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Level IV Data Package

MWH Group 226843

Method: EPA 300.1 CLO3

2801080538
2801080540

DBP QC Checklist

Analysis Date: 01/09/08 **Analyst:** [initials] **QC'd by** [initials] **Date** 22 Jan 08

Instrument: IC12

Calibration including QCS(Secondary Source)

✓ Correlation Coefficient of calibration curve for linear curve is 0.995 or better. (0.99 for quadratic)

✓ CLO2 ✓ CLO3 ✓ BR

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

✓ MCV is analyzed before samples:

___ CLO2/CLO3: 90-110% (180-220ppb) ___BR: 90-110% (90-110ppb)

✓ CCB is analyzed before samples and after MCV and HCV

✓ MLBANK is analyzed before samples.____CLO2/CLO3 _____BR , if present, is < or = half of the MRL.

✓ *CLO2:* MRL at 10ppb is within 75%-125% (7.5-12.5ppb)

✓ *CLO3:* MRL at 10ppb is within 75%-125% (7.5-12.5ppb)

✓ *BR:* MRL at 5.0ppb is within 75%-125% (3.75-6.25ppb)

Analyte retention times have shifted nearly one minute when compared to original calibration. QC checks and spikes verify shift. System should be recalibrated. [initials] 22 Jan 08

LCS/LCSD: Accepted criteria are between 90-110% recovery

✓ CLO2: 180-220ppb for 200ppb

✓ CLO3: 180-220ppb for 200ppb

✓ BR: 90-110ppb for 100ppb

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

MS/MSD: Acceptance criteria are between 80%-120% recovery.

✓ CLO2: 80-120ppb for 100ppb spike

✓ CLO3: 80-120ppb for 100ppb spike

✓ BR: 40.0-60.0ppb for 50ppb spike

✓ RPD between MS/MSD is within 15%

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

Continuing Calibration Verification (MCV and HCV) are required

✓ MCV recovery is between 90-110%

✓ CLO2 (180-220ppb) ✓ CLO3 (180-220ppb) ✓ BR (90-110ppb)

✓ HCV recovery is between 90-110%

✓ CLO2 (720-880ppb) ✓ CLO3 (720-880ppb) ✓ BR (360-440ppb)

Samples

✓ All samples for CLO3 and BR are analyzed within 28 days of collection.

✓ All samples for CLO2are analyzed within 14 days of collection.

QIR

None QIR needed for failed QC

✓ QIR needed for samples analyzed outside of hold time

No. ,	Sample Name ,	Comment	Time	Dil.Fac.	Amount ppb ClO3 CD_1	
1,	autocal1,		12/19/07 13:45,	1.0,	n.a.	
2,	autocal2,	S1-10/5/10	12/19/07 14:11,	1.0,	8.275	
3,	autocal3,	S2-20/10/20	12/19/07 14:36,	1.0,	19.6626	
4,	autocal4,	S3-100/50/100	12/19/07 15:02,	1.0,	95.7739	
5,	autocal5,	S4-200/100/200	12/19/07 15:27,	1.0,	193.9341	
6,	autocal6,	S5-400/200/400	12/19/07 15:52,	1.0,	395.2457	
7,	autocal7,	S6-800/400/800	12/19/07 16:18,	1.0,	804.4519	
8,	MCV,	200/100/200	01/09/08 14:40,	1.0,	210.5613	105%
9,	CCB,		01/09/08 15:05,	1.0,	n.a.	
10,	MRLCHK,	S1-10/5/10	01/09/08 15:31,	1.0,	11.4359	114%
11,	MBLK,		01/09/08 15:56,	1.0,	n.a.	
12,	LCS1,	200/100/200	01/09/08 16:21,	1.0,	201.1393	101%
13,	LCS2,	200/100/200	01/09/08 16:47,	1.0,	197.1477	98.6%
14,	2801080350,	CLO2/CLO3	01/09/08 17:12,	1.0,	n.a.	
15,	2801080365,	CLO2/CLO3	01/09/08 17:37,	1.0,	n.a.	
16,	2801080382,	CLO2/CLO3/BR3(	01/09/08 18:03,	1.0,	n.a.	
17,	2801080659,	CLO2/CLO3/BR3(	01/09/08 18:28,	1.0,	n.a.	
18,	2801080663,	CLO2/CLO3/BR3(	01/09/08 18:54,	1.0,	n.a.	
19,	2801080658,	CLO2/CLO3	01/09/08 19:19,	1.0,	n.a.	
20,	2801080661,	CLO2/CLO3	01/09/08 19:44,	1.0,	n.a.	
21,	2801090815,	BR3001	01/09/08 20:10,	1.0,	n.a.	
22,	2801080494,	BR	01/09/08 20:35,	1.0,	n.a.	
23,	2801080226,	CLO2/CLO3	01/09/08 21:01,	1.0,	n.a.	
24,	2801080226-MS,	100/50/100	01/09/08 21:26,	1.0,	98.0898	98.1%
25,	2801080226-MSD,	100/50/100	01/09/08 21:51,	1.0,	95.8533	95.8%
26,	MCV,	200/100/200	01/09/08 22:17,	1.0,	206.5485	103%
27,	CCB,		01/09/08 22:42,	1.0,	n.a.	
28,	2801080327,	BR	01/09/08 23:07,	1.0,	n.a.	
29,	2801080327-MS,	100/50/100	01/09/08 23:33,	1.0,	99.1355	99.1%
30,	2801080327-MSD	100/50/100	01/09/08 23:58,	1.0,	103.8137	104%
31,	2801080328,	BR	01/10/08 00:24,	1.0,	n.a.	
32,	2801080386,	BR	01/10/08 00:49,	1.0,	n.a.	
33,	2801080387,	BR	01/10/08 01:14,	1.0,	n.a.	
34,	2801080343,	CLO2/CLO3	01/10/08 01:40,	1.0,	n.a.	
35,	2801080367,	CLO2/CLO3	01/10/08 02:05,	1.0,	n.a.	
36,	2801080538_1/5,	CLO3	01/10/08 02:31,	5.0,	n.a.	
37,	2801080540_1/~~5000~~ 1000	CLO3	01/10/08 02:56,	1000.0,	381532.2	*
38,	2801090801,	CLO2/CLO3	01/10/08 03:22,	1.0,	243.172	— DNR [illegible]
39,	2801090828DNR,	CLO2/CLO3	01/10/08 03:47,	1.0,	19.0686	
40,	HCV,	800/400/800	01/10/08 04:12,	1.0,	826.5263	103%
41,	CCB,		01/10/08 04:38,	1.0,	n.a.	
42,	STOP,		01/10/08 05:03,	1.0,	n.a.	

381,[illegible] 01/23/08
repeat 01/17/08

* 1000x diln
re ran on 01/22/08
result at 5000x
= 376000

Title:
Datasource: Dionex_USPAS2SDIO2
Location: IC\IC12_DBP\2008
Timebase: IC12 Created: 1/9/2008 2:28:12 PM by jkz
#Samples: 42 Last Update: 1/16/2008 6:18:26 PM by jkz

No.	Name	Sample ID	Dil. Factor	Type	Comment	Program
1	autocal1		1.0000	Standard		IC12 test Program
2	autocal2	CLV070717-5	1.0000	Standard	S1-10/5/10	IC12 test Program
3	autocal3	CLV070717-6	1.0000	Standard	S2-20/10/20	IC12 test Program
4	autocal4	CLV070717-7	1.0000	Standard	S3-100/50/100	IC12 test Program
5	autocal5	CLV070717-8	1.0000	Standard	S4-200/100/200	IC12 test Program
6	autocal6	CLV070717-9	1.0000	Standard	S5-400/200/400	IC12 test Program
7	autocal7	CLV070717-10	1.0000	Standard	S6-800/400/800	IC12 test Program
8	MCV	200/100/200	1.0000	Unknown	200/100/200	IC12 test Program
9	CCB		1.0000	Unknown		IC12 test Program
10	MRLCHK	S1-10/5/10	1.0000	Unknown	S1-10/5/10	IC12 test Program
11	MBLK		1.0000	Unknown		IC12 test Program
12	LCS1	CLV070717-11	1.0000	Unknown	200/100/200	IC12 test Program
13	LCS2	200/100/200	1.0000	Unknown	200/100/200	IC12 test Program
14	2801080350	COKE-BIG SPRINGS	1.0000	Unknown	CLO2/CLO3	IC12 test Program
15	2801080365	COKE-BO PROD	1.0000	Unknown	CLO2/CLO3	IC12 test Program
16	2801080382	COKE-TRUES WELL 1	1.0000	Unknown	CLO2/CLO3/BR3001	IC12 test Program
17	2801080659	COKE-TRUES WELL 2	1.0000	Unknown	CLO2/CLO3/BR3001	IC12 test Program
18	2801080663	COKE-TRUES WELL 3	1.0000	Unknown	CLO2/CLO3/BR3001	IC12 test Program
19	2801080658	COKE-GIRNE #1	1.0000	Unknown	CLO2/CLO3	IC12 test Program
20	2801080661	COKE-GIRNE #2	1.0000	Unknown	CLO2/CLO3	IC12 test Program
21	2801090815	MESA-W9R	1.0000	Unknown	BR3001	IC12 test Program
22	2801080494	COOK-MILES	1.0000	Unknown	BR	IC12 test Program
23	2801080226	COKE-HIGH SPRINGS	1.0000	Unknown	CLO2/CLO3	IC12 test Program
24	2801080226-MS	100/50/100	1.0000	Unknown	100/50/100	IC12 test Program
25	2801080226-MSD	100/50/100	1.0000	Unknown	100/50/100	IC12 test Program
26	MCV	200/100/200	1.0000	Unknown	200/100/200	IC12 test Program
27	CCB		1.0000	Unknown		IC12 test Program
28	2801080327	CENTZ-HAVASU	1.0000	Unknown	BR	IC12 test Program
29	2801080327-MS	100/50/100	1.0000	Unknown	100/50/100	IC12 test Program
30	2801080327-MSD	100/50/100	1.0000	Unknown	100/50/100	IC12 test Program
31	2801080328	CENTZ-LIE HARQ	1.0000	Unknown	BR	IC12 test Program
32	2801080386	CENTZ-99 AVE	1.0000	Unknown	BR	IC12 test Program
33	2801080387	CENTZ-MCKELLIPS	1.0000	Unknown	BR	IC12 test Program
34	2801080343	CCSD	1.0000	Unknown	CLO2/CLO3	IC12 test Program
35	2801080367	CCSP	1.0000	Unknown	CLO2/CLO3	IC12 test Program
36	2801080538_1/5	KERR-EFFLUENT	5.0000	Unknown	CLO3	IC12 test Program
37	2801080540_1/5000	KERR-INFLUENT	1000.0000	Unknown	CLO3	IC12 test Program
38	2801090801	CCS-ABI-BALANCED	1.0000	Unknown	CLO2/CLO3	IC12 test Program
39	2801090828DNR	CCS-ABI-RAW	1.0000	Unknown	CLO2/CLO3	IC12 test Program
40	HCV	800/400/800	1.0000	Unknown	800/400/800	IC12 test Program
41	CCB		1.0000	Unknown		IC12 test Program
42	STOP		1.0000	Unknown		DPB Stop Program

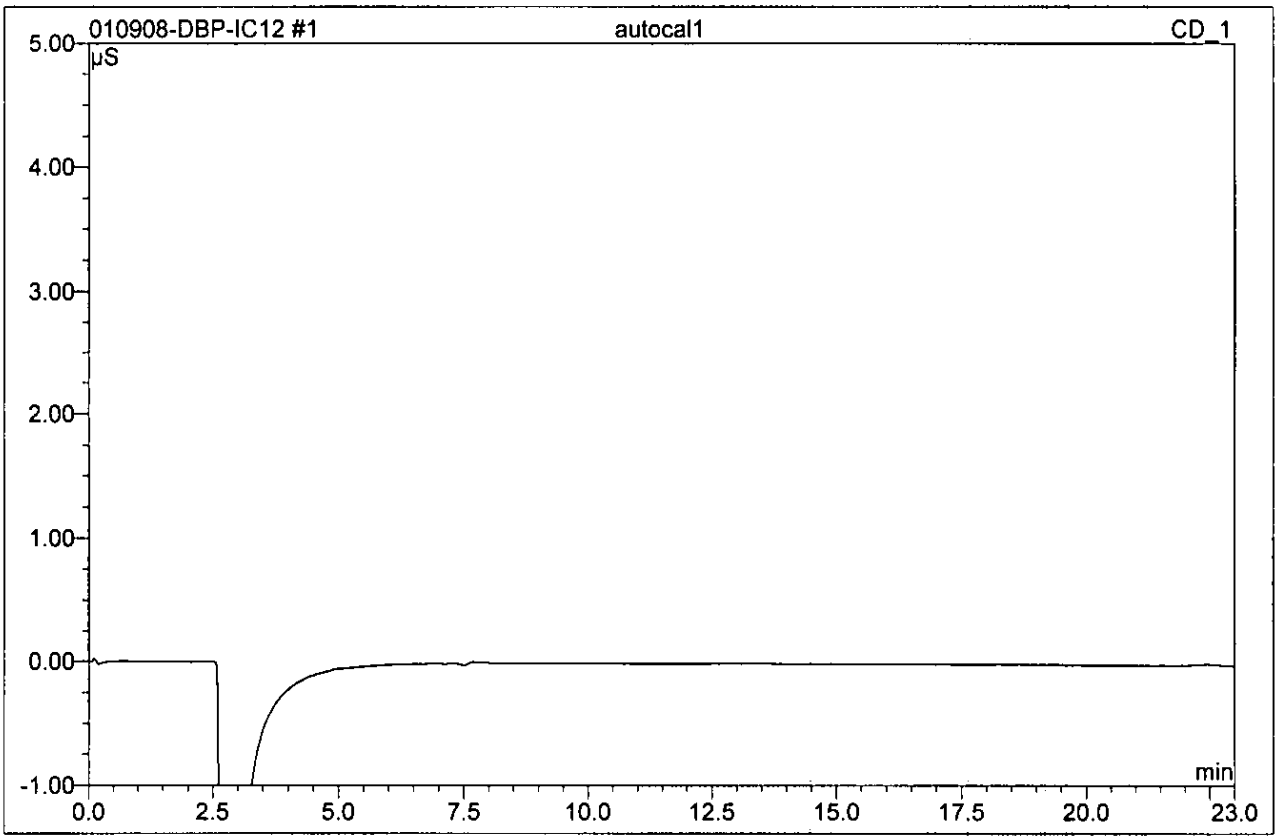
22Jan08

Title:
Datasource: Dionex_USPAS2SDIO2
Location: IC\IC12_DBP\2008
Timebase: IC12 Created: 1/9/2008 2:28:12 PM by jkz
#Samples: 42 Last Update: 1/16/2008 6:18:26 PM by jkz

No.	Name	Method	Status	Inj. Date/Time	*Analyst
1	autocal1	DBP-Method	Finished	12/19/2007 1:45:54 PM	clv
2	autocal2	DBP-Method	Finished	12/19/2007 2:11:18 PM	clv
3	autocal3	DBP-Method	Finished	12/19/2007 2:36:42 PM	clv
4	autocal4	DBP-Method	Finished	12/19/2007 3:02:06 PM	clv
5	autocal5	DBP-Method	Finished	12/19/2007 3:27:29 PM	clv
6	autocal6	DBP-Method	Finished	12/19/2007 3:52:53 PM	clv
7	autocal7	DBP-Method	Finished	12/19/2007 4:18:13 PM	clv
8	MCV	DBP-Method	Finished	1/9/2008 2:40:18 PM	jkz
9	CCB	DBP-Method	Finished	1/9/2008 3:05:43 PM	jkz
10	MRLCHK	DBP-Method	Finished	1/9/2008 3:31:07 PM	jkz
11	MBLK	DBP-Method	Finished	1/9/2008 3:56:32 PM	jkz
12	LCS1	DBP-Method	Finished	1/9/2008 4:21:56 PM	jkz
13	LCS2	DBP-Method	Finished	1/9/2008 4:47:21 PM	jkz
14	2801080350	DBP-Method	Finished	1/9/2008 5:12:30 PM	jkz
15	2801080365	DBP-Method	Finished	1/9/2008 5:37:52 PM	jkz
16	2801080382	DBP-Method	Finished	1/9/2008 6:03:16 PM	jkz
17	2801080659	DBP-Method	Finished	1/9/2008 6:28:39 PM	jkz
18	2801080663	DBP-Method	Finished	1/9/2008 6:54:03 PM	jkz
19	2801080658	DBP-Method	Finished	1/9/2008 7:19:26 PM	jkz
20	2801080661	DBP-Method	Finished	1/9/2008 7:44:50 PM	jkz
21	2801090815	DBP-Method	Finished	1/9/2008 8:10:13 PM	jkz
22	2801080494	DBP-Method	Finished	1/9/2008 8:35:37 PM	jkz
23	2801080226	DBP-Method	Finished	1/9/2008 9:01:01 PM	jkz
24	2801080226-MS	DBP-Method	Finished	1/9/2008 9:26:24 PM	jkz
25	2801080226-MSD	DBP-Method	Finished	1/9/2008 9:51:48 PM	jkz
26	MCV	DBP-Method	Finished	1/9/2008 10:17:11 PM	clv
27	CCB	DBP-Method	Finished	1/9/2008 10:42:35 PM	clv
28	2801080327	DBP-Method	Finished	1/9/2008 11:07:58 PM	jkz
29	2801080327-MS	DBP-Method	Finished	1/9/2008 11:33:22 PM	jkz
30	2801080327-MSD	DBP-Method	Finished	1/9/2008 11:58:45 PM	jkz
31	2801080328	DBP-Method	Finished	1/10/2008 12:24:09 AM	jkz
32	2801080386	DBP-Method	Finished	1/10/2008 12:49:32 AM	jkz
33	2801080387	DBP-Method	Finished	1/10/2008 1:14:56 AM	jkz
34	2801080343	DBP-Method	Finished	1/10/2008 1:40:19 AM	jkz
35	2801080367	DBP-Method	Finished	1/10/2008 2:05:43 AM	jkz
36	2801080538_1/5 1000	DBP-Method	Finished	1/10/2008 2:31:13 AM	jkz
37	2801080540_1/5000	DBP-Method	Finished	1/10/2008 2:56:37 AM	jkz
38	2801090801	DBP-Method	Finished	1/10/2008 3:22:00 AM	jkz
39	2801090828DNR	DBP-Method	Finished	1/10/2008 3:47:24 AM	jkz
40	HCV	DBP-Method	Finished	1/10/2008 4:12:48 AM	clv
41	CCB	DBP-Method	Finished	1/10/2008 4:38:12 AM	clv
42	STOP	DBP-Method	Interrupted	1/10/2008 5:03:36 AM	clv

1 autocal1

Sample Name:	**autocal1**	*Injection Volume:*	**1000.0**
Vial Number:	**334**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**12/19/2007 13:45**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**

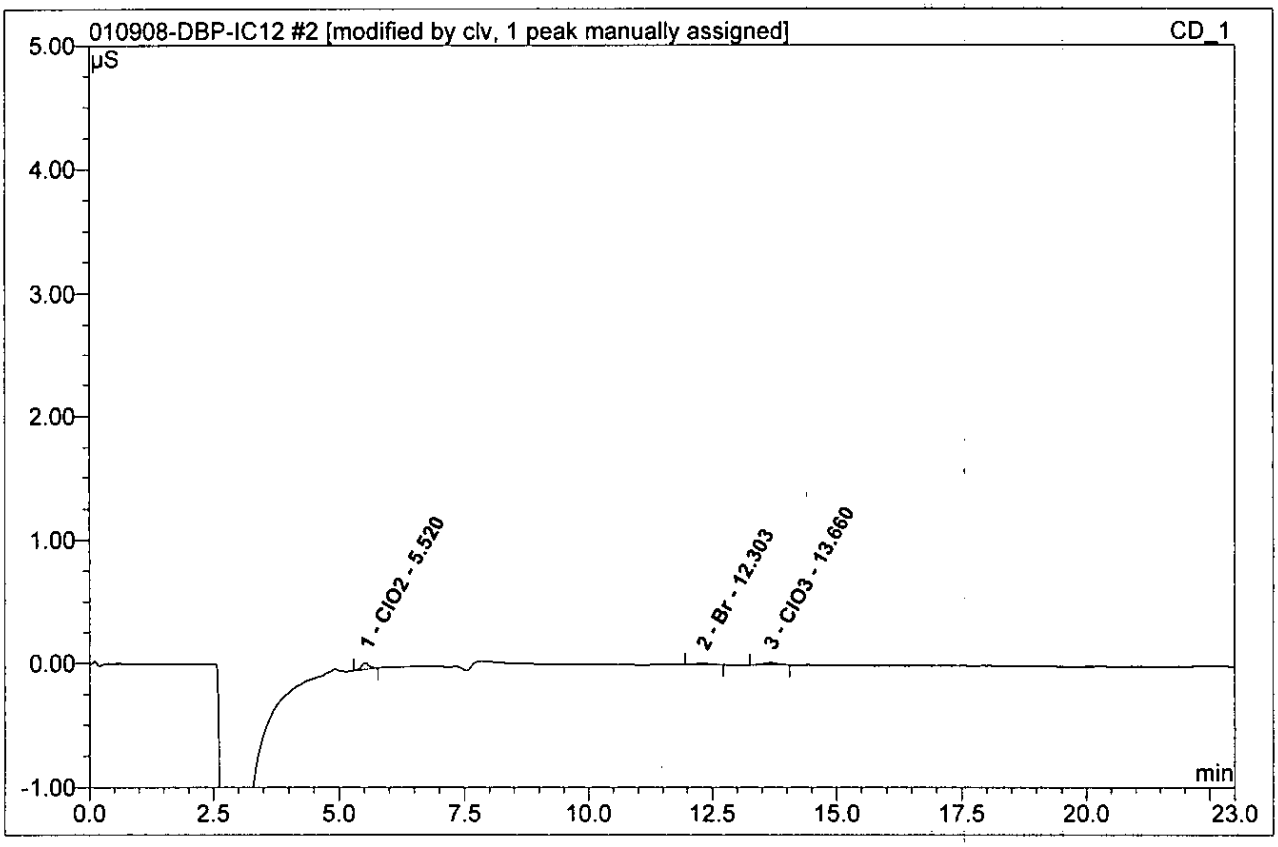


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
Total:			0.000	0.000	0.00	0.000	

2 autocal2

S1-10/5/10

Sample Name:	**autocal2**	*Injection Volume:*	**1000.0**
Vial Number:	**335**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**12/19/2007 14:11**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**

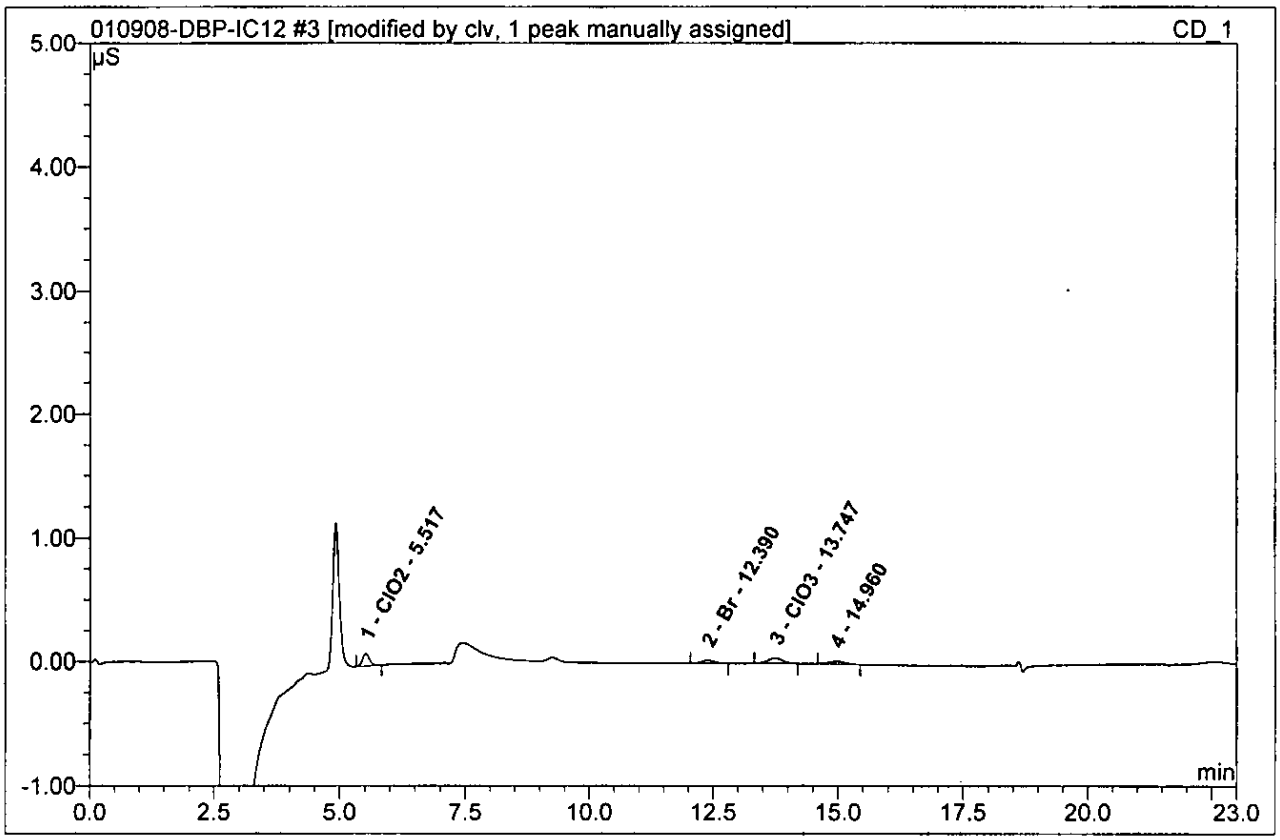


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
1	5.52	ClO2	0.052	0.009	45.62	10.361	BMB*
2	12.30	Br	0.013	0.004	21.76	5.108	BMB*^
3	13.66	ClO3	0.018	0.006	32.62	8.275	BMB*
Total:			0.083	0.019	100.00	23.743	

3 autocal3

S2-20/10/20

Sample Name:	**autocal3**	*Injection Volume:*	**1000.0**
Vial Number:	**336**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**12/19/2007 14:36**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**

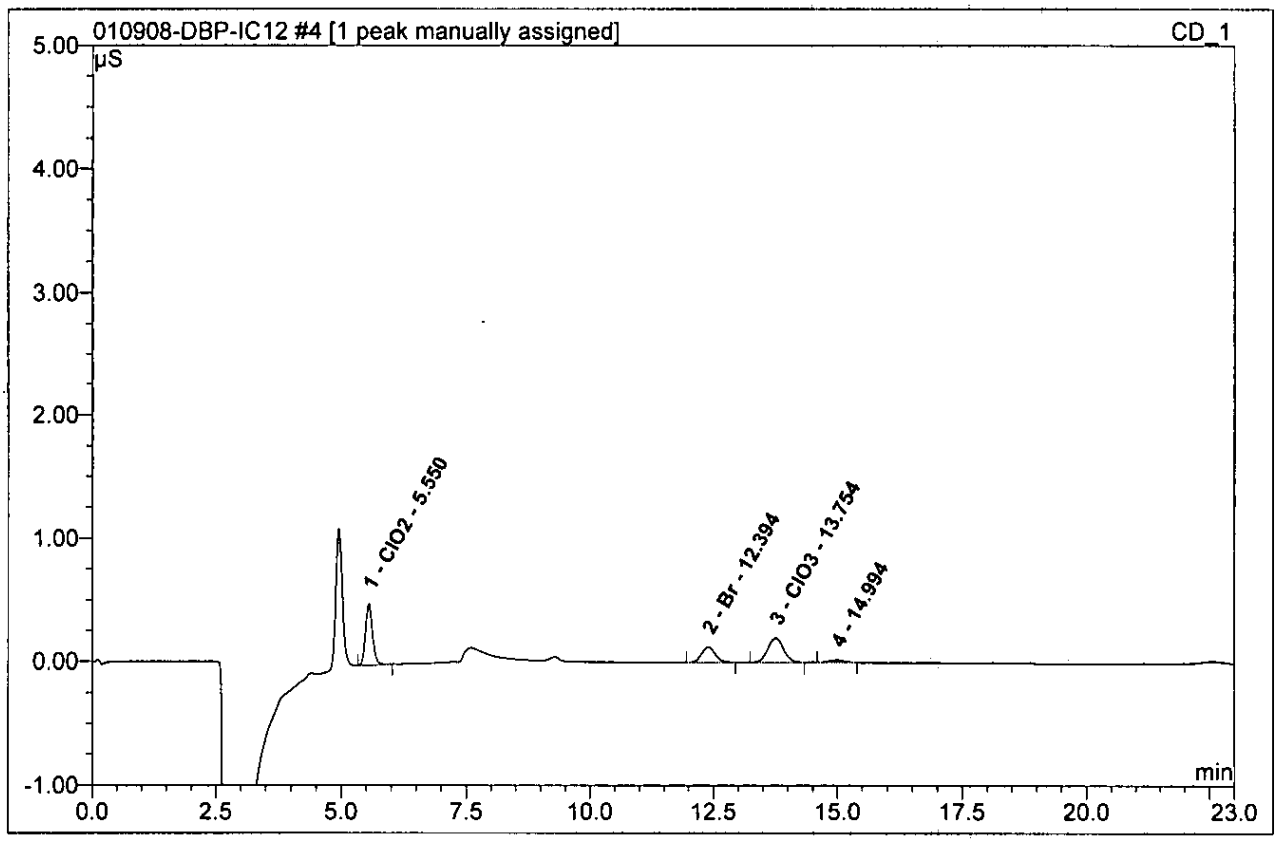


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
1	5.52	ClO2	0.100	0.016	34.20	19.054	BMB
2	12.39	Br	0.025	0.008	16.90	9.734	BMB*^
3	13.75	ClO3	0.042	0.015	31.59	19.663	BMB*
4	14.96	n.a.	0.021	0.008	17.30	n.a.	BMB
Total:			0.188	0.047	100.00	48.451	

4 autocal4

S3-100/50/100

Sample Name:	**autocal4**	*Injection Volume:*	**1000.0**
Vial Number:	**337**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**12/19/2007 15:02**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**

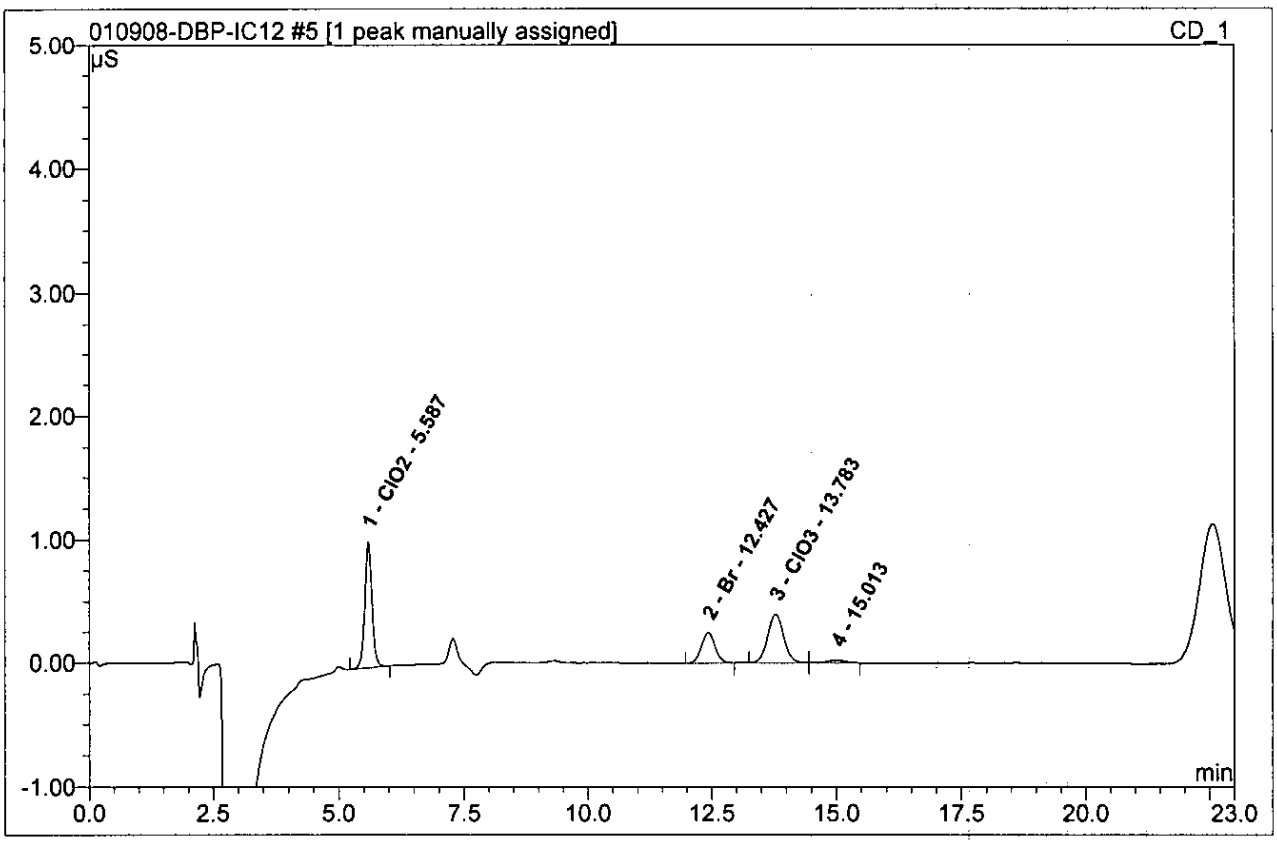


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
1	5.55	ClO2	0.504	0.082	40.50	96.474	BMB
2	12.39	Br	0.126	0.041	20.21	49.756	BMB^
3	13.75	ClO3	0.198	0.073	35.99	95.774	BMB
4	14.99	n.a.	0.018	0.007	3.30	n.a.	BMB
Total:			0.847	0.202	100.00	242.004	

5 autocal5

S4-200/100/200

Sample Name:	**autocal5**	*Injection Volume:*	**1000.0**
Vial Number:	**338**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**12/19/2007 15:27**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**

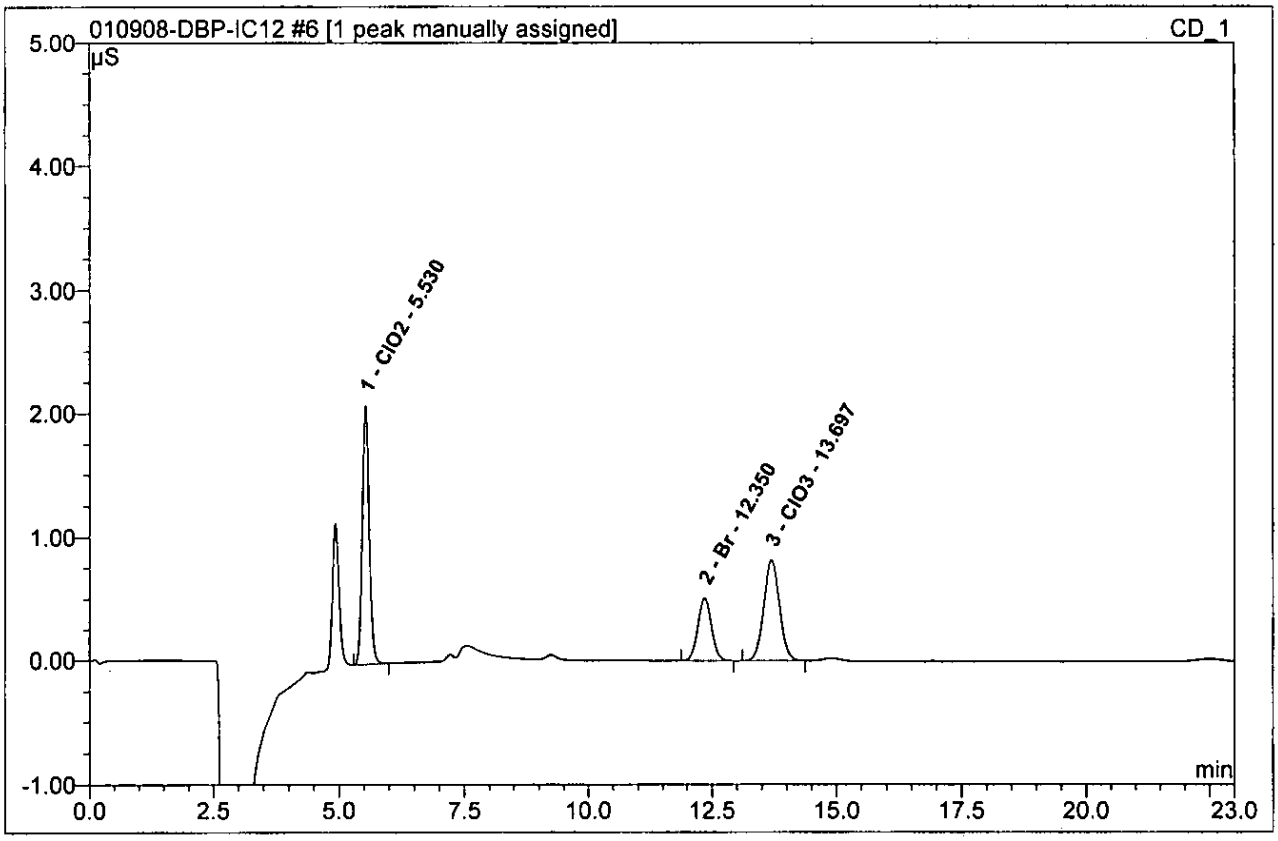


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
1	5.59	ClO2	1.024	0.170	41.91	200.724	BMB
2	12.43	Br	0.248	0.080	19.55	96.804	BMB^
3	13.78	ClO3	0.398	0.147	36.25	193.934	BM
4	15.01	n.a.	0.023	0.009	2.29	n.a.	MB
Total:			1.693	0.407	100.00	491.462	

6 autocal6

S5-400/200/400

Sample Name:	**autocal6**	*Injection Volume:*	**1000.0**
Vial Number:	**338**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**12/19/2007 15:52**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**

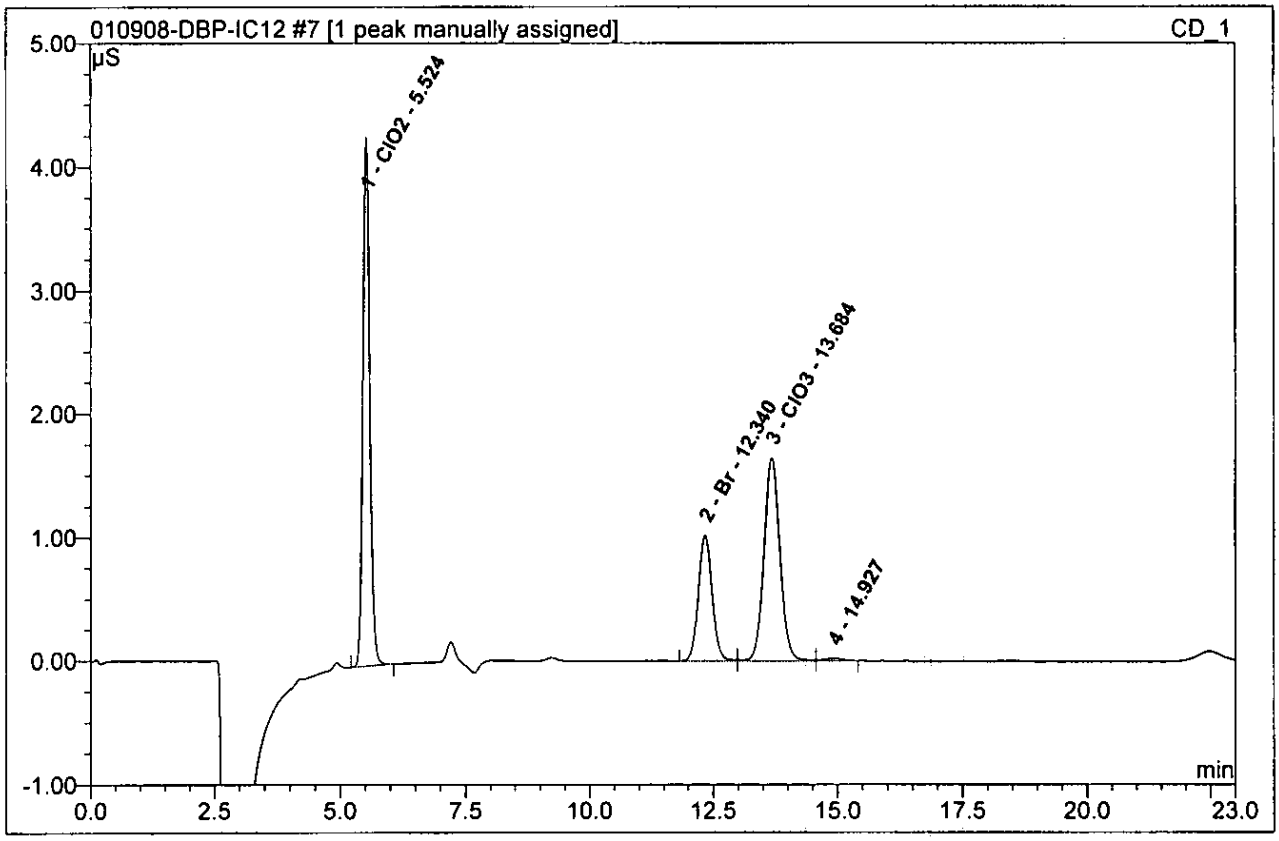


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
1	5.53	ClO2	2.094	0.337	42.05	396.811	BMB
2	12.35	Br	0.513	0.164	20.45	199.503	BMB^
3	13.70	ClO3	0.818	0.301	37.50	395.246	BMB
Total:			3.426	0.801	100.00	991.560	

7 autocal7

S6-800/400/800

Sample Name:	**autocal7**	*Injection Volume:*	**1000.0**
Vial Number:	**334**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**12/19/2007 16:18**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**

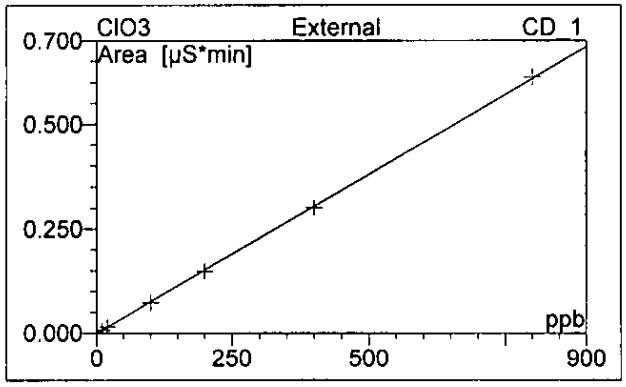


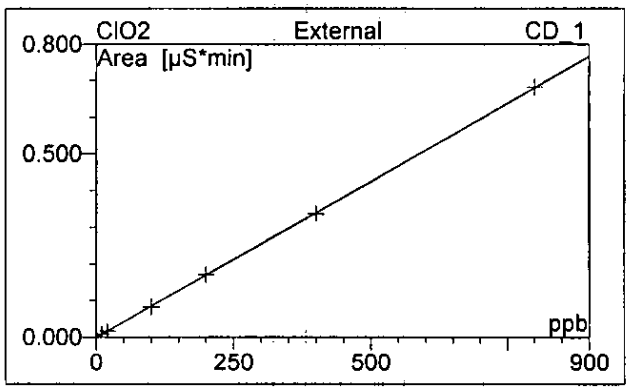
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
1	5.52	ClO2	4.281	0.681	41.75	801.874	BMB
2	12.34	Br	1.019	0.330	20.20	401.083	BM ^
3	13.68	ClO3	1.642	0.612	37.49	804.452	M
4	14.93	n.a.	0.020	0.009	0.56	n.a.	MB
Total:			6.963	1.631	100.00	2007.409	

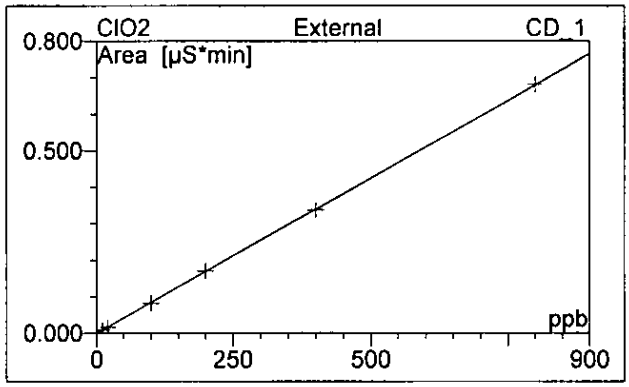
7 autocal7

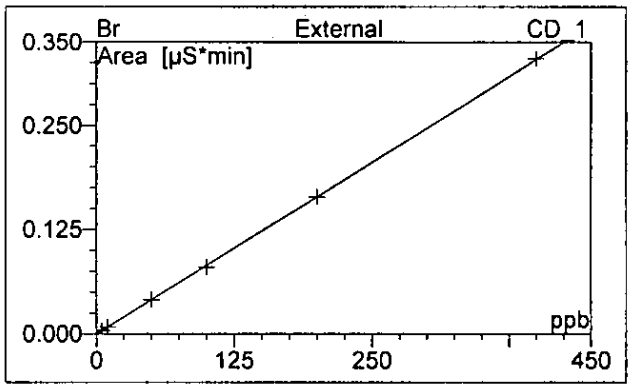
S6-800/400/800

Sample Name:	**autocal7**	*Injection Volume:*	**1000.0**
Vial Number:	**334**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**12/19/2007 16:18**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**







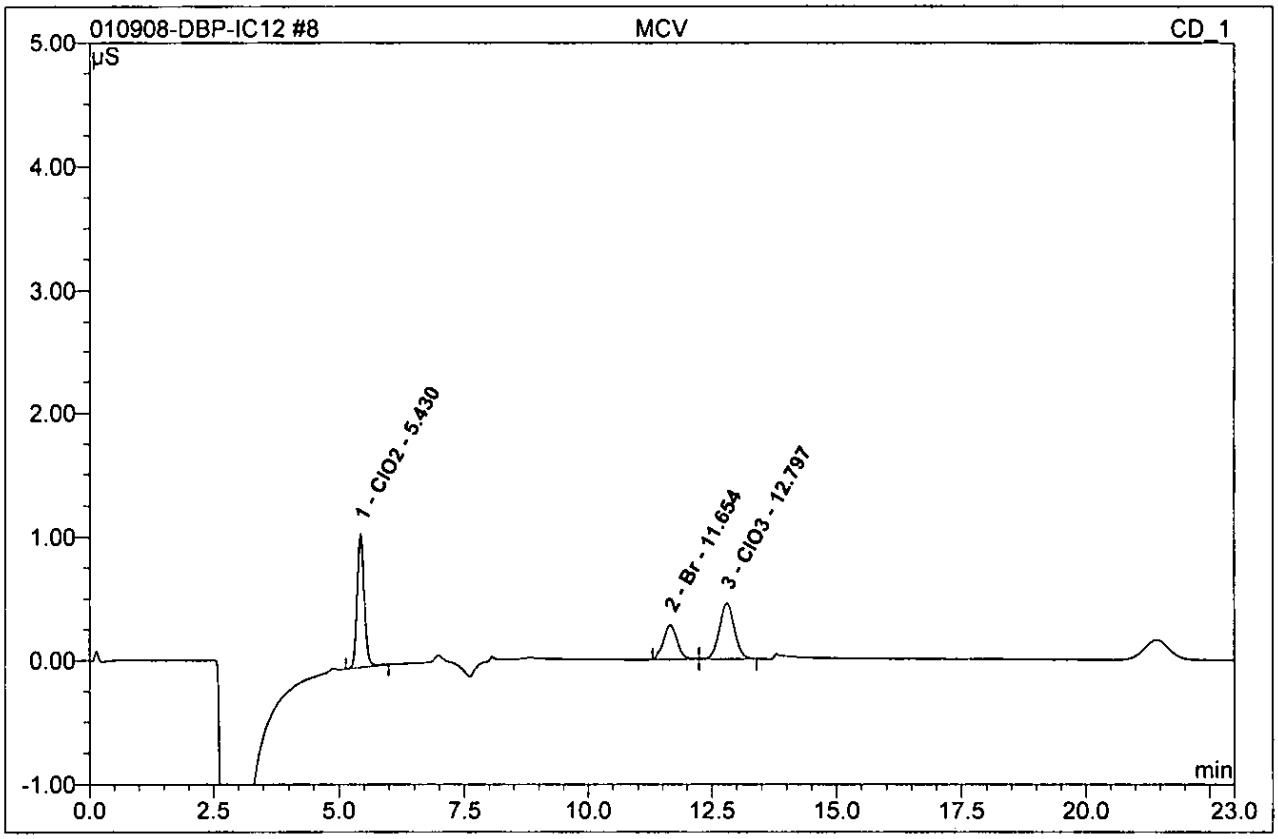


No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	Offset	Slope	Curve
1	5.52	ClO2	Lin	6	99.9977	0.0000	0.0008	0.0000
2	12.34	Br	Lin	6	99.9961	0.0000	0.0008	0.0000
3	13.68	ClO3	Lin	6	99.9946	0.0000	0.0008	0.0000
4	14.93	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Average:					99.9961	0.0000	0.0008	0.0000

8 MCV

200/100/200

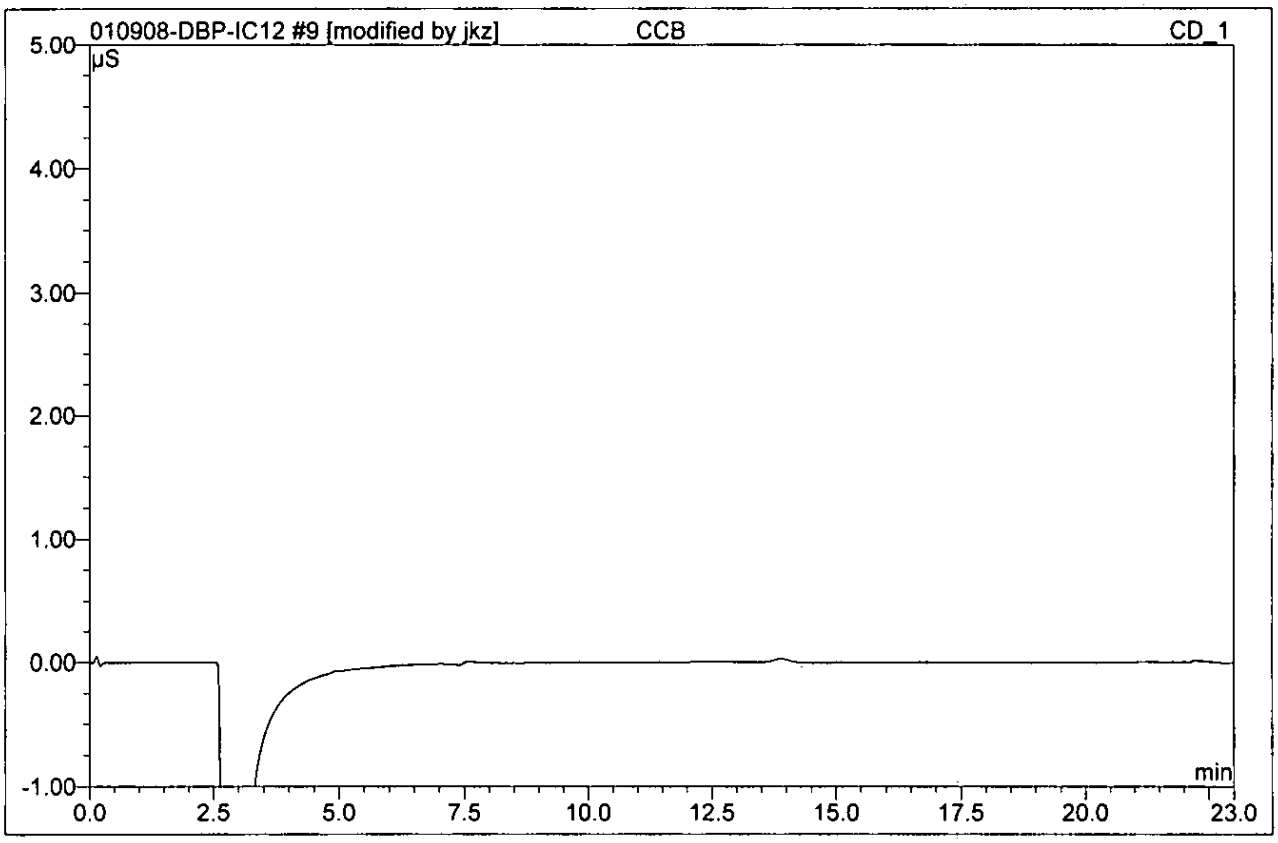
Sample Name:	**MCV**	*Injection Volume:*	**1000.0**
Vial Number:	**338**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**1/9/2008 14:40**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
1	5.43	ClO2	1.083	0.175	41.06	206.215	BMB
2	11.65	Br	0.283	0.091	21.41	111.178	BM
3	12.80	ClO3	0.455	0.160	37.53	210.561	MB
Total:			1.821	0.427	100.00	527.954	

9 CCB

Sample Name:	**CCB**	*Injection Volume:*	**1000.0**
Vial Number:	**335**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**1/9/2008 15:05**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**

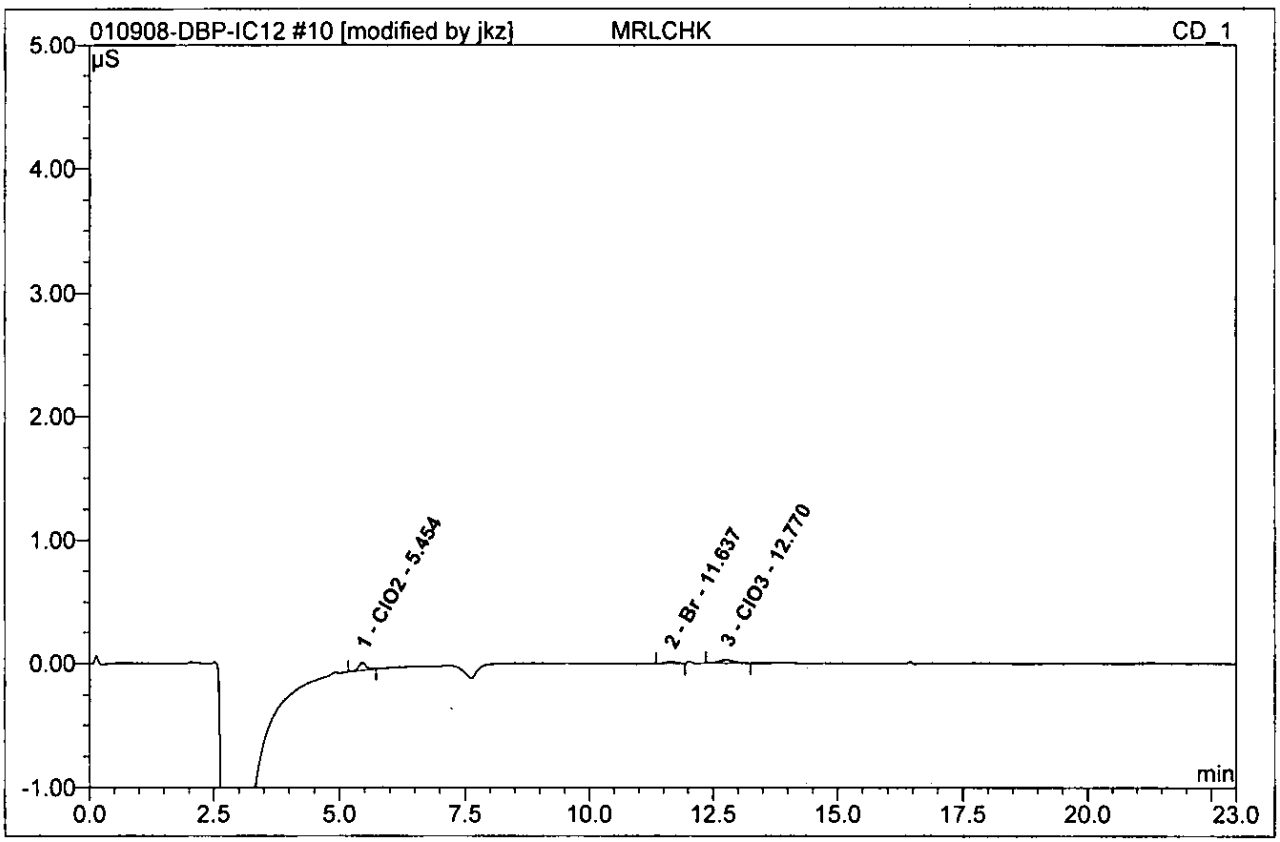


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
Total:			0.000	0.000	0.00	0.000	

10 MRLCHK

S1-10/5/10

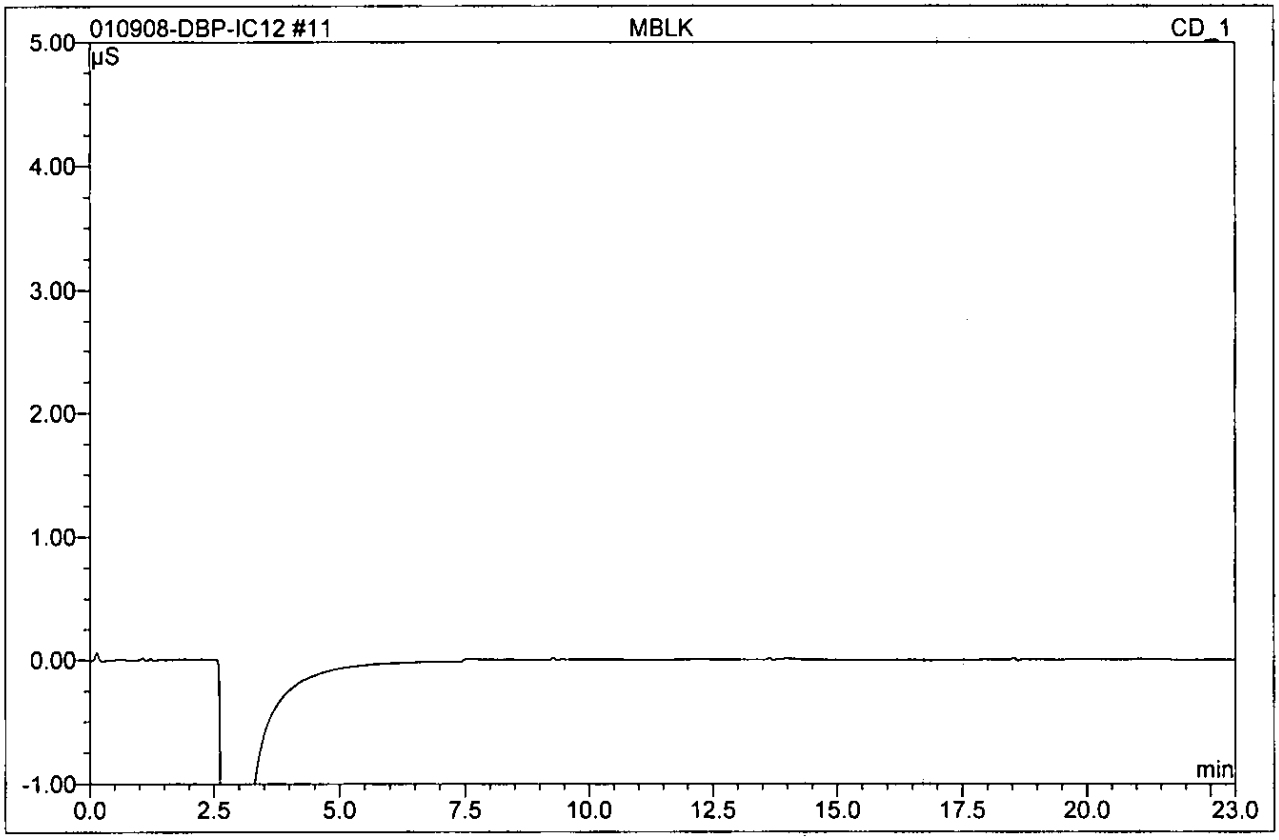
Sample Name:	**MRLCHK**	*Injection Volume:*	**1000.0**
Vial Number:	**340**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**1/9/2008 15:31**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
1	5.45	ClO2	0.062	0.010	44.43	12.270	BMB
2	11.64	Br	0.015	0.004	18.50	5.281	BMB*
3	12.77	ClO3	0.025	0.009	37.07	11.436	BMB*
Total:			0.101	0.023	100.00	28.987	

11 MBLK

Sample Name:	**MBLK**	*Injection Volume:*	**1000.0**
Vial Number:	**336**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**1/9/2008 15:56**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**

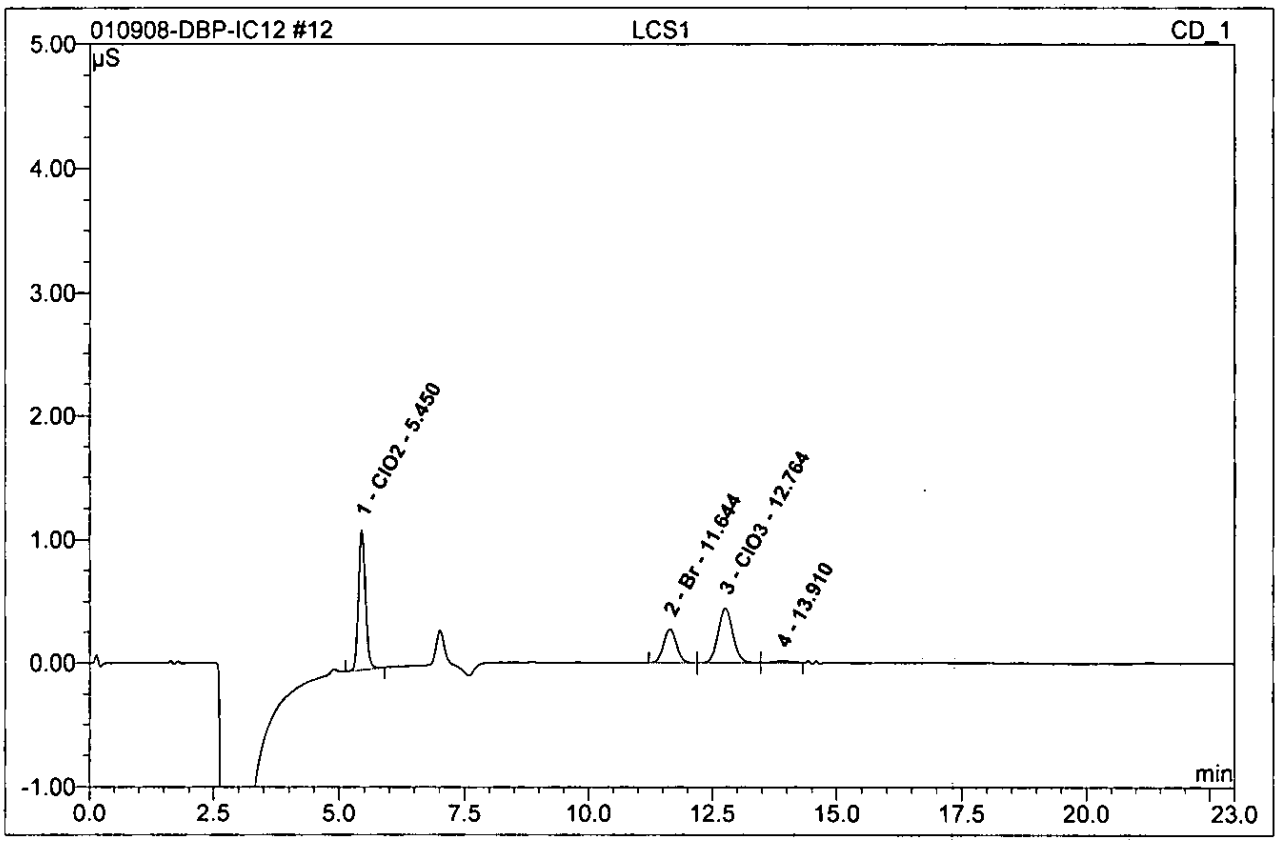


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
Total:			0.000	0.000	0.00	0.000	

12 LCS1

200/100/200

Sample Name:	**LCS1**	*Injection Volume:*	**1000.0**
Vial Number:	**336**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**1/9/2008 16:21**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**

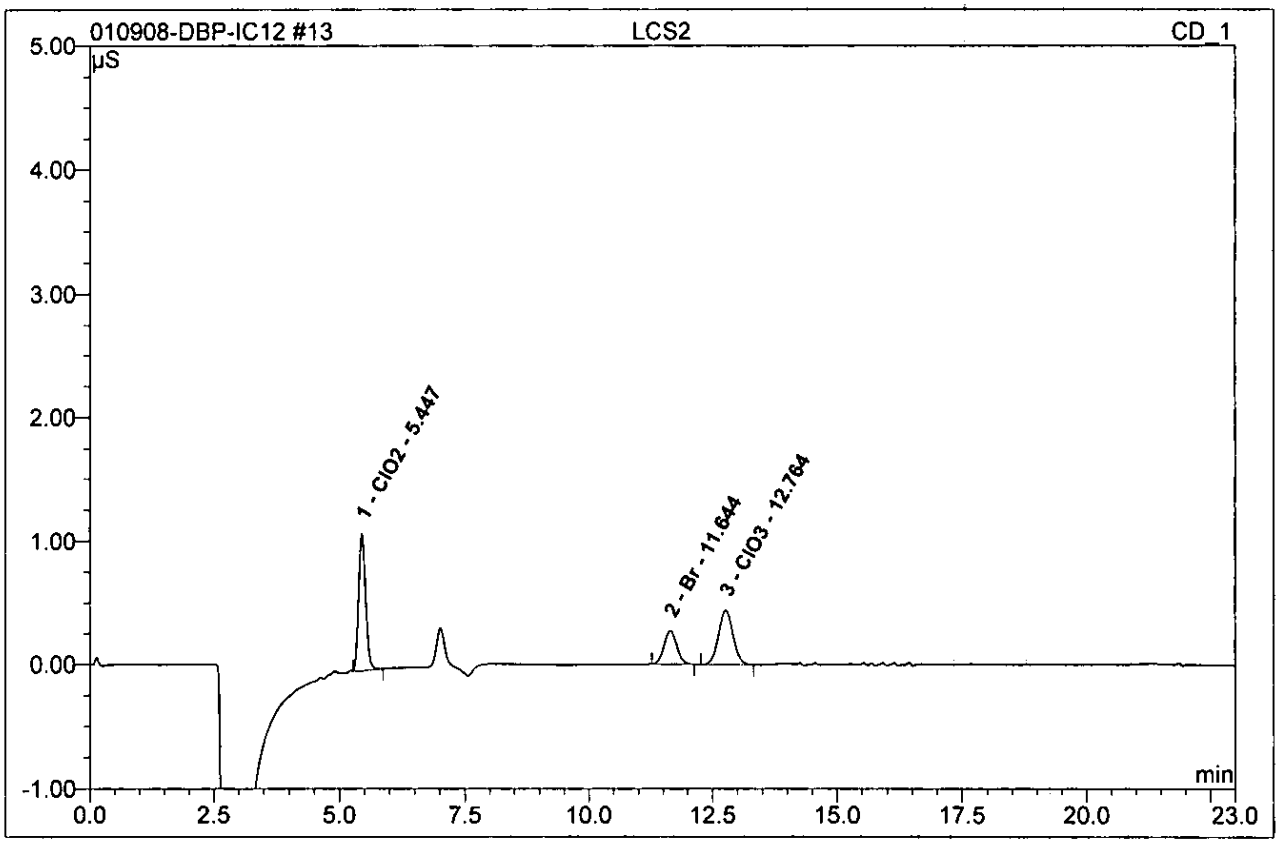


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
1	5.45	ClO2	1.131	0.182	42.89	213.789	BMB
2	11.64	Br	0.274	0.083	19.57	100.820	BM
3	12.76	ClO3	0.444	0.153	36.12	201.139	M
4	13.91	n.a.	0.016	0.006	1.42	n.a.	MB
Total:			1.865	0.423	100.00	515.749	

13 LCS2

200/100/200

Sample Name:	**LCS2**	*Injection Volume:*	**1000.0**
Vial Number:	**523**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**1/9/2008 16:47**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**

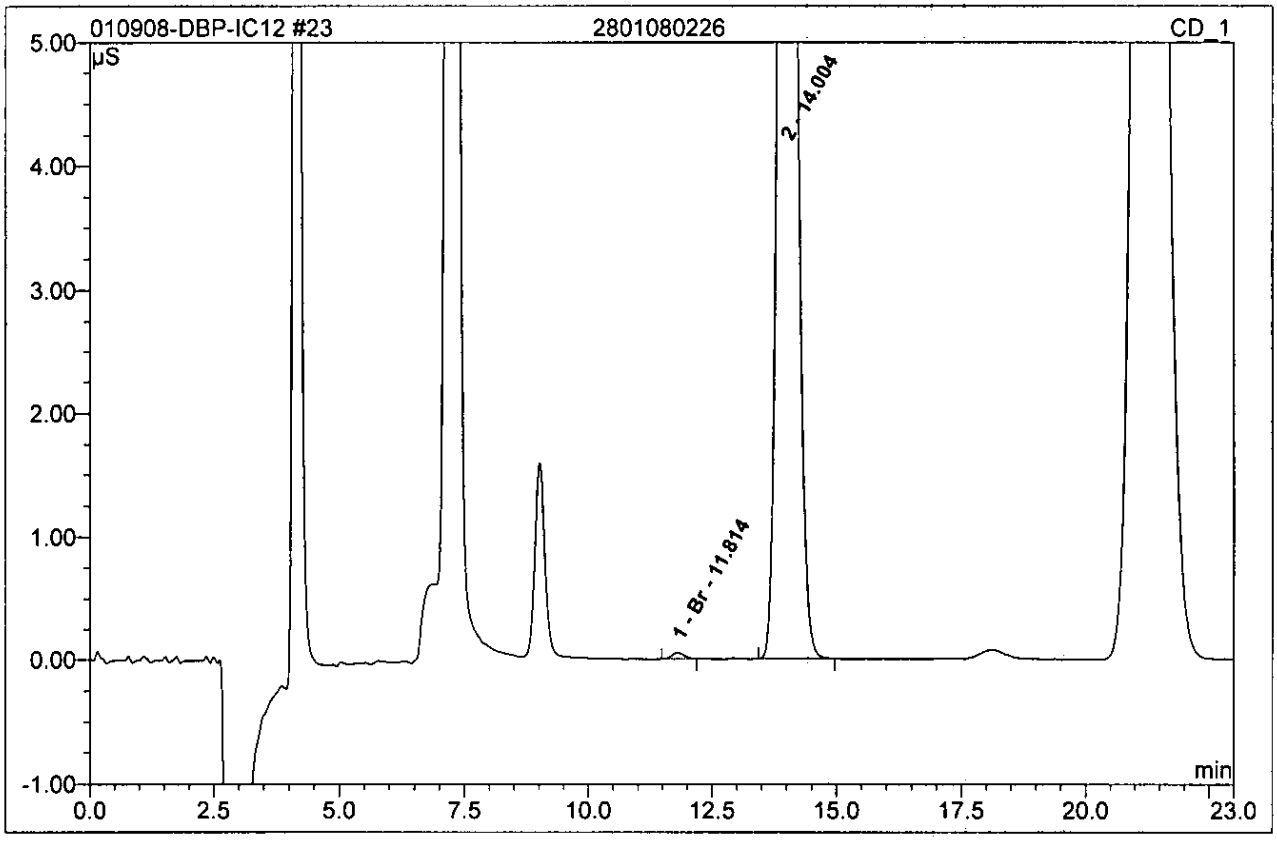


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
1	5.45	ClO2	1.115	0.179	43.59	210.912	BMB
2	11.64	Br	0.273	0.082	19.93	99.661	BMB
3	12.76	ClO3	0.441	0.150	36.48	197.148	BMB
Total:			1.830	0.411	100.00	507.721	

23 2801080226

CLO2/CLO3

Sample Name:	**2801080226**	*Injection Volume:*	**1000.0**
Vial Number:	**528**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**1/9/2008 21:01**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**

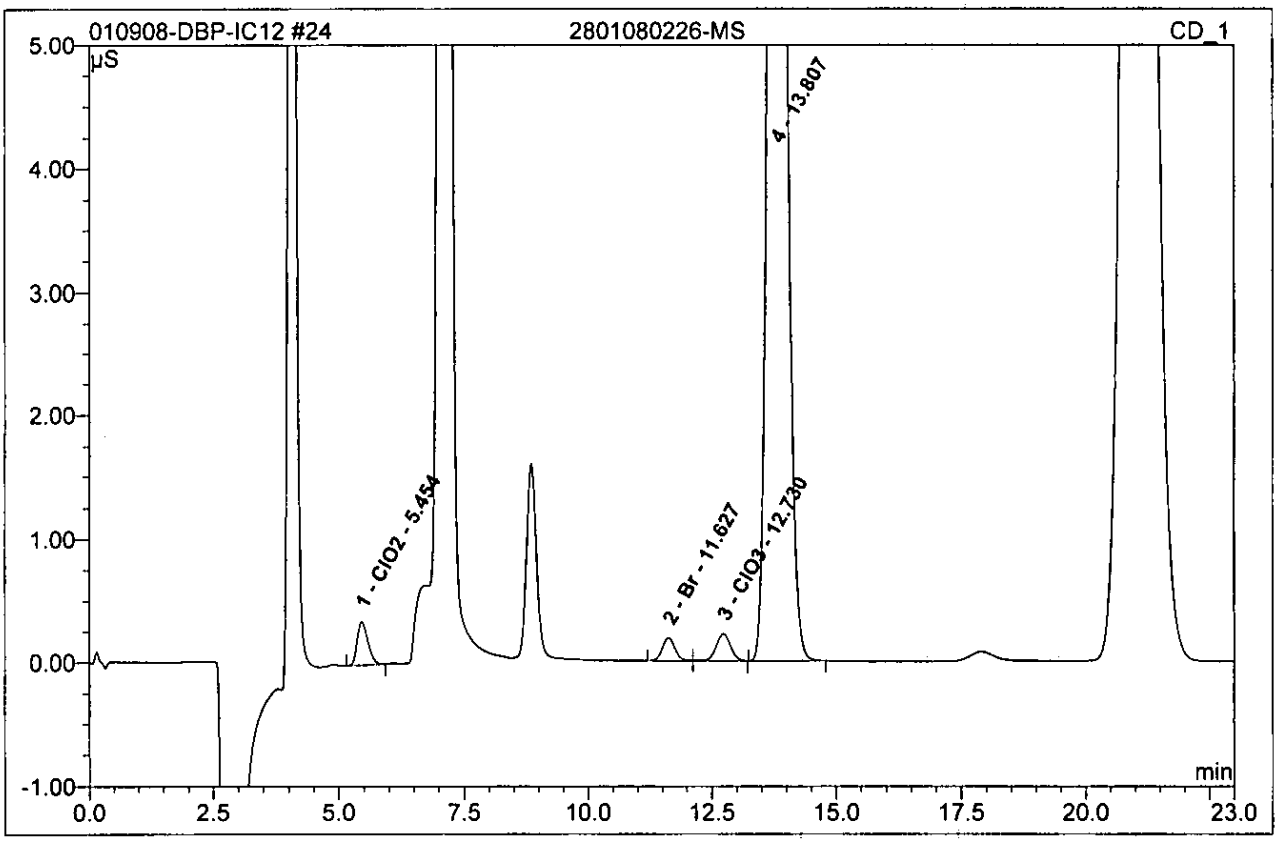


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
1	11.81	Br	0.051	0.015	0.27	17.697	BMB
2	14.00	n.a.	15.383	5.372	99.73	n.a.	BMB
Total:			15.433	5.387	100.00	17.697	

24 2801080226-MS

100/50/100

Sample Name:	**2801080226-MS**	*Injection Volume:*	**20.0**
Vial Number:	**123**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**1/9/2008 21:26**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**

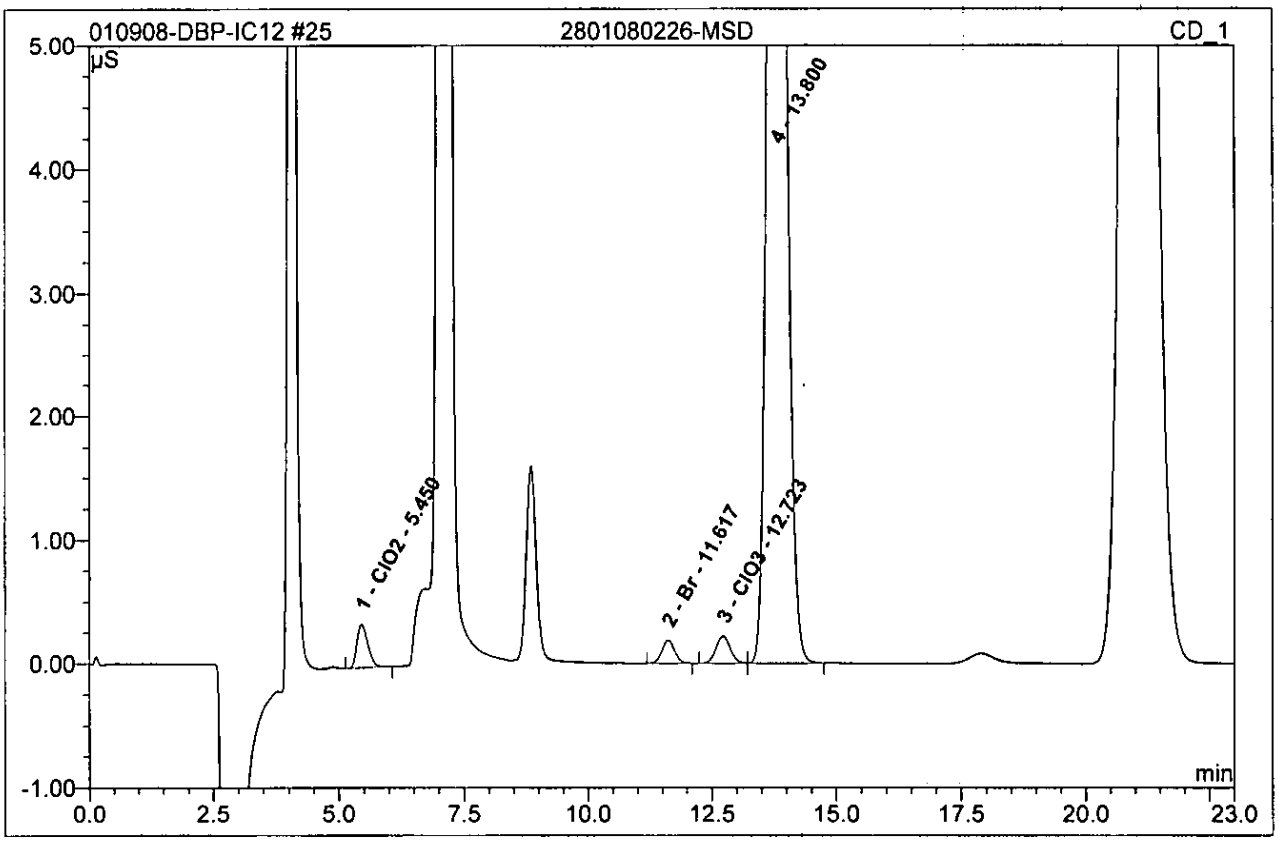


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
1	5.45	ClO2	0.352	0.087	1.57	102.743	BMB
2	11.63	Br	0.187	0.056	1.00	68.033	BM
3	12.73	ClO3	0.221	0.075	1.34	98.090	MB
4	13.81	n.a.	15.328	5.348	96.09	n.a.	BMB
Total:			16.088	5.565	100.00	268.865	

25 2801080226-MSD

100/50/100

Sample Name:	**2801080226-MSD**	*Injection Volume:*	**20.0**
Vial Number:	**123**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**1/9/2008 21:51**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**

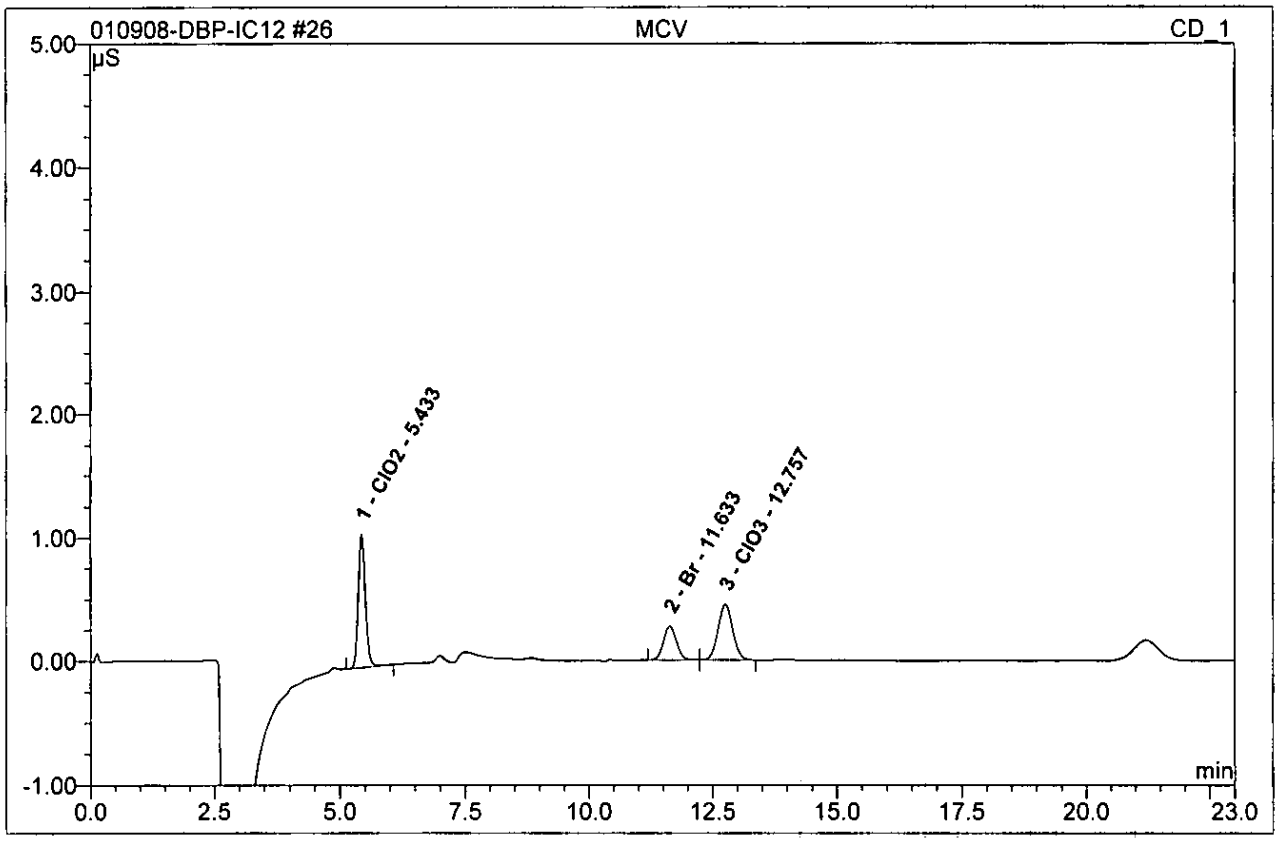


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
1	5.45	ClO2	0.354	0.089	1.59	104.526	BMB
2	11.62	Br	0.188	0.056	1.00	68.059	BMB
3	12.72	ClO3	0.219	0.073	1.31	95.853	BM
4	13.80	n.a.	15.338	5.352	96.09	n.a.	MB
Total:			16.099	5.569	100.00	268.438	

26 MCV

200/100/200

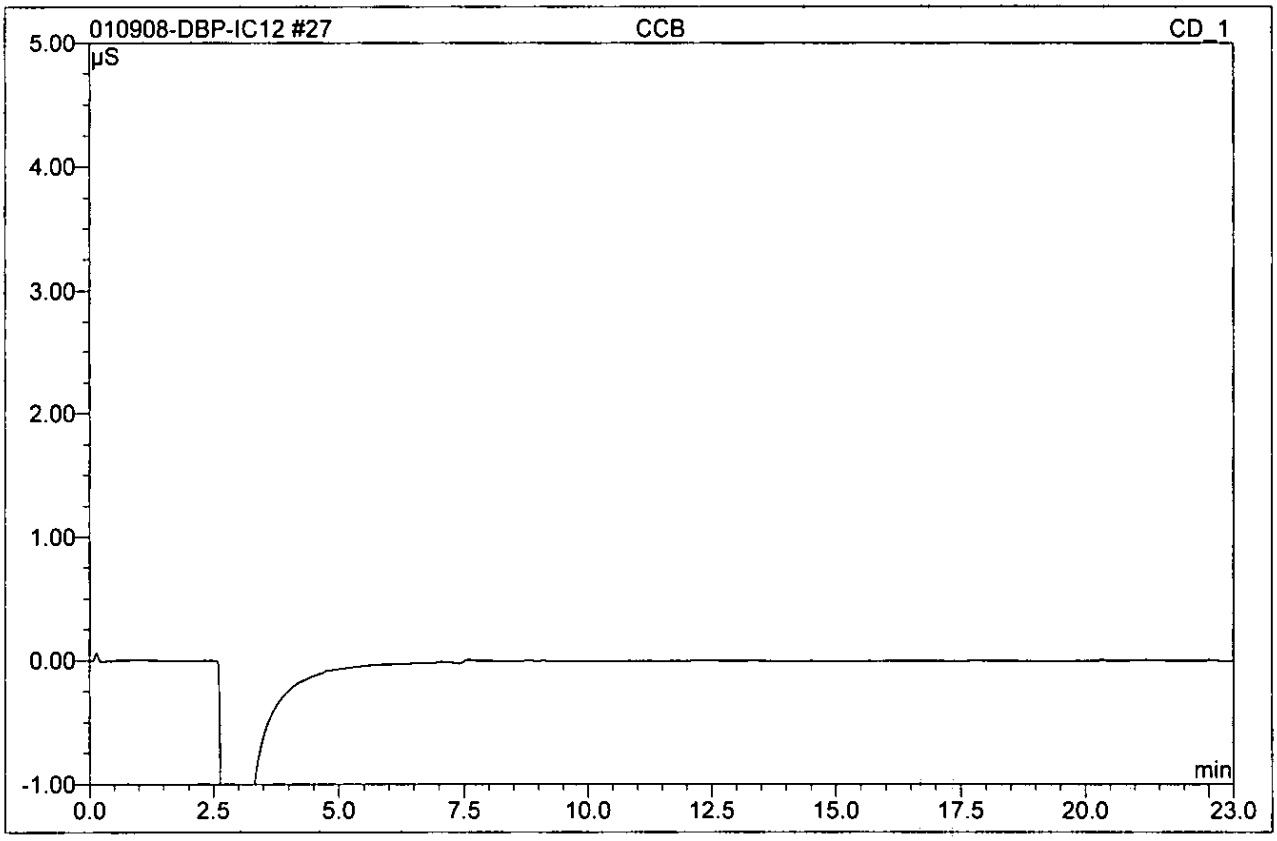
Sample Name:	**MCV**	*Injection Volume:*	**1000.0**
Vial Number:	**337**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**1/9/2008 22:17**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
1	5.43	ClO2	1.083	0.176	41.97	207.263	BMB
2	11.63	Br	0.279	0.086	20.58	105.047	BM
3	12.76	ClO3	0.454	0.157	37.45	206.549	MB
Total:			1.816	0.419	100.00	518.858	

27 CCB

Sample Name:	**CCB**	*Injection Volume:*	**1000.0**
Vial Number:	**335**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**1/9/2008 22:42**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**

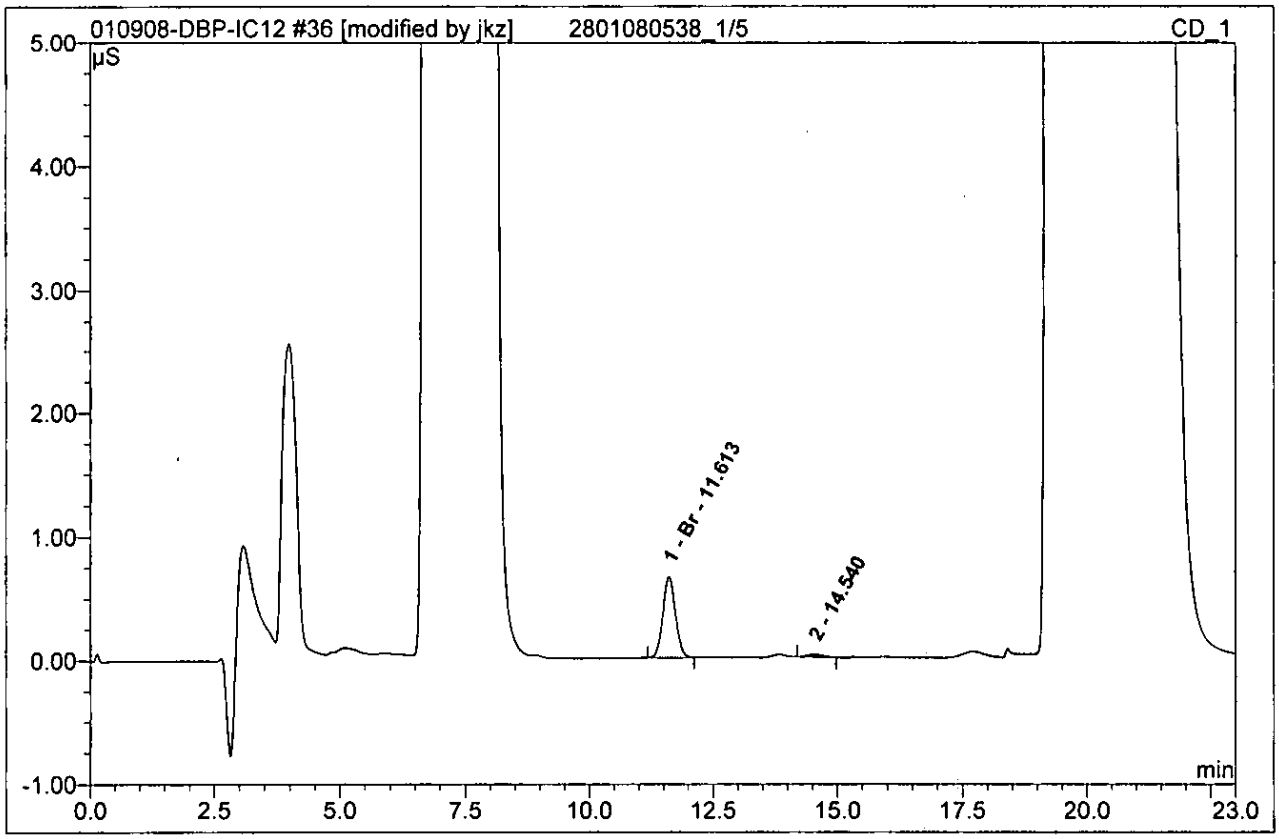


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
Total:			0.000	0.000	0.00	0.000	

36 2801080538_1/5

CLO3

Sample Name:	**2801080538_1/5**	*Injection Volume:*	**20.0**
Vial Number:	**121**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**1/10/2008 2:31**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**

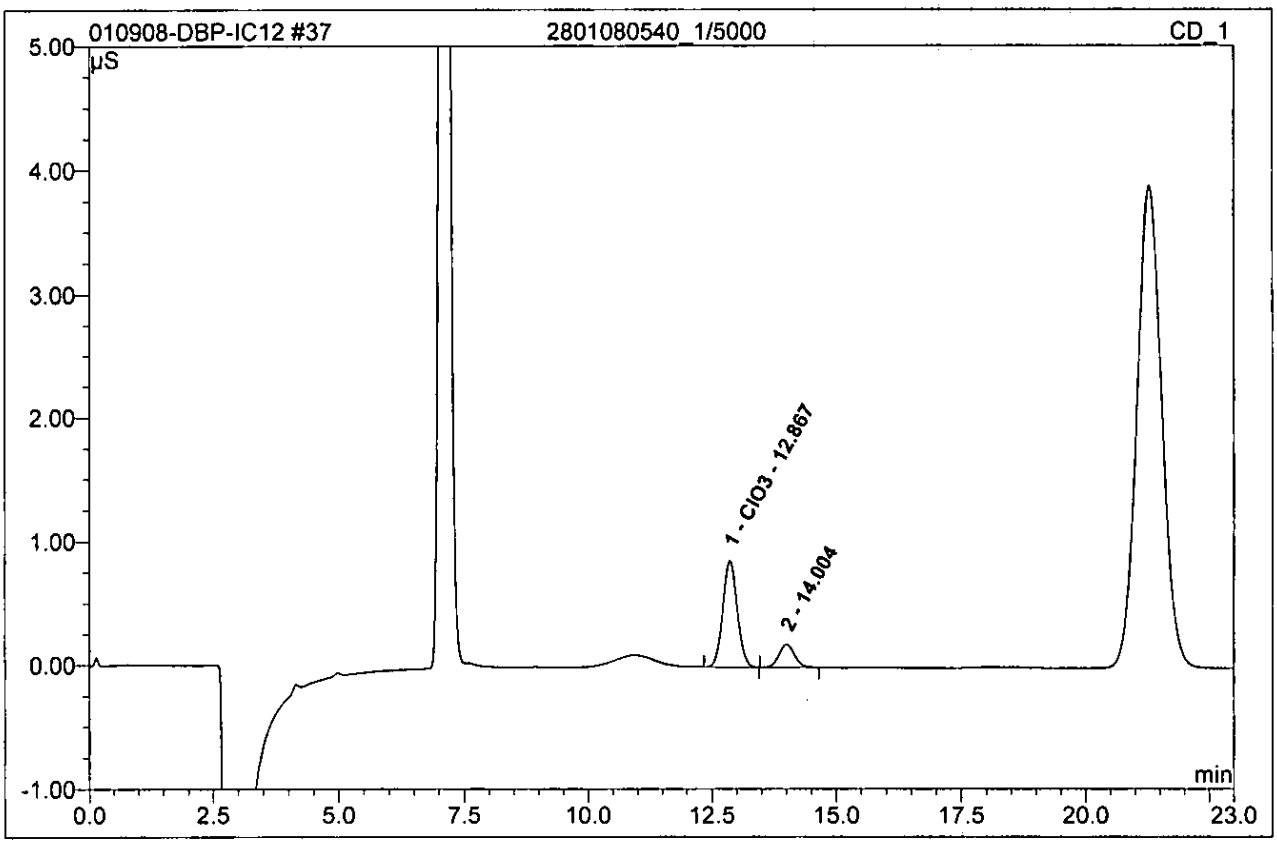


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
1	11.61	Br	0.655	0.193	95.86	1175.165	BMB
2	14.54	n.a.	0.022	0.008	4.14	n.a.	BMB*
Total:			0.677	0.201	100.00	1175.165	

37 2801080540_1/5000

CLO3

Sample Name:	**2801080540_1/5000**	*Injection Volume:*	**20.0**
Vial Number:	**122**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1000.0000**
Recording Time:	**1/10/2008 2:56**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**

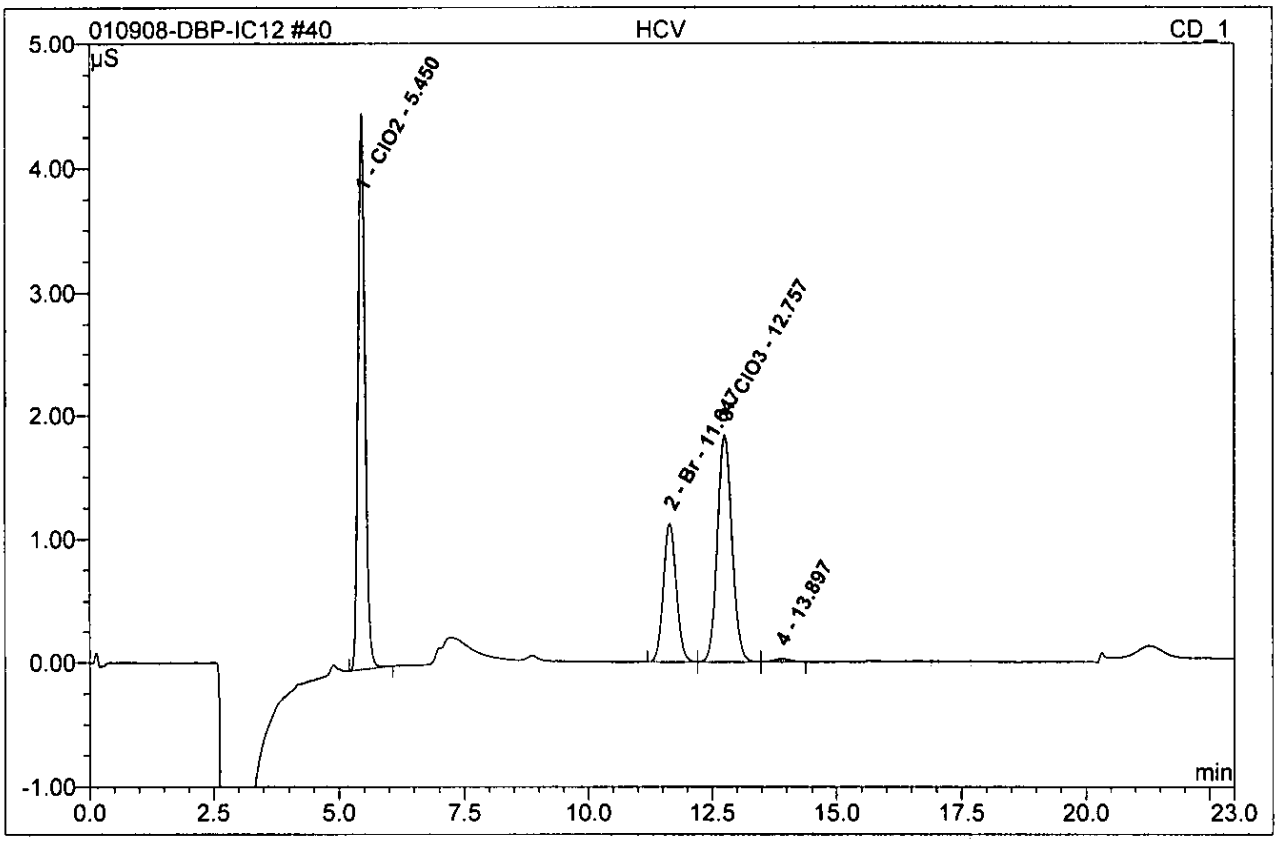


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
1	12.87	ClO3	0.860	0.290	81.04	#########	BMB
2	14.00	n.a.	0.185	0.068	18.96	n.a.	BMB
Total:			1.046	0.358	100.00	#########	

40 HCV

800/400/800

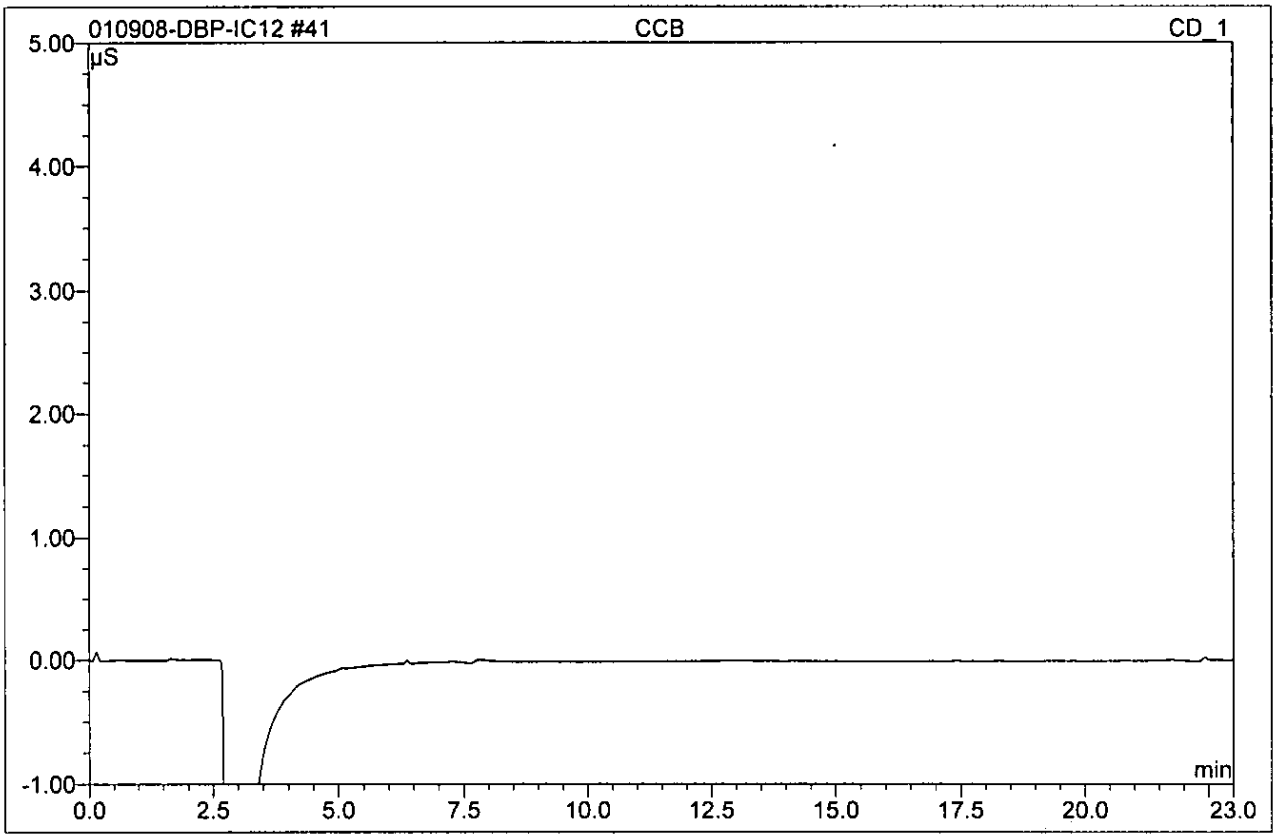
Sample Name:	**HCV**	*Injection Volume:*	**1000.0**
Vial Number:	**527**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**1/10/2008 4:12**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppb	Type
1	5.45	ClO2	4.493	0.722	42.48	849.845	BMB
2	11.65	Br	1.121	0.340	19.98	413.230	BM
3	12.76	ClO3	1.842	0.628	36.99	826.526	M
4	13.90	n.a.	0.024	0.009	0.54	n.a.	MB
Total:			7.480	1.699	100.00	2089.602	

41 CCB

Sample Name:	**CCB**	*Injection Volume:*	**1000.0**
Vial Number:	**530**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**IC12 test Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**1/10/2008 4:38**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.00**	*Sample Amount:*	**1.0000**



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

42 STOP

Sample Name:	**STOP**	*Injection Volume:*	**1000.0**
Vial Number:	**589**	*Channel:*	**n.a.**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**DPB Stop Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**DBP-Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**1/10/2008 5:03**	*Sample Weight:*	**1.0000**
Run Time (min):	**n.a.**	*Sample Amount:*	**1.0000**

010908-DBP-IC12 #42 STOP CD_1

Can't open raw data file "\\USPAS2SDIO1\RawData$\IC\IC12_DBP\2008\010908-DBP-IC12.SEQ\CD_1.CHL\70.acd".
The system cannot find the file specified.

n.a.	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**
	n.a.		**n.a.**	**n.a.**	**n.a.**	**n.a.**	
Total:			0.000	0.000	0.00	0.000	

Standard Preparation Worksheet & Certificate of Analysis

Reagent Preparation Documentation

Page:________

Reagent:	DBP Init. Cal. Std. 10/5/10 ppb	**MW #:**	CLV070717-3
Date Received/Prepped:	071707 / / / / /	**By:**	CL
Date Expired:	081708 / / / / /	**Matrix:**	A
Manufacturer:		**Amount:**	100 ml
Storage Condition:	ROOM TEMP / BROWN BOTTLE	**Lot #:**	

Component	Comment	Standard	Concentration
50 ml 100,000 ppm	EDA	LHR040929-12 EDA	100,000 ppm
0.5 ml 1,000 ppm	Br EXP 060108 → 100 ml soln.	R201650	1,000 ppm
1.0 ml 1,000 ppm	ClO_2 EXP 060108	R201648	1,000 ppm
1.0 ml 1,000 ppm	ClO_3 EXP 060108	R201649	1,000 ppm

Comment:

Reagent:	DBP 2nd Source 10/5/10 ppb	**MW #:**	CLV070717-4
Date Received/Prepped:	071707 / / / / /	**By:**	CL
Date Expired:	081707 / / / / /	**Matrix:**	A
Manufacturer:		**Amount:**	100 ml
Storage Condition:	ROOM TEMP / BROWN BOTTLE	**Lot #:**	

Component	Comment	Standard	Concentration
50 ml 100,000 ppm	EDA	LHR040929-12 EDA	100,000 ppm
0.5 ml 1,000 ppm	Br EXP 102707 → 100 ml soln.	R201369	1,000 ppm
1.0 ml 1,000 ppm	ClO_2 EXP 013108	R201587	1,000 ppm
1.0 ml 1,000 ppm	ClO_3 EXP 093109	R201400	1,000 ppm

Comment:

Reagent:	DBP SI / MDL/MRL 10/5/10 ppb	**MW #:**	CLV070717-5
Date Received/Prepped:	071907 / 080607 / 090507 / 092107 / 101607 / 102307	**By:**	CL
Date Expired:	081707 / 090607 / 100507 / 102107 / 111607 / 112307	**Matrix:**	A
Manufacturer:		**Amount:**	100 ml
Storage Condition:	ROOM TEMP / BROWN BOTTLE	**Lot #:**	

Component	Comment	Standard	Concentration
50 ml 100,000 ppm	EDA → 100 ml soln.	LHR040929-12 EDA	100,000 ppm
0.1 ml 10/5/10 ppb	Init. Cal	CLV070717-3	10/5/10 ppb

Comment:

Reagent Preparation Documentation

Page:_____

Reagent: DBP S2/MCV 20/10/20 ppb **MW #:** CVC070717-6
Date Received/Prepped: 071707 / 080607 / 092507 / 092007 / / **By:** ch
Date Expired: 081707 / 090607 / 102507 / 102007 / / **Matrix:** A
Manufacturer: **Amount:** 100 ml
Storage Condition: ROOM TEMP / BROWN BOTTLE **Lot #:**

Component	Comment	Standard	Concentration
50 ml 100,000 ppm	EDA / 150 ml Soln.	MO 040229-12 EDA	100,000 ppm
0.2 ml 10/5/10 ppb	Init. Cal Std	CVC070717-3	10/5/10 ppm

Comment:

Reagent: DBP S3 100/50/100 ppb **MW #:** CVC070717-7
Date Received/Prepped: 071707 / 092007 / / / / **By:** ch
Date Expired: 081707 / 090607 / / / / **Matrix:** A
Manufacturer: **Amount:** 100 ml
Storage Condition: ROOM TEMP / BROWN BOTTLE **Lot #:**

Component	Comment	Standard	Concentration
50 ml 100,000 ppm	EDA / 150 ml Soln.	MO 040229-12 EDA	100,000 ppm
1.0 ml 10/5/10 ppm	Init. Cal Std	CVC070717-3	10/5/10 ppm

Comment:

Reagent: DBP S4/MCV 200/100/500 ppb **MW #:** CVC070717-8
Date Received/Prepped: 071707 / 072707 / 080907 / 090507 / 091007 / 092507 / 101107 / 101807 / 111107 **By:** ch
Date Expired: 081707 / 082707 / 090907 / 100507 / 101007 / 102507 / 111107 / 111807 / 112607 **Matrix:** A
Manufacturer: **Amount:** 100 ml
Storage Condition: ROOM TEMP / BROWN BOTTLE **Lot #:**

Component	Comment	Standard	Concentration
50 ml 100,000 ppm	EDA / 100 ml Soln.	MO 040229-12	100,000 ppm
2.0 ml 10/5/10 ppm	Init. Cal Std	CVC070717-3	10/5/10 ppm

Comment:

Reagent Preparation Documentation

Page:_____

Reagent: DBP 55 400/200/40 ppb
Date Received/Prepped: 071707 / 092007 / / / /
Date Expired: 081907 / 102007 / / / /
Manufacturer:
Storage Condition: ROOM TEMP / BROWN BOTTLE

MW #: CLV0707 09 - 9
By: ch
Matrix: A
Amount: 100 ml
Lot #:

Component	Comment	Standard	Concentration
50 ml 100,000 ppm	EDA > 100 ml Soln	LMR040229-12	100,000 ppm
4.0 ml 10/5/10 ppm	Int. Cal Std /	CLV0707 17-3	10/5/10 ppm

Comment:

Reagent: DBP 56/HCV 800/400/800 ppb
Date Received/Prepped: 071707 / 080607 / 090507 / 092107 / 101607 / 102607
Date Expired: 081707 / 090607 / 100507 / 102107 / 111607 / 112607
Manufacturer:
Storage Condition: ROOM TEMP / BROWN BOTTLE

MW #: CLV0707 17 - 10
By: ch
Matrix: A
Amount: 100 ml
Lot #:

Component	Comment	Standard	Concentration
50 ml 100,000 ppm	EDA > 100 ml Soln	LMR040229-12	100,000 ppm
8.0 ml 10/5/10 ppm	Int. Cal Std /	CLV0707 17-3	10/5/10 ppm

Comment:

Reagent: DBP LCS/LCSD 200/100/20 ppb
Date Received/Prepped: 071707 / 072707 / 081007 / 091007 / 092107 / 100407 / 101607
Date Expired: 081707 / 082707 / 091007 / 101007 / 102107 / 110407 / 111607
/ 102307 / 102507 / 110307
Manufacturer:
Storage Condition: ROOM TEMP / BROWN BOTTLE

MW #: CLV0707 17 - 11
By: Ch
Matrix: A
Amount: 100 ml
Lot #:

Component	Comment	Standard	Concentration
50 ml 100,000 ppm	EDA > 100 ml Soln	LMR040229-12	100,000 ppm
2.0 ml 10/5/10 ppm	2nd Source /	CLV0707 17-9	10/5/10 ppm

Comment:

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CERTIFICATE OF ANALYSIS

I-CAL ION CHROMATOGRAPHY SOLUTION 1000 µg/mL Chlorite in H_2O

Catalog No: ICCLO21-1and ICCLO21-5

Lot Number: **Z-CLOX01041**

Starting Material:	Sodium Chlorite
Starting Material Lot No:	E02F39

CERTIFIED CONCENTRATION: 975 ± 2 µg/mL

*** The Certified Concentration for Lot No. Z-CLOX01041 is only the ClO_2^-. The value of Cl^- is 12 ± 1 µg/mL, and the value of ClO_3^- is 12 ± 1 µg/mL. This was determined by Ion Chromatography vs an in-house standard solutions traceable to NIST SRM 3182. The value of Unknown 1 is 7 ± 1 µg/mL, and the value of Unknown 2 is 4 ± 1 µg/mL.**

The Certified Value is based upon the wet assay value. The following equations are used in the calculation of the certified value and the uncertainty:

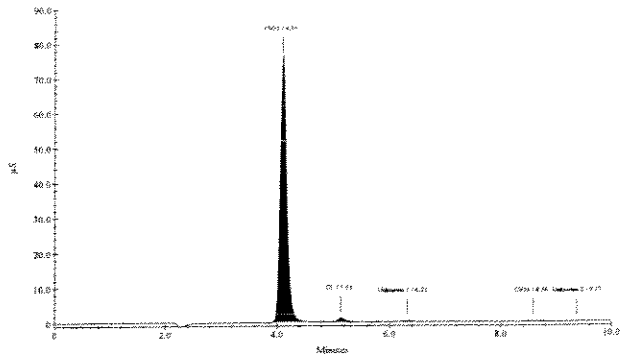
$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Instrument Value: 994 ± 2 µg/mL
Method:Ion Chromatography vs NIST SRM 136e Lot number 980702.

Wet Analysis: 975 ± 2 µg/mL
Method: Iodometric Titration NIST SRM 136e Lot number 980702.

ClO_2^- Z-CLOX01041



DIONEX DX-120 Ion Chromatograph
Anal. Column: IonPac AS9-HC 4 x 250mm
Guard Column: IonPac AG9-HC 4 x 50mm
Anion self Generating Suppressor:
ASRS-ULTRA II 4mm
Suppressor Current: 100mA
Eluent: 9 mM Na_2CO_3
Eluent Flow Rate: 1.00 mL/min
Cell Temp.: 35 °C
Scale:Y-axis = 90µS scale
X-axis = minutes
Concentration: 100µg/g

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 0.998 g/mL

QA:KL Rev.120406NTM

Paul R. Haines

Quality Assurance Manager

Expires: EXPIRES 1 Jul 2009

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CERTIFICATE OF ANALYSIS

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1.0 **INORGANIC VENTURES** is an ISO Guide 34:2000 registered Certified Reference Material (CRM) Manufacturer (Certificate #883-02). The certificate is designed and the data is determined in accordance with ISO Guide 31:2000 (Reference Materials-Contents of Certificates and Labels), ISO Guide 34:2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35:1989 "Certification of Reference Materials - General and Statistical Principals."

2.0 **DESCRIPTION OF CRM** **Ion Chromatography 1000 µg/mL Chlorate in Water**

Catalog Number:	ICCLO31-1 and ICCLO31-5
Lot Number:	**A2-CLOX01043**
Starting Material:	Potassium Chlorate
Starting Material Purity (%):	99.0000
Starting Material Lot No.:	02407TF
Matrix:	Water

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1000 ± 3 µg/mL

Certified Density: 0.999 g/mL (measured at 22° C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

- "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)
- This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

Assay Method #1 **999 ± 6 µg/mL**
ICP Assay NIST SRM 3182 Lot Number: 990506

Assay Method #2 **1000 ± 3 µg/mL**
IC Assay NIST SRM Lot Number: in-house std

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K201650 rec'd 5-23-07

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34:2000 registered Certified Reference Material (CRM) Manufacturer (Certificate #883-02). The certificate is designed and the data is determined in accordance with ISO Guide 31:2000 (Reference Materials-Contents of Certificates and Labels), ISO Guide 34:2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35:1989 "Certification of Reference Materials - General and Statistical Principals."

2.0 **DESCRIPTION OF CRM** **Ion Chromatography 1000 µg/mL Bromide in Water**

Catalog Number:	ICBR1-1 and ICBR1-5
Lot Number:	**Z-BR01060**
Starting Material:	Potassium Bromide
Starting Material Purity (%):	99.0000
Starting Material Lot No.:	09014BY
Matrix:	Water

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 995 ± 2 µg/mL

Certified Density: 0.997 g/mL (measured at 22° C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = \frac{2[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

- "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)
- This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

Assay Method #1 **995 ± 2 µg/mL**
IC Assay NIST SRM 3184 Lot Number: 020701

Assay Method #2 **1002 ± 7 µg/mL**
Volhard NIST SRM 999a Lot Number: 999a

Reagent Documentation

Reagent: Chlorite Standard 975±2µg/mL
Date Received: 23 May 07
Date Expired: 01 Jun 08
Manufacturer: Inorganic Ventures
Storage Condition: Room temp

Reagent #: 201648
By: TLH
Matrix: aq
Amount: 125mL
Lot #: Z-CLOX010041

Component	Comment	Standard	Concentration
	IV# ICCLO21-1		

Comment:

Reagent: Chlorate Standard 1000±3µg/mL
Date Received: 23 May 07
Date Expired: 01 Jun 08
Manufacturer: Inorganic Ventures
Storage Condition: Room temp

Reagent #: 201649
By: TLH
Matrix: aq
Amount: 125mL
Lot #: A2-CLOX010043

Component	Comment	Standard	Concentration
	IV# ICCLO31-1		

Comment:

Reagent: Bromide Standard 995±2µg/mL
Date Received: 23 May 07
Date Expired: 01 Jun 08
Manufacturer: Inorganic Ventures
Storage Condition: Room temp

Reagent #: 201650
By: TLH
Matrix: aq
Amount: 125mL
Lot #: Z-BRO10060

Component	Comment	Standard	Concentration
	IV# ICBR1-1		

Comment: