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Level IV Data Package

MWH Group 245247

Method: EPA 314

2806240538
2806240540

Perchlorate QC Checklist

rev: 27 Mar 03

Analysis Date: 06-30-08 **Analyst:** Rays **QC'd by** ML **Date** 5 Jul 08

Instrument: IC11 **Calculated MCT Level:** 3500 umhos/cm

Original IPC conductance: 3475 umhos/cm **Daily IPC conductance:** 3411 umhos/cm

Calibration including QCS

✓ QCS (20ppb) recovery is within 90% - 110% (18-22ppb) to verify that the calibration curve (minimum 5 points) still holds.

✓ Calibration curve is reanalyzed if QCS fails. Correlation Coefficient is 0.995 or better.

Initial QC Check Samples (MBLANK, MRL, ICCSCV, IPC) to be analyzed with every batch (up to 20 samples) or part thereof

✓ MLBANK is analyzed before samples. Perchlorate, if present, is < or = half of the MRL.

N/A *L-ClO4 only*: ICCSCV at 2ppb is within 50%-150% (1-3ppb)

✓ *ClO4 only*: MRL at 4ppb is within 75%-125% (3-5ppb)

PDA/H = 052 % - VB MM 7/7/08

✓ IPC (25ppb) recovery is between 80%-120% (20-30ppb)

✓ IPC retention time is within 5% of the retention time of the standards

✓ IPC Conductance level is within 10% of the original

LCS/LCSD (25ppb)

✓ Recoveries are between 90%-110% (22.5 – 27.5ppb)

✓ One pair is analyzed per batch (up to 20 samples) or part thereof

MS/MSD (25ppb) NOTE: For UCMR, MS/MSD concentrations alternate between 4ppb and 25ppb

✓ Recoveries are within 80%-120% (20-30ppb) for 25ppb spike N/A (3.2-4.8ppb) for 4ppb spike

✓ One pair is analyzed per batch (up to 20 samples) or part thereof

✓ RPD between MS and MSD is within 15%.

Continuing Calibration Verification (MCV, HCV) NOTE: For UCMR ECV and MCV are required

✓ Verification Checks alternate between mid- and high-level during the analysis (low- and mid-level for UCMR)

✓ MCV (25ppb) recovery is between 85%-115% (21.25 – 28.75ppb)

✓ HCV (100ppb) recovery is between 85%-115% (85-115ppb) N/A ECV (4ppb) recovery is between 75%-125% (3.0-5.0)

Pretreat and include the following QC parameters for any batch or part thereof containing samples requiring pretreatment

N/A One Laboratory Reagent Blank (LRB). Perchlorate is < or = half of MRL.

N/A One pair of Laboratory Control Samples (LCS/LCSD). Recovery of perchlorate is between 85%-115%.

N/A One Pair of Laboratory Fortified Matrices (MS/MSD). Recoveries are between 80%-120%

Samples

✓ All samples are analyzed within 28 days of collection.

✓ All samples are analyzed within MCT Conductance limit.

QIR

N/A QIR needed for failed QC

N/A QIR needed for samples analyzed outside of hold time

Sample No.	Sample Name	Dil.Fac.	Comment	Time	Amount CLO4 CD_1	
1	WASH	1.0		06.25.08 12:17	n.a.	
2	autocal1	1.0		06.25.08 12:41	n.a.	
3	autocal2	1.0	2	06.25.08 13:04	2.2928	
4	autocal3	1.0	4	06.25.08 13:26	3.8974	
5	autocal4	1.0	10	06.25.08 13:49	9.8933	
6	autocal5	1.0	25	06.25.08 14:11	24.7111	
7	autocal6	1.0	50	06.25.08 14:33	50.2483	
8	autocal7	1.0	100	06.25.08 14:56	99.9570	
9	QCS	1.0	20	06.30.08 12:42	18.6184	93.1%
10	IPC	1.0	25	06.30.08 13:04	21.8867	87.5%
11	-MBLNK	1.0		06.30.08 13:26	n.a.	
12	-MRLCHK-2	1.0		06.30.08 13:49	2.1417	107%
13	-MRLCHK-4	1.0		06.30.08 14:11	4.0733	102%
14	-LCS1	1.0		06.30.08 14:34	23.7702	95.1%
15	-LCS2	1.0		06.30.08 14:56	24.0371	96.1%
16	2806300035	1.0		06.30.08 15:18	n.a.	
17	2806260127	1.0		06.30.08 15:41	6.7145	
18	2806260127MS	1.0		06.30.08 16:03	28.5173	21.8-87.2%
19	2806260127MSD	1.0		06.30.08 16:26	28.5001	21.8-87.1%
20	2806190561-DNR	1.0		06.30.08 16:48	3.4912	
21	2806240530	1.0		06.30.08 17:10	n.a.	
22	2806240550	1.0		06.30.08 17:33	n.a.	
23	2806270093	1.0		06.30.08 17:55	3.2618	
24	2806270094	1.0		06.30.08 18:17	3.7986	
25	2806270095	1.0		06.30.08 18:40	4.2837	
26	2806270096	1.0		06.30.08 19:02	3.8091	
27	2806240538_1/5	5.0		06.30.08 19:25	n.a.	
28	CCV	1.0	25	06.30.08 19:47	24.1747	96.7%
29	2806240540_1/5000	5000.0		06.30.08 20:09	265473.9840	
30	2806240561_1/5	5.0		06.30.08 20:32	n.a.	
31	2806240562_1/5000	5000.0		06.30.08 20:54	246649.2091	
32	2806240605	1.0		06.30.08 21:17	2.3124	
33	2806240665	1.0		06.30.08 21:39	6.1769	
34	2806240676	1.0		06.30.08 22:01	n.a.	
35	2806250232	1.0		06.30.08 22:24	n.a.	
36	2806250233	1.0		06.30.08 22:46	n.a.	
37	2806250234-DNR	1.0		06.30.08 23:09	n.a.	
38	HCV	1.0	100	06.30.08 23:31	98.9339	98.9%
39	STOP	1.0		06.30.08 23:53	n.a.	

MWH Laboratories
750 Royal Oaks Drive, Suite 100
Monrovia, CA 91016-3629

CONDUCTIVITY MW SOP REVISION 5
SM2510B

Analysis Date: 06-30-08
Analyst: Raja
Reviewed By:
LIMS Check By:

Was QC Criteria Met Y N
Was QIR Needed: Y N

Time of Analysis Start: 03:32 End: 03:41
MRL 2umhos/cm: Rg 20779 exp of solution: N/A
KCl Std 1412 Rg 201819 exp of solution 9-30-08
TV = 1412 µmho/cm @ 25°C for 0.0100M
Reading: 1398
Instrument: YSI Model 3200 SN:01A0504, Year Acquired 2001 New

Run #	Sample Number	Sample ID	Client	Date Collected	Temp °C	pH	Scale (µmho/mmho)	Result: Instrument	Result: Reported (µmho/cm)	Comments
Blk	Blank						µs	0.359		
STD	MRL 2umhos/cm							2.08		1-3—±50% of TV
STD	KCl - 1000 mhos/cm							985		950-1050—±5% of TV
1	2806240538	Effluent	Kennedy	06-23-08				9070		
2	540	Influent		↓				9120		
3	561	Effluent-comp		06-21-08				8080		
4	562	Influent-comp	↓	↓				9070		
5	605	Well 1+4	[redacted]	06-24-08				982		
6	665	107F8:SD4	[redacted]					720		
7	676	EFFEIS6DH	↓					542		
8	2806250232	080515-356	[redacted]					223		
9	233	080514-123						352		
10	234	↓ -124						346		
DUP	↓	@ ↓ ↓						348		RPD < 5%
11	235	080515-393						557		
12	236	↓ -406						367		
13	237	↓ -407	↓	↓				602		
14	2806260127	Well 4	[redacted]	06-25-08				403		
15	2806300035	1910043-069	[redacted]	06-30-08			↓	844		
16										
17										
18										
19										
20										
DUP	2806300035	1910043-069	GDM/Glendale	06-30-08			µs	846		RPD < 5%
STD	KCl - 10 mhos/cm						↓	8.99		9-12—RPD < 20% of TV

% RPD = |S1-S2| * 100 / (S1+S2)/2

S1 = reading of 1st sample
S2 = reading of 2nd sample

Sequence: 063008CLO4-IC11
Operator: raja
Printed: 7/7/2008 5:30:11 PM

Title:
Datasource: Dionex_USPAS2SDIO2
Location: IC\IC11_CLO4\2008\JUNE
Timebase: IC11
#Samples: 39

Created: 6/30/2008 12:24:28 PM by raja
Last Update: 7/1/2008 8:55:20 AM by raja

No.	Name	Sample ID	Dil. Factor	Type	Comment	Status	Program
1	WASH		1.0000	Unknown		Finished	Perchlorate-IC11
2	autocal1		1.0000	Standard		Finished	Perchlorate-IC11
3	autocal2	R201449 EXP 07/28/09	1.0000	Standard	2	Finished	Perchlorate-IC11
4	autocal3		1.0000	Standard	4	Finished	Perchlorate-IC11
5	autocal4		1.0000	Standard	10	Finished	Perchlorate-IC11
6	autocal5	3475	1.0000	Standard	25	Finished	Perchlorate-IC11
7	autocal6		1.0000	Standard	50	Finished	Perchlorate-IC11
8	autocal7		1.0000	Standard	100	Finished	Perchlorate-IC11
9	QCS	R201789 EXP 07/10/09	1.0000	Unknown	20	Finished	Perchlorate-IC11
10	IPC	EC=3475	1.0000	Unknown	25	Finished	Perchlorate-IC11
11	-MBLNK		1.0000	Unknown		Finished	Perchlorate-IC11
12	-MRLCHK-2	2	1.0000	Unknown		Finished	Perchlorate-IC11
13	-MRLCHK-4	4	1.0000	Unknown		Finished	Perchlorate-IC11
14	-LCS1	25	1.0000	Unknown		Finished	Perchlorate-IC11
15	-LCS2	25	1.0000	Unknown		Finished	Perchlorate-IC11
16	2806300035		1.0000	Unknown		Finished	Perchlorate-IC11
17	2806260127	25	1.0000	Unknown		Finished	Perchlorate-IC11
18	2806260127MS	25	1.0000	Unknown		Finished	Perchlorate-IC11
19	2806260127MSD		1.0000	Unknown		Finished	Perchlorate-IC11
20	2806190561-DNR		1.0000	Unknown		Finished	Perchlorate-IC11
21	2806240530		1.0000	Unknown		Finished	Perchlorate-IC11
22	2806240550		1.0000	Unknown		Finished	Perchlorate-IC11
23	2806270093		1.0000	Unknown		Finished	Perchlorate-IC11
24	2806270094		1.0000	Unknown		Finished	Perchlorate-IC11
25	2806270095		1.0000	Unknown		Finished	Perchlorate-IC11
26	2806270096		1.0000	Unknown		Finished	Perchlorate-IC11
27	2806240538_1/5		5.0000	Unknown		Finished	Perchlorate-IC11
28	CCV	25	1.0000	Unknown	25	Finished	Perchlorate-IC11
29	2806240540_1/5000		5000.0000	Unknown		Finished	Perchlorate-IC11
30	2806240561_1/5		5.0000	Unknown		Finished	Perchlorate-IC11
31	2806240562_1/5000		5000.0000	Unknown		Finished	Perchlorate-IC11
32	2806240605		1.0000	Unknown		Finished	Perchlorate-IC11
33	2806240665		1.0000	Unknown		Finished	Perchlorate-IC11
34	2806240676		1.0000	Unknown		Finished	Perchlorate-IC11
35	2806250232		1.0000	Unknown		Finished	Perchlorate-IC11
36	2806250233		1.0000	Unknown		Finished	Perchlorate-IC11
37	2806250234-DNR		1.0000	Unknown		Finished	Perchlorate-IC11
38	HCV	100	1.0000	Unknown	100	Finished	Perchlorate-IC11
39	STOP		1.0000	Unknown		Finished	Perchlorate-IC11

Sequence: 063008CLO4-IC11
Operator: raja
Printed: 7/7/2008 5:30:11 PM

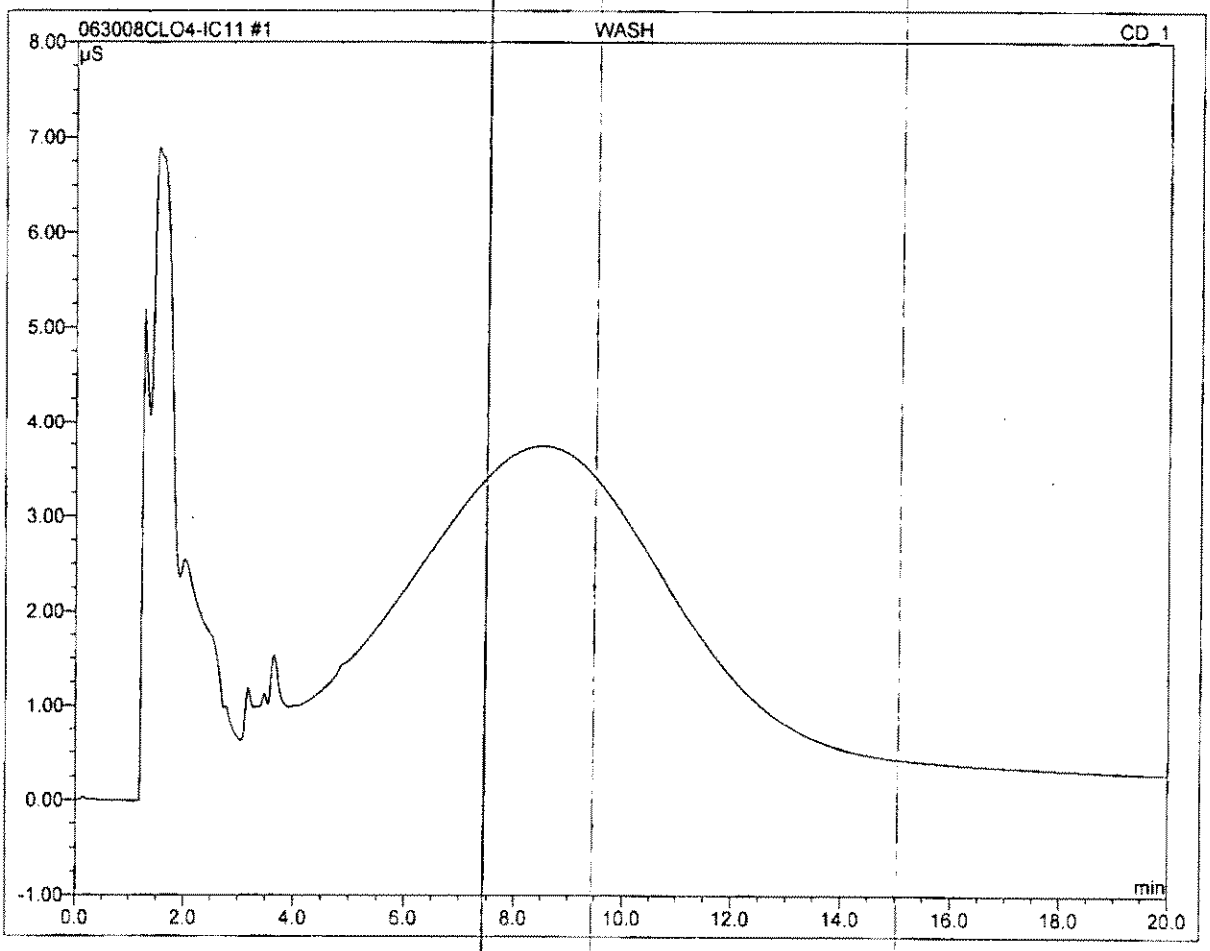
Title:
Datasource: Dionex_USPAS2SDIO2
Location: IC\IC11_CLO4\2008\JUNE
Timebase: IC11
#Samples: 39

Created: 6/30/2008 12:24:28 PM by raja
Last Update: 7/1/2008 8:55:20 AM by raja

No.	Name	Method	Inj. Date/Time	*Analyst
1	WASH	IC#4-CLO4-LOW	6/25/2008 12:17:14 PM	mce
2	autocal1	IC#4-CLO4-LOW	6/25/2008 12:41:55 PM	mce
3	autocal2	IC#4-CLO4-LOW	6/25/2008 1:04:19 PM	mce
4	autocal3	IC#4-CLO4-LOW	6/25/2008 1:26:43 PM	mce
5	autocal4	IC#4-CLO4-LOW	6/25/2008 1:49:06 PM	mce
6	autocal5	IC#4-CLO4-LOW	6/25/2008 2:11:30 PM	mce
7	autocal6	IC#4-CLO4-LOW	6/25/2008 2:33:54 PM	mce
8	autocal7	IC#4-CLO4-LOW	6/25/2008 2:56:18 PM	mce
9	QCS	IC#4-CLO4-LOW	6/30/2008 12:42:02 PM	raja
10	IPC	IC#4-CLO4-LOW	6/30/2008 1:04:25 PM	raja
11	-MBLNK	IC#4-CLO4-LOW	6/30/2008 1:26:49 PM	raja
12	-MRLCHK-2	IC#4-CLO4-LOW	6/30/2008 1:49:13 PM	raja
13	-MRLCHK-4	IC#4-CLO4-LOW	6/30/2008 2:11:37 PM	raja
14	-LCS1	IC#4-CLO4-LOW	6/30/2008 2:34:01 PM	raja
15	-LCS2	IC#4-CLO4-LOW	6/30/2008 2:56:25 PM	raja
16	2806300035	IC#4-CLO4-LOW	6/30/2008 3:18:48 PM	raja
17	2806260127	IC#4-CLO4-LOW	6/30/2008 3:41:12 PM	raja
18	2806260127MS	IC#4-CLO4-LOW	6/30/2008 4:03:36 PM	raja
19	2806260127MSD	IC#4-CLO4-LOW	6/30/2008 4:26:00 PM	raja
20	2806190561-DNR	IC#4-CLO4-LOW	6/30/2008 4:48:24 PM	raja
21	2806240530	IC#4-CLO4-LOW	6/30/2008 5:10:47 PM	raja
22	2806240550	IC#4-CLO4-LOW	6/30/2008 5:33:11 PM	raja
23	2806270093	IC#4-CLO4-LOW	6/30/2008 5:55:35 PM	raja
24	2806270094	IC#4-CLO4-LOW	6/30/2008 6:17:59 PM	raja
25	2806270095	IC#4-CLO4-LOW	6/30/2008 6:40:23 PM	raja
26	2806270096	IC#4-CLO4-LOW	6/30/2008 7:02:47 PM	raja
27	2806240538_1/5	IC#4-CLO4-LOW	6/30/2008 7:25:11 PM	raja
28	CCV	IC#4-CLO4-LOW	6/30/2008 7:47:35 PM	raja
29	2806240540_1/5000	IC#4-CLO4-LOW	6/30/2008 8:09:58 PM	raja
30	2806240561_1/5	IC#4-CLO4-LOW	6/30/2008 8:32:22 PM	raja
31	2806240562_1/5000	IC#4-CLO4-LOW	6/30/2008 8:54:46 PM	raja
32	2806240605	IC#4-CLO4-LOW	6/30/2008 9:17:10 PM	raja
33	2806240665	IC#4-CLO4-LOW	6/30/2008 9:39:33 PM	raja
34	2806240676	IC#4-CLO4-LOW	6/30/2008 10:01:57 PM	raja
35	2806250232	IC#4-CLO4-LOW	6/30/2008 10:24:21 PM	raja
36	2806250233	IC#4-CLO4-LOW	6/30/2008 10:46:45 PM	raja
37	2806250234-DNR	IC#4-CLO4-LOW	6/30/2008 11:09:09 PM	raja
38	HCV	IC#4-CLO4-LOW	6/30/2008 11:31:33 PM	raja
39	STOP	IC#4-CLO4-LOW	6/30/2008 11:53:57 PM	raja

1 WASH

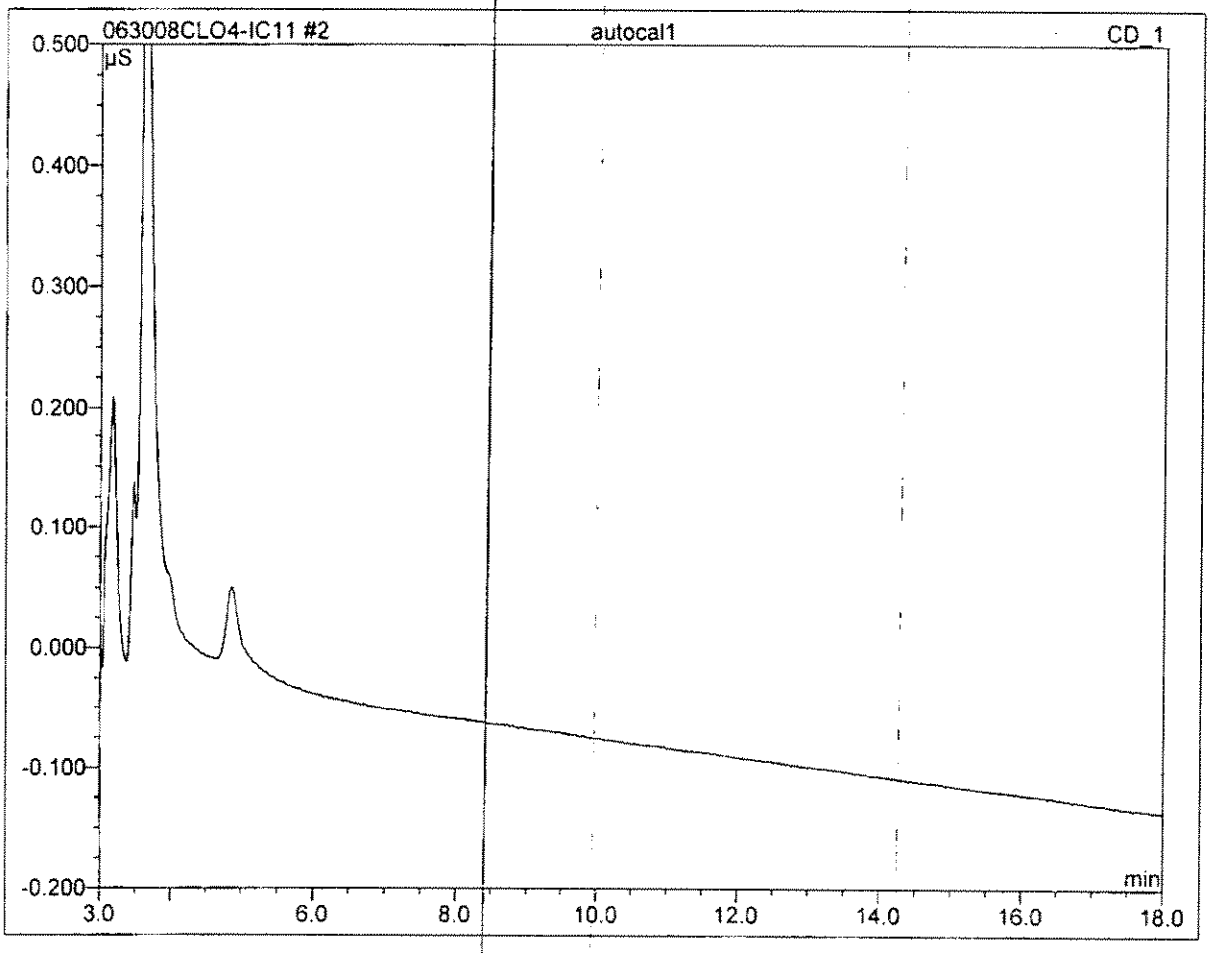
Sample Name:	**WASH**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/25/2008 12:17**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**mce**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

2 autocal1

Sample Name:	**autocal1**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/25/2008 12:41**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**mce**	*Dilution Factor:*	**1.0000**

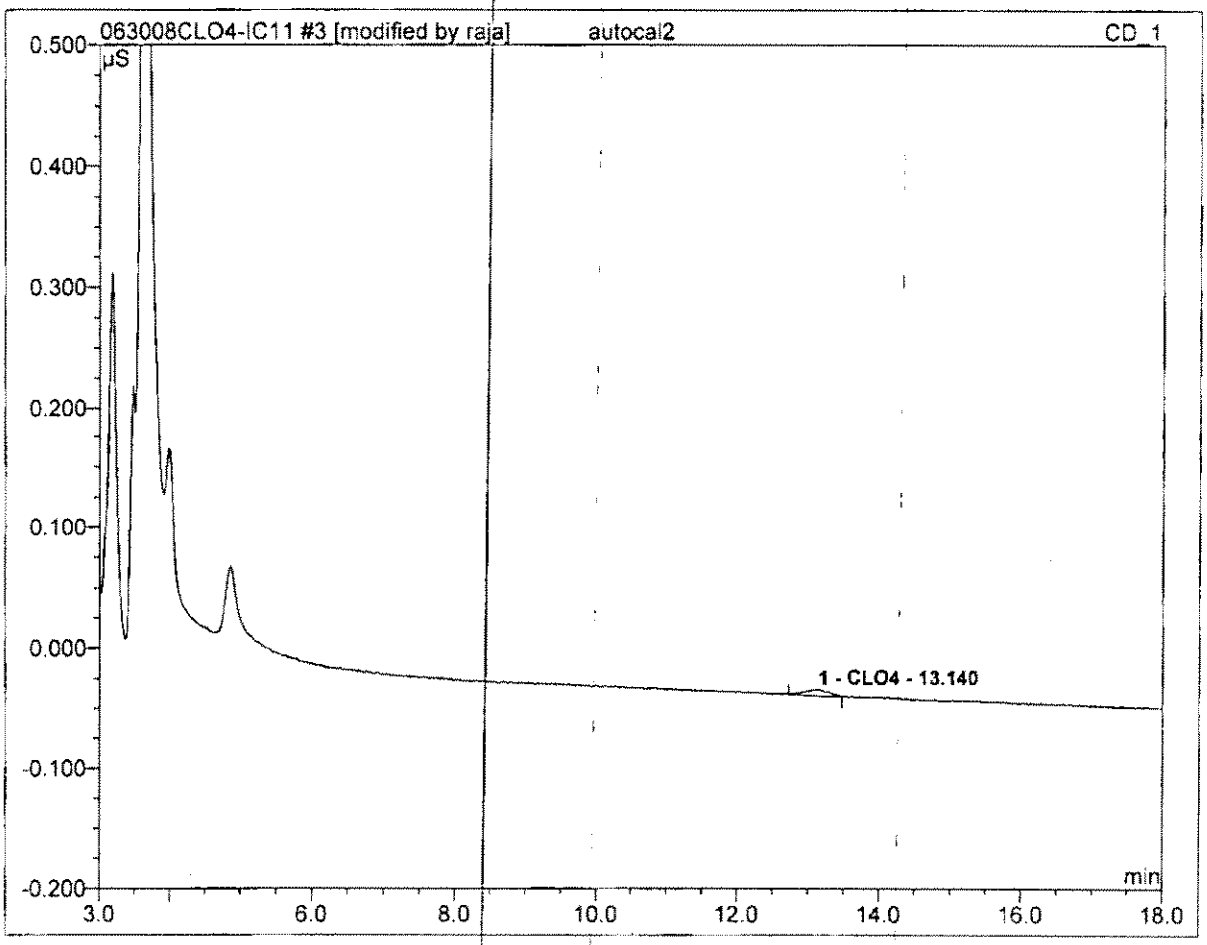


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

3 autocal2

2

Sample Name:	**autocal2**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/25/2008 13:04**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**mce**	*Dilution Factor:*	**1.0000**

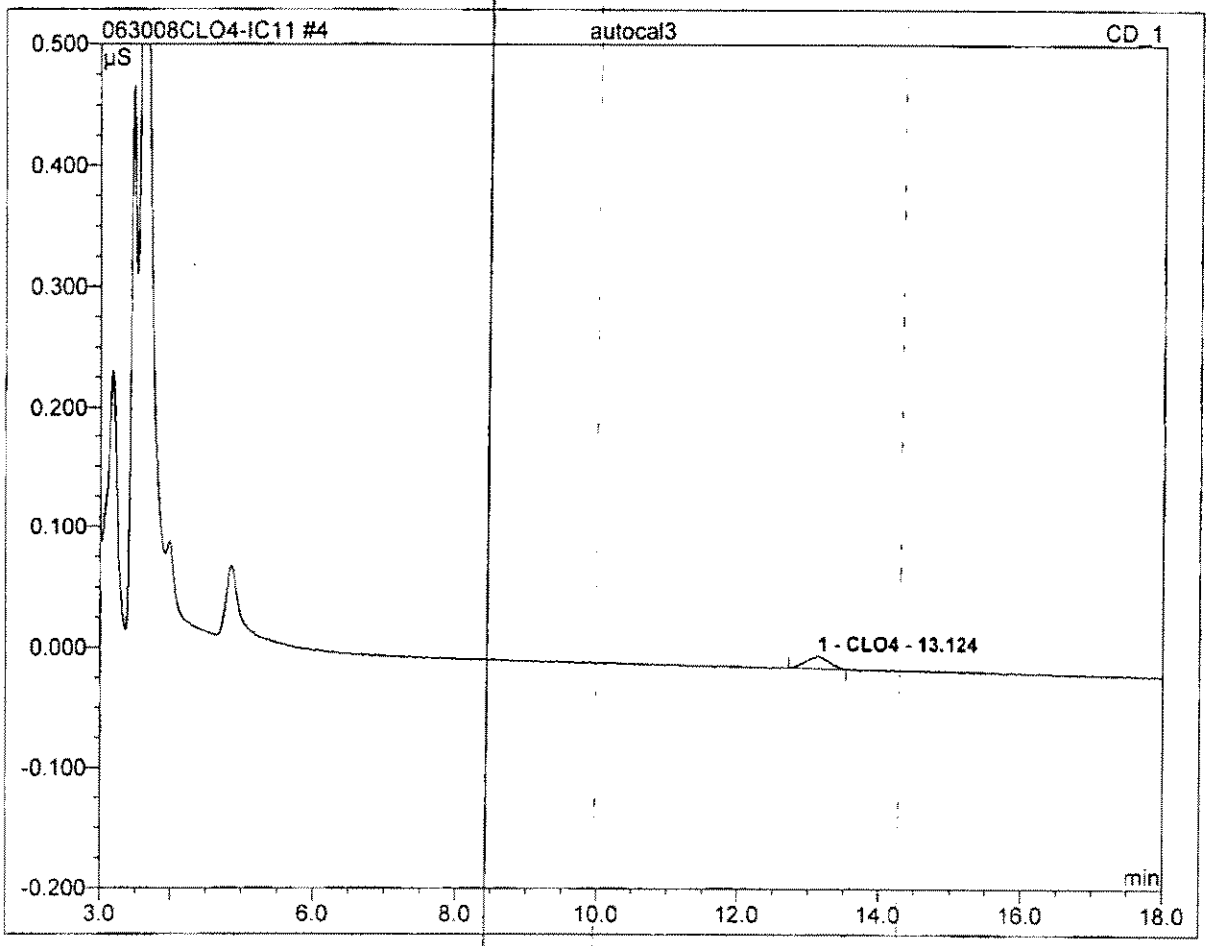


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	13.14	CLO4	0.006	0.002	100.00	2.293	BMB*
Total:			0.006	0.002	100.00	2.293	

4 autocal3

4

Sample Name:	**autocal3**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/25/2008 13:26**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**mce**	*Dilution Factor:*	**1.0000**

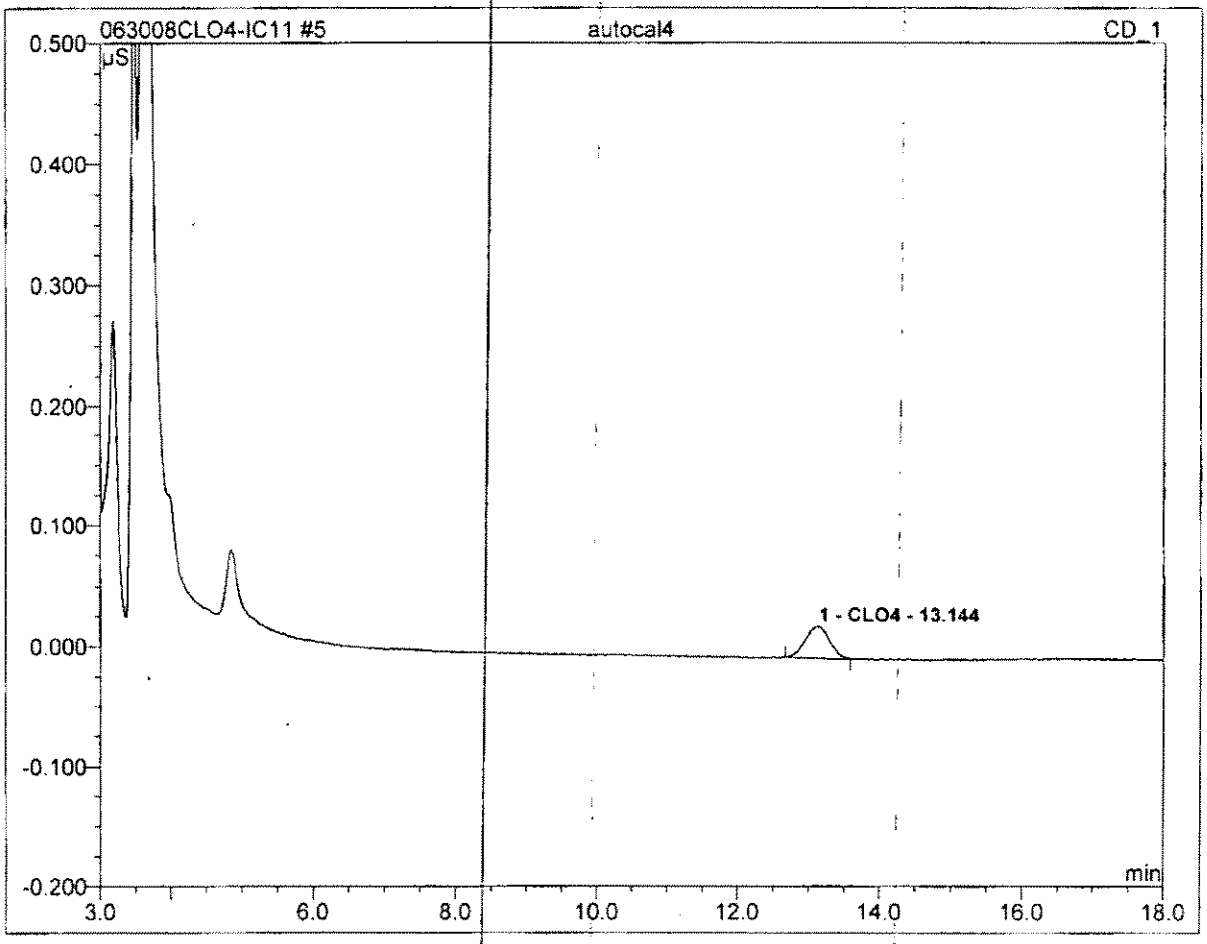


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	13.12	CLO4	0.011	0.004	100.00	3.897	BMB
Total:			0.011	0.004	100.00	3.897	

5 autocal4

10

Sample Name:	**autocal4**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/25/2008 13:49**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**mce**	*Dilution Factor:*	**1.0000**

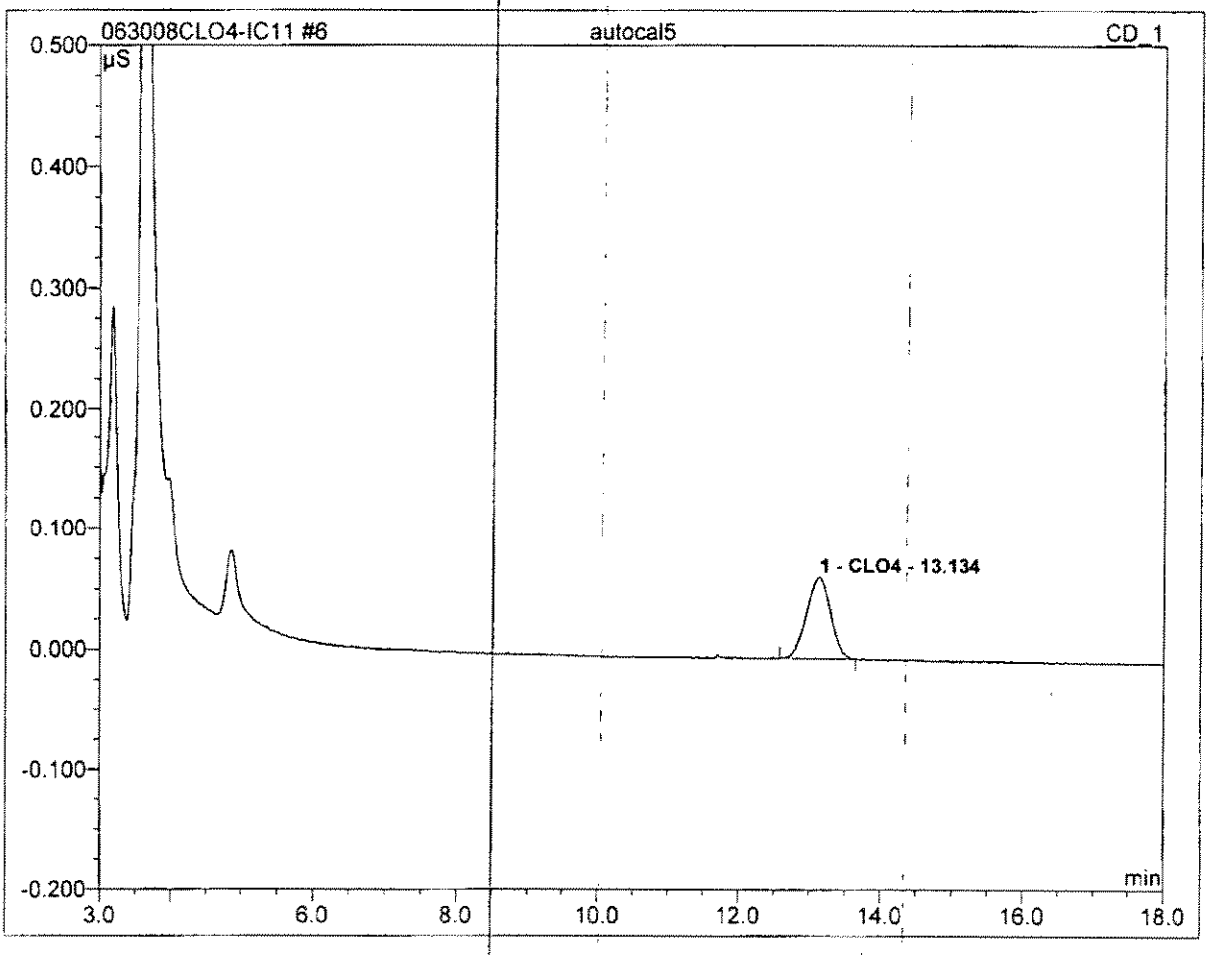


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	13.14	CLO4	0.026	0.010	100.00	9.893	BMB
Total:			0.026	0.010	100.00	9.893	

6 autocal5

25

Sample Name:	**autocal5**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/25/2008 14:11**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**mce**	*Dilution Factor:*	**1.0000**

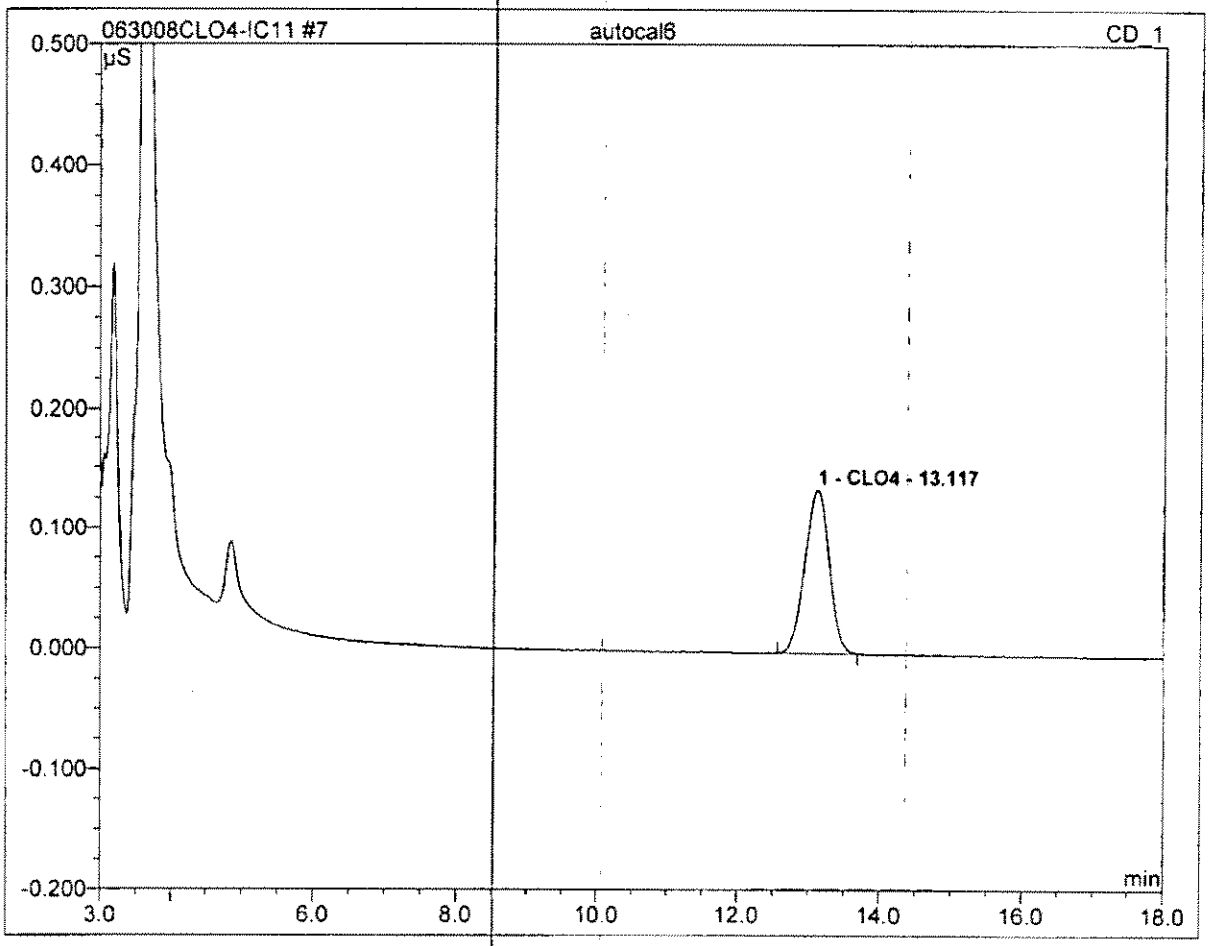


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	13.13	CLO4	0.067	0.026	100.00	24.711	BMB
Total:			0.067	0.026	100.00	24.711	

7 autocal6

50

Sample Name:	**autocal6**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/25/2008 14:33**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**mce**	*Dilution Factor:*	**1.0000**

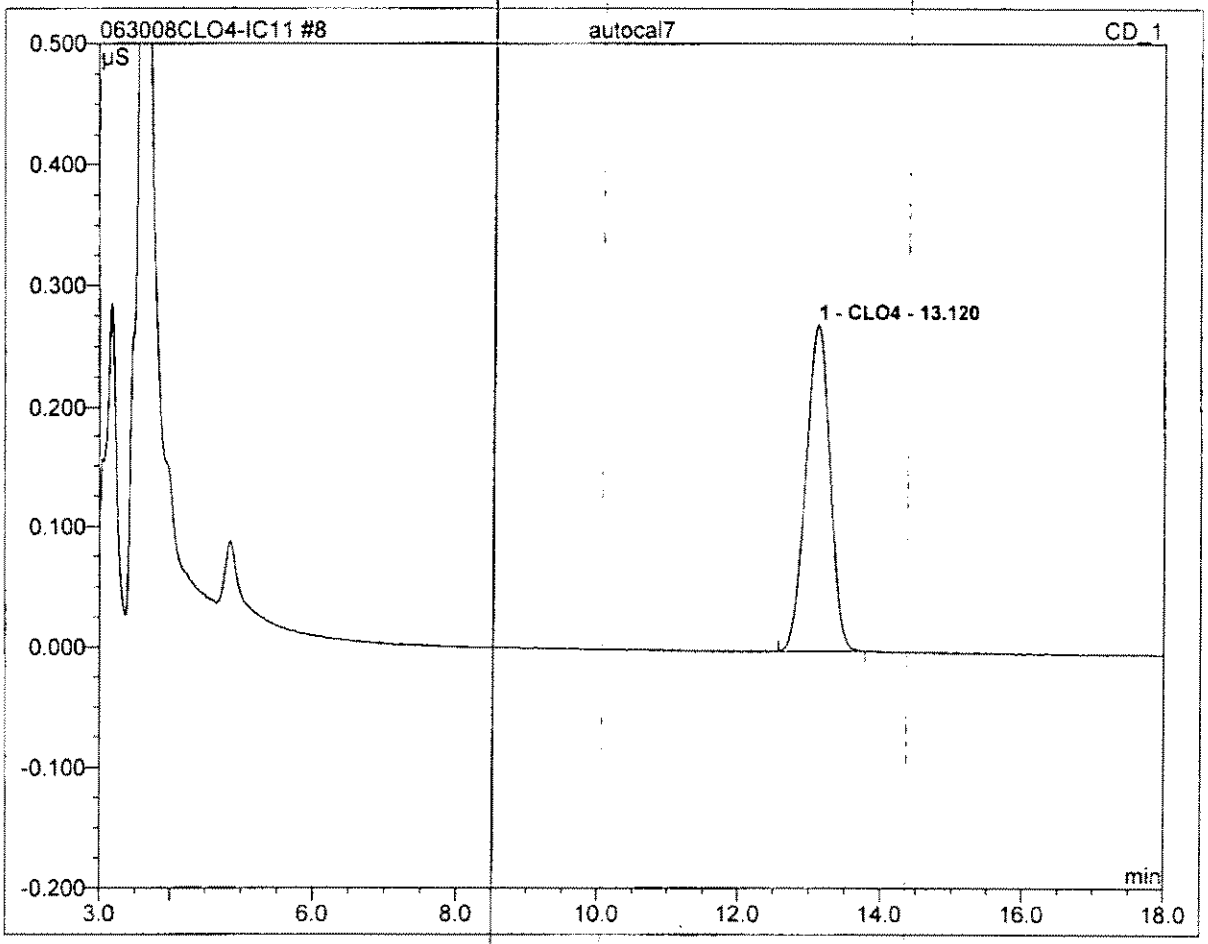


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	13.12	CLO4	0.136	0.053	100.00	50.248	BMB
Total:			0.136	0.053	100.00	50.248	

8 autocal7

100

Sample Name:	**autocal7**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/25/2008 14:56**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**mce**	*Dilution Factor:*	**1.0000**

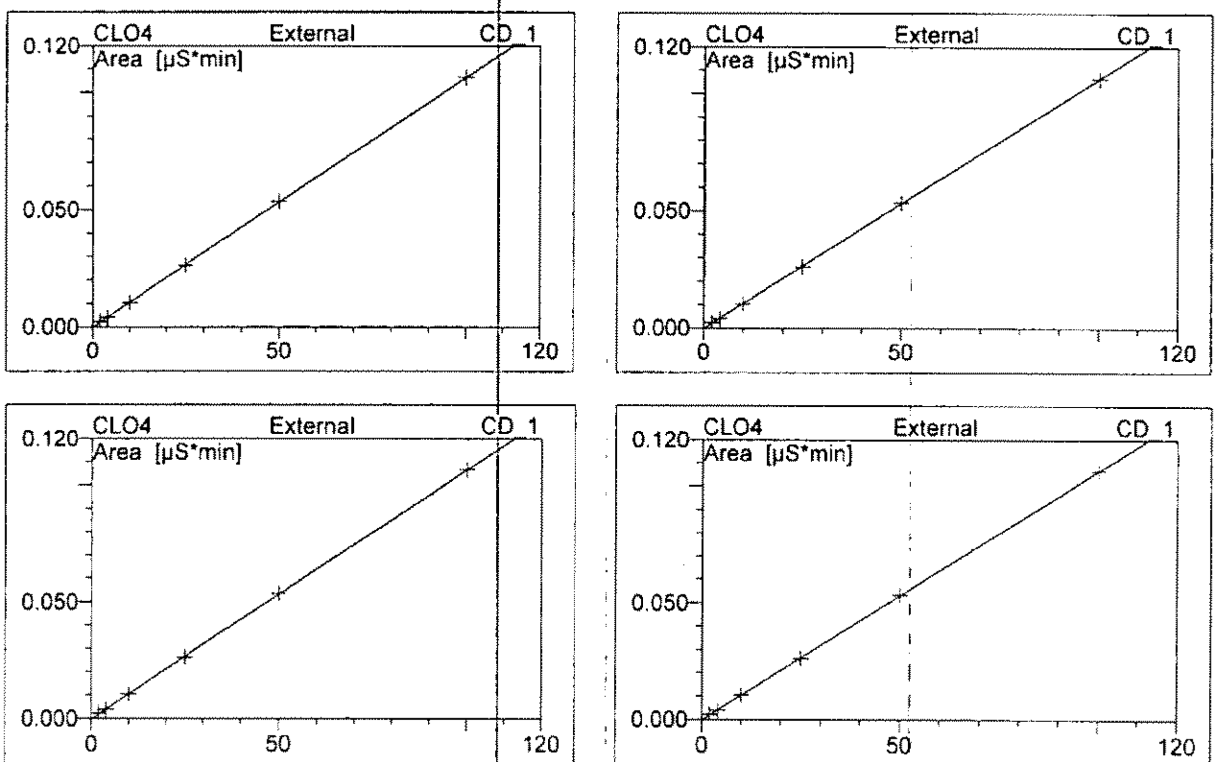


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	13.12	CLO4	0.272	0.106	100.00	99.957	BMB
Total:			0.272	0.106	100.00	99.957	

8 autocal7

100

Sample Name:	**autocal7**	*Injection Volume:*	**20.0**
Vial Number:	**141**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Perchlorate-IC11**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC#4-CLO4-LOW**	*Dilution Factor:*	**1.0000**
Recording Time:	**6/25/2008 14:56**	*Sample Weight:*	**1.0000**
Run Time (min):	**20.00**	*Sample Amount:*	**1.0000**

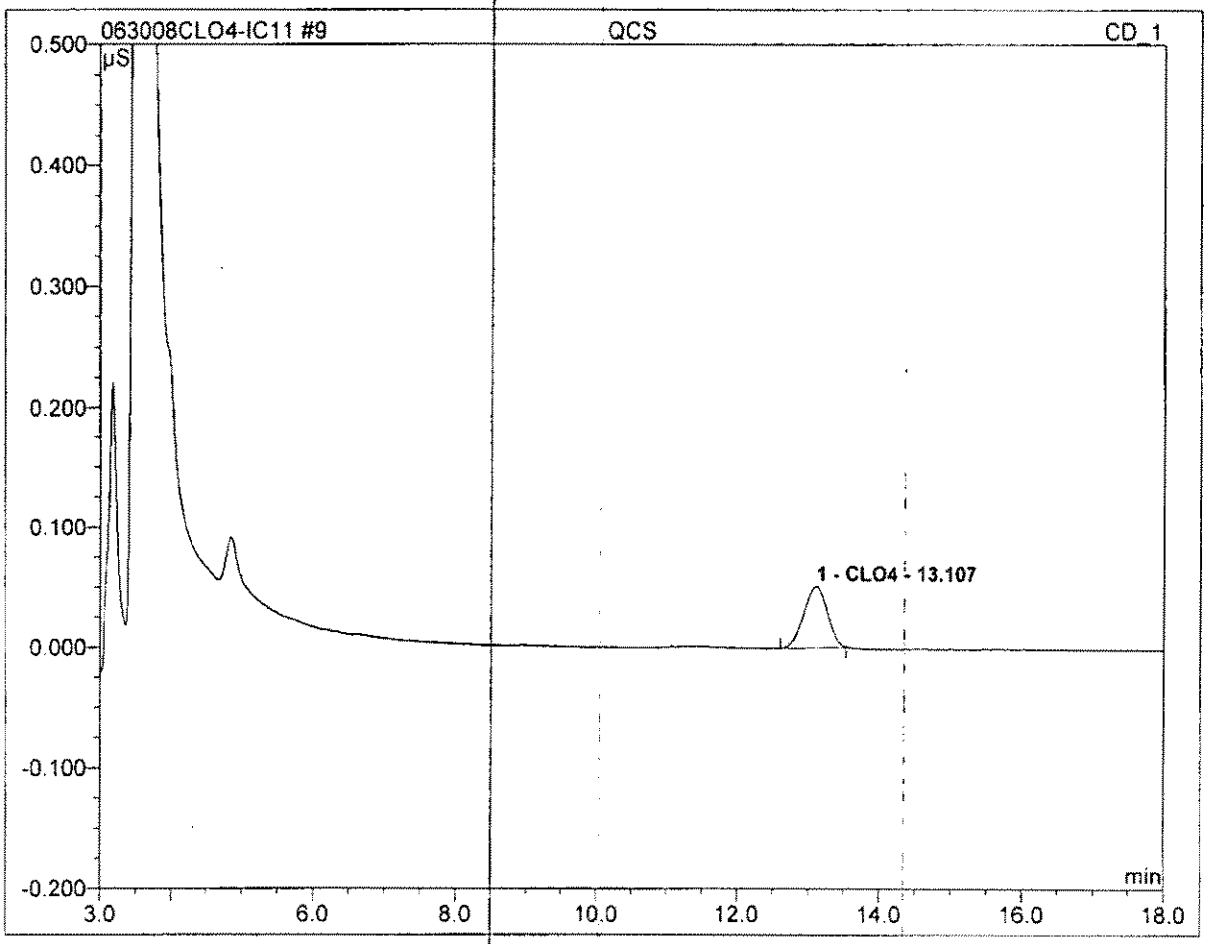


No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	Offset	Slope	Curve
1	13.12	CLO4	QOff	6	99.9982	-0.0003	0.0011	0.0000
Average:					99.9982	-0.0003	0.0011	0.0000

9 QCS

20

Sample Name:	**QCS**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/30/2008 12:42**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**raja**	*Dilution Factor:*	**1.0000**

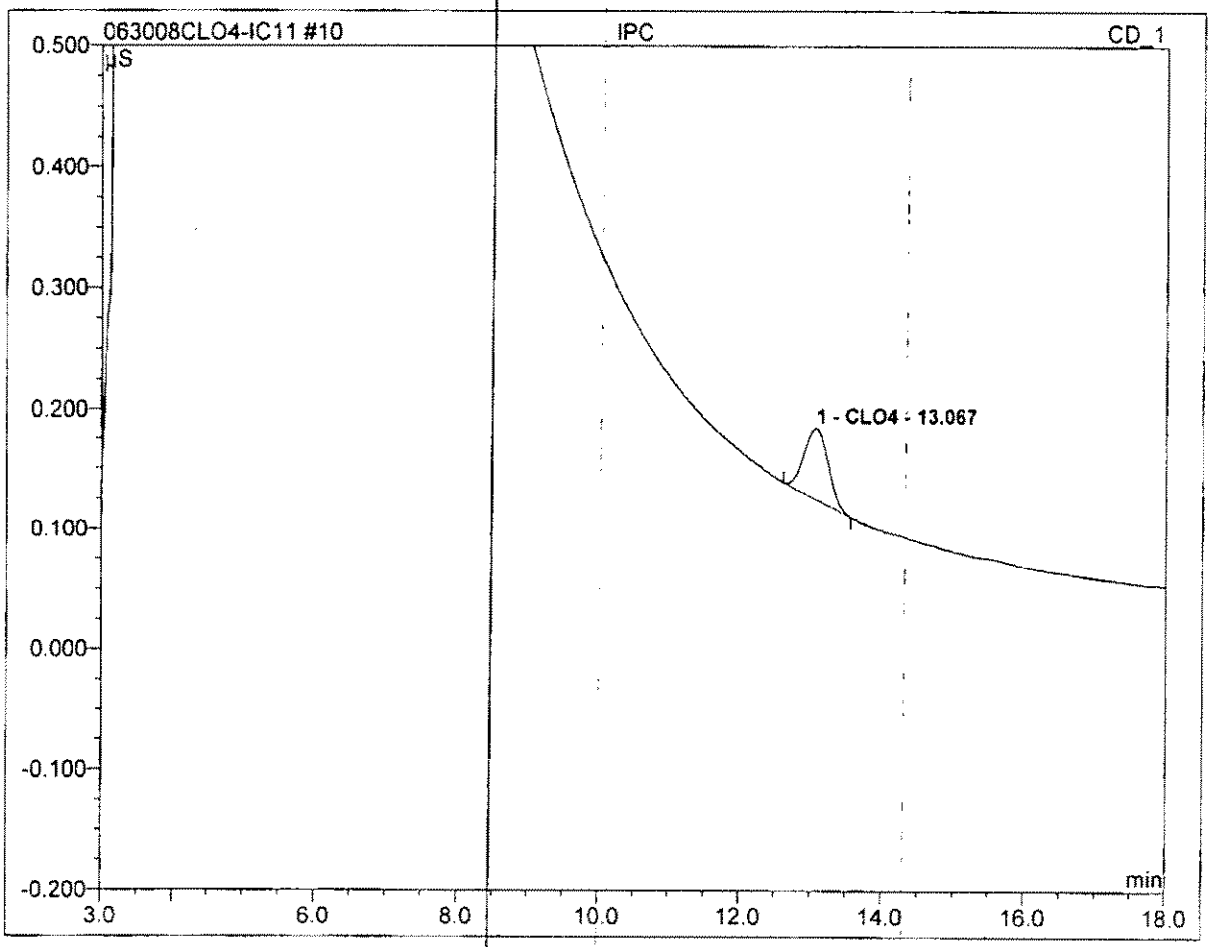


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	13.11	CLO4	0.051	0.020	100.00	18.618	BMB
Total:			0.051	0.020	100.00	18.618	

10 IPC

25

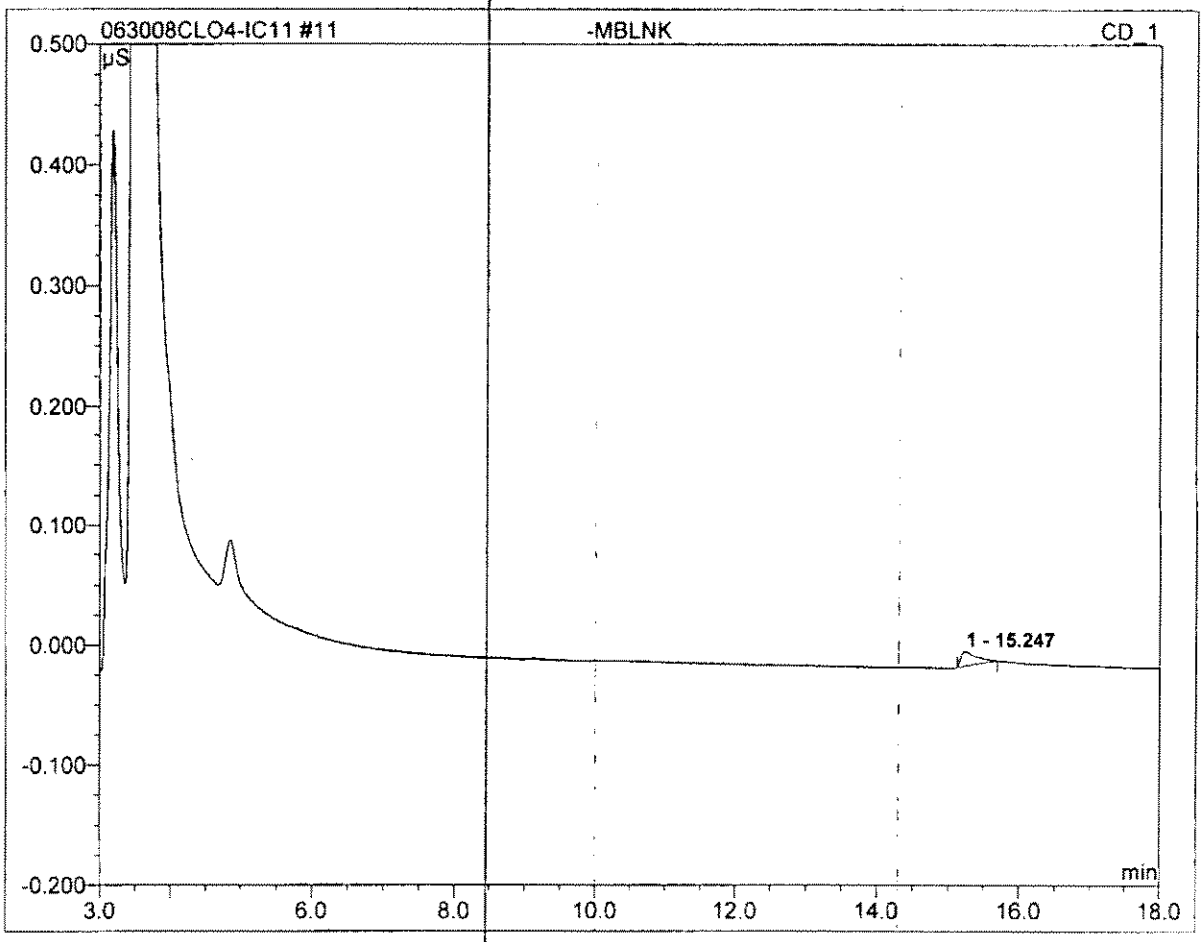
Sample Name:	**IPC**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/30/2008 13:04**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**raja**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	13.07	CLO4	0.060	0.023	100.00	21.887	BMB
Total:			0.060	0.023	100.00	21.887	

11 -MBLNK

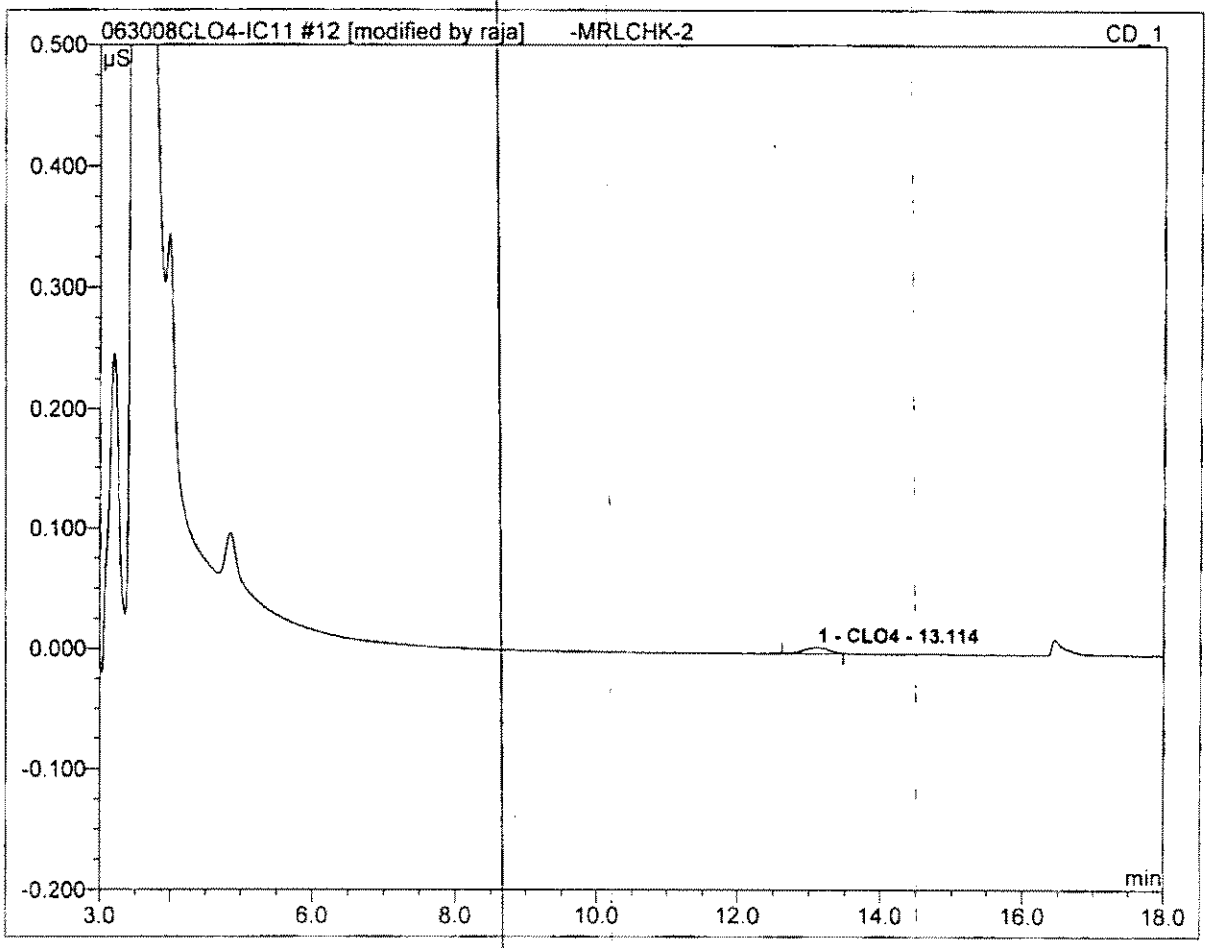
Sample Name:	**-MBLNK**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/30/2008 13:26**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**raja**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

12 -MRLCHK-2

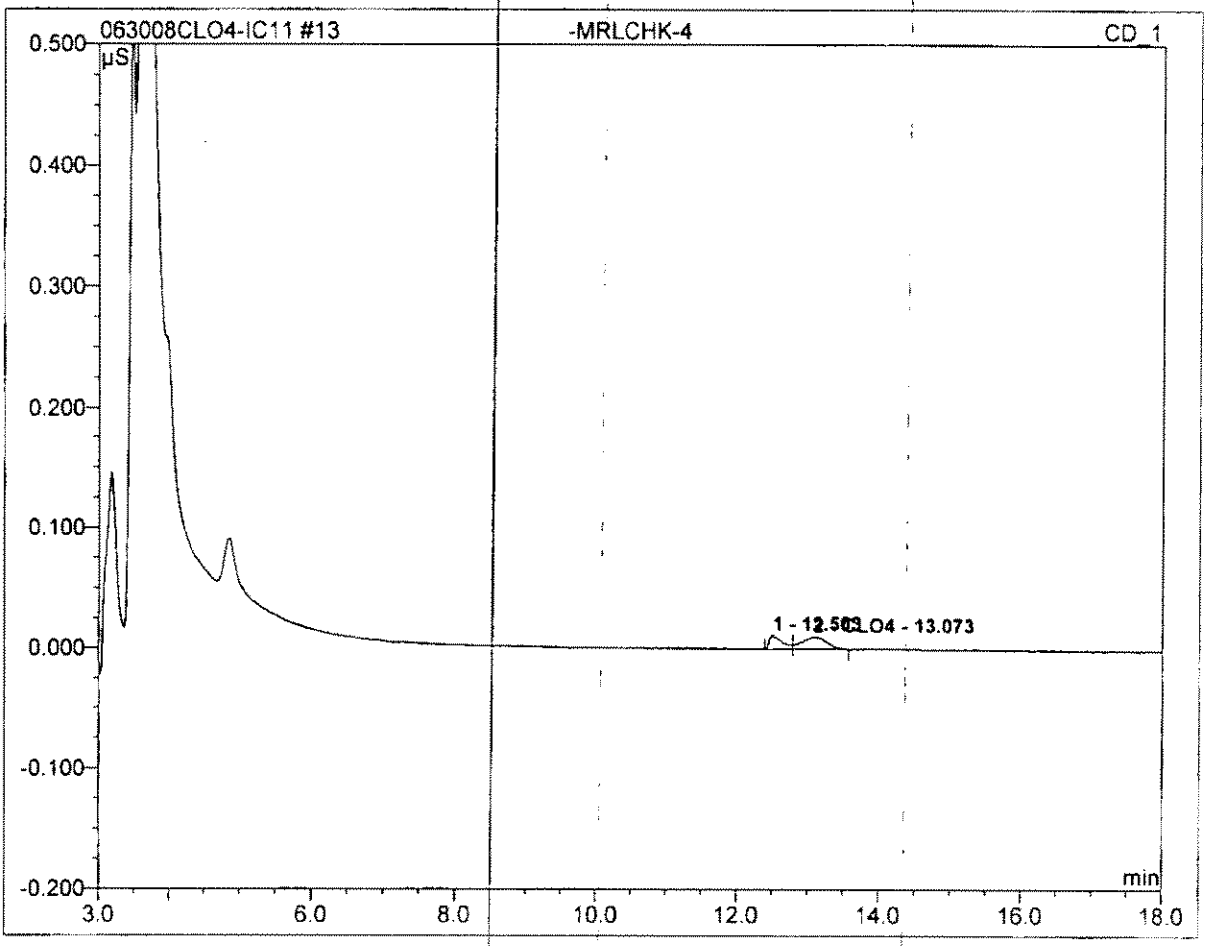
Sample Name:	**-MRLCHK-2**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/30/2008 13:49**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**raja**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	13.11	CLO4	0.005	0.002	100.00	2.142	BMB*
Total:			0.005	0.002	100.00	2.142	

13 -MRLCHK-4

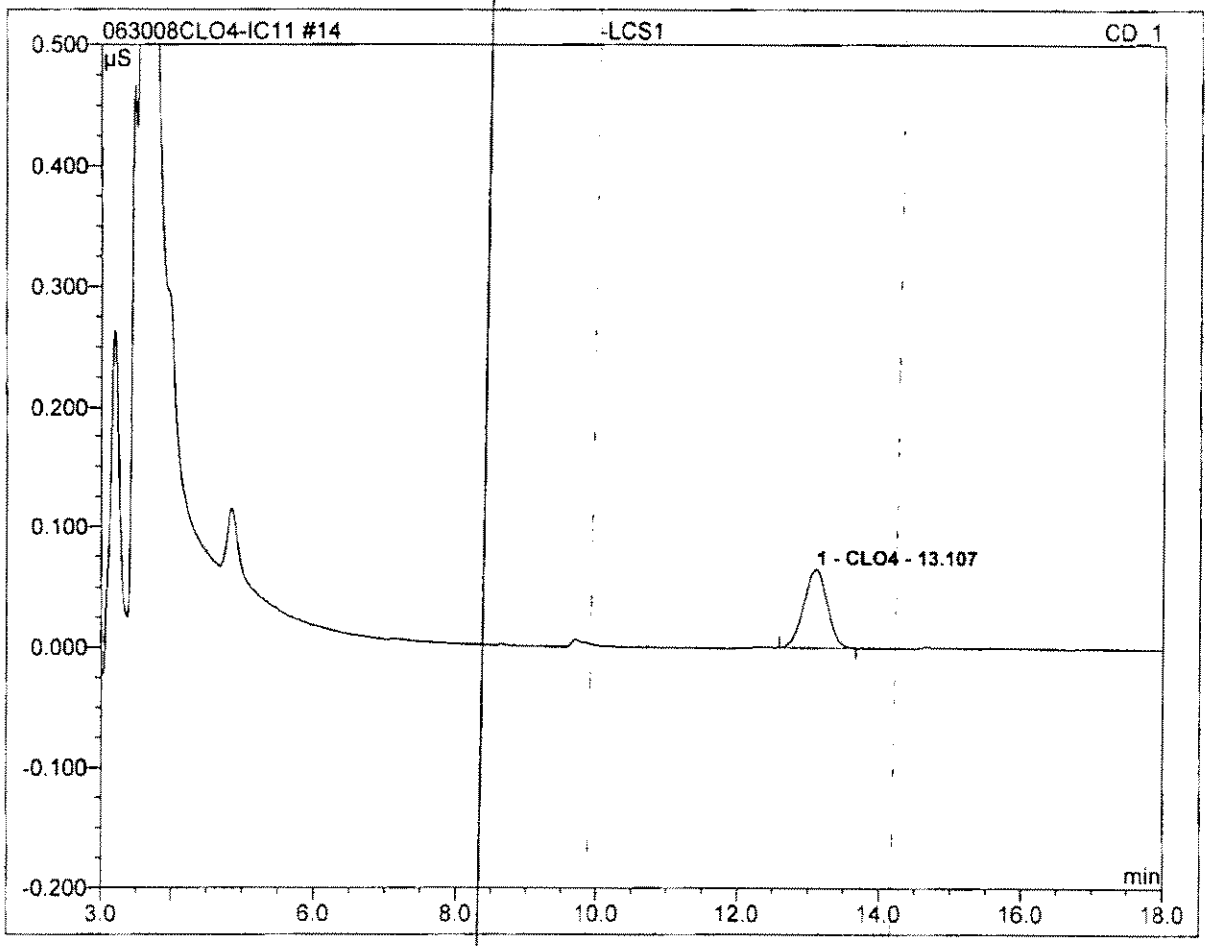
Sample Name:	**-MRLCHK-4**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/30/2008 14:11**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**raja**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
2	13.07	CLO4	0.010	0.004	63.01	4.073	MB
Total:			0.010	0.004	63.01	4.073	

14 -LCS1

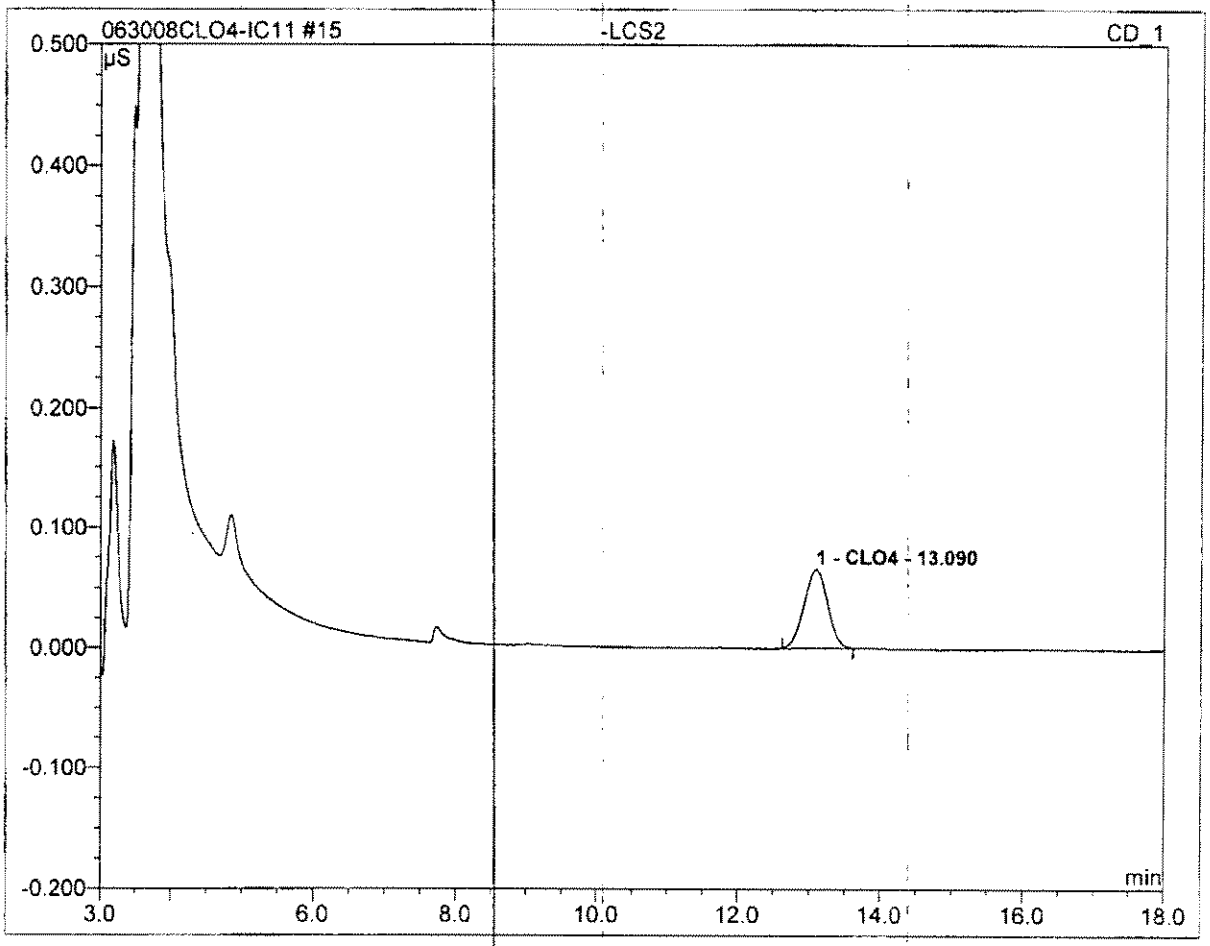
Sample Name:	**-LCS1**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/30/2008 14:34**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**raja**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	13.11	CLO4	0.065	0.025	100.00	23.770	BMB
Total:			0.065	0.025	100.00	23.770	

15 -LCS2

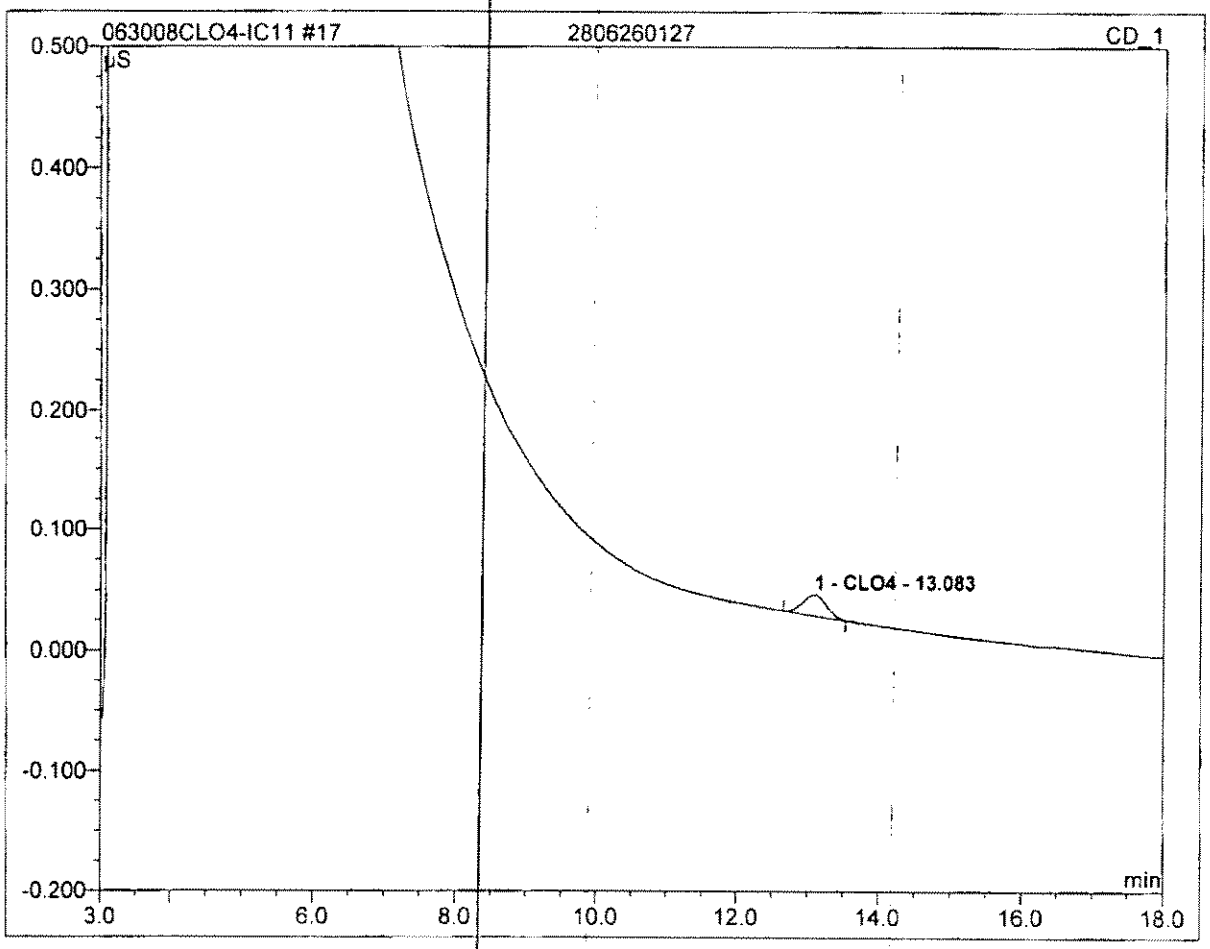
Sample Name:	**-LCS2**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/30/2008 14:56**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**raja**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	13.09	CLO4	0.066	0.025	100.00	24.037	BMB
Total:			0.066	0.025	100.00	24.037	

17 2806260127

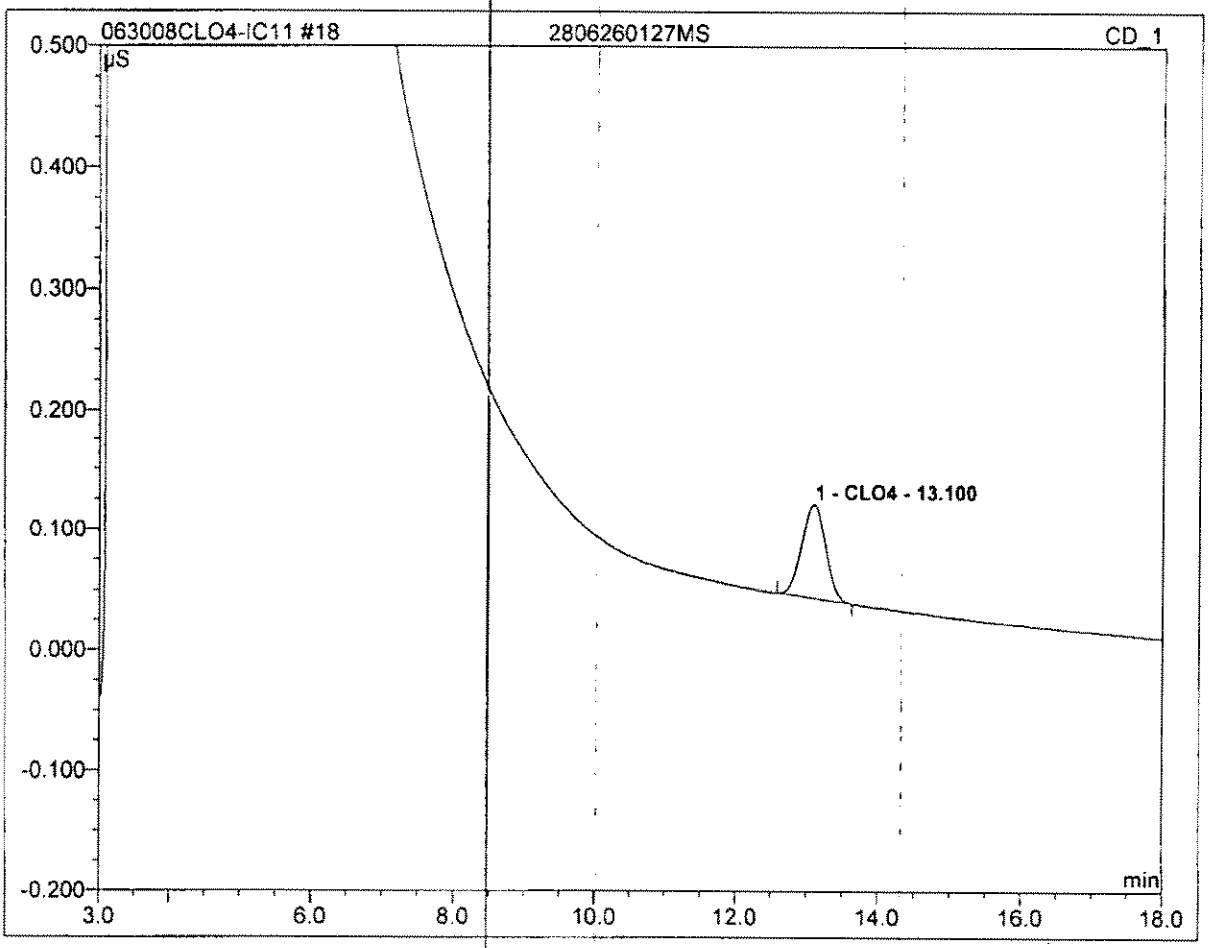
Sample Name:	**2806260127**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/30/2008 15:41**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**raja**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	13.08	CLO4	0.018	0.007	100.00	6.714	BMB
Total:			0.018	0.007	100.00	6.714	

18 2806260127MS

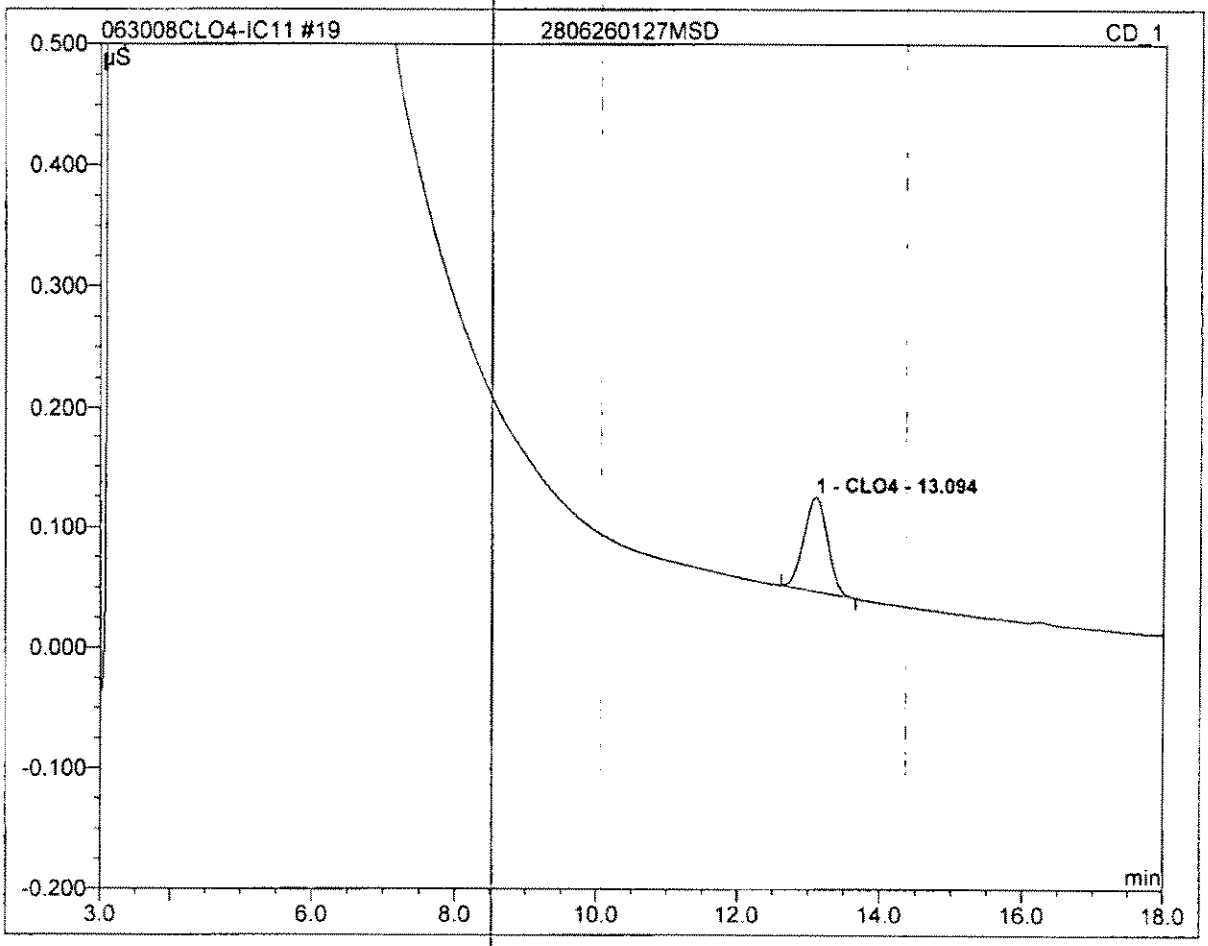
Sample Name:	**2806260127MS**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/30/2008 16:03**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**raja**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	13.10	CLO4	0.078	0.030	100.00	28.517	BMB
Total:			0.078	0.030	100.00	28.517	

19 2806260127MSD

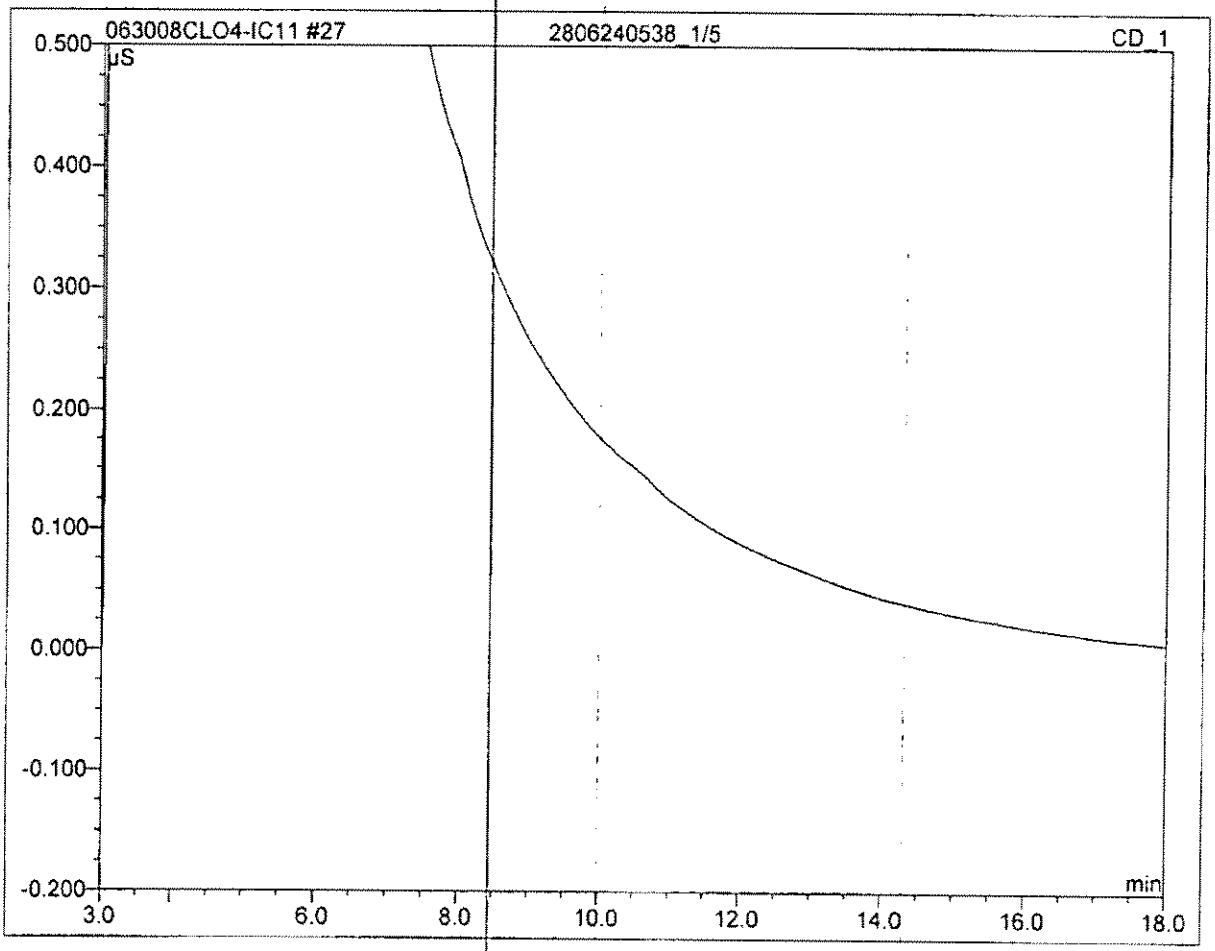
Sample Name:	**2806260127MSD**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/30/2008 16:26**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**raja**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	13.09	CLO4	0.078	0.030	100.00	28.500	BMB
Total:			0.078	0.030	100.00	28.500	

27 2806240538_1/5

Sample Name:	**2806240538_1/5**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/30/2008 19:25**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**raja**	*Dilution Factor:*	**5.0000**

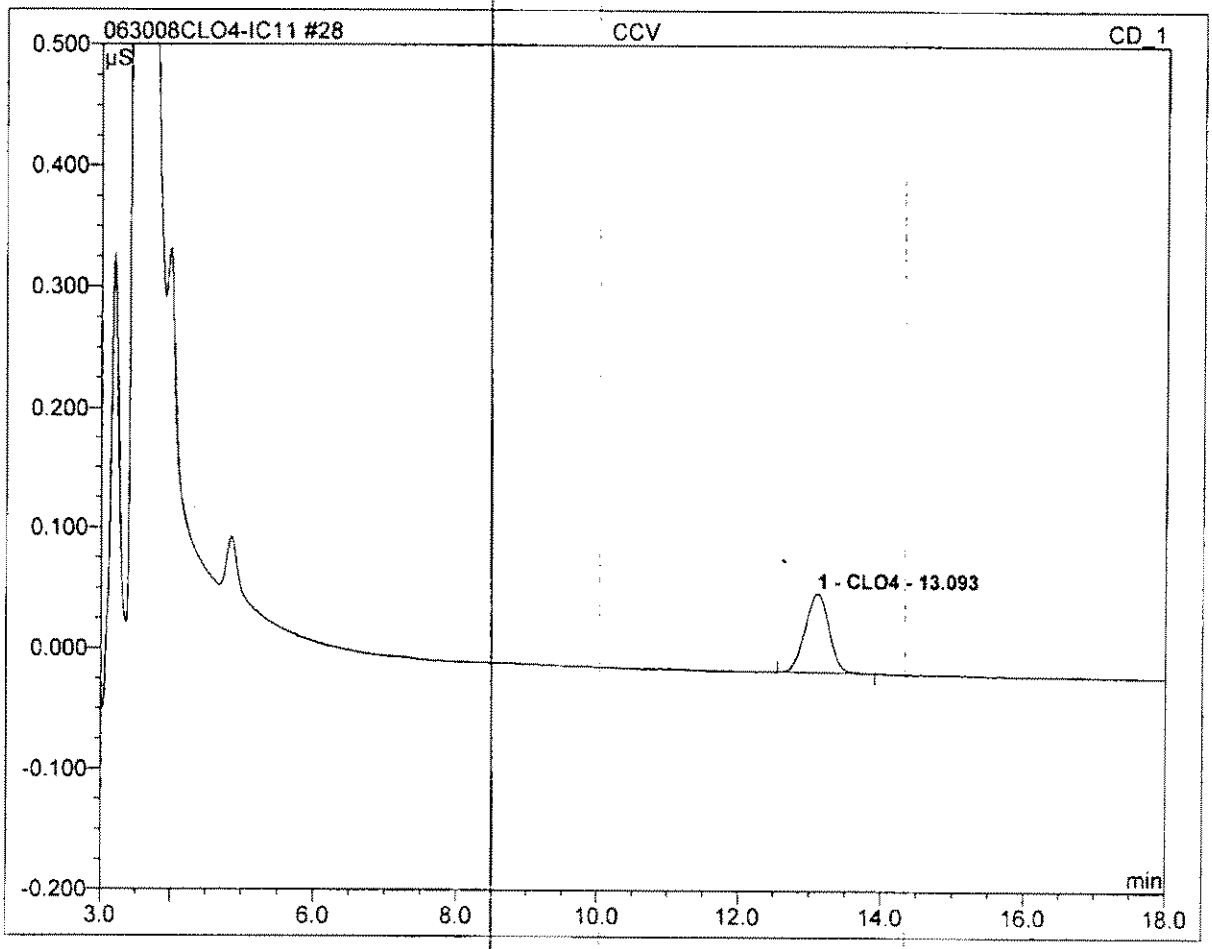


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

28 CCV

25

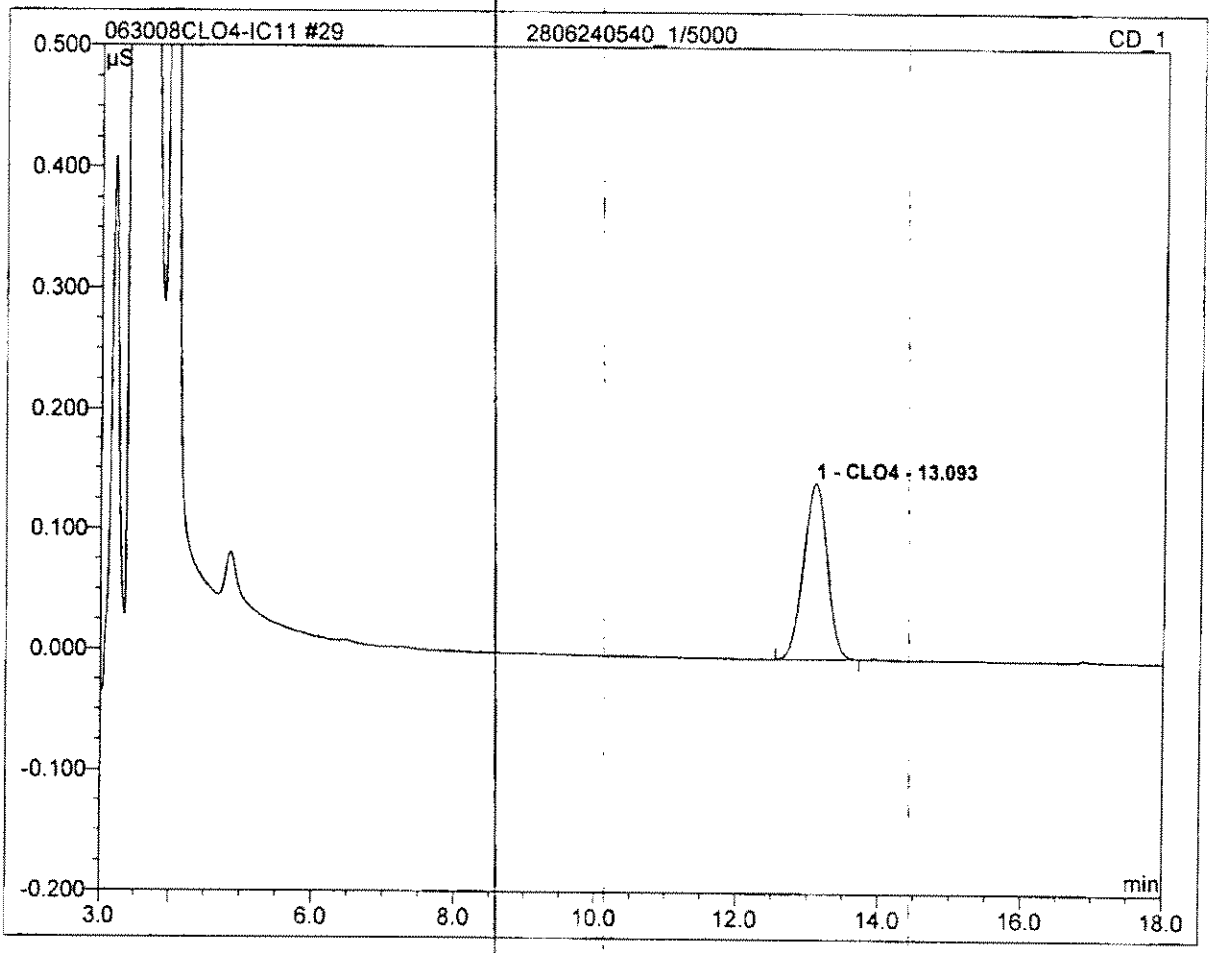
Sample Name:	**CCV**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/30/2008 19:47**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**raja**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	13.09	CLO4	0.065	0.026	100.00	24.175	BMB
Total:			0.065	0.026	100.00	24.175	

29 2806240540_1/5000

Sample Name:	**2806240540_1/5000**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/30/2008 20:09**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**raja**	*Dilution Factor:*	**5000.0000**

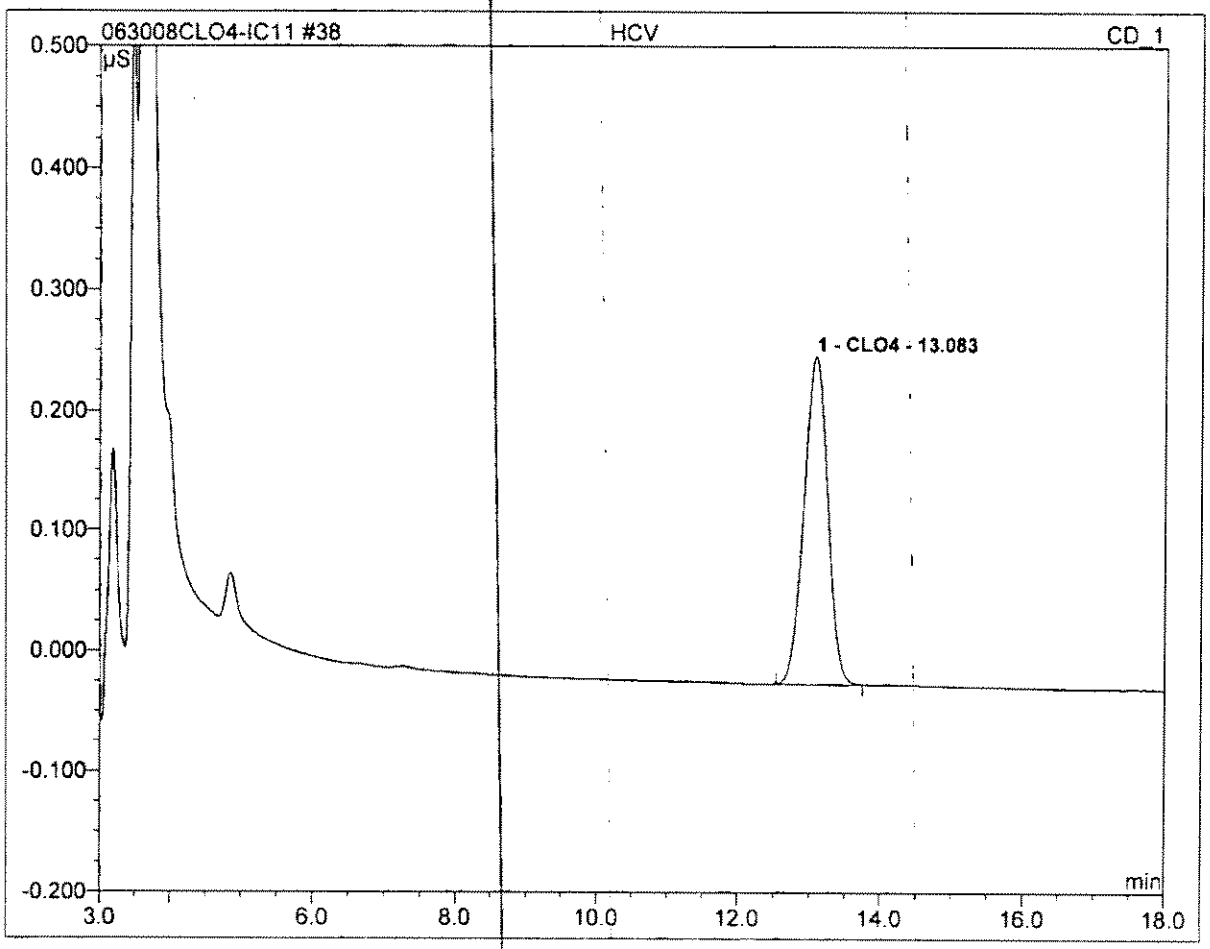


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	13.09	CLO4	0.146	0.056	100.00	265473.984	BMB
Total:			0.146	0.056	100.00	265473.984	

38 HCV

100

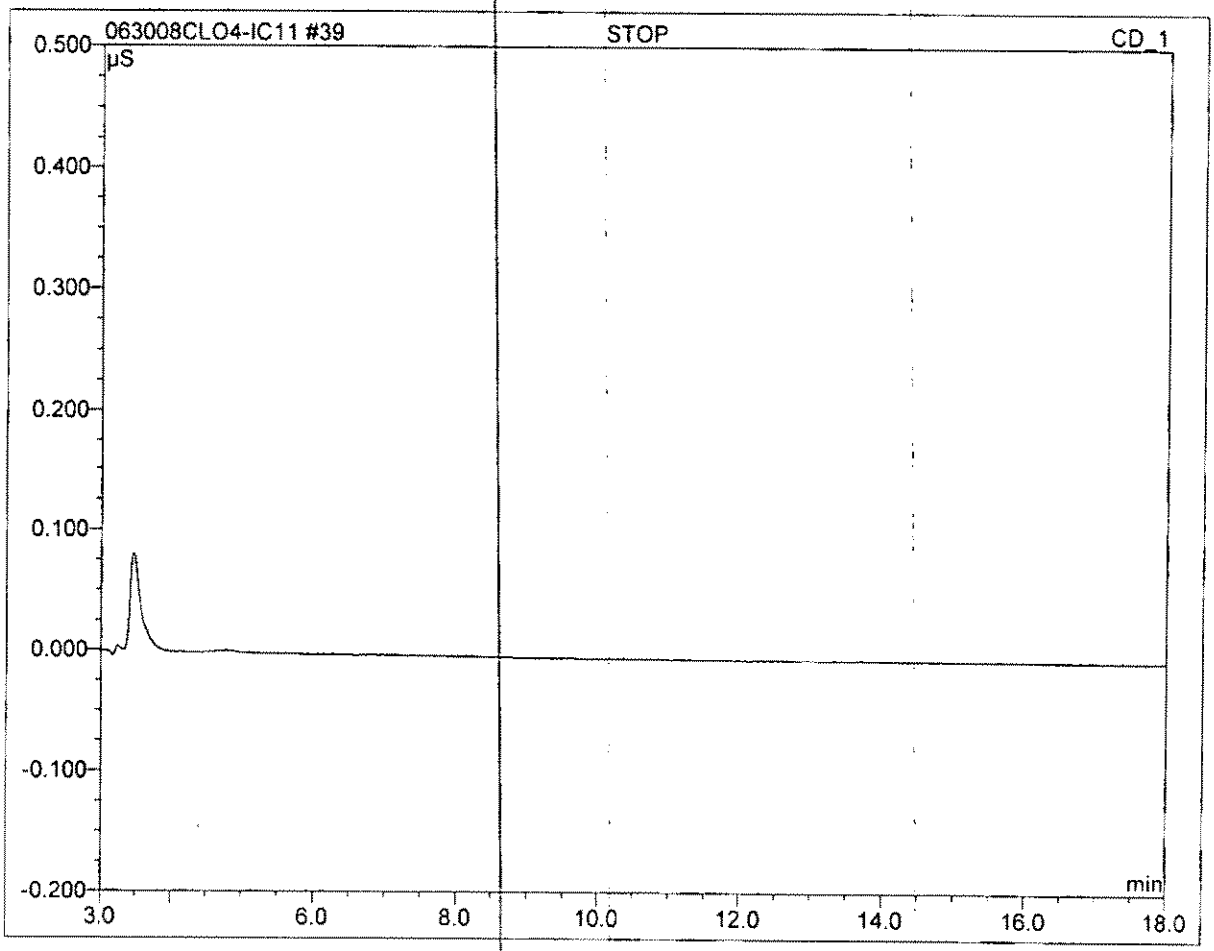
Sample Name:	**HCV**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/30/2008 23:31**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**raja**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	13.08	CLO4	0.273	0.105	100.00	98.934	BMB
Total:			0.273	0.105	100.00	98.934	

39 STOP

Sample Name:	**STOP**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**06/30/2008 23:53**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**raja**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

Standard Preparation Worksheet & Certificate of Analysis

ABSOLUTE STANDARDS, INC • 44 RUSSOTTO DRIVE • HAMDEN, CT 06514 • (800)-368-1131

ISO 9001:2000 Quality System Registered
ISO/IEC Guide 17025 ANSI Z540 Compliant
DLS ANSI/RAB Accredited

CERTIFIED WEIGHT REPORT:

Part Number: 57001
Lot Number: 072806
Description: Perchlorate

R201449

Expiration Date: 072809

Nominal Concentration (µg/mL): 1000

	Lot #	
Solvent(s):	072806	ASTM Type 1 Water

5E-05 Balance Uncertainty

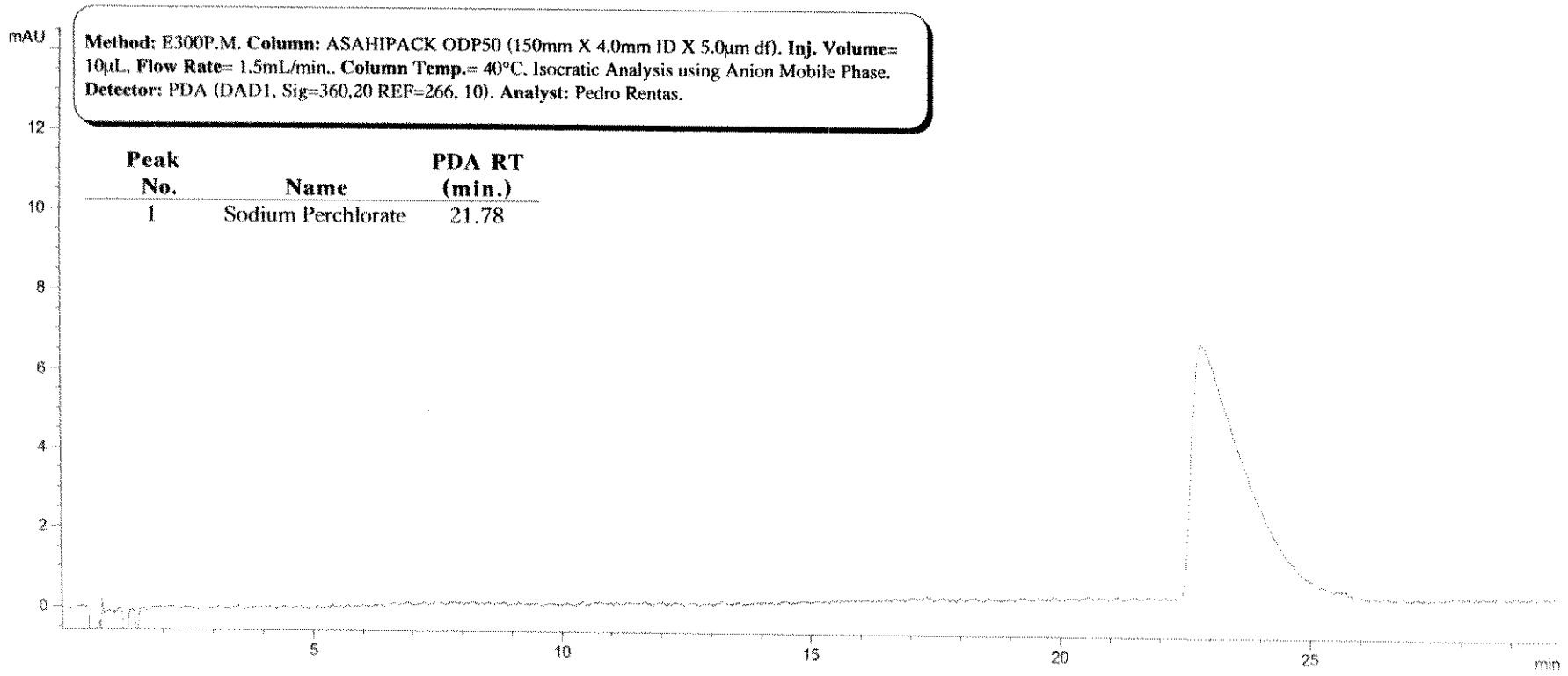
Weight(s) shown below were combined and diluted to (mL): 1000.55 0.084 Flask Uncertainty

Formulated By: Lawrence Barry 072806

Reviewed By: Pedro L. Rentas 072806

MSDS Information

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity	Uncertainty Purity	Assay (%)	*Target Weight(g)	Actual Weight(g)	*Actual Conc (µg/mL)	Expanded Uncertainty (+/-)	(Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Sodium Perchlorate (ClO4)	IN119	AR06730TQ	1000.0	99.0	0.10	81.2	1.2319	1.23216	1000.2	0.00203	07601-89-0	N/A	N/A	3152a



Method: E300P.M. **Column:** ASAHIPACK ODP50 (150mm X 4.0mm ID X 5.0µm df). **Inj. Volume=** 10µL. **Flow Rate=** 1.5mL/min.. **Column Temp.=** 40°C. Isocratic Analysis using Anion Mobile Phase. **Detector:** PDA (DAD1, Sig=360,20 REF=266, 10). **Analyst:** Pedro Rentas.

Peak No.	Name	PDA RT (min.)
1	Sodium Perchlorate	21.78

Reagent: Fluoride Std-1000ppm
Date Received: 7 Sep 06
Date Expired: 1 Oct 07
Manufacturer: Inorganic Ventures
Storage Condition: refrigerate 4±2°C

Reagent #: 201447
By: LMR
Matrix: aq
Amount: 125 ml
Lot #: Y-F01047

Component	Comment	Standard	Concentration
	IN # ICFI-1		

Comment

Reagent: Phosphate as P. 1000ppm std
Date Received: 11 Sep 06
Date Expired: 31 Aug 09
Manufacturer: Absolute Stds
Storage Condition: refrigerate 4±2°C

Reagent #: 201448
By: LMR
Matrix: aq
Amount: 500 ml
Lot #: 083106

Component	Comment	Standard	Concentration
	Abs std # 54505		

Comment:

Reagent: Perchlorate 1000ppm std
Date Received: 11 Sept 06
Date Expired: 28 Jul 09
Manufacturer: Absolute Stds
Storage Condition: refrigerate 4±2°C

Reagent #: 201449
By: LMR
Matrix: aq
Amount: 100 ml
Lot #: 072806

Component	Comment	Standard	Concentration
	Abs std # 57001		

Comment:

LCS 3000

Reagent: IPC 5 PPD w/ 150 PPM SPLT
Date Received/Prepped: 2-27-08 / 03-07-08 / 04-07-08 / / /
Date Expired: 2-27-08 / 03-07-08 / 04-07-08 / / /
Manufacturer:
Storage Condition:

MW #: MCE 80227-2
By: MCE
Matrix: AQ
Amount: 100 ML
Lot #:

Component	Comment	Standard	Concentration
	0.5 ML 1000 PPB CLO4		
		CLO4	
	1.5 ML EACH 10,000 PPM CL SOLN	SOLN	
		SO4	
	TO VOL 100 ML W/ DI H2O		

Comment: EC 1424

Reagent: 10 PPM CLO4 - LCS
Date Received/Prepped: 3-12-08 / 16-11881 / / /
Date Expired: 6-12-08 / 19-11881 / / /
Manufacturer:
Storage Condition: R.T.

MW #: MCE 80312-1
By: MCE
Matrix: AQ
Amount: 100 ML
Lot #:

Component	Comment	Standard	Concentration
	1 ML 1000 PPM CLO4	R201789 (EXP 7/09)	
	TO VOL 100 ML W/ DI H2O		

Comment:

Reagent: 10 PPM CLO4 - CAL
Date Received/Prepped: 3-12-08 / 16-11881 / / /
Date Expired: 6-12-08 / 19-11881 / / /
Manufacturer:
Storage Condition: R.T.

MW #: MCE 80312-2
By: MCE
Matrix: AQ
Amount: 100 ML
Lot #:

Component	Comment	Standard	Concentration
	1 ML 1000 PPM CLO4	R201449 (EXP. 7/09)	
	TO VOL 100 ML W/ DI H2O		

Comment:

Reagent: 1000 PPB ClO4 - LCS
Date Received/Prepped: 03-12-08 / 06-11-08 / / /
Date Expired: 06-12-08 / 09-11-08 / / /
Manufacturer:
Storage Condition: R.T.

MW #: MIE080312-3
By: MIE
Matrix: AQ
Amount: 100 ML
Lot #:

Component	Comment	Standard	Concentration
	10 ML 10 PPM ClO4 - LCS	MIE080313-1	
	TO VOL W/ DI H2O		

Comment:

Reagent: 1000 PPB ClO4 - CAL
Date Received/Prepped: 03-12-08 / 06-11-08 / / /
Date Expired: 06-12-08 / 09-11-08 / / /
Manufacturer:
Storage Condition: R.T.

MW #: MIE080312-4
By: MIE
Matrix: AQ
Amount: 100 ML
Lot #:

Component	Comment	Standard	Concentration
	10 ML 10 PPM ClO4 - CAL	MIE080313-2	
	TO VOL. W/ DIH2O		

Comment:

Reagent: 10,000 PPM SO4 SOLN
Date Received/Prepped: 03-12-08 / 06-12-08 / / /
Date Expired: 06-12-08 / 07-11-08 / / /
Manufacturer:
Storage Condition: R.T.

MW #: MIE080312-5
By: MIE
Matrix: AQ
Amount: 100ML
Lot #:

Component	Comment	Standard	Concentration
	1.48 g SODIUM SULFATE (R20/792	EXP 3/13)	
	TO 100 ML W/ DIH2O		

Comment:

Reagent: MRL - 2 PPB ClO4 - cal
Date Received/Prepped: 03-12-08/ 6:11 PST / / / /
Date Expired: 06-12-08/ 9:11 PST / / / /
Manufacturer:
Storage Condition: R.T.

MW #: MWE080312-12
By: MLE
Matrix: AQ
Amount: 100 mL
Lot #:

Component	Comment	Standard	Concentration
	200 µL 1,000 ppb ClO4 - cal	MWE080312-4	
	to 100 mL w/ DIH2O		

Comment:

Reagent: MRL - 4 PPB ClO4 - cal
Date Received/Prepped: 03-12-08/ 6:11 PST / / / /
Date Expired: 06-12-08/ 9:11 PST / / / /
Manufacturer:
Storage Condition: R.T.

MW #: MWE080312-13
By: MLE
Matrix: AQ
Amount: 100 mL
Lot #:

Component	Comment	Standard	Concentration
	400 µL 1,000 ppb ClO4 - cal	MWE080312-4	
	to 100 mL w/ DIH2O		

Comment:

Reagent: 10 ppb ClO4 - cal
Date Received/Prepped: 03-12-08/ 6:11 PST / / / /
Date Expired: 06-12-08/ 9:11 PST / / / /
Manufacturer:
Storage Condition: R.T.

MW #: MWE080312-14
By: MLE
Matrix: AQ
Amount: 100 mL
Lot #:

Component	Comment	Standard	Concentration
	1.0 ml 1000 ppb ClO4 - cal	MWE080312-4	
	to 100 ml w/ DI H2O		

Comment:

Reagent: 25 ppb CLO4 - CCV
Date Received/Prepped: 03-12-08/ 6-11 08/ / / /
Date Expired: 06-12-08/ 9-11 08/ / / /
Manufacturer:
Storage Condition: R-T

MW #: MUE080312-15
By: MJE
Matrix: AQ
Amount: 100ML
Lot #:

Component	Comment	Standard	Concentration
	2.5 ML 1000 ppb CLO4 - cal	MUE080312-4	
	to 100 mL w/ DI H_2O		

Comment:

Reagent: 50 ppb CLO4
Date Received/Prepped: 03-12-08/ 6-11 08/ / / /
Date Expired: 06-12-08/ 9-11 08/ / / /
Manufacturer:
Storage Condition: R-T

MW #: MUE080312-16
By: MJE
Matrix: AQ
Amount: 100ML
Lot #:

Component	Comment	Standard	Concentration
	5.0 ML 1000 ppb CLO4 - cal	MUE080312-4	
	to 100 mL w/ DI H_2O		

Comment:

Reagent: 100 ppb CLO4 - MCV
Date Received/Prepped: 03-12-08/ 6-11 08/ / / /
Date Expired: 03-12-08/ 9-11 08/ / / /
Manufacturer:
Storage Condition: R-T

MW #: MUE080312-17
By: MJE
Matrix: AQ
Amount: 100ML
Lot #:

Component	Comment	Standard	Concentration
	10.0 ML 1000 ppb CLO4 - cal	MUE080312-4	
	to 100 mL w/ DI H_2O		MJE

Comment: