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Analytical Report

TACONIC

Analysis of PFOA in Water Samples

Exygen Report No. L0003924

Testing Laboratory

Exygen Research
3058 Research Drive
State College, PA 16801

Requester

Tim Kosto
TACONIC
136 Coonbrook Road
Petersburgh, New York, 12138
Phone: 518-658-3202

11/2004

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State College, PA 16801, USA
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1 Introduction

Results are reported for the analysis of perfluorooctanoic acid (PFOA) in wastewater samples received at Exygen from Tim Kosto at TACONIC. The Exygen project number assigned to the samples is L0003924. Table I lists the target analytes quantitated for the samples.

Table I. Target Analytes for Quantitation

Parameter	Acronym	Formula
Perfluorooctanoic acid	PFOA	$C_7F_{15}COOH$

2 Sample Receipt

Four samples were received at Exygen in 500 mL clear plastic bottles. A copy of all sample log-in information is presented in Attachment A.

The samples were received on 11/23/04. The samples were shipped on ice via UPS. The samples were stored refrigerated from time of receipt until analysis.

3 Methods - Analytical and Preparatory

3.1 Sample Preparation

Solid phase extraction (SPE) was used to prepare the samples for LC/MS/MS analysis. A forty milliliter portion of each sample was transferred to a C_{18} SPE cartridge. The cartridge was eluted with 5 mL of 100% methanol. This treatment resulted in an eight-fold concentration of the samples prior to analysis. A portion of the extract was transferred to autosampler vials and analyzed using electrospray LC/MS/MS.

3.2 Sample Analysis by LC/MS/MS

In High Pressure Liquid Chromatography (HPLC), an aliquot of extract is injected and passed through a liquid-phase chromatographic column. Based on the affinity of the analyte for the stationary phase in the column relative to the liquid mobile phase, the analyte is retained for a characteristic amount of time. Following HPLC separation, mass spectrometry provides a rapid and accurate means for analyzing a wide range of organic compounds. Molecules are ionized, fragmented, and detected. The ions characteristic of the compounds are observed and quantitated against extracted standards.

An HP1100 system interfaced to a Micromass Quattro system was used to analyze the sample extracts for quantitation. A gradient elution through a Jones Chromatography Genesis C-8 50 x 2.1 mm x 4µm column was used for separation.

The following gradient was performed:

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

Time	%A	%B
0.0	60	40
0.4	60	40
1.0	10	90
7.0	10	90
7.5	0	100
9.0	0	100
9.5	60	40
13.5	60	40
14.0	60	40

The following parameters were used for operation of the mass spectrometer:

Parameter	Setting
Ionization Mode	Electrospray
Polarity	Negative
Transitions Monitored	413->369 (PFOA)
Gas Temperature	350°C
Drying Gas (N2)	7.0 L/min

4 *Analysis*

4.1 Calibration

A 7-point calibration curve was analyzed throughout the analytical sequence for PFOA. The calibration points were prepared at 0, 25, 50, 100, 250, 500, and 1000 ng/L (ppt) for LC/MS/MS analysis. Calibration standards are prepared using the same SPE procedure used for samples. The instrument response versus the concentration was plotted for each point. Using linear regression with 1/x weighting, the slope, y-intercept and coefficient of determination (r^2) were determined. A calibration curve is acceptable if $r^2 \geq 0.985$.

For the results reported here, calibration criteria were met. The calibration curves are included in the raw data in Attachment C.

4.2 Surrogates

Surrogates were not used in this study.

4.3 Laboratory Control Spikes

Laboratory control spikes in the analytical set were prepared by adding a known concentration of the analyte to laboratory water. Laboratory control spikes are used to assess method accuracy. The laboratory control spikes must show recoveries between 70-130% or the data is rejected. For the results reported here, the laboratory control spikes were within the acceptable range.

4.4 Matrix Spikes

A matrix spike was prepared for each sample in the analytical set by adding a known concentration of the target analyte to a separate sample. Matrix spikes are used to assess method accuracy in the matrix. The matrix spikes should show recoveries between 70-130%. For the results reported here the matrix spike for 04-10-03A,B was within the acceptable range. For the other three samples, 04-10-01A,B, 04-10-02A,B and 04-10-04, the amount of PFOA found in the sample greatly exceeded the spiking level and an accurate recovery could not be calculated.

4.5 Sample Related Comments

Each sample was extracted in duplicate and analyzed. Duplicate sample results are reported along with the sample results in Attachment B.

5 Data Summary

Please see Attachment B for a detailed listing of the analytical results. Results are reported in parts per billion (ng/mL) for the analyte, PFOA, on an as-received basis.

6 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. Hardcopy data is stored for a minimum of five years. The client will be notified 30 days prior to the disposal of hardcopy data.

7 Attachments

7.1 Attachment A: Chain of Custody

7.2 Attachment B: Analytical Results

7.3 Attachment C: Raw Analytical Data

8 Signatures

Karen Risha, Principal Investigator — Date: 12/21/04

John M. Flaherty, Vice President — Date: 12/21/04

A

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

Login

Login Group: L0003924

Login #:	4034	Conform COC Sample:	True
Project:	P0001069	Conform COC:	True
Company Name:	TACONIC	Conform Sample:	True
Submitted By:	Tim Kosto	Conform Request:	True
Login Type:	Immediate Receipt of Samples		
Started:	True		
Date Start:	11/23/2004		
Due Date:	12/07/2004		
Received Date:	11/23/2004		
Received By:	Ammerman, Mark		
Spread Sample:			
Label:			
Exygen SD/PI:	Risha, Karen		
Project Title/Type:	Analysis of APFO in Water Samples by LCMSMS / ROUTINE		
Login Notes:			
Conform Notes:			

Packages / Containers

Package	Carton	Mail Date / Condition	Shipper / ID	Temp. Control/Temp.	Direction / Handled By
PK0004742		11/23/2004 2:08:55PM Package & Contents Uncompromised	UPS 1Z1207900145335324	Wet Ice 1.2	RECEIVED Ammerman, Mark

Container #	Gross Weight	pH	Container Type	Preservative	Mfg. Lot	Mfg. ID
C0051125	590.40 g		500 ml Clear Plastic Narrow	NONE		
C0051126	576.90 g		500 ml Clear Plastic Narrow	NONE		
C0051127	533.80 g		500 ml Clear Plastic Narrow	NONE		
C0051128	573.30 g		500 ml Clear Plastic Narrow	NONE		
C0051129	560.80 g		500 ml Clear Plastic Narrow	NONE		
C0051130	551.30 g		500 ml Clear Plastic Narrow	NONE		
C0051131	599.80 g		500 ml Clear Plastic Narrow	NONE		

Login

Samples

Sample ID	Container	Matrix	Fraction	Sample	Date Sampled	Date Received	Date Due
L0003924-0001		LIQUID	Water	04-10-01	11/22/2004	11/23/2004	12/07/2004
	C0051125						
	C0051126						
L0003924-0002		LIQUID	Water	04-10-02	11/22/2004	11/23/2004	12/07/2004
	C0051127						
	C0051128						
L0003924-0003		LIQUID	Water	04-10-03	11/22/2004	11/23/2004	12/07/2004
	C0051129						
	C0051130						
L0003924-0004		LIQUID	Water	04-10-04	11/22/2004	11/23/2004	12/07/2004
	C0051131						

Exygen® RESEARCH

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

Exygen Research Sample Receiving • 3048 Research Drive • State College, PA 16801, USA
T: 814.231.8032 • F: 814.231.1580 • exygenresearch.com

Page ____ of ____

PROJECT INFORMATION

Client (name & address):
Tim Kosto, ~~[illegible]~~
136 Coonbrook Road
Petersburgh, NY 12138
Phone: 518-658-3202 x. 296
Fax: 518-658-3204
Sampler: Tim Kosto

Project Manager (Name & E-mail Address):

Project Name: Water Analysis
P.O. #: — Credit Card
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
	04-10-01 A, B	11/22/04	3:25 P.M.	X				PFOA
	04-10-02 A, B	11/22/04	3:15 P.M.	X				PFOA
	04-10-03 A, B	11/22/04	~~3:25~~ 3:05 P.M.	X				PFOA
	04-10-04	11/22/04	3:45 P.M.	X				PFOA

LAB USE ONLY

CHAIN OF CUSTODY

Cooler ID # CL0002 04 Cooler Temp. (°C) 1.2

Relinquished by	Date	Time
Tim Kosto	11/22/04	4:45 P.M.

Received by	Date	Time
[signature]	11/23/04	

LAB USE ONLY

PROJECT REQUIREMENTS

Results Deadline:

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

OTHER INFORMATION

TAC EPA 00660

22 November 2004

Mark Ammerman
Exygen Research
3048 Research Drive
State College, PA 16801

Dear Mark,

Please find enclosed seven sample bottles containing material for 4 PFOA analyses each in duplicate. The three samples which include duplicates, labeled A and B were each taken consecutively from the sampling location. You may take a sample from each bottle for the duplicate analysis or if you prefer, take both samples from one bottle and discard the other sample bottle.

The duplicate samples are:

04-10-01A and 04-10-01B
04-10-02A and 04-10-02B
04-10-03A and 04-10-03B

Sample 04-10-04 does not have a duplicate. Thank you for your assistance.

Yours,

Timothy J. Kosto II

SHIP TO:
STATE COLLEGE PA 16801-2702

PA 168 0-10

UPS NEXT DAY AIR 1

TRACKING #: 1Z 120 790 01 4533 5324

TAC EPA 00662

B

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Analytical Report

Summary of PFOA in Water Samples

Sample ID	Analyte Found ppb (ng/mL) PFOA	
04-10-01A,B	117	Bldg #4 dispersion well (AKA well #2)
04-10-01A,B*	116	
04-10-02A,B	152	Bldg #2 well (AKA well #1)
04-10-02A,B*	148	
04-10-03A,B	2.30	Bldg #6 well (AKA well #3)
04-10-03A,B*	2.07	
04-10-04	13700	
04-10-04*	14100	

*Laboratory Duplicate

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Recovery Summary for PFOA in Water Samples

Sample Description	Amount Spiked (ng/mL)	PFOA Amt Found in Sample (ng/mL)	PFOA Amount Recovered (ng/mL)	PFOA Recovery (%)
04-10-01A,B 5 ng/mL Spike	5	117	120	^
04-10-02A,B 5 ng/mL Spike	5	152	154	^
04-10-03A,B 5 ng/mL Spike	5	2.30	7.75	109
04-10-04 5 ng/mL Spike	5	13700	14100	^

^Sample residue exceeded the spiking level significantly; therefore, an accurate recovery cannot be calculated.

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DATA SET: 120204A

Protocol No,	—
Exygen Study No.	L3924
Extraction Date:	12 / 02 / 04
Analysis Date:	12 / 09 / 04
Initials:	KP
Date:	12/20/04

NOTE: RESULTS FROM THIS SET WERE USED TO DETERMINE DILUTION FACTORS FOR SET 120204B. KP 12/20/04

REJECTED RUN
REASON

- ☐ Poor Chromatography
- ☐ Drifting Baseline
- ☐ Drifting Retention Time
- ☐ Unstable Responce
- ☐ Power Interruption
- ☐ Unacceptable Recoveries
- ☐ Apparent Contamination
- ☒ Other: Unacceptable standard curve due to high residues in samples

ACTION TAKEN

- ☒ Re-Inject Initials: KP
- ☐ Re-Extract Date: 12/20/04

FOR RE-INJECTION W/ DILUTION SEE DATA SET 120204B.

Masslynx - Sample List

Sample List: C:\MASSLYNX\Fluorochems.PRO\SampleDB\120204A Taconic.SPL
Printed: Wed Dec 08 14:25:58 2004 RR 12/08/04

Exygen STUDY NO. L3924

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	MS Method
1	1	120204A-101	---	---	XC113004-0, 0 ng/L standard	---	Standard	0	---	---	0	1	008 PFOA
2	2	120204A-102	---	---	XC113004-1, 25 ng/L standard	---	Standard	25	---	---	0	1	008 PFOA
3	3	120204A-103	---	---	XC113004-2, 50 ng/L standard	---	Standard	50	---	---	0	1	008 PFOA
4	4	120204A-104	---	---	XC113004-3, 100 ng/L standard	---	Standard	100	---	---	0	1	008 PFOA
5	5	120204A-105	---	---	XC113004-4, 250 ng/L standard	---	Standard	250	---	---	0	1	008 PFOA
6	6	120204A-106	---	---	XC113004-5, 500 ng/L standard	---	Standard	500	---	---	0	1	008 PFOA
7	7	120204A-107	---	---	XC113004-6, 1000 ng/L standard	---	Standard	1000	---	---	0	1	008 PFOA
8	92	120204A-108	---	---	Methanol Wash	---	Blank	---	---	---	0	1	008 PFOA
9	34	120204A-109	---	---	Reagent Control	---	Blank	---	---	---	0	1	008 PFOA
10	35	120204A-110	---	---	Reagent Spk A, 50 ng/L	---	QC	50	---	---	0	1	008 PFOA
11	36	120204A-111	---	---	Reagent Spk B, 500 ng/L	---	QC	500	---	---	0	1	008 PFOA
12	37	120204A-112	---	---	L3924-1 Spk C, 5000 ng/L, DF=10	---	QC	5000	---	---	0	10	008 PFOA
13	38	120204A-113	---	---	L3924-2 Spk D, 5000 ng/L, DF=10	---	QC	5000	---	---	0	10	008 PFOA
14	39	120204A-114	---	---	L3924-3 Spk E, 5000 ng/L, DF=10	---	QC	5000	---	---	0	10	008 PFOA
15	40	120204A-115	---	---	L3924-4 Spk F, 5000 ng/L, DF=10	---	QC	5000	---	---	0	10	008 PFOA
16	2	120204A-116	---	---	XC113004-1, 25 ng/L standard	---	Standard	25	---	---	0	1	008 PFOA
17	3	120204A-117	---	---	XC113004-2, 50 ng/L standard	---	Standard	50	---	---	0	1	008 PFOA
18	41	120204A-118	---	---	L3924-1, DF=10	---	Analyte	---	---	---	0	10	008 PFOA
19	42	120204A-119	---	---	L3924-1 Rep, DF=10	---	Analyte	---	---	---	0	10	008 PFOA
20	43	120204A-120	---	---	L3924-2, DF=10	---	Analyte	---	---	---	0	10	008 PFOA
21	44	120204A-121	---	---	L3924-2 Rep, DF=10	---	Analyte	---	---	---	0	10	008 PFOA
22	45	120204A-122	---	---	L3924-3, DF=10	---	Analyte	---	---	---	0	10	008 PFOA
23	46	120204A-123	---	---	L3924-3 Rep, DF=10	---	Analyte	---	---	---	0	10	008 PFOA
24	47	120204A-124	---	---	L3924-4, DF=10	---	Analyte	---	---	---	0	10	008 PFOA
25	48	120204A-125	---	---	L3924-4 Rep, DF=10	---	Analyte	---	---	---	0	10	008 PFOA
26	4	120204A-126	---	---	XC113004-3, 100 ng/L standard	---	Standard	100	---	---	0	1	008 PFOA
27	5	120204A-127	---	---	XC113004-4, 250 ng/L standard	---	Standard	250	---	---	0	1	008 PFOA
28	49	120204A-128	---	---	L3924-1	---	Analyte	---	---	---	0	1	008 PFOA
29	50	120204A-129	---	---	L3924-1 Rep	---	Analyte	---	---	---	0	1	008 PFOA
30	51	120204A-130	---	---	L3924-2	---	Analyte	---	---	---	0	1	008 PFOA
31	52	120204A-131	---	---	L3924-2 Rep	---	Analyte	---	---	---	0	1	008 PFOA
32	53	120204A-132	---	---	L3924-3	---	Analyte	---	---	---	0	1	008 PFOA
33	54	120204A-133	---	---	L3924-3 Rep	---	Analyte	---	---	---	0	1	008 PFOA
34	55	120204A-134	---	---	L3924-4	---	Analyte	---	---	---	0	1	008 PFOA
35	56	120204A-135	---	---	L3924-4 Rep, DF=10	---	Analyte	---	---	---	0	1	008 PFOA
36	6	120204A-136	---	---	XC113004-5, 500 ng/L standard	---	Standard	500	---	---	0	1	008 PFOA
37	7	120204A-137	---	---	XC113004-6, 1000 ng/L standard	---	Standard	1000	---	---	0	1	008 PFOA

Sample List: C:\MASSLYNX\Fluorochems.PRO\SampleDB\120204A Taconic.SPL
Printed: Wed Dec 08 14:25:58 2004

KR 12/08/04

Exygen STUDY NO. L3924

Page Position: (2, 1)

	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

LC/MS/MS SYSTEM AND OPERATING CONDITIONS

Sponsor Protocol No: NA | Exygen Study No: L3924

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: MA0016347) (**JONES**CHROMATOGRAPHY: Part No. FK5962E)
Mobile Phase (A) :	2 mM Ammonium Acetate in 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 12/08/04

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: _____

Scanning Method Report

Method: C:\MASSLYNX\FLUOROCHEMS.PRO\ACQUDB\008 PFOA
Last Modified: Thu Oct 02 13:56:38 2003

Printed: Wed Dec 08 14:23:31 2004 12/08/04

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

Method File: c:\masslynx\fluorochems.pro\acqudb\water
Last Modified: Wednesday, December 08, 2004 14:18:44

Printed: Wednesday, December 08, 2004 14:23:39 KGC 12/08/04

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

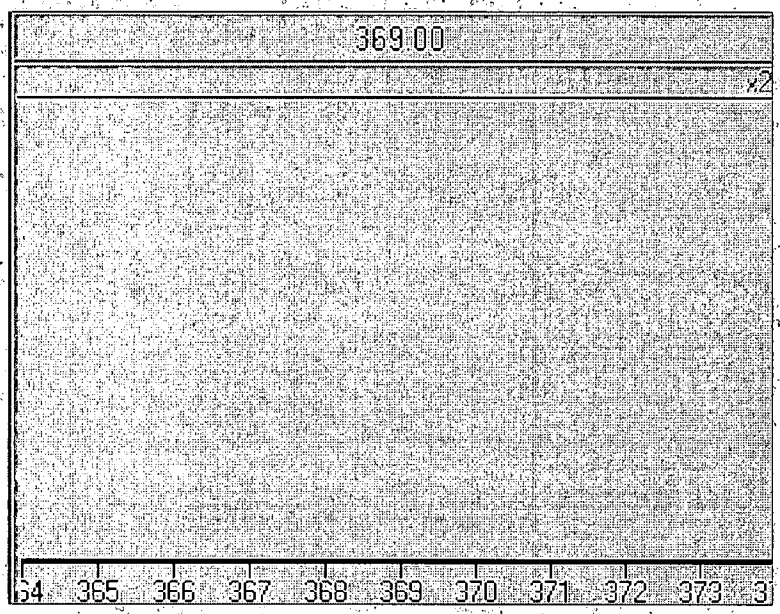
Draw Speed	200.0
Eject Speed (µl/min)	200
Draw Position (mm)	0.10
Stop Time (mins)	15.00
Injection Volume(µl)	15.0
Vial Number	18

Tuning Method Report

Method: C:\MASSLYNX\FLUOROCHEMS.PRO\ACQUDB\PFOA TUNE

Printed: Wed Dec 08 14:23:56 2004

12/08/04



Dau 413.00

SOURCE (ESP-)	Set	Rdbk
Capillary	3.00	-2.93
Cone	10	-10
Hexapole 1	0.0	
Aperture 1	0.0	
Hexapole 2	0.0	
Source Block Temp.	100	101
Desolvation Temp.	300	300

Analyser	Set	Rdbk
LM Res 1	14.0	
HM Res 1	14.0	
IEnergy 1	1.0	
Entrance	-2	8
Collision	10	9
Exit	2	11
LM Res 2	14.0	
HM Res 2	14.0	
IEnergy 2	2.0	
Multiplier	700	-695

Pressures	Rdbk
Analyser Vacuum	OFF
Gas Cell	2.9e-3

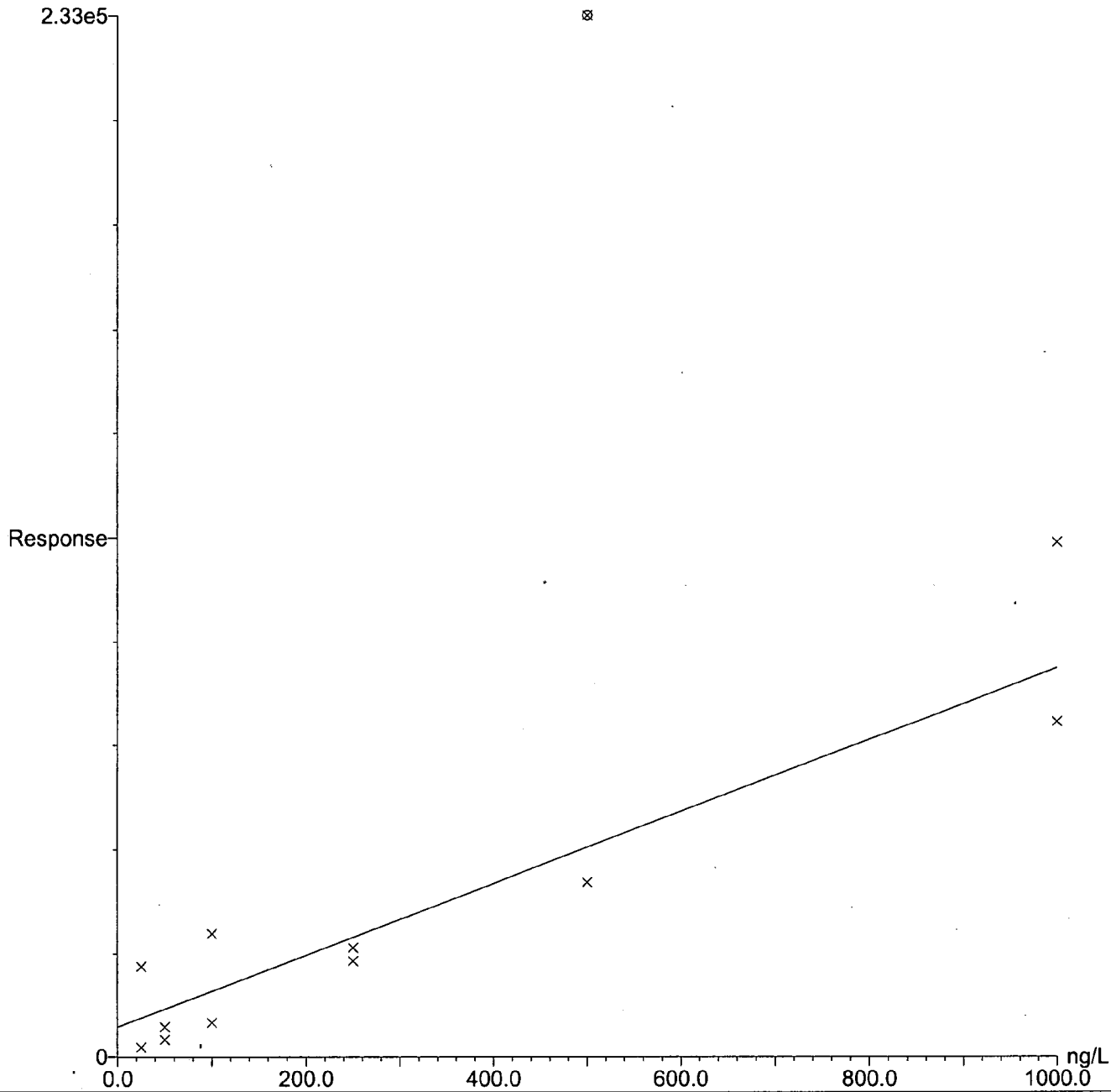
Gas Flows	Rdbk
Cone Gas	121.5
Desolvation	695.6

Quantify Calibration Report
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Calibration: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\CurveDB\120204A Taconic
Last modified: Fri Dec 10 11:01:52 2004
Printed: Mon Dec 20 10:15:23 2004

KJ 12/20/04

Compound 1 name: PFOA
Coefficient of Determination: 0.877262
Calibration curve: 80.4920 * x + 6779.35
Response type: External Std, Area
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Quantify Sample Report
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

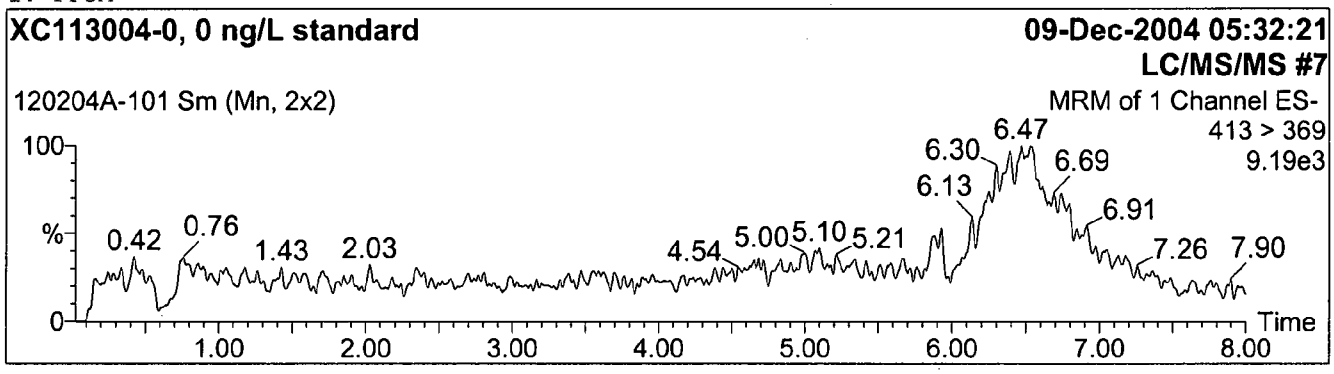
Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Initials
Date 12/20/04
Run# 120204A-101 To 120204A-135

Name: 120204A-101
Text:

1: PFOA



Exygen Research, 3058 Research Drive, State College, PA 16801

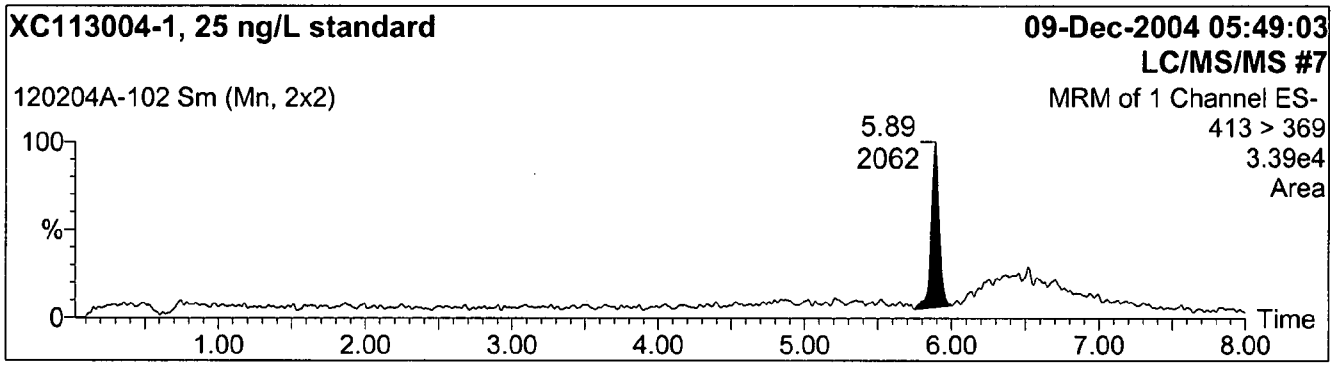
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-102
Text:

1: PFOA



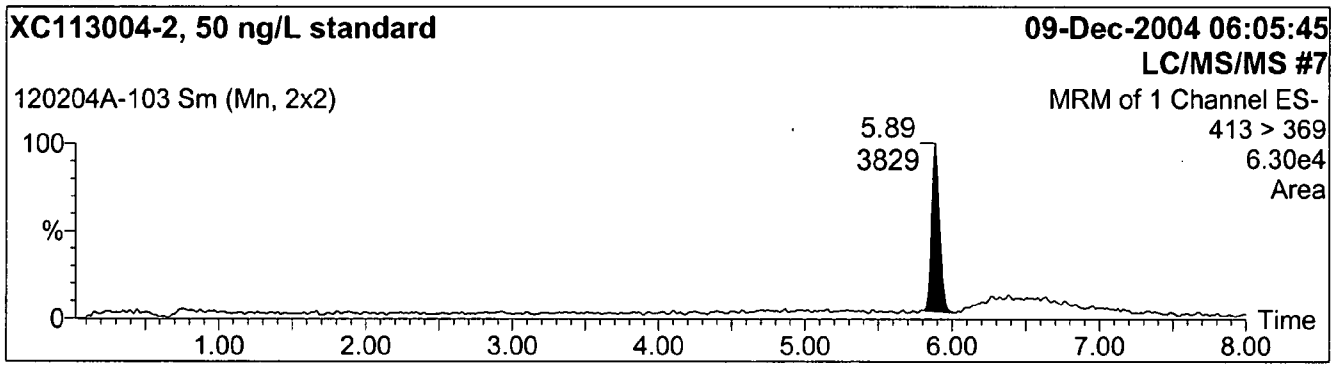
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-103
Text:

1: PFOA



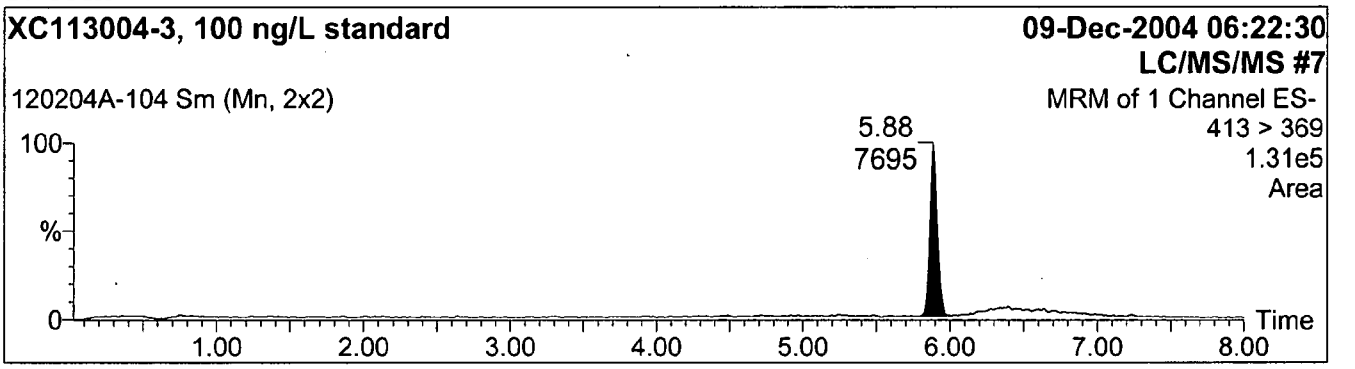
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-104
Text:

1: PFOA



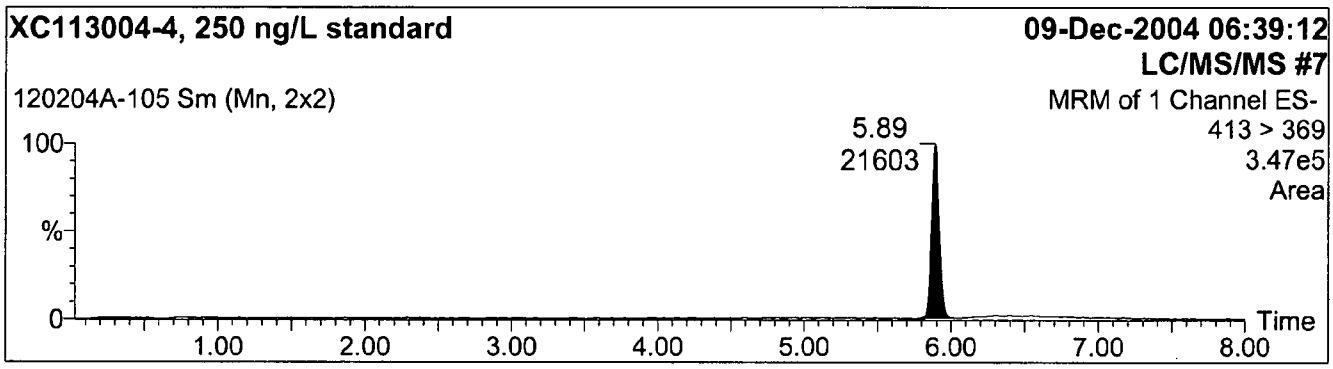
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-105
Text:

1: PFOA



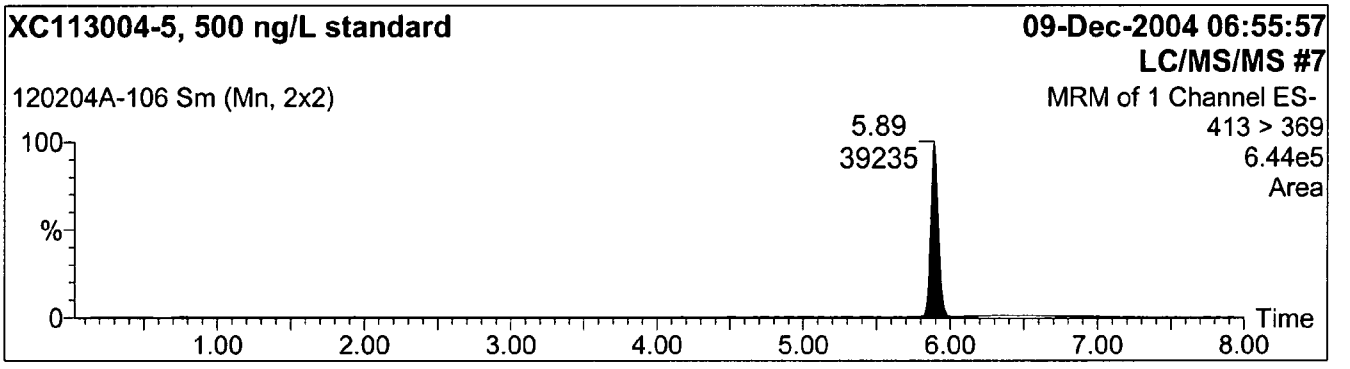
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-106
Text:

1: PFOA



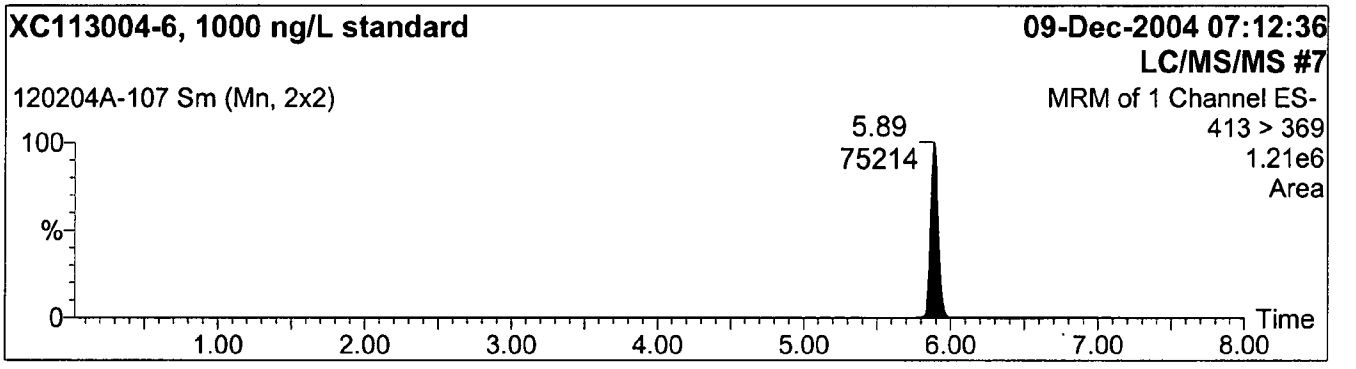
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-107
Text:

1: PFOA



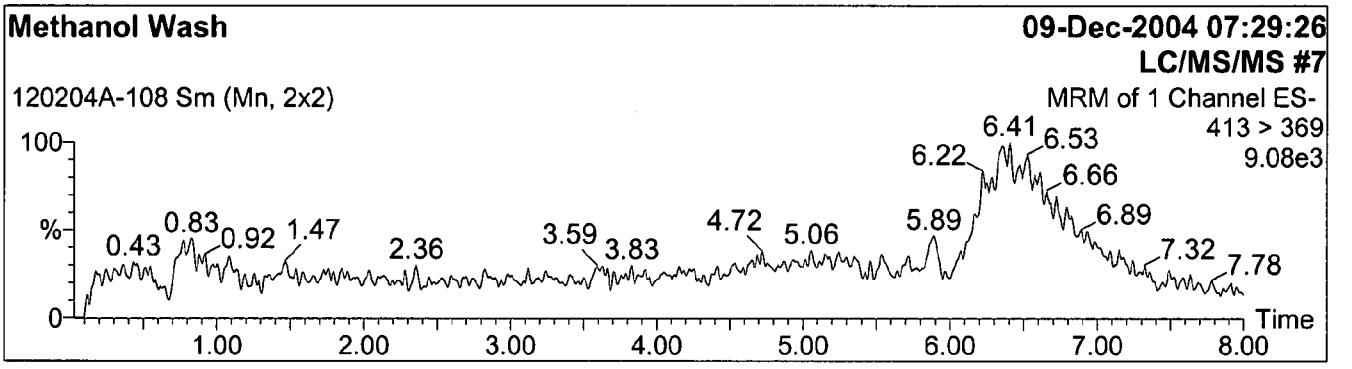
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-108
Text:

1: PFOA



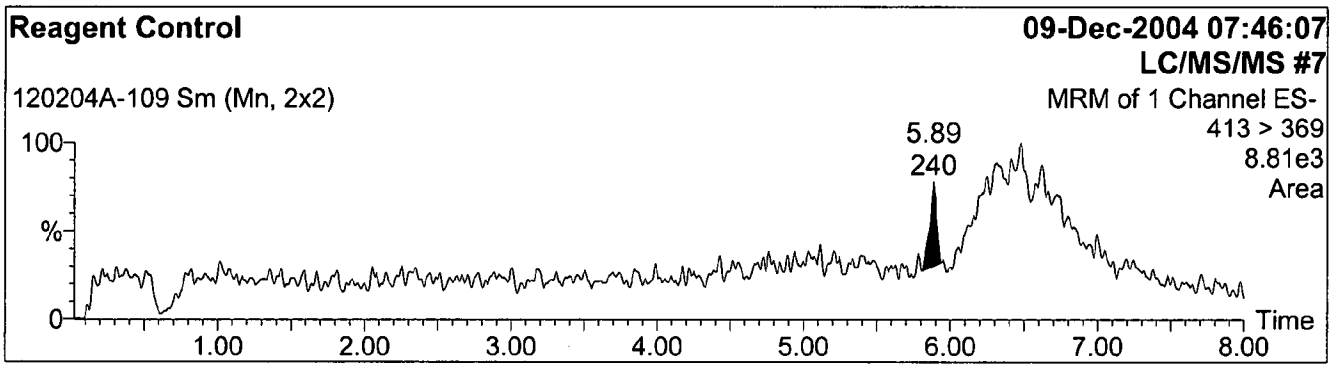
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-109
Text:

1: PFOA



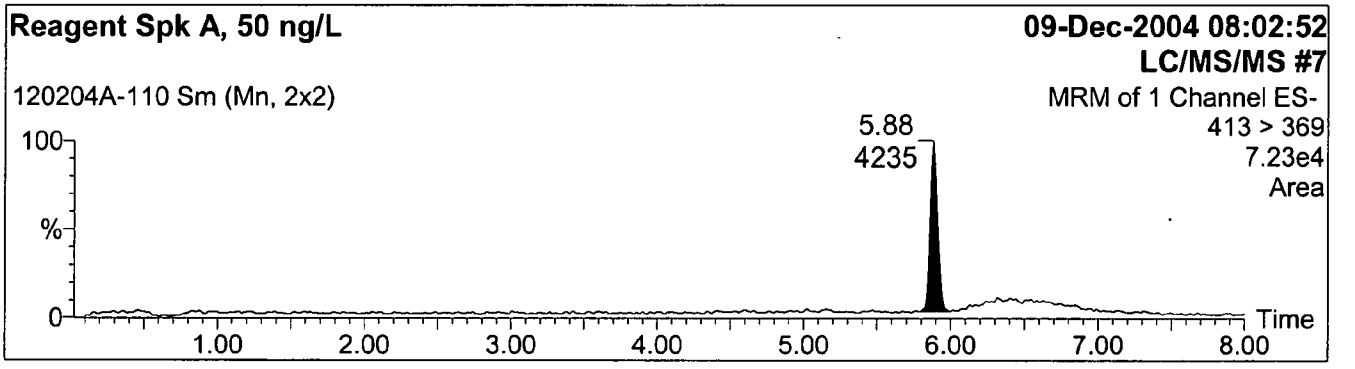
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-110
Text:

1: PFOA



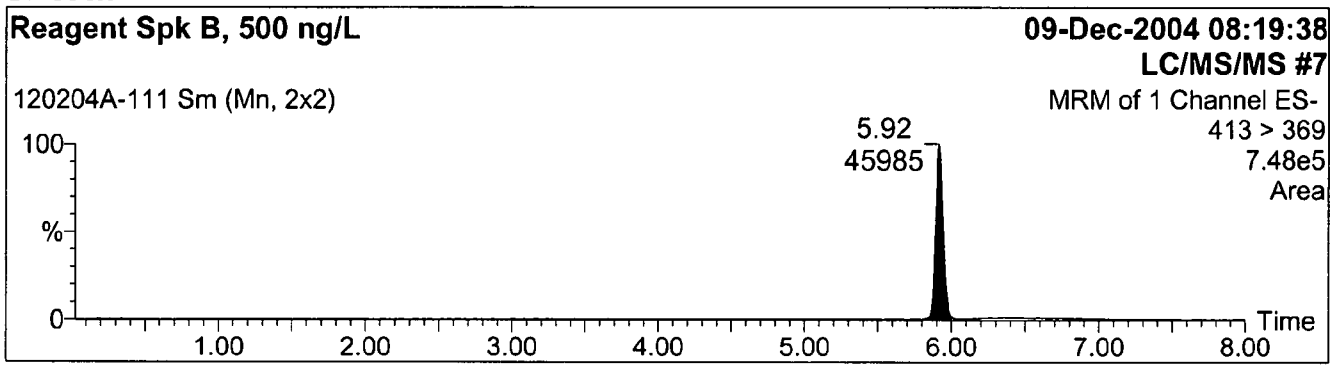
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-111
Text:

1: PFOA



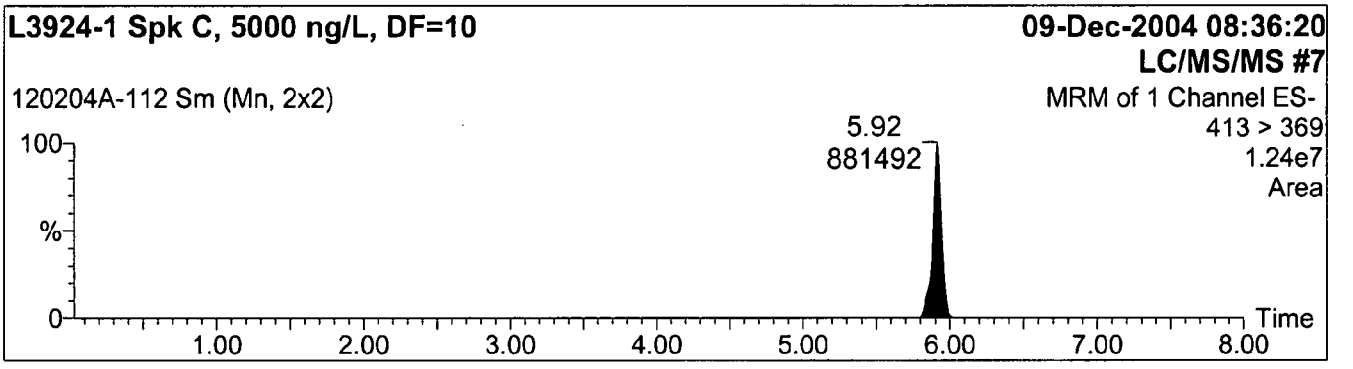
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-112
Text:

1: PFOA



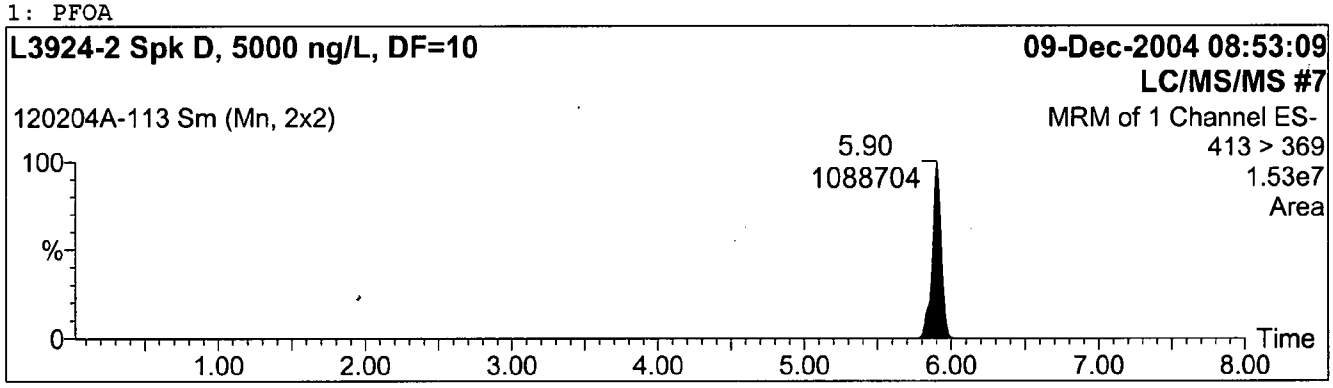
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-113
Text:

1: PFOA



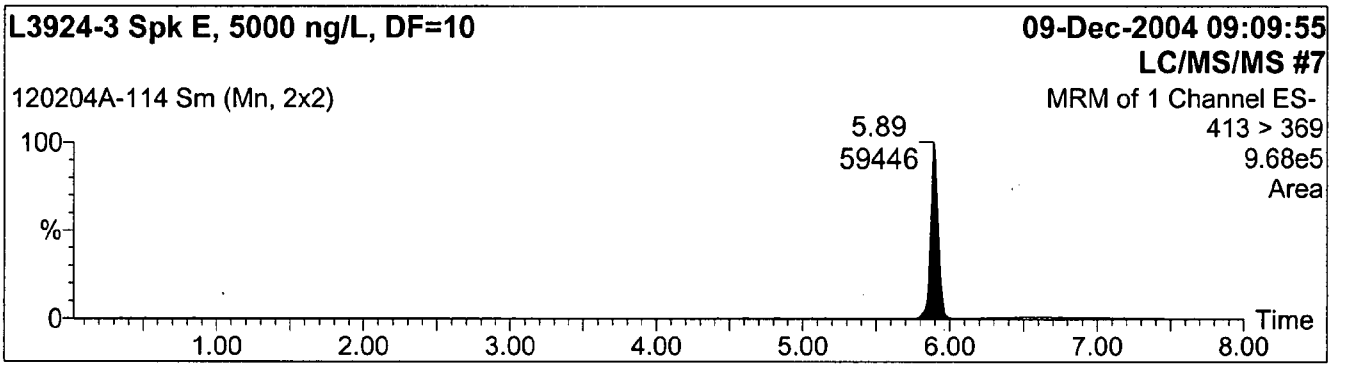
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-114
Text:

1: PFOA



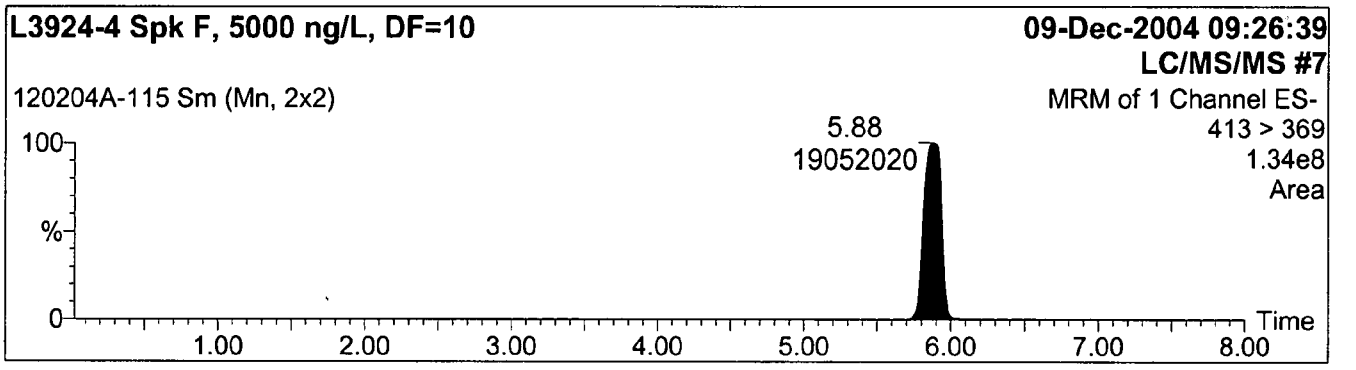
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-115
Text:

1: PFOA



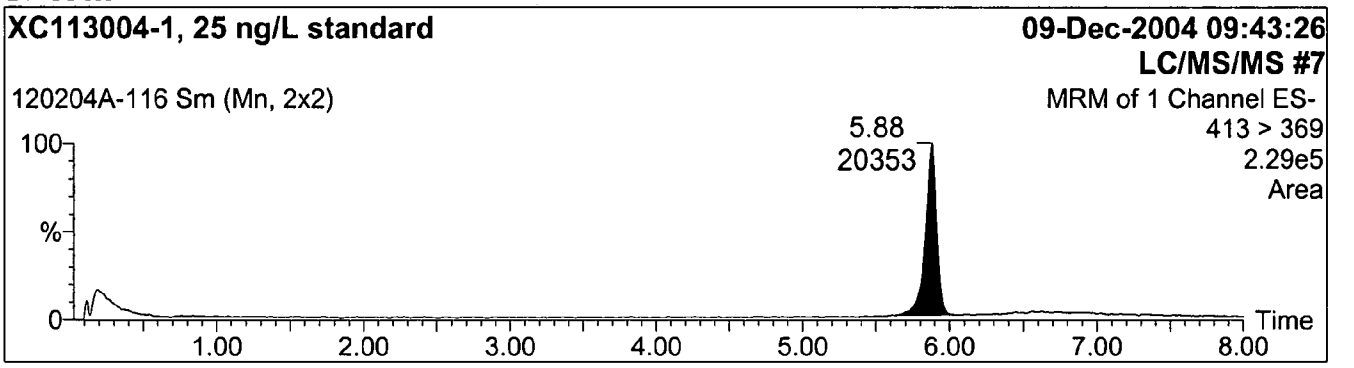
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-116
Text:

1: PFOA



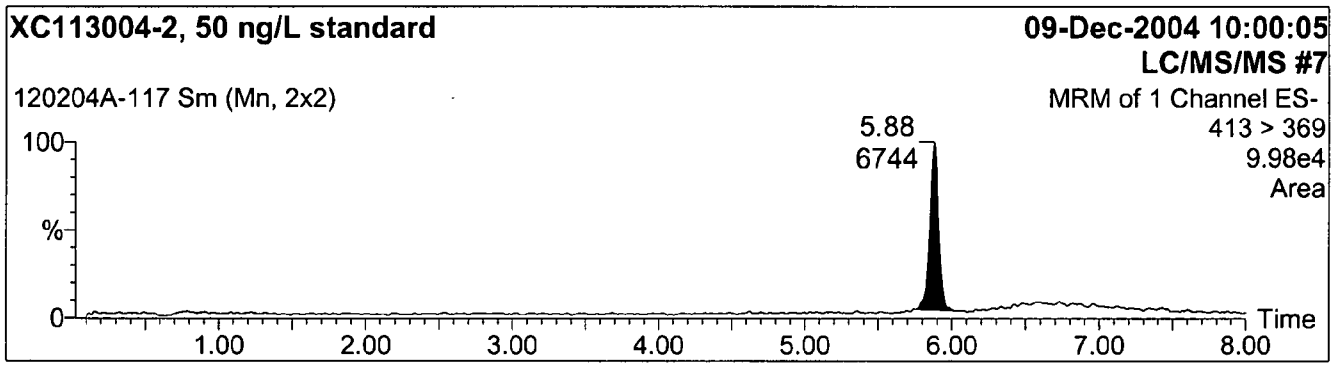
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-117
Text:

1: PFOA



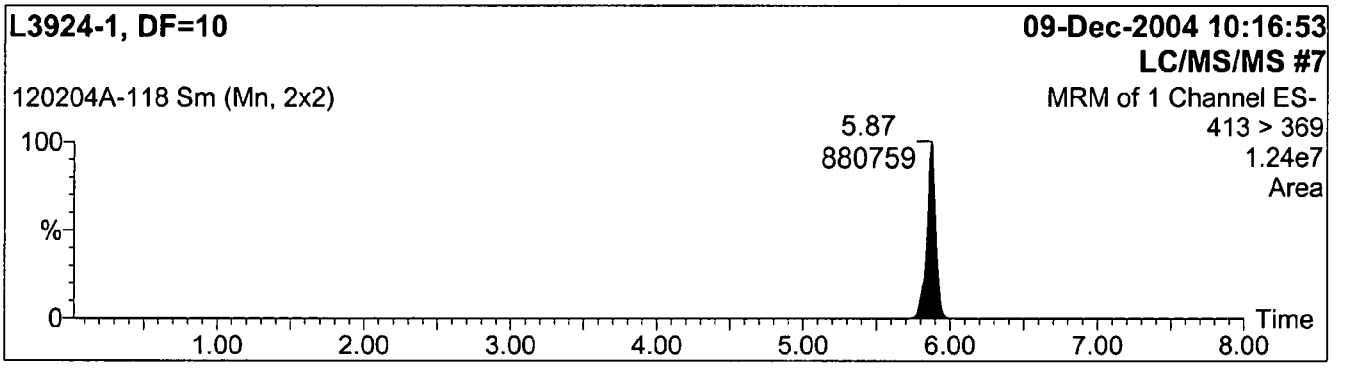
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-118
Text:

1: PFOA



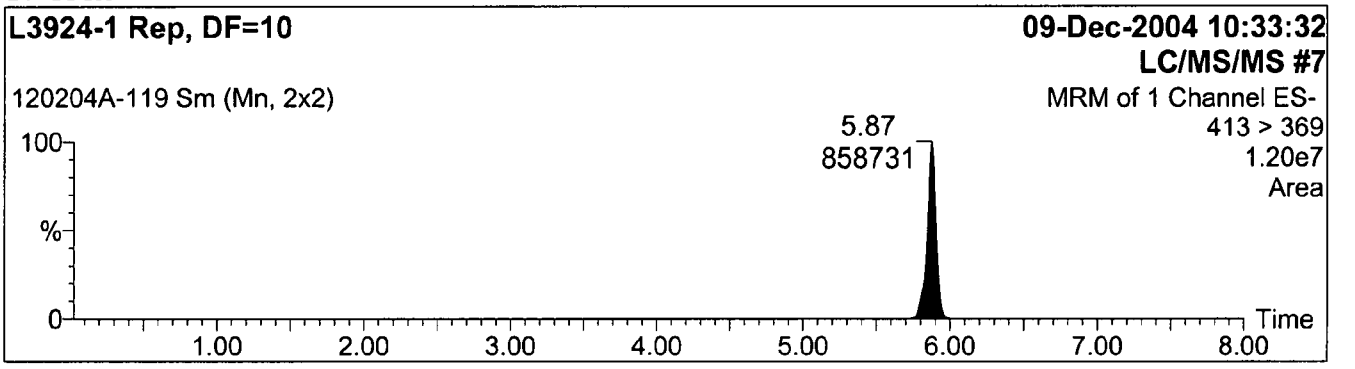
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-119
Text:

1: PFOA



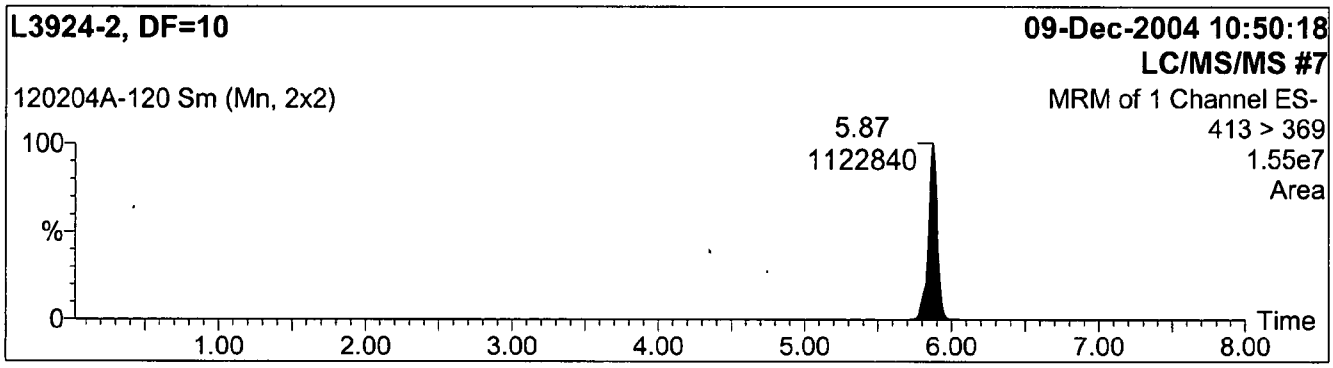
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-120
Text:

1: PFOA



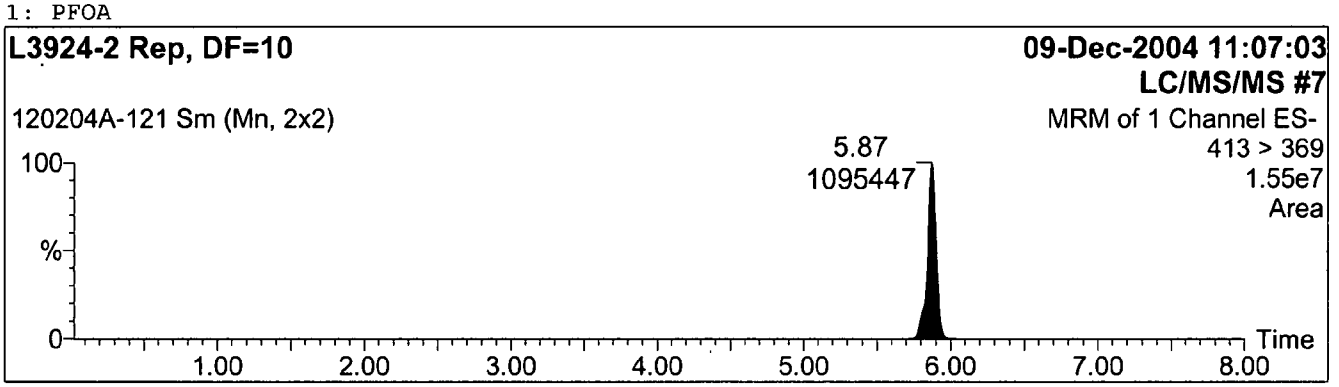
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-121
Text:

1: PFOA



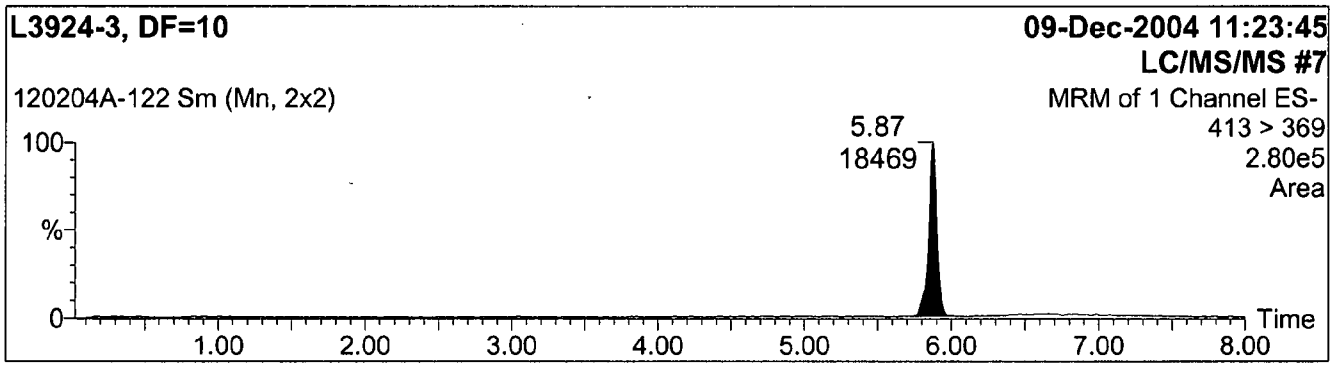
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-122
Text:

1: PFOA



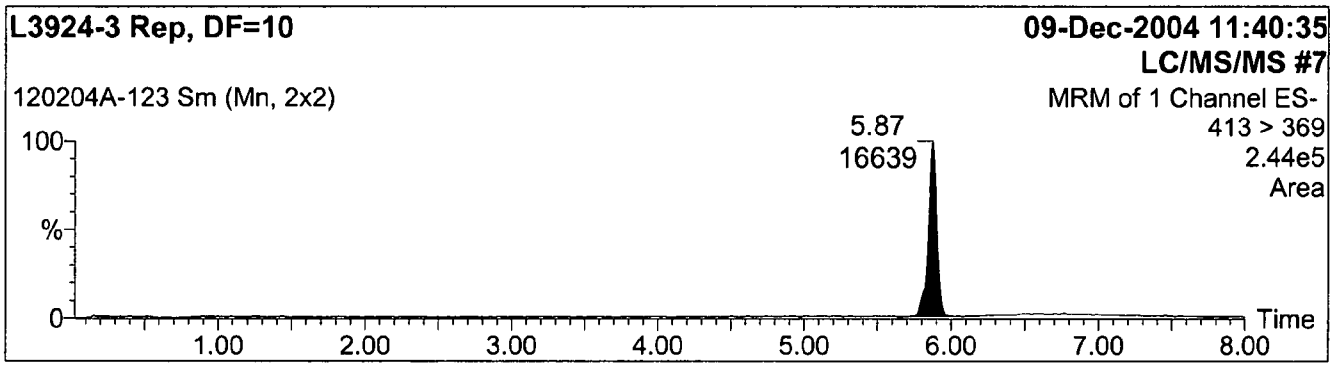
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-123
Text:

1: PFOA



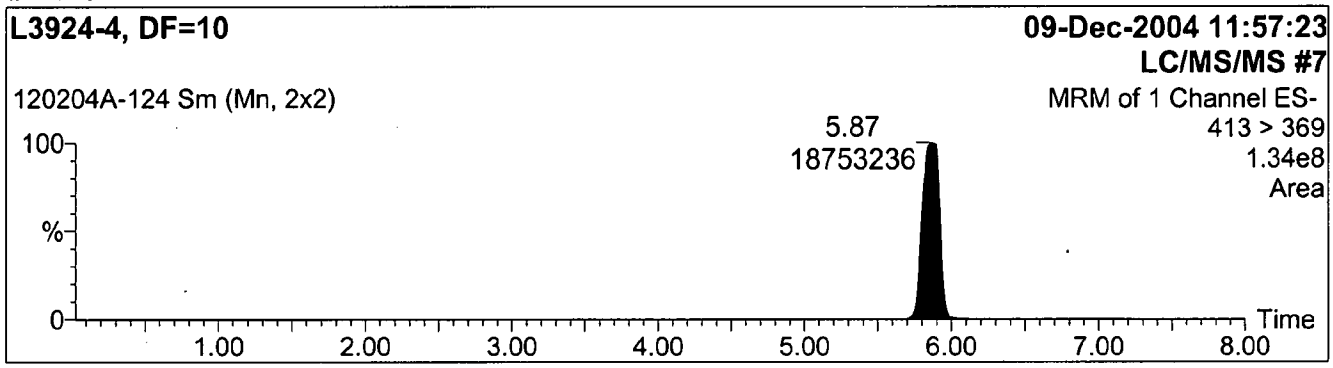
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-124
Text:

1: PFOA



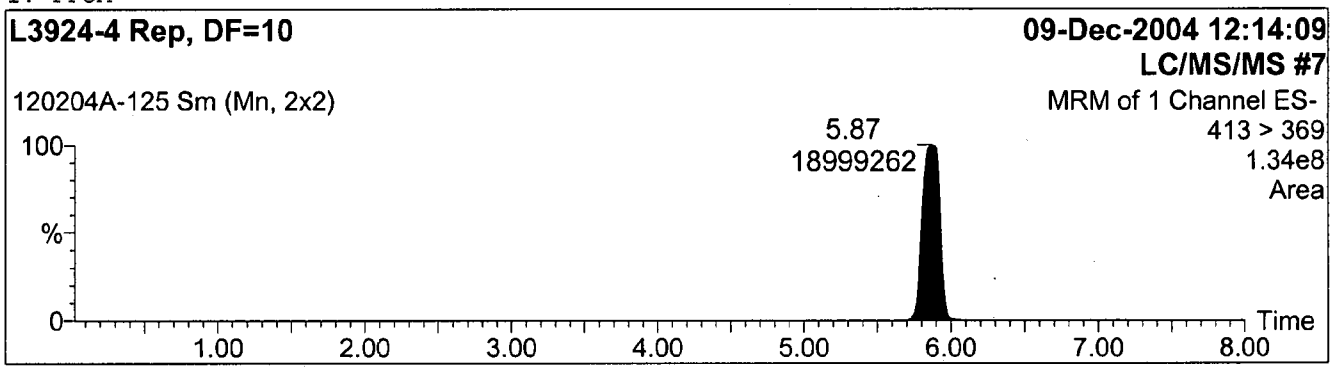
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-125
Text:

1: PFOA



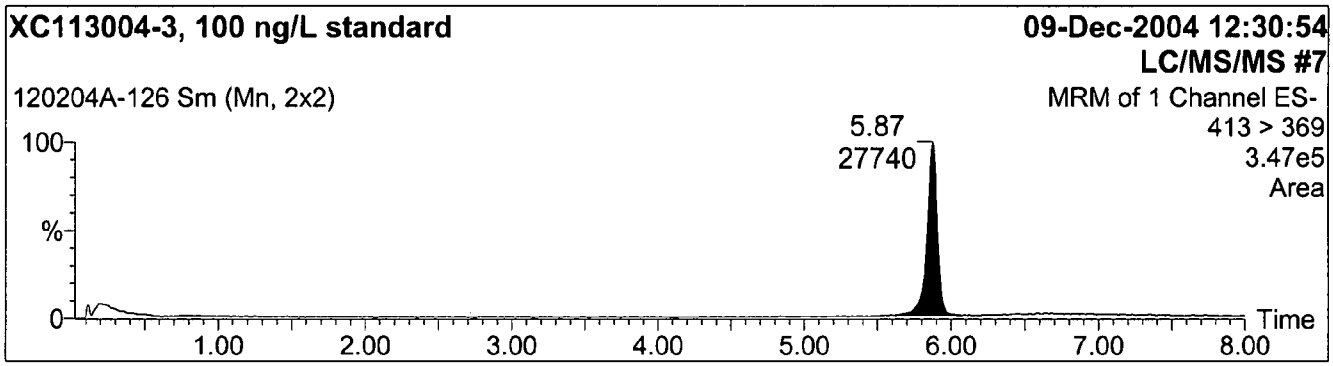
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-126
Text:

1: PFOA



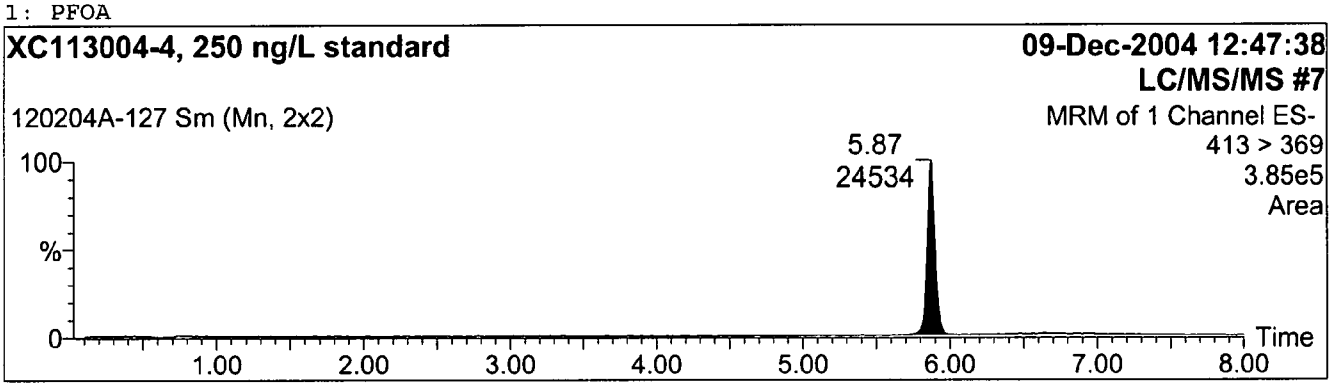
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-127
Text:

1: PFOA



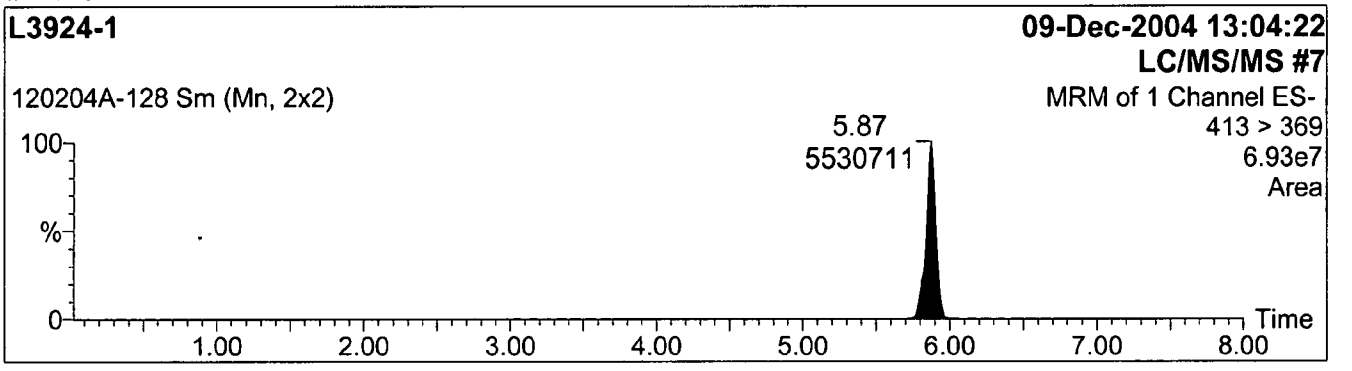
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-128
Text:

1: PFOA



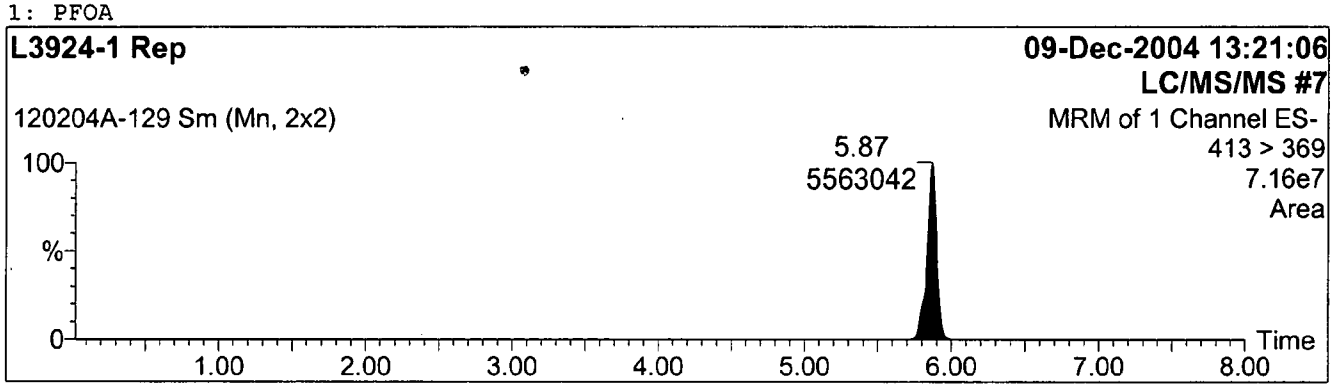
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-129
Text:

1: PFOA



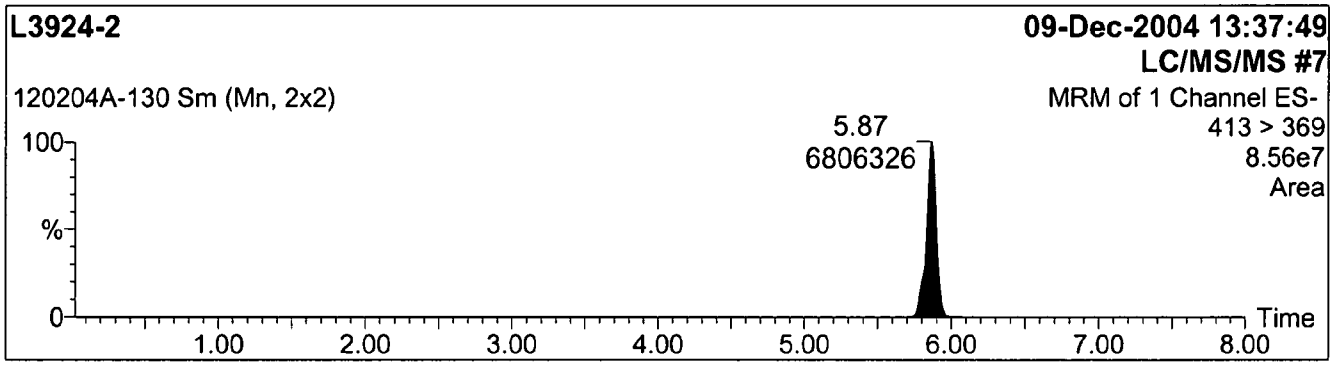
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-130
Text:

1: PFOA



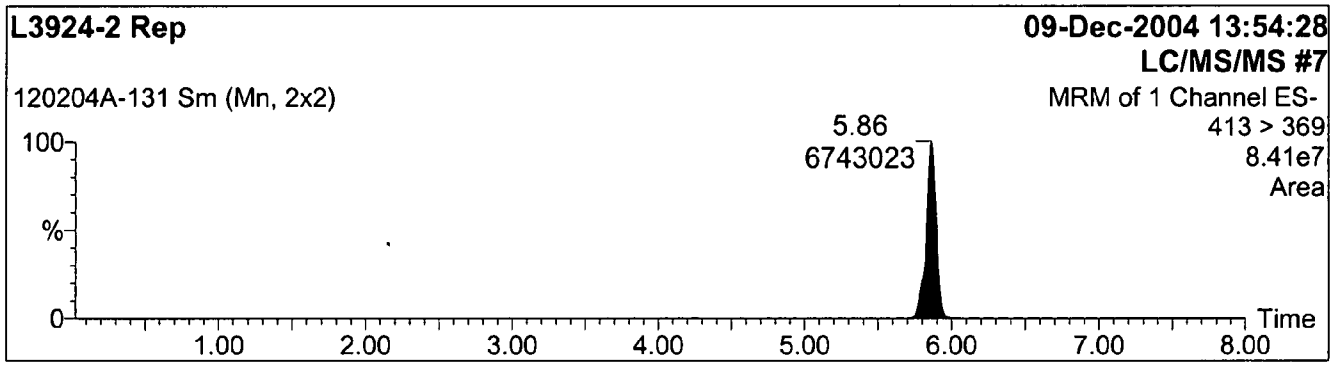
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-131
Text:

1: PFOA



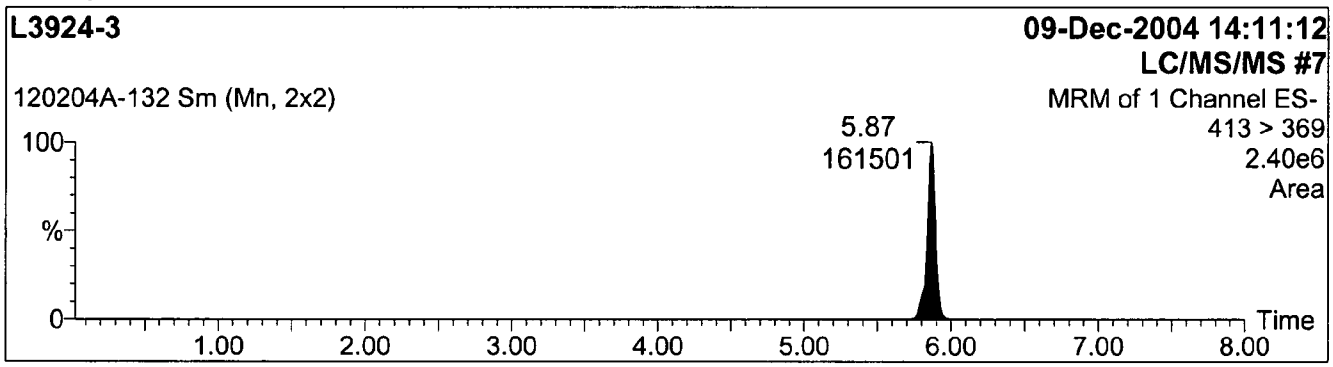
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-132
Text:

1: PFOA



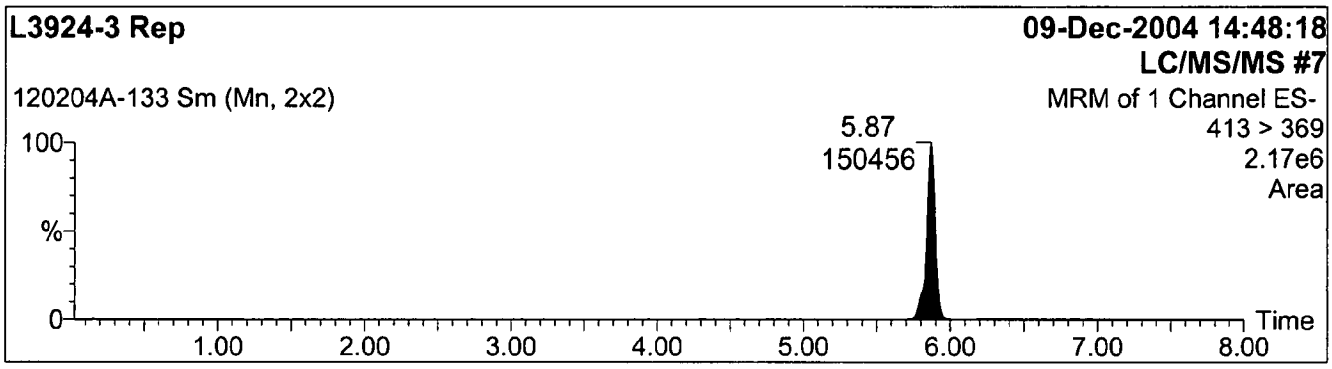
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-133
Text:

1: PFOA



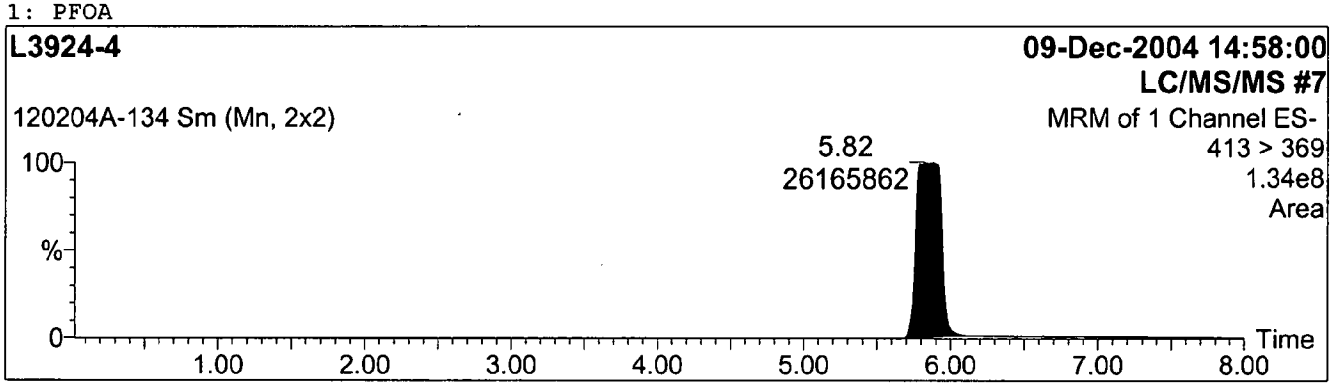
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-134
Text:

1: PFOA



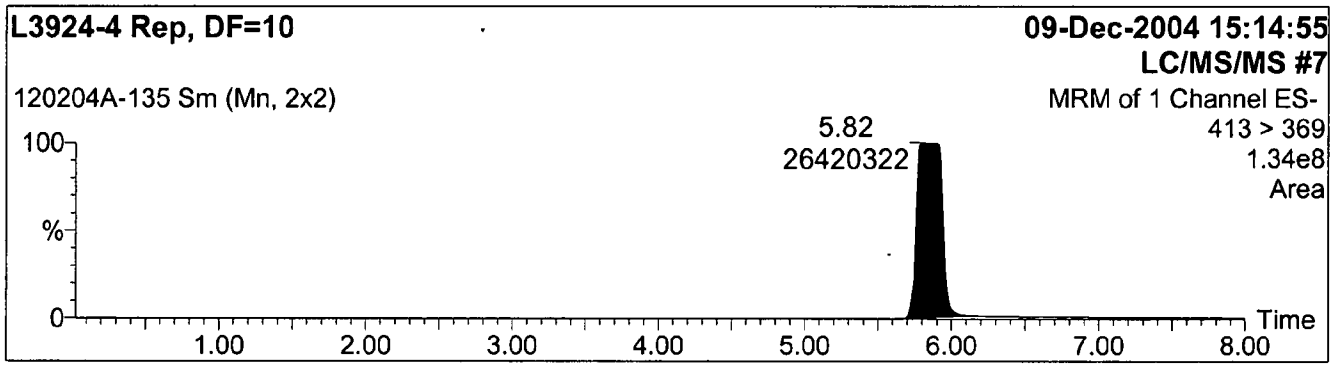
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-135
Text:

1: PFOA



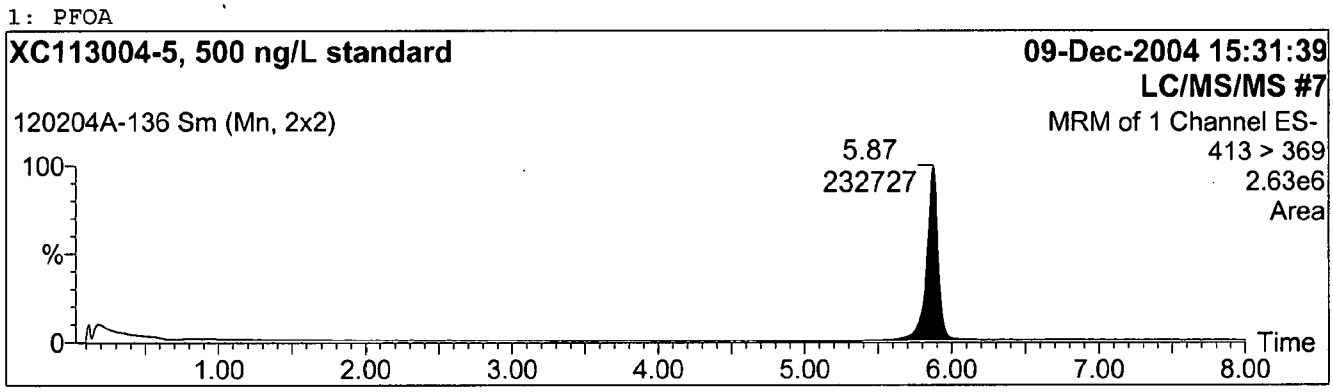
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-136
Text:

1: PFOA



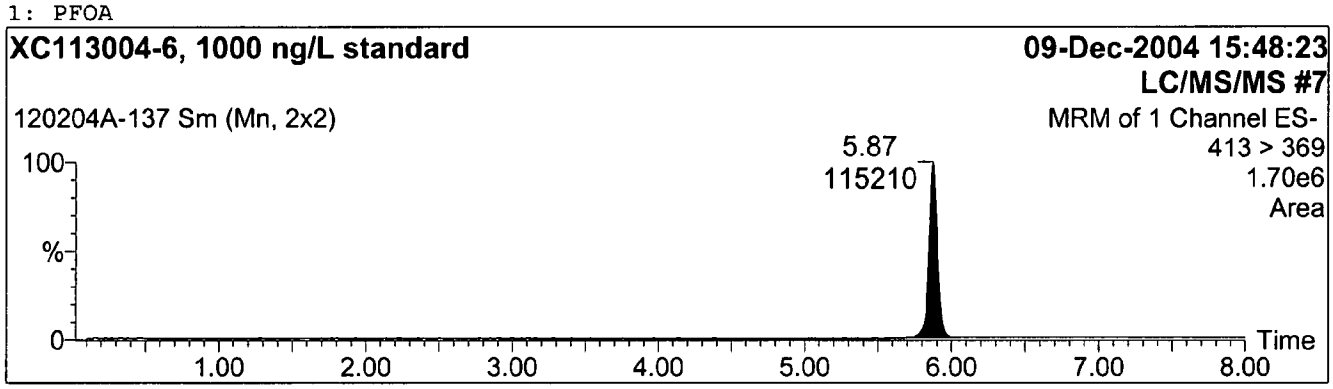
Study No.:L3924, Set No.:120204A, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204A Taconic
Last modified: Fri Dec 10 10:57:59 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:15:24 2004

Name: 120204A-137
Text:

1: PFOA



RAW DATA REPORT

Sponsor Study No:	NA	Limit of Quantitation:	50 ng/L	Set No:	120204B
Exygen Study No:	L3924	Injection Volume:	15 µL	Analyst:	Karen Risha
Analyte:	APFO	Matrix:	Water	Instrument Type:	LC/MS/MS Unit # 7
Ions Monitored:	413 -> 369	Sample Volume Extracted:	0.4 mL	Extraction Date:	12/02/04
Site:	NA	Final Volume:	5.0 mL	Analyzed on:	12/14/04

Exygen ID	Sponsor ID	Sample Code	Run No.	Std. Conc. (ng/L)	Dilution Factor	Peak Area	PFOA Found (ng/L)	APFO Found (ng/L)	Amount PFOA Added (ng/L)	Recovery (%)
XC113004-0	-	CS	120204B-201	0	-	175	-	-	-	-
XC113004-1	-	CS	120204B-202	25	-	1994	-	-	-	-
XC113004-2	-	CS	120204B-203	50	-	3827	-	-	-	-
XC113004-3	-	CS	120204B-204	100	-	7496	-	-	-	-
XC113004-4	-	CS	120204B-205	250	-	22877	-	-	-	-
XC113004-5	-	CS	120204B-206	500	-	38699	-	-	-	-
XC113004-6	-	CS	120204B-207	1000	-	78652	-	-	-	-
Methanol Wash	-	C	120204B-208	-	-	347	-	-	-	-
Reagent Control	NA	C	120204B-209	-	1	441	ND	ND	-	-
Reagent Spk A	NA	LCS	120204B-210	-	1	4503	56.0	58.3	50	112
Reagent Spk B	NA	LCS	120204B-211	-	1	47137	595	620	500	119
L3924-1 Spk C	04-10-01A,B	LF	120204B-212	-	1000	9534	120000	125000	5000	60^
L3924-2 Spk D	04-10-02A,B	LF	120204B-213	-	1000	12244	154000	160000	5000	40^
L3924-3 Spk E	04-10-03A,B	LF	120204B-214	-	10	61334	7750	8070	5000	109
L3924-4 Spk F	04-10-04	LF	120204B-215	-	10000	108568	*	-	5000	-
XC113004-1	-	CS	120204B-216	25	-	1984	-	-	-	-
XC113004-2	-	CS	120204B-217	50	-	3859	-	-	-	-
XC113004-3	-	CS	120204B-218	100	-	7526	-	-	-	-
L3924-1	04-10-01A,B	S	120204B-219	-	1000	9357	117000	122000	-	-
L3924-1 Rep	04-10-01A,B	S	120204B-220	-	1000	9257	116000	121000	-	-
L3924-2	04-10-02A,B	S	120204B-221	-	1000	12112	152000	158000	-	-
L3924-2 Rep	04-10-02A,B	S	120204B-222	-	1000	11741	148000	154000	-	-
L3924-3	04-10-03A,B	S	120204B-223	-	10	18281	2300	2390	-	-
L3924-3 Rep	04-10-03A,B	S	120204B-224	-	10	16416	2070	2160	-	-
L3924-4	04-10-04	S	120204B-225	-	10000	102369	*	-	-	-
L3924-4 Rep	04-10-04	S	120204B-226	-	10000	105888	*	-	-	-
XC113004-4	-	CS	120204B-227	250	-	23209	-	-	-	-
XC113004-5	-	CS	120204B-228	500	-	37174	-	-	-	-
XC113004-6	-	CS	120204B-229	1000	.	77859	-	-	-	-

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

Recovery (%) = [PFOA found (ng/L)-PFOA found in control (ng/L)] / amount PFOA added (ng/L) x 100

Standard Curve : Linear (1/x weighted)
Intercept = 73.6740
Slope = 79.0318
Coef. Of Det. = 0.996773

APFO Found (ng/L) = PFOA found (ng/L) x (MW APFO (431) / MW PFOA (414))

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 50 ng/L

^Sample residue exceeded the spiking level signifcantly; therefore, an accurate recovery cannot be calculated.
*Sample requires further dilution. See data set 120204BR..

Spreadsheet prepared by: KR / 12/20/04

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

Internal Chain of Custody/Fortification Sheet

Exygen Study Number: L3924 Matrix: Water
Sponsor Study/Protocol No: NA
The samples listed below were removed from refrigerator No. 32
Time 0900 Date 12/02/04 Initials CEE

CLIENT SAMPLE ID	EXYGEN ID NUMBER	VOLUME (mL)	FORTIFICATION (ng)
na	Reagent Control	40.0	-
na	Reagent Spk A	40.0	2.0
na	Reagent Spk B	40.0	20.0
04-10-01A,B	L3924-1 Spk C	40.0	200.0
04-10-02A,B	L3924-2 Spk D	40.0	200.0
04-10-03 A,B	L3924-3 Spk E	40.0	200.0
04-10-04	L3924-4 Spk F	40.0	200.0
04-10-01A,B	L3924-1	40.0	-
04-10-01A,B	L3924-1 Rep	40.0	-
04-10-02A,B	L3924-2	40.0	-
04-10-02A,B	L3924-2 Rep	40.0	-
04-10-03 A,B	L3924-3	40.0	-
04-10-03 A,B	L3924-3 Rep	40.0	-
04-10-04	L3924-4	40.0	-
04-10-04	L3924-4 Rep	40.0	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

	Spiking Solution Used	Volume Used for Spiking	Initial/Date
Reagent Spk A	F091304-5 (10 ng/mL)	200 µL (200 µL micropipet)	CEE 12/02/04
Reagent Spk B	F091304-4 (100 ng/mL)	200 µL (200 µL micropipet)	CEE 12/02/04
L3924-1 Spk C	F091304-3 (1000 ng/mL)	200 µL (200 µL micropipet)	CEE 12/02/04
L3924-2 Spk D	F091304-3 (1000 ng/mL)	200 µL (200 µL micropipet)	CEE 12/02/04
L3924-3 Spk E	F091304-3 (1000 ng/mL)	200 µL (200 µL micropipet)	CEE 12/02/04
L3924-4 Spk F	F091304-3 (1000 ng/mL)	200 µL (200 µL micropipet)	CEE 12/02/04
-	-	-	-

All samples were measured:
Time 1100 Date 12/02/04 Initials CEE

After measuring samples were returned to refrigerator No. 32
Time 1430 Date 12/02/04 Initials CEE

Comments:

Analysis Summary:
Data Set: 120204A Initials/Date: KC / 12/08/04
Data Set: 120204B Initials/Date: KC / 12/13/04
Data Set: 120204BP Initials/Date: KC / 12/20/04

Set extraction/analysis data verified by: JMP Date: 12/21/04

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

SAMPLE EXTRACTION AND ANALYSIS TRACKING SHEET

EXYGEN STUDY NUMBER: L3924 METHOD: $$ PROTOCOL NUMBER: NA
MATRIX: Water ANALYTES: PFOA

Client ID	Exygen ID	STEP 1	STEP 2	Dilutions (mL/mL)	STEP 3	Dilutions (mL/mL)	STEP 4	Reagents/ Materials	Lot #
na	Reagent Control			-		-		Methanol	44253
na	Reagent Spk A			-		-		C18 SPE	0041341163A
na	Reagent Spk B			-		-		Water	44233
04-10-01A,B	L3924-1 Spk C			0.1/1.0		① 0.1/10, 0.1/1.0		-	-
04-10-02A,B	L3924-2 Spk D			0.1/1.0		① 0.1/10, 0.1/1.0		-	-
04-10-03 A,B	L3924-3 Spk E			0.1/1.0		-		-	-
04-10-04	L3924-4 Spk F			0.1/1.0		② 0.1/10, 0.1/10 ② 12/13/04	③	-	-
04-10-01A,B	L3924-1			0.1/1.0		① 0.1/10, 0.1/1.0		-	-
04-10-01A,B	L3924-1 Rep			0.1/1.0		① 0.1/10, 0.1/1.0		-	-
04-10-02A,B	L3924-2			0.1/1.0		① 0.1/10, 0.1/1.0		*Initials/Date*	CEE 12/02/04
04-10-02A,B	L3924-2 Rep			0.1/1.0		① 0.1/10, 0.1/1.0		-	-
04-10-03 A,B	L3924-3			0.1/1.0		-		-	-
04-10-03 A,B	L3924-3 Rep			0.1/1.0		-		-	-
04-10-04	L3924-4			0.1/1.0		② 0.1/10, 0.1/10	③	-	-
04-10-04	L3924-4 Rep			0.1/1.0		② 0.1/10, 0.1/10	③	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	**HPLC**	
-	-	-	-	-	-	-	-	Methanol	44168
-	-	-	-	-	-	-	-	Ammonium Acetate	V36159
-	-	-	-	-	-	-	-	Water	44181
-	-	-	-	-	-	-	-	-	-
***Initials/Date*	-	CEE 12/02/04	CEE 12/02/04	12/08/04	12/08/04	12/13/04	12/13/04	*Initials/Date*	12/08/04

STEP 1: SPE column clean-up
STEP 2: Final volume to 5 mL collected in 15 mL polypropolene tubes
STEP 3: LC/MS/MS analysis
STEP 4: LC/MS/MS reanalysis.

① DF = 1000 (freshly diluted from original extract)
② DF = 10,000 (" " " " ") 12/13/04

③ Sample was freshly diluted from original extract 100,000 times (0.1/10, 0.1/10, 0.1/1.0 mL:mL) AND ANALYZED ON 12/20/04. 12/20/04

**Initials and date under each step indicates the personnel that performed this step.
$$ Method of Analysis for the Determination of Perfluorooctane sulfonate (PFOS), Perfluorooctane sulfonylamide (PFOSA), and Perfluorooctanoate (POAA) in Water

COMMENTS: Final extracts stored in refrigerator 32 Initials: CEE Date: 12/02/04

Sample List: C:\MASSLYNX\Fluorochems.PRO\SampleDB\120204B Taconic.SPL
Printed: Mon Dec 13 15:51:59 2004 KP 12/13/04

Exygen STUDY NO. L3924

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	MS Method
1	1	120204B-201	---	---	XC113004-0, 0 ng/L standard	---	Standard	0	---	---	0	1	008 PFOA
2	2	120204B-202	---	---	XC113004-1, 25 ng/L standard	---	Standard	25	---	---	0	1	008 PFOA
3	3	120204B-203	---	---	XC113004-2, 50 ng/L standard	---	Standard	50	---	---	0	1	008 PFOA
4	4	120204B-204	---	---	XC113004-3, 100 ng/L standard	---	Standard	100	---	---	0	1	008 PFOA
5	5	120204B-205	---	---	XC113004-4, 250 ng/L standard	---	Standard	250	---	---	0	1	008 PFOA
6	6	120204B-206	---	---	XC113004-5, 500 ng/L standard	---	Standard	500	---	---	0	1	008 PFOA
7	7	120204B-207	---	---	XC113004-6, 1000 ng/L standard	---	Standard	1000	---	---	0	1	008 PFOA
8	92	120204B-208	---	---	Methanol Wash	---	Blank	---	---	---	0	1	008 PFOA
9	35	120204B-209	---	---	Reagent Control	---	Blank	---	---	---	0	1	008 PFOA
10	36	120204B-210	---	---	Reagent Spk A, 50 ng/L	---	QC	50	---	---	0	1	008 PFOA
11	37	120204B-211	---	---	Reagent Spk B, 500 ng/L	---	QC	500	---	---	0	1	008 PFOA
12	38	120204B-212	---	---	L3924-1 Spk C, 5000 ng/L, DF=1000	---	QC	5000	---	---	0	1000	008 PFOA
13	39	120204B-213	---	---	L3924-2 Spk D, 5000 ng/L, DF=1000	---	QC	5000	---	---	0	1000	008 PFOA
14	40	120204B-214	---	---	L3924-3 Spk E, 5000 ng/L, DF=10	---	QC	5000	---	---	0	10	008 PFOA
15	41	120204B-215	---	---	L3924-4 Spk F, 5000 ng/L, DF=10000	---	QC	5000	---	---	0	10000	008 PFOA
16	2	120204B-216	---	---	XC113004-1, 25 ng/L standard	---	Standard	25	---	---	0	1	008 PFOA
17	3	120204B-217	---	---	XC113004-2, 50 ng/L standard	---	Standard	50	---	---	0	1	008 PFOA
18	4	120204B-218	---	---	XC113004-3, 100 ng/L standard	---	Standard	100	---	---	0	1	008 PFOA
19	42	120204B-219	---	---	L3924-1, DF=1000	---	Analyte	---	---	---	0	1000	008 PFOA
20	43	120204B-220	---	---	L3924-1 Rep, DF=1000	---	Analyte	---	---	---	0	1000	008 PFOA
21	44	120204B-221	---	---	L3924-2, DF=1000	---	Analyte	---	---	---	0	1000	008 PFOA
22	45	120204B-222	---	---	L3924-2 Rep, DF=1000	---	Analyte	---	---	---	0	1000	008 PFOA
23	46	120204B-223	---	---	L3924-3, DF=10	---	Analyte	---	---	---	0	10	008 PFOA
24	47	120204B-224	---	---	L3924-3 Rep, DF=10	---	Analyte	---	---	---	0	10	008 PFOA
25	48	120204B-225	---	---	L3924-4, DF=10000	---	Analyte	---	---	---	0	10000	008 PFOA
26	49	120204B-226	---	---	L3924-4 Rep, DF=10000	---	Analyte	---	---	---	0	10000	008 PFOA
27	5	120204B-227	---	---	XC113004-4, 250 ng/L standard	---	Standard	250	---	---	0	1	008 PFOA
28	6	120204B-228	---	---	XC113004-5, 500 ng/L standard	---	Standard	500	---	---	0	1	008 PFOA
29	7	120204B-229	---	---	XC113004-6, 1000 ng/L standard	---	Standard	1000	---	---	0	1	008 PFOA

Sample List: C:\MASSLYNX\Fluorochems.PRO\SampleDB\120204B Taconic.SPL
Printed: Mon Dec 13 15:51:59 2004 MG 12/13/04

Exygen STUDY NO. L3924

Page Position: (2, 1)

	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

LC/MS/MS SYSTEM AND OPERATING CONDITIONS

Sponsor Protocol No: NA | Exygen Study No: L3924

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: MA0016347) (**JONES**CHROMATOGRAPHY: Part No. FK5962E)
Mobile Phase (A) :	2 mM Ammonium Acetate in 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 12/13/04

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: —

Scanning Method Report

Method: C:\MASSLYNX\FLUOROCHEMS.PRO\ACQUDB\008 PFOA
Last Modified: Thu Oct 02 13:56:38 2003

Printed: Mon Dec 13 15:52:05 2004 KGf 12/13/04

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

Method File: c:\masslynx\fluorochems.pro\acqudb\water
Last Modified: Monday, December 13, 2004 15:46:36

Printed: Monday, December 13, 2004 15:52:12 KGC 12/13/04

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

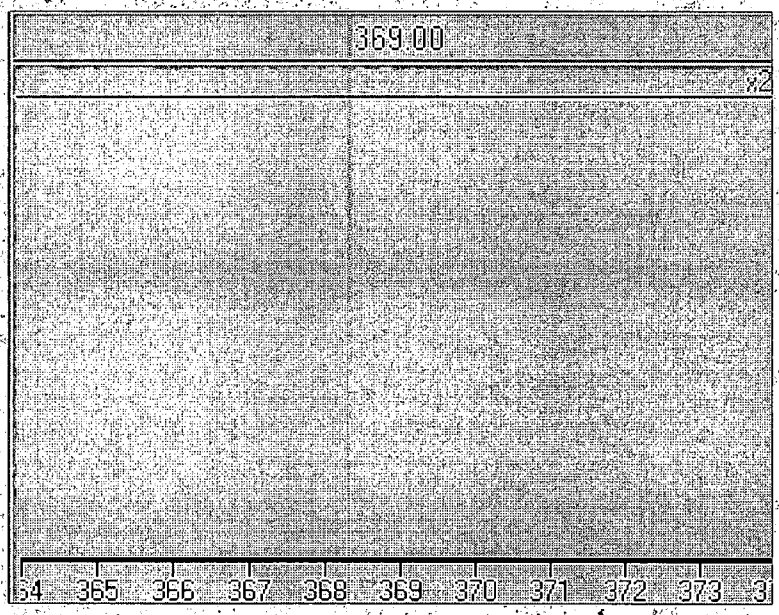
Draw Speed	200.0
Eject Speed (µl/min)	200
Draw Position (mm)	0.10
Stop Time (mins)	15.00
Injection Volume(µl)	15.0
Vial Number	98

Tuning Method Report

Method: C:\MASSLYNX\FLUOROCHEMS.PRO\ACQUDB\PFOA TUNE

Printed: Mon Dec 13 15:52:24 2004

KJ 12/13/04



Dau 413.00

SOURCE (ESP-)	Set	Rdbk
Capillary	3.00	-2.93
Cone	10	-10
Hexapole 1	0.0	
Aperture 1	0.0	
Hexapole 2	0.0	
Source Block Temp.	100	99
Desolvation Temp.	300	300

Analyser	Set	Rdbk
LM Res 1	14.0	
HM Res 1	14.0	
IEnergy 1	1.0	
Entrance	-2	8
Collision	10	9
Exit	2	11
LM Res 2	14.0	
HM Res 2	14.0	
IEnergy 2	2.0	
Multiplier	700	-696

Pressures	Rdbk
Analyser Vacuum	OFF
Gas Cell	3.8e-3

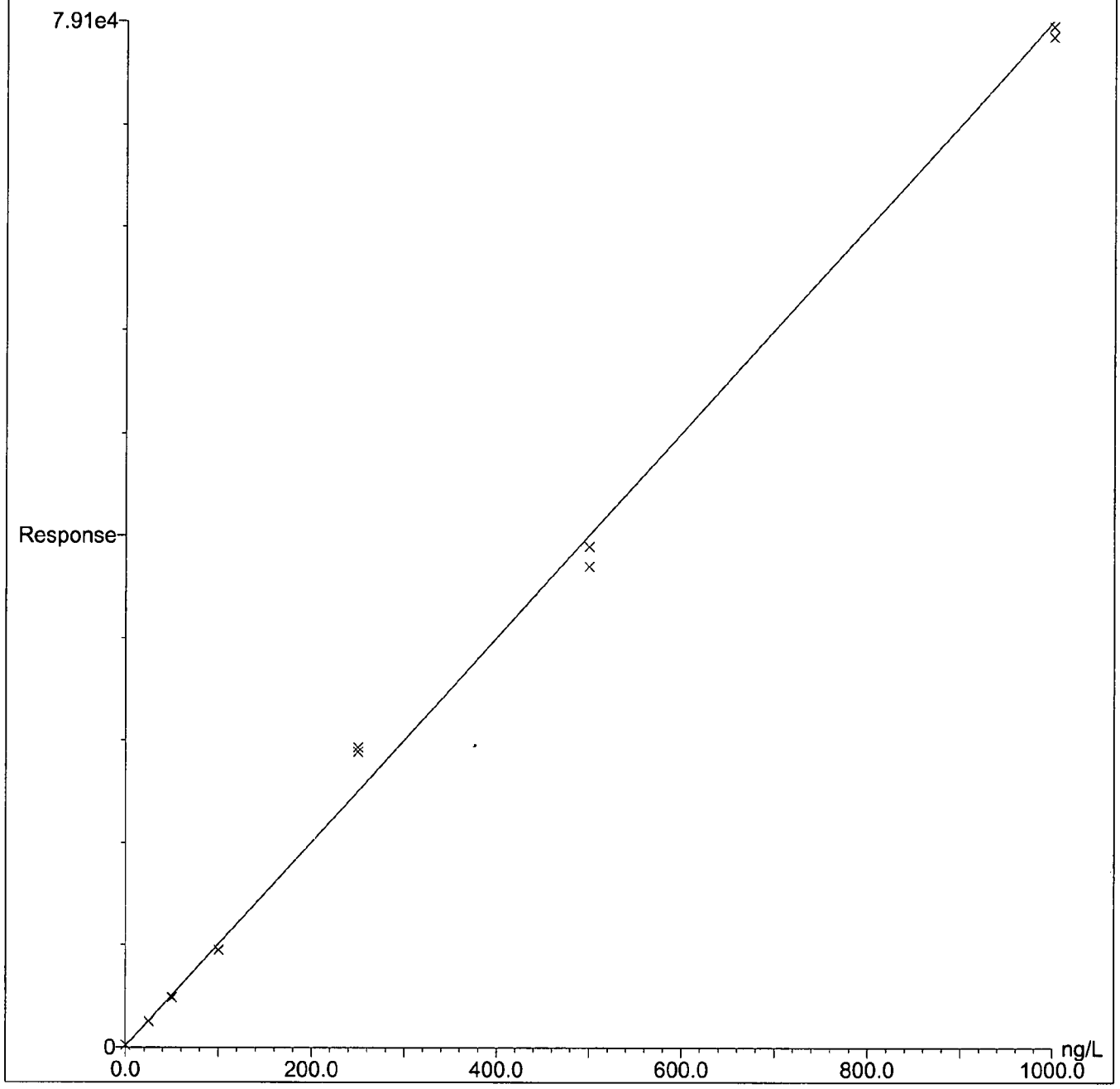
Gas Flows	Rdbk
Cone Gas	121.5
Desolvation	697.1

Quantify Calibration Report
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Calibration: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\CurveDB\120204B Taconic
Last modified: Mon Dec 20 10:00:07 2004
Printed: Mon Dec 20 10:08:32 2004

KJR 12/20/04

Compound 1 name: PFOA
Coefficient of Determination: 0.996773
Calibration curve: 79.0318 * x + 73.6740
Response type: External Std, Area
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Exygen Research, 3058 Research Drive, State College, PA 16801

Quantify Sample Report
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

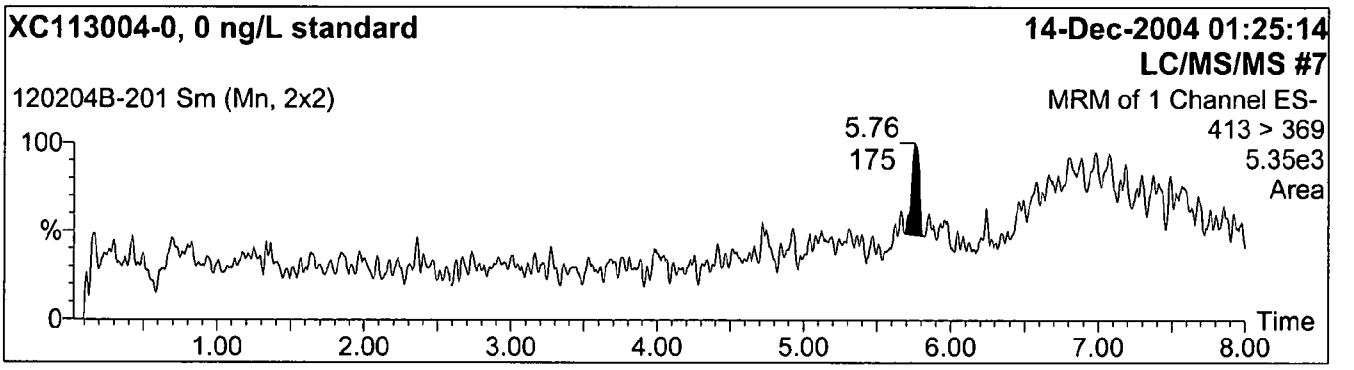
Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Initials BG
Date 12/20/04
Run# 120204B-201 To 120204B-229

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-201
Text:

1: PFOA



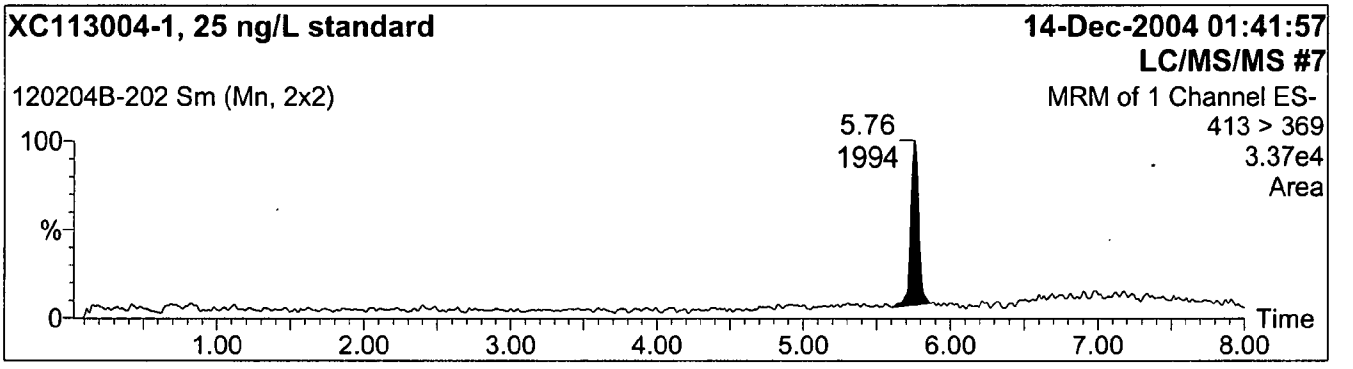
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-202
Text:

1: PFOA



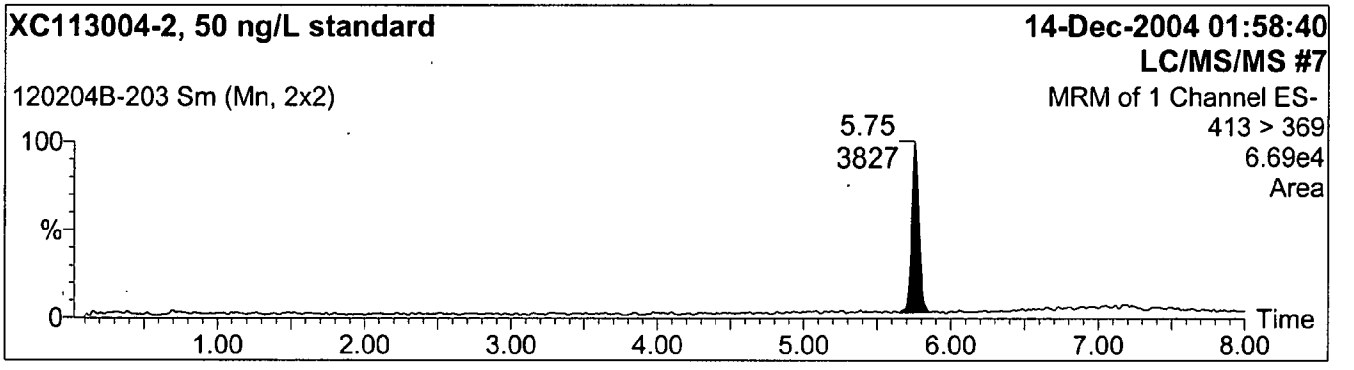
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-203
Text:

1: PFOA



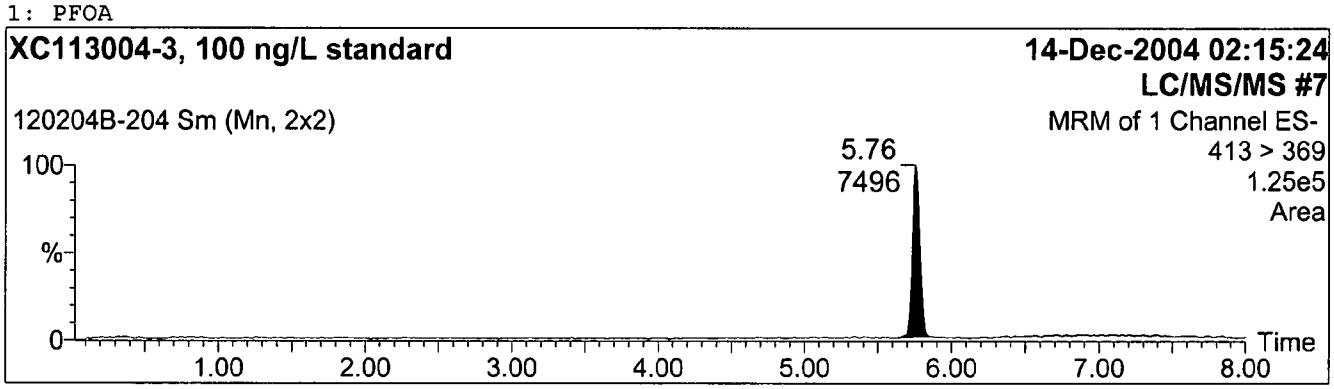
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-204
Text:

1: PFOA



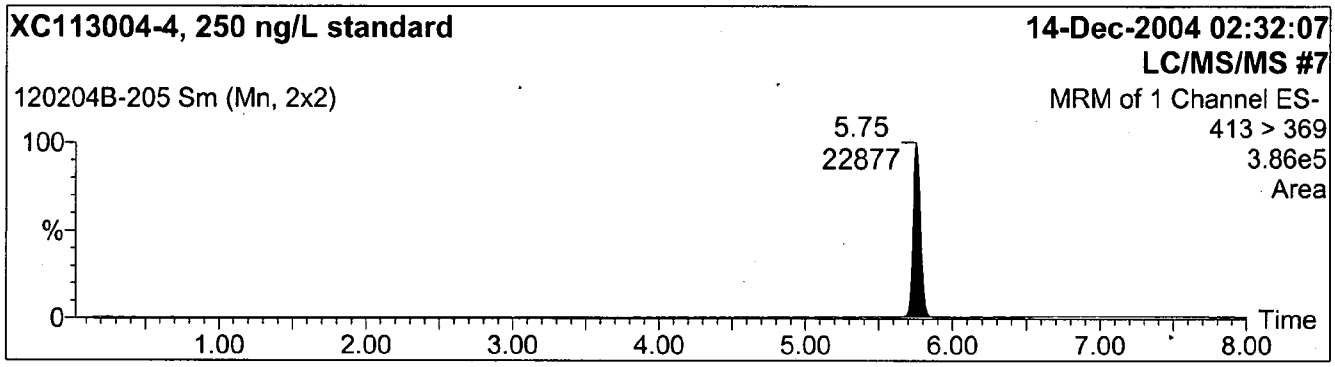
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-205
Text:

1: PFOA



Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
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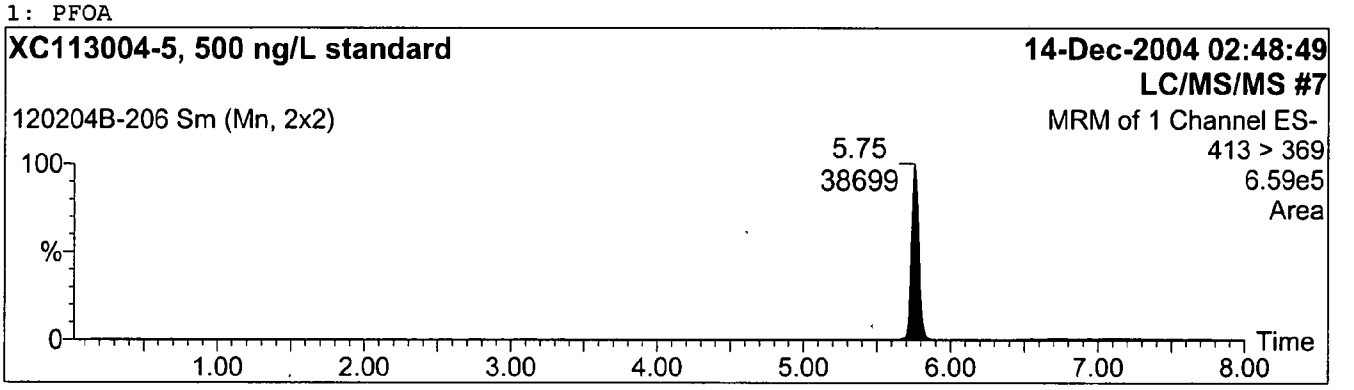
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-206
Text:

1: PFOA



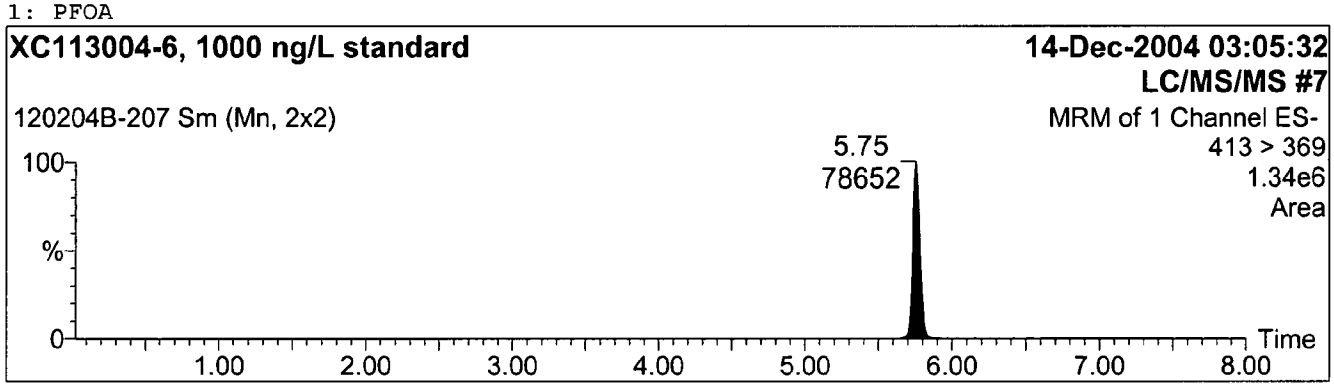
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-207
Text:

1: PFOA



Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
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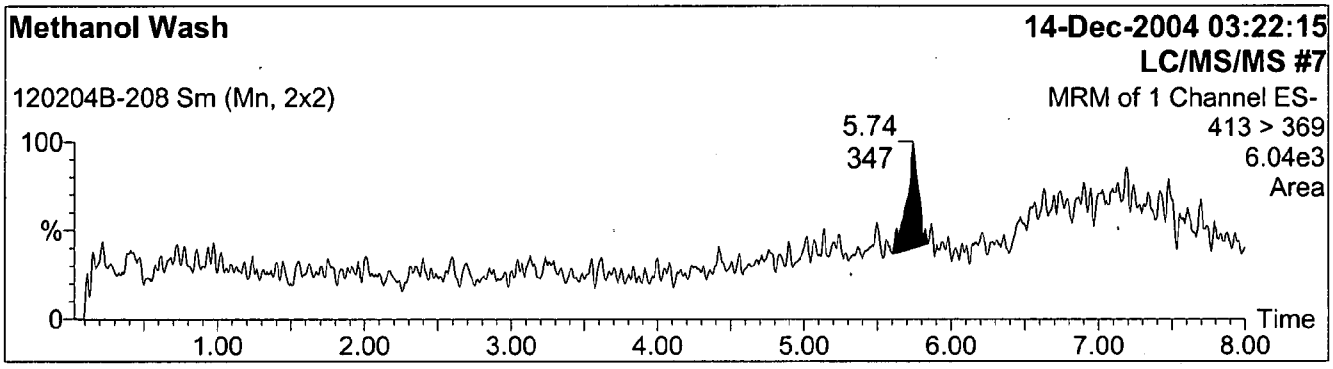
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-208
Text:

1: PFOA



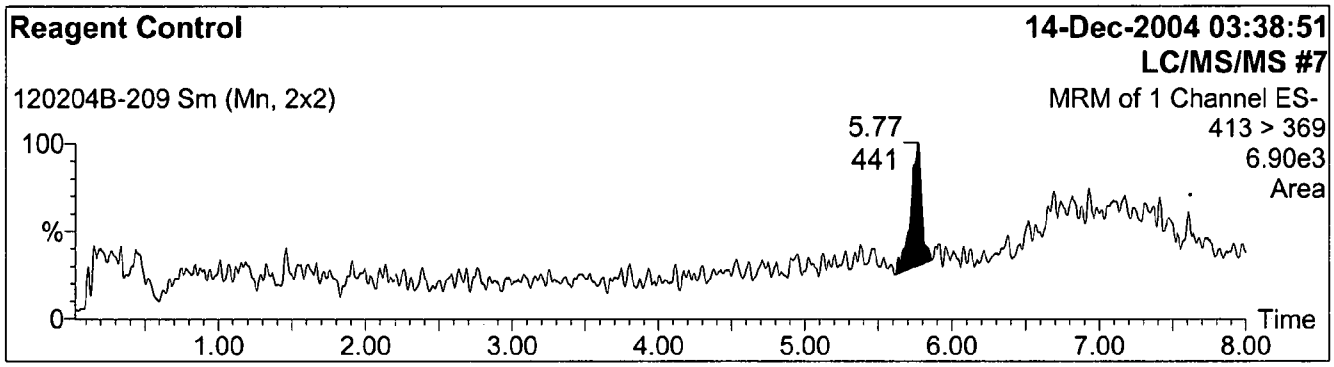
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-209
Text:

1: PFOA



Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
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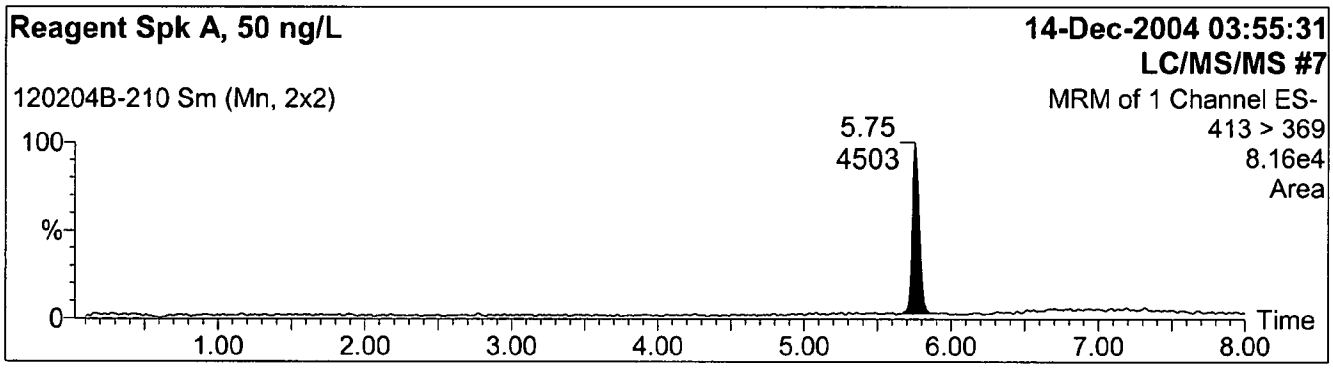
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-210
Text:

1: PFOA



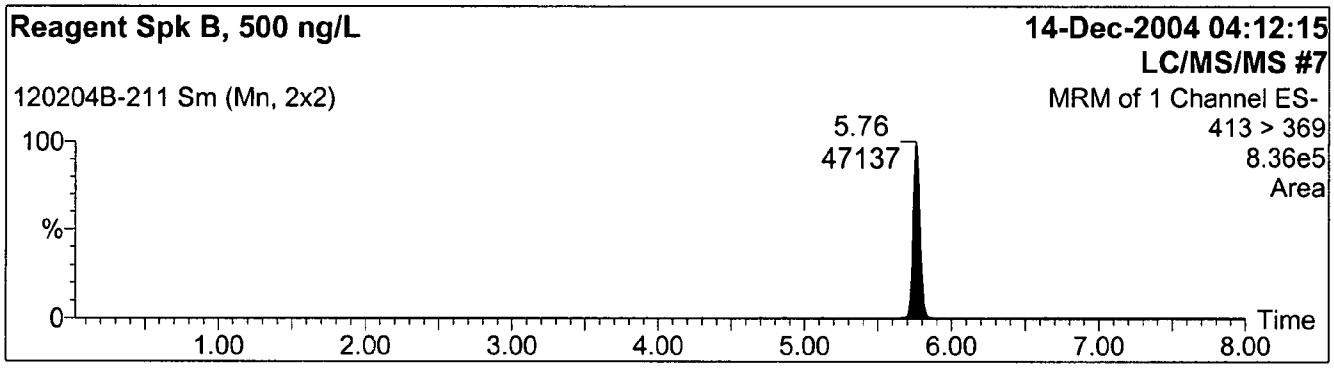
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-211
Text:

1: PFOA



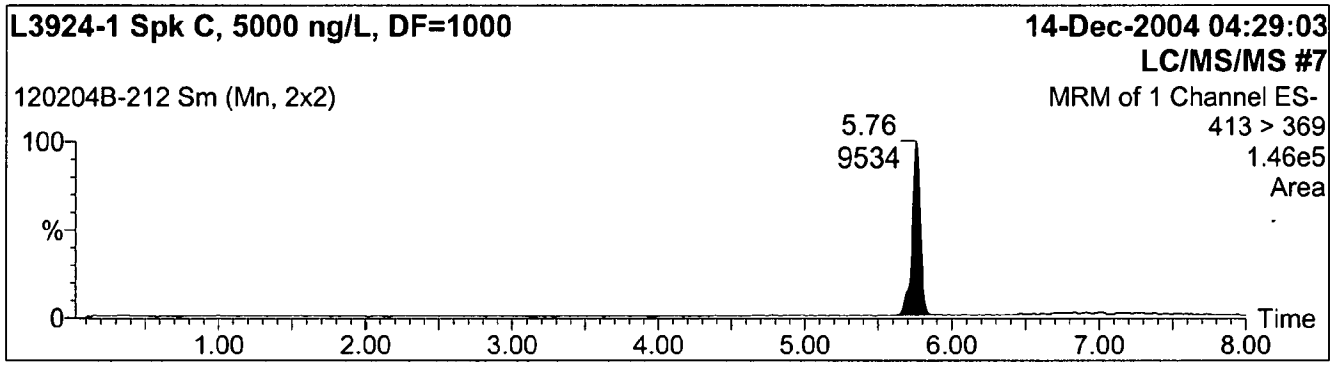
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-212
Text:

1: PFOA



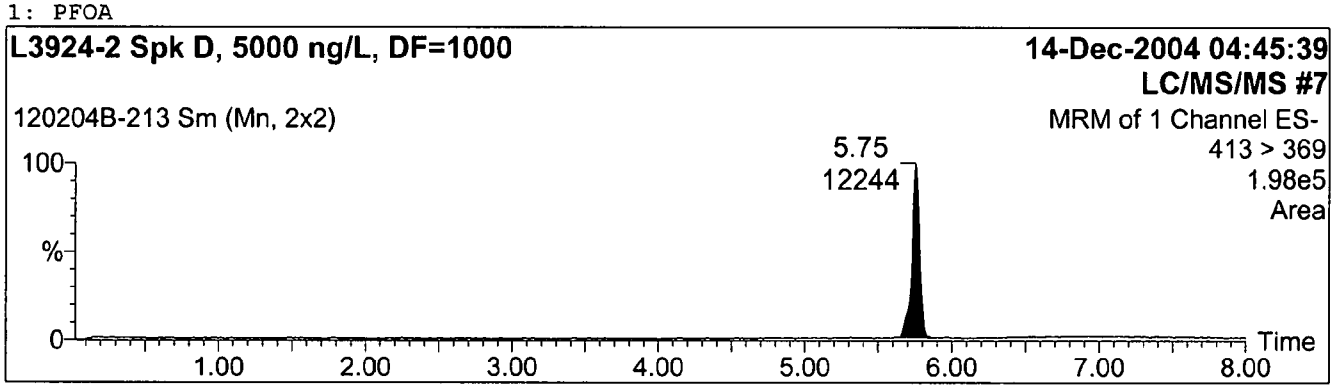
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-213
Text:

1: PFOA



Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
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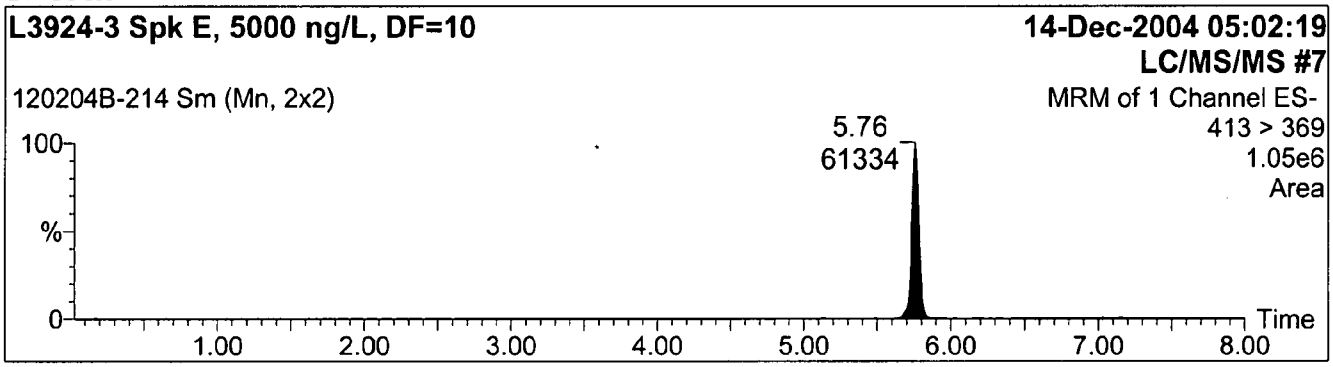
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-214
Text:

1: PFOA



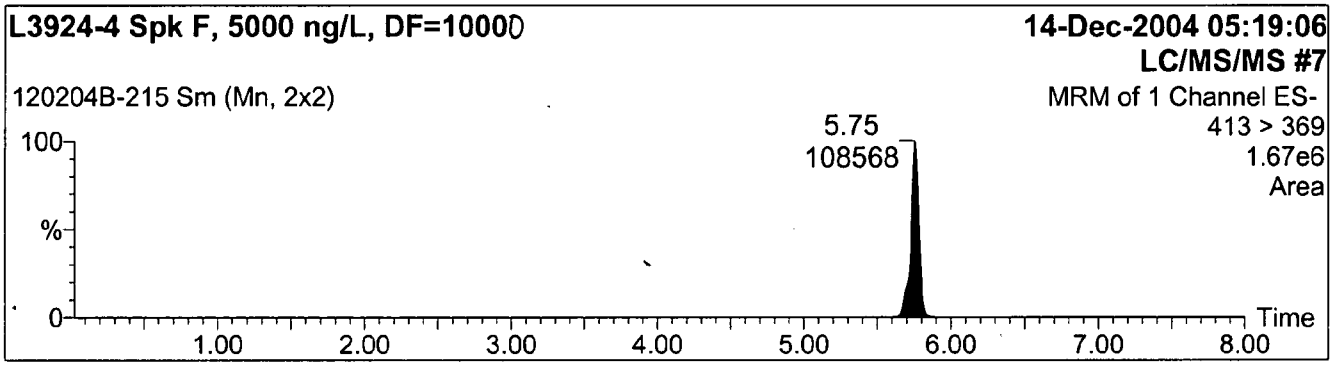
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-215
Text:

1: PFOA



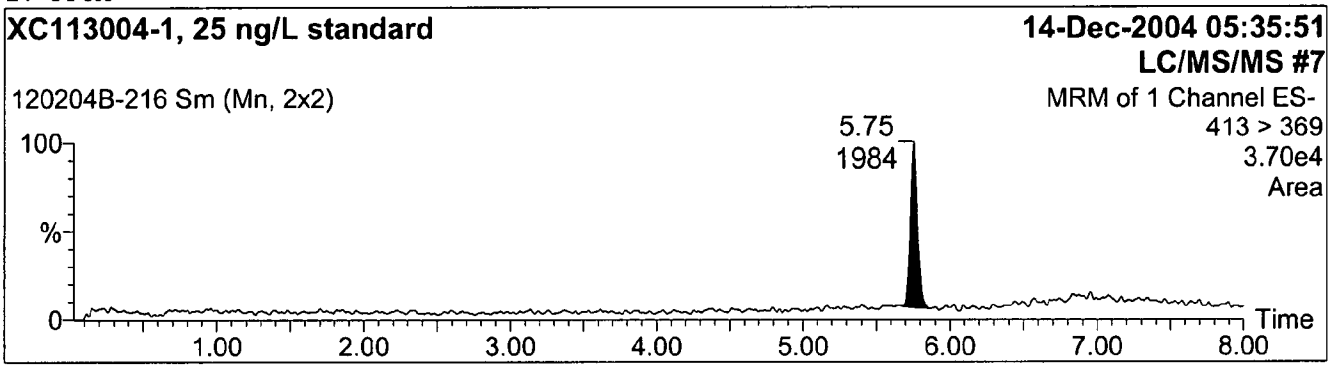
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-216
Text:

1: PFOA



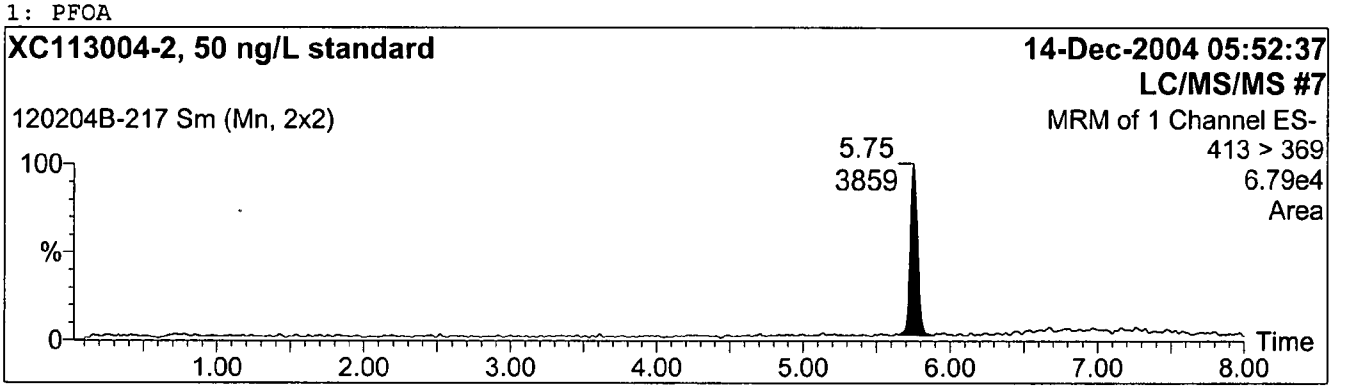
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-217
Text:

1: PFOA



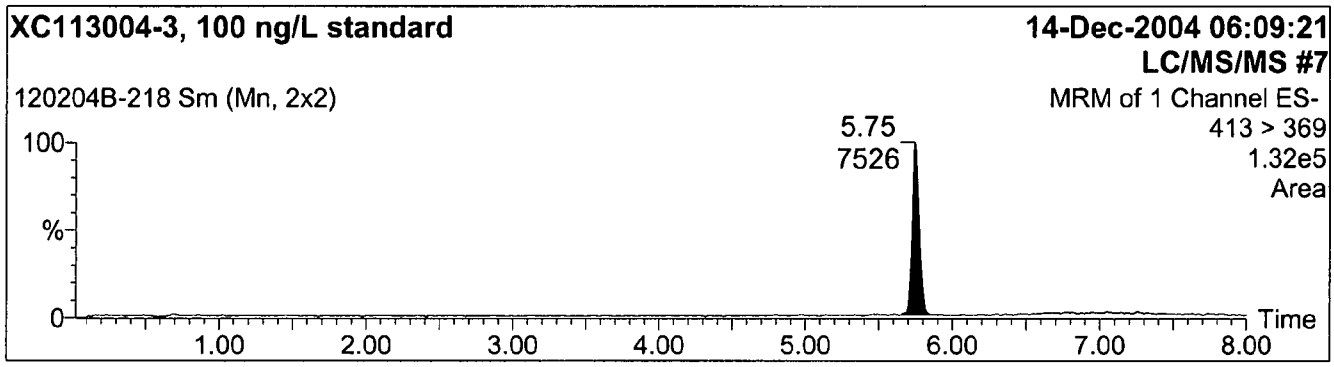
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-218
Text:

1: PFOA



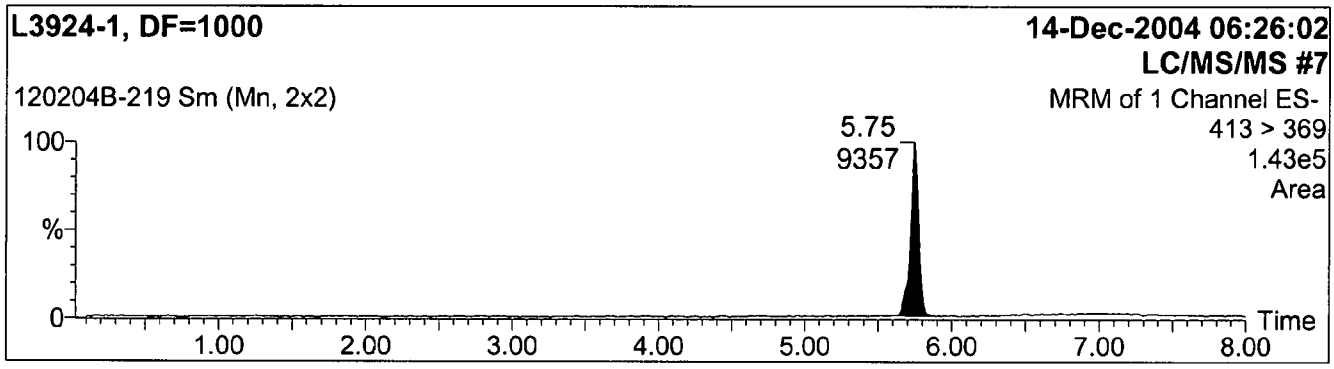
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-219
Text:

1: PFOA



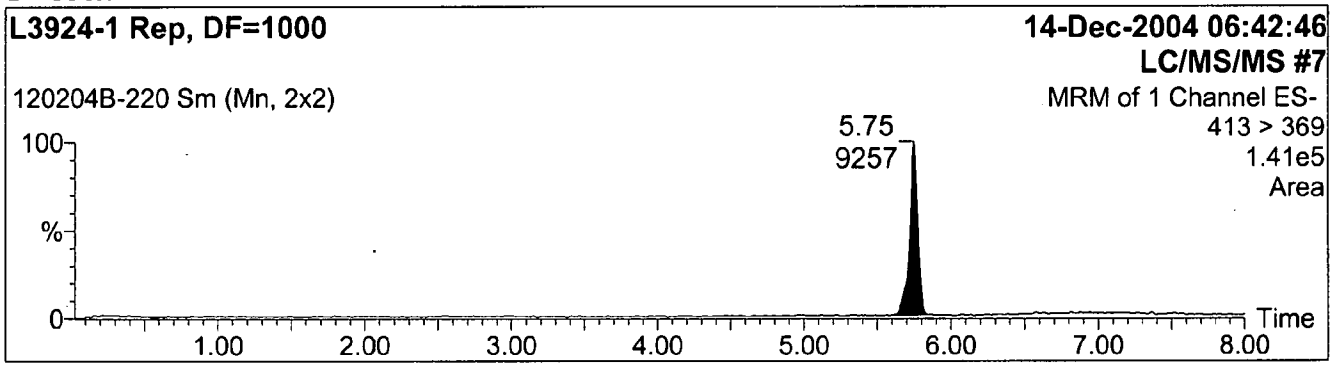
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-220
Text:

1: PFOA



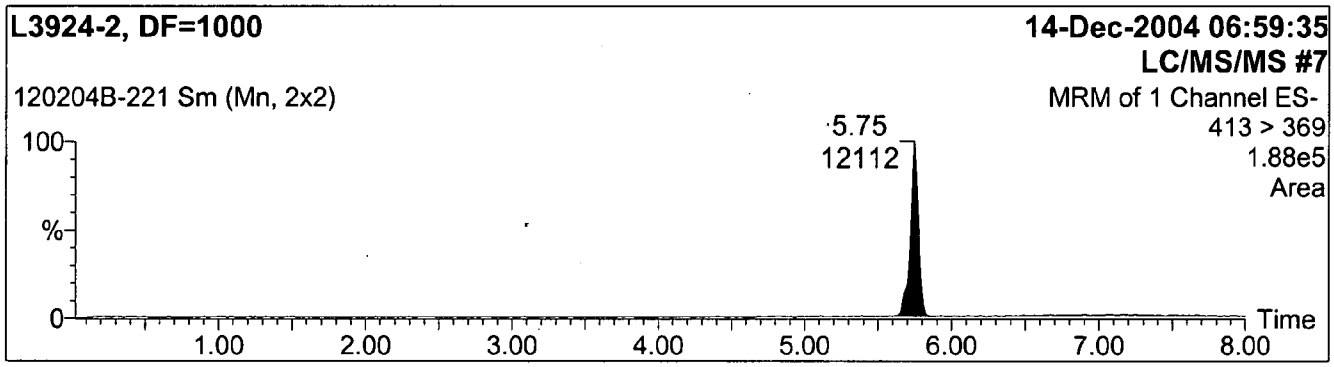
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-221
Text:

1: PFOA



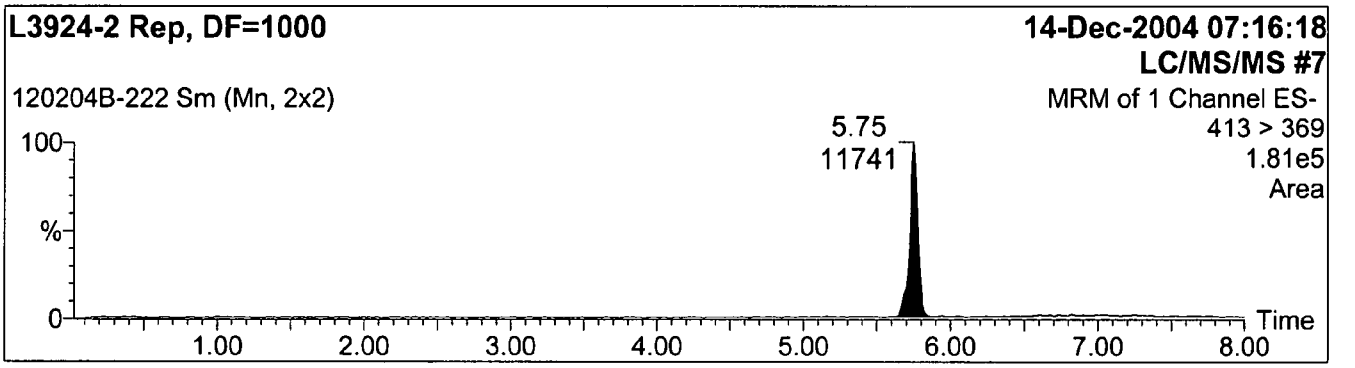
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-222
Text:

1: PFOA



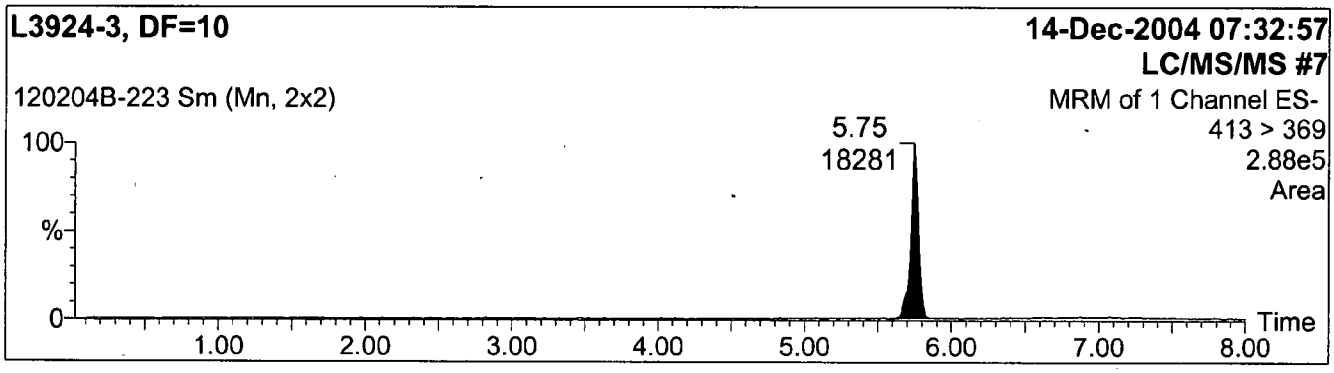
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-223
Text:

1: PFOA



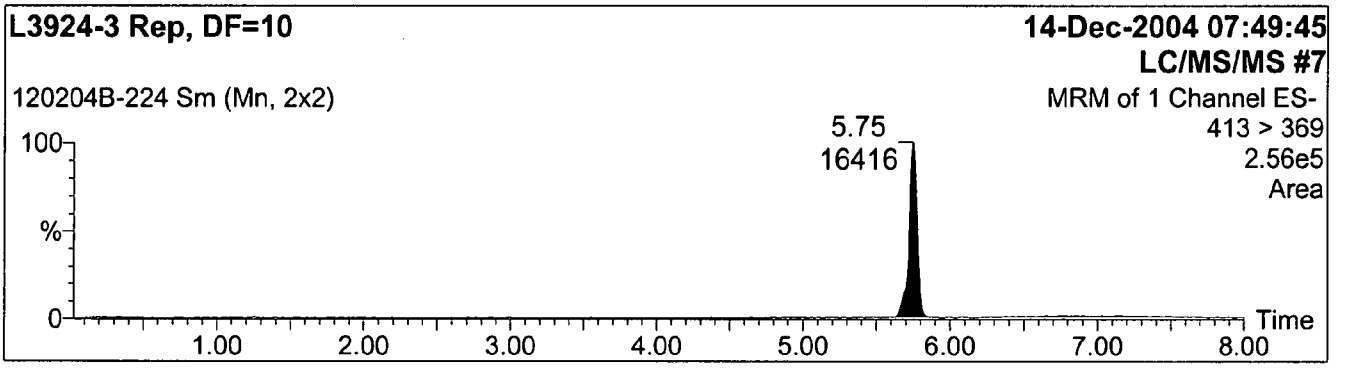
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-224
Text:

1: PFOA



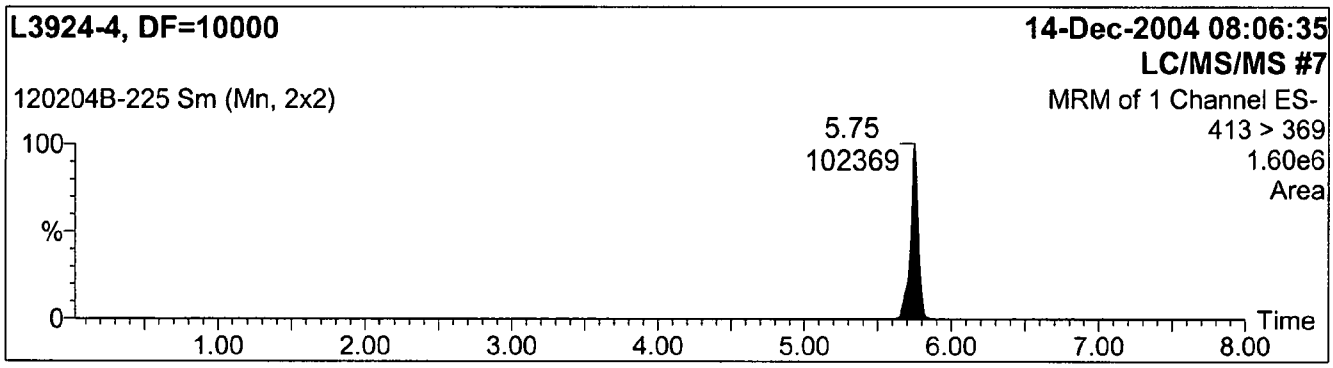
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-225
Text:

1: PFOA



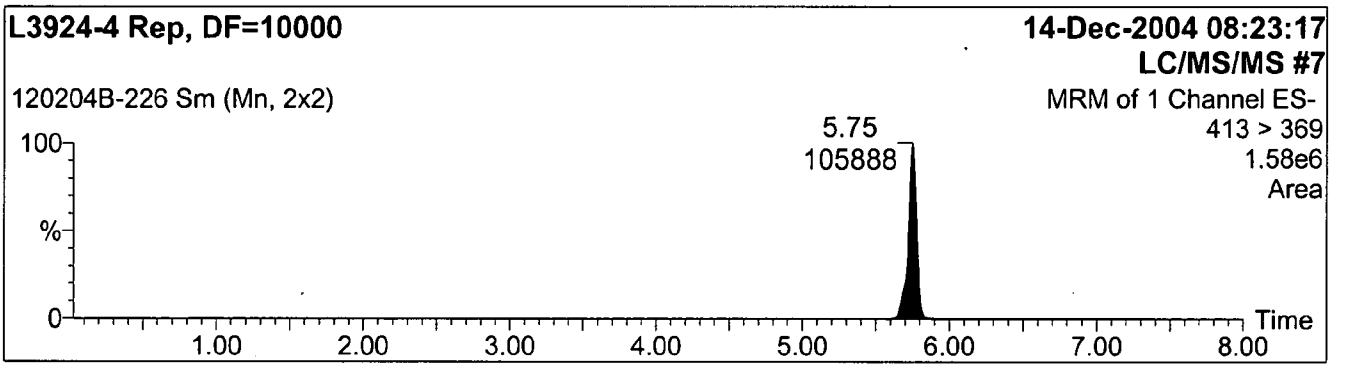
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-226
Text:

1: PFOA



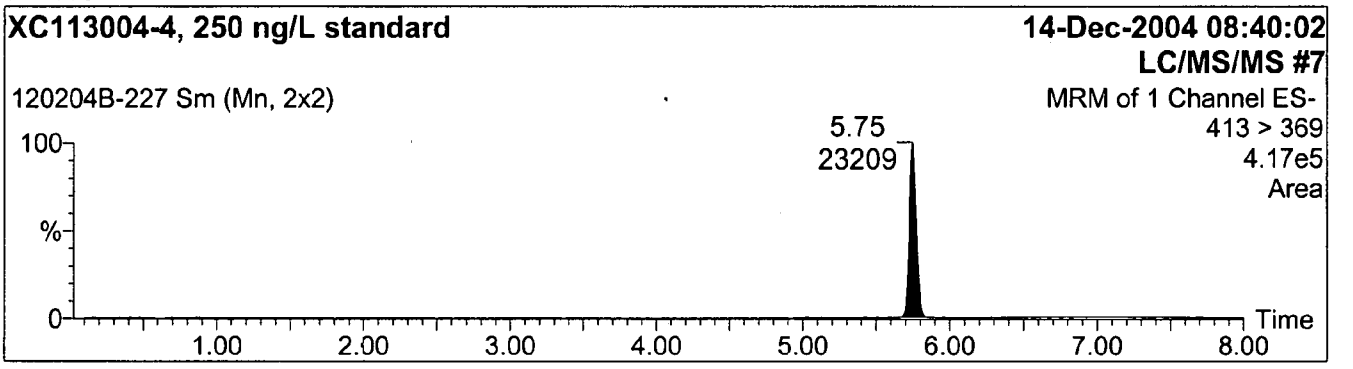
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-227
Text:

1: PFOA



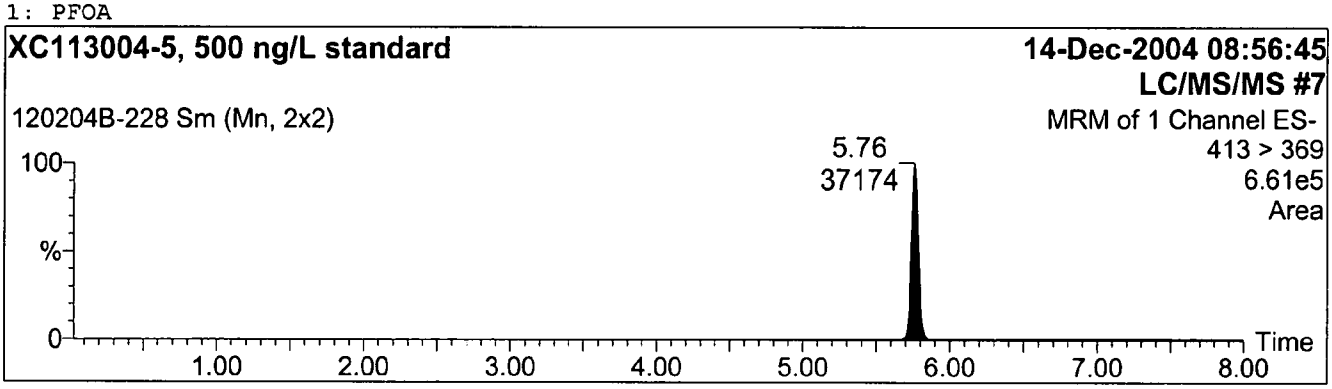
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-228
Text:

1: PFOA



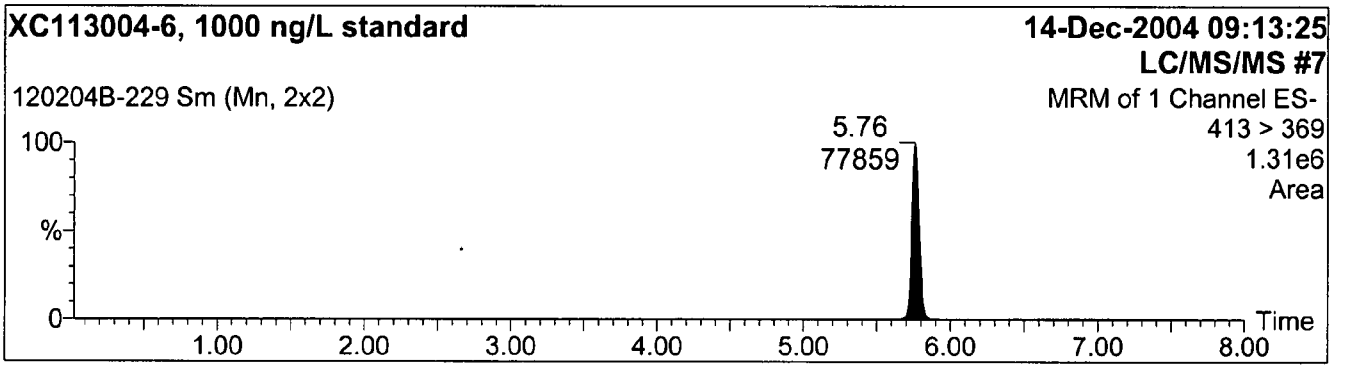
Study No.:L3924, Set No.:120204B, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\SampleDB\120204B Taconic
Last modified: Mon Dec 20 09:55:45 2004
Method: P:\Data\LCMSMS7\Masslynx\Fluorochems.PRO\MethDB\PFOA 121304
Last modified: Mon Dec 13 07:44:15 2004
Job Code:

Printed: Mon Dec 20 10:08:33 2004

Name: 120204B-229
Text:

1: PFOA



RAW DATA REPORT

Sponsor Study No:	NA	Limit of Quantitation:	50 ng/L	Set No:	120204BR
Exygen Study No:	L3924	Injection Volume:	15 µL	Analyst:	Karen Risha
Analyte:	APFO	Matrix:	Water	Instrument Type:	LC/MS/MS Unit # 6
Ions Monitored:	413 -> 369	Sample Volume Extracted:	0.4 mL	Extraction Date:	12/02/04
Site:	NA	Final Volume:	5.0 mL	Analyzed on:	12/20/04

Exygen ID	Sponsor ID	Sample Code	Run No.	Std. Conc. (ng/L)	Dilution Factor	Peak Area	PFOA Found (ng/L)	APFO Found (ng/L)	Amount PFOA Added (ng/L)	Recovery (%)
XC122004-0	-	CS	120204BR-501	0	-	1457	-	-	-	-
XC122004-1	-	CS	120204BR-502	25	-	7142	-	-	-	-
XC122004-2	-	CS	120204BR-503	50	-	12977	-	-	-	-
XC122004-3	-	CS	120204BR-504	100	-	24649	-	-	-	-
L3924-4 Spk F	04-10-04	LF	120204BR-505	-	100000	36563	14100000	14700000	5000	8000^
L3924-4	04-10-04	S	120204BR-506	-	100000	35474	13700000	14300000	-	-
L3924-4 Rep	04-10-04	S	120204BR-507	-	100000	36435	14100000	14700000	-	-
XC113004-4	-	CS	120204BR-508	250	-	66845	-	-	-	-
XC113004-5	-	CS	120204BR-509	500	-	127096	-	-	-	-
XC113004-6	-	CS	120204BR-510	1000	.	256128	-	-	-	-

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

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

Standard Curve : Linear (1/x weighted)
Intercept = 464.092
Slope = 255.612
Coef. Of Det. = 0.999793

APFO Found (ng/L) = PFOA found (ng/L) x (MW APFO (431) / MW PFOA (414))

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 50 ng/L

^Sample residue exceeded the spiking level signifcantly; therefore, an accurate recovery cannot be calculated.

Spreadsheet prepared by: KR 12/21/04

Sample List: C:\MASSLYNX\Fluorochemicals.PRO\SampleDB\120204BR Taconic.SPL
Printed: Mon Dec 20 11:14:14 2004

Exygen STUDY NO. L3924

KJ 12/20/04

	Vial	File Name	LIMS ID	Client ID	Sample Description	Matrix	Sample Type	Conc (ng/L)	Conc B	Conc C	Test ID	DF
1	1	120204BR-501	---	---	XC122004-0, 0 ng/L standard	---	Blank	0	---	---	0	1
2	2	120204BR-502	---	---	XC122004-1, 25 ng/L standard	---	Standard	25	---	---	0	1
3	3	120204BR-503	---	---	XC122004-2, 50 ng/L standard	---	Standard	50	---	---	0	1
4	4	120204BR-504	---	---	XC122004-3, 100 ng/L standard	---	Standard	100	---	---	0	1
5	11	120204BR-505	---	---	L3924-4 Spk F, 5000 ng/L, DF=100000	---	QC	5000	---	---	0	100000
6	12	120204BR-506	---	---	L3924-4, DF=100000	---	Analyte	---	---	---	0	100000
7	13	120204BR-507	---	---	L3924-4 Rep, DF=100000	---	Analyte	---	---	---	0	100000
8	5	120204BR-508	---	---	XC122004-4, 250 ng/L standard	---	Standard	250	---	---	0	1
9	6	120204BR-509	---	---	XC122004-5, 500 ng/L standard	---	Standard	500	---	---	0	1
10	7	120204BR-510	---	---	XC122004-6, 1000 ng/L standard	---	Standard	1000	---	---	0	1

Sample List: C:\MASSLYNX\Fluorochemicals.PRO\SampleDB\120204BR Taconic.SPL
Printed: Mon Dec 20 11:14:14 2004

BJ 12/20/04

Exygen STUDY NO. L3924

Page Position: (2, 1)

	MS Method	HPLC Method	MS Tune File	Inj.Volume
1	PFOA	water	Fluorochems	15
2	PFOA	water	Fluorochems	15
3	PFOA	water	Fluorochems	15
4	PFOA	water	Fluorochems	15
5	PFOA	water	Fluorochems	15
6	PFOA	water	Fluorochems	15
7	PFOA	water	Fluorochems	15
8	PFOA	water	Fluorochems	15
9	PFOA	water	Fluorochems	15
10	PFOA	water	Fluorochems	15

LC/MS/MS SYSTEM AND OPERATING CONDITIONS

Sponsor Protocol No: NA | Exygen Study No: L3924

Instrument:	Micromass Quattro Ultima (LC/MS/MS Unit #6)
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: MA0016984) (**JONES**CHROMATOGRAPHY: Part No. FK5962E)
Mobile Phase (A) :	2 mM Ammonium Acetate in 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 12/20/04

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: —

Method: C:\MASSLYNX\FLUOROCHEMICALS.PRO\ACQUDB\PFOA
Last Modified: Wed Mar 26 15:31:10 2003

Printed: Mon Dec 20 11:15:02 2004

KJ 12/20/04

Solvent Delay (mins) : 0.00

Analog Channel 4 : Unused
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

Method File: c:\masslynx\fluorochemicals.pro\acqudb\water
Last Modified: Monday, December 20, 2004 11:13:05

Printed: Monday, December 20, 2004 11:15:23 KJ 12/20/04

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)	14.0
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 9 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

HP1100 LC Pump External Event Timetable

The Timetable contains 6 entries which are :

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

HP1100 Autosampler Initial Conditions

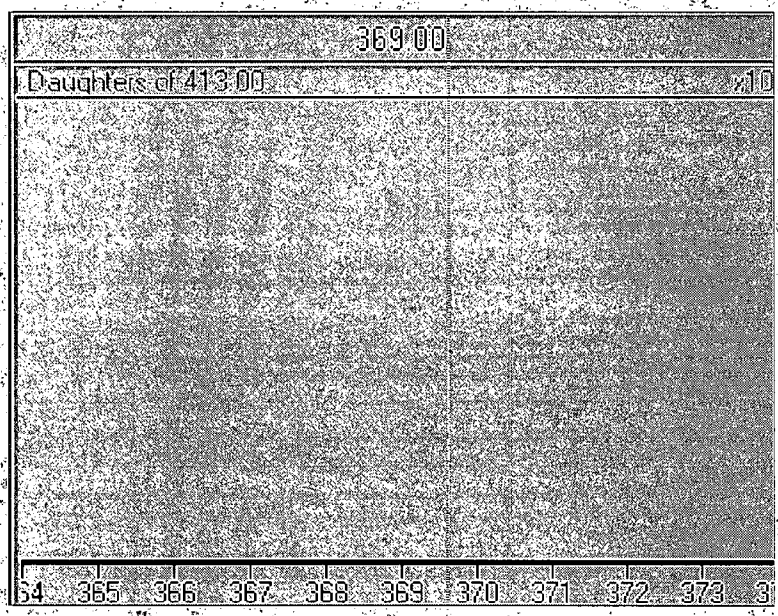
Draw Speed	200.0
Eject Speed (µl/min)	200
Draw Position (mm)	0.50
Stop Time (mins)	14.00
Injection Volume(µl)	15.0
Vial Number	6

Tuning Method Report

Method: C:\MASSLYNX\FLUOROCHEMICALS.PRO\ACQUDB\FLUOROCHEMS

Printed: Mon Dec 20 11:15:34 2004

KGB 12/20/04



Dau 413.00

SOURCE (ESP-)	Set	Rdbk	Analyser	Set	Rdbk
Capillary	3.00	-2.93	LM Res 1	13.5	
Cone	10	-11	HM Res 1	13.5	
Hexapole 1	0.0		IEnergy 1	1.0	
Aperture 1	0.0		Entrance	-2	28
Hexapole 2	0.0		Collision	30	29
Source Block Temp.	100	100	Exit	2	31
Desolvation Temp.	300	299	LM Res 2	13.5	
			HM Res 2	13.5	
			IEnergy 2	2.0	
			Multiplier	650	-648

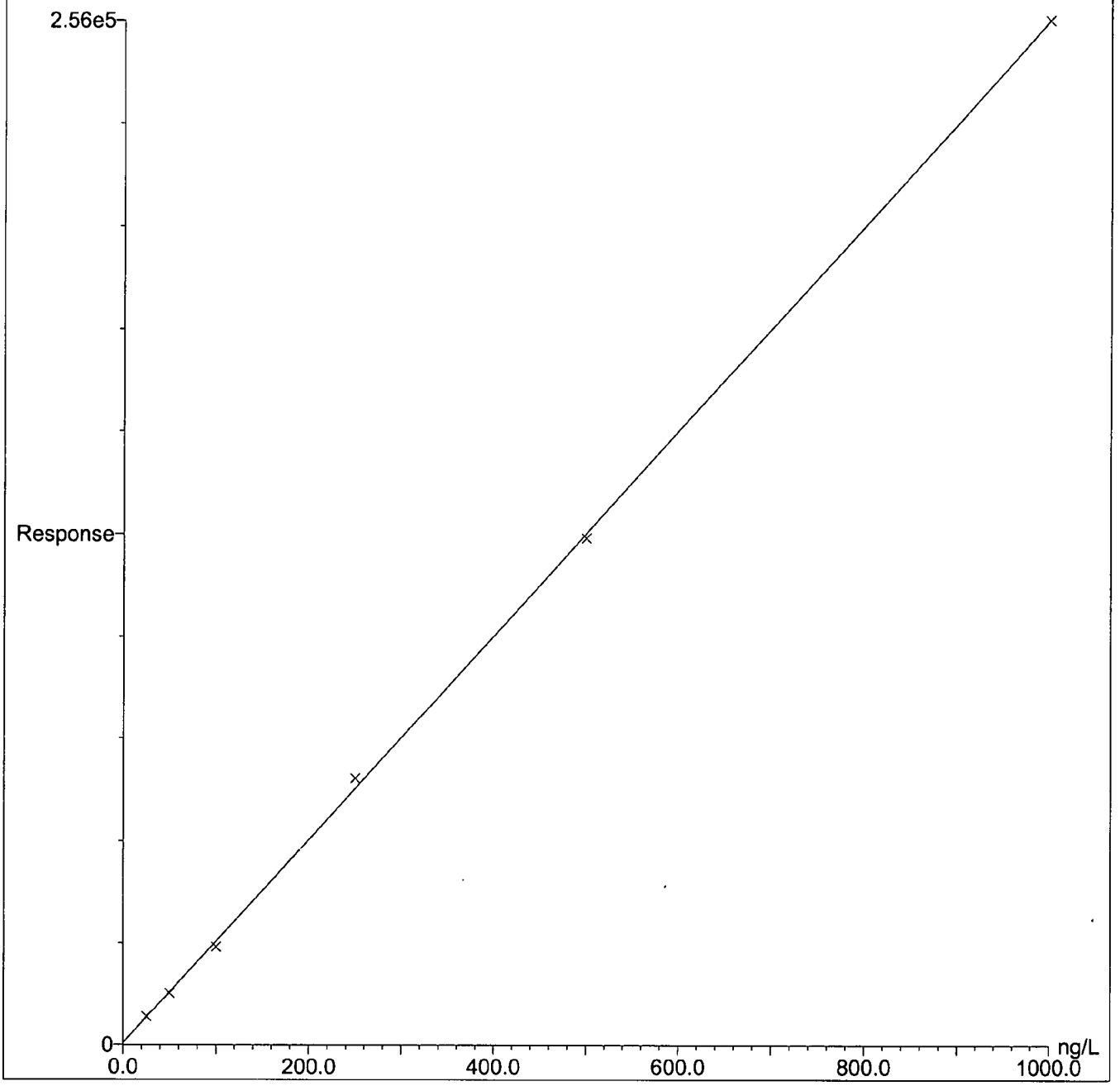
Pressures	Rdbk	Gas Flows	Rdbk
Analyser Vacuum	OFF	Cone Gas	186.7
Gas Cell	2.9e-3	Desolvation	773.3

Quantify Calibration Report
Study No.:L3924, Set No.:120204BR, Ext.Date:12/02/04, Analyst:K.Risha

Calibration: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\CurveDB\120204BR Taconic
Last modified: Tue Dec 21 07:46:54 2004
Printed: Tue Dec 21 07:47:23 2004

Kg 12/21/04

Compound 1 name: PFOA
Coefficient of Determination: 0.999793
Calibration curve: 255.612 * x + 464.092
Response type: External Std, Area
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Exygen Research, 3058 Research Drive, State College, PA 16801

Quantify Sample Report
Study No.:L3924, Set No.:120204BR, Ext.Date:12/02/04, Analyst:K.Risha

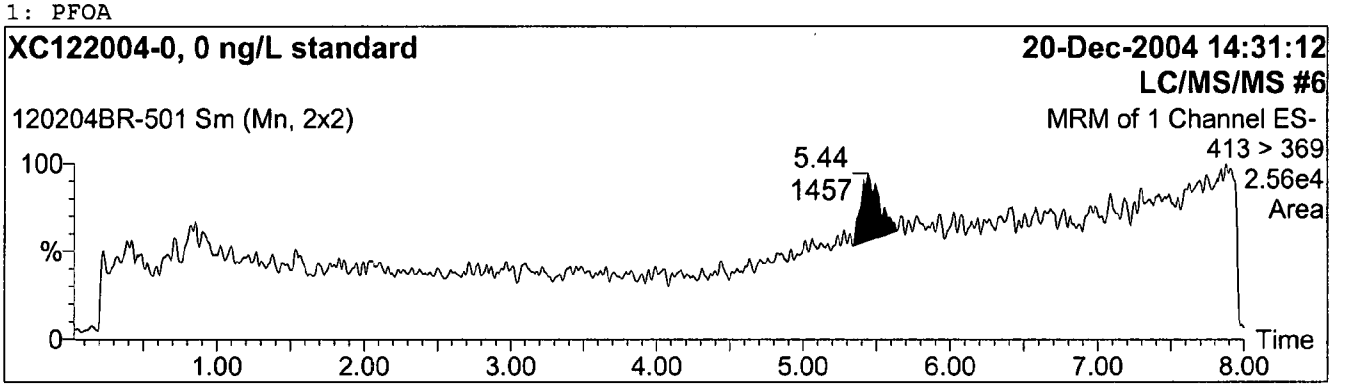
Sample List: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\SampleDB\120204BR Taconic
Last modified: Tue Dec 21 07:28:07 2004
Method: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\MethDB\PFOA 092204
Last modified: Fri Oct 15 11:47:53 2004
Job Code:

Initials KR
Date 12/21/04
Run# 120204BR-501 To 120204BR-510

Printed: Tue Dec 21 07:47:25 2004

Name: 120204BR-501
Text:

1: PFOA



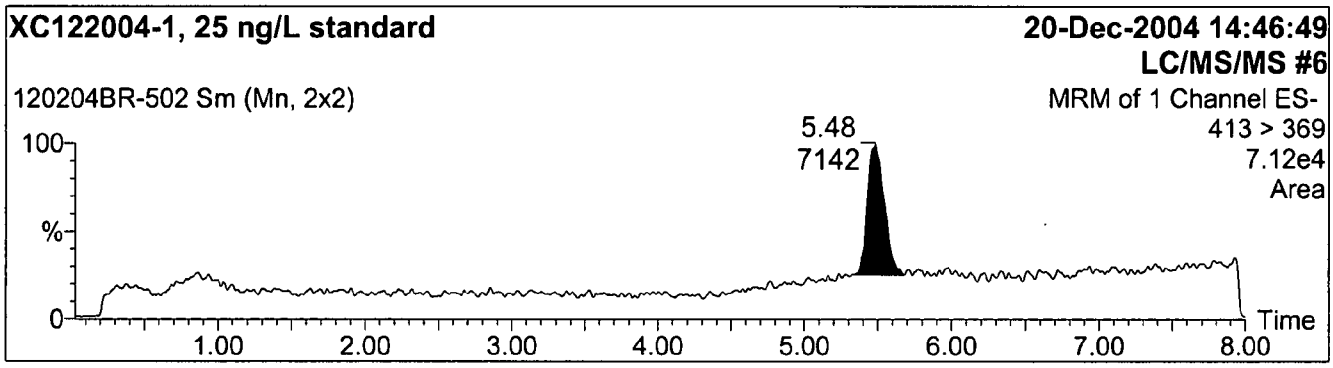
Study No.:L3924, Set No.:120204BR, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\SampleDB\120204BR Taconic
Last modified: Tue Dec 21 07:28:07 2004
Method: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\MethDB\PFOA 092204
Last modified: Fri Oct 15 11:47:53 2004
Job Code:

Printed: Tue Dec 21 07:47:25 2004

Name: 120204BR-502
Text:

1: PFOA



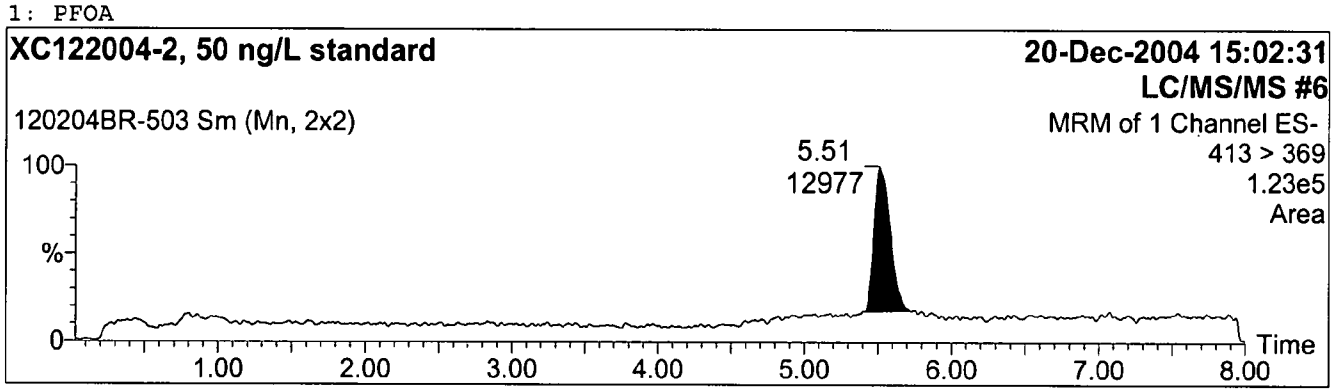
Study No.:L3924, Set No.:120204BR, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\SampleDB\120204BR Taconic
Last modified: Tue Dec 21 07:28:07 2004
Method: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\MethDB\PFOA 092204
Last modified: Fri Oct 15 11:47:53 2004
Job Code:

Printed: Tue Dec 21 07:47:25 2004

Name: 120204BR-503
Text:

1: PFOA



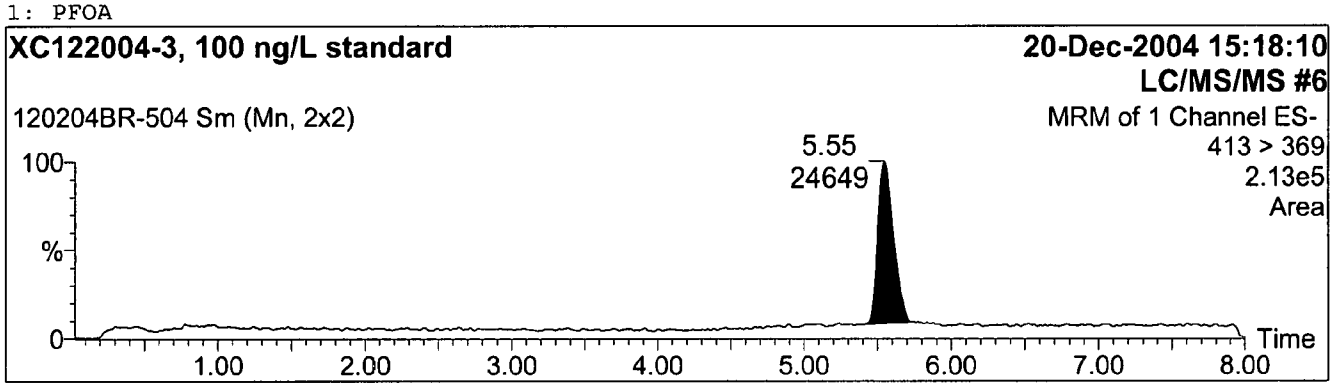
Study No.:L3924, Set No.:120204BR, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\SampleDB\120204BR Taconic
Last modified: Tue Dec 21 07:28:07 2004
Method: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\MethDB\PFOA 092204
Last modified: Fri Oct 15 11:47:53 2004
Job Code:

Printed: Tue Dec 21 07:47:25 2004

Name: 120204BR-504
Text:

1: PFOA



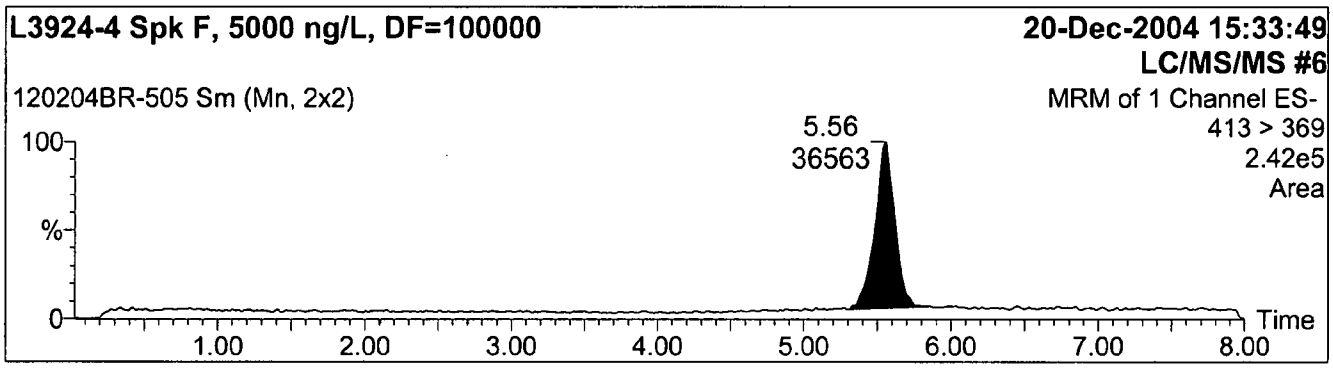
Study No.:L3924, Set No.:120204BR, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\SampleDB\120204BR Taconic
Last modified: Tue Dec 21 07:28:07 2004
Method: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\MethDB\PFOA 092204
Last modified: Fri Oct 15 11:47:53 2004
Job Code:

Printed: Tue Dec 21 07:47:25 2004

Name: 120204BR-505
Text:

1: PFOA



Study No.:L3924, Set No.:120204BR, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\SampleDB\120204BR Taconic
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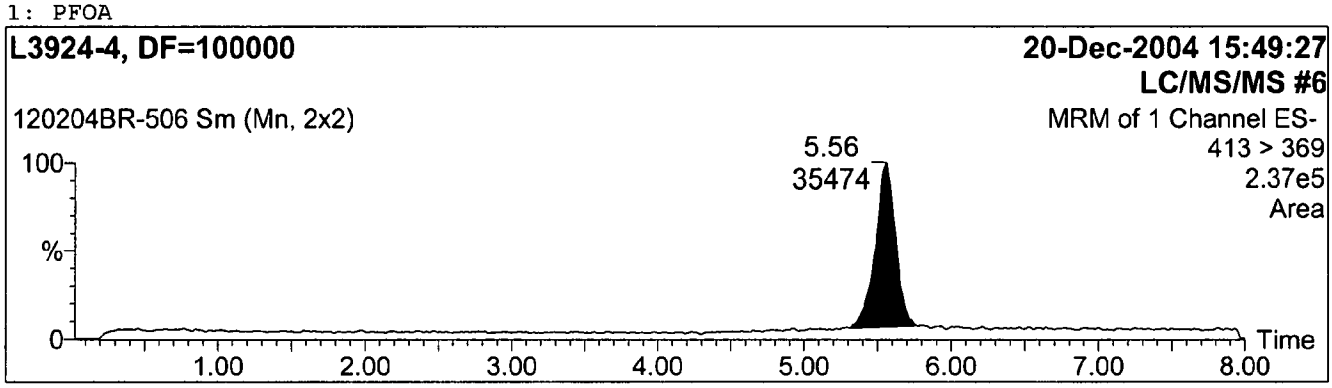
Method: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\MethDB\PFOA 092204
Last modified: Fri Oct 15 11:47:53 2004
Job Code:

Printed: Tue Dec 21 07:47:25 2004

Name: 120204BR-506
Text:

1: PFOA



Study No.:L3924, Set No.:120204BR, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\SampleDB\120204BR Taconic
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Job Code:

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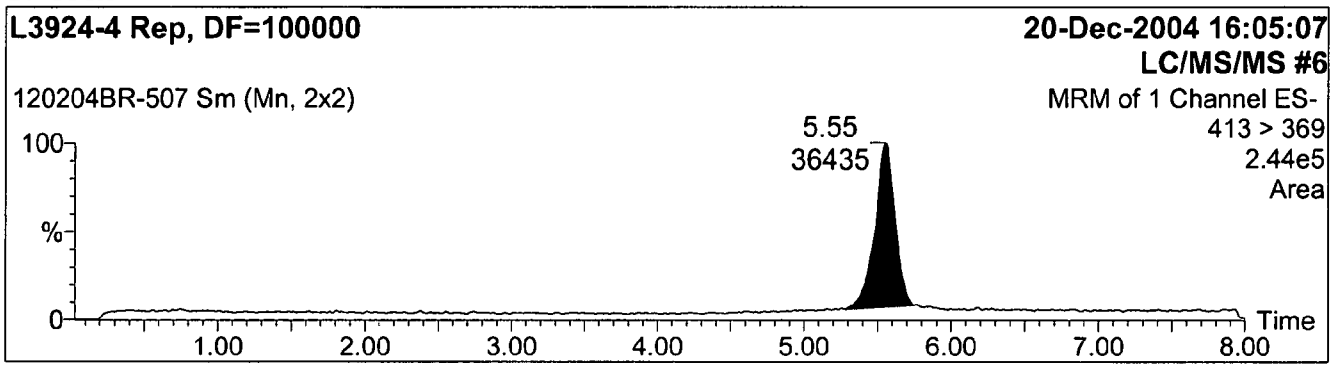
Name: 120204BR-507
Text:

1: PFOA



Study No.:L3924, Set No.:120204BR, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\SampleDB\120204BR Taconic
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Job Code:

Printed: Tue Dec 21 07:47:25 2004

Name: 120204BR-508
Text:

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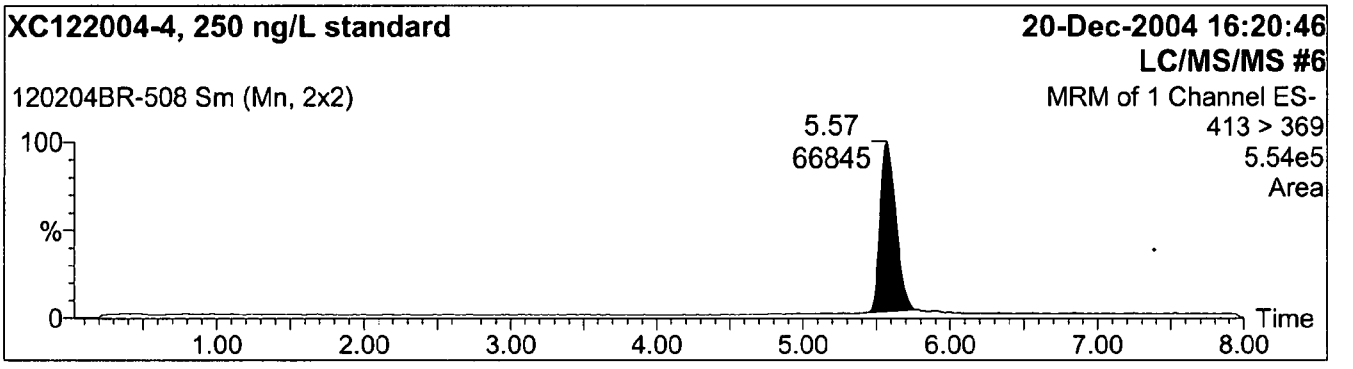

Study No.:L3924, Set No.:120204BR, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\SampleDB\120204BR Taconic
Last modified: Tue Dec 21 07:28:07 2004
Method: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\MethDB\PFOA 092204
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Job Code:

Printed: Tue Dec 21 07:47:25 2004

Name: 120204BR-509
Text:

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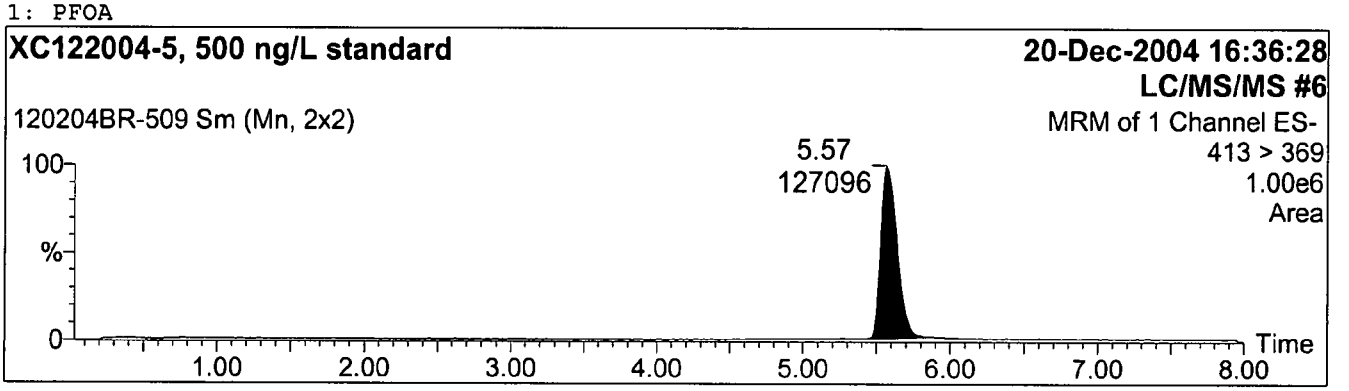

Study No.:L3924, Set No.:120204BR, Ext.Date:12/02/04, Analyst:K.Risha

Sample List: P:\Data\LCMSMS6\Masslynx\Fluorochemicals.PRO\SampleDB\120204BR Taconic
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Last modified: Fri Oct 15 11:47:53 2004
Job Code:

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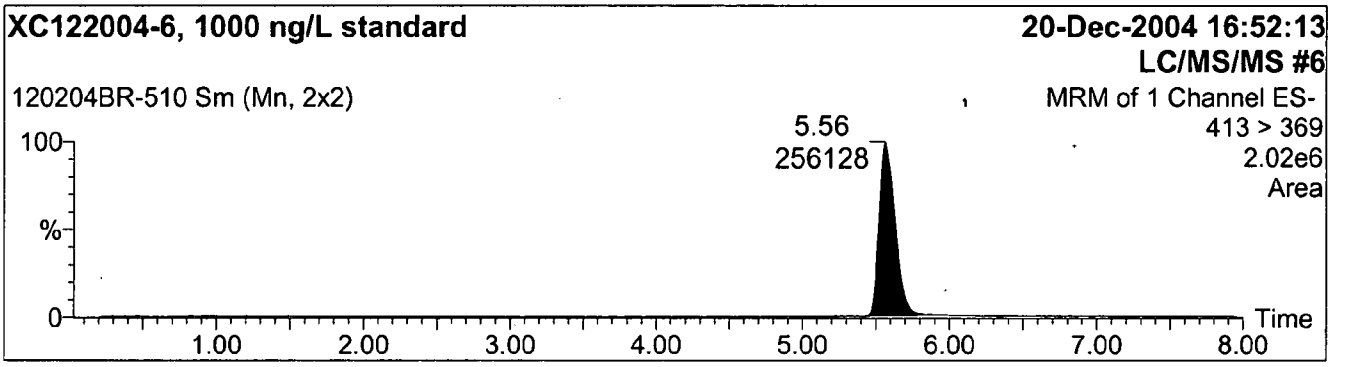
1: PFOA