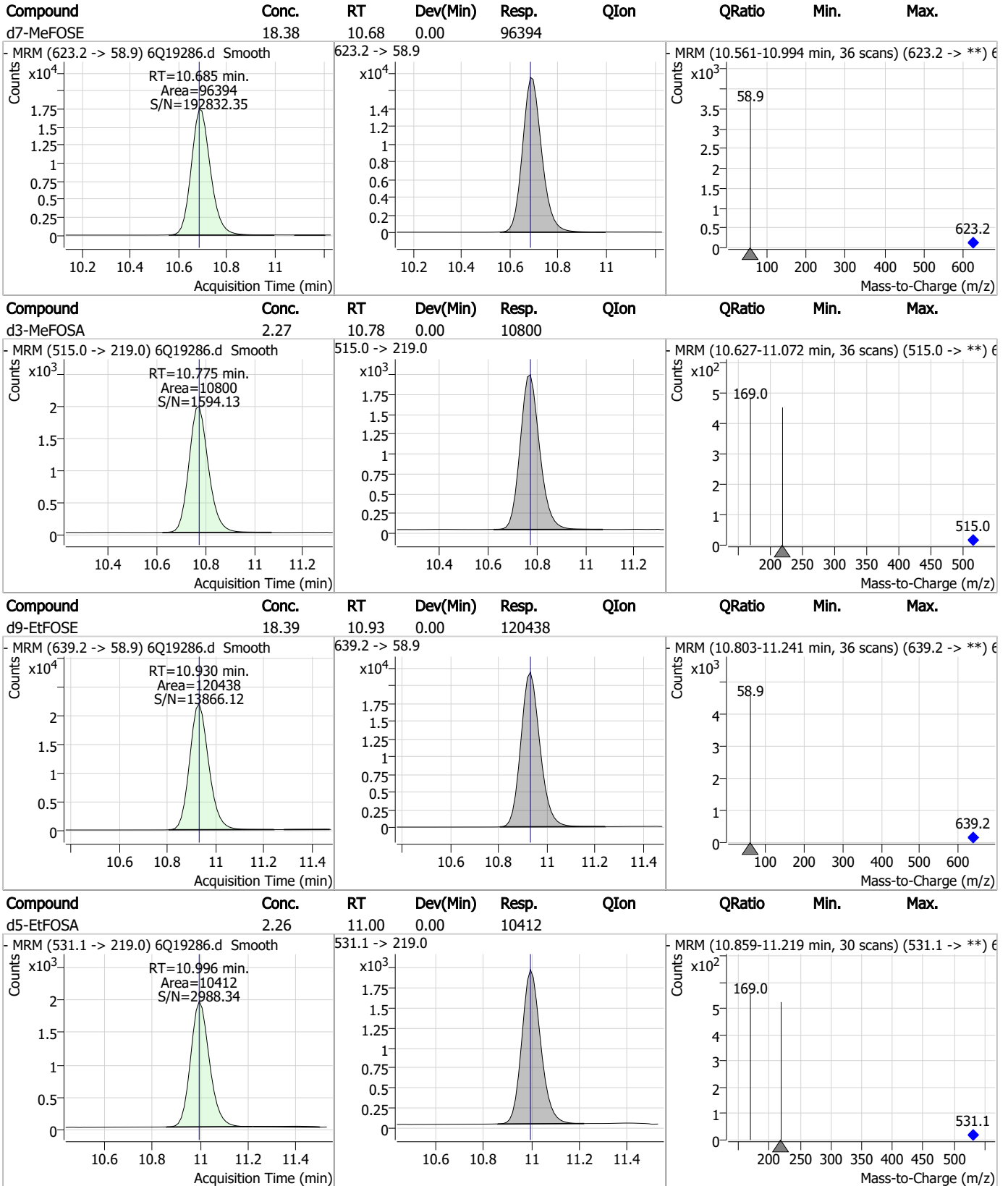
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.2

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19287.d
Operator : marthav
Acq. Method : 1633full.m
Acq. Date-Time : 6/13/2023 2:45:34 AM
Sample Name : FC6699-3
Vial : P2-D3
DA Method File : 1633_061223_S6Q287.quantmethod.xml
Batch Name : s6q287.batch.bin
Sample Information : OP97275,S6Q287,560,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	95445	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	50629	5.00 µg/L	0.000
M5-PFHxA	5.804	318.0 -> 273.0	53030	2.50 µg/L	0.012
M4-PFHpA	6.719	367.1 -> 322.0	50436	2.50 µg/L	0.012
M8-PFOA	7.352	421.1 -> 376.0	83254	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	39623	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	21331	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	25940	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	21548	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	10559	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	25635	2.50 µg/L	0.000
M3-PFBS	5.759	302.1 -> 79.9	20160	2.50 µg/L	0.012
M3-PFHxS	7.478	402.1 -> 79.9	12620	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	11616	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	3412	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	4747	5.00 µg/L	0.000
M2-8:2FTS	8.175	529.1 -> 80.9	4203	5.00 µg/L	0.012
M3-MeFOSAA	8.420	573.2 -> 419.0	27766	5.00 µg/L	0.012
M3-HFPO-DA	6.181	286.9 -> 168.9	34787	10.00 µg/L	0.012
M5-EtFOSAA	8.628	589.2 -> 419.0	22649	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	92938	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	125776	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	10519	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	10312	2.50 µg/L	0.000
13C4-PFOS	8.576	502.8 -> 79.9	14360	2.50 µg/L	0.012
13C3-PFBA	3.101	216.0 -> 172.0	58402	5.00 µg/L	0.012
18O2-PFHxS	7.477	403.0 -> 83.9	8332	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	77632	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	27580	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	43713	1.25 µg/L	0.013
13C2-PFHxA	5.805	315.1 -> 270.0	45846	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3412	6.65 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 133.0%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4747	6.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.1%		
13C2-8:2FTS	8.175	529.1 -> 80.9	4203	5.69 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.8%		
13C2-PFDoDA	9.297	615.1 -> 570.0	21548	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.5%		
13C2-PFTeDA	10.012	715.2 -> 670.0	10559	0.99 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.9%		
13C3-PFBS	5.759	302.1 -> 79.9	20160	2.86 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 114.5%		
13C3-PFHxS	7.478	402.1 -> 79.9	12620	2.85 µg/L	0.000

7.1.3
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 114.1%		
13C4-PFBA	3.097	216.8 -> 171.9	95445	6.96 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 69.6%		
13C4-PFHpA	6.719	367.1 -> 322.0	50436	2.74 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.5%		
13C5-PFHxA	5.804	318.0 -> 273.0	53030	2.68 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.0%		
13C5-PFPeA	4.560	268.3 -> 223.0	50629	5.72 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.3%		
13C6-PFDA	8.387	519.1 -> 474.1	21331	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 112.1%		
13C7-PFUnDA	8.866	570.0 -> 525.1	25940	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C8-FOSA	9.674	506.1 -> 77.8	25635	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C8-PFOA	7.352	421.1 -> 376.0	83254	2.87 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 115.0%		
13C8-PFOS	8.575	507.1 -> 79.9	11616	2.76 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.5%		
13C9-PFNA	7.895	472.1 -> 427.0	39623	1.49 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 118.8%		
d3-MeFOSAA	8.420	573.2 -> 419.0	27766	5.15 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C3-HFPO-DA	6.181	286.9 -> 168.9	34787	11.07 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 110.7%		
d3-MeFOSA	10.775	515.0 -> 219.0	10312	2.16 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 86.4%		
d5-EtFOSAA	8.628	589.2 -> 419.0	22649	4.98 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.7%		
d7-MeFOSE	10.685	623.2 -> 58.9	92938	17.63 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 70.5%		
d9-EtFOSE	10.930	639.2 -> 58.9	125776	19.11 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 76.4%		
d5-EtFOSA	10.996	531.1 -> 219.0	10519	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.0%		
Target Compounds					QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	-	427.1 -> 407.0 427.1 -> 80.9	-	N.D.	
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.	
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	9.697	613.1 -> 569.0 613.1 -> 319.0	0 0	µg/L m	1
PFDS	-	599.0 -> 79.9	-	N.D.	

7.1.3

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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	5.807	449.0 -> 98.9	1489	0.07	µg/L	100
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	80	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.861	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	0	N.D.		
		498.9 -> 79.9				
PFPeA	4.563	498.9 -> 98.8	3018	0.20	µg/L	100
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.1.3

7



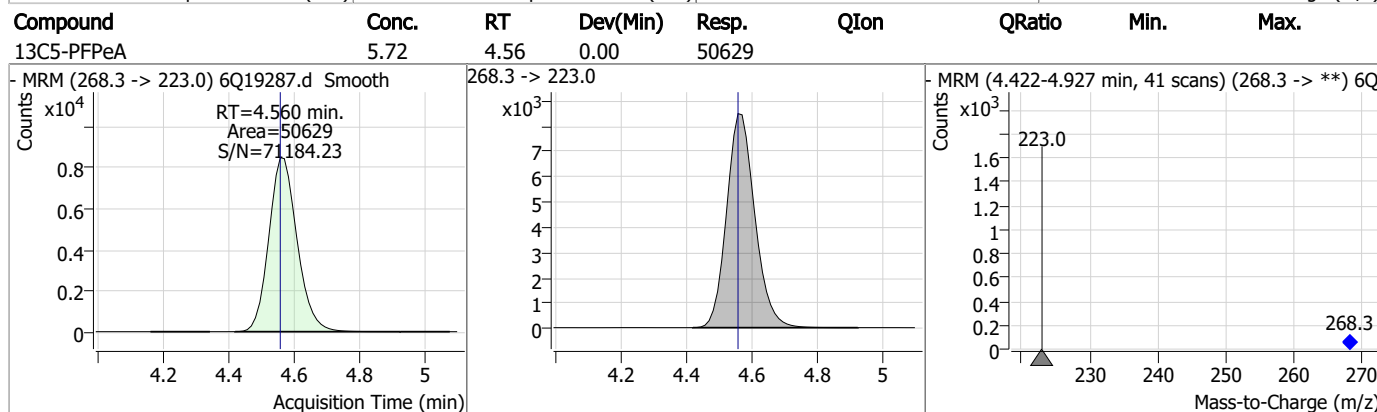
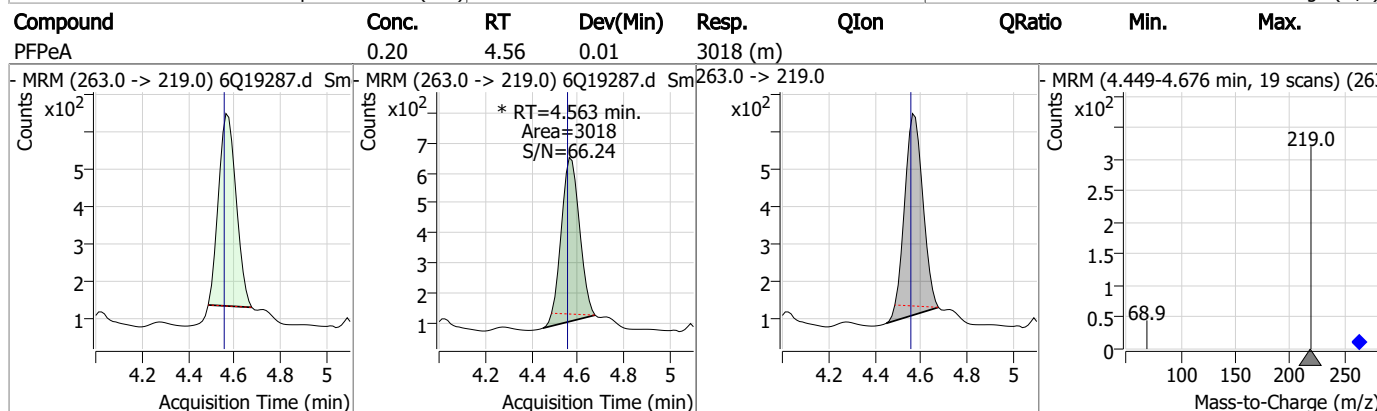
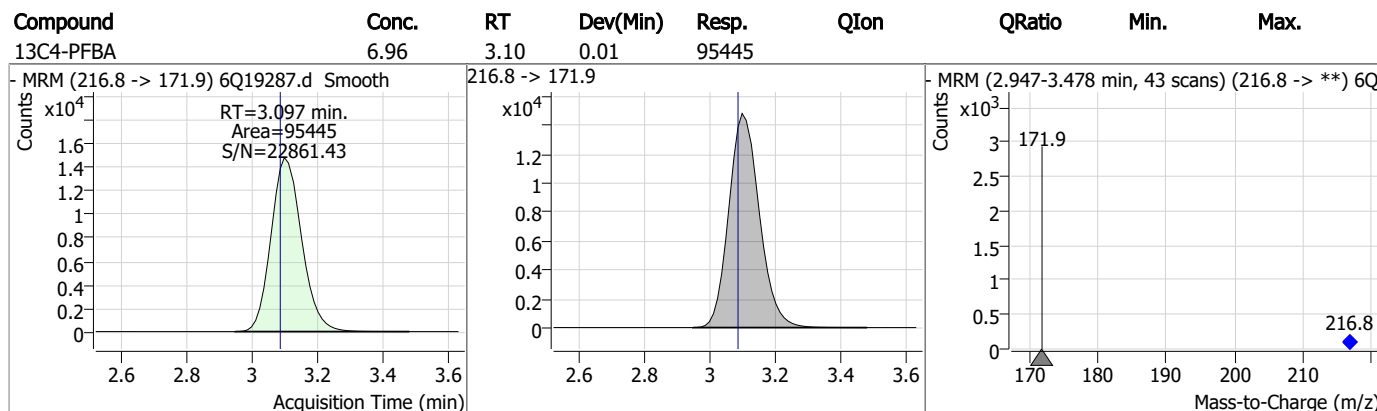
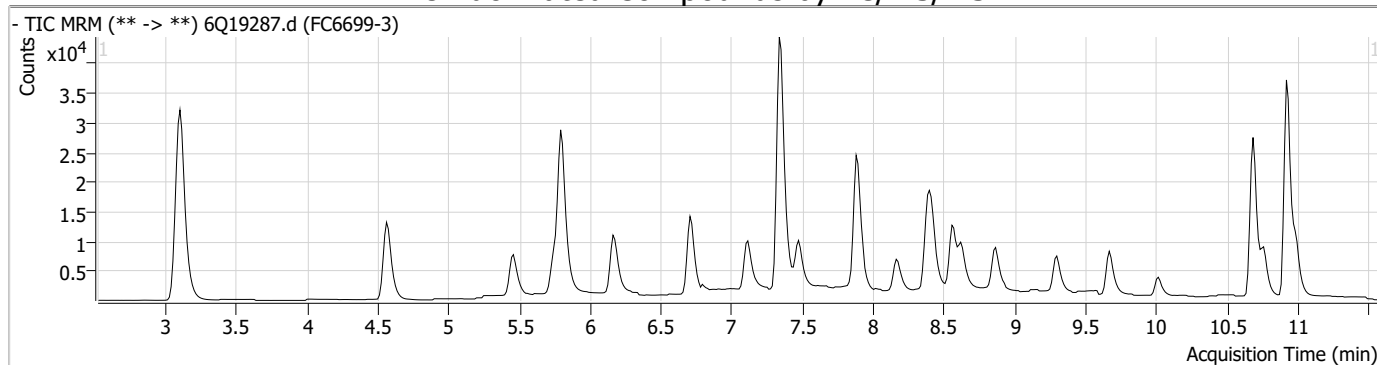
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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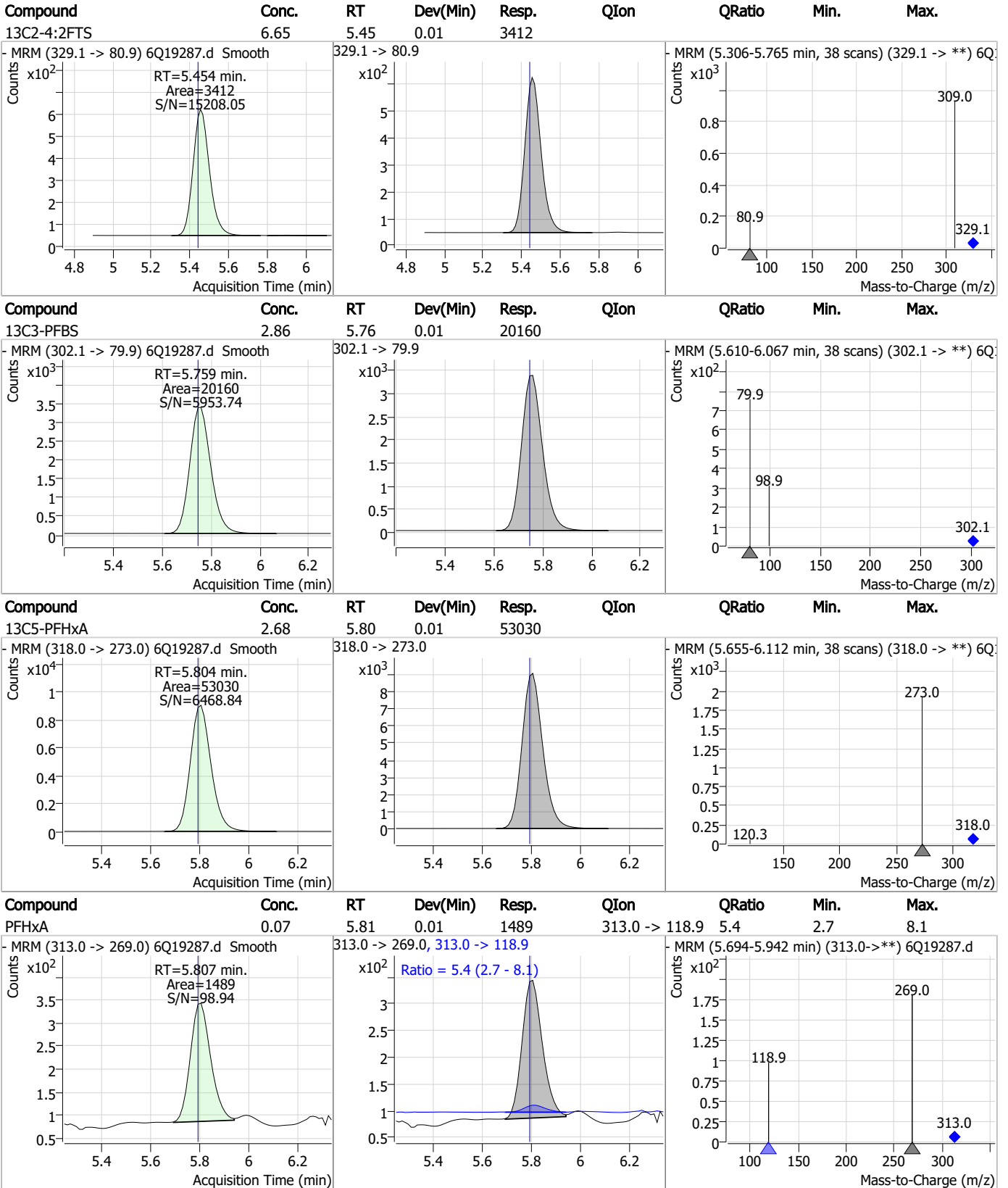
7.1.3
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

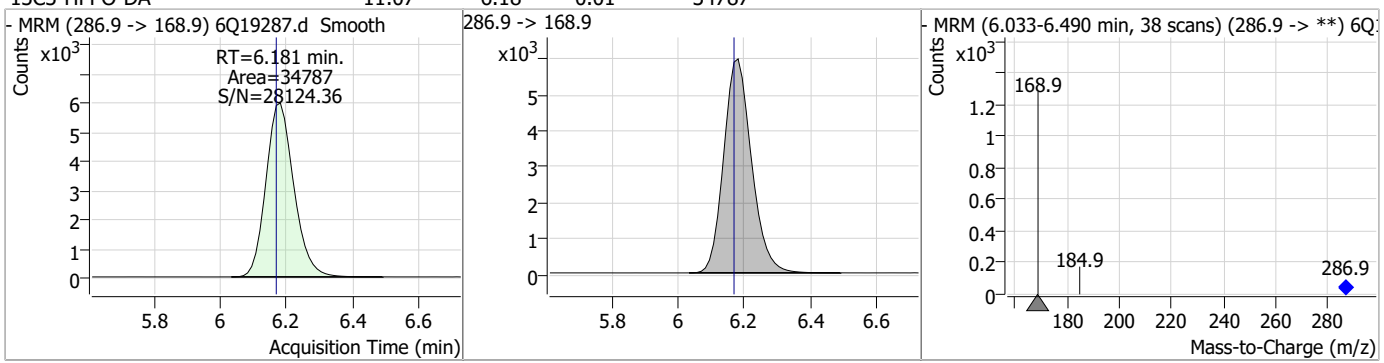


7.1.3

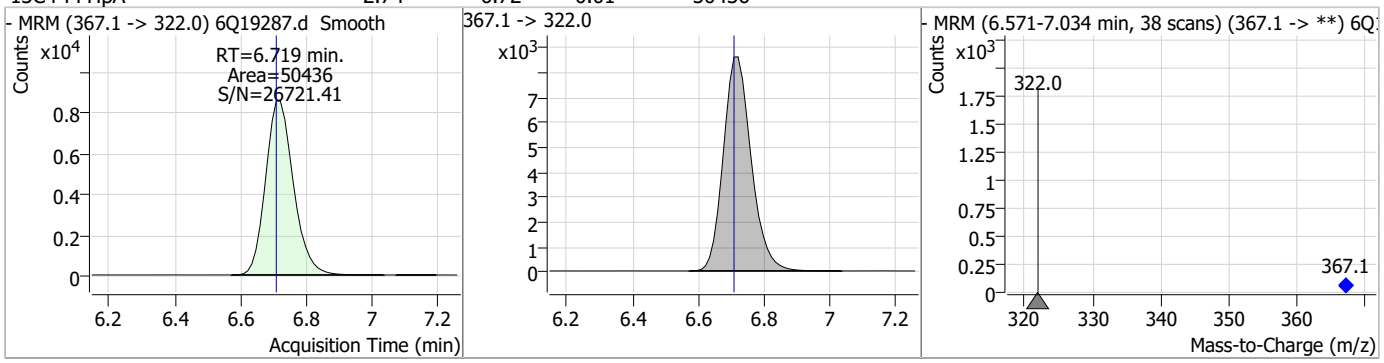
7

Perfluorinated Compounds by LC/MS/MS

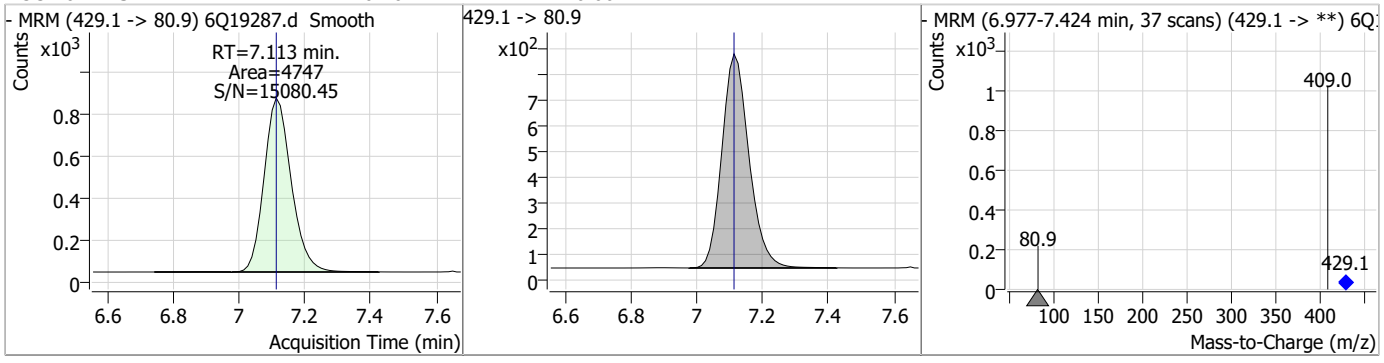
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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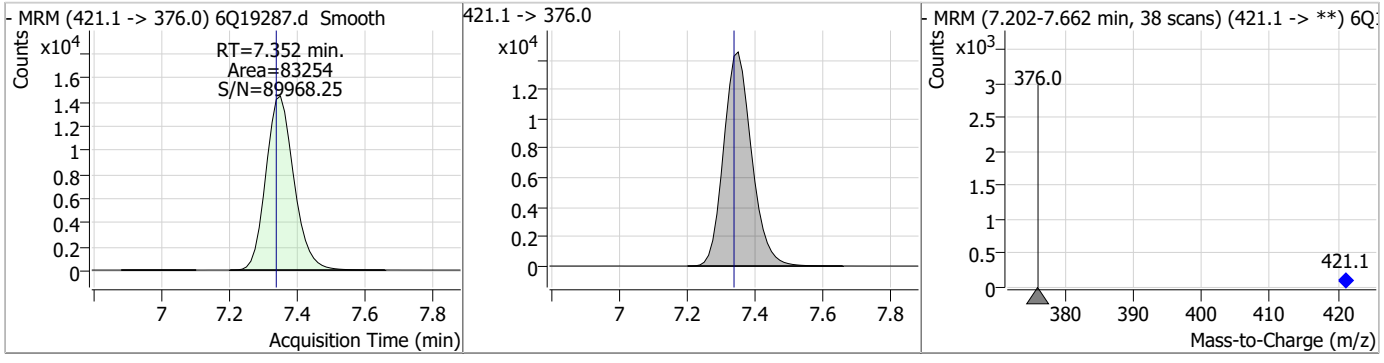
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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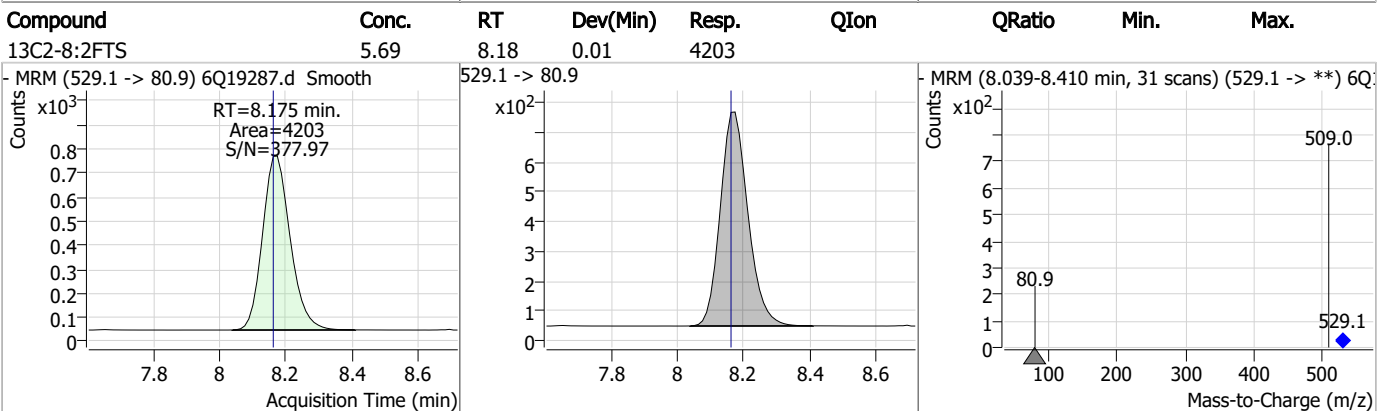
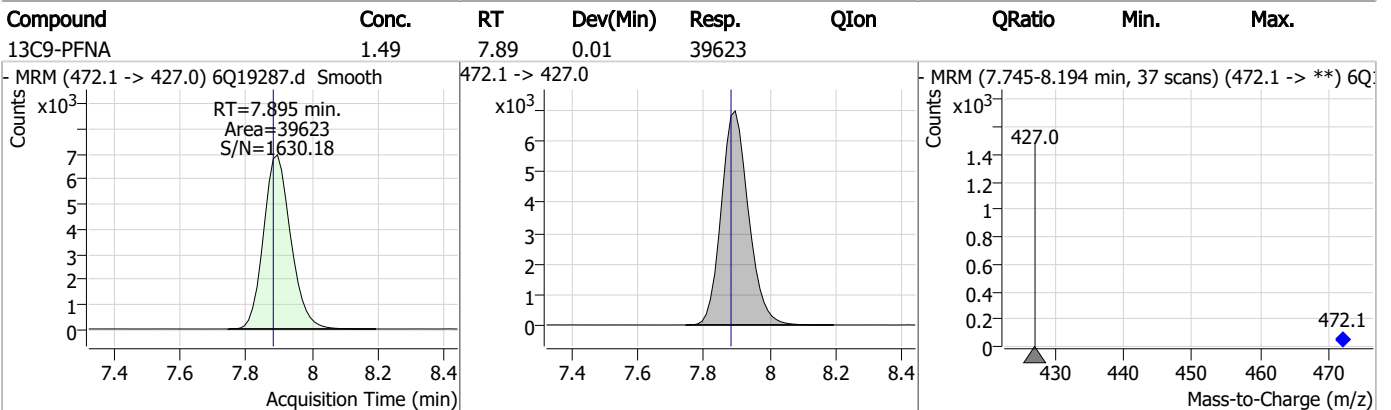
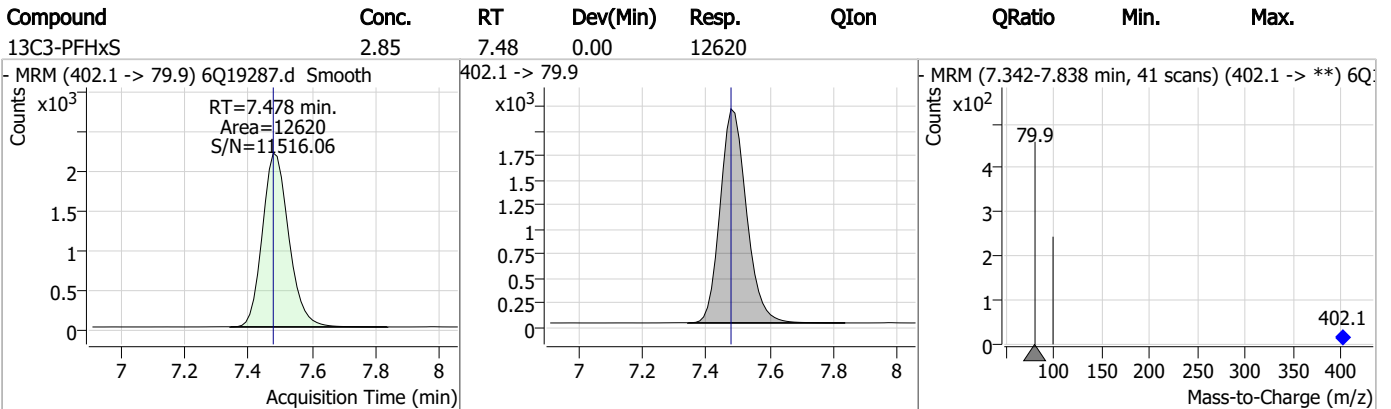
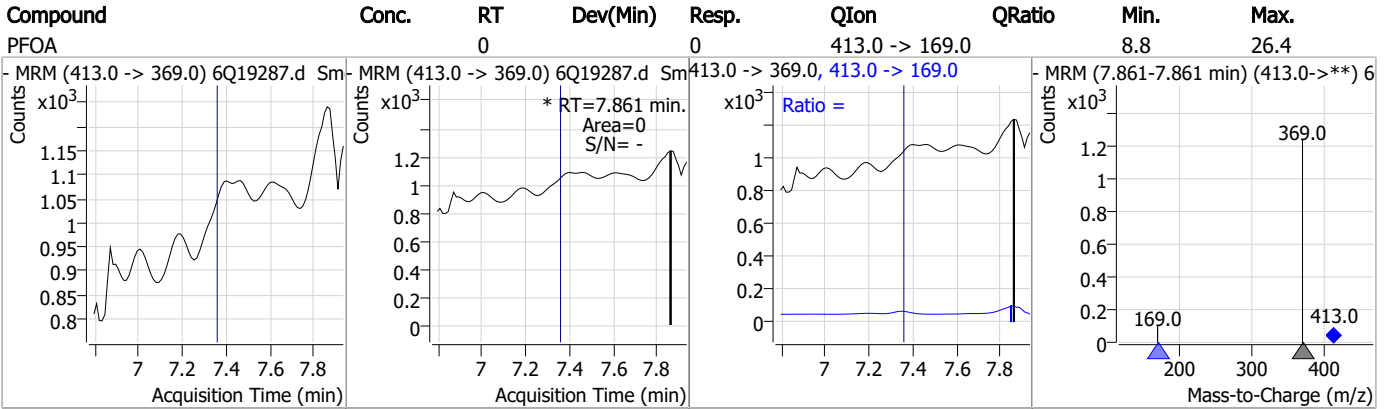


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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7.1.3
7

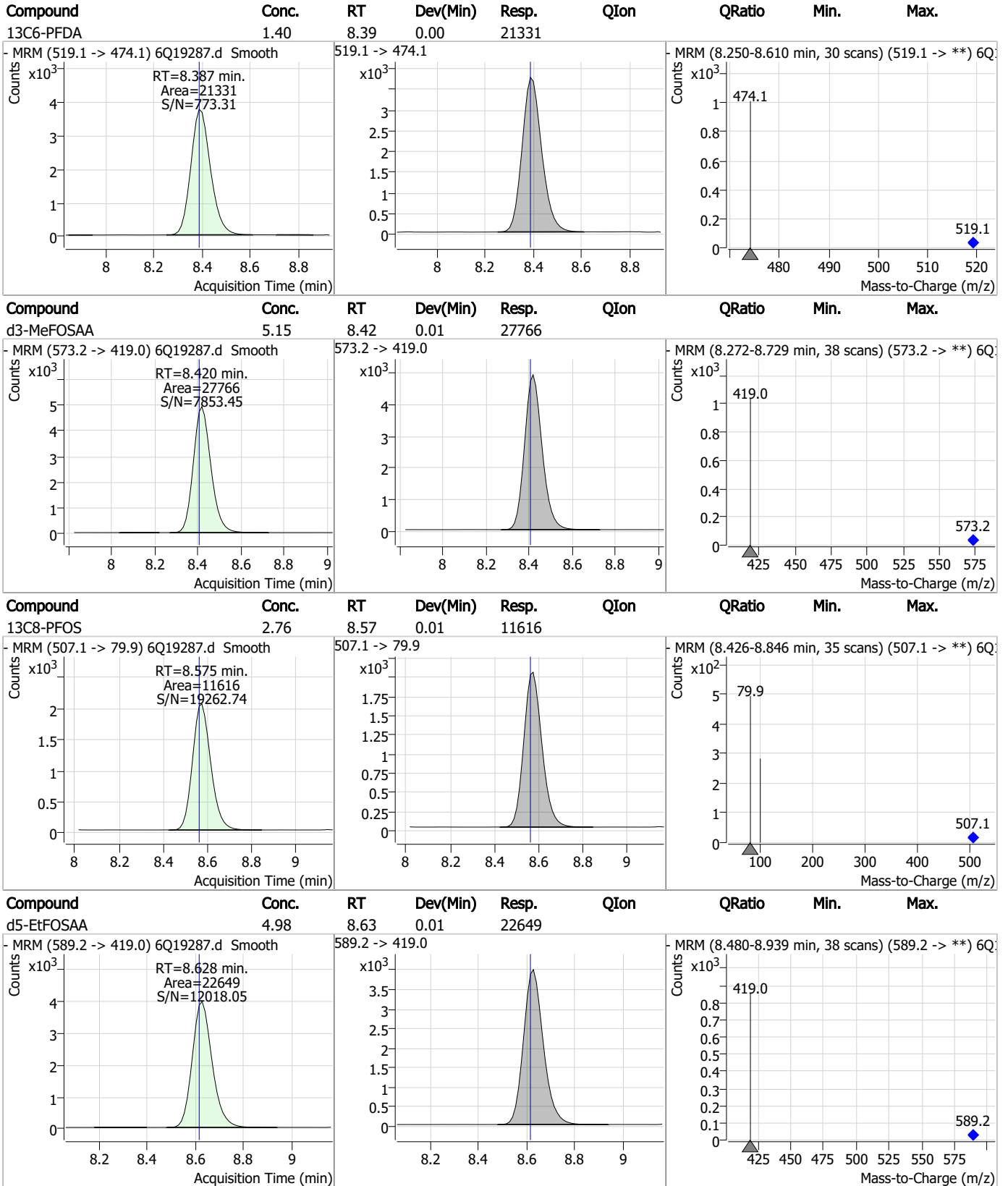
Perfluorinated Compounds by LC/MS/MS



7.1.3

7

Perfluorinated Compounds by LC/MS/MS

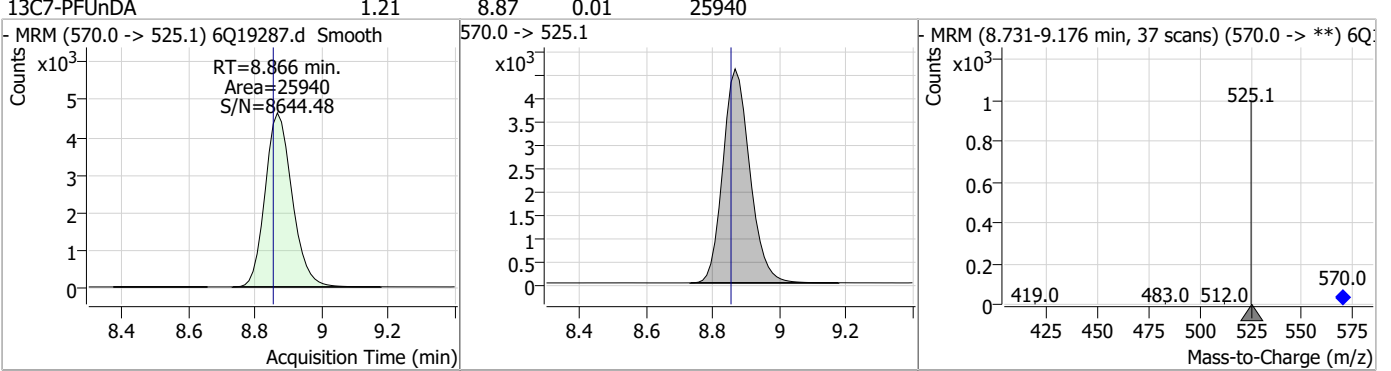


7.1.3

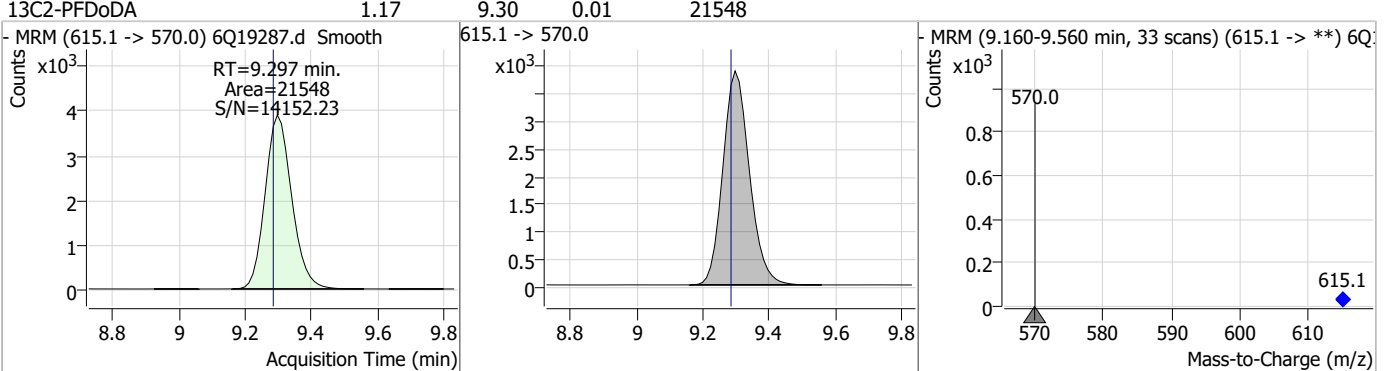
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Perfluorinated Compounds by LC/MS/MS

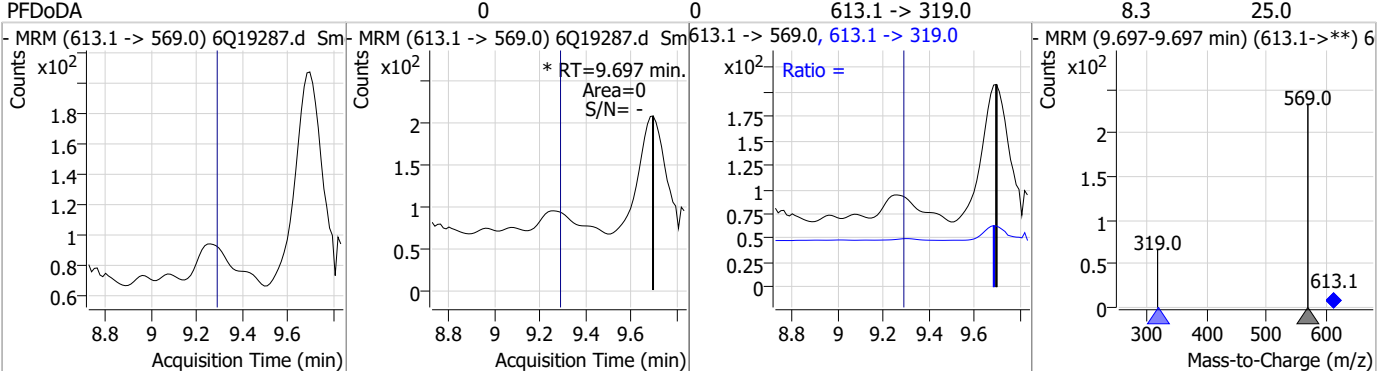
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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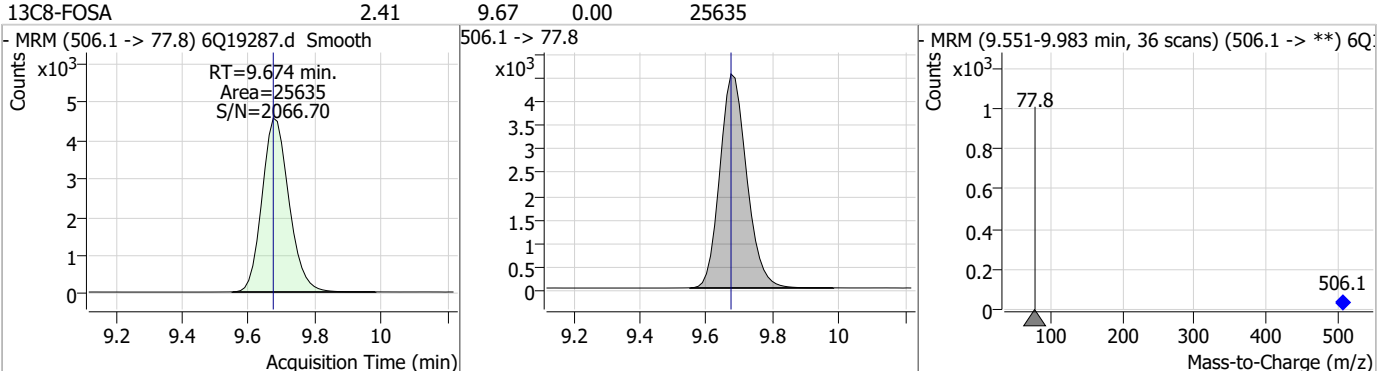
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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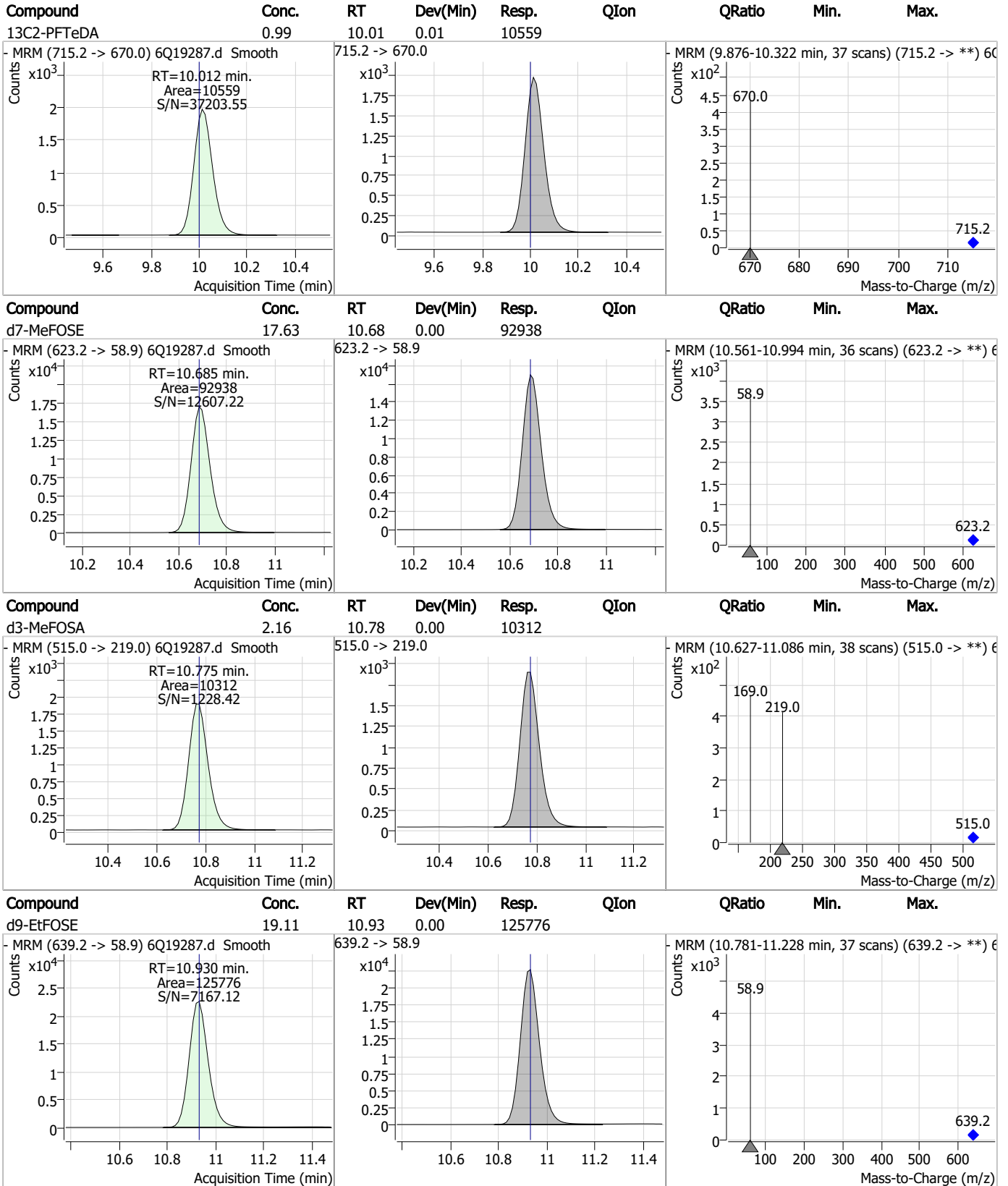
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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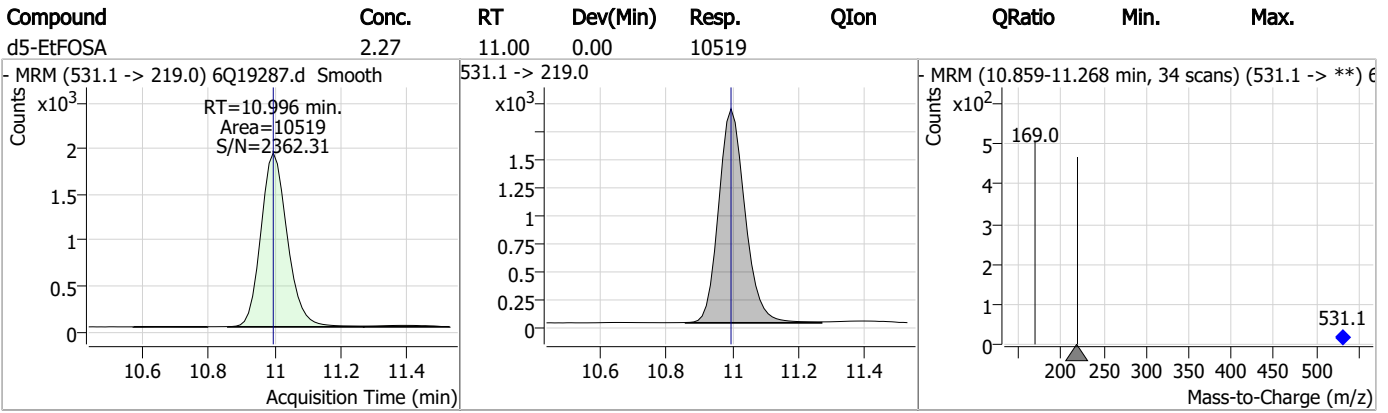
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.3
7

Manual Integration Approval Summary

Sample Number: FC6699-3 Method: EPA DRAFT 1633
Lab FileID: 6Q19287.D Analyst approved: 06/13/23 11:44 Martha Valls
Injection Time: 06/13/23 02:45 Supervisor approved: 06/13/23 13:43 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoropentanoic acid	2706-90-3		4.56	Poor instrument integration

7.1.3.1

7

Perfluorinated Compounds by LC/MS/MS

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

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

7.2.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C4-PFBA	3.097	216.8 -> 171.9	141084	10.54 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C4-PFHpA	6.707	367.1 -> 322.0	46726	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C5-PFHxA	5.792	318.0 -> 273.0	51160	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFPeA	4.560	268.3 -> 223.0	46295	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C6-PFDA	8.387	519.1 -> 474.1	20607	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C7-PFUnDA	8.866	570.0 -> 525.1	27404	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C8-FOSA	9.674	506.1 -> 77.8	20581	1.90 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.9%	
13C8-PFOA	7.352	421.1 -> 376.0	73643	2.57 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C8-PFOS	8.575	507.1 -> 79.9	10849	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C9-PFNA	7.895	472.1 -> 427.0	35825	1.45 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.7%	
d3-MeFOSAA	8.420	573.2 -> 419.0	28443	5.18 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	31001	9.49 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.9%	
d3-MeFOSA	10.775	515.0 -> 219.0	8821	1.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 72.5%	
d5-EtFOSAA	8.628	589.2 -> 419.0	21430	4.62 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.5%	
d7-MeFOSE	10.685	623.2 -> 58.9	78190	14.55 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 58.2%	
d9-EtFOSE	10.930	639.2 -> 58.9	114946	17.12 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 68.5%	
d5-EtFOSA	10.996	531.1 -> 219.0	9586	2.03 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.3%	
Target Compounds					QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	9.697	613.1 -> 569.0	0	µg/L	m
		613.1 -> 319.0	0		1
PFDS	-	599.0 -> 79.9	-	N.D.	

7.2.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.787	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.1
7

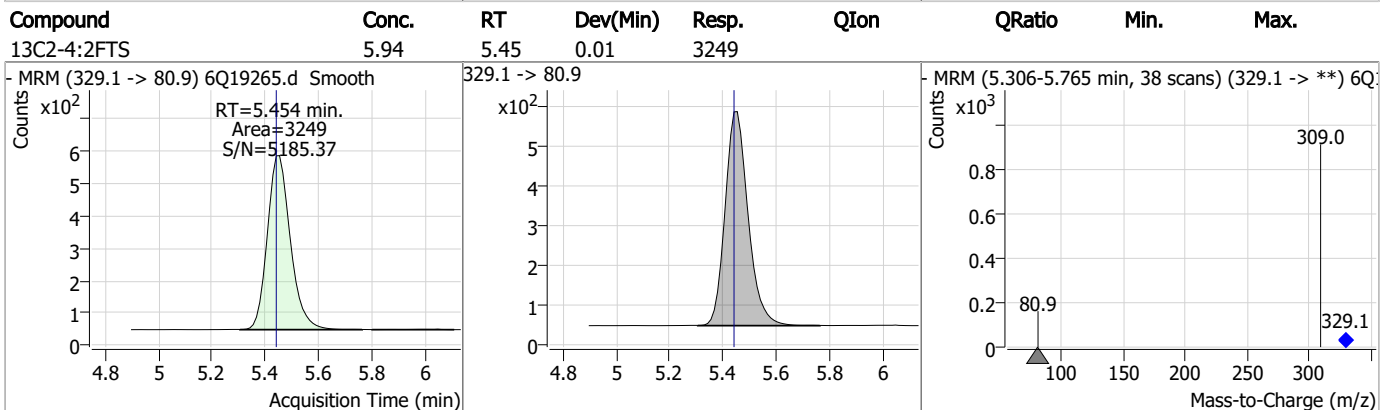
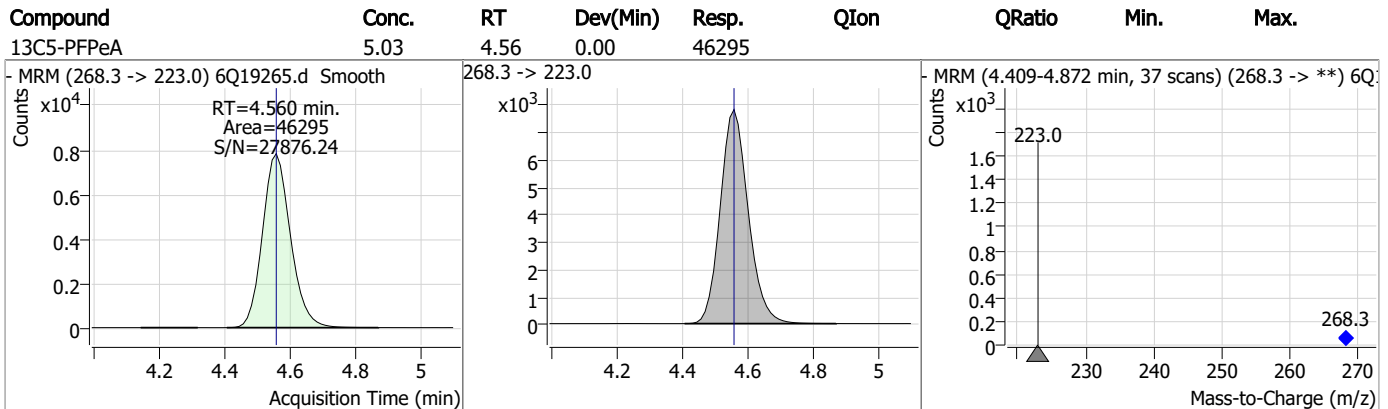
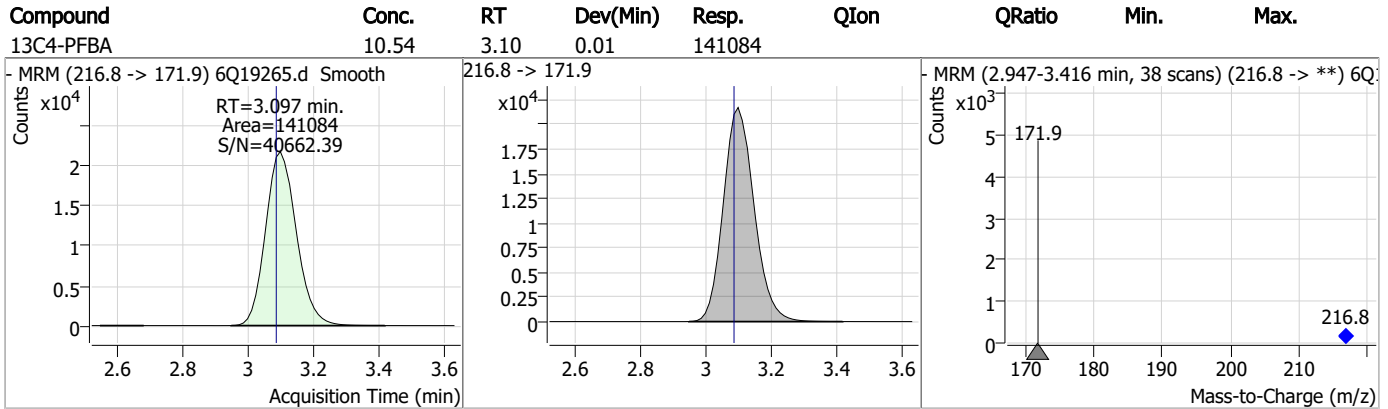
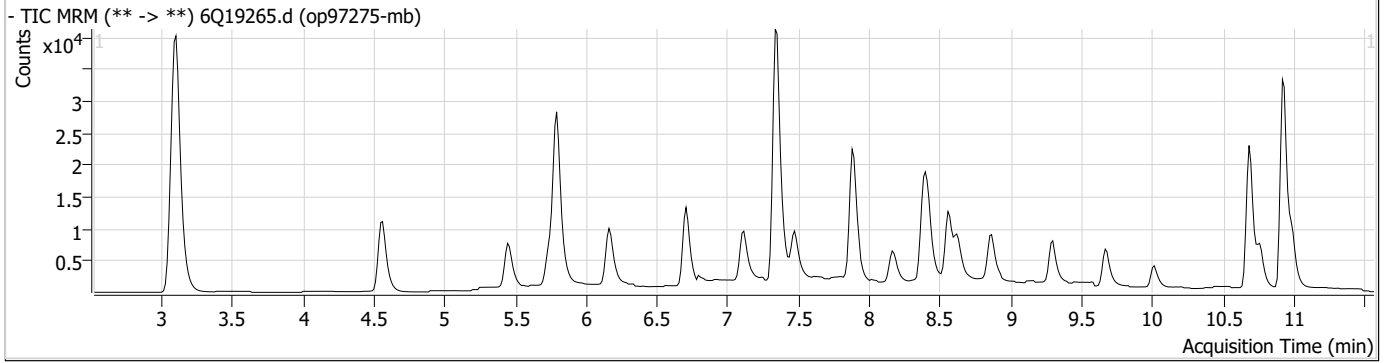
Perfluorinated Compounds by LC/MS/MS

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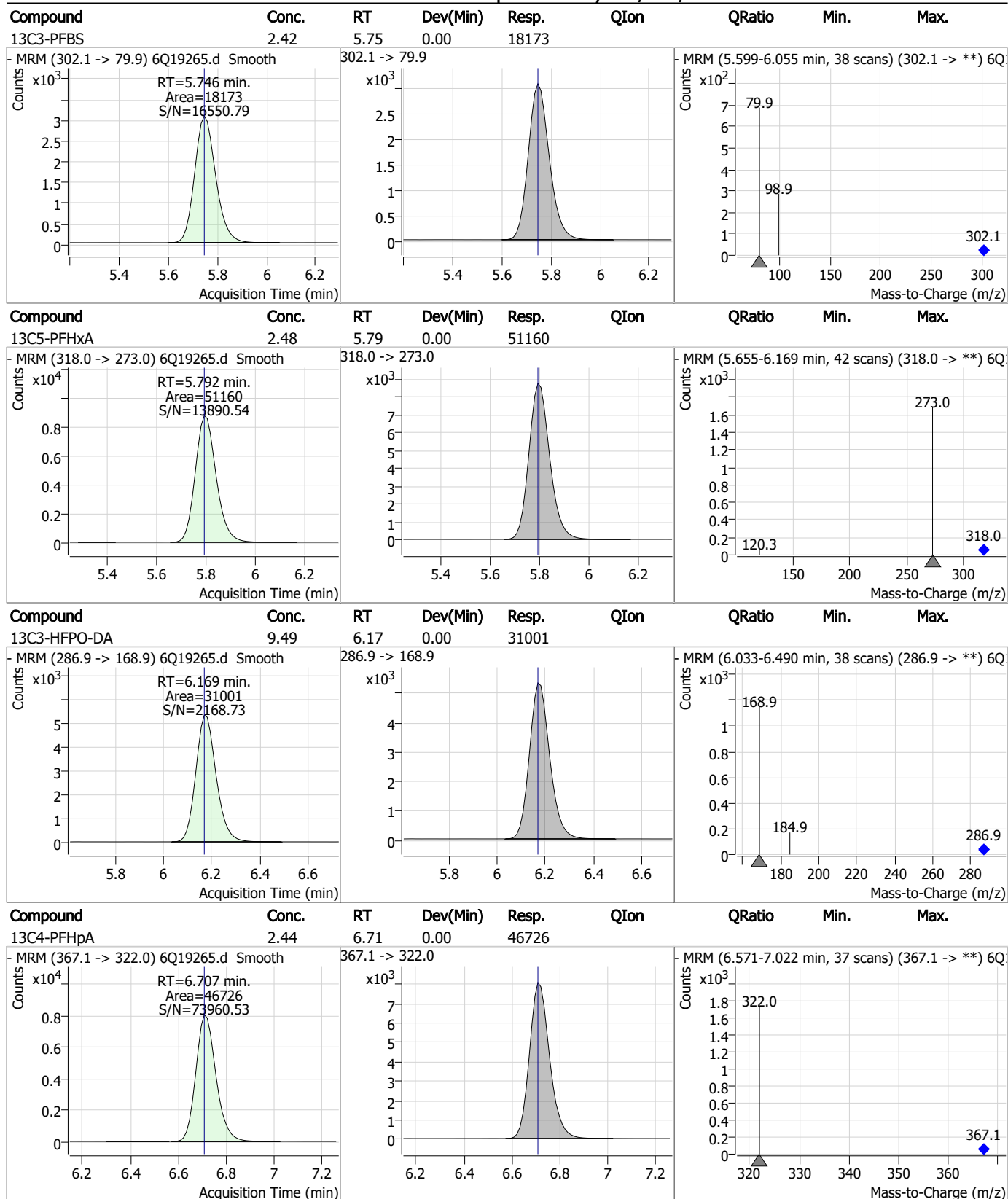
7.2.1

7

Perfluorinated Compounds by LC/MS/MS



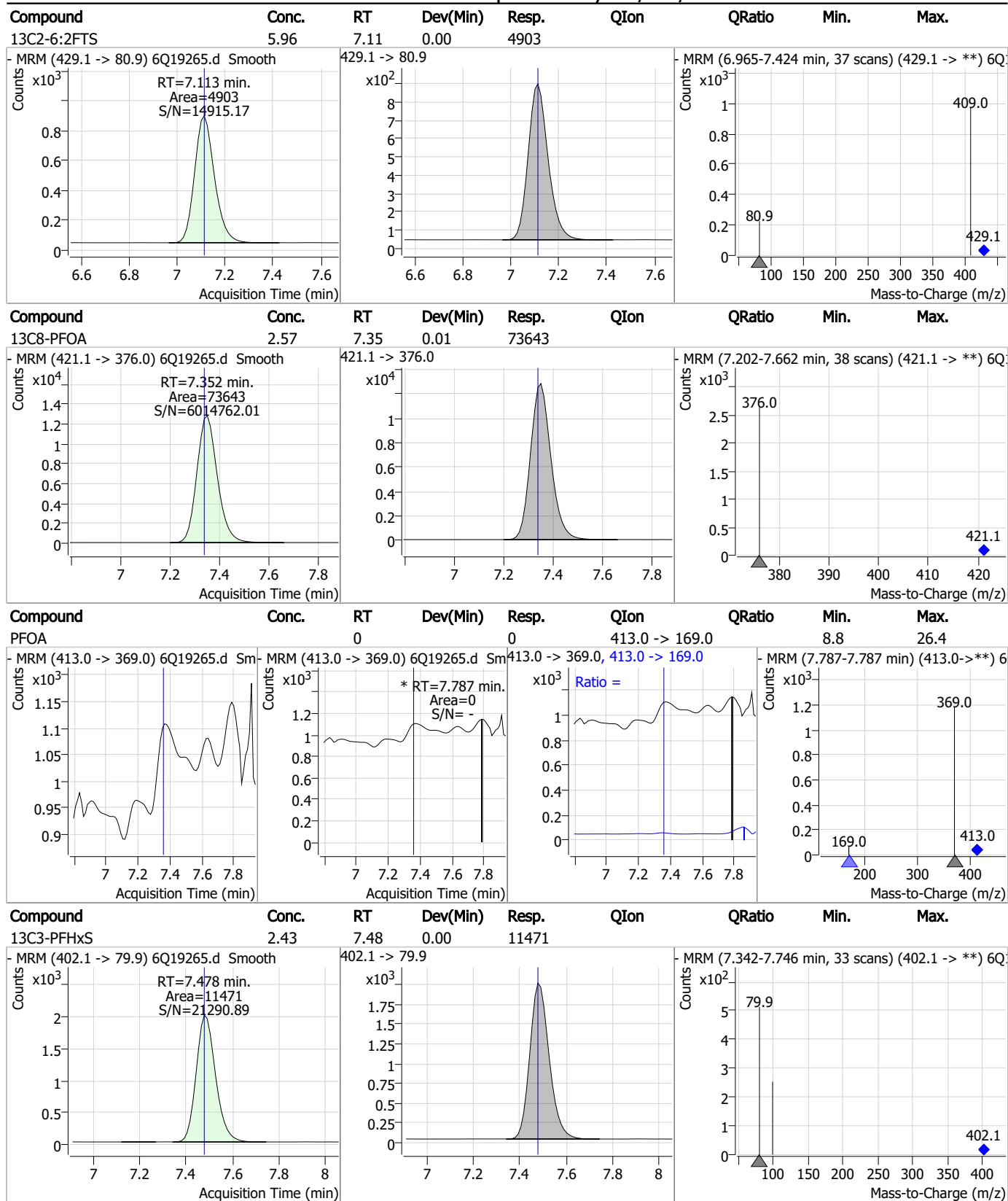
Perfluorinated Compounds by LC/MS/MS



7.2.1
7



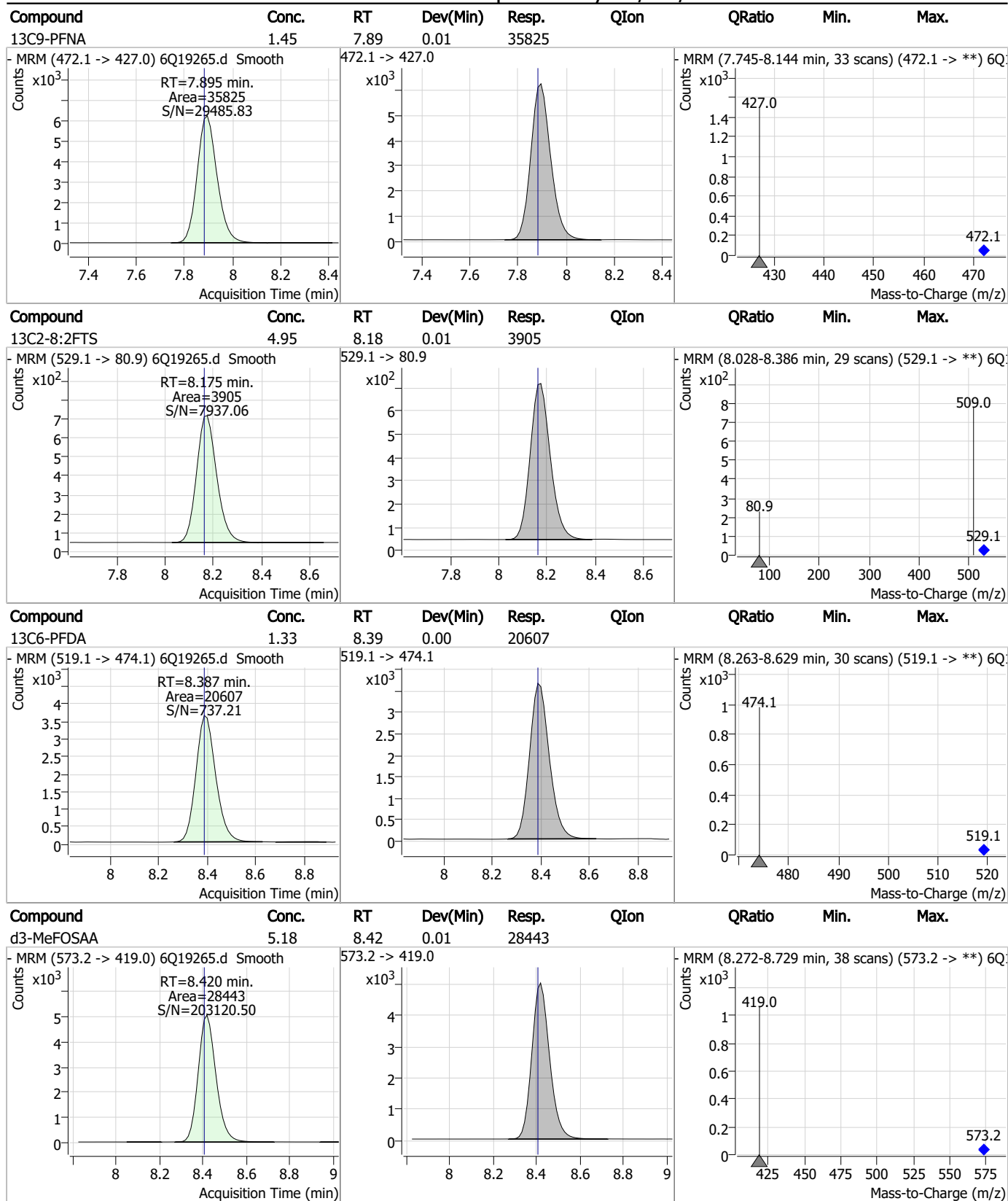
Perfluorinated Compounds by LC/MS/MS



7.2.1
7



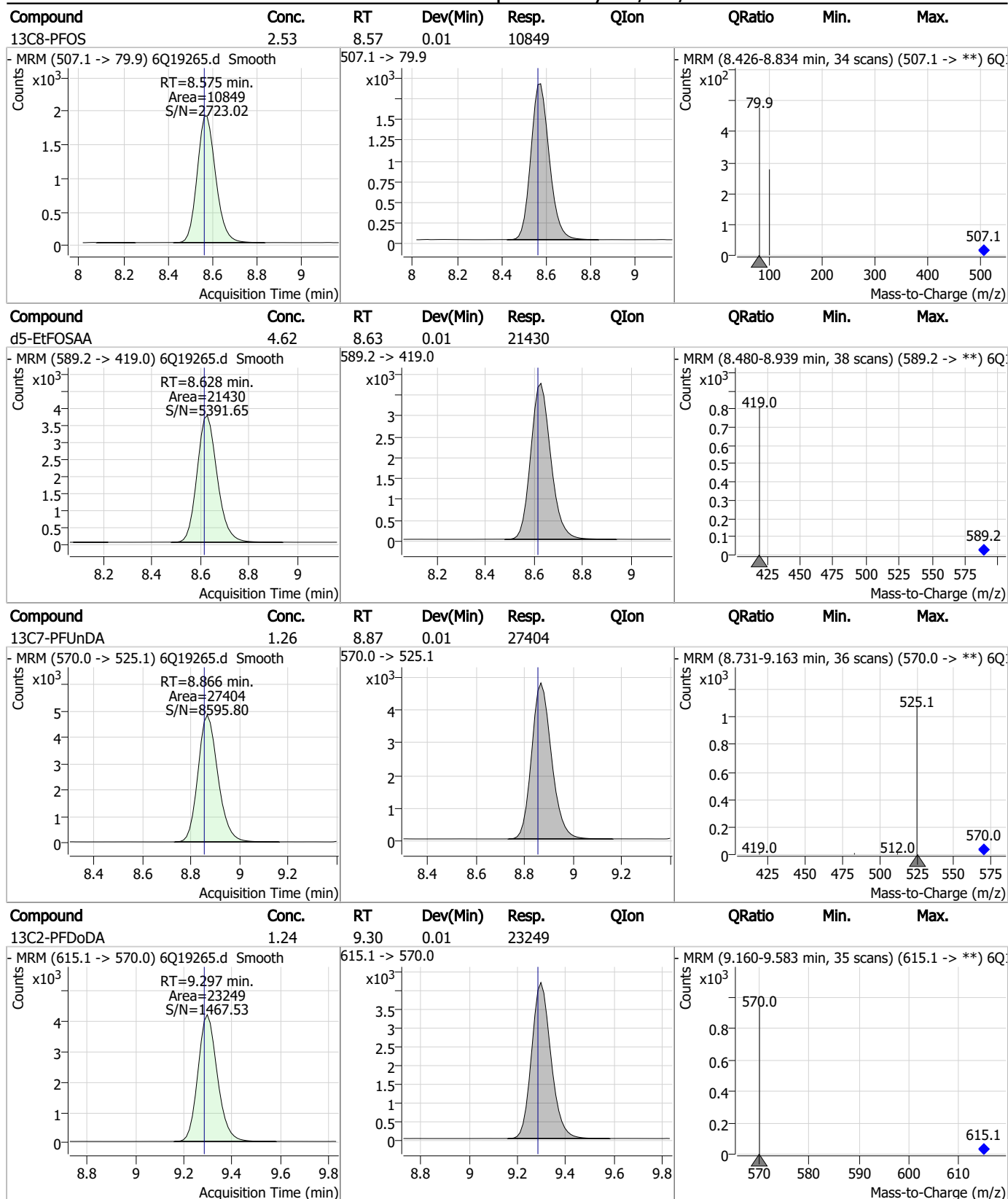
Perfluorinated Compounds by LC/MS/MS



7.2.1
7



Perfluorinated Compounds by LC/MS/MS

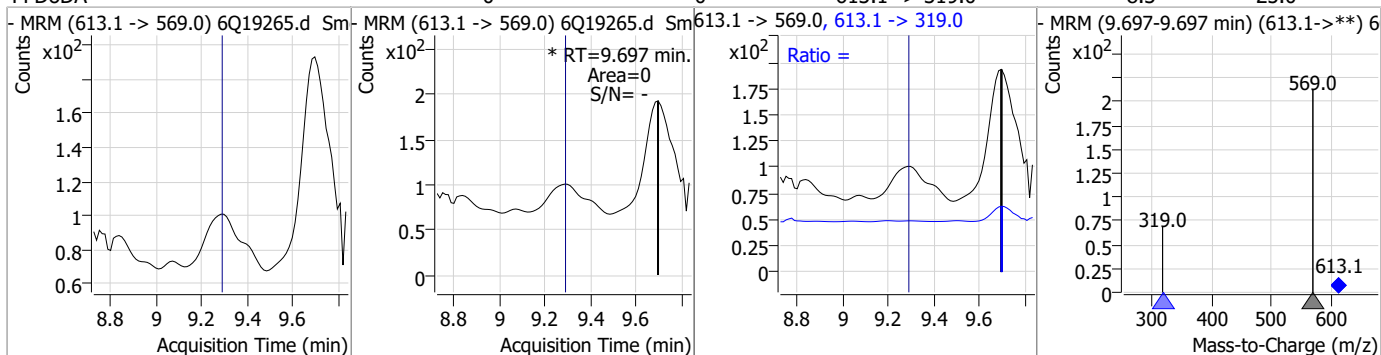


7.2.1

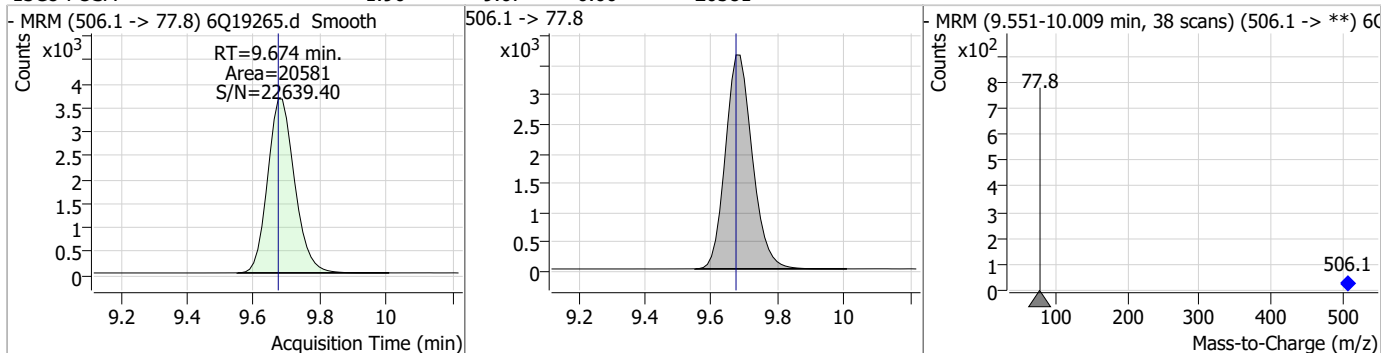
7

Perfluorinated Compounds by LC/MS/MS

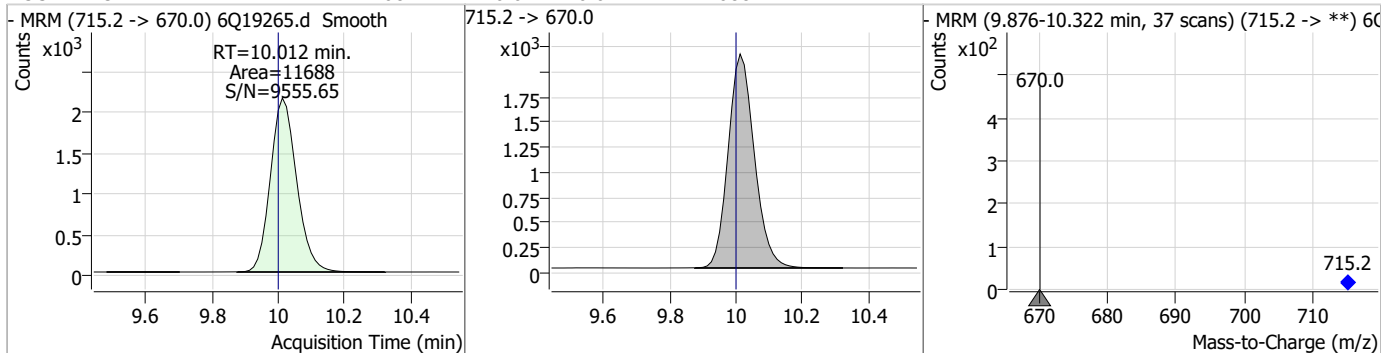
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DA	0	0		0	613.1 -> 319.0		8.3	25.0



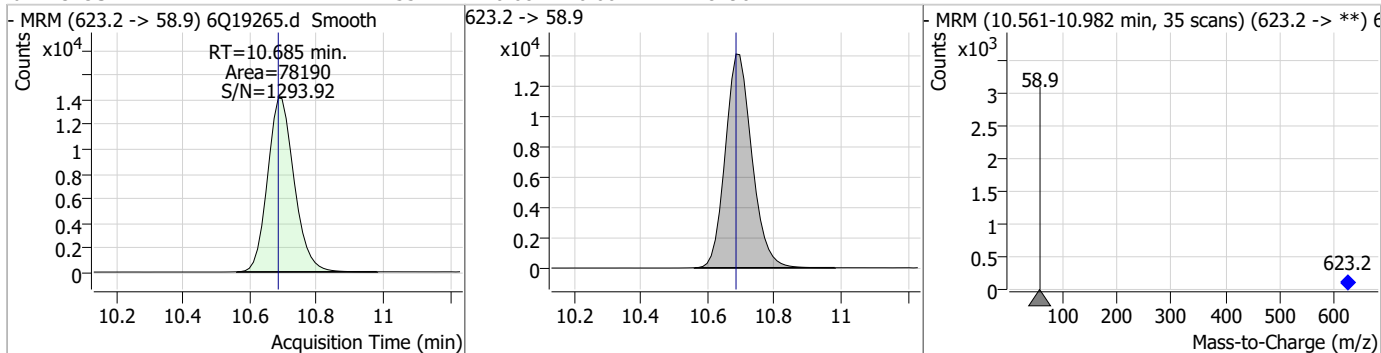
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	1.90	9.67	0.00	20581				



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

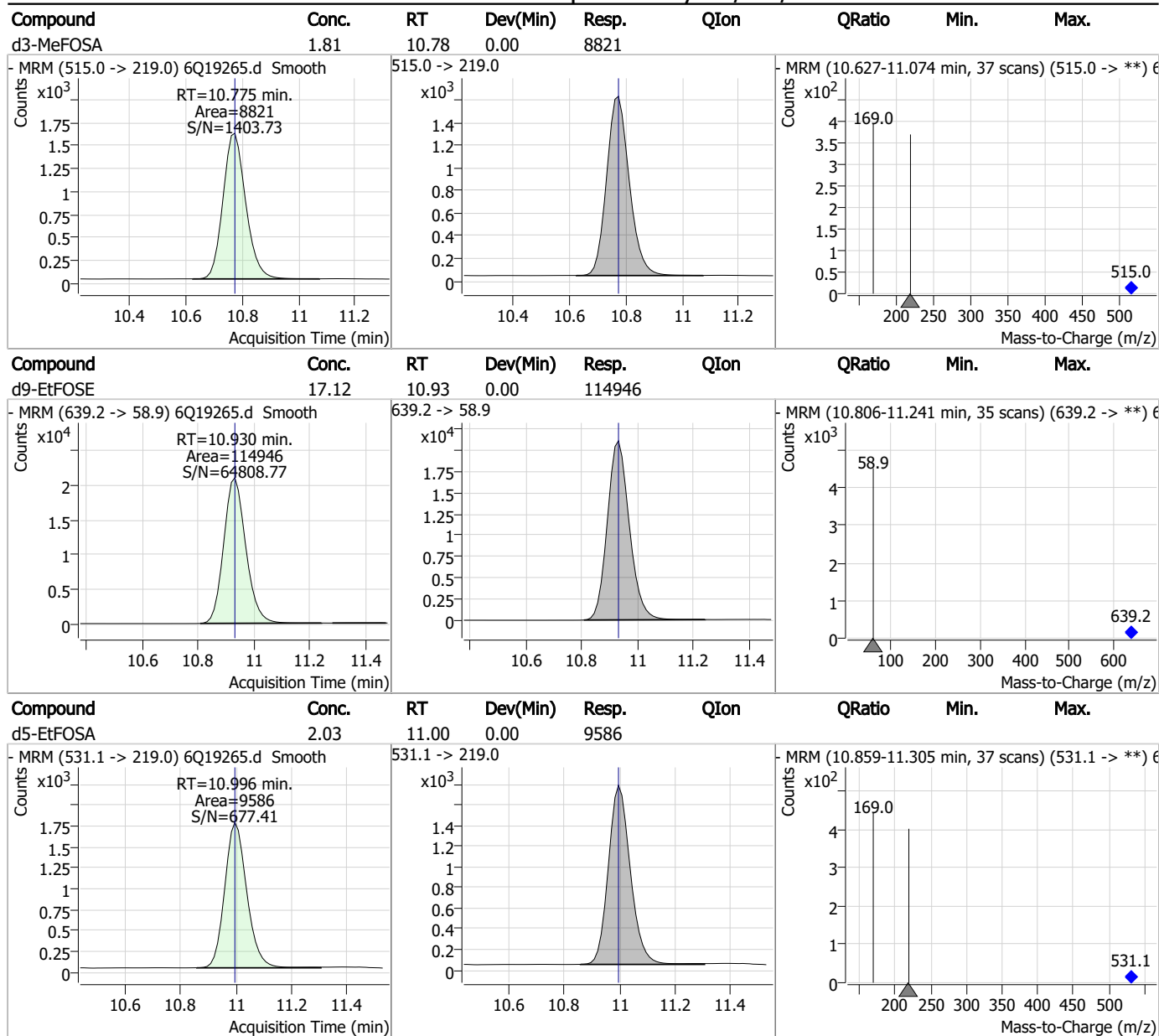


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	14.55	10.68	0.00	78190				



7.2.1
7

Perfluorinated Compounds by LC/MS/MS



7.2.1
7

Perfluorinated Compounds by LC/MS/MS

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

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

7.22
7

Perfluorinated Compounds by LC/MS/MS

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

Target Compounds	RT	Transition	Response	Conc.	Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.		
		327.1 -> 80.9				
6:2FTS	-	427.1 -> 407.0	-	N.D.		
		427.1 -> 80.9				
8:2FTS	-	527.1 -> 507.0	-	N.D.		
		527.1 -> 80.8				
EtFOSAA	-	584.2 -> 419.1	-	N.D.		
		584.2 -> 526.0				
FOSA	-	498.1 -> 77.9	-	N.D.		
		498.1 -> 478.0				
MeFOSAA	-	570.1 -> 419.0	-	N.D.		
		570.1 -> 483.0				
PFBA	-	212.8 -> 168.9	-	N.D.		
PFBS	-	298.7 -> 79.9	-	N.D.		
		298.7 -> 98.8				
PFDA	8.845	512.9 -> 469.0	0	µg/L	m	1
		512.9 -> 219.0	0			
PFDODA	-	613.1 -> 569.0	-	N.D.		
		613.1 -> 319.0				
PFDS	-	599.0 -> 79.9	-	N.D.		



7.2.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.849	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	9.276	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11CI-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9CI-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.2
7

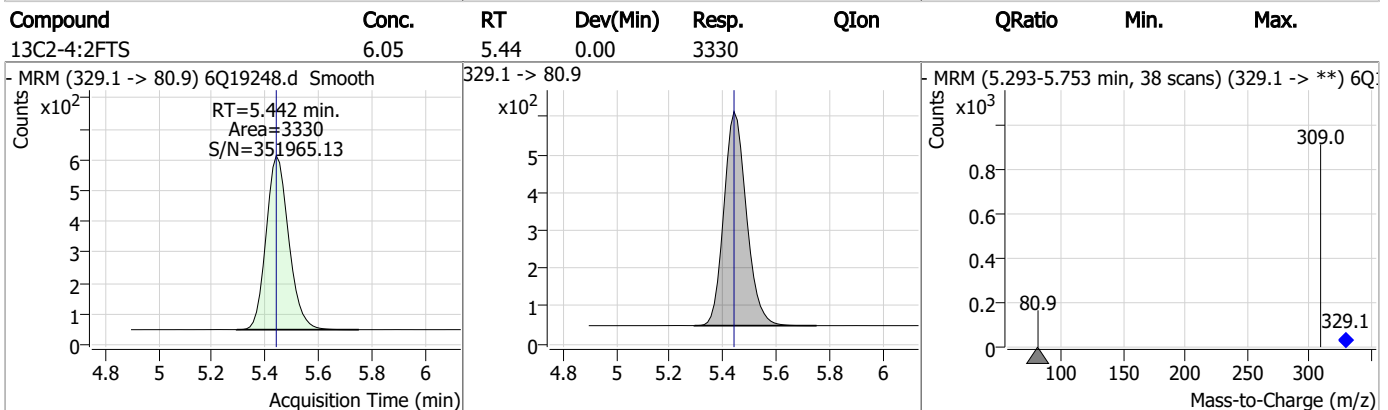
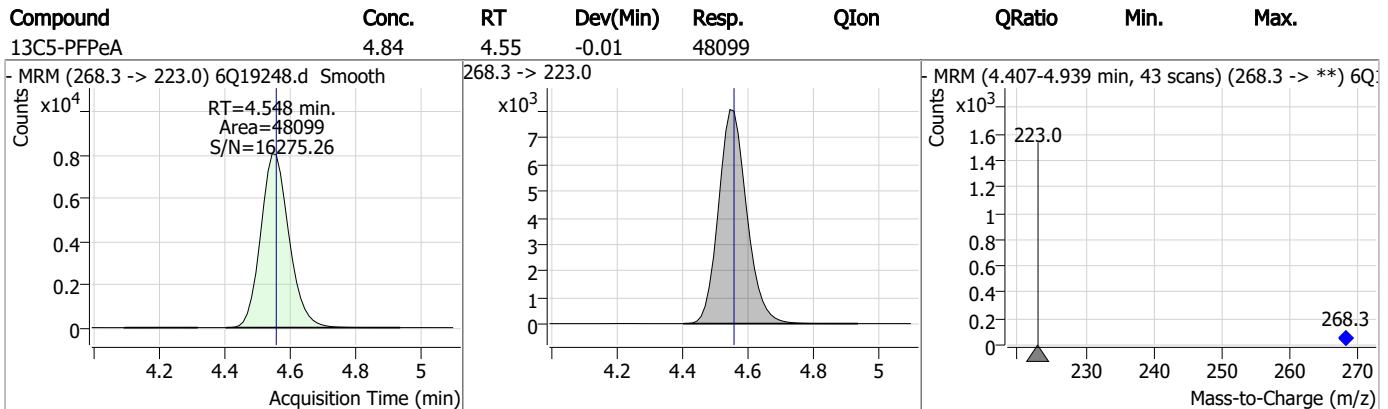
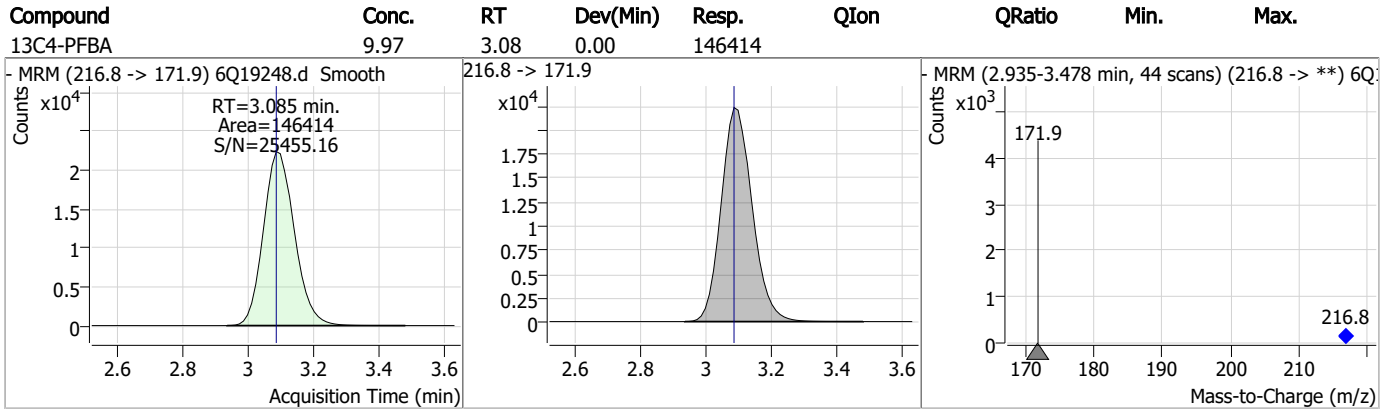
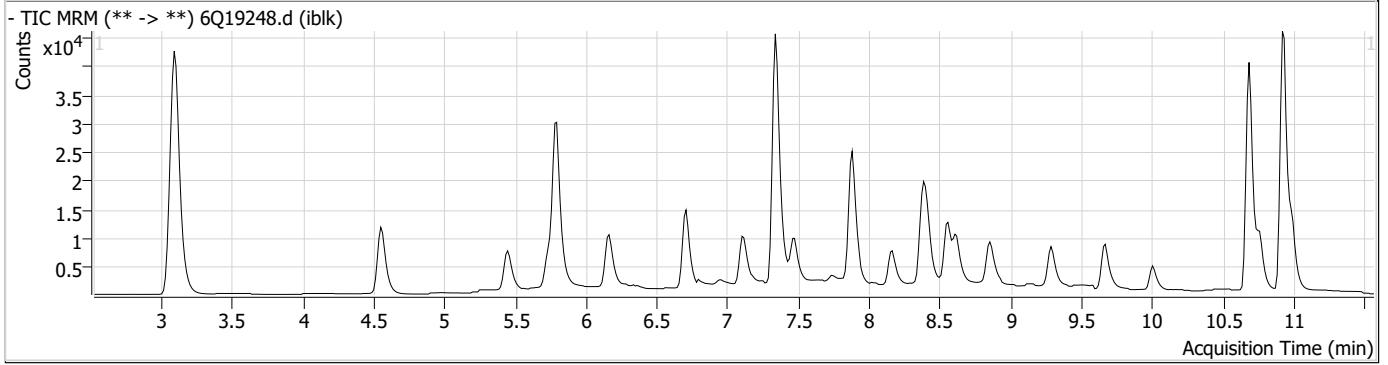
Perfluorinated Compounds by LC/MS/MS

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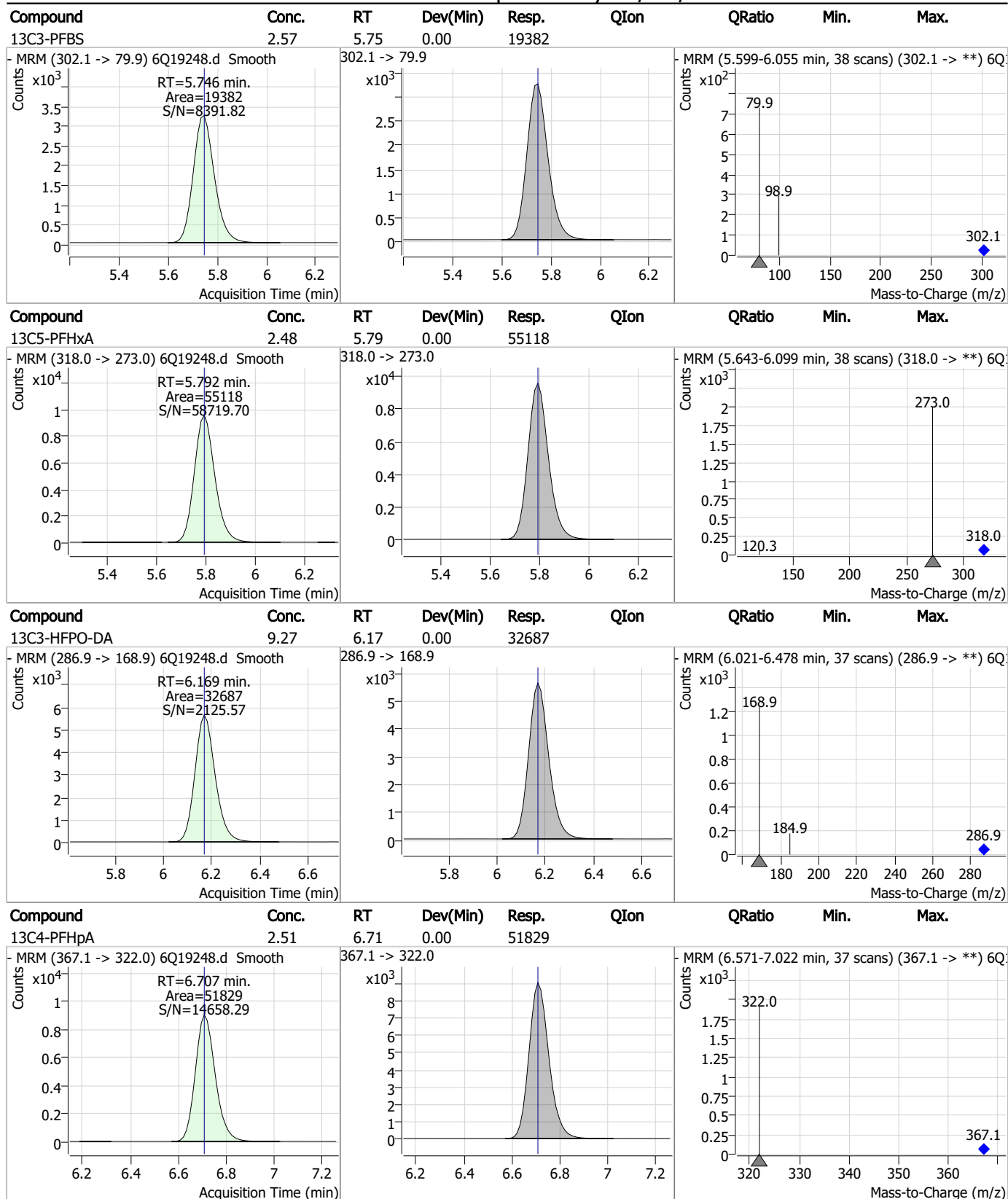
7.2.2

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Perfluorinated Compounds by LC/MS/MS



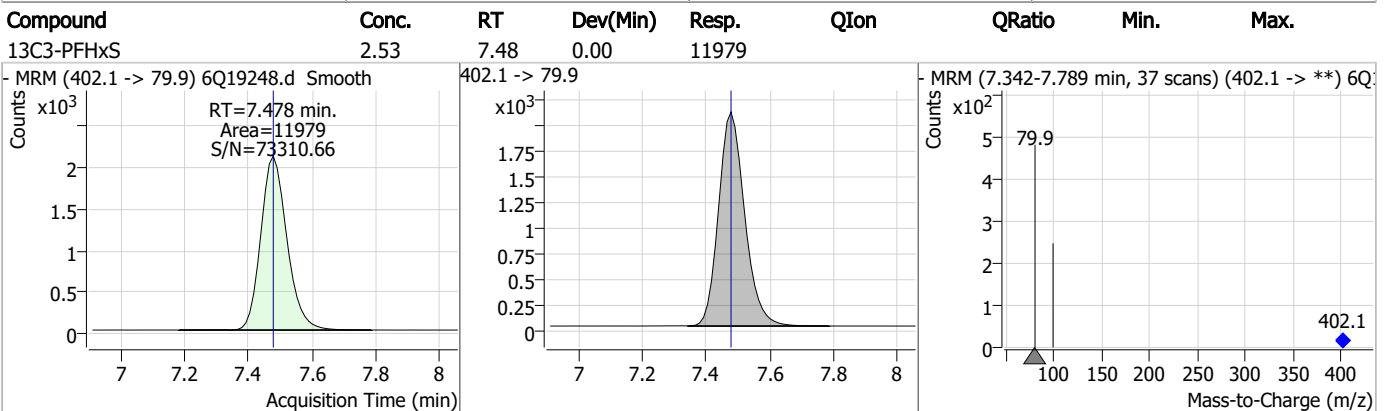
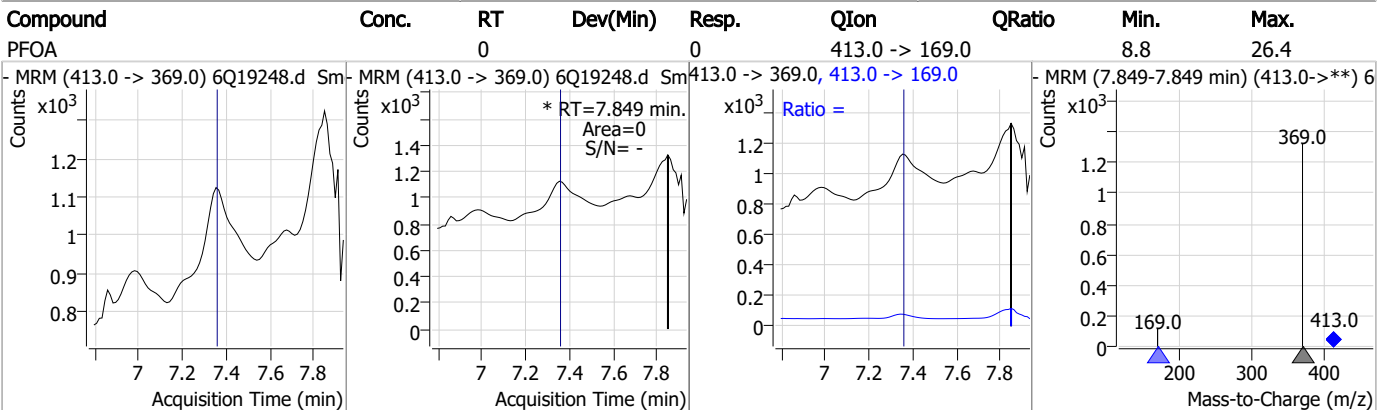
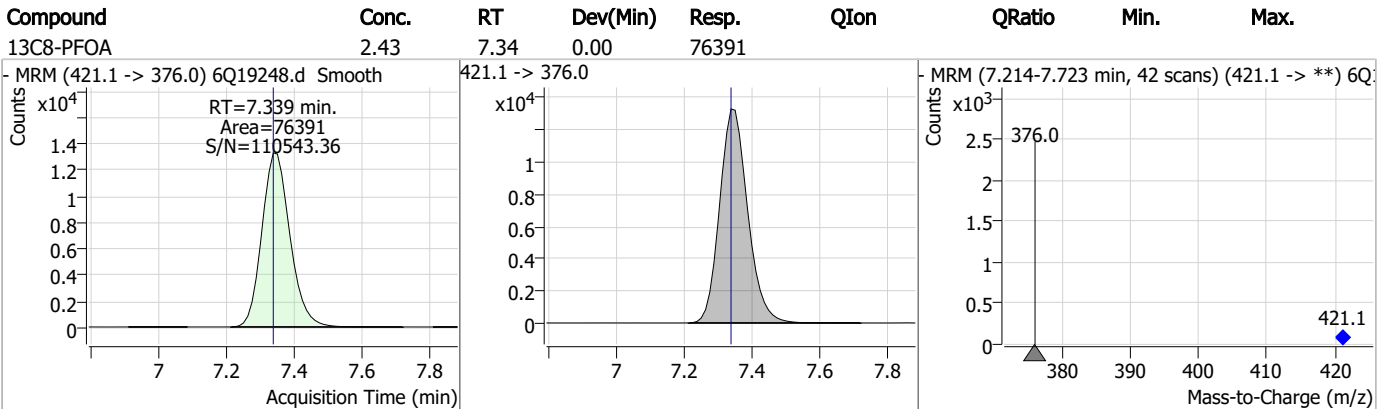
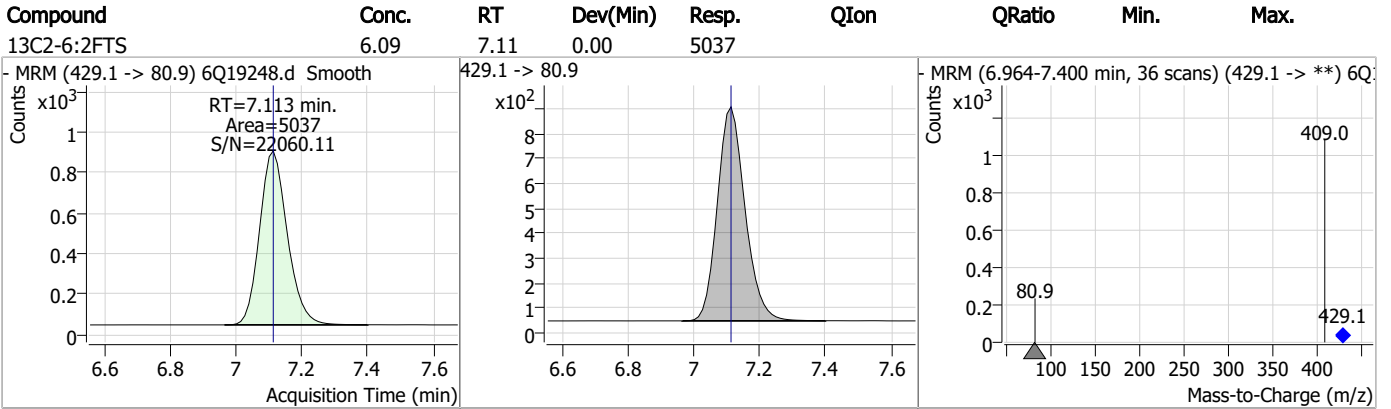
Perfluorinated Compounds by LC/MS/MS



7.2.2
7



Perfluorinated Compounds by LC/MS/MS

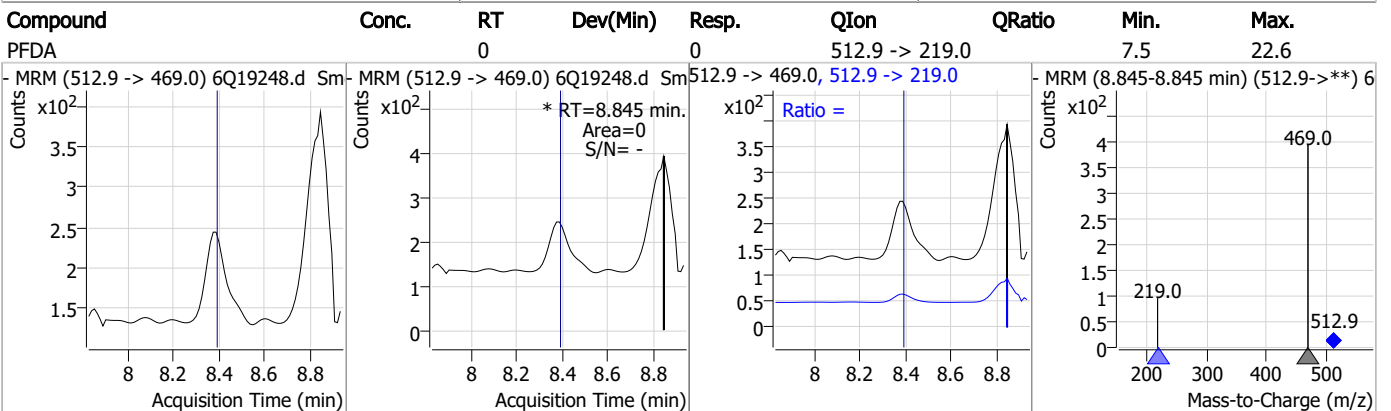
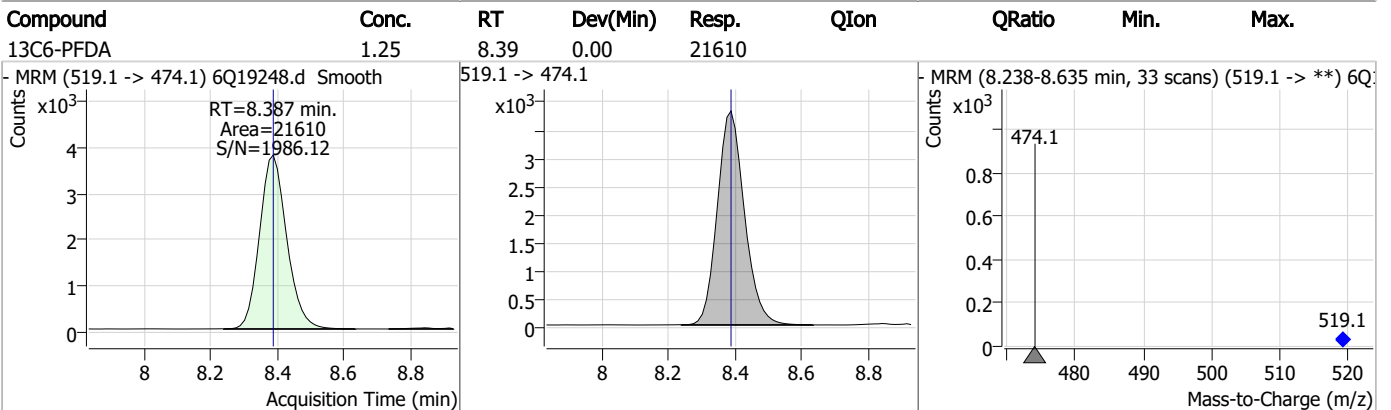
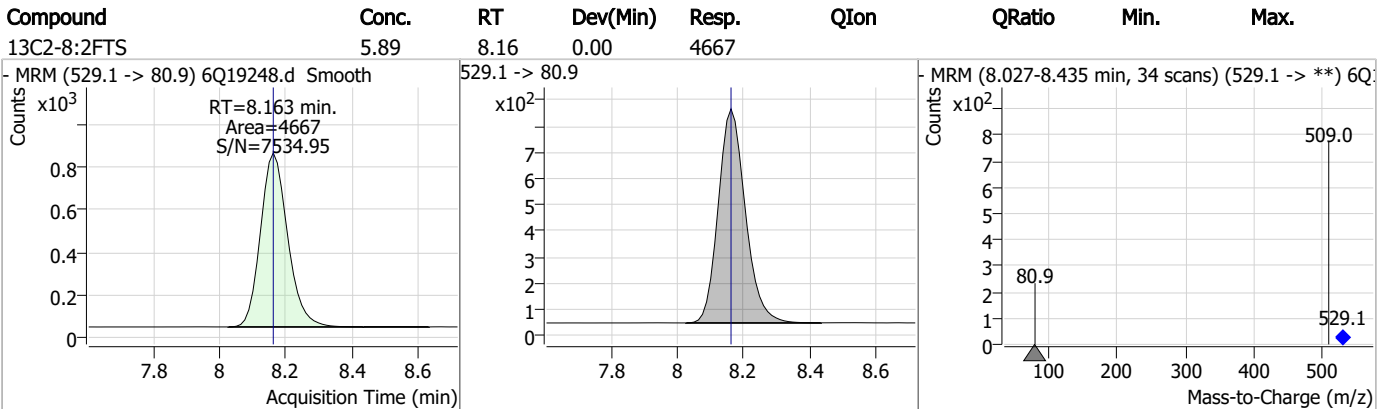
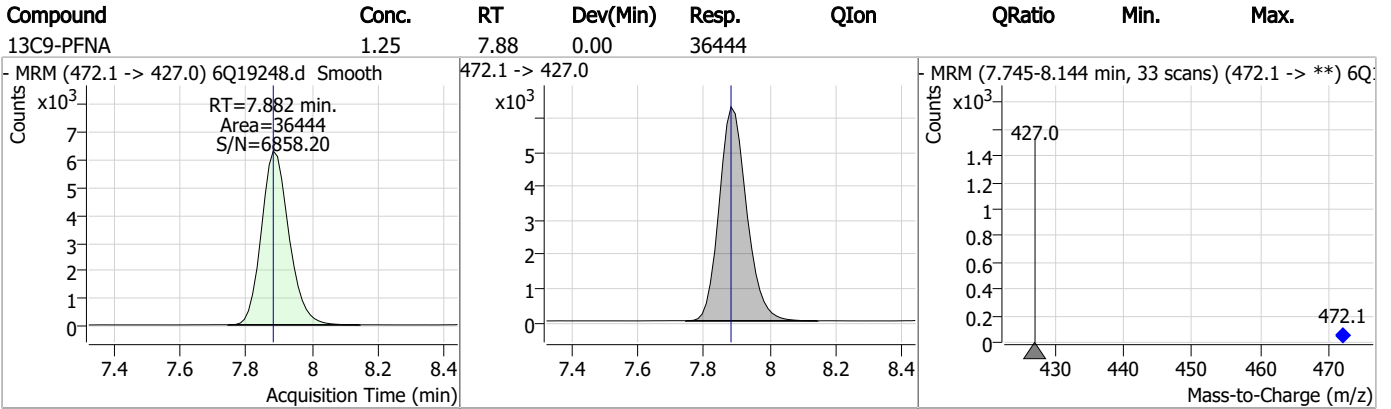


7.2.2

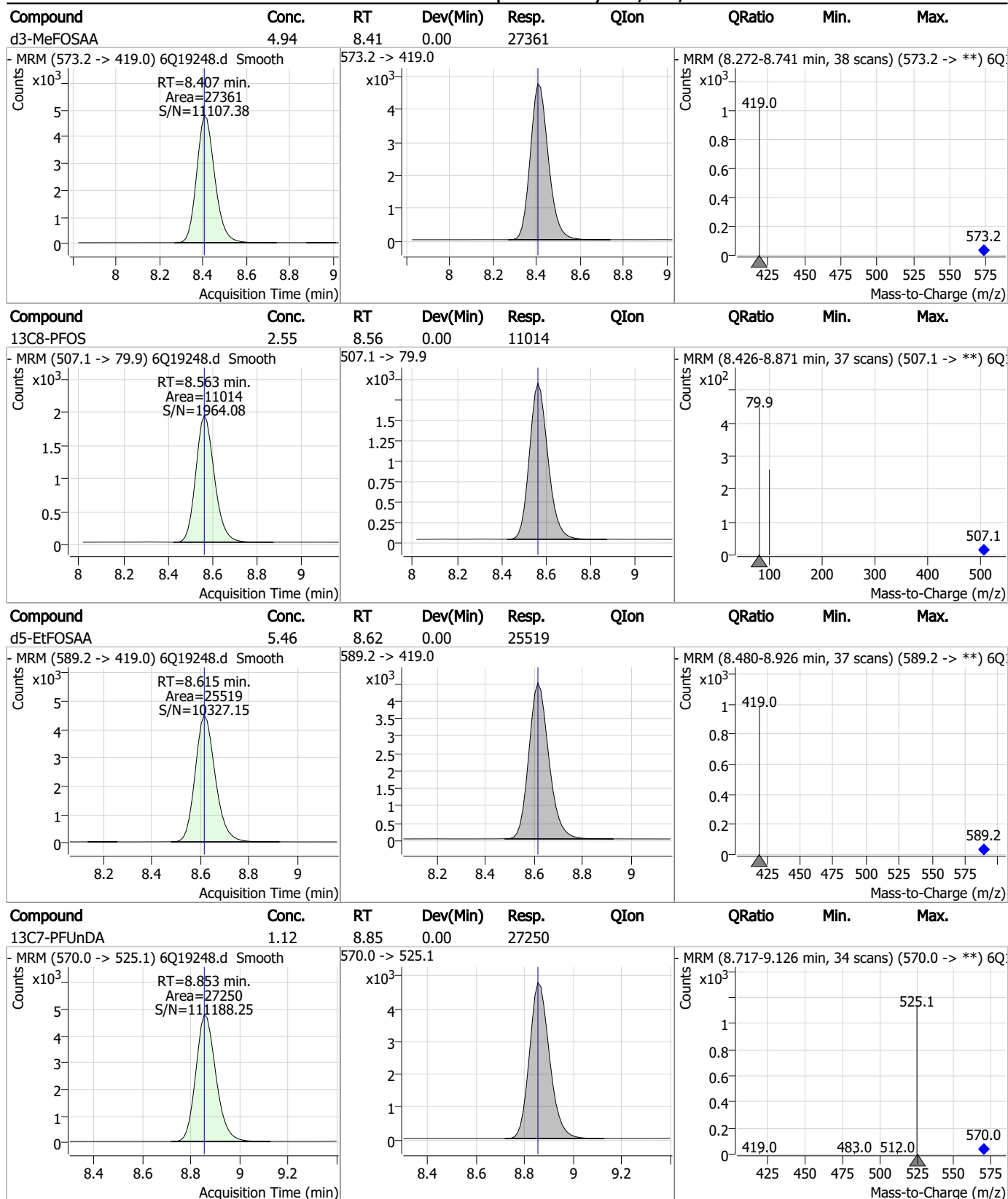
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Perfluorinated Compounds by LC/MS/MS



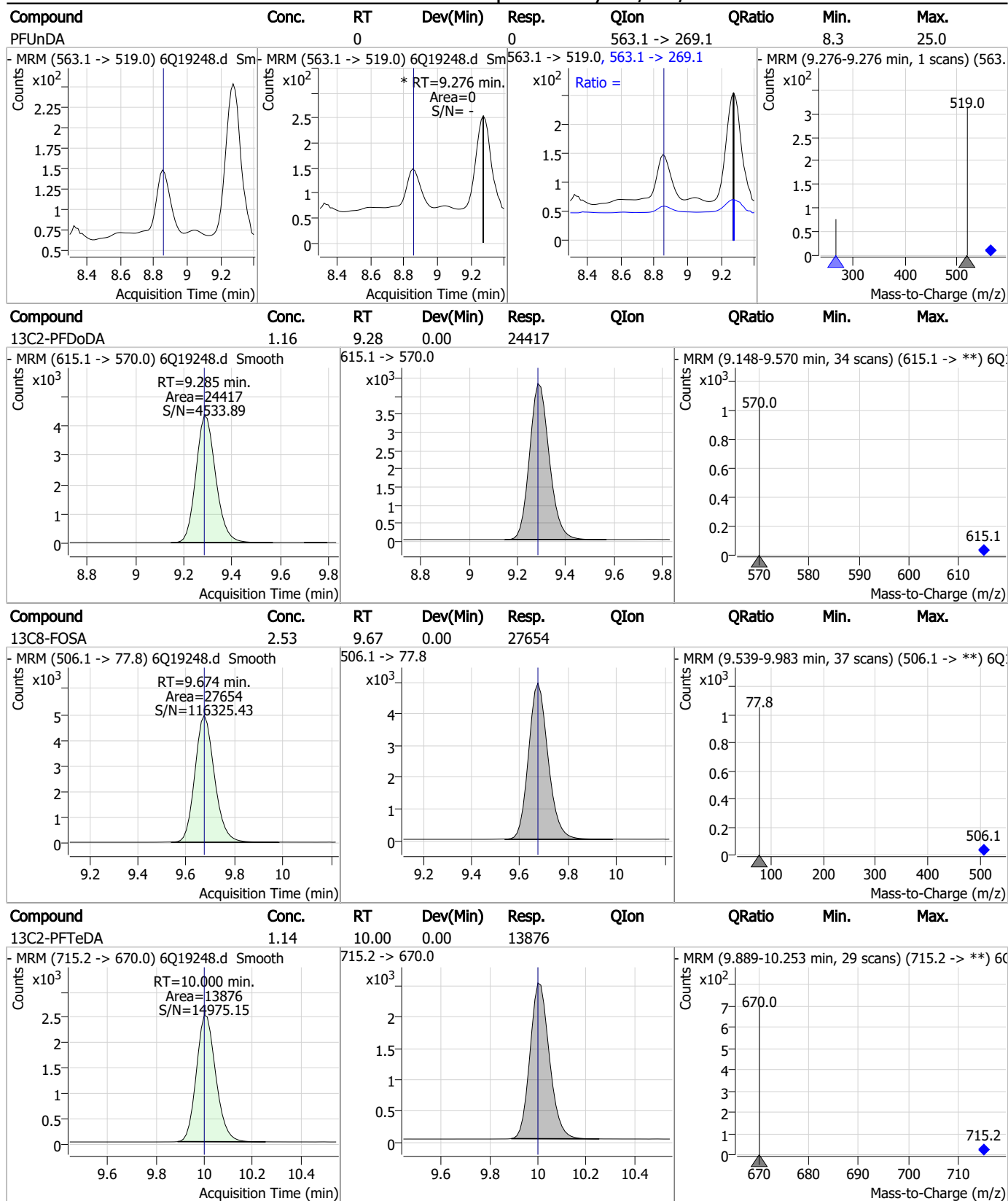
Perfluorinated Compounds by LC/MS/MS



7.2.2
7



Perfluorinated Compounds by LC/MS/MS



7.2.2
7



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.09	10.68	0.00	135931				
d3-MeFOSA	2.58	10.76	-0.01	12665				
d9-EtFOSE	23.67	10.93	0.00	160183				
d5-EtFOSA	2.68	11.00	0.00	12738				

7.2.2

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19273.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 11:29:51 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

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

7.2.3
7

Perfluorinated Compounds by LC/MS/MS

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

Target Compounds

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



7.2.3
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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	9.288	563.1 -> 519.0	0		µg/L	m
		563.1 -> 269.1	0			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.3
7

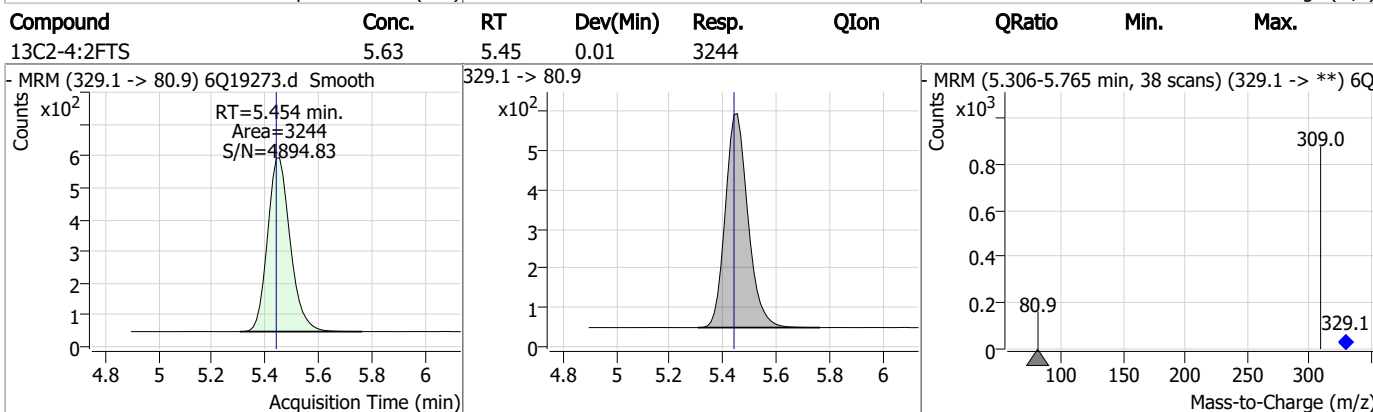
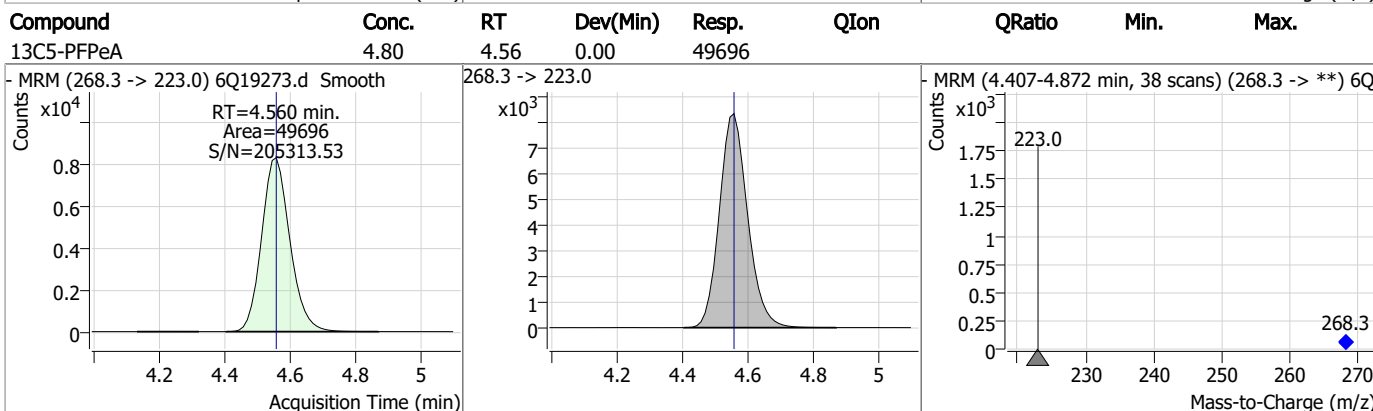
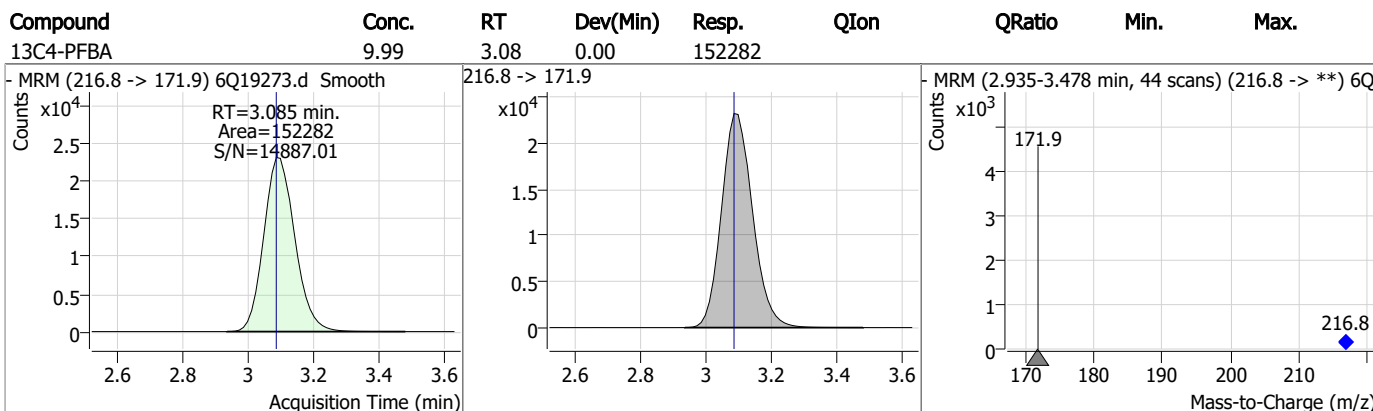
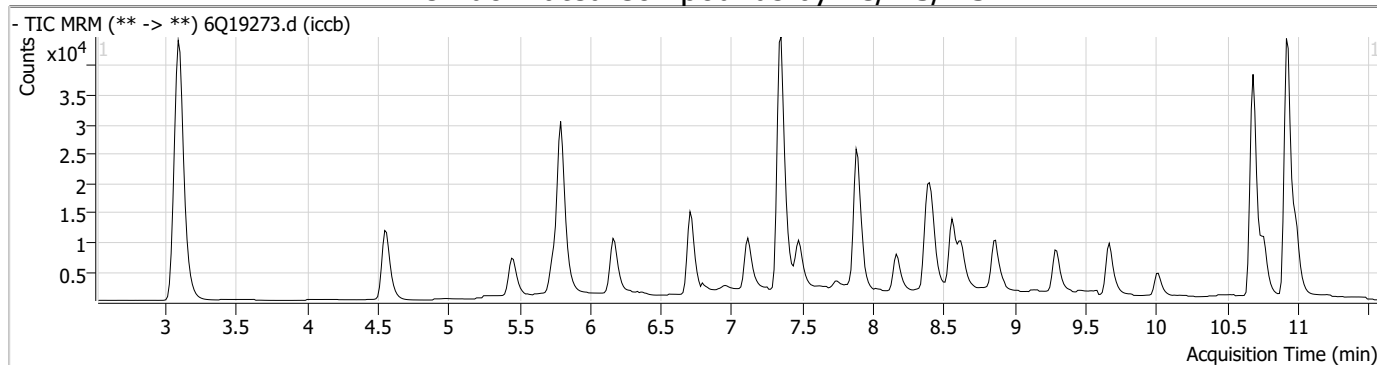
Perfluorinated Compounds by LC/MS/MS

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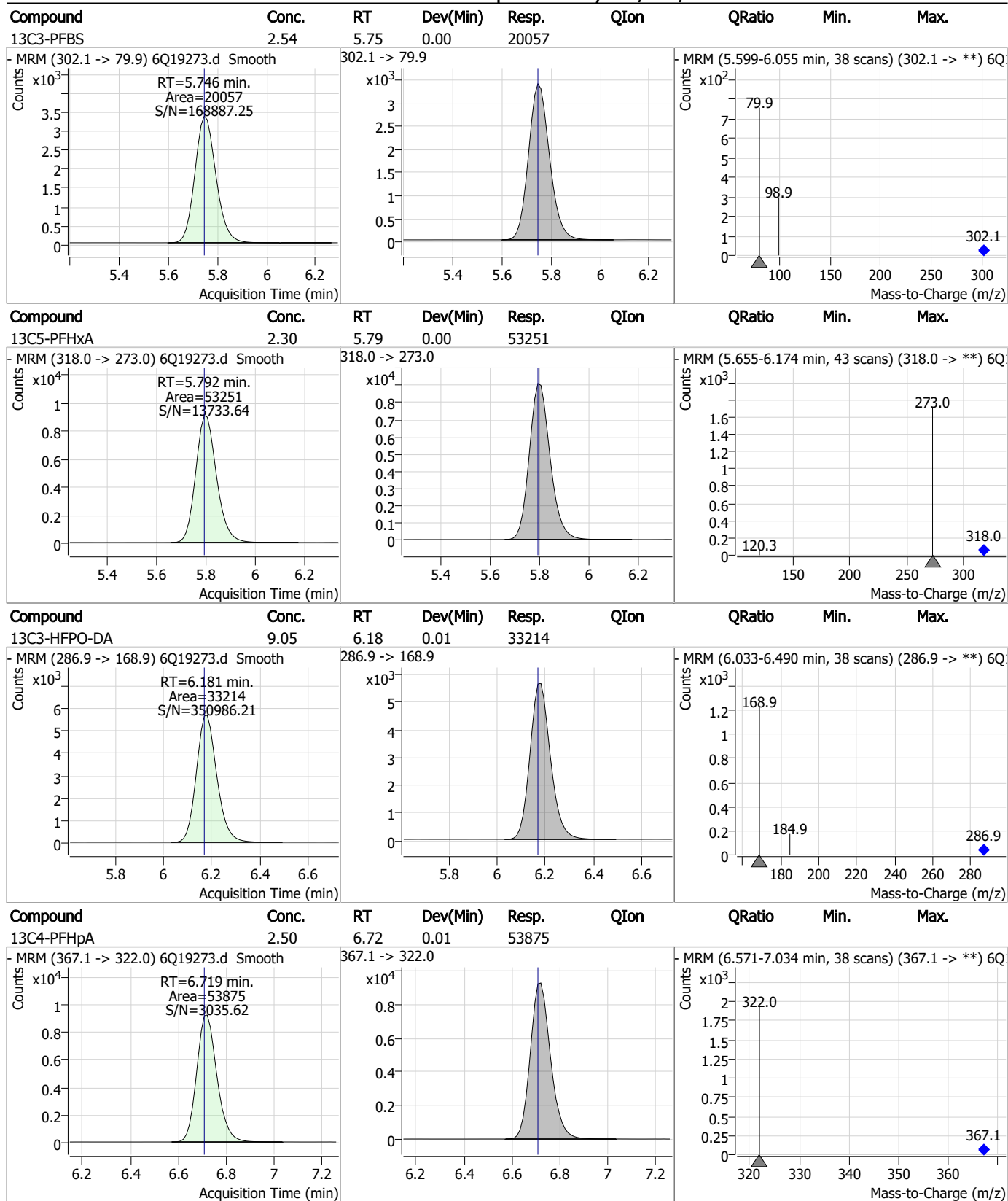
7.2.3

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Perfluorinated Compounds by LC/MS/MS

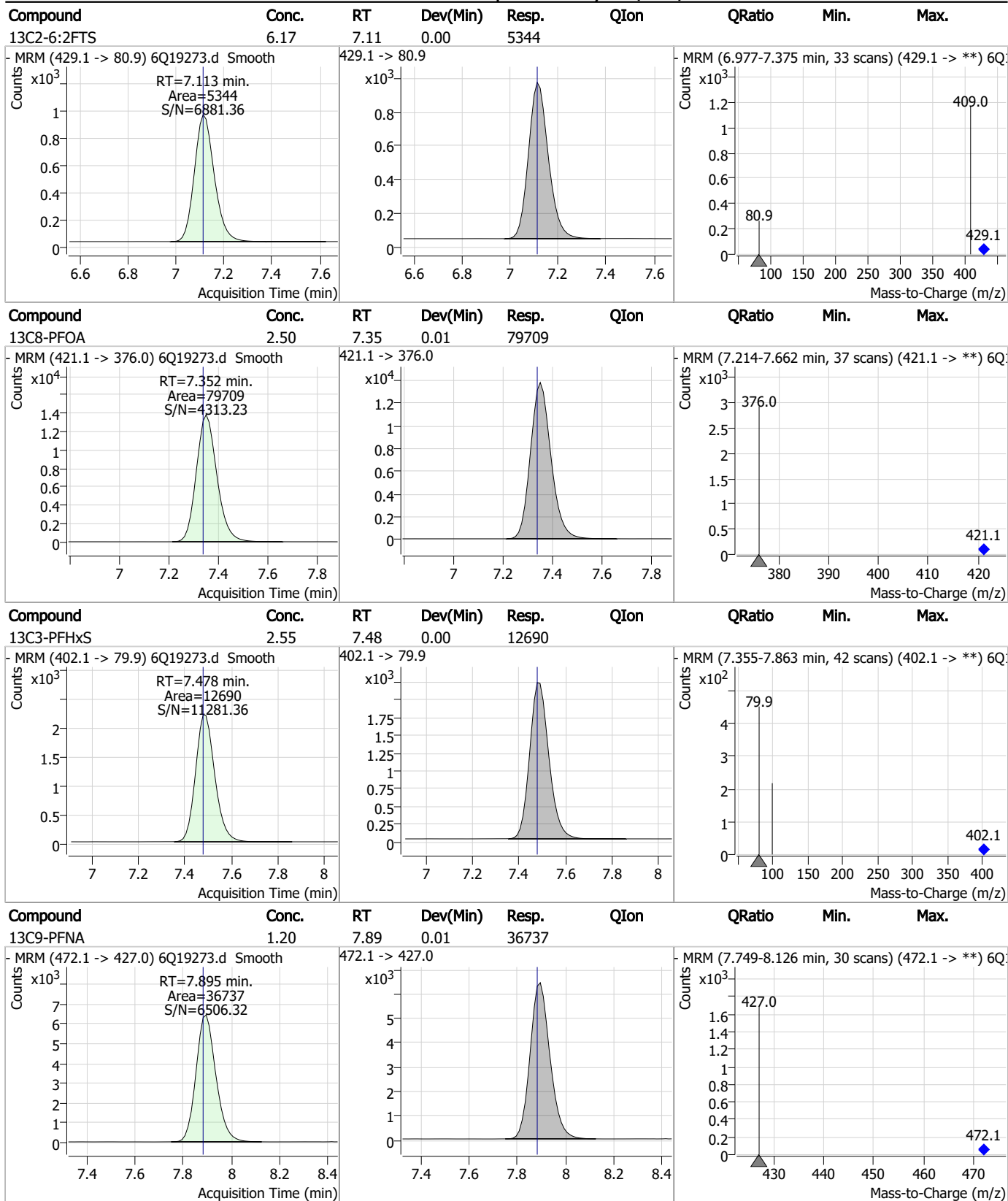


Perfluorinated Compounds by LC/MS/MS



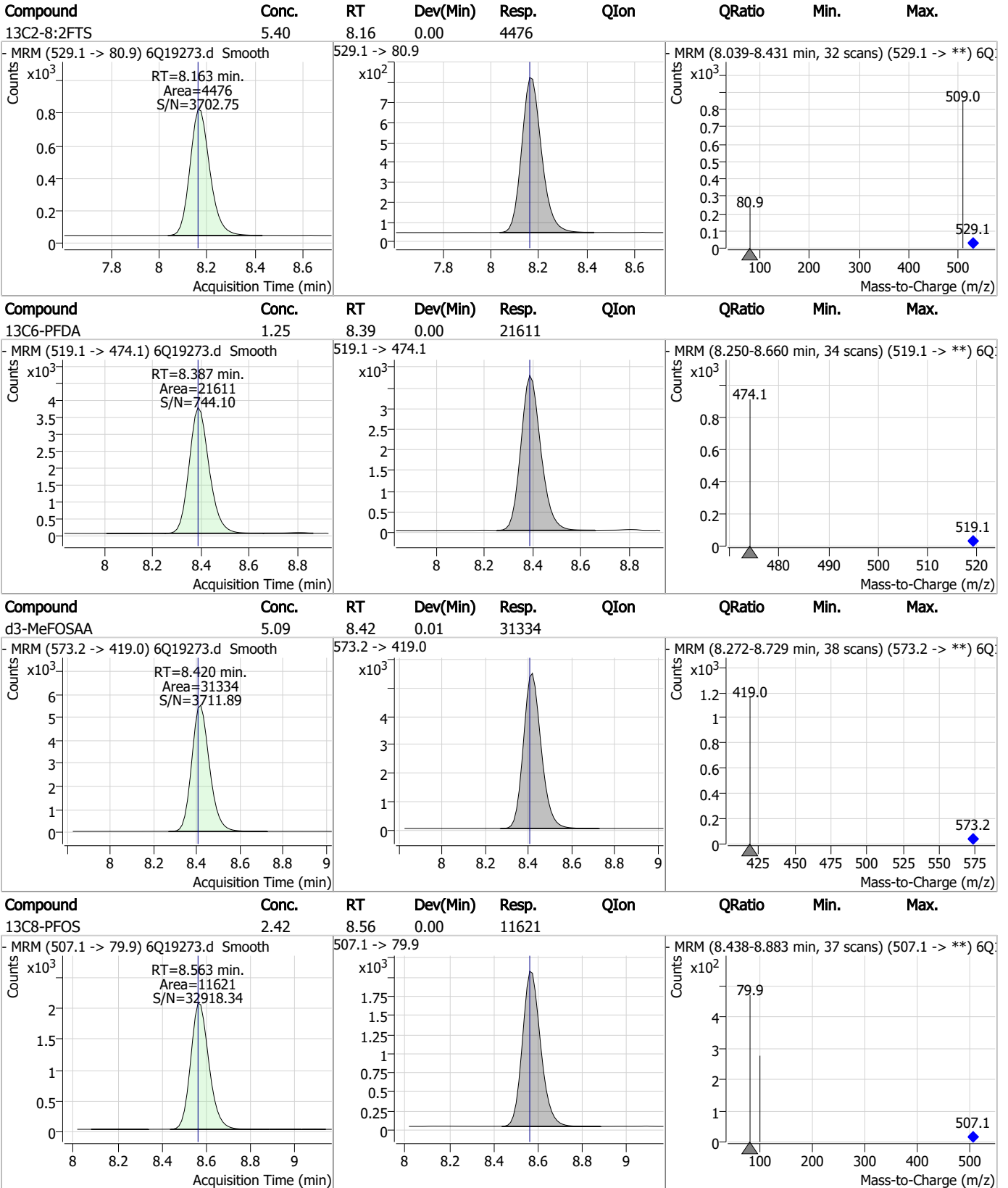
7.2.3
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Perfluorinated Compounds by LC/MS/MS



7.2.3
7

Perfluorinated Compounds by LC/MS/MS

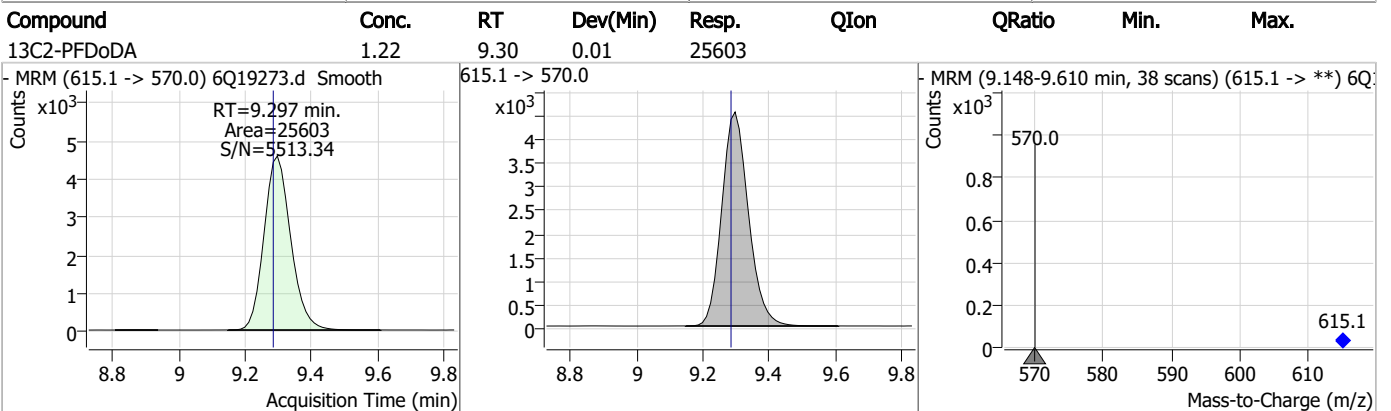
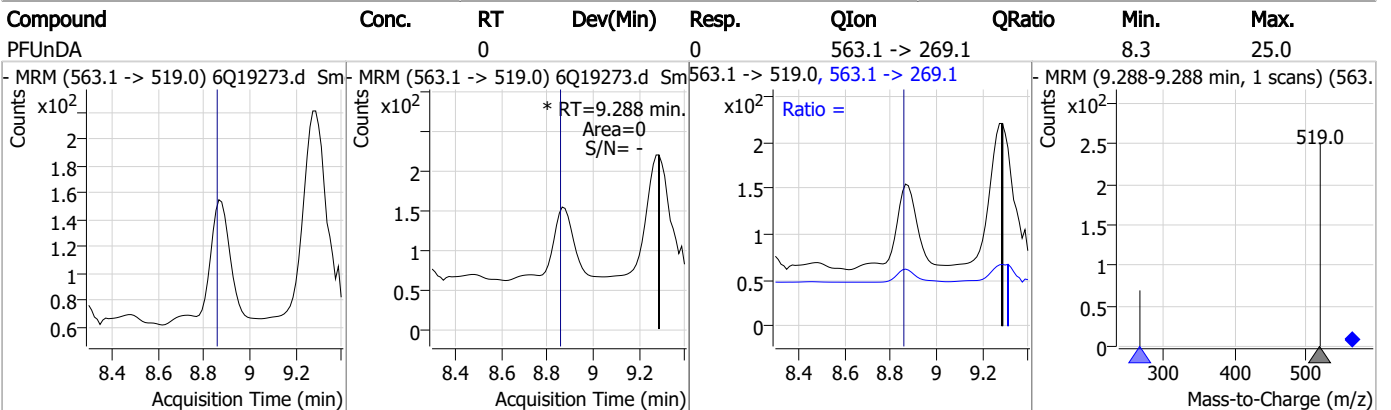
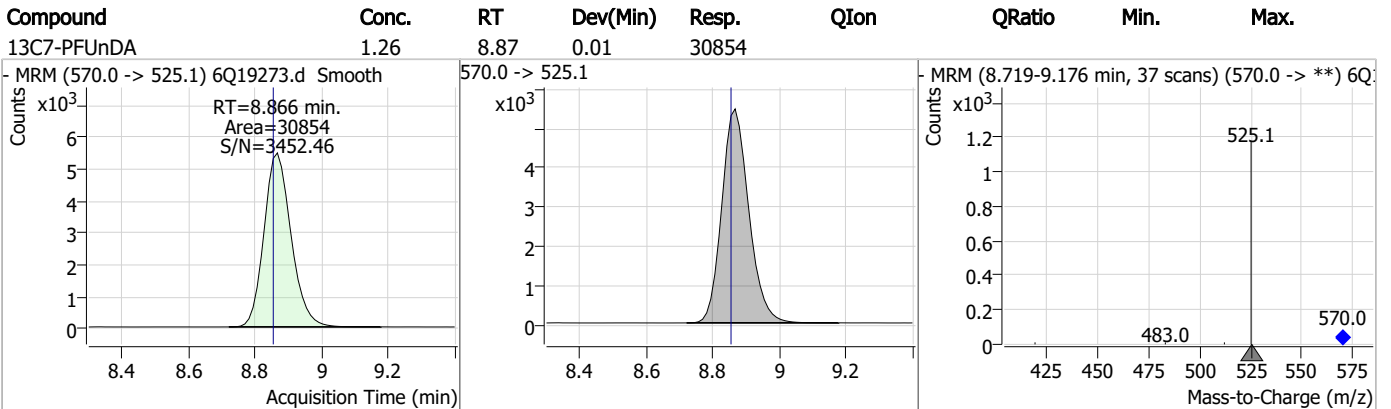
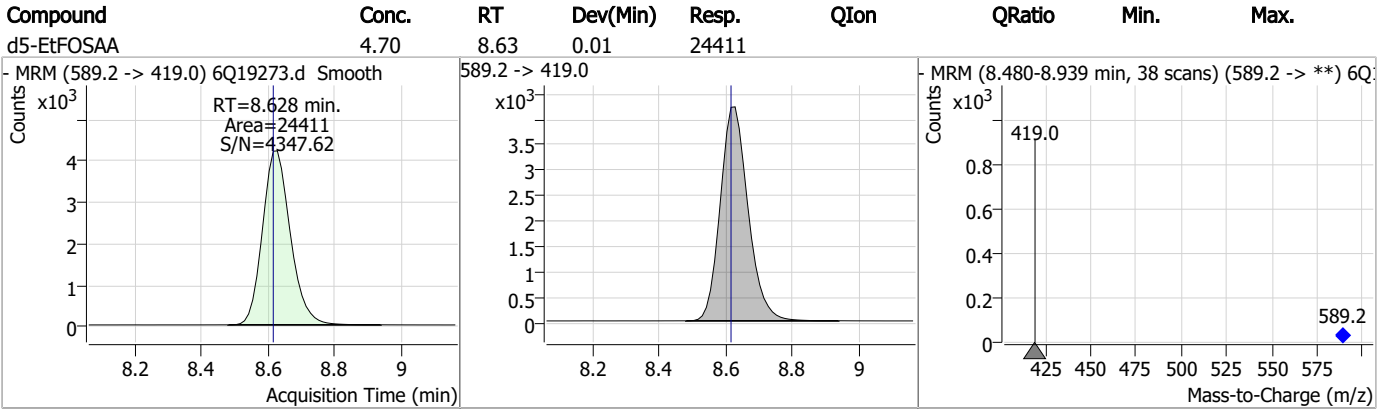


7.2.3

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

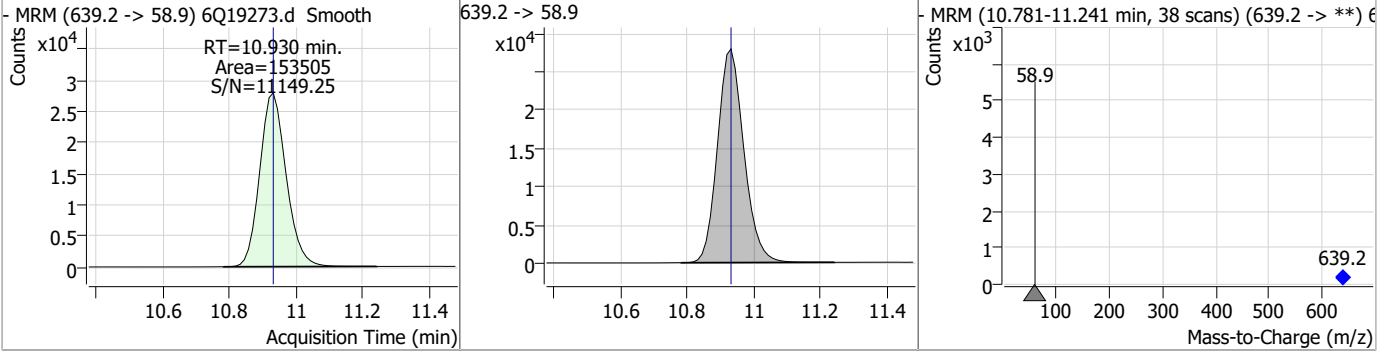
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.51	9.67	0.00	30471				
13C2-PFTeDA	1.11	10.01	0.01	13488				
d7-MeFOSE	21.44	10.68	0.00	129154				
d3-MeFOSA	2.27	10.78	0.00	12365				

7.2.3

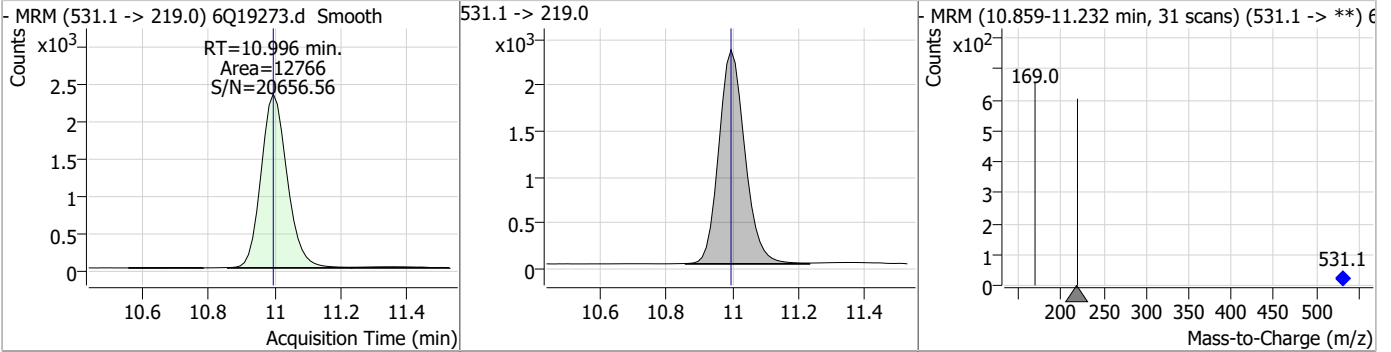
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Perfluorinated Compounds by LC/MS/MS

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



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



7.2.3

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19285.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/13/2023 2:17:38 AM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	153118	10.00 µg/L	0.000
M5-PFPeA	4.560	268.3 -> 223.0	50320	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	52670	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	51978	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	81834	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	36874	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	22620	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	29950	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	28540	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	14001	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	29794	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	19868	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	12663	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	11889	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	3090	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	5069	5.00 µg/L	0.000
M2-8:2FTS	8.175	529.1 -> 80.9	4355	5.00 µg/L	0.012
M3-MeFOSAA	8.420	573.2 -> 419.0	33179	5.00 µg/L	0.012
M3-HFPO-DA	6.169	286.9 -> 168.9	36101	10.00 µg/L	0.000
M5-EtFOSAA	8.628	589.2 -> 419.0	24860	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	136894	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	151825	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	12642	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	12207	2.50 µg/L	0.000
13C4-PFOS	8.576	502.8 -> 79.9	16220	2.50 µg/L	0.012
13C3-PFBA	3.089	216.0 -> 172.0	64891	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	9329	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	87706	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	31720	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	50586	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	53653	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3090	5.38 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C2-6:2FTS	7.113	429.1 -> 80.9	5069	5.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.4%		
13C2-8:2FTS	8.175	529.1 -> 80.9	4355	5.26 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C2-PFDoDA	9.297	615.1 -> 570.0	28540	1.35 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C2-PFTeDA	10.012	715.2 -> 670.0	14001	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.0%		
13C3-PFBS	5.746	302.1 -> 79.9	19868	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C3-PFHxS	7.478	402.1 -> 79.9	12663	2.56 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 = 102.3%	
13C4-PFBA	3.085	216.8 -> 171.9	153118	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFHpA	6.707	367.1 -> 322.0	51978	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C5-PFHxA	5.792	318.0 -> 273.0	52670	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.8%	
13C5-PFPeA	4.560	268.3 -> 223.0	50320	4.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C6-PFDA	8.387	519.1 -> 474.1	22620	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C7-PFUnDA	8.866	570.0 -> 525.1	29950	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C8-FOSA	9.674	506.1 -> 77.8	29794	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOA	7.352	421.1 -> 376.0	81834	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-PFOS	8.575	507.1 -> 79.9	11889	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C9-PFNA	7.895	472.1 -> 427.0	36874	1.19 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.6%	
d3-MeFOSAA	8.420	573.2 -> 419.0	33179	5.45 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	36101	9.82 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d3-MeFOSA	10.775	515.0 -> 219.0	12207	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.6%	
d5-EtFOSAA	8.628	589.2 -> 419.0	24860	4.84 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.9%	
d7-MeFOSE	10.685	623.2 -> 58.9	136894	23.00 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.0%	
d9-EtFOSE	10.930	639.2 -> 58.9	151825	20.42 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.7%	
d5-EtFOSA	10.996	531.1 -> 219.0	12642	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	

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	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



7.2.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.353	548.8 -> 98.9	1449	0.03 µg/L	m	82
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	142	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

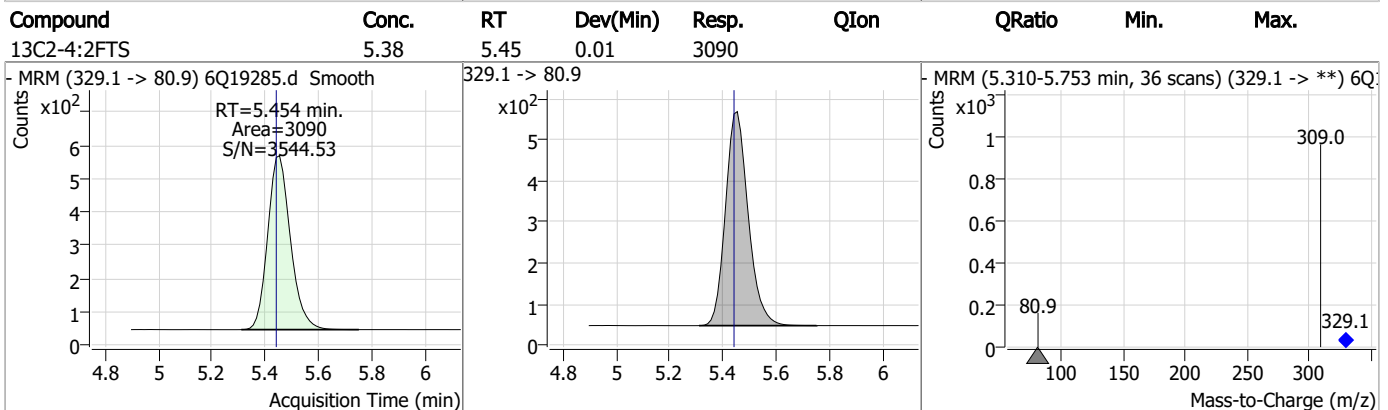
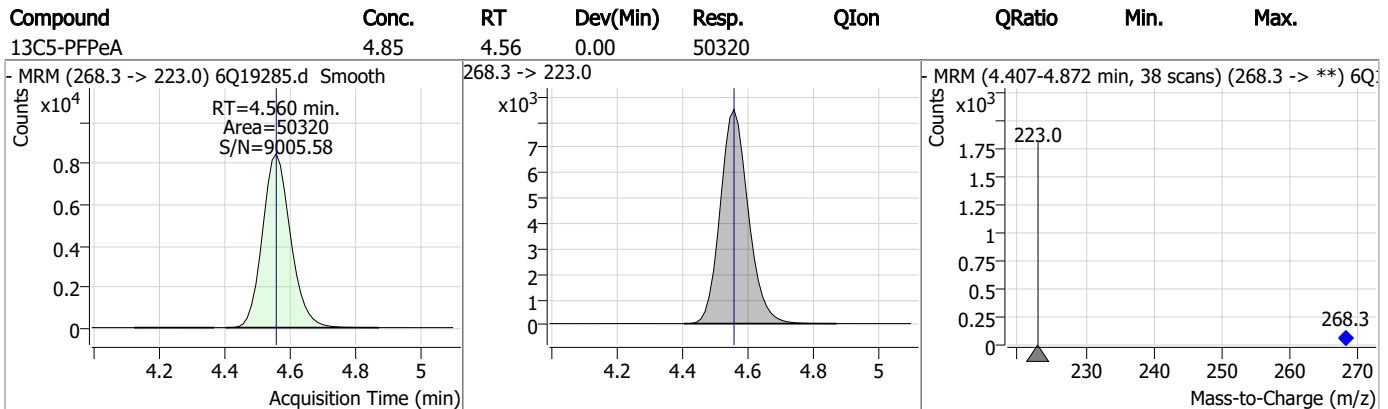
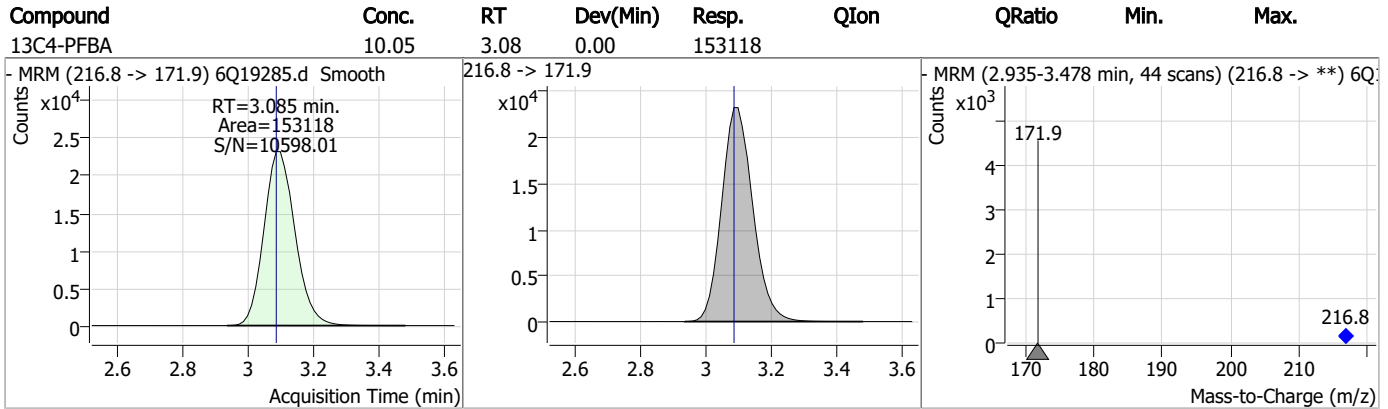
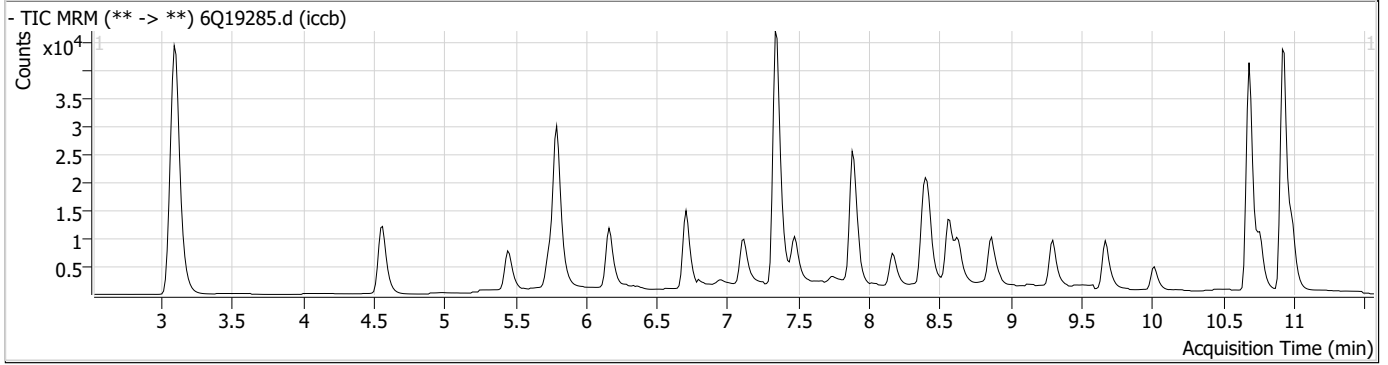
Perfluorinated Compounds by LC/MS/MS

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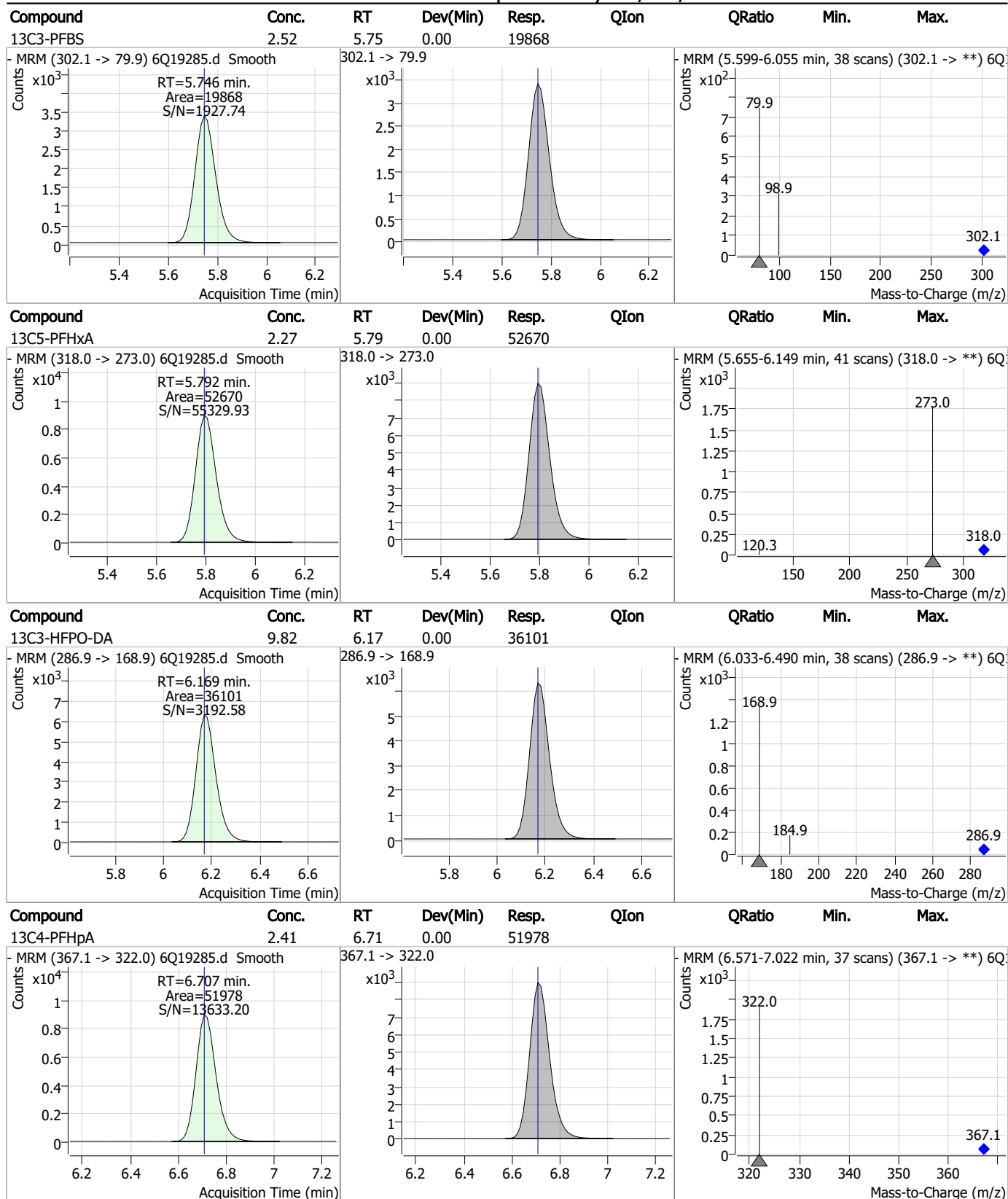
7.2.4

7

Perfluorinated Compounds by LC/MS/MS

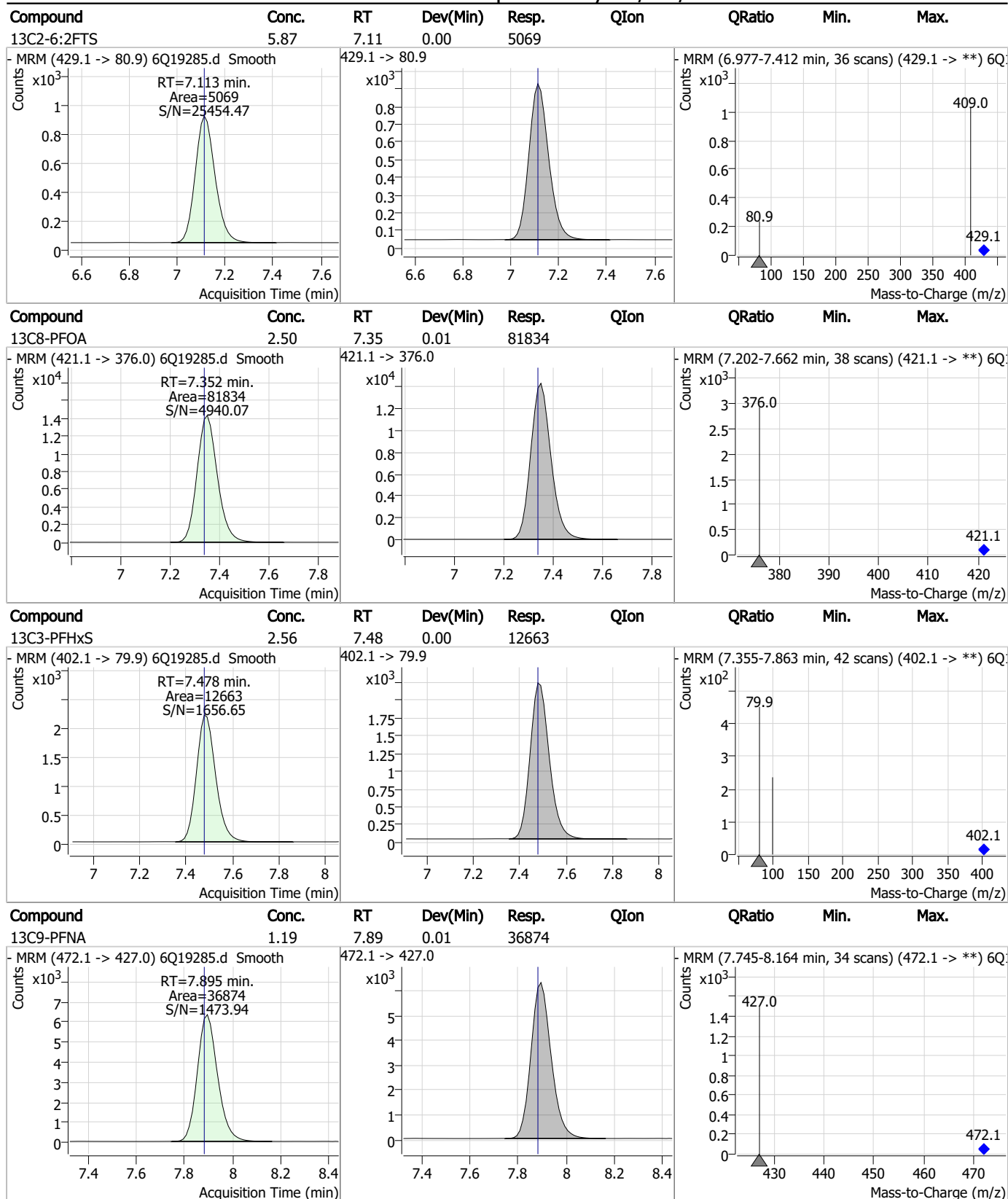


Perfluorinated Compounds by LC/MS/MS



7.2.4
7

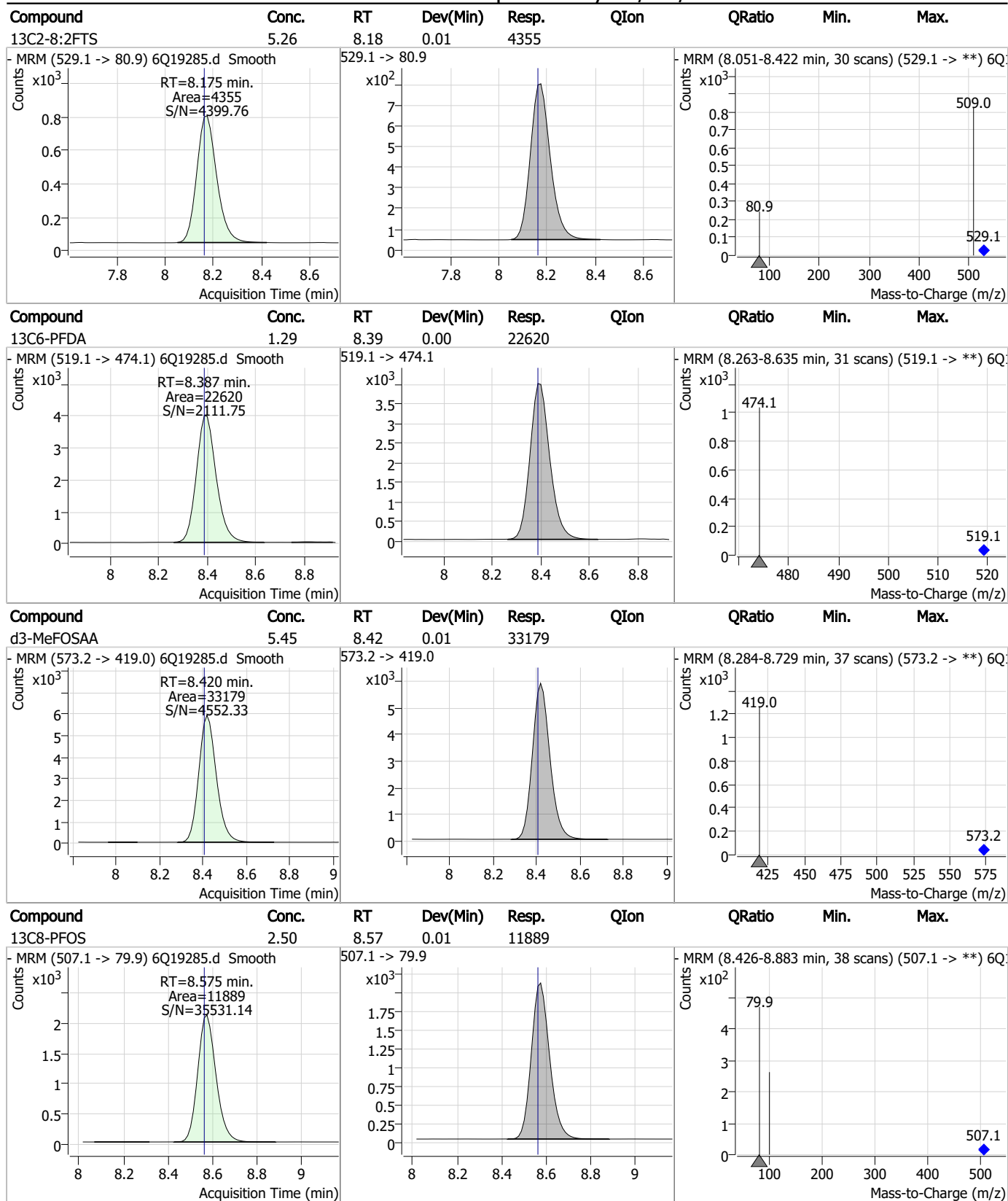
Perfluorinated Compounds by LC/MS/MS



7.2.4
7



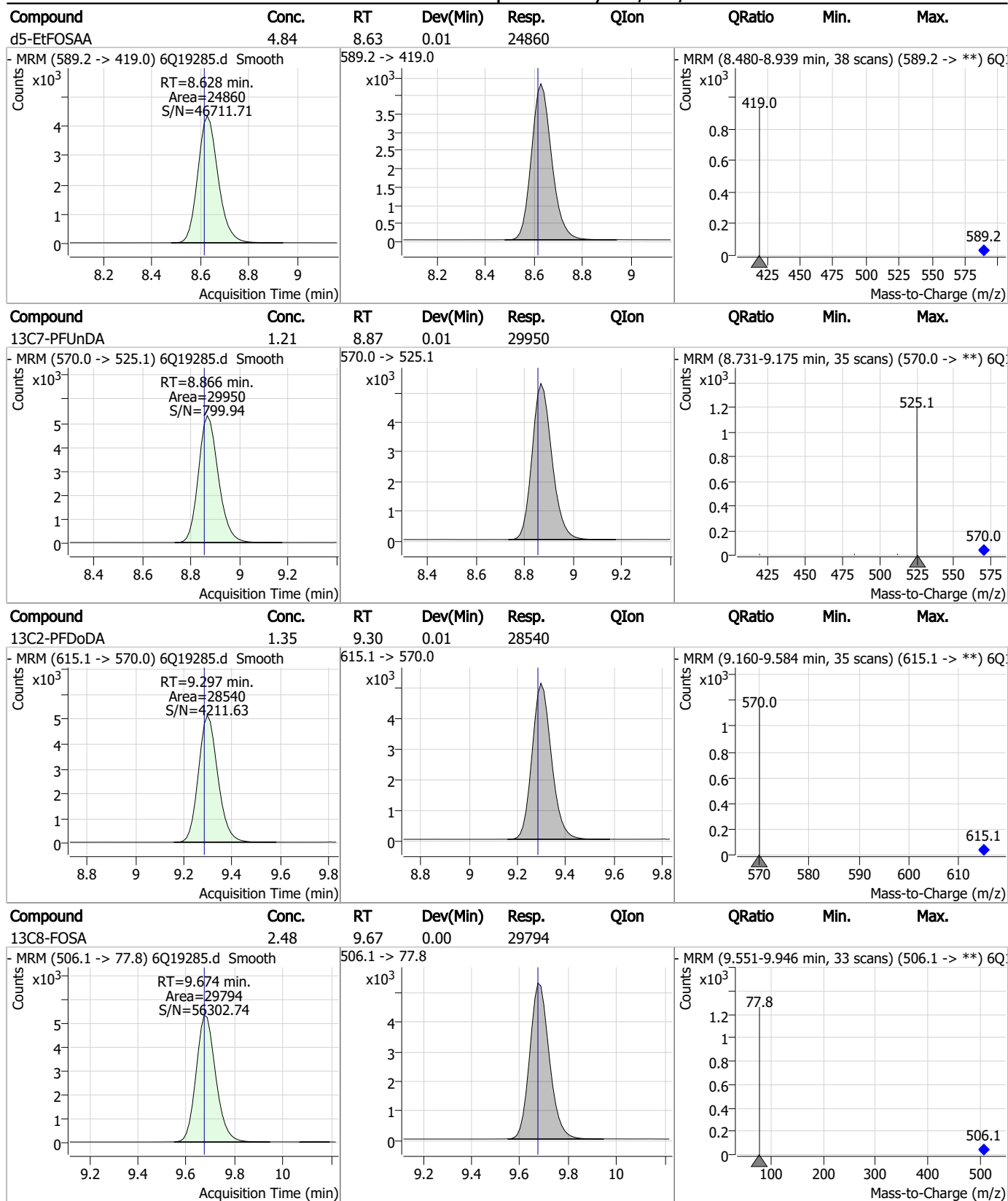
Perfluorinated Compounds by LC/MS/MS



7.2.4

7

Perfluorinated Compounds by LC/MS/MS



7.2.4
7

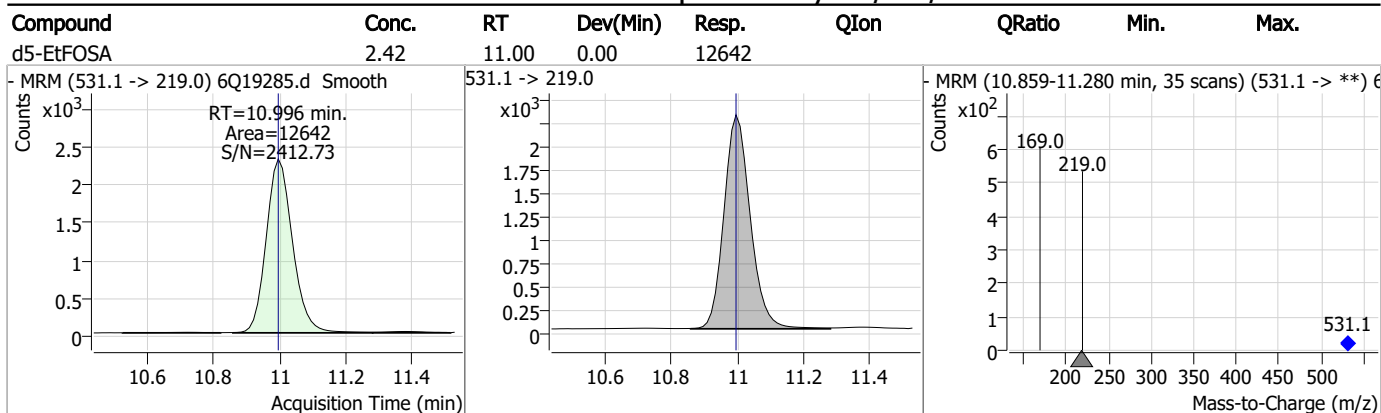
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.14	10.01	0.01	14001				
d7-MeFOSE	23.00	10.68	0.00	136894				
d3-MeFOSA	2.26	10.78	0.00	12207				
d9-EtFOSE	20.42	10.93	0.00	151825				

7.2.4
7



Perfluorinated Compounds by LC/MS/MS



7.24
7

Manual Integration Approval Summary

Sample Number: S6Q287-ICCB Method: EPA DRAFT 1633
Lab FileID: 6Q19285.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/13/23 02:17 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.35	Split peak

7.2.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19289.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/13/2023 3:13:34 AM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	153672	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	50187	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	52851	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	51396	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	78782	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	39219	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	23601	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	32335	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	25440	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	15119	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	30013	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	19634	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	12388	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	12723	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	3285	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	4762	5.00 µg/L	0.000
M2-8:2FTS	8.175	529.1 -> 80.9	4290	5.00 µg/L	0.012
M3-MeFOSAA	8.420	573.2 -> 419.0	30220	5.00 µg/L	0.012
M3-HFPO-DA	6.169	286.9 -> 168.9	31878	10.00 µg/L	0.000
M5-EtFOSAA	8.628	589.2 -> 419.0	25395	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	133458	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	152461	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	12571	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	13162	2.50 µg/L	0.000
13C4-PFOS	8.576	502.8 -> 79.9	16419	2.50 µg/L	0.012
13C3-PFBA	3.089	216.0 -> 172.0	65069	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	9617	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	88202	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	29631	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	48355	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	52653	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3285	5.55 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.9%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4762	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.0%		
13C2-8:2FTS	8.175	529.1 -> 80.9	4290	5.03 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-PFDoDA	9.297	615.1 -> 570.0	25440	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-PFTeDA	10.012	715.2 -> 670.0	15119	1.31 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C3-PFBS	5.746	302.1 -> 79.9	19634	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C3-PFHxS	7.478	402.1 -> 79.9	12388	2.43 µg/L	0.000

7.2.5
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C4-PFBA	3.097	216.8 -> 171.9	153672	10.06 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.707	367.1 -> 322.0	51396	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C5-PFHxA	5.792	318.0 -> 273.0	52851	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.9%	
13C5-PFPeA	4.560	268.3 -> 223.0	50187	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C6-PFDA	8.387	519.1 -> 474.1	23601	1.44 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.5%	
13C7-PFUnDA	8.866	570.0 -> 525.1	32335	1.40 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C8-FOSA	9.674	506.1 -> 77.8	30013	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C8-PFOA	7.352	421.1 -> 376.0	78782	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C8-PFOS	8.575	507.1 -> 79.9	12723	2.65 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C9-PFNA	7.895	472.1 -> 427.0	39219	1.33 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.3%	
d3-MeFOSAA	8.420	573.2 -> 419.0	30220	4.91 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	31878	8.83 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.3%	
d3-MeFOSA	10.775	515.0 -> 219.0	13162	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
d5-EtFOSAA	8.628	589.2 -> 419.0	25395	4.89 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d7-MeFOSE	10.685	623.2 -> 58.9	133458	22.15 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.6%	
d9-EtFOSE	10.930	639.2 -> 58.9	152461	20.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.0%	
d5-EtFOSA	10.996	531.1 -> 219.0	12571	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	

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.	



7.2.5
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8				
PFHpA	-	363.1 -> 319.0	-	N.D.		
		363.1 -> 169.0				
PFHpS	-	449.0 -> 79.9	-	N.D.		
		449.0 -> 98.9				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 118.9				
PFHxS	-	398.7 -> 79.9	-	N.D.		
		398.7 -> 98.9				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFNS	-	548.8 -> 79.9	-	N.D.		
		548.8 -> 98.9				
PFOA	7.514	413.0 -> 369.0	0	µg/L	m	1
		413.0 -> 169.0	0			
PFOS	-	498.9 -> 79.9	-	N.D.		
		498.9 -> 98.8				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
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

7.2.5
7

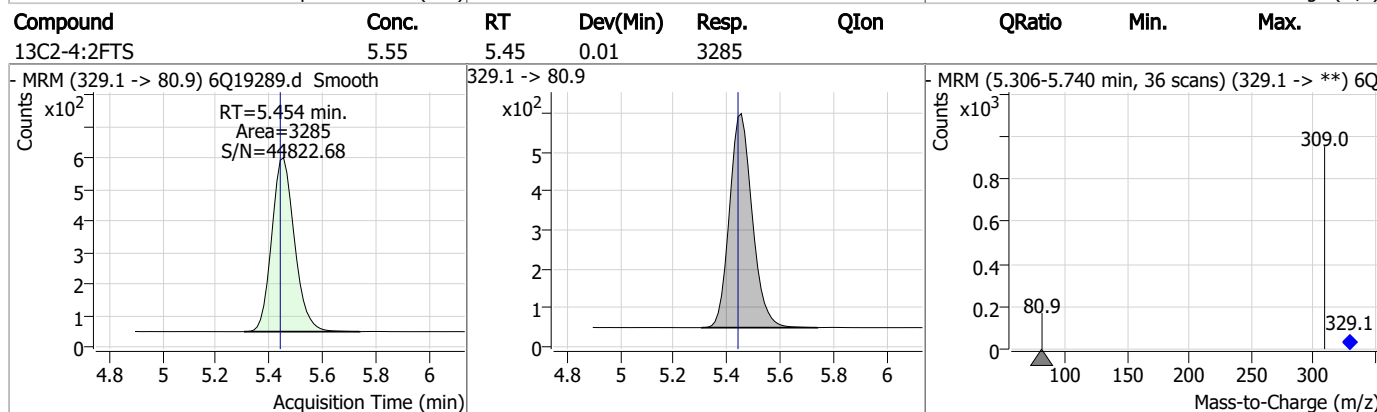
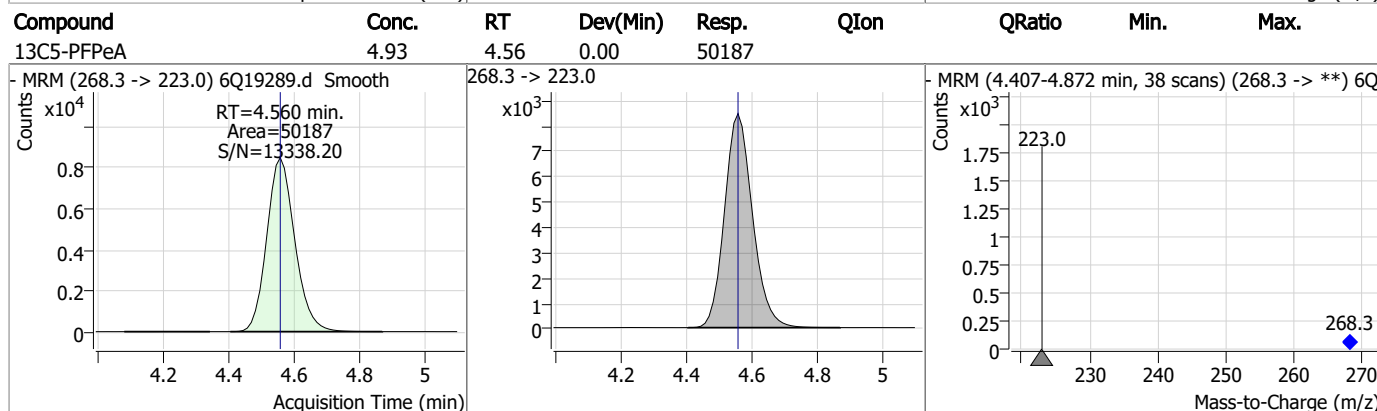
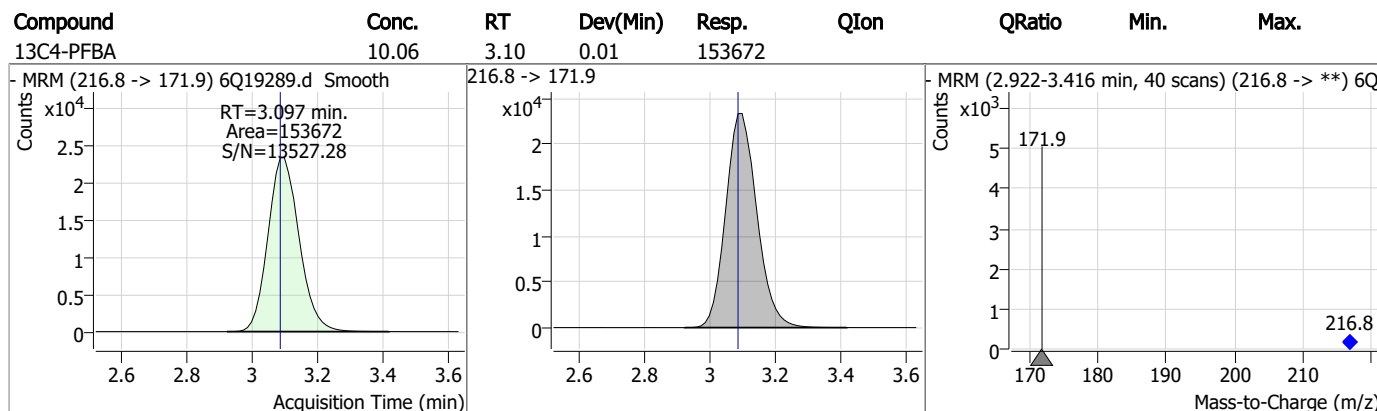
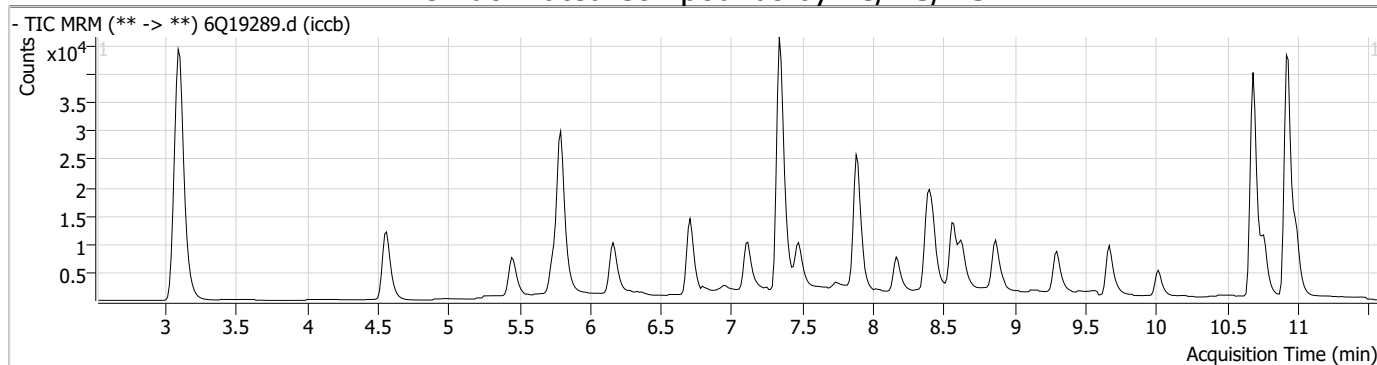
Perfluorinated Compounds by LC/MS/MS

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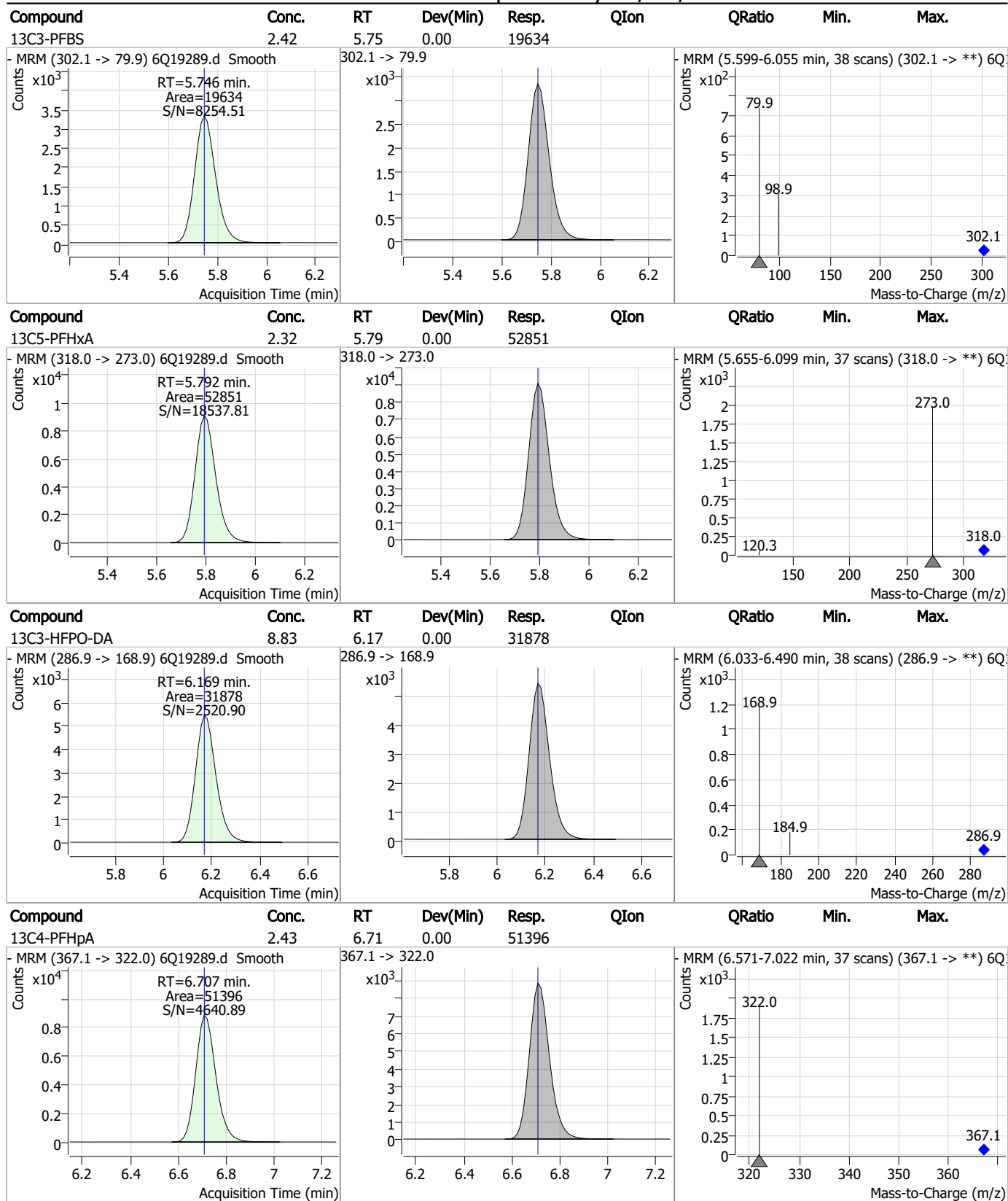
7.2.5

7

Perfluorinated Compounds by LC/MS/MS



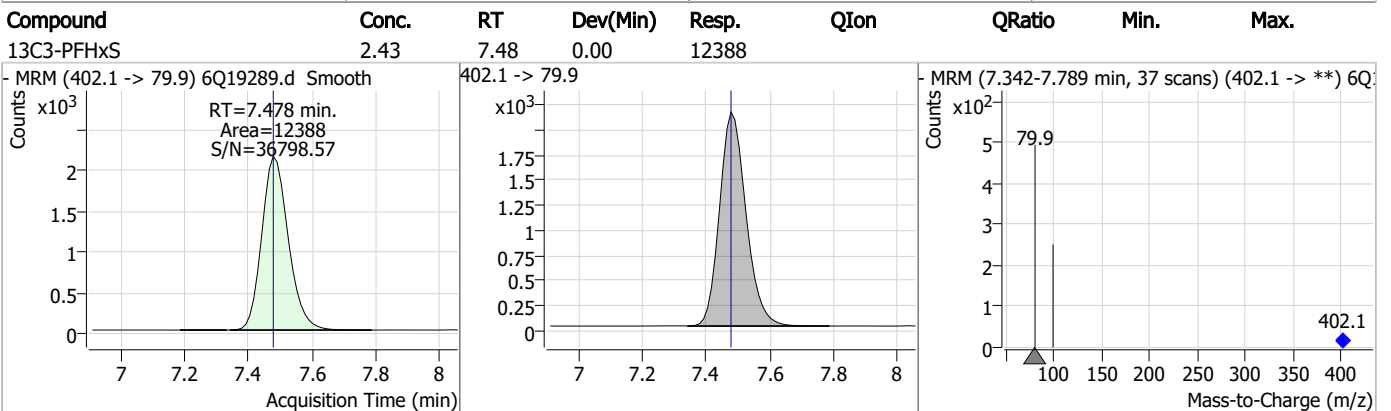
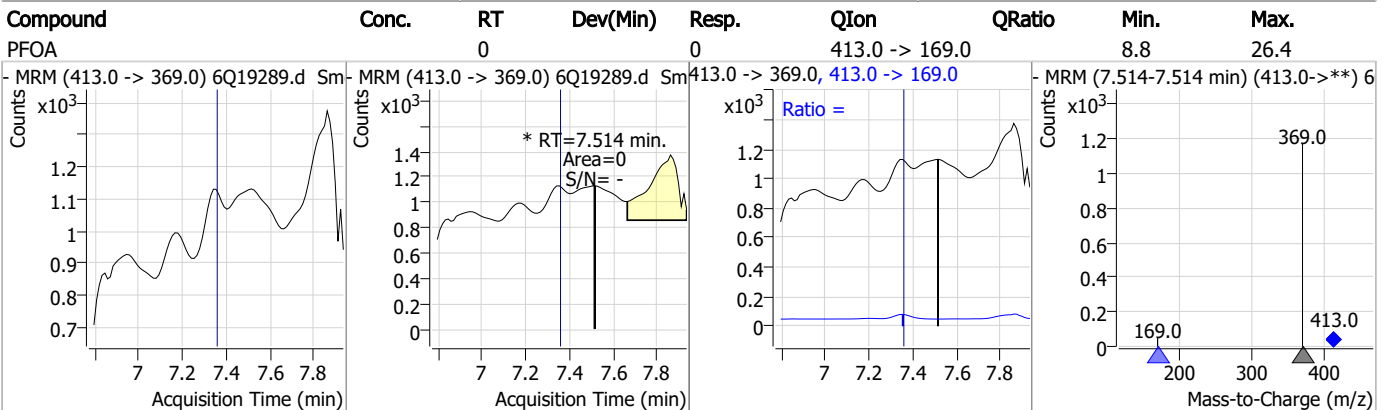
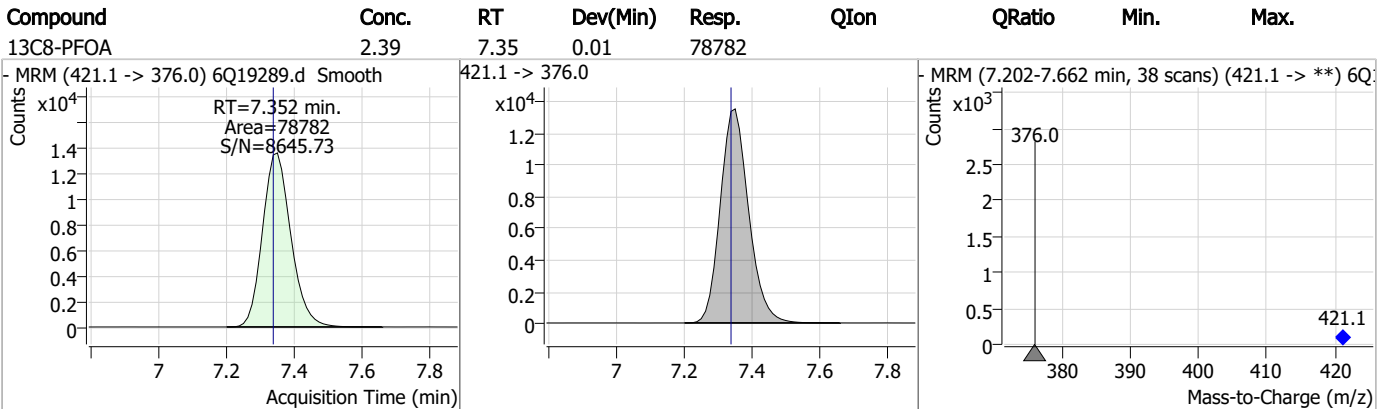
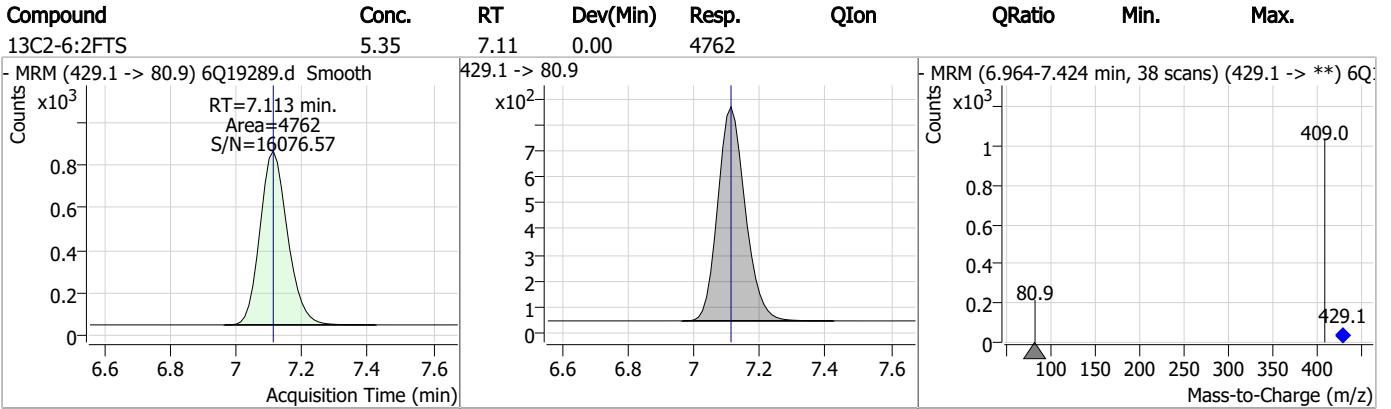
Perfluorinated Compounds by LC/MS/MS



7.25
7



Perfluorinated Compounds by LC/MS/MS

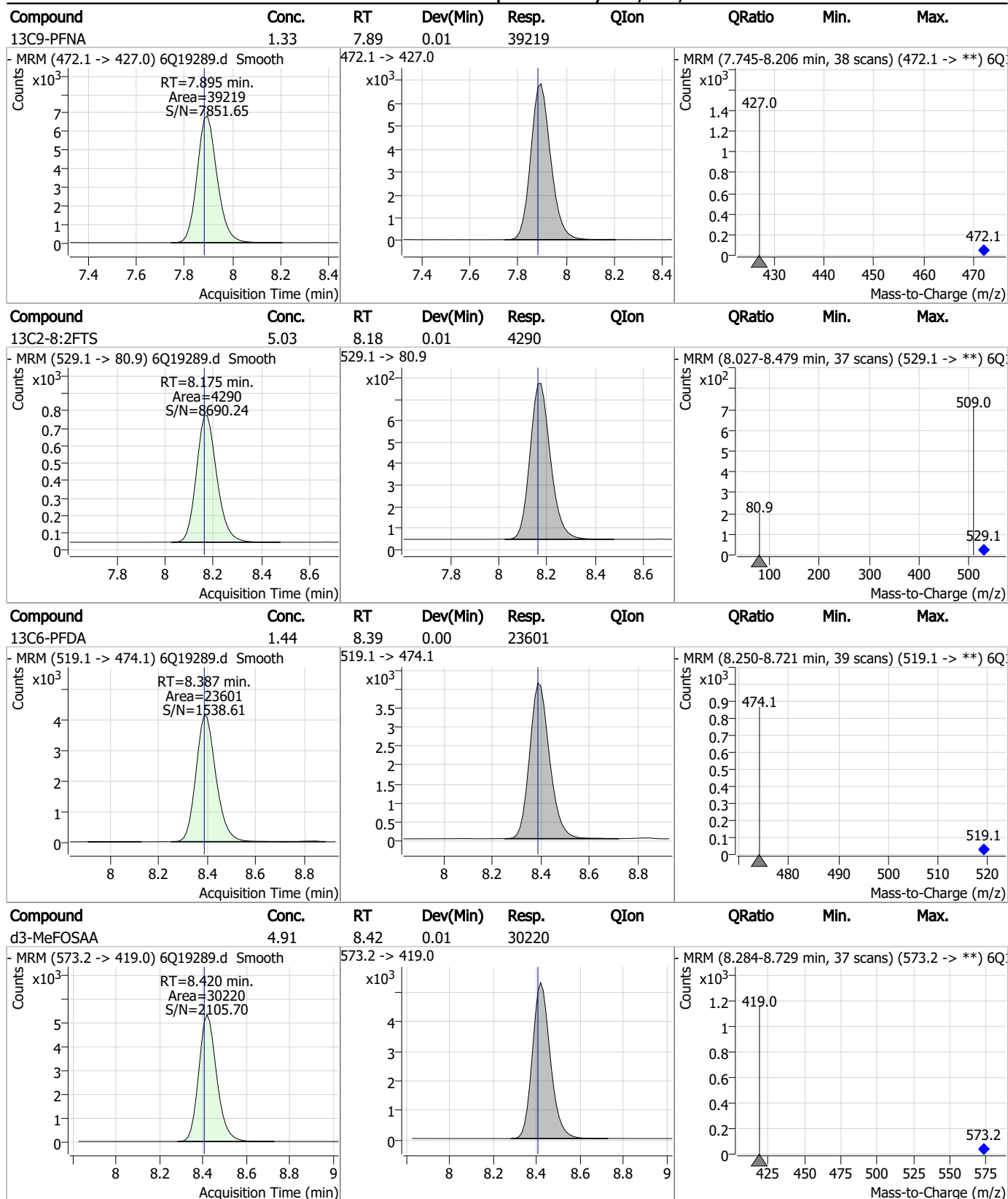


7.2.5

7



Perfluorinated Compounds by LC/MS/MS



7.2.5
7



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.65	8.57	0.01	12723				
d5-EtFOSAA	4.89	8.63	0.01	25395				
13C7-PFUnDA	1.40	8.87	0.01	32335				
13C2-PFDoDA	1.28	9.30	0.01	25440				

7.2.5
7

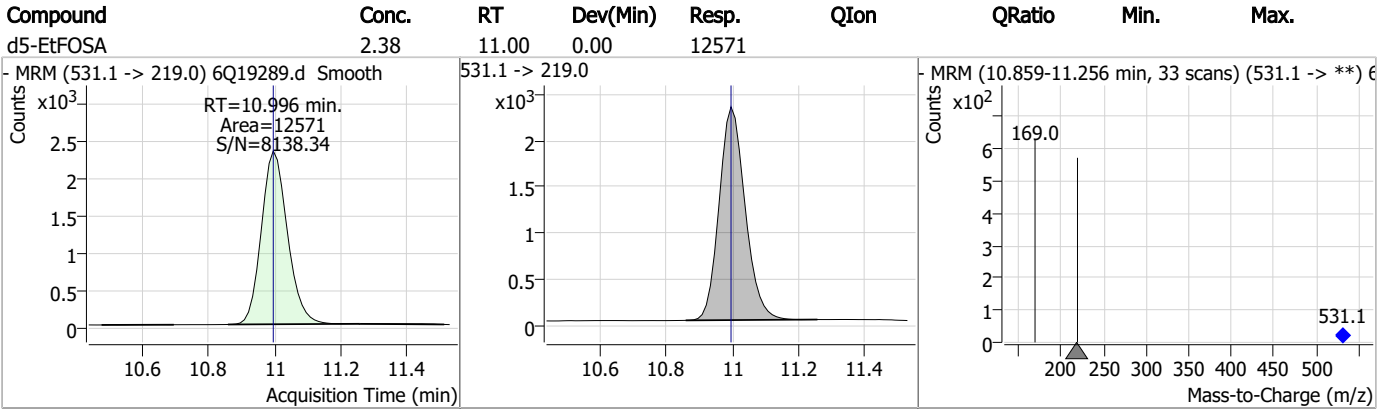
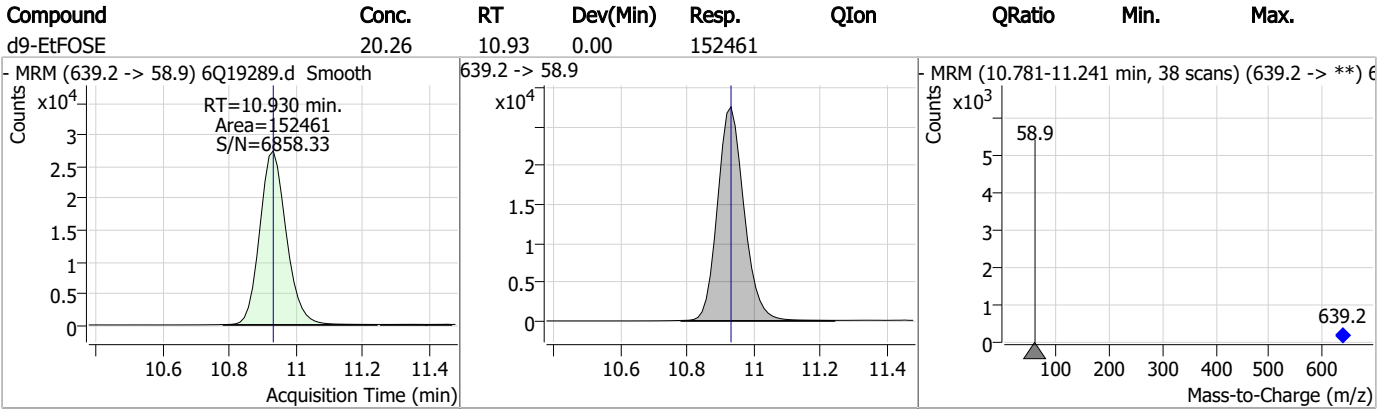
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.47	9.67	0.00	30013				
13C2-PFTeDA	1.31	10.01	0.01	15119				
d7-MeFOSE	22.15	10.68	0.00	133458				
d3-MeFOSA	2.41	10.78	0.00	13162				

7.2.5
7



Perfluorinated Compounds by LC/MS/MS



7.2.5

7

Perfluorinated Compounds by LC/MS/MS

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

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

7.2.6
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 = 108.3%	
13C4-PFBA	3.085	216.8 -> 171.9	151177	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFHpA	6.707	367.1 -> 322.0	52394	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C5-PFHxA	5.792	318.0 -> 273.0	52954	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C5-PFPeA	4.560	268.3 -> 223.0	49841	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C6-PFDA	8.387	519.1 -> 474.1	21842	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C7-PFUnDA	8.866	570.0 -> 525.1	30408	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C8-FOSA	9.674	506.1 -> 77.8	29167	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-PFOA	7.352	421.1 -> 376.0	80957	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C8-PFOS	8.563	507.1 -> 79.9	12029	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C9-PFNA	7.895	472.1 -> 427.0	38597	1.37 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.4%	
d3-MeFOSAA	8.420	573.2 -> 419.0	31039	5.25 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	33106	9.62 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
d3-MeFOSA	10.775	515.0 -> 219.0	12535	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
d5-EtFOSAA	8.615	589.2 -> 419.0	25249	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
d7-MeFOSE	10.685	623.2 -> 58.9	144785	25.05 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d9-EtFOSE	10.930	639.2 -> 58.9	155458	21.54 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.1%	
d5-EtFOSA	10.996	531.1 -> 219.0	12491	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
Target Compounds					QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.845	512.9 -> 469.0	0	µg/L	m
		512.9 -> 219.0	0		
PFDODA	9.685	613.1 -> 569.0	0	µg/L	m
		613.1 -> 319.0	0		
PFDS	-	599.0 -> 79.9	-	N.D.	

7.2.6
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.849	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	9.288	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11CI-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9CI-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.6
7

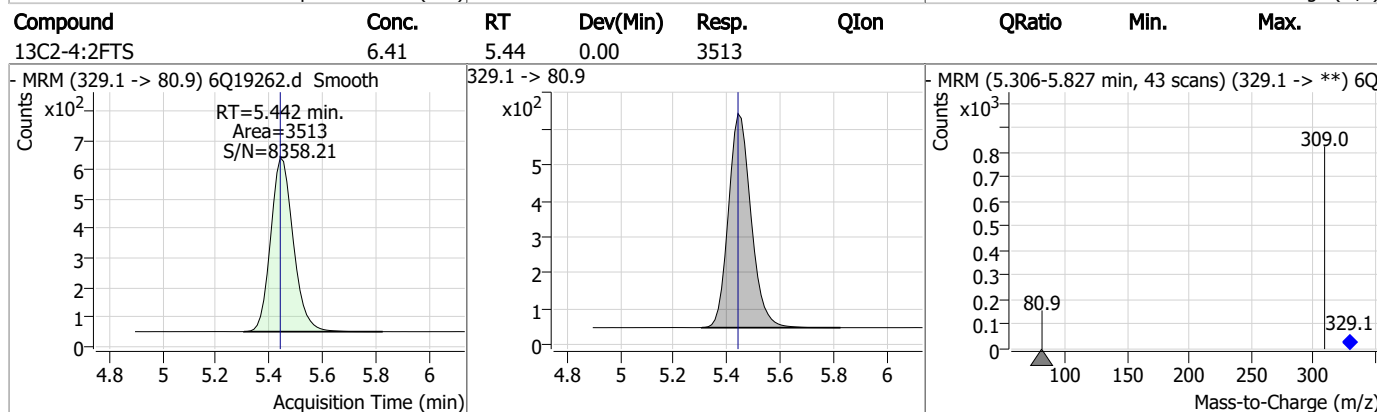
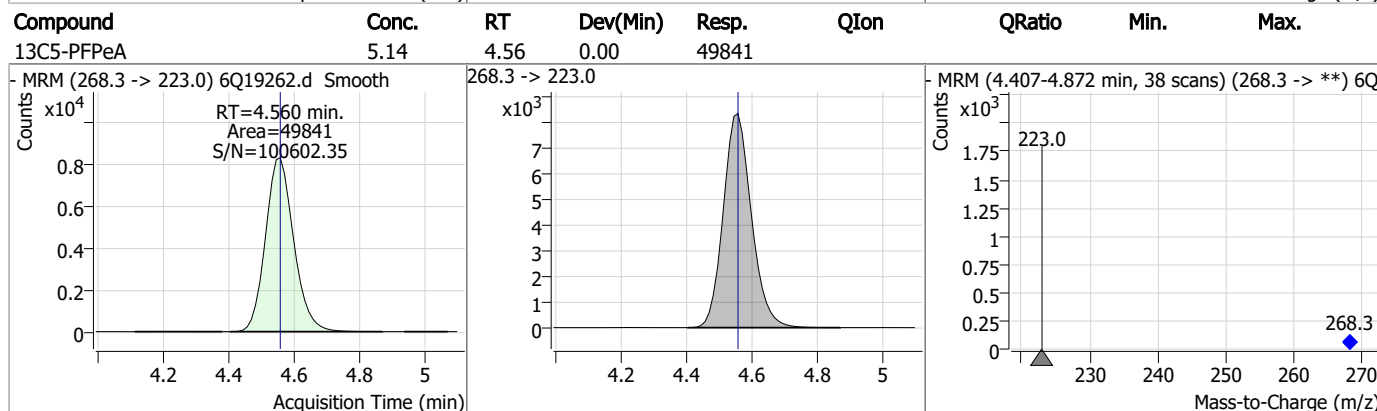
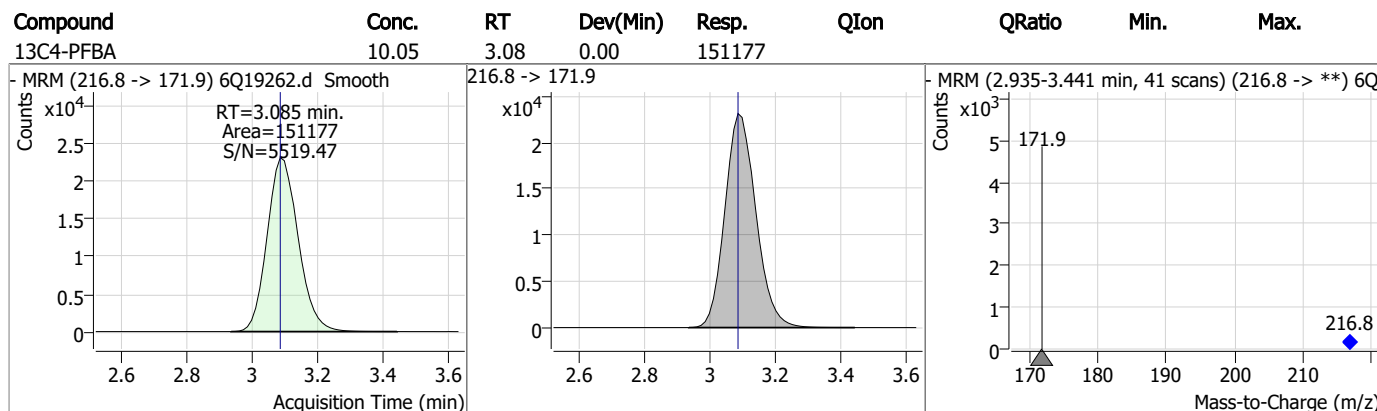
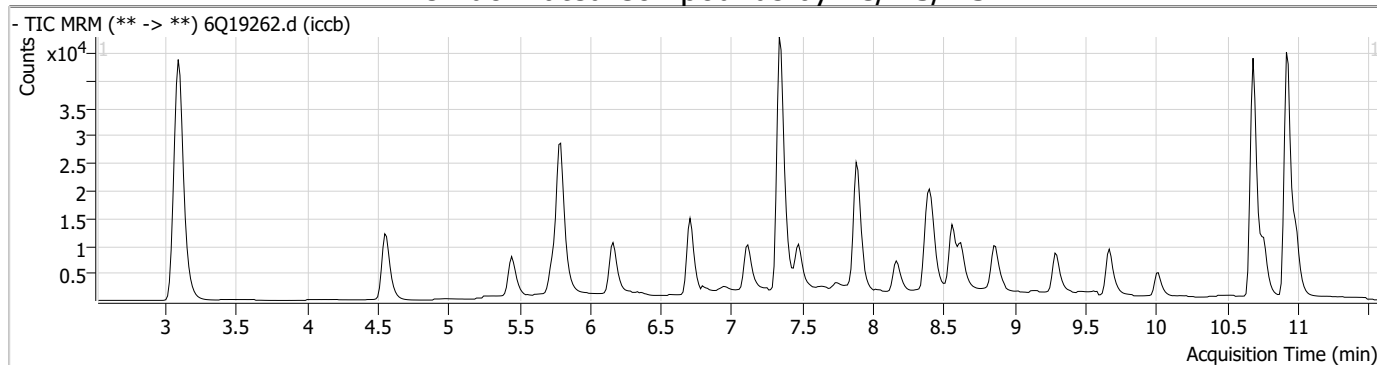
Perfluorinated Compounds by LC/MS/MS

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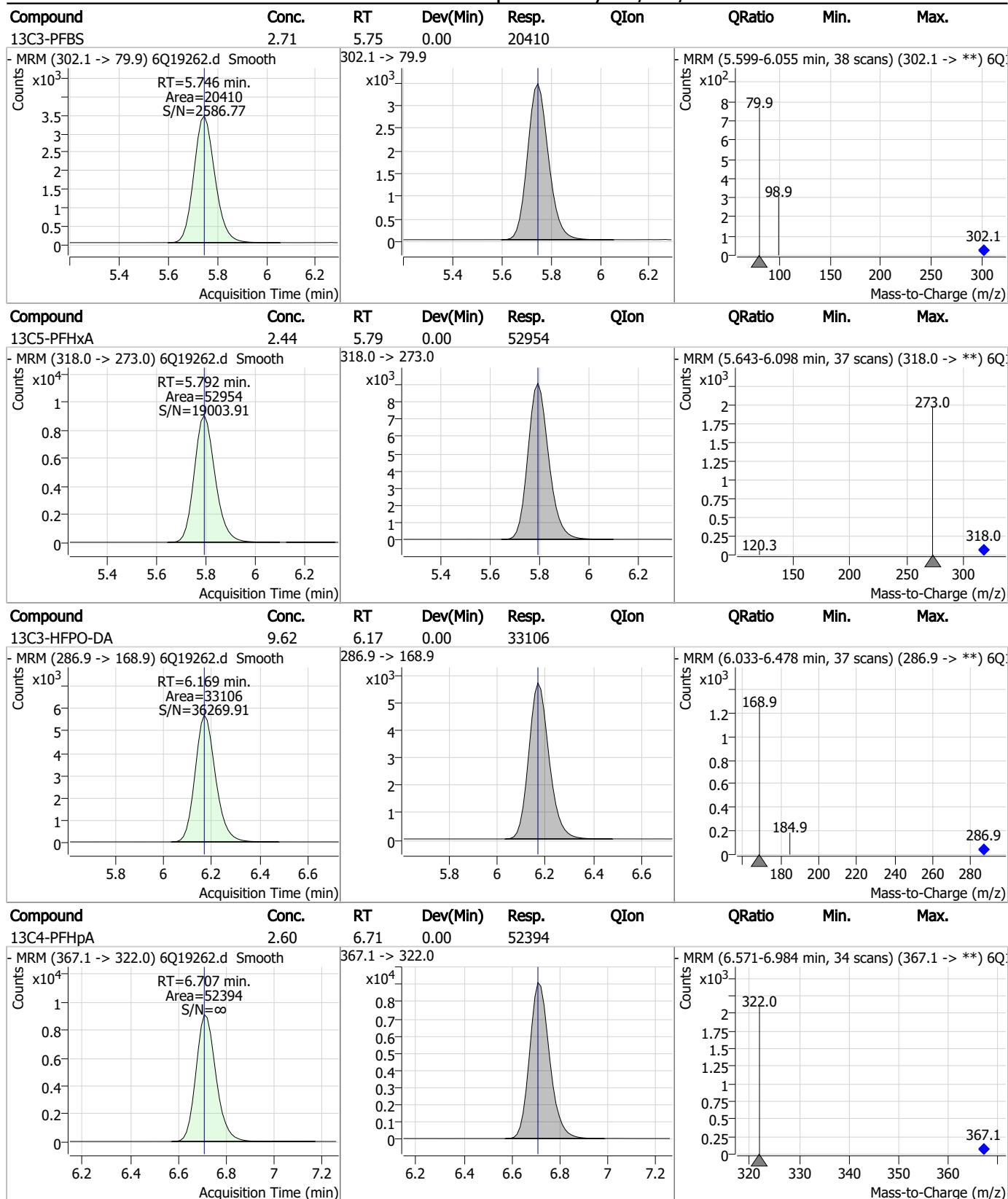
7.2.6

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Perfluorinated Compounds by LC/MS/MS

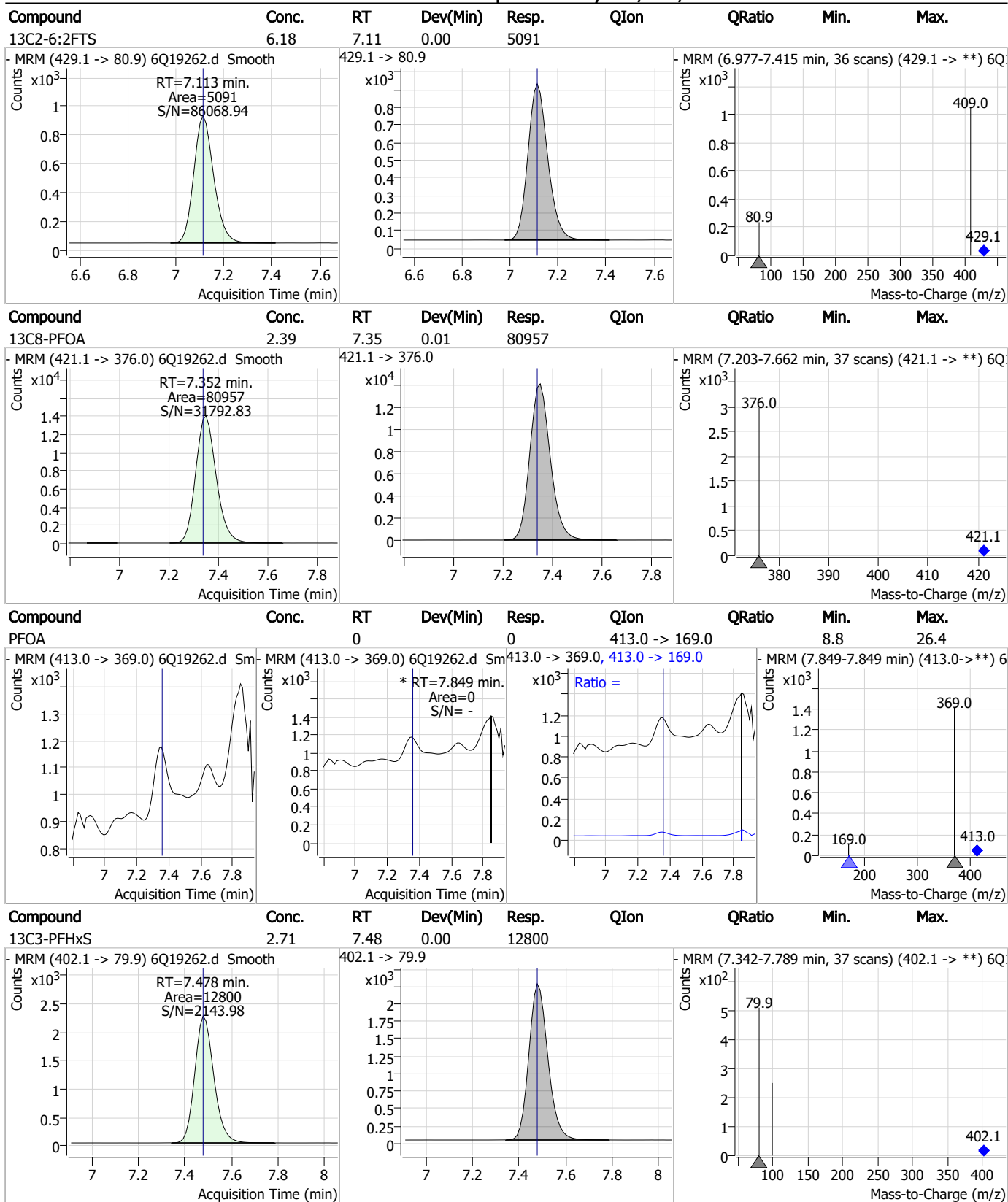


Perfluorinated Compounds by LC/MS/MS



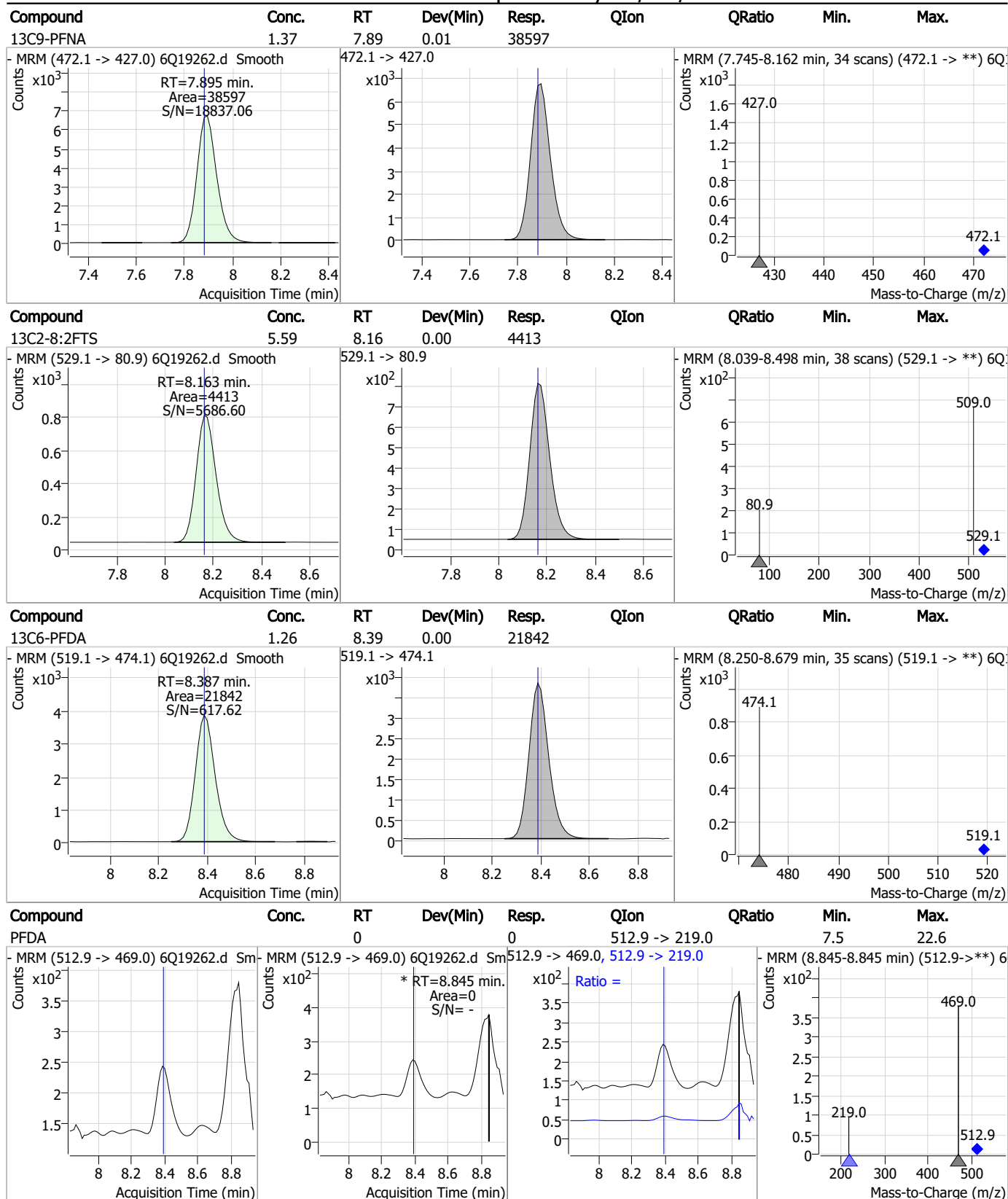
7.2.6
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Perfluorinated Compounds by LC/MS/MS



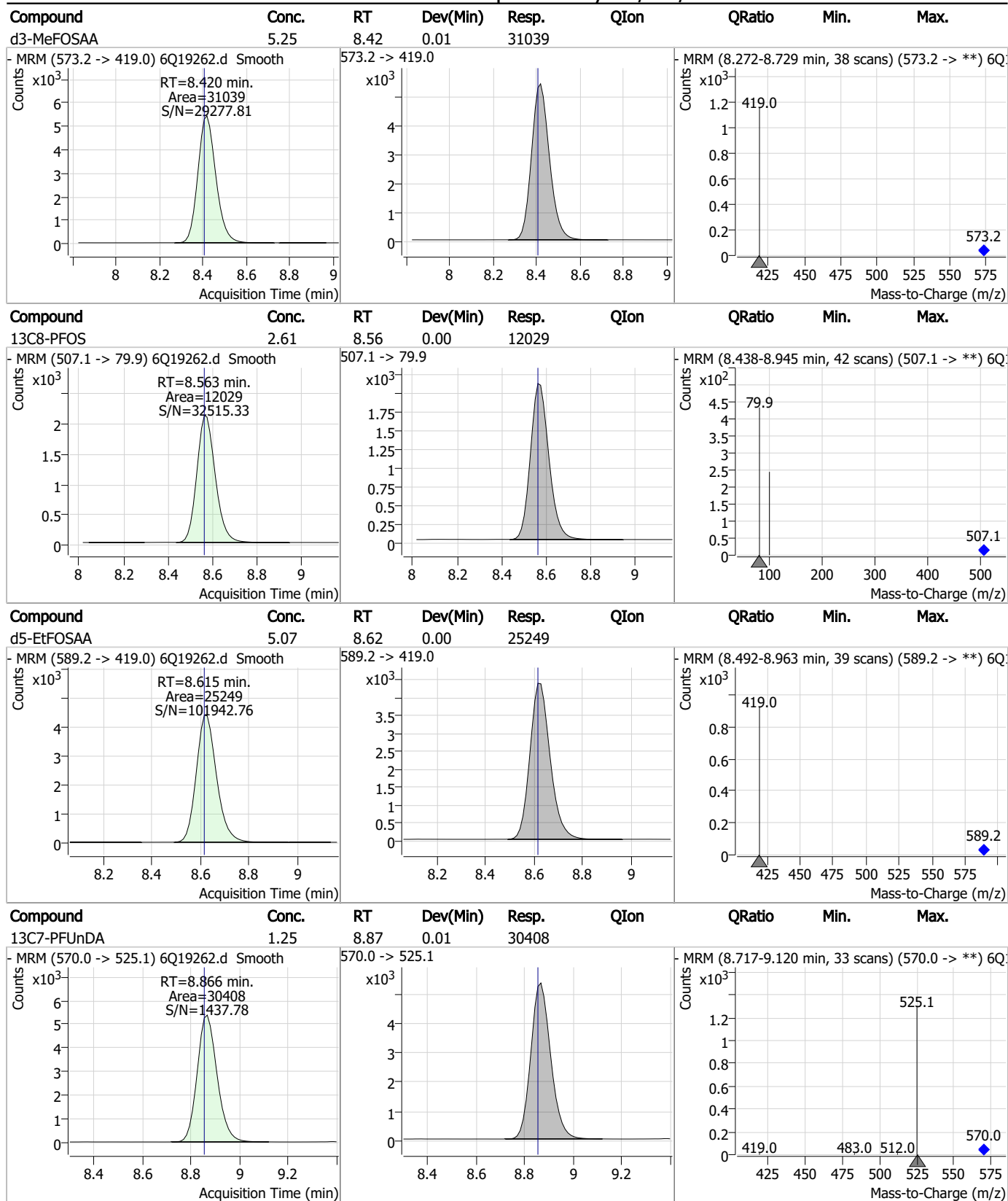
7.2.6
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Perfluorinated Compounds by LC/MS/MS



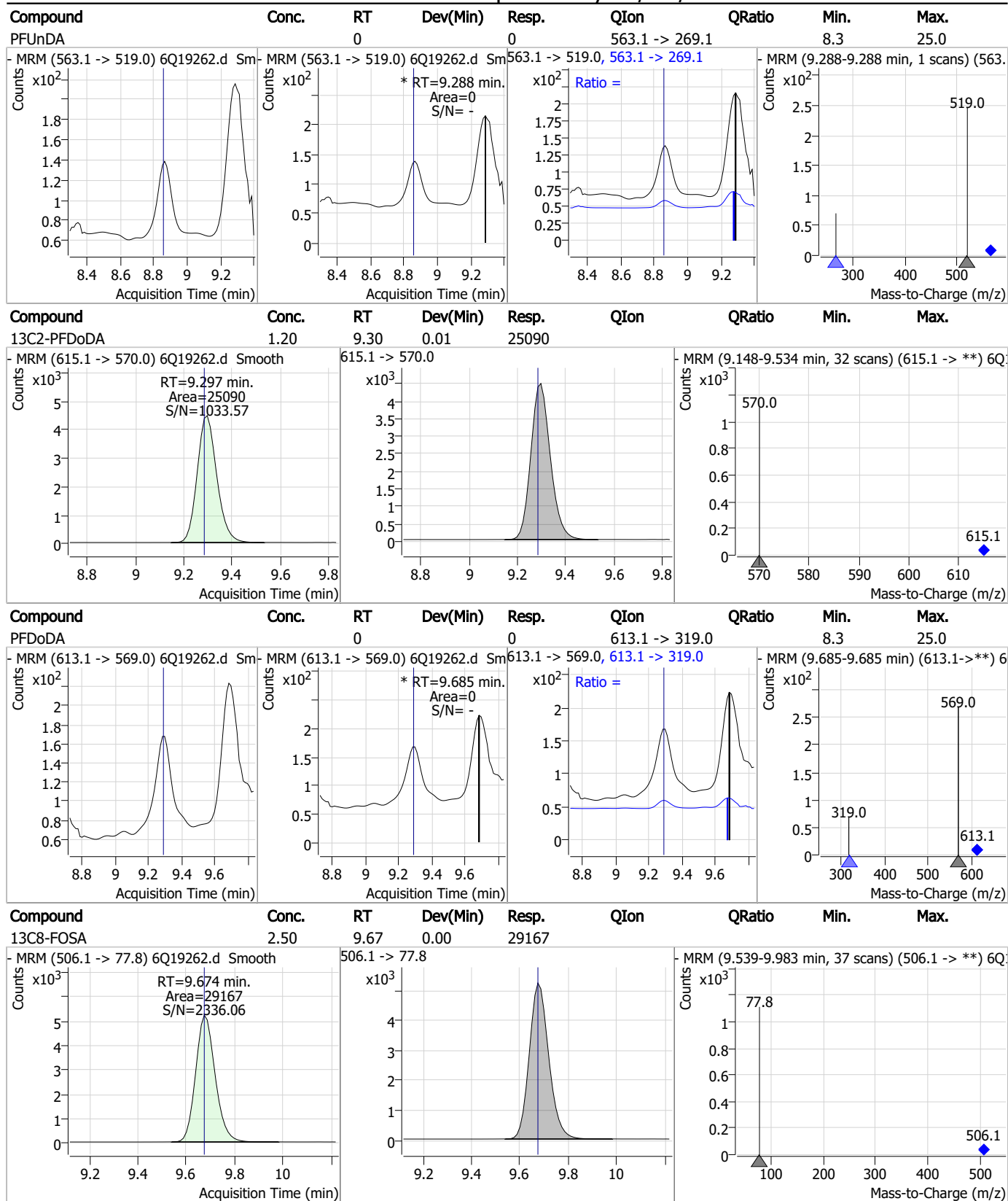
7.2.6
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Perfluorinated Compounds by LC/MS/MS



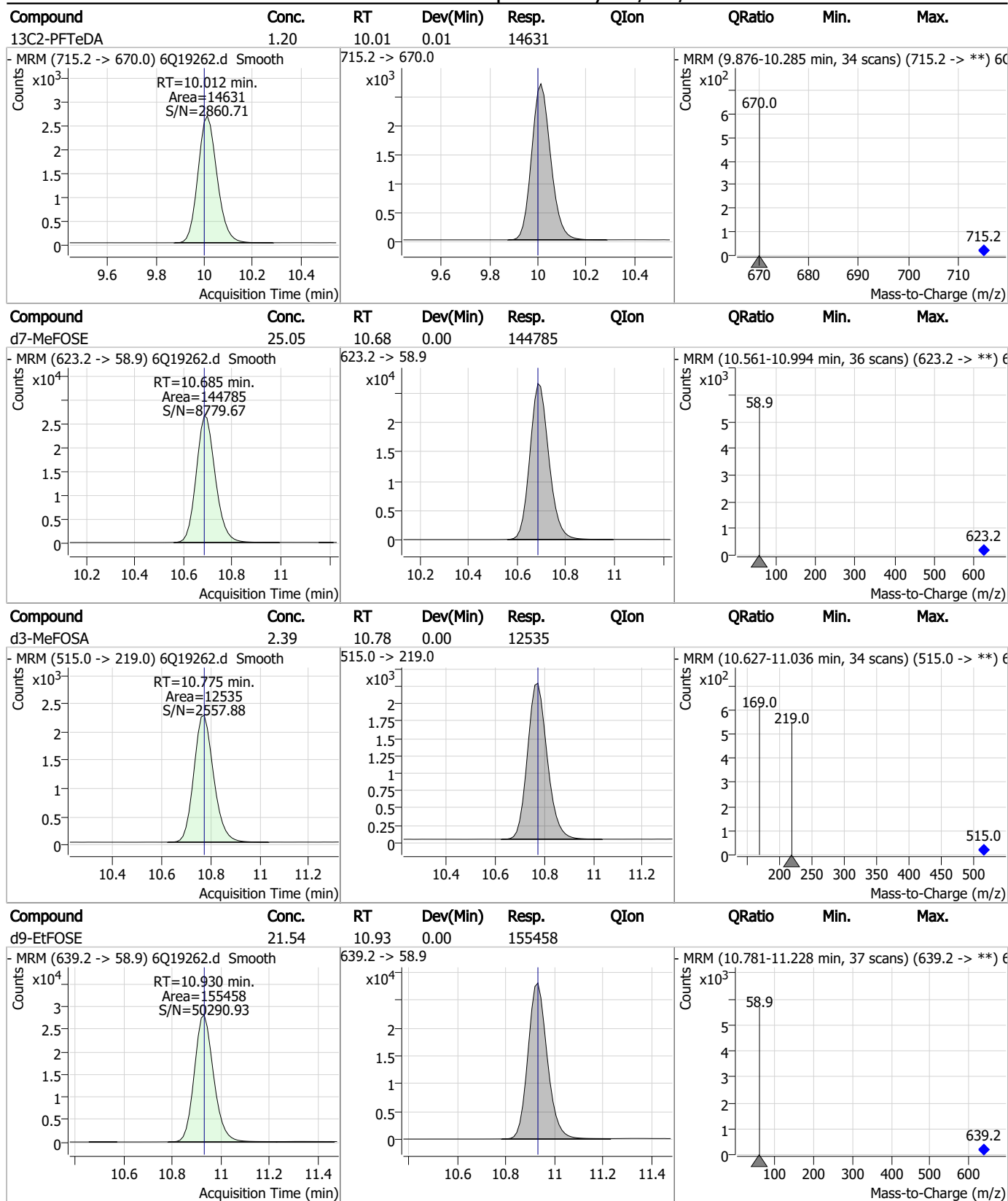
7.2.6
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Perfluorinated Compounds by LC/MS/MS



7.2.6
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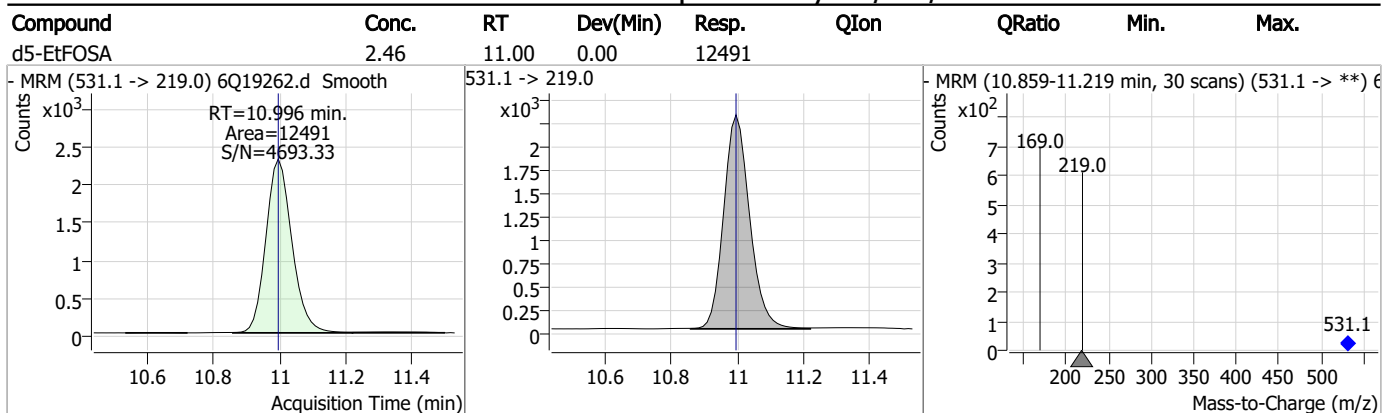
Perfluorinated Compounds by LC/MS/MS



7.2.6

7

Perfluorinated Compounds by LC/MS/MS



7.2.6

7

Perfluorinated Compounds by LC/MS/MS

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

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

7.3.1
7



Perfluorinated Compounds by LC/MS/MS

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

7.3.1
7

Perfluorinated Compounds by LC/MS/MS

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

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

7.3.1
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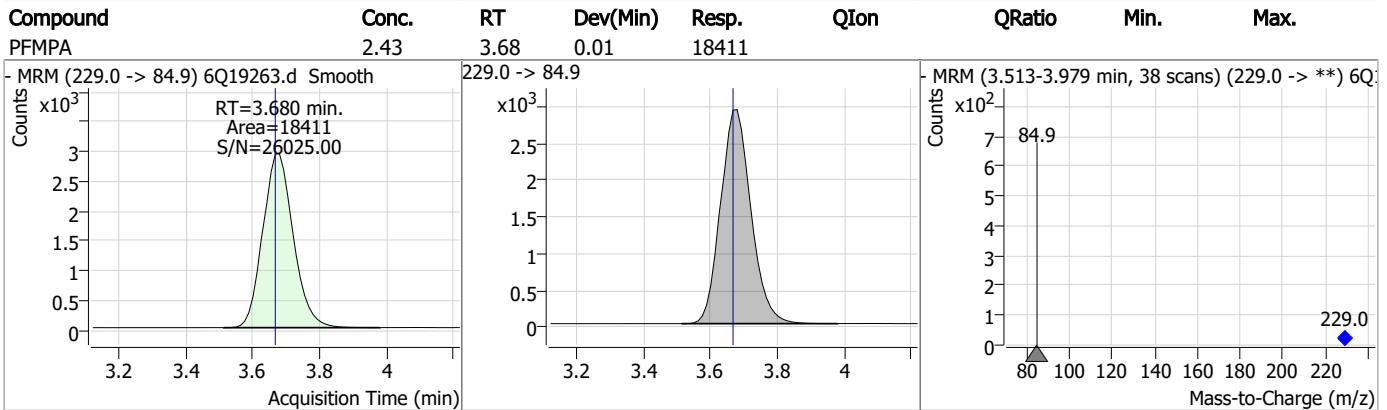
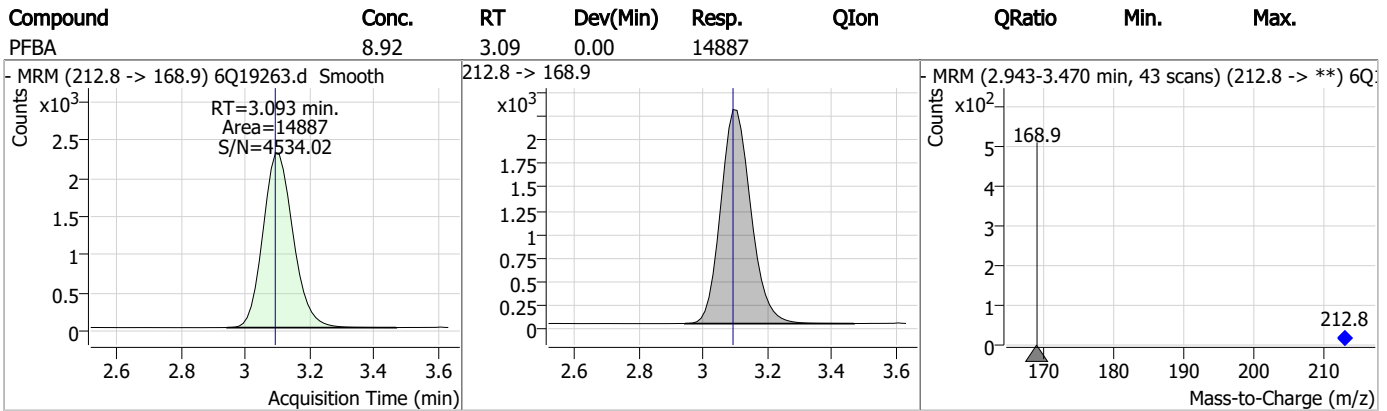
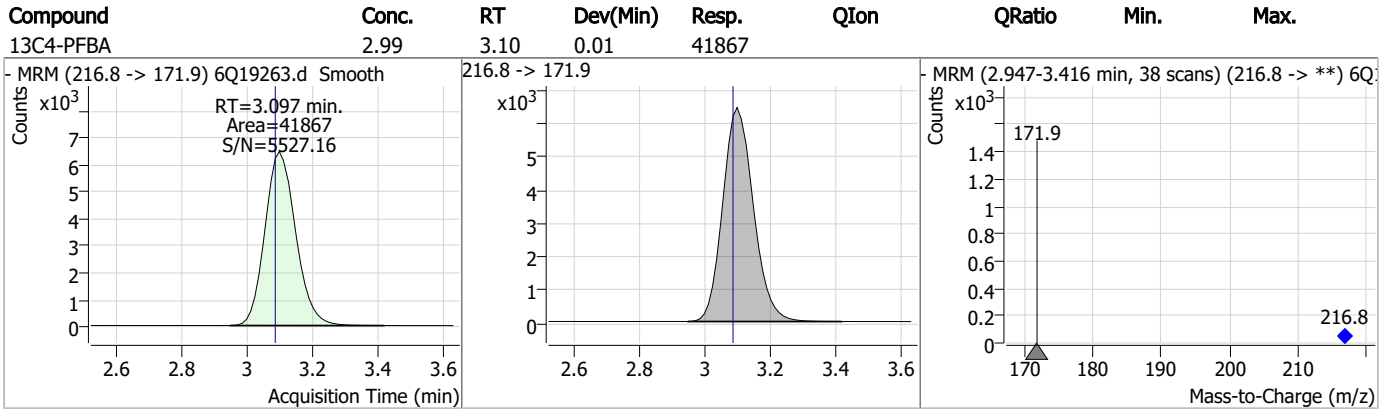
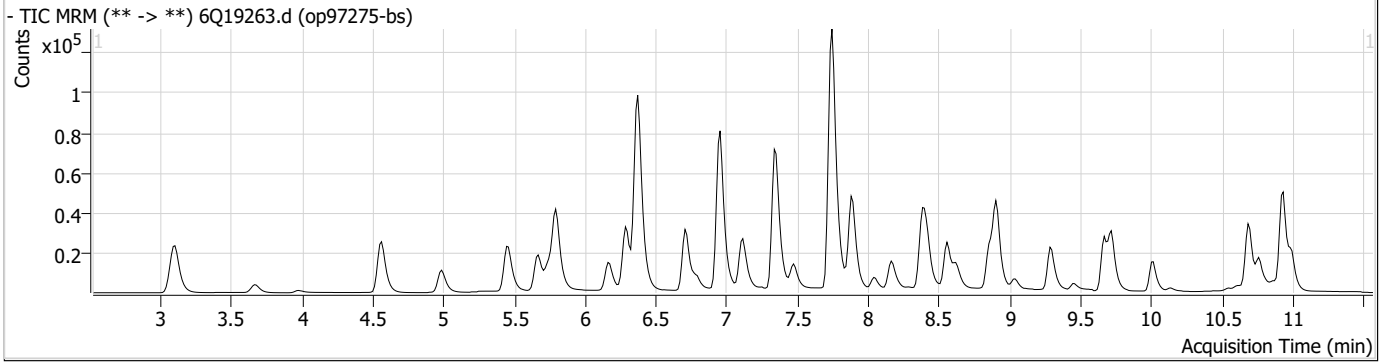
Perfluorinated Compounds by LC/MS/MS

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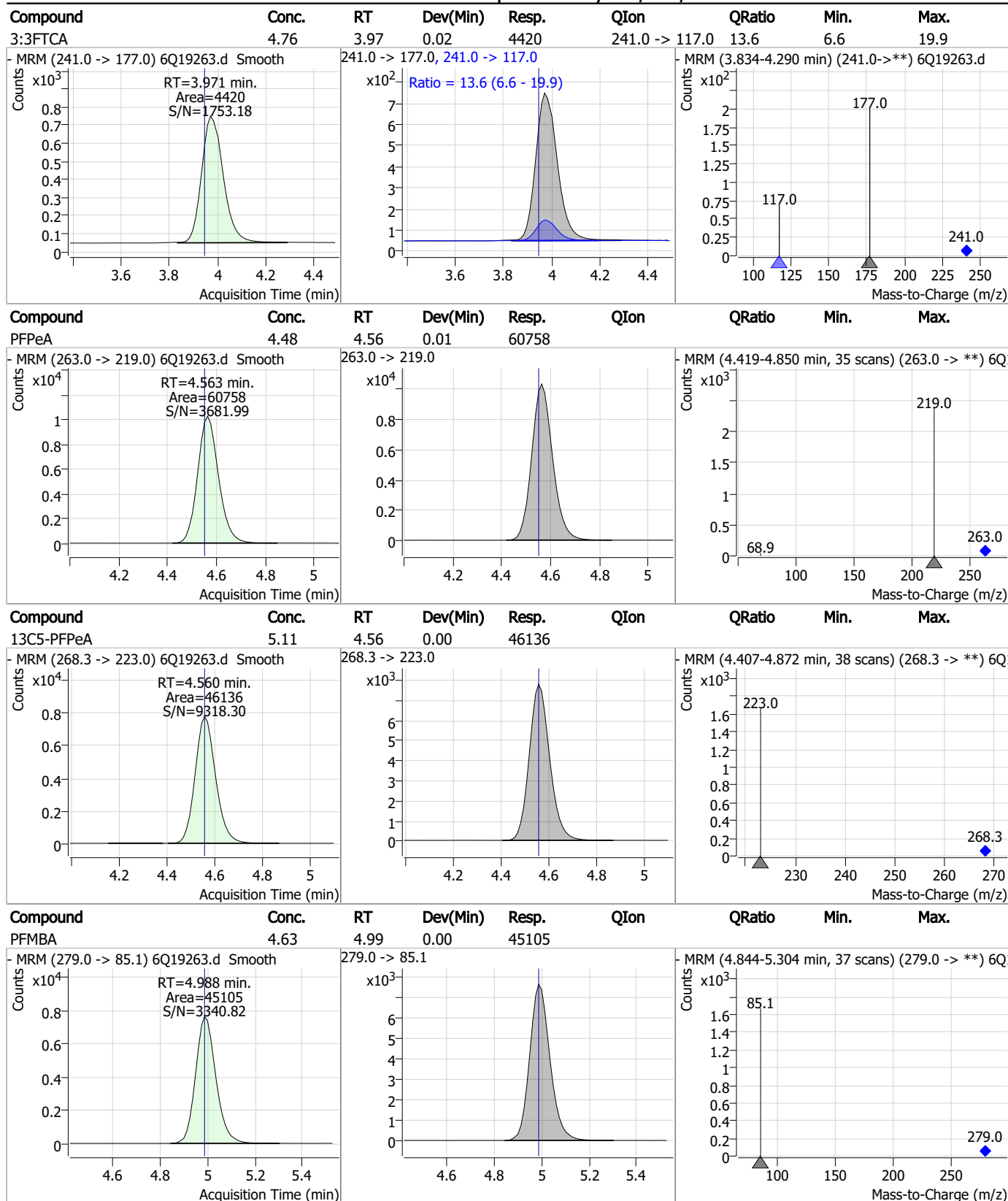
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Perfluorinated Compounds by LC/MS/MS

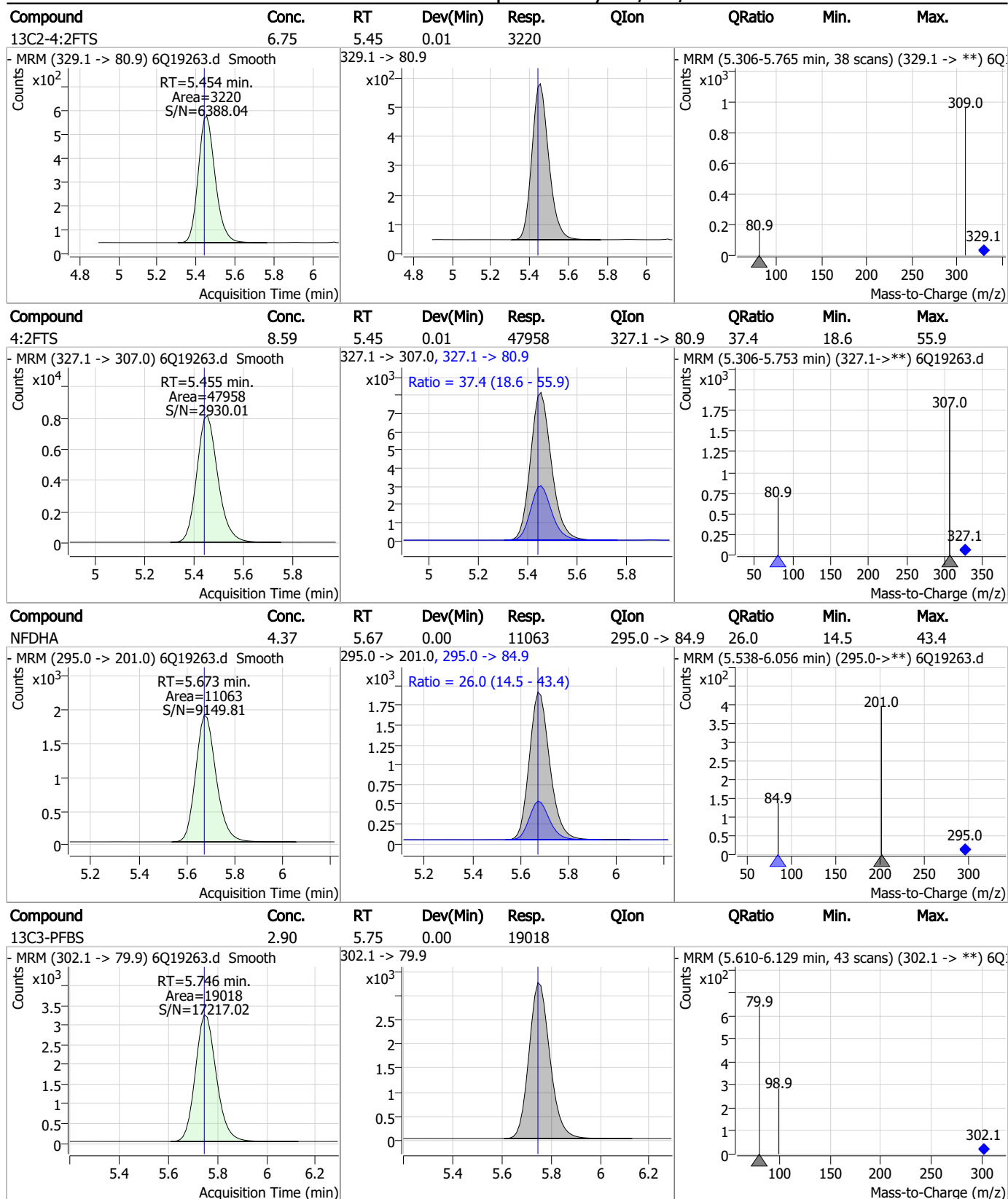


Perfluorinated Compounds by LC/MS/MS



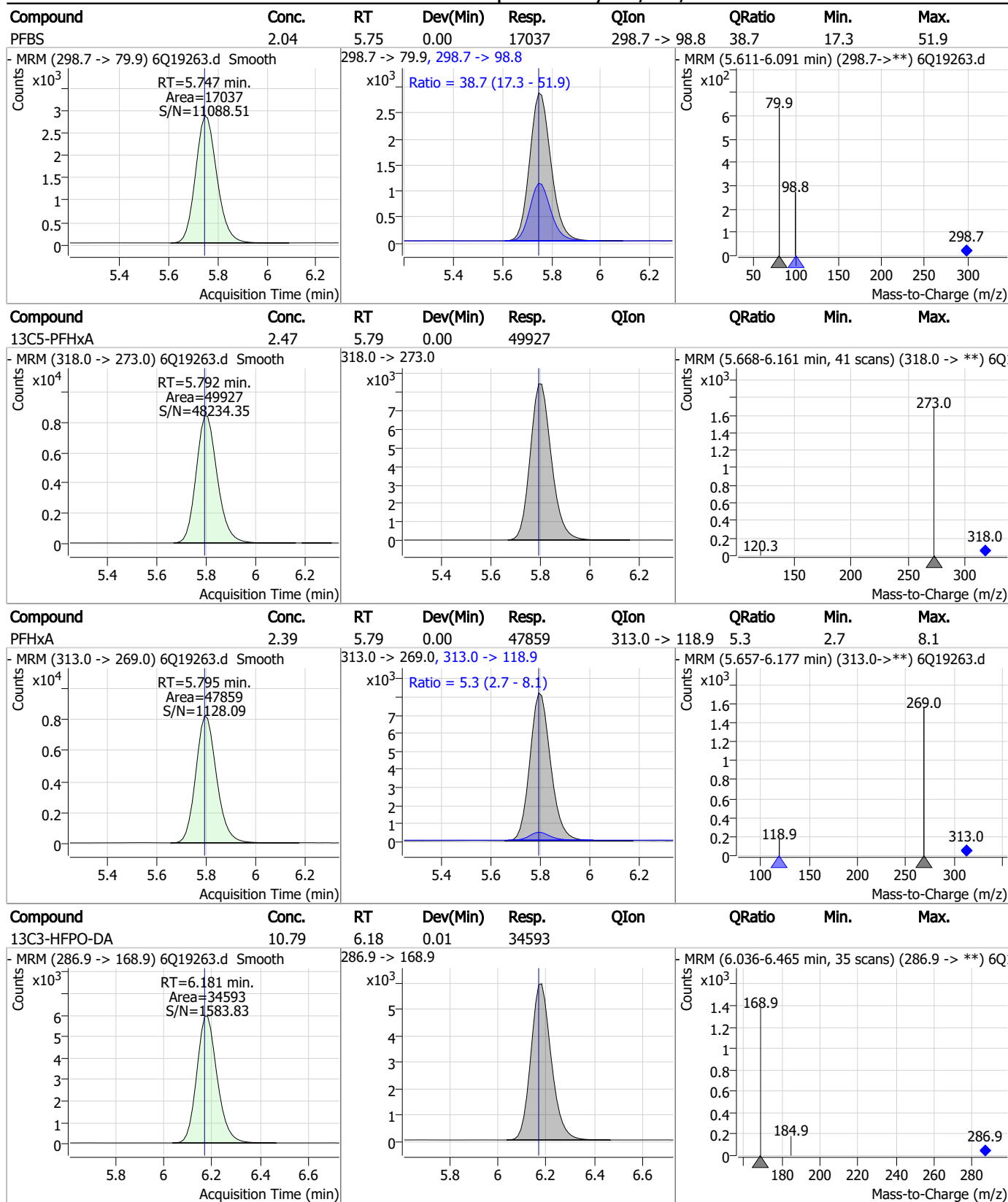
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Perfluorinated Compounds by LC/MS/MS



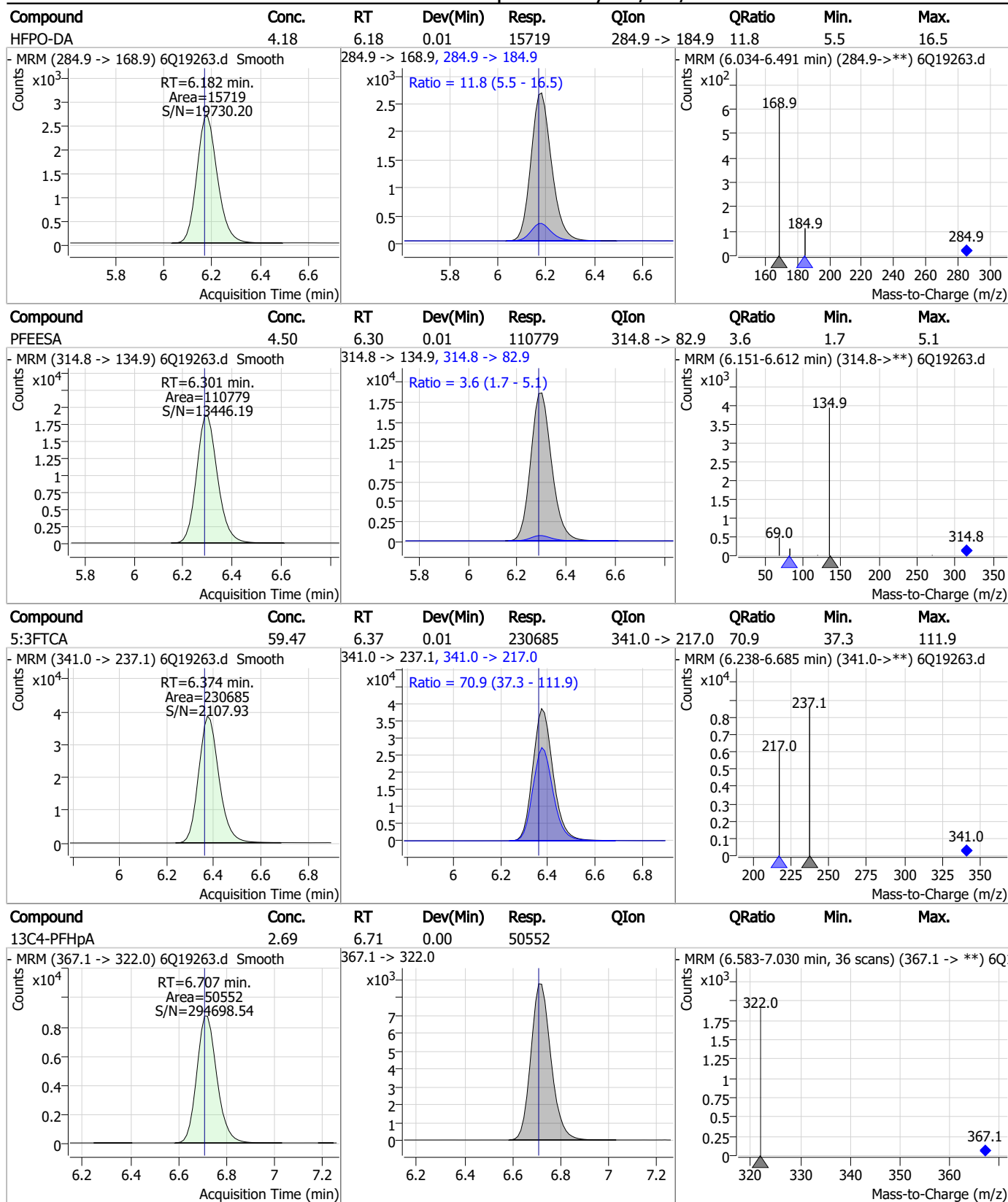
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Perfluorinated Compounds by LC/MS/MS



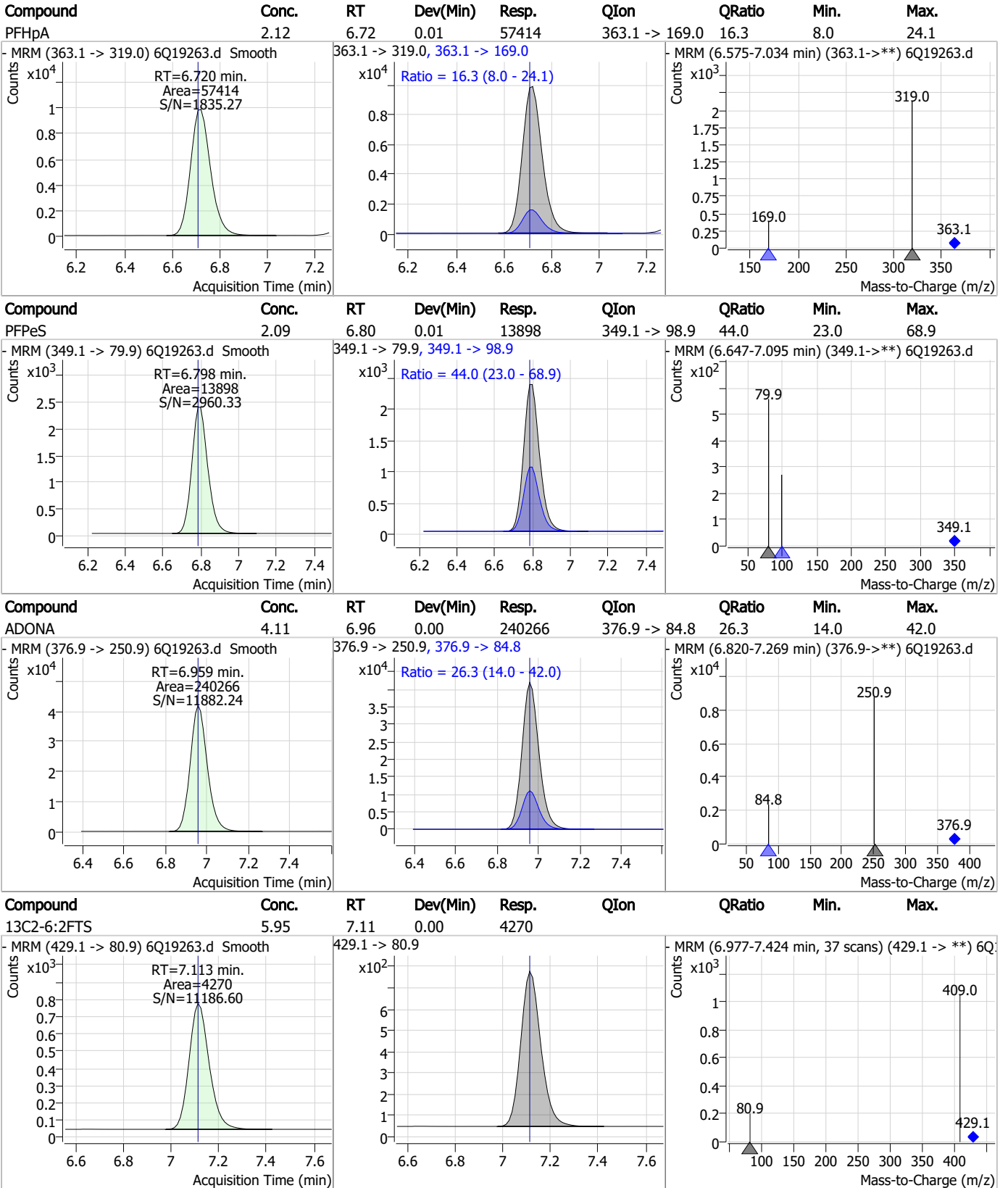
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Perfluorinated Compounds by LC/MS/MS



7.3.1
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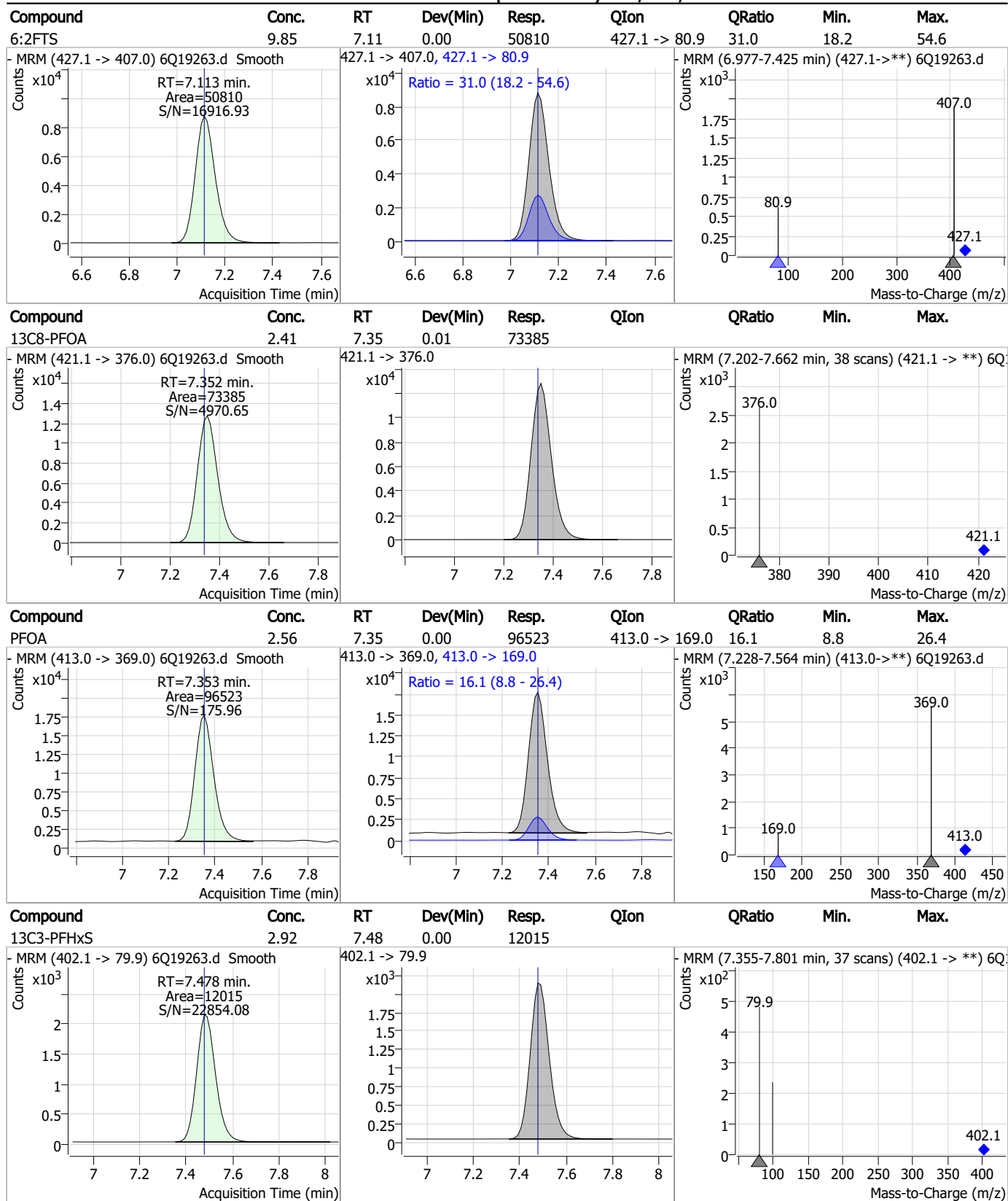
Perfluorinated Compounds by LC/MS/MS



7.3.1

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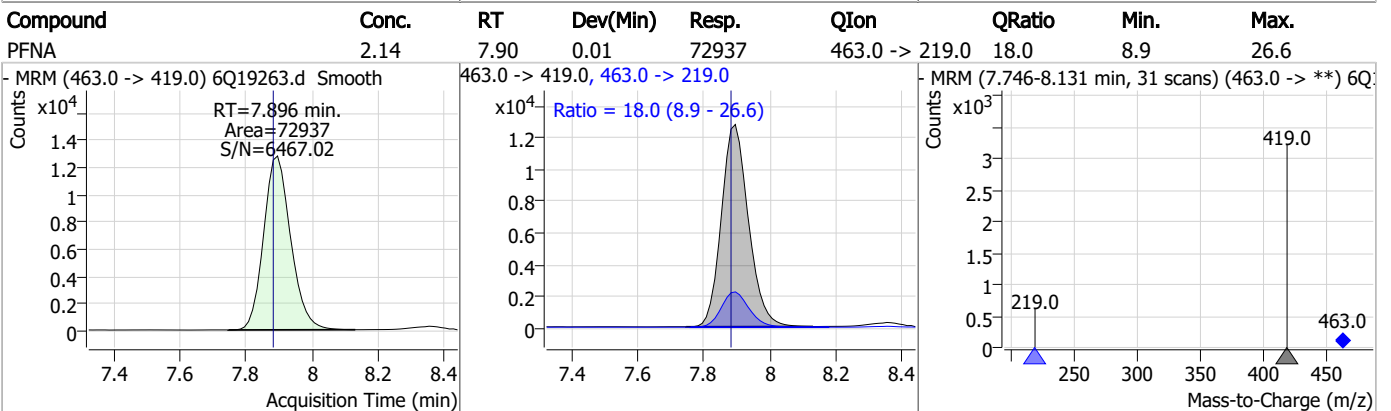
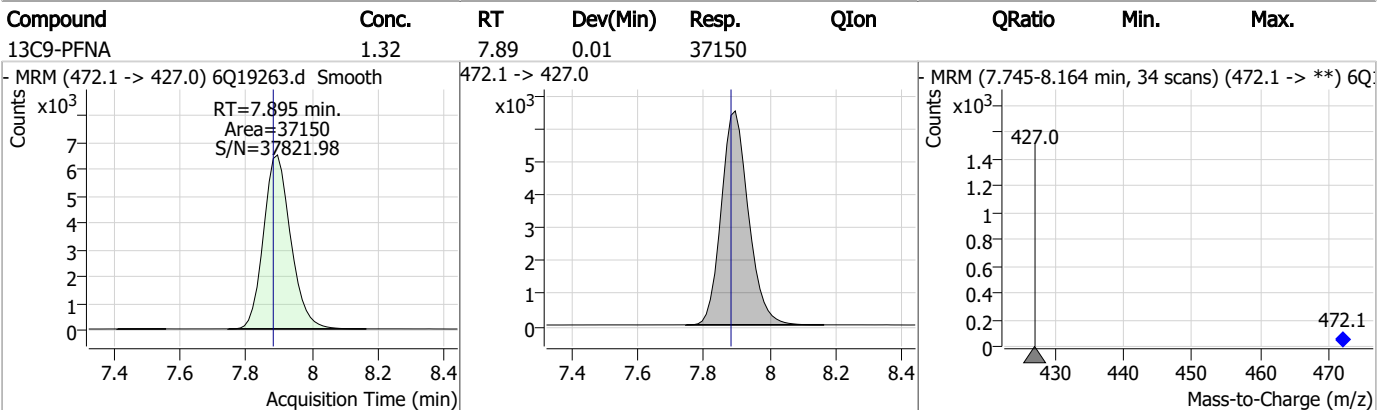
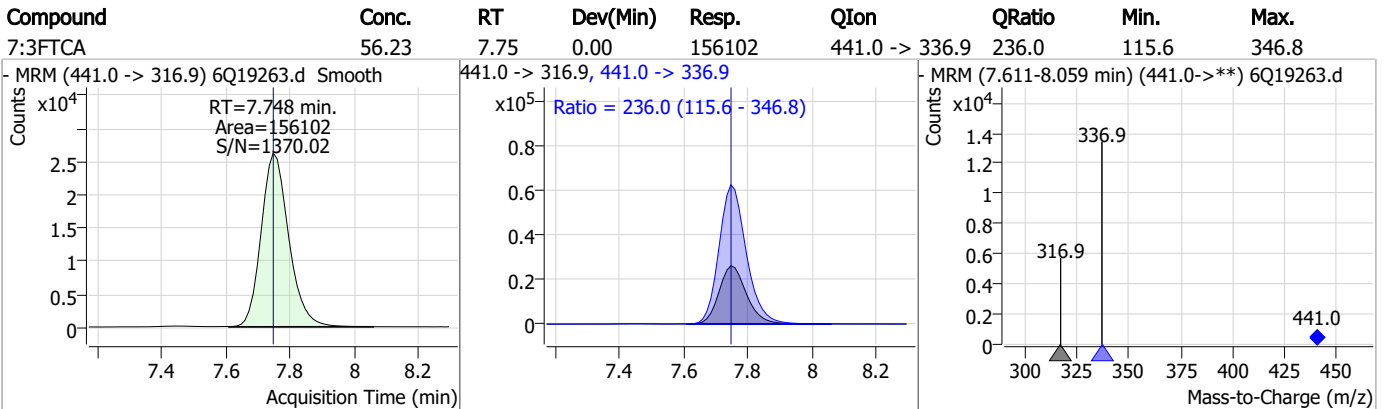
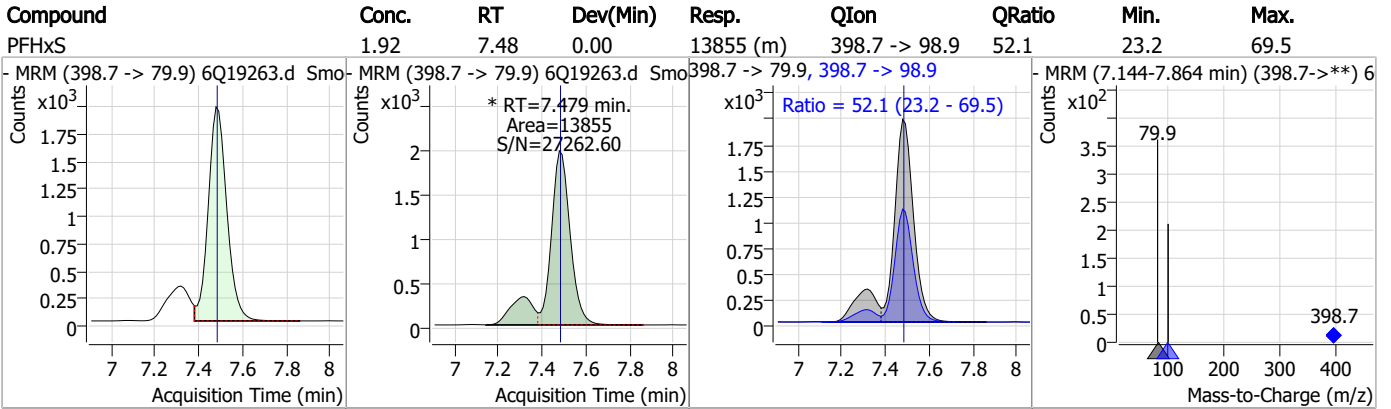
Perfluorinated Compounds by LC/MS/MS



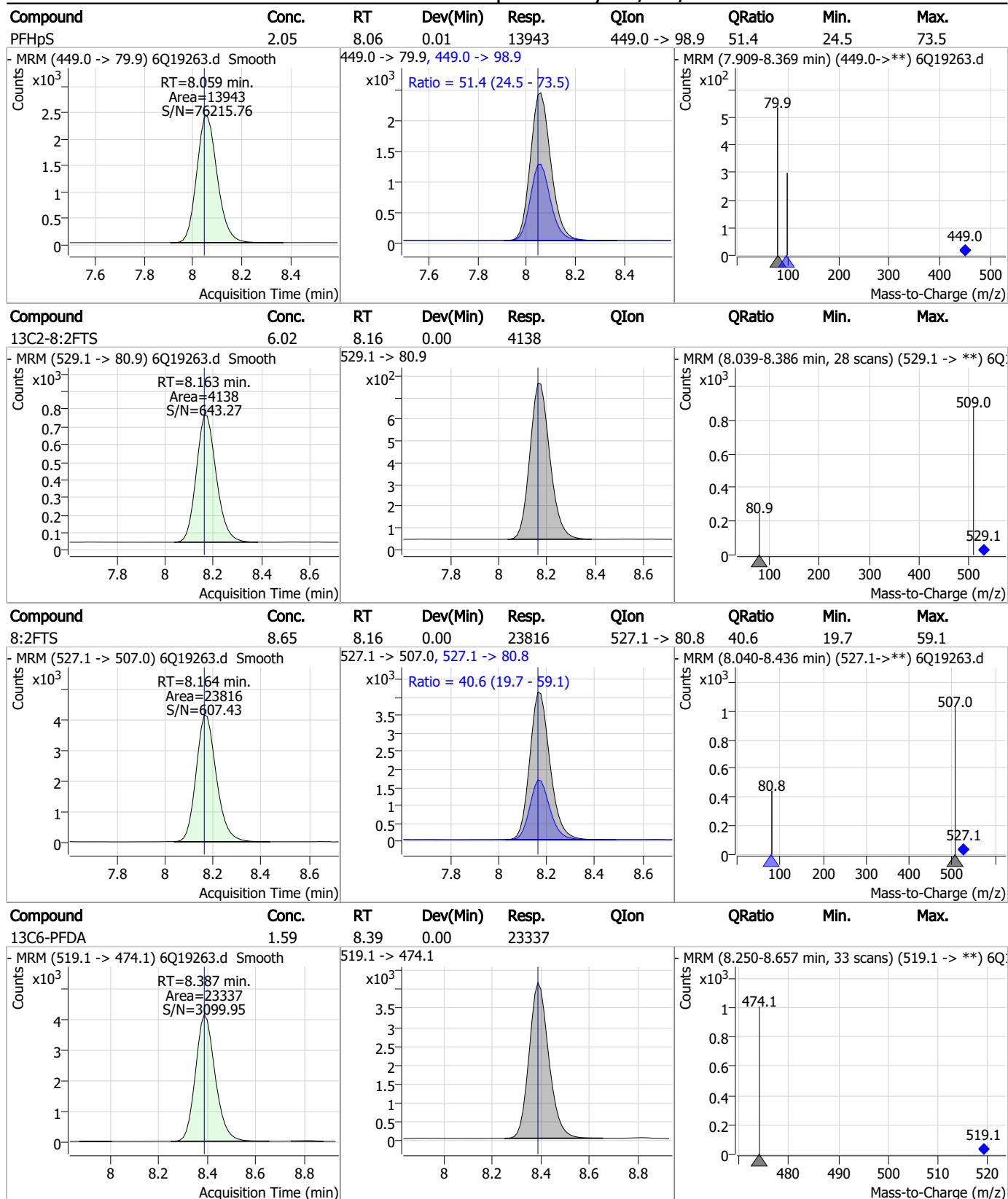
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Perfluorinated Compounds by LC/MS/MS

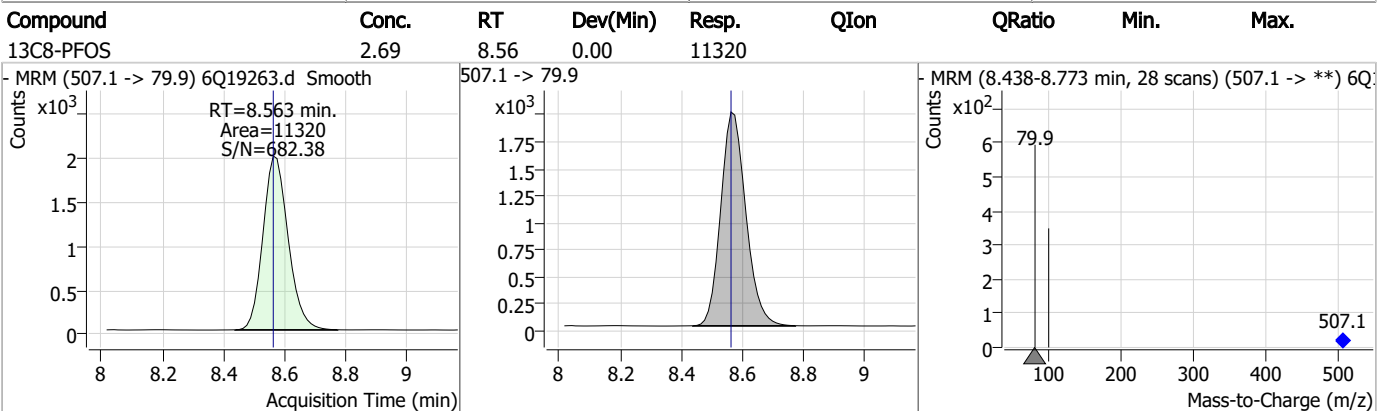
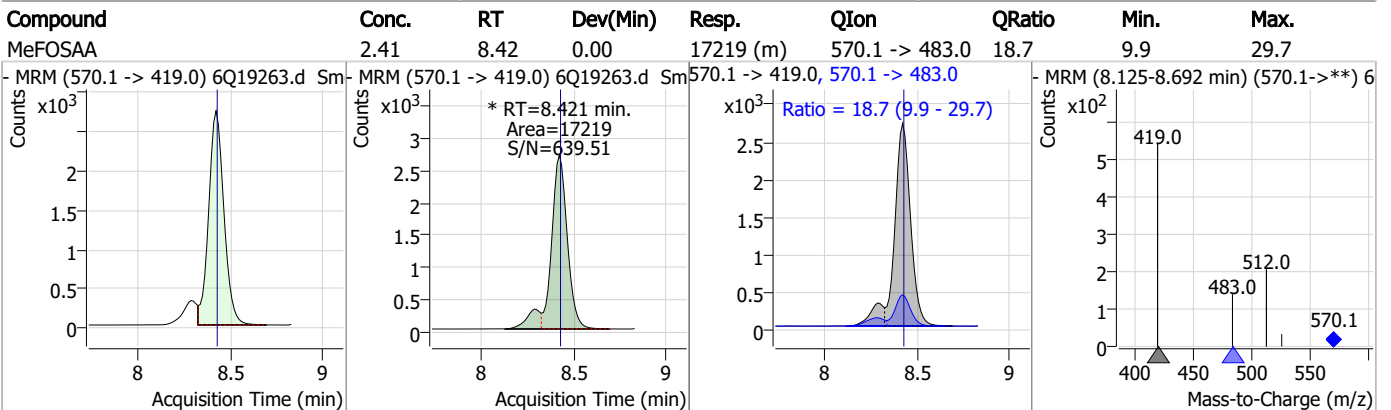
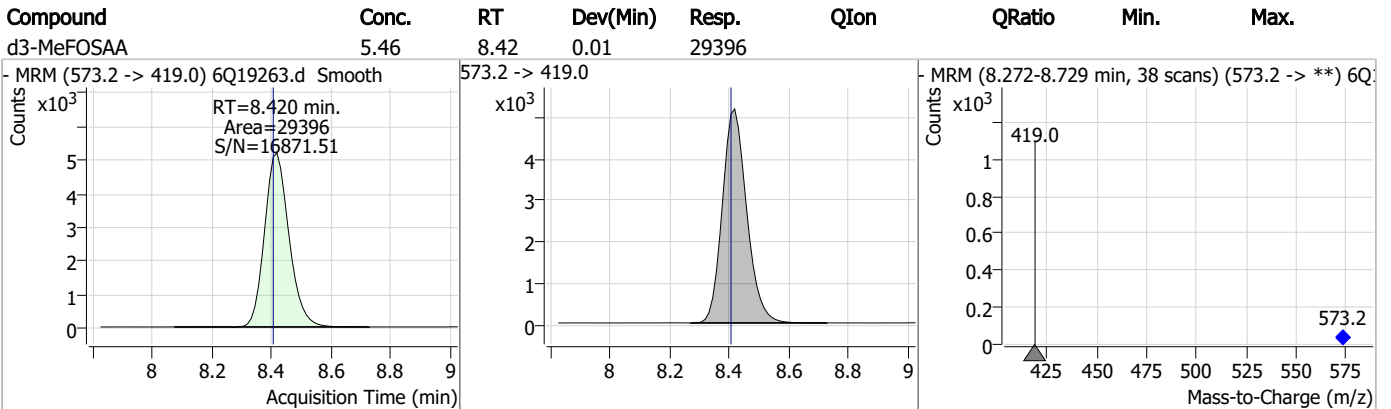
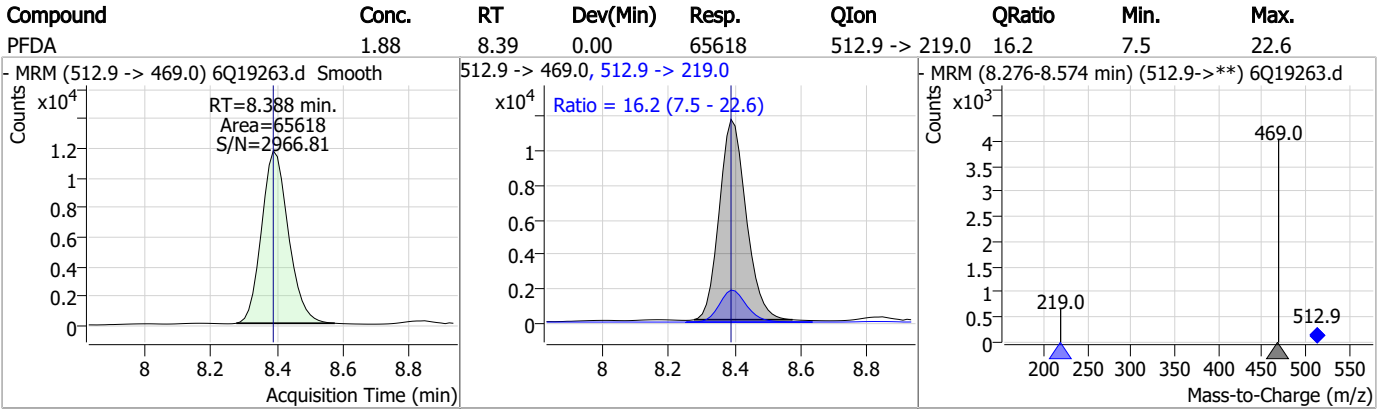


Perfluorinated Compounds by LC/MS/MS



7.3.1
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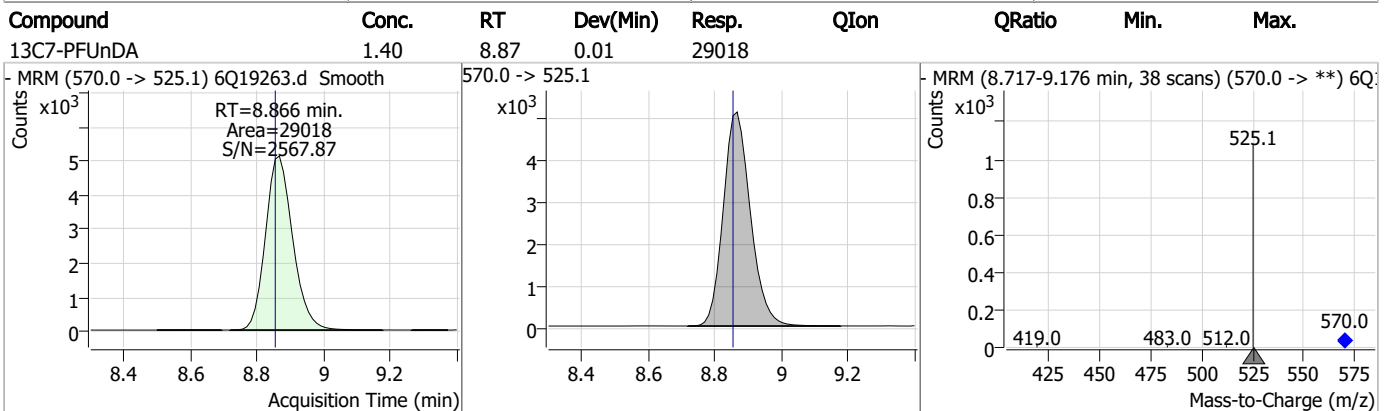
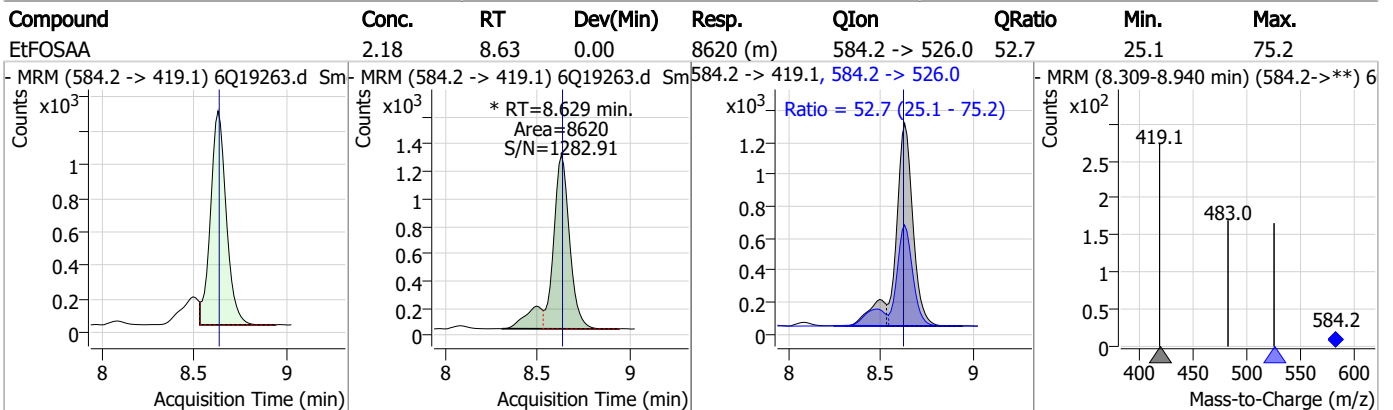
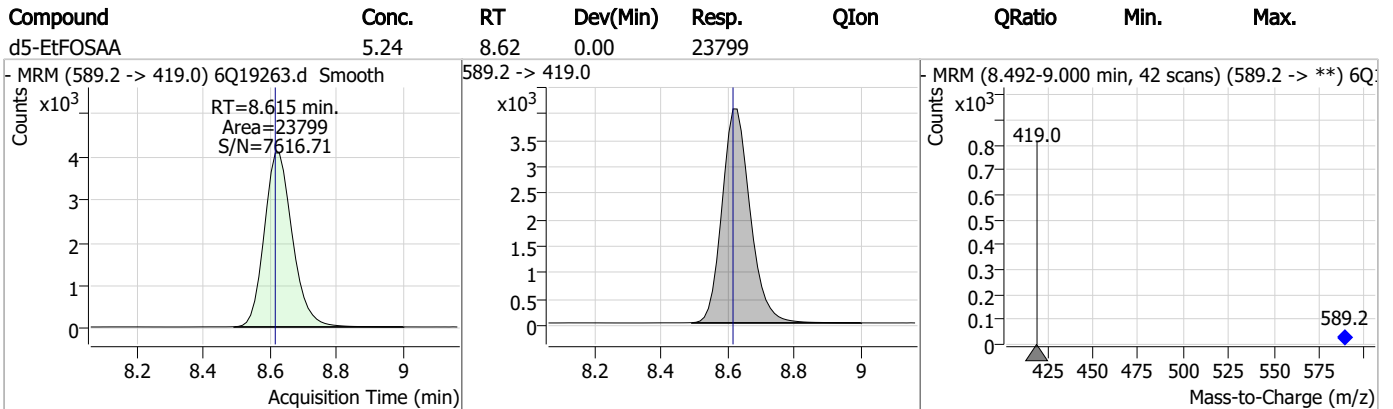
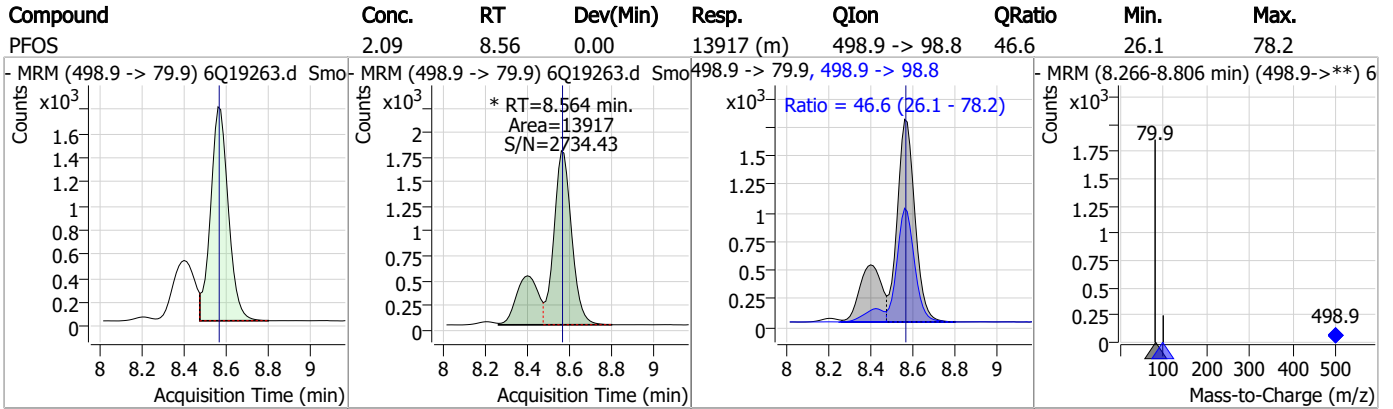
Perfluorinated Compounds by LC/MS/MS



7.3.1

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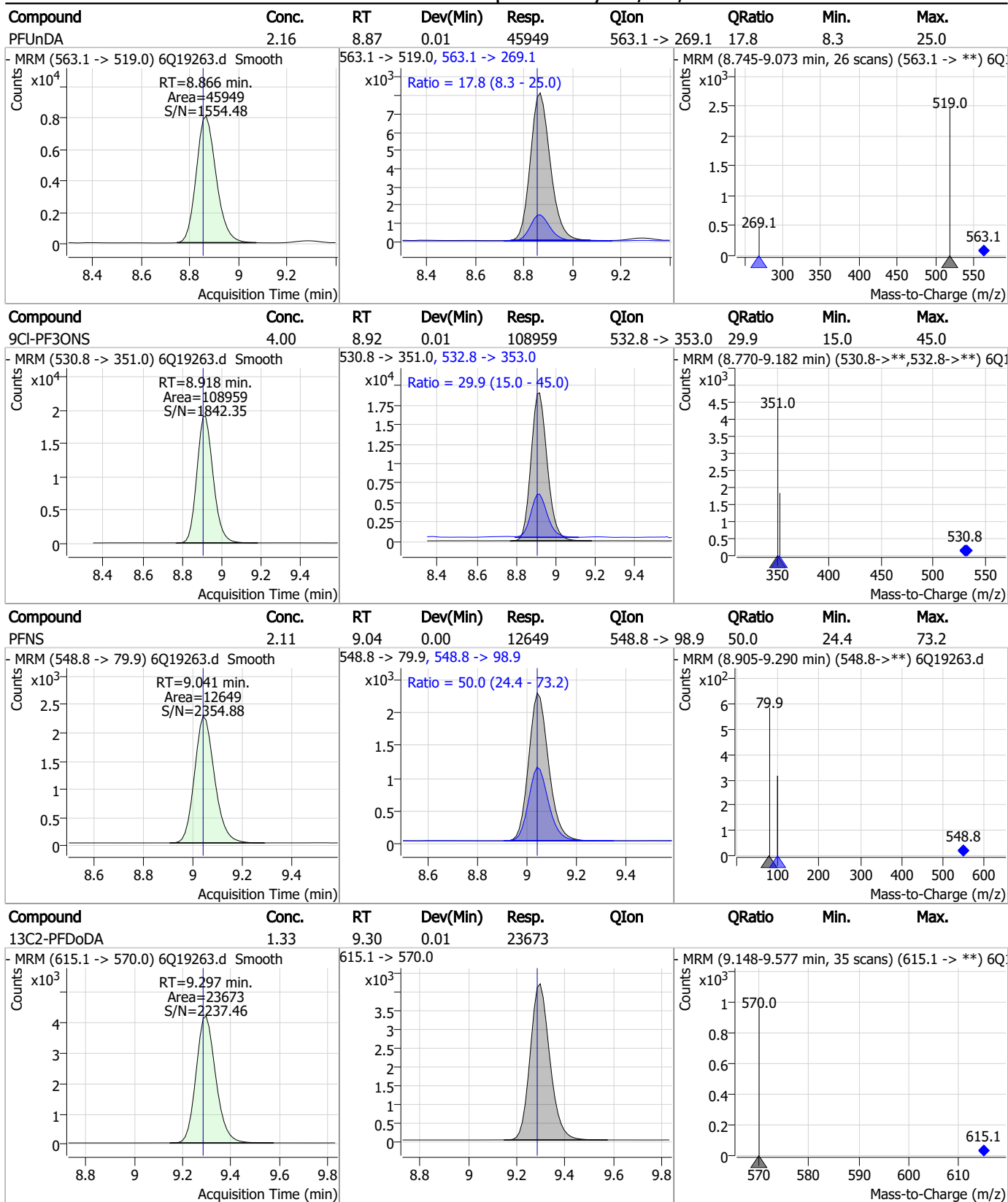
Perfluorinated Compounds by LC/MS/MS



7.3.1

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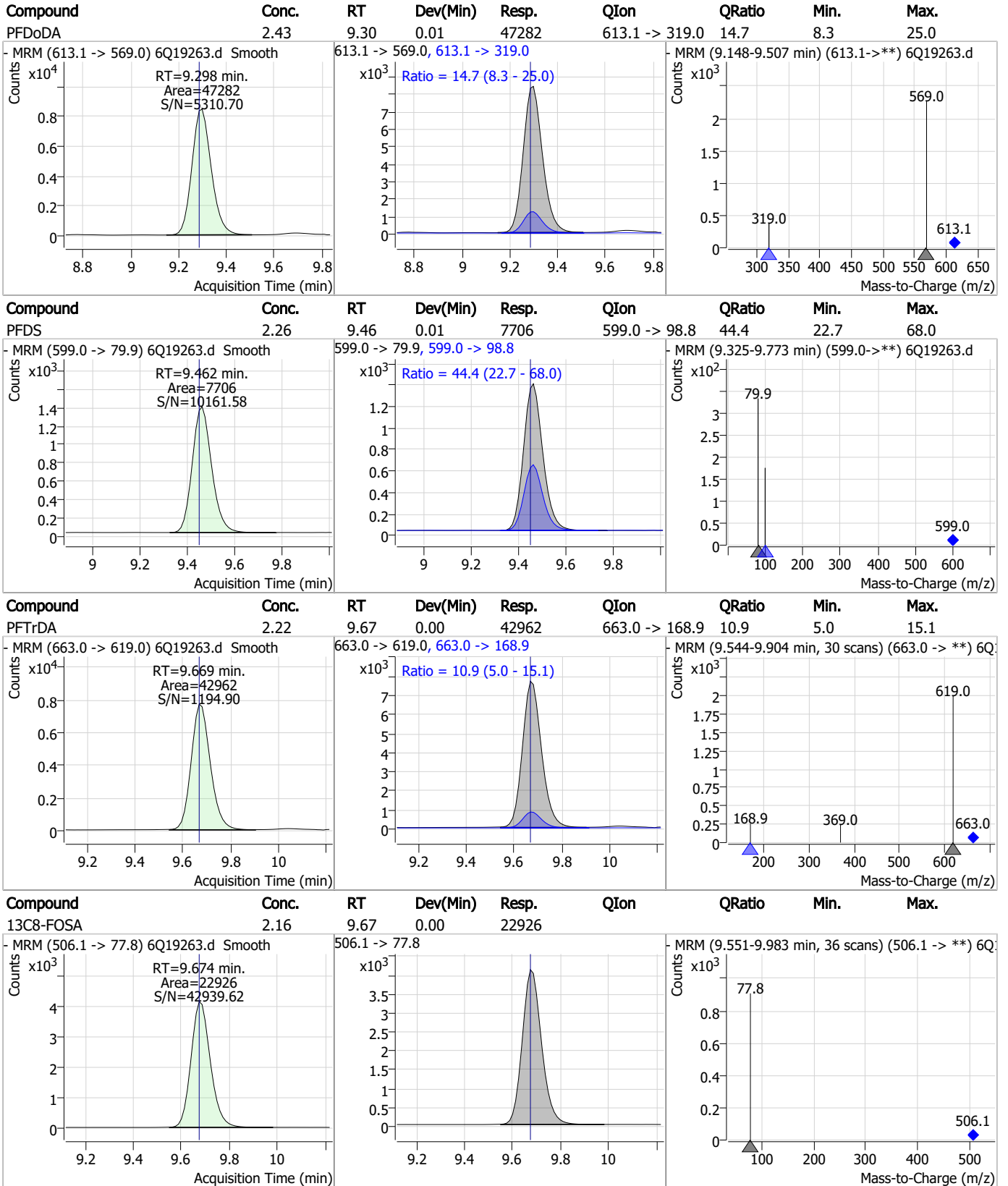
Perfluorinated Compounds by LC/MS/MS



7.3.1

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Perfluorinated Compounds by LC/MS/MS

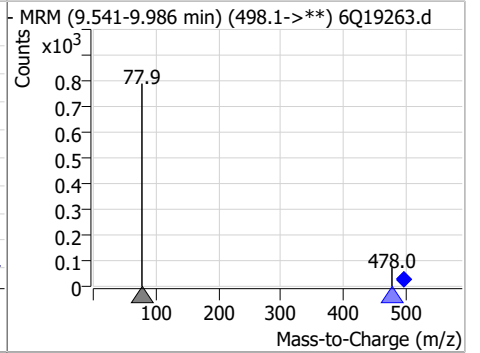
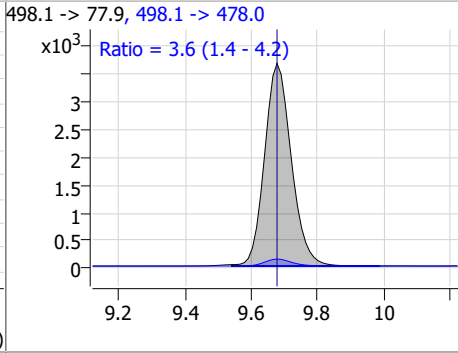
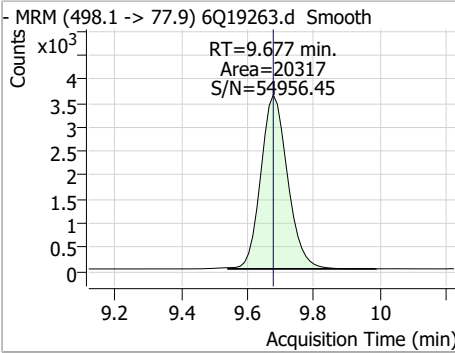


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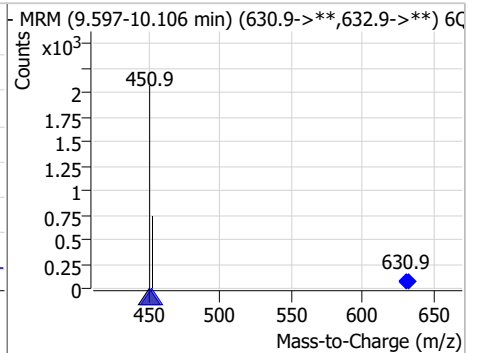
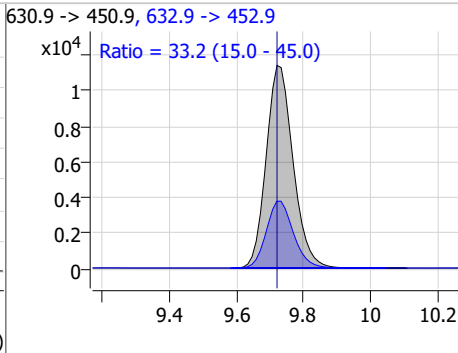
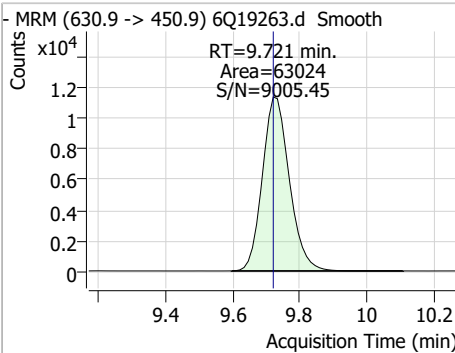
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Perfluorinated Compounds by LC/MS/MS

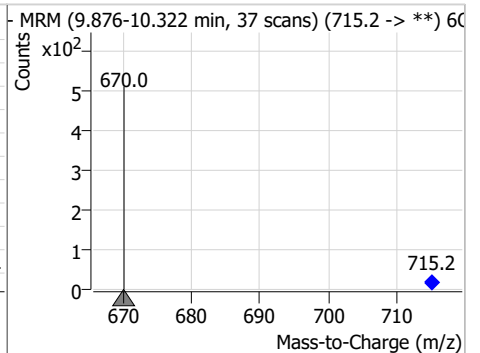
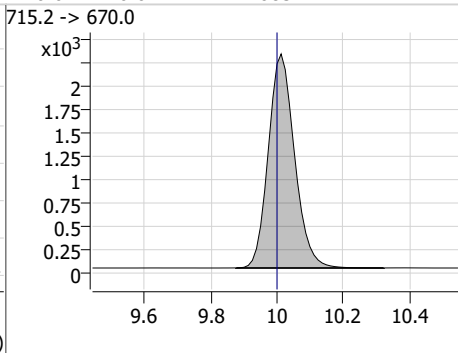
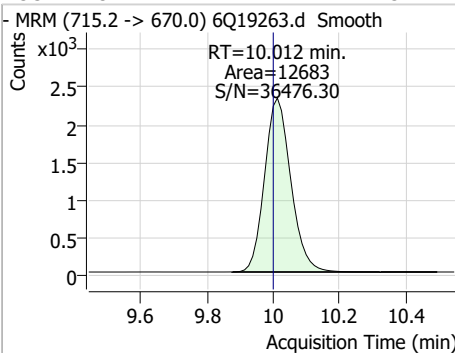
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.16	9.68	0.00	20317	498.1 -> 478.0	3.6	1.4	4.2



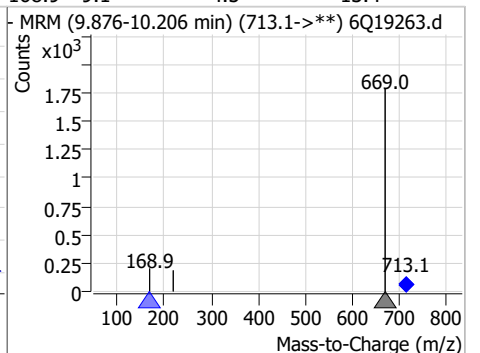
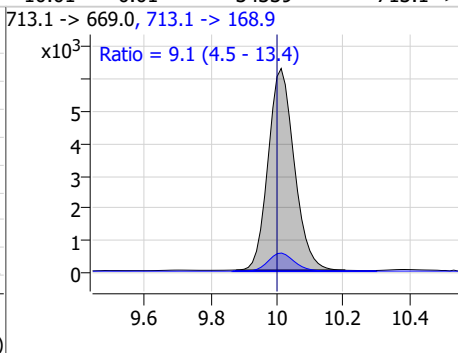
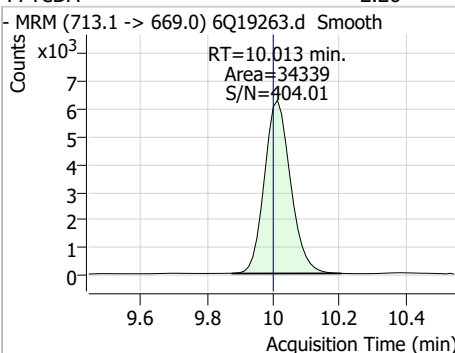
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	3.87	9.72	0.00	63024	630.9 -> 452.9	33.2	15.0	45.0



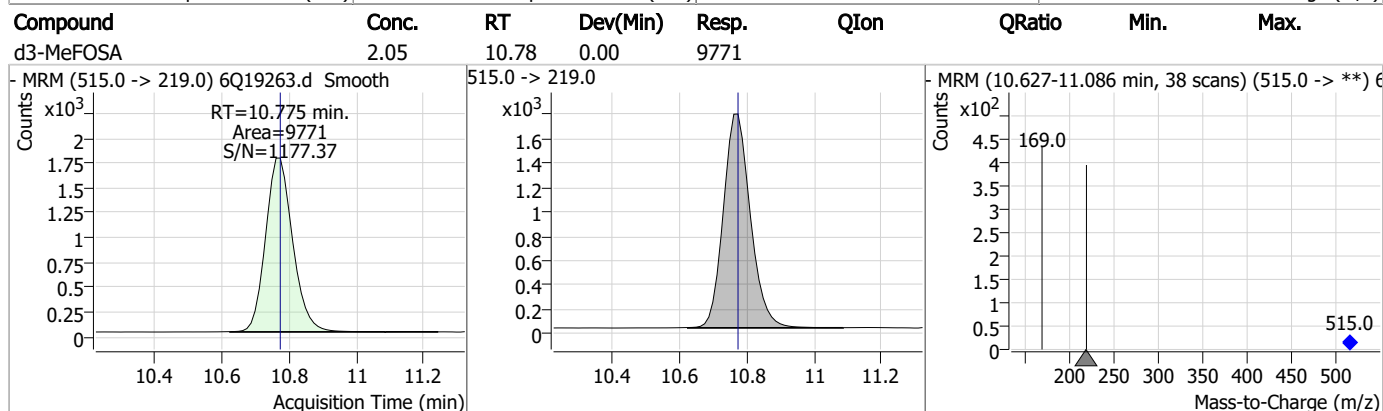
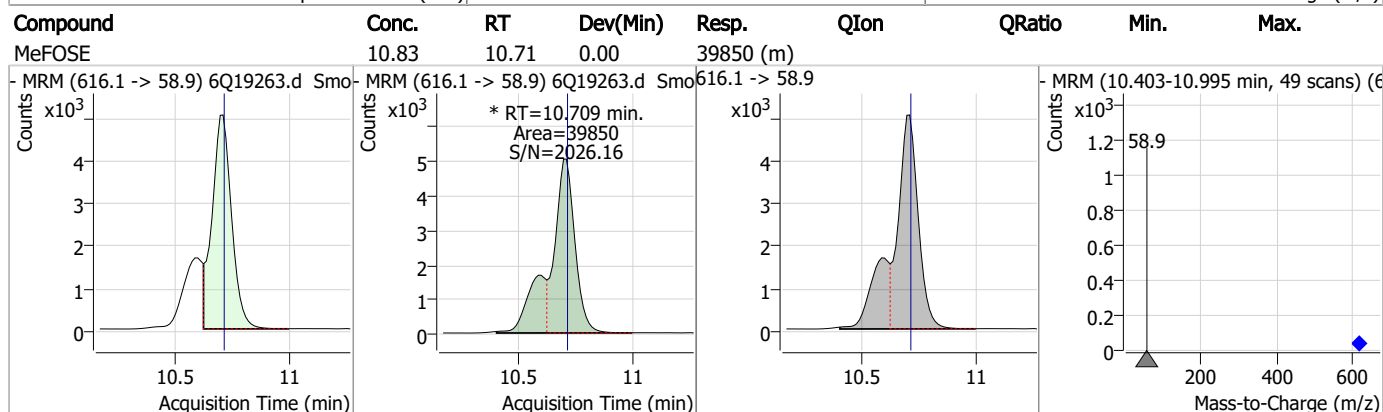
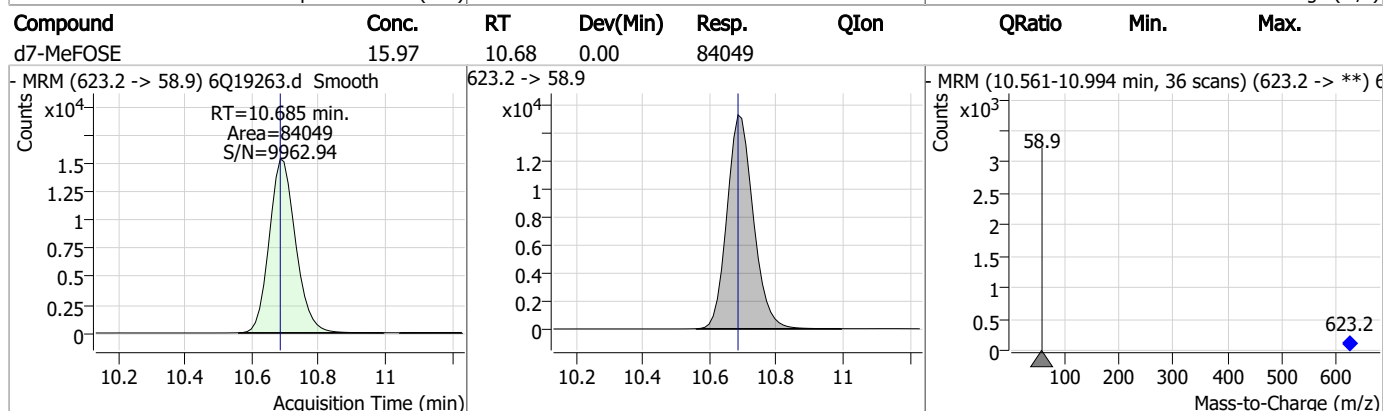
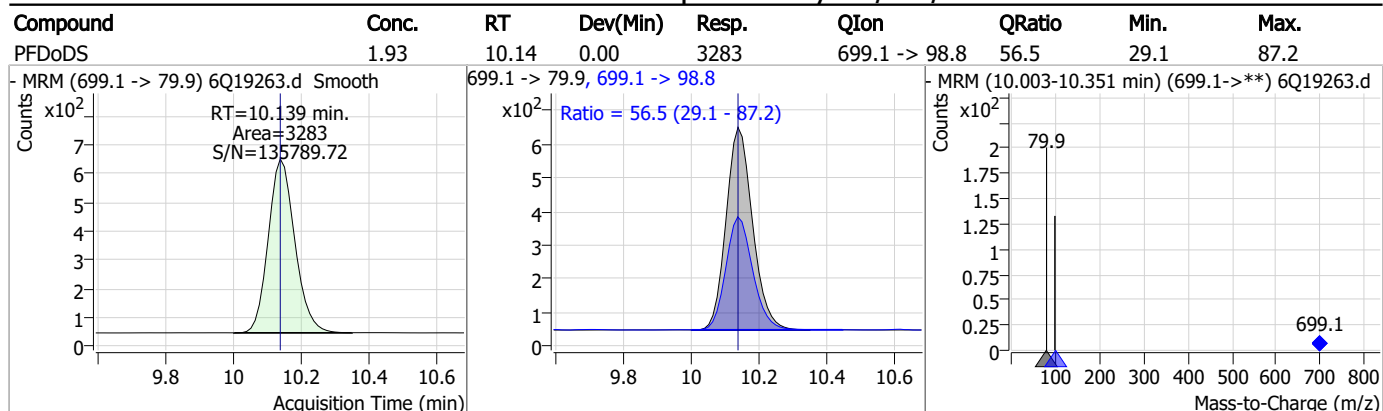
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.23	10.01	0.01	12683	715.2 -> 670.0			



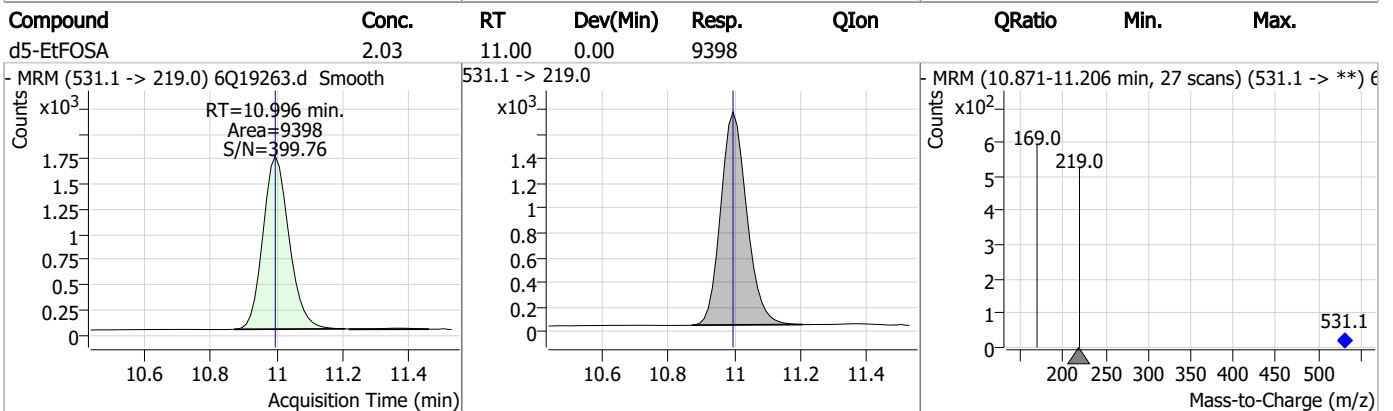
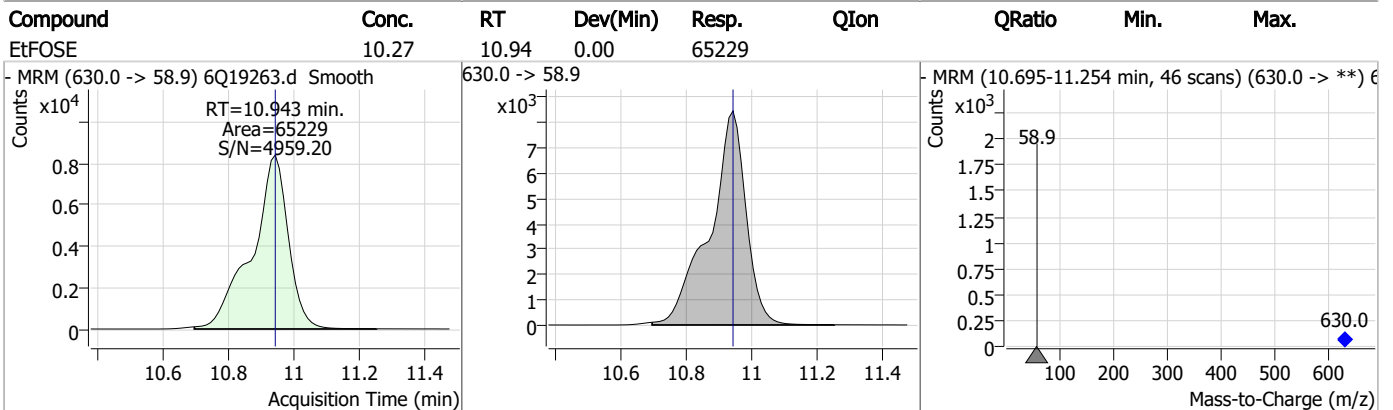
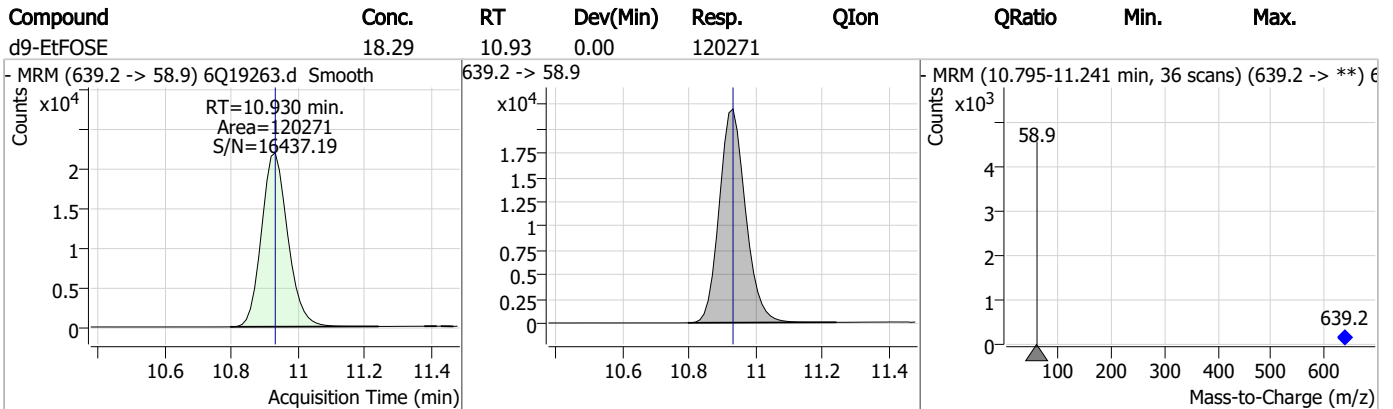
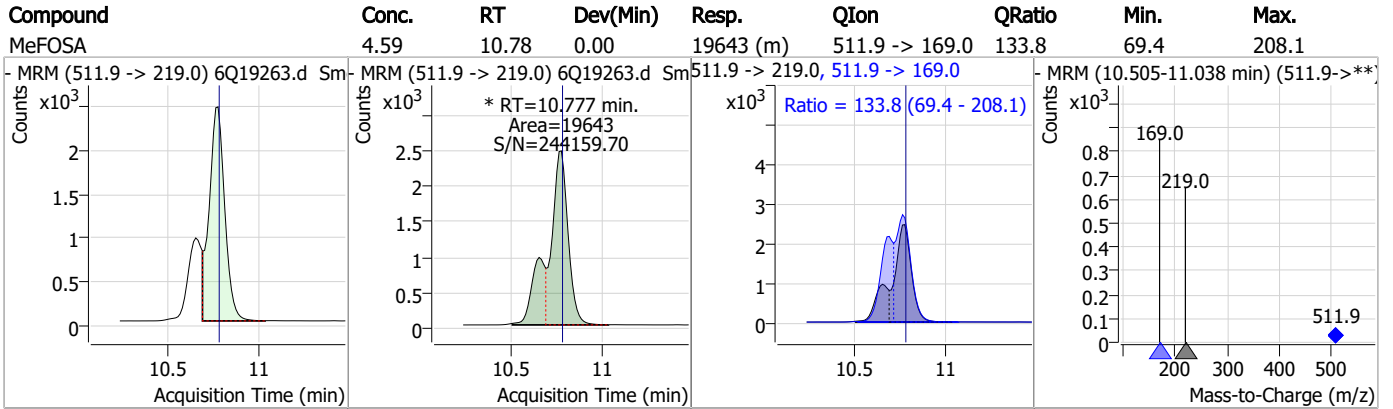
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.26	10.01	0.01	34339	713.1 -> 168.9	9.1	4.5	13.4



Perfluorinated Compounds by LC/MS/MS



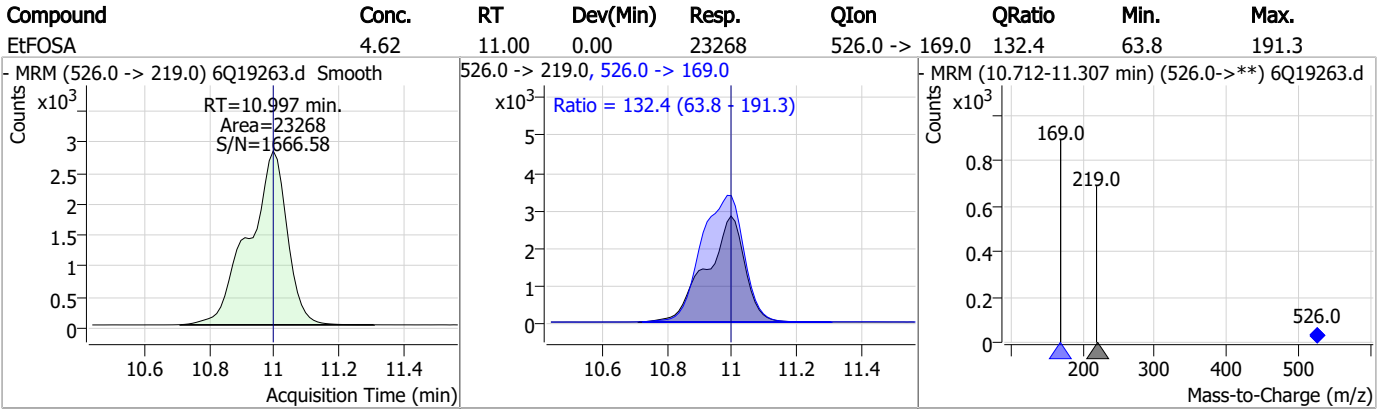
Perfluorinated Compounds by LC/MS/MS



7.3.1

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Perfluorinated Compounds by LC/MS/MS



7.3.1

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Manual Integration Approval Summary

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

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

7.3.1.1

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Perfluorinated Compounds by LC/MS/MS

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

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

7.32
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Perfluorinated Compounds by LC/MS/MS

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

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Perfluorinated Compounds by LC/MS/MS

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

7.3.2
7

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



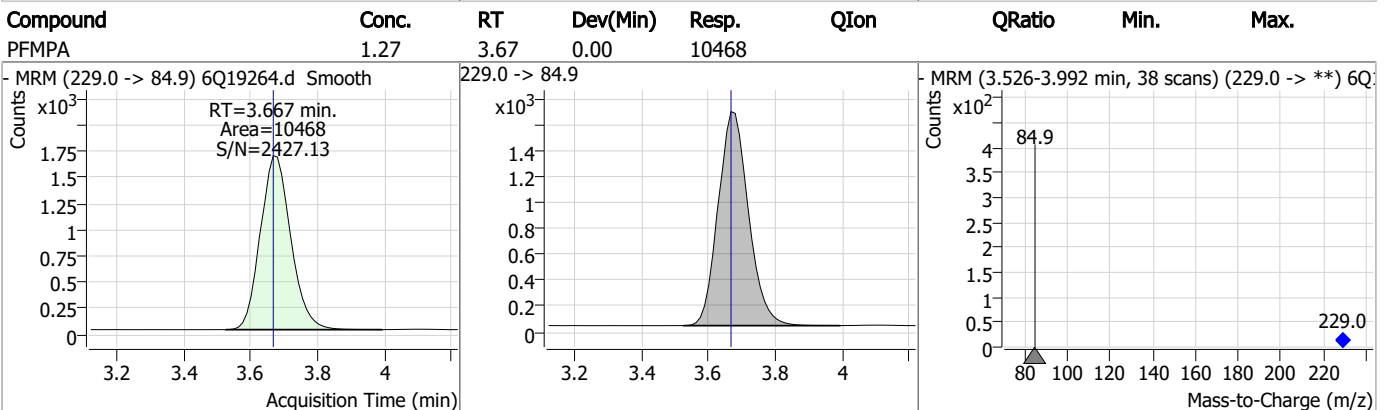
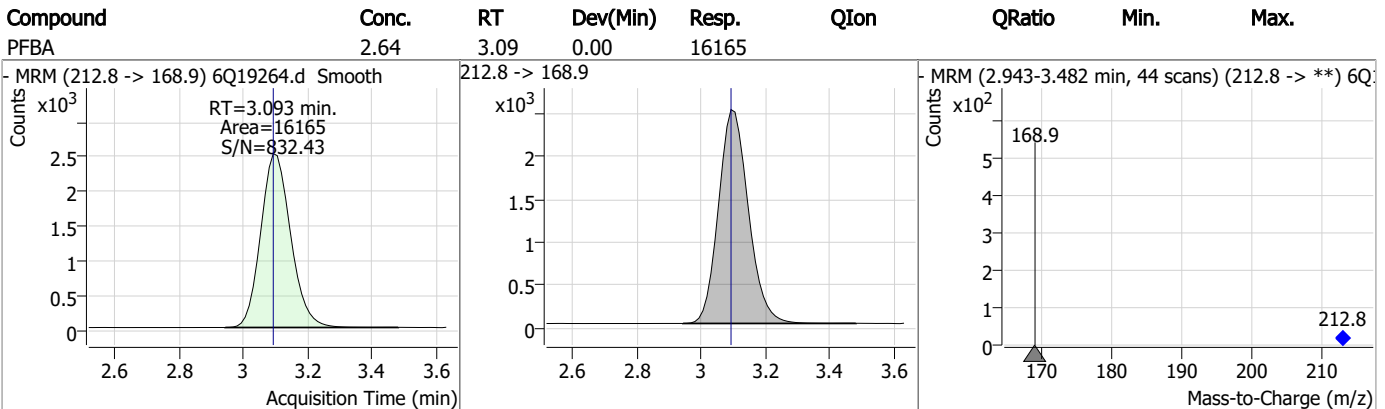
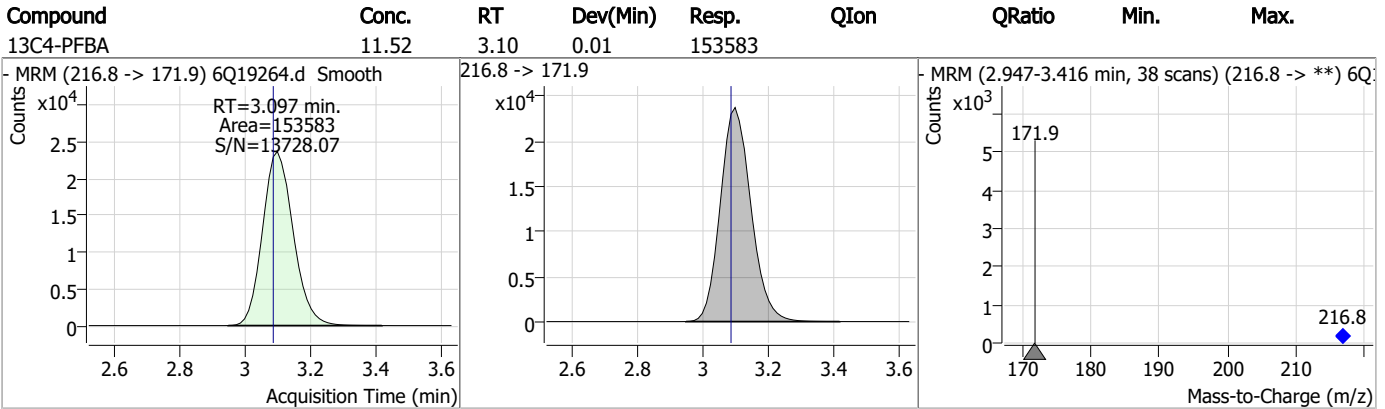
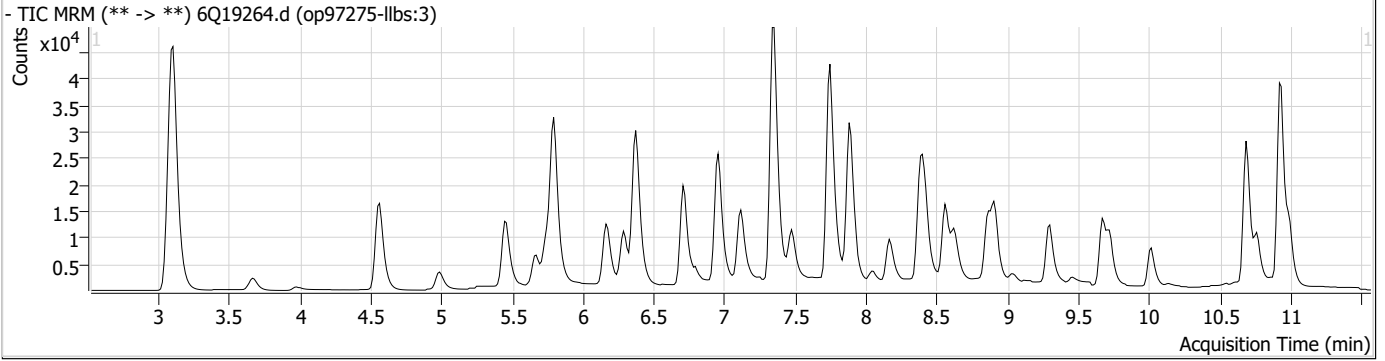
Perfluorinated Compounds by LC/MS/MS

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

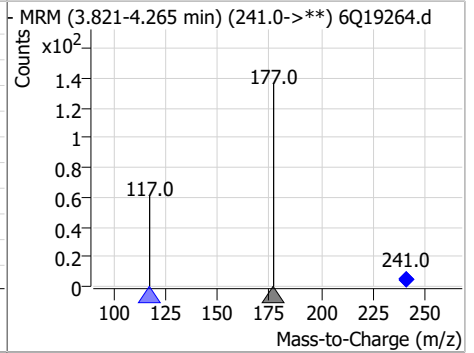
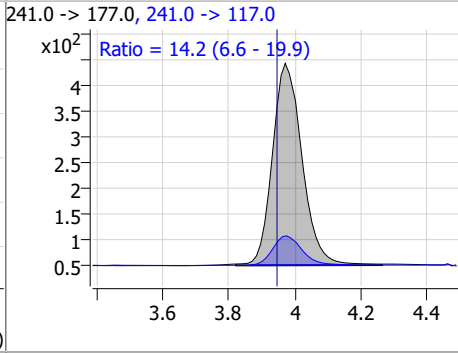
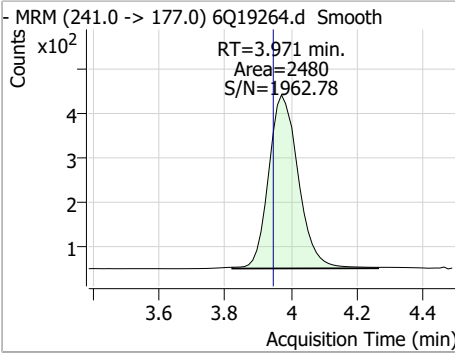
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Perfluorinated Compounds by LC/MS/MS

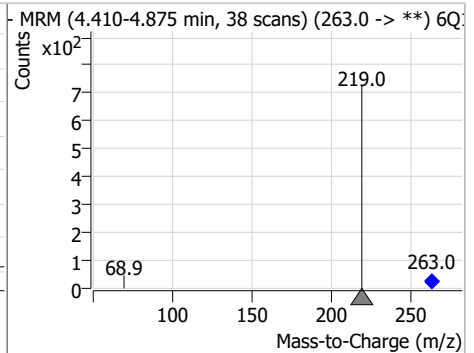
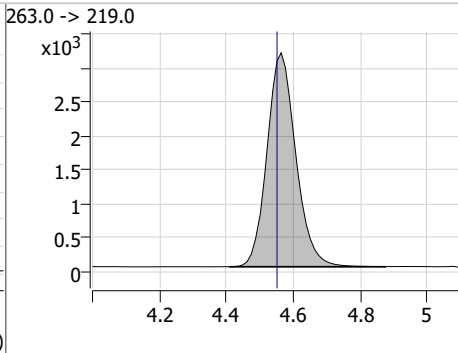
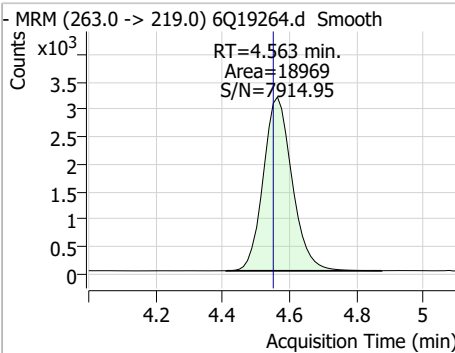


Perfluorinated Compounds by LC/MS/MS

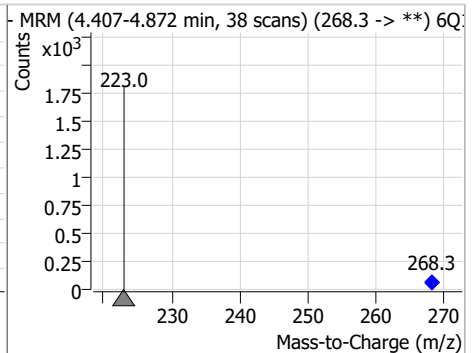
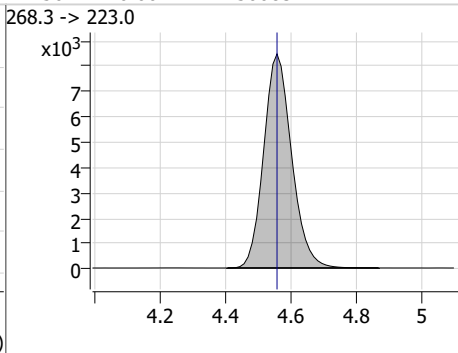
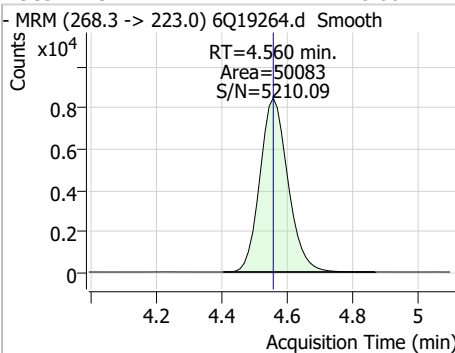
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	2.46	3.97	0.02	2480	241.0 -> 117.0	14.2	6.6	19.9



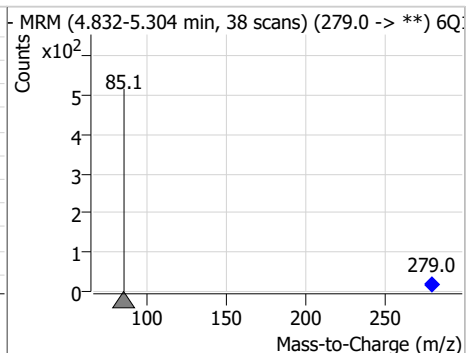
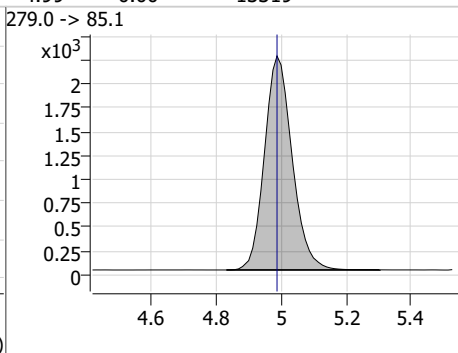
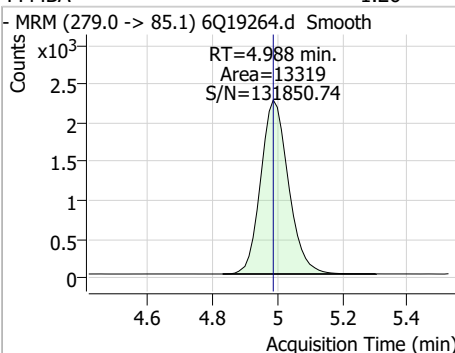
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.29	4.56	0.01	18969	263.0 -> 219.0			



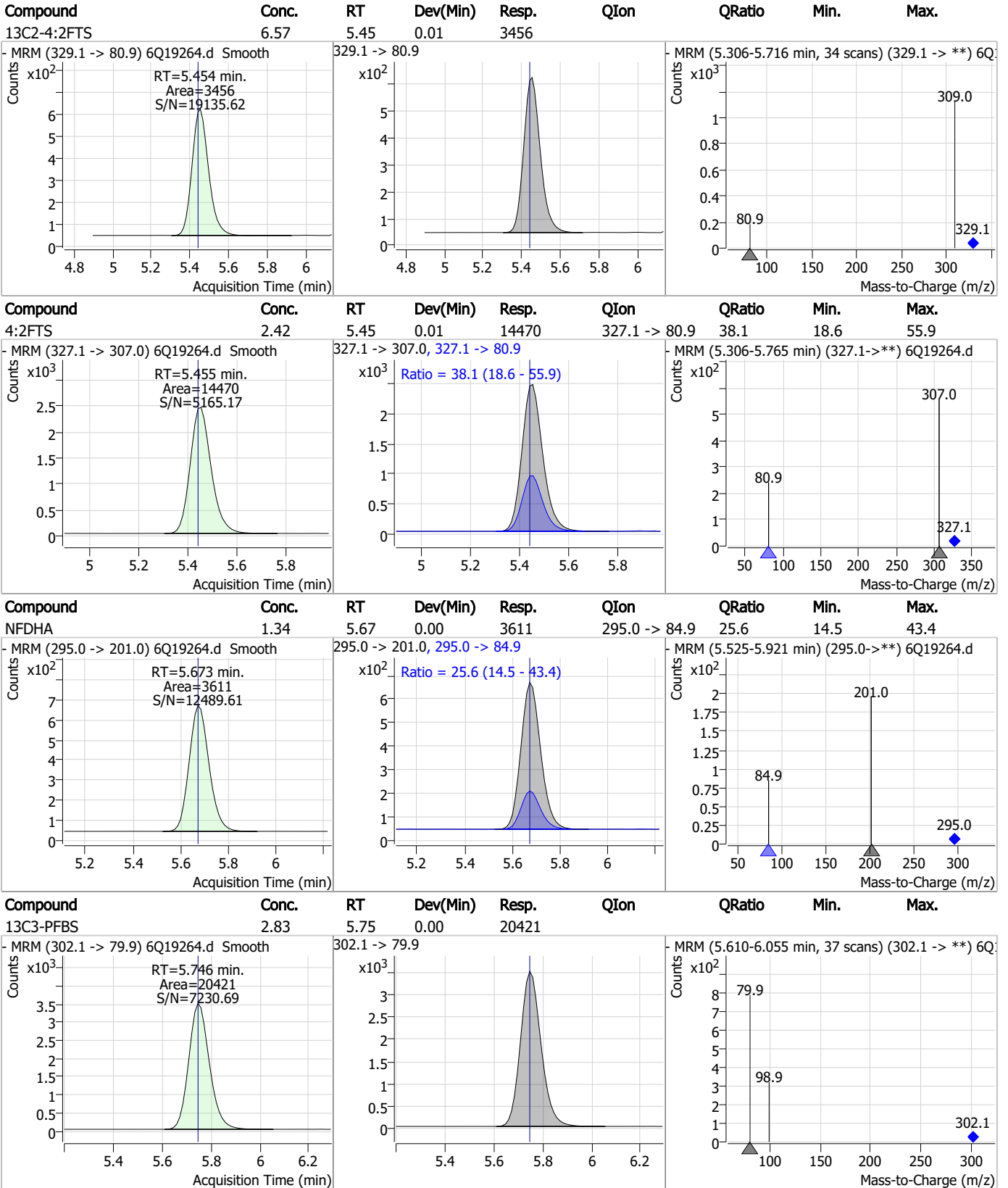
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.66	4.56	0.00	50083	268.3 -> 223.0			



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



Perfluorinated Compounds by LC/MS/MS

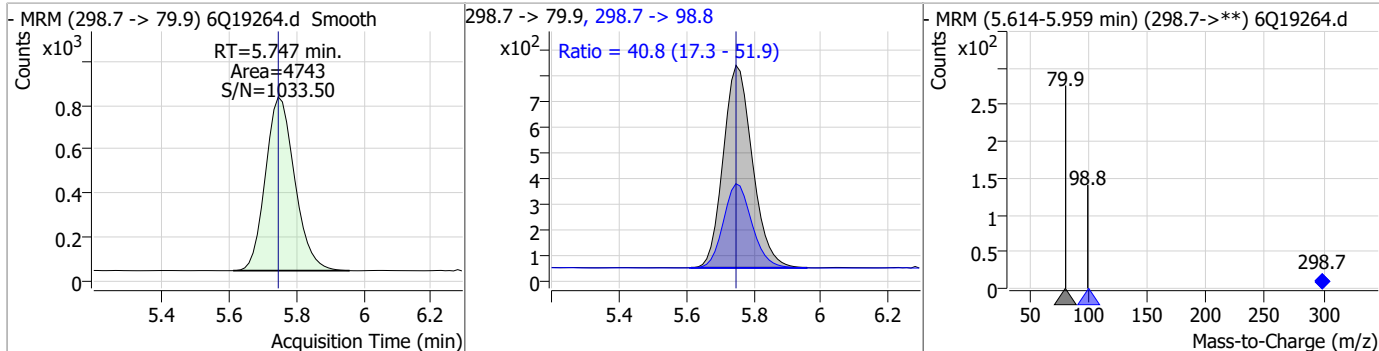


7.3.2

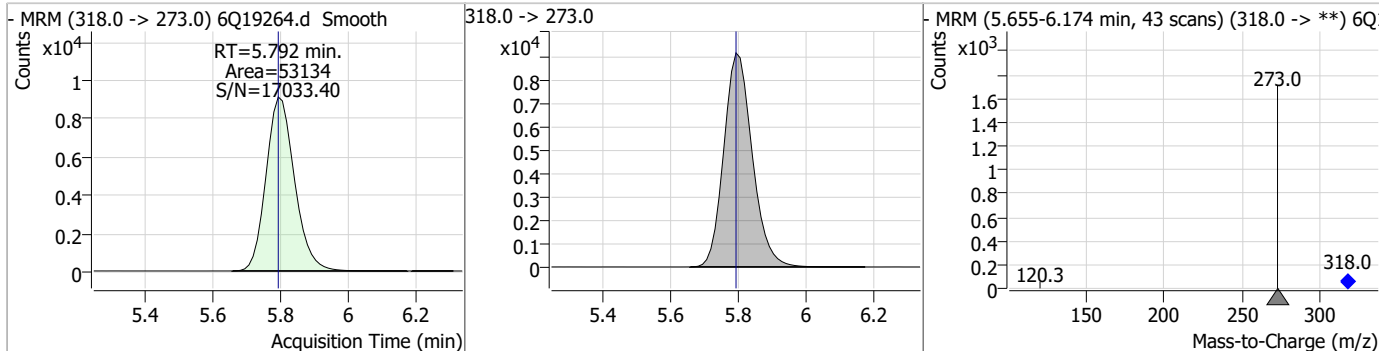
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Perfluorinated Compounds by LC/MS/MS

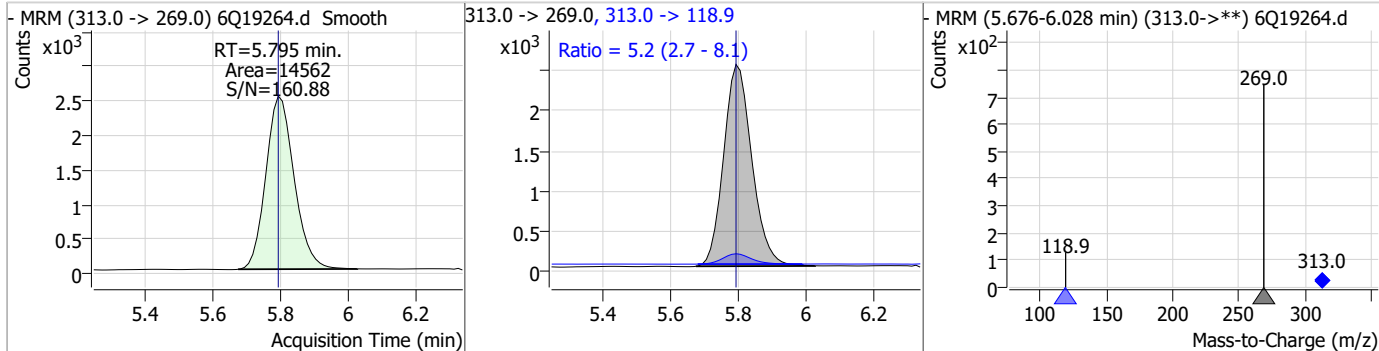
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.53	5.75	0.00	4743	298.7 -> 98.8	40.8	17.3	51.9



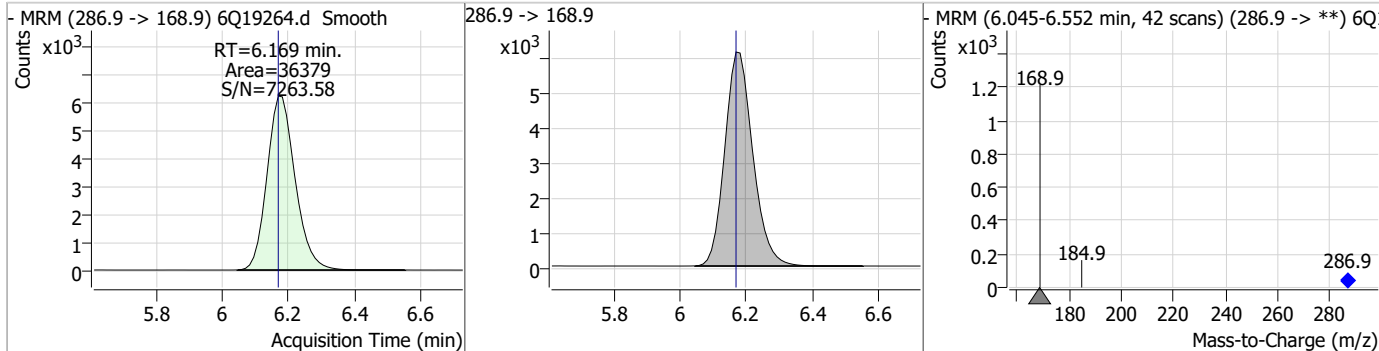
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.68	5.79	0.00	53134				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.68	5.79	0.00	14562	313.0 -> 118.9	5.2	2.7	8.1

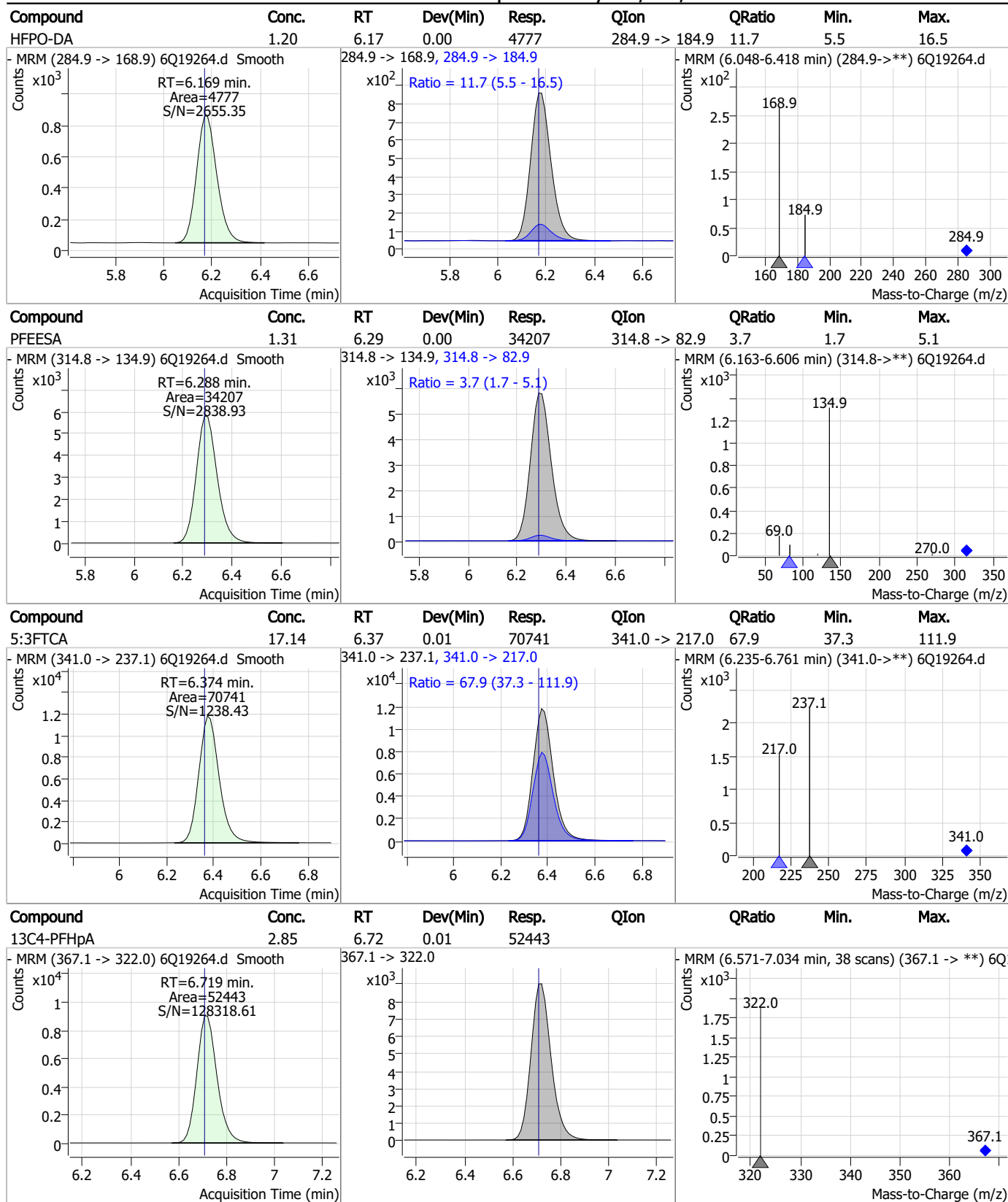


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.59	6.17	0.00	36379				



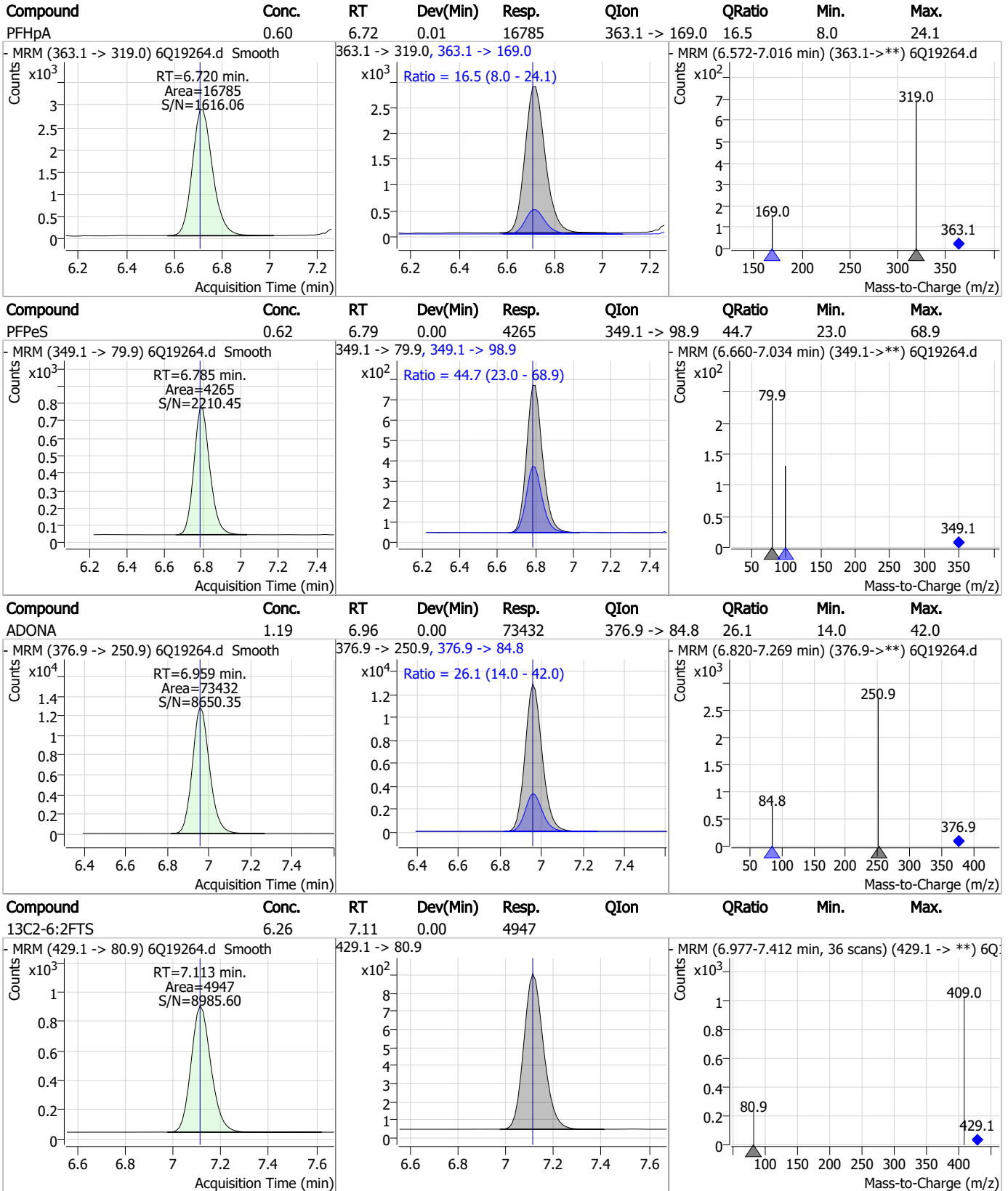
7.3.2
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Perfluorinated Compounds by LC/MS/MS



7.3.2
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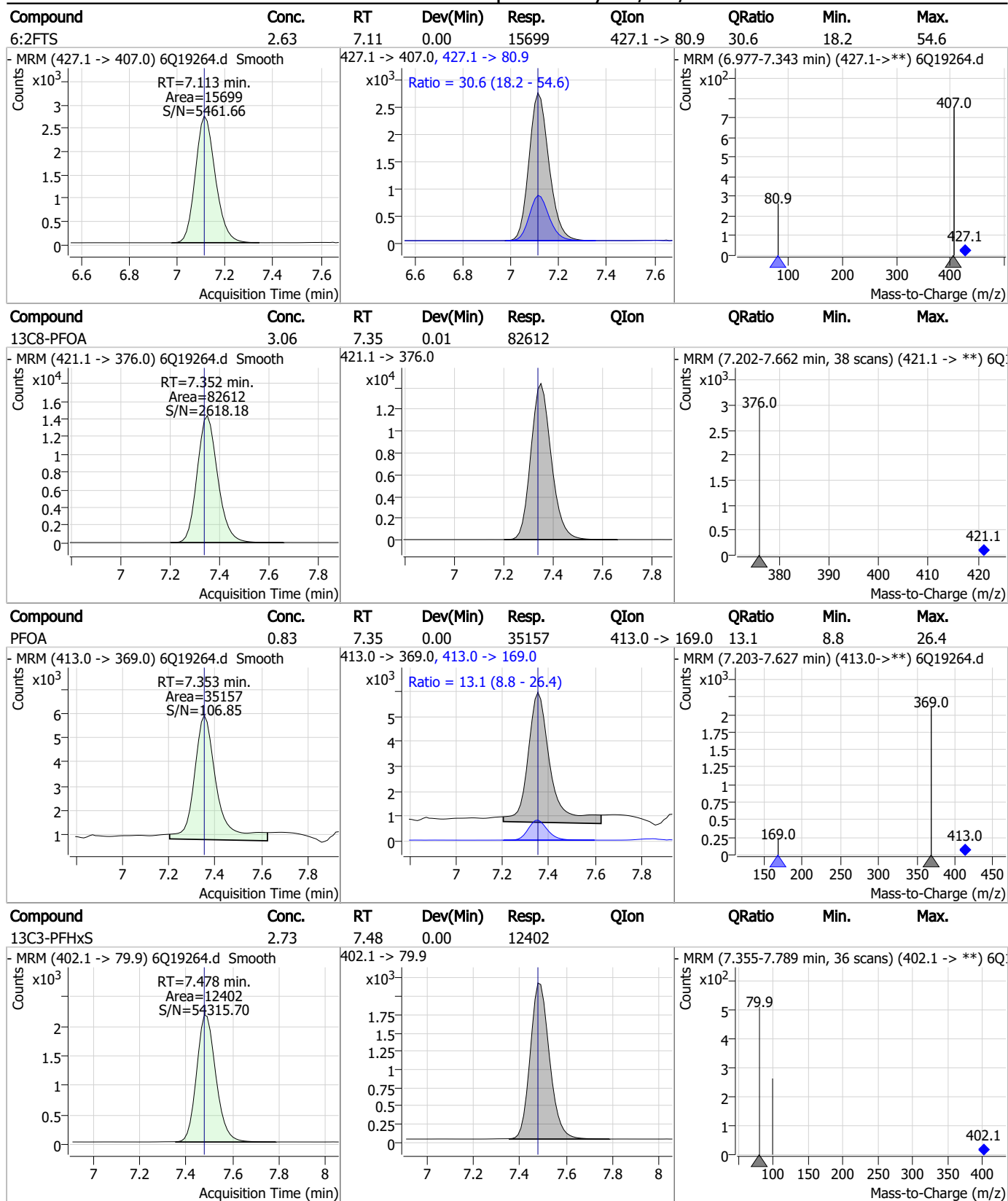
Perfluorinated Compounds by LC/MS/MS



7.3.2

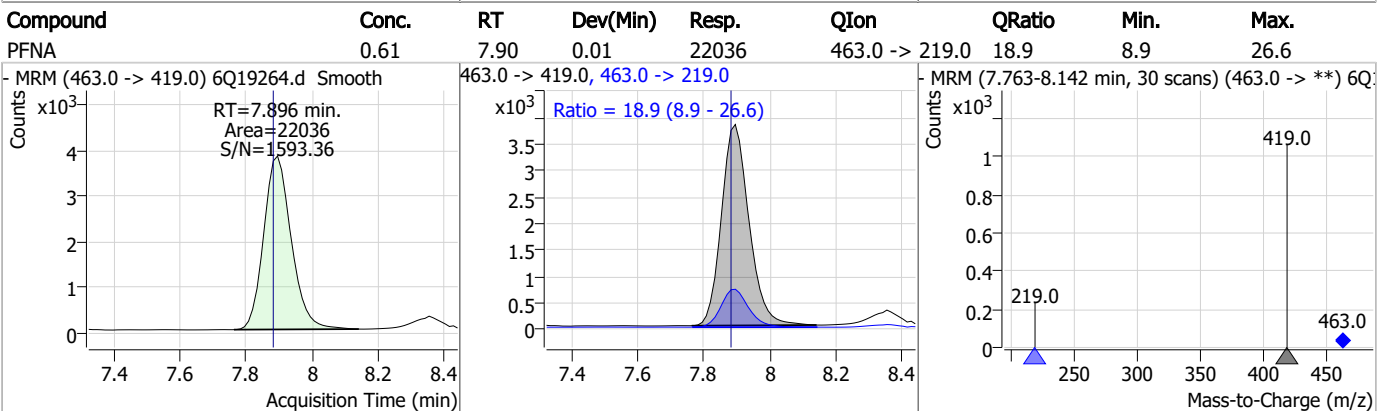
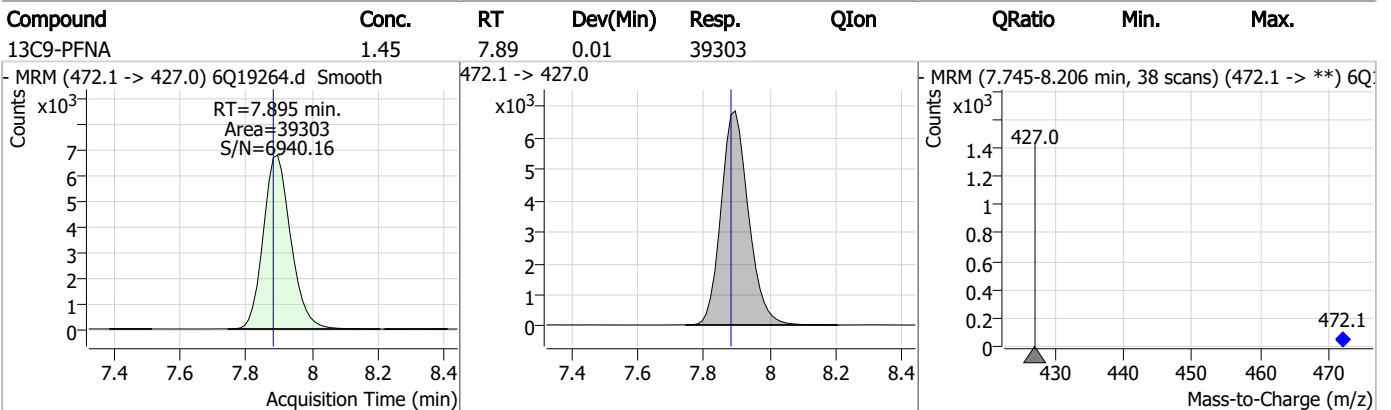
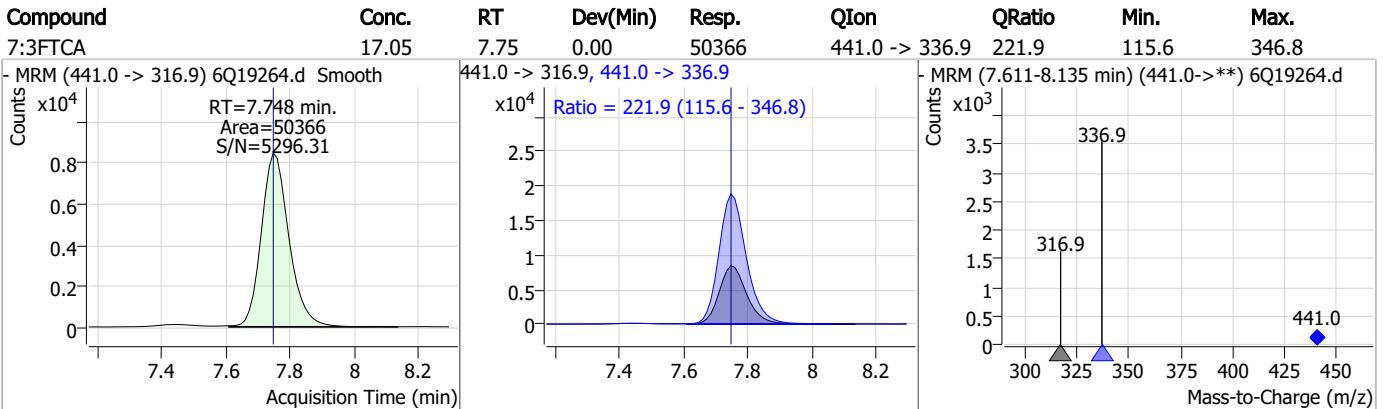
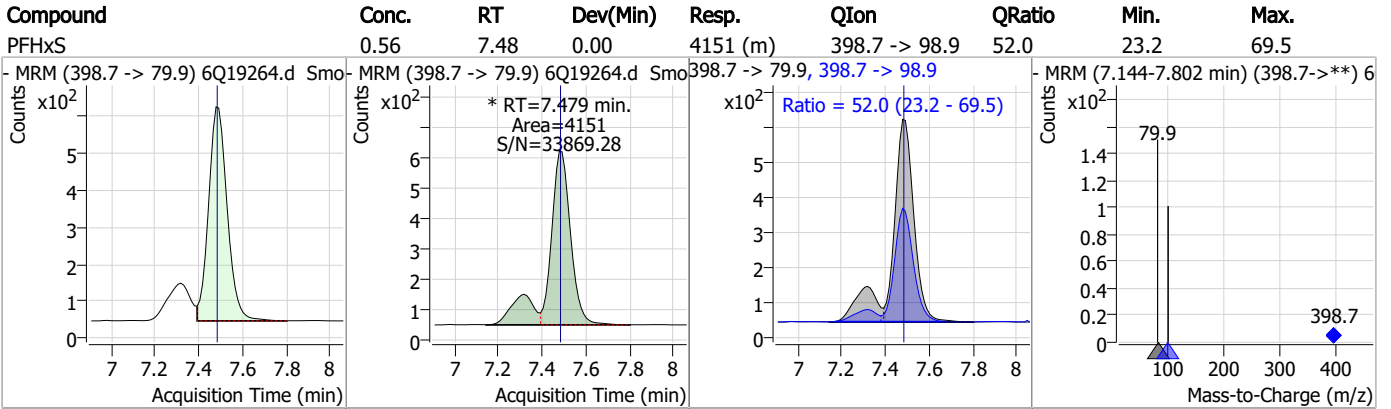
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Perfluorinated Compounds by LC/MS/MS

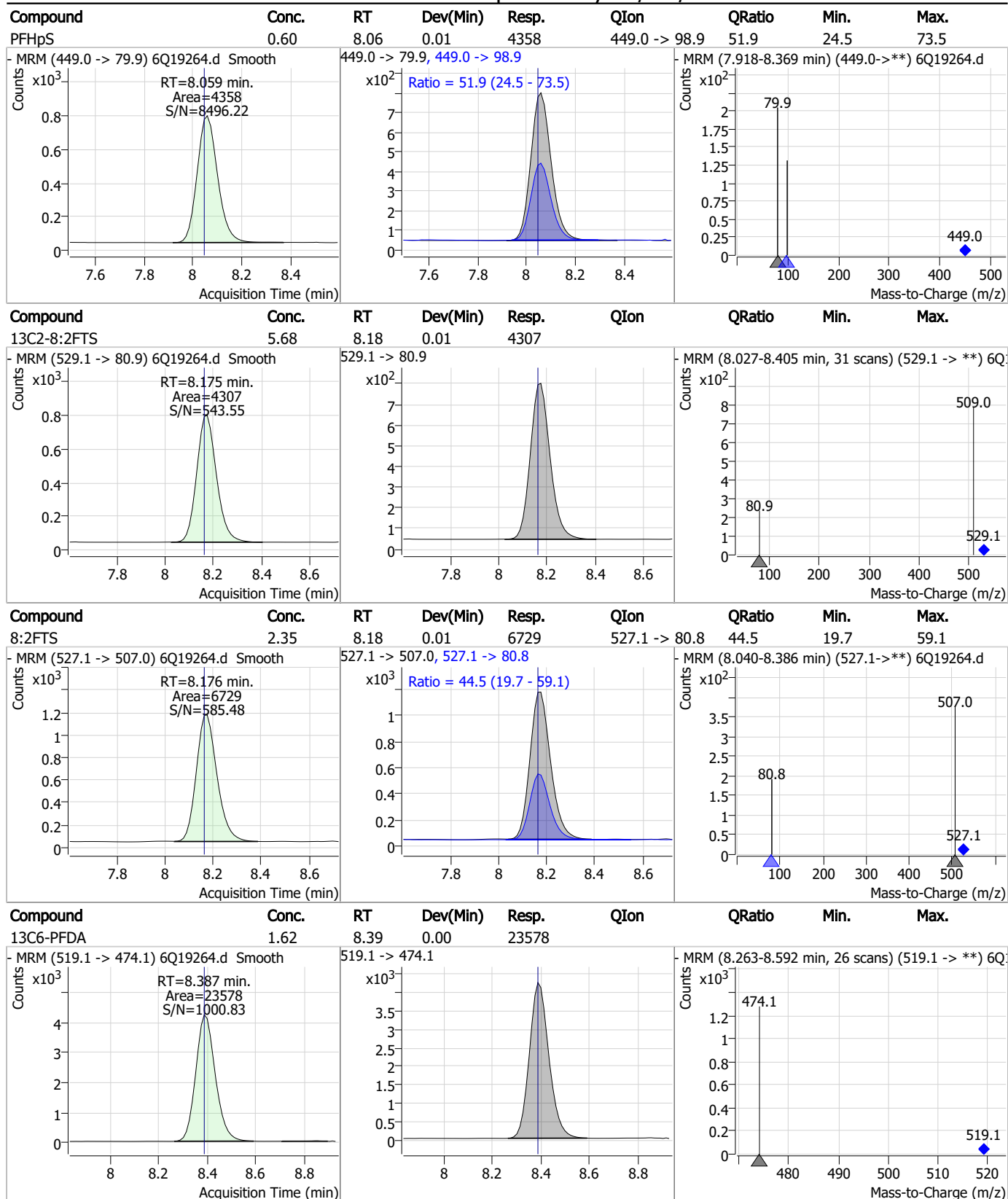


7.3.2
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Perfluorinated Compounds by LC/MS/MS



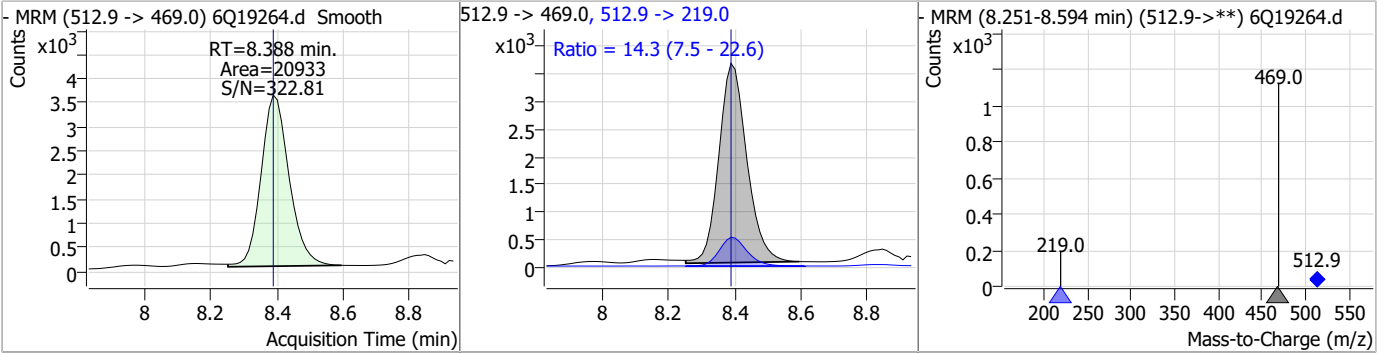
Perfluorinated Compounds by LC/MS/MS



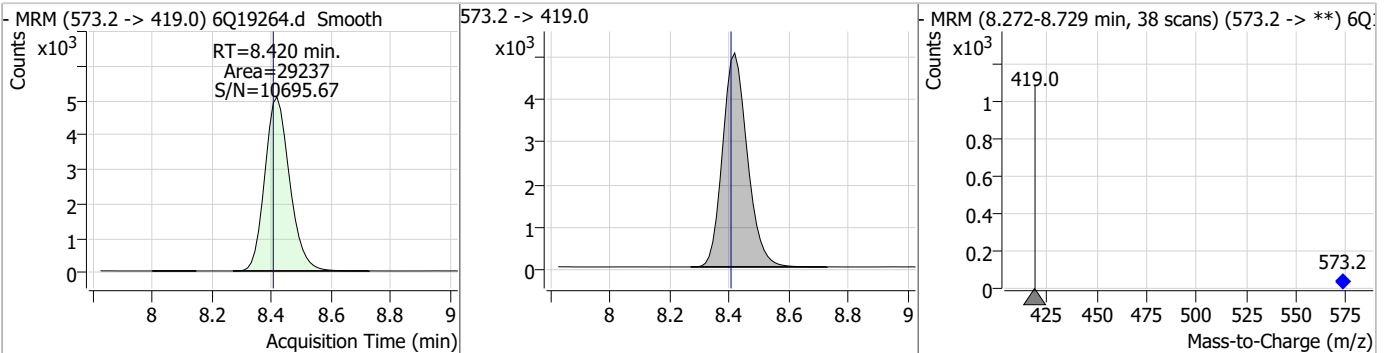
7.3.2
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Perfluorinated Compounds by LC/MS/MS

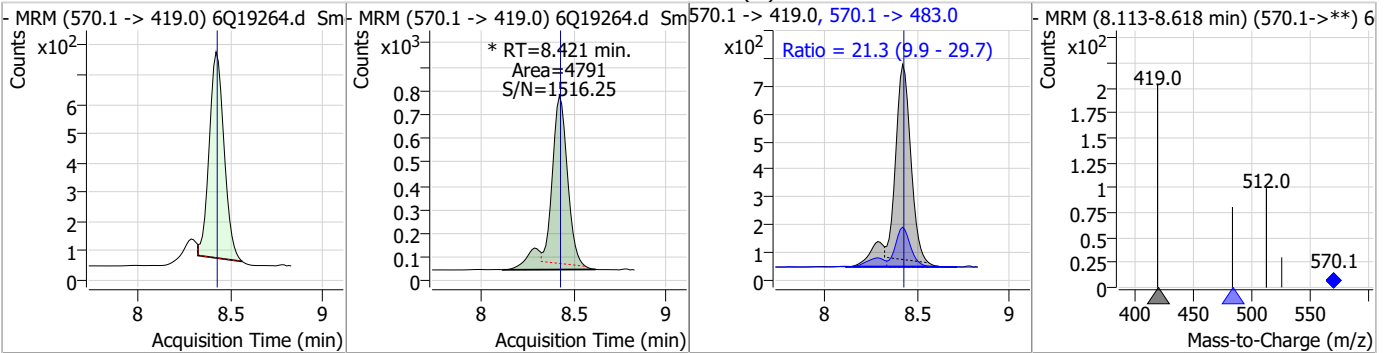
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.59	8.39	0.00	20933	512.9 -> 219.0	14.3	7.5	22.6



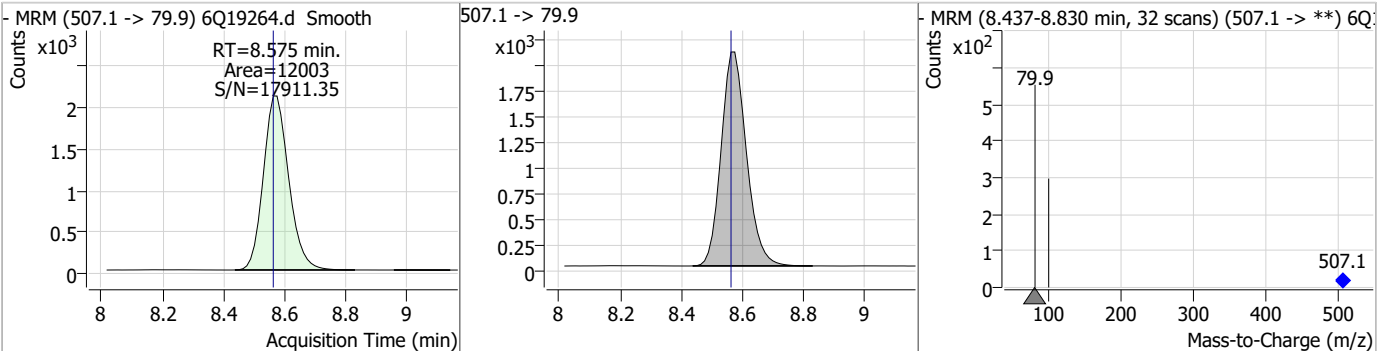
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.72	8.42	0.01	29237				



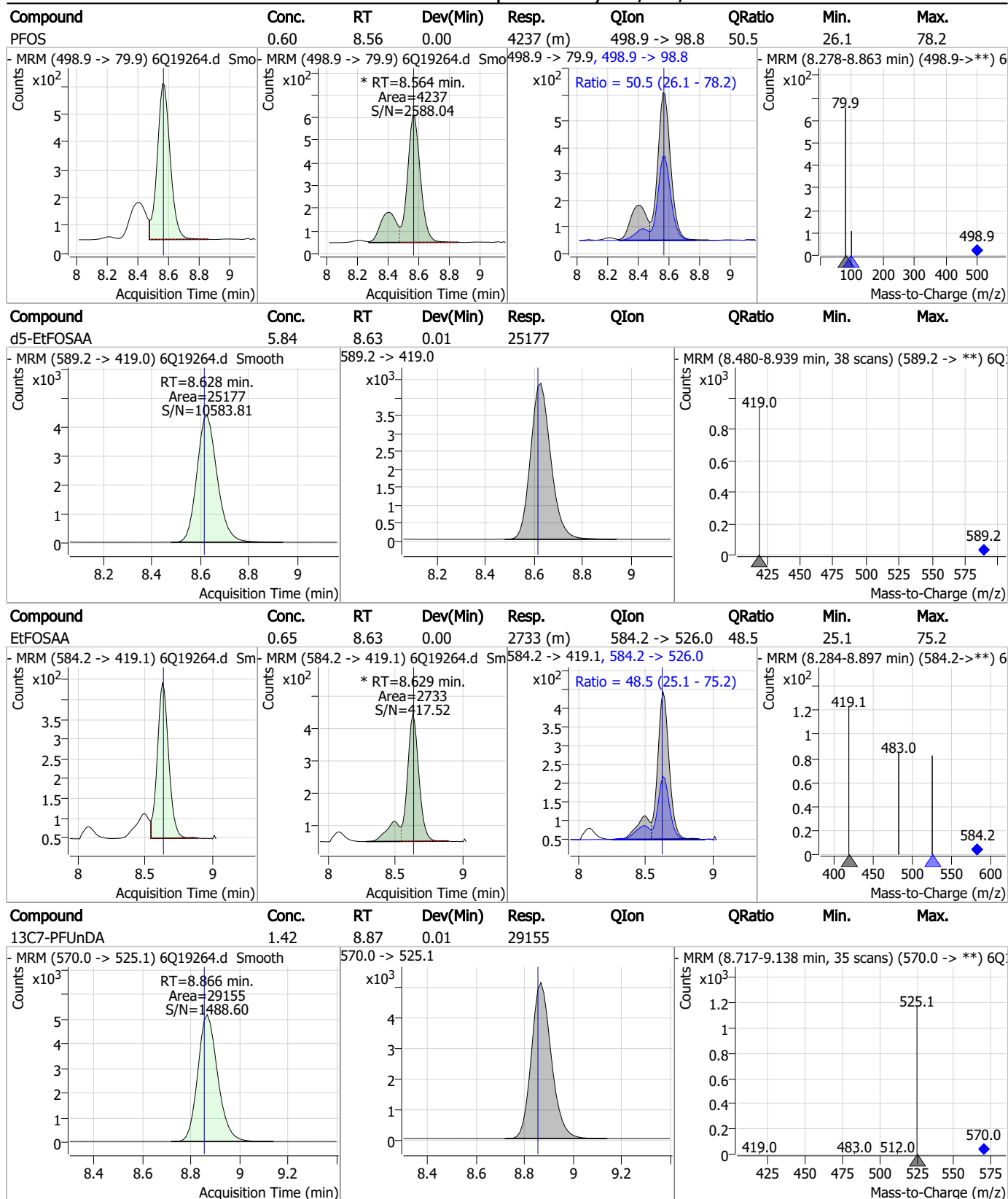
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.67	8.42	0.00	4791 (m)	570.1 -> 483.0	21.3	9.9	29.7



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

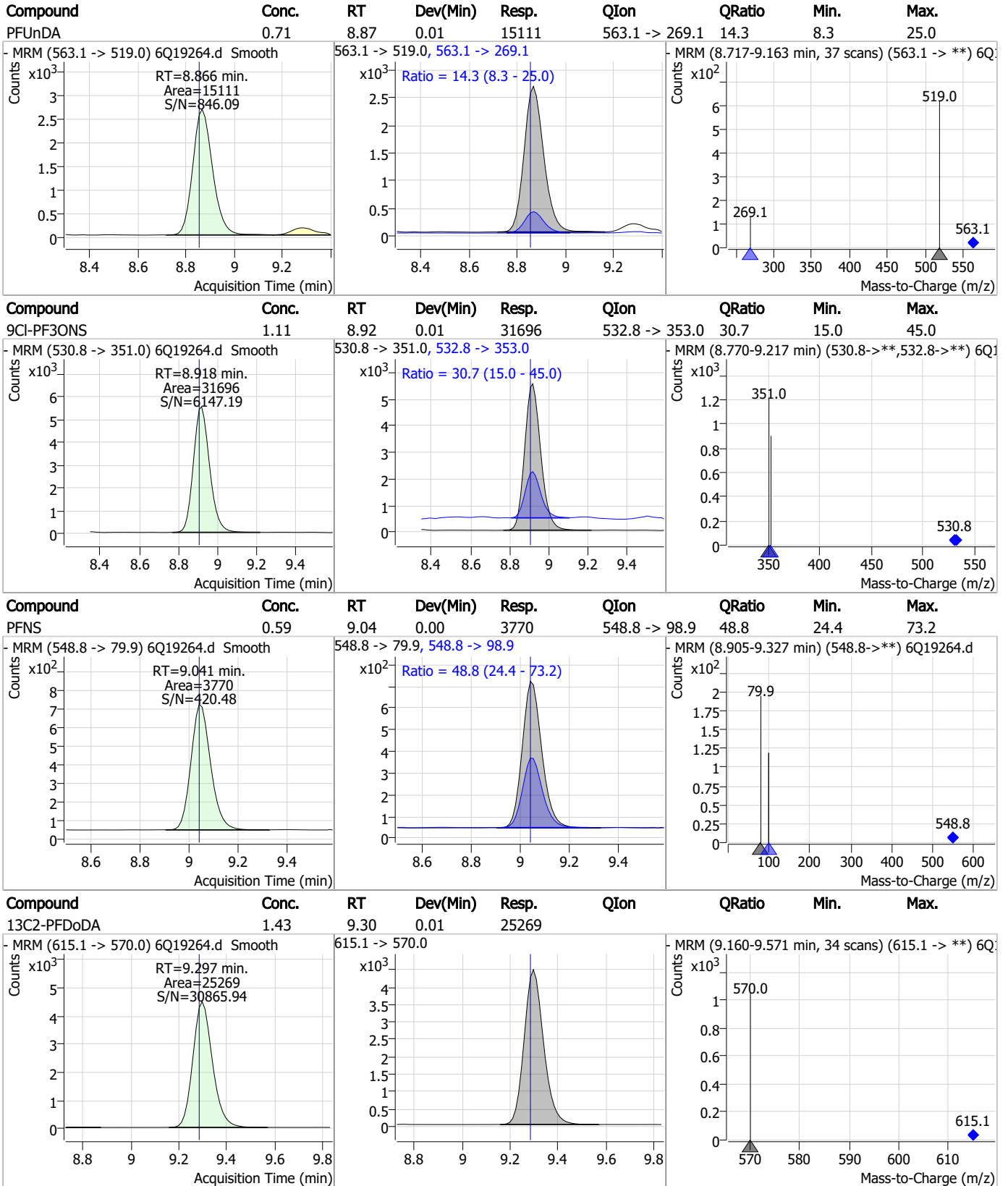


Perfluorinated Compounds by LC/MS/MS



7.3.2
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Perfluorinated Compounds by LC/MS/MS



7.3.2

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Perfluorinated Compounds by LC/MS/MS

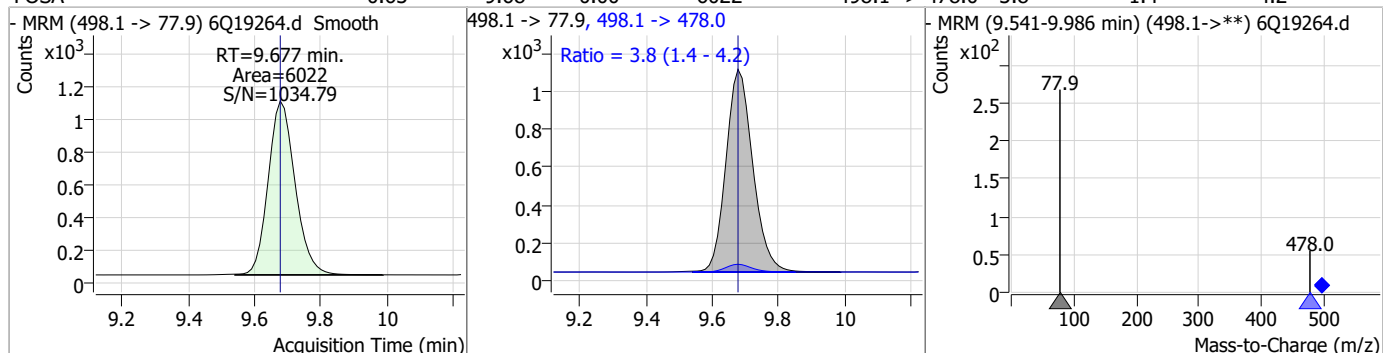
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	0.63	9.30	0.01	13038	613.1 -> 319.0	17.2	8.3	25.0
PFD5	0.57	9.46	0.01	2060	599.0 -> 98.8	48.8	22.7	68.0
PFTrDA	0.63	9.68	0.01	13084	663.0 -> 168.9	11.2	5.0	15.1
13C8-FOSA	2.30	9.67	0.00	23248	506.1 -> 77.8			

7.3.2

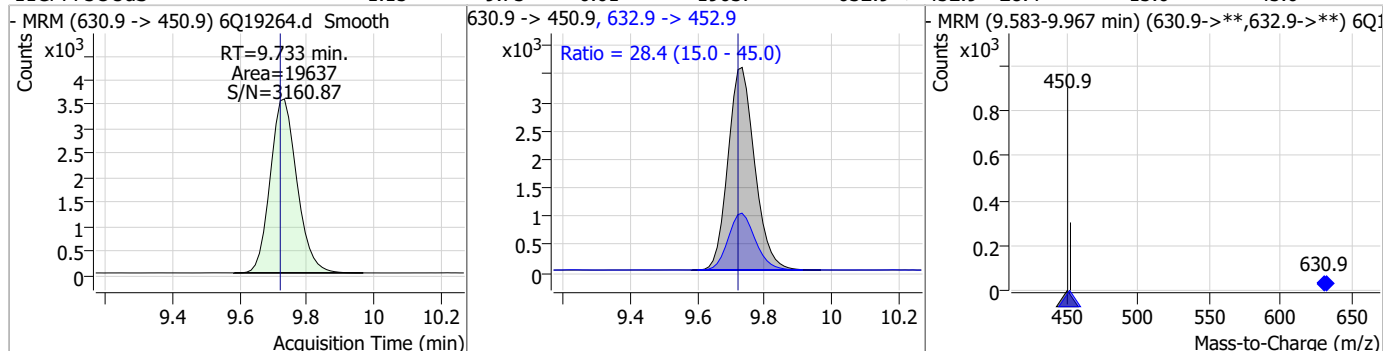
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Perfluorinated Compounds by LC/MS/MS

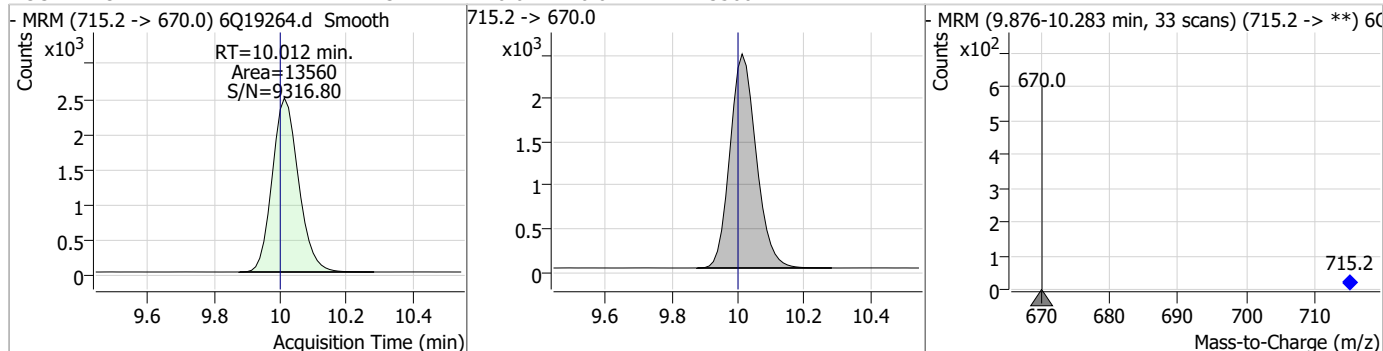
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.63	9.68	0.00	6022	498.1 -> 478.0	3.8	1.4	4.2



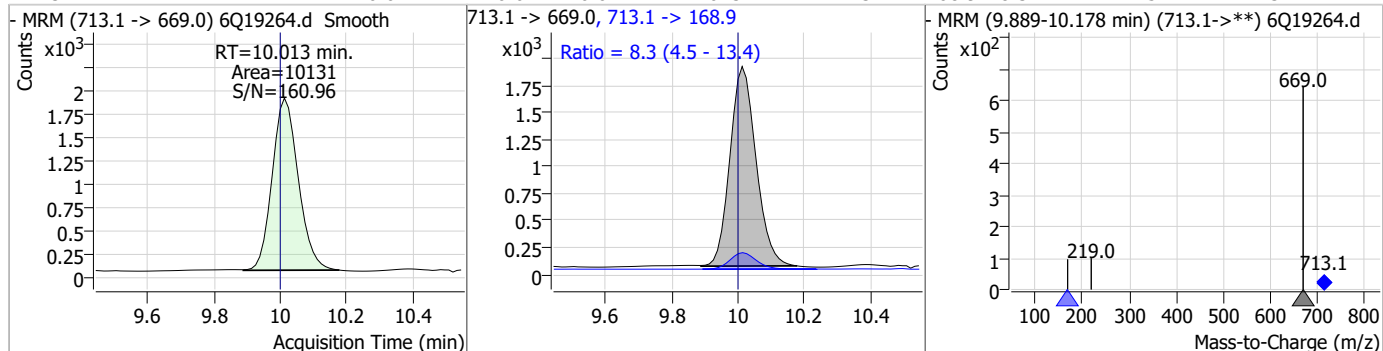
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	1.15	9.73	0.01	19637	632.9 -> 452.9	28.4	15.0	45.0



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



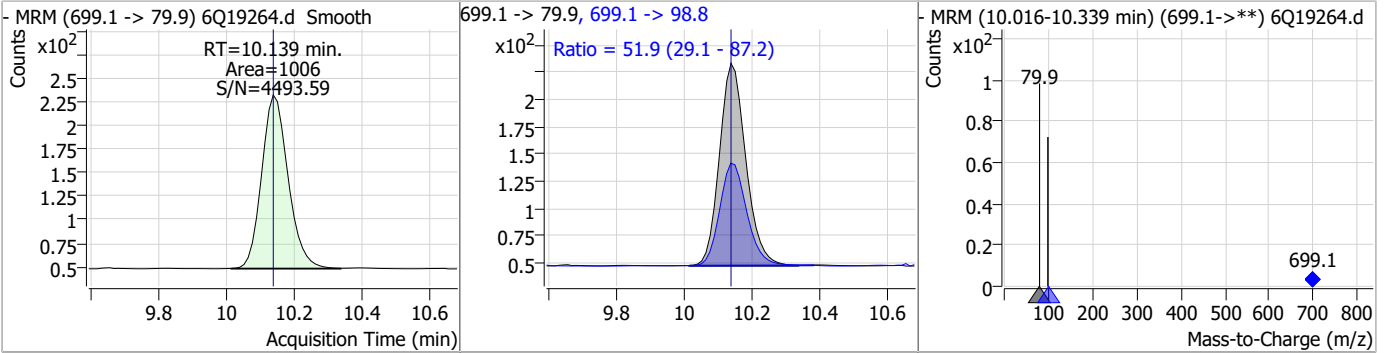
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.62	10.01	0.01	10131	713.1 -> 168.9	8.3	4.5	13.4



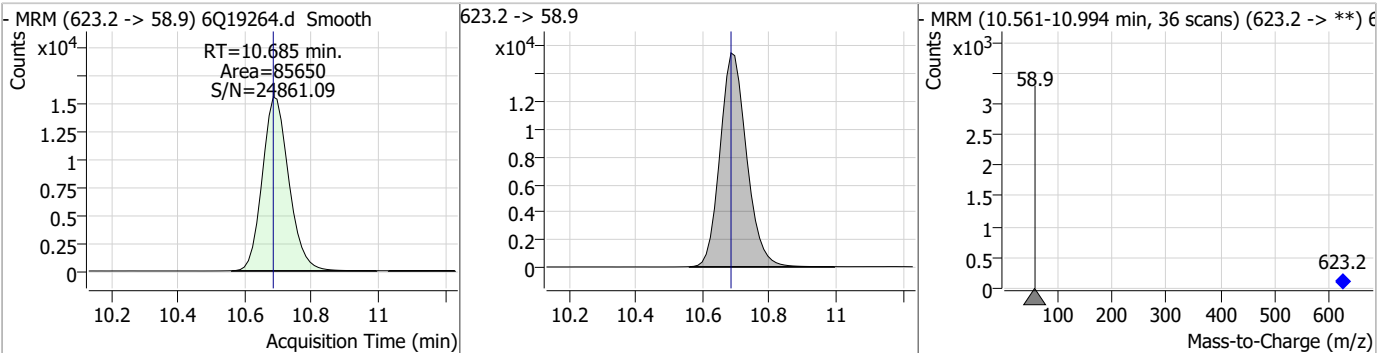
7.3.2
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Perfluorinated Compounds by LC/MS/MS

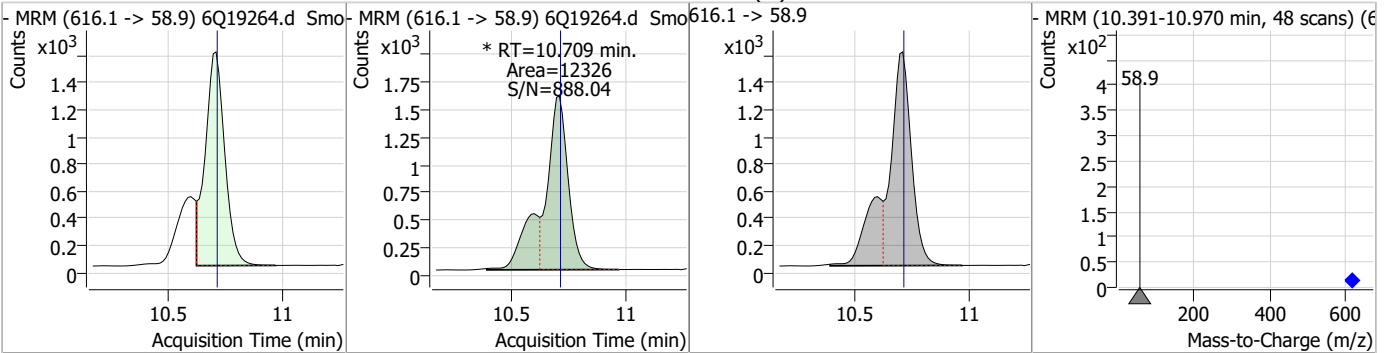
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.56	10.14	0.00	1006	699.1 -> 98.8	51.9	29.1	87.2



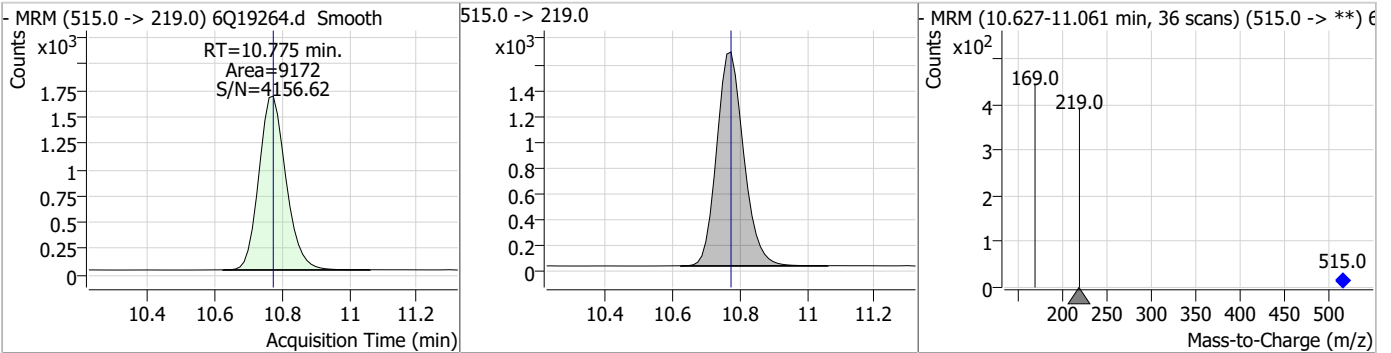
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	17.12	10.68	0.00	85650				



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

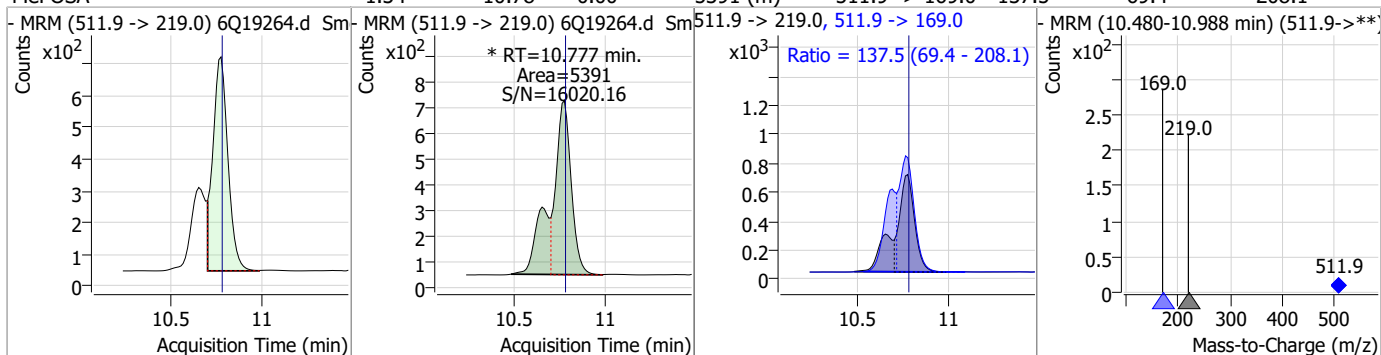


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.02	10.78	0.00	9172				

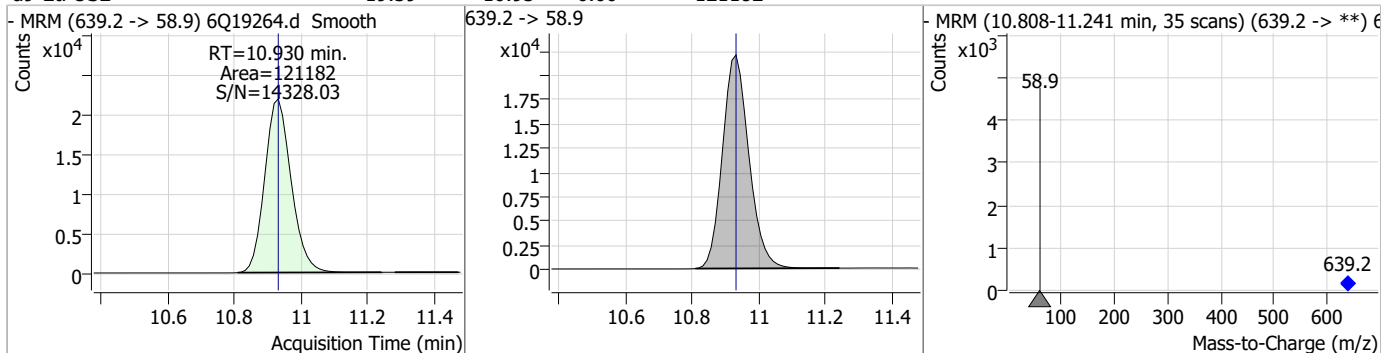


Perfluorinated Compounds by LC/MS/MS

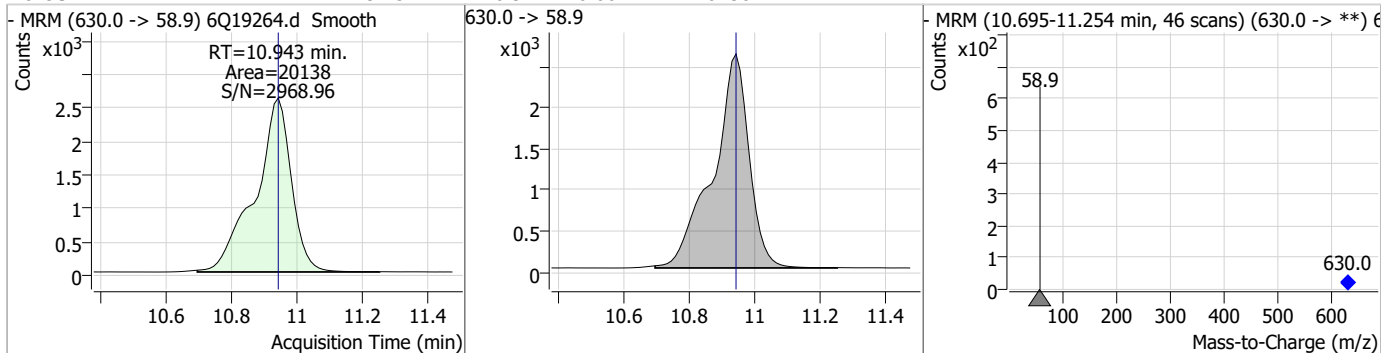
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	1.34	10.78	0.00	5391 (m)	511.9 -> 169.0	137.5	69.4	208.1



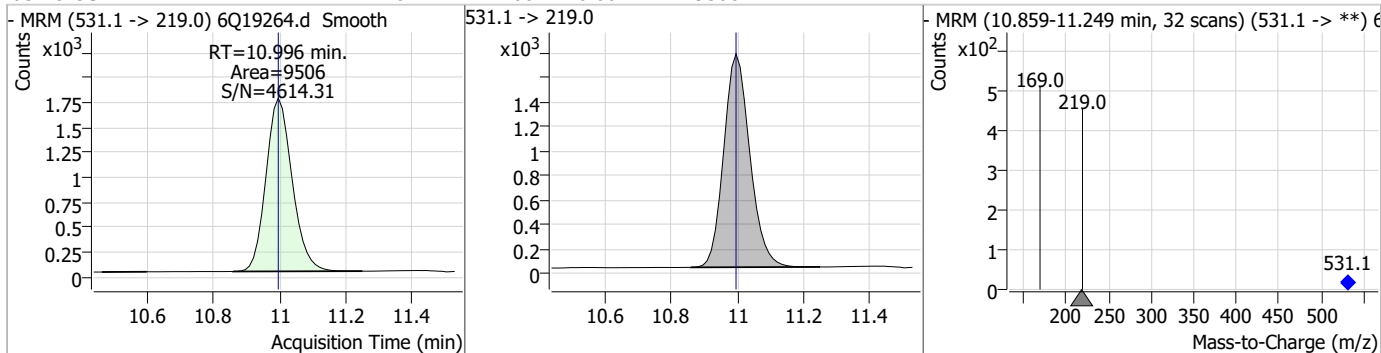
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.39	10.93	0.00	121182				



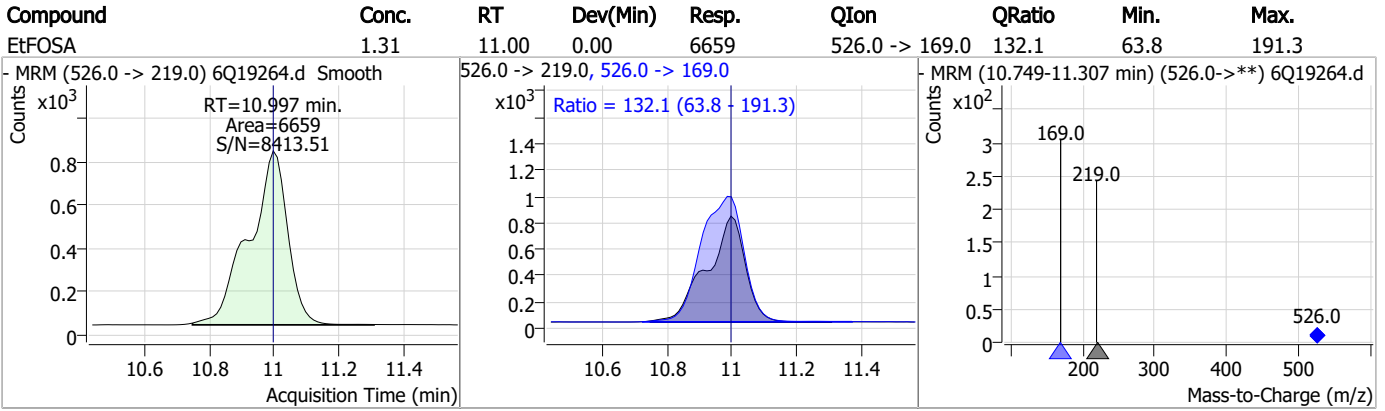
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	3.15	10.94	0.00	20138				



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



Perfluorinated Compounds by LC/MS/MS



7.3.2

7

Manual Integration Approval Summary

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

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

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Perfluorinated Compounds by LC/MS/MS

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

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

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

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Perfluorinated Compounds by LC/MS/MS

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

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

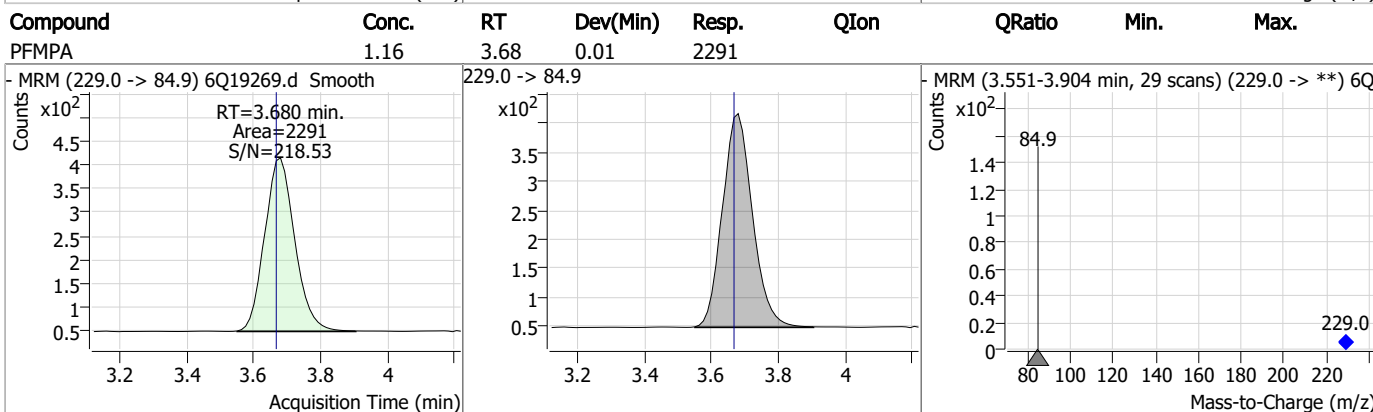
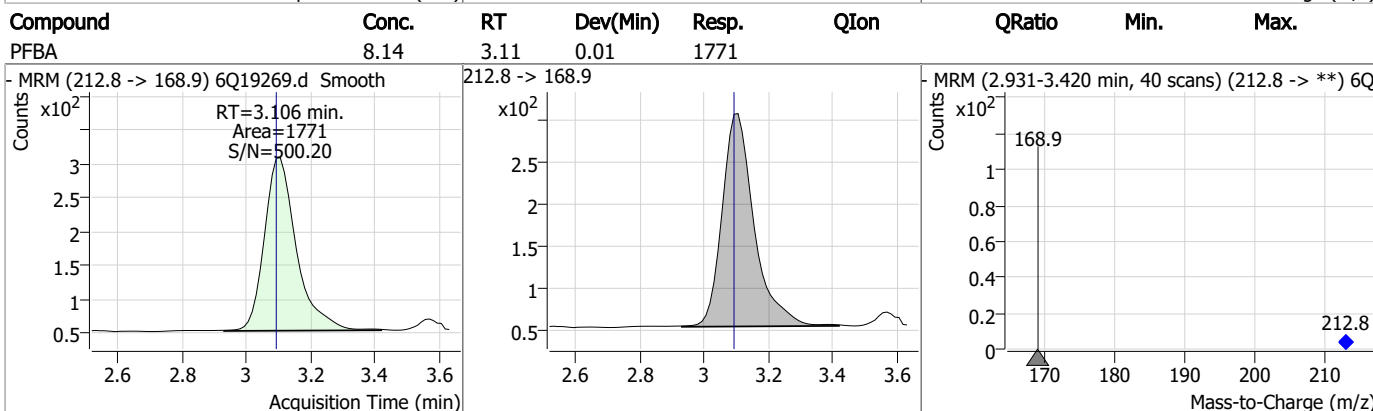
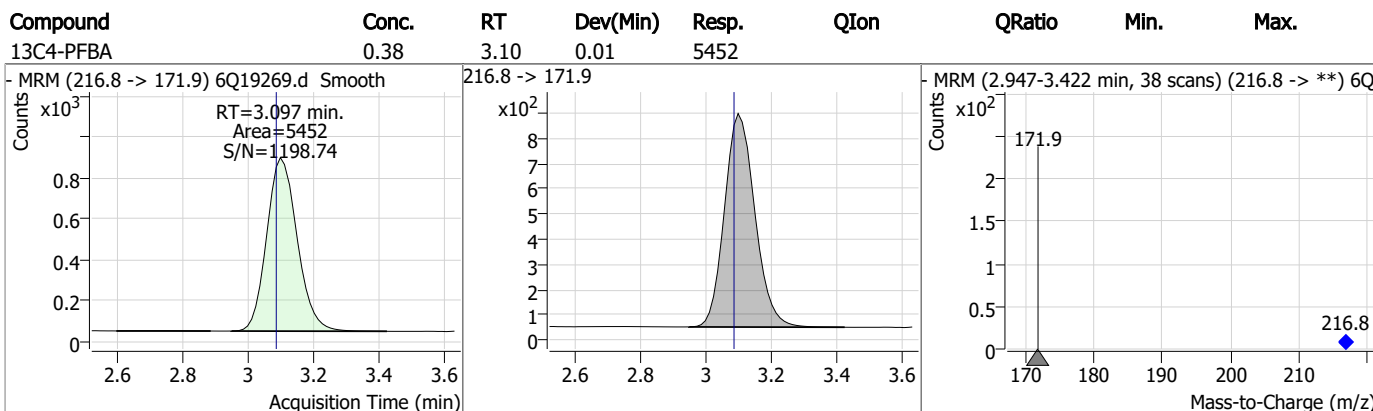
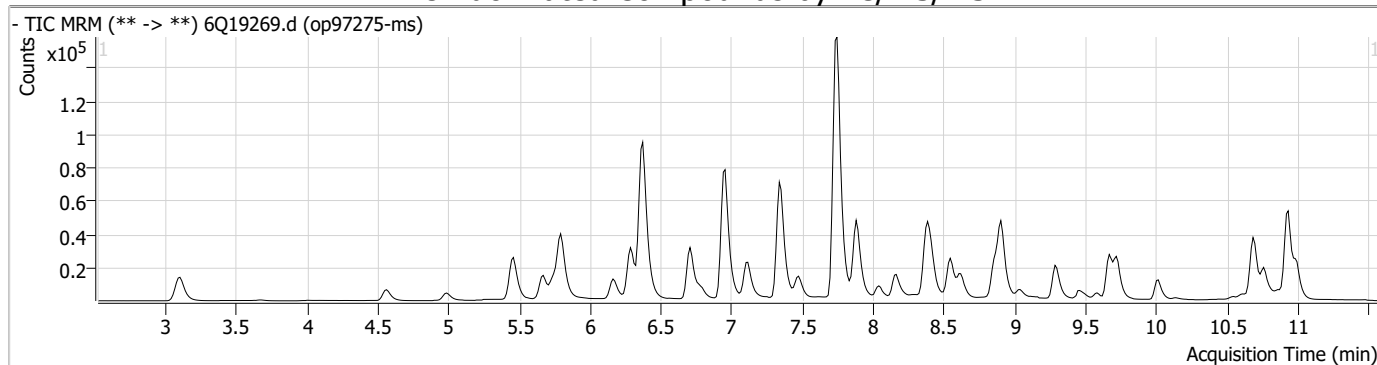
Perfluorinated Compounds by LC/MS/MS

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

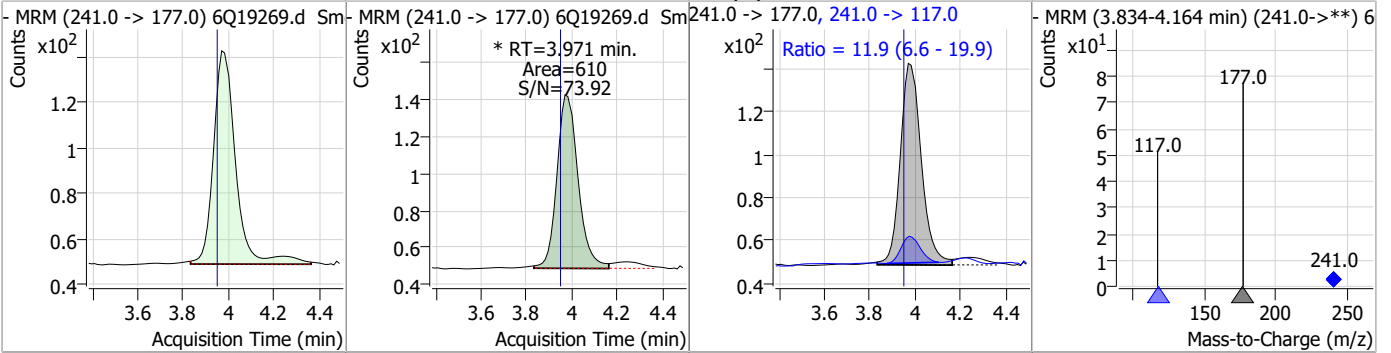
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Perfluorinated Compounds by LC/MS/MS

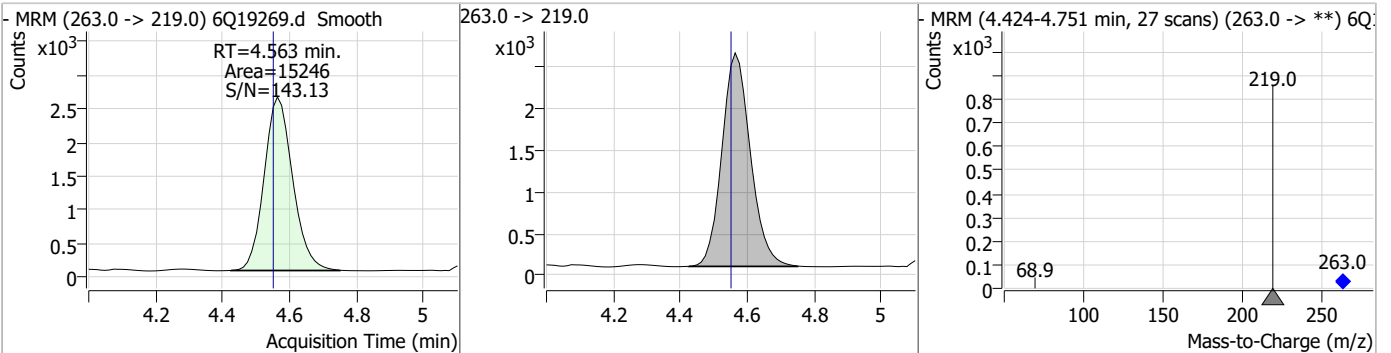


Perfluorinated Compounds by LC/MS/MS

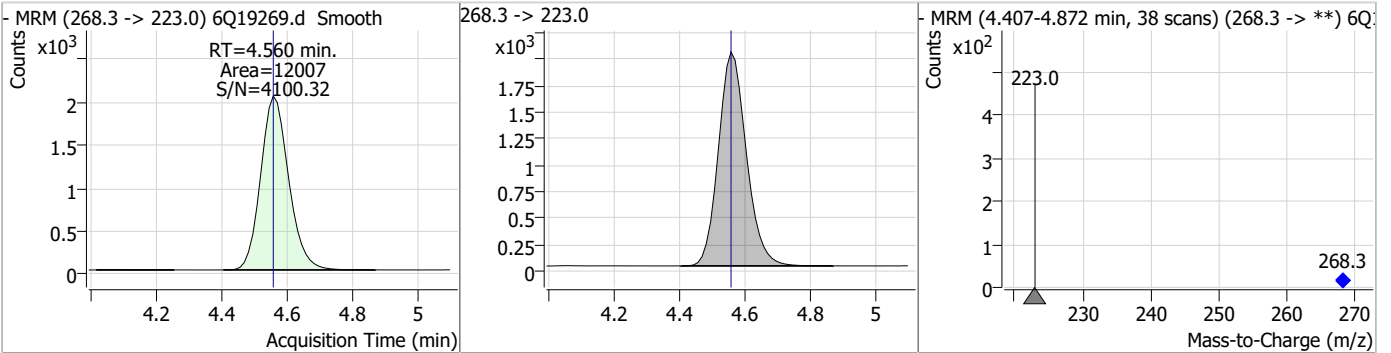
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	2.53	3.97	0.02	610 (m)	241.0 -> 117.0	11.9	6.6	19.9



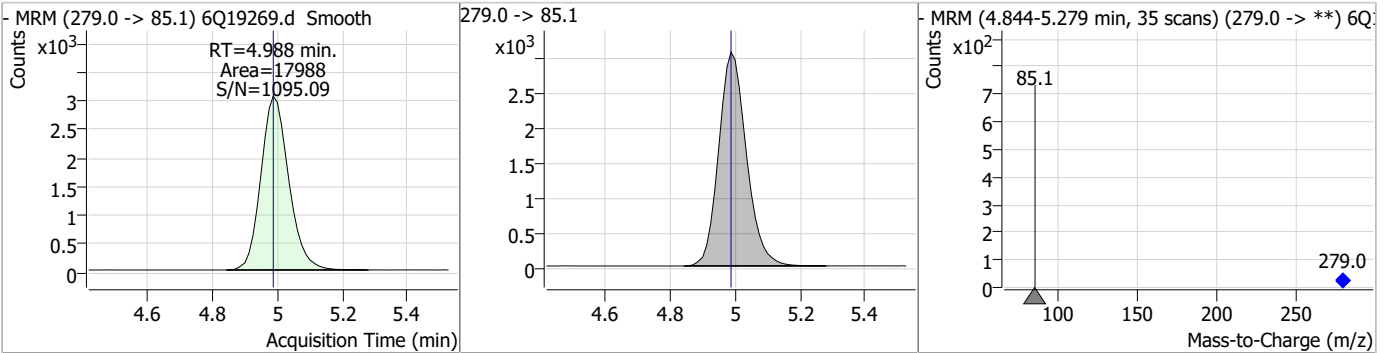
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.31	4.56	0.01	15246				



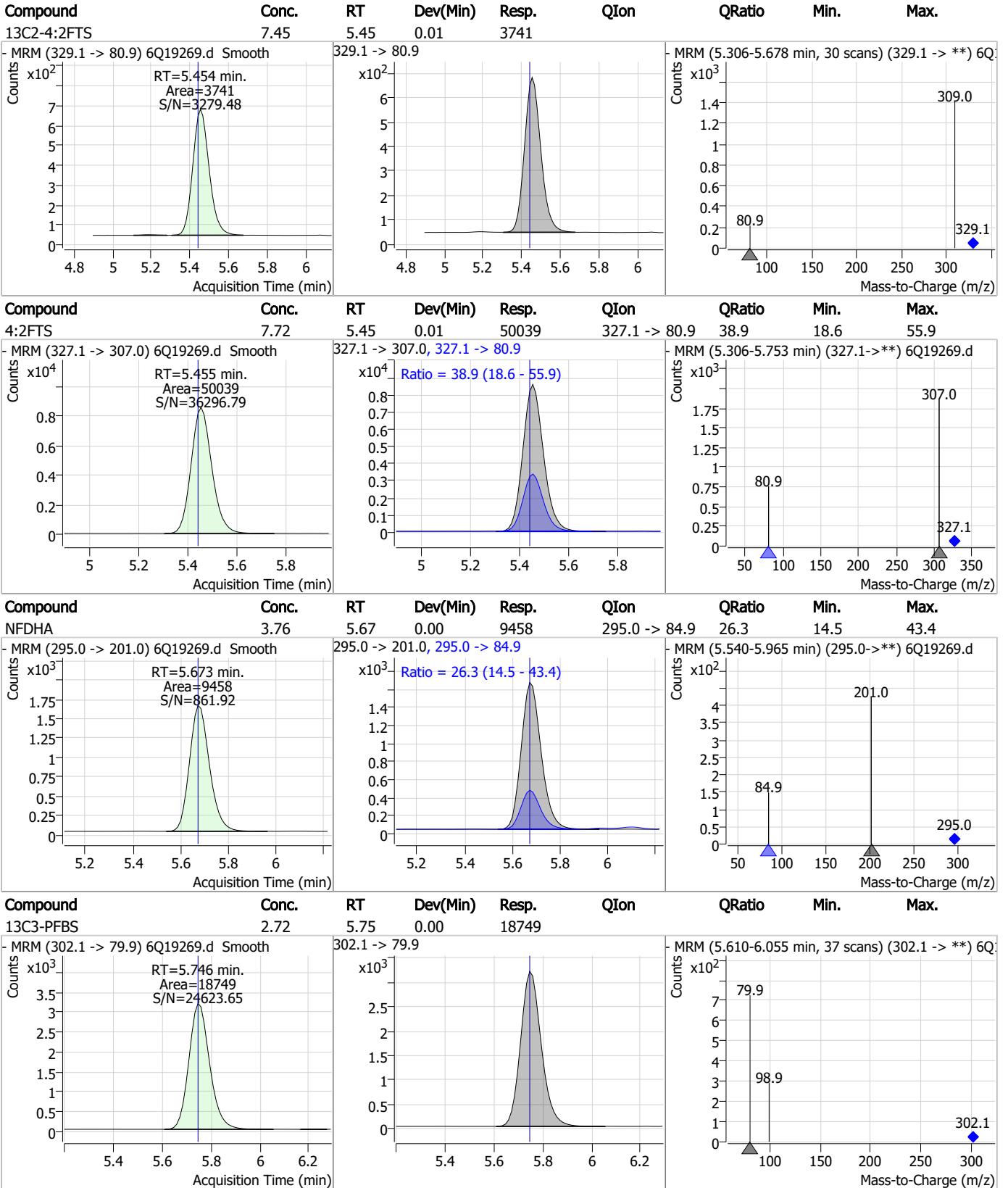
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	1.32	4.56	0.00	12007				



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



Perfluorinated Compounds by LC/MS/MS

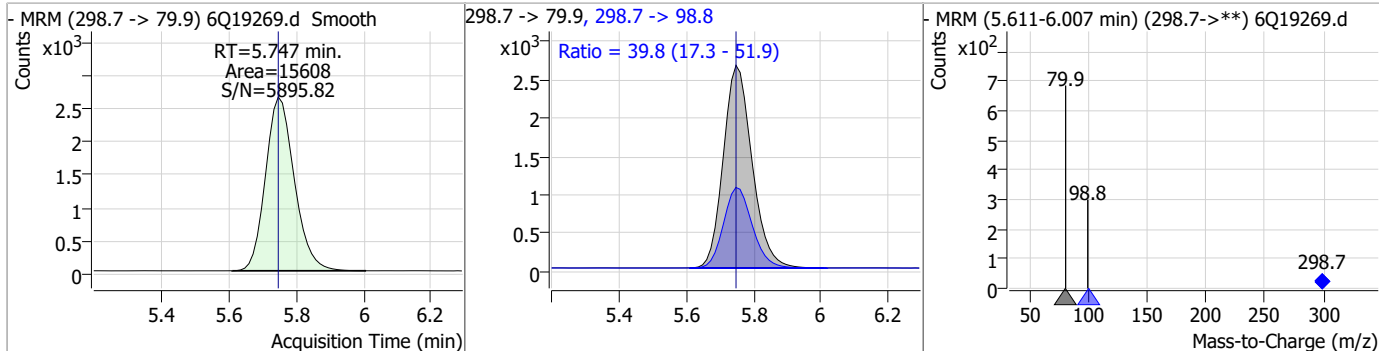


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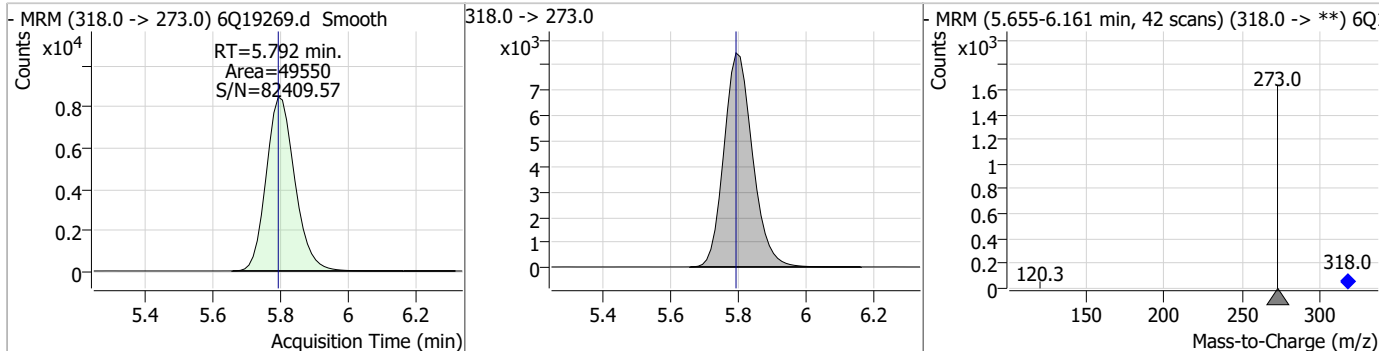
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Perfluorinated Compounds by LC/MS/MS

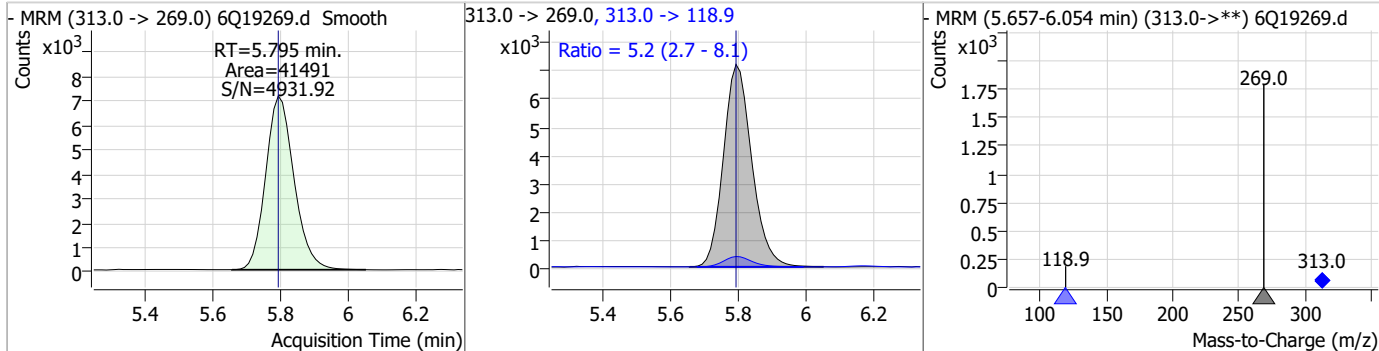
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.90	5.75	0.00	15608	298.7 -> 98.8	39.8	17.3	51.9



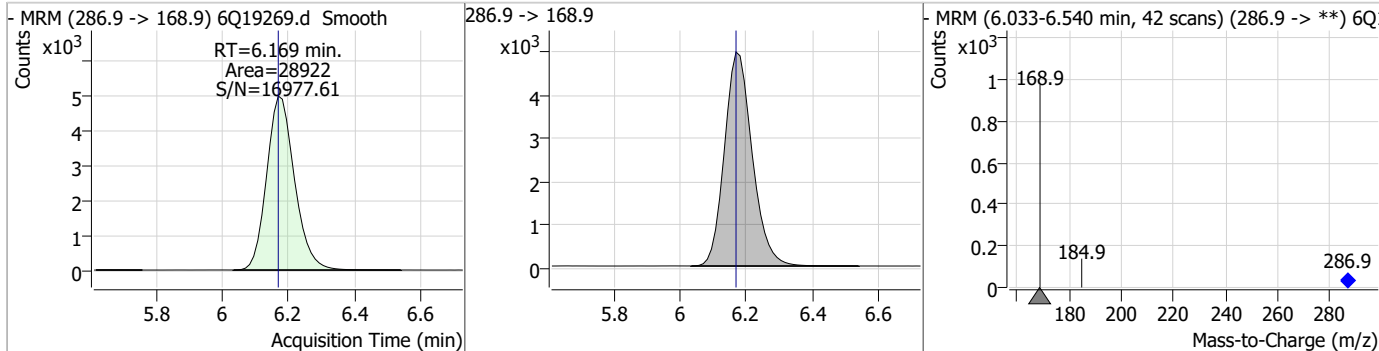
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.44	5.79	0.00	49550				



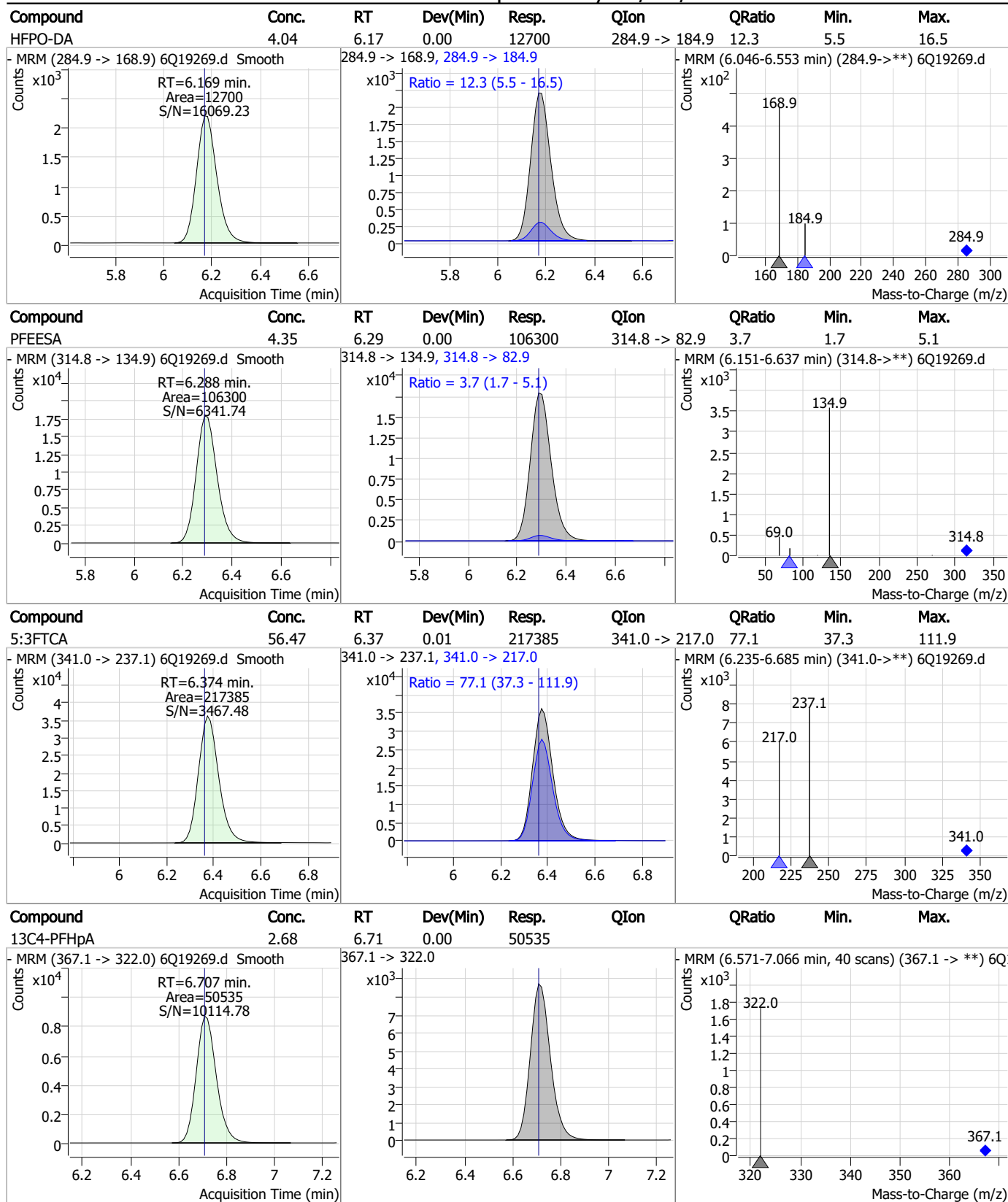
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.09	5.79	0.00	41491	313.0 -> 118.9	5.2	2.7	8.1



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

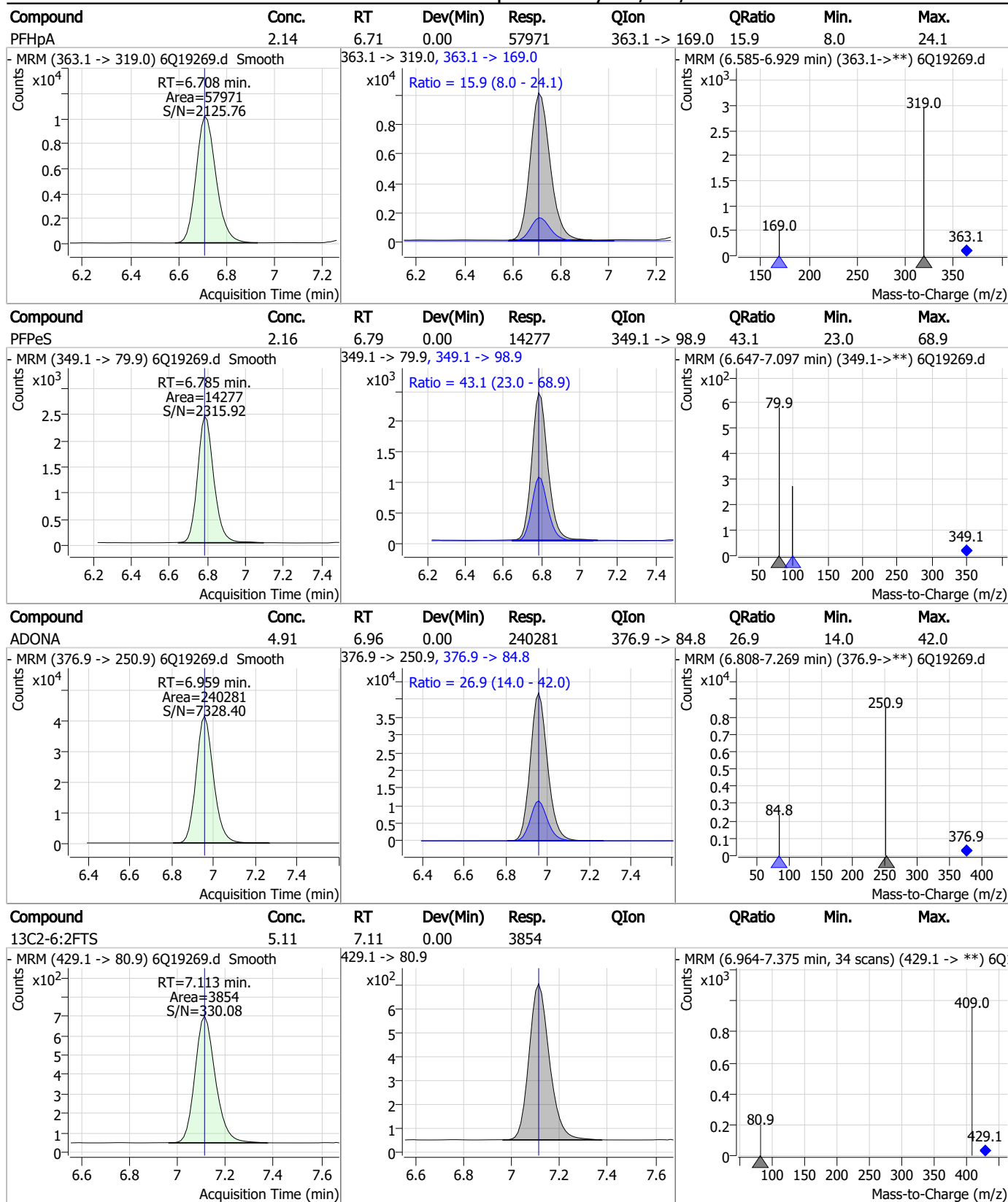


Perfluorinated Compounds by LC/MS/MS



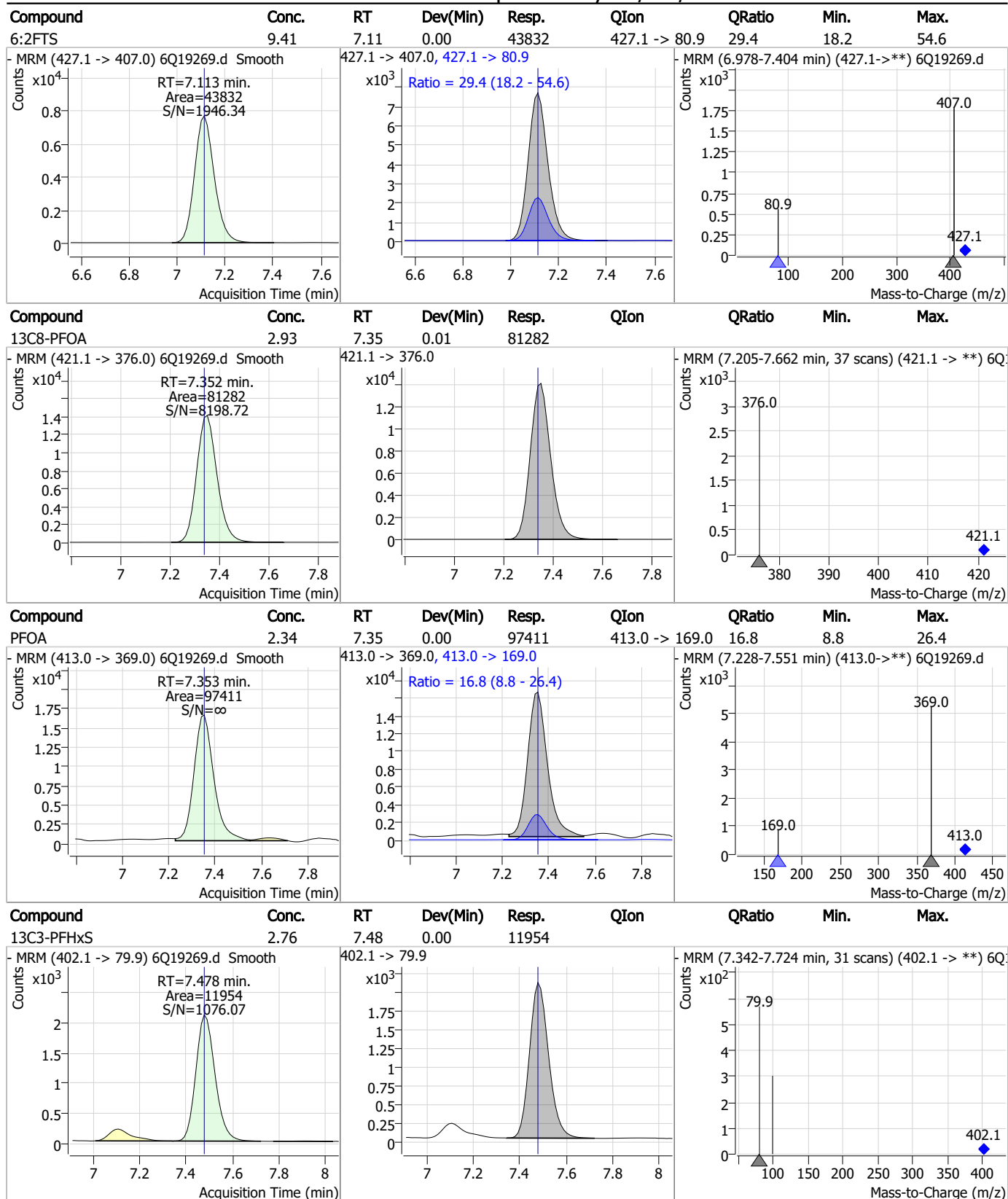
7.4.1
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Perfluorinated Compounds by LC/MS/MS



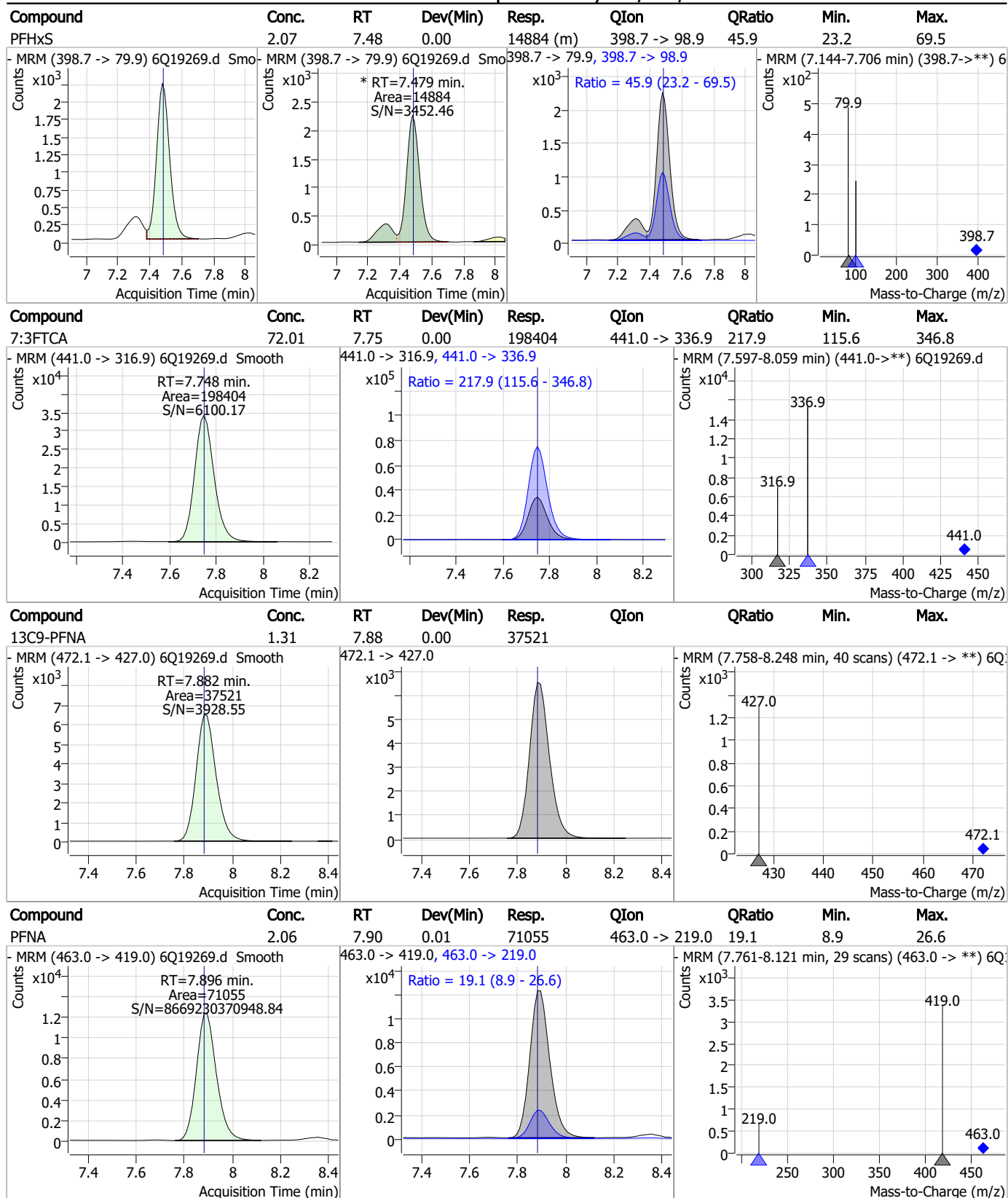
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Perfluorinated Compounds by LC/MS/MS



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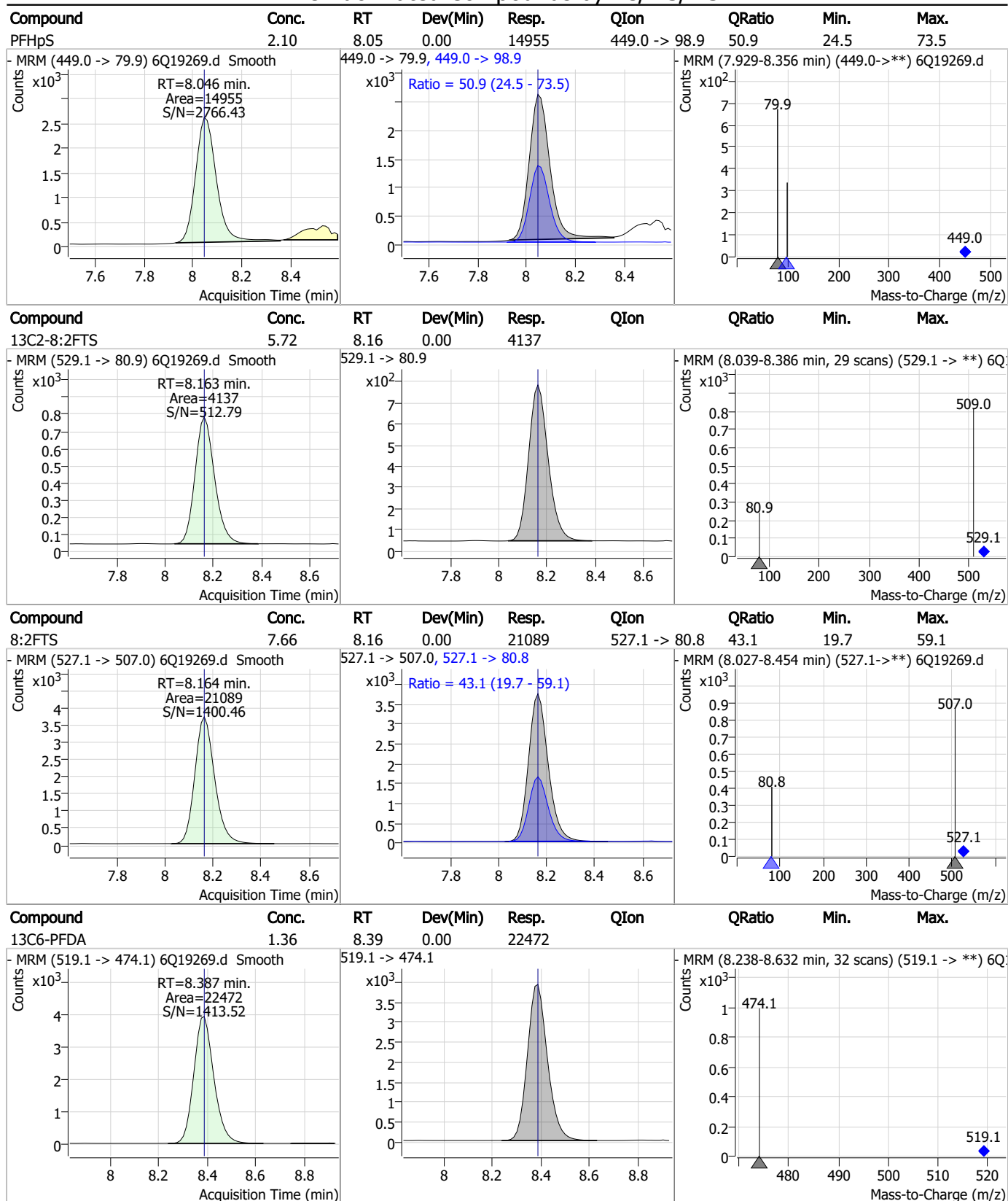
Perfluorinated Compounds by LC/MS/MS



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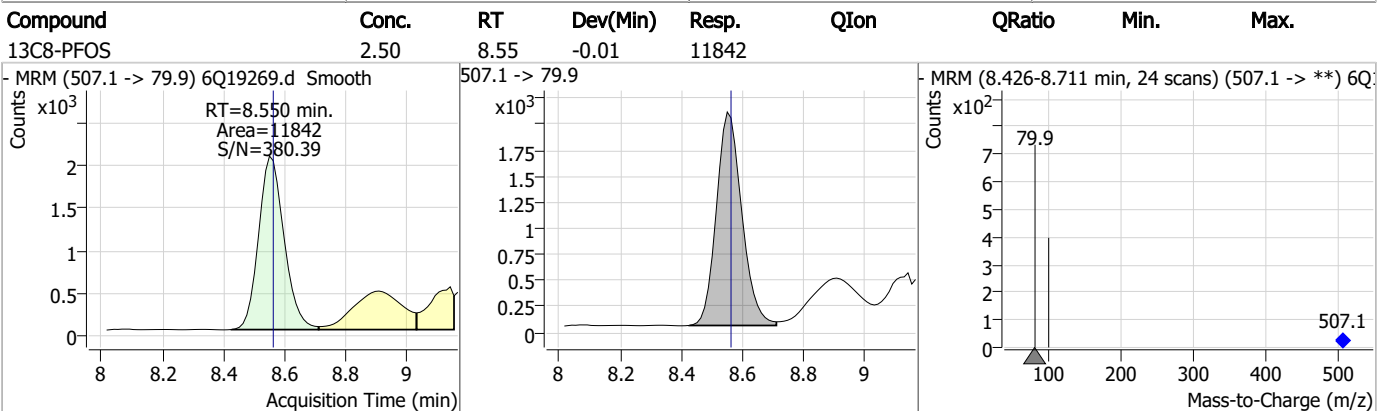
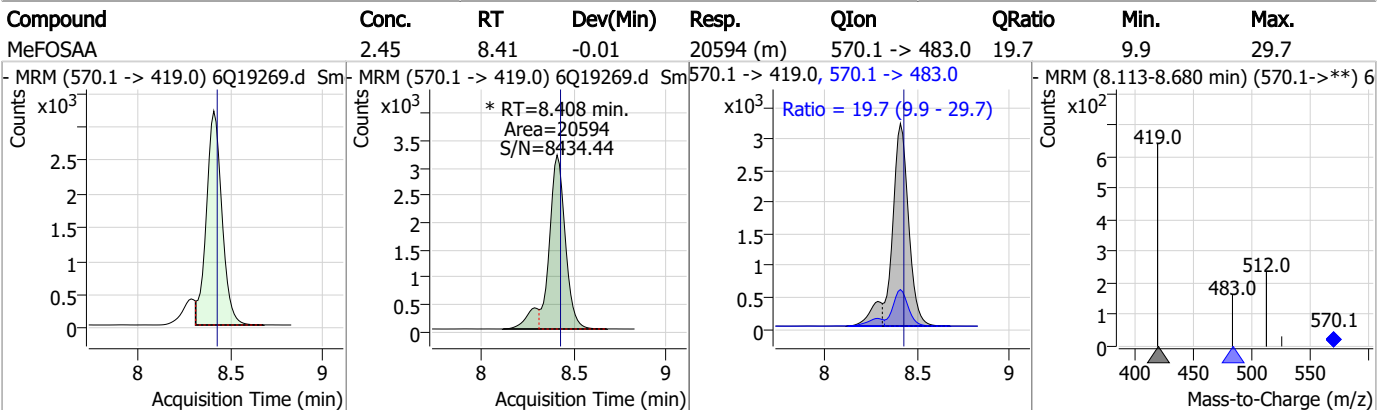
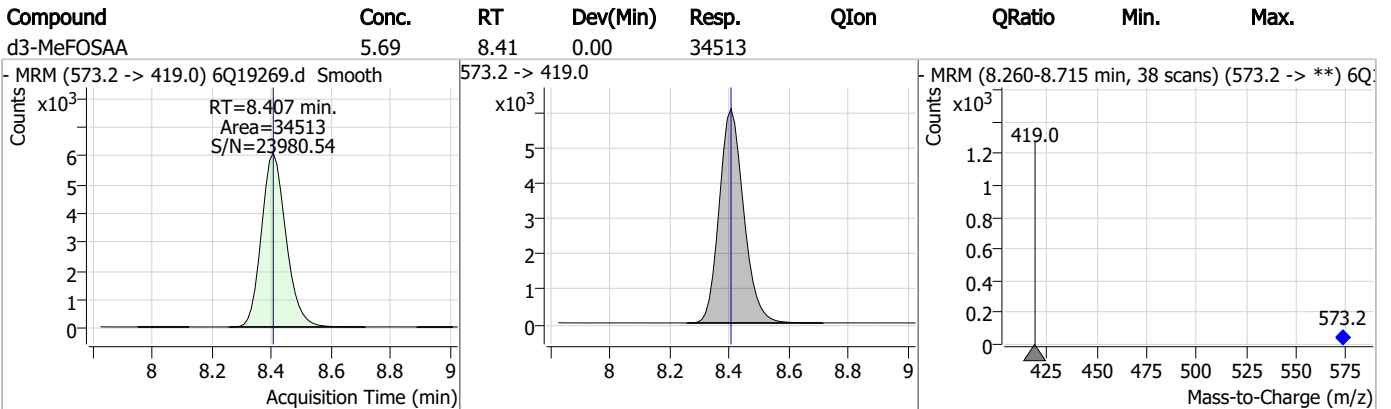
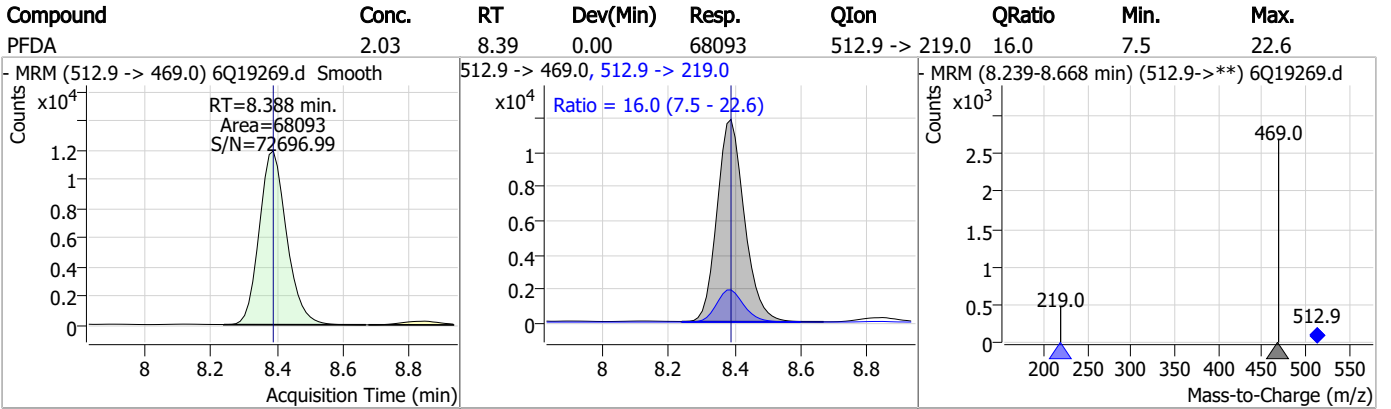


Perfluorinated Compounds by LC/MS/MS



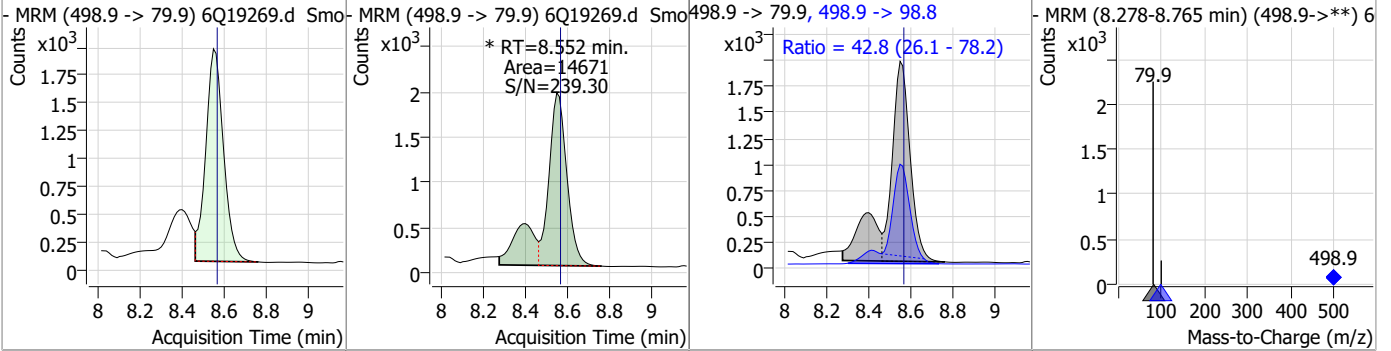
7.4.1
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Perfluorinated Compounds by LC/MS/MS

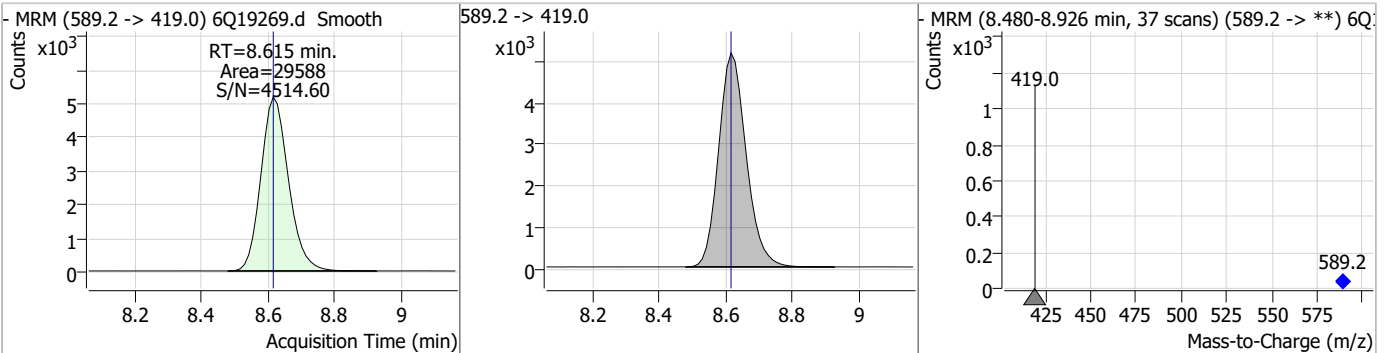


Perfluorinated Compounds by LC/MS/MS

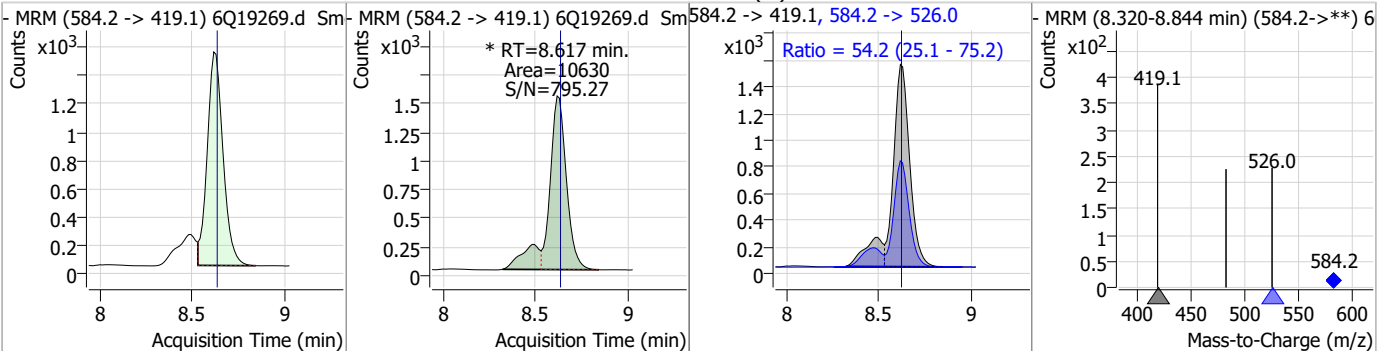
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.10	8.55	-0.01	14671 (m)	498.9 -> 98.8	42.8	26.1	78.2



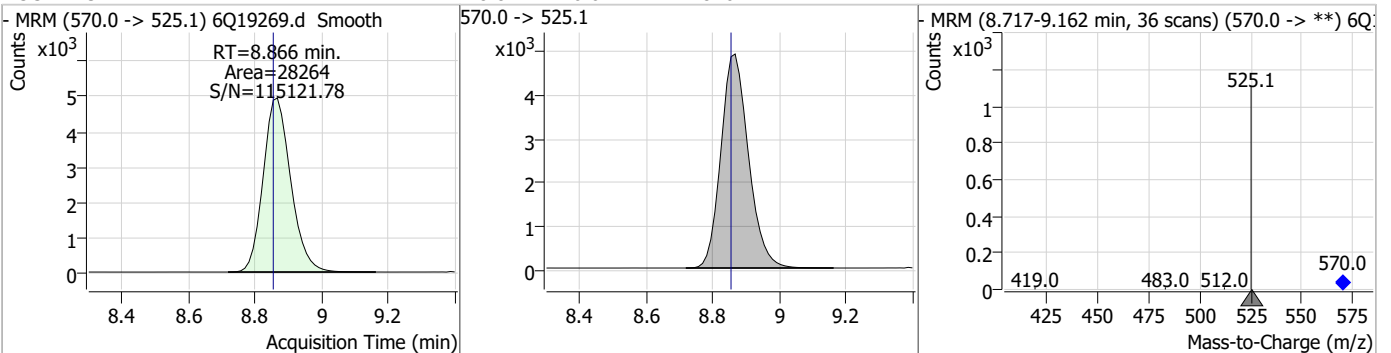
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.78	8.62	0.00	29588				



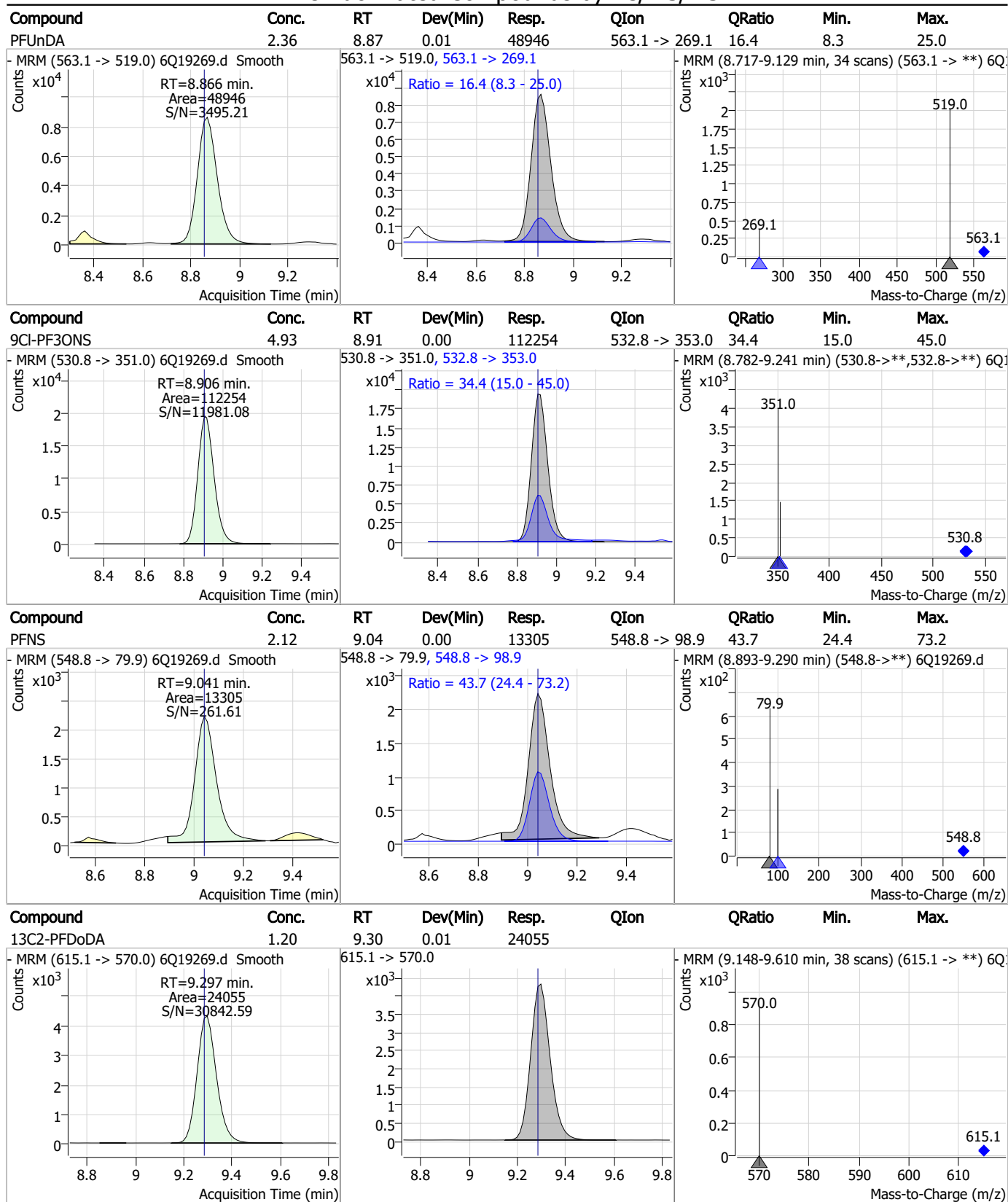
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.16	8.62	-0.01	10630 (m)	584.2 -> 526.0	54.2	25.1	75.2



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

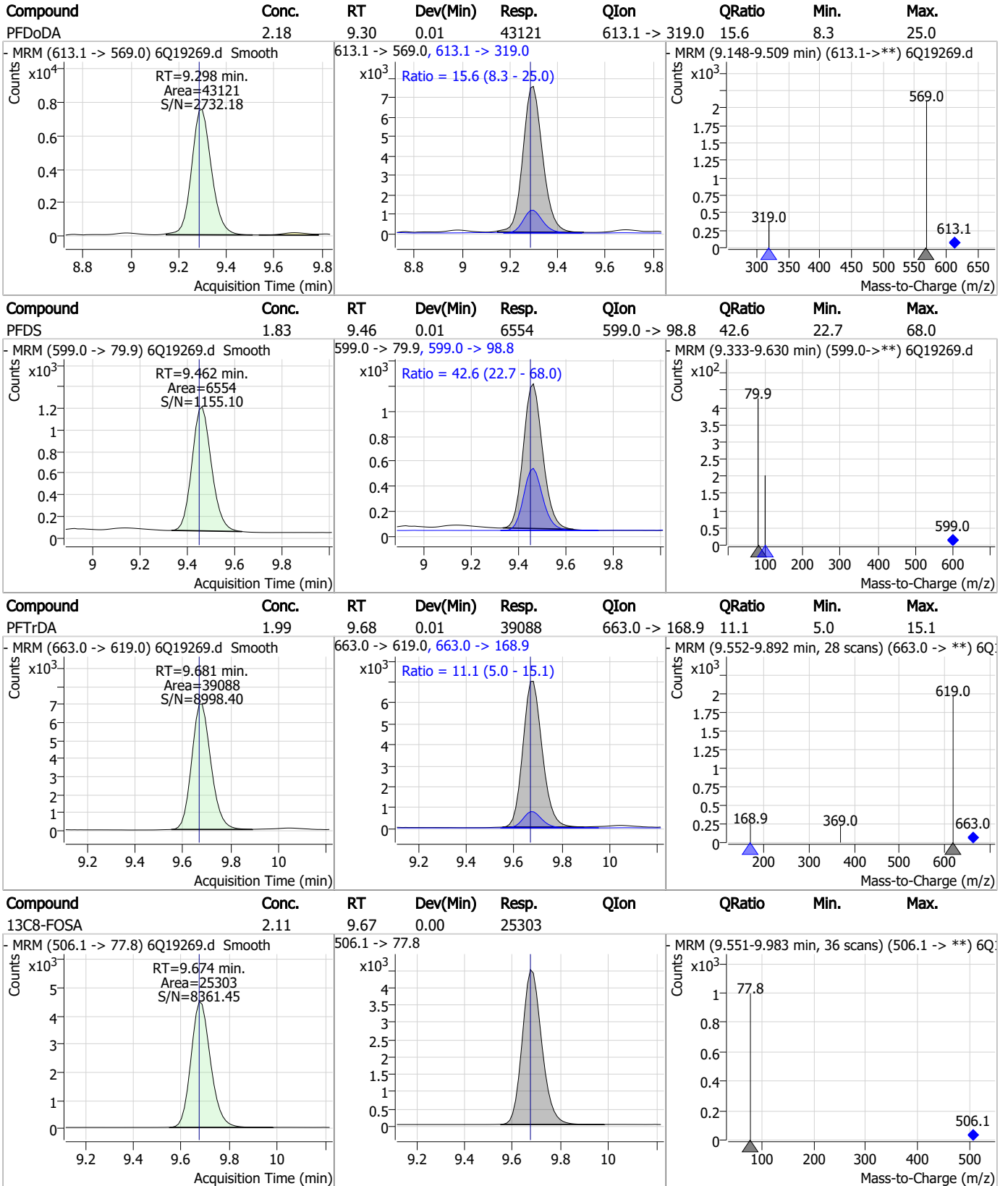


Perfluorinated Compounds by LC/MS/MS



7.4.1
7

Perfluorinated Compounds by LC/MS/MS

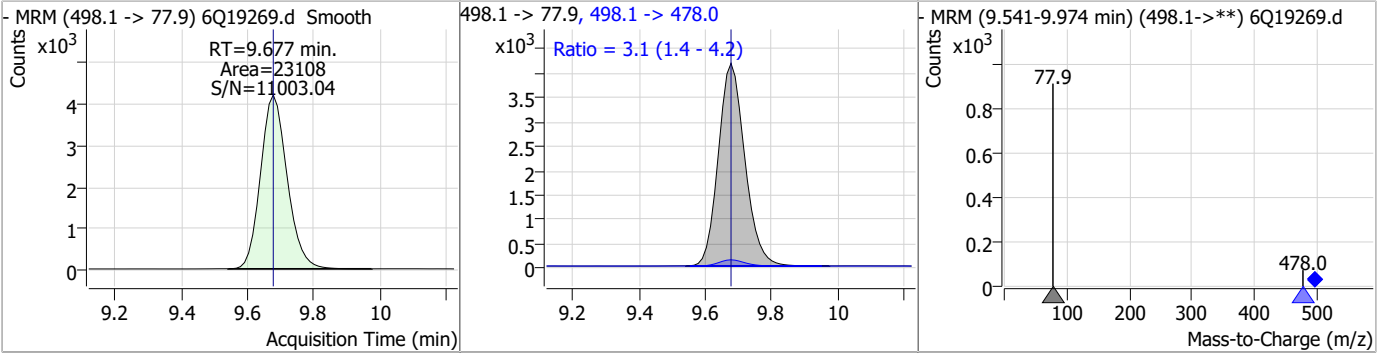


7.4.1

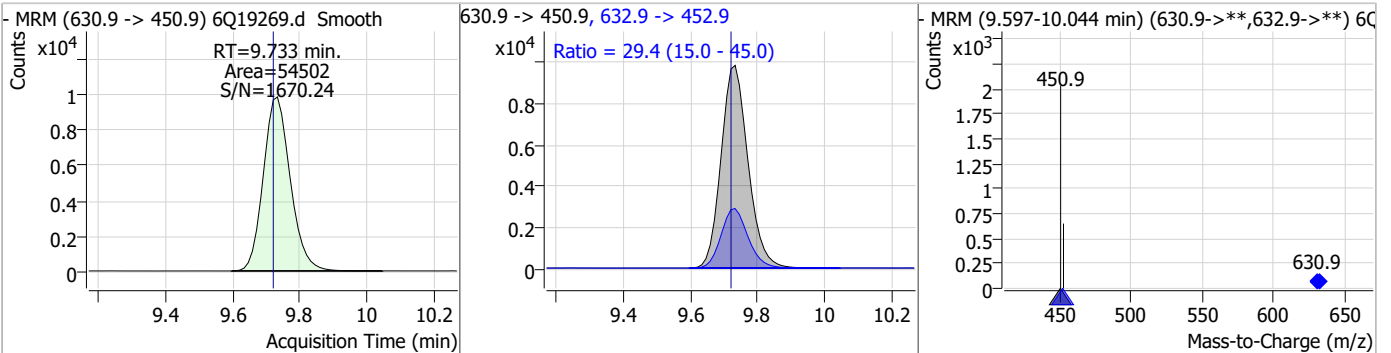
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Perfluorinated Compounds by LC/MS/MS

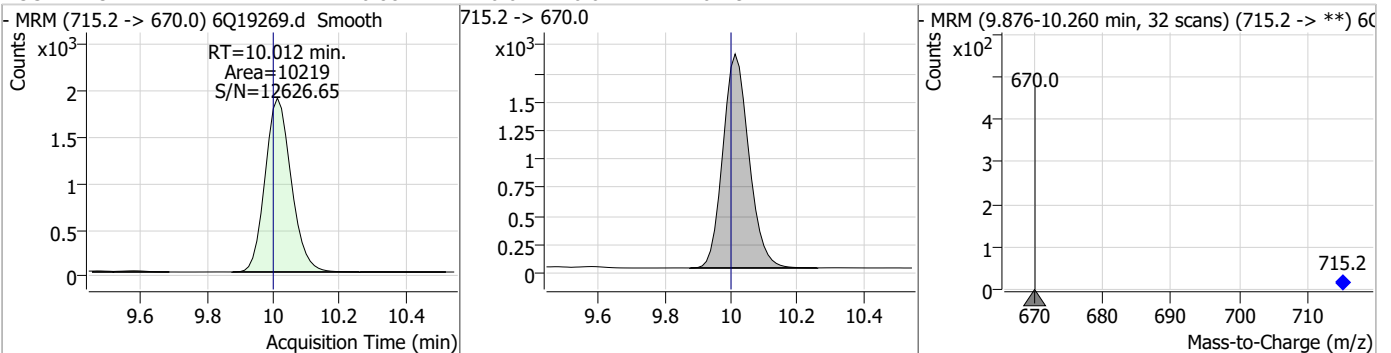
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.23	9.68	0.00	23108	498.1 -> 478.0	3.1	1.4	4.2



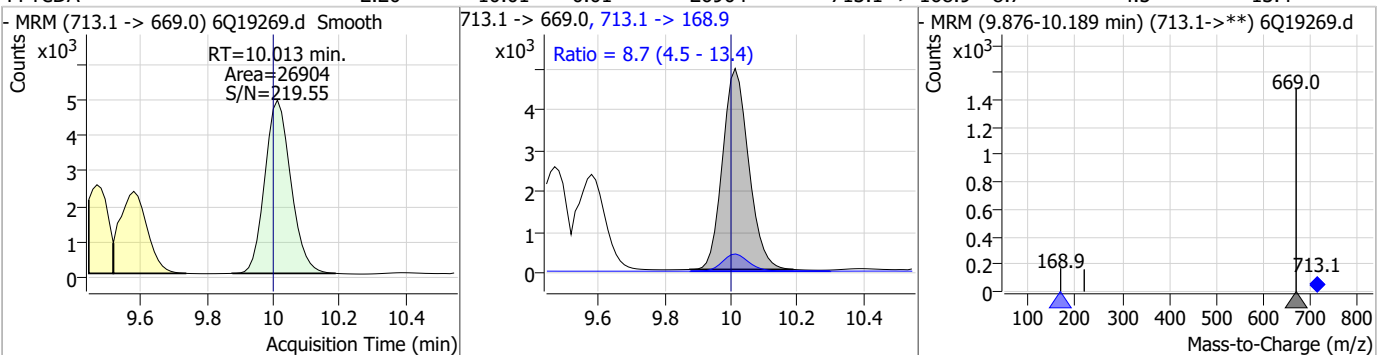
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	4.00	9.73	0.01	54502	632.9 -> 452.9	29.4	15.0	45.0



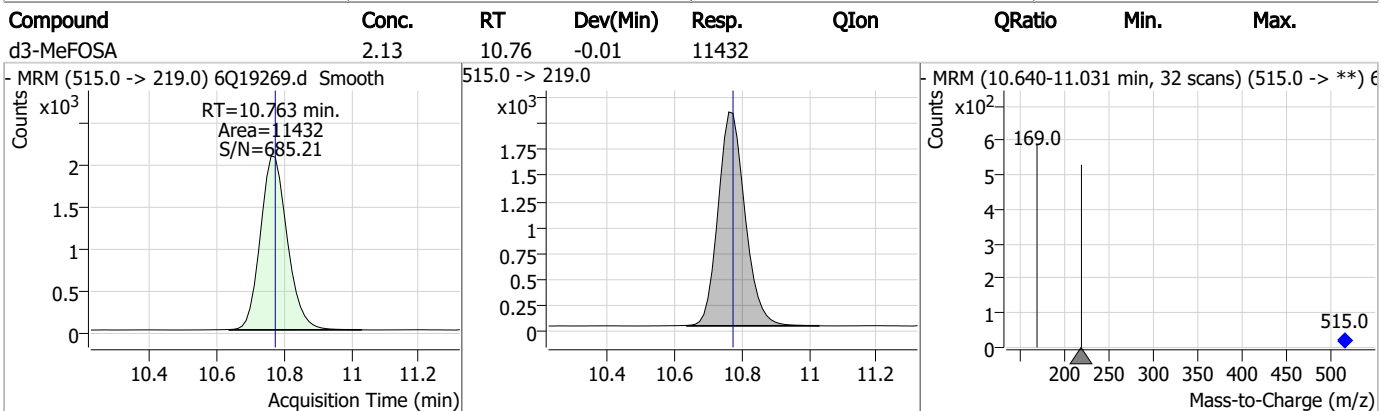
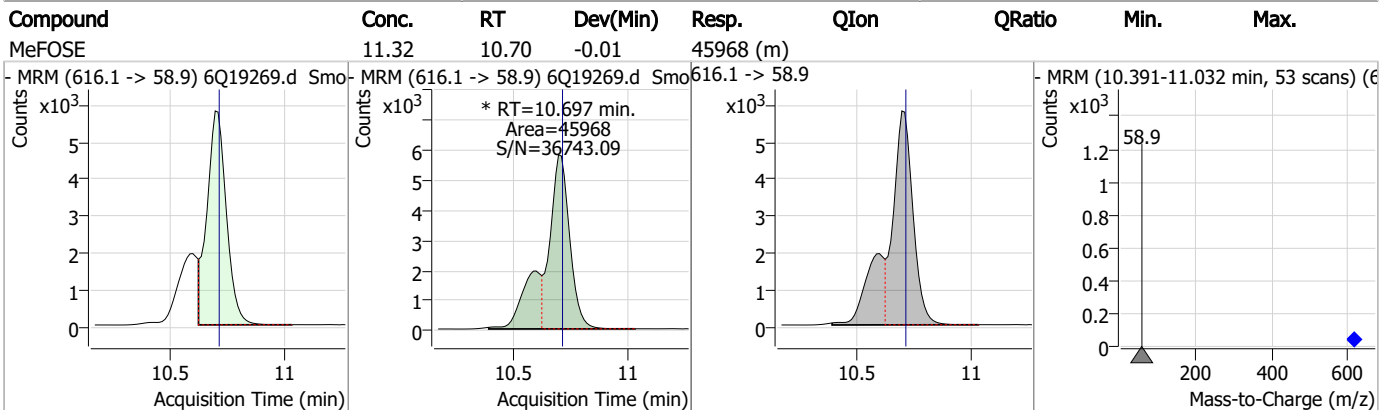
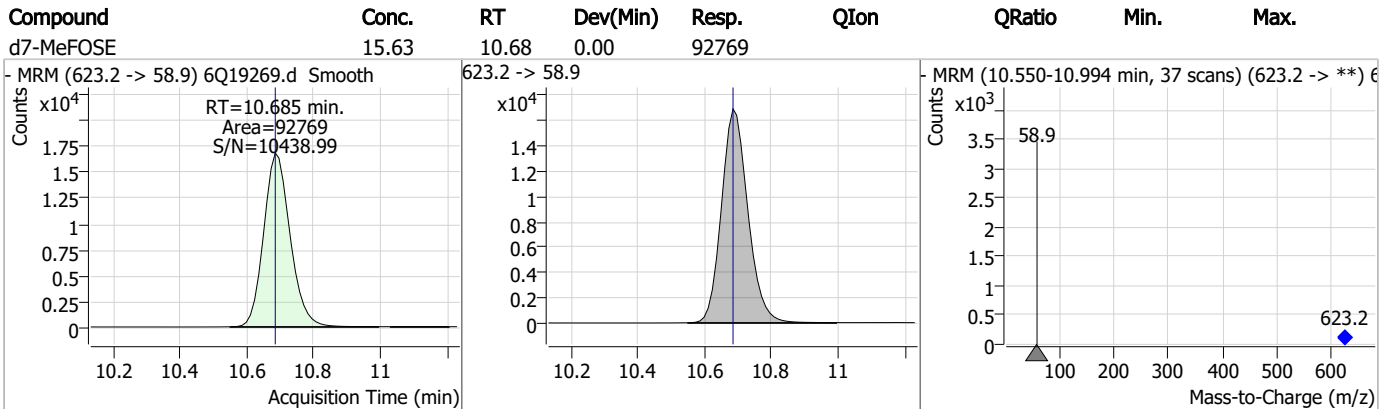
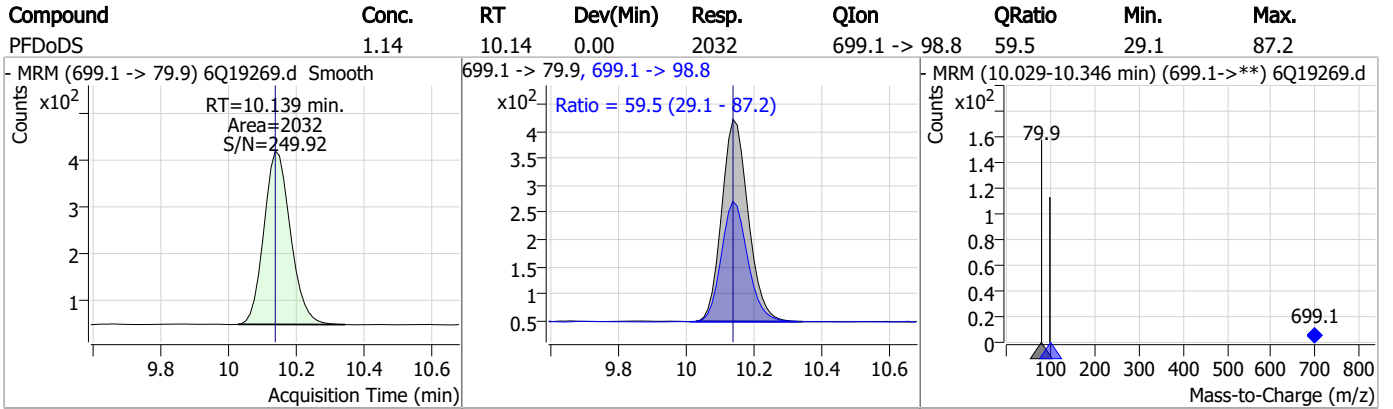
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.88	10.01	0.01	10219	715.2 -> 670.0	8.7	4.5	13.4



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



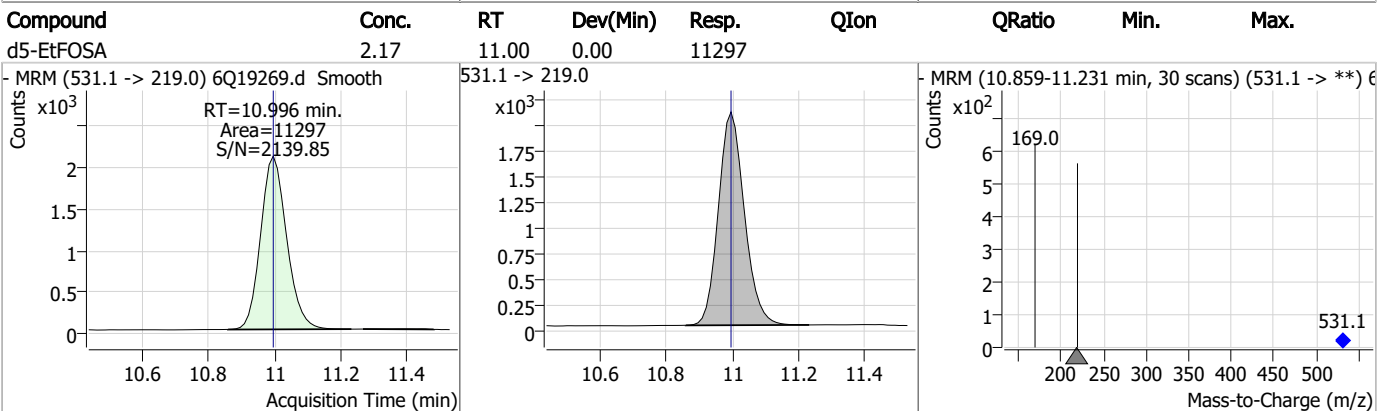
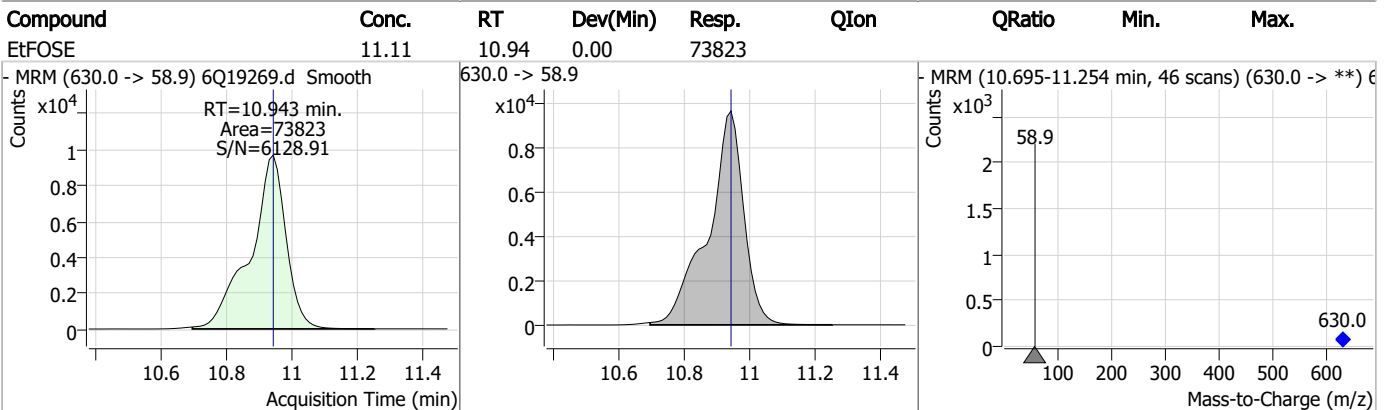
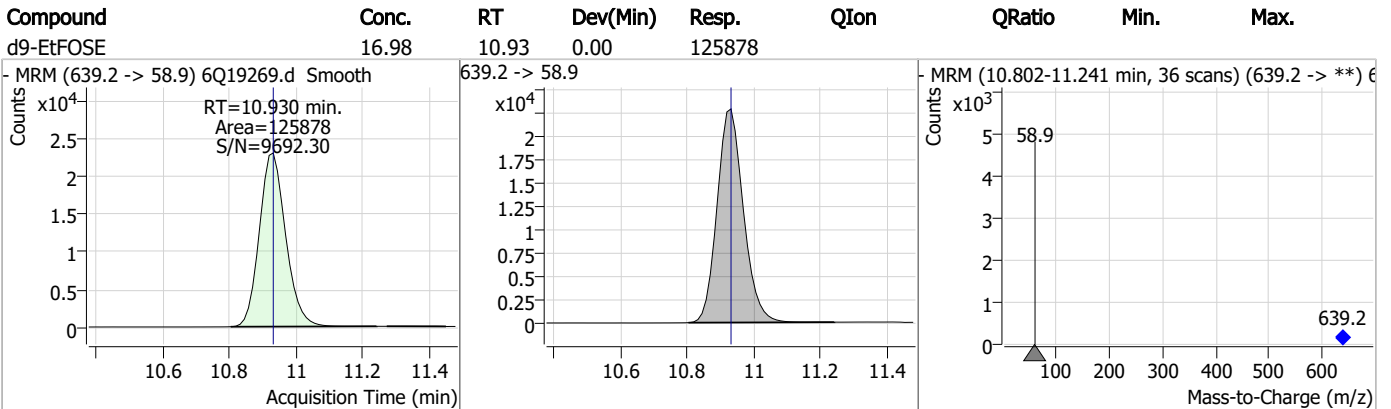
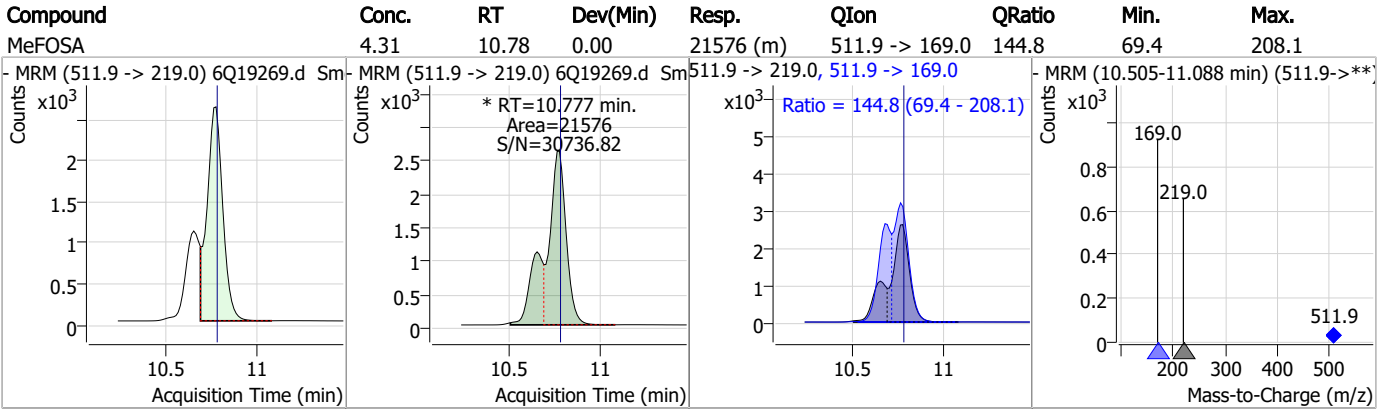
Perfluorinated Compounds by LC/MS/MS



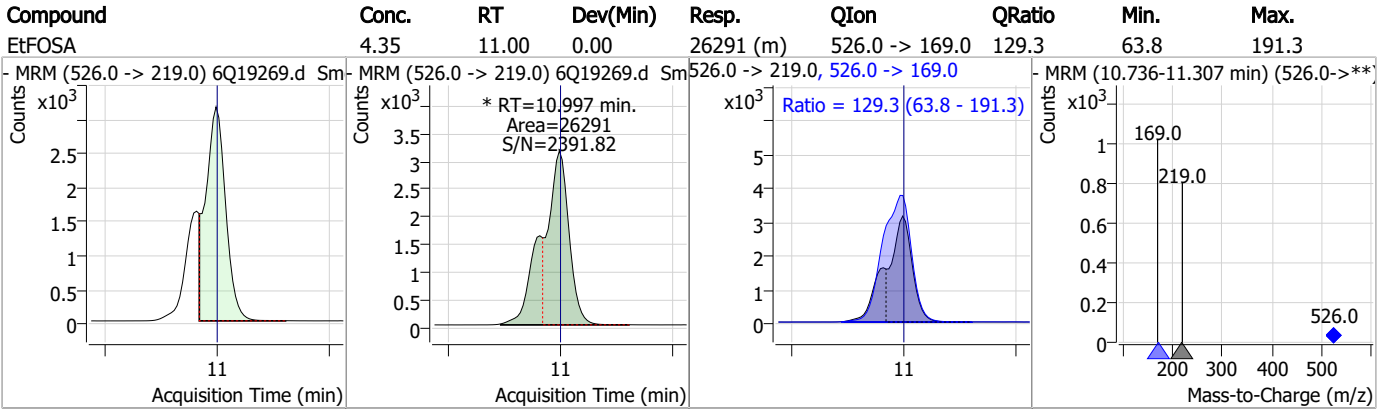
7.4.1

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Manual Integration Approval Summary

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

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

7.4.1.1
7

Perfluorinated Compounds by LC/MS/MS

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

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

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Perfluorinated Compounds by LC/MS/MS

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

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	8.355	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.898	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.5.1
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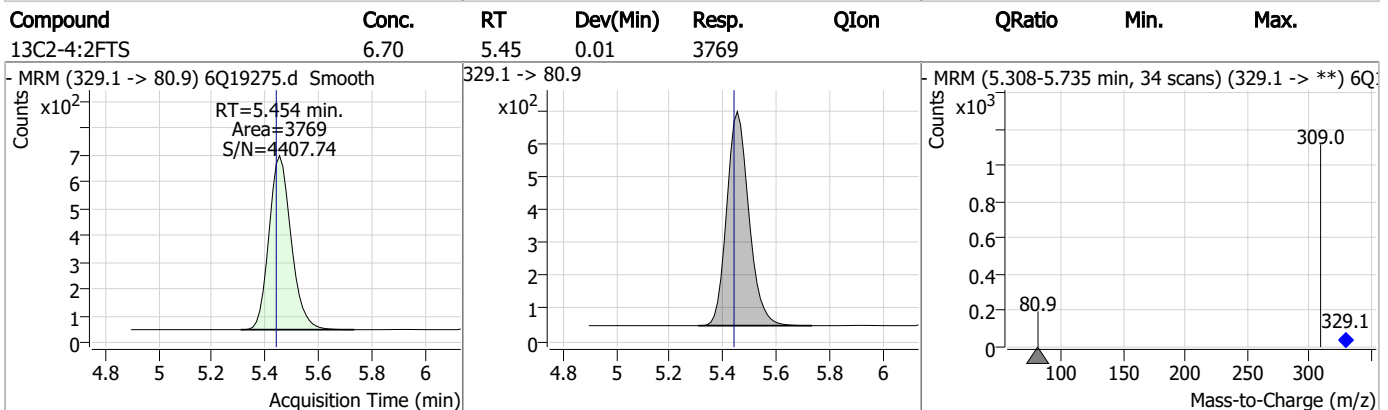
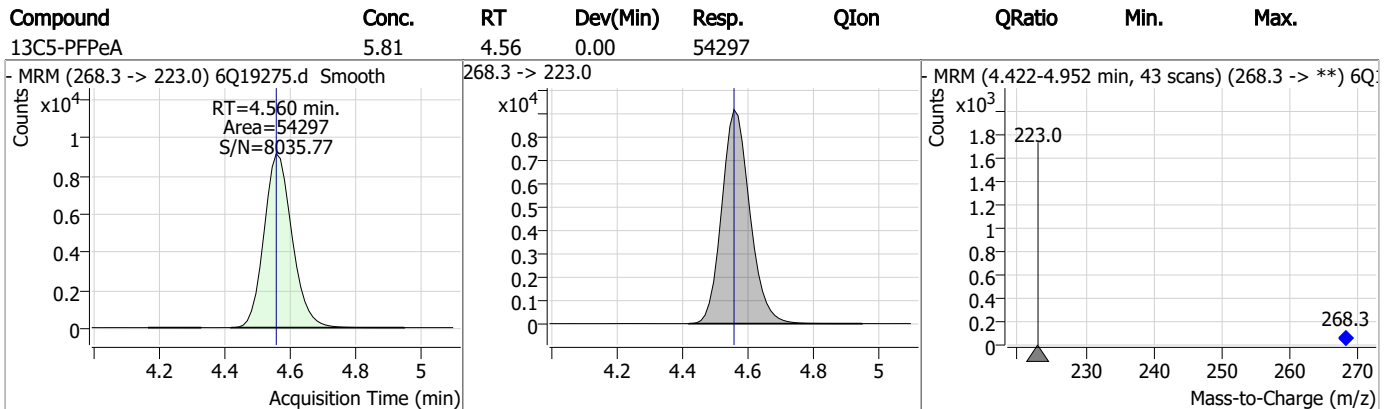
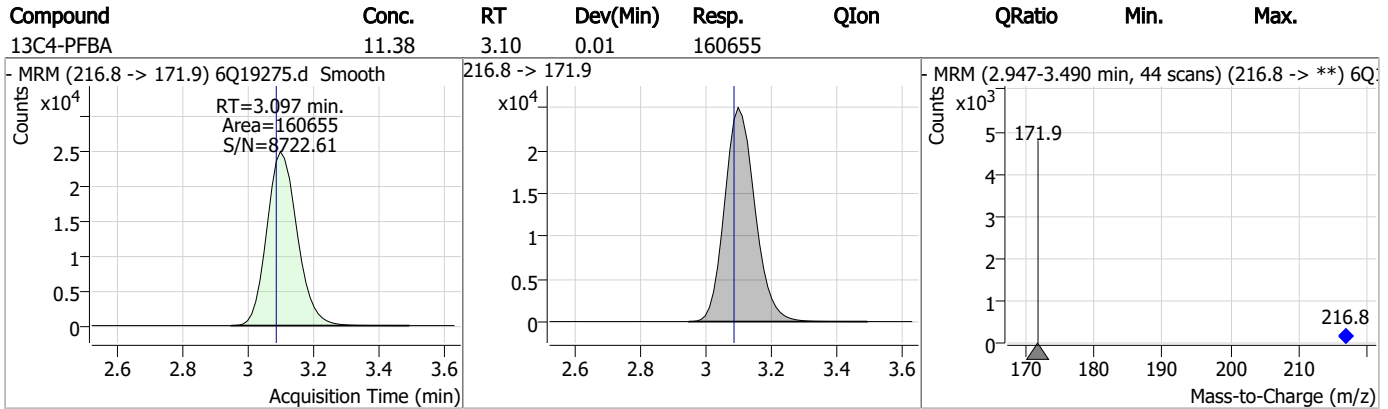
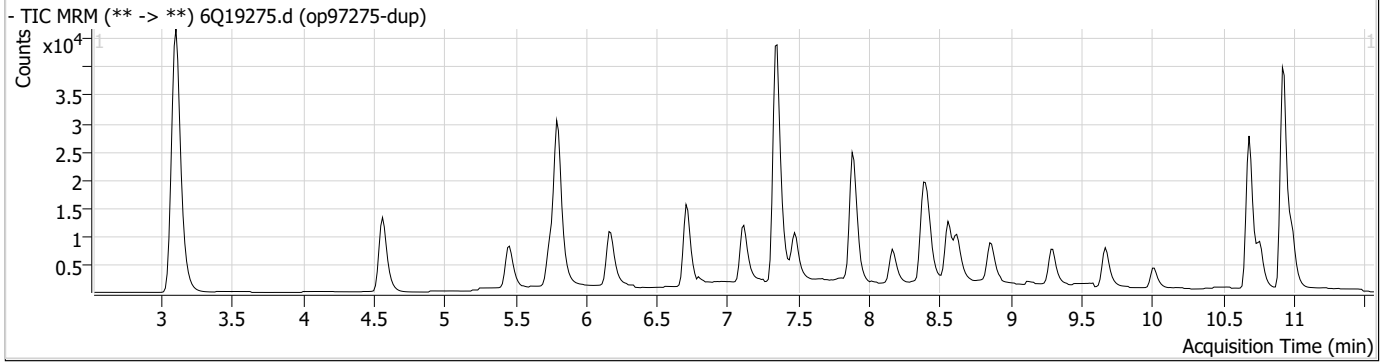
Perfluorinated Compounds by LC/MS/MS

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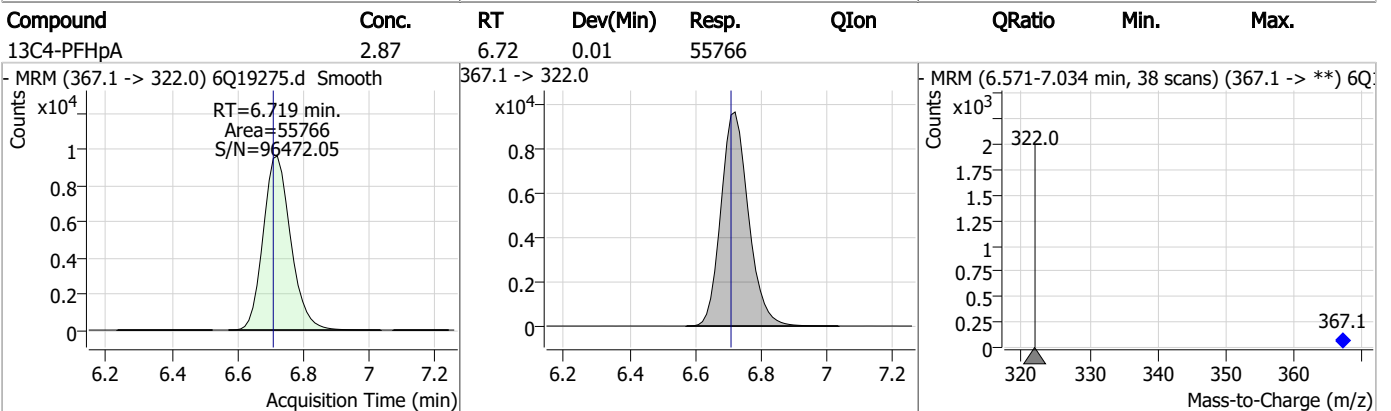
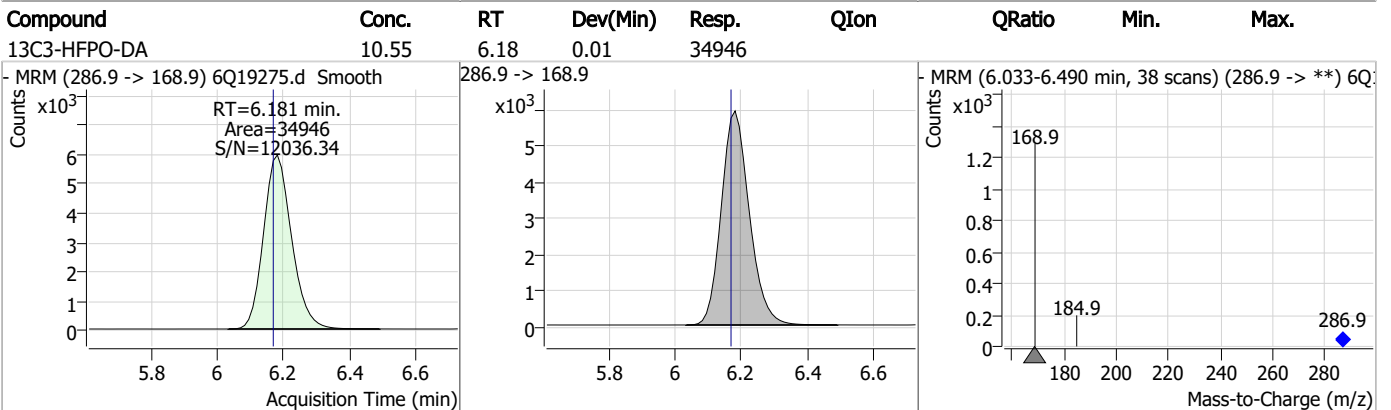
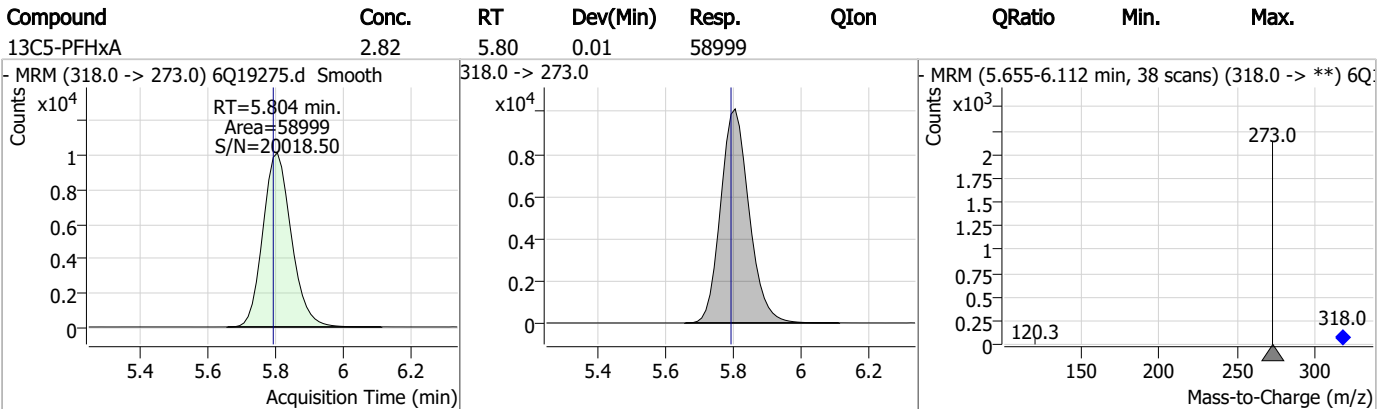
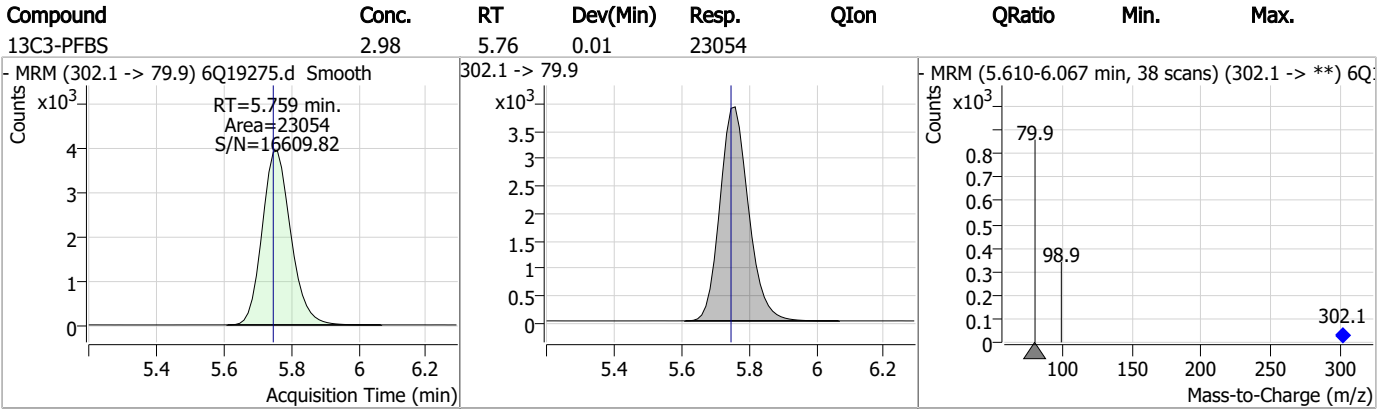
7.5.1

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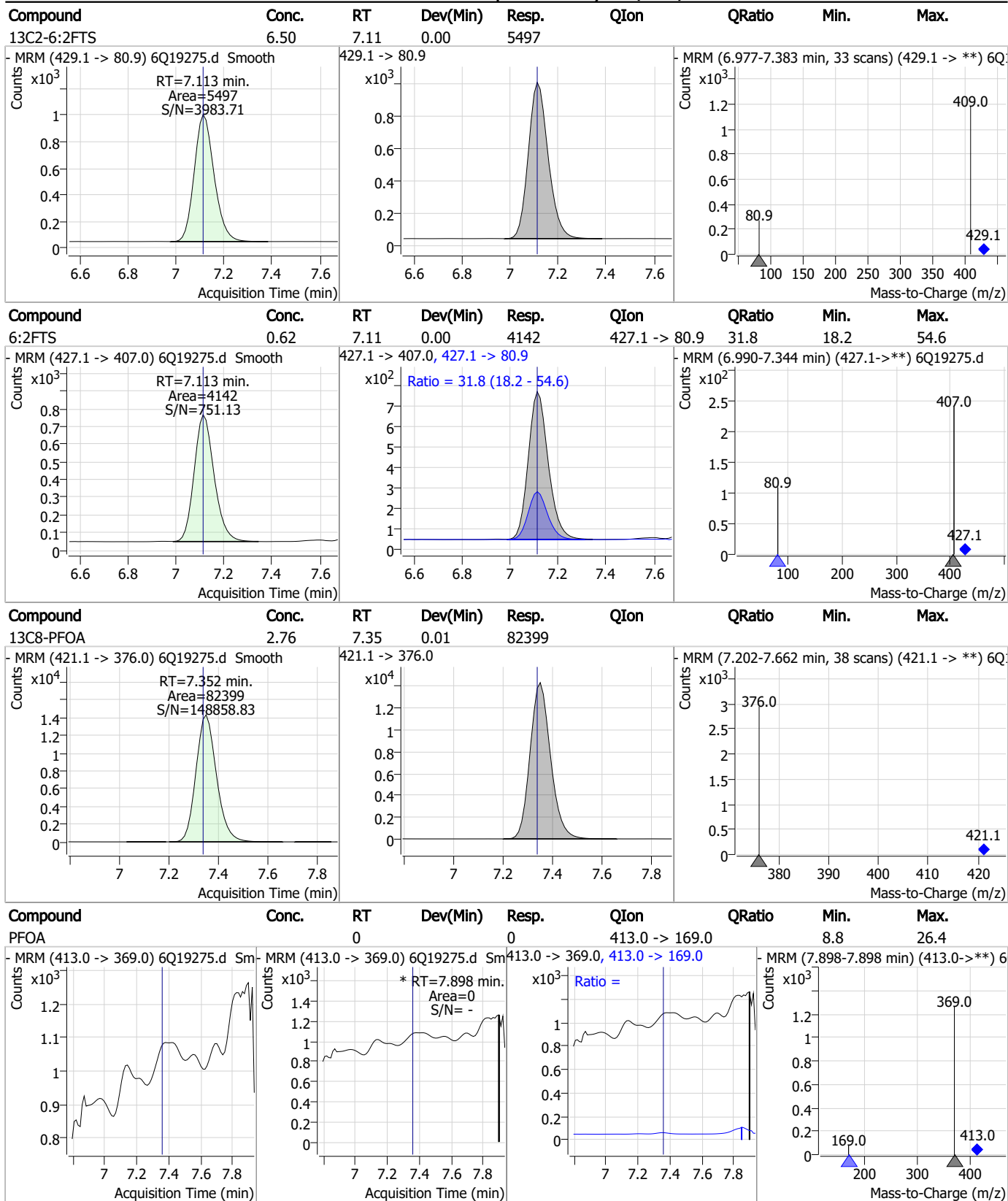
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

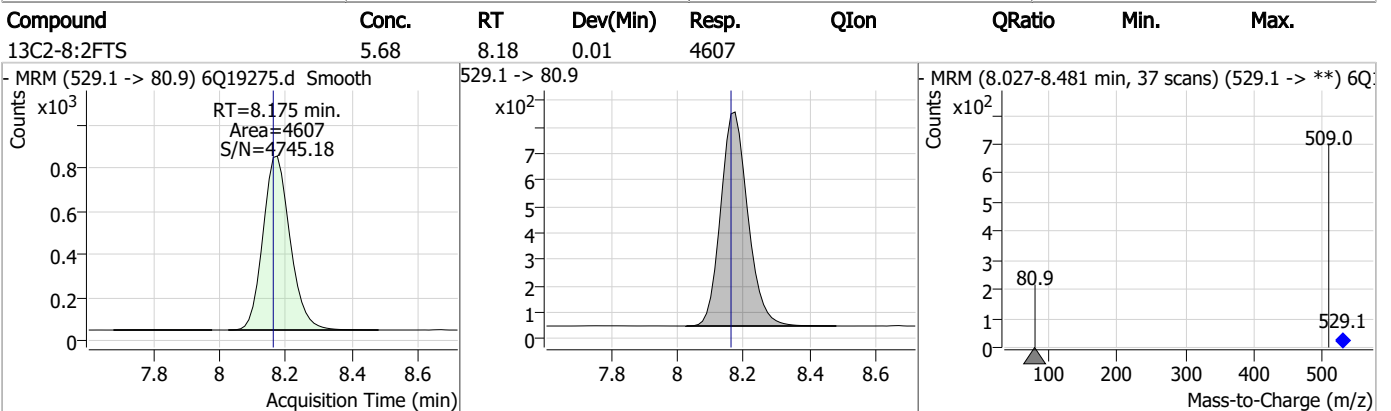
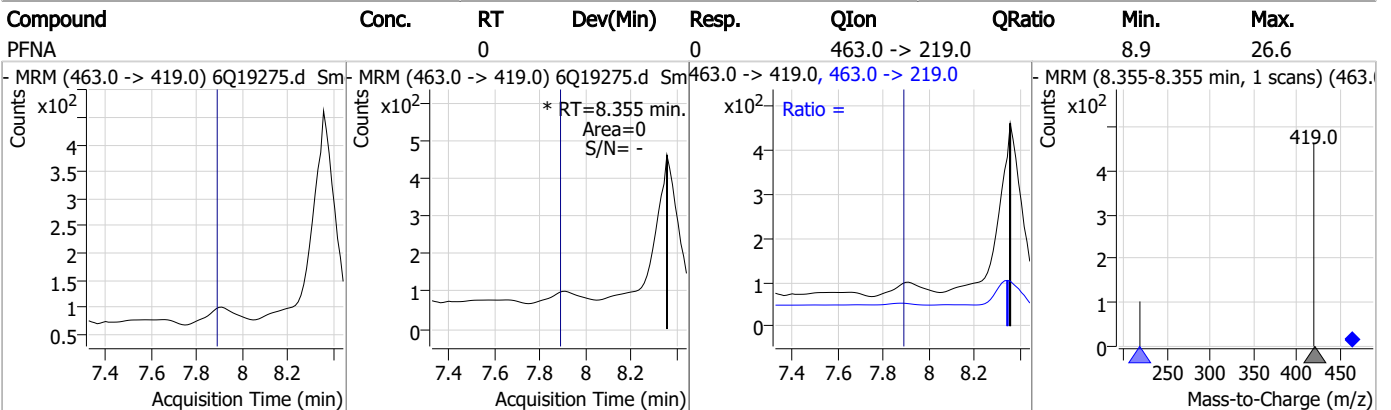
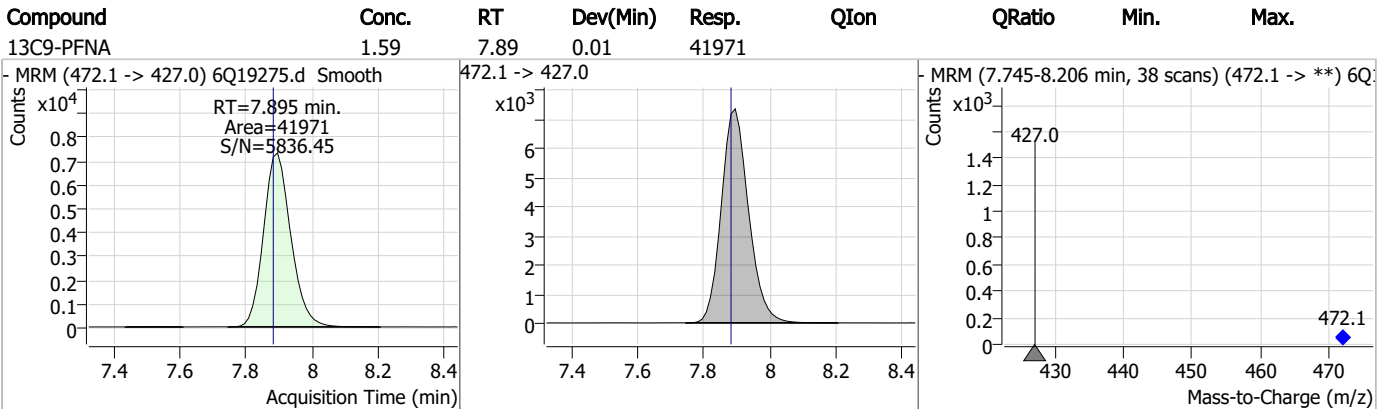
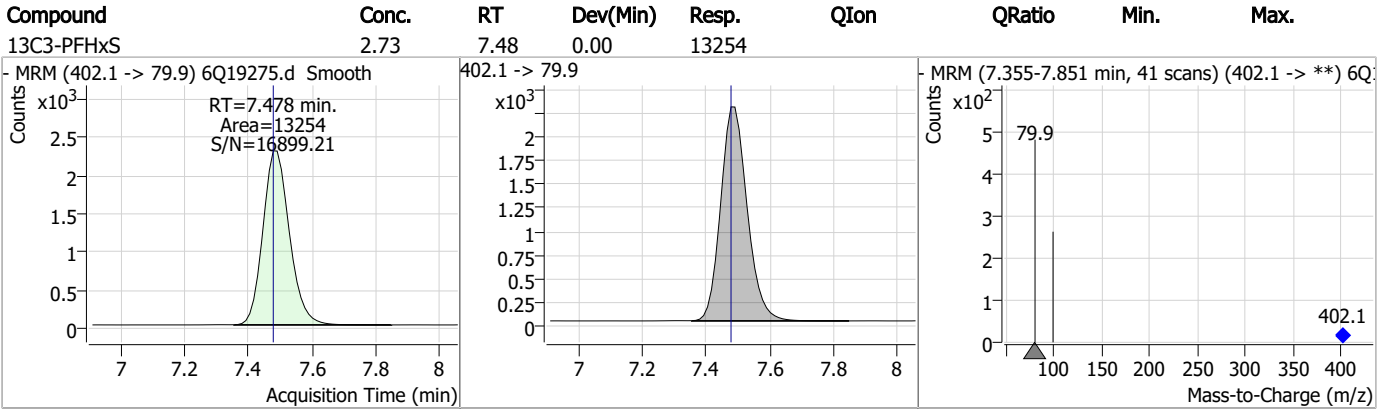


Perfluorinated Compounds by LC/MS/MS



7.5.1
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Perfluorinated Compounds by LC/MS/MS



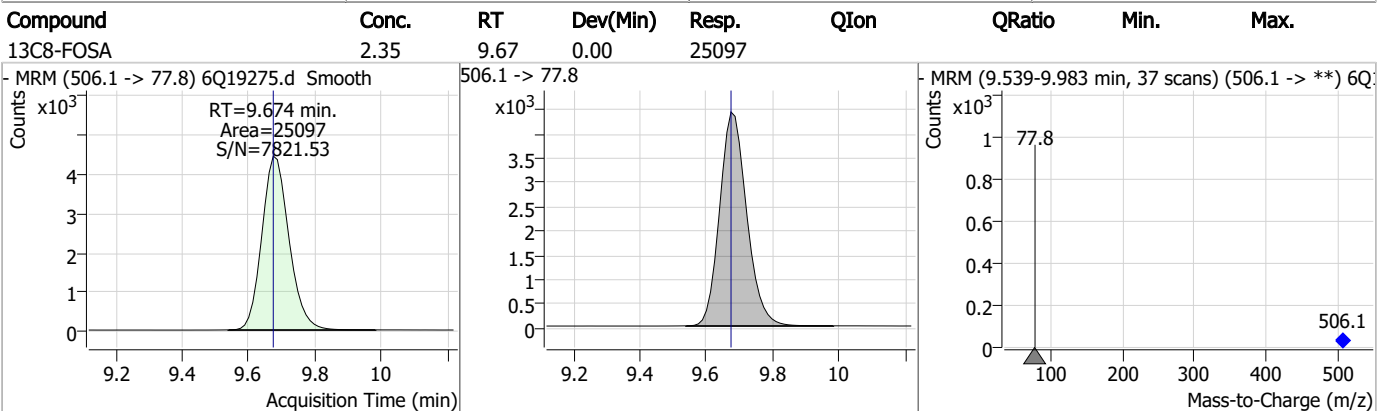
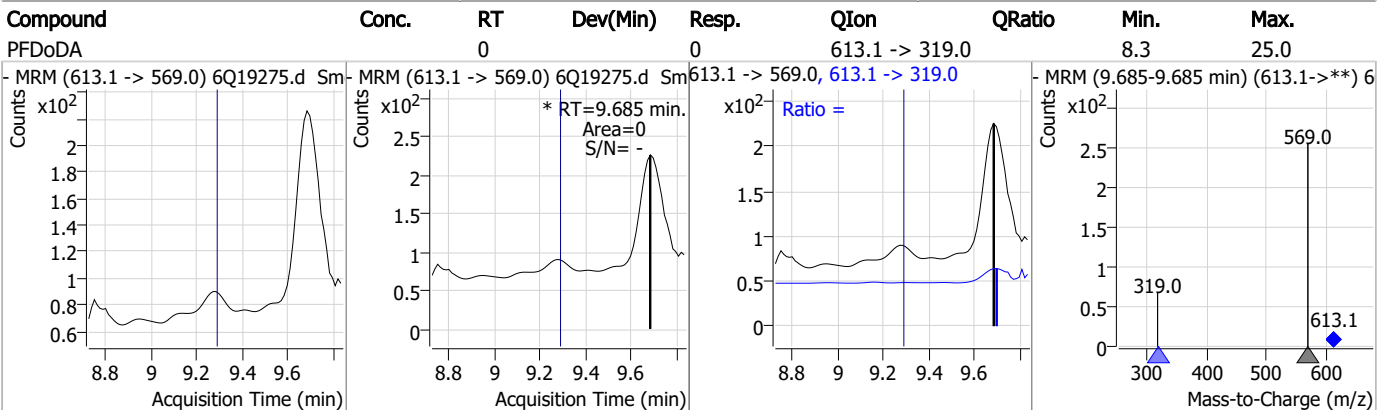
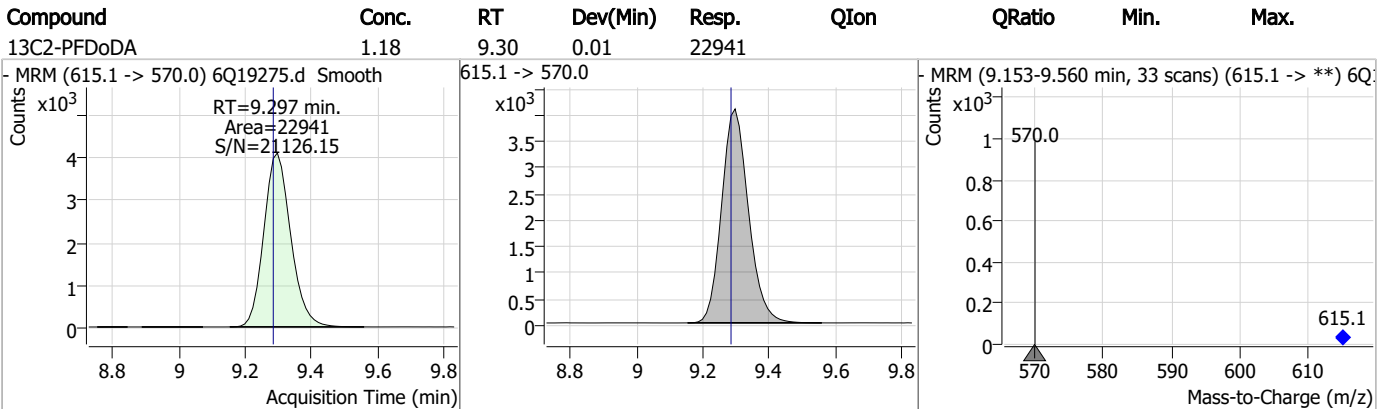
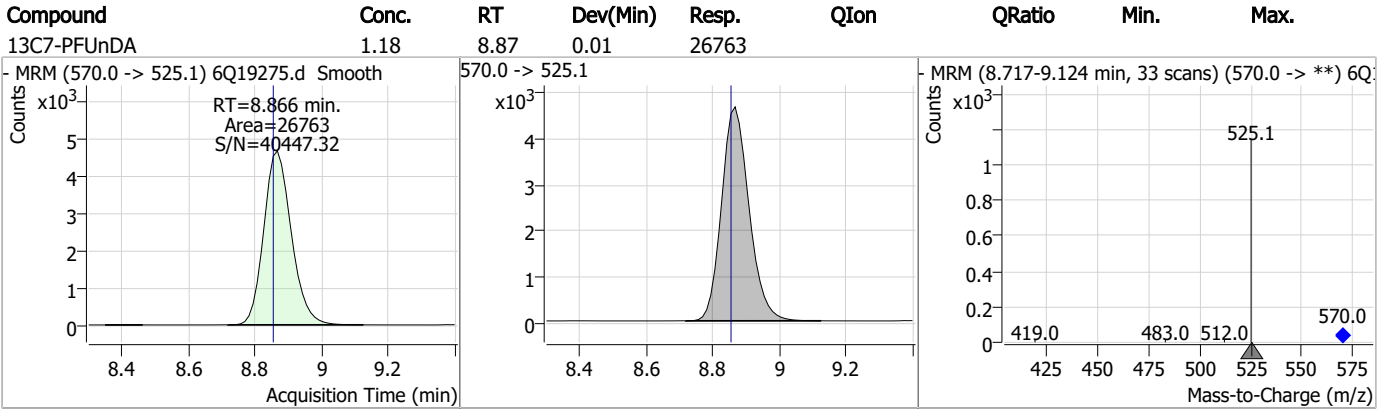
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.54	8.39	0.00	24815				
d3-MeFOSAA	5.36	8.42	0.01	28941				
13C8-PFOS	2.64	8.56	0.00	11143				
d5-EtFOSAA	5.49	8.63	0.01	25029				

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Perfluorinated Compounds by LC/MS/MS



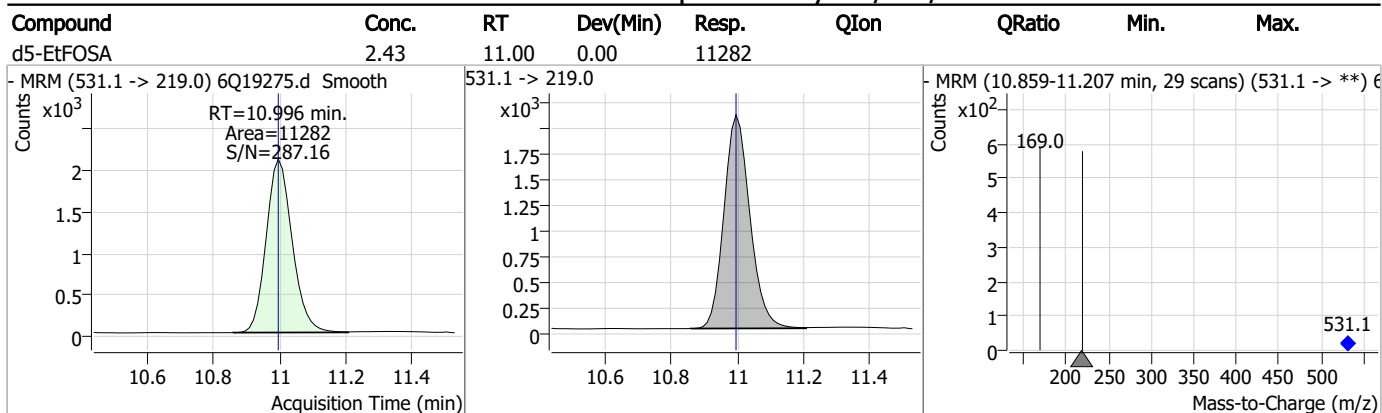
Perfluorinated Compounds by LC/MS/MS

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

7.5.1

7

Perfluorinated Compounds by LC/MS/MS



7.5.1
7

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

Perfluorinated Compounds by LC/MS/MS

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

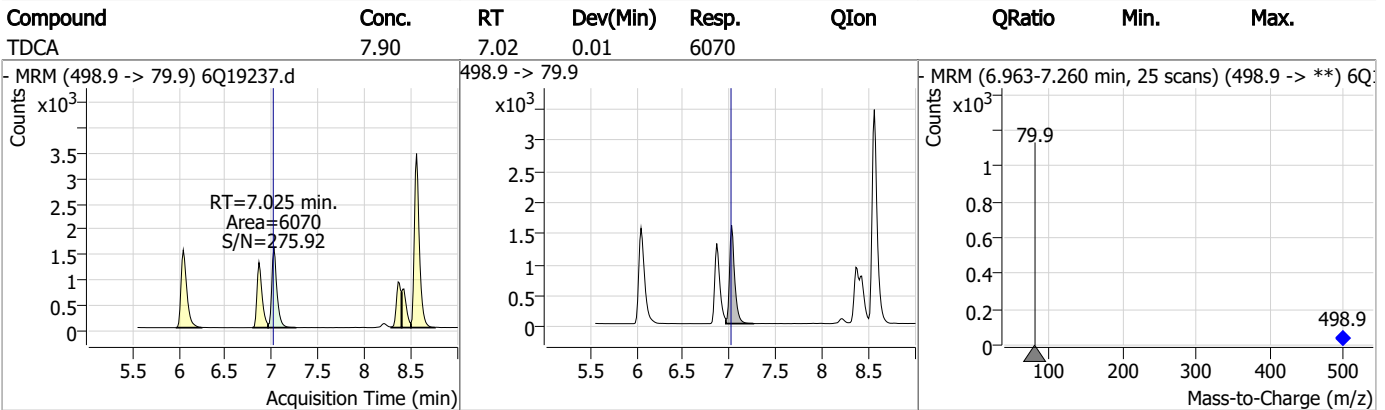
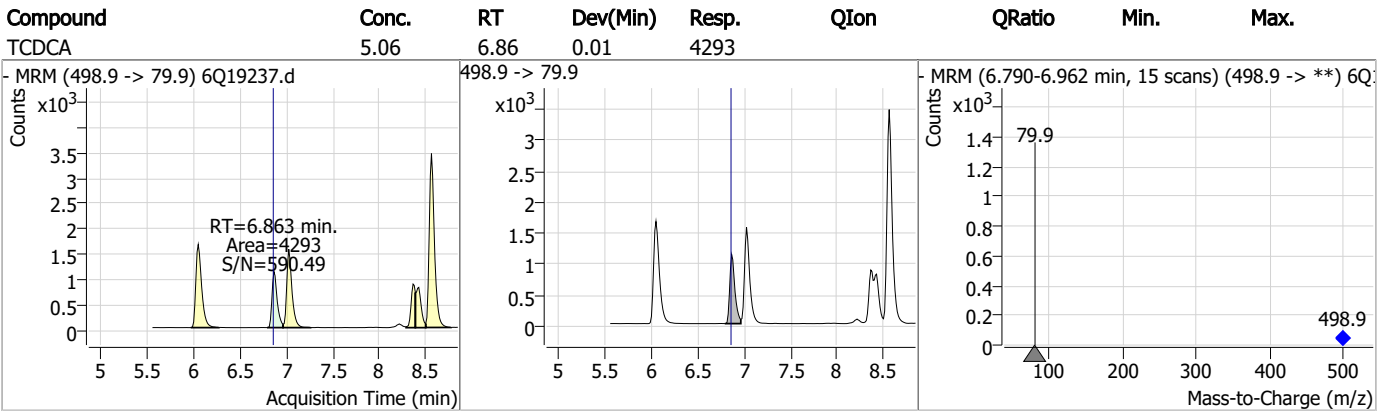
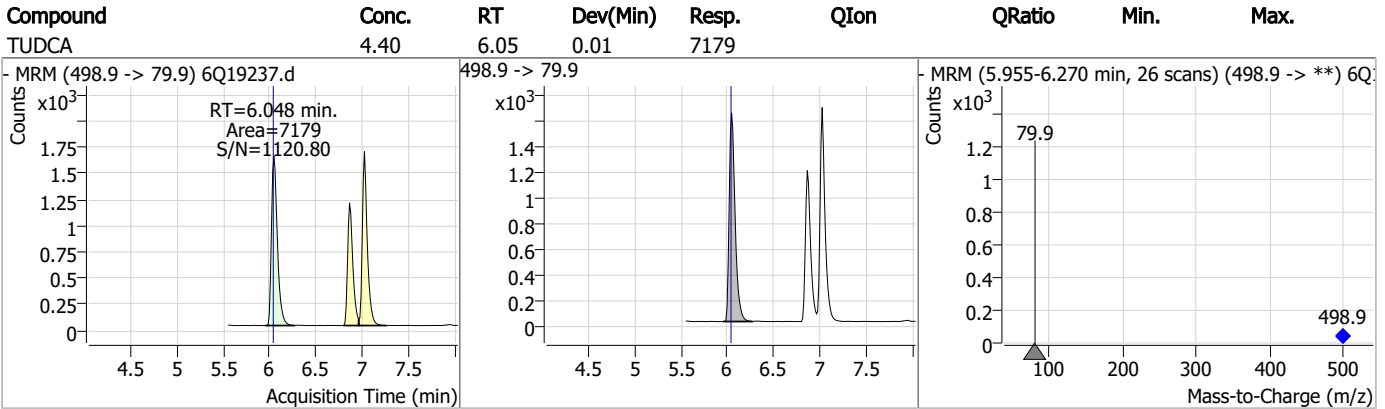
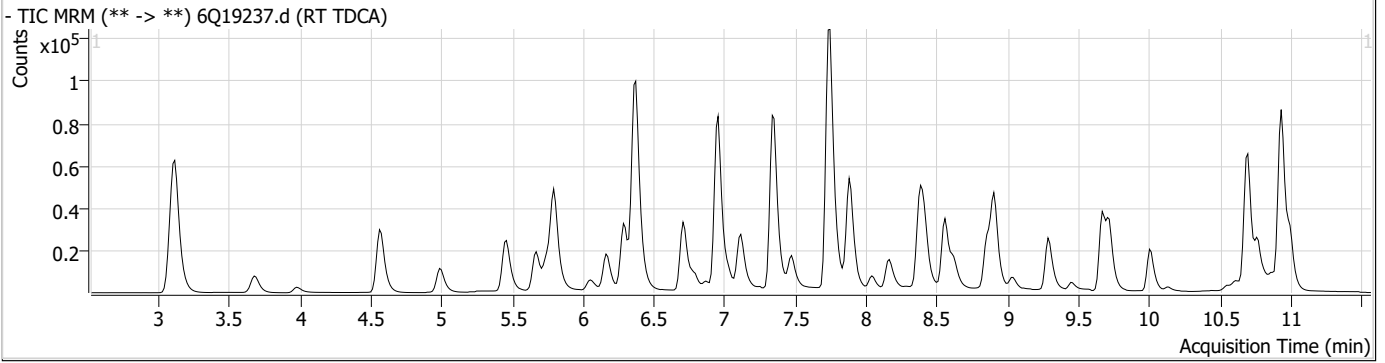
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.563	507.1 -> 79.9	18396	2.50	µg/L	-0.008	
13C4-PFOS	8.563	502.8 -> 79.9	21725	2.50	µg/L	-0.008	
System Monitoring Compounds							
13C8-PFOS	8.563	507.1 -> 79.9	18396	2.15	µg/L	-0.008	
Spiked Amount: 2.50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

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

7.6.1
7

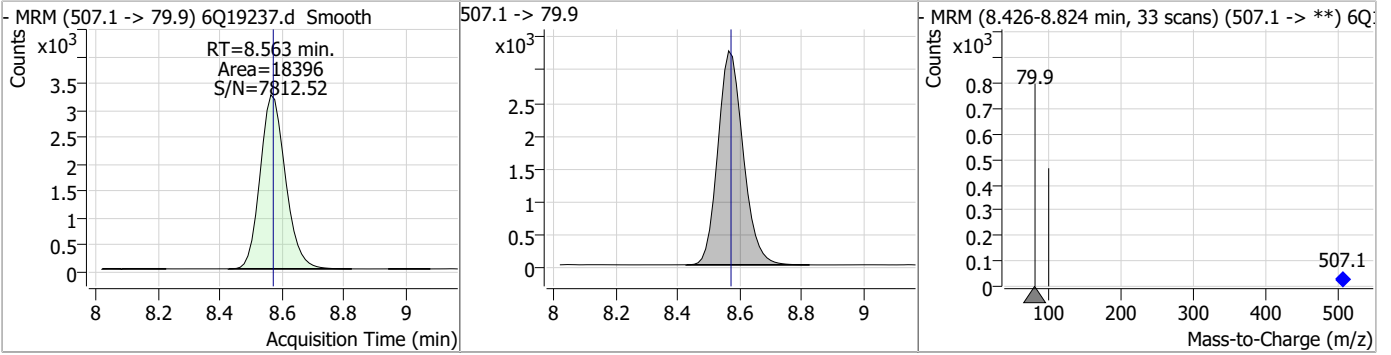


Perfluorinated Compounds by LC/MS/MS

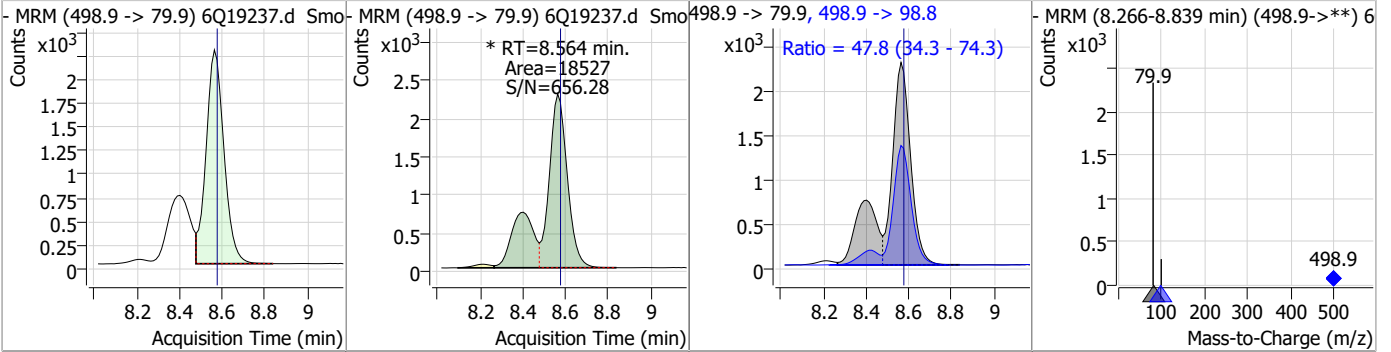


Perfluorinated Compounds by LC/MS/MS

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



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



7.6.1

7



Manual Integration Approval Summary

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

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

7.6.1.1

7

Perfluorinated Compounds by LC/MS/MS

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

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	173502	10.00 µg/L	0.012
M5-PFPeA	4.573	268.3 -> 223.0	58399	5.00 µg/L	0.012
M5-PFHxA	5.804	318.0 -> 273.0	64389	2.50 µg/L	0.012
M4-PFHpA	6.719	367.1 -> 322.0	58907	2.50 µg/L	0.012
M8-PFOA	7.352	421.1 -> 376.0	94648	2.50 µg/L	0.012
M9-PFNA	7.882	472.1 -> 427.0	43435	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	28274	1.25 µg/L	0.000
M7-PFUnDA	8.853	570.0 -> 525.1	36802	1.25 µg/L	0.000
M2-PFDoDA	9.285	615.1 -> 570.0	32345	1.25 µg/L	0.000
M2-PFTeDA	10.012	715.2 -> 670.0	18717	1.25 µg/L	0.012
M8-FOSA	9.687	506.1 -> 77.8	33070	2.50 µg/L	0.012
M3-PFBS	5.771	302.1 -> 79.9	23859	2.50 µg/L	0.025
M3-PFHxS	7.478	402.1 -> 79.9	14887	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	14717	2.50 µg/L	0.000
M2-4:2FTS	5.454	329.1 -> 80.9	3237	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	4723	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4668	5.00 µg/L	0.000
M3-MeFOSAA	8.407	573.2 -> 419.0	33909	5.00 µg/L	0.000
M3-HFPO-DA	6.181	286.9 -> 168.9	41422	10.00 µg/L	0.012
M5-EtFOSAA	8.615	589.2 -> 419.0	30490	5.00 µg/L	0.000
M7-MeFOSE	10.696	623.2 -> 58.9	159432	25.00 µg/L	0.011
M9-EtFOSE	10.930	639.2 -> 58.9	204912	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	13479	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	14229	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	18304	2.50 µg/L	0.000
13C3-PFBA	3.101	216.0 -> 172.0	72393	5.00 µg/L	0.012
18O2-PFHxS	7.490	403.0 -> 83.9	10881	2.50 µg/L	0.012
13C4-PFOA	7.352	417.1 -> 372.0	99779	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	34220	1.25 µg/L	0.000
13C5-PFNA	7.882	468.0 -> 423.0	56442	1.25 µg/L	0.000
13C2-PFHxA	5.805	315.1 -> 270.0	60834	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3237	4.83 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4723	4.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4668	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C2-PFDoDA	9.285	615.1 -> 570.0	32345	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C2-PFTeDA	10.012	715.2 -> 670.0	18717	1.41 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 112.8%		
13C3-PFBS	5.771	302.1 -> 79.9	23859	2.59 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C3-PFHxS	7.478	402.1 -> 79.9	14887	2.58 µg/L	0.000

7.6.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C4-PFBA	3.097	216.8 -> 171.9	173502	10.21 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C4-PFHpA	6.719	367.1 -> 322.0	58907	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C5-PFHxA	5.804	318.0 -> 273.0	64389	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C5-PFPeA	4.573	268.3 -> 223.0	58399	4.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C6-PFDA	8.387	519.1 -> 474.1	28274	1.50 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 119.8%	
13C7-PFUnDA	8.853	570.0 -> 525.1	36802	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.6%	
13C8-FOSA	9.687	506.1 -> 77.8	33070	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C8-PFOA	7.352	421.1 -> 376.0	94648	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C8-PFOS	8.563	507.1 -> 79.9	14717	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C9-PFNA	7.882	472.1 -> 427.0	43435	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.9%	
d3-MeFOSAA	8.407	573.2 -> 419.0	33909	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C3-HFPO-DA	6.181	286.9 -> 168.9	41422	9.93 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
d3-MeFOSA	10.775	515.0 -> 219.0	14229	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
d5-EtFOSAA	8.615	589.2 -> 419.0	30490	5.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
d7-MeFOSE	10.696	623.2 -> 58.9	159432	23.73 µg/L	0.011
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.9%	
d9-EtFOSE	10.930	639.2 -> 58.9	204912	24.42 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d5-EtFOSA	10.996	531.1 -> 219.0	13479	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.4%	
Target Compounds					QValue
4:2FTS	5.455	327.1 -> 307.0	200424	35.74 µg/L	100
		327.1 -> 80.9	74272		
6:2FTS	7.113	427.1 -> 407.0	206575	36.20 µg/L	94
		427.1 -> 80.9	67661		
8:2FTS	8.164	527.1 -> 507.0	114917	37.02 µg/L	98
		527.1 -> 80.8	43707		
EtFOSAA	8.617	584.2 -> 419.1	47559	9.39 µg/L	m 95
		584.2 -> 526.0	25511		
FOSA	9.677	498.1 -> 77.9	326935	24.09 µg/L	m 99
		498.1 -> 478.0	10156		
MeFOSAA	8.421	570.1 -> 419.0	86013	10.43 µg/L	m 99
		570.1 -> 483.0	17235		
PFBA	3.106	212.8 -> 168.9	264536	38.24 µg/L	100
PFBS	5.772	298.7 -> 79.9	90349	8.63 µg/L	97
		298.7 -> 98.8	32966		
PFDA	8.388	512.9 -> 469.0	399881	9.46 µg/L	98
		512.9 -> 219.0	55834		
PFDoDA	9.298	613.1 -> 569.0	253782	9.55 µg/L	96
		613.1 -> 319.0	37531		
PFDS	9.462	599.0 -> 79.9	33820	7.61 µg/L	85

7.6.2
7

Perfluorinated Compounds by LC/MS/MS

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

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

7.6.2
7

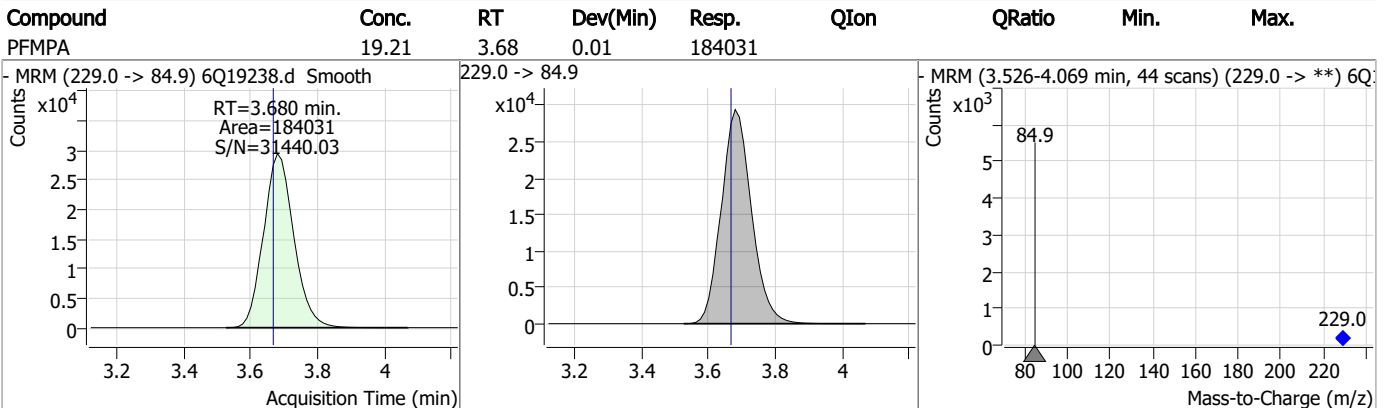
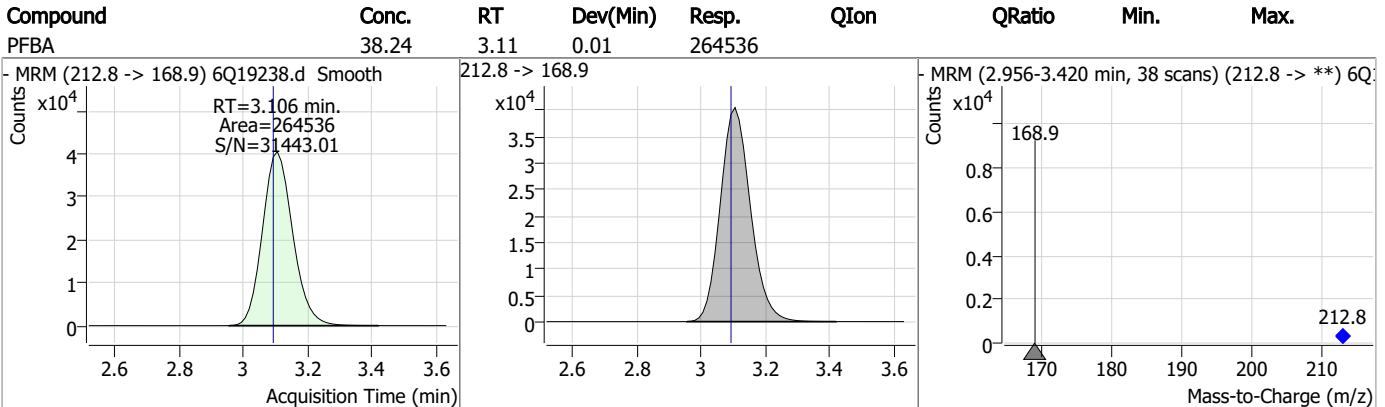
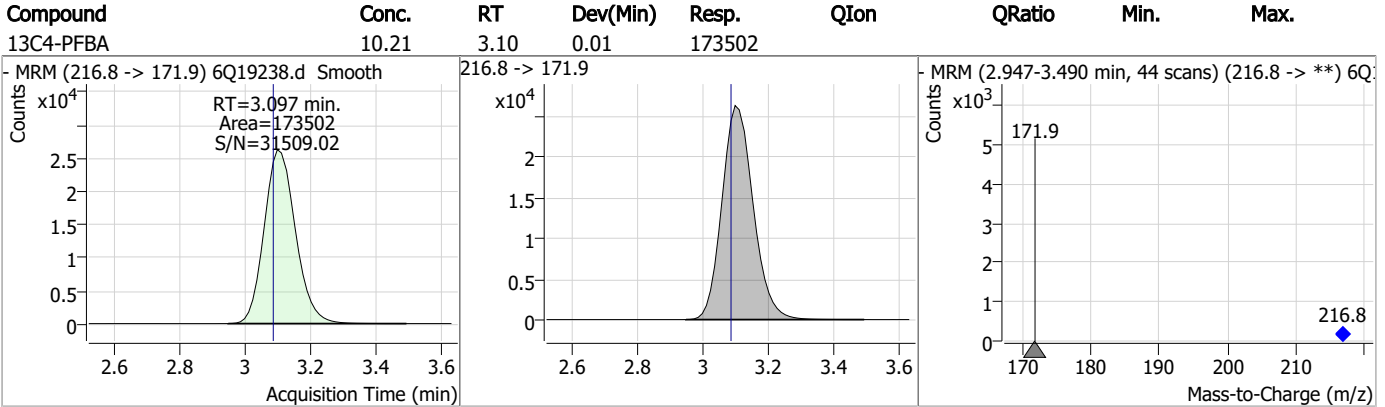
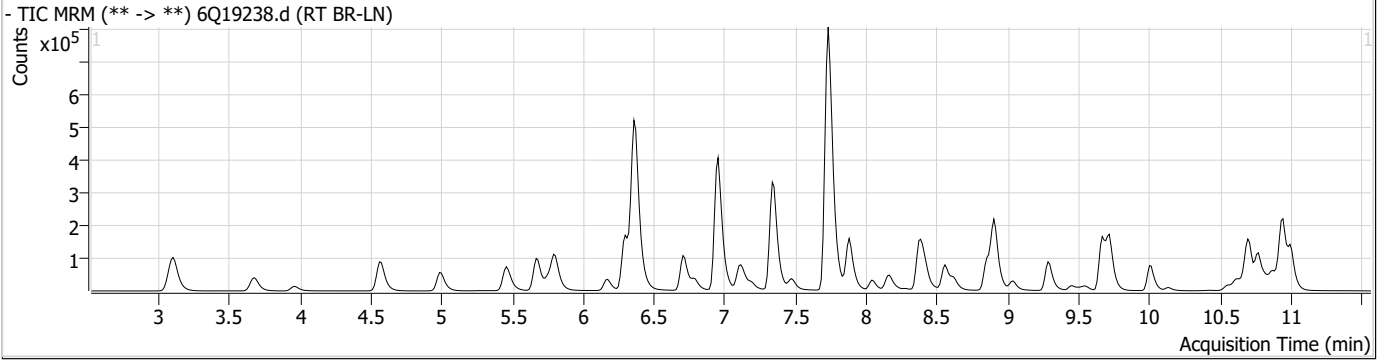
Perfluorinated Compounds by LC/MS/MS

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

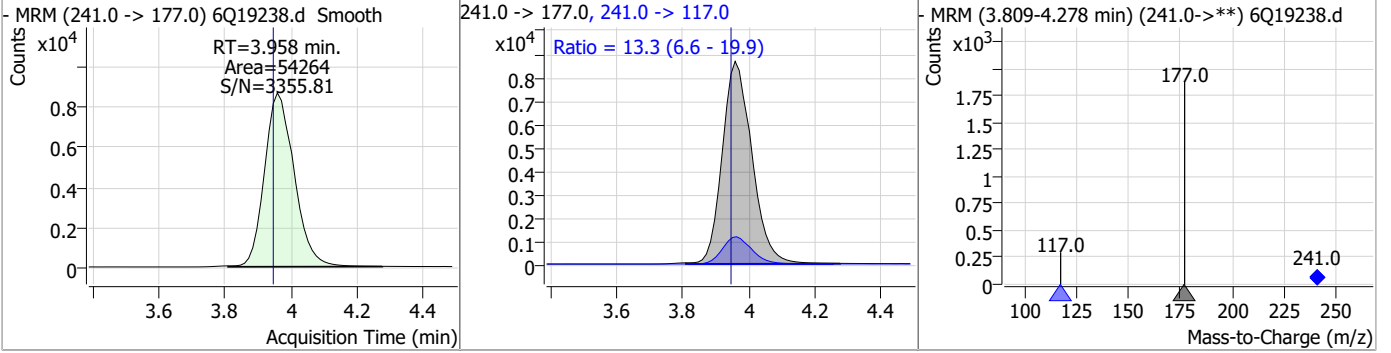
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Perfluorinated Compounds by LC/MS/MS

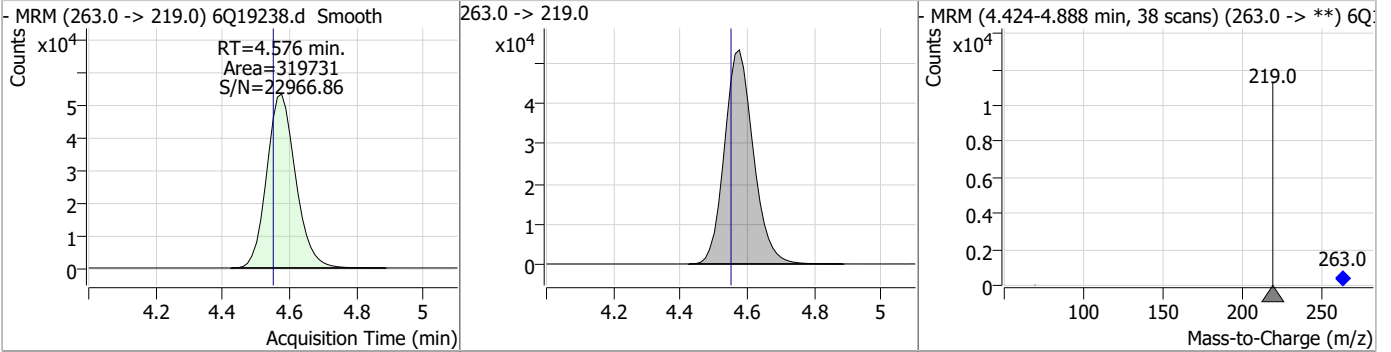


Perfluorinated Compounds by LC/MS/MS

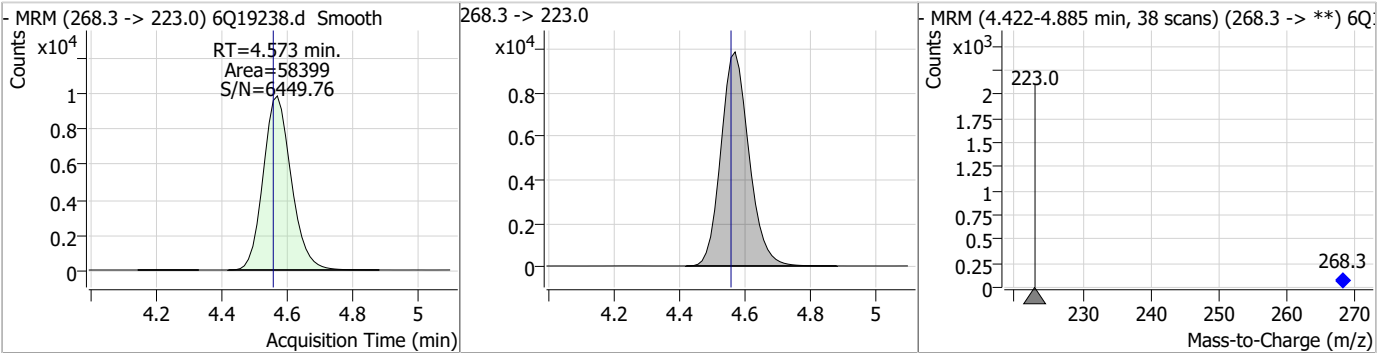
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	46.18	3.96	0.01	54264	241.0 -> 117.0	13.3	6.6	19.9



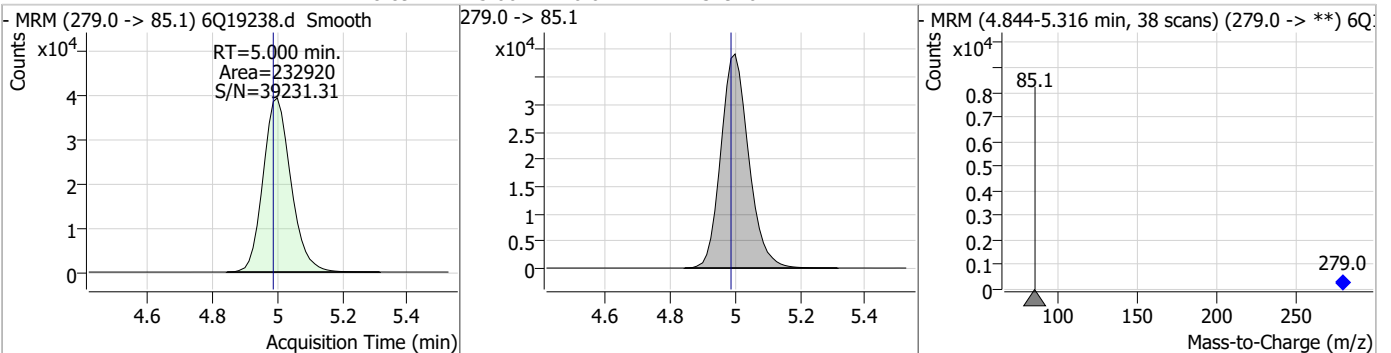
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	18.61	4.58	0.02	319731	263.0 -> 219.0	13.3	6.6	19.9



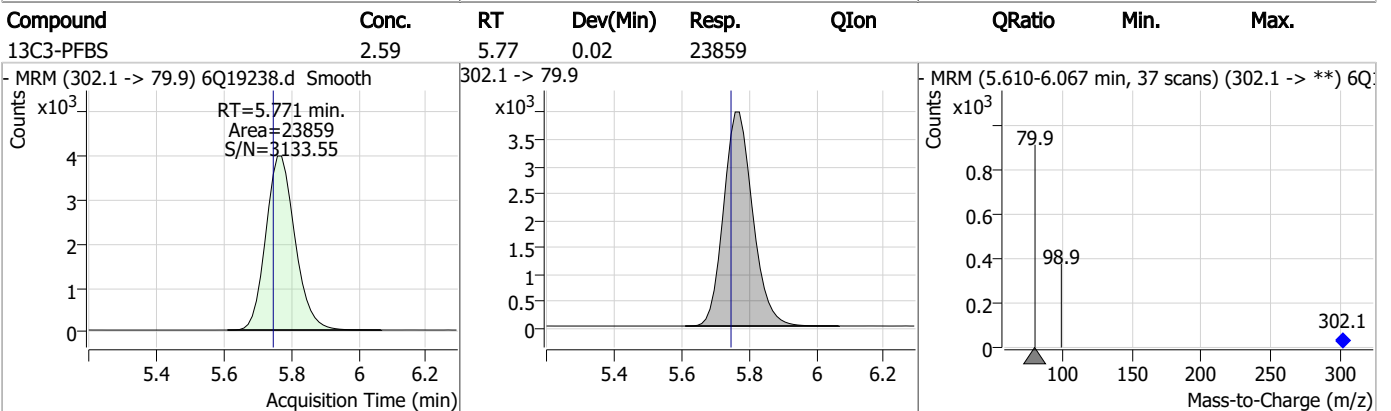
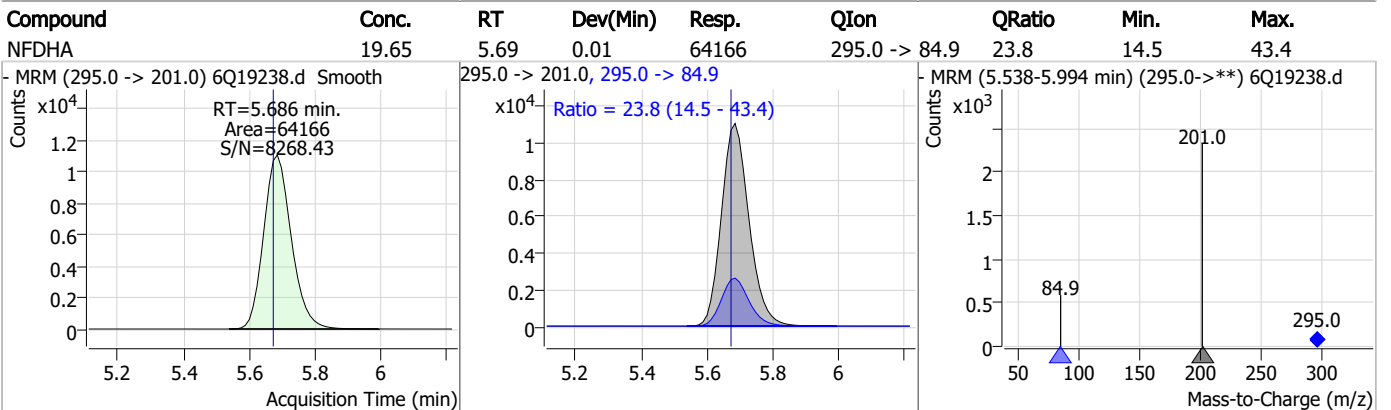
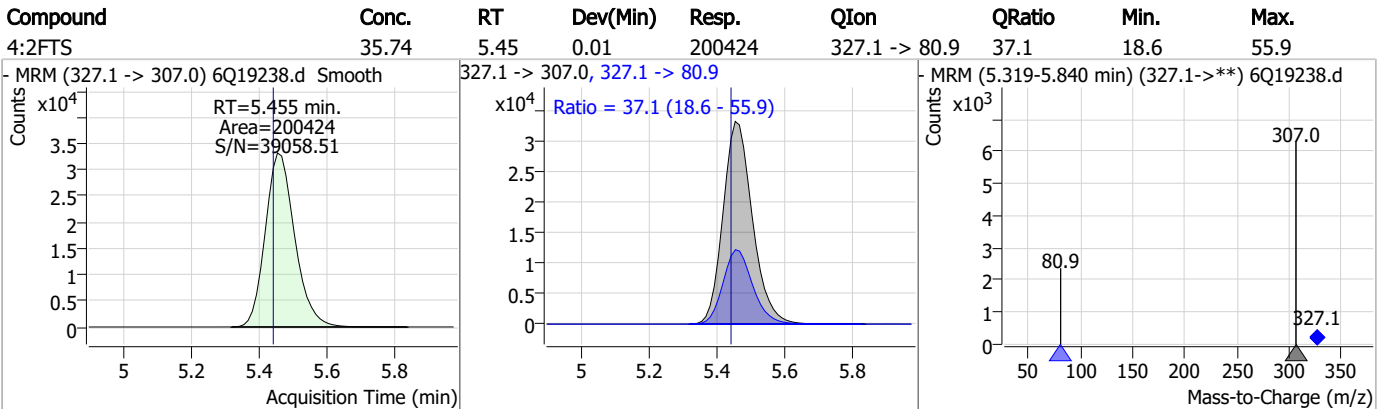
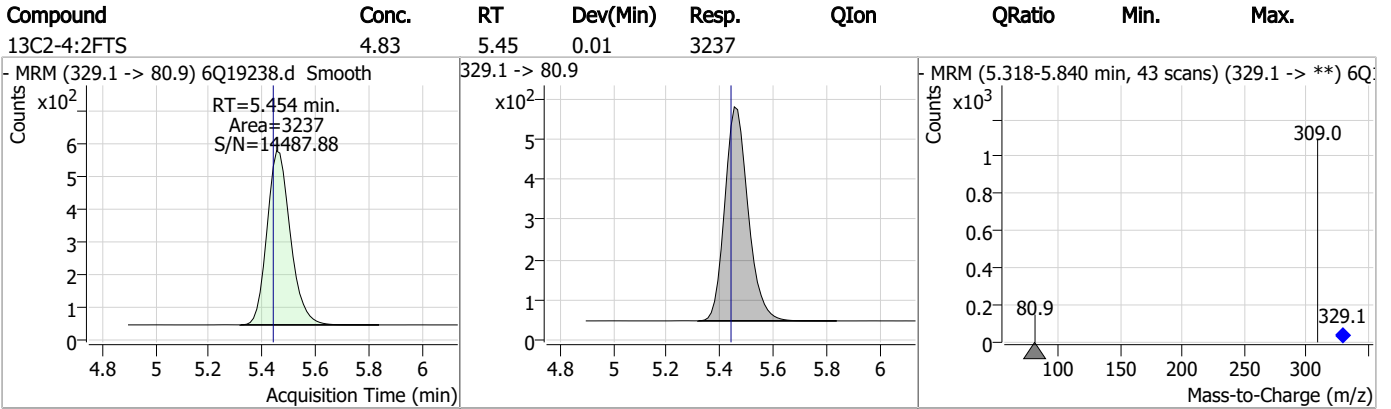
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.97	4.57	0.01	58399	268.3 -> 223.0	13.3	6.6	19.9



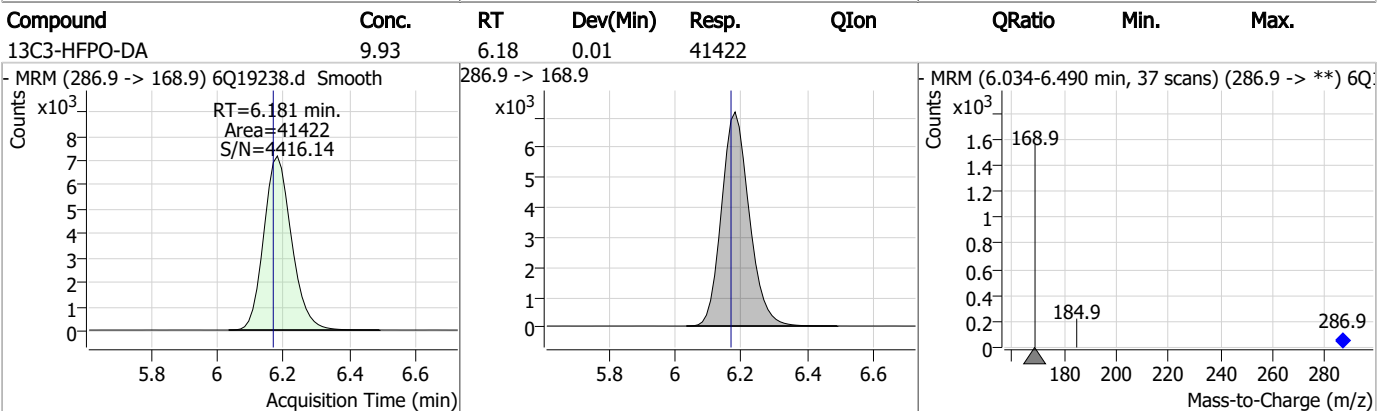
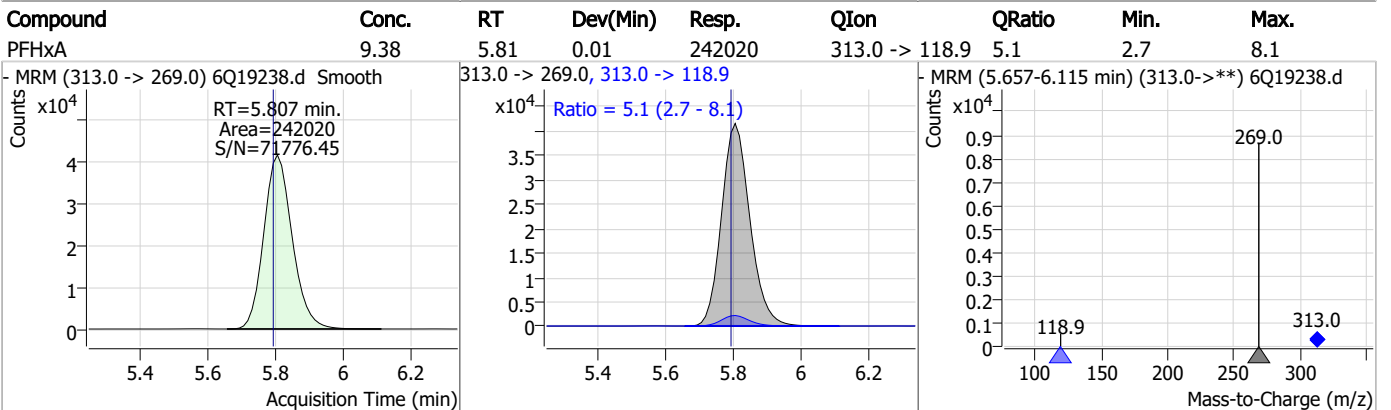
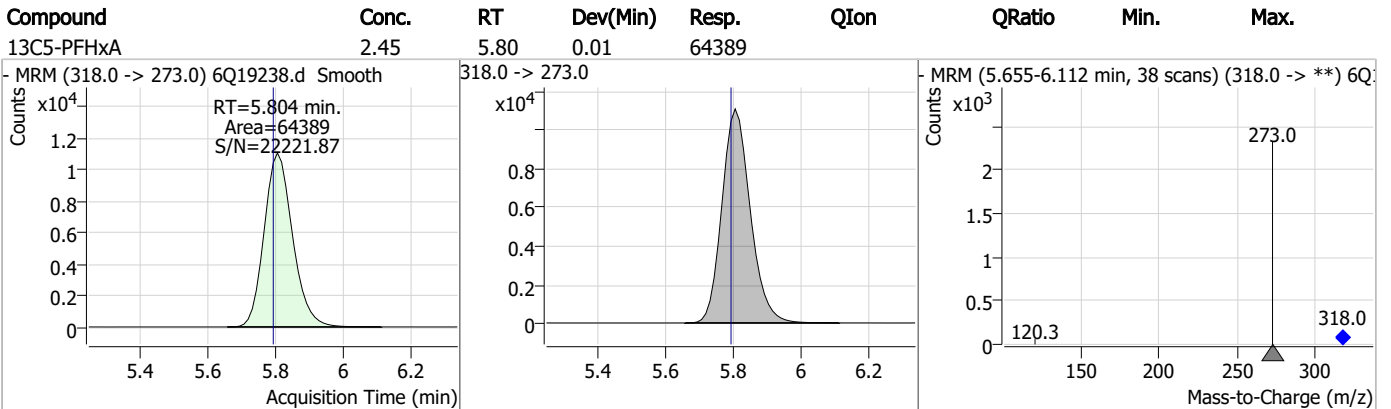
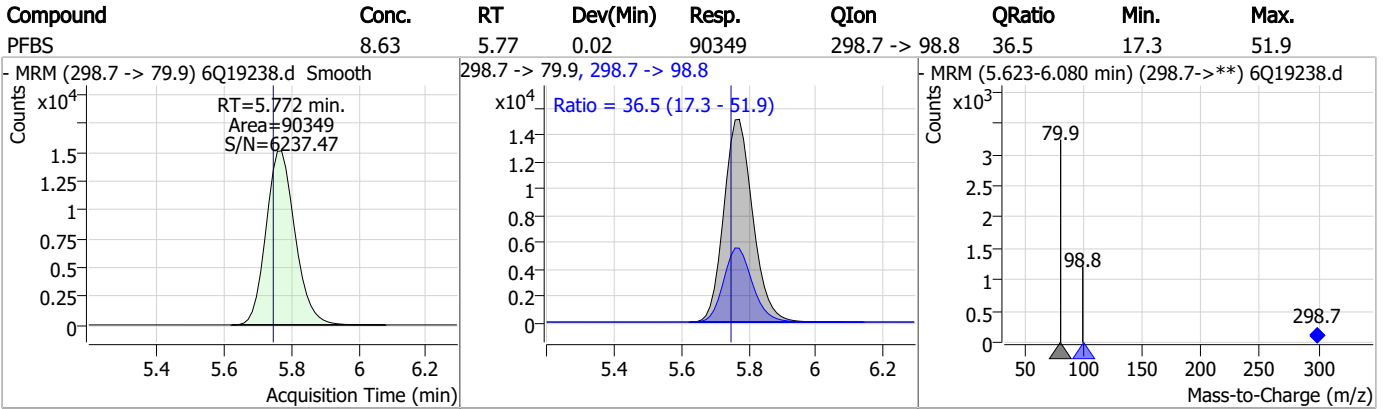
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	18.89	5.00	0.01	232920	279.0 -> 85.1	13.3	6.6	19.9



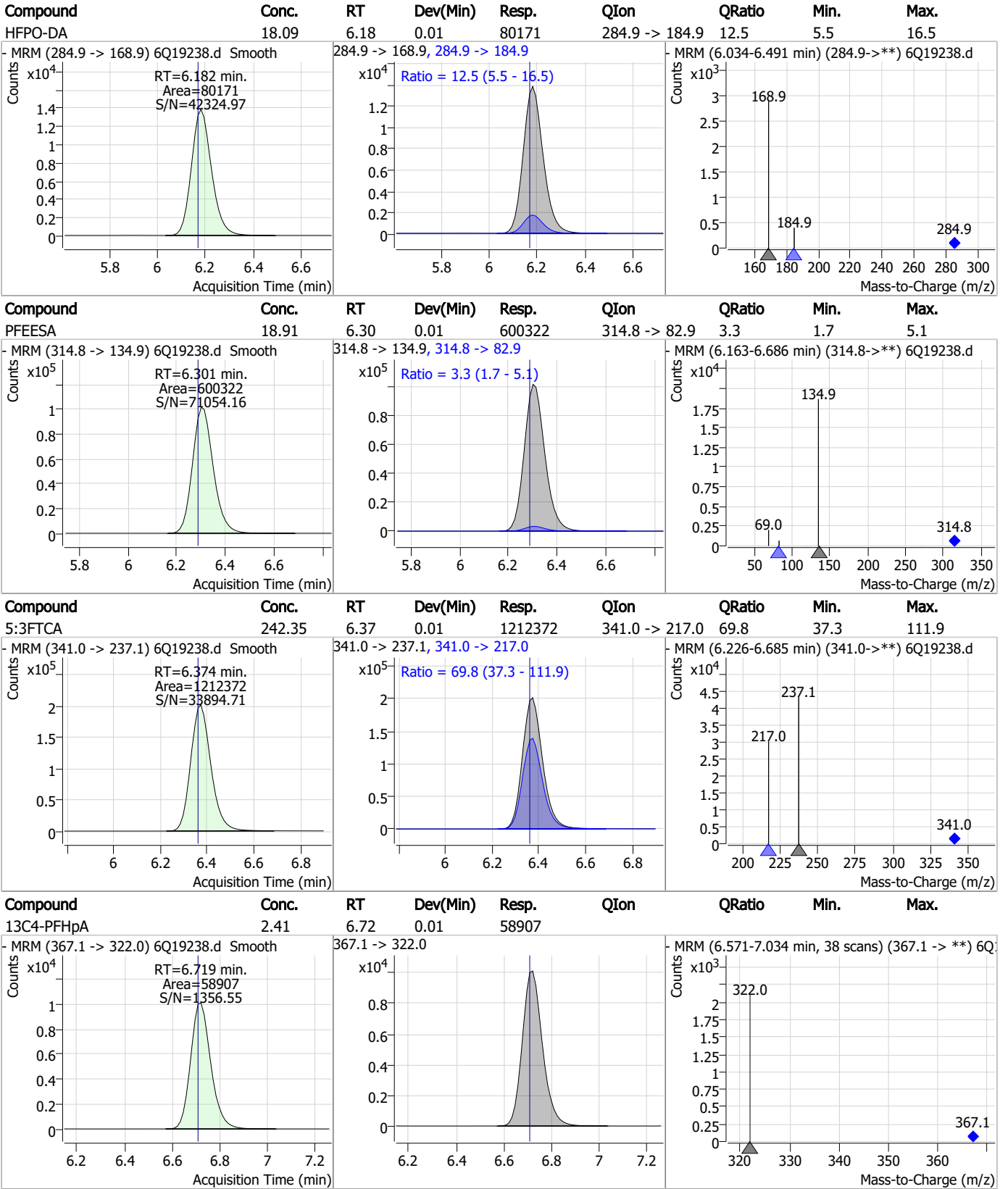
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



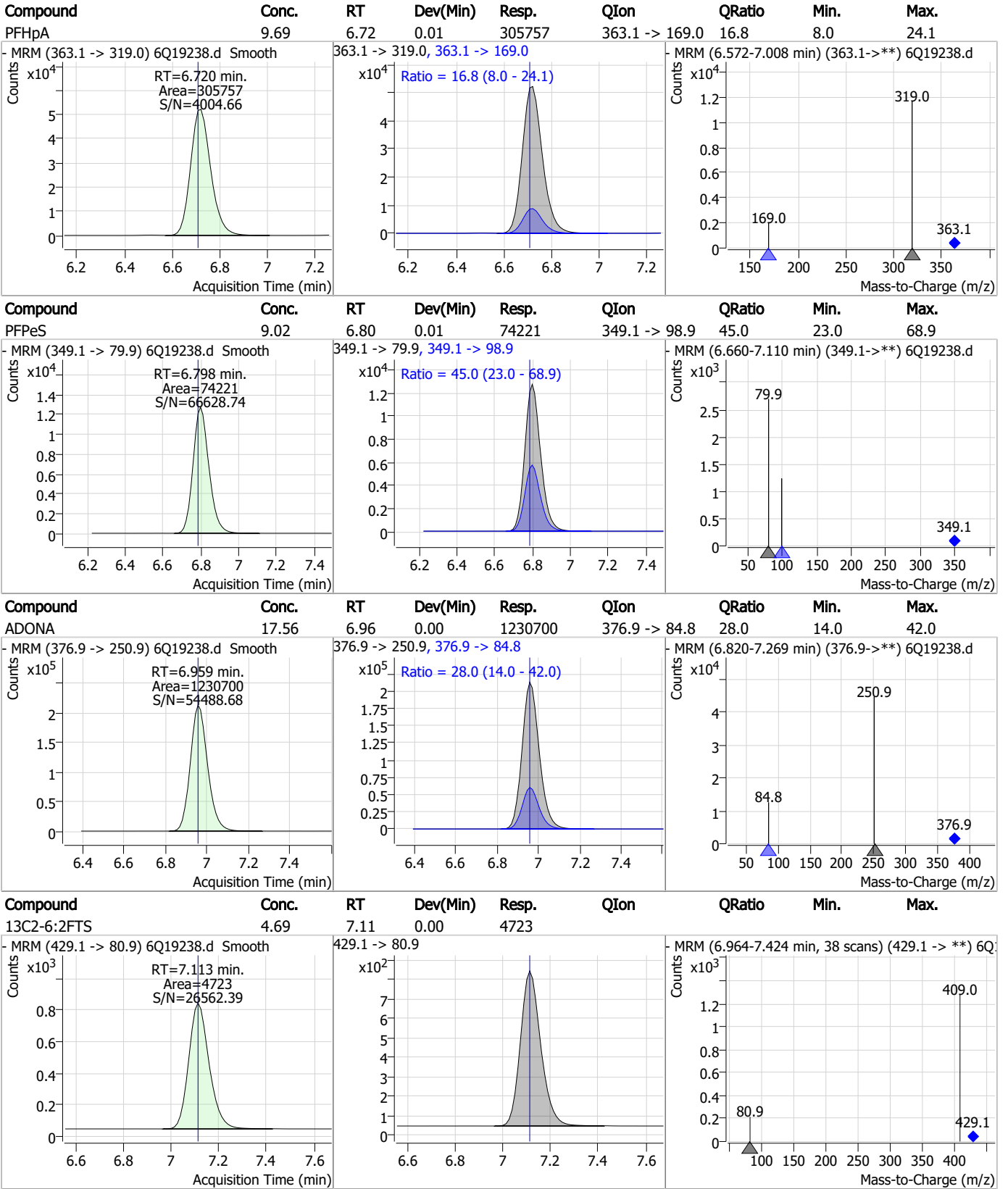
Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Perfluorinated Compounds by LC/MS/MS

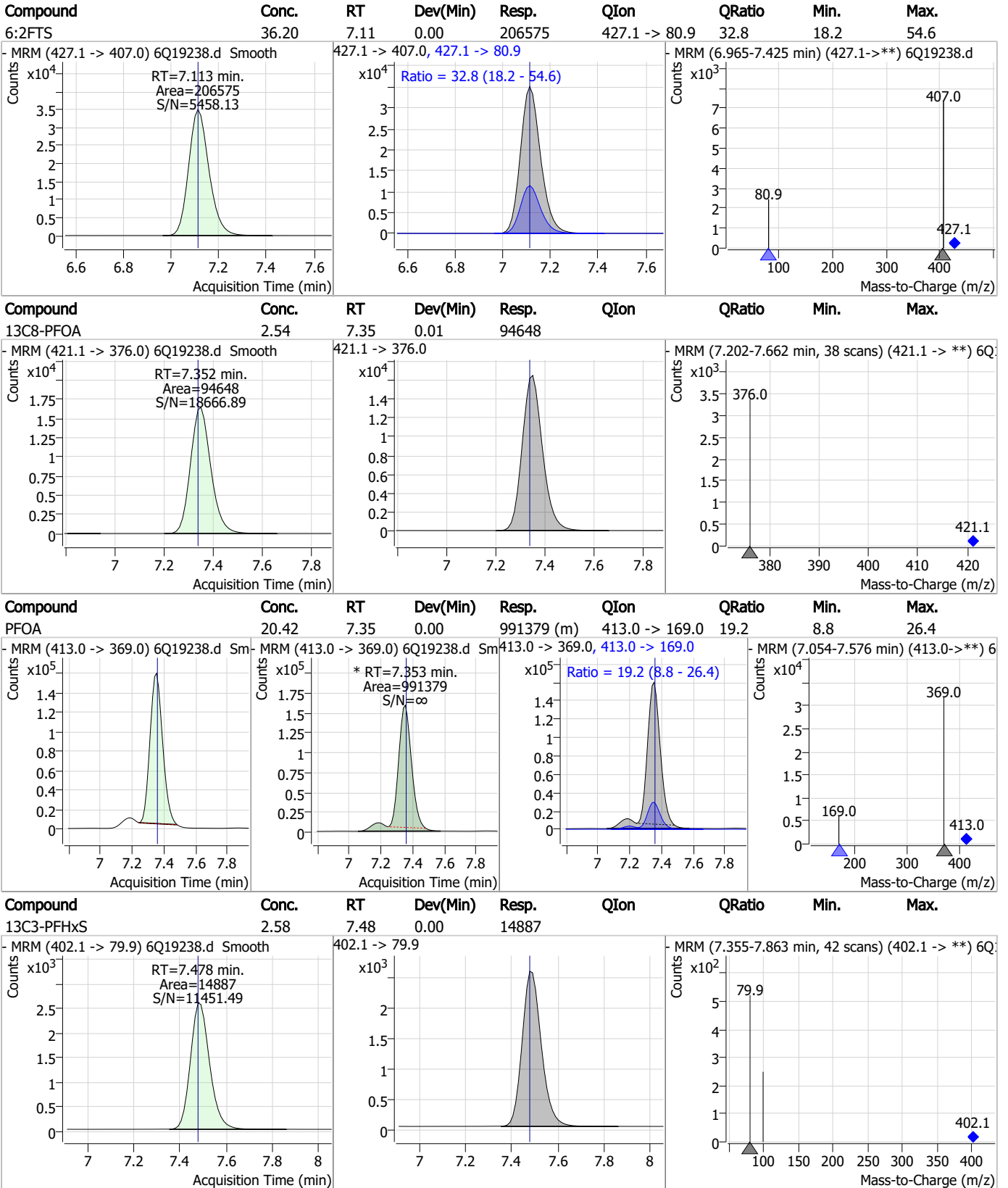


7.6.2

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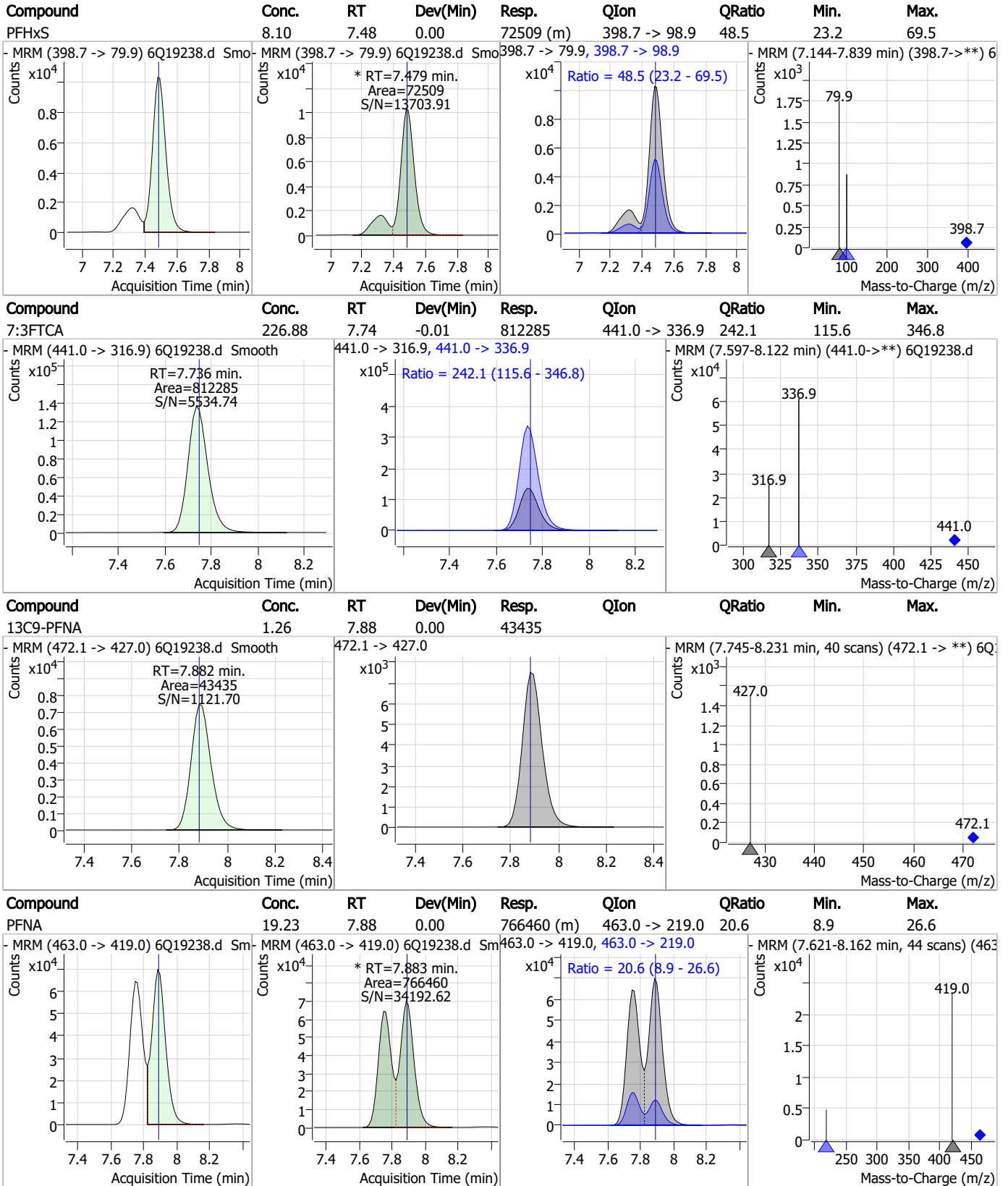
Perfluorinated Compounds by LC/MS/MS



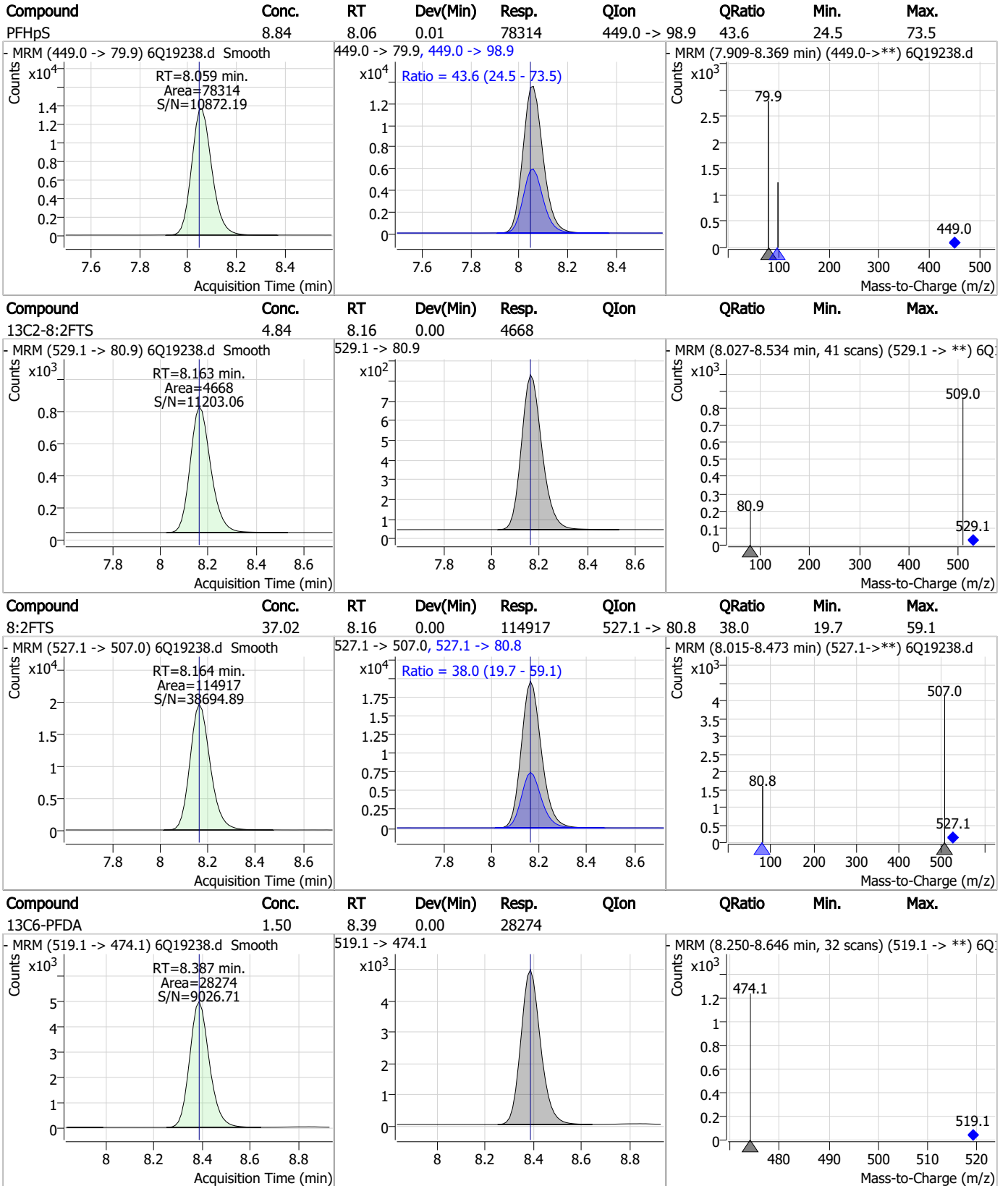
7.6.2

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

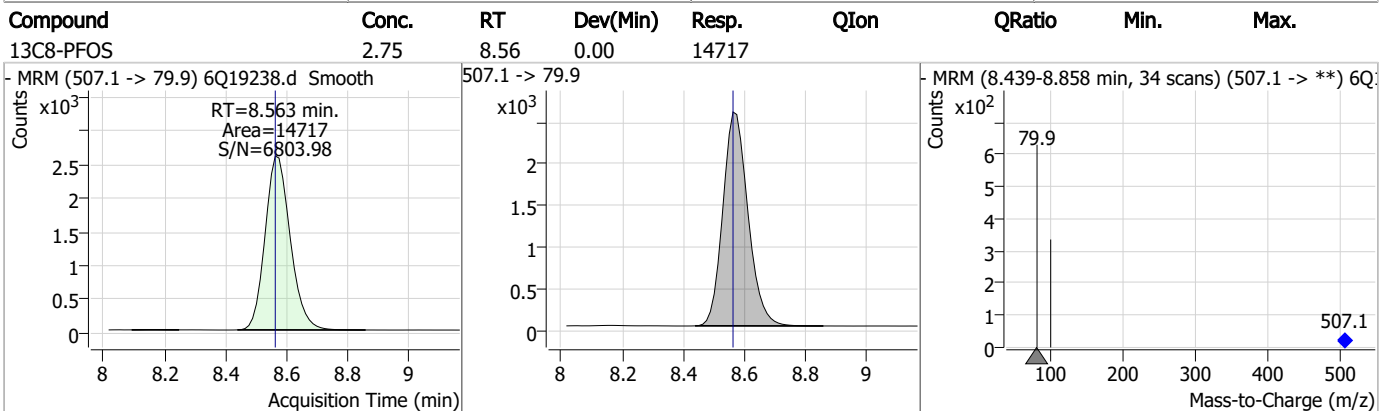
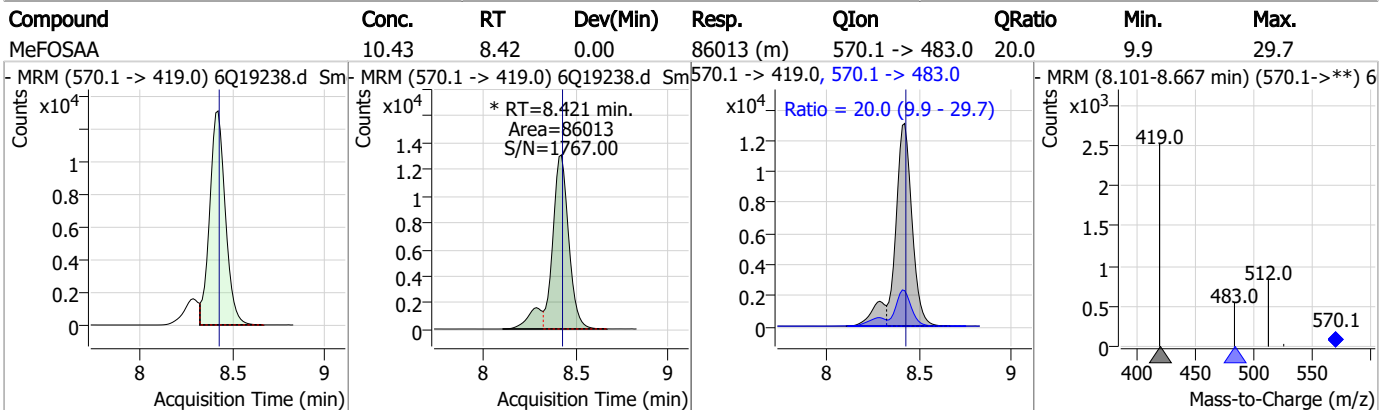
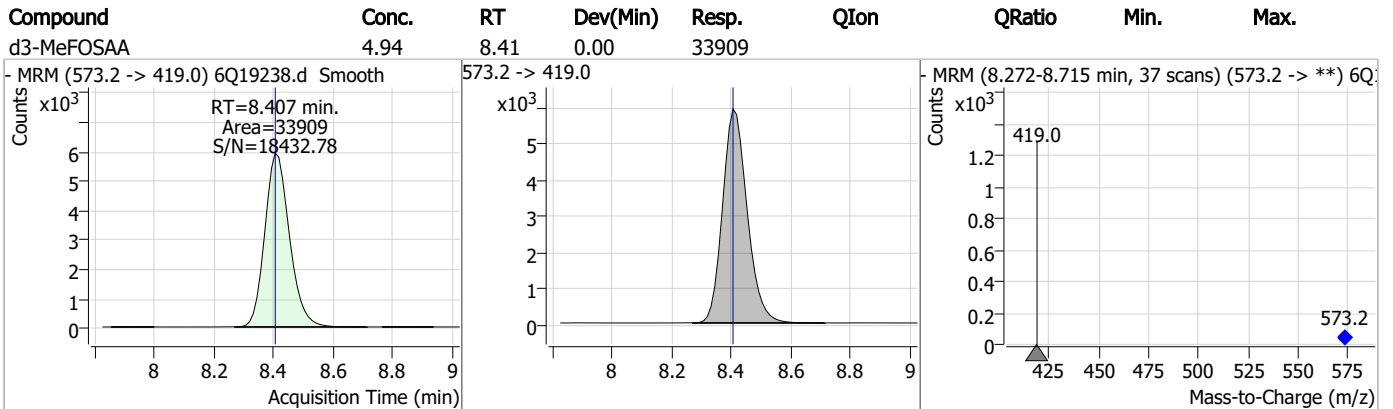
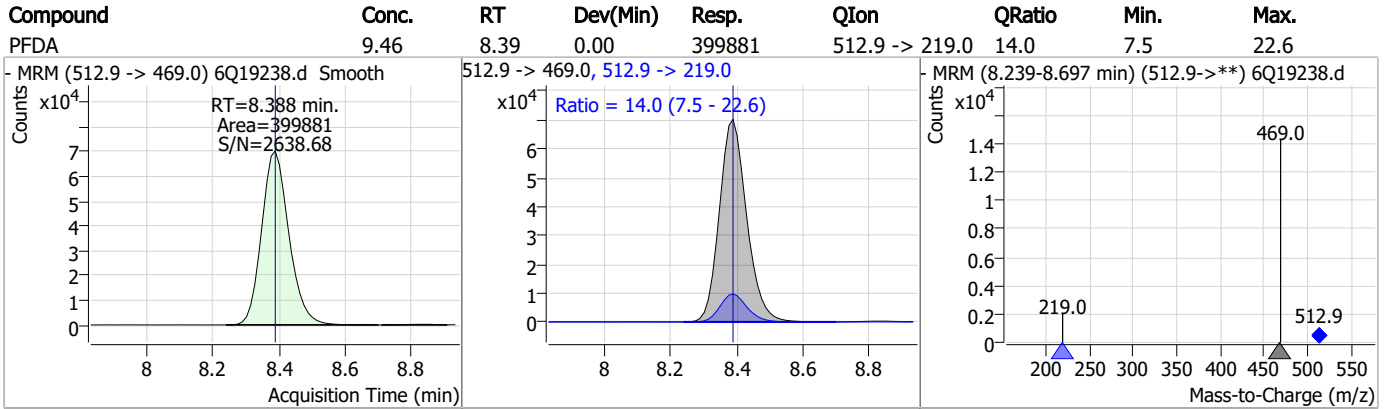


7.6.2

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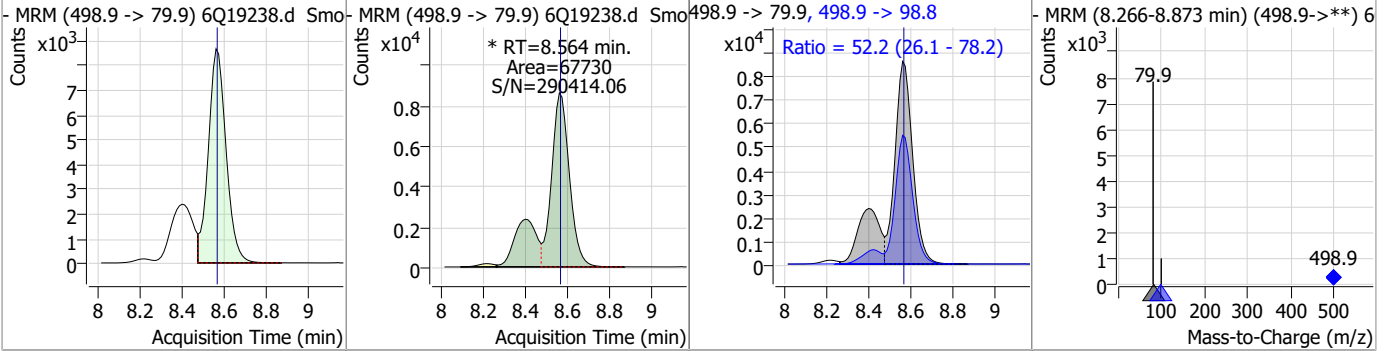


Perfluorinated Compounds by LC/MS/MS

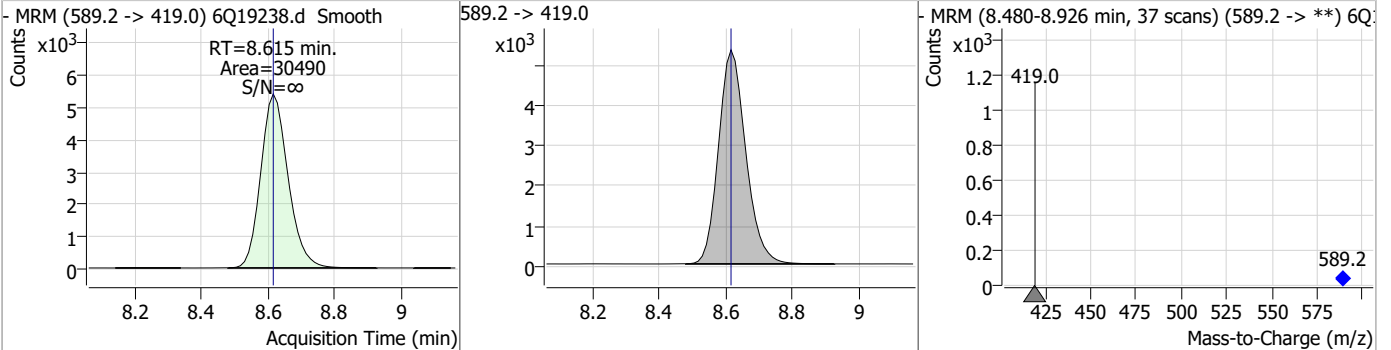


Perfluorinated Compounds by LC/MS/MS

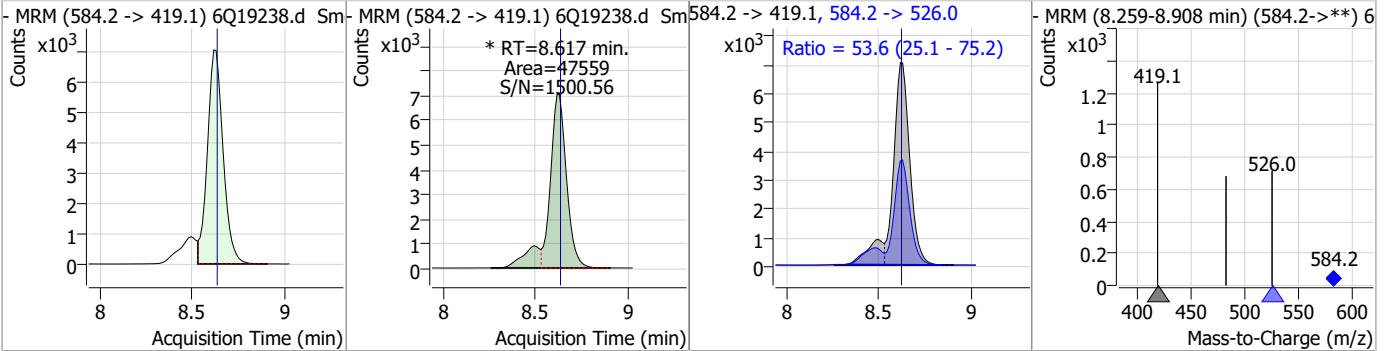
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	7.81	8.56	0.00	67730 (m)	498.9 -> 98.8	52.2	26.1	78.2



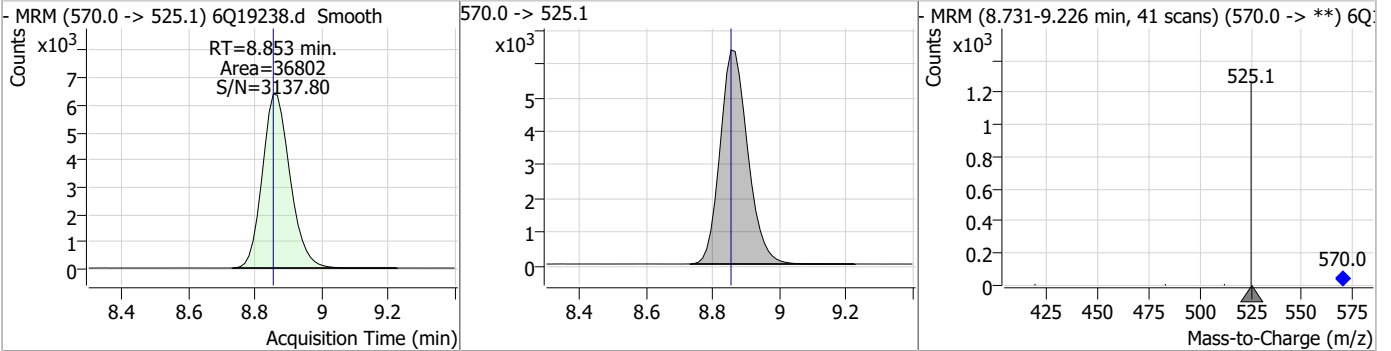
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.26	8.62	0.00	30490				



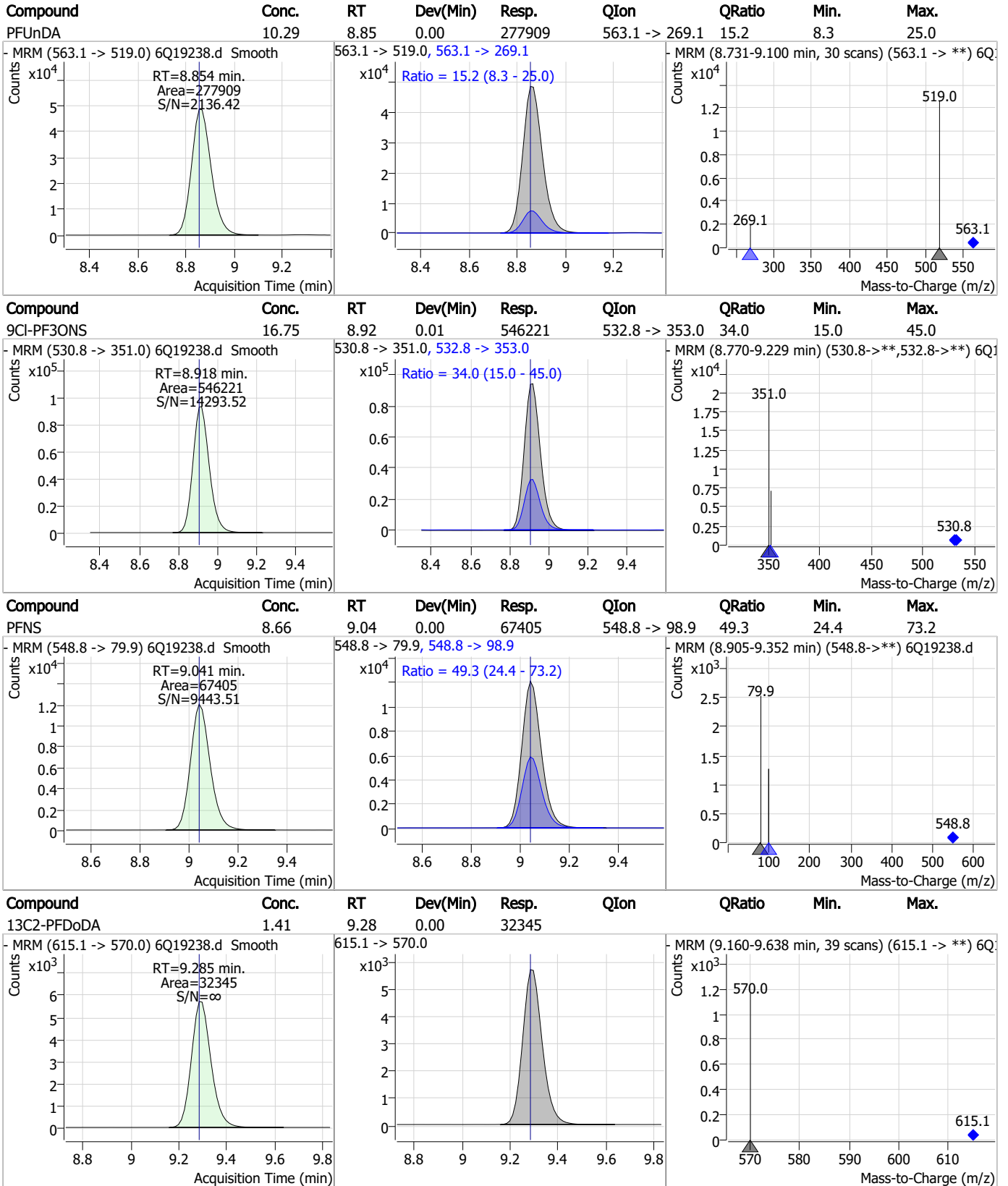
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	9.39	8.62	-0.01	47559 (m)	584.2 -> 526.0	53.6	25.1	75.2



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



Perfluorinated Compounds by LC/MS/MS

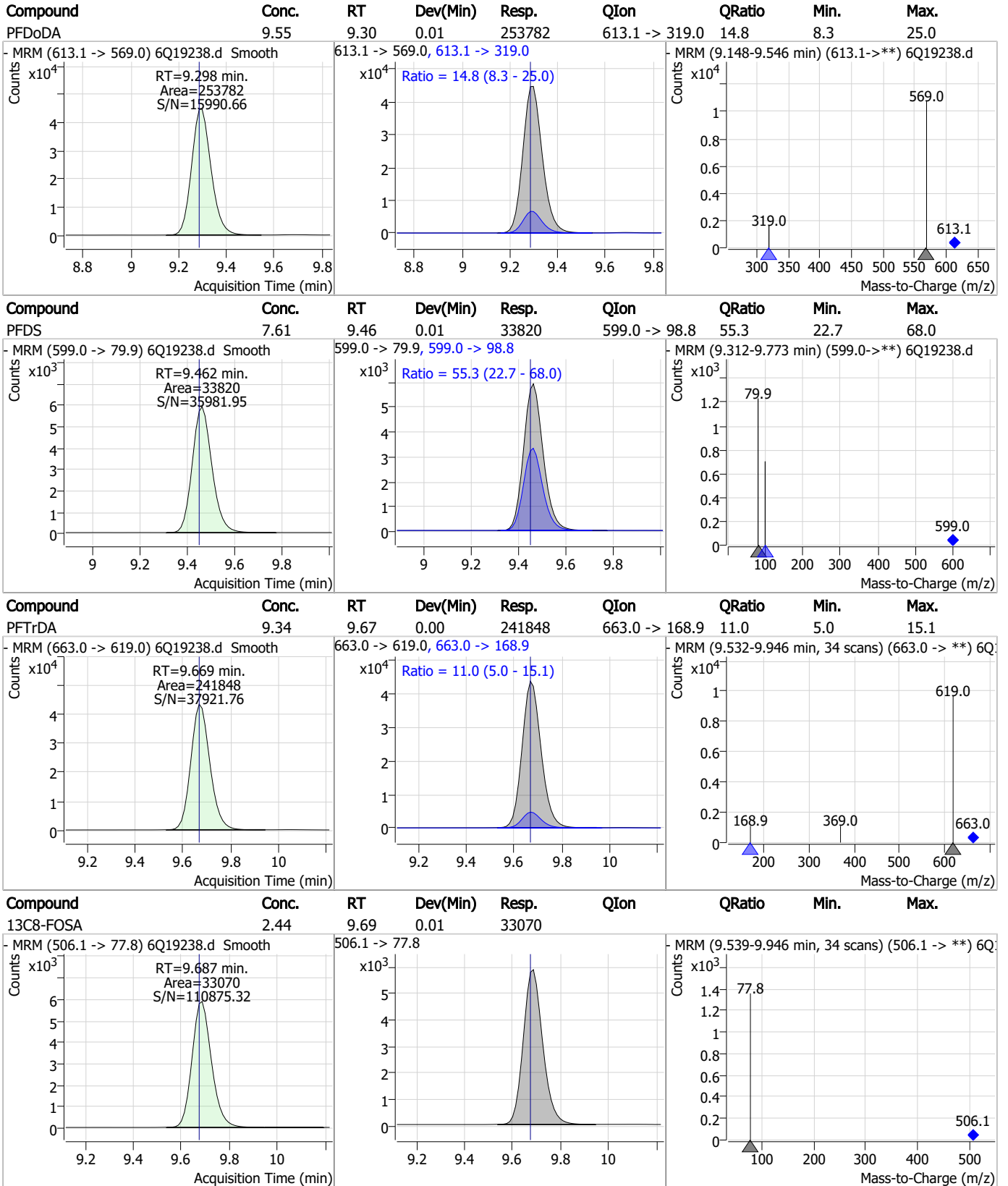


7.6.2

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Perfluorinated Compounds by LC/MS/MS

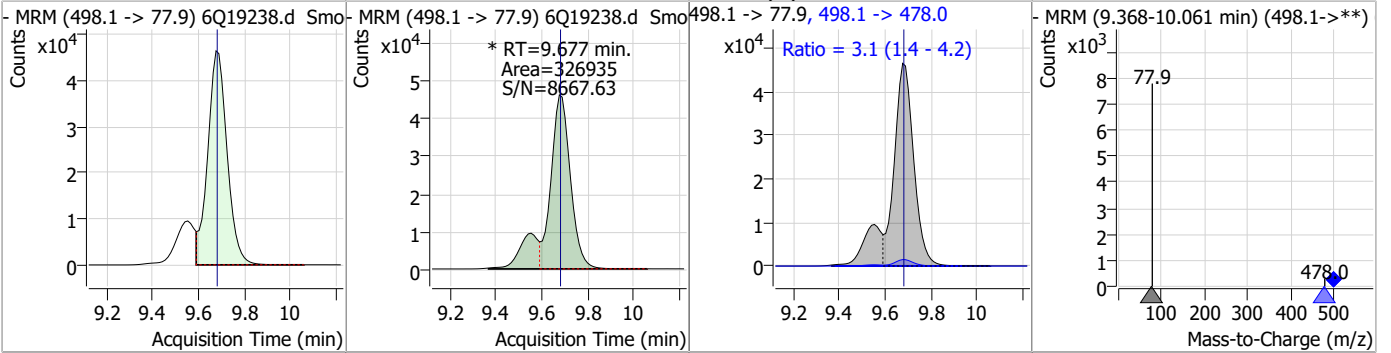


7.6.2

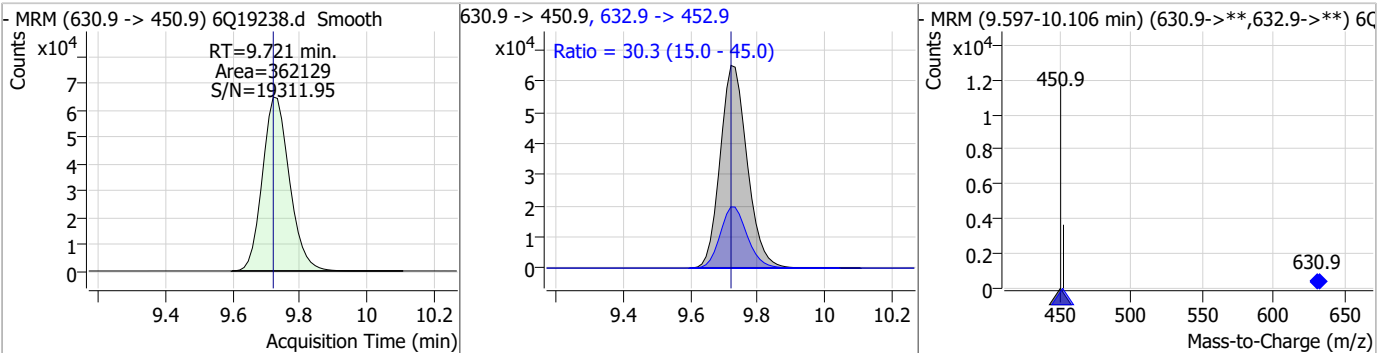
7

Perfluorinated Compounds by LC/MS/MS

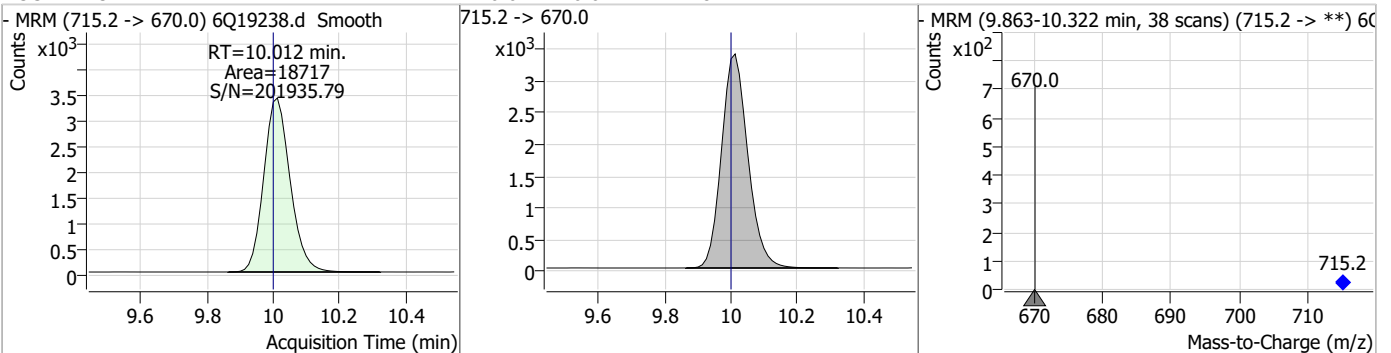
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	24.09	9.68	0.00	326935 (m)	498.1 -> 478.0	3.1	1.4	4.2



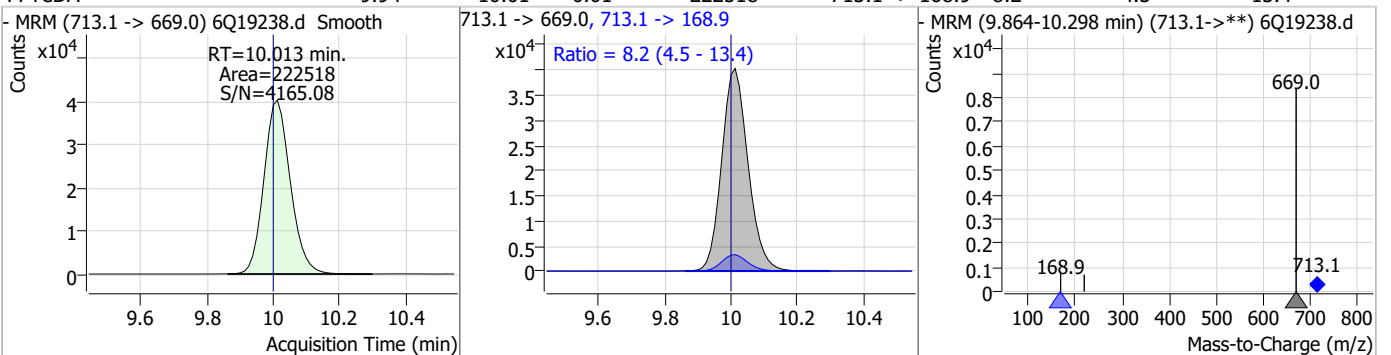
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	18.55	9.72	0.00	362129	632.9 -> 452.9	30.3	15.0	45.0



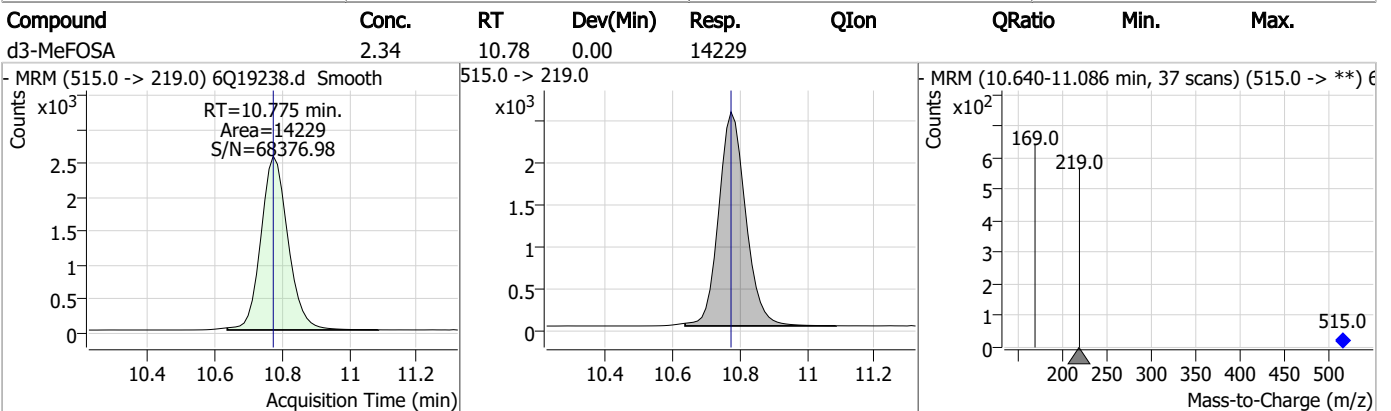
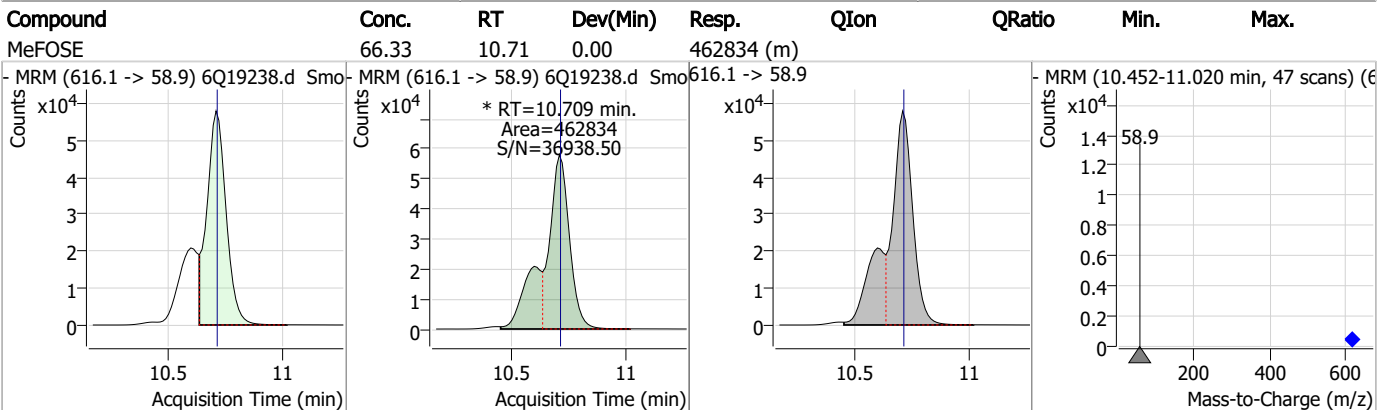
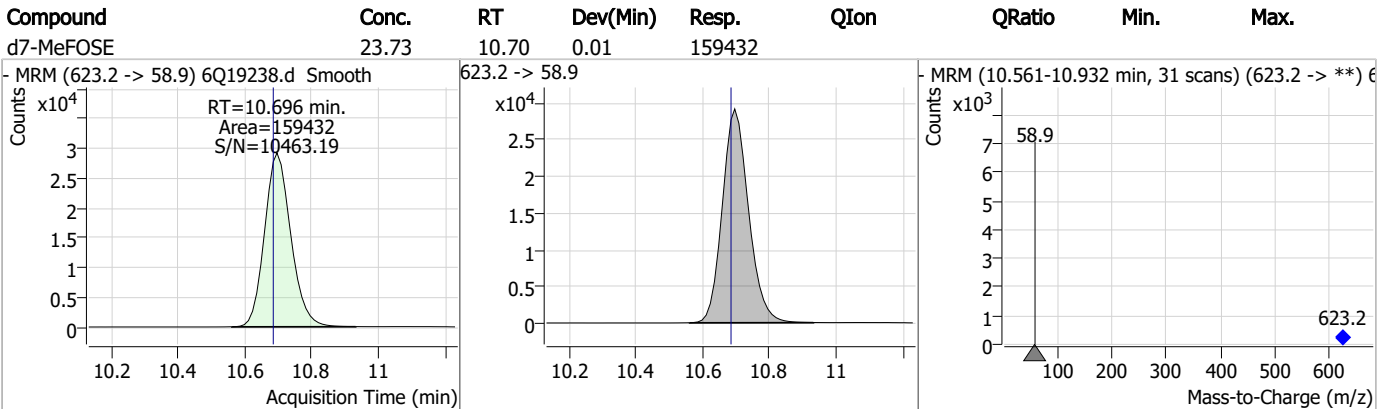
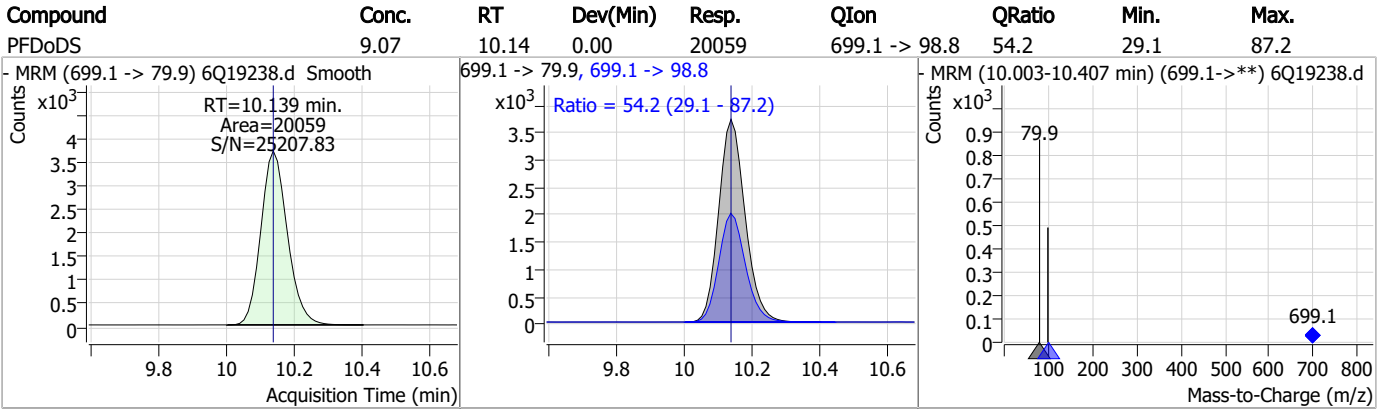
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.41	10.01	0.01	18717	715.2 -> 670.0	8.2	4.5	13.4



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

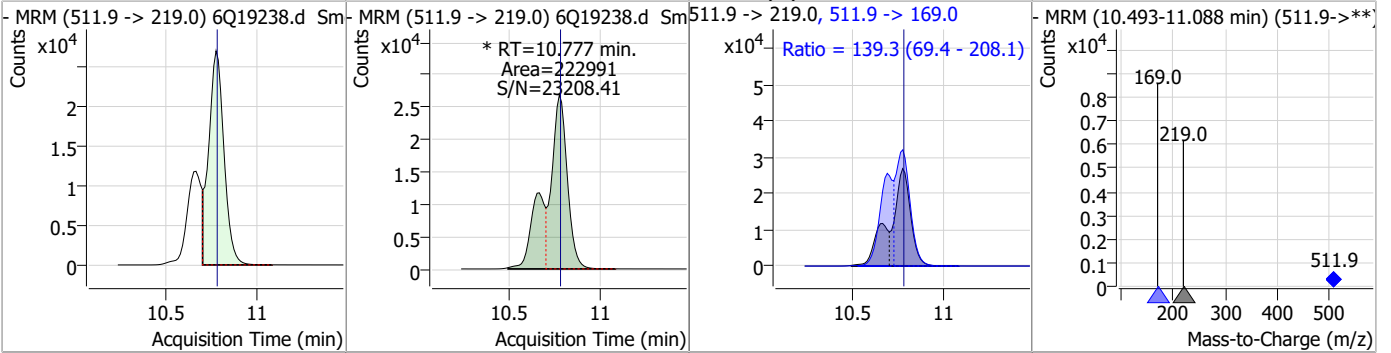


Perfluorinated Compounds by LC/MS/MS

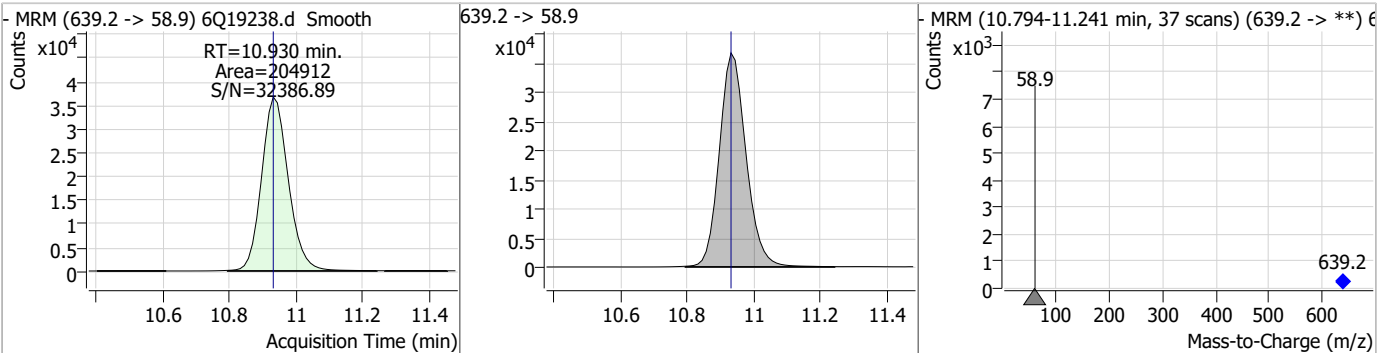


Perfluorinated Compounds by LC/MS/MS

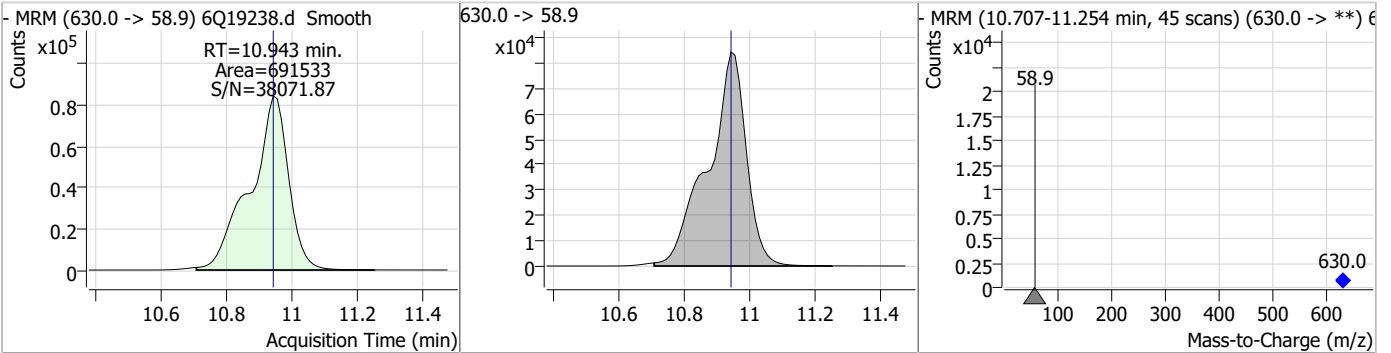
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	35.75	10.78	0.00	222991 (m)	511.9 -> 169.0	139.3	69.4	208.1



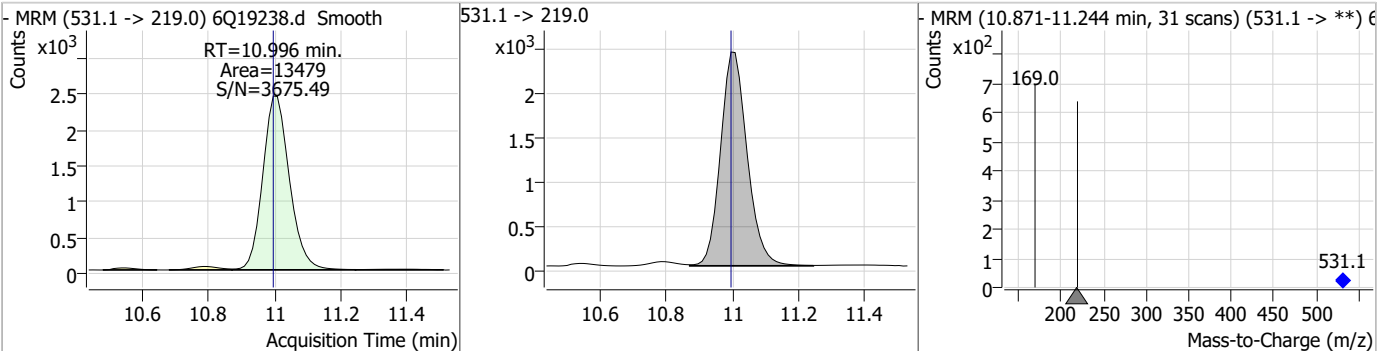
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.42	10.93	0.00	204912				



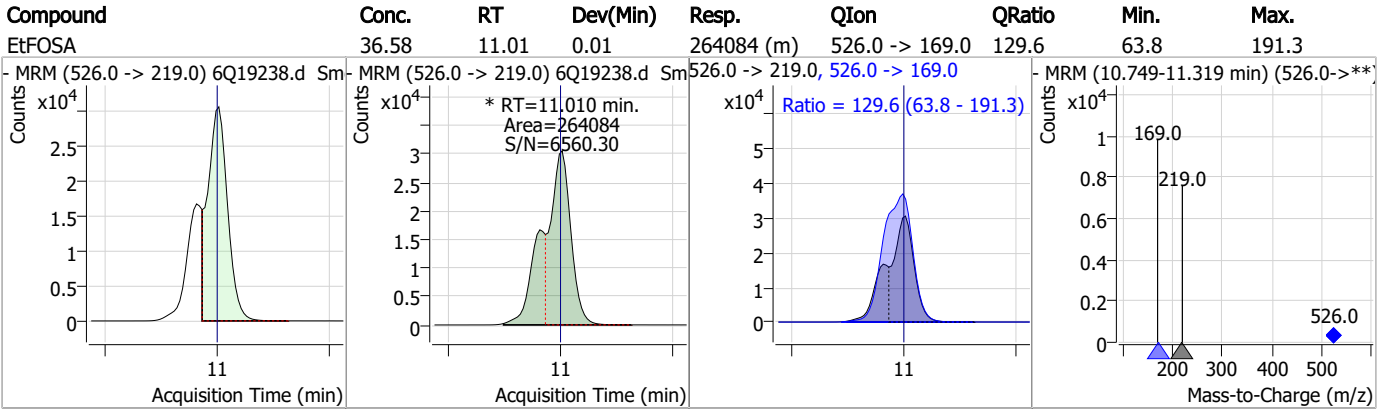
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	63.92	10.94	0.00	691533				



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



Perfluorinated Compounds by LC/MS/MS



7.6.2

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Manual Integration Approval Summary

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

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

7.6.2.1
7

QQQ Check Tune Report



Instrument Name LCMS Q6
MS Model G6495B
MS Instrument Serial SG1752D103
Software_Firmware Version 10.1.67, FW: A.00.08.112
Tune Date & Time 12 June 2023 11:10:10
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.75E+0 [R] (Torr); 2.91E-5 [H] (Torr)

Source Parameters

Parameter	Negative
Gas Temp (°C)	220
Gas Flow (l/min)	14
Nebulizer (psi)	20
Capillary (V)	3000
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	11

7.7.1

7

QQQ Check Tune Report



Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

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

Analyzer: MS2 Polarity: Negative Width: Unit

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

Analyzer: MS1 Polarity: Negative Width: Wide

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

Analyzer: MS2 Polarity: Negative Width: Wide

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

Analyzer: MS1 Polarity: Negative Width: Widest

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

Analyzer: MS2 Polarity: Negative Width: Widest

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

7.7.1
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Perfluorinated Compounds by LC/MS/MS

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

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

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

Perfluorinated Compounds by LC/MS/MS

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

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

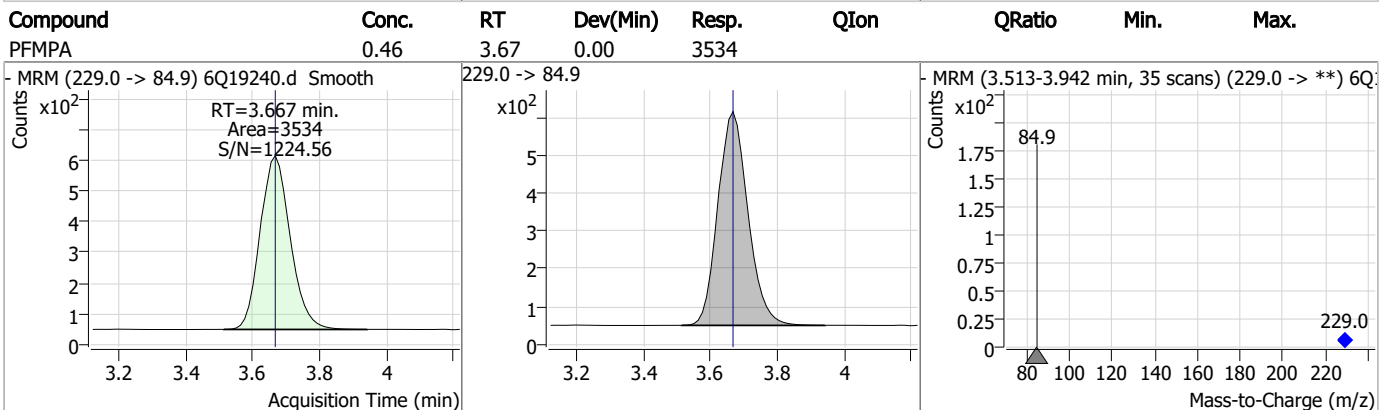
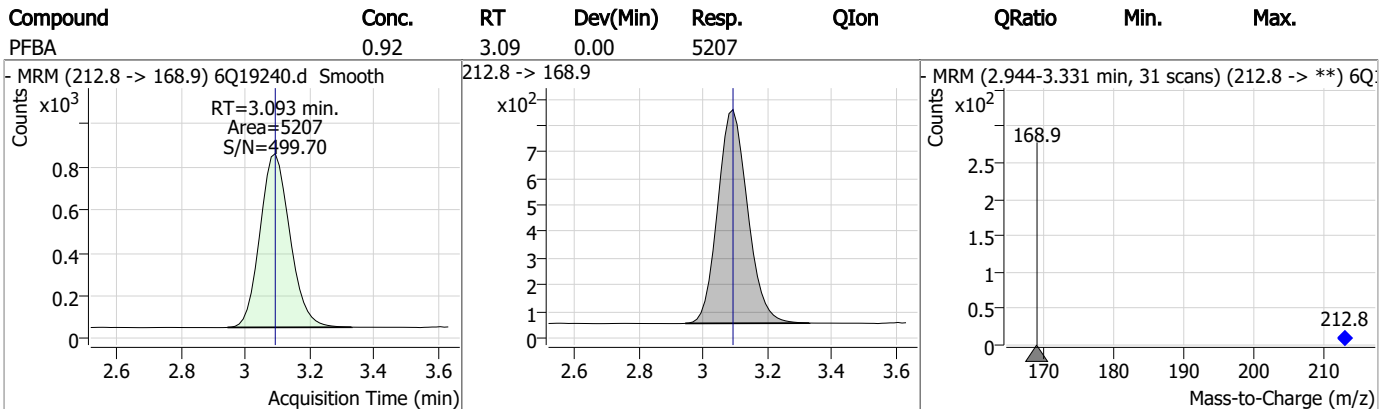
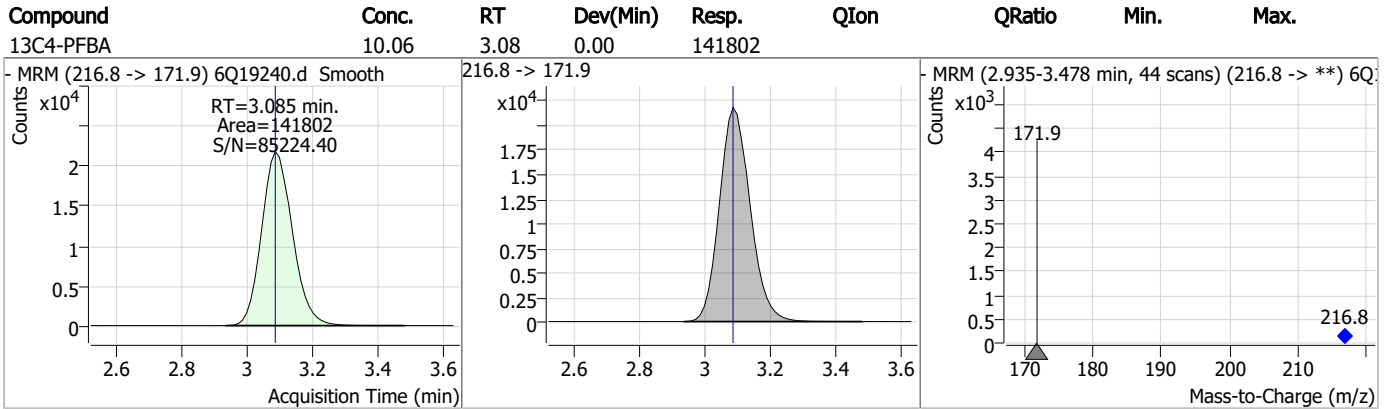
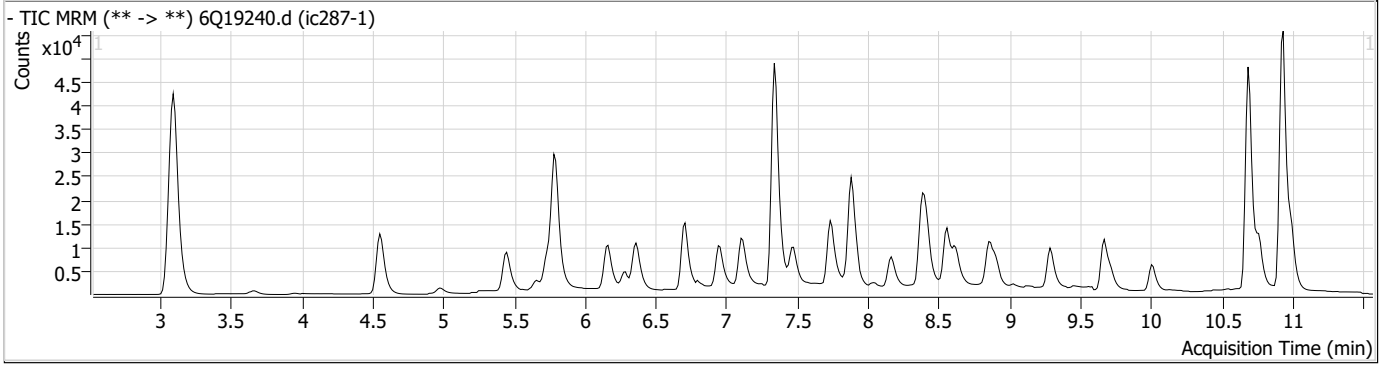
Perfluorinated Compounds by LC/MS/MS

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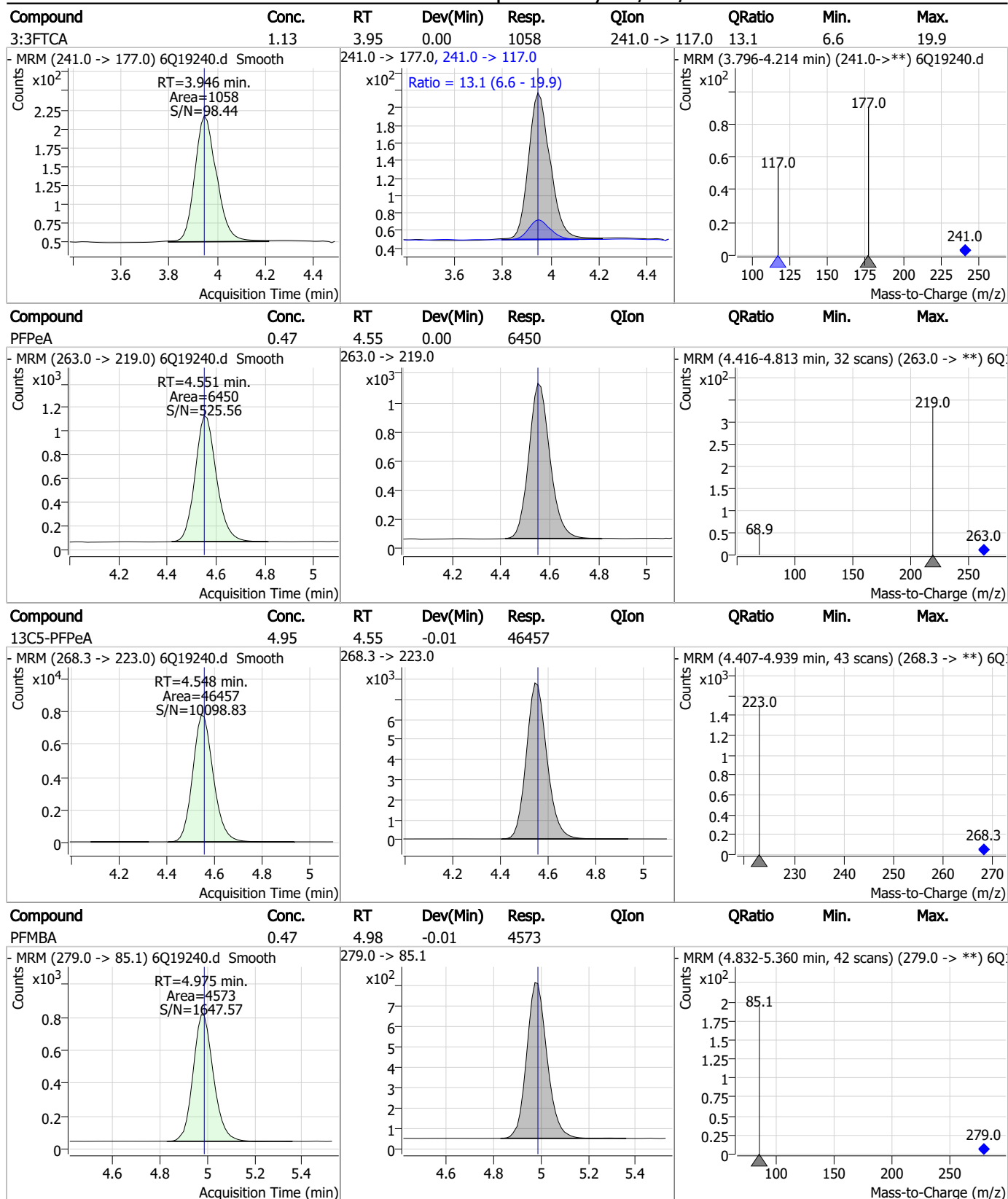
7.7.2
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Perfluorinated Compounds by LC/MS/MS

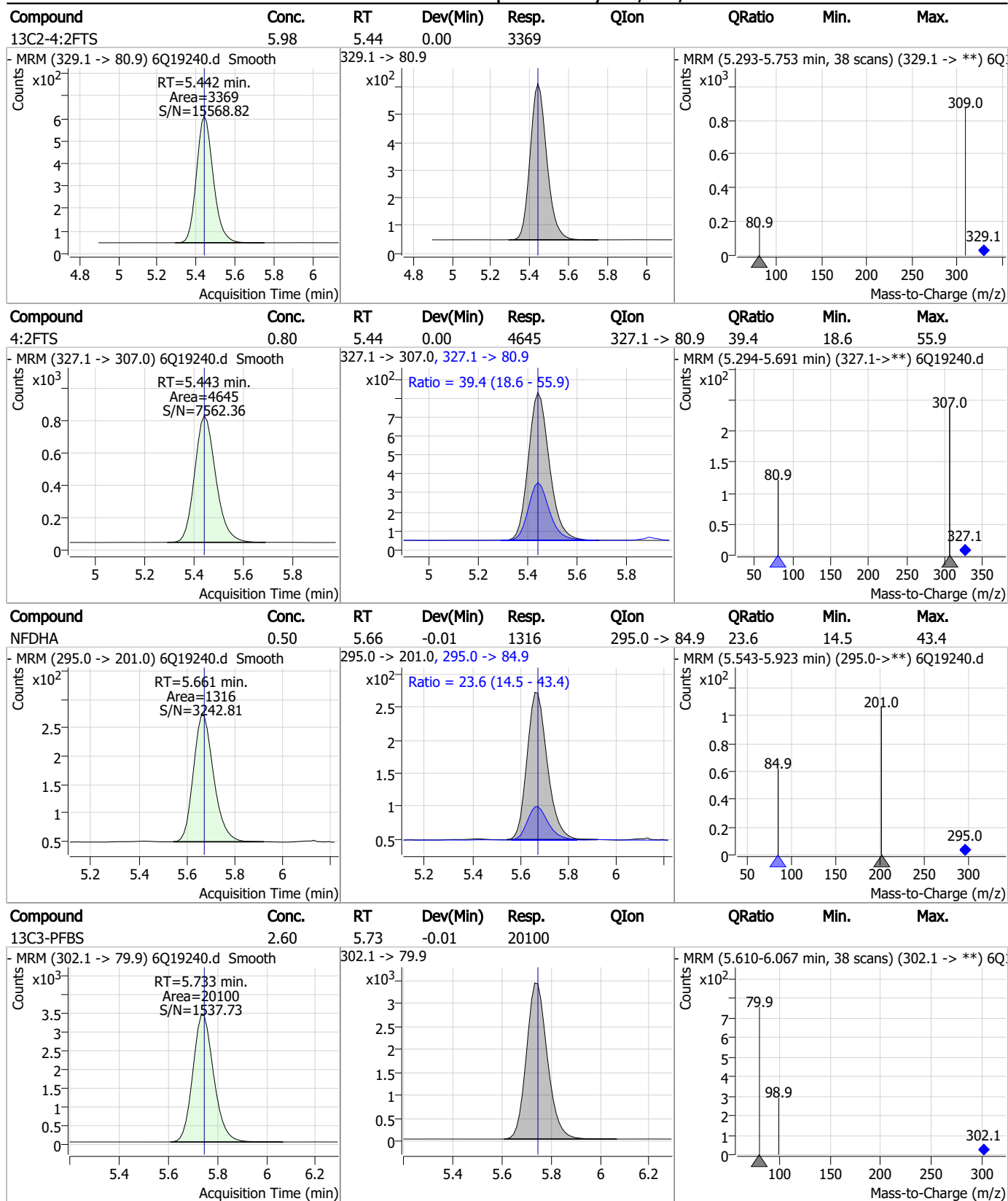


Perfluorinated Compounds by LC/MS/MS



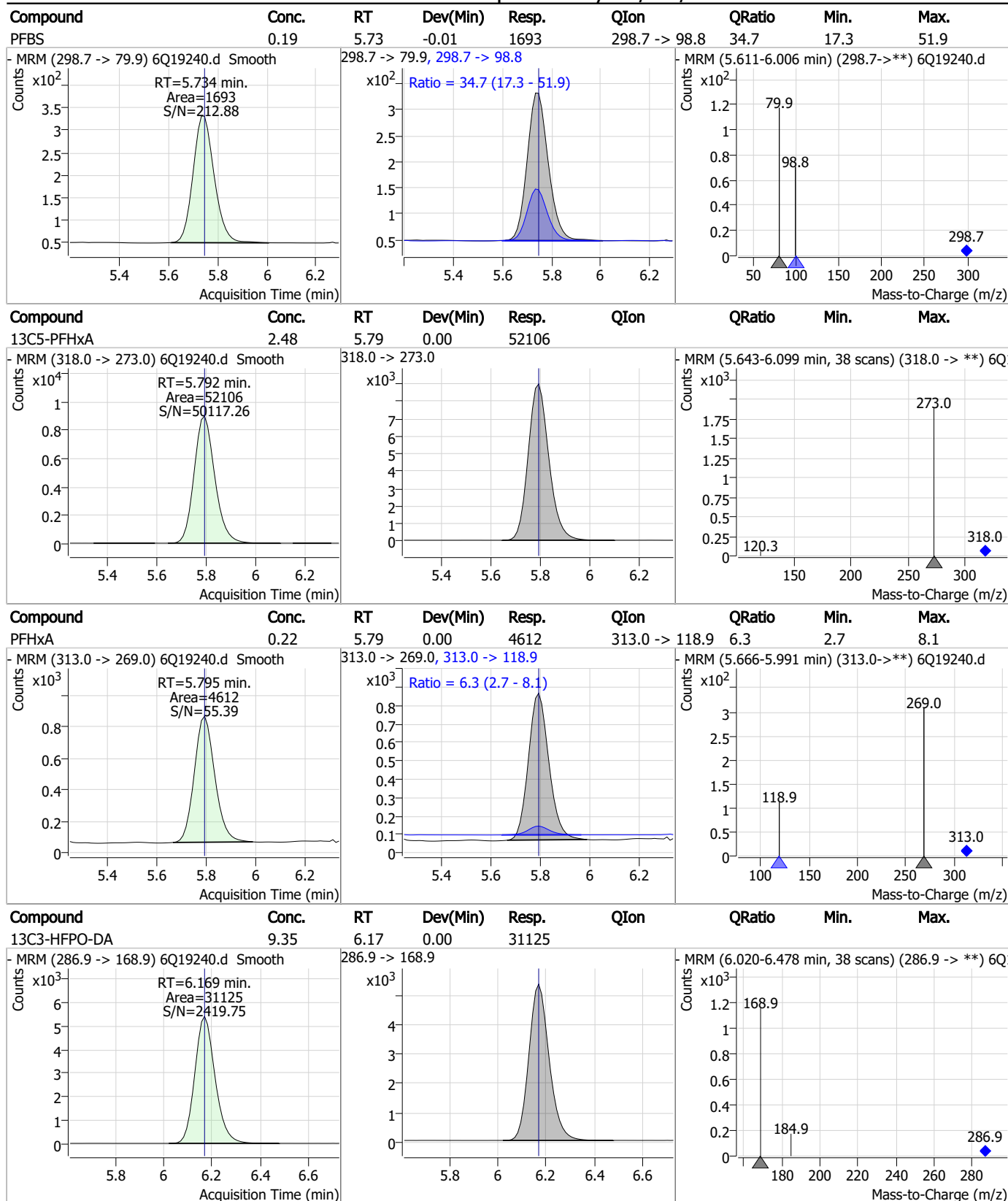
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Perfluorinated Compounds by LC/MS/MS



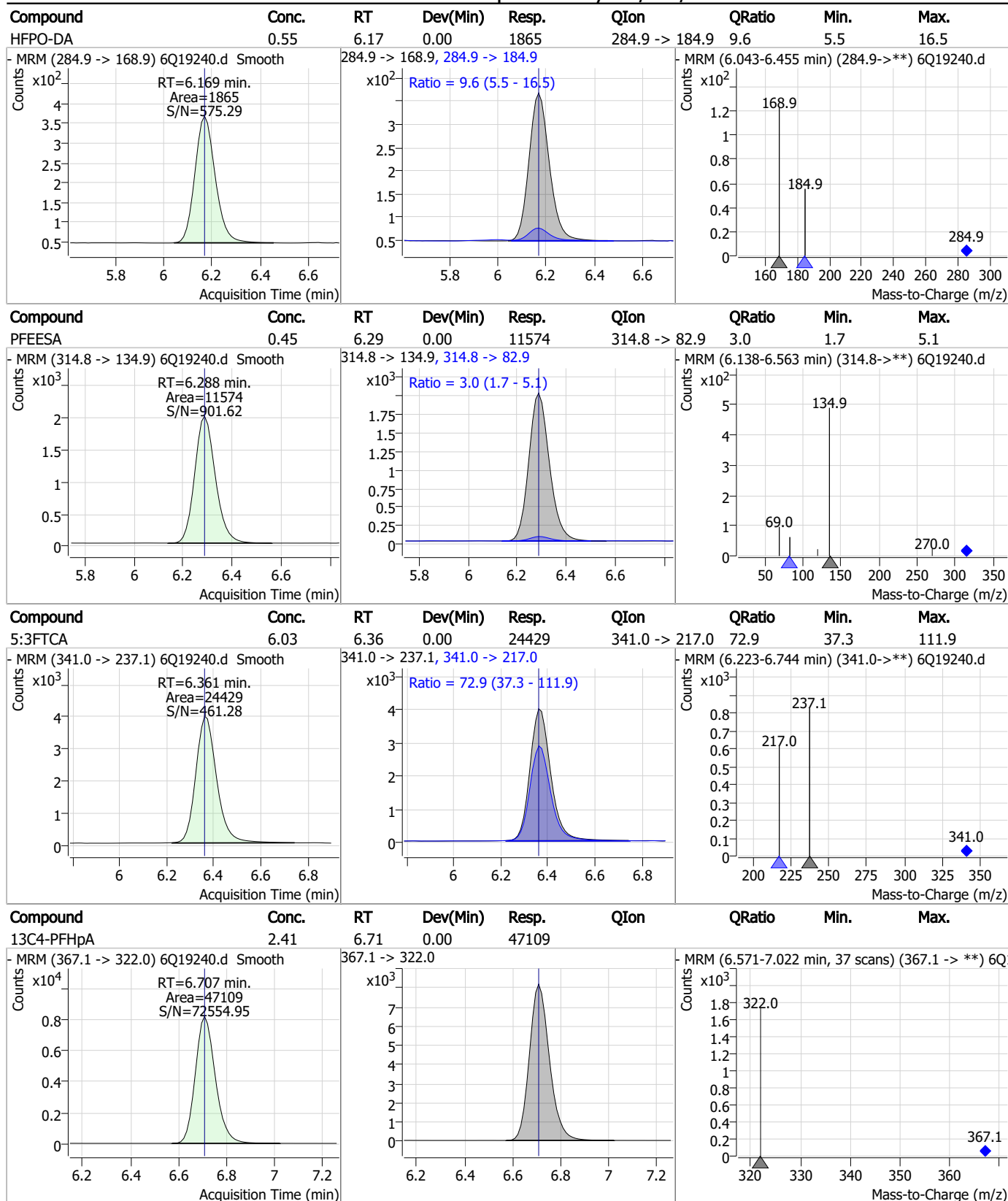
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Perfluorinated Compounds by LC/MS/MS



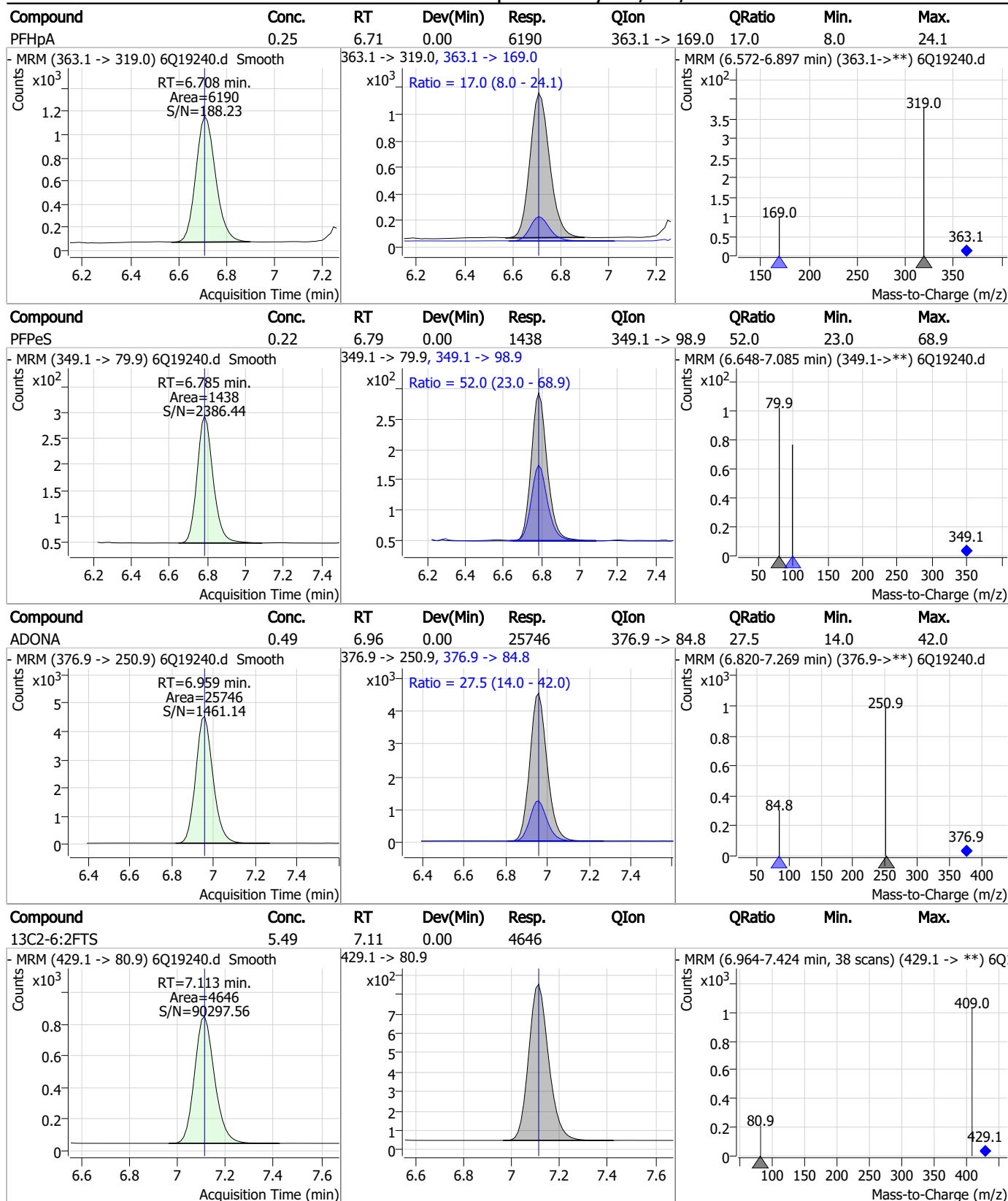
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Perfluorinated Compounds by LC/MS/MS



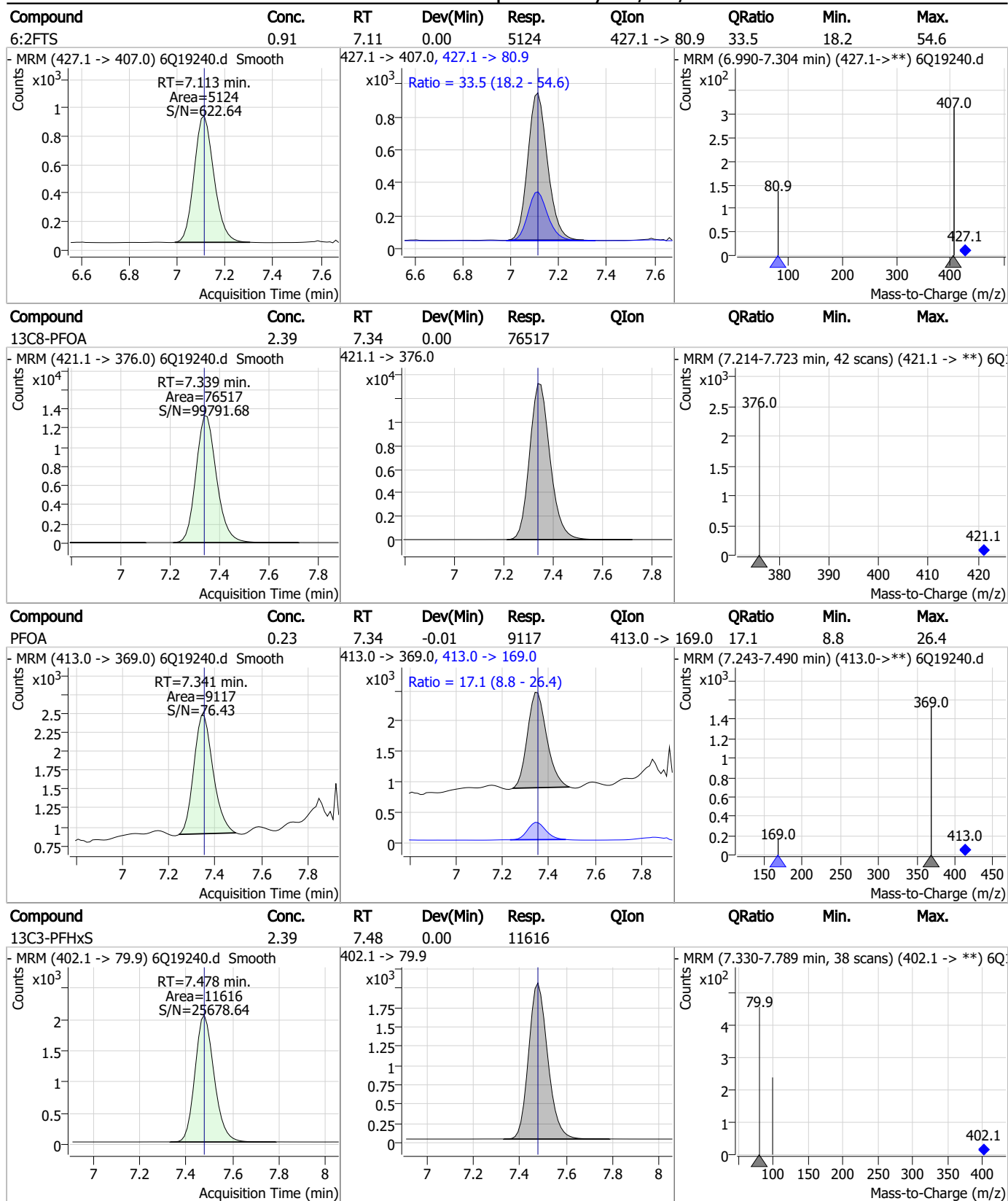
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Perfluorinated Compounds by LC/MS/MS



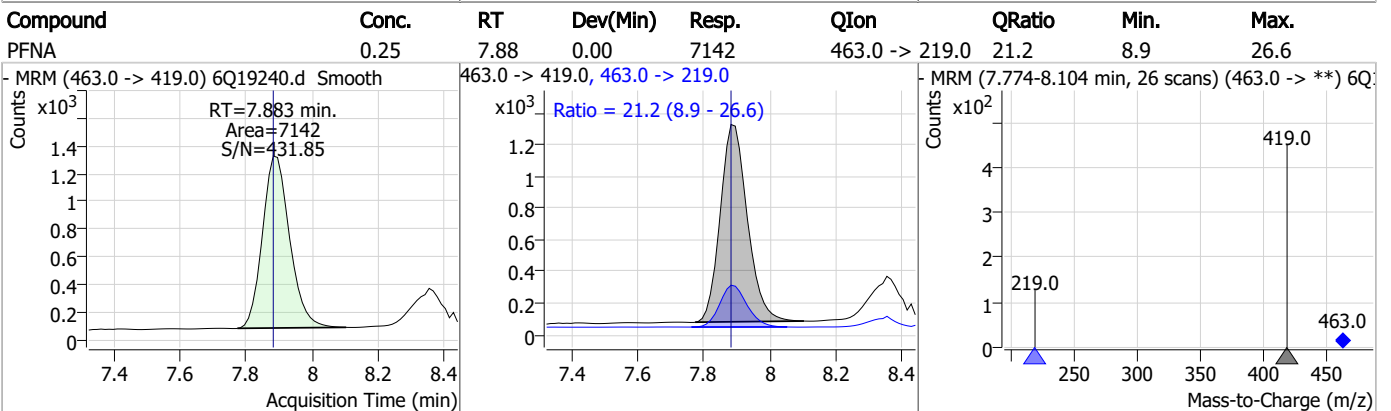
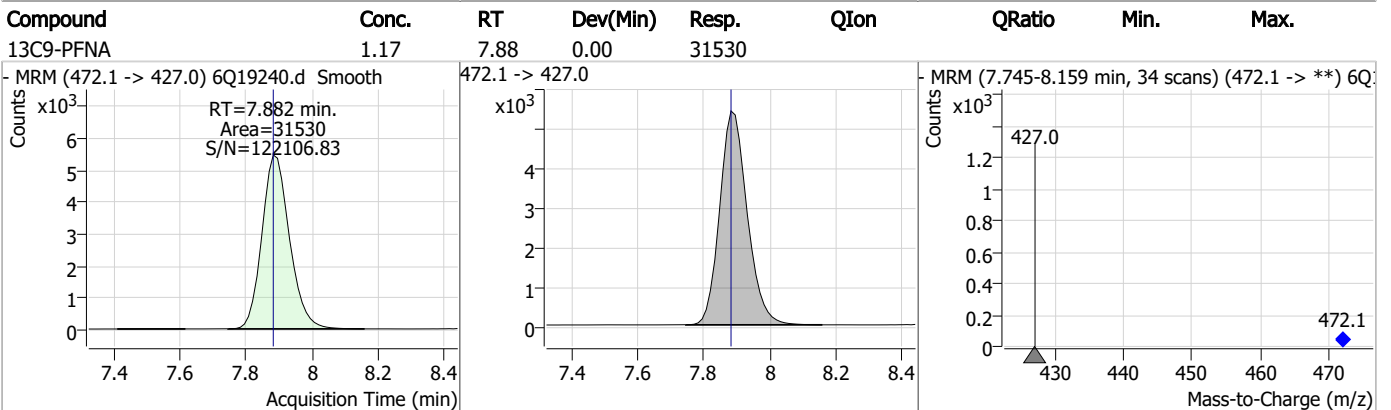
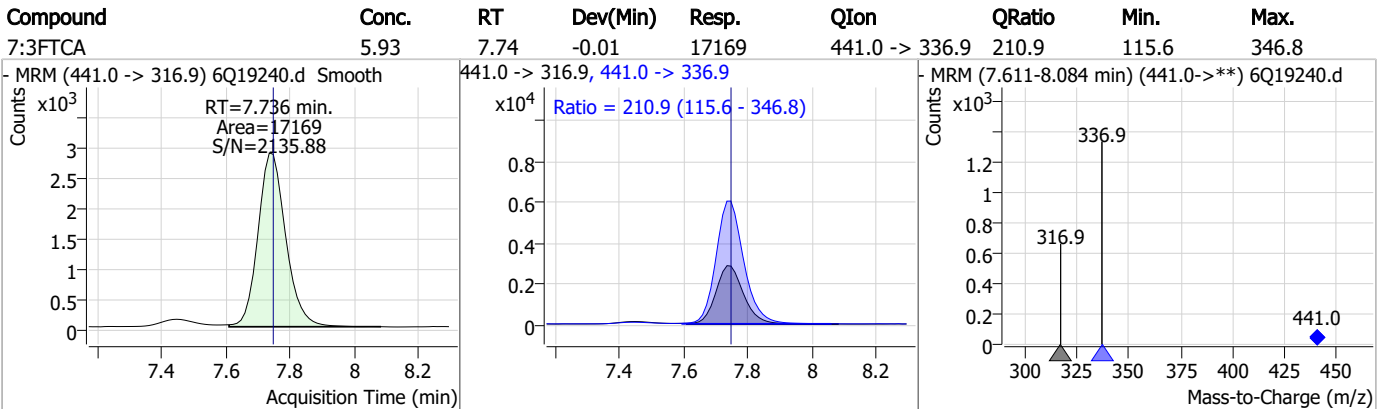
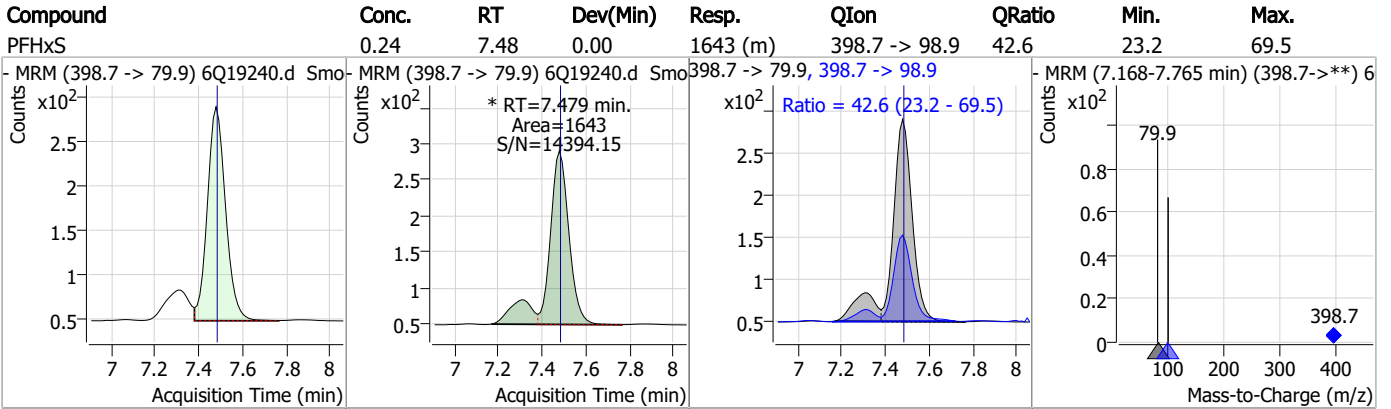
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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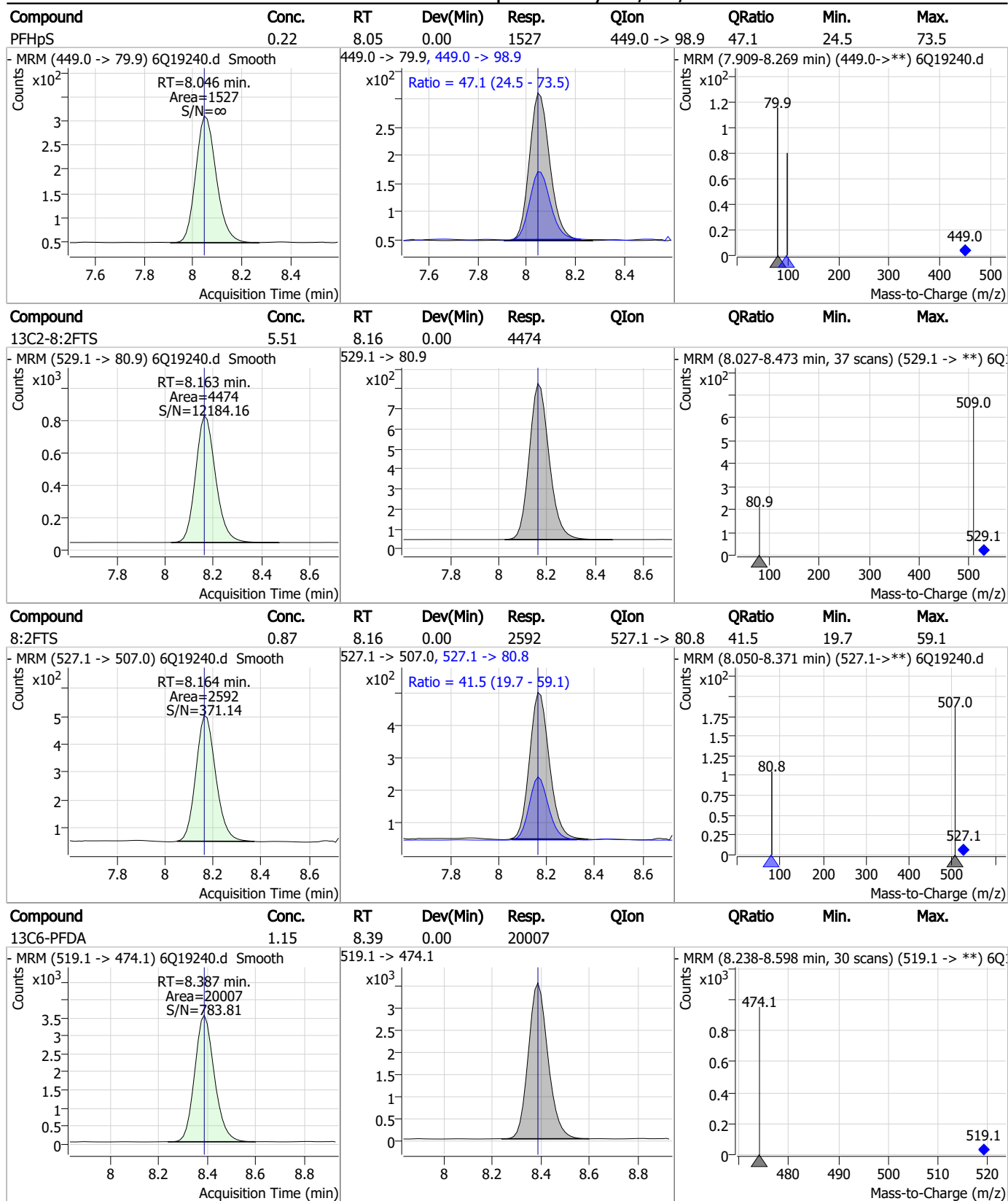
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7.7.2

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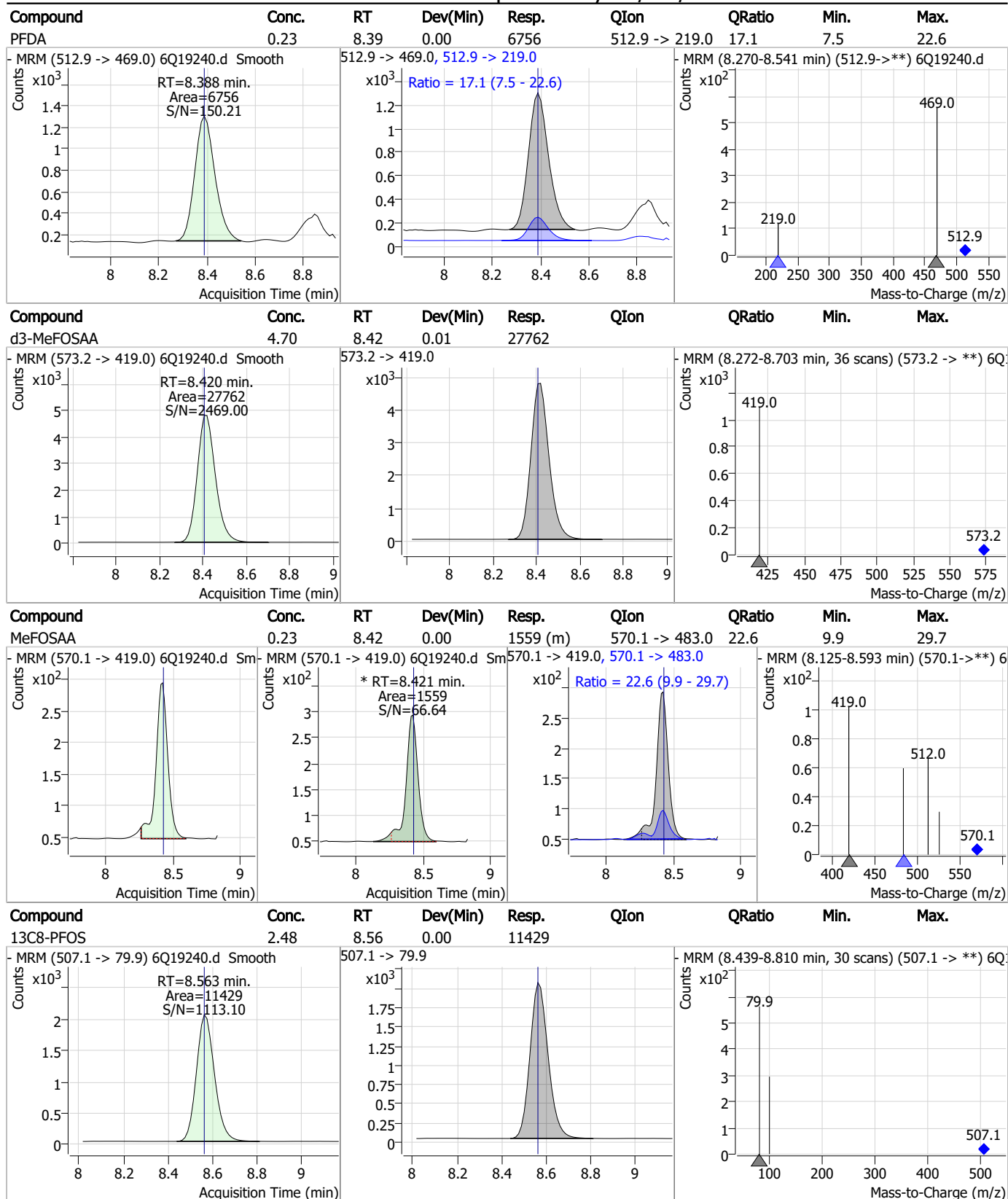
Perfluorinated Compounds by LC/MS/MS



7.7.2
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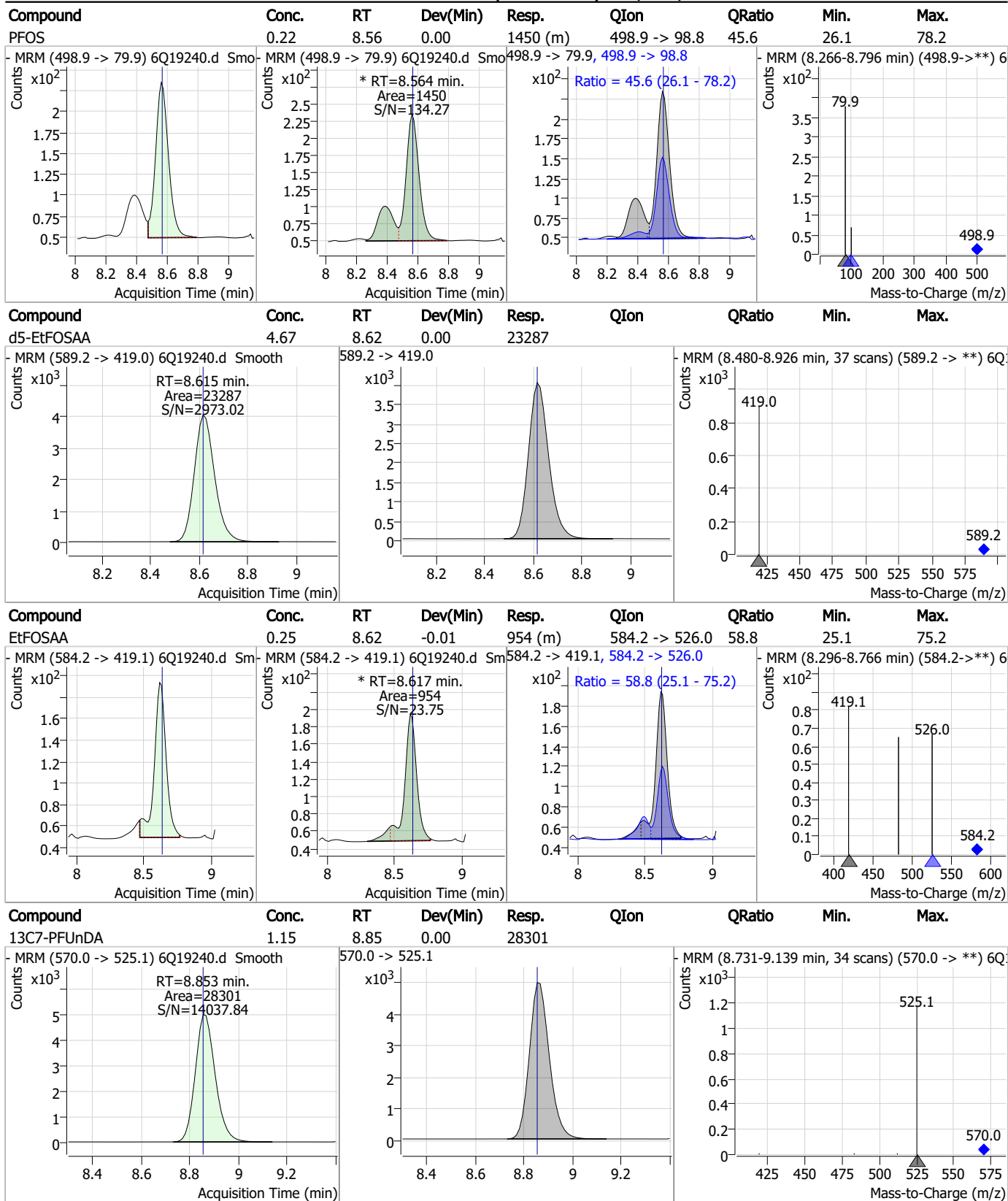
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7.7.2

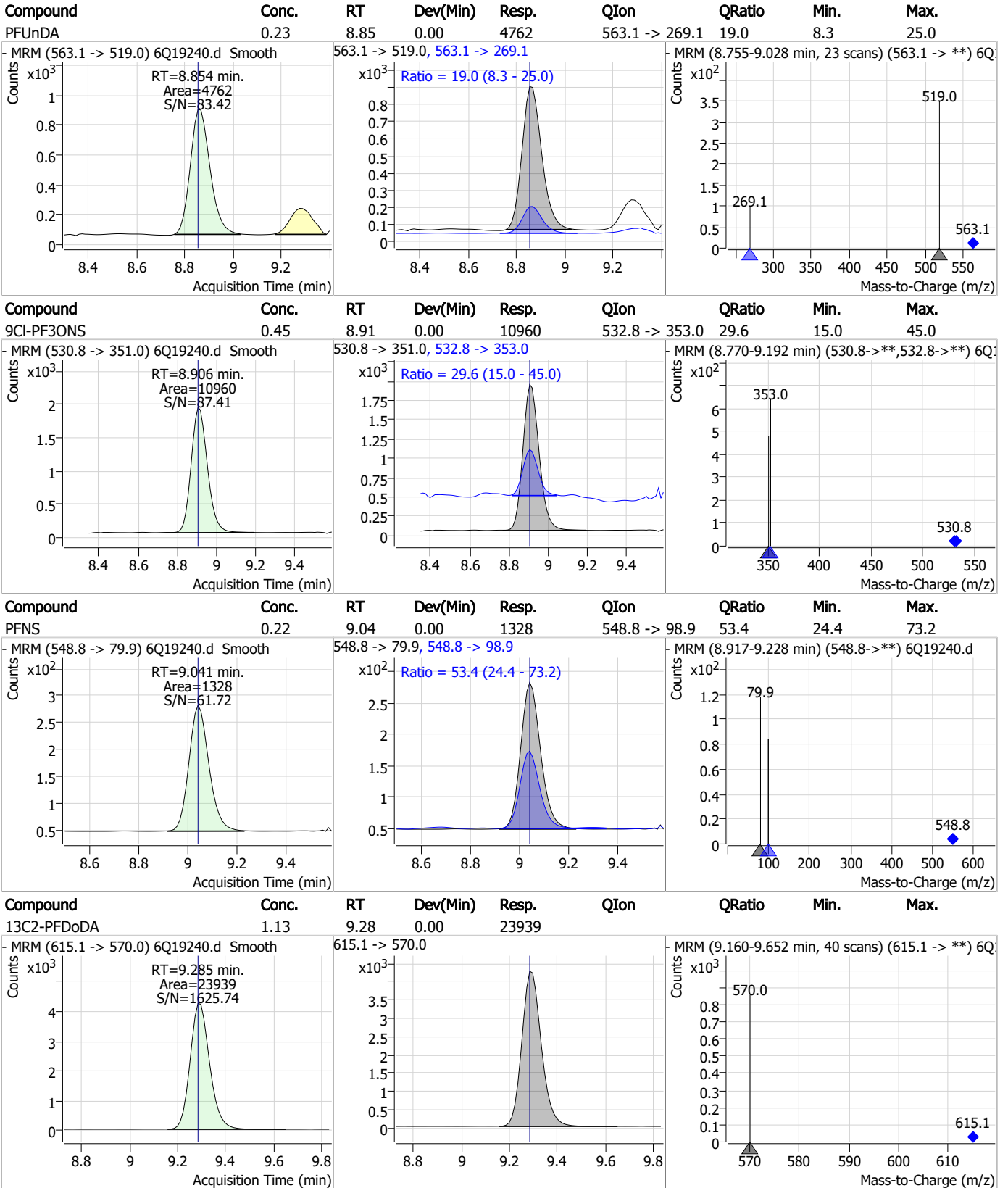
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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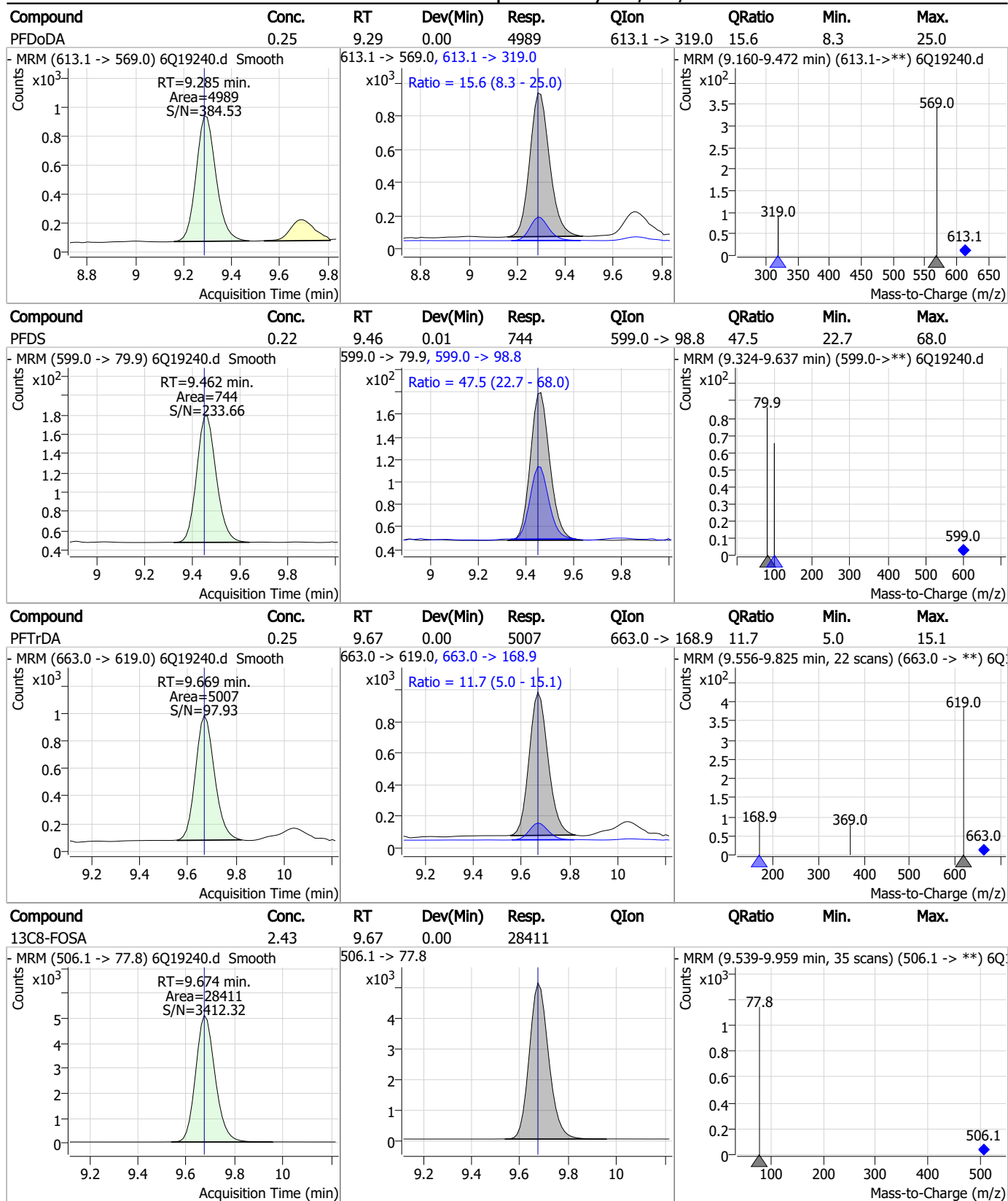
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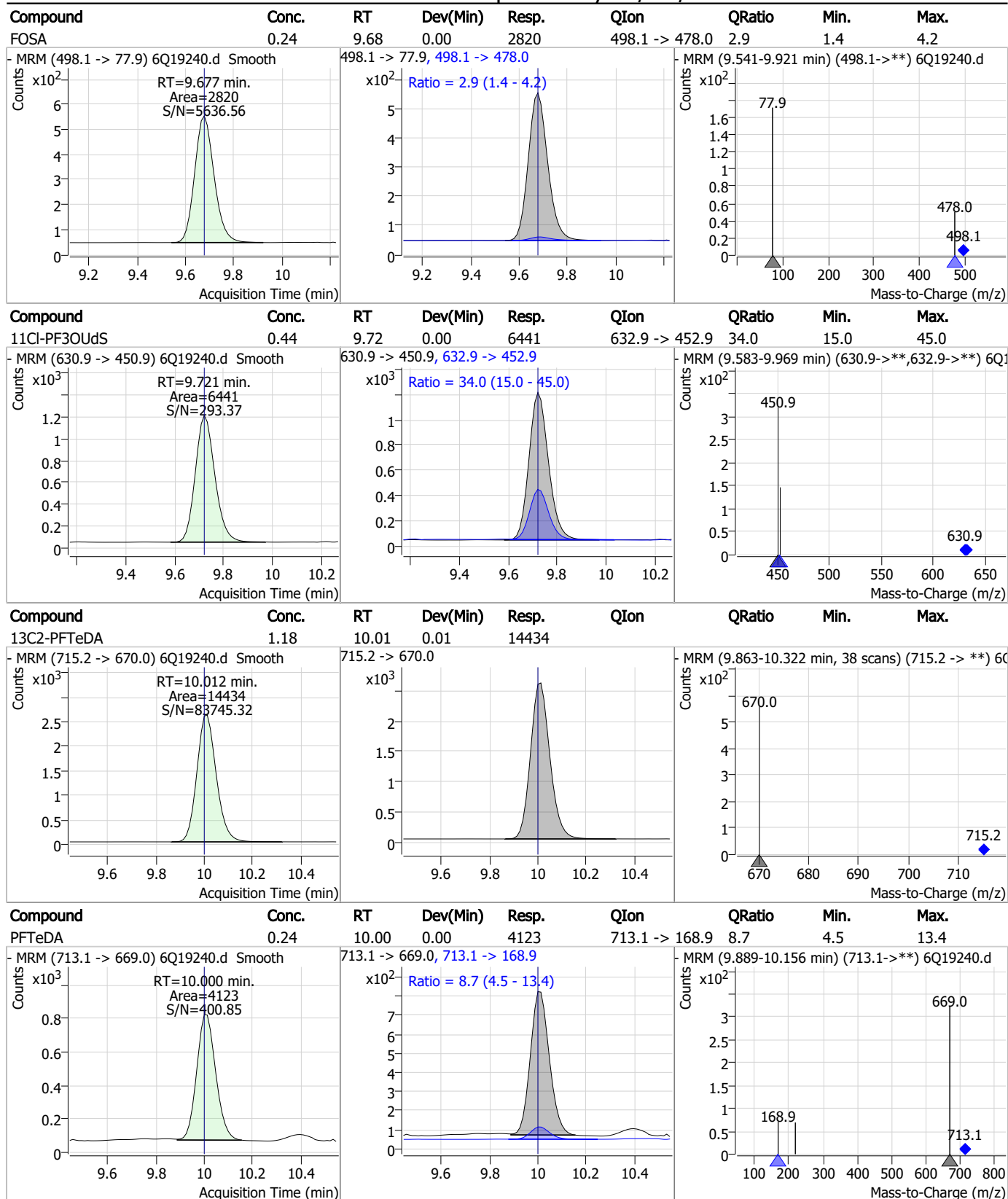
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Perfluorinated Compounds by LC/MS/MS



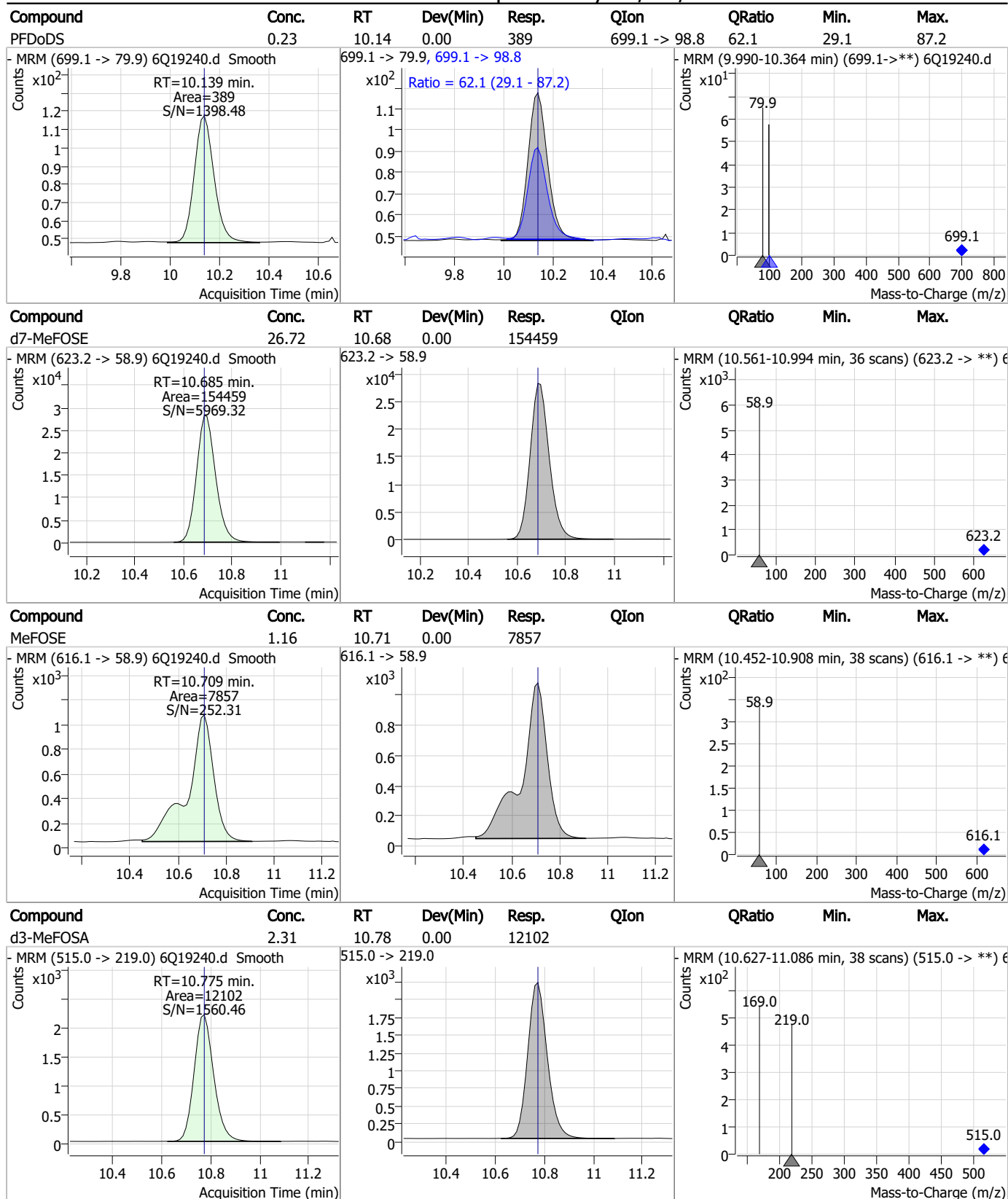
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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Perfluorinated Compounds by LC/MS/MS

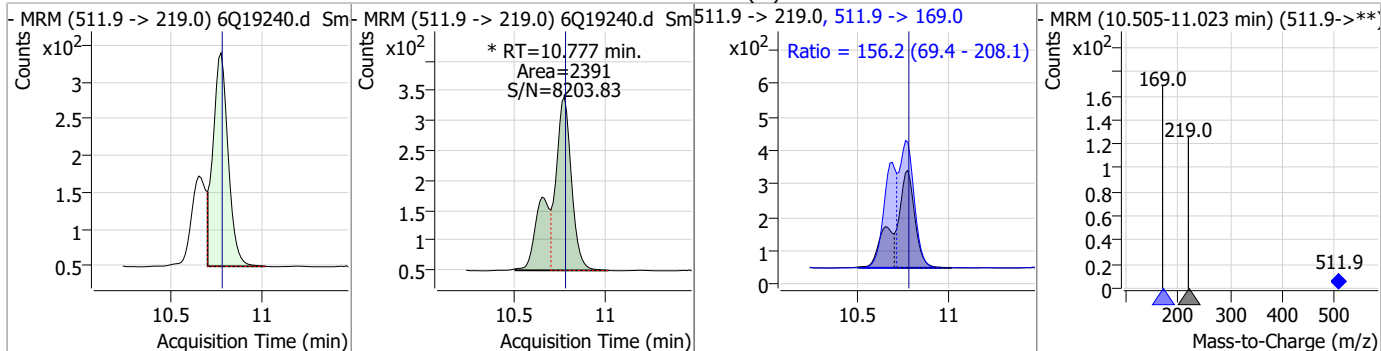


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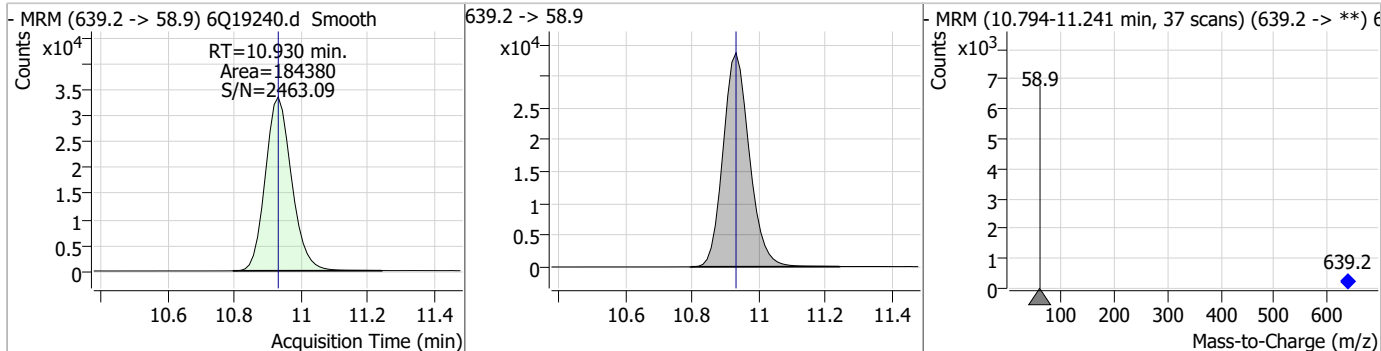
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Perfluorinated Compounds by LC/MS/MS

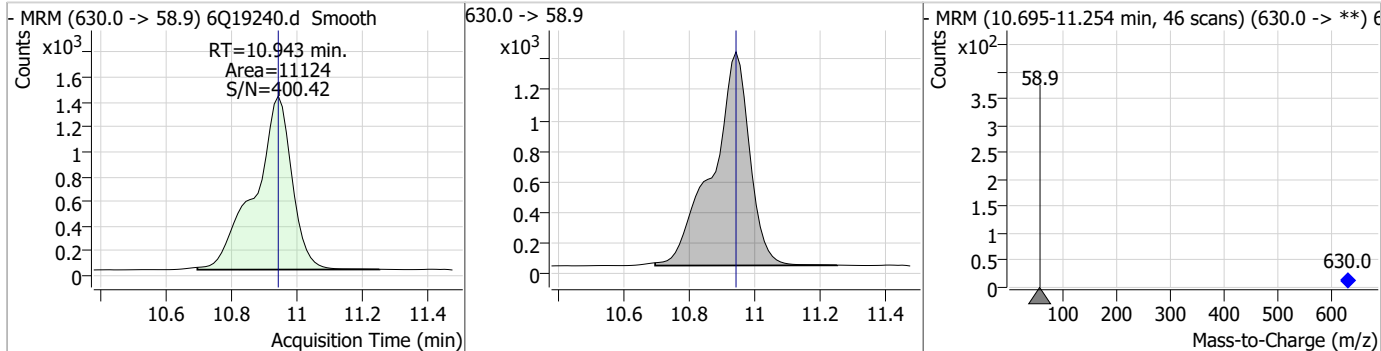
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.45	10.78	0.00	2391 (m)	511.9 -> 169.0	156.2	69.4	208.1



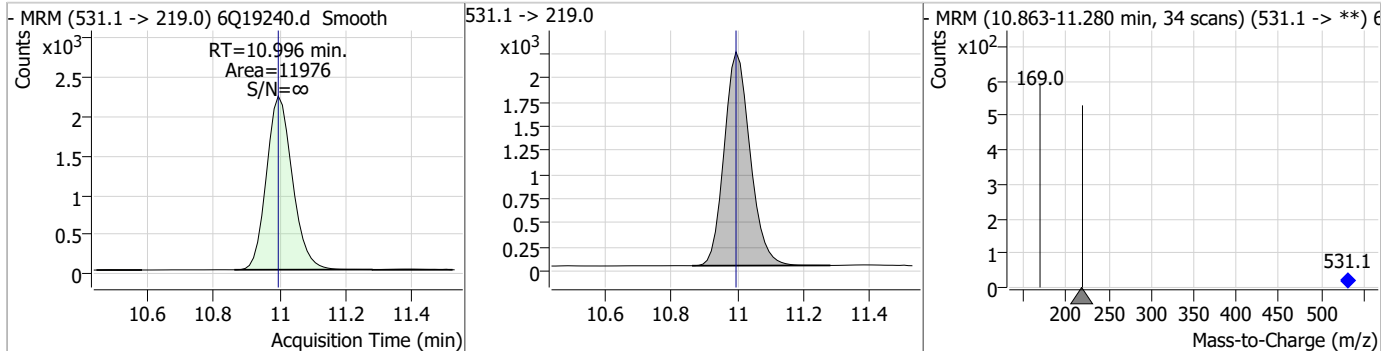
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.54	10.93	0.00	184380				



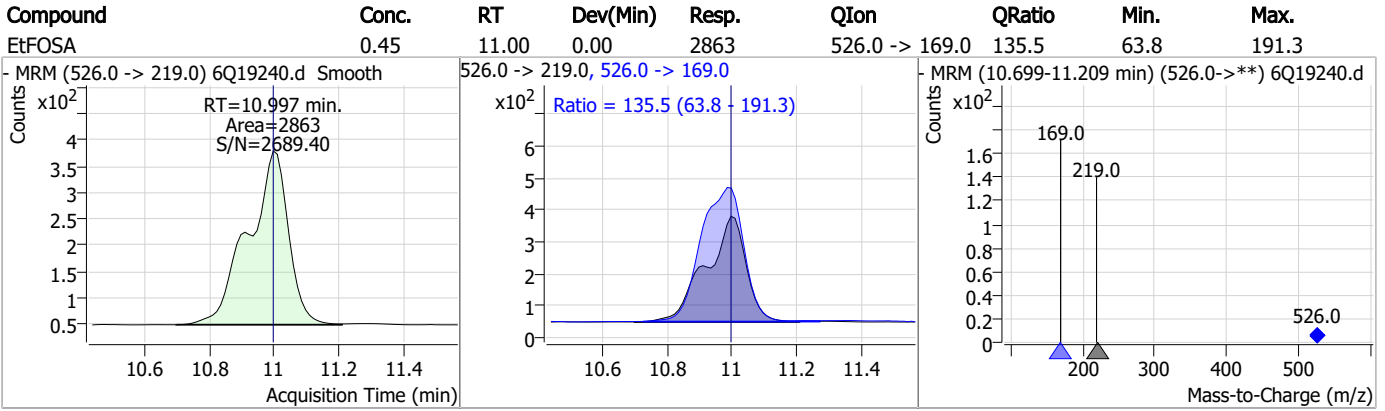
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	1.14	10.94	0.00	11124				



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



Perfluorinated Compounds by LC/MS/MS



7.7.2

7

Manual Integration Approval Summary

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

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

7.7.2.1
7

Perfluorinated Compounds by LC/MS/MS

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

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

7.7.3
7

Perfluorinated Compounds by LC/MS/MS

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

Perfluorinated Compounds by LC/MS/MS

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

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

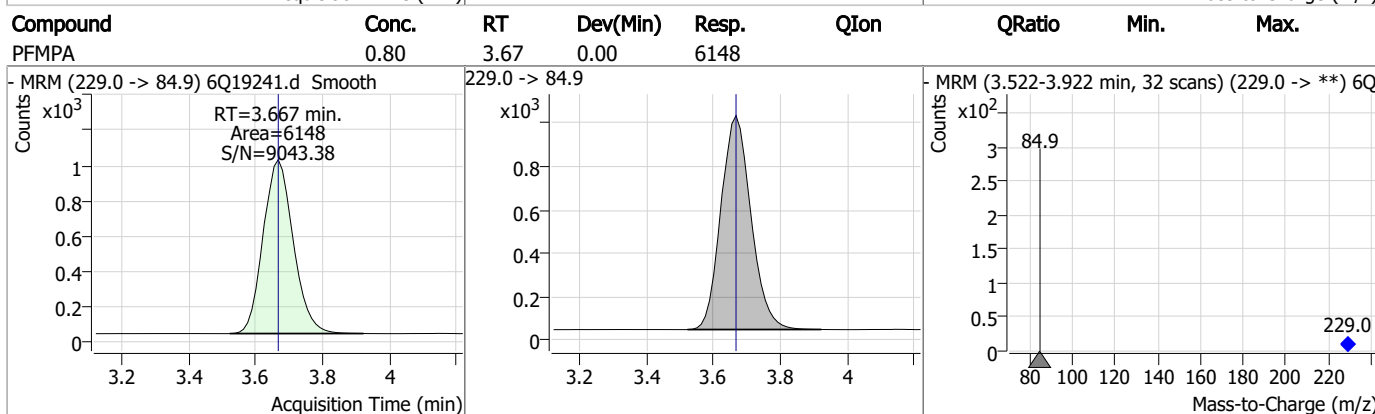
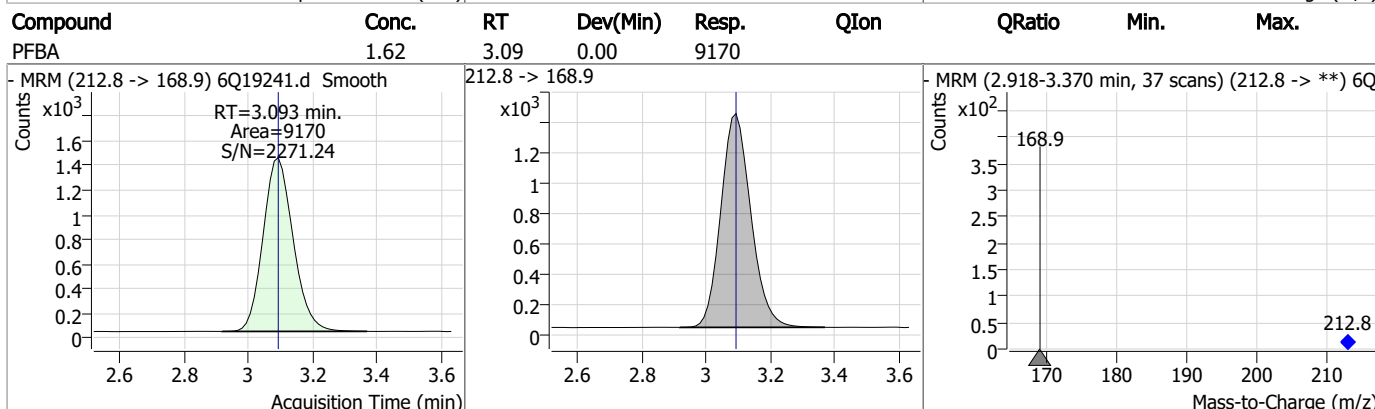
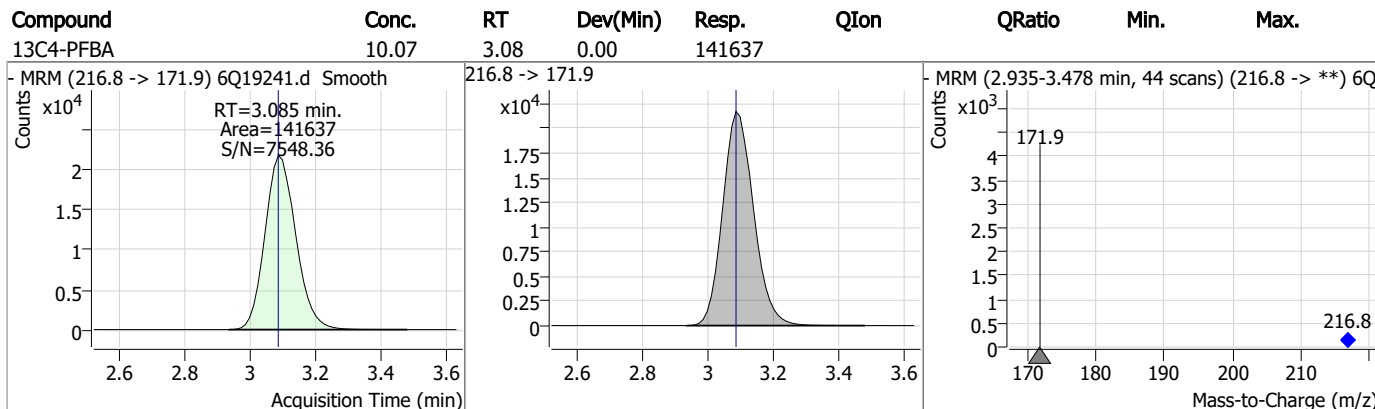
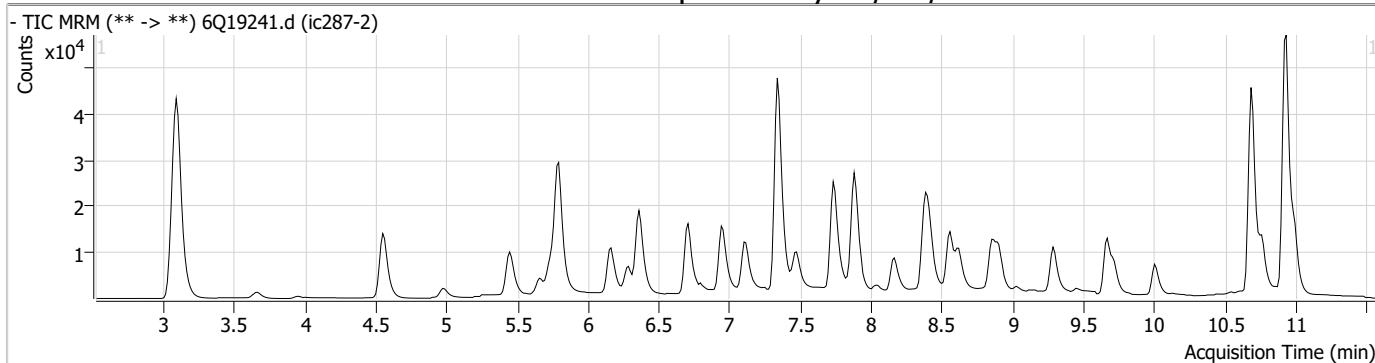
Perfluorinated Compounds by LC/MS/MS

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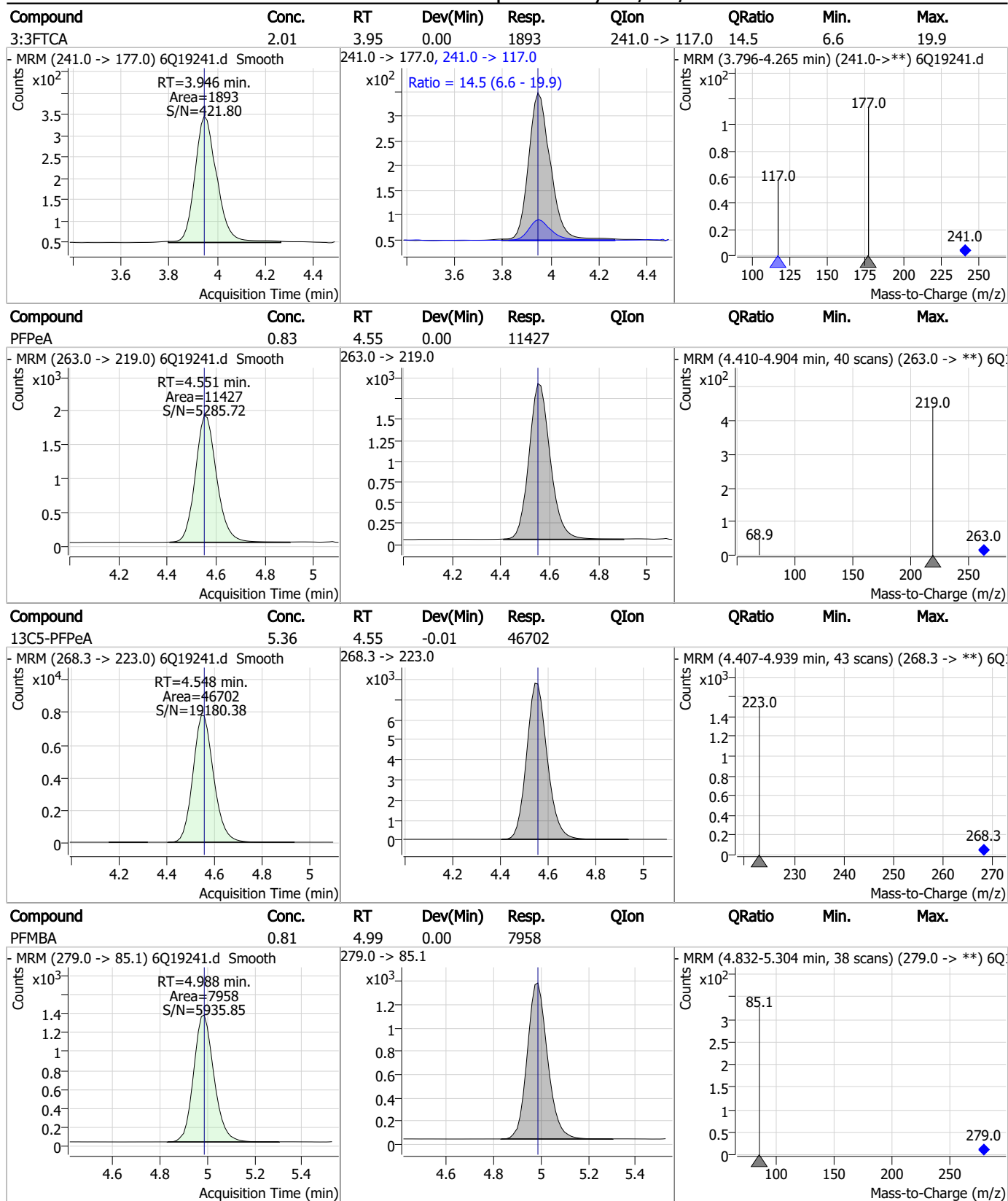
7.7.3

7

Perfluorinated Compounds by LC/MS/MS



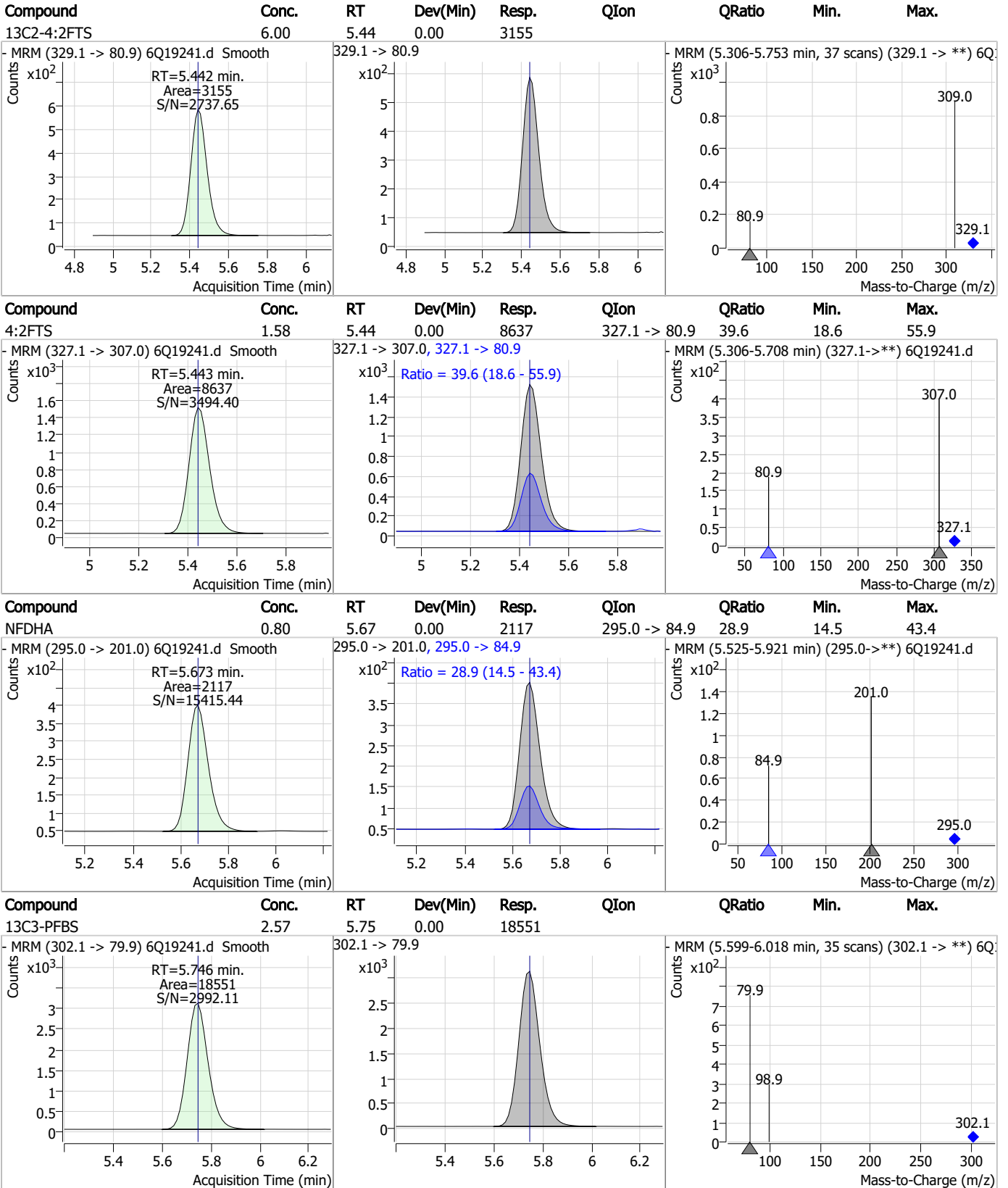
Perfluorinated Compounds by LC/MS/MS



7.7.3

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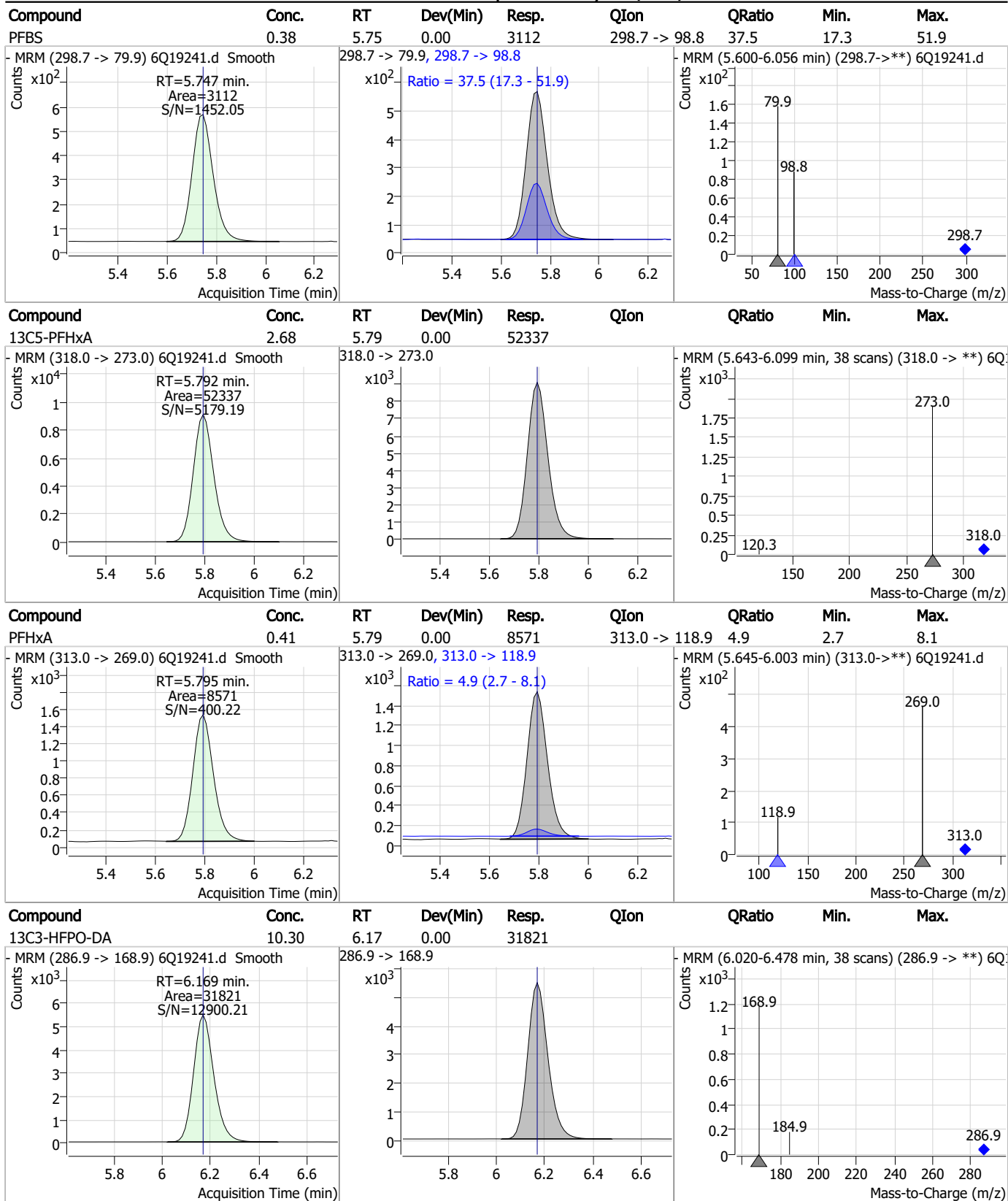
Perfluorinated Compounds by LC/MS/MS



7.7.3

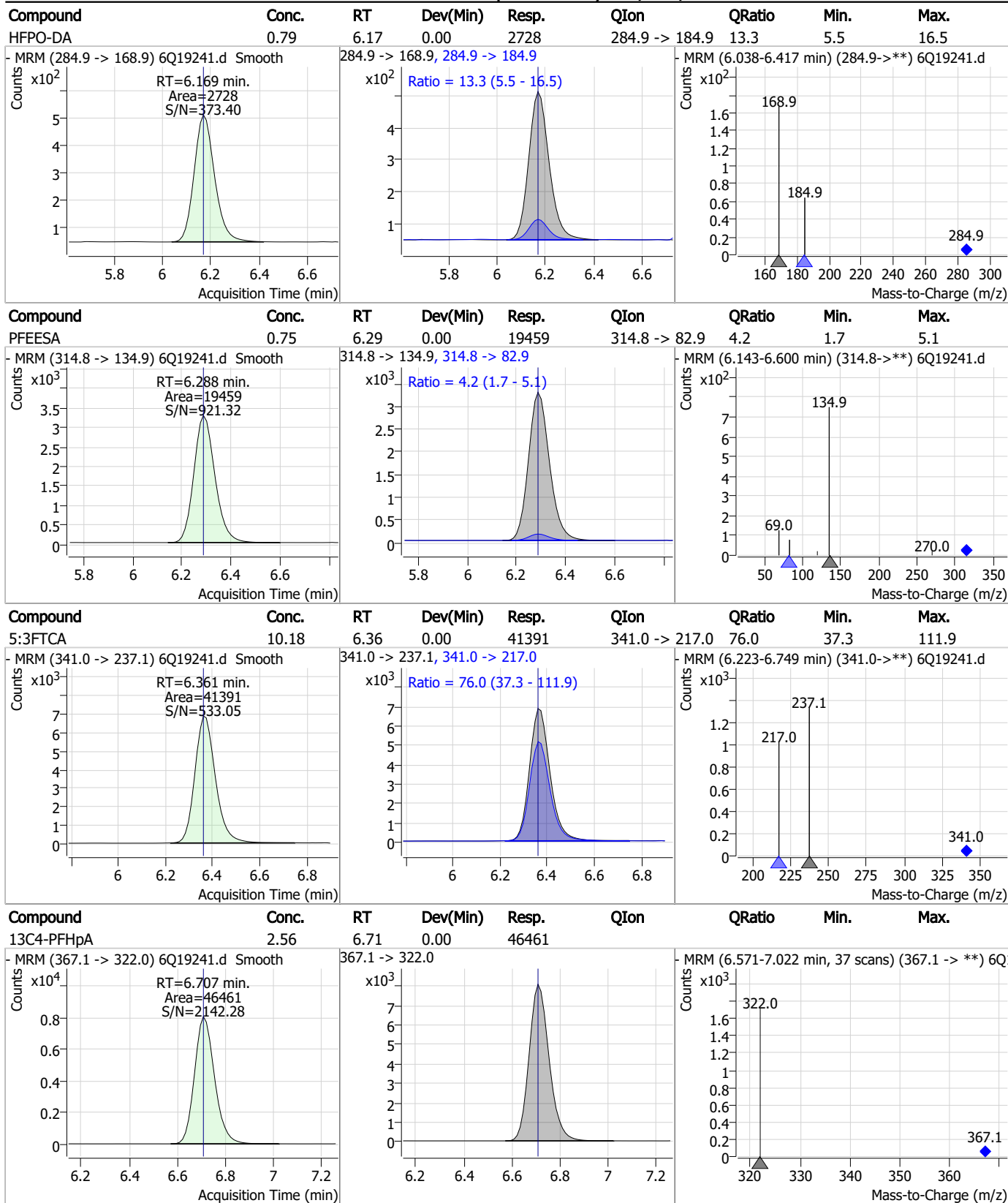
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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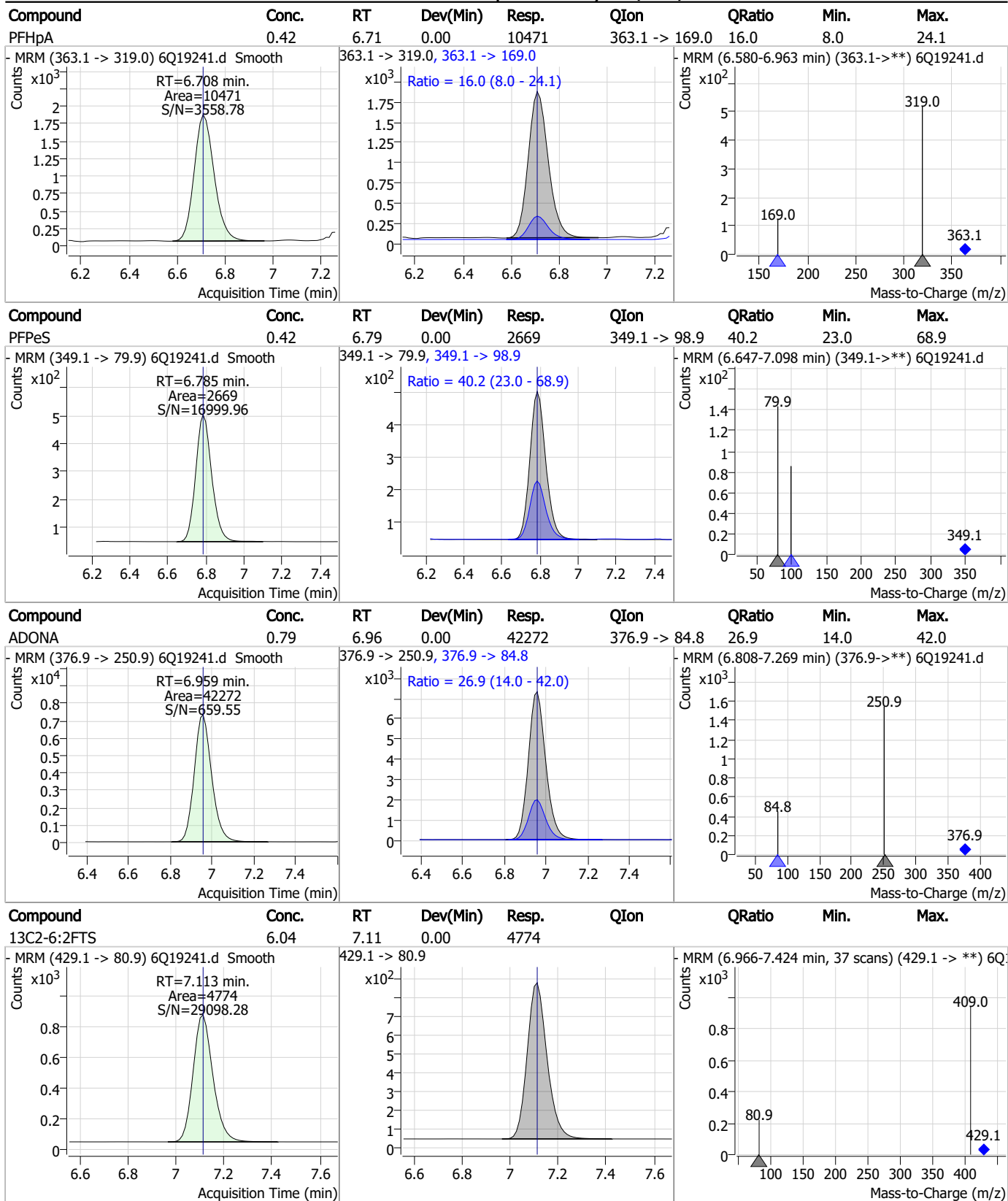
Perfluorinated Compounds by LC/MS/MS



7.7.3

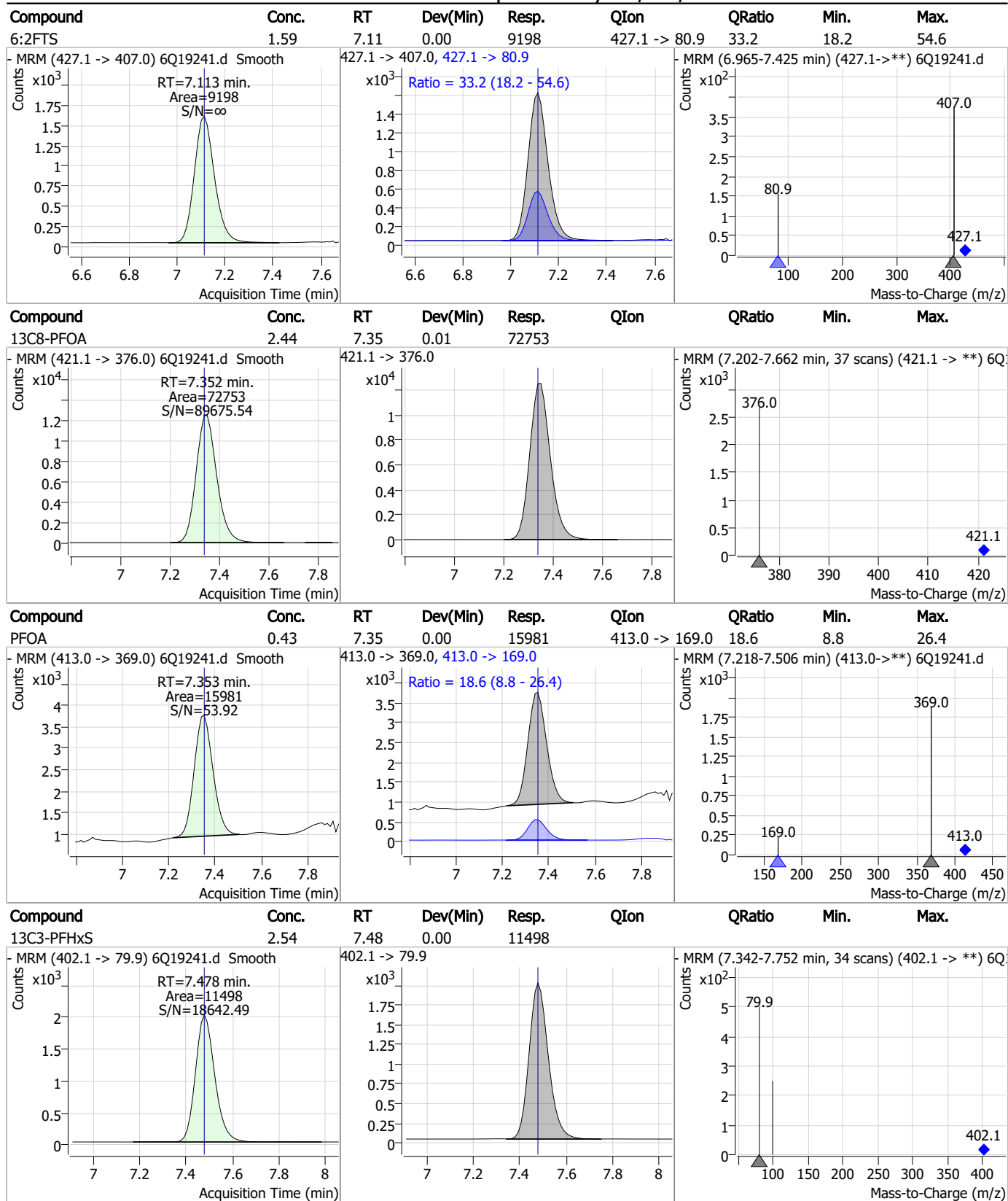
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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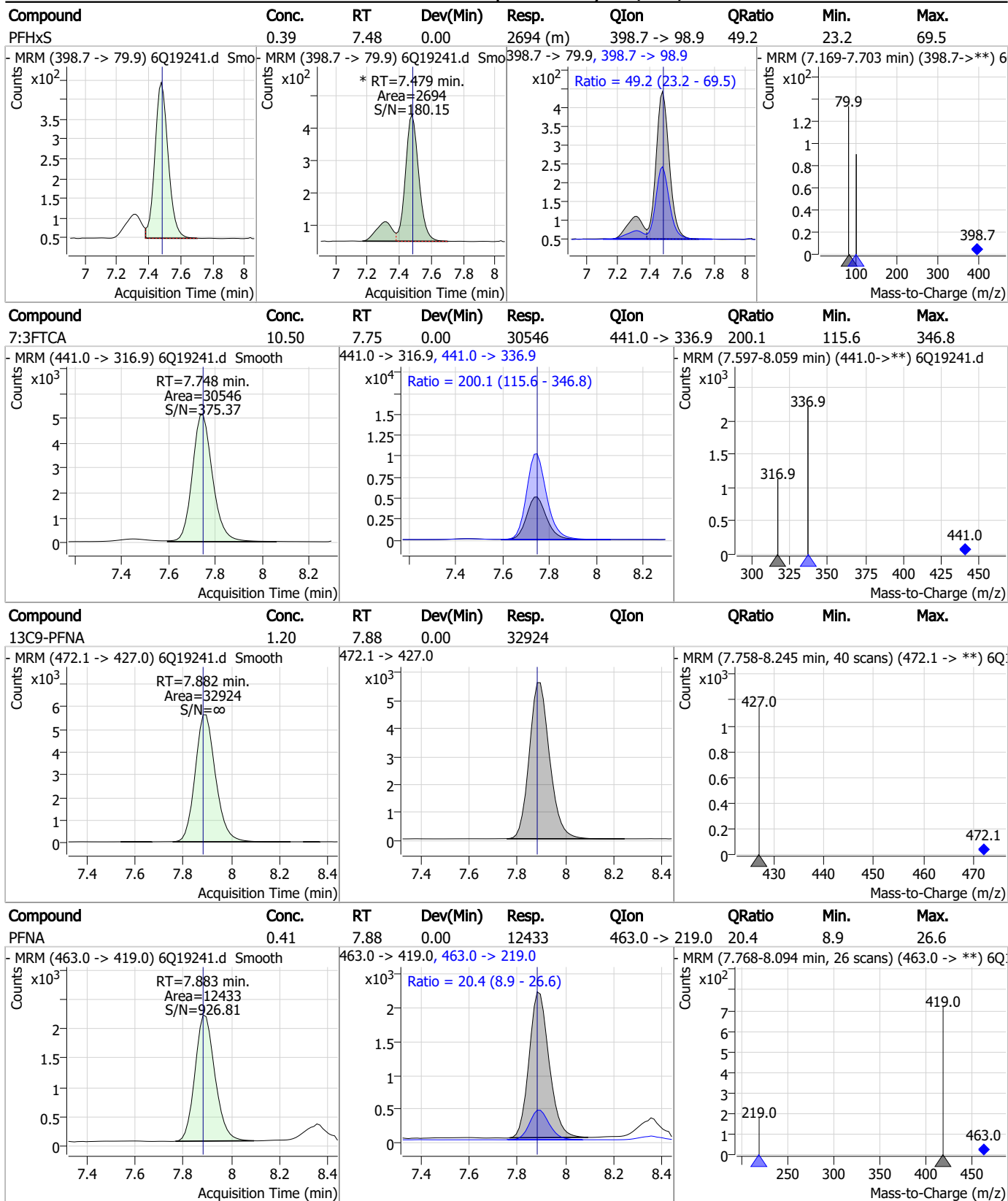
Perfluorinated Compounds by LC/MS/MS



7.7.3

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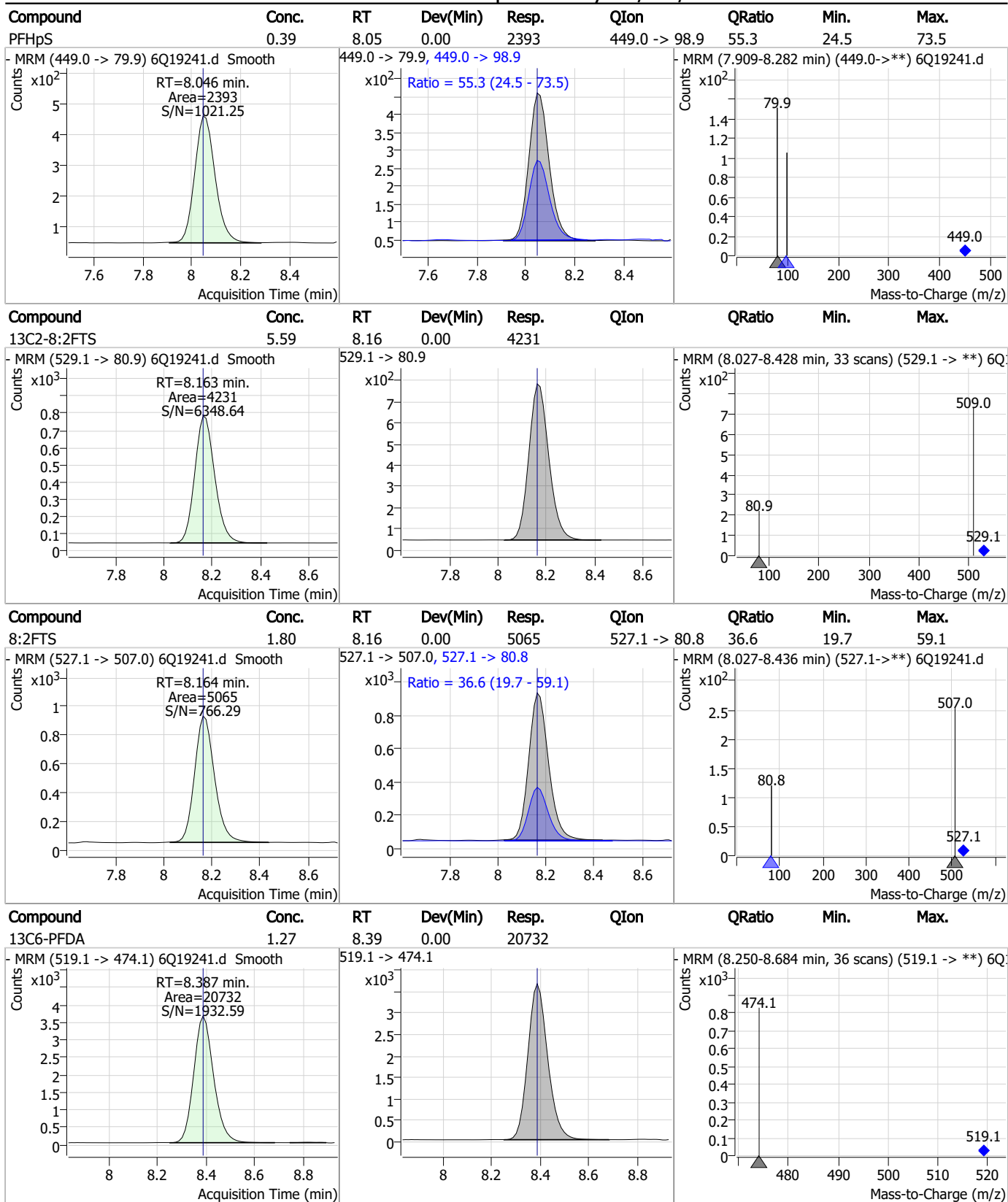
Perfluorinated Compounds by LC/MS/MS



7.7.3
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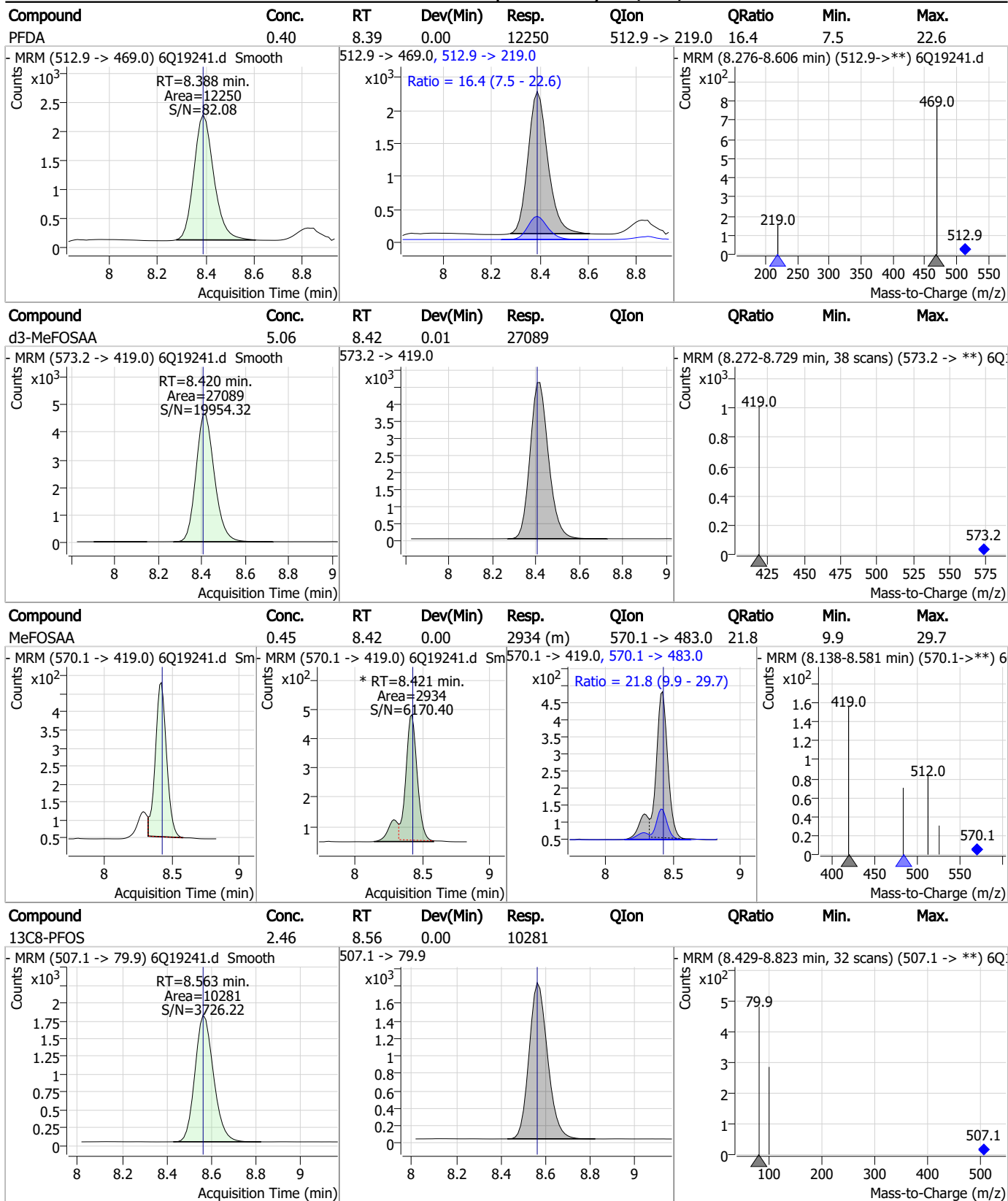


Perfluorinated Compounds by LC/MS/MS



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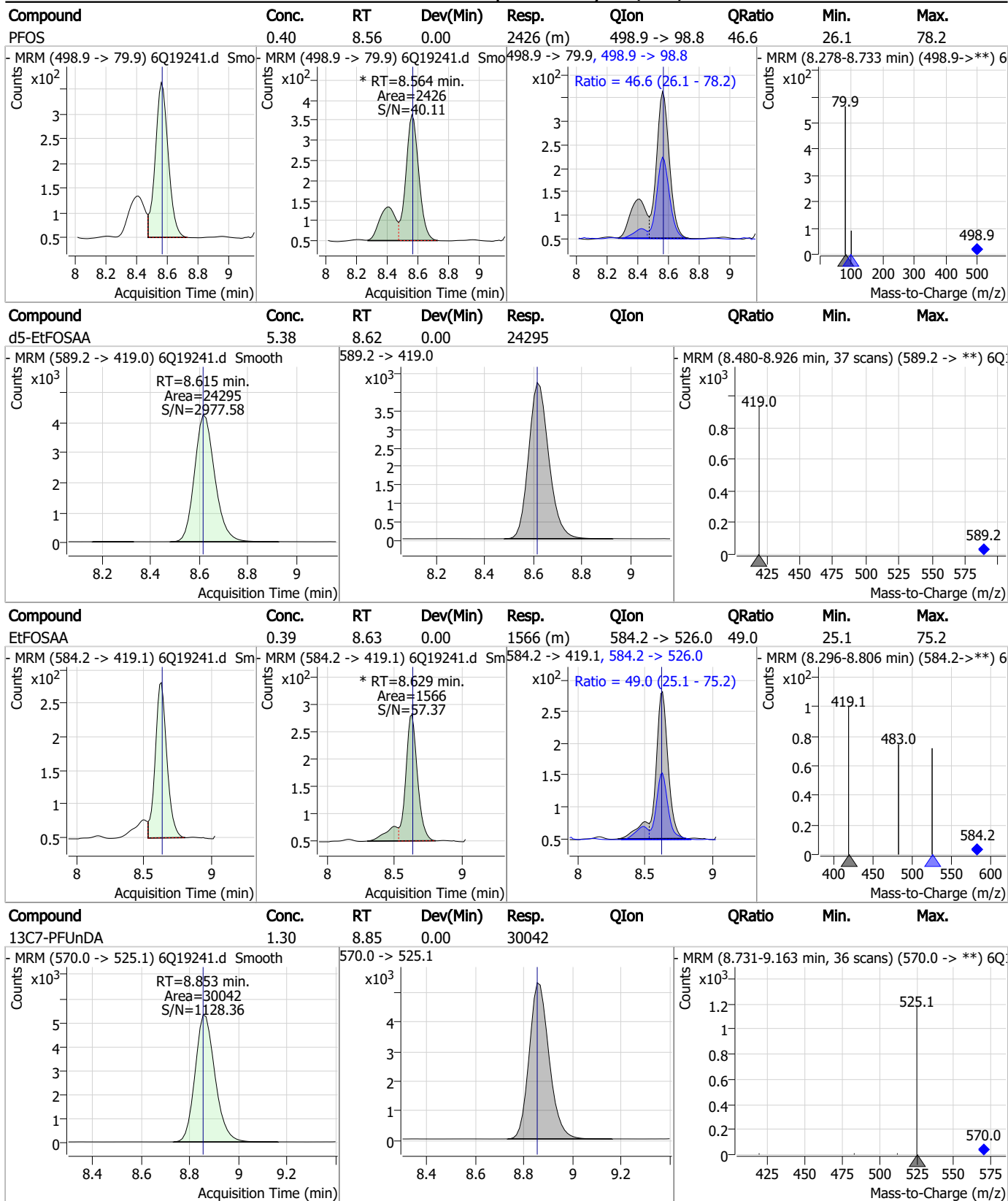
Perfluorinated Compounds by LC/MS/MS



7.7.3

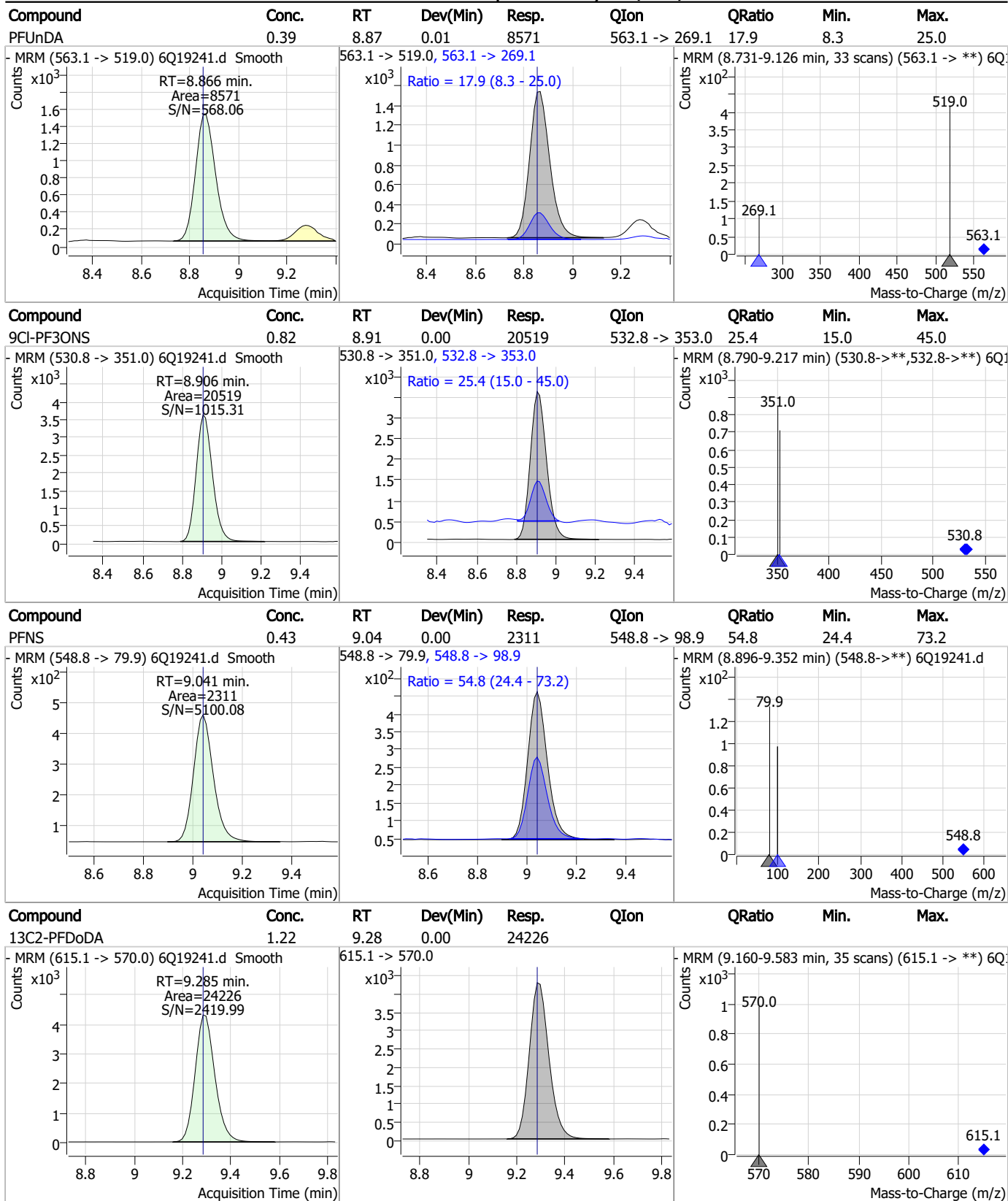
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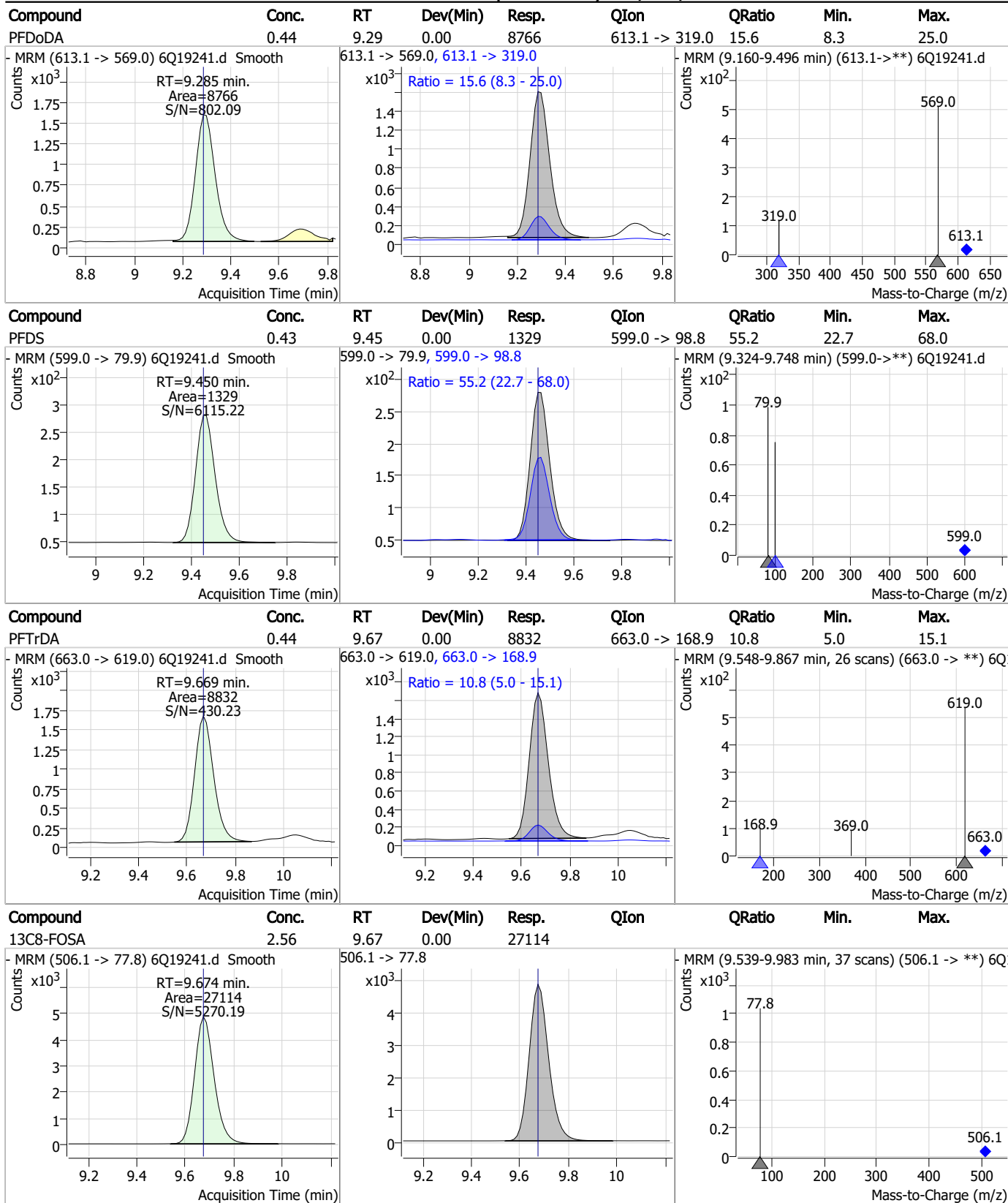
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Perfluorinated Compounds by LC/MS/MS



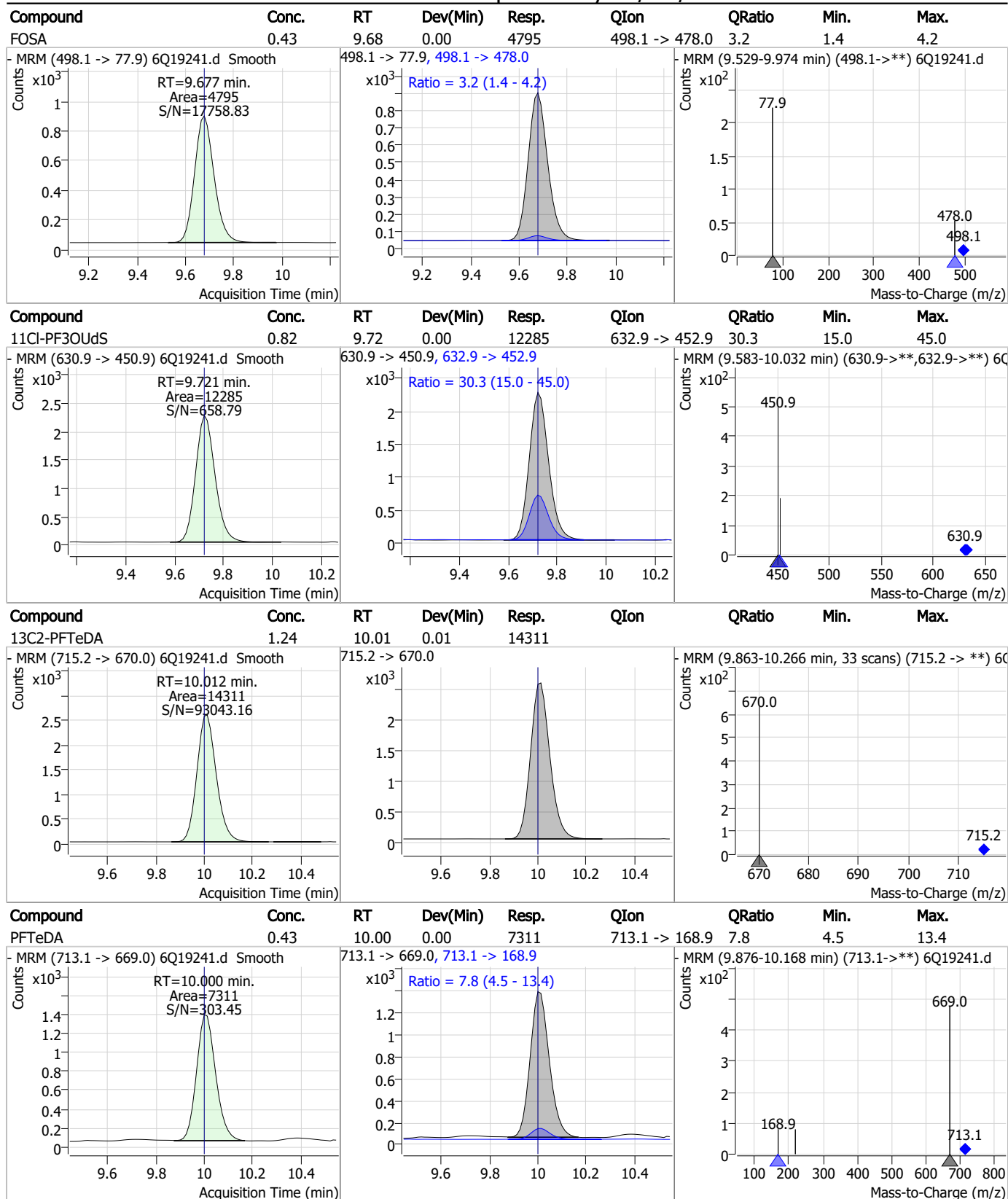
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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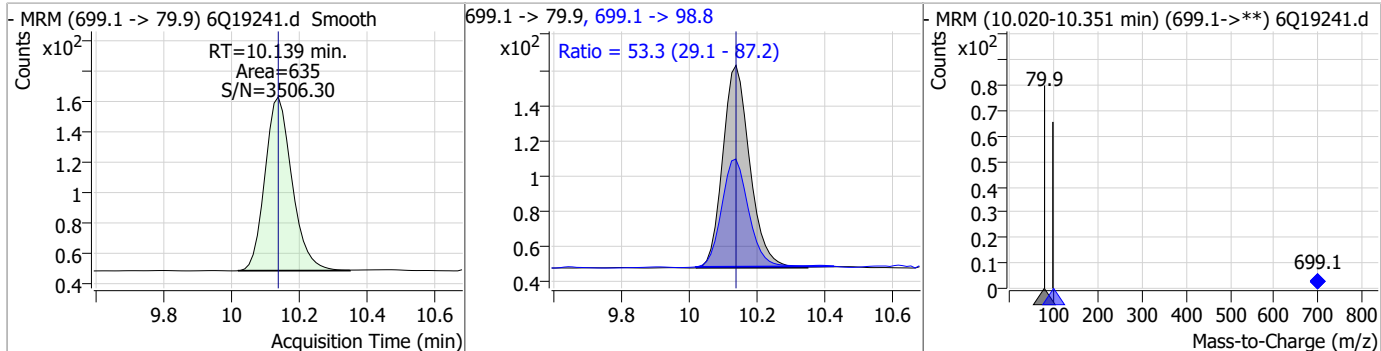
Perfluorinated Compounds by LC/MS/MS



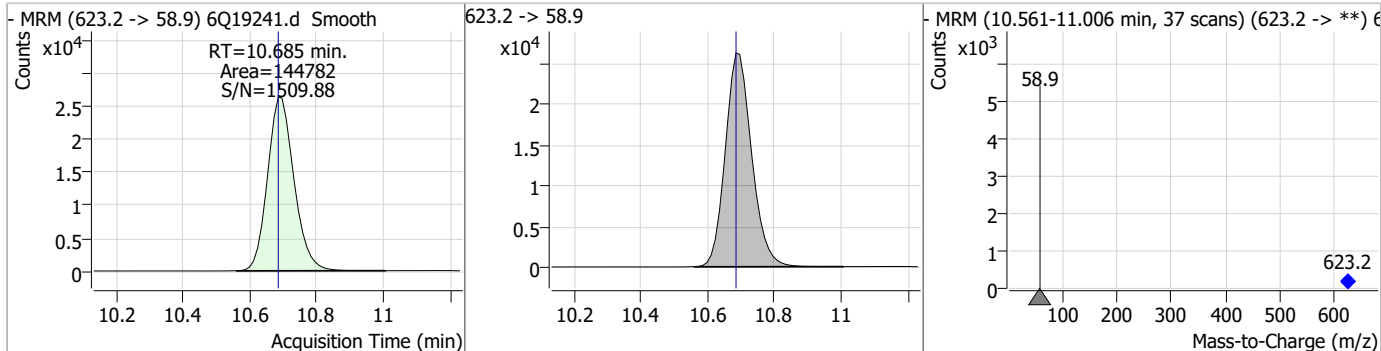
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Perfluorinated Compounds by LC/MS/MS

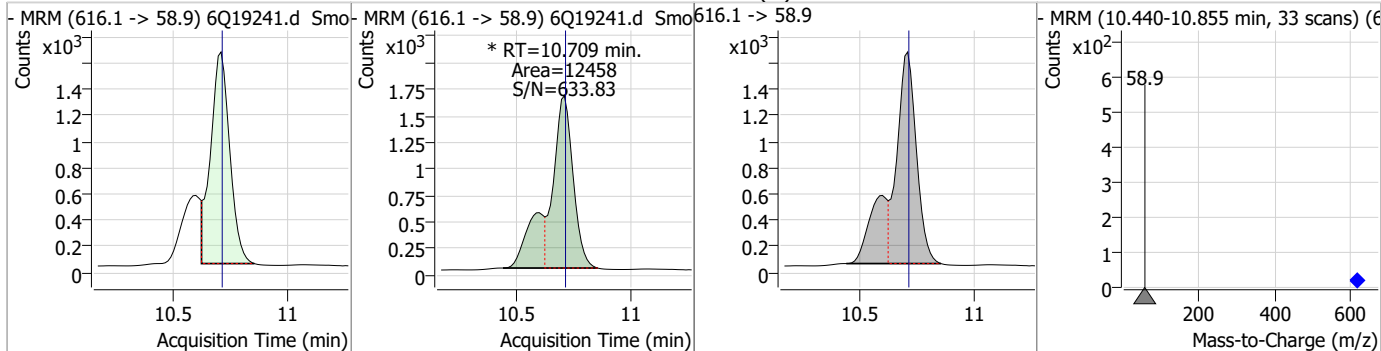
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.41	10.14	0.00	635	699.1 -> 98.8	53.3	29.1	87.2



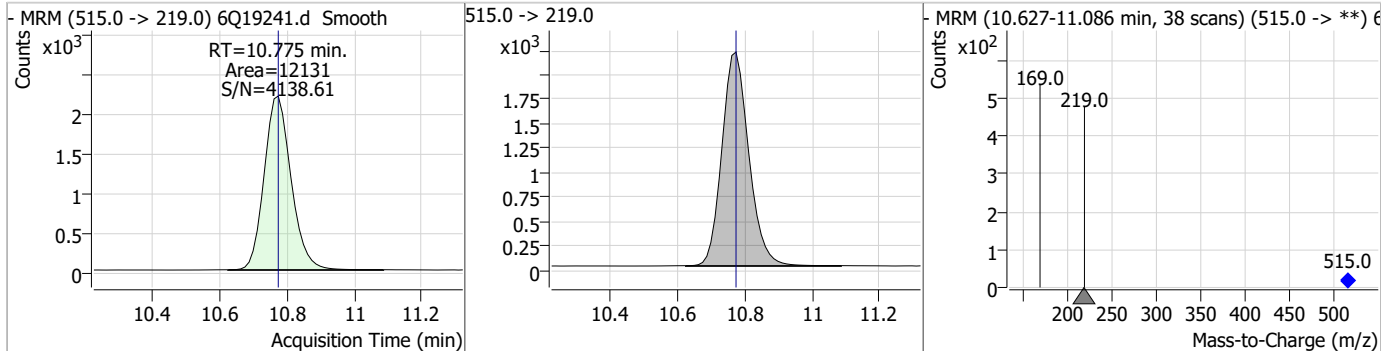
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.64	10.68	0.00	144782				



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

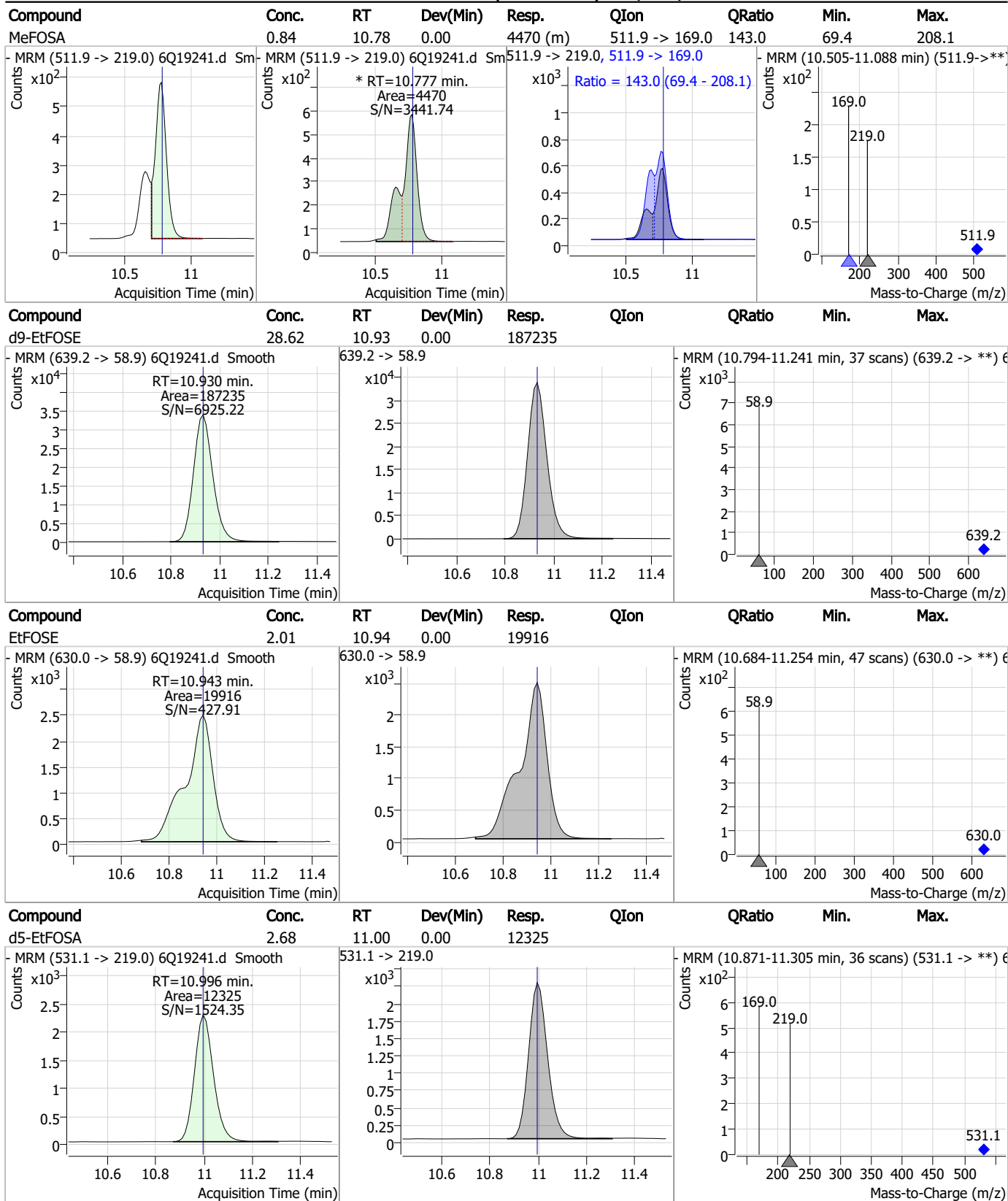


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.56	10.78	0.00	12131				



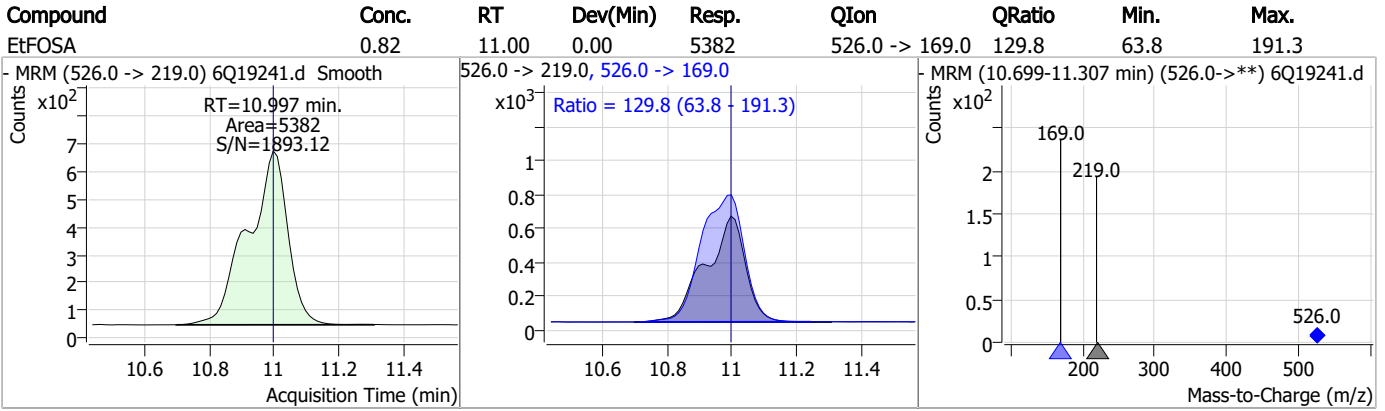
7.7.3
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Perfluorinated Compounds by LC/MS/MS



7.7.3
7

Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Manual Integration Approval Summary

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

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

7.7.3.1

7

Perfluorinated Compounds by LC/MS/MS

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

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

Perfluorinated Compounds by LC/MS/MS

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

Perfluorinated Compounds by LC/MS/MS

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

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

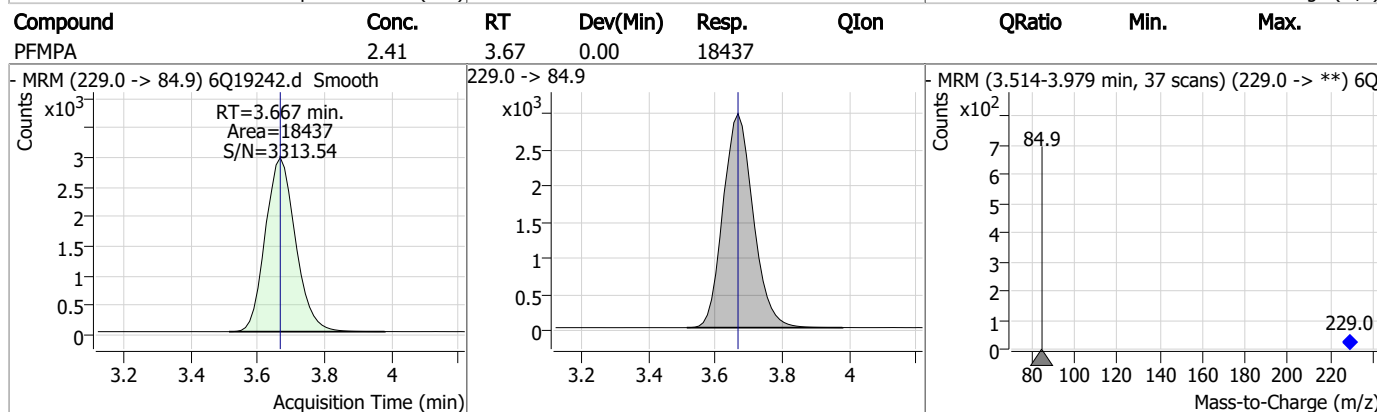
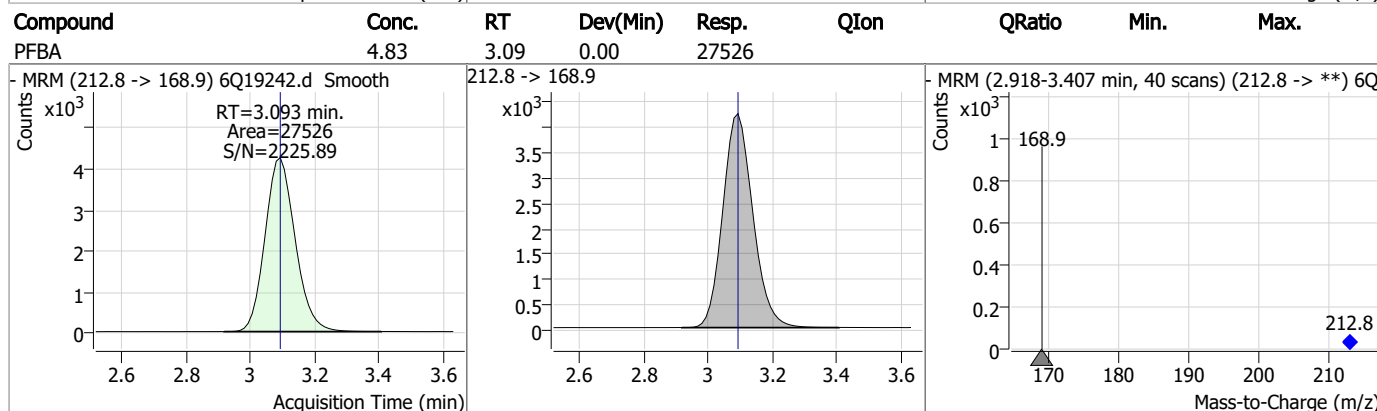
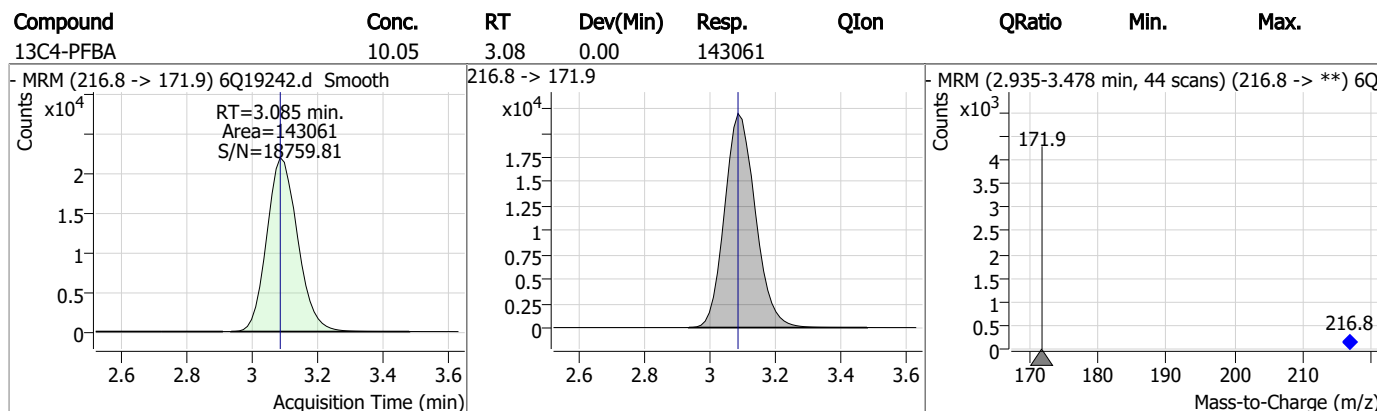
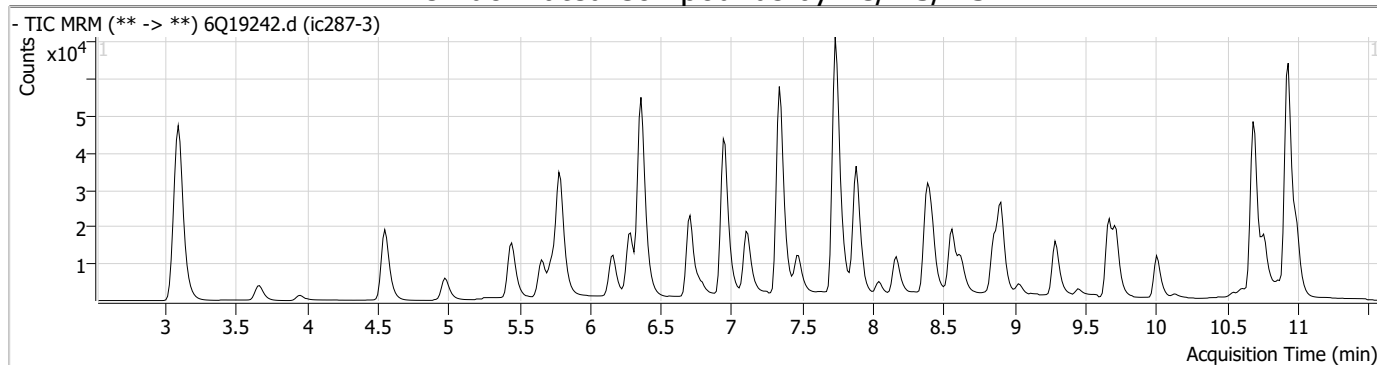
Perfluorinated Compounds by LC/MS/MS

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

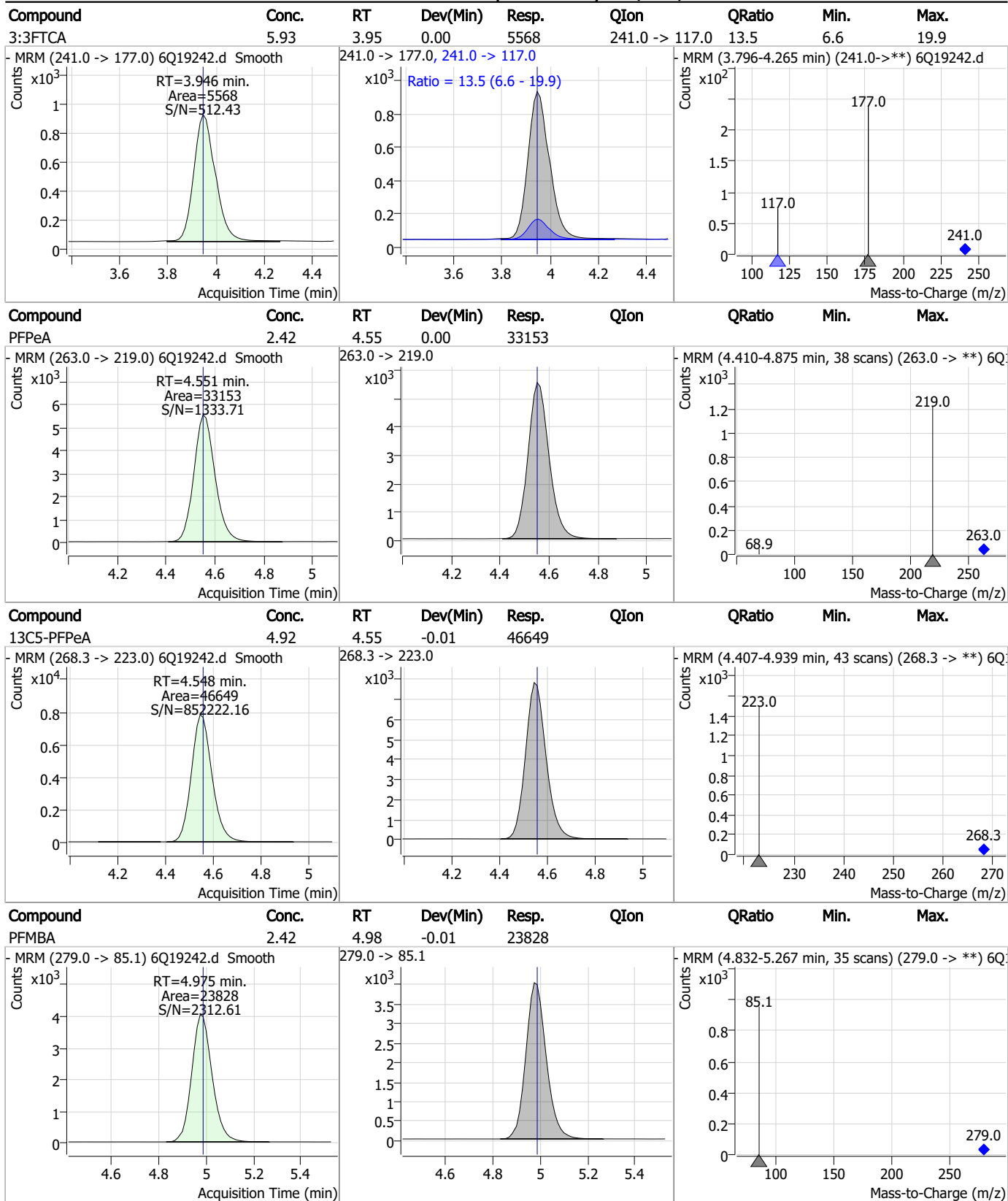
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Perfluorinated Compounds by LC/MS/MS



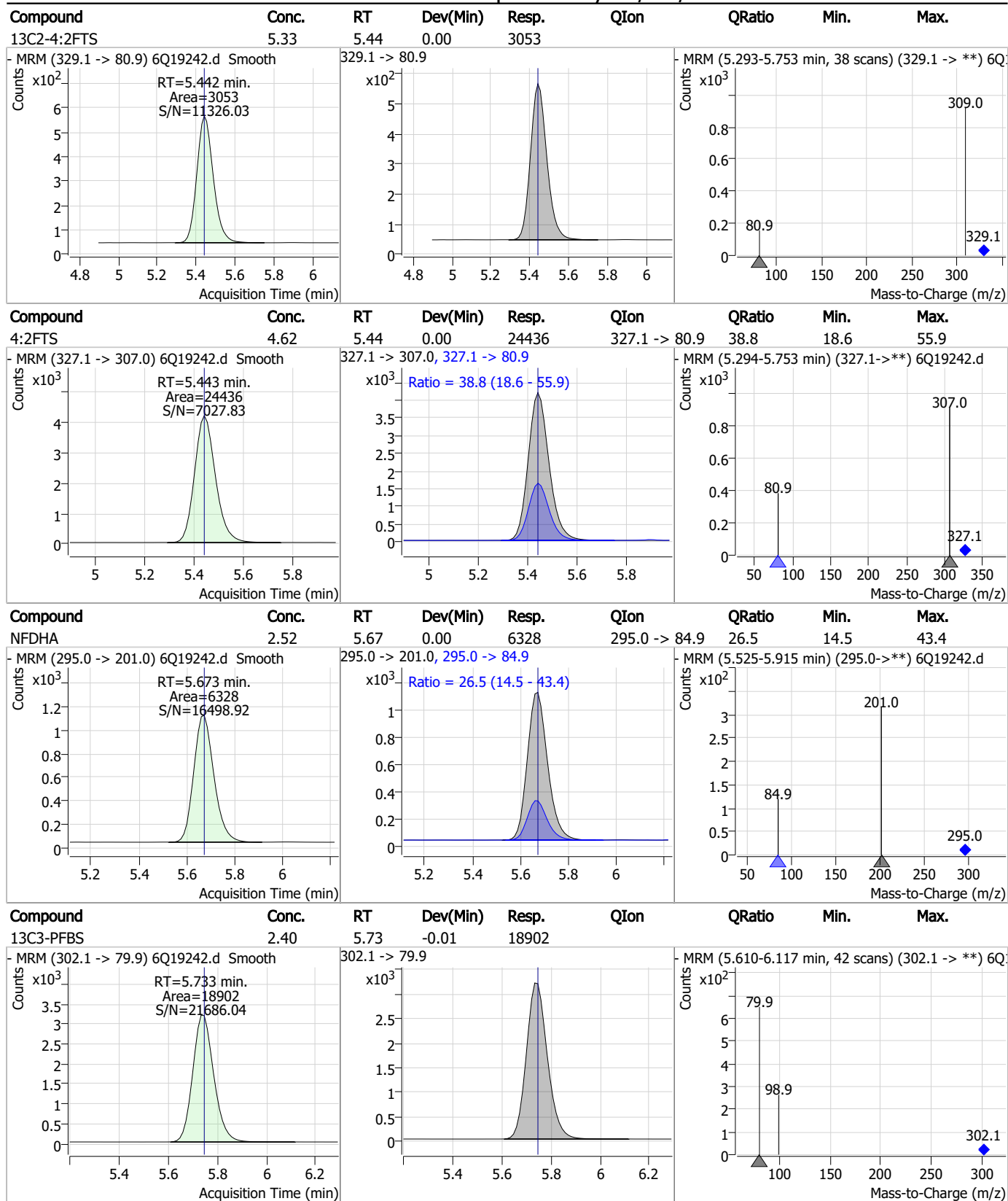
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Perfluorinated Compounds by LC/MS/MS



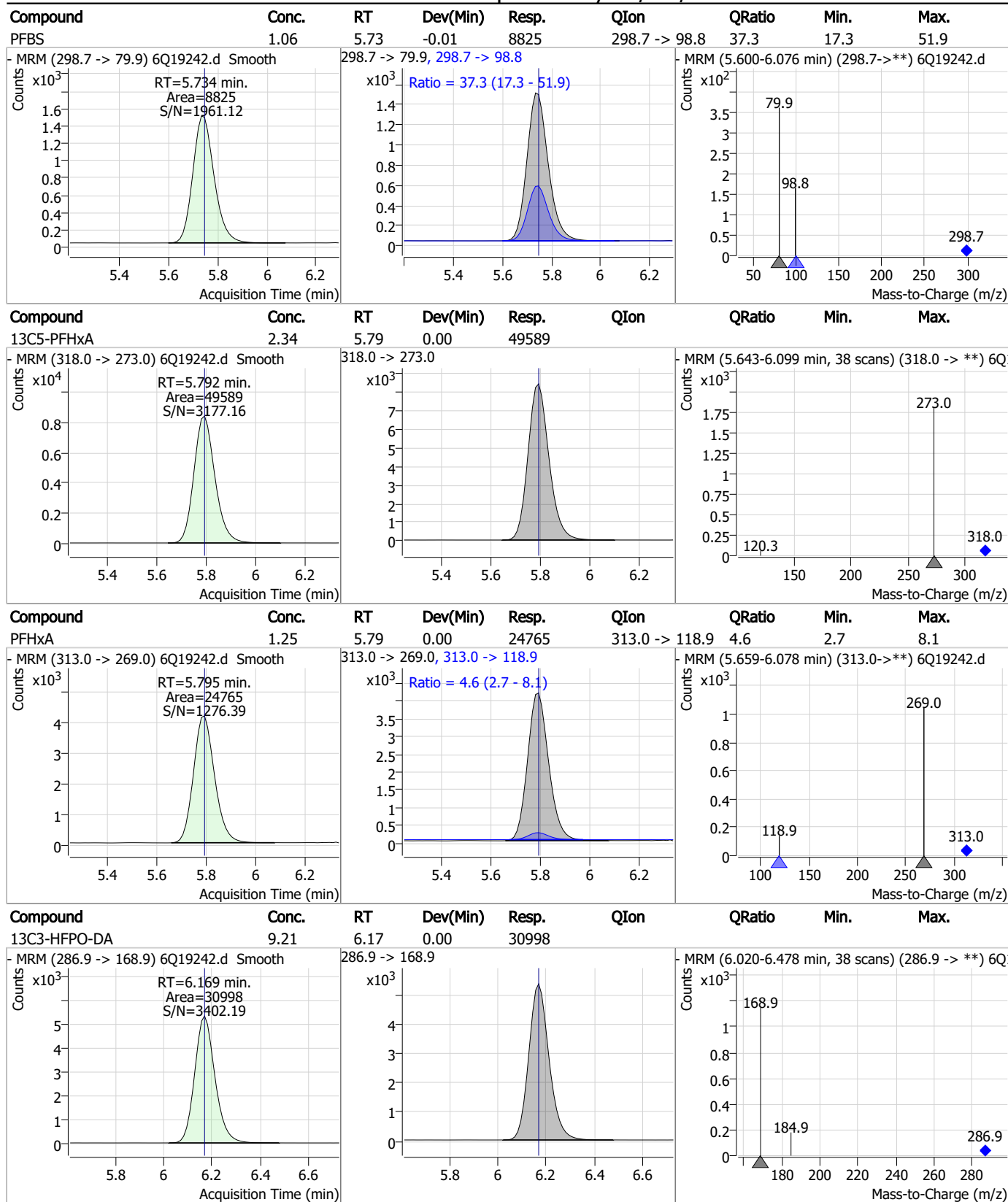
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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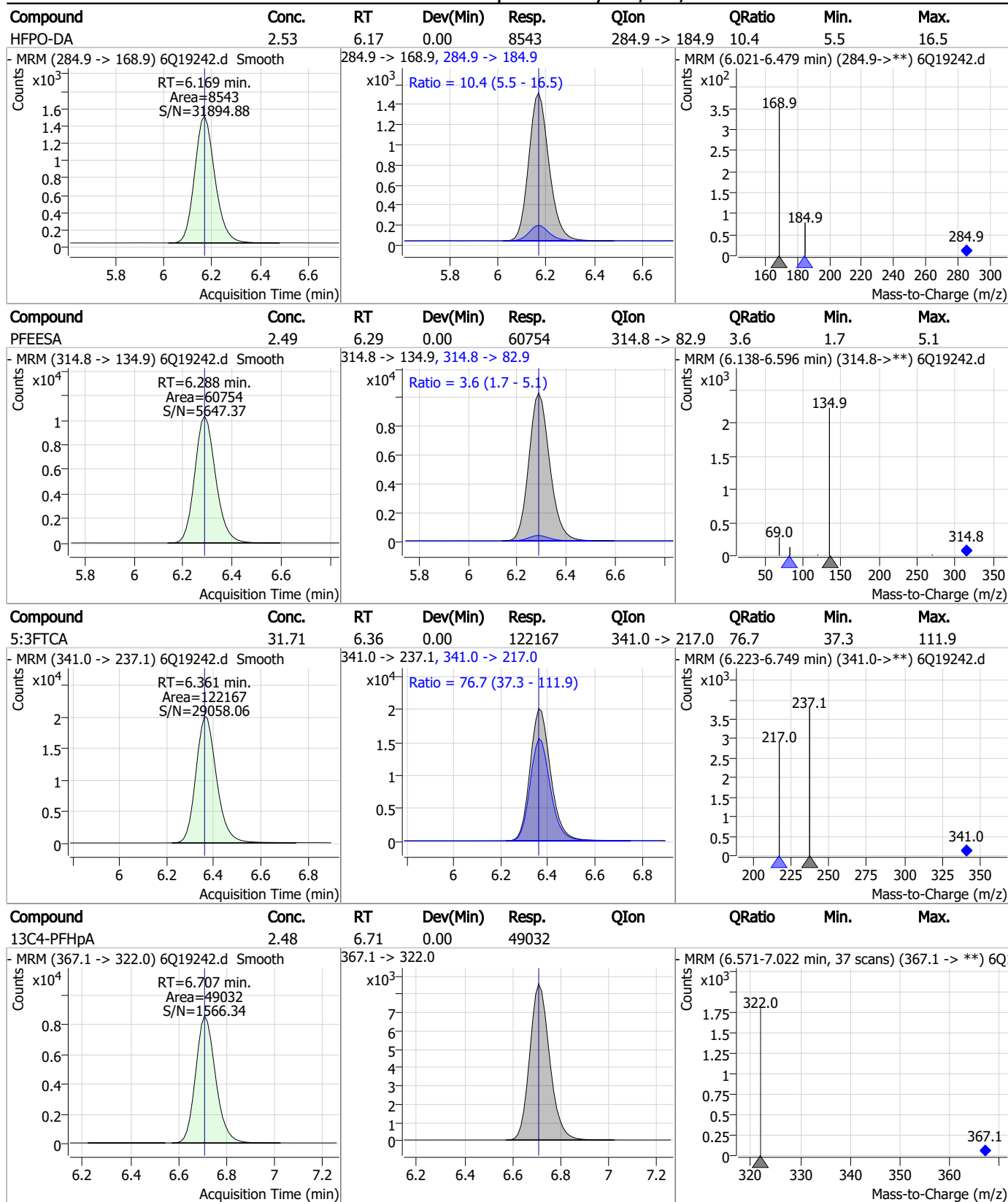
Perfluorinated Compounds by LC/MS/MS



7.7.4

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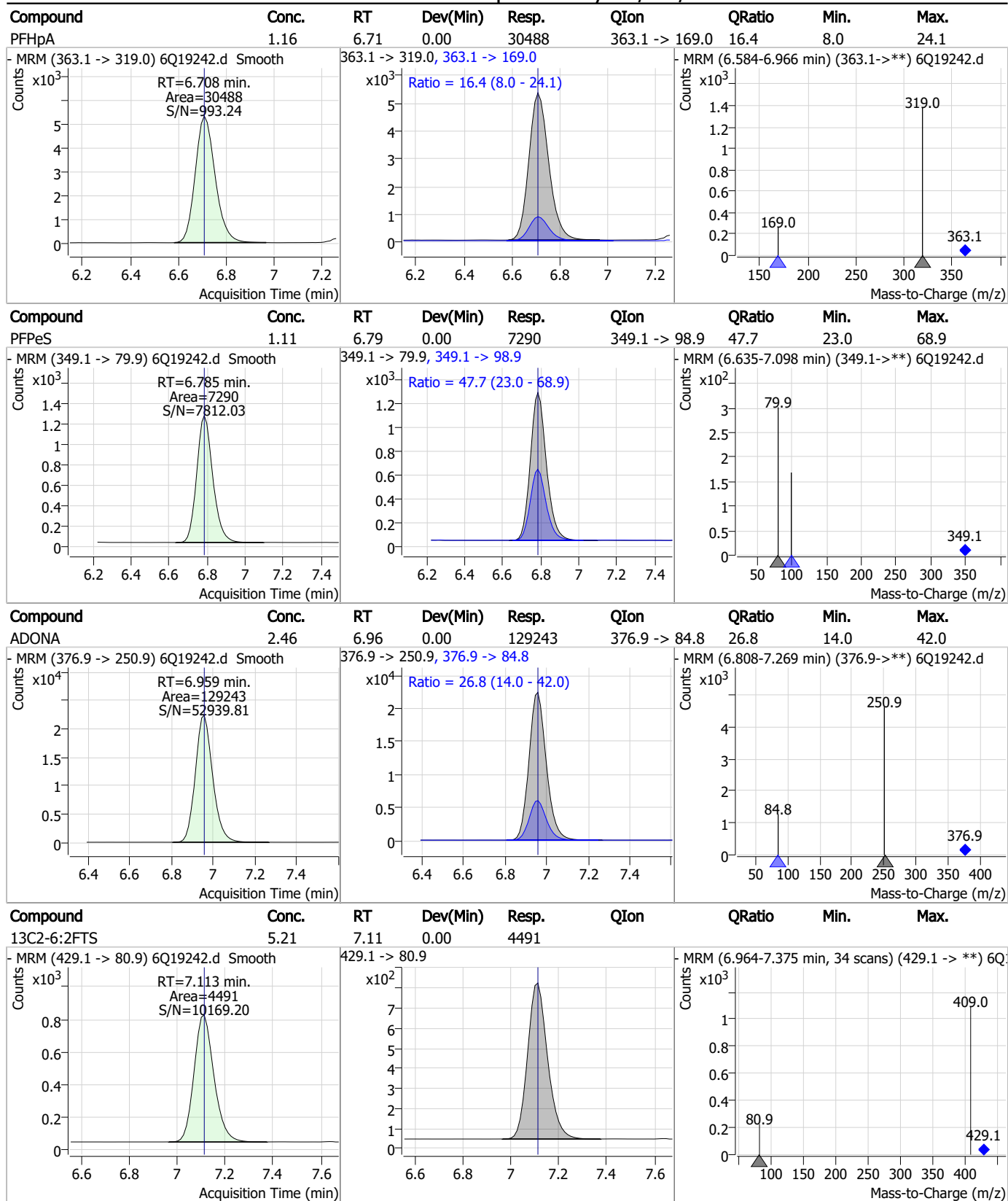
Perfluorinated Compounds by LC/MS/MS



7.7.4

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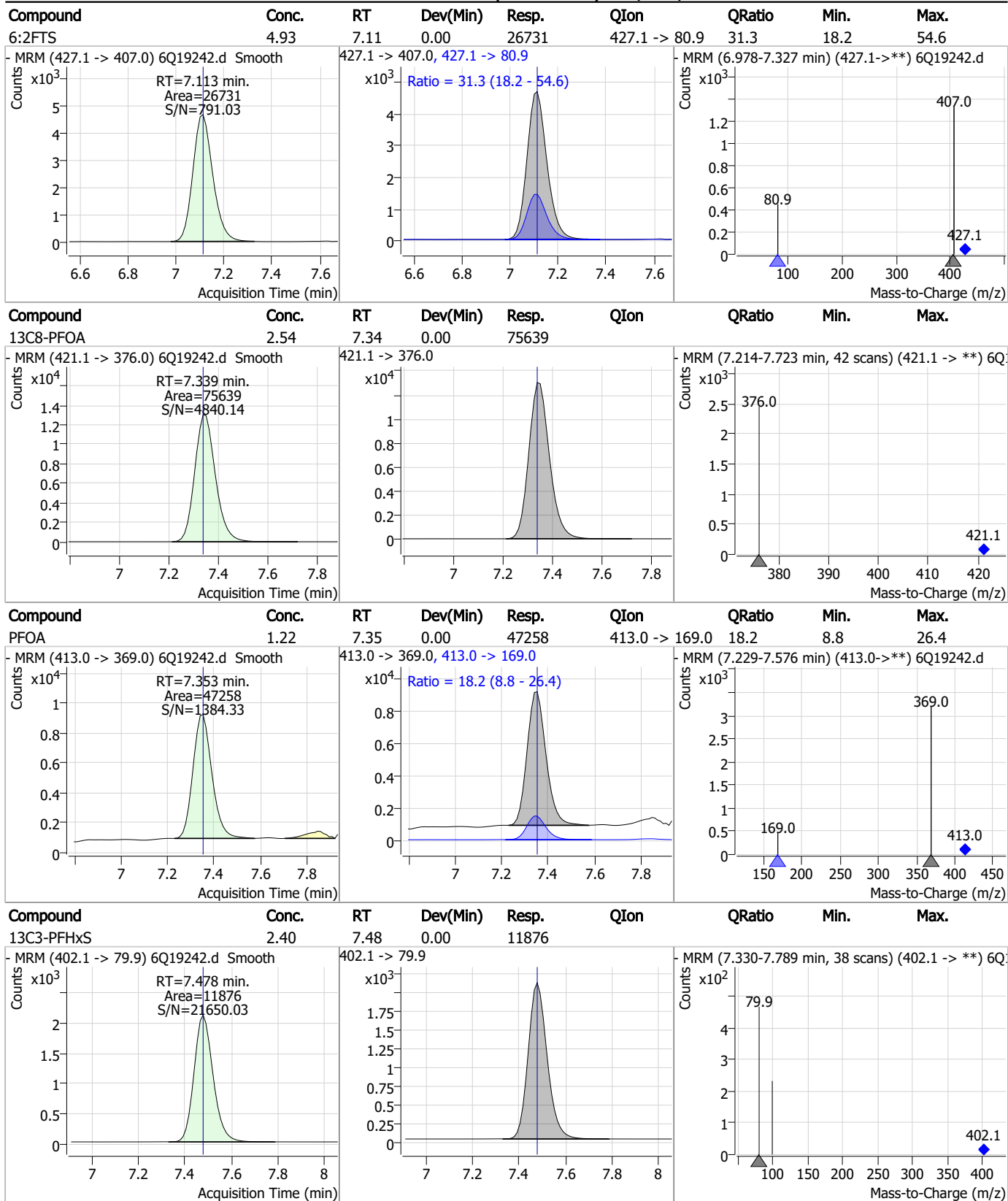
Perfluorinated Compounds by LC/MS/MS



7.7.4

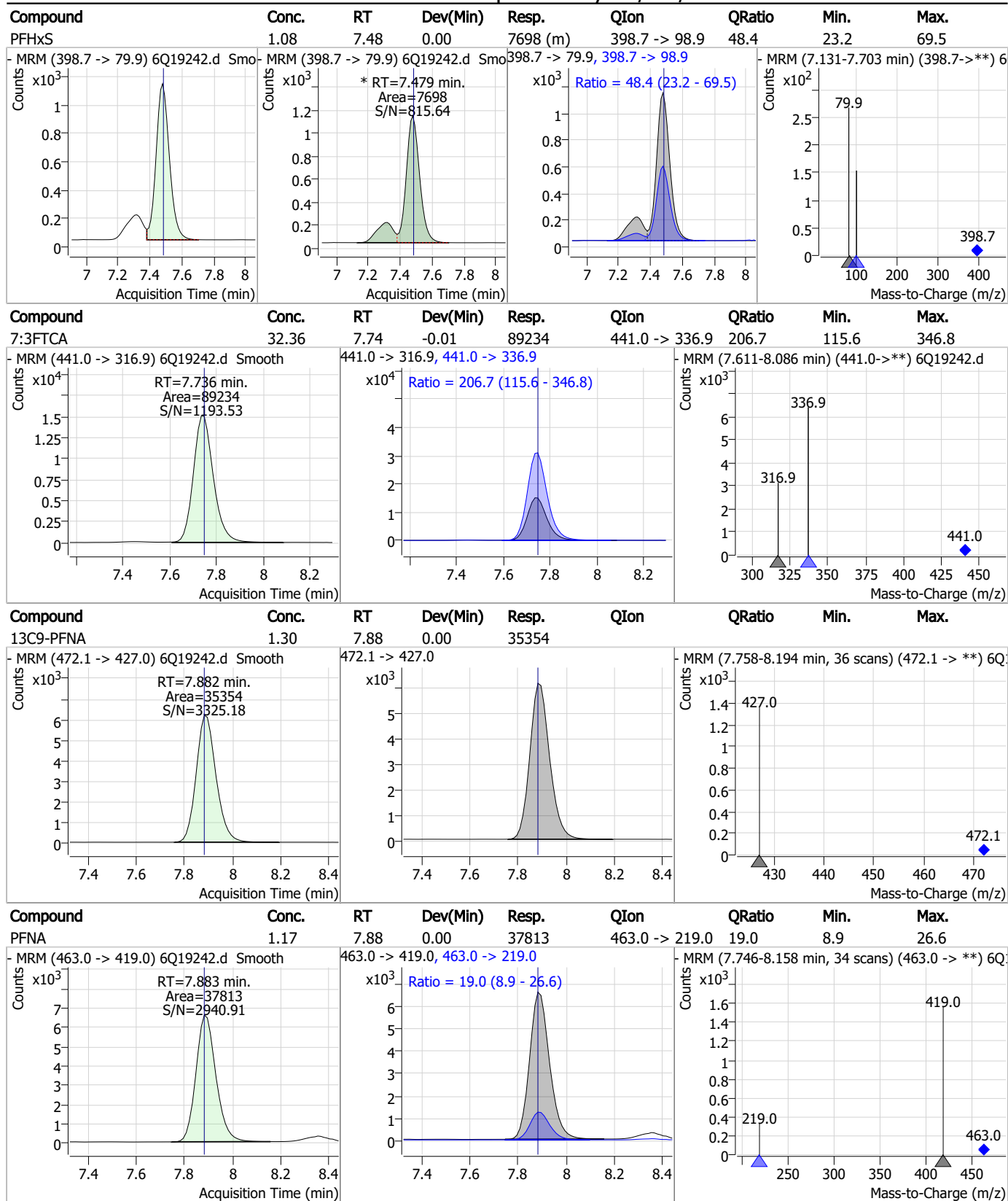
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Perfluorinated Compounds by LC/MS/MS



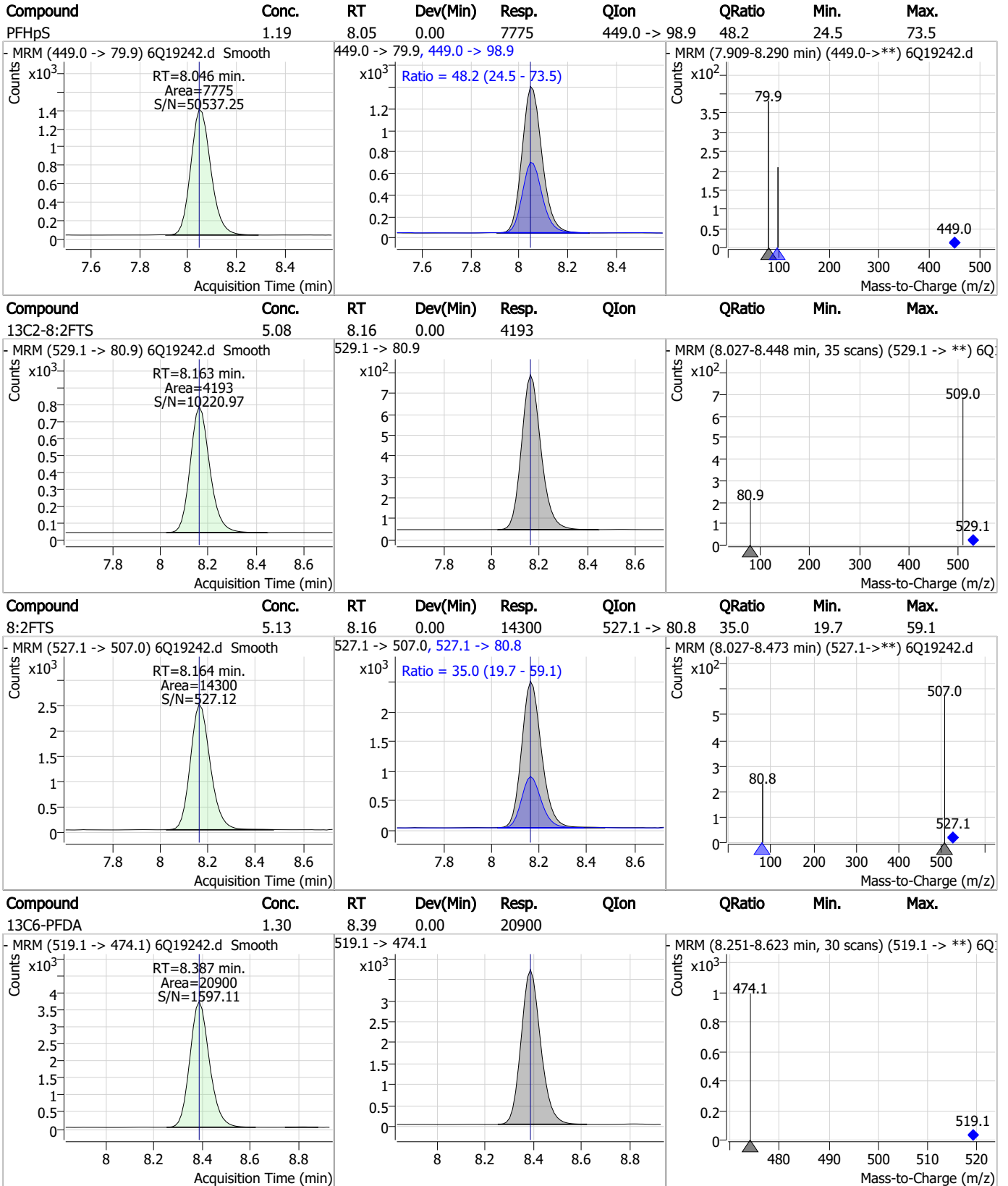
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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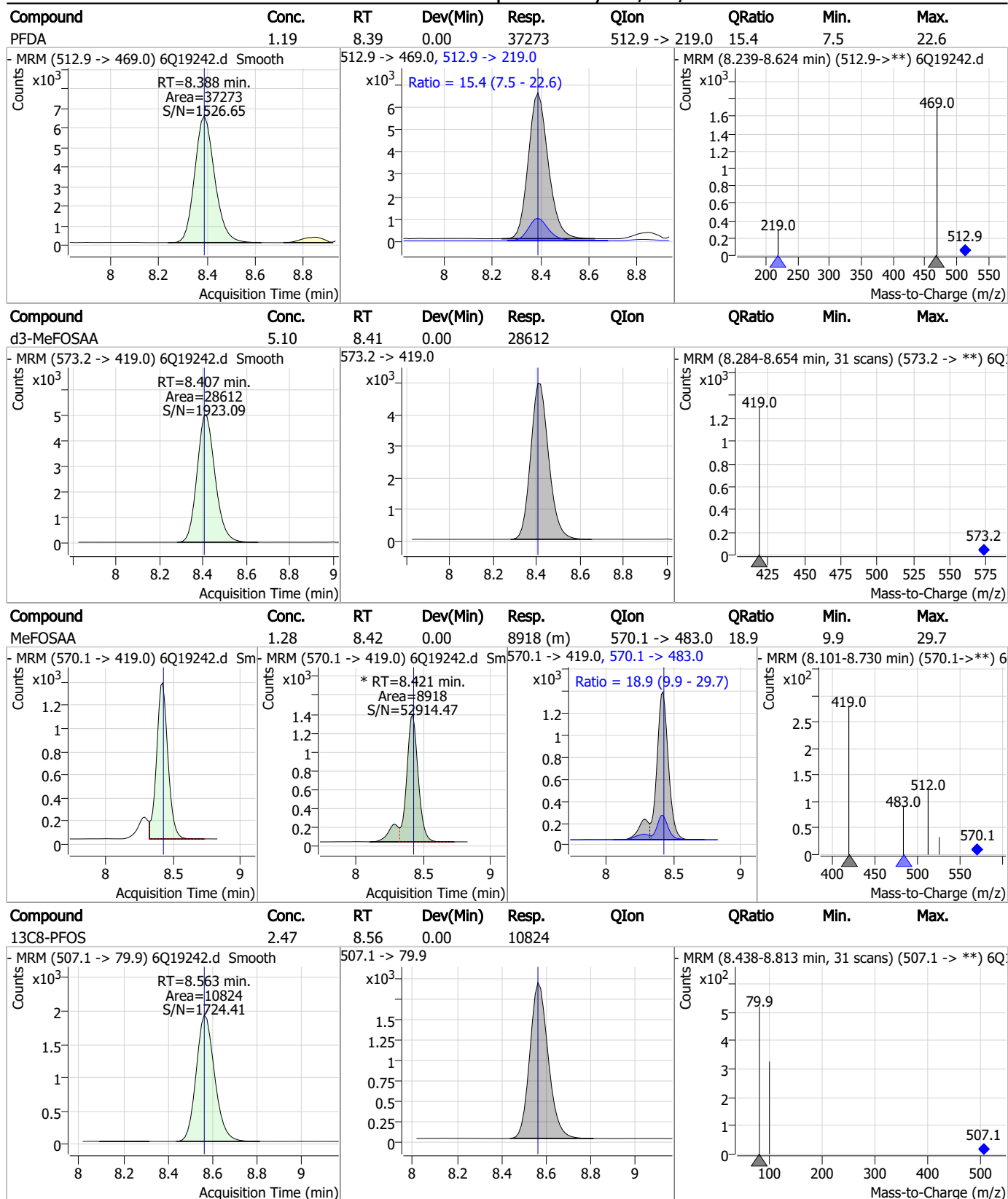
Perfluorinated Compounds by LC/MS/MS



7.7.4

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Perfluorinated Compounds by LC/MS/MS

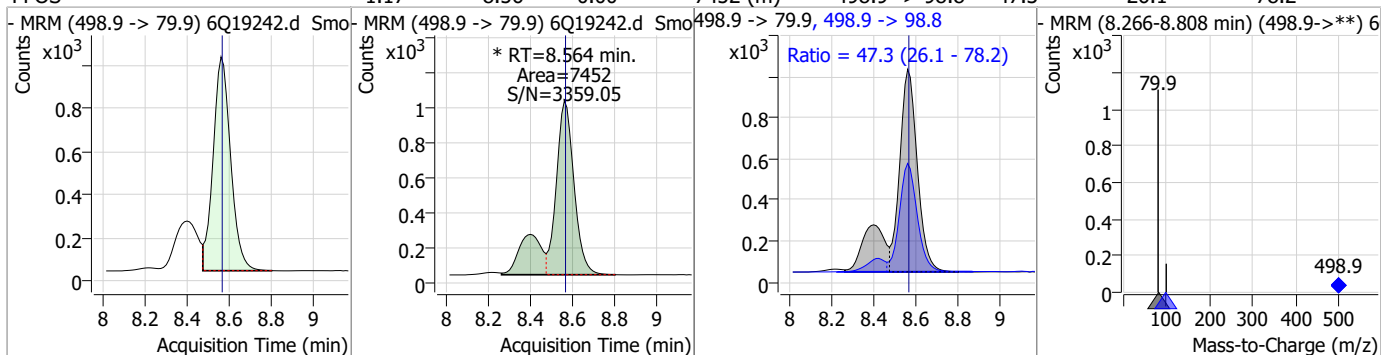


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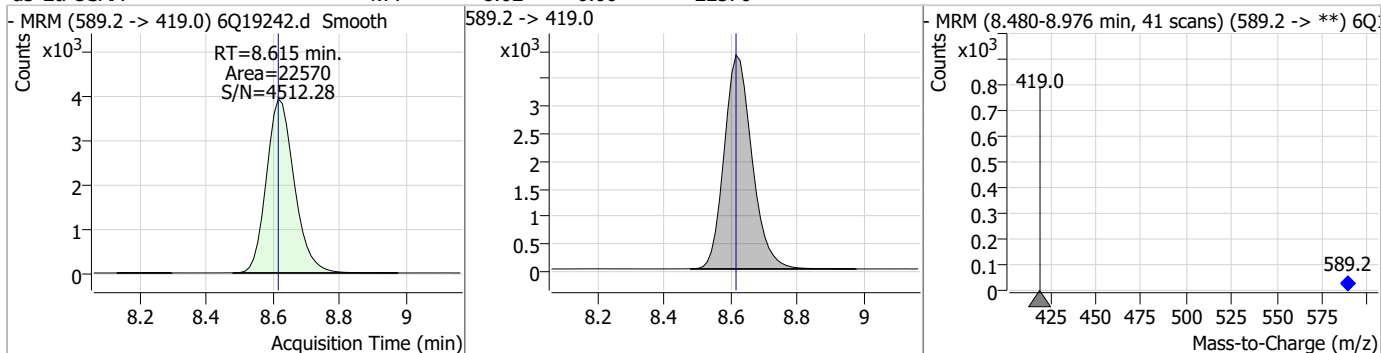
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Perfluorinated Compounds by LC/MS/MS

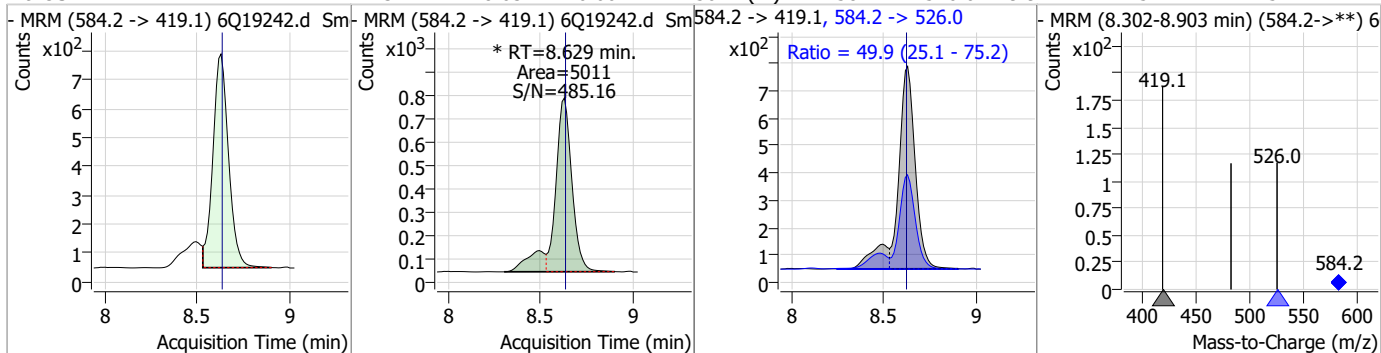
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.17	8.56	0.00	7452 (m)	498.9 -> 98.8	47.3	26.1	78.2



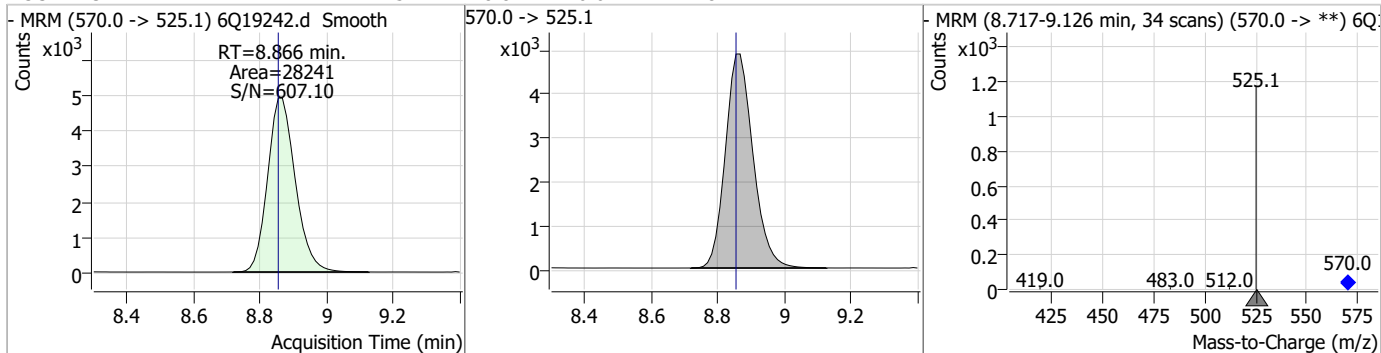
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.77	8.62	0.00	22570				



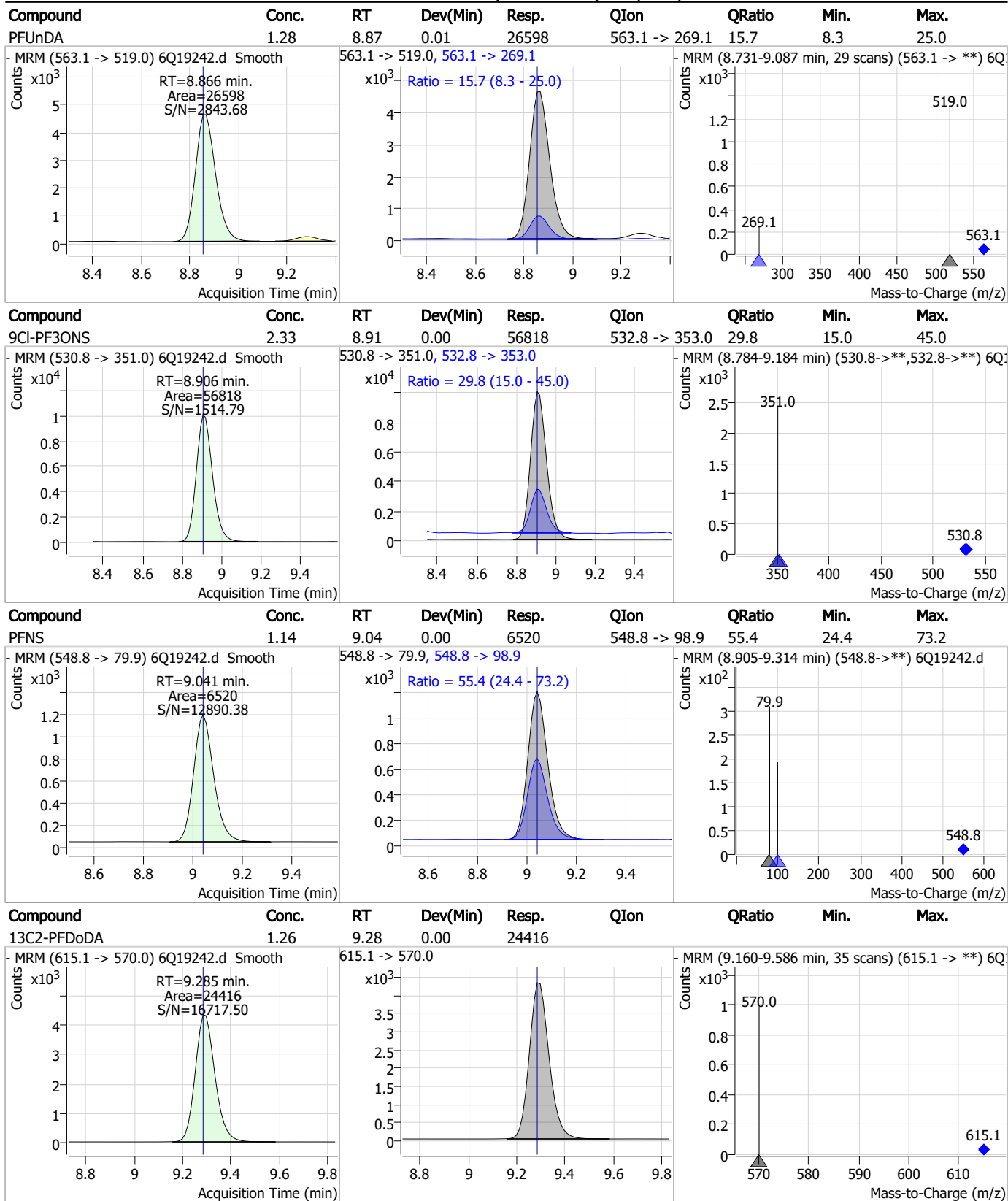
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.34	8.63	0.00	5011 (m)	584.2 -> 526.0	49.9	25.1	75.2



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



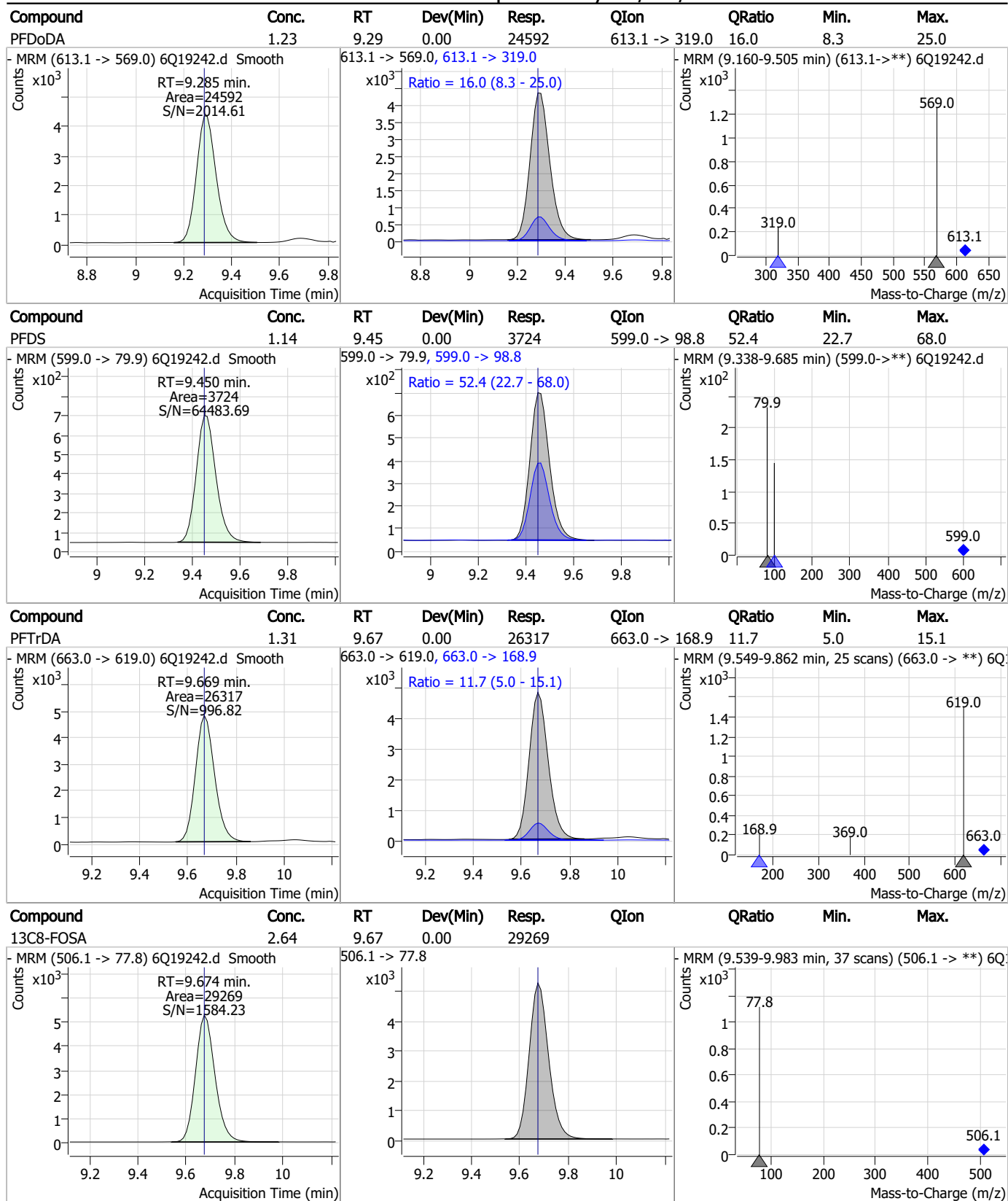
Perfluorinated Compounds by LC/MS/MS



7.7.4

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Perfluorinated Compounds by LC/MS/MS



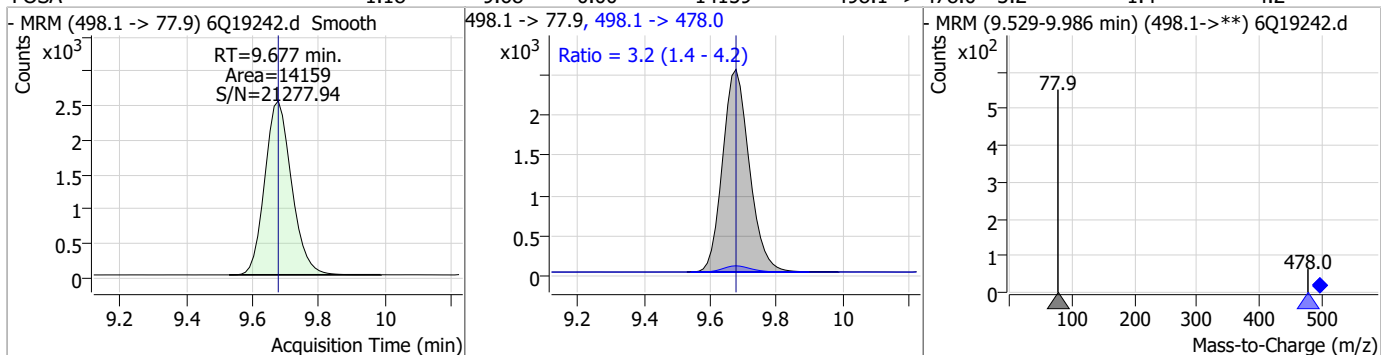
7.7.4

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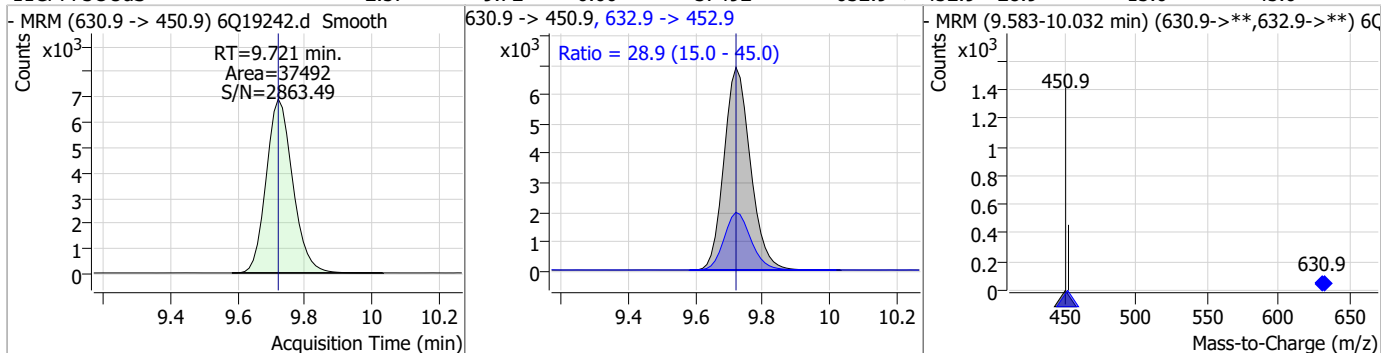


Perfluorinated Compounds by LC/MS/MS

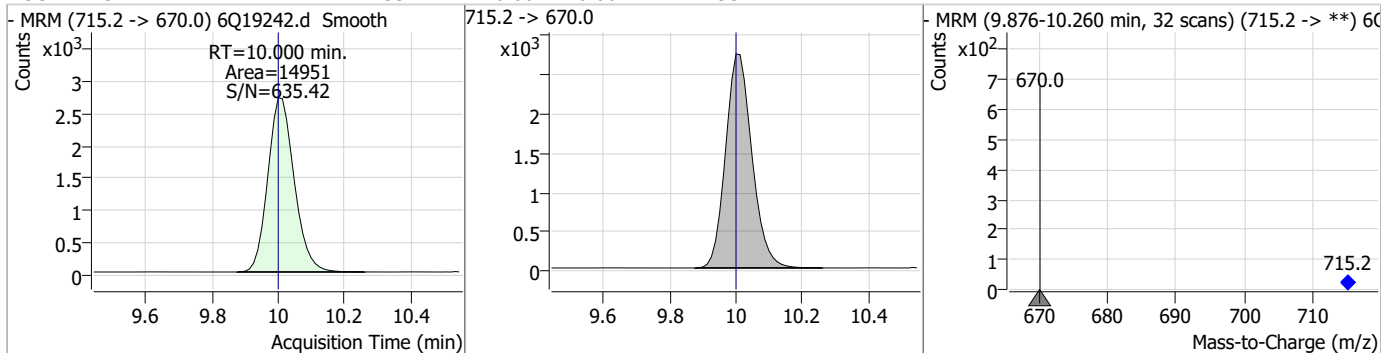
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.18	9.68	0.00	14159	498.1 -> 478.0	3.2	1.4	4.2



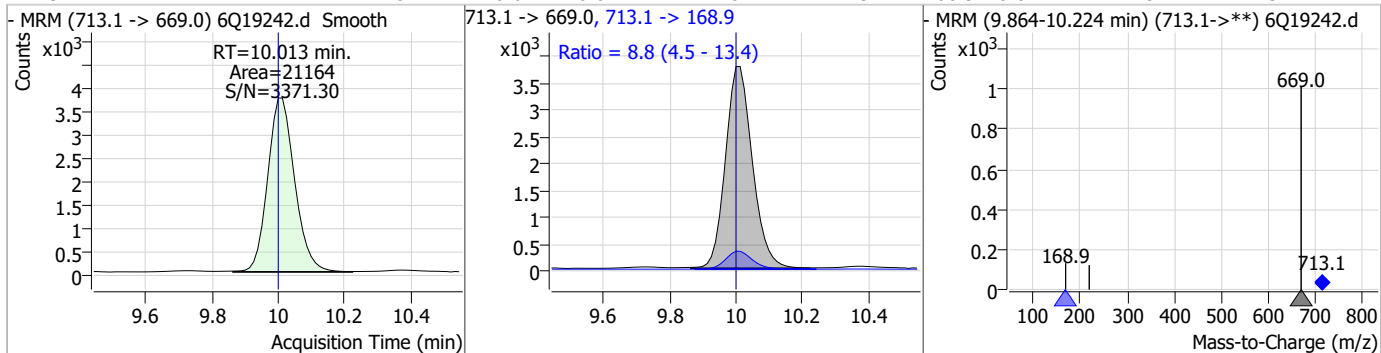
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	2.57	9.72	0.00	37492	632.9 -> 452.9	28.9	15.0	45.0



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

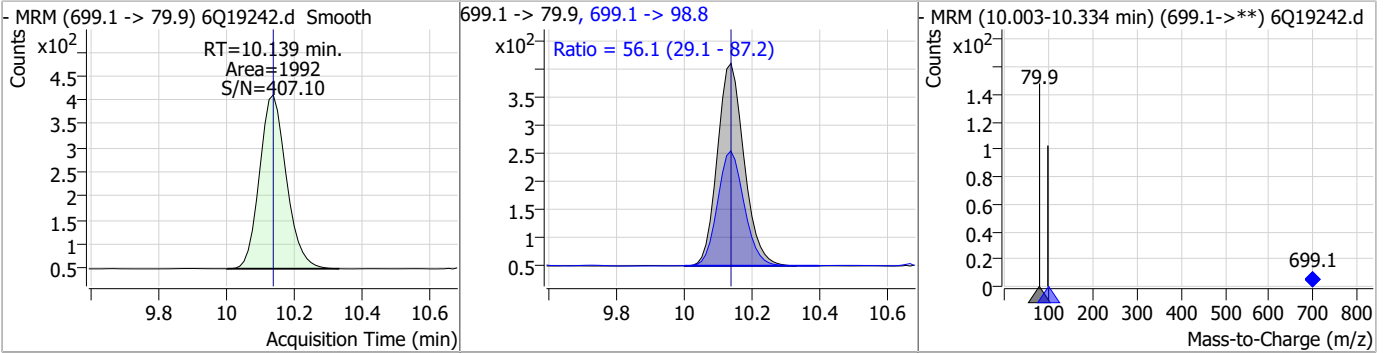


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.18	10.01	0.01	21164	713.1 -> 168.9	8.8	4.5	13.4

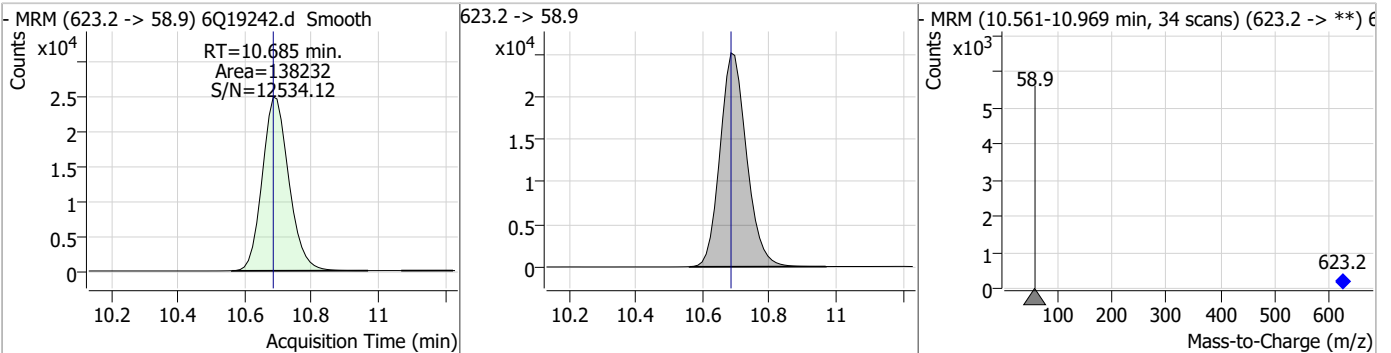


Perfluorinated Compounds by LC/MS/MS

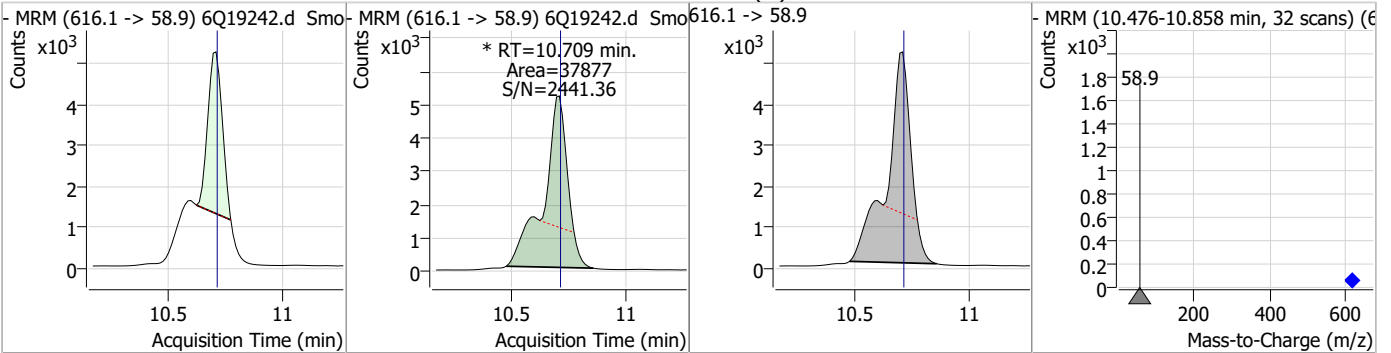
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	1.23	10.14	0.00	1992	699.1 -> 98.8	56.1	29.1	87.2



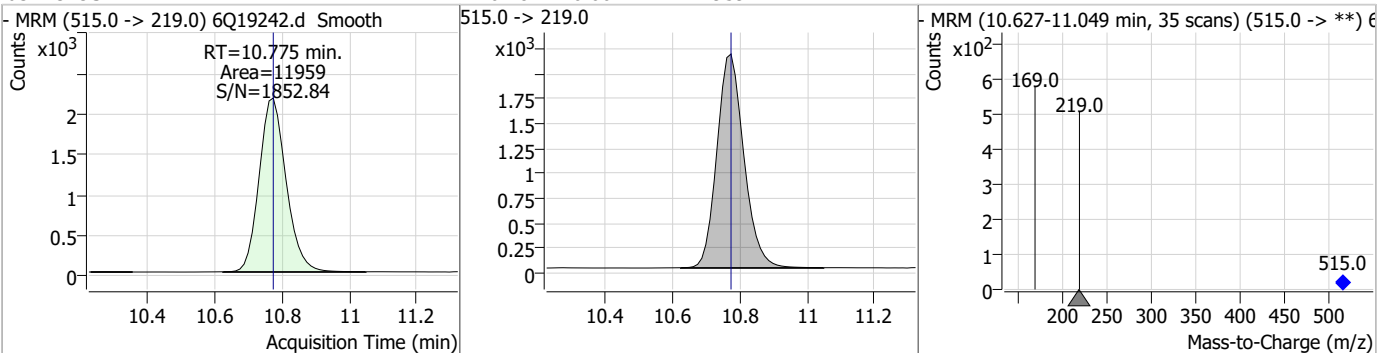
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.18	10.68	0.00	138232				



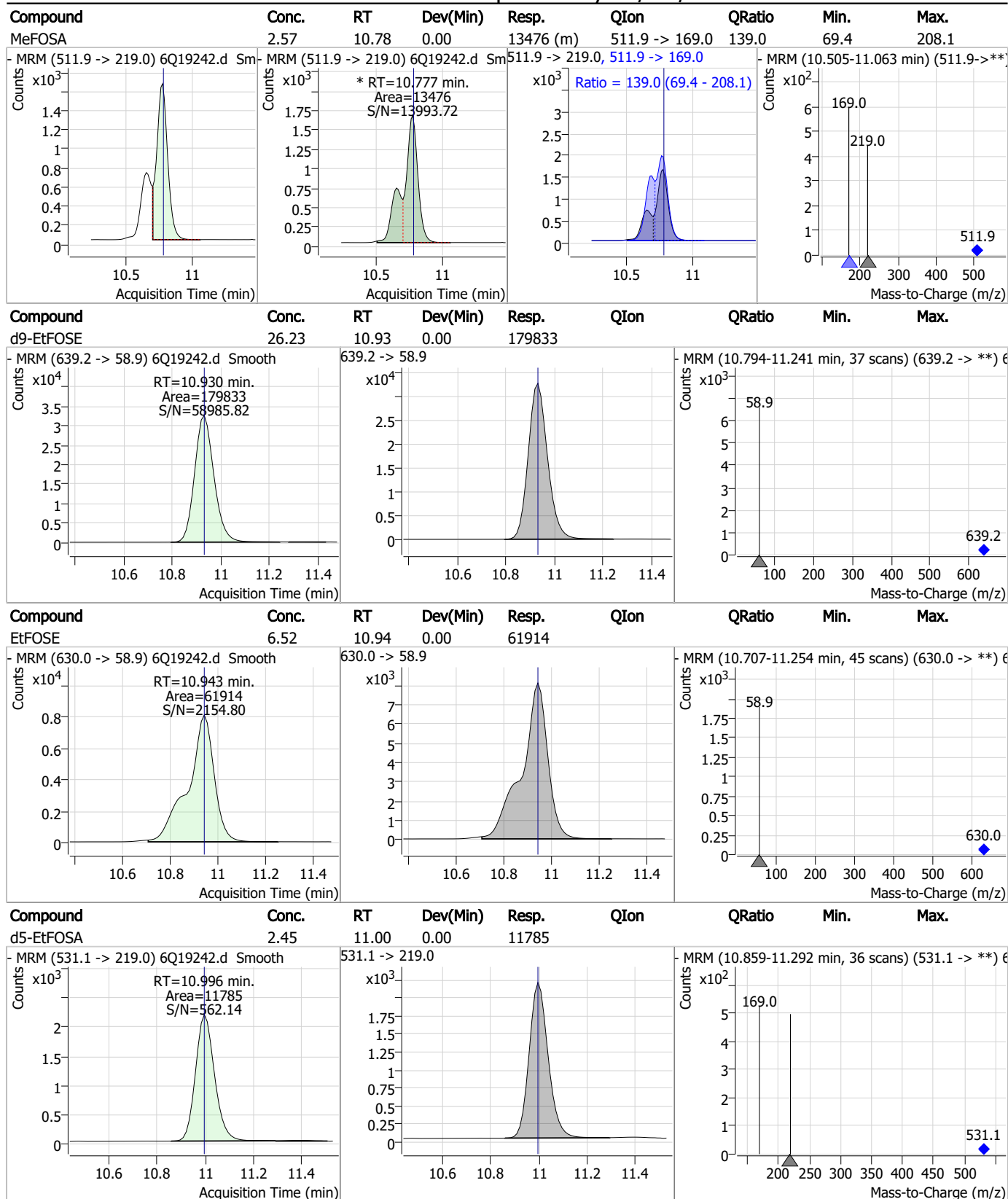
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	6.26	10.71	0.00	37877 (m)				



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



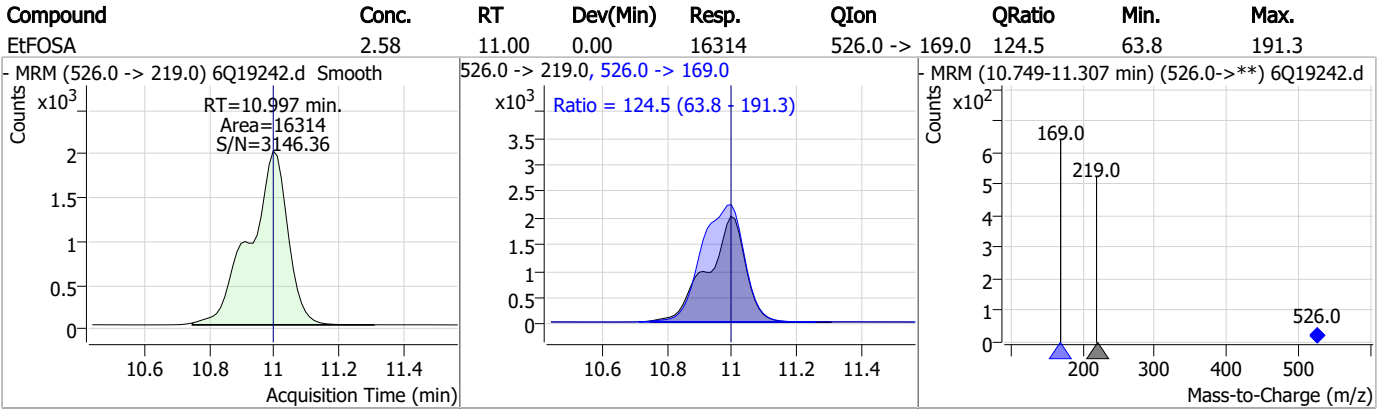
Perfluorinated Compounds by LC/MS/MS



7.7.4

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Perfluorinated Compounds by LC/MS/MS



7.7.4

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Manual Integration Approval Summary

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

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

7.7.4.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 06/13/23 13:30

Perfluorinated Compounds by LC/MS/MS

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

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	140568	10.00 µg/L	0.000
M5-PFPeA	4.560	268.3 -> 223.0	46426	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	50144	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	46358	2.50 µg/L	0.000
M8-PFOA	7.339	421.1 -> 376.0	77838	2.50 µg/L	0.000
M9-PFNA	7.882	472.1 -> 427.0	33668	1.25 µg/L	0.000
M6-PFDA	8.387	519.1 -> 474.1	20761	1.25 µg/L	0.000
M7-PFUnDA	8.853	570.0 -> 525.1	28975	1.25 µg/L	0.000
M2-PFDoDA	9.285	615.1 -> 570.0	23513	1.25 µg/L	0.000
M2-PFTeDA	10.000	715.2 -> 670.0	13874	1.25 µg/L	0.000
M8-FOSA	9.674	506.1 -> 77.8	27697	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	18313	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	11807	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	11305	2.50 µg/L	0.000
M2-4:2FTS	5.442	329.1 -> 80.9	2968	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	4234	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4193	5.00 µg/L	0.000
M3-MeFOSAA	8.407	573.2 -> 419.0	29917	5.00 µg/L	0.000
M3-HFPO-DA	6.169	286.9 -> 168.9	31005	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	24915	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	143603	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	178733	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	11928	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	12025	2.50 µg/L	0.000
13C4-PFOS	8.563	502.8 -> 79.9	14630	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	59704	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	8292	2.50 µg/L	0.000
13C4-PFOA	7.340	417.1 -> 372.0	80335	2.50 µg/L	0.000
13C2-PFDA	8.388	515.1 -> 470.1	28105	1.25 µg/L	0.000
13C5-PFNA	7.882	468.0 -> 423.0	44687	1.25 µg/L	0.000
13C2-PFHxA	5.792	315.1 -> 270.0	47220	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	2968	5.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.2%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4234	5.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.3%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4193	5.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.1%		
13C2-PFDoDA	9.285	615.1 -> 570.0	23513	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFTeDA	10.000	715.2 -> 670.0	13874	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C3-PFBS	5.746	302.1 -> 79.9	18313	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C3-PFHxS	7.478	402.1 -> 79.9	11807	2.68 µg/L	0.000

7.7.5
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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 = 107.3%	
13C4-PFBA	3.085	216.8 -> 171.9	140568	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C4-PFHpA	6.707	367.1 -> 322.0	46358	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C5-PFHxA	5.792	318.0 -> 273.0	50144	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C5-PFPeA	4.560	268.3 -> 223.0	46426	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C6-PFDA	8.387	519.1 -> 474.1	20761	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C7-PFUnDA	8.853	570.0 -> 525.1	28975	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C8-FOSA	9.674	506.1 -> 77.8	27697	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C8-PFOA	7.339	421.1 -> 376.0	77838	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C8-PFOS	8.563	507.1 -> 79.9	11305	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C9-PFNA	7.882	472.1 -> 427.0	33668	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.8%	
d3-MeFOSAA	8.407	573.2 -> 419.0	29917	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	31005	9.58 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.8%	
d3-MeFOSA	10.775	515.0 -> 219.0	12025	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
d5-EtFOSAA	8.615	589.2 -> 419.0	24915	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.6%	
d7-MeFOSE	10.685	623.2 -> 58.9	143603	26.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
d9-EtFOSE	10.930	639.2 -> 58.9	178733	26.65 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.6%	
d5-EtFOSA	10.996	531.1 -> 219.0	11928	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
Target Compounds					QValue
4:2FTS	5.443	327.1 -> 307.0	47239	9.19 µg/L	100
		327.1 -> 80.9	17595		
6:2FTS	7.113	427.1 -> 407.0	47115	9.21 µg/L	100
		427.1 -> 80.9	17157		
8:2FTS	8.164	527.1 -> 507.0	26695	9.57 µg/L	100
		527.1 -> 80.8	10523		
EtFOSAA	8.629	584.2 -> 419.1	9230	2.23 µg/L	m 100
		584.2 -> 526.0	4629		
FOSA	9.677	498.1 -> 77.9	27116	2.39 µg/L	100
		498.1 -> 478.0	754		
MeFOSAA	8.421	570.1 -> 419.0	16974	2.33 µg/L	m 100
		570.1 -> 483.0	3358		
PFBA	3.093	212.8 -> 168.9	53583	9.56 µg/L	100
PFBS	5.747	298.7 -> 79.9	17811	2.22 µg/L	100
		298.7 -> 98.8	6160		
PFDA	8.388	512.9 -> 469.0	70834	2.28 µg/L	100
		512.9 -> 219.0	10658		
PFDODA	9.285	613.1 -> 569.0	46000	2.38 µg/L	100
		613.1 -> 319.0	7676		
PFDS	9.450	599.0 -> 79.9	7772	2.28 µg/L	100

Perfluorinated Compounds by LC/MS/MS

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

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

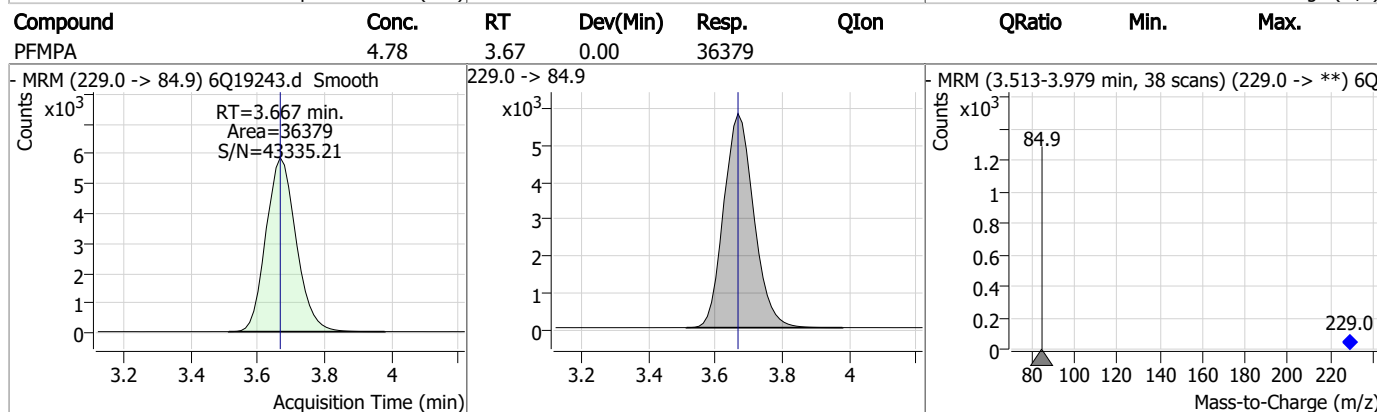
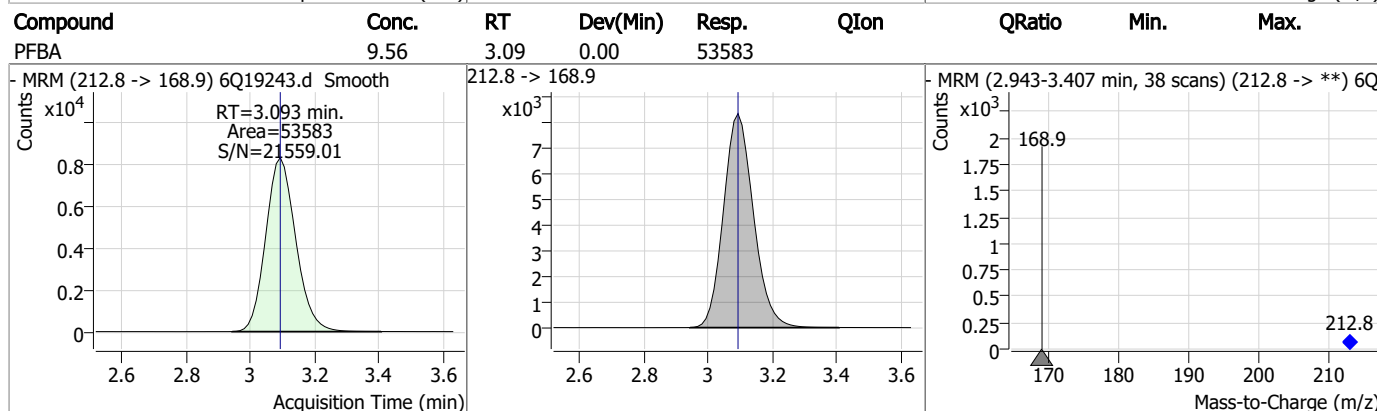
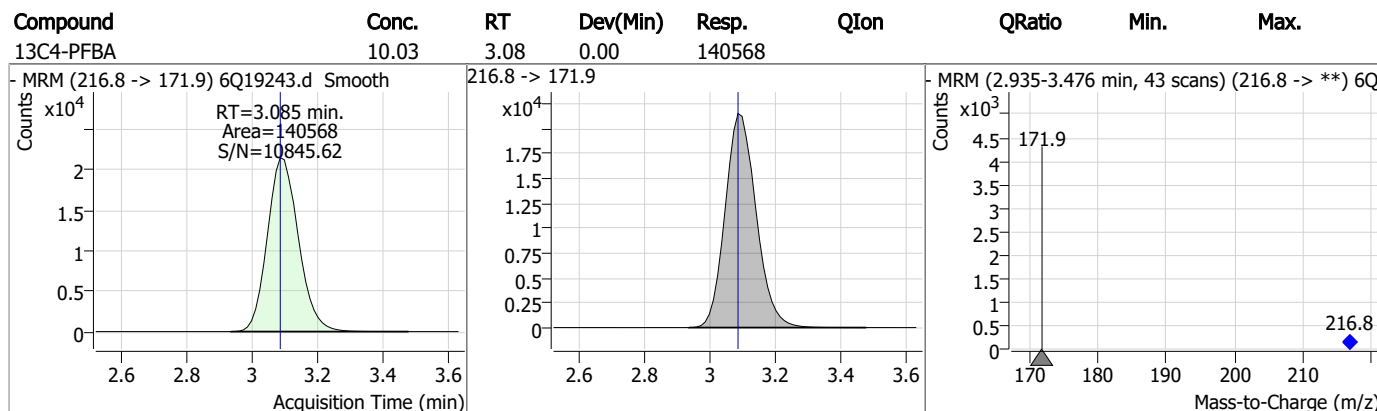
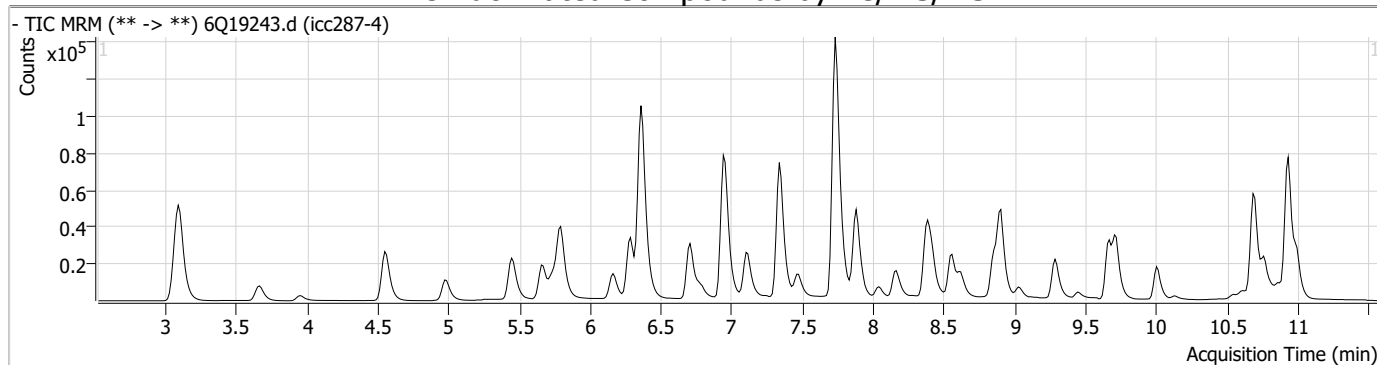
Perfluorinated Compounds by LC/MS/MS

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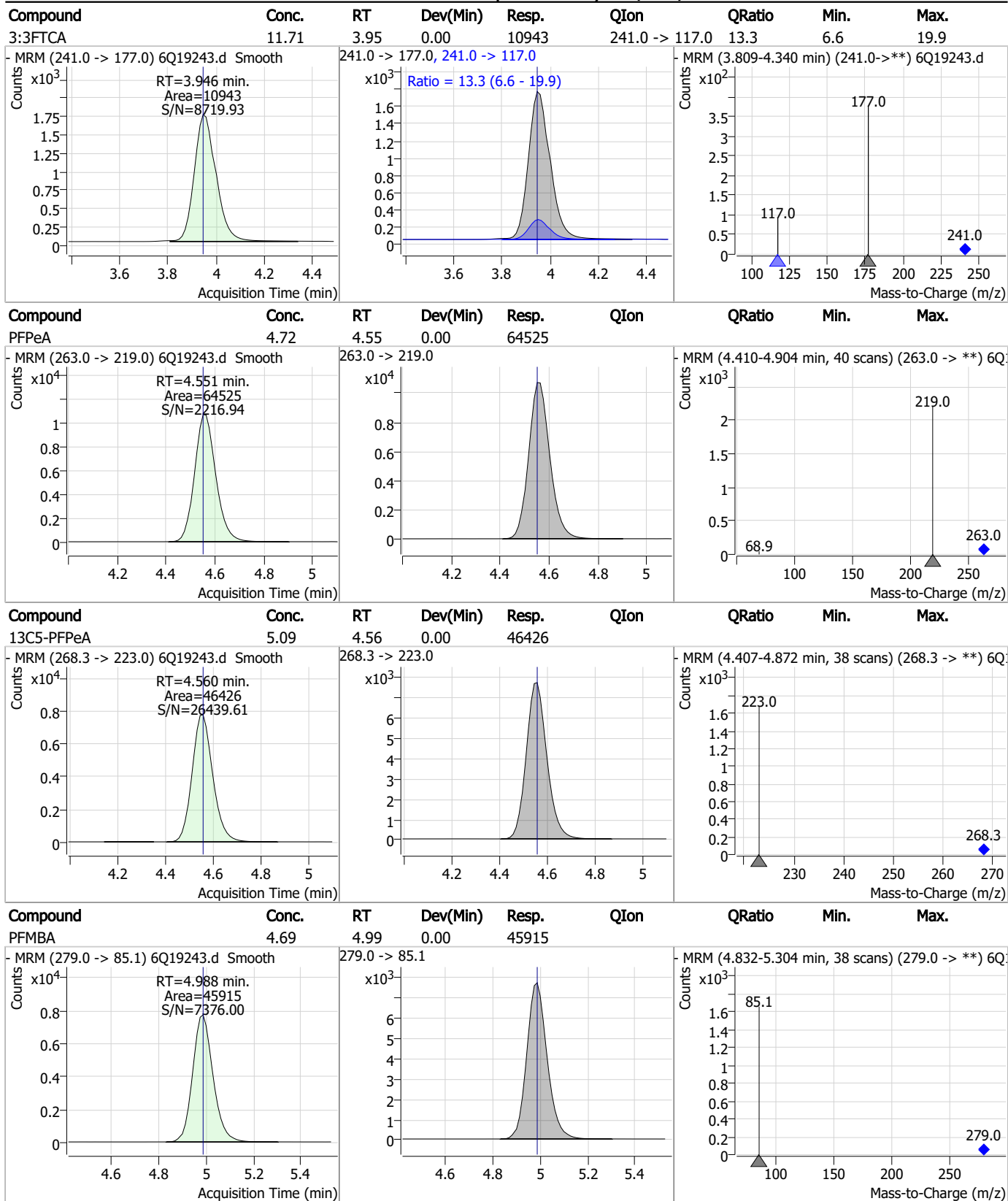
7.7.5

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Perfluorinated Compounds by LC/MS/MS

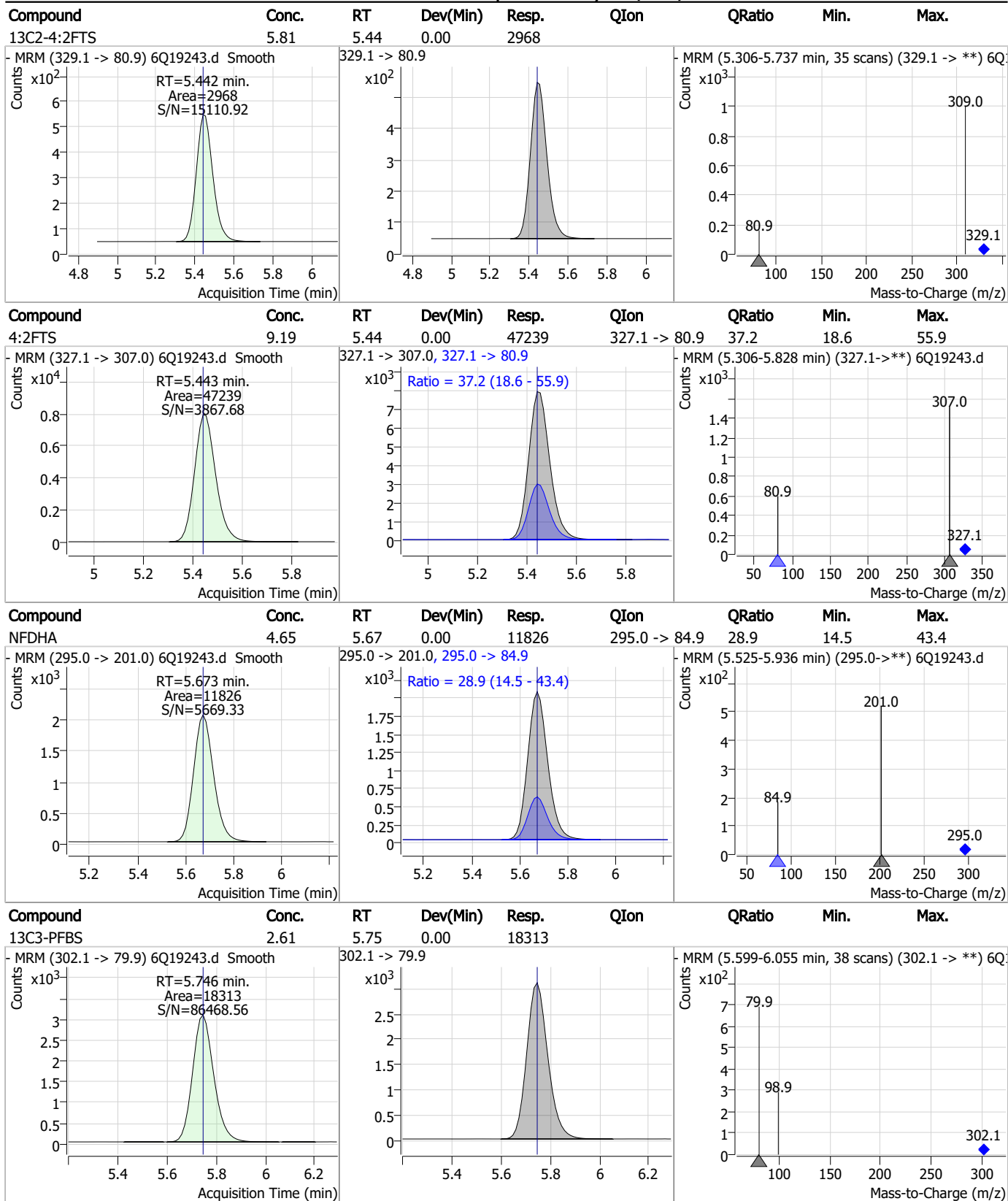


Perfluorinated Compounds by LC/MS/MS



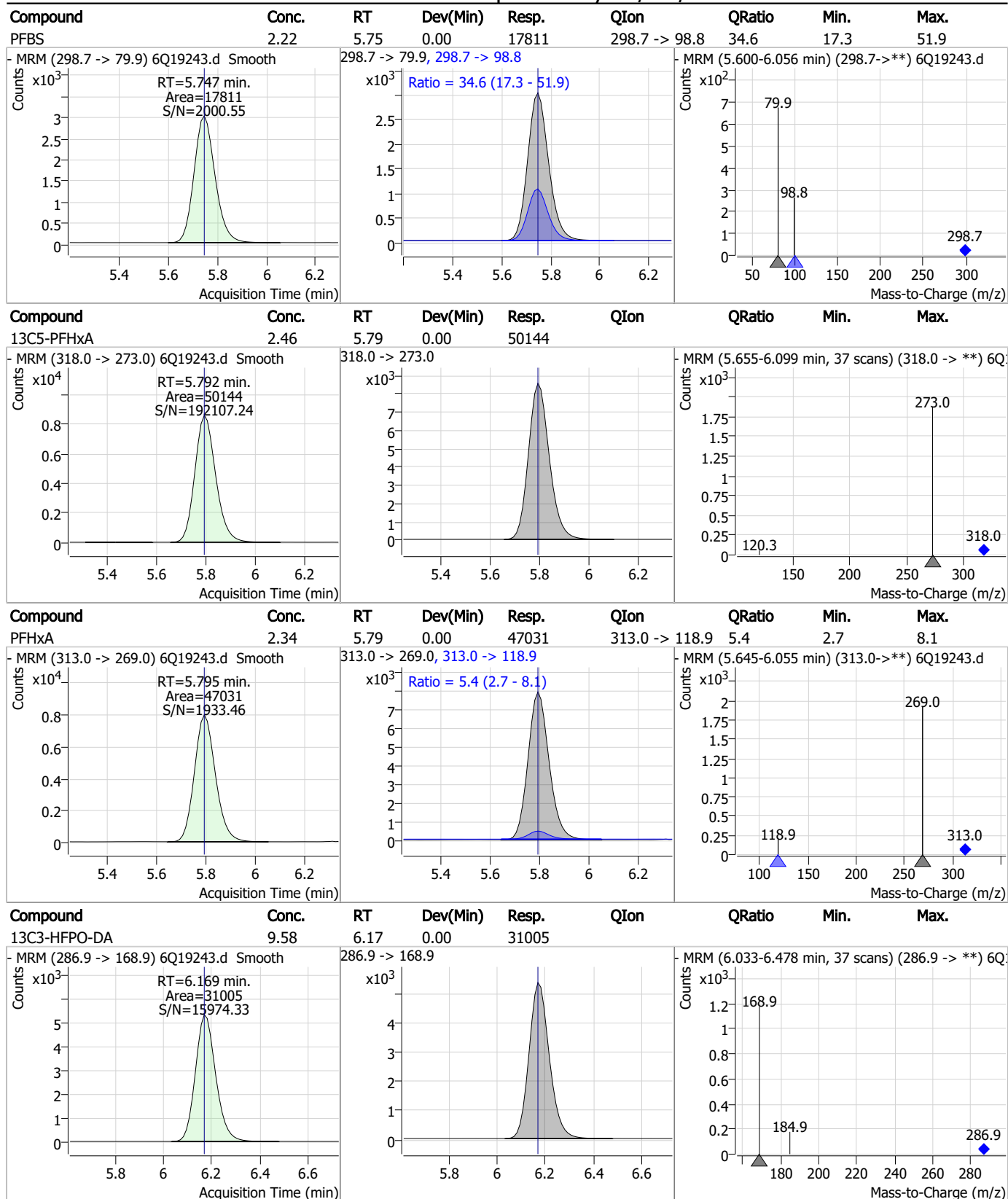
7.7.5
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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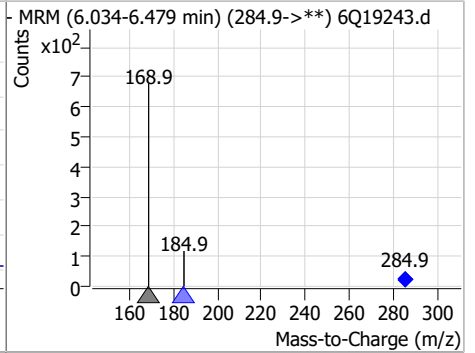
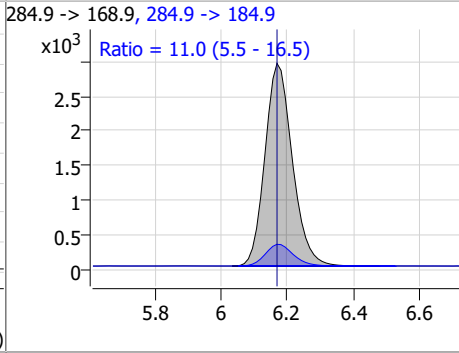
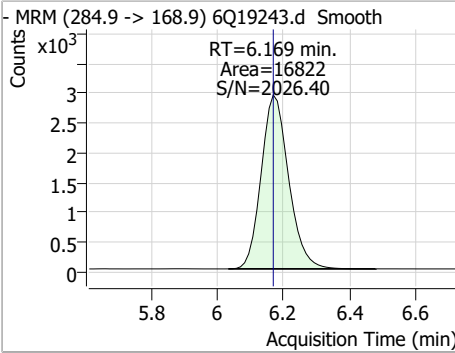
Perfluorinated Compounds by LC/MS/MS



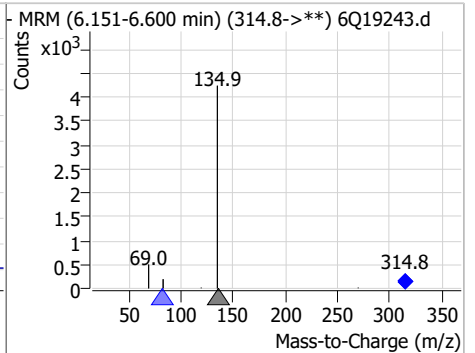
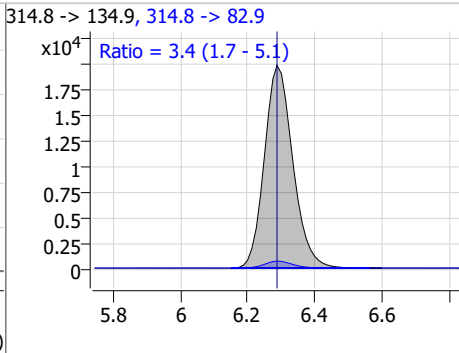
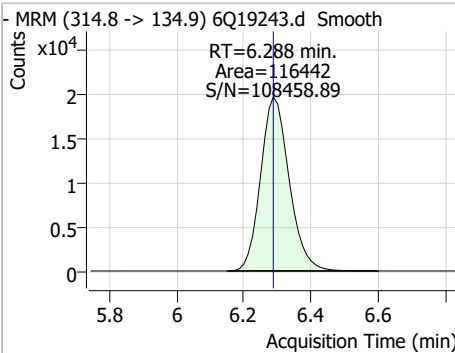
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Perfluorinated Compounds by LC/MS/MS

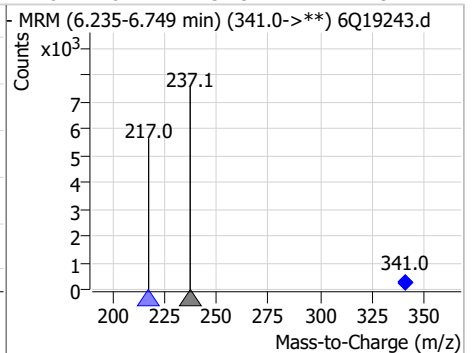
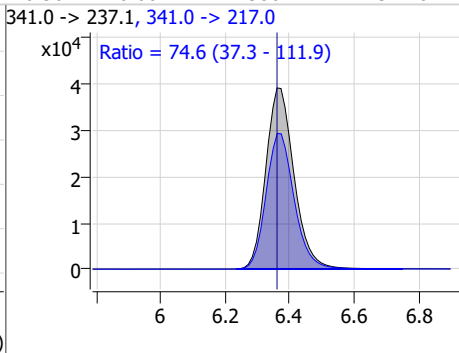
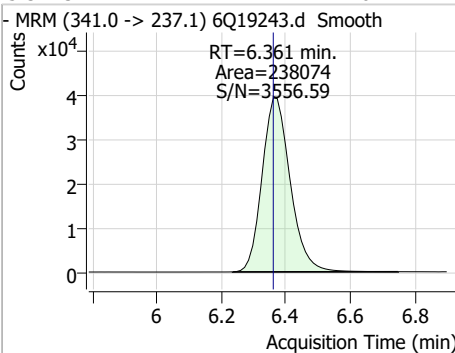
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.00	6.17	0.00	16822	284.9 -> 184.9	11.0	5.5	16.5



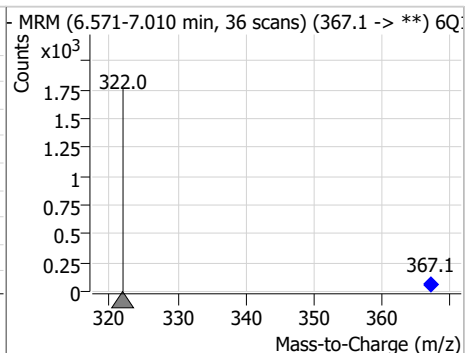
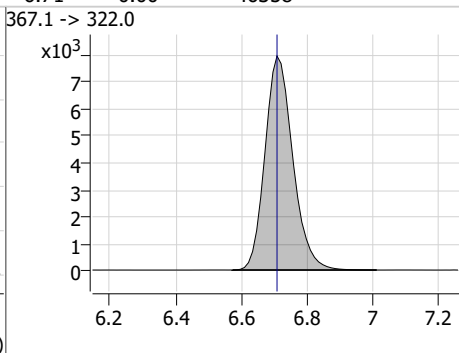
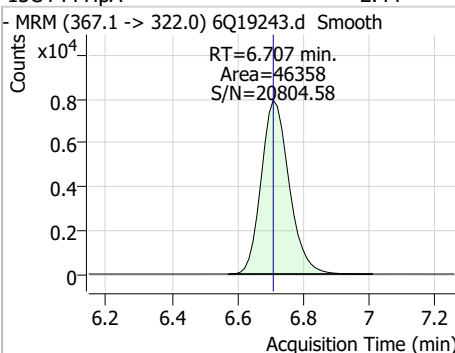
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.71	6.29	0.00	116442	314.8 -> 82.9	3.4	1.7	5.1



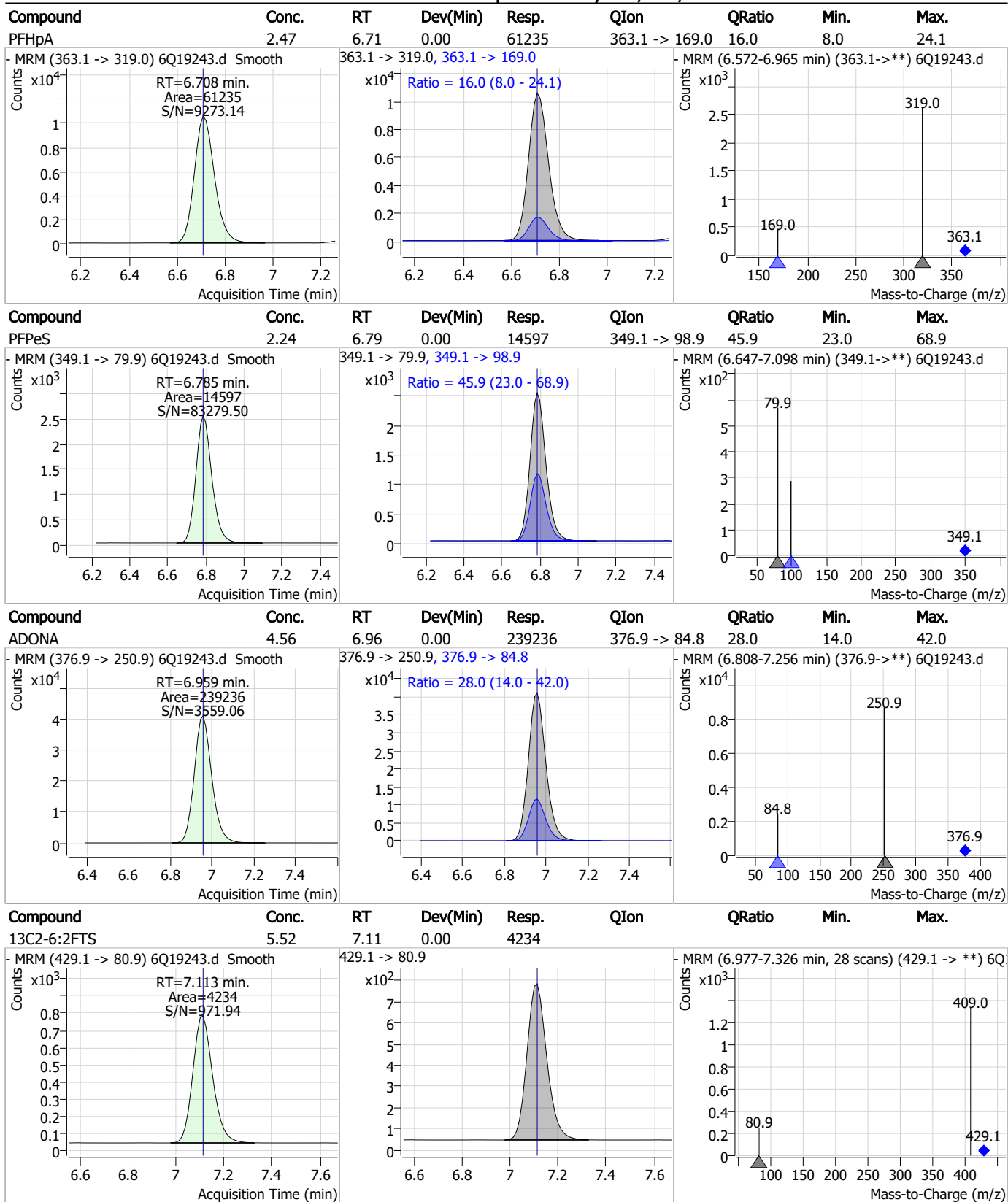
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	61.11	6.36	0.00	238074	341.0 -> 217.0	74.6	37.3	111.9



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

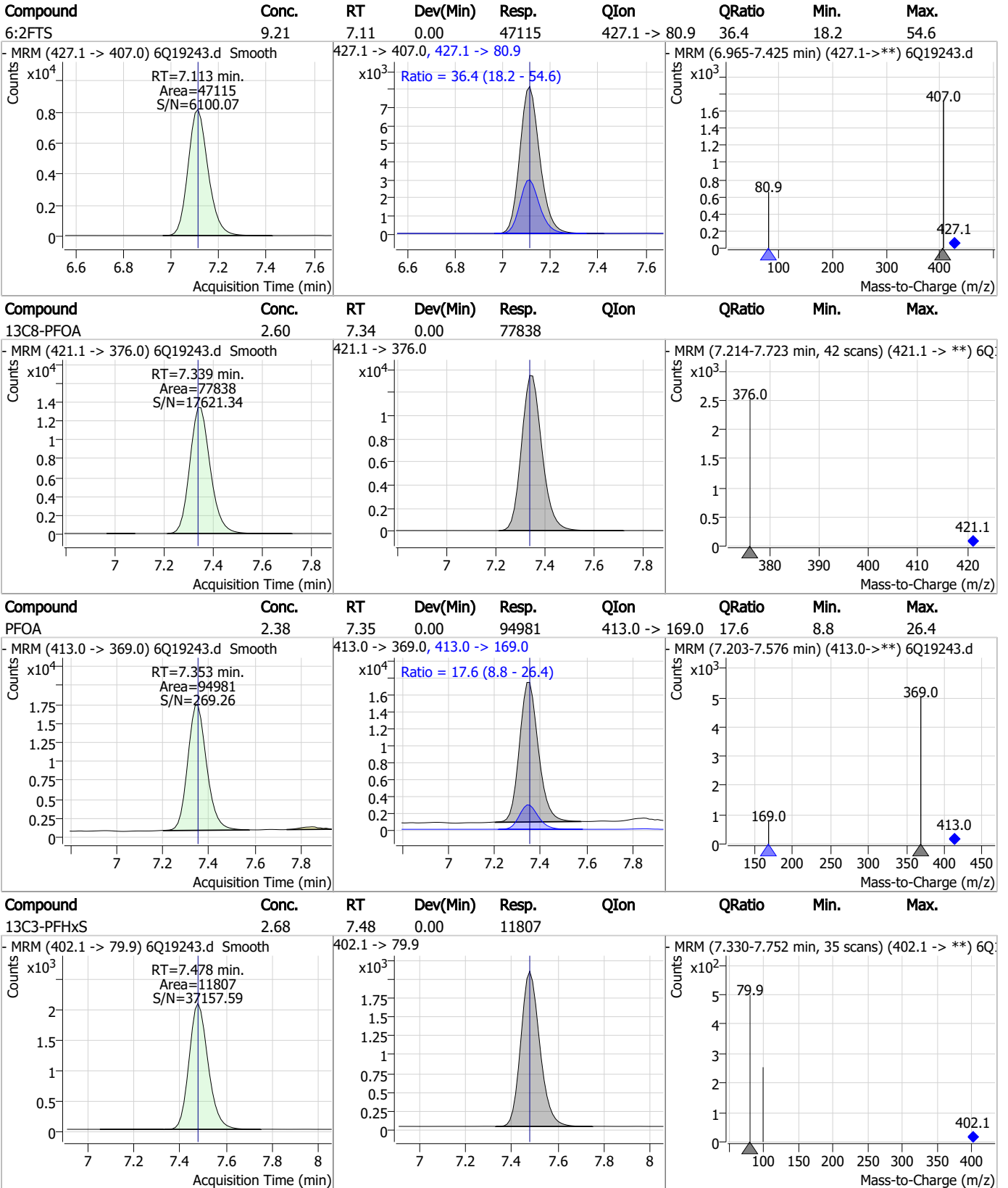


Perfluorinated Compounds by LC/MS/MS



7.7.5
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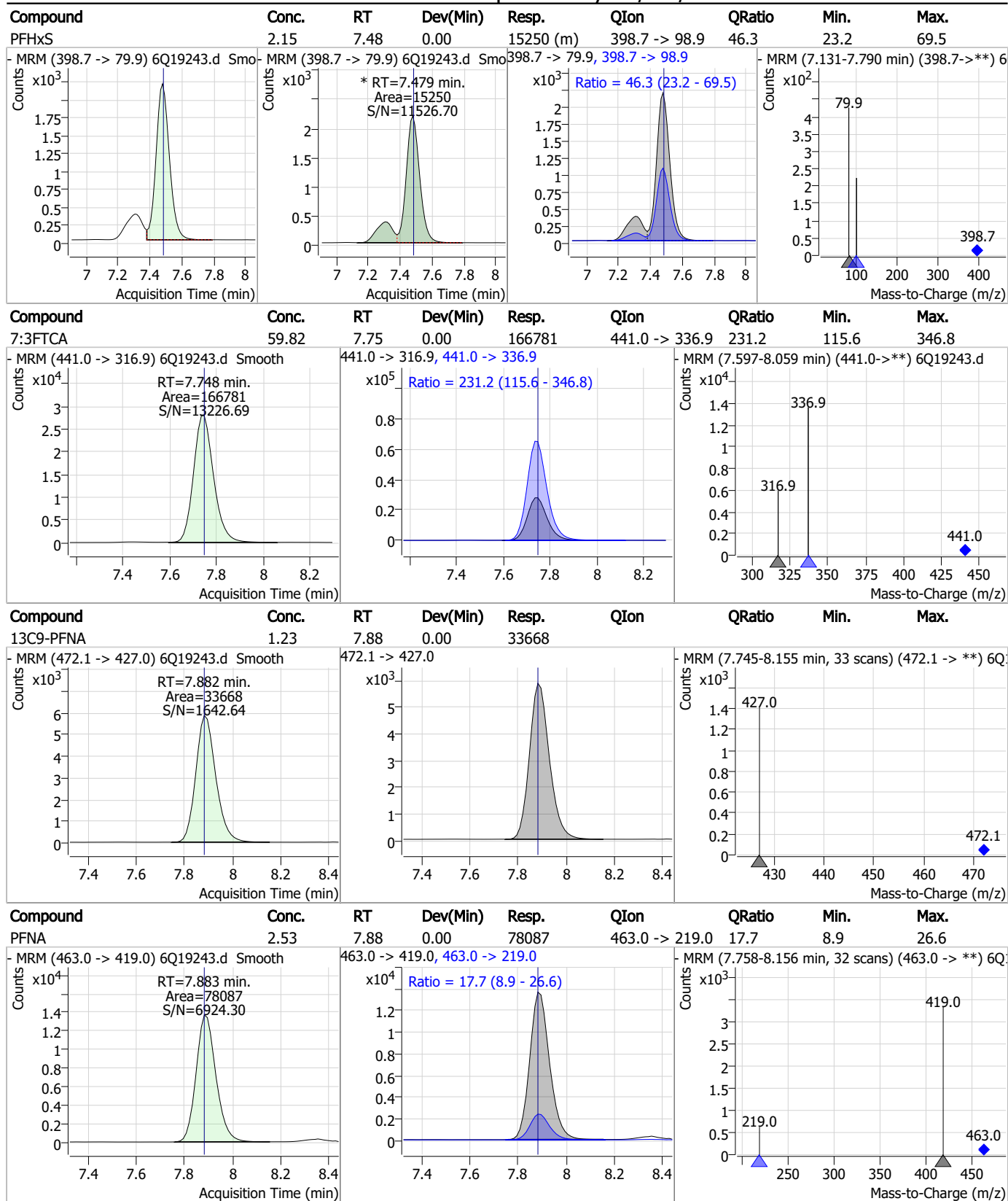
Perfluorinated Compounds by LC/MS/MS



7.7.5

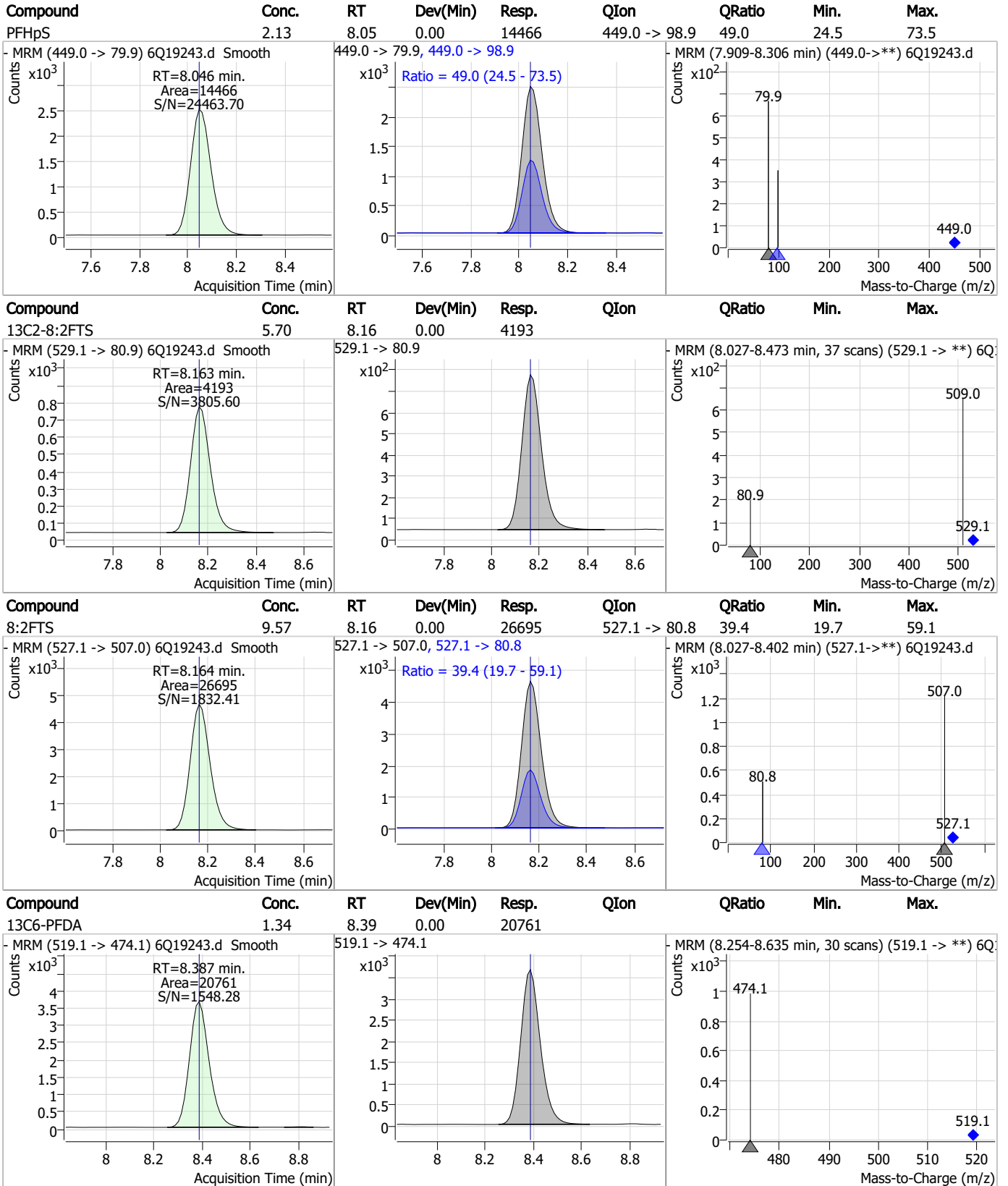
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

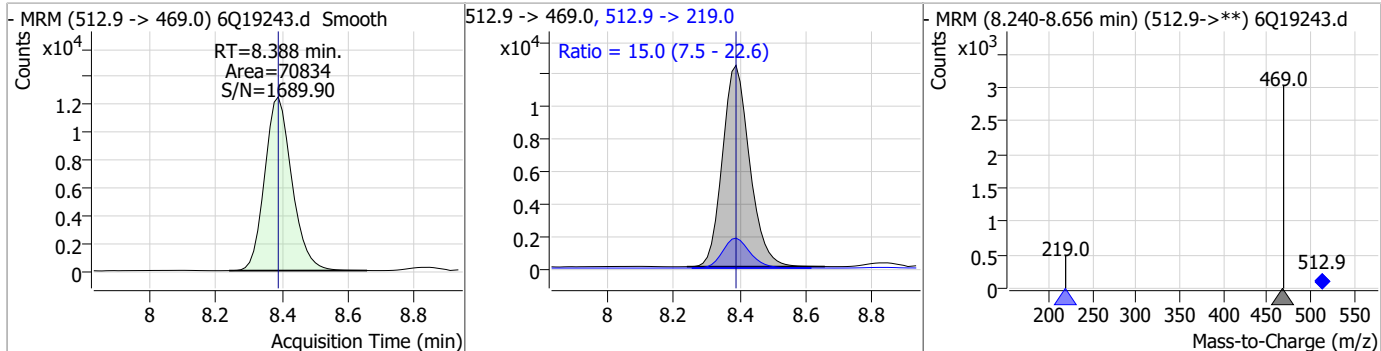


7.7.5

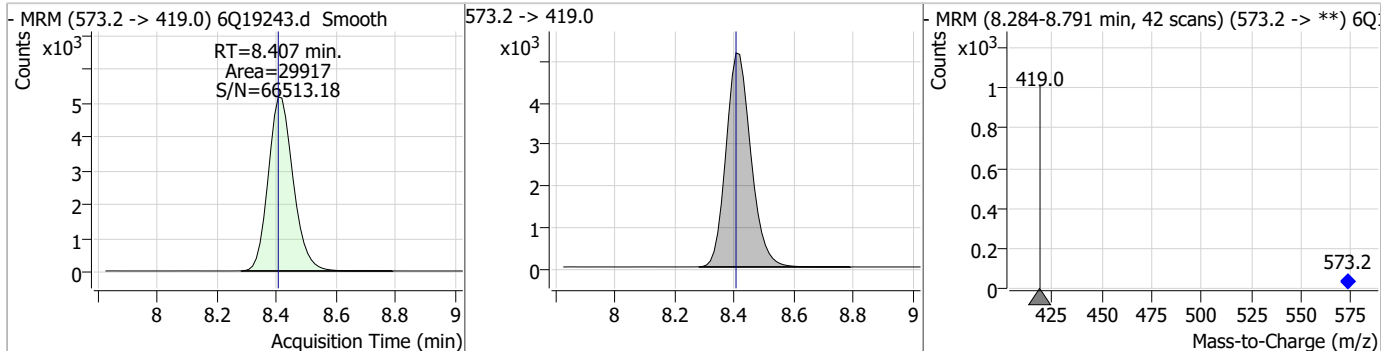
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Perfluorinated Compounds by LC/MS/MS

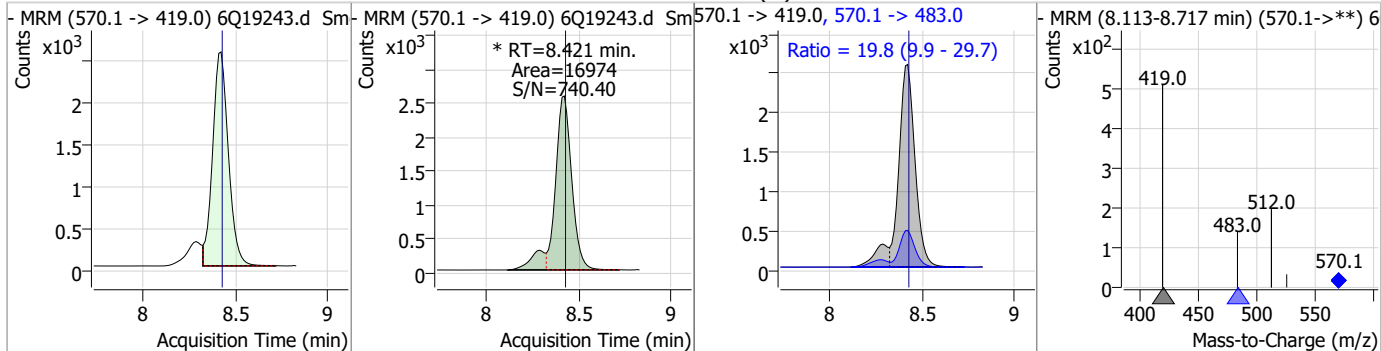
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.28	8.39	0.00	70834	512.9 -> 219.0	15.0	7.5	22.6



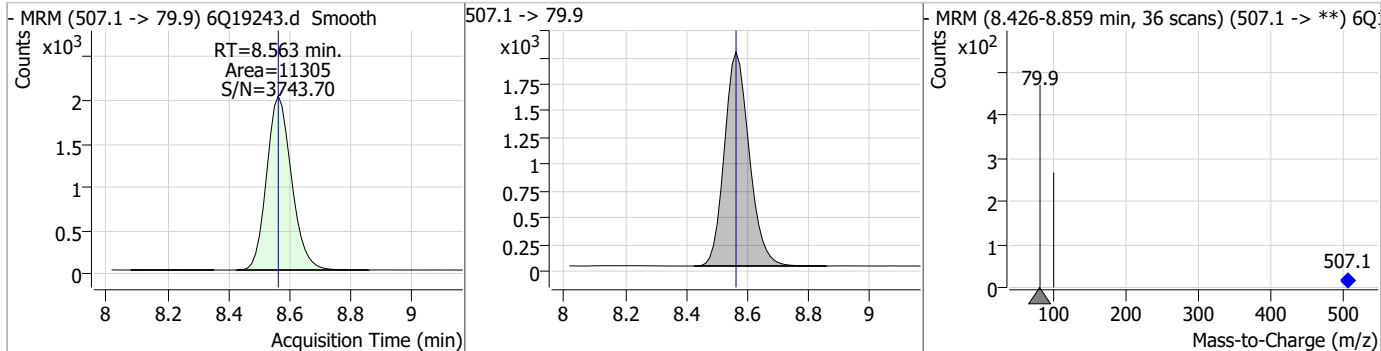
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.45	8.41	0.00	29917				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.33	8.42	0.00	16974 (m)	570.1 -> 483.0	19.8	9.9	29.7

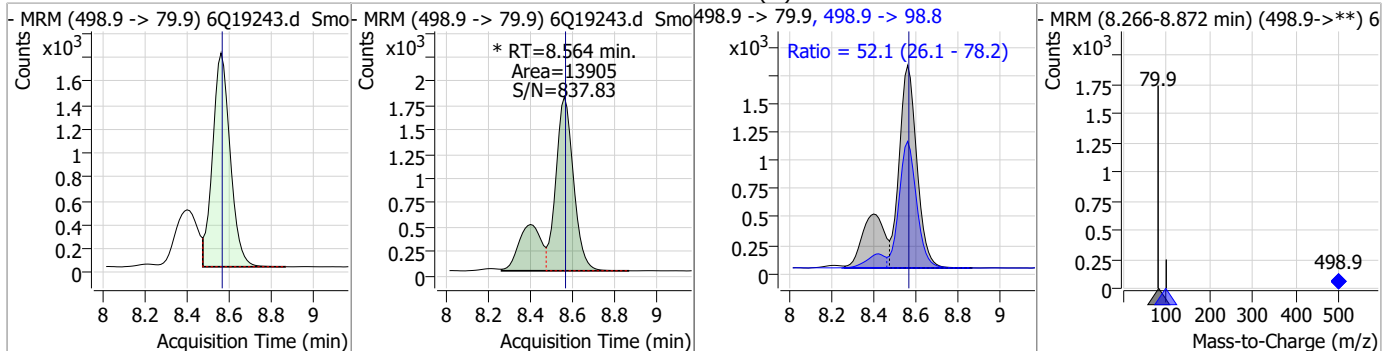


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.64	8.56	0.00	11305				

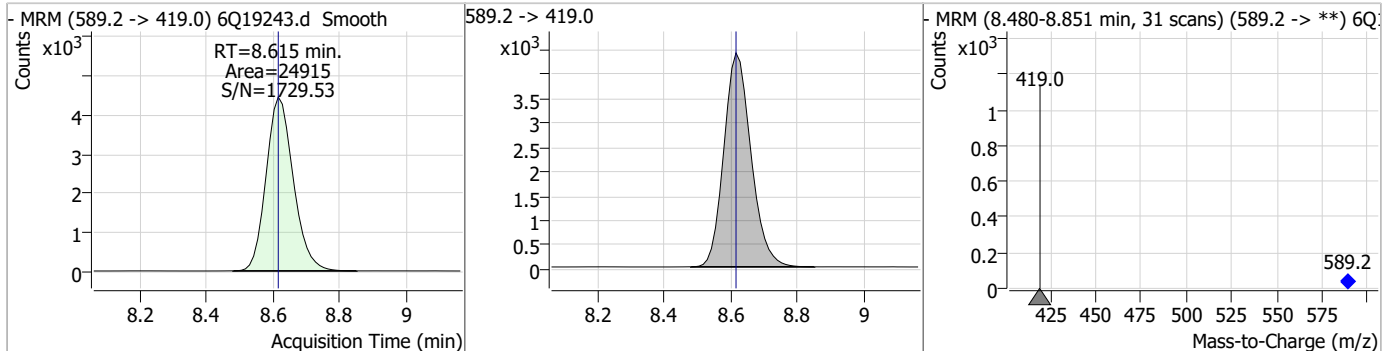


Perfluorinated Compounds by LC/MS/MS

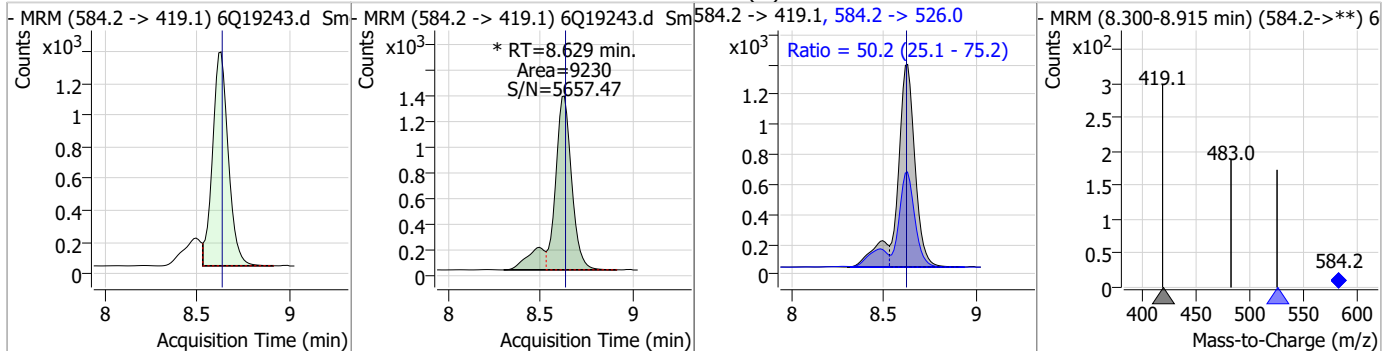
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.09	8.56	0.00	13905 (m)	498.9 -> 98.8	52.1	26.1	78.2



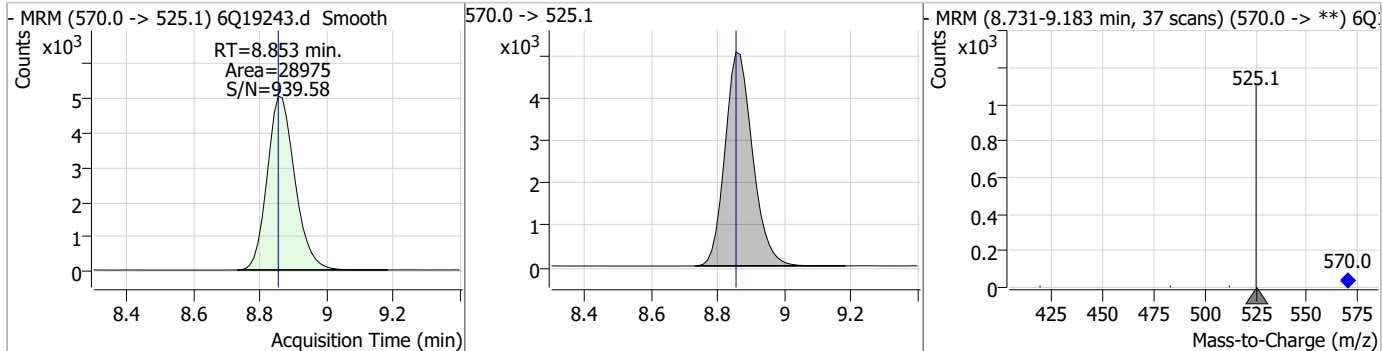
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.38	8.62	0.00	24915				



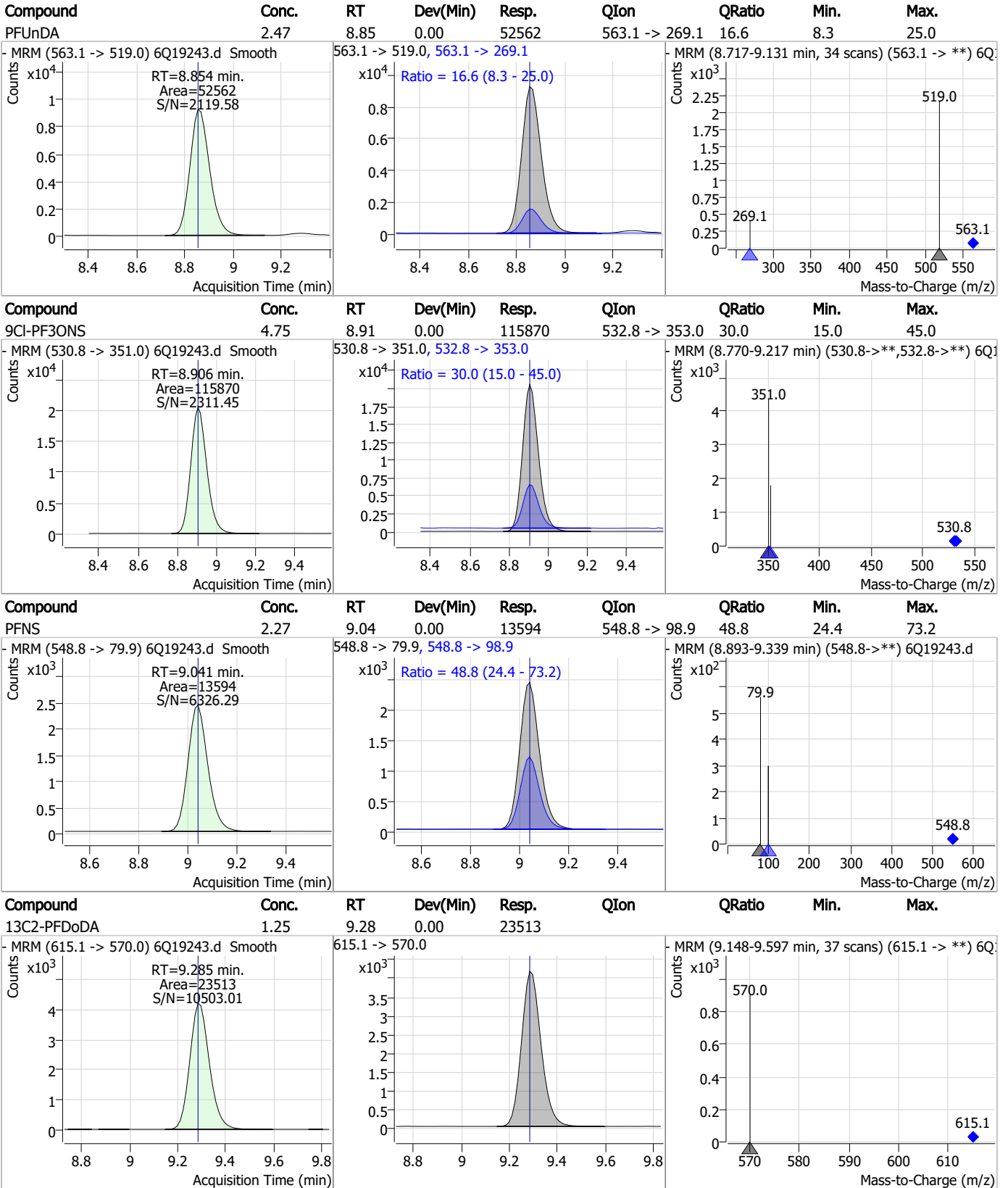
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.23	8.63	0.00	9230 (m)	584.2 -> 526.0	50.2	25.1	75.2



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



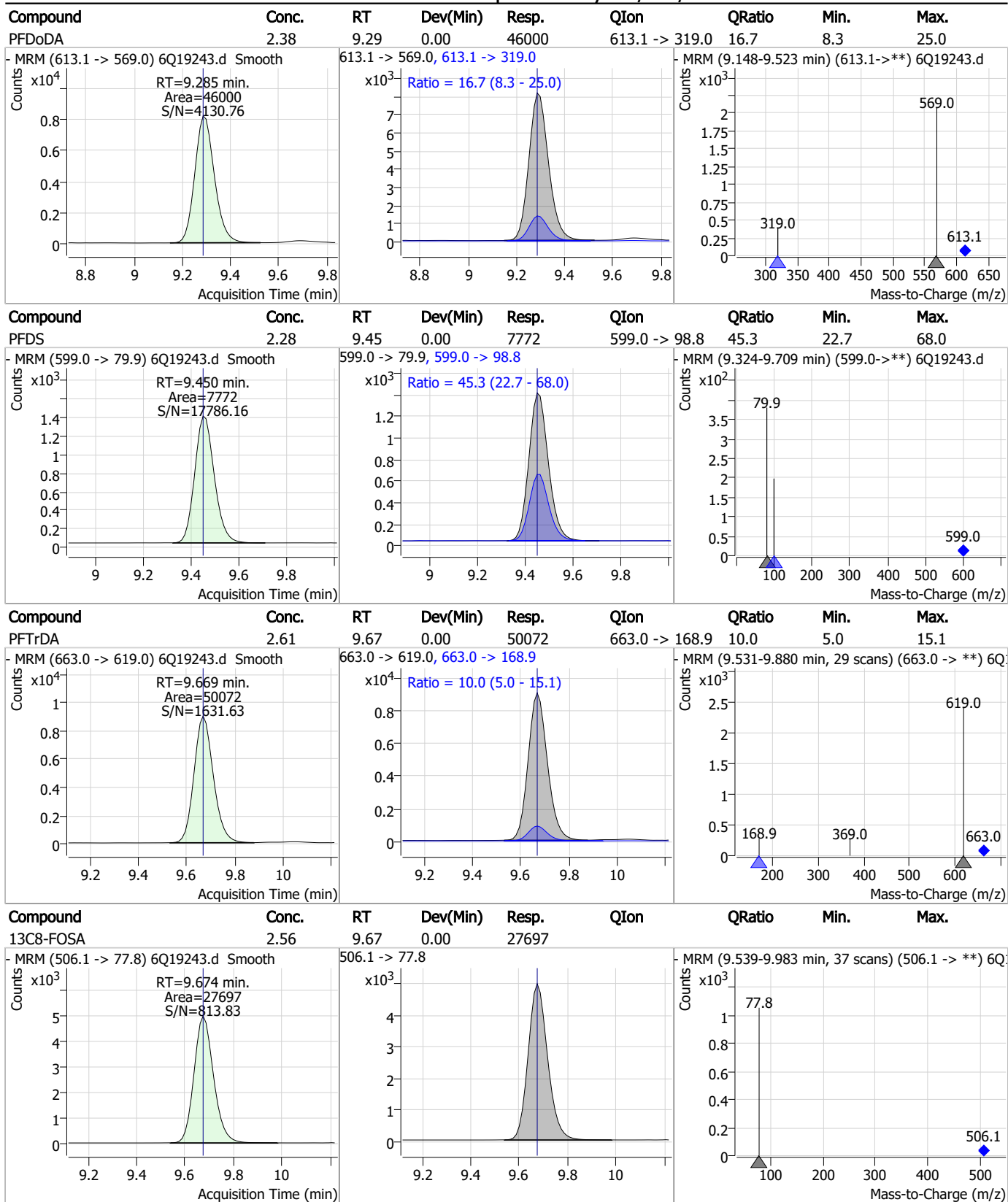
Perfluorinated Compounds by LC/MS/MS



7.7.5

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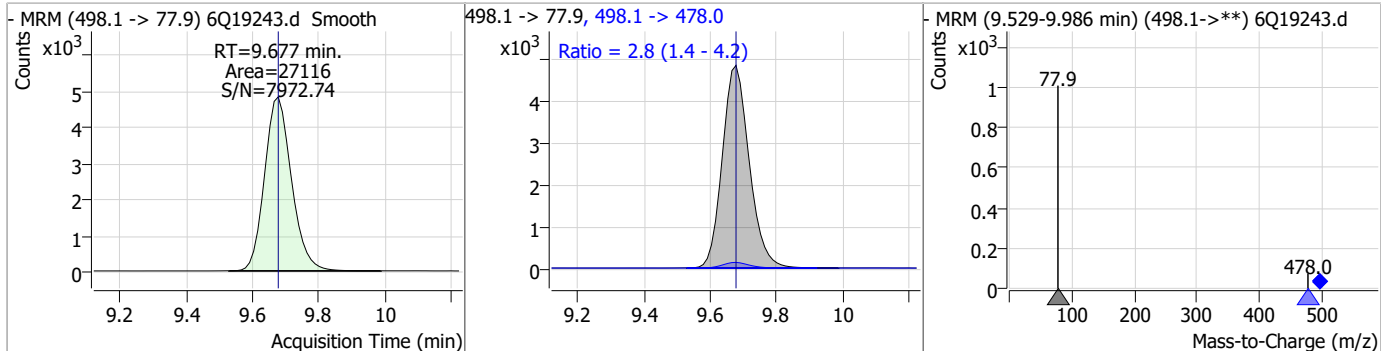
Perfluorinated Compounds by LC/MS/MS



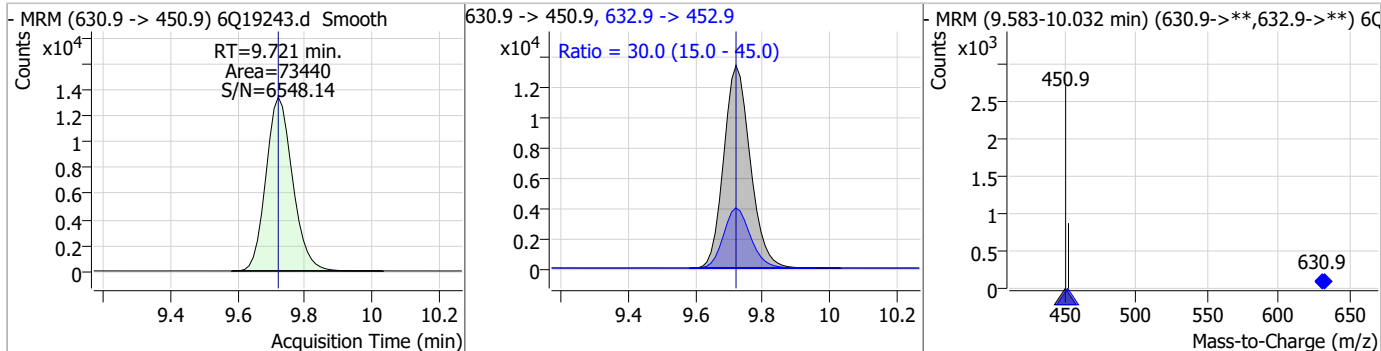
7.7.5
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Perfluorinated Compounds by LC/MS/MS

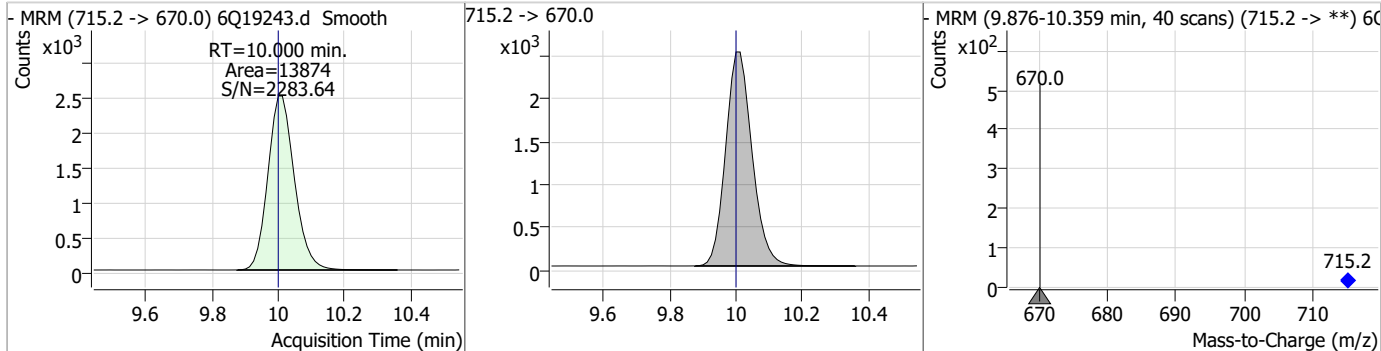
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.39	9.68	0.00	27116	498.1 -> 478.0	2.8	1.4	4.2



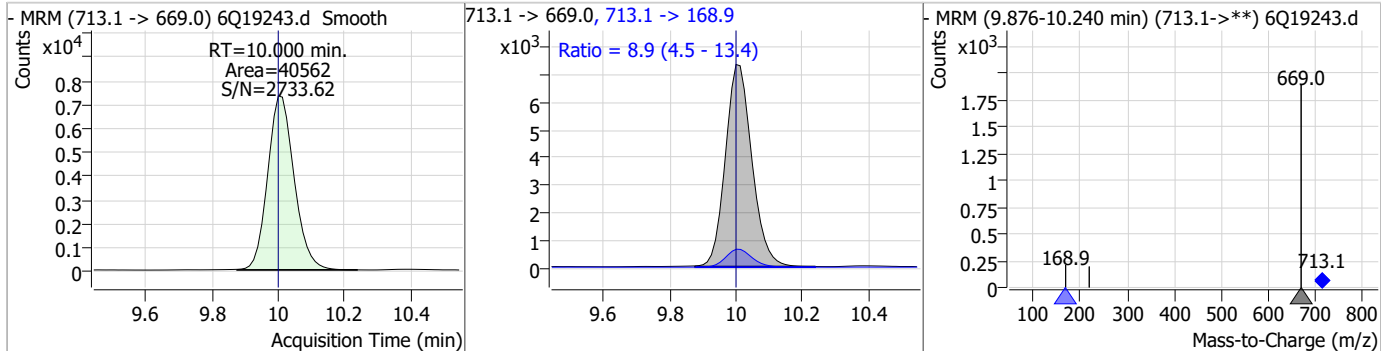
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	5.03	9.72	0.00	73440	632.9 -> 452.9	30.0	15.0	45.0



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

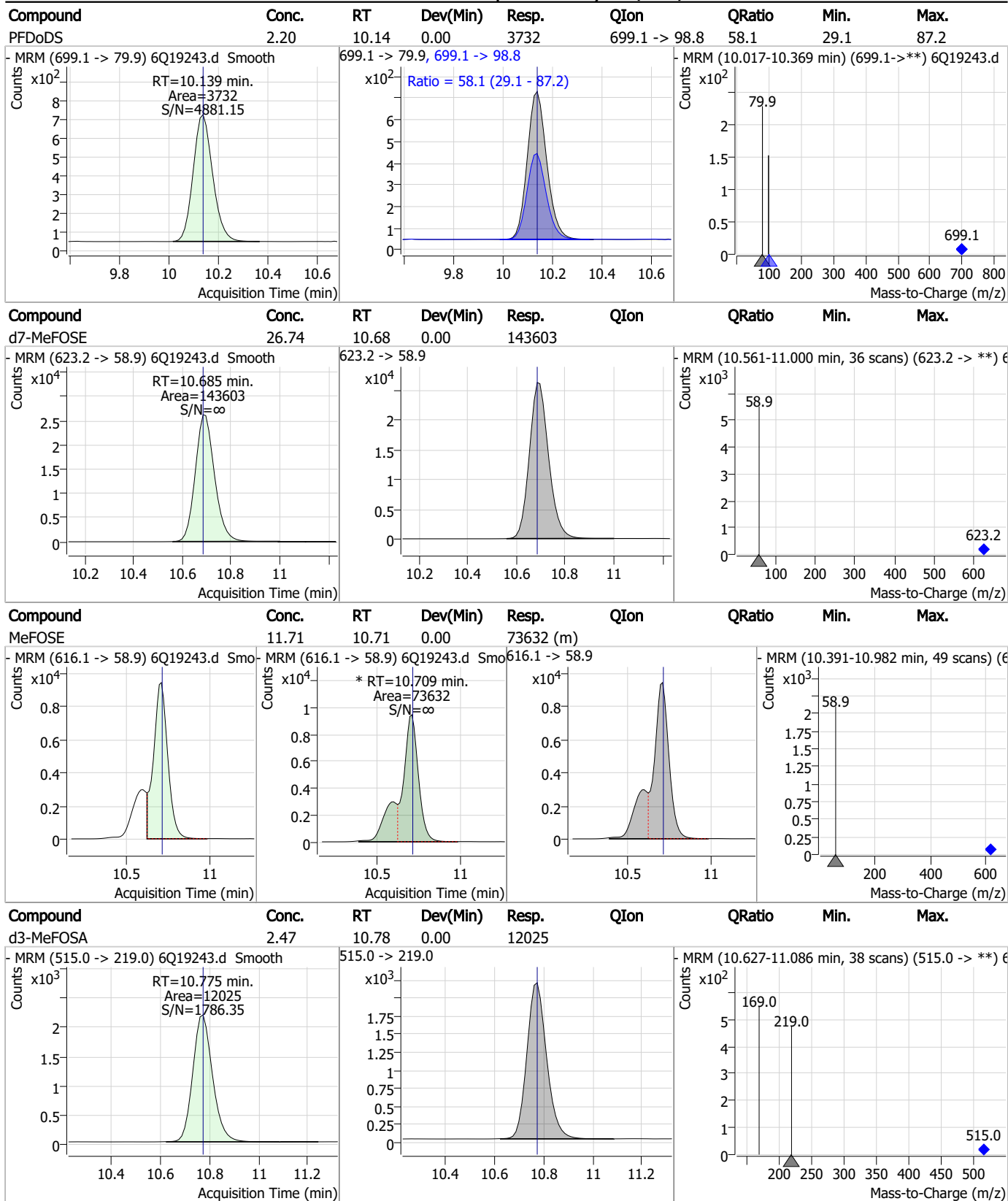


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.45	10.00	0.00	40562	713.1 -> 168.9	8.9	4.5	13.4



7.7.5
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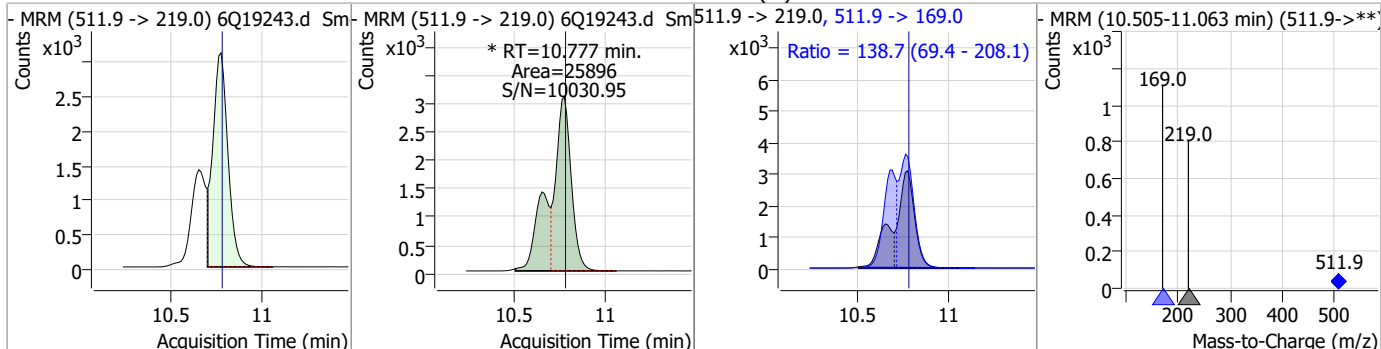
Perfluorinated Compounds by LC/MS/MS



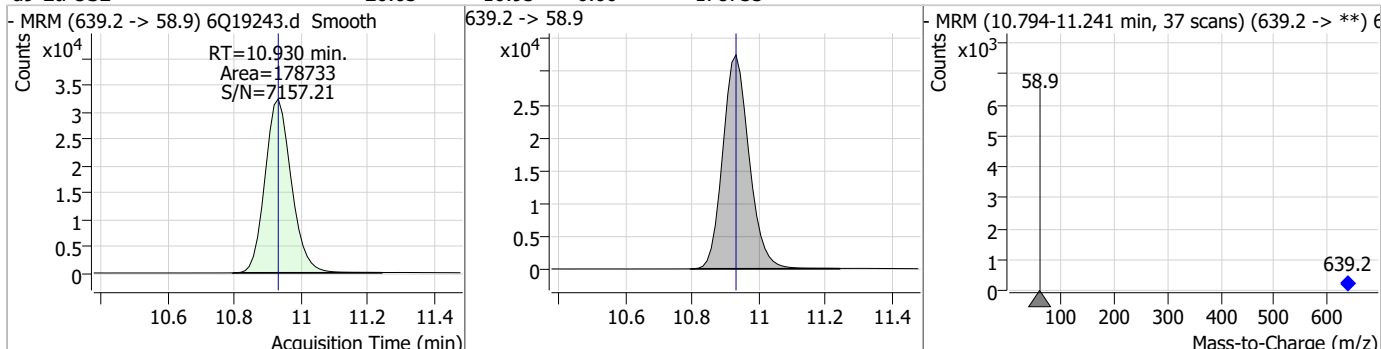
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Perfluorinated Compounds by LC/MS/MS

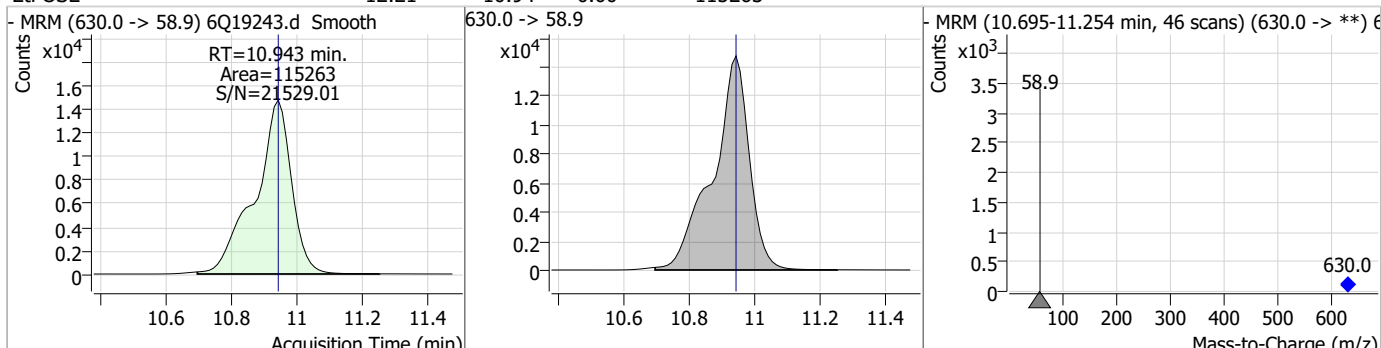
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.91	10.78	0.00	25896 (m)	511.9 -> 169.0	138.7	69.4	208.1



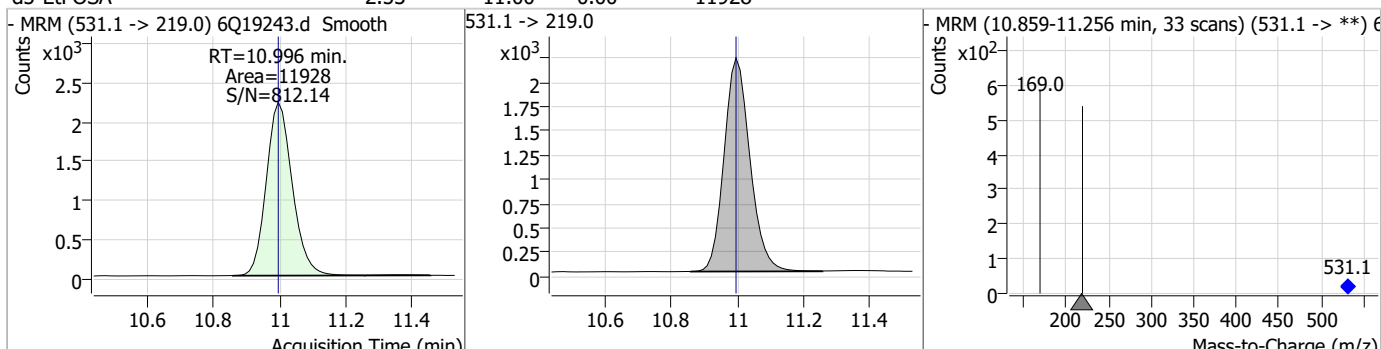
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.65	10.93	0.00	178733				



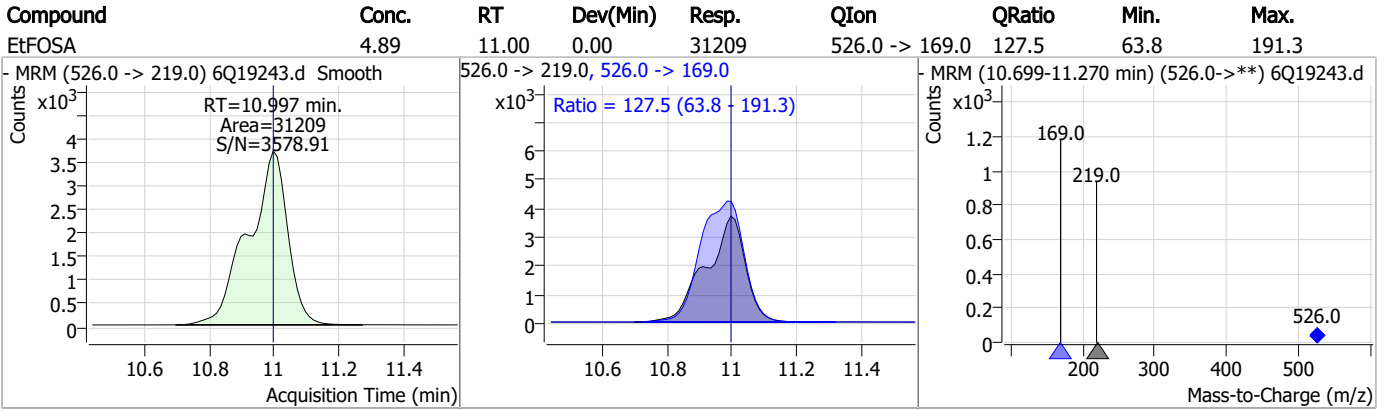
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.21	10.94	0.00	115263				



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



Perfluorinated Compounds by LC/MS/MS



7.7.5

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Manual Integration Approval Summary

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

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

7.7.5.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 06/13/23 13:30

Perfluorinated Compounds by LC/MS/MS

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

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

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Perfluorinated Compounds by LC/MS/MS

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

Perfluorinated Compounds by LC/MS/MS

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

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

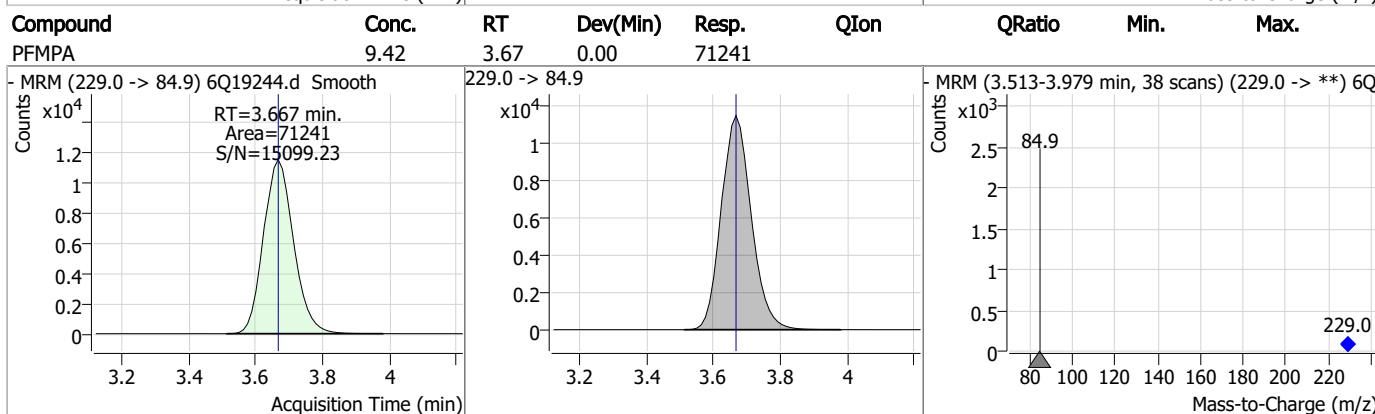
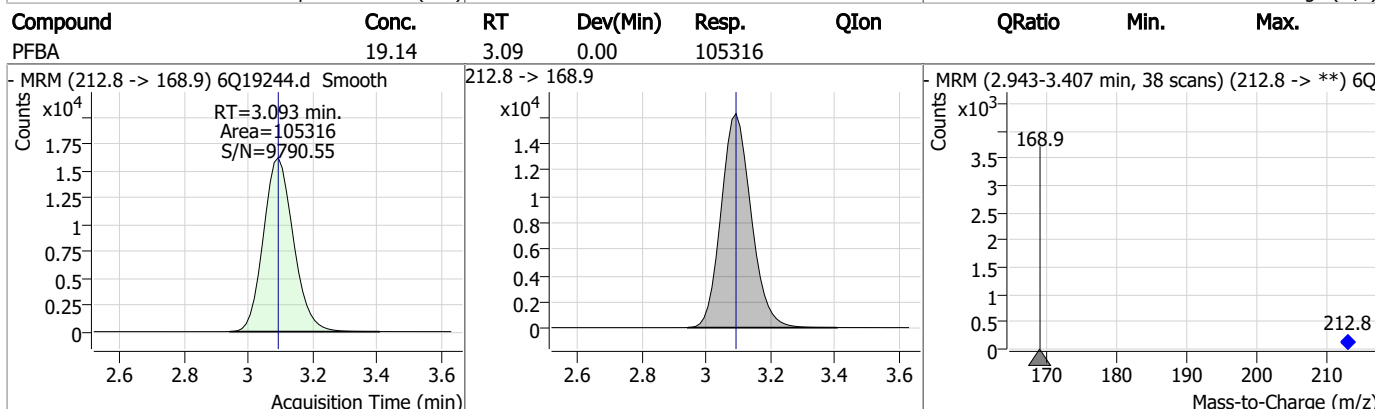
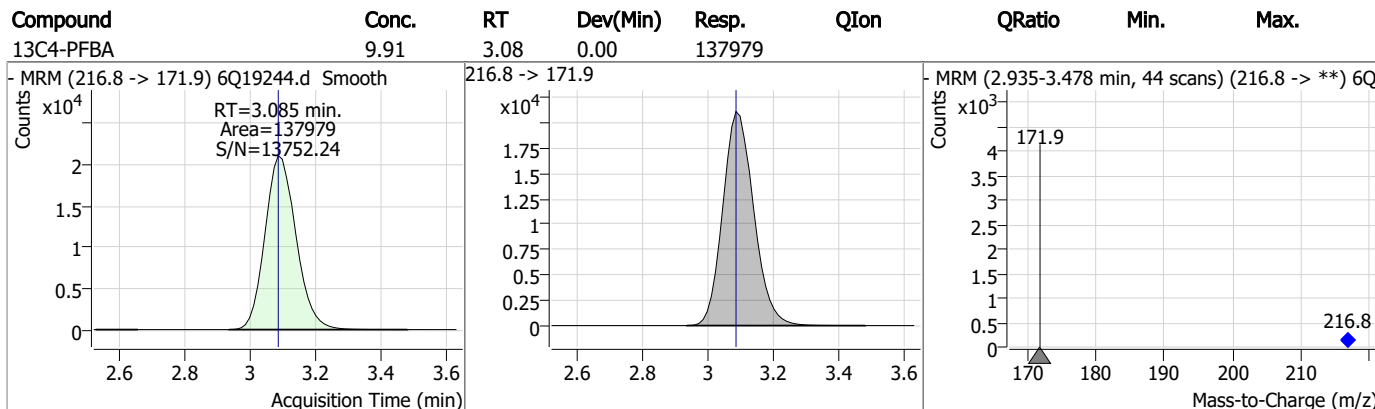
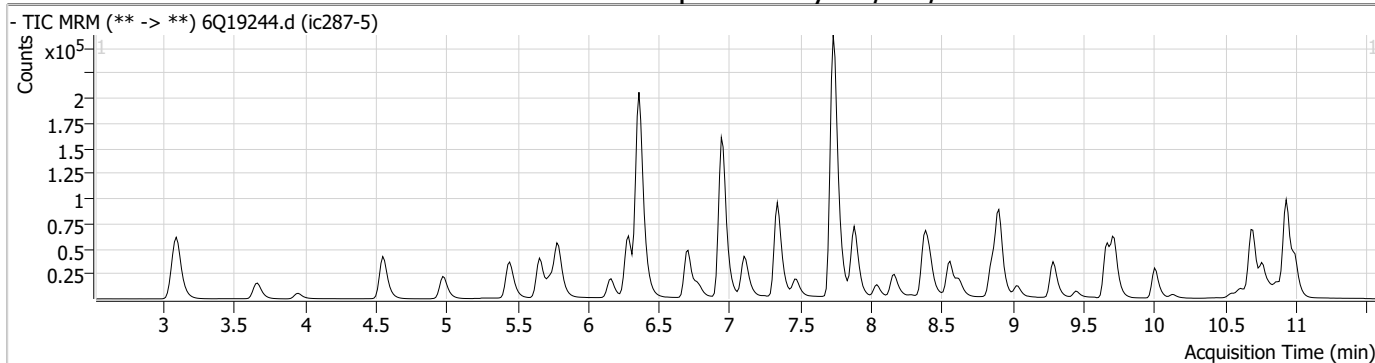
Perfluorinated Compounds by LC/MS/MS

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

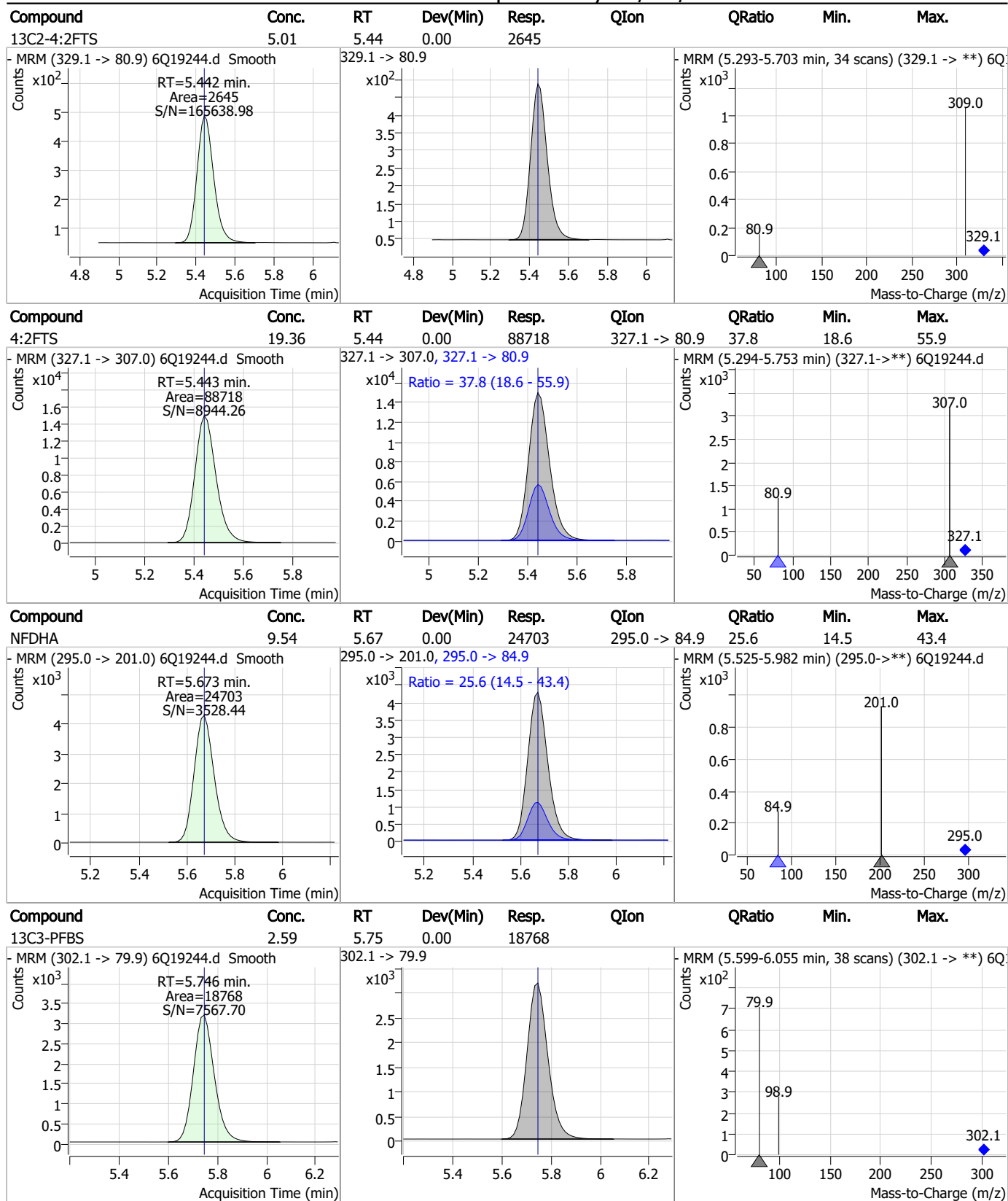


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	23.20	3.95	0.00	21533	241.0 -> 117.0	13.0	6.6	19.9
- MRM (241.0 -> 177.0) 6Q19244.d Smooth			241.0 -> 177.0, 241.0 -> 117.0			- MRM (3.796-4.265 min) (241.0->**) 6Q19244.d		
PFPeA	9.39	4.55	0.00	127412				
- MRM (263.0 -> 219.0) 6Q19244.d Smooth			263.0 -> 219.0			- MRM (4.410-4.904 min, 40 scans) (263.0 -> **) 6Q19244.d		
13C5-PFPeA	5.17	4.55	-0.01	46117				
- MRM (268.3 -> 223.0) 6Q19244.d Smooth			268.3 -> 223.0			- MRM (4.407-4.910 min, 40 scans) (268.3 -> **) 6Q19244.d		
PFMBA	9.33	4.98	-0.01	90850				
- MRM (279.0 -> 85.1) 6Q19244.d Smooth			279.0 -> 85.1			- MRM (4.844-5.339 min, 39 scans) (279.0 -> **) 6Q19244.d		

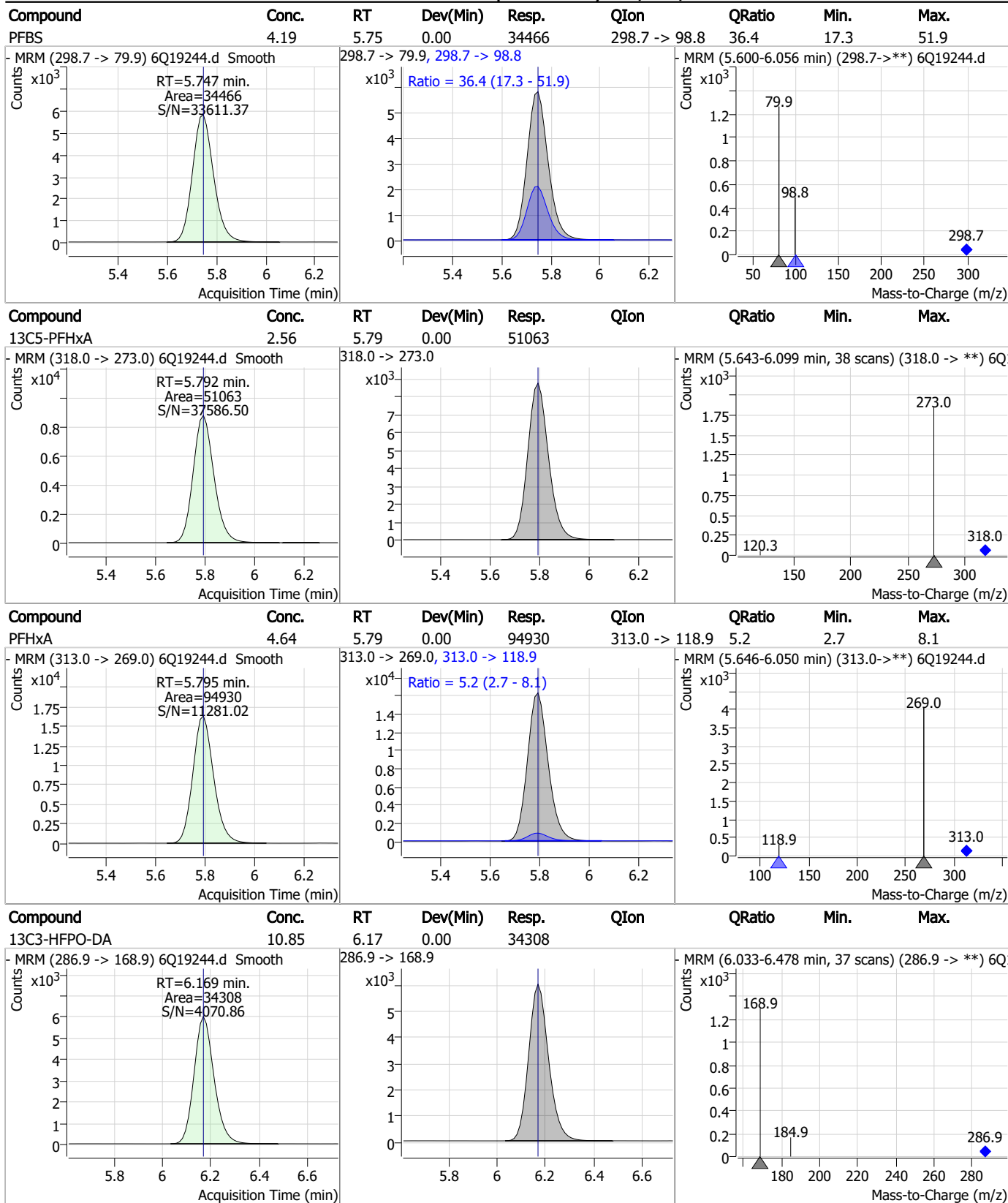
7.7.6
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Perfluorinated Compounds by LC/MS/MS



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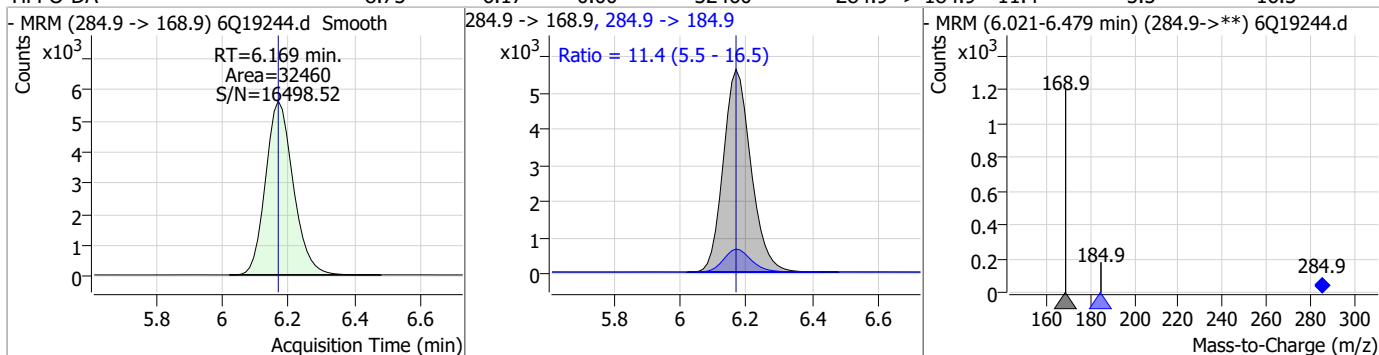
Perfluorinated Compounds by LC/MS/MS



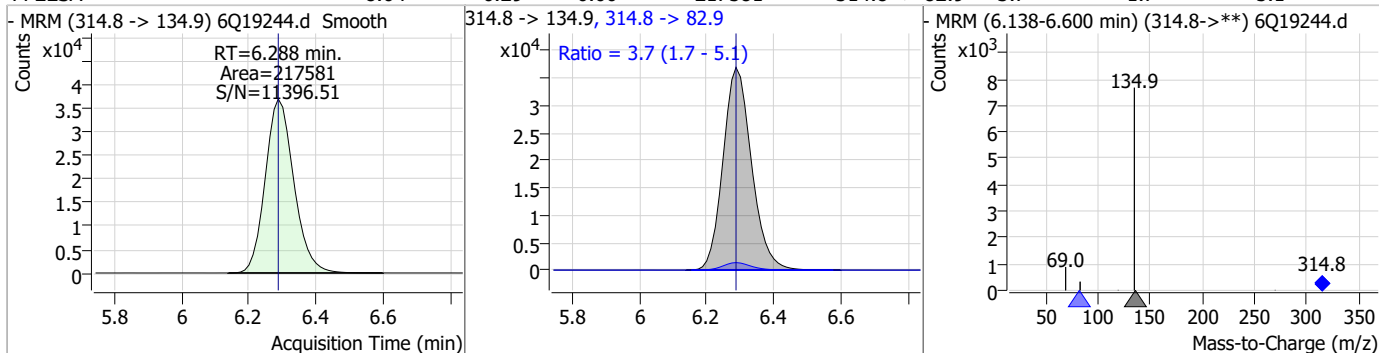
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Perfluorinated Compounds by LC/MS/MS

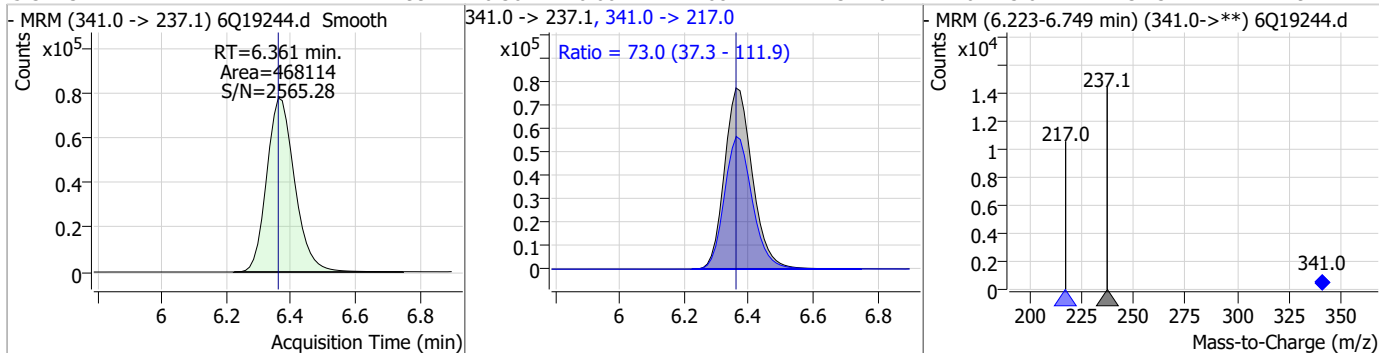
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	8.75	6.17	0.00	32460	284.9 -> 184.9	11.4	5.5	16.5



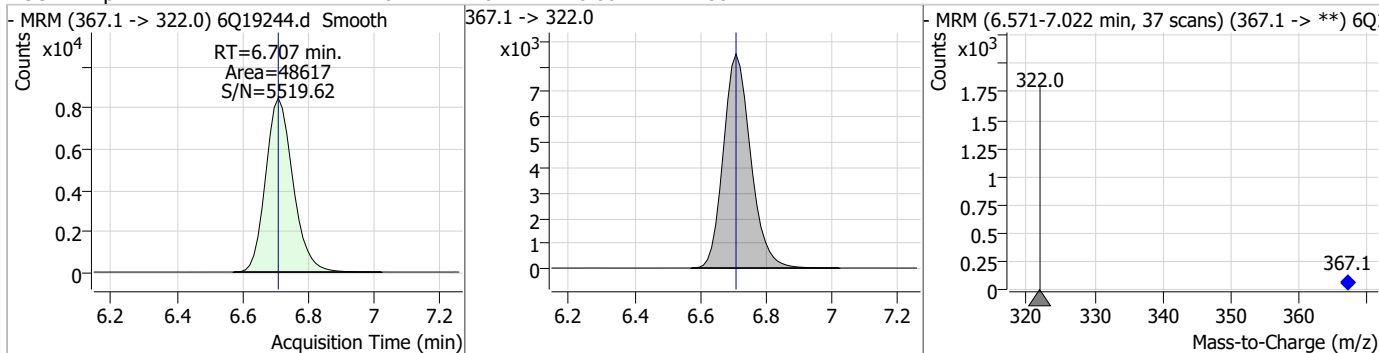
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	8.64	6.29	0.00	217581	314.8 -> 82.9	3.7	1.7	5.1



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

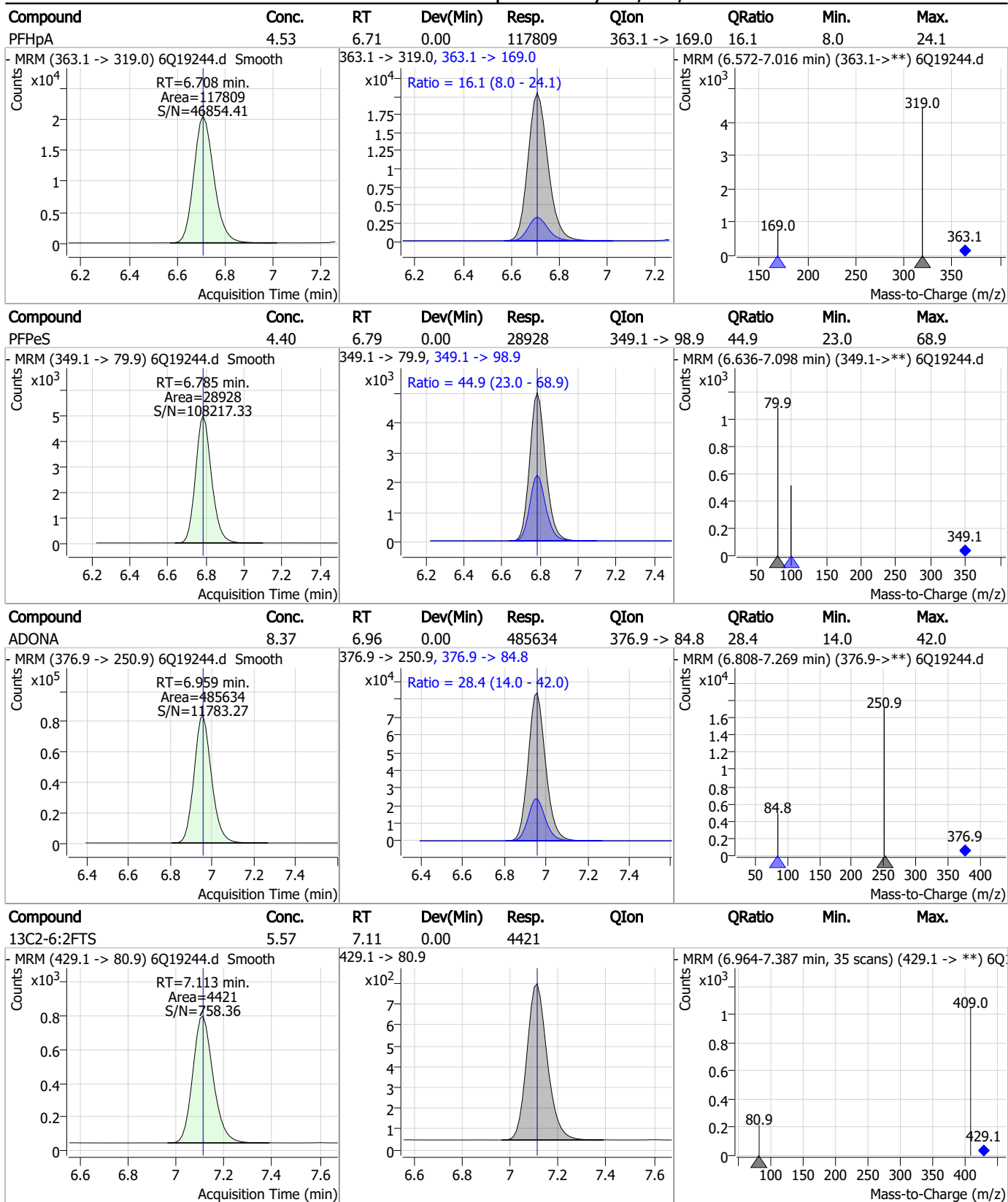


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.62	6.71	0.00	48617	367.1 -> 322.0			



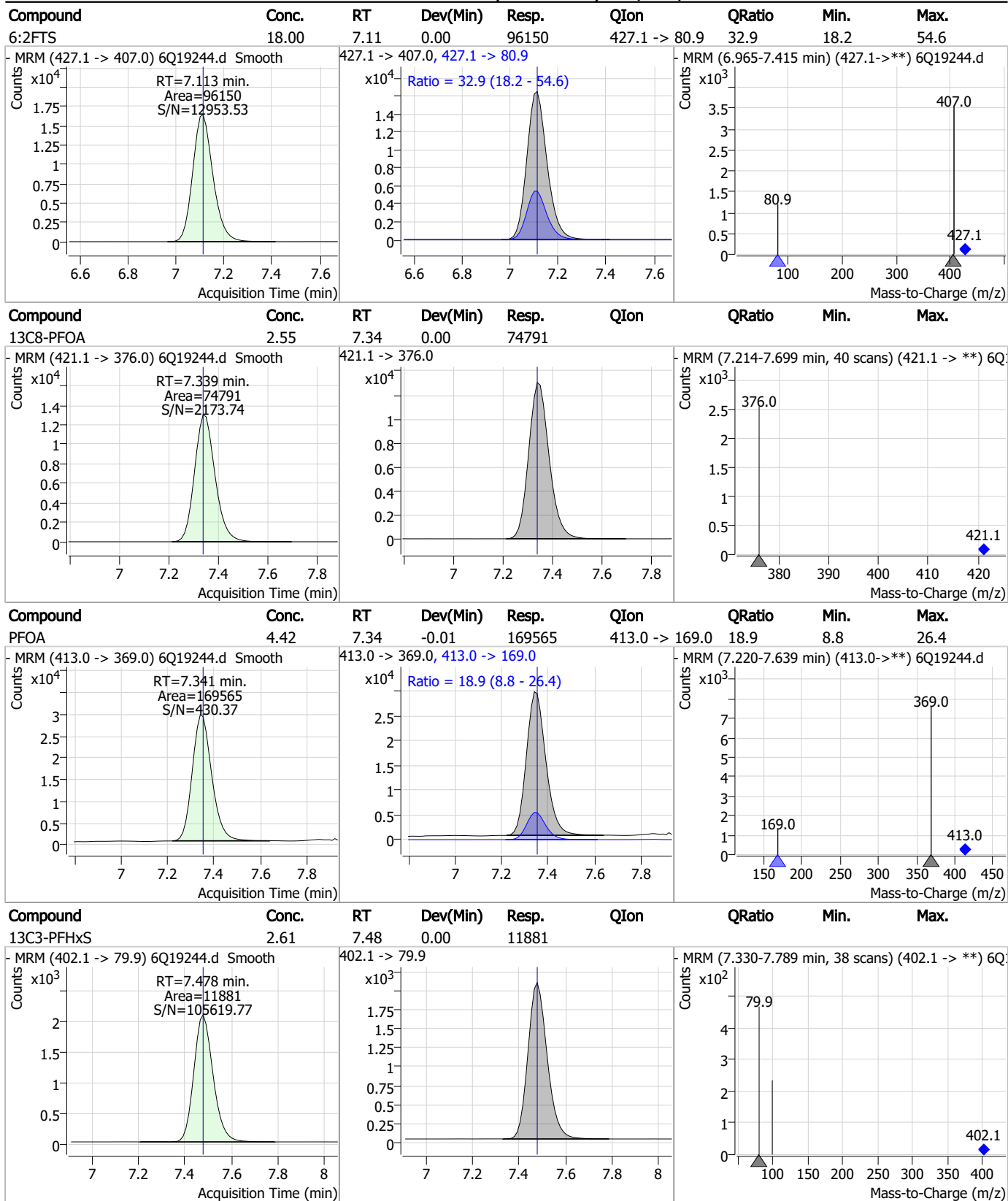
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Perfluorinated Compounds by LC/MS/MS



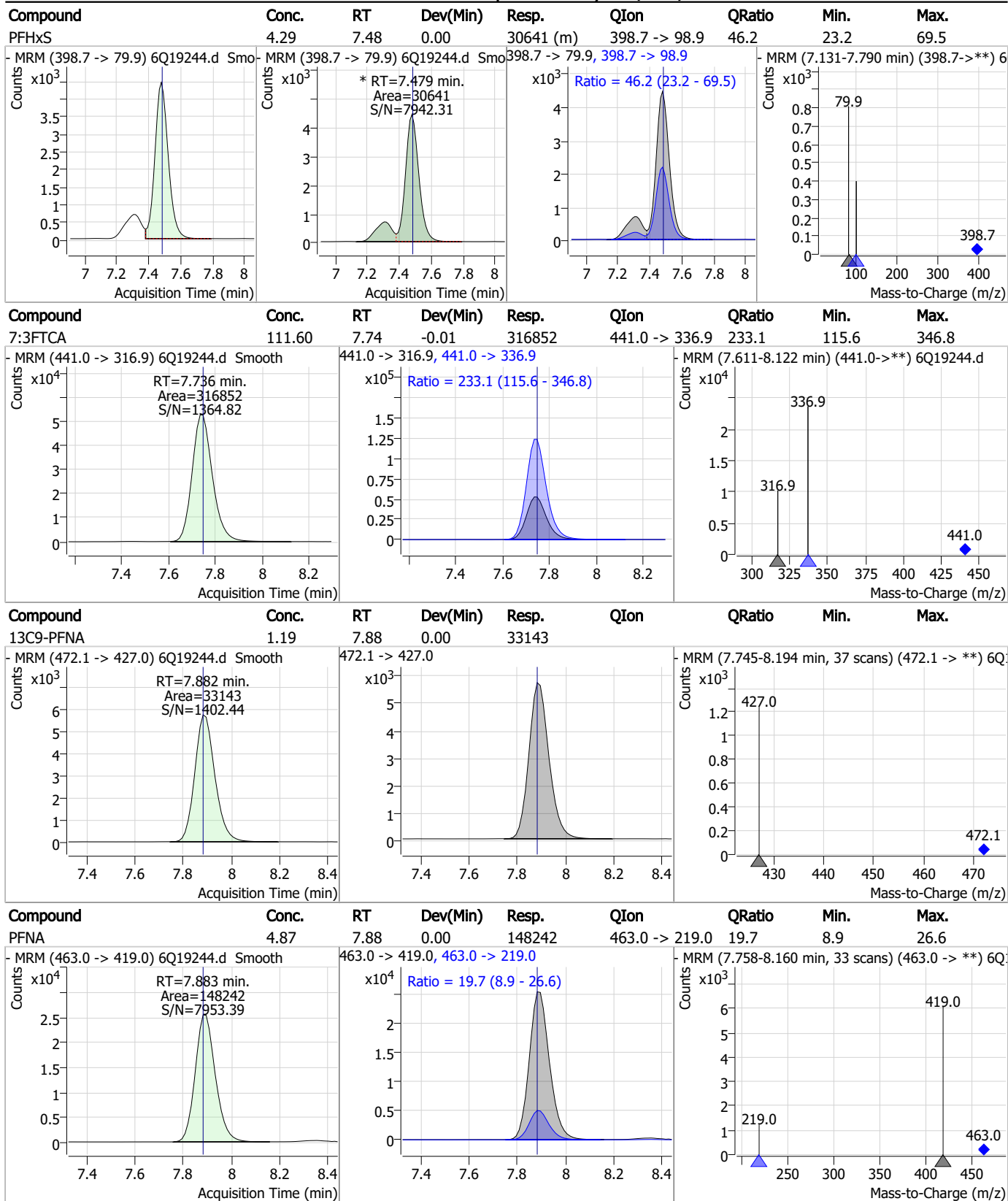
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Perfluorinated Compounds by LC/MS/MS



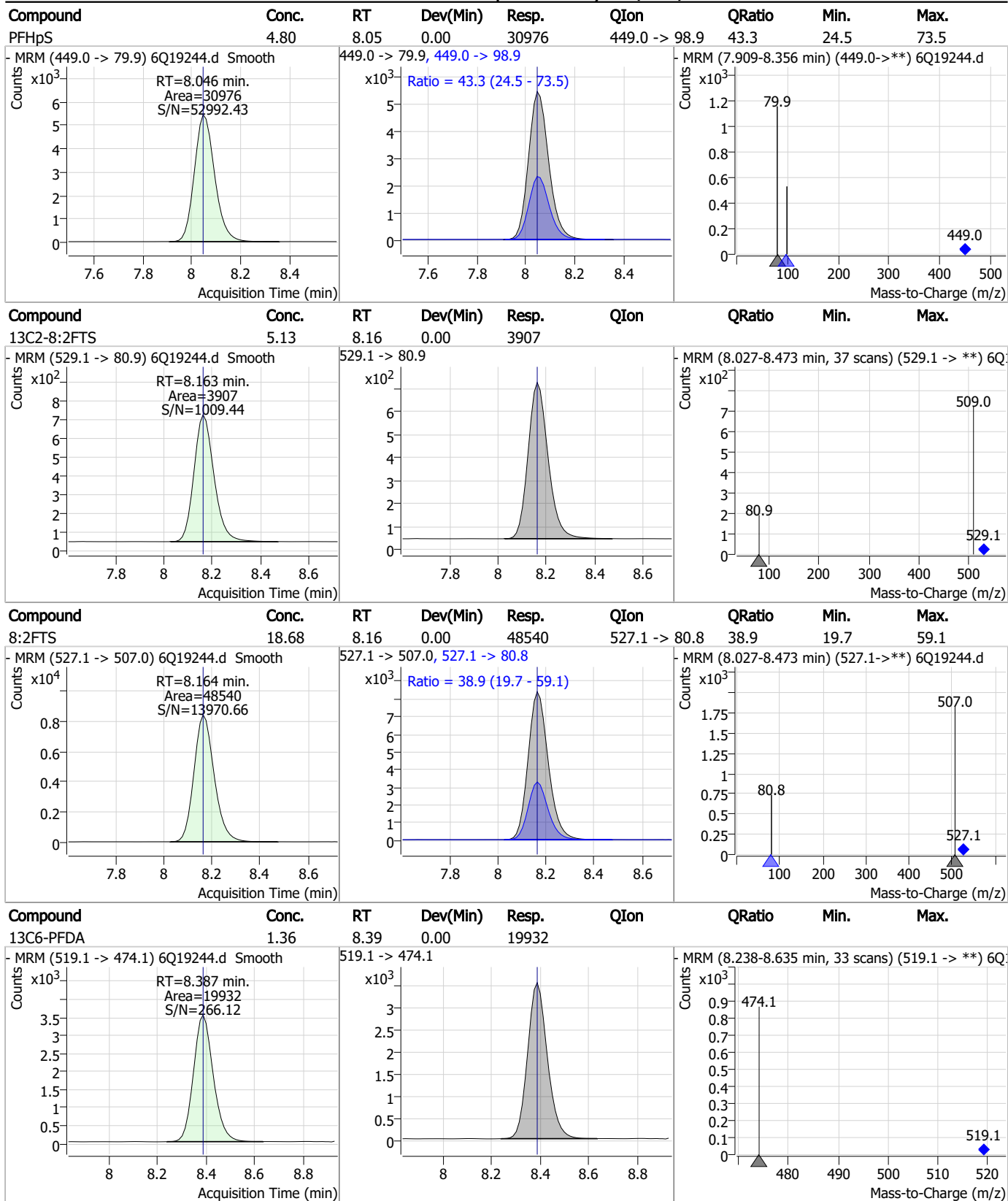
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Perfluorinated Compounds by LC/MS/MS



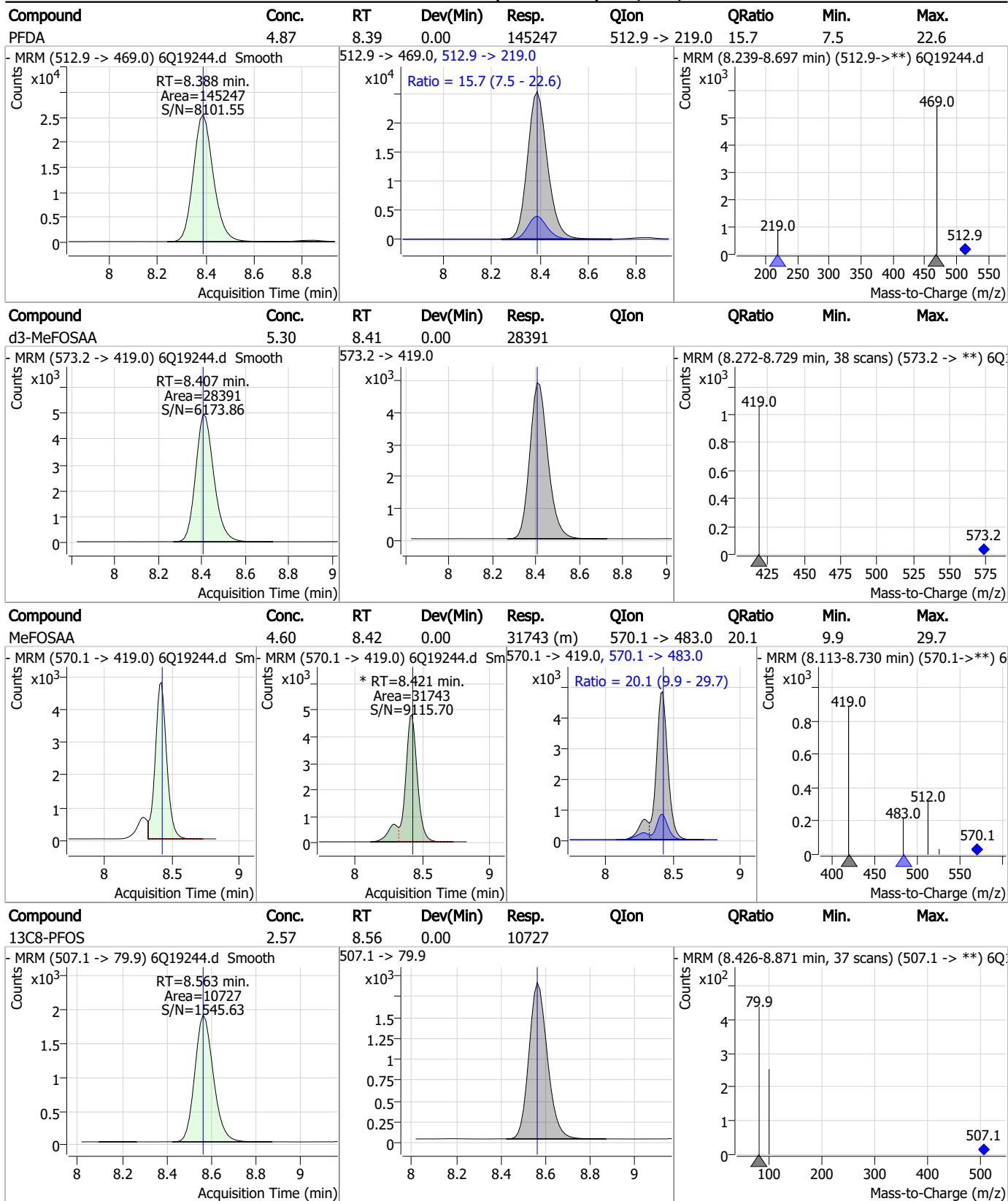
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Perfluorinated Compounds by LC/MS/MS



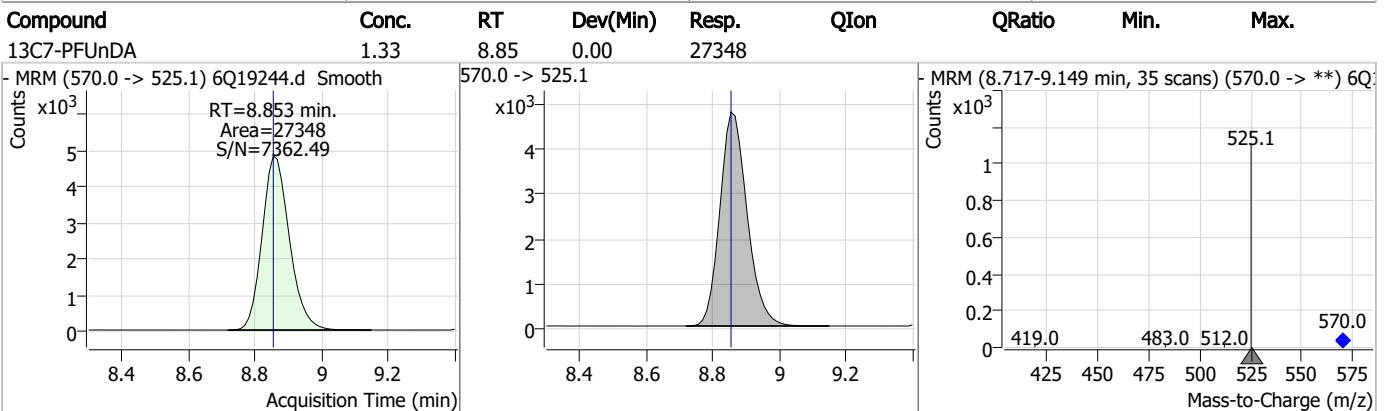
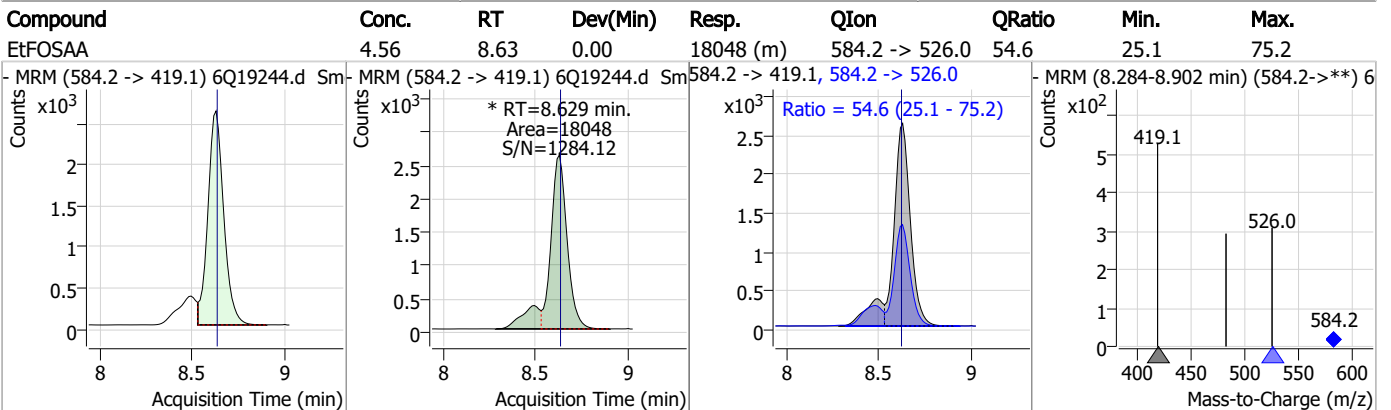
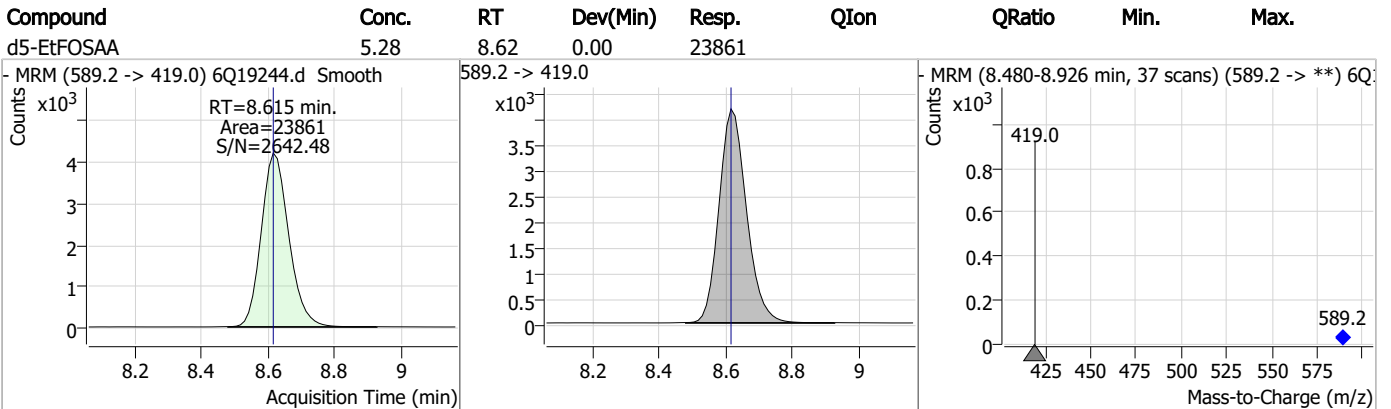
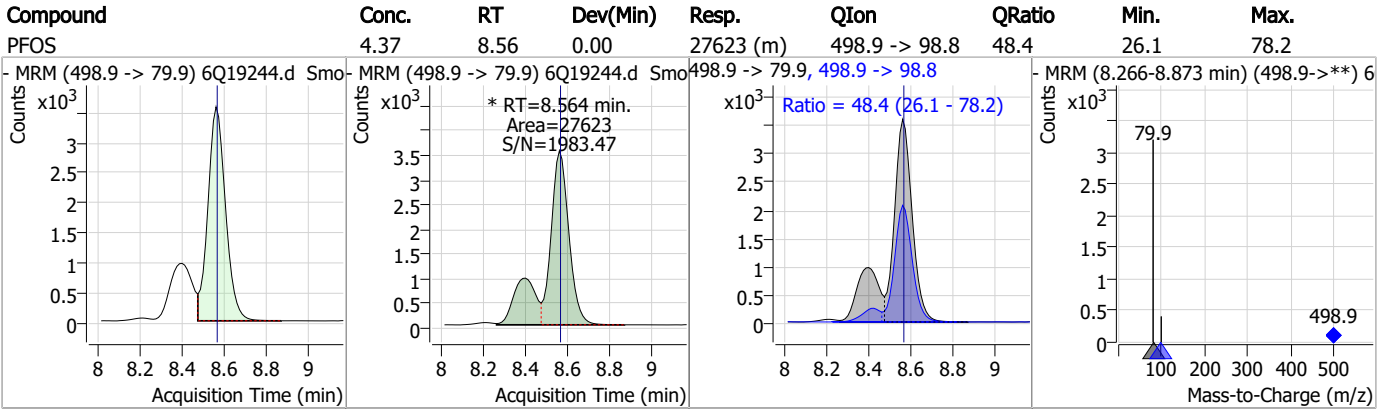
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Perfluorinated Compounds by LC/MS/MS



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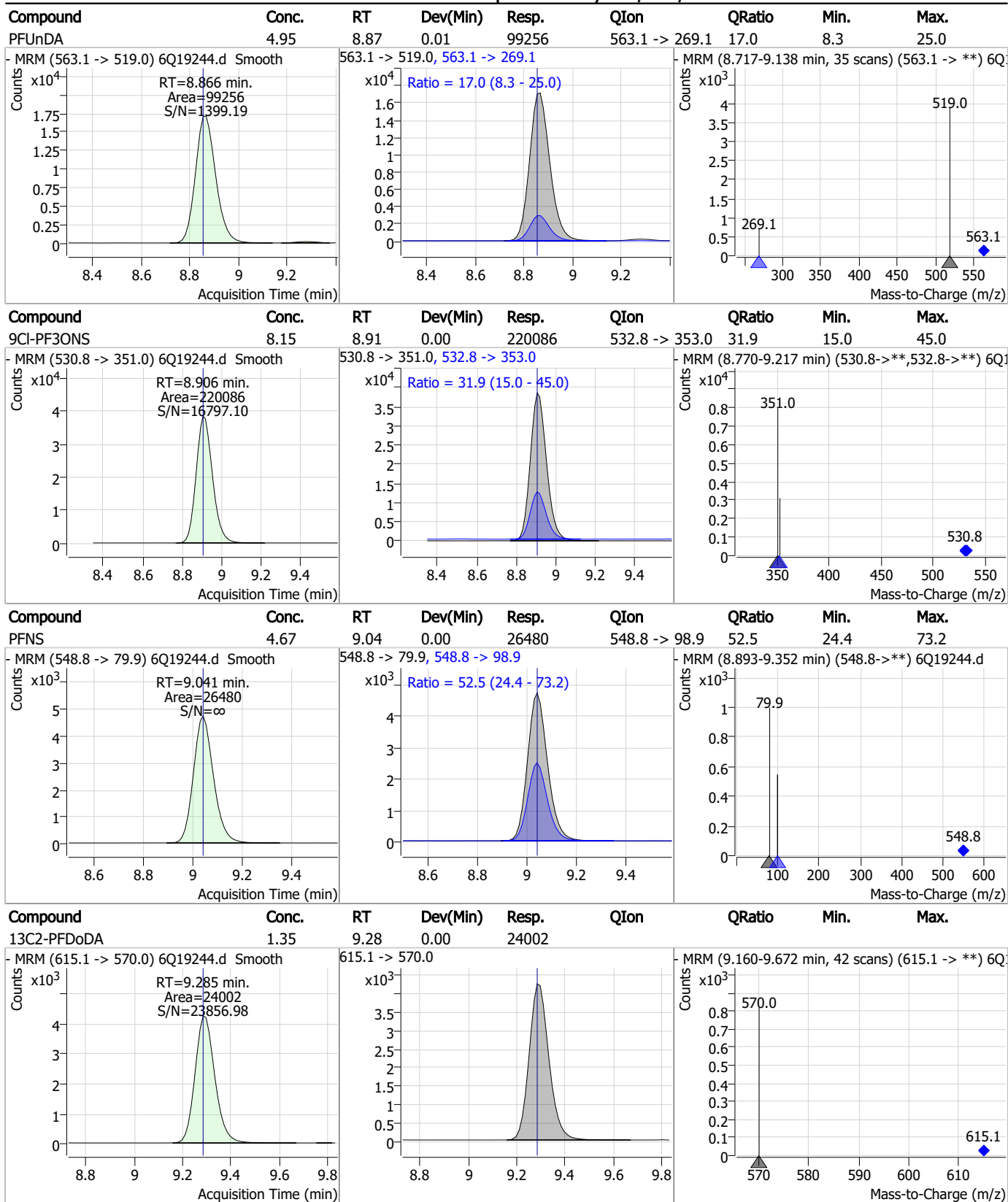
Perfluorinated Compounds by LC/MS/MS



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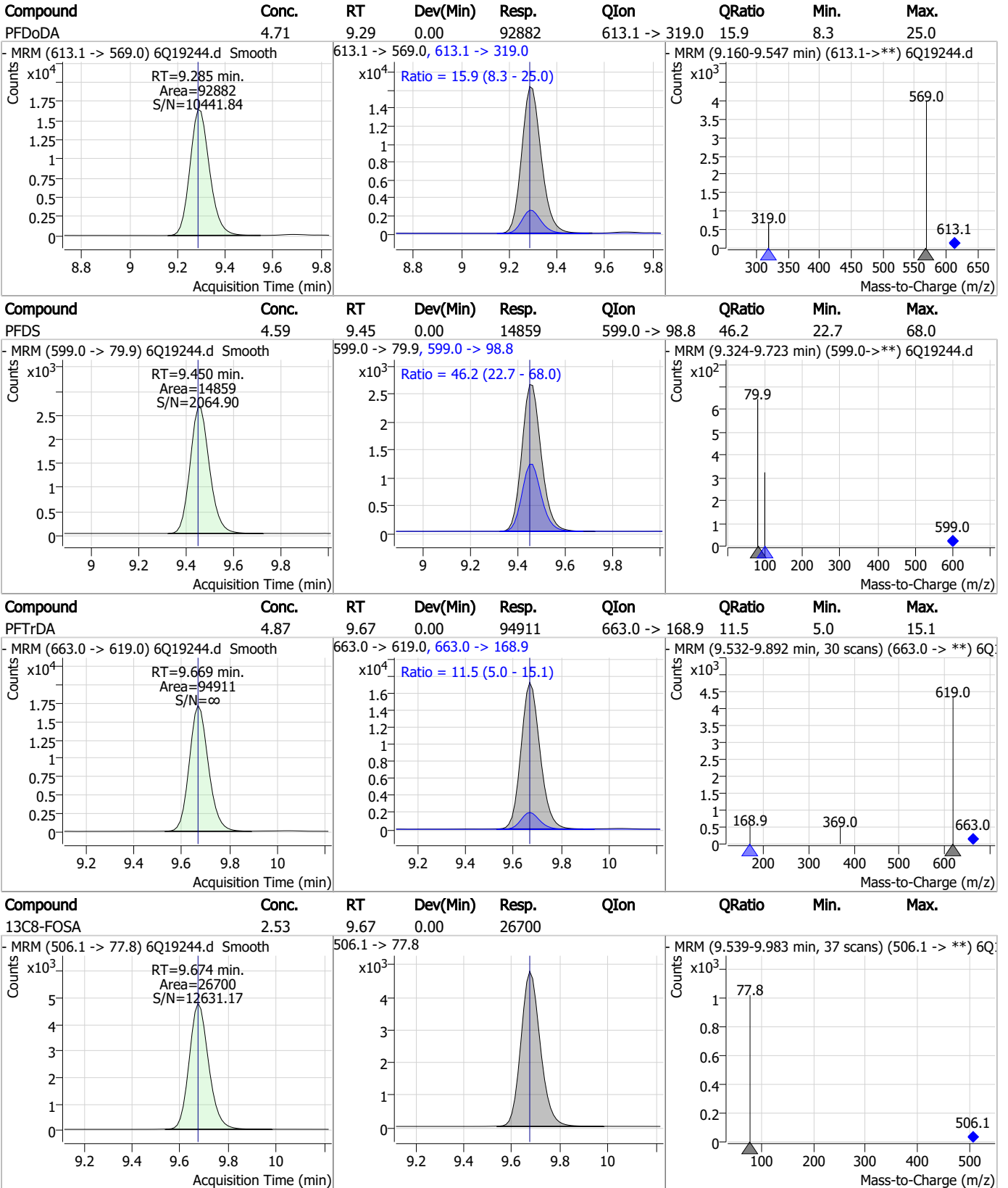
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

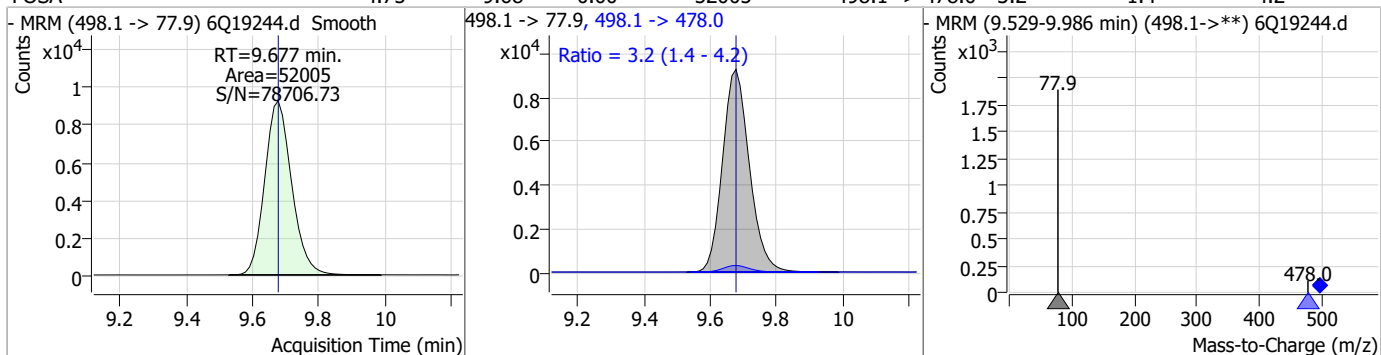


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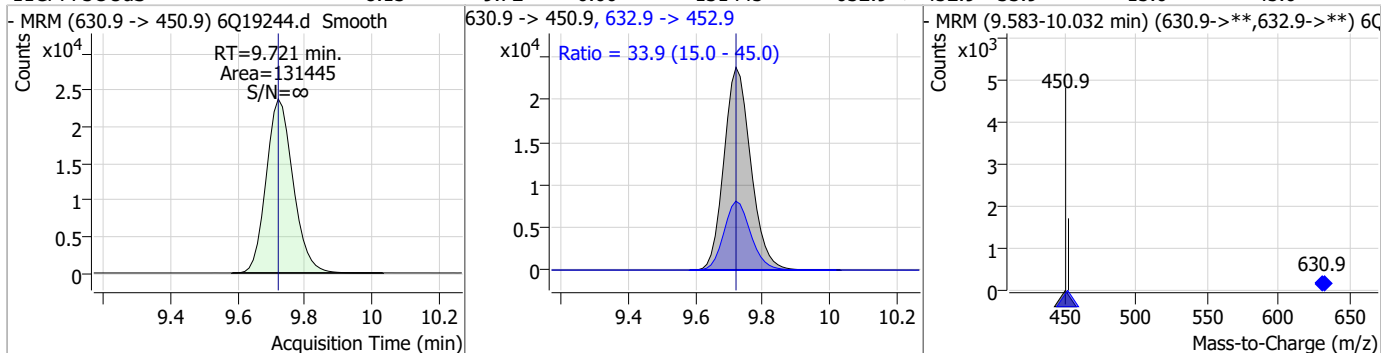
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Perfluorinated Compounds by LC/MS/MS

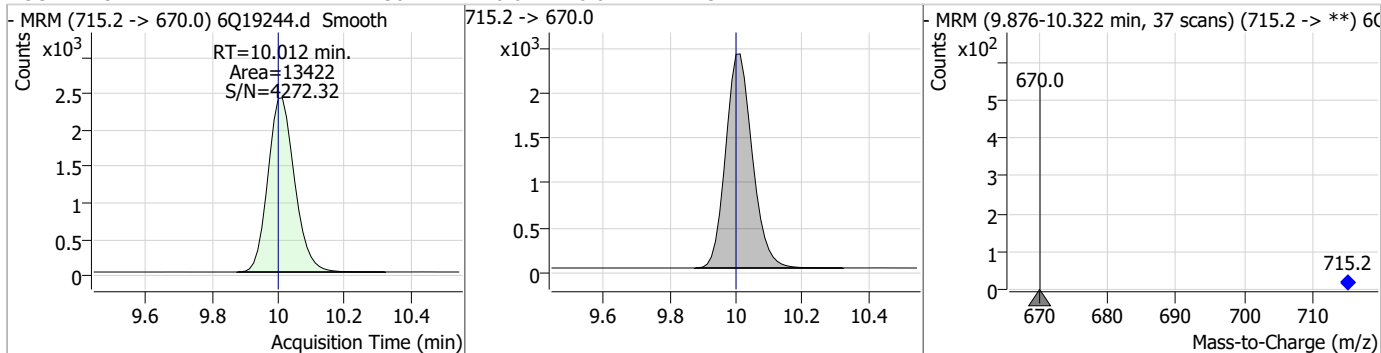
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	4.75	9.68	0.00	52005	498.1 -> 478.0	3.2	1.4	4.2



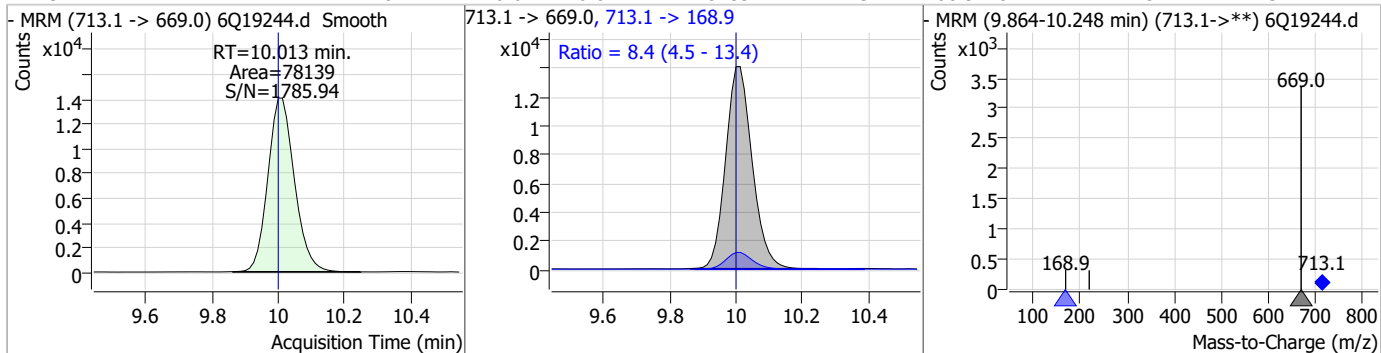
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	8.13	9.72	0.00	131445	632.9 -> 452.9	33.9	15.0	45.0



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

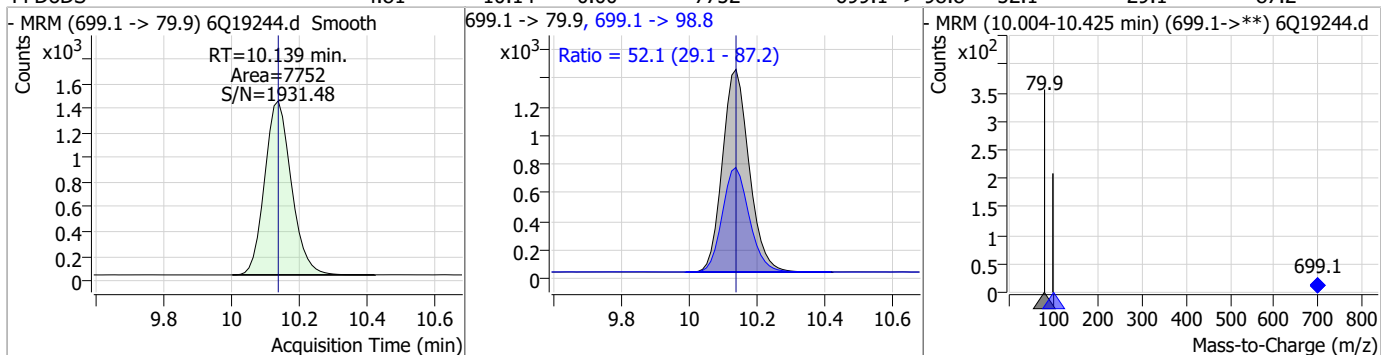


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.87	10.01	0.01	78139	713.1 -> 168.9	8.4	4.5	13.4

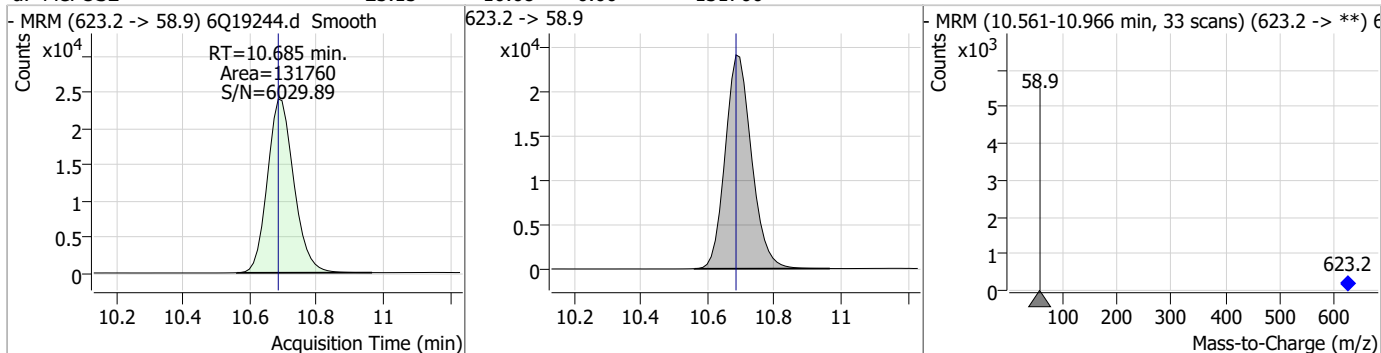


Perfluorinated Compounds by LC/MS/MS

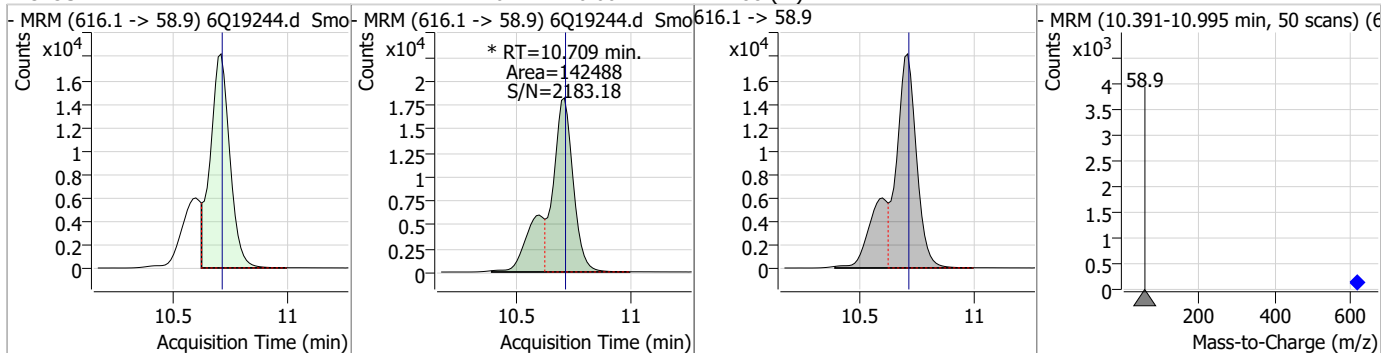
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	4.81	10.14	0.00	7752	699.1 -> 98.8	52.1	29.1	87.2



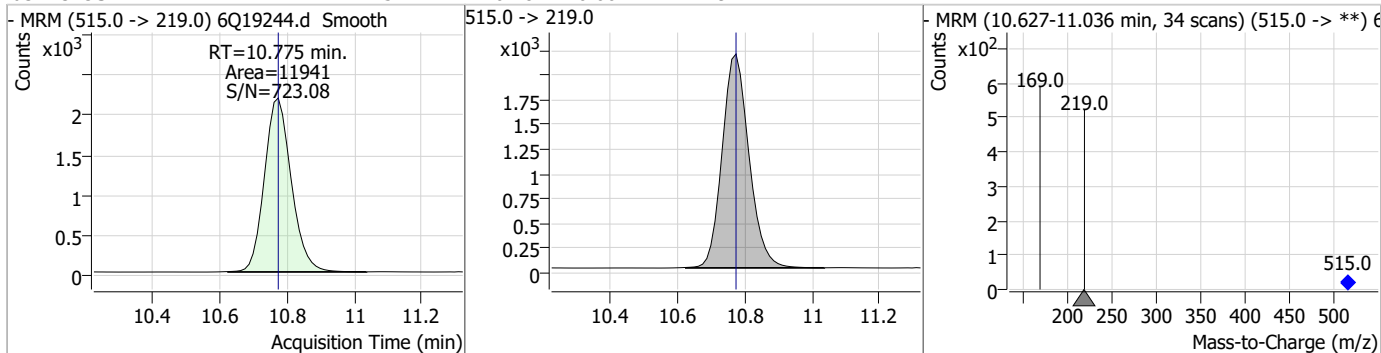
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.15	10.68	0.00	131760				



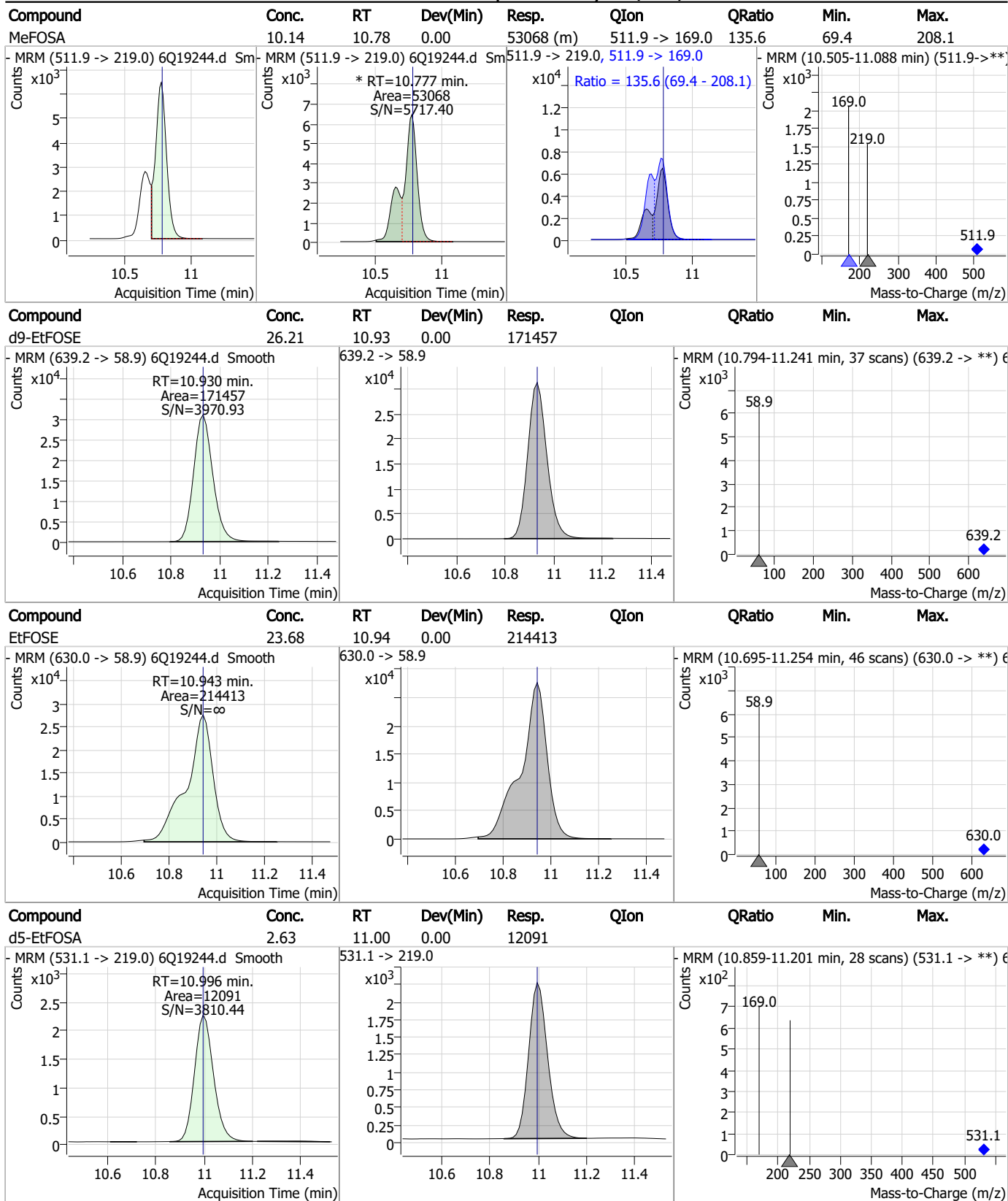
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	24.71	10.71	0.00	142488 (m)				



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

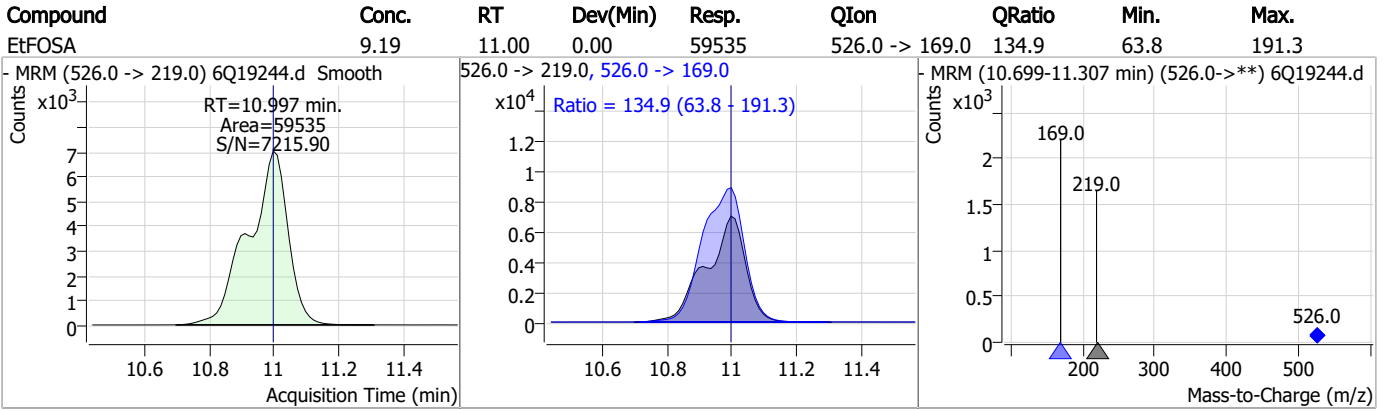


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

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

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

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

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 06/13/23 13:30

Perfluorinated Compounds by LC/MS/MS

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

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

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Perfluorinated Compounds by LC/MS/MS

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

Perfluorinated Compounds by LC/MS/MS

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

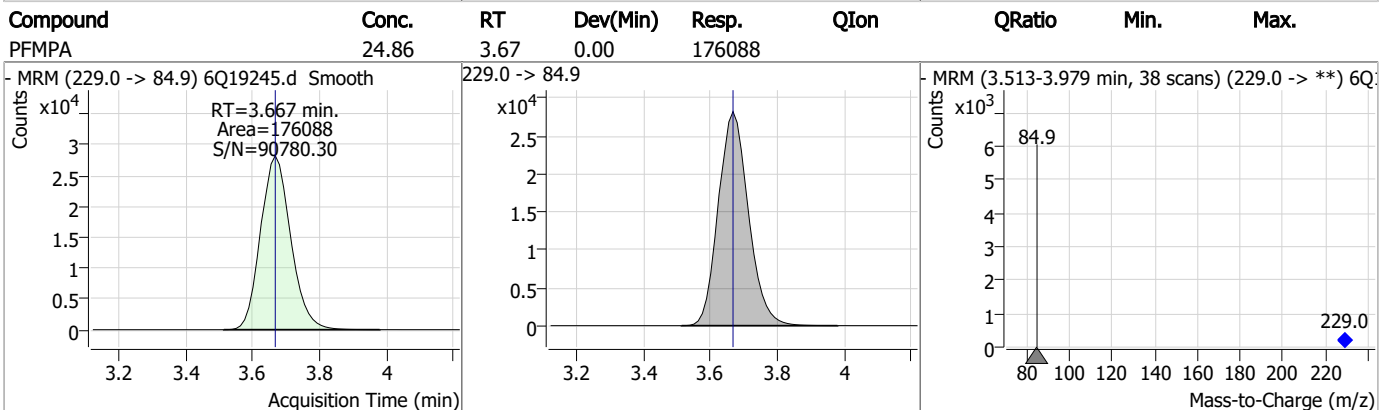
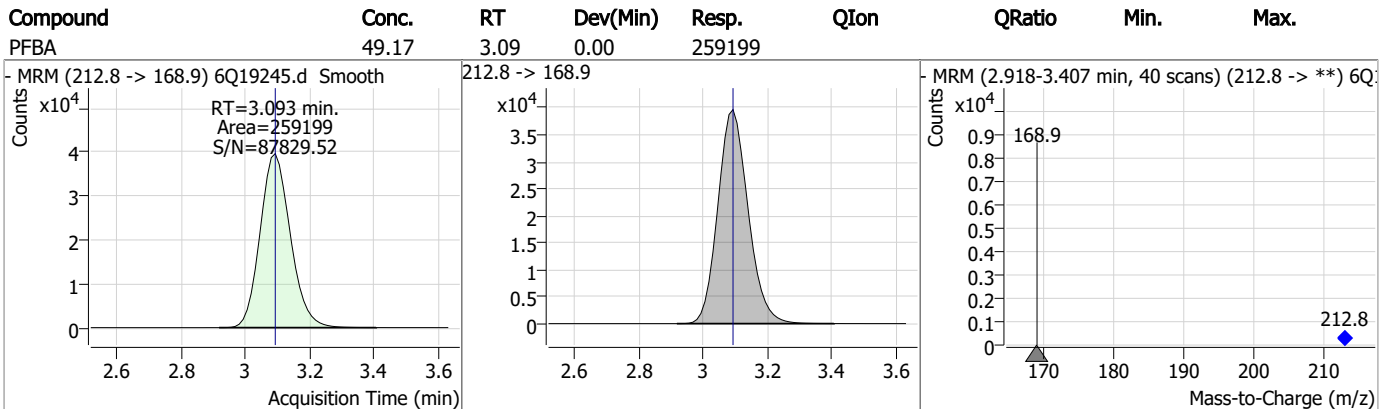
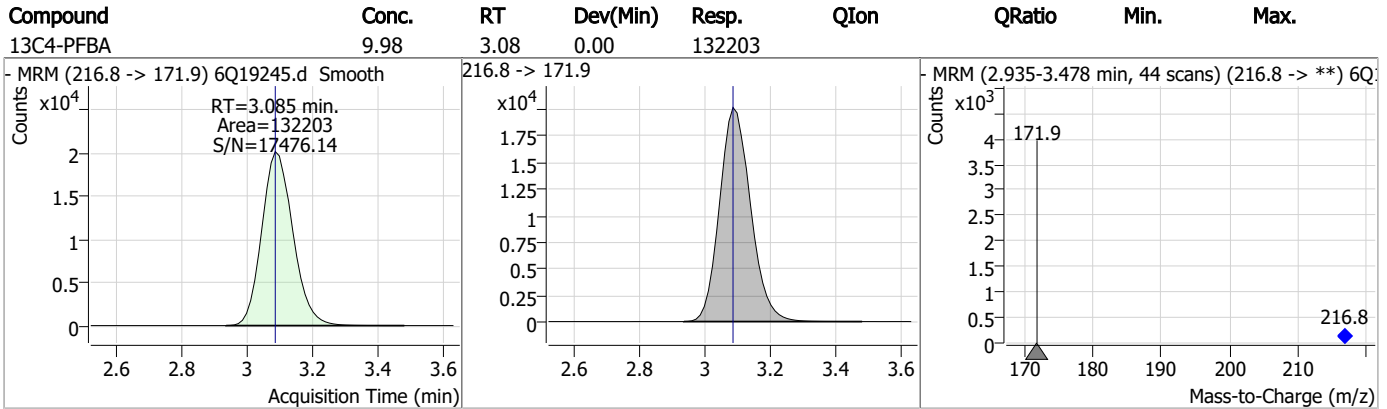
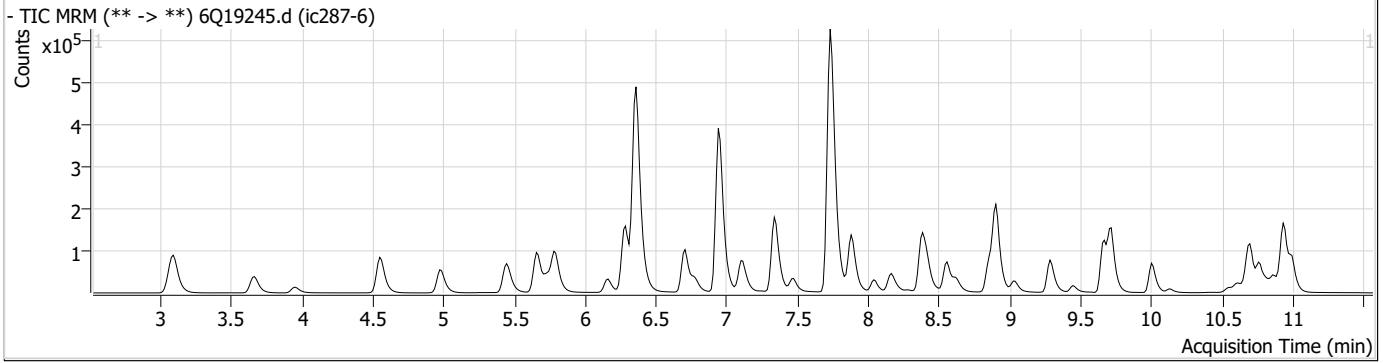
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

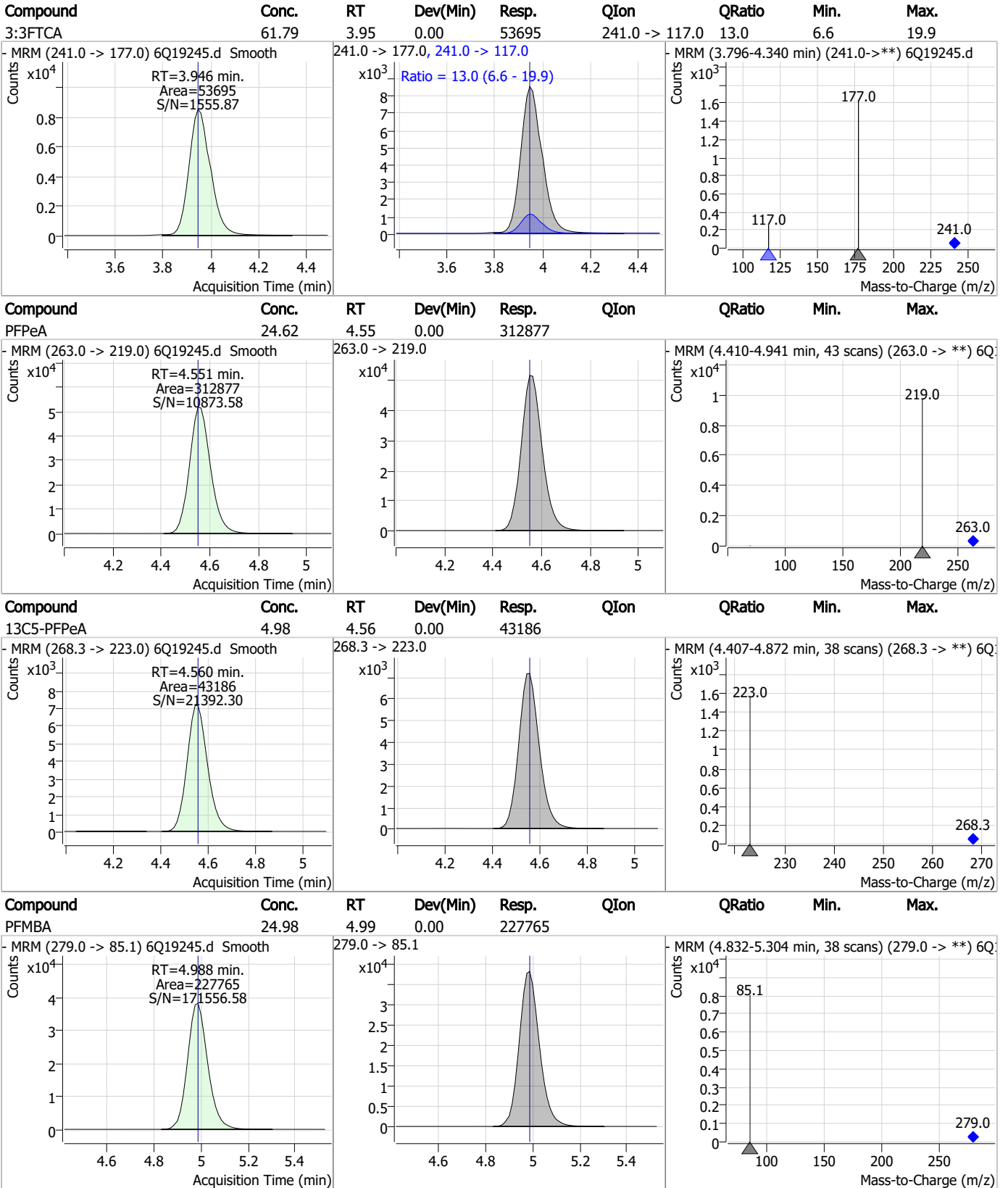
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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Perfluorinated Compounds by LC/MS/MS



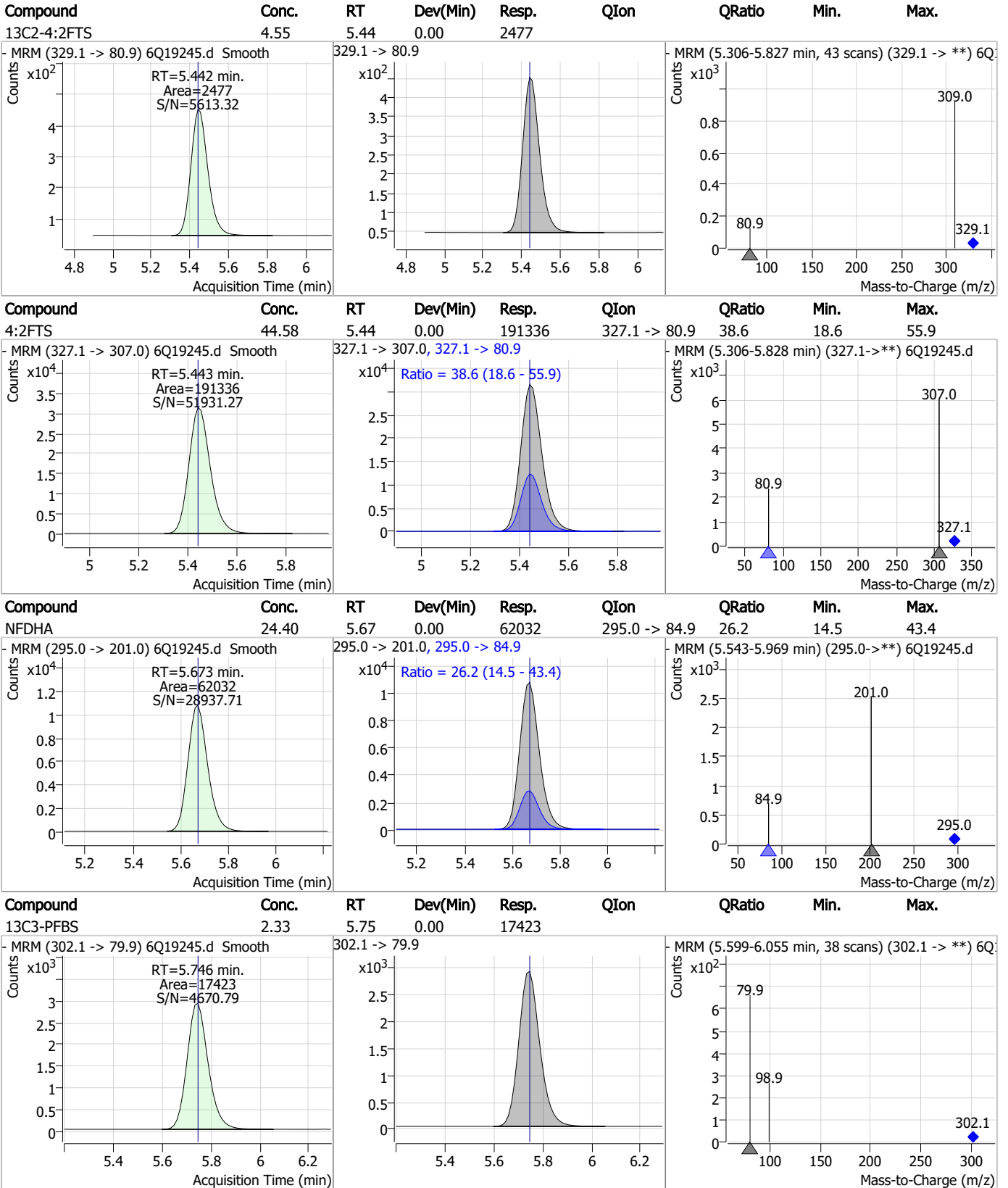
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

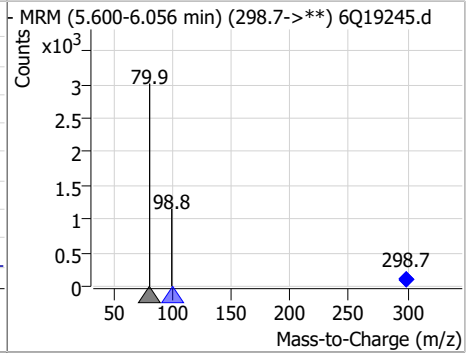
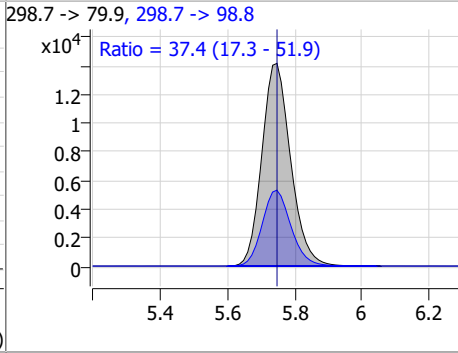
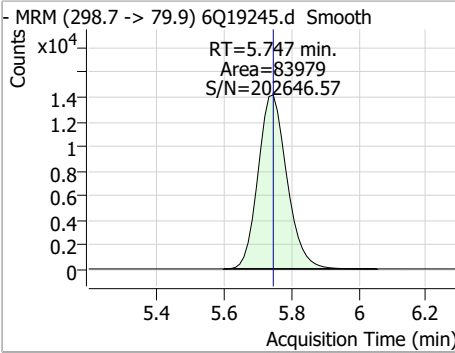


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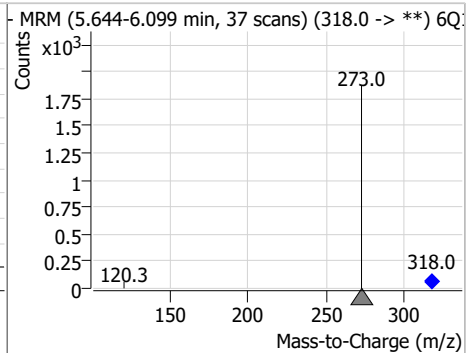
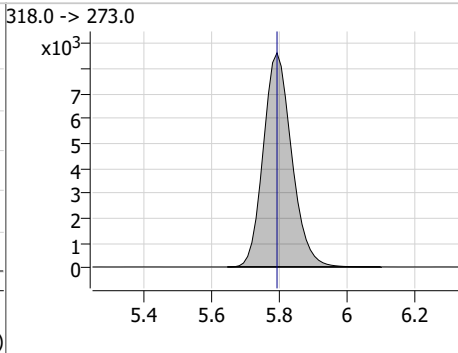
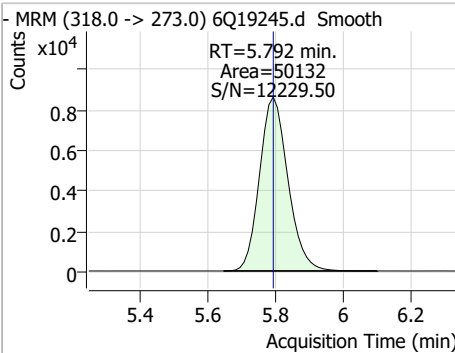
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Perfluorinated Compounds by LC/MS/MS

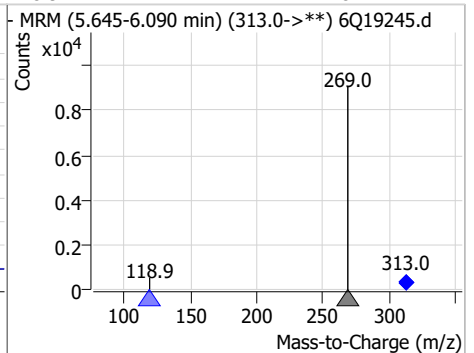
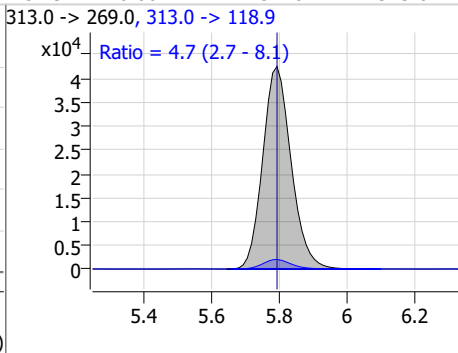
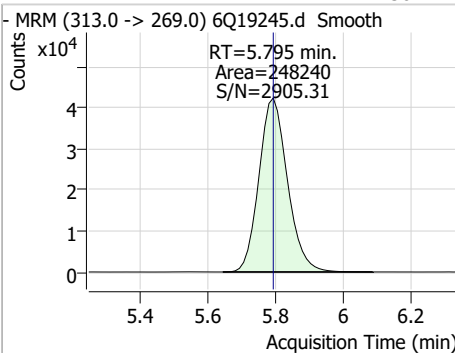
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	10.99	5.75	0.00	83979	298.7 -> 98.8	37.4	17.3	51.9



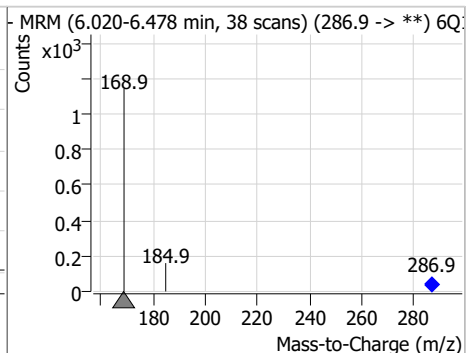
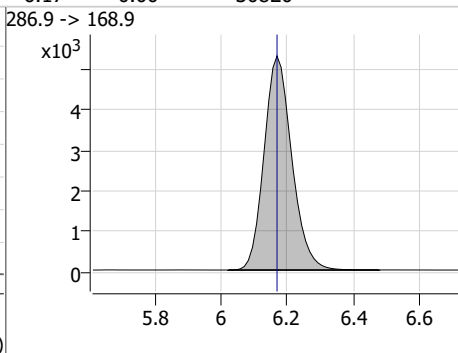
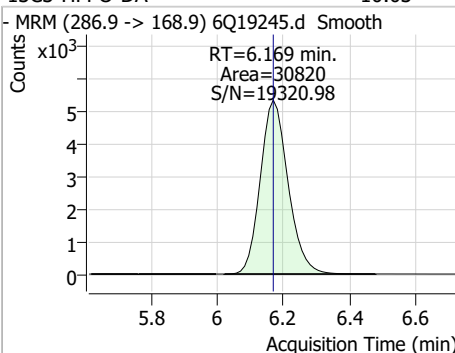
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.59	5.79	0.00	50132				



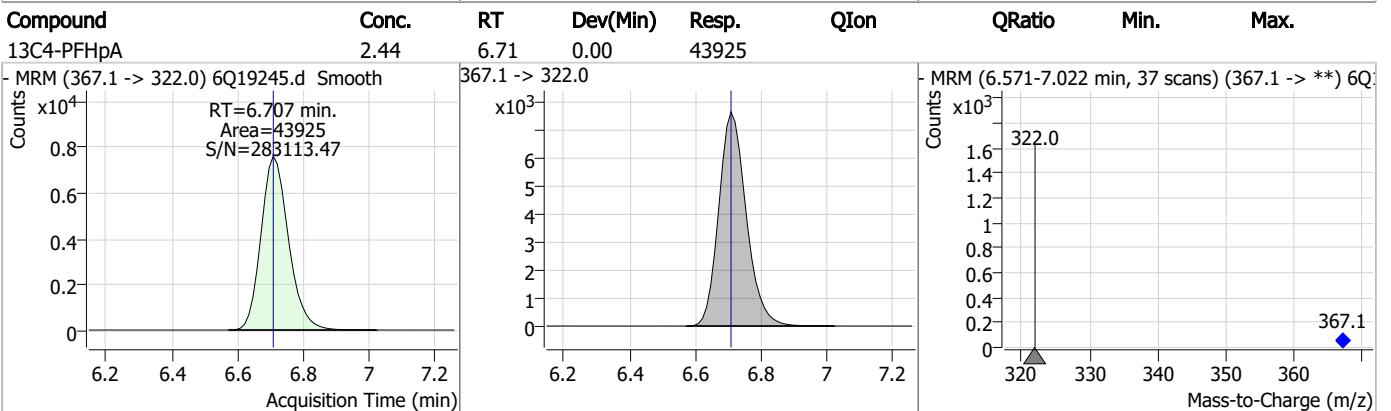
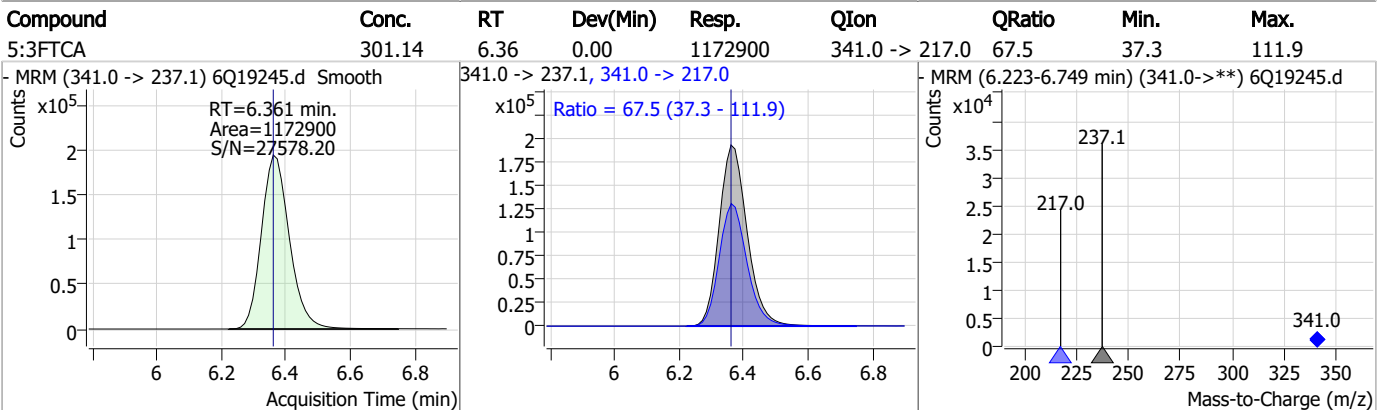
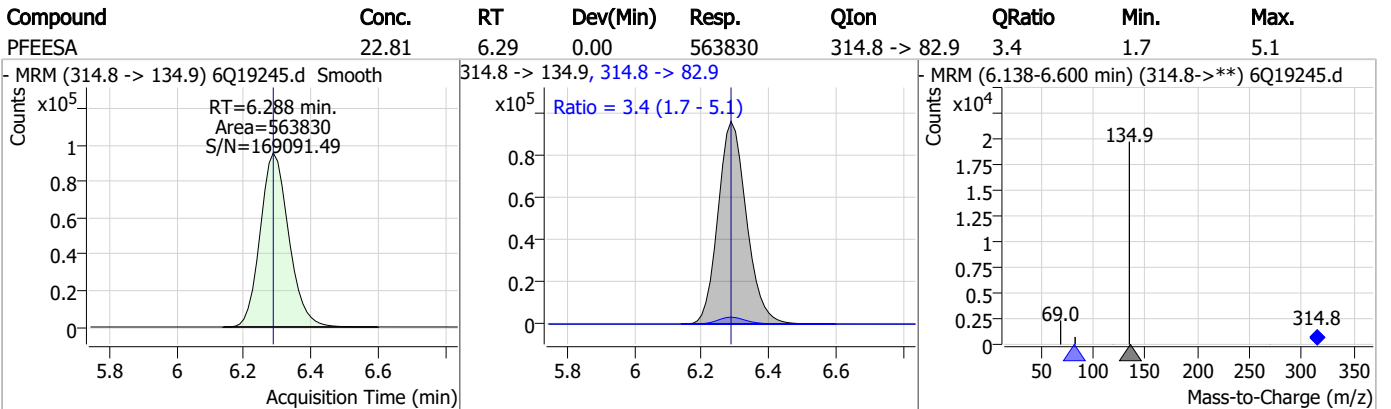
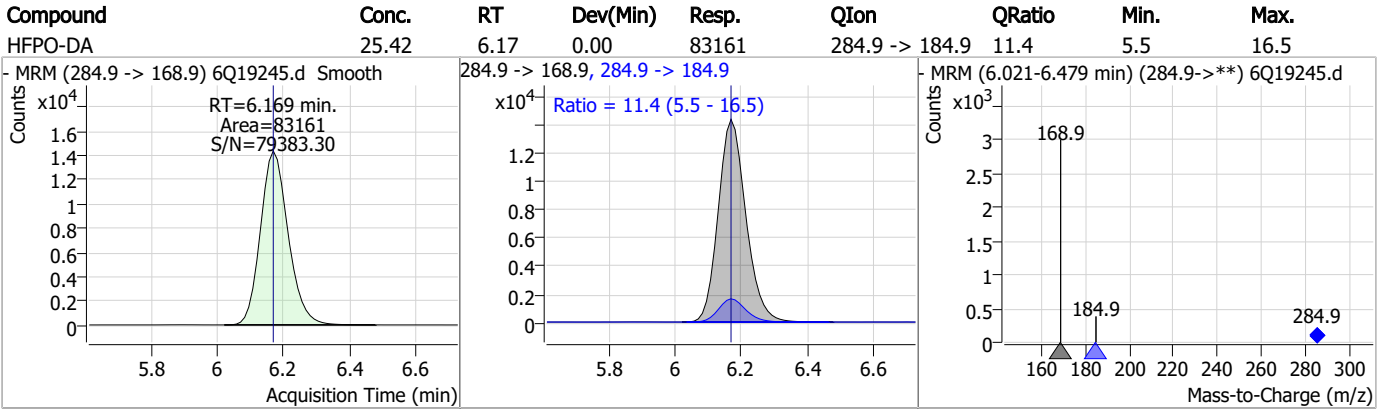
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	12.36	5.79	0.00	248240	313.0 -> 118.9	4.7	2.7	8.1



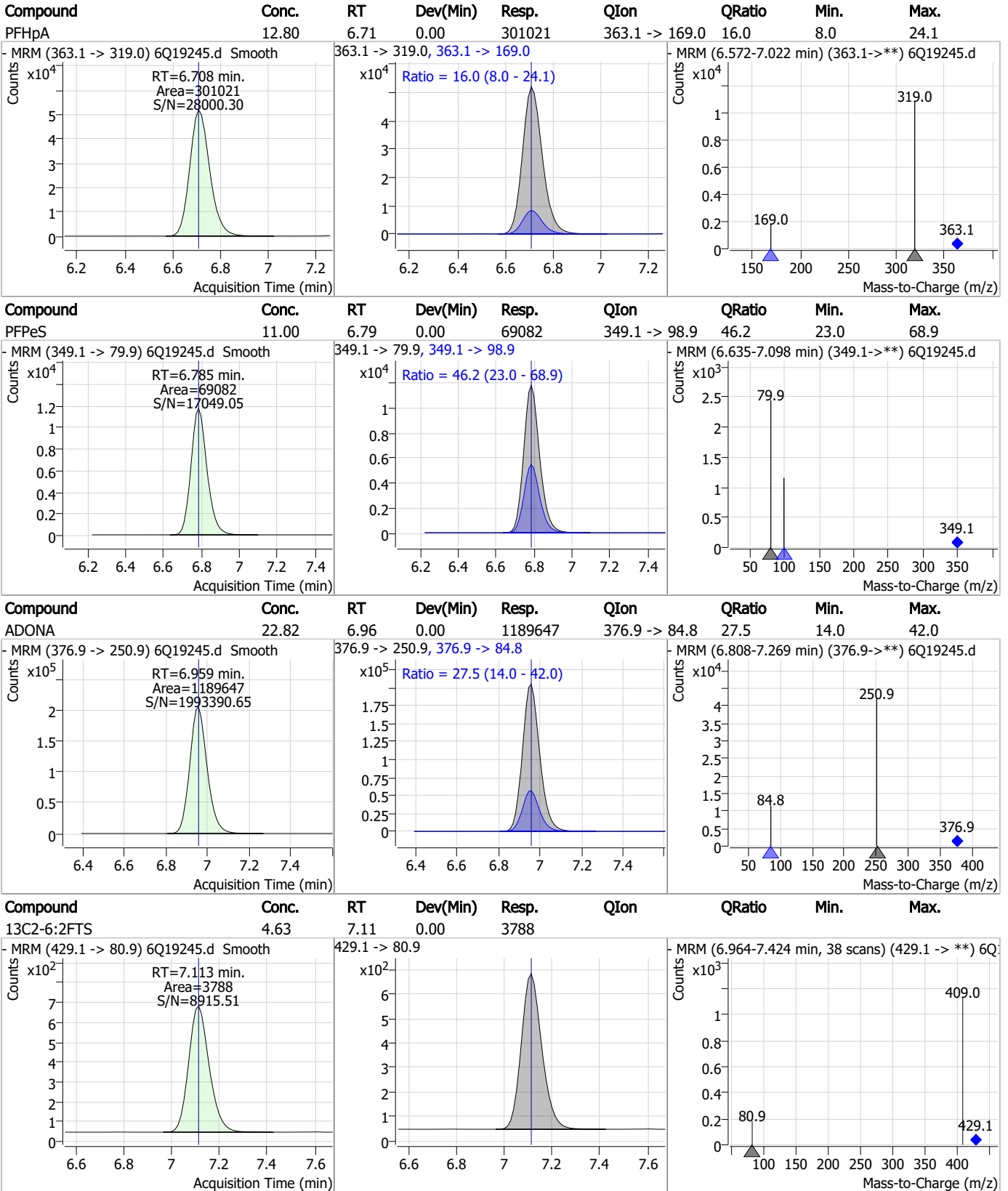
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.03	6.17	0.00	30820				



Perfluorinated Compounds by LC/MS/MS



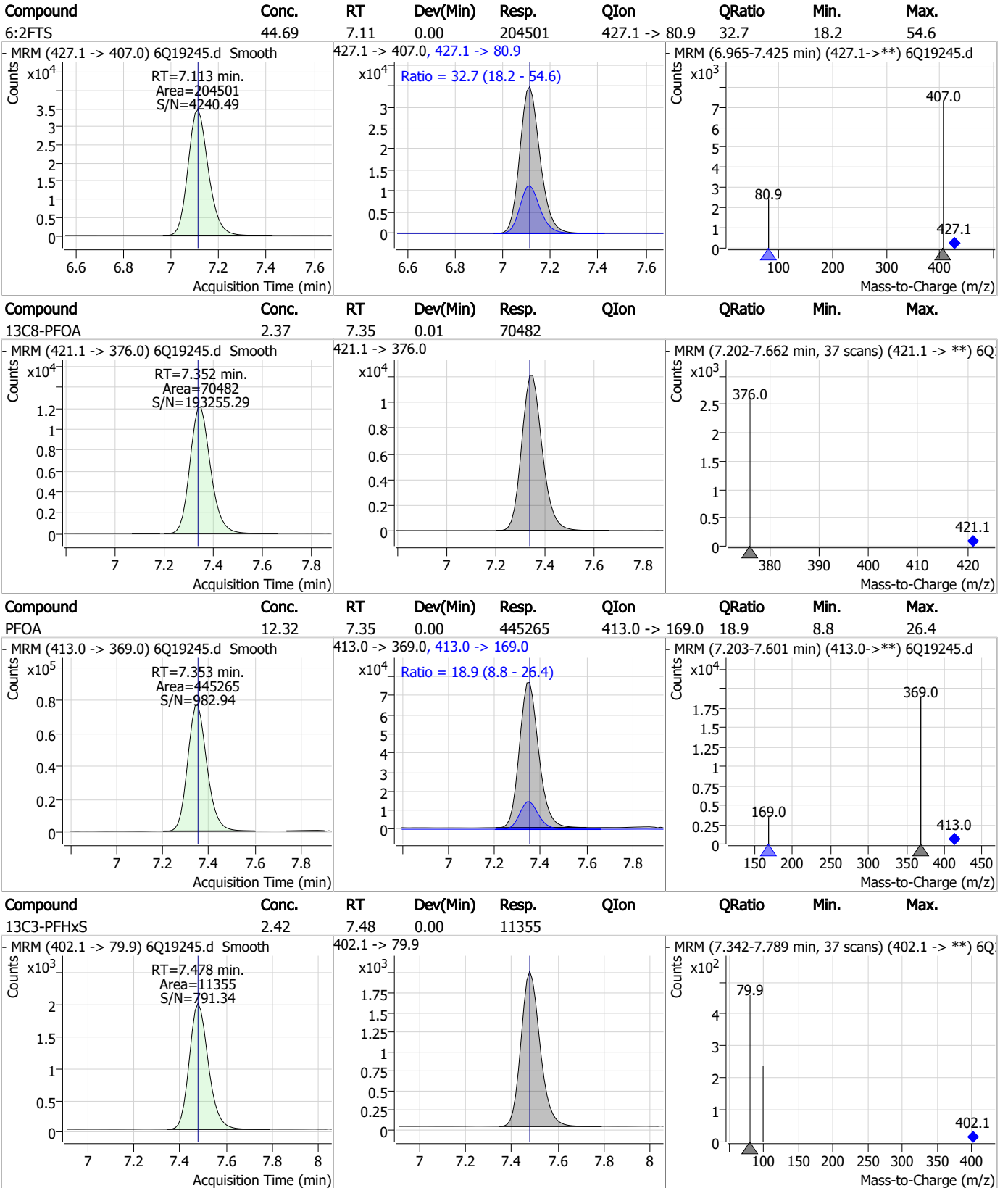
Perfluorinated Compounds by LC/MS/MS



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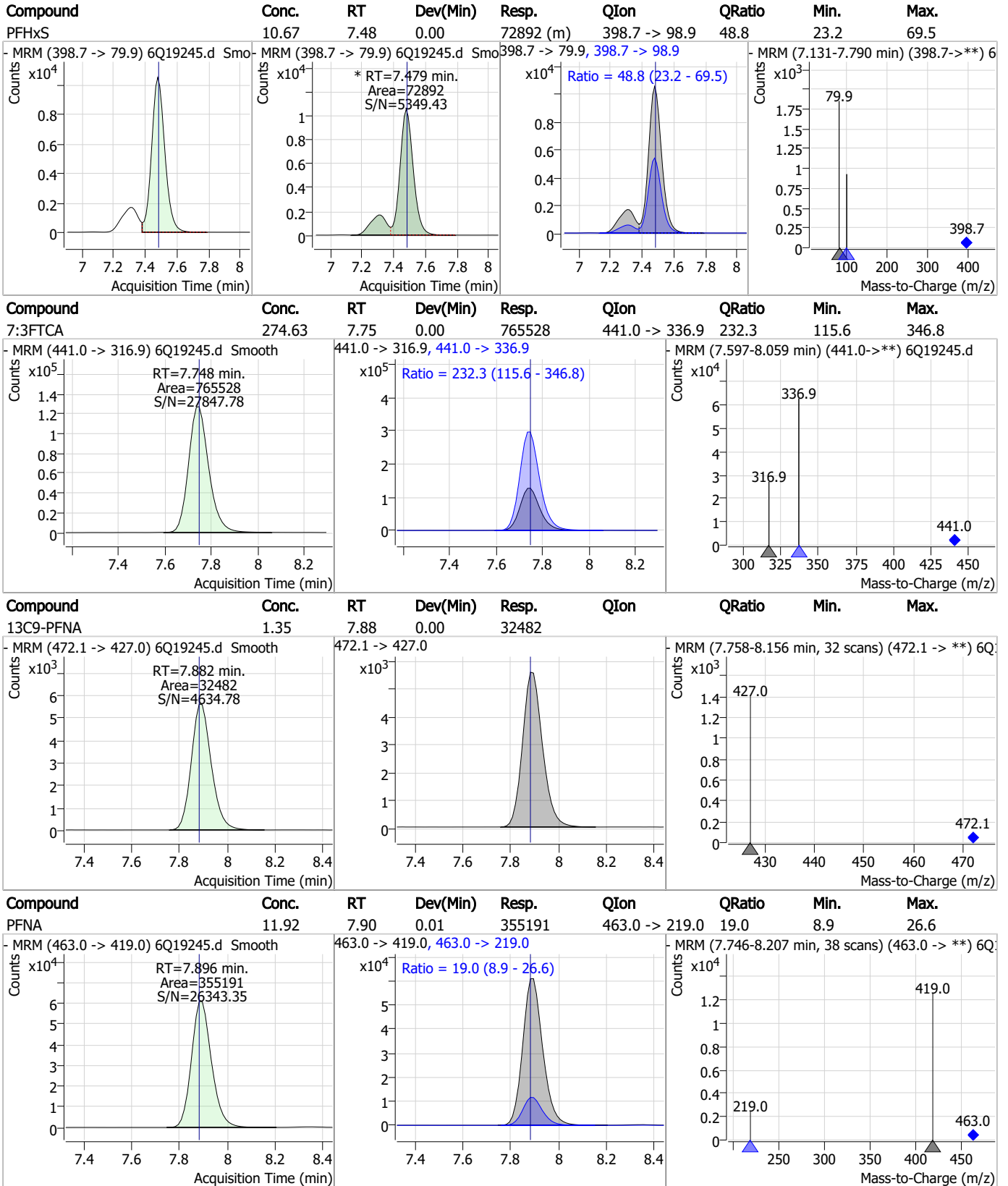
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Perfluorinated Compounds by LC/MS/MS



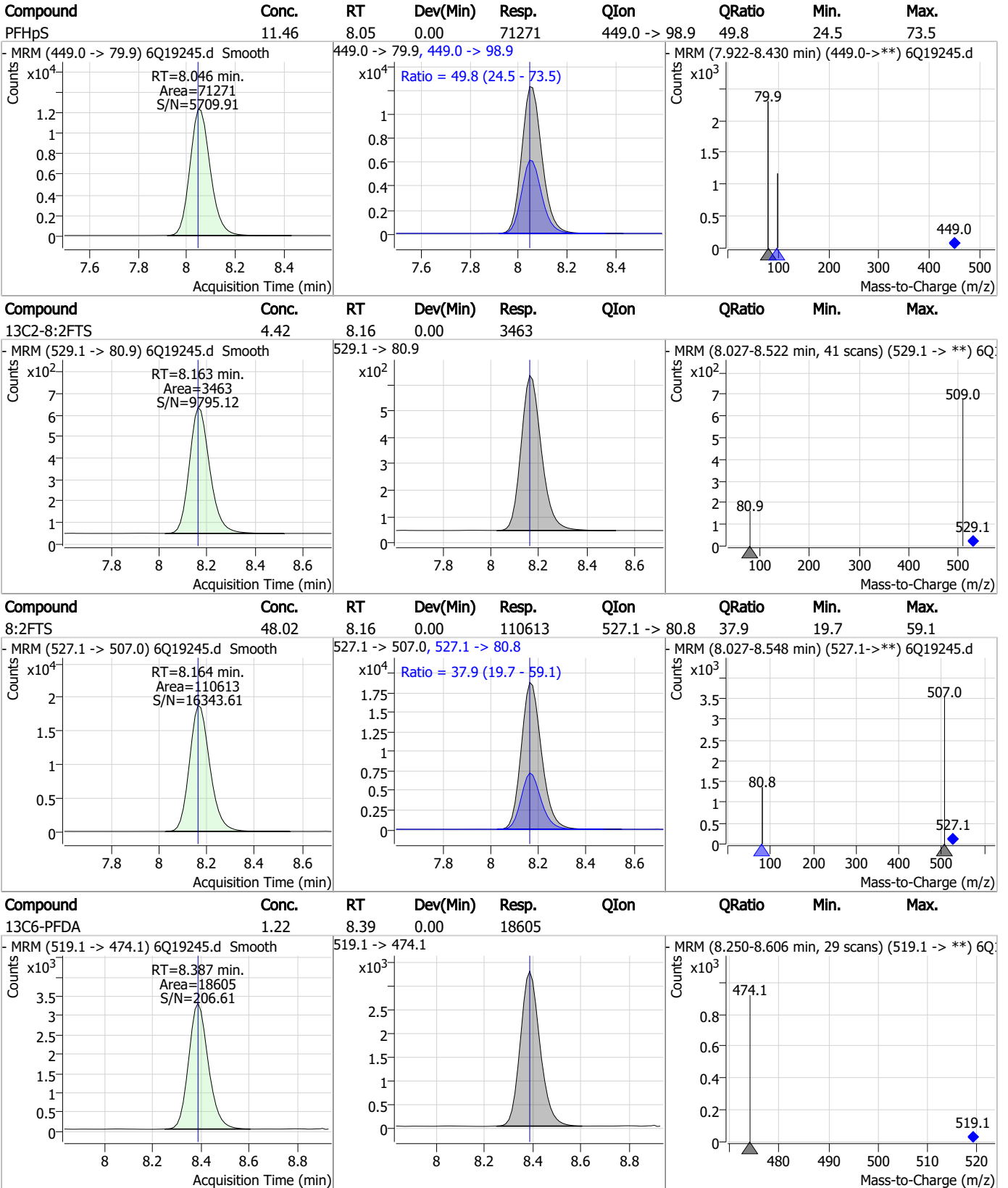
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Perfluorinated Compounds by LC/MS/MS



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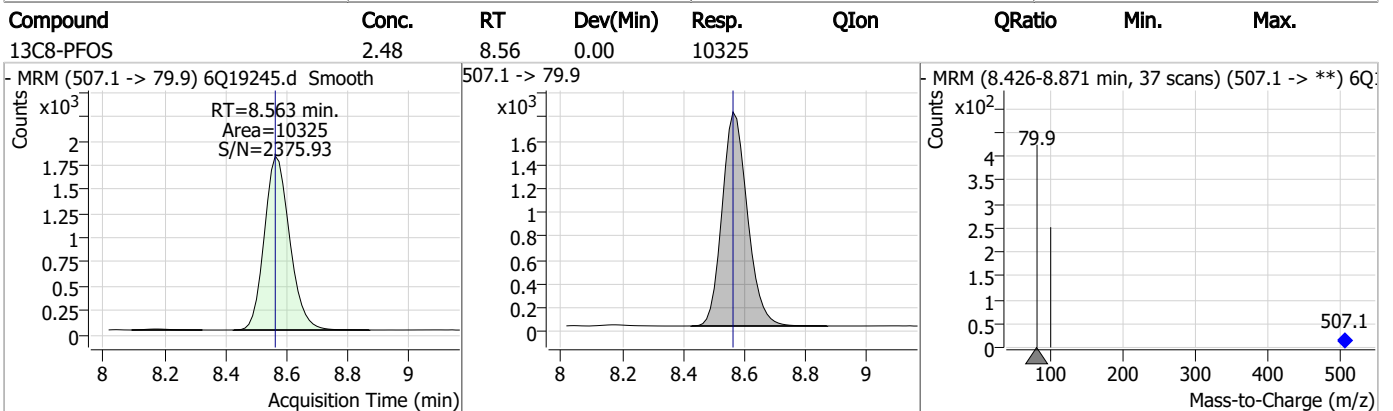
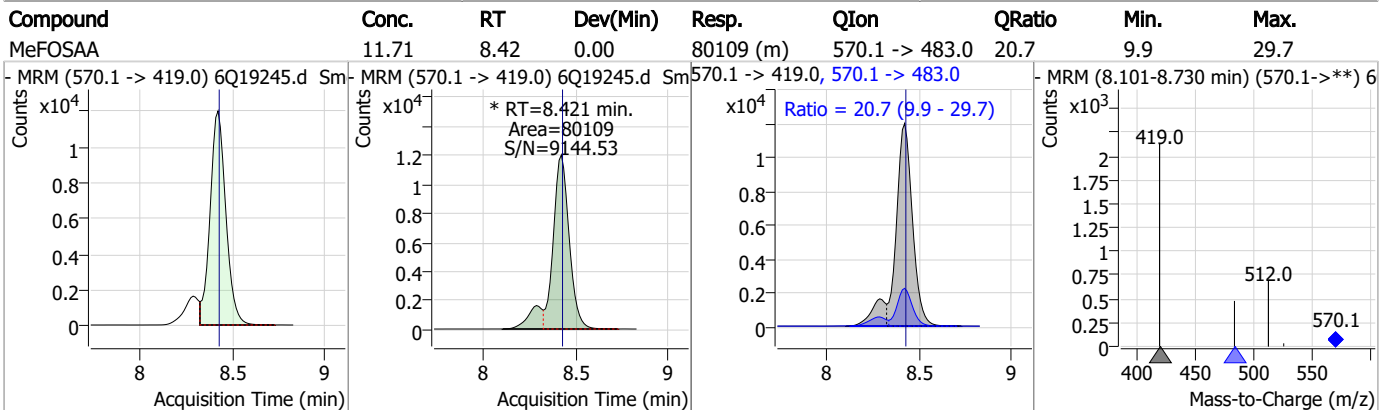
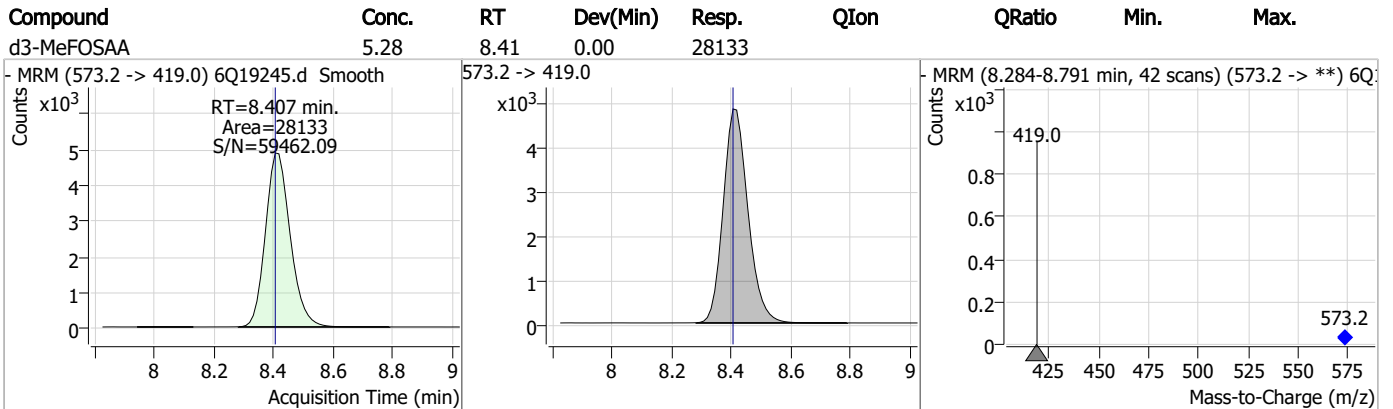
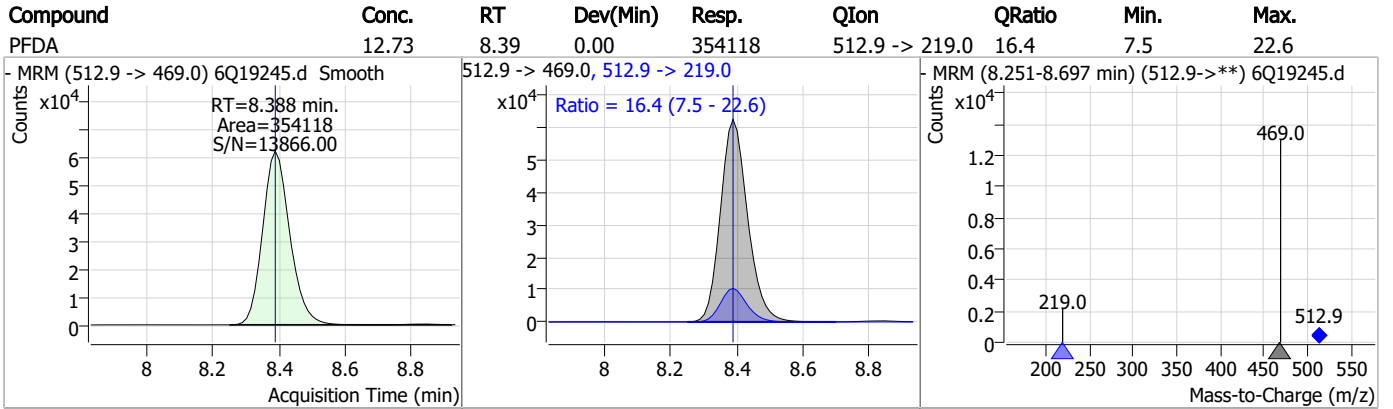
Perfluorinated Compounds by LC/MS/MS



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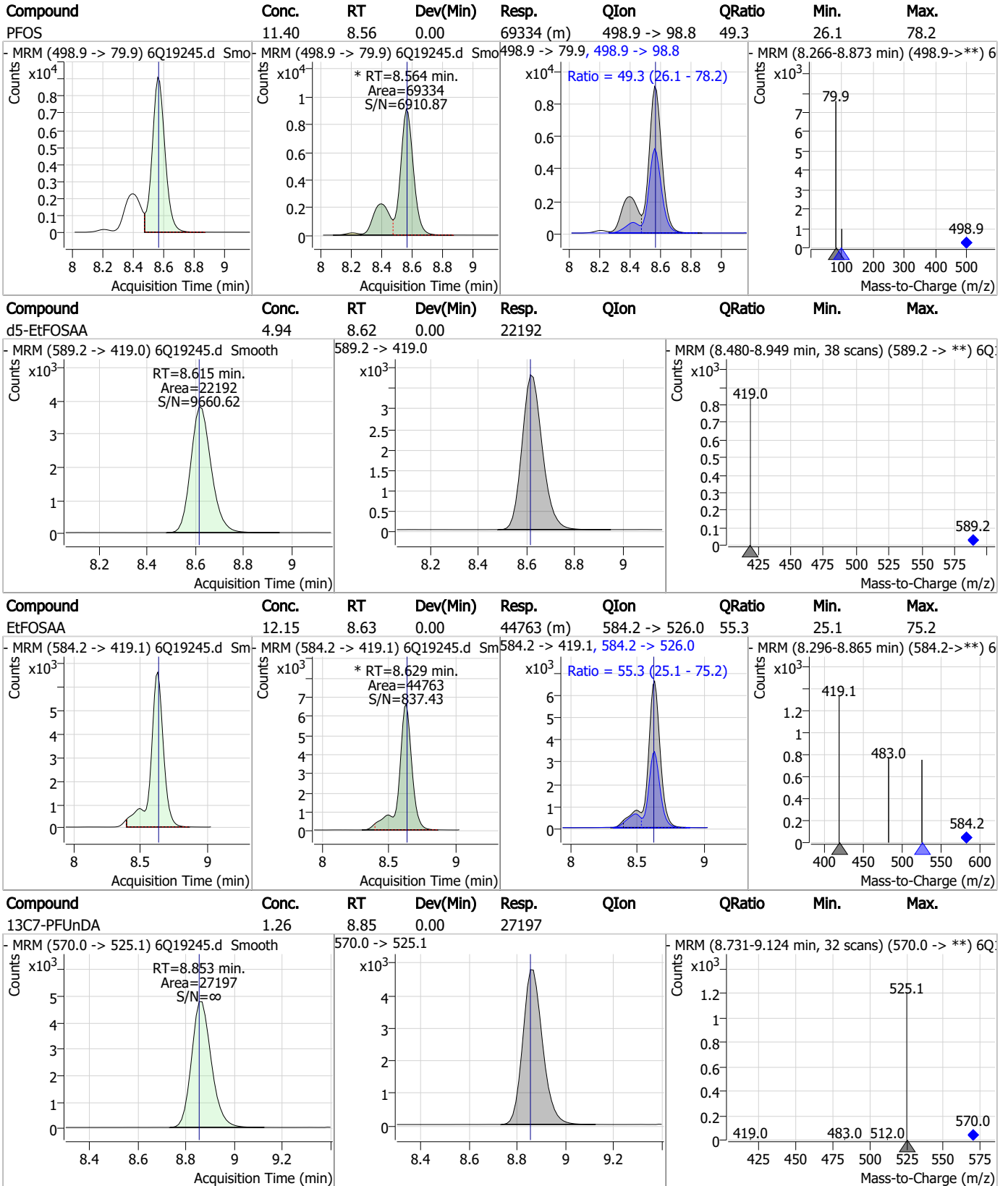
Perfluorinated Compounds by LC/MS/MS



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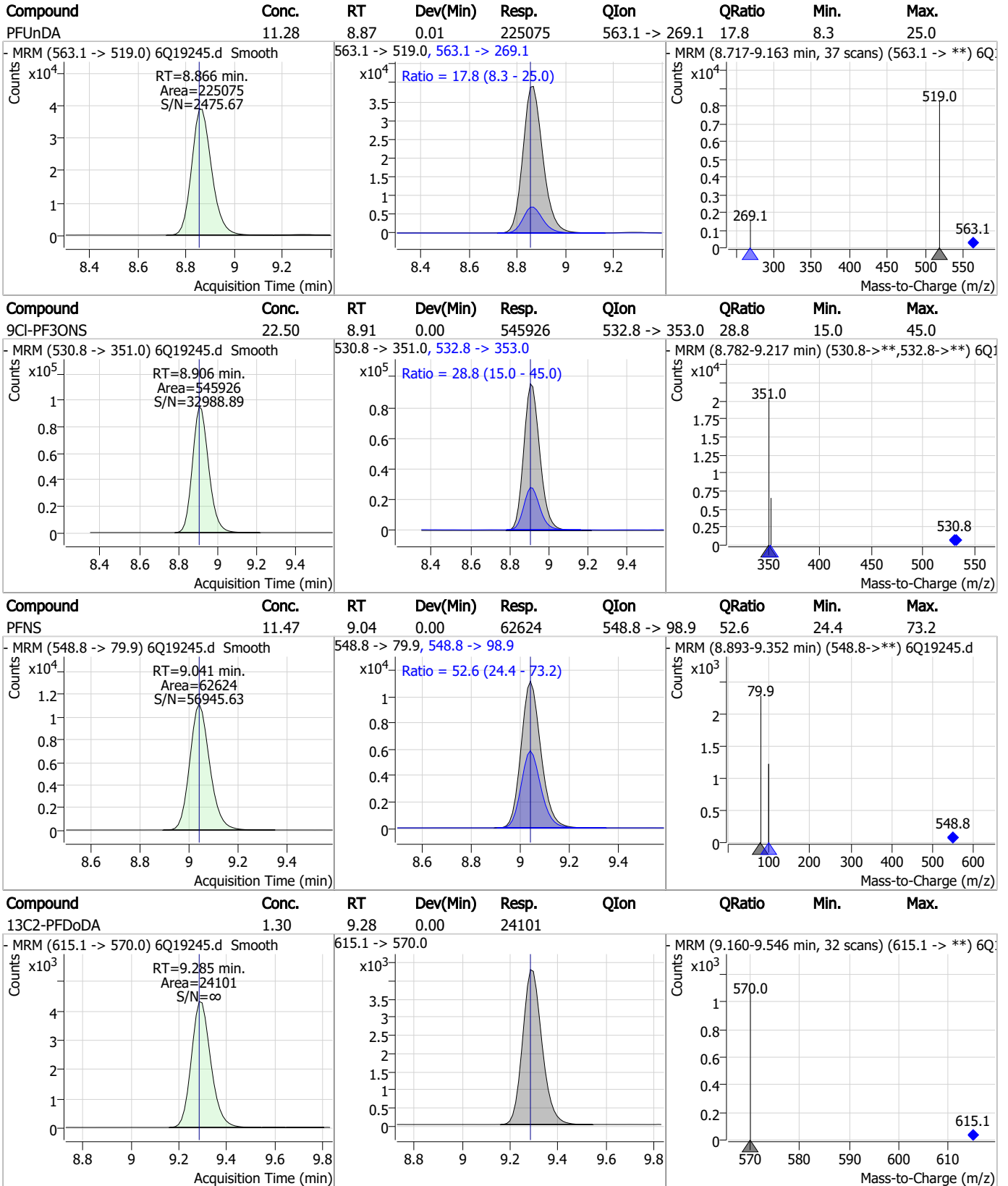
Perfluorinated Compounds by LC/MS/MS



7.7.7

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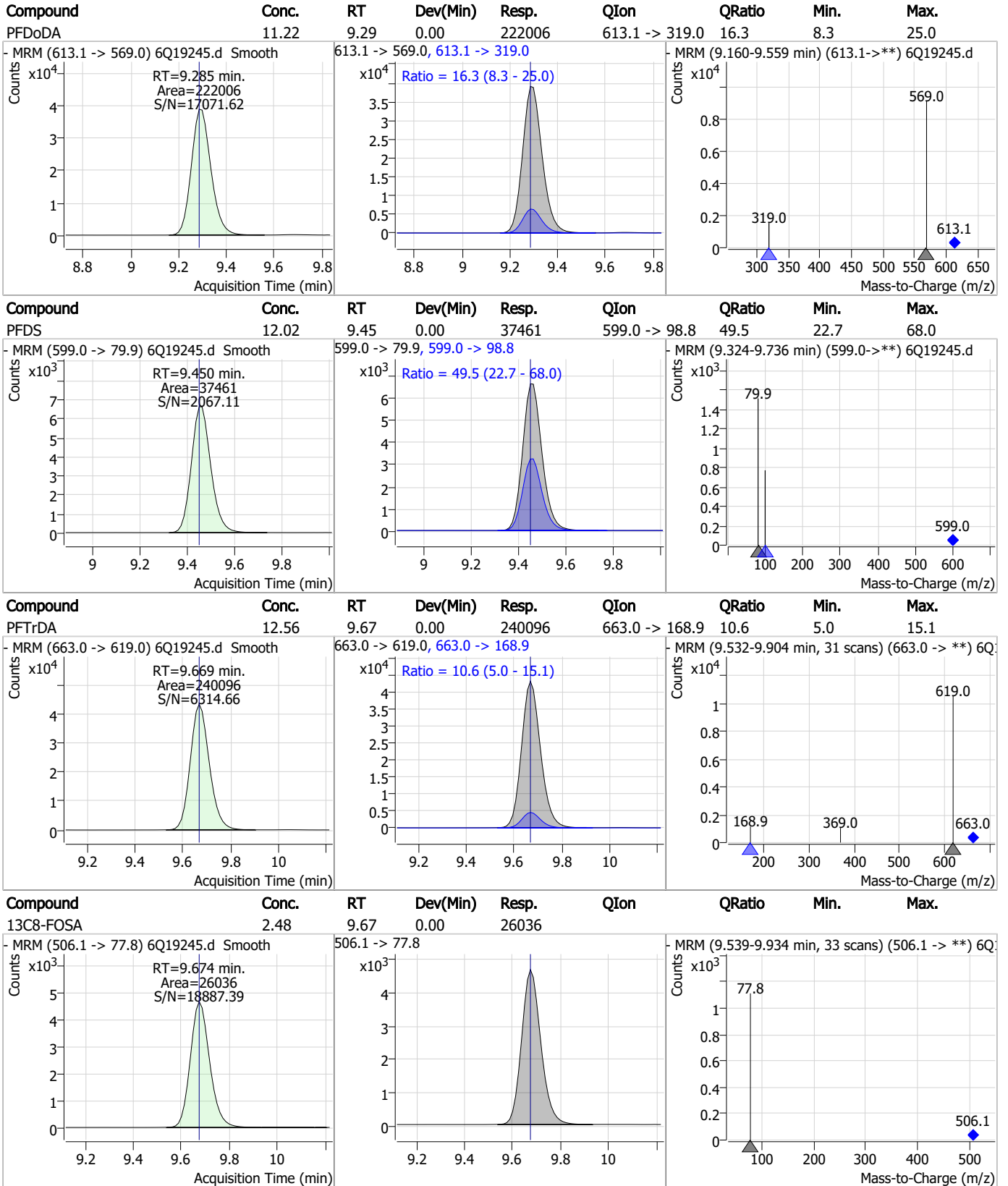
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

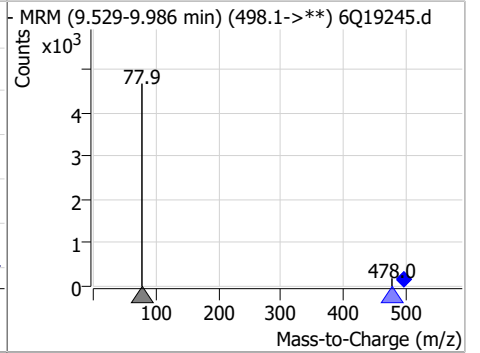
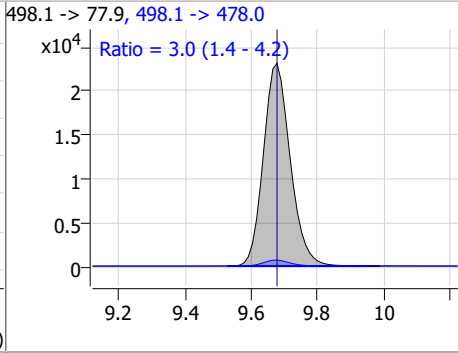
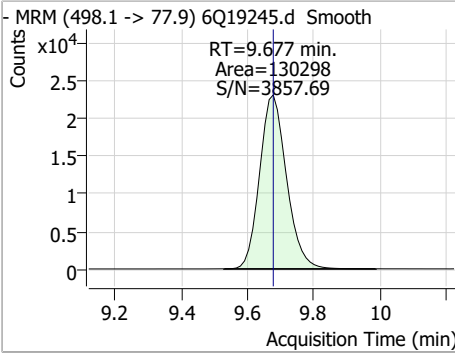


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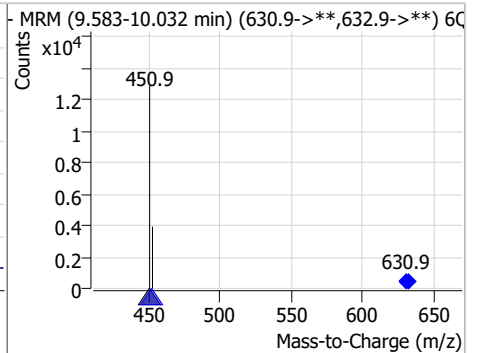
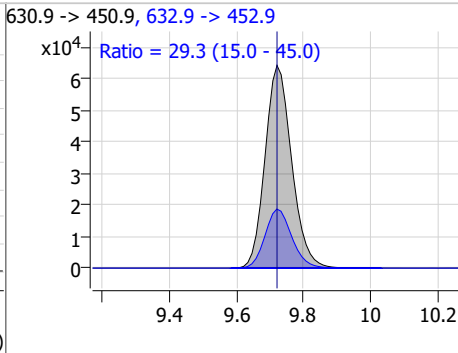
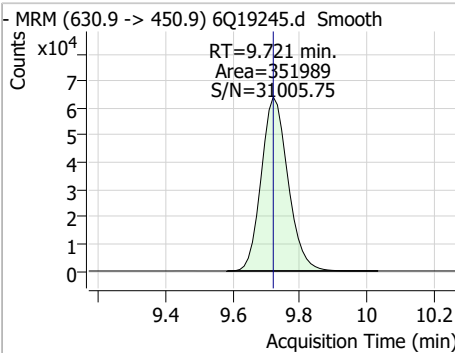
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Perfluorinated Compounds by LC/MS/MS

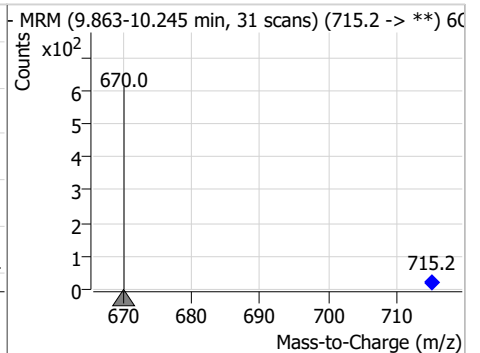
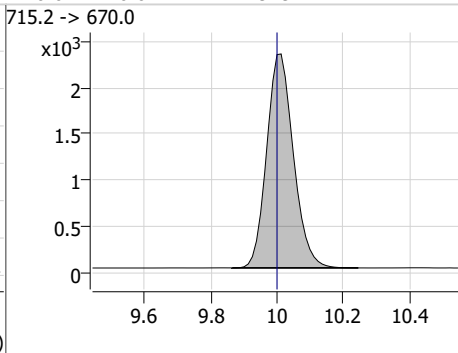
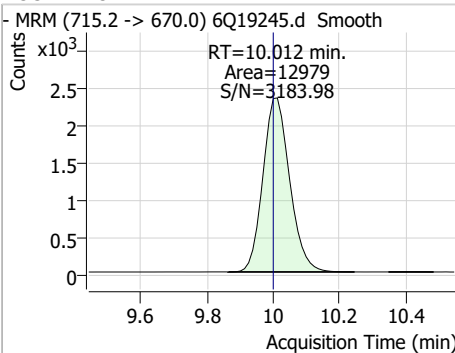
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	12.19	9.68	0.00	130298	498.1 -> 478.0	3.0	1.4	4.2



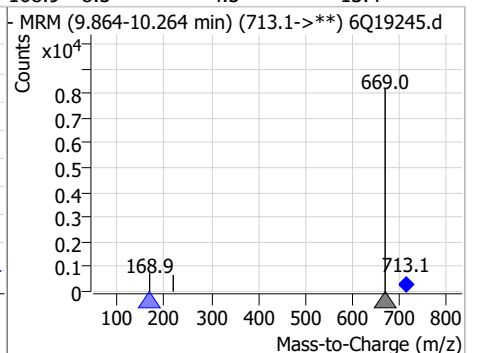
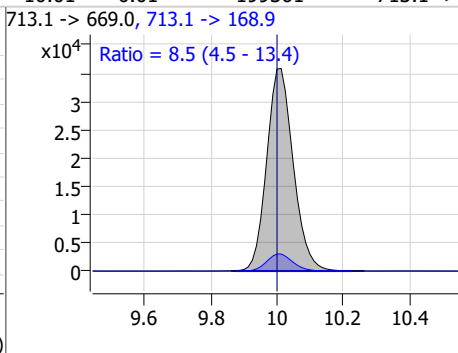
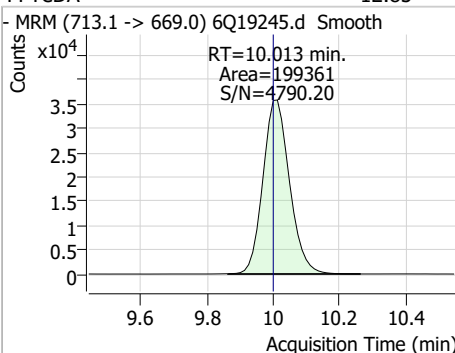
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	24.23	9.72	0.00	351989	632.9 -> 452.9	29.3	15.0	45.0



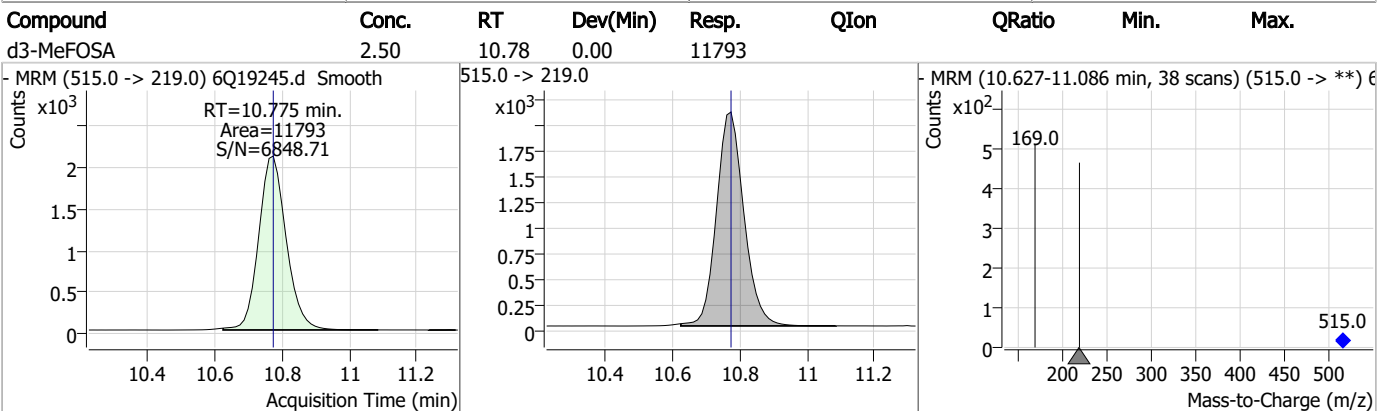
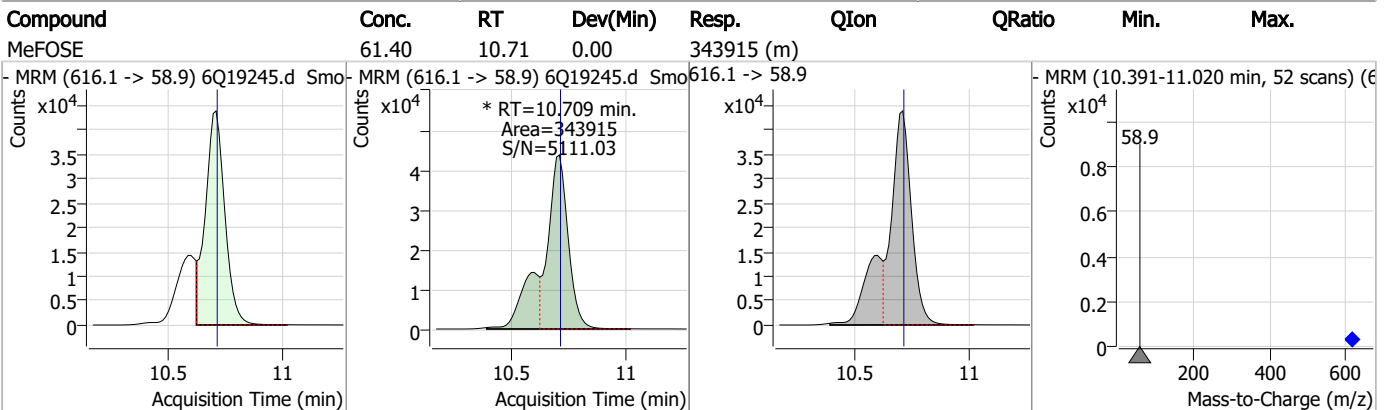
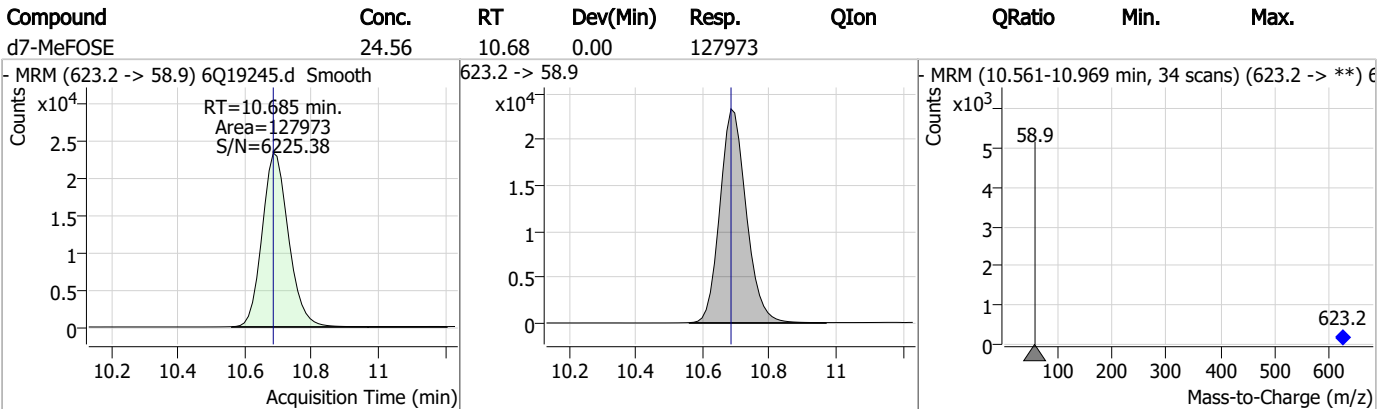
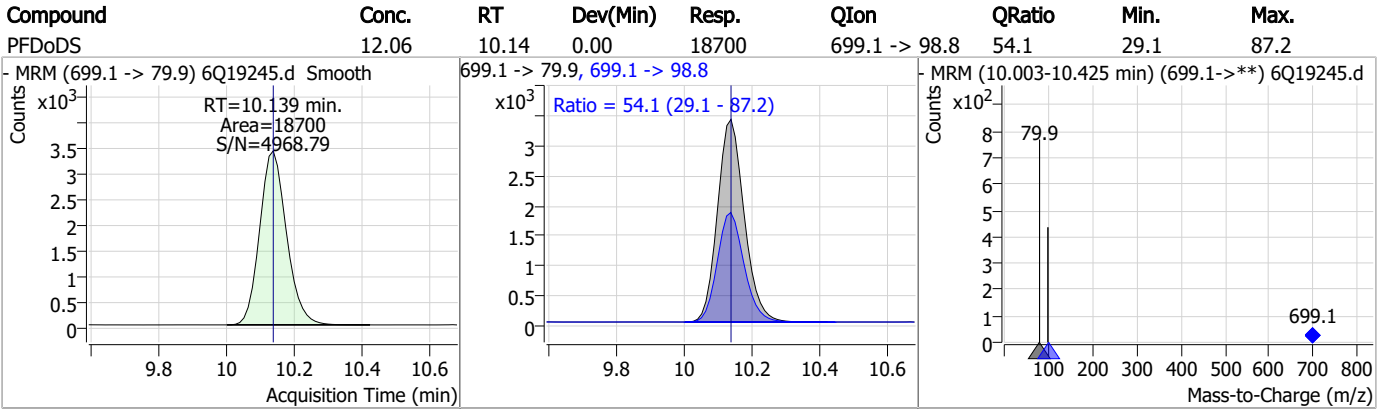
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	10.01	0.01	12979	715.2 -> 670.0	8.5	4.5	13.4



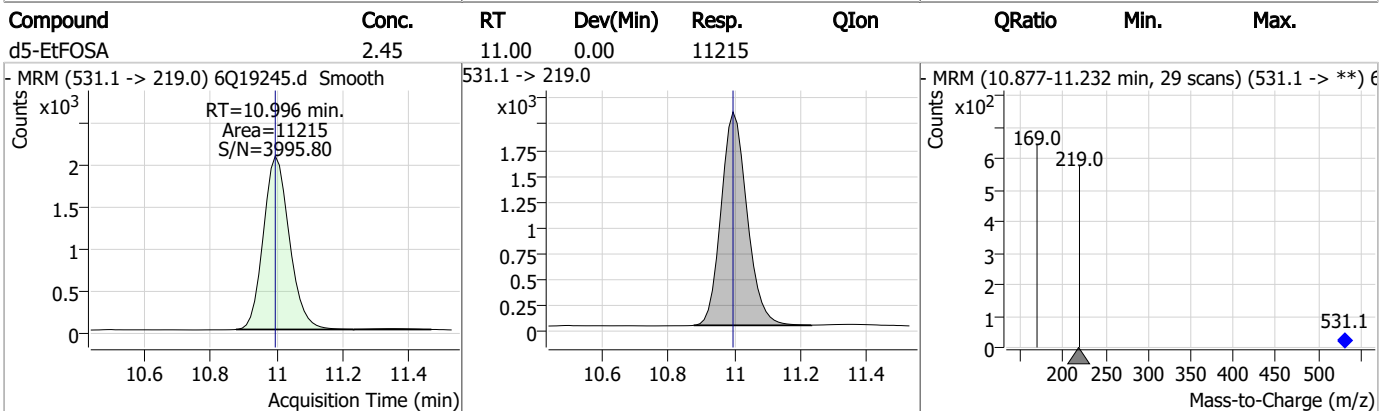
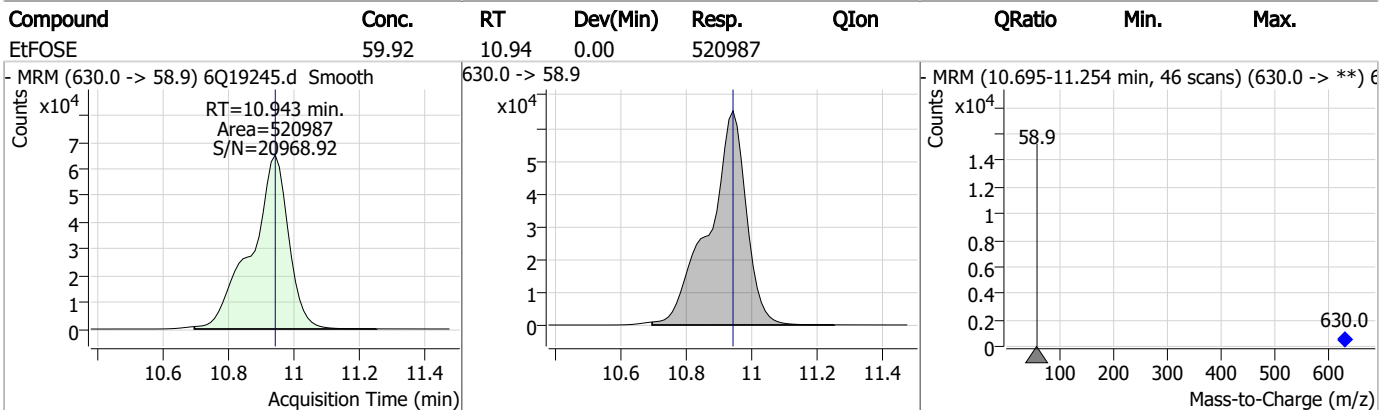
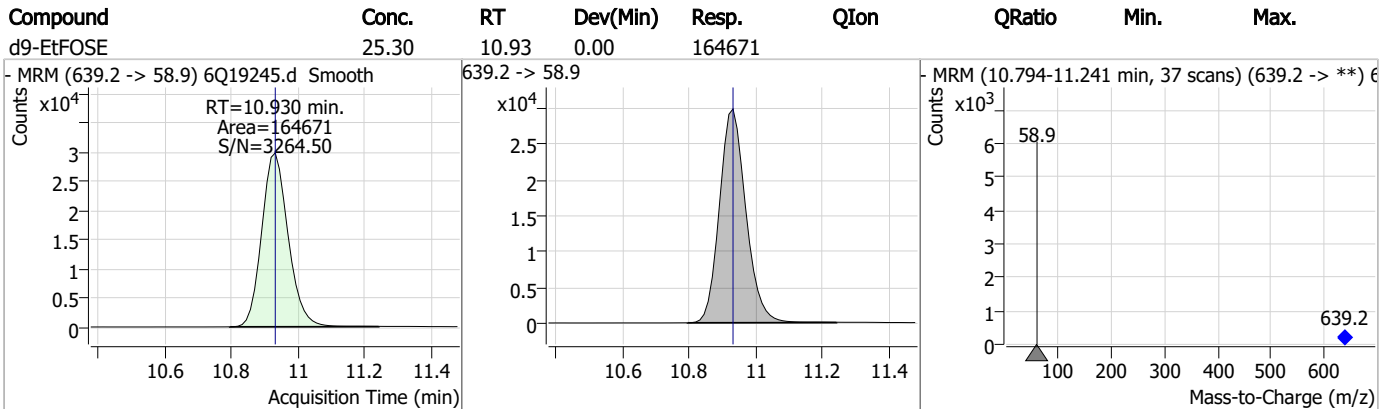
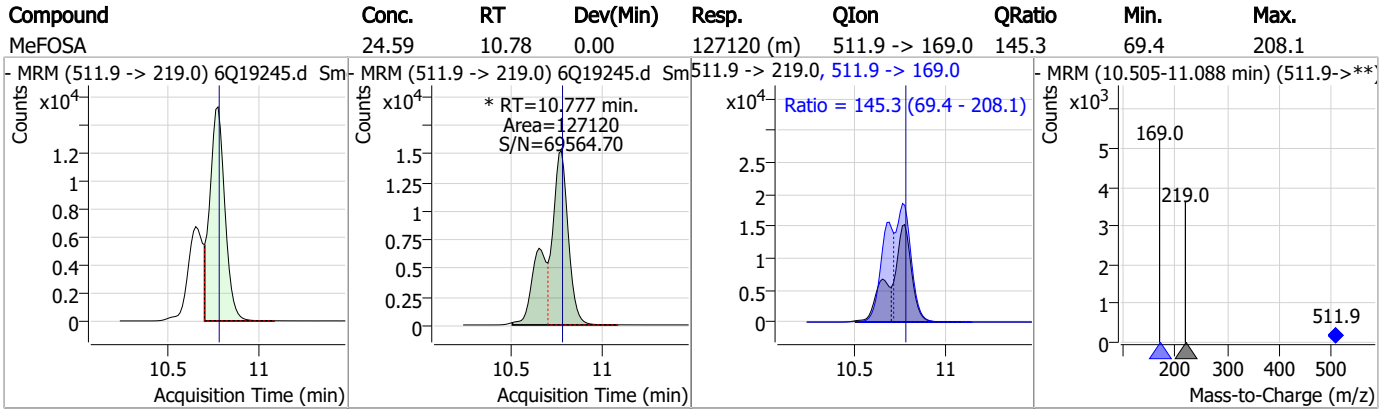
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	12.85	10.01	0.01	199361	713.1 -> 168.9	8.5	4.5	13.4



Perfluorinated Compounds by LC/MS/MS



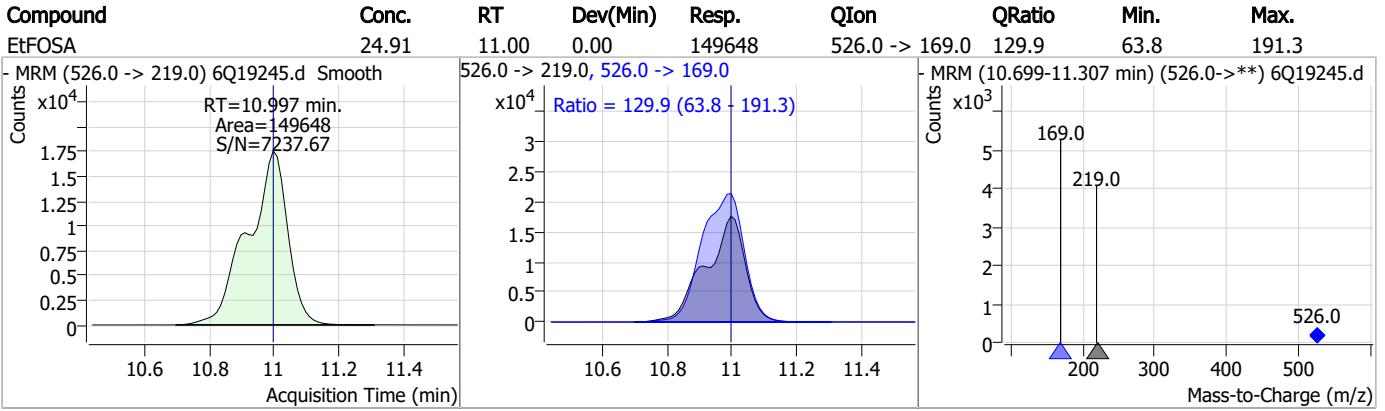
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q287-IC287 Method: EPA DRAFT 1633
Lab FileID: 6Q19245.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 16:58 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

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

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtie
 06/13/23 13:30

Perfluorinated Compounds by LC/MS/MS

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

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

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Perfluorinated Compounds by LC/MS/MS

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

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Perfluorinated Compounds by LC/MS/MS

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

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

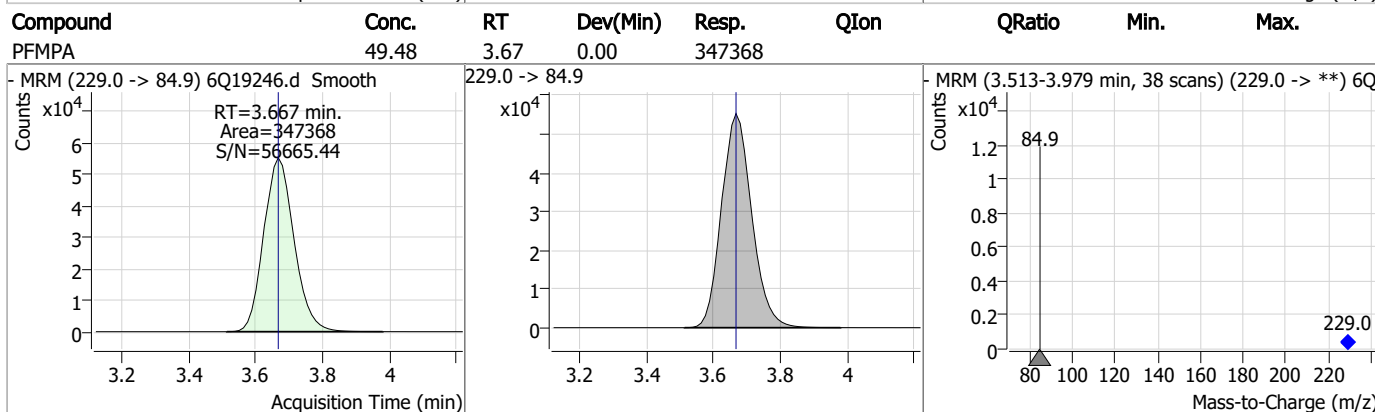
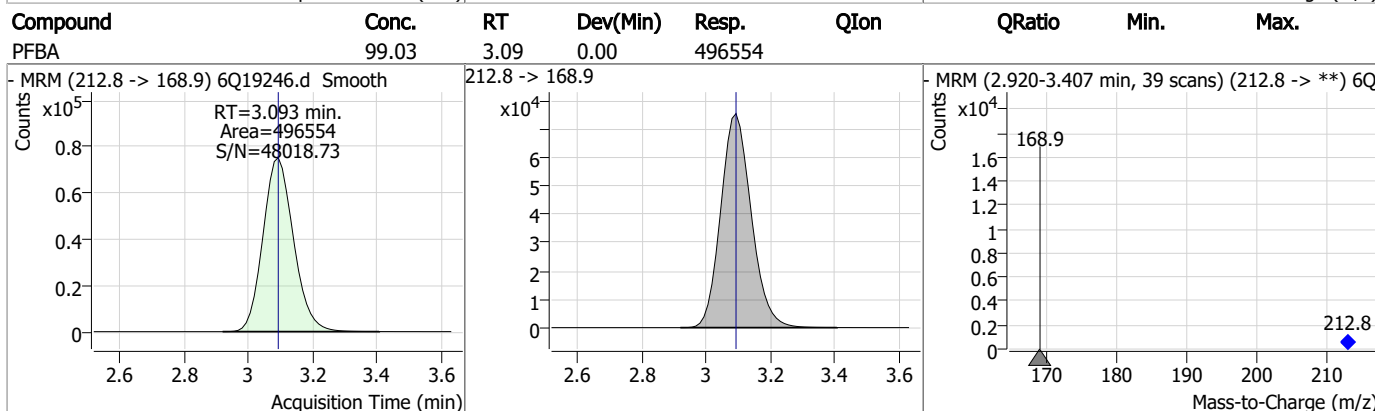
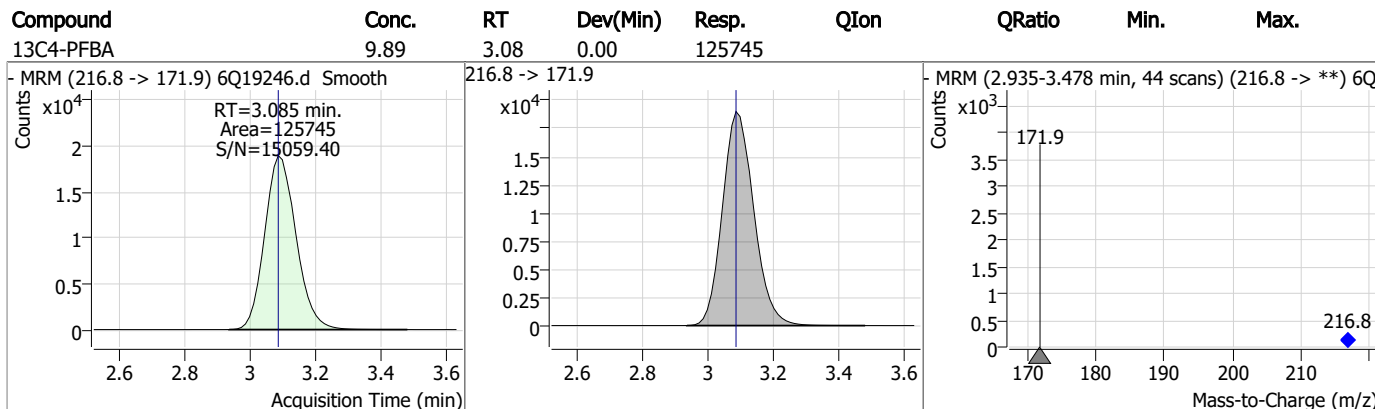
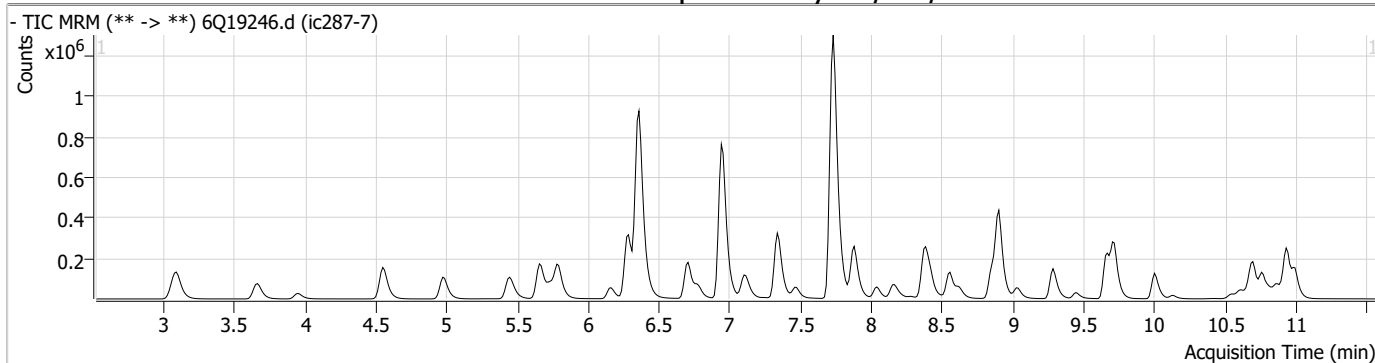
Perfluorinated Compounds by LC/MS/MS

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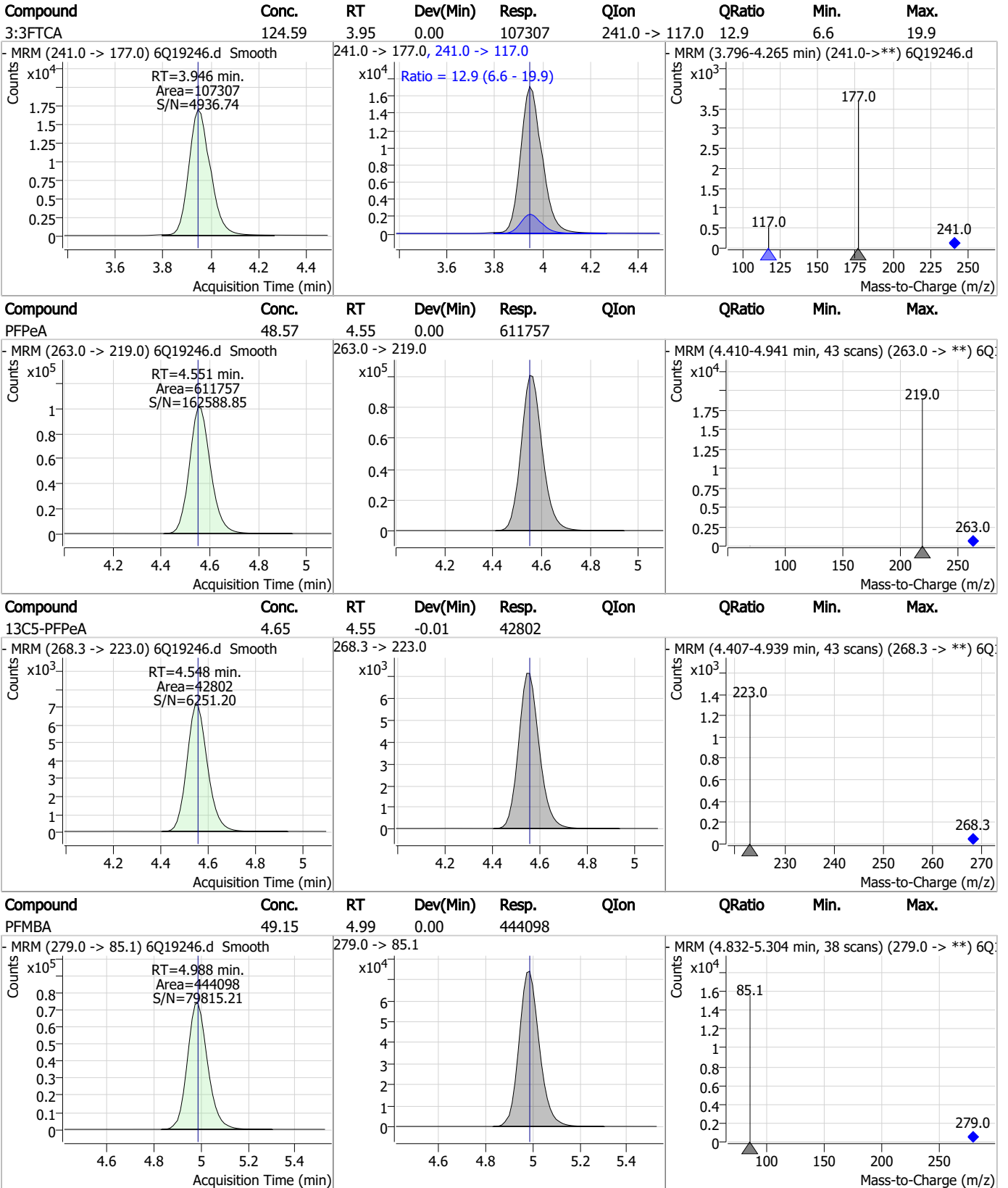
7.7.8
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

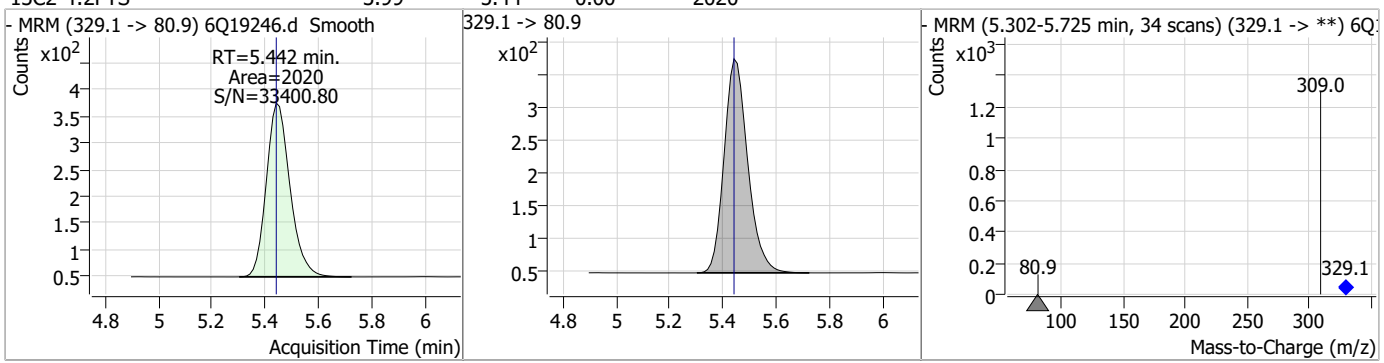


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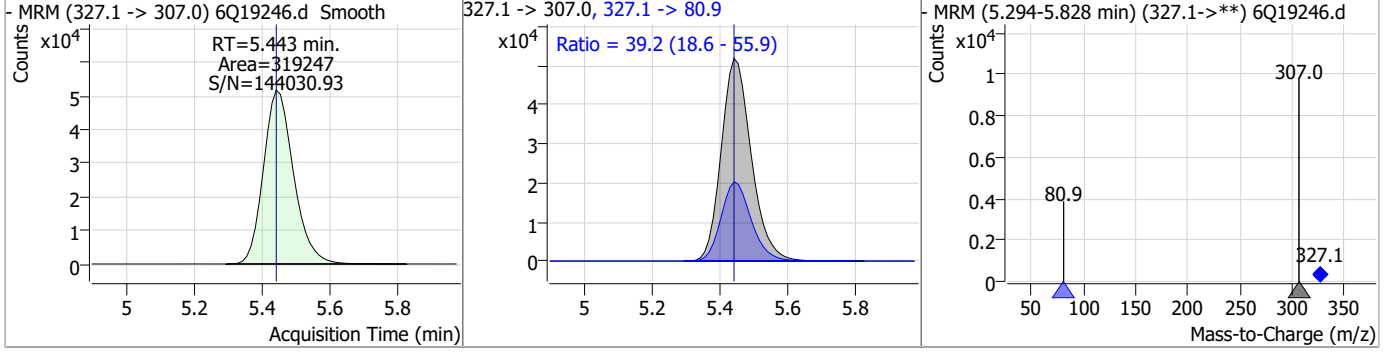
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Perfluorinated Compounds by LC/MS/MS

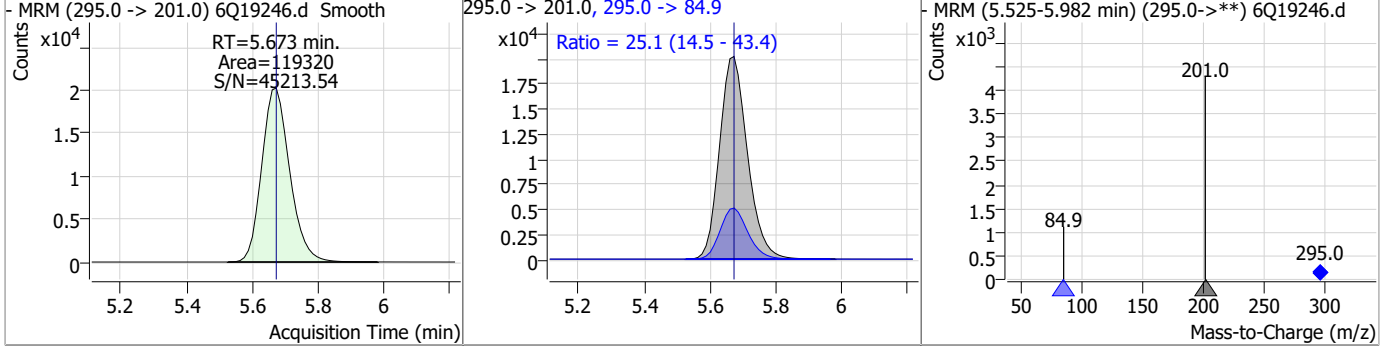
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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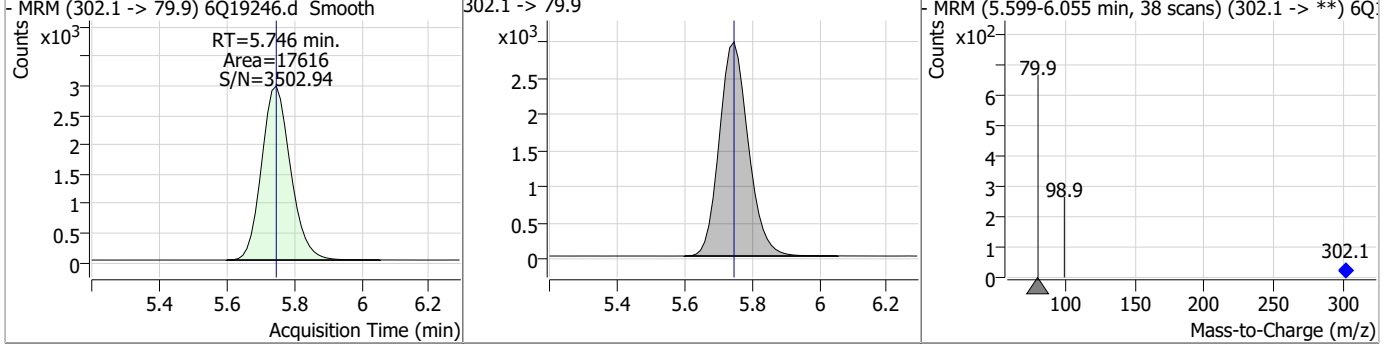
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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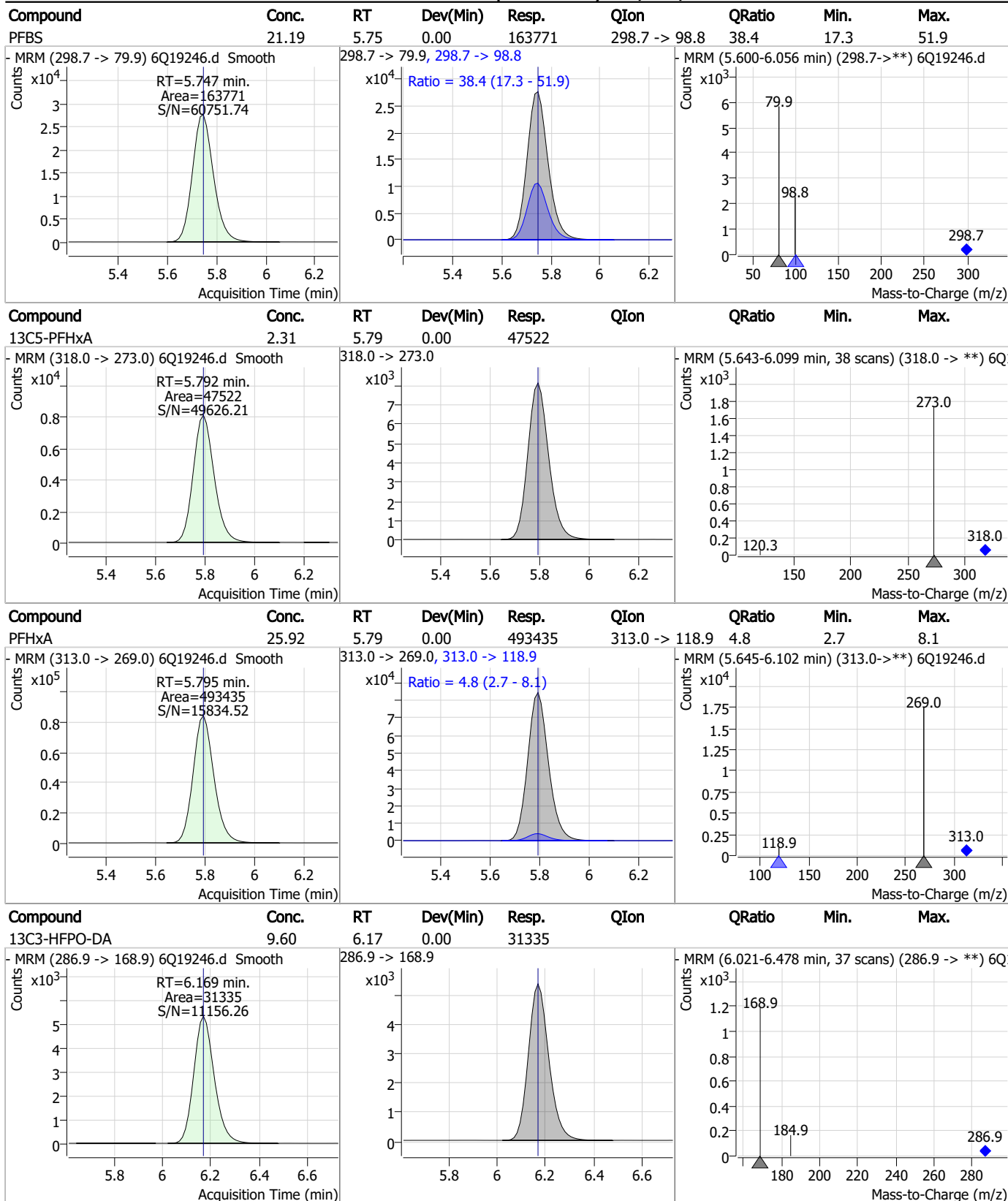
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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7.7.8
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Perfluorinated Compounds by LC/MS/MS

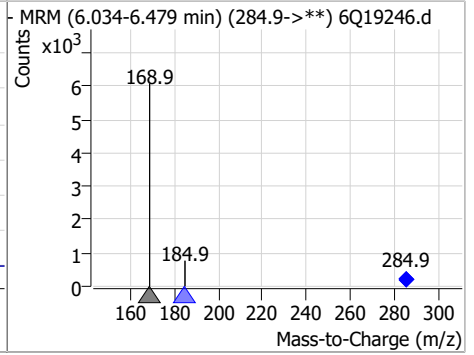
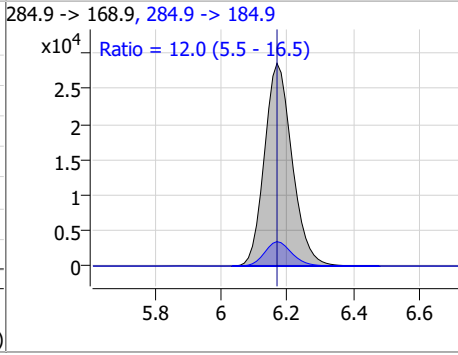
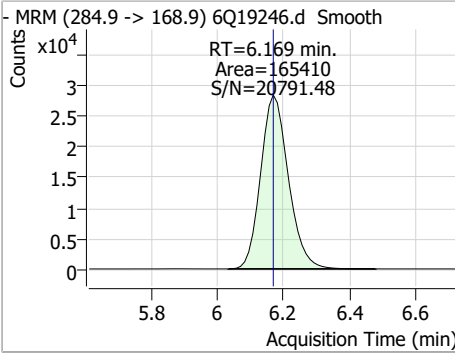


7.7.8
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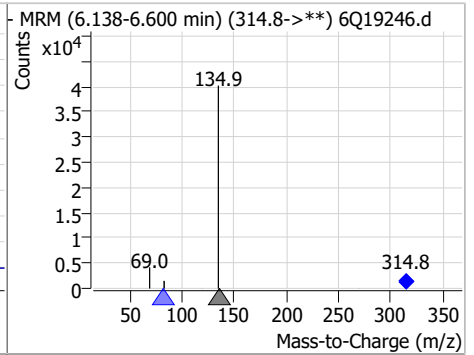
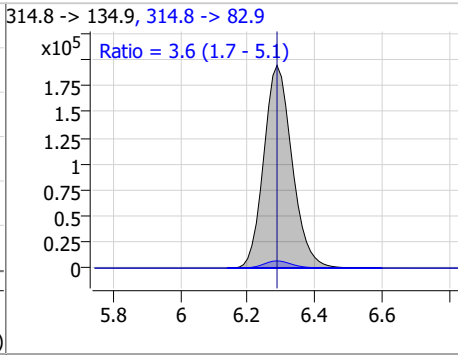
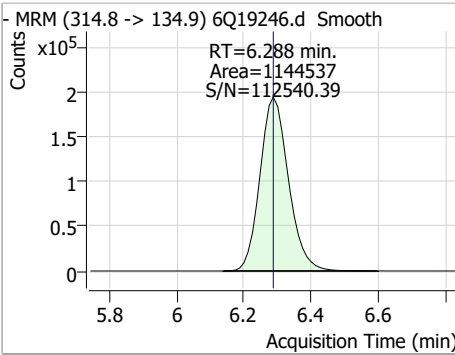


Perfluorinated Compounds by LC/MS/MS

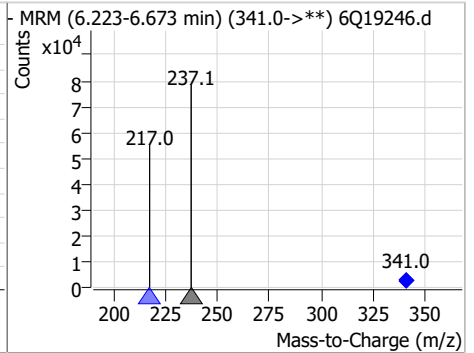
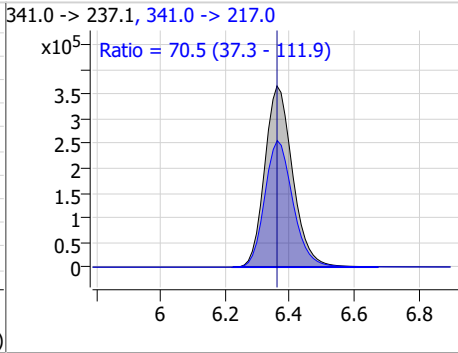
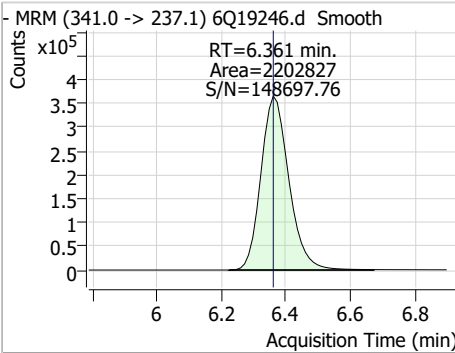
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	51.19	6.17	0.00	165410	284.9 -> 184.9	12.0	5.5	16.5



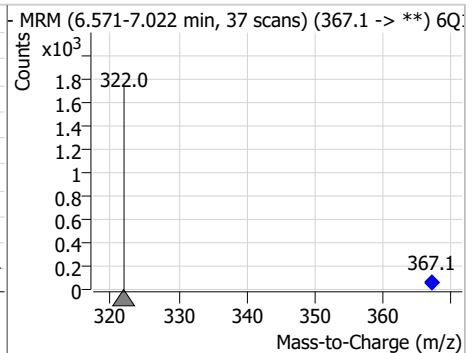
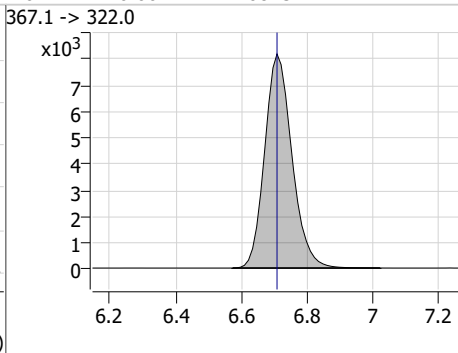
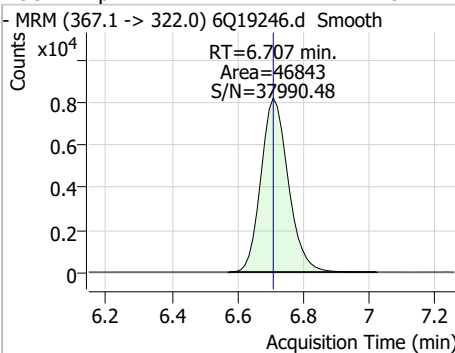
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	48.85	6.29	0.00	1144537	314.8 -> 82.9	3.6	1.7	5.1



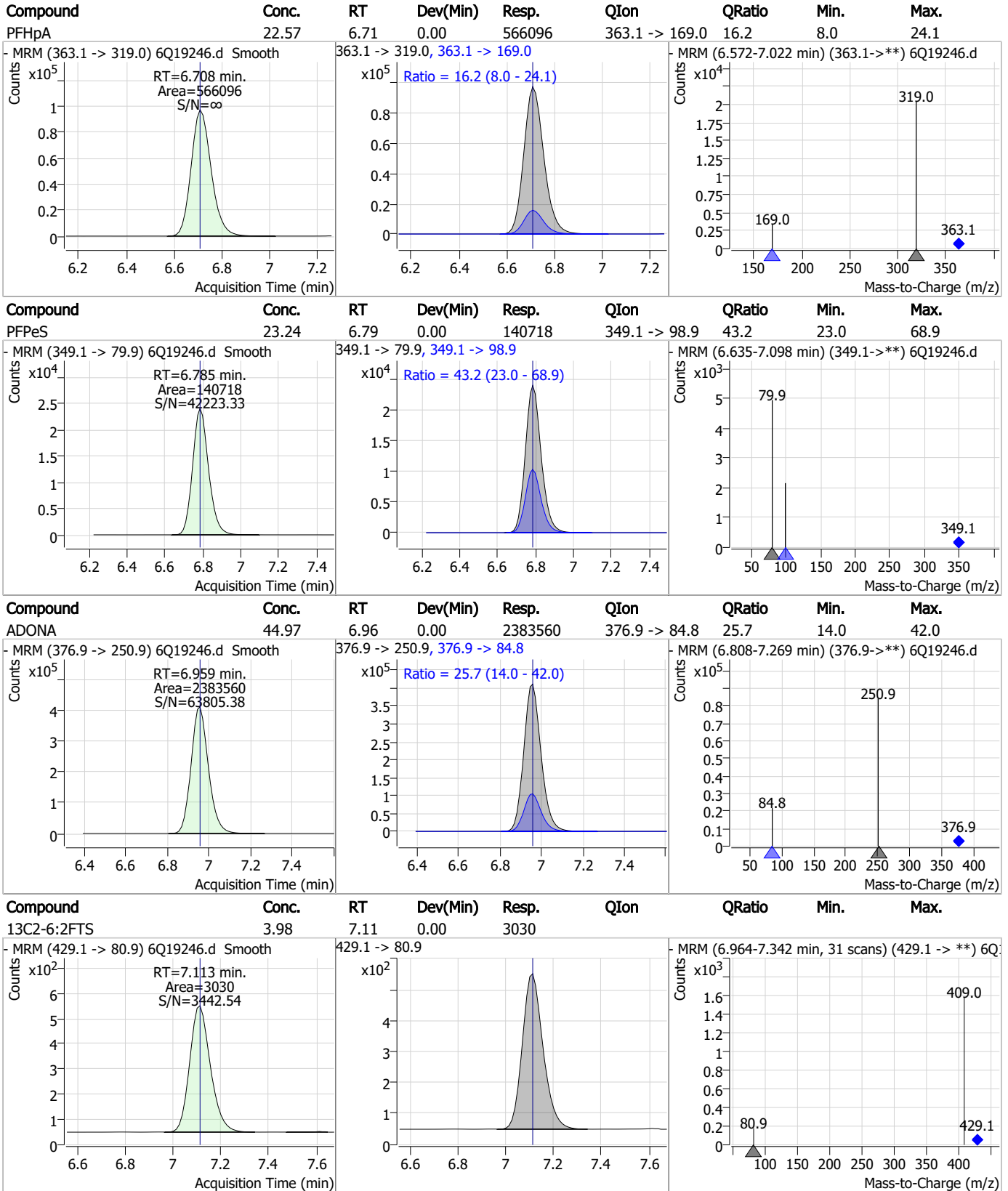
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	596.63	6.36	0.00	2202827	341.0 -> 217.0	70.5	37.3	111.9



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



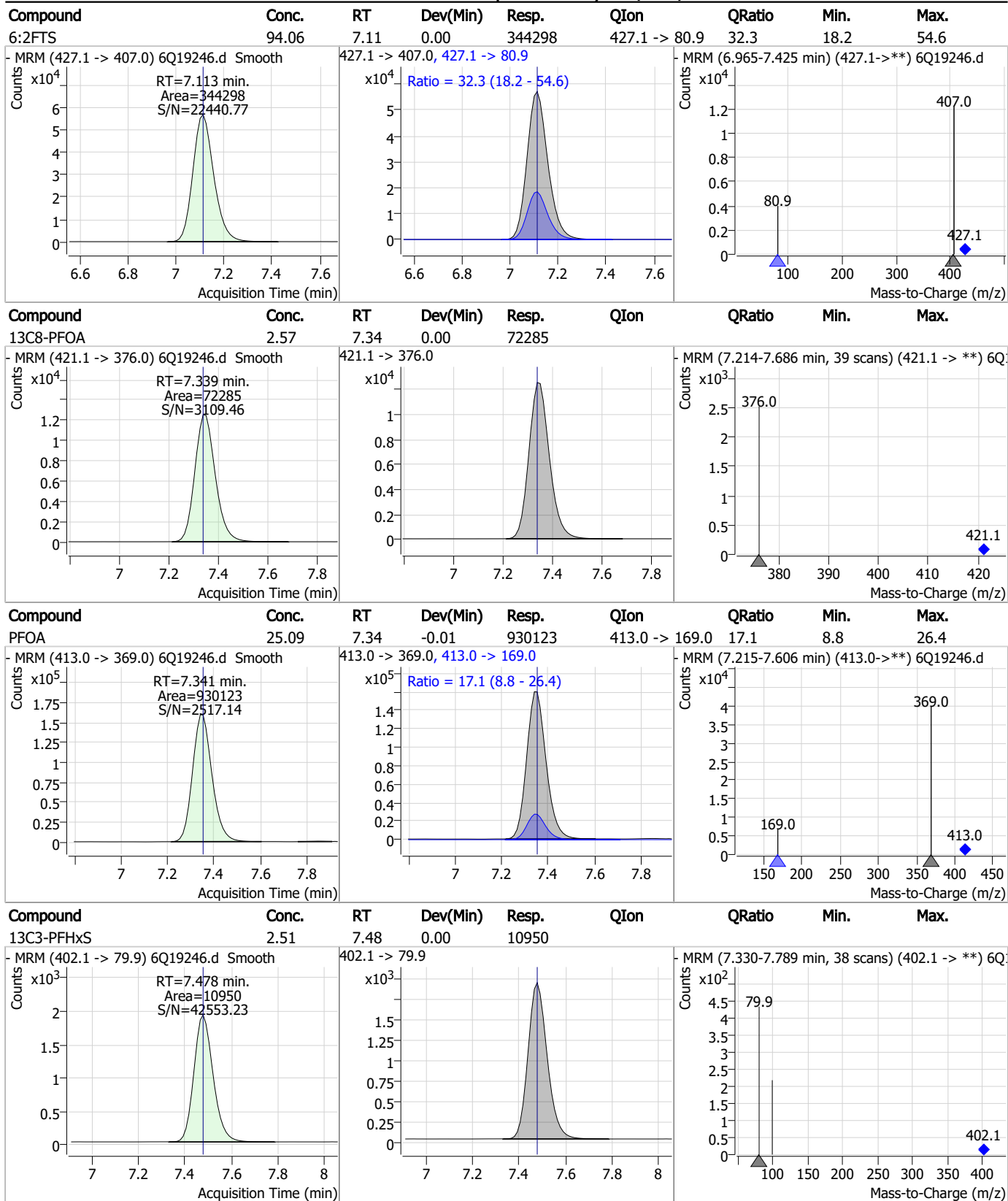
Perfluorinated Compounds by LC/MS/MS



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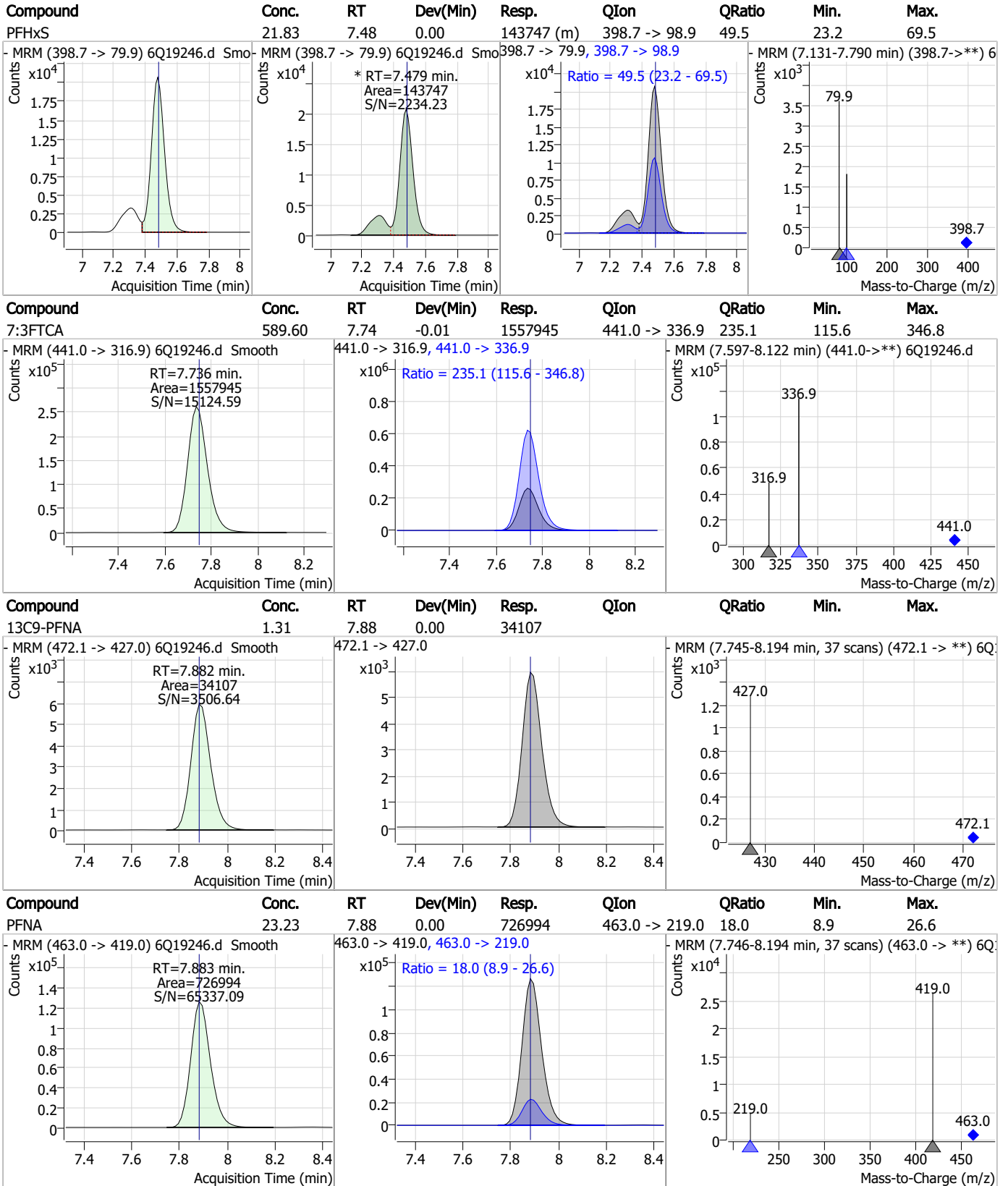
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Perfluorinated Compounds by LC/MS/MS



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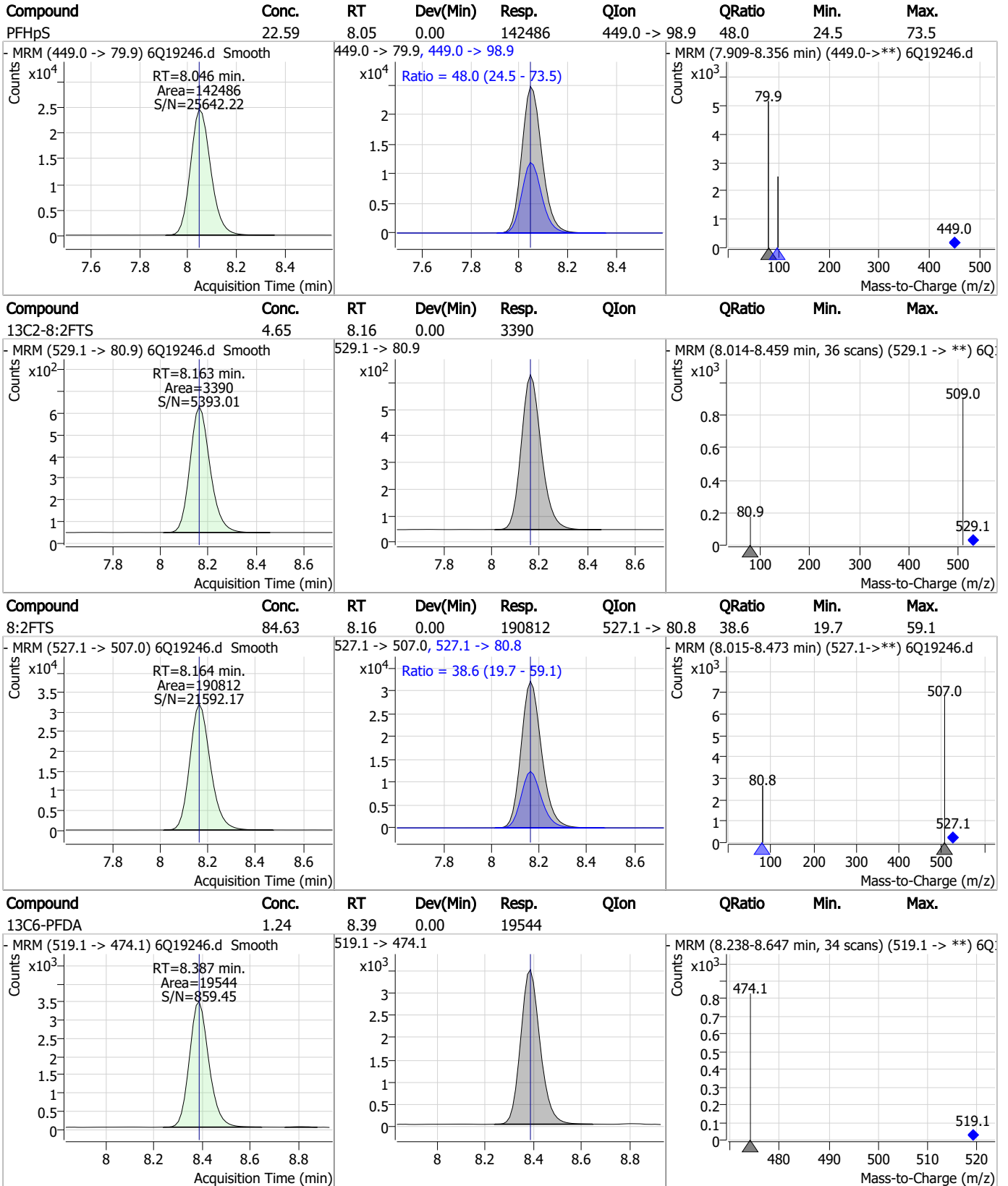
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

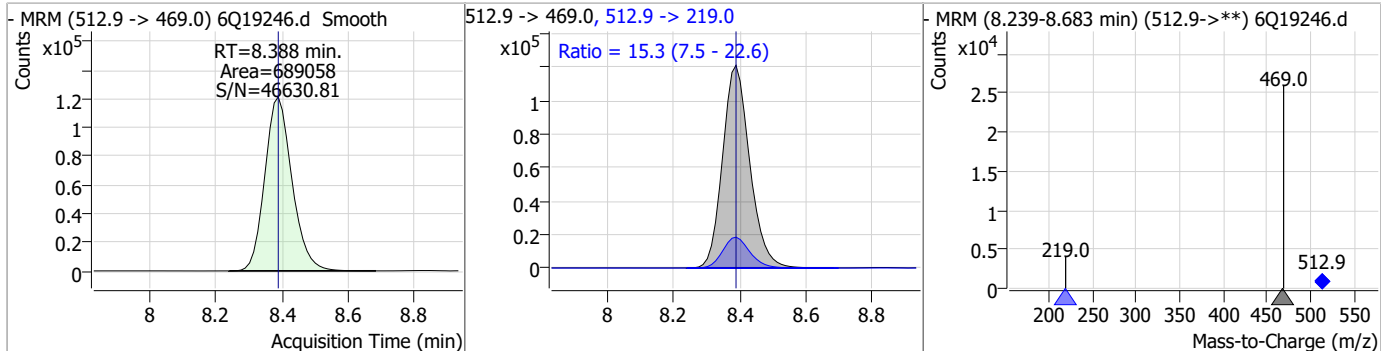


7.7.8

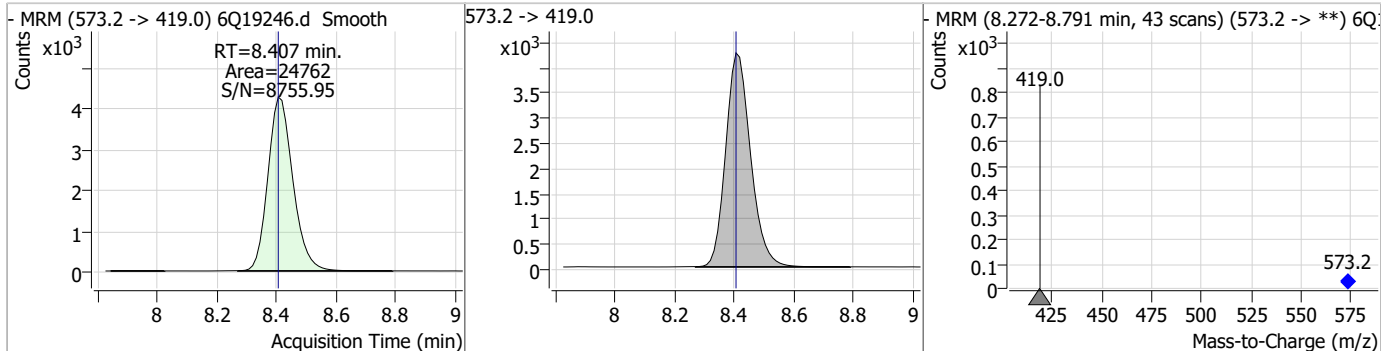
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Perfluorinated Compounds by LC/MS/MS

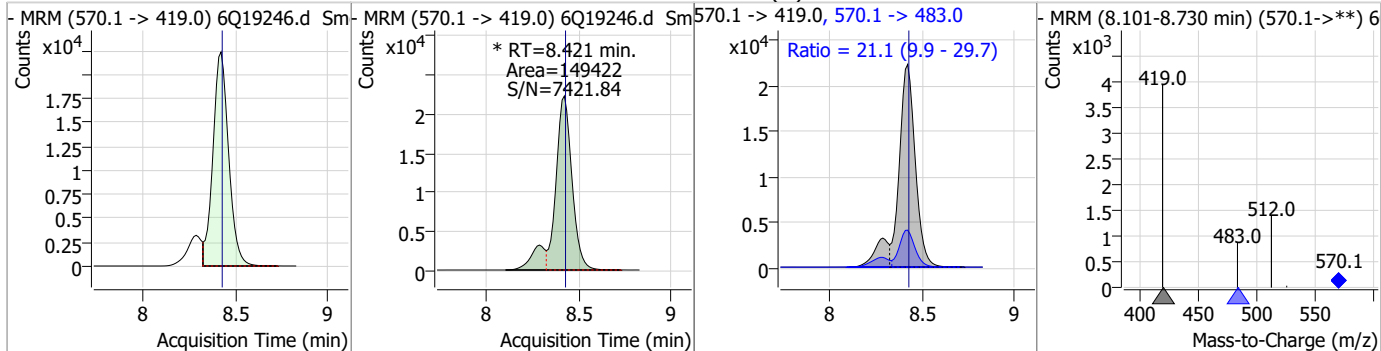
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	23.58	8.39	0.00	689058	512.9 -> 219.0	15.3	7.5	22.6



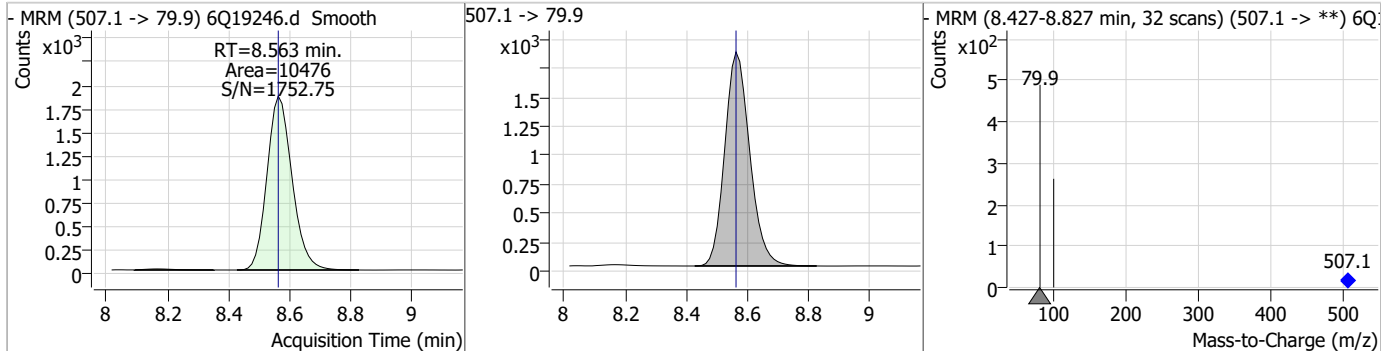
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.68	8.41	0.00	24762				



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

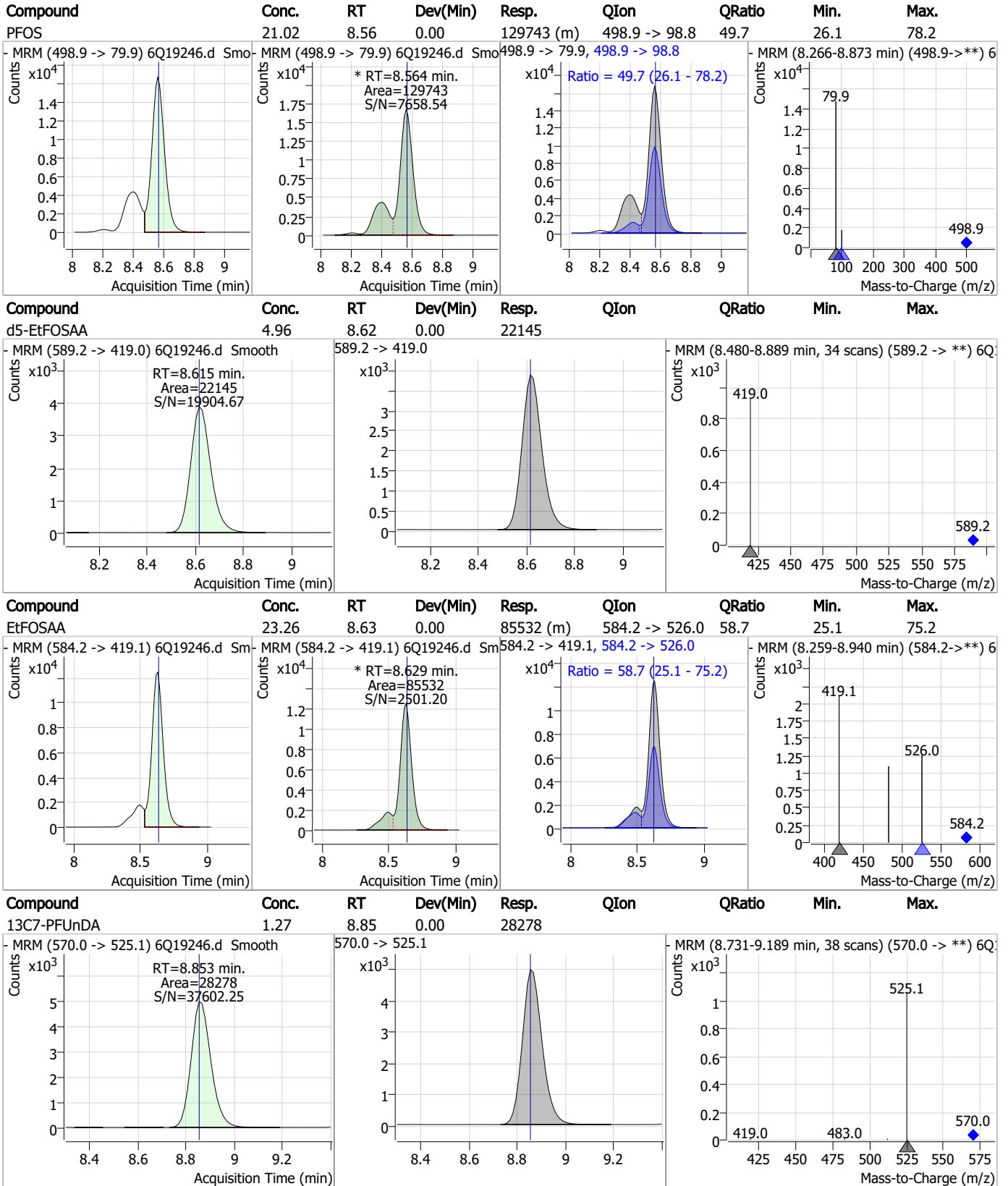


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.54	8.56	0.00	10476				



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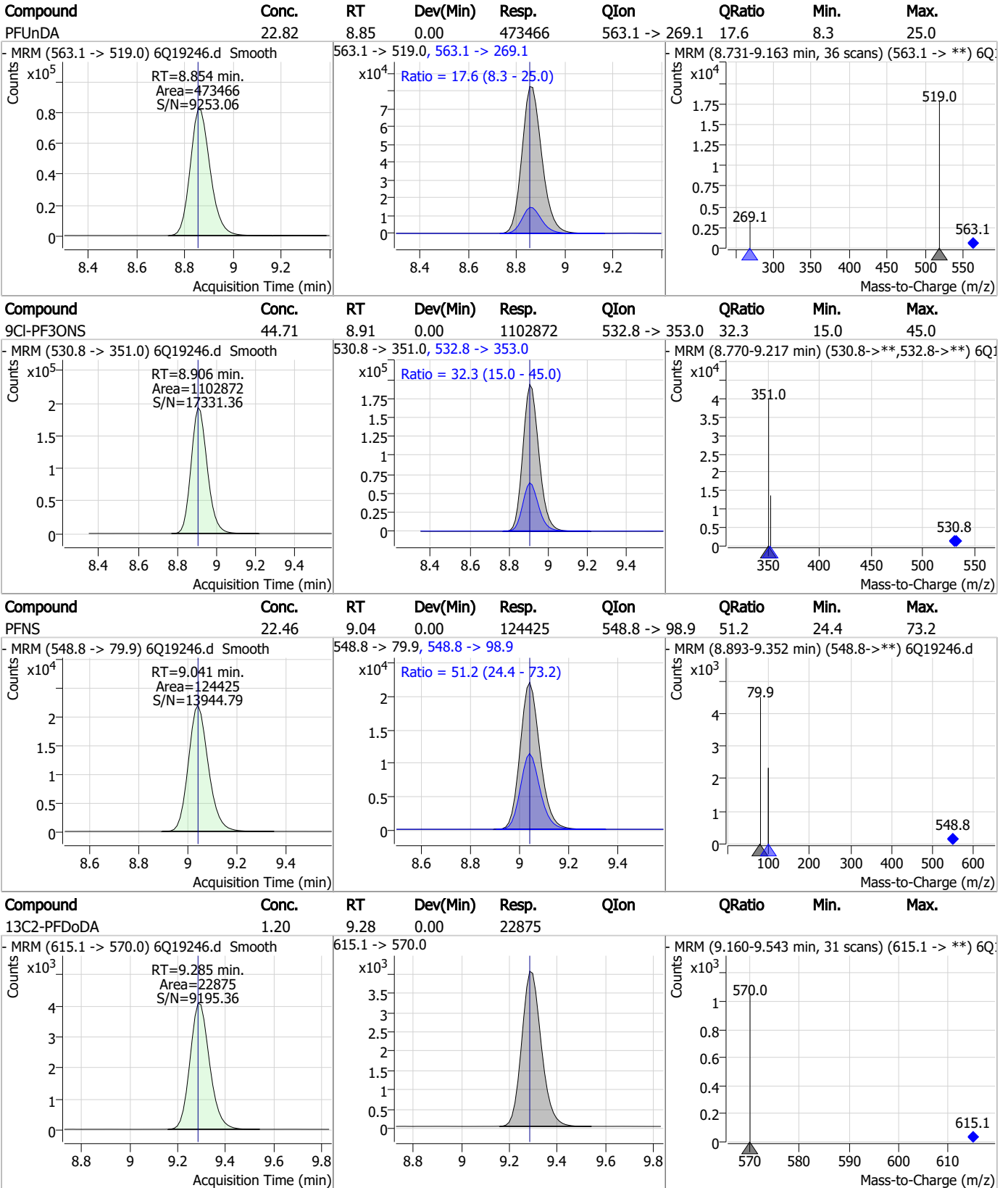
Perfluorinated Compounds by LC/MS/MS



7.7.8

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Perfluorinated Compounds by LC/MS/MS

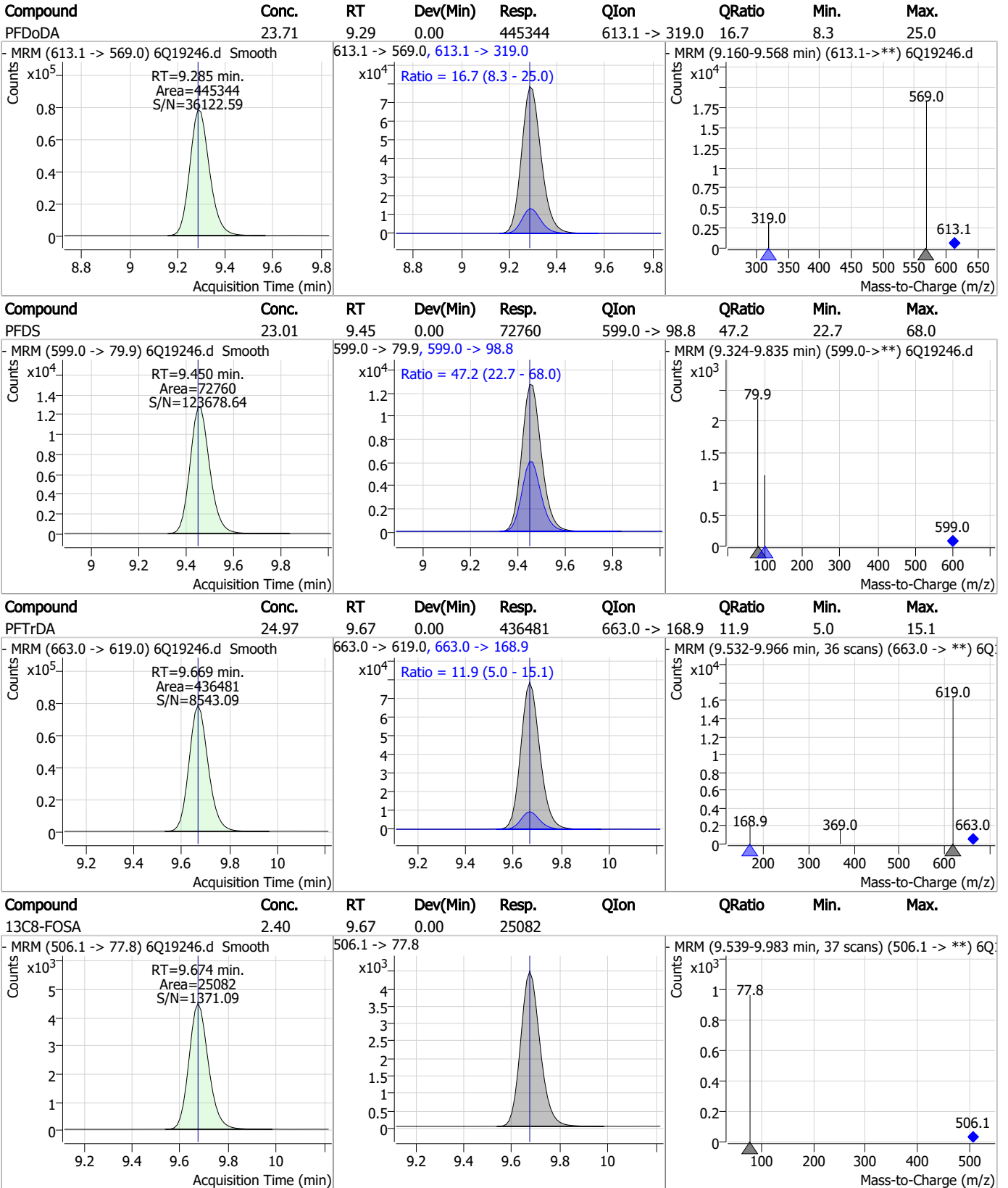


7.7.8

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Perfluorinated Compounds by LC/MS/MS



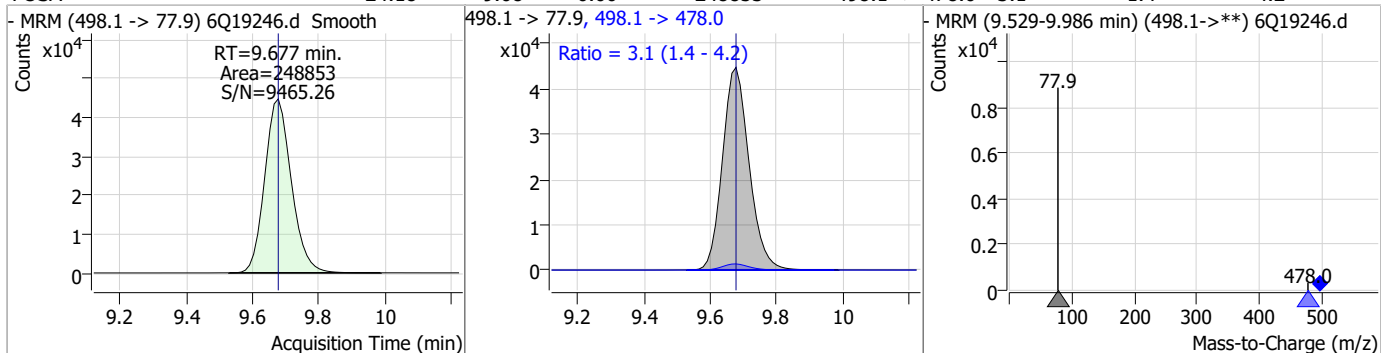
7.7.8

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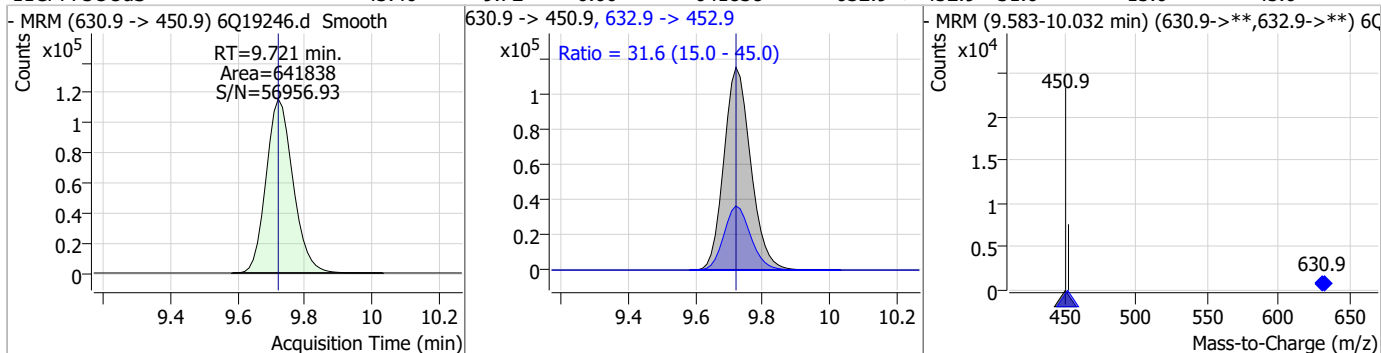


Perfluorinated Compounds by LC/MS/MS

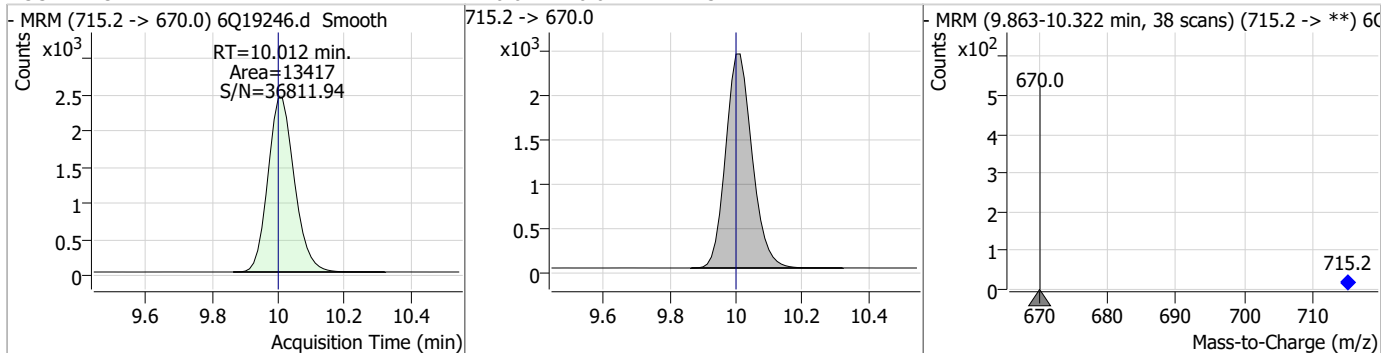
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	24.18	9.68	0.00	248853	498.1 -> 478.0	3.1	1.4	4.2



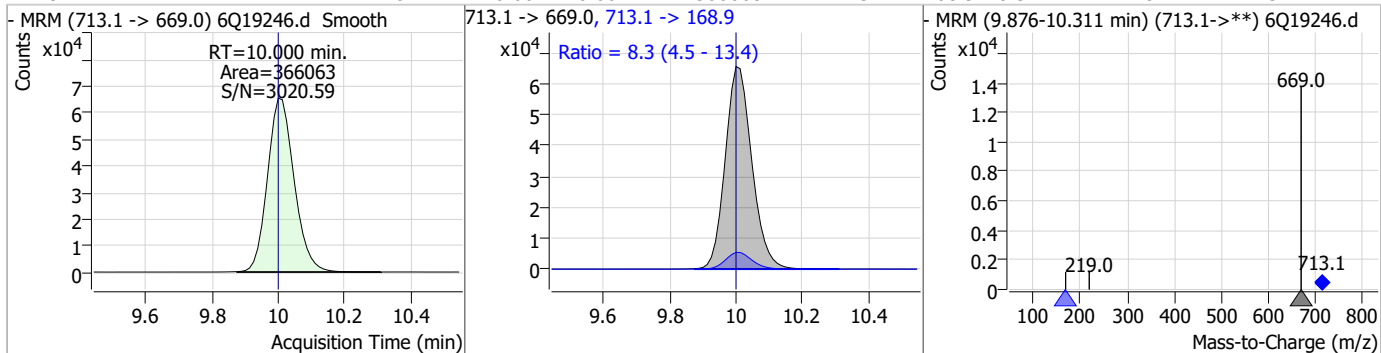
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	43.46	9.72	0.00	641838	632.9 -> 452.9	31.6	15.0	45.0



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



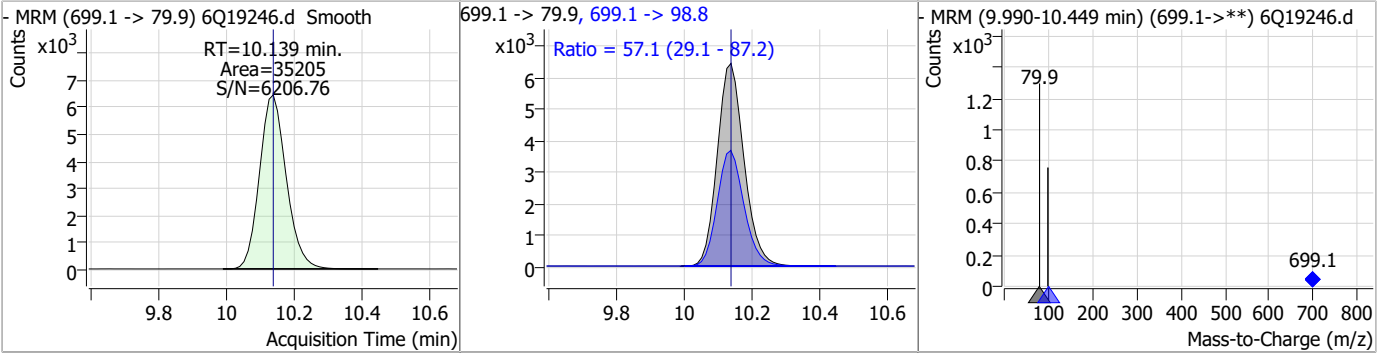
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	22.82	10.00	0.00	366063	713.1 -> 168.9	8.3	4.5	13.4



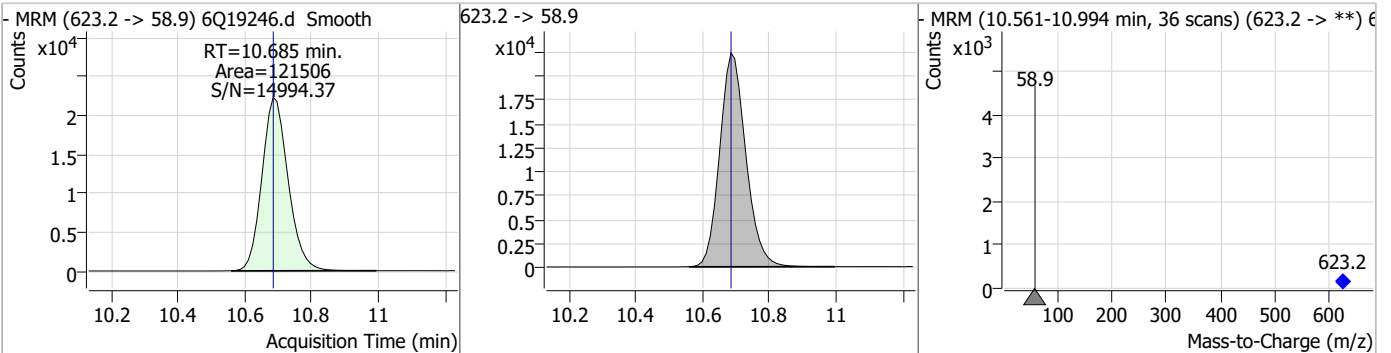
7.7.8
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Perfluorinated Compounds by LC/MS/MS

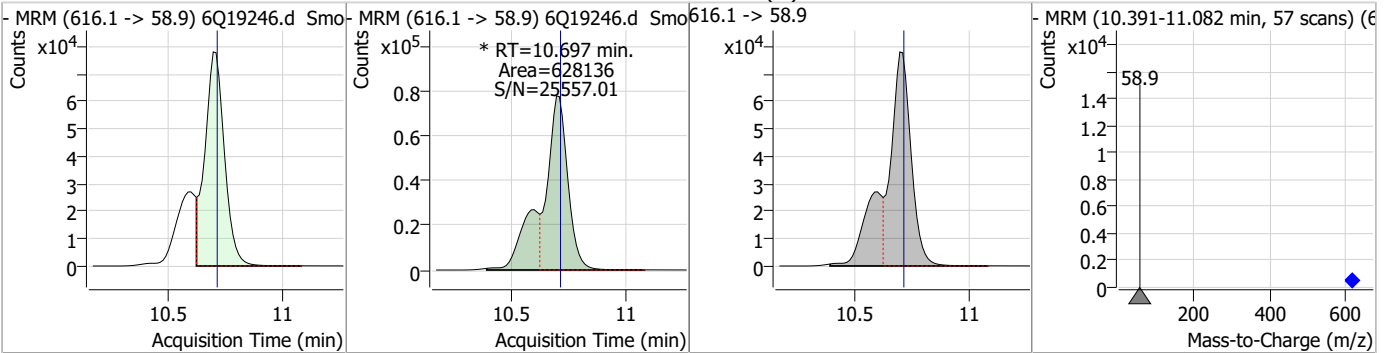
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	22.37	10.14	0.00	35205	699.1 -> 98.8	57.1	29.1	87.2



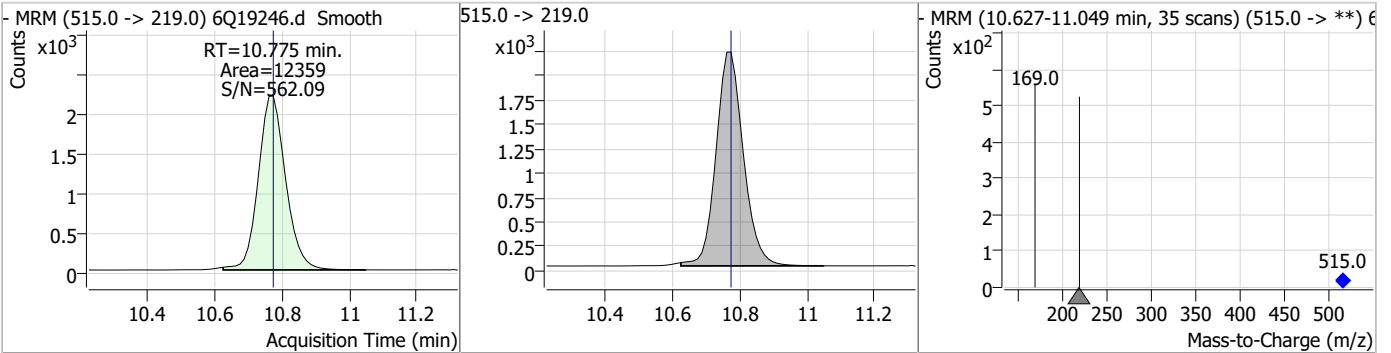
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.47	10.68	0.00	121506				



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

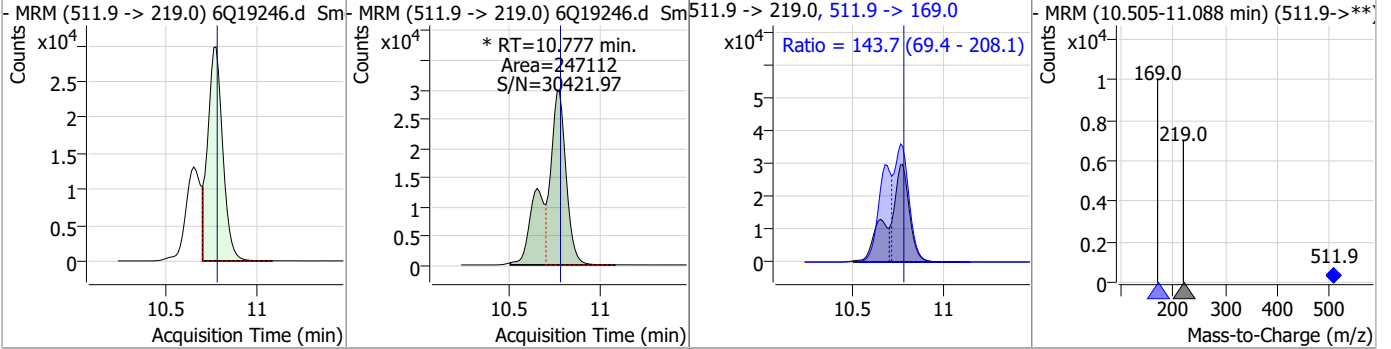


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.64	10.78	0.00	12359				

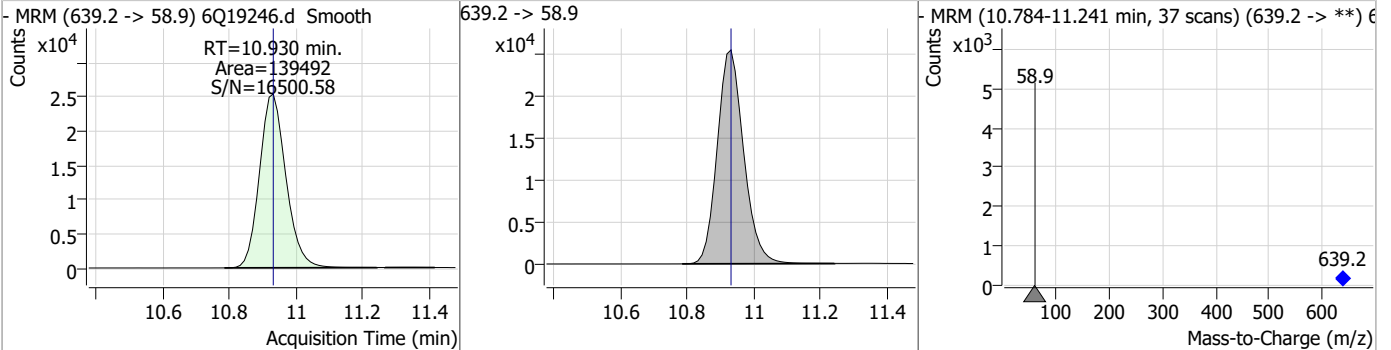


Perfluorinated Compounds by LC/MS/MS

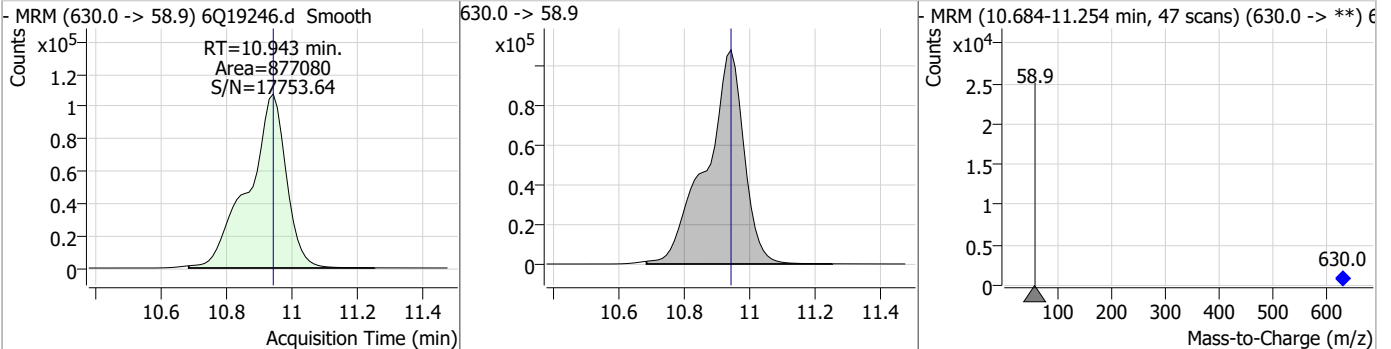
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	45.61	10.78	0.00	247112 (m)	511.9 -> 169.0	143.7	69.4	208.1



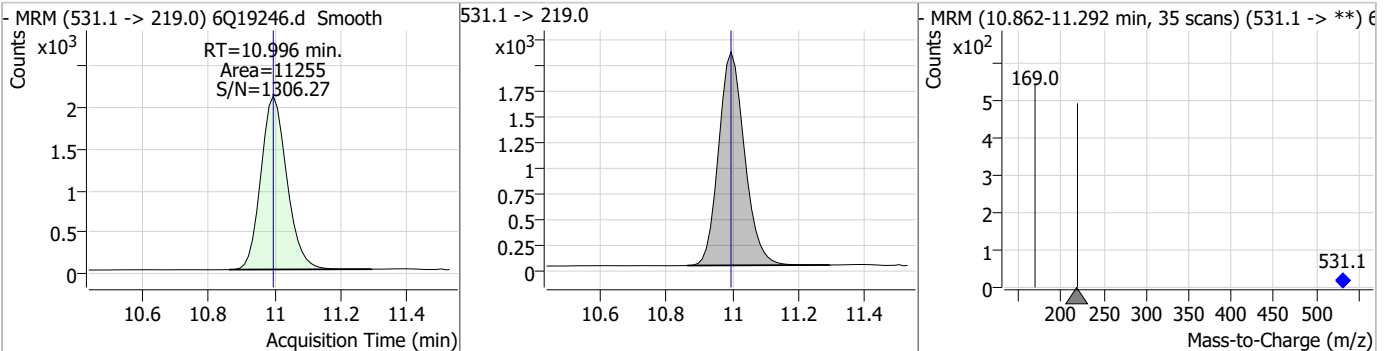
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	21.58	10.93	0.00	139492				



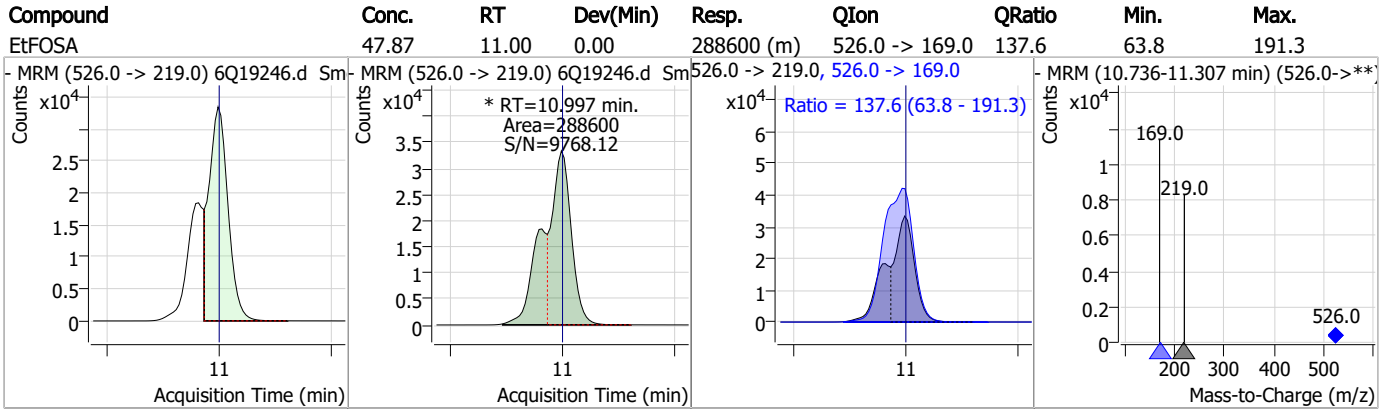
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	119.08	10.94	0.00	877080				



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



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q287-IC287
Lab FileID: 6Q19246.D
Injection Time: 06/12/23 17:12

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

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

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Perfluorinated Compounds by LC/MS/MS

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

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

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

7.7.9

7



Perfluorinated Compounds by LC/MS/MS

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

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

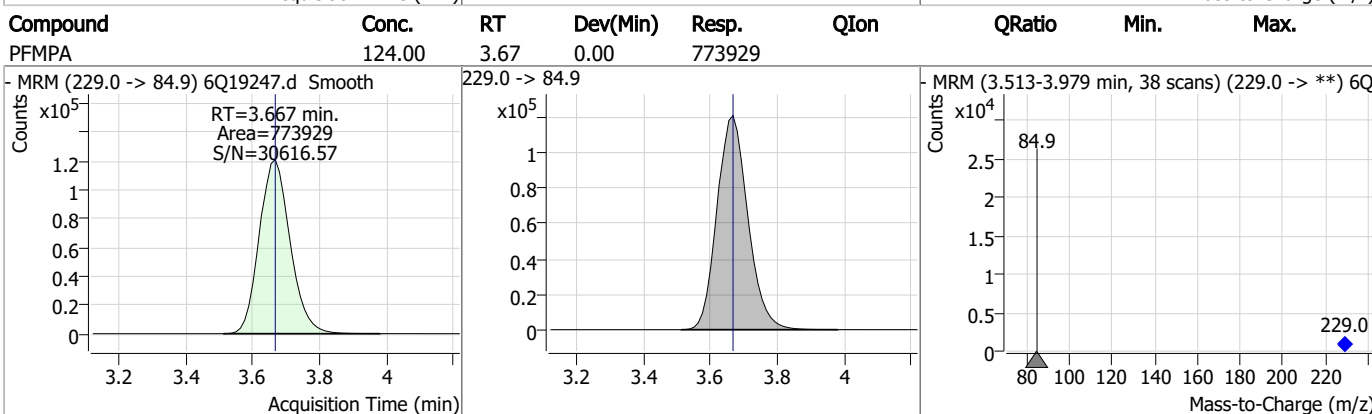
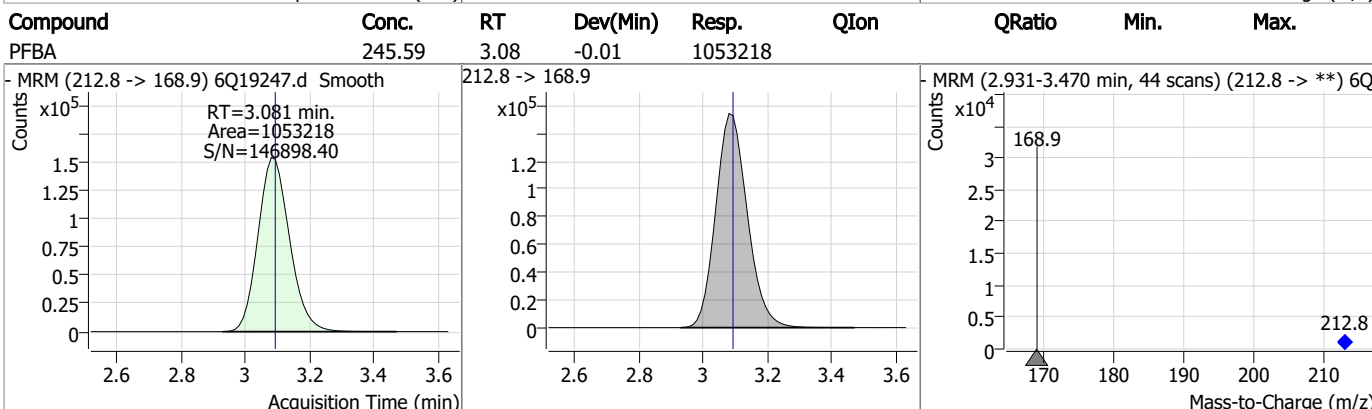
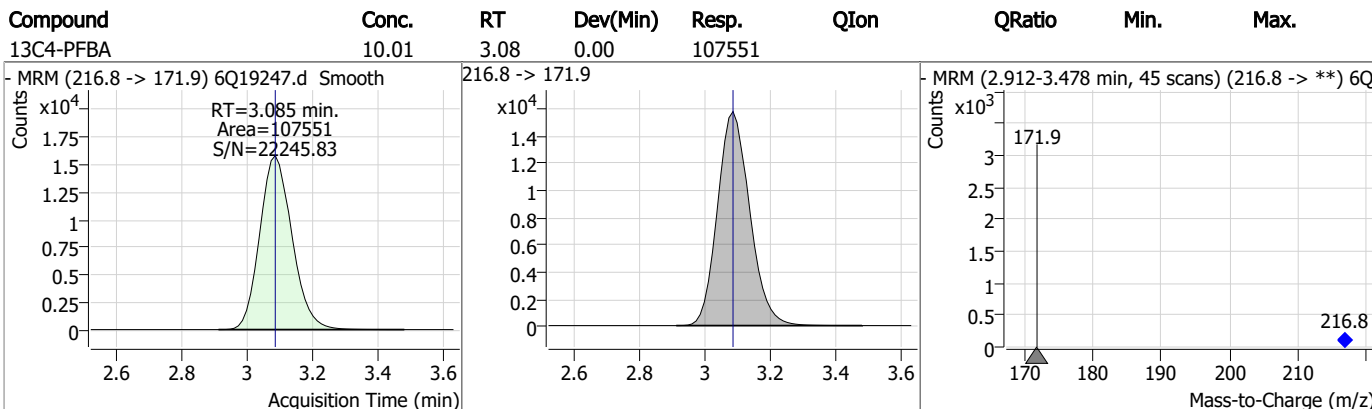
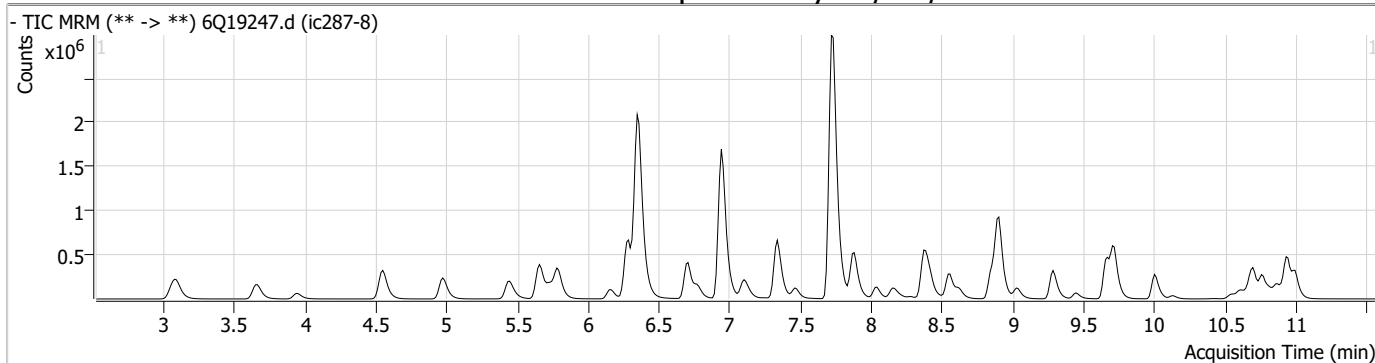
Perfluorinated Compounds by LC/MS/MS

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

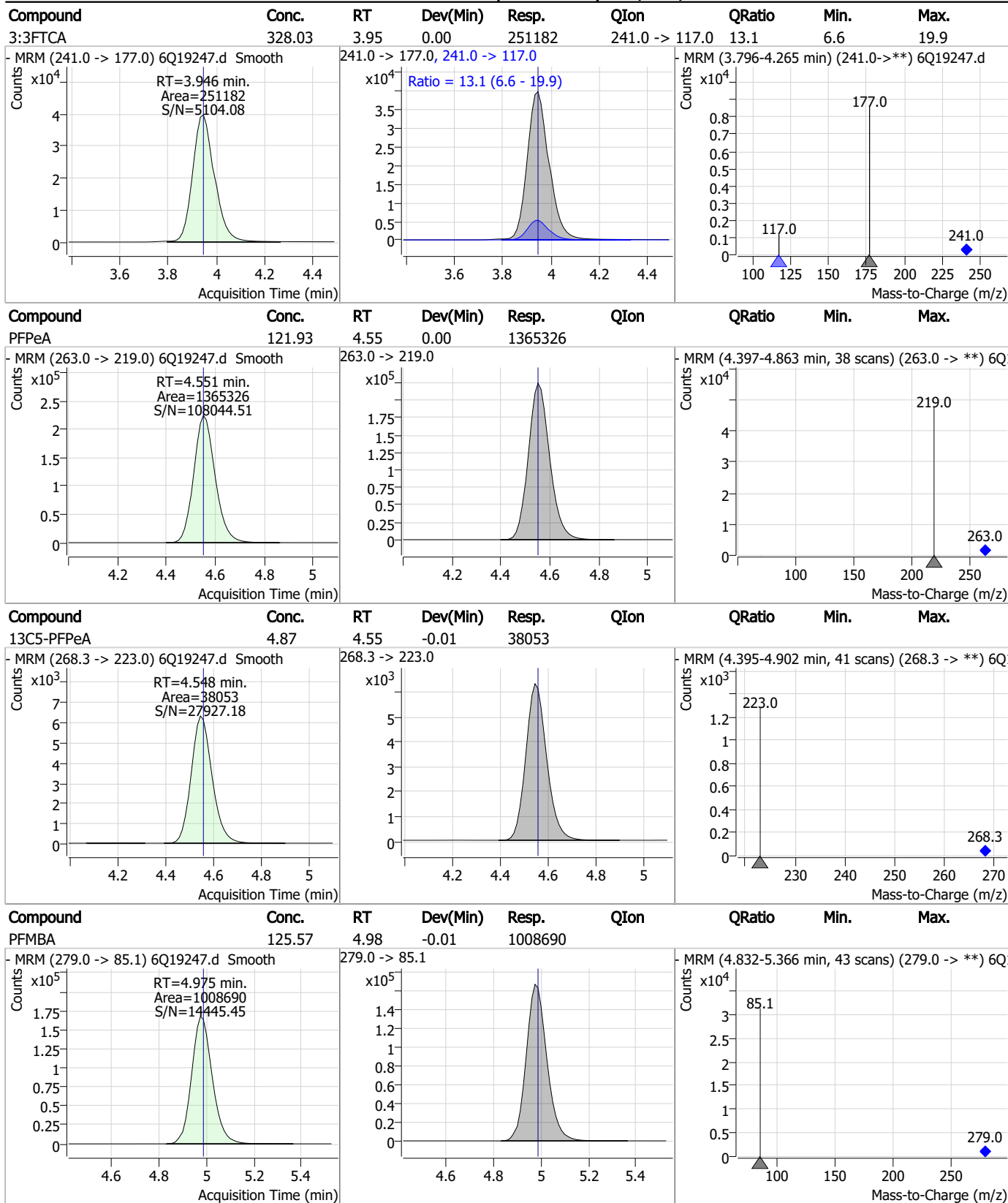
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Perfluorinated Compounds by LC/MS/MS



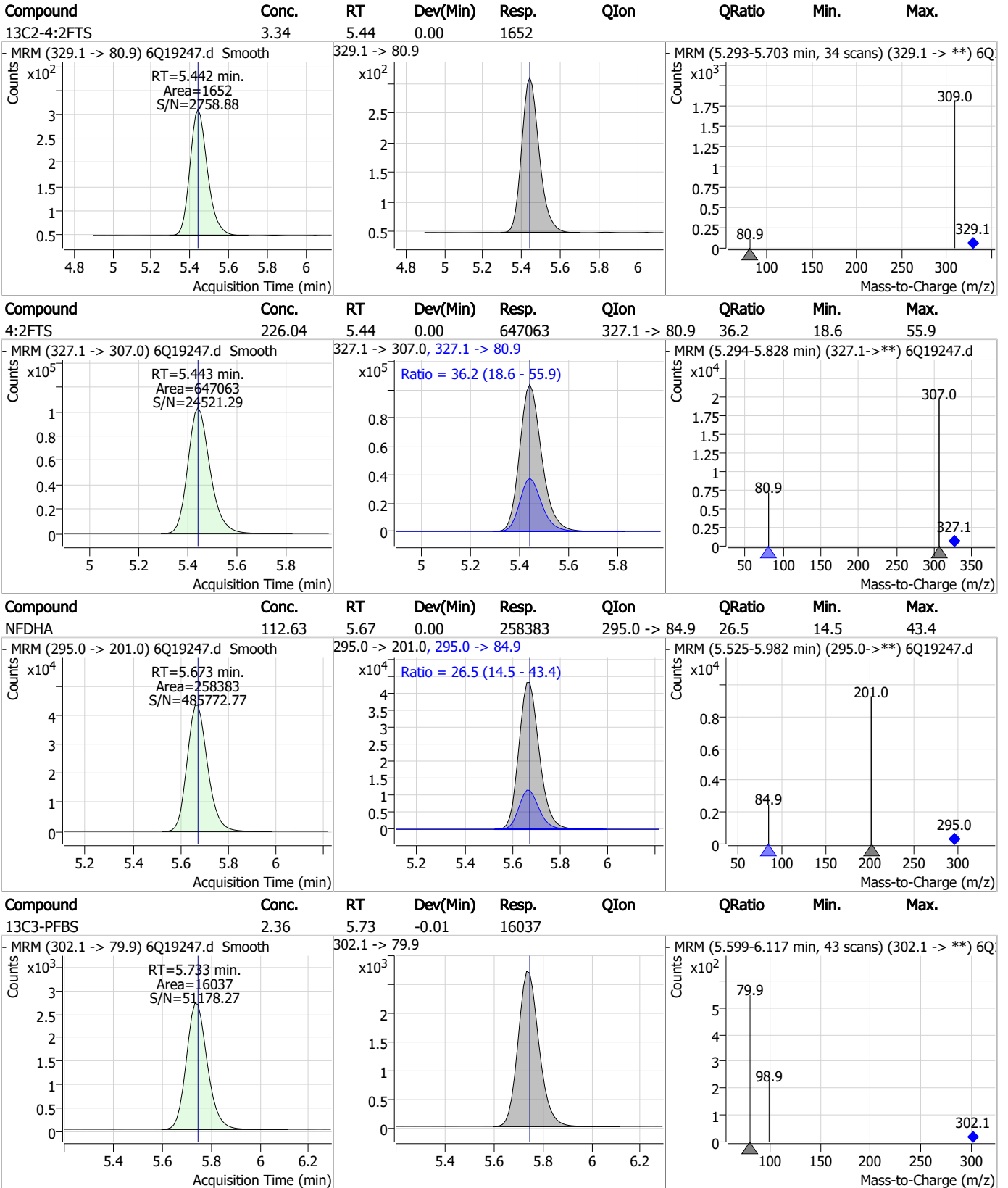
7.7.9
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Perfluorinated Compounds by LC/MS/MS



7.7.9
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Perfluorinated Compounds by LC/MS/MS

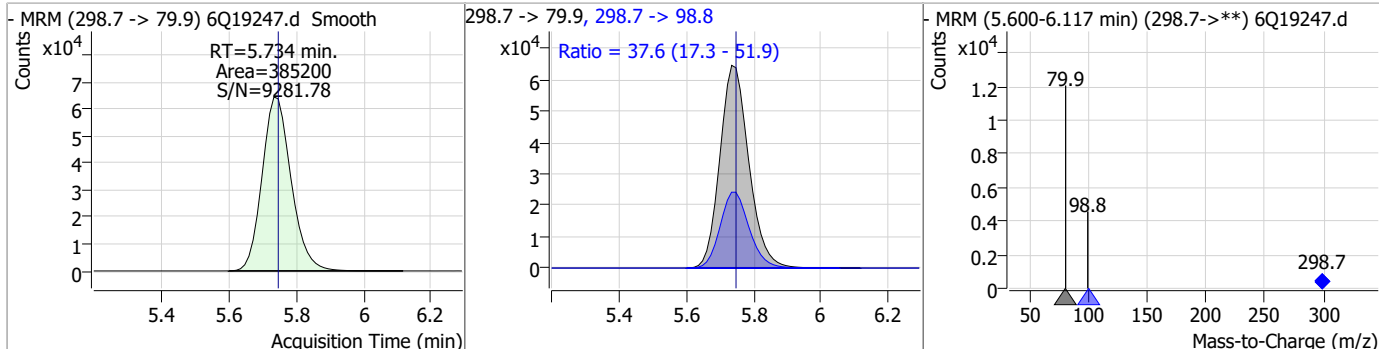


7.7.9

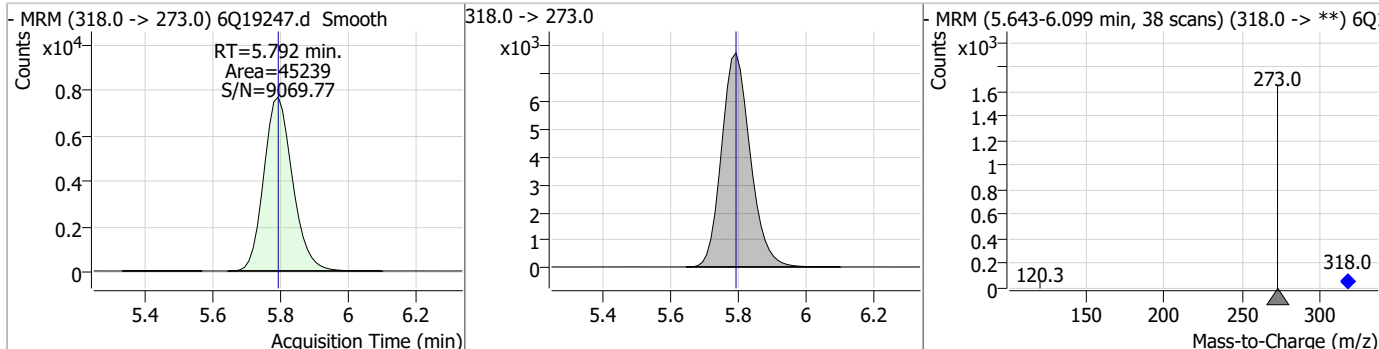
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Perfluorinated Compounds by LC/MS/MS

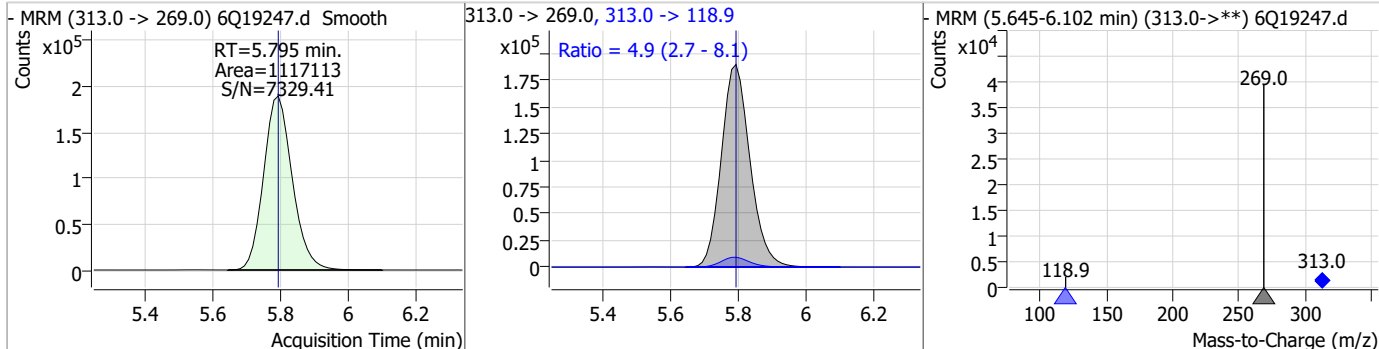
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	54.76	5.73	-0.01	385200	298.7 -> 98.8	37.6	17.3	51.9



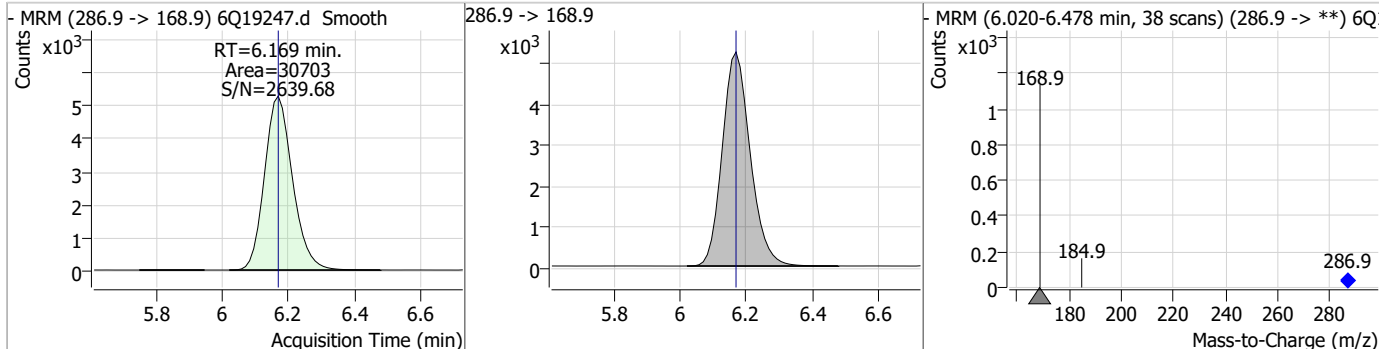
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.59	5.79	0.00	45239				



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



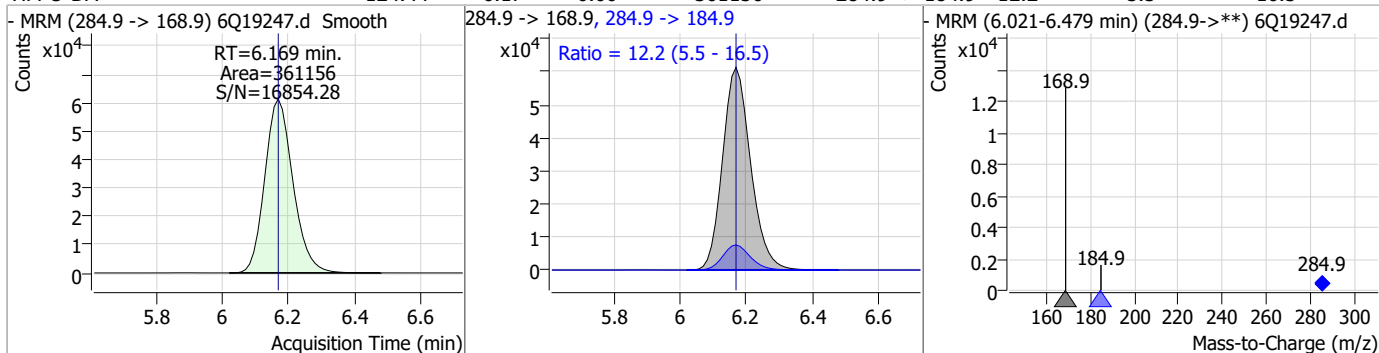
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.08	6.17	0.00	30703				



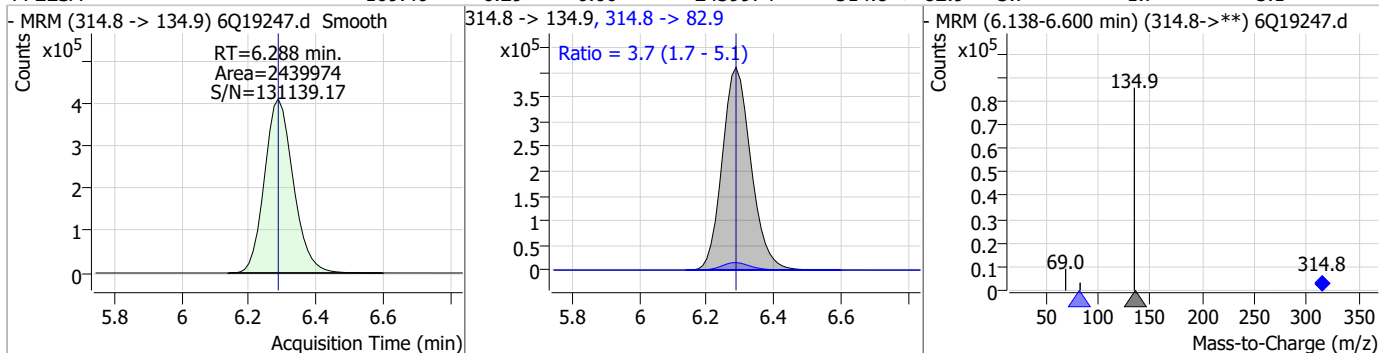
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Perfluorinated Compounds by LC/MS/MS

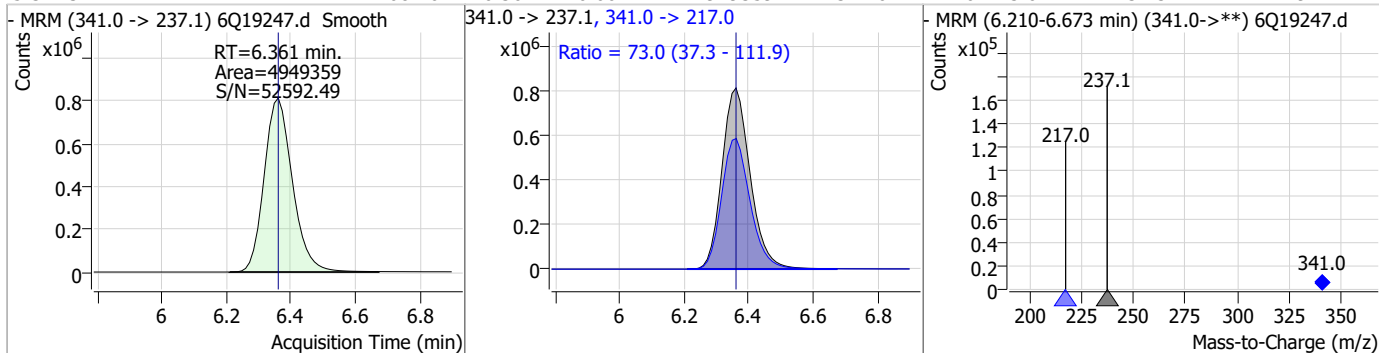
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	124.44	6.17	0.00	361156	284.9 -> 184.9	12.2	5.5	16.5



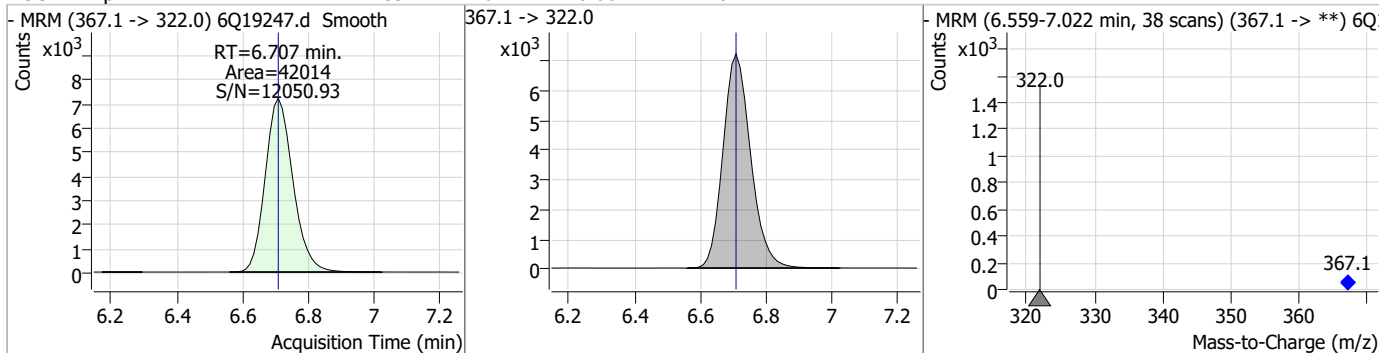
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	109.40	6.29	0.00	2439974	314.8 -> 82.9	3.7	1.7	5.1



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

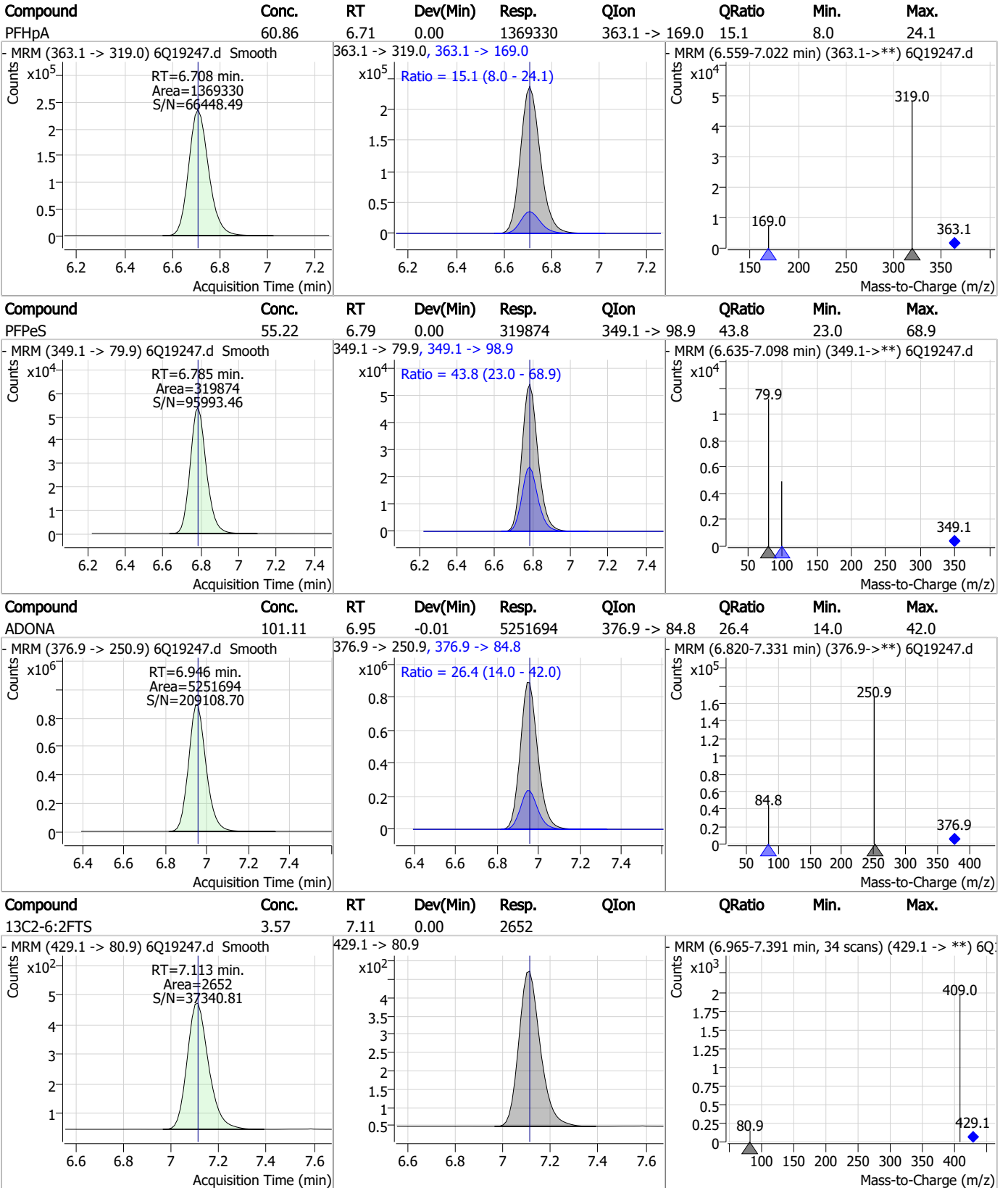


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.59	6.71	0.00	42014	367.1 -> 322.0	-	-	-



7.7.9
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Perfluorinated Compounds by LC/MS/MS

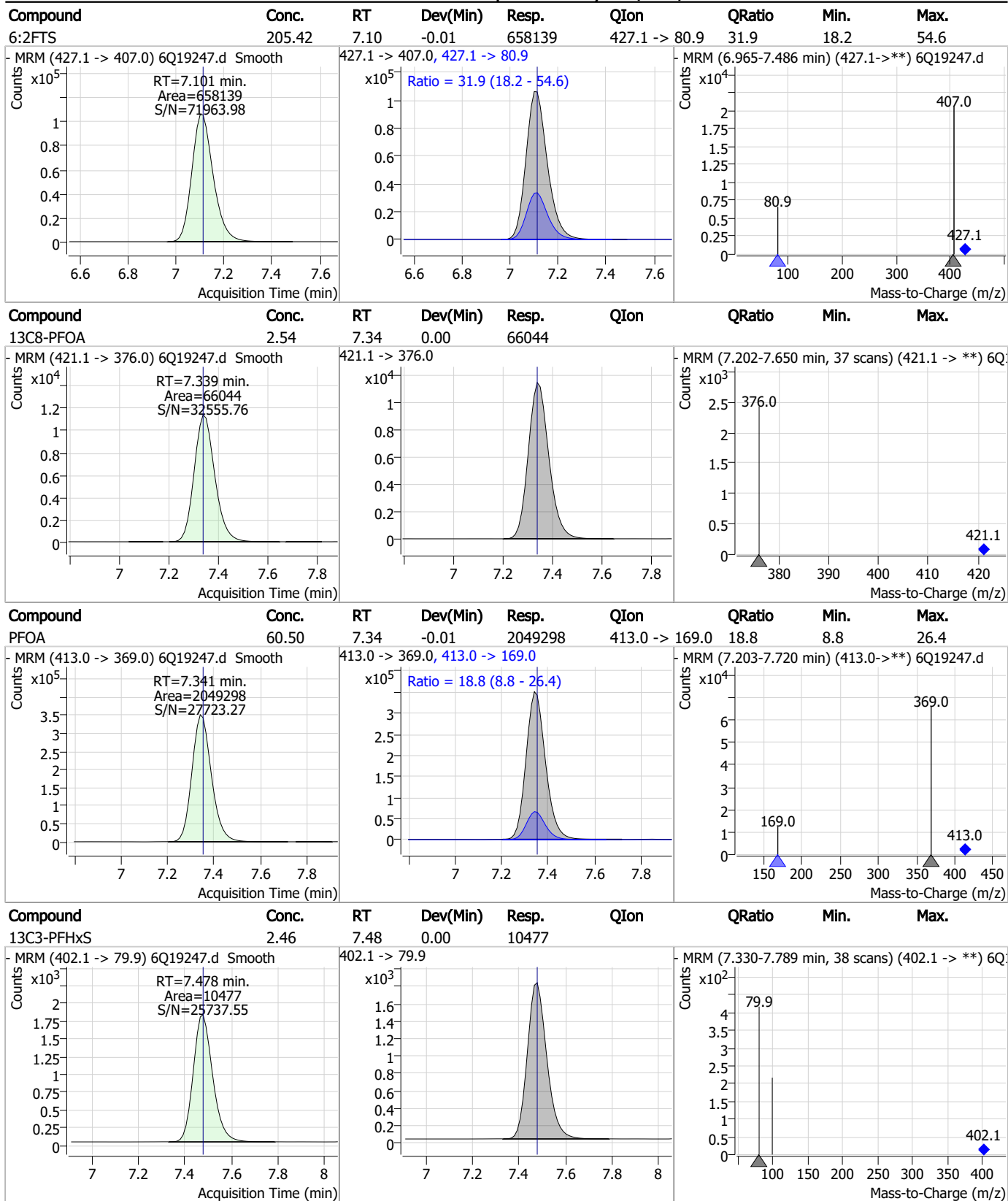


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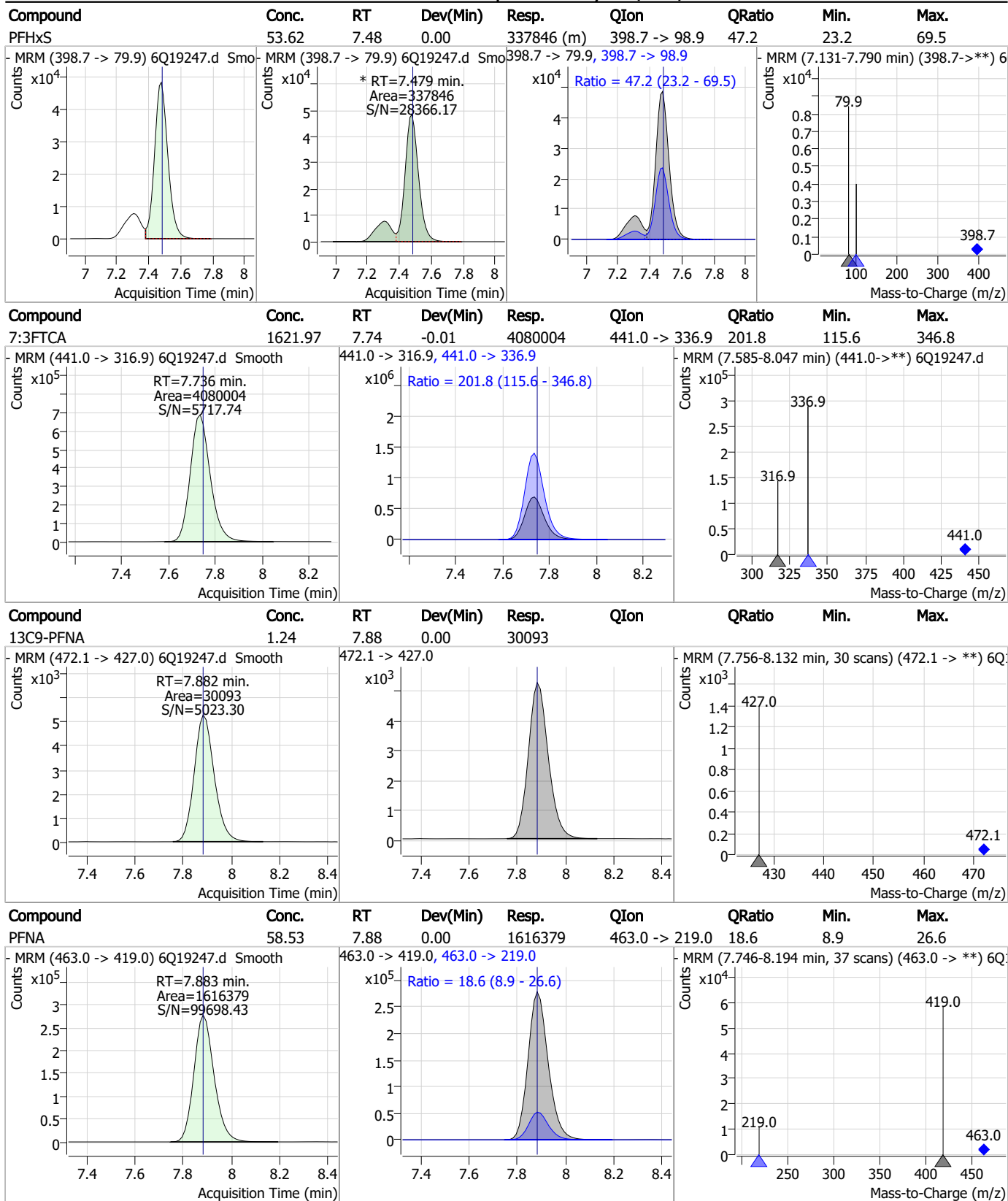


Perfluorinated Compounds by LC/MS/MS



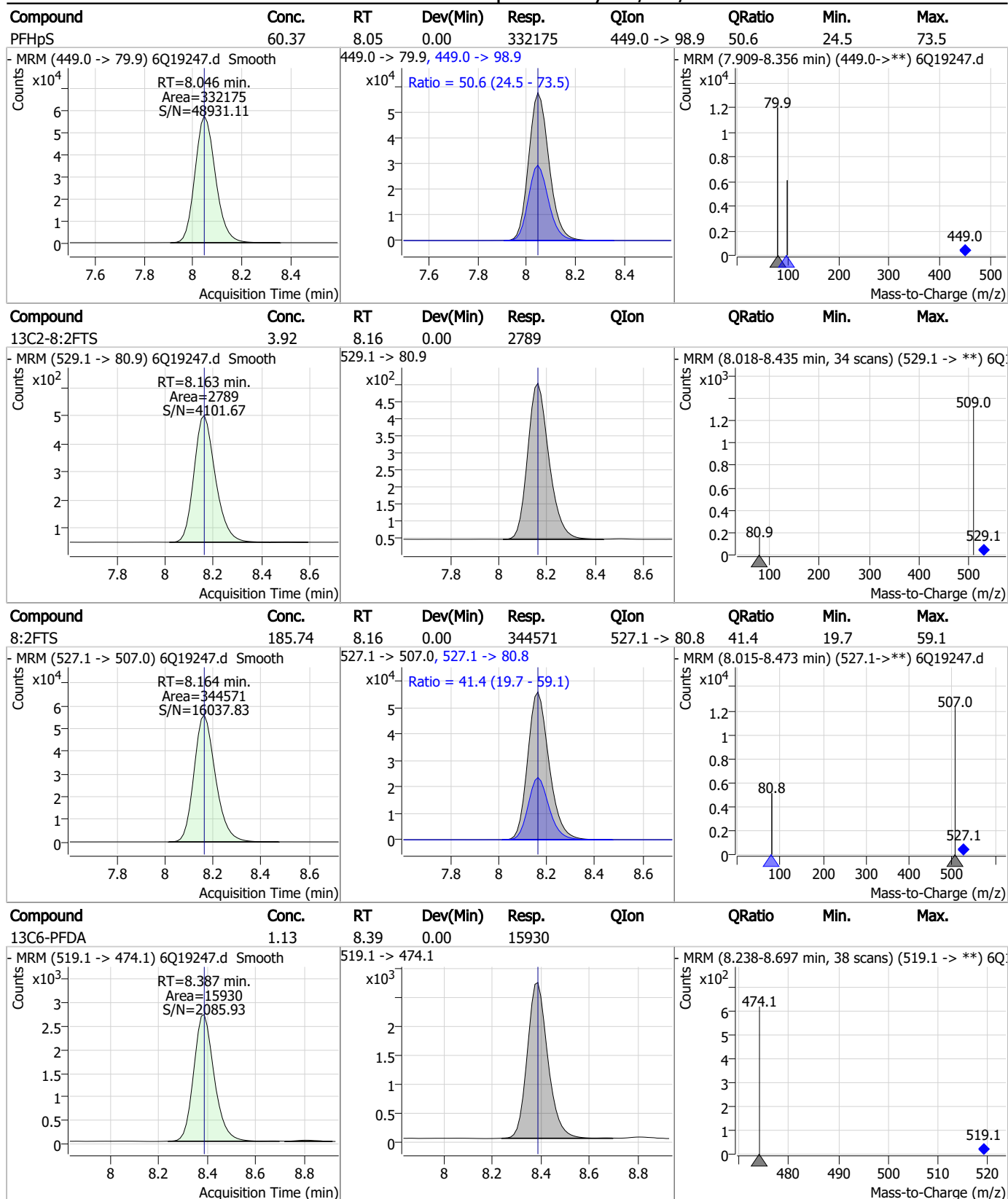
7.7.9
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Perfluorinated Compounds by LC/MS/MS



7.7.9
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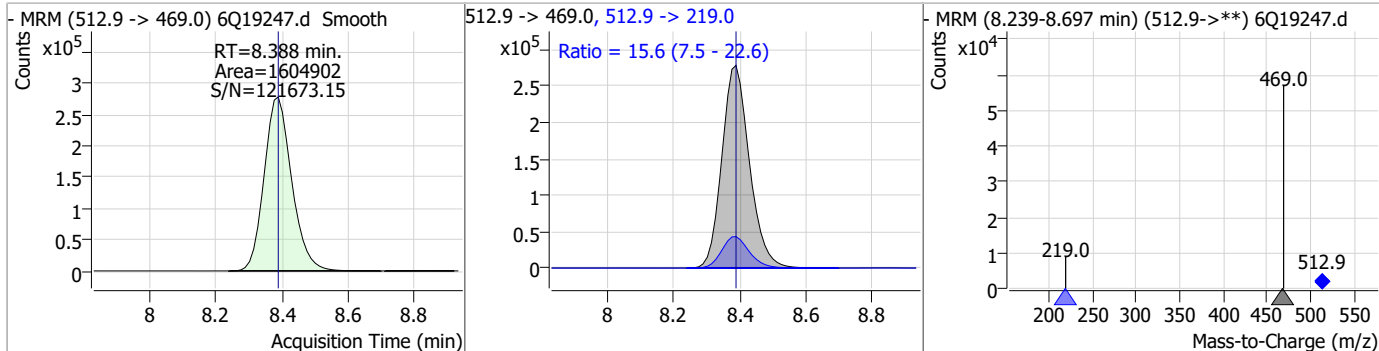
Perfluorinated Compounds by LC/MS/MS



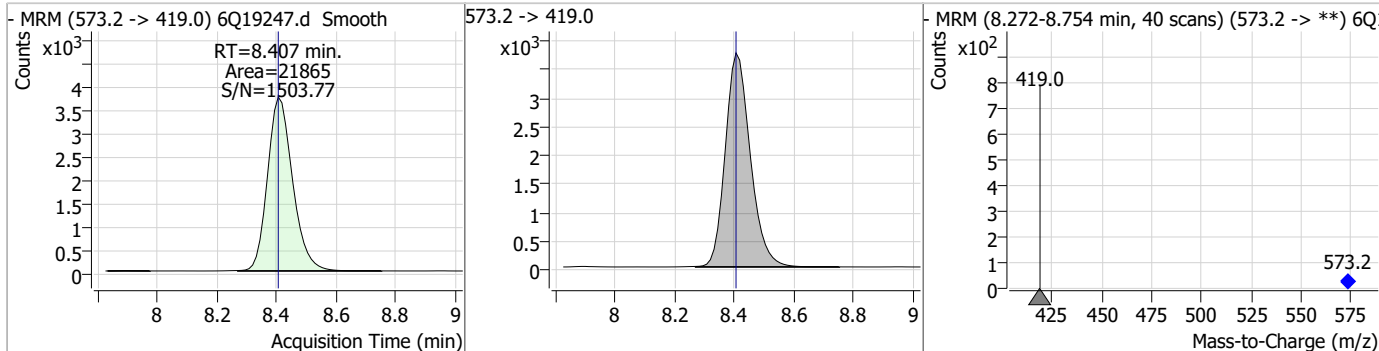
7.7.9
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Perfluorinated Compounds by LC/MS/MS

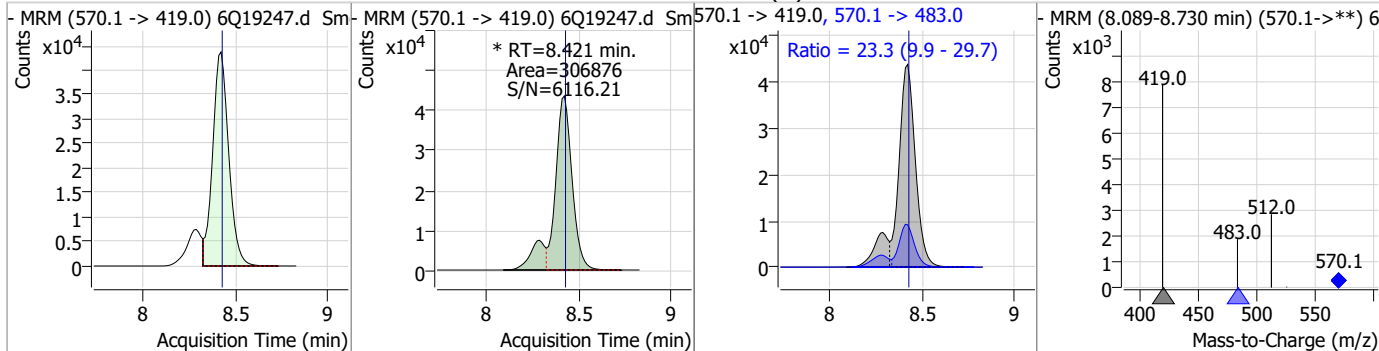
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	67.39	8.39	0.00	1604902	512.9 -> 219.0	15.6	7.5	22.6



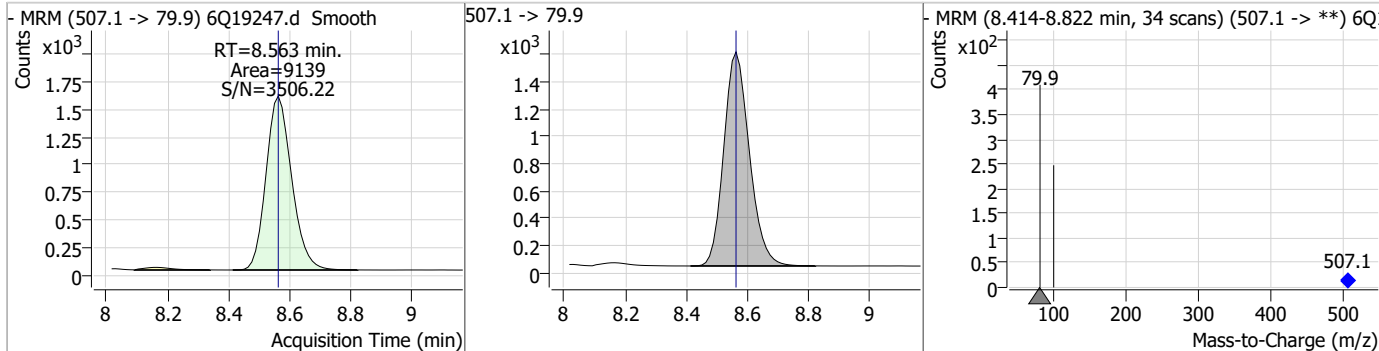
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.43	8.41	0.00	21865				



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

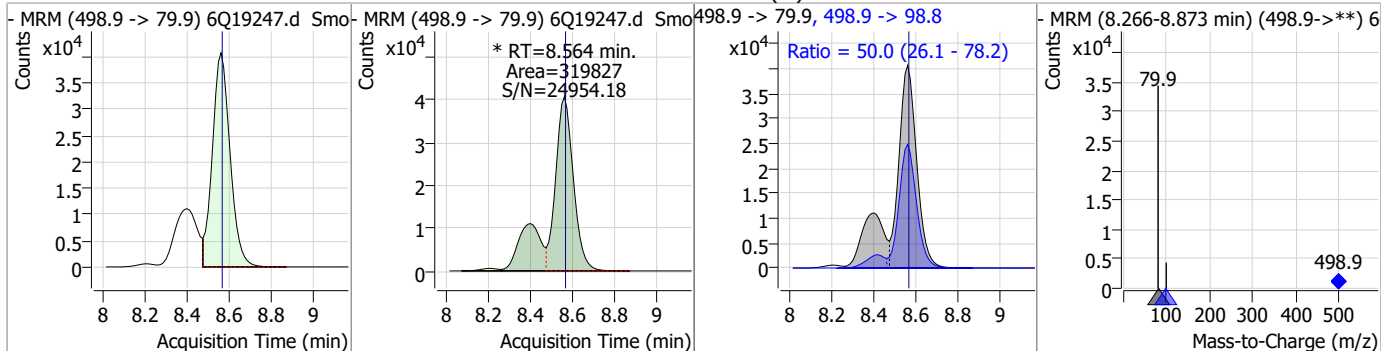


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.37	8.56	0.00	9139				

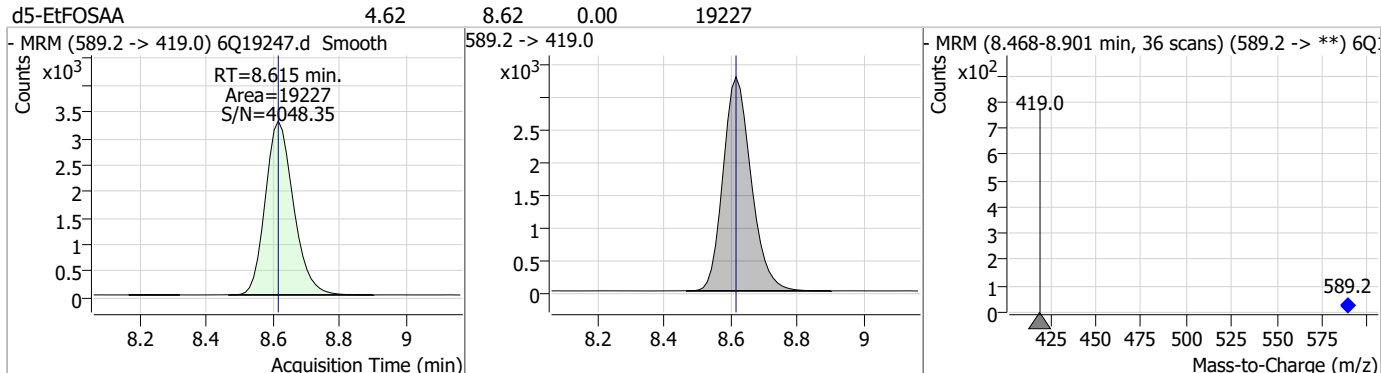


Perfluorinated Compounds by LC/MS/MS

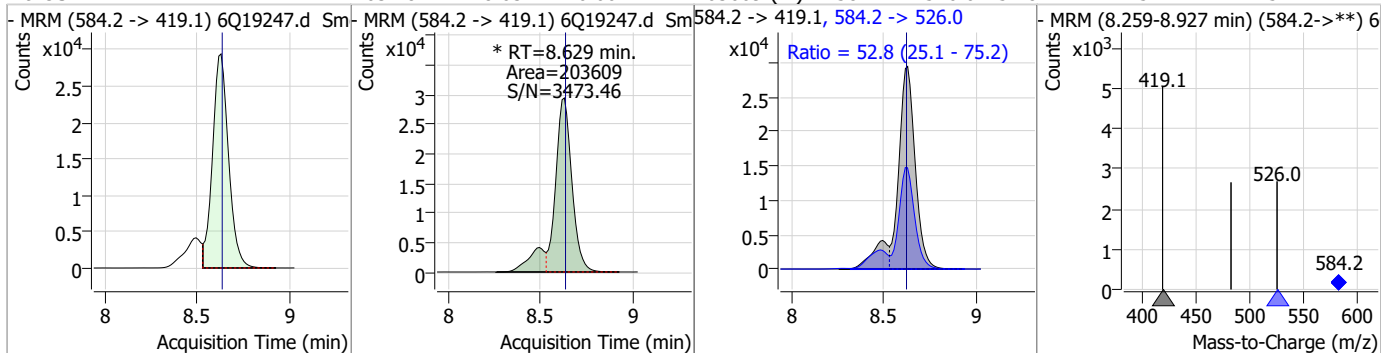
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	59.40	8.56	0.00	319827 (m)	498.9 -> 98.8	50.0	26.1	78.2



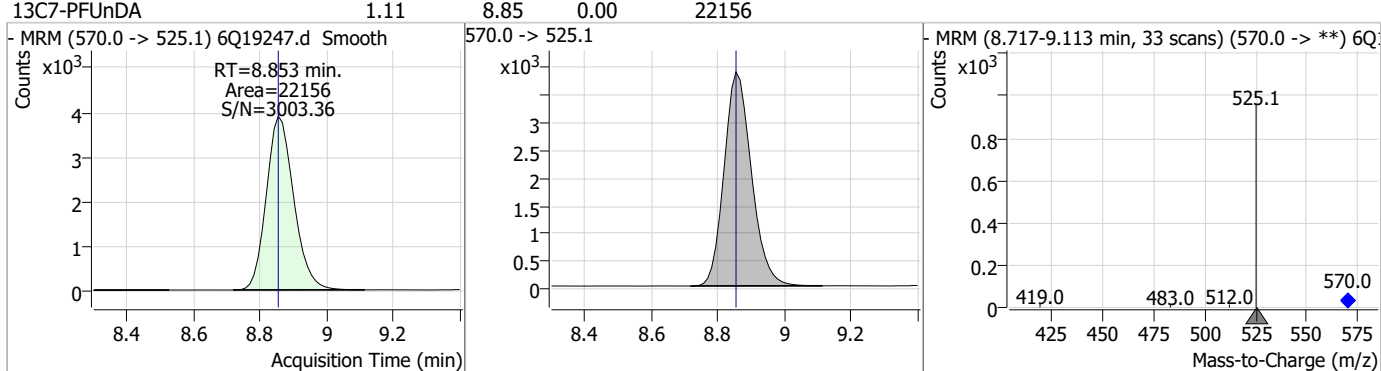
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.62	8.62	0.00	19227				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	63.78	8.63	0.00	203609 (m)	584.2 -> 526.0	52.8	25.1	75.2

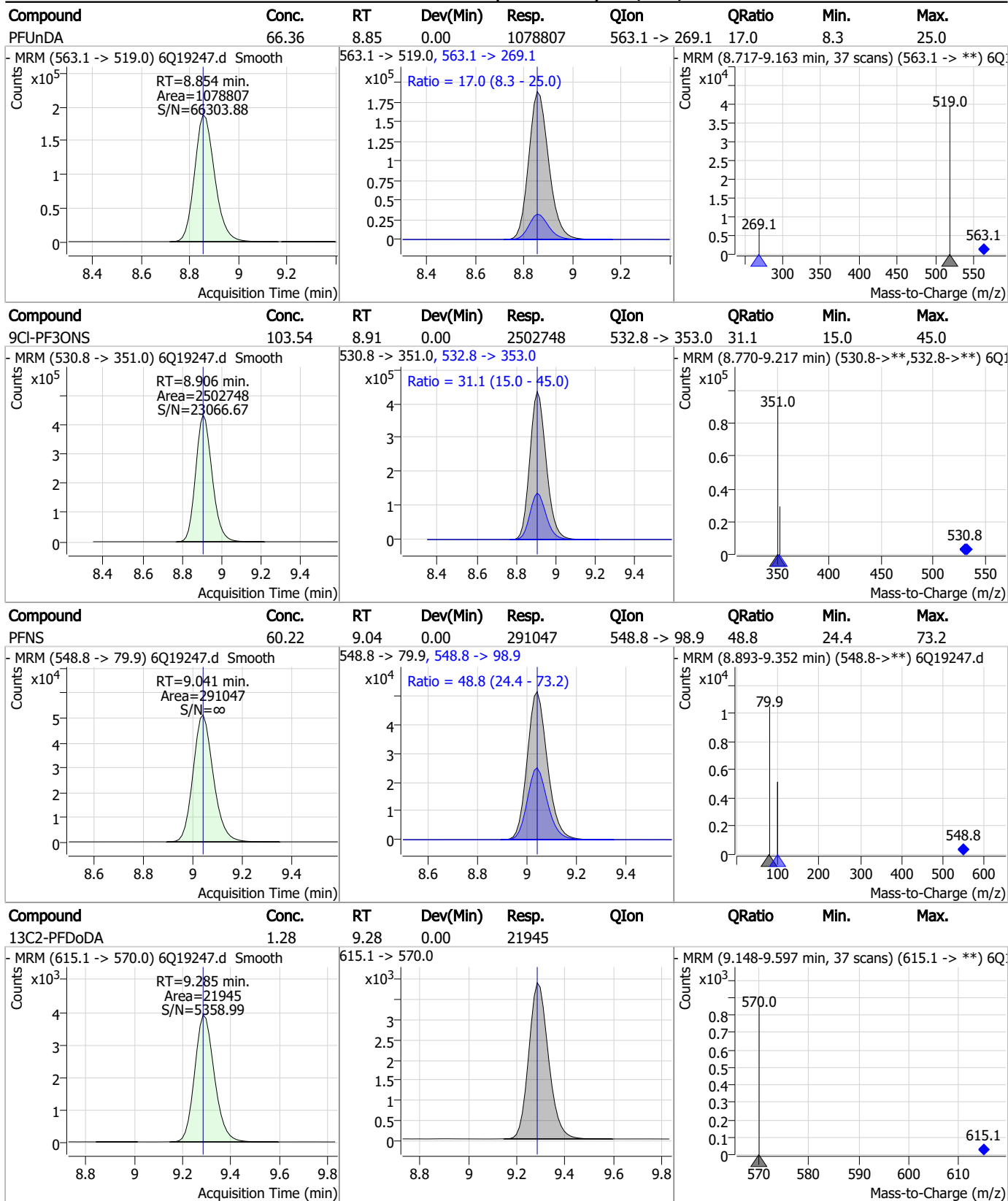


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.11	8.85	0.00	22156				



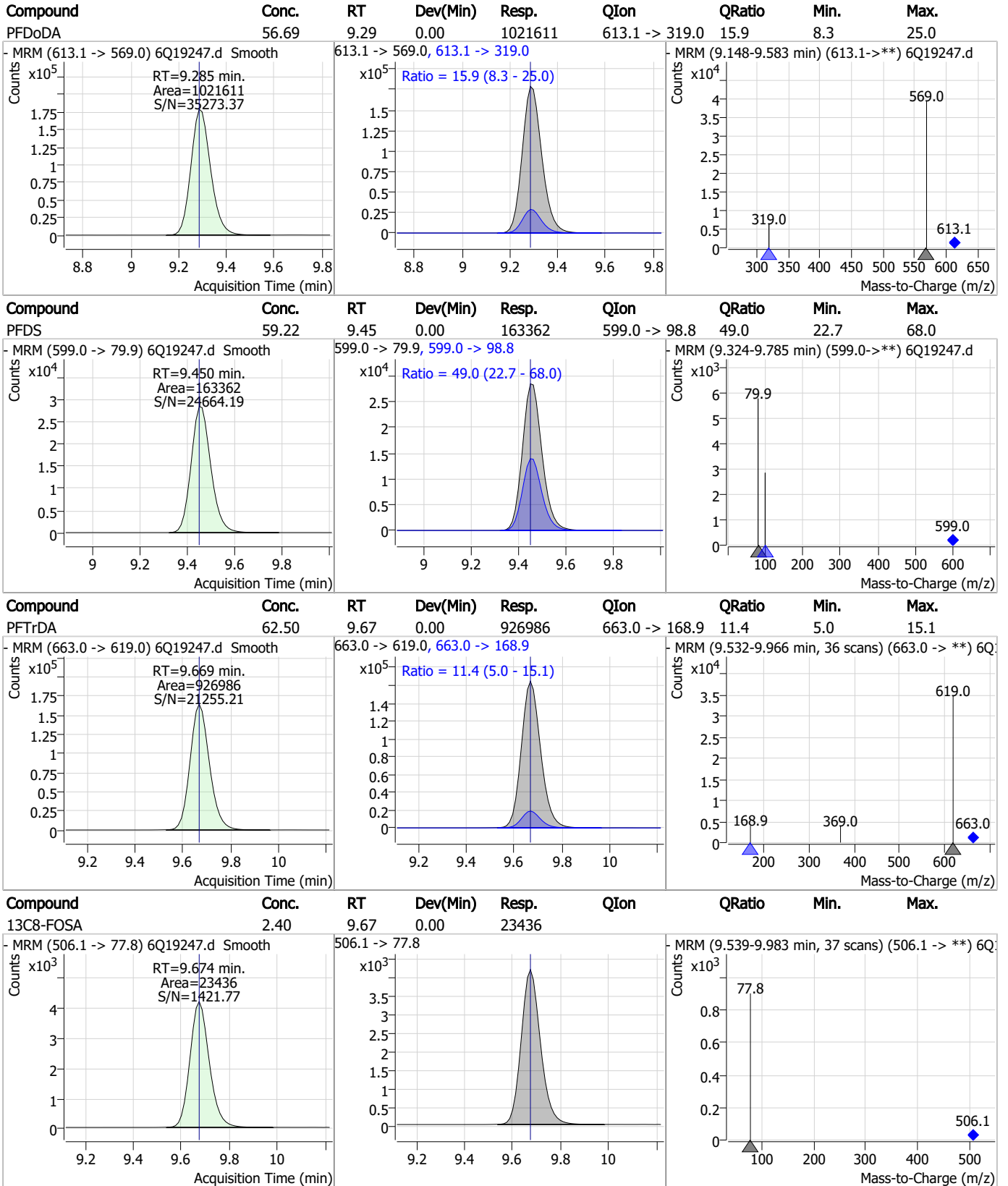
7.7.9
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Perfluorinated Compounds by LC/MS/MS



7.7.9
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Perfluorinated Compounds by LC/MS/MS

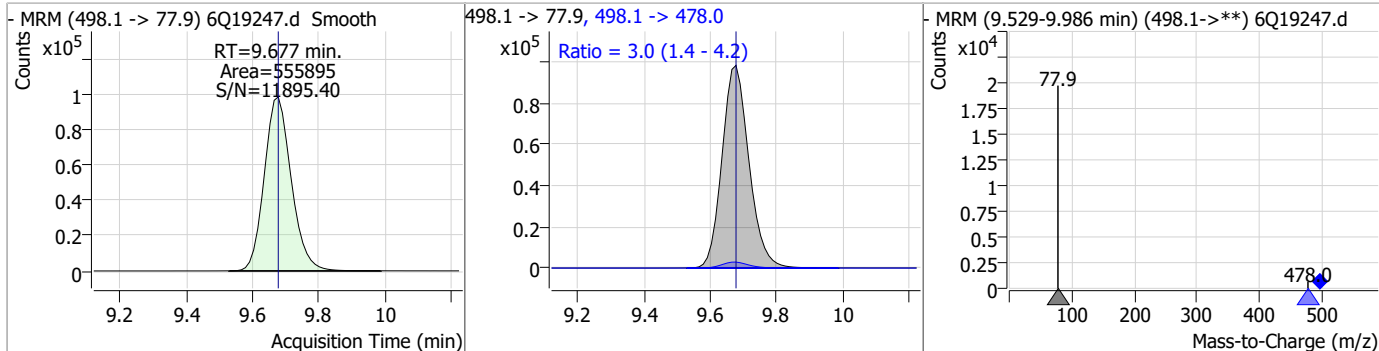


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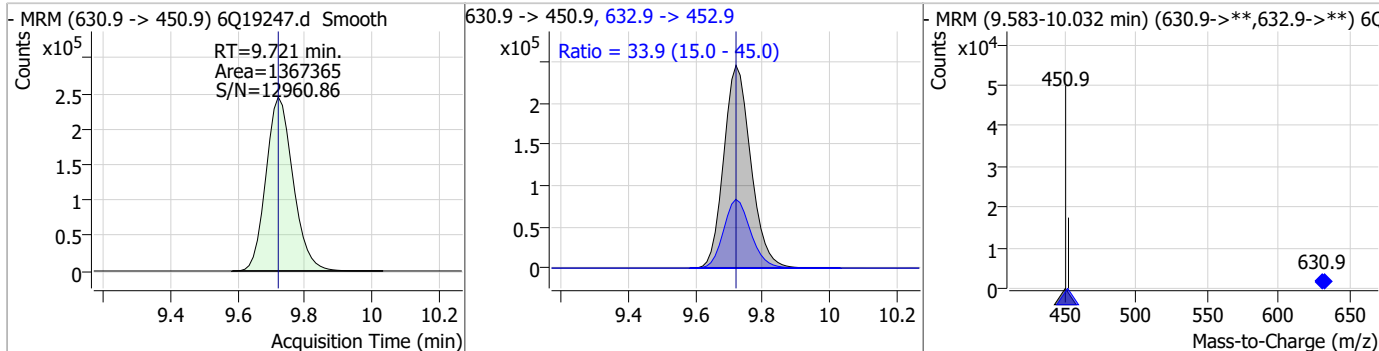
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Perfluorinated Compounds by LC/MS/MS

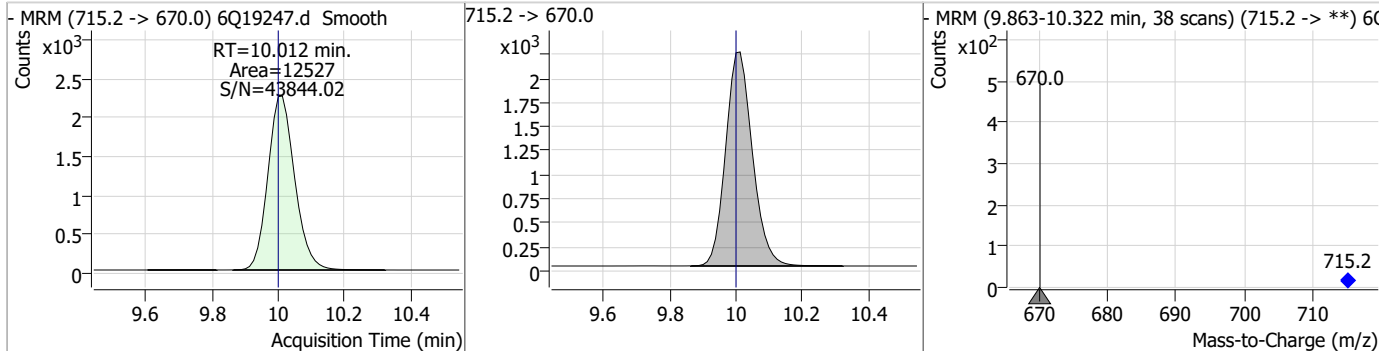
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	57.80	9.68	0.00	555895	498.1 -> 478.0	3.0	1.4	4.2



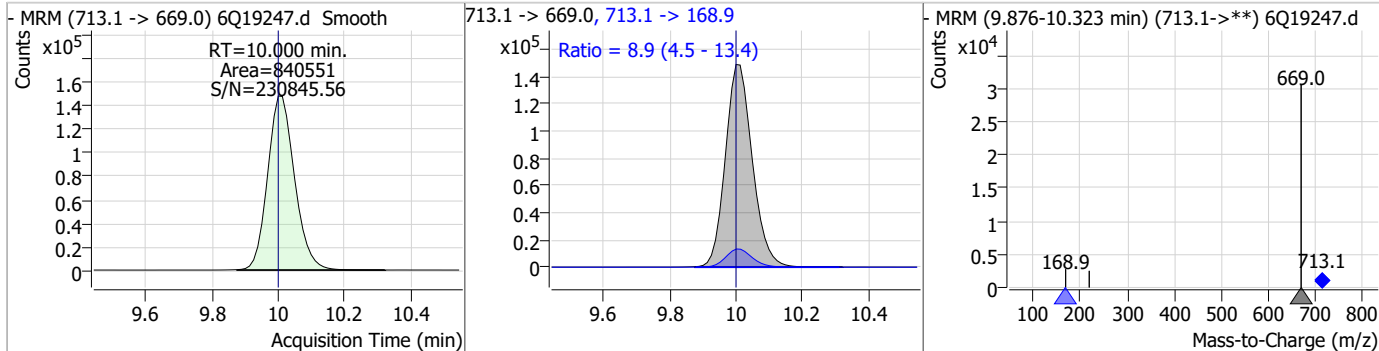
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	94.48	9.72	0.00	1367365	630.9 -> 452.9	33.9	15.0	45.0



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



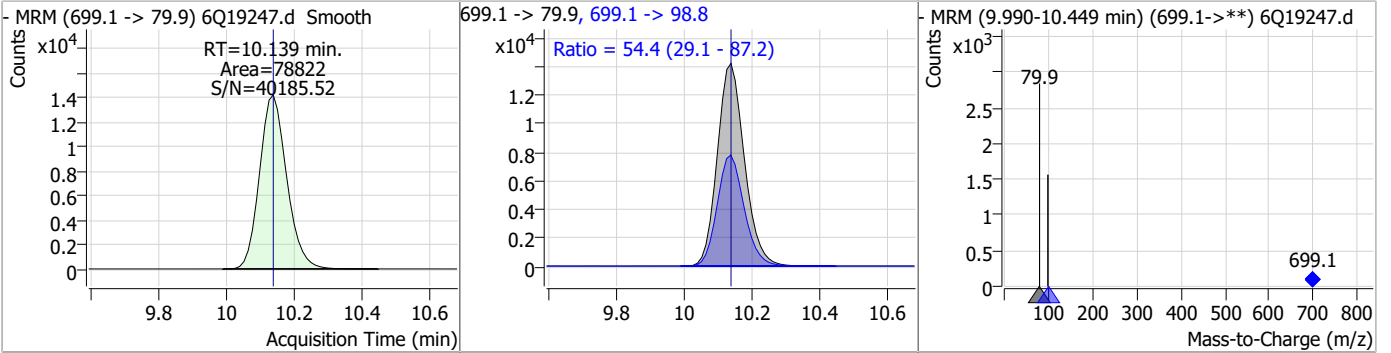
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	56.12	10.00	0.00	840551	713.1 -> 168.9	8.9	4.5	13.4



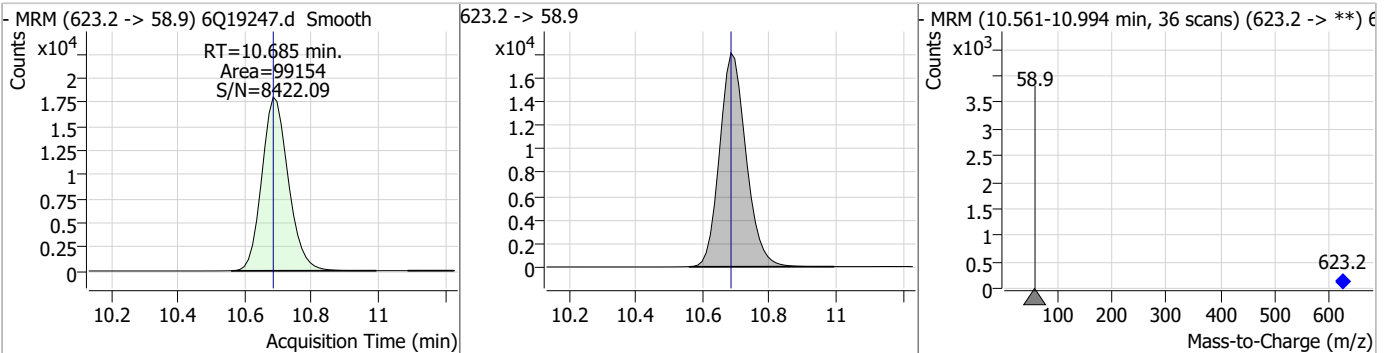
7.7.9
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Perfluorinated Compounds by LC/MS/MS

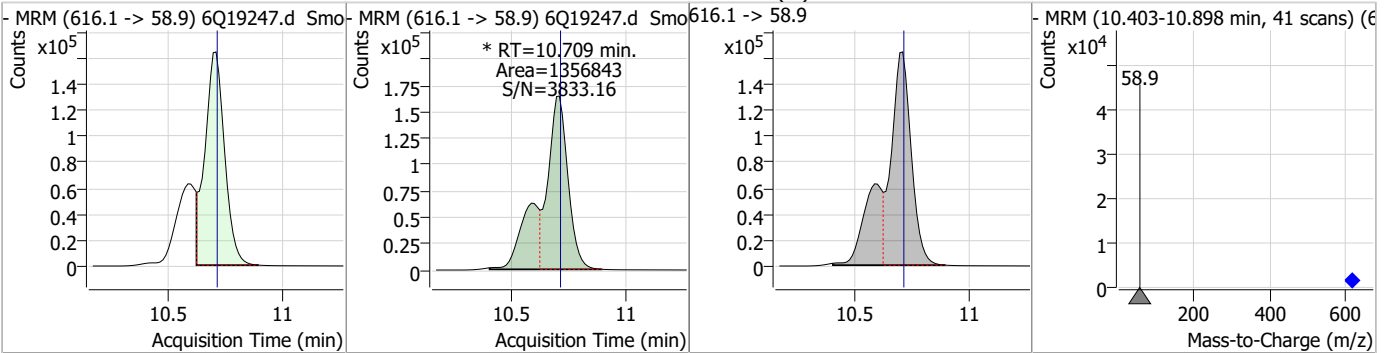
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	57.41	10.14	0.00	78822	699.1 -> 98.8	54.4	29.1	87.2



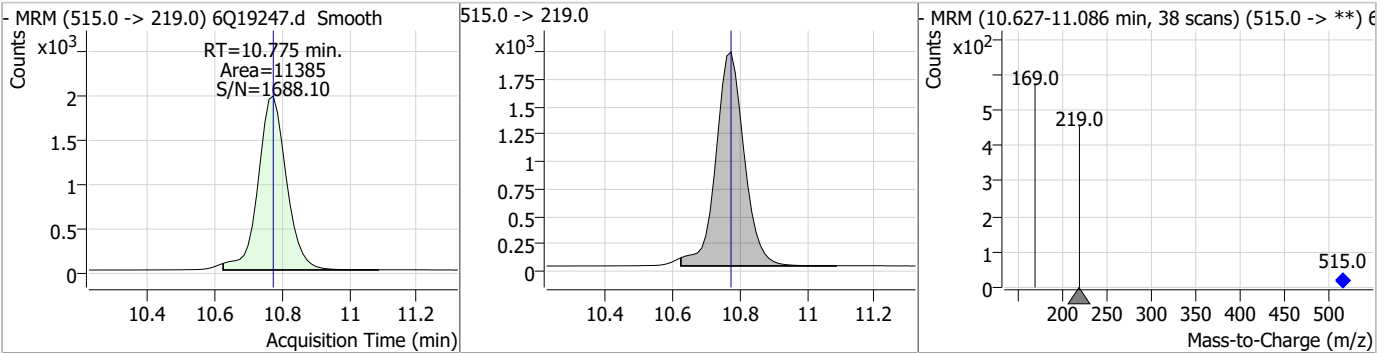
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.52	10.68	0.00	99154				



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

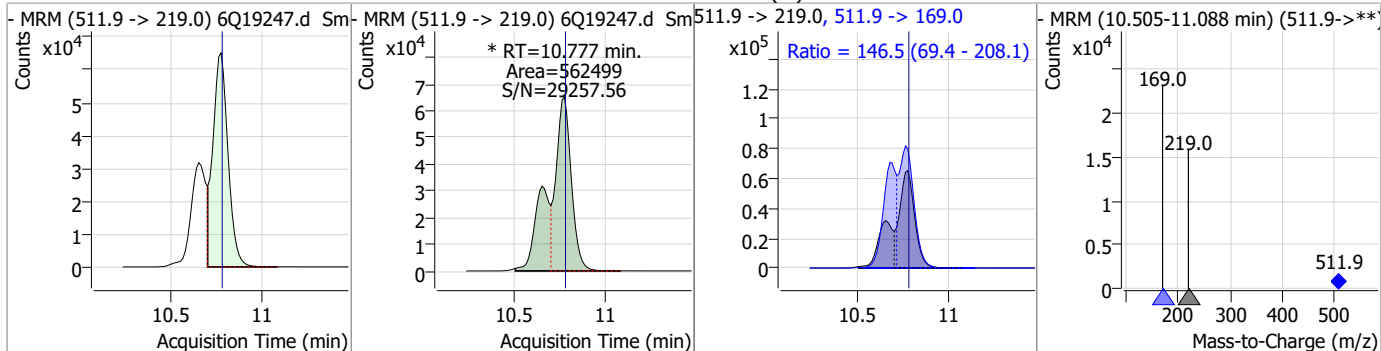


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.60	10.78	0.00	11385				

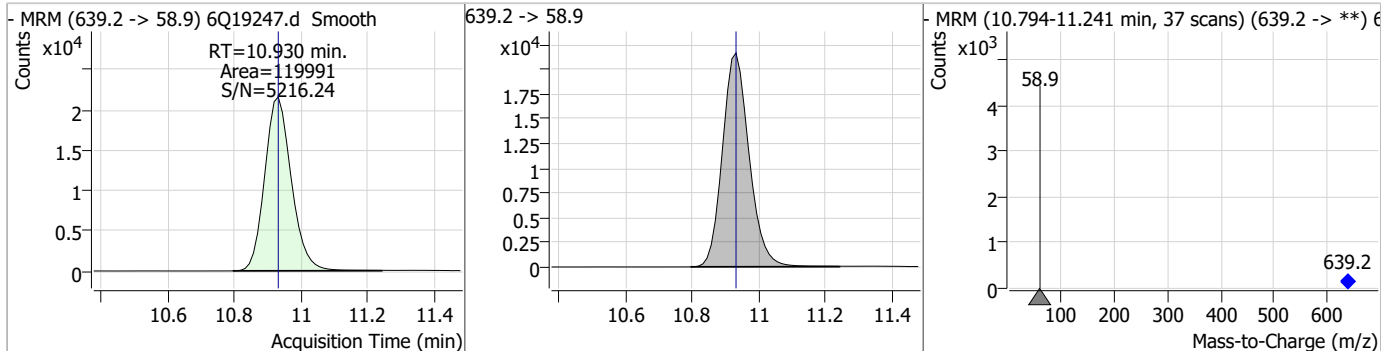


Perfluorinated Compounds by LC/MS/MS

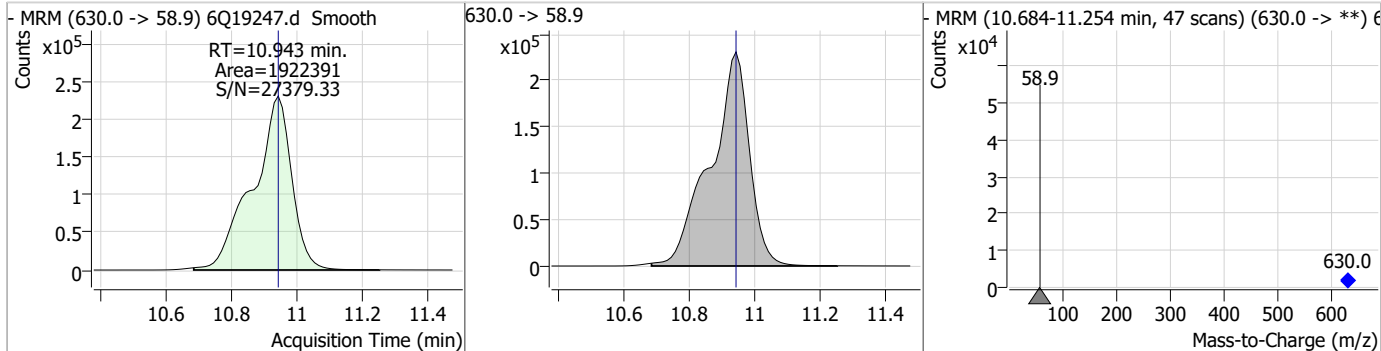
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	112.71	10.78	0.00	562499 (m)	511.9 -> 169.0	146.5	69.4	208.1



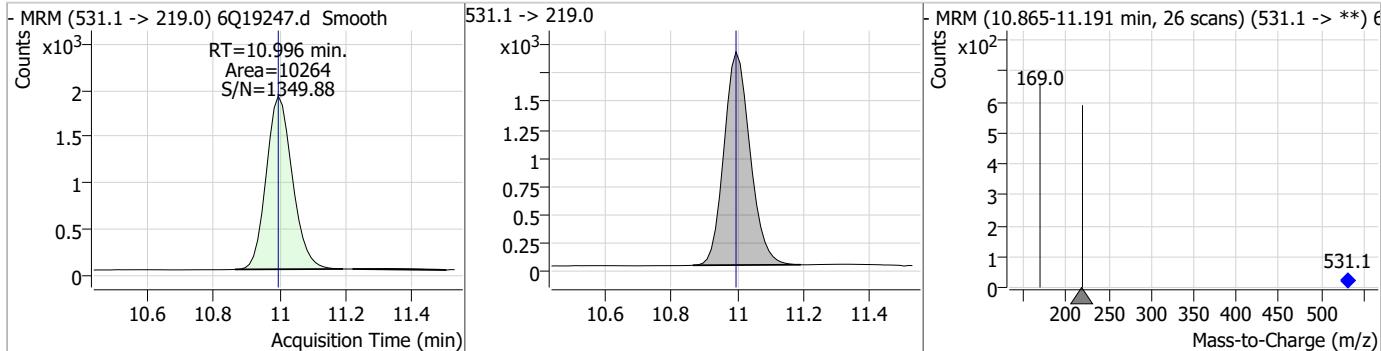
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.88	10.93	0.00	119991				



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

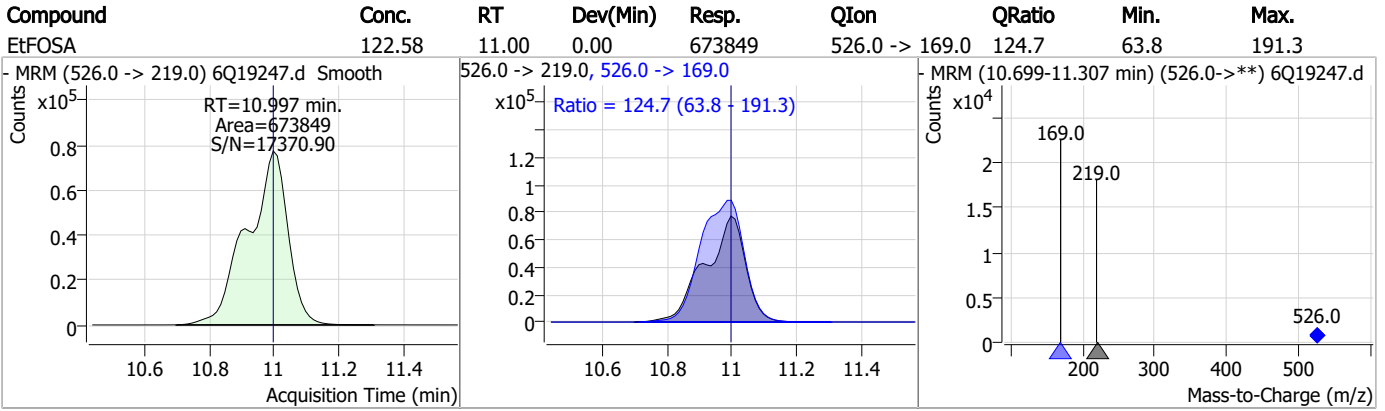


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.42	11.00	0.00	10264				



7.7.9
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Perfluorinated Compounds by LC/MS/MS



7.7.9

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Manual Integration Approval Summary

Sample Number: S6Q287-IC287 Method: EPA DRAFT 1633
Lab FileID: 6Q19247.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 17:26 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

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

7.7.9.1
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Perfluorinated Compounds by LC/MS/MS

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

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

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Perfluorinated Compounds by LC/MS/MS

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

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Perfluorinated Compounds by LC/MS/MS

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

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



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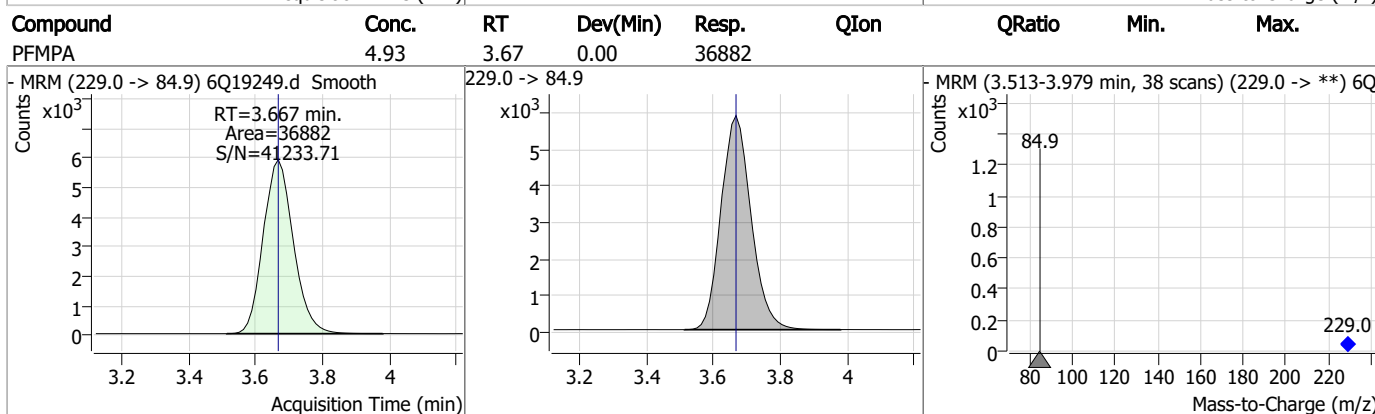
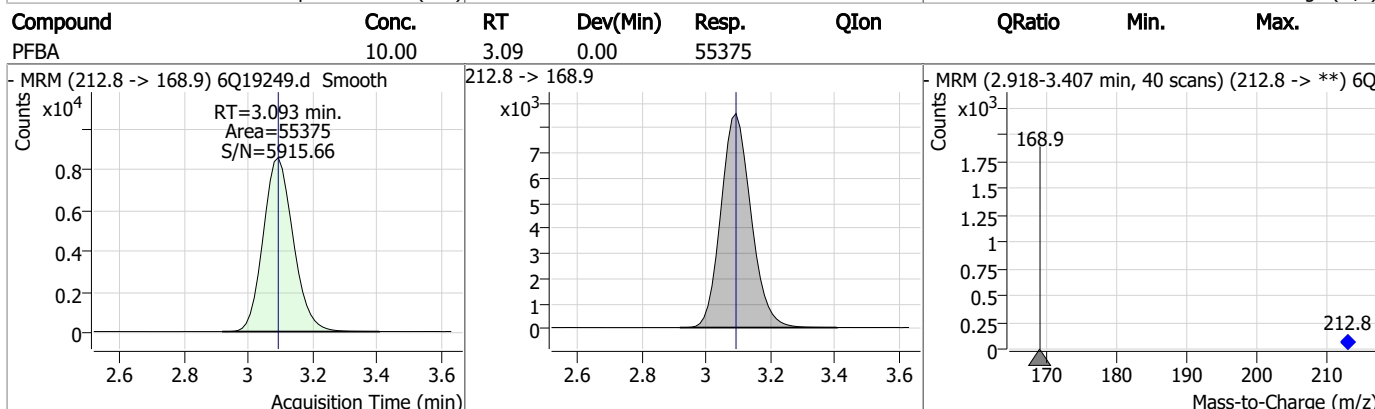
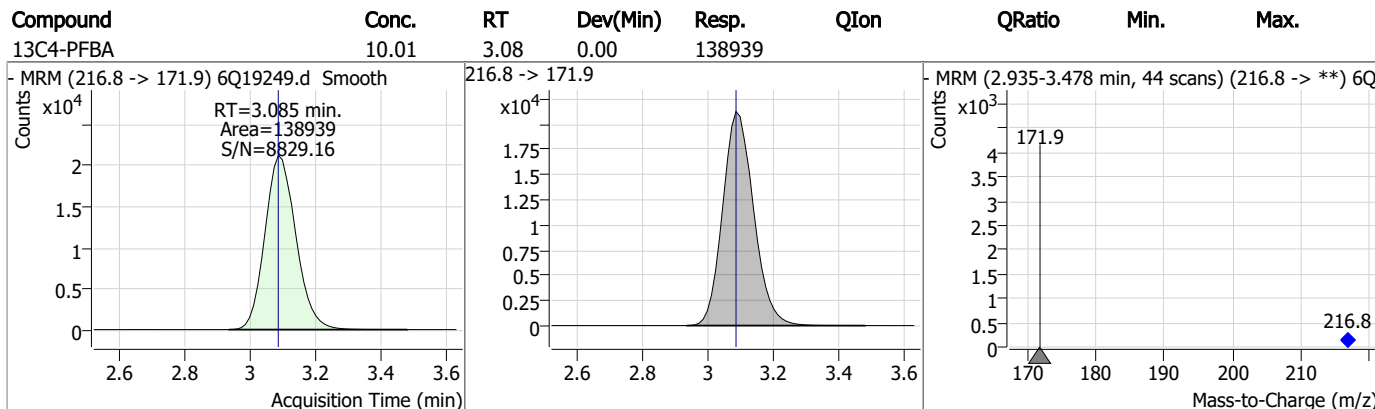
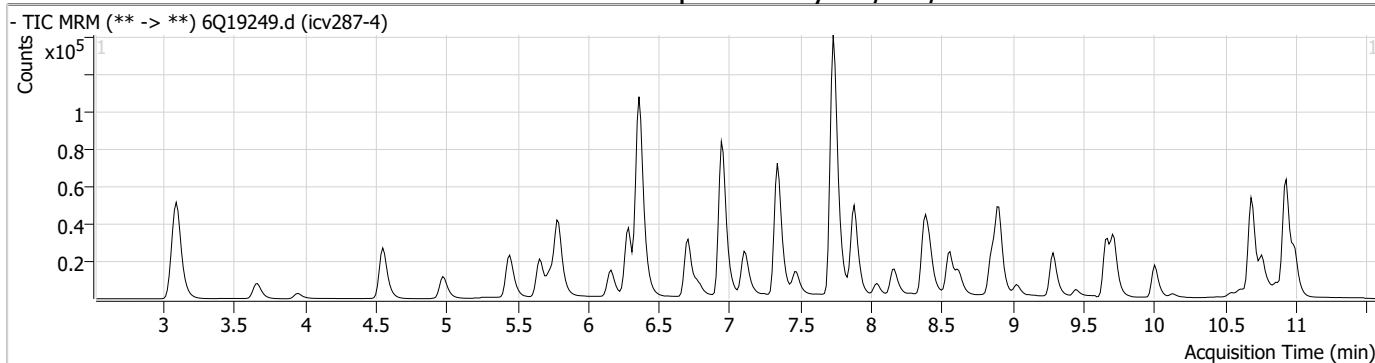
Perfluorinated Compounds by LC/MS/MS

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

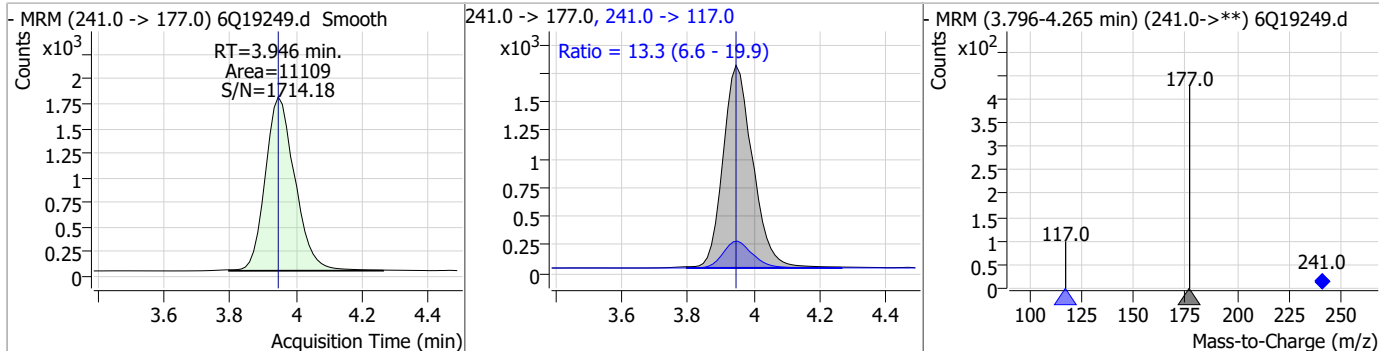
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Perfluorinated Compounds by LC/MS/MS

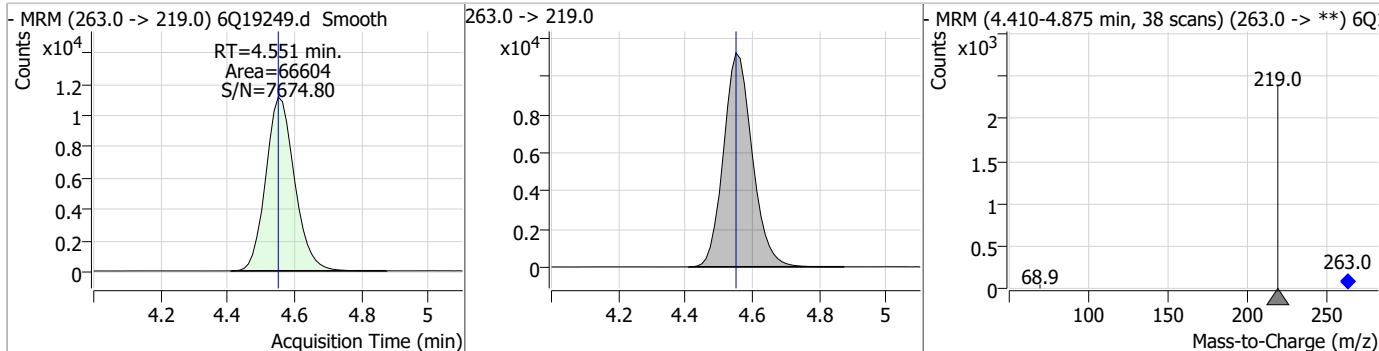


Perfluorinated Compounds by LC/MS/MS

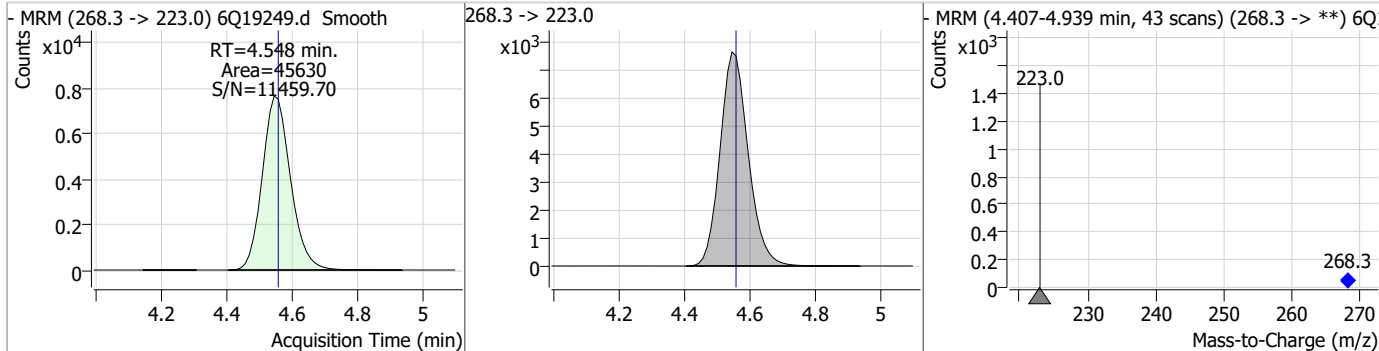
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.10	3.95	0.00	11109	241.0 -> 117.0	13.3	6.6	19.9



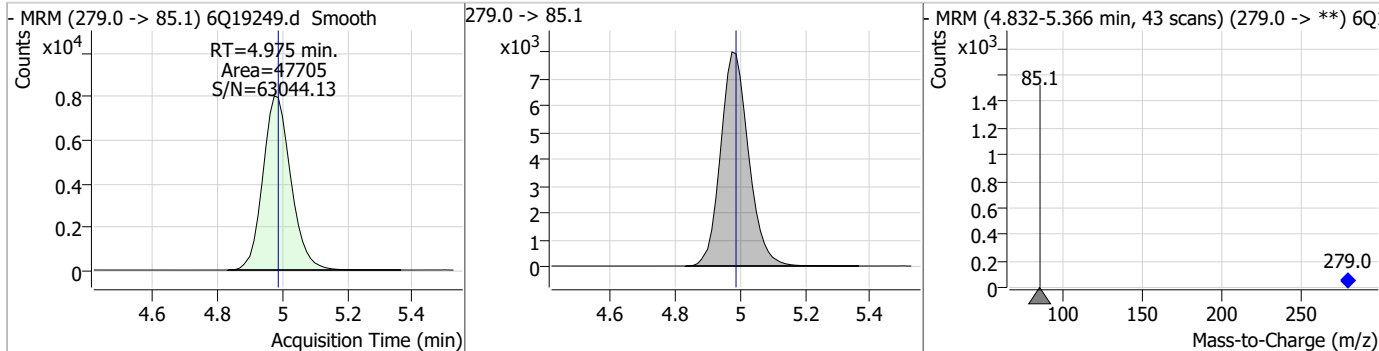
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.96	4.55	0.00	66604				



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

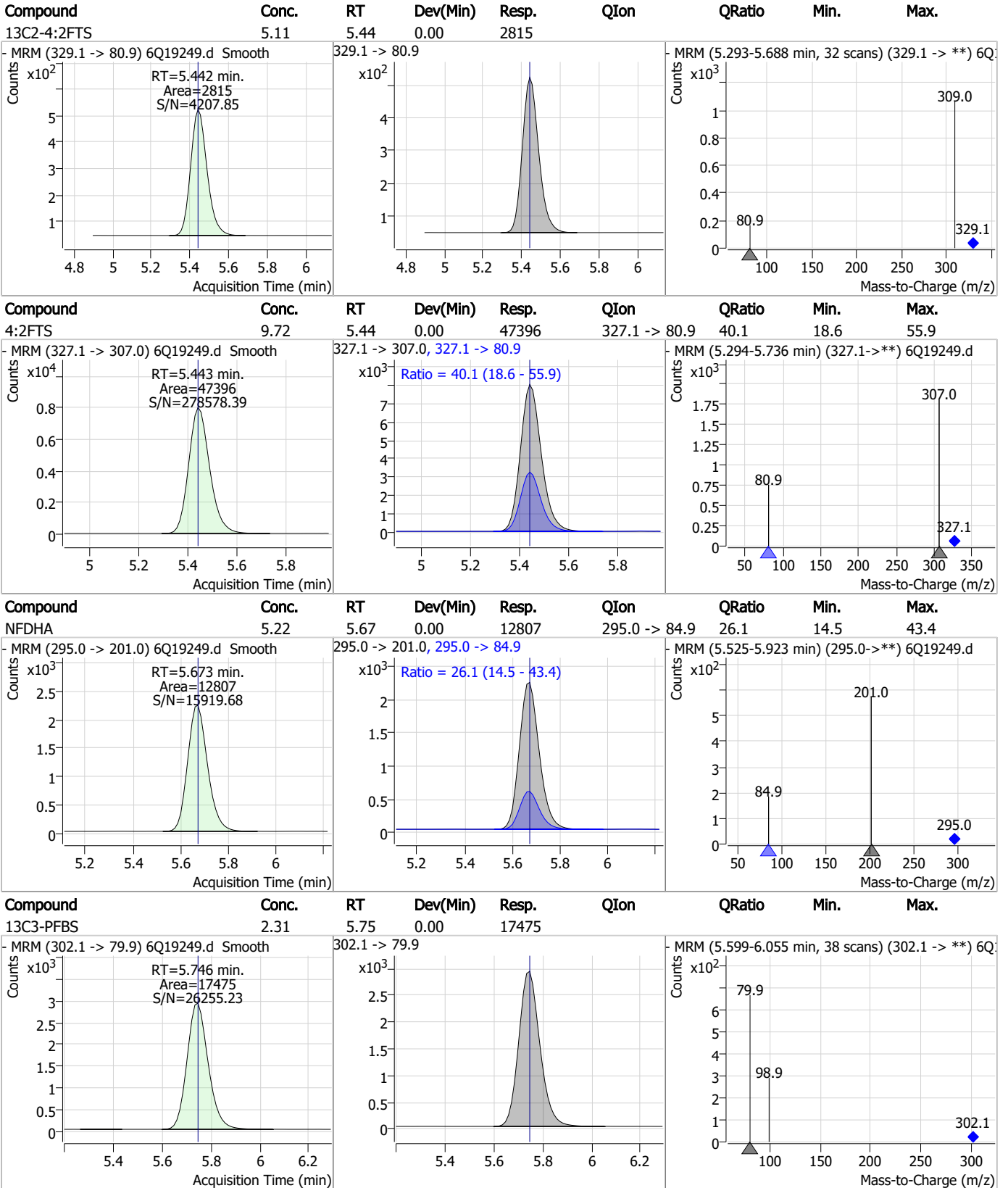


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.95	4.98	-0.01	47705				



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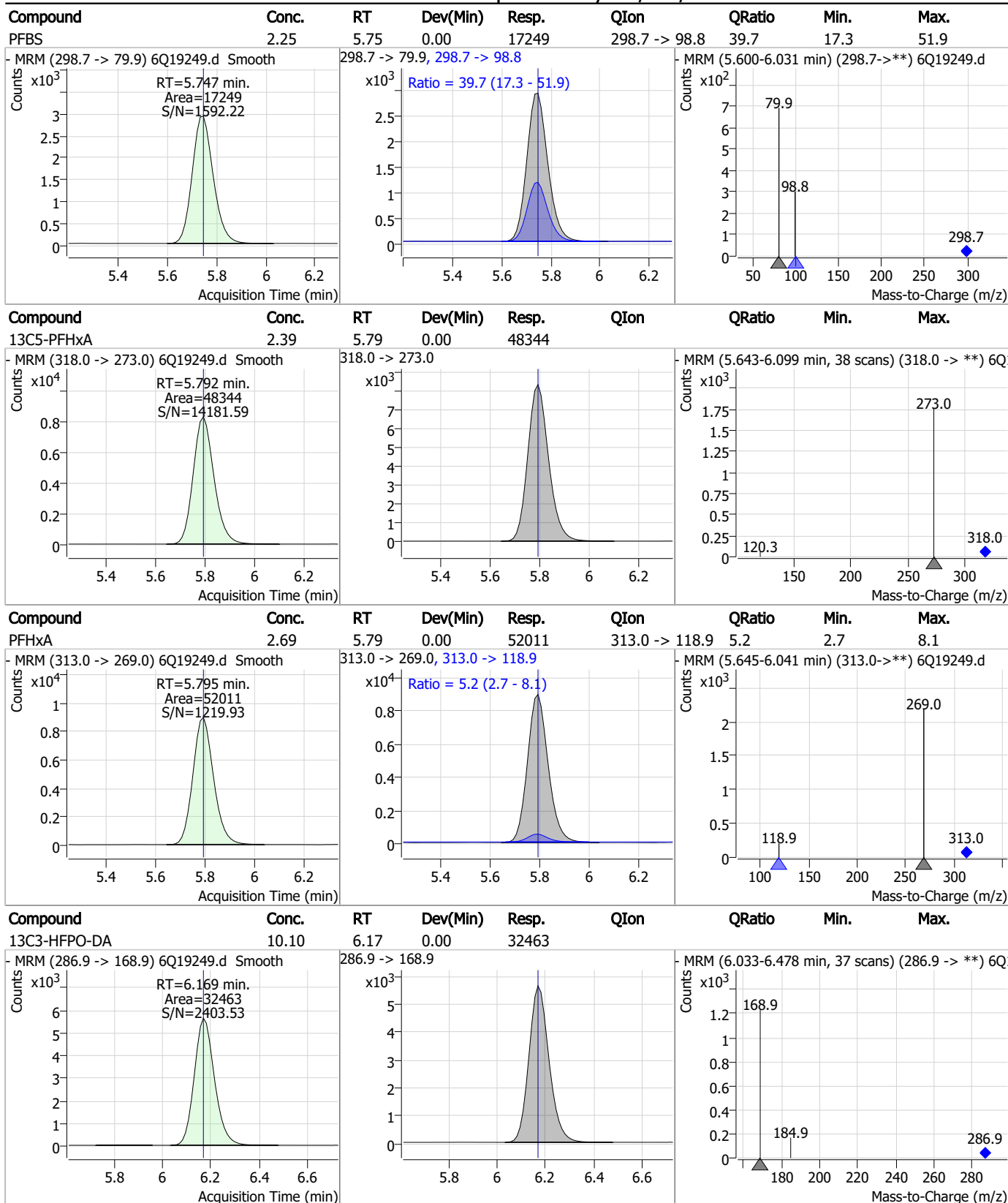
Perfluorinated Compounds by LC/MS/MS



7.7.10 7



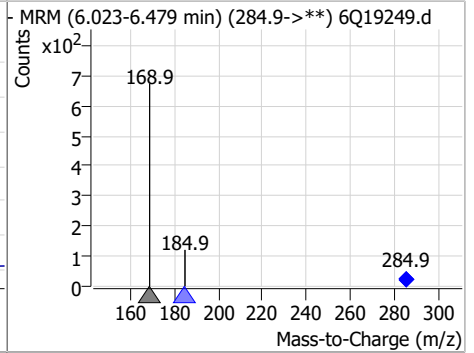
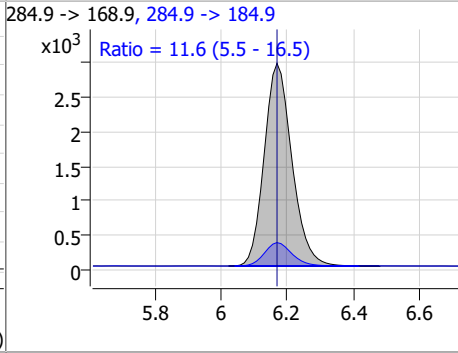
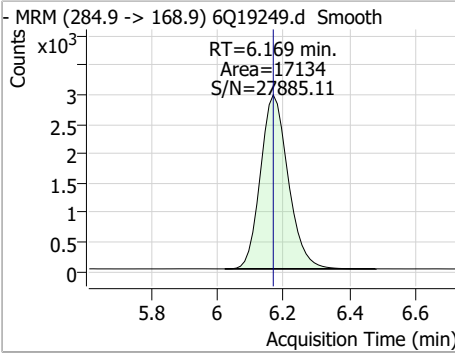
Perfluorinated Compounds by LC/MS/MS



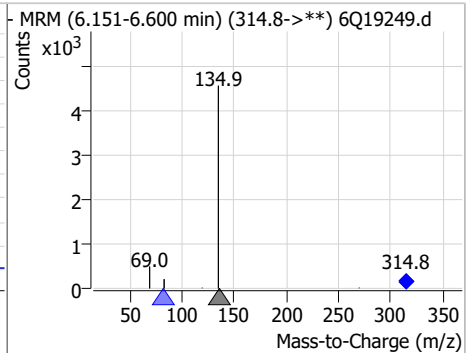
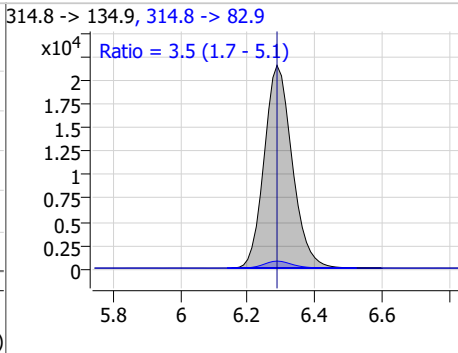
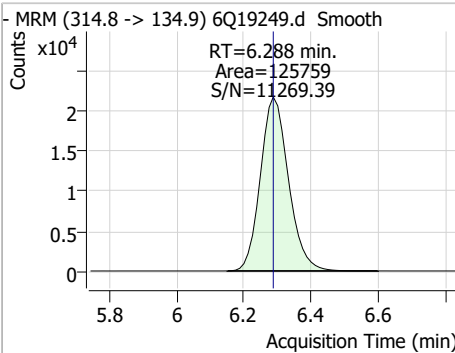
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

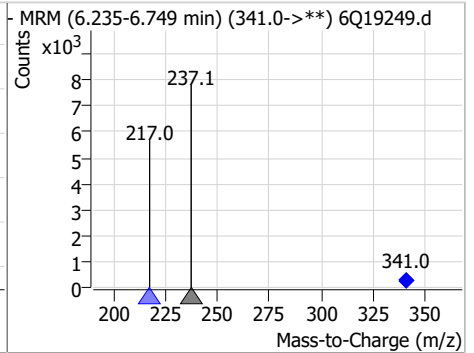
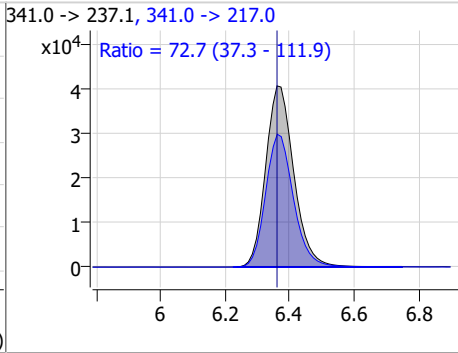
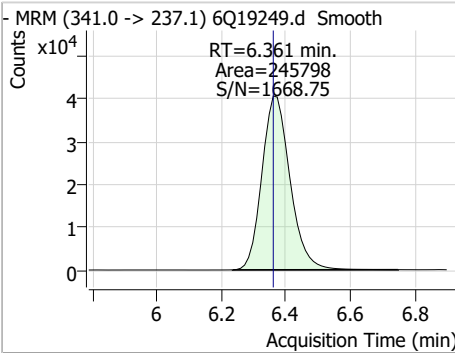
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.86	6.17	0.00	17134	284.9 -> 184.9	11.6	5.5	16.5



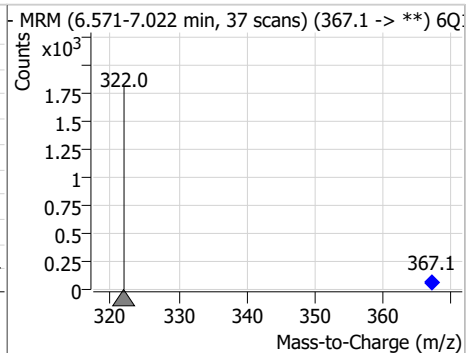
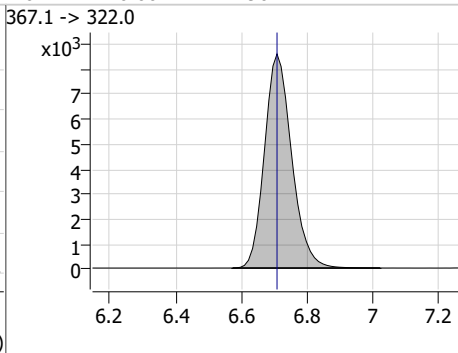
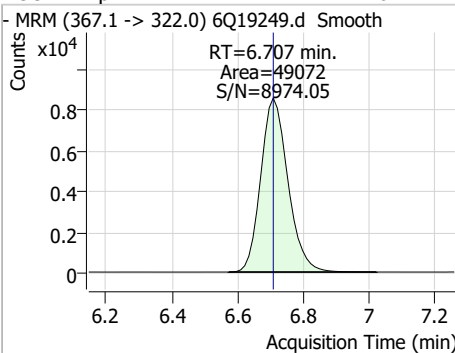
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	5.28	6.29	0.00	125759	314.8 -> 82.9	3.5	1.7	5.1



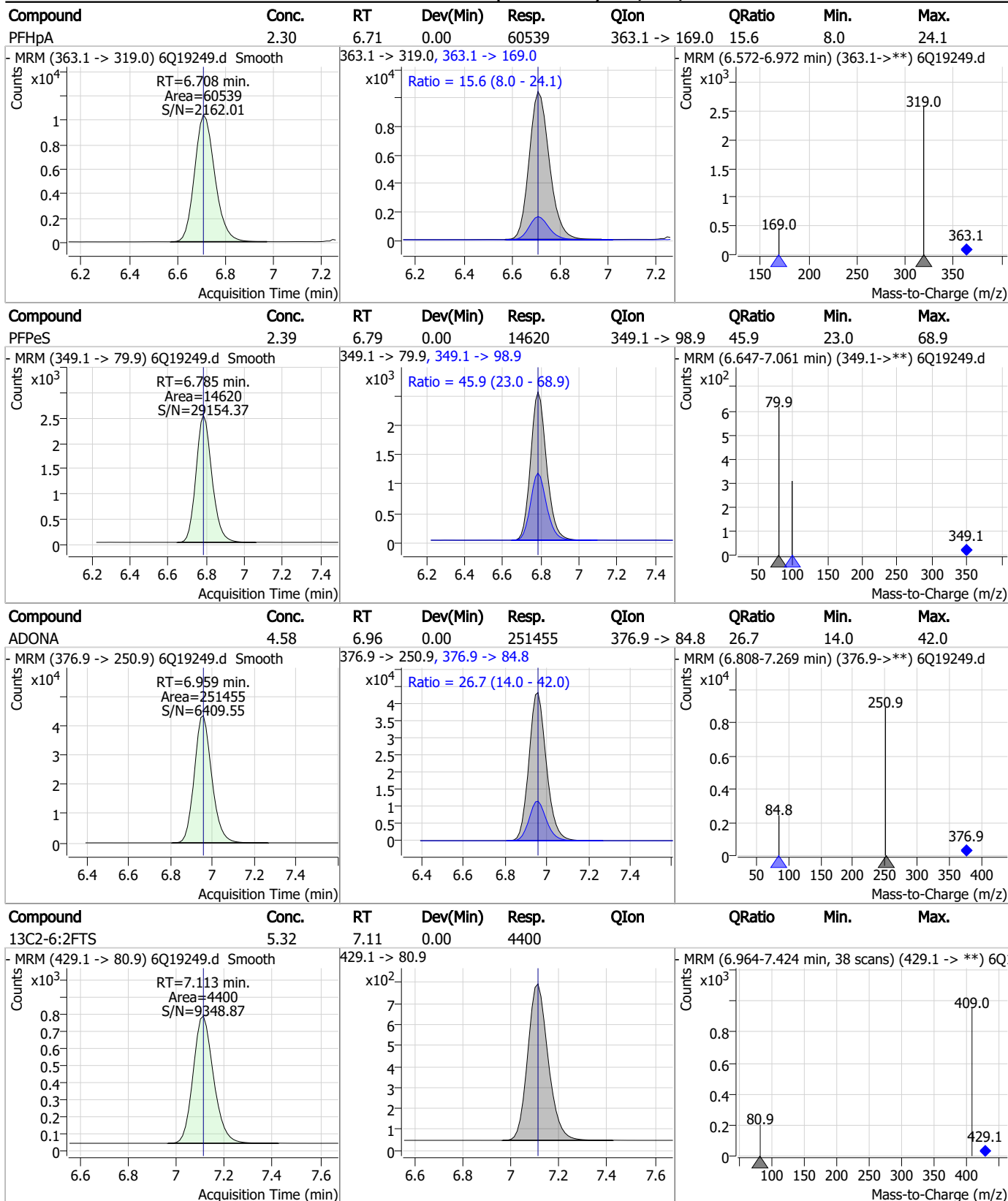
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	65.44	6.36	0.00	245798	341.0 -> 217.0	72.7	37.3	111.9



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



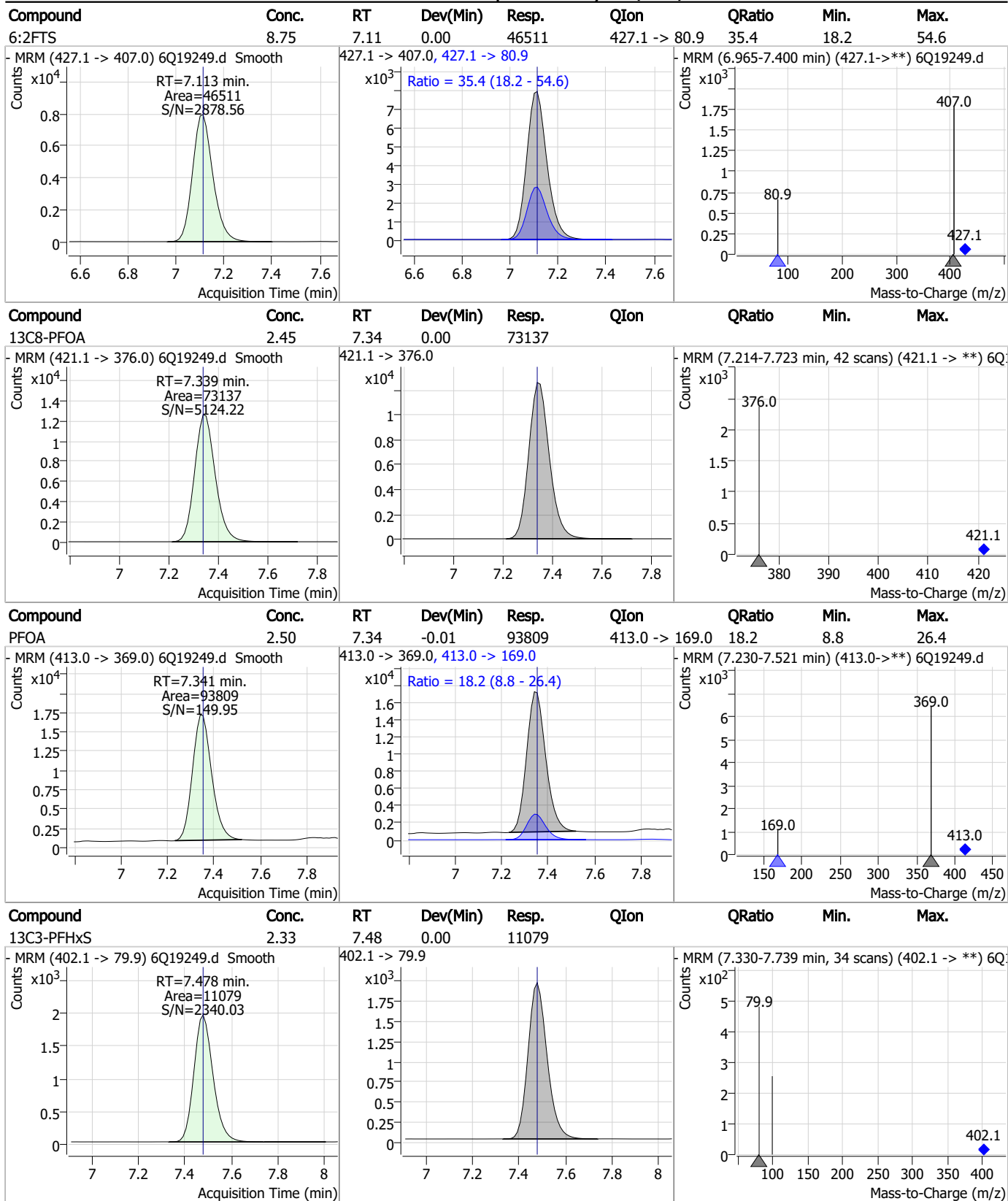
Perfluorinated Compounds by LC/MS/MS



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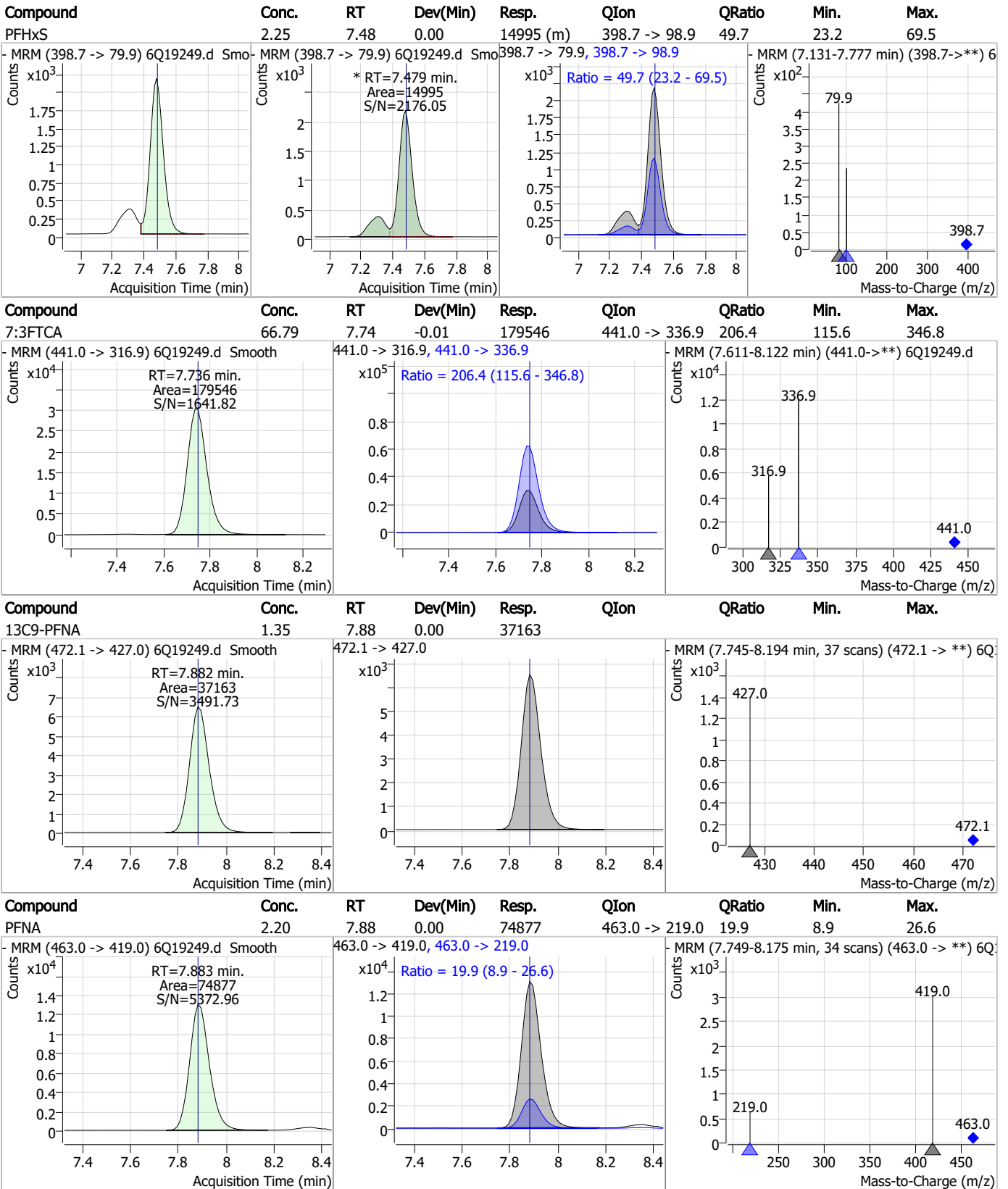


Perfluorinated Compounds by LC/MS/MS



7.7.10 7

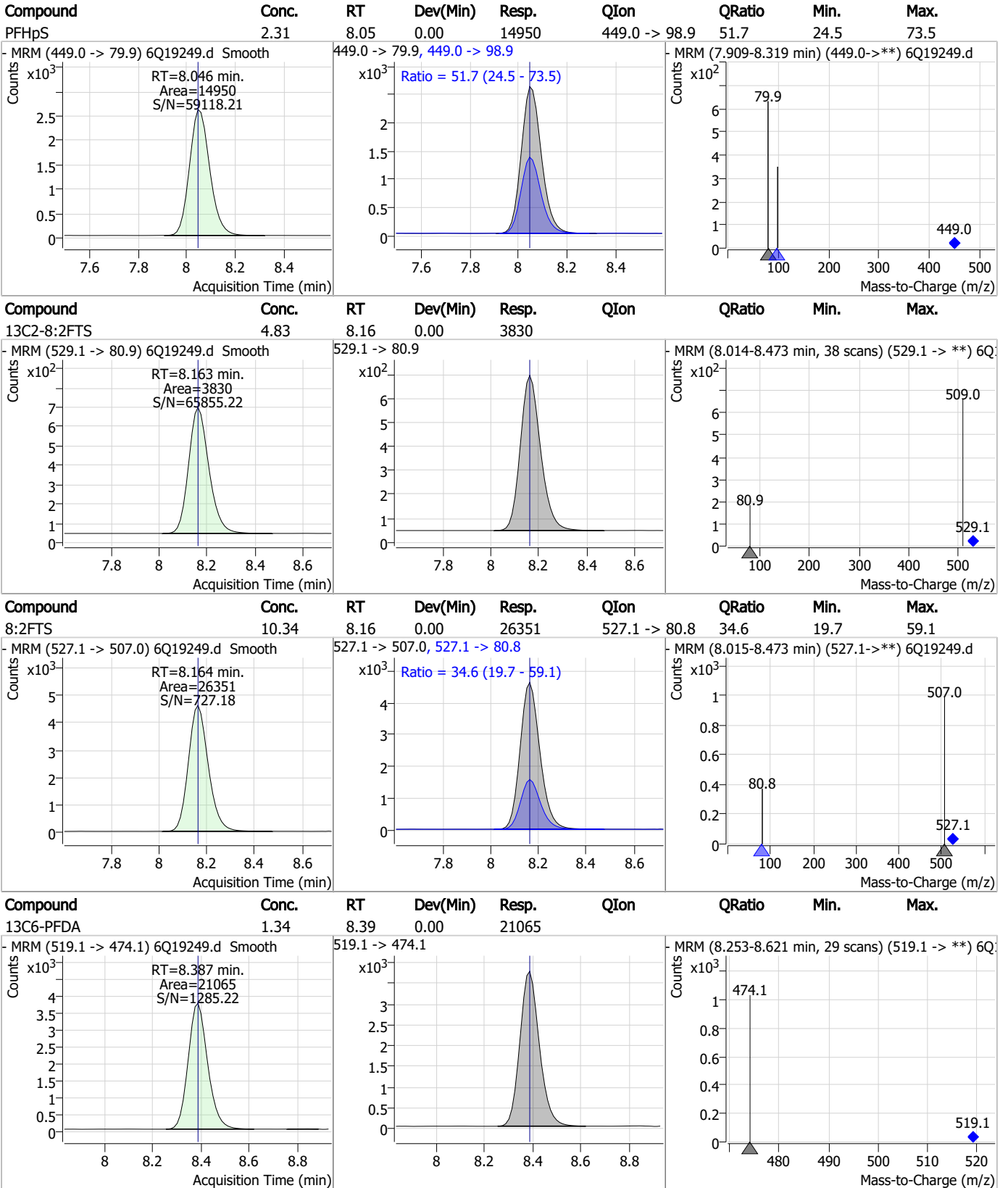
Perfluorinated Compounds by LC/MS/MS



7.7.10 7



Perfluorinated Compounds by LC/MS/MS

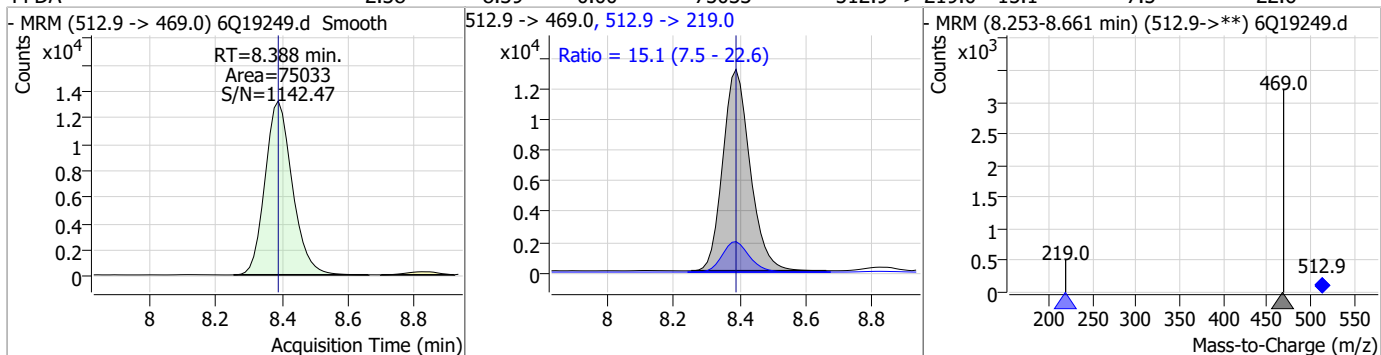


7.7.10 7

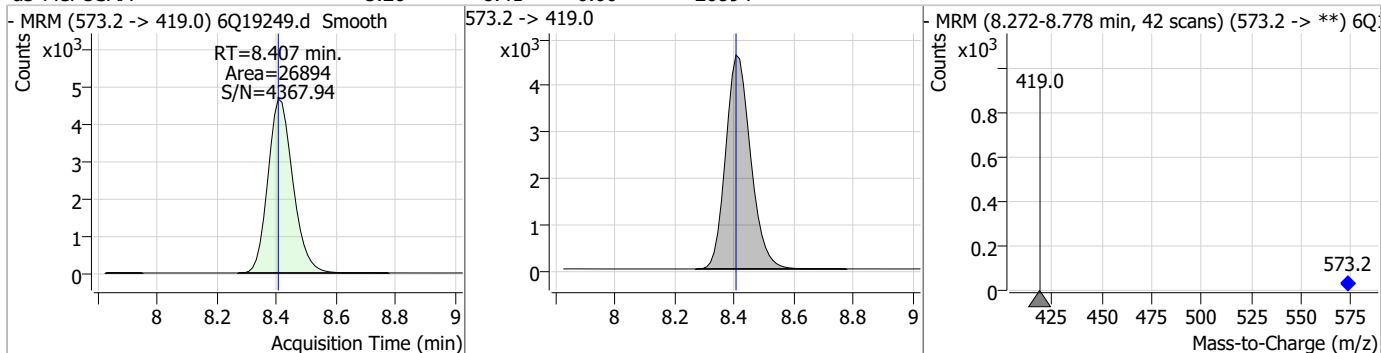


Perfluorinated Compounds by LC/MS/MS

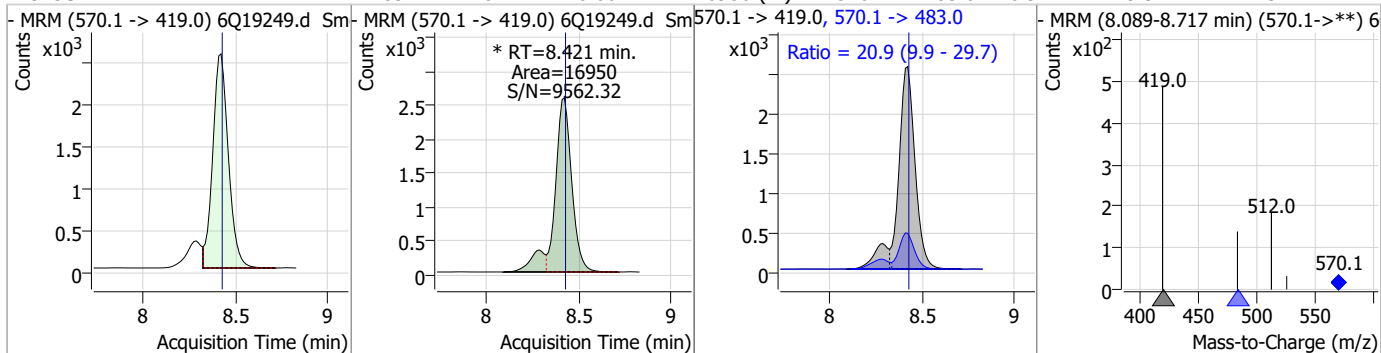
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.38	8.39	0.00	75033	512.9 -> 219.0	15.1	7.5	22.6



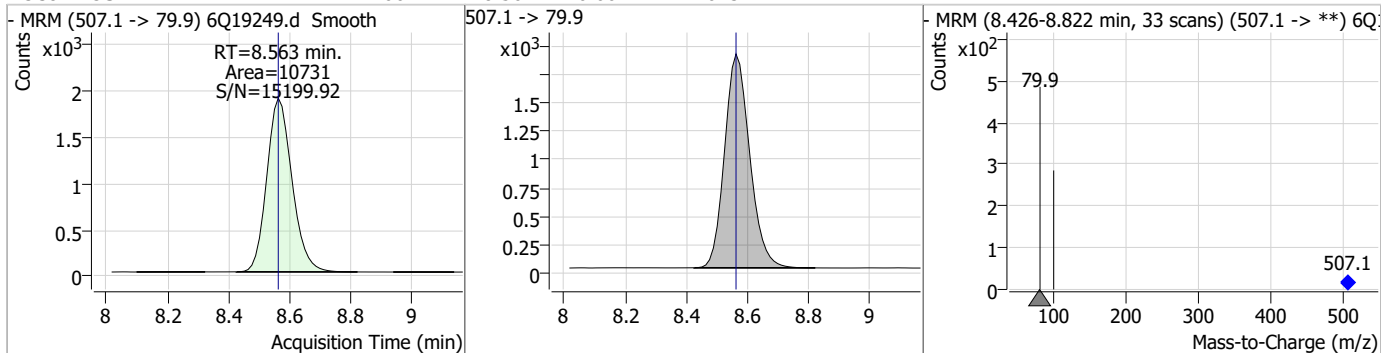
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.20	8.41	0.00	26894				



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



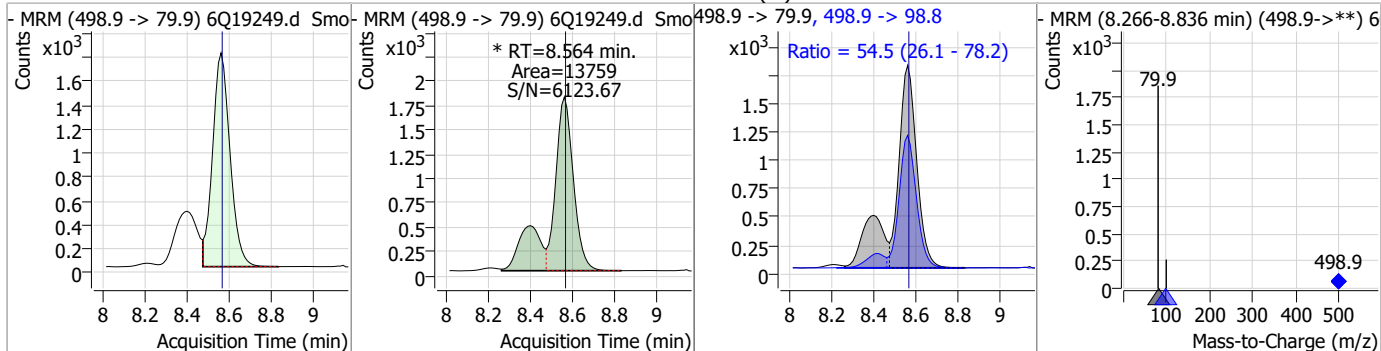
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.66	8.56	0.00	10731				



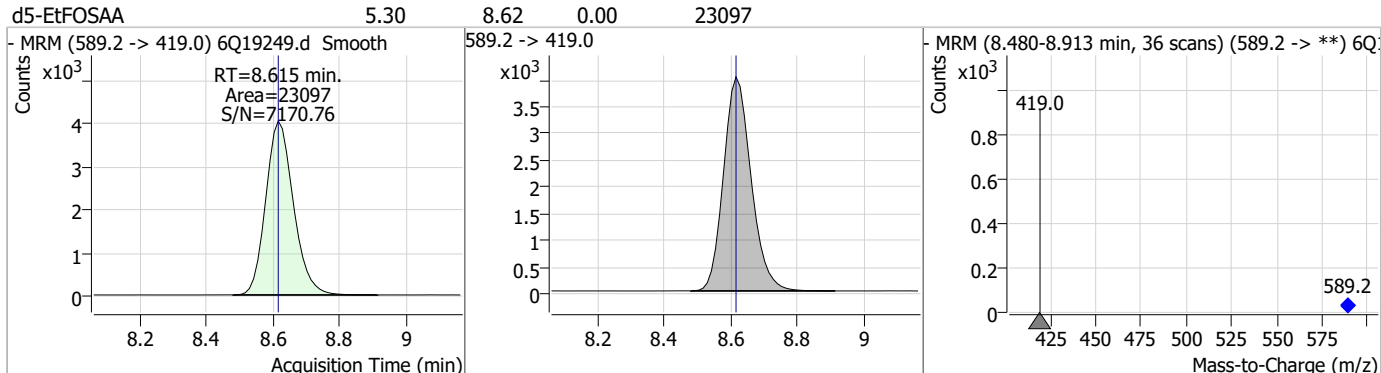
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

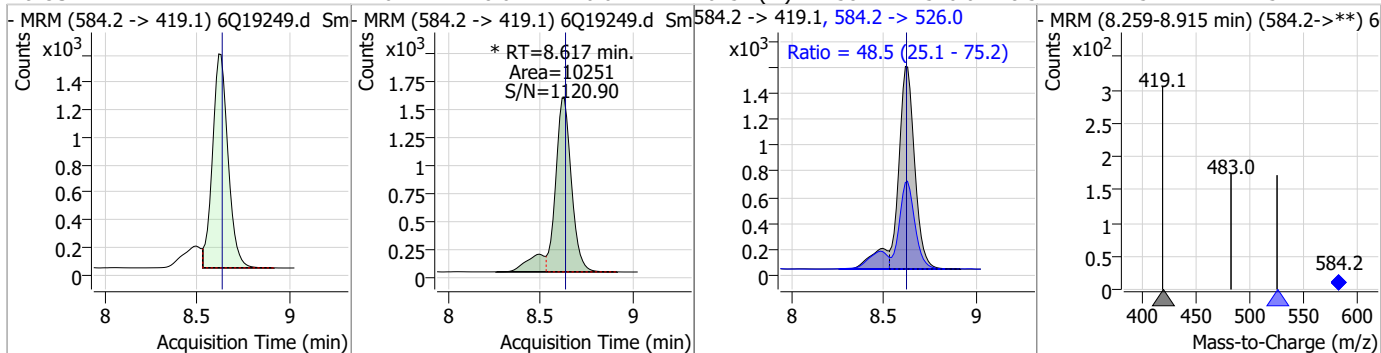
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.18	8.56	0.00	13759 (m)	498.9 -> 98.8	54.5	26.1	78.2



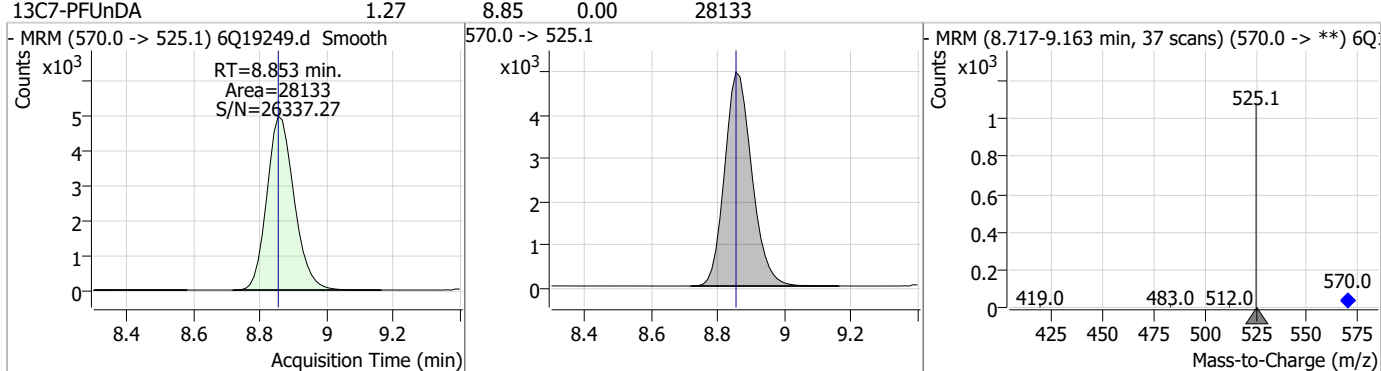
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.30	8.62	0.00	23097				



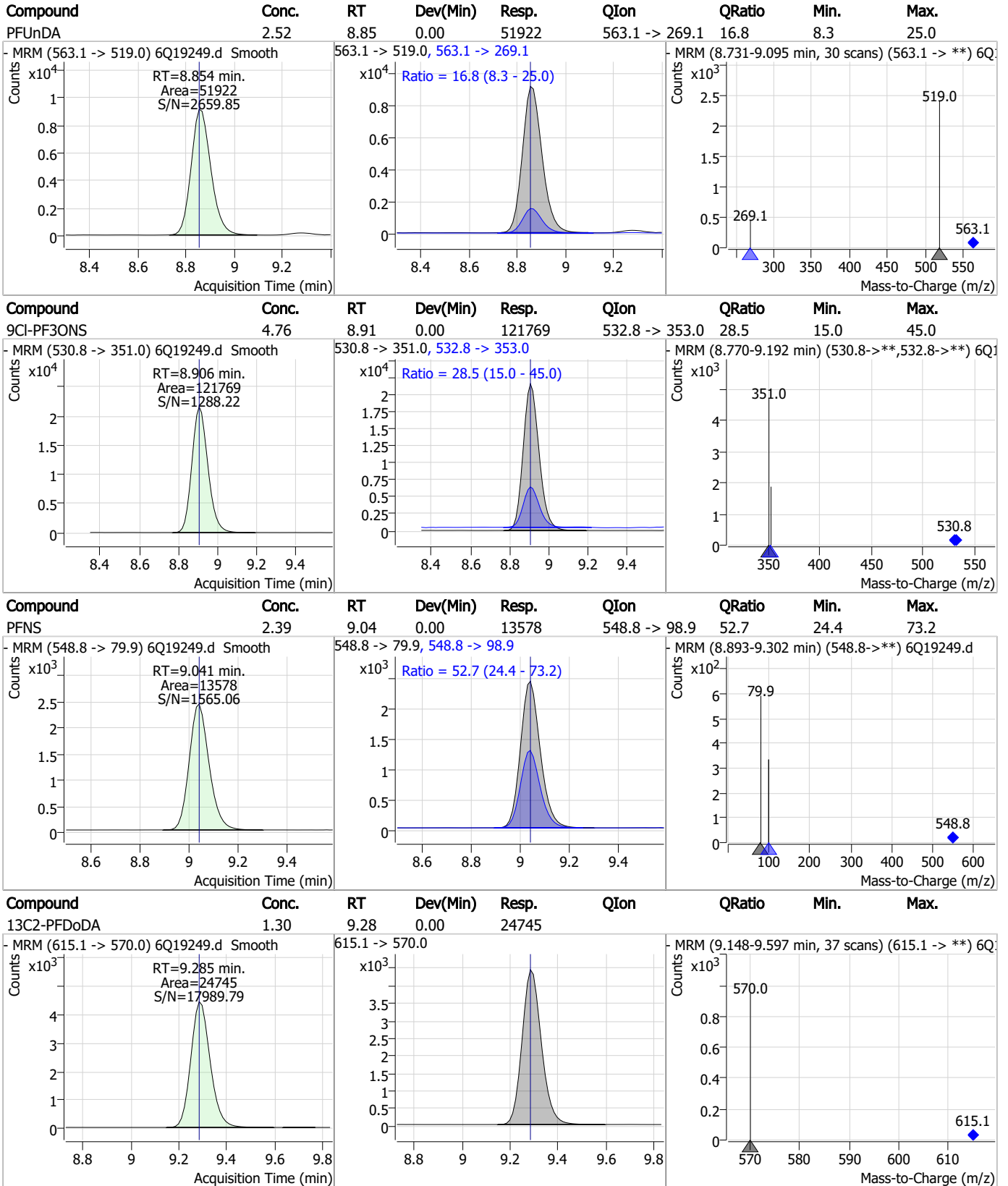
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.67	8.62	-0.01	10251 (m)	584.2 -> 526.0	48.5	25.1	75.2



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



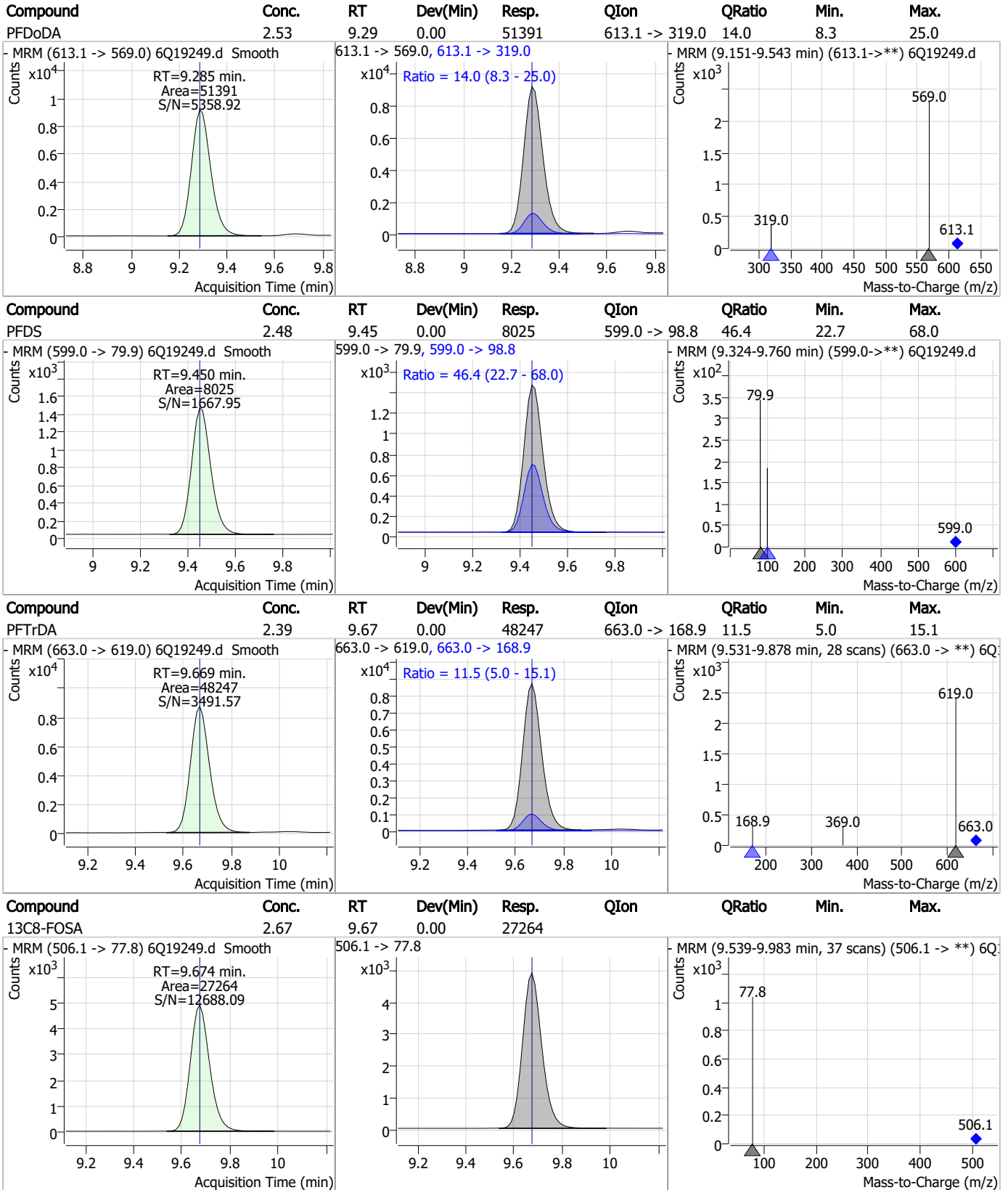
Perfluorinated Compounds by LC/MS/MS



7.7.10 7



Perfluorinated Compounds by LC/MS/MS

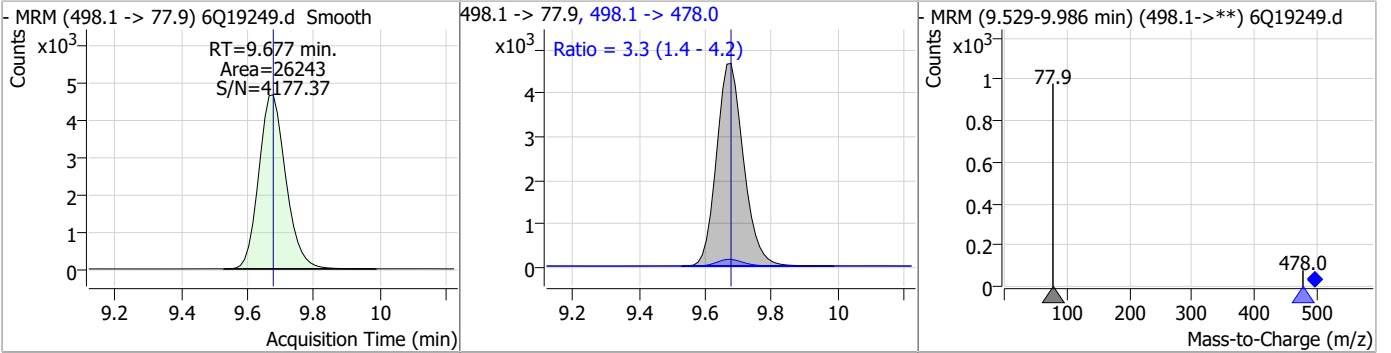


7.7.10 7

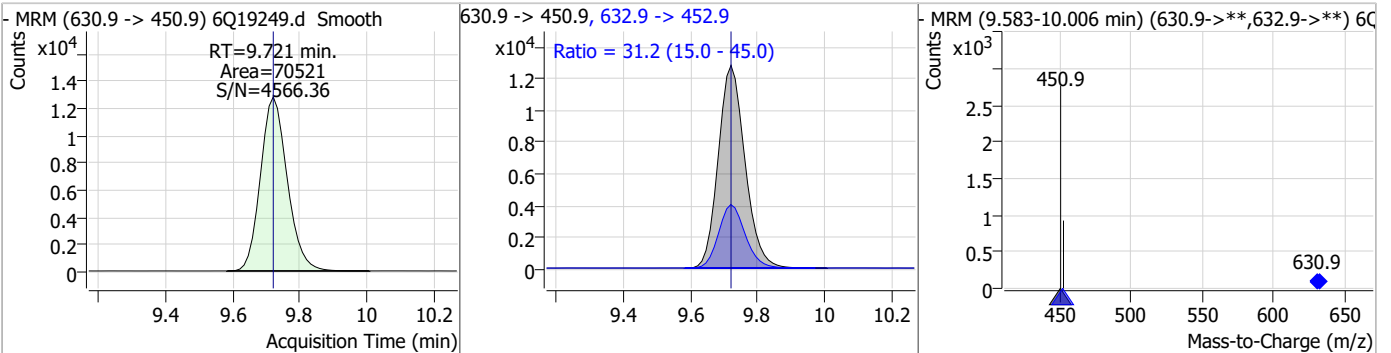


Perfluorinated Compounds by LC/MS/MS

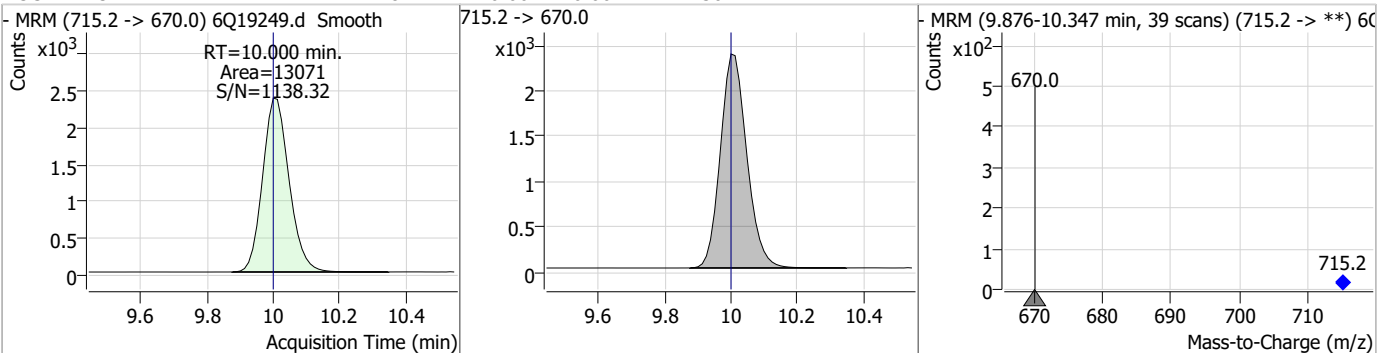
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.35	9.68	0.00	26243	498.1 -> 478.0	3.3	1.4	4.2



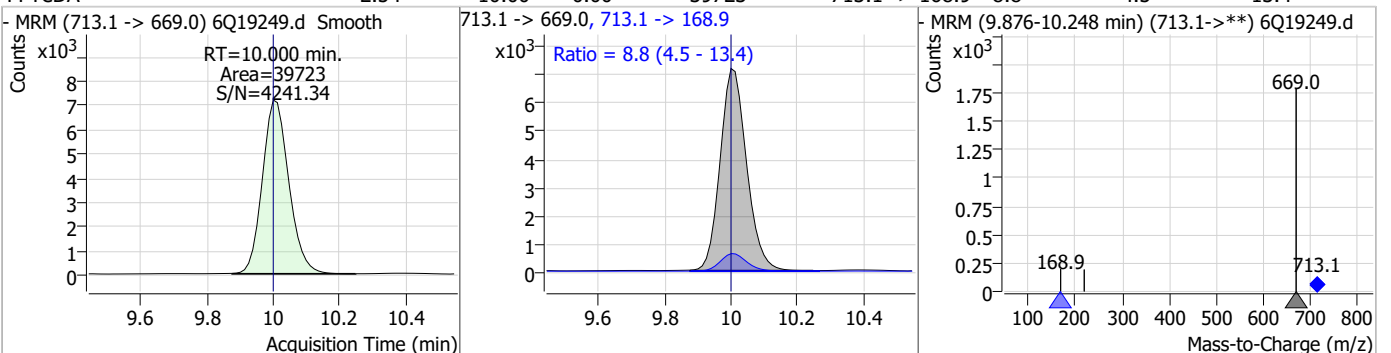
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	4.61	9.72	0.00	70521	632.9 -> 452.9	31.2	15.0	45.0



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

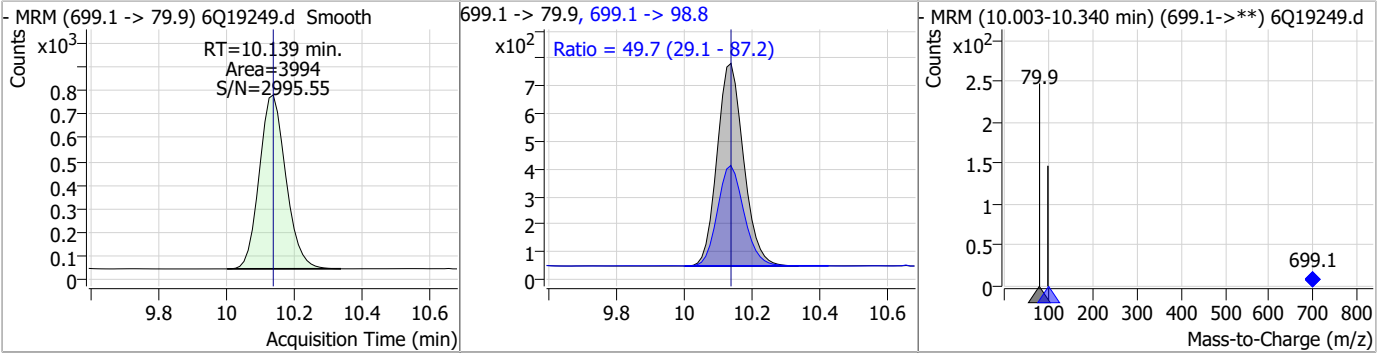


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.54	10.00	0.00	39723	713.1 -> 168.9	8.8	4.5	13.4

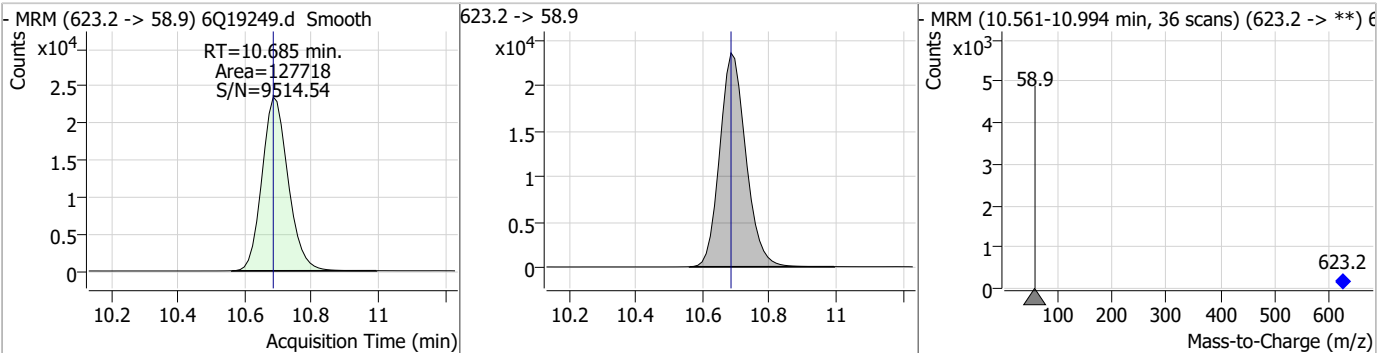


Perfluorinated Compounds by LC/MS/MS

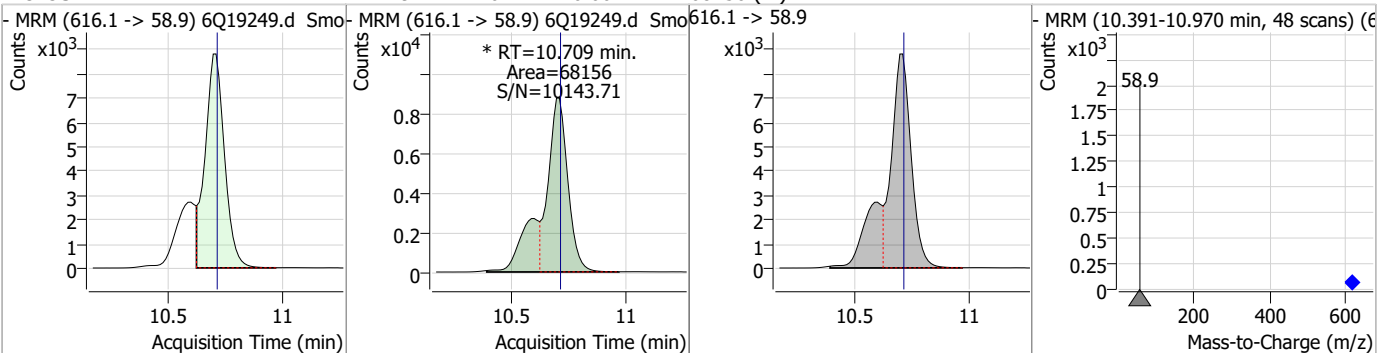
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.48	10.14	0.00	3994	699.1 -> 98.8	49.7	29.1	87.2



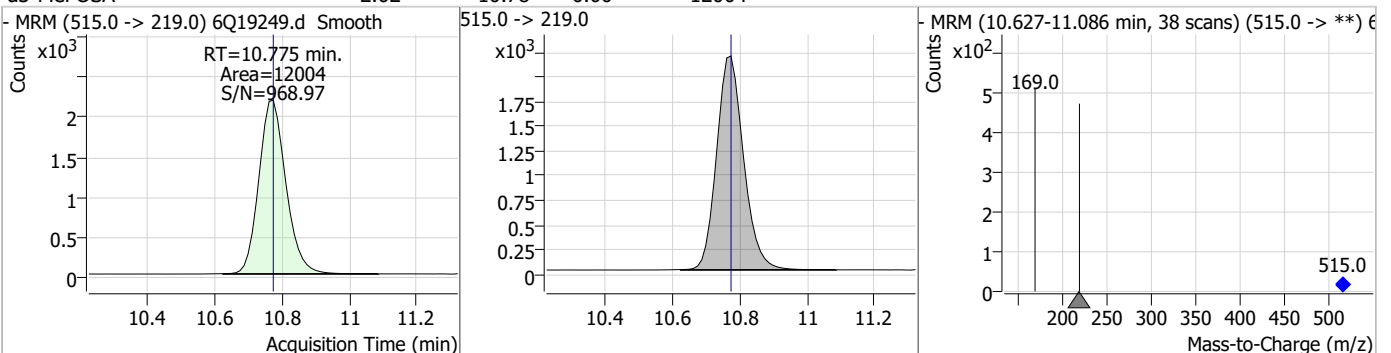
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.26	10.68	0.00	127718				



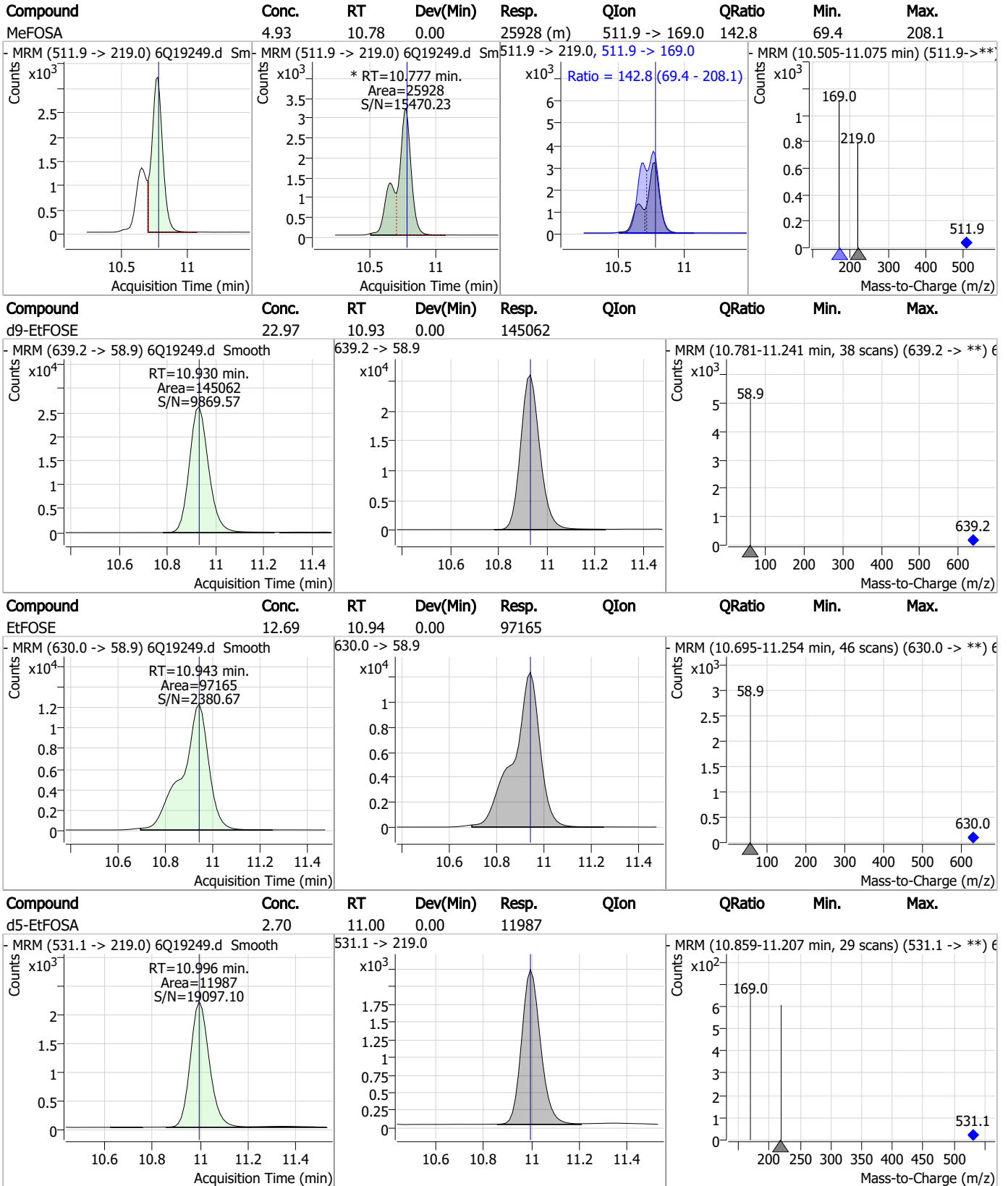
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.19	10.71	0.00	68156 (m)				



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



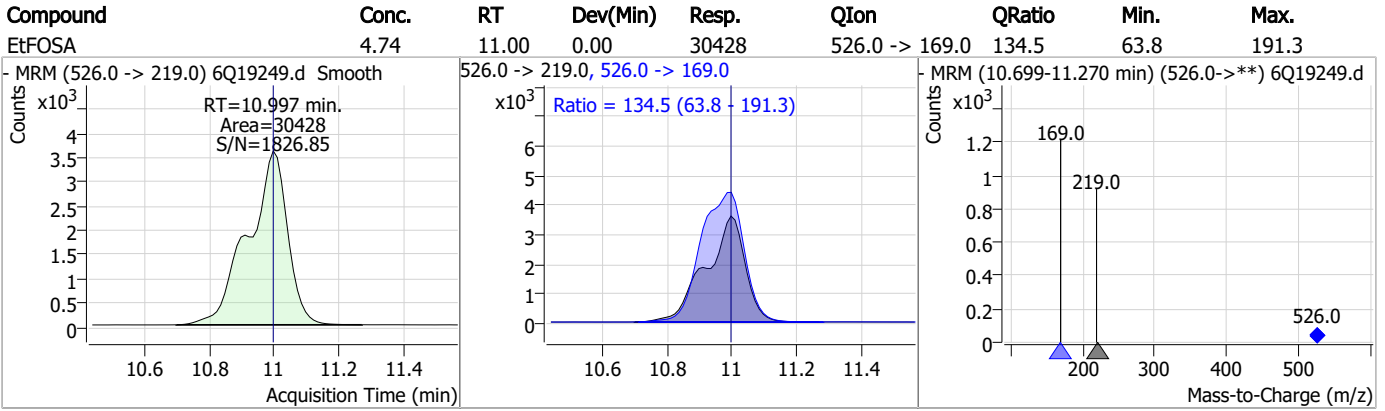
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

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

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

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7

Perfluorinated Compounds by LC/MS/MS

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

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

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Perfluorinated Compounds by LC/MS/MS

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

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Perfluorinated Compounds by LC/MS/MS

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

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



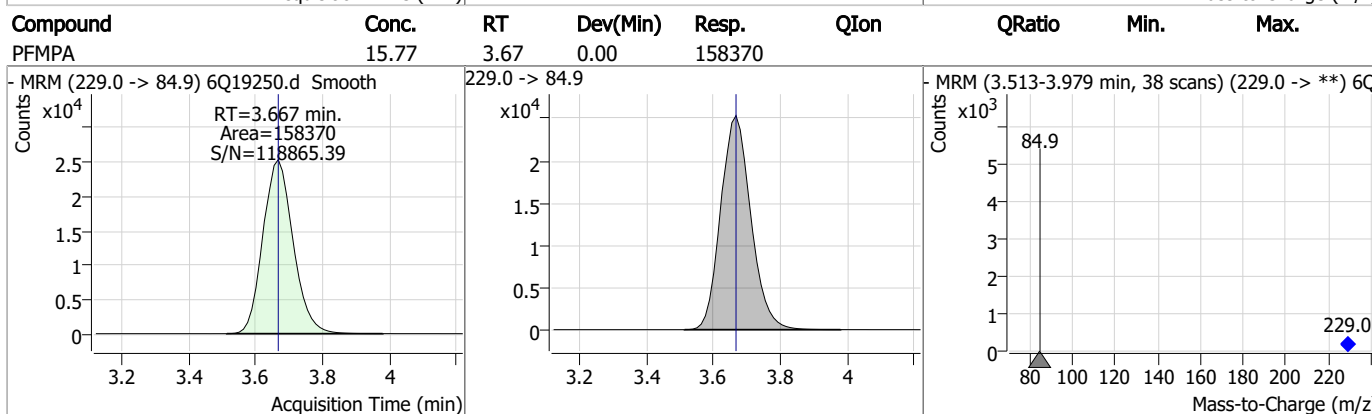
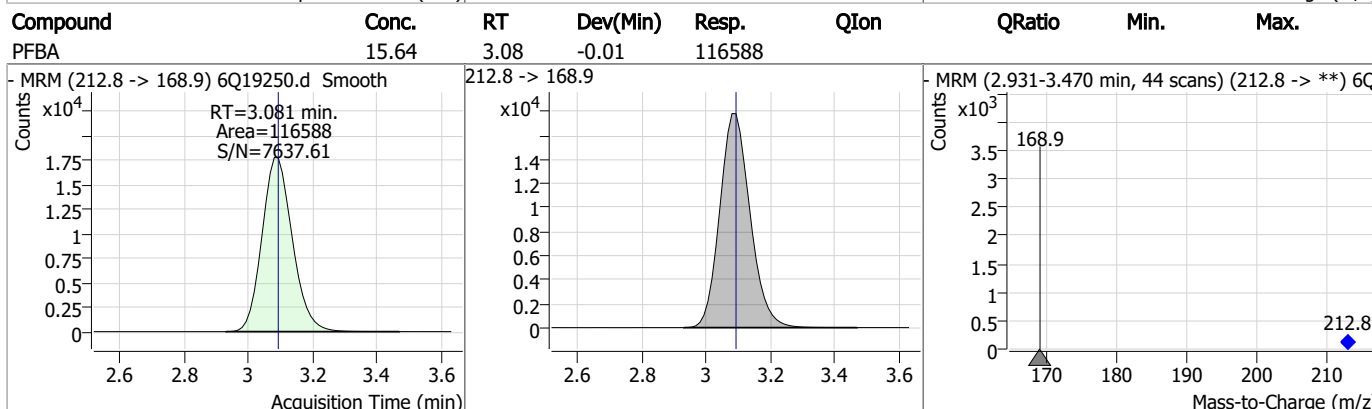
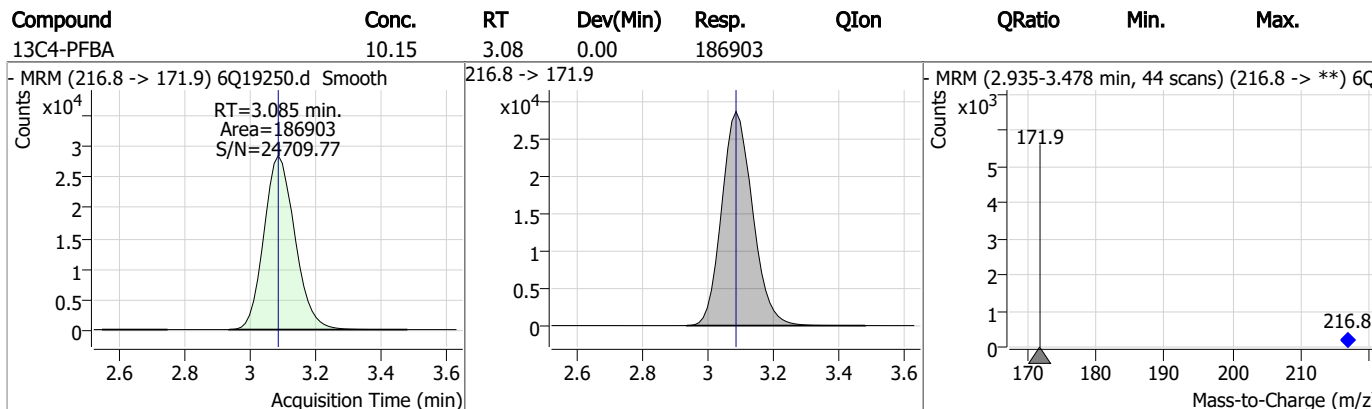
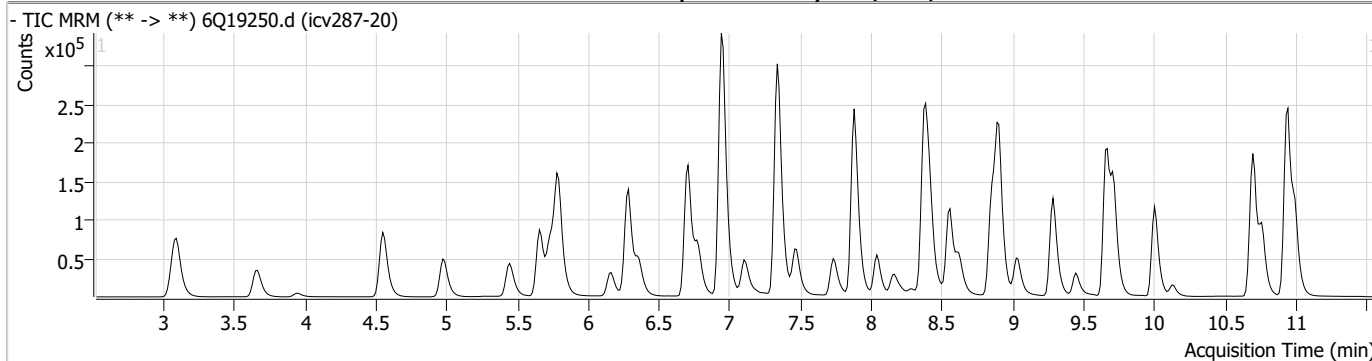
Perfluorinated Compounds by LC/MS/MS

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

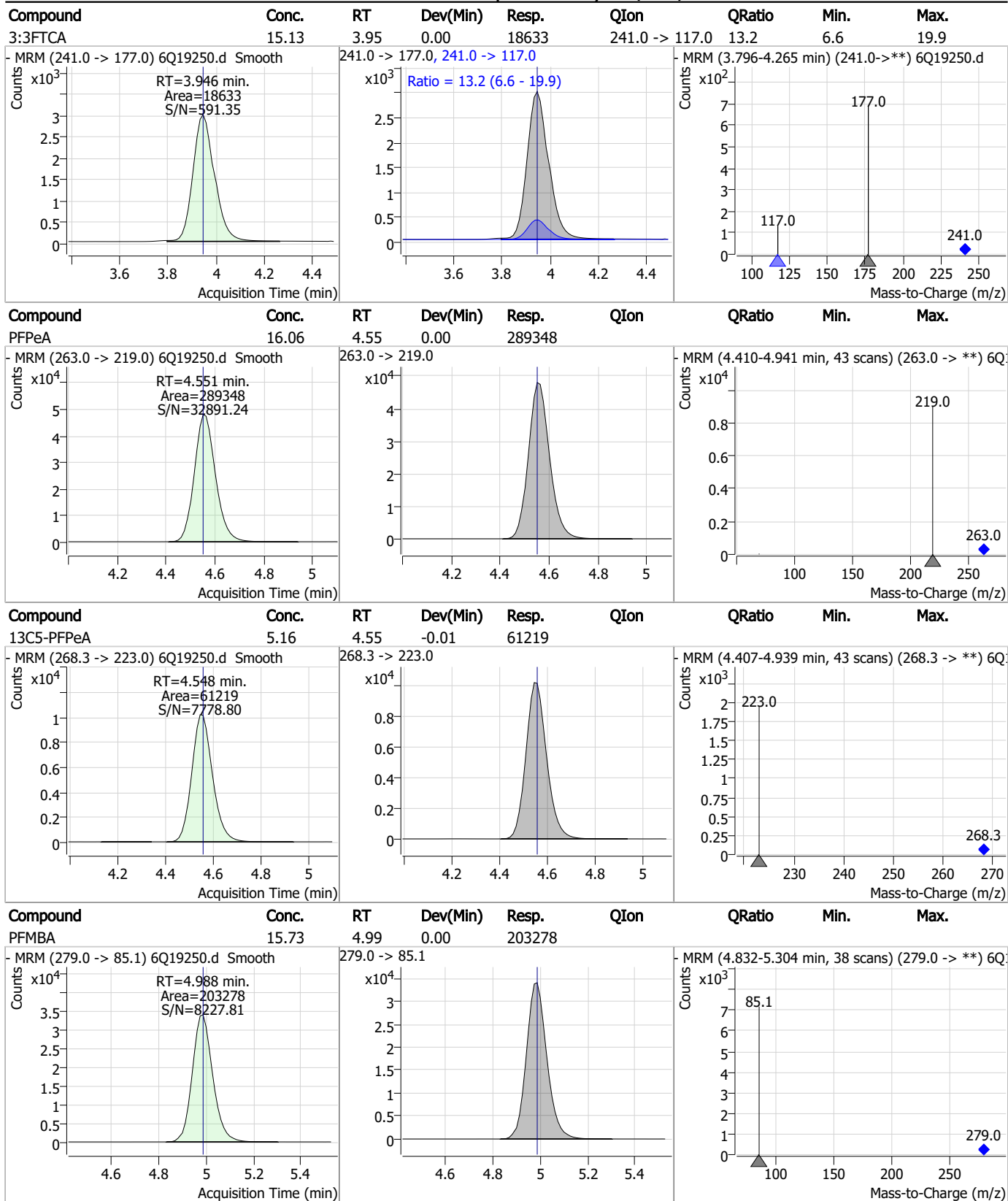
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Perfluorinated Compounds by LC/MS/MS



7.7.11
7

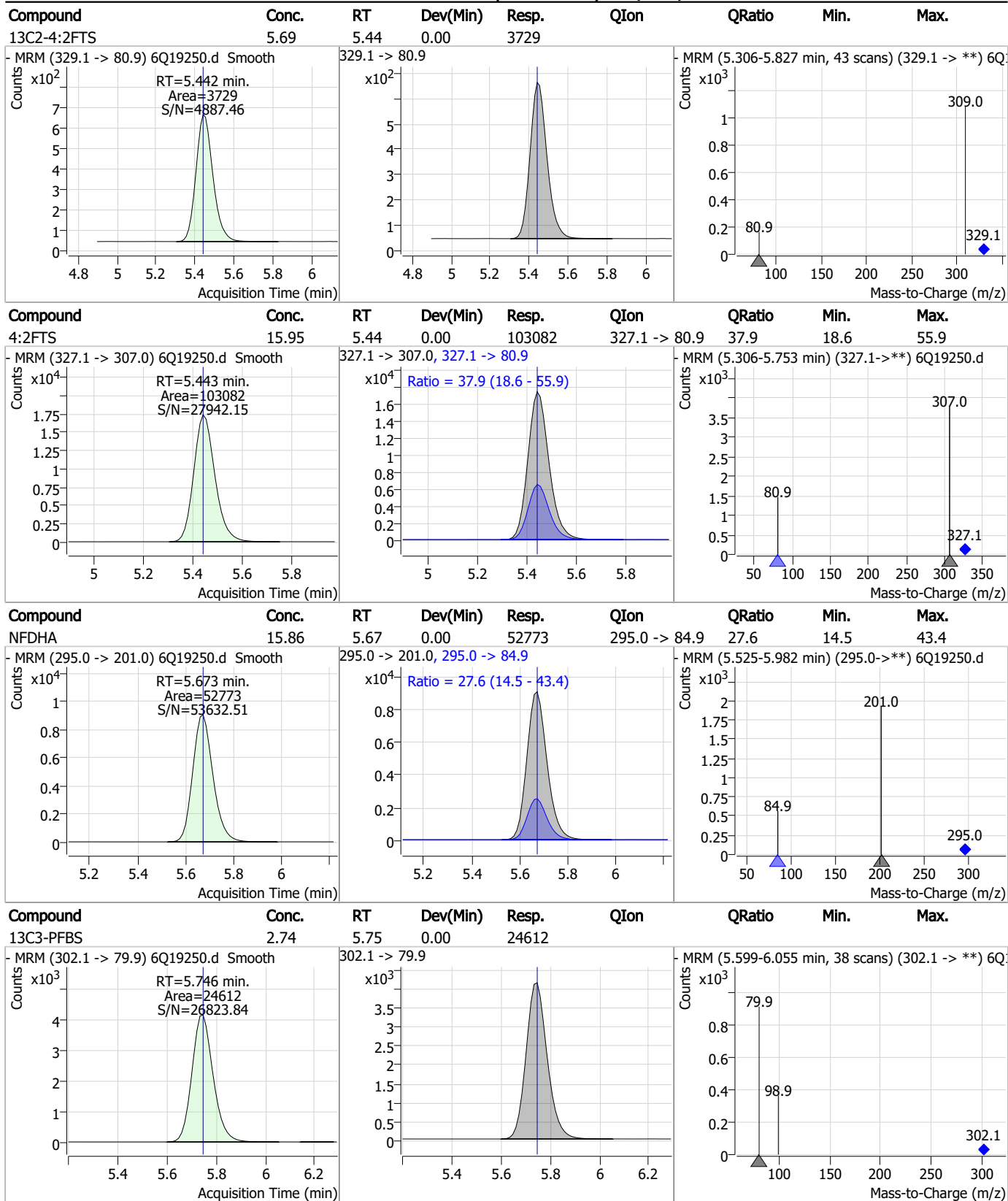
Perfluorinated Compounds by LC/MS/MS



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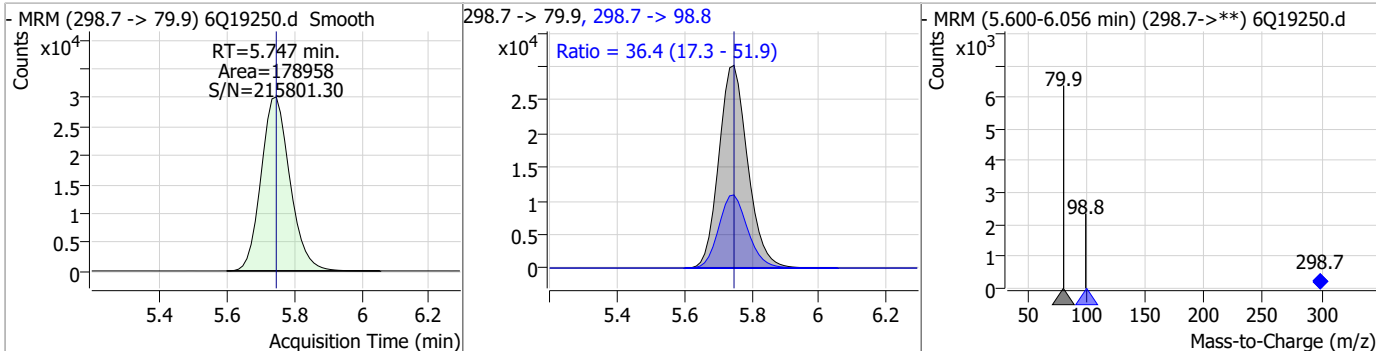
Perfluorinated Compounds by LC/MS/MS



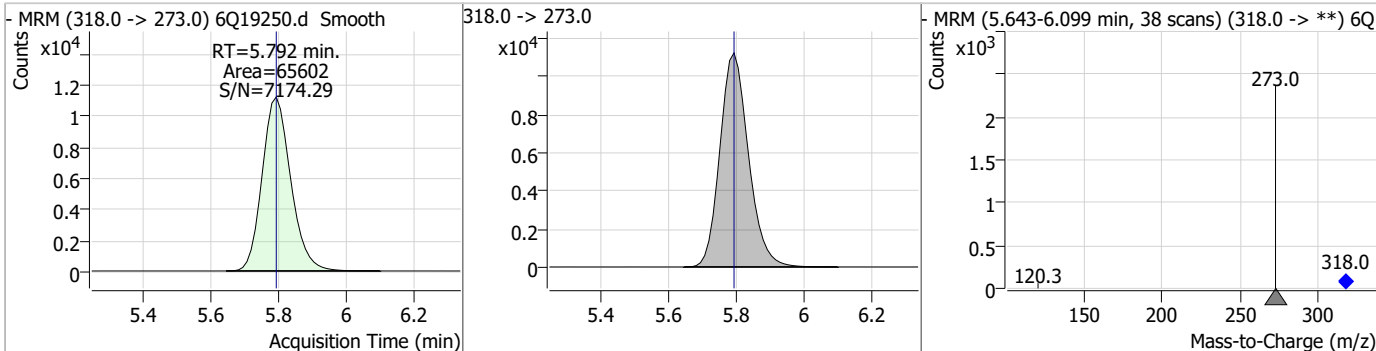
7.7.11
7

Perfluorinated Compounds by LC/MS/MS

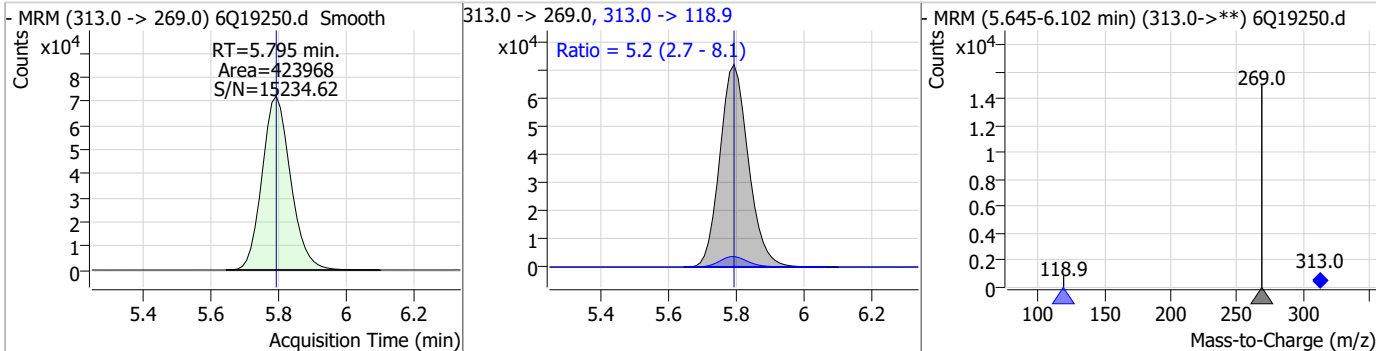
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	16.58	5.75	0.00	178958	298.7 -> 98.8	36.4	17.3	51.9



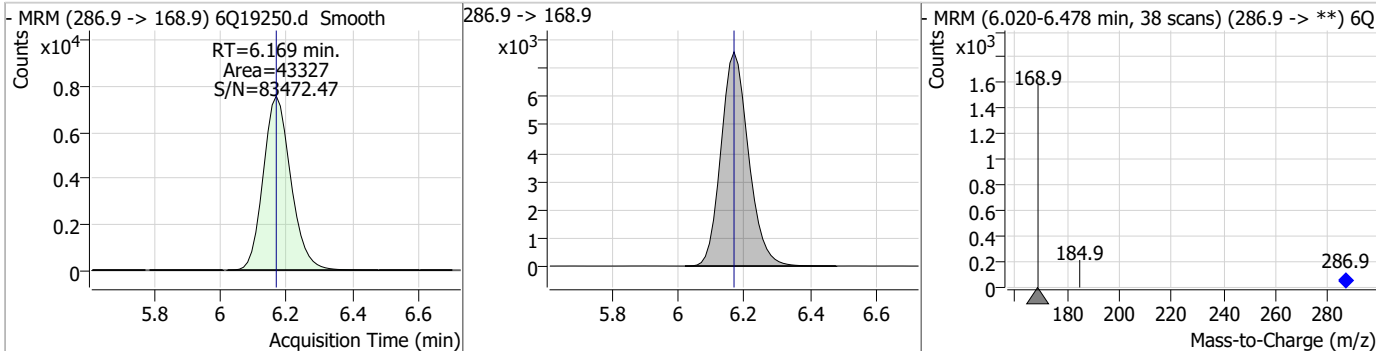
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.47	5.79	0.00	65602				



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

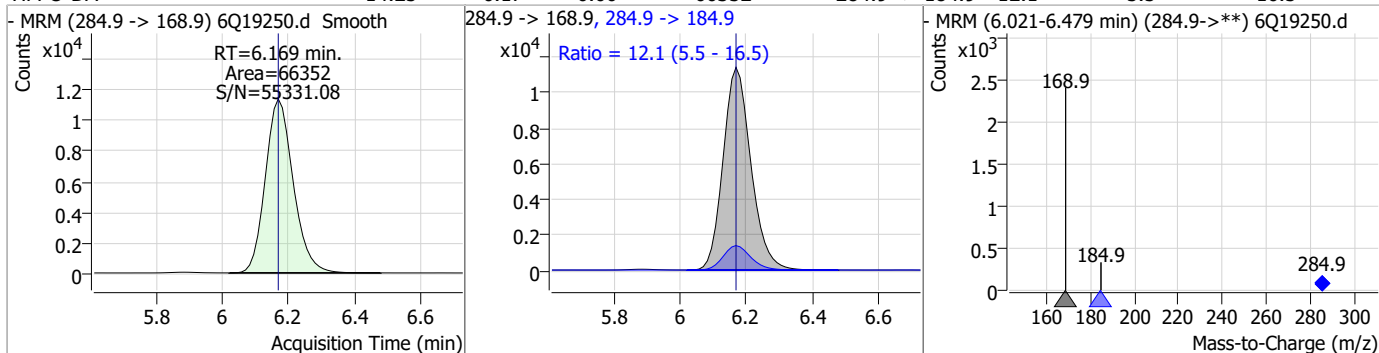


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.29	6.17	0.00	43327				

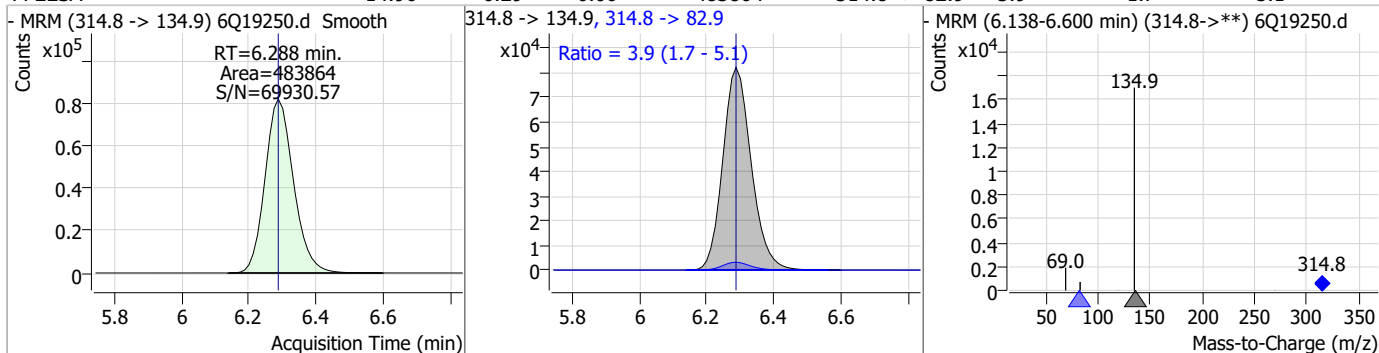


Perfluorinated Compounds by LC/MS/MS

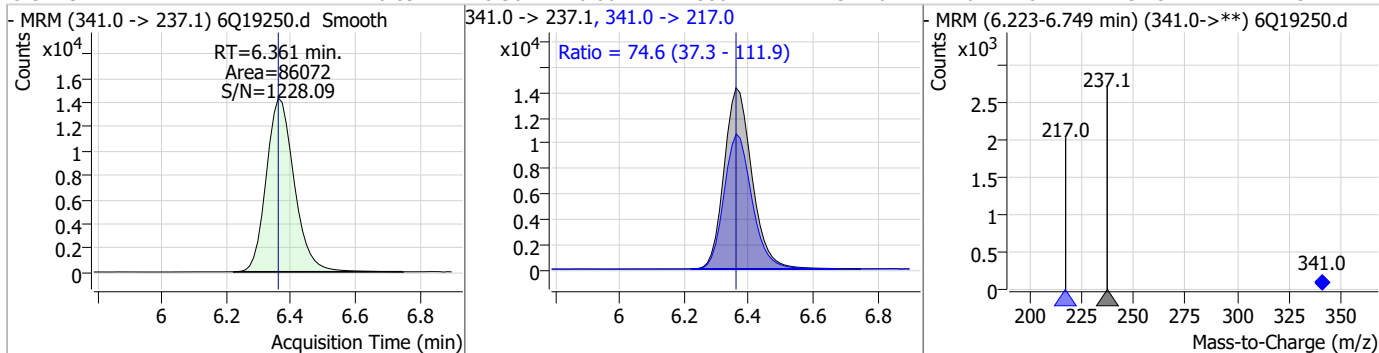
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	14.25	6.17	0.00	66352	284.9 -> 184.9	12.1	5.5	16.5



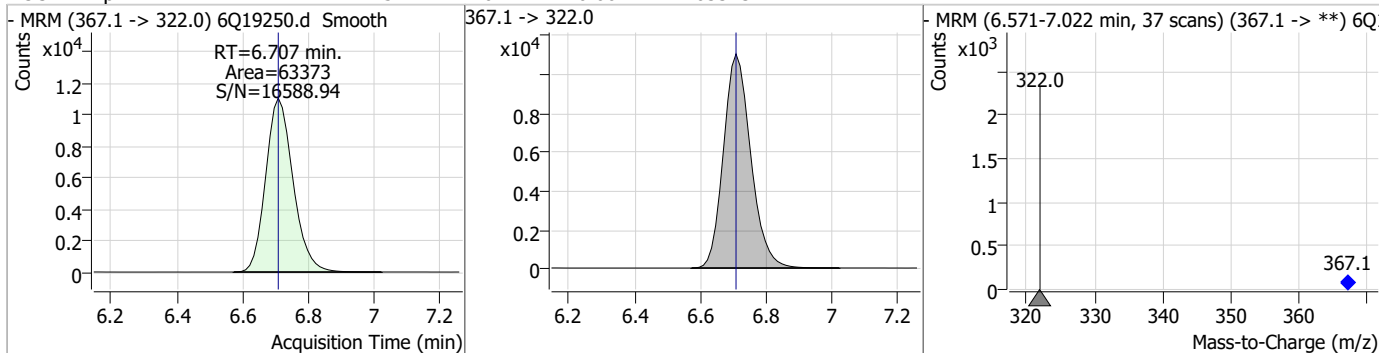
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	14.96	6.29	0.00	483864	314.8 -> 82.9	3.9	1.7	5.1



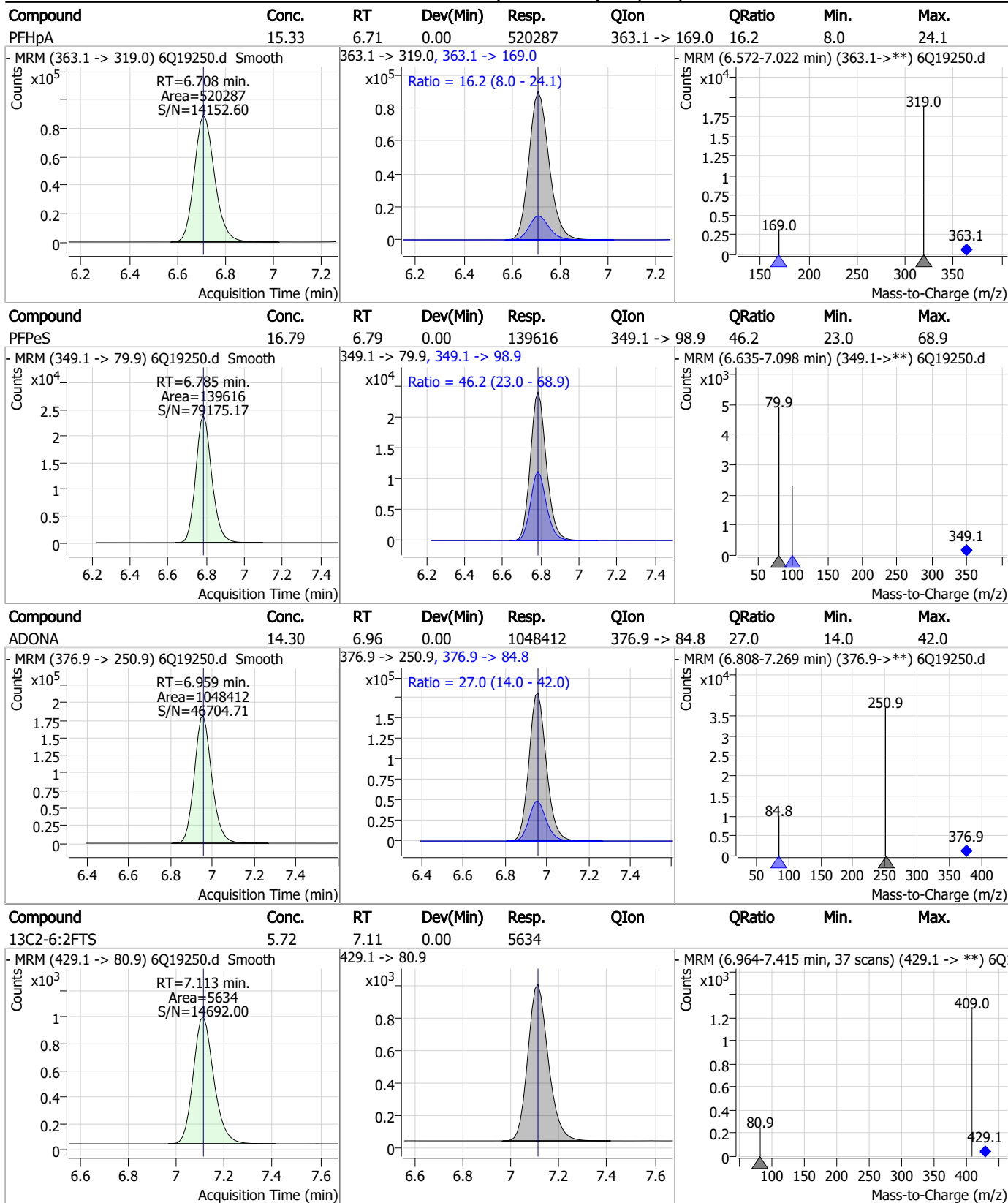
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	16.89	6.36	0.00	86072	341.0 -> 217.0	74.6	37.3	111.9



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



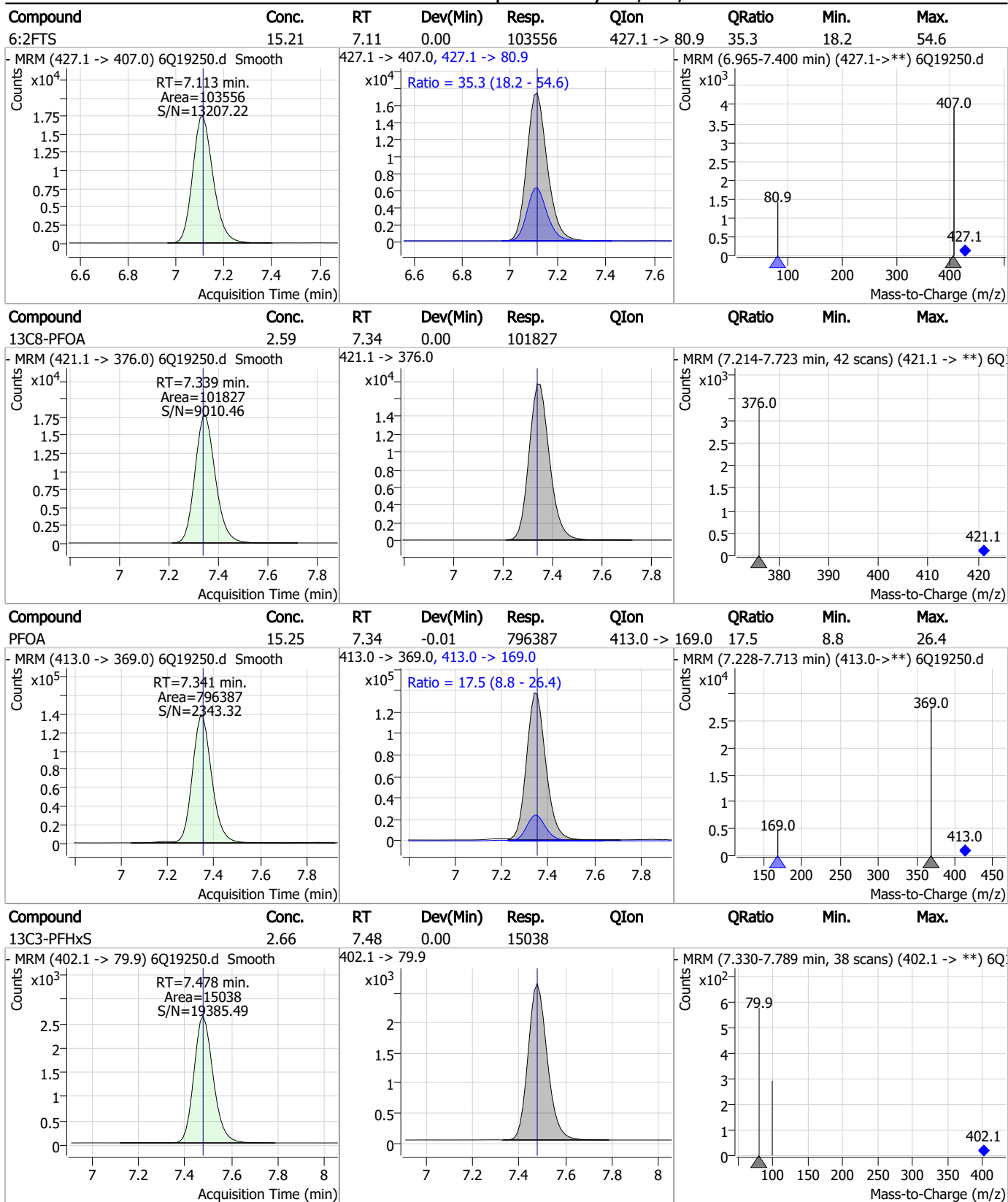
Perfluorinated Compounds by LC/MS/MS



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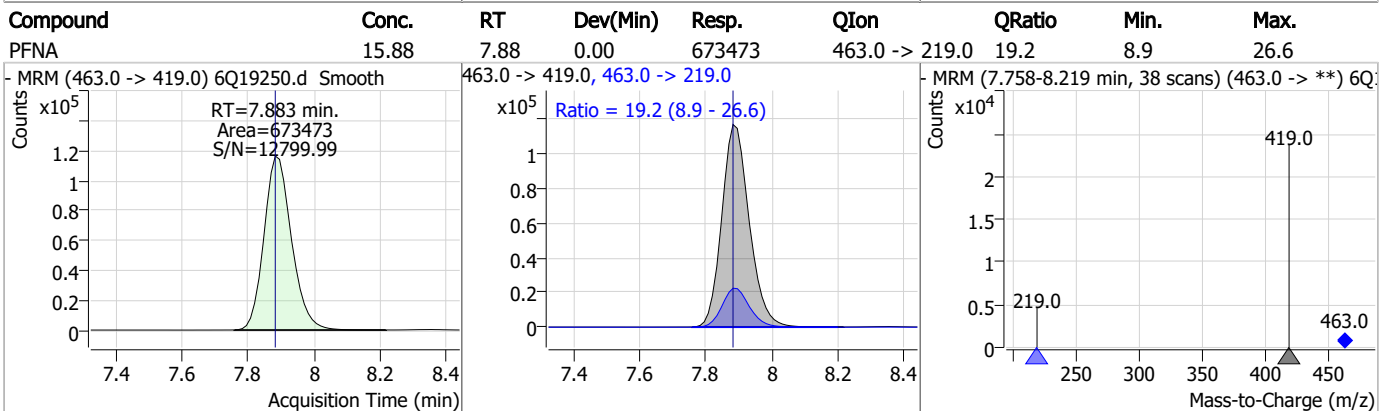
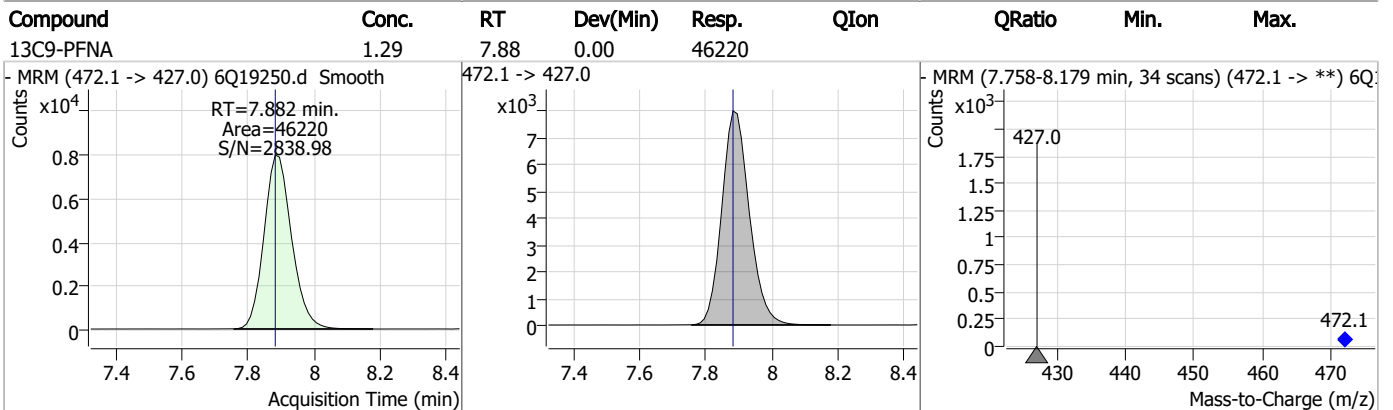
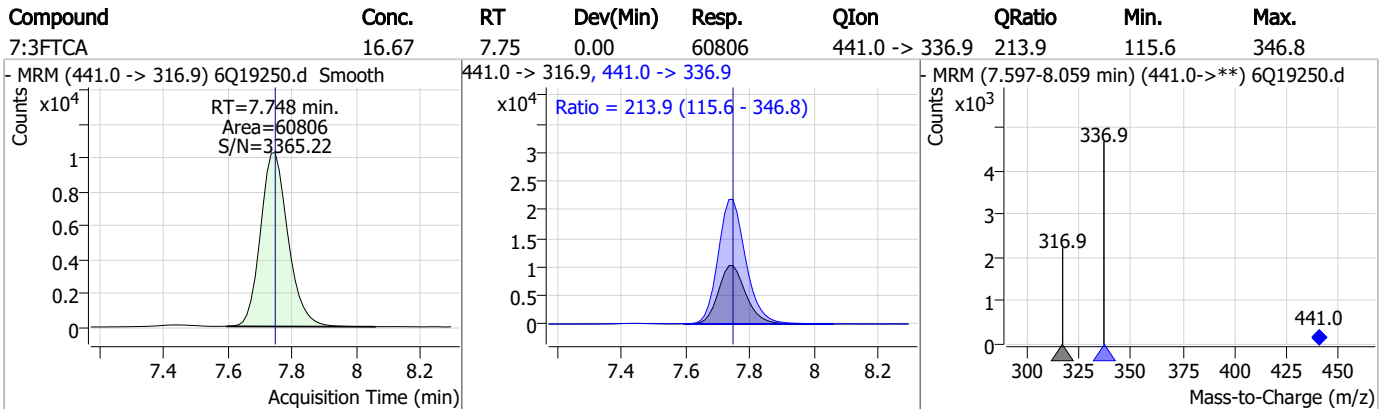
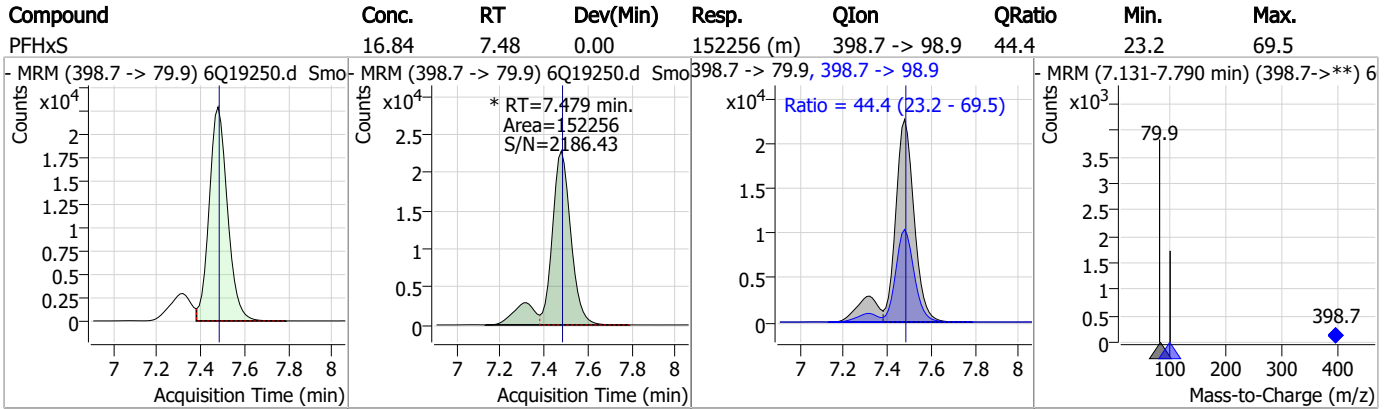


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

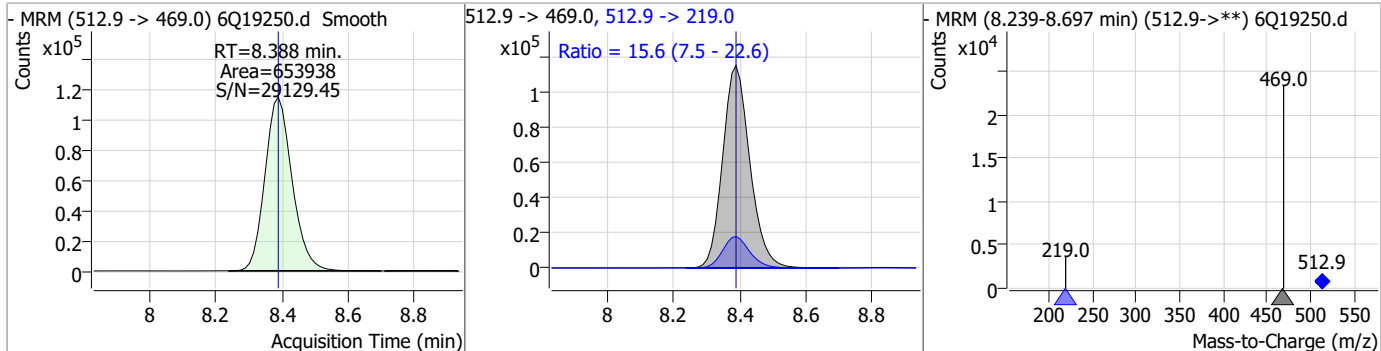
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	15.90	8.05	0.00	134182	449.0 -> 98.9	46.1	24.5	73.5
13C2-8:2FTS	5.28	8.16	0.00	4977				
8:2FTS	16.17	8.16	0.00	53526	527.1 -> 80.8	39.5	19.7	59.1
13C6-PFDA	1.34	8.39	0.00	27311				

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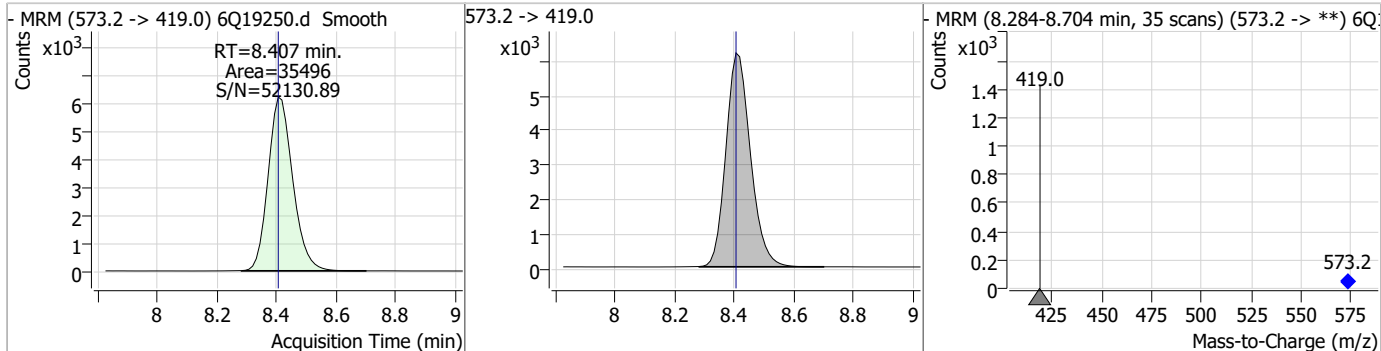


Perfluorinated Compounds by LC/MS/MS

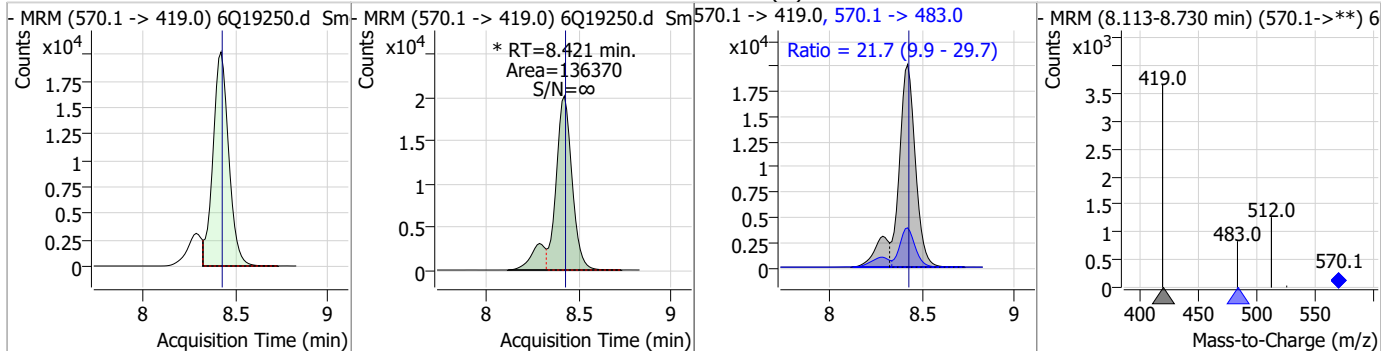
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	16.02	8.39	0.00	653938	512.9 -> 219.0	15.6	7.5	22.6



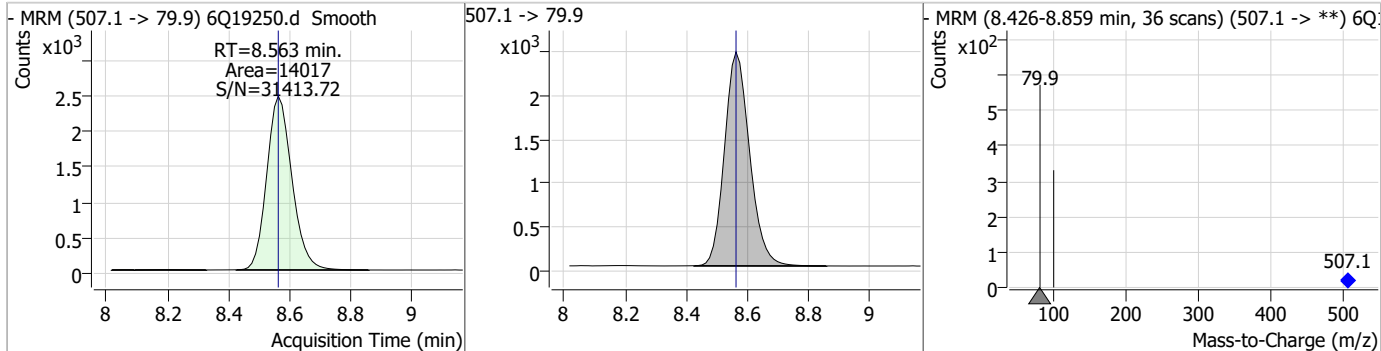
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.04	8.41	0.00	35496				



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



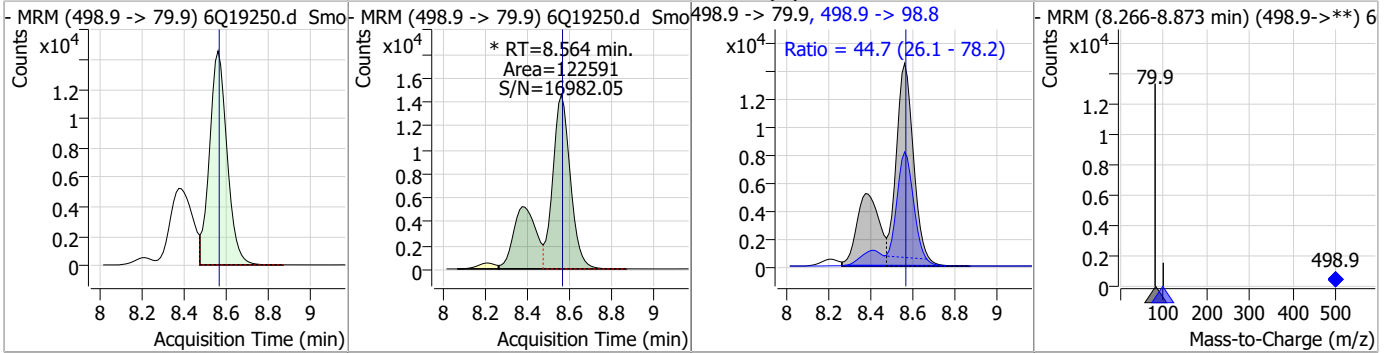
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.55	8.56	0.00	14017				



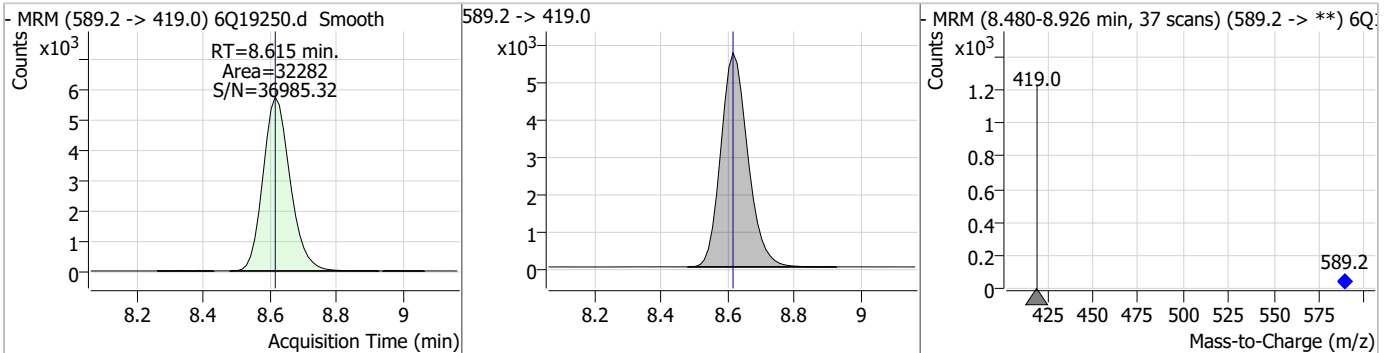
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Perfluorinated Compounds by LC/MS/MS

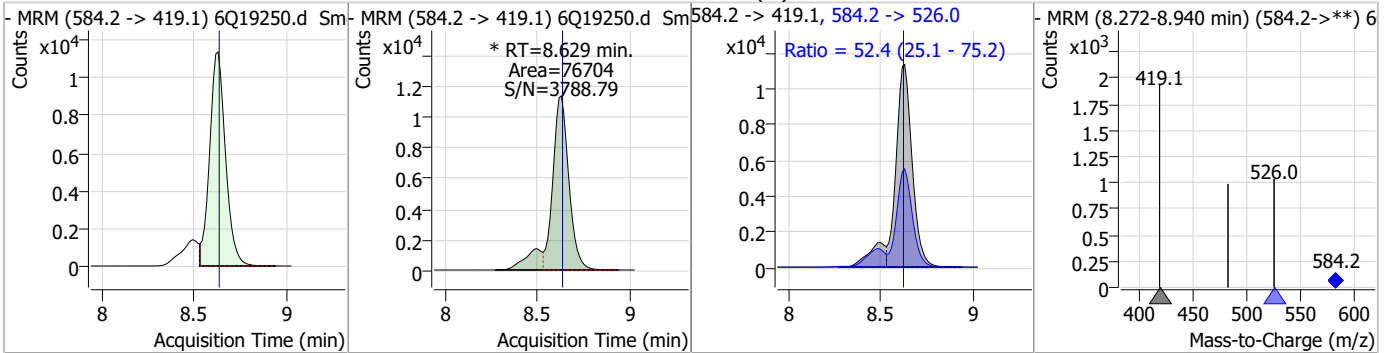
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	14.85	8.56	0.00	122591 (m)	498.9 -> 98.8	44.7	26.1	78.2



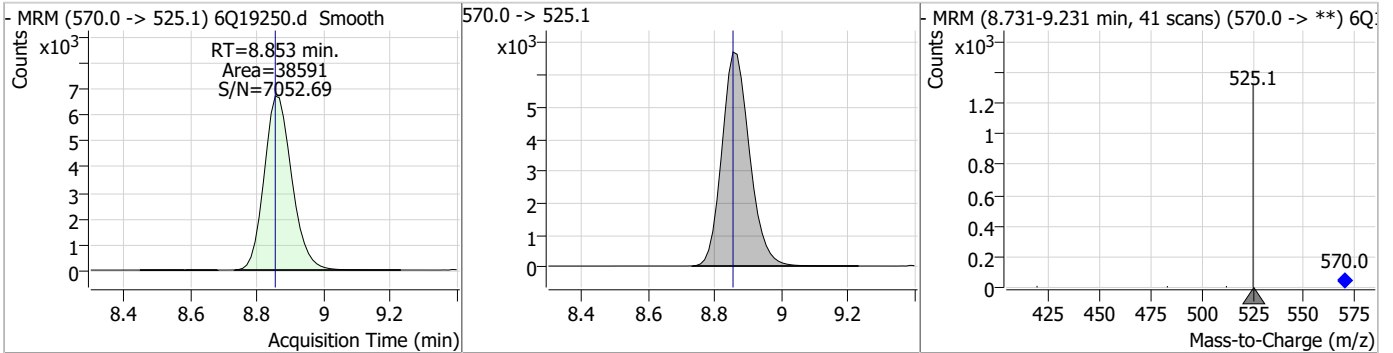
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.43	8.62	0.00	32282				



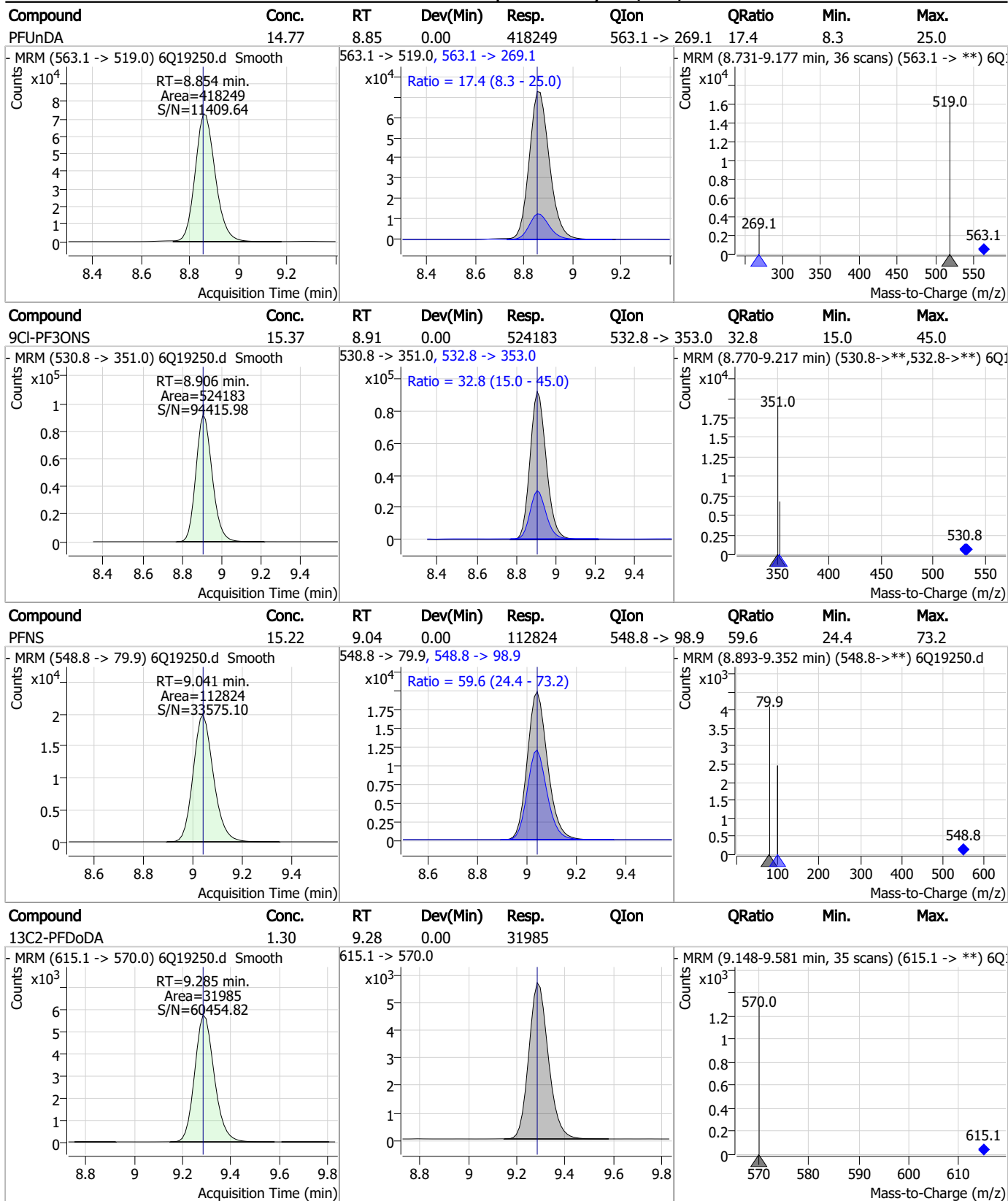
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	14.31	8.63	0.00	76704 (m)	584.2 -> 526.0	52.4	25.1	75.2



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



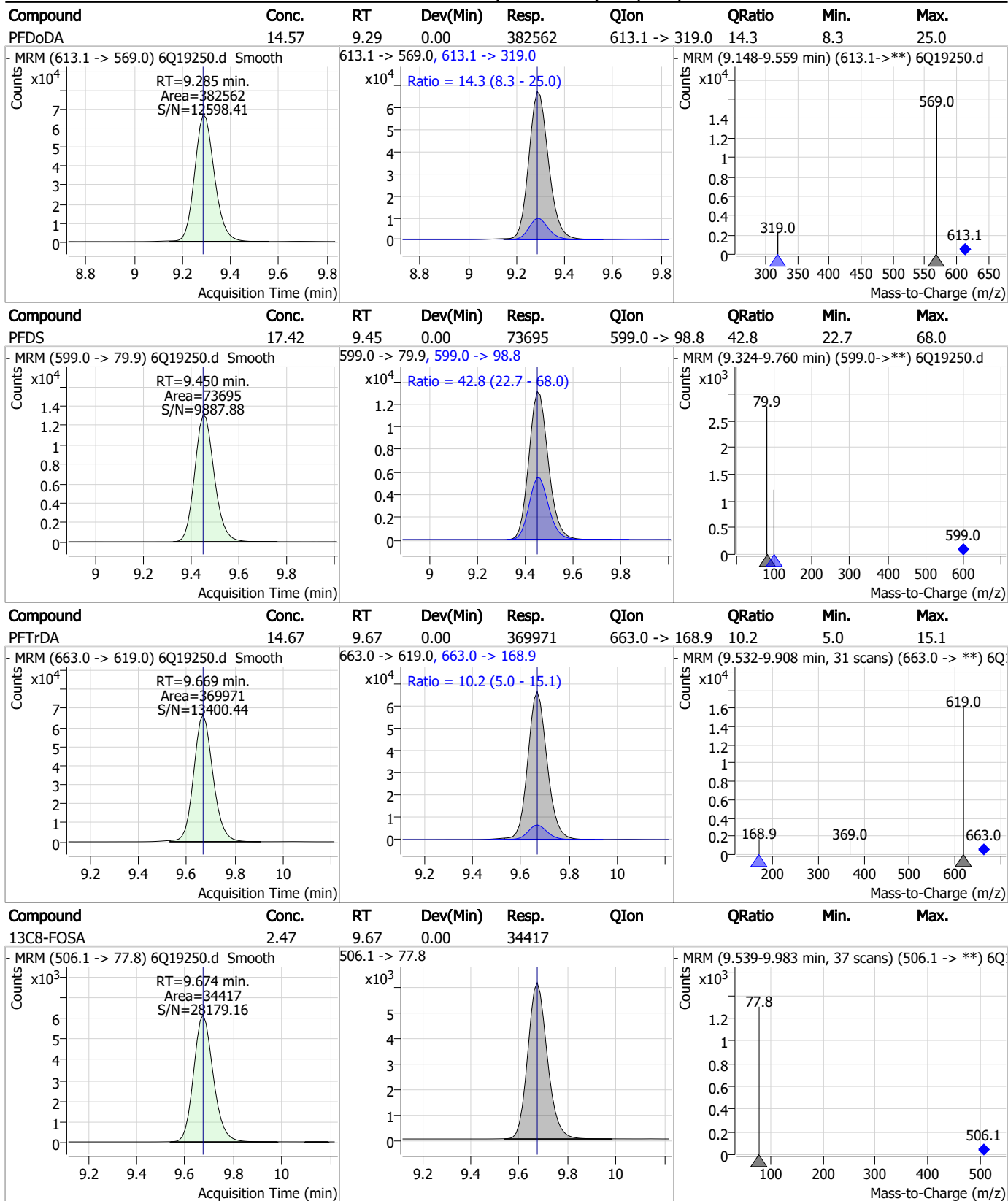
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

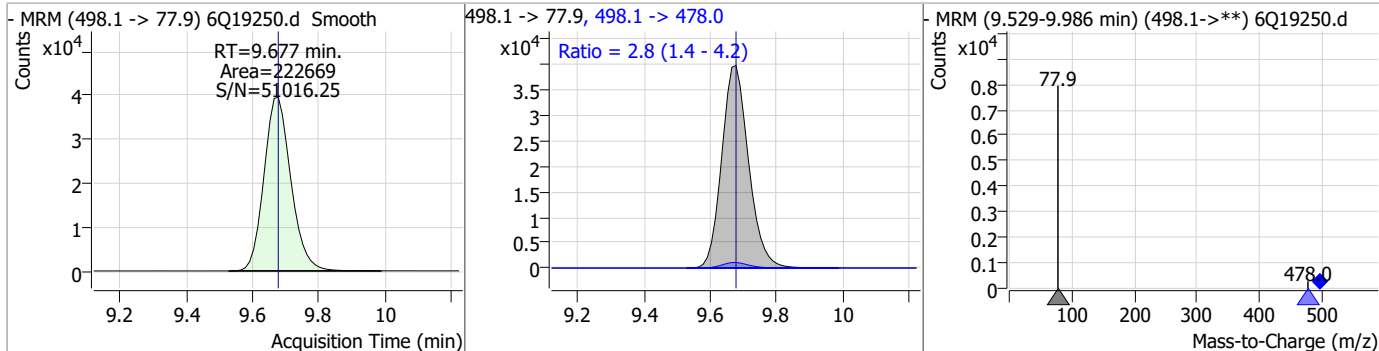


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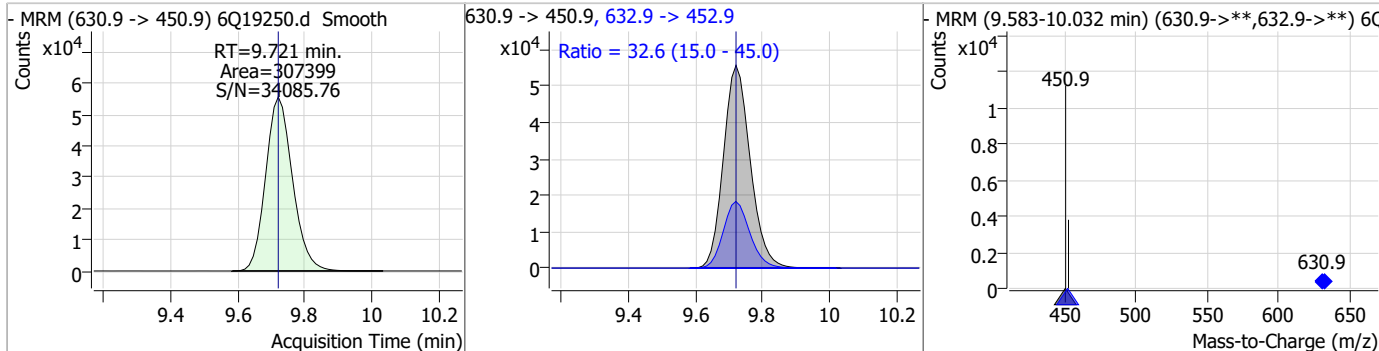


Perfluorinated Compounds by LC/MS/MS

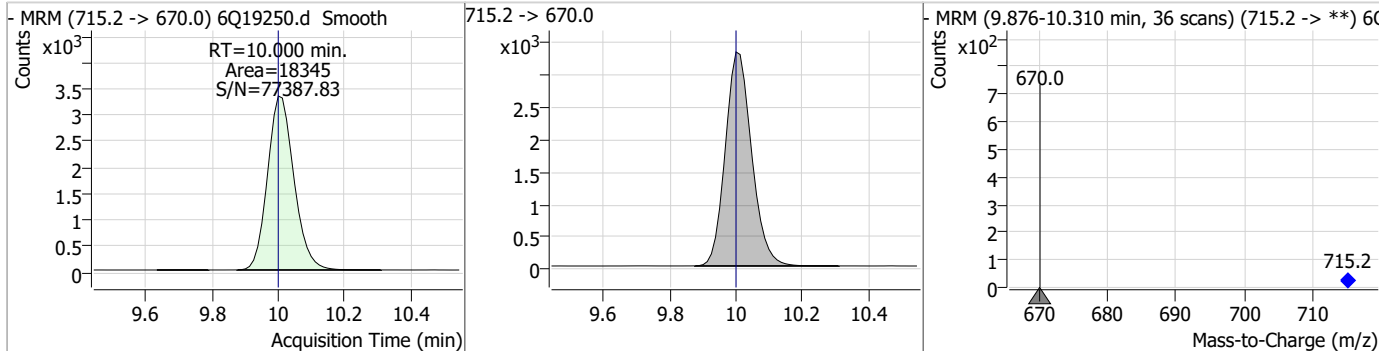
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	15.76	9.68	0.00	222669	498.1 -> 478.0	2.8	1.4	4.2



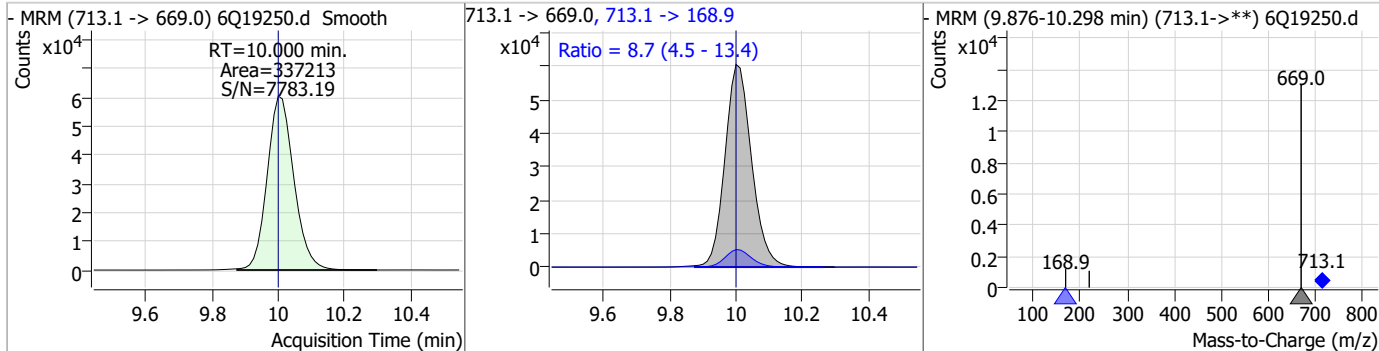
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	15.05	9.72	0.00	307399	630.9 -> 452.9	32.6	15.0	45.0



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



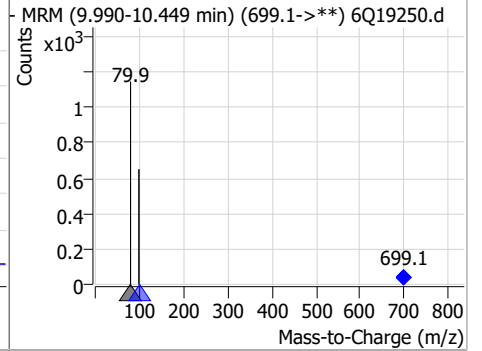
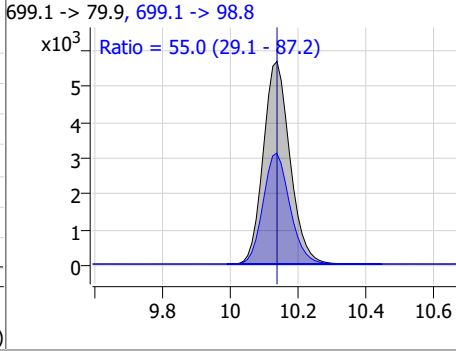
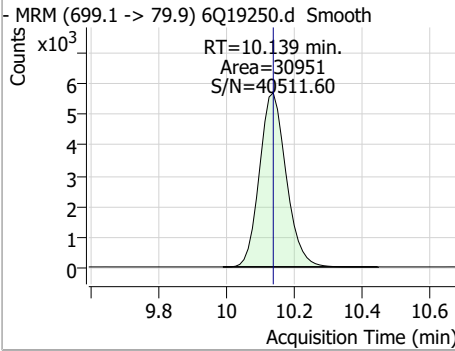
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	15.37	10.00	0.00	337213	713.1 -> 168.9	8.7	4.5	13.4



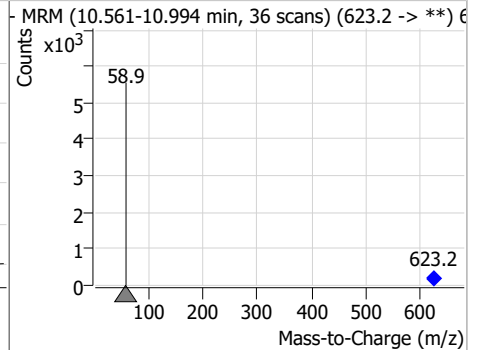
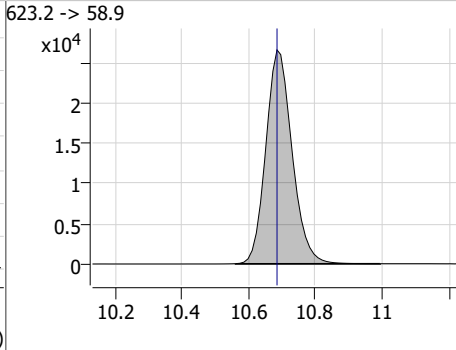
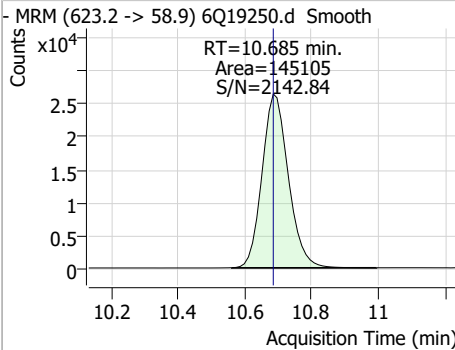
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Perfluorinated Compounds by LC/MS/MS

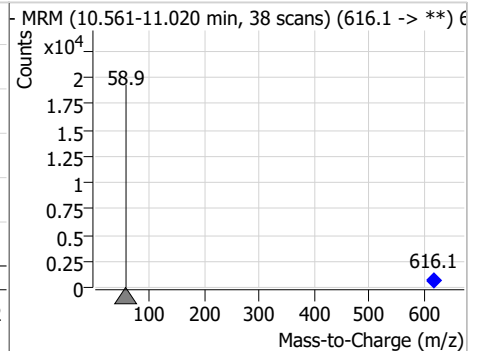
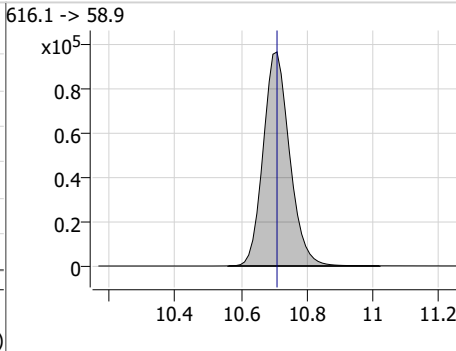
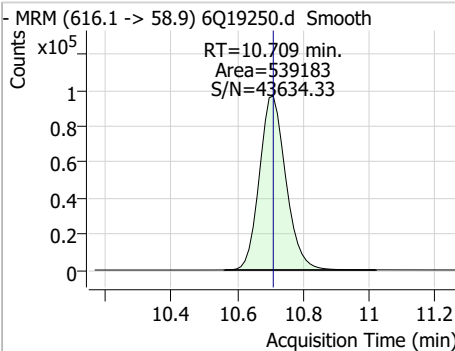
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	14.70	10.14	0.00	30951	699.1 -> 98.8	55.0	29.1	87.2



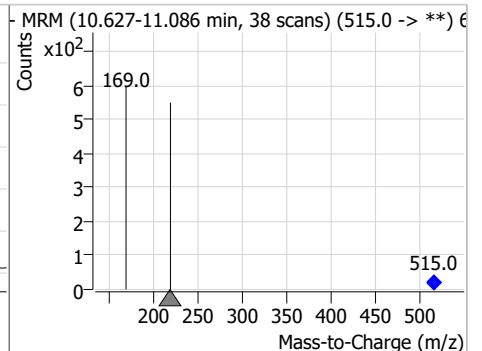
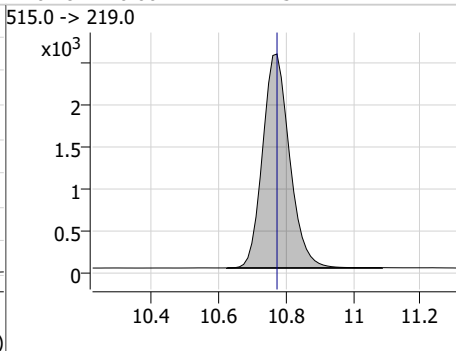
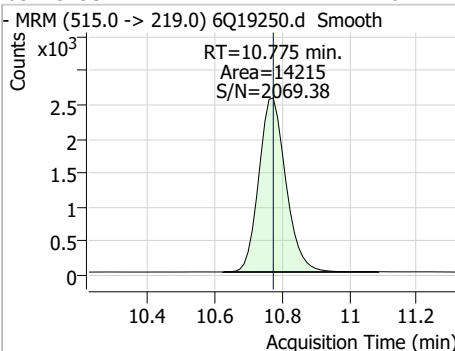
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.05	10.68	0.00	145105				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	84.90	10.71	0.00	539183				

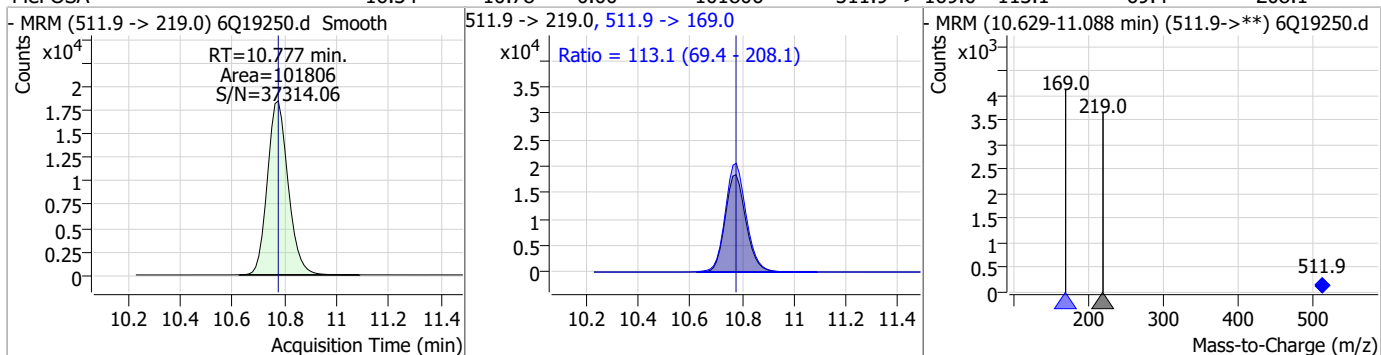


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.28	10.78	0.00	14215				

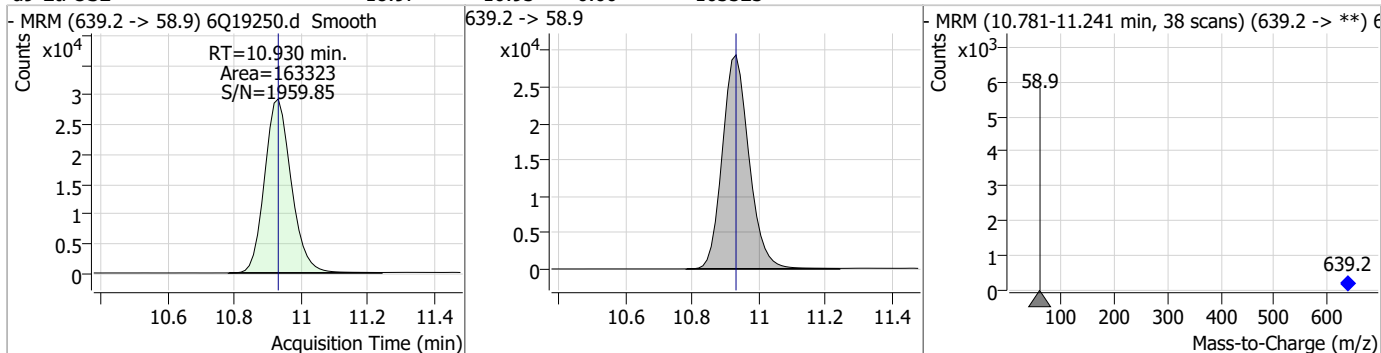


Perfluorinated Compounds by LC/MS/MS

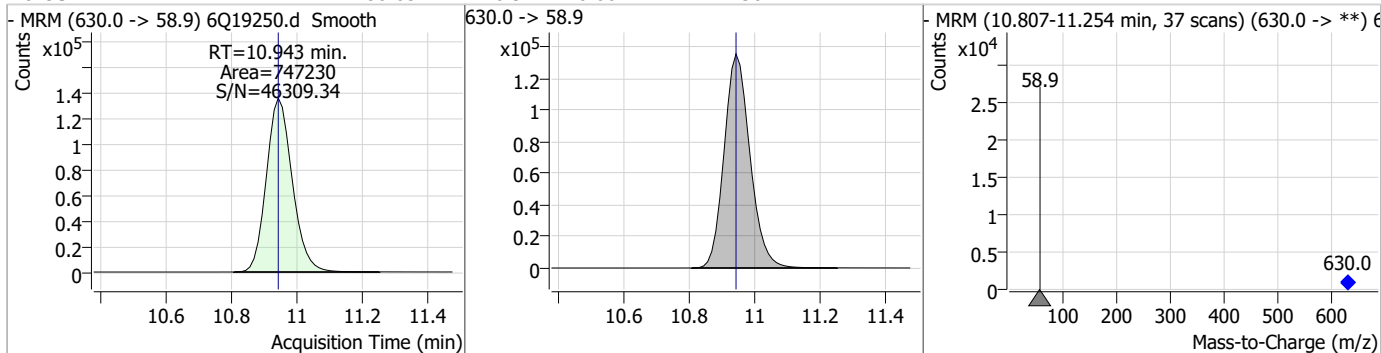
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	16.34	10.78	0.00	101806	511.9 -> 169.0	113.1	69.4	208.1



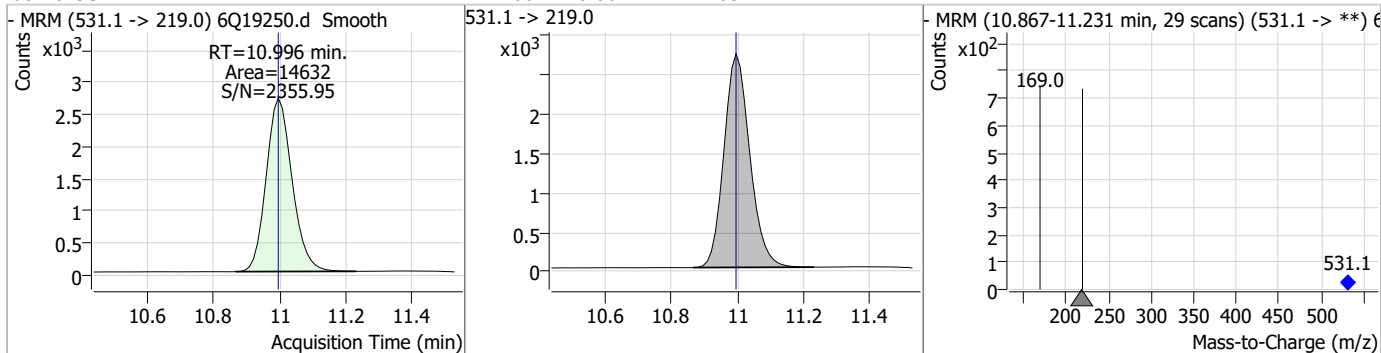
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	18.97	10.93	0.00	163323				



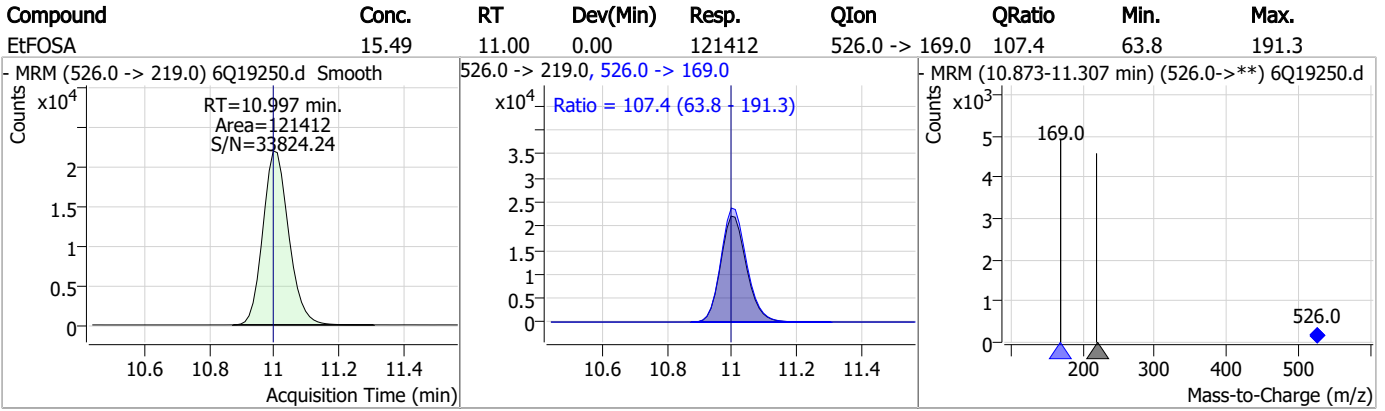
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	86.65	10.94	0.00	747230				



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



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

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

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

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Perfluorinated Compounds by LC/MS/MS

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

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

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

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Perfluorinated Compounds by LC/MS/MS

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

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



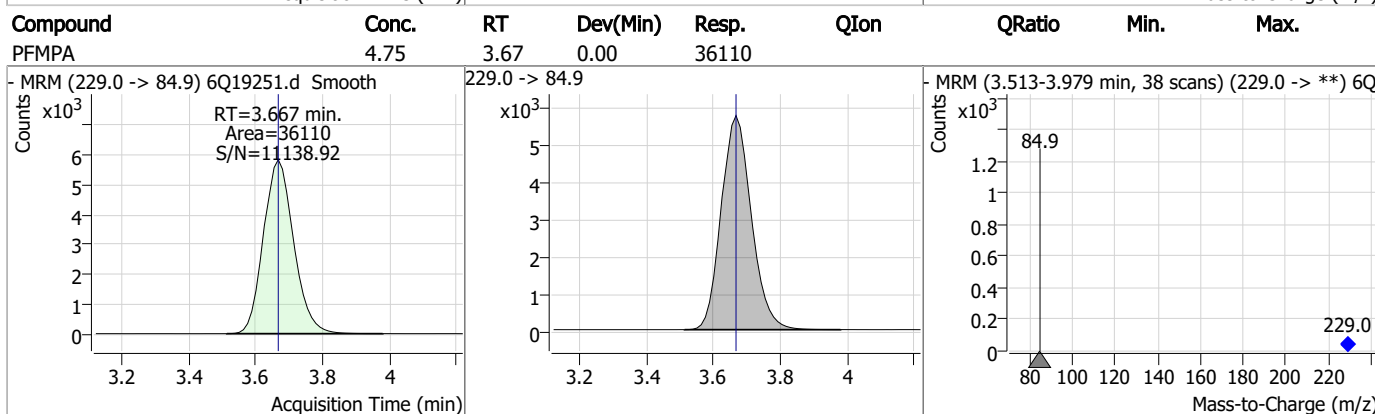
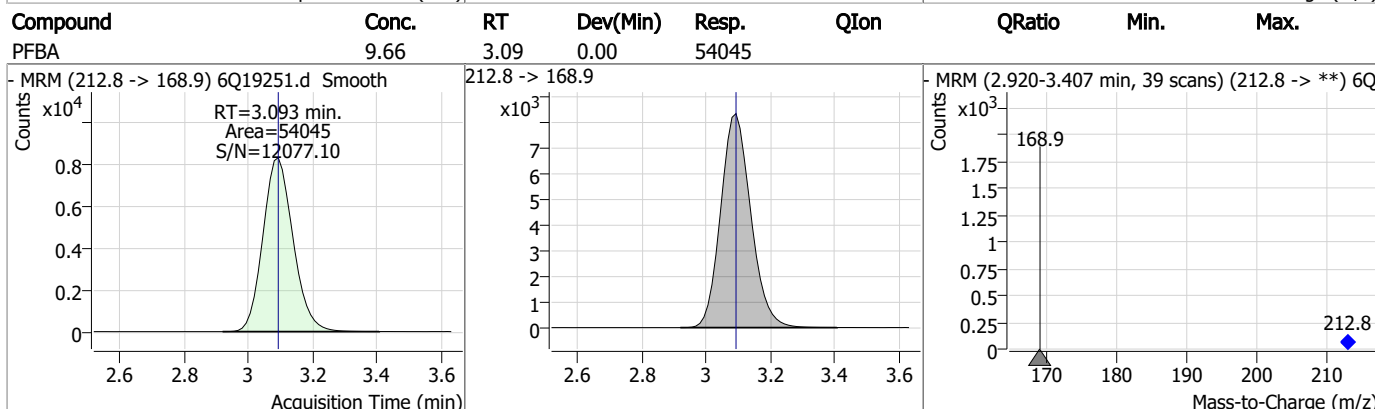
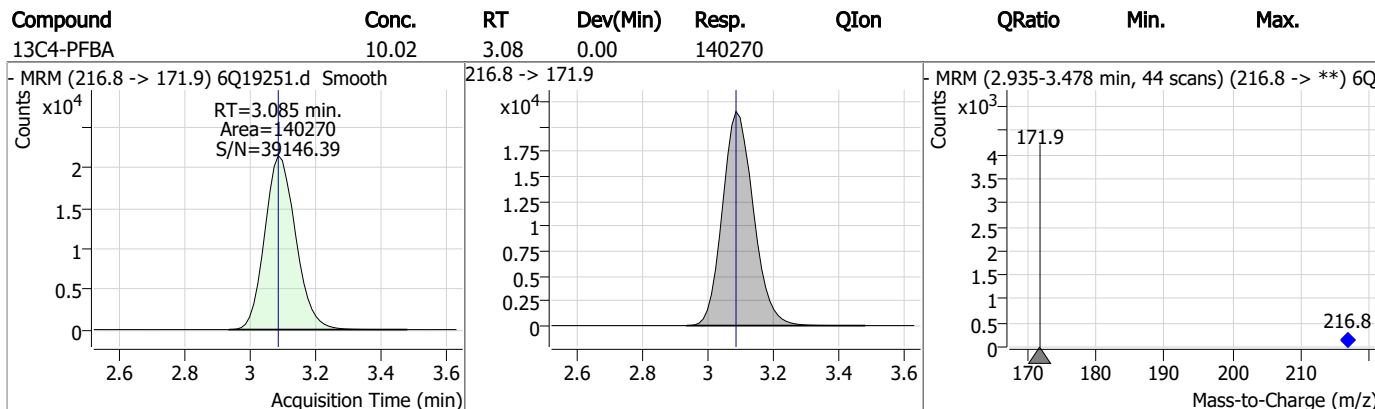
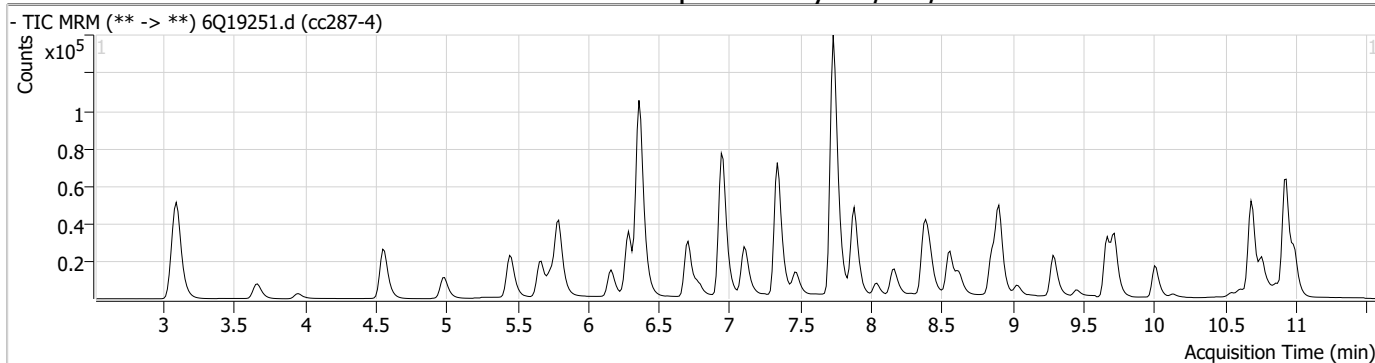
Perfluorinated Compounds by LC/MS/MS

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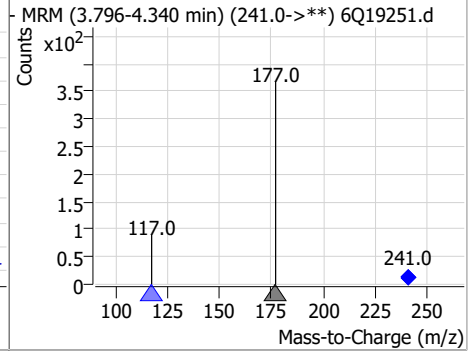
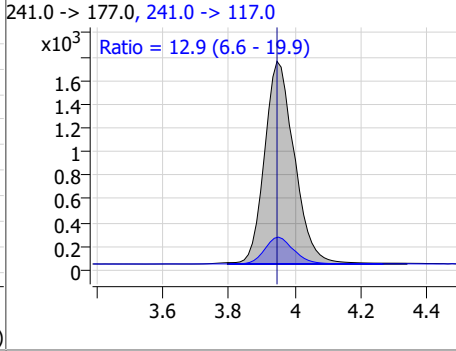
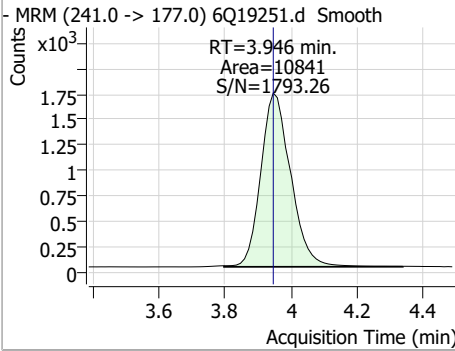
Perfluorinated Compounds by LC/MS/MS



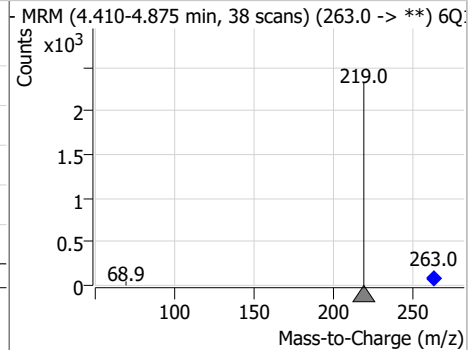
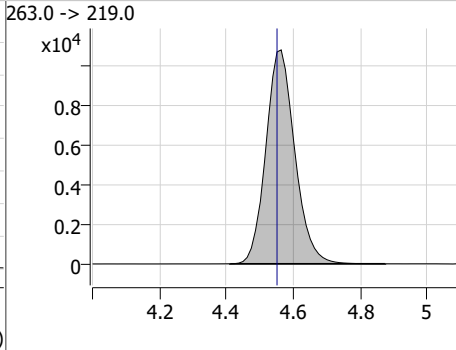
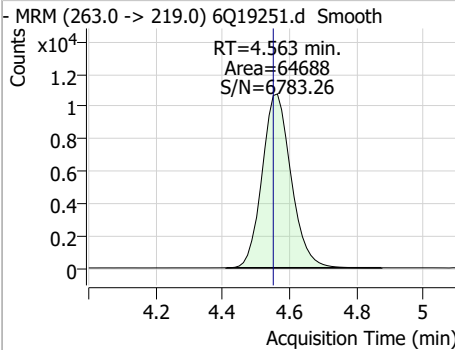
7.7.12
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Perfluorinated Compounds by LC/MS/MS

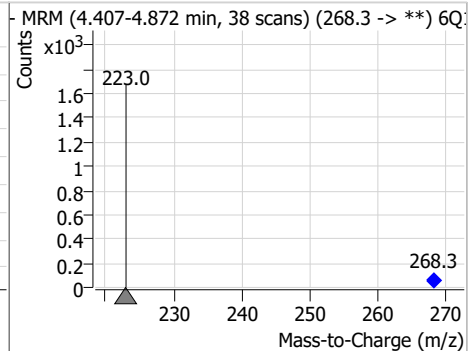
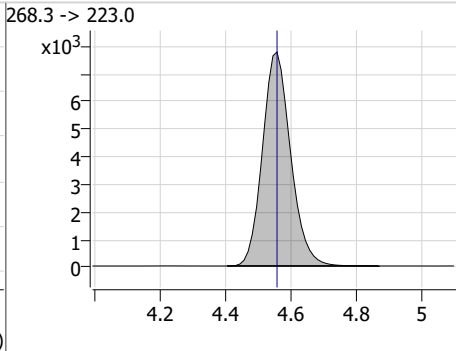
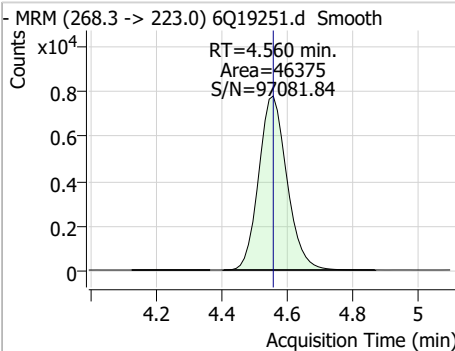
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.62	3.95	0.00	10841	241.0 -> 117.0	12.9	6.6	19.9



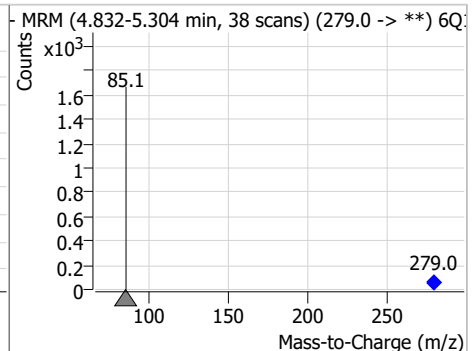
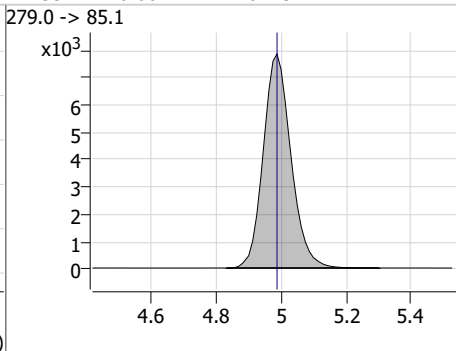
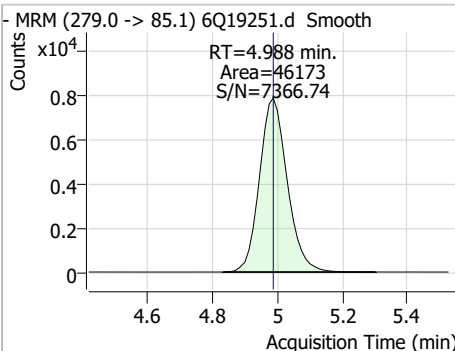
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.74	4.56	0.01	64688				



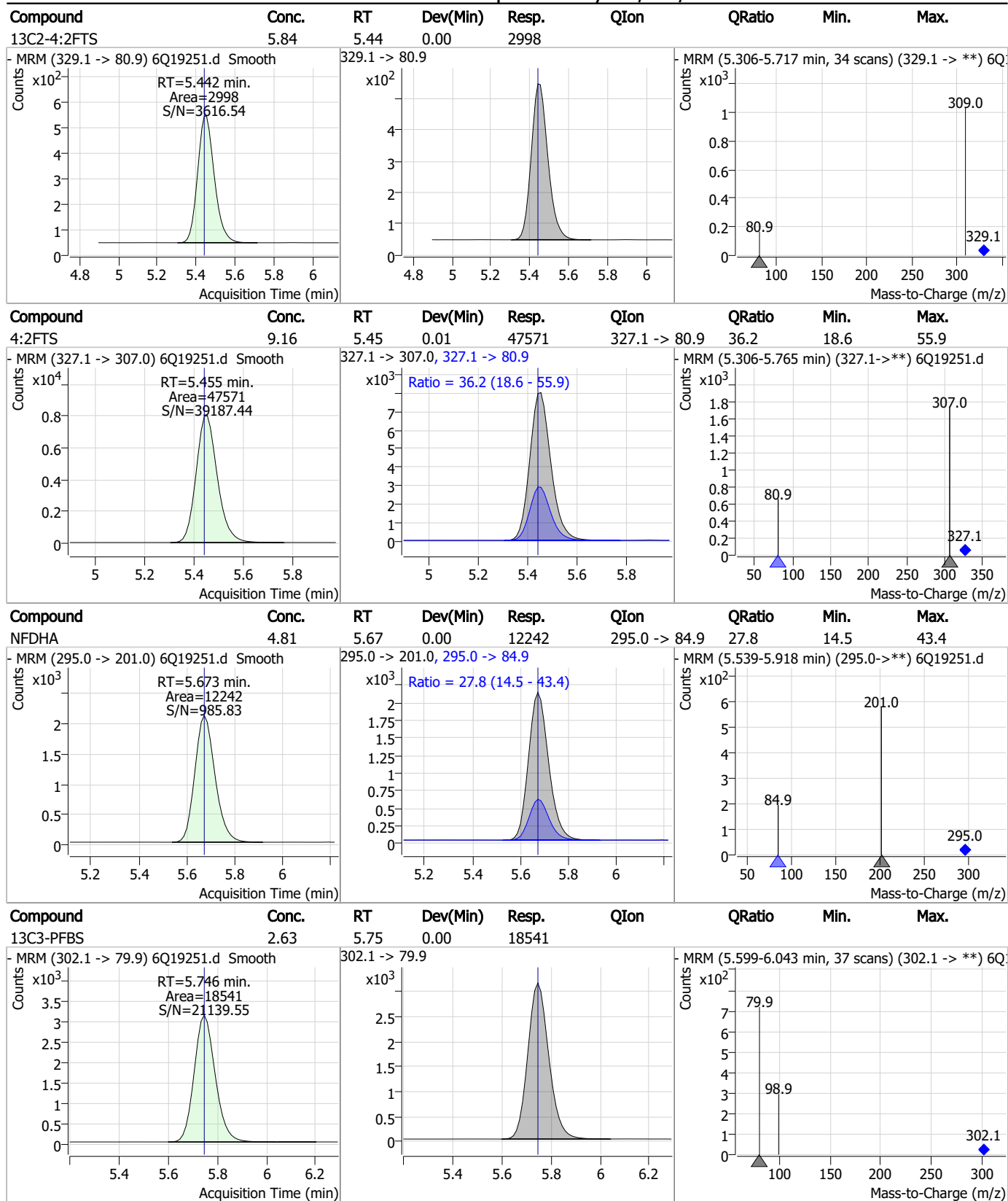
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.92	4.56	0.00	46375				



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

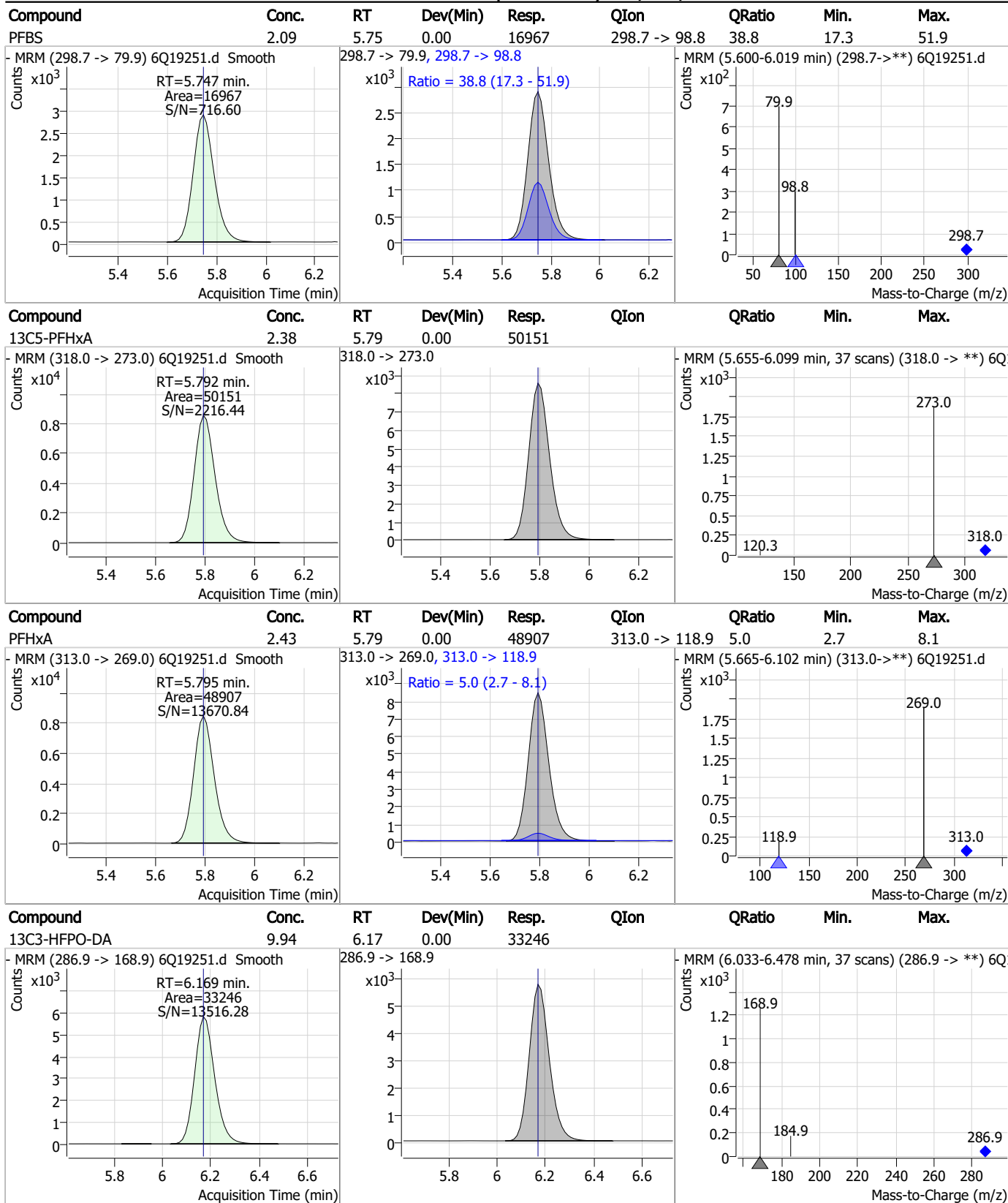


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

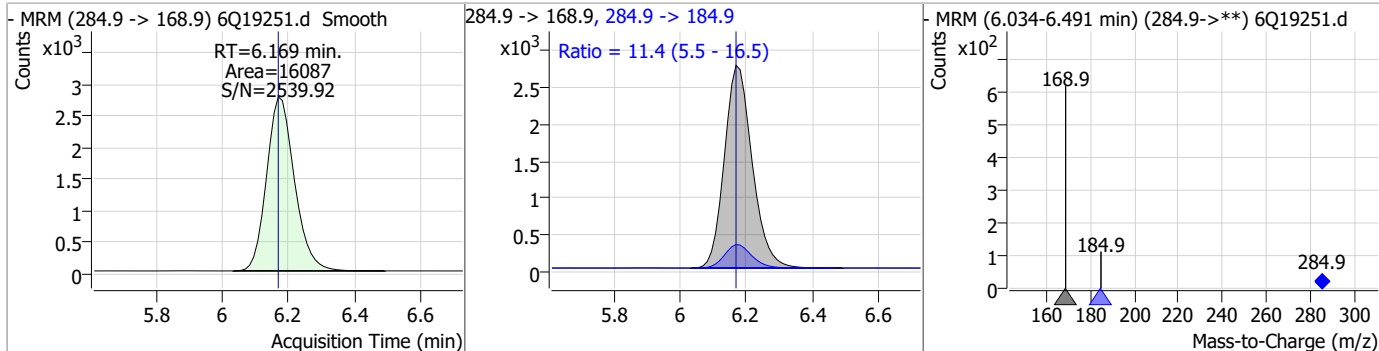


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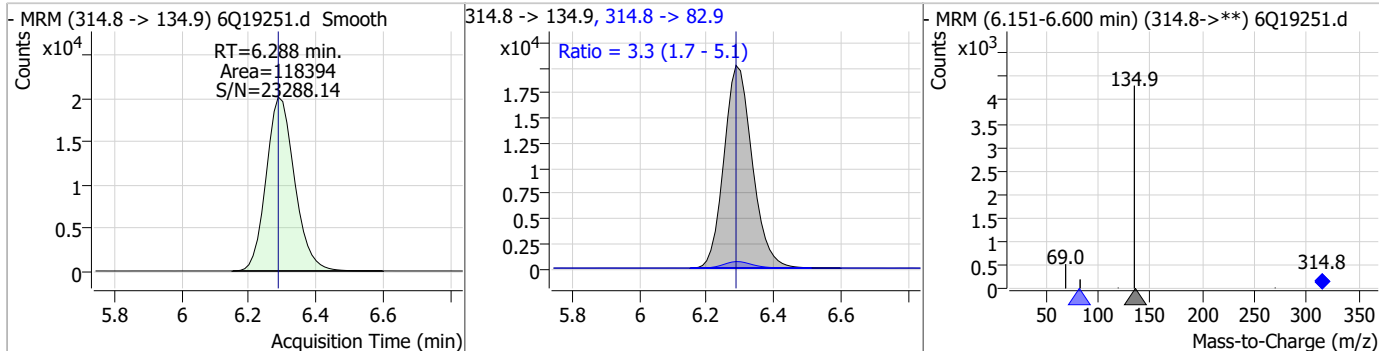


Perfluorinated Compounds by LC/MS/MS

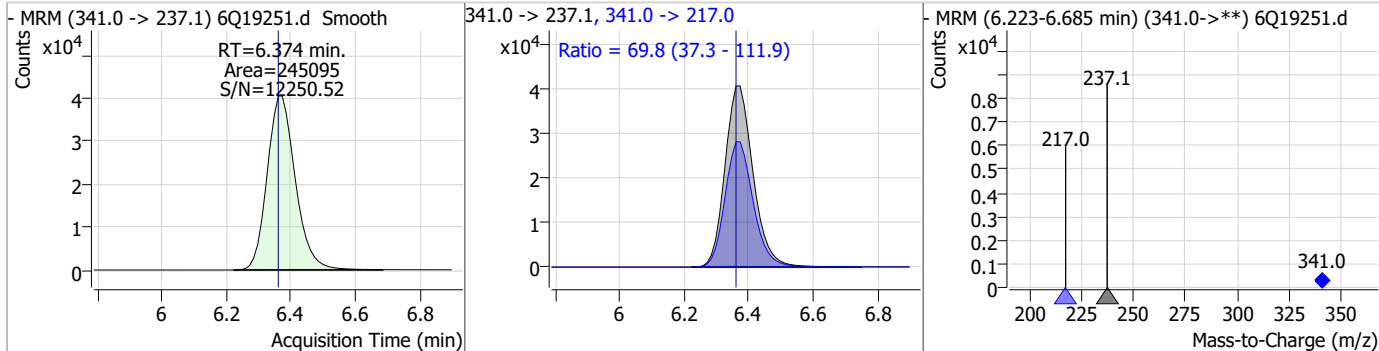
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.46	6.17	0.00	16087	284.9 -> 184.9	11.4	5.5	16.5



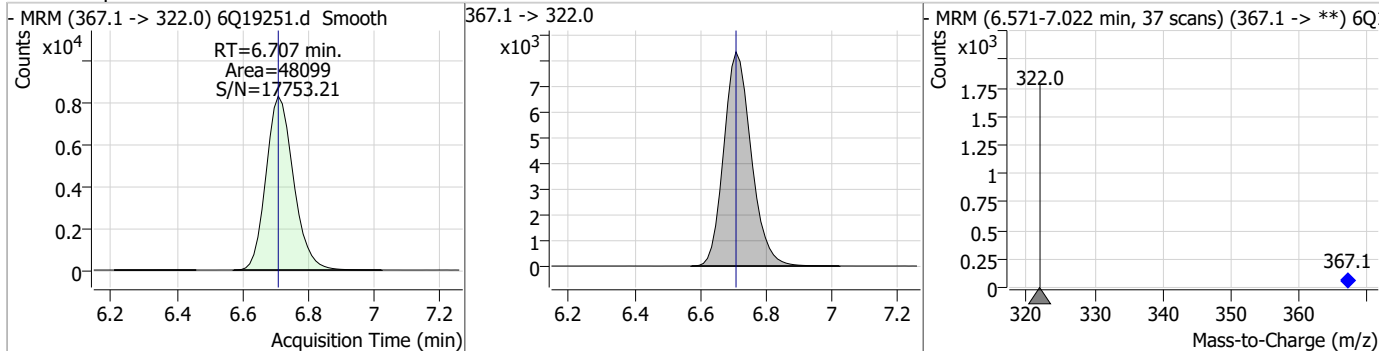
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.79	6.29	0.00	118394	314.8 -> 82.9	3.3	1.7	5.1



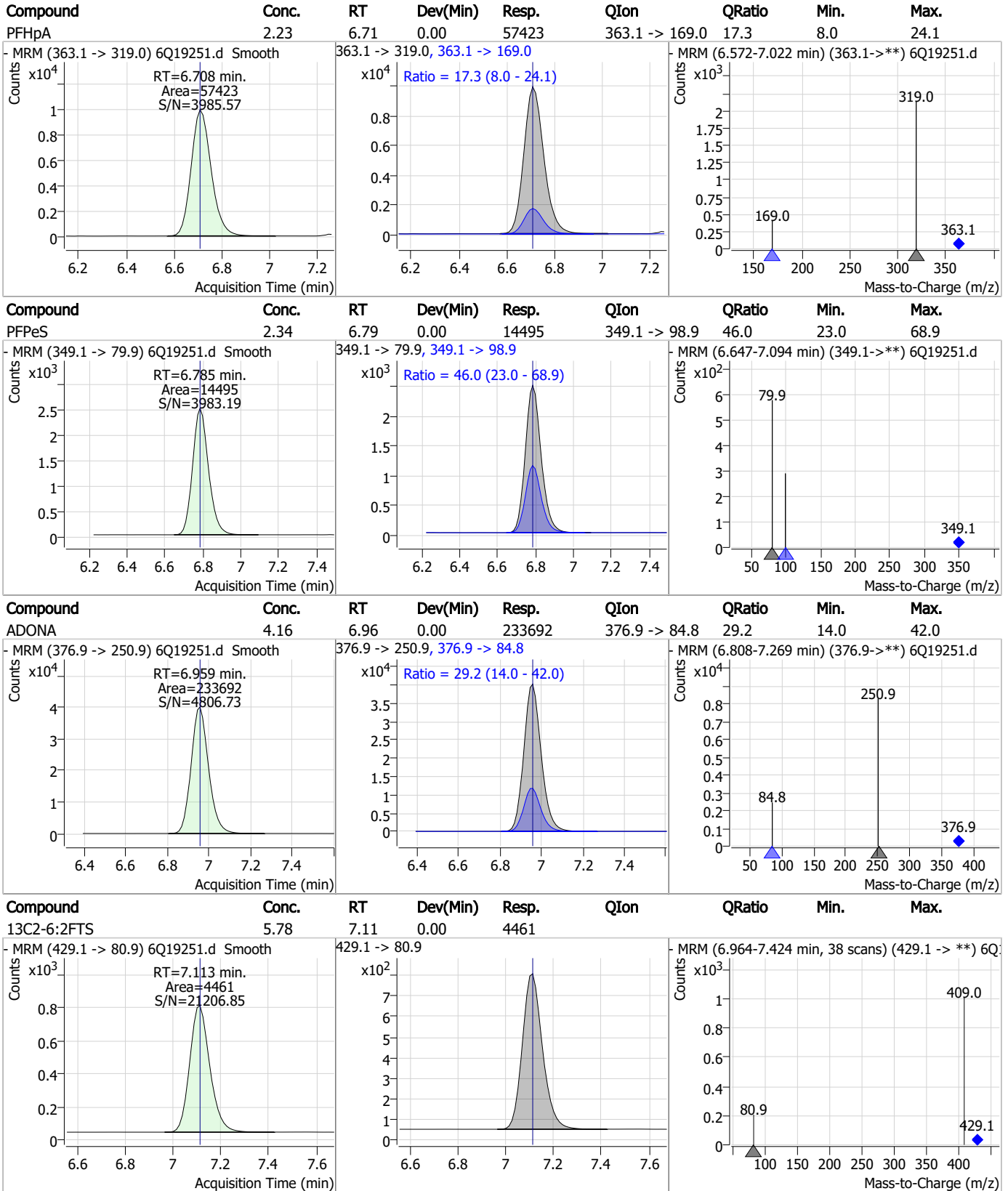
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	62.90	6.37	0.01	245095	341.0 -> 217.0	69.8	37.3	111.9



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



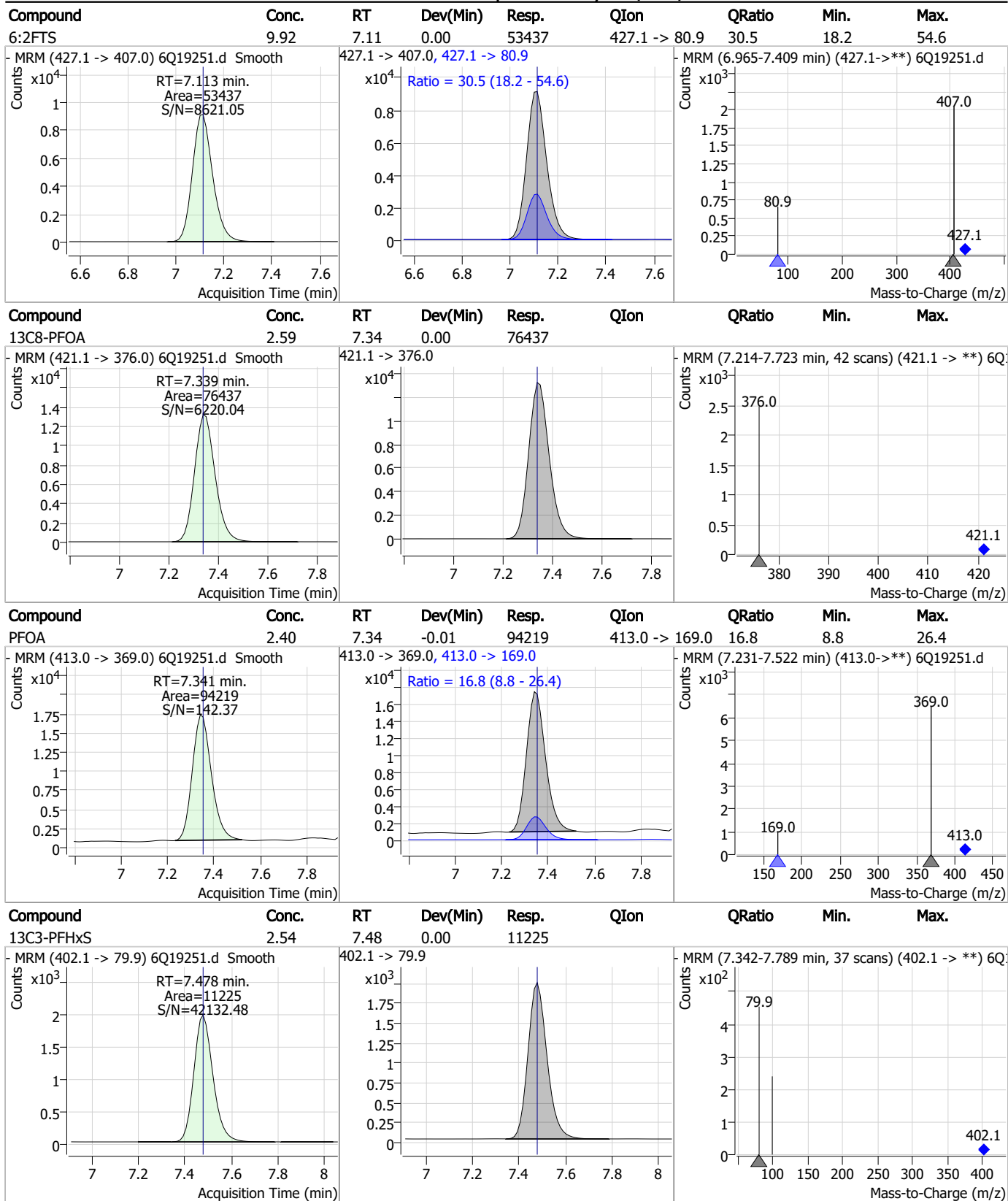
Perfluorinated Compounds by LC/MS/MS



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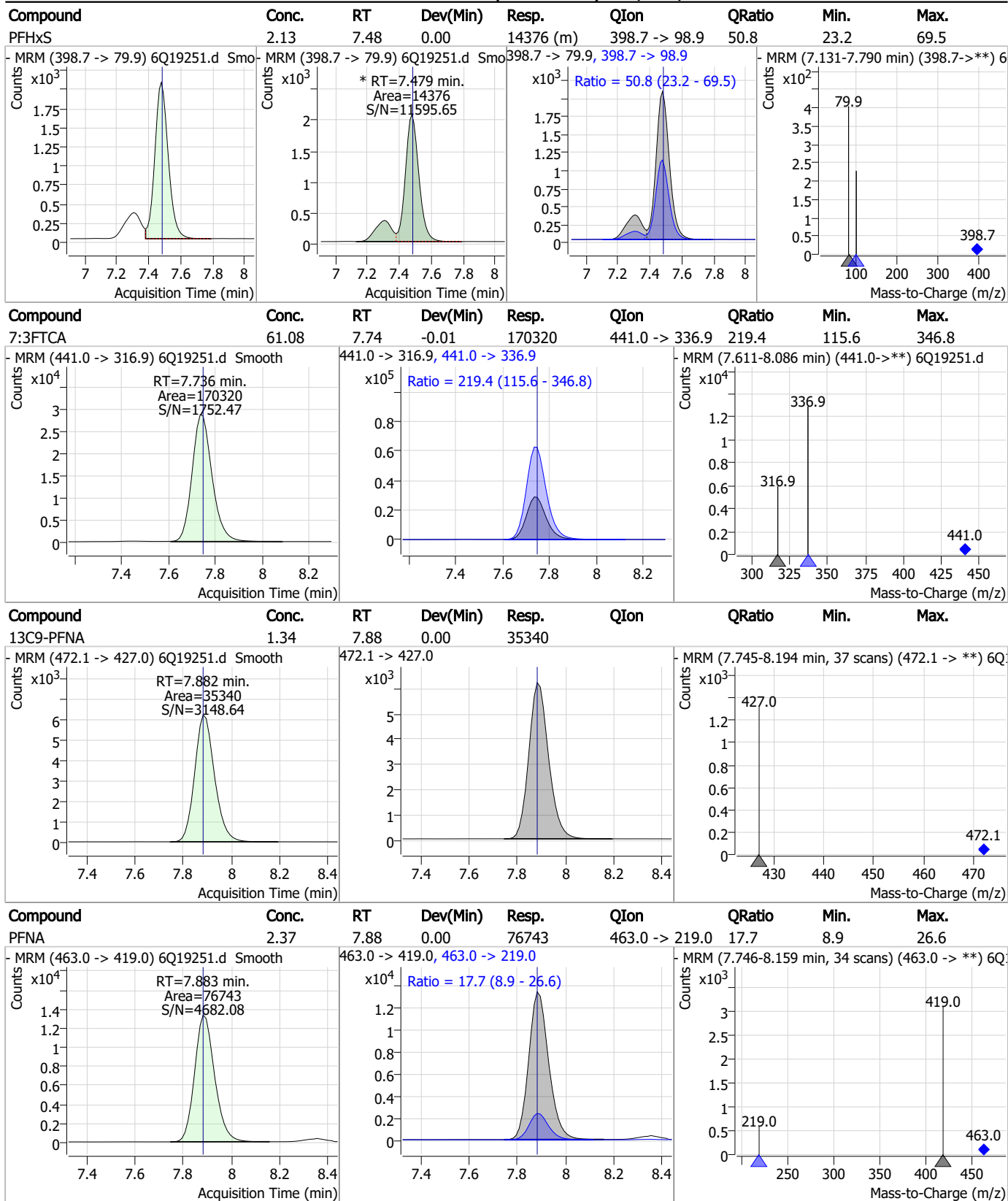


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



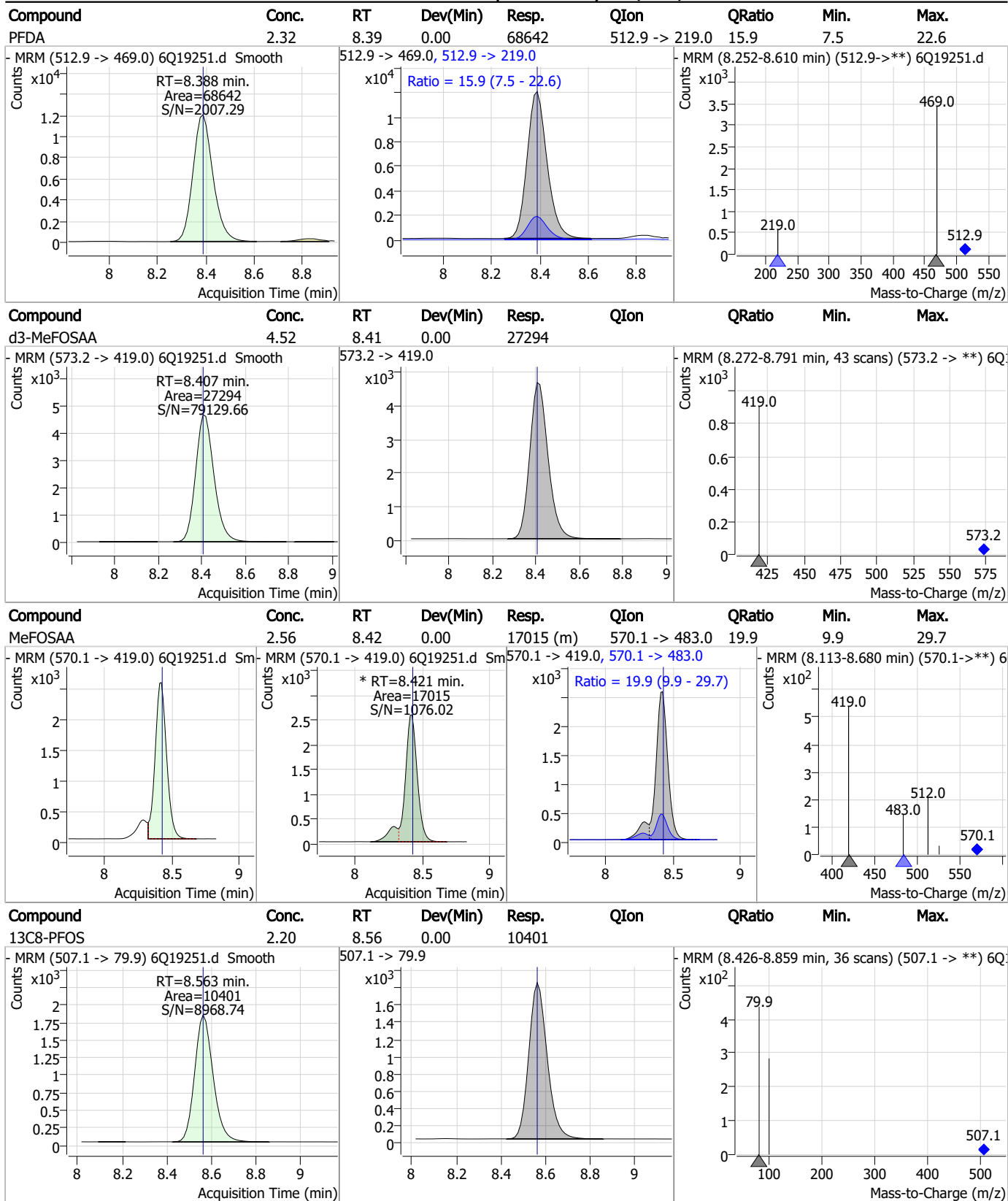
7.7.12
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Perfluorinated Compounds by LC/MS/MS

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

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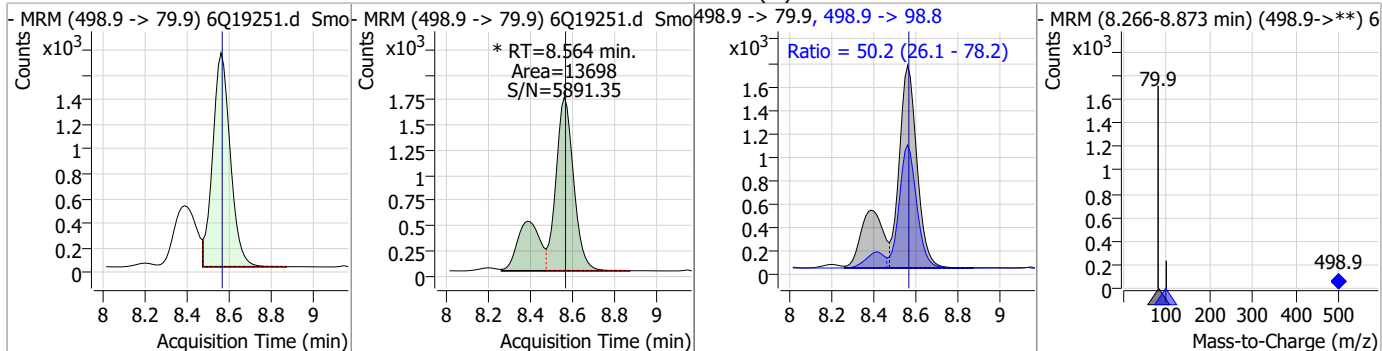
Perfluorinated Compounds by LC/MS/MS



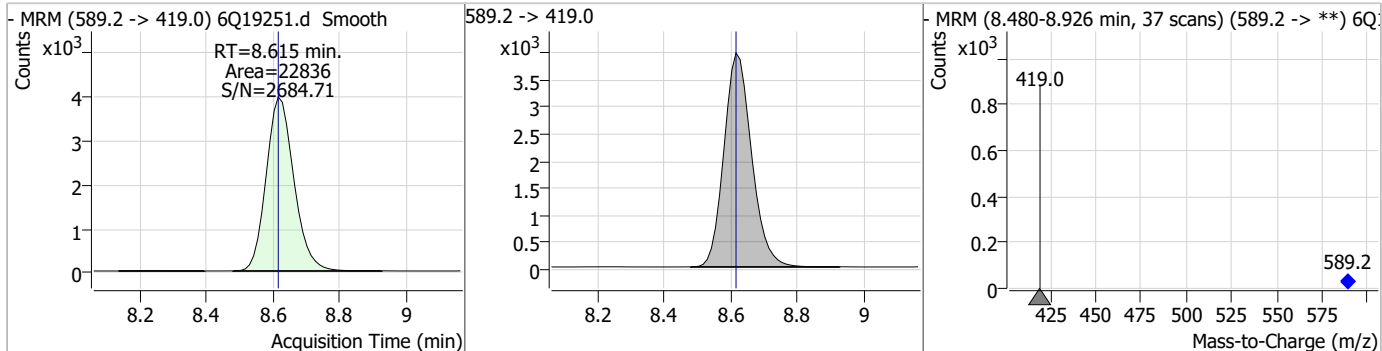
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Perfluorinated Compounds by LC/MS/MS

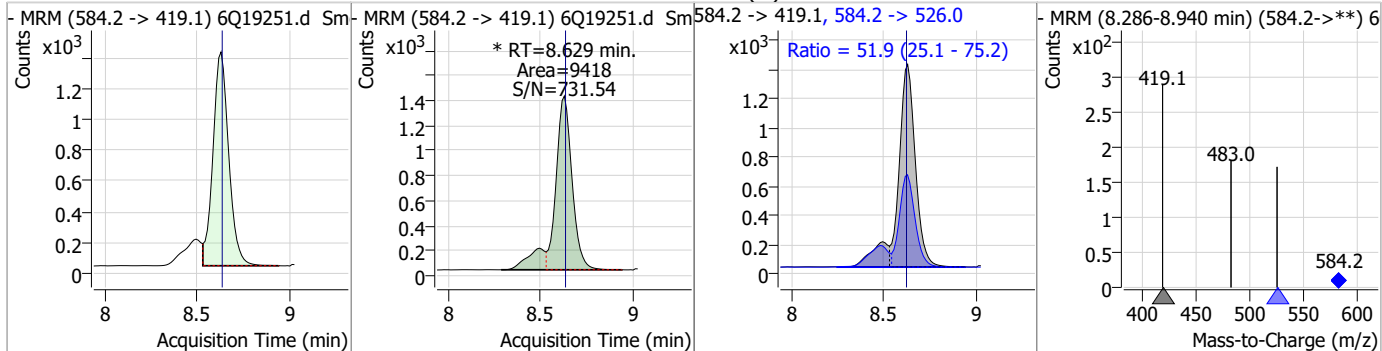
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.24	8.56	0.00	13698 (m)	498.9 -> 98.8	50.2	26.1	78.2



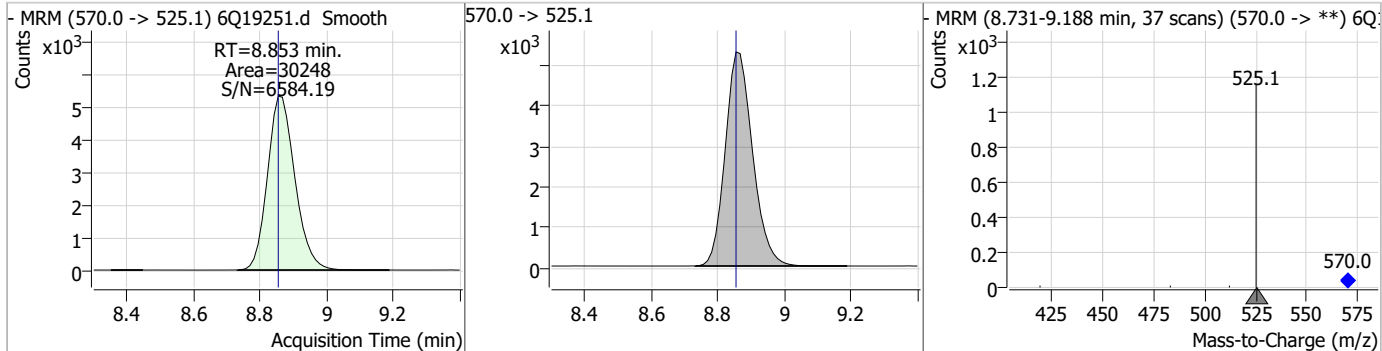
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.48	8.62	0.00	22836				



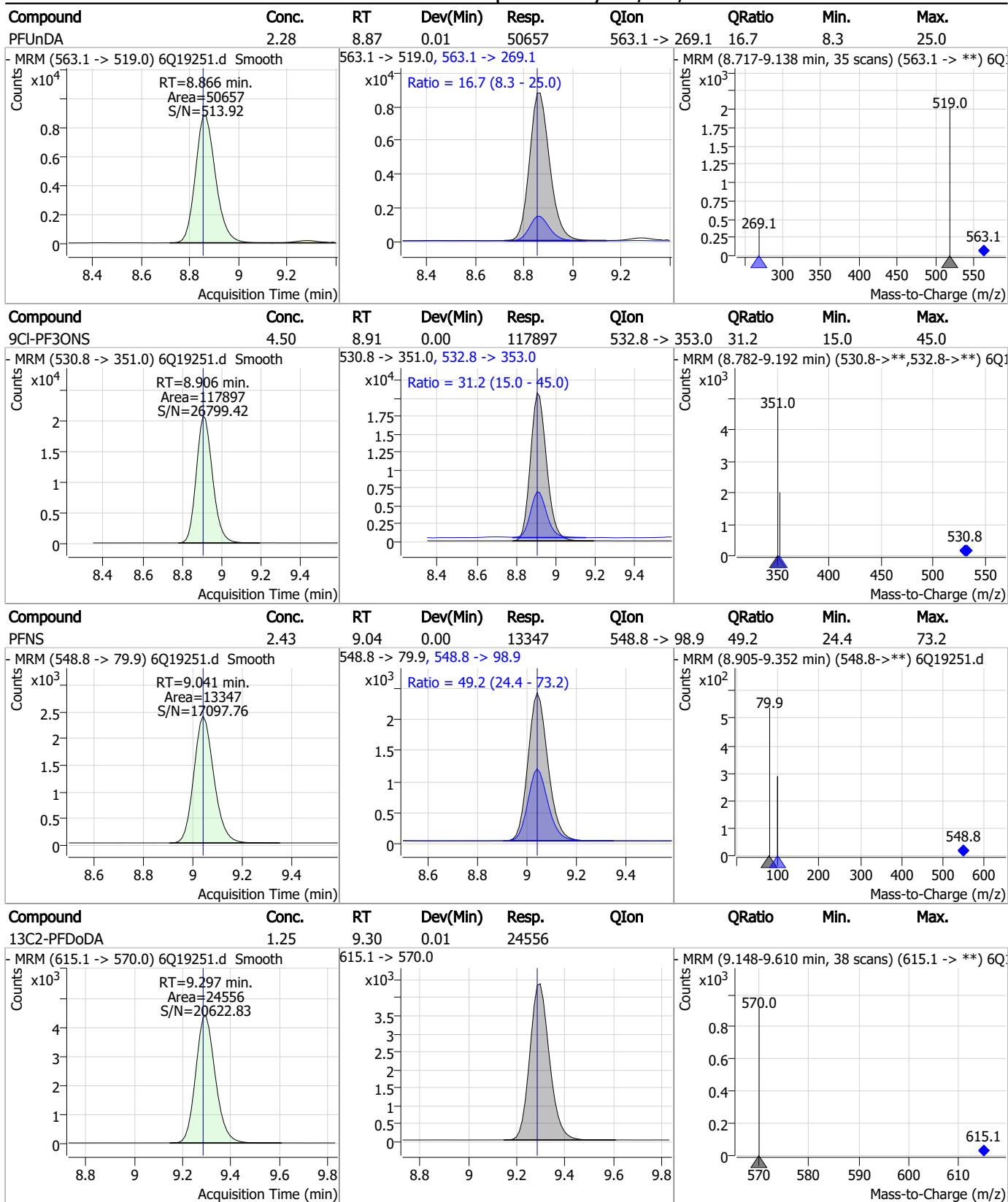
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.48	8.63	0.00	9418 (m)	584.2 -> 526.0	51.9	25.1	75.2



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



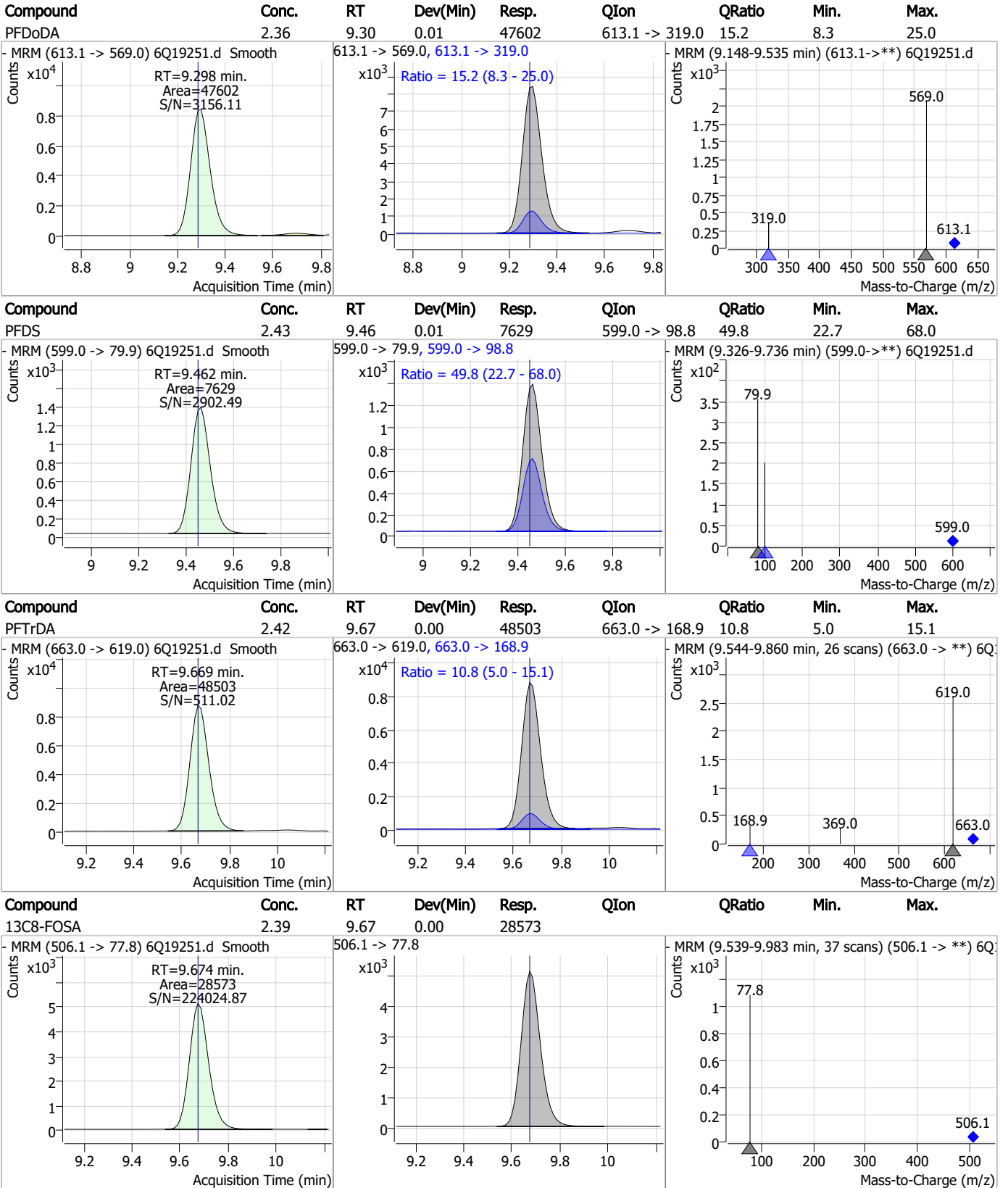
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

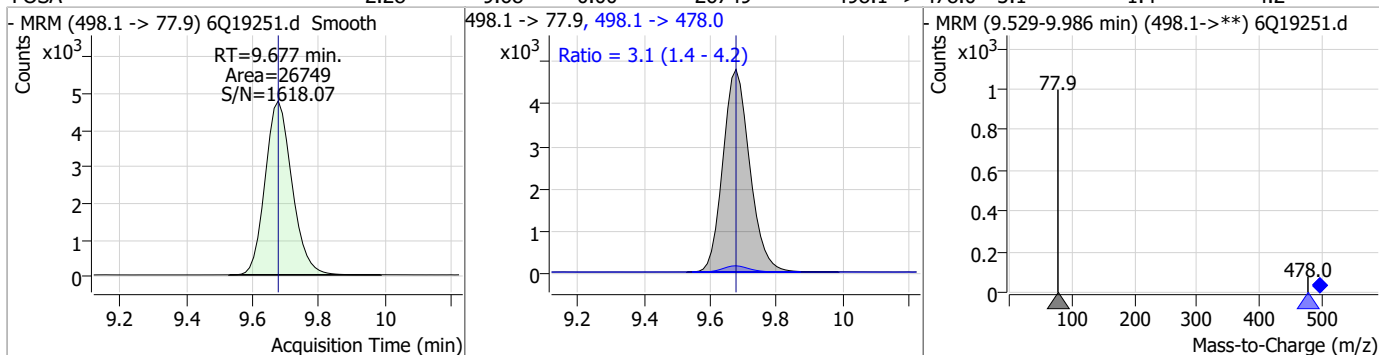


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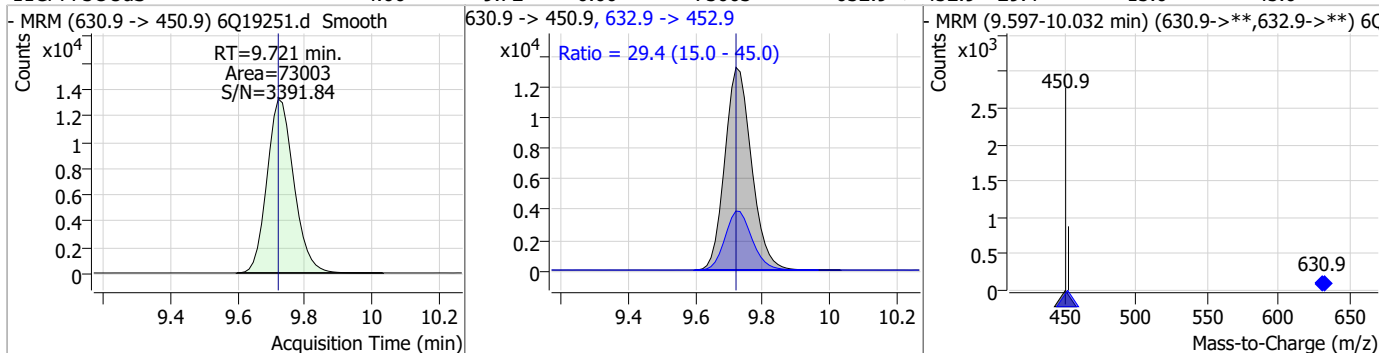


Perfluorinated Compounds by LC/MS/MS

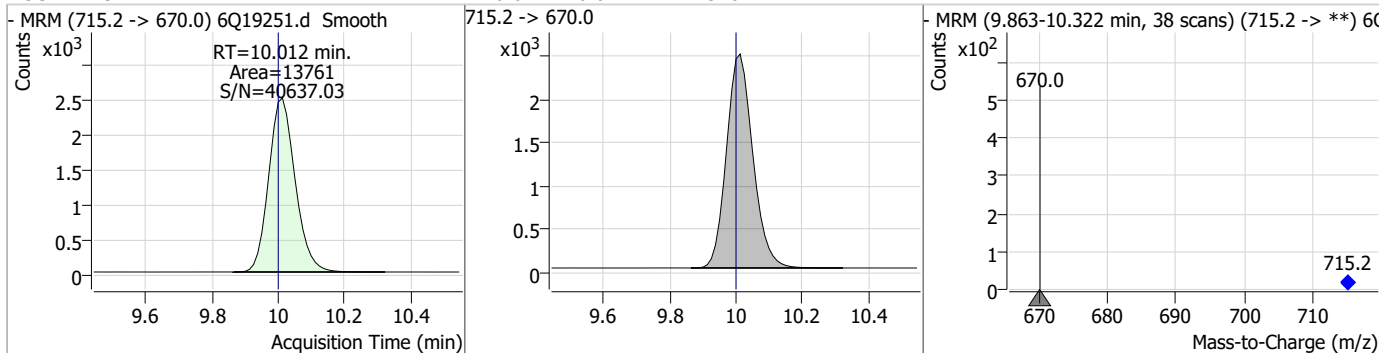
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.28	9.68	0.00	26749	498.1 -> 478.0	3.1	1.4	4.2



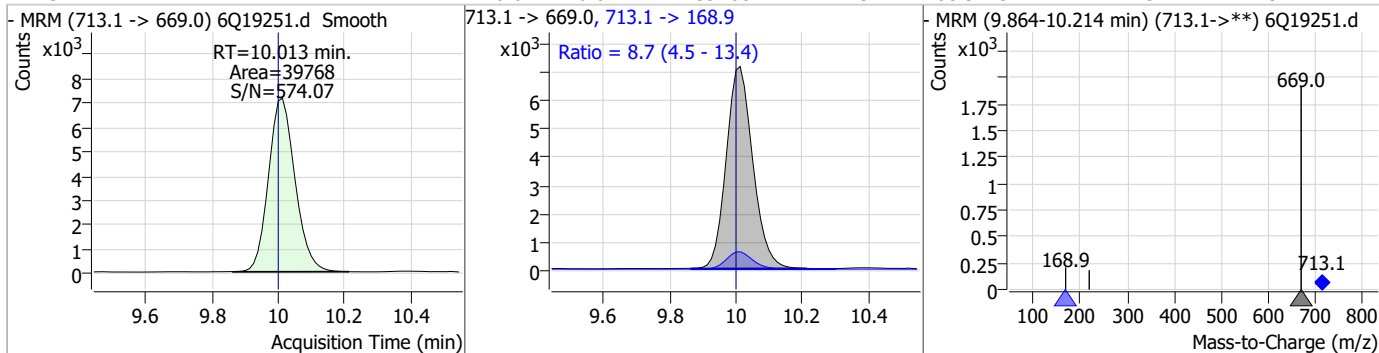
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	4.66	9.72	0.00	73003	632.9 -> 452.9	29.4	15.0	45.0



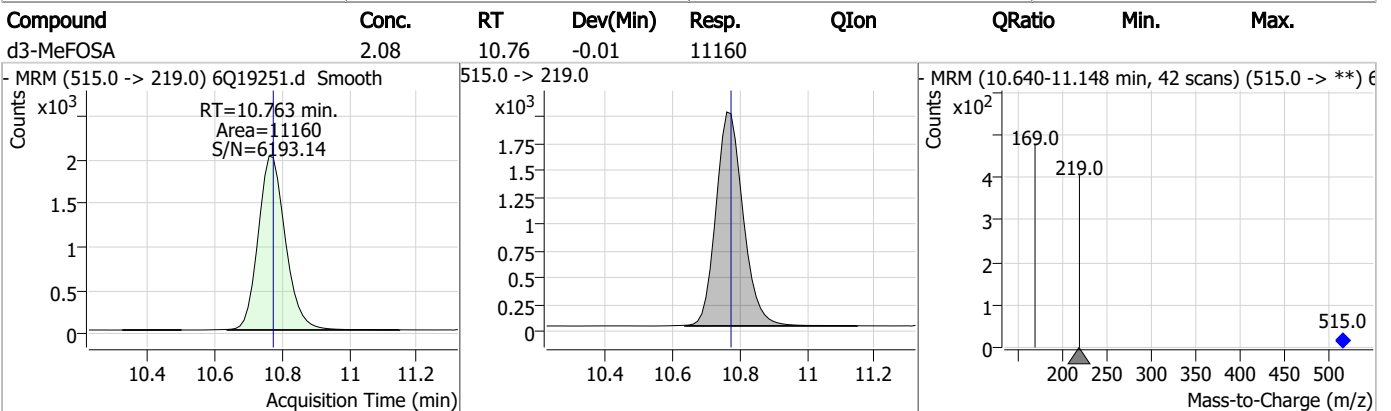
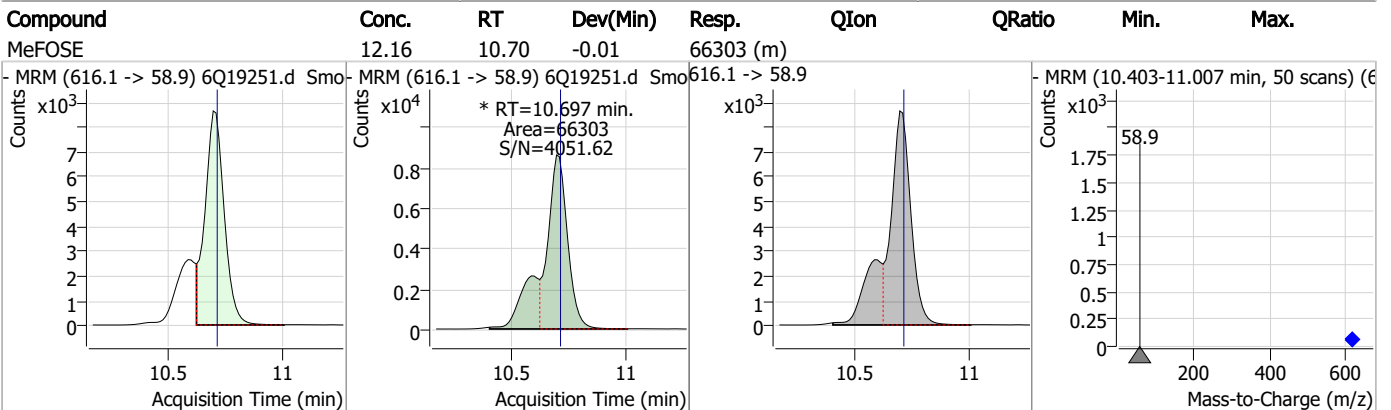
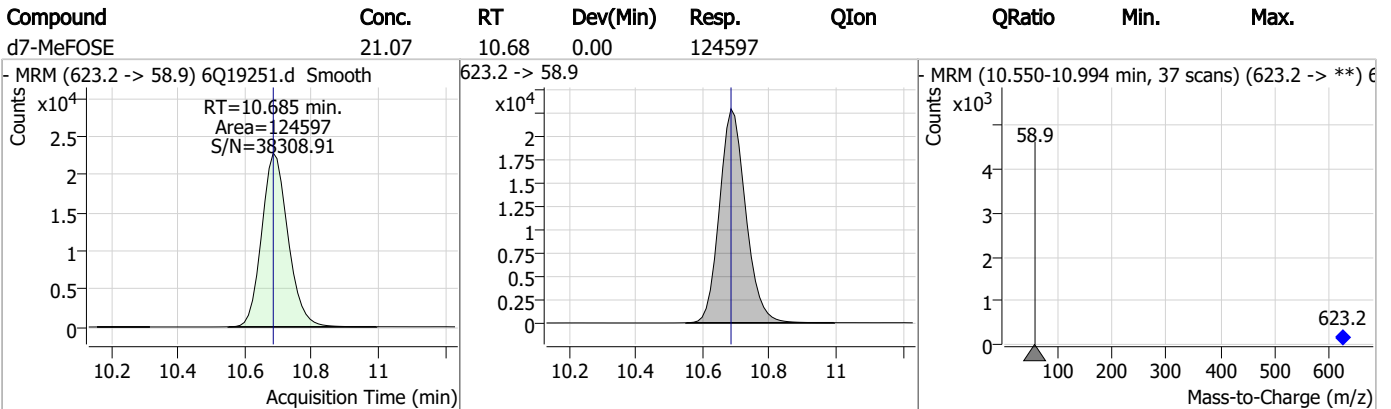
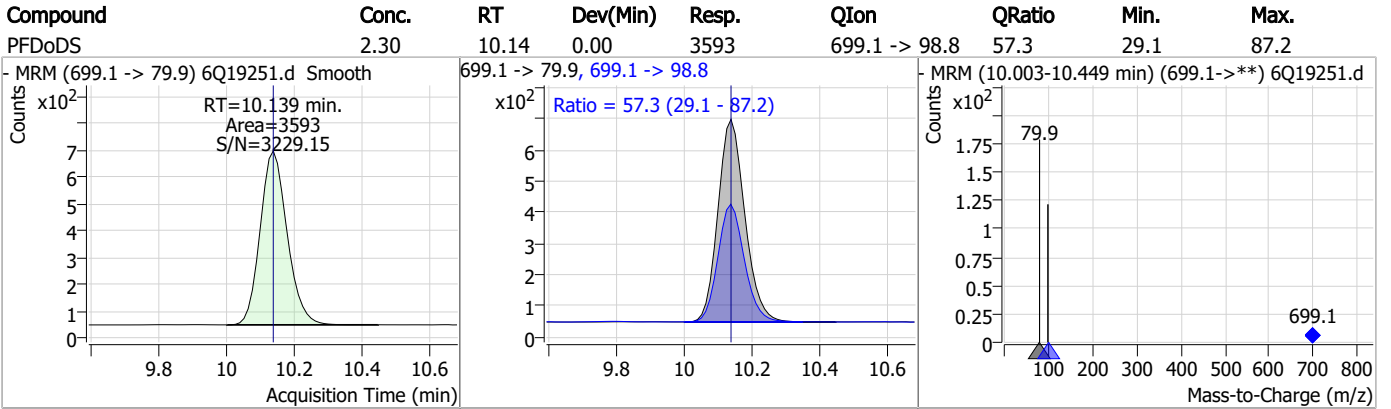
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	10.01	0.01	13761	715.2 -> 670.0	8.7	4.5	13.4



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

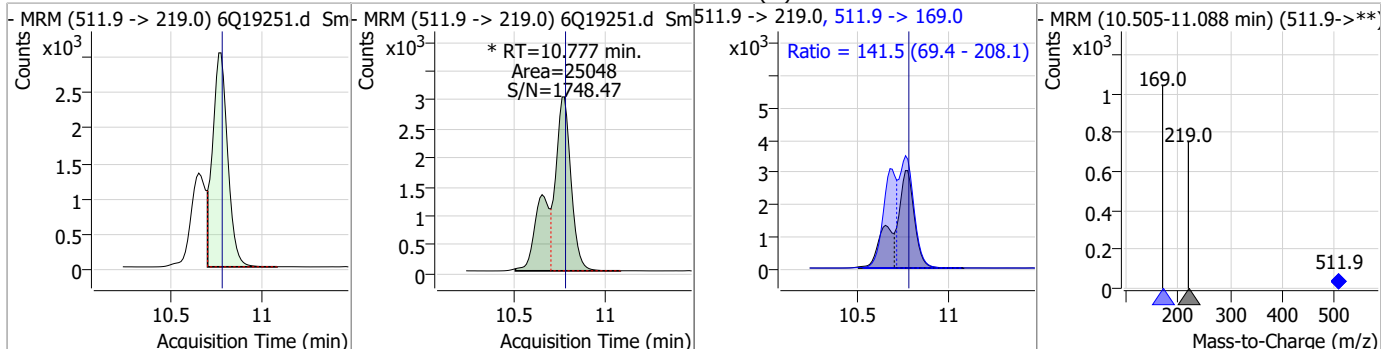


Perfluorinated Compounds by LC/MS/MS

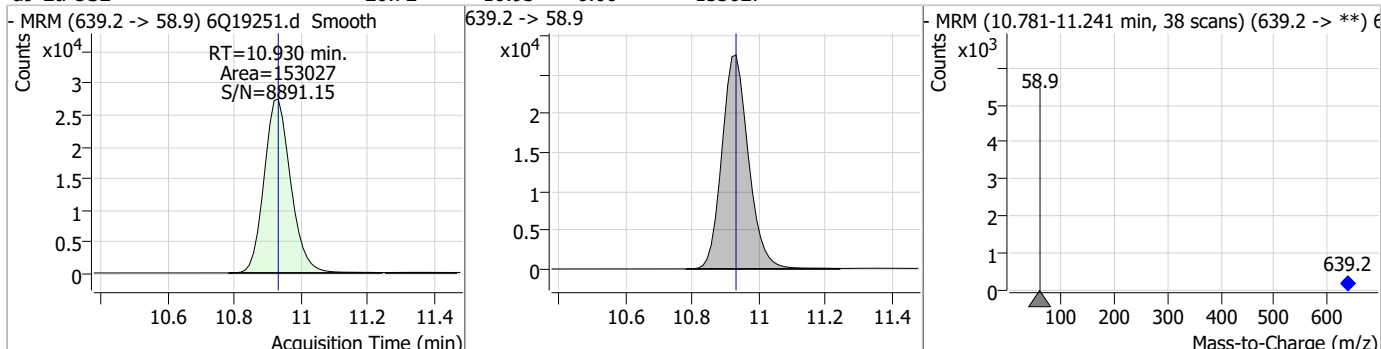


Perfluorinated Compounds by LC/MS/MS

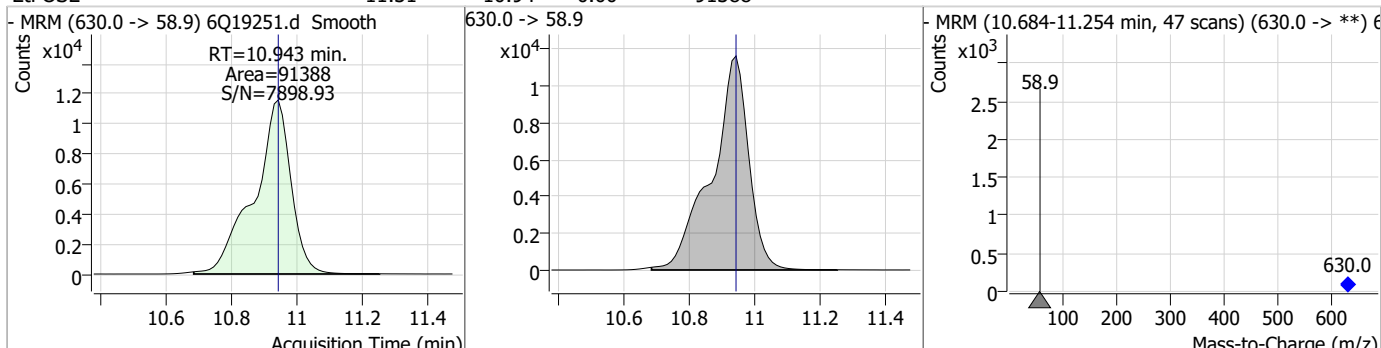
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.12	10.78	0.00	25048 (m)	511.9 -> 169.0	141.5	69.4	208.1



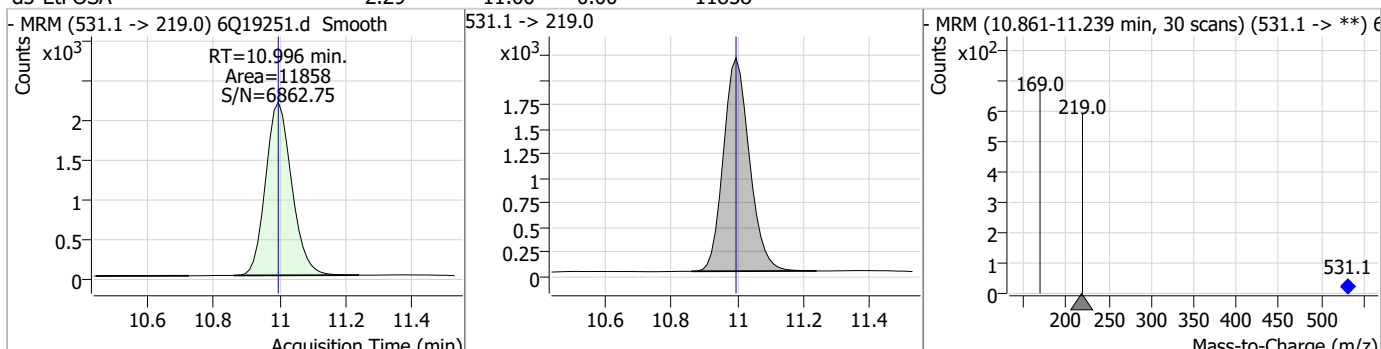
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.72	10.93	0.00	153027				



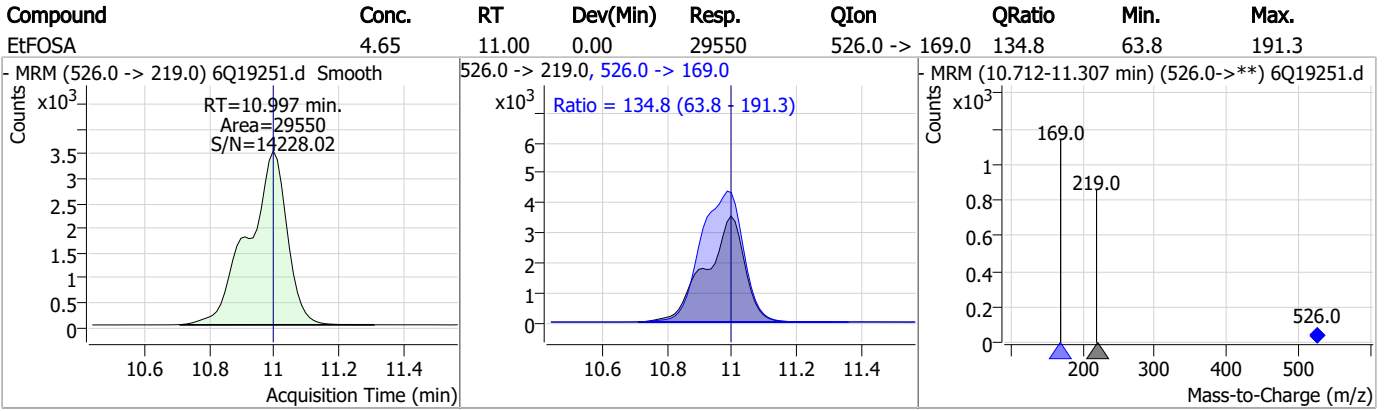
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.31	10.94	0.00	91388				



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



Perfluorinated Compounds by LC/MS/MS



7.7.12

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Manual Integration Approval Summary

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

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

7.7.12.1
7

Perfluorinated Compounds by LC/MS/MS

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

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

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

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Perfluorinated Compounds by LC/MS/MS

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

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



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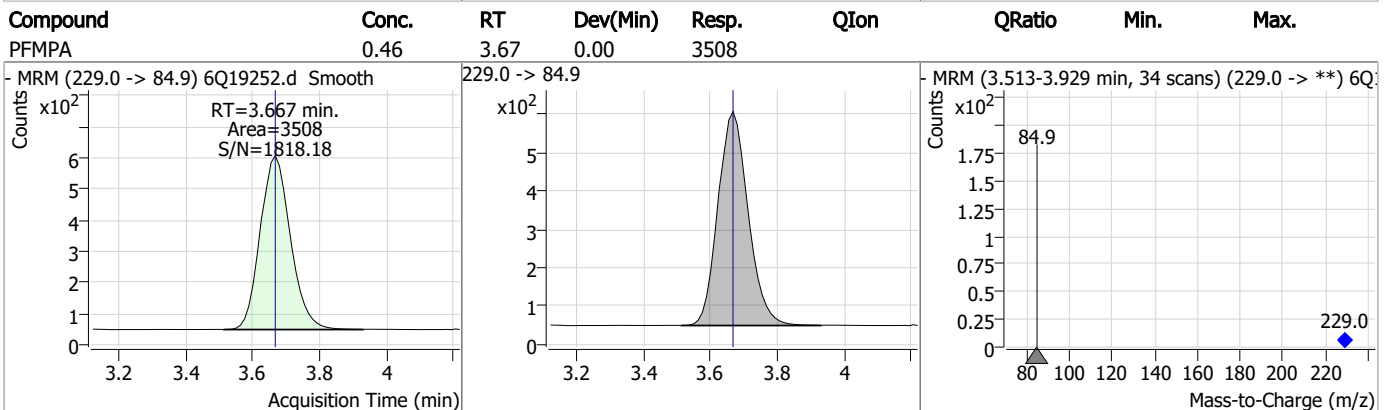
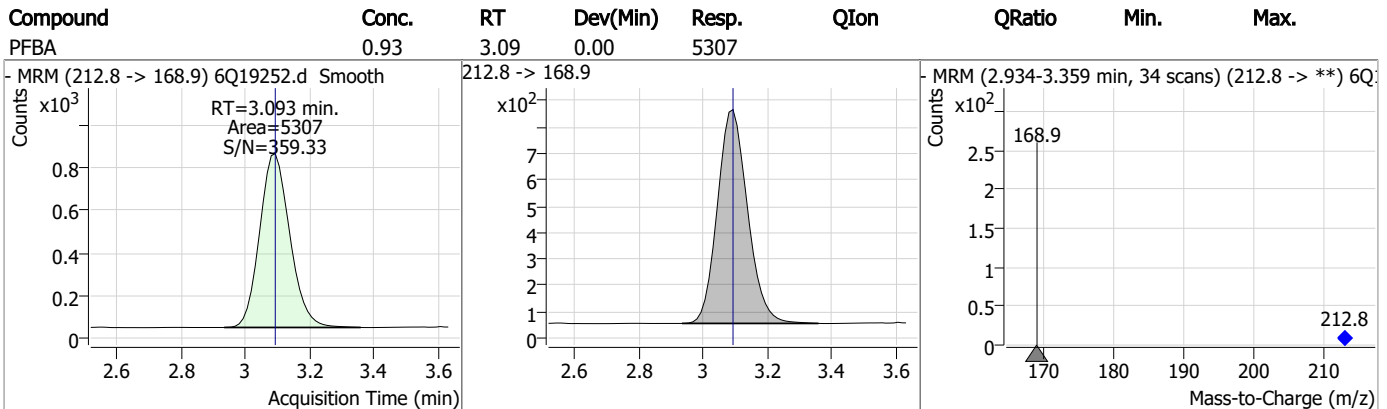
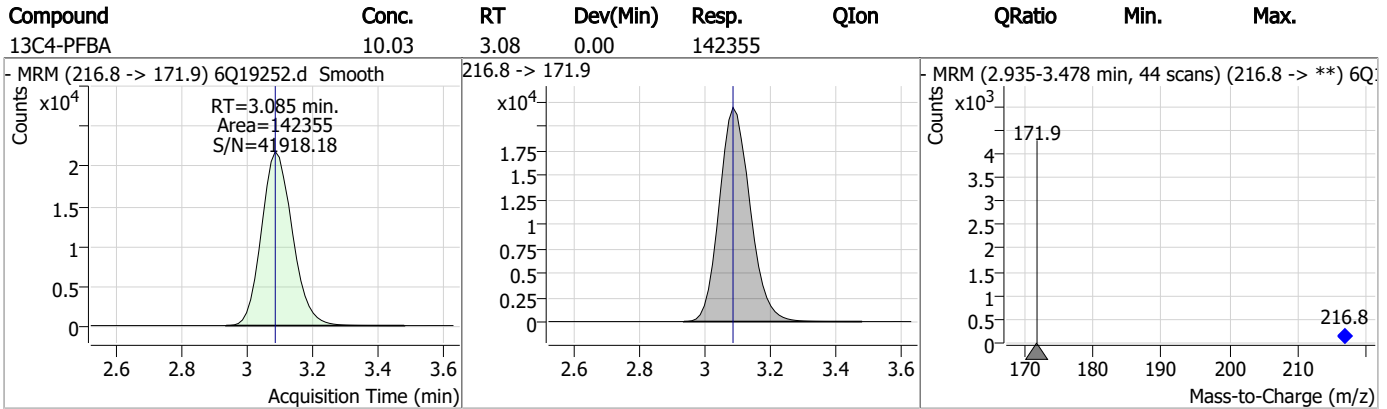
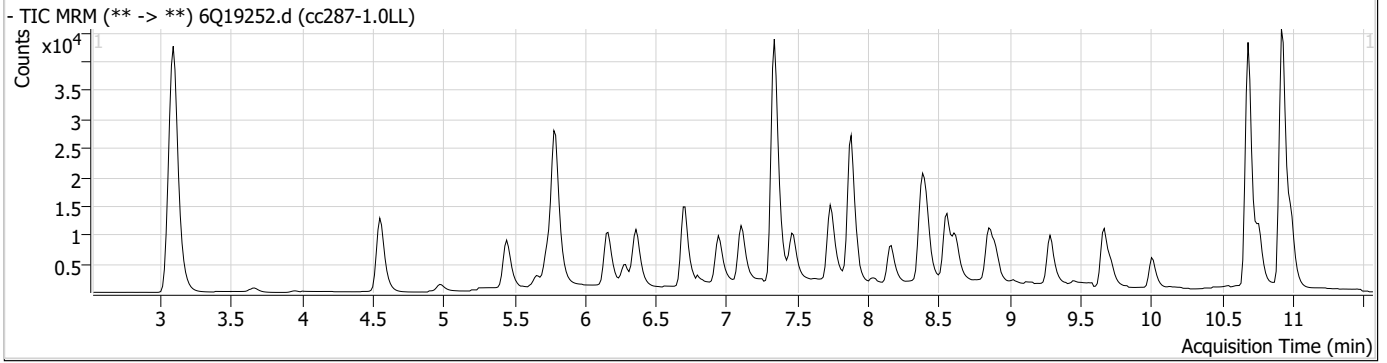
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.13

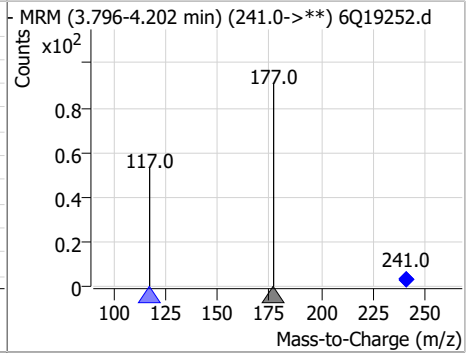
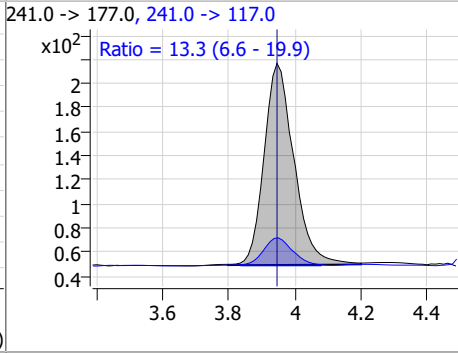
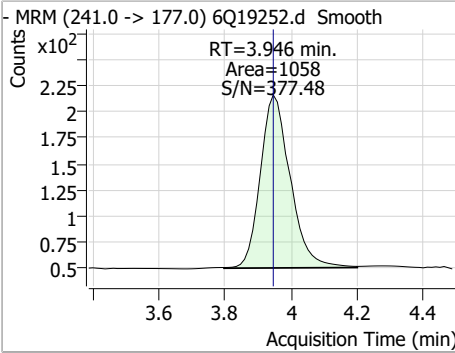
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Perfluorinated Compounds by LC/MS/MS

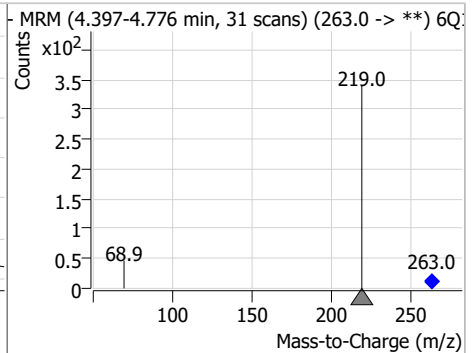
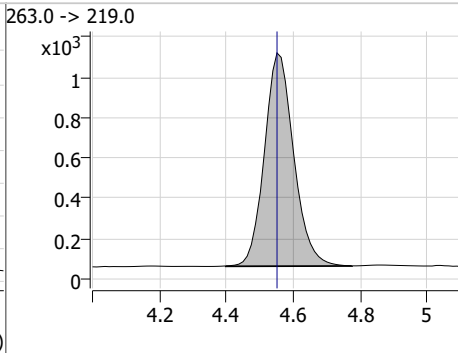
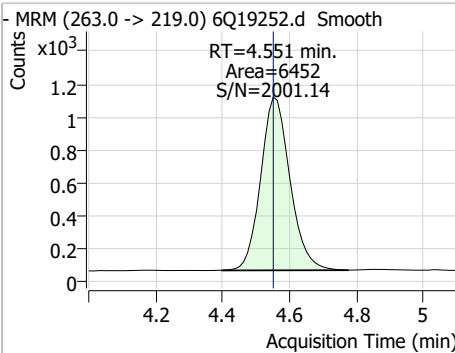


Perfluorinated Compounds by LC/MS/MS

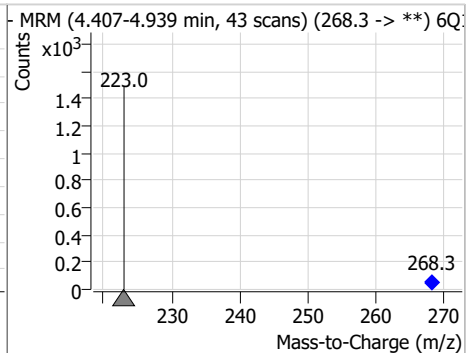
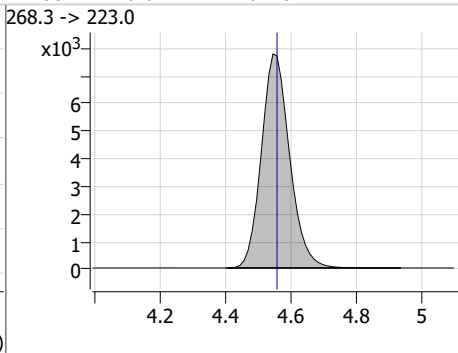
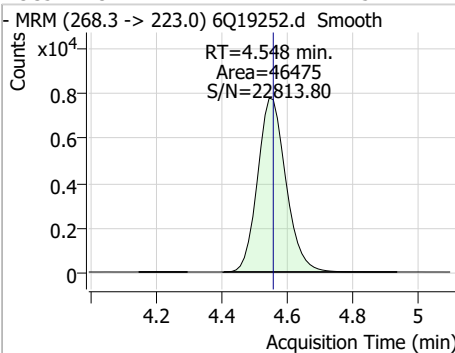
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	1.13	3.95	0.00	1058	241.0 -> 117.0	13.3	6.6	19.9



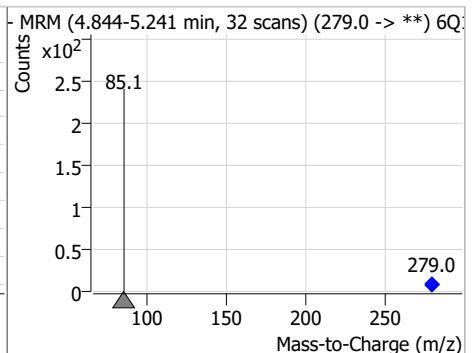
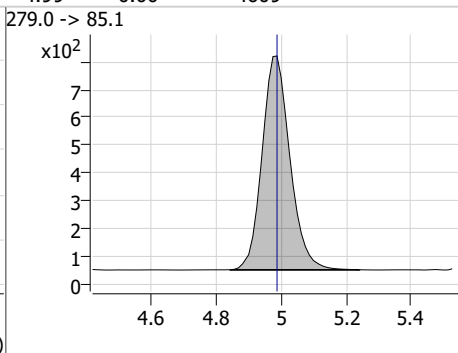
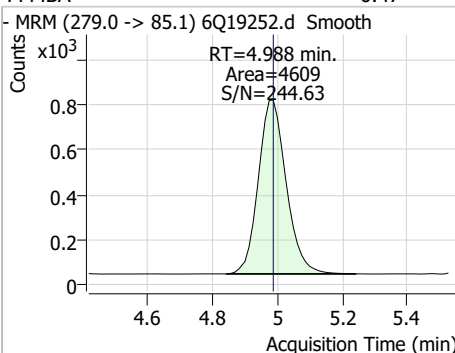
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.47	4.55	0.00	6452				



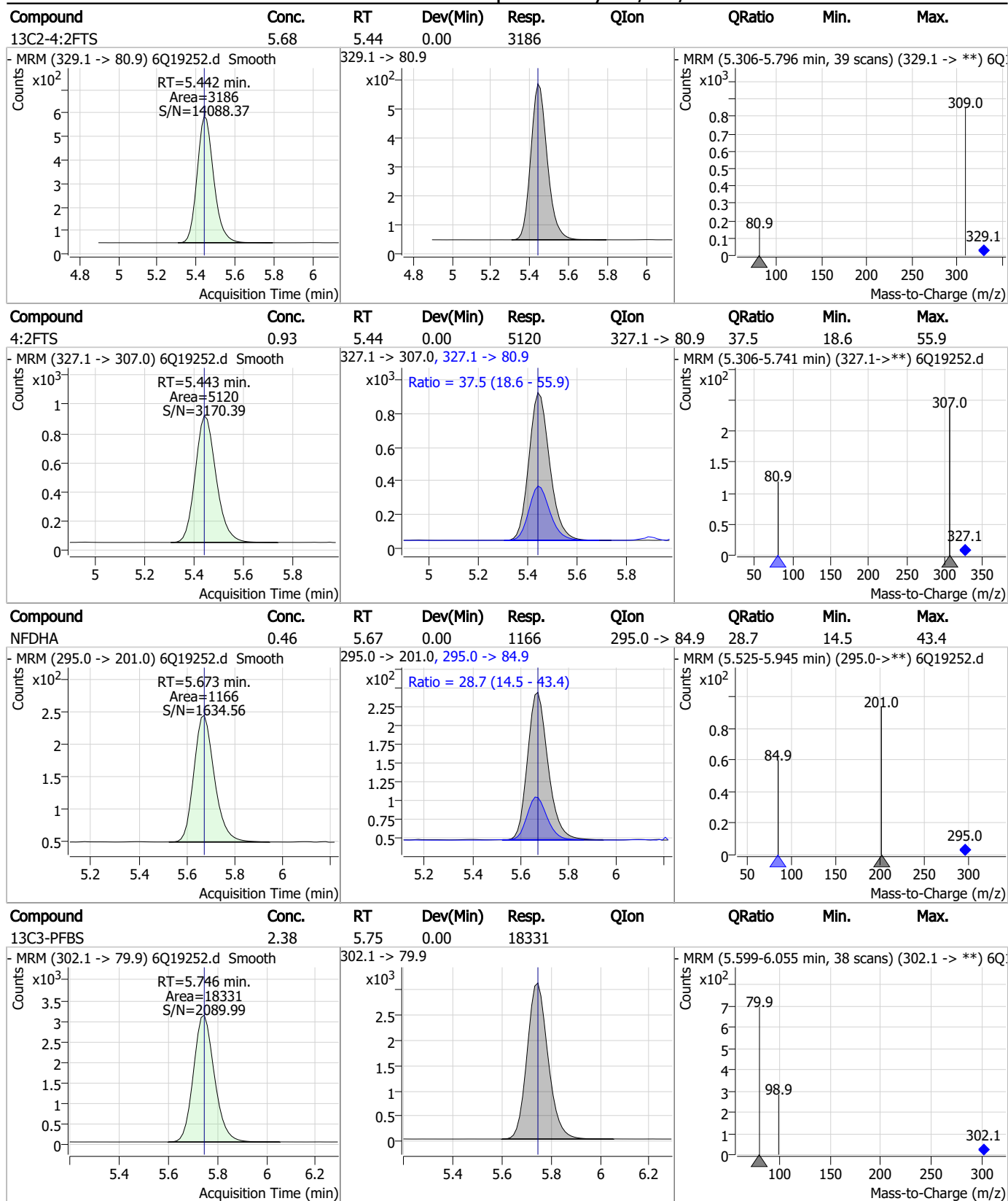
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.27	4.55	-0.01	46475				



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



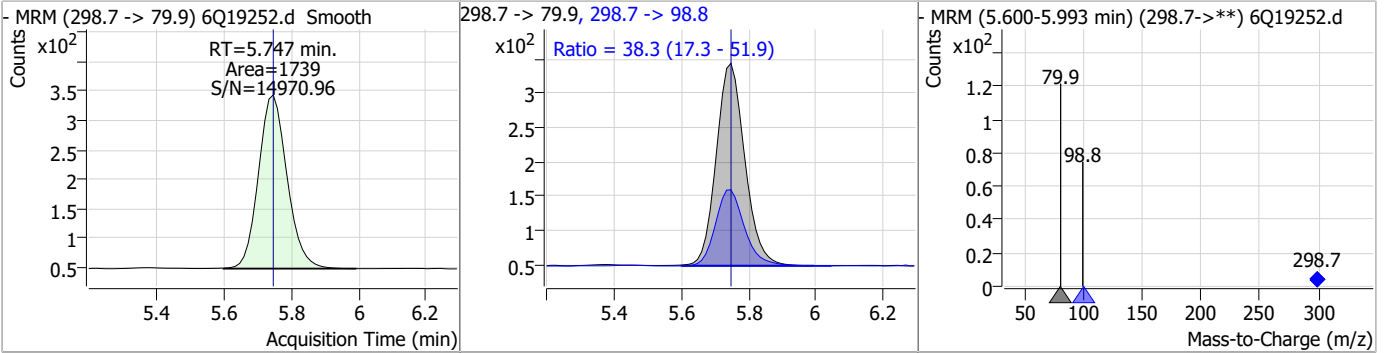
Perfluorinated Compounds by LC/MS/MS



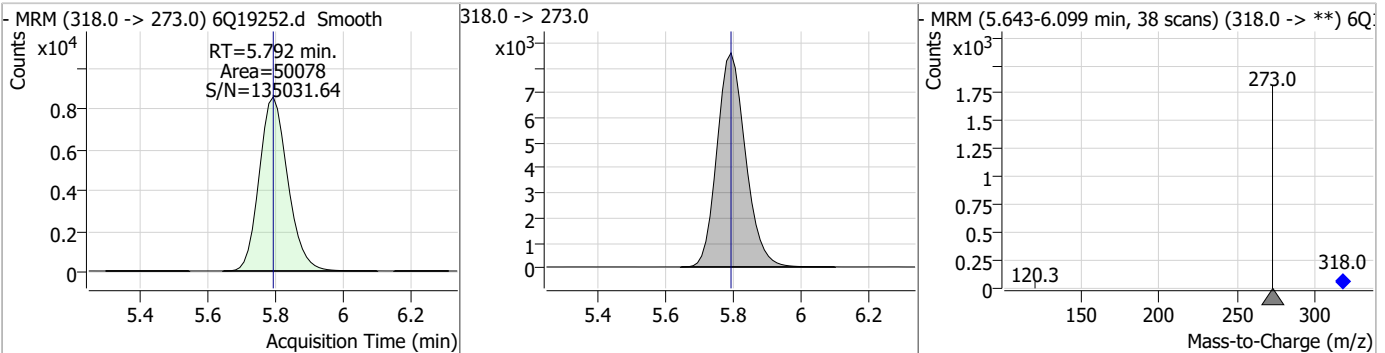
7.7.13
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Perfluorinated Compounds by LC/MS/MS

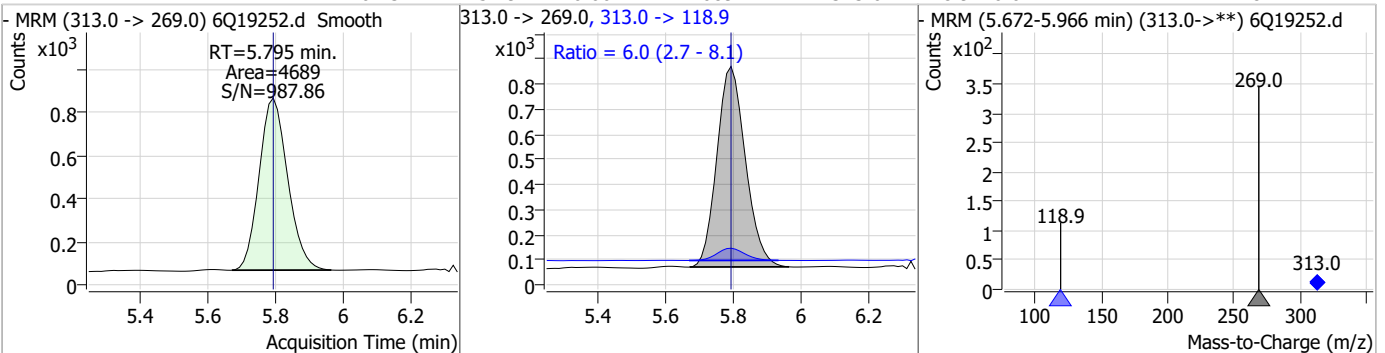
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.22	5.75	0.00	1739	298.7 -> 98.8	38.3	17.3	51.9



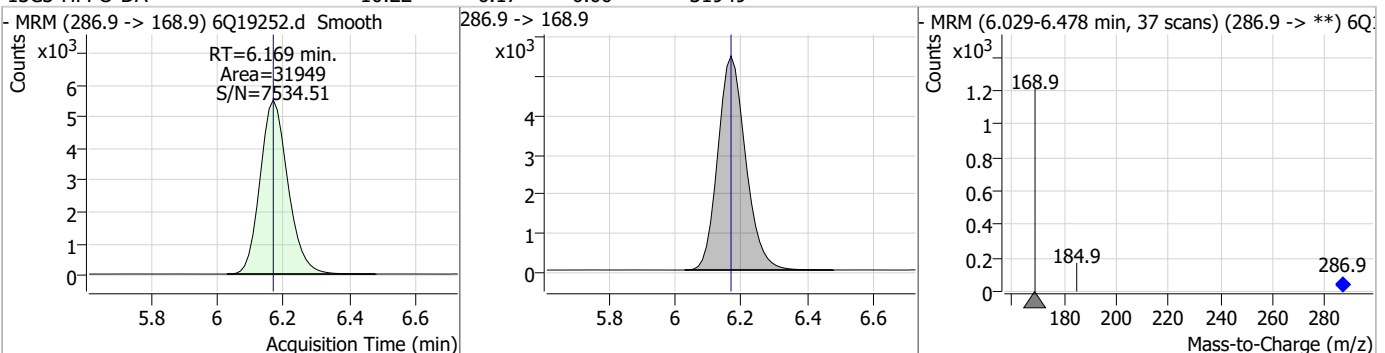
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.54	5.79	0.00	50078				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.23	5.79	0.00	4689	313.0 -> 118.9	6.0	2.7	8.1

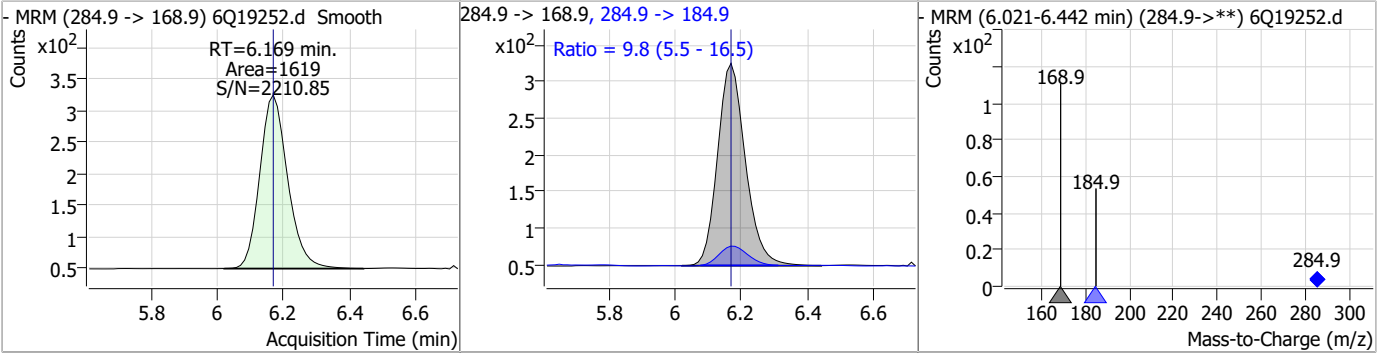


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.22	6.17	0.00	31949				

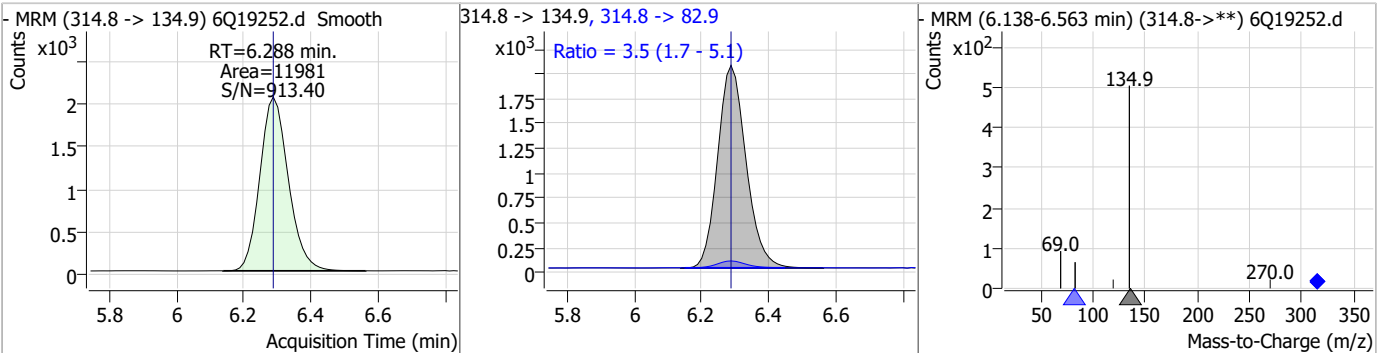


Perfluorinated Compounds by LC/MS/MS

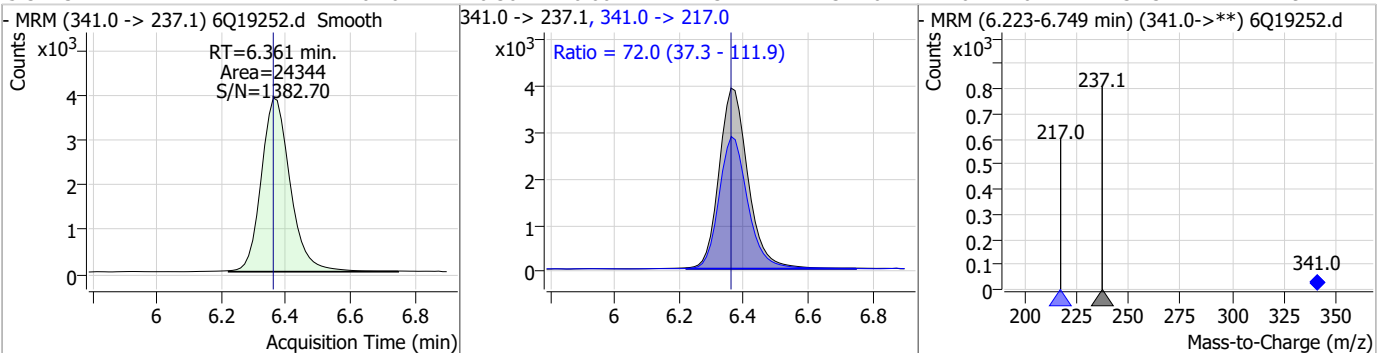
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.46	6.17	0.00	1619	284.9 -> 184.9	9.8	5.5	16.5



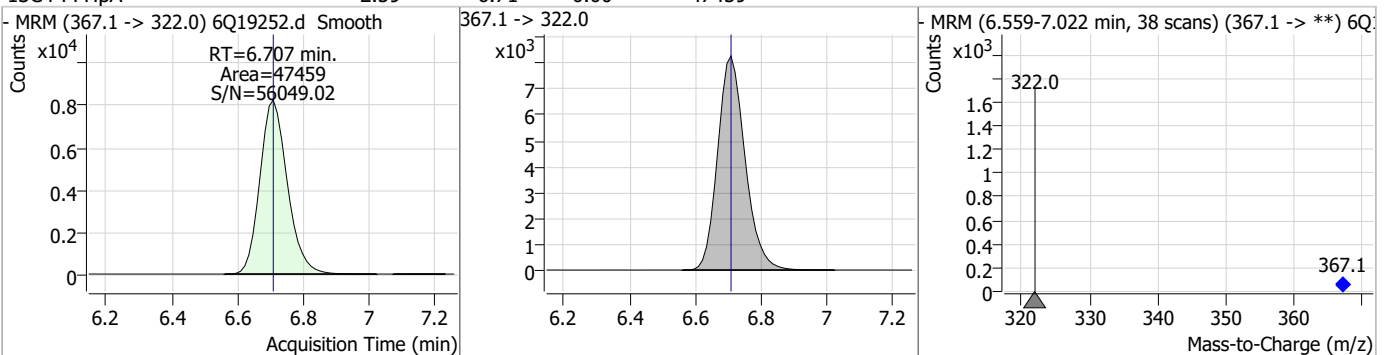
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.49	6.29	0.00	11981	314.8 -> 82.9	3.5	1.7	5.1



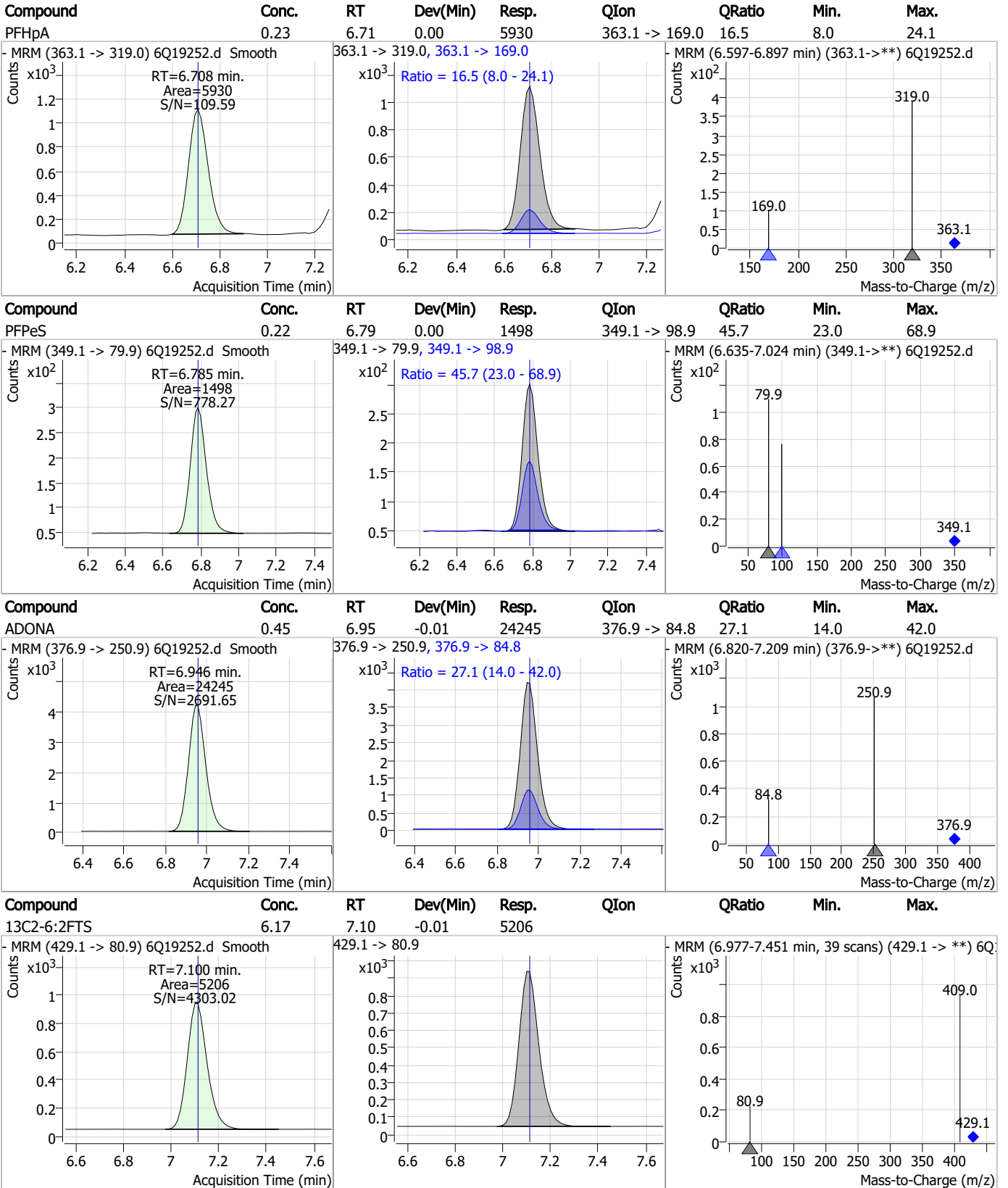
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	6.26	6.36	0.00	24344	341.0 -> 217.0	72.0	37.3	111.9



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



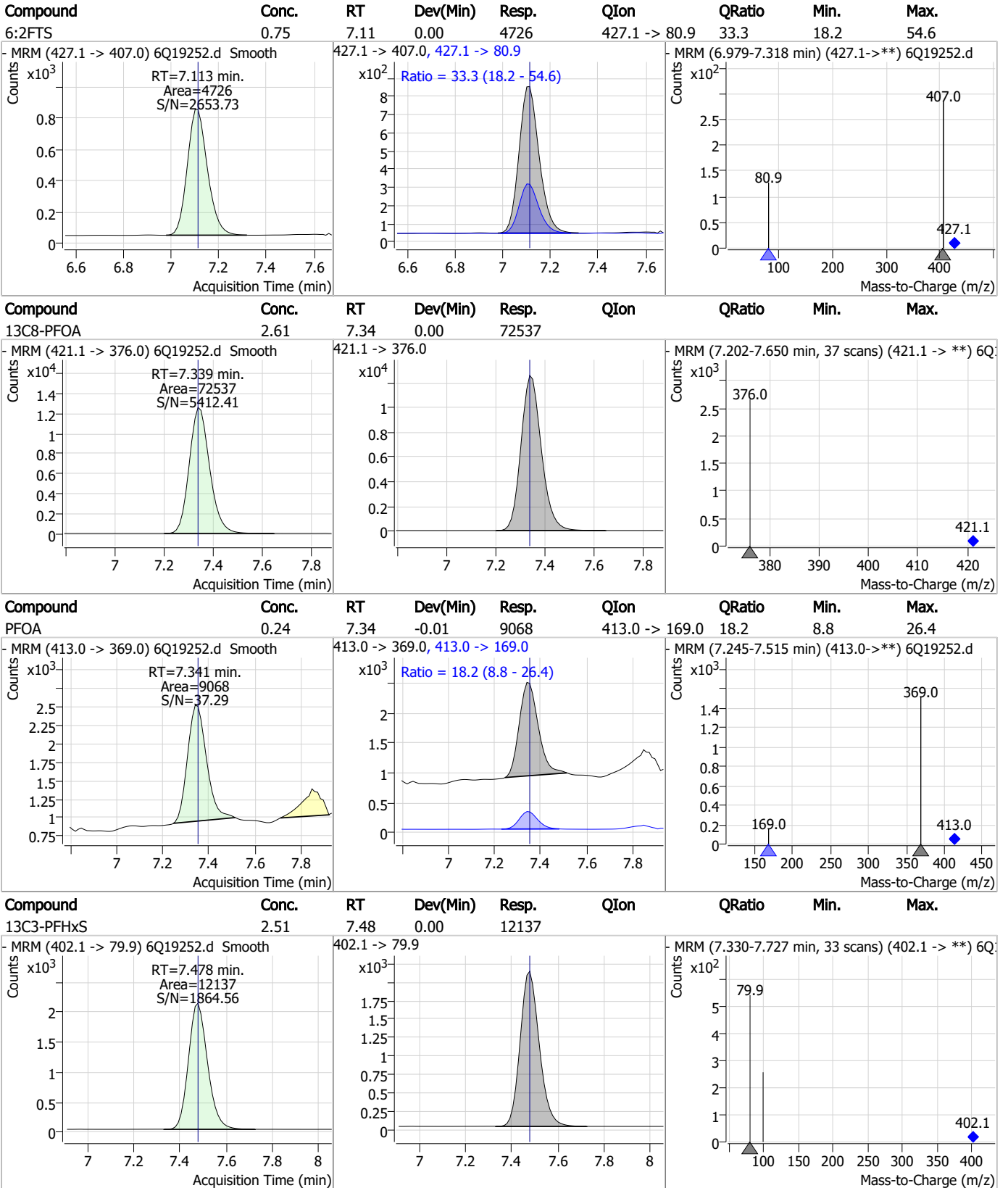
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

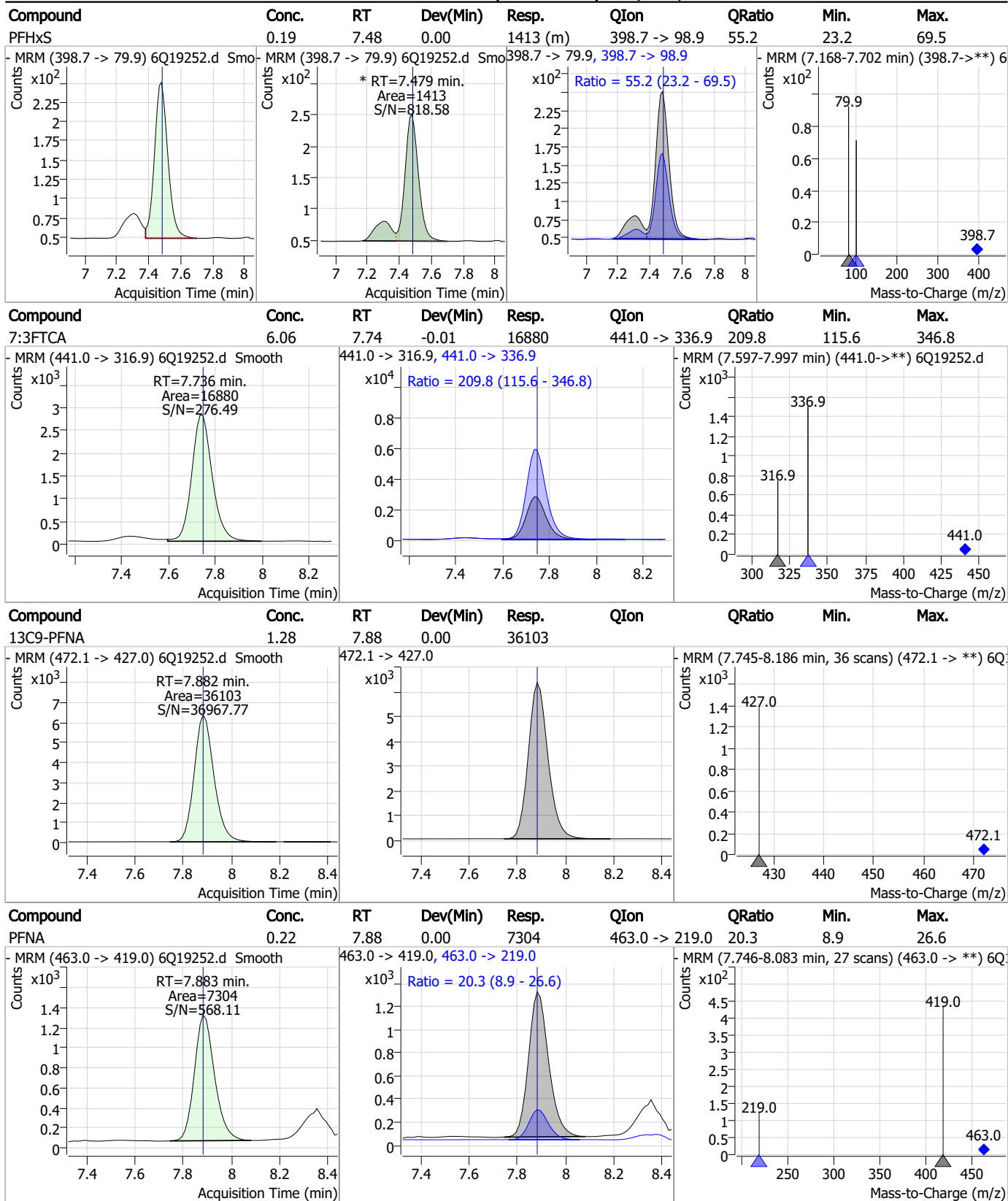


7.7.13

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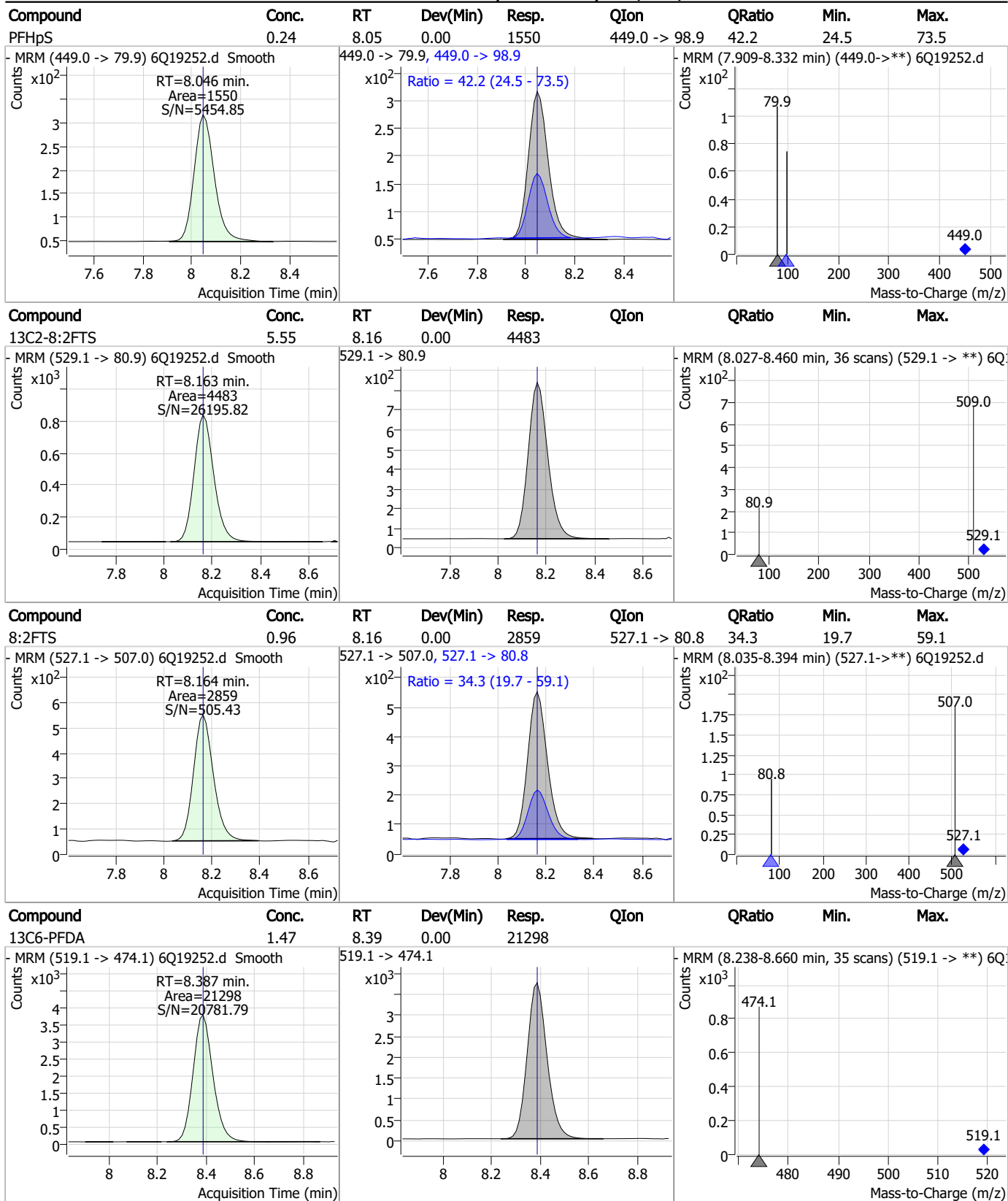


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

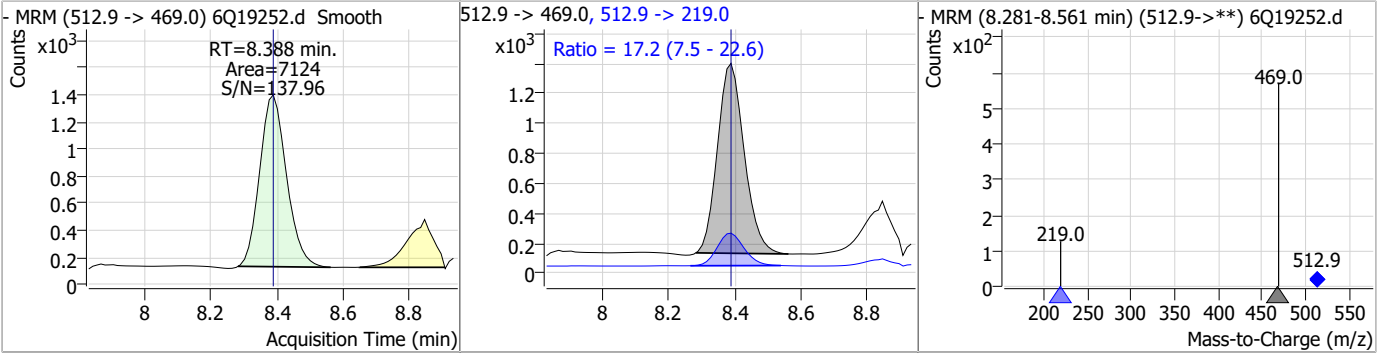


7.7.13

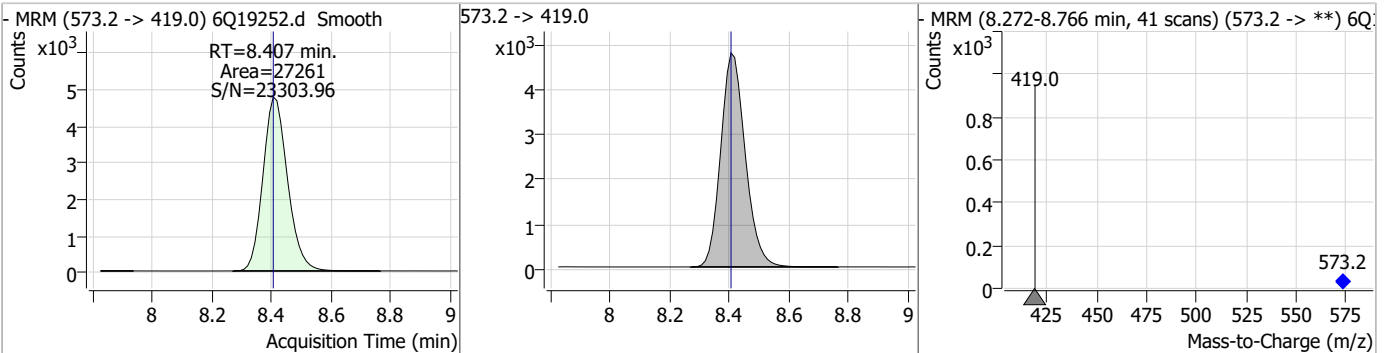
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Perfluorinated Compounds by LC/MS/MS

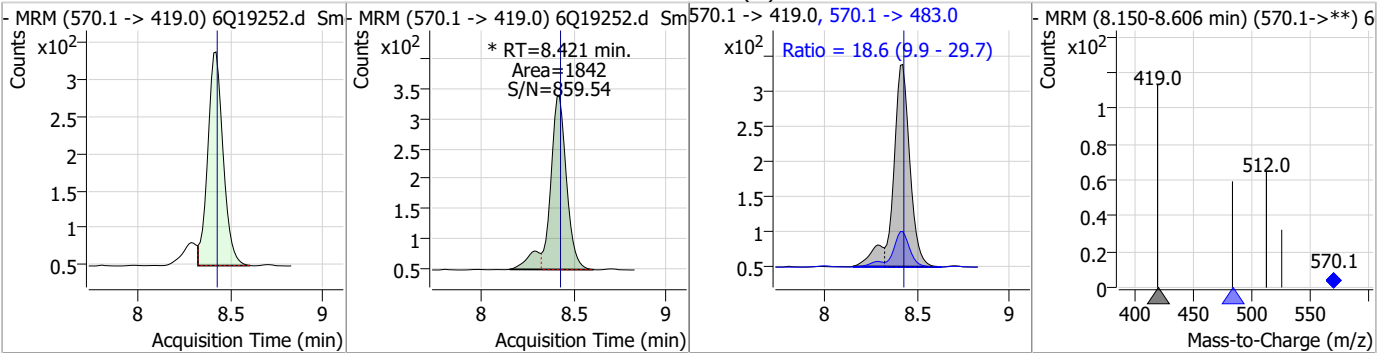
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.22	8.39	0.00	7124	512.9 -> 219.0	17.2	7.5	22.6



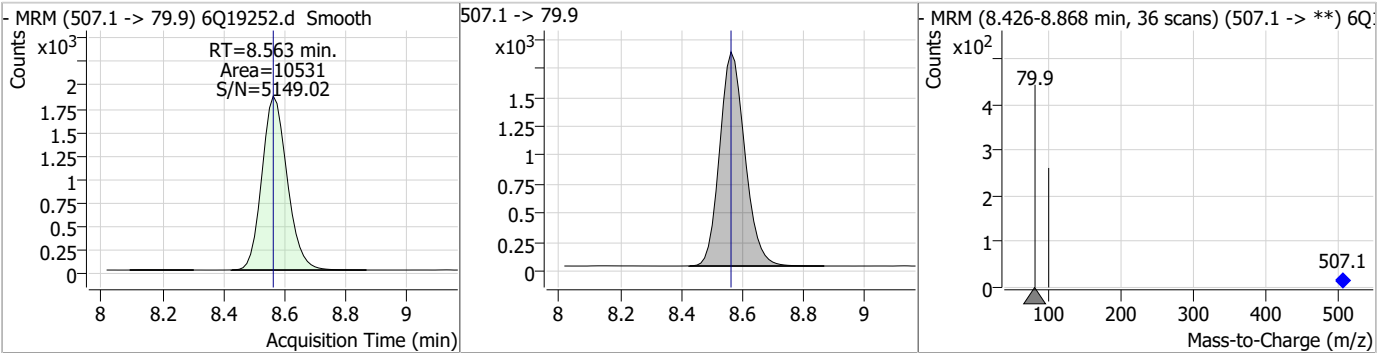
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.95	8.41	0.00	27261				



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

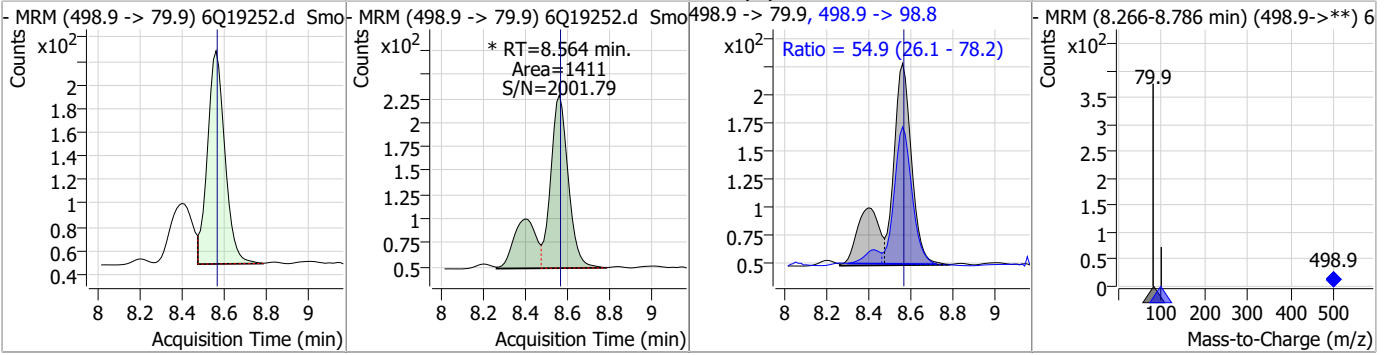


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.45	8.56	0.00	10531				

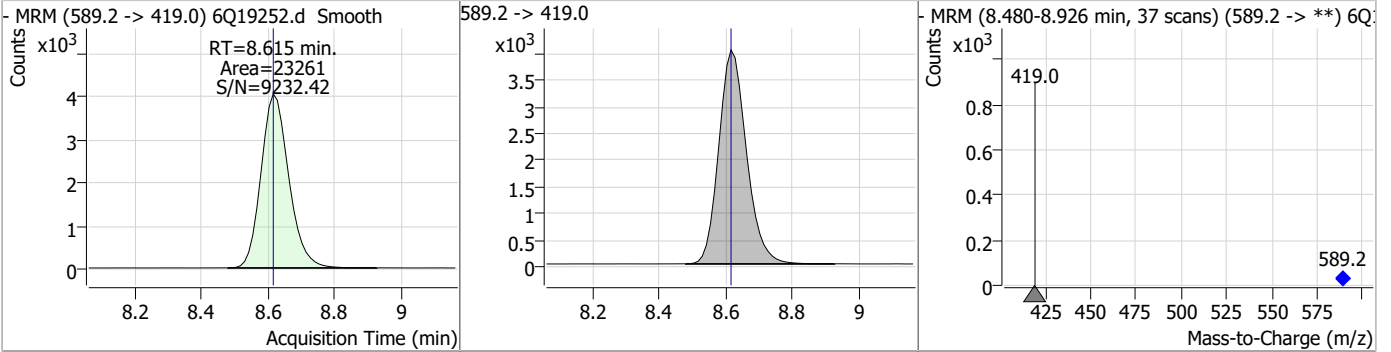


Perfluorinated Compounds by LC/MS/MS

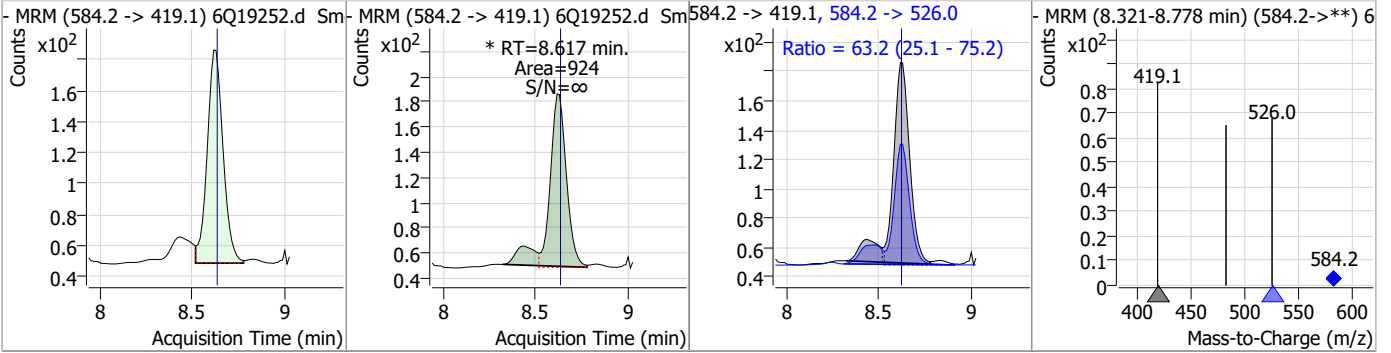
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.23	8.56	0.00	1411 (m)	498.9 -> 98.8	54.9	26.1	78.2



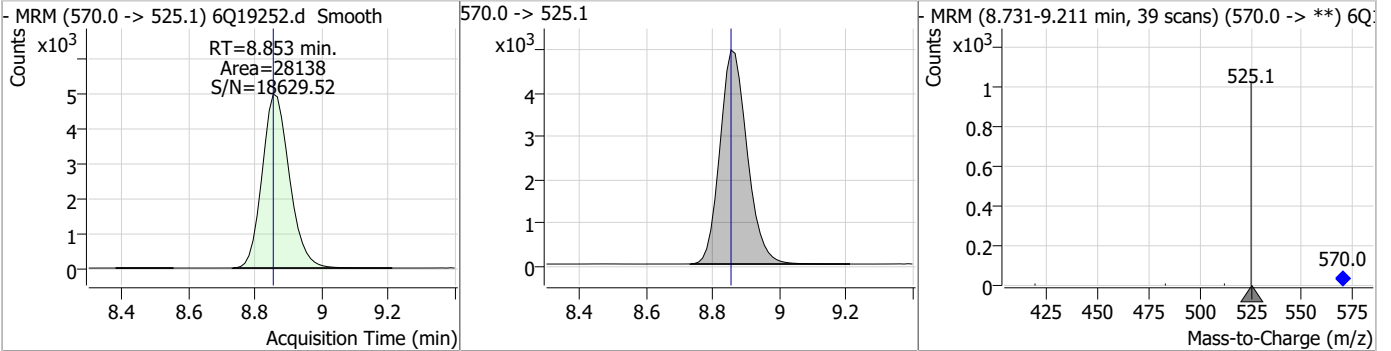
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.01	8.62	0.00	23261				



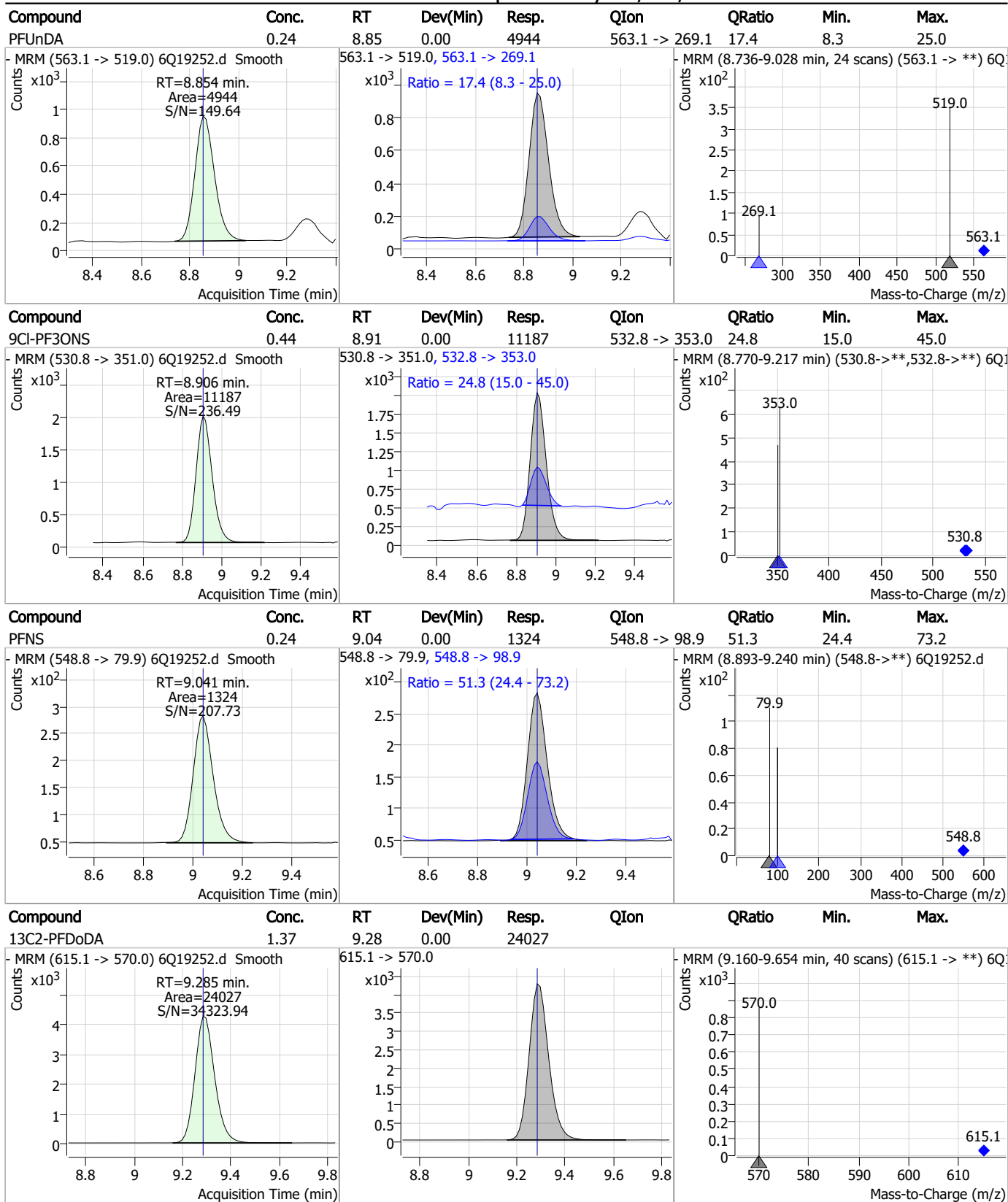
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.24	8.62	-0.01	924 (m)	584.2 -> 526.0	63.2	25.1	75.2



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



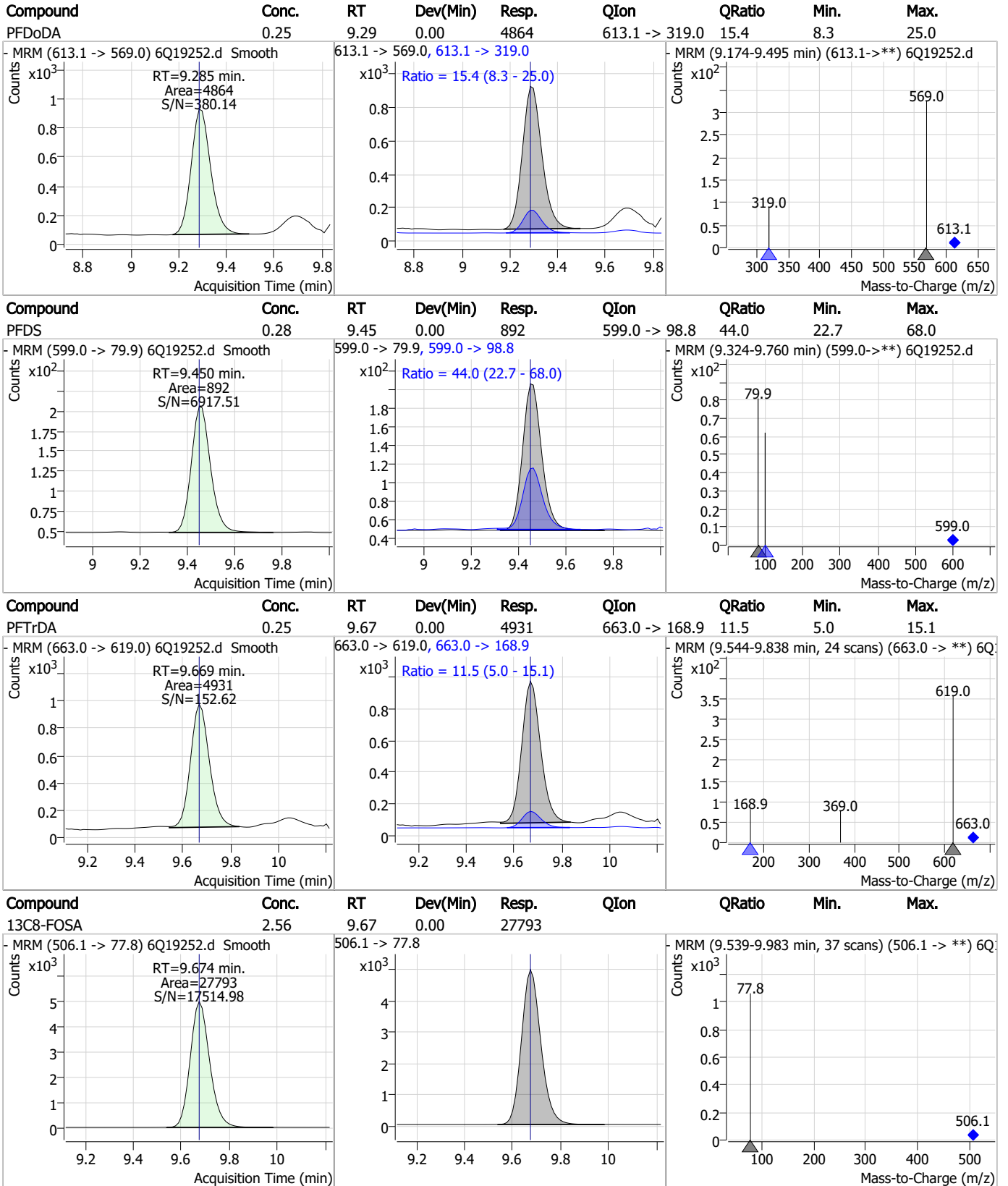
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

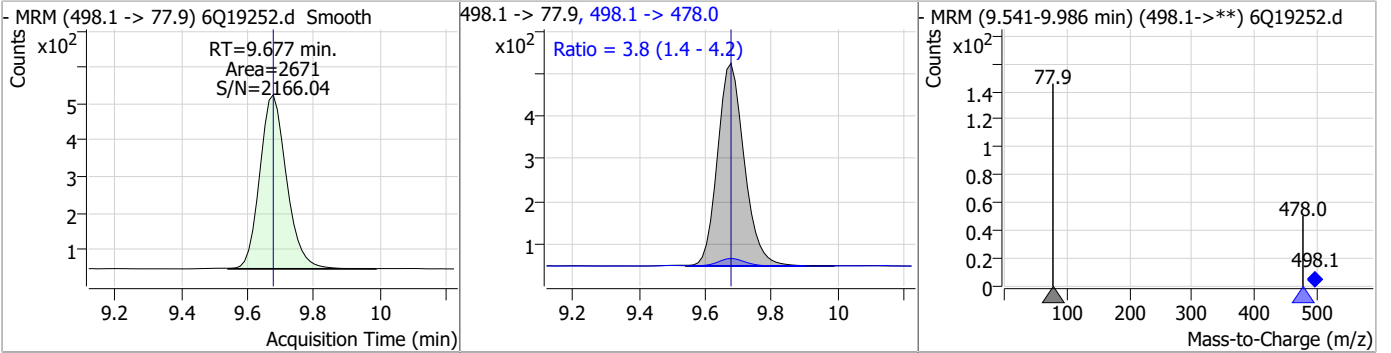


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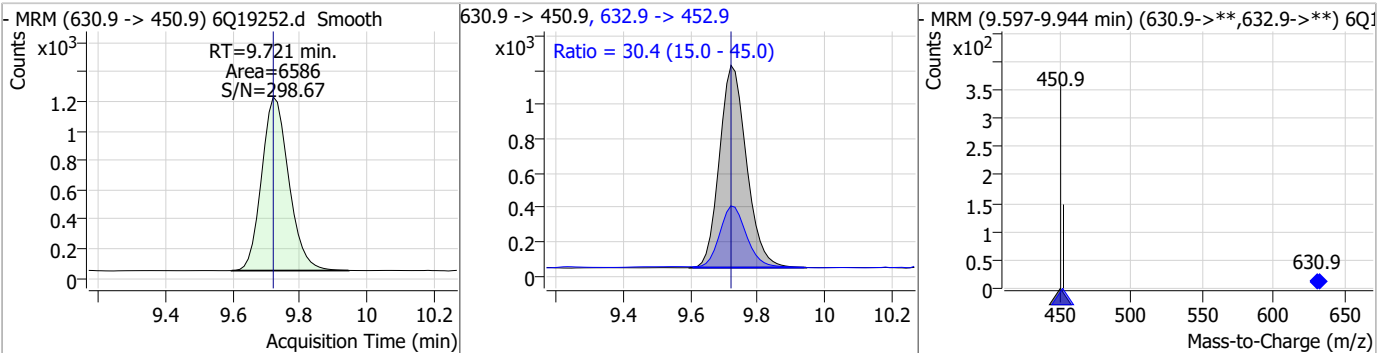


Perfluorinated Compounds by LC/MS/MS

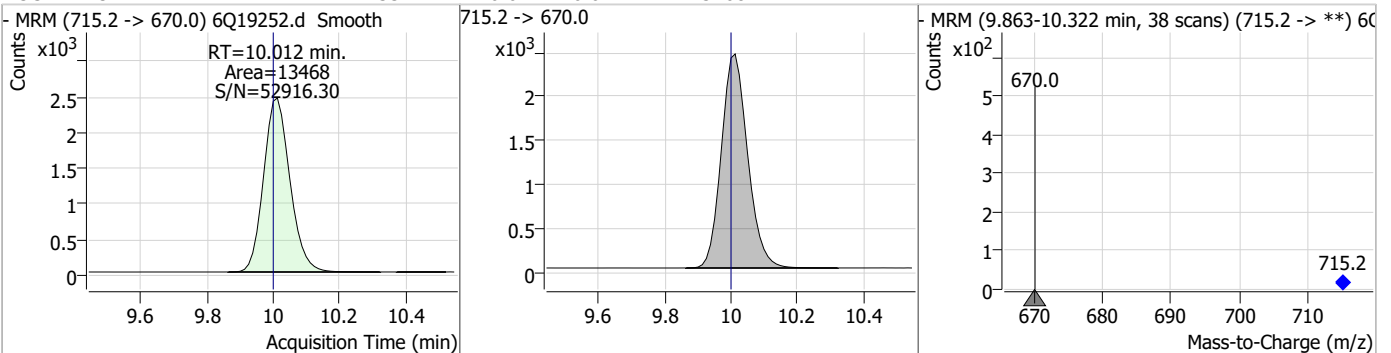
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.23	9.68	0.00	2671	498.1 -> 478.0	3.8	1.4	4.2



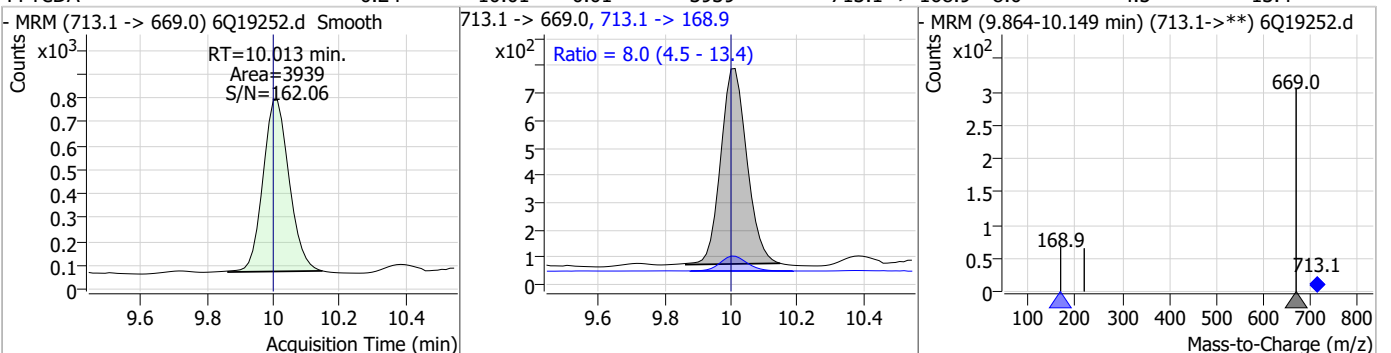
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	0.44	9.72	0.00	6586	632.9 -> 452.9	30.4	15.0	45.0



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

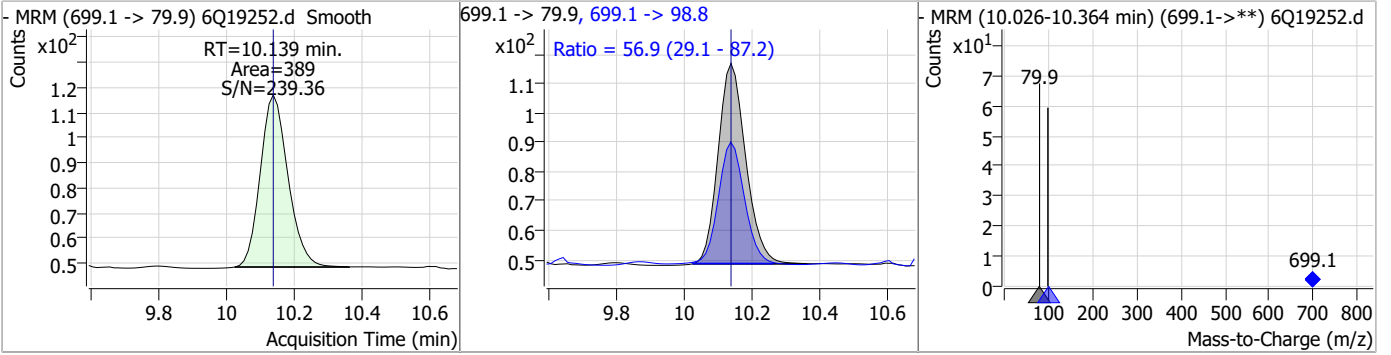


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.24	10.01	0.01	3939	713.1 -> 168.9	8.0	4.5	13.4

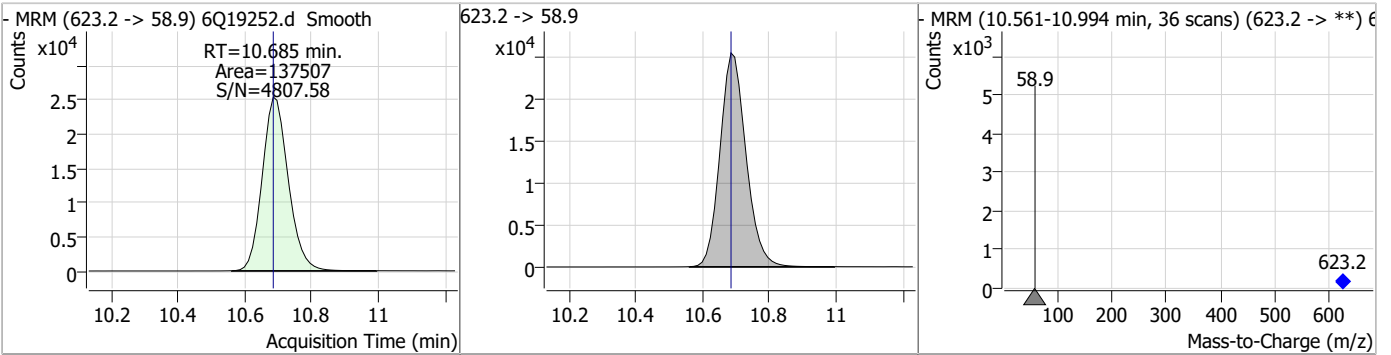


Perfluorinated Compounds by LC/MS/MS

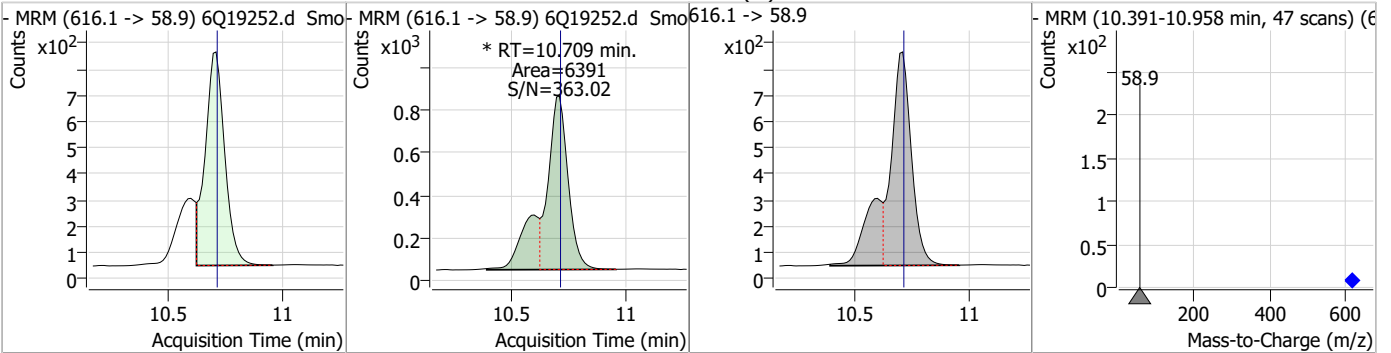
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	0.25	10.14	0.00	389	699.1 -> 98.8	56.9	29.1	87.2



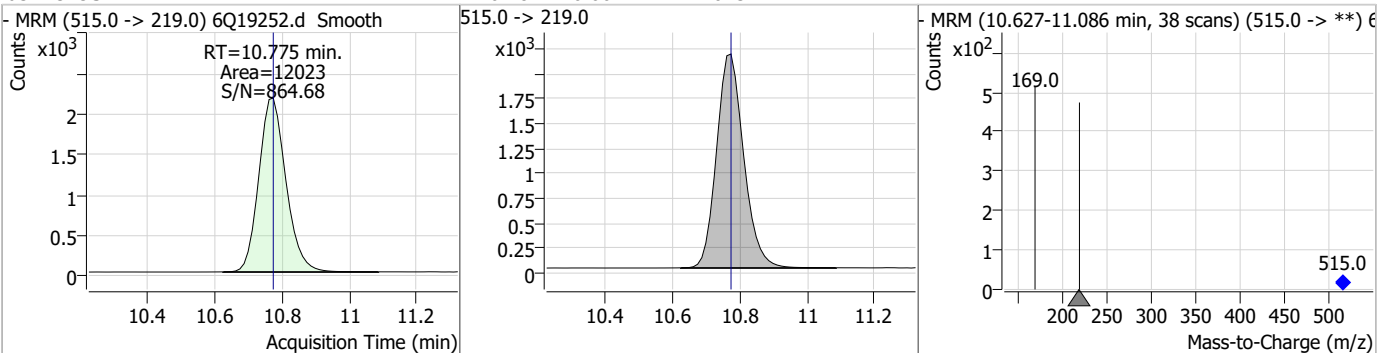
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.54	10.68	0.00	137507				



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

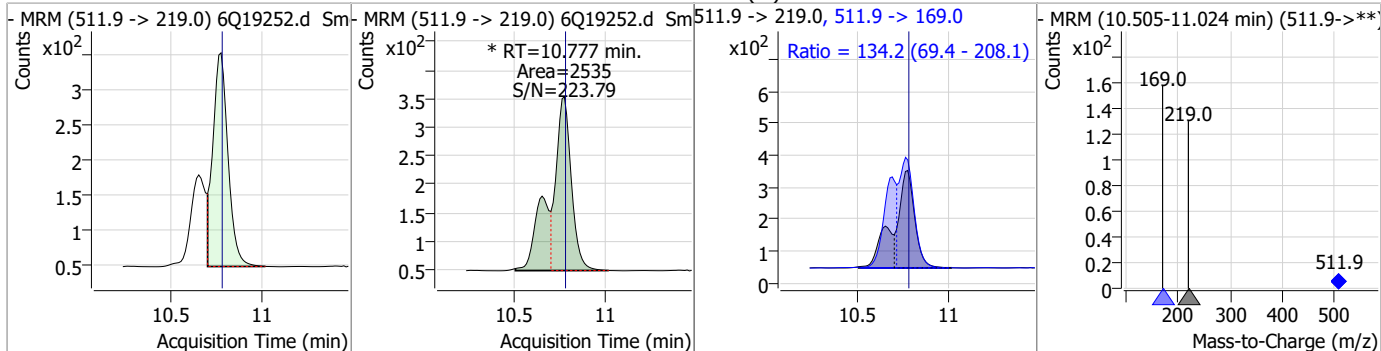


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.47	10.78	0.00	12023				

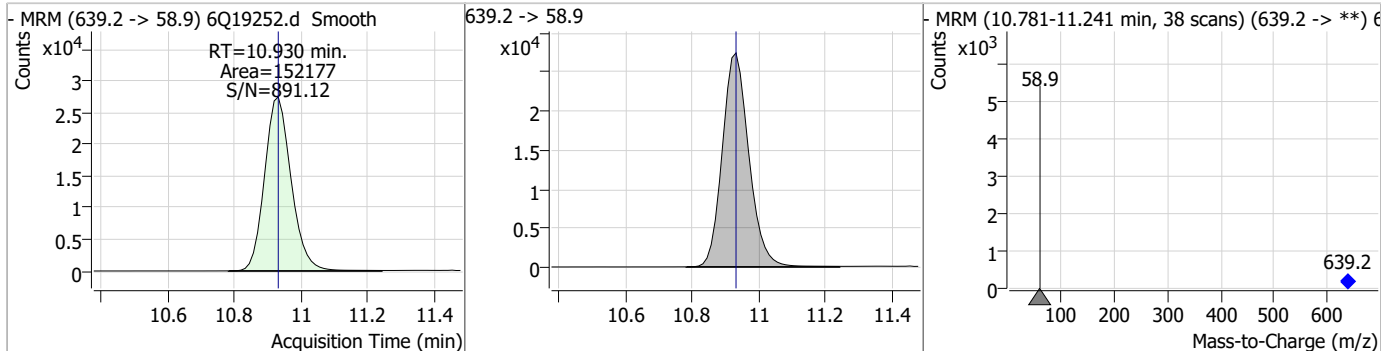


Perfluorinated Compounds by LC/MS/MS

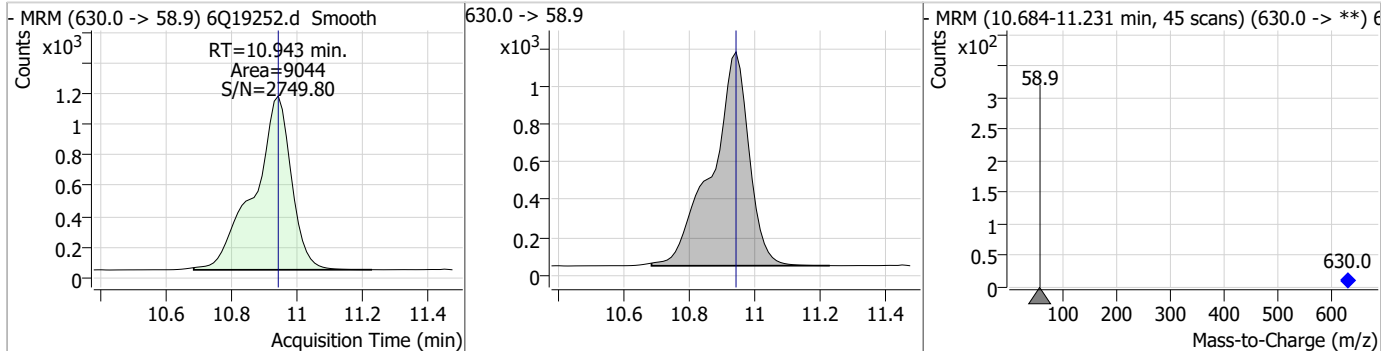
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.48	10.78	0.00	2535 (m)	511.9 -> 169.0	134.2	69.4	208.1



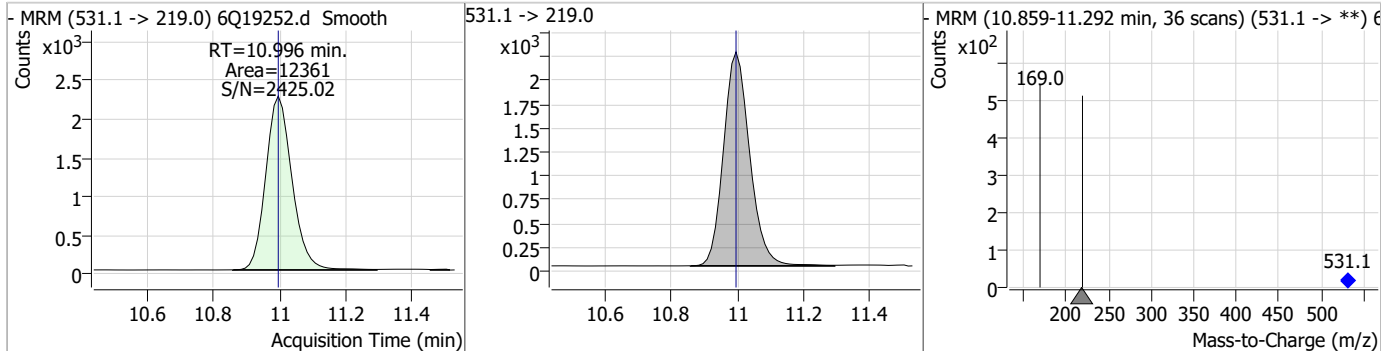
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	22.63	10.93	0.00	152177				



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

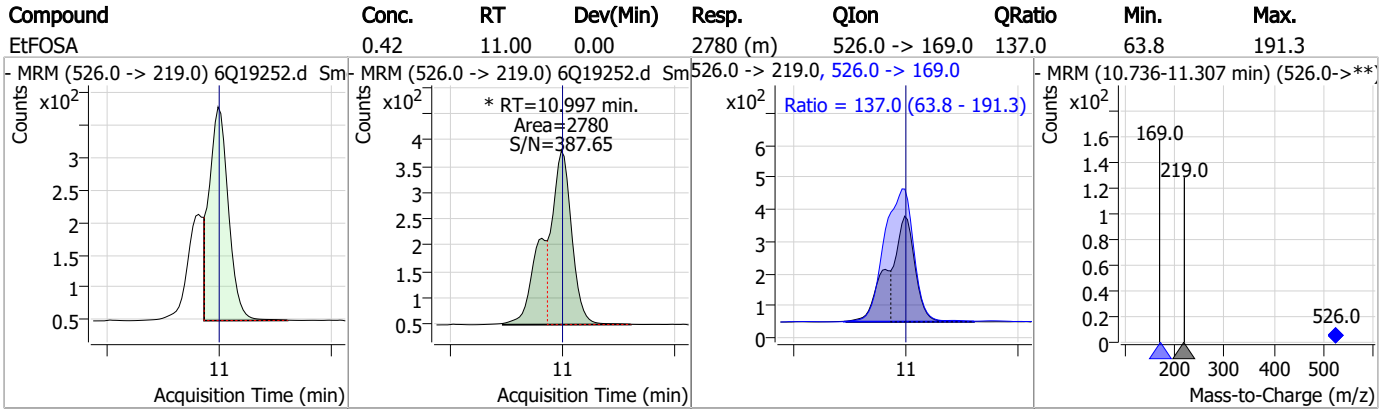


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.62	11.00	0.00	12361				



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

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

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.62	Split peak
MeFOSE	24448-09-7		10.71	Split peak
MeFOSA	31506-32-8		10.78	Split peak
EtFOSA	4151-50-2		11.00	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19261.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 8:42:06 PM
 Sample Name : cc287-4
 Vial : P1-A5
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.085	216.8 -> 171.9	143394	10.00 µg/L	0.000
M5-PFPeA	4.560	268.3 -> 223.0	46436	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	49436	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	50855	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	73028	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	34204	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	22300	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	28743	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	24163	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	12917	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	26536	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	18885	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	11414	2.50 µg/L	0.000
M8-PFOS	8.563	507.1 -> 79.9	10842	2.50 µg/L	0.000
M2-4:2FTS	5.442	329.1 -> 80.9	3003	5.00 µg/L	0.000
M2-6:2FTS	7.113	429.1 -> 80.9	4508	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	3851	5.00 µg/L	0.000
M3-MeFOSAA	8.420	573.2 -> 419.0	29382	5.00 µg/L	0.012
M3-HFPO-DA	6.169	286.9 -> 168.9	31726	10.00 µg/L	0.000
M5-EtFOSAA	8.615	589.2 -> 419.0	22179	5.00 µg/L	0.000
M7-MeFOSE	10.685	623.2 -> 58.9	125060	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	141281	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	11687	2.50 µg/L	0.000
M3-MeFOSA	10.763	515.0 -> 219.0	12258	2.50 µg/L	-0.012
13C4-PFOS	8.563	502.8 -> 79.9	15582	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	60775	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	8932	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	83698	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	31467	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	45724	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	48200	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.442	329.1 -> 80.9	3003	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4508	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.1%		
13C2-8:2FTS	8.163	529.1 -> 80.9	3851	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C2-PFDoDA	9.297	615.1 -> 570.0	24163	1.15 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C2-PFTeDA	10.012	715.2 -> 670.0	12917	1.06 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 84.6%		
13C3-PFBS	5.746	302.1 -> 79.9	18885	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	7.478	402.1 -> 79.9	11414	2.41 µg/L	0.000

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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	3.085	216.8 -> 171.9	143394	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFHpA	6.707	367.1 -> 322.0	50855	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C5-PFHxA	5.792	318.0 -> 273.0	49436	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C5-PFPeA	4.560	268.3 -> 223.0	46436	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C6-PFDA	8.387	519.1 -> 474.1	22300	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C7-PFUnDA	8.866	570.0 -> 525.1	28743	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C8-FOSA	9.674	506.1 -> 77.8	26536	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.9%	
13C8-PFOA	7.352	421.1 -> 376.0	73028	2.34 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C8-PFOS	8.563	507.1 -> 79.9	10842	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C9-PFNA	7.895	472.1 -> 427.0	34204	1.23 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.1%	
d3-MeFOSAA	8.420	573.2 -> 419.0	29382	5.03 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	31726	9.60 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
d3-MeFOSA	10.763	515.0 -> 219.0	12258	2.37 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%	
d5-EtFOSAA	8.615	589.2 -> 419.0	22179	4.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.0%	
d7-MeFOSE	10.685	623.2 -> 58.9	125060	21.87 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.5%	
d9-EtFOSE	10.930	639.2 -> 58.9	141281	19.78 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.1%	
d5-EtFOSA	10.996	531.1 -> 219.0	11687	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.1%	
Target Compounds					QValue
4:2FTS	5.455	327.1 -> 307.0	49023	9.42 µg/L	97
		327.1 -> 80.9	17377		
6:2FTS	7.113	427.1 -> 407.0	49515	9.09 µg/L	94
		427.1 -> 80.9	16240		
8:2FTS	8.164	527.1 -> 507.0	25436	9.93 µg/L	99
		527.1 -> 80.8	9931		
EtFOSAA	8.629	584.2 -> 419.1	9118	2.48 µg/L	m 99
		584.2 -> 526.0	4515		
FOSA	9.677	498.1 -> 77.9	25756	2.37 µg/L	99
		498.1 -> 478.0	825		
MeFOSAA	8.421	570.1 -> 419.0	18483	2.59 µg/L	m 98
		570.1 -> 483.0	3476		
PFBA	3.093	212.8 -> 168.9	54982	9.62 µg/L	100
PFBS	5.747	298.7 -> 79.9	17518	2.11 µg/L	95
		298.7 -> 98.8	6537		
PFDA	8.388	512.9 -> 469.0	70699	2.12 µg/L	99
		512.9 -> 219.0	10780		
PFDODA	9.298	613.1 -> 569.0	47493	2.39 µg/L	97
		613.1 -> 319.0	7299		
PFDS	9.462	599.0 -> 79.9	7860	2.40 µg/L	93

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.708	599.0 -> 98.8	3926	2.20	µg/L	98
		363.1 -> 319.0	60027			
PFHpS	8.059	363.1 -> 169.0	10021	2.14	µg/L	90
		449.0 -> 79.9	13981			
PFHxA	5.795	449.0 -> 98.9	7776	2.58	µg/L	98
		313.0 -> 269.0	51073			
PFHxS	7.479	313.0 -> 118.9	2498	2.21	µg/L	m
		398.7 -> 79.9	15142			
PFNA	7.896	398.7 -> 98.9	7347	2.35	µg/L	98
		463.0 -> 419.0	73834			
PFNS	9.041	463.0 -> 219.0	13648	2.40	µg/L	96
		548.8 -> 79.9	13766			
PFOA	7.353	548.8 -> 98.9	7120	2.66	µg/L	97
		413.0 -> 369.0	99522			
PFOS	8.564	413.0 -> 169.0	16370	2.11	µg/L	m
		498.9 -> 79.9	13503			
PFPeA	4.563	498.9 -> 98.8	6712	4.77	µg/L	100
		263.0 -> 219.0	65194			
PFPeS	6.785	349.1 -> 79.9	14401	2.28	µg/L	99
		349.1 -> 98.9	6708			
PFTeDA	10.013	713.1 -> 669.0	38922	2.52	µg/L	100
		713.1 -> 168.9	3521			
PFTrDA	9.669	663.0 -> 619.0	47103	2.39	µg/L	98
		663.0 -> 168.9	5044			
PFUnDA	8.866	563.1 -> 519.0	50857	2.41	µg/L	99
		563.1 -> 269.1	8743			
11CI-PF3OUdS	9.721	630.9 -> 450.9	67569	4.52	µg/L	96
		632.9 -> 452.9	21712			
9CI-PF3ONS	8.906	530.8 -> 351.0	111862	4.48	µg/L	93
		532.8 -> 353.0	38034			
ADONA	6.959	376.9 -> 250.9	252726	4.71	µg/L	97
		376.9 -> 84.8	67034			
HFPO-DA	6.169	284.9 -> 168.9	16892	4.91	µg/L	98
		284.9 -> 184.9	1963			
3:3FTCA	3.946	241.0 -> 177.0	11162	11.95	µg/L	100
		241.0 -> 117.0	1488			
5:3FTCA	6.374	341.0 -> 237.1	254574	66.28	µg/L	93
		341.0 -> 217.0	174158			
7:3FTCA	7.748	441.0 -> 316.9	164470	59.83	µg/L	98
		441.0 -> 336.9	373472			
EtFOSA	10.997	526.0 -> 219.0	30087	4.81	µg/L	98
		526.0 -> 169.0	39205			
EtFOSE	10.943	630.0 -> 58.9	91872	12.32	µg/L	100
		511.9 -> 219.0	25285			
MeFOSA	10.765	511.9 -> 169.0	35903	4.71	µg/L	m
		616.1 -> 58.9	64473			
MeFOSE	10.697	699.1 -> 79.9	3756	11.78	µg/L	m
		699.1 -> 98.8	1963			
PFDoDS	10.139	295.0 -> 201.0	11793	2.31	µg/L	92
		295.0 -> 84.9	3124			
NFDHA	5.673	279.0 -> 85.1	47786	4.70	µg/L	95
		229.0 -> 84.9	36661			
PFMBA	4.988	314.8 -> 134.9	123119	4.88	µg/L	100
		314.8 -> 82.9	4229			
PFMPA	3.667			4.81	µg/L	100
PFEESA	6.288			5.05	µg/L	100

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



7.7.14
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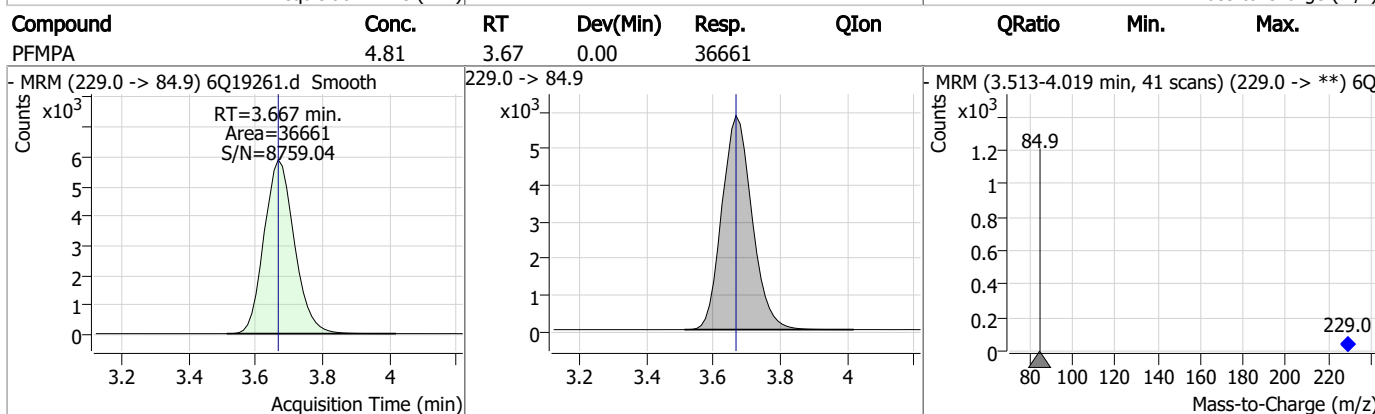
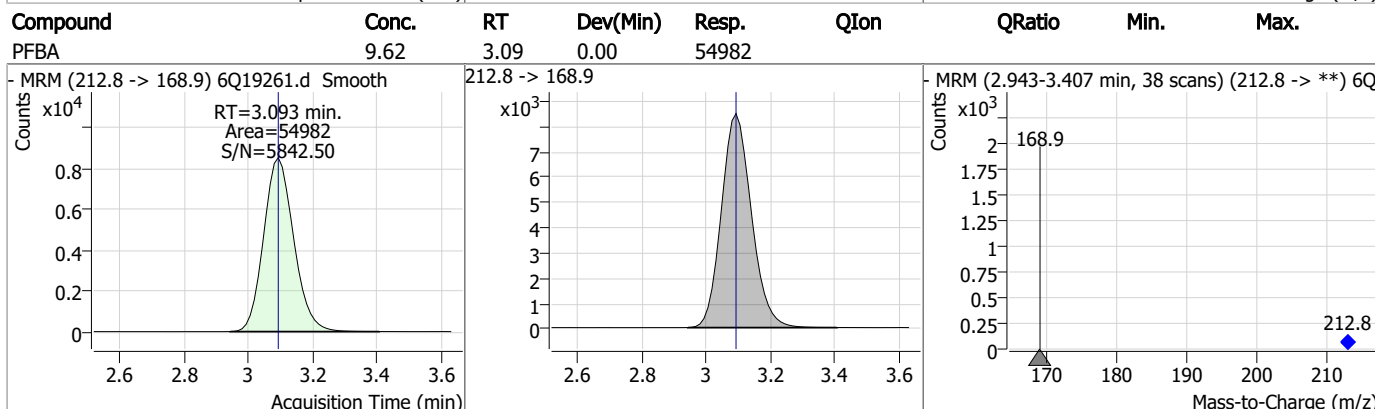
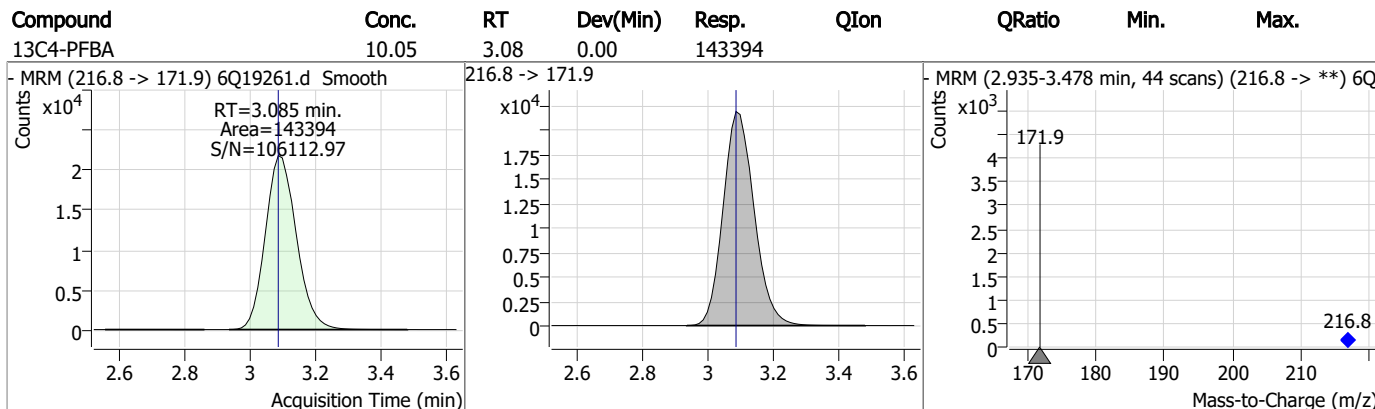
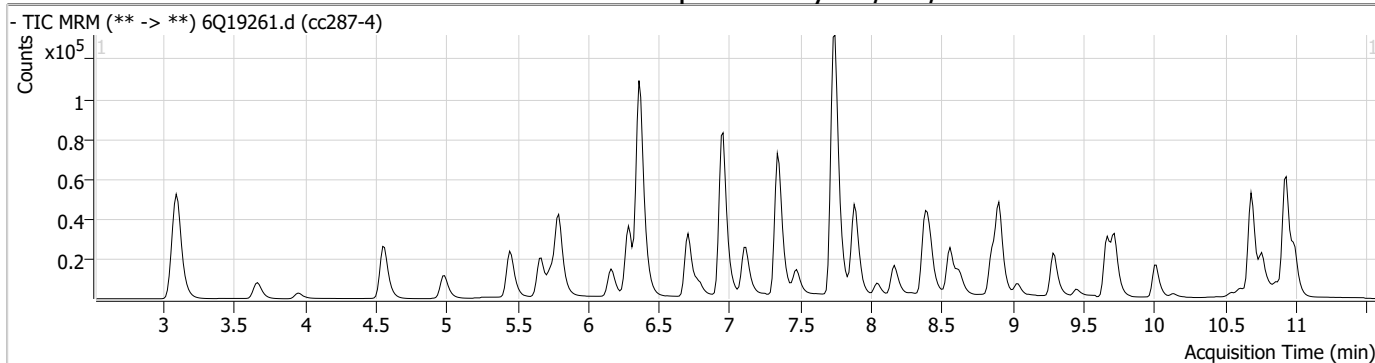
Perfluorinated Compounds by LC/MS/MS

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

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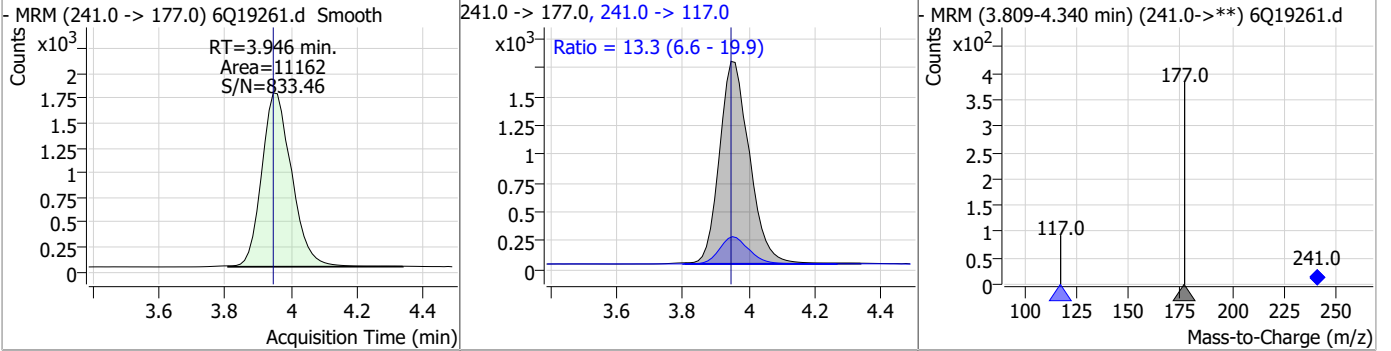
Perfluorinated Compounds by LC/MS/MS



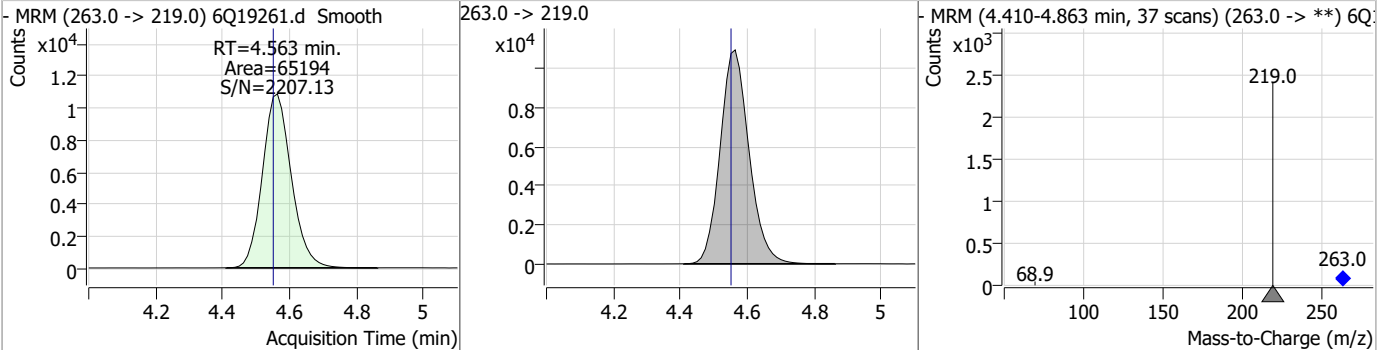
7.7.14
7

Perfluorinated Compounds by LC/MS/MS

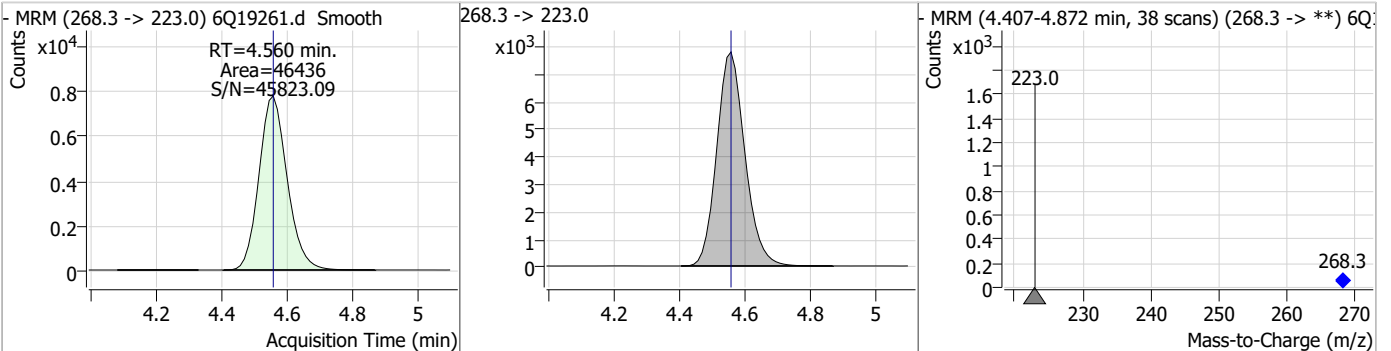
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.95	3.95	0.00	11162	241.0 -> 117.0	13.3	6.6	19.9



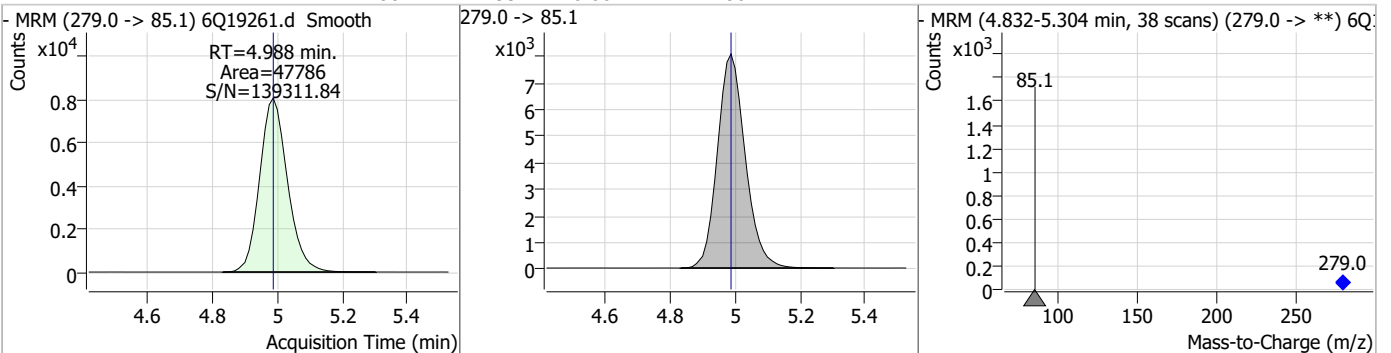
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.77	4.56	0.01	65194	263.0 -> 219.0	219.0	68.9	263.0



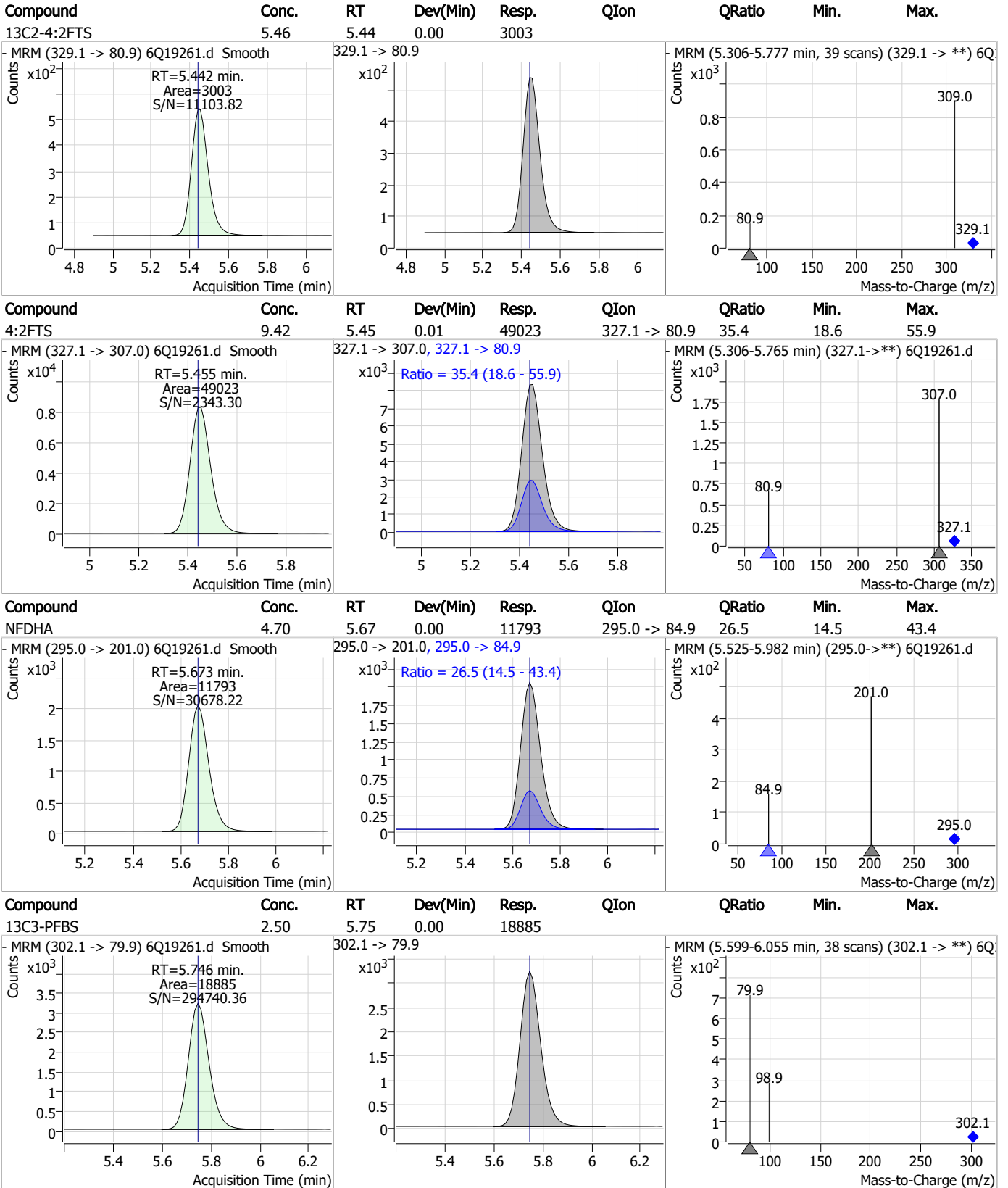
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.99	4.56	0.00	46436	268.3 -> 223.0	223.0	223.0	268.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.88	4.99	0.00	47786	279.0 -> 85.1	85.1	85.1	279.0



Perfluorinated Compounds by LC/MS/MS

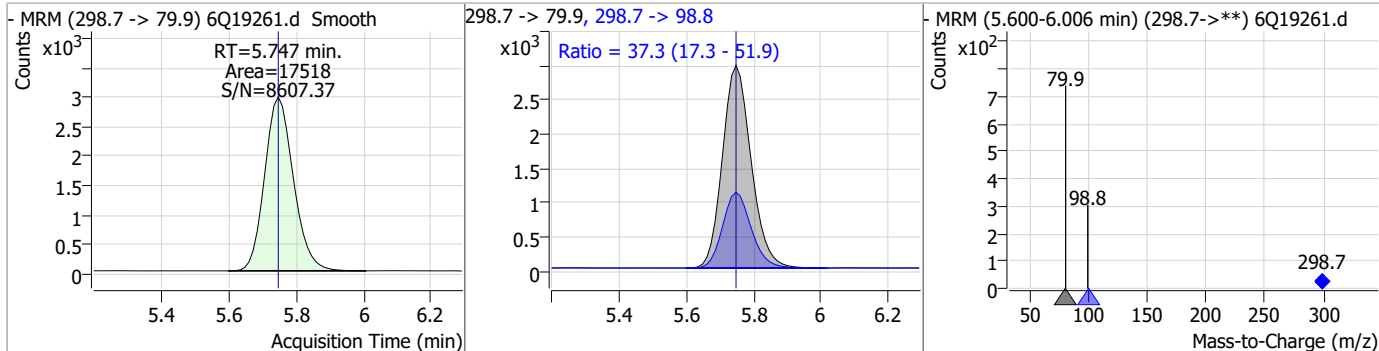


7.7.14

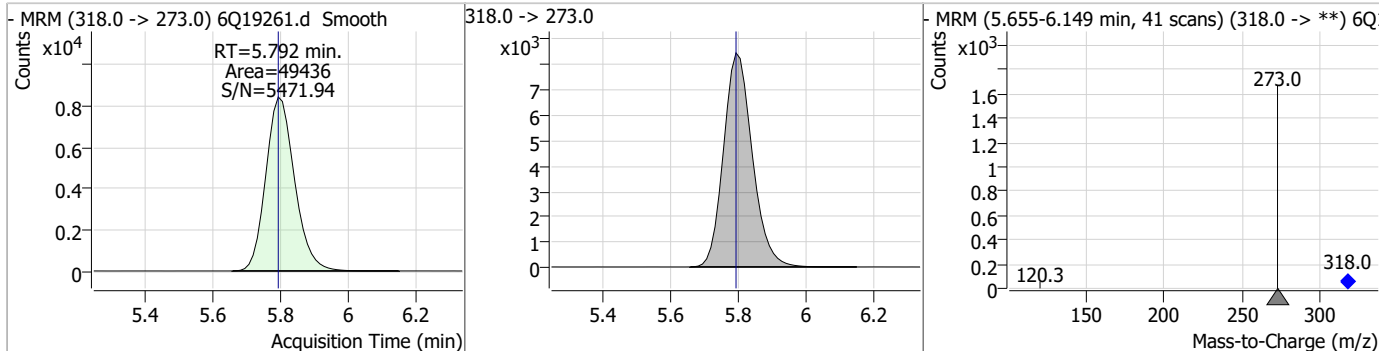
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Perfluorinated Compounds by LC/MS/MS

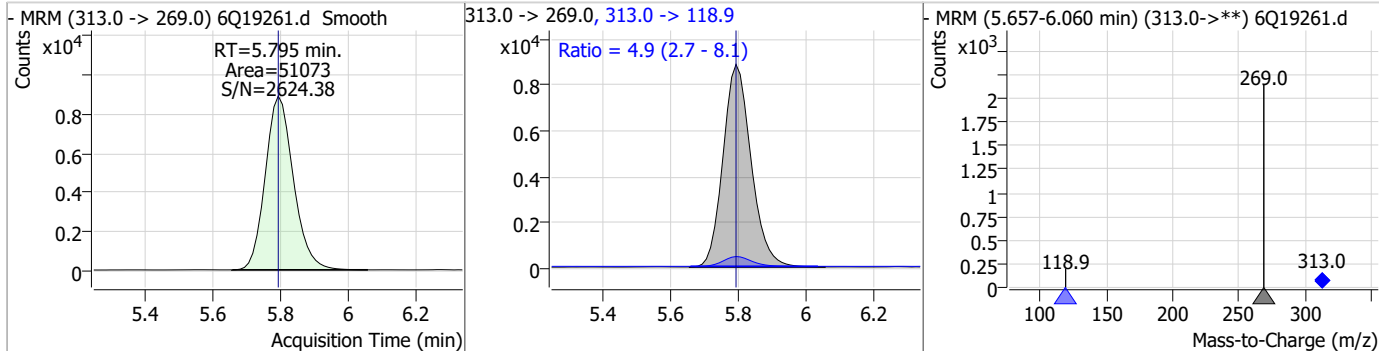
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.11	5.75	0.00	17518	298.7 -> 98.8	37.3	17.3	51.9



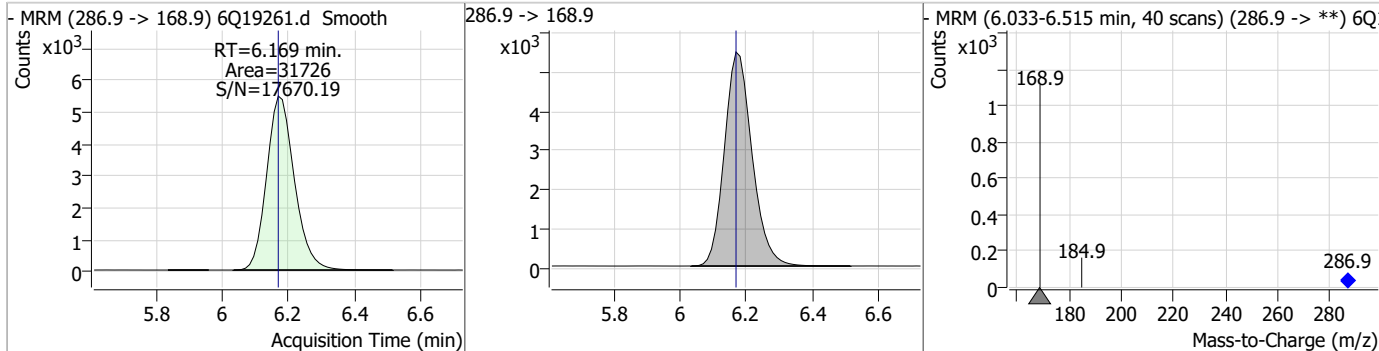
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.37	5.79	0.00	49436				



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

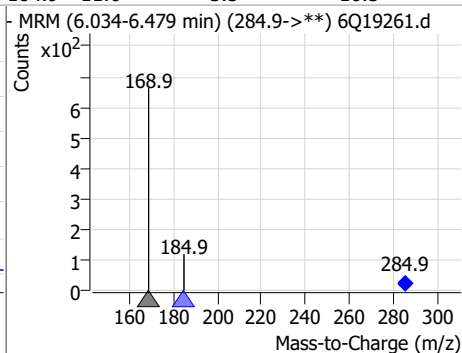
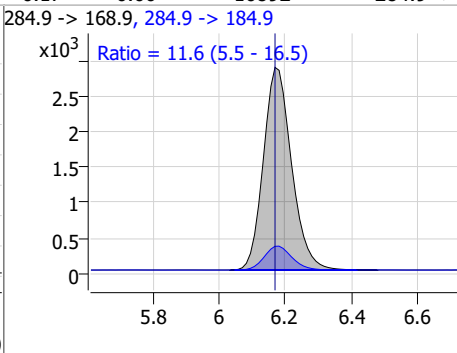
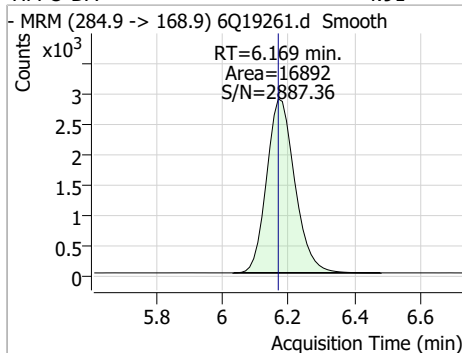


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.60	6.17	0.00	31726				

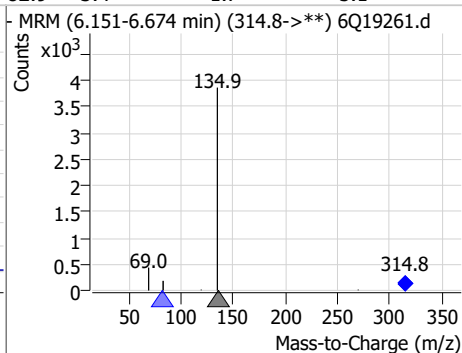
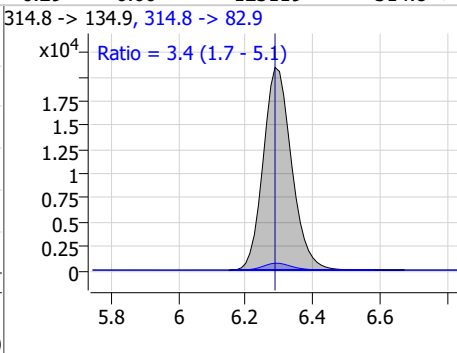
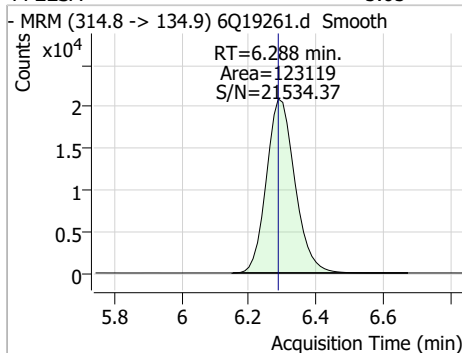


Perfluorinated Compounds by LC/MS/MS

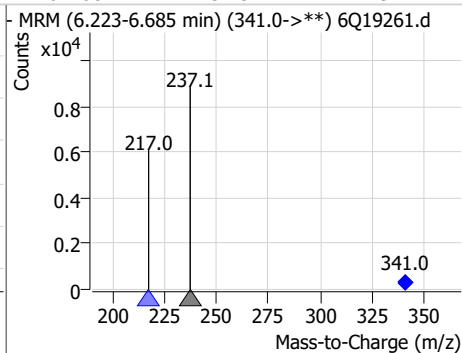
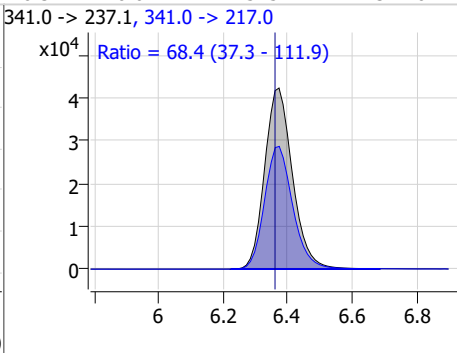
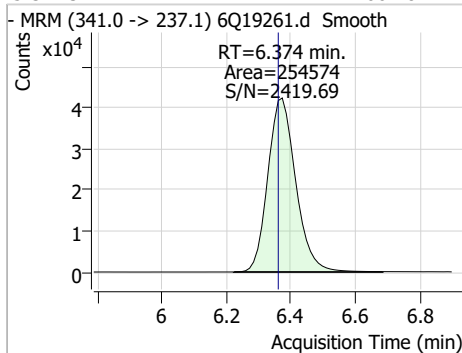
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.91	6.17	0.00	16892	284.9 -> 184.9	11.6	5.5	16.5



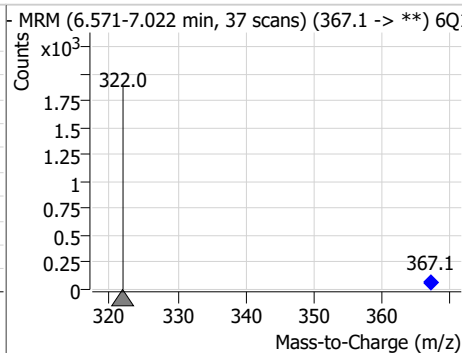
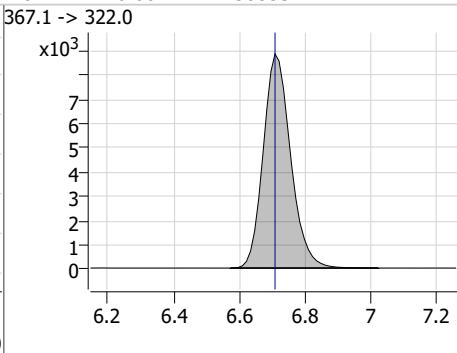
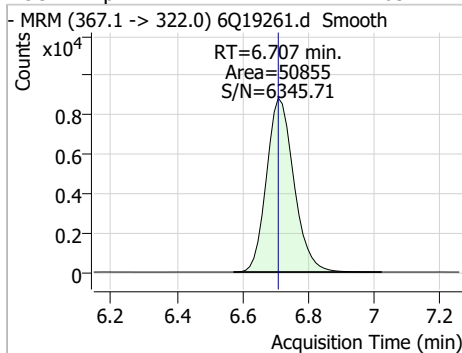
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	5.05	6.29	0.00	123119	314.8 -> 82.9	3.4	1.7	5.1



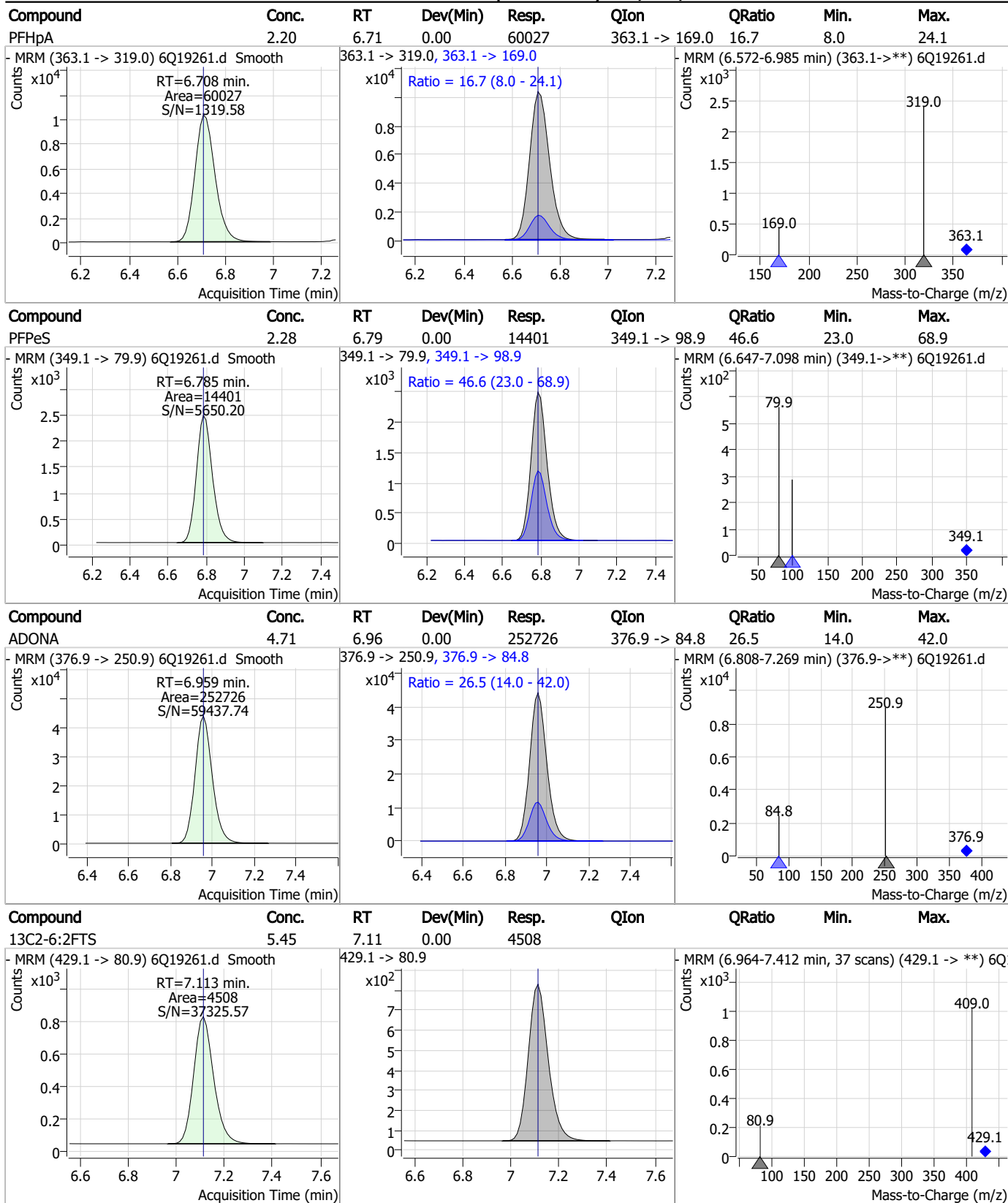
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	66.28	6.37	0.01	254574	341.0 -> 217.0	68.4	37.3	111.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.63	6.71	0.00	50855	367.1 -> 322.0			

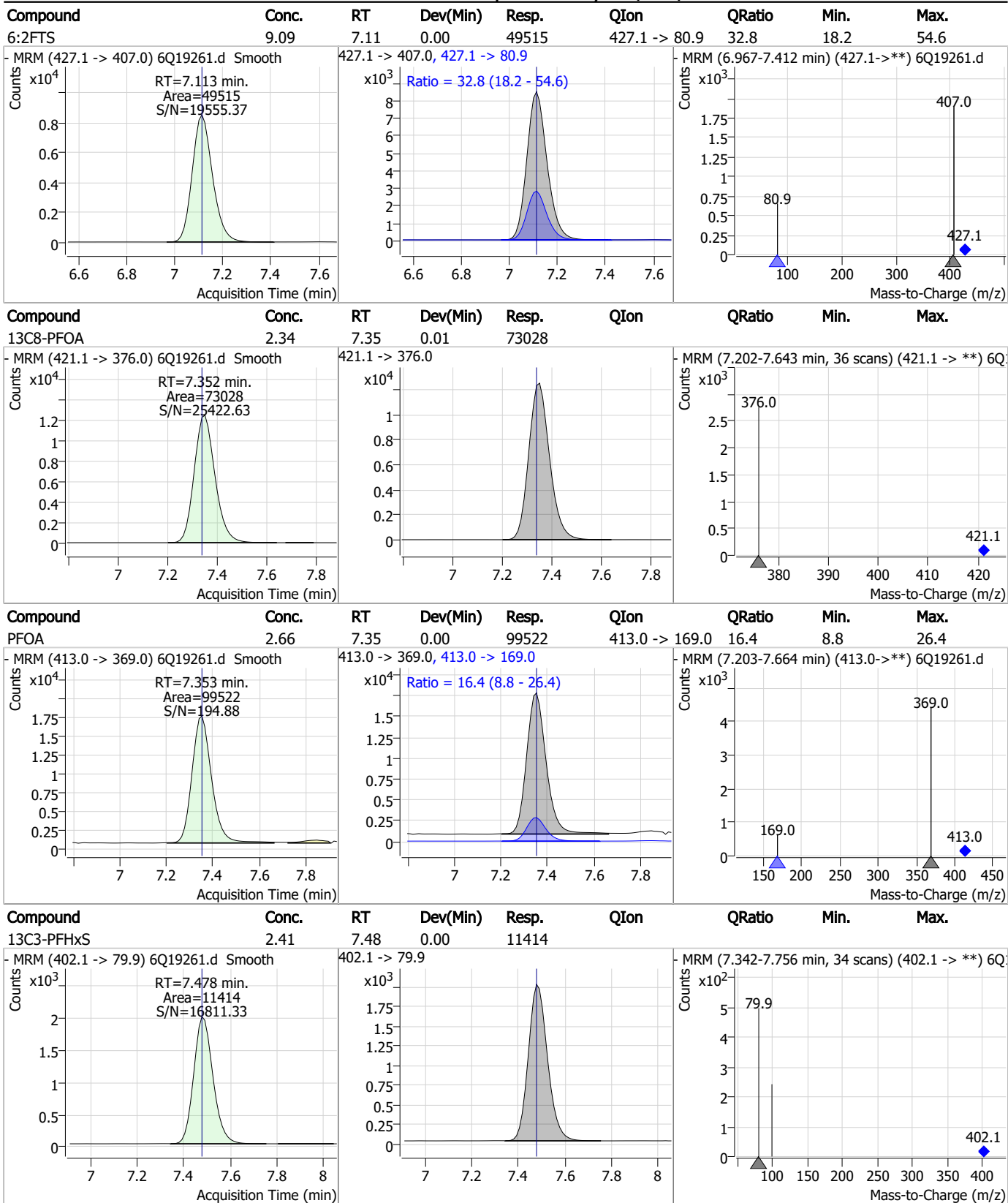


Perfluorinated Compounds by LC/MS/MS



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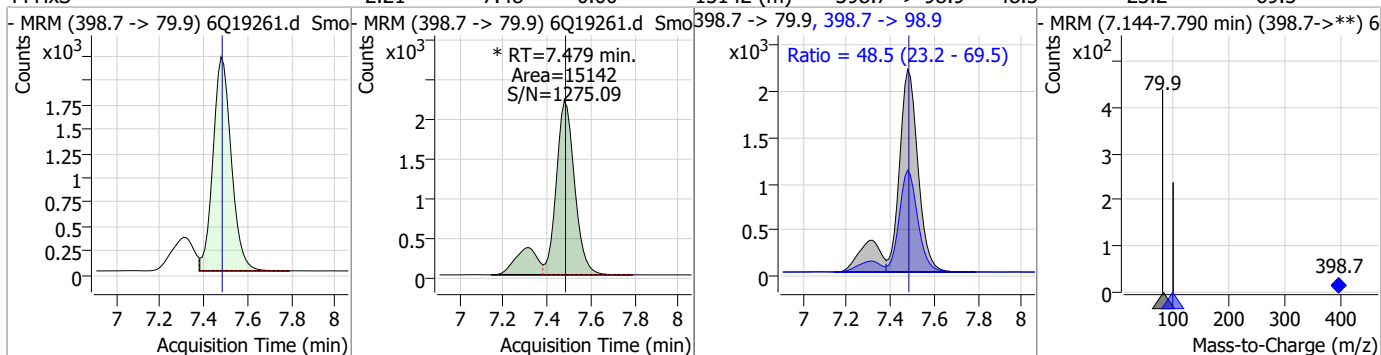
Perfluorinated Compounds by LC/MS/MS



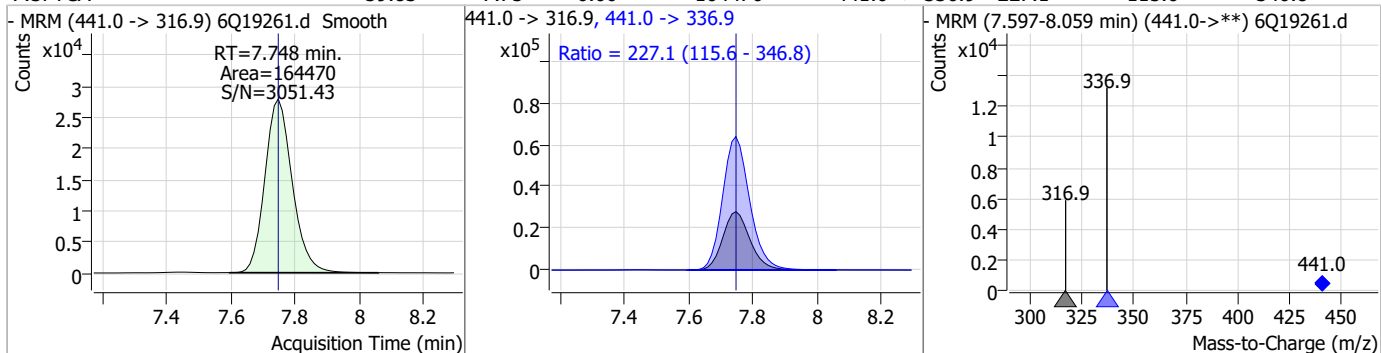
7.7.14

Perfluorinated Compounds by LC/MS/MS

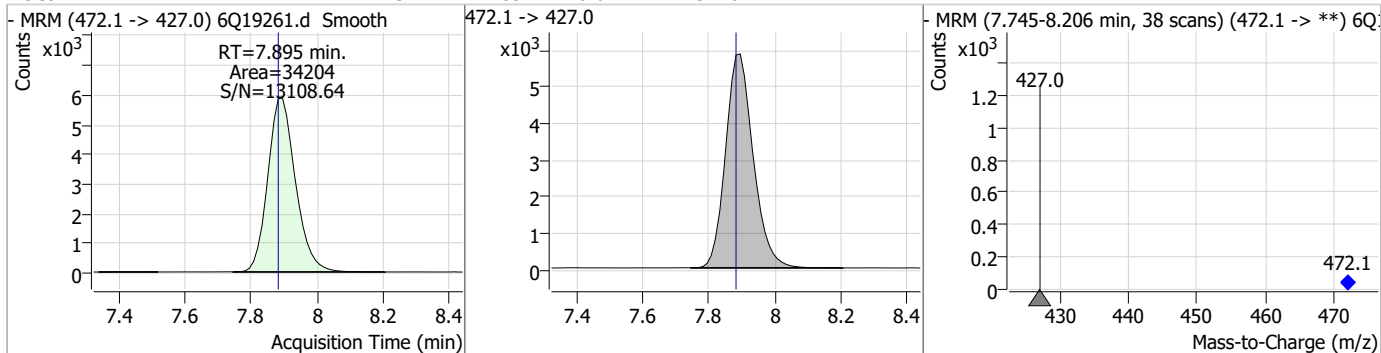
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.21	7.48	0.00	15142 (m)	398.7 -> 98.9	48.5	23.2	69.5



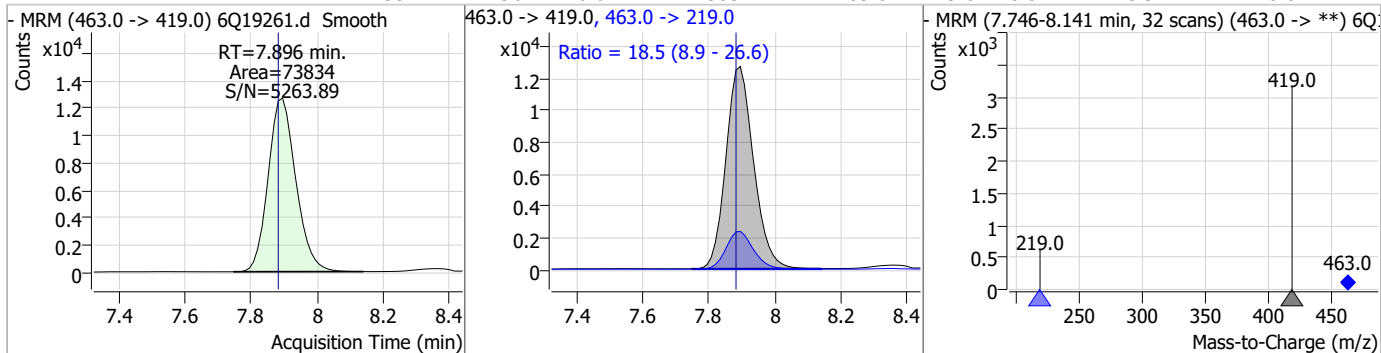
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	59.83	7.75	0.00	164470	441.0 -> 336.9	227.1	115.6	346.8



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

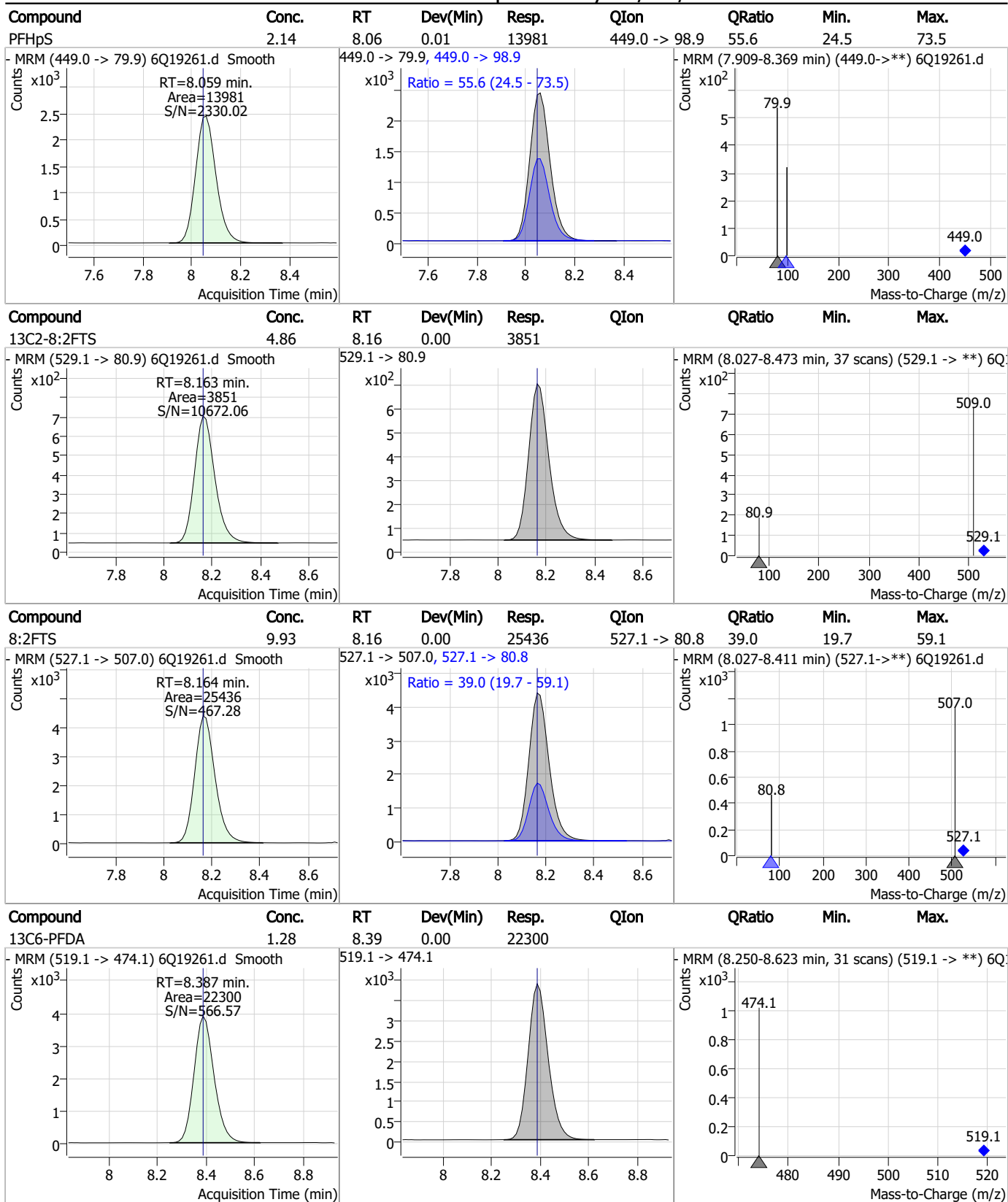


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.35	7.90	0.01	73834	463.0 -> 219.0	18.5	8.9	26.6



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Perfluorinated Compounds by LC/MS/MS

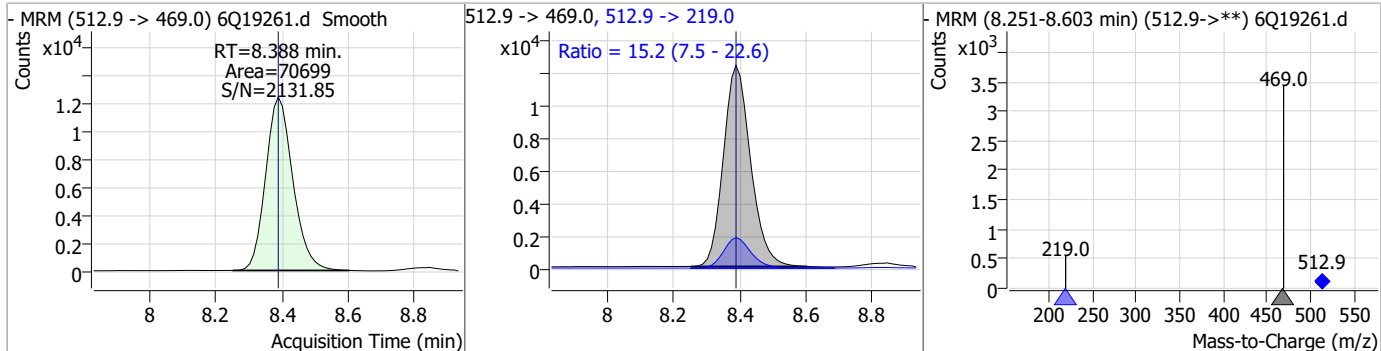


7.7.14

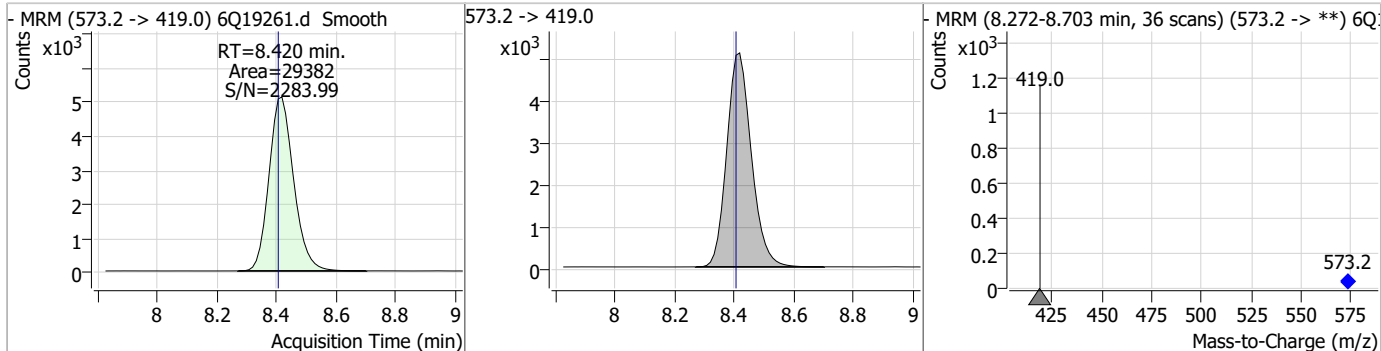
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Perfluorinated Compounds by LC/MS/MS

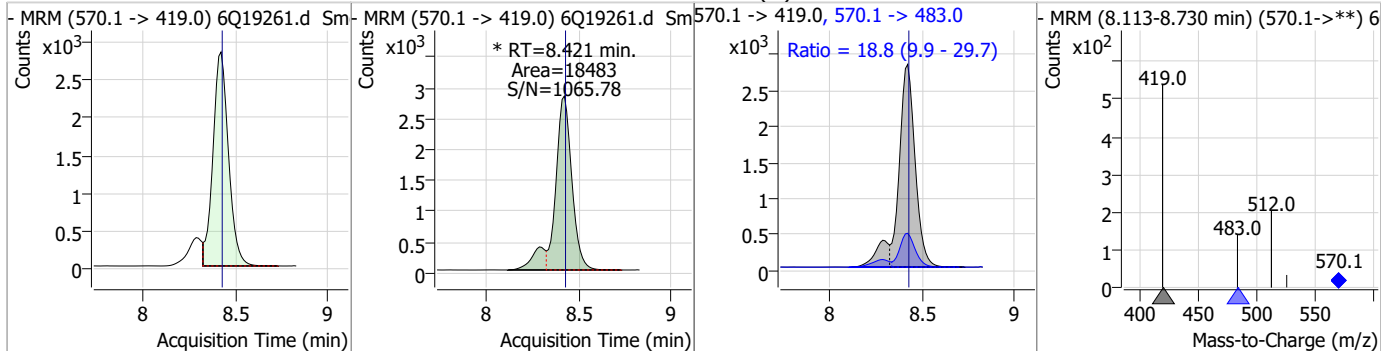
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.12	8.39	0.00	70699	512.9 -> 219.0	15.2	7.5	22.6



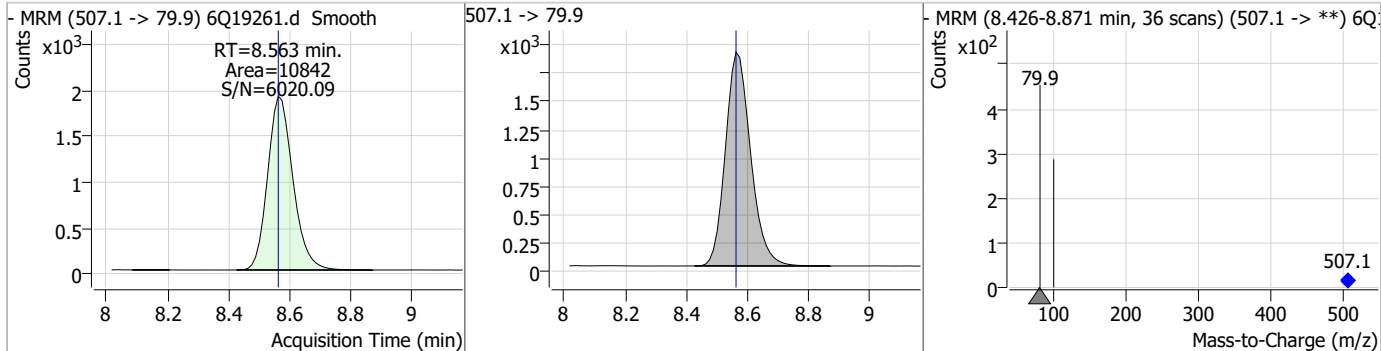
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.03	8.42	0.01	29382				



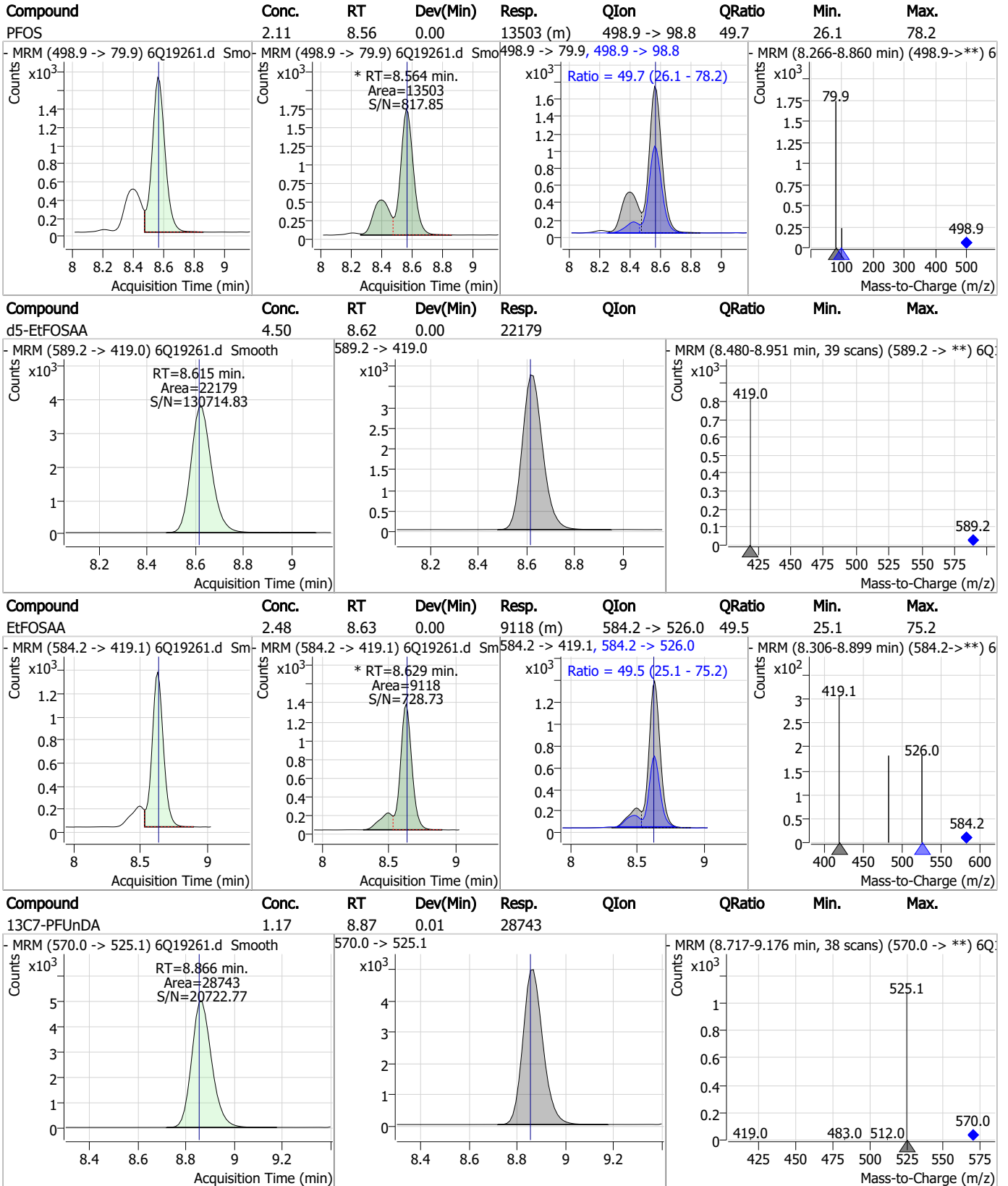
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.59	8.42	0.00	18483 (m)	570.1 -> 483.0	18.8	9.9	29.7



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

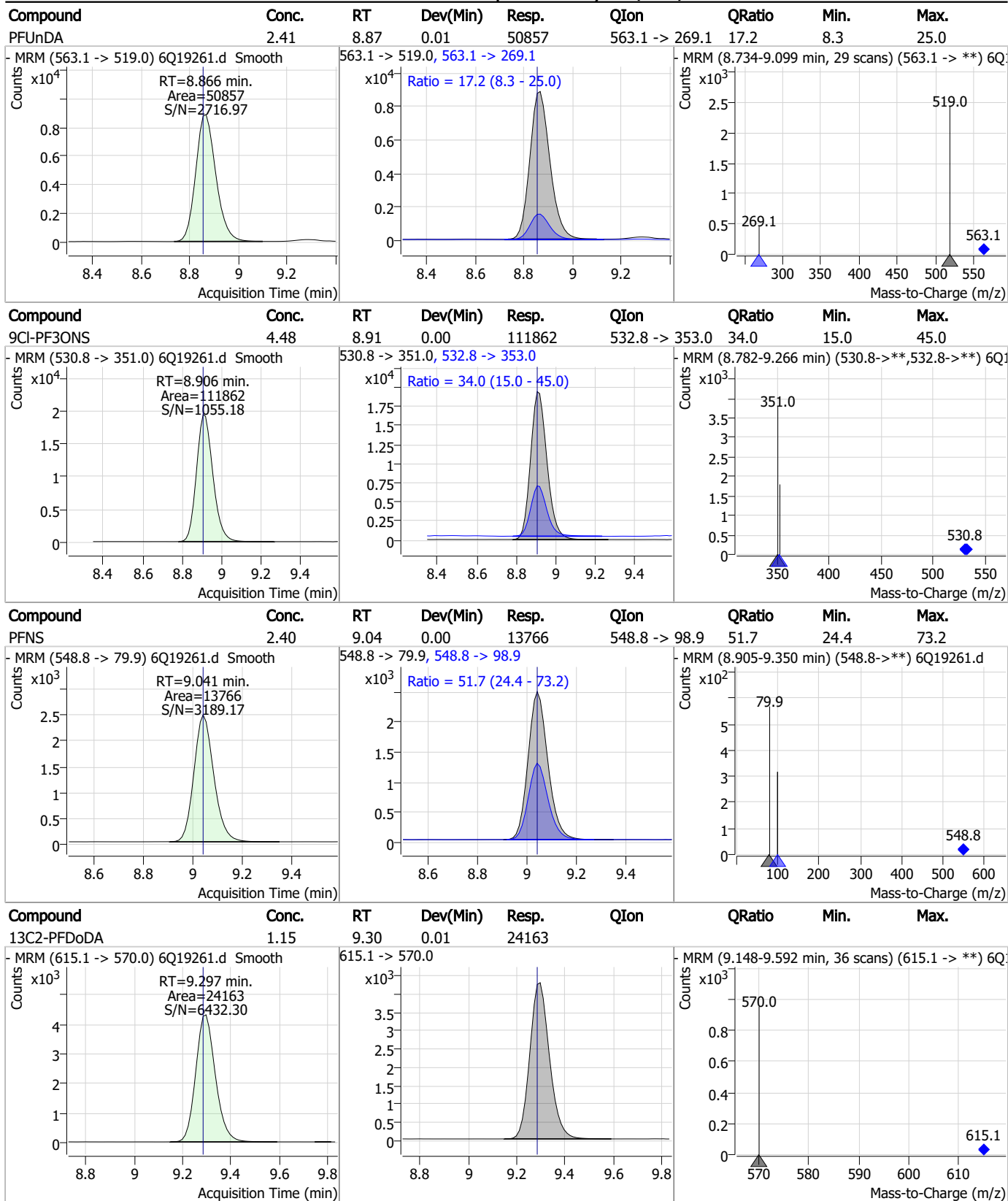


Perfluorinated Compounds by LC/MS/MS



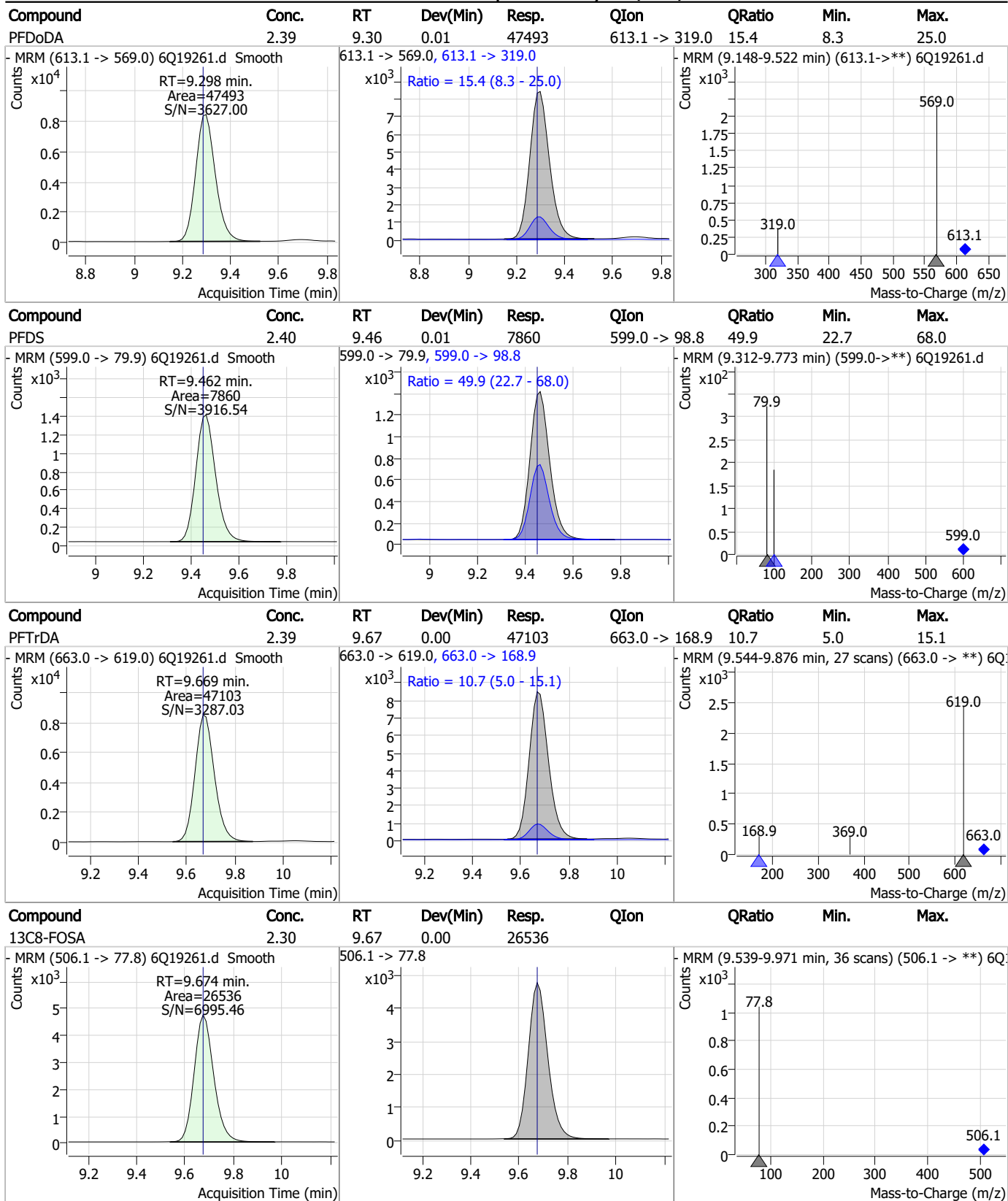
7.7.14

Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

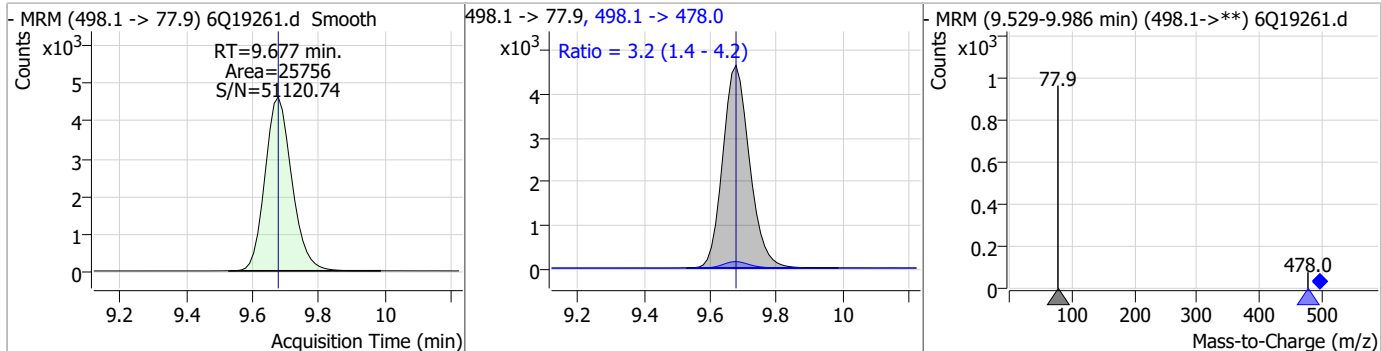


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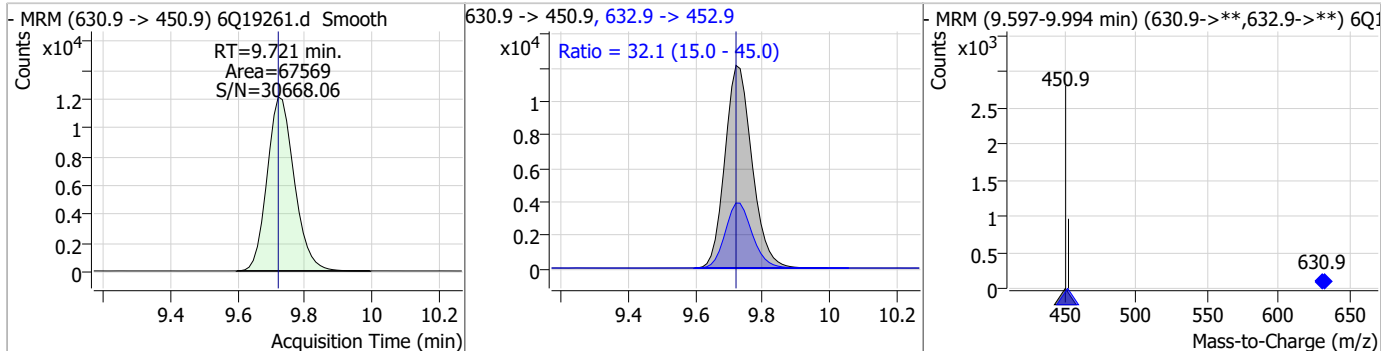


Perfluorinated Compounds by LC/MS/MS

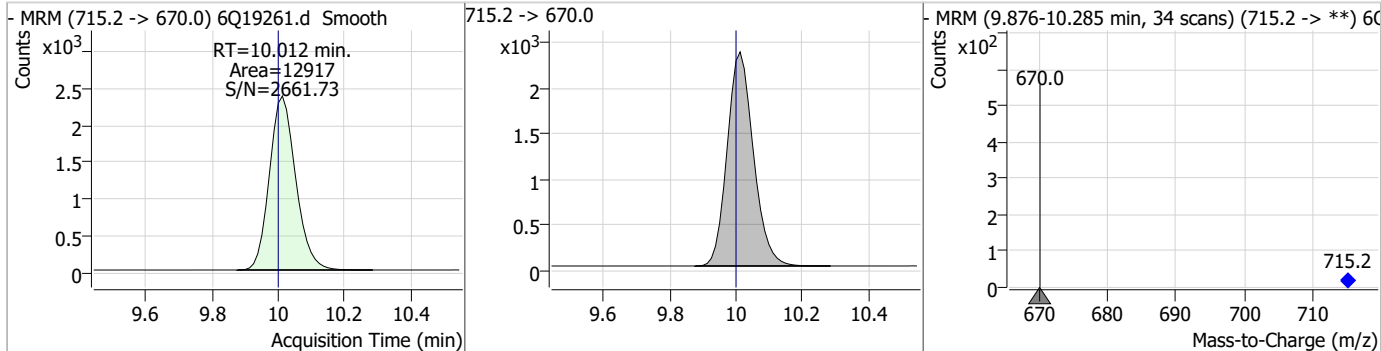
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.37	9.68	0.00	25756	498.1 -> 478.0	3.2	1.4	4.2



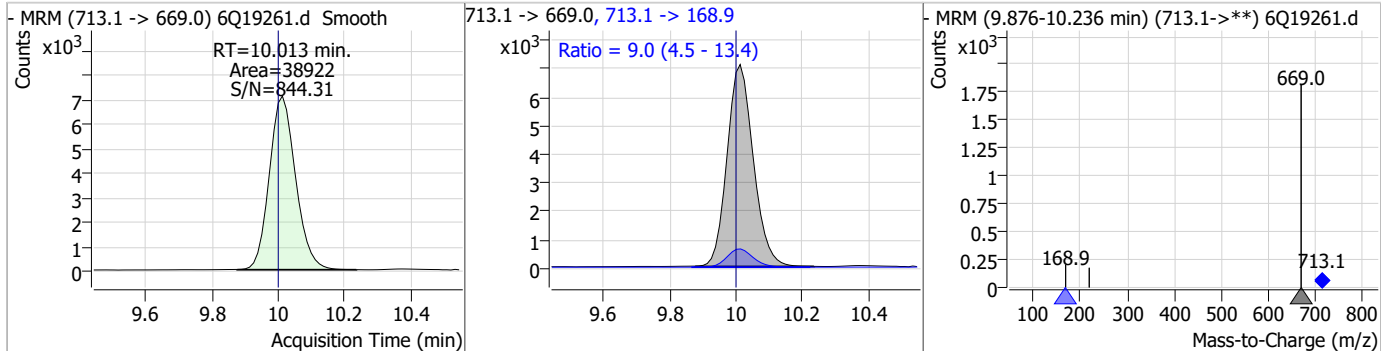
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	4.52	9.72	0.00	67569	630.9 -> 452.9	32.1	15.0	45.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.06	10.01	0.01	12917	715.2 -> 670.0	9.0	4.5	13.4



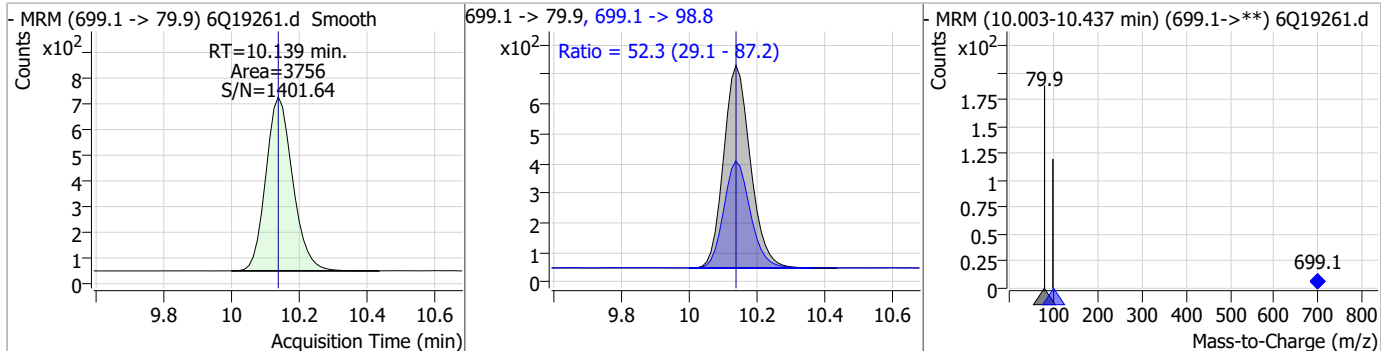
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.52	10.01	0.01	38922	713.1 -> 168.9	9.0	4.5	13.4



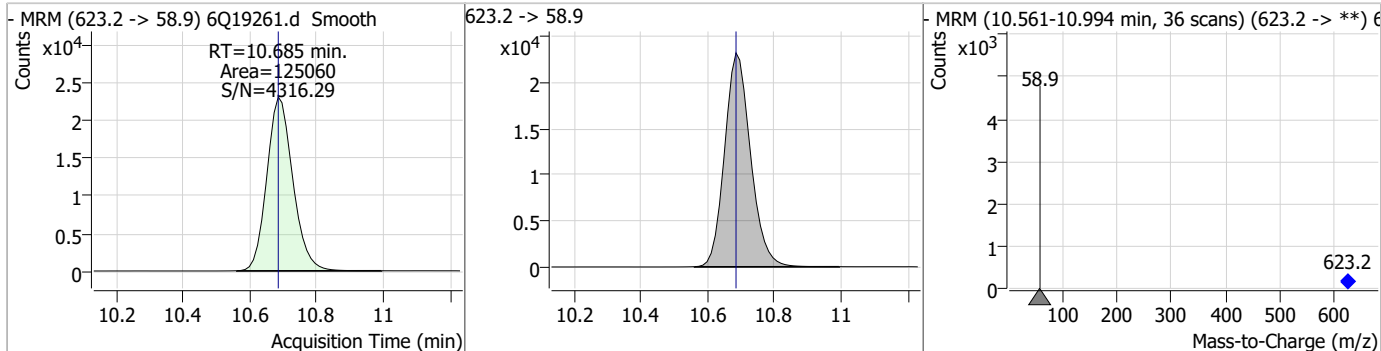
7.7.14
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Perfluorinated Compounds by LC/MS/MS

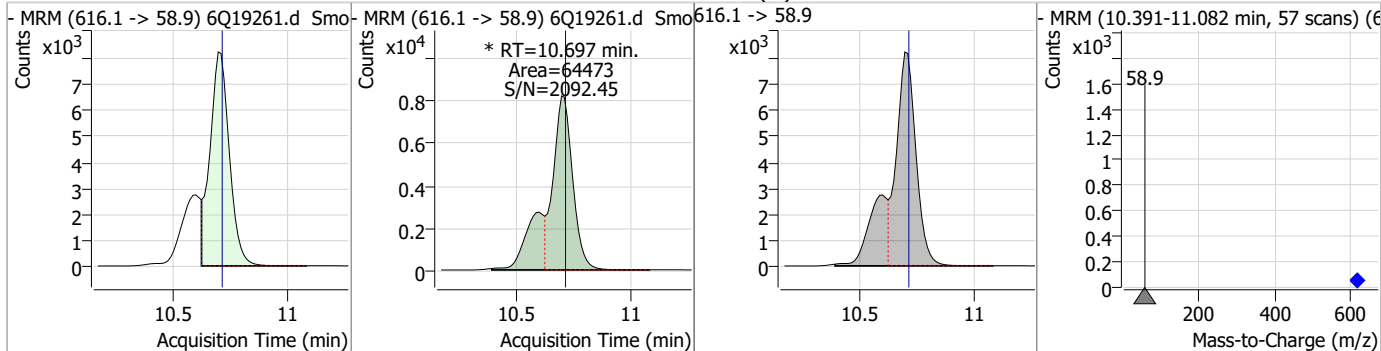
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.31	10.14	0.00	3756	699.1 -> 98.8	52.3	29.1	87.2



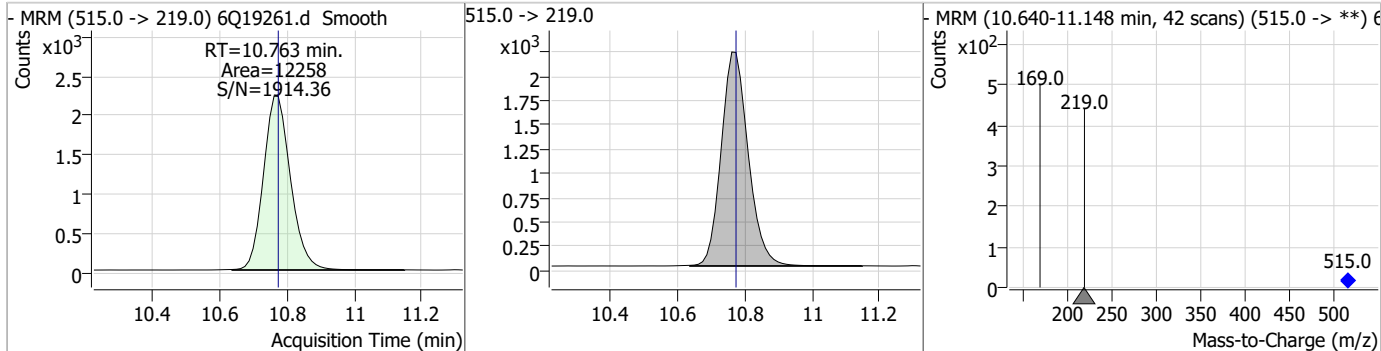
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.87	10.68	0.00	125060				



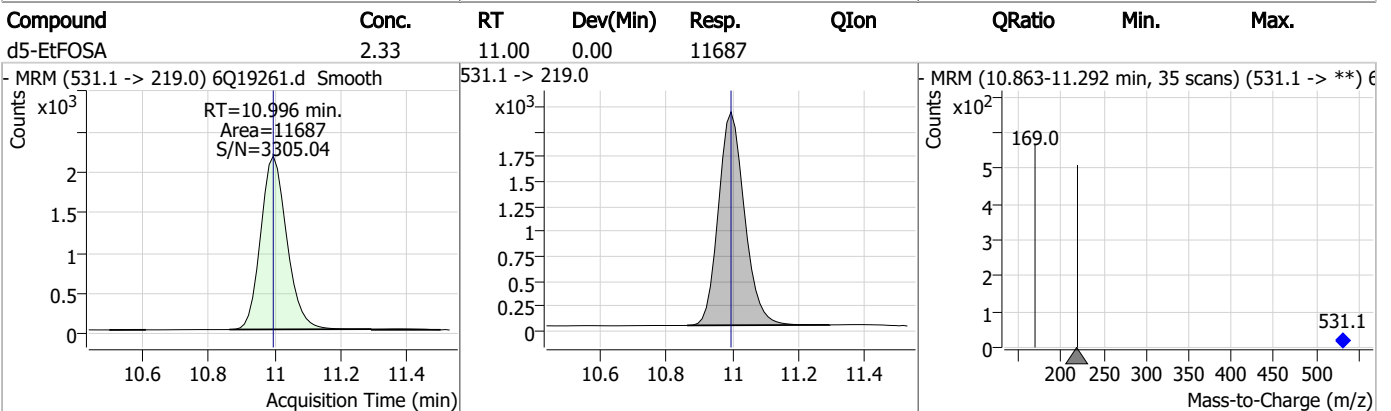
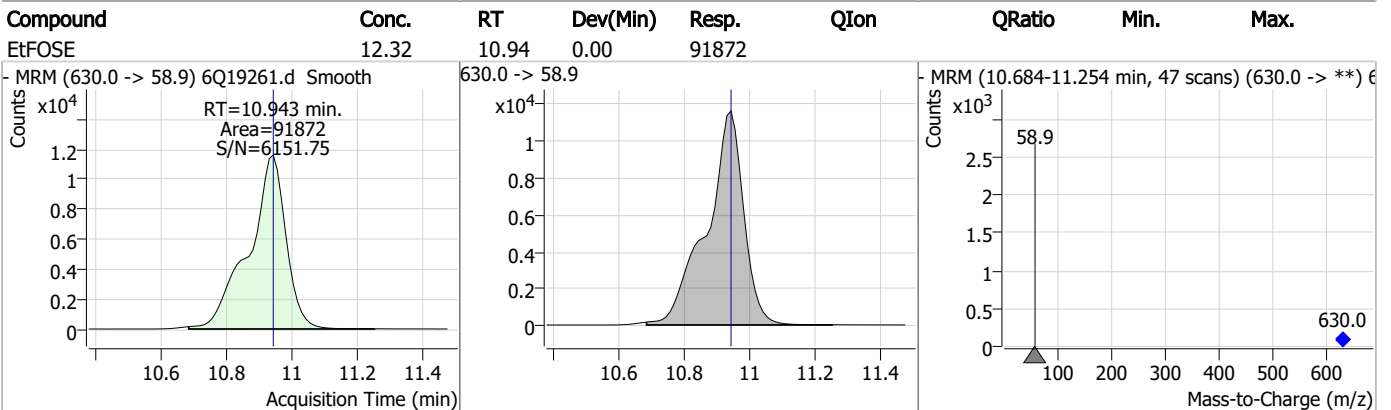
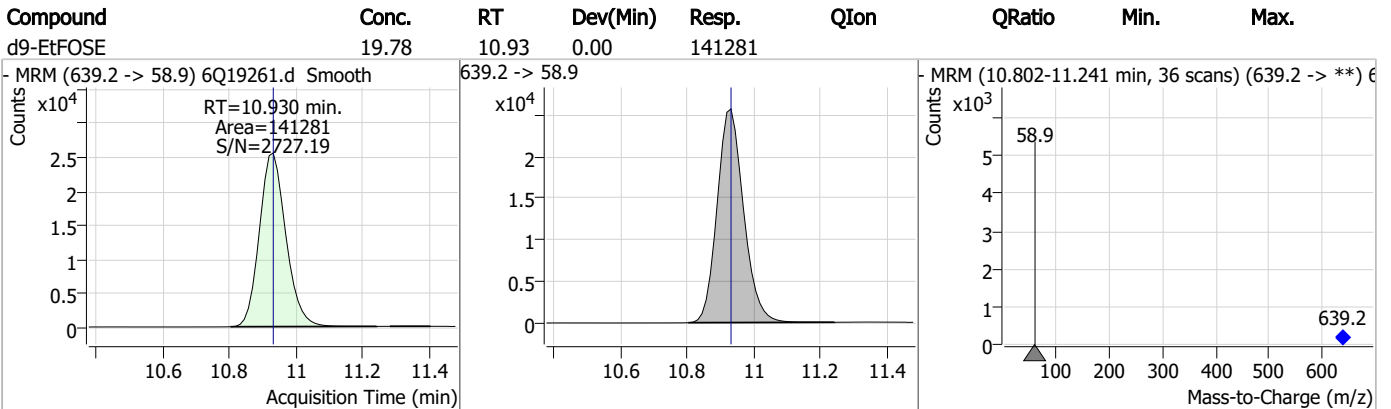
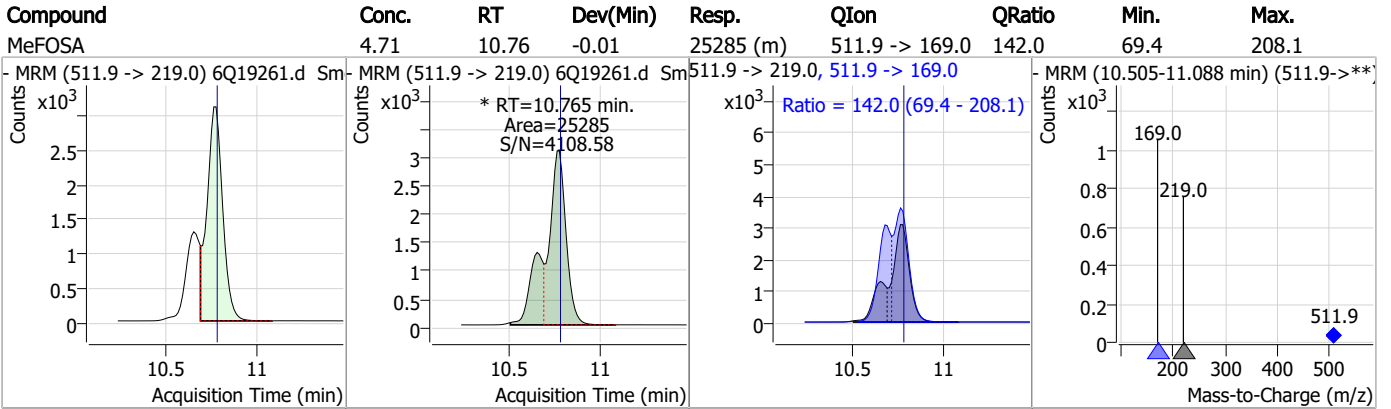
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.78	10.70	-0.01	64473 (m)				



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



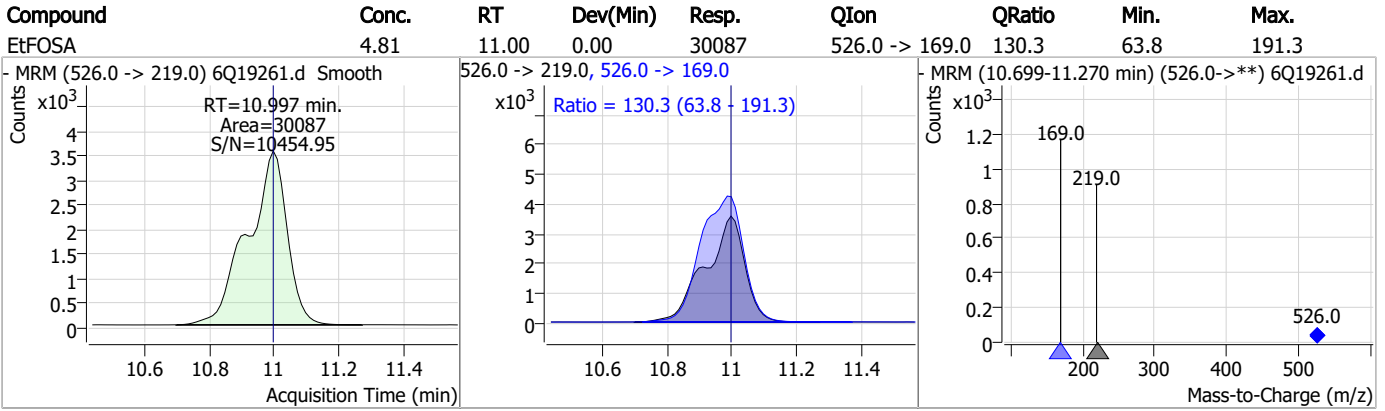
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q287-CC287 Method: EPA DRAFT 1633
Lab FileID: 6Q19261.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 20:42 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.63	Split peak
MeFOSE	24448-09-7		10.70	Split peak
MeFOSA	31506-32-8		10.77	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19272.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/12/2023 11:15:53 PM
 Sample Name : cc287-4
 Vial : P1-A5
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	145070	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	47365	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	53136	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	47733	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	79266	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	37328	1.25 µg/L	0.013
M6-PFDA	8.387	519.1 -> 474.1	20215	1.25 µg/L	0.000
M7-PFUnDA	8.866	570.0 -> 525.1	28148	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	25191	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	13684	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	27703	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	18631	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	11657	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	11274	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	2820	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	4494	5.00 µg/L	0.000
M2-8:2FTS	8.163	529.1 -> 80.9	4287	5.00 µg/L	0.000
M3-MeFOSAA	8.420	573.2 -> 419.0	28901	5.00 µg/L	0.012
M3-HFPO-DA	6.181	286.9 -> 168.9	33370	10.00 µg/L	0.012
M5-EtFOSAA	8.628	589.2 -> 419.0	24177	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	124035	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	141083	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	11723	2.50 µg/L	0.000
M3-MeFOSA	10.763	515.0 -> 219.0	11899	2.50 µg/L	-0.012
13C4-PFOS	8.563	502.8 -> 79.9	15470	2.50 µg/L	0.000
13C3-PFBA	3.089	216.0 -> 172.0	61662	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	9625	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	83204	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	31042	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	46757	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	50016	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	2820	4.76 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.2%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4494	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-8:2FTS	8.163	529.1 -> 80.9	4287	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-PFDoDA	9.297	615.1 -> 570.0	25191	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-PFTeDA	10.012	715.2 -> 670.0	13684	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.9%		
13C3-PFBS	5.746	302.1 -> 79.9	18631	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.6%		
13C3-PFHxS	7.478	402.1 -> 79.9	11657	2.28 µg/L	0.000

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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 = 91.2%	
13C4-PFBA	3.097	216.8 -> 171.9	145070	10.02 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFHpA	6.707	367.1 -> 322.0	47733	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C5-PFHxA	5.792	318.0 -> 273.0	53136	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C5-PFPeA	4.560	268.3 -> 223.0	47365	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C6-PFDA	8.387	519.1 -> 474.1	20215	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.4%	
13C7-PFUnDA	8.866	570.0 -> 525.1	28148	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C8-FOSA	9.674	506.1 -> 77.8	27703	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C8-PFOA	7.352	421.1 -> 376.0	79266	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C8-PFOS	8.575	507.1 -> 79.9	11274	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C9-PFNA	7.895	472.1 -> 427.0	37328	1.31 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.7%	
d3-MeFOSAA	8.420	573.2 -> 419.0	28901	4.98 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C3-HFPO-DA	6.181	286.9 -> 168.9	33370	9.73 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
d3-MeFOSA	10.763	515.0 -> 219.0	11899	2.31 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.6%	
d5-EtFOSAA	8.628	589.2 -> 419.0	24177	4.94 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
d7-MeFOSE	10.685	623.2 -> 58.9	124035	21.85 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.4%	
d9-EtFOSE	10.930	639.2 -> 58.9	141083	19.89 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.6%	
d5-EtFOSA	10.996	531.1 -> 219.0	11723	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.1%	
Target Compounds					QValue
4:2FTS	5.455	327.1 -> 307.0	49015	10.03 µg/L	97
		327.1 -> 80.9	17438		
6:2FTS	7.113	427.1 -> 407.0	48396	8.91 µg/L	94
		427.1 -> 80.9	15870		
8:2FTS	8.164	527.1 -> 507.0	25925	9.09 µg/L	99
		527.1 -> 80.8	10046		
EtFOSAA	8.629	584.2 -> 419.1	9656	2.41 µg/L	m 95
		584.2 -> 526.0	5210		
FOSA	9.677	498.1 -> 77.9	27317	2.40 µg/L	100
		498.1 -> 478.0	749		
MeFOSAA	8.421	570.1 -> 419.0	17576	2.50 µg/L	m 99
		570.1 -> 483.0	3528		
PFBA	3.093	212.8 -> 168.9	55749	9.64 µg/L	100
PFBS	5.747	298.7 -> 79.9	16866	2.06 µg/L	87
		298.7 -> 98.8	7060		
PFDA	8.388	512.9 -> 469.0	72046	2.38 µg/L	98
		512.9 -> 219.0	11394		
PFDODA	9.298	613.1 -> 569.0	48375	2.34 µg/L	96
		613.1 -> 319.0	7220		
PFDS	9.462	599.0 -> 79.9	7908	2.32 µg/L	96

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3788			
PFHpA	6.720	363.1 -> 319.0	59445	2.33	µg/L	96
		363.1 -> 169.0	10559			
PFHpS	8.059	449.0 -> 79.9	14870	2.19	µg/L	98
		449.0 -> 98.9	7089			
PFHxA	5.795	313.0 -> 269.0	50195	2.36	µg/L	98
		313.0 -> 118.9	2449			
PFHxS	7.479	398.7 -> 79.9	14568	2.08	µg/L	m 95
		398.7 -> 98.9	7273			
PFNA	7.896	463.0 -> 419.0	75688	2.21	µg/L	97
		463.0 -> 219.0	14368			
PFNS	9.041	548.8 -> 79.9	13728	2.30	µg/L	94
		548.8 -> 98.9	7231			
PFOA	7.353	413.0 -> 369.0	98210	2.42	µg/L	98
		413.0 -> 169.0	16595			
PFOS	8.564	498.9 -> 79.9	13853	2.09	µg/L	m 97
		498.9 -> 98.8	7487			
PFPeA	4.563	263.0 -> 219.0	66418	4.77	µg/L	100
PFPeS	6.785	349.1 -> 79.9	14901	2.31	µg/L	100
		349.1 -> 98.9	6860			
PFTeDA	10.013	713.1 -> 669.0	39378	2.41	µg/L	99
		713.1 -> 168.9	3311			
PFTrDA	9.681	663.0 -> 619.0	48747	2.37	µg/L	97
		663.0 -> 168.9	5448			
PFUnDA	8.866	563.1 -> 519.0	54840	2.66	µg/L	98
		563.1 -> 269.1	8514			
11CI-PF3OUdS	9.733	630.9 -> 450.9	72717	4.62	µg/L	97
		632.9 -> 452.9	20638			
9CI-PF3ONS	8.918	530.8 -> 351.0	114336	4.35	µg/L	96
		532.8 -> 353.0	36524			
ADONA	6.959	376.9 -> 250.9	256326	4.54	µg/L	97
		376.9 -> 84.8	67056			
HFPO-DA	6.182	284.9 -> 168.9	15733	4.34	µg/L	95
		284.9 -> 184.9	2015			
3:3FTCA	3.958	241.0 -> 177.0	11078	11.62	µg/L	99
		241.0 -> 117.0	1438			
5:3FTCA	6.374	341.0 -> 237.1	245874	59.56	µg/L	96
		341.0 -> 217.0	174224			
7:3FTCA	7.748	441.0 -> 316.9	171837	58.16	µg/L	95
		441.0 -> 336.9	410157			
EtFOSA	10.997	526.0 -> 219.0	29910	4.76	µg/L	m 93
		526.0 -> 169.0	40479			
EtFOSE	10.943	630.0 -> 58.9	91318	12.26	µg/L	100
MeFOSA	10.765	511.9 -> 219.0	25768	4.94	µg/L	m 98
		511.9 -> 169.0	35262			
MeFOSE	10.697	616.1 -> 58.9	65501	12.07	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	3825	2.26	µg/L	94
		699.1 -> 98.8	2055			
NFDHA	5.673	295.0 -> 201.0	12799	4.75	µg/L	93
		295.0 -> 84.9	3237			
PFMBA	4.988	279.0 -> 85.1	47184	4.72	µg/L	100
PFMPA	3.667	229.0 -> 84.9	37584	4.84	µg/L	100
PFEESA	6.301	314.8 -> 134.9	117640	4.49	µg/L	100
		314.8 -> 82.9	3994			

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

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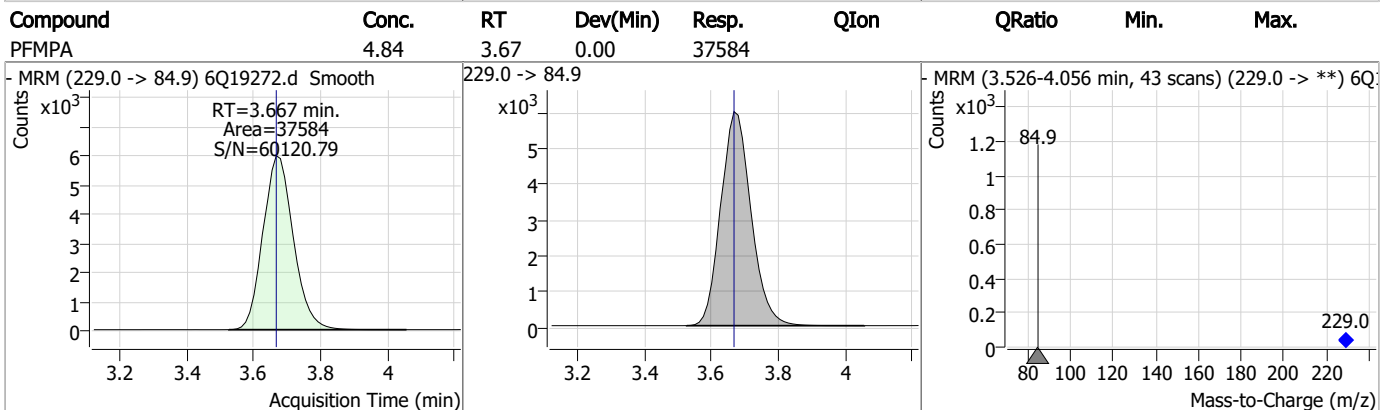
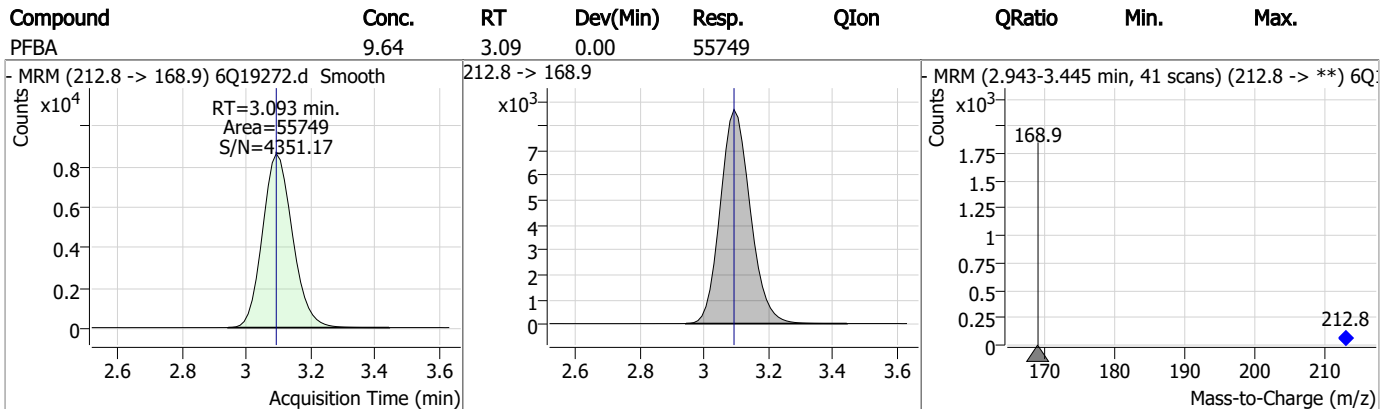
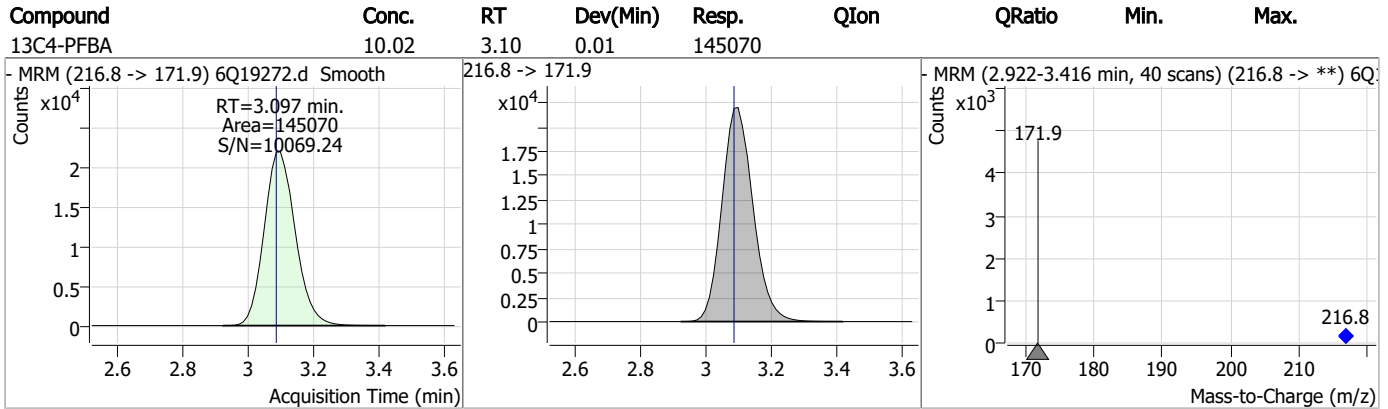
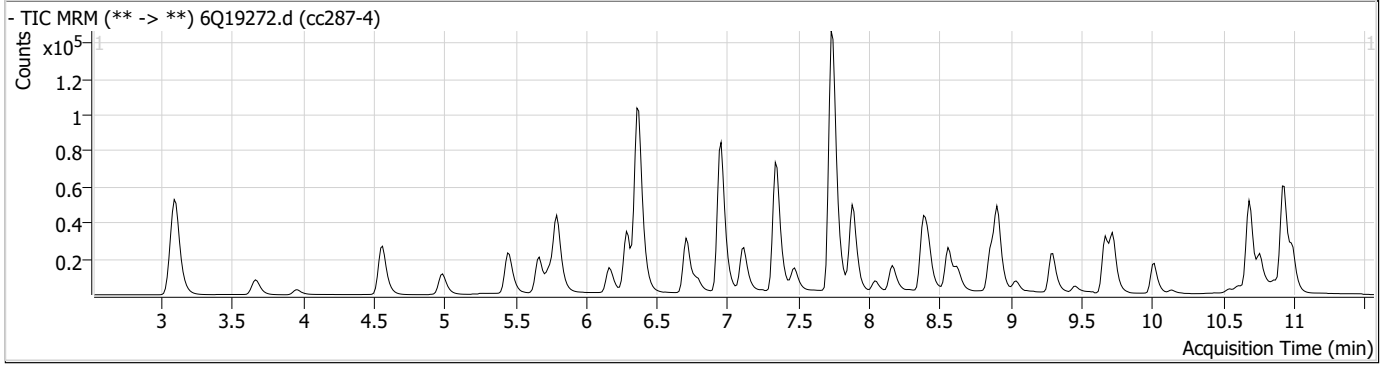
Perfluorinated Compounds by LC/MS/MS

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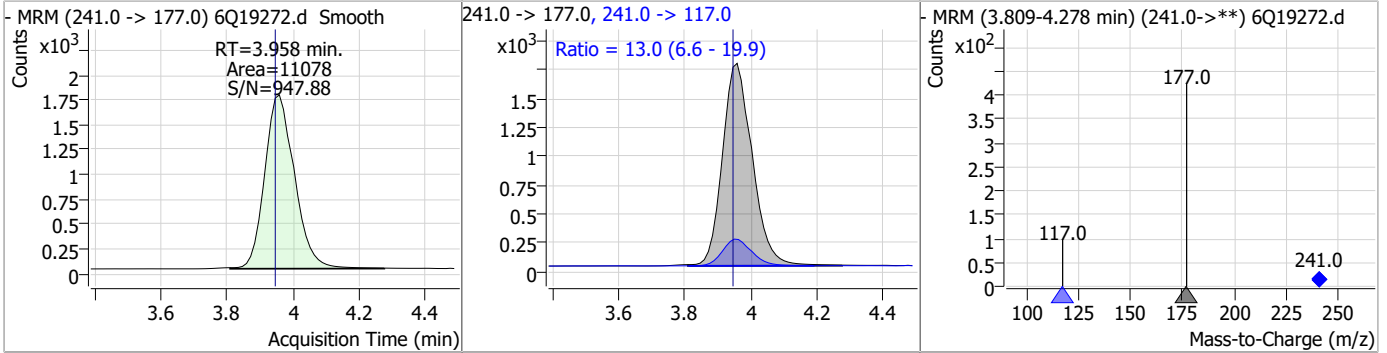
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Perfluorinated Compounds by LC/MS/MS

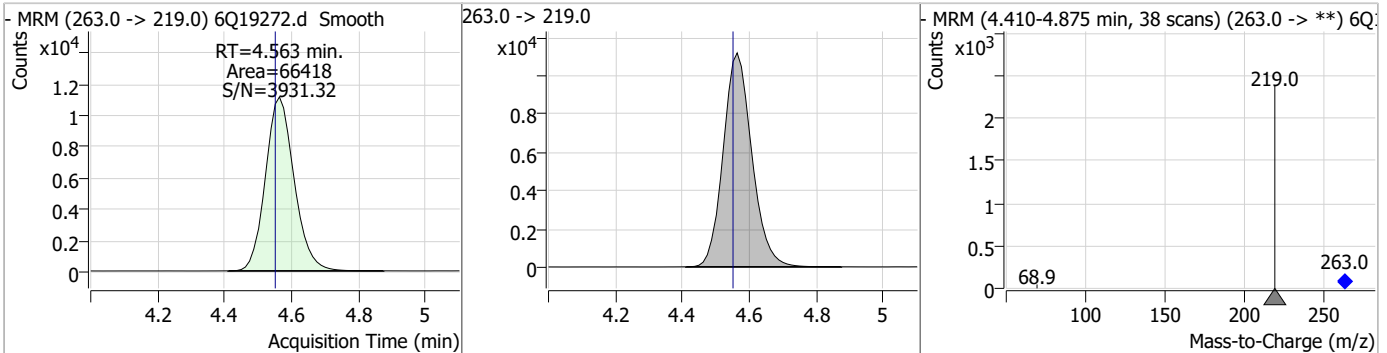


Perfluorinated Compounds by LC/MS/MS

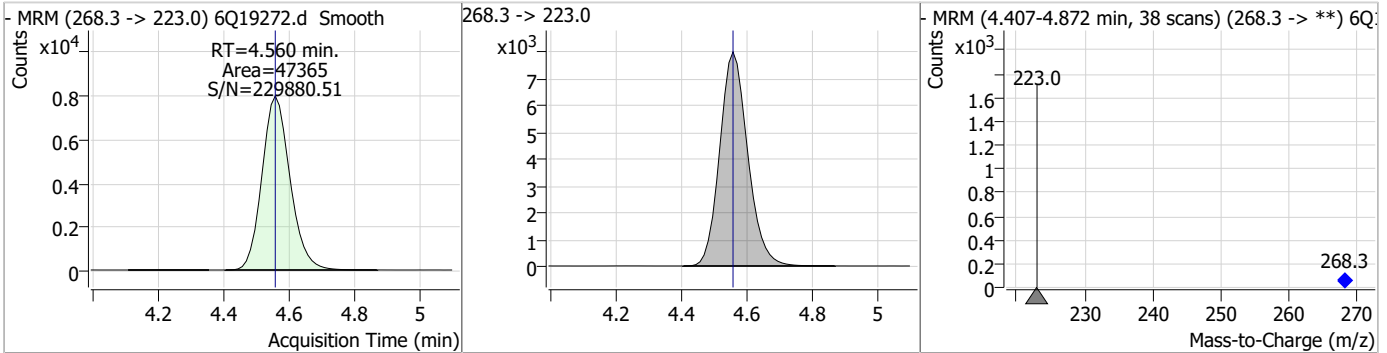
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.62	3.96	0.01	11078	241.0 -> 117.0	13.0	6.6	19.9



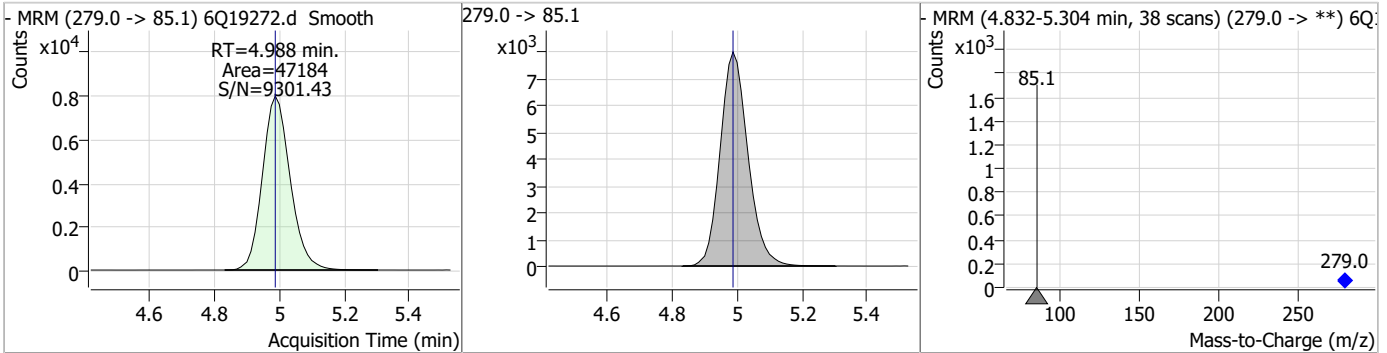
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.77	4.56	0.01	66418				



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

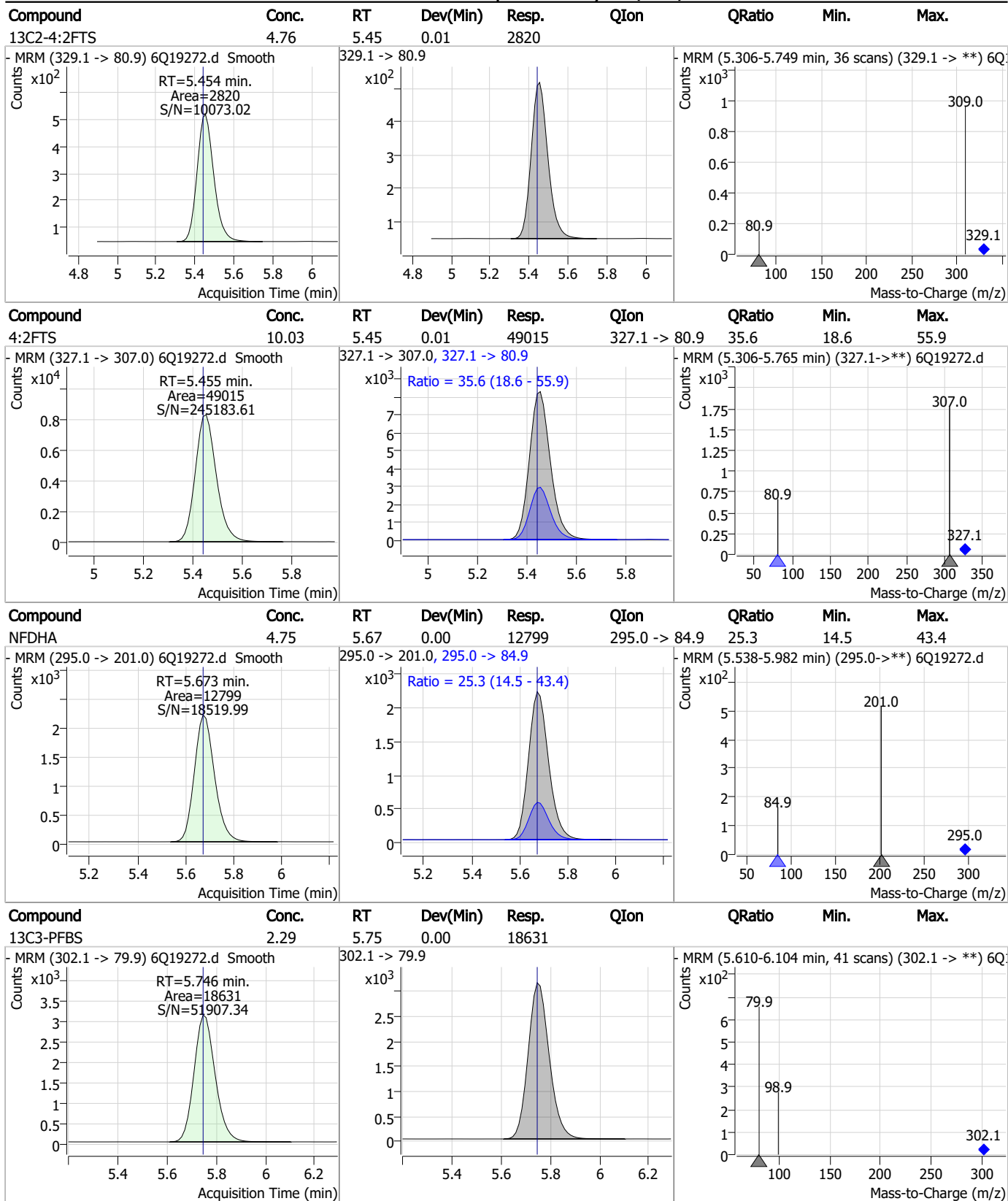


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.72	4.99	0.00	47184				



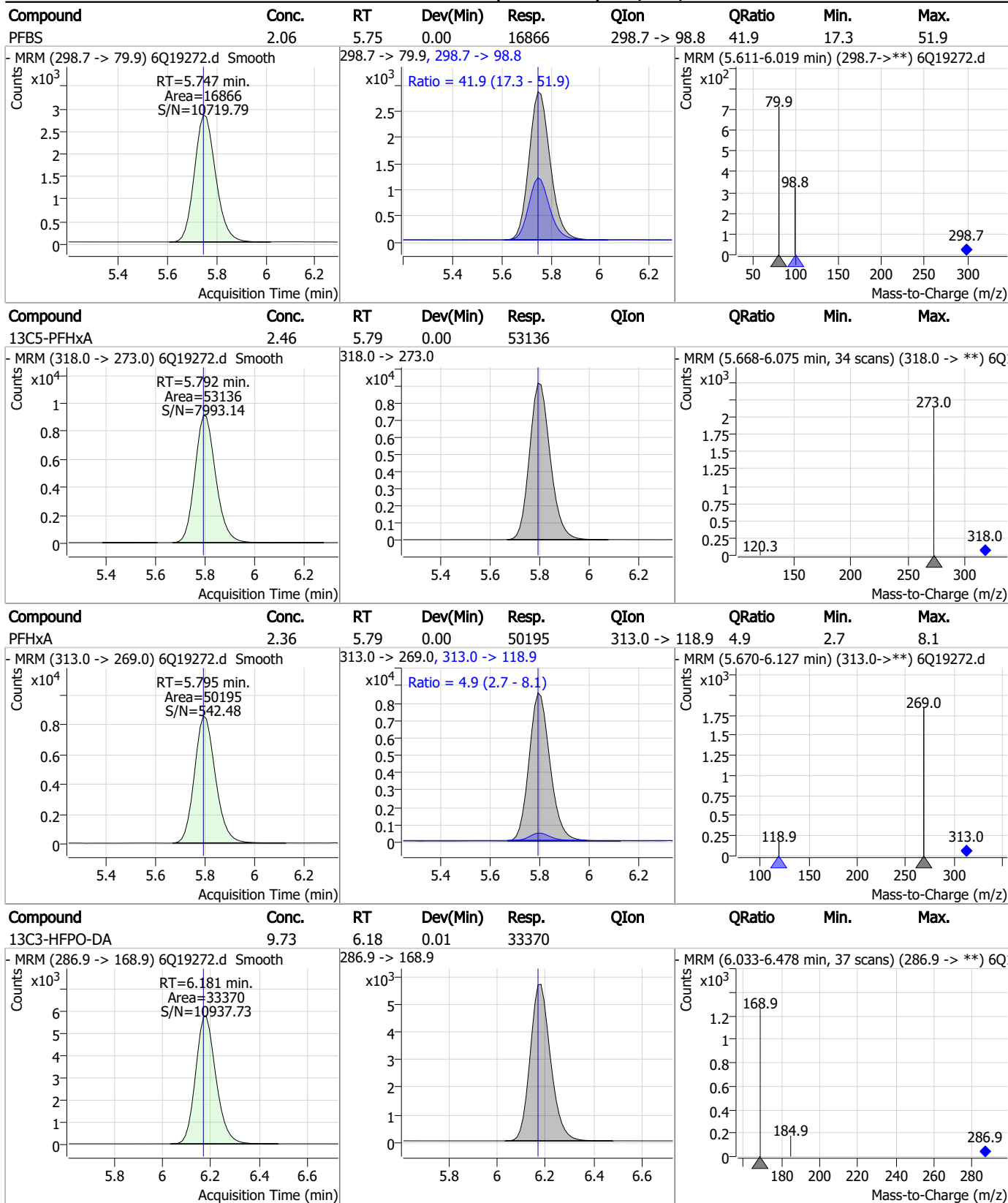
7.7.15 7

Perfluorinated Compounds by LC/MS/MS



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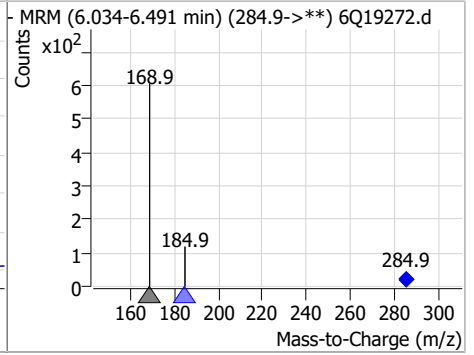
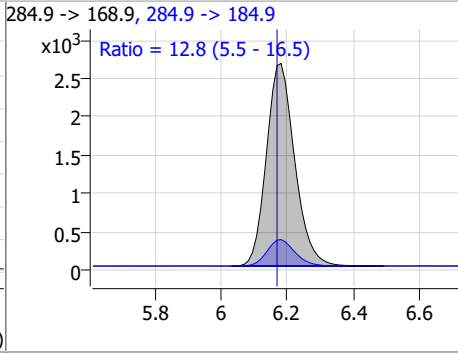
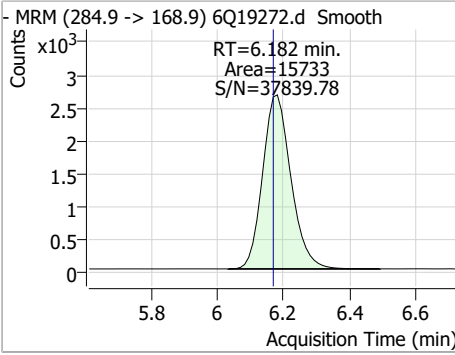
Perfluorinated Compounds by LC/MS/MS



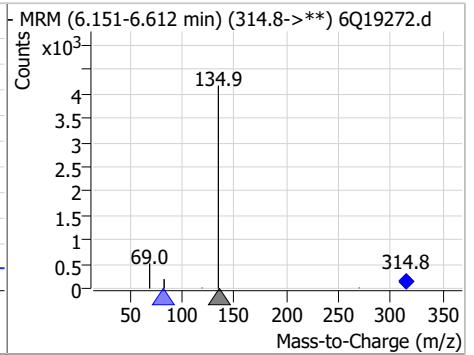
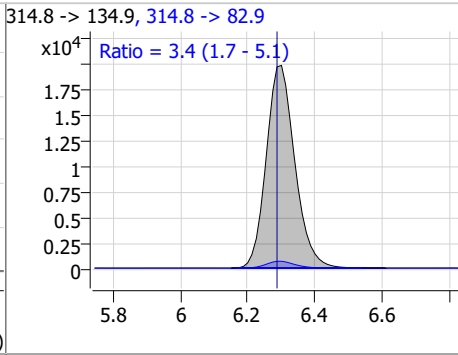
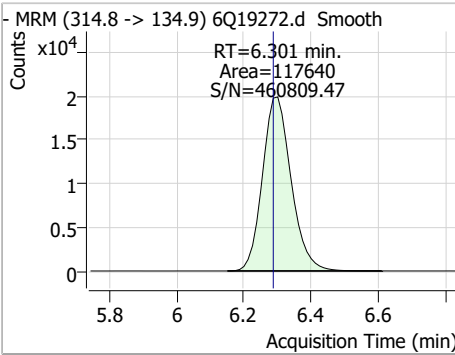
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Perfluorinated Compounds by LC/MS/MS

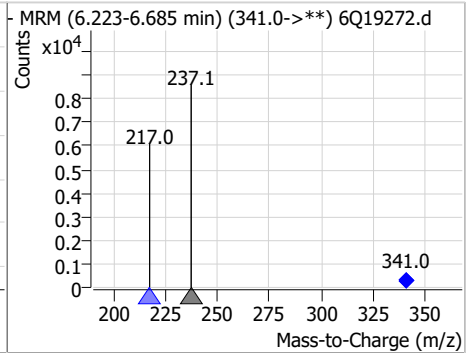
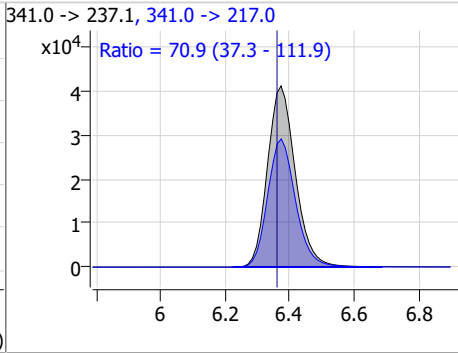
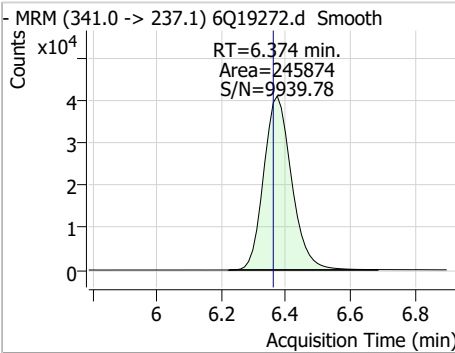
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.34	6.18	0.01	15733	284.9 -> 184.9	12.8	5.5	16.5



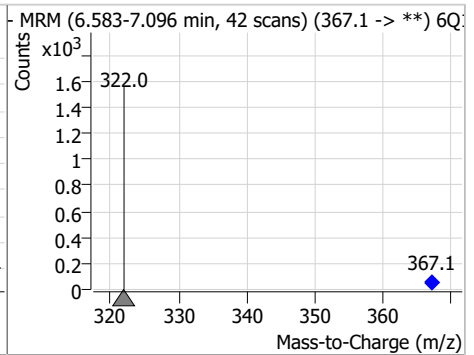
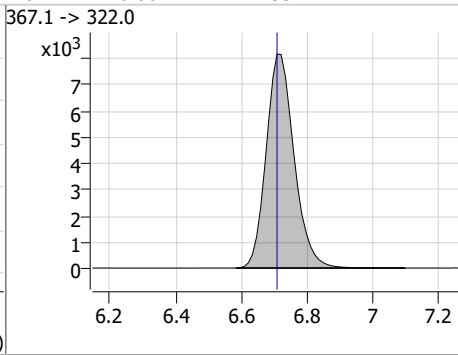
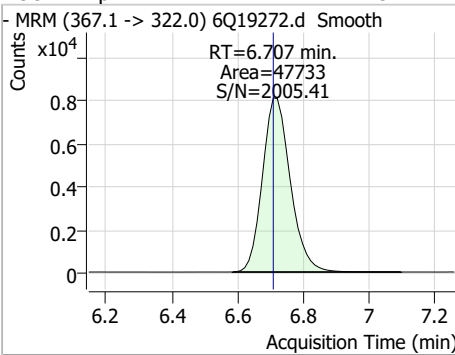
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.49	6.30	0.01	117640	314.8 -> 82.9	3.4	1.7	5.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	59.56	6.37	0.01	245874	341.0 -> 217.0	70.9	37.3	111.9



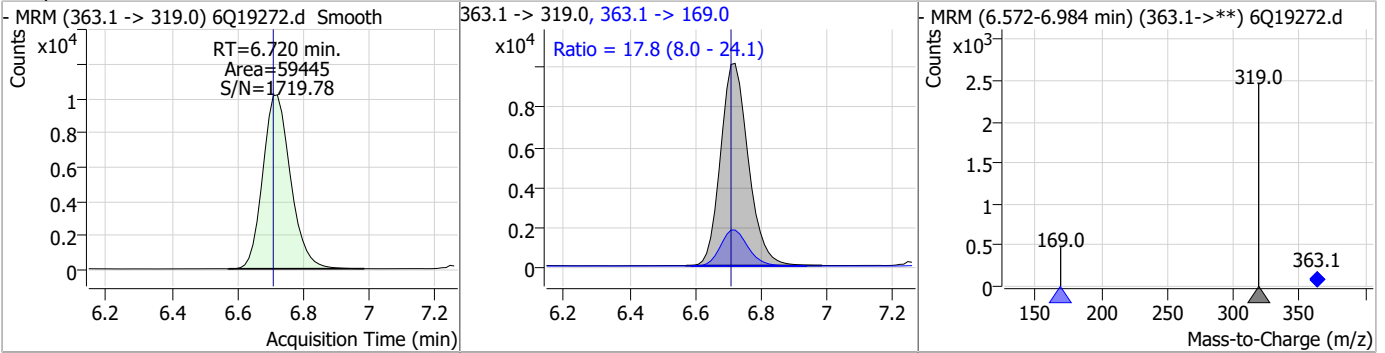
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.37	6.71	0.00	47733	367.1 -> 322.0			



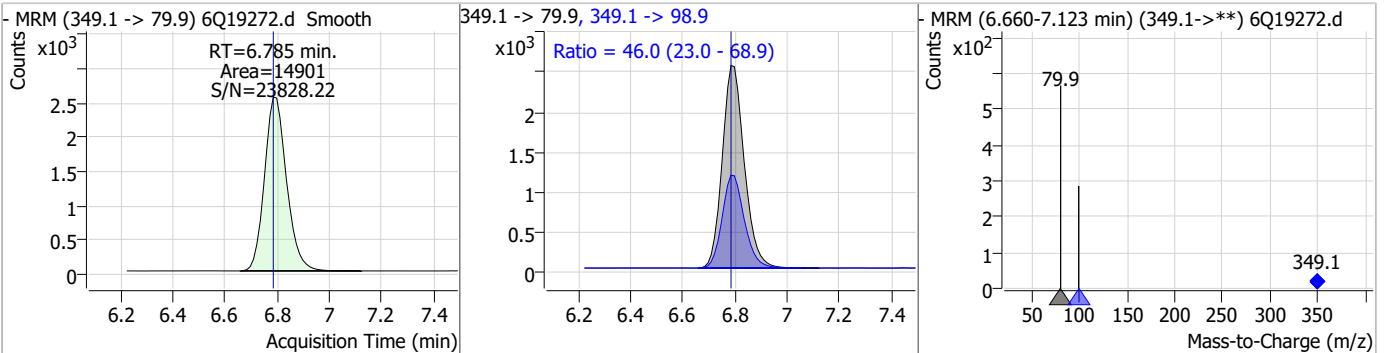
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Perfluorinated Compounds by LC/MS/MS

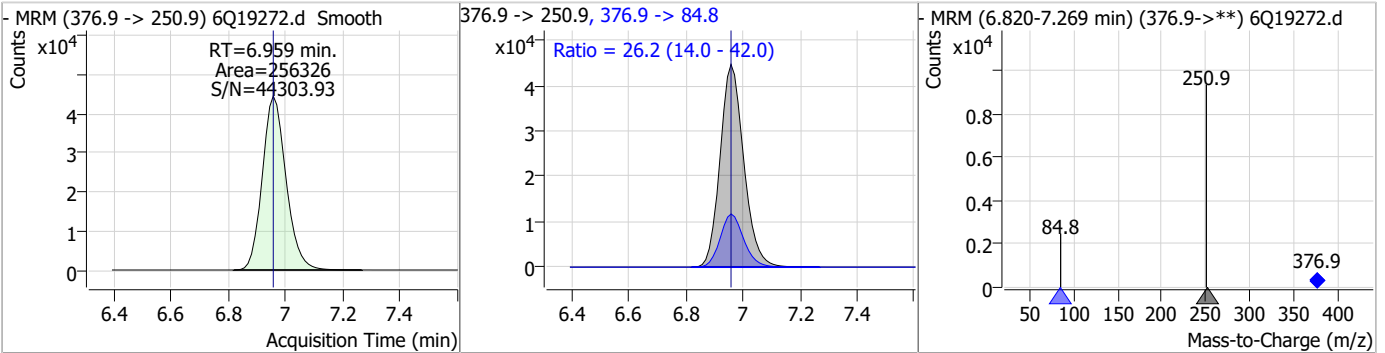
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.33	6.72	0.01	59445	363.1 -> 169.0	17.8	8.0	24.1



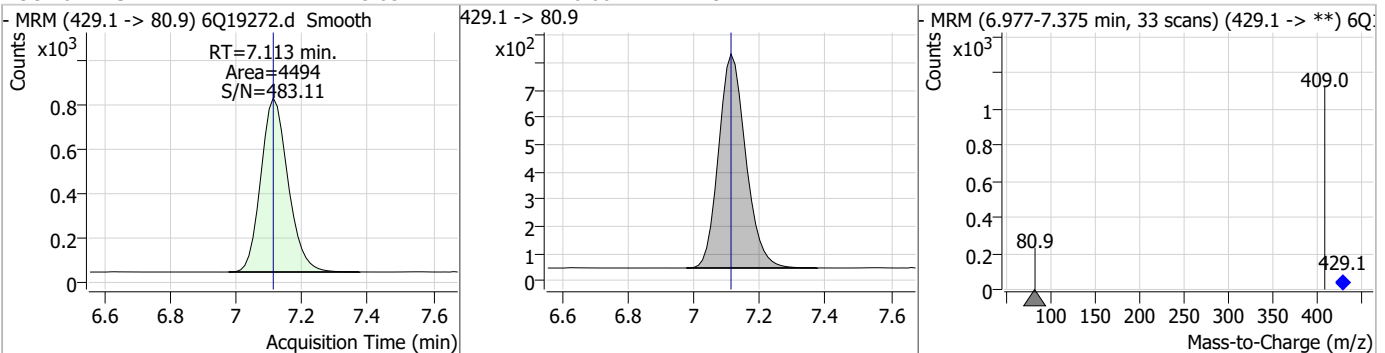
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.31	6.79	0.00	14901	349.1 -> 98.9	46.0	23.0	68.9



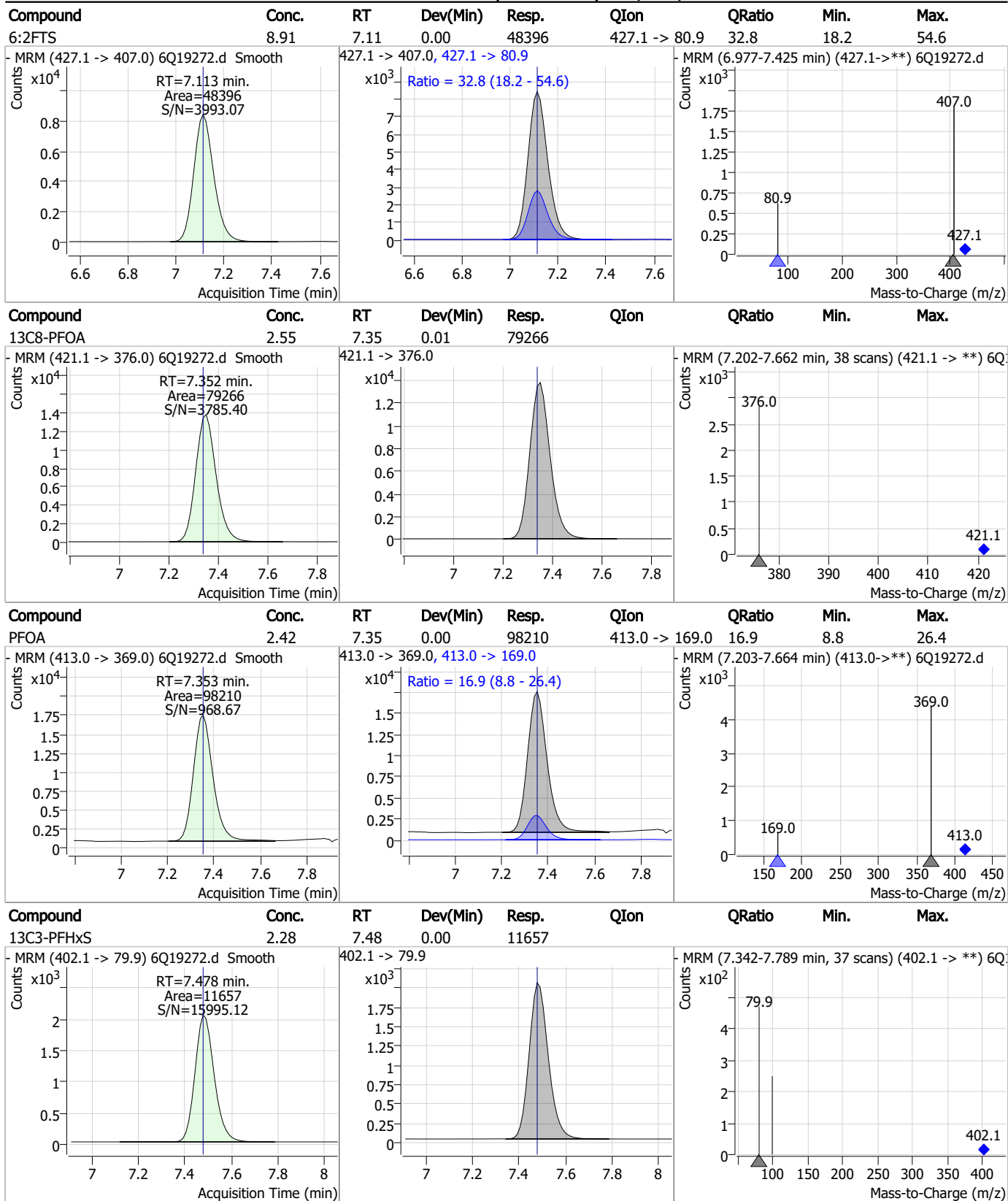
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.54	6.96	0.00	256326	376.9 -> 84.8	26.2	14.0	42.0



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

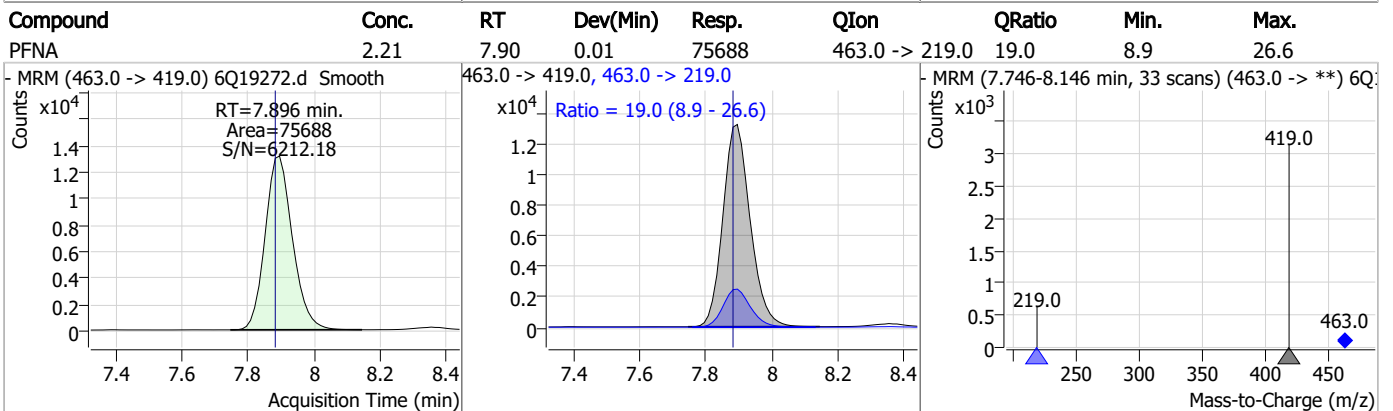
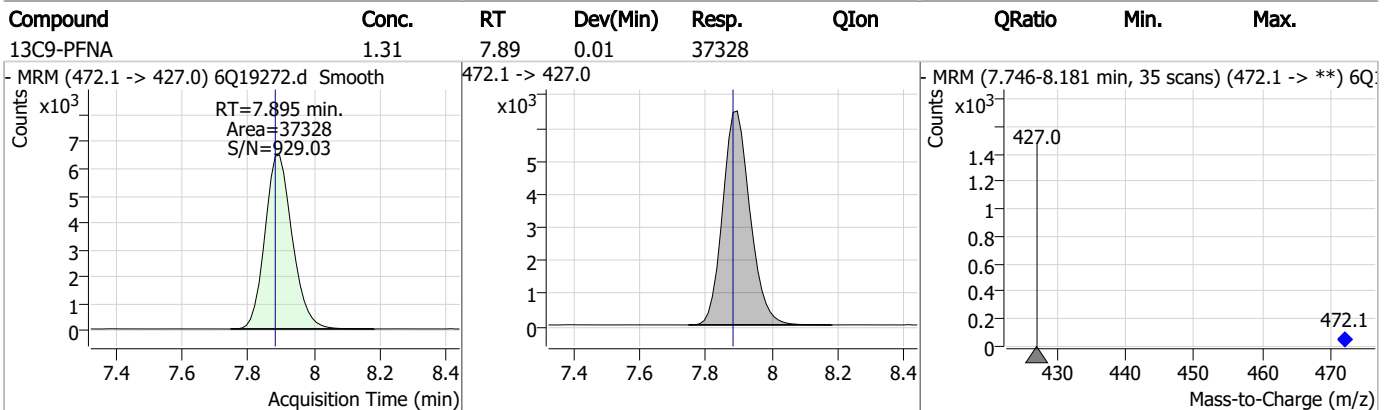
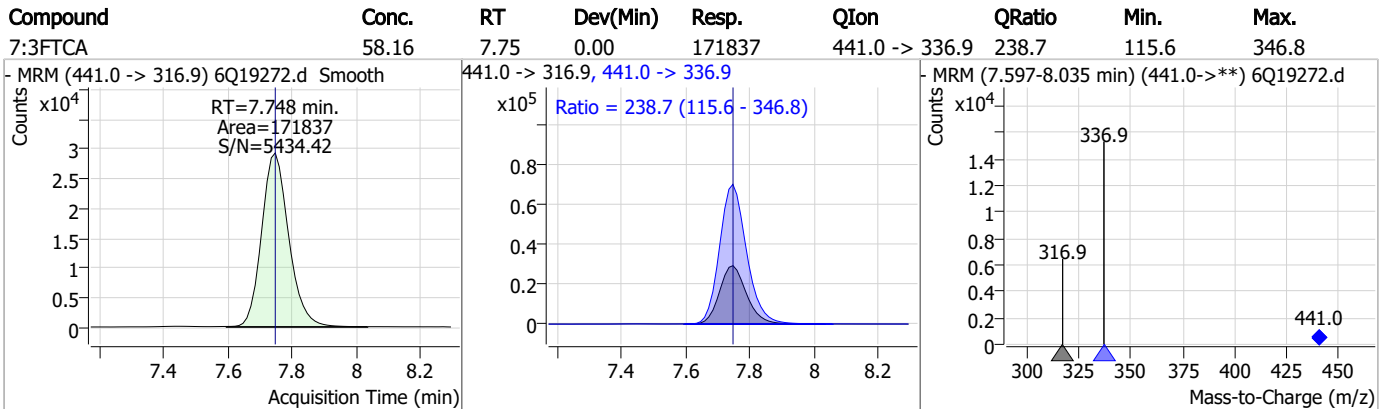
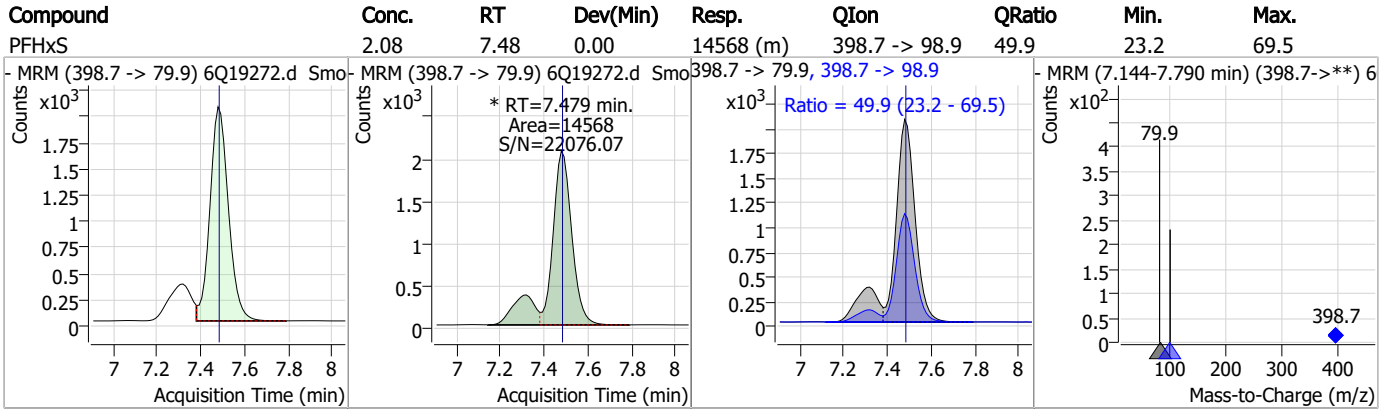


Perfluorinated Compounds by LC/MS/MS



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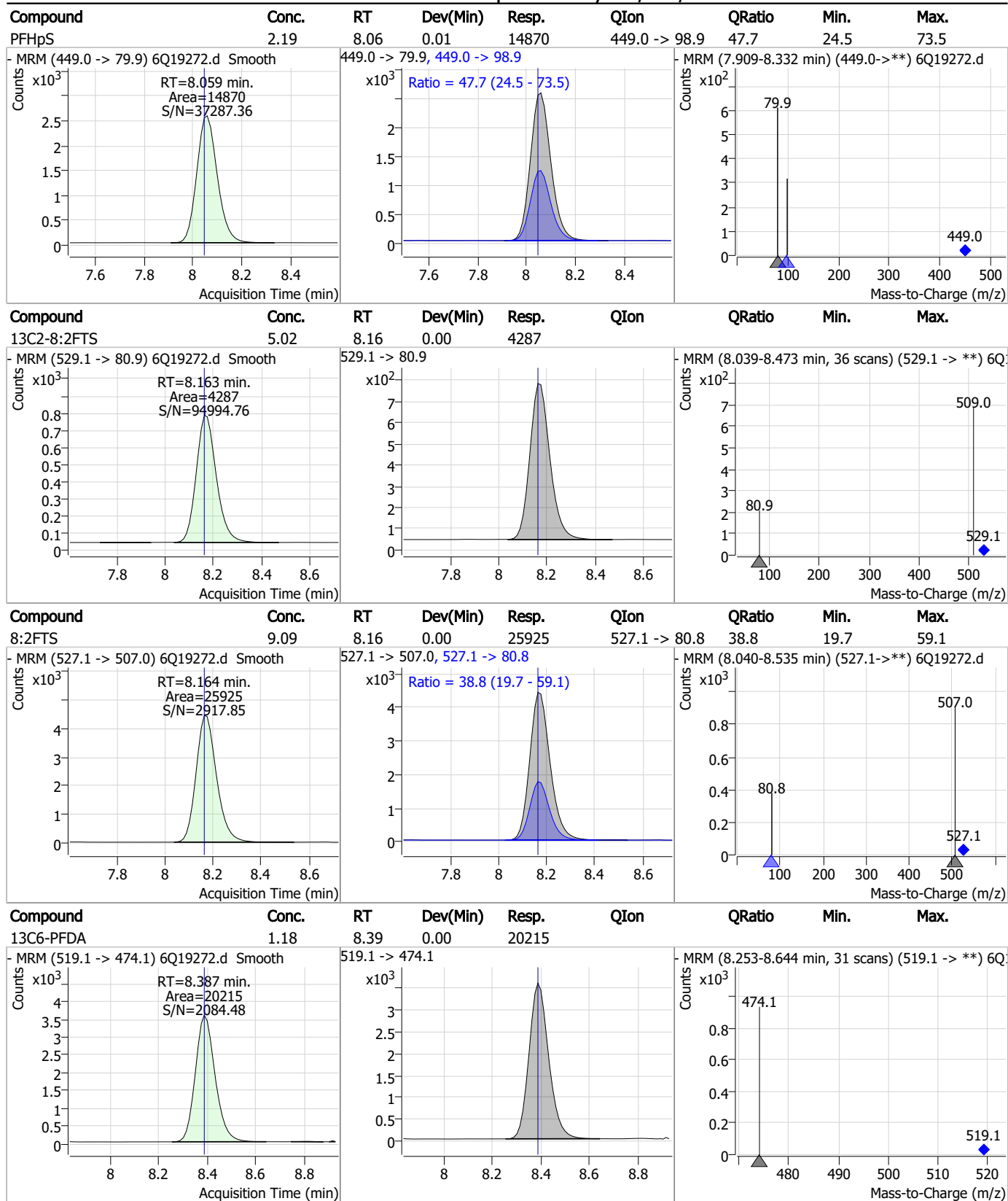
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

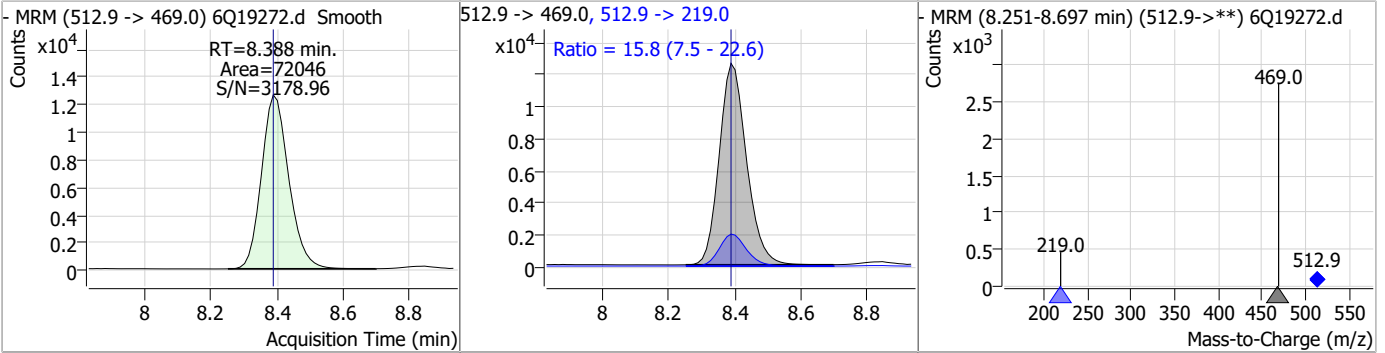


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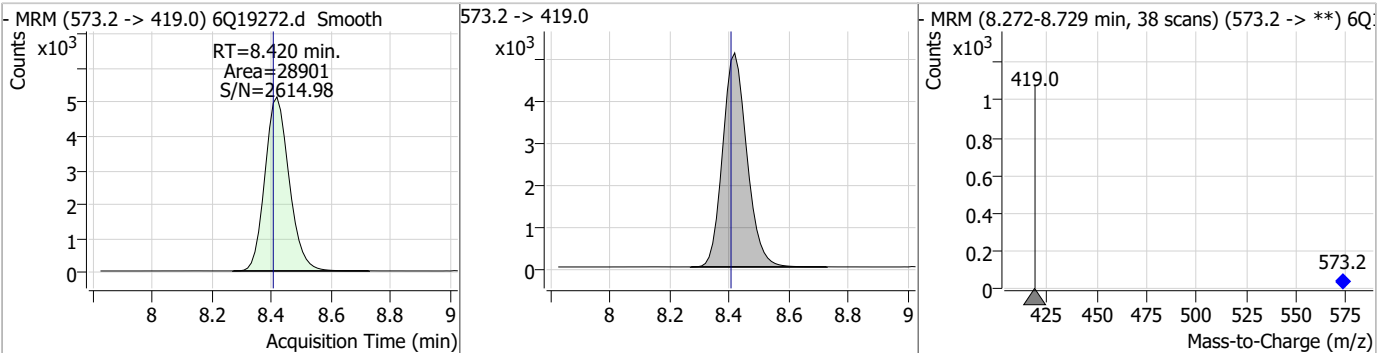


Perfluorinated Compounds by LC/MS/MS

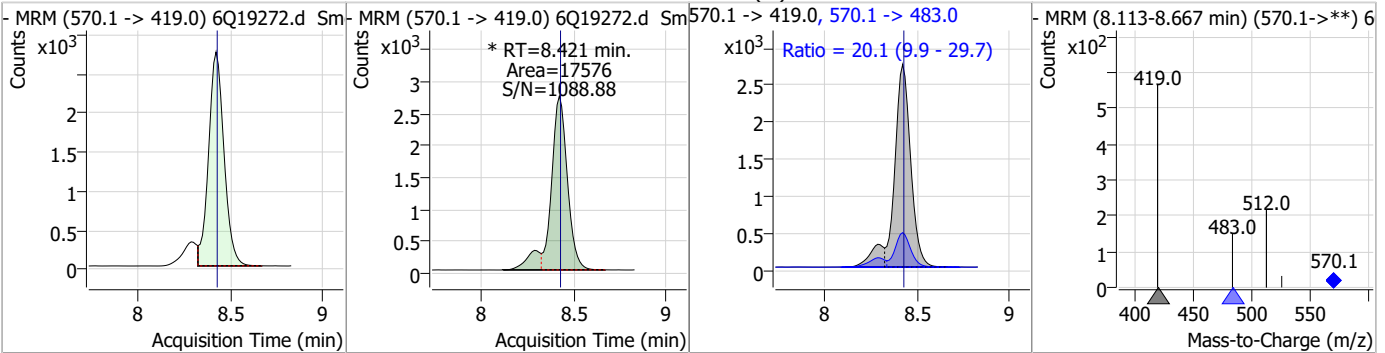
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.38	8.39	0.00	72046	512.9 -> 219.0	15.8	7.5	22.6



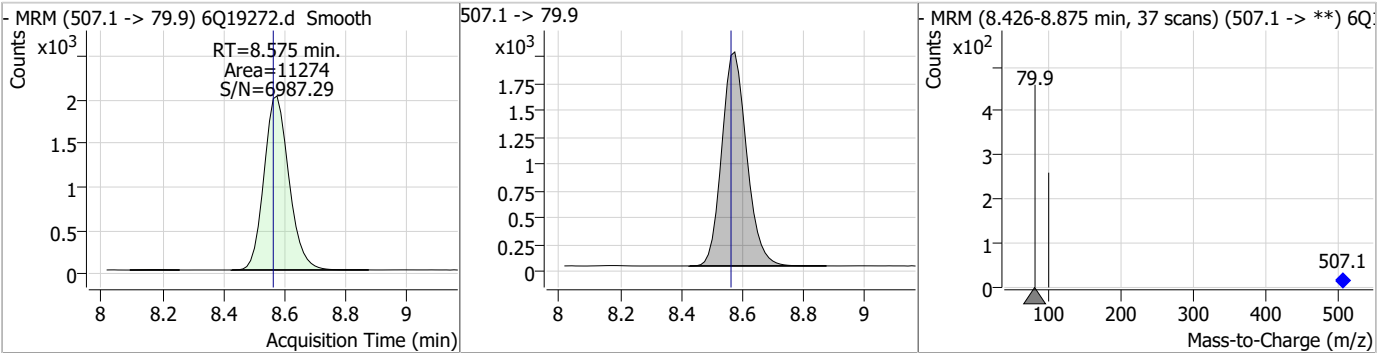
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.98	8.42	0.01	28901				



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

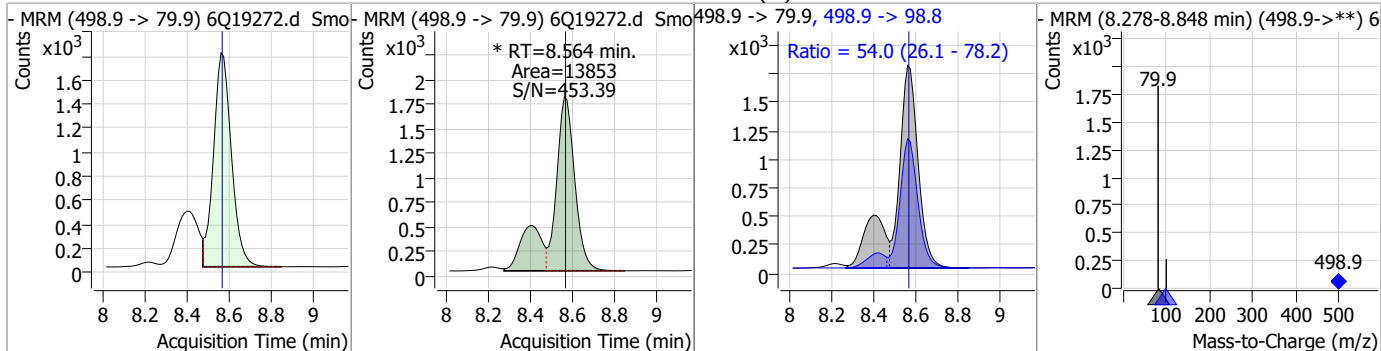


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.49	8.57	0.01	11274				

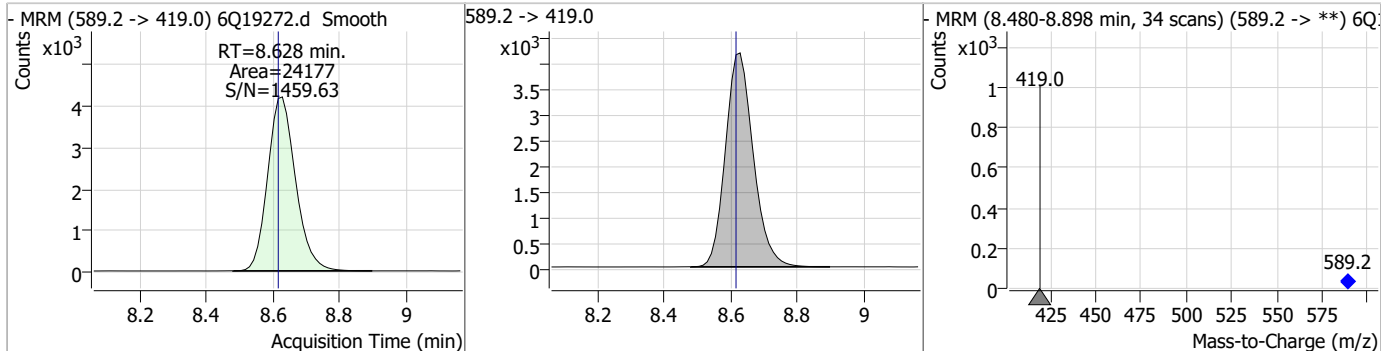


Perfluorinated Compounds by LC/MS/MS

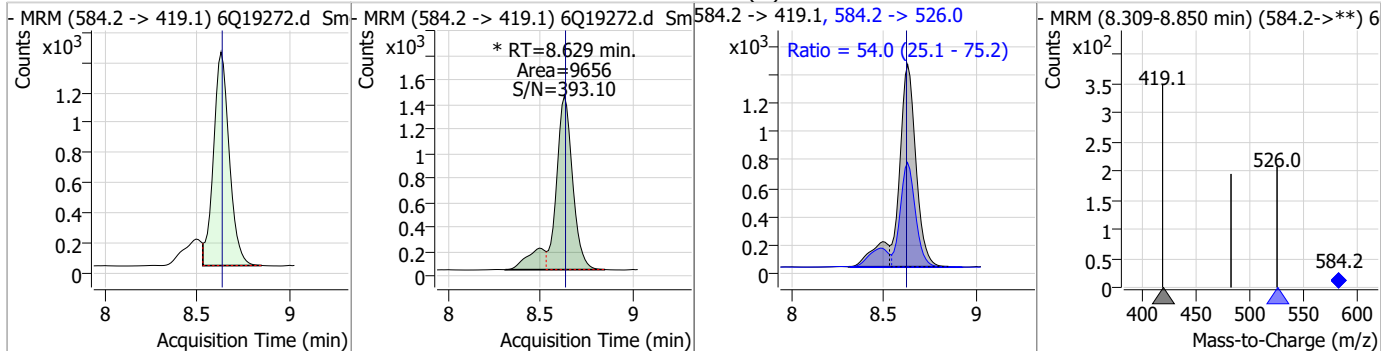
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.09	8.56	0.00	13853 (m)	498.9 -> 98.8	54.0	26.1	78.2



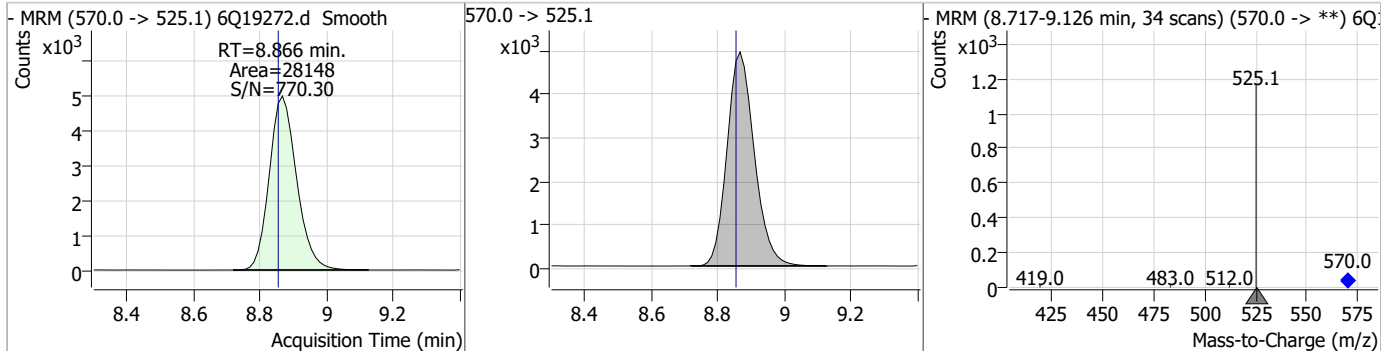
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.94	8.63	0.01	24177				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.41	8.63	0.00	9656 (m)	584.2 -> 526.0	54.0	25.1	75.2

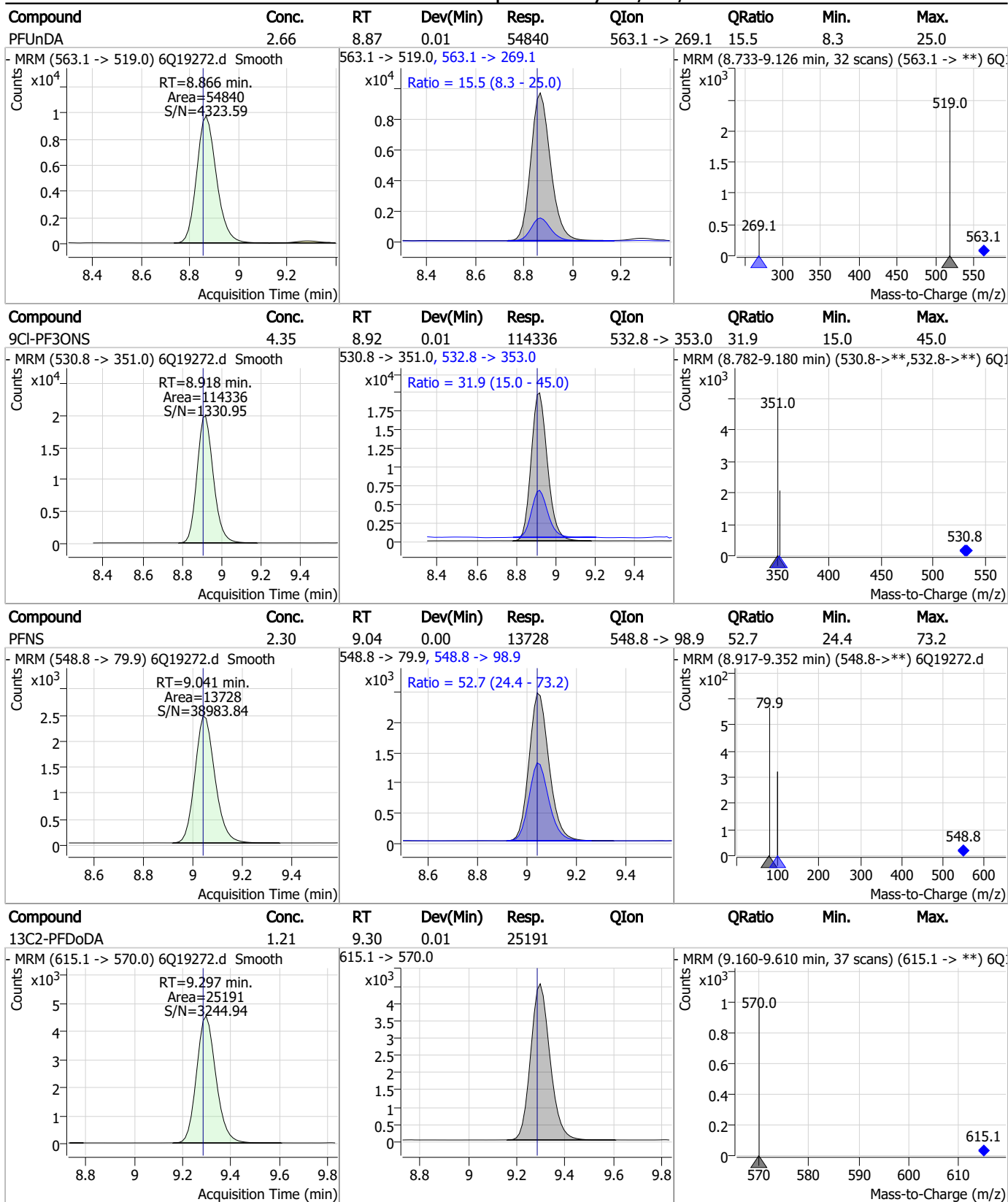


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.17	8.87	0.01	28148				



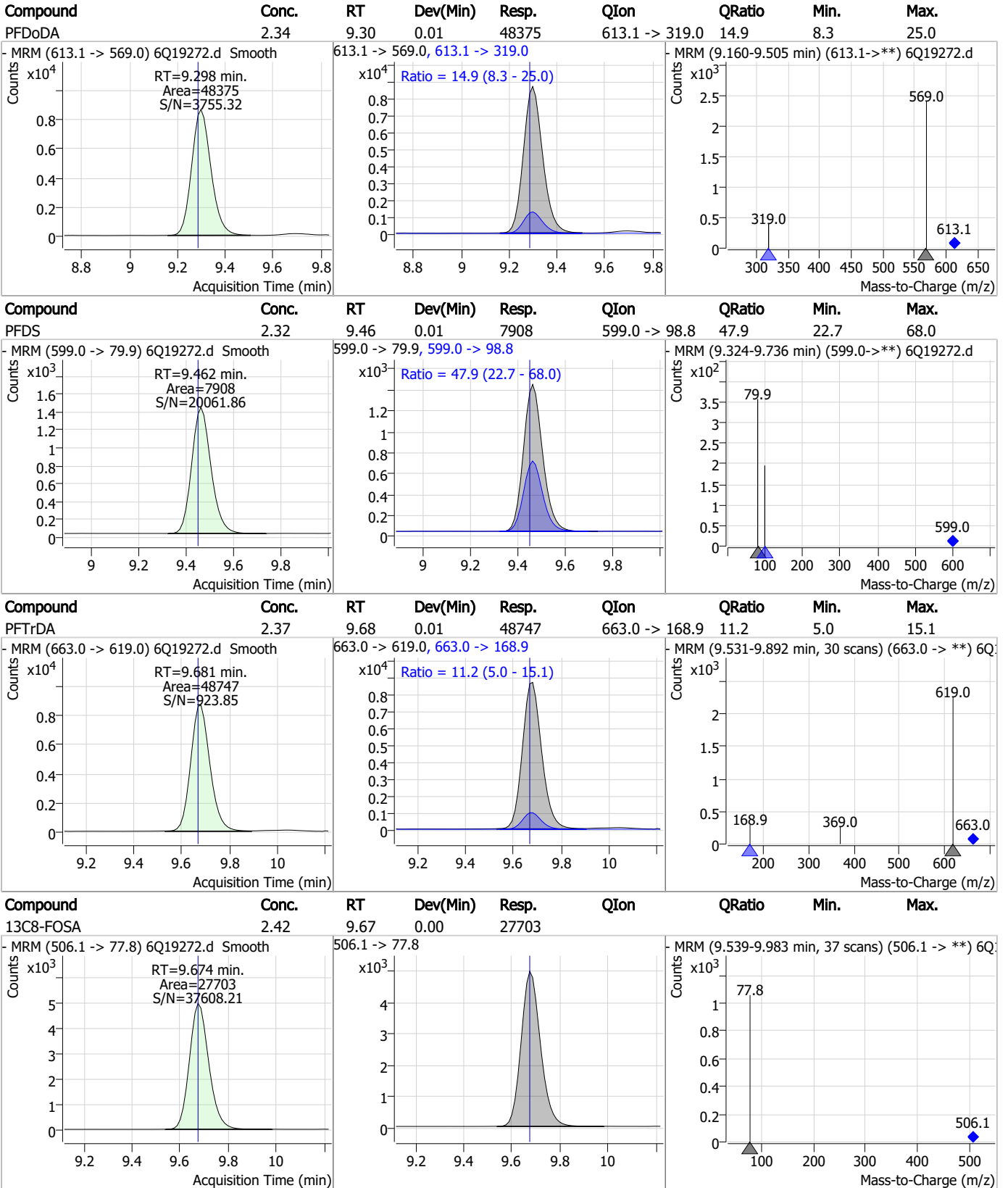
7.7.15
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

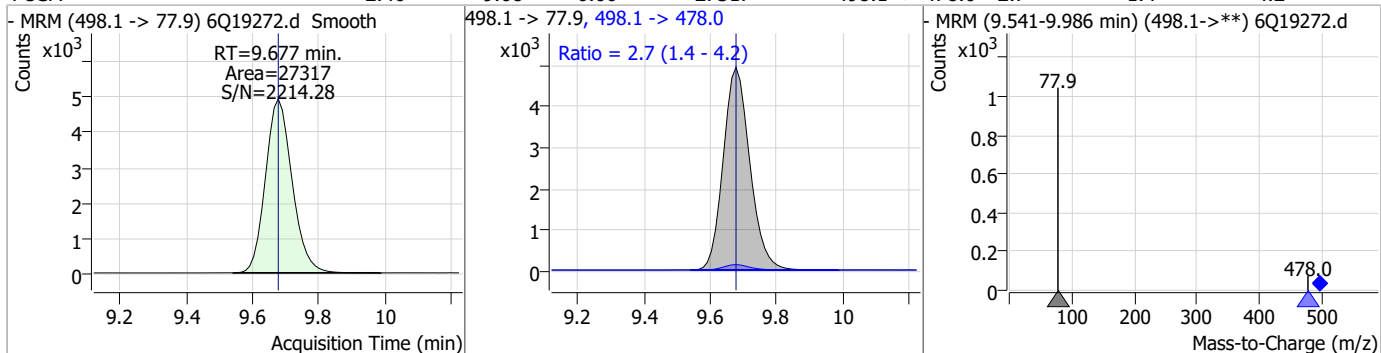


7.7.15 7

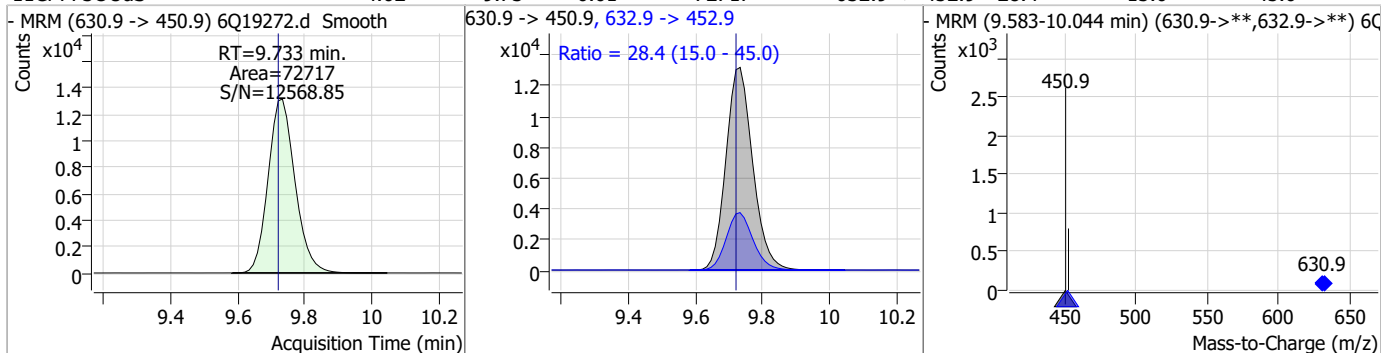


Perfluorinated Compounds by LC/MS/MS

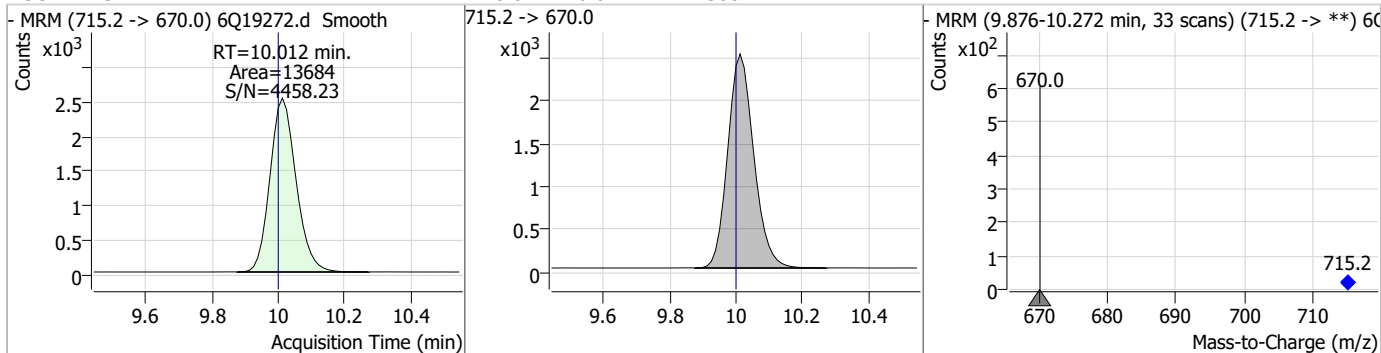
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.40	9.68	0.00	27317	498.1 -> 478.0	2.7	1.4	4.2



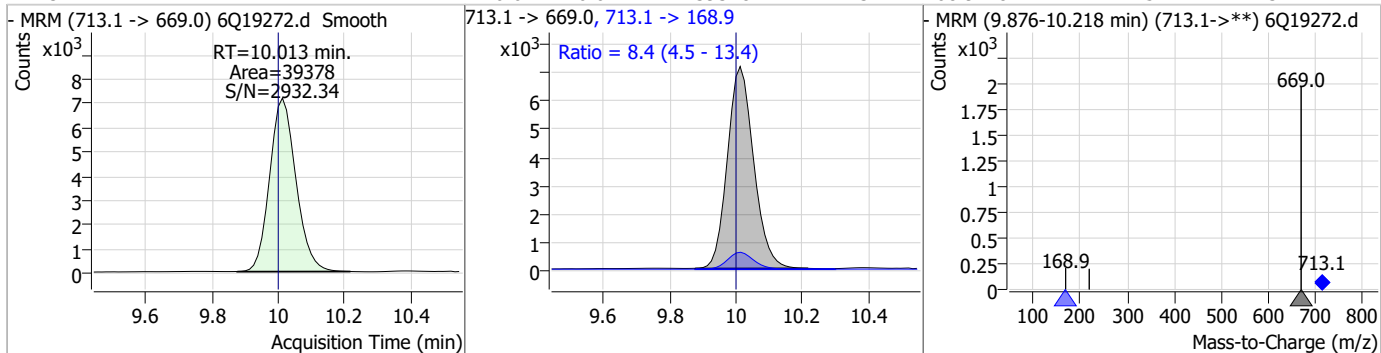
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	4.62	9.73	0.01	72717	632.9 -> 452.9	28.4	15.0	45.0



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

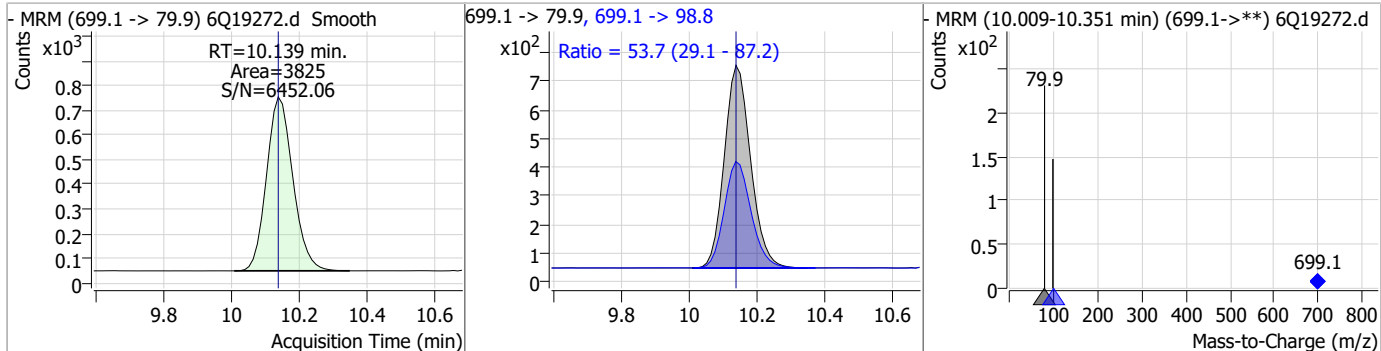


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.41	10.01	0.01	39378	713.1 -> 168.9	8.4	4.5	13.4

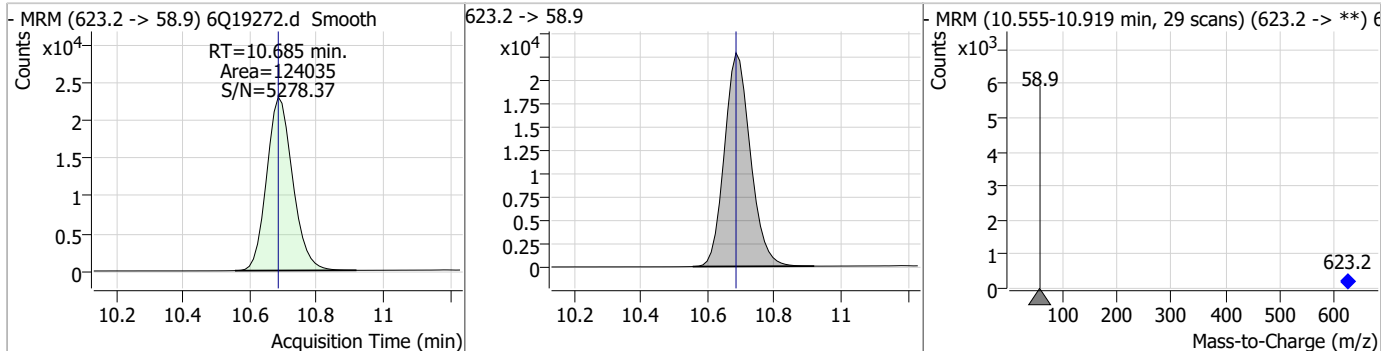


Perfluorinated Compounds by LC/MS/MS

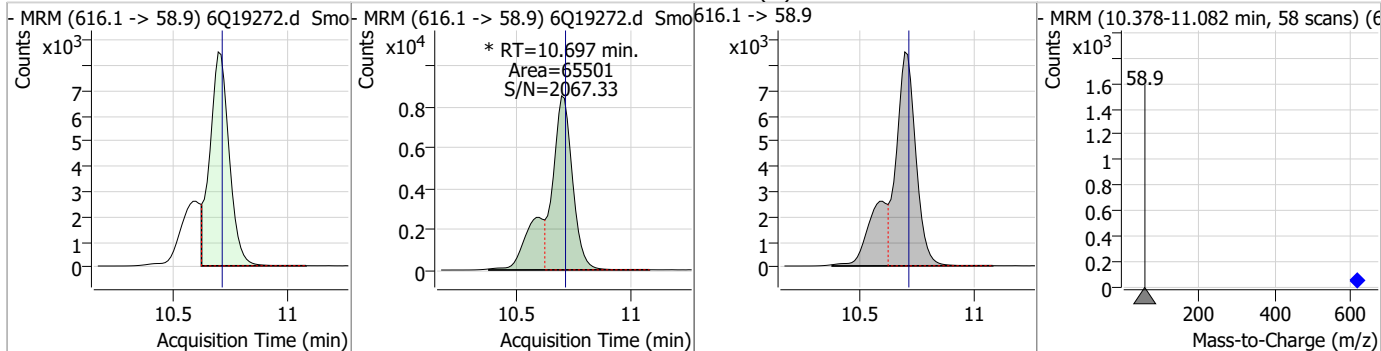
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.26	10.14	0.00	3825	699.1 -> 98.8	53.7	29.1	87.2



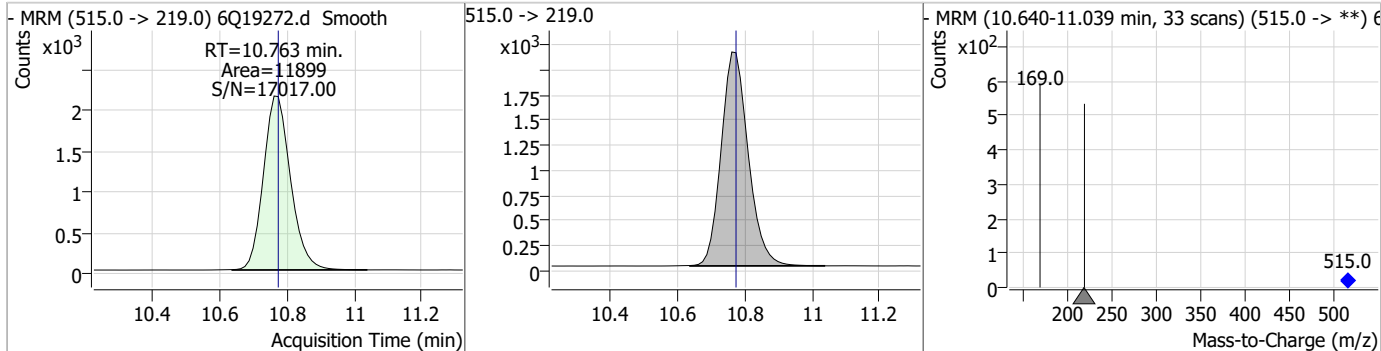
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.85	10.68	0.00	124035				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.07	10.70	-0.01	65501 (m)				



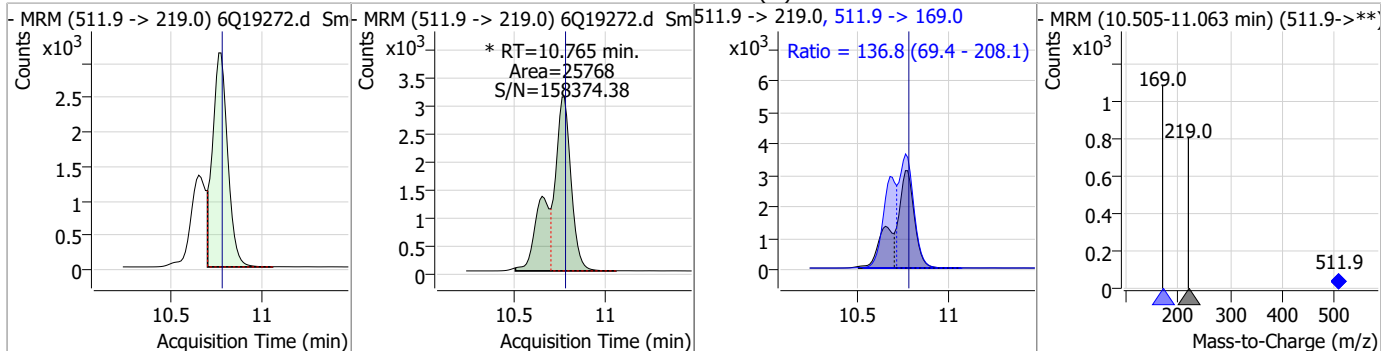
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.31	10.76	-0.01	11899				



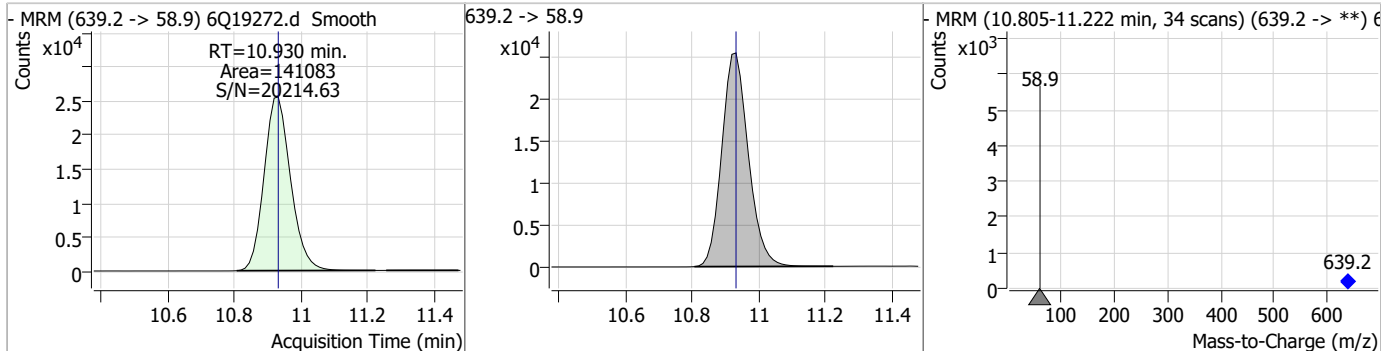
7.7.15
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Perfluorinated Compounds by LC/MS/MS

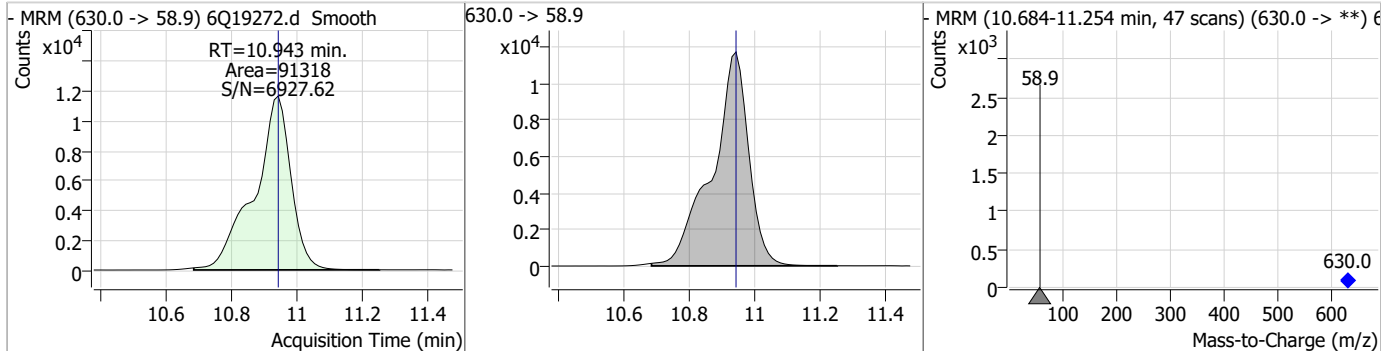
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	4.94	10.76	-0.01	25768 (m)	511.9 -> 169.0	136.8	69.4	208.1



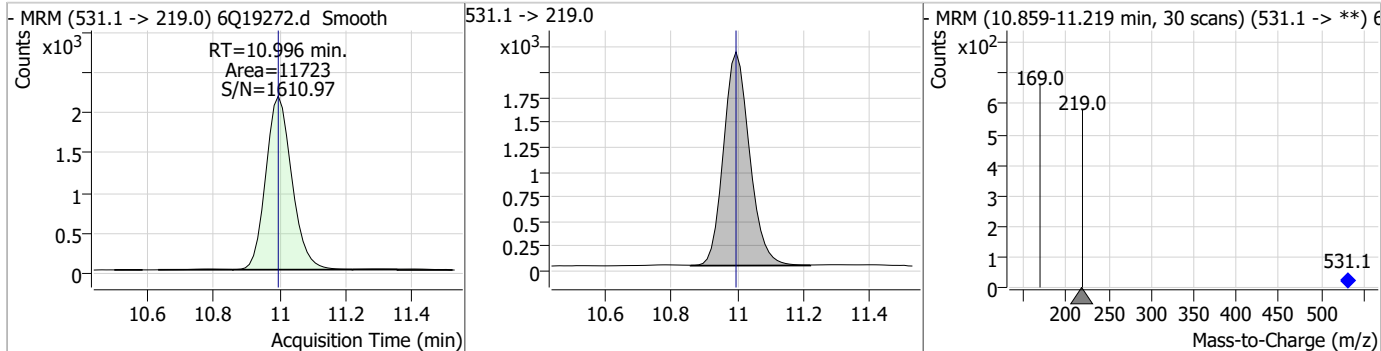
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.89	10.93	0.00	141083				



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

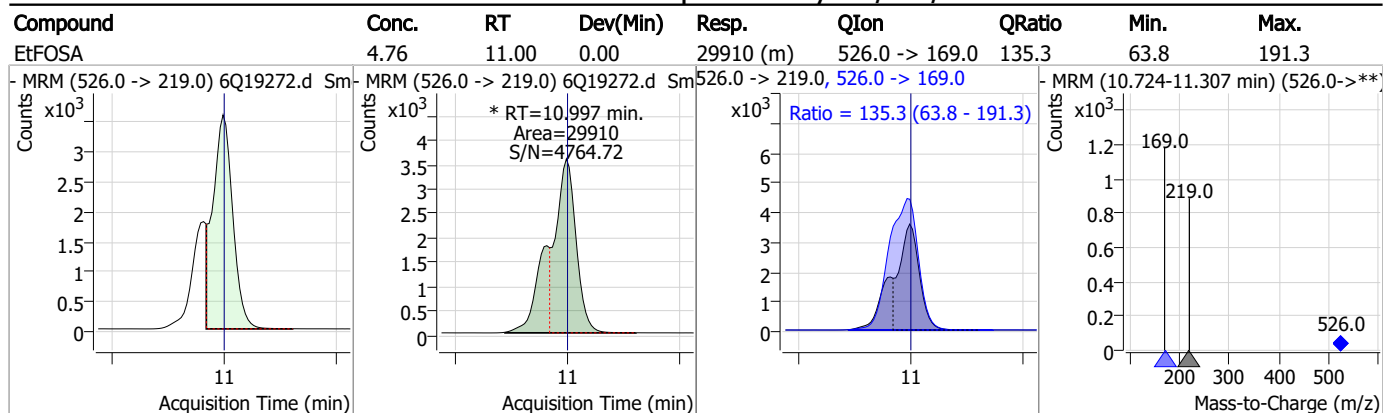


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.35	11.00	0.00	11723				



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q287-CC287 Method: EPA DRAFT 1633
Lab FileID: 6Q19272.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/12/23 23:15 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.56	Split peak
EtFOSAA	2991-50-6		8.63	Split peak
MeFOSE	24448-09-7		10.70	Split peak
MeFOSA	31506-32-8		10.77	Split peak
EtFOSA	4151-50-2		11.00	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19284.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/13/2023 2:03:39 AM
 Sample Name : cc287-4
 Vial : P1-A5
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	145841	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	48607	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	58016	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	48529	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	83353	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	35151	1.25 µg/L	0.013
M6-PFDA	8.400	519.1 -> 474.1	22552	1.25 µg/L	0.012
M7-PFUnDA	8.866	570.0 -> 525.1	29147	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	23788	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	13414	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	28188	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	19723	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	11297	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	11286	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	2812	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	4638	5.00 µg/L	0.000
M2-8:2FTS	8.175	529.1 -> 80.9	3737	5.00 µg/L	0.012
M3-MeFOSAA	8.420	573.2 -> 419.0	27741	5.00 µg/L	0.012
M3-HFPO-DA	6.181	286.9 -> 168.9	34010	10.00 µg/L	0.012
M5-EtFOSAA	8.628	589.2 -> 419.0	24209	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	127284	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	147527	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	12432	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	11549	2.50 µg/L	0.000
13C4-PFOS	8.576	502.8 -> 79.9	15818	2.50 µg/L	0.012
13C3-PFBA	3.089	216.0 -> 172.0	62519	5.00 µg/L	0.000
18O2-PFHxS	7.490	403.0 -> 83.9	9143	2.50 µg/L	0.012
13C4-PFOA	7.352	417.1 -> 372.0	83736	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	28601	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	45270	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	49285	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	2812	4.99 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4638	5.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.6%		
13C2-8:2FTS	8.175	529.1 -> 80.9	3737	4.61 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.2%		
13C2-PFDoDA	9.297	615.1 -> 570.0	23788	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C2-PFTeDA	10.012	715.2 -> 670.0	13414	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C3-PFBS	5.746	302.1 -> 79.9	19723	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C3-PFHxS	7.478	402.1 -> 79.9	11297	2.33 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C4-PFBA	3.097	216.8 -> 171.9	145841	9.94 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C4-PFHpA	6.707	367.1 -> 322.0	48529	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C5-PFHxA	5.792	318.0 -> 273.0	58016	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C5-PFPeA	4.560	268.3 -> 223.0	48607	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C6-PFDA	8.400	519.1 -> 474.1	22552	1.43 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.3%	
13C7-PFUnDA	8.866	570.0 -> 525.1	29147	1.31 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C8-FOSA	9.674	506.1 -> 77.8	28188	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C8-PFOA	7.352	421.1 -> 376.0	83353	2.67 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C8-PFOS	8.575	507.1 -> 79.9	11286	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C9-PFNA	7.895	472.1 -> 427.0	35151	1.27 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.8%	
d3-MeFOSAA	8.420	573.2 -> 419.0	27741	4.67 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C3-HFPO-DA	6.181	286.9 -> 168.9	34010	10.07 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
d3-MeFOSA	10.775	515.0 -> 219.0	11549	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.9%	
d5-EtFOSAA	8.628	589.2 -> 419.0	24209	4.84 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
d7-MeFOSE	10.685	623.2 -> 58.9	127284	21.93 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.7%	
d9-EtFOSE	10.930	639.2 -> 58.9	147527	20.35 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.4%	
d5-EtFOSA	10.996	531.1 -> 219.0	12432	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
Target Compounds					QValue
4:2FTS	5.455	327.1 -> 307.0	47222	9.69 µg/L	99
		327.1 -> 80.9	17239		
6:2FTS	7.113	427.1 -> 407.0	49196	8.78 µg/L	92
		427.1 -> 80.9	15603		
8:2FTS	8.176	527.1 -> 507.0	26427	10.63 µg/L	97
		527.1 -> 80.8	9863		
EtFOSAA	8.629	584.2 -> 419.1	10157	2.53 µg/L	m 95
		584.2 -> 526.0	4774		
FOSA	9.677	498.1 -> 77.9	25053	2.17 µg/L	98
		498.1 -> 478.0	906		
MeFOSAA	8.421	570.1 -> 419.0	18603	2.76 µg/L	m 100
		570.1 -> 483.0	3682		
PFBA	3.093	212.8 -> 168.9	56262	9.67 µg/L	100
PFBS	5.747	298.7 -> 79.9	18290	2.11 µg/L	96
		298.7 -> 98.8	6728		
PFDA	8.400	512.9 -> 469.0	72191	2.14 µg/L	99
		512.9 -> 219.0	11006		
PFDoDA	9.298	613.1 -> 569.0	49780	2.55 µg/L	98
		613.1 -> 319.0	7907		
PFDS	9.462	599.0 -> 79.9	8276	2.43 µg/L	97

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3607			
PFHpA	6.708	363.1 -> 319.0	64959	2.50	µg/L	96
		363.1 -> 169.0	9284			
PFHpS	8.059	449.0 -> 79.9	14883	2.19	µg/L	97
		449.0 -> 98.9	7551			
PFHxA	5.795	313.0 -> 269.0	49069	2.11	µg/L	99
		313.0 -> 118.9	2542			
PFHxS	7.479	398.7 -> 79.9	15121	2.23	µg/L	m 95
		398.7 -> 98.9	7465			
PFNA	7.896	463.0 -> 419.0	78224	2.43	µg/L	100
		463.0 -> 219.0	13892			
PFNS	9.053	548.8 -> 79.9	12948	2.17	µg/L	86
		548.8 -> 98.9	7553			
PFOA	7.353	413.0 -> 369.0	98468	2.30	µg/L	99
		413.0 -> 169.0	16854			
PFOS	8.576	498.9 -> 79.9	14078	2.12	µg/L	m 97
		498.9 -> 98.8	7085			
PFPeA	4.563	263.0 -> 219.0	67306	4.71	µg/L	100
PFPeS	6.785	349.1 -> 79.9	15353	2.46	µg/L	97
		349.1 -> 98.9	6773			
PFTeDA	10.013	713.1 -> 669.0	41995	2.62	µg/L	99
		713.1 -> 168.9	3555			
PFTrDA	9.681	663.0 -> 619.0	48796	2.51	µg/L	96
		663.0 -> 168.9	5566			
PFUnDA	8.866	563.1 -> 519.0	56804	2.66	µg/L	99
		563.1 -> 269.1	9112			
11CI-PF3OUdS	9.733	630.9 -> 450.9	69422	4.33	µg/L	98
		632.9 -> 452.9	21521			
9CI-PF3ONS	8.918	530.8 -> 351.0	116206	4.34	µg/L	99
		532.8 -> 353.0	34186			
ADONA	6.959	376.9 -> 250.9	242498	4.21	µg/L	98
		376.9 -> 84.8	69941			
HFPO-DA	6.182	284.9 -> 168.9	17790	4.82	µg/L	99
		284.9 -> 184.9	2023			
3:3FTCA	3.958	241.0 -> 177.0	11283	11.54	µg/L	99
		241.0 -> 117.0	1473			
5:3FTCA	6.374	341.0 -> 237.1	248058	55.03	µg/L	97
		341.0 -> 217.0	179737			
7:3FTCA	7.748	441.0 -> 316.9	173509	53.79	µg/L	96
		441.0 -> 336.9	390497			
EtFOSA	10.997	526.0 -> 219.0	30615	4.60	µg/L	97
		526.0 -> 169.0	40099			
EtFOSE	10.943	630.0 -> 58.9	87023	11.17	µg/L	100
MeFOSA	10.777	511.9 -> 219.0	25697	5.08	µg/L	m 95
		511.9 -> 169.0	37140			
MeFOSE	10.709	616.1 -> 58.9	63327	11.37	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	3832	2.26	µg/L	97
		699.1 -> 98.8	2129			
NFDHA	5.673	295.0 -> 201.0	12106	4.11	µg/L	96
		295.0 -> 84.9	3231			
PFMBA	4.988	279.0 -> 85.1	47676	4.65	µg/L	100
PFMPA	3.667	229.0 -> 84.9	37593	4.72	µg/L	100
PFEESA	6.301	314.8 -> 134.9	121664	4.25	µg/L	99
		314.8 -> 82.9	4487			

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



7.7.16
7

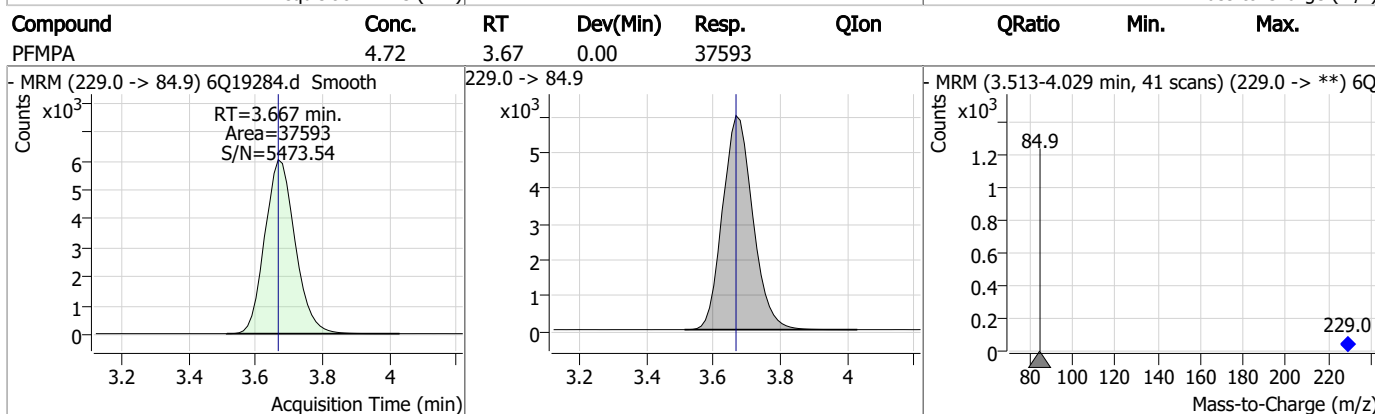
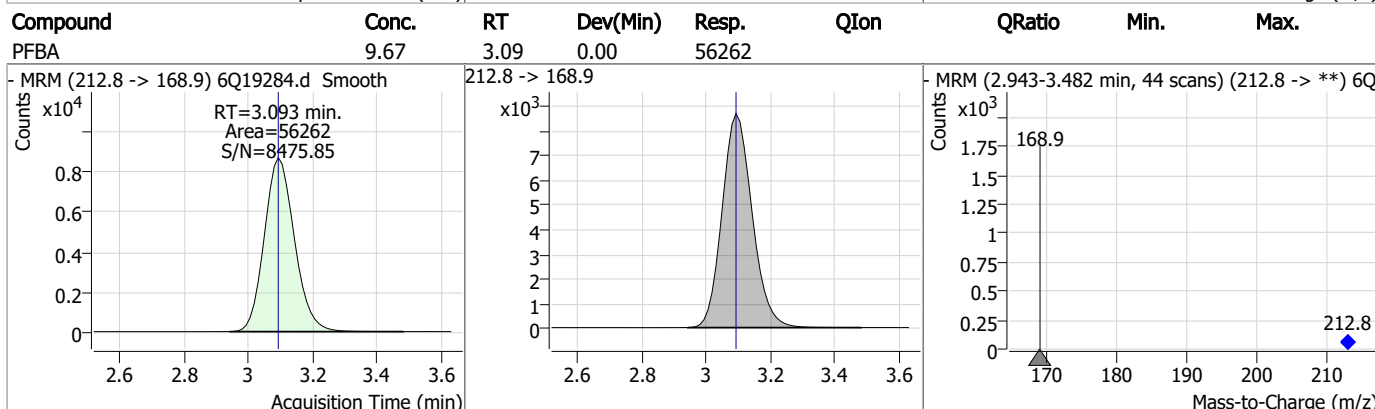
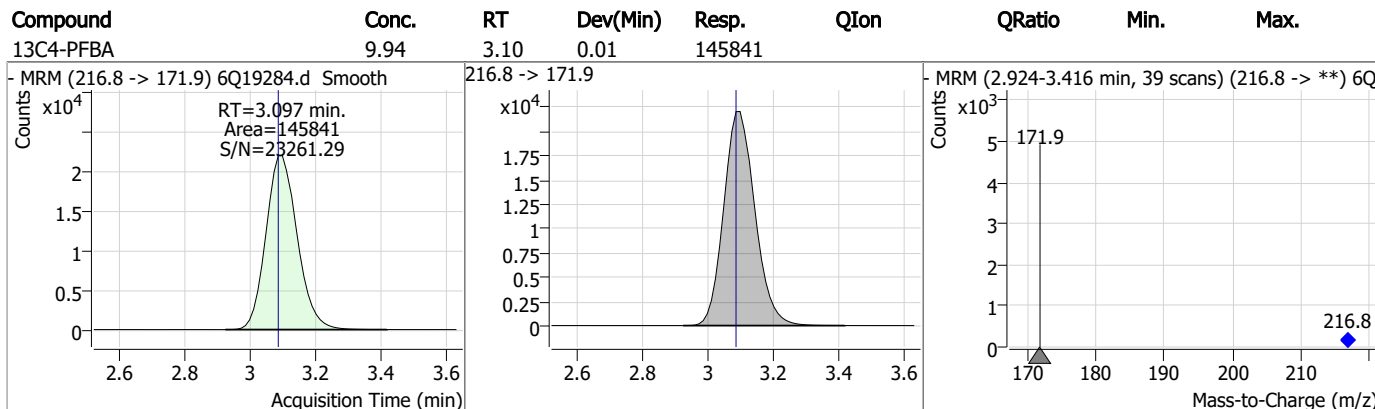
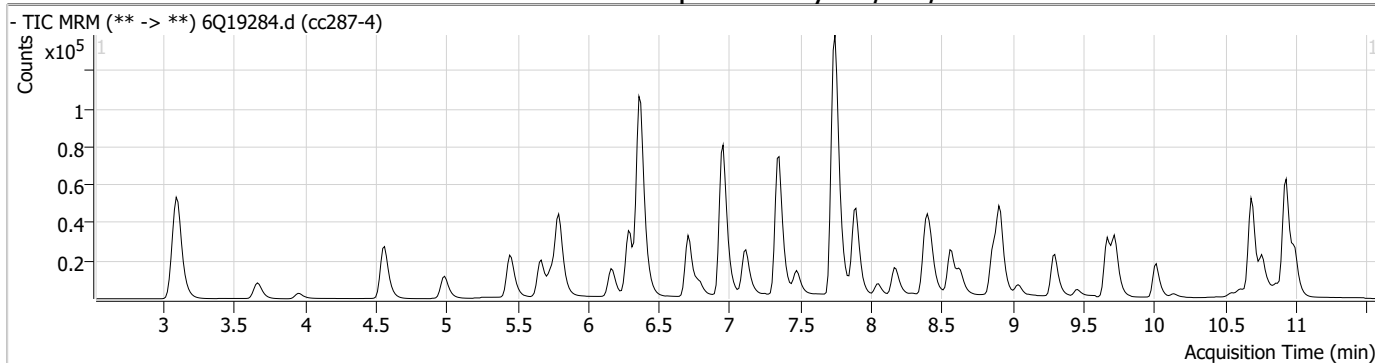
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.16

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Perfluorinated Compounds by LC/MS/MS



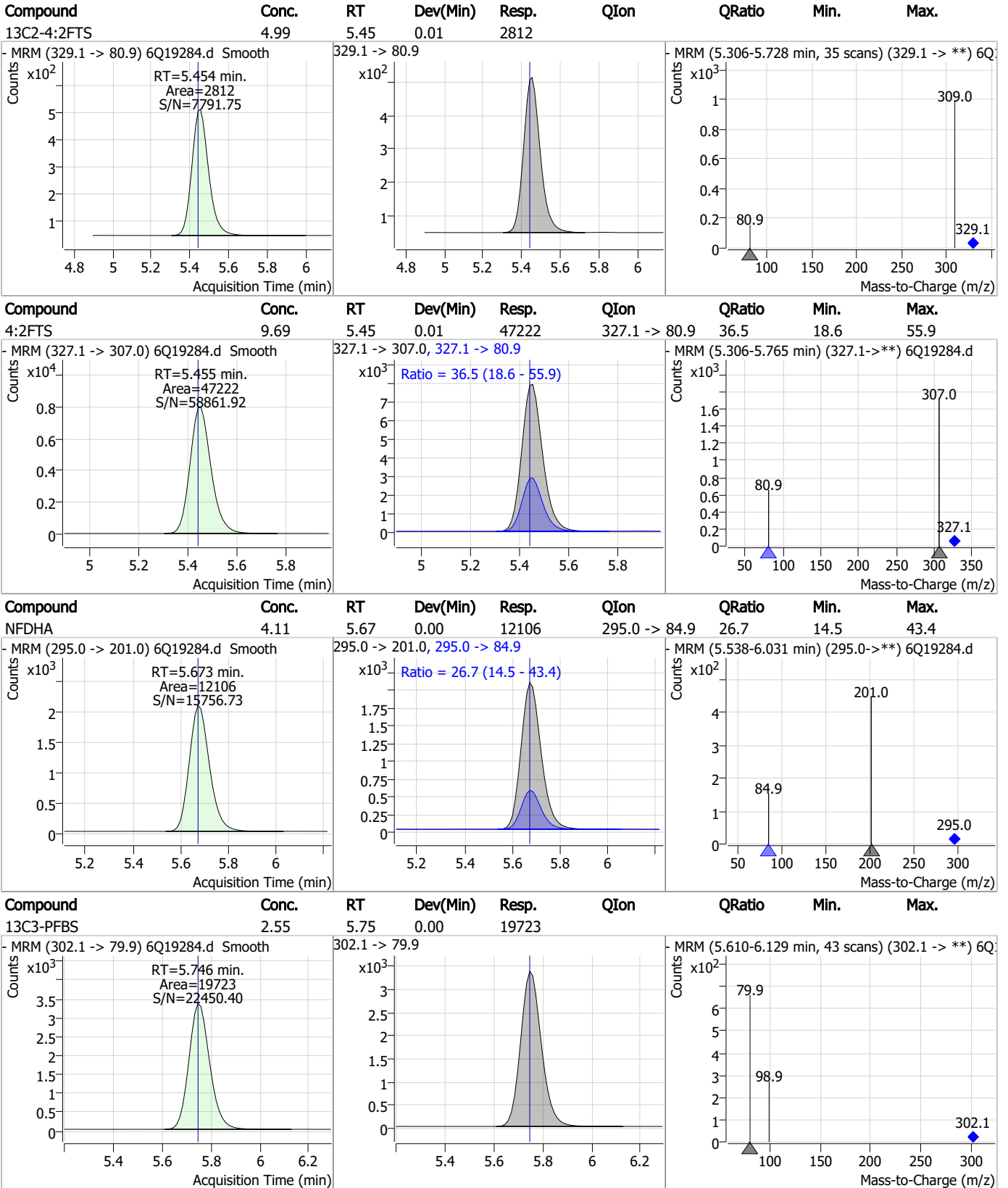
7.7.16
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.54	3.96	0.01	11283	241.0 -> 117.0	13.1	6.6	19.9
PFPeA	4.71	4.56	0.01	67306	263.0 -> 219.0			
13C5-PFPeA	5.10	4.56	0.00	48607	268.3 -> 223.0			
PFMBA	4.65	4.99	0.00	47676	279.0 -> 85.1			

7.7.16
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Perfluorinated Compounds by LC/MS/MS

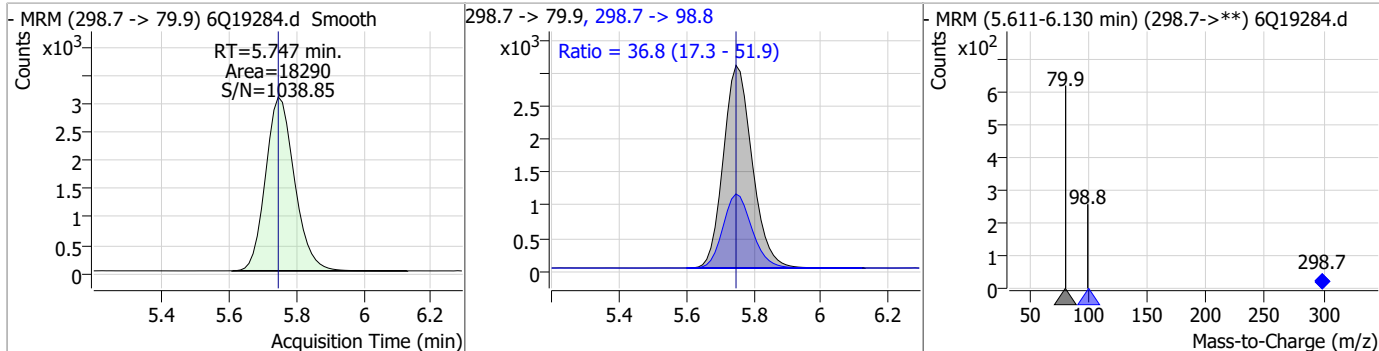


7.7.16 7

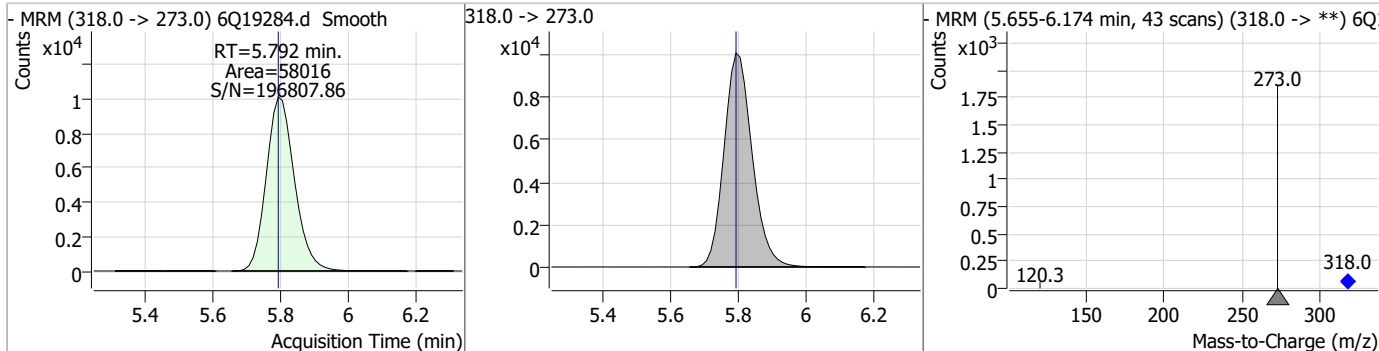


Perfluorinated Compounds by LC/MS/MS

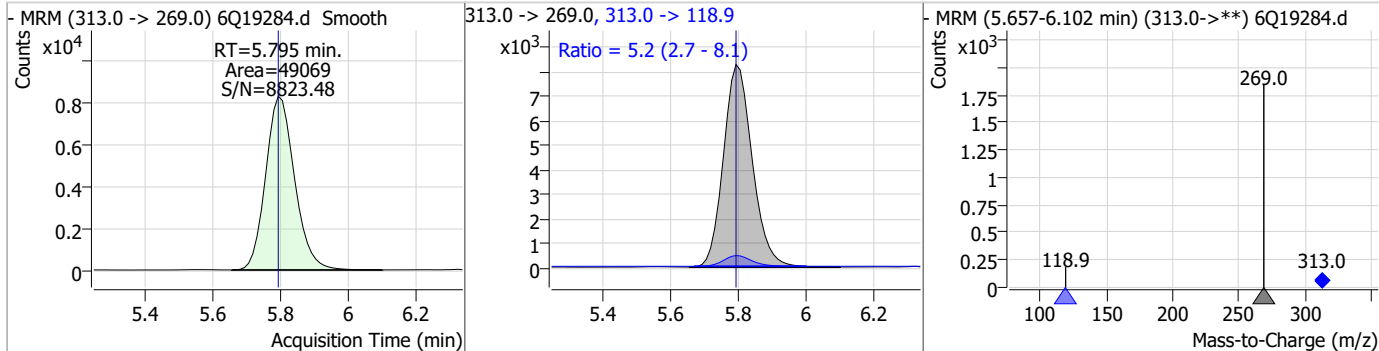
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.11	5.75	0.00	18290	298.7 -> 98.8	36.8	17.3	51.9



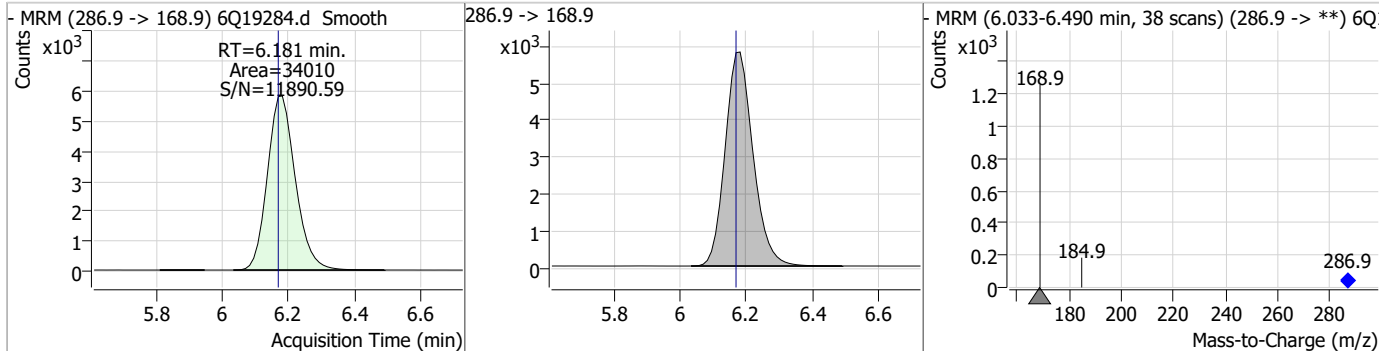
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.72	5.79	0.00	58016				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.11	5.79	0.00	49069	313.0 -> 118.9	5.2	2.7	8.1



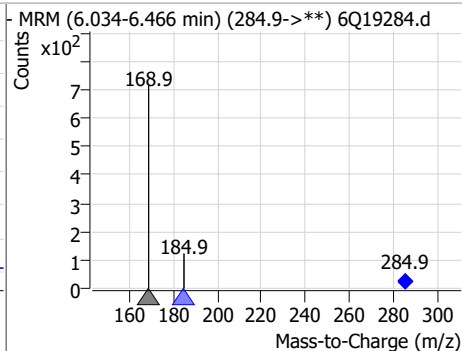
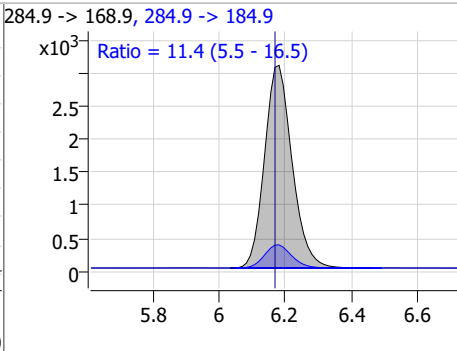
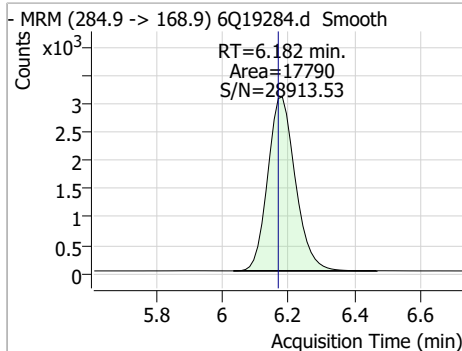
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.07	6.18	0.01	34010				



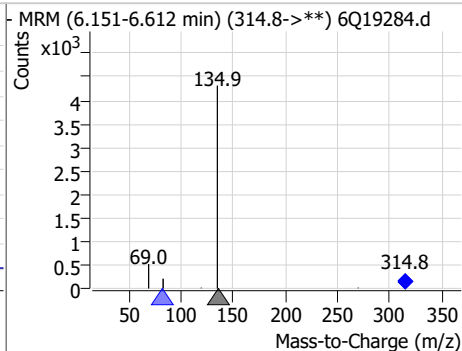
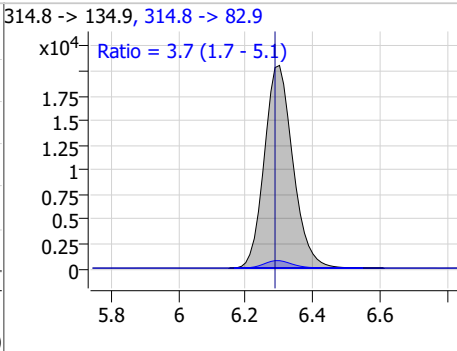
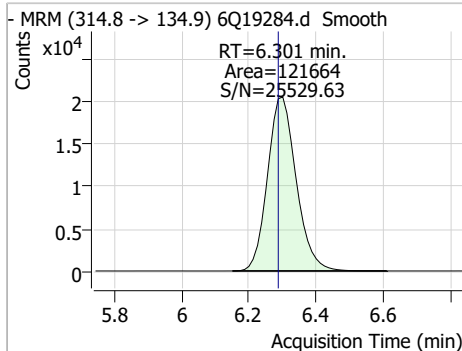
7.7.16
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Perfluorinated Compounds by LC/MS/MS

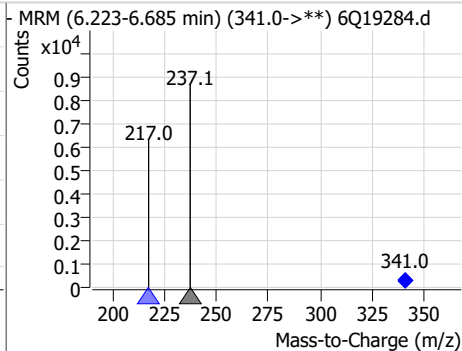
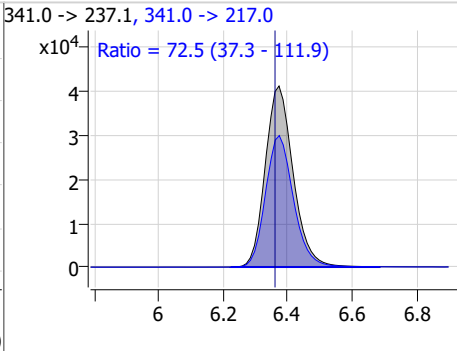
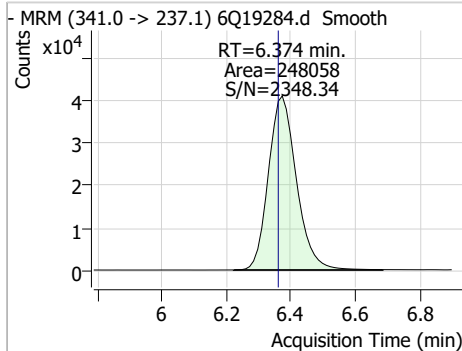
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.82	6.18	0.01	17790	284.9 -> 184.9	11.4	5.5	16.5



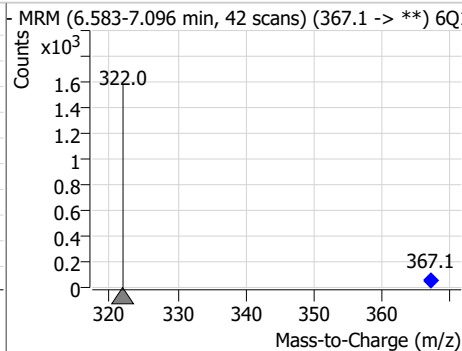
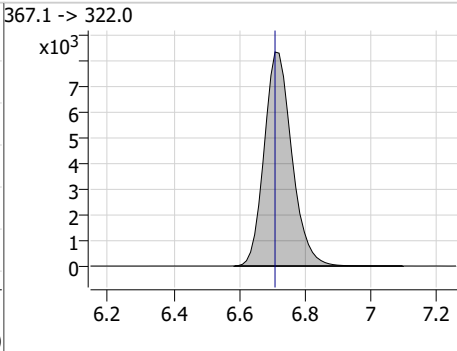
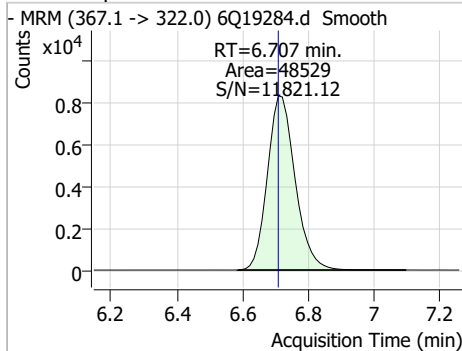
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.25	6.30	0.01	121664	314.8 -> 82.9	3.7	1.7	5.1



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

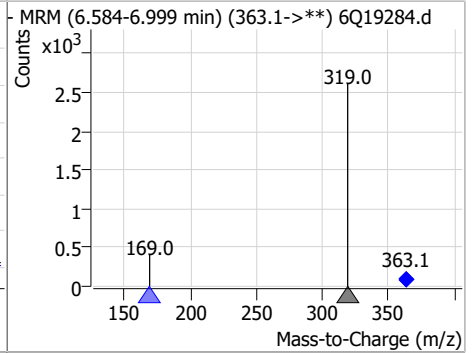
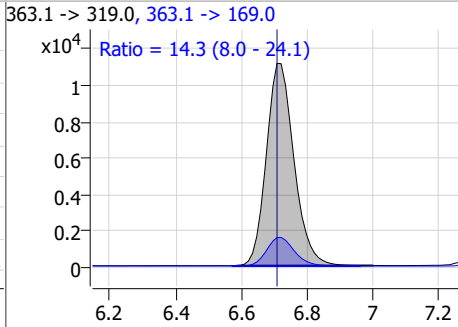
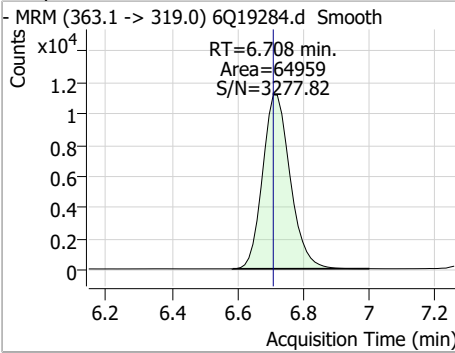


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.45	6.71	0.00	48529	367.1 -> 322.0			

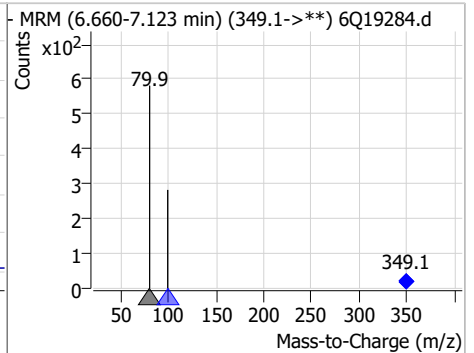
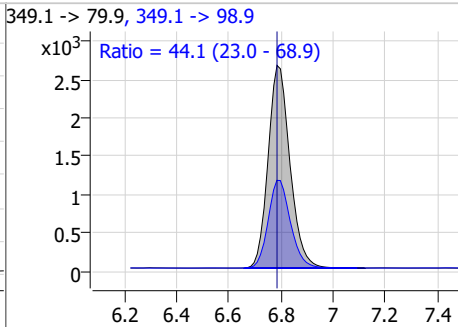
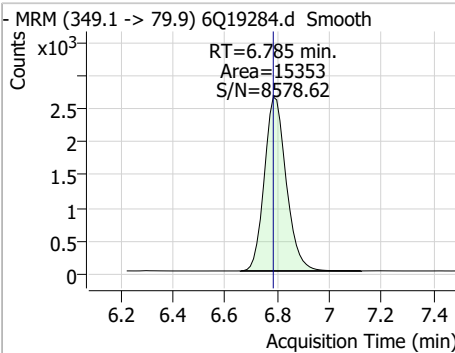


Perfluorinated Compounds by LC/MS/MS

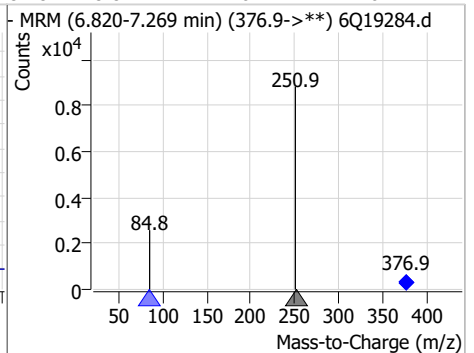
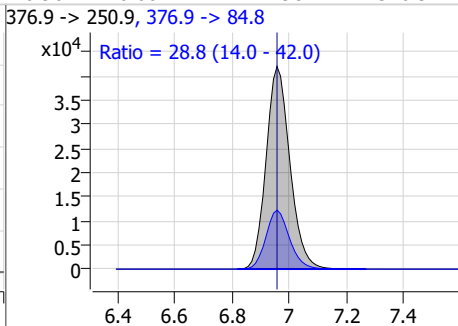
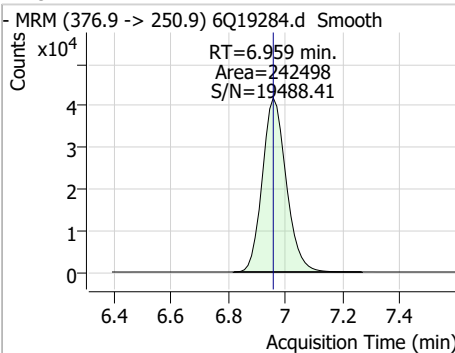
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.50	6.71	0.00	64959	363.1 -> 169.0	14.3	8.0	24.1



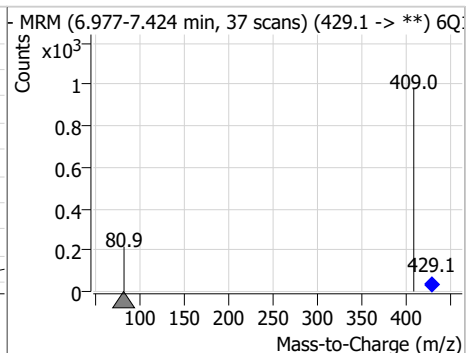
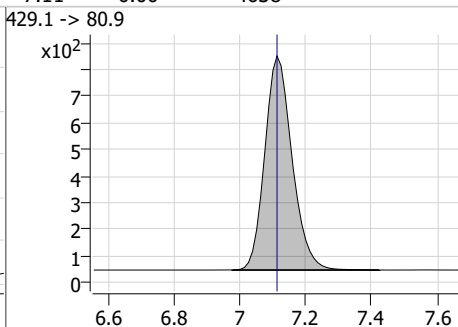
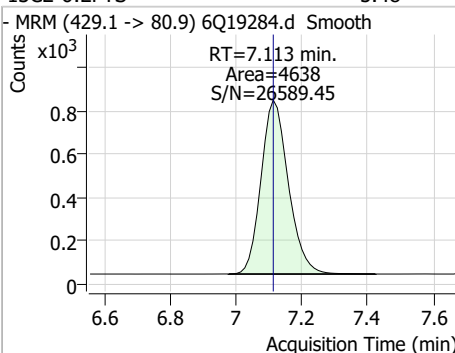
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.46	6.79	0.00	15353	349.1 -> 98.9	44.1	23.0	68.9



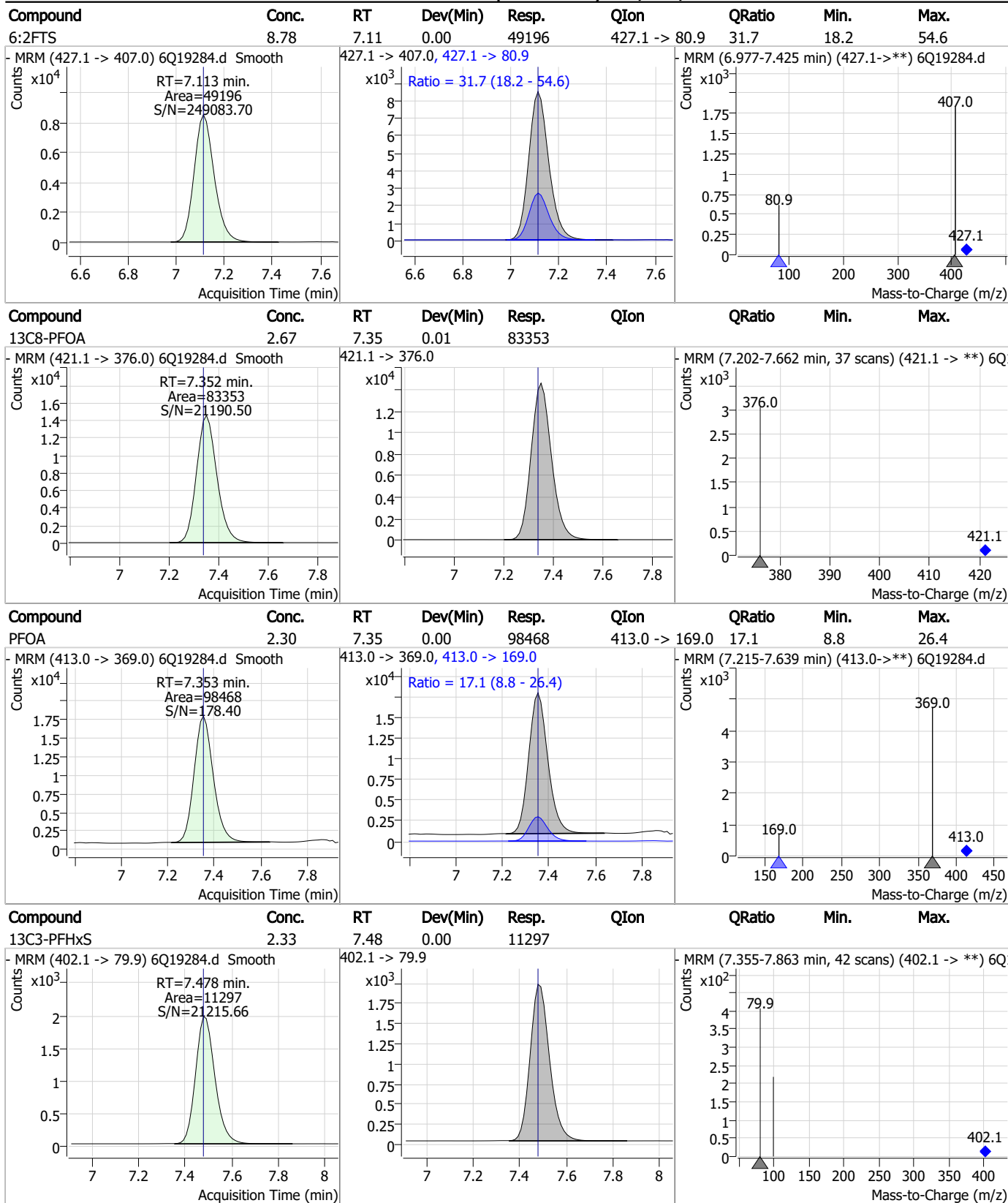
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.21	6.96	0.00	242498	376.9 -> 84.8	28.8	14.0	42.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.48	7.11	0.00	4638	429.1 -> 80.9			

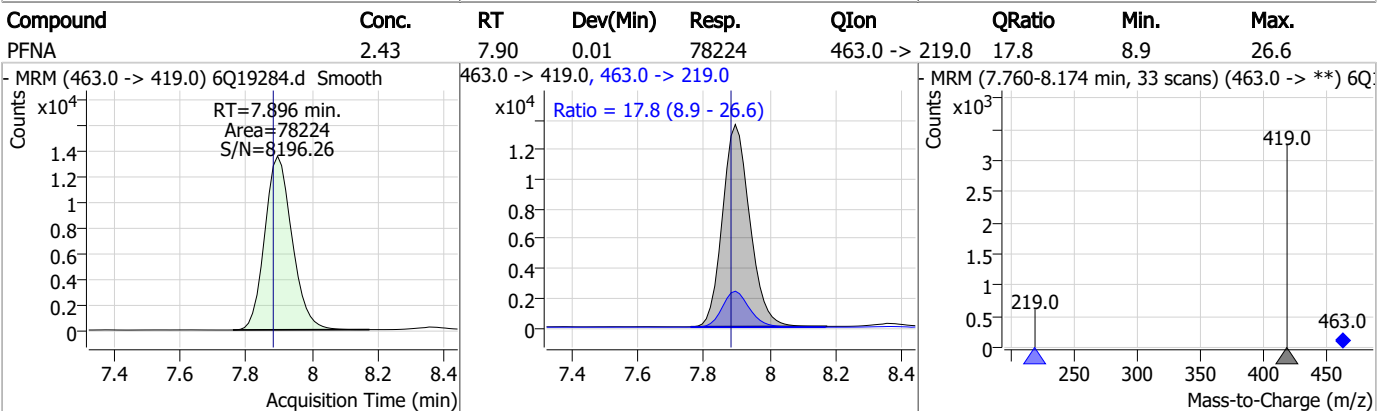
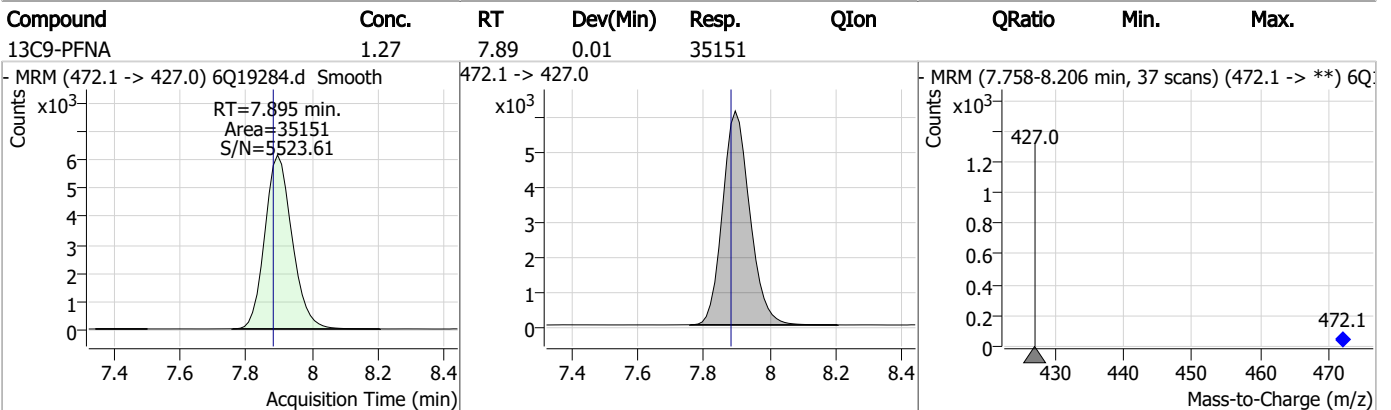
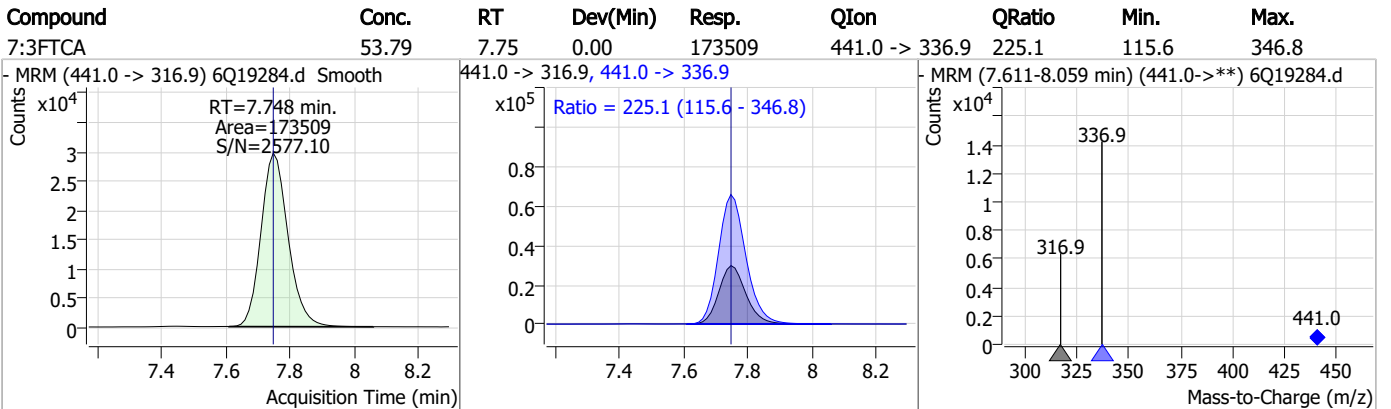
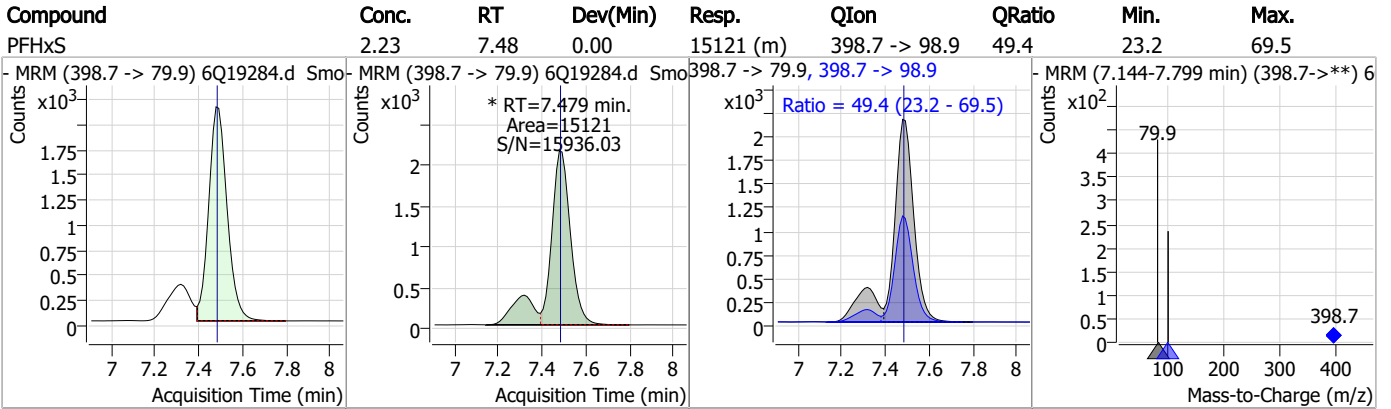


Perfluorinated Compounds by LC/MS/MS



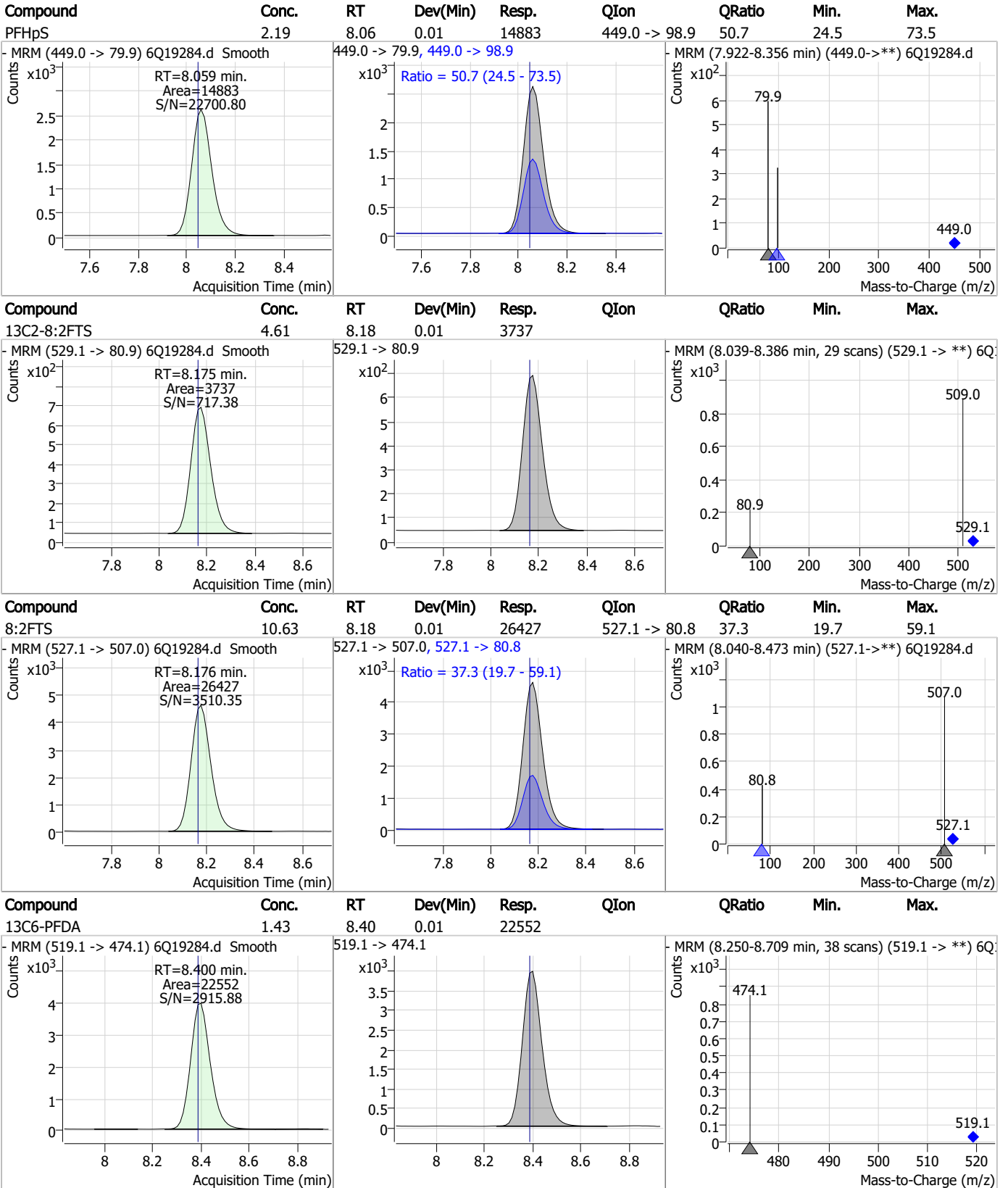
7.7.16
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

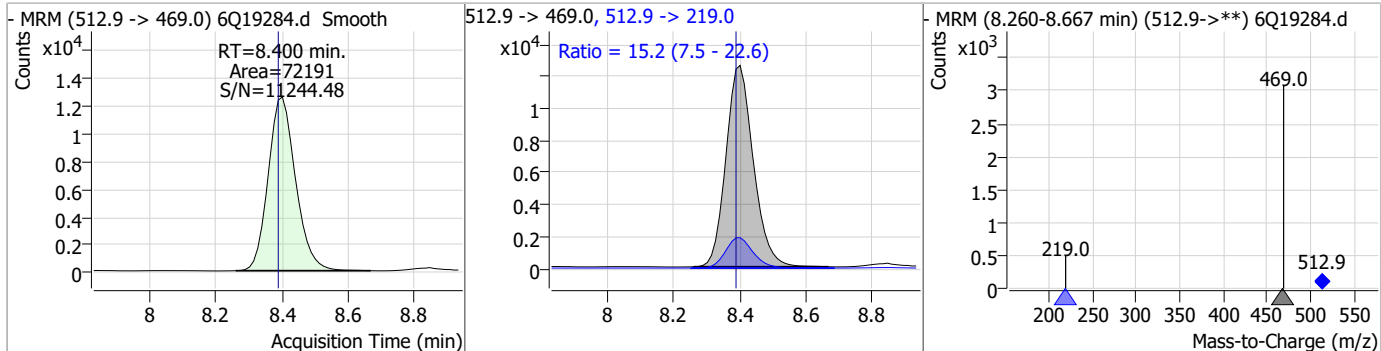


7.7.16 7

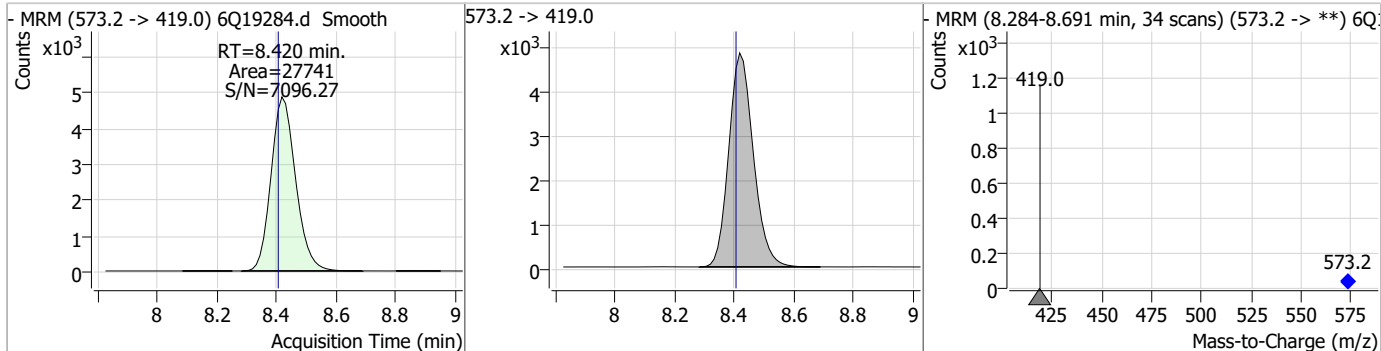


Perfluorinated Compounds by LC/MS/MS

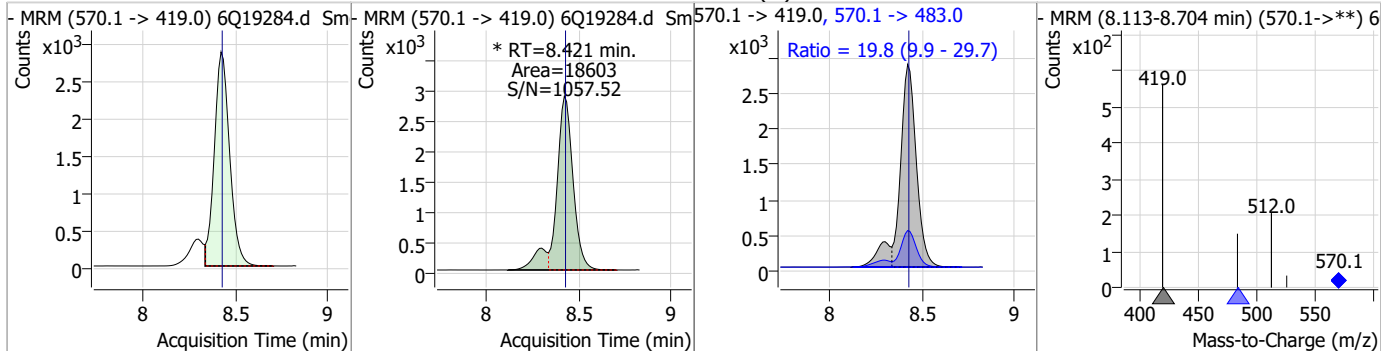
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.14	8.40	0.01	72191	512.9 -> 219.0	15.2	7.5	22.6



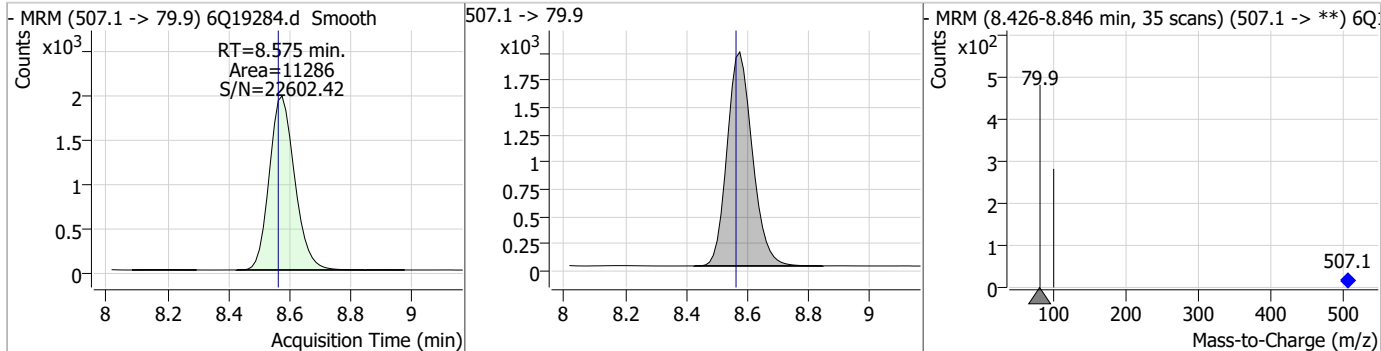
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.67	8.42	0.01	27741				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.76	8.42	0.00	18603 (m)	570.1 -> 483.0	19.8	9.9	29.7



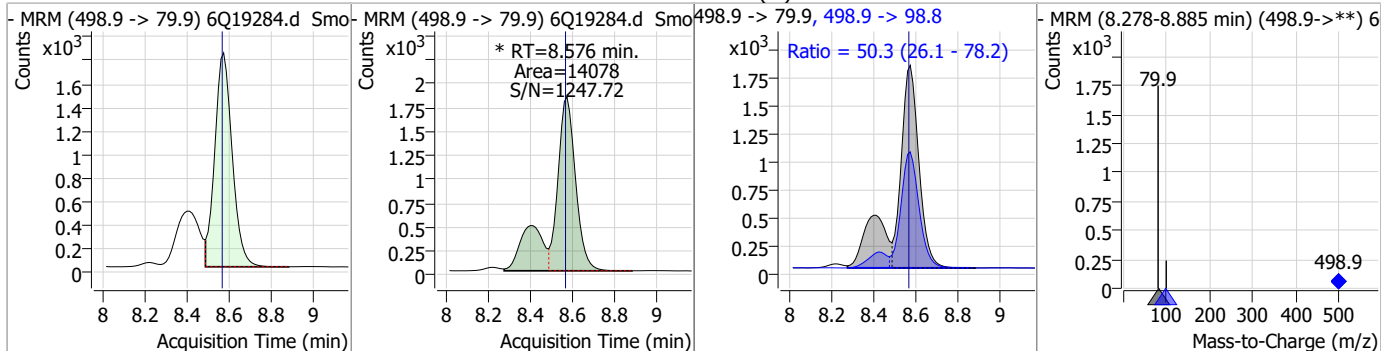
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.44	8.57	0.01	11286				



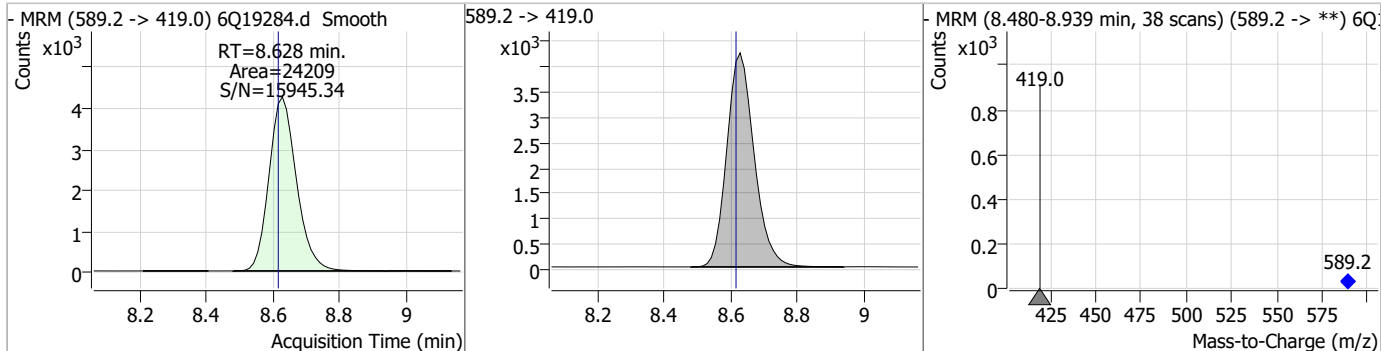
7.7.16
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Perfluorinated Compounds by LC/MS/MS

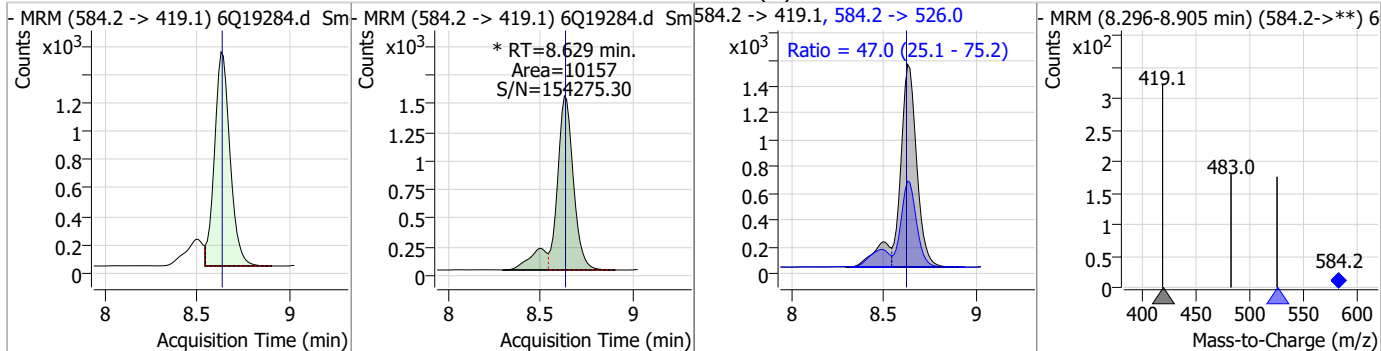
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.12	8.58	0.01	14078 (m)	498.9 -> 98.8	50.3	26.1	78.2



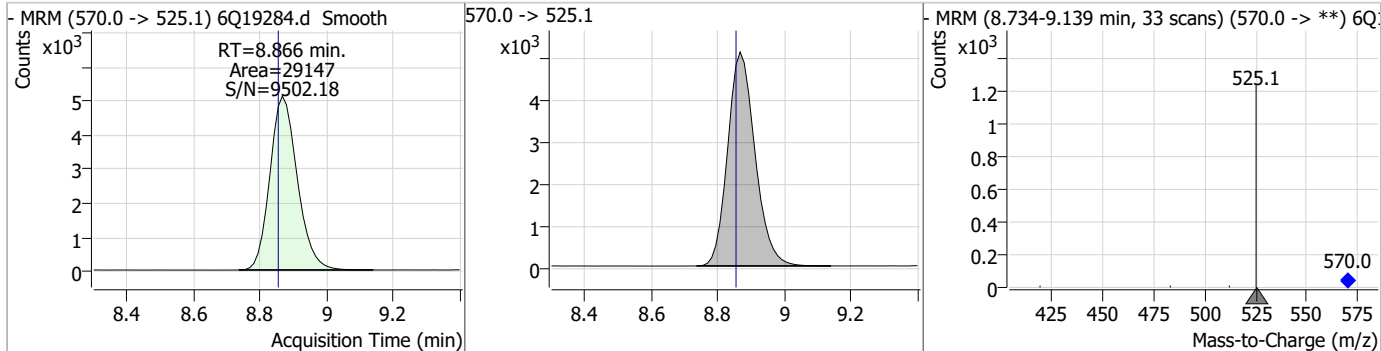
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.84	8.63	0.01	24209				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.53	8.63	0.00	10157 (m)	584.2 -> 526.0	47.0	25.1	75.2

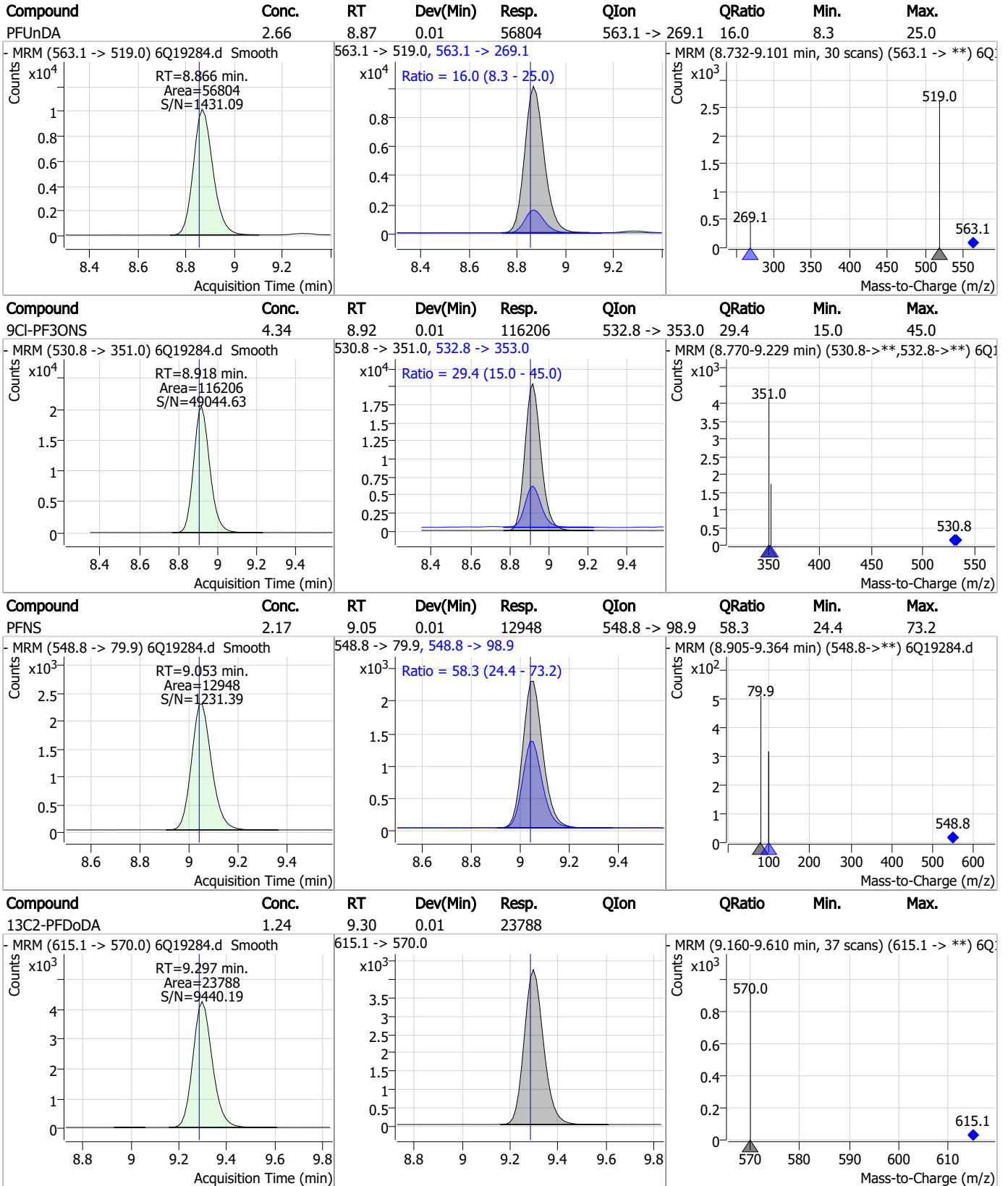


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.31	8.87	0.01	29147				



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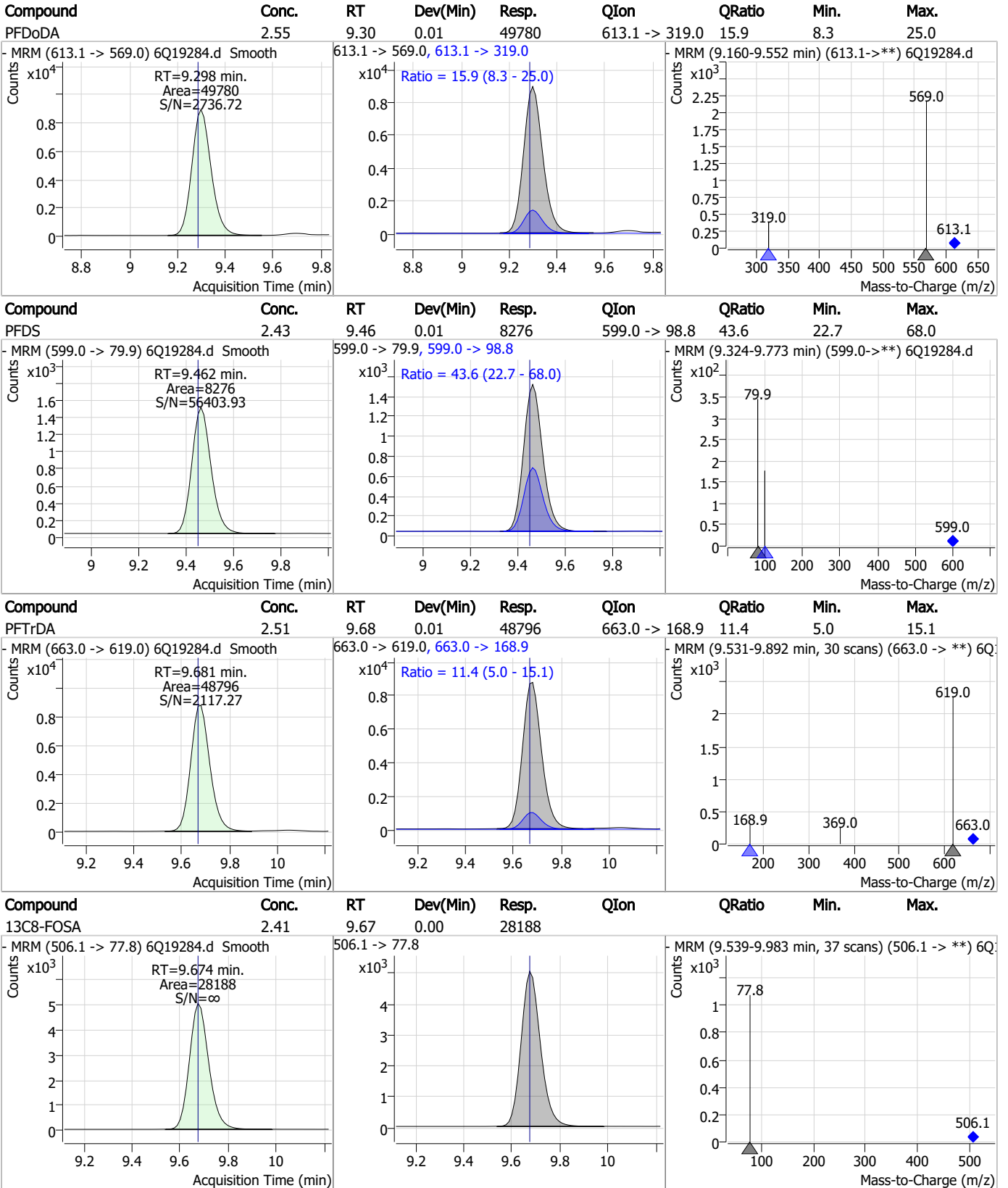
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

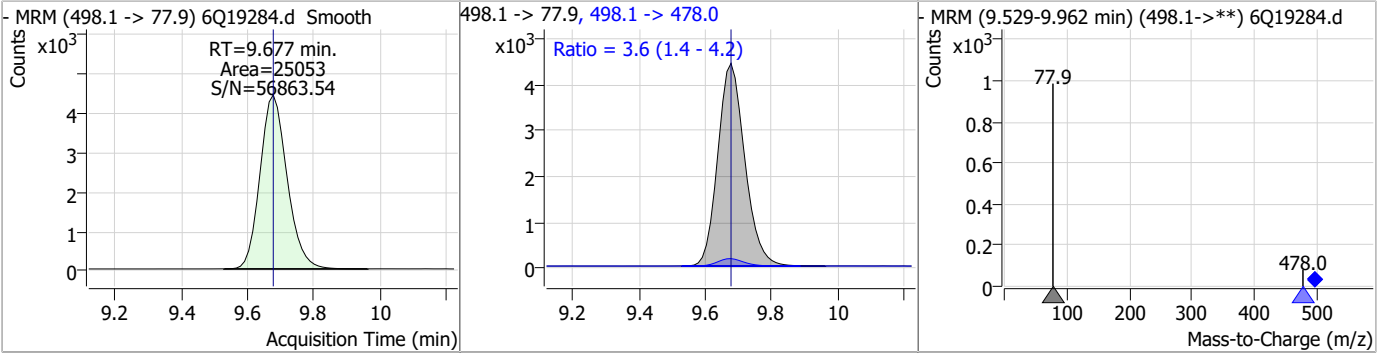


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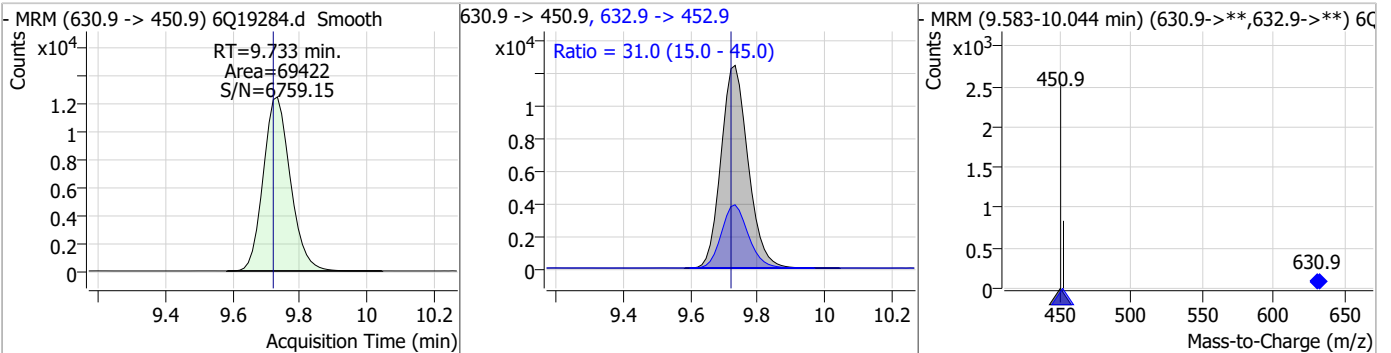


Perfluorinated Compounds by LC/MS/MS

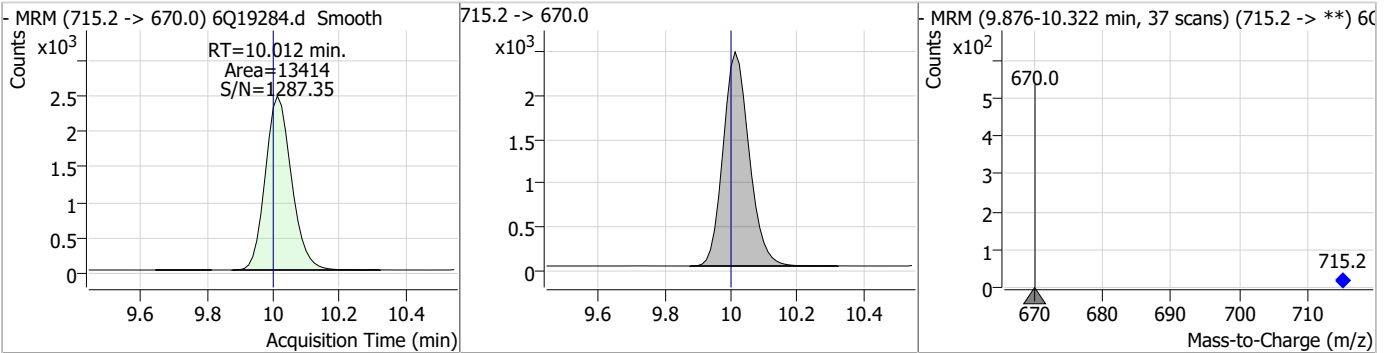
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.17	9.68	0.00	25053	498.1 -> 478.0	3.6	1.4	4.2



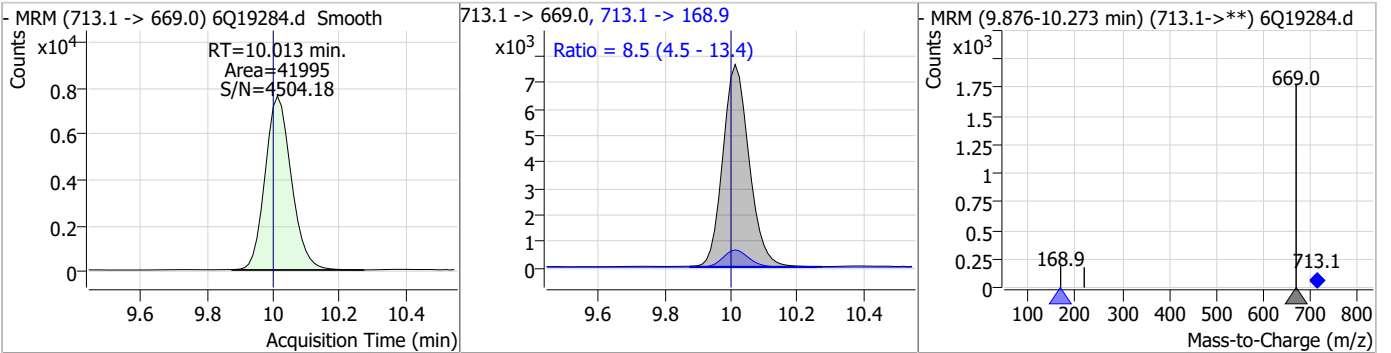
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	4.33	9.73	0.01	69422	630.9 -> 452.9	31.0	15.0	45.0



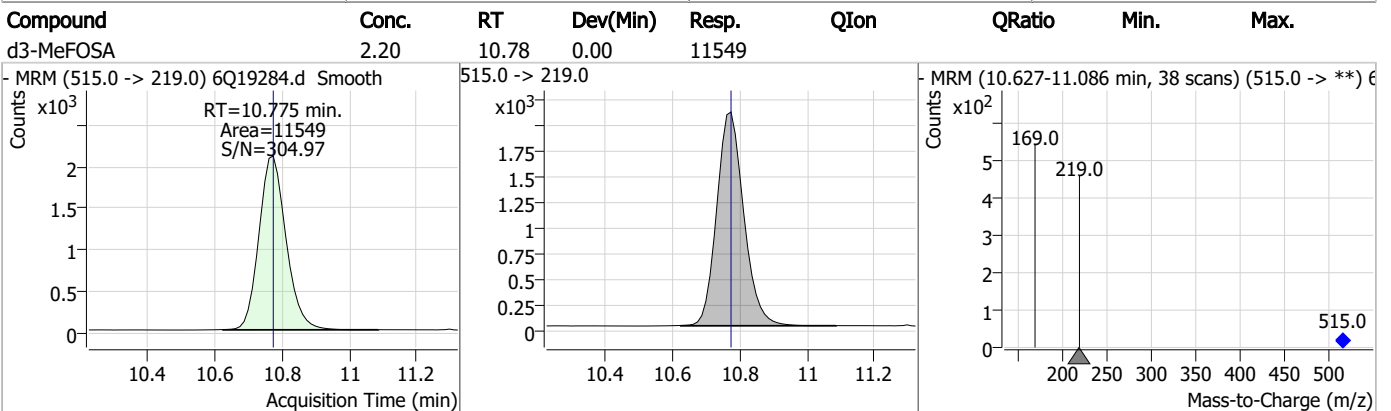
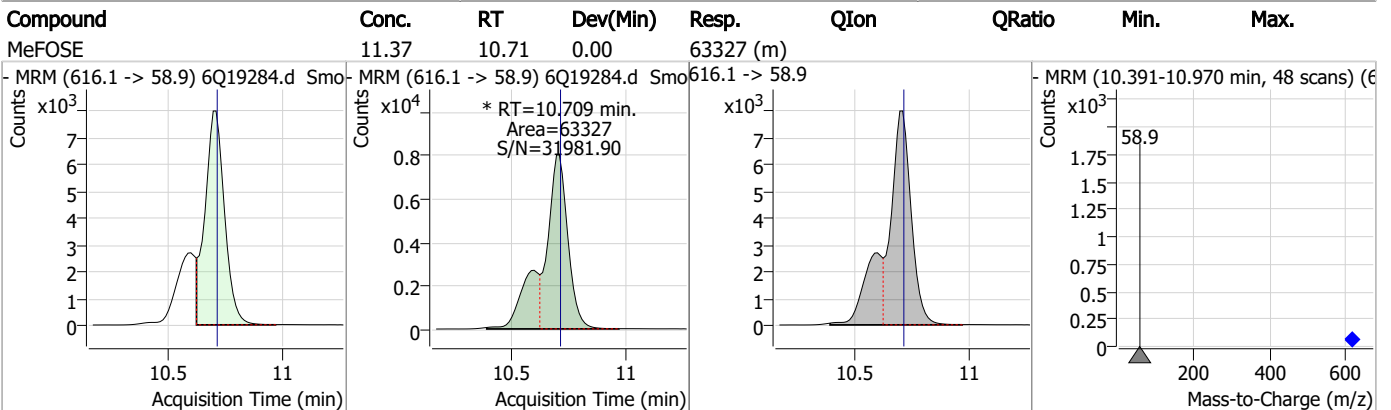
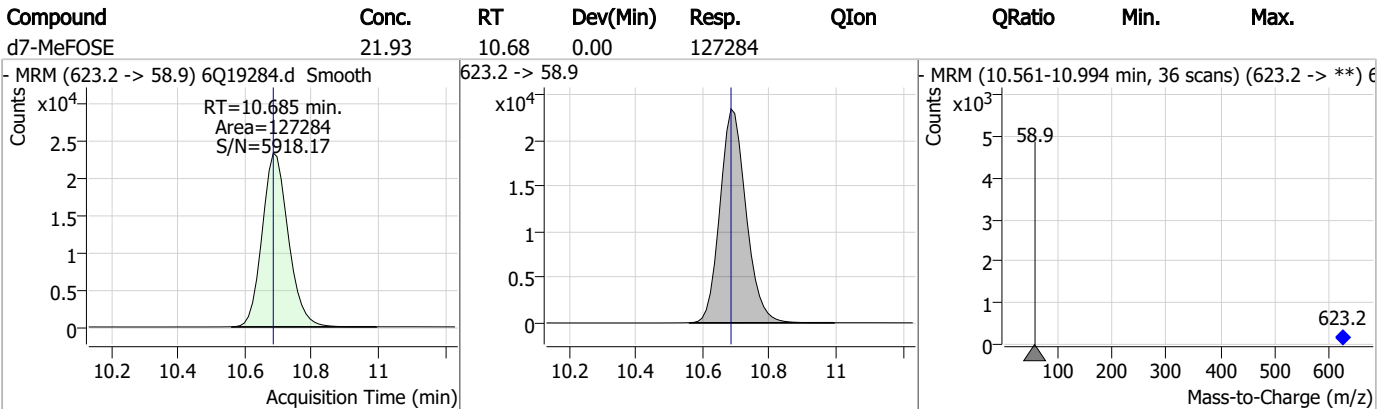
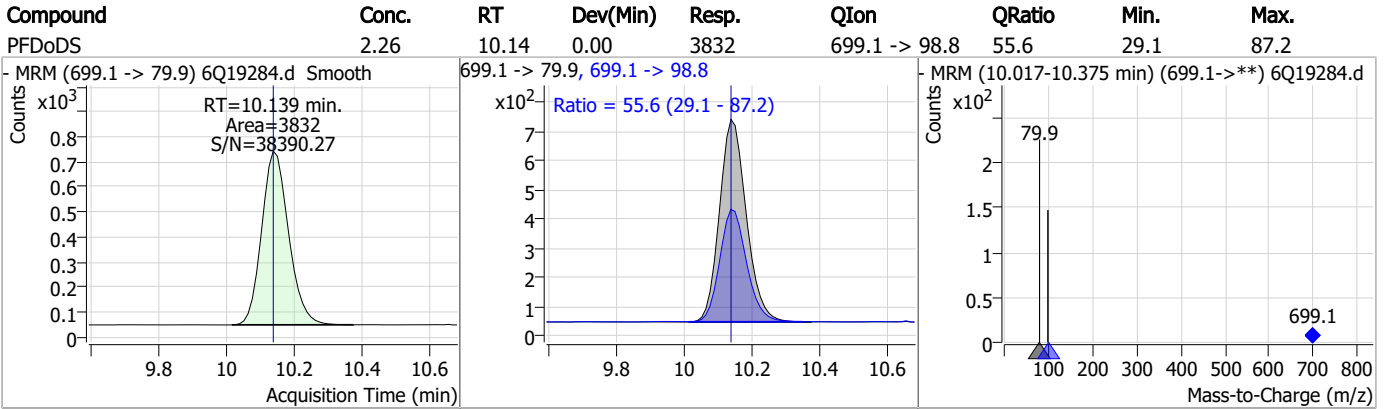
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	10.01	0.01	13414	715.2 -> 670.0	37 scans	715.2 -> **)	670.0



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



Perfluorinated Compounds by LC/MS/MS

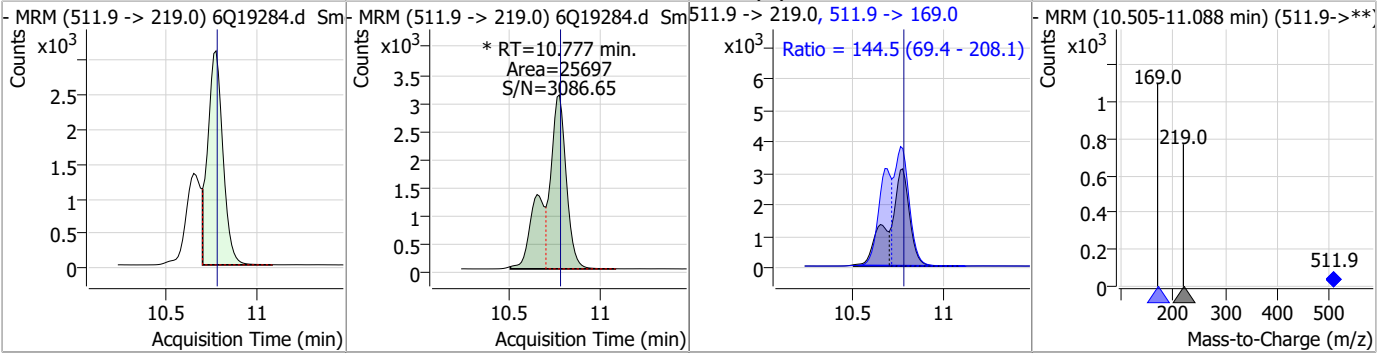


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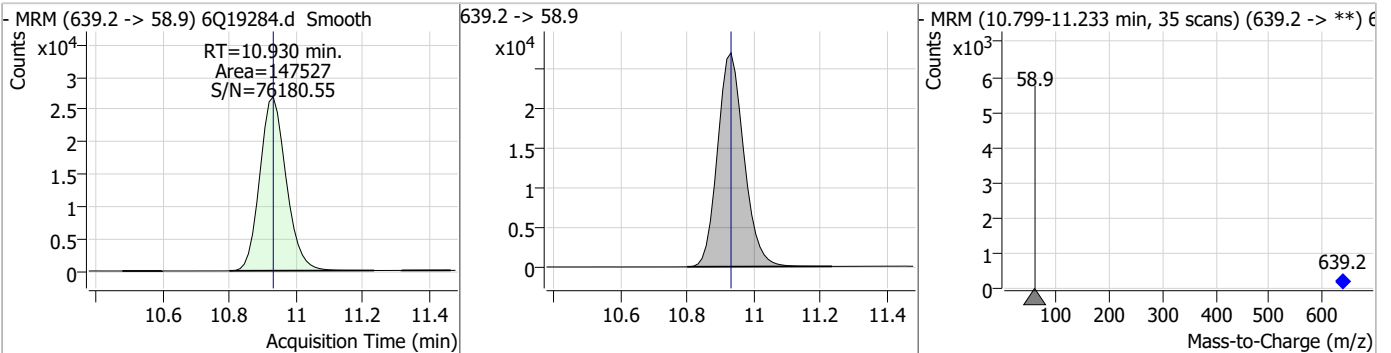


Perfluorinated Compounds by LC/MS/MS

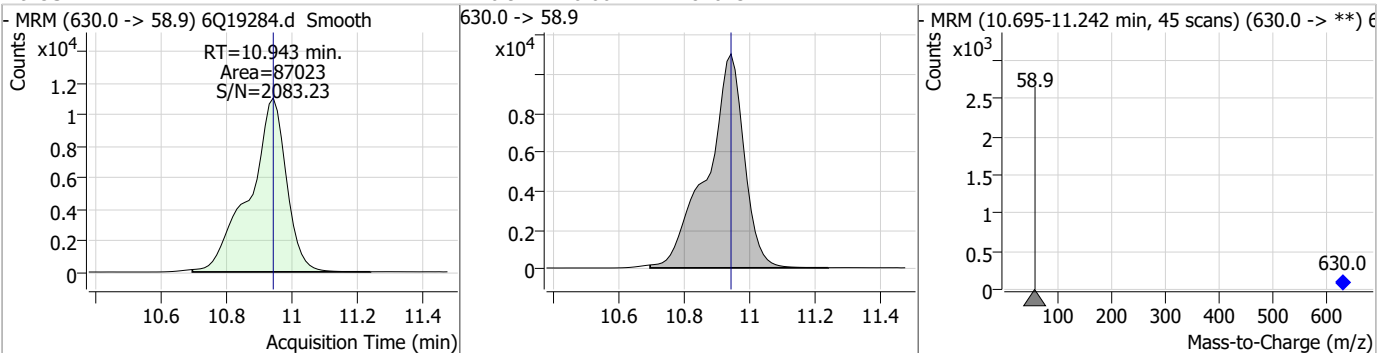
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.08	10.78	0.00	25697 (m)	511.9 -> 169.0	144.5	69.4	208.1



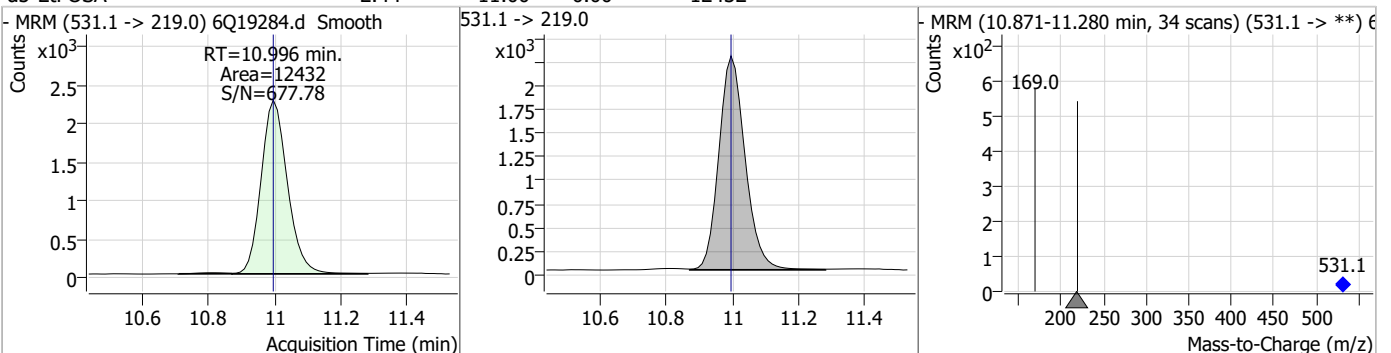
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.35	10.93	0.00	147527				



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

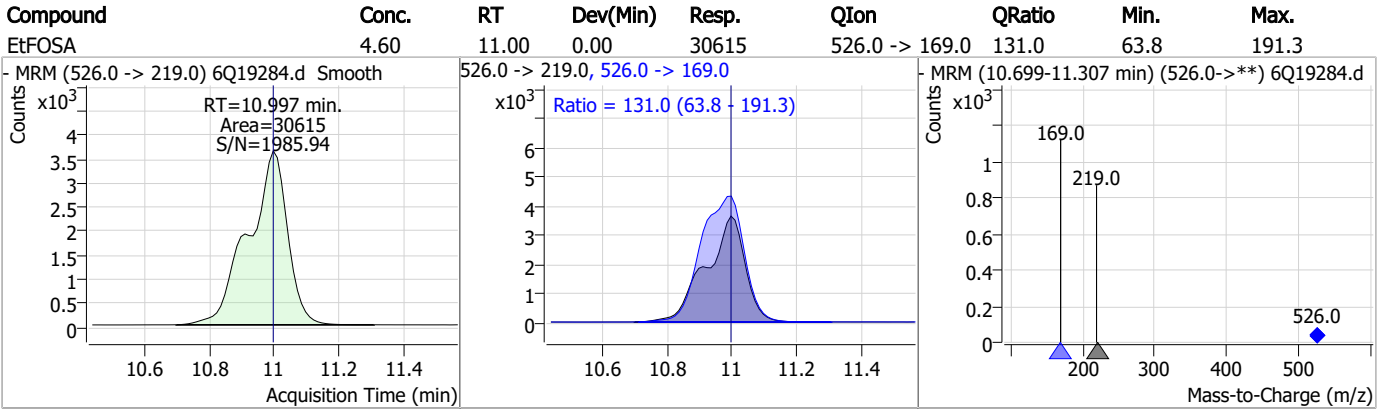


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.44	11.00	0.00	12432				



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q287-CC287 Method: EPA DRAFT 1633
Lab FileID: 6Q19284.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/13/23 02:03 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.58	Split peak
EtFOSAA	2991-50-6		8.63	Split peak
MeFOSE	24448-09-7		10.71	Split peak
MeFOSA	31506-32-8		10.78	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q19288.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 6/13/2023 2:59:36 AM
 Sample Name : ecc287-4
 Vial : P1-A5
 DA Method File : 1633_061223_S6Q287.quantmethod.xml
 Batch Name : s6q287.batch.bin
 Sample Information : OP97215,S6Q287,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.097	216.8 -> 171.9	146283	10.00 µg/L	0.012
M5-PFPeA	4.560	268.3 -> 223.0	48344	5.00 µg/L	0.000
M5-PFHxA	5.792	318.0 -> 273.0	54334	2.50 µg/L	0.000
M4-PFHpA	6.707	367.1 -> 322.0	50686	2.50 µg/L	0.000
M8-PFOA	7.352	421.1 -> 376.0	77519	2.50 µg/L	0.012
M9-PFNA	7.895	472.1 -> 427.0	35182	1.25 µg/L	0.013
M6-PFDA	8.400	519.1 -> 474.1	20635	1.25 µg/L	0.012
M7-PFUnDA	8.866	570.0 -> 525.1	28171	1.25 µg/L	0.012
M2-PFDoDA	9.297	615.1 -> 570.0	25649	1.25 µg/L	0.012
M2-PFTeDA	10.012	715.2 -> 670.0	14118	1.25 µg/L	0.012
M8-FOSA	9.674	506.1 -> 77.8	27699	2.50 µg/L	0.000
M3-PFBS	5.746	302.1 -> 79.9	18340	2.50 µg/L	0.000
M3-PFHxS	7.478	402.1 -> 79.9	11582	2.50 µg/L	0.000
M8-PFOS	8.575	507.1 -> 79.9	11880	2.50 µg/L	0.012
M2-4:2FTS	5.454	329.1 -> 80.9	3125	5.00 µg/L	0.012
M2-6:2FTS	7.113	429.1 -> 80.9	4650	5.00 µg/L	0.000
M2-8:2FTS	8.175	529.1 -> 80.9	4078	5.00 µg/L	0.012
M3-MeFOSAA	8.420	573.2 -> 419.0	29599	5.00 µg/L	0.012
M3-HFPO-DA	6.169	286.9 -> 168.9	32124	10.00 µg/L	0.000
M5-EtFOSAA	8.628	589.2 -> 419.0	22659	5.00 µg/L	0.012
M7-MeFOSE	10.685	623.2 -> 58.9	122476	25.00 µg/L	0.000
M9-EtFOSE	10.930	639.2 -> 58.9	144727	25.00 µg/L	0.000
M5-EtFOSA	10.996	531.1 -> 219.0	12290	2.50 µg/L	0.000
M3-MeFOSA	10.775	515.0 -> 219.0	12072	2.50 µg/L	0.000
13C4-PFOS	8.576	502.8 -> 79.9	15133	2.50 µg/L	0.012
13C3-PFBA	3.089	216.0 -> 172.0	62234	5.00 µg/L	0.000
18O2-PFHxS	7.477	403.0 -> 83.9	8296	2.50 µg/L	0.000
13C4-PFOA	7.352	417.1 -> 372.0	82141	2.50 µg/L	0.012
13C2-PFDA	8.388	515.1 -> 470.1	30020	1.25 µg/L	0.000
13C5-PFNA	7.895	468.0 -> 423.0	44794	1.25 µg/L	0.013
13C2-PFHxA	5.792	315.1 -> 270.0	49701	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.454	329.1 -> 80.9	3125	6.12 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.3%		
13C2-6:2FTS	7.113	429.1 -> 80.9	4650	6.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.2%		
13C2-8:2FTS	8.175	529.1 -> 80.9	4078	5.54 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.9%		
13C2-PFDoDA	9.297	615.1 -> 570.0	25649	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C2-PFTeDA	10.012	715.2 -> 670.0	14118	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFBS	5.746	302.1 -> 79.9	18340	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C3-PFHxS	7.478	402.1 -> 79.9	11582	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 = 105.2%	
13C4-PFBA	3.097	216.8 -> 171.9	146283	10.01 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.707	367.1 -> 322.0	50686	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C5-PFHxA	5.792	318.0 -> 273.0	54334	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C5-PFPeA	4.560	268.3 -> 223.0	48344	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C6-PFDA	8.400	519.1 -> 474.1	20635	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C7-PFUnDA	8.866	570.0 -> 525.1	28171	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C8-FOSA	9.674	506.1 -> 77.8	27699	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-PFOA	7.352	421.1 -> 376.0	77519	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOS	8.575	507.1 -> 79.9	11880	2.68 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C9-PFNA	7.895	472.1 -> 427.0	35182	1.29 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%	
d3-MeFOSAA	8.420	573.2 -> 419.0	29599	5.21 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C3-HFPO-DA	6.169	286.9 -> 168.9	32124	9.43 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.3%	
d3-MeFOSA	10.775	515.0 -> 219.0	12072	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
d5-EtFOSAA	8.628	589.2 -> 419.0	22659	4.73 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
d7-MeFOSE	10.685	623.2 -> 58.9	122476	22.05 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.2%	
d9-EtFOSE	10.930	639.2 -> 58.9	144727	20.86 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.4%	
d5-EtFOSA	10.996	531.1 -> 219.0	12290	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
Target Compounds					QValue
4:2FTS	5.455	327.1 -> 307.0	45237	8.36 µg/L	95
		327.1 -> 80.9	18227		
6:2FTS	7.113	427.1 -> 407.0	51954	9.25 µg/L	92
		427.1 -> 80.9	16340		
8:2FTS	8.176	527.1 -> 507.0	26181	9.65 µg/L	98
		527.1 -> 80.8	10681		
EtFOSAA	8.629	584.2 -> 419.1	9180	2.44 µg/L	m 90
		584.2 -> 526.0	5230		
FOSA	9.677	498.1 -> 77.9	26396	2.32 µg/L	98
		498.1 -> 478.0	897		
MeFOSAA	8.421	570.1 -> 419.0	16856	2.34 µg/L	m 96
		570.1 -> 483.0	3652		
PFBA	3.093	212.8 -> 168.9	55935	9.59 µg/L	100
PFBS	5.747	298.7 -> 79.9	16645	2.07 µg/L	87
		298.7 -> 98.8	6963		
PFDA	8.388	512.9 -> 469.0	76115	2.47 µg/L	98
		512.9 -> 219.0	12129		
PFDODA	9.298	613.1 -> 569.0	51683	2.45 µg/L	96
		613.1 -> 319.0	7697		
PFDS	9.462	599.0 -> 79.9	7665	2.14 µg/L	96

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.708	599.0 -> 98.8	3665	2.27	µg/L	98
		363.1 -> 319.0	61509			
PFHpS	8.059	363.1 -> 169.0	10281	2.19	µg/L	99
		449.0 -> 79.9	15636			
PFHxA	5.795	449.0 -> 98.9	7795	2.34	µg/L	98
		313.0 -> 269.0	50988			
PFHxS	7.479	313.0 -> 118.9	2464	2.11	µg/L	m
		398.7 -> 79.9	14708			
PFNA	7.896	398.7 -> 98.9	7710	2.33	µg/L	98
		463.0 -> 419.0	75374			
PFNS	9.053	463.0 -> 219.0	14161	2.14	µg/L	97
		548.8 -> 79.9	13435			
PFOA	7.353	548.8 -> 98.9	6837	2.54	µg/L	98
		413.0 -> 369.0	100865			
PFOS	8.576	413.0 -> 169.0	16729	2.03	µg/L	m
		498.9 -> 79.9	14190			
PFPeA	4.563	498.9 -> 98.8	7142	4.75	µg/L	100
		263.0 -> 219.0	67621			
PFPeS	6.785	349.1 -> 79.9	14898	2.33	µg/L	98
		349.1 -> 98.9	7025			
PFTeDA	10.013	713.1 -> 669.0	40719	2.41	µg/L	98
		713.1 -> 168.9	3399			
PFTrDA	9.681	663.0 -> 619.0	50105	2.39	µg/L	97
		663.0 -> 168.9	5490			
PFUnDA	8.866	563.1 -> 519.0	53648	2.60	µg/L	99
		563.1 -> 269.1	8663			
11CI-PF3OUdS	9.733	630.9 -> 450.9	74065	4.89	µg/L	99
		632.9 -> 452.9	21756			
9CI-PF3ONS	8.918	530.8 -> 351.0	120269	4.76	µg/L	95
		532.8 -> 353.0	33029			
ADONA	6.959	376.9 -> 250.9	253043	4.66	µg/L	98
		376.9 -> 84.8	68738			
HFPO-DA	6.182	284.9 -> 168.9	16578	4.75	µg/L	97
		284.9 -> 184.9	2002			
3:3FTCA	3.958	241.0 -> 177.0	11143	11.45	µg/L	99
		241.0 -> 117.0	1505			
5:3FTCA	6.374	341.0 -> 237.1	246364	58.36	µg/L	100
		341.0 -> 217.0	182917			
7:3FTCA	7.748	441.0 -> 316.9	173853	57.55	µg/L	89
		441.0 -> 336.9	370572			
EtFOSA	10.997	526.0 -> 219.0	30716	4.67	µg/L	97
		526.0 -> 169.0	40133			
EtFOSE	10.943	630.0 -> 58.9	89874	11.76	µg/L	100
		511.9 -> 219.0	25540			
MeFOSA	10.777	511.9 -> 169.0	35908	4.83	µg/L	m
		616.1 -> 58.9	64995			
MeFOSE	10.709	699.1 -> 79.9	3744	12.12	µg/L	m
		699.1 -> 98.8	2114			
PFDoDS	10.139	295.0 -> 201.0	12373	2.10	µg/L	98
		295.0 -> 84.9	3551			
NFDHA	5.673	279.0 -> 85.1	48017	4.49	µg/L	100
		229.0 -> 84.9	37389			
PFMBA	4.988	314.8 -> 134.9	122123	4.72	µg/L	100
		314.8 -> 82.9	4149			
PFMPA	3.667			4.56	µg/L	100
PFEESA	6.288					

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

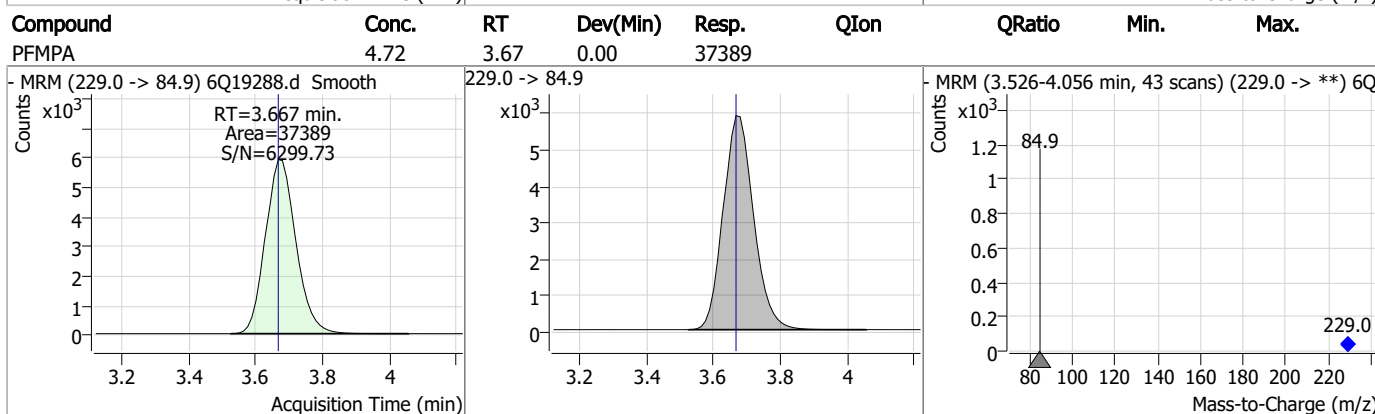
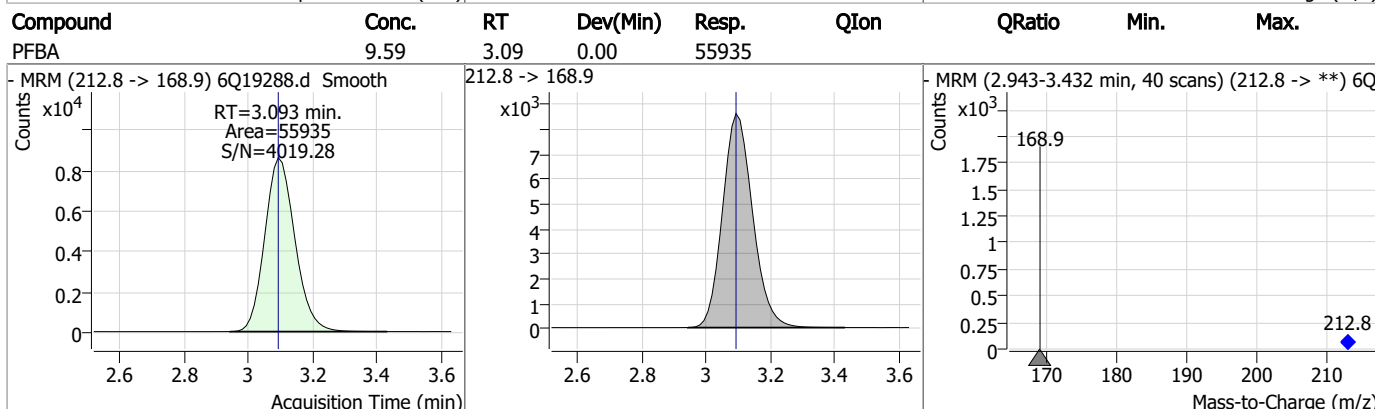
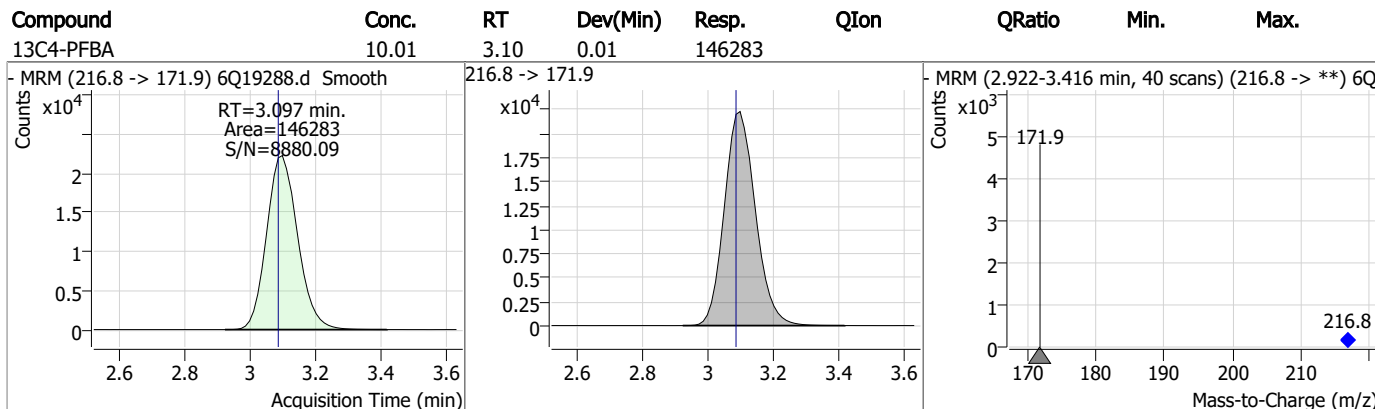
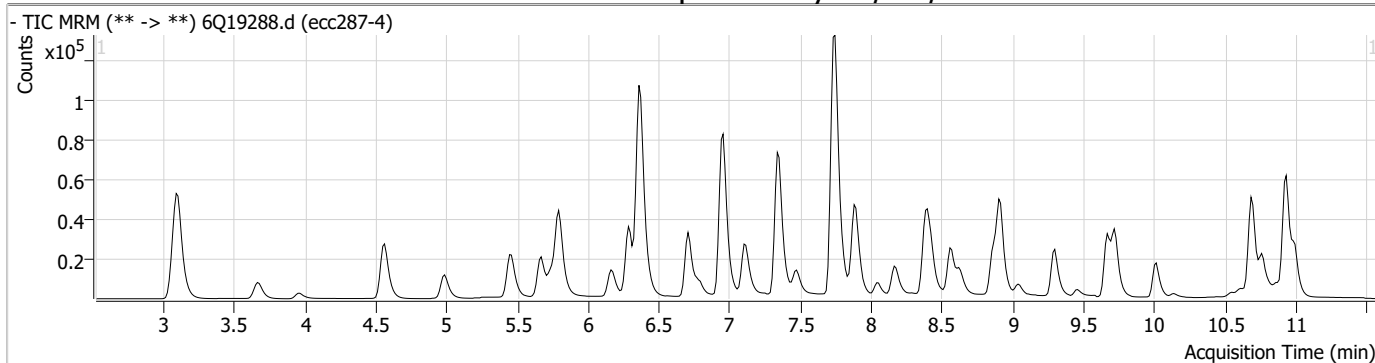
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Perfluorinated Compounds by LC/MS/MS

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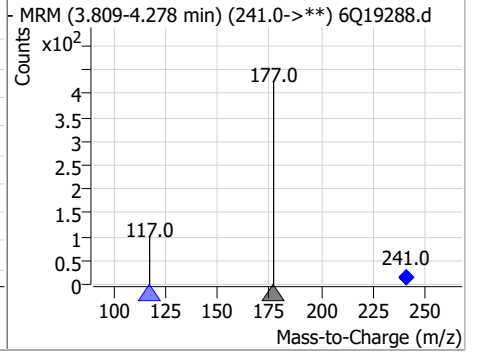
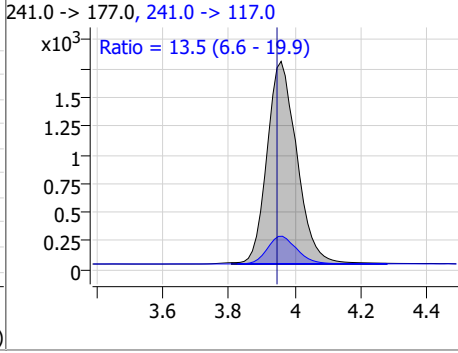
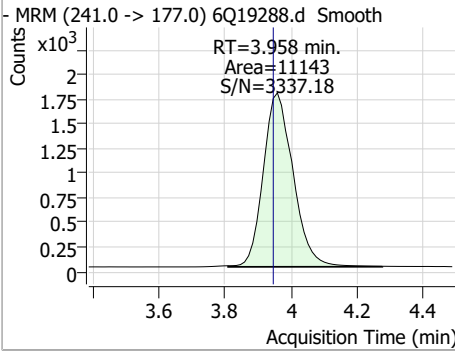
Perfluorinated Compounds by LC/MS/MS



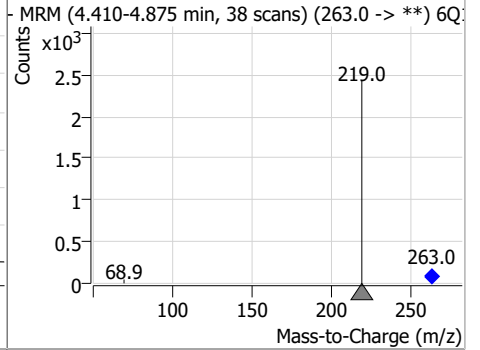
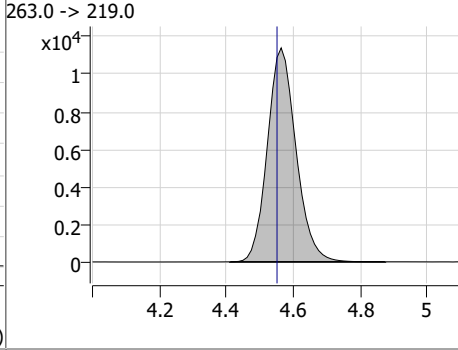
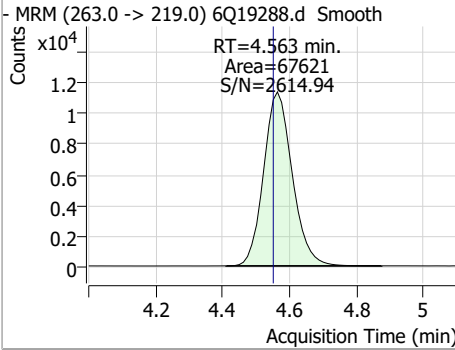
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Perfluorinated Compounds by LC/MS/MS

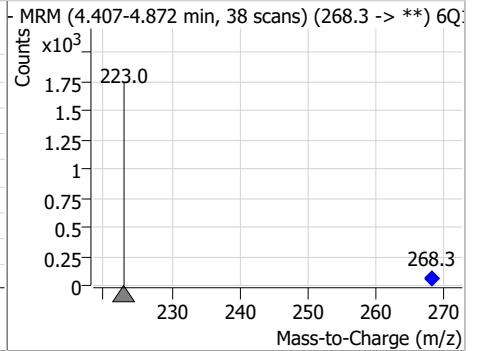
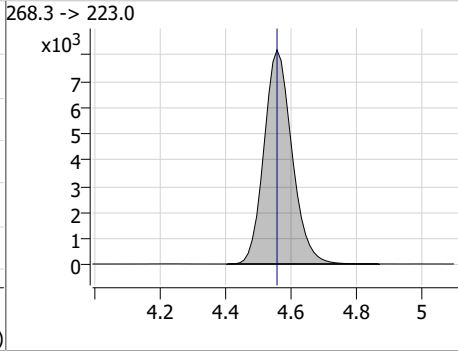
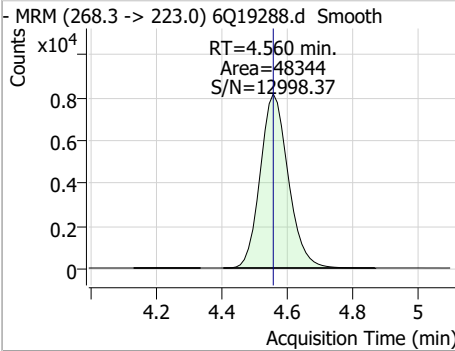
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.45	3.96	0.01	11143	241.0 -> 117.0	13.5	6.6	19.9



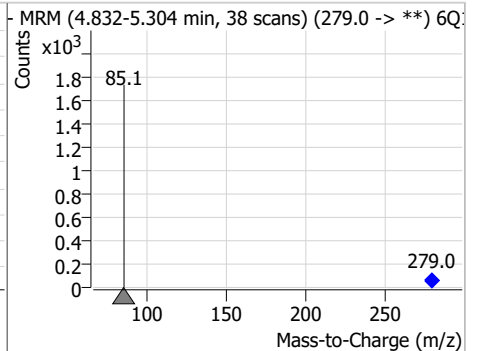
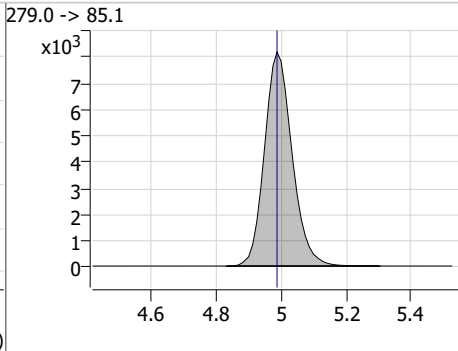
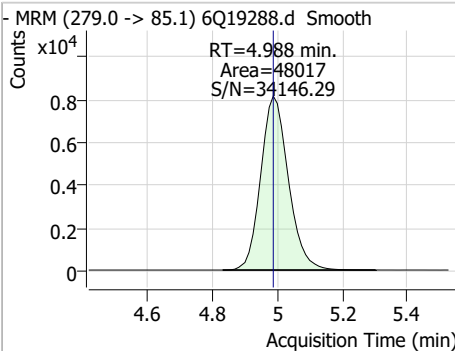
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.75	4.56	0.01	67621				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.03	4.56	0.00	48344				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.71	4.99	0.00	48017				



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	6.12	5.45	0.01	3125				
4:2FTS	8.36	5.45	0.01	45237	327.1 -> 80.9	40.3	18.6	55.9
NFDHA	4.49	5.67	0.00	12373	295.0 -> 84.9	28.7	14.5	43.4
13C3-PFBS	2.62	5.75	0.00	18340				

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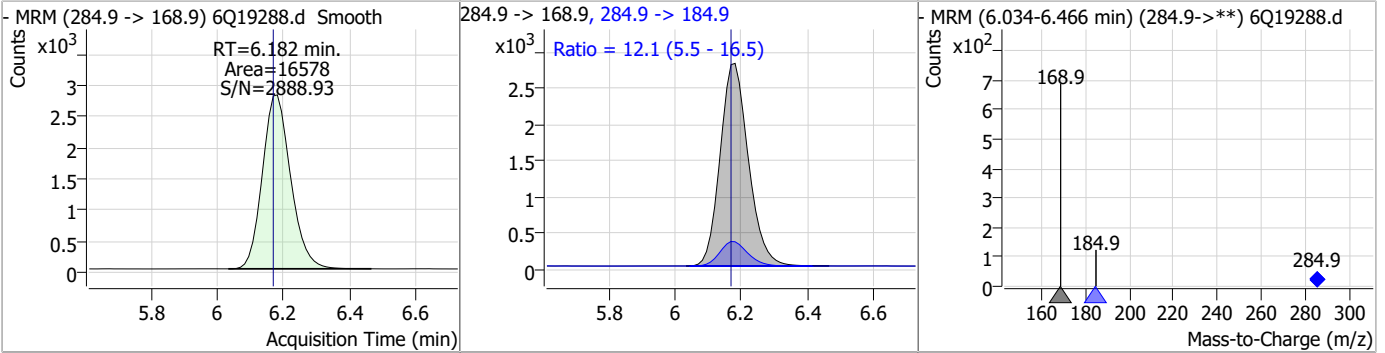
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.07	5.75	0.00	16645	298.7 -> 98.8	41.8	17.3	51.9
13C5-PFHxA	2.53	5.79	0.00	54334				
PFHxA	2.34	5.79	0.00	50988	313.0 -> 118.9	4.8	2.7	8.1
13C3-HFPO-DA	9.43	6.17	0.00	32124				

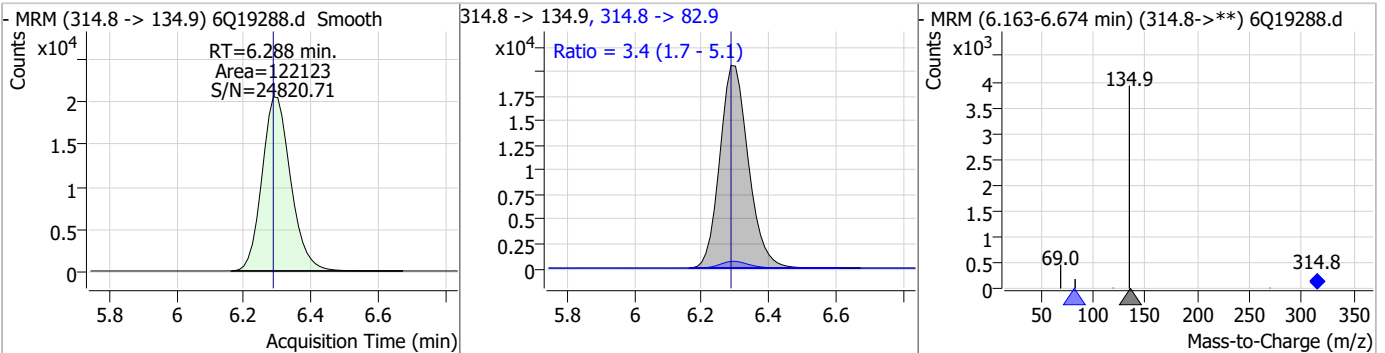
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Perfluorinated Compounds by LC/MS/MS

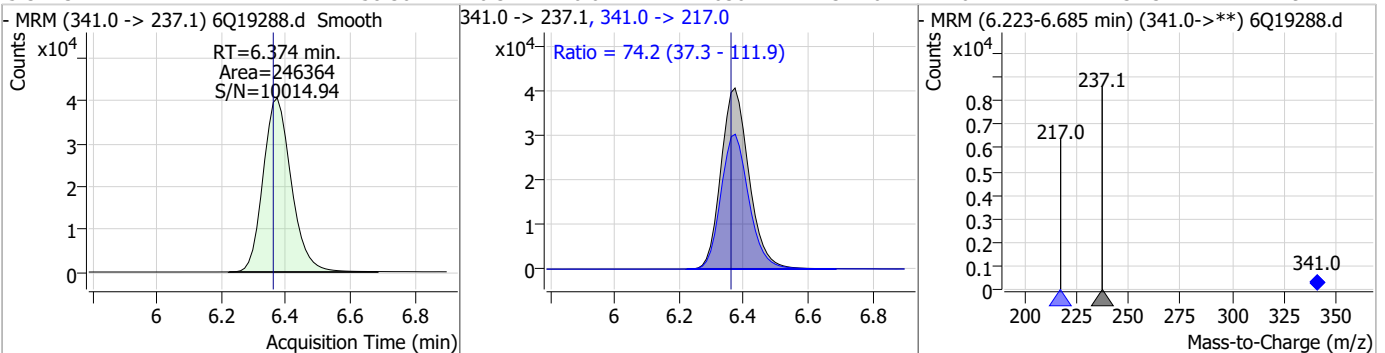
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.75	6.18	0.01	16578	284.9 -> 184.9	12.1	5.5	16.5



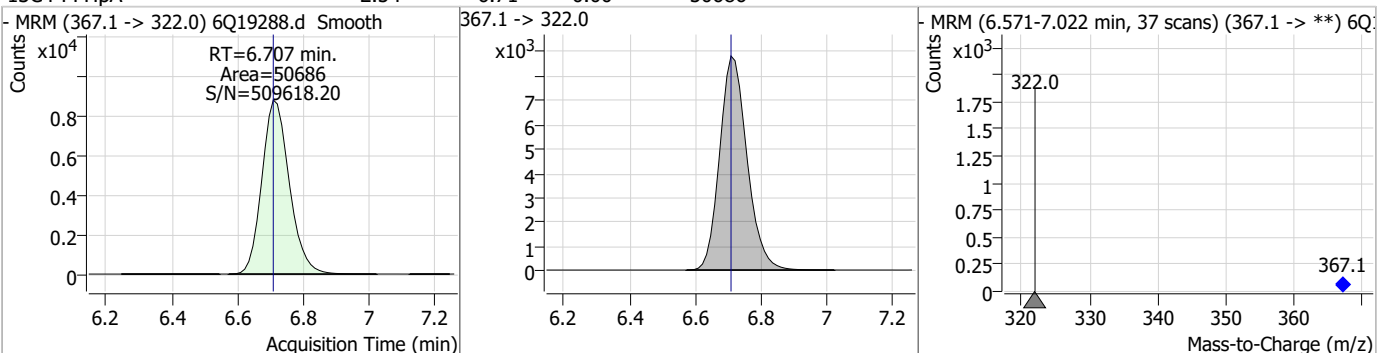
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.56	6.29	0.00	122123	314.8 -> 82.9	3.4	1.7	5.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	58.36	6.37	0.01	246364	341.0 -> 217.0	74.2	37.3	111.9

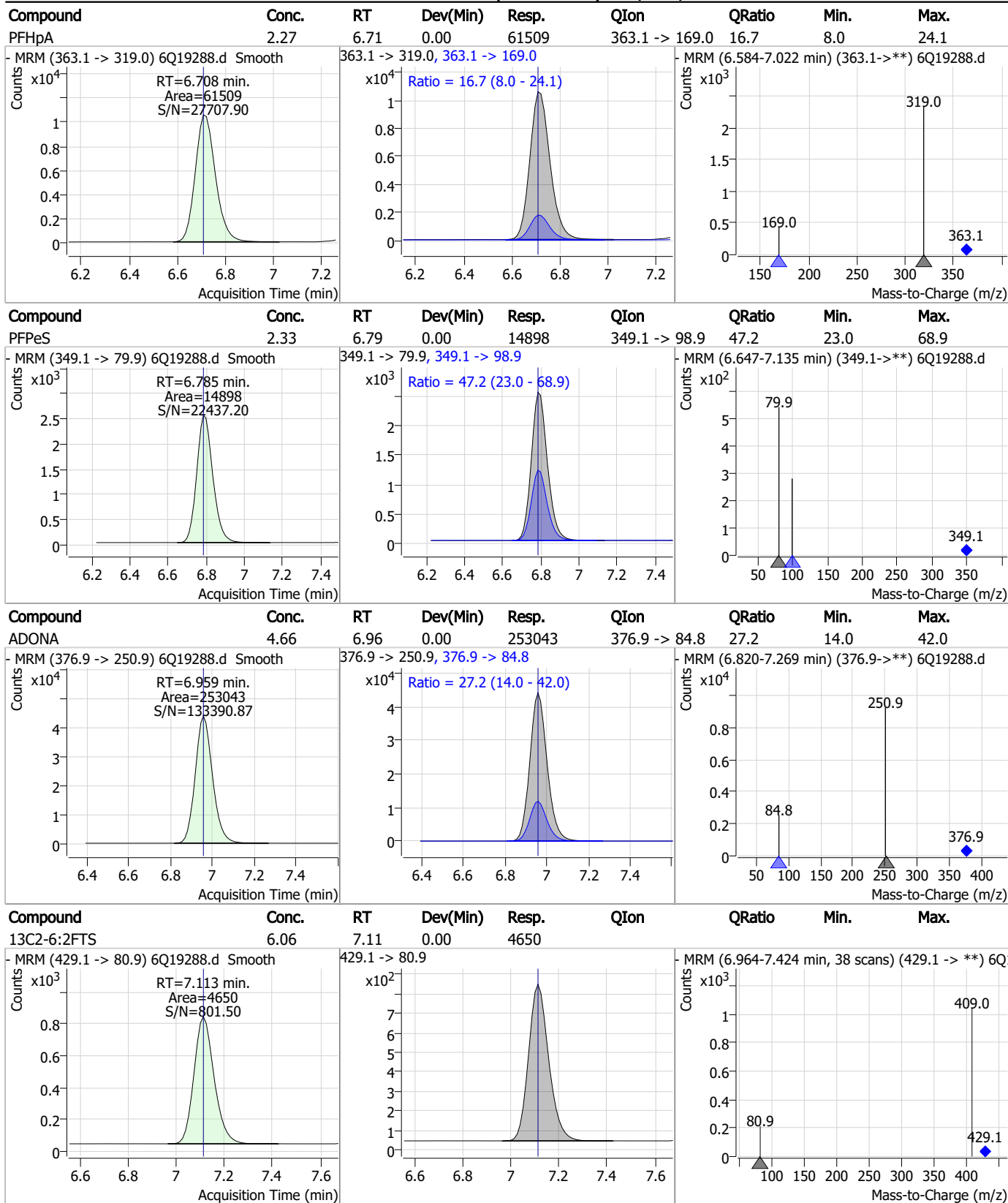


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.54	6.71	0.00	50686				



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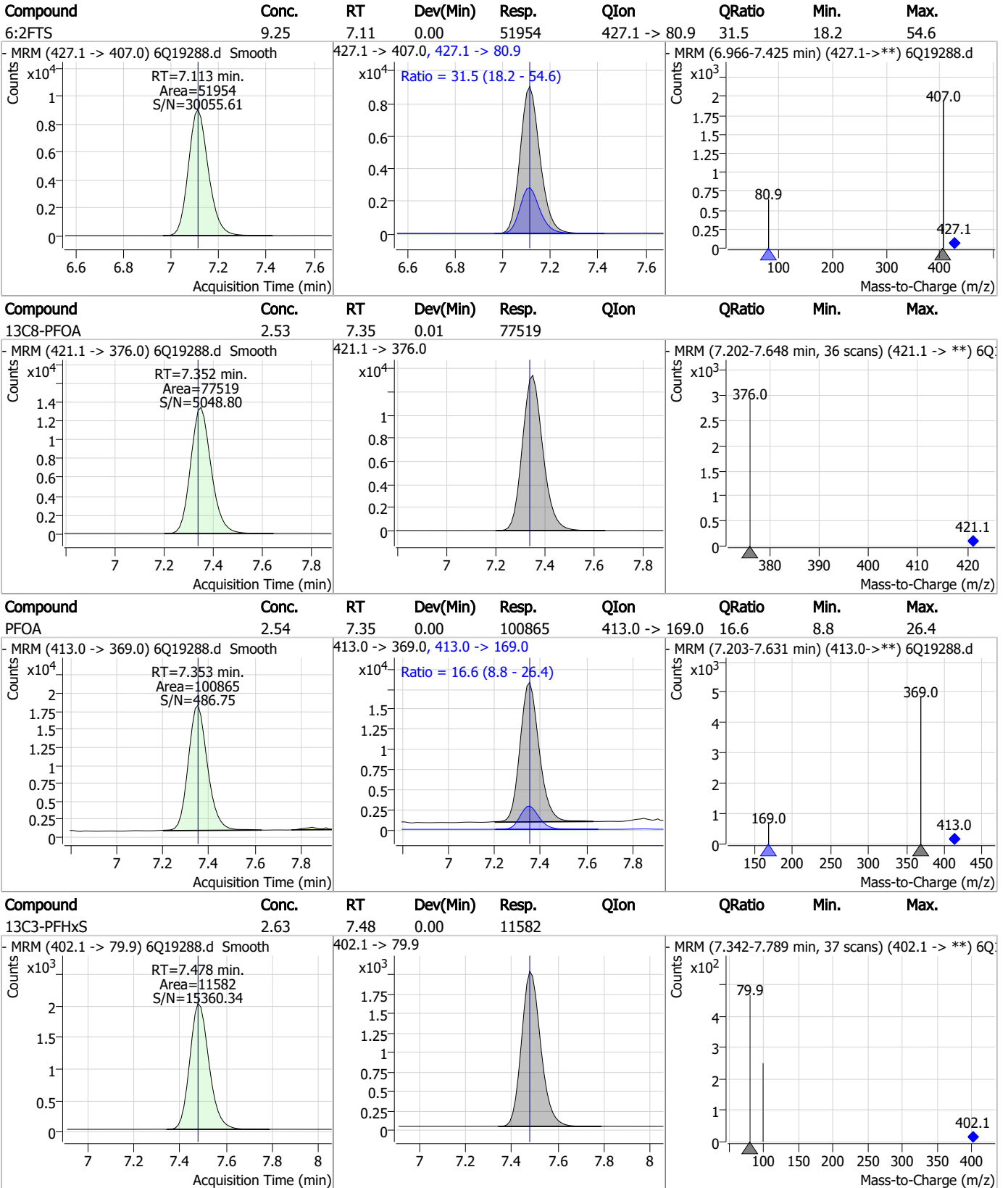
Perfluorinated Compounds by LC/MS/MS



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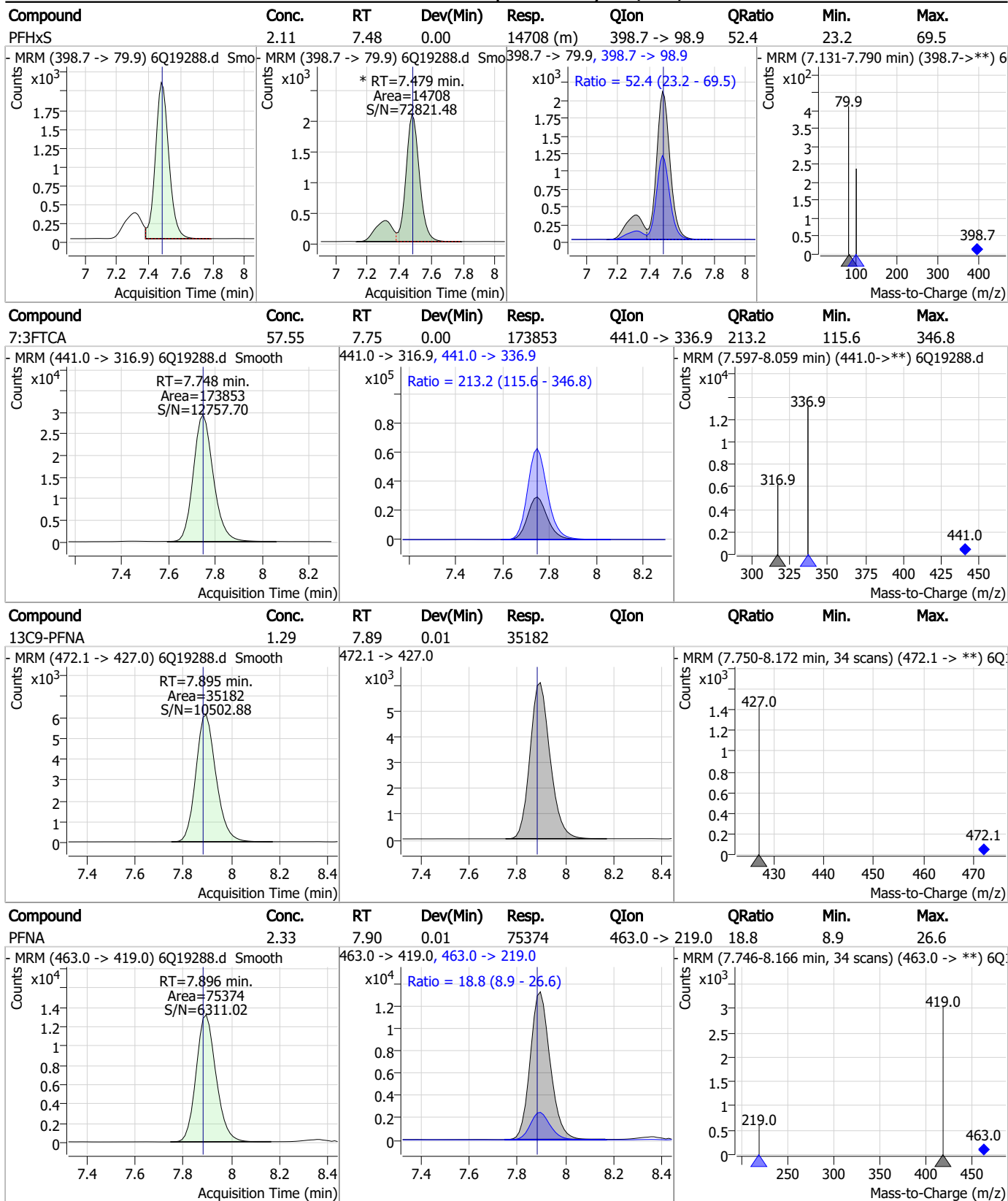
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



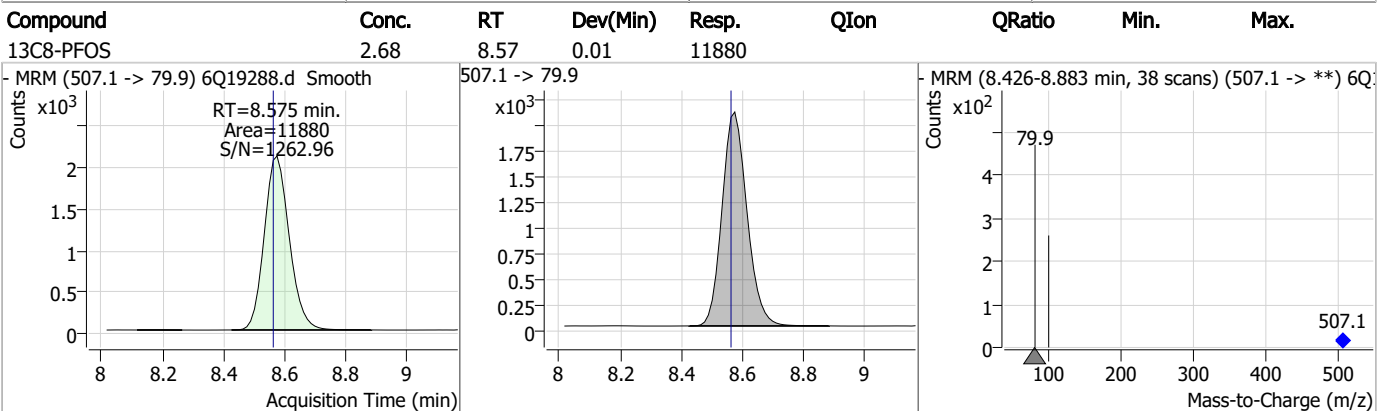
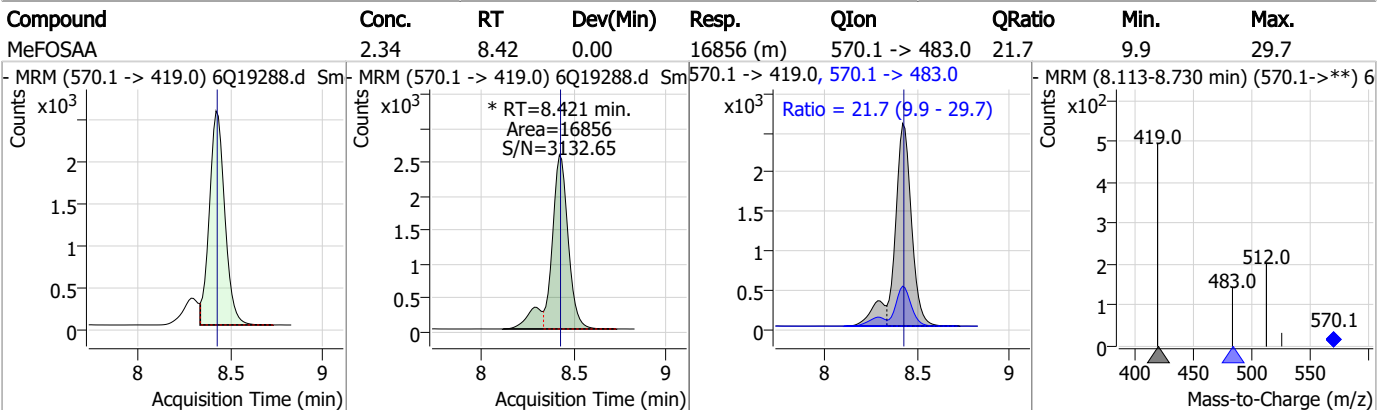
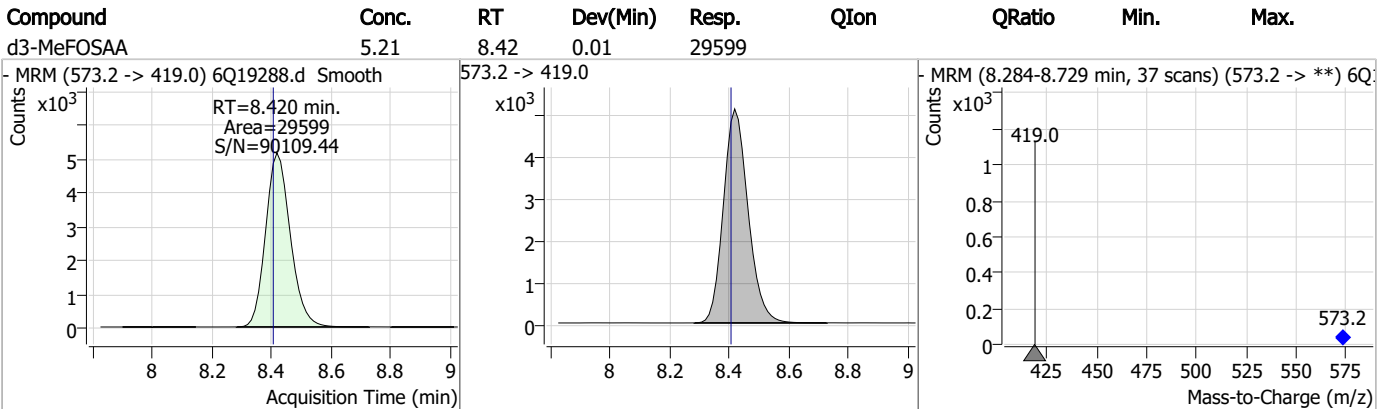
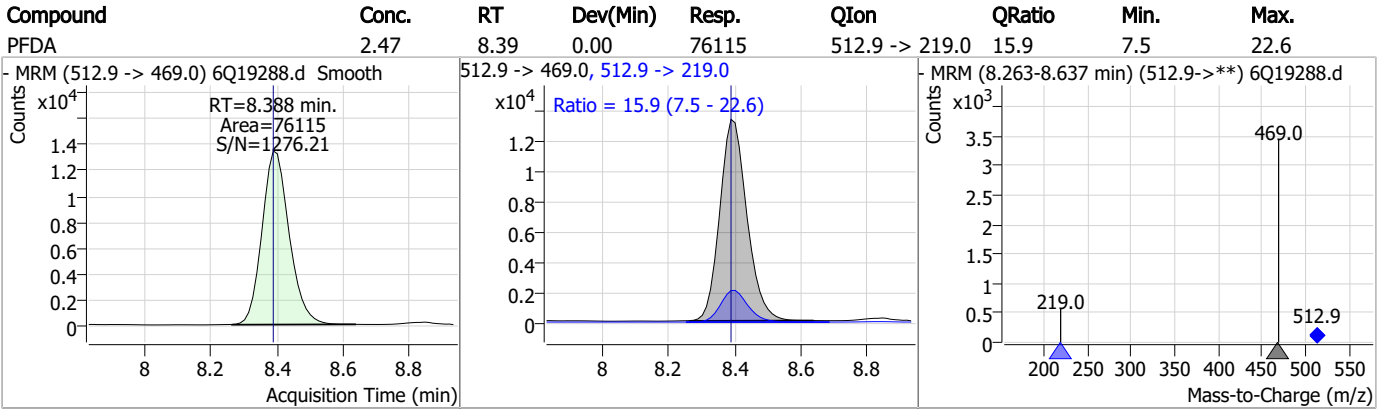
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Perfluorinated Compounds by LC/MS/MS

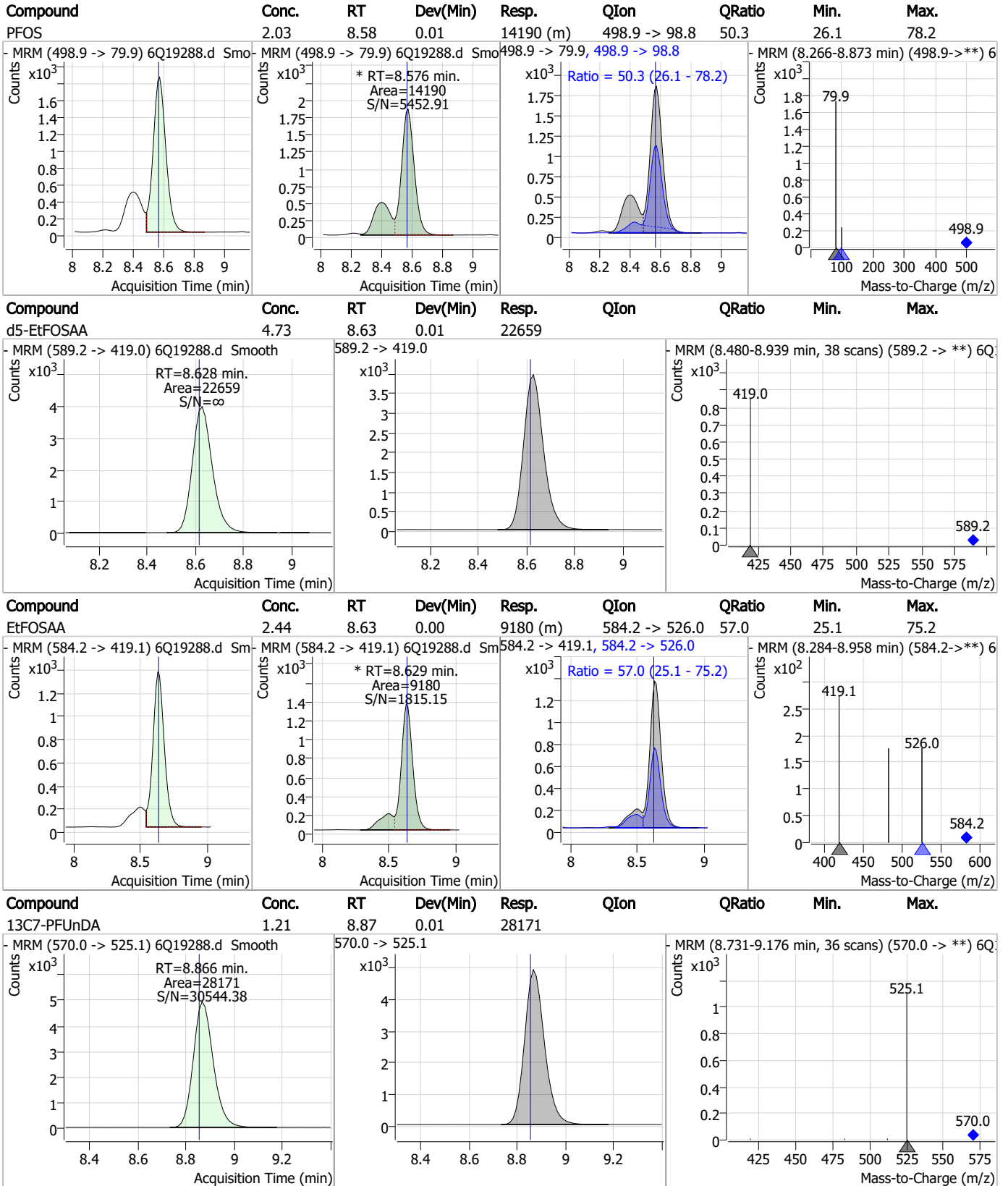
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.19	8.06	0.01	15636	449.0 -> 98.9	49.9	24.5	73.5
13C2-8:2FTS	5.54	8.18	0.01	4078	529.1 -> 80.9	40.8	19.7	59.1
8:2FTS	9.65	8.18	0.01	26181	527.1 -> 80.8	40.8	19.7	59.1
13C6-PFDA	1.25	8.40	0.01	20635	519.1 -> 474.1	40.8	19.7	59.1

7.7.17

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

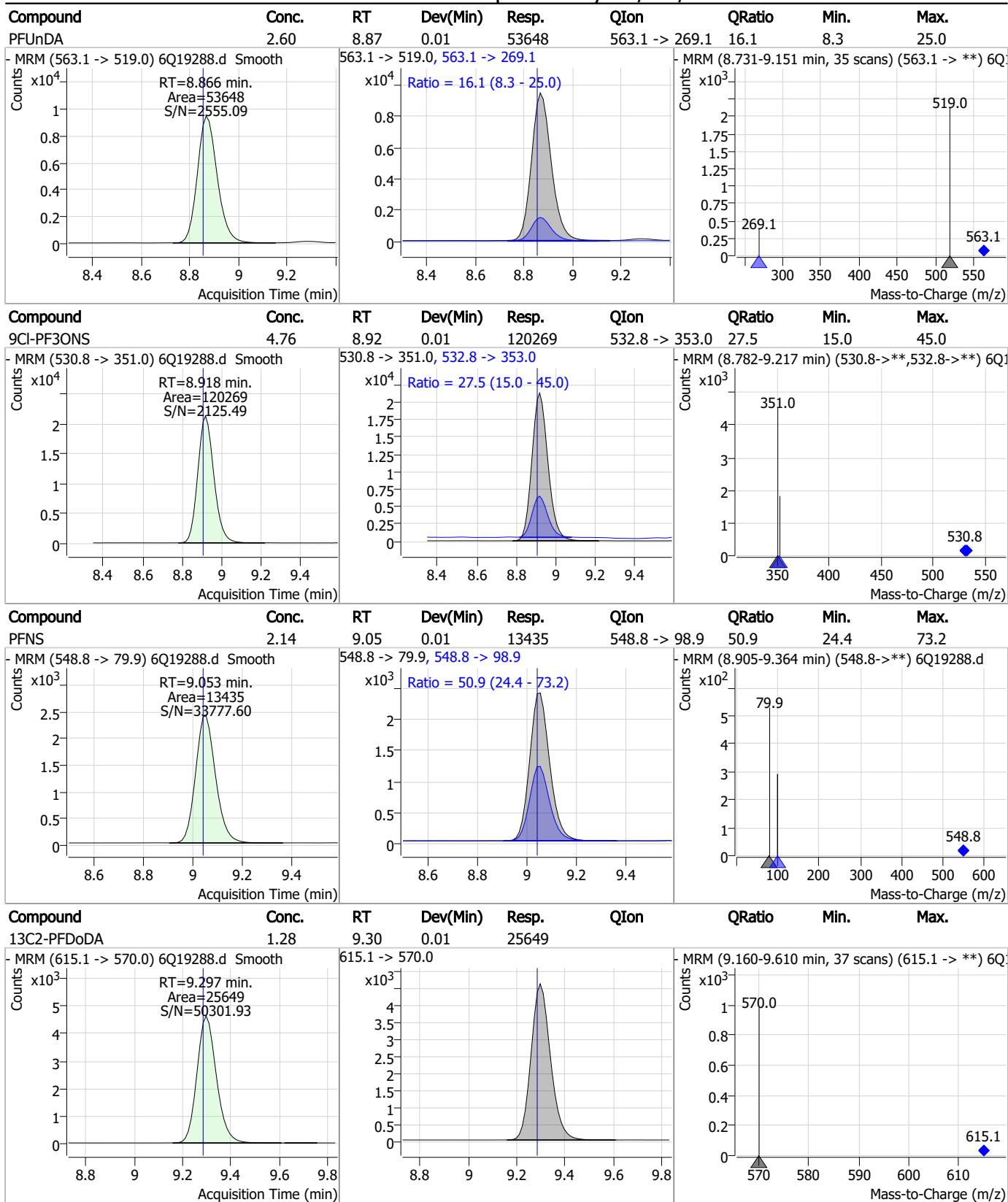


7.7.17

7

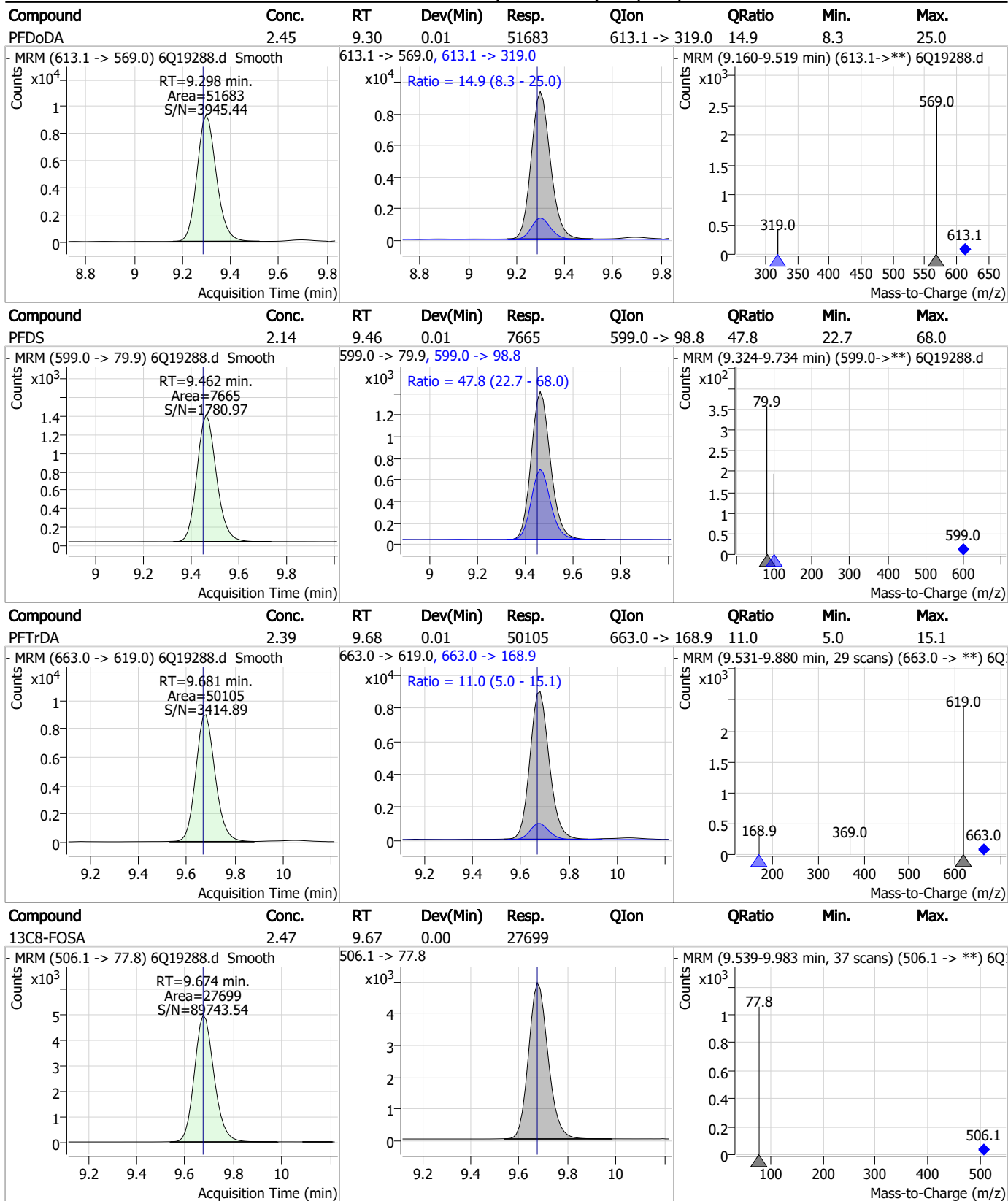


Perfluorinated Compounds by LC/MS/MS



7.7.17

Perfluorinated Compounds by LC/MS/MS

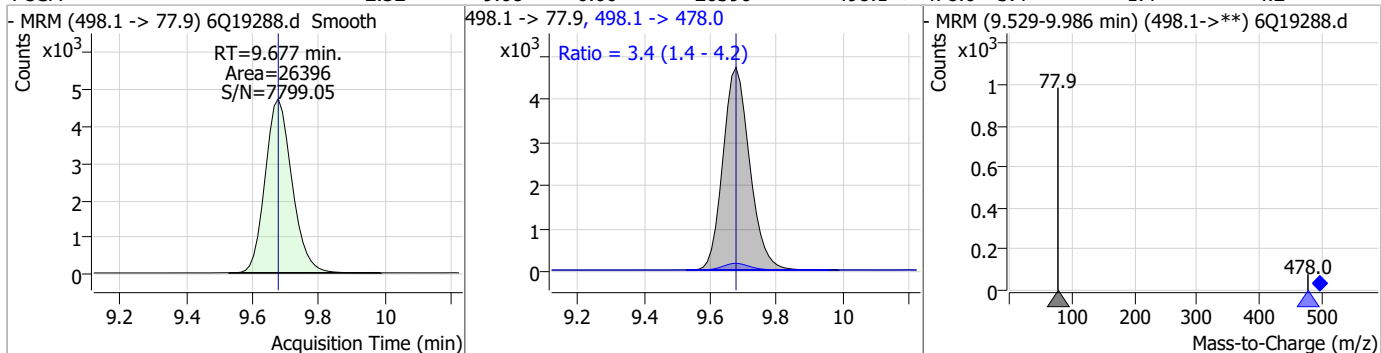


7.7.17

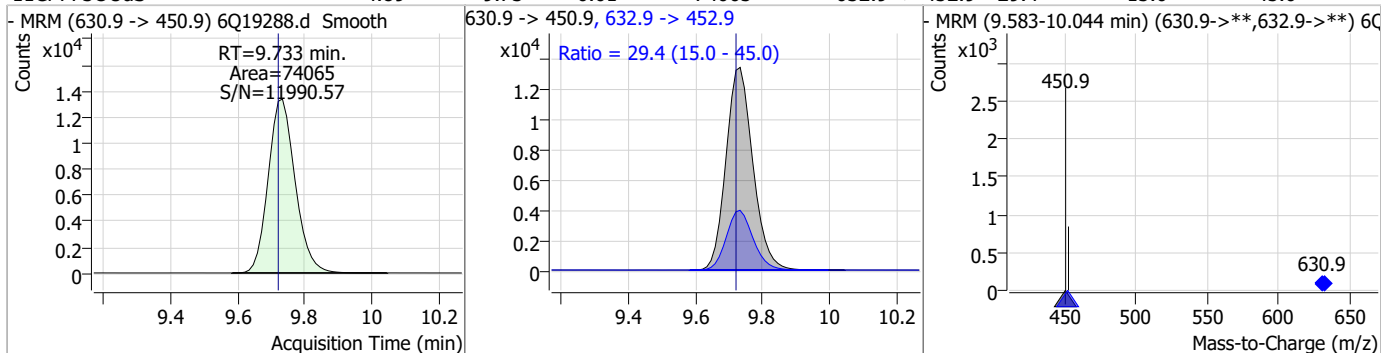


Perfluorinated Compounds by LC/MS/MS

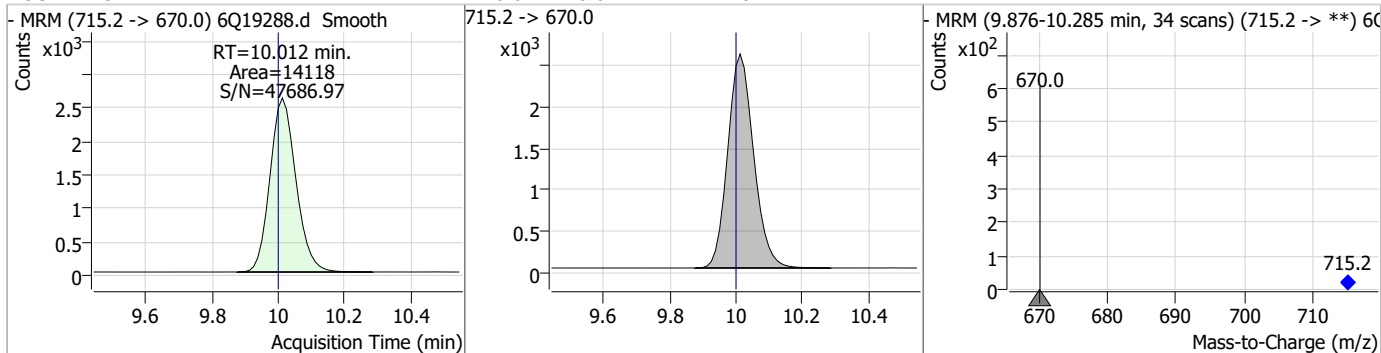
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.32	9.68	0.00	26396	498.1 -> 478.0	3.4	1.4	4.2



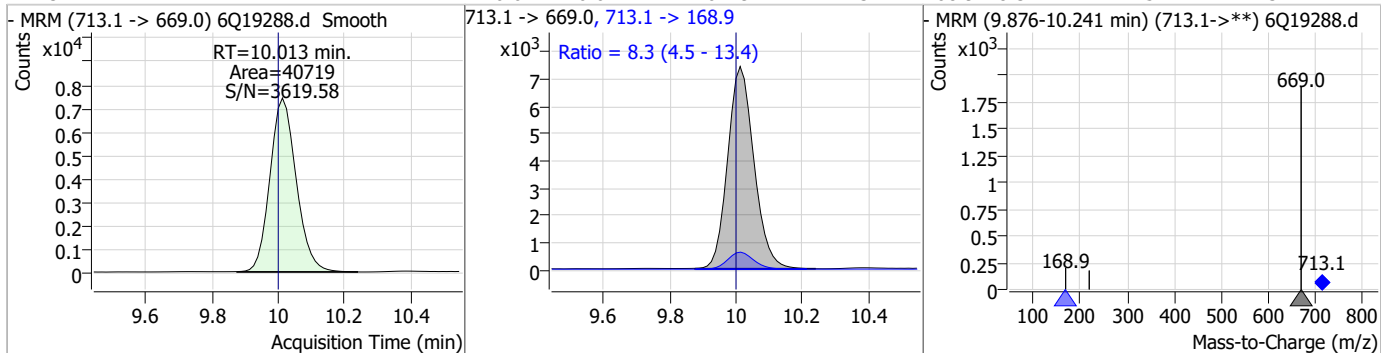
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	4.89	9.73	0.01	74065	632.9 -> 452.9	29.4	15.0	45.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	10.01	0.01	14118	715.2 -> 670.0	8.3	4.5	13.4



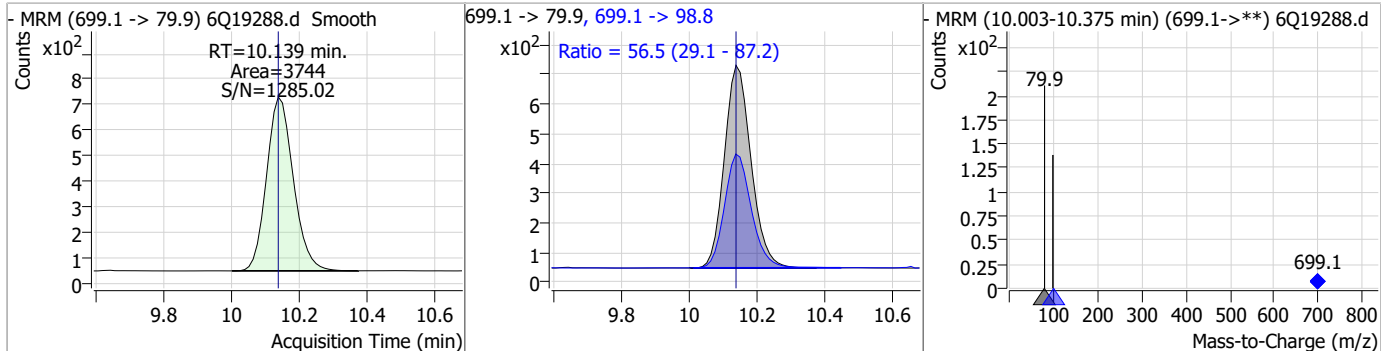
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.41	10.01	0.01	40719	713.1 -> 168.9	8.3	4.5	13.4



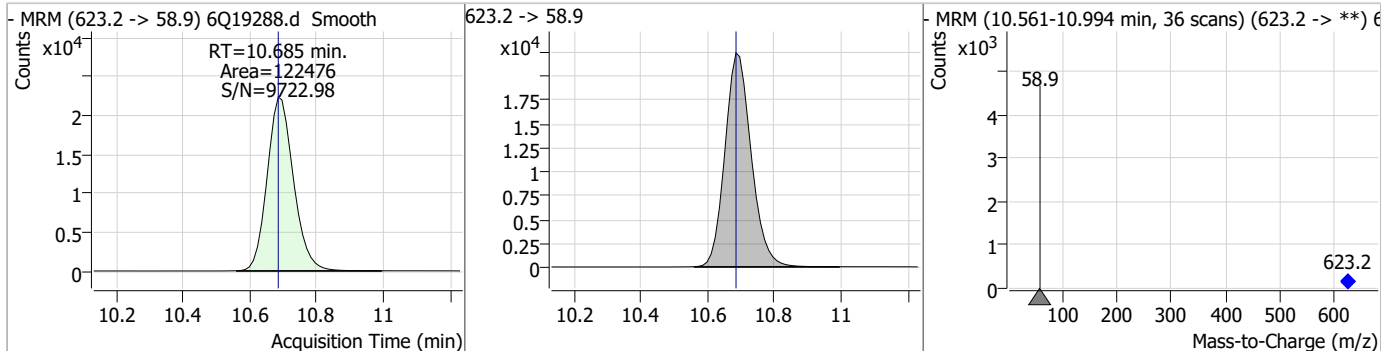
7.7.17

Perfluorinated Compounds by LC/MS/MS

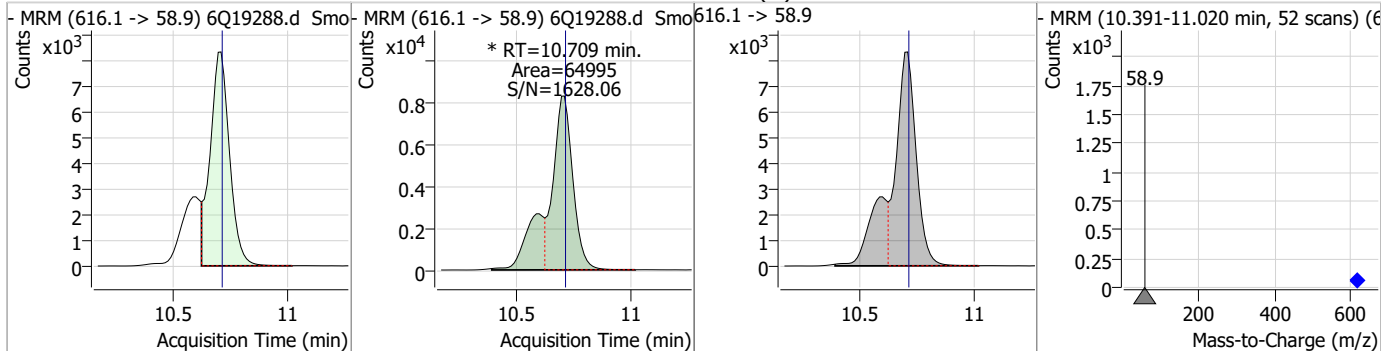
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.10	10.14	0.00	3744	699.1 -> 98.8	56.5	29.1	87.2



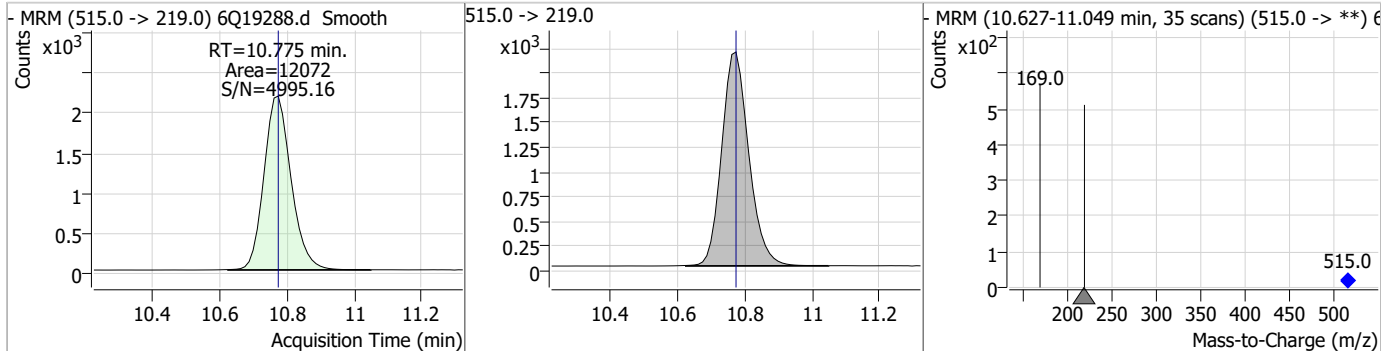
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.05	10.68	0.00	122476				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.12	10.71	0.00	64995 (m)				

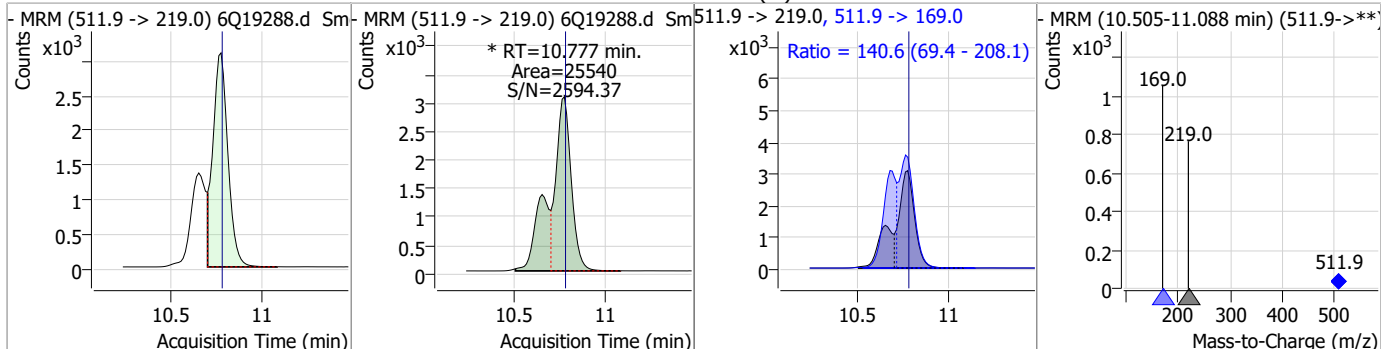


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.40	10.78	0.00	12072				

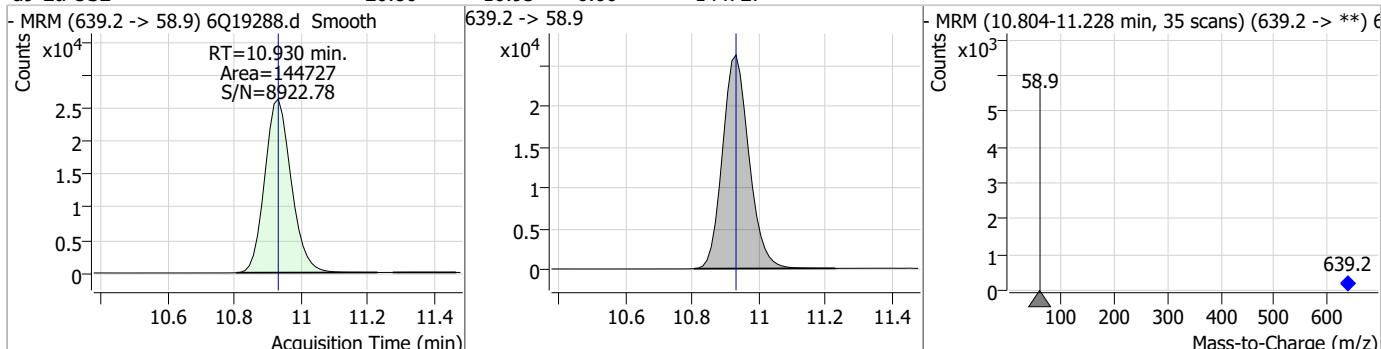


Perfluorinated Compounds by LC/MS/MS

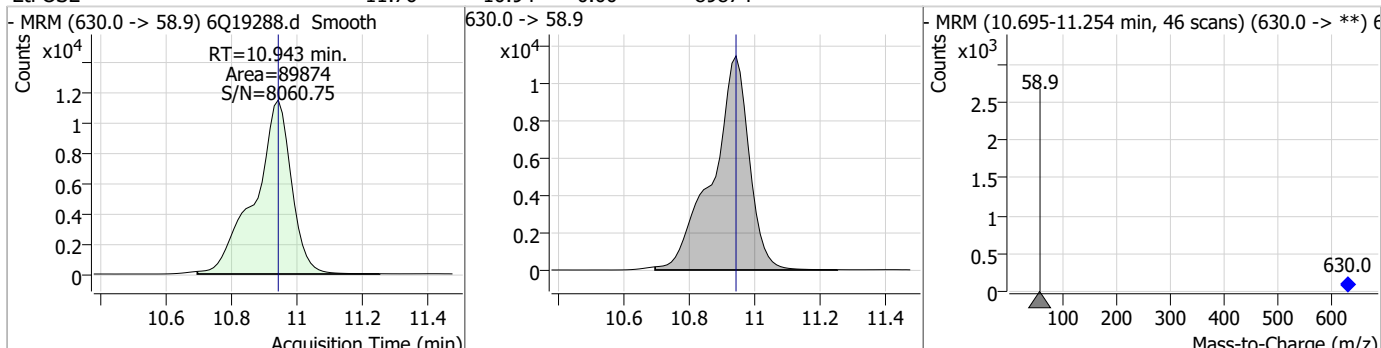
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.83	10.78	0.00	25540 (m)	511.9 -> 169.0	140.6	69.4	208.1



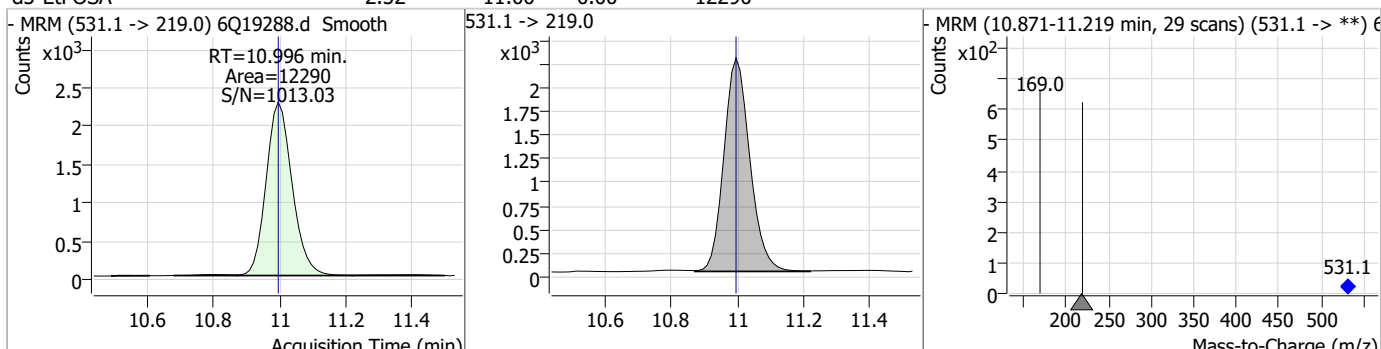
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.86	10.93	0.00	144727				



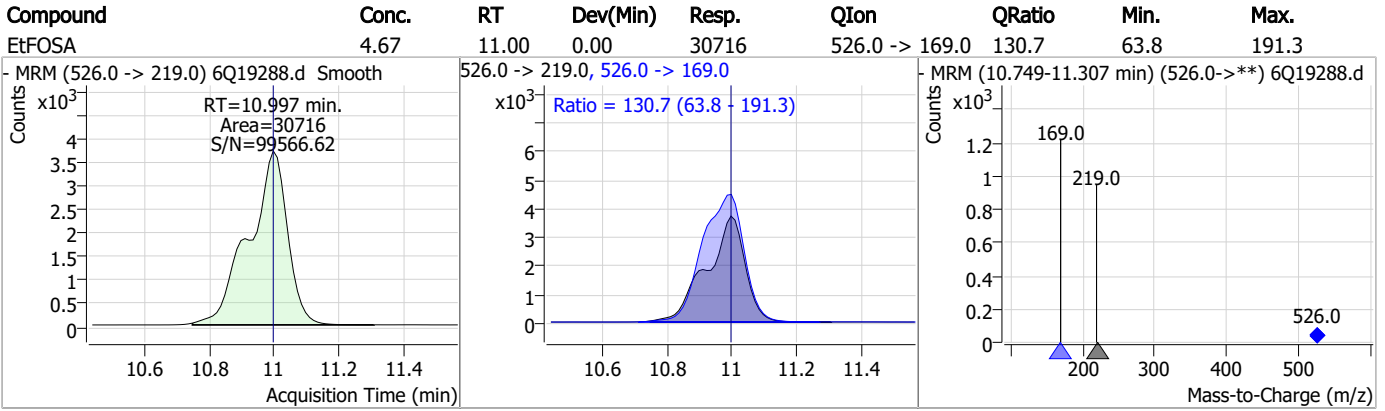
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.76	10.94	0.00	89874				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.52	11.00	0.00	12290				



Perfluorinated Compounds by LC/MS/MS



7.7.17
7

Manual Integration Approval Summary

Sample Number: S6Q287-ECC287 Method: EPA DRAFT 1633
Lab FileID: 6Q19288.D Analyst approved: 06/13/23 11:17 Martha Valls
Injection Time: 06/13/23 02:59 Supervisor approved: 06/13/23 13:30 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.48	Split peak
MeFOSAA	2355-31-9		8.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.58	Split peak
EtFOSAA	2991-50-6		8.63	Split peak
MeFOSE	24448-09-7		10.71	Split peak
MeFOSA	31506-32-8		10.78	Split peak

7.7.17.1
7

SGS ORLANDO

DATE:	06/12/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_061223_S6Q287
CAL DATE:	06/12/23
ANALYST:	M. Valls
RUN BATCH:	S6Q287

ELUENT A LOT #:	ACN 220811
ELUENT B LOT #:	HPLC WATER LOT: 230470 W5% Methanol 224279 2mM AMAC: 11387
IC/CC STD LOT #:	LCMS 2124-D
ICV STD LOT #:	LCMS 2124D/2125B
ISTD/D STD LOT #:	11851/11850

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q19228.d	P1-B9	CCB	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	✓
2	6Q19229.d	P1-A9	Check peaks	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	New column, RT set up
3	6Q19230.d	P1-A5	Check peaks	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	↓
4	6Q19231.d	P1-B9	CCB	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	↓
5	6Q19232.d	P1-B3	RT TDCA	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	↓
6	6Q19233.d	P1-B9	CCB	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	↓
7	6Q19234.d	P1-B9	CCB	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	↓
8	6Q19235.d	P1-B3	RT TDCA	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	↓
9	6Q19236.d	P1-B4	RT BR-LN	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	↓
10	6Q19237.d	P1-B3	RT TDCA	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	✓
11	6Q19238.d	P1-B4	RT BR-LN	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	✓
12	6Q19239.d	P1-A1	ic287-0	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	✓
13	6Q19240.d	P1-A2	ic287-1	1633full.m	Calibration	1.6/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
14	6Q19241.d	P1-A3	ic287-2	1633full.m	Calibration	3.2/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
15	6Q19242.d	P1-A4	ic287-3	1633full.m	Calibration	10/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
16	6Q19243.d	P1-A5	icc287-4	1633full.m	Calibration	20/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
17	6Q19244.d	P1-A6	ic287-5	1633full.m	Calibration	40/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
18	6Q19245.d	P1-A7	ic287-6	1633full.m	Calibration	100/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
19	6Q19246.d	P1-A8	ic287-7	1633full.m	Calibration	200/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
20	6Q19247.d	P1-A9	ic287-8	1633full.m	Calibration	1x	OP97215,S6Q287,500,,,5.0,1,,water	✓
21	6Q19248.d	P1-A1	iblk	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	✓
22	6Q19249.d	P1-B1	icv287-4	1633full.m	QC	20/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
23	6Q19250.d	P1-B2	icv287-20	1633full.m	QC	100/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
24	6Q19251.d	P1-A5	cc287-4	1633full.m	QC	20/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
25	6Q19252.d	P1-A2	cc287-1,0LL	1633full.m	QC	1.6/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
26	6Q19253.d	P2-A1	FC6151-6	1633full.m	Sample	25/500	OP97120,S6Q287,500,,,5.0,16,SOLL	✓
27	6Q19254.d	P2-A2	FC6342-11	1633full.m	Sample		OP97215,S6Q287,420,,,5.0,1,,water	✓
28	6Q19255.d	P2-A3	op97215-dup	1633full.m	Sample		OP97215,S6Q287,450,,,5.0,1,,water	✓
29	6Q19256.d	P2-A4	FC6213-6	1633full.m	Sample		OP97160,S6Q287,490,,,5.0,1,,water	pfba low, Redo
30	6Q19257.d	P2-A5	JD66240-1	1633full.m	Sample	100/500	OP97160,S6Q287,526,,,5.0,5,,water	✓
31	6Q19258.d	P2-A6	JD66240-2	1633full.m	Sample	100/500	OP97160,S6Q287,510,,,5.0,5,,water	low surr, Redo
32	6Q19259.d	P2-A7	FC6342-10	1633full.m	Sample	50/500	OP97215,S6Q287,480,,,5.0,10,,water	Redo lower volume
33	6Q19260.d	P2-A8	op97215-ms	1633full.m	Sample	50/500	OP97215,S6Q287,460,,,5.0,10,,water	✓
34	6Q19261.d	P1-A5	cc287-4	1633full.m	QC	20/500	OP97215,S6Q287,500,,,5.0,1,,water	✓
35	6Q19262.d	P1-A1	iccb	1633full.m	Sample		OP97215,S6Q287,500,,,5.0,1,,water	✓

SGS ORLANDO LCMS6-6Q ANALYSIS LOG

36	6Q19263.d	P2-B1	op97275-bs	1633full.m	Sample	OP97275.S6Q287.500,,,5.0,1,water	✓
37	6Q19264.d	P2-B2	op97275-llbs:3	1633full.m	Sample	OP97275.S6Q287.500,,,5.0,1,water	✓
38	6Q19265.d	P2-B3	op97275-mb	1633full.m	Sample	OP97275.S6Q287.500,,,5.0,1,water	✓
39	6Q19266.d	P2-B4	FC6445-4	1633full.m	Sample	OP97275.S6Q287.510,,,5.0,1,water	✓
40	6Q19267.d	P2-B5	FC6445-4	1633full.m	Sample	OP97275.S6Q287.60,,,5.0,1,water	✓
41	6Q19268.d	P2-B6	FC6649-1	1633full.m	Sample	OP97275.S6Q287.540,,,5.0,1,water	✓
42	6Q19269.d	P2-B7	op97275-ms	1633full.m	Sample	OP97275.S6Q287.550,,,5.0,1,water	✓
43	6Q19270.d	P2-B8	FC6649-2	1633full.m	Sample	OP97275.S6Q287.560,,,5.0,1,water	✓
44	6Q19271.d	P2-B9	FC6649-3	1633full.m	Sample	OP97275.S6Q287.570,,,5.0,1,water	✓
45	6Q19272.d	P1-A5	cc287-4	1633full.m	QC	OP97215.S6Q287.500,,,5.0,1,water	✓
46	6Q19273.d	P1-A1	iccb	1633full.m	Sample	OP97215.S6Q287.500,,,5.0,1,water	✓
47	6Q19274.d	P2-C1	FC6649-4	1633full.m	Sample	OP97275.S6Q287.530,,,5.0,1,water	✓
48	6Q19275.d	P2-C2	op97275-dup	1633full.m	Sample	OP97275.S6Q287.570,,,5.0,1,water	✓
49	6Q19276.d	P2-C3	FC6649-5	1633full.m	Sample	OP97275.S6Q287.560,,,5.0,1,water	✓
50	6Q19277.d	P2-C4	FC6649-6	1633full.m	Sample	OP97275.S6Q287.550,,,5.0,1,water	✓
51	6Q19278.d	P2-C5	FC6651-1	1633full.m	Sample	OP97275.S6Q287.560,,,5.0,1,water	✓
52	6Q19279.d	P2-C6	FC6651-2	1633full.m	Sample	OP97275.S6Q287.520,,,5.0,1,water	✓
53	6Q19280.d	P2-C7	FC6651-3	1633full.m	Sample	OP97275.S6Q287.560,,,5.0,1,water	✓
54	6Q19281.d	P2-C8	FC6651-4	1633full.m	Sample	OP97275.S6Q287.570,,,5.0,1,water	✓
55	6Q19282.d	P2-C9	FC6651-5	1633full.m	Sample	OP97275.S6Q287.530,,,5.0,1,water	✓
56	6Q19283.d	P2-D1	FC6699-1	1633full.m	Sample	OP97275.S6Q287.550,,,5.0,1,water	✓
57	6Q19284.d	P1-A5	cc287-4	1633full.m	QC	OP97215.S6Q287.500,,,5.0,1,water	✓
58	6Q19285.d	P1-A1	iccb	1633full.m	Sample	OP97215.S6Q287.500,,,5.0,1,water	✓
59	6Q19286.d	P2-D2	FC6699-2	1633full.m	Sample	OP97275.S6Q287.560,,,5.0,1,water	✓
60	6Q19287.d	P2-D3	FC6699-3	1633full.m	Sample	OP97275.S6Q287.560,,,5.0,1,water	✓
61	6Q19288.d	P1-A5	ecc287-4	1633full.m	QC	OP97215.S6Q287.500,,,5.0,1,water	✓
62	6Q19289.d	P1-A1	iccb	1633full.m	Sample	OP97215.S6Q287.500,,,5.0,1,water	✓

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2122A-E	1633 opike Cal std.	11771 11799A	PFAC MXF	wellington	4/19/28	4-27-24 5-15-24	1-4 ppm	250uL	4mL	62.5 125 250ppb	1633 mix	5/15/23	10/28/23	MJ
		LCMS 2097A	Br-LN Et+Me	sgs labo	n/a	10/28/23	2 ppm 5 ppm	250uL		125 312.5 ppb	2488ml			
		11772 11801A	PFAC MXF	wellington	3/24/26	4-27-24 5-15-24	2 ppm	250uL		125ppb				
		11774 11802A	PFAC MXG		12-01-27 12-01-27	4-27-24 5-15-24	2 ppm	250uL		125ppb				
		11738 11803A	PFAC MXJ		9/14/26 3-28-28	4-27-24 5-15-24	4-20 ppm	312uL	V	312/1160 ppb				
LCMS 2123A-B	PFC SPIKE	11750	PFAC MXJ	Absolute Wellington Labs	03/10/28	05/16/24	1.0ppm	2mL	5mL	95/1400H 5/1420	1609pb	05/16/23	11/02/23	NG
		11432	N-Me- FOSA-M	wellington Labs	02/18/27	03/16/24	50ppm	40uL						NG
		11513	FBSA-1		11/10/26	04/18/24								NG
		11514	FWSA-1		10/29/26	04/18/24								NG
		11332	PFECHS		03/18/27	04/18/24								NG
LCMS 2123-2124	1633 opike Cal std.	11799B	PFAC MXH	wellington	4/19/28	5/22/24 5-15-24	1-4 ppm	250uL	4mL	62.5 125 250ppb	1633 mix	5/22/23	10/28/23	NW
		LCMS 2097A 4801B	Br-LN Et+Me	sgs labo	n/a	10/28/23	2 ppm 5 ppm			125 312.5 ppb	(2488ml)			
		11801B	PFAC MXF	wellington	3/24/26	5/22/24	2 ppm			125ppb				
		11802B	PFAC MXG		12/1/27	5/22/24	2 ppm			125ppb				
		11803B	PFAC MXJ		3/28/28	5/22/24	4-20 ppm	312uL	V	312/1160 ppb				
						n/a	NW	continue next page 5/22/23						

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



Organic Standards Preparation Log

SGS - Orlando Sid. #	Name Description	Parent Sid. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2095A-J	(10PTB) PFC ID SURR	A-3 11669	PFAC-2YES	Wellington Labs	01/18/18	03/28/24	1.0ppm	2.4mL	~50mL	0.5ppm	1633 MIX	03/28/23	09/28/23	NS
↓	↓	11585	PFAC-DA	↓	11/08/18	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
↓	↓	11431	PFAC-MxH	↓	05/06/17	03/13/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
LCMS 20940 A-B	1633 spike Cal std.	11672	PFAC-MxI	Wellington	8/8/27	3/23/24	1-4 ppm	250uL	4mL	02.5 125 250ppb	1633 MIX	3/30/23	9/30/23	MU
↓	↓	11686	PFAC-MxJ	↓	2/27/28	3/30/24	170 ppm	250uL	↓	↓	↓	↓	↓	↓
↓	↓	11674A	PFAC-MxK	↓	1/11/25	3/23/24	2ppm	500uL	↓	250ppb	↓	↓	↓	↓
↓	↓	11674B	PFAC-MxL	↓	12/11/27	3/30/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11600	PFAC-MxM	↓	9/14/26	3/23/24	4-20 ppm	312uL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11675	PFAC-MxN	↓	10/28/23	10/28/23	50ppm	200uL	5mL	2ppm	1633 MIX	4/6/23	10/28/23	MU
LCMS 2097A-B	BR-LN metel for 1633	11497	br-N metosa	Wellington	08/23/27	10/28/23	50ppm	200uL	↓	2ppm	↓	↓	↓	↓
↓	↓	11498	br-N Etfose	↓	10/07/27	10/28/23	50ppm	200uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11495	br-N metose	↓	10/07/27	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11494	br-N Etfose	↓	10/17/27	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓					4/6/23								

* tested by [unclear] 3/29/24

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

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



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2125A-B	F-111 List 40 spike (Cal old)	11750	PFOA 28 Comp	Alabate	3/13/28	5/10/24	1.0ppm	400ul	4.0mL	100ppb	951MEOH 581H2O (2,400ml)	5/22/23	8/23/23	MW
↓	↓	LCMS 2067	40 List A old	SGS old	—	8/23/23	1.0ppm	400ul	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 2117	40 List A old	↓	—	11/8/23	1.0ppm	400ul	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 2101	F08 Std.	↓	—	7/19/23	5.0ppm	400ul	↓	50ppb	↓	↓	↓	↓
LCMS 2126A-J	PFAC ID SURT (10 ppb)	11804	MPAC - 2YES	Wellington Labs	01/18/28	05/23/24	1.0ppm	1.2mL	~2.5mL	0.5ppm	951MEOH 571H2O	05/23/23	10/28/23	NG
↓	↓	11635A	M3HFO DA	↓	11/08/25	04/14/24	50ppm	24ul	↓	↓	↓	↓	↓	NG
↓	↓	11431	D-N- MERSAM	↓	05/06/27	02/10/24	50ppm	24ul	↓	↓	↓	↓	↓	NG
LCMS 2127A-E	1633 opice Cal old.	11799B	PFAC MxH	Wellington	4/19/28	5/22/24	1-4 ppm	2.50ul	4mL	62.5 125 250ppb	1033 MIX (268ml)	5/24/23	10/28/23	MW
↓	↓	11807	PFAC MxH	Wellington	4/19/28	5/24/24	1-4 ppm	2.50ul	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 2097A-B	BE IN ET ME	SGS Labo	MA	10/28/23	2 ppm	↓	↓	↓	↓	↓	↓	↓
↓	↓	11801B	PFAC MxH	Wellington	3/24/26	5/22/24	2 ppm	↓	↓	125ppb	↓	↓	↓	↓
↓	↓	11808	PFAC MxH	Wellington	3/24/26	5/24/24	2 ppm	↓	↓	125ppb	↓	↓	↓	↓
↓	↓	11802B	PFAC MxG	↓	12/1/27	5/22/24	2 ppm	↓	↓	↓	↓	↓	↓	↓
↓	↓	11809	PFAC MxG	↓	3/28/28	5/24/24	2 ppm	3/2ul	↓	3/2 1/60ppb	↓	↓	↓	↓
↓	↓	11803B	PFAC MxJ	↓	3/28/28	5/22/24	4-20 ppm	↓	↓	↓	↓	↓	↓	↓
↓	↓	11810	PFAC MxJ	↓	3/28/28	5/24/24	4-20 ppm	↓	↓	↓	↓	↓	↓	↓
LCMS 2128A-J	PFAC ID SURT (10 PPB)	F-5 11819	MPAC - 2YES	Wellington Labs	01/18/28	06/10/24	1.0ppm	1.2mL	~2.5mL	0.5ppm	951MEOH 571H2O	06/10/23	10/28/23	NG
↓	↓	11635A	M3HFO DA	↓	11/08/25	04/14/24	50ppm	24ul	↓	↓	↓	↓	↓	NG
↓	↓	11584	D-N- MERSAM	↓	11/11/27	06/10/24	50ppm	24ul	↓	↓	↓	↓	↓	NG
						NG 06/10/24								

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

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



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2067	40 List std. ADD-ON #1	10726A	10:2 FTS	Wellington	3/3/26	3/21/23	50 ppm	80 uL	4.0 mL	1 ppm	95% MeOH 5% H ₂ O	2/8/23	3/21/23 8/23/23	MV
		10840	L- PFDOS		7/9/26	10/18/23							8/23/23	
		10829	N- MCFOSA		8/3/26	8/23/23								
		10837	N- EToFOSA		8/3/26	8/23/23								
		10842	PFHxDA		9/3/26	10/18/23								
		10841	PFOBA		5/7/26	10/18/23								
		11116B	3:3 FTCA PFR-PA		2/3/27	2/8/24								
		10685A	5:3 FTCA PFPePA		11/11/25	8/23/23								
		11116A	7:3 FTCA FHP-PA		11/12/25	2/8/24								
		11332	PFECHS		3/2/27	10/18/23								
		10762B	PFEESA		5/13/25	10/18/23								
		10763B	PFMBA		3/31/25	10/18/23								
		10764	PFMFA		3/31/25	2/8/24								
		10765B	NFHDA		3/31/25	10/18/23								
			3.6-OPFPA											
					NS	02/10/23								

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

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



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2115	List 40 Sum Add-on 1500 ppb	11523	d7-N-Metose	Wellington	1/23/27	5/9/24	50 ppm	200 uL	2 mL	(15) 50 ppm	95% MeOH + 5% H2O	5/9/23	8/23/23	MU
		11400	d9-N-Etfose		1/27/27	12/6/23		200 uL		5 ppm				
		11115	M2-PFHDA		11/23/28	8/23/23		40 uL		1 ppm				
		10836	D-N-Etfose		12/30/25	8/23/23		40 uL		1 ppm				
LCMS 2116	Full List (40) Spike (Cal. Std)	11053	PFOA 2008 Comp.	Absolute	11/9/27	4/18/24	1.0 ppm	400 uL	4.0 mL	100 ppb	95% MeOH 5% H2O (2, 400 mL)	5/9/23	8/23/23	MU
		LCMS 2067	40 List Add on #1			8/23/23	1.0 ppm	400 uL						
		LCMS 2117	40 List Add on #2			5/18/23	1.0 ppm	400 uL						
		LCMS 2054	FOSC Std.			7/24/23	5.0 ppm	400 uL		500 ppb				
LCMS 2117	40 List Add on #2	11250	FOSA-1	Wellington	11/10/26	11/8/23	50 ppm	80 uL	4.0 mL	1 ppm	95% MeOH 5% H2O	5/9/23	11/8/23	MU
		11249	FHXGA-1		2/29/26	11/3/23	50 ppm	80 uL						
		11140B	L-PFAS		7/12/26	5/9/24	50 ppm	80 uL						
LCMS 2118 A	PFC ID Sum (10 ppb)	11775A	MPFAC 24 ES	Wellington	1/18/28	5/10/24	1.0 ppm	2.4 mL	5.0 mL	0.5 ppm	95% MeOH 5% H2O	5/10/23	11/10/23	MU
		1635A	M3 HPO DA		11/8/25	4/24/24	50 ppm	48 uL						
		11431	d-11 Metosum		5/6/27	3/15/24	50 ppm	48 uL						
						10/05/23								

* 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 2098A	1033 spike Cal std.	11672A	PFAC MxH	Wellington	8/8/24	3/23/24	1-4 ppm	2.50mL	4mL	6.25 250ppb	1033 mix	4/16/23	10/6/23	MU
LCMS 2097		LCMS 2097	Gr-In Et. Me	SGS	1/9	10/28/23	3ppm 5ppm	2.50mL		125ppb 312.5ppb				
LCMS 11674B		11674B	PFAC MxH	Wellington	11/25	3/30/24	2ppm	500uL		350ppb 12.5ppb				
LCMS 11675		11675	PFAC MxG		12/1/24	3/30/24	2ppm	2.50mL		125ppb				
LCMS 11672B		11672B	PFAC MxJ		9/14/26	3/23/24	4-20 ppm	312uL		312/1000 ppb				
LCMS 2099	537.1 Duw std. (Interim)	11670	M3PF-PEA	Wellington Labs	07/06/25	04/06/24	50ppm	80uL	4mL	10ppm	16:1 MeOH 4:1 H2O	04/16/23	06/15/23	NG
LCMS 10436A		10436A	M302a FTS		11/05/25	04/06/24		80uL		10ppm				NG
LCMS 10512B		10512B	D3-N-MSF05A		10/22/25	05/15/23		160uL		20ppm				NG
LCMS 10498A		10498A	M3F05		11/02/25	04/06/24		80uL		10ppm				NG
LCMS 11669		11669	M3F05		12/01/26	03/20/24		80uL		10ppm				NG
LCMS 2098	Full List (40) List 40 spike (Std)	11626	PF0A DEP 28 Comp.	Absolute	11/9/27	4/11/24	1.0ppm	400uL	4.0mL	100ppb	75% MeOH 5% H2O (2.40031)	4/11/23	7/24/23	MU
LCMS 2067		LCMS 2067	40 List ADP FN	SGS add.		8/23/23	1.0ppm	400uL						
LCMS 2070		LCMS 2070	40 List ADP FN			5/12/23	1.0ppm	400uL						
LCMS 2054		LCMS 2054	F05F Std.			7/24/23	5.0ppm	400uL		50ppb				
LCMS 11336	F05F std.	11336	N-et F05F	Wellington	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	9/11/23	9/19/23	MU
LCMS 11338		11338	N-me f05F		5/13/27	9/19/23	50ppm	200uL						

FA 1033 spike
LCMS 2098A
LCMS 2097
LCMS 11674B
LCMS 11675
LCMS 11672B

* tested
LCMS 10436A
LCMS 10512B
LCMS 10498A
LCMS 11669

LCMS 2098
LCMS 2067
LCMS 2070
LCMS 2054

* based on date opened as specified in each SGS - Orlando SOP. (1,000) ORLD-QAC-0017-6-03-FORM-icms std prep log.xls 030819 Page 26 of 50

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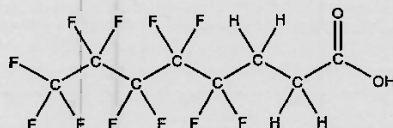
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FPePA
COMPOUND: 3-Perfluoropentyl propanoic acid

LOT NUMBER: FPePA1120

STRUCTURE:

CAS #: 914637-49-3



MOLECULAR FORMULA: C₈H₅F₁₁O₂
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/11/2020
EXPIRY DATE: (mm/dd/yyyy) 11/11/2025
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 342.11
SOLVENT(S): Methanol

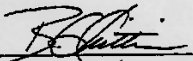
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 5:3 telomer acid (C₈H₃F₁₁O₂) 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: 11/27/2020
(mm/dd/yyyy)

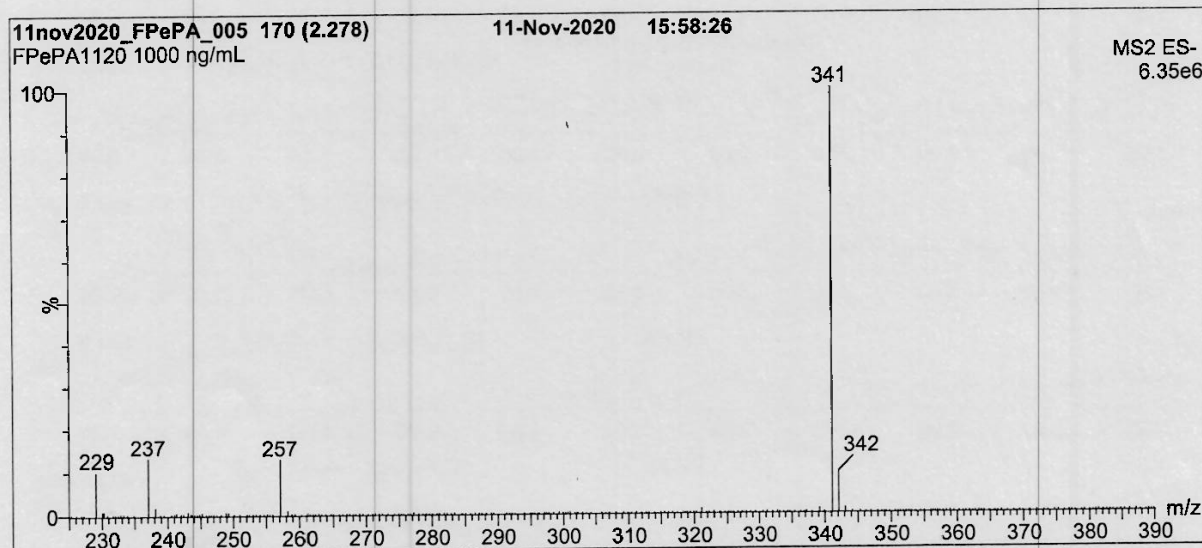
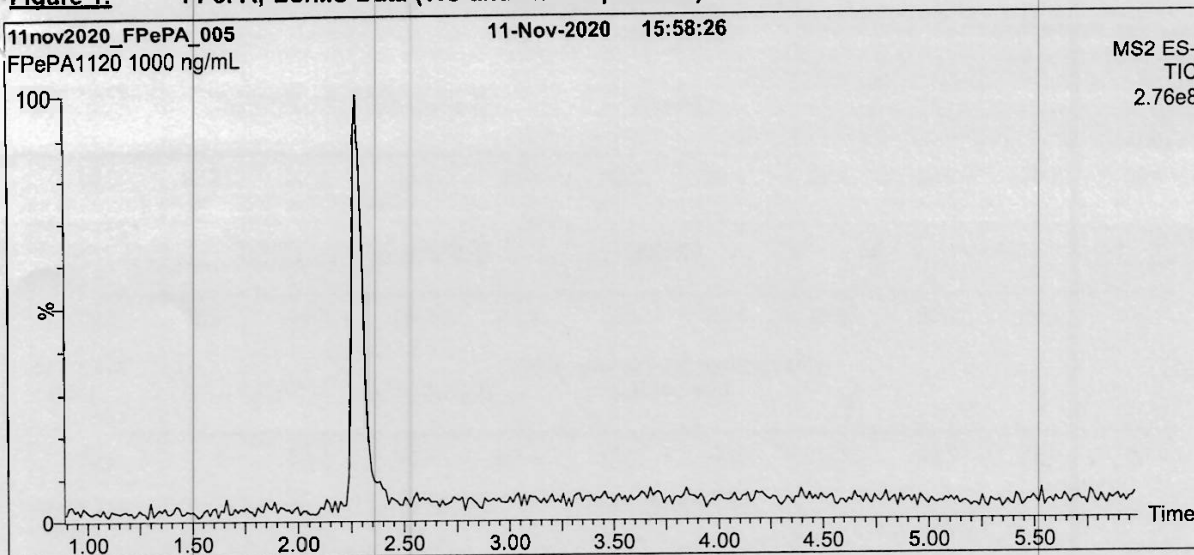
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Form#:27, Issued 2004-11-10
Revision#:8, Revised 2020-09-10

FPePA1120 (1 of 4)
rev0

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



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{1a}
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 18.50
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

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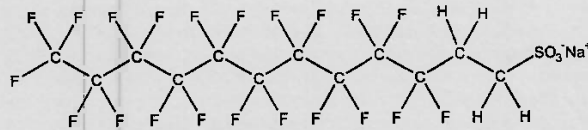


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 10:2FTS **LOT NUMBER:** 102FTS0221
COMPOUND: Sodium 1H,1H,2H,2H-perfluorododecanesulfonate

STRUCTURE: **CAS #:** 108026-35-3



MOLECULAR FORMULA: C₁₂H₄F₂₁SO₃Na **MOLECULAR WEIGHT:** 650.18
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol
48.3 ± 2.4 µg/mL (10:2FTS acid)
48.2 ± 2.4 µg/mL (10:2FTS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 03/03/2021
EXPIRY DATE: (mm/dd/yyyy) 03/03/2026
RECOMMENDED STORAGE: Refrigerate ampoule

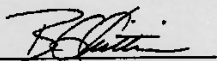
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 03/05/2021
B.G. Chittim, General Manager (mm/dd/yyyy)

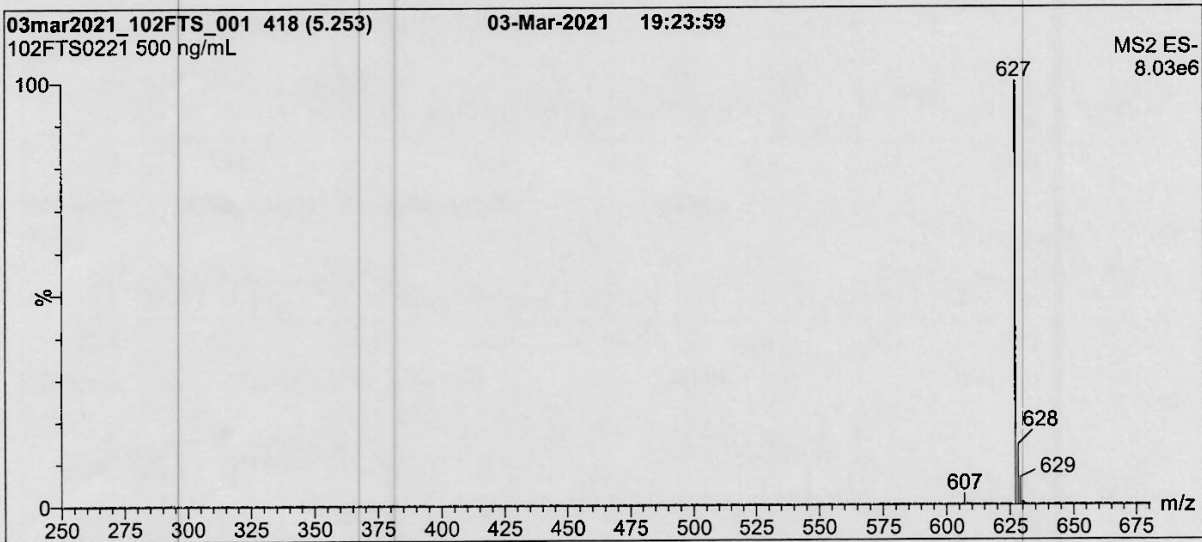
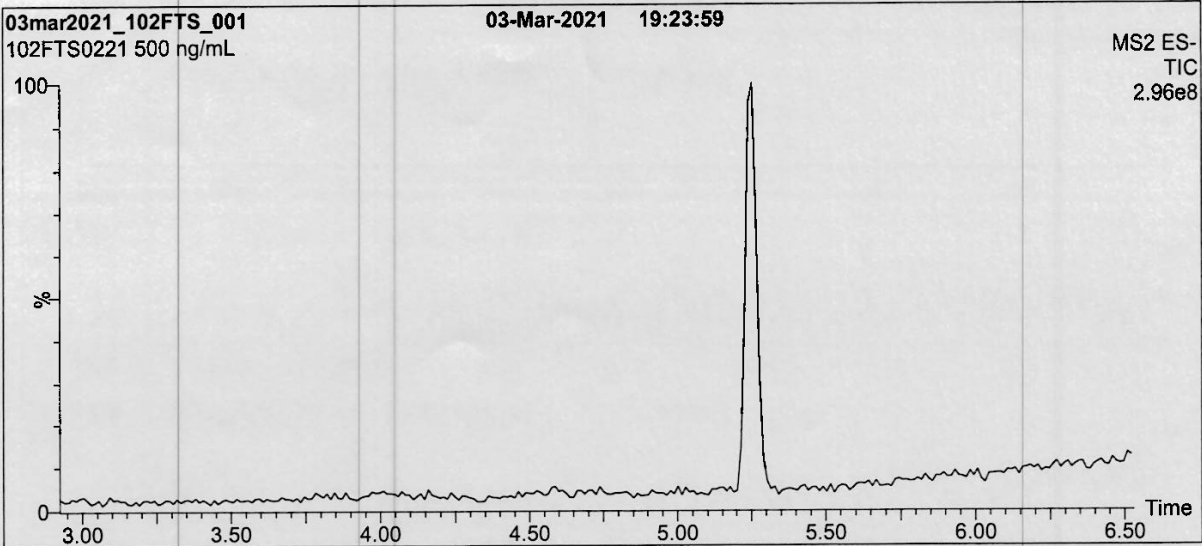
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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

7.9.1

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Figure 1: 10:2FTS; LC/MS Data (Full Scan and Mass Spectrum)



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% H₂O / 60% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 3 min
before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 25.00
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

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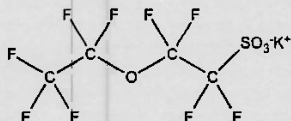


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFEESA *rec'd 8/20/21 WPH* **LOT NUMBER:** PFEESA0520
COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate

STRUCTURE: **CAS #:** 117205-07-9



MOLECULAR FORMULA: C₄F₈SO₄K **MOLECULAR WEIGHT:** 354.19
CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol
44.6 ± 2.2 µg/ml (PFEESA acid)
44.5 ± 2.2 µg/ml (PFEESA anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/13/2020
EXPIRY DATE: (mm/dd/yyyy) 05/13/2025
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

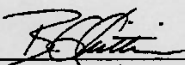
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 05/29/2020
B.G. Chittim, General Manager (mm/dd/yyyy)

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Revision#:7, Revised 2020-01-09

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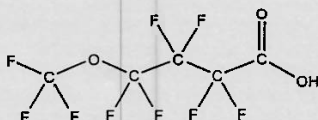
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

COMPOUND: Perfluoro-5-oxahexanoic acid

SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)

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



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

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

CHEMICAL PURITY: >98%

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

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

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

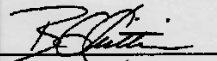
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

B.G. Chittim, General Manager

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Revision#: 8, Revised 2020-09-10

PF5OHxA0320 (1 of 4)
rev1

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7

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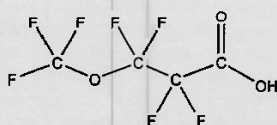
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

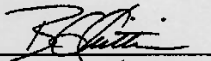
DOCUMENTATION/ DATA ATTACHED:

- 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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Revision#: 8, Revised 2020-09-10

PF4OPeA0320 (1 of 4)
rev1

7.9.1

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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

*rec'd
WPH
8/20/21*

LOT NUMBER:

36OPFHpA0320

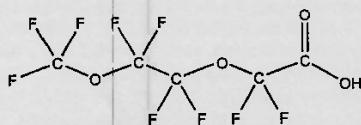
COMPOUND:

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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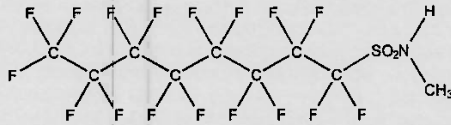
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

LOT NUMBER: NMeFOSA0721M

STRUCTURE:

CAS #: 31506-32-8



rec'd
WPA
10/5/21

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

MOLECULAR WEIGHT: 513.17
SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: 
B.G. Chittim, General Manager

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

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

NMeFOSA0721M (1 of 4)
rev0

7.9.1

7



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PRODUCT CODE:

N-EtFOSA-M

10837

LOT NUMBER:

NEtFOSA0821M

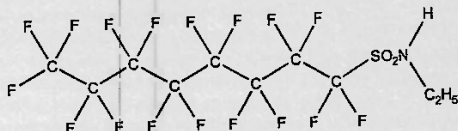
COMPOUND:

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)

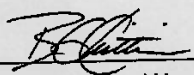
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

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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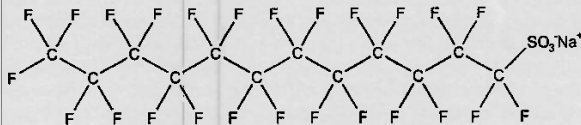
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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).

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

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10847 NG 01/18/23

PRODUCT CODE:

PFODA

LOT NUMBER:

PFODA0821

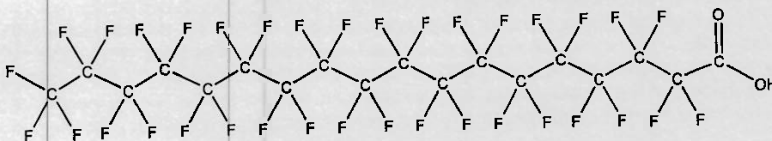
COMPOUND:

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 ampoules 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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7



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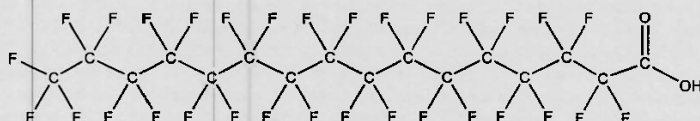
CERTIFICATE OF ANALYSIS
DOCUMENTATION

10842 * NG 01/18/23

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0421

COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆HF₃₁O₂ **MOLECULAR WEIGHT:** 814.13
CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
 Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/07/2021
EXPIRY DATE: (mm/dd/yyyy) 05/07/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

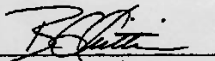
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

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 Revision#:9, Revised 2020-12-23

PFHxDA0421 (1 of 4)
 rev0

7.9.1
7

1116 A.B NW

1116B on the back NW



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

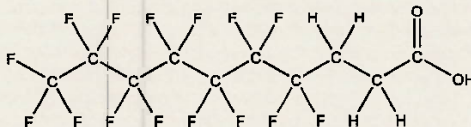
COMPOUND:

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

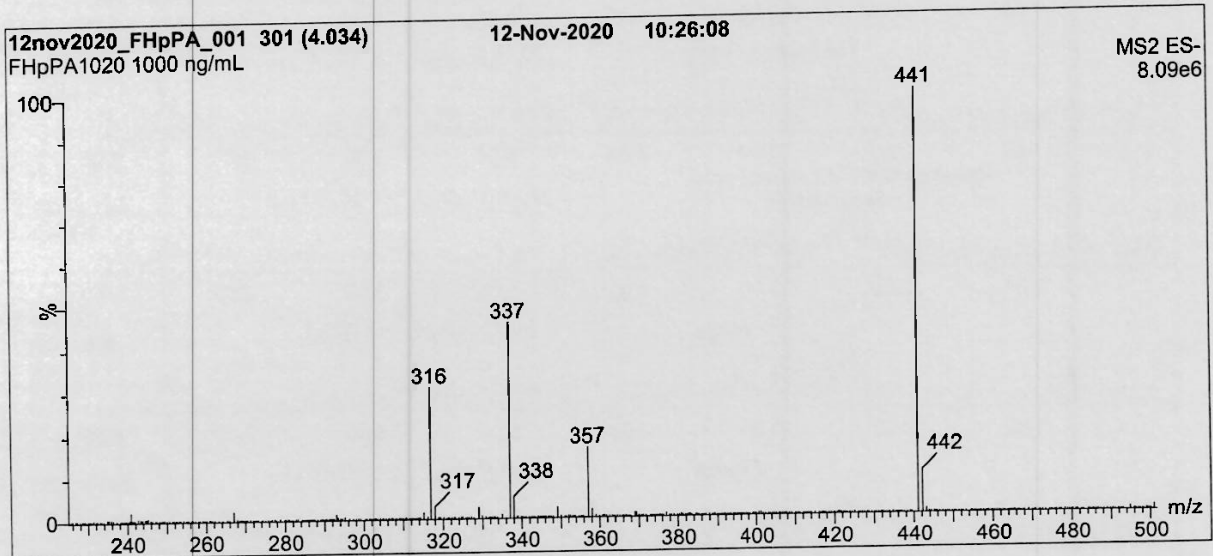
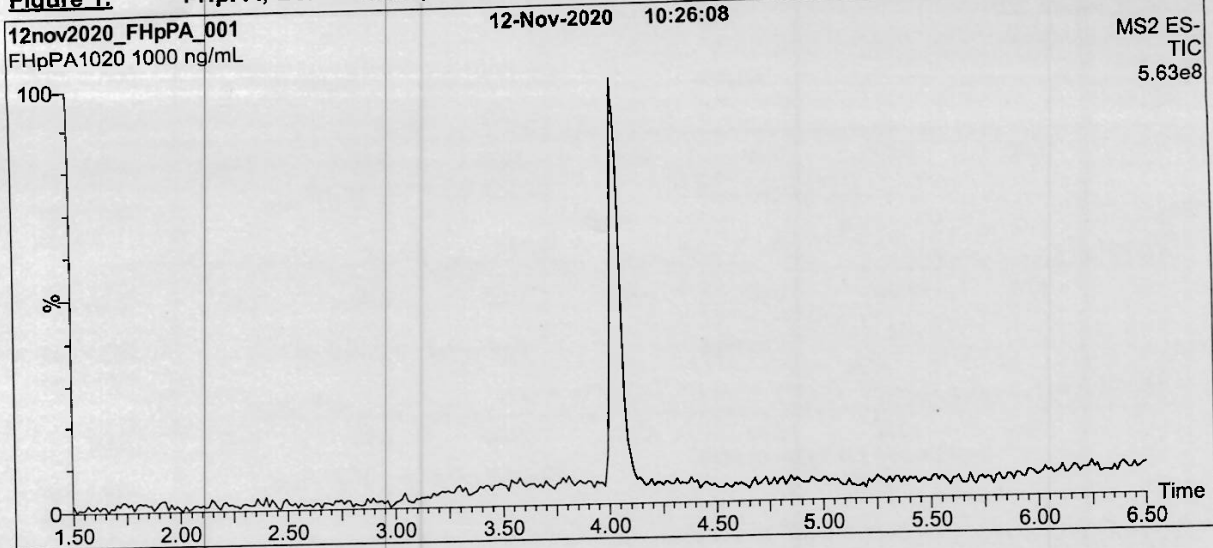
Date: 11/27/2020

(mm/dd/yyyy)

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Revision#: 8, Revised 2020-09-10

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rev0

Figure 1: FHpPA; LC/MS Data (TIC and Mass Spectrum)**Conditions for Figure 1:**

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 28.50
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

FPa PA(3:3 FTA) 1116 B



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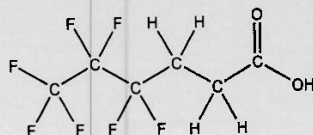
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

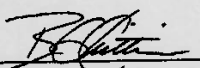
DOCUMENTATION/ DATA ATTACHED:

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.

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Certified By: 
B.G. Chittim, General Manager

Date: 02/04/2022
(mm/dd/yyyy)

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PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

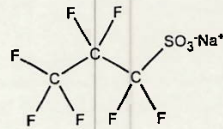
COMPOUND:

Sodium perfluoro-1-propanesulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₃F₇SO₃Na

MOLECULAR WEIGHT:

272.07

CONCENTRATION:

50.0 ± 2.5 µg/mL (Na salt)

46.0 ± 2.3 µg/mL (PFPrS acid)

45.8 ± 2.3 µg/mL (PFPrS anion)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/12/2021

EXPIRY DATE: (mm/dd/yyyy)

07/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

Date: 08/04/2021

(mm/dd/yyyy)

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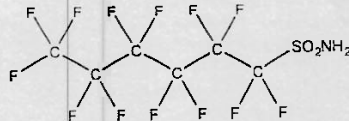
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FHxSA-I
COMPOUND: Perfluoro-1-hexanesulfonamide

LOT NUMBER: FHxSA12211

STRUCTURE:

CAS #: 41997-13-1



MOLECULAR FORMULA: C₆H₂F₁₃NO₂S
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 12/29/2021
EXPIRY DATE: (mm/dd/yyyy) 12/29/2026
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 399.13
SOLVENT(S): isopropanol

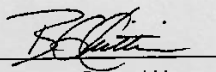
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: 
B.G. Chittim, General Manager
Date: 01/10/2022
(mm/dd/yyyy)

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11250 Lx 7/11/22



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PRODUCT CODE:

FBSA-I

LOT NUMBER:

FBSA11211

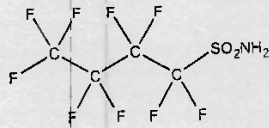
COMPOUND:

Perfluoro-1-butananesulfonamide

STRUCTURE:

CAS #:

30334-69-1



MOLECULAR FORMULA:

C₄H₂F₉NO₂S

MOLECULAR WEIGHT:

299.11

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Isopropanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/10/2021

EXPIRY DATE: (mm/dd/yyyy)

11/10/2026

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 11/10/2021

(mm/dd/yyyy)

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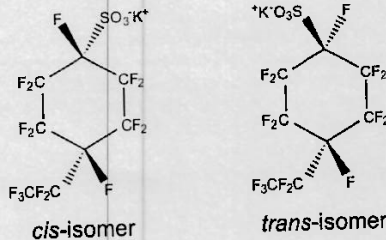
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:
COMPOUND:

PFECHS
Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

LOT NUMBER: PFECHS0222

STRUCTURE:



CAS #: 335-24-0

MOLECULAR FORMULA:
CONCENTRATION:

$C_8F_{15}SO_3K$
50.0 ± 2.5 µg/mL (K salt)
46.2 ± 2.3 µg/mL (PFECHS acid)
46.1 ± 2.3 µg/mL (PFECHS anion)
>98%

MOLECULAR WEIGHT: 500.22
SOLVENT(S): Methanol

CHEMICAL PURITY:

LAST TESTED: (mm/dd/yyyy)

03/28/2022

EXPIRY DATE: (mm/dd/yyyy)

03/28/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*).

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Certified By:

B.G. Chittim, General Manager

Date: 03/30/2022
(mm/dd/yyyy)

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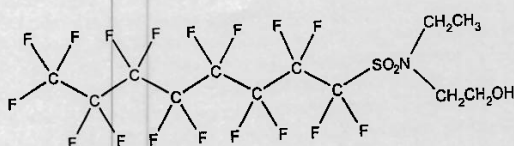
PRODUCT CODE:
COMPOUND:

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

LOT NUMBER: NEtFOSE0622M

CAS #: 1691-99-2

STRUCTURE:



MOLECULAR FORMULA:
CONCENTRATION:
CHEMICAL PURITY:
LAST TESTED: (mm/dd/yyyy)

C₁₂H₁₀F₁₇NO₃S
50.0 ± 2.5 µg/mL
>98%
05/13/2022 (HRGC/LRMS)
05/13/2022 (LC/MS)

MOLECULAR WEIGHT: 571.25
SOLVENT(S): Methanol

EXPIRY DATE: (mm/dd/yyyy)

05/13/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

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

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NEtFOSE0622M (1 of 5)
rev0

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Revision#:9, Revised 2020-12-23

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PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

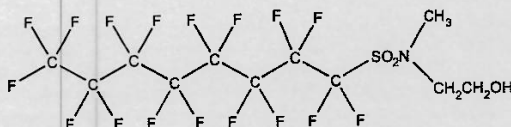
NMeFOSE0522M

COMPOUND:

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

STRUCTURE:**CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C₁₁H₈F₁₇NO₃S**MOLECULAR WEIGHT:**

557.22

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy)

05/13/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS Data (Full Scan and Mass Spectrum)

Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

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Certified By:

B.G. Chittim, General Manager
Date: 06/14/2022
(mm/dd/yyyy)

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11494



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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSE

2-(N-Methylperfluorooctanesulfonamido)ethanol Isomeric Mix

<u>PRODUCT CODE:</u>	br-NMeFOSE
<u>LOT NUMBER:</u>	brNMeFOSE0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/02/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/07/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-methylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
 Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
 Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
 Figure 3: LC/MS Data (SIR)
 Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 24448-09-7 (for linear isomer).

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Revision#:9, Revised 2020-12-23

brNMeFOSE0922 (1 of 7)
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11495



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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSE

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

<u>PRODUCT CODE:</u>	br-NEtFOSE
<u>LOT NUMBER:</u>	brNEtFOSE1022
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/12/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

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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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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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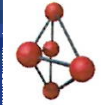
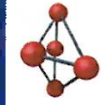
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11750
rec'd: 04/17/23

Part Number:	61323	Date:	01/15/23
Lot Number:	10722	Formulated By:	Priyash Chauhan
Description:	2-Propenoic acid (PFDA)	Reviewed By:	Patrick L. Harris

Solvent(s): Methanol (1 mL), 2-Propanol (10 mL)
Lot: 10722 (85%)
Prepared (P): 3/20/2023 (2%)

Matrix: 28 components
Prepared (P): 1.0
Lot: 607B

Expiration Date: N/A
Recommended Storage: N/A
Nominal Concentration (µg/mL): N/A
Notes: Volumes shown below were combined and diluted to (mL).
Note: All assigned values are atom concentrations.

Compound	Part Number	Lot Number	Division Factor	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Initial Ret. Time (min)	Final Ret. Time (min)	Expanded Uncertainty	Source Information
1. Perfluoro-n-butanoic acid (PFBA)	99542	110422	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4 N/A
2. Perfluoro-pentanoic acid (PFPA)	99543	011723	0.02	2.00	0.017	50.3	1.01	0.02	2765-90-3 N/A
3. Perfluoro-hexanoic acid (PFHPA)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4 N/A
4. Perfluoro-heptanoic acid (PFHPA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-85-9 N/A
5. Perfluoro-octanoic acid (PFPOA)*	99202	090522	0.02	2.00	0.017	50.2	1.00	0.02	355-87-1 (L) N/A
6. Perfluoro-nonoic acid (PFNA)	99200	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1 N/A
7. Perfluoro-decanoic acid (PFDA)	99195	110922	0.02	2.00	0.017	50.2	1.00	0.02	2059-94-8 N/A
8. Perfluoro-undecanoic acid (PFU11A)	99205	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1 N/A
9. Perfluoro-dodecanoic acid (PFDOA)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02	74659-84-8 N/A
10. Perfluoro-tridecanoic acid (PFTRDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	376-06-7 N/A
11. Perfluoro-tetradecanoic acid (PFTEDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	754-91-6 N/A
12. Perfluoro-1-iodo-n-tetradecanoic acid (PF-1-NTEDA)*	3677	FOSA0321	0.02	2.00	0.017	50.0	1.00	0.05	2955-31-9 (L) N/A
13. N-Methylperfluoro-n-tetradecanoic acid (N-MePFNTEDA)*	4162	BNMeFOSA042	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L) N/A
14. N-Ethylperfluoro-n-tetradecanoic acid (N-EtPFNTEDA)*	4163	BNEtFOSA1121	0.02	2.00	0.017	50.0	1.00	0.05	375-75-5 N/A
15. Perfluorobutanesulfonic acid (PFBS)	99194	090522	0.02	2.00	0.017	50.2	1.00	0.02	2765-91-4 N/A
16. Perfluoropentanesulfonic acid (PFPS)	99544	091522	0.02	2.00	0.017	50.1	1.00	0.02	355-46-4 (L) N/A
17. Perfluorohexanesulfonic acid (PFHPS)	99198	030923	0.02	2.00	0.017	47.8	1.00	0.05	375-95-8 N/A
18. Perfluoroheptanesulfonic acid (PFHPS)	3672	LPHPS0822	0.02	2.10	0.017	47.1	1.00	0.02	1783-23-1 (L) N/A
19. Perfluorooctanesulfonic acid (PFOS)*	99201	030923	0.02	2.10	0.017	48.0	1.01	0.05	68259-12-1 N/A
20. Perfluorononanesulfonic acid (PFNS)	3957	LPNNS1122	0.02	2.10	0.017	48.2	1.01	0.05	335-77-3 N/A
21. Perfluorodecane sulfonic acid (PFDS)	3671	LPFDS1122	0.02	2.10	0.017	50.2	1.00	0.05	279124-72-4 N/A
22. 11,11,11,11-Tetrafluorodecane sulfonic acid (TFTS)	68271	030522	0.02	2.00	0.017	50.2	1.00	0.05	7819-87-2 N/A
23. 11,11,11,11-Tetrafluorododecane sulfonic acid (TFDS)	68272	031023	0.02	2.10	0.017	47.9	1.01	0.05	32158-34-4 N/A
24. 11,11,11,11-Tetrafluorododecane sulfonic acid (TFDS)	3682	8F150822	0.02	2.10	0.017	50.1	1.00	0.02	93255-13-6 N/A
25. 2,2,2,2-Tetrafluoroethyl-2,2,2-trifluoroethyl sulfonic acid (TFE-TFESA)	99598	060522	0.02	2.10	0.017	47.1	1.00	0.05	75051-28-9 N/A
26. 1-Chloro-1,1,1,2,2,2-hexafluoro-3-sulfonate acid (1Cl-HFOSAS)	4166	11CF-HFOSAS022	0.02	2.12	0.017	46.8	1.00	0.05	75028-56-1 N/A
27. 1-Fluoro-1,1,1,2,2,2-hexafluoro-3-sulfonate acid (1F-HFOSAS)	4164	8CF-3ONS1022	0.02	2.14	0.017	46.8	1.00	0.05	75028-56-1 N/A
28. Dodecafluoro-3-(4,6-dioxahexanoic acid) (DOXNA)	4103	NAD0FA0622	0.02	2.12	0.017	47.1	1.00	0.05	919005-14-4 N/A
Perfluorooctanoic acid (linear)*	99202	060822	0.02	2.00	0.004	48.6	0.99	0.10	355-87-1 (L) N/A
Perfluorodecanoic acid (branched isomer)*	99202	060822	0.02	2.00	0.004	0.6	0.01	0.001	355-87-1 (L) N/A
Perfluoroundecanoic acid (linear)*	99198	030923	0.02	2.00	0.017	44.0	0.88	0.02	355-87-1 (L) N/A
Perfluorododecanoic acid (branched isomer)*	99198	030923	0.02	2.00	0.017	8.0	0.12	0.000	355-87-1 (L) N/A
Perfluorotridecanoic acid (linear)*	99201	030923	0.02	2.00	0.017	38.1	0.76	0.02	1783-23-1 (L) N/A
Perfluorotetradecanoic acid (branched isomer)*	99201	030923	0.02	2.00	0.017	7.5	0.15	0.000	1783-23-1 (L) N/A
Perfluoropentadecanoic acid (branched isomer)*	99201	030923	0.02	2.00	0.017	4.0	0.08	0.002	1783-23-1 (L) N/A
Perfluorohexadecanoic acid (branched isomer)*	99201	030923	0.02	2.00	0.017	0.5	0.010	0.000	1783-23-1 (L) N/A
Methylperfluoro-tetradecanecarboxylic acid (linear)*	4162	BNMeFOSA042	0.02	2.00	0.017	36.0	0.72	0.04	2955-31-9 (L) N/A
N-Ethylperfluoro-tetradecanecarboxylic acid (branched)*	4162	BNMeFOSA042	0.02	2.00	0.017	6.5	0.13	0.011	2955-31-9 (L) N/A
N-Methylperfluoro-tetradecanecarboxylic acid (branched)*	4162	BNMeFOSA042	0.02	2.00	0.017	5.0	0.10	0.005	2955-31-9 (L) N/A
N-Ethylperfluoro-tetradecanecarboxylic acid (branched)*	4162	BNMeFOSA042	0.02	2.00	0.017	2.5	0.05	0.000	2955-31-9 (L) N/A
N-Methylperfluoro-undecanecarboxylic acid (linear)*	4165	BNMeFOSA1121	0.02	2.00	0.017	36.5	0.73	0.04	2991-50-6 (L) N/A
N-Ethylperfluoro-undecanecarboxylic acid (branched)*	4165	BNMeFOSA1121	0.02	2.00	0.017	7.7	0.15	0.009	2991-50-6 (L) N/A
N-Methylperfluoro-undecanecarboxylic acid (branched)*	4165	BNMeFOSA1121	0.02	2.00	0.017	5.3	0.11	0.005	2991-50-6 (L) N/A
N-Ethylperfluoro-undecanecarboxylic acid (branched)*	4165	BNMeFOSA1121	0.02	2.00	0.017	0.4	0.007	0.000	2991-50-6 (L) N/A

*Qualitative standard (Sect. 3.13) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers. Subsequent PFOA analysis must be done using a quantitative standard (Sect. 12.2) and a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.

*The certified value is the concentration calculated from gravimetric and volumetric measurements using ultrahigh-purity standards. All standards are certified to 0.5% or better. High purity standards are available in 100 µL aliquots.

*All standards, after opening ampule, should be stored with cap tight and under appropriate laboratory conditions.

*The uncertainty is expressed as a percentage of the certified value.

*NIST Technical Note 1871, U.S. Government Printing Office, Washington, DC, (1994).

11799 A-B
rec'd: 05/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXH
<u>LOT NUMBER:</u>	PFACMXH0423
<u>SOLVENT(S):</u>	Methanol/Isopropanol (2%)/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	04/06/2023
<u>LAST TESTED:</u> (mm/dd/yyyy)	04/19/2023
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	04/19/2028
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₅, C₇, C₉, C₁₀ and C₁₂ linear; C₆ and C₈ linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide. The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Table B: Isomeric Components and Percent Composition of N-MeFOSAA
Table C: Isomeric Components and Percent Composition of N-EtFOSAA
Table D: Isomeric Components and Percent Composition of PFHxSK
Table E: Isomeric Components and Percent Composition of PFOSK
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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

PFACMXH0423 (1 of 11)
rev1

Table A:**PFAC-MXH; Components and Concentrations
(ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))**

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFUdA	1000		23
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTrDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		24
N-Methylperfluorooctanesulfonamidoacetic acid ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-Ethylperfluorooctanesulfonamidoacetic acid ^b	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNs	1000	962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4000	3840	16

^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.^b See Table C for percent composition of linear and branched N-EtFOSAA isomers.^c See Table D for percent composition of linear and branched PFHxSK isomers.^d See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Certified By: _____

B.G. Chittim, General Manager

Date: 05/11/2023

(mm/dd/yyyy)

11801A-B
rec'd: 05/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS
Solution/Mixture

PRODUCT CODE:

PFAC-MXF

LOT NUMBER:

PFACMXF0323

SOLVENT(S):

Methanol / Water (<1%)

DATE PREPARED: (mm/dd/yyyy)

03/23/2023

LAST TESTED: (mm/dd/yyyy)

03/24/2023

EXPIRY DATE: (mm/dd/yyyy)

03/24/2026

RECOMMENDED STORAGE:

Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-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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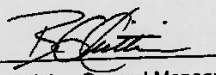
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PFACMXF0323 (1 of 5)
rev0

Table A: PFAC-MXF; Components and Concentrations (ng/mL; \pm 5% in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By:  Date: 03/29/2023
(mm/dd/yyyy)
 B.G. Chittim, General Manager

11802 A-B
rec'd: 05/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic
Acids and Sulfonate Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXG
<u>LOT NUMBER:</u>	PFACMXG1122
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	11/30/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	12/01/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	12/01/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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

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

PFACMXG1122 (1 of 5)
rev0

7.9.1
7

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

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

* Concentrations have been rounded to three significant figures.

Certified By: _____

B.G. Chittim, General Manager

Date: 12/09/2022
(mm/dd/yyyy)

11803 A-B
rec'd: 05/15/23

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE:

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.

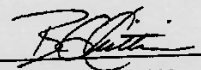
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Concentrations (µg/mL; ± 5% in methanol)

Table A: PFAC-MXJ; Components and

Compound	Acronym	Concentration (µg/mL)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By: 
B.G. Chittim, General Manager

Date: 04/12/2023
(mm/dd/yyyy)

11850 A-J
rec'd: 06/01/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-ES
LOT NUMBER: MPFACHIFES1022
SOLVENT(S): Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 10/28/2022
LAST TESTED: (mm/dd/yyyy) 11/23/2022
EXPIRY DATE: (mm/dd/yyyy) 11/23/2025
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄-C₁₂, C₁₄), three mass-labelled (¹³C) perfluoroalkanesulfonates (C₄, C₆, and C₈), three mass-labelled (one ¹³C and two ²H) perfluoro-1-octanesulfonamides, three mass-labelled (¹³C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (²H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (²H) perfluorooctane-sulfonamidoethanols, and mass-labelled (¹³C) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ¹³C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual ²H-labelled components all have chemical purities >98% and isotopic purities of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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

MPFACHIFES1022 (1 of 7)
 rev0

7.9.1

7

Table A: MPFAC-HIF-ES; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(¹³ C ₄)butanoic acid	MPFBA	2000		1
Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- ¹³ C ₅)hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- ¹³ C ₆)heptanoic acid	M4PFHpA	500		7
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	500		10
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₁₀)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₁₁)undecanoic acid	M7PFUdA	250		18
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	250		22
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		17
N-methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		24
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-ethyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₄ -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₄ -ol	d9-N-EtFOSE	5000		23
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₃)propanoic acid	M3HFPO-DA	2000		6
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)decanesulfonate	M2-8:2FTS	1000	960	13

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 11/24/2022
(mm/dd/yyyy)

11851 A-J
REC'D: 06/01/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

**Mass-Labelled PFAS Injection
Standard Solution/Mixture**

PRODUCT CODE: MPFAC-HIF-IS
LOT NUMBER: MPFACHIFIS1122
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 11/28/2022
LAST TESTED: (mm/dd/yyyy) 11/29/2022
EXPIRY DATE: (mm/dd/yyyy) 11/29/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄, C₆, C₈-C₁₀) and two mass-labelled (¹⁸O and ¹³C) perfluoroalkanesulfonates (C₆ and C₈). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and mass-labelled perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of ≥99% per ¹³C or >94% per ¹⁸O.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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

MPFACHIFIS1122 (1 of 5)
rev0

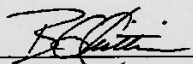
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Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, ± 5% in methanol/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(2,3,4- ¹³ C ₃)butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- ¹³ C ₂)hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- ¹³ C ₄)octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- ¹³ C ₅)nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2- ¹³ C ₂)decanoic acid	MPFDA	250		7
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-hexane(¹⁸ O ₂)sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4- ¹³ C ₄)octanesulfonate	MPFOS	500	479	6

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 12/05/2022
(mm/dd/yyyy)

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time Started 06/09/23 11:30

Method EPA 1633 Draft (QSM) List 40

Date/Time Finished 6/12/23 9:40 AM

Balance ID: _____

Batch# OP97275 Ext. By GH

Conc. By: _____ Viald By: _____

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount (ul)	Spike Amount (ul)	Final Volume (ml)	Manifold ID	Comments
OP 97275 MB		500	7						
OP 97275 BS		500	7	N/A	25		5	A4	
OP 97275 LLBS		500	7	N/A		200			
FC66445-4 Re	3	510	7	N/A		60			
FC6649-1	2	540	7						
	2	540	7						
	3	560	6						
	4	570	6						
	5	530	6						
	6	560	6						
FC6651-1	2	550	6						
	2	560	6					A4	
	2	520	6					A6	
	3	560	6						
	4	570	6						
	5	530	6						
FC6699-1	2	550	6						
	2	560	6						
	3	560	6						
FC66445-4 Re	1	60	7	N/A	25		5	A6	
OP FC6649-1 MS	3	550	7	N/A	25	200	5	A4	
OP MSD									
OP FC6649-4 DUP	3	570	6	N/A	25		5	A4	

Comments:

EIS (SURR) ID: 11821 F-H Conc: 250-5000 ng/mL Exp. Date: 06/05/24 Inj. By: GH Ver. By: CM
 SPIKE.1 ID: LEMS 2127A Conc: VARIED Exp. Date: 10/28/23 Inj. By: GH Ver. By: CM
 SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 11820 F-H MS Conc: 250-1000 Exp. Date: 06/05/24 Inj. By: MV Ver. By: NG

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot# 224279 1% NH4OH MeOH PF433 SPE Lot# 6736233-03
 Water Lot# OP97000 0.3M Formic Acid PF419 Syringe filter Lot# _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 215322
 0.1M Formic PF428 5% Formic Acid _____ Carbon Lot# 99687

Relinquished By: [Signature]
 Accepted By: [Signature]

Date: 06/09/23
 Date: 06/12/23

7.10.1 7