

AP226-1777

Analytical Report

Fluorochemical Characterization of Filter Samples

Particle Size Distribution Study 3/04

Oxygen Research Laboratory Report No. L0002178

Testing Laboratory

Oxygen Research
3058 Research Drive
State College, PA 16801

Requester

Michael D. Aucoin
URS Corporation
Barley Mill Plaza
Bldg 27 Room 1260
Lancaster Pike and Rt 141
Wilmington, DE 19805

RECEIVED
OPTIMON

2004 MAY 29 AM 9:01

1 Introduction

Results are reported for the analysis of filter samples received by Centre Analytical Laboratories, Inc. (dba Exygen Research) (Exygen) from DuPont Corporation. This report presents results assigned to Exygen Research study number L0002178.

Specific fluorochemical characterization by liquid chromatography / tandem mass spectrometry (LC/MS/MS) was requested for all samples. A total of 29 samples were received for analysis.

The samples were prepared and analyzed by LC/MS/MS for the following list of fluorochemicals:

- Table 1: Target Analysis

Compound Name	Acronym
Perfluorooctanoic Acid	PFOA

2 Sample Receipt

The samples were submitted in individual plastic containers, at ambient temperature. Samples were collected on 3/25/04 and 3/26/04 and were received on 3/27/04. Chain-of-custody information is presented in Attachment C.

3 Holding Times

The analytical method used was validated against a maximum holding time of 14 days in water samples. There are no validated holding times for filter papers. All samples were analyzed within 14 days of collection.

4 Methods - Analytical and Preparatory

4.1 LC/MS/MS

4.1.1 Sample Preparation for LC/MS/MS Analysis

PFOA was extracted from the filter by shaking overnight with 40 mL of reagent grade water. The water was removed from the sample by filtration and transferred to a 50 mL centrifuge tube for subsequent cleanup and concentration of the extract. Solid phase extraction (SPE) was used to prepare the samples for LC/MS/MS analysis. The entire 40 mL extract was transferred to a C₁₈ SPE cartridge. The cartridge was eluted with 40% methanol: water. The eluate was discarded. The cartridge was then eluted with 100% methanol. A 5 mL portion of methanol was collected for analysis by LC/MS/MS. This treatment resulted in an eight-fold concentration of the samples prior to analysis.

4.1.2 Sample Analysis by LC/MS/MS

A Hewlett-Packard HP1100 HPLC system coupled to a Micromass Ultima MS/MS was used to analyze the sample extracts. Analysis was performed using selected reaction monitoring (SRM). Samples were extracted on 4/3/04 and analyzed between 4/4/04 and 4/7/04. Raw analytical data can be found in Attachment D.

5 Analysis

5.1 Calibration

A 6-point calibration curve was analyzed at the beginning of the analytical sequence and throughout the run for the compounds of interest. The calibration points were prepared at 25, 50, 100, 250, 500, and 1000 ng/L (ppt), as perfluorooctanoic acid (PFOA). The instrument response versus the concentration was plotted for each point. Using linear regression with 1/x weighting, the slope, y-intercept and correlation coefficient (r) and coefficient of determination (r^2) were determined. A calibration curve is acceptable if $r \geq 0.992$ ($r^2 \geq 0.985$).

Calibration standards for MS/MS analysis were prepared using the same SPE procedure used for samples.

For the results reported here, calibration criteria were met.

5.2 Blanks

Extraction blanks were prepared and analyzed with every extraction batch of samples. The extraction blanks should not have any target analytes present at or above the concentration of the low-level calibration standard. For these samples, the extraction blanks were compliant.

Instrument blanks in the form of clean methanol solvent were also analyzed after every high-level calibration standard, and after known high-level samples. Again, the blanks should not have any target analytes present at or above the low-level calibration standard. For the samples presented here the instrument blanks are compliant.

5.3 Surrogates

Surrogate spikes are not a component of the LC/MS/MS analytical method.

5.4 Matrix Spikes / laboratory Control Samples

Matrix spikes were not prepared for these samples; however, two blank filter papers were spiked at 2 levels and analyzed for PFOA. Acceptable recoveries were set at 70-130%. Sample recoveries were within the acceptable range. Matrix spike recoveries are given in Attachment B.

5.5 Duplicates

Sample duplicates were not performed for this study.

5.6 Sample Related Comments

Two analytical runs were performed to complete the sample analysis. The following is a brief quality control narrative for each run.

Analytical Run Number	Samples Analyzed	Comments
040304 A	WWK-A-E1-S1-1, WWK-A-E1-S1-2, WWK-A-E1-S1-3, WWK-A-E1-S1-4, WWK-A-E1-S1-5, WWK-A-E1-S1-6A, WWK-A-E1-S1-6B, WWK-A-FBLK1, WWK-A-E1-S2-1, WWK-A-E1-S2-2, WWK-E1-S2-3, WWK-A-E1-S2-4, WWK-A-E1-S2-5, WWK-A-E1-S2-6A, WWK-A-E1-S2-6B, WWK-A-E1-S3-1, WWK-A-E1-S3-2, WWK-A-E1-S3-3, WWK-A-E1-S3-4, WWK-A-E1-S3-5, WWK-A-E1-S3-6A, WWK-A-E1-S3-6B, WWK-A-E1-S5-1, WWK-A-E1-S5-2, WWK-A-E1-S5-3, WWK-A-E1-S5-4, WWK-A-E1-S5-5, WWK-A-E1-S5-6A, WWK-A-E1-S5-6B	All samples except WWK-A-FBLK-1 require additional dilution. All other data is useable.
040304 AR	WWK-A-E1-S1-1, WWK-A-E1-S1-2, WWK-A-E1-S1-3, WWK-A-E1-S1-4, WWK-A-E1-S1-5, WWK-A-E1-S1-6A, WWK-A-E1-S1-6B, WWK-A-E1-S2-1, WWK-A-E1-S2-2, WWK-E1-S2-3, WWK-A-E1-S2-4, WWK-A-E1-S2-5, WWK-A-E1-S2-6A, WWK-A-E1-S2-6B, WWK-A-E1-S3-1, WWK-A-E1-S3-2, WWK-A-E1-S3-3, WWK-A-E1-S3-4, WWK-A-E1-S3-5, WWK-A-E1-S3-6A, WWK-A-E1-S3-6B, WWK-A-E1-S5-1, WWK-A-E1-S5-2, WWK-A-E1-S5-3, WWK-A-E1-S5-4, WWK-A-E1-S5-5, WWK-A-E1-S5-6A, WWK-A-E1-S5-6B	All data is useable.

6 Data Summary

Please see Attachment A for a detailed listing of the analytical results. All results are reported as ug / filter as PFOA.

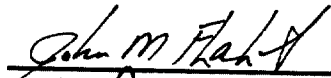
7 Data/Sample Retention

Samples are disposed of one month after the report is issued unless otherwise specified. All ~~electronic data is archived on retrievable media and hard copy reports are stored in data~~ folders maintained by Exygen.

8 Attachments

- 8.1 Attachment A: Results
- 8.2 Attachment B: Matrix Spike Recoveries
- 8.3 Attachment C: Chain of Custody
- 8.4 Attachment D: LC/MS/MS Raw Analytical Data
- 8.5 Attachment E: Standards Data

9 Signatures



John M. Flaherty, Operations Manager

4/14/04

Date



Kevin J Lloyd, Vice President

1/14/04

Date

Other Lab Members Contributing to Data

Karen Smith

Particle Size Distribution Study 3/04

DuPont Sample Identification

PFOA (ug/ filter)

WWK-A-E1-S1-1	4.28
WWK-A-E1-S1-2	9.64
WWK-A-E1-S1-3	5.44
WWK-A-E1-S1-4	5.12
WWK-A-E1-S1-5	3.76
WWK-A-E1-S1-6A	14.6
WWK-A-E1-S1-6B	11.1
WWK-A-FBLK1	NQ
WWK-A-E1-S2-1	23.1
WWK-A-E1-S2-2	76.0
WWK-A-E1-S2-3	48.8
WWK-A-E1-S2-4	30.3
WWK-A-E1-S2-5	3.40
WWK-A-E1-S2-6A	239
WWK-A-E1-S2-6B	145
WWK-A-E1-S3-1	18.8
WWK-A-E1-S3-2	64.8
WWK-A-E1-S3-3	58.8
WWK-A-E1-S3-4	36.2
WWK-A-E1-S3-5	35.2
WWK-A-E1-S3-6A	240
WWK-A-E1-S3-6B	106
WWK-A-E1-S5-1	1.26
WWK-A-E1-S5-2	1.65
WWK-A-E1-S5-3	1.41
WWK-A-E1-S5-4	1.37
WWK-A-E1-S5-5	1.37
WWK-A-E1-S5-6A	6.60
WWK-A-E1-S5-6B	4.88

Limit of Detection (LOD) for the procedure is approximately 0.0004 ug/filter

Limit of Quantitation (LOQ) for the procedure is 0.002 ug/filter

ND - Compound not detected

NQ - Compound detected at a level between the LOD and LOQ. Result is not quantifiable.

ND < LOD < NQ < LOQ

Attachment B: LC/MS/MS Laboratory Spike Recovery

Sample ID:

Slotted Paper Spike A

Spiked Amount (ng/L):

50

	Sample Concentration (ng/L)	Matrix Spike Result (ng/L)	Matrix Spike Result eam	Criteria (Pass / Fail)
PFOA	0	44.5	89.0	PASS

Lower Recovery Limit:

70

Upper Recovery Limit:

130

Concentrations represent amount present in the sample extract

Attachment B: LC/MS/MS Laboratory Spike Recovery

Sample ID:

Whatman 41 Spike B

Spiked Amount (ng/L):

50

	Sample Concentration (ng/L)	Matrix Spike Result (ng/L)	Matrix Spike Result eam	Criteria (Pass / Fail)
PFOA	0	52.7	105.4	PASS

Lower Recovery Limit:

70

Upper Recovery Limit:

130

Concentrations represent amount present in the sample extract

3008

000584

Attachment B: LC/MS/MS Laboratory Spike Recovery

Sample ID:

Spiked Amount (ng/L):

	Sample Concentration (ng/L)	Matrix Spike Result (ng/L)	Matrix Spike Result eam	Criteria (Pass / Fail)
PFOA	0	437	87.4	PASS

Lower Recovery Limit:

Upper Recovery Limit:

Concentrations represent amount present in the sample extract

Attachment B: LC/MS/MS Laboratory Spike Recovery

Sample ID:

Whatman 41 Spike D

Spiked Amount (ng/L):

500

	Sample Concentration (ng/L)	Matrix Spike Result (ng/L)	Matrix Spike Result eam	Criteria (Pass / Fail)
PFOA	0	399	79.8	PASS

Lower Recovery Limit:

70

Upper Recovery Limit:

130

Concentrations represent amount present in the sample extract

5010

000586



3058 Research Drive
State College, PA 16801

Phone: 814-272-1039
Fax: 814-231-1580

Login

Login #: 2289
Project: P0000729

Conform COC Sample: True
Conform COC: True
Conform Sample: True
Conform Request: True

Company Name: DuPont de Nemours & Co, Inc.

Submitted By: Michael D. Aucoin

Login Type: Immediate Receipt of Samples

Started: T

Date Start: 03/29/2004

Due Date: 04/12/2004

Received Date: 03/27/2004

Received By: AMMERMAN, MARK

Spread Sample:

Label:

Project Title/Type: Analysis of PFOA in Filter Paper (Particle Size Distribution Study) / ROUTINE

Exygen SD/PI: RISHA, KAREN

Login Notes:

Conform Notes:

Packages / Containers

Package	Carton	Mail Date / Condition	Shipper / ID	Temp. Control/Temp.	Direction / Handled By
PK0002812		3/29/2004 12:53:46PM Package & Contents Uncompromised	FEDEX 8443482884530200	None 23.3	RECEIVED AMMERMAN, MARK

Container #	Gross Weight	pH	Container Type	Preservative	Mfg. Lot	Mfg. ID
C0030028	16.3 g		50 ml clear plastic	NONE		
C0030029	16.3 g		50 ml clear plastic	NONE		
C0030030	16.3 g		50 ml clear plastic	NONE		
C0030031	16.3 g		50 ml clear plastic	NONE		
C0030032	15.9 g		50 ml clear plastic	NONE		
C0030033	19.1 g		50 ml clear plastic	NONE		
C0030034	18.9 g		50 ml clear plastic	NONE		
C0030035	15.9 g		50 ml clear plastic	NONE		
C0030036	16.2 g		50 ml clear plastic	NONE		
C0030037	16.3 g		50 ml clear plastic	NONE		
C0030038	16.3 g		50 ml clear plastic	NONE		
C0030039	15.9 g		50 ml clear plastic	NONE		
C0030040	15.9 g		50 ml clear plastic	NONE		
C0030041	19.1 g		50 ml clear plastic	NONE		
C0030042	18.8 g		50 ml clear plastic	NONE		
C0030043	16.2 g		50 ml clear plastic	NONE		
C0030044	15.9 g		50 ml clear plastic	NONE		
C0030045	15.9 g		50 ml clear plastic	NONE		
C0030046	16.2 g		50 ml clear plastic	NONE		
C0030047	16.3 g		50 ml clear plastic	NONE		
C0030048	18.8 g		50 ml clear plastic	NONE		
C0030049	18.7 g		50 ml clear plastic	NONE		
C0030050	15.9 g		50 ml clear plastic	NONE		
C0030051	16.2 g		50 ml clear plastic	NONE		
C0030052	16.3 g		50 ml clear plastic	NONE		
C0030053	15.9 g		50 ml clear plastic	NONE		
C0030054	16.3 g		50 ml clear plastic	NONE		
C0030055	19.1 g		50 ml clear plastic	NONE		
C0030056	18.9 g		50 ml clear plastic	NONE		

J011

3/29/2004
Login.rpt

Report Version: Mar 11 2004 4:16PM
Page 1 of 3

Instance:

R0093077

000587



Login

Samples

Sample ID	Container	Matrix	Fraction	Sample	Date Sampled	Date Received	Date Due
L0002178-0001	C0030028	SOLID	Filter Paper	WWK-A-E1-S1-1	03/26/2004	03/27/2004	04/12/2004
L0002178-0002	C0030029	SOLID	Filter Paper	WWK-A-E1-S1-2	03/26/2004	03/27/2004	04/12/2004
L0002178-0003	C0030030	SOLID	Filter Paper	WWK-A-E1-S1-3	03/26/2004	03/27/2004	04/12/2004
L0002178-0004	C0030031	SOLID	Filter Paper	WWK-A-E1-S1-4	03/26/2004	03/27/2004	04/12/2004
L0002178-0005	C0030032	SOLID	Filter Paper	WWK-A-E1-S1-5	03/26/2004	03/27/2004	04/12/2004
L0002178-0006	C0030033	SOLID	Filter Paper	WWK-A-E1-S1-6A	03/25/2004	03/27/2004	04/12/2004
L0002178-0007	C0030034	SOLID	Filter Paper	WWK-A-E1-S1-6B	03/26/2004	03/27/2004	04/12/2004
L0002178-0008	C0030035	SOLID	Filter Paper	WWK-A-FBLK1	03/26/2004	03/27/2004	04/12/2004
L0002178-0009	C0030036	SOLID	Filter Paper	WWK-A-E1-S2-1	03/26/2004	03/27/2004	04/12/2004
L0002178-0010	C0030037	SOLID	Filter Paper	WWK-A-E1-S2-2	03/26/2004	03/27/2004	04/12/2004
L0002178-0011	C0030038	SOLID	Filter Paper	WWK-A-E1-S2-3	03/26/2004	03/27/2004	04/12/2004
L0002178-0012	C0030039	SOLID	Filter Paper	WWK-A-E1-S2-4	03/26/2004	03/27/2004	04/12/2004
L0002178-0013	C0030040	SOLID	Filter Paper	WWK-A-E1-S2-5	03/26/2004	03/27/2004	04/12/2004
L0002178-0014	C0030041	SOLID	Filter Paper	WWK-A-E1-S2-6A	03/25/2004	03/27/2004	04/12/2004
L0002178-0015	C0030042	SOLID	Filter Paper	WWK-A-E1-S2-6B	03/26/2004	03/27/2004	04/12/2004
L0002178-0016	C0030043	SOLID	Filter Paper	WWK-A-E1-S3-1	03/26/2004	03/27/2004	04/12/2004
L0002178-0017	C0030044	SOLID	Filter Paper	WWK-A-E1-S3-2	03/26/2004	03/27/2004	04/12/2004
L0002178-0018	C0030045	SOLID	Filter Paper	WWK-A-E1-S3-3	03/26/2004	03/27/2004	04/12/2004
L0002178-0019	C0030046	SOLID	Filter Paper	WWK-A-E1-S3-4	03/26/2004	03/27/2004	04/12/2004
L0002178-0020	C0030047	SOLID	Filter Paper	WWK-A-E1-S3-5	03/26/2004	03/27/2004	04/12/2004

3/29/2004
Login.rpt

Report Version: Mar 11 2004 4:16PM
Page 2 of 3

Instance:

R0093077

0012
000588



Login

L0002178-0021	C0030048	SOLID	Filter Paper	WWK-A-E1-S3-6A	03/25/2004	03/27/2004	04/12/2004
L0002178-0022	C0030049	SOLID	Filter Paper	WWK-A-E1-S3-6B	03/26/2004	03/27/2004	04/12/2004
L0002178-0023	C0030050	SOLID	Filter Paper	WWK-A-E1-S5-1	03/26/2004	03/27/2004	04/12/2004
L0002178-0024	C0030051	SOLID	Filter Paper	WWK-A-E1-S5-2	03/26/2004	03/27/2004	04/12/2004
L0002178-0025	C0030052	SOLID	Filter Paper	WWK-A-E1-S5-3	03/26/2004	03/27/2004	04/12/2004
L0002178-0026	C0030053	SOLID	Filter Paper	WWK-A-E1-S5-4	03/26/2004	03/27/2004	04/12/2004
L0002178-0027	C0030054	SOLID	Filter Paper	WWK-A-E1-S5-5	03/26/2004	03/27/2004	04/12/2004
L0002178-0028	C0030055	SOLID	Filter Paper	WWK-A-E1-S5-6A	03/25/2004	03/27/2004	04/12/2004
L0002178-0029	C0030056	SOLID	Filter Paper	WWK-A-E1-S5-6B	03/26/2004	03/27/2004	04/12/2004



CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

PROJECT INFORMATION

Client (name & address):

Adom AP Services - Delft Washington works

Kate 899 South Dykott Road.

Washington	WV	26/81
------------	----	-------

Phone: (304) 863-4476

Fax:

Sampler: S. Opp, B. Pierce

Project Manager (Name & E-mail Address):

Mike Jaccin

(302) 892-1698

Project Name:

Particle Size Distribution Study

PO#:

Quotation #:

Please fill out this form *completely* to ensure correct analysis and proper handling of your samples.

SAMPLE ANALYSIS

ExLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Comp	Num Cont.	Specify Matrix	Comments
	wvk-A-E1-S1-1	3/26/04	1004	X		1	Filter Paper	
	wvk-A-E1-S1-2		1005	X		1		
	wvk-A-E1-S1-3		1006	X		1		
	wvk-A-E1-S1-4		1007	X		1		
	wvk-A-E1-S1-5		1008	X		1		
	wvk-A-E1-S1-6A	3/25/04	0855	X		1		
	wvk-A-E1-S1-6B	3/26/04	1009	X		1		
	wvk-A-E1-S1-6C	3/26/04	1008	X		1	Filter Paper	

CHAIN OF CUSTODY

Relinquished by	Date	Time
S. Opp	3/24/64	1200

Cooler ID # CR600021

Cooler Temp. (°C) 14

Received by	Date	Time
J. QP	3/4/01	1400
[Signature]	2/27/01	1300

PROJECT REQUIREMENTS

Results Deadline:

Method	Standard
--------	----------

Laboratory Report Options:

- ☐ Sample results only
- ☐ Add case narrative
- ☐ Add quality control summary
- ☐ Add calibration summary
- ☐ Add raw data
- ☐ Other

OTHER INFORMATION

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

PROJECT INFORMATION

Client (name & address):

AD&M. AP Services - DuPont Washington Works

Route 322 South, DuPont Road
Washington WV 26181

Phone: (304) 863-4476

Fax:

Sampler: S. Opl. B. Pierce

Please fill out this form *completely* to ensure correct analysis and proper handling of your samples.

Project Manager (Name & E-mail Address):

Mike
Aucoin

(302) 692-1698

Project Name:

Particle Size Distribution

PO. #: _____

Quotation #: _____

ANALYSES REQUESTED

PFOA

250

SAMPLE ANALYSIS

SAMPLE ANALYSIS				Grab	Composite	Number of Containers	Specify Matrix	Comments
ExLIMS#	Client Sample Identification	Collection Date	Collection Time					
	WWK-A-E1-S2-1	3/26/04	1012	X		1	Filter Paper	
	WWK-A-E1-S2-2		1013	X				
	WWK-A-E1-S2-3		1014	X		1		
	WWK-A-E1-S2-4		1015	X		1		
	WWK-A-E1-S2-5	↓	1016	X		1		
	WWK-A-E1-S2-6A	3/25/04	0843	X		1		
	WWK-A-E1-S2-6B	3/26/04	1017	X		1	↓	

CHAIN OF CUSTODY

Relinquished by	Date	Time
S. Opp	3/24/04	1200

Cooler ID # CR0000021

Cooler Temp. (°C) NA

Received by	Date	Time
S. OPP	3/8/94	1900
<i>[Signature]</i>	08/27/94	1300

PROJECT REQUIREMENTS

Results Deadline:

Method

Laboratory Report Options:

- ☐ Sample results only
- ☐ Add case narrative
- ☐ Add quality control summary
- ☐ Add calibration summary
- ☐ Add raw data
- ☐ Other

OTHER INFORMATION

PROJECT INFORMATION

Client (name & address):

ADAM AP Service - Pulport Washington York
Route 892 South, Pulport Road
Washington WV 26161
Phone: (304) 863-4476
Fax:
Sampler: S. Opp, B. Pierce

Project Manager (Name & E-mail Address):

Mike Auger
(302) 898-1698
Project Name: Particle Size Distribution Study
PO. #:
Quotation #:

Please fill out this form *completely* to ensure correct analysis and proper handling of your samples.

ANALYSES REQUESTED

SAMPLE ANALYSIS

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments												
	WWK-A-E4-S3-1	3/26/04	1021	X		1	Filter Paper													
	WWK-A-E4-S3-2		1022	X		1														
	WWK-A-E4-S3-3		1023	X		1														
	WWK-A-E4-S3-4		1024	X		1														
	WWK-A-E4-S3-5		1025	X		1														
	WWK-A-E4-S3-6A	3/26/04	0812	X		1														
	WWK-A-E4-S3-6B	3/26/04	1026	X		1														

LAB USE ONLY

CHAIN OF CUSTODY

Relinquished by	Date	Time
S. Opp	3/26/04	1200

Cooler ID # C1000021

Cooler Temp. (°C) _____

Received by	Date	Time
S. Opp	3/26/04	1900
<i>[Signature]</i>	3/27/04	1300

LAB USE ONLY

OTHER INFORMATION

PROJECT REQUIREMENTS

Results Deadline: Me thod Standard

Laboratory Report Options:

- ☐ Sample results only
- ☐ Add case narrative
- ☐ Add quality control summary
- ☐ Add calibration summary
- ☐ Add raw data
- ☐ Other _____

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

PROJECT INFORMATION

Client (name & address):

Client (name & address):
ADGM AP Services - DuPont Washington Works

Port Sea South, Dyfot Road

Washington	WV	26181
------------	----	-------

Phone: (304) 863-4476

Fax:

Sampler: S. Gop. B. Pierce

Project Manager, (Name & E-mail Address):

Mike Aucoin

(302) 898-1698

Project Name:

Particle Size Distribution Study

PO #: _____

Quotation #: _____

Please fill out this form *completely* to ensure correct analysis and proper handling of your samples.

ANALYSES REQUESTED

SAMPLE ANALYSIS

ExLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Comp	Numl Conts	Specy Matrix	Comments				
	wvk-A-E1-S5-1	3/26/04	0900	X		1	Filtr Papr					
	wvk-A-E1-S5-2		0901	X		1						
	wvk-A-E1-S5-3		0902	X		1						
	wvk-A-E1-S5-4		0903	X		1						
	wvk-A-E1-S5-5		0904	X		1						
	wvk-A-E1-S5-6A	3/26/04	0914	X		1						
	wvk-A-E1-S5-6B	3/26/04	0905	X		1						

CHAIN OF CUSTODY

Relinquished by	Date	Time
S. Opp	3/24/04	1200

Cooler ID # CR000021

Cooler Temp. (°C)

Received by	Date	Time
S. OPP	3/29/01	1900
<i>[Signature]</i>	3/17/01	1800

PROJECT REQUIREMENTS

Results Deadline:

Method Standard

Laboratory Report Options:

- ☐ Sample results only
- ☐ Add case narrative
- ☐ Add quality control summary
- ☐ Add calibration summary
- ☐ Add raw data
- ☐ Other

OTHER INFORMATION



3058 Research Drive Phone: 814-272-1039
State College, PA 16801 Fax: 814-231-1580

SAMPLE CONDITION UPON RECEIPT FORM

Protocol # NA

Exygen Study # *

Date & Time Received 03/27/04 1:00

Condition of Samples ambient

Temporary Storage Location Room 2303

Initials & Date MA 03/27/04

Waybill # 8443 4020 8453

* waiting for study number. MA 03/27/04

FedEx USA Airbill

Express Tracking Number **844348288453**

Recipient's Copy

1 From
 Date 3/26/04
 Sender's Name Star Opp Phone 304 863-4476
 Company Deford CR6
 Address Rt 489 South, Deford Rd
 City Wormouth, W.V. State WV ZIP 26151
 Date/Room/ShipRoom

2 Your Internal Billing Reference
1899 3937

3 To
 Recipient's Name Sample Administration Phone 814 331-8032
 Company Exogen Research
 Address 3117 Research Drive
 City State College State PA ZIP 16801
 Date/Room/ShipRoom

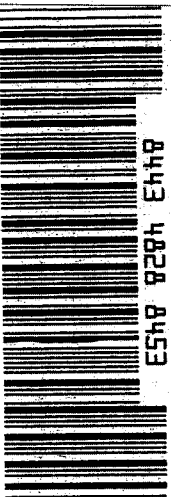
4
 Address 3117 Research Drive
 To "HOLD" at FedEx location, print FedEx address.
 We cannot deliver to P.O. boxes or P.O. ZIP codes.

5
 Address 3117 Research Drive
 To "HOLD" at FedEx location, print FedEx address.
 We cannot deliver to P.O. boxes or P.O. ZIP codes.

6
 Address 3117 Research Drive
 To "HOLD" at FedEx location, print FedEx address.
 We cannot deliver to P.O. boxes or P.O. ZIP codes.

7
 Address 3117 Research Drive
 To "HOLD" at FedEx location, print FedEx address.
 We cannot deliver to P.O. boxes or P.O. ZIP codes.

8
 Address 3117 Research Drive
 To "HOLD" at FedEx location, print FedEx address.
 We cannot deliver to P.O. boxes or P.O. ZIP codes.



4a Express Package Service
☒ **Next Business Morning**
☐ **Next Business Afternoon**
☐ **Next Business Evening**

4b Express Freight Service
☐ **Next Business Day**
☐ **Next Business Day**
☐ **Next Business Day**

5 Packaging
☐ **FedEx Envelope***
☐ **FedEx Pak***
☒ **Other**

6 Special Handling
☒ **SATURDAY Delivery**
☐ **HOLD Weekday**
☐ **HOLD Saturday**

7 Payment Bill to:
☒ **Sender**
☐ **Recipient**
☐ **Third Party**
☐ **Credit Card**
☐ **Check**

8 Release Signature
 Sign to authorize delivery without obtaining signature.

Total Packages 1 **Total Weight** 1 **Total Declared Value*** \$.00

Total Charges \$.00

By signing this Airbill, you agree to the following terms and conditions:
 1. This Airbill is subject to the FedEx Terms of Service.
 2. This Airbill is subject to the FedEx International Terms of Service.
 3. This Airbill is subject to the FedEx Priority Mail Terms of Service.
 4. This Airbill is subject to the FedEx Express Terms of Service.
 5. This Airbill is subject to the FedEx Freight Terms of Service.
 6. This Airbill is subject to the FedEx Special Handling Terms of Service.
 7. This Airbill is subject to the FedEx Payment Terms of Service.
 8. This Airbill is subject to the FedEx Release Signature Terms of Service.

446

RAW DATA REPORT

Sponsor Study No: NA
 Oxygen Study No: L2178
 Analyte: PFOA
 Ions Monitored: 413 -> 369
 Site: Washington Works

Limit of Quantitation: 50 ng/L (2 ng/filter paper)
 Injection Volume: 15 µL
 Matrix: Water
 Sample Volume: 40.0 mL
 Final Volume: 5.0 mL

Set No: 040304A
 Analyst: Karen Risha
 Instrument Type: LC/MS/MS Unit # 7
 Extraction Date: 04/03/04
 Analyzed on: 04/04/04

Oxygen ID	Sponsor ID	Sample Code	Run No.	Std. Conc. (ng/L)	Dilution Factor	Peak Area	PFOA Found (ng/L)	PFOA Found (ng/filter paper)	PFOA Found (µg/filter paper)	Amount PFOA Added (ng/L)	Recovery (%)
XC032304-0	-	C	040304A-1001	0	-	549	-	-	-	-	-
XC032304-1	-	CS	040304A-1002	25	-	3856	-	-	-	-	-
XC032304-2	-	CS	040304A-1003	50	-	7233	-	-	-	-	-
XC032304-3	-	CS	040304A-1004	100	-	14458	-	-	-	-	-
XC032304-4	-	CS	040304A-1005	250	-	36094	-	-	-	-	-
XC032304-5	-	CS	040304A-1006	500	-	73515	-	-	-	-	-
XC032304-6	-	CS	040304A-1007	1000	-	140882	-	-	-	-	-
XC032304-7	-	CK	040304A-1008	250	-	34299	-	-	-	-	-
Methanol Wash	-	C	040304A-1009	-	-	0	-	-	-	-	-
Slotted Filter Paper Control	NA	C	040304A-1010	-	1	855	ND	ND	ND	-	-
Whatman 41 Filter Paper Control	NA	C	040304A-1011	-	1	1114	ND	ND	ND	-	-
Slotted Filter Paper Spk A	NA	LCS	040304A-1012	-	1	7740	44.5	1.78	0.00178	50	89
Whatman 41 Filter Paper Spk B	NA	LCS	040304A-1013	-	1	8968	52.7	2.11	0.00211	50	105
Slotted Filter Paper Spk C	NA	LCS	040304A-1014	-	1	67056	437	17.5	0.0175	500	87
Whatman 41 Filter Paper Spk D	NA	LCS	040304A-1015	-	1	61288	399	16.0	0.0160	500	80
XC032304-1	-	CS	040304A-1016	25	-	3960	-	-	-	-	-
L2178-1	WWK-A-E1-S1-1	S	040304A-1017	-	1	10649115	**	-	-	-	-
L2178-2	WWK-A-E1-S1-2	S	040304A-1018	-	1	17237276	**	-	-	-	-
L2178-3	WWK-A-E1-S1-3	S	040304A-1019	-	1	12483933	**	-	-	-	-
L2178-4	WWK-A-E1-S1-4	S	040304A-1020	-	1	11522153	**	-	-	-	-
L2178-5	WWK-A-E1-S1-5	S	040304A-1021	-	1	6602706	**	-	-	-	-
L2178-6	WWK-A-E1-S1-6A	S	040304A-1022	-	1	15663896	**	-	-	-	-
L2178-7	WWK-A-E1-S1-6B	S	040304A-1023	-	1	14134673	**	-	-	-	-
XC032304-2	-	CS	040304A-1024	50	-	14481	-	-	-	-	-
L2178-8	WWK-A-FBLK1	S	040304A-1025	-	1	8241	NQ	NQ	NQ	-	-
L2178-9	WWK-A-E1-S2-1	S	040304A-1026	-	1	23033354	**	-	-	-	-
L2178-10	WWK-A-E1-S2-2	S	040304A-1027	-	1	26154408	**	-	-	-	-
L2178-11	WWK-A-E1-S2-3	S	040304A-1028	-	1	24987002	**	-	-	-	-
L2178-12	WWK-A-E1-S2-4	S	040304A-1029	-	1	22539600	**	-	-	-	-
L2178-13	WWK-A-E1-S2-5	S	040304A-1030	-	1	22819730	**	-	-	-	-
L2178-14	WWK-A-E1-S2-6A	S	040304A-1031	-	1	28910008	**	-	-	-	-
XC032304-3*	-	CS	040304A-1032	100	-	182149	-	-	-	-	-
L2178-15	WWK-A-E1-S2-6B	S	040304A-1033	-	1	26480088	**	-	-	-	-
L2178-16	WWK-A-E1-S3-1	S	040304A-1034	-	1	20976000	**	-	-	-	-
L2178-17	WWK-A-E1-S3-2	S	040304A-1035	-	1	26969268	**	-	-	-	-
L2178-18	WWK-A-E1-S3-3	S	040304A-1036	-	1	24311208	**	-	-	-	-
L2178-19	WWK-A-E1-S3-4	S	040304A-1037	-	1	23954196	**	-	-	-	-
L2178-20	WWK-A-E1-S3-5	S	040304A-1038	-	1	22281124	**	-	-	-	-
L2178-21	WWK-A-E1-S3-6A	S	040304A-1039	-	1	29571072	**	-	-	-	-
XC032304-4*	-	CS	040304A-1040	250	-	211881	-	-	-	-	-
L2178-22	WWK-A-E1-S3-6B	S	040304A-1041	-	1	26266948	**	-	-	-	-
L2178-23	WWK-A-E1-S5-1	S	040304A-1042	-	1	4267036	**	-	-	-	-
L2178-24	WWK-A-E1-S5-2	S	040304A-1043	-	1	5411635	**	-	-	-	-
L2178-25	WWK-A-E1-S5-3	S	040304A-1044	-	1	4727270	**	-	-	-	-
L2178-26	WWK-A-E1-S5-4	S	040304A-1045	-	1	4582807	**	-	-	-	-
L2178-27	WWK-A-E1-S5-5	S	040304A-1046	-	1	4082124	**	-	-	-	-
L2178-28	WWK-A-E1-S5-6A	S	040304A-1047	-	1	10309808	**	-	-	-	-
L2178-29	WWK-A-E1-S5-6B	S	040304A-1048	-	1	8861053	**	-	-	-	-
XC032304-5	-	CS	040304A-1049	500	-	84251	-	-	-	-	-
XC032304-6	-	CS	040304A-1050	1000	-	160139	-	-	-	-	-

PFOA Found (ng/L) = (peak area - intercept) / slope x DF

Recovery (%) = $\frac{[\text{PFOA found (ng/L)} - \text{PFOA found in control (ng/L)}]}{\text{amount PFOA added (ng/L)}} \times 100$

Standard Curve: Linear (1/x weighted)

Intercept = 1012.08

Slope = 151.071

Coef. Of Det. = 0.990013

PFOA Found (ng/filter paper) = PFOA found (ng/L) x volume extracted (0.04L)

PFOA Found (µg/filter paper) = PFOA found (ng/filter paper) / 1000 ng/µg

CS = Calibration standard

C = Control sample

S = Sample

LF = Lab fortified sample

FF = Field fortified sample

LCS = Laboratory Control Spike

CK = Check Standard

ND = Not detected = Response between 0 and LOD

NQ = Not quantifiable = Response between LOD and LOQ

Avg Resp. of the 250 ppt Standards (area):^ 36094

Response of the Check Standard (area): 34299

Percent Difference (%): 5

% difference acceptable if within ±15%

Spreadsheet prepared by: *[Signature]* 04/07/04

*Standard was excluded from the calculation of the calibration curve. The standard is considered a statistical outlier by the Huge Error Test for outliers.

^Calculation performed using only the first 250 ppt standard.

**Sample requires dilution. See data set 040304AR.

0020

000596



3058 Research Drive
State College, PA 16801

Phone: 814-272-1039
Fax: 814-231-1580

Internal Chain of Custody/Fortification Sheet

Exygen Study Number: L2178

Matrix: Filter Paper

Sponsor Study/Protocol No: NA

The samples listed below were removed from room temperature storage cabinet 1

Time 1315

Date 04/02/04

Initials CEE

CLIENT SAMPLE ID	EXYGEN ID NUMBER	VOLUME (mL)	FORTIFICATION (ng)
na	Slotted Filter Paper Control	40.0	-
na	Whatman 41 Filter Paper Control	40.0	-
na	Slotted Filter Paper Spk A	40.0	2.0
na	Whatman 41 Filter Paper Spk B	40.0	2.0
na	Slotted Filter Paper Spk C	40.0	20.0
na	Whatman 41 Filter Paper Spk D	40.0	20.0
WWK-A-E1-S1-1	L2178-1	40.0	-
WWK-A-E1-S1-2	L2178-2	40.0	-
WWK-A-E1-S1-3	L2178-3	40.0	-
WWK-A-E1-S1-4	L2178-4	40.0	-
WWK-A-E1-S1-5	L2178-5	40.0	-
WWK-A-E1-S1-6A	L2178-6	40.0	-
WWK-A-E1-S1-6B	L2178-7	40.0	-
WWK-A-FBLK1	L2178-8	40.0	-
WWK-A-E1-S2-1	L2178-9	40.0	-
WWK-A-E1-S2-2	L2178-10	40.0	-
WWK-A-E1-S2-3	L2178-11	40.0	-
WWK-A-E1-S2-4	L2178-12	40.0	-
WWK-A-E1-S2-5	L2178-13	40.0	-
WWK-A-E1-S2-6A	L2178-14	40.0	-
WWK-A-E1-S2-6B	L2178-15	40.0	-
WWK-A-E1-S3-1	L2178-16	40.0	-
WWK-A-E1-S3-2	L2178-17	40.0	-
WWK-A-E1-S3-3	L2178-18	40.0	-

	Spiking Solution Used	Volume Used for Spiking	Initial/Date
Slotted Filter Paper Spk A	F030804-5 (10 ng/mL)	200 µL (200 µL micropipet)	<u>CEE</u> / 04/02/04
Whatman 41 Filter Paper Spk B	F030804-5 (10 ng/mL)	200 µL (200 µL micropipet)	<u>CEE</u> / 04/02/04
Slotted Filter Paper Spk C	F030804-4 (100 ng/mL)	200 µL (200 µL micropipet)	<u>CEE</u> / 04/02/04
Whatman 41 Filter Paper Spk D	F030804-4 (100 ng/mL)	200 µL (200 µL micropipet)	<u>CEE</u> / 04/02/04
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

40 mL of water was added to all samples:

Time 1330

Date 04/02/04

Initials CEE

Comments: Entire sample was used for extraction

Analysis Summary:

Data Set: 040304A

Data Set: 040304AP

Data Set: -

Initials/Date: CEE / 04/04/04

Initials/Date: CEE / 04/06/04

Initials/Date: CEE / -

Set extraction/analysis data verified by: gmp

Date: 4/2/04

April 2, 2004/0

J021

000597



3058 Research Drive
State College, PA 16801
Phone: 814-272-1039
Fax: 814-231-1580

SAMPLE EXTRACTION AND ANALYSIS TRACKING SHEET

EXYGEN STUDY NUMBER: L2178 METHOD: 01M-008-046^{SS} PROTOCOL NUMBER: NA
MATRIX: Filter Paper ANALYTES: PFOA

Client ID	Exygen ID	STEP 1	STEP 2	STEP 3	Dilutions (mL/mL)	STEP 4	Dilutions (mL/mL)	STEP 5	Reagents/ Materials	Lot #
na	Slotted Filter Paper Control	✓	✓	✓	-	✓	-	5	Methanol	43325348
na	Whatman 41 Filter Paper Control	✓	✓	✓	-	✓	-	-	C18 SPE	W3317B1
na	Slotted Filter Paper Spk A	✓	✓	✓	-	✓	-	-	Type 1 Water	NA
na	Whatman 41 Filter Paper Spk B	✓	✓	✓	-	✓	-	-	-	-
na	Slotted Filter Paper Spk C	✓	✓	✓	-	✓	-	-	-	-
na	Whatman 41 Filter Paper Spk D	✓	✓	✓	-	✓	-	-	-	-
WWK-A-E1-S1-1	L2178-1	✓	✓	✓	-	✓	0.1/10, 0.1/10	✓	-	-
WWK-A-E1-S1-2	L2178-2	✓	✓	✓	-	✓	0.1/10, 0.1/10	✓	-	-
WWK-A-E1-S1-3	L2178-3	✓	✓	✓	-	✓	0.1/10, 0.1/10	✓	-	-
WWK-A-E1-S1-4	L2178-4	✓	✓	✓	-	✓	0.1/10, 0.1/10	✓	-	-
WWK-A-E1-S1-5	L2178-5	✓	✓	✓	-	✓	0.1/10	✓	-	-
WWK-A-E1-S1-6A	L2178-6	✓	✓	✓	-	✓	0.1/10, 0.1/10	✓	-	-
WWK-A-E1-S1-6B	L2178-7	✓	✓	✓	-	✓	0.1/10, 0.1/10	✓	-	-
WWK-A-FBLK1	L2178-8	✓	✓	✓	-	✓	-	✓	-	-
WWK-A-E1-S2-1	L2178-9	✓	✓	✓	-	✓	0.1/10, 0.1/10	✓	-	-
WWK-A-E1-S2-2	L2178-10	✓	✓	✓	-	✓	0.1/10, 0.1/10	✓	-	-
WWK-A-E1-S2-3	L2178-11	✓	✓	✓	-	✓	0.1/10, 0.1/10	✓	-	-
WWK-A-E1-S2-4	L2178-12	✓	✓	✓	-	✓	0.1/10, 0.1/10	✓	-	-
WWK-A-E1-S2-5	L2178-13	✓	✓	✓	-	✓	0.1/10, 0.1/10	✓	-	-
WWK-A-E1-S2-6A	L2178-14	✓	✓	✓	-	✓	0.1/10, 0.1/10	✓	-	-
WWK-A-E1-S2-6B	L2178-15	✓	✓	✓	-	✓	0.1/10, 0.1/10	✓	-	-
WWK-A-E1-S3-1	L2178-16	✓	✓	✓	-	✓	0.1/10, 0.1/10	✓	-	-
WWK-A-E1-S3-2	L2178-17	✓	✓	✓	-	✓	0.1/10, 0.1/10	✓	-	-
WWK-A-E1-S3-3	L2178-18	✓	✓	✓	-	✓	0.1/10, 0.1/10	✓	-	-
*Initials/Date	-	CE 04/02/04	CE 04/03/04	CE 04/05/04	-	CE 04/06/04	04/05/04	04/06/04	Initials/Date	04/05/04

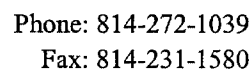
STEP 1: Shake overnight on a wrist-action shaker
STEP 2: Squeeze water from filter and water through SPE column clean-up
STEP 3: Final volume to 5 mL collected in 15 mL polypropylene tubes
STEP 4: LC/MS/MS analysis
STEP 5: LC/MS/MS reanalysis.

① NF = 1000
② NF = 10,000

*Initials and date under each step indicates the personnel that performed this step.
\$\$ MODIFIED "Method of Analysis for the Determination of Ammonium Perfluorooctanoate (APFO) in Water"

COMMENTS:

Final extracts stored in refrigerator 32 Initials: CE Date: 04/03/04



Initials *CEE*

April 2, 2004/0

000599



EXYGEN STUDY NUMBER: L2178
METHOD: 01M-008-046\$\$
ANALYTES: PFOA
MATRIX: Filter Paper
PROTOCOL NUMBER: NA

EXYGEN STUDY NUMBER: I 2178

MATRIX: Filter Paper

METHOD: 01M-008-046^{\$\$}

ANALYTES: PFOA

PROTOCOL NUMBER: NA

STEP 1: Shake overnight on a wrist-action shaker
STEP 2: Squeeze water from filter and water through SPE column clean-up
STEP 3: Final volume to 5 mL collected in 15 mL polypropylene tubes
STEP 4: LC/MS/MS analysis
STEP 5: LC/MS/MS reanalysis.

*Initials and date under each step indicates the personnel that performed this step.

\$\$\$ MODIFIED "Method of Analysis for the Determination of Ammonium Perfluorooctanoate (APFO) in Water"

COMMENTS:

Final extracts stored in refrigerator 32 Initials: QEE Date: 04/03/04

July 19, 2001/4

024

000600



3058 Research Drive
State College, PA 16801

Phone: 814-272-1039
Fax: 814-231-1580

PREPARATION OF EXTRACTED CALIBRATION STANDARDS

Exygen STUDY NO. L2178

Protocol No.: None
Method No.: 01M-008-046*

Exygen Study No.: NA
Analytes: PFOA

Matrix: Type I Water^
Sample Vol: 40 mL

Sponsor Sample ID	Exygen Sample ID	Sample Description	Fort. Solution ID	Fort. Soln. Conc. (ng/mL)	Fort. Volume (μL)	Micropipet used (μL)	Fort. Level (ppt)	Final Solution ID **	Reagents/ Materials	Lot #
NA	0106020	Type I Water^	-	-	-	-	-	XC032304-0	Methanol	44034406
NA	0106020	Type I Water^	F030804-5	10	100	200	25	XC032304-1	C18 SPE	W385TB1
NA	0106020	Type I Water^	F030804-5	10	200	200	50	XC032304-2	Type I Water	NA
NA	0106020	Type I Water^	F030804-5	10	400	200	100	XC032304-3	-	-
NA	0106020	Type I Water^	F030804-4	100	100	200	250	XC032304-4	-	-
NA	0106020	Type I Water^	F030804-4	100	200	200	500	XC032304-5	-	-
NA	0106020	Type I Water^	F030804-4	100	400	200	1000	XC032304-6	-	-
NA	0106020	Type I Water^	F012804-2	100	100	200	250	XC032304-7	-	-
-	-	-	-	-	-	-	-	-	Initials/Date: <u>CEE</u> <u>03/23/04</u>	

Vertical arrows in a column indicate identical values.

**This must be a unique number. Use this system: Extracted Calibration Soln ID #: XCMDDYY-0,1,2,3, etc.

Samples removed from refrigerator / freezer # 32 Time: 0830

40 mL of each sample measured using a 50 mL graduated cylinder.

After measuring, samples returned to refrigerator / freezer # 32 Time: 1200

Samples fortified: Initials/Date: CEE 03/23/04

SPE clean-up: Initials/Date: CEE 03/23/04

Final volume adjusted to 5 mL: Initials/Date: CEE 03/23/04

Extracts placed in refrigerator # 32 Initials/Date: CEE 03/23/04

Initials/Date: CEE 03/23/04

Initials/Date: CEE 03/23/04

Initials/Date: CEE 03/23/04

THIS IS AN EXACT COPY OF
THE ORIGINAL DOCUMENT.

BY CEE DATE 04/04/04

STANDARD EXPIRATION DATE: 4/6/04

Comments: ^This type I water has been filtered through a hypercarb filter

* Method of Analysis for the Determination of Ammonium Perfluorooctanoate (APFO) in Water.

July 10, 2001/0

Masslynx - Sample List

Sample List: C:\MASSLYNX\1008 APFO PRO\SampleDB\040304A Filter paper.sp
Printed: Sun Apr 04 07:18:13 2004

Exygen STUDY NO. L2170

Page Position: (1, 1)

Page 1

Vial	File Name	LIMS ID	Client ID	Sample Description	Matrix	Sample Type	Conc (ng/L)	Conc B	Conc C	Test ID	DF	MS Method
1	040304A-1001	--	--	XC032304-0, 0 ng/L standard	--	Blank	0	--	0	0	1	008 PFOA
2	040304A-1002	--	--	XC032304-1, 25 ng/L standard	--	Standard	25	--	0	0	1	008 PFOA
3	040304A-1003	--	--	XC032304-2, 50 ng/L standard	--	Standard	50	--	0	0	1	008 PFOA
4	040304A-1004	--	--	XC032304-3, 100 ng/L standard	--	Standard	100	--	0	0	1	008 PFOA
5	040304A-1005	--	--	XC032304-4, 250 ng/L standard	--	Standard	250	--	0	0	1	008 PFOA
6	040304A-1006	--	--	XC032304-5, 500 ng/L standard	--	Standard	500	--	0	0	1	008 PFOA
7	040304A-1007	--	--	XC032304-6, 1000 ng/L standard	--	Standard	1000	--	0	0	1	008 PFOA
8	040304A-1008	--	--	XC032304-7, 250 ng/L check standard	--	QC	250	--	0	0	1	008 PFOA
9	040304A-1009	--	--	Methanol Wash	--	Blank	--	--	0	0	1	008 PFOA
10	040304A-1010	--	--	Slotted Filter Paper Control	--	Blank	--	--	0	0	1	008 PFOA
11	040304A-1011	--	--	Whatman 41 Filter Paper Control	--	Blank	--	--	0	0	1	008 PFOA
12	040304A-1012	--	--	Slotted Filter Paper Spk A, 50 ng/L	--	QC	50	--	0	0	1	008 PFOA
13	040304A-1013	--	--	Whatman 41 Filter Paper Spk B, 50 ng/L	--	QC	50	--	0	0	1	008 PFOA
14	040304A-1014	--	--	Slotted Filter Paper Spk C, 500 ng/L	--	QC	500	--	0	0	1	008 PFOA
15	040304A-1015	--	--	Whatman 41 Filter Paper Spk D, 500 ng/L	--	QC	500	--	0	0	1	008 PFOA
16	040304A-1016	--	--	XC032304-1, 25 ng/L standard	--	Standard	25	--	0	0	1	008 PFOA
17	040304A-1017	--	--	L2178-1	--	Analyte	--	--	0	0	1	008 PFOA
18	040304A-1018	--	--	L2178-2	--	Analyte	--	--	0	0	1	008 PFOA
19	040304A-1019	--	--	L2178-3	--	Analyte	--	--	0	0	1	008 PFOA
20	040304A-1020	--	--	L2178-4	--	Analyte	--	--	0	0	1	008 PFOA
21	040304A-1021	--	--	L2178-5	--	Analyte	--	--	0	0	1	008 PFOA
22	040304A-1022	--	--	L2178-6	--	Analyte	--	--	0	0	1	008 PFOA
23	040304A-1023	--	--	L2178-7	--	Analyte	--	--	0	0	1	008 PFOA
24	040304A-1024	--	--	XC032304-2, 50 ng/L standard	--	Standard	50	--	0	0	1	008 PFOA
25	040304A-1025	--	--	L2178-8	--	Analyte	--	--	0	0	1	008 PFOA
26	040304A-1026	--	--	L2178-9	--	Analyte	--	--	0	0	1	008 PFOA
27	040304A-1027	--	--	L2178-10	--	Analyte	--	--	0	0	1	008 PFOA
28	040304A-1028	--	--	L2178-11	--	Analyte	--	--	0	0	1	008 PFOA
29	040304A-1029	--	--	L2178-12	--	Analyte	--	--	0	0	1	008 PFOA
30	040304A-1030	--	--	L2178-13	--	Analyte	--	--	0	0	1	008 PFOA
31	040304A-1031	--	--	L2178-14	--	Analyte	--	--	0	0	1	008 PFOA
32	040304A-1032	--	--	XC032304-3, 100 ng/L standard	--	Standard	100	--	0	0	1	008 PFOA
33	040304A-1033	--	--	L2178-15	--	Analyte	--	--	0	0	1	008 PFOA
34	040304A-1034	--	--	L2178-16	--	Analyte	--	--	0	0	1	008 PFOA
35	040304A-1035	--	--	L2178-17	--	Analyte	--	--	0	0	1	008 PFOA
36	040304A-1036	--	--	L2178-18	--	Analyte	--	--	0	0	1	008 PFOA
37	040304A-1037	--	--	L2178-19	--	Analyte	--	--	0	0	1	008 PFOA
38	040304A-1038	--	--	L2178-20	--	Analyte	--	--	0	0	1	008 PFOA
39	040304A-1039	--	--	L2178-21	--	Analyte	--	--	0	0	1	008 PFOA
40	040304A-1040	--	--	XC032304-4, 250 ng/L standard	--	Standard	250	--	0	0	1	008 PFOA
41	040304A-1041	--	--	L2178-22	--	Analyte	--	--	0	0	1	008 PFOA
42	040304A-1042	--	--	L2178-23	--	Analyte	--	--	0	0	1	008 PFOA
43	040304A-1043	--	--	L2178-24	--	Analyte	--	--	0	0	1	008 PFOA
44	040304A-1044	--	--	L2178-25	--	Analyte	--	--	0	0	1	008 PFOA

0026

000602

Masslynx - Sample List

Sample List: C:\MASSLYNX\1008 APFO PRO\SampleDB\040304A Filter paper.spl
 Printed: Sun Apr 04 07:18:13 2004

Exygen STUDY NO. L2170

Page 2

Page Position: (2, 1)

04/04/04

HPLC Method MS Tune File Inj Volume (µL)

1	water	PFOA Tune	15
2	water	PFOA Tune	15
3	water	PFOA Tune	15
4	water	PFOA Tune	15
5	water	PFOA Tune	15
6	water	PFOA Tune	15
7	water	PFOA Tune	15
8	water	PFOA Tune	15
9	water	PFOA Tune	15
10	water	PFOA Tune	15
11	water	PFOA Tune	15
12	water	PFOA Tune	15
13	water	PFOA Tune	15
14	water	PFOA Tune	15
15	water	PFOA Tune	15
16	water	PFOA Tune	15
17	water	PFOA Tune	15
18	water	PFOA Tune	15
19	water	PFOA Tune	15
20	water	PFOA Tune	15
21	water	PFOA Tune	15
22	water	PFOA Tune	15
23	water	PFOA Tune	15
24	water	PFOA Tune	15
25	water	PFOA Tune	15
26	water	PFOA Tune	15
27	water	PFOA Tune	15
28	water	PFOA Tune	15
29	water	PFOA Tune	15
30	water	PFOA Tune	15
31	water	PFOA Tune	15
32	water	PFOA Tune	15
33	water	PFOA Tune	15
34	water	PFOA Tune	15
35	water	PFOA Tune	15
36	water	PFOA Tune	15
37	water	PFOA Tune	15
38	water	PFOA Tune	15
39	water	PFOA Tune	15
40	water	PFOA Tune	15
41	water	PFOA Tune	15
42	water	PFOA Tune	15
43	water	PFOA Tune	15
44	water	PFOA Tune	15

0027

000603

Masslynx - Sample List

Sample List: C:\MASSLYNX\008 APFO.L\PRO\SampleDB\040304A Filter paper.spl
Printed: Sun Apr 04 07:18:13 2004

Exygen STUDY NO. L2178

Page 3

Page Position: (1, 2)

Handwritten: 04/04/04

Vial	File Name	LIMS ID	Client ID	Sample Description	Matrix	Sample Type	Conc (ng/L)	Conc B	Conc C	Test ID	DF	MS Method
45	94 040304A-1045	---	---	L2178-26	---	Analyte	---	---	0	0	1	008 PFOA
46	95 040304A-1046	---	---	L2178-27	---	Analyte	---	---	0	0	1	008 PFOA
47	96 040304A-1047	---	---	L2178-28	---	Analyte	---	---	0	0	1	008 PFOA
48	97 040304A-1048	---	---	L2178-29	---	Analyte	---	---	0	0	1	008 PFOA
49	6 040304A-1049	---	---	XC032304-5, 500 ng/L standard	---	Standard	500	---	0	0	1	008 PFOA
50	7 040304A-1050	---	---	XC032304-6, 1000 ng/L standard	---	Standard	1000	---	0	0	1	008 PFOA

0028

000604

Masslynx - Sample List

Sample List: C:\MASSLYNX\008 APFO.PRO\SampleDB\040304A Filter paper.spl
 Printed: Sun Apr 04 07:18:13 2004

04/04/04

Exygen STUDY NO. 12178

Page 4

Page Position: (2, 2)

HPLC Method MS Tune File Inj Volume (µL)

45	water	PFOA Tune	15
46	water	PFOA Tune	15
47	water	PFOA Tune	15
48	water	PFOA Tune	15
49	water	PFOA Tune	15
50	water	PFOA Tune	15

0029

000605

LC/MS/MS SYSTEM AND OPERATING CONDITIONS

Sponsor Protocol No: NA

Exygen Study No: L2178

Instrument: Micromass Quattro Ultima (LC/MS/MS Unit #7)

Computer: COMPAQ Professional Workstation AP200

Software: Microsoft Windows NT: Version 4 Build 1381: Service Pack 5
Micromass Limited: MassLynx 3.4 Build 004

HPLC Equipment: Hewlett Packard (HP) Series 1100
HP Bin Pump HP Vacuum Degasser
HP Autosampler HP Column Oven

HPLC Column: Genesis C-8, 5 cm x 2.1 mm i.d. x 4 μ (Exygen ID: MA13296)
(JONESCHROMATOGRAPHY: Part No. FK5962EJ)

Mobile Phase (A) : 2 mM Ammonium Acetate in Type I Water
Mobile Phase (B) : Methanol

Analyst: Karen Risha
Exygen Research
3058 Research Drive, State College, PA 16801
Phone: (814) 272-1039 FAX: (814) 231-1580

KR 04/04/04

NOTE: The next 3 pages are computer generated printouts from the masslynx software program. The pages contain the instrument settings used for the analysis of this data set.

All Handwritten Peak ID's by: *KR 04/05/04*

Scanning Method Report

Page 1

Method: C:\MASSLYNX\008 APFO.PRO\ACQUDE\008 PFOA
Last Modified: Wed Mar 20 16:07:50 2002

Printed: Sun Apr 04 07:18:19 2004

2/20/04/04

Solvent Delay (mins) : 0.00

Function : 1 MRM of 1 Mass Pair (ESP-)

Inter Channel Delay (Secs) : 0.03

Span (Daltons) : 0.00

Start Time (Mins) : 0.00

End Time (Mins) : 8.00

Repeats : 1

Channel	Parent	Daughter	Dwell (Secs)	Coll Energy (eV)	Cone (V)
---------	--------	----------	--------------	------------------	------------

1	413.00	369.00	0.20	10	10
---	--------	--------	------	----	----

0031

000607

Method Report

Page 1

Method File: c:\masslynx\008 apfo.pro\acqddb\water
Last Modified: Sunday, April 04, 2004 07:05:34
Printed: Sunday, April 04, 2004 07:18:21

4/4/04

HP1100 LC Pump Initial Conditions

Solvents

A%	60.0
B%	40.0
C%	0.0
D%	0.0

Flow (ml/min)	0.300
Stop Time (mins)	15.0
Min Pressure (bar)	0
Max Pressure (bar)	400
Oven Temperature Left(°C)	35.0
Oven Temperature Right(°C)	35.0

HP1100 LC Pump Gradient Timetable

The gradient Timetable contains 10 entries which are :

Time	A%	B%	C%	D%	Flow	Pressure
0.00	60.0	40.0	0.0	0.0	0.300	400
0.40	60.0	40.0	0.0	0.0	0.300	400
1.00	10.0	90.0	0.0	0.0	0.300	400
7.00	10.0	90.0	0.0	0.0	0.300	400
7.50	0.0	100.0	0.0	0.0	0.300	400
9.00	0.0	100.0	0.0	0.0	0.400	400
9.50	60.0	40.0	0.0	0.0	0.400	400
13.50	60.0	40.0	0.0	0.0	0.400	400
14.00	60.0	40.0	0.0	0.0	0.300	400
15.00	60.0	40.0	0.0	0.0	0.300	400

HP1100 LC Pump External Event Timetable

The Timetable contains 4 entries which are :

Time	Column Switch	Contact1	Contact2	Contact3	Contact4
Initial	Off	Off	Off	Off	Off
0.00	Off	On	Off	Off	Off
0.10	Off	Off	On	Off	Off
8.00	Off	Off	Off	Off	Off

HP1100 Autosampler Initial Conditions

Draw Speed	200.0
Eject Speed (µl/min)	200
Draw Position (mm)	0.10
Stop Time (mins)	15.00
Injection Volume (µl)	15.0
Vial Number	7

J032

000608

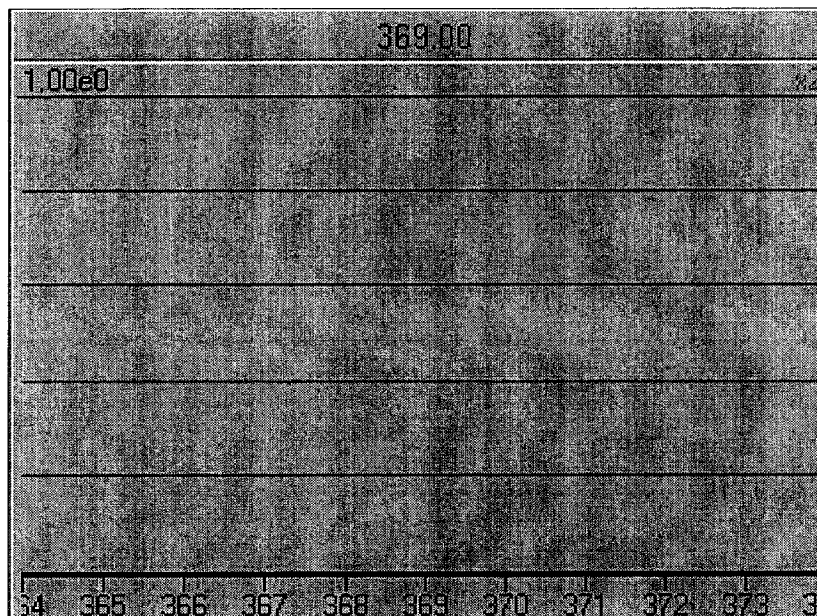
Tuning Method Report

Page 1

Method: C:\MASSLYNX\008 APFO.PRO\ACQUDE\PFOA TUNE

Printed: Sun Apr 04 07:18:36 2004

BF 04/04/04



Dau 413.00

SOURCE (ESP-)	Set	Rdbk	Analyser	Set	Rdbk
Capillary	3.00	-2.93	LM Res 1	14.0	
Cone	10	-10	HM Res 1	14.0	
Hexapole 1	0.0		IEnergy 1	1.0	
Aperture 1	0.0		Entrance	-2	8
Hexapole 2	0.0		Collision	10	9
Source Block Temp.	100	100	Exit	2	11
Desolvation Temp.	300	300	LM Res 2	14.0	
			HM Res 2	14.0	
			IEnergy 2	2.0	
			Multiplier	700	-695

Pressures	Rdbk	Gas Flows	Rdbk
Analyser Vacuum	OFF	Cone Gas	88.2
Gas Cell	3.3e-3	Desolvation	697.1

0033

000609

In order to verify mass resolution, a calibration check is performed on the mass spectrometer using a NaI/Rb/Cs tuning solution. The tuning solution is infused onto the mass spec using an infusion pump set to a flow rate of 10 μ L/min. An MS scan from 80 to 1380 amu is performed on both MS1 and MS2. The calibration is considered acceptable if the following 11 peaks are found within ± 0.2 amu of their known masses on both MS1 and MS2: 84.9, 132.9, 172.8, 322.7, 472.6, 622.5, 772.4, 922.3, 1072.2, 1222.1 and 1372.0. If any of the masses are outside the ± 0.2 amu, then the instrument will be recalibrated and another calibration check performed.

The printouts from the calibration check can be found on the following 2 pages.

KG 04/04/04



3058 Research Drive
State College, PA 16801, USA

T: 800.281.3219
F: 814.272.1019
exygen.com

0034

000610

Calibration Check on MS using NaIRbCs Tuning Solution

CALCHK032904-1 1 (0.086) Cn (Cen, 2, 80.00, Ht); Sm (SG, 2x0.60); Sb (1, 40.00); Cm (1:16)

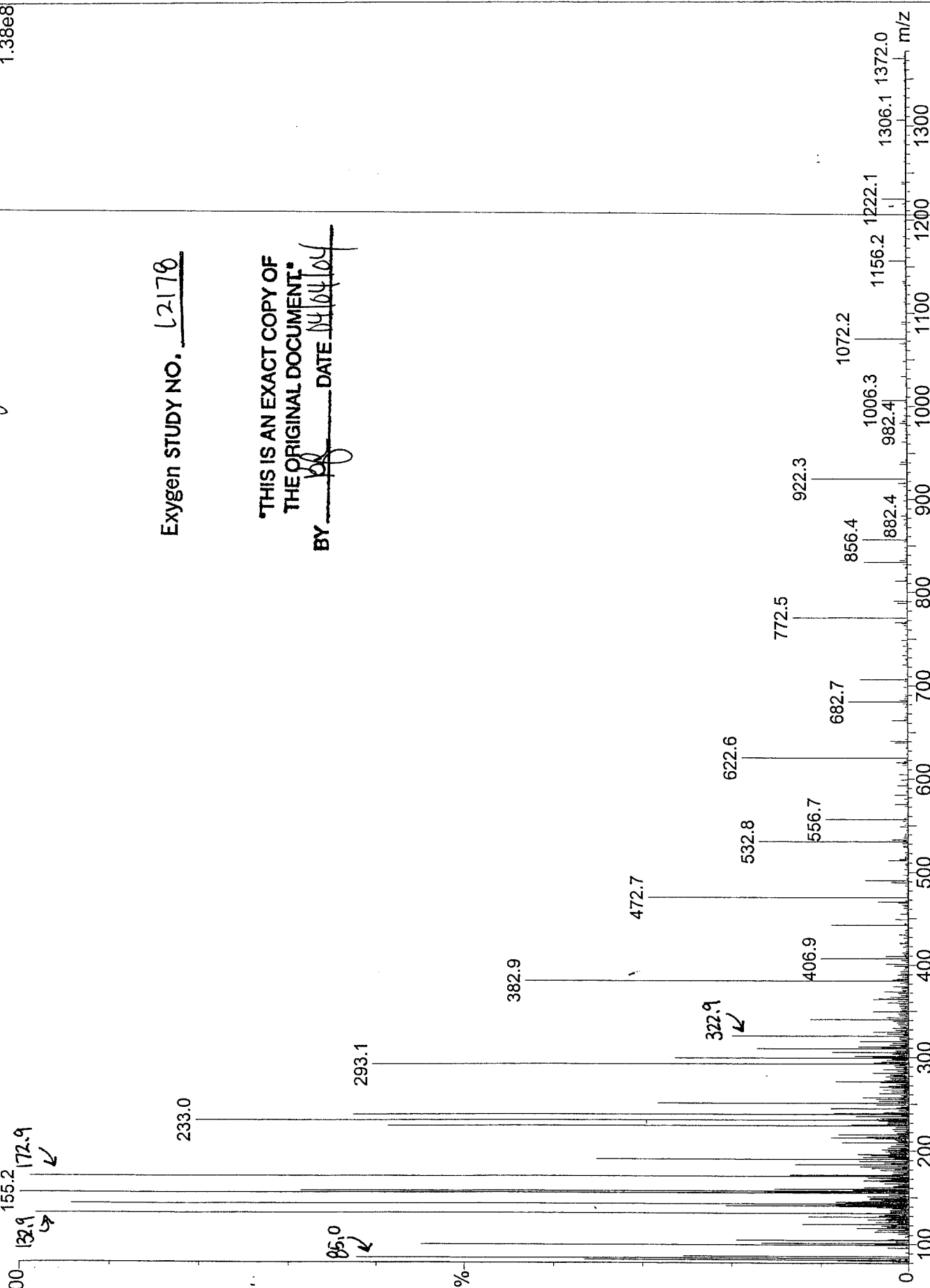
LC/MS/MS #7
29-Mar-2004 09:35:37
Scan ES+
1.38e8

03/29/04

Oxygen STUDY NO. 12178

THIS IS AN EXACT COPY OF
THE ORIGINAL DOCUMENT

BY DS DATE 04/04/04



Calibration Check on MS2 using NaIRbCs Tuning Solution

CALCHK032904-2 1 (0.087) Cn (Cen,2, 80.00, Ht); Sm (SG, 2x0.60); Sb (1,40.00); Cm (1:12)

100 132.9 155.1 172.9 233.0

84.7

%

292.9

382.9

472.7

322.8

622.6

532.8

556.7

772.5

706.6

922.4

856.5

1006.6

1072.3

1156.3

1222.2

1306.2

1372.1

0

m/z

1300

1200

1100

1000

900

800

700

600

500

400

300

200

100

LC/MS/MS #7
29-Mar-2004 09:45:05
MS2 ES+
1.38e8

13/29/04

Exygen STUDY NO. L2178

THIS IS AN EXACT COPY OF
THE ORIGINAL DOCUMENT.

BY [Signature] DATE 04/04/04

0036

000612

Initial Calibration Curve

Exygen Study No.: L2178
 Set No: 040304A
 Extraction Date: 04/03/04
 Analyzed on: 04/04/04

The first curve of the data set is used to determine performance. A linear regression (with no weighting) is performed using the first six standards of the analytical run. The coefficient of determination (R Square) must be 0.985 or greater. If the set fails to meet this requirement, the run must be rejected and the samples reanalyzed.

Exygen ID	Standard Concentration (ng/L)	Peak Area
XC032304-1	25	3856
XC032304-2	50	7233
XC032304-3	100	14458
XC032304-4	250	36094
XC032304-5	500	73515
XC032304-6	1000	140882

Coefficient of Determination: 0.999540151

Handwritten: 04/05/04

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.999770049
R Square	0.999540151
Adjusted R Square	0.999425189
Standard Error	1274.602534
Observations	6

ANOVA

	df	SS	MS	F	Significance F
Regression	1	14125194087	14125194087	8694.50514	7.93101E-08
Residual	4	6498446.483	1624611.621		
Total	5	14131692533			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	690.1132853	712.0106292	0.969245763	0.387308369	-1286.749235	2666.975806	-1286.749235	2666.975806
X Variable 1	141.2453612	1.514787662	93.24433034	7.93101E-08	137.0396277	145.4510947	137.0396277	145.4510947

0037

000613

Quantify Calibration Report

Page 1

Study No.: L2178, Set No.: 040304A, Ext. Date: 04/03/04, Analyst: K. Risha

Calibration: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\CurveDB\040304A Filter Paper

Last modified: Mon Apr 05 06:50:41 2004

Printed: Mon Apr 05 07:35:09 2004

04/05/04

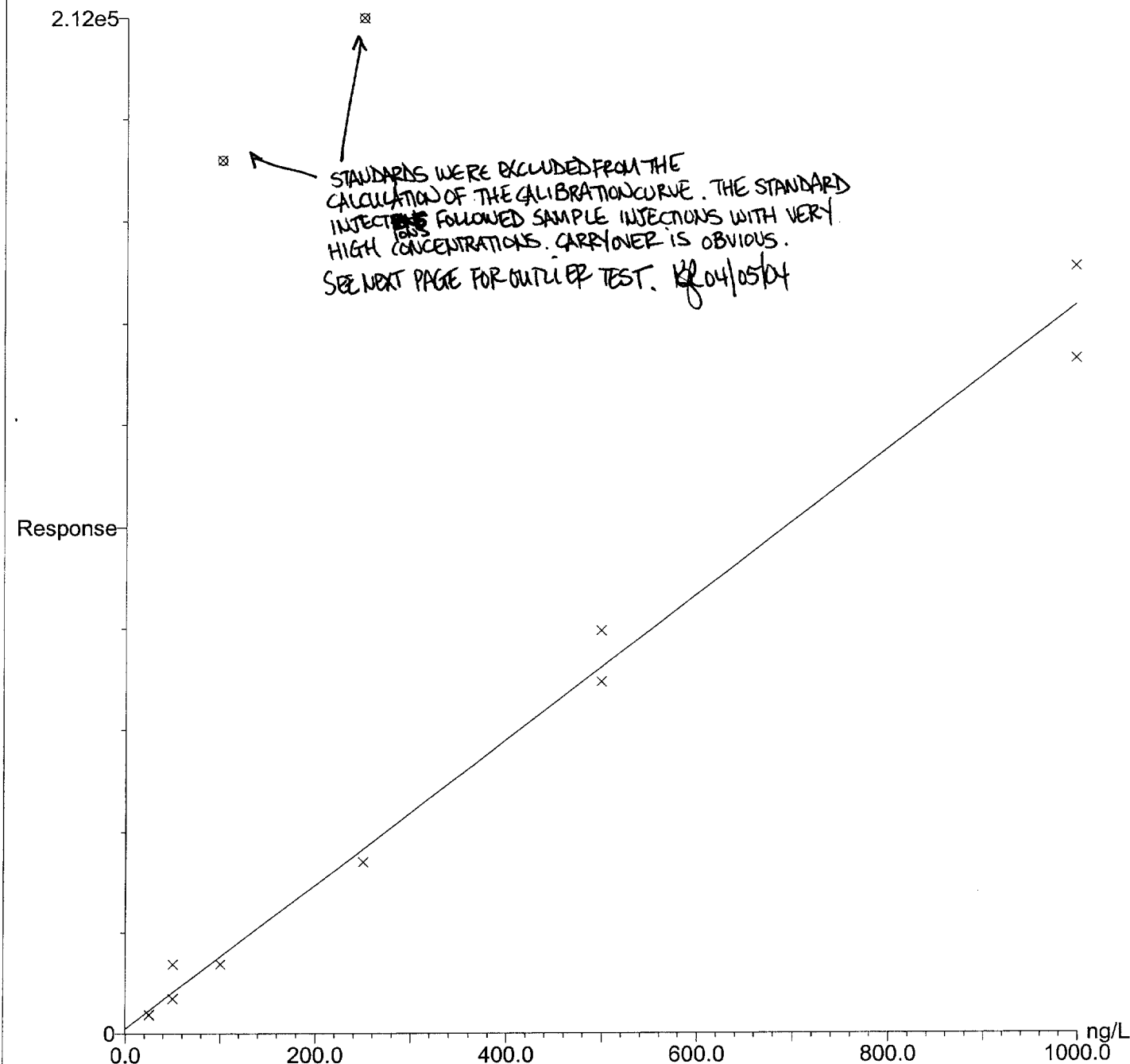
Compound 1 name: PFOA

Coefficient of Determination: 0.990013

Calibration curve: $151.071 * x + 1012.08$

Response type: External Std, Area

Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Huge Error Test for Outliers¹

Protocol No.: NA
Exygen study no.: L2178
Compound: PFOA

Extraction Date: 04/03/04
Analysis Date: 04/04/04
Matrix: Water

Approach: Omitting the suspect point, the data are plotted and a "best fitting" line is determined (Masslynx was used to calculate a linear curve and equation for this data). The average residuals from the fitted line are calculated and compared with the residual for the suspect point according to the following equation:

$$M = [\text{suspect} - \text{average}] / \text{average}$$

If $M > 4.0$, the point is considered an outlier and may be rejected.

- Notes:
1. Brackets indicate absolute value.
 2. The suspect point is indicated below in bold font.

4/8/04/05/04

c*	predicted x**	x	residuals (x - predicted x)	[residuals]
25	4788.855	3856	-932.855	932.855
50	8565.630	7233	-1332.630	1332.630
100	16119.180	14458	-1661.180	1661.180
250	38779.830	36094	-2685.830	2685.830
500	76547.580	73515	-3032.580	3032.580
1000	152083.080	140882	-11201.080	11201.080
25	4788.855	3960	-828.855	828.855
50	8565.630	14481	5915.370	5915.370
100	16119.180	182149	166029.820	166029.820
250	38779.830	211881	173101.170	173101.170
500	76547.580	84251	7703.420	7703.420
1000	152083.080	160139	8055.920	8055.920

average: 4334.972

M (100): 37.3

M (250): 38.9

¹ from Statistical Techniques for Data Analysis

* c = concentration of standard (ng/L)

** calculated from the following equation:

response =

$$(151.071 \times (c)^*) + 1012.08$$

000615

0039

Quantify Sample Report

Page 1

Study No.: L2178, Set No.: 040304A, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Initials

Date

Run# 040304A-1001 To 040304A-1050

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1001

Text:

1: PFOA

XC032304-0, 0 ng/L standard

04-Apr-2004 08:19:43

LC/MS/MS #7

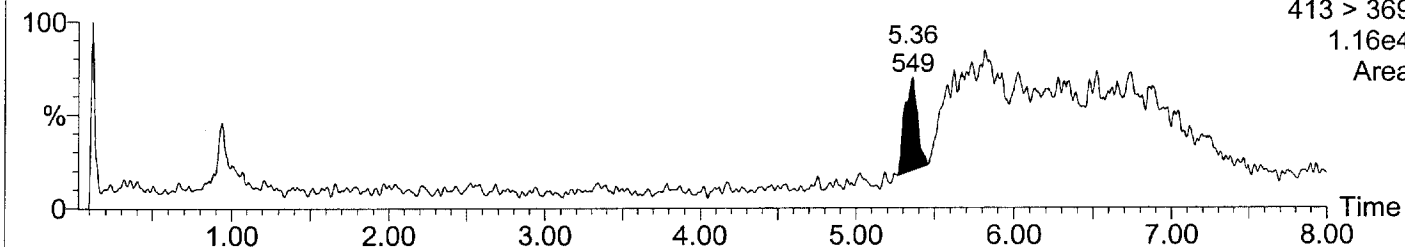
040304A-1001 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

1.16e4

Area



Quantify Sample Report

Page 2

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1002

Text:

1: PFOA

XC032304-1, 25 ng/L standard

04-Apr-2004 08:36:21

LC/MS/MS #7

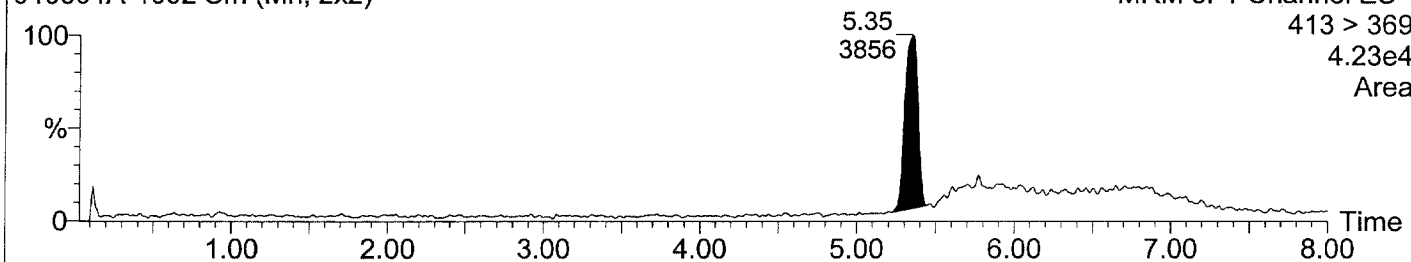
040304A-1002 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

4.23e4

Area



Quantify Sample Report

Page 3

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1003

Text:

1: PFOA

XC032304-2, 50 ng/L standard

04-Apr-2004 08:53:02

LC/MS/MS #7

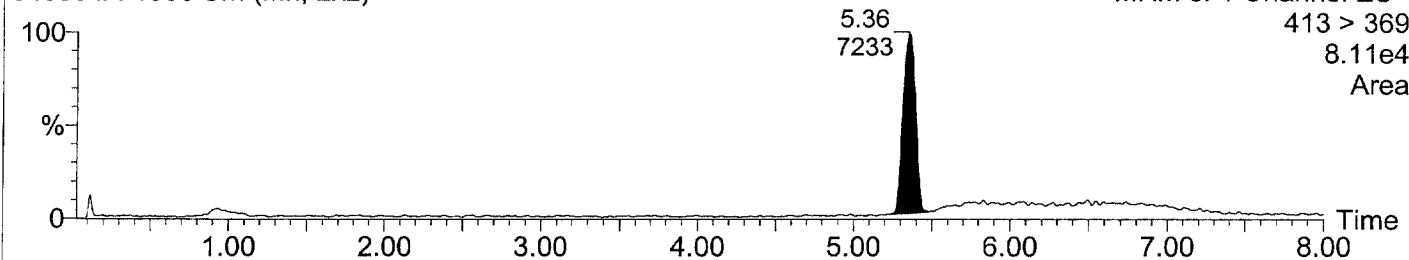
040304A-1003 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

8.11e4

Area



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper
Last modified: Mon Apr 05 06:48:24 2004
Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA
Last modified: Tue Mar 23 10:54:32 2004
Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1004

Text:

1: PFOA

XC032304-3, 100 ng/L standard

04-Apr-2004 09:09:44

LC/MS/MS #7

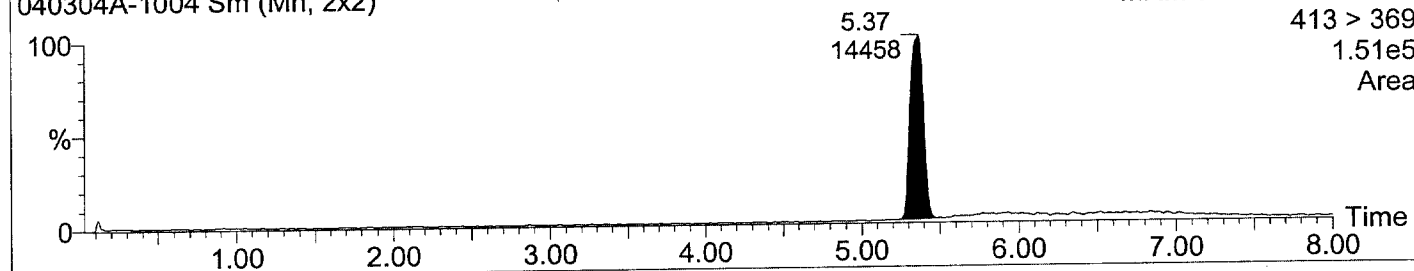
MRM of 1 Channel ES-

413 > 369

1.51e5

Area

040304A-1004 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1005

Text:

1: PFOA

XC032304-4, 250 ng/L standard

04-Apr-2004 09:26:25

LC/MS/MS #7

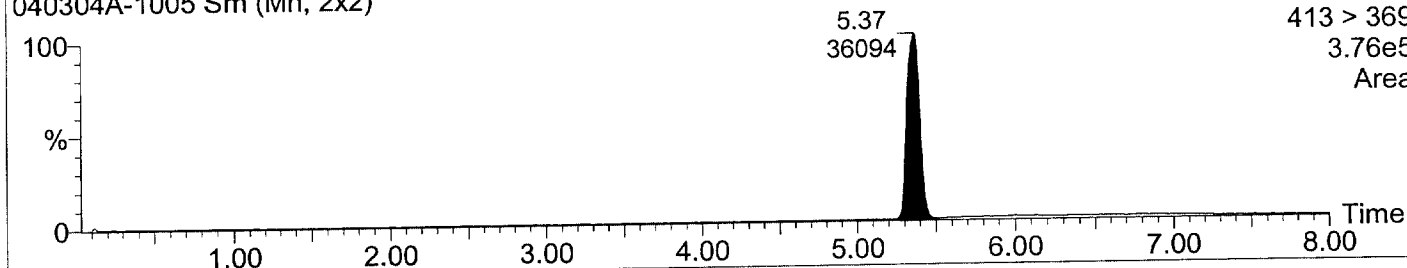
MRM of 1 Channel ES-

413 > 369

3.76e5

Area

040304A-1005 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1006

Text:

1: PFOA

XC032304-5, 500 ng/L standard

04-Apr-2004 09:43:08

LC/MS/MS #7

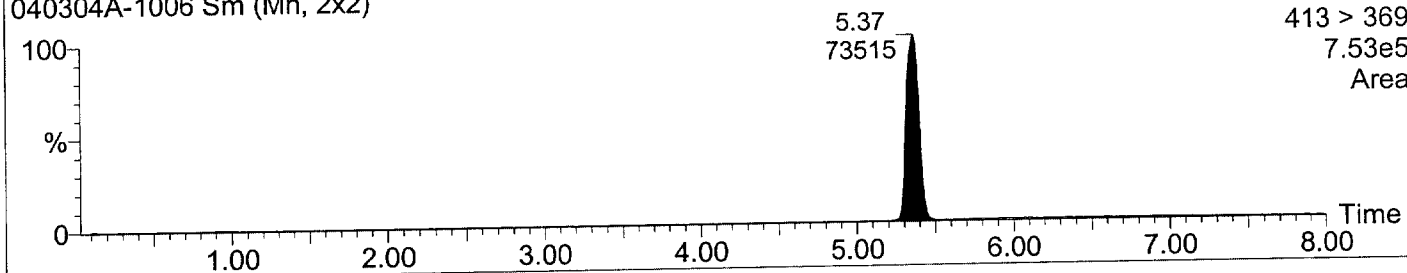
MRM of 1 Channel ES-

413 > 369

7.53e5

Area

040304A-1006 Sm (Mn, 2x2)



Quantify Sample Report

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1007

Text:

1: PFOA

XC032304-6, 1000 ng/L standard

04-Apr-2004 09:59:46

LC/MS/MS #7

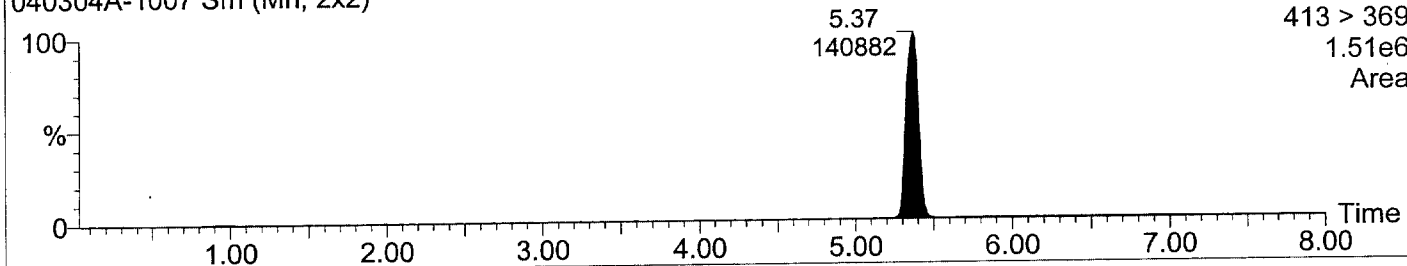
MRM of 1 Channel ES-

413 > 369

1.51e6

Area

040304A-1007 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1008

Text:

1: PFOA

XC032304-7, 250 ng/L check standard

04-Apr-2004 10:16:37

LC/MS/MS #7

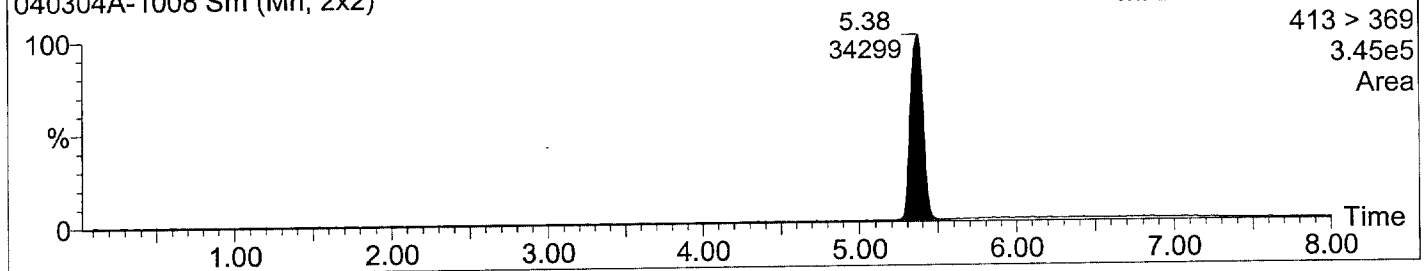
MRM of 1 Channel ES-

413 > 369

3.45e5

Area

040304A-1008 Sm (Mn, 2x2)



Quantify Sample Report

Page 9

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper
Last modified: Mon Apr 05 06:48:24 2004
Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA
Last modified: Tue Mar 23 10:54:32 2004
Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1009
Text:

1: PFOA

Methanol Wash

04-Apr-2004 10:33:20

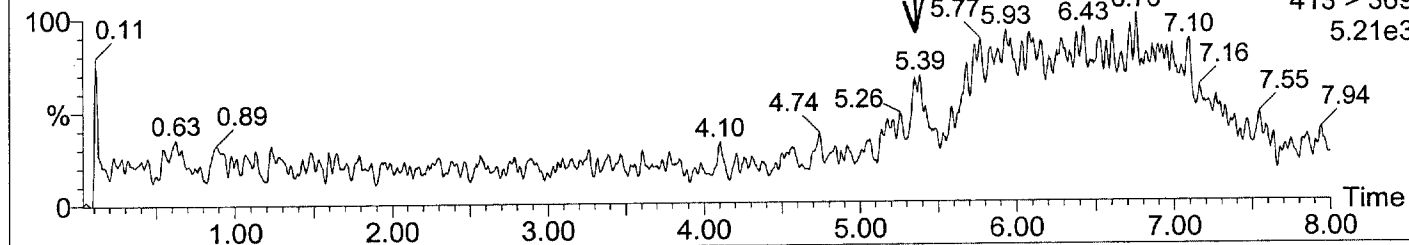
LC/MS/MS #7

040304A-1009 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

5.21e3



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext.Date: 04/03/04, Analyst: K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1010

Text:

1: PFOA

Slotted Filter Paper Control

04-Apr-2004 10:49:58

LC/MS/MS #7

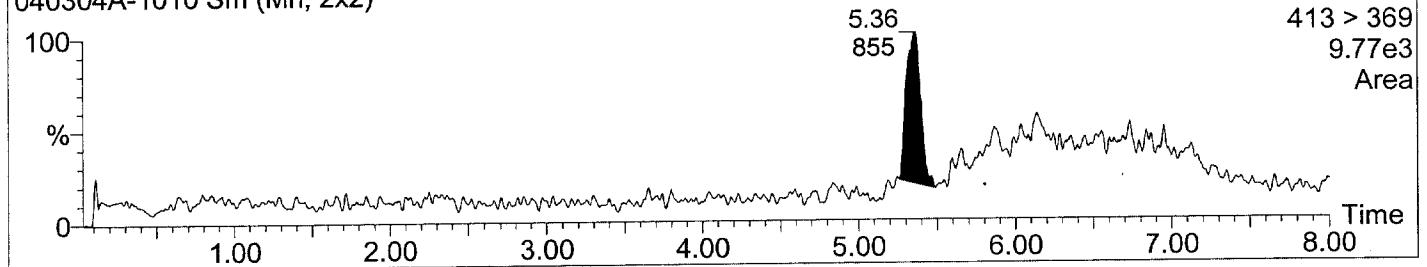
MRM of 1 Channel ES-

413 > 369

9.77e3

Area

040304A-1010 Sm (Mn, 2x2)



Quantify Sample Report

Page 11

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1011

Text:

1: PFOA

Whatman 41 Filter Paper Control

04-Apr-2004 11:06:38

LC/MS/MS #7

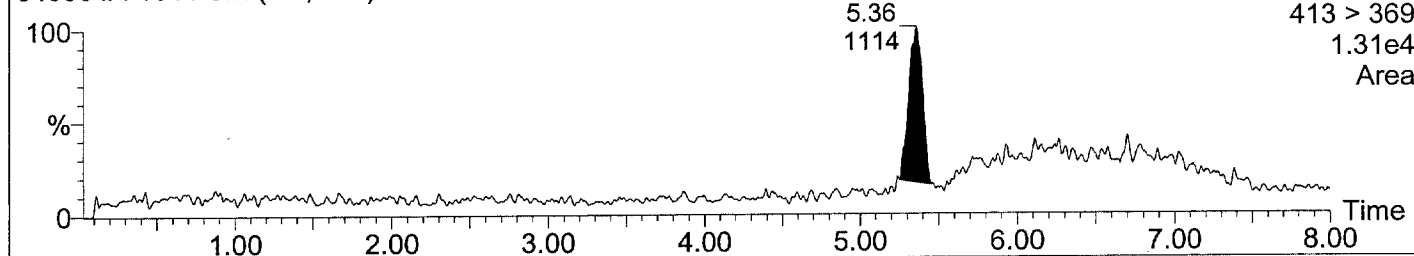
MRM of 1 Channel ES-

413 > 369

1.31e4

Area

040304A-1011 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1012

Text:

1: PFOA

Slotted Filter Paper Spk A, 50 ng/L

04-Apr-2004 11:23:20

LC/MS/MS #7

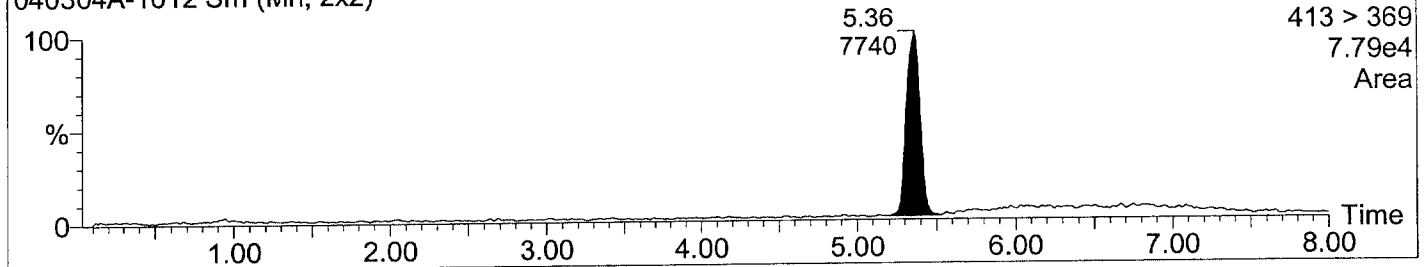
MRM of 1 Channel ES-

413 > 369

7.79e4

Area

040304A-1012 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1013

Text:

1: PFOA

Whatman 41 Filter Paper Spk B, 50 ng/L

04-Apr-2004 11:39:58

LC/MS/MS #7

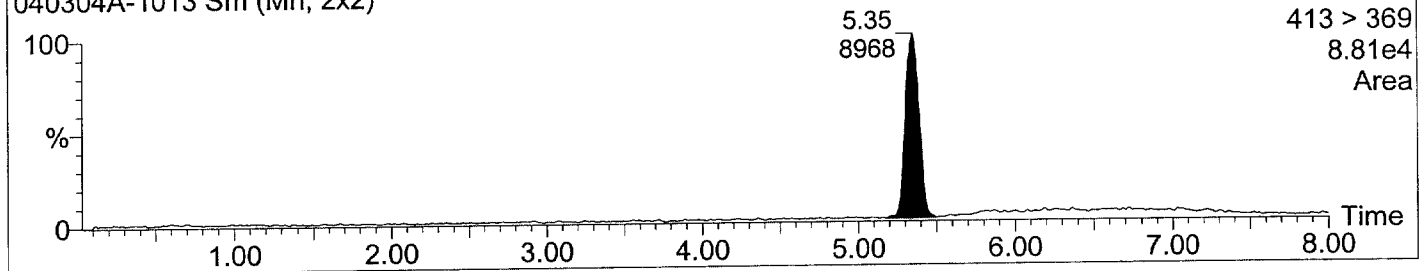
MRM of 1 Channel ES-

413 > 369

8.81e4

Area

040304A-1013 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1014

Text:

1: PFOA

Slotted Filter Paper Spk C, 500 ng/L

04-Apr-2004 11:56:43

LC/MS/MS #7

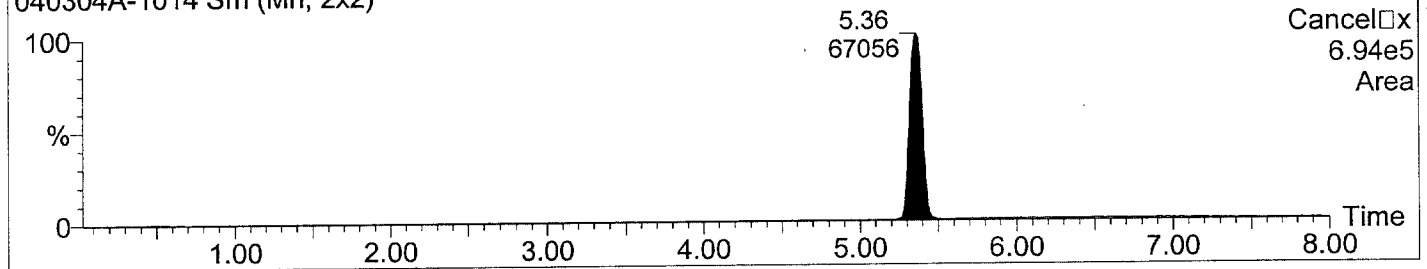
MRM of 1 Channel ES-

Cancel ☐ x

6.94e5

Area

040304A-1014 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1015

Text:

1: PFOA

Whatman 41 Filter Paper Spk D, 500 ng/L

04-Apr-2004 12:13:27

LC/MS/MS #7

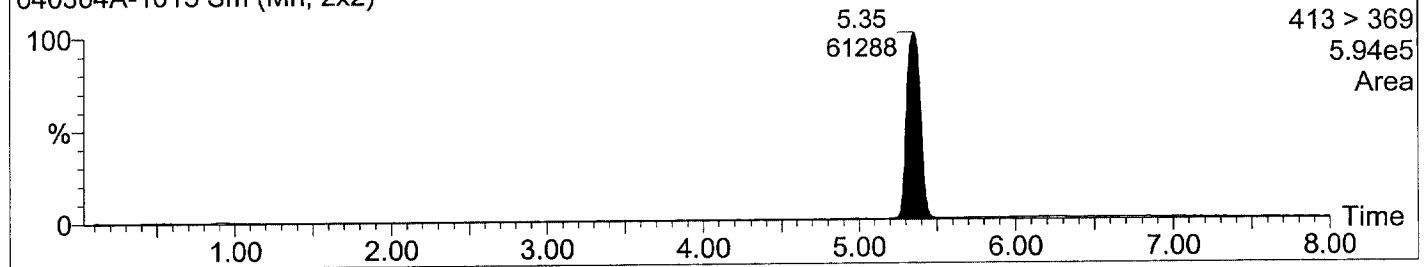
040304A-1015 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

5.94e5

Area



Quantify Sample Report

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1016

Text:

1: PFOA

XC032304-1, 25 ng/L standard

04-Apr-2004 12:30:14

LC/MS/MS #7

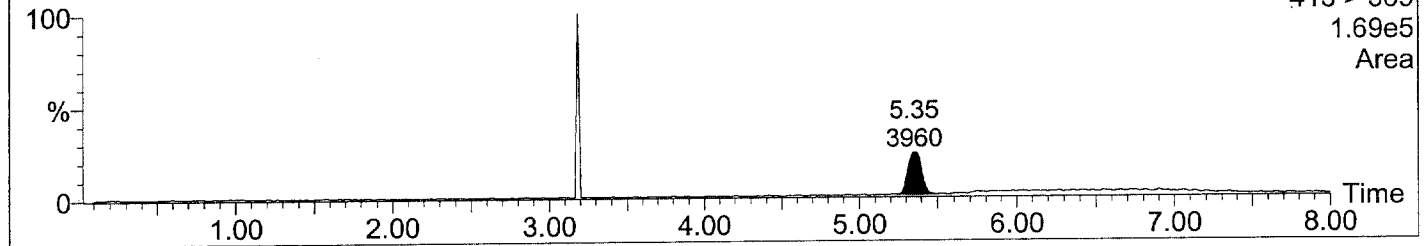
MRM of 1 Channel ES-

413 > 369

1.69e5

Area

Cancel ☐ x is printing ☐ 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext.Date: 04/03/04, Analyst: K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1017

Text:

1: PFOA

L2178-1

04-Apr-2004 12:46:52

LC/MS/MS #7

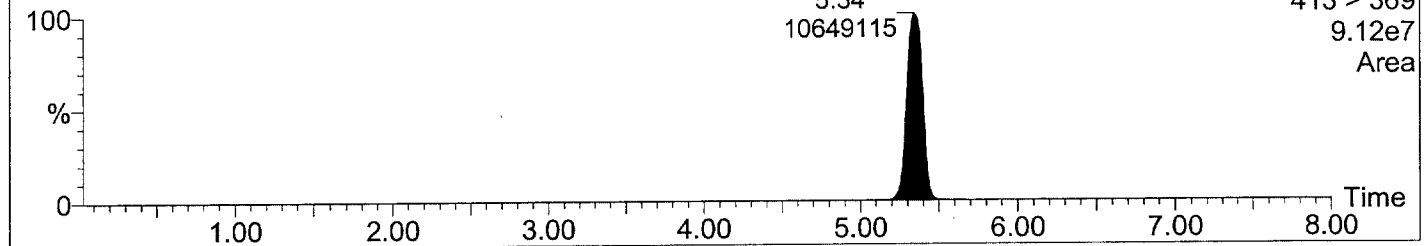
040304A-1017 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

9.12e7

Area



Quantify Sample Report

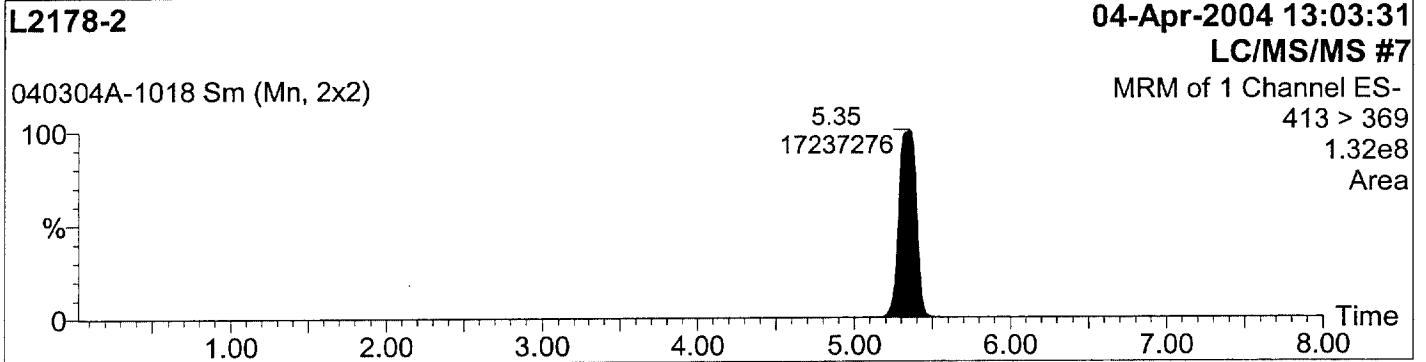
Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper
Last modified: Mon Apr 05 06:48:24 2004
Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA
Last modified: Tue Mar 23 10:54:32 2004
Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1018
Text:

1: PFOA



Quantify Sample Report

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

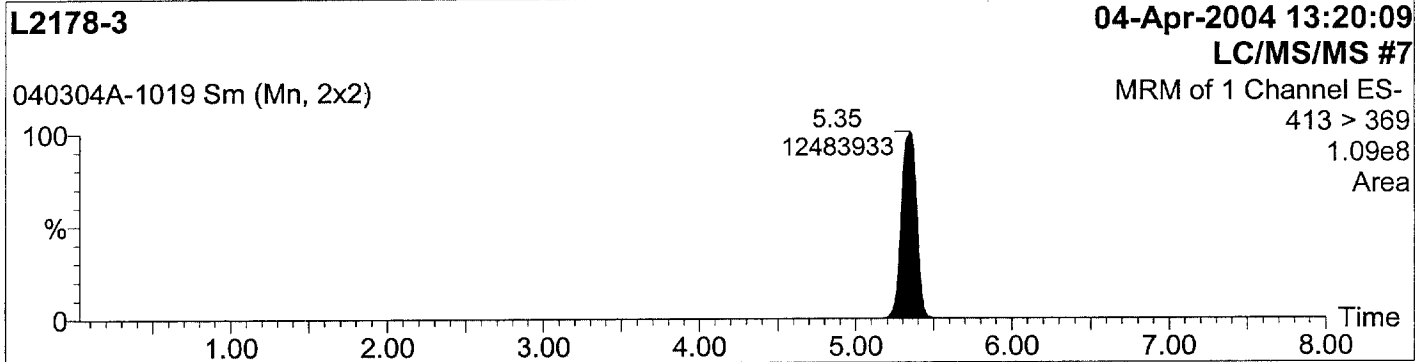
Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1019

Text:

1: PFOA



Quantify Sample Report

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

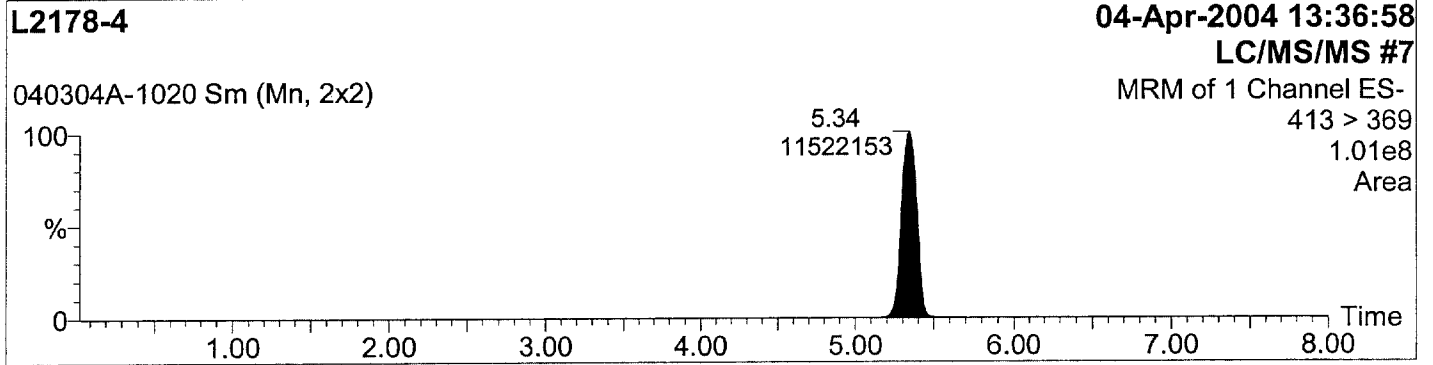
Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1020

Text:

1: PFOA



Quantify Sample Report

Page 21

Study No.: L2178, Set No.: 040304A, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

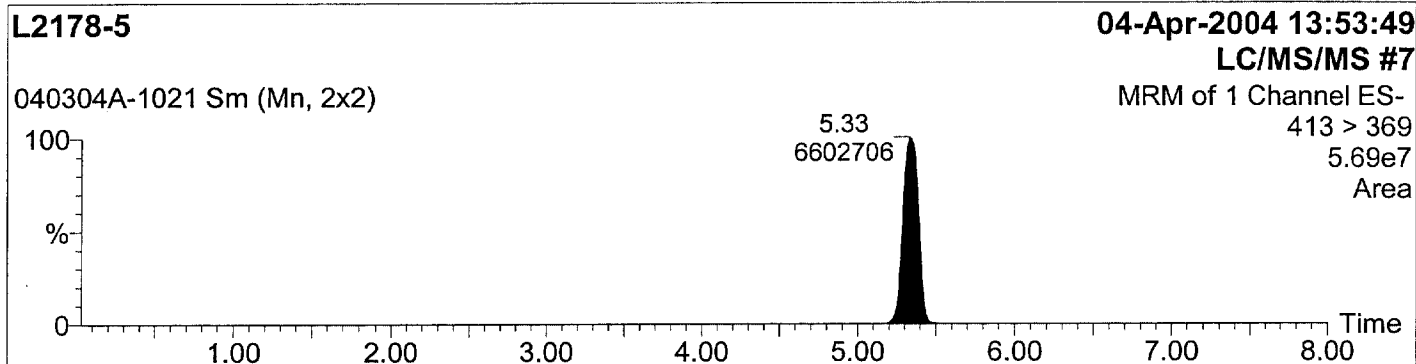
Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1021

Text:

1: PFOA



Quantify Sample Report

Page 22

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1022

Text:

1: PFOA

L2178-6

04-Apr-2004 14:10:30

LC/MS/MS #7

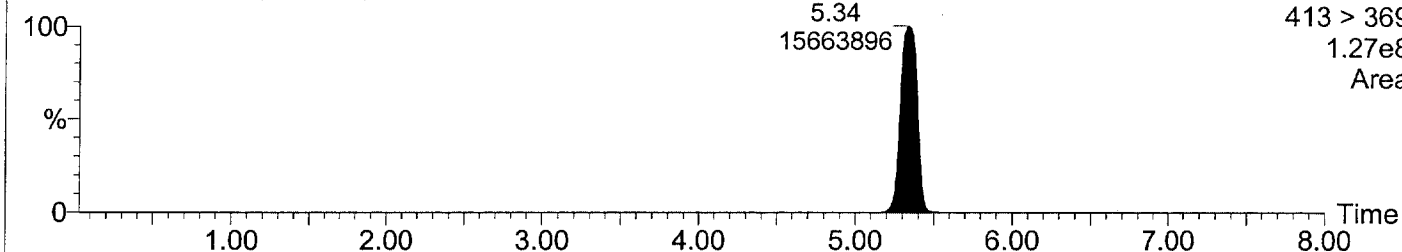
040304A-1022 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

1.27e8

Area



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext.Date: 04/03/04, Analyst: K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1023

Text:

1: PFOA

L2178-7

04-Apr-2004 14:27:19

LC/MS/MS #7

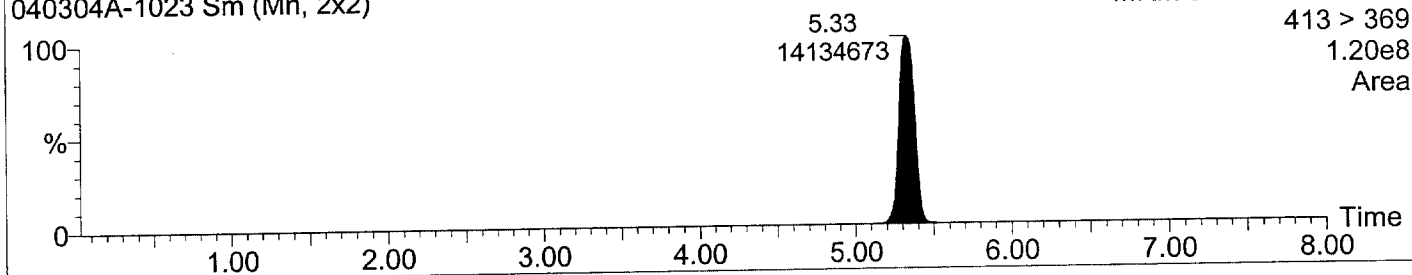
MRM of 1 Channel ES-

413 > 369

1.20e8

Area

040304A-1023 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1024

Text:

1: PFOA

XC032304-2, 50 ng/L standard

04-Apr-2004 14:43:59

LC/MS/MS #7

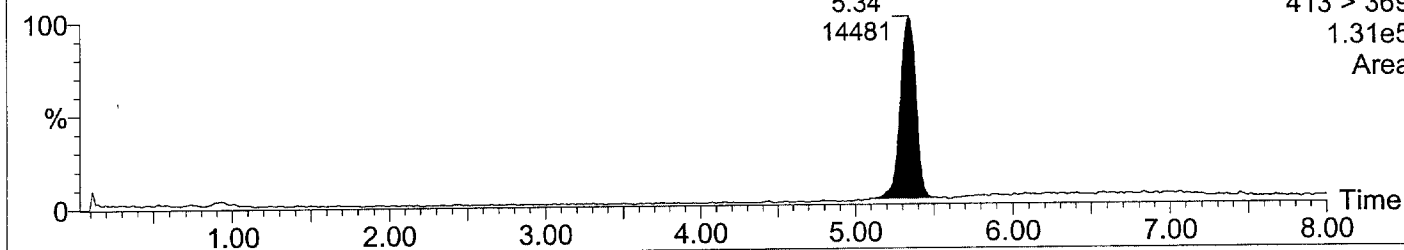
MRM of 1 Channel ES-

413 > 369

1.31e5

Area

040304A-1024 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1025

Text:

1: PFOA

L2178-8

04-Apr-2004 15:00:44

LC/MS/MS #7

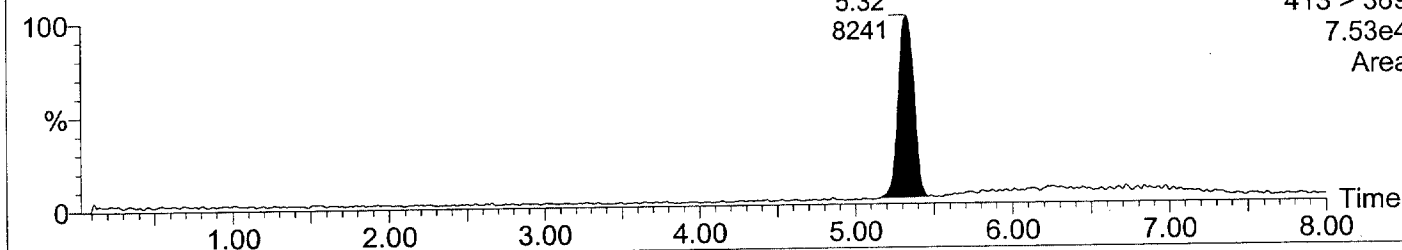
MRM of 1 Channel ES-

413 > 369

7.53e4

Area

040304A-1025 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext.Date: 04/03/04, Analyst: K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1026

Text:

1: PFOA

L2178-9

04-Apr-2004 15:17:26

LC/MS/MS #7

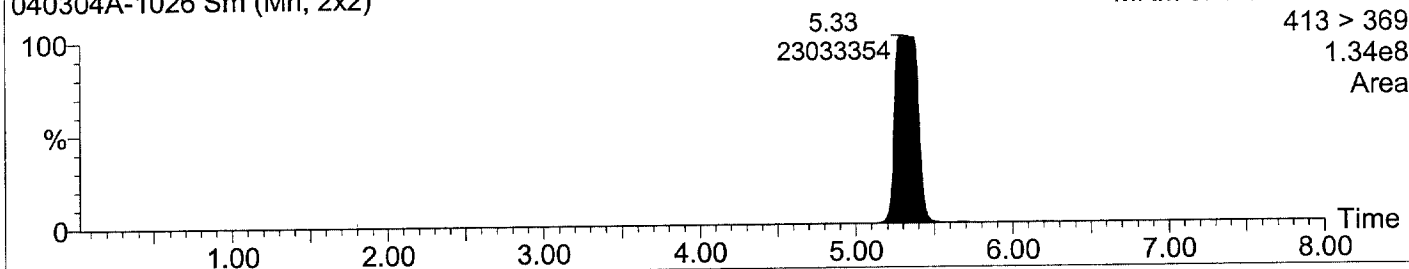
MRM of 1 Channel ES-

413 > 369

1.34e8

Area

040304A-1026 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1027

Text:

1: PFOA

L2178-10

04-Apr-2004 15:34:10

LC/MS/MS #7

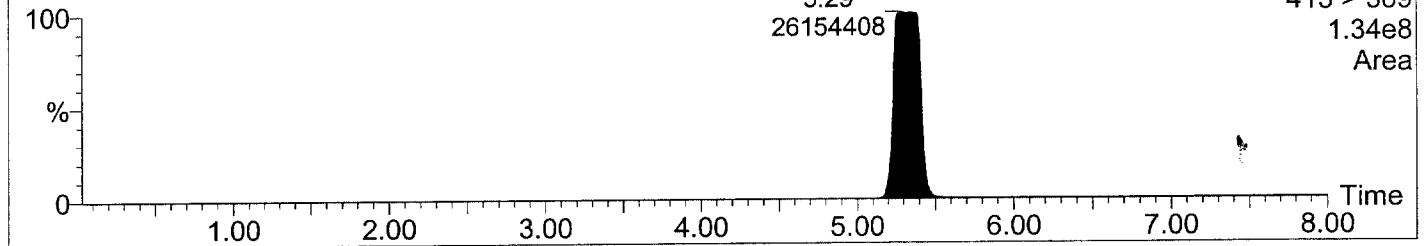
040304A-1027 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

1.34e8

Area



Quantify Sample Report

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1028

Text:

1: PFOA

L2178-11

04-Apr-2004 15:50:54

LC/MS/MS #7

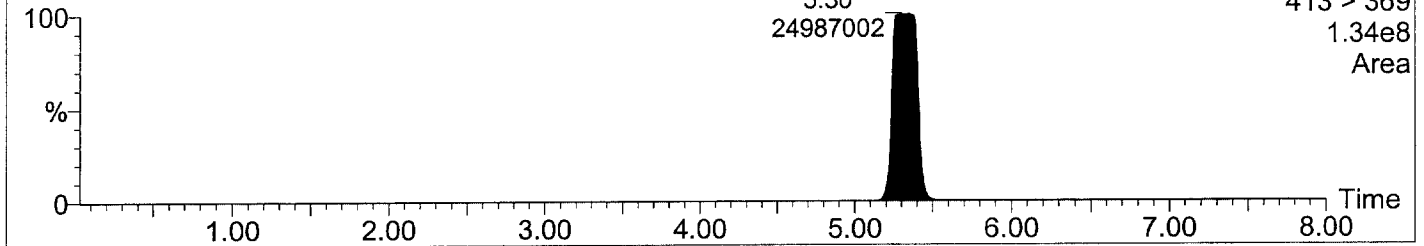
040304A-1028 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

1.34e8

Area



Quantify Sample Report

Page 29

Study No.: L2178, Set No.: 040304A, Ext.Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1029

Text:

1: PFOA

L2178-12

04-Apr-2004 16:07:44

LC/MS/MS #7

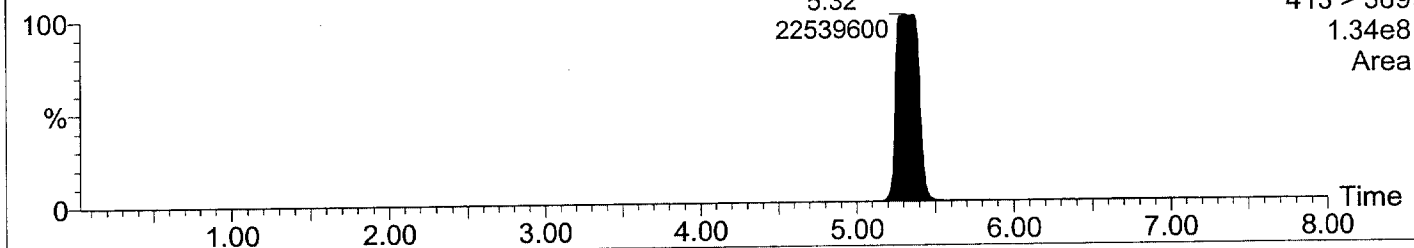
MRM of 1 Channel ES-

413 > 369

1.34e8

Area

040304A-1029 Sm (Mn, 2x2)



Quantify Sample Report

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

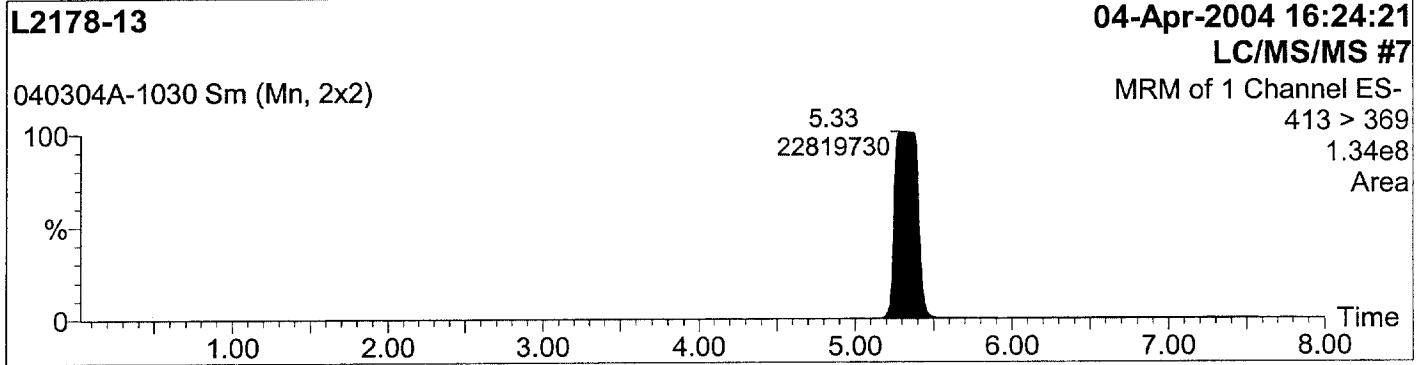
Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1030

Text:

1: PFOA



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext.Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1031

Text:

1: PFOA

L2178-14

04-Apr-2004 16:41:08

LC/MS/MS #7

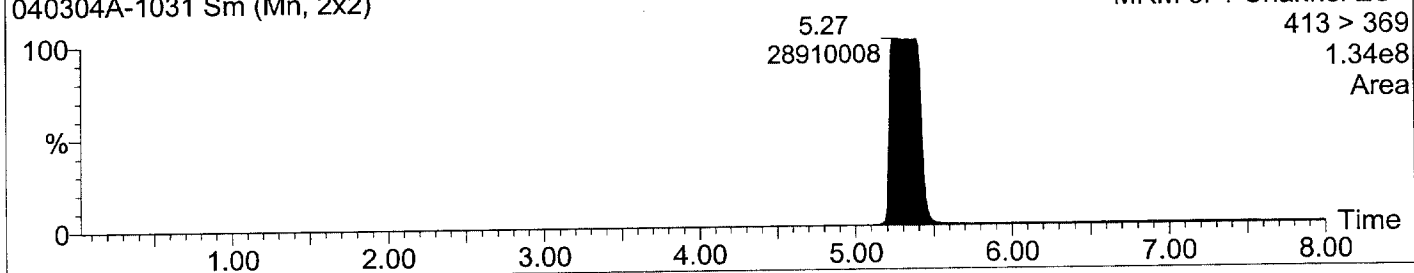
MRM of 1 Channel ES-

413 > 369

1.34e8

Area

040304A-1031 Sm (Mn, 2x2)



Quantify Sample Report

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1032

Text:

1: PFOA

XC032304-3, 100 ng/L standard

04-Apr-2004 16:57:53

LC/MS/MS #7

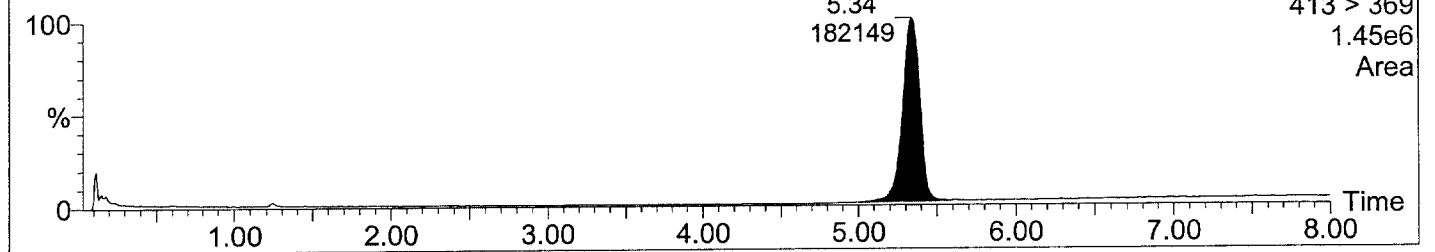
MRM of 1 Channel ES-

413 > 369

1.45e6

Area

040304A-1032 Sm (Mn, 2x2)



Quantify Sample Report

Page 33

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

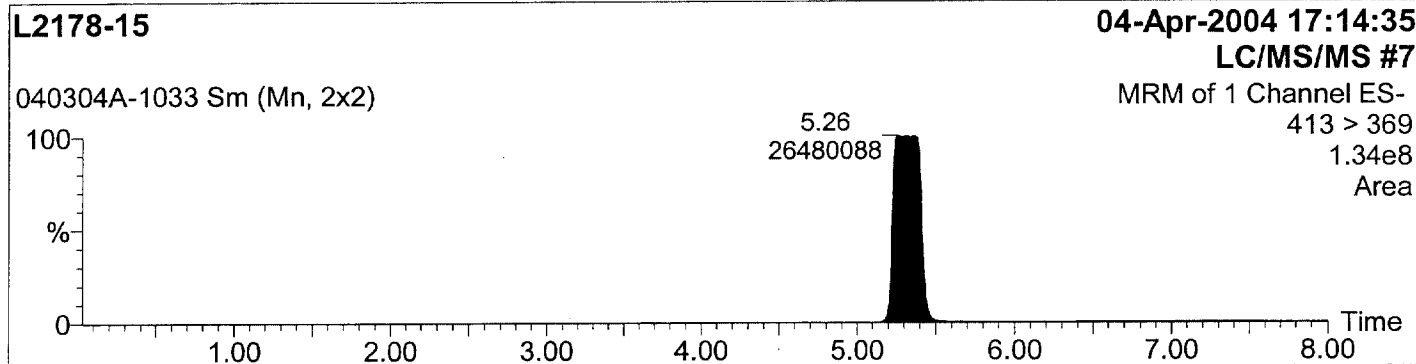
Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1033

Text:

1: PFOA



Quantify Sample Report

Page 34

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1034

Text:

1: PFOA

L2178-16

04-Apr-2004 17:31:14

LC/MS/MS #7

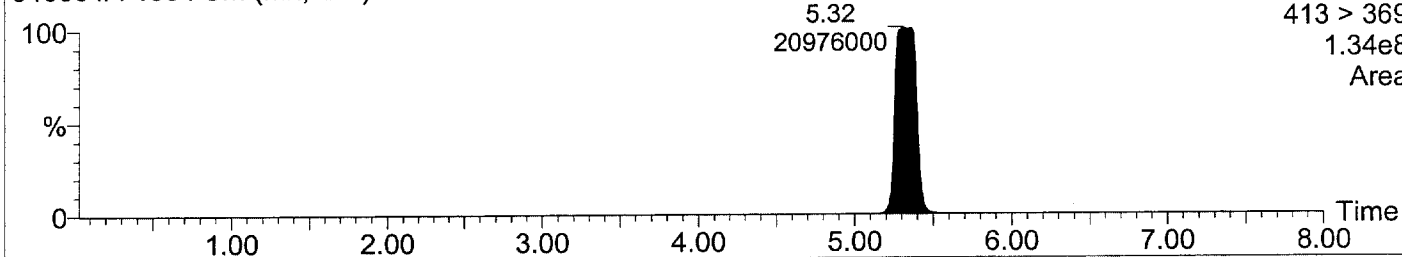
MRM of 1 Channel ES-

413 > 369

1.34e8

Area

040304A-1034 Sm (Mn, 2x2)



Quantify Sample Report

Page 35

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

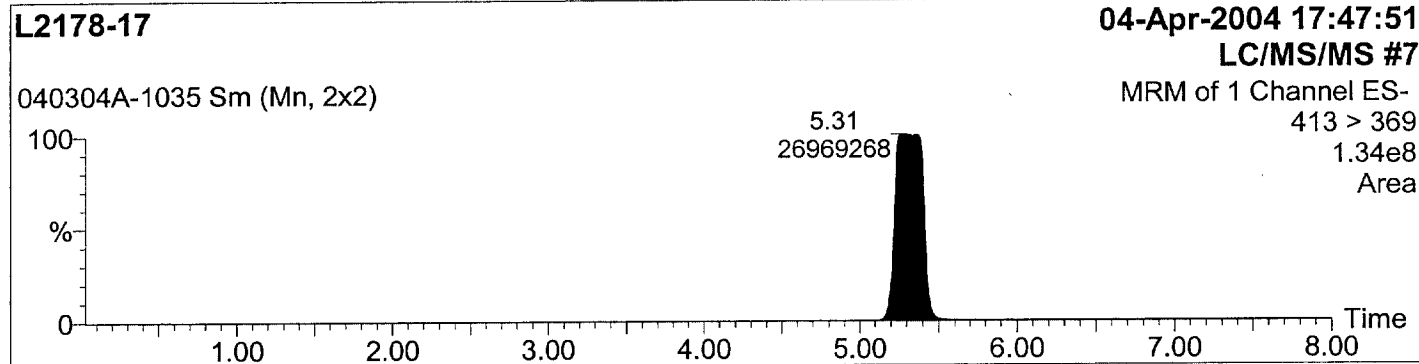
Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1035

Text:

1: PFOA



Quantify Sample Report

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1036

Text:

1: PFOA

L2178-18

04-Apr-2004 18:04:27

LC/MS/MS #7

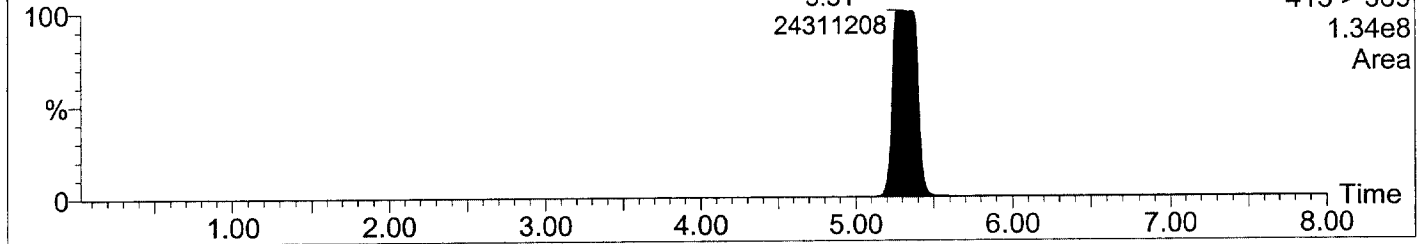
040304A-1036 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

1.34e8

Area



Quantify Sample Report

Page 37

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1037

Text:

1: PFOA

L2178-19

04-Apr-2004 18:21:08

LC/MS/MS #7

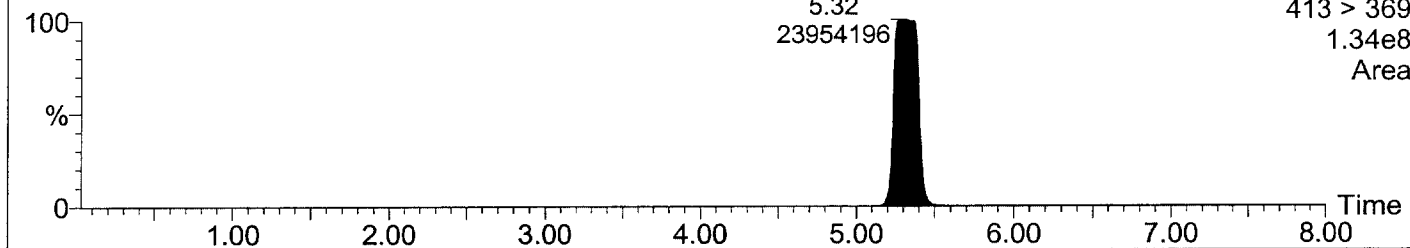
040304A-1037 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

1.34e8

Area



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1038

Text:

1: PFOA

L2178-20

04-Apr-2004 18:37:50

LC/MS/MS #7

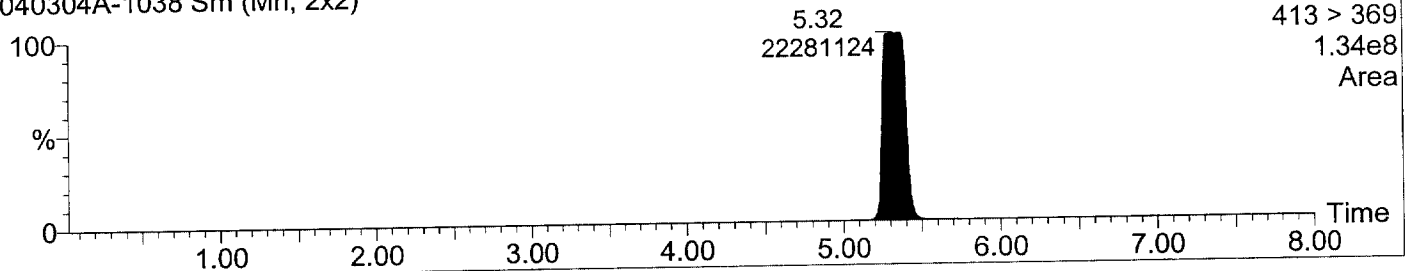
MRM of 1 Channel ES-

413 > 369

1.34e8

Area

040304A-1038 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1039

Text:

1: PFOA

L2178-21

04-Apr-2004 18:54:43

LC/MS/MS #7

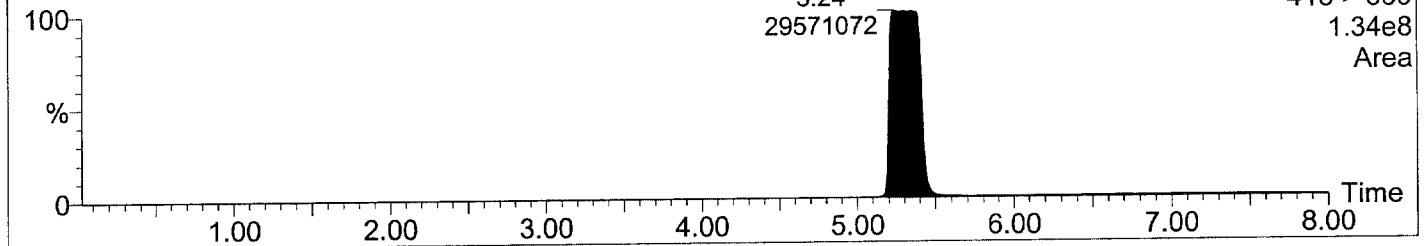
040304A-1039 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

1.34e8

Area



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext.Date: 04/03/04, Analyst: K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1040

Text:

1: PFOA

XC032304-4, 250 ng/L standard

04-Apr-2004 19:11:28

LC/MS/MS #7

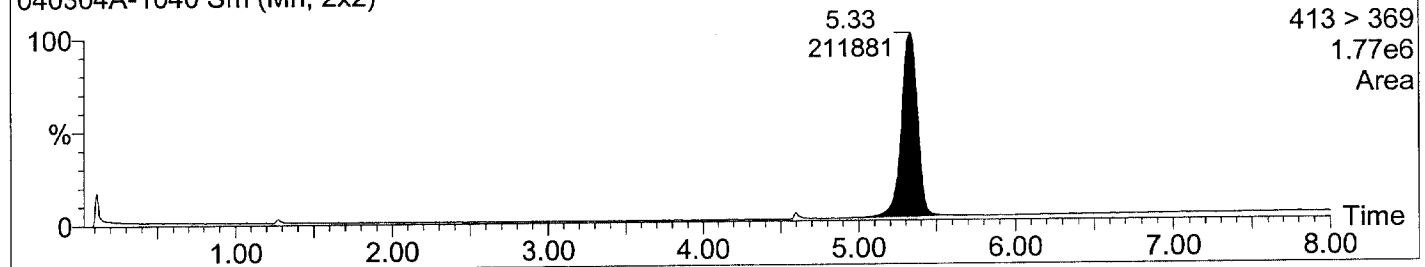
040304A-1040 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

1.77e6

Area



Quantify Sample Report

Page 41

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1041

Text:

1: PFOA

L2178-22

04-Apr-2004 19:28:16

LC/MS/MS #7

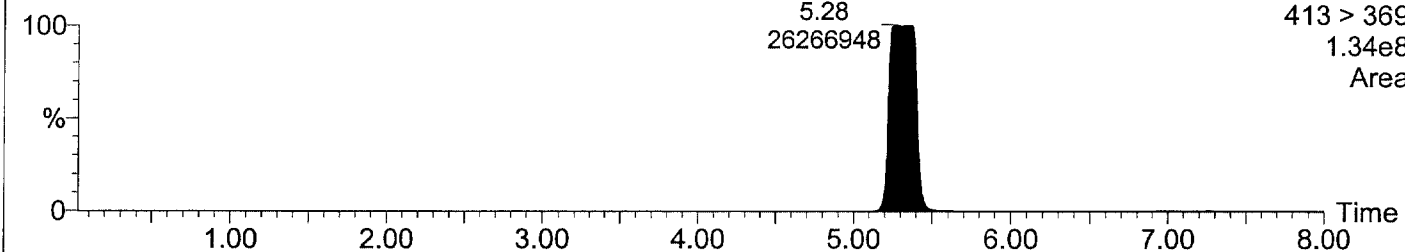
040304A-1041 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

1.34e8

Area



Quantify Sample Report

Study No.: L2178, Set No.: 040304A, Ext.Date: 04/03/04, Analyst: K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1042

Text:

1: PFOA

L2178-23

04-Apr-2004 19:44:59

LC/MS/MS #7

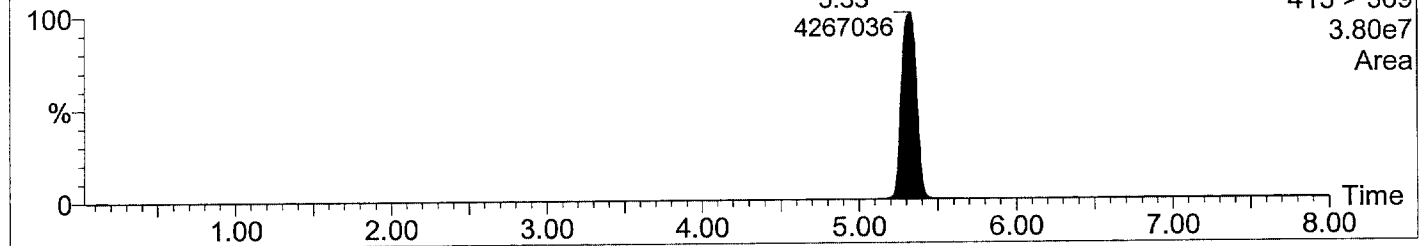
040304A-1042 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

3.80e7

Area



Quantify Sample Report

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

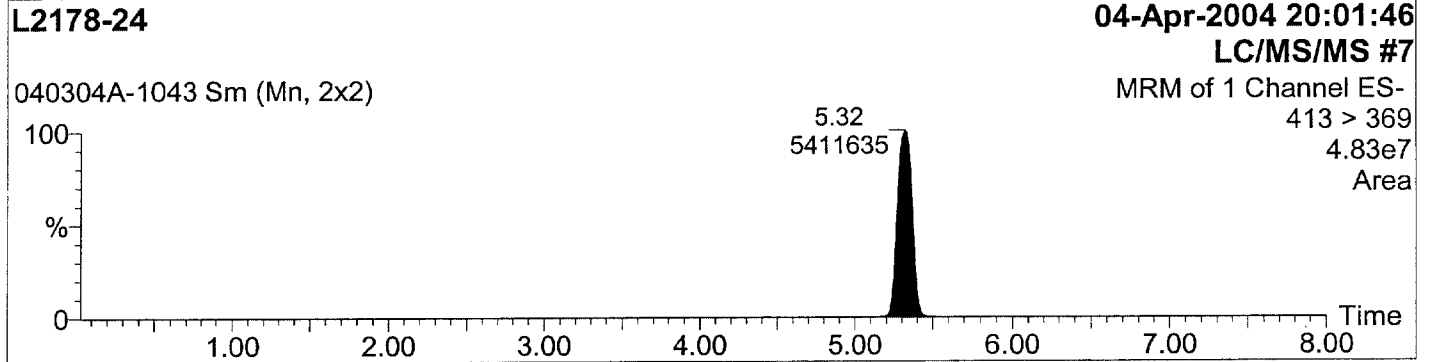
Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1043

Text:

1: PFOA



Quantify Sample Report

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

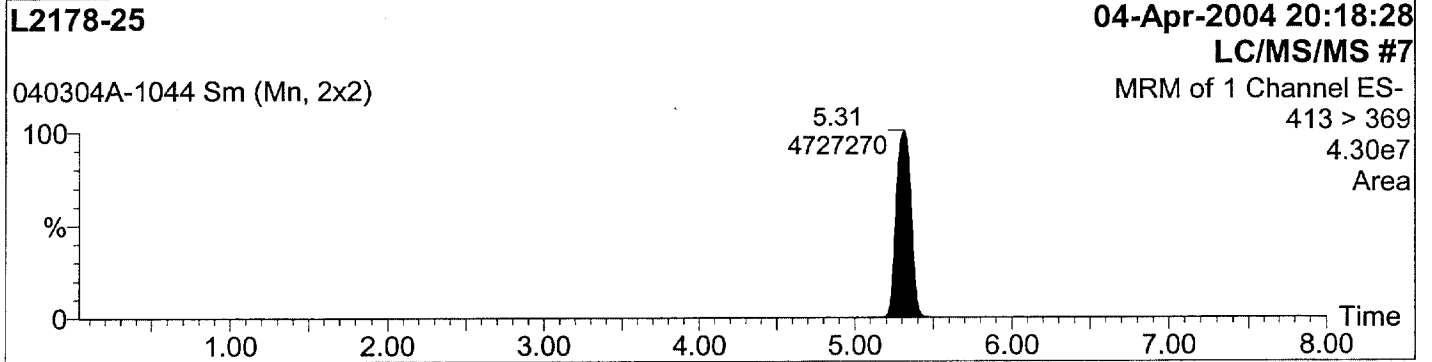
Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1044

Text:

1: PFOA



Quantify Sample Report

Page 45

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

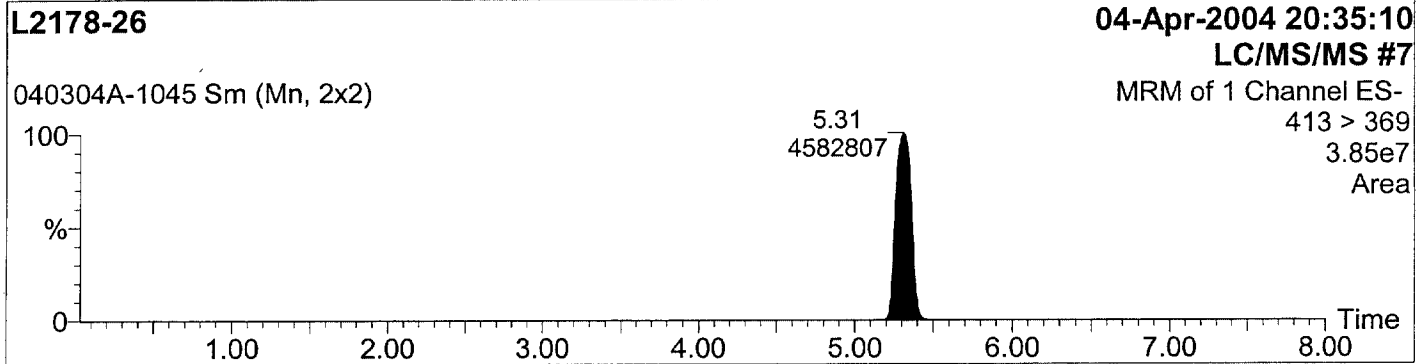
Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1045

Text:

1: PFOA



Quantify Sample Report

Page 46

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1046

Text:

1: PFOA

L2178-27

04-Apr-2004 20:51:47

LC/MS/MS #7

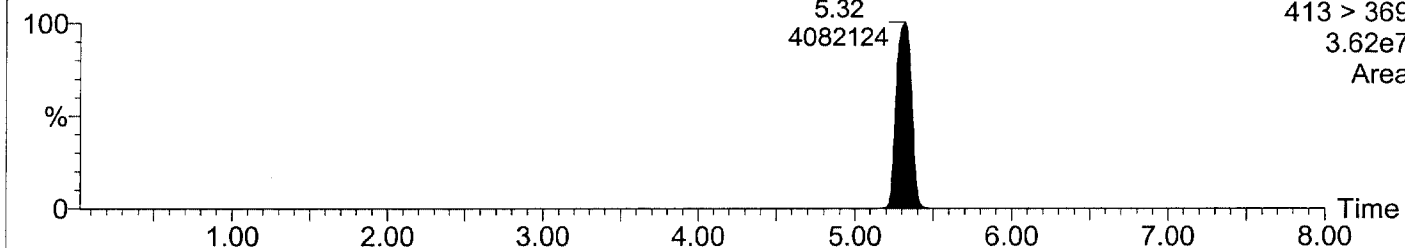
040304A-1046 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

3.62e7

Area



Quantify Sample Report

Page 47

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1047

Text:

1: PFOA

L2178-28

04-Apr-2004 21:08:25

LC/MS/MS #7

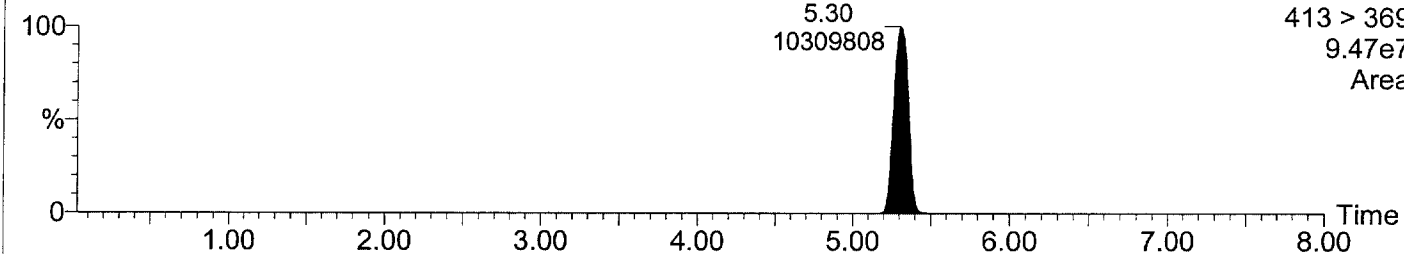
040304A-1047 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

9.47e7

Area



Quantify Sample Report

Page 48

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

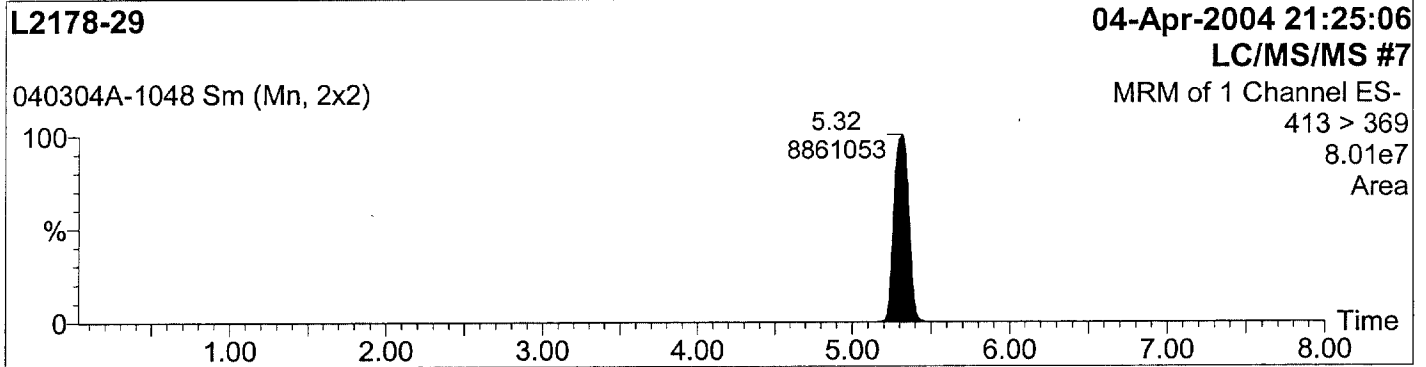
Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1048

Text:

1: PFOA



5087

Quantify Sample Report

Page 49

Study No.:L2178, Set No.:040304A, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1049

Text:

1: PFOA

XC032304-5, 500 ng/L standard

04-Apr-2004 21:41:49

LC/MS/MS #7

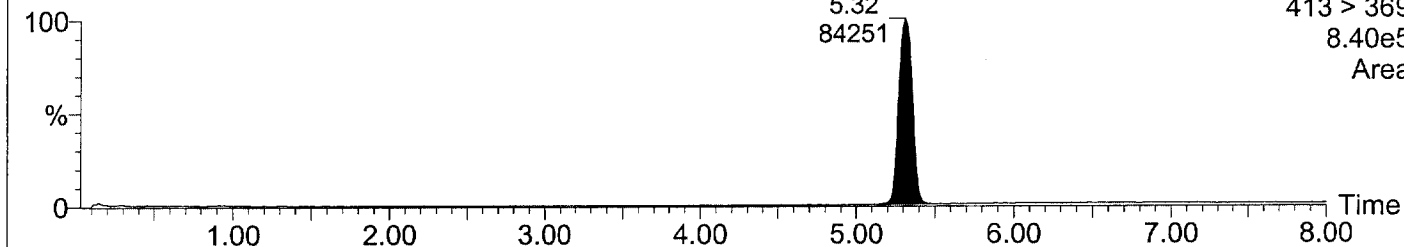
040304A-1049 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

8.40e5

Area



Quantify Sample Report

Page 50

Study No.: L2178, Set No.: 040304A, Ext.Date: 04/03/04, Analyst: K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304A Filter paper

Last modified: Mon Apr 05 06:48:24 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Mon Apr 05 07:35:10 2004

Name: 040304A-1050

Text:

1: PFOA

XC032304-6, 1000 ng/L standard

04-Apr-2004 21:58:32

LC/MS/MS #7

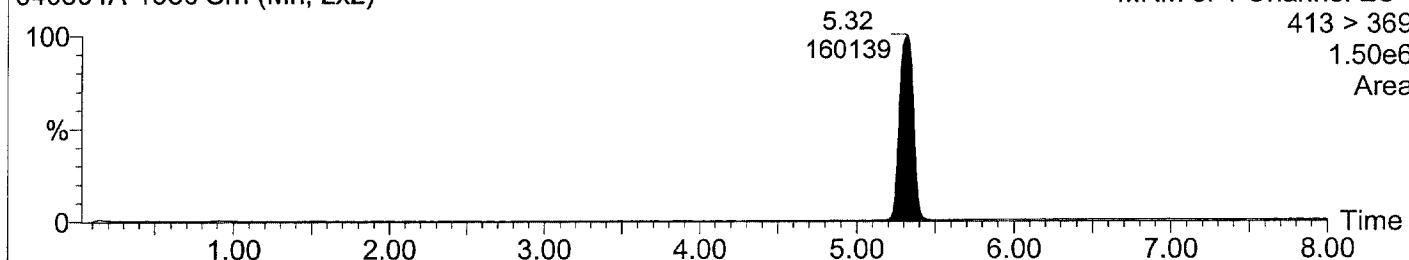
040304A-1050 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

1.50e6

Area



RAW DATA REPORT

Sponsor Study No: NA
 Oxygen Study No: L2178
 Analyte: PFOA
 Ions Monitored: 413 -> 369
 Site: Washington Works

Limit of Quantitation: 50 ng/L
 Injection Volume: 15 µL
 Matrix: Water
 Sample Volume: 40.0 mL
 Final Volume: 5.0 mL

Set No: 040304AR
 Analyst: Karen Risha
 Instrument Type: LC/MS/MS Unit # 7
 Extraction Date: 04/03/04
 Analyzed on: 04/06-07/04

Oxygen ID	Sponsor ID	Sample Code	Run No.	Std Conc. (ng/L)	Dilution Factor	Peak Area	PFOA Found (ng/L)	PFOA Found (ng/filter paper)	PFOA Found (µg/filter paper)	Amount PFOA Added (ng/L)	Recovery (%)
XC040504-0	-	C	040304AR-301	0	-	988	-	-	-	-	-
XC040504-1	-	CS	040304AR-302	25	-	4634	-	-	-	-	-
XC040504-2	-	CS	040304AR-303	50	-	8064	-	-	-	-	-
XC040504-3	-	CS	040304AR-304	100	-	14633	-	-	-	-	-
XC040504-4	-	CS	040304AR-305	250	-	34776	-	-	-	-	-
XC040504-5	-	CS	040304AR-306	500	-	70740	-	-	-	-	-
XC040504-6	-	CS	040304AR-307	1000	-	141547	-	-	-	-	-
XC040504-7	-	CK	040304AR-308	250	-	35140	-	-	-	-	-
L2178-1	WWK-A-E1-S1-1	S	040304AR-309	-	1000	15859	107000	4280	4.28	-	-
L2178-2	WWK-A-E1-S1-2	S	040304AR-310	-	1000	34356	241000	9640	9.64	-	-
L2178-3	WWK-A-E1-S1-3	S	040304AR-311	-	1000	19792	136000	5440	5.44	-	-
L2178-4	WWK-A-E1-S1-4	S	040304AR-312	-	1000	18768	128000	5120	5.12	-	-
L2178-5	WWK-A-E1-S1-5	S	040304AR-313	-	100	131253	94000	3760	3.76	-	-
L2178-6	WWK-A-E1-S1-6A	S	040304AR-314	-	1000	51427	364000	14600	14.6	-	-
L2178-7	WWK-A-E1-S1-6B	S	040304AR-315	-	1000	39519	278000	11100	11.1	-	-
XC040504-1	-	CS	040304AR-316	25	-	4545	-	-	-	-	-
L2178-9	WWK-A-E1-S2-1	S	040304AR-317	-	10000	9011	578000	23100	23.1	-	-
L2178-10	WWK-A-E1-S2-2	S	040304AR-318	-	10000	27288	1900000	76000	76.0	-	-
L2178-11	WWK-A-E1-S2-3	S	040304AR-319	-	10000	17884	1220000	48800	48.8	-	-
L2178-12	WWK-A-E1-S2-4	S	040304AR-320	-	10000	11493	757000	30300	30.3	-	-
L2178-13	WWK-A-E1-S2-5	S	040304AR-321	-	10000	12759	849000	3400	3.40	-	-
L2178-14	WWK-A-E1-S2-6A	S	040304AR-322	-	10000	83768	5970000	239000	239	-	-
L2178-15	WWK-A-E1-S2-6B	S	040304AR-323	-	10000	51240	3630000	145000	145	-	-
XC040504-2	-	CS	040304AR-324	50	-	7864	-	-	-	-	-
XC040504-3	-	CS	040304AR-325	100	-	14478	-	-	-	-	-
L2178-16	WWK-A-E1-S3-1	S	040304AR-326	-	1000	66267	471000	18800	18.8	-	-
L2178-17	WWK-A-E1-S3-2	S	040304AR-327	-	10000	23391	1620000	64800	64.8	-	-
L2178-18	WWK-A-E1-S3-3	S	040304AR-328	-	10000	21372	1470000	58800	58.8	-	-
L2178-19	WWK-A-E1-S3-4	S	040304AR-329	-	10000	13520	904000	36200	36.2	-	-
L2178-20	WWK-A-E1-S3-5	S	040304AR-330	-	10000	13195	880000	35200	35.2	-	-
L2178-21	WWK-A-E1-S3-6A	S	040304AR-331	-	10000	84170	6000000	240000	240	-	-
L2178-22	WWK-A-E1-S3-6B	S	040304AR-332	-	10000	37680	2650000	106000	106	-	-
XC040504-4	-	CS	040304AR-333	250	-	34729	-	-	-	-	-
L2178-23	WWK-A-E1-S5-1	S	040304AR-334	-	100	44851	31600	1260	1.26	-	-
L2178-24	WWK-A-E1-S5-2	S	040304AR-335	-	100	58038	41200	1650	1.65	-	-
L2178-25	WWK-A-E1-S5-3	S	040304AR-336	-	100	49852	35300	1410	1.41	-	-
L2178-26	WWK-A-E1-S5-4	S	040304AR-337	-	100	48332	34200	1370	1.37	-	-
L2178-27	WWK-A-E1-S5-5	S	040304AR-338	-	100	48414	34200	1370	1.37	-	-
L2178-28	WWK-A-E1-S5-6A	S	040304AR-339	-	1000	23876	165000	6600	6.60	-	-
L2178-29	WWK-A-E1-S5-6B	S	040304AR-340	-	1000	17865	122000	4880	4.88	-	-
XC040504-5	-	CS	040304AR-341	500	-	69196	-	-	-	-	-
XC040504-6	-	CS	040304AR-342	1000	-	140345	-	-	-	-	-

PFOA Found (ng/L) = (peak area - intercept) / slope x DF
 Recovery (%) = $\frac{\text{PFOA found (ng/L)} - \text{PFOA found in control (ng/L)}}{\text{amount PFOA added (ng/L)}} \times 100$

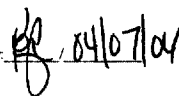
Standard Curve: Linear (1/x weighted)
 Intercept = 996.314
 Slope = 138.596
 Coef. Of Det = 0.999725

PFOA Found (ng/filter paper) = PFOA found (ng/L) x volume extracted (0.04L)
 PFOA Found (µg/filter paper) = PFOA found (ng/filter paper) / 1000 ng/µg

CS = Calibration standard
 C = Control sample
 S = Sample
 LF = Lab fortified sample
 FF = Field fortified sample
 LCS = Laboratory Control Spike

CK = Check Standard
 ND = Not detected = Response between 0 and LOD
 NQ = Not quantifiable = Response between LOD and LOQ

Avg Resp. of the 250 ppt Standards (area): 34753
 Response of the Check Standard (area): 35140
 Percent Difference (%): -1
 % difference acceptable if within ±15%

Spreadsheet prepared by:  04/07/04

0090

000000



3058 Research Drive
State College, PA 16801

Phone: 814-272-1039
Fax: 814-231-1580

PREPARATION OF EXTRACTED CALIBRATION STANDARDS

Exygen STUDY NO. L2178

Protocol No.: None
Method No.: Q1M-008-046*

Exygen Study No.: NA
Analytes: PFOA

Matrix: Type I Water^
Sample Vol: 40 mL

Sponsor Sample ID	Exygen Sample ID	Sample Description	Fort. Solution ID	Fort. Soln. Conc. (ng/mL)	Fort. Volume (μL)	Micropipet used (μL)	Fort. Level (ppt)	Final Solution ID **	Reagents/ Materials	Lot #
NA	0106020	Type I Water^	-	-	-	-	-	XC040504-0	Methanol	43325348
NA	0106020	Type I Water^	F030804-5	10	100	200	25	XC040504-1	C18 SPE	W335731
NA	0106020	Type I Water^	F030804-5	10	200	200	50	XC040504-2	Type I Water	NA
NA	0106020	Type I Water^	F030804-5	10	400	200	100	XC040504-3	-	-
NA	0106020	Type I Water^	F030804-4	100	100	200	250	XC040504-4	-	-
NA	0106020	Type I Water^	F030804-4	100	200	200	500	XC040504-5	-	-
NA	0106020	Type I Water^	F030804-4	100	400	200	1000	XC040504-6	-	-
NA	0106020	Type I Water^	F012804-2	100	100	200	250	XC040504-7	-	-
-	-	-	-	-	-	-	-	-	Initials/Date: <u>EH 4/5/04</u>	

Vertical arrows in a column indicate identical values.

**This must be a unique number. Use this system: Extracted Calibration Soln ID #: XCMDDYY-0.1,2,3. etc.

Samples removed from refrigerator/ freezer # 32 Time: 1000

40 mL of each sample measured using a 50 mL graduated cylinder.

After measuring, samples returned to refrigerator/ freezer # 32 Time: 1245

Samples fortified: Initials/Date: EH 4/5/04

SPE clean-up: Initials/Date: EH 4/5/04

Final volume adjusted to 5 mL: Initials/Date: EH 4/5/04

Extracts placed in refrigerator # 32 Initials/Date: EH 4/5/04

Initials/Date: EH 4/5/04

Initials/Date: EH 4/5/04

Initials/Date: EH 4/5/04

THIS IS AN EXACT COPY OF
THE ORIGINAL DOCUMENT.

BY EH DATE 04/07/04

STANDARD EXPIRATION DATE: 4/19/04

Comments: ^This type I water has been filtered through a hypercarb filter
* Method of Analysis for the Determination of Ammonium Perfluorooctanoate (APFO) in Water.

July 10, 2001/0

Masslynx - Sample List

Sample List: C:\MASSLYNX\1008 APF01\SampleDB\040304AR Filter paper.spl
Printed: Tue Apr 06 15:30:43 2004

Exygen STUDY NO. L2178

Page 1

Page Position: (1, 1)

Vial	File Name	LIMS ID	Client ID	Sample Description	Matrix	Sample Type	Conc (ng/L)	Conc B	Conc C	Test ID	DF
1	040304AR-301	---	---	XC040504-0, 0 ng/L standard	---	Blank	0	---	---	0	1
2	040304AR-302	---	---	XC040504-1, 25 ng/L standard	---	Standard	25	---	---	0	1
3	040304AR-303	---	---	XC040504-2, 50 ng/L standard	---	Standard	50	---	---	0	1
4	040304AR-304	---	---	XC040504-3, 100 ng/L standard	---	Standard	100	---	---	0	1
5	040304AR-305	---	---	XC040504-4, 250 ng/L standard	---	Standard	250	---	---	0	1
6	040304AR-306	---	---	XC040504-5, 500 ng/L standard	---	Standard	500	---	---	0	1
7	040304AR-307	---	---	XC040504-6, 1000 ng/L standard	---	Standard	1000	---	---	0	1
8	040304AR-308	---	---	XC040504-7, 250 ng/L check standard	---	QC	250	---	---	0	1
9	040304AR-309	---	---	L2178-1, DF=1000	---	Analyte	---	---	---	0	1000
10	040304AR-310	---	---	L2178-2, DF=1000	---	Analyte	---	---	---	0	1000
11	040304AR-311	---	---	L2178-3, DF=1000	---	Analyte	---	---	---	0	1000
12	040304AR-312	---	---	L2178-4, DF=1000	---	Analyte	---	---	---	0	1000
13	040304AR-313	---	---	L2178-5, DF=100	---	Analyte	---	---	---	0	100
14	040304AR-314	---	---	L2178-6, DF=1000	---	Analyte	---	---	---	0	1000
15	040304AR-315	---	---	L2178-7, DF=1000	---	Analyte	---	---	---	0	1000
16	040304AR-316	---	---	XC040504-1, 25 ng/L standard	---	Standard	25	---	---	0	1
17	040304AR-317	---	---	L2178-9, DF=10000	---	Analyte	---	---	---	0	10000
18	040304AR-318	---	---	L2178-10, DF=10000	---	Analyte	---	---	---	0	10000
19	040304AR-319	---	---	L2178-11, DF=10000	---	Analyte	---	---	---	0	10000
20	040304AR-320	---	---	L2178-12, DF=10000	---	Analyte	---	---	---	0	10000
21	040304AR-321	---	---	L2178-13, DF=10000	---	Analyte	---	---	---	0	10000
22	040304AR-322	---	---	L2178-14, DF=10000	---	Analyte	---	---	---	0	10000
23	040304AR-323	---	---	L2178-15, DF=10000	---	Analyte	---	---	---	0	10000
24	040304AR-324	---	---	XC040504-2, 50 ng/L standard	---	Standard	50	---	---	0	1
25	040304AR-325	---	---	XC040504-3, 100 ng/L standard	---	Standard	100	---	---	0	1
26	040304AR-326	---	---	L2178-16, DF=10000	---	Analyte	---	---	---	0	1000
27	040304AR-327	---	---	L2178-17, DF=10000	---	Analyte	---	---	---	0	10000
28	040304AR-328	---	---	L2178-18, DF=10000	---	Analyte	---	---	---	0	10000
29	040304AR-329	---	---	L2178-19, DF=10000	---	Analyte	---	---	---	0	10000
30	040304AR-330	---	---	L2178-20, DF=10000	---	Analyte	---	---	---	0	10000
31	040304AR-331	---	---	L2178-21, DF=10000	---	Analyte	---	---	---	0	10000
32	040304AR-332	---	---	L2178-22, DF=10000	---	Analyte	---	---	---	0	10000
33	040304AR-333	---	---	XC040504-4, 250 ng/L standard	---	Standard	250	---	---	0	1
34	040304AR-334	---	---	L2178-23, DF=100	---	Analyte	---	---	---	0	100
35	040304AR-335	---	---	L2178-24, DF=100	---	Analyte	---	---	---	0	100
36	040304AR-336	---	---	L2178-25, DF=100	---	Analyte	---	---	---	0	100
37	040304AR-337	---	---	L2178-26, DF=100	---	Analyte	---	---	---	0	100
38	040304AR-338	---	---	L2178-27, DF=100	---	Analyte	---	---	---	0	100
39	040304AR-339	---	---	L2178-28, DF=1000	---	Analyte	---	---	---	0	1000
40	040304AR-340	---	---	L2178-29, DF=1000	---	Analyte	---	---	---	0	1000
41	040304AR-341	---	---	XC040504-5, 500 ng/L standard	---	Standard	500	---	---	0	1
42	040304AR-342	---	---	XC040504-6, 1000 ng/L standard	---	Standard	1000	---	---	0	1

0092
000668

Masslynx - Sample List

Sample List: C:\MASSLYNX\008 APFO.PRO\SampleDB\040304AR Filter paper.spl
 Printed: Tue Apr 06 15:30:43 2004

04/06/04

Exygen STUDY NO. 12178

	MS Method	HPLC Method	MS Tune File	Inj Volume (µL)
1	008 PFOA	water	PFOA Tune	15
2	008 PFOA	water	PFOA Tune	15
3	008 PFOA	water	PFOA Tune	15
4	008 PFOA	water	PFOA Tune	15
5	008 PFOA	water	PFOA Tune	15
6	008 PFOA	water	PFOA Tune	15
7	008 PFOA	water	PFOA Tune	15
8	008 PFOA	water	PFOA Tune	15
9	008 PFOA	water	PFOA Tune	15
10	008 PFOA	water	PFOA Tune	15
11	008 PFOA	water	PFOA Tune	15
12	008 PFOA	water	PFOA Tune	15
13	008 PFOA	water	PFOA Tune	15
14	008 PFOA	water	PFOA Tune	15
15	008 PFOA	water	PFOA Tune	15
16	008 PFOA	water	PFOA Tune	15
17	008 PFOA	water	PFOA Tune	15
18	008 PFOA	water	PFOA Tune	15
19	008 PFOA	water	PFOA Tune	15
20	008 PFOA	water	PFOA Tune	15
21	008 PFOA	water	PFOA Tune	15
22	008 PFOA	water	PFOA Tune	15
23	008 PFOA	water	PFOA Tune	15
24	008 PFOA	water	PFOA Tune	15
25	008 PFOA	water	PFOA Tune	15
26	008 PFOA	water	PFOA Tune	15
27	008 PFOA	water	PFOA Tune	15
28	008 PFOA	water	PFOA Tune	15
29	008 PFOA	water	PFOA Tune	15
30	008 PFOA	water	PFOA Tune	15
31	008 PFOA	water	PFOA Tune	15
32	008 PFOA	water	PFOA Tune	15
33	008 PFOA	water	PFOA Tune	15
34	008 PFOA	water	PFOA Tune	15
35	008 PFOA	water	PFOA Tune	15
36	008 PFOA	water	PFOA Tune	15
37	008 PFOA	water	PFOA Tune	15
38	008 PFOA	water	PFOA Tune	15
39	008 PFOA	water	PFOA Tune	15
40	008 PFOA	water	PFOA Tune	15
41	008 PFOA	water	PFOA Tune	15
42	008 PFOA	water	PFOA Tune	15

0093

000669

LC/MS/MS SYSTEM AND OPERATING CONDITIONS

Sponsor Protocol No: NA

Exygen Study No: L2178

Instrument: Micromass Quattro Ultima (LC/MS/MS Unit #7)

Computer: COMPAQ Professional Workstation AP200

Software: Microsoft Windows NT: Version 4 Build 1381: Service Pack 5
Micromass Limited: MassLynx 3.4 Build 004

HPLC Equipment: Hewlett Packard (HP) Series 1100
HP Bin Pump HP Vacuum Degasser
HP Autosampler HP Column Oven

HPLC Column: Genesis C-8, 5 cm x 2.1 mm i.d. x 4 μ (Exygen ID: MA13296)
(JONESCHROMATOGRAPHY: Part No. FK5962EJ)

Mobile Phase (A) : 2 mM Ammonium Acetate in Type I Water
Mobile Phase (B) : Methanol

Analyst: Karen Risha
Exygen Research
3058 Research Drive, State College, PA 16801
Phone: (814) 272-1039 FAX: (814) 231-1580

RF 04/06/04

NOTE: The next 3 pages are computer generated printouts from the masslynx software program. The pages contain the instrument settings used for the analysis of this data set.

All Handwritten Peak ID's by: _____

0094
000670

Scanning Method Report

Page 1

Method: C:\MASSLYNX\008 APFO.PRO\ACQUDB\008 PFOA
 Last Modified: Wed Mar 20 16:07:50 2002

Printed: Tue Apr 06 15:28:34 2004

BF 04/06/04

Solvent Delay (mins) : 0.00

Function : 1 MRM of 1 Mass Pair (ESP-)

Inter Channel Delay (Secs) : 0.03

Span (Daltons) : 0.00

Start Time (Mins) : 0.00

End Time (Mins) : 8.00

Repeats : 1

Channel	Parent	Daughter	Dwell (Secs)	Coll Energy (eV)	Cone (V)
1	413.00	369.00	0.20	10	10

0095
 000671

Method Report

Page 1

Method File: c:\masslynx\008 apfo.pro\acqddb\water
Last Modified: Tuesday, April 06, 2004 15:28:45
Printed: Tuesday, April 06, 2004 15:28:49

B204/06/04

HP1100 LC Pump Initial Conditions

Solvents

A%	60.0
B%	40.0
C%	0.0
D%	0.0

Flow (ml/min)	0.300
Stop Time (mins)	15.0
Min Pressure (bar)	0
Max Pressure (bar)	400
Oven Temperature Left (°C)	35.0
Oven Temperature Right (°C)	35.0

HP1100 LC Pump Gradient Timetable

The gradient Timetable contains 10 entries which are :

Time	A%	B%	C%	D%	Flow	Pressure
0.00	60.0	40.0	0.0	0.0	0.300	400
0.40	60.0	40.0	0.0	0.0	0.300	400
1.00	10.0	90.0	0.0	0.0	0.300	400
7.00	10.0	90.0	0.0	0.0	0.300	400
7.50	0.0	100.0	0.0	0.0	0.300	400
9.00	0.0	100.0	0.0	0.0	0.400	400
9.50	60.0	40.0	0.0	0.0	0.400	400
13.50	60.0	40.0	0.0	0.0	0.400	400
14.00	60.0	40.0	0.0	0.0	0.300	400
15.00	60.0	40.0	0.0	0.0	0.300	400

HP1100 LC Pump External Event Timetable

The Timetable contains 4 entries which are :

Time	Column Switch	Contact1	Contact2	Contact3	Contact4
Initial	Off	Off	Off	Off	Off
0.00	Off	On	Off	Off	Off
0.10	Off	Off	On	Off	Off
8.00	Off	Off	Off	Off	Off

HP1100 Autosampler Initial Conditions

Draw Speed	200.0
Eject Speed (µl/min)	200
Draw Position (mm)	0.10
Stop Time (mins)	15.00
Injection Volume (µl)	15.0
Vial Number	7

0096

000672

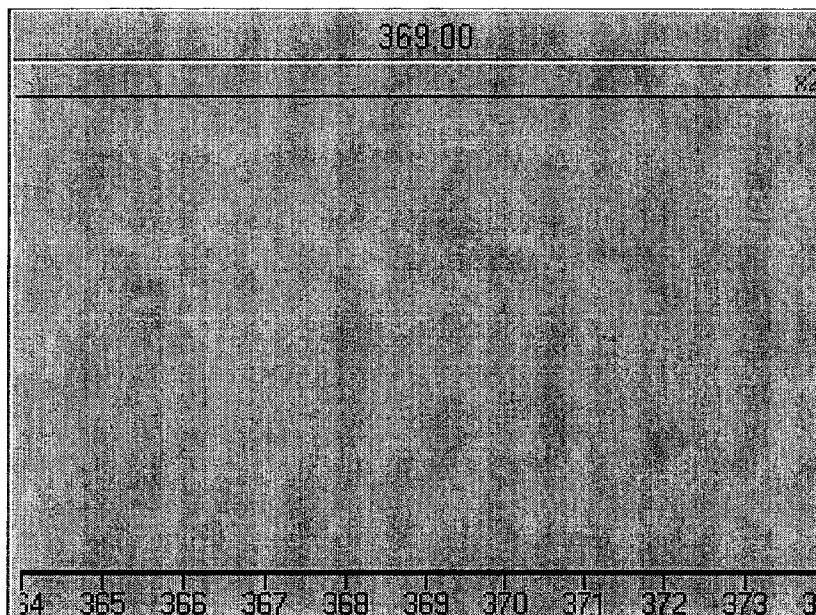
Tuning Method Report

Page 1

Method: C:\MASSLYNX\008 APFO.PRO\ACQUDE\PFOA TUNE

Printed: Tue Apr 06 15:29:11 2004

4/6/04



Dau 413.00

SOURCE (ESP-)	Set	Rdbk	Analyser	Set	Rdbk
Capillary	3.00	-2.94	LM Res 1	14.0	
Cone	10	-10	HM Res 1	14.0	
Hexapole 1	0.0		IEnergy 1	1.0	
Aperture 1	0.0		Entrance	-2	8
Hexapole 2	0.0		Collision	10	9
Source Block Temp.	100	102	Exit	2	11
Desolvation Temp.	300	300	LM Res 2	14.0	
			HM Res 2	14.0	
			IEnergy 2	2.0	
			Multiplier	700	-695
Pressures		Rdbk	Gas Flows		Rdbk
Analyser Vacuum	OFF		Cone Gas	88.2	
Gas Cell	2.8e-3		Desolvation	692.7	

0097
000673

In order to verify mass resolution, a calibration check is performed on the mass spectrometer using a NaI/Rb/Cs tuning solution. The tuning solution is infused onto the mass spec using an infusion pump set to a flow rate of 10 μ L/min. An MS scan from 80 to 1380 amu is performed on both MS1 and MS2. The calibration is considered acceptable if the following 11 peaks are found within ± 0.2 amu of their known masses on both MS1 and MS2: 84.9, 132.9, 172.8, 322.7, 472.6, 622.5, 772.4, 922.3, 1072.2, 1222.1 and 1372.0. If any of the masses are outside the ± 0.2 amu, then the instrument will be recalibrated and another calibration check performed.

The printouts from the calibration check can be found on the following 2 pages.

Handwritten: 12/04/06/04

0098

000674

Calibration Check on MS using NaIRbCs Tuning Solution

CALCHK040504-1 1 (0.086) Cn (Cen,2, 80.00, Ht); Sm (SG, 2x0.60); Sb (1,40.00); Cm (1:31) :

155.2

100

132.9

112.9

233.0

% 99.1

293.1

382.9

472.7

302.9

622.5

532.8

406.8

556.7

682.6

772.4

856.4

922.3

1072.2

1006.3

982.3

1156.1

1222.0

1306.0

1371.9

m/z

1300

1200

1100

1000

900

800

700

600

500

400

300

200

100

0

LC/MS/MS #7
05-Apr-2004 07:55:59
Scan ES+
1.38e8

AMB
04/05/04

Exygen STUDY NO. L2178

"THIS IS AN EXACT COPY OF
THE ORIGINAL DOCUMENT."

BY [Signature] DATE 04/06/04

0099

000675

Calibration Check on MS2 using NaIRbCs Tuning Solution

CALCHK040504-2 7 (0.452) Cn (Cen,2, 80.00, Ht); Sm (SG, 2x0.60); Sb (1.40.00); Cm (1:21)

100 132.8 155.1 172.8 232.8

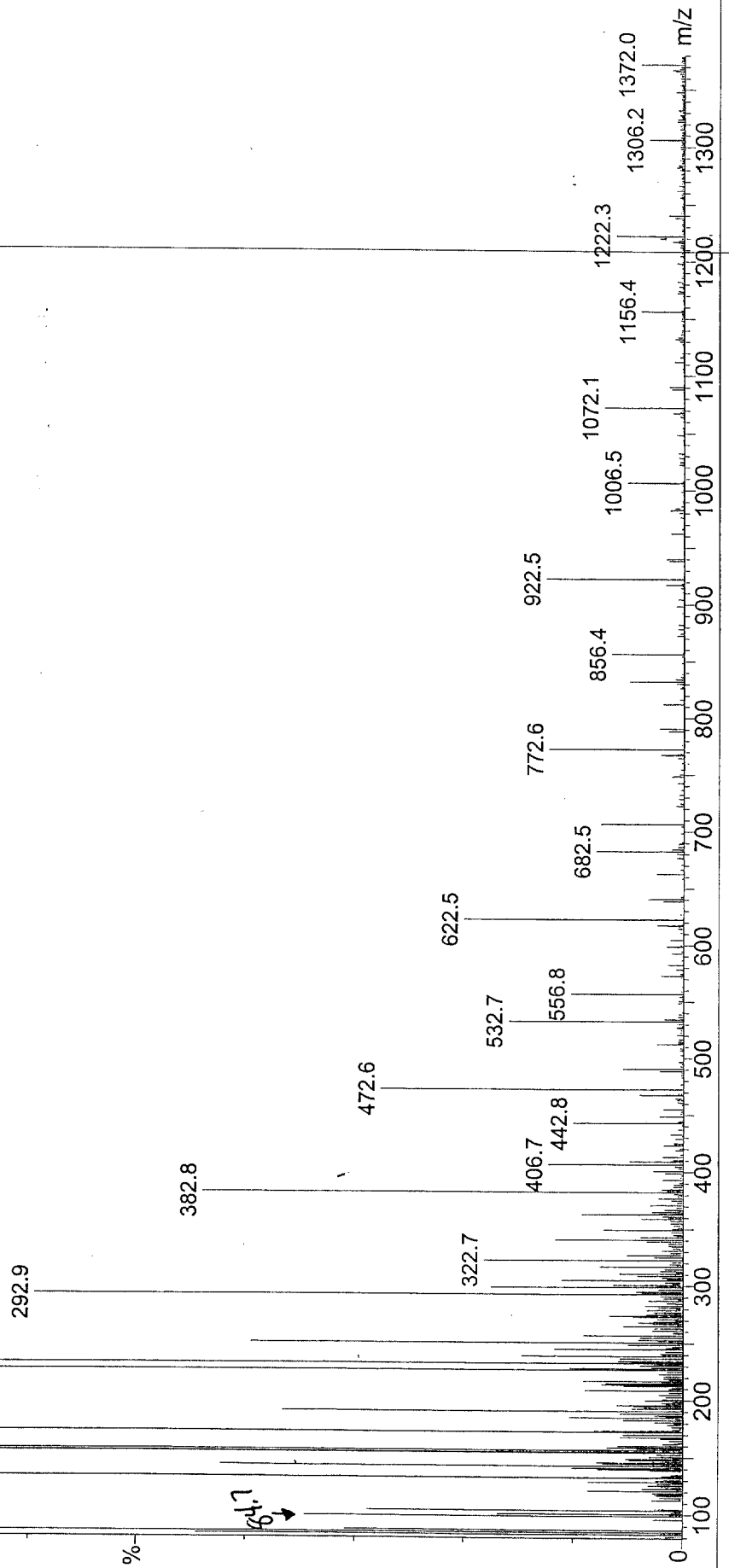
LC/MS/MS #7
05-Apr-2004 08:04:37
MS2 ES+
1.37e8

AMB
04/05/04

Exygen STUDY NO. L2178

THIS IS AN EXACT COPY OF
THE ORIGINAL DOCUMENT.

BY [Signature] DATE 04/06/04



0100

000076

Initial Calibration Curve

Exygen Study No.: L2178
 Set No: 040304AR
 Extraction Date: 04/03/04
 Analyzed on: 04/06-07/04

The first curve of the data set is used to determine performance. A linear regression (with no weighting) is performed using the first six standards of the analytical run. The coefficient of determination (R Square) must be 0.985 or greater. If the set fails to meet this requirement, the run must be rejected and the samples reanalyzed.

Exygen ID	Standard Concentration (ng/L)	Peak Area
XC040504-1	25	4634
XC040504-2	50	8064
XC040504-3	100	14633
XC040504-4	250	34776
XC040504-5	500	70740
XC040504-6	1000	141547

Coefficient of Determination: 0.999889312

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.999944655
R Square	0.999889312
Adjusted R Square	0.99986164
Standard Error	622.4435051
Observations	6

ANOVA

	df	SS	MS	F	Significance F
Regression	1	13999470110	13999470110	36133.64041	4.5946E-09
Residual	4	1549743.668	387435.9171		
Total	5	14001019853			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	618.2368692	347.7055629	1.778047104	0.150025364	-347.1505385	1583.624277	-347.1505385	1583.624277
X Variable 1	140.6153656	0.739736284	190.0885068	4.5946E-09	138.5615242	142.669207	138.5615242	142.669207

0101

000677

Quantify Calibration Report

Page 1

Study No.: L2178, Set No.: 040304AR, Ext. Date: 04/03/04, Analyst: K. Risha

Calibration: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\CurveDB\040304AR Filter Paper

Last modified: Wed Apr 07 08:02:24 2004

Printed: Wed Apr 07 08:03:59 2004

PP 04/07/04

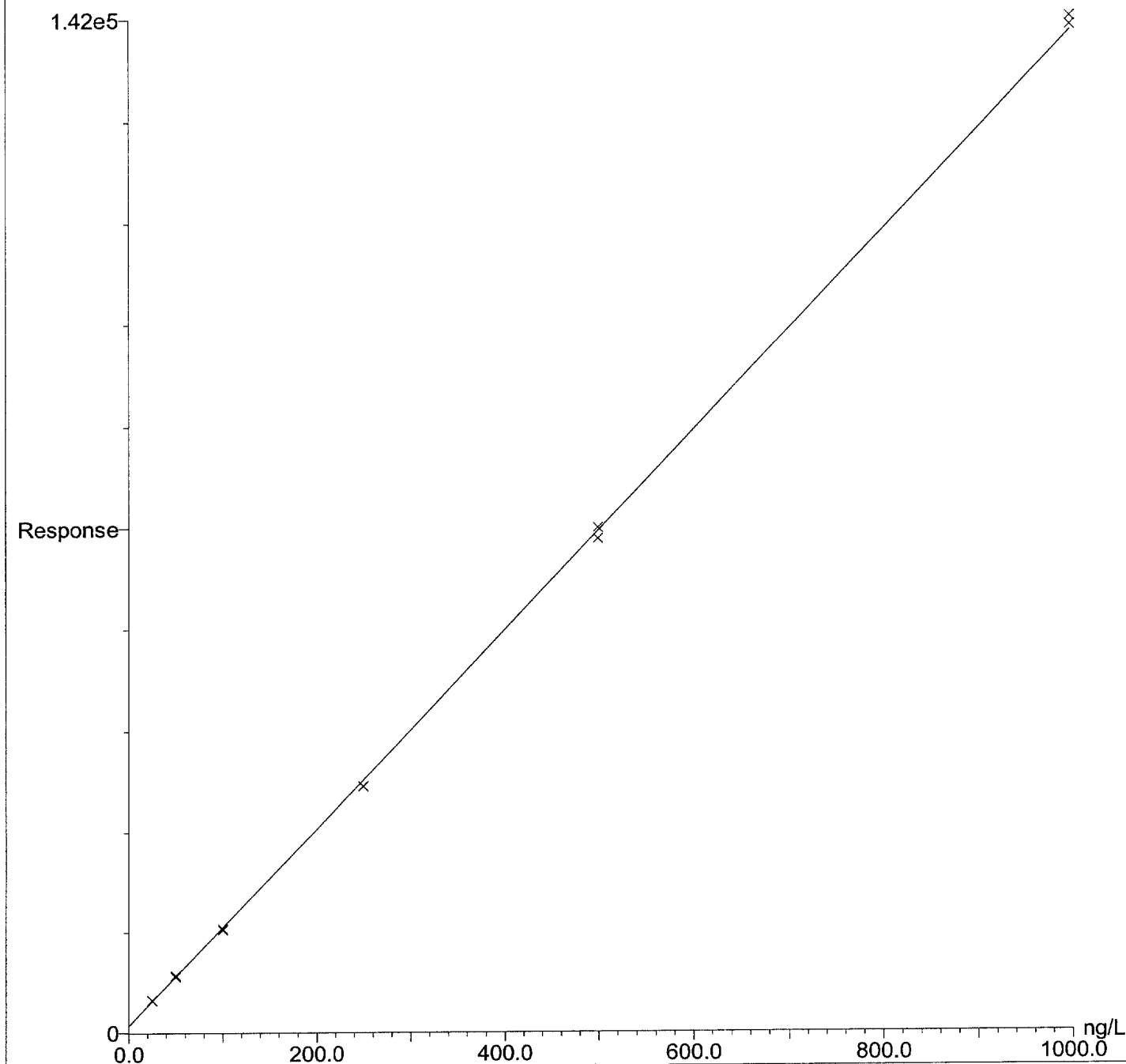
Compound 1 name: PFOA

Coefficient of Determination: 0.999725

Calibration curve: $138.596 * x + 996.314$

Response type: External Std, Area

Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Quantify Sample Report

Page 1

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Initials kr

Date 04/07/04

Run# 040304AR-301 To 040304AR-342

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-301

Text:

1: PFOA

XC040504-0, 0 ng/L standard

06-Apr-2004 19:53:07

LC/MS/MS #7

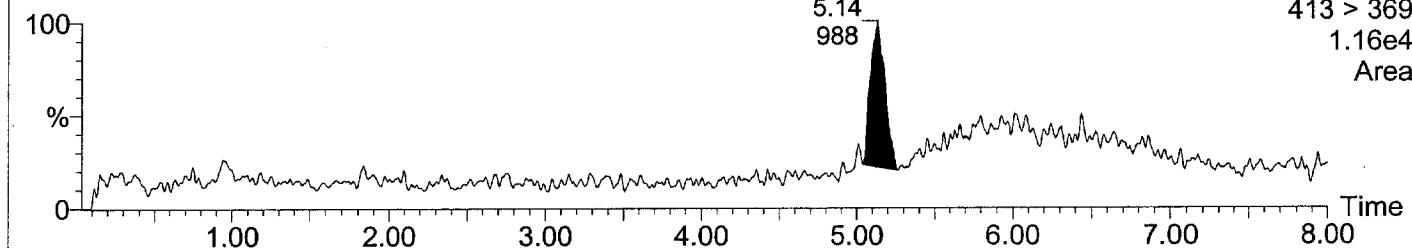
040304AR-301 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

1.16e4

Area



Quantify Sample Report

Page 2

Study No.: L2178, Set No.: 040304AR, Ext.Date: 04/03/04, Analyst: K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-302

Text:

1: PFOA

XC040504-1, 25 ng/L standard

06-Apr-2004 20:09:49

LC/MS/MS #7

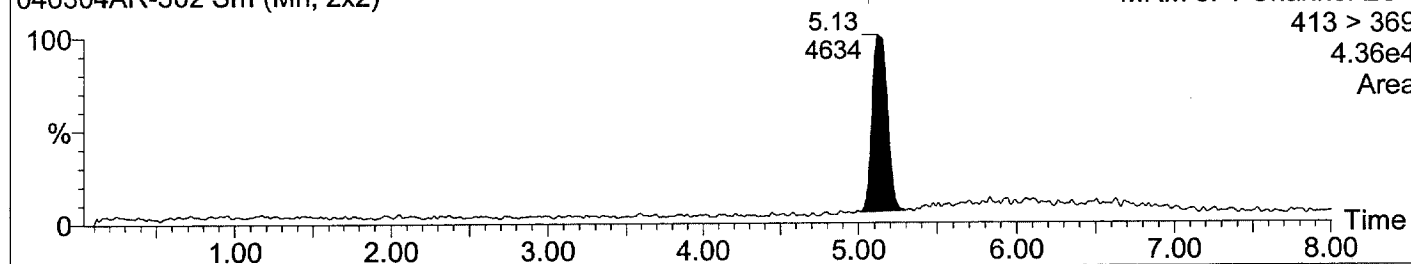
MRM of 1 Channel ES-

413 > 369

4.36e4

Area

040304AR-302 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304AR, Ext.Date: 04/03/04, Analyst: K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-303

Text:

1: PFOA

XC040504-2, 50 ng/L standard

06-Apr-2004 20:26:24

LC/MS/MS #7

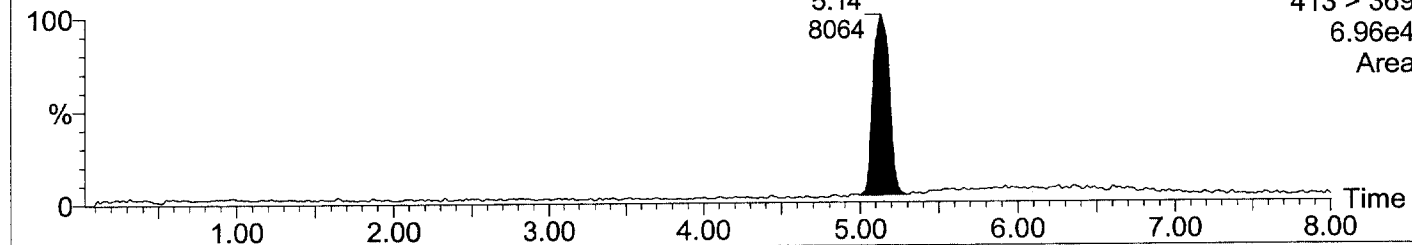
040304AR-303 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

6.96e4

Area



Quantify Sample Report

Page 4

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-304

Text:

1: PFOA

XC040504-3, 100 ng/L standard

06-Apr-2004 20:43:20

LC/MS/MS #7

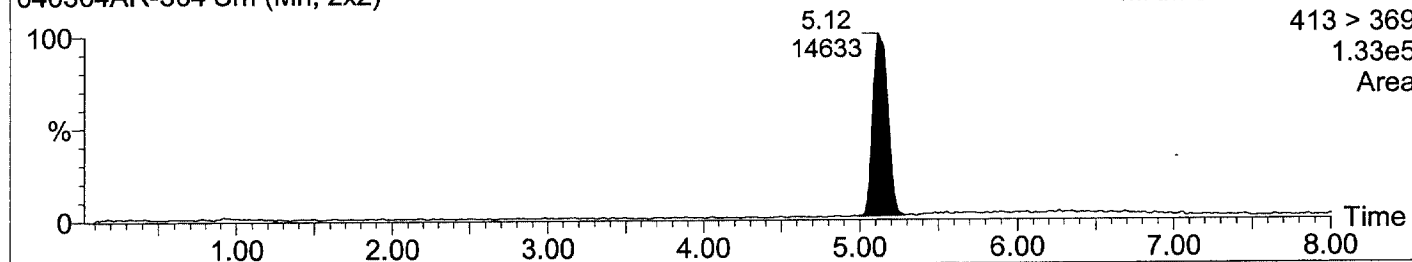
040304AR-304 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

1.33e5

Area



Quantify Sample Report

Page 5

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-305

Text:

1: PFOA

XC040504-4, 250 ng/L standard

06-Apr-2004 21:00:02

LC/MS/MS #7

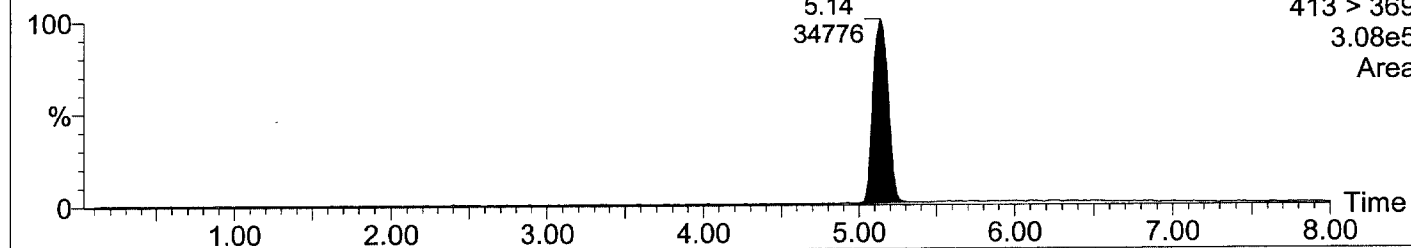
040304AR-305 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

3.08e5

Area



Quantify Sample Report

Page 6

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-306

Text:

1: PFOA

XC040504-5, 500 ng/L standard

06-Apr-2004 21:16:49

LC/MS/MS #7

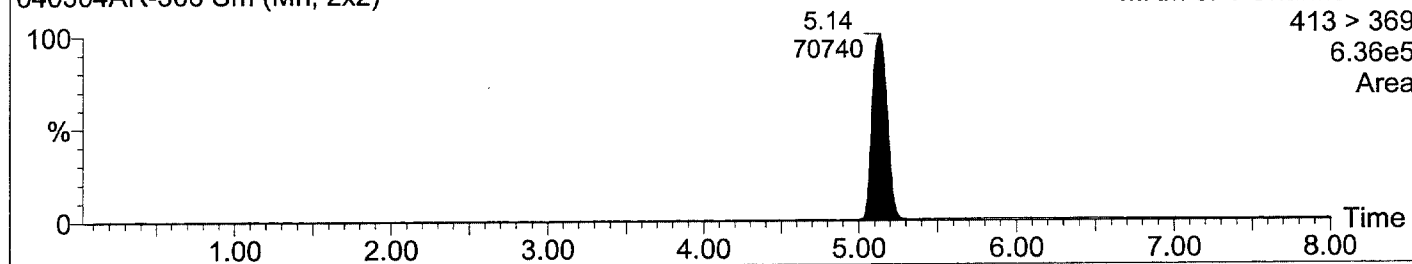
040304AR-306 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

6.36e5

Area



Quantify Sample Report

Study No.: L2178, Set No.: 040304AR, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-307

Text:

1: PFOA

XC040504-6, 1000 ng/L standard

06-Apr-2004 21:33:32

LC/MS/MS #7

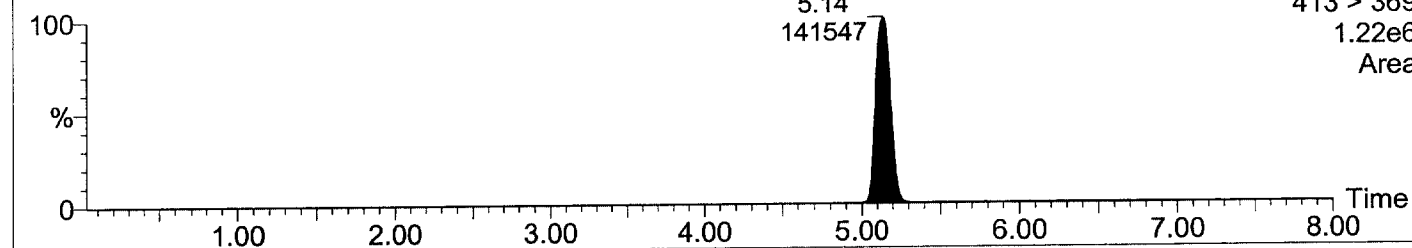
MRM of 1 Channel ES-

413 > 369

1.22e6

Area

040304AR-307 Sm (Mn, 2x2)



Quantify Sample Report

Page 8

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-308

Text:

1: PFOA

XC040504-7, 250 ng/L check standard

06-Apr-2004 21:50:18

LC/MS/MS #7

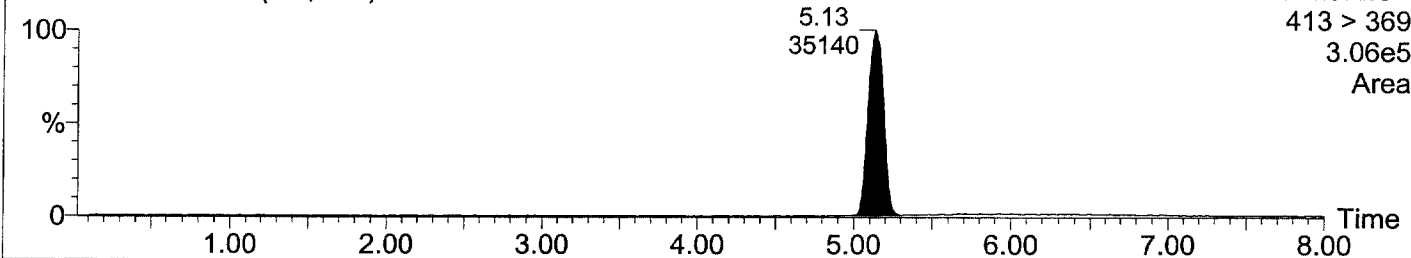
040304AR-308 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

3.06e5

Area



Quantify Sample Report

Page 9

Study No.: L2178, Set No.: 040304AR, Ext.Date: 04/03/04, Analyst: K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper
Last modified: Wed Apr 07 08:02:10 2004
Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA
Last modified: Tue Mar 23 10:54:32 2004
Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-309

Text:

1: PFOA

L2178-1, DF=1000

06-Apr-2004 22:07:04

LC/MS/MS #7

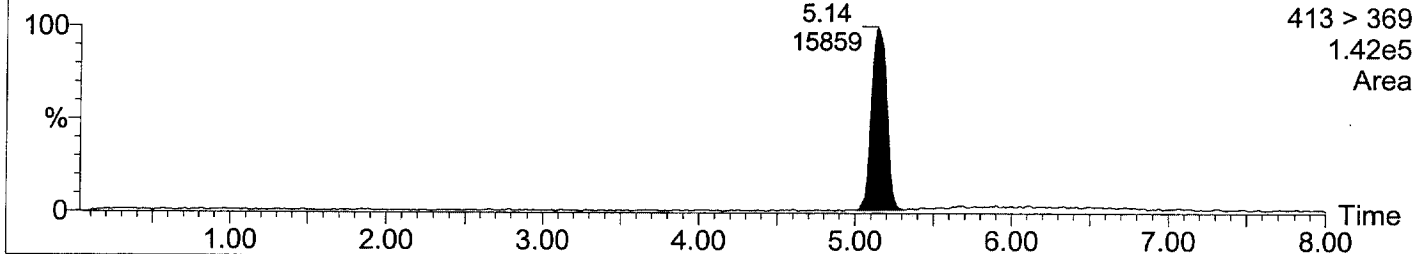
040304AR-309 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

1.42e5

Area



Quantify Sample Report

Study No.: L2178, Set No.: 040304AR, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-310

Text:

1: PFOA

L2178-2, DF=1000

06-Apr-2004 22:23:50

LC/MS/MS #7

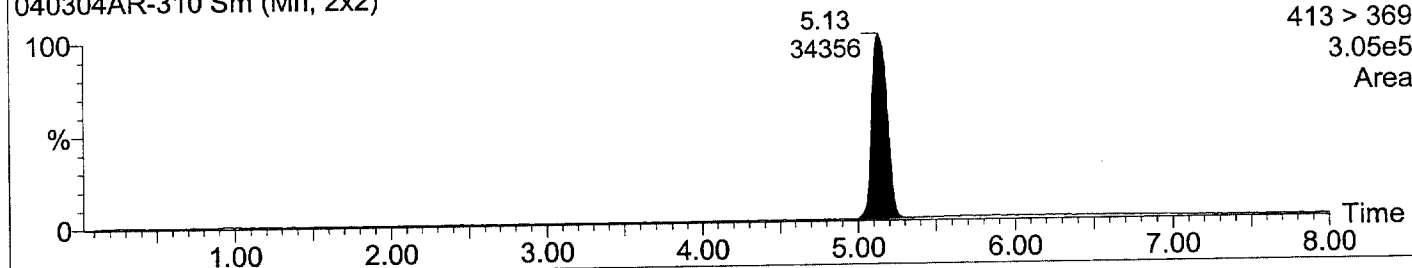
MRM of 1 Channel ES-

413 > 369

3.05e5

Area

040304AR-310 Sm (Mn, 2x2)



Quantify Sample Report

Page 11

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper
Last modified: Wed Apr 07 08:02:10 2004
Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA
Last modified: Tue Mar 23 10:54:32 2004
Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-311
Text:

1: PFOA

L2178-3, DF=1000

06-Apr-2004 22:40:31

LC/MS/MS #7

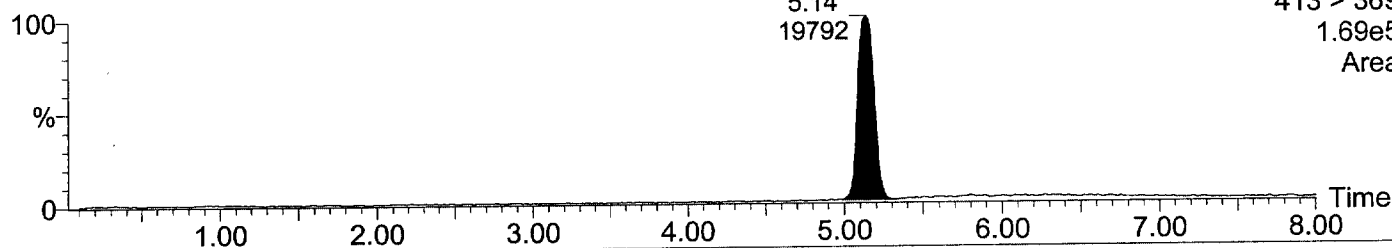
MRM of 1 Channel ES-

413 > 369

1.69e5

Area

040304AR-311 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304AR, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-312

Text:

1: PFOA

L2178-4, DF=1000

06-Apr-2004 22:57:10

LC/MS/MS #7

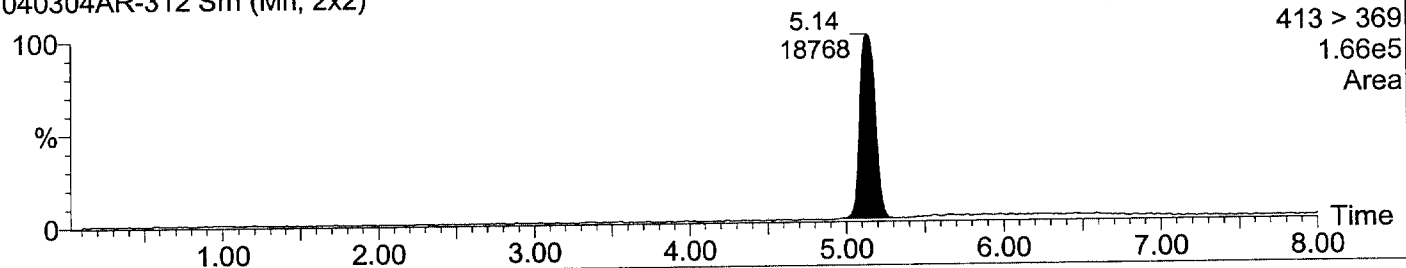
MRM of 1 Channel ES-

413 > 369

1.66e5

Area

040304AR-312 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304AR, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-313

Text:

1: PFOA

L2178-5, DF=100

06-Apr-2004 23:13:47

LC/MS/MS #7

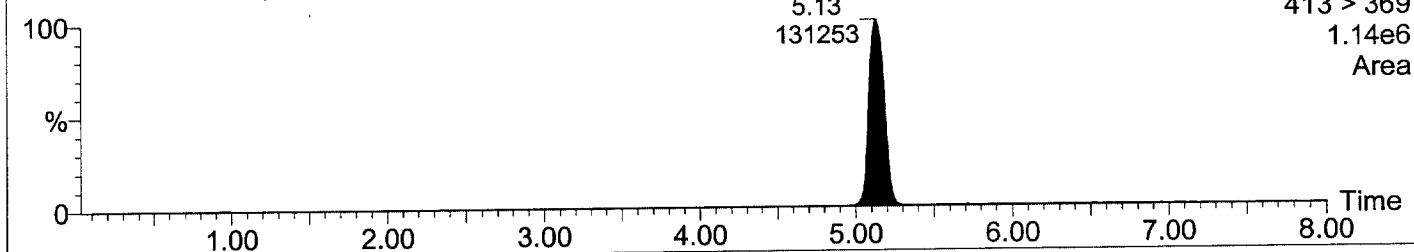
MRM of 1 Channel ES-

413 > 369

1.14e6

Area

040304AR-313 Sm (Mn, 2x2)



Quantify Sample Report

Page 14

Study No.: L2178, Set No.: 040304AR, Ext.Date: 04/03/04, Analyst: K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper
Last modified: Wed Apr 07 08:02:10 2004
Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA
Last modified: Tue Mar 23 10:54:32 2004
Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-314
Text:

1: PFOA

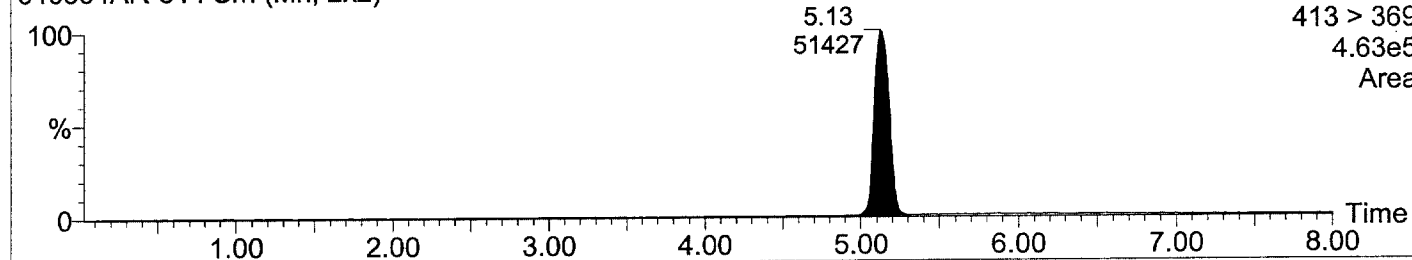
L2178-6, DF=1000

06-Apr-2004 23:30:23

LC/MS/MS #7

MRM of 1 Channel ES-
413 > 369
4.63e5
Area

040304AR-314 Sm (Mn, 2x2)



Quantify Sample Report

Page 15

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper
Last modified: Wed Apr 07 08:02:10 2004
Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA
Last modified: Tue Mar 23 10:54:32 2004
Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-315

Text:

1: PFOA

L2178-7, DF=1000

06-Apr-2004 23:47:00

LC/MS/MS #7

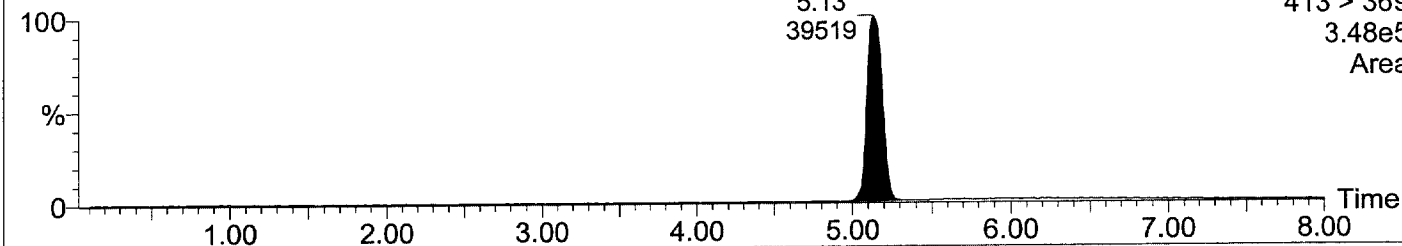
MRM of 1 Channel ES-

413 > 369

3.48e5

Area

040304AR-315 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304AR, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-316

Text:

1: PFOA

XC040504-1, 25 ng/L standard

07-Apr-2004 00:03:45

LC/MS/MS #7

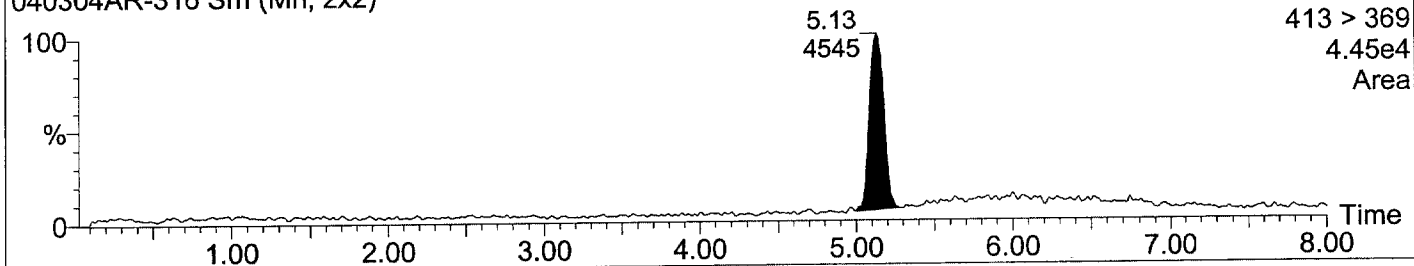
MRM of 1 Channel ES-

413 > 369

4.45e4

Area

040304AR-316 Sm (Mn, 2x2)



Quantify Sample Report

Page 17

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-317

Text:

1: PFOA

L2178-9, DF=10000

07-Apr-2004 00:20:27

LC/MS/MS #7

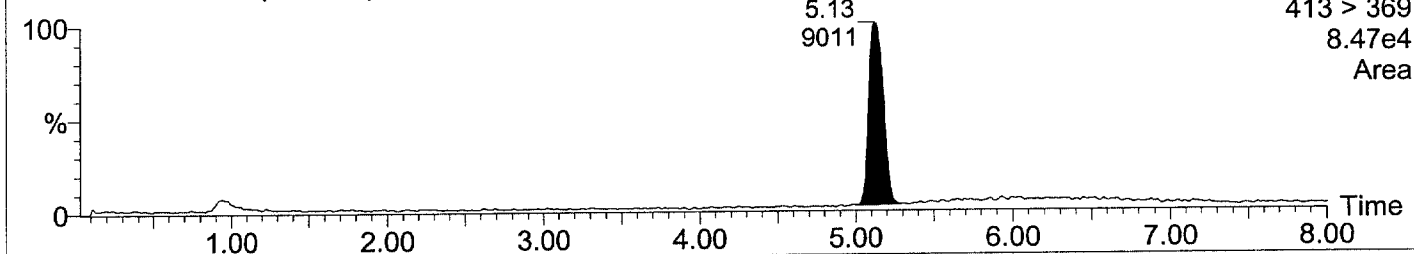
MRM of 1 Channel ES-

413 > 369

8.47e4

Area

040304AR-317 Sm (Mn, 2x2)



0119

Quantify Sample Report

Study No.: L2178, Set No.: 040304AR, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-318

Text:

1: PFOA

L2178-10, DF=10000

07-Apr-2004 00:37:04

LC/MS/MS #7

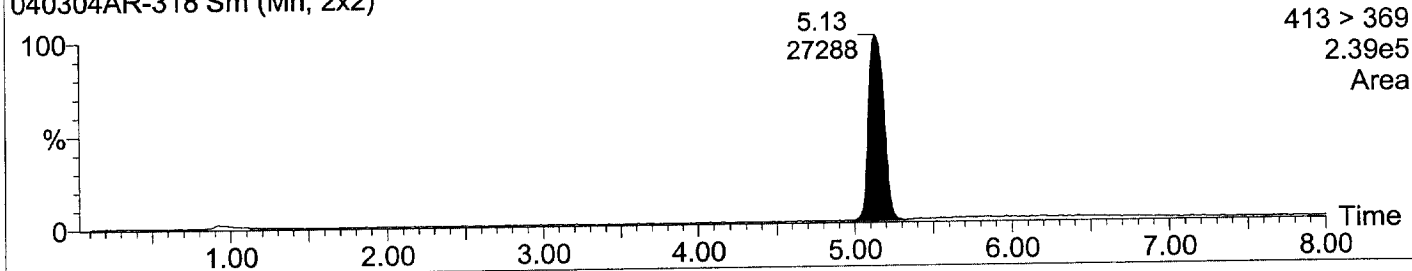
MRM of 1 Channel ES-

413 > 369

2.39e5

Area

040304AR-318 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304AR, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-319

Text:

1: PFOA

L2178-11, DF=10000

07-Apr-2004 00:53:51

LC/MS/MS #7

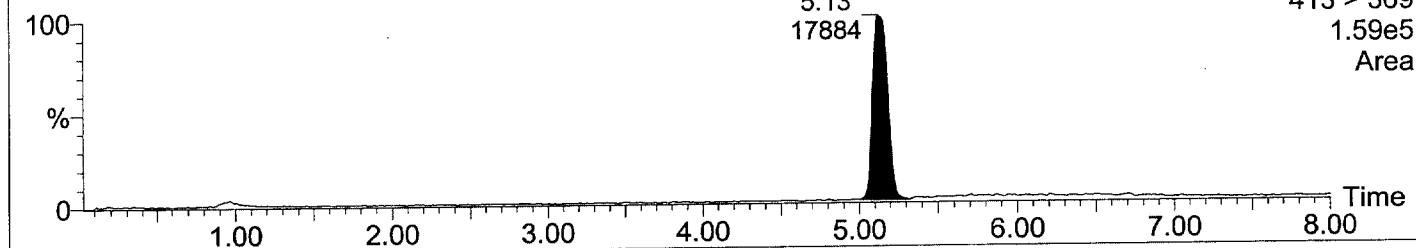
MRM of 1 Channel ES-

413 > 369

1.59e5

Area

040304AR-319 Sm (Mn, 2x2)



Quantify Sample Report

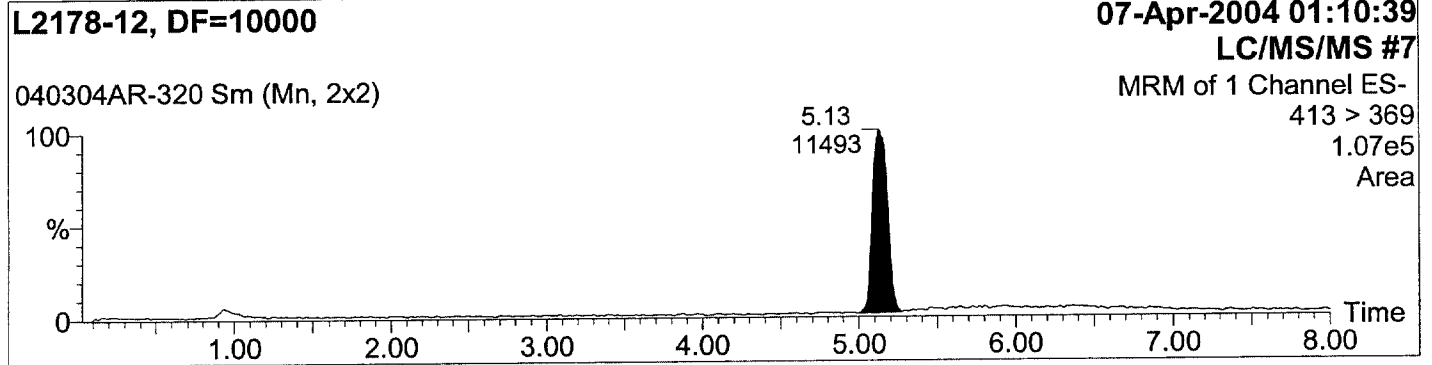
Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper
 Last modified: Wed Apr 07 08:02:10 2004
 Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA
 Last modified: Tue Mar 23 10:54:32 2004
 Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-320
 Text:

1: PFOA



Quantify Sample Report

Page 21

Study No.: L2178, Set No.: 040304AR, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-321

Text:

1: PFOA

L2178-13, DF=10000

07-Apr-2004 01:27:14

LC/MS/MS #7

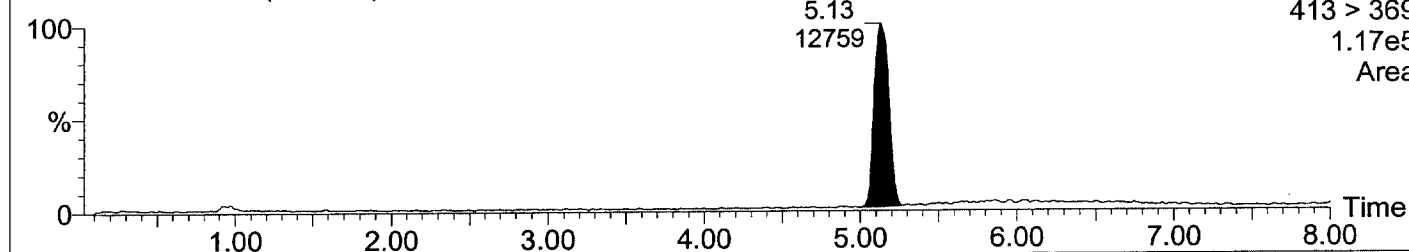
MRM of 1 Channel ES-

413 > 369

1.17e5

Area

040304AR-321 Sm (Mn, 2x2)



Quantify Sample Report

Page 22

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-322

Text:

1: PFOA

L2178-14, DF=10000

07-Apr-2004 01:43:53

LC/MS/MS #7

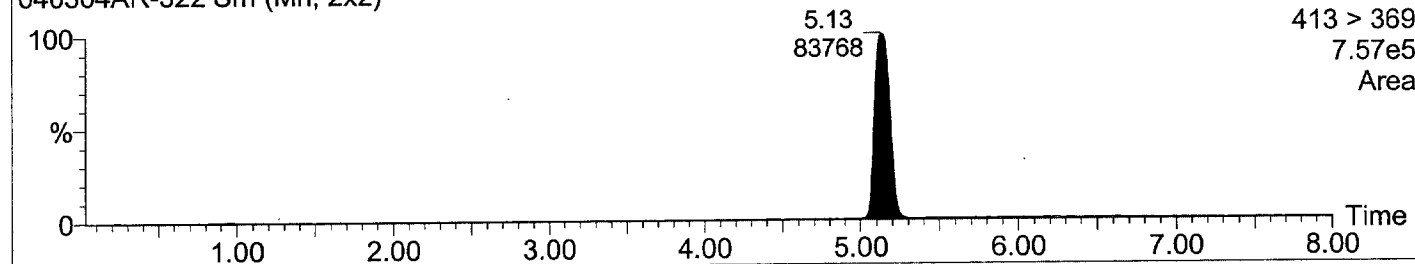
MRM of 1 Channel ES-

413 > 369

7.57e5

Area

040304AR-322 Sm (Mn, 2x2)



Quantify Sample Report

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-323

Text:

1: PFOA

L2178-15, DF=10000

07-Apr-2004 02:00:38

LC/MS/MS #7

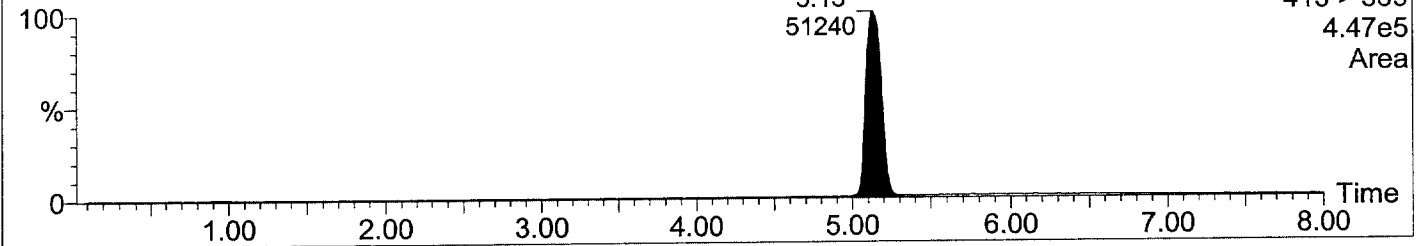
MRM of 1 Channel ES-

413 > 369

4.47e5

Area

040304AR-323 Sm (Mn, 2x2)



Quantify Sample Report

Page 24

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-324

Text:

1: PFOA

XC040504-2, 50 ng/L standard

07-Apr-2004 02:17:18

LC/MS/MS #7

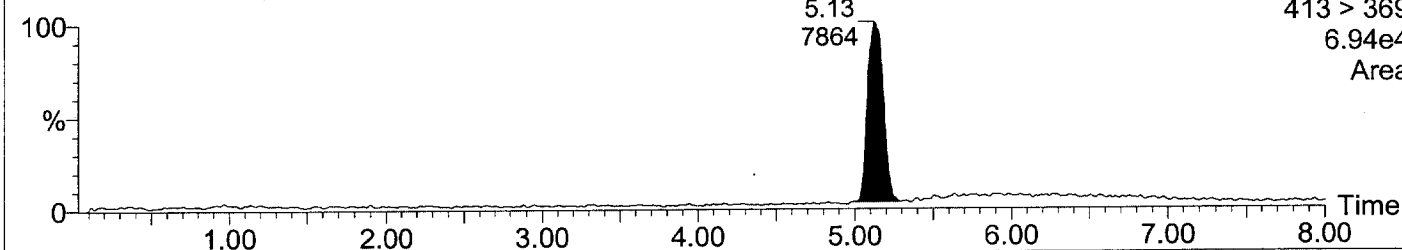
MRM of 1 Channel ES-

413 > 369

6.94e4

Area

040304AR-324 Sm (Mn, 2x2)



Quantify Sample Report

Page 25

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-325

Text:

1: PFOA

XC040504-3, 100 ng/L standard

07-Apr-2004 02:34:03

LC/MS/MS #7

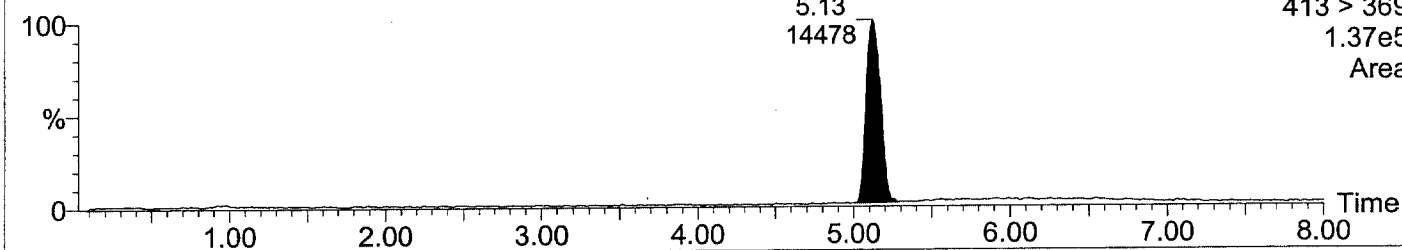
MRM of 1 Channel ES-

413 > 369

1.37e5

Area

040304AR-325 Sm (Mn, 2x2)



Quantify Sample Report

Page 26

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-326

Text:

1: PFOA

L2178-16, DF=1000

07-Apr-2004 02:50:41

LC/MS/MS #7

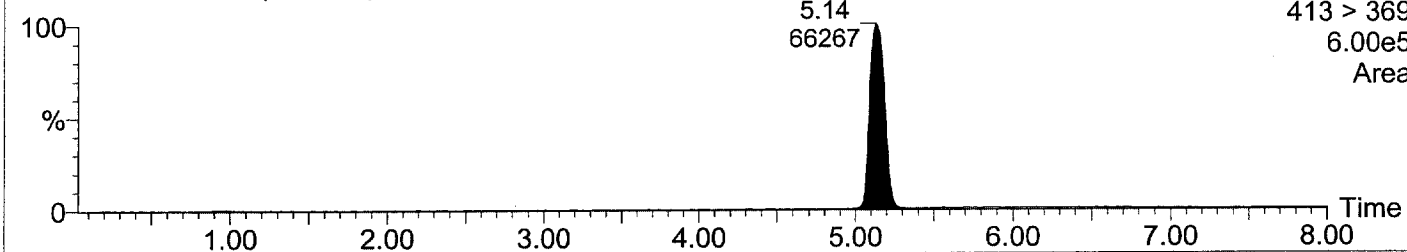
MRM of 1 Channel ES-

413 > 369

6.00e5

Area

040304AR-326 Sm (Mn, 2x2)



Quantify Sample Report

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-327

Text:

1: PFOA

L2178-17, DF=10000

07-Apr-2004 03:07:31

LC/MS/MS #7

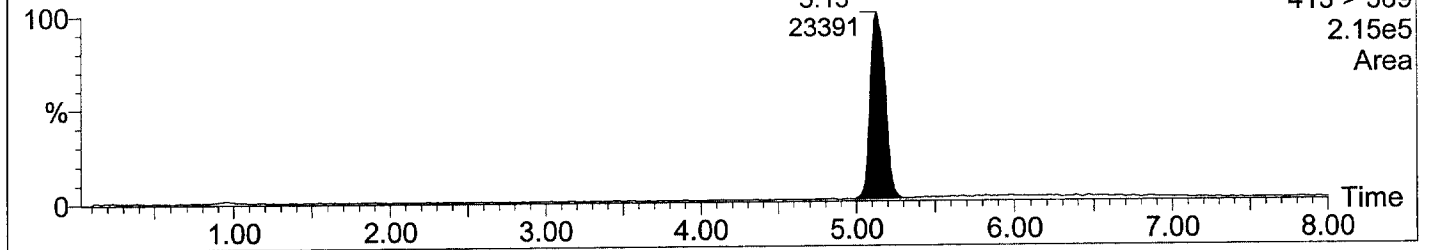
MRM of 1 Channel ES-

413 > 369

2.15e5

Area

040304AR-327 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304AR, Ext.Date: 04/03/04, Analyst: K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-328

Text:

1: PFOA

L2178-18, DF=10000

07-Apr-2004 03:24:12

LC/MS/MS #7

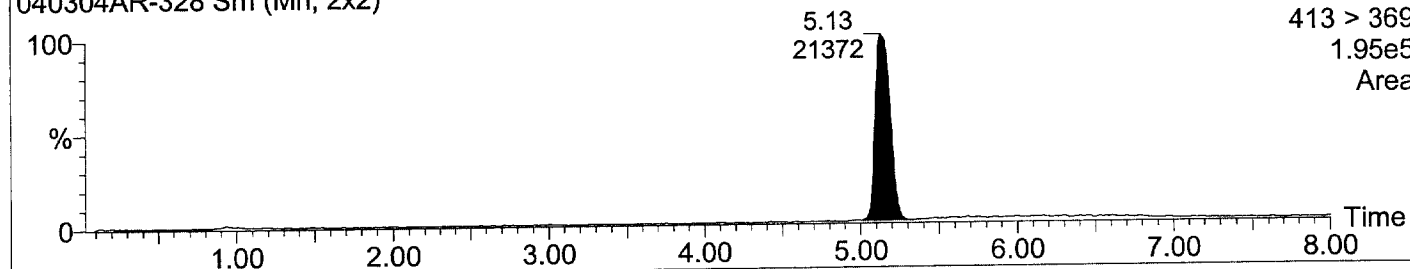
MRM of 1 Channel ES-

413 > 369

1.95e5

Area

040304AR-328 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304AR, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-329

Text:

1: PFOA

L2178-19, DF=10000

07-Apr-2004 03:41:03

LC/MS/MS #7

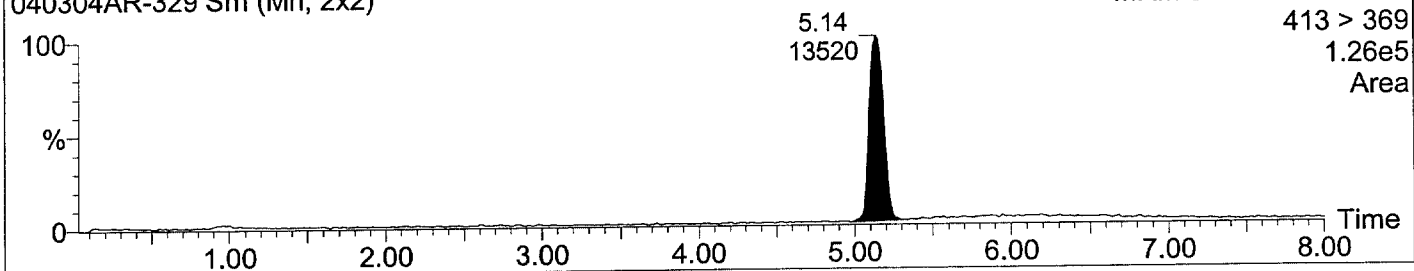
MRM of 1 Channel ES-

413 > 369

1.26e5

Area

040304AR-329 Sm (Mn, 2x2)



Quantify Sample Report

Page 30

Study No.: L2178, Set No.: 040304AR, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-330

Text:

1: PFOA

L2178-20, DF=10000

07-Apr-2004 03:57:47

LC/MS/MS #7

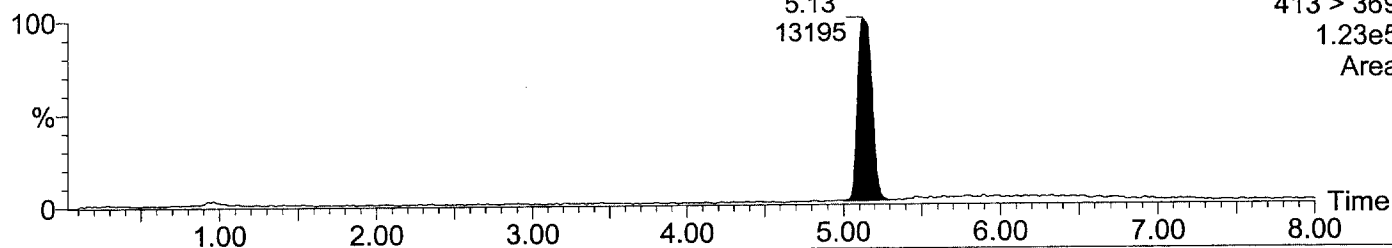
MRM of 1 Channel ES-

413 > 369

1.23e5

Area

040304AR-330 Sm (Mn, 2x2)



Quantify Sample Report

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-331

Text:

1: PFOA

L2178-21, DF=10000

07-Apr-2004 04:14:30

LC/MS/MS #7

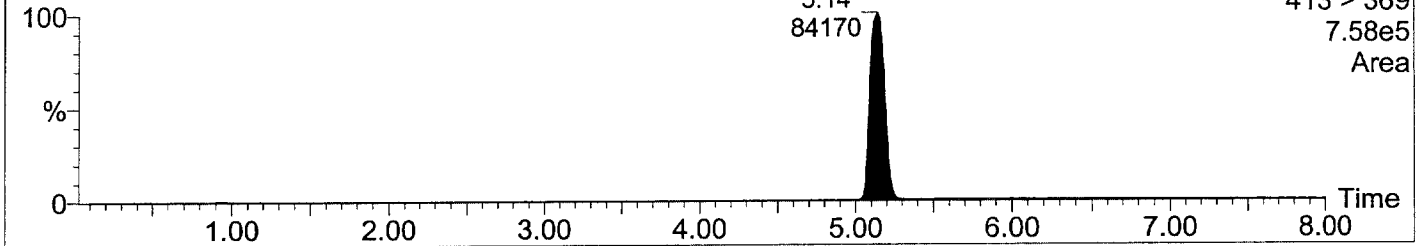
040304AR-331 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

7.58e5

Area



Quantify Sample Report

Study No.: L2178, Set No.: 040304AR, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-332

Text:

1: PFOA

L2178-22, DF=10000

07-Apr-2004 04:31:15

LC/MS/MS #7

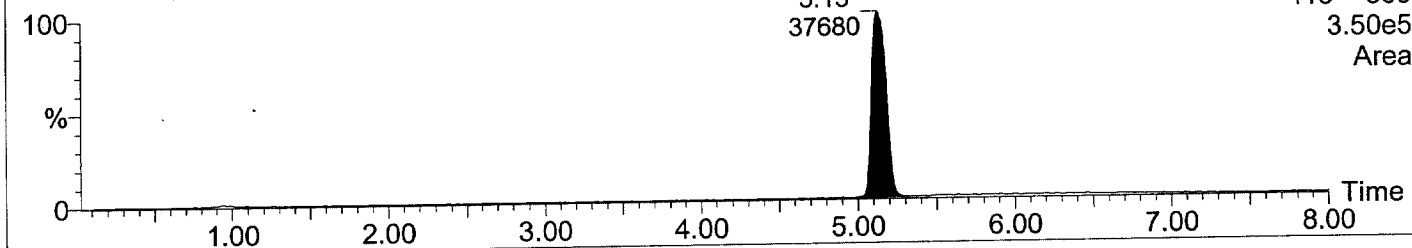
MRM of 1 Channel ES-

413 > 369

3.50e5

Area

040304AR-332 Sm (Mn, 2x2)



Quantify Sample Report

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-333

Text:

1: PFOA

XC040504-4, 250 ng/L standard

07-Apr-2004 04:47:53

LC/MS/MS #7

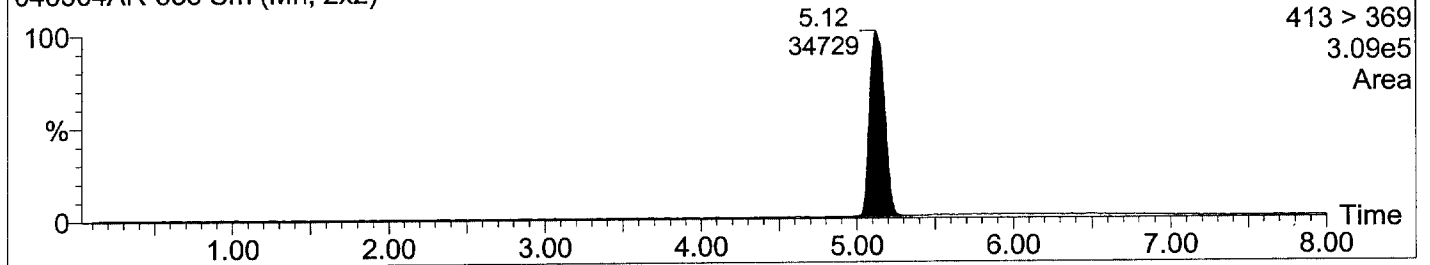
MRM of 1 Channel ES-

413 > 369

3.09e5

Area

040304AR-333 Sm (Mn, 2x2)



Quantify Sample Report

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-334

Text:

1: PFOA

L2178-23, DF=100

07-Apr-2004 05:04:36

LC/MS/MS #7

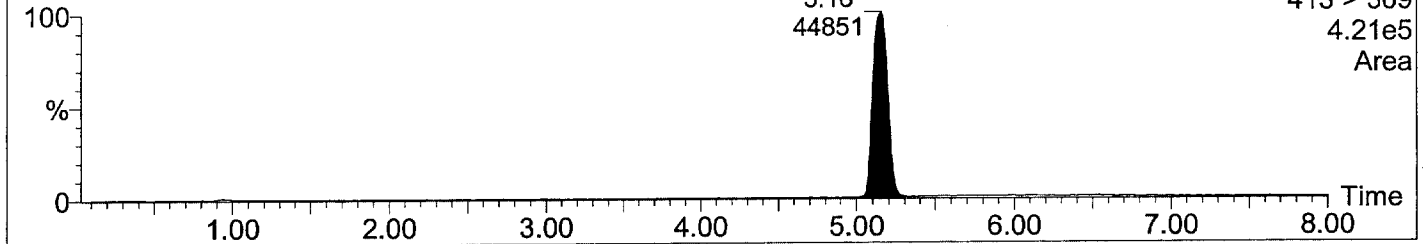
040304AR-334 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

4.21e5

Area



Quantify Sample Report

Study No.: L2178, Set No.: 040304AR, Ext.Date: 04/03/04, Analyst: K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-335

Text:

1: PFOA

L2178-24, DF=100

07-Apr-2004 05:21:14

LC/MS/MS #7

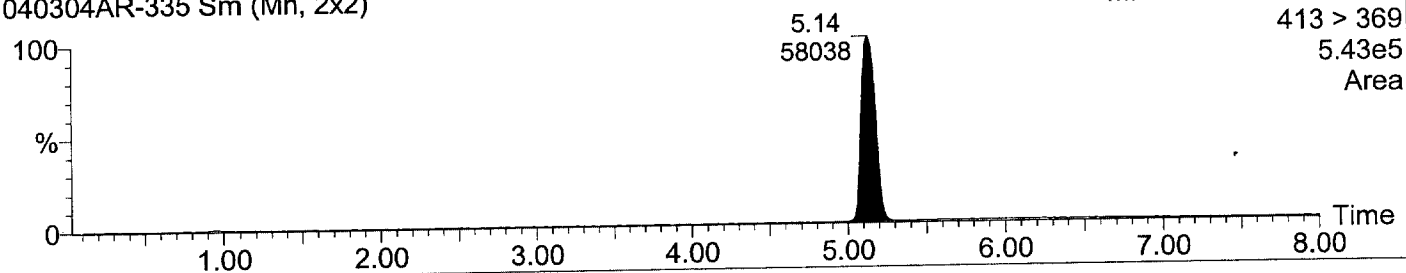
MRM of 1 Channel ES-

413 > 369

5.43e5

Area

040304AR-335 Sm (Mn, 2x2)



Quantify Sample Report

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-336

Text:

1: PFOA

L2178-25, DF=100

07-Apr-2004 05:37:51

LC/MS/MS #7

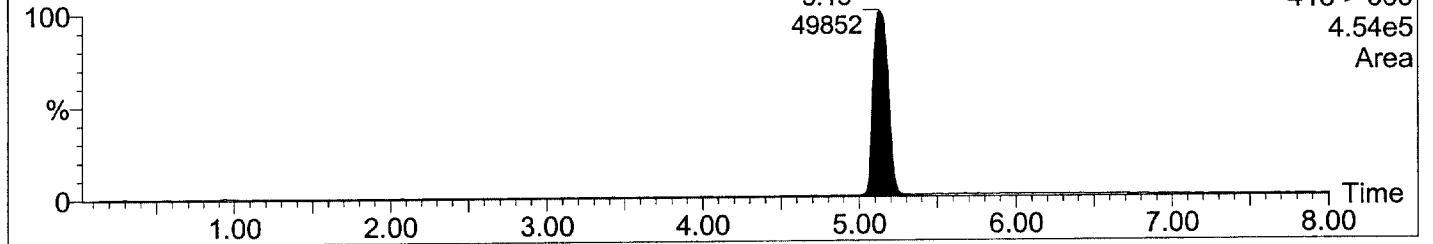
040304AR-336 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

4.54e5

Area



Quantify Sample Report

Study No.: L2178, Set No.: 040304AR, Ext. Date: 04/03/04, Analyst: K. Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-337

Text:

1: PFOA

L2178-26, DF=100

07-Apr-2004 05:54:26

LC/MS/MS #7

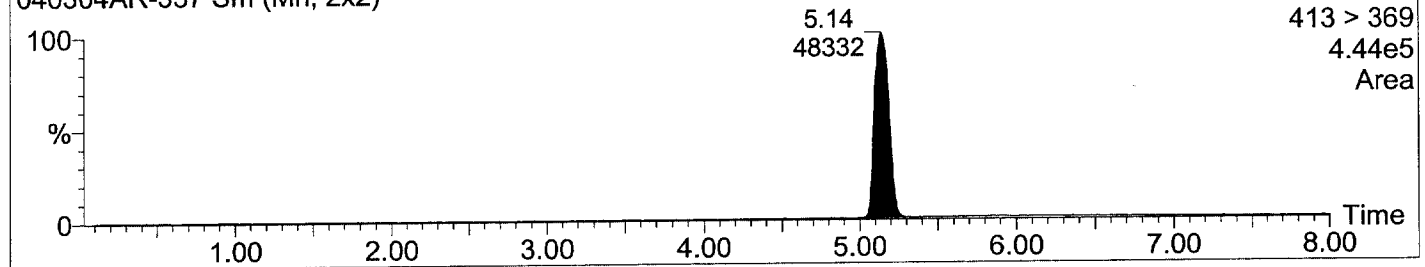
MRM of 1 Channel ES-

413 > 369

4.44e5

Area

040304AR-337 Sm (Mn, 2x2)



Quantify Sample Report

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-338

Text:

1: PFOA

L2178-27, DF=100

07-Apr-2004 06:11:04

LC/MS/MS #7

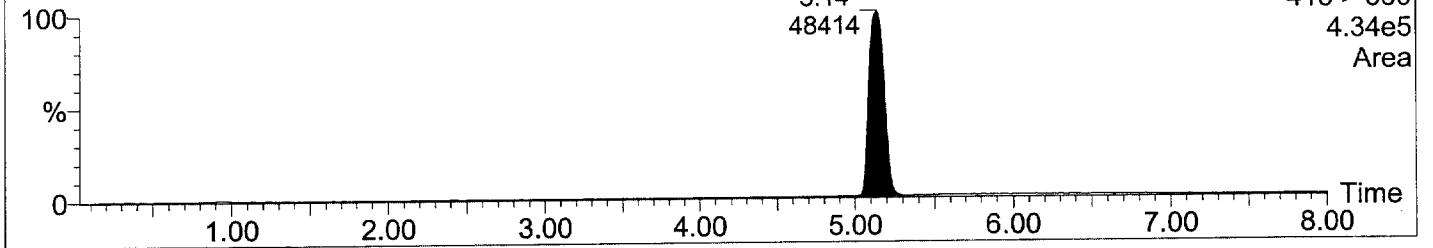
MRM of 1 Channel ES-

413 > 369

4.34e5

Area

040304AR-338 Sm (Mn, 2x2)



Quantify Sample Report

Page 39

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-339

Text:

1: PFOA

L2178-28, DF=1000

07-Apr-2004 06:27:43

LC/MS/MS #7

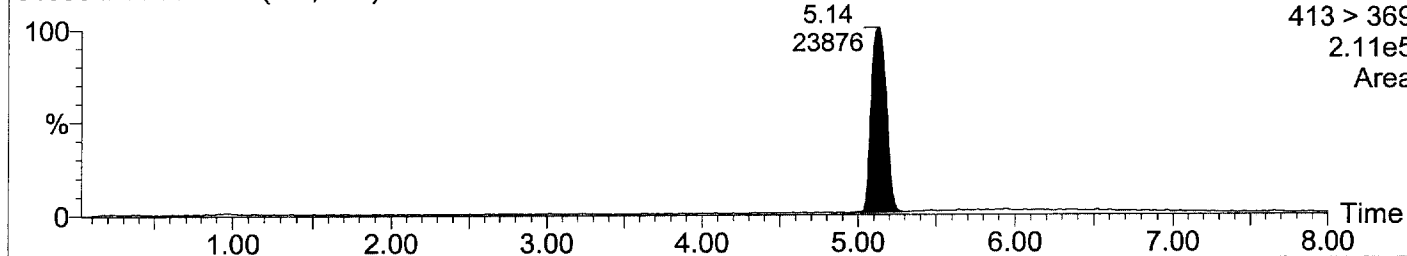
MRM of 1 Channel ES-

413 > 369

2.11e5

Area

040304AR-339 Sm (Mn, 2x2)



Quantify Sample Report

Study No.: L2178, Set No.: 040304AR, Ext.Date: 04/03/04, Analyst: K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-340

Text:

1: PFOA

L2178-29, DF=1000

07-Apr-2004 06:44:27

LC/MS/MS #7

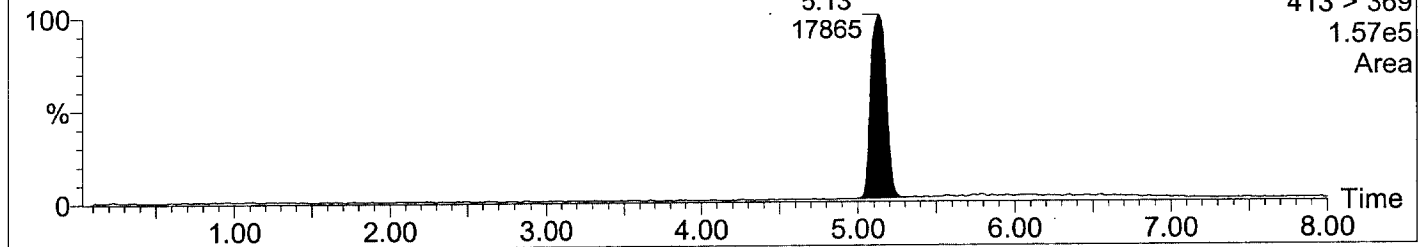
040304AR-340 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

1.57e5

Area



0142

Quantify Sample Report

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-341

Text:

1: PFOA

XC040504-5, 500 ng/L standard

07-Apr-2004 07:01:09

LC/MS/MS #7

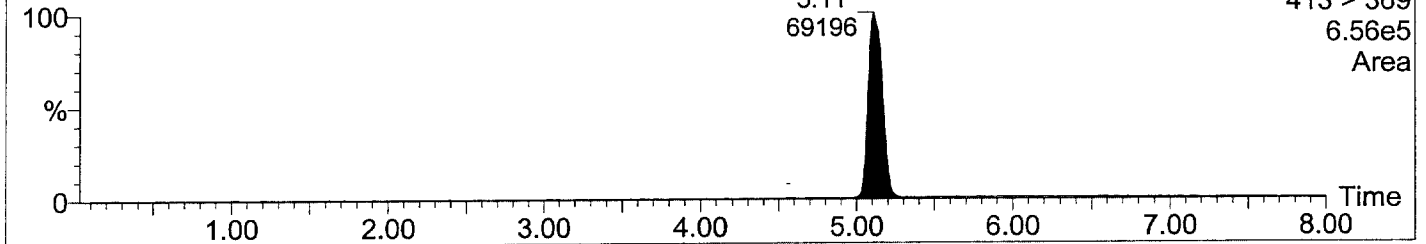
040304AR-341 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

6.56e5

Area



Quantify Sample Report

Page 42

Study No.:L2178, Set No.:040304AR, Ext.Date:04/03/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\SampleDB\040304AR Filter paper

Last modified: Wed Apr 07 08:02:10 2004

Method: P:\Data\LCMSMS7\Masslynx\008 APFO.PRO\MethDB\031704 PFOA

Last modified: Tue Mar 23 10:54:32 2004

Job Code:

Printed: Wed Apr 07 08:04:00 2004

Name: 040304AR-342

Text:

1: PFOA

XC040504-6, 1000 ng/L standard

07-Apr-2004 07:17:53

LC/MS/MS #7

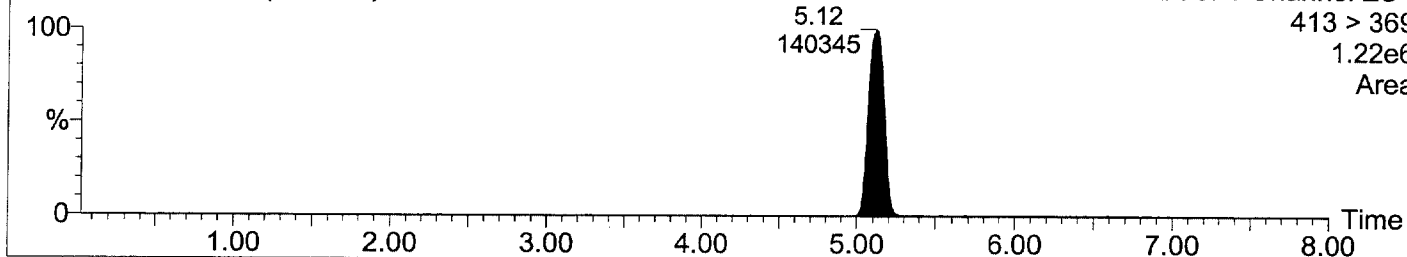
040304AR-342 Sm (Mn, 2x2)

MRM of 1 Channel ES-

413 > 369

1.22e6

Area



The following pages are exact copies of information for the standards used in this study.

Pentadecafluorooctanoic acid (Inventory #: SP3800), obtained from Aldrich (lot # 23116HB) was used to make a stock solution (ID # S030204-1) which in turn, was used to make intermediate solutions (ID#'s F030804-1, F030804-2, F030804-3, F030804-4 and F030804-5). These intermediate solutions are used to prepare extracted calibration standards, laboratory control samples, and matrix spike samples.

Pentadecafluorooctanoic acid (Inventory #: SP2651), obtained from Oakwood Products Inc., Fluorochem USA (lot # 210002) was used to make a stock solution (ID # S102703-1) which in turn, was used to make intermediate solutions (ID#'s F012804-1 and F012804-2). These intermediate solutions are used to prepare the check standard, which is designed as an independent source verification of the calibration standards.

The information on the following pages provides the exact sources, lot numbers, shipping information, expiration dates and storage conditions of the neat standards. Also included are the preparation of stock standard and fortification solution forms. These pages show the exact details of the preparation of each of the stock and fortification solutions, as well as their expiration dates and storage conditions.

kg 09/07/04





Phone: 814-272-1039
Fax: 814-231-1580

3058 Research Drive
State College, PA 16801

Standards - Primary

SP0003800-3845

Description: Pentadecafluorooctanoic acid

Type: Routine

Sponsor Contact:

Matrix: Solids (Gravimetric)

Catalog #: 171468

Lot #: 23116HB

CAS #: 335-67-1

Solvent: NONE

Removed: False

Condition Recv'd: Room Temperature

Condition Stored: Room Temperature

Current Location: B1-105

Vendor: SIGMA-ALDRICH, INC.

Company Name:

Contact:

Phone #:

Notes:

Purity is 97.64% (GC purity of 97.7% minus Karl Fischer purity 0.06%)

See phone log for explanation of expiration date.

Aliquot - SP0003800

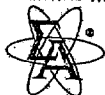
Addition	Component	Withdrawal	Units	Component	Purpose	Computer	Created On	Created By
5.00000			g		INITIAL		12/8/03 12:56:03PM	RISHA, KAREN
		0.10242	Notes: g	Balance 14	ANALYSIS	BALANCE5	12/8/03 1:53:57PM	RISHA, KAREN
		0.10242	Notes: g	Balance 14	ANALYSIS	BALANCE5	3/2/04 11:45:51AM	SHEEHAN, AMY

BY pe DATE 04/07/04
THIS IS AN EXACT COPY OF THE ORIGINAL DOCUMENT.

000222

0146





SIGMA-ALDRICH

Allentown Distribution Center
Aldrich Chemical Company, Inc.
6950 AMBASSADOR DRIVE
Allentown PA 18106

SHIP TO:
EXYGEN RESEARCH
KAREN
3048 RESEARCH DR
STATE COLLEGE PA 16801

Customer Service 800-325-3010 • <http://www.sigma-aldrich.com>

PAGE 1 of 1 DELIVERY 514730562

DATE	SOLD TO ACCT	SOLD TO NAME	PURCHASE ORDER NUMBER	REFERENCE	
12/05/2003	49435591	EXYGEN RESEARCH	4031KR10	9270247	
ROUTE		PERSON TO CONTACT	PHONE NUMBER		
AIRBORNE GROUND FCA SHIPPING POINT		KIM DOOLITTLE	5142318032		
STOCK NO	LOT NO	ORDERED	SHIPPED	BACK ORD	DESCRIPTION
171468-5G	23116HB	1	1	0	PENTADECFLUOROOCCTANOIC ACID, 96%
					CNTRY OF OR: US
Reserve your FREE copy of the Best Seller in Science. The 2004-2005 Sigma General Catalog will be available soon, featuring the world's largest selection of research products. Get a FREE Metabolic Pathways Chart when you reserve your catalog now. www.sigma-aldrich.com/gencat					

The
SIGMA-ALDRICH
Family

SIGMA
Biochemicals and
Reagents for Life
Science Research

Fluka
Specialty Chemicals
and Analytical
Reagents for Research

ALDRICH
Organics and
Inorganics for
Chemical Synthesis

Riedel
Laboratory Chemicals
and Reagents for
Research and Analysis

SUPELCO
Chromatography
Products for Analysis
and Purification

ALL SALES ARE EXPRESSLY LIMITED TO AND CONDITIONED UPON THE TERMS AND CONDITIONS APPEARING ON THE FRONT AND BACK OF THIS FORM.
SIGMA-ALDRICH BRAND PRODUCTS ARE SOLD THROUGH SIGMA-ALDRICH, INC.

THIS IS AN EXACT COPY OF
THE ORIGINAL DOCUMENT.

BY DATE 04/07/04
0147
000723

1 OF 1
TR v3.5.00 CL408 04/02

TR v3.5.00 CL408 04/02



SIGMA-ALDRICH

Certificate of Analysis

SP3800

Product Name	Pentadecafluorooctanoic acid
Product Number	17,146-8
CAS Number	335-67-1
Molecular Formula	$C_8HF_{15}O_2$
Molecular Weight	414.1

TEST	SPECIFICATION	LOT 23116HB RESULTS
APPEARANCE	WHITE TO OFF-WHITE POWDER	WHITE CRYSTALLINE POWDER
INFRARED SPECTRUM	CONFORMS TO STRUCTURE AND STANDARD AS ILLUSTRATED ON PAGE 507B OF EDITION I, VOLUME 1 OF 'THE ALDRICH LIBRARY OF FT-IR SPECTRA'.	CONFORMS TO STRUCTURE AND STANDARD
TITRATION	95.5% - 104.5% (WITH NaOH)	101.1% (WITH NaOH)
GAS LIQUID CHROMATOGRAPHY	95.5% (MINIMUM)	97.7%
TITRATION	2% H ₂ O (MAXIMUM)	0.06% H ₂ O (WITH 'KARL FISCHER' REAGENT)
QUALITY CONTROL ACCEPTANCE DATE		JUNE, 2003

Ronnie J Martin, Supervisor
Quality Control

"THIS IS AN EXACT COPY OF
THE ORIGINAL DOCUMENT."

BY RF DATE 04/07/04

0149
000725



3058 Research Drive
State College, PA 16801

SP 3800

Phone: 814-272-1039
Fax: 814-231-1580

Protocol No.: _____ Exygen Study No: _____ Page | of |

STUDY TELEPHONE/COMMUNICATIONS LOG

Person: Ken Originator: Exygen x
Company: Aldrich Sponsor _____
Date: 12/08/03
Time: 1022

Notes:

I called Aldrich tech service at 1-800-231-8327 to ask the shelf life of the PFOA standard I received today. Ken, an Aldrich rep in technical service, told me that the shelf life is 2 years from the date of receipt stored at room temperature.

"THIS IS AN EXACT COPY OF
THE ORIGINAL DOCUMENT."

BY kg DATE 04/07/04

Signature: *Shenisha*

Date: 12/08/03

000726

0150

August 7, 2001/1

Phone: 814-272-1039
Fax: 814-231-1580

PREPARATION OF STOCK STANDARD SOLUTION

Project					
Exygen Study / Project Number: P418			Customer Project Number: NA		
Primary Standard					
Compound Name: PFOA			Exygen ID: SP0003800		
Purity: 97.64 %			Primary Standard Expiration Date: 12/08/05		
Stock Solution Preparation					
Net Wt. of Compound: 0.10242 g			Net Wt. Adjusted for Purity: 0.10000 g		
Final Volume: 100 mL			Stock Solution Concentration: 1000 µg/mL		
Solvent Exygen Inventory ID: RED009742			Solvent Name: METHANOL		
Stock Solution ID: (SMMDDYY-1,2,3, etc.) SO3OZ04-1			Stock Solution Expiration Date: 03/02/05		
Storage Condition and Location					
Freezer ID: -		Refrigerator ID: 33		Room Temperature: -	
Walkin Freezer ID: -		Walkin Cooler ID: -		Storage Cabinet: -	
(Enter the Instrument or Room ID under the appropriate condition)					
Remarks					

THIS IS AN EXACT COPY OF
THE ORIGINAL DOCUMENT.

BY bf DATE 04/07/04

Signature: Amy Sheehan

Date: 03/02/04



3058 Research Drive
State College, PA 16801

Phone: 814-272-1039
Fax: 814-231-1580

PREPARATION OF FORTIFICATION STANDARD SOLUTIONS

Project						
Exygen Study / Project Number: P418				Customer Project Number: NA		
Fortification Solution Preparation (If 2 or more initial solutions are combined, indicate the combined solutions with a bracket)						
Date Prepared: 03/08/04				Fortification Solutions Expiration Date: 06/08/04		
Solvent Exygen Inventory ID: RE0012124				Solvent Name: METHANOL		
Initial Soln. ID	Compound Description	Initial Soln. Conc. (µg/mL)	Initial Soln. Aliquoted Volume (mL)	Final Soln. Volume (mL)	Final Soln. Conc. (µg/mL)	Final Soln. ID (FMMDDYY-1,2,3, etc.)
S636204-1	PFOA	1000	10	100	100	F030804-1
F630804-1	PFOA	100	10	100	10	F030804-2
F630804-2	PFOA	10	10	100	1.0	F030804-3
F030804-3	PFOA	1.0	10	100	0.1	F030804-4
F030804-4	PFOA	0.1	10	100	0.01	F030804-5
-	-	-	-	-	-	F -
-	-	-	-	-	-	F -
-	-	-	-	-	-	F -
-	-	-	-	-	-	F -
-	-	-	-	-	-	F -
Storage Condition and Location						
Freezer ID: -		Refrigerator ID: 33		Room Temperature: -		
Walkin Freezer ID: -		Walkin Cooler ID: -		Storage Cabinet: -		
(Enter the Instrument or Room ID under the appropriate condition)						
Remarks						
THIS IS AN EXACT COPY OF THE ORIGINAL DOCUMENT. BY: <u>RL</u> DATE: <u>04/07/04</u>						

Signature: David Pishar

Date: 03/08/04

0152

000728

5 NOVEMBER 2003/4



3058 Research Drive
State College, PA 16801
Phone: 814-272-1039
Fax: 814-231-1580

Standards - Primary

SP0002651 > 2699

Description: Pentadecafluorooctanoic acid
Type: Routine
Sponsor Contact:
Matrix: SOLID
Catalog #: 001319
Lot #: 210002
CAS #: 335-67-1
Solvent: NONE
Density: g/cm³
Density Units: B1-105
Current Location: OAKWOOD PRODUCTS, INC.
Vendor:
Company Name:
Contact:
Phone #:
Notes:

Date Received: 04/09/2003
Expires: 4/9/04 12:00:00AM
Condition Recv'd: Room Temperature
Condition Stored: Refrigerated
Removed: False
Special: Unknown
Flammable: Unknown
Health: Unknown
Reactive: Unknown

Aliquot - SP0002651

Addition	Component	Withdrawal	Units	Component	Balance	Purpose	Computer	Created On	Created By
100.0000			g		99.9897	INITIAL		4/9/03 11:58:38AM	DECKER, EMILY
		0.0103	g	Balance 14		ANALYSIS	BALANCE5	10/27/03 8:48:34AM	RISHA, KAREN
			Notes: 008-APFO						

THIS IS AN EXACT COPY OF THE ORIGINAL DOCUMENT.
BY be DATE 04/07/04

0153
000729

OAKWOOD PRODUCTS, INC.
 FLUOROCHEM USA
 1741 OLD DUNBAR ROAD
 WEST COLUMBIA, SC 29172
 Phone: 803-739-8800 FAX: 803-739-6957

28150

ORDER

BILL TO: VWR Scientific
 P.O. Box 706
 Accounts Payable Dept.
 Bridgeport, NJ 08014
 (856) 457-2600

SHIP TO: Exygen Research Labs
 Attn: LOX401139
 3058 Research Drive
 State College, PA 16801
 Ref PO LOX401139
 (856) 241-7905

Page 1

CUST NO.	QUANTITY ORDERED	P. O. NUMBER	SHIPPING INSTRUCTIONS	COL	PPD	SHIP DATE	TERMS	INVOICE DATE
10065	B3	1884806790	AIRBORNE/2DY		X	04/04/03	Net 30 Days	04/04/03
QUANTITY ORDERED	QUANTITY SHIPPED	QUAN. TO. INVOICED	DESCRIPTION					
100 grams	100 grams	001319	Pentadecafluorooctanoic acid, 97%					
			<i>led</i> <i>SPD</i> <i>4/9/03</i> ** LOT #210002 ONLY !!! ** CERTIFICATE OF ANALYSIS REQUIRED					
			<i>SP2161</i> "THIS IS AN EXACT COPY OF THE ORIGINAL DOCUMENT." BY <i>[Signature]</i> DATE <i>04/07/04</i>					
PACKING LIST								

FORM 940-001 PREPARED BY ELECTRONIC DATA SYSTEMS

000230 U154



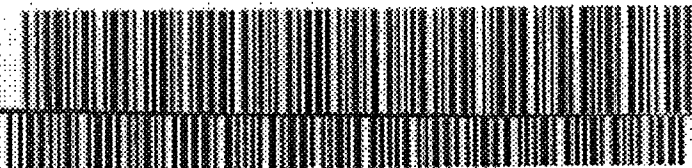
Oakwood Products, Inc. 303-734-8838
1741 Old Dunbar Rd.
West Columbia, SC 29172 USA

TO: Exygen Research Labs
3058 Research Drive
Attn: LOX401139
State College
PA 16801 Ref PO LOX401139

Art# 17541621355

SP2101

Origin
Date Printed



AirborneExchange 0073 (0403)

To (Company):

Exygen Research Labs
3058 Research Drive
State College, PA 16801
UNITED STATES

THIS IS AN EXACT COPY OF
THE ORIGINAL DOCUMENT.

BY

DATE

04/07/04

Attention To
Phone #

PO # LOX401139
856-211-7905

Service

S TUE

Special Service:

HAZ

Route:

WCEA 3Q ABH

**AIRBORNE
EXPRESS**

www.airborne.com

From (Company):

OAKWOOD PRODS
1741 OLD DUNBAR RD
WEST COLUMBIA, SC 29172
UNITED STATES

Sent by:

GILBERT

Phone #:

303-734-8838

Description:

DO AS PER SHIPPER'S ATT
DECLARATION

Weight (lbs.):

2 Class: 0 x 0 x 0

Pieces:

1 of 1

Protection:

Declared Value

US \$

Est Shipment To:

Sender

000000000000

000731 0155

Oakwood Products, Inc.

1741 Old Dunbar Road
West Columbia, SC 29172
Phone (803) 739-8800
Fax (803) 739-6957

CERTIFICATE OF ANALYSIS

Date: 15-Jul-02

Material: Pentadecafluorooctanoic acid

Cat.No.: 1319

Cav.No.: [335-67-1]

Lot No.: 210002

Assay: 97+% by NaOH titration

SP 2651

Appearance: White solid

Melting Point: 59-61°C

Yumei Yang
Yumei Yang
QC Manager

"THIS IS AN EXACT COPY OF
THE ORIGINAL DOCUMENT."

BY bf DATE 04/07/04

0156
000732



3058 Research Drive
State College, PA 16801

Phone: 814-272-1039
Fax: 814-231-1580

Page _____

PREPARATION OF STOCK STANDARD SOLUTION

Protocol Number: NA Exygen Study Number: 008-APFO
Compound: PENTADECYLFLUOROOCTANOIC ACID (PFOA) Lot Number: 210002
Source: OAKWOOD PRODS Purity: 97 % Date Last Characterized: 07/15/02
Date Standard Received: 04/09/03 Storage Location: WALKIN COOLER 9
Compound Expiration Date: 04/09/04 Exygen Inventory #: SP2651

A calibration check must have been conducted with the balance on the day of sample weighing.

Balance Calibration

Stock Solution

Balance Number: 14
Logbook page for
calibration data: EXY LMS

Net Wt. of Material: 0.01031 g
Wt. Adjusted for Purity: 0.01000 g

Solvent: METHANOL
Manufacturer: EMD
Lot Number: 43238335

Final Volume: 100 mL
Concentration: 100 µg/mL

Stock Solution
Expiration Date*: 04/09/04

*THIS IS AN EXACT COPY OF
THE ORIGINAL DOCUMENT.*
BY bl DATE 04/07/04
Stock Solution ID: S102703-1
Stock Soln ID #: SMMDDYY-1,2,3,etc.

* Assign a one year expiration date for all stock solutions unless otherwise indicated by sponsor.

Storage Conditions for Solution:

Freezer Number: — Refrigerator Number: 33 Room Temperature: —
Indicate which of the above is applicable, and location.

REMARKS:

Signature: Shen Pisha

Date: 10/27/03

July 18, 2001/4

000733

U157



3058 Research Drive
State College, PA 16801

Phone: 814-272-1039
Fax: 814-231-1580

PREPARATION OF FORTIFICATION STANDARD SOLUTIONS

Project						
Exygen Study / Project Number: NA				Customer Project Number: NA		
Fortification Solution Preparation (If 2 or more initial solutions are combined, indicate the combined solutions with a bracket)						
Date Prepared: 01/28/04				Fortification Solutions Expiration Date: 04/09/04		
Solvent Exygen Inventory ID: RE0011416				Solvent Name: METHANOL		
Initial Soln. ID	Compound Description	Initial Soln. Conc. (µg/mL)	Initial Soln. Aliquoted Volume (mL)	Final Soln. Volume (mL)	Final Soln. Conc. (µg/mL)	Final Soln. ID (FMMDDYY-1,2,3, etc.)
S102703-1	PFOA	100	1.0	100	1.0	F012804-1
F012804-1	PFOA	1.0	10	100	0.1	F012804-2
-	-	-	-	-	-	F -
-	-	-	-	-	-	F -
-	-	-	-	-	-	F -
-	-	-	-	-	-	F -
-	-	-	-	-	-	F -
-	-	-	-	-	-	F -
-	-	-	-	-	-	F -
-	-	-	-	-	-	F -
-	-	-	-	-	-	F -
-	-	-	-	-	-	F -

Storage Condition and Location			
Freezer ID: _____	Refrigerator ID: 33	Room Temperature: _____	
Walkin Freezer ID: _____	Walkin Cooler ID: _____	Storage Cabinet: _____	
(Enter the Instrument or Room ID under the appropriate condition)			
Remarks			
THIS IS AN EXACT COPY OF THE ORIGINAL DOCUMENT. BY <u>762</u> DATE <u>04/07/04</u>			

Signature: Shenisha

Date: 01/28/04

0158

000734+1 5 NOVEMBER 2003/4
(166) total 735