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Level IV Data Package

MWH Group 226843

Method: EPA 314 CLO4

2801080538
2801080540

Perchlorate QC Checklist

rev: 27 Mar 03

Analysis Date: 01/29/08 **Analyst:** JKZ

QC'd by [illegible] **Date** 1 Feb 08

Instrument: IC11 **Calculated MCT Level:** 3155 umhos/cm

Original IPC conductance: 3100 umhos/cm **Daily IPC conductance:** 3100 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.

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

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

$PDA/_H = 6.38\%$ ✓

✓ 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 ✓ (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) ___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

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

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

✓ 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

None QIR needed for failed QC

✓ 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	0	01.28.08 17:01	n.a.	
2	autocal1	1.0	0	01.28.08 17:23	n.a.	
3	autocal2	1.0	2	01.28.08 17:45	1.3657	
4	autocal3	1.0	4	01.28.08 18:08	2.8528	
5	autocal4	1.0	10	01.28.08 18:30	7.7877	
6	autocal5	1.0	25	01.28.08 18:52	19.8744	
7	autocal6	1.0	50	01.28.08 19:15	42.5479	
8	autocal7	1.0	100	01.28.08 19:37	88.8329	
9	QCS	1.0	20	01.29.08 09:46	19.1395	
10	IPC	1.0	25	01.29.08 10:09	21.9190	
11	WASH	1.0	0	01.29.08 10:38	n.a.	
12	autocal1	1.0	0	01.29.08 11:00	n.a.	
13	autocal2	1.0	2	01.29.08 11:23	1.5954	
14	autocal3	1.0	4	01.29.08 11:45	4.3910	
15	autocal4	1.0	10	01.29.08 12:08	9.7539	
16	autocal5	1.0	25	01.29.08 12:30	23.9695	
17	autocal6	1.0	50	01.29.08 12:52	50.8237	
18	autocal7	1.0	100	01.29.08 13:15	99.8626	
19	QCS	1.0	20	01.29.08 13:37	19.2999	96.5%
20	IPC	1.0	25	01.29.08 14:00	22.9447	91.8%
21	-MBLK	1.0		01.29.08 14:22	n.a.	
22	-MRLCHK-2	1.0	2	01.29.08 14:44	1.6557	82.8%
23	-MRLCHK-4	1.0	4	01.29.08 15:07	3.2660	81.6%
24	-LCS1	1.0	25	01.29.08 15:29	23.3084	93.2%
25	-LCS2	1.0	25	01.29.08 15:52	24.8190	99.3%
26	2801080274	1.0		01.29.08 16:14	n.a.	
27	2801080472	1.0		01.29.08 16:36	n.a.	
28	2801080476	1.0		01.29.08 16:59	4.9121	
29	2801080355_1/10000	10000.0		01.29.08 17:21	228848.4936	
30	2801080538_1/5	5.0		01.29.08 17:44	n.a.	
31	2801080540_1/10000	10000.0		01.29.08 18:06	244165.8888	
32	2801090034	1.0		01.29.08 18:28	2.0661	
33	2801090045	1.0		01.29.08 18:51	2.0748	
34	2801090046	1.0		01.29.08 19:13	n.a.	
35	2801090329	1.0		01.29.08 19:36	n.a.	
36	2801090329MS	1.0		01.29.08 19:58	21.5547	86.2%
37	2801090329MSD	1.0		01.29.08 20:20	21.6507	86.8%
38	CCV	1.0		01.29.08 20:43	24.9844	100%
39	2801090349	1.0		01.29.08 21:05	n.a.	
40	2801090834_1/2	2.0		01.29.08 21:28	n.a.	
41	2801090835_1/2	2.0		01.29.08 21:50	n.a.	
42	2801180249_1/100000	100000.0		01.29.08 22:12	4724969.1361	
43	2801180307_1/50000	50000.0		01.29.08 22:35	2540480.0341	
44	2801180308_1/50000DNR	50000.0	should be EAST	01.29.08 22:57	1108721.7083	

45	2801180310_1/25000DNR	25000.0	should be WEST	01.29.08 23:20	1826206.0739
46	2801180391	1.0		01.29.08 23:42	✓n.a.
47	2801180392	1.0		01.30.08 00:04	✓ n.a.
48	2801090836_1/2	2.0		01.30.08 00:27	✓6.1715 (ND)
49	HCV	1.0		01.30.08 00:49	105.5425 1057
50	CCB	1.0		01.30.08 01:12	n.a.

VB MM 2/4/08

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

CONDUCTIVITY MW SOP REVISION 5
SM2510B

Analysis Date: 01/22/08
Analyst: [illegible]
Reviewed By: MJS
LIMS Check By:

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

Time of Analyis Start: 10:00 Am End: 11:30 Am
MRL 2umhos/cm: R# ——— exp of solution: ———
KCl Std 1412 R# 201752 exp of solution 09/30/08
TV = 1412 µmho/cm @ 25°C for 0.0100M
Reading: 1444
Instrument: YSI Model 3200 SN:01A0504, Year Aquired 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				21	7	µmho		0.9827	
STD	MRL 2umhos/cm									1-3—±50% of TV
STD	KCl - 1000 mhos/cm								999.9	950-1050—±5% of TV
1	2801080274	790	[redacted]	01/08/08				761.5		
2	472	472	"	01/07/08				546.6		
3	476	073	"	01/07/08				555.8		
4	354	Effluent	Kerr	01/05/08				8524		
5	355	Effluent		"				9033		
6	538	Effluent		01/07/08				9137		
7	540	Effluent		"				9327		
8	580	Well 1	[redacted]	01/08/08				1439		
9	581	Well 2						1320		
10	582	" 3						843		
DUP	582d	"						843		RPD < 5%
11	583	" 4						999.9		
12	633	QC Eff	[redacted]	01/08/08				840		
13	665	557-05 RS						178.5		
14	2801090034	001	[redacted]	01/07/08				1200		
15	045	01D						469.2		
16	046	02D						557		
17	329	331	[redacted]	01/08/08				1305		
18	349	258						533.6		
19	349d	255						533.6	- no dup. just written twice	
20										
DUP										RPD < 5%
STD	KCl - 10 mhos/cm									8-12—RPD < 20% of TV

1 Feb 08

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

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

Title:
Datasource: Dionex_USPAS2SDIO2
Location: IC\IC11_CLO4\2008
Timebase: IC11 Created: 1/29/2008 8:47:54 AM by jkz
#Samples: 50 Last Update: 1/30/2008 9:01:21 AM by jkz

No.	Name	Sample ID	Dil. Factor	Type	Comment	Status
1	WASH		1.0000	Unknown	0	Finished
2	autocal1		1.0000	Unknown	0	Finished
3	autocal2	R201449 EXP 07/28/09	1.0000	Unknown	2	Finished
4	autocal3		1.0000	Unknown	4	Finished
5	autocal4		1.0000	Unknown	10	Finished
6	autocal5		1.0000	Unknown	25	Finished
7	autocal6		1.0000	Unknown	50	Finished
8	autocal7		1.0000	Unknown	100	Finished
9	QCS	EXP 07/10/09	1.0000	Unknown	20	Finished
10	IPC	EC=3155	1.0000	Unknown	25	Finished
11	WASH		1.0000	Unknown	0	Finished
12	autocal1		1.0000	Standard	0	Finished
13	autocal2	R201449 EXP 07/28/09	1.0000	Standard	2	Finished
14	autocal3		1.0000	Standard	4	Finished
15	autocal4		1.0000	Standard	10	Finished
16	autocal5		1.0000	Standard	25	Finished
17	autocal6		1.0000	Standard	50	Finished
18	autocal7		1.0000	Standard	100	Finished
19	QCS	EXP 07/10/09	1.0000	Unknown	20	Finished
20	IPC	EC=3155	1.0000	Unknown	25	Finished
21	-MBLK		1.0000	Unknown		Finished
22	-MRLCHK-2	2	1.0000	Unknown	2	Finished
23	-MRLCHK-4	4	1.0000	Unknown	4	Finished
24	-LCS1	25	1.0000	Unknown	25	Finished
25	-LCS2	25	1.0000	Unknown	25	Finished
26	2801080274	CALWATER-790	1.0000	Unknown		Finished
27	2801080472	CALWATER-472	1.0000	Unknown		Finished
28	2801080476	CALWATER-073	1.0000	Unknown		Finished
29	2801080355_1/10000	KERR-INF-COMP	10000.0000	Unknown		Finished
30	2801080538_1/5	KERR-EFFLUENT	5.0000	Unknown		Finished
31	2801080540_1/10000	KERR-INFLUENT	10000.0000	Unknown		Finished
32	2801090034	DELAVALLE-001	1.0000	Unknown		Finished
33	2801090045	DELAVALLE-01D	1.0000	Unknown		Finished
34	2801090046	DELAVALLE-02D	1.0000	Unknown		Finished
35	2801090329	CALWATER-331	1.0000	Unknown		Finished
36	2801090329MS	25	1.0000	Unknown		Finished
37	2801090329MSD	25	1.0000	Unknown		Finished
38	CCV	25	1.0000	Unknown		Finished
39	2801090349	CALWATER-258	1.0000	Unknown		Finished
40	2801090834_1/2	IEUA	2.0000	Unknown		Finished
41	2801090835_1/2	IEUA	2.0000	Unknown		Finished
42	2801180249_1/100000	KERR-GW-11	100000.0000	Unknown		Finished

Title:
Datasource: Dionex_USPAS2SDIO2
Location: IC\IC11_CLO4\2008
Timebase: IC11 Created: 1/29/2008 8:47:54 AM by jkz
#Samples: 50 Last Update: 1/30/2008 9:01:21 AM by jkz

No.	Name	Program	Method	Inj. Date/Time	*Analyst
1	WASH	Perchlorate-IC11	IC#4-CLO4-LOW	1/28/2008 5:01:00 PM	jkz
2	autocal1	Perchlorate-IC11	IC#4-CLO4-LOW	1/28/2008 5:23:24 PM	jkz
3	autocal2	Perchlorate-IC11	IC#4-CLO4-LOW	1/28/2008 5:45:48 PM	jkz
4	autocal3	Perchlorate-IC11	IC#4-CLO4-LOW	1/28/2008 6:08:12 PM	jkz
5	autocal4	Perchlorate-IC11	IC#4-CLO4-LOW	1/28/2008 6:30:35 PM	jkz
6	autocal5	Perchlorate-IC11	IC#4-CLO4-LOW	1/28/2008 6:52:59 PM	jkz
7	autocal6	Perchlorate-IC11	IC#4-CLO4-LOW	1/28/2008 7:15:23 PM	jkz
8	autocal7	Perchlorate-IC11	IC#4-CLO4-LOW	1/28/2008 7:37:47 PM	jkz
9	QCS	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 9:46:37 AM	jkz
10	IPC	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 10:09:01 AM	jkz
11	WASH	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 10:38:35 AM	jkz
12	autocal1	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 11:00:59 AM	jkz
13	autocal2	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 11:23:23 AM	jkz
14	autocal3	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 11:45:47 AM	jkz
15	autocal4	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 12:08:11 PM	jkz
16	autocal5	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 12:30:35 PM	jkz
17	autocal6	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 12:52:58 PM	jkz
18	autocal7	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 1:15:22 PM	jkz
19	QCS	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 1:37:46 PM	jkz
20	IPC	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 2:00:10 PM	jkz
21	-MBLK	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 2:22:34 PM	jkz
22	-MRLCHK-2	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 2:44:57 PM	jkz
23	-MRLCHK-4	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 3:07:21 PM	jkz
24	-LCS1	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 3:29:45 PM	jkz
25	-LCS2	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 3:52:09 PM	jkz
26	2801080274	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 4:14:33 PM	jkz
27	2801080472	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 4:36:56 PM	jkz
28	2801080476	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 4:59:20 PM	jkz
29	2801080355_1/10000	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 5:21:44 PM	jkz
30	2801080538_1/5	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 5:44:08 PM	jkz
31	2801080540_1/10000	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 6:06:31 PM	jkz
32	2801090034	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 6:28:55 PM	jkz
33	2801090045	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 6:51:19 PM	jkz
34	2801090046	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 7:13:44 PM	jkz
35	2801090329	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 7:36:08 PM	jkz
36	2801090329MS	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 7:58:32 PM	jkz
37	2801090329MSD	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 8:20:57 PM	jkz
38	CCV	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 8:43:21 PM	jkz
39	2801090349	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 9:05:45 PM	jkz
40	2801090834_1/2	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 9:28:10 PM	jkz
41	2801090835_1/2	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 9:50:34 PM	jkz
42	2801180249_1/100000	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 10:12:58 PM	jkz

Title:
Datasource: Dionex_USPAS2SDIO2
Location: IC\IC11_CLO4\2008
Timebase: IC11
#Samples: 50
Created: 1/29/2008 8:47:54 AM by jkz
Last Update: 1/30/2008 9:01:21 AM by jkz

No.	Name	Sample ID	Dil. Factor	Type	Comment	Status
43	2801180307_1/50000	KERR-DISCHARGE	50000.0000	Unknown		Finished
44	2801180308_1/50000DNR	KERR-WEST FEED	50000.0000	Unknown		Finished
45	2801180310_1/25000DNR	KERR-EAST FEED	25000.0000	Unknown		Finished
46	2801180391	CAIWATER-BRAN 2	1.0000	Unknown		Finished
47	2801180392	CAIWATER-BRAN 4	1.0000	Unknown		Finished
48	2801090836_1/2	[illegible]	2.0000	Unknown		Finished
49	HCV	100	1.0000	Unknown		Finished
50	CCB		1.0000	Unknown		Finished

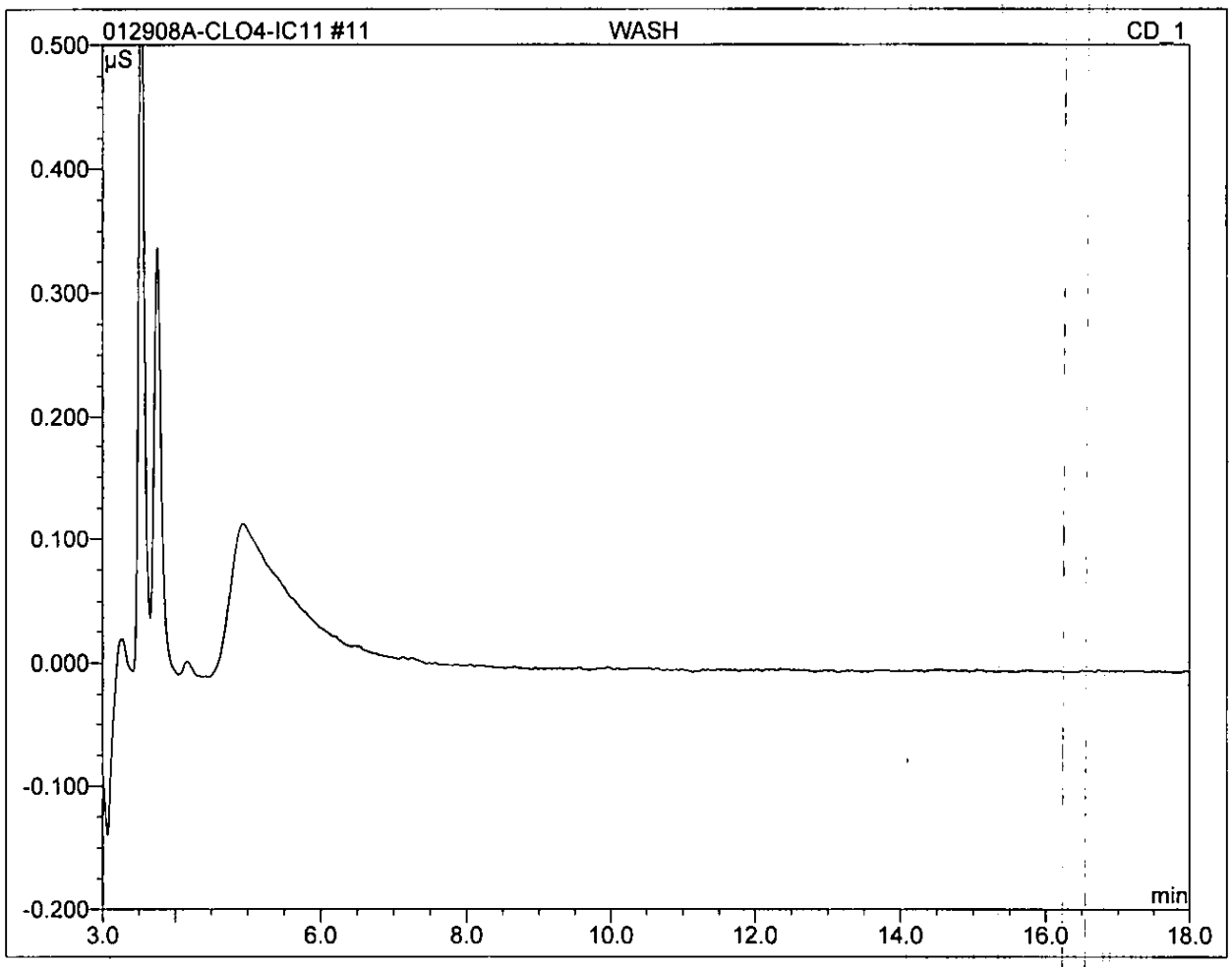
Title:
Datasource: Dionex_USPAS2SDIO2
Location: IC\IC11_CLO4\2008
Timebase: IC11 Created: 1/29/2008 8:47:54 AM by jkz
#Samples: 50 Last Update: 1/30/2008 9:01:21 AM by jkz

No.	Name	Program	Method	Inj. Date/Time	*Analyst
43	2801180307_1/50000	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 10:35:23 PM	jkz
44	2801180308_1/50000DNR	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 10:57:47 PM	jkz
45	2801180310_1/25000DNR	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 11:20:11 PM	jkz
46	2801180391	Perchlorate-IC11	IC#4-CLO4-LOW	1/29/2008 11:42:31 PM	jkz
47	2801180392	Perchlorate-IC11	IC#4-CLO4-LOW	1/30/2008 12:04:53 AM	jkz
48	2801090836_1/2	Perchlorate-IC11	IC#4-CLO4-LOW	1/30/2008 12:27:17 AM	jkz
49	HCV	Perchlorate-IC11	IC#4-CLO4-LOW	1/30/2008 12:49:40 AM	jkz
50	CCB	Perchlorate-IC11	IC#4-CLO4-LOW	1/30/2008 1:12:04 AM	jkz

11 WASH

0

Sample Name:	**WASH**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 10:38**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**

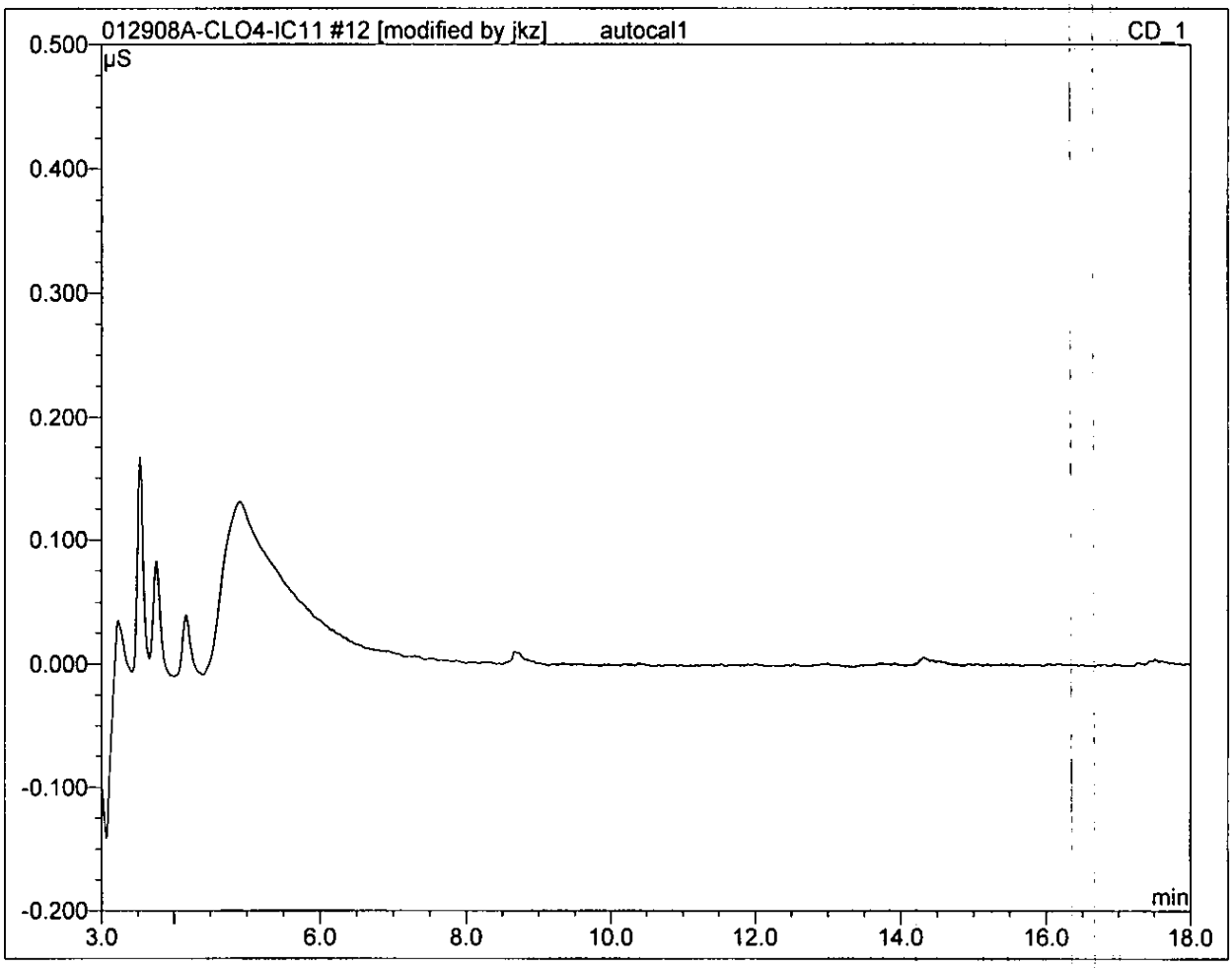


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

12 autocal1

0

Sample Name:	**autocal1**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 11:00**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**

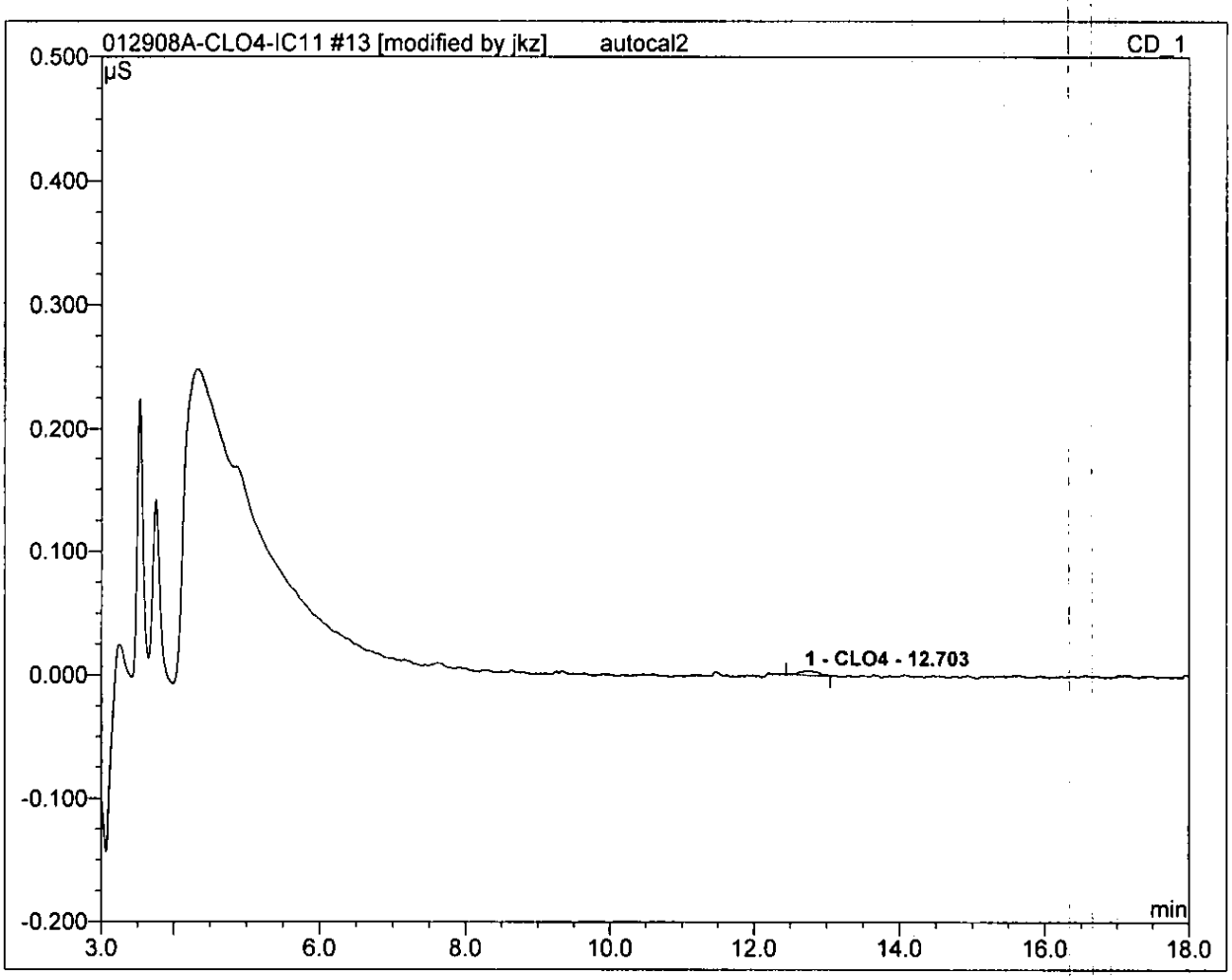


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

13 autocal2

2

Sample Name:	**autocal2**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 11:23**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**

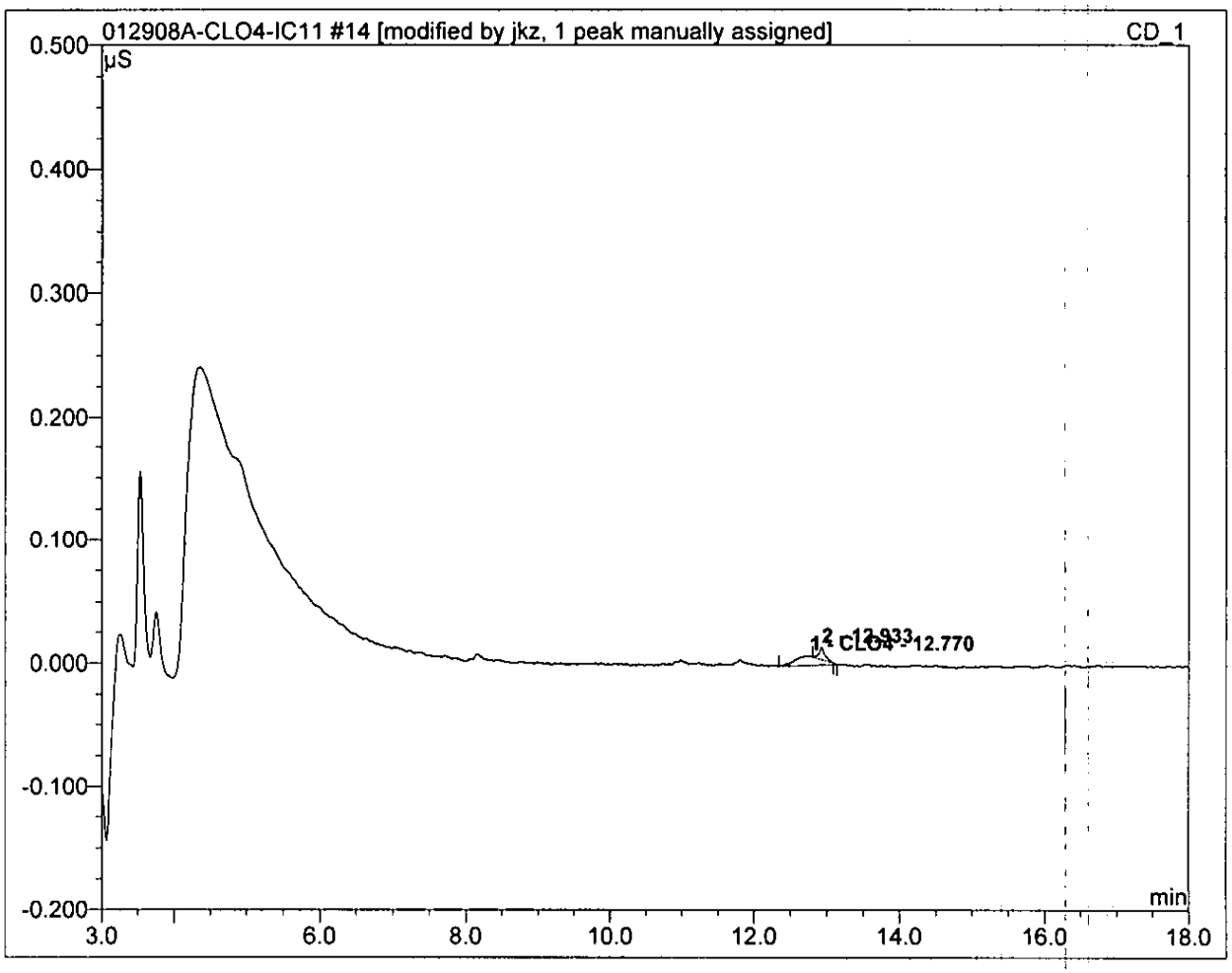


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	12.70	CLO4	0.004	0.001	100.00	1.595	BMB*
Total:			0.004	0.001	100.00	1.595	

14 autocal3

4

Sample Name:	**autocal3**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 11:45**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**

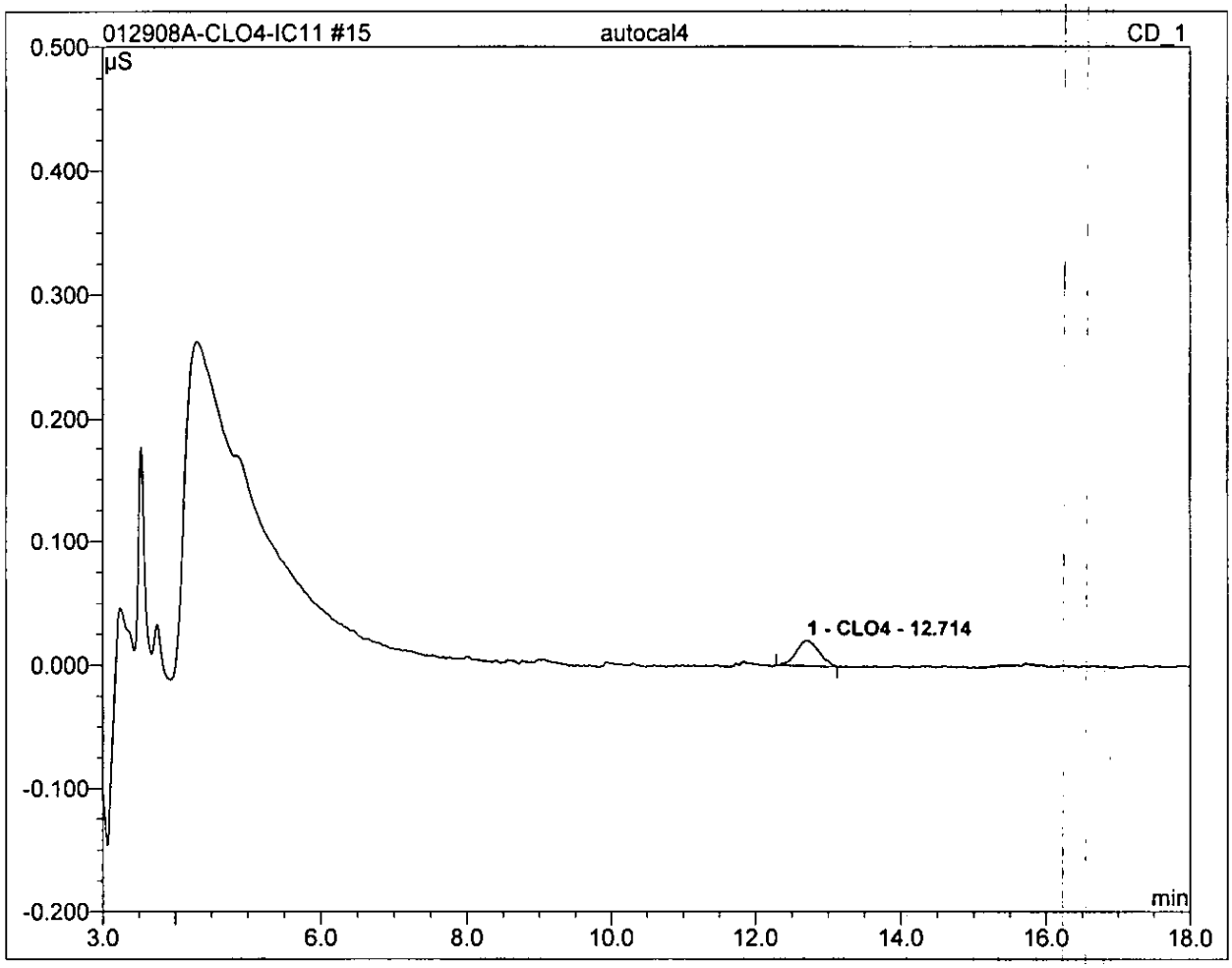


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	12.77	CLO4	0.008	0.003	78.17	4.391	BMB*^
Total:			0.008	0.003	78.17	4.391	

15 autocal4

10

Sample Name:	**autocal4**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 12:08**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**

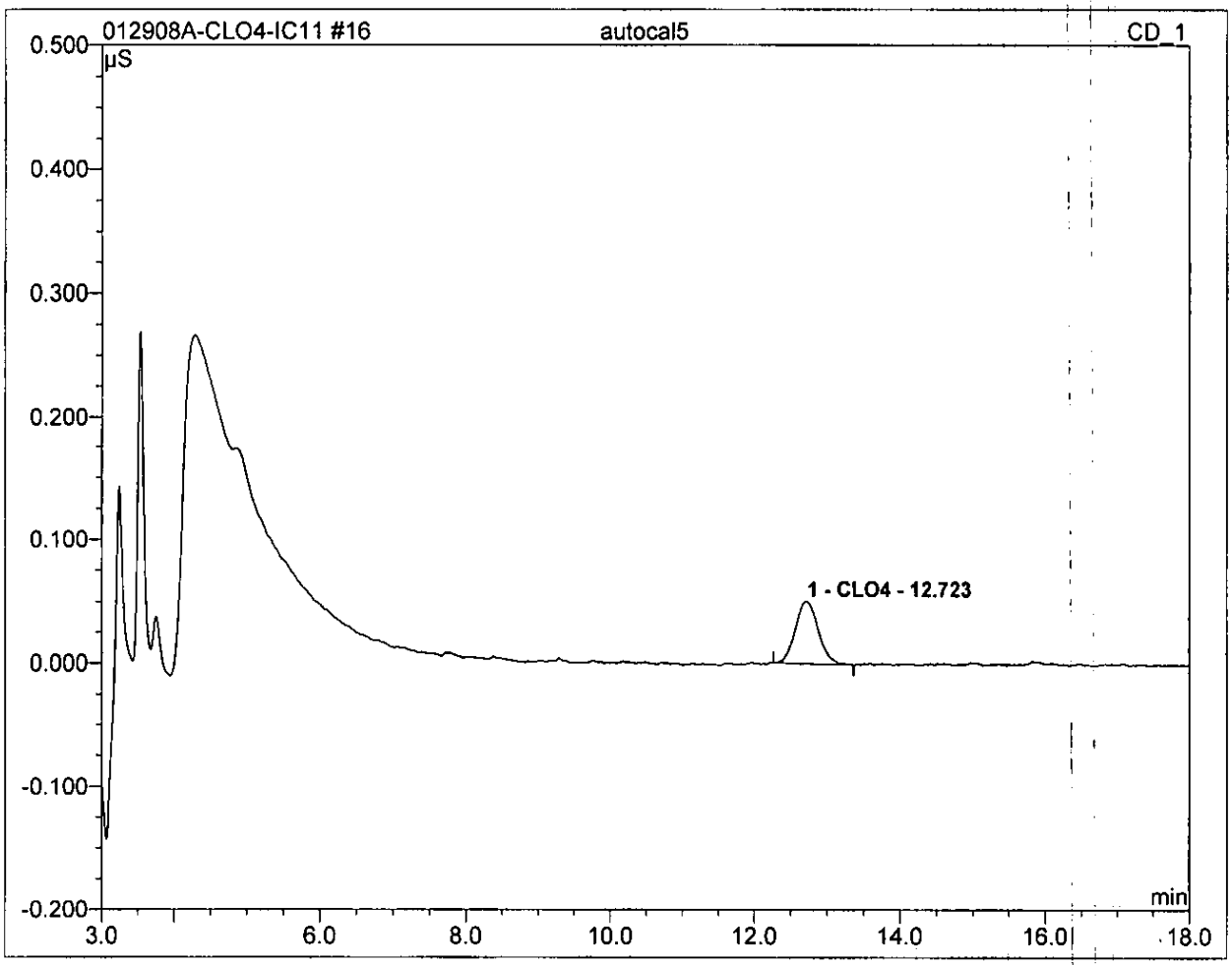


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	12.71	CLO4	0.021	0.007	100.00	9.754	BMB
Total:			0.021	0.007	100.00	9.754	

16 autocal5

25

Sample Name:	**autocal5**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 12:30**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**

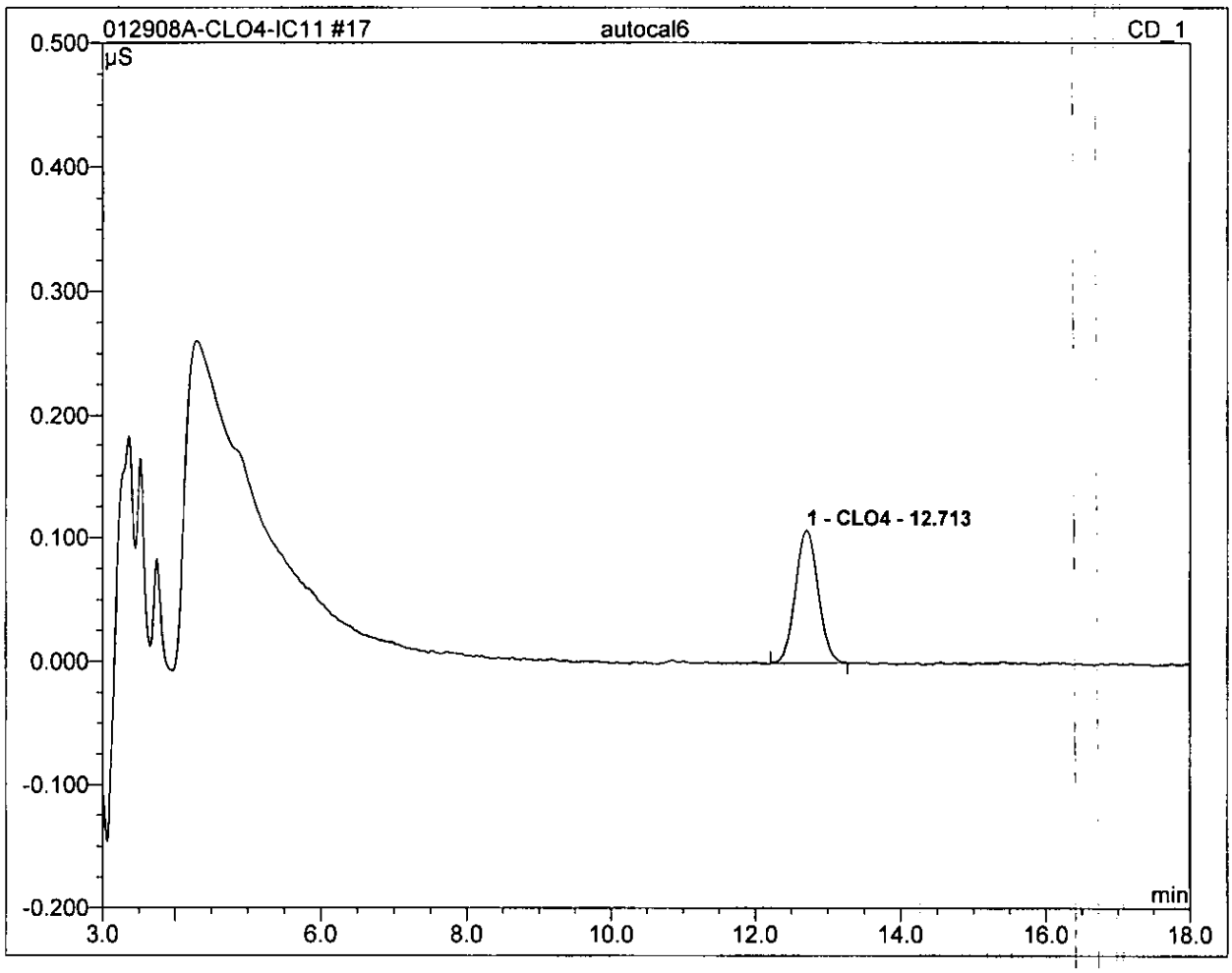


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	12.72	CLO4	0.050	0.018	100.00	23.969	BMB
Total:			0.050	0.018	100.00	23.969	

17 autocal6

50

Sample Name:	**autocal6**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 12:52**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**

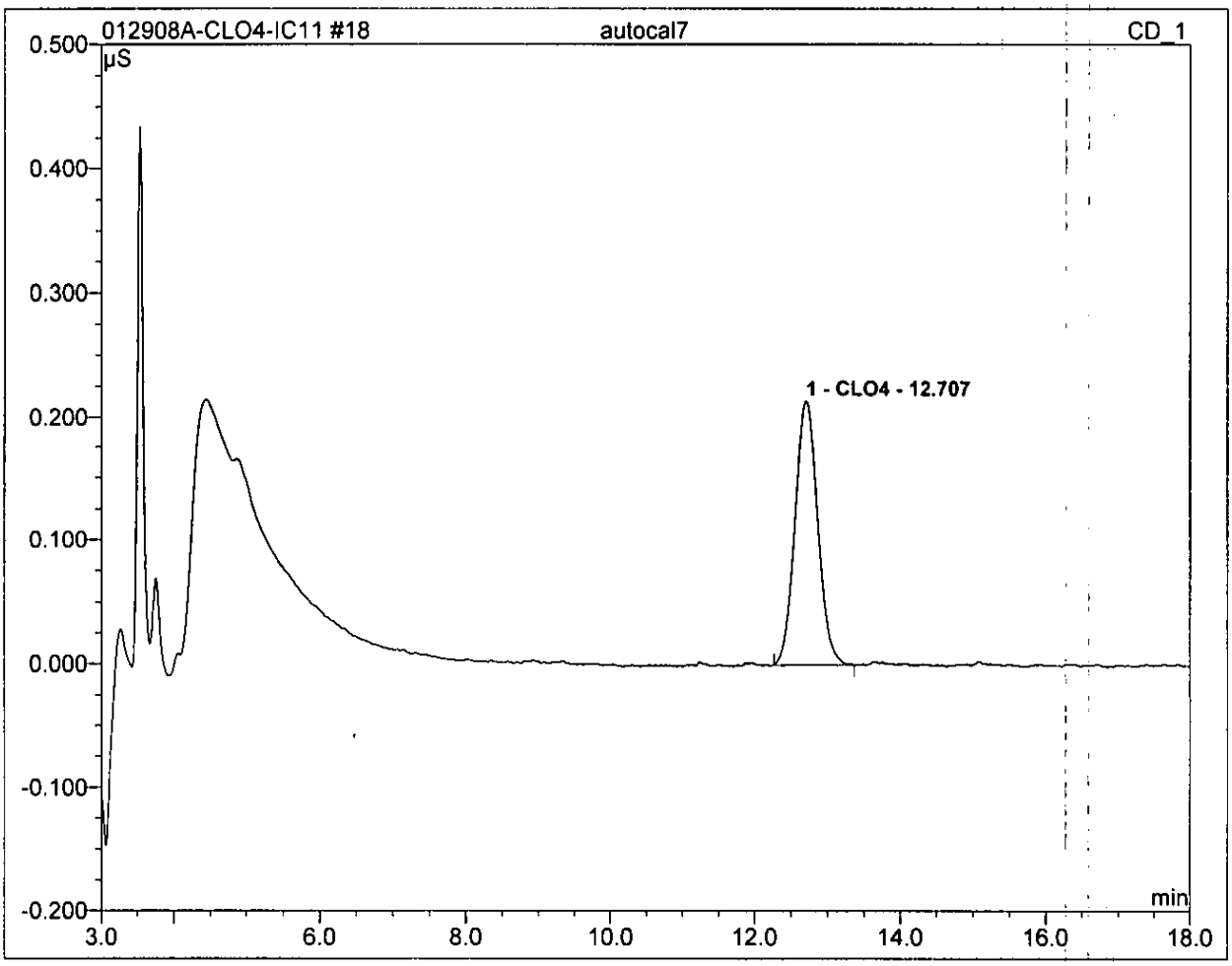


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	12.71	CLO4	0.108	0.039	100.00	50.824	BMB
Total:			0.108	0.039	100.00	50.824	

18 autocal7

100

Sample Name:	**autocal7**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 13:15**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**

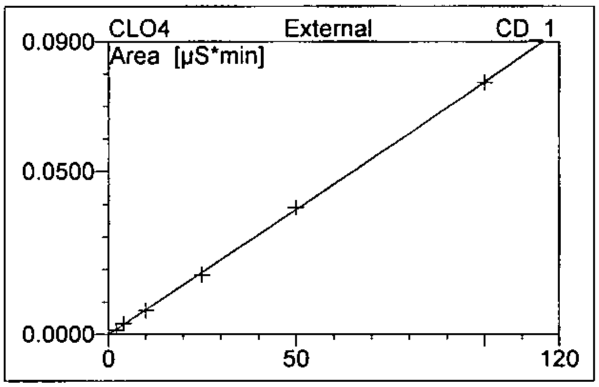


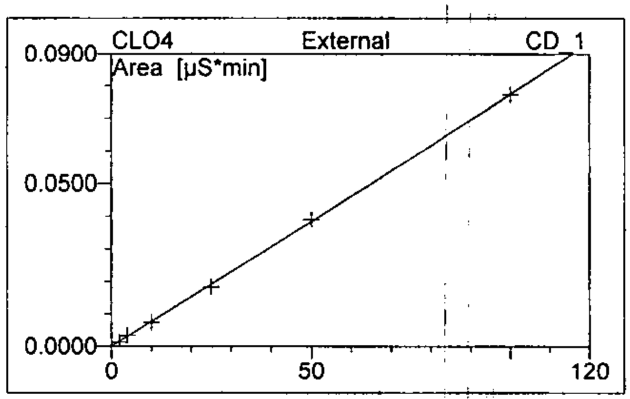
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	12.71	CLO4	0.214	0.077	100.00	99.863	BMB
Total:			0.214	0.077	100.00	99.863	

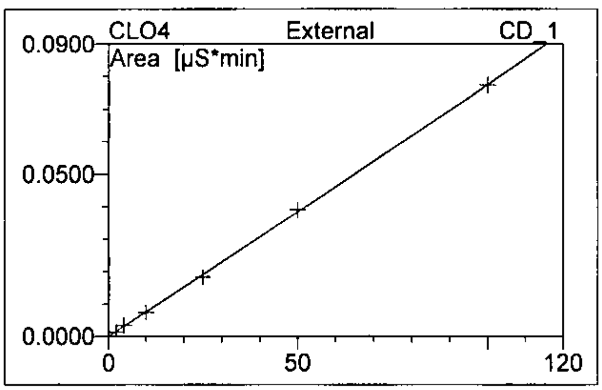
18 autocal7

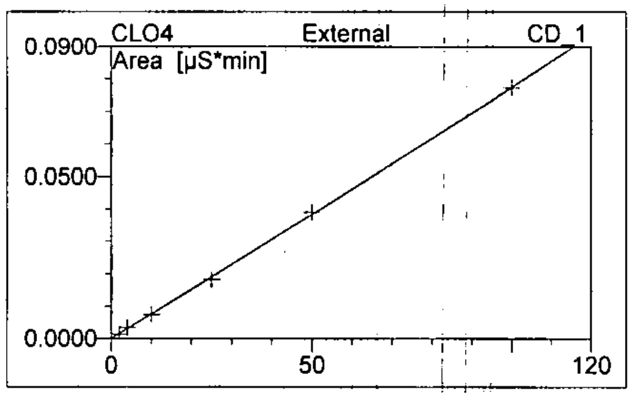
100

Sample Name:	**autocal7**	*Injection Volume:*	**20.0**
Vial Number:	**109**	*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:	**1/29/2008 13:15**	*Sample Weight:*	**1.0000**
Run Time (min):	**20.00**	*Sample Amount:*	**1.0000**







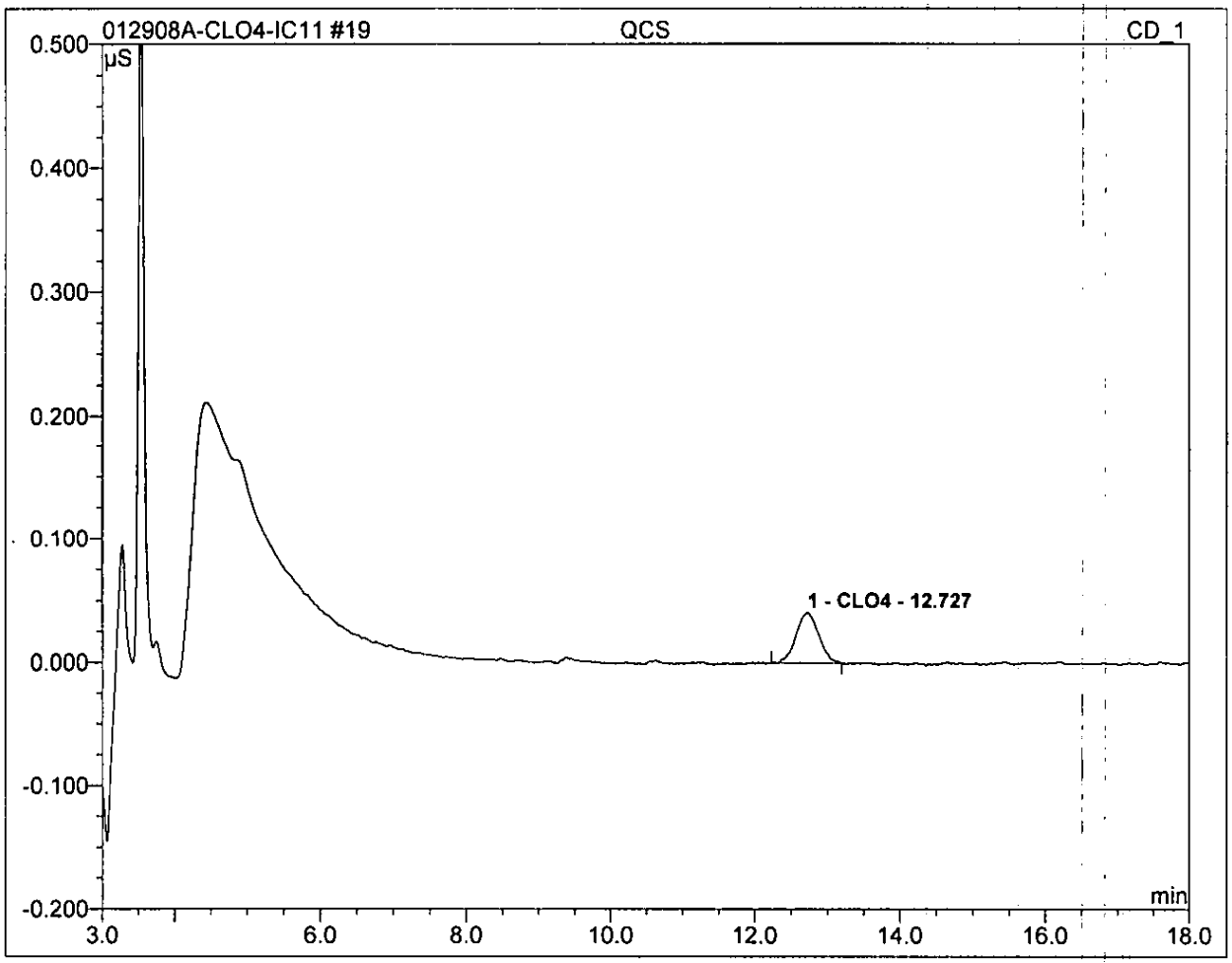


No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	Offset	Slope	Curve
1	12.71	CLO4	Quad	6	99.9863	0.0000	0.0008	0.0000
Average:					99.9863	0.0000	0.0008	0.0000

19 QCS

20

Sample Name:	**QCS**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 13:37**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**

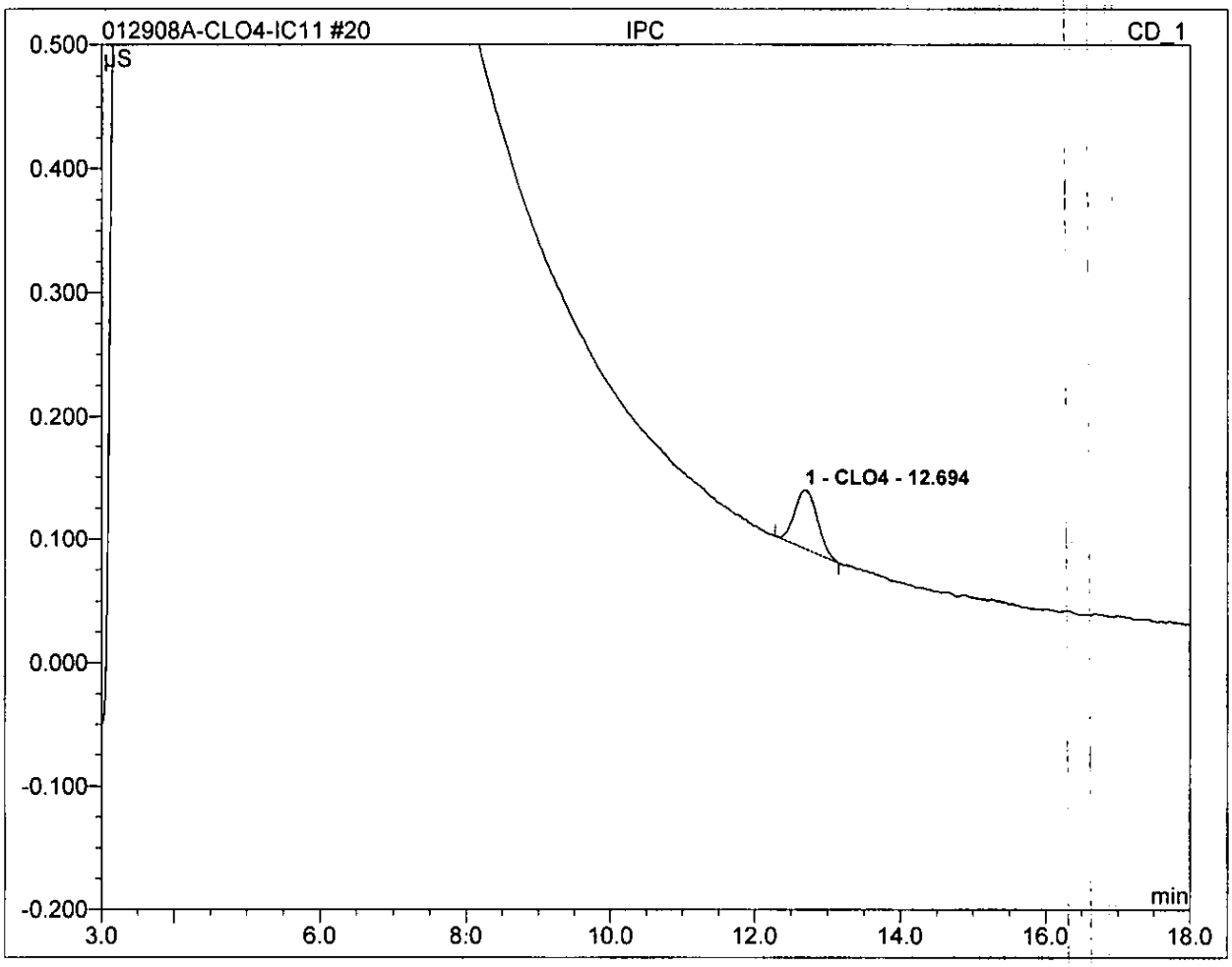


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	12.73	CLO4	0.041	0.015	100.00	19.300	BMB
Total:			0.041	0.015	100.00	19.300	

20 IPC

25

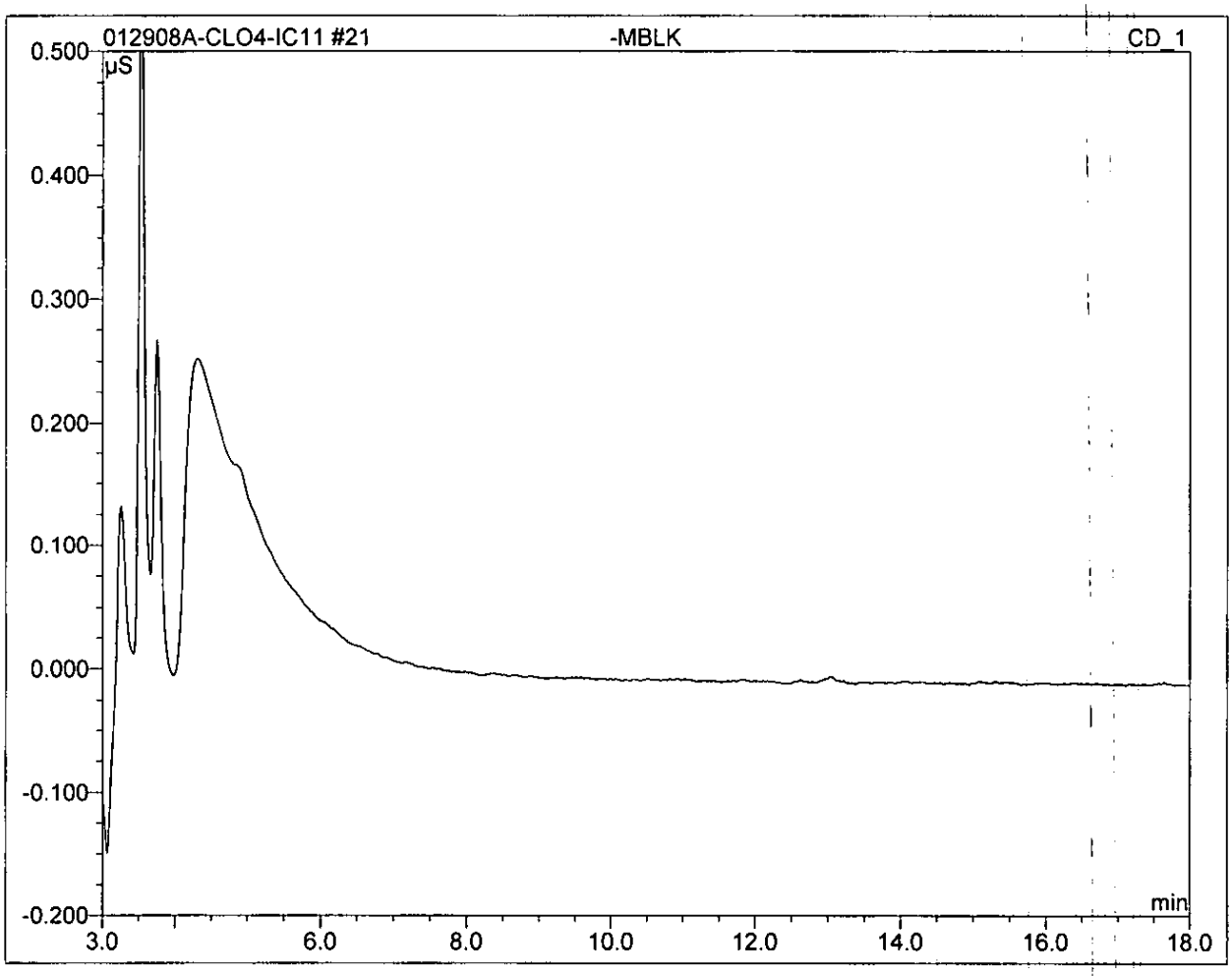
Sample Name:	**IPC**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 14:00**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	12.69	CLO4	0.048	0.017	100.00	22.945	BMB
Total:			0.048	0.017	100.00	22.945	

21 -MBLK

Sample Name:	**-MBLK**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 14:22**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**

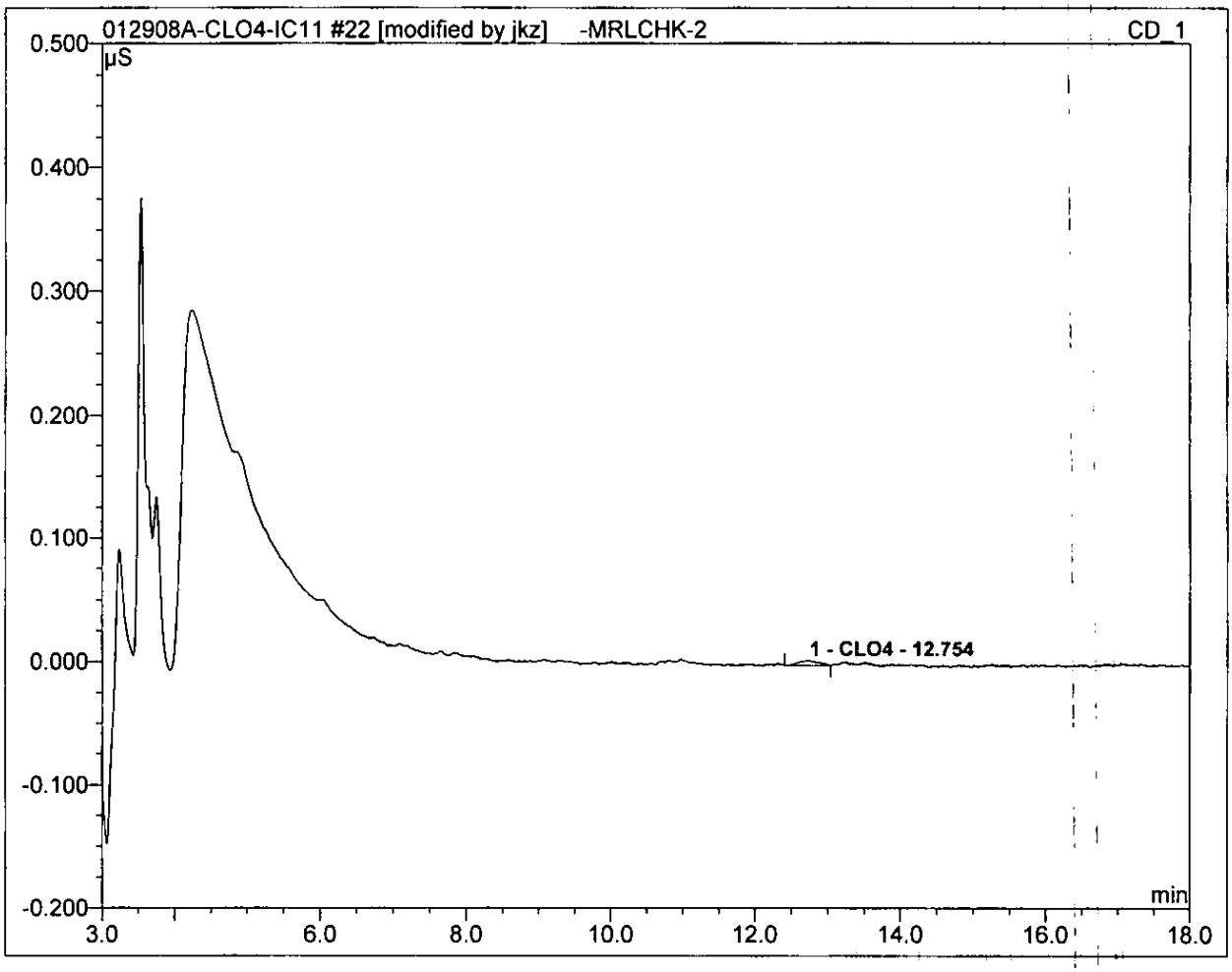


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

22 -MRLCHK-2

2

Sample Name:	**-MRLCHK-2**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 14:44**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**

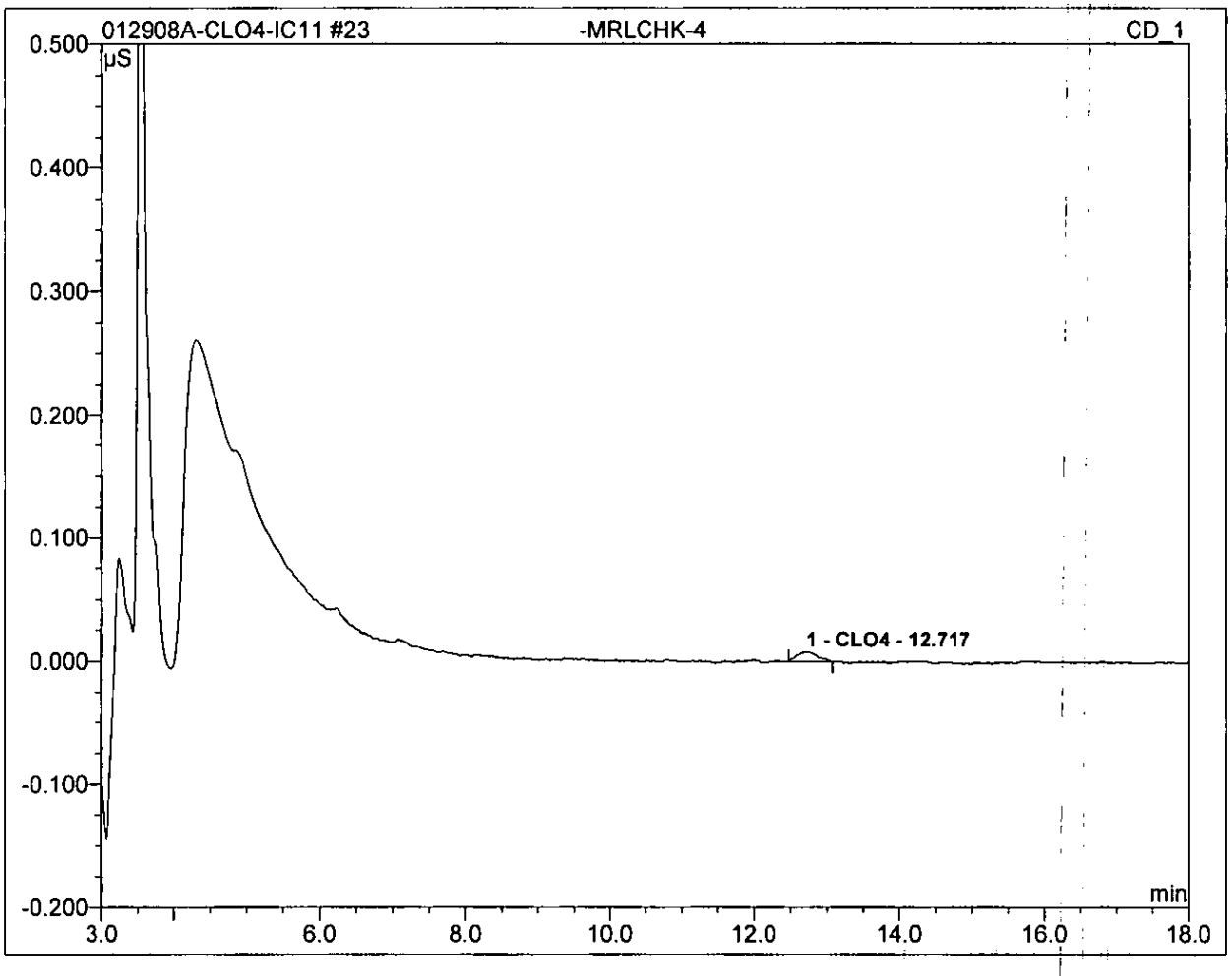


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	12.75	CLO4	0.004	0.001	100.00	1.656	BMB*
Total:			0.004	0.001	100.00	1.656	

23 -MRLCHK-4

4

Sample Name:	**-MRLCHK-4**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 15:07**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**

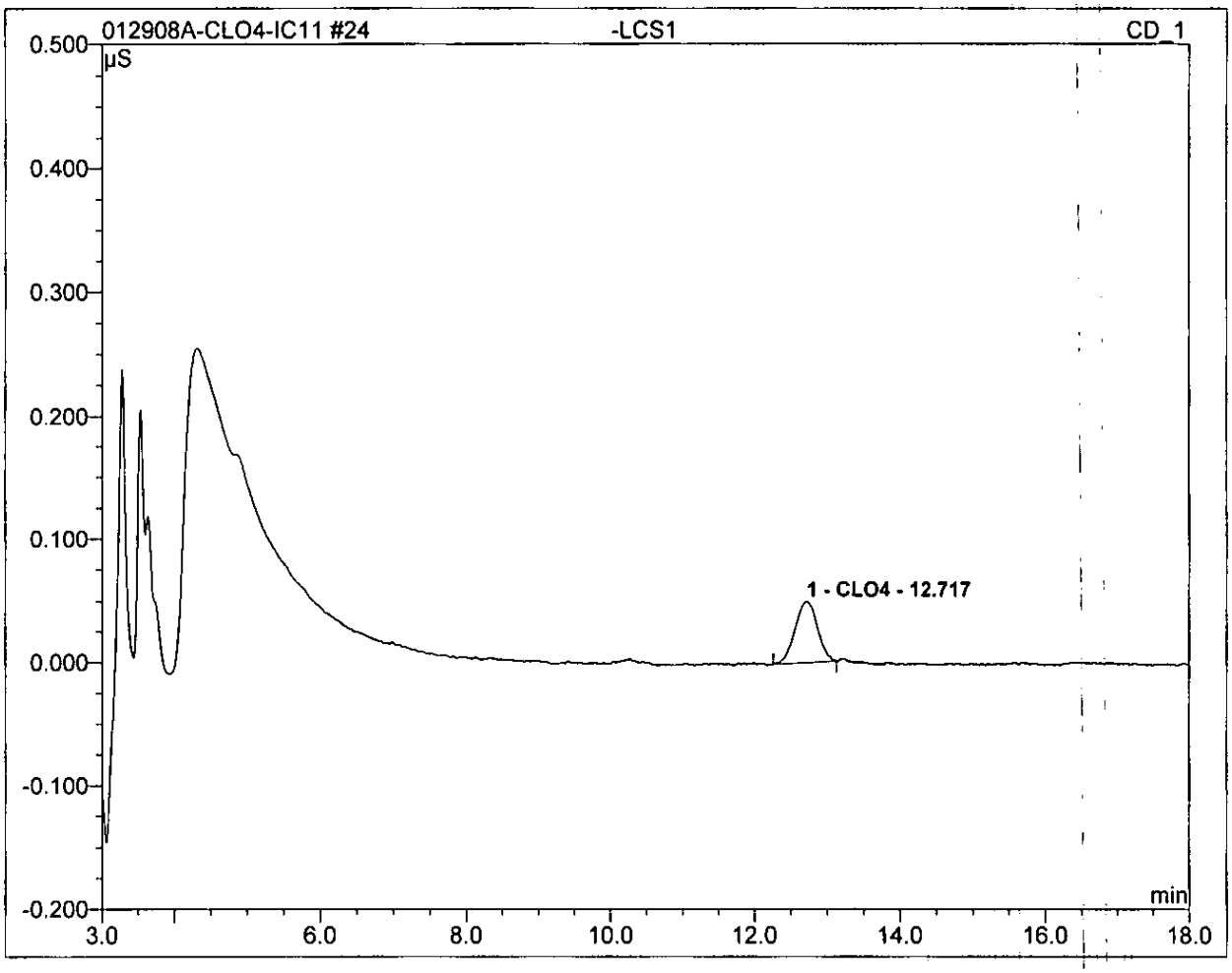


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	12.72	CLO4	0.008	0.002	100.00	3.266	BMB
Total:			0.008	0.002	100.00	3.266	

24 -LCS1

25

Sample Name:	**-LCS1**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 15:29**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**

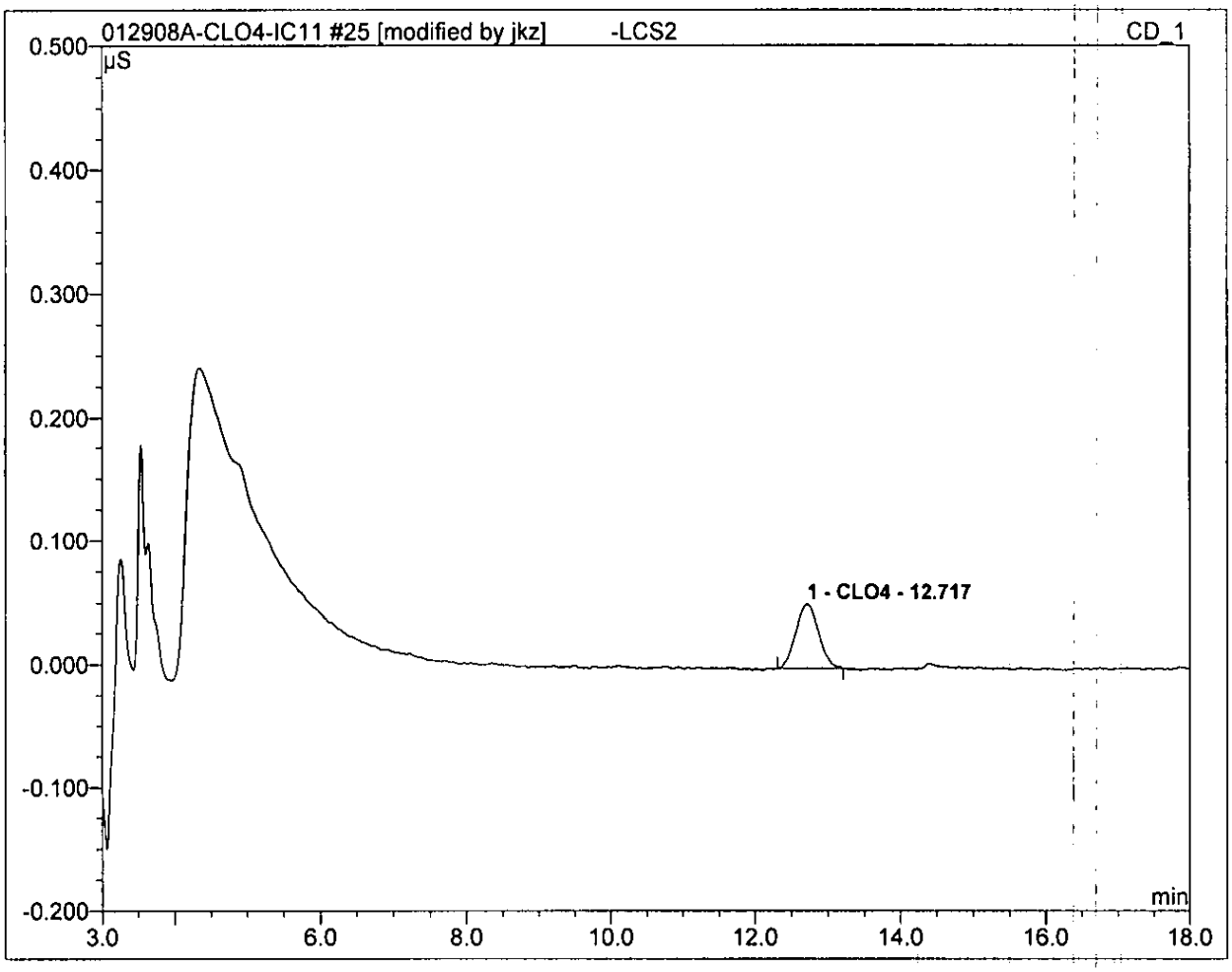


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	12.72	CLO4	0.050	0.018	100.00	23.308	BMB
Total:			0.050	0.018	100.00	23.308	

25 -LCS2

25

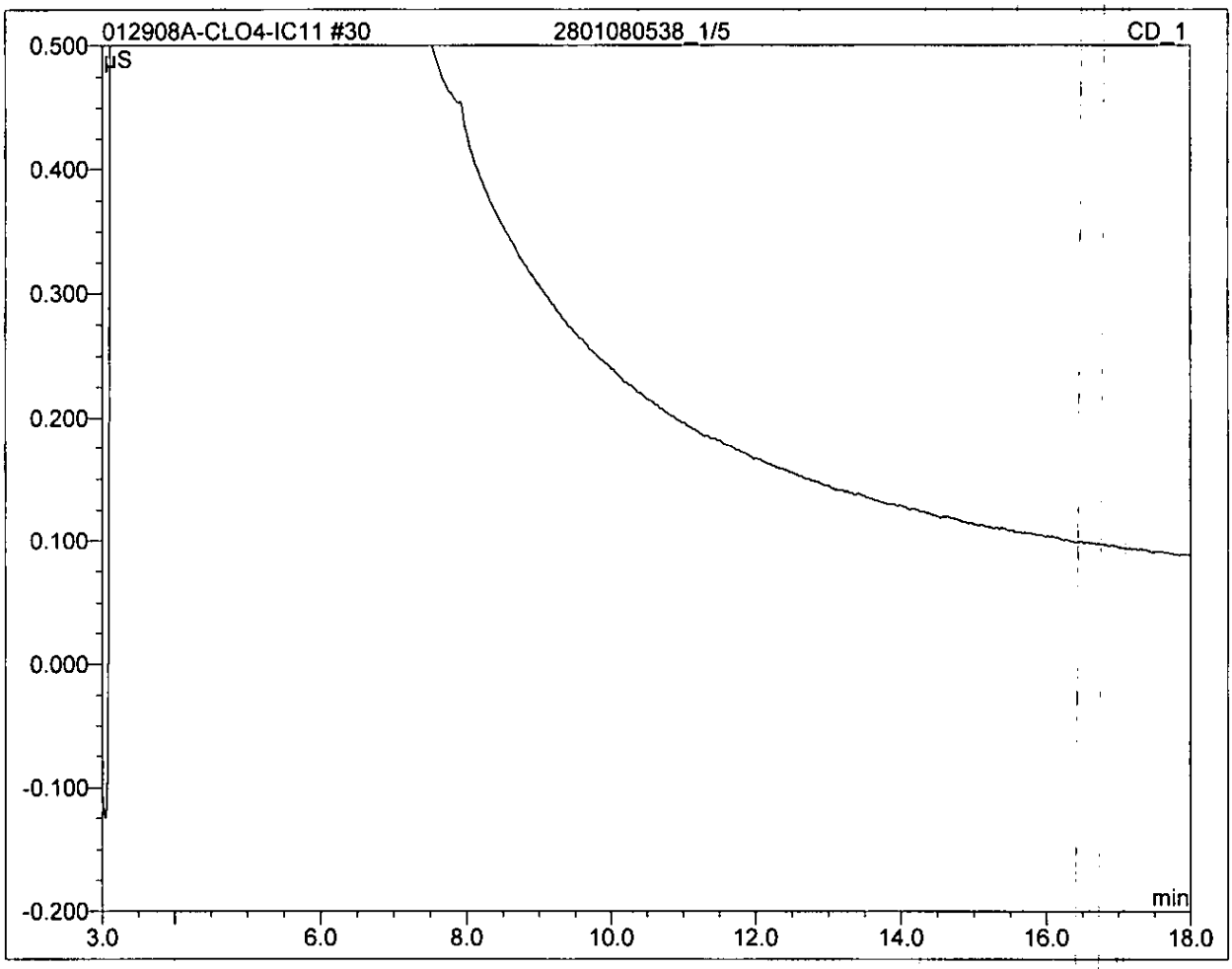
Sample Name:	**-LCS2**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 15:52**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	12.72	CLO4	0.052	0.019	100.00	24.819	BMB*
Total:			0.052	0.019	100.00	24.819	

30 2801080538_1/5

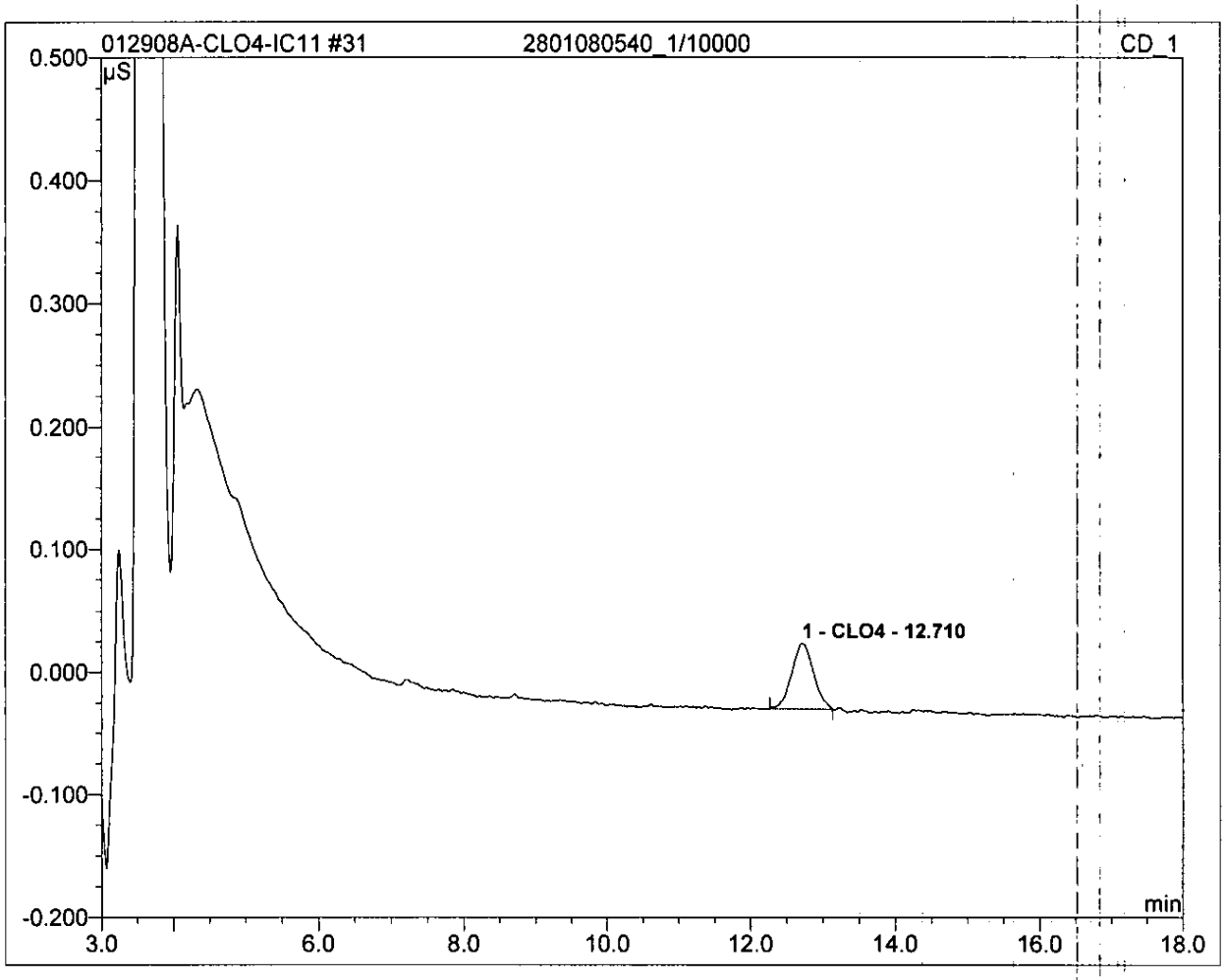
Sample Name:	**2801080538_1/5**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 17:44**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**5.0000**



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

31 2801080540_1/10000

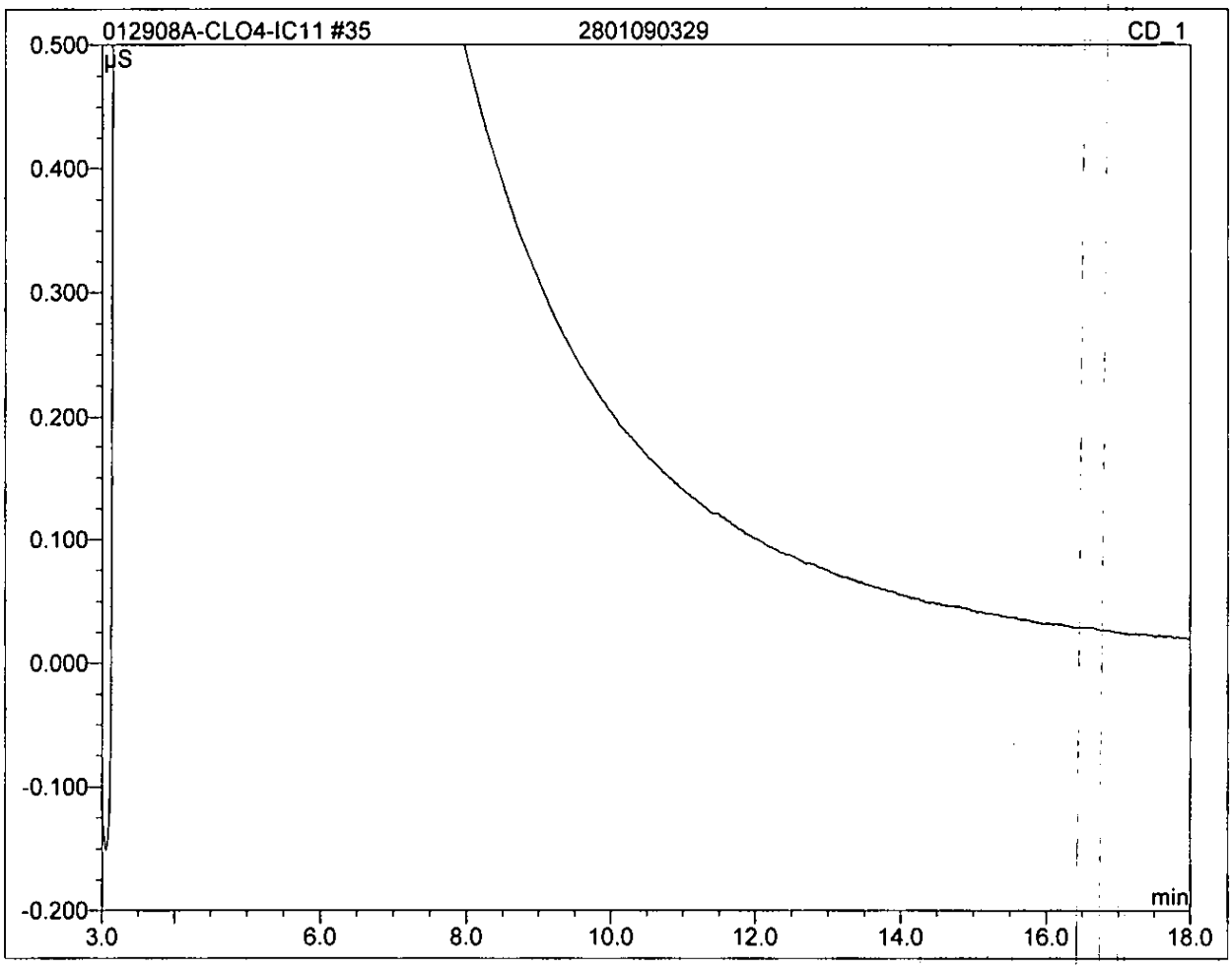
Sample Name:	**2801080540_1/10000**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 18:06**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**10000.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	12.71	CLO4	0.054	0.019	100.00	244165.889	BMB
Total:			0.054	0.019	100.00	244165.889	

35 2801090329

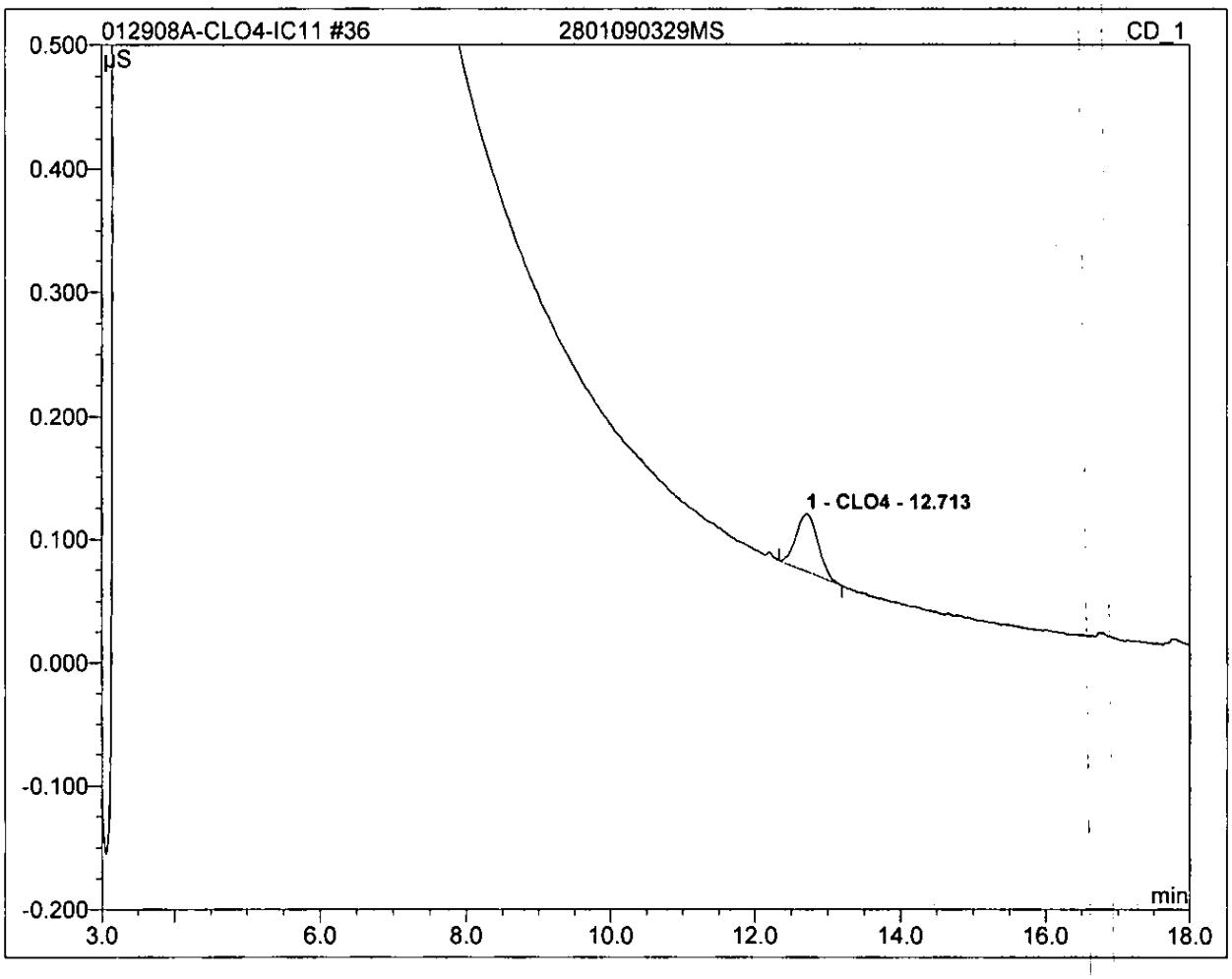
Sample Name:	**2801090329**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 19:36**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**



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

36 2801090329MS

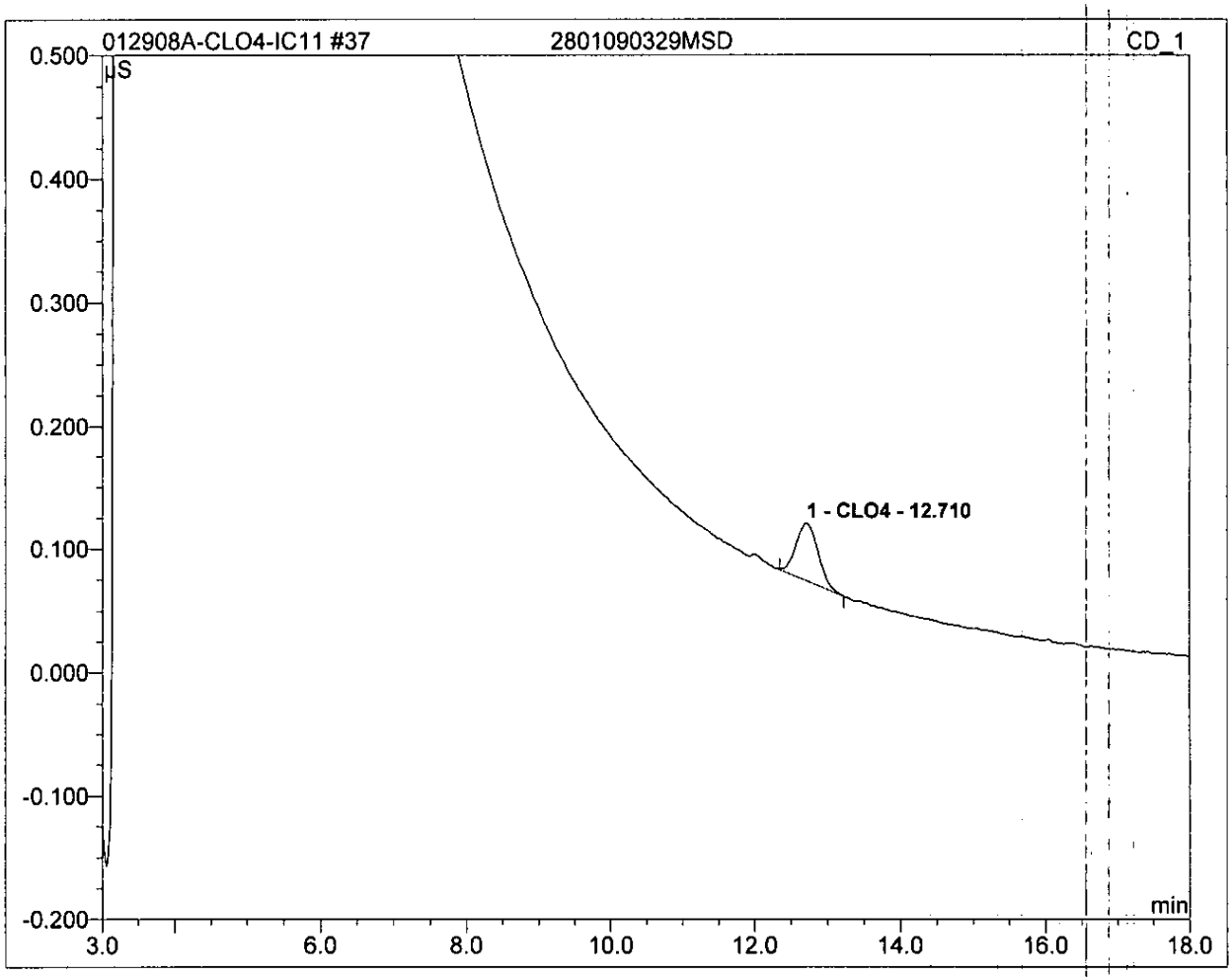
Sample Name:	**2801090329MS**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 19:58**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	12.71	CLO4	0.047	0.016	100.00	21.555	BMB
Total:			0.047	0.016	100.00	21.555	

37 2801090329MSD

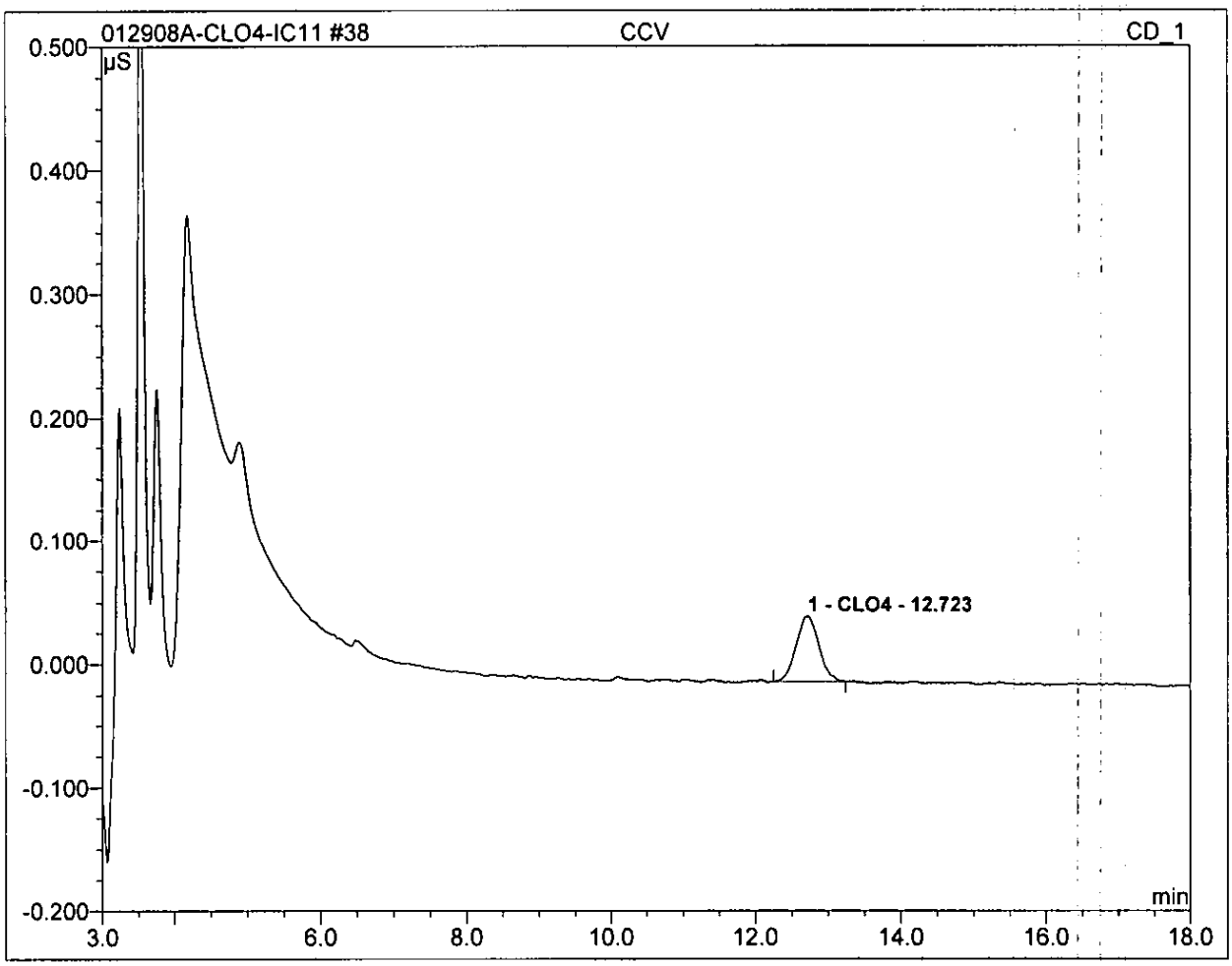
Sample Name:	**2801090329MSD**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 20:20**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	12.71	CLO4	0.047	0.016	100.00	21.651	BMB
Total:			0.047	0.016	100.00	21.651	

38 CCV

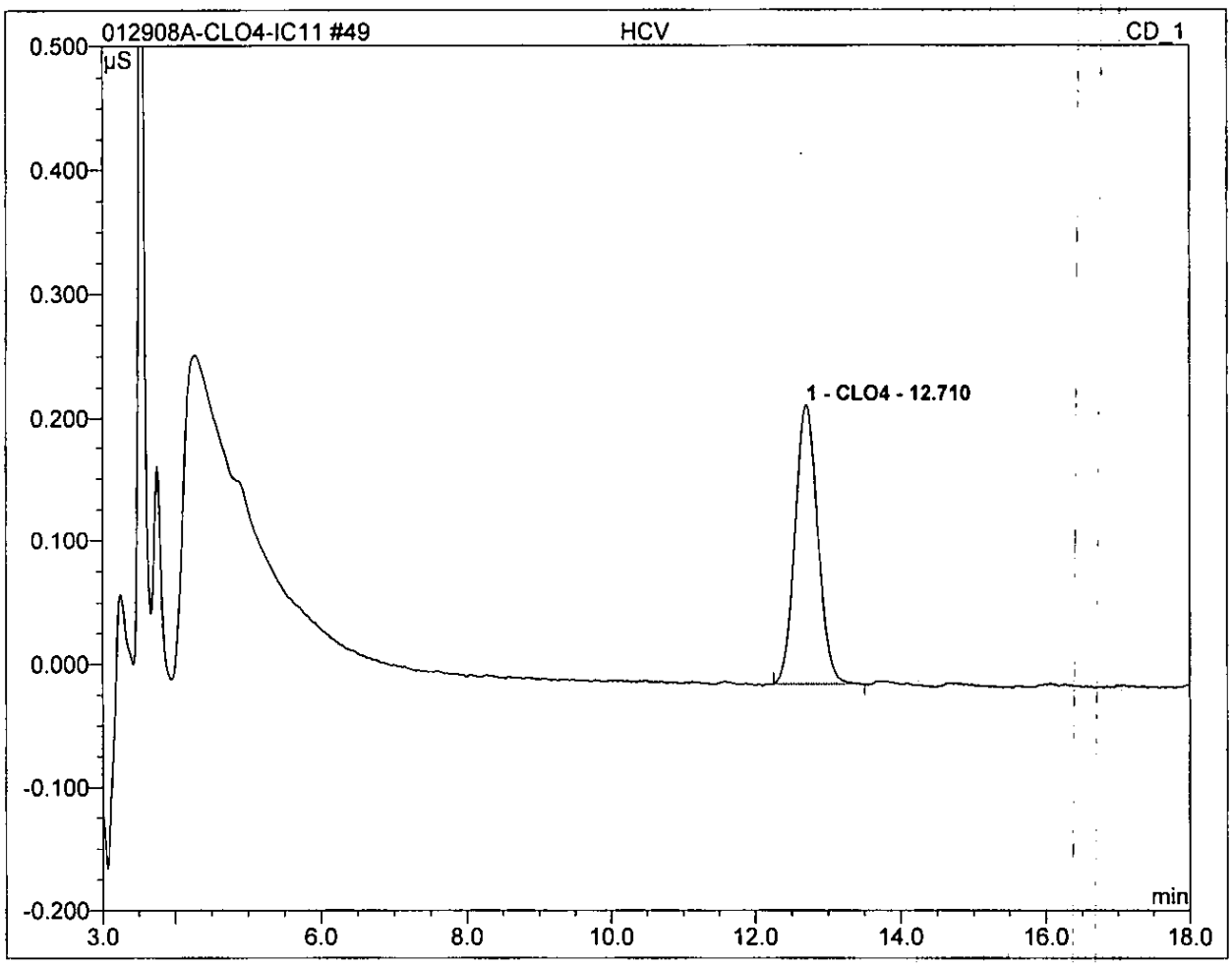
Sample Name:	**CCV**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/29/2008 20:43**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	12.72	CLO4	0.053	0.019	100.00	24.984	BMB
Total:			0.053	0.019	100.00	24.984	

49 HCV

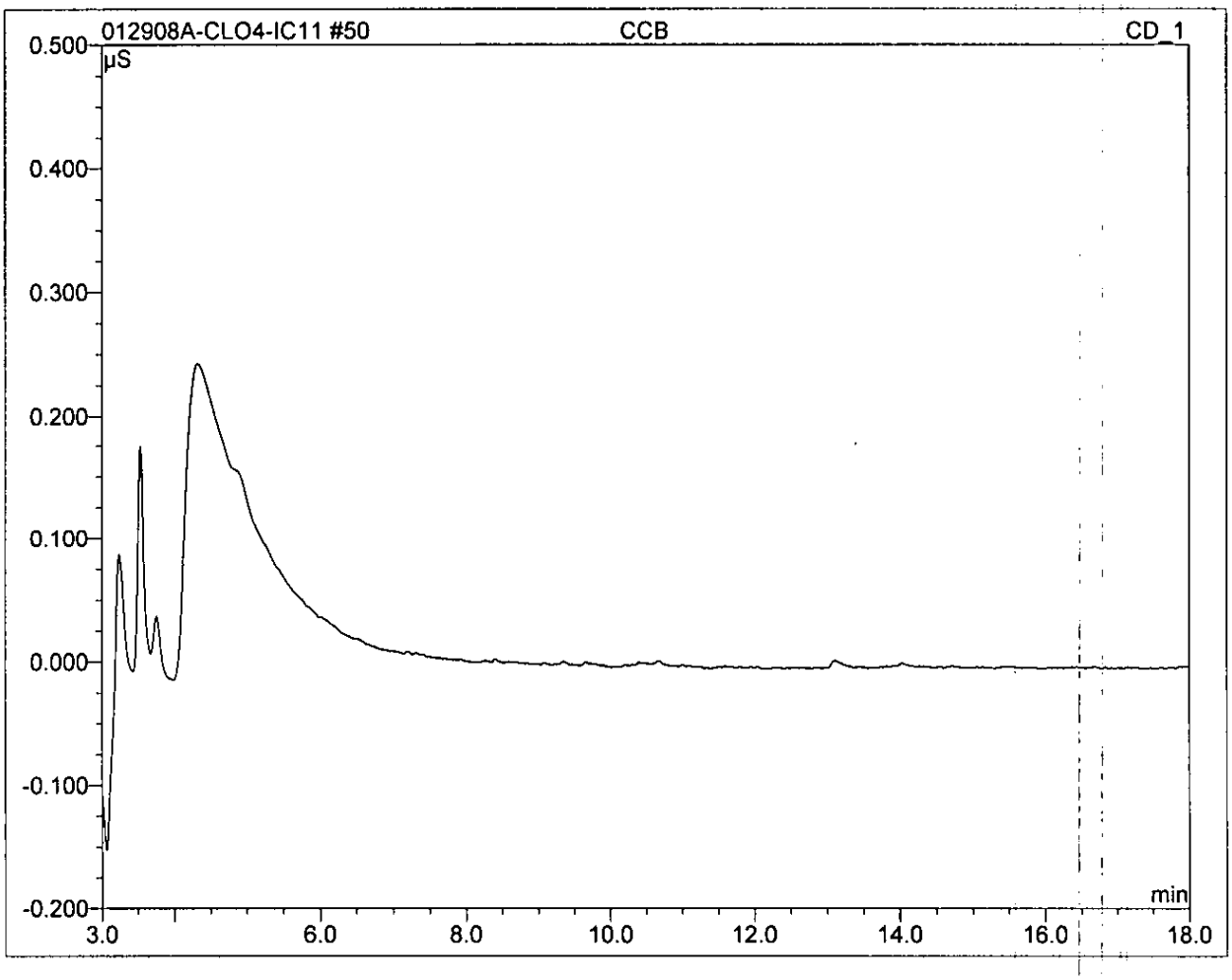
Sample Name:	**HCV**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/30/2008 00:49**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*Dilution Factor:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Type
1	12.71	CLO4	0.227	0.082	100.00	105.543	BMB
Total:			0.227	0.082	100.00	105.543	

50 CCB

Sample Name:	**CCB**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Control Program:*	**Perchlorate-IC11**
Recording Time:	**01/30/2008 01:12**	*Quantif. Method:*	**IC#4-CLO4-LOW**
Analyst:	**jkz**	*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

Reagent Preparation Documentation

35

Page: 24

Reagent: Aniline LCS/LCSd Stds.
Date Received/Prepped: / / / / /
Date Expired: / / / / /
Manufacturer:
Storage Condition: fresh daily

MW #:
By: JKZ
Matrix: Aq
Amount: 100 ml
Lot #: NA

Component	Comment	Standard	Concentration
Soln A	1 ml	R201752A	
Cl = 2500 ppm			Cl = 25 ppm
NO3 = 250	dilute to 1 ml w/ DI H2O		NO3 = 1
SO4 = 500			NO2 = 2.5
Soln B	1 ml	R 201752 B	SO4 = 50
NO2 100 ppm			

Comment: Stds expire: 12/01/08

Reagent: ClO4 Dirt. Cal. Std. 1000 ppb MRL Check 20 ppb JS
Date Received/Prepped: 01/15/08 / / / /
Date Expired: / / / / /
Manufacturer: Absolute Grade
Storage Condition: Room Temp

MW #: JK2080115-1
By: JKZ
Matrix: Aq
Amount: 100 ml
Lot #: NA

Component	Comment	Standard	Concentration
0.10 ml R201499	→ 100 ml soln Exp. 072809	ClO4	1000 ppb
@ 10000 ppm			

Comment:

Reagent: ClO4 2nd Source 1000 ppb
Date Received/Prepped: 01/15/08 / / / /
Date Expired: / / / / /
Manufacturer:
Storage Condition: Room Temp

MW #: JK2080115-2
By: JKZ
Matrix: Aq
Amount: 100 ml
Lot #: NA

Component	Comment	Standard	Concentration
0.10 ml	0.10 ml → 100 ml Soln	R201789	1000 ppb
1000 ppm ClO4		Exp. 07/10/09	

Comment:

Reagent Preparation Documentation

Page: - -

Reagent: ClO4 LCS/&LCSD 25 ppb
Date Received/Prepped: 01/15/08 / 02/06/08 02/18/08 / 02/21/08 / 03/03/08
Date Expired: / / / / /
Manufacturer:
Storage Condition:

MW #: 080115-3
By: JKZ
Matrix: Aq
Amount: 100 ml
Lot #:

Component	Comment	Standard	Concentration
1000 ppb ClO4 2nd source	2.5 ml → 100 ml soln	R201789 Exp: 07/10/09	

Comment:

Reagent: ClO4 IPC E.C. = 3155 25 ppb
Date Received/Prepped: 01/15/08 / 02/06/08 02/25/08 / /
Date Expired: / / / / /
Manufacturer:
Storage Condition:

MW #: 080115-4
By: JKZ
Matrix: Aq
Amount: 100 ml
Lot #:

Component	Comment	Standard	Concentration
~~2.5 ml~~ 10000 ppm ClO_3	3.5 ml } dilute to 100 ml w/ DI H_2O	CLV070205-4	
~~2.5~~ 10,000 ppm SO_4	3.5 ml	CLV070205-3	
10,000 ppm Cl	3.5 ml	CLV070205-2	
1000 ppb ClO4 Dnd Cal	2.5 ml		
R201449 Exp. 07 2809			

Comment:

Reagent: & ClO4 QCSV 20 ppb
Date Received/Prepped: 01/15/08 / 02/12/08 / 02/25/08 / / /
Date Expired: / / / / /
Manufacturer:
Storage Condition:

MW #: 080115-5
By: JKZ
Matrix: Aq
Amount: 100 ml
Lot #:

Component	Comment	Standard	Concentration
1000 ppb ClO4 2nd source	2.0 ml → 100 ml soln	R201789 Exp: 07/10/09	

Comment:

Reagent Preparation Documentation

ClO4

Reagent: CCSV 25 ppb
Date Received/Prepped: 01/15/08 / 02/06/08 / 02/20/08 / 03/03/08 /
Date Expired: / / / / /
Manufacturer:
Storage Condition: Room Temp

JKZ -
MW #: 080115-6
By: JKZ
Matrix: Aq
Amount: 100 ml
Lot #:

Component	Comment	Standard	Concentration
1000 ppb ClO4	2.5 ml → 100 ml soln		25 ppb
Drnk. Cal Std	R 201479 Exp. 07/28/09		
R201479			
exp. 072809			

Comment:

Reagent: ClO4 MRICHR 2 ppb
Date Received/Prepped: 01/15/08 / 02/13/08 / 03/03/08 / /
Date Expired: / / / / /
Manufacturer:
Storage Condition: Room Temp

MW #: JKZ 080115-7
By: JKZ
Matrix: Aq 100 ml
Amount: 100 ml
Lot #:

Component	Comment	Standard	Concentration
1000 ppb ClO4	0.20 ml → 100 ml soln		2 ppb
Drnk Cal Solt			
R201479 exp: 072809			
(5 May 08)			

Comment:

Reagent: ClO4 ECSV 4 ppb
Date Received/Prepped: 01/15/08 / 02/13/08 / 02/28/08 / /
Date Expired: / / / / /
Manufacturer:
Storage Condition:

MW #: JKZ 080115-8
By: JKZ
Matrix: Aq
Amount: 100 ml
Lot #:

Component	Comment	Standard	Concentration
1000 ppb ClO4	0.40 ml → 100 ml soln		4 ppb
Drnk cal. Std2			
R201479 exp 072809			
(5 May 08)			

Comment:

Reagent Preparation Documentation

Reagent: ClO4 10 ppb Cal Std.
Date Received/Prepped: 01/15/08 / / / /
Date Expired: / / / / /
Manufacturer:
Storage Condition: Room Temp

MW #: JKZ080115-9
By: JKZ
Matrix: Aq
Amount: 100 ml
Lot #:

Component	Comment	Standard	Concentration
1000 ppb Dil. Cal Std	1.0 ml → 100 ml soln	R2014149 Exp 077809	10 ppb

Comment:

Reagent: ClO4 50 ppb Cal Std
Date Received/Prepped: 01/15/08 / 02/21/08 / / /
Date Expired: / / / / /
Manufacturer:
Storage Condition: Room Temp

MW #: JKZ080115-10
By: JKZ
Matrix: Aq
Amount: 100 ml
Lot #:

Component	Comment	Standard	Concentration
1000 ppb Dil. Calib. Std	5.0 ml → 100 ml soln	R2014149 Exp 072809	50 ppb

Comment:

Reagent: ClO4 HCV 100 ppb
Date Received/Prepped: 01/15/08 / 02/13/08 / 02/25/08 / / /
Date Expired: / / / / /
Manufacturer:
Storage Condition: Room Temp

MW #: JKZ080115-11
By: JKZ
Matrix: Aq
Amount: 100 ml
Lot #:

Component	Comment	Standard	Concentration
1000 ppb Dil Cal. Std.	10 ml → 100 ml soln	R2014149 Exp. 072809	100 ppb

Comment:

Reagent Documentation

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
	IV# 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 1000 ppm 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:

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DLS ANSI/RAB Accredited

CERTIFIED WEIGHT REPORT:

Part Number: 57001
Lot Number: 072806
Description: Perchlorate
Expiration Date: 072809
Nominal Concentration (µg/mL): 1000

R201449

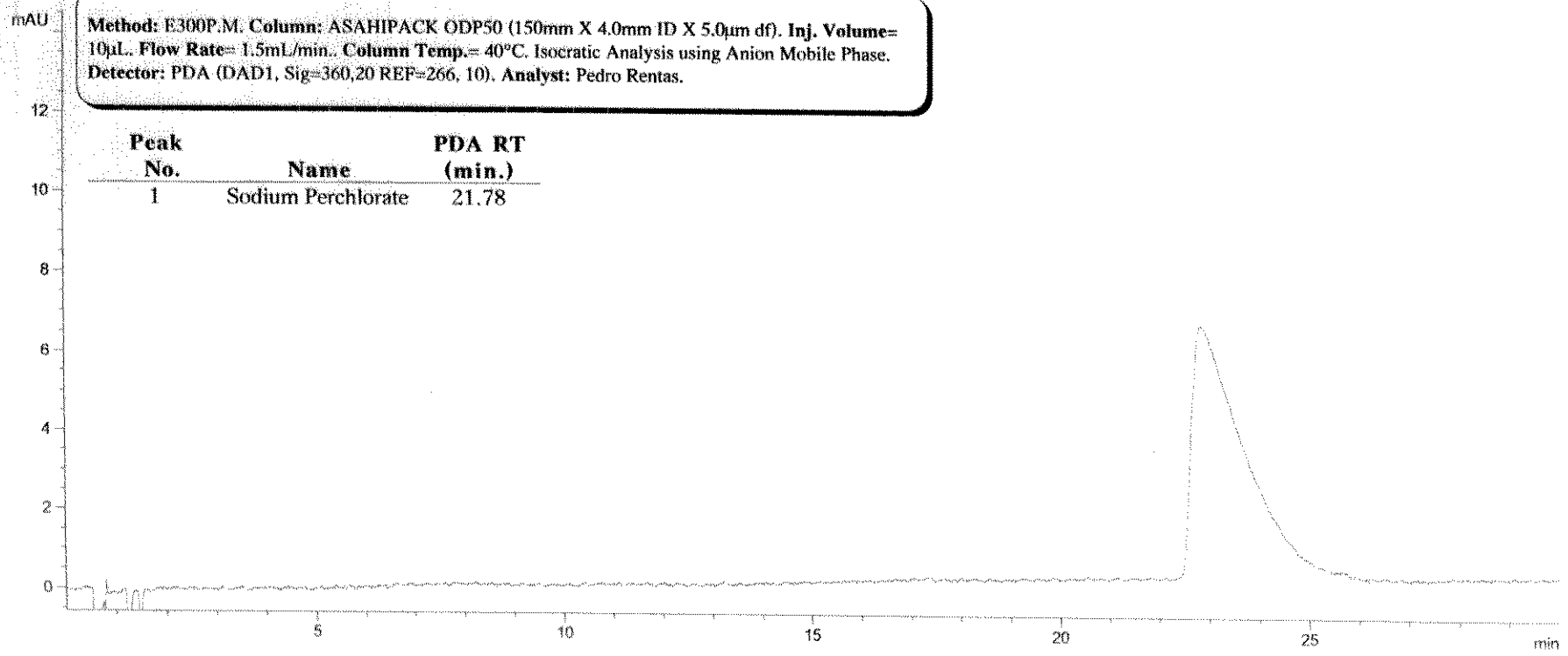
Lot #
Solvent(s): 072806 ASTM Type 1 Water

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 Documentation

Reagent: Perchlorate Standard (IC) **Reagent #:** 201789
Date Received: 11-Jan 08 **By:** RLH
Date Expired: July 10, 2009 **Matrix:** aq
Manufacturer: CPI **Amount:** 2 x 100mL
Storage Condition: room temperature **Lot #:** 06L058

Component	Comment	Standard	Concentration
	CPI# 4400-010177		

Comment:

Reagent: Magnesium Chloride Reagent 51% w/v **Reagent #:** 201790
Date Received: 11-Jan 08 **By:** RLH
Date Expired: 31 May 09 **Matrix:** aq
Manufacturer: VWR **Amount:** 6 x 1L
Storage Condition: room temp **Lot #:** 7143

Component	Comment	Standard	Concentration
	VWR# VW3899-1		

Comment:

Reagent: Conductivity Standard 2 µmoskm **Reagent #:** 201791
Date Received: 14-Jan 08 / 11 Apr 08 / 06 1608 **By:** RLH
Date Expired: Jan 2011 / 06 1613 **Matrix:** aq
Manufacturer: Inorganic Ventures **Amount:** 8 x 500mL (6 x 500 ml)
Storage Condition: room temp **Lot #:** A2-CQCP03072

Component	Comment	Standard	Concentration
	IV# CON-KCL-2		

Comment:

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CERTIFICATE OF ANALYSIS

P/N 4400-010177

Ion Chromatography Perchlorate Standard
ClO_4 in H_2O
1000 µg/mL ± 0.5%

Lot # 06L058

Material Source: Sodium Perchlorate ($NaClO_4$)
Source Purity: 98.6%

This standard solution was prepared using a high-purity starting material and 18-megaohm deionized water. The starting material was weighed to five significant figures and diluted in a Class A volumetric glassware calibrated in accordance with National Bureau of Standards Circular 602. All balances are routinely calibrated using Class F NIST traceable weights.

This solution was certified instrumentally against the National Institute of Standards and Technology's SRM 3100 series.

Accuracy and stability are guaranteed to within plus or minus 0.5% of the certified value for 18 months after the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

For questions or comments please call 1-800-878-7654 in the USA or +31 20 638 05 97 in Europe.