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REPORT ON EMISSIONS TESTING OF AQD NO. 48 DURING CAPACITY RUN

Performed for:

SOLVAY MINERALS, INC.
CA-3 CALCINER STACK (AQD NO. 48)
GREEN RIVER, WYOMING

Client Reference No: 4500005271
CAE Project No: 7955-3
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To the best of our knowledge, the data presented in this report are accurate and complete.

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Project Overview

PROJECT OVERVIEW

Solvay Minerals, Inc. contracted CAE to perform an air emissions test program for the CA-3 Calciner Stack (AQD No. 48) during a capacity test. The purpose of the test program was to quantify total particulate, CO, NOx, total non-methane/ethane hydrocarbons and specific organic compounds in the CA-3 Calciner (AQD No. 48) exhaust gas at an increased feed rate of 200 tons per hour. The testing took place at the CA-3 Calciner Stack on May 22, 28 and 30, 1997. EPA Methods 5/202, 7E, 10, 18 and 25A were performed in conjunction with associated Methods 1-4.

Three to four analyses, or injections, were performed for each Method 18 run. The average of the injection concentrations was reported for each run. When an injection was reported below the detection limit (BDL), the value of zero was used to calculate the average concentration of that run. Since zero was used for BDL, some reported run concentrations appear to be below the calculated detection limit.

Two separate Hewlett Packard Benchtop Gas Chromatographs (GCs) with different columns were used during the test program. Previous testing with an SP1200 Bentonone 34 column showed the presence of a compound whose peak eluted in the retention time window of methylene chloride. The second GC with a "Super Q polymer" column was run to positively confirm whether or not it was methylene chloride. The second column also provided improved separation of methane, ethane, butadiene and acrylonitrile. On the basis of the confirmation analysis run with the "Super Q polymer" column, no methylene chloride was detected.

On GC-2 a peak was detected in the $MeCl_2$ rentention time window, but this peak was qualitatively dismissed due to the fact that nothing was observed in the retention time window for $MeCl_2$ an GC-1.

The CO_2 monitor did not pass the Calibration Error for runs 1, 3 and 4. The CO_2 monitor data is included in this report. However, Orsat data was used in all calculations for these runs.

Due to unexpectedly high concentrations of CO, only the upscale calibration gas was used to calibrate the TECO Model 48 analyzer for runs 1,3 and 4. This analyzer, which has a high range of 1-1000 ppm, was scaled up to 0-2000 for these runs. At this higher range, the instrument becomes non linear. In house calibration and resultant analysis of the same instrument using 1515 and 2190 ppm calibration gases showed the analyzer to be reading approximately 7% low at the average measured concentrations. The high range TECO Model 48H analyzer was used for the remainder of the test program.

PROJECT OVERVIEW

Coordinating the field testing were:

D. Potter - Solvay Minerals, Inc.
T. Brown - Solvay Minerals, Inc.
P. Kaufmann - Clean Air Engineering

Source identification is shown in Table 1-1.

Table 1-1:
CA-3 Calciner Profile

Unit Identification Number	AQD No. 48, CA-3
Process	Calciner
Fuel	Natural Gas
Heat Content	1035 Btu/ft^3.
Stack Height	180 feet
Stack Diameter	125.5 inches
Diameters to Upstream Disturbance	Approximately 9.0
Diameters to Downstream Disturbance	Approximately 5.5
Primary Control Equipment	Flakt ESP

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PROJECT OVERVIEW

Chemical abstract service (CAS) numbers and molecular weights are listed in Table 1-2.

Table 1-2:
Compound (CAS) Numbers

Compound Name	Molecular Weight	CAS No.
Sulfur Dioxide (SO_2)	64.06	7446-09-5
Nitrogen Oxides (NO_x)	46.01	10102-44-0
Carbon Monoxide (CO)	28.01	630-08-0
THC (as propane)	44.09	74-98-6
Ethane	30.07	74-84-0
Methane	16.04	74-82-8
1,1,1,-Trichloroethane	133.42	71-55-6
1,3 Butadiene	54.09	106-99-0
2-Butanone (MEK)	72.10	78-93-3
Acrylonitrile	53.06	107-13-1
Benzene	78.11	71-43-2
Ethylbenzene	106.16	100-41-4
Hexane	86.17	110-54-3
Methylene Chloride	84.94	75-09-2
Styrene	104.14	100-42-5
Toluene	92.13	108-88-3
Trichloroethene	131.40	79-01-6
Xylene	106.16	1330-20-7

A summary of test results is shown in Table 1-3.

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PROJECT OVERVIEW

Table 1-3:
Summary of Test Results

Source Constituent	Sampling Method	Average Concentration (ppmdv)	Average Emission (lb/hr)	Average Emission (lb/ton of trona)
CA-3 Calciner - Condition 1				
Total Inorganic Particulate	EPA M 5/202	--	3.21	0.016
Nitrogen Oxides	EPA M 7E	31.1	15.5	0.0783
Carbon Monoxide	EPA M 10	1,839	558	2.82
Total Hydrocarbons (as propane)	EPA M 25A	238	114	0.574
Total Non-Methane/Ethane Hydrocarbons		--	64.4	0.325
Organic Compounds	EPA M 18			
1,1,1-Trichloroethane		BDL	BDL	BDL
1,3 Butadiene		8.94	5.25	0.0265
2-Butanone		0.975	0.762	0.0038
Acrylonitrile		BDL	BDL	BDL
Benzene		3.02	2.55	0.0129
Ethane		8.9	2.93	0.0148
Ethyl Benzene		0.663	0.764	0.0039
Hexane		0.908	0.850	0.0043
Methane		266	46.4	0.234
Methylene Chloride		BDL	BDL	BDL
Styrene		0.923	1.04	0.0053
Toluene		1.71	1.71	0.0086
Trichloroethene		0.329	0.470	0.0024
Xylene		1.79	2.06	0.0104
CA-3 Calciner - Condition 2				
Total Inorganic Particulate	EPA M 5/202	--	5.62	0.031
Nitrogen Oxides	EPA M 7E	28.2	13.8	0.0763
Carbon Monoxide	EPA M 10	2,029	605	3.35
Total Hydrocarbons (as propane)	EPA M 25A	387	182	1.01
Total Non-Methane/Ethane Hydrocarbons		--	102	0.564
Organic Compounds	EPA M 18			
1,1,1-Trichloroethane		2.28	3.21	0.0177
1,3 Butadiene		15.0	8.68	0.0480
2-Butanone		1.61	1.24	0.0068
Acrylonitrile		BDL	BDL	BDL
Benzene		3.95	3.29	0.0182
Ethane		25.6	8.20	0.0453
Ethyl Benzene		0.414	0.467	0.0026
Hexane		1.70	1.57	0.0087
Methane		420	71.7	0.396
Methylene Chloride		BDL	BDL	BDL
Styrene		0.760	0.842	0.0047
Toluene		1.55	1.52	0.0084
Trichloroethene		0.594	0.827	0.0046
Xylene		1.12	1.27	0.0070

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PROJECT OVERVIEW

Table 1-4:
Summary of Test Results (Continued)

Source Constituent	Sampling Method	Average Concentration (ppmdv)	Average Emission (lb/hr)	Average Emission (lb/ton of trona)
CA-3 Calciner - Condition 3				
Total Inorganic Particulate	EPA M 5/202	--	4.42	0.020
Nitrogen Oxides	EPA M 7E	31.2	17.0	0.079
Carbon Monoxide	EPA M 10	1,467	486	2.25
Total Hydrocarbons (as propane)	EPA M 25A	338	176	0.818
Total Non-Methane/Ethane Hydrocarbons		--	67.9	0.315
Organic Compounds	EPA M 18			
1,1,1-Trichloroethane		BDL	BDL	BDL
1,3 Butadiene		9.27	5.93	0.0275
2-Butanone		0.863	0.735	0.0034
Acrylonitrile		BDL	BDL	BDL
Benzene		2.39	2.21	0.0102
Ethane		26.5	9.41	0.0437
Ethyl Benzene		0.298	0.374	0.0017
Hexane		0.910	0.927	0.0043
Methane		522	99.0	0.459
Methylene Chloride		BDL	BDL	BDL
Styrene		0.310	0.381	0.0018
Toluene		0.964	1.05	0.0049
Trichloroethene		0.534	0.829	0.0038
Xylene		0.510	0.640	0.0030

The test conditions and results of analysis are presented in Tables 2-1 through 2-9 on pages 2-1 through 2-9.

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Results

RESULTS

Table 2-1:
CA-3 Calciner Stack - Particulate, Condition 1

Run No.[1]		1	3	4	Average
Date (1997)		May 22	May 22	May 22	
Start Time (approx.)		12:00	15:40	17:30	
Stop Time (approx.)		13:06	16:48	18:35	
Process Conditions[2]					
	Feed Rate (tons/hr)	198	198	198	**198**
Gas Conditions					
T_s	Temperature (°F)	306	307	308	**307**
B_{wo}	Moisture (volume %)	34.24	33.46	33.16	**33.62**
O_2	Oxygen (dry volume %)	9.6	9.7	9.6	**9.6**
CO_2	Carbon dioxide (dry volume %)	12.6	12.8	13.0	**12.8**
Volumetric Flow Rate					
Q_a	Actual conditions (acfm)	196,400	191,000	190,800	**192,700**
Q_{std}	Standard conditions (dscfm)	70,370	69,150	69,320	**69,610**
Front Half Total Particulate					
C	Concentration (gr/dscf)	0.0007	0.0012	0.0009	**0.0009**
E	Emission rate (lb/hr)	0.42	0.70	0.55	**0.56**
E	Emission rate (lb/ton of trona)	0.002	0.004	0.003	**0.003**
Back Half Organic Particulate					
C	Concentration (gr/dscf)	0.0178	0.0223	0.0236	**0.0212**
E	Emission rate (lb/hr)	10.7	13.2	14.0	**12.6**
E	Emission rate (lb/ton of trona)	0.054	0.067	0.071	**0.064**
Back Half Inorganic Particulate					
C	Concentration (gr/dscf)	0.0050	0.0036	0.0048	**0.0044**
E	Emission rate (lb/hr)	3.00	2.14	2.82	**2.66**
E	Emission rate (lb/ton of trona)	0.015	0.011	0.014	**0.013**
Back Half Total Particulate					
C	Concentration (gr/dscf)	0.0228	0.0259	0.0283	**0.0257**
E	Emission rate (lb/hr)	13.7	15.3	16.8	**15.3**
E	Emission rate (lb/ton of trona)	0.069	0.077	0.085	**0.077**
Front and Back Half Inorganic Particulate					
C	Concentration (gr/dscf)	0.0057	0.0048	0.0057	**0.0054**
E	Emission rate (lb/hr)	3.42	2.84	3.37	**3.21**
E	Emission rate (lb/ton of trona)	0.017	0.014	0.017	**0.016**

[1] Run 2 was aborted because high winds knocked over the sampling train.
[2] Process conditions provided by Solvay Minerals, Inc.

RESULTS

Table 2-2:
CA-3 Calciner Stack - Particulate, Condition 2

Run No.		5	6	7	Average
Date (1997)		May 28	May 28	May 28	
Start Time (approx.)		08:30	10:23	12:15	
Stop Time (approx.)		09:37	11:29	13:21	
Process Conditions					
	Feed Rate (tons/hr)	181	181	181	**181**
Gas Conditions					
T_s	Temperature (°F)	294	293	294	**294**
B_{wo}	Moisture (volume %)	32.20	32.14	31.56	**31.97**
O_2	Oxygen (dry volume %)	10.3	10.3	10.3	**10.3**
CO_2	Carbon dioxide (dry volume %)	12.5	12.6	12.5	**12.5**
Volumetric Flow Rate					
Q_a	Actual conditions (acfm)	177,700	173,200	184,100	**178,300**
Q_{std}	Standard conditions (dscfm)	67,760	66,220	70,910	**68,300**
Front Half Total Particulate					
C	Concentration (gr/dscf)	0.0042	0.0016	0.0020	**0.0026**
E	Emission rate (lb/hr)	2.46	0.92	1.23	**1.54**
E	Emission rate (lb/ton of trona)	0.014	0.005	0.007	**0.008**
Back Half Organic Particulate					
C	Concentration (gr/dscf)	0.0235	0.0167	0.0231	**0.0211**
E	Emission rate (lb/hr)	13.6	9.49	14.0	**12.4**
E	Emission rate (lb/ton of trona)	0.075	0.052	0.078	**0.068**
Back Half Inorganic Particulate					
C	Concentration (gr/dscf)	0.0064	0.0063	0.0081	**0.0070**
E	Emission rate (lb/hr)	3.72	3.60	4.92	**4.08**
E	Emission rate (lb/ton of trona)	0.021	0.020	0.027	**0.023**
Back Half Total Particulate					
C	Concentration (gr/dscf)	0.0299	0.0231	0.0312	**0.0280**
E	Emission rate (lb/hr)	17.4	13.1	19.0	**16.5**
E	Emission rate (lb/ton of trona)	0.096	0.072	0.105	**0.091**
Front and Back Half Inorganic Particulate					
C	Concentration (gr/dscf)	0.0106	0.0080	0.0101	**0.0096**
E	Emission rate (lb/hr)	6.18	4.53	6.15	**5.62**
E	Emission rate (lb/ton of trona)	0.034	0.025	0.034	**0.031**

RESULTS

Table 2-3:
CA-3 Calciner Stack - Particulate, Condition 3

Run No.		**8**
Date (1997)		May 30
Start Time (approx.)		08:17
Stop Time (approx.)		09:20
Process Conditions		
	Feed Rate (tons/hr)	216
Gas Conditions		
T_s	Temperature (°F)	314
B_{wo}	Moisture (volume %)	33.48
O_2	Oxygen (dry volume %)	9.7
CO_2	Carbon dioxide (dry volume %)	12.9
Volumetric Flow Rate		
Q_a	Actual conditions (acfm)	207,400
Q_{std}	Standard conditions (dscfm)	75,910
Front Half Total Particulate		
C	Concentration (gr/dscf)	0.0020
E	Emission rate (lb/hr)	1.28
E	Emission rate (lb/ton of trona)	0.006
Back Half Organic Particulate		
C	Concentration (gr/dscf)	0.0135
E	Emission rate (lb/hr)	8.78
E	Emission rate (lb/ton of trona)	0.041
Back Half Inorganic Particulate		
C	Concentration (gr/dscf)	0.0048
E	Emission rate (lb/hr)	3.14
E	Emission rate (lb/ton of trona)	0.015
Back Half Total Particulate		
C	Concentration (gr/dscf)	0.0183
E	Emission rate (lb/hr)	11.9
E	Emission rate (lb/ton of trona)	0.055
Front and Back Half Inorganic Particulate		
C	Concentration (gr/dscf)	0.0068
E	Emission rate (lb/hr)	4.42
E	Emission rate (lb/ton of trona)	0.020

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RESULTS

Table 2-4:
CA-3 Calciner Stack - NOx, CO and Total Non-Methane/Ethane Hydrocarbons, Condition 1

Run No.[1]		1	3	4	Average
Date (1997)		May 22	May 22	May 22	
Start Time (approx.)		12:00	15:40	17:30	
Stop Time (approx.)		13:06	16:48	18:35	
Process Conditions[2]					
	Feed Rate (ton of trona/hr)	198	198	198	
Gas Conditions[3]					
T_s	Temperature (°F)	306	307	308	**307**
B_{wc}	Moisture (volume %)	34.2	33.5	33.2	**33.6**
Q_{std}	Standard conditions (dscfm)	70,370	69,150	69,320	**69,613**
Oxygen					
C	Concentration (%)	9.5	9.4	9.2	**9.4**
Carbon Dioxide					
C	Concentration (%)	13.8	13.0	13.1	**13.3**
Nitrogen Oxides					
C	Concentration (ppmdv)	28.3	30.6	34.5	**31.1**
E	Emission rate (lb/hr)	14.2	15.2	17.1	**15.5**
E	Emission rate (lb/ton trona)	0.0719	0.0766	0.0864	**0.0783**
Carbon Monoxide					
C	Concentration (ppmdv)	1,869	1,815	1,833	**1,839**
E	Emission rate (lb/hr)	574	547	554	**558**
E	Emission rate (lb/ton trona)	2.90	2.76	2.80	**2.82**
Total Hydrocarbons (As Propane)					
C	Concentration (ppmdv)	287	212	214	**238**
E	Emission rate (lb/hr)	139	101	102	**114**
E	Emission rate (lb/ton trona)	0.701	0.509	0.514	**0.574**
Methane					
C	Concentration (ppmdv)	380	221	199	**266**
E	Emission rate (lb/hr)	66.8	38.1	34.4	**46.4**
E	Emission rate (lb/ton trona)	0.337	0.193	0.174	**0.234**
Ethane					
C	Concentration (ppmdv)	16.6	10.3	0.00	**9.0**
E	Emission rate (lb/hr)	5.46	3.33	0.00	**2.93**
E	Emission rate (lb/ton trona)	0.0276	0.0168	0.00	**0.0148**
Total Non-methane/Ethane Hydrocarbons (as propane)					
E	Emission rate (lb/hr)	66.6	59.3	67.3	**64.4**
E	Emission rate (lb/ton trona)	0.336	0.299	0.340	**0.325**

[1] Run 2 was void due to high winds knocking over the sampling train.
[2] Feed rate provided by Solvay Minerals, Inc.
[3] Gas conditions obtained from concurrent Method 5/202 testing.

RESULTS

Table 2-5:
CA-3 Calciner Stack - NOx, CO and Total Non-Methane/Ethane Hydrocarbons, Condition 2

Run No.		5	6	7	Average
Date (1997)		May 28	May 28	May 28	
Start Time (approx.)		08:30	10:23	12:15	
Stop Time (approx.)		09:37	11:29	13:21	
Process Conditions[1]					
	Feed Rate (ton of trona/hr)	181	181	181	
Gas Conditions[2]					
T_s	Temperature (°F)	306	307	308	**307**
B_{wo}	Moisture (volume %)	32.20	32.14	31.56	**31.97**
Q_{std}	Standard conditions (dscfm)	67,760	66,220	70,910	**68,297**
Oxygen					
C	Concentration (%)	10.3	10.3	10.2	**10.2**
Carbon Dioxide					
C	Concentration (%)	12.5	12.6	12.6	**12.6**
Nitrogen Oxides					
C	Concentration (ppmdv)	26.9	27.6	30.0	**28.1**
E	Emission rate (lb/hr)	13.0	13.1	15.2	**13.8**
E	Emission rate (lb/ton trona)	0.0721	0.0724	0.0841	**0.0762**
Carbon Monoxide					
C	Concentration (ppmdv)	2,054	1,881	2,152	**2,029**
E	Emission rate (lb/hr)	607	543	666	**605**
E	Emission rate (lb/ton trona)	3.36	3.00	3.68	**3.35**
Total Hydrocarbons					
C	Concentration (ppmdv)	407	325	428	**387**
E	Emission rate (lb/hr)	189	148	208	**182**
E	Emission rate (lb/ton trona)	1.05	0.817	1.15	**1.01**
Methane					
C	Concentration (ppmdv)	451	398	411	**420**
E	Emission rate (lb/hr)	76.4	65.8	72.9	**71.7**
E	Emission rate (lb/ton trona)	0.422	0.364	0.403	**0.396**
Ethane					
C	Concentration (ppmdv)	26.9	24.7	25.2	**25.6**
E	Emission rate (lb/hr)	8.55	7.67	8.38	**8.20**
E	Emission rate (lb/ton trona)	0.0472	0.0424	0.0463	**0.0453**
Total Non-methane/Ethane Hydrocarbons (as propane)					
E	Emission rate (lb/hr)	105	74.4	127	**102**
E	Emission rate (lb/ton trona)	0.578	0.411	0.702	**0.564**

[1] Feed rate provided by Solvay Minerals, Inc.
[2] Gas conditions obtained from concurrent Method 5/202 testing.

RESULTS

Table 2-6:
CA-3 Calciner Stack - NOx, CO and Total Non-Methane/Ethane Hydrocarbons, Condition 3

Run No.		**8**
Date (1997)		May 30
Start Time (approx.)		08:17
Stop Time (approx.)		09:20
Process Conditions[1]		
	Feed Rate (ton of trona/hr)	216
Gas Conditions[2]		
T_s	Temperature (°F)	314
B_{wo}	Moisture (volume %)	33.48
Q_{std}	Standard conditions (dscfm)	75,910
Oxygen		
C	Concentration (%)	9.7
Carbon Dioxide		
C	Concentration (%)	12.9
Nitrogen Oxides		
C	Concentration (ppmdv)	31.2
E	Emission rate (lb/hr)	17.0
E	Emission rate (lb/ton trona)	0.079
Carbon Monoxide		
C	Concentration (ppmdv)	1,467
E	Emission rate (lb/hr)	486
E	Emission rate (lb/ton trona)	2.25
Total Hydrocarbons		
C	Concentration (ppmdv)	338
E	Emission rate (lb/hr)	176
E	Emission rate (lb/ton trona)	0.818
Methane		
C	Concentration (ppmdv)	522
E	Emission rate (lb/hr)	99.0
E	Emission rate (lb/ton trona)	0.459
Ethane		
C	Concentration (ppmdv)	26.5
E	Emission rate (lb/hr)	9.41
E	Emission rate (lb/ton trona)	0.0437
Total Non-methane/Ethane Hydrocarbons (as propane)		
E	Emission rate (lb/hr)	67.9
E	Emission rate (lb/ton trona)	0.315

[1] Feed rate provided by Solvay Minerals, Inc.
[2] Gas conditions obtained from concurrent Method 5/202 testing.

SOLVAY2016_6_001852

RESULTS

Table 2-7:
CA-3 Calciner Stack - Volatile Organic Compounds, Condition 1

Run No.[1]		1	3	4	Average
Date (1997)		May 22	May 22	May 22	
Start Time (approx.)		12:00	15:40	17:30	
Stop Time (approx.)		13:06	16:48	18:35	
Process Conditions[2]					
	Feed rate (ton of trona/hr)	198	198	198	**198**
Gas Conditions[3]					
B_{wo}	Moisture (% by volume)	34.24	33.46	33.16	**33.62**
Q_{sd}	Volumetric flow rate, standard (dscfm)	70,370	69,150	69,320	**69,610**
1,1,1-Trichloroethane					
C	Concentration (ppmdv)	BDL	BDL	0.172	**0.172**
E	Emission rate (lb/hr)	BDL	BDL	0.100	**0.100**
E	Emission rate (lb/ton of trona)	BDL	BDL	0.0005	**0.0005**
1,3 Butadiene					
C	Concentration (ppmdv)	10.1	7.55	8.8	**8.9**
E	Emission rate (lb/hr)	6.01	4.57	5.16	**5.25**
E	Emission rate (lb/ton of trona)	0.0304	0.0231	0.0261	**0.0265**
2-Butanone					
C	Concentration (ppmdv)	0.957	0.481	1.49	**0.975**
E	Emission rate (lb/hr)	0.756	0.373	1.16	**0.762**
E	Emission rate (lb/ton of trona)	0.0038	0.0019	0.0058	**0.0038**
Acrylonitrile					
C	Concentration (ppmdv)	BDL	BDL	BDL	**BDL**
E	Emission rate (lb/hr)	BDL	BDL	BDL	**BDL**
E	Emission rate (lb/ton of trona)	BDL	BDL	BDL	**BDL**
Benzene					
C	Concentration (ppmdv)	3.30	2.93	2.82	**3.02**
E	Emission rate (lb/hr)	2.82	2.46	2.36	**2.55**
E	Emission rate (lb/ton of trona)	0.0143	0.0124	0.0120	**0.0129**
Ethyl Benzene					
C	Concentration (ppmdv)	0.887	0.920	0.183	**0.663**
E	Emission rate (lb/hr)	1.03	1.35	0.209	**0.764**
E	Emission rate (lb/ton of trona)	0.0052	0.0053	0.0011	**0.0039**
Hexane					
C	Concentration (ppmdv)	1.06	0.730	0.935	**0.908**
E	Emission rate (lb/hr)	1.00	0.678	0.870	**0.850**
E	Emission rate (lb/ton of trona)	0.0051	0.0034	0.0044	**0.0043**
Methylene Chloride					
C	Concentration (ppmdv)	BDL	BDL	BDL	**BDL**
E	Emission rate (lb/hr)	BDL	BDL	BDL	**BDL**
E	Emission rate (lb/ton of trona)	BDL	BDL	BDL	**BDL**
Styrene					
C	Concentration (ppmdv)	0.595	0.607	1.57	**0.923**
E	Emission rate (lb/hr)	0.679	0.681	1.76	**1.04**
E	Emission rate (lb/ton of trona)	0.0034	0.0034	0.0089	**0.0053**
Toluene					
C	Concentration (ppmdv)	2.04	1.82	1.27	**1.71**
E	Emission rate (lb/hr)	2.06	1.81	1.27	**1.71**
E	Emission rate (lb/ton of trona)	0.0104	0.0091	0.0064	**0.0086**
Trichloroethene					
C	Concentration (ppmdv)	0.450	0.299	0.238	**0.329**
E	Emission rate (lb/hr)	0.648	0.423	0.337	**0.470**
E	Emission rate (lb/ton of trona)	0.0033	0.0021	0.0017	**0.0024**
Xylene					
C	Concentration (ppmdv)	1.95	1.33	2.11	**1.79**
E	Emission rate (lb/hr)	2.26	1.52	2.41	**2.06**
E	Emission rate (lb/ton of trona)	0.0114	0.0077	0.0122	**0.0104**

BDL indicates value was below the detection limit. A value of zero was used for BDL in the average calculation.
[1] Run 2 was aborted because high winds knocked over the sampling train.
[2] Process conditions provided by Solvay Minerals, Inc.
[3] Gas conditions are taken from near simultaneous velocity and moisture testing.

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RESULTS

Table 2-8:
CA-3 Calciner Stack - Volatile Organic Compounds, Condition 2

Run No.		5	6	7	Average
Date (1997)		May 28	May 28	May 28	
Start Time (approx.)		08:30	10:23	12:15	
Stop Time (approx.)		09:37	11:29	13:21	
Process Conditions[1]					
	Feed rate (ton of trona/hr)	181	181	181	**181**
Gas Conditions[2]					
B_{wc}	Moisture (% by volume)	32.20	32.14	31.56	**31.97**
Q_{std}	Volumetric flow rate, standard (dscfm)	67,760	66,220	70,910	**68,297**
1,1,1-Trichloroethane					
C	Concentration (ppmcv)	6.83	BDL	BDL	**2.28**
E	Emission rate (lb/hr)	9.62	BDL	BDL	**3.21**
E	Emission rate (lb/ton of trona)	0.0531	BDL	BDL	**0.0177**
1,3 Butadiene					
C	Concentration (ppmcv)	15.4	12.2	17.5	**15.0**
E	Emission rate (lb/hr)	8.79	6.80	10.5	**8.68**
E	Emission rate (lb/ton of trona)	0.0486	0.0376	0.0578	**0.0480**
2-Butanone					
C	Concentration (ppmcv)	1.38	1.54	1.91	**1.61**
E	Emission rate (lb/hr)	1.05	1.14	1.52	**1.24**
E	Emission rate (lb/ton of trona)	0.0058	0.0063	0.0084	**0.0068**
Acrylonitrile					
C	Concentration (ppmcv)	BDL	BDL	BDL	**BDL**
E	Emission rate (lb/hr)	BDL	BDL	BDL	**BDL**
E	Emission rate (lb/ton of trona)	BDL	BDL	BDL	**BDL**
Benzene					
C	Concentration (ppmcv)	4.42	3.21	4.22	**3.95**
E	Emission rate (lb/hr)	3.64	2.58	3.64	**3.29**
E	Emission rate (lb/ton of trona)	0.0201	0.0143	0.0201	**0.0182**
Ethyl Benzene					
C	Concentration (ppmcv)	0.541	0.343	0.358	**0.414**
E	Emission rate (lb/hr)	0.606	0.376	0.420	**0.467**
E	Emission rate (lb/ton of trona)	0.0034	0.0021	0.0023	**0.0026**
Hexane					
C	Concentration (ppmcv)	2.02	1.30	1.80	**1.70**
E	Emission rate (lb/hr)	1.84	1.15	1.71	**1.57**
E	Emission rate (lb/ton of trona)	0.0101	0.0064	0.0094	**0.0087**
Methylene Chloride					
C	Concentration (ppmcv)	BDL	BDL	BDL	**BDL**
E	Emission rate (lb/hr)	BDL	BDL	BDL	**BDL**
E	Emission rate (lb/ton of trona)	BDL	BDL	BDL	**BDL**
Styrene					
C	Concentration (ppmcv)	0.861	0.685	0.733	**0.760**
E	Emission rate (lb/hr)	0.946	0.736	0.843	**0.842**
E	Emission rate (lb/ton of trona)	0.0052	0.0041	0.0047	**0.0047**
Toluene					
C	Concentration (ppmcv)	1.73	1.25	1.67	**1.55**
E	Emission rate (lb/hr)	1.68	1.18	1.70	**1.52**
E	Emission rate (lb/ton of trona)	0.0093	0.0065	0.0094	**0.0084**
Trichloroethene					
C	Concentration (ppmcv)	1.01	0.395	0.380	**0.594**
E	Emission rate (lb/hr)	1.39	0.535	0.551	**0.827**
E	Emission rate (lb/ton of trona)	0.0077	0.0030	0.0030	**0.0046**
Xylene					
C	Concentration (ppmcv)	1.36	0.99	1.03	**1.12**
E	Emission rate (lb/hr)	1.52	1.08	1.20	**1.27**
E	Emission rate (lb/ton of trona)	0.0084	0.0060	0.0066	**0.0070**

BDL indicates value was below the detection limit. A value of zero was used for BDL in the average calculation.

[1] Process conditions provided by Solvay Minerals, Inc.

[2] Gas conditions were obtained from concurrent particulate testing.

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RESULTS

Table 2-9:
CA-3 Calciner Stack - Volatile Organic Compounds, Condition 3

Run No.		8
Date (1997)		May 30
Start Time (approx.)		08:17
Stop Time (approx.)		09:20
Process Conditions[1]		
	Feed rate (ton of trona/hr)	215.62
Gas Conditions[2]		
B_{wo}	Moisture (% by volume)	33.48
Q_{std}	Volumetric flow rate, standard (dscfm)	75,910
1,1,1-Trichloroethane		
C	Concentration (ppmdv)	BDL
E	Emission rate (lb/hr)	BDL
E	Emission rate (lb/ton of trona)	BDL
1,3 Butadiene		
C	Concentration (ppmdv)	9.27
E	Emission rate (lb/hr)	5.93
E	Emission rate (lb/ton of trona)	0.0275
2-Butanone		
C	Concentration (ppmdv)	0.86
E	Emission rate (lb/hr)	0.74
E	Emission rate (lb/ton of trona)	0.0034
Acrylonitrile		
C	Concentration (ppmdv)	BDL
E	Emission rate (lb/hr)	BDL
E	Emission rate (lb/ton of trona)	BDL
Benzene		
C	Concentration (ppmdv)	2.39
E	Emission rate (lb/hr)	2.21
E	Emission rate (lb/ton of trona)	0.0102
Ethyl Benzene		
C	Concentration (ppmdv)	0.298
E	Emission rate (lb/hr)	0.374
E	Emission rate (lb/ton of trona)	0.0017
Hexane		
C	Concentration (ppmdv)	0.910
E	Emission rate (lb/hr)	0.927
E	Emission rate (lb/ton of trona)	0.0043
Methylene Chloride		
C	Concentration (ppmdv)	BDL
E	Emission rate (lb/hr)	BDL
E	Emission rate (lb/ton of trona)	BDL
Styrene		
C	Concentration (ppmdv)	0.310
E	Emission rate (lb/hr)	0.381
E	Emission rate (lb/ton of trona)	0.0018
Toluene		
C	Concentration (ppmdv)	0.964
E	Emission rate (lb/hr)	1.05
E	Emission rate (lb/ton of trona)	0.0049
Trichloroethene		
C	Concentration (ppmdv)	0.534
E	Emission rate (lb/hr)	0.83
E	Emission rate (lb/ton of trona)	0.0038
Xylene		
C	Concentration (ppmdv)	0.510
E	Emission rate (lb/hr)	0.640
E	Emission rate (lb/ton of trona)	0.0030

BDL indicates value was below the detection limit.
[1] Process conditions provided by Solvay Minerals, Inc.
[2] Gas conditions were obtained from concurrent particulate testing.

SOLVAY2016_6_001855

Description of Installation

SOLVAY2016_6_001856

DESCRIPTION OF INSTALLATION

Solvay Minerals, Inc., located near Green River, Wyoming, is a mine and refinery with corporate offices in Houston, Texas. Soda ash operations at the Green River, Wyoming facility began initial production in May of 1982. On May 27, 1992 Solvay S.A. of Belgium purchased the Green River facilities from Tenneco, Inc. and changed the name to Solvay Minerals, Inc.

The primary raw material for the Green River facility is sodium sesquicarbonate which is commonly referred to as trona. The trona is mined at the plant site from an ore bed located 1,500 feet below the surface. The trona is hoisted to the surface before refining into soda ash and other sodium-based products.

The trona that is fed to the soda ash calciners is heated, resulting in thermal calcination of the sodium sesquicarbonate forming a crude soda ash. The crude soda ash is dissolved in water and the insolubles are separated from the solution by settling and filtration. The insolubles are disposed of in the mine void. The high-purity saturated solution of sodium carbonate is then fed to crystallizers where a large amount of water is removed and a slurry of sodium carbonate monohydrate crystals is formed. This slurry is then further dewatered and washed by a series of cyclones and centrifuges. The resulting monohydrate crystals are fed through dryers forming a high quality soda ash, which then is ready for storage and shipment.

The caustic/sulfite plant is designed to produce 75,000 tons per year (dry basis) of sodium hydroxide as 50 percent caustic solution and 50,000 tons per year of dry sodium sulfite and related products.

Crushed trona ore is dissolved in water and caustic solution to produce a near saturated solution of soda ash (sodium carbonate, Na_2CO_3). This solution is reacted with a milk-of lime slurry, which is produced by mixing lime (CaO) with water. The resultant caustic solution is then thickened and separated from the waste solids. The solution is further filtered and evaporated, resulting in a 50 percent caustic (NaOH) solution. The caustic is stored and shipped in bulk.

The sulfite process also begins with the soda ash solution described above, which is reacted with SO_2 gas, produced by burning molten sulfur in the sulfur burner. This solution is feed to an evaporator, where sodium sulfite (Na_2SO_3) crystals are formed. The crystals must be dewatered and dried before ready for storage and/or shipment.

DESCRIPTION OF INSTALLATION

The Sodium Metabisulfite (MBS) process begins in the digester tanks. Soda ash is combined with recycle mother liquor from the metabisulfite crystallizer. A fraction of the sodium bisulfite in the mother liquor react with the soda ash to form sodium sulfite, which dissolves in the solution. This solution is heated and fed to the top of an absorber tower where it is contacted by sulfur dioxide and forms a saturated sodium bisulfite solution. The sulfur dioxide gas that doesn't react is fed back into the sodium sulfite contactor and used as sodium sulfite unit feed. The saturated sodium bisulfite solution is fed into a cooling crystallizer. Upon cooling, sodium metabisulfite crystals form out of the solution. The mother liquor is fed back to the digester tanks to be reacted with more soda ash. The sodium metabisulfite crystals are fed into a gas fired dryer for drying. The dry crystals are transported to one of two storage silos. The exhaust gas from the dryer is treated by a cyclone, venturi scrubber and packed bed scrubber before discharge to the atmosphere.

The facility is equipped with baghouses, scrubbers and electrostatic precipitators (ESP) to control emissions.

A schematic of the process shown in Figure 3-1.

SOLVAY2016_6_001858

DESCRIPTION OF INSTALLATION

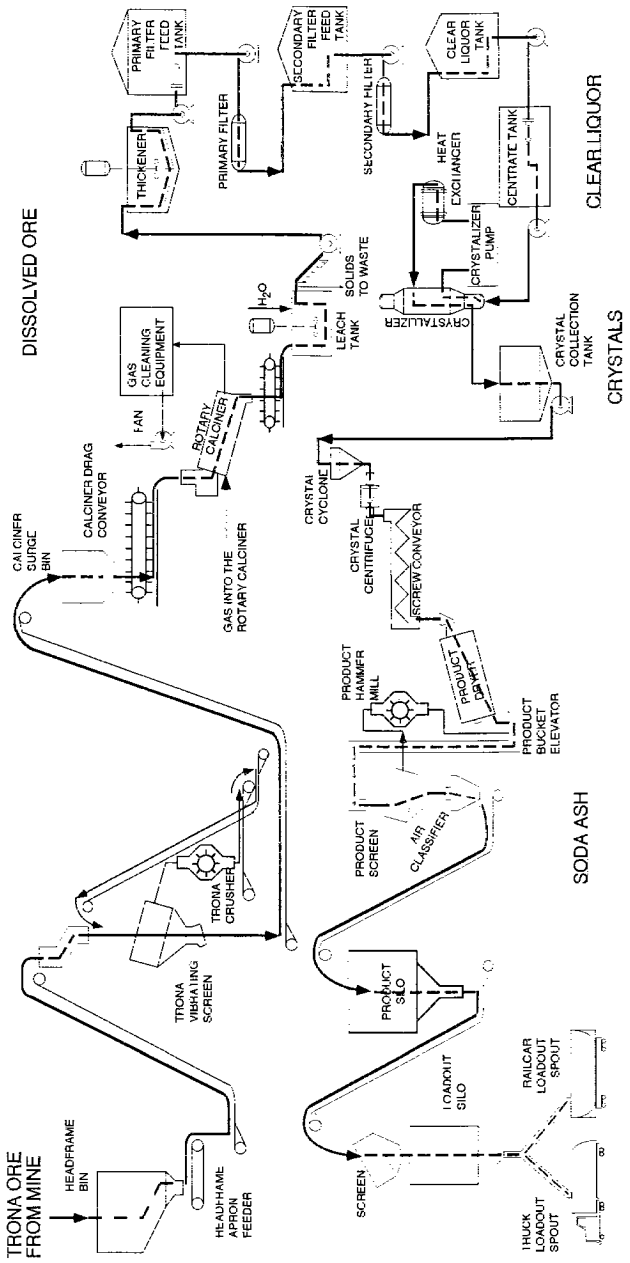

Figure 3-1: Process Schematic

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Methodology

METHODOLOGY

The sampling followed procedures as detailed in U.S. Environmental Protection Agency (EPA) Methods 1, 2, 3A, 4, 5, 6C, 7E, 10, 18, 25A and 202. The following table summarizes the methods and their respective sources.

Table 4-1:
Summary of Sampling Procedures

Title 40 CFR Part 60 Appendix A	
Method 1	"Sample and Velocity Traverses for Stationary Sources"
Method 2	"Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)"
Method 3A	"Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)"
Method 4	"Determination of Moisture Content in Stack Gases"
Method 5	"Determination of Particulate Emissions from Stationary Sources"
Method 7E	"Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)"
Method 10	"Determination of Carbon Monoxide Emissions from Stationary Sources"
Method 18	"Measurement of Gaseous Organic Compound Emissions by Gas Chromatography"
Method 25A	"Determination of Total Gaseous Organic Concentrations using a Flame Ionization Analyzer (FIA)"
Title 40 CFR Part 51 Appendix M	
Method 202	"Determination of Condensible Particulate Emissions from Stationary Sources"

These methods appear in detail in Title 40 of the Code of Federal Regulations (CFR).

Major aspects of the sampling, recovery and analytical procedures are summarized on pages 4-2 through 4-10.

All equipment was calibrated at the CAE laboratory prior to shipment to the job site. A post calibration was performed on each meter box at the conclusion of testing to verify that calibration was maintained throughout the test program. Calibration sheets can be found in Appendix Section C.

SOLVAY2016_6_001861

METHODOLOGY

SAMPLING POINT DETERMINATION

Sampling point locations were determined according to EPA Method 1.

Table 4-2 outlines the sampling point configurations. Figure 4-1 illustrates the sampling points and orientation of sampling ports for each of the sources tested in the program.

Table 4-2:
Sampling Points

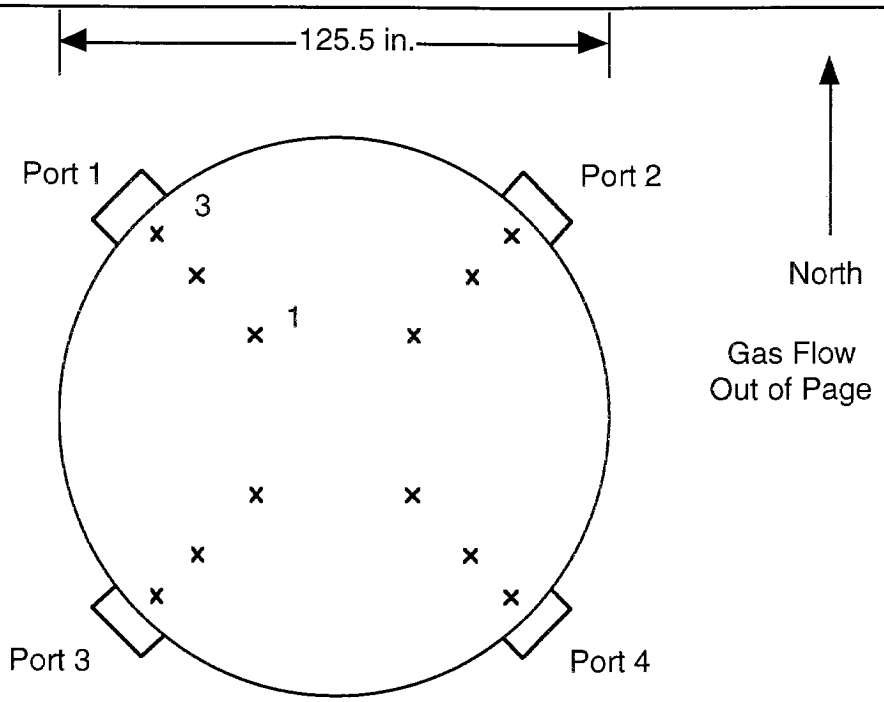
Location	Constituent	Method	Run No.	Ports	Points per Port	Minutes per Point	Total Minutes	Figure
Stack	Particulate	5	1-8	4	3	5	60	4-1
	NOx, CO, THC's							
		7E, 10, 25A	1-8	1	1	60[1]	60	
	VOC's	18	1-8	1	1	60[1]	60	

[1] CEM's and VOC's were sampled from the approximate center of the duct. Samples were taken continuously for a 60 minute period.

SOLVAY2016_6_001862

METHODOLOGY

SAMPLING POINT DETERMINATION (CONTINUED)



Traverse Point	Port to Point Distance (in.)
1	37.1
2	18.3
3	5.5

Diameters to upstream disturbance: 9.0 Limit: 2.0
Diameters to downstream disturbance: 5.5 Limit: 0.5

Figure 4-1: CA-3 Calciner Stack Velocity Traverse Point Determination (EPA Method 1)

SOLVAY2016_6_001863

METHODOLOGY

VELOCITY AND VOLUMETRIC FLOW RATE - EPA METHOD 2

EPA Method 2 was used, in conjunction with particulate testing, to determine the gas velocity and flow rate at the CA-3 Calciner Stack. Figure 4-2 includes the components of the EPA Method 2 sampling apparatus.

Each set of velocity determinations included the measurement of gas velocity pressure and gas temperature at each of the EPA Method 1 traverse points. The velocity pressures were measured with a Type S pitot tube. Gas temperature measurements were made using a Type K thermocouple and digital pyrometer.

MOISTURE CONTENT - EPA METHOD 4

The flue gas moisture content at the CA-3 Calciner Stack was determined in accordance with EPA Method 4, in conjunction with particulate testing. Figure 4-2 includes the components of the EPA Method 4 sampling apparatus. The gas moisture was determined by quantitatively condensing the water in chilled impingers. The amount of moisture condensed was determined gravimetrically. A dry gas meter was used to measure the volume of gas sampled. The amount of water condensed and the volume of gas sampled were used to calculate the gas moisture content in accordance with EPA Method 4.

SOLVAY2016_6_001864

METHODOLOGY

TOTAL PARTICULATE AND BACK HALF CONDENSIBLES COMBINED EPA METHODS 5 AND 202

EPA Method 5 was used in conjunction with EPA Method 202 to measure total particulate matter at the CA-3 Calciner Stack. EPA Method 5 measures particulate collected in nozzle, probe, connecting glassware and filter. EPA Method 202 measures the condensible particulate matter collected in the impinger assembly.

Figure 4-2 illustrates the EPA Method 5/202 sampling apparatus which was used. The sampling apparatus consisted of a glass lined temperature-controlled probe equipped with a Type S pitot tube (for measuring stack gas flow rate) and a sharp-edged glass button-hook nozzle. The exit of the probe was connected to a high efficiency glass fiber filter supported in a glass filter holder inside an oven.

The exit of the filter holder connected to a series of four full size impingers. The first three impingers each contained 100 milliliters of distilled water. The fourth contained a tared quantity of silica gel. The impingers were maintained at a temperature below 68°F for the duration of each test. In accordance with EPA Method 202 requirements, all glassware was cleaned prior to testing with soap and water, rinsed with water, acetone and finally methylene chloride.

Procedures for selecting sampling locations and for operation of the apparatus were derived from EPA Method 5/202 and associated EPA Methods 1 through 4. The sampling apparatus was leak-checked before and after each test run. Sampling was performed at an isokinetic rate greater than 90% and less than 110%.

Due to the flue gas desulfurization properties of soda ash, the sixty minute purge of the impingers was not required.

At the conclusion of each test run, the filter was removed from the filter holder and placed in a labeled petri dish (container No. 1). Any particles adhering to the filter holder gasket were also transferred to the dish. The probe liner, nozzle, probe fittings and front half of the filter holder were washed three times with distilled water to remove any particulate matter or condensate. These rinses were saved in the pre-cleaned glass sample container No. 2.

The first three impinger catches were measured, their weights recorded and the catches transferred to container No. 3. The weight gain was added to the silica gel weight gain of the fourth impinger to determine the stack gas moisture content. The impingers and all connecting glassware were rinsed twice with distilled water. These rinses were added to container No. 3. A final rinse, of the above components, with methylene chloride was saved in glass sample container No. 4.

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METHODOLOGY

TOTAL PARTICULATE AND BACK-HALF CONDENSIBLES (CONTINUED)

Sample bottles were sealed, shaken and labeled, and the liquid level was marked. At this time, approximately 200-ml each of distilled water and methylene chloride were prepared for analysis as reagent blanks.

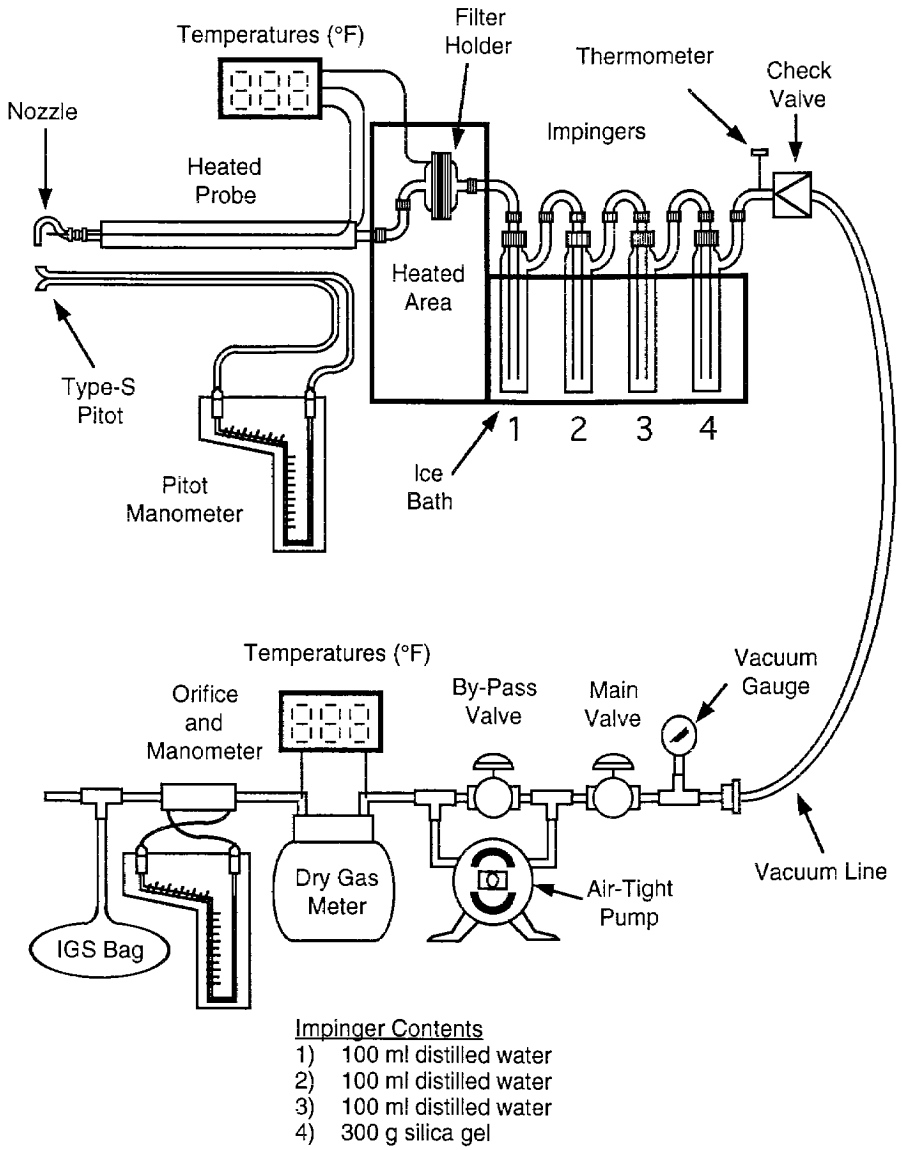
Particulate samples collected on the glass fiber filters were analyzed gravimetrically to a constant weight. The front half washes were transferred to tared beakers, evaporated to dryness, and weighed to constant weights.

The impinger water was extracted by adding the contents of the methylene chloride rinse to the impinger water, and separating the layers in a separatory funnel. Two additional 75 milliliter portions of methylene chloride were added to the funnel to complete the extraction. The organic extract fraction was then placed into a tared beaker and evaporated at room temperature to dryness. It was then desiccated for 24 hours and weighed to a constant weight. The aqueous inorganic fraction was taken to dryness at a slightly elevated temperature and allowed to air dry at room temperature. The residue was desiccated for 24 hours and weighed to a constant weight. The weight differentials for the organic and inorganic fractions were combined to determine the total condensible particulate matter.

The particulate analysis was performed by CAE located in Denver, Colorado and in Palatine, Illinois.

METHODOLOGY

TOTAL PARTICULATE AND BACK-HALF CONDENSIBLES (CONTINUED)



Impinger Contents
1) 100 ml distilled water
2) 100 ml distilled water
3) 100 ml distilled water
4) 300 g silica gel

Figure 4-2: Particulate Sampling Apparatus (EPA Method 5/202)

METHODOLOGY

CONTINUOUS EMISSIONS MONITORING

Monitoring of NO_X, CO and THC emissions at the CA-3 Calciner Stack was performed using a combination of EPA Methods 7E, 10 and 25A. In addition to the pollutant monitoring, O_2 and CO_2 concentrations were also monitored using EPA Method 3A. A gas sample was continuously extracted from the stack and delivered to a series of gas analyzers which measured the pollutant or diluent concentrations in the gas. The analyzers were calibrated on-site using certified mixtures of calibration gases.

Figure 4-3 contains a general schematic of the CEM system. The system utilized a heated stainless steel probe for gas withdrawal. The probe tip was equipped with a sintered stainless steel filter for particulate removal. The end of the probe was connected to a heated Teflon sample line which delivered the sample gases from the stack to the CEM system. The heated sample line was designed to maintain the gas temperature above 250°F in order to prevent condensation of stack gas moisture within the line.

Table 4-3 lists the analyzers used to perform the continuous emissions monitoring.

Table 4-3
Gas Analyzers

GAS	METHOD	REFERENCE ANALYZER MANUFACTURER	PRINCIPLE OF OPERATION
O_2	EPA 3A	Servomex 1420B	Paramagnetic
CO_2	EPA 3A	Fuji ACS 3300	NDIR
NO_x	EPA 7E	TECO 10	Chemiluminescence
CO	EPA 10	TECO 48	Gas Filter Correlation NDIR
THC	EPA 25A	J.U.M. Engineering VE-7	Flame Ionization Detection (FID)

Determination of O_2, CO_2, NO_X and CO Concentrations
EPA Methods 3A, 7E and 10

Before entering the analyzers, the gas sample was split into two streams. One stream passed directly into a refrigerated condenser which cooled the gas to approximately 35°F to remove the stack gas moisture. After passing through the condenser, the dry gas entered a Teflon-head diaphragm pump and a flow control panel which delivered the gas in series to the O_2, CO_2, NO_X and CO analyzers. Each of these analyzers measured the respective gas concentrations on a dry volumetric basis.

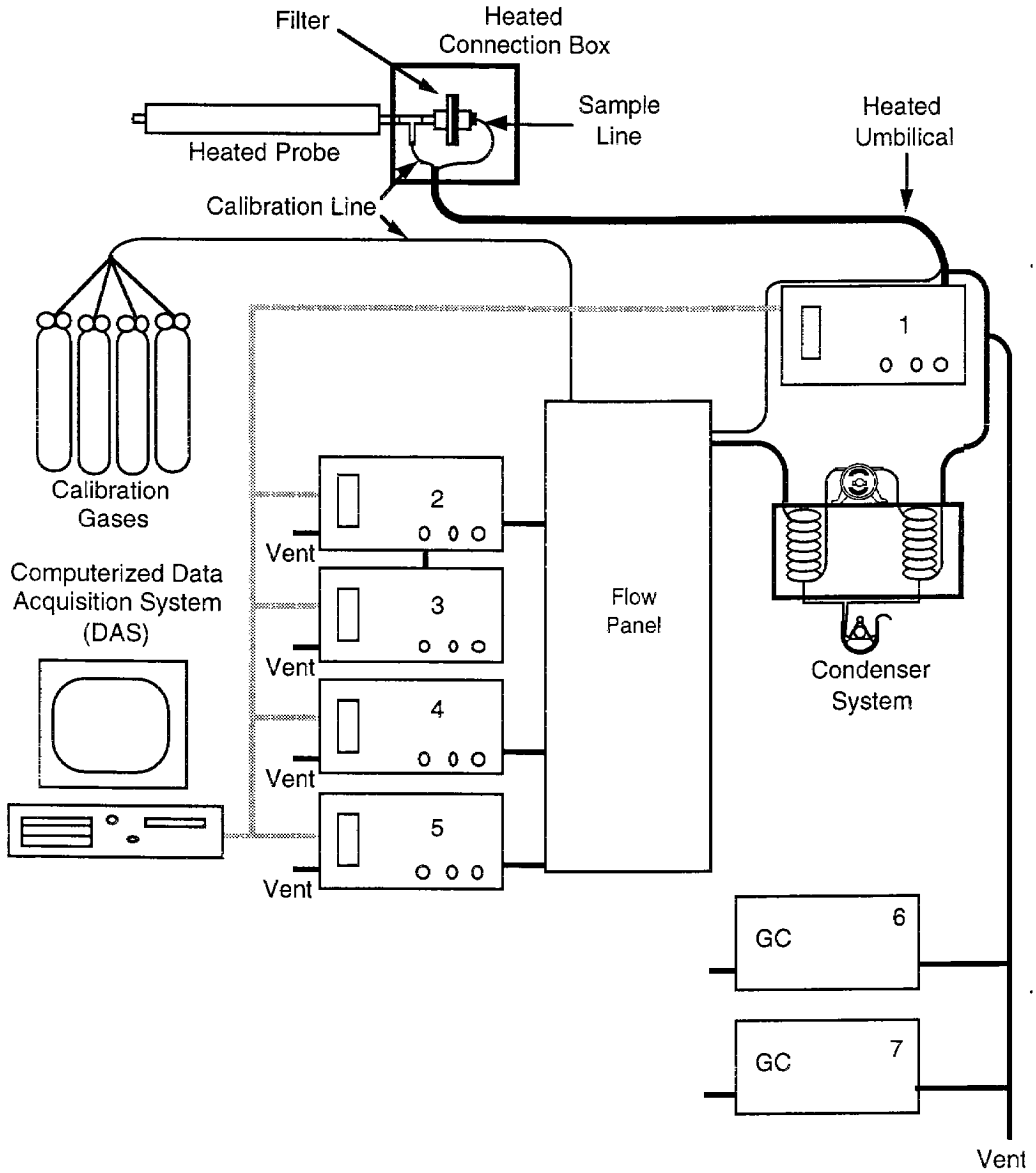
Determination of THC Concentrations - EPA Method 25A

The other gas stream remained heated and was transported through a Teflon line directly into the THC analyzer, which measured the gas on a wet volumetric basis. The THC analyzer contained a separate heated pump for gas delivery.

SOLVAY2016_6_001868

METHODOLOGY

CONTINUOUS EMISSIONS MONITORING (CONTINUED)



No	Gas	Monitor	Range Used	Calibration Gas Concentrations
1)	O_2	Servomex 1420B	0-25%	10.1, 20.8%
2)	CO_2	Fuji ACS 3300	0-25%	10.1, 18.1%
3)	NO_x	TECO 10	0-150 ppm	45.2, 107 ppm
4)	CO	TECO 48	0-2000 ppm	275.3, 598.7, 1515 ppm
5)	THC	J.U.M. Engineering VE-7	0-1000 ppm	252.4, 472.5, 852.2 ppm
6)		HP Gas Chromatograph		
7)		HP Gas Chromatograph		

Figure 4-3: CEM Apparatus (EPA Methods 3A, 7E, 10 and 25A)

SOLVAY2016_6_001869

METHODOLOGY

CONTINUOUS EMISSIONS MONITORING (CONTINUED)

Each of the analyzers was calibrated according to the respective reference method procedures. Before testing, each analyzer was checked for calibration error by introducing a zero, mid-level and high-level certified calibration gas directly into the analyzer. All of the reference method criteria for calibration error were demonstrated for each analyzer before testing could proceed.

EPA Protocol No. 1 certified calibration mixtures were used to calibrate the analyzers. The THC analyzer was calibrated with propane. All calibration gases were blended with nitrogen.

Before and after each of the three test runs, the zero gas and one up-scale gas for each analyzer was introduced into the sampling line at the exit of the heated probe to check for sampling system bias and calibration drift. The demonstration of reference method criteria for bias (pre- and post-test) and calibration drift was required for a valid test run. The results of the pre-test and post-test bias checks were used to correct the average flue gas concentration measured during each test run for analyzer drift during that period.

VOLATILE EMISSIONS TESTING - EPA METHOD 18

The analytical method used for on-site gas chromatography is detailed in the U.S. EPA Method 18: "Measurement of Gaseous Organic Compound Emissions by Gas Chromatography."

Figure 4-3 illustrates a general schematic of the monitoring system set up. Two Hewlett Packard Benchtop Gas Chromatographs (GCs) each equipped with a flame ionization detector (FID) and a thermal conductivity detector (TCD), were calibrated with a standard mixture containing the compounds of interest. Initial calibrations consisting of five points were performed immediately after mobilization to the site. A known concentration of each compound was injected into the GCs via a gas sampling valve.

At each test, location a heated sample line was connected to the source and fed to the on-site GCs. Data from the chromatographs was reducted by first identifying peaks. Compound identification is based upon retention time. Peaks from the sample gas were matched with retention times of the peaks from the known standards. Areas were calculated using a computer integrator. Identification and quantification of compounds in the samples were done by comparison of retention times and area counts with those of standard samples. Results were calculated in ppm of each analyte.

SOLVAY2010_6_001870

Appendix

APPENDIX

SAMPLE CALCULATIONS....A
PARAMETERS....B
CALIBRATION DATA....C
FIELD DATA....D
FIELD DATA PRINTOUTS....E
LABORATORY DATA....F
CHAIN OF CUSTODY....G
OPERATING DATA....H

A

SAMPLE CALCULATIONS

A

SAMPLE CALCULATIONS
CA-3 CALCINER - RUN NO. 1

The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

1. Volume of water collected (wscf)

$$V_{wstd} = (0.04707)(V_{lc})$$
$$= (0.04707)(419.9)$$
$$= 19.76 \text{ wscf}$$

Where:

V_{lc}	total volume of liquid collected in impingers and silica gel (ml)
V_{wstd}	volume of water collected at standard conditions (ft^3)
0.04707	conversion factor (ft^3/ml)

2. Volume of gas metered, standard conditions (dscf)

$$V_{mstd} = \frac{(17.64)(V_m)\left(P_{bar} + \frac{\Delta H}{13.6}\right)(Y_d)}{(460 + T_m)}$$
$$= \frac{(17.64)(49.36)\left(23.70 + \frac{1.73}{13.6}\right)(1.0077)}{(460 + 91)}$$
$$= 37.96 \text{ dscf}$$

Where:

P_{bar}	barometric pressure (in. Hg)
T_m	average dry gas meter temperature (°F)
V_m	volume of gas sample through the dry gas meter at meter conditions (ft^3)
V_{mstd}	volume of gas sample through the dry gas meter at standard conditions (ft^3)
Y_d	gas meter correction factor (dimensionless)
ΔH	average pressure drop across meter box orifice (in. H_2O)
17.64	conversion factor (°R/in. Hg)
13.6	conversion factor (in. H_2O/in. Hg)
460	°F to °R conversion constant

SAMPLE CALCULATIONS (CONTINUED)

3. Sample gas pressure (in. Hg)

$$P_s = P_{bar} + \left(\frac{P_g}{13.6}\right)$$

$$= 23.70 + \left(\frac{-0.5}{13.6}\right)$$

$$= 23.66 \text{ in. Hg}$$

Where:

P_{bar}	barometric pressure (in. Hg)
P_g	sample gas static pressure (in. H_2O)
P_s	absolute sample gas pressure (in. Hg)
13.6	conversion factor (in. H_2O/in. Hg)

4. Actual vapor pressure (in. Hg)[1]

$$P_v = P_s$$

$$= 23.66 \text{ in. Hg}$$

Where:

P_v	vapor pressure, actual (in. Hg)
P_s	absolute sample gas pressure (in. Hg)

5. Moisture content (%)

$$B_{wo} = \frac{V_{wstd}}{V_{mstd} + V_{wstd}} \times 100\%$$

$$= \frac{19.76}{37.96 + 19.76}$$

$$= 0.3424$$

$$\times 100\% = 34.24\ \%$$

Where:

B_{wo}	proportion of water vapor in the gas stream by volume (%)
V_{mstd}	volume of gas sample through the dry gas meter at standard conditions (ft^3)
V_{wstd}	volume of water collected at standard conditions (ft^3)

[1] For effluent gas temperatures over 212°F, P_v is assumed to be equal to P_s.

SAMPLE CALCULATIONS (CONTINUED)

6. Saturated moisture content (%)

$$B_{ws} = \frac{(P_v)}{(P_s)} \times 100\%$$

$$= \frac{(23.66)}{(23.66)}$$

$$= 1.0$$

$$\times 100\% = 100.00\ \%$$

Where:

B_{ws}	proportion of water vapor in the gas stream by volume at saturated conditions (%)
P_s	absolute sample gas pressure (in. Hg)
P_v	vapor pressure, actual (in. Hg)

Whichever moisture value is smaller is used for B_{wo} in the following calculations.

7. Molecular weight of dry gas stream (lb/lb·mole)

$$M_d = M_{CO_2}\frac{(CO_2)}{(100)} + M_{O_2}\frac{(O_2)}{(100)} + M_{CO+N_2}\frac{(CO+N_2)}{(100)}$$

$$= 44.0\frac{(9.6)}{(100)} + 32.0\frac{(12.6)}{(100)} + 28.0\frac{(77.8)}{(100)}$$

$$= 30.40\ \frac{\text{lb}}{\text{lb}\cdot\text{mole}}$$

Where:

M_d	dry molecular weight of sample gas (lb/lb·mole)
M_{CO_2}	molecular weight of carbon dioxide (lb/lb·mole)
M_{O_2}	molecular weight of oxygen (lb/lb·mole)
M_{CO+N_2}	molecular weight of carbon monoxide and nitrogen (lb/lb·mole)
CO_2	proportion of carbon dioxide in the gas stream by volume (%)
O_2	proportion of oxygen in the gas stream by volume (%)
$CO+N_2$	proportion of carbon monoxide and nitrogen in the gas stream by volume (%)
100	conversion factor (%)

SAMPLE CALCULATIONS (CONTINUED)

8. Molecular weight of sample gas (lb/lb·mole)

$$M_s = (M_d)(1 - B_{wo}) + (M_{H_2O})(B_{wo})$$

$$= (30.40)(1 - 0.3424) + (18.0)(0.3424)$$

$$= 26.15 \frac{\text{lb}}{\text{lb} \cdot \text{mole}}$$

Where:

B_{wo}	proportion of water vapor in the gas stream by volume
M_d	dry molecular weight of sample gas (lb/lb·mole)
M_{H_2O}	molecular weight of water (lb/lb·mole)
M_s	molecular weight of sample gas, wet basis (lb/lb·mole)

9. Velocity of sample gas (ft/sec)

$$V_s = (K_p)(C_P)\left(\overline{\sqrt{\Delta P}}\right)\left(\sqrt{\frac{(\overline{T_s} + 460)}{(M_s)(P_s)}}\right)$$

$$= (85.49)(0.84)(0.477)\left(\sqrt{\frac{(306 + 460)}{(26.15)(23.66)}}\right)$$

$$= 38.1 \frac{\text{ft}}{\text{sec}}$$

Where:

K_p	velocity pressure constant $\left(\frac{\text{ft}}{\text{sec}}\left[\frac{(\text{lb/lb} \cdot \text{mole})(\text{in. Hg})}{(°\text{R})(\text{in. H}_2\text{O})}\right]\right)$
C_p	pitot tube coefficient
M_s	molecular weight of sample gas, wet basis (lb/lb·mole)
P_s	absolute sample gas pressure (in. Hg)
T_s	average sample gas temperature (°F)
V_s	sample gas velocity (ft/sec)
$\sqrt{\Delta P}$	average square roots of velocity heads of sample gas (in. H_2O)
460	°F to °R conversion constant

SAMPLE CALCULATIONS (CONTINUED)

10. Total flow of sample gas (acfm)

$$Q_a = (60)(A_s)(V_s)$$
$$= (60)(85.90)(38.1)$$
$$= 196,400 \text{ acfm}$$

Where:

A_s	cross sectional area of sampling location (ft^2)
Q_a	volumetric flow rate at actual conditions (acfm)
V_s	sample gas velocity (ft/sec)
60	conversion factor (sec/min)

11. Total flow of sample gas (dscfm)

$$Q_{std} = \frac{(Q_a)(P_s)(17.64)(1-B_{wo})}{(\overline{T_s}+460)}$$
$$= \frac{(196,400)(23.66)(17.64)(1-0.3424)}{(306+460)}$$
$$= 70,370 \text{ dscfm}$$

Where:

B_{wo}	proportion of water vapor in the gas stream by volume
P_s	absolute sample gas pressure (in. Hg)
Q_a	volumetric flow rate at actual conditions (acfm)
Q_{std}	volumetric flow rate at standard conditions, dry basis (dscfm)
T_s	average sample gas temperature (°F)
17.64	conversion factor (°R/in. Hg)
460	°F to °R conversion constant

SAMPLE CALCULATIONS (CONTINUED)

12. Particulate concentration (gr/dscf)

$$C_{gr/dscf} = \frac{(15.43)(m_n)}{V_{mstd}} = \frac{(15.43)(0.0577)}{(37.96)} = 0.0235 \frac{gr}{dscf}$$

Where:

$C_{gr/dscf}$	measured concentration in the gas stream (gr/dscf)
m_n	total amount of particulate matter collected, corrected for applicable reagent blank (g)
V_{mstd}	volume of gas sample through the dry gas meter at standard conditions (ft^3)
15.43	conversion factor (gr/g)

13. Particulate emission (lb/hr)

$$E_{lb/hr} = \frac{(C_{gr/dscf})(Q_{std})(60)}{7,000} = \frac{(0.0235)(70,370)(60)}{(7,000)} = 14.17 \frac{lb}{hr}$$

Where:

$C_{gr/dscf}$	measured concentration in the gas stream (gr/dscf)
$E_{lb/hr}$	emission rate (lb/hr)
Q_{std}	volumetric flow rate at standard conditions, dry basis (dscfm)
60	conversion factor (min/hr)
7,000	conversion factor (gr/lb)

SAMPLE CALCULATIONS (CONTINUED)

14. Particulate (lb/ton of trona)

$$E_{lb/ton\ of\ trona} = \frac{(E_{lb/hr})}{(E_{ton\ of\ trona/hr})} = \frac{(14.17)}{(198)} = 0.072\ \frac{lb}{ton\ of\ trona}$$

Where:

$E_{lb/hr}$	emission rate (lb/hr)
$E_{ton\ of\ trona/hr}$	feed rate (ton of trona/hr)
$E_{lb/ton\ of\ trona}$	emission rate (lb/ton of trona)

15. Continuous emissions monitoring for total hydrocarbons (drift corrected in ppmwv)[1]

$$C_{gas} = \left((C_{avg}) - \left(\frac{C_{oi} + C_{of}}{2}\right)\right) \frac{(C_{ma})}{\left(\left(\frac{C_{mi} + C_{mf}}{2}\right) - \left(\frac{C_{oi} + C_{of}}{2}\right)\right)}$$

$$= \left((188.8) - \left(\frac{-0.7 + 0.5}{2}\right)\right) \frac{(252.4)}{\left(\left(\frac{253.4 + 241.6}{2}\right) - \left(\frac{-0.7 + 0.5}{2}\right)\right)}$$

$$= 189\ ppmwv$$

Where:

C_{gas}	concentration corrected for drift (ppmwv)
C_{avg}	measured concentration in the gas stream (ppmwv)
C_{ma}	actual concentration of the upscale calibration gas (ppm)
C_{mi}	initial system calibration bias check response for the upscale calibration gas (ppm)
C_{mf}	final system calibration bias check response for the upscale calibration gas (ppm)
C_{oi}	initial system calibration bias check response for the zero gas (ppm)
C_{of}	final system calibration bias check response for the zero gas (ppm)

[1] The calculations for nitrogen oxides and carbon monoxide are performed in a similar manner.

SAMPLE CALCULATIONS (CONTINUED)

16. Continuous emissions monitoring for total hydrocarbons as propane (moisture corrected to ppmdv)

$$C_{ppmdv} = \frac{(C_{ppmwv})}{(1 - B_{wo})} = \frac{(189)}{(1 - 0.3424)} = 287 \text{ ppmdv}$$

Where:

B_{wo}	proportion of water vapor in the gas stream by volume
C_{ppmdv}	concentration calibrated for drift (ppmdv)
C_{ppmwv}	concentration calibrated for drift (ppmwv)

17. Continuous emissions monitoring for total hydrocarbons (lb/hr)[1]

$$E_{lb/hr} = \frac{(C_{ppm})(M_{THC})(Q_{std})(60)}{(385.3)(10^6)} = \frac{(287)(44.10)(70{,}370)(60)}{(385.3)(10^6)} = 139 \frac{lb}{hr}$$

Where:

C	measured concentration in the gas stream (ppmdv)
$E_{lb/hr}$	emission rate (lb/hr)
Q_{std}	volumetric flow rate at standard conditions, dry basis (dscfm)
M_{THC}	molecular weight of total hydrocarbons
10^6	conversion factor (ppm)
385.3	conversion factor (ft^3/lb·mole)
60	conversion factor (min/hr)

[1] The calculations for nitrogen oxides and carbon monoxide are performed in a similar manner, using the molecular weights of 46.01 and 28.01, respectively.

SAMPLE CALCULATIONS (CONTINUED)

18. Continuous emissions monitoring for total hydrocarbons (lb/ton of trona)[1]

$$E_{lb/ton\ of\ trona} = \frac{(E_{lb/hr})}{(E_{ton\ of\ trona/hr})} = \frac{(139)}{(198)} = 0.702\ \frac{lb}{ton\ of\ trona}$$

Where:

$E_{lb/hr}$	emission rate (lb/hr)
$E_{ton\ of\ trona/hr}$	feed rate (ton of trona/hr)
$E_{lb/ton\ of\ trona}$	emission rate (lb/ton of trona)

19. Total non-methane\ethane hydrocarbons (lb/hr)

$$E_{lb/hr} = (E_{lb/hr THC's}) - [(E_{lb/hr\ methane}) + (E_{lb/hr\ ethane})] = (139) - [(66.8) + (??)] = ??\ lb/hr\ total\ non-methane \backslash ethane\ hydrocarbons$$

Where:

$E_{lb/hr}$	emission rate (lb/hr-total non-methane hydrocarbons)
$E_{lb/hr\ THC's}$	emission rate (total hydrocarbons)
$E_{lb/hr\ methane}$	emission rate (methane)
$E_{lb/hr\ ethane}$	emission rate (ethane)

[1] The calculations for organic compounds are performed in a similar manner.

SAMPLE CALCULATIONS (CONTINUED)

20. Volume of air used to dilute calibration standards (L)--tedlar bag preparation of G.C. calibration standards
Example shows numbers from GC1 Bag No. 1

$$V_m = (V_d)(t)$$
$$= (3.204)(12.50)$$
$$= 40.05L$$

Where:

V_m	volume of air used to dilute calibration standards (L)
V_d	Rate of dilution air (L/min)
t	time used to fill bag (min)

21. Organic standard concentration (ppm)--tedlar bag preparation of gas phase G.C. calibration standards
Example shows numbers from GC1 Bag No. 1 Methane

$$C_s = \frac{(V_g)(F_g)}{(V_m)}(10^6)$$
$$= \frac{(5.0)(1.0)}{(40050)}(10^6)$$
$$= 125 \text{ ppm}$$

Where:

C_s	concentration of calibration standard in tedlar bag (ppm)
V_g	volume of gas phase calibration standard added to tedlar bag (mL)
V_m	volume of air used to dilute calibration standards (mL)
F_g	percent purity of calibration gas added to bag
10^6	conversion of ratio to ppmwv

22. Percent of calibration standard in stock solution by volume (%)--tedlar bag preparation of liquid phase G.C. calibration standards
Example shows numbers from GC2 Bag No. 1a Hexane

$$P_v = \left(\frac{V_l}{\sum_{i=1}^{n} v_{li}}\right) \times 100$$
$$= \left(\frac{0.4}{(0.4 + 0.5...)}\right) \times 100$$
$$= 10.0\ \%$$

Where:

P_v	percent of calibration standard in stock solution by volume (%)
V_l	volume of liquid phase calibration standard added to 20 ml calibration vial (mL)

SAMPLE CALCULATIONS (CONTINUED)

23. Volume of liquid phase calibration standard added to tedlar bag (µL)

$$V_1 = (P_v)(S_i)$$
$$= (0.10)(1.0)$$
$$= 0.10 \ \mu L$$

Where:

P_v	percent of calibration standard in stock solution by volume (%)
S_i	volume of stock solution added to tedlar bag (µL)
V_1	volume of liquid phase calibration standard added to tedlar bag (µL)

24. Organic standard concentration (ppm)--tedlar bag preparation of liquid phase G.C. calibration standards

$$C_s = \frac{(\partial)(V_1)(T)}{(M_{wt})(453.6)(V_m)(P)}(21.85)(28.3)(1,000)$$
$$= \frac{(0.663)(0.10)(531.67)}{(86.18)(453.6)(39.96)(24.01)}(21.85)(28.3)(1,000)$$
$$= 0.58 \text{ ppm}$$

Where:

C_s	concentration of calibration standard in tedlar bag (ppm)
∂	density of liquid phase calibration standard (g/mL)
V_1	volume of liquid phase calibration standard added to tedlar bag (µL)
T	bag temperature (°R)
21.85	ideal gas constant (in Hg-ft^3/lbmol-°R)
28.3	conversion factor for liters to cubic feet (L/ ft^3)
1,000	conversion factor to ppm
M_{wt}	molecular weight (lb/lbmol)
453.6	conversion factor for grams to pounds (g/lb)
V_m	volume of air used to dilute calibration standards (L)
P	bag pressure (in Hg.)

SAMPLE CALCULATIONS (CONTINUED)

25. Calibration standard G.C. response factor (ppm/units of area)

$$F_r = \frac{(C_s)}{(\overline{A})}$$

$$= \frac{(0.58)}{(29278)}$$

$$= 1.98E-05 \text{ ppm / units of area}$$

Where:

F_r	calibration standard G.C. response factor (ppm/units of area)
C_s	concentration of calibration standard in tedlar bag (ppm)
A	average peak area obtained from 3 to 10 injects per tedlar bag (units of area)

Note: The above equation is used to obtain a response factor for each calibration standard from one calibration bag. To calibrate the G.C., several calibration bags with known concentrations are used. A calibration curve of concetration vs. area is then developed. A linear regression is used to determine the concentration from the peak area, as shown below.

26. Concentration of analyte in gas stream per inject (hexane ppmwv)

$$C_i = \frac{(A-b)}{m}$$

$$= \frac{(26893-(-450))}{(49600)}$$

$$= 0.552 \text{ ppmwv}$$

Where:

C_i	measured concentration of analyte in gas stream per inject (ppmwv)
A	peak area (units of area)
b	y-intercept from linear regression equation (units of area)
m	slope from linear regression equation (units of area/ppmwv)

SAMPLE CALCULATIONS (CONTINUED)

27. Concentration of analyte in gas stream per run (ppmwv-hexane)

$$C = \frac{(C_1 + C_2 + \ldots + C_n)}{n}$$
$$= 0.697 \text{ ppmwv}$$

Where:

C	average run concentration obtained from 4 injects per run (ppmwv)
C_n	measured concentration of analyte in gas stream per inject (ppmwv)
n	number of injects

28. Limit of detection (ppmwv-hexane)
Obtained from 40 CFR App. B to Part 136 "Defination and Procedure for the Determination of the Method Detection Limit-Revision 1.11"

$$LOD = (Sd)(t_{0.99},(n-1))$$
$$= \left(\sqrt{\frac{1}{n-1}\left[\sum_{i=1}^{n} X_i^2 - \left(\sum_{i=1}^{n} X_i\right)^2 \div n\right]}\right)(t_{0.99},(n-1))$$
$$= \left(\sqrt{\frac{1}{4-1}\left[\left(1.22^2 + 1.215^2 \ldots\right) - (1.22 + 1.215 \ldots)^2 \div 4\right]}\right)(4.541)$$
$$= 0.055 \text{ ppmwv}$$

Where:

LOD	limit of detection (ppmwv)
Sd	Standard deviation of the results from from processing a calibration standard with the linear regression equation
$t_{0.99},(n-1)$	Students "T" value, appropiate for a 99% confidence level and a standard deviation estimate with n-1 degrees of freedom

29. Limit of detection (ppmwv-styrene)
Determination based on regression curve

$$LOD = \left|\frac{(rsp - b)}{m}\right|$$
$$= \left|\frac{(0 - 1.96E03)}{7.19E04}\right|$$
$$= 0.027 \text{ ppmwv}$$

Where:

LOD	limit of detection (ppmwv)
rsp	response (area) at zero concentration (units of area)
b	y-intercept from linear regression equation (units of area)
m	slope from linear regression equation (units of area/ppmwv)

B

PARAMETERS

B

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Calciner

PARTICULATE
VELOCITY AND MOISTURE PARAMETERS

Run No.[1]		1	3	4
Date (1997)		May 22	May 22	May 22
Start Time (approx.)		12:00	15:40	17:30
Stop Time (approx.)		13:06	16:48	18:35
Sampling Conditions				
Y_d	Dry gas meter correction factor	1.0077	1.0077	1.0077
C_p	Pitot tube coefficient	0.84	0.84	0.84
P_g	Static pressure (in. H_2O)	-0.5	-0.5	-0.5
A_s	Sample location area (ft^2)	85.90	85.90	85.90
P_{bar}	Barometric pressure (in. Hg)	23.70	23.70	23.70
D_n	Nozzle diameter (in.)	0.375	0.375	0.375
O_2	Oxygen (dry volume %)	9.6	9.7	9.6
CO_2	Carbon dioxide (dry volume %)	12.6	12.8	13.0
V_{lc}	Liquid collected (ml)	419.9	411.8	404.5
V_m	Volume metered, meter conditions (ft^3)	49.36	49.68	49.63
T_m	Dry gas meter temperature (°F)	91	86	88
T_s	Sample temperature (°F)	306	307	308
ΔH	Meter box orifice pressure drop (in. H_2O)	1.73	1.65	1.65
Θ	Total sampling time (min)	60	60	60
Flow Results				
V_{wstd}	Volume of water collected (ft^3)	19.76	19.38	19.04
V_{mstd}	Volume metered, standard (ft^3)	37.96	38.55	38.37
P_s	Sample gas pressure, absolute (in. Hg)	23.66	23.66	23.66
P_v	Vapor pressure, actual (in. Hg)	23.66	23.66	23.66
B_{wo}	Moisture in sample (% by volume)	34.24	33.46	33.16
B_{ws}	Saturated moisture (% by volume)	100.00	100.00	100.00
$\sqrt{\Delta P}$	Velocity head ($\sqrt{in.}$ H_2O)	0.477	0.465	0.464
M_d	MW of sample gas, dry (lb/lb-mole)	30.40	30.44	30.46
M_s	MW of sample gas, wet (lb/lb-mole)	26.15	26.28	26.33
V_s	Velocity of sample (ft/sec)	38.1	37.1	37.0
%I	Isokinetic sampling (%)	100.7	104.1	103.3
Q_a	Volumetric flow rate, actual (acfm)	196,400	191,000	190,800
Q_{std}	Volumetric flow rate, standard (dscfm)	70,370	69,150	69,320

[1] Run 2 was aborted because high winds knocked over the sampling train.

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Calciner

PARTICULATE PARAMETERS

Run No.		1	3	4
Date (1997)		May 22	May 22	May 22
Start Time (approx.)		12:00	15:40	17:30
Stop Time (approx.)		13:06	16:48	18:35
Front Half Total Particulate				
m_n	Matter collected (g)	0.0017	0.0030	0.0023
C	Concentration (gr/acf)	0.0002	0.0004	0.0003
C	Concentration (gr/dscf)	0.0007	0.0012	0.0009
E	Emission rate (lb/hr)	0.42	0.70	0.55
Back Half Organic Particulate				
m_n	Matter collected (g)	0.0437	0.0556	0.0586
C	Concentration (gr/acf)	0.0064	0.0081	0.0086
C	Concentration (gr/dscf)	0.0178	0.0223	0.0236
E	Emission rate (lb/hr)	10.7	13.2	14.0
Back Half Inorganic Particulate				
m_n	Matter collected (g)	0.0122	0.0090	0.0118
C	Concentration (gr/acf)	0.0018	0.0013	0.0017
C	Concentration (gr/dscf)	0.0050	0.0036	0.0048
E	Emission rate (lb/hr)	3.00	2.14	2.82
Back Half Total Particulate				
m_n	Matter collected (g)	0.0560	0.0647	0.0705
C	Concentration (gr/acf)	0.0082	0.0094	0.0103
C	Concentration (gr/dscf)	0.0228	0.0259	0.0283
E	Emission rate (lb/hr)	13.7	15.3	16.8
Front and Back Half Inorganic Particulate				
m_n	Matter collected (g)	0.0139	0.0120	0.0141
C	Concentration (gr/acf)	0.0020	0.0017	0.0021
C	Concentration (gr/dscf)	0.0057	0.0048	0.0057
E	Emission rate (lb/hr)	3.42	2.84	3.37

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Calciner

PARTICULATE
VELOCITY AND MOISTURE PARAMETERS

Run No.		5	6	7	8
Date (1997)		May 28	May 28	May 28	May 30
Start Time (approx.)		08:30	10:23	12:15	08:17
Stop Time (approx.)		09:37	11:29	13:21	09:20
Sampling Conditions					
Y_d	Dry gas meter correction factor	1.0077	1.0077	1.0077	1.0077
C_p	Pitot tube coefficient	0.84	0.84	0.84	0.84
P_g	Static pressure (in. H_2O)	-0.4	-0.3	-0.3	-0.4
A_s	Sample location area (ft^2)	85.90	85.90	85.90	85.90
P_{bar}	Barometric pressure (in. Hg)	24.08	24.08	24.08	24.17
D_n	Nozzle diameter (in.)	0.375	0.375	0.375	0.375
O_2	Oxygen (dry volume %)	10.3	10.3	10.2	9.7
CO_2	Carbon dioxide (dry volume %)	12.5	12.6	12.6	12.9
V_{lc}	Liquid collected (ml)	366.4	363.2	381.2	390.2
V_m	Volume metered, meter conditions (ft^3)	45.10	45.69	49.60	45.70
T_m	Dry gas meter temperature (°F)	74	84	88	81
T_s	Sample temperature (°F)	294	293	294	314
ΔH	Meter box orifice pressure drop (in. H_2O)	1.42	1.41	1.66	1.74
Θ	Total sampling time (min)	60	60	60	55
Flow Results					
V_{wstd}	Volume of water collected (ft^3)	17.25	17.10	17.94	18.37
V_{mstd}	Volume metered, standard (ft^3)	36.32	36.09	38.92	36.49
P_s	Sample gas pressure, absolute (in. Hg)	24.05	24.06	24.06	24.14
P_v	Vapor pressure, actual (in. Hg)	24.05	24.06	24.06	24.14
B_{wo}	Moisture in sample (% by volume)	32.20	32.14	31.56	33.48
B_{ws}	Saturated moisture (% by volume)	100.00	100.00	100.00	100.00
$\sqrt{\Delta P}$	Velocity head ($\sqrt{\text{in. } H_2O}$)	0.441	0.430	0.457	0.507
M_d	MW of sample gas, dry (lb/lb-mole)	30.41	30.43	30.42	30.45
M_s	MW of sample gas, wet (lb/lb-mole)	26.42	26.43	26.50	26.28
V_s	Velocity of sample (ft/sec)	34.5	33.6	35.7	40.2
%I	Isokinetic sampling (%)	100.1	101.8	102.5	97.9
Q_a	Volumetric flow rate, actual (acfm)	177,700	173,200	184,100	207,400
Q_{std}	Volumetric flow rate, standard (dscfm)	67,760	66,220	70,900	75,910

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Calciner

PARTICULATE PARAMETERS

Run No.		5	6	7	8
Date (1997)		May 28	May 28	May 28	May 30
Start Time (approx.)		08:30	10:23	12:15	08:17
Stop Time (approx.)		09:37	11:29	13:21	09:20
Front Half Total Particulate					
m_n	Matter collected (g)	0.0099	0.0038	0.0051	0.0047
C	Concentration (gr/acf)	0.0016	0.0006	0.0008	0.0007
C	Concentration (gr/dscf)	0.0042	0.0016	0.0020	0.0020
E	Emission rate (lb/hr)	2.46	0.92	1.23	1.28
Back Half Organic Particulate					
m_n	Matter collected (g)	0.0552	0.0391	0.0582	0.0319
C	Concentration (gr/acf)	0.0089	0.0064	0.0089	0.0049
C	Concentration (gr/dscf)	0.0235	0.0167	0.0231	0.0135
E	Emission rate (lb/hr)	13.6	9.49	14.0	8.78
Back Half Inorganic Particulate					
m_n	Matter collected (g)	0.0151	0.0149	0.0204	0.0114
C	Concentration (gr/acf)	0.0024	0.0024	0.0031	0.0018
C	Concentration (gr/dscf)	0.0064	0.0063	0.0081	0.0048
E	Emission rate (lb/hr)	3.72	3.60	4.92	3.14
Back Half Total Particulate					
m_n	Matter collected (g)	0.0703	0.0540	0.0787	0.0433
C	Concentration (gr/acf)	0.0114	0.0088	0.0120	0.0067
C	Concentration (gr/dscf)	0.0299	0.0231	0.0312	0.0183
E	Emission rate (lb/hr)	17.4	13.1	19.0	11.9
Front and Back Half Inorganic Particulate					
m_n	Matter collected (g)	0.0250	0.0187	0.0255	0.0161
C	Concentration (gr/acf)	0.0041	0.0030	0.0039	0.0025
C	Concentration (gr/dscf)	0.0106	0.0080	0.0101	0.0068
E	Emission rate (lb/hr)	6.18	4.53	6.15	4.42

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack

CEM PARAMETERS

Run No.	1	3	4
Date (1997)	May 22	May 22	May 22
Start Time (approx.)	12:00	15:40	17:30
Stop Time (approx.)	13:06	16:48	18:35
Gas Conditions			
B_{wo} Moisture in sample (% by volume)	34.2	33.5	33.2
Q_{std} Volumetric flow rate, standard (dscfm)	70,370	69,150	69,320
OXYGEN			
Data Acquisition			
C Effluent gas concentration (dry volume %)	9.5	9.4	9.3
Calibration Gases			
C_{oi} Calibration bias check, initial zero gas	0.1	0.1	0.0
C_{mi} Calibration bias check, initial upscale gas	10.0	10.0	10.0
C_{of} Calibration bias check, final zero gas	0.1	0.0	0.1
C_{mf} Calibration bias check, final upscale gas	10.0	10.0	10.0
C_{ma} Actual concentration of upscale gas	10.10	10.10	10.10
Calculated Results			
C_{gas} Concentration drift corrected (dry volume %)	9.5	9.4	9.2
CARBON DIOXIDE			
Data Acquisition			
C Effluent gas concentration (dry volume %)	13.8	13.1	13.3
Calibration Gases			
C_{oi} Calibration bias check, initial zero gas	0.0	0.1	0.1
C_{mi} Calibration bias check, initial upscale gas	10.1	10.1	10.0
C_{of} Calibration bias check, final zero gas	0.1	0.1	0.1
C_{mf} Calibration bias check, final upscale gas	10.1	10.0	10.0
C_{ma} Actual concentration of upscale gas	10.1	10.1	10.1
Calculated Results			
C_{gas} Concentration drift corrected (dry volume %)	13.8	13.0	13.1

SOLVAY MINERALS, INC.
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CA-3 Stack

CEM PARAMETERS

Run No.		1	3	4
Date (1997)		May 22	May 22	May 22
Start Time (approx.)		12:00	15:40	17:30
Stop Time (approx.)		13:06	16:48	18:35
Gas Conditions				
O_2	Oxygen (dry volume %)	9.5	9.4	9.2
CO_2	Carbon Dioxide (dry volume %)	13.8	13.0	13.1
B_{wo}	Moisture in sample (% by volume)	34.2	33.5	33.2
Q_{std}	Volumetric flow rate, standard (dscfm)	70,370	69,150	69,320
NITROGEN OXIDES				
Data Acquisition				
C	Effluent gas concentration (ppmdv)	29.1	31.6	35.3
Calibration Gases				
C_{oi}	Calibration bias check, initial zero gas	0.6	1.1	0.9
C_{mi}	Calibration bias check, initial upscale gas	45.8	47.6	46.3
C_{of}	Calibration bias check, final zero gas	1.1	0.9	0.8
C_{mf}	Calibration bias check, final upscale gas	47.6	46.3	46.1
C_{ma}	Actual concentration of upscale gas	45.90	45.90	45.90
Calculated Results				
C_{gas}	Concentration drift corrected (ppmdv)	28.3	30.6	34.5
E	Emission rate (lb/hr)	14.2	15.2	17.1
CARBON MONOXIDE				
Data Acquisition				
C	Effluent gas concentration (ppmdv)	1873.6	1820.5	1839.7
Calibration Gases				
C_{oi}	Calibration bias check, initial zero gas	4.2	4.3	6.7
C_{mi}	Calibration bias check, initial upscale gas	1516.3	1515.4	1518.0
C_{of}	Calibration bias check, final zero gas	4.3	6.7	6.6
C_{mf}	Calibration bias check, final upscale gas	1515.4	1518.0	1520.8
C_{ma}	Actual concentration of upscale gas	1515.0	1515.0	1515.0
Calculated Results				
C_{gas}	Concentration drift corrected (ppmdv)	1,869	1,815	1,833
E	Emission rate (lb/hr)	574	547	554

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CEM PARAMETERS

Run No.		1	3	4
Date (1997)		May 22	May 22	May 22
Start Time (approx.)		12:00	15:40	17:30
Stop Time (approx.)		13:06	16:48	18:35
Gas Conditions[1]				
O_2	Oxygen (dry volume %)	9.5	9.4	9.2
CO_2	Carbon Dioxide (dry volume %)	13.8	13.0	13.1
B_{wo}	Moisture in sample (% by volume)	34.2	33.5	33.2
Q_{std}	Volumetric flow rate, standard (dscfm)	70,370	69,150	69,320
TOTAL HYDROCARBONS (as propane)				
Data Acquisition				
C	Effluent gas concentration (ppmwv)	188.8	141.1	142.1
Calibration Gases				
C_{oi}	Calibration bias check, initial zero gas	-0.7	0.5	-0.8
C_{mi}	Calibration bias check, initial upscale gas	253.4	241.6	252.3
C_{of}	Calibration bias check, final zero gas	0.5	-0.8	-0.7
C_{mf}	Calibration bias check, final upscale gas	241.6	252.3	254.3
C_{ma}	Actual concentration of upscale gas	252.40	252.40	252.40
Calculated Results				
C_{gas}	Concentration drift corrected (ppmwv)	189	141	143
C_{gas}	Concentration moisture corrected (ppmdv)	287	212	214
E	Emission rate (lb/hr)	139	101	102
METHANE				
C_{gas}	Concentration (ppmwv)	250	147	133
C_{gas}	Concentration moisture corrected (ppmdv)	380	221	199
E	Emission rate (lb/hr)	66.8	38.1	34.4
ETHANE				
C_{gas}	Concentration (ppmwv)	10.9	6.8	0.0
C_{gas}	Concentration moisture corrected (ppmdv)	16.6	10.3	0.0
E	Emission rate (lb/hr)	5.46	3.33	0.0
TOTAL NON-METHANE/ETHANE HYDROCARBONS (as propane)				
E	Emission rate (lb/hr)	66.6	59.3	67.3

[1]Gas conditions obtained from concurrent particulate testing.

SOLVAY MINERALS, INC.
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CA-3 Stack

CEM PARAMETERS

Run No.	5	6	7	8
Date (1997)	May 28	May 28	May 28	May 30
Start Time (approx.)	08:30	10:23	12:15	08:17
Stop Time (approx.)	09:37	11:29	13:21	09:20
Gas Conditions				
B_{wo} Moisture in sample (% by volume)	32.2	32.1	31.6	33.5
Q_{std} Volumetric flow rate, standard (dscfm)	67,760	66,220	70,910	75,910
OXYGEN				
Data Acquisition				
C Effluent gas concentration (dry volume %)	10.1	10.1	10.0	9.6
Calibration Gases				
C_{oi} Calibration bias check, initial zero gas	0.0	0.0	0.0	0.0
C_{mi} Calibration bias check, initial upscale gas	9.9	9.9	9.9	9.9
C_{of} Calibration bias check, final zero gas	0.0	0.0	0.1	0.0
C_{mf} Calibration bias check, final upscale gas	9.9	9.9	9.9	9.9
C_{ma} Actual concentration of upscale gas	10.10	10.10	10.10	10.10
Calculated Results				
C_{gas} Concentration drift corrected (dry volume %)	10.3	10.3	10.2	9.7
CARBON DIOXIDE				
Data Acquisition				
C Effluent gas concentration (dry volume %)	12.3	12.4	12.4	12.9
Calibration Gases				
C_{oi} Calibration bias check, initial zero gas	0.0	0.0	0.0	0.0
C_{mi} Calibration bias check, initial upscale gas	9.9	9.9	9.9	10.0
C_{of} Calibration bias check, final zero gas	0.0	0.0	0.0	0.0
C_{mf} Calibration bias check, final upscale gas	9.9	9.9	9.9	10.0
C_{ma} Actual concentration of upscale gas	10.1	10.1	10.1	10.1
Calculated Results				
C_{gas} Concentration drift corrected (dry volume %)	12.5	12.6	12.6	12.9

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CEM PARAMETERS

Run No.		5	6	7	8
Date (1997)		May 28	May 28	May 28	May 30
Start Time (approx.)		08:30	10:23	12:15	08:17
Stop Time (approx.)		09:37	11:29	13:21	09:20
Gas Conditions					
O_2	Oxygen (dry volume %)	10.3	10.3	10.2	9.7
CO_2	Carbon Dioxide (dry volume %)	12.5	12.6	12.6	12.9
B_{wo}	Moisture in sample (% by volume)	32.2	32.1	31.6	33.5
Q_{std}	Volumetric flow rate, standard (dscfm)	67,760	66,220	70,910	75,910
NITROGEN OXIDES					
Data Acquisition					
C	Effluent gas concentration (ppmdv)	27.6	28.6	29.8	31.8
Calibration Gases					
C_{oi}	Calibration bias check, initial zero gas	0.6	1.0	0.9	0.3
C_{mi}	Calibration bias check, initial upscale gas	45.9	47.5	46.1	46.5
C_{of}	Calibration bias check, final zero gas	1.0	0.9	0.5	0.7
C_{mf}	Calibration bias check, final upscale gas	47.5	46.1	44.6	46.7
C_{ma}	Actual concentration of upscale gas	45.90	45.90	45.90	45.90
Calculated Results					
C_{gas}	Concentration drift corrected (ppmdv)	26.9	27.6	30.0	31.2
E	Emission rate (lb/hr)	13.0	13.1	15.2	17.0
CARBON MONOXIDE					
Data Acquisition					
C	Effluent gas concentration (ppmdv)	2054.4	1884.6	2158.2	1466.7
Calibration Gases					
C_{oi}	Calibration bias check, initial zero gas	7.3	1.3	1.2	1.2
C_{mi}	Calibration bias check, initial upscale gas	1516.1	1516.4	1519.2	1513.1
C_{of}	Calibration bias check, final zero gas	1.3	1.2	1.2	3.7
C_{mf}	Calibration bias check, final upscale gas	1516.4	1519.2	1519.6	1516.5
C_{ma}	Actual concentration of upscale gas	1515.0	1515.0	1515.0	1515.0
Calculated Results					
C_{gas}	Concentration drift corrected (ppmdv)	2,054	1,881	2,152	1,467
E	Emission rate (lb/hr)	607	543	666	486

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CEM PARAMETERS

Run No.		5	6	7	8
Date (1997)		May 28	May 28	May 28	May 30
Start Time (approx.)		08:30	10:23	12:15	08:17
Stop Time (approx.)		09:37	11:29	13:21	09:20
Gas Conditions[1]					
O_2	Oxygen (dry volume %)	10.3	10.3	10.2	9.7
CO_2	Carbon Dioxide (dry volume %)	12.5	12.6	12.6	12.9
B_{wo}	Moisture in sample (% by volume)	32.2	32.1	31.6	33.5
Q_{std}	Volumetric flow rate, standard (dscfm)	67,760	66,220	70,910	75,910
TOTAL HYDROCARBONS					
Data Acquisition					
C	Effluent gas concentration (ppmwv)	281.0	227.2	299.2	228.4
Calibration Gases					
C_{oi}	Calibration bias check, initial zero gas	1.6	3.6	4.8	1.2
C_{mi}	Calibration bias check, initial upscale gas	479.6	478.5	485.1	482.2
C_{of}	Calibration bias check, final zero gas	3.6	4.8	2.4	1.3
C_{mf}	Calibration bias check, final upscale gas	478.5	485.1	475.8	474.7
C_{ma}	Actual concentration of upscale gas	472.50	472.50	472.50	472.50
Calculated Results					
C_{gas}	Concentration drift corrected (ppmwv)	276	221	293	225
C_{gas}	Concentration moisture corrected (ppmdv)	407	325	428	338
E	Emission rate (lb/hr)	189	148	208	176
METHANE					
C_{gas}	Concentration (ppmwv)	306	270	282	347
C_{gas}	Concentration moisture corrected (ppmdv)	451	398	411	522
E	Emission rate (lb/hr)	76.4	65.8	72.9	99.0
ETHANE					
C_{gas}	Concentration (ppmwv)	18.3	16.8	17.3	17.6
C_{gas}	Concentration moisture corrected (ppmdv)	26.9	24.7	25.2	26.5
E	Emission rate (lb/hr)	8.55	7.67	8.38	9.41
TOTAL NON-METHANE/ETHANE HYDROCARBONS (as propane)					
E	Emission rate (lb/hr)	104.6	74.4	127.1	67.9

[1]Gas conditions obtained from concurrent particulate testing.

SOLVAY MINERALS, INC.
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VOLATILE ORGANICS PARAMETERS

Run No.		1	3	4
Date (1997)		May 22	May 22	May 22
Start Time (approx.)		12:00	15:40	17:30
Stop Time (approx.)		13:06	16:48	18:35
Process Conditions[1]				
	Feed rate (ton of trona/hr)	198	198	198
Gas Conditions[2]				
B_{wo}	Moisture (% by volume)	34.24	33.46	33.16
Q_{std}	Volumetric flow rate, standard (dscfm)	70,370	69,150	69,320
1,1,1-Trichloroethane				
C	Concentration (ppmwv)	BDL	BDL	0.115
C	Concentration (ppmdv)	BDL	BDL	0.172
E	Emission rate (lb/hr)	BDL	BDL	0.100
E	Emission rate (lb/ton of trona)	BDL	BDL	0.0005
1,3 Butadiene				
C	Concentration (ppmwv)	6.67	5.22	5.91
C	Concentration (ppmdv)	10.1	7.85	8.84
E	Emission rate (lb/hr)	6.01	4.57	5.16
E	Emission rate (lb/ton of trona)	0.0304	0.0231	0.0261
2-Butanone				
C	Concentration (ppmwv)	0.629	0.320	0.994
C	Concentration (ppmdv)	0.957	0.481	1.49
E	Emission rate (lb/hr)	0.756	0.373	1.16
E	Emission rate (lb/ton of trona)	0.0038	0.0019	0.0058
Acrylonitrile				
C	Concentration (ppmwv)	BDL	BDL	BDL
C	Concentration (ppmdv)	BDL	BDL	BDL
E	Emission rate (lb/hr)	BDL	BDL	BDL
E	Emission rate (lb/ton of trona)	BDL	BDL	BDL
Benzene				
C	Concentration (ppmwv)	2.17	1.95	1.89
C	Concentration (ppmdv)	3.30	2.93	2.82
E	Emission rate (lb/hr)	2.82	2.46	2.38
E	Emission rate (lb/ton of trona)	0.0143	0.0124	0.0120
Ethyl Benzene				
C	Concentration (ppmwv)	0.583	0.612	0.122
C	Concentration (ppmdv)	0.887	0.920	0.183
E	Emission rate (lb/hr)	1.03	1.05	0.209
E	Emission rate (lb/ton of trona)	0.0052	0.0053	0.0011

1 Process conditions provided by Solvay Minerals, Inc.
2 Gas conditions are taken from near simultaneous velocity and moisture testing.

SOLVAY MINERALS, INC.
CAE Project No: 7955
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VOLATILE ORGANICS PARAMETERS

Run No.		1	3	4
Date (1997)		May 22	May 22	May 22
Start Time (approx.)		12:00	15:40	17:30
Stop Time (approx.)		13:06	16:48	18:35
Process Conditions[1]				
	Feed rate (ton of trona/hr)	198	198	198
Gas Conditions[2]				
B_{wo}	Moisture (% by volume)	34.24	33.46	33.16
Q_{std}	Volumetric flow rate, standard (dscfm)	70,370	69,150	69,320
Hexane				
C	Concentration (ppmwv)	0.697	0.486	0.625
C	Concentration (ppmdv)	1.06	0.730	0.935
E	Emission rate (lb/hr)	1.00	0.678	0.870
E	Emission rate (lb/ton of trona)	0.0051	0.0034	0.0044
Methylene Chloride				
C	Concentration (ppmwv)	BDL	BDL	BDL
C	Concentration (ppmdv)	BDL	BDL	BDL
E	Emission rate (lb/hr)	BDL	BDL	BDL
E	Emission rate (lb/ton of trona)	BDL	BDL	BDL
Styrene				
C	Concentration (ppmwv)	0.391	0.404	1.05
C	Concentration (ppmdv)	0.595	0.607	1.57
E	Emission rate (lb/hr)	0.679	0.681	1.76
E	Emission rate (lb/ton of trona)	0.0034	0.0034	0.0089
Toluene				
C	Concentration (ppmwv)	1.34	1.21	0.851
C	Concentration (ppmdv)	2.04	1.82	1.27
E	Emission rate (lb/hr)	2.06	1.81	1.27
E	Emission rate (lb/ton of trona)	0.0104	0.0091	0.0064
Trichloroethene				
C	Concentration (ppmwv)	0.296	0.199	0.159
C	Concentration (ppmdv)	0.450	0.299	0.238
E	Emission rate (lb/hr)	0.648	0.423	0.337
E	Emission rate (lb/ton of trona)	0.0033	0.0021	0.0017
Xylene				
C	Concentration (ppmwv)	1.28	0.882	1.41
C	Concentration (ppmdv)	1.95	1.33	2.11
E	Emission rate (lb/hr)	2.26	1.52	2.41
E	Emission rate (lb/ton of trona)	0.0114	0.0077	0.0122

[1] Process conditions provided by Solvay Minerals, Inc.
[2] Gas conditions obtained from concurrent particulate testing.

SOLVAY MINERALS, INC.
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VOLATILE ORGANICS PARAMETERS

Run No.		5	6	7
Date (1997)		May 28	May 28	May 28
Start Time (approx.)		8:30	10:23	12:15
Stop Time (approx.)		9:37	11:29	13:21
Process Conditions[1]				
	Feed rate (ton of trona/hr)	181	181	181
Gas Conditions[2]				
B_{wo}	Moisture (% by volume)	32.20	32.14	31.56
Q_{std}	Volumetric flow rate, standard (dscfm)	67,760	66,220	70,900
1,1,1-Trichloroethane				
C	Concentration (ppmwv)	4.63	BDL	BDL
C	Concentration (ppmdv)	6.83	BDL	BDL
E	Emission rate (lb/hr)	9.62	BDL	BDL
E	Emission rate (lb/ton of trona)	0.0531	BDL	BDL
1,3 Butadiene				
C	Concentration (ppmwv)	10.4	8.27	12.0
C	Concentration (ppmdv)	15.4	12.2	17.5
E	Emission rate (lb/hr)	8.79	6.80	10.5
E	Emission rate (lb/ton of trona)	0.0486	0.0376	0.0578
2-Butanone				
C	Concentration (ppmwv)	0.936	1.04	1.31
C	Concentration (ppmdv)	1.38	1.54	1.91
E	Emission rate (lb/hr)	1.05	1.14	1.52
E	Emission rate (lb/ton of trona)	0.0058	0.0063	0.0084
Acrylonitrile				
C	Concentration (ppmwv)	BDL	BDL	BDL
C	Concentration (ppmdv)	BDL	BDL	BDL
E	Emission rate (lb/hr)	BDL	BDL	BDL
E	Emission rate (lb/ton of trona)	BDL	BDL	BDL
Benzene				
C	Concentration (ppmwv)	3.00	2.18	2.89
C	Concentration (ppmdv)	4.42	3.21	4.22
E	Emission rate (lb/hr)	3.64	2.58	3.64
E	Emission rate (lb/ton of trona)	0.0201	0.0143	0.0201
Ethyl Benzene				
C	Concentration (ppmwv)	0.367	0.233	0.245
C	Concentration (ppmdv)	0.541	0.343	0.358
E	Emission rate (lb/hr)	0.606	0.376	0.420
E	Emission rate (lb/ton of trona)	0.0034	0.0021	0.0023

[1] Process conditions provided by Solvay Minerals, Inc.
[2] Gas conditions are taken from near simultaneous velocity and moisture testing.

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Calciner

VOLATILE ORGANICS PARAMETERS

Run No.		5	6	7
Date (1997)		May 28	May 28	May 28
Start Time (approx.)		8:30	10:23	12:15
Stop Time (approx.)		9:37	11:29	13:21
Process Conditions[1]				
	Feed rate (ton of trona/hr)	181	181	181
Gas Conditions[2]				
B_{wo}	Moisture (% by volume)	32.20	32.14	31.56
Q_{std}	Volumetric flow rate, standard (dscfm)	67,760	66,220	70,900
Hexane				
C	Concentration (ppmwv)	1.37	0.880	1.23
C	Concentration (ppmdv)	2.02	1.30	1.80
E	Emission rate (lb/hr)	1.84	1.15	1.71
E	Emission rate (lb/ton of trona)	0.0101	0.0064	0.0094
Methylene Chloride				
C	Concentration (ppmwv)	BDL	BDL	BDL
C	Concentration (ppmdv)	BDL	BDL	BDL
E	Emission rate (lb/hr)	BDL	BDL	BDL
E	Emission rate (lb/ton of trona)	BDL	BDL	BDL
Styrene				
C	Concentration (ppmwv)	0.584	0.465	0.502
C	Concentration (ppmdv)	0.861	0.685	0.733
E	Emission rate (lb/hr)	0.946	0.736	0.843
E	Emission rate (lb/ton of trona)	0.0052	0.0041	0.0047
Toluene				
C	Concentration (ppmwv)	1.18	0.846	1.15
C	Concentration (ppmdv)	1.73	1.25	1.67
E	Emission rate (lb/hr)	1.68	1.18	1.70
E	Emission rate (lb/ton of trona)	0.0093	0.0065	0.0094
Trichloroethene				
C	Concentration (ppmwv)	0.682	0.268	0.260
C	Concentration (ppmdv)	1.01	0.395	0.380
E	Emission rate (lb/hr)	1.39	0.535	0.551
E	Emission rate (lb/ton of trona)	0.0077	0.0030	0.0030
Xylene				
C	Concentration (ppmwv)	0.922	0.671	0.702
C	Concentration (ppmdv)	1.36	0.99	1.03
E	Emission rate (lb/hr)	1.52	1.08	1.20
E	Emission rate (lb/ton of trona)	0.0084	0.0060	0.0066

[1] Process conditions provided by Solvay Minerals, Inc.
[2] Gas conditions obtained from concurrent particulate testing.

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Calciner

VOLATILE ORGANICS PARAMETERS

Run No.		**8**
Date (1997)		May 30
Start Time (approx.)		8:17
Stop Time (approx.)		9:20
Process Conditions[1]		
	Feed rate (ton of trona/hr)	216
Gas Conditions[2]		
B_{wo}	Moisture (% by volume)	33.48
Q_{std}	Volumetric flow rate, standard (dscfm)	75,910
1,1,1-Trichloroethane		
C	Concentration (ppmwv)	BDL
C	Concentration (ppmdv)	BDL
E	Emission rate (lb/hr)	BDL
E	Emission rate (lb/ton of trona)	BDL
1,3 Butadiene		
C	Concentration (ppmwv)	6.17
C	Concentration (ppmdv)	9.27
E	Emission rate (lb/hr)	5.93
E	Emission rate (lb/ton of trona)	0.0275
2-Butanone		
C	Concentration (ppmwv)	0.574
C	Concentration (ppmdv)	0.86
E	Emission rate (lb/hr)	0.74
E	Emission rate (lb/ton of trona)	0.0034
Acrylonitrile		
C	Concentration (ppmwv)	BDL
C	Concentration (ppmdv)	BDL
E	Emission rate (lb/hr)	BDL
E	Emission rate (lb/ton of trona)	BDL
Benzene		
C	Concentration (ppmwv)	1.59
C	Concentration (ppmdv)	2.39
E	Emission rate (lb/hr)	2.21
E	Emission rate (lb/ton of trona)	0.0102
Ethyl Benzene		
C	Concentration (ppmwv)	0.198
C	Concentration (ppmdv)	0.298
E	Emission rate (lb/hr)	0.374
E	Emission rate (lb/ton of trona)	0.0017

[1] Process conditions provided by Solvay Minerals, Inc.
[2] Gas conditions are taken from near simultaneous velocity and moisture testing.

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Calciner

VOLATILE ORGANICS PARAMETERS

Run No.		**8**
Date (1997)		May 30
Start Time (approx.)		8:17
Stop Time (approx.)		9:20
Process Conditions[1]		
	Feed rate (ton of trona/hr)	216
Gas Conditions[2]		
B_{wo}	Moisture (% by volume)	33.48
Q_{std}	Volumetric flow rate, standard (dscfm)	75,910
Hexane		
C	Concentration (ppmwv)	0.605
C	Concentration (ppmdv)	0.910
E	Emission rate (lb/hr)	0.927
E	Emission rate (lb/ton of trona)	0.0043
Methylene Chloride		
C	Concentration (ppmwv)	BDL
C	Concentration (ppmdv)	BDL
E	Emission rate (lb/hr)	BDL
E	Emission rate (lb/ton of trona)	BDL
Styrene		
C	Concentration (ppmwv)	0.206
C	Concentration (ppmdv)	0.310
E	Emission rate (lb/hr)	0.381
E	Emission rate (lb/ton of trona)	0.0018
Toluene		
C	Concentration (ppmwv)	0.641
C	Concentration (ppmdv)	0.964
E	Emission rate (lb/hr)	1.05
E	Emission rate (lb/ton of trona)	0.0049
Trichloroethene		
C	Concentration (ppmwv)	0.355
C	Concentration (ppmdv)	0.534
E	Emission rate (lb/hr)	0.83
E	Emission rate (lb/ton of trona)	0.0038
Xylene		
C	Concentration (ppmwv)	0.339
C	Concentration (ppmdv)	0.510
E	Emission rate (lb/hr)	0.640
E	Emission rate (lb/ton of trona)	0.0030

[1] Process conditions provided by Solvay Minerals, Inc.
[2] Gas conditions obtained from concurrent particulate testing.

CALIBRATION DATA

C

Reference Method Sampling System

Client: SOLVAY
Plant: GREEN RIVER
Unit: CA 3
Location: STACK
Run #'s: 1 – 3

Job #: 7955
Operator: JC
Date: 5/22/97
Data Acquisition: Chart / Computer
File Names: CA3.XLS

Instrumentation Data for Reference Method:

#	Constituent	Manufacturer	Serial/Asset#	Range Used	Oper. Principle	Units Reported
1	THC	JUM VE7	2531	0-1000	FID	PPM
2	NOx	TECO 10S	~~1334~~	0-100	CHEMILUM.	PPM
3	CO	TECO 48	1334	0-1000(2500)	GFC/IR	PPM
4	O_2	SERVOMEX	2978	0-25	PARAMAG.	%
5	CO_2	ACS/FUJI	1522	0-20	NDIR	%
6	CO	TECO 48H	1486	0-2000 (0-5000)	NDIR	PPM

Used the 48H Runs 5 ... end Instrument scale was set @ 0-5000

Reference Method System Performance Checks:

System Leak Check Passed: ✓
System Response Time: 90s
Calibration Error Check Passed:

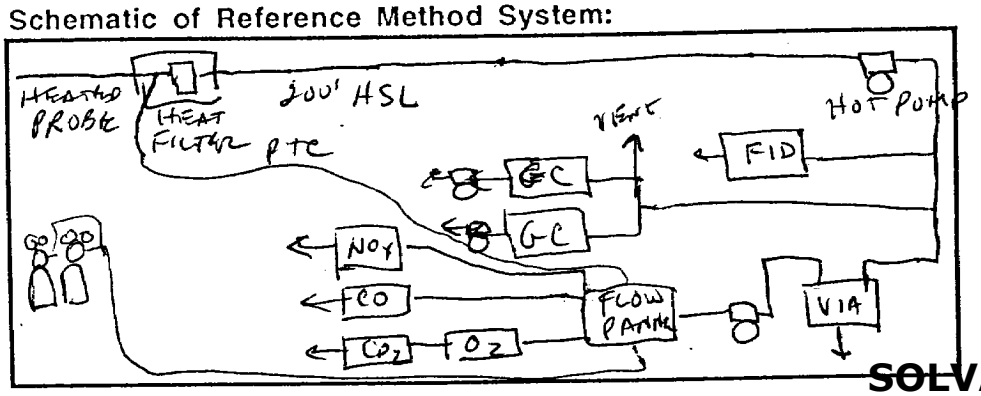
RATA: Yes No (circle one)
If yes, circle the units the RATA is based on, and include DS 077 to describe the facility's CEM system.

Calibration Materials Data:

#	Constituent	Concentration	Cylinder ID	Protocol?
1	PROPANE	852.2	ALM058541	YES / NO
2	"	472.5	ALM058457	YES / NO
3	"	252.4	ALM023815	YES / NO
4	NOx	107	ALM026879	YES / NO
5	"	45.2	ALM030031	YES / NO
6	CO	1515	AAL 9940	YES / NO
7	"	598.7	ALM059794	YES / NO
8	"	275.3	ALM030933	YES / NO
9	O_2/CO_2	20.8/18.1	ALM035551	YES / NO
10	O_2/CO_2	10.1/10.1	AAL 16704	YES / NO
11				YES / NO
12				YES / NO
13				YES / NO
14				YES / NO

Comments:

Schematic of Reference Method System:



LABTECH
V9.0
MANUAL CALS

DS 076 RM CEM System
EXCL/TRG.R1-2/4/94

Clean Air Engineering

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
C A E INSTRUMENT RENTAL
246 WOODWORK LANE
PALATINE, IL 60067

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 14740-71500
Scott Project # : 593100

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : AAL16704 **Certificate Date :** 3/4/96 **Expiration Date :** 3/4/99
Cylinder Pressure + : 2000 psig **Previous Certificate Date :** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Dioxide	10.1 %	±1% NIST Directly Traceable
Oxygen	10.1 %	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 18000	12/21/96	ALM058589	17.95 % Carbon Dioxide in Nitrogen
NTRM 2659	11/23/96	ALM031731	20.72 % Oxygen in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO2: Horiba/PIR2000/609105	3/4/96	Non-dispersive Infrared
O2: Rosemount/755R/57076204	3/4/96	Paramagnetic

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components

Carbon Dioxide

First Triad Analysis

Date: 3/4/96 Response Units: mv
Z1=0.00 R1=130.70 T1=91.00
R2=130.70 Z2=0.00 T2=91.00
Z3=0.00 T3=91.00 R3=130.70
Avg. Conc. of Cust. Cyl. 10.1 %

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4
r=1.00000 NTRM 18000
Constants: A=-2.546553000
B=0.165816300 C=-0.000807556
D=0.000005678 E=0.000000000

Oxygen

First Triad Analysis

Date: 3/4/96 Response Units: mv
Z1=0.00 R1=20.72 T1=10.09
R2=20.72 Z2=0.00 T2=10.11
Z3=0.00 T3=10.10 R3=20.72
Avg. Conc. of Cust. Cyl. 10.1 %

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4
r=1.00000 NTRM 2659
Constants: A=0.011929630
B=1.001842000 C=0.000000000
D=0.000000000 E=0.000000000

Special Notes

Mail

Analyst

SOLVAY2016_6_001909

MISP/P-1

Scott Specialty Gases

500 WEAVER PARK ROAD, LONGMONT, CO 80501 (303) 442-4700, (303) 651-3084 FAX: (303) 772-7873

CERTIFICATE OF ANALYSIS: EPA Protocol Gas

Customer
CLEAN AIR ENGINEERING
7000 NORTH BROADWAY
BUILDING 2, UNIT 200
DENVER CO 80221-4744

Assay Laboratory
Scott Specialty Gases, Inc.
500 Weaver Park Road
Longmont, CO 80501

Purchase Order 654865
Scott Project # 0822022
CGA Fitting 590
File Number 220225A

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number ALM-035551
Cylinder Pressure 2000 psig

Certification Date 10/18/95
Previous Certification Dates None

Expiration Date 10/18/98

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
(Oxygen)	20.8 %	±1% Directly NIST Traceable
Carbon Dioxide	18.1 %	±1% Directly NIST Traceable
(Nitrogen)	Balance	

*Analytical uncertainty is inclusive of usual known error sources which at least includes precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 2659	11/23/96	ALM-031728	20.72 % O2 / N2
NTRM 18000	12/21/96	ALM-047455	17.95 % CO2 / N2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Hewlett Packard 5890 3115A34624	10/18/95	Thermal Conductivity
Hewlett Packard 5730 1844A91333	10/18/95	Thermal Conductivity

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components (Oxygen)

First Triad Analysis
Date 10/18/95 Response Units: V
Z1 = 0.000 R1 = 20.820 T1 = 20.990
R2 = 20.820 Z2 = 0.000 T2 = 21.030
Z3 = 0.000 T3 = 20.940 R3 = 20.940
Avg Conc. of Cyl. = 20.79 %

Second Triad Analysis

Calibration Curve
Concentration = A+Bx+Cx2+Dx3+Ex4
r = 1
Constants A = -2.22
B = 0.007334 C = -7.988-10
D = 0 E = 0

Carbon Dioxide

Date 10/18/95 Response Units: V
Z1 = 0.000 R1 = 17.950 T1 = 18.100
R2 = 17.950 Z2 = 0.000 T2 = 18.100
Z3 = 0.000 T3 = 18.100 R3 = 17.950
Avg Conc. of Cyl. = 18.10 %

Second Triad Analysis

Calibration Curve
Concentration = A+Bx+Cx2+Dx3+Ex4
r = 0.999998
Constants: A = 0.000001
B = 1 C = 0
D = 0 E = 0

Special Notes: Do not use when cylinder pressure is below 150 psig.

Diana Beehler
Analyst Diana Beehler

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
C A E INSTRUMENT RENTAL
246 WOODWORK LANE
PALATINE, IL 60067

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 15283-71500
Scott Project # : 98220

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM030031
Cylinder Pressure + : 2000 psig

Certificate Date : 7/9/96
Previous Certificate Date : None

Expiration Date : 7/9/98

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Nitric Oxide	45.83 ppm	±1% NIST Directly Traceable
Total Oxides of Nitrogen	45.98 ppm	Reference Value Only

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM	6/7/97	ALM047600	94.4 ppm Nitric Oxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
NO: Horiba/OPE 235/483814	6/24/96	Chemiluminescence

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Nitric Oxide

First Triad Analysis

Date: 7/2/96	Response Units: mv	
Z1=0.00	R1=94.40	T1=46.50
R2=94.40	Z2=0.00	T2=46.50
Z3=0.00	T3=46.50	R3=94.40
Avg. Conc. of Cust. Cyl. 45.88 ppm		

Second Triad Analysis

Date: 7/9/96	Response Units: mv	
Z1=0.00	R1=94.40	T1=46.40
R2=94.40	Z2=0.00	T2=46.40
Z3=0.00	T3=46.40	R3=94.40
Avg. Conc. of Cust. Cyl: 45.78 ppm		

Calibration Curve

$Concentration = A + Bx + Cx^2 + Dx^3 + Ex^4$

r=1.00000	NTRM 1684
Constants:	A=-0.007706782
B=0.973927600	C=0.000277056
D=0.000000000	E=0.000000000

Special Notes

Cylinder

Analyst:

SOLVAY2016_6_001911

MISP/P-1

Scott Specialty Gases

500 WEAVER PARK ROAD, LONGMONT, CO 80501 (303) 442-4700, (303) 651-3094 FAX: (303) 772-7673

CERTIFICATE OF ANALYSIS: EPA Protocol Gas

Customer
CLEAN AIR ENGINEERING
7000 NORTH BROADWAY
BUILDING 2, UNIT 200
DENVER CO 80221-4744

Assay Laboratory
Scott Specialty Gases, Inc.
500 Weaver Park Road
Longmont, CO 80501

Purchase Order 654865
Scott Project # 0822022
CGA Fitting 660
File Number 220221A

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number ALM-026879
Cylinder Pressure 1861 psig

Certification Date 10/18/95
Previous Certification Dates None

Expiration Date 10/18/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
(Nitric Oxide)	107 ppm	±1% Directly NIST Traceable
(Nitrogen Oxides)	107 ppm	Reference Value Only
(Nitrogen)	Balance	

*Analytical uncertainty is inclusive of usual known error sources which at least includes precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1685	08/04/96	ALM-050755	247.5 ppm NO / N2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Nicolet FTIR / 8220 / AAB9400251	09/21/95	Scott Enhanced FTIR TM

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components (Nitric Oxide)

First Triad Analysis

Date 10/11/95	Response Units: ppm	
Z1 = -0.044	R1 = 248.485	T1 = 106.557
R2 = 248.390	Z2 = 0.089	T2 = 106.606
Z3 = 0.051	T3 = 106.751	R3 = 248.758
Avg. Conc. of Cyl. =	106.64 ppm	

Second Triad Analysis

Date 10/18/95	Response Units: ppm	
Z1 = 0.020	R1 = 247.500	T1 = 107.016
R2 = 247.472	Z2 = -0.038	T2 = 106.950
Z3 = 0.060	T3 = 107.080	R3 = 247.472
Avg. Conc. of Cyl. =	107.02 ppm	

Calibration Curve

Concentration =	A+Bx+Cx2+Dx3+Ex4
r = 0.99999	
Constants:	A = -0.0310163
B = 0.114656	C = 2.33180E-11
D = 4.65698E-07	E = 1.09055E-10

Special Notes Do not use when cylinder pressure is below 150 psig.

Analyst Diana Beehler

SOLVAY2016_6_001912

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
C A E INSTRUMENT RENTAL
246 WOODWORK LANE
PALATINE, IL 60067

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 14897-71500
Scott Project # : 94609

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM030933
Cylinder Pressure + : 2000 psig
Certificate Date : 4/8/96
Previous Certificate Date : None
Expiration Date : 4/8/99

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	275.3 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1681	7/31/97	CLM003735	978 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO: Horiba/OPE-135/565607092	4/8/96	Non-dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Carbon Monoxide

First Triad Analysis

Date: 4/1/96	Response Units: mv	
Z1=0.00	R1=92.00	T1=35.30
R2=92.00	Z2=0.00	T2=35.30
Z3=0.00	T3=35.30	R3=92.00
Avg. Conc. of Cust. Cyl. 274.0 ppm		

Second Triad Analysis

Date: 4/8/96	Response Units: mv	
Z1=0.00	R1=92.00	T1=35.60
R2=92.00	Z2=0.00	T2=35.60
Z3=0.00	T3=35.60	R3=92.00
Avg. Conc. of Cust. Cyl: 276.7 ppm		

Calibration Curve

$Concentration=A+Bx+Cx^2+Dx^3+Ex^4$

r=1.00000	NTRM 1681
Constants:	A=-0.117873100
B=6.612887000	C=0.025738610
D=0.000195047	E=0.000000000

Special Notes

Mail

Analyst

SOLVAY2016_6_001913

MISP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
C A E INSTRUMENT RENTAL
246 WOODWORK LANE
PALATINE, IL 60067

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 14474-71500
Scott Project # : 500236

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM059794
Cylinder Pressure + : 1900 psig
Certificate Date : 8/12/96
Previous Certificate Date : None
Expiration Date : 8/12/99

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	598.7 PPM	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM2637	4/3/98	ALM059632	2513 PPM Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Horiba OPE-135	8/13/96	Non-dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Carbon Monoxide

First Triad Analysis

Date: 8/5/96	Response Units: mv	
Z1=0.00	R1=0.00	T1=62.40
R2=0.00	Z2=0.00	T2=62.40
Z3=0.00	T3=62.40	R3=0.00
Avg. Conc. of Cust. Cyl. 599.1 PPM		

Second Triad Analysis

Date: 8/12/96	Response Units: mv	
Z1=0.00	R1=0.00	T1=62.40
R2=0.00	Z2=0.00	T2=62.30
Z3=0.00	T3=62.30	R3=0.00
Avg. Conc. of Cust. Cyl: 598.2 PPM		

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=1.00000	NTRM2637
Constants:	A=-0.186834000
B=8.575558000	C=-0.016680560
D=0.000531353	E=0.000000000

Special Notes

Cylinder

Analyst

SOLVAY2016_6_001914

MISP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
C A E INSTRUMENT RENTAL
246 WOODWORK LANE
PALATINE, IL 60067

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 15612-71500
Scott Project # : 501873

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : AAL9940
Cylinder Pressure + : 1900 psig
Certificate Date : 9/20/96
Previous Certificate Date : None
Expiration Date : 9/20/99

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	1515 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM2637	4/3/98	ALM059632	2513 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO: Horiba/OPE-135/565607092	9/20/96	Non-dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Carbon Monoxide

First Triad Analysis

Date: 9/13/96	Response Units: mv	
Z1=0.00	R1=145.00	T1=112.70
R2=145.00	Z2=0.00	T2=112.70
Z3=0.00	T3=112.70	R3=145.00
Avg. Conc. of Cust. Cyl. 1515 ppm		

Second Triad Analysis

Date: 9/20/96	Response Units: mv	
Z1=0.00	R1=145.00	T1=112.70
R2=145.00	Z2=0.00	T2=112.70
Z3=0.00	T3=112.70	R3=145.00
Avg. Conc. of Cust. Cyl: 1515 ppm		

Calibration Curve

Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$

r=1.00000	NTRM2637
Constants:	A=-0.186834000
B=8.575558000	C=-0.016680560
D=0.000531353	E=0.000000000

Special Notes

Mail

Mary Kay [illegible]
Analyst

SOLVAY2016_6_001915

MISP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
C A E INSTRUMENT RENTAL
246 WOODWORK LANE
PALATINE, IL 60067

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 12021-71500
Scott Project # : 570587

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM023815
Cylinder Pressure + : 1900 psig
Certificate Date : 9/7/94
Previous Certificate Date : None
Expiration Date : 9/7/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	252.4 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder pressure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 2646	10/14/95	AAL18426	973.2 ppm Propane in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Propane : Beckman/400/1002059	8/15/94	Flame Ionization Detection

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Propane

First Triad Analysis

Date: 9/7/94	Response Units: ppm	
Z1=0.00	R1=97.30	T1=25.30
R2=97.30	Z2=0.00	T2=25.20
Z3=0.00	T3=25.20	R3=97.30
Avg. Cons. of Cust. Cyl. 252.4 ppm		

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx²+Dx³+Ex⁴	
r=1.00000	NTRM 2646
Constants:	A=0.0482*1000
B=10.002000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

SOLVAY2016_6_001916

Analyst

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
C A E INSTRUMENT RENTAL
246 WOODWORK LANE
PALATINE, IL 60067

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 15283-71500
Scott Project # : 98220

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM058457
Cylinder Pressure + : 2000 psig
Certificate Date : 6/26/96
Previous Certificate Date : None
Expiration Date : 6/26/99

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	472.5 PPM	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM2648A	7/24/99	SX20435	99.1 PPM Propane in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
C3: Varain 1400/08982426	6/26/96	Gas Chromatography

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Propane

First Triad Analysis

Date: 6/26/96 Response Units: mv

Z1=0.00 R1=2,619.35
T1=2,598.00
R2=2,619.35 Z2=0.00 T2=2,597.00
Z3=0.00 T3=2,609.00
R3=2,619.35
Avg. Conc. of Cust. Cyl. 472.5 PPM

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4

r=1.00000 SRM2648A
Constants: A=0.795101000
B=0.181351000 C=0.000000000
D=0.000000000 E=0.000000000

Special Notes

Mail

Analyst

SOLVAY2016_6_001917

MISP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
C A E INSTRUMENT RENTAL
246 WOODWORK LANE
PALATINE, IL 60067

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 14478-71500
Scott Project # : 590306

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM058541
Cylinder Pressure + : 2000 psig
Certificate Date : 1/4/96
Previous Certificate Date : None
Expiration Date : 1/4/99

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	852.2 PPM	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM1668	6/7/96	ALM032015	95.5 PPM Propane in Air

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
C3H8: VARIAN 1400/08982426	1/4/96	Gas Chromatography

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Propane

First Triad Analysis

Date: 1/4/96 Response Units: mv
Z1=0.00 R1=100.00 T1=4,666.38
R2=100.00 Z2=0.00 T2=4,673.52
Z3=0.00 T3=4,668.20
R3=100.00
Avg. Conc. of Cust. Cyl. 852.2 PPM

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4
r=1.00000 NTRM1668
Constants: A=0.130667400
B=0.182486400 C=0.000000000
D=0.000000000 E=0.000000000

Special Notes

Cylinder

Analyst

SOLVAY2016_6_001918

MISP/P-1

Solvay Minerals, Inc.
CAE Project No: 7955-3
CA-3 Calciner Stack

CEM CALIBRATION DATA SHEET

May 22, 1997
Run 1

	A	B	C	D*	E	F	G	H	I
Oxygen									
Zero	0.0	0.0	0.0	0.0%	0.1	0.2%	0.1	0.2%	0.0%
Mid Span	10.1	10.1	0.0	0.1%	10.0	-0.6%	10.0	-0.6%	0.0%
High Span	20.8	21.1	0.3	1.2%					
Carbon Dioxide									
Zero	0.00	0.0	0.0	0.1%	0.0	0.1%	0.1	0.3%	0.2%
Mid Span	10.1	10.2	0.1	0.4%	10.1	-0.5%	10.1	-0.4%	0.1%
High Span	18.1	21.3	3.2	15.8%					
Nitrogen Oxides									
Zero	0.0	0.0	0.0	0.0%	0.6	0.6%	1.1	1.1%	0.5%
Mid Span	45.98	46.7	0.7	0.7%	45.8	-0.9%	47.6	0.9%	1.8%
High Span	107.0	106.6	0.4	0.4%					
Carbon Monoxide									
Zero	0.0	2.3	2.3	0.1%	4.2	0.1%	4.3	0.1%	0.0%
High Span	1515.0	1519.2	4.2	0.2%	1516.3	-0.1%	1515.4	-0.2%	0.0%
Total Hydrocarbons									
Zero	0.0	-0.7	0.7	0.1%	-0.7	0.0%	0.5	0.1%	0.1%
Low Span	252.40	253.4	1.0	0.4%	253.4	0.0%	241.6	-1.2%	-1.2%
Mid Span	472.50	481.0	8.5	1.8%	481.0	0.0%			
High Span	852.20	854.7	2.5	0.3%	854.7	0.0%			

Calibration Error Check
A - Cylinder Value
B - Analyzer Calibration Response
C- Absolute Difference
D - Difference (% of Span)
*THC- Difference (% of Gas)

System Bias Check
E - System Calibration Response (Pre Test)
F - System Calibration Bias (% of Span) (Pre Test)
G - System Calibration Response (Post Test)
H - System Calibration Bias (% of Span) (Post Test)
I - Drift (% of Span)

Monitor Span	
O2	0-25 %
CO2	0-20 %
NOx	0-100 ppm
CO	0-2000 ppm
THC	0-1000 ppm

Solvay Minerals, Inc.
CAE Project No: 7955-3
CA-3 Calciner Stack

CEM CALIBRATION DATA SHEET

May 22, 1997
Run 3

	A	B	C	D*	E	F	G	H	I
Oxygen									
Zero	0.0	0.0	0.0	0.0%	0.1	0.2%	0.0	0.1%	-0.1%
Mid Span	10.1	10.1	0.0	0.1%	10.0	-0.6%	10.0	-0.7%	0.0%
High Span	20.8	21.1	0.3	1.2%					
Carbon Dioxide									
Zero	0.0	0.0	0.0	0.1%	0.1	0.3%	0.1	0.5%	0.3%
Mid Span	10.1	10.2	0.1	0.4%	10.1	-0.4%	10.0	-0.9%	-0.4%
High Span	18.1	21.3	3.2	15.8%					
Nitrogen Oxides									
Zero	0.0	0.0	0.0	0.0%	1.1	1.1%	0.9	0.9%	-0.2%
Mid Span	45.98	46.7	0.7	0.7%	47.6	0.9%	46.3	-0.4%	-1.3%
High Span	107.0	106.6	0.4	0.4%					
Carbon Monoxide									
Zero	0.0	2.3	2.3	0.1%	4.3	0.1%	6.7	0.2%	0.1%
High Span	1515.0	1519.2	4.2	0.2%	1515	-0.2%	1518.0	-0.1%	0.1%
Total Hydrocarbons									
Zero	0.0	-0.7	0.7	0.1%	2.3	0.3%	-0.8	0.0%	-0.3%
Low Span	252.40	253.4	1.0	0.4%	84.9	-16.9%	252.3	-0.1%	16.7%
Mid Span	472.50	481.0	8.5	0.9%					
High Span	852.20	854.7	2.5	0.3%					

Calibration Error Check
A - Cylinder Value
B - Analyzer Calibration Response
C- Absolute Difference
D - Difference (% of Span)
*THC- Difference (% of Gas)

System Bias Check
E - System Calibration Response (Pre Test)
F - System Calibration Bias (% of Span) (Pre Test)
G - System Calibration Response (Post Test)
H - System Calibration Bias (% of Span) (Post Test)
I - Drift (% of Span)

Monitor Span	
O2	0-25 %
CO2	0-20 %
NOx	0-100 ppm
CO	0-2000 ppm
THC	0-1000 ppm

Solvay Minerals, Inc.
CAE Project No: 7955-3
CA-3 Calciner Stack

CEM CALIBRATION DATA SHEET

May 22, 1997
Run 4

	A	B	C	D*	E	F	G	H	I
Oxygen									
Zero	0.0	0.0	0.0	0.0%	0.0	0.1%	0.1	0.4%	0.3%
Mid Span	10.1	10.1	0.0	0.1%	10.0	-0.7%	10.0	-0.6%	0.0%
High Span	20.8	21.1	0.3	1.2%					
Carbon Dioxide									
Zero	0.0	0.0	0.0	0.1%	0.1	0.5%	0.1	0.4%	-0.1%
Mid Span	10.1	10.2	0.1	0.4%	10.0	-0.9%	10.0	-0.7%	0.2%
High Span	18.1	21.3	3.2	15.8%					
Nitrogen Oxides									
Zero	0.0	0.0	0.0	0.0%	0.9	0.9%	0.8	0.8%	-0.1%
Mid Span	45.98	46.7	0.7	0.7%	46.3	-0.4%	46.1	-0.6%	-0.2%
High Span	107.0	106.6	0.4	0.4%					
Carbon Monoxide									
Zero	0.0	2.3	2.3	0.1%	6.7	0.2%	6.6	0.2%	0.0%
High Span	1515.0	1519.2	4.2	0.2%	1518.0	-0.1%	1520.8	0.1%	0.1%
Total Hydrocarbons									
Zero	0.0	-0.7	0.7	0.1%	-0.8	0.0%	-0.7	0.0%	0.0%
Low Span	252.40	253.4	1.0	0.4%	252.3	-0.1%	254.3	0.1%	0.2%
Mid Span	472.5	481.0	8.5	0.9%					
High Span	852.2	854.7	2.5	0.3%					

Calibration Error Check
A - Cylinder Value
B - Analyzer Calibration Response
C- Absolute Difference
D - Difference (% of Span)
*THC- Difference (% of Gas)

System Bias Check
E - System Calibration Response (Pre Test)
F - System Calibration Bias (% of Span) (Pre Test)
G - System Calibration Response (Post Test)
H - System Calibration Bias (% of Span) (Post Test)
I - Drift (% of Span)

Monitor Span

O2	0-25 %
CO2	0-20 %
NOx	0-100 ppm
CO	0-2000 ppm
THC	0-1000 ppm

Solvay Minerals, Inc.
CAE Project No: 7955-3
CA-3 Calciner Stack

CEM CALIBRATION DATA SHEET

May 28, 1997
Run 5

	A	B	C	D*	E	F	G	H	I
Oxygen									
Zero	0.0	0.0	0.0	0.0%	0.1	0.2%	0.0	0.0%	-0.1%
Mid Span	10.1	10.1	0.0	0.0%	9.9	-0.6%	9.9	-0.8%	-0.2%
High Span	20.8	20.9	0.1	0.2%					
Carbon Dioxide									
Zero	0.0	0.0	0.0	0.2%	0.0	0.2%	0.0	0.3%	0.1%
Mid Span	10.1	10.1	0.0	0.0%	9.9	-0.9%	9.9	-0.9%	0.0%
High Span	18.1	18.1	0.0	0.0%					
Nitrogen Oxides									
Zero	0.0	0.1	0.1	0.1%	0.6	0.5%	1.0	0.9%	0.4%
Mid Span	45.98	46.4	0.4	0.4%	45.9	-0.5%	47.5	1.1%	1.6%
High Span	107.0	106.9	0.1	0.1%					
Carbon Monoxide									
Zero	0.0	-1.0	1.0	0.1%	7.3	0.4%	1.3	0.1%	-0.3%
Mid Span	598.7	602.7	4.0	0.2%					
High Span	1515.0	1520.7	5.7	0.3%	1516.1	-0.2%	1516.4	-0.2%	0.0%
Total Hydrocarbons									
Zero	0.0	0.1	0.1	0.0%	1.6	0.2%	3.6	0.4%	0.2%
Low Span	252.40	256.40	4.0	1.6%					0.0%
Mid Span	472.5	487.0	14.5	1.5%	479.6	-0.7%	478.5	-0.9%	-0.1%
High Span	852.2	857.6	5.4	0.5%					

Calibration Error Check
A - Cylinder Value
B - Analyzer Calibration Response
C- Absolute Difference
D - Difference (% of Span)
*THC- Difference (% of Gas)

System Bias Check
E - System Calibration Response (Pre Test)
F - System Calibration Bias (% of Span) (Pre Test)
G - System Calibration Response (Post Test)
H - System Calibration Bias (% of Span) (Post Test)
I - Drift (% of Span)

Monitor Span	
O2	0-25 %
CO2	0-20 %
NOx	0-100 ppm
CO	0-2000 ppm
THC	0-1000 ppm

Solvay Minerals, Inc.
CAE Project No: 7955-3
CA-3 Calciner Stack

CEM CALIBRATION DATA SHEET

May 28, 1997
Run 6

	A	B	C	D*	E	F	G	H	I
Oxygen									
Zero	0.0	0.0	0.0	0.0%	0.0	0.0%	0.0	0.1%	0.0%
Mid Span	10.1	10.1	0.0	0.0%	9.9	-0.8%	9.9	-0.8%	0.0%
High Span	20.8	20.9	0.1	0.2%					
Carbon Dioxide									
Zero	0.0	0.0	0.0	0.2%	0.0	0.3%	0.0	0.3%	0.0%
Mid Span	10.1	10.1	0.0	0.0%	9.9	-0.9%	9.9	-0.9%	0.0%
High Span	18.1	18.1	0.0	0.0%					
Nitrogen Oxides									
Zero	0.0	0.1	0.1	0.1%	1.0	0.9%	0.9	0.8%	-0.1%
Mid Span	45.98	46.4	0.4	0.4%	47.5	1.1%	46.1	-0.3%	-1.4%
High Span	107.0	106.9	0.1	0.1%					
Carbon Monoxide									
Zero	0.0	-1.0	1.0	0.1%	1.3	0.1%	1.2	0.1%	0.0%
Mid Span	598.7	602.7	4.0	0.2%					
High Span	1515.0	1520.7	5.7	0.3%	1516.4	-0.2%	1519.2	-0.1%	0.1%
Total Hydrocarbons									
Zero	0.0	0.1	0.1	0.0%	3.6	0.4%	4.8	0.5%	0.1%
Low Span	252.40	256.40	4.0	1.6%					
Mid Span	472.5	487.0	14.5	1.5%	478.5	-0.9%	485.1	-0.2%	0.7%
High Span	852.2	857.6	5.4	0.5%					

Calibration Error Check
A - Cylinder Value
B - Analyzer Calibration Response
C- Absolute Difference
D - Difference (% of Span)
*THC- Difference (% of Gas)

System Bias Check
E - System Calibration Response (Pre Test)
F - System Calibration Bias (% of Span) (Pre Test)
G - System Calibration Response (Post Test)
H - System Calibration Bias (% of Span) (Post Test)
I - Drift (% of Span)

Monitor Span	
O2	0-25 %
CO2	0-20 %
NOx	0-100 ppm
CO	0-2000 ppm
THC	0-1000 ppm

Solvay Minerals, Inc.
CAE Project No: 7955-3
CA-3 Calciner Stack

CEM CALIBRATION DATA SHEET

May 28, 1997
Run 7

	A	B	C	D*	E	F	G	H	I
Oxygen									
Zero	0.0	0.0	0.0	0.0%	0.0	0.1%	0.1	0.4%	0.3%
Mid Span	10.1	10.1	0.0	0.0%	9.9	-0.8%	9.9	-0.8%	0.1%
High Span	20.8	20.9	0.1	0.2%					
Carbon Dioxide									
Zero	0.0	0.0	0.0	0.2%	0.0	0.3%	0.0	0.2%	-0.1%
Mid Span	10.1	10.1	0.0	0.0%	9.9	-0.9%	9.9	-1.0%	-0.1%
High Span	18.1	18.1	0.0	0.0%					
Nitrogen Oxides									
Zero	0.0	0.1	0.1	0.1%	0.9	0.8%	0.5	0.4%	-0.4%
Mid Span	45.98	46.4	0.4	0.4%	46.1	-0.3%	44.6	-1.8%	-1.5%
High Span	107.0	106.9	0.1	0.1%					
Carbon Monoxide									
Zero	0.0	-1.0	1.0	0.1%	1.2	0.1%	1.2	0.1%	0.0%
Mid Span	598.7	602.7	4.0	0.2%					
High Span	1515.0	1520.7	5.7	0.3%	1519.2	-0.1%	1519.6	-0.1%	0.0%
Total Hydrocarbons									
Zero	0.0	0.1	0.1	0.0%	4.8	0.5%	2.4	0.2%	-0.2%
Low Span	252.40	256.40	4.0	1.6%					
Mid Span	472.5	487.0	14.5	1.5%	485.1	-0.2%	475.8	-1.1%	-0.9%
High Span	852.2	857.6	5.4	0.5%					

Calibration Error Check
A - Cylinder Value
B - Analyzer Calibration Response
C- Absolute Difference
D - Difference (% of Span)
*THC- Difference (% of Gas)

System Bias Check
E - System Calibration Response (Pre Test)
F - System Calibration Bias (% of Span) (Pre Test)
G - System Calibration Response (Post Test)
H - System Calibration Bias (% of Span) (Post Test)
I - Drift (% of Span)

Monitor Span	
O2	0-25 %
CO2	0-20 %
NOx	0-100 ppm
CO	0-2000 ppm
THC	0-1000 ppm

Solvay Minerals, Inc.
CAE Project No: 7955-3
CA-3 Calciner Stack

CEM CALIBRATION DATA SHEET

May 30, 1997
Run 8

	A	B	C	D*	E	F	G	H	I
Oxygen									
Zero	0.0	0.0	0.0	0.1%	0.0	-0.1%	0.0	0.0%	0.1%
Mid Span	10.1	10.1	0.0	0.2%	9.9	-0.6%	10.0	-0.4%	0.2%
High Span	20.8	20.8	0.0	0.1%					
Carbon Dioxide									
Zero	0.0	0.0	0.0	0.1%	0.0	0.0%	0.0	0.2%	0.2%
Mid Span	10.1	10.1	0.0	0.0%	10.0	-0.6%	10.1	-0.2%	0.4%
High Span	18.1	18.2	0.0	0.2%					
Nitrogen Oxides									
Zero	0.0	0.0	0.0	0.0%	0.3	0.3%	0.7	0.7%	0.4%
Mid Span	45.98	46.7	0.7	0.7%	45.6	-1.1%	46.7	0.0%	1.1%
High Span	107.0	107.4	0.4	0.4%					
Carbon Monoxide									
Zero	0.0	1.2	1.2	0.1%	1.2	0.0%	3.7	0.1%	0.1%
Mid Span	598.7	602.8	4.1	0.2%					
High Span	1515.0	1520.9	5.9	0.3%	1517.5	-0.2%	1516.5	-0.2%	-0.1%
Total Hydrocarbons									
Zero	0.0	-0.9	0.9	0.1%	0.5	0.1%	1.3	0.2%	0.1%
Low Span	252.40	255.70	3.3	1.3%					
Mid Span	472.5	483.1	10.6	1.1%	481.6	-0.2%	474.7	-0.8%	-0.7%
High Span	852.2	852.2	0.0	0.0%					

Calibration Error Check
A - Cylinder Value
B - Analyzer Calibration Response
C- Absolute Difference
D - Difference (% of Span)
*THC- Difference (% of Gas)

System Bias Check
E - System Calibration Response (Pre Test)
F - System Calibration Bias (% of Span) (Pre Test)
G - System Calibration Response (Post Test)
H - System Calibration Bias (% of Span) (Post Test)
I - Drift (% of Span)

Monitor Span	
O2	0-25 %
CO2	0-20 %
NOx	0-100 ppm
CO	0-2000 ppm
THC	0-1000 ppm

Meter Box Full Test Calibration

Operator: R. Lindberg

DATE 10/21/96

Meter Box No: D-12 | Meter Box ΔH@: 1.7517 | Meter Box Yd: 1.0077 | Barometric Pressure: 25.01

				Standard Meter Gas Volume			Meter Box Gas Volume (ft^3)			Std. Meter Temperature (°F)			Meter Box Temperature (°F)					
Q	ΔH	ΔP	Y_{ds}	Initial	Final	V_{ds}	Initial	Final	V_d	Inlet	Outlet	T_{ds}	Inlet	T_o	T_d	Time	Y_d	H@
0.89	3.00	-2.60	1.0000	0.000	10.048	10.048	321.020	331.042	10.022	66.0	66.0	66.0	88	77	82.5	9.49	1.0172	1.7586
0.89	3.00	-2.60	1.0000	0.000	10.078	10.078	331.042	341.098	10.056	66.0	66.0	66.0	88	77	82.5	9.52	1.0168	1.7592
0.62	1.50	-1.80	1.0000	0.000	10.072	10.072	351.358	361.515	10.157	66.0	66.0	66.0	85	78	81.5	13.63	1.0110	1.8018
0.63	1.50	-1.70	1.0000	0.000	10.063	10.063	361.515	371.673	10.158	66.0	66.0	66.0	85	78	81.5	13.48	1.0103	1.7656
0.37	0.50	-1.00	1.0000	0.000	5.082	5.082	378.843	384.042	5.199	67.0	67.0	67.0	81	77	79.0	11.57	0.9954	1.7096
0.37	0.50	-1.00	1.0000	0.000	5.065	5.065	384.042	389.223	5.181	67.0	67.0	67.0	81	77	79.0	11.55	0.9955	1.7151
																AVERAGE	1.0077	1.7517

Nomenclature

P_b	Barometric Pressure (in. Hg)
Q	Flow Rate (cfm)
ΔH	Orifice Pressure Differential (in. H_2O)
ΔP	Inlet Pressure Differential (in. H_2O)
V_d	Gas Meter Volume - Dry (ft^3)
V_{ds}	Standard Meter Volume - Dry (ft^3)
T_d	Average Meter Box Temperature (°F)
T_o	Outlet Meter Box Temperature (°F)
T_{ds}	Average Standard Meter Temperature (°F)
Y_d	Meter Correction Factor (unitless)
Y_{ds}	Standard Meter Correction Factor (unitless)
ΔH@	Orifice Pressure Differential giving 0.75 cfm of air at 68°F and 29.92 in. Hg (in. H_2O)

Equations

$$Y_d = (Y_{ds})\left[\frac{V_{ds}}{V_d}\right]\left[\frac{T_d + 460}{T_{ds} + 460}\right]\left[\frac{P_b + \Delta P / 13.6}{P_b + \Delta H / 13.6}\right]$$

$$\Delta H@ = \frac{0.0319(\Delta H)}{P_b(T_o + 460)}\left[\frac{(T_{ds} + 460)\Theta}{(V_{ds})(Y_{ds})}\right]^2$$

$$Q = \frac{17.64\,(V_{ds})(P_b)}{(T_{ds} + 460)(\Theta)}$$

Vacuum Gauge

Standard (in. Hg)	Vacuum Gauge
5.0	4.9
7.5	7.2
10.0	9.5
11.0	10.5
12.0	11.6
13.0	12.5
14.0	13.6
15.0	14.6

CAE
Clean Air Engineering

SOLVAY2016_6_001926

Pyrometer Calibration Sheet

Pyrometer No.: Meter D-12
Calibrated By: R. Lindberg
Date: June 11, 1997

Office: Denver
Client: SOLVAY MINERALS
Job or Reference No. 65-7955

Temperature Scale Used: X **Fahrenheit** __ Celsius

Calibration: __ Pre-Test X **Post Test**

Calibration Reference Settings for Fahrenheit Scale	Pyrometer Reading	Calibration Reference Settings for Celsius Scale
50° F	50°	25° C
100° F	100°	50° C
150° F	150°	75° C
200° F	201°	100° C
250° F	251°	125° C
300° F	301°	150° C
350° F	350°	175° C
400° F	399°	200° C
450° F	449°	225° C
500° F	498°	250° C
550° F	549°	275° C
600° F	600°	300° C

Calibration Reference Information

Reference Used: Omega Serial No: T-87031

Calibrated By: R&R INSTRM. Date Calibrated: 1/30/97

Calibration Report No.: 62306-1

Meter Box Critical Orifice Post-Test Calibration Data

CAE Project No: 7955

Client: SOLVAY MINERALS

Date: 6/11/97

Operator Name: R. LINDBERG

Meter No. D-12

Meter Y_d 1.0077

Meter $\Delta H_@$ 1.7517

Full-Test Cal. Date 10/21/96

Orifice I.D. 61-4A4

Orifice K' 0.649

Orifice Cal. Date 3/7/97

Leak Checks

Negative Pressure
No Movement of Meter in 1 minute [x] Pass [ ] Fail

Positive Pressure
No Movement of Manometer in 1 minute [x] Pass [ ] Fail

Important: All leak checks must pass in order for calibration to be valid.

Barom. Press. (P_b) 24.82 in. Hg

Run	Elapsed Time (minutes)	Meter Volume (dcf)	Meter Temperature Inlet (°F)	Meter Temperature Outlet (°F)	Ambient Temp.- T_{amb} (°F)	Orifice ΔH (in.W.C.)	Vacuum (in. Hg)	Net Run Time - θ (minutes)	Net Meter Volume for Run - V_m (dcf)	Avg Meter Temp. for Run - T_m	DGM Calibration Factor - Y_i	Percent Variation - ΔY_i
	0.0	157.50	88	81								
1	5.0	161.83	89	82	84	1.9	14	5.0	4.33	85.0	0.9872	-0.1%
2	10.0	166.14	89	82	84	1.9	14	5.0	4.31	85.5	0.9927	0.4%
3	15.0	170.48	89	82	84	1.9	14	5.0	4.34	85.5	0.9858	-0.3%
										Average Y_i	0.9885	
										Cal.Error	-1.9%	

Calculations and Specifications

$$Y_i = \frac{K' \times P_b \times (T_m + 460) \times \theta}{17.64 \times V_m \times \left(P_b + \Delta H/13.6\right) \times \sqrt{T_{amb} + 460}}$$

$$\Delta Y_i = \frac{Y_i - \overline{Y}_i}{\overline{Y}_i} \times 100 \qquad \text{Spec.: } \Delta Y_i \le \pm 2\%$$

$$Cal.Error = \frac{\overline{Y}_i - Y_d}{Y_d} \times 100 \qquad \text{Spec.: } Cal.Error \le \pm 5\%$$

Clean Air Engineering

SOLVAY2016_6_001928

CS 005 Critical Orifice
EXCL/D68.R3-10/15/95

TYPE S PITOT TUBE INSPECTION DATA

DATE 5-1-97

PITOT NUMBER M-6-1

Pitot Tube Assembly Level Yes

Pitot Tube openings damaged? NO (Yes(explain, see comments) or No)

α_1 = 1 deg. (<10), α_2 = 1 deg. (<10), β_1 = 2 deg. (<5), β_2 = 2 deg. (<5)

Y = 1 deg., θ = 0 deg., A = .704 in.

Z = A sin Y = .012 in.; <1/8 in.

W = A sin θ = .000 in.; <1/32 in.

Pa .352 in. Pb .352

P = (Pa +Pb)/2 .352 in.

Dt (tube dia.) = .250 in.

P/Dt = 1.41 (≥ 1.05 and ≤ 1.50)

COMMENTS: 6' EFF M5 Probe Dept. 65 Cp=.84

WIND TUNNEL CALIBRATION REQUIRED? NO (Yes or No)

CALIBRATION BY: EM

Solvay Minerals
CAE Job No. 7955
5/20/97

GC1 Operating Parameters

Column: 80/100 mesh Super Q Polymer. 10 ft length, .125 in diam, stainless steel.

Carrier: 0 grade nitrogen, at 25.0 ml/min

Sample: 5 ml Stainless steel

Inj Temp: 170 C
Det Temp: 200 C

Column Oven:
Isothermal: 140 C
Time: 20.00 min

GC1 Reported Compounds

Methane
Ethane
1,3 Butadiene
Acrylonitrile

Solvay Minerals
CAE Job No. 7955
5/20/97

Calibration Bag Standards

Stock 1 Solution

This Stock Solution is Acrylonitrile in a 4ml vial.

compound	volume (ml)	% tot by volume
Acrylonitrile	2.00	100.00%

Calibration Bag Standards Set 1

Raw Data

These Calibration Bag Standards are mixtures of 0 nitrogen, butadiene, methane, ethane, and stock 1 solution in tedlar bags based on the following data.

Bag No.	0 N2 flow (ml/min)	time (min)	stock 1 (ul)	methane (ml)	butadi (ul)	ethane (ml)	T (amb) (F)	Pb (in Hg)
1	3204	12.50	0	5	50	0.5	72	24.01
2	3220	12.50	0.5	2.5	100	1	72	24.01
3	3228	12.50	1	1	20	0.1	72	24.07
4	1037	9.25	0.5	0.5	10	0.08	72	24.07
5	4197	14.00	0.5	11	500	0.1	72	24.21
6	1082	9.00	0	2.5	100	0	74	24.16
7	934	10.25	0.0	3.5	0	0	74	24.27

Solvay Minerals
CAE Job No. 7955
5/20/97

Calibration Bag Standards
GC # 1
Calibration Bag Standards Set 1
Results

Bag No.1

compound	ppmv
Methane	125
Ethane	12.5
Butadiene	1.25

Bag No.2

compound	ppmv
Methane	62.1
Ethane	24.8
Butadiene	2.48
Acrylonitrile	5.70

Bag No.3

compound	ppmv
Methane	24.8
Ethane	2.5
Butadiene	0.50
Acrylonitrile	11.34

Bag No.4

compound	ppmv
Methane	52
Ethane	8.3
Butadiene	1.04
Acrylonitrile	23.84

Bag No.5

compound	ppmv
Methane	187
Ethane	1.7
Butadiene	8.51
Acrylonitrile	3.87

Bag No.6

compound	ppmv
Methane	257
Ethane	0.0
Butadiene	10.27
Acrylonitrile	0.00

Bag No.7

compound	ppmv
Methane	365.5
Ethane	0.0
Butadiene	0.00
Acrylonitrile	0.00

Solvay Minerals
CAE Job No. 7955
5/20/97

GC2 Operating Parameters

Column: 1 GP 5% SP1200 / 1.75% Bentone 34 on 100/120 mesh Supelcoport. 10 ft length, .125 in diam, stainless steel.

Carrier: 0 grade nitrogen, at 25.0 ml/min

Sample: 5 ml teflon

Inj Temp: 170 C
Det Temp: 200 C

Column Oven:

Initial: 40 C
Time: 2.00 min
Rate: 5.0 C/min
Final: 105 C
Time: 4.00 min

Tot Time: 19.00 min
Reset: 5 min

GC2 Reported Compounds

1,1,1-Trichloroethane
Benzene
Trichloroethylene
Toluene
Ethylbenzene
Hexane
p-Xylene
m-Xylene
o-Xylene
Styrene
2-Butanone

Solvay Minerals
CAE Job No. 7955
5/20/97

Calibration Bag Standards

Calibration Bag Standards SEt 2 - GC #2
Stock 2 Solution (liquid phase)

This stock solution is a mixture of the liquid phase target analytes based on the following liquid volumes.

compound	volume (ml)	% tot by volume
Hexane	0.4	10.00%
1,1,1-Trichloroethane	0.5	12.50%
Benzene	0.4	10.00%
Trichloroethylene	0.5	12.50%
Toluene	0.4	10.00%
Ethylbenzene	0.4	10.00%
p-Xylene	0.2	5.00%
m-Xylene	0.4	10.00%
o-Xylene	0.2	5.00%
Styrene	0.4	10.00%
2-butanone	0.2	5.00%
Total	4.0	100.00%

Calibration Bag Standards Set 2
Raw Data

These Calibration Bag Standards are mixtures of 0 nitrogen, and stock solution 2

	0 N2				
Bag No.	flow (ml/min)	time (min)	stock 2 (ul)	T (amb) (°F)	Pb (in Hg)
1a	3197	12.50	1	72	24.01
2a	3215	12.50	1.5	68	24.07
3a	1074	9.00	0.5	70	24.07
4a	1066	9.00	1	72	24.07
5a	1037	9.00	1.5	72	24.07
6a	2454	15.00	1.2	74	24.21

Solvay Minerals
CAE Job No. 7955
5/20/97

Calibration Bag Standards

Calibration Bag Standards Set 2
Results

bag No.1a

compound	ppmv
Hexane	0.58
1,1,1-Trichloroethane	0.95
Benzene	0.85
Trichloroethylene	1.05
Toluene	0.71
Ethylbenzene	0.62
p-Xylene	0.31
m-Xylene	0.62
o-Xylene	0.31
Styrene	0.66
2-butanone	0.42

bag No.2a

compound	ppmv
Hexane	0.86
1,1,1-Trichloroethane	1.40
Benzene	1.26
Trichloroethylene	1.55
Toluene	1.05
Ethylbenzene	0.91
p-Xylene	0.45
m-Xylene	0.91
o-Xylene	0.46
Styrene	0.97
2-butanone	0.62

bag No.3a

compound	ppmv
Hexane	1.19
1,1,1-Trichloroethane	1.95
Benzene	1.75
Trichloroethylene	2.16
Toluene	1.46
Ethylbenzene	1.27
p-Xylene	0.63
m-Xylene	1.27
o-Xylene	0.64
Styrene	1.35
2-butanone	0.87

bag No.4a

compound	ppmv
Hexane	2.41
1,1,1-Trichloroethane	3.93
Benzene	3.53
Trichloroethylene	4.37
Toluene	2.95
Ethylbenzene	2.56
p-Xylene	1.27
m-Xylene	2.57
o-Xylene	1.30
Styrene	2.73
2-butanone	1.75

bag No.5a

compound	ppmv
Hexane	3.72
1,1,1-Trichloroethane	6.07
Benzene	5.45
Trichloroethylene	6.74
Toluene	4.55
Ethylbenzene	3.95
p-Xylene	1.96
m-Xylene	3.96
o-Xylene	2.01
Styrene	4.21
2-butanone	2.70

bag No.6a

compound	ppmv
Hexane	0.75
1,1,1-Trichloroethane	1.23
Benzene	1.10
Trichloroethylene	1.36
Toluene	0.92
Ethylbenzene	0.80
p-Xylene	0.40
m-Xylene	0.80
o-Xylene	0.41
Styrene	0.85
2-butanone	0.55

Solvay Minerals
CAE Job No. 7955
5/20/97

GC-2
Calibration Bag Standards Set 3
Raw Data (gas phase)
These Calibration Bag Standards are mixtures of 0 nitrogen, 2-Butanone and MeCl2

Bag No.	flow (ml/min)	time (min)	MEK (ul)	MeCl2 (ul)	T (amb) (F)	Pb (in Hg)
1b	1551	6.25	0.2		72	24.07
2b	1553.5	6.25	0.1	0.2	75	24.04
3b	1569	6.50	0.05	0.1	75	24.04
4b	1546	6.00	0.35	0.7	75	24.04
5b	2402	14.00	0.2	0.4	70	24.21
6b	2461	13.00	0.25	0.5	75	24.21

Calibration Bag Standards Set 3
Results

bag	MEK (ppm)	MeCl2 (ppm)
1b	6.94	na
2b	3.49	9.75
3b	1.66	4.64
4b	12.77	35.71
5b	1.98	5.56
6b	2.63	7.30

Solvay Minerals
CAE Job No. 7955
5/20/97

Target Compounds

Compound	Phase	Mol. Wt.	Density	Source	Stock No.	Lot No.	CAS No.
Methane	gas	16.00	na	Scott	LB1	08-23069	74-82-8
Ethane	gas	30.00	na	Scott	801411	08-27295	74-84-0
1,3 Butadiene	gas	54.09	na	Scott	not Available	not Available	106-99-0
Hexane	liquid	86.18	0.663	Aldrich	13,938-6	04827DN	110-54-3
Methylene Chloride	liquid	84.94	1.326	Aldrich	27,056-3	10846KN	75-09-2
1,1,1-Trichloroethane	liquid	133.41	1.338	Aldrich	29,899-9	10057DN	71-55-6
Benzene	liquid	78.11	0.879	Aldrich	27,070-9	07214MG	71-43-2
Trichloroethylene	liquid	131.40	1.465	Aldrich	25,140-2	04925EN	79-01-6
Toluene	liquid	92.14	0.866	Aldrich	27,037-7	03762PN	108-88-3
Ethylbenzene	liquid	106.17	0.867	Aldrich	29,684-8	03634CG	100-41-4
p-Xylene	liquid	106.16	0.861	Aldrich	31,719-5	00813LN	106-42-3
m-Xylene	liquid	106.16	0.868	Aldrich	18,556-6	06920AG	108-38-3
o-Xylene	liquid	106.16	0.880	Aldrich	29,588-4	04337AN	95-47-6
Styrene	liquid	104.14	0.906	Aldrich	24,086-9	03701DZ	100-42-5
2-Butanone	liquid	72.10	0.805	Aldrich	11,026-4	13414DG	78-93-3
Acrylonitrile	liquid	53.06	0.806	Aldrich	11,021-3	04701PG	107-13-1

Solvay Minerals
CAE Job No. 7955
5/20/97

Calibration Summary

GC-1 Bag No. 1

	area 1	area 2	area 3	area 4	area 5	avg	%RSD
Methane	784320	778043	776768	770523	770695	776070	0.74
Ethane	178081	178606	173765	170172	170850	174295	2.26
1,3 Butadiene	27712	26138	26847	27231	26689	26923	2.19

GC-1 Bag No. 2

	area 1	area 2	area 3	area 4	area 5	avg	%RSD
Methane	408444	411134	411414	411110	407794	409979	0.42
Ethane	324432	327858	327459	326470	322043	325652	0.74
1,3 Butadiene	57270	56409	56349	55591	56472	56418	1.06
Acrylonitrile	90327	88840	83689	87624	84018	86900	3.39

GC-1 Bag No. 3

	area 1	area 2	area 3	area 4	area 5	area 6	area 7	avg	%RSD
Methane	170214	171028	170280	170074	170153	168723	167922	169771	0.63
Ethane	35755	36564	36181	37843	37781	38586	38769	37354	3.19
1,3 Butadiene	8873	8982	9150	9404	8582	8402	7897	8756	5.77
Acrylonitrile	169010	168247	168498	170759	168167	167461	166243	168341	0.82

GC-1 Bag No. 4

	area 1	area 2	area 3	area 4	area 5	avg	%RSD
Methane	324320	324849	321569	320783	320159	322336	0.66
Ethane	110806	112216	112738	114176	113338	112655	1.12
1,3 Butadiene	na	na	na	na	na	na	na
Acrylonitrile	382325	385189	380719	376847	363969	377810	2.20

Solvay Minerals
CAE Job No. 7955
5/20/97

Calibration Summary

GC-1 Bag No. 5

	area 10	area 11	area 12	area 13	avg	%RSD
Methane	1139963	1185728	1215116	1200006	1185203	2.74
Ethane	26392	27159	31669	29234	28614	8.26
1,3 Butadiene	193608	202030	202798	204597	200758	2.43
Acrylonitrile	50160	49123	52224	46509	49504	4.80

GC-1 Bag No. 6

	area 1	area 2	area 3	area 4	area5	avg	%RSD
Methane	1634637	1633339	1631776	1631041	1634706	1633100	0.10
Ethane	na	na	na	na	na	na	na
1,3 Butadiene	251399	250180	251677	249485	250202	250589	0.37
Acrylonitrile	na	na	na	na	na	na	na

GC-1 Bag No. 7

	area 1	area 2	area 3	area 4	area 5	avg	%RSD
Methane	2407690	2412502	2398636	2389355	2378520	2397341	0.57
Ethane	na	na	na	na	na	na	na
1,3 Butadiene	na	na	na	na	na	na	na
Acrylonitrile	na	na	na	na	na	na	na

Solvay Minerals
CAE Job No. 7955
5/20/97

Calibration Summary

GC-2 Bag No. 1a

	area 1	area 2	area 3	avg	% RSD
Hexane	29348	29354	29131	29278	0.43
1,1,1-Trichloroethane	16672	16568	16435	16558	0.72
2-Butanone	na	na	na	na	na
Benzene	49076	49385	49898	49453	0.84
Trichloroethylene	20749	20613	20409	20590	0.83
Toluene	44069	43493	42657	43406	1.64
Ethylbenzene	41777	38753	37720	39417	5.35
m-Xylene	23042	20276	20455	21258	7.28
p-Xylene	58830	50812	50257	53300	9.00
o-Xylene	39313	25699	25532	30181	26.20
Styrene	50688	38541	38546	42592	16.46

GC-2 Bag No. 2a

	area 1	area 2	area 3	area 4	avg	% RSD
Hexane	42591	42431	42339	42281	42411	0.32
1,1,1-Trichloroethane	24251	24223	24308	24425	24302	0.37
2-Butanone	na	na	na	na	na	na
Benzene	75400	75310	74729	74752	75048	0.48
Trichloroethylene	29944	30098	30258	29851	30038	0.59
Toluene	64020	64345	64705	62540	63903	1.49
Ethylbenzene	64092	63860	61995	59936	62471	3.09
m-Xylene	35019	34647	33880	33073	34155	2.53
p-Xylene	86362	84473	82299	80387	83380	3.11
o-Xylene	55281	53571	49638	47060	51388	7.26
Styrene	87169	82785	72790	68910	77914	10.91

GC-2 Bag No. 3a

	area 1	area 2	area 3	area4	avg	% RSD
Hexane	60010	59737	59009	58744	59375	1.00
1,1,1-Trichloroethane	34746	34966	34353	34406	34618	0.84
2-Butanone	na	na	na	na	na	na
Benzene	103471	105674	104163	104462	104443	0.88
Trichloroethylene	43924	43649	42675	41910	43040	2.15
Toluene	87557	87650	86554	86043	86951	0.90
Ethylbenzene	91463	87445	85793	84265	87242	3.55
m-Xylene	49873	46714	45864	44873	46831	4.62
p-Xylene	117941	114408	112569	109186	113526	3.22
o-Xylene	72938	65602	64729	61538	66202	7.28
Styrene	114328	109331	106841	101549	108012	4.92

Solvay Minerals
CAE Job No. 7955
5/20/97

Calibration Summary

GC-2 Bag No. 4a

	area 1	area 2	area 3	avg	% RSD
Hexane	118737	115150	105993	113293	5.80
1,1,1-Trichloroethane	68404	66520	61218	65381	5.70
2-Butanone	na	na	na	na	na
Benzene	211343	205153	190599	202365	5.26
Trichloroethylene	84545	82479	76050	81025	5.47
Toluene	173411	168360	155074	165615	5.72
Ethylbenzene	173049	168818	150285	164051	7.38
m-Xylene	88105	85083	76290	83159	7.38
p-Xylene	210895	204150	183448	199498	7.17
o-Xylene	115610	110230	96536	107459	9.15
Styrene	203597	191534	174271	189801	7.77

GC-2 Bag No. 5a

	area 1	area 2	area 3	area 4	area5	avg	% RSD
Hexane	187175	188224	187099	185662	186927	187017	0.49
1,1,1-Trichloroethane	108688	108679	108539	107584	107776	108253	0.49
2-Butanone	na	na	na	na	na	na	na
Benzene	338995	337983	337451	335293	309136	331772	3.84
Trichloroethylene	134367	136028	134589	132860	126224	132814	2.90
Toluene	275424	278416	276870	274904	263164	273756	2.22
Ethylbenzene	262790	271674	272598	261390	258456	265382	2.40
m-Xylene	132644	137985	136085	130577	127442	132947	3.17
p-Xylene	316558	327152	321897	309156	301240	315201	3.25
o-Xylene	169647	176488	171904	160225	152268	166106	5.87
Styrene	310954	326027	316455	300189	279314	306588	5.83

Solvay Minerals
CAE Job No. 7955
5/20/97

Calibration Summary

GC-2 Bag No. 1b

	area 1	area 2	area 3	avg	% RSD
2-Butanone	139667	150712	154349	148243	5.16

GC-2 Bag No. 2b

	area 1	area 2	area 3	area 4	area 5	avg	% RSD
Methylene Chloride	79084	78808	78572	78329	78817	78722	0.36
2-Butanone	75537	74192	73502	76239	74847	74863	1.66

GC-2 Bag No. 3b

	area 1	area 2	area 3	area4	area5	avg	% RSD
Methylene Chloride	40193	39817	40323	40102	40058	40099	0.47
2-Butanone	37452	37631	38557	34711	35911	36852	4.15

GC-2 Bag No. 4b

	area 1	area 2	area 3	area4	area5	avg	% RSD
Methylene Chloride	273825	273138	273871	270692	271458	272597	0.53
2-Butanone	244817	260981	276971	278900	284833	269300	6.05

GC-2 Bag No. 5b

	area 1	area 2	area 3	area 4	area 5	avg	% RSD
Methylene Chloride	38316	38057	37637	37093	36783	37577	1.71
2-Butanone	34272	36603	38087	37700	38900	37112	4.82

Solvay Minerals
CAE Job No. 7955
5/20/97

Detection Limits

Detection limits based on regression curve

Hexane	rsp=4.96e4(amt)-450
1,1,1-Trichloroethane	rsp=1.76e4(amt)-398
2-Butanone	rsp=2.12e4(amt)-347
Benzene	rsp=6.03e4(amt)-1.74e3
Trichloroethylene	rsp=1.94e4(amt)-177
Toluene	rsp=5.92e4(amt)-75.2
Ethylbenzene	rsp=6.64e4(amt)+110
m-Xylene	rsp=6.61e4(amt)+2.2e3
p-Xylene	rsp=7.75e4(amt)+6.79e3
o-Xylene	rsp=7.97e4(amt)+7.39e3
Styrene	rsp=7.19e4(amt)+1.96e3
Methane	rsp=6.51e3(amt)-1.04e4
Ethane	rsp=1.3e4(amt)+4.66e3
Butadiene	rsp=2.43e4(amt)-2.74e3
Methylene Chloride	rsp=7.71e3(amt)-2.29e3
Acrylonitrile	rsp=1.6e4(amt)-6.4e3

Hexane	0.009
1,1,1-Trichloroethane	0.023
2-Butanone	0.016
Benzene	0.029
Trichloroethylene	0.009
Toluene	0.001
Ethylbenzene	0.002
m-Xylene	0.033
p-Xylene	0.088
o-Xylene	0.093
Styrene	0.027
Methane	1.598
Ethane	0.358
Butadiene	0.113
Methylene Chloride	0.297
Acrylonitrile	0.400

Solvay Minerals
CAE Job No. 7955
5/20/97

Detection Limits

By: 40 CFR App. B to part 136
"Definition and procedure for the Determintion of the Method Detection limit"

bags 3a,2b,3

	area 1	area2	area3	area4	area5	average
Hexane	1.22	1.215	1.2	1.195		1.208
1,1,1-Trichloroethane	1.997	2.009	1.975	1.978		1.990
2-Butanone	3.582	3.518	3.486	3.615	3.549	3.550
Benzene	1.745	1.782	1.757	1.762		1.762
Trichloroethylene	2.271	2.257	2.207	2.167		2.226
Toluene	1.481	1.482	1.464	1.455		1.471
Ethylbenzene	1.376	1.315	1.29	1.267		1.312
m-Xylene	0.721	0.673	0.66	0.645		0.675
p-Xylene	1.434	1.389	1.365	1.321		1.377
o-Xylene	0.823	0.731	0.72	0.68		0.739
Styrene	1.562	1.493	1.458	1.384		1.474
Methylene Chloride	10.552	10.516	10.485	10.454	10.517	10.505
Methane	27.754	27.879	27.764	27.733	27.745	27.775
Ethane	2.383	2.445	2.416	2.543	2.538	2.465
1,3 Butadiene	0.477	0.482	0.489	0.499	0.466	0.483
Acrylonitrile	10.98	10.932	10.948	11.09	10.927	10.975

Hexane	0.055
1,1,1-Trichloroethane	0.074
2-Butanone	0.234
Benzene	0.071
Trichloroethylene	0.220
Toluene	0.061
Ethylbenzene	0.216
m-Xylene	0.151
p-Xylene	0.217
o-Xylene	0.278
Styrene	0.341
Methylene Chloride	0.170
Methane	0.273
Ethane	0.333
1,3 Butadiene	0.057
Acrylonitrile	0.310

Solvay Minerals
CAE Job No. 7955
5/20/97

Detection Limits

40 CFR Part 136 App. B was used to calculate limits of detection except for the following compounds due to reproducibility of low level concentrations near the baseline: Trichloroethylene, Ethylbenzene, Xylenes and styrene.

Hexane	**0.055**
1,1,1-Trichloroethane	**0.074**
2-Butanone	**0.234**
Benzene	**0.071**
Trichloroethylene	**0.009**
Toluene	**0.061**
Ethylbenzene	**0.002**
m-Xylene	**0.033**
p-Xylene	**0.088**
o-Xylene	**0.093**
Styrene	**0.027**
Methylene Chloride	**0.170**
Methane	**0.273**
Ethane	**0.333**
1,3 Butadiene	**0.057**
Acrylonitrile	**0.310**

Solvay Minerals
CAE Job No. 7955
5/20/97

Recovery Check

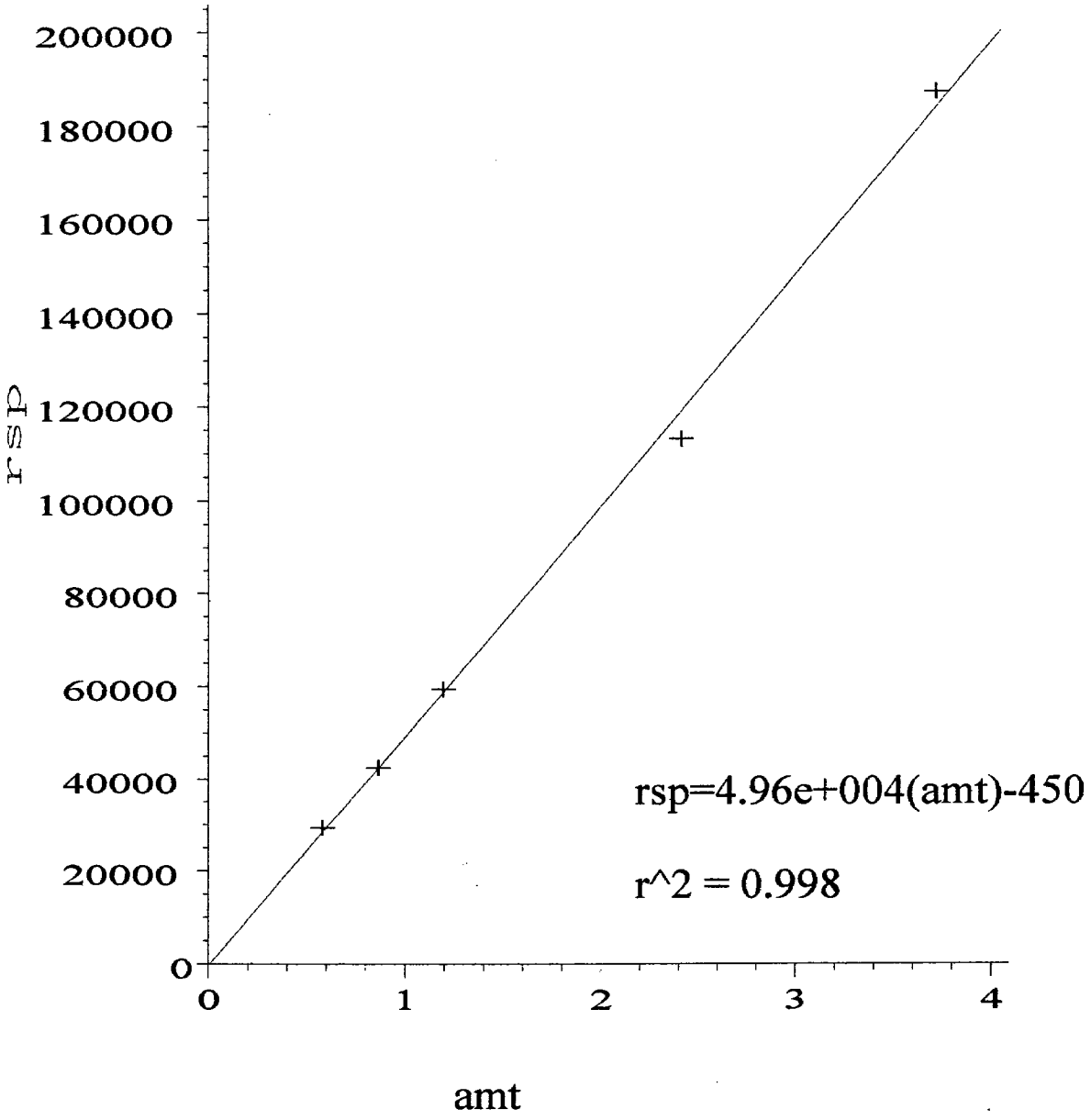
The recovery check compared area counts for the Propane Calibration Gas. In a Tedlar Bag and Flowed to the Probe

	Bag	Probe
inj 1	1618072	1635442
inj 2	1617339	1640966
inj 3	1620500	1645113
avg	**1618637**	**1640507**

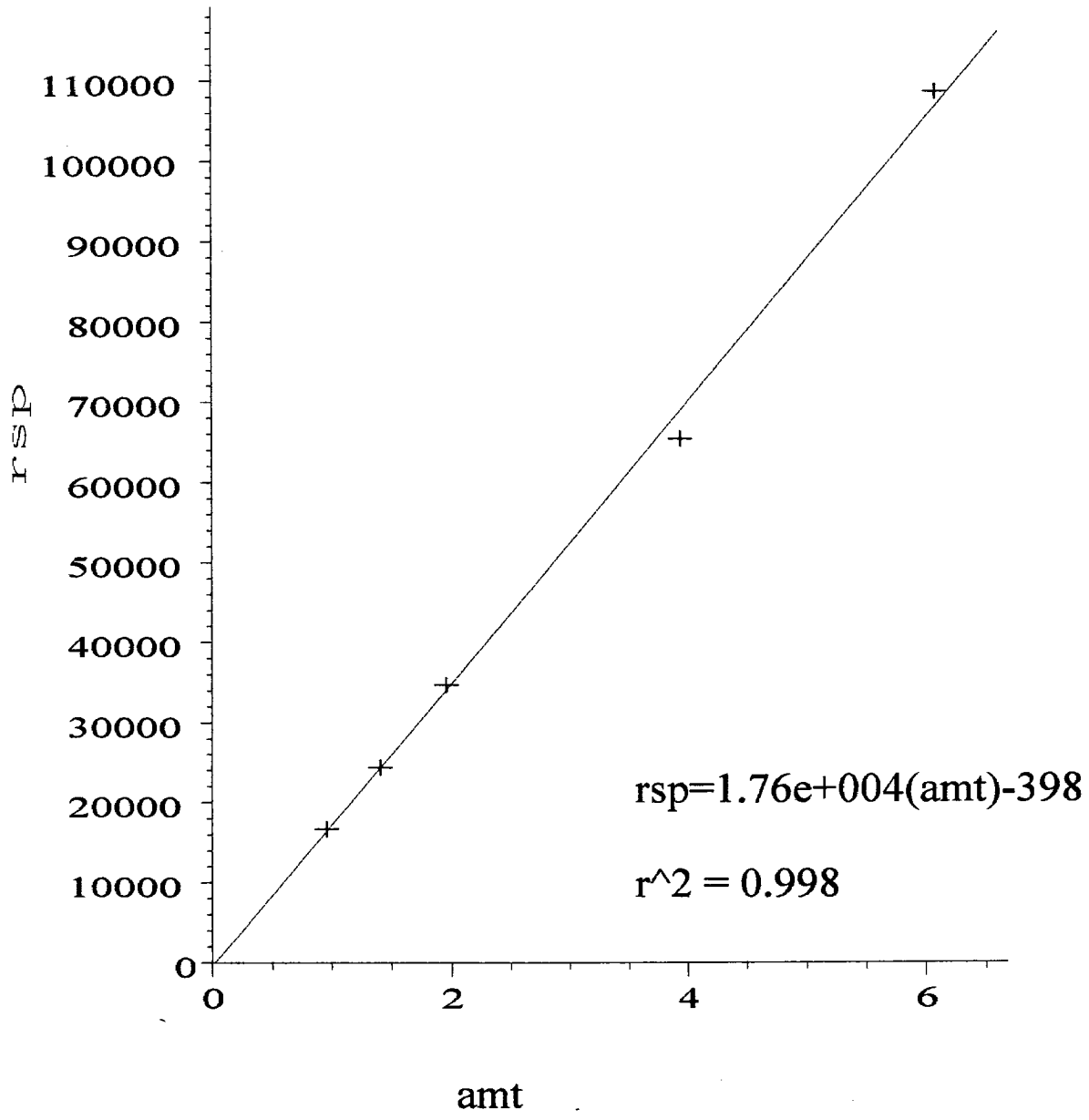
% Recovery 101.35%

* A chromatogram was included, showing that Acrylonitrile and Mecl2 coelute on gc1. This chromatogram is also used to show a retention of Mecl2 on gc1 to qualitatively show its presence or nonpresence in the gas stream.

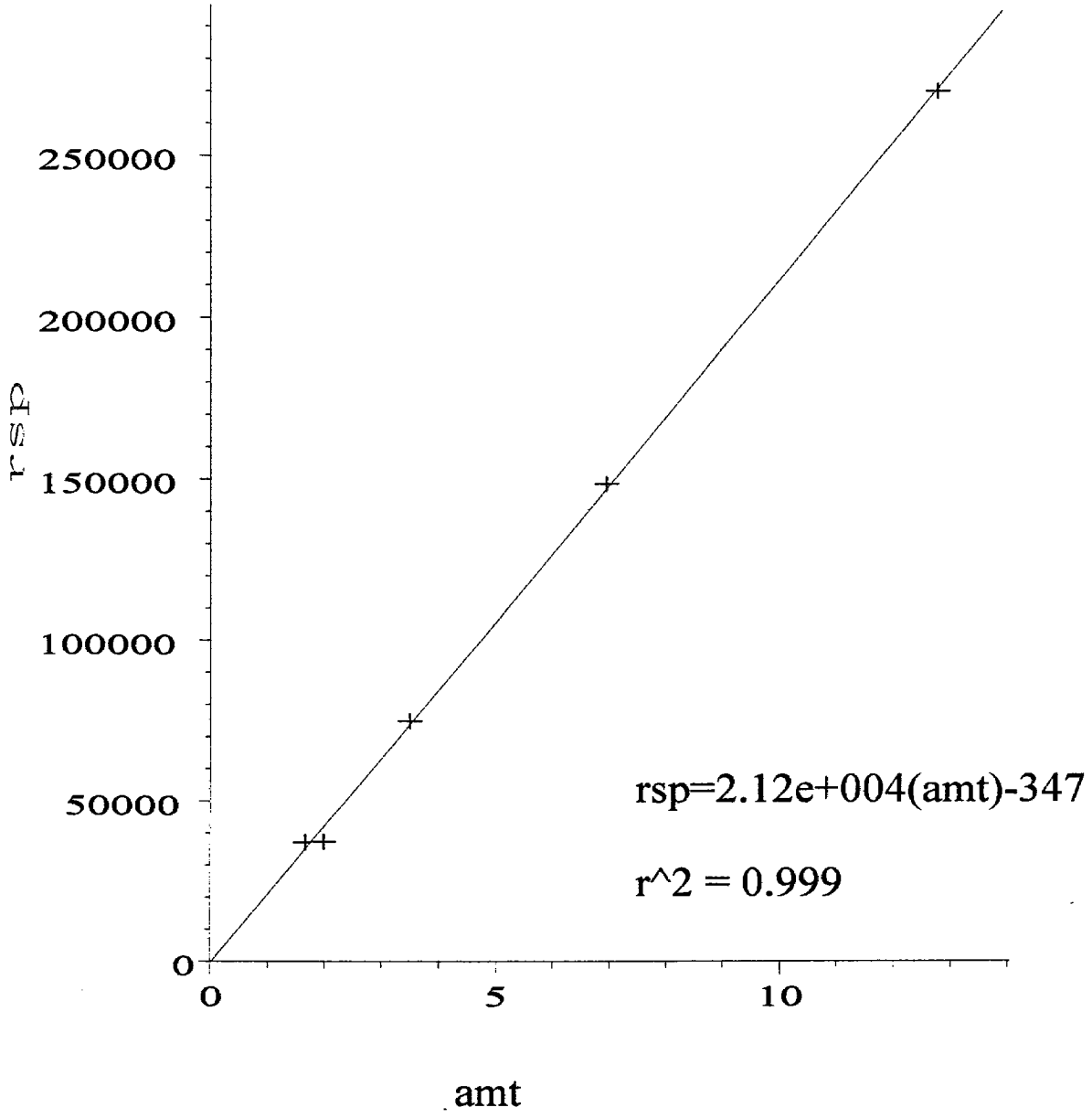
Hexane


200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
rsp
0
1
2
3
4
amt
rsp=4.96e+004(amt)-450
r^2 = 0.998

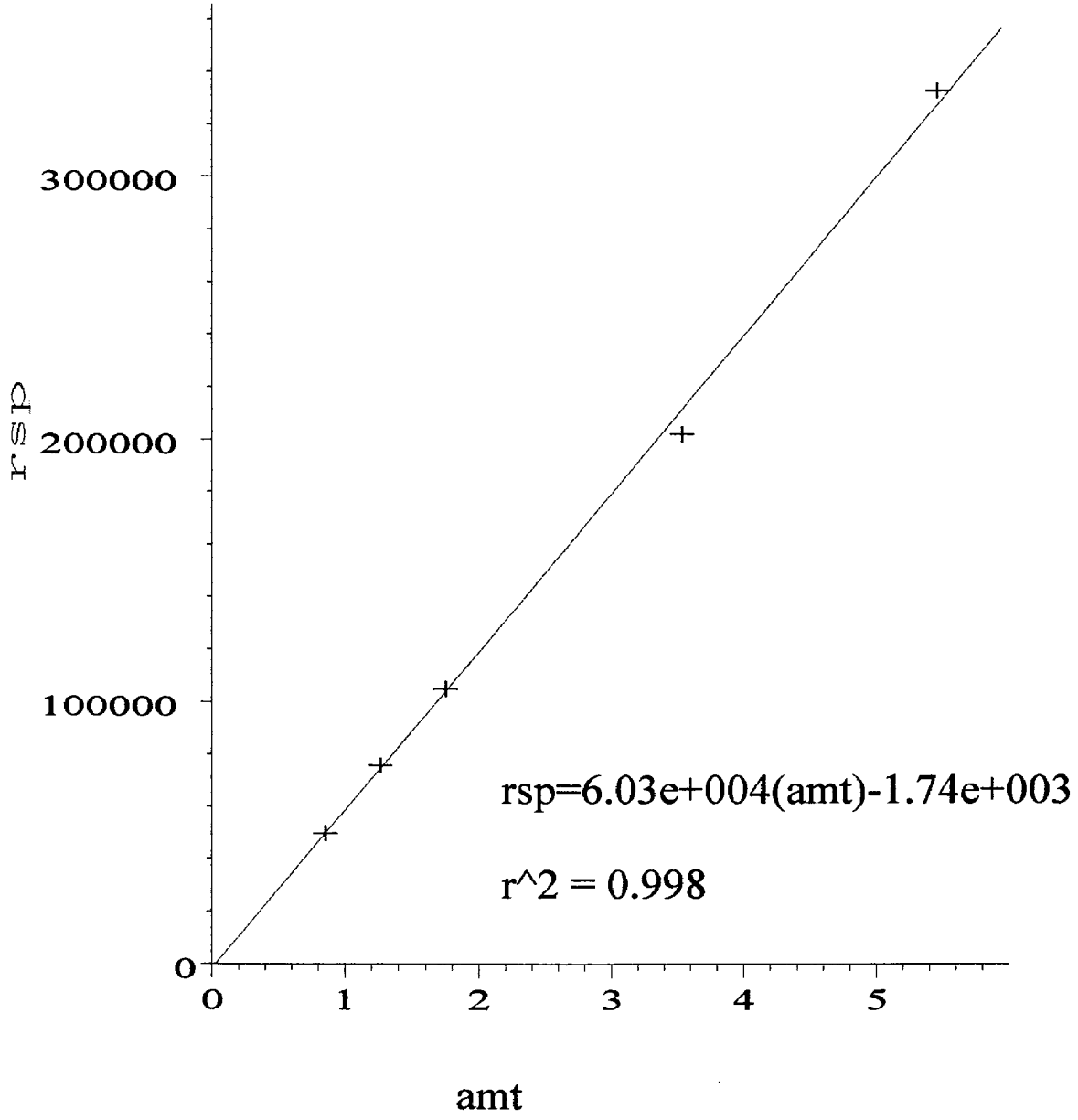
Trichloroethane



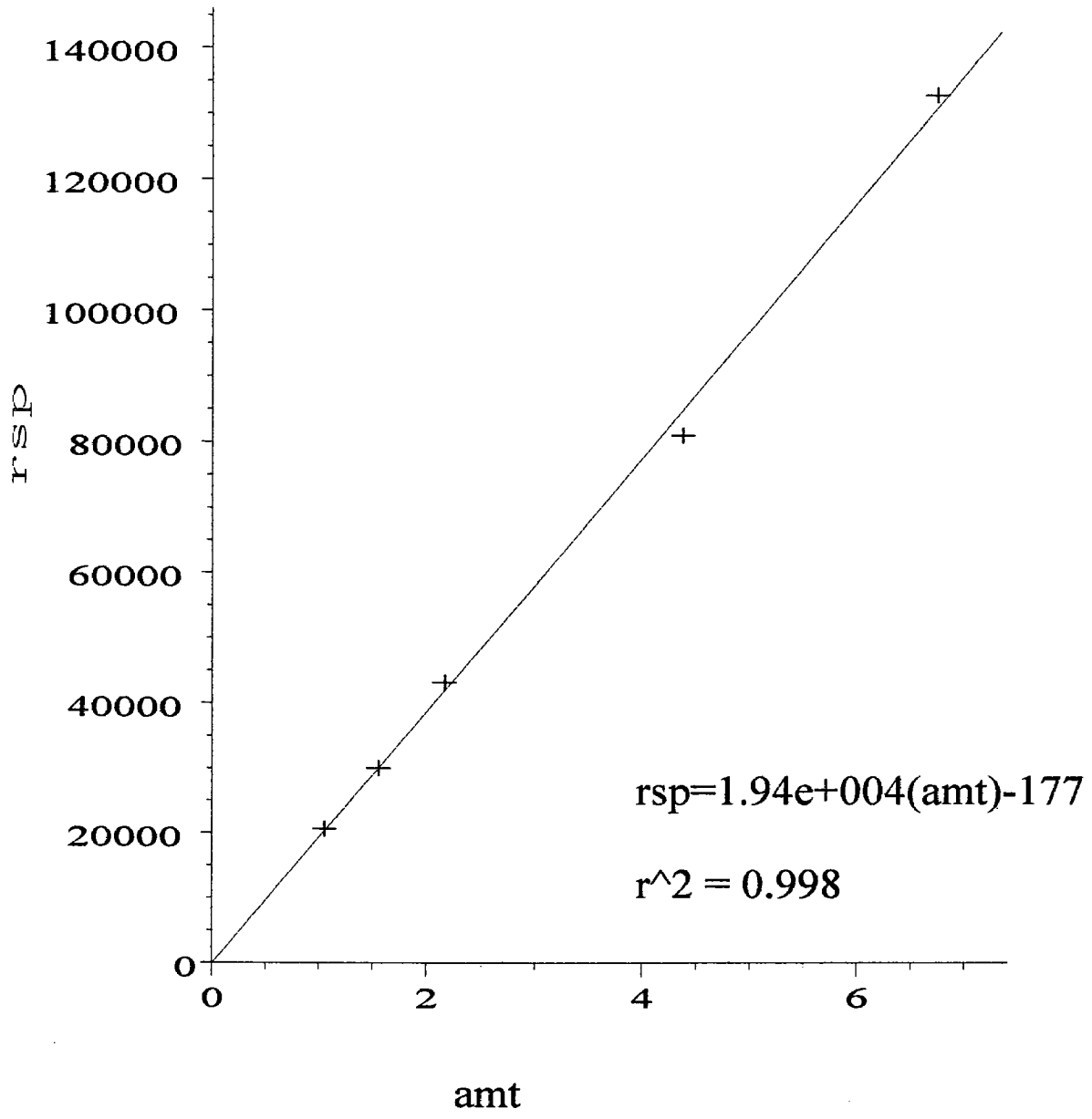
Butanone


250000
200000
150000
100000
50000
0
rsp
0
5
10
amt
rsp=2.12e+004(amt)-347
r^2 = 0.999

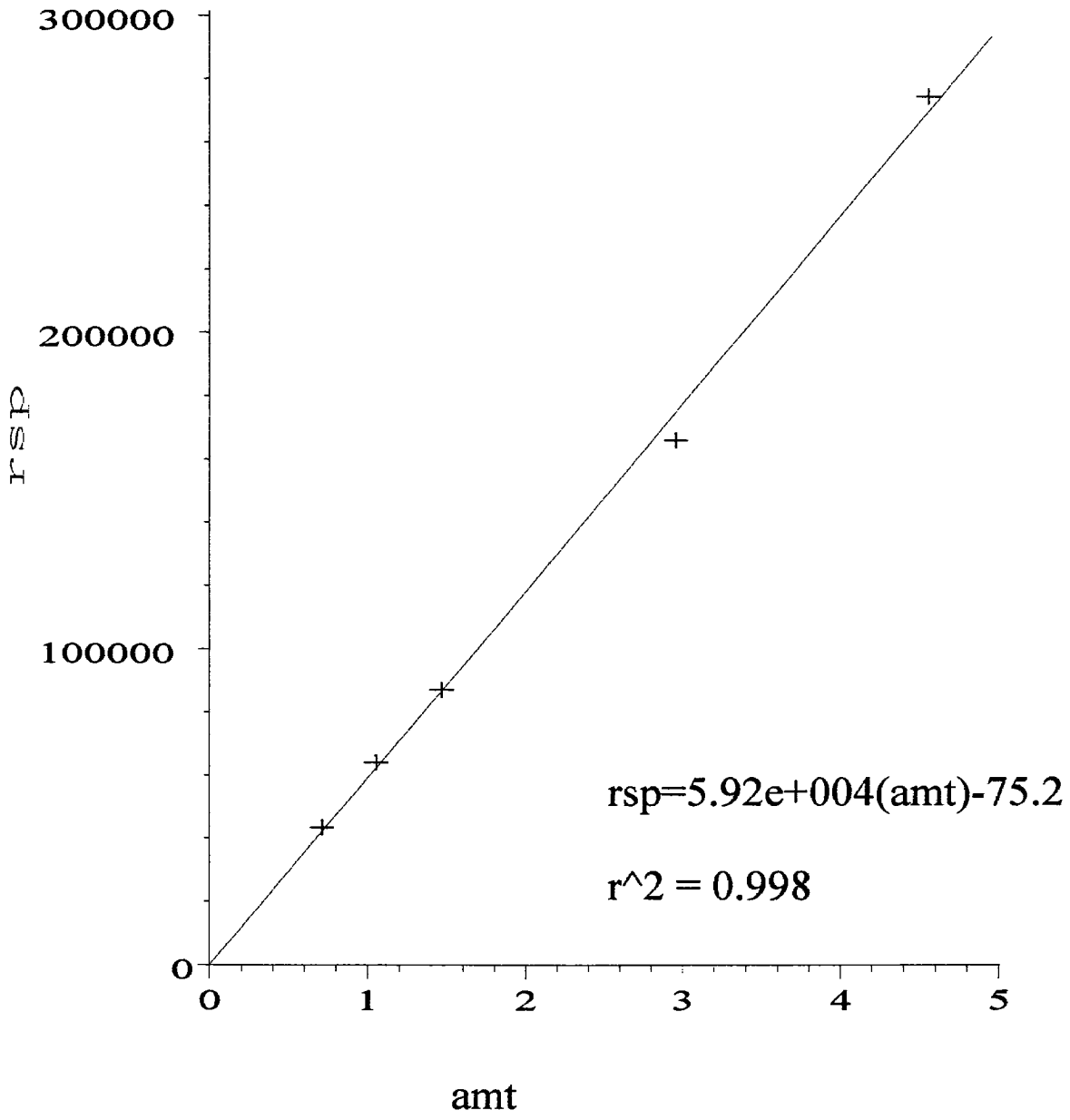
Benzene


300000
200000
100000
0
rsp
0
1
2
3
4
5
amt
rsp=6.03e+004(amt)-1.74e+003
r^2 = 0.998

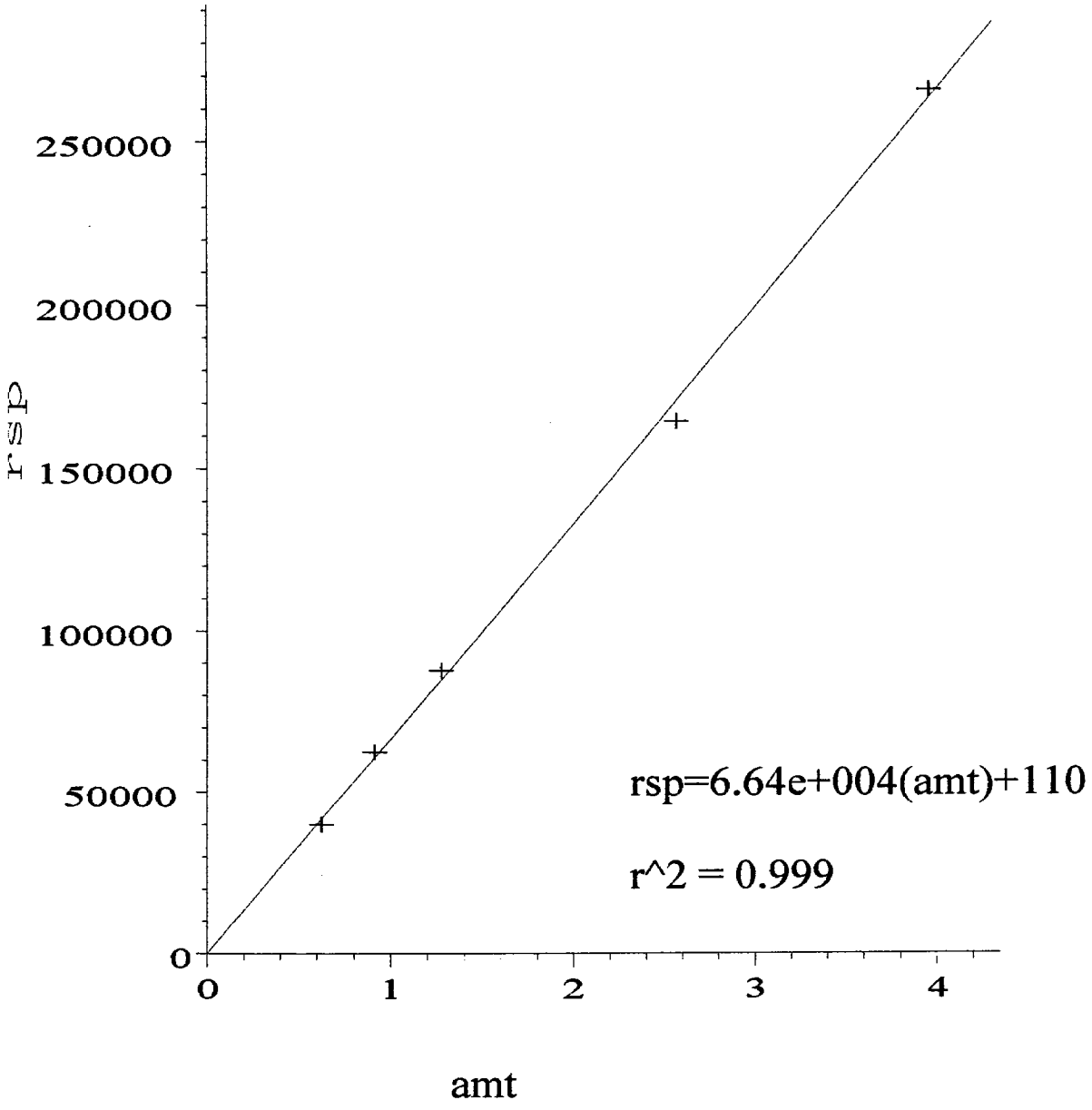
Trichloroethylene



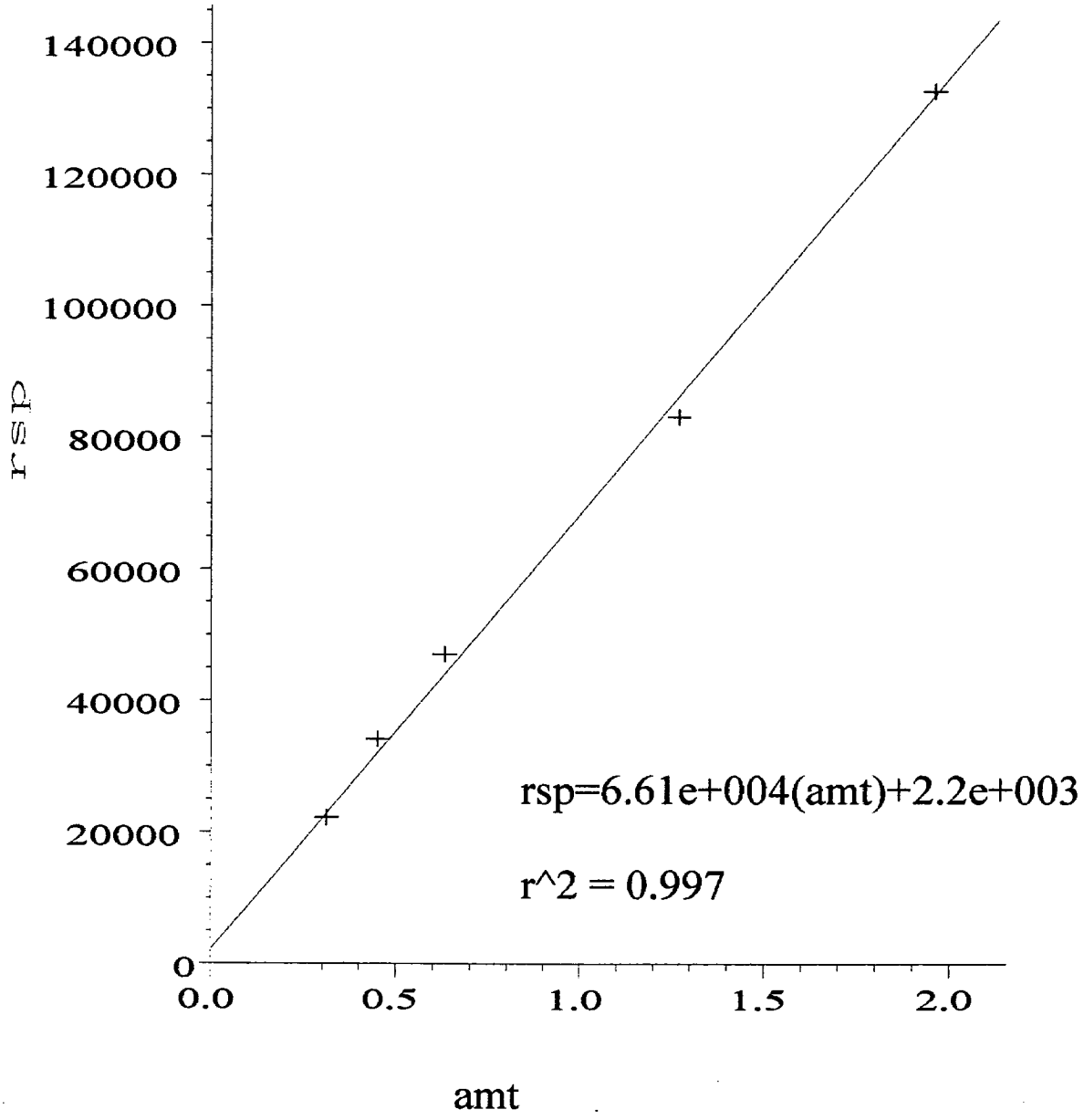
Toluene


300000
200000
100000
0
rsp
0
1
2
3
4
5
amt
rsp=5.92e+004(amt)-75.2
r^2 = 0.998

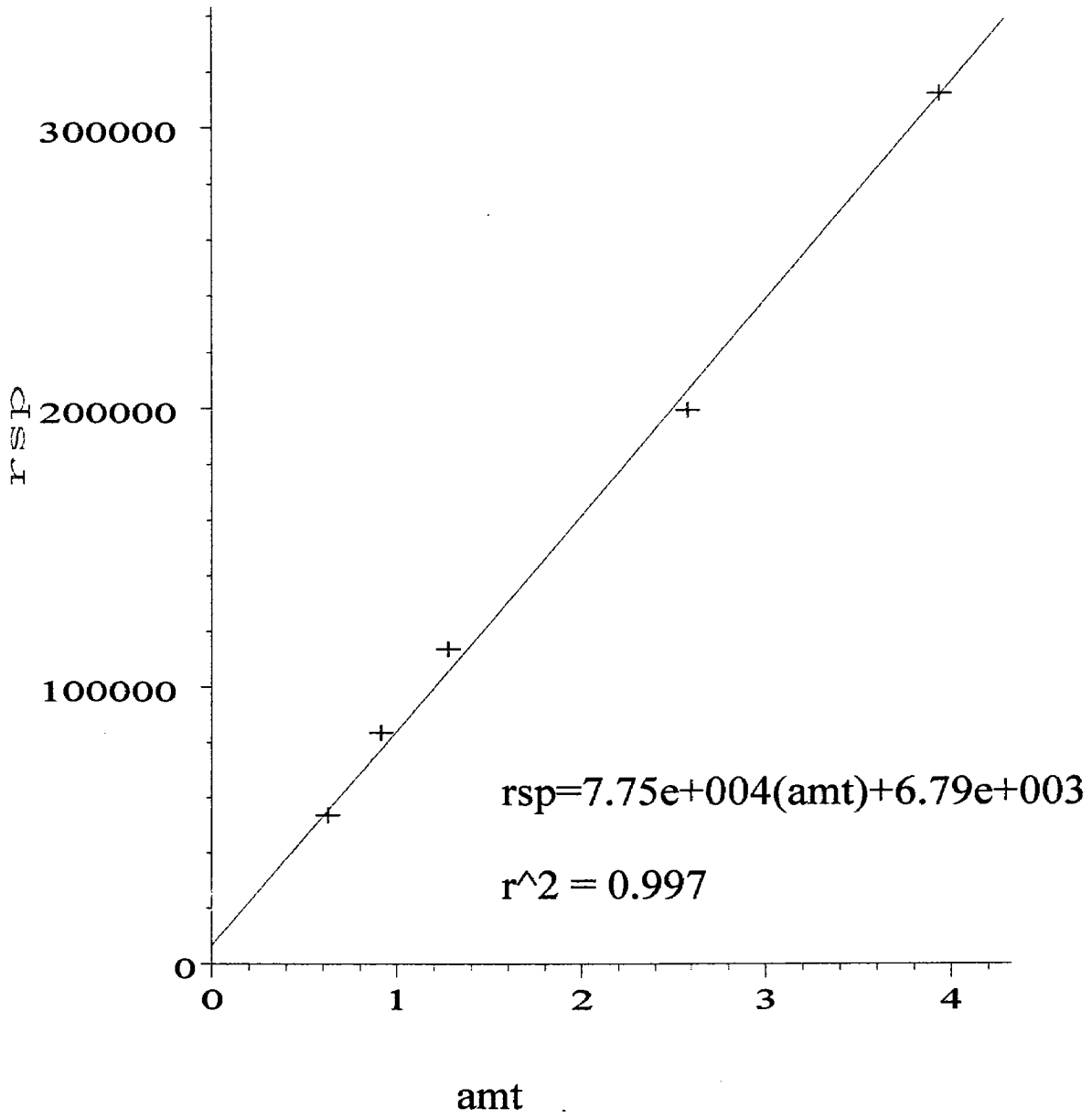
Ethyl Benzene



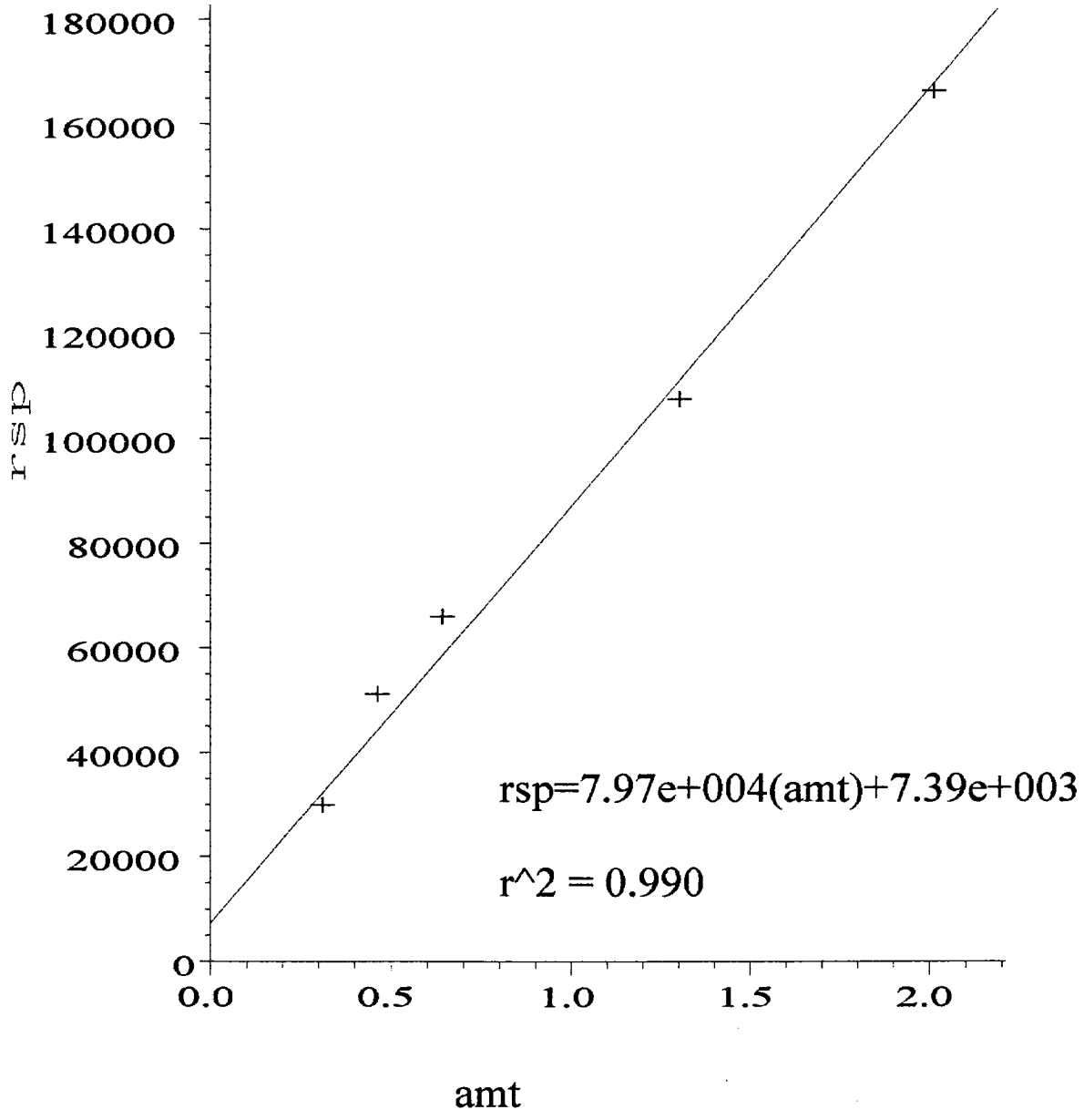
m-Xylene


140000
120000
100000
80000
60000
40000
20000
0
rsp
0.0
0.5
1.0
1.5
2.0
amt
rsp=6.61e+004(amt)+2.2e+003
r^2 = 0.997

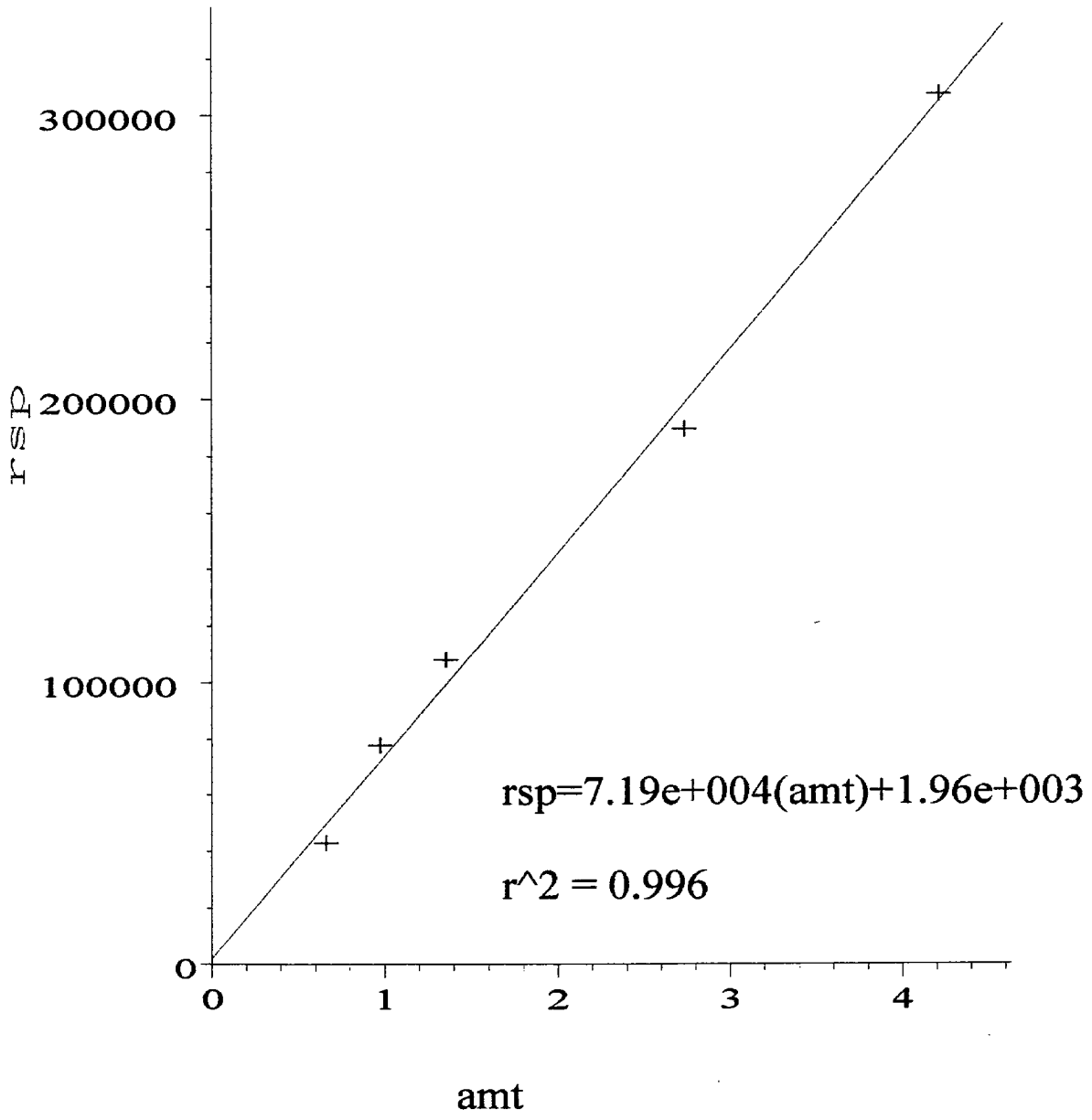
p-Xylene


300000
200000
100000
0
rsp
0
1
2
3
4
amt
rsp=7.75e+004(amt)+6.79e+003
r^2 = 0.997

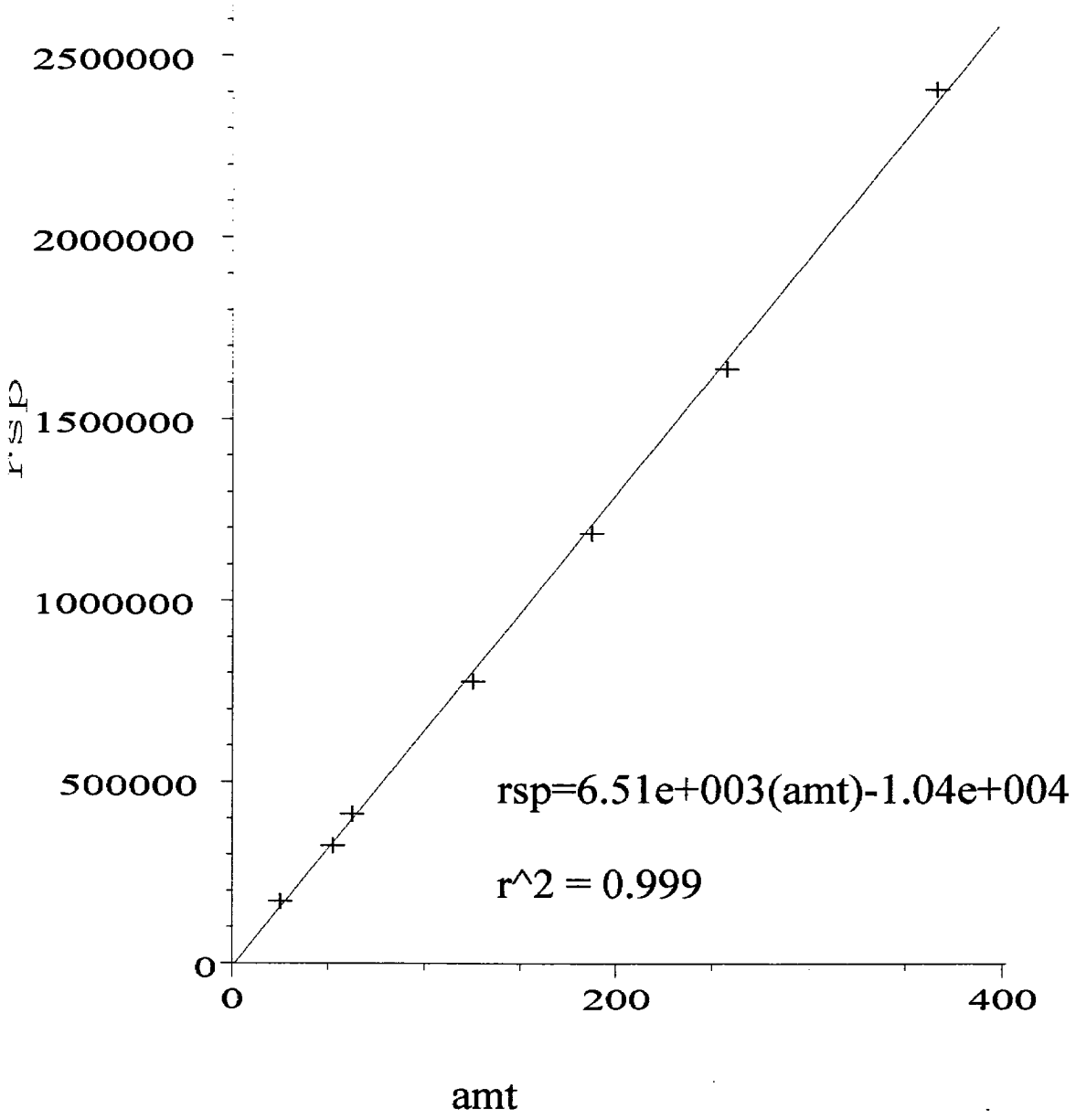
o-Xylene


180000
160000
140000
120000
100000
80000
60000
40000
20000
0
rsp
0.0
0.5
1.0
1.5
2.0
amt
rsp=7.97e+004(amt)+7.39e+003
r^2 = 0.990

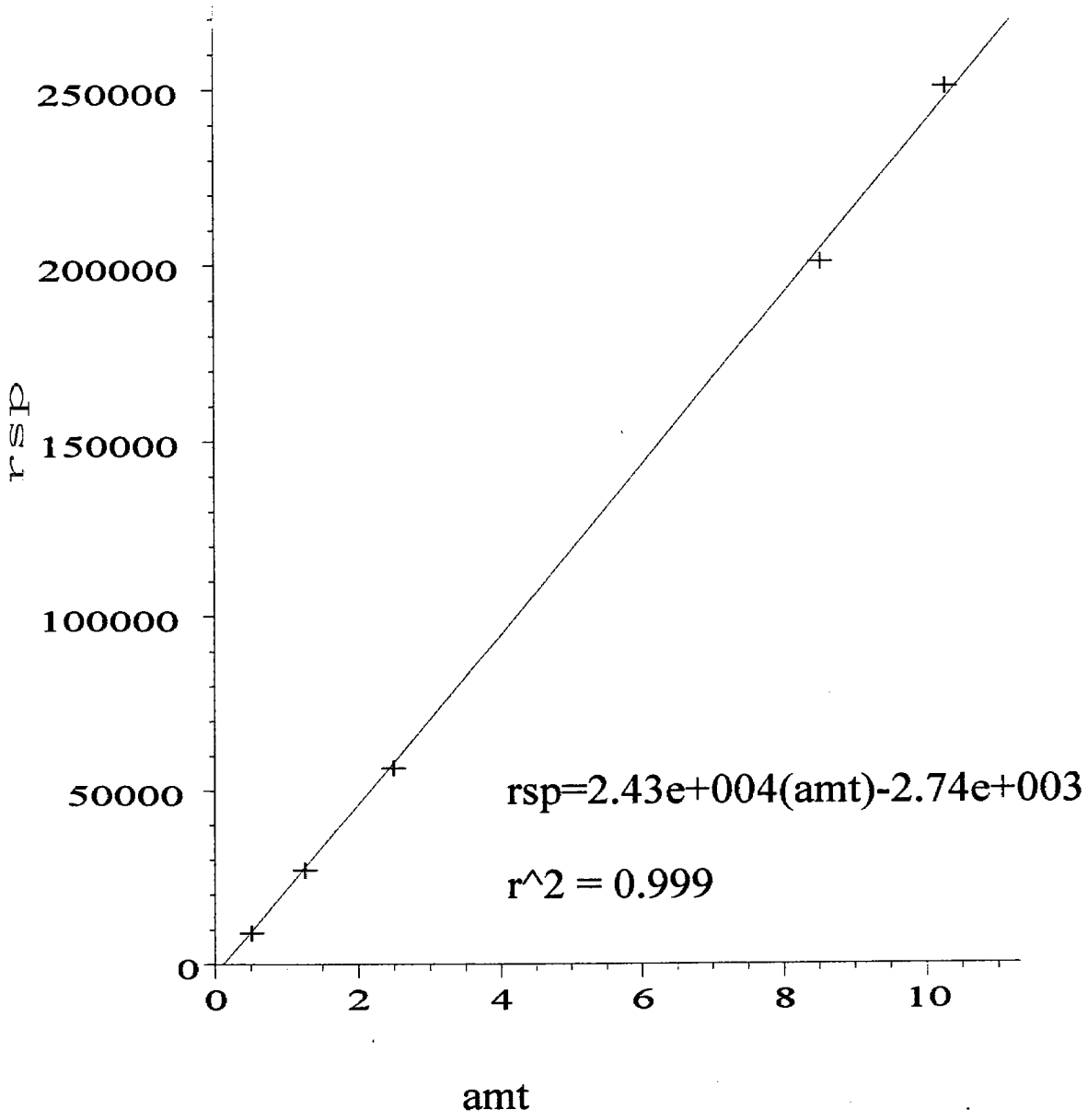
Styrene


300000
200000
100000
0
rsp
0
1
2
3
4
amt
rsp=7.19e+004(amt)+1.96e+003
r^2 = 0.996

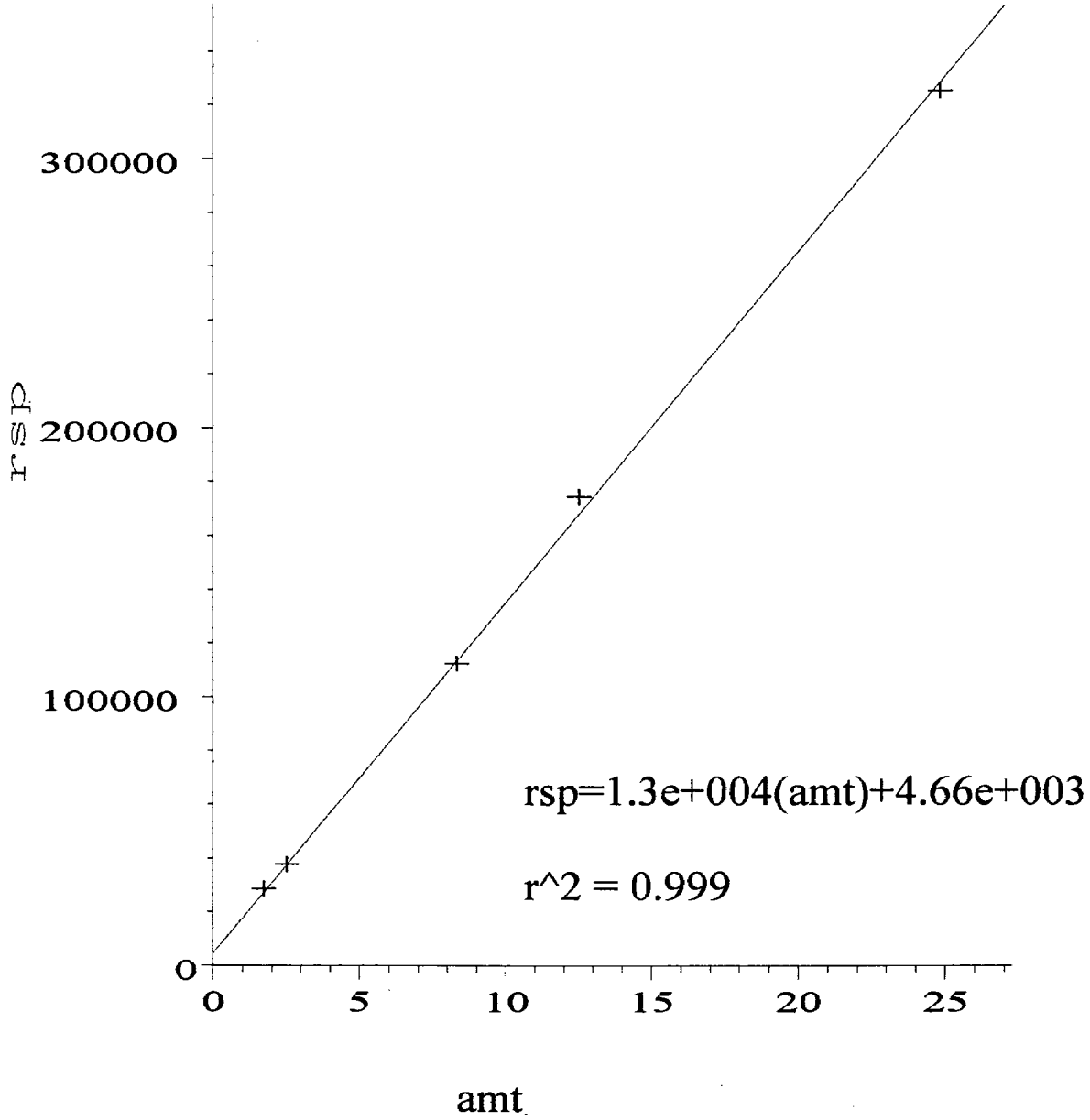
Methane


2500000
2000000
1500000
1000000
500000
0
rsp
0
200
400
amt
rsp=6.51e+003(amt)-1.04e+004
r^2 = 0.999

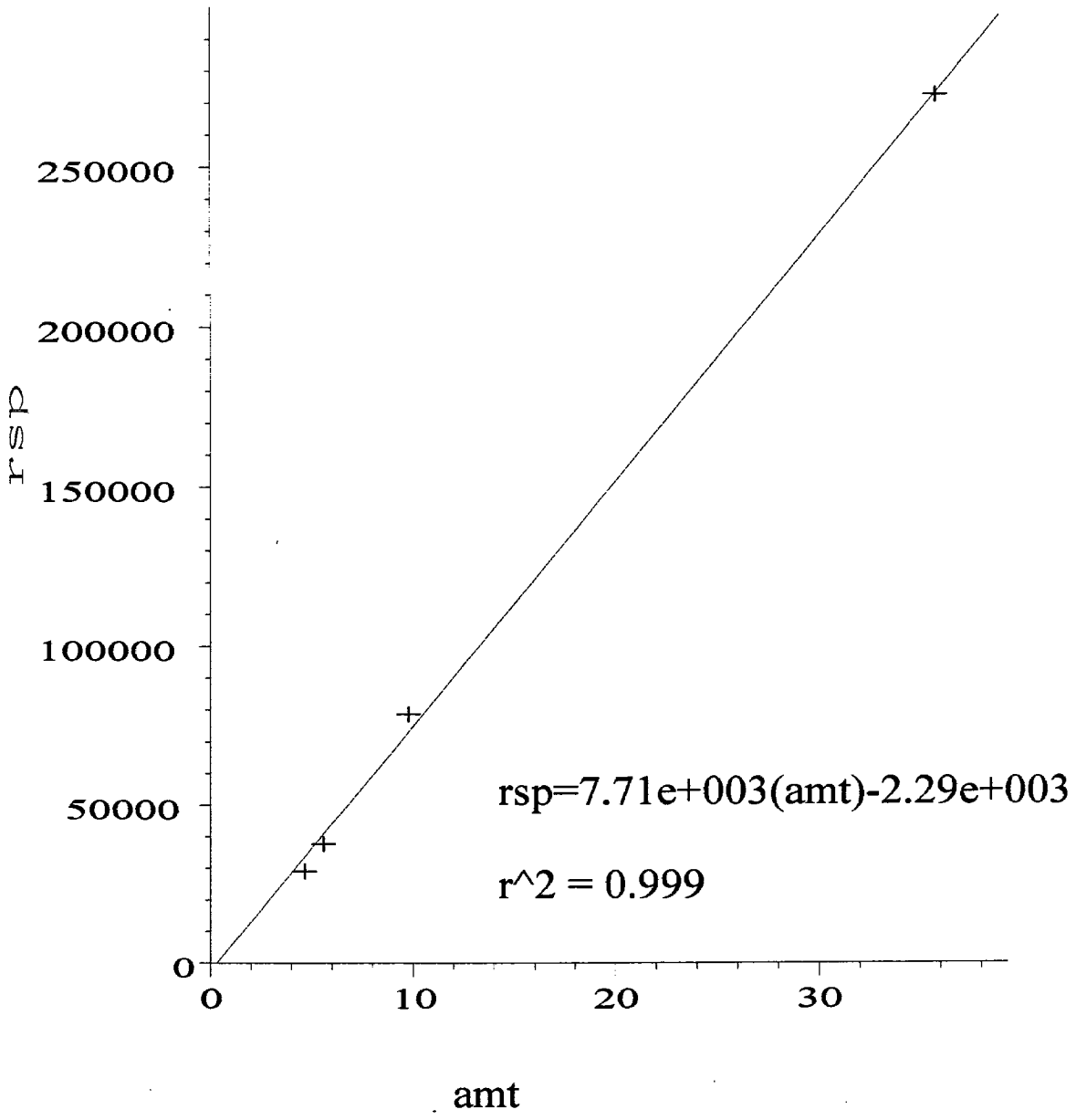
Butadiene


250000
200000
150000
100000
50000
0
rsp
0
2
4
6
8
10
amt
rsp=2.43e+004(amt)-2.74e+003
r^2 = 0.999

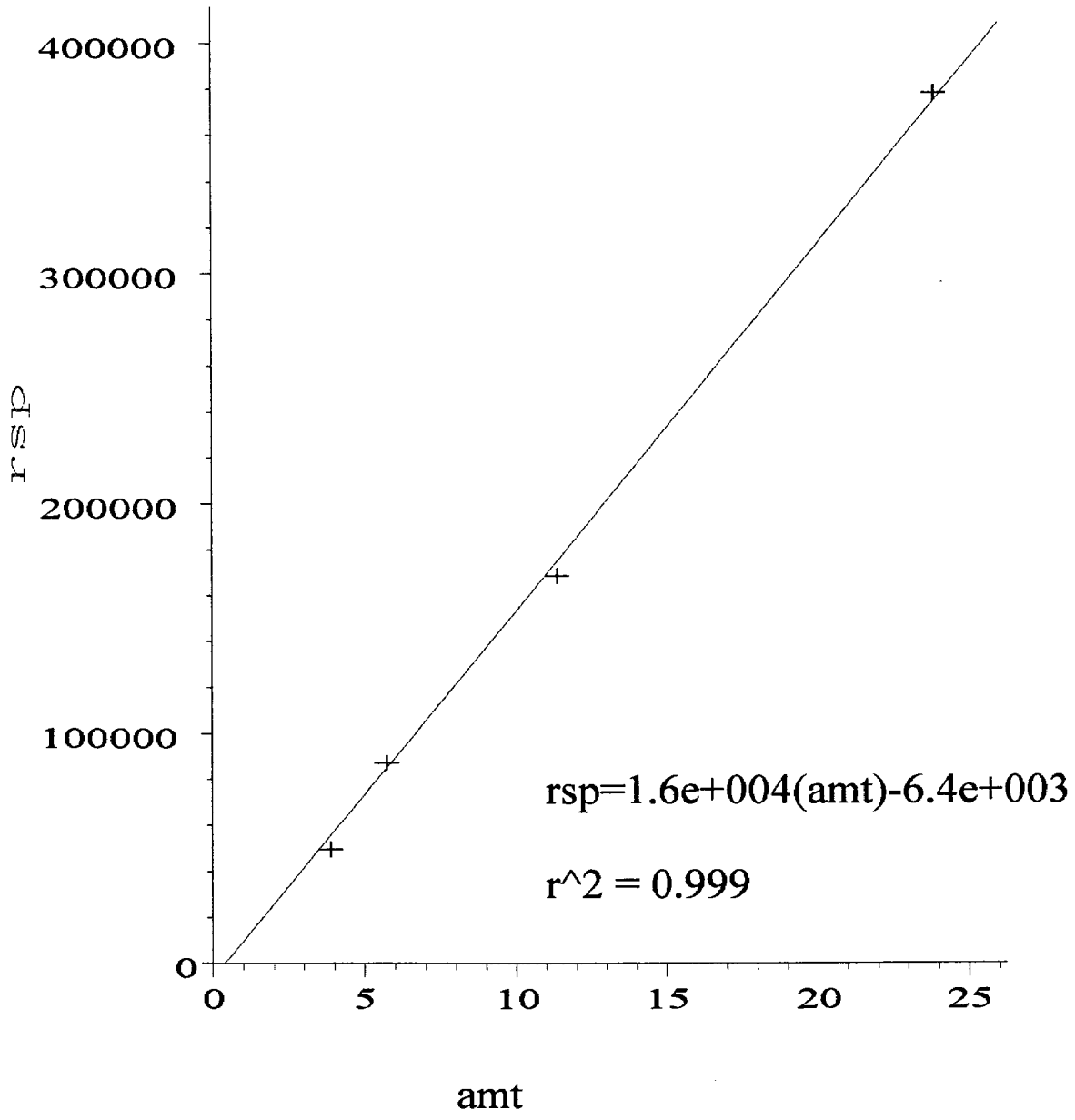
Ethane

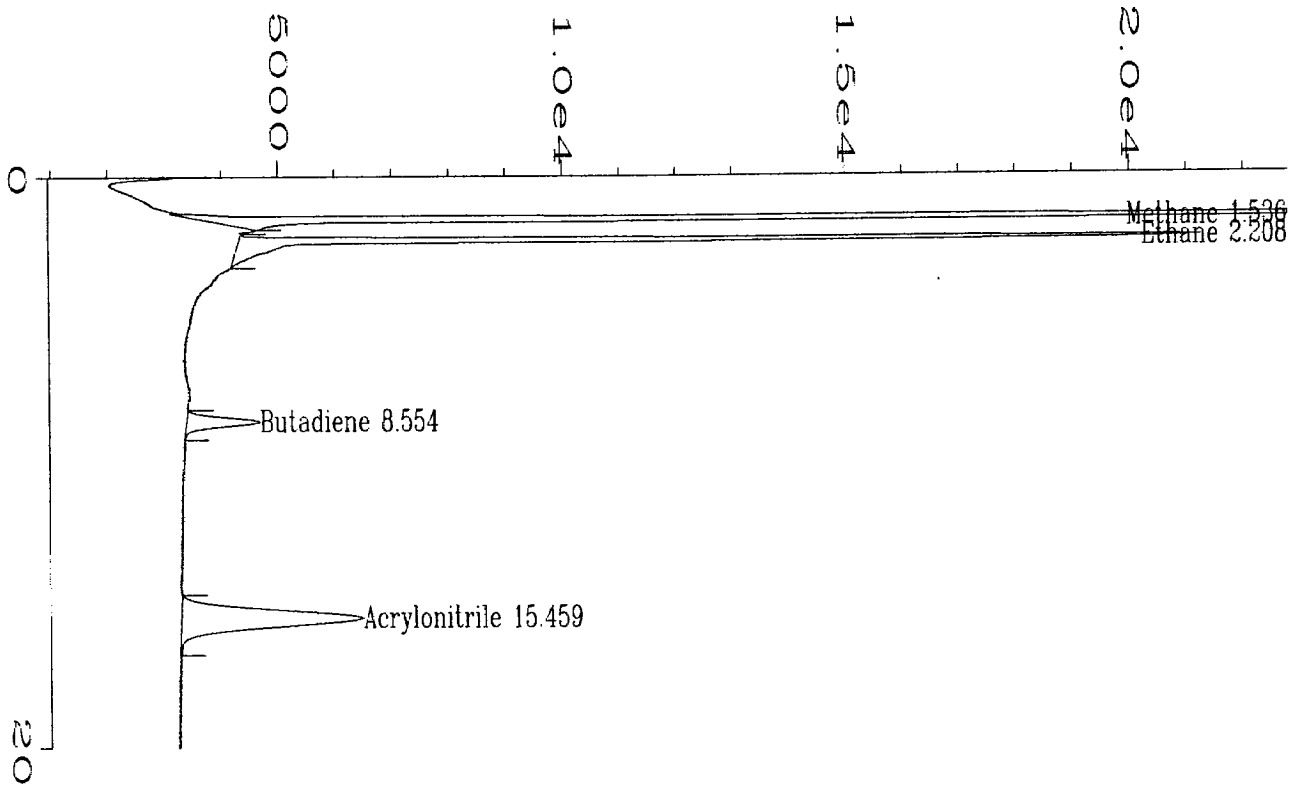

300000
200000
100000
0
rsp
0
5
10
15
20
25
amt
rsp=1.3e+004(amt)+4.66e+003
r^2 = 0.999

Methylene Chloride



Acrylonitrile





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External Standard Report

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Data File Name	: D:\GC1\BAG1_01.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 01:03 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:03 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG1_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.536	784320	PB	0.122	1	122.096	Methane
2.208	178081	BB	0.139	1	13.292	Ethane
8.554	27712	BB	0.258	1	1.252	Butadiene
15.459	130547	BB	0.488	1	8.573	Acrylonitrile

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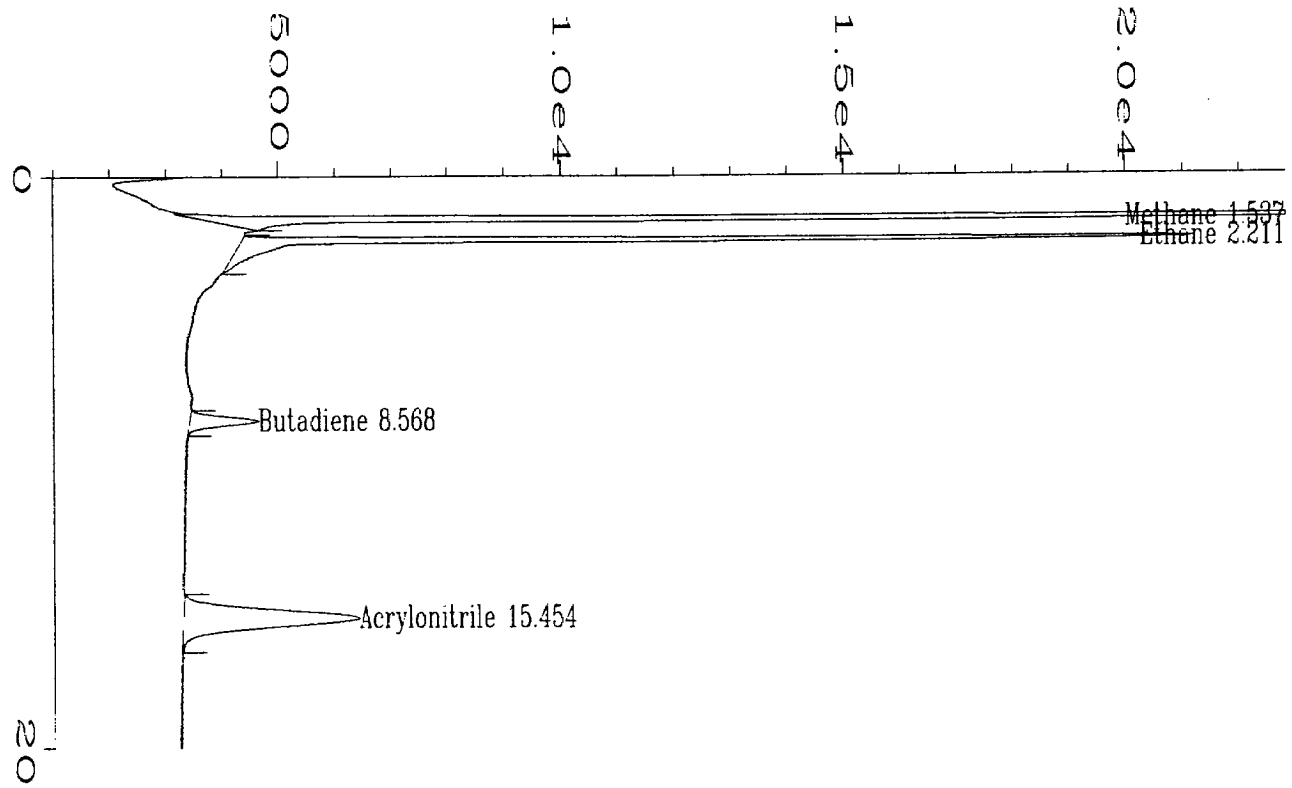

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External Standard Report

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Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 01:32 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:03 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG1_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.537	778043	PB	0.121	1	121.132	Methane
2.211	178606	BB	0.140	1	13.332	Ethane
8.568	26138	BV	0.267	1	1.187	Butadiene
15.454	127383	BB	0.477	1	8.374	Acrylonitrile

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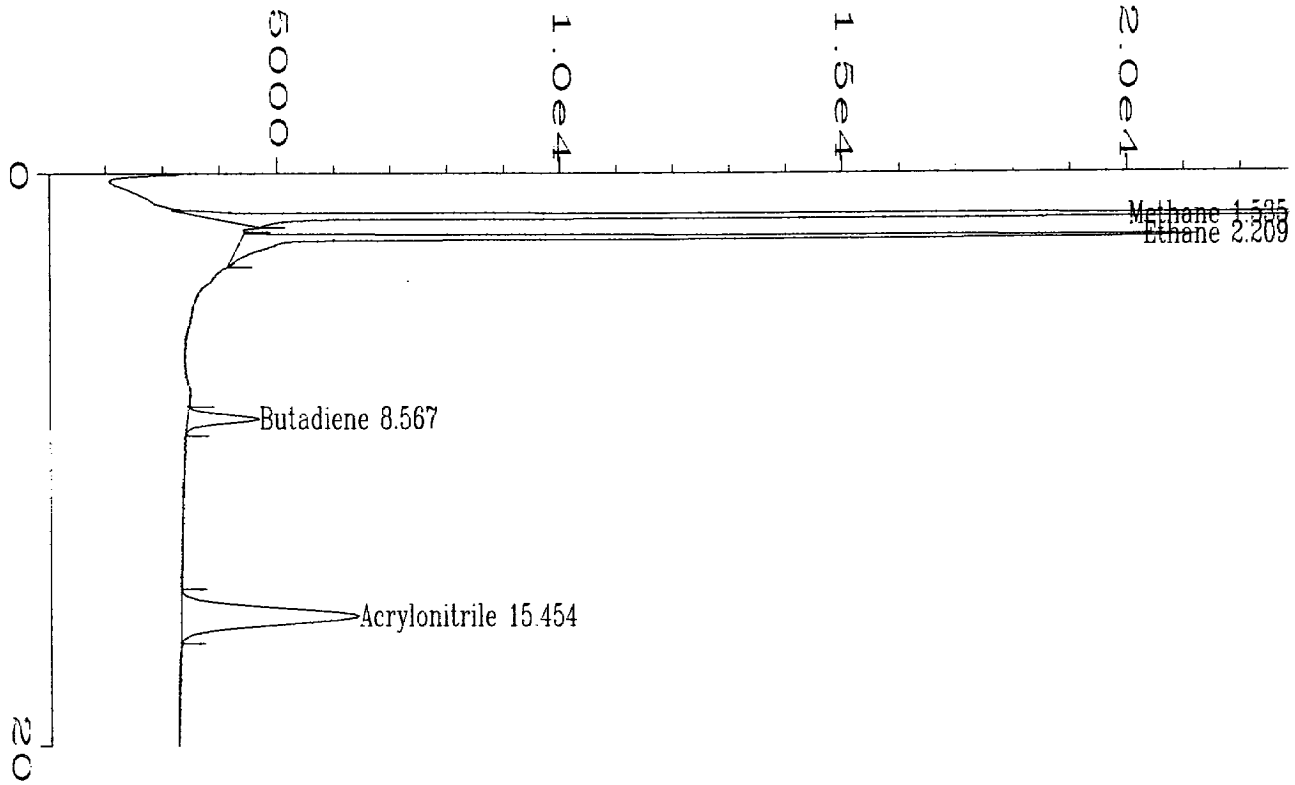

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External Standard Report

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Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 01:57 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:03 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG1_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.535	776768	PB	0.126	1	120.936	Methane
2.209	173765	BB	0.137	1	12.961	Ethane
8.567	26847	BV	0.262	1	1.216	Butadiene
15.454	127390	BV	0.497	1	8.375	Acrylonitrile

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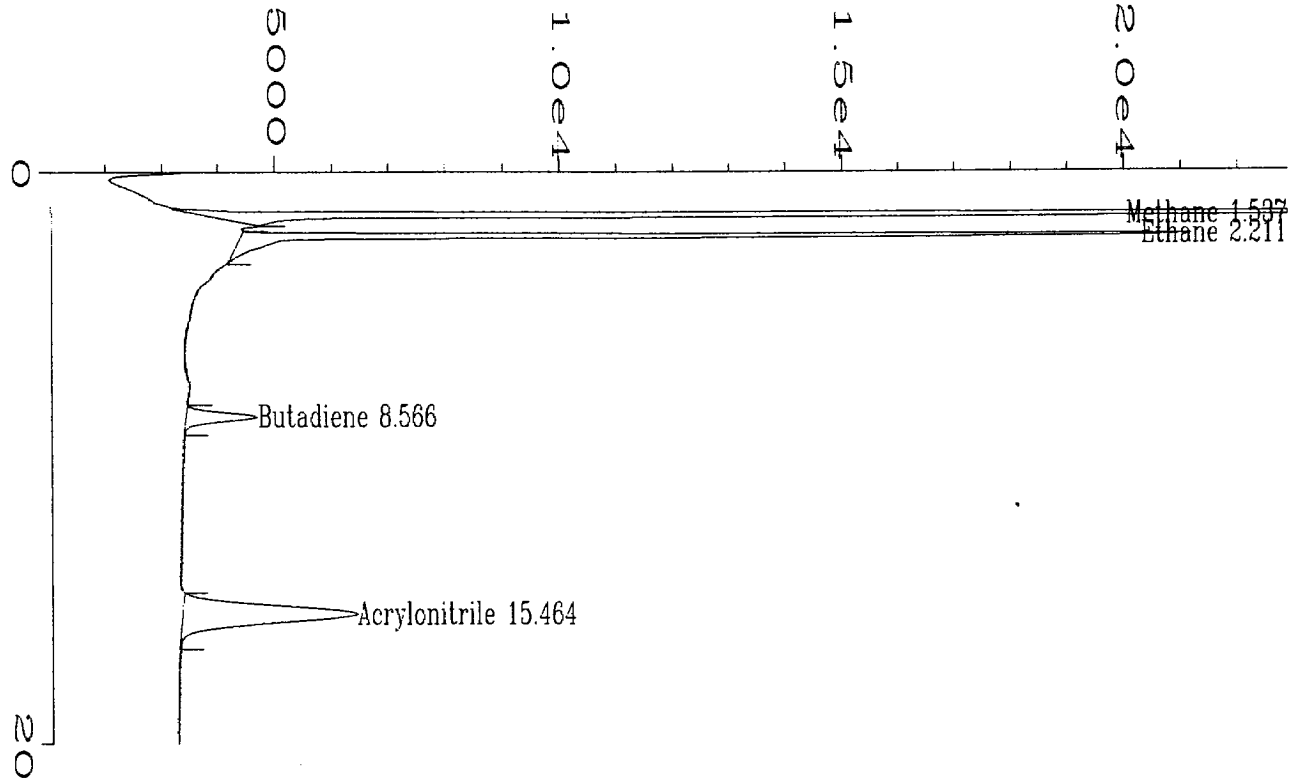

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External Standard Report

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Data File Name	: D:\GC1\BAG1_04.D		
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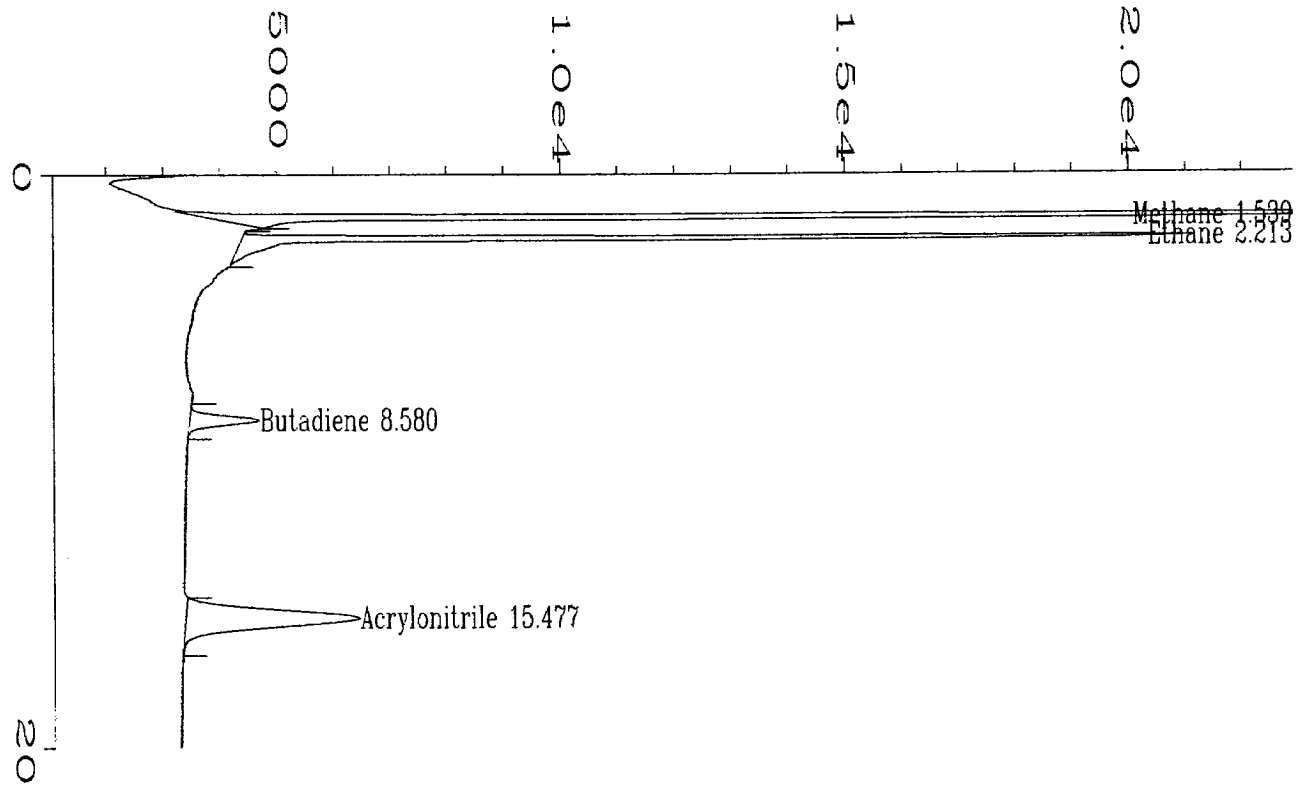
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 02:22 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:03 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG1_04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.537	770523	PB	0.124	1	119.977	Methane
2.211	170172	BB	0.134	1	12.686	Ethane
8.566	27231	BB	0.261	1	1.232	Butadiene
15.464	124379	BV	0.489	1	8.186	Acrylonitrile

==========



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External Standard Report

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Data File Name	: D:\GC1\BAG1_05.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 02:43 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:03 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG1_05.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.539	770695	PB	0.122	1	120.003	Methane
2.213	170850	BB	0.136	1	12.738	Ethane
8.580	26689	BB	0.268	1	1.210	Butadiene
15.477	124128	BB	0.488	1	8.171	Acrylonitrile

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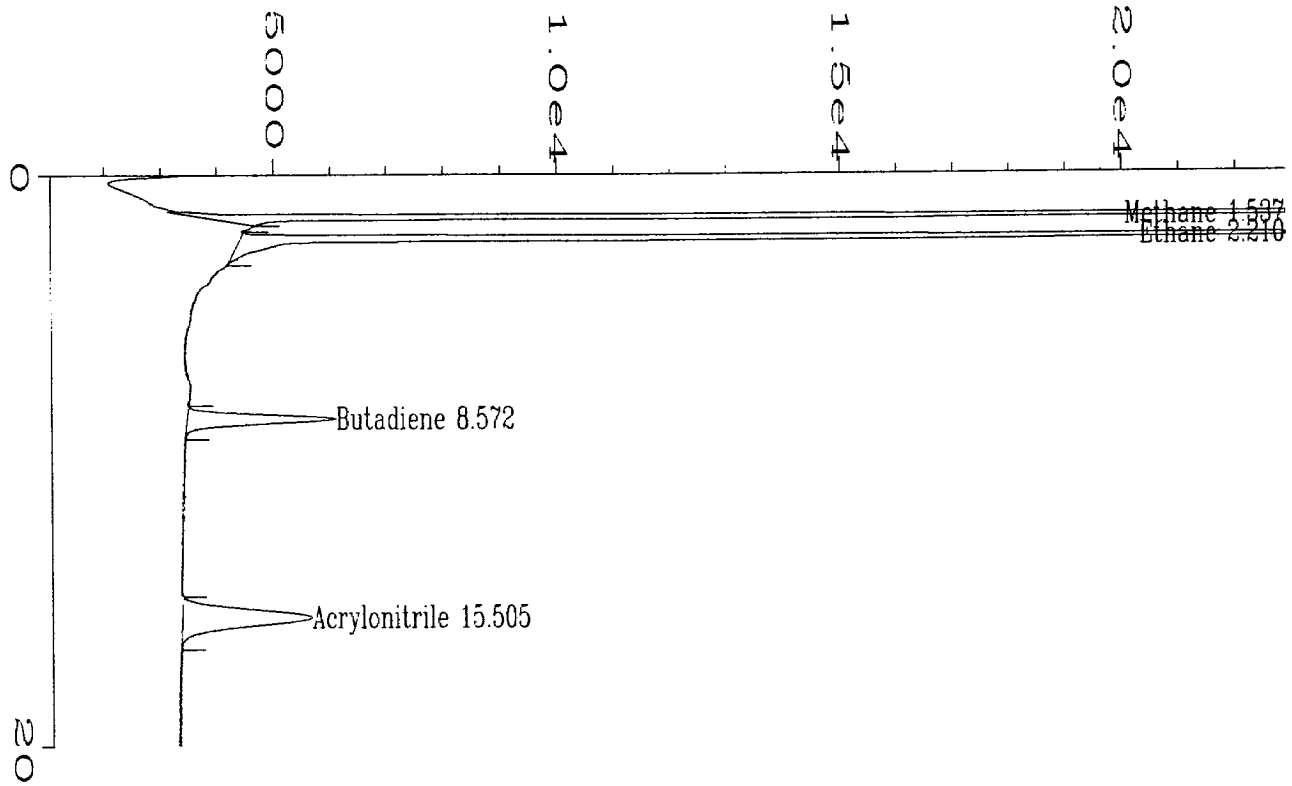

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External Standard Report

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Data File Name	: D:\GC1\BAG2_01.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 03:12 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:04 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG2_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.537	408444	PB	0.122	1	64.352	Methane
2.210	324432	BB	0.130	1	24.509	Ethane
8.572	57270	BV	0.270	1	2.467	Butadiene
15.505	90327	BB	0.478	1	6.055	Acrylonitrile

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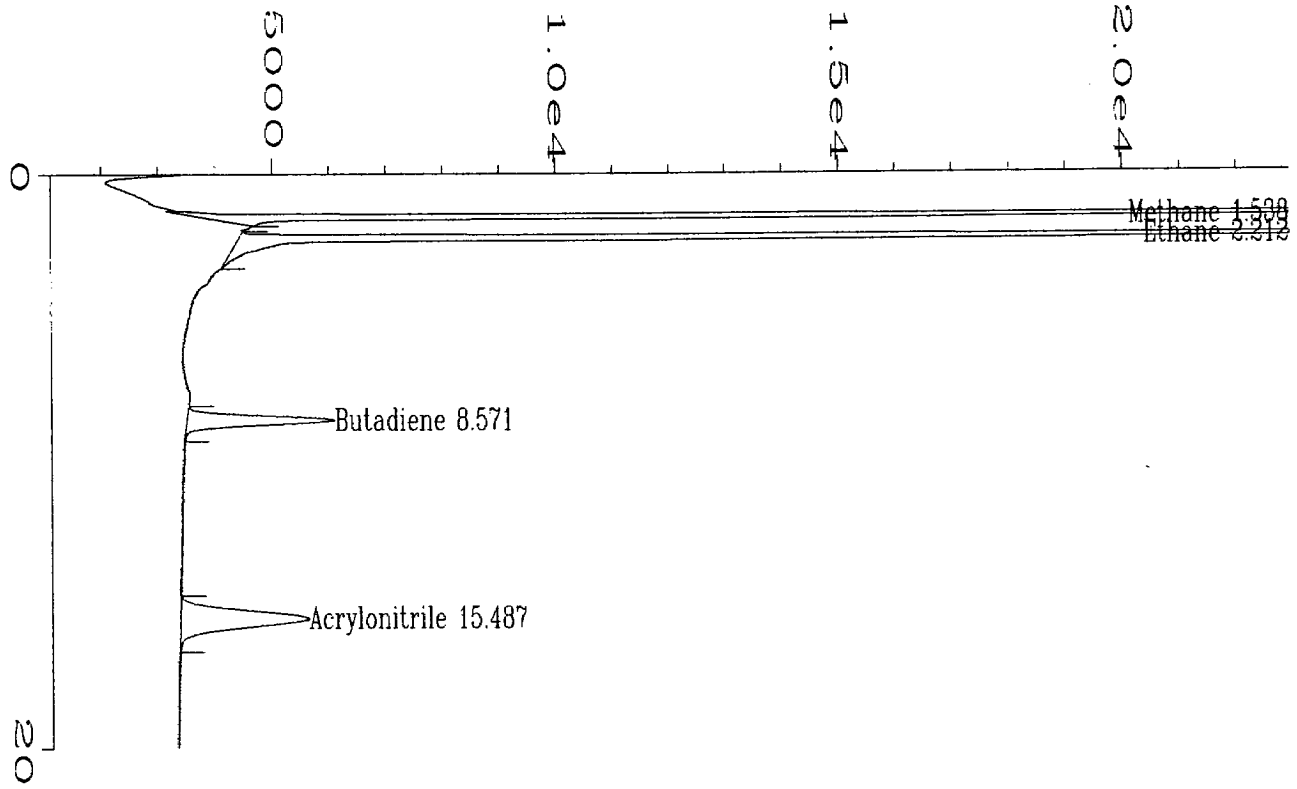

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External Standard Report

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Data File Name	: D:\GC1\BAG2_02.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 03:33 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:04 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG2_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.538	411134	PB	0.121	1	64.766	Methane
2.212	327858	BB	0.131	1	24.772	Ethane
8.571	56409	BB	0.264	1	2.431	Butadiene
15.487	88840	BV	0.473	1	5.962	Acrylonitrile

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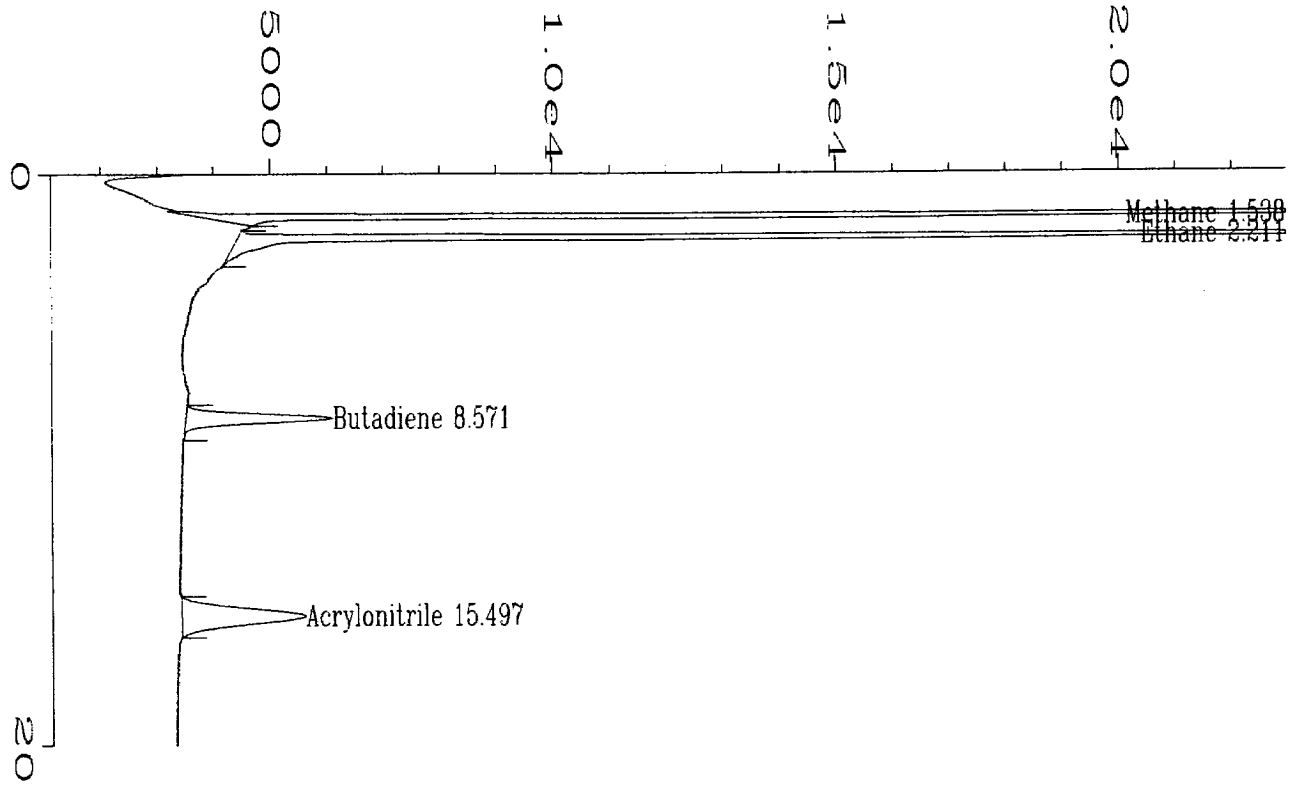

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External Standard Report

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Data File Name	: D:\GC1\BAG2_03.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 03:55 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:04 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG2_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.538	411414	PB	0.125	1	64.809	Methane
2.211	327459	BB	0.131	1	24.741	Ethane
8.571	56349	BB	0.262	1	2.429	Butadiene
15.497	83689	BV	0.461	1	5.639	Acrylonitrile

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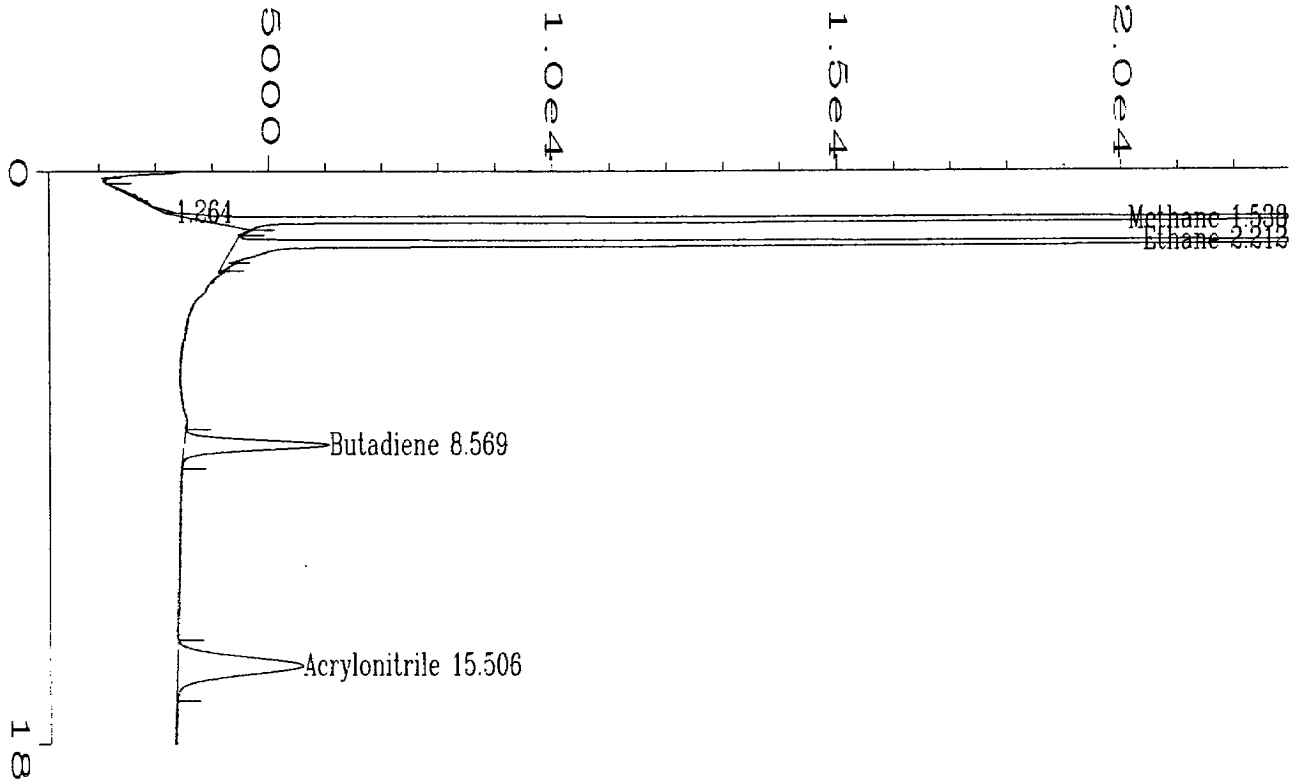

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External Standard Report

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Data File Name	: D:\GC1\BAG2_04.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 04:15 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:04 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG2_04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.538	411110	PB	0.123	1	64.762	Methane
2.212	326470	BV	0.130	1	24.666	Ethane
8.569	55591	BB	0.260	1	2.398	Butadiene
15.506	87624	BB	0.475	1	5.886	Acrylonitrile

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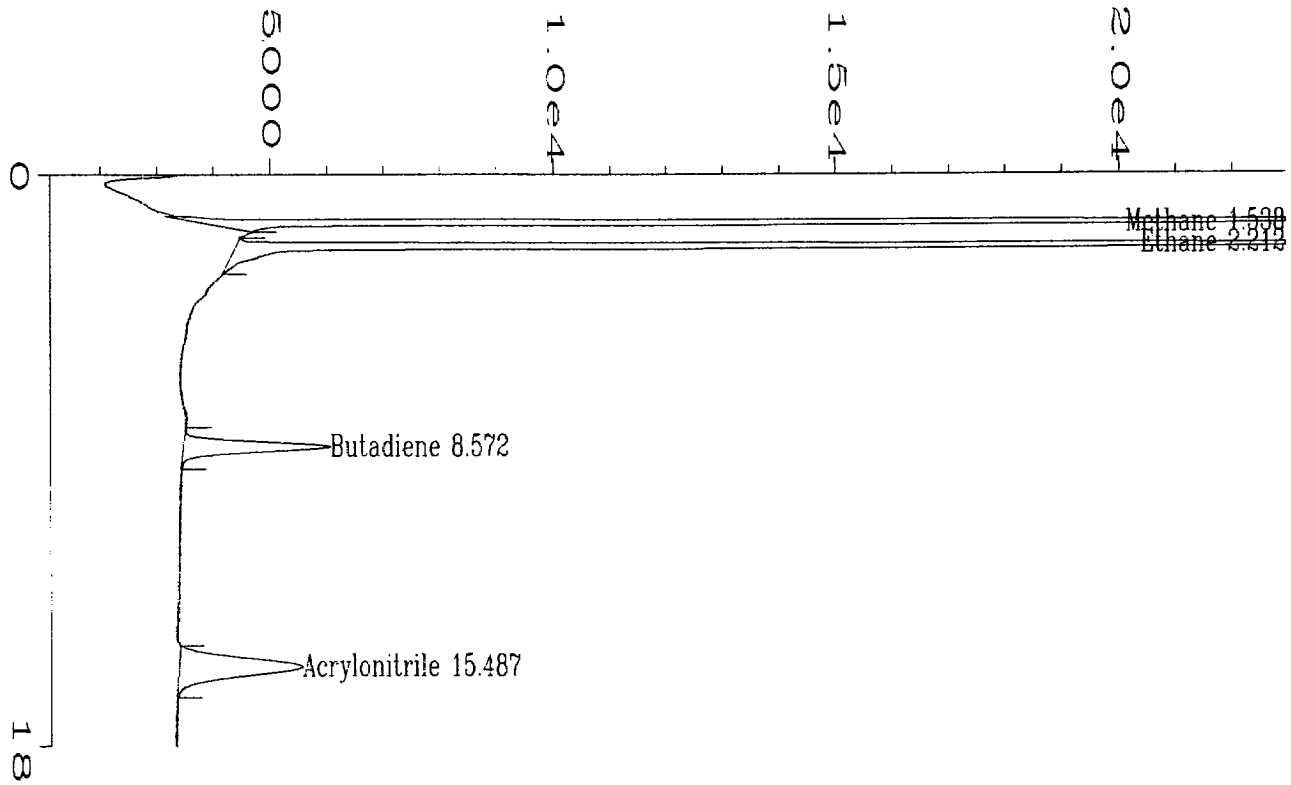

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External Standard Report

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Data File Name	: D:\GC1\BAG2_05.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 04:37 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:04 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG2_05.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.538	407794	PB	0.122	1	64.252	Methane
2.212	322043	BB	0.129	1	24.326	Ethane
8.572	56472	BB	0.260	1	2.434	Butadiene
15.487	84018	BV	0.451	1	5.660	Acrylonitrile

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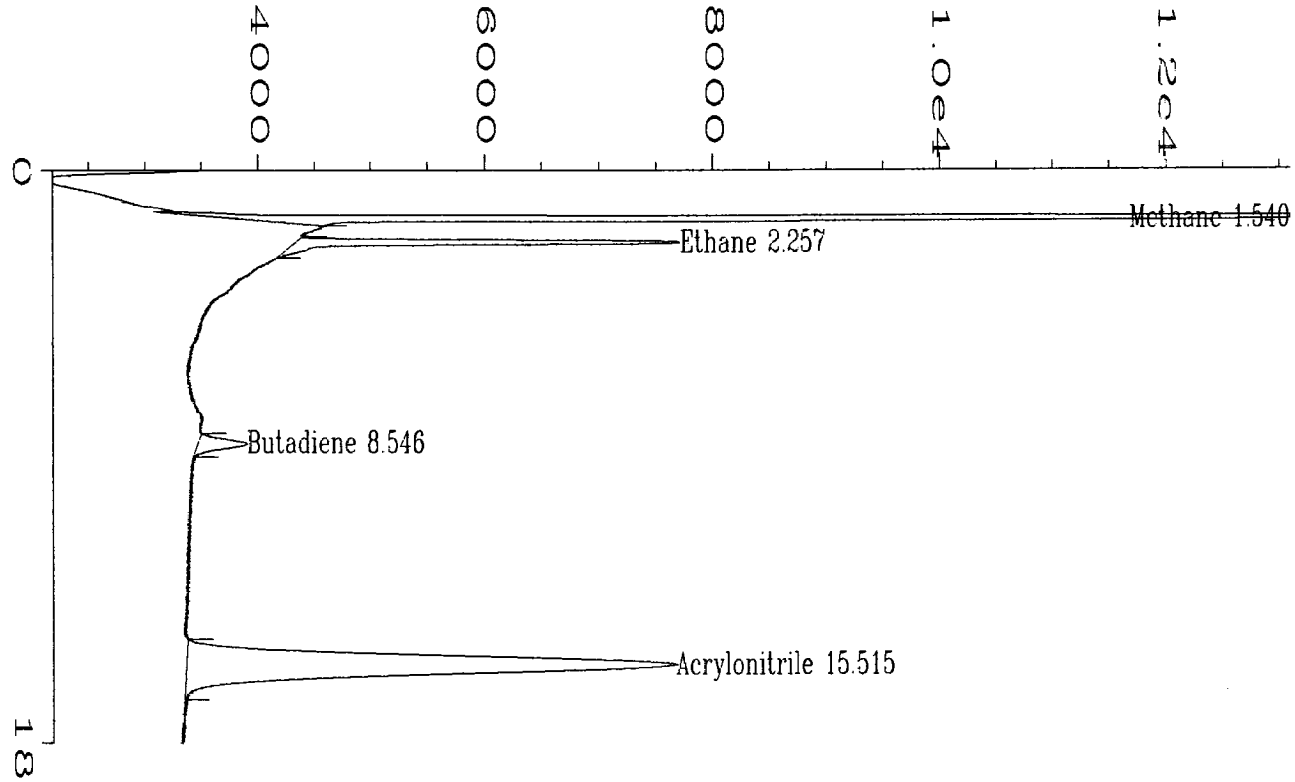

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External Standard Report

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Data File Name	: D:\GC1\BAG3_01.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 05:09 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:04 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG3_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.540	170214	PB	0.125	1	27.754	Methane
2.257	35755	BB	0.148	1	2.383	Ethane
8.546	8873	BB	0.273	1	0.477	Butadiene
15.515	169010	BB	0.473	1	10.980	Acrylonitrile

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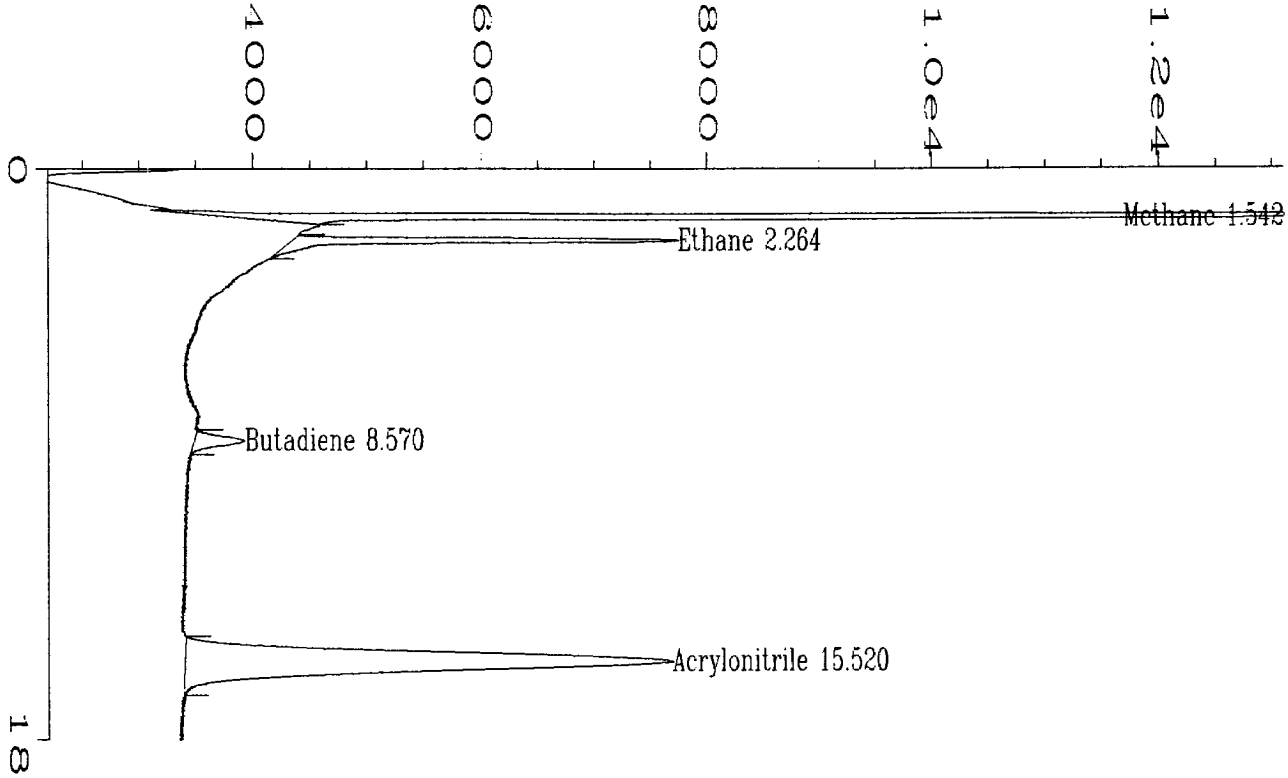

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External Standard Report

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Data File Name	: D:\GC1\BAG3_02.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 05:33 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:04 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG3_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.542	171028	PB	0.124	1	27.879	Methane
2.264	36564	BB	0.149	1	2.445	Ethane
8.570	8982	BB	0.259	1	0.482	Butadiene
15.520	168247	BB	0.469	1	10.932	Acrylonitrile

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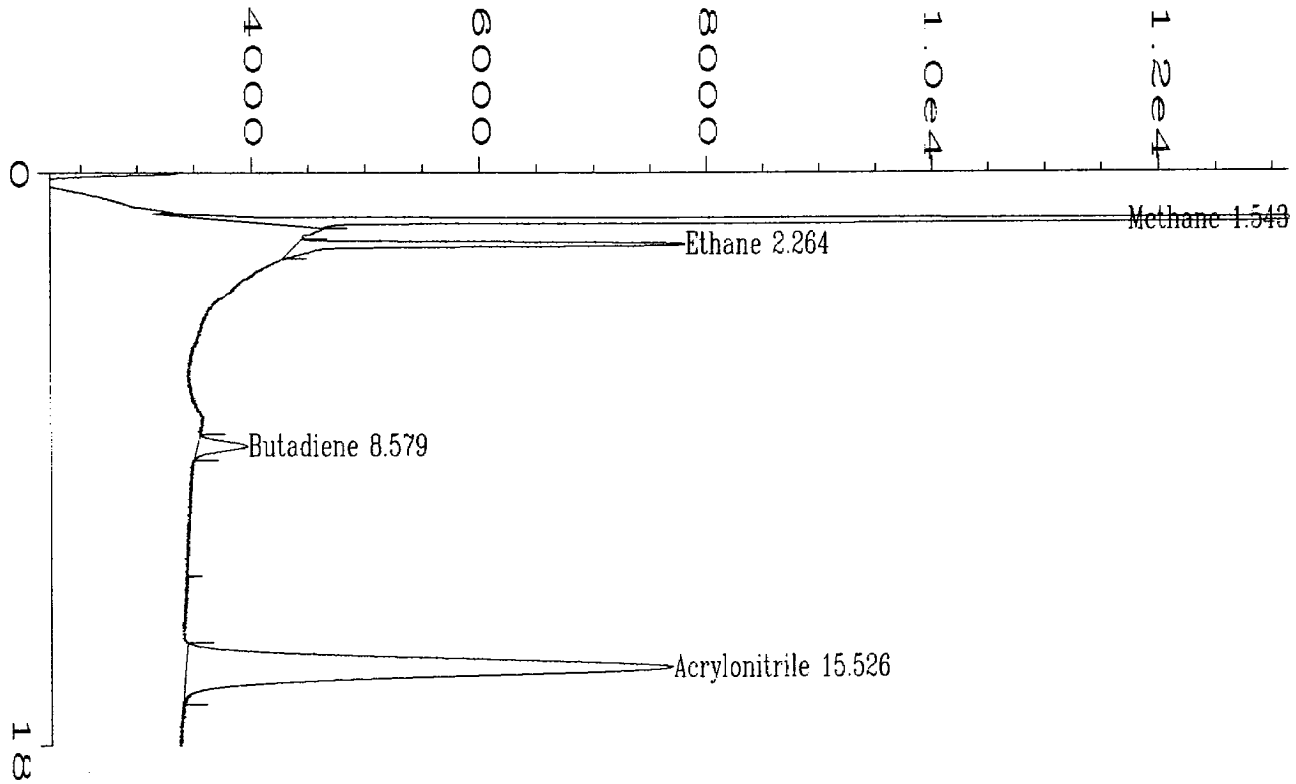

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External Standard Report

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Data File Name	: D:\GC1\BAG3_03.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 05:57 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:05 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG3_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.543	170280	PB	0.124	1	27.764	Methane
2.264	36181	BB	0.136	1	2.416	Ethane
8.579	9150	BB	0.251	1	0.489	Butadiene
15.526	168498	BV	0.470	1	10.948	Acrylonitrile

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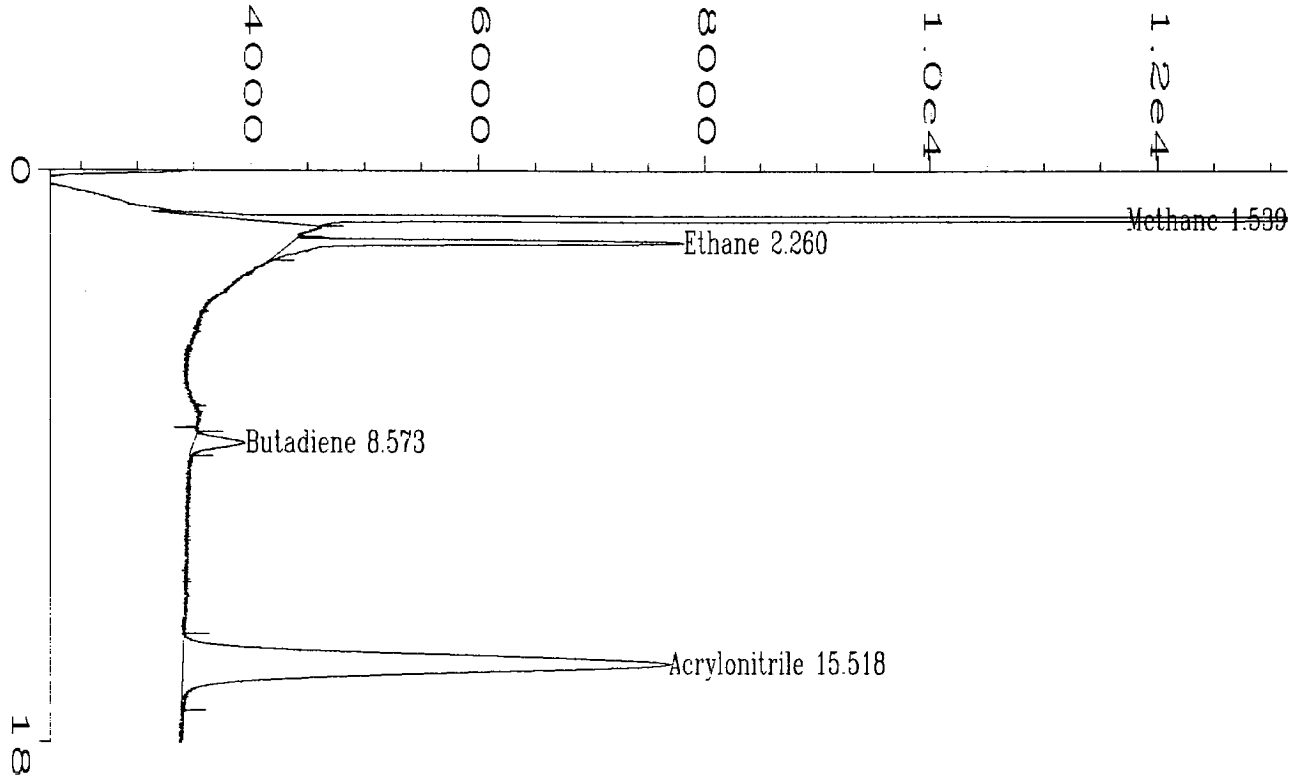

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External Standard Report

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Data File Name	: D:\GC1\BAG3_04.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 06:21 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:05 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG3_04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.539	170074	PB	0.123	1	27.733	Methane
2.260	37843	BB	0.156	1	2.543	Ethane
8.573	9404	BB	0.265	1	0.499	Butadiene
15.518	170759	BB	0.485	1	11.090	Acrylonitrile

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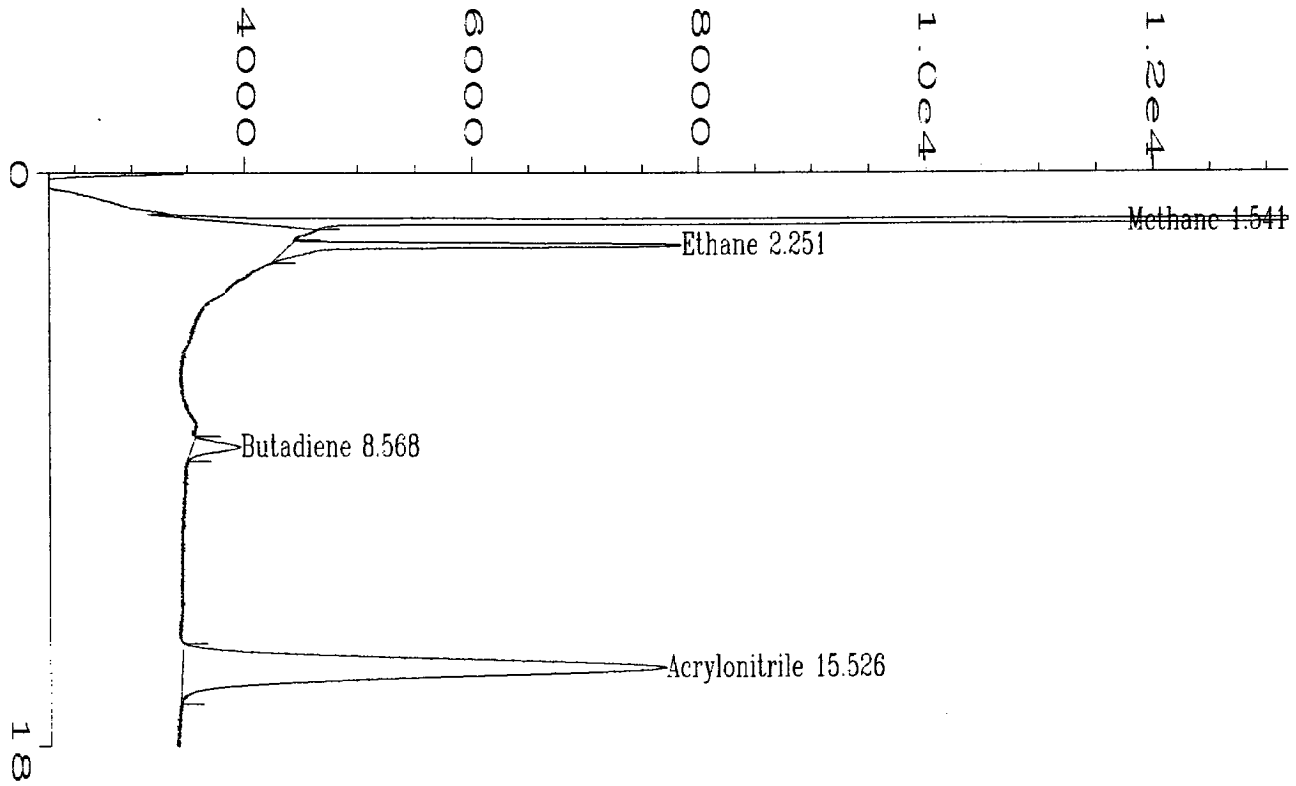

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External Standard Report

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Data File Name	: D:\GC1\BAG3_05.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 06:43 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:05 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG3_05.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.541	170153	PB	0.123	1	27.745	Methane
2.251	37781	BB	0.156	1	2.538	Ethane
8.568	8582	BB	0.259	1	0.466	Butadiene
15.526	168167	BB	0.473	1	10.927	Acrylonitrile

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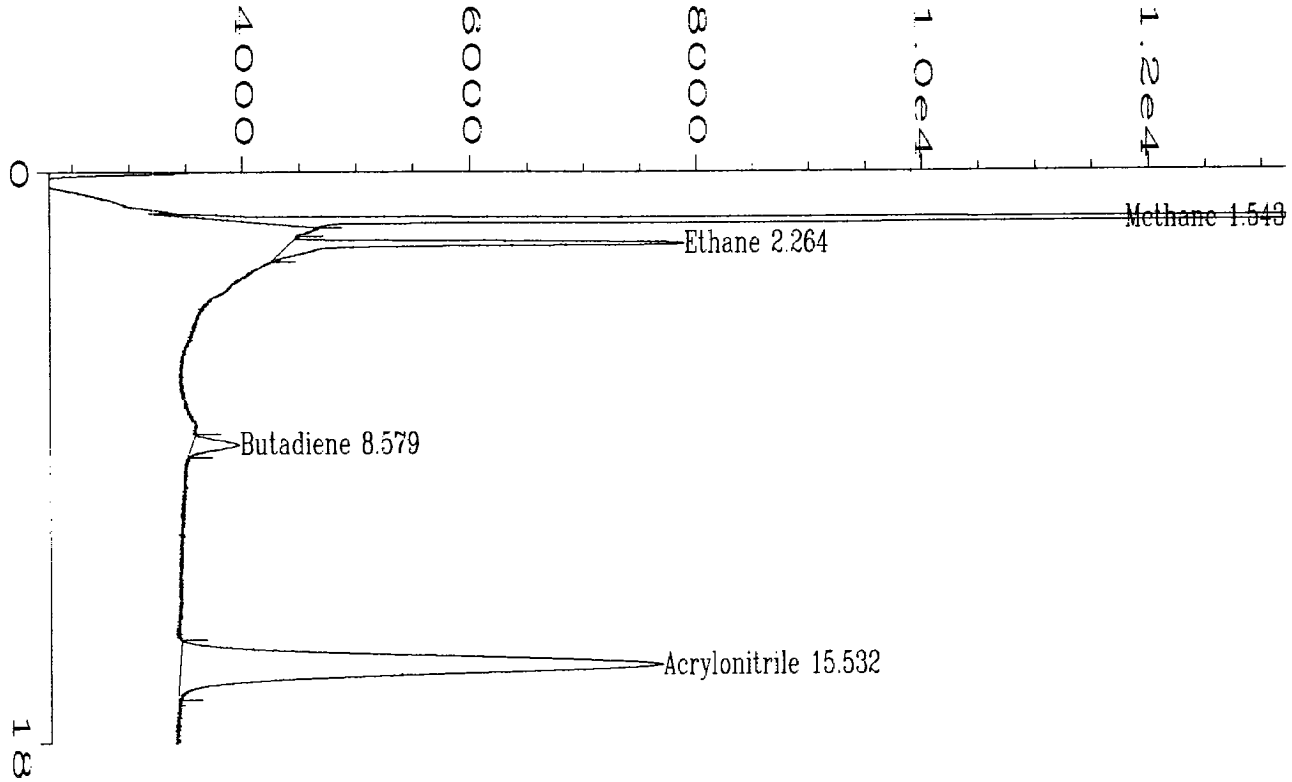

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External Standard Report

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Data File Name	: D:\GC1\BAG3_06.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 07:03 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:05 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG3_06.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.543	168723	PB	0.127	1	27.525	Methane
2.264	38586	BB	0.144	1	2.600	Ethane
8.579	8402	BB	0.248	1	0.458	Butadiene
15.532	167461	BB	0.471	1	10.883	Acrylonitrile

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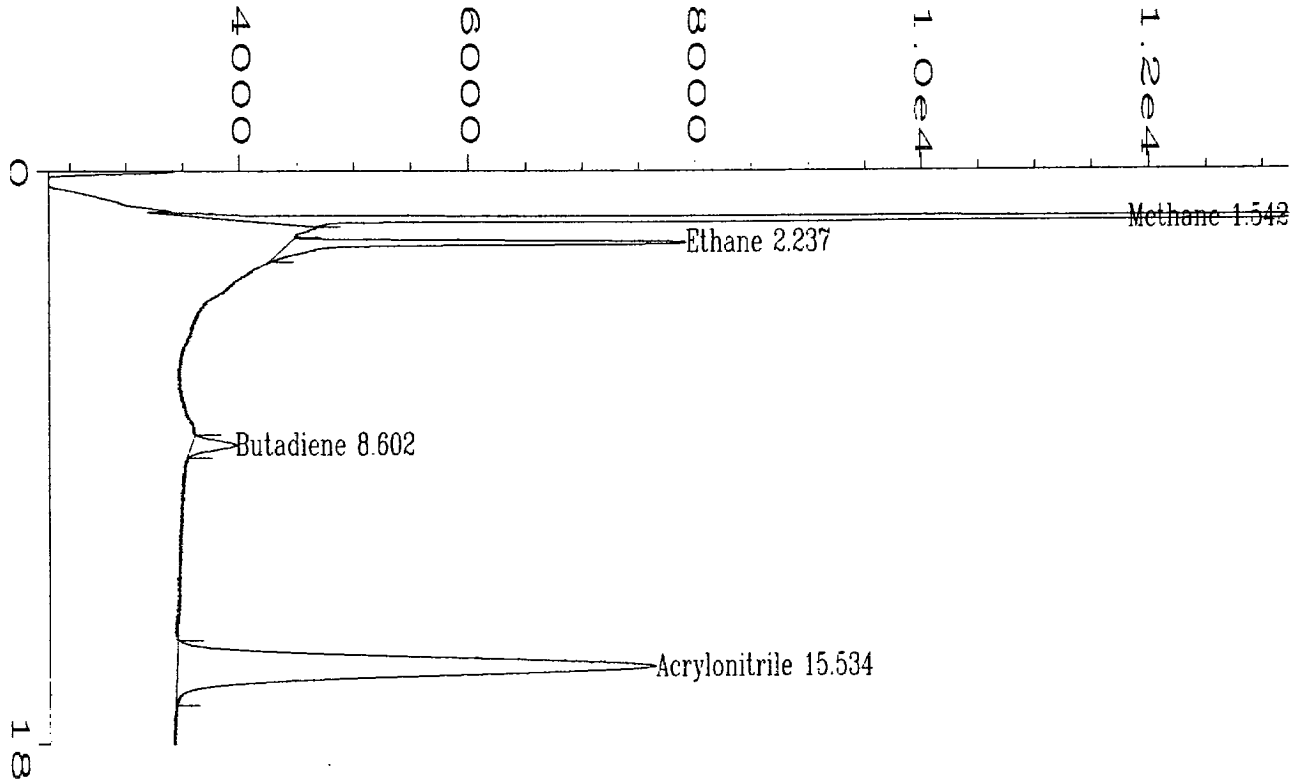

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External Standard Report

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Data File Name	: D:\GC1\BAG3_07.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 07:22 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:05 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG3_07.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.542	167922	PB	0.123	1	27.402	Methane
2.237	38769	BB	0.158	1	2.614	Ethane
8.602	7897	BB	0.259	1	0.437	Butadiene
15.534	166243	BB	0.491	1	10.807	Acrylonitrile

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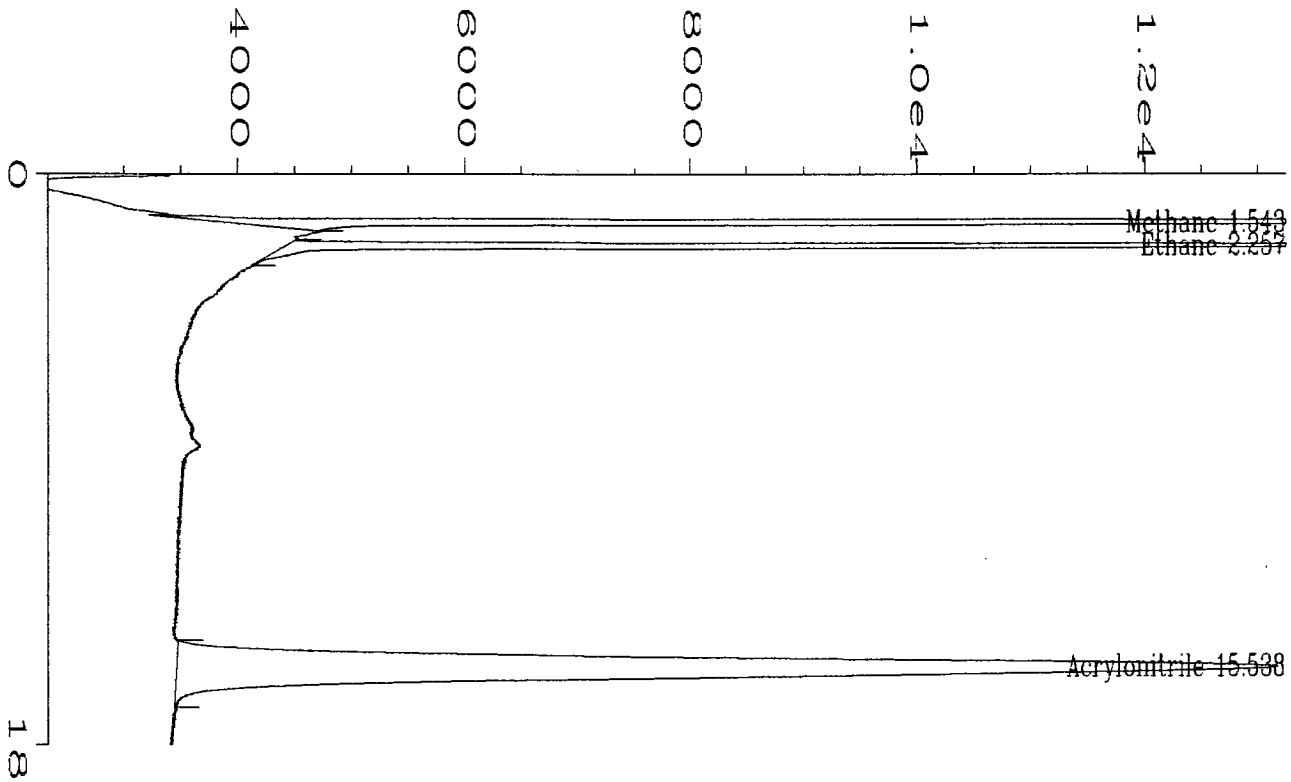

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External Standard Report

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Data File Name	: D:\GC1\BAG4_01.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 07:41 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:06 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG4_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.543	324320	PB	0.123	1	51.429	Methane
2.257	110806	BB	0.140	1	8.136	Ethane
8.573	* not found *			1		Butadiene
15.538	382325	BB	0.490	1	24.333	Acrylonitrile

Not all calibrated peaks were found

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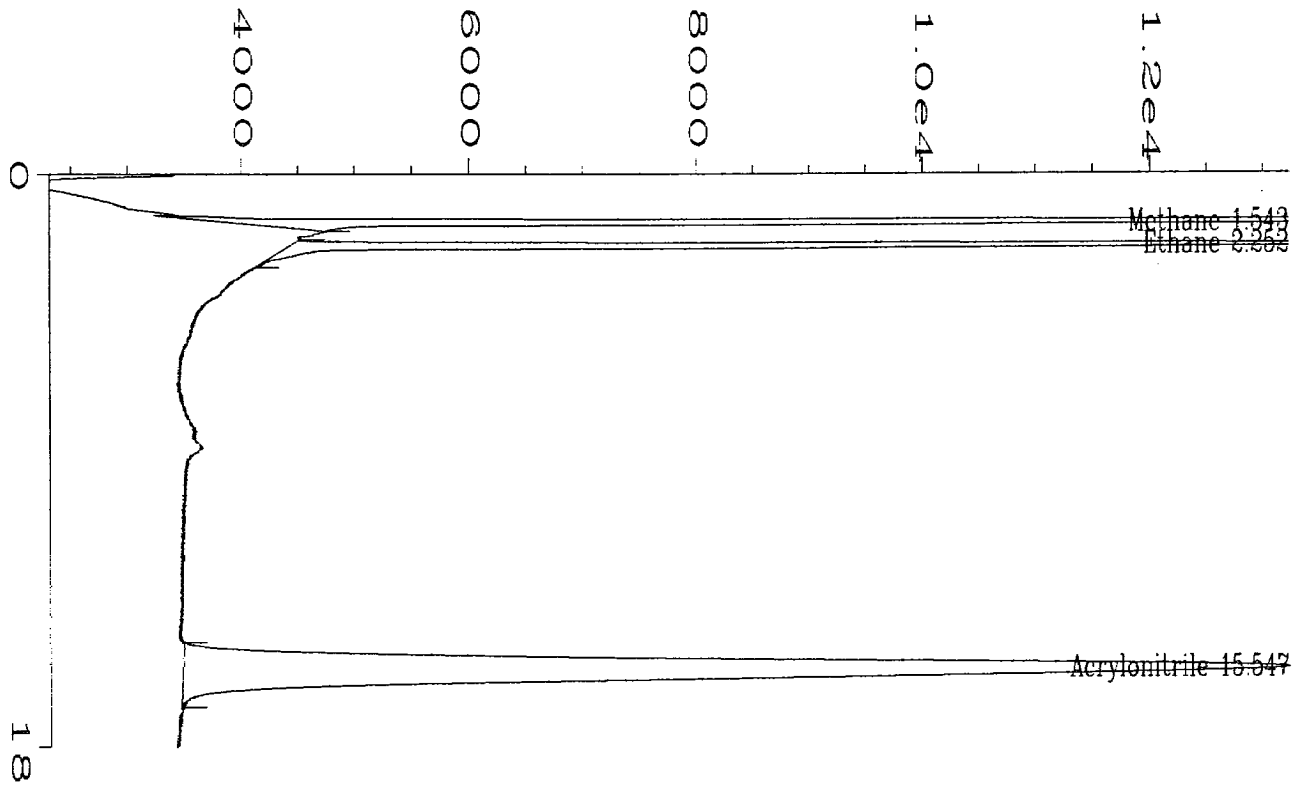

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External Standard Report

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Data File Name	: D:\GC1\BAG4_02.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 08:00 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:06 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG4_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.543	324849	PB	0.127	1	51.510	Methane
2.252	112216	BB	0.124	1	8.244	Ethane
8.573	* not found *			1		Butadiene
15.547	385189	BV	0.467	1	24.512	Acrylonitrile

Not all calibrated peaks were found

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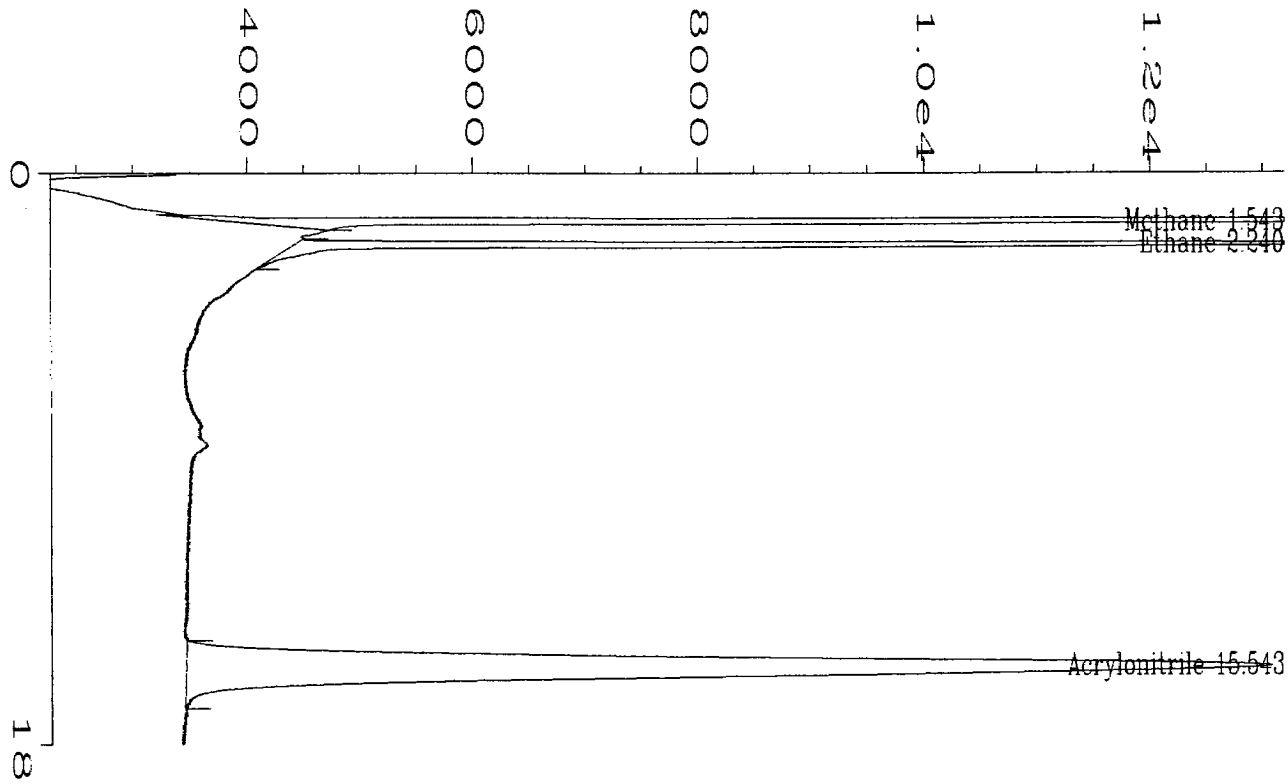

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External Standard Report

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Data File Name	: D:\GC1\BAG4_03.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 08:26 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:06 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG4_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.543	321569	PB	0.130	1	51.006	Methane
2.240	112738	BB	0.164	1	8.284	Ethane
8.573	* not found *			1		Butadiene
15.543	380719	BB	0.518	1	24.233	Acrylonitrile

Not all calibrated peaks were found

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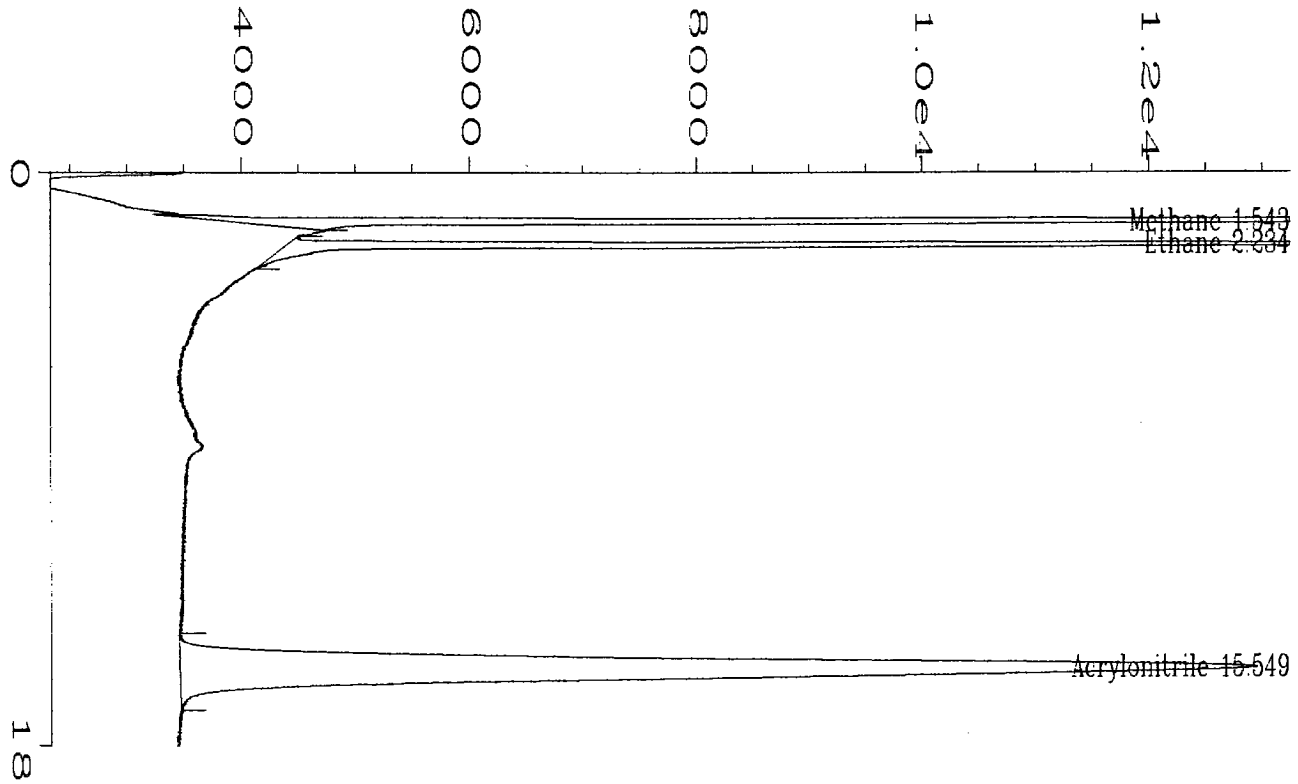

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External Standard Report

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Data File Name	: D:\GC1\BAG4_04.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 08:44 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:06 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG4_04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.543	320783	PB	0.125	1	50.885	Methane
2.234	114176	BB	0.138	1	8.394	Ethane
8.573	* not found *			1		Butadiene
15.549	376847	BV	0.469	1	23.990	Acrylonitrile

Not all calibrated peaks were found

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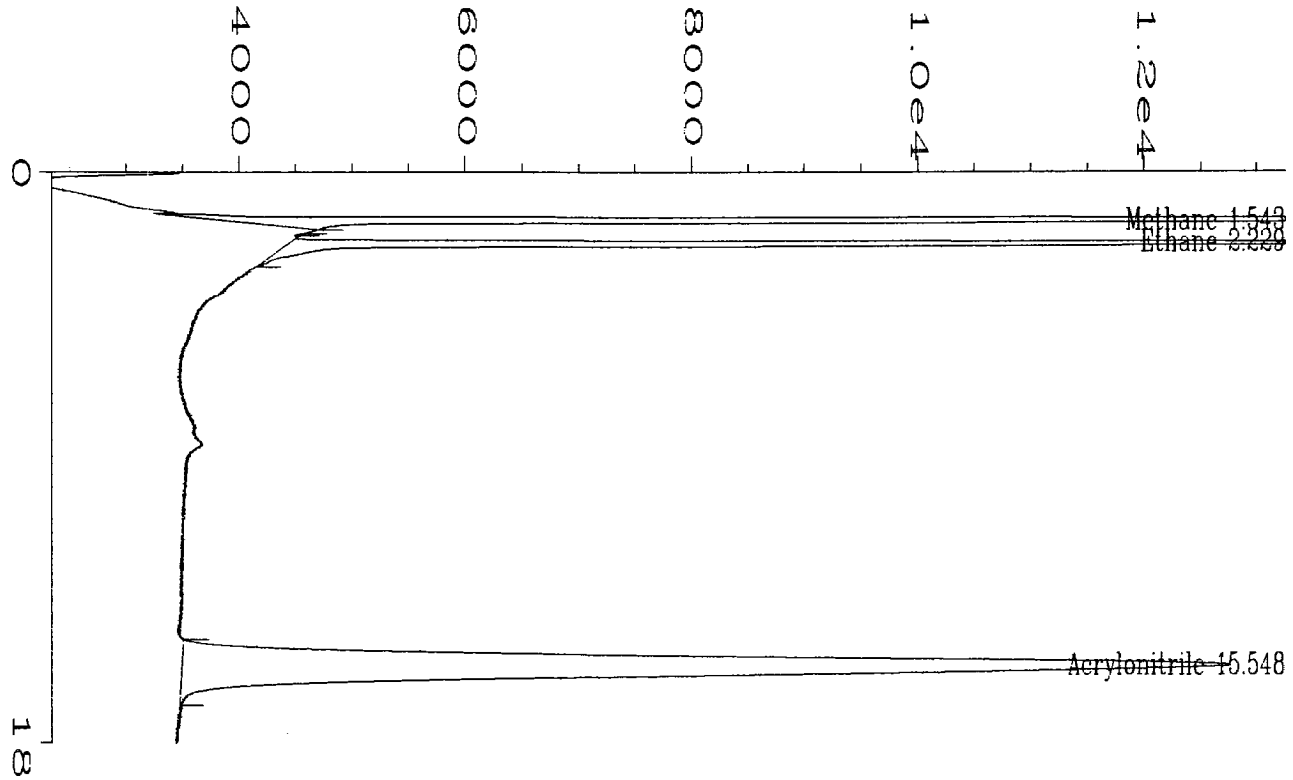

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External Standard Report

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Data File Name	: D:\GC1\BAG4_05.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 09:03 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:06 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG4_05.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.543	320159	PB	0.122	1	50.789	Methane
2.229	113338	BB	0.138	1	8.330	Ethane
8.573	* not found *			1		Butadiene
15.548	363969	BV	0.467	1	23.184	Acrylonitrile

Not all calibrated peaks were found

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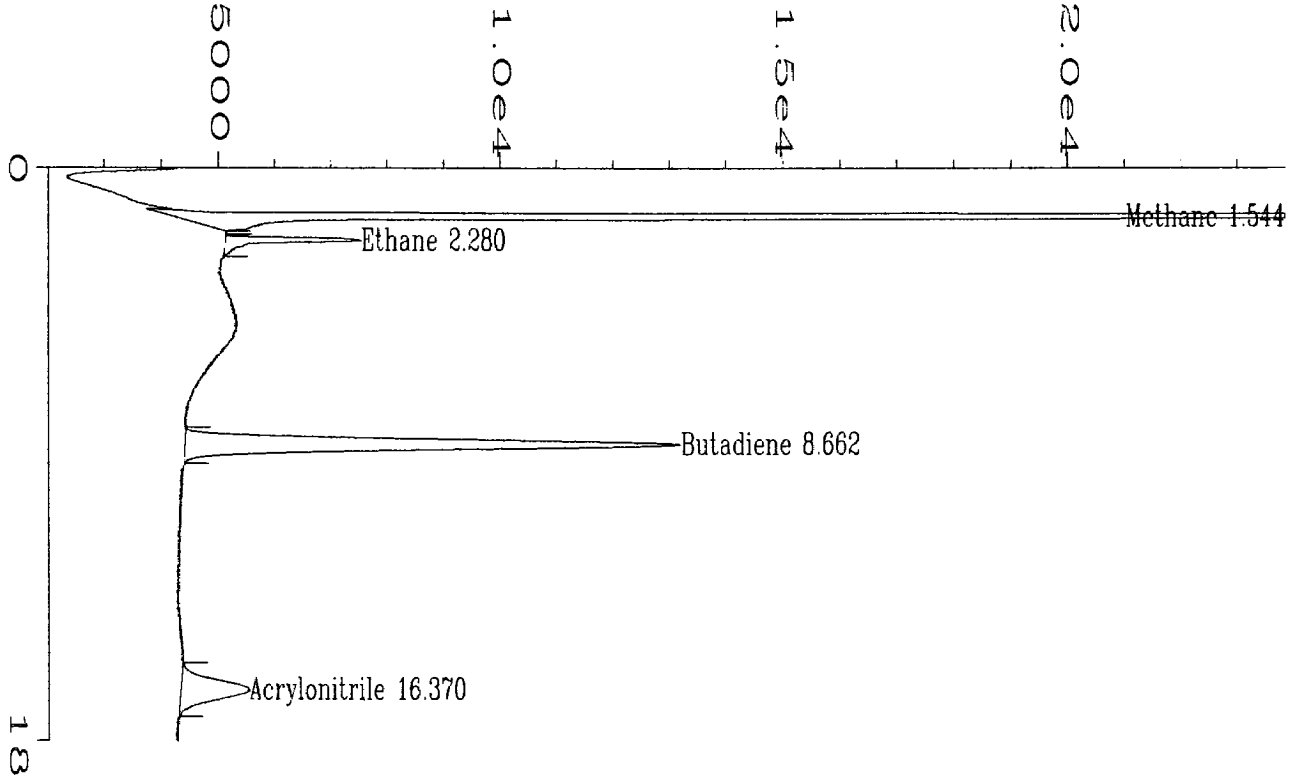

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External Standard Report

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Data File Name	: D:\GC1\BAG5_10.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 28 May 97 01:33 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:21 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG5_10.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.544	1139963	PB	0.122	1	176.732	Methane
2.280	26392	BB	0.144	1	1.665	Ethane
8.662	193608	BV	0.265	1	8.071	Butadiene
16.370	50160	BV	0.508	1	3.541	Acrylonitrile

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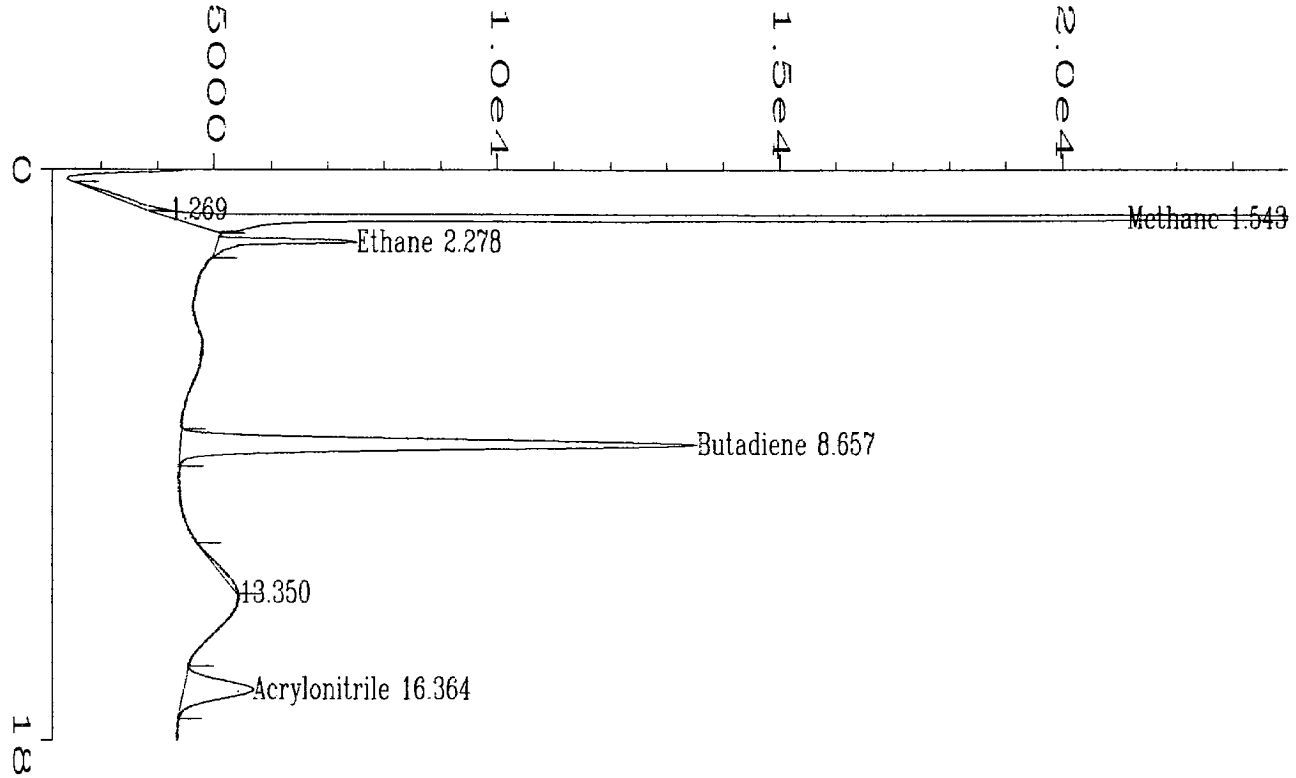

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External Standard Report

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Data File Name	: D:\GC1\BAG5_11.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 28 May 97 01:52 PM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:21 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG5_11.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.543	1185728	PB	0.128	1	183.763	Methane
2.278	27159	BB	0.142	1	1.724	Ethane
8.657	202030	BV	0.264	1	8.417	Butadiene
16.364	49123	BB	0.493	1	3.476	Acrylonitrile

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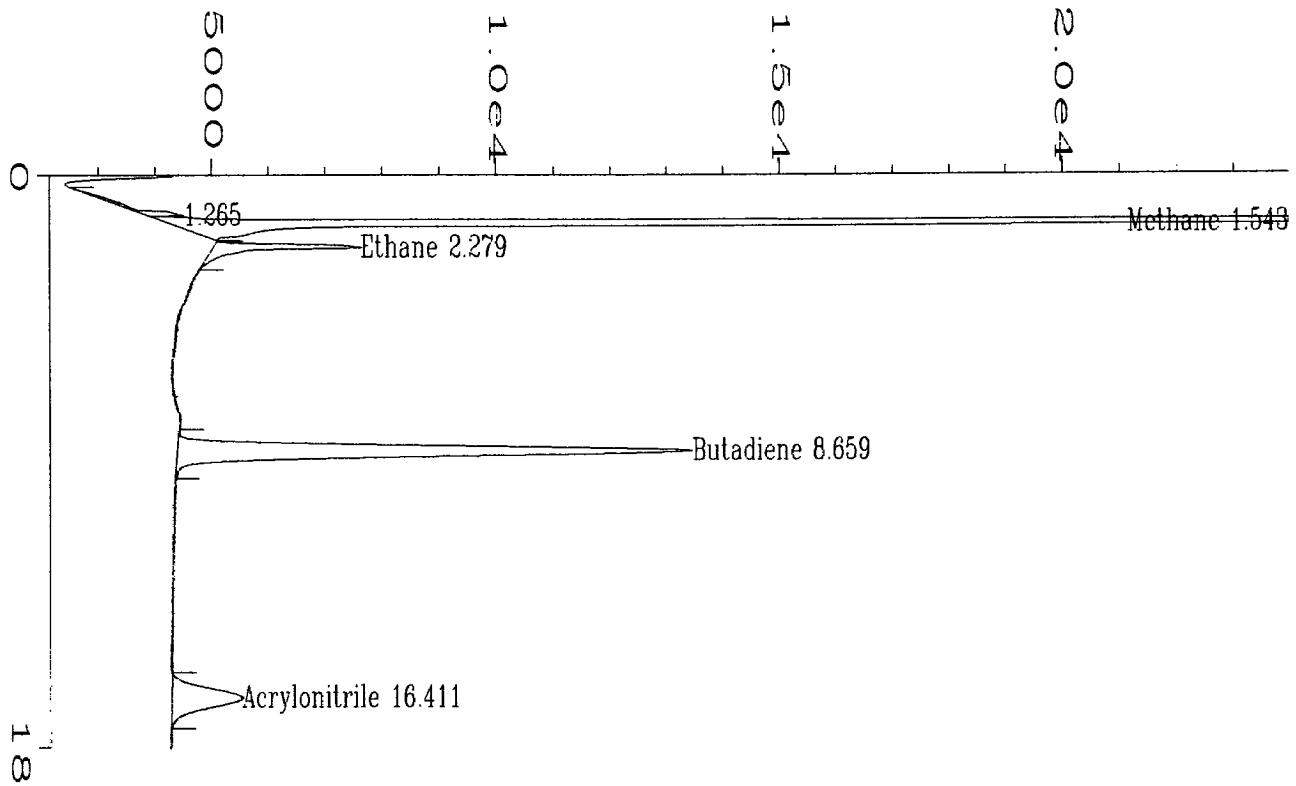

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External Standard Report

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Data File Name	: D:\GC1\BAG5_12.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 29 May 97 08:13 AM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:22 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG5_12.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.543	1215116	VB	0.137	1	188.277	Methane
2.279	31669	BB	0.158	1	2.070	Ethane
8.659	202798	BV	0.269	1	8.449	Butadiene
16.411	52224	BV	0.524	1	3.670	Acrylonitrile

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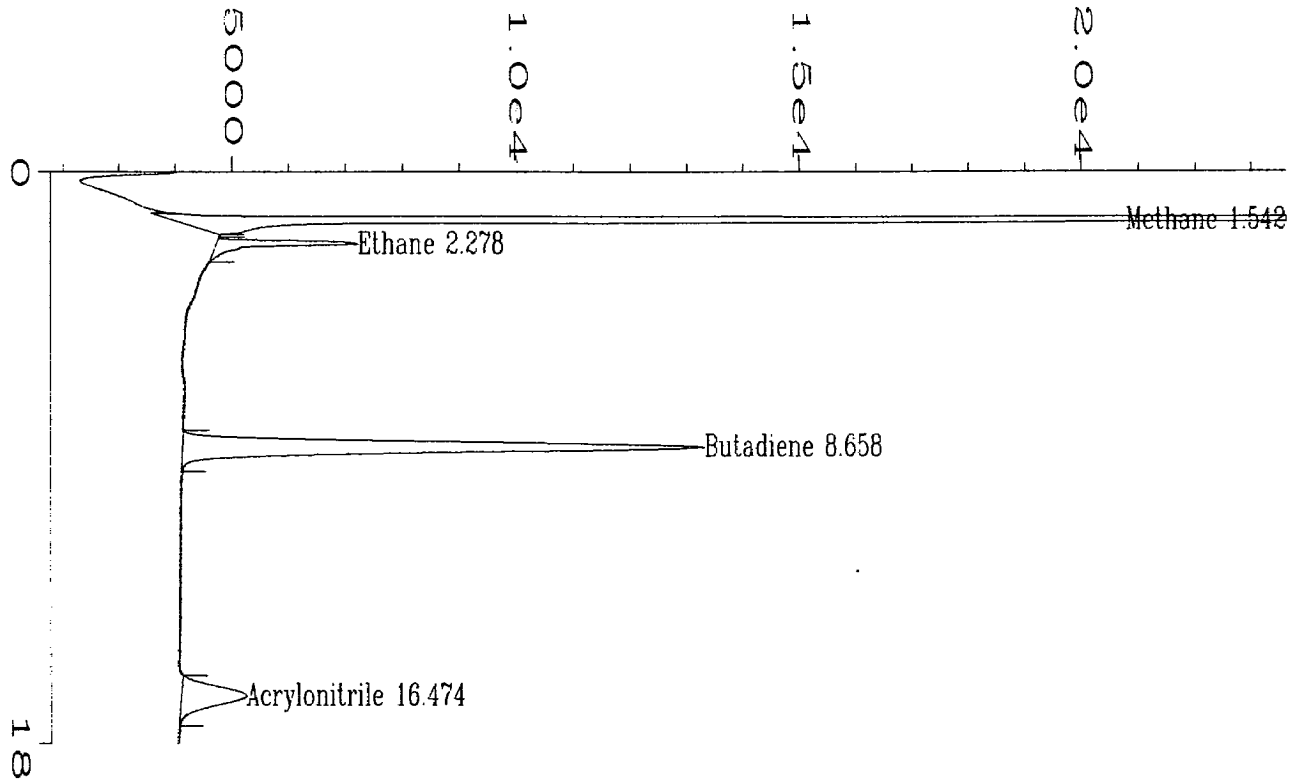

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External Standard Report

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Data File Name	: D:\GC1\BAG5_13.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 30 May 97 06:34 AM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:22 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG5_13.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.542	1200006	PB	0.129	1	185.956	Methane
2.278	29234	BB	0.153	1	1.883	Ethane
8.658	204597	BV	0.269	1	8.523	Butadiene
16.474	46509	BB	0.497	1	3.312	Acrylonitrile

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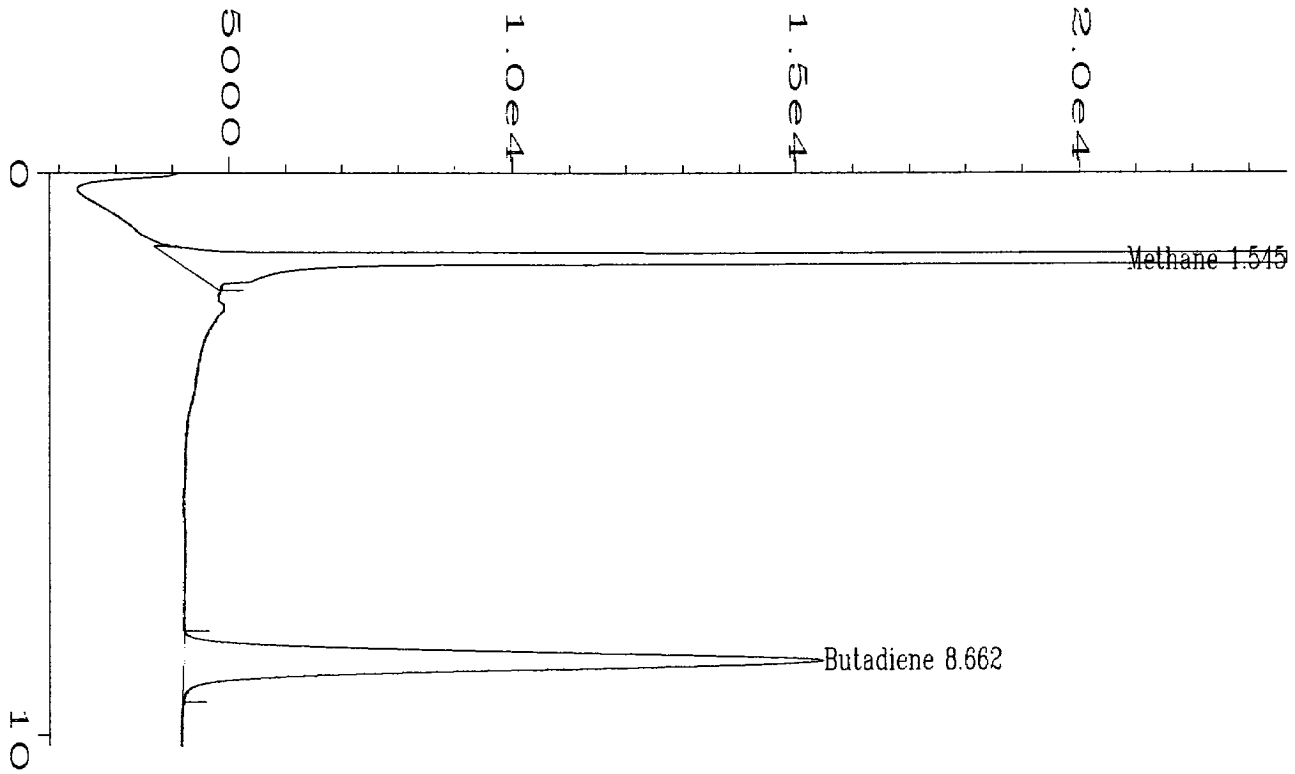

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External Standard Report

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Data File Name	: D:\GC1\BAG6_01.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 29 May 97 06:51 AM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:22 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG6_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.545	1634637	PB	0.130	1	252.727	Methane
2.240	* not found *			1		Ethane
8.662	251399	BV	0.266	1	10.446	Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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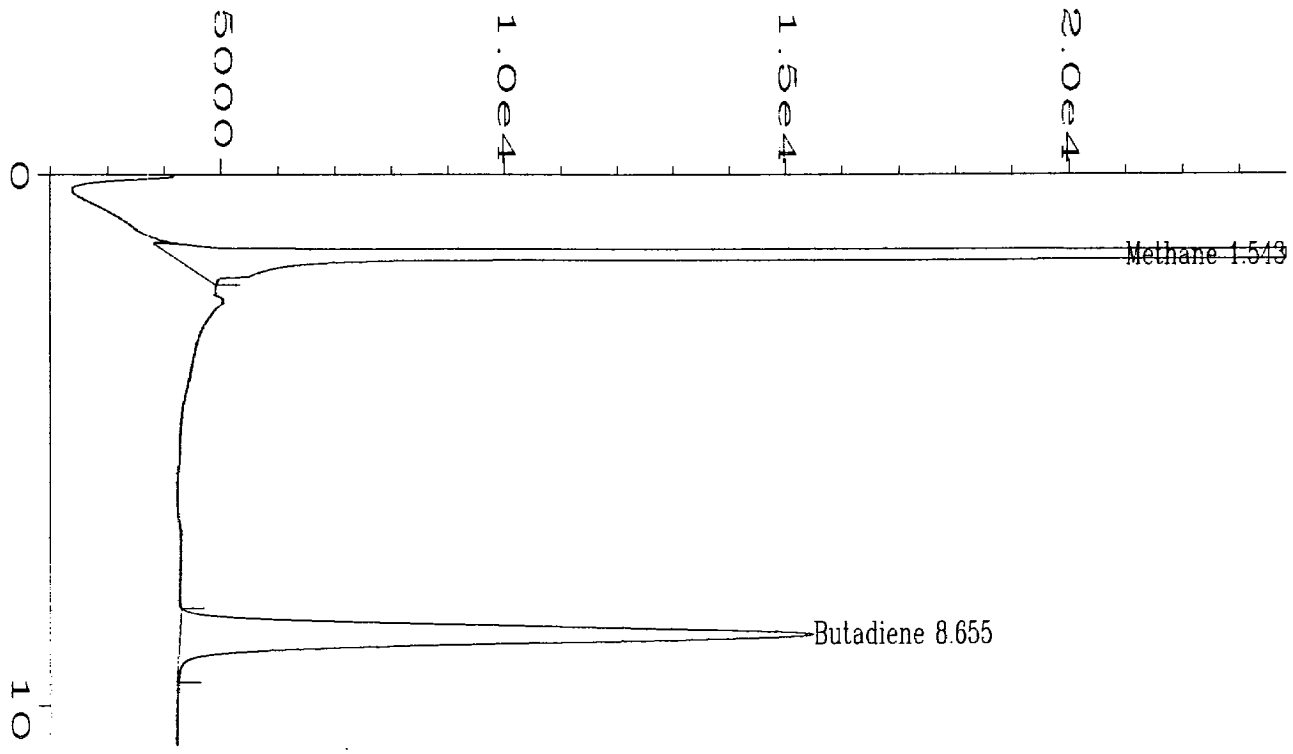

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External Standard Report

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Data File Name	: D:\GC1\BAG6_02.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 29 May 97 07:02 AM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:22 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG6_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.543	1633339	PB	0.128	1	252.527	Methane
2.240	* not found *			1		Ethane
8.655	250180	BV	0.275	1	10.396	Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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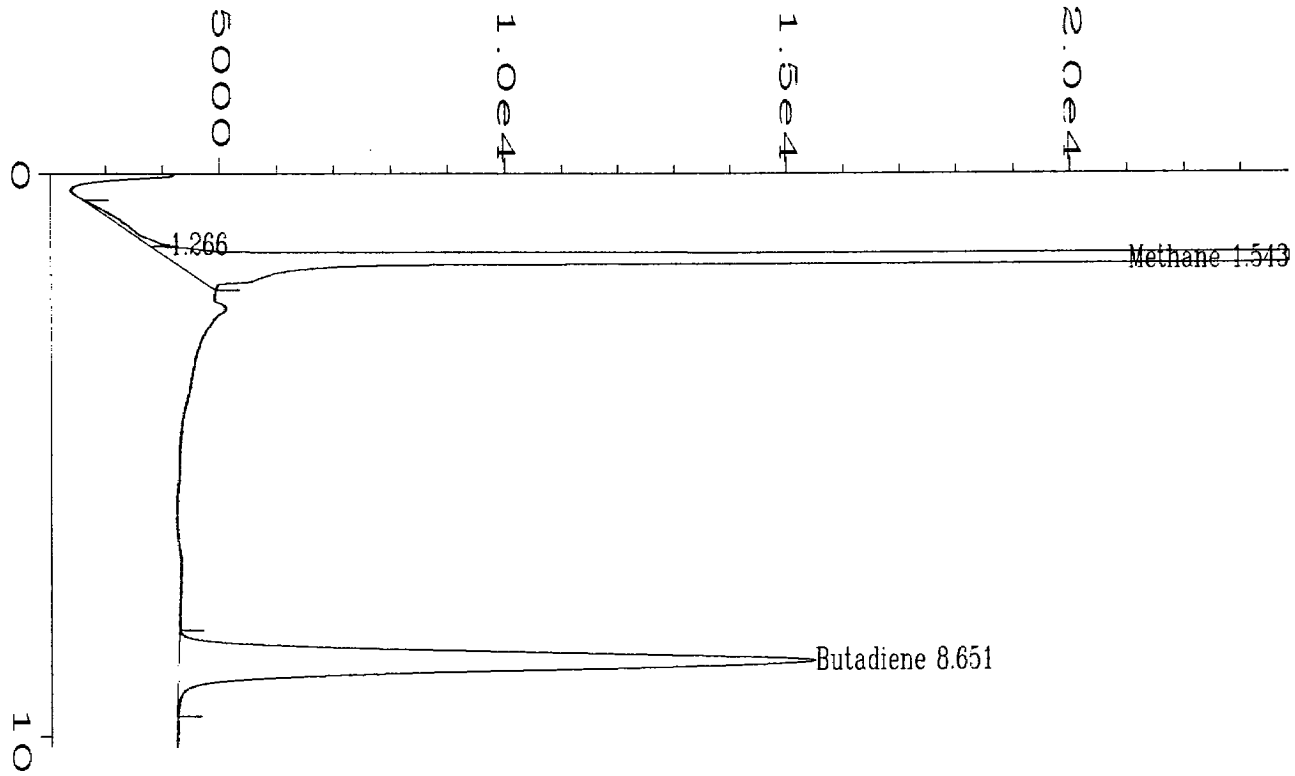

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External Standard Report

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Data File Name	: D:\GC1\BAG6_03.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 29 May 97 07:16 AM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:22 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG6_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.543	1631776	VB	0.135	1	252.287	Methane
2.240	* not found *			1		Ethane
8.651	251677	BV	0.282	1	10.458	Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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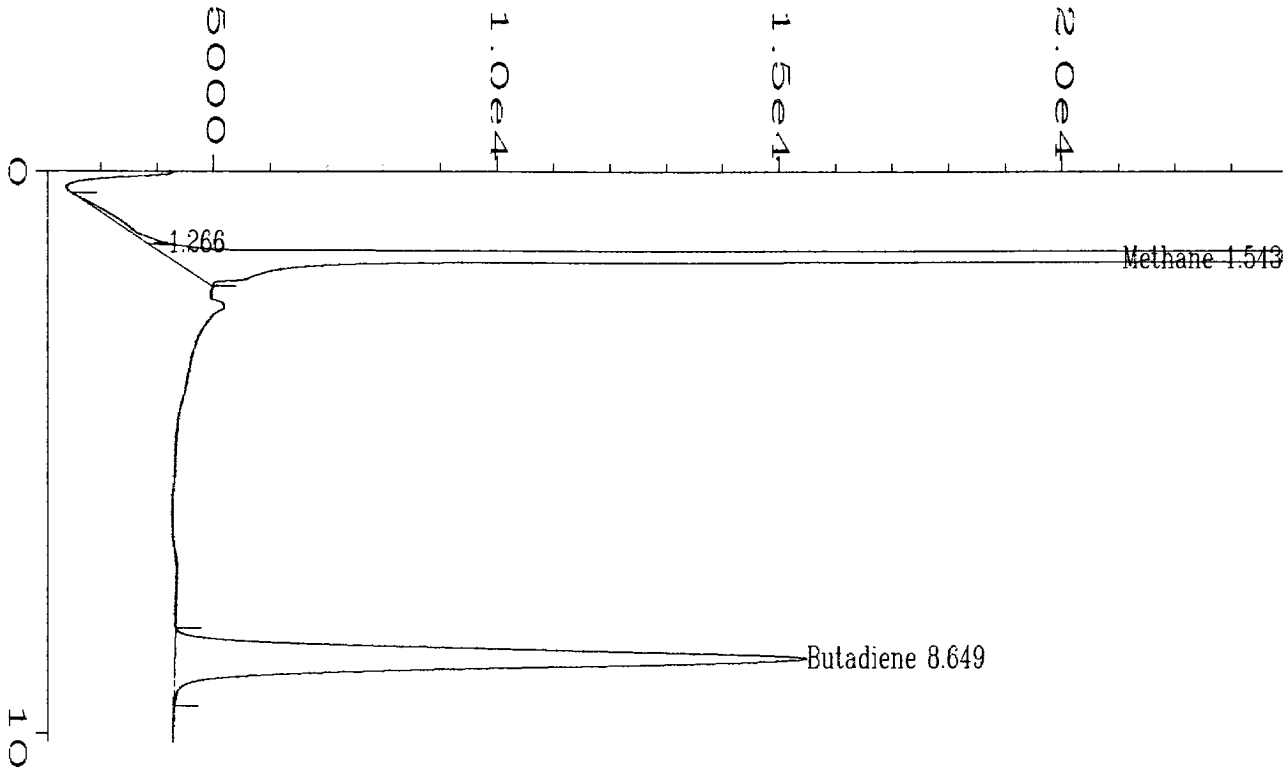

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External Standard Report

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Data File Name	: D:\GC1\BAG6_04.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 29 May 97 07:26 AM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:22 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG6_04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.543	1631041	VB	0.159	1	252.174	Methane
2.240	* not found *			1		Ethane
8.649	249485	BB	0.337	1	10.368	Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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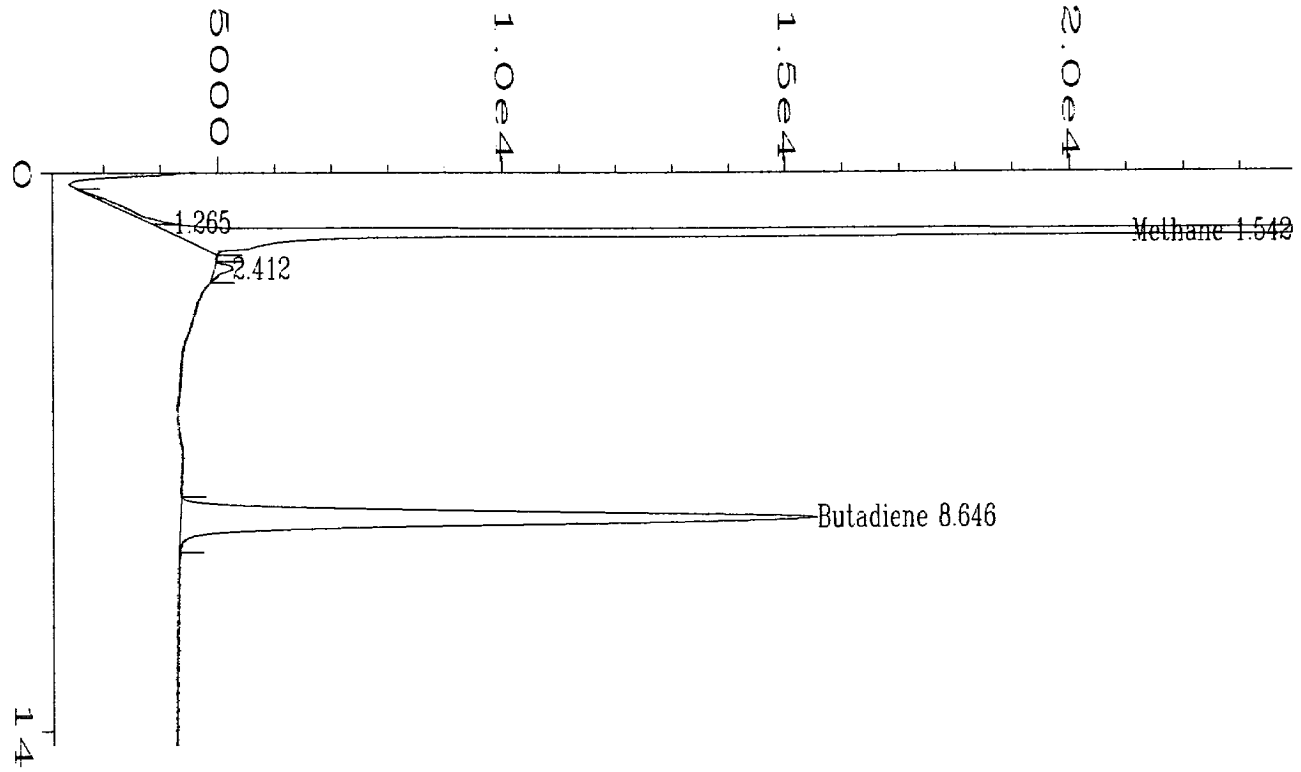

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External Standard Report

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Data File Name	: D:\GC1\BAG6_05.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 29 May 97 07:38 AM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:22 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG6_05.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.542	1634706	VB	0.160	1	252.737	Methane
2.240	* not found *			1		Ethane
8.646	250202	BB	0.339	1	10.397	Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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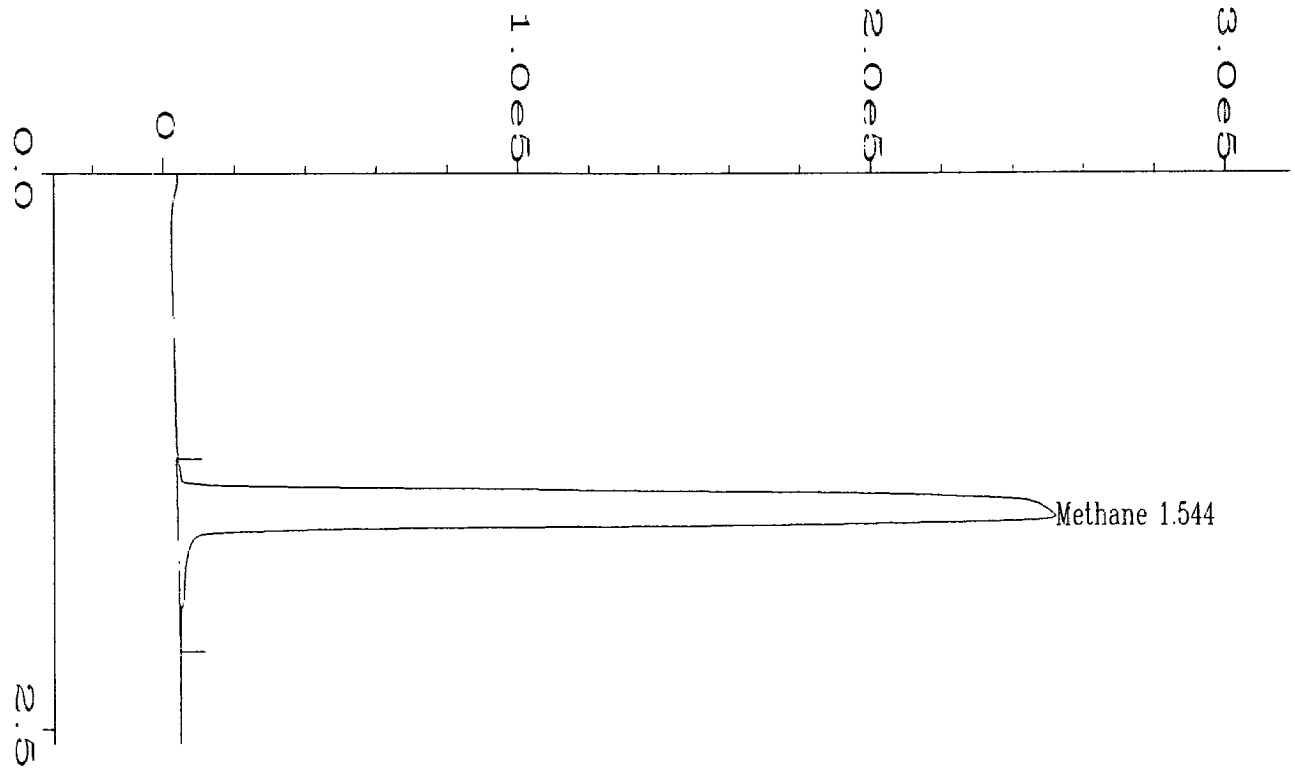

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External Standard Report

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Data File Name	: D:\GC1\BAG7_01.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 30 May 97 10:20 AM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:23 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG7_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.544	2407690	VB	0.131	1	371.487	Methane
2.240	* not found *			1		Ethane
8.573	* not found *			1		Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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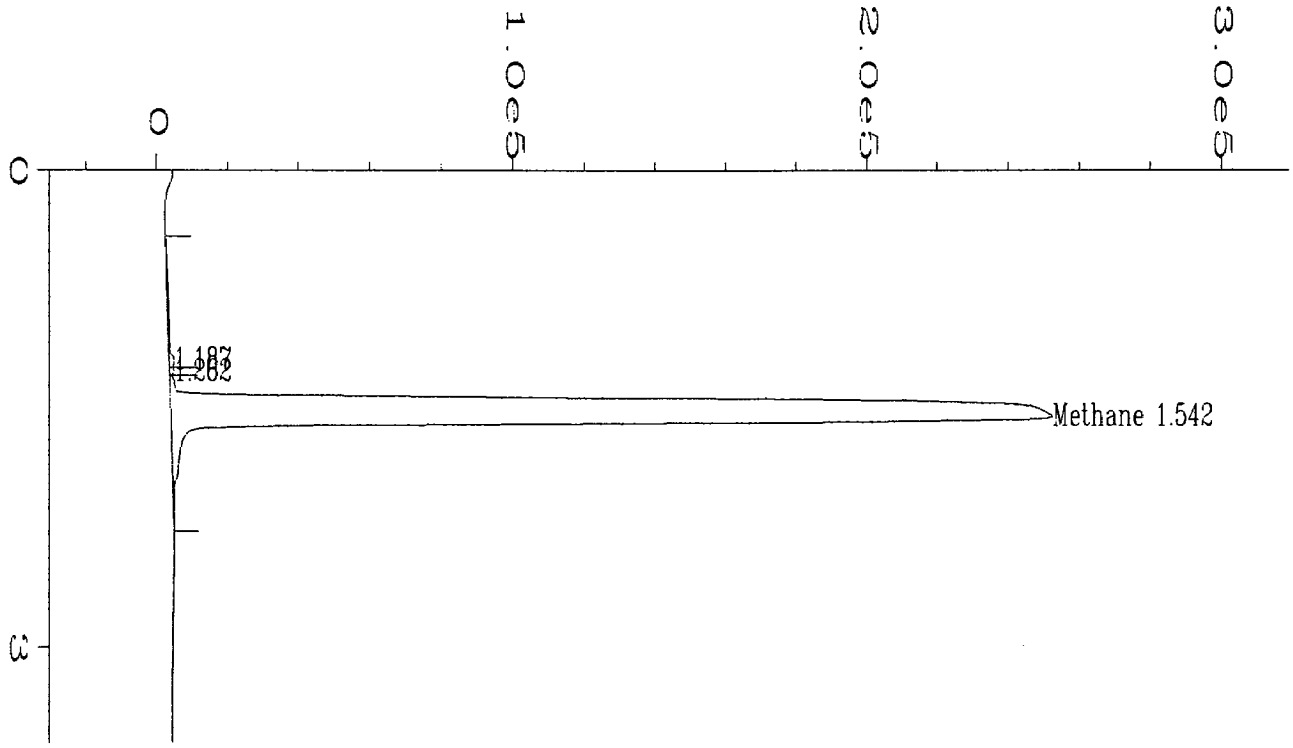

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External Standard Report

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Data File Name	: D:\GC1\BAG7_02.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 30 May 97 10:26 AM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:23 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG7_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.542	2412502	VB	0.131	1	372.226	Methane
2.240	* not found *			1		Ethane
8.573	* not found *			1		Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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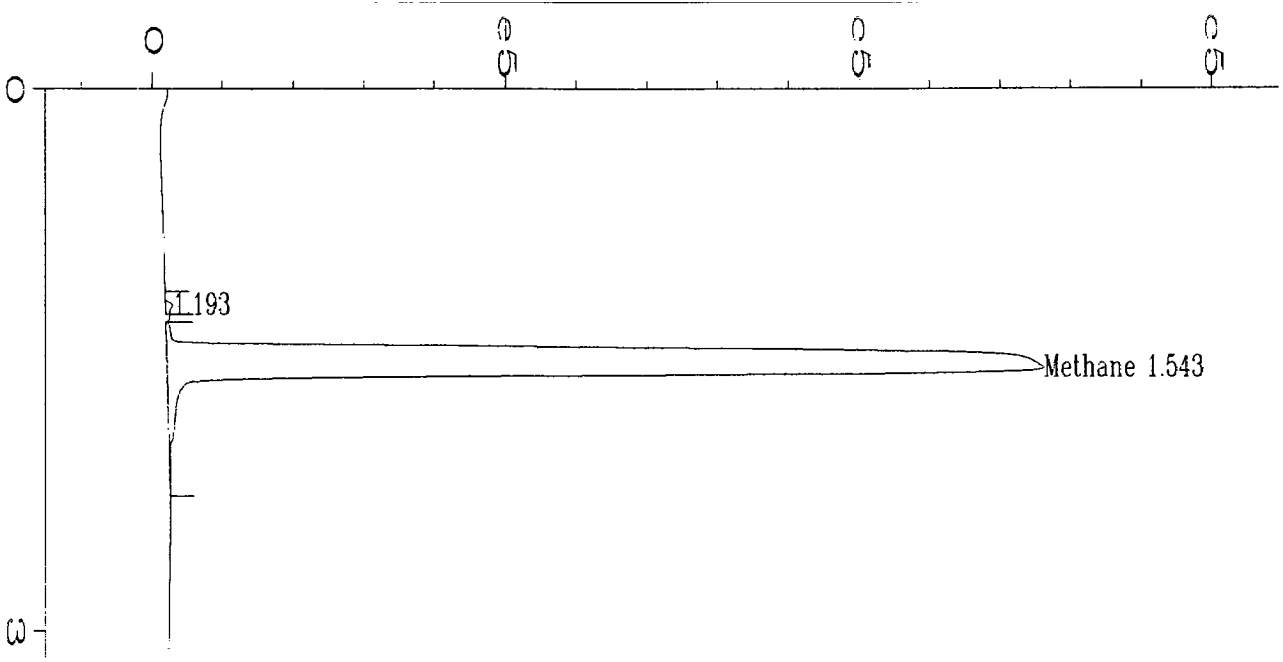

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External Standard Report

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Data File Name	: D:\GC1\BAG7_03.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 30 May 97 10:30 AM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:23 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG7_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.543	2398636	VB	0.130	1	370.096	Methane
2.240	* not found *			1		Ethane
8.573	* not found *			1		Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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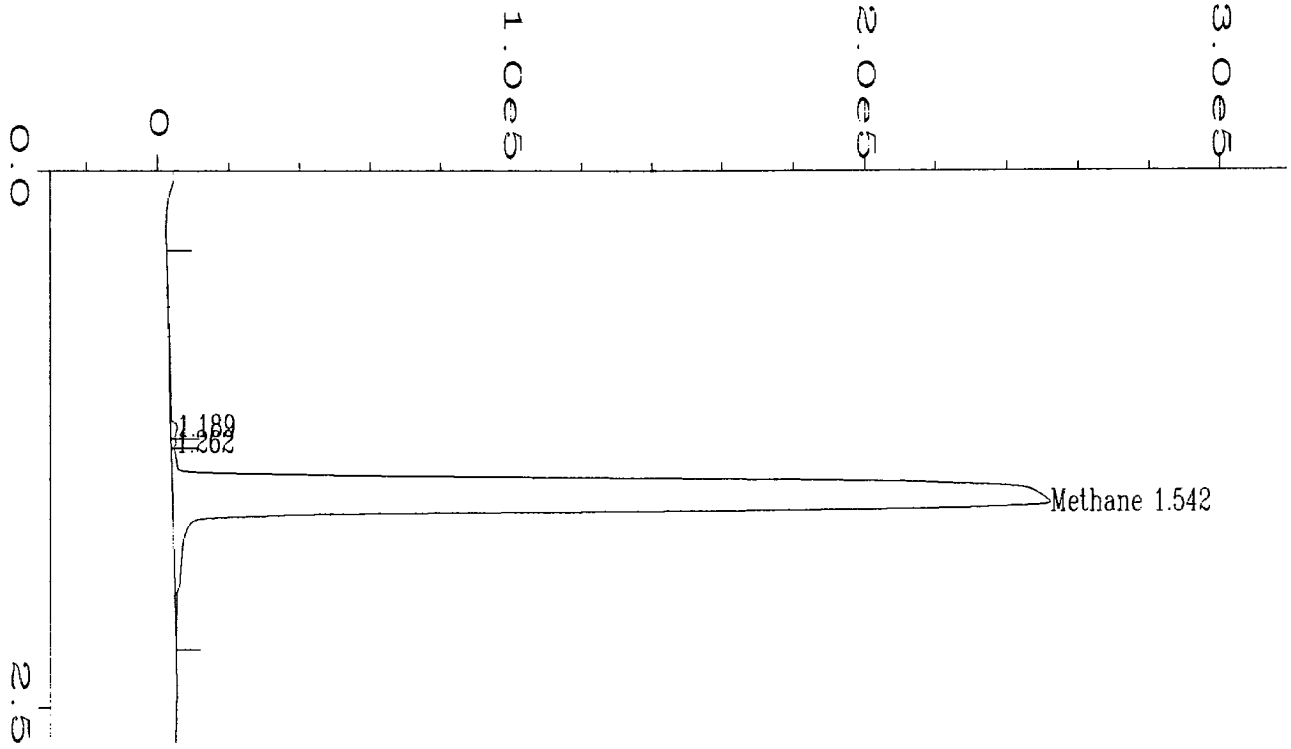

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External Standard Report

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Data File Name	: D:\GC1\BAG7_04.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 30 May 97 10:34 AM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:23 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG7_04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.542	2389355	VB	0.129	1	368.670	Methane
2.240	* not found *			1		Ethane
8.573	* not found *			1		Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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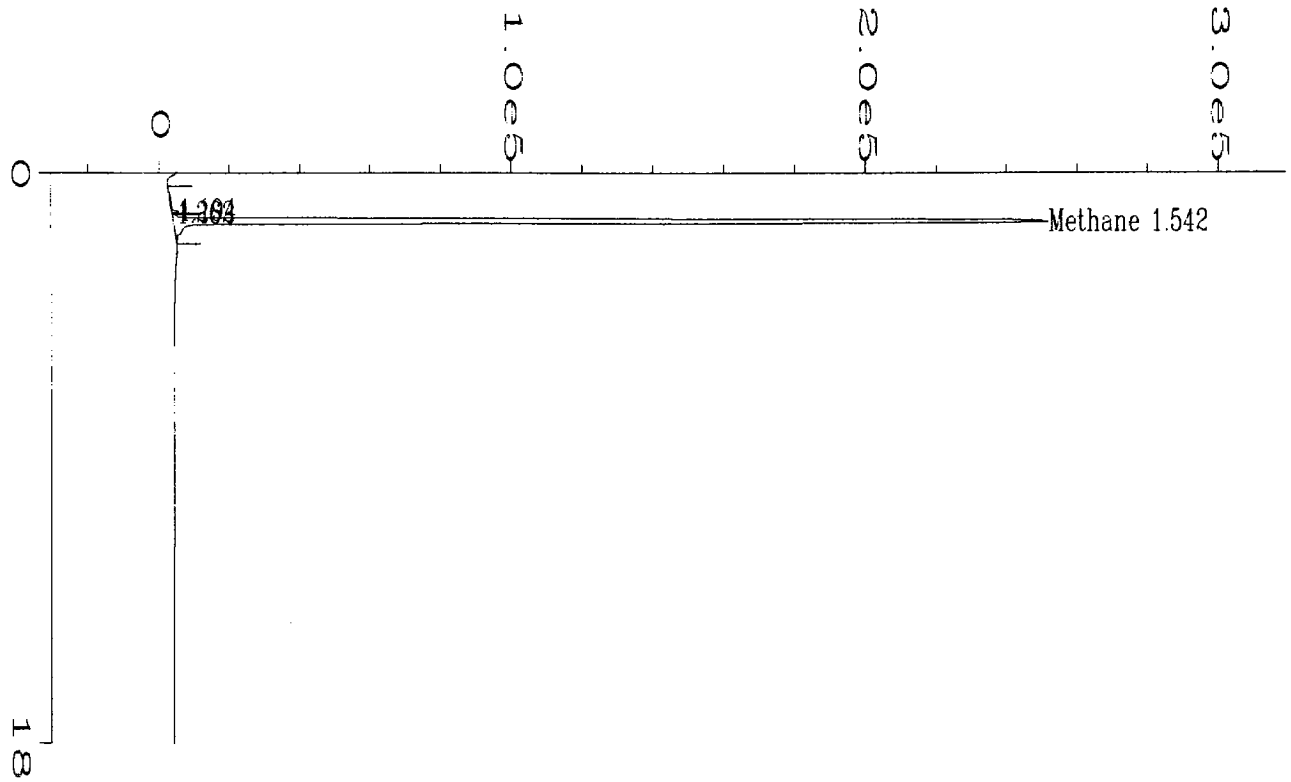

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External Standard Report

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Data File Name	: D:\GC1\BAG7_05.D		
Operator	: Kurt Weppprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 30 May 97 10:37 AM	Instrument Method	: GC1.MTH
Report Created on	: 24 Jun 97 02:23 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\BAG7_05.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.542	2378520	VB	0.128	1	367.006	Methane
2.240	* not found *			1		Ethane
8.573	* not found *			1		Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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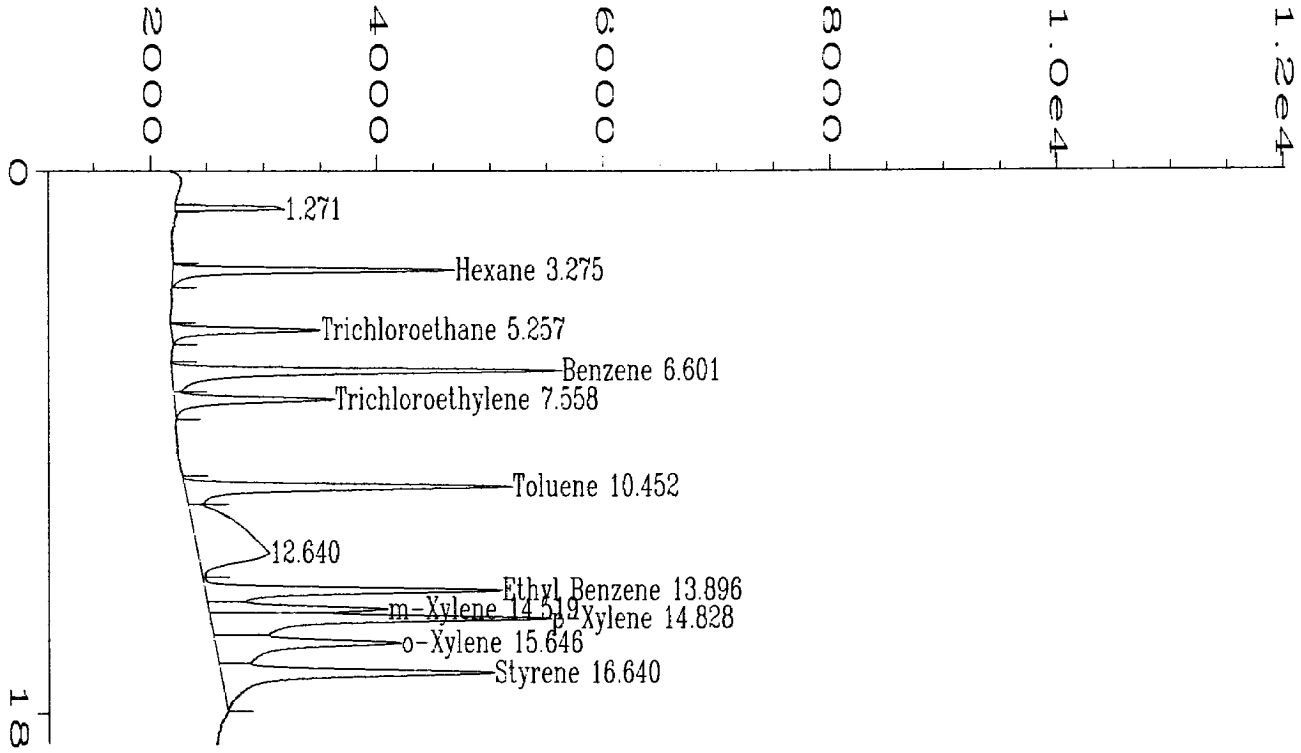

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External Standard Report

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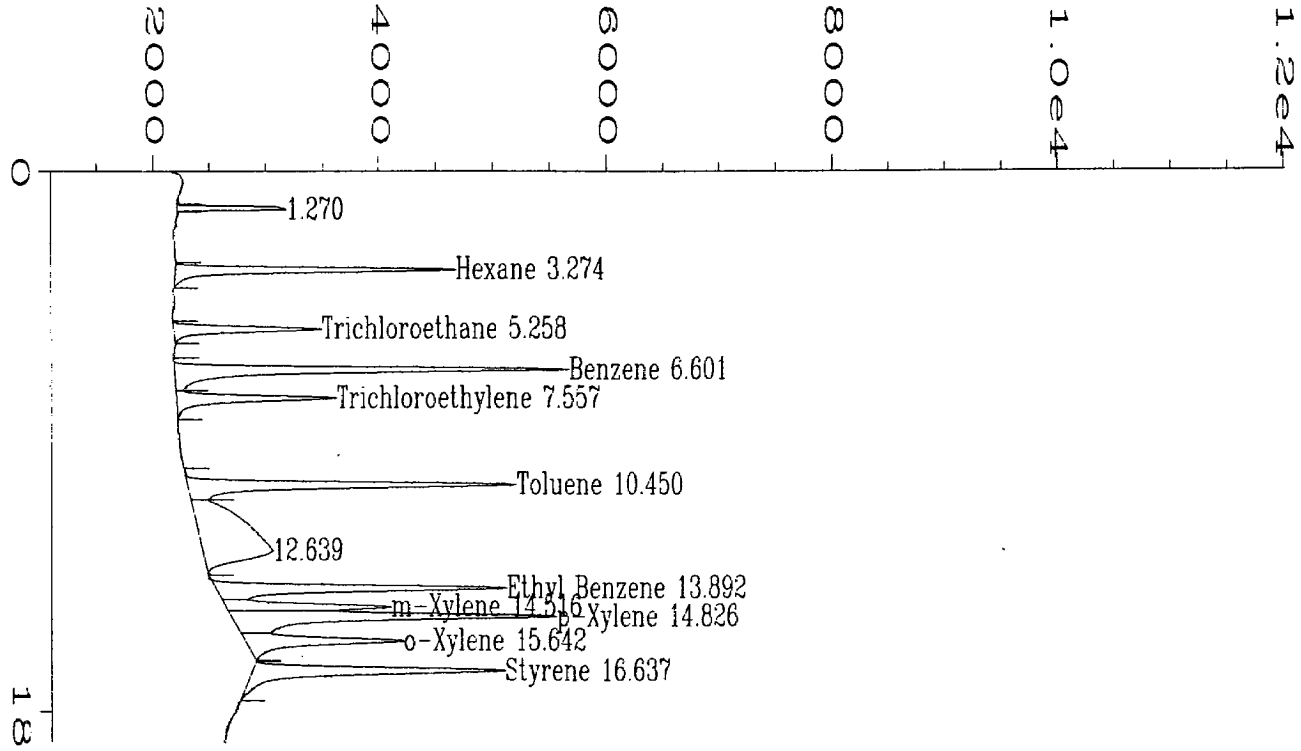
Data File Name	: D:\GC2\BAG1A_02.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 09:33 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:03 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG1A_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.275	29348	BB	0.181	1	0.601	Hexane
4.000	* not found *			1		Meythlene Chloride
5.257	16672	BB	0.191	1	0.970	Trichloroethane
6.357	* not found *			1		Butanone
6.601	49076	BV	0.212	1	0.843	Benzene
7.558	20749	VB	0.217	1	1.078	Trichloroethylene
10.452	44069	BV	0.228	1	0.746	Toluene
13.896	41777	VV	0.238	1	0.628	Ethyl Benzene
14.519	23042	VV	0.218	1	0.315	m-Xylene
14.828	58830	VV	0.278	1	0.672	p-Xylene
15.646	39313	VV	0.334	1	0.401	o-Xylene
16.640	50688	VB	0.304	1	0.677	Styrene

Not all calibrated peaks were found



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External Standard Report

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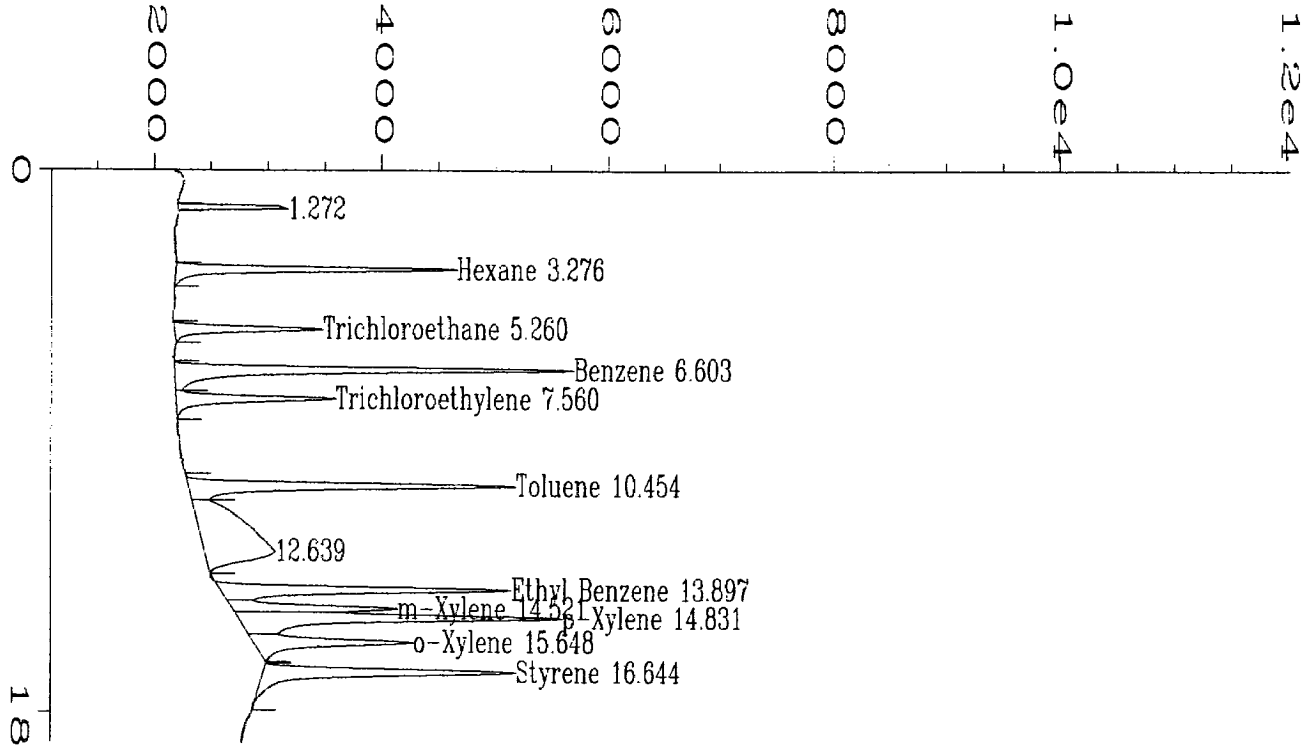
Data File Name	: D:\GC2\BAG1A_03.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 09:59 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:03 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG1A_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.274	29354	BB	0.179	1	0.601	Hexane
4.000	* not found *			1		Meythlene Chloride
5.258	16568	BB	0.190	1	0.964	Trichloroethane
6.357	* not found *			1		Butanone
6.601	49385	BV	0.211	1	0.848	Benzene
7.557	20613	VB	0.217	1	1.071	Trichloroethylene
10.450	43493	BV	0.226	1	0.736	Toluene
13.892	38753	PV	0.228	1	0.582	Ethyl Benzene
14.516	20276	VV	0.208	1	0.273	m-Xylene
14.826	50812	VV	0.256	1	0.568	p-Xylene
15.642	25699	VB	0.269	1	0.230	o-Xylene
16.637	38541	BB	0.261	1	0.509	Styrene

Not all calibrated peaks were found



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External Standard Report

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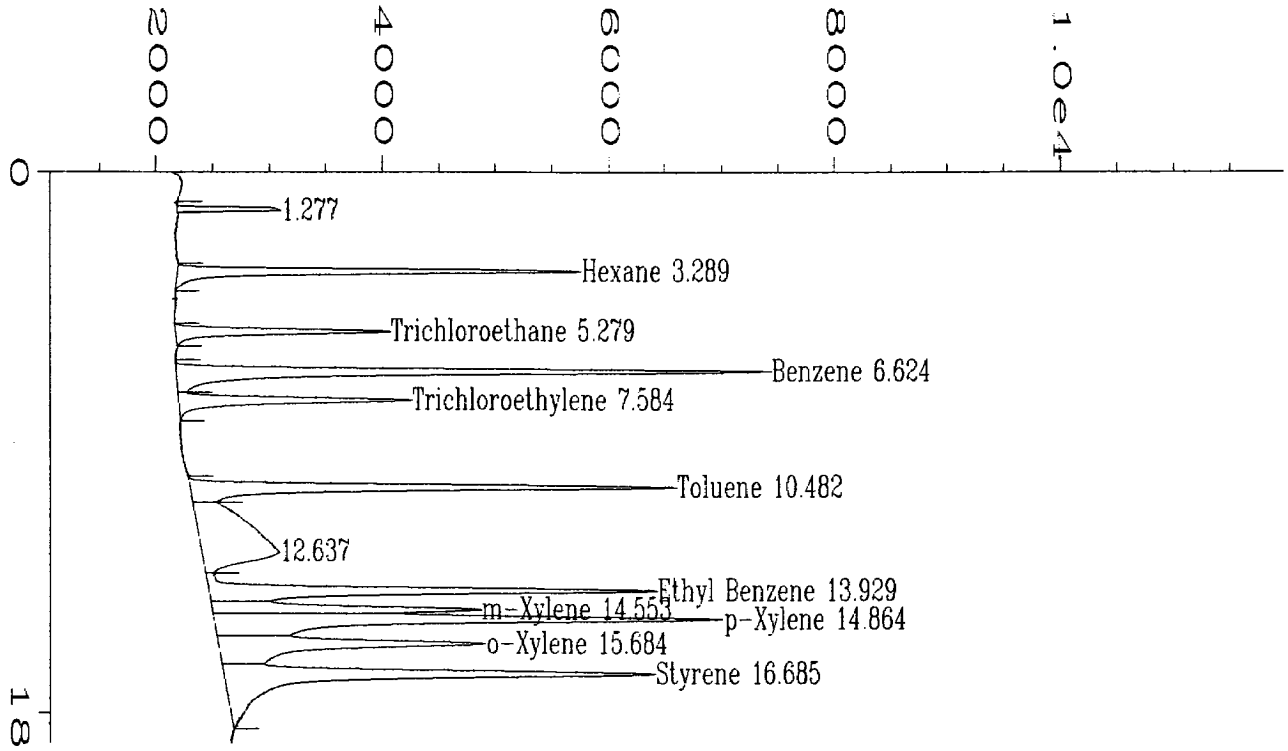
Data File Name : D:\GC2\BAG1A_04.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 21 May 97 10:25 AM
Report Created on: 24 Jun 97 01:03 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\BAG1A_04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.276	29131	BB	0.178	1	0.597	Hexane
4.000	* not found *			1		Meythlene Chloride
5.260	16435	BB	0.193	1	0.956	Trichloroethane
6.357	* not found *			1		Butanone
6.603	49898	BV	0.212	1	0.856	Benzene
7.560	20409	VB	0.216	1	1.060	Trichloroethylene
10.454	42657	BV	0.223	1	0.722	Toluene
13.897	37720	PV	0.226	1	0.566	Ethyl Benzene
14.521	20455	VV	0.212	1	0.276	m-Xylene
14.831	50257	VV	0.256	1	0.561	p-Xylene
15.648	25532	VB	0.269	1	0.228	o-Xylene
16.644	38546	BB	0.260	1	0.509	Styrene

Not all calibrated peaks were found



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External Standard Report

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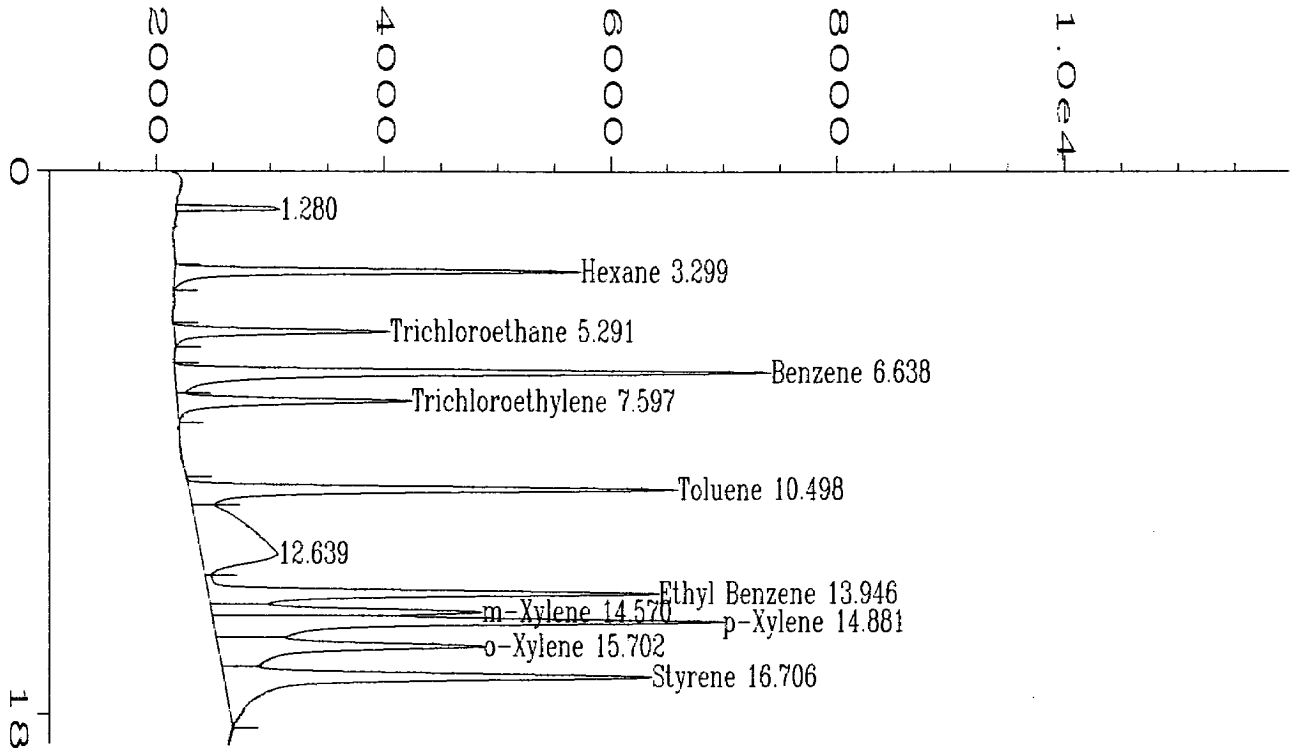
Data File Name : D:\GC2\BAG2A_01.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 21 May 97 12:11 PM
Report Created on: 24 Jun 97 01:05 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\BAG2A_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.289	42591	BB	0.176	1	0.869	Hexane
4.000	* not found *			1		Meythlene Chloride
5.279	24251	BB	0.194	1	1.401	Trichloroethane
6.357	* not found *			1		Butanone
6.624	75400	BV	0.215	1	1.279	Benzene
7.584	29944	VB	0.218	1	1.551	Trichloroethylene
10.482	64020	BV	0.224	1	1.083	Toluene
13.929	64092	VV	0.242	1	0.964	Ethyl Benzene
14.553	35019	VV	0.218	1	0.496	m-Xylene
14.864	86362	VV	0.274	1	1.027	p-Xylene
15.684	55281	VV	0.330	1	0.601	o-Xylene
16.685	87169	VB	0.327	1	1.185	Styrene

Not all calibrated peaks were found



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External Standard Report

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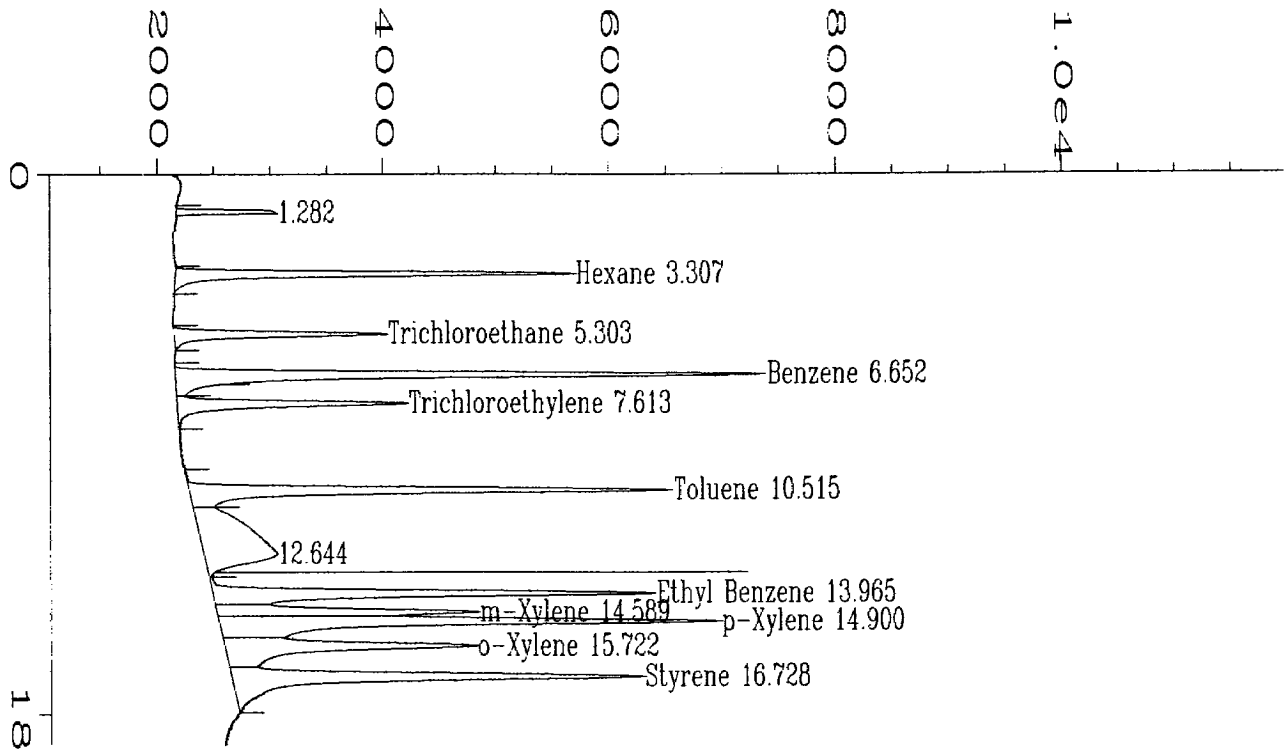
Data File Name : D:\GC2\BAG2A_02.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 21 May 97 12:37 PM
Report Created on: 24 Jun 97 01:06 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\BAG2A_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.299	42431	BB	0.181	1	0.865	Hexane
4.000	* not found *			1		Meythlene Chloride
5.291	24223	BB	0.195	1	1.399	Trichloroethane
6.357	* not found *			1		Butanone
6.638	75310	BV	0.215	1	1.278	Benzene
7.597	30098	VB	0.218	1	1.559	Trichloroethylene
10.498	64345	BV	0.226	1	1.088	Toluene
13.946	63860	VV	0.238	1	0.960	Ethyl Benzene
14.570	34647	VV	0.216	1	0.491	m-Xylene
14.881	84473	VV	0.270	1	1.002	p-Xylene
15.702	53571	VV	0.324	1	0.580	o-Xylene
16.706	82785	VB	0.316	1	1.124	Styrene

Not all calibrated peaks were found



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External Standard Report

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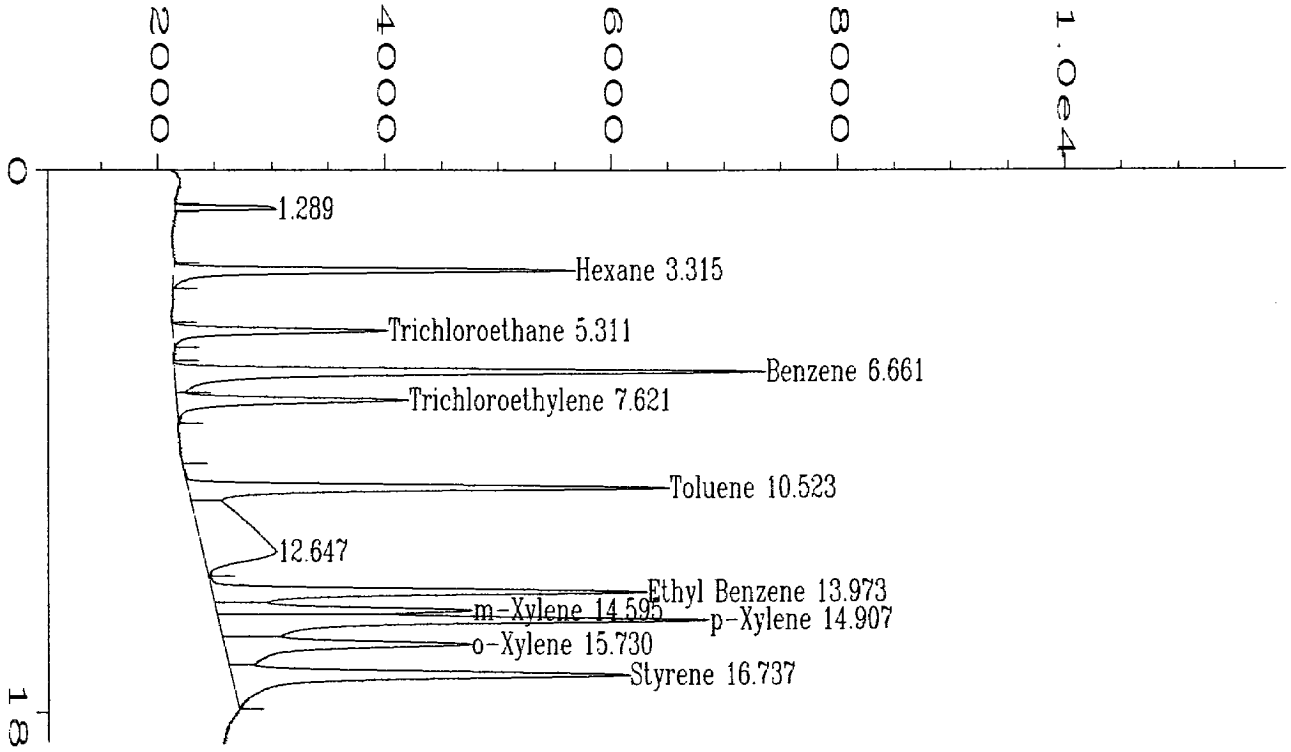
Data File Name	: D:\GC2\BAG2A_03.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 01:03 PM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:06 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG2A_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.307	42339	BB	0.170	1	0.864	Hexane
4.000	* not found *			1		Meythlene Chloride
5.303	24308	BB	0.196	1	1.404	Trichloroethane
6.357	* not found *			1		Butanone
6.652	74729	BV	0.215	1	1.268	Benzene
7.613	30258	VB	0.220	1	1.567	Trichloroethylene
10.515	64705	BV	0.226	1	1.094	Toluene
13.965	61995	VV	0.233	1	0.932	Ethyl Benzene
14.589	33880	VV	0.215	1	0.479	m-Xylene
14.900	82299	VV	0.266	1	0.974	p-Xylene
15.722	49638	VV	0.316	1	0.530	o-Xylene
16.728	72790	VB	0.294	1	0.985	Styrene

Not all calibrated peaks were found



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External Standard Report

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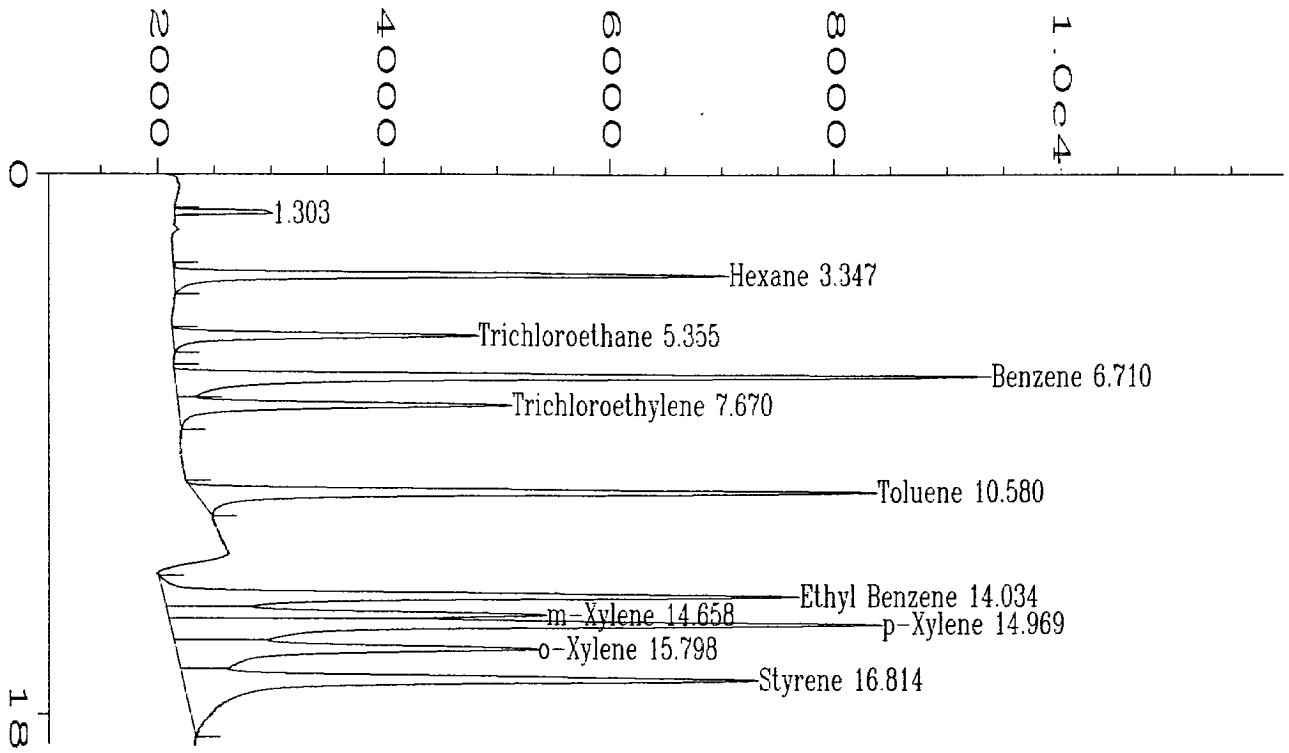
Data File Name : D:\GC2\BAG2A_04.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 21 May 97 01:32 PM
Report Created on: 24 Jun 97 01:06 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\BAG2A_04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.315	42281	BB	0.182	1	0.862	Hexane
4.000	* not found *			1		Meythlene Chloride
5.311	24425	BB	0.195	1	1.410	Trichloroethane
6.357	* not found *			1		Butanone
6.661	74752	BV	0.214	1	1.269	Benzene
7.621	29851	VB	0.219	1	1.546	Trichloroethylene
10.523	62540	BV	0.223	1	1.058	Toluene
13.973	59936	VV	0.231	1	0.901	Ethyl Benzene
14.595	33073	VV	0.215	1	0.467	m-Xylene
14.907	80387	VV	0.266	1	0.950	p-Xylene
15.730	47060	VV	0.309	1	0.498	o-Xylene
16.737	68910	VB	0.291	1	0.931	Styrene

Not all calibrated peaks were found



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External Standard Report

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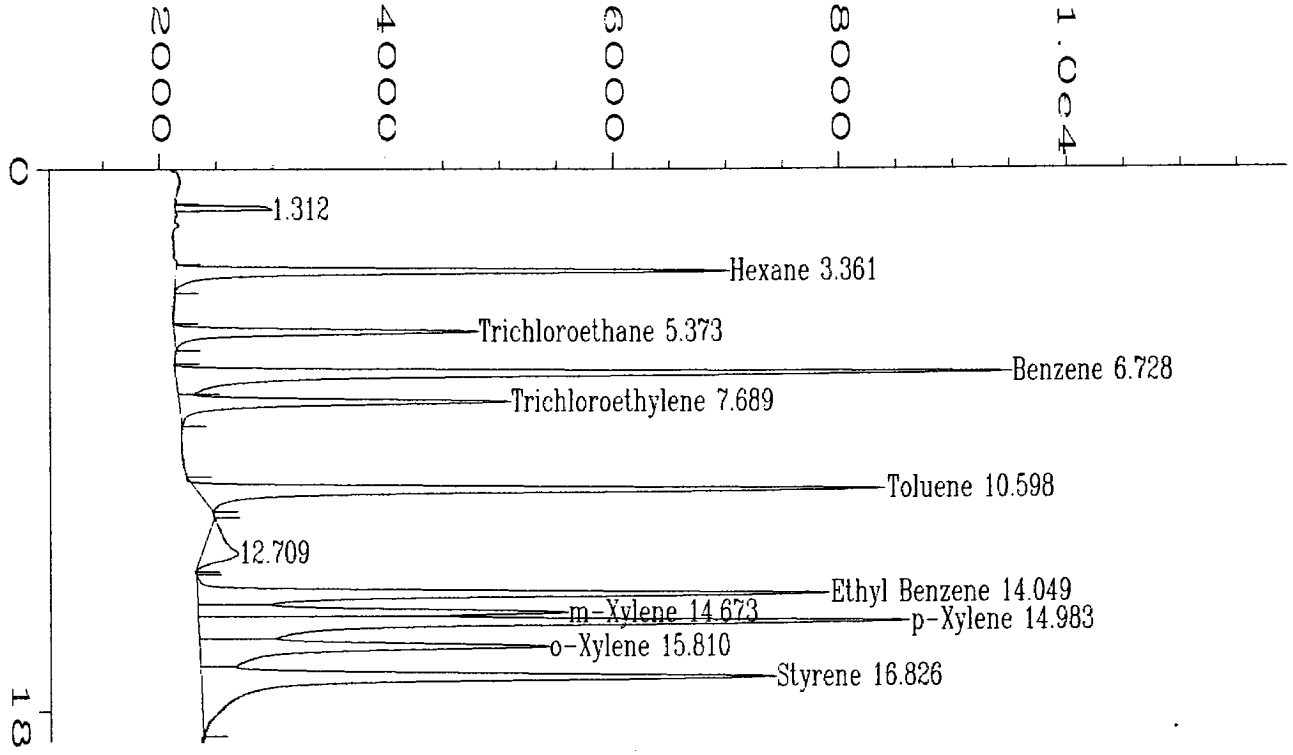
Data File Name	: D:\GC2\BAG3A_1.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 02:52 PM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:09 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG3A_1.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.347	60010	BB	0.186	1	1.220	Hexane
4.000	* not found *			1		Meythlene Chloride
5.355	34746	BB	0.198	1	1.997	Trichloroethane
6.357	* not found *			1		Butanone
6.710	103471	BV	0.212	1	1.745	Benzene
7.670	43924	VB	0.221	1	2.271	Trichloroethylene
10.580	87557	BB	0.218	1	1.481	Toluene
14.034	91463	BV	0.241	1	1.376	Ethyl Benzene
14.658	49873	VV	0.221	1	0.721	m-Xylene
14.969	117941	VV	0.267	1	1.434	p-Xylene
15.798	72938	VV	0.322	1	0.823	o-Xylene
16.814	114328	VB	0.322	1	1.562	Styrene

Not all calibrated peaks were found



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External Standard Report

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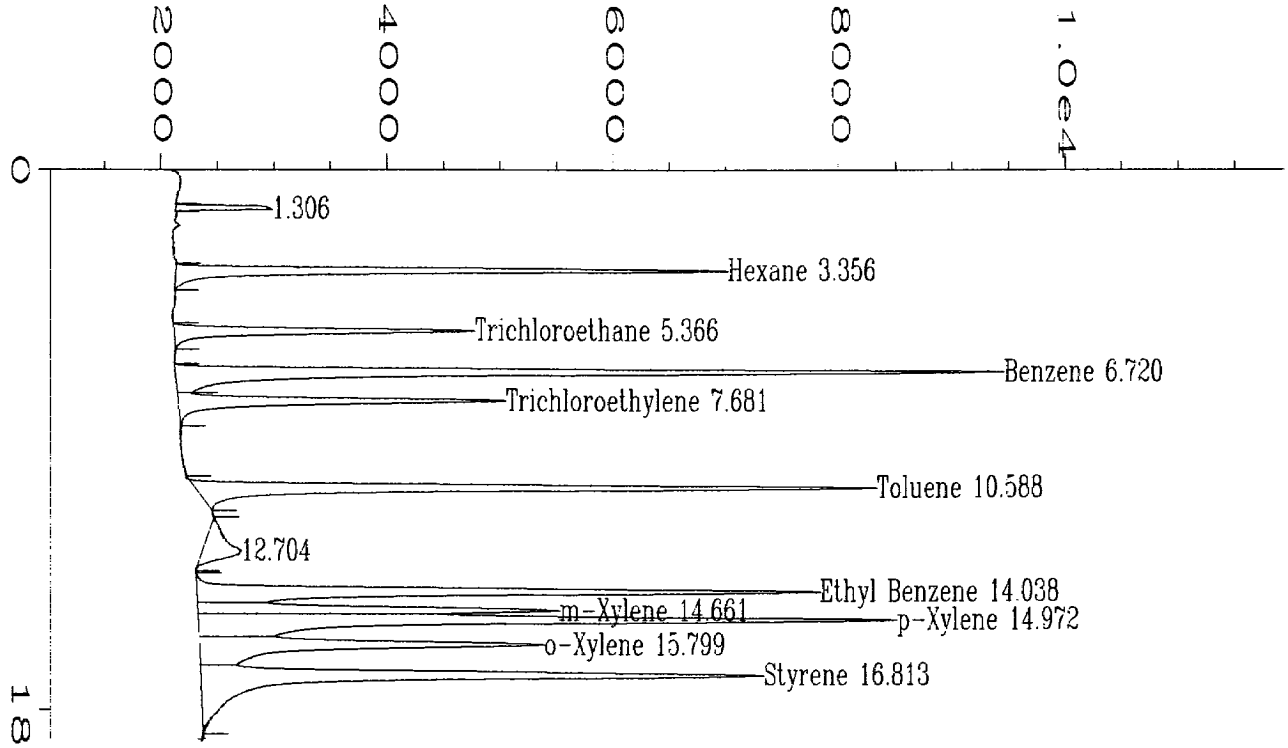
Data File Name : D:\GC2\BAG3A_3.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 21 May 97 03:48 PM
Report Created on: 24 Jun 97 01:09 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\BAG3A_3.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.361	59737	BB	0.181	1	1.215	Hexane
4.000	* not found *			1		Meythlene Chloride
5.373	34966	BB	0.198	1	2.009	Trichloroethane
6.357	* not found *			1		Butanone
6.728	105674	BV	0.213	1	1.782	Benzene
7.689	43649	VB	0.223	1	2.257	Trichloroethylene
10.598	87650	BB	0.218	1	1.482	Toluene
14.049	87445	BV	0.235	1	1.315	Ethyl Benzene
14.673	46714	VV	0.214	1	0.673	m-Xylene
14.983	114408	VV	0.262	1	1.389	p-Xylene
15.810	65602	VV	0.303	1	0.731	o-Xylene
16.826	109331	VB	0.311	1	1.493	Styrene

Not all calibrated peaks were found



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External Standard Report

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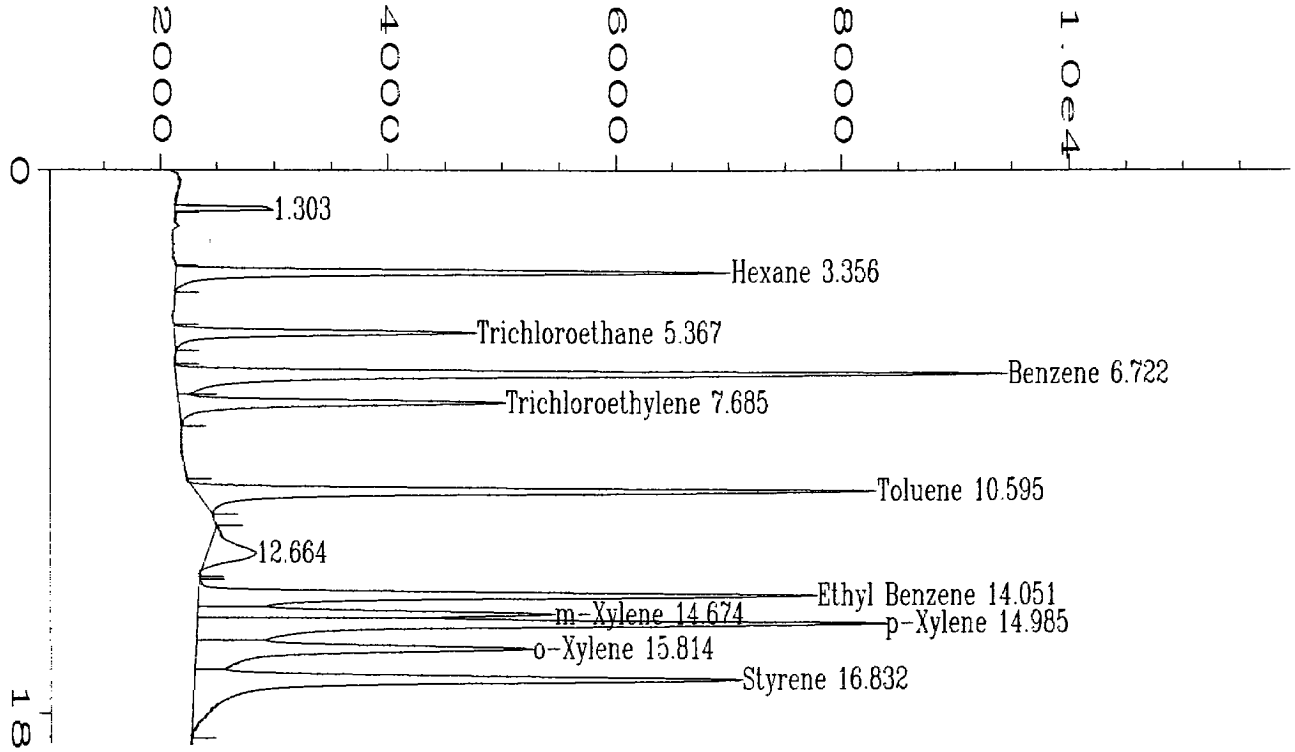
Data File Name	: D:\GC2\BAG3A_4.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 04:14 PM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:09 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG3A_4.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.356	59009	BB	0.179	1	1.200	Hexane
4.000	* not found *			1		Meythlene Chloride
5.366	34353	BB	0.195	1	1.975	Trichloroethane
6.357	* not found *			1		Butanone
6.720	104163	BV	0.211	1	1.757	Benzene
7.681	42675	VB	0.216	1	2.207	Trichloroethylene
10.588	86554	BB	0.217	1	1.464	Toluene
14.038	85793	BV	0.234	1	1.290	Ethyl Benzene
14.661	45864	VV	0.215	1	0.660	m-Xylene
14.972	112569	VV	0.262	1	1.365	p-Xylene
15.799	64729	VV	0.303	1	0.720	o-Xylene
16.813	106841	VB	0.310	1	1.458	Styrene

Not all calibrated peaks were found



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External Standard Report

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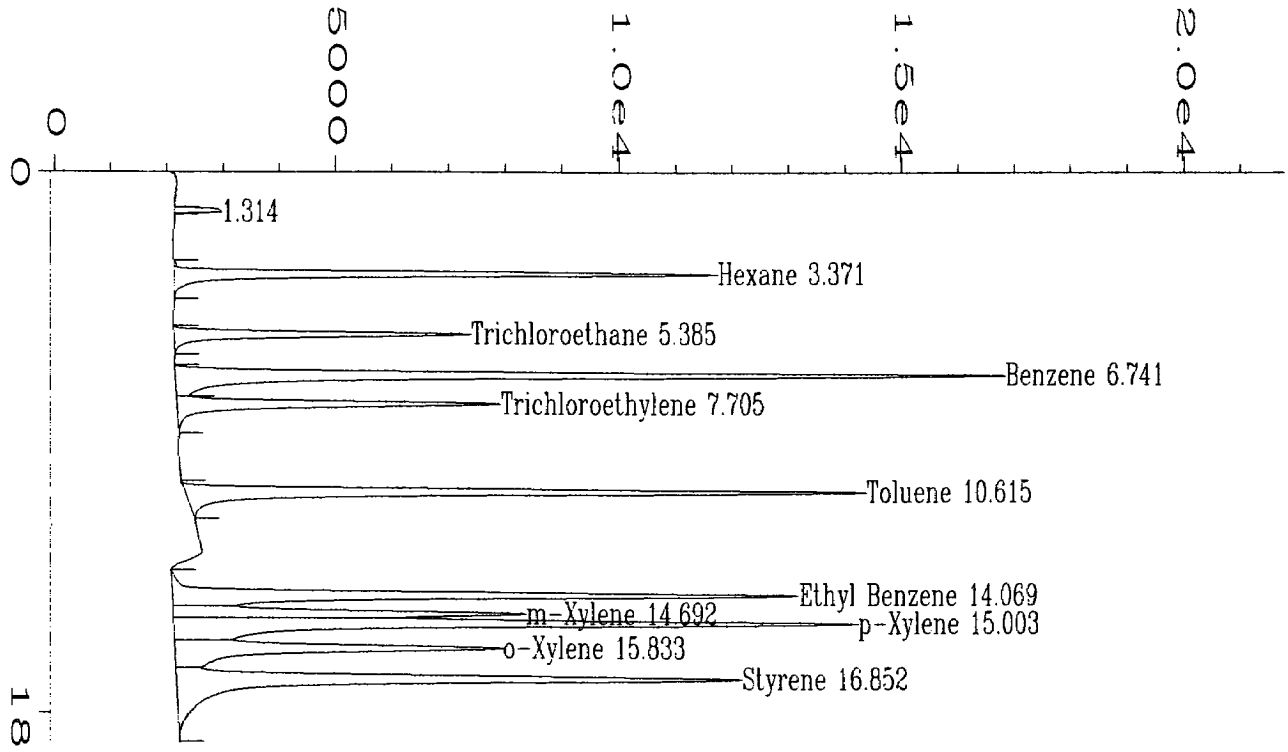
Data File Name : D:\GC2\BAG3A_5.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 21 May 97 04:40 PM
Report Created on: 24 Jun 97 01:10 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\BAG3A_5.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.356	58744	BB	0.178	1	1.195	Hexane
4.000	* not found *			1		Meythlene Chloride
5.367	34406	BB	0.193	1	1.978	Trichloroethane
6.357	* not found *			1		Butanone
6.722	104462	BV	0.212	1	1.762	Benzene
7.685	41910	VB	0.217	1	2.167	Trichloroethylene
10.595	86043	BB	0.217	1	1.455	Toluene
14.051	84265	BV	0.233	1	1.267	Ethyl Benzene
14.674	44873	VV	0.215	1	0.645	m-Xylene
14.985	109186	VV	0.260	1	1.321	p-Xylene
15.814	61538	VV	0.298	1	0.680	o-Xylene
16.832	101549	VB	0.307	1	1.384	Styrene

Not all calibrated peaks were found



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External Standard Report

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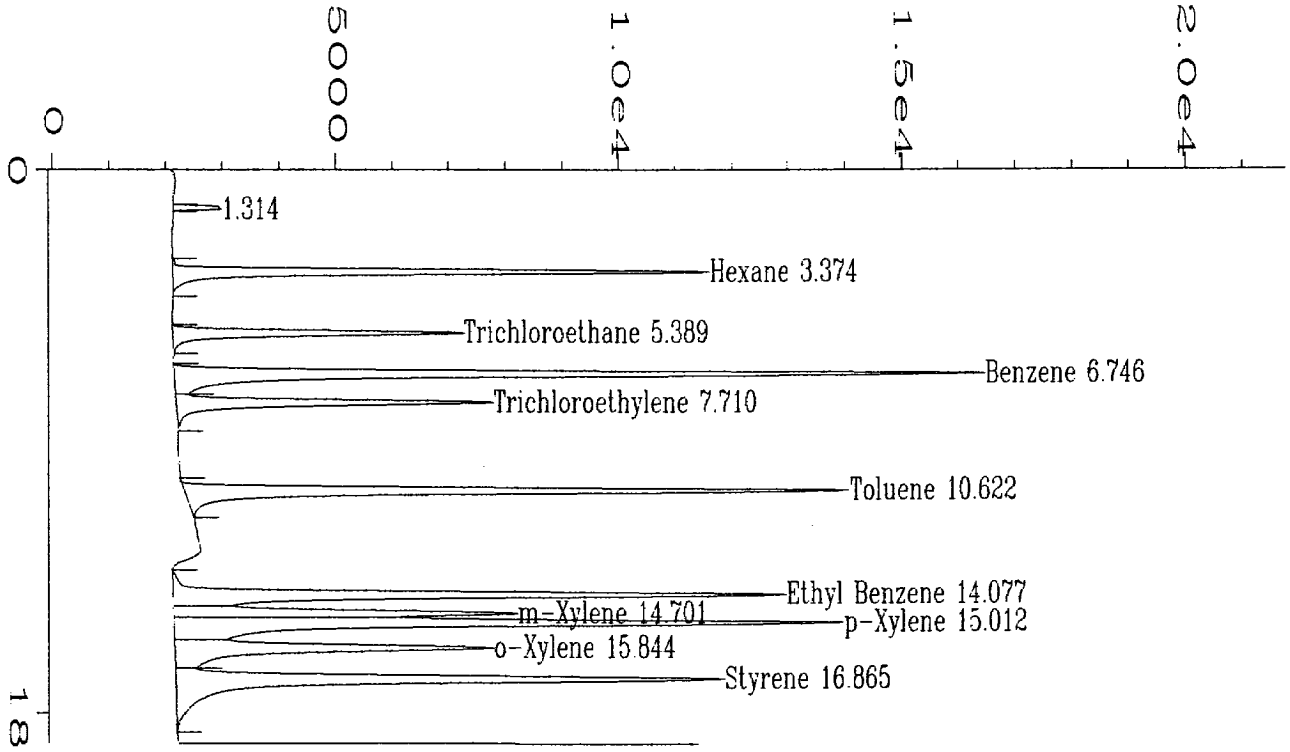
Data File Name	: D:\GC2\BAG4A_1.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 05:08 PM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:11 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG4A_1.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.371	118737	BB	0.181	1	2.405	Hexane
4.000	* not found *			1		Meythlene Chloride
5.385	68404	BB	0.200	1	3.909	Trichloroethane
6.357	* not found *			1		Butanone
6.741	211343	BV	0.213	1	3.534	Benzene
7.705	84545	VB	0.218	1	4.363	Trichloroethylene
10.615	173411	BB	0.218	1	2.931	Toluene
14.069	173049	BV	0.234	1	2.604	Ethyl Benzene
14.692	88105	VV	0.211	1	1.299	m-Xylene
15.003	210895	VV	0.253	1	2.634	p-Xylene
15.833	115610	VV	0.288	1	1.359	o-Xylene
16.852	203597	VBA	0.299	1	2.803	Styrene

Not all calibrated peaks were found



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External Standard Report

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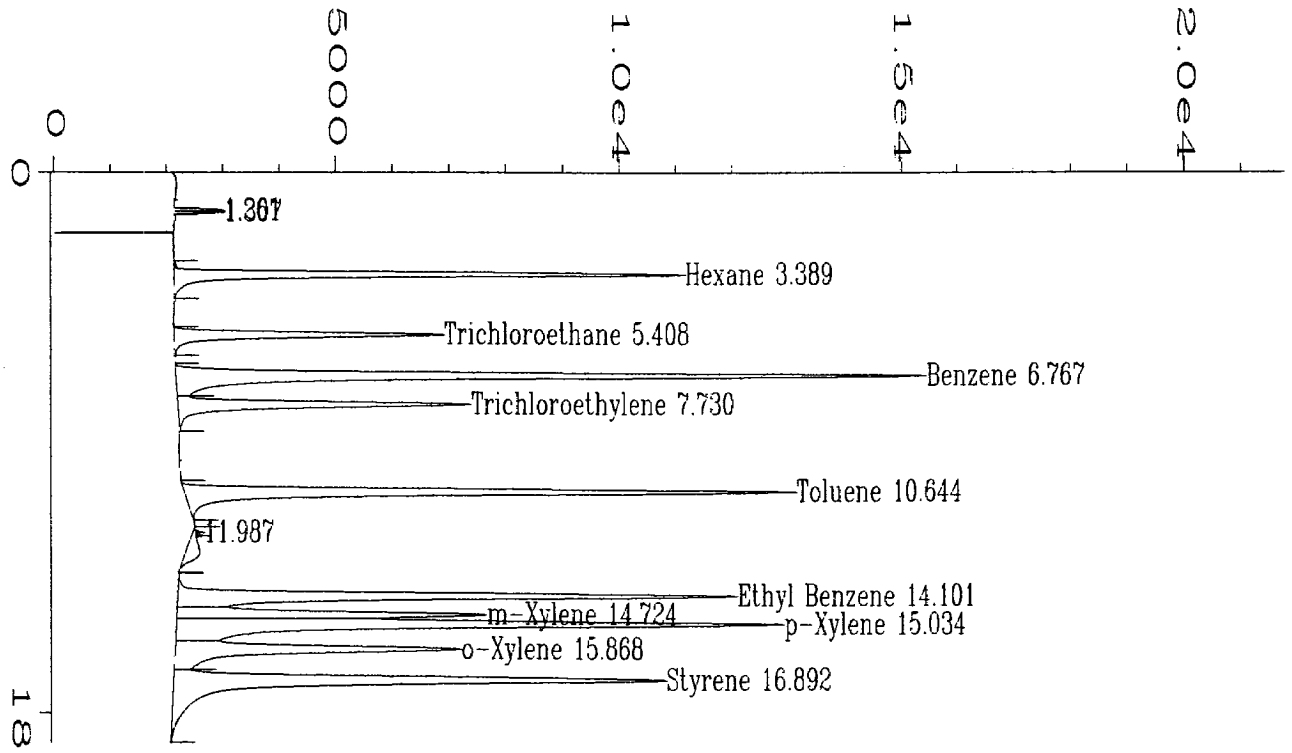
Data File Name	: D:\GC2\BAG4A_2.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 05:35 PM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:11 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG4A_2.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.374	115150	BB	0.180	1	2.333	Hexane
4.000	* not found *			1		Meythlene Chloride
5.389	66520	BB	0.198	1	3.802	Trichloroethane
6.357	* not found *			1		Butanone
6.746	205153	BV	0.212	1	3.432	Benzene
7.710	82479	VB	0.218	1	4.257	Trichloroethylene
10.622	168360	BB	0.217	1	2.846	Toluene
14.077	168818	BV	0.233	1	2.541	Ethyl Benzene
14.701	85083	VV	0.210	1	1.253	m-Xylene
15.012	204150	VV	0.251	1	2.547	p-Xylene
15.844	110230	VV	0.285	1	1.291	o-Xylene
16.865	191534	VB	0.291	1	2.635	Styrene

Not all calibrated peaks were found



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External Standard Report

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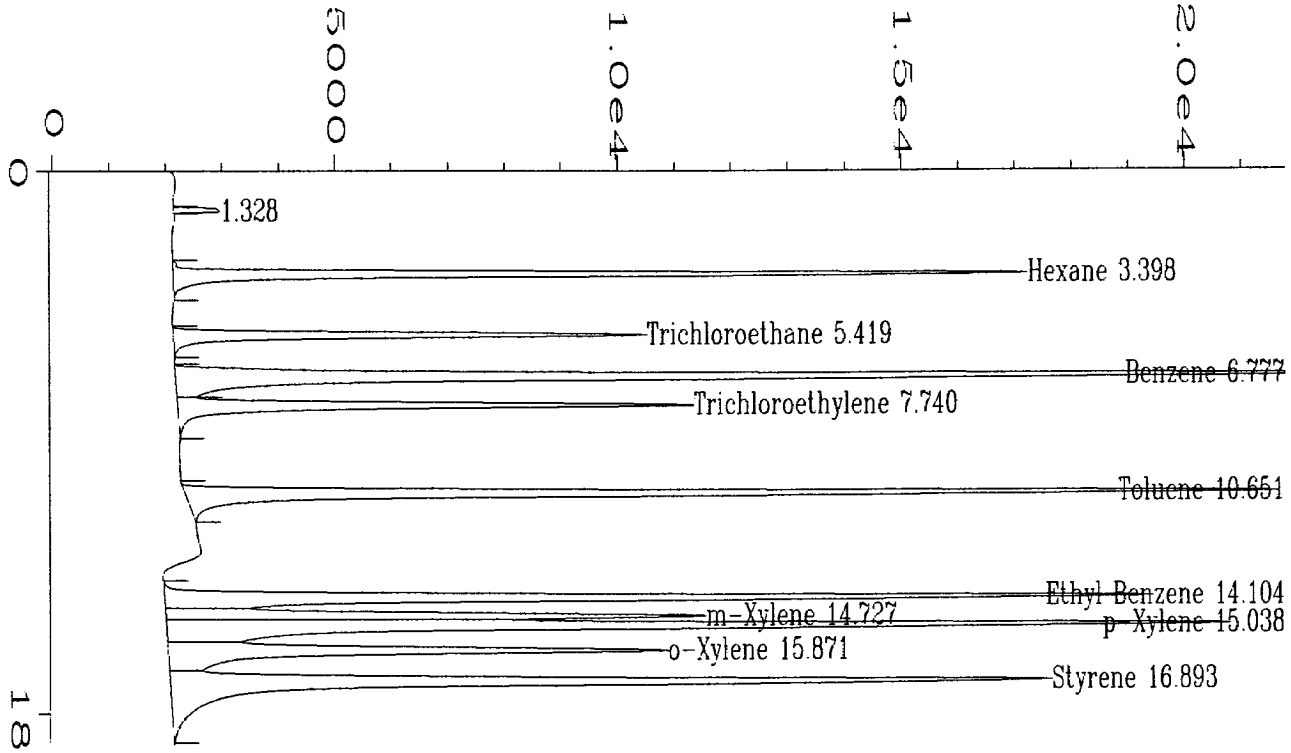
Data File Name	: D:\GC2\BAG4A_4.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 06:27 PM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:12 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG4A_4.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.389	105993	BB	0.171	1	2.148	Hexane
4.000	* not found *			1		Meythlene Chloride
5.408	61218	BB	0.192	1	3.501	Trichloroethane
6.357	* not found *			1		Butanone
6.767	190599	BV	0.214	1	3.190	Benzene
7.730	76050	VB	0.220	1	3.926	Trichloroethylene
10.644	155074	BB	0.217	1	2.621	Toluene
14.101	150284	BV	0.231	1	2.262	Ethyl Benzene
14.724	76290	VV	0.209	1	1.121	m-Xylene
15.034	183448	VV	0.250	1	2.280	p-Xylene
15.868	96536	VV	0.279	1	1.119	o-Xylene
16.892	174271	VBA	0.295	1	2.395	Styrene

Not all calibrated peaks were found



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External Standard Report

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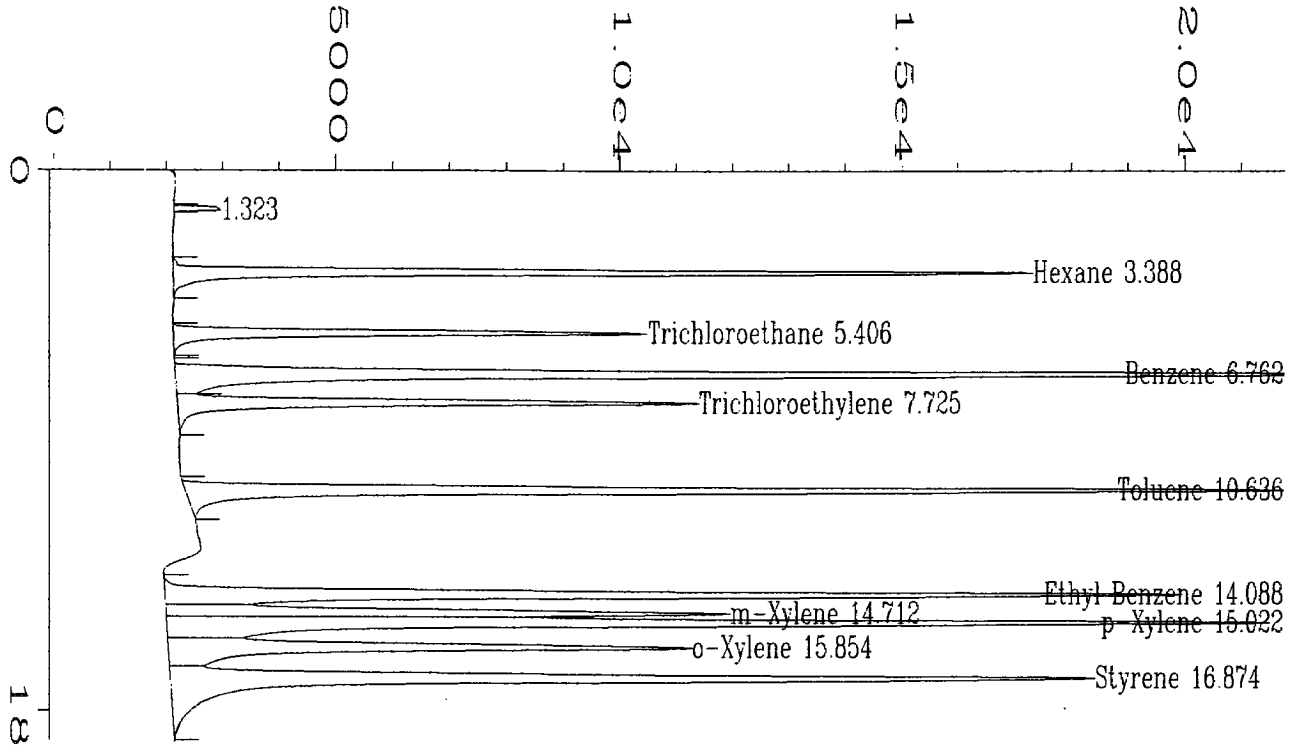
Data File Name : D:\GC2\BAG5A_1.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 21 May 97 07:49 PM
Report Created on: 24 Jun 97 01:13 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\BAG5A_1.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.398	187715	BB	0.195	1	3.797	Hexane
4.000	* not found *			1		Meythlene Chloride
5.419	108688	BB	0.198	1	6.198	Trichloroethane
6.357	* not found *			1		Butanone
6.777	338995	BV	0.214	1	5.652	Benzene
7.740	134367	VB	0.220	1	6.929	Trichloroethylene
10.651	275424	BB	0.216	1	4.655	Toluene
14.104	262790	BV	0.228	1	3.956	Ethyl Benzene
14.727	132644	VV	0.208	1	1.973	m-Xylene
15.038	316558	VV	0.247	1	3.997	p-Xylene
15.871	169647	VV	0.279	1	2.037	o-Xylene
16.893	310954	VBA	0.294	1	4.295	Styrene

Not all calibrated peaks were found



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External Standard Report

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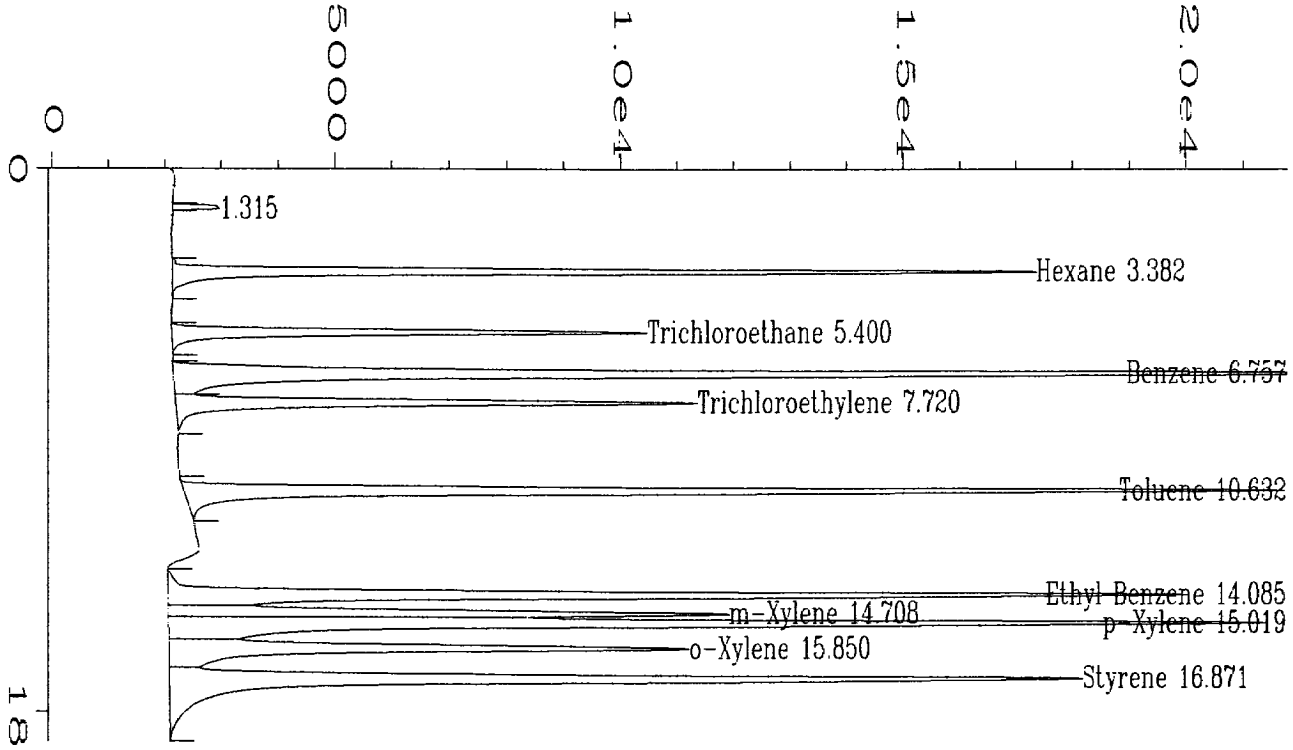
Data File Name	: D:\GC2\BAG5A_2.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 08:17 PM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:14 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG5A_2.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.388	188224	BB	0.194	1	3.808	Hexane
4.000	* not found *			1		Meythlene Chloride
5.406	108679	BB	0.199	1	6.198	Trichloroethane
6.357	* not found *			1		Butanone
6.762	337983	BV	0.213	1	5.635	Benzene
7.725	136028	VB	0.221	1	7.014	Trichloroethylene
10.636	278416	BB	0.217	1	4.705	Toluene
14.088	271674	BV	0.228	1	4.090	Ethyl Benzene
14.712	137985	VV	0.208	1	2.054	m-Xylene
15.022	327152	VV	0.246	1	4.134	p-Xylene
15.854	176488	VV	0.279	1	2.123	o-Xylene
16.874	326027	VBA	0.293	1	4.505	Styrene

Not all calibrated peaks were found



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External Standard Report

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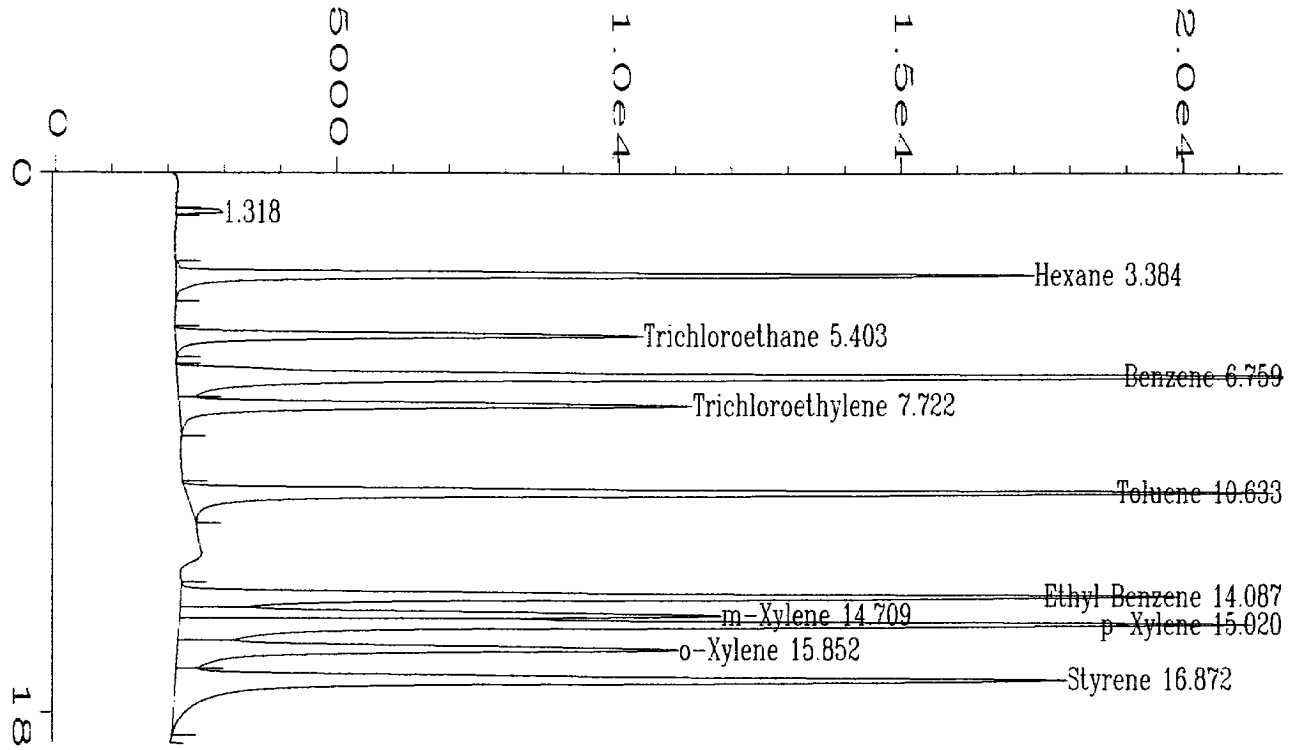
Data File Name	: D:\GC2\BAG5A_3.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 08:44 PM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:14 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG5A_3.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.382	187099	BB	0.189	1	3.785	Hexane
4.000	* not found *			1		Meythlene Chloride
5.400	108539	BB	0.195	1	6.190	Trichloroethane
6.357	* not found *			1		Butanone
6.757	337451	BV	0.214	1	5.626	Benzene
7.720	134589	VB	0.220	1	6.940	Trichloroethylene
10.632	276870	BB	0.217	1	4.679	Toluene
14.085	272598	BV	0.229	1	4.104	Ethyl Benzene
14.708	136085	VV	0.207	1	2.025	m-Xylene
15.019	321897	VV	0.244	1	4.066	p-Xylene
15.850	171904	VV	0.275	1	2.065	o-Xylene
16.871	316455	VBA	0.290	1	4.372	Styrene

Not all calibrated peaks were found



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External Standard Report

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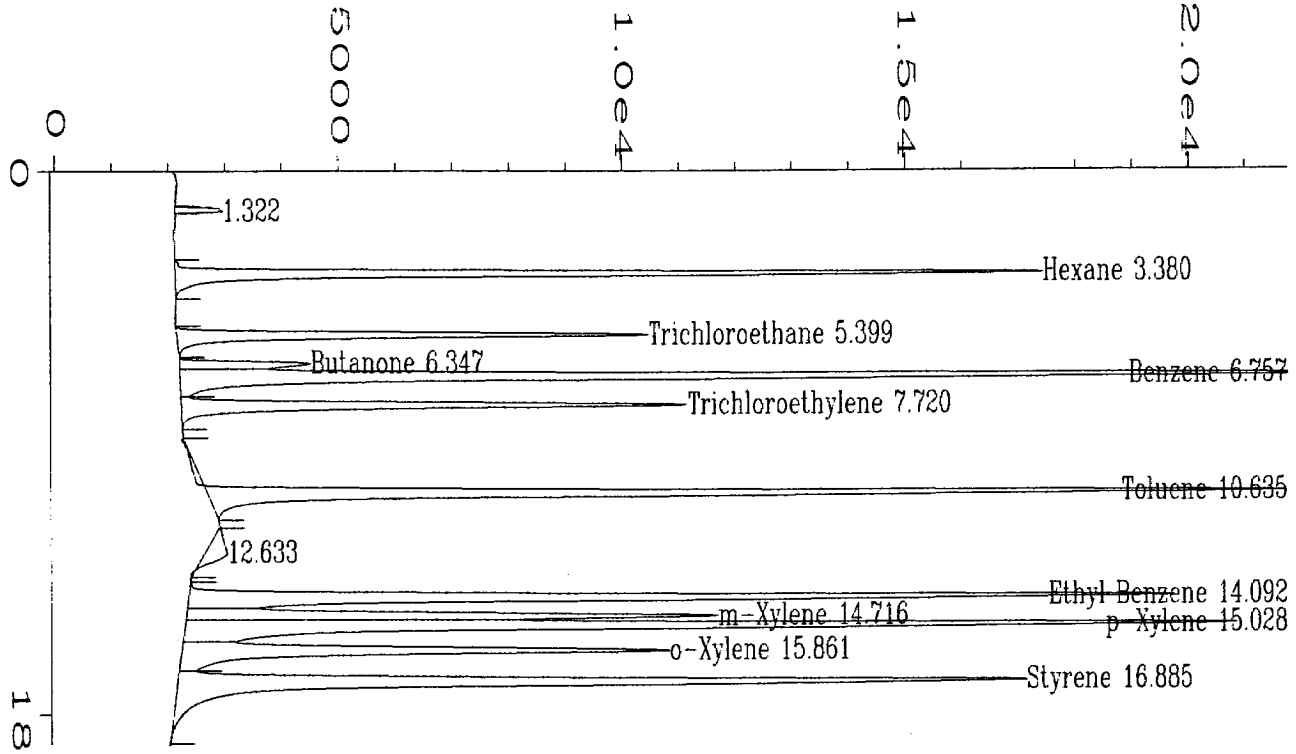
Data File Name	: D:\GC2\BAG5A_4.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 09:10 PM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:14 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG5A_4.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.384	185662	BB	0.187	1	3.756	Hexane
4.000	* not found *			1		Meythlene Chloride
5.403	107584	BB	0.200	1	6.136	Trichloroethane
6.357	* not found *			1		Butanone
6.759	335293	BV	0.214	1	5.590	Benzene
7.722	132860	VB	0.218	1	6.851	Trichloroethylene
10.633	274904	BB	0.217	1	4.646	Toluene
14.087	261390	BV	0.224	1	3.935	Ethyl Benzene
14.709	130577	VV	0.204	1	1.942	m-Xylene
15.020	309156	VV	0.240	1	3.902	p-Xylene
15.852	160225	VV	0.266	1	1.919	o-Xylene
16.872	300189	VB	0.282	1	4.146	Styrene

Not all calibrated peaks were found



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External Standard Report

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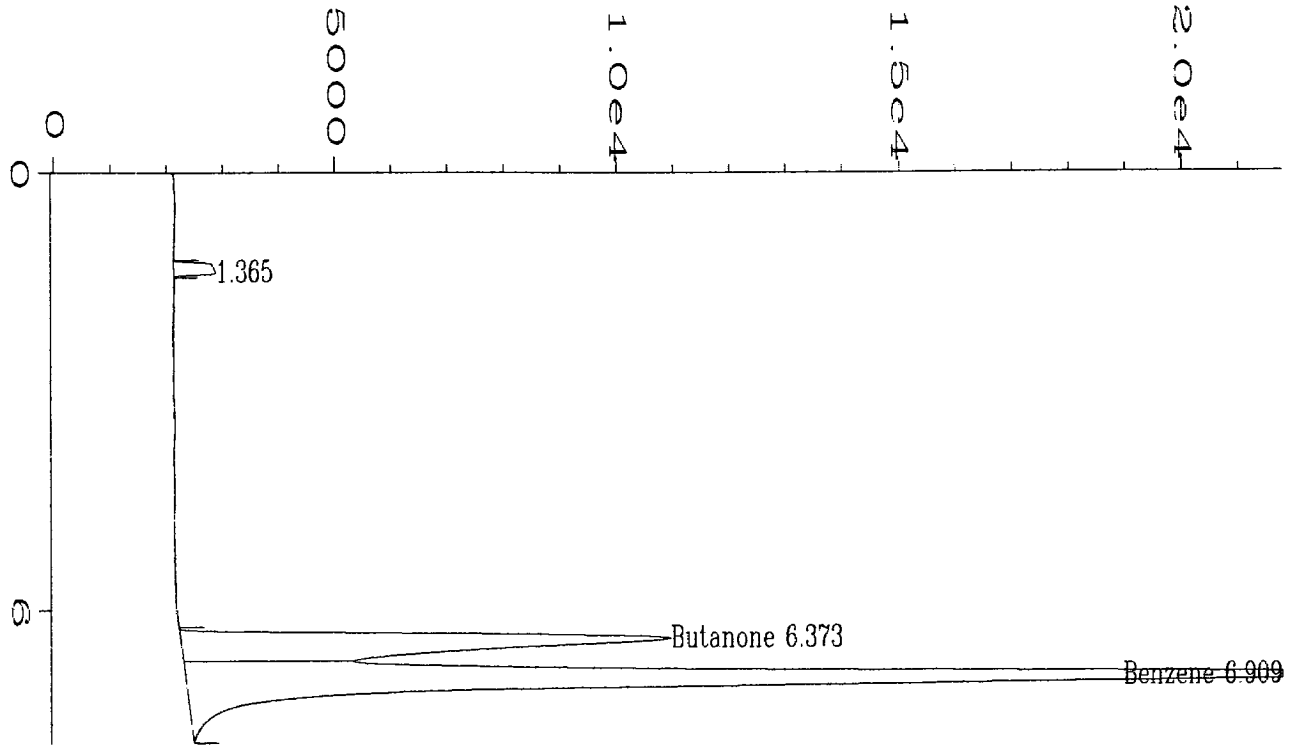
Data File Name	: D:\GC2\BAG5A_5.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 10:19 PM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:14 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG5A_5.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.380	186927	BB	0.188	1	3.781	Hexane
4.000	* not found *			1		Meythlene Chloride
5.399	107776	BB	0.199	1	6.147	Trichloroethane
6.347	32101	BV	0.214	1	1.532	Butanone
6.757	309136	VV	0.206	1	5.156	Benzene
7.720	126224	VB	0.213	1	6.509	Trichloroethylene
10.635	263164	BB	0.211	1	4.447	Toluene
14.092	258456	BV	0.225	1	3.891	Ethyl Benzene
14.716	127442	VV	0.205	1	1.894	m-Xylene
15.028	301240	VV	0.240	1	3.799	p-Xylene
15.861	152268	VV	0.263	1	1.819	o-Xylene
16.885	279314	VBA	0.278	1	3.856	Styrene

Not all calibrated peaks were found



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External Standard Report

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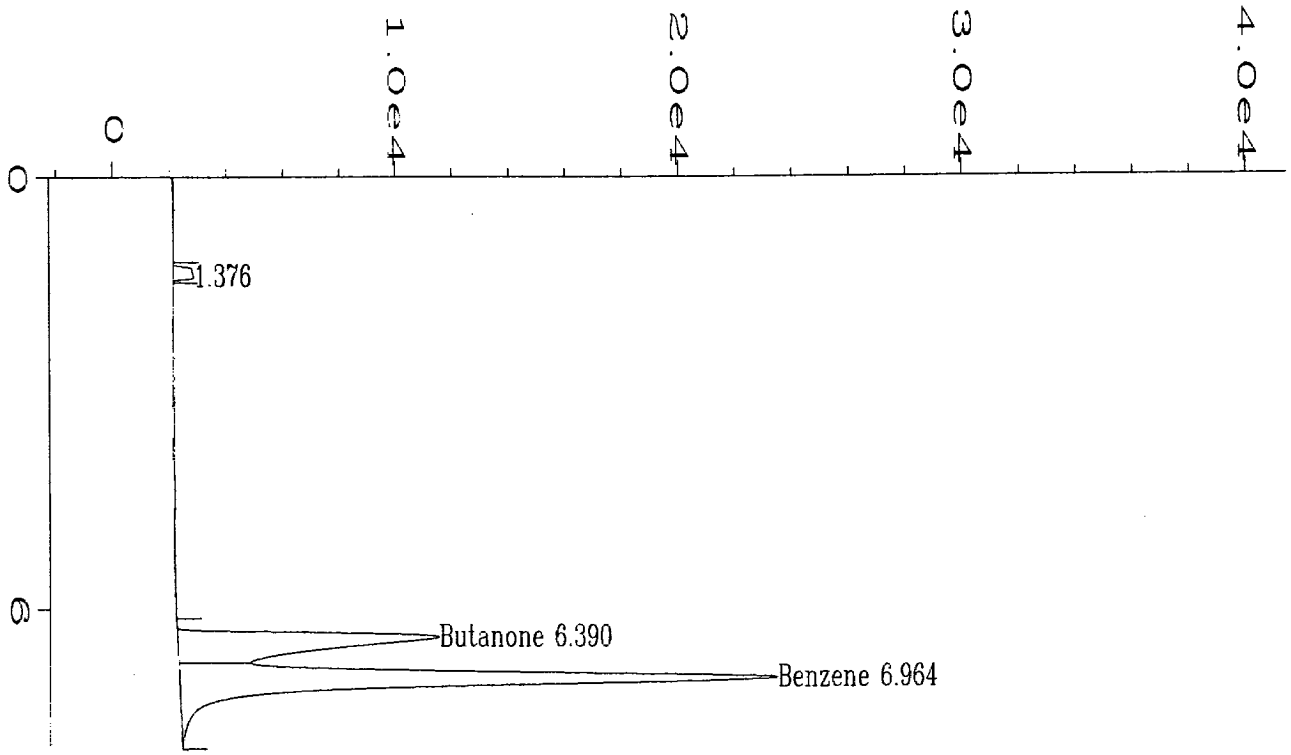
Data File Name	: D:\GC2\BAG1B_4.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 11:24 PM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:05 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG1B_4.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
4.000	* not found *			1		Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.373	139667	BV	0.222	1	6.609	Butanone
6.909	338262	VV	0.214	1	5.639	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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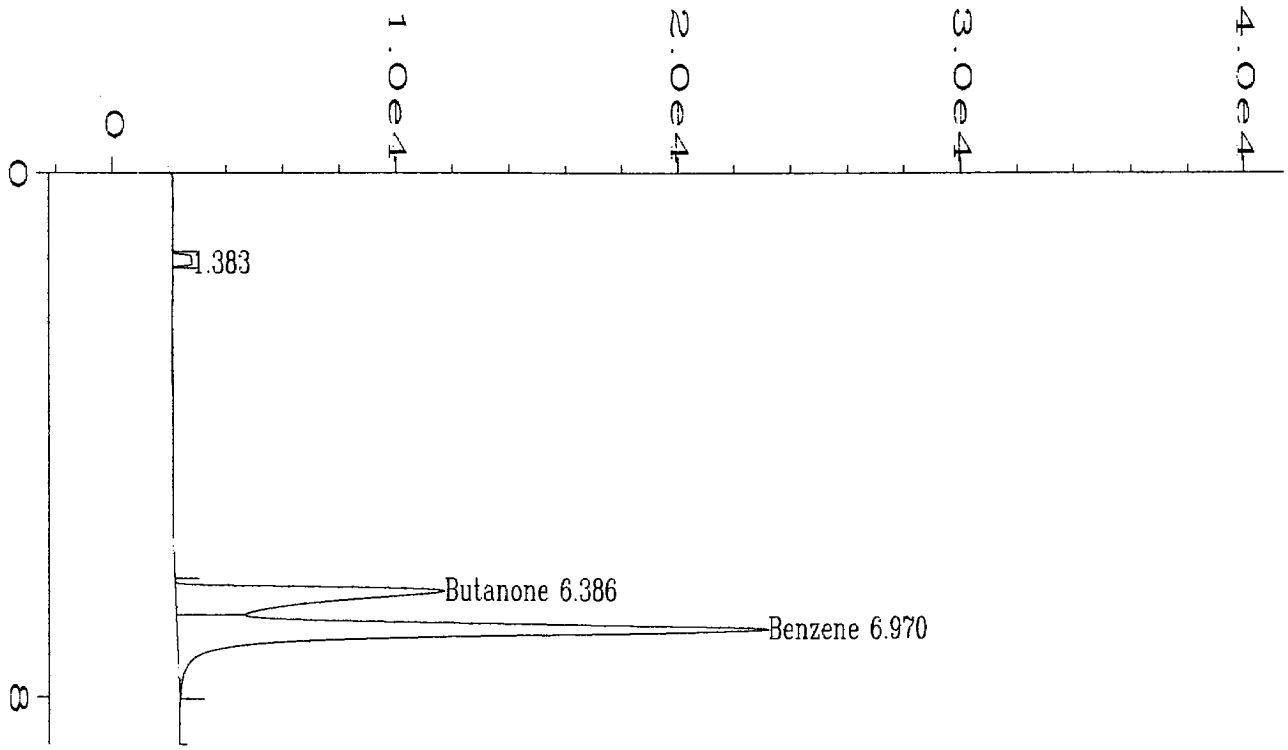
Data File Name	: D:\GC2\BAG1B_5.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 21 May 97 11:49 PM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:05 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG1B_5.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
4.000	* not found *			1		Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.390	150712	BV	0.226	1	7.130	Butanone
6.964	305072	VBA	0.214	1	5.089	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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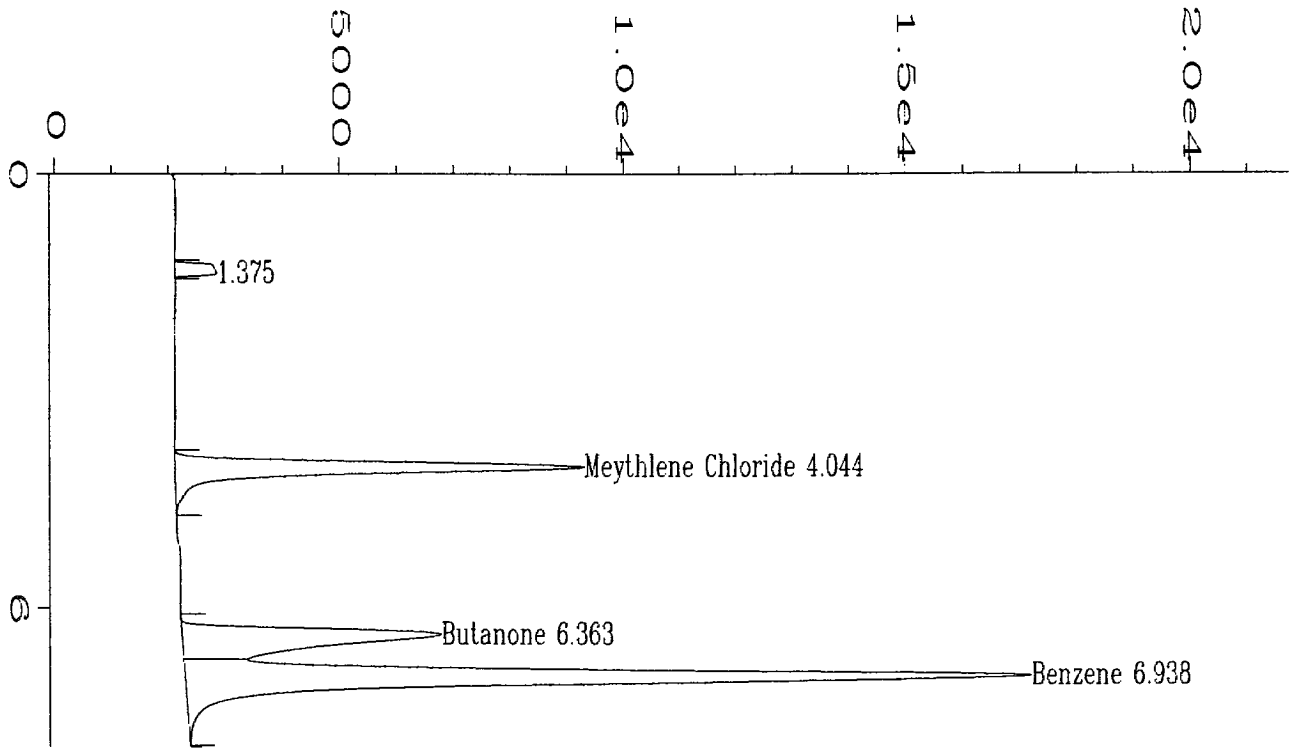
Data File Name	: D:\GC2\BAG1B_6.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 00:01 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:05 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG1B_6.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
4.000	* not found *			1		Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.386	154349	BV	0.226	1	7.302	Butanone
6.970	300137	VB	0.213	1	5.007	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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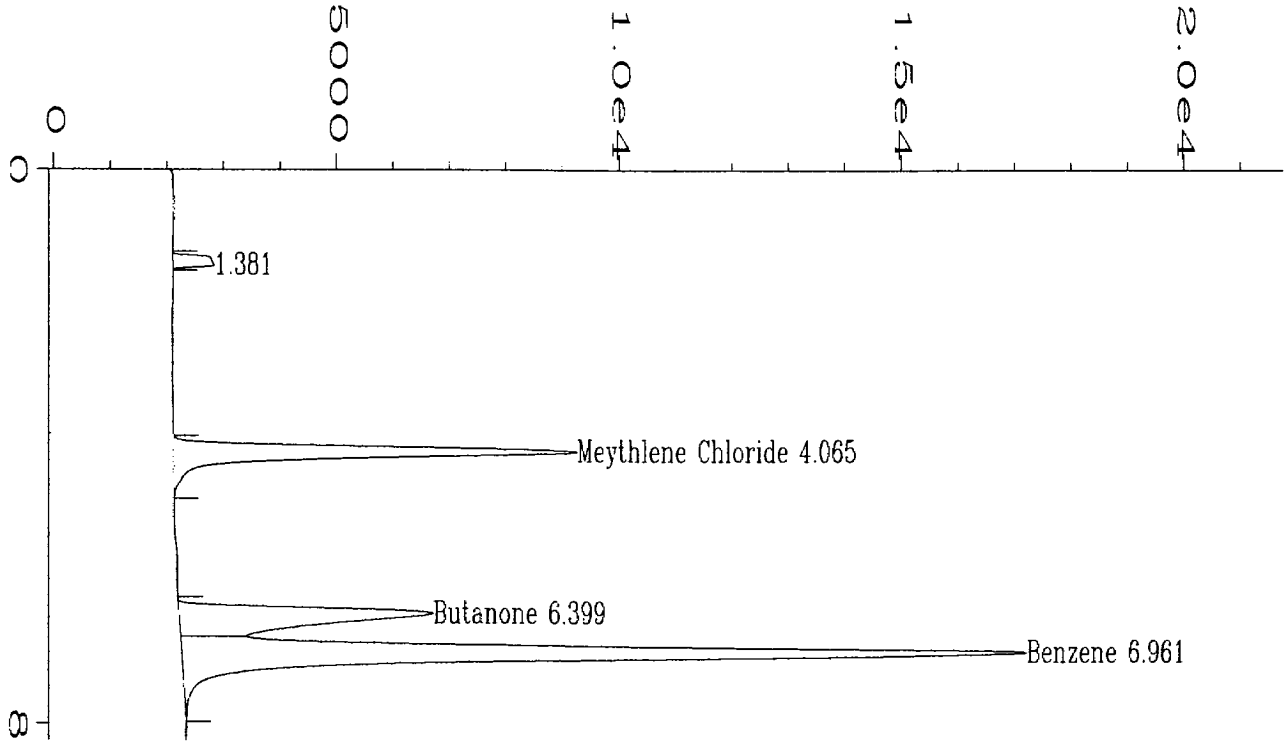
Data File Name : D:\GC2\BAG2B_4.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 22 May 97 08:21 AM
Report Created on: 24 Jun 97 01:07 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\BAG2B_4.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
4.044	79084	BB	0.167	1	10.552	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.363	75537	BV	0.244	1	3.582	Butanone
6.938	207469	VBA	0.209	1	3.470	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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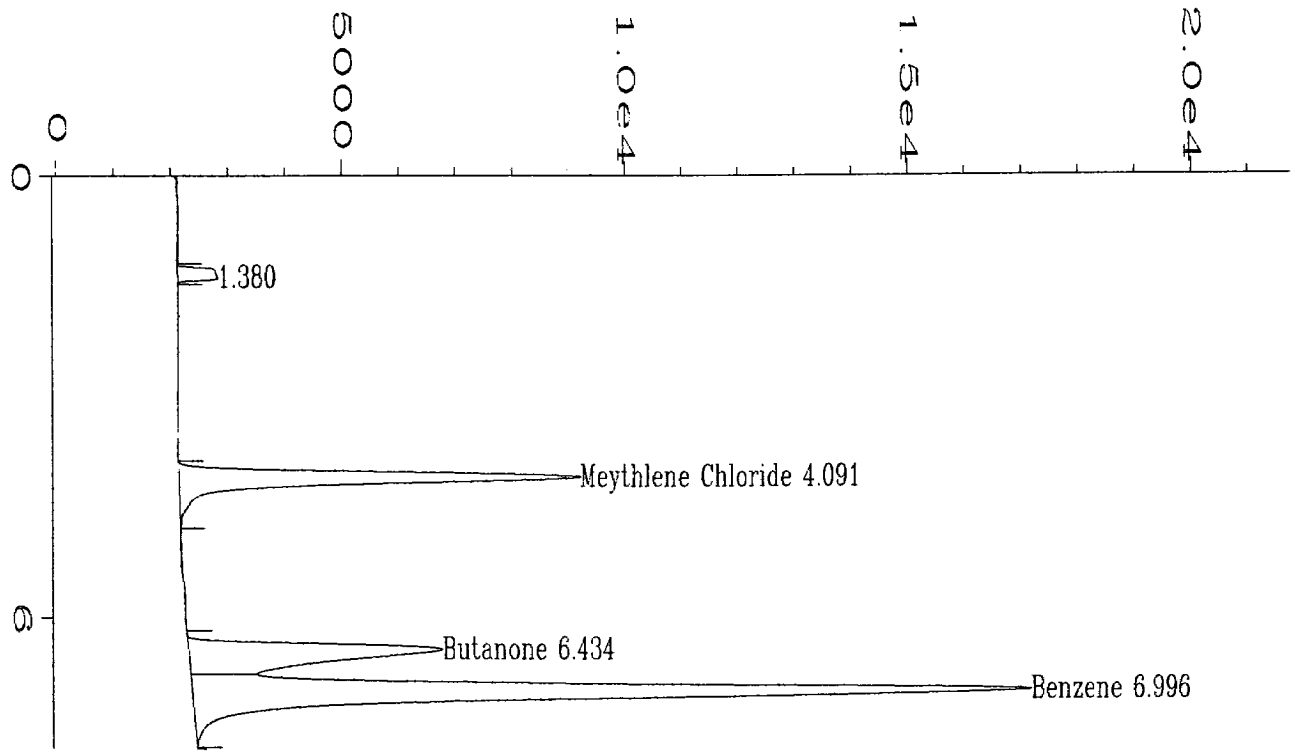
Data File Name	: D:\GC2\BAG2B_5.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 06:33 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:08 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG2B_5.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
4.065	78808	BB	0.168	1	10.516	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.399	74192	BV	0.239	1	3.518	Butanone
6.961	206472	VB	0.207	1	3.453	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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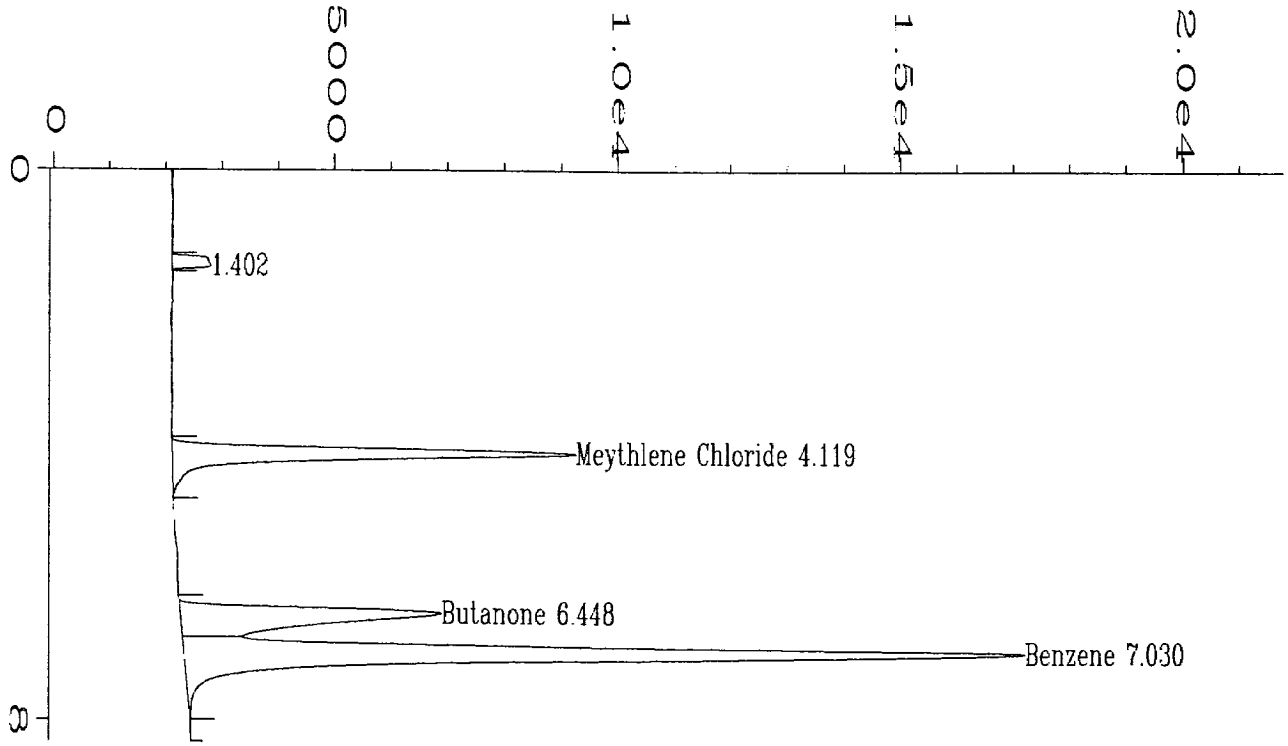
Data File Name : D:\GC2\BAG2B_6.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 22 May 97 06:47 AM
Report Created on: 24 Jun 97 01:08 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\BAG2B_6.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
4.091	78572	BB	0.168	1	10.485	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.434	73502	BV	0.241	1	3.486	Butanone
6.996	203909	VBA	0.207	1	3.411	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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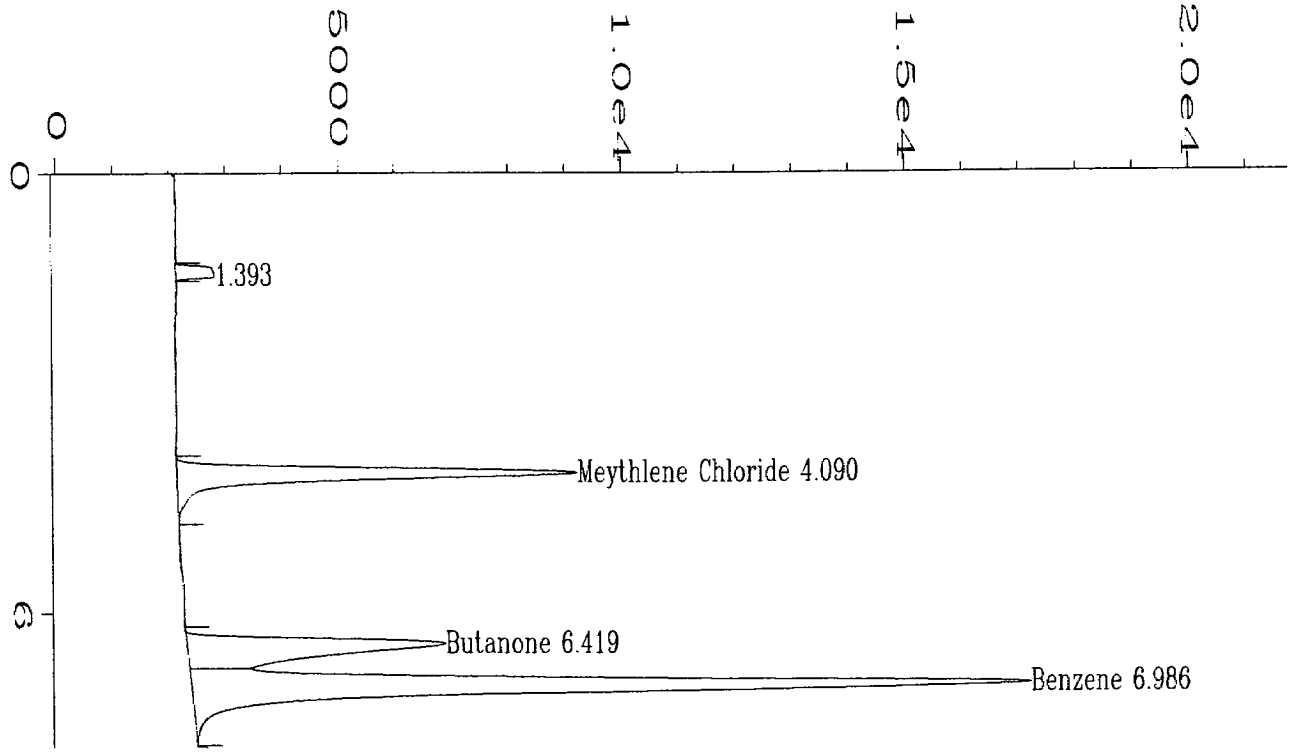
Data File Name	: D:\GC2\BAG2B_7.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 07:10 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:08 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG2B_7.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
4.119	78329	BB	0.166	1	10.454	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.448	76239	BV	0.242	1	3.615	Butanone
7.030	206095	VB	0.208	1	3.447	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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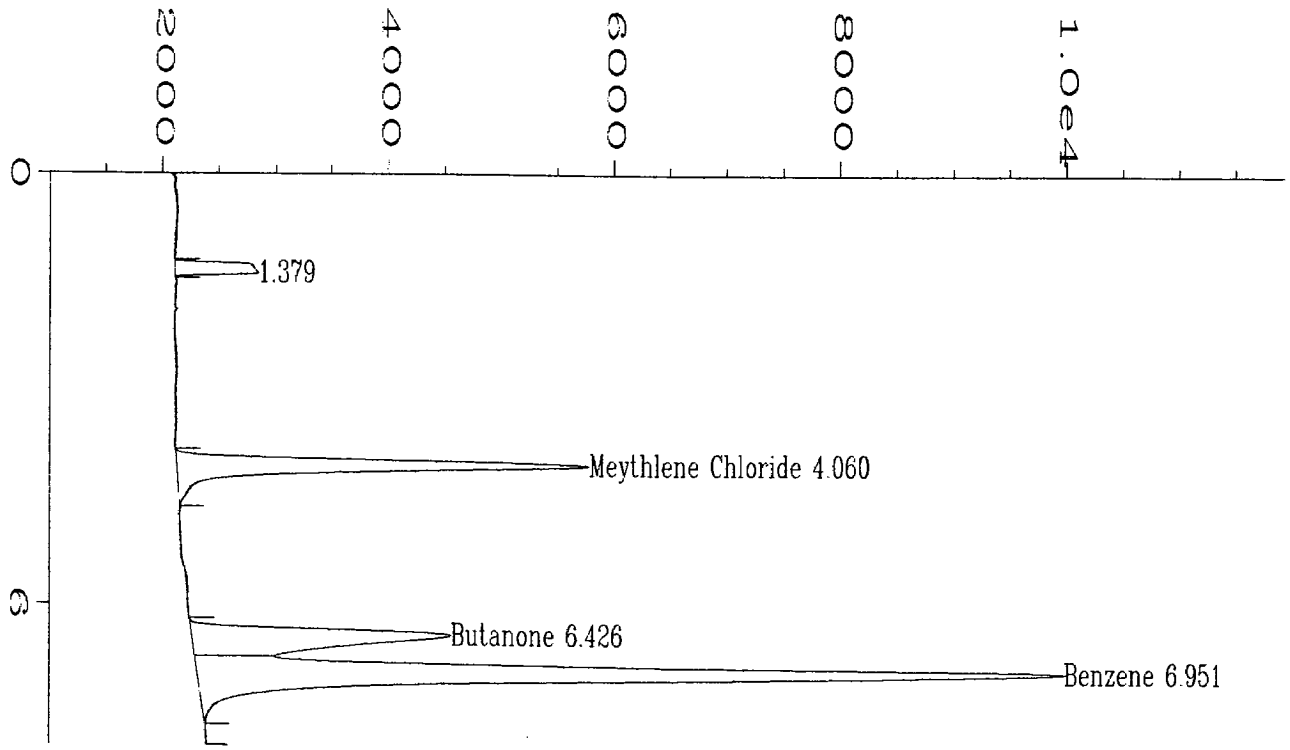
Data File Name	: D:\GC2\BAG2B_8.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 07:25 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:08 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG2B_8.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
4.090	78817	BB	0.171	1	10.517	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.419	74847	BV	0.242	1	3.549	Butanone
6.986	204154	VBA	0.207	1	3.415	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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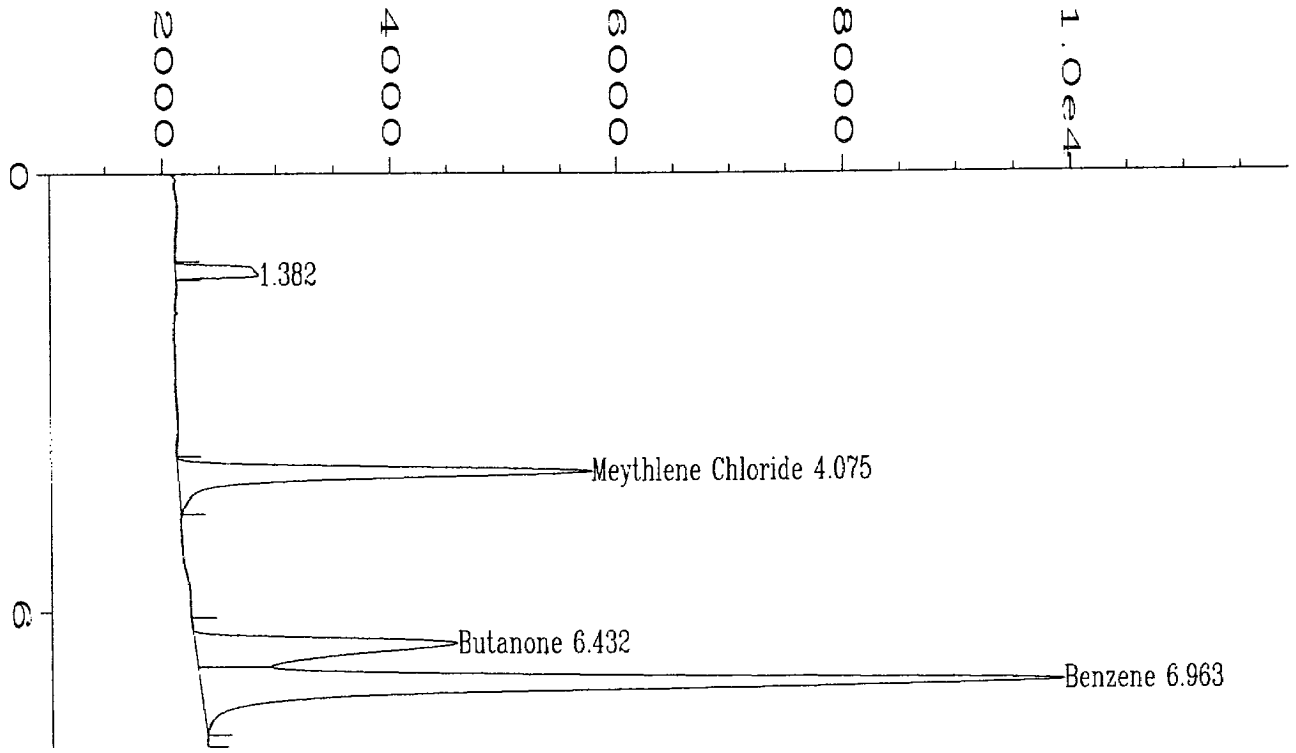
Data File Name	: D:\GC2\BAG3B_1.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 07:50 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:10 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG3B_1.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
4.060	40193	BB	0.155	1	5.509	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.426	37452	BV	0.223	1	1.784	Butanone
6.951	106322	VB	0.208	1	1.792	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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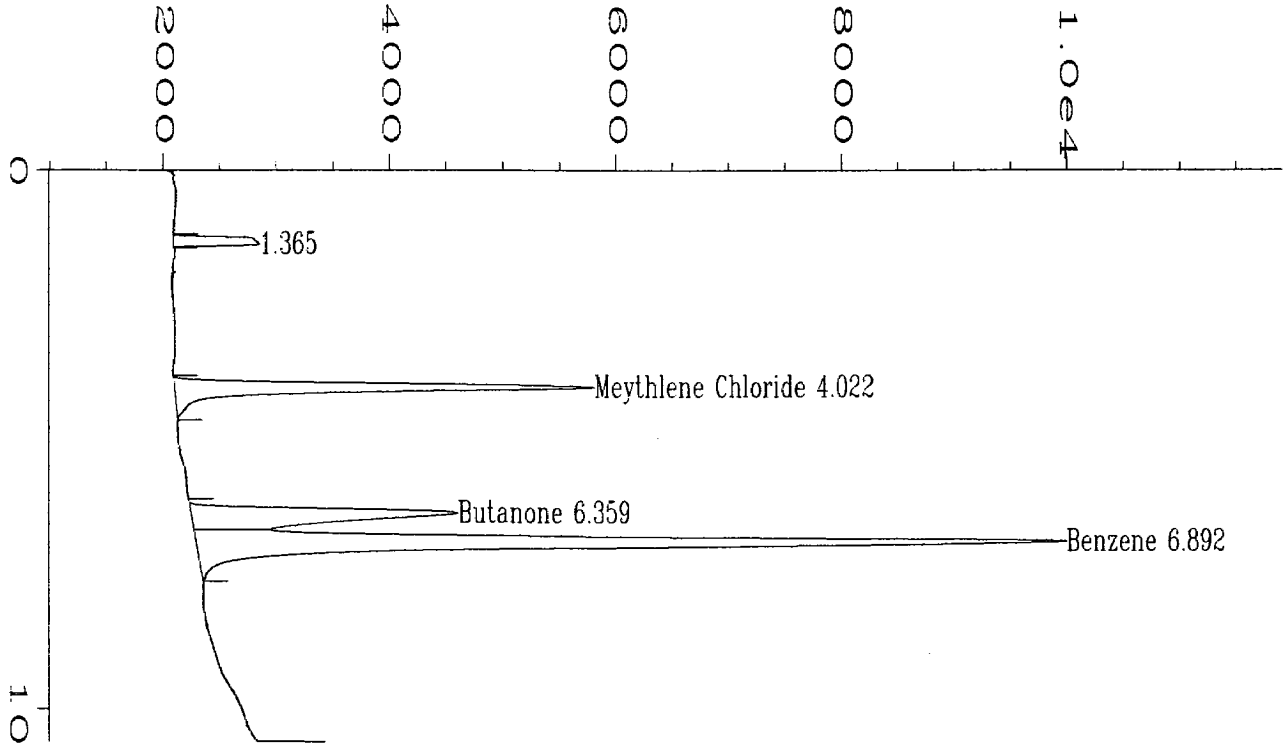
Data File Name : D:\GC2\BAG3B_2.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 22 May 97 08:03 AM
Report Created on: 24 Jun 97 01:10 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\BAG3B_2.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
4.075	39817	BB	0.154	1	5.460	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.432	37631	BV	0.219	1	1.793	Butanone
6.963	104231	VB	0.207	1	1.758	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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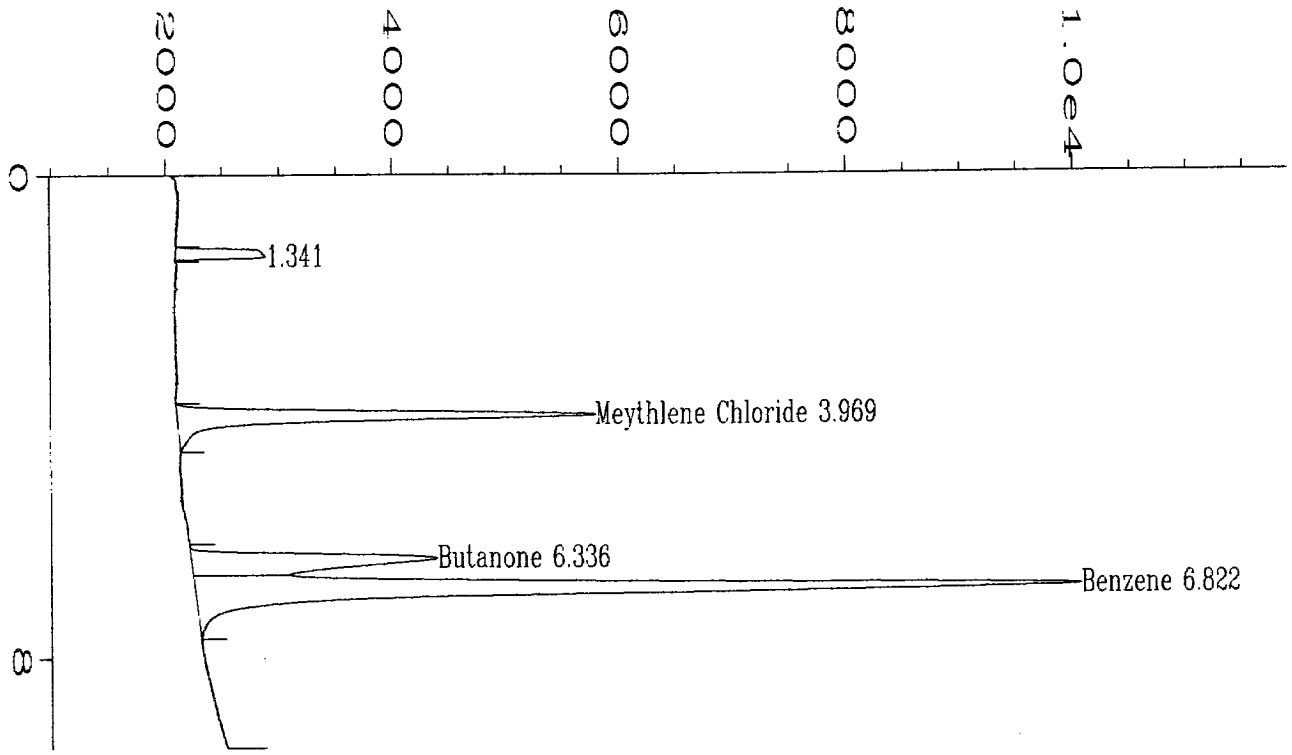
Data File Name	: D:\GC2\BAG3B_3.D		
Operator	: Kurt Weppprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 08:17 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:10 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG3B_3.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
4.022	40323	BB	0.166	1	5.526	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.359	38557	BV	0.230	1	1.836	Butanone
6.892	106487	VB	0.208	1	1.795	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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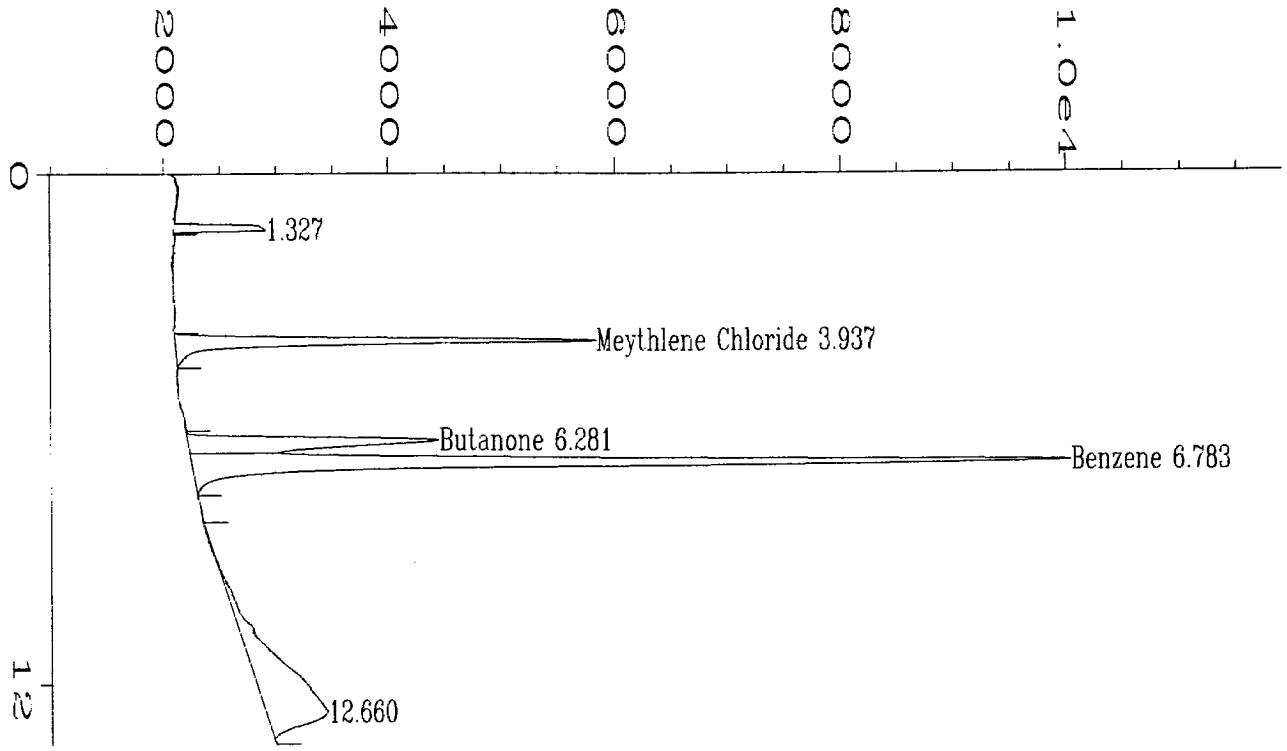
Data File Name	: D:\GC2\BAG3B_4.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 08:34 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:10 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG3B_4.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
3.969	40102	BB	0.159	1	5.497	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.336	34711	BV	0.233	1	1.655	Butanone
6.822	109596	VB	0.209	1	1.847	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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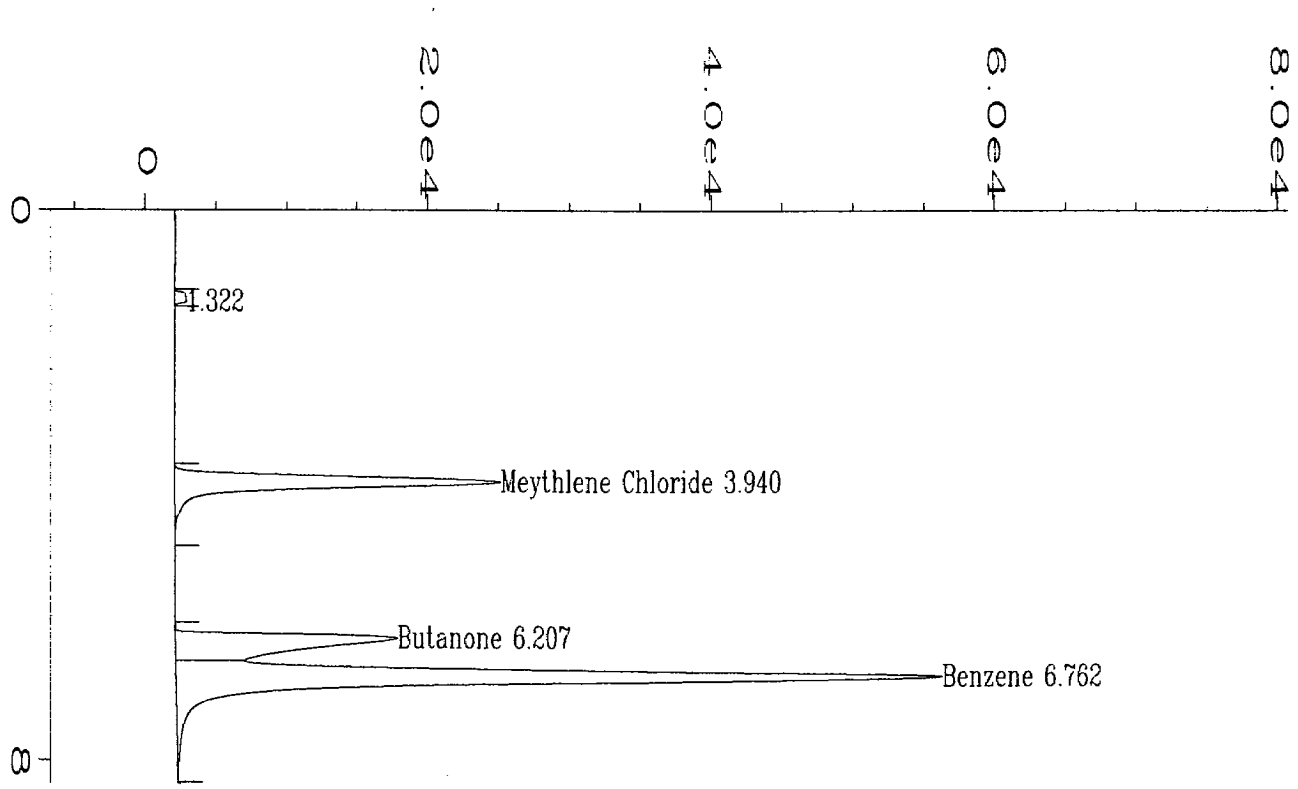
Data File Name	: D:\GC2\BAG3B_5.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 08:49 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:11 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG3B_5.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
3.937	40058	BB	0.158	1	5.491	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.281	35911	BV	0.223	1	1.711	Butanone
6.783	107747	VB	0.207	1	1.816	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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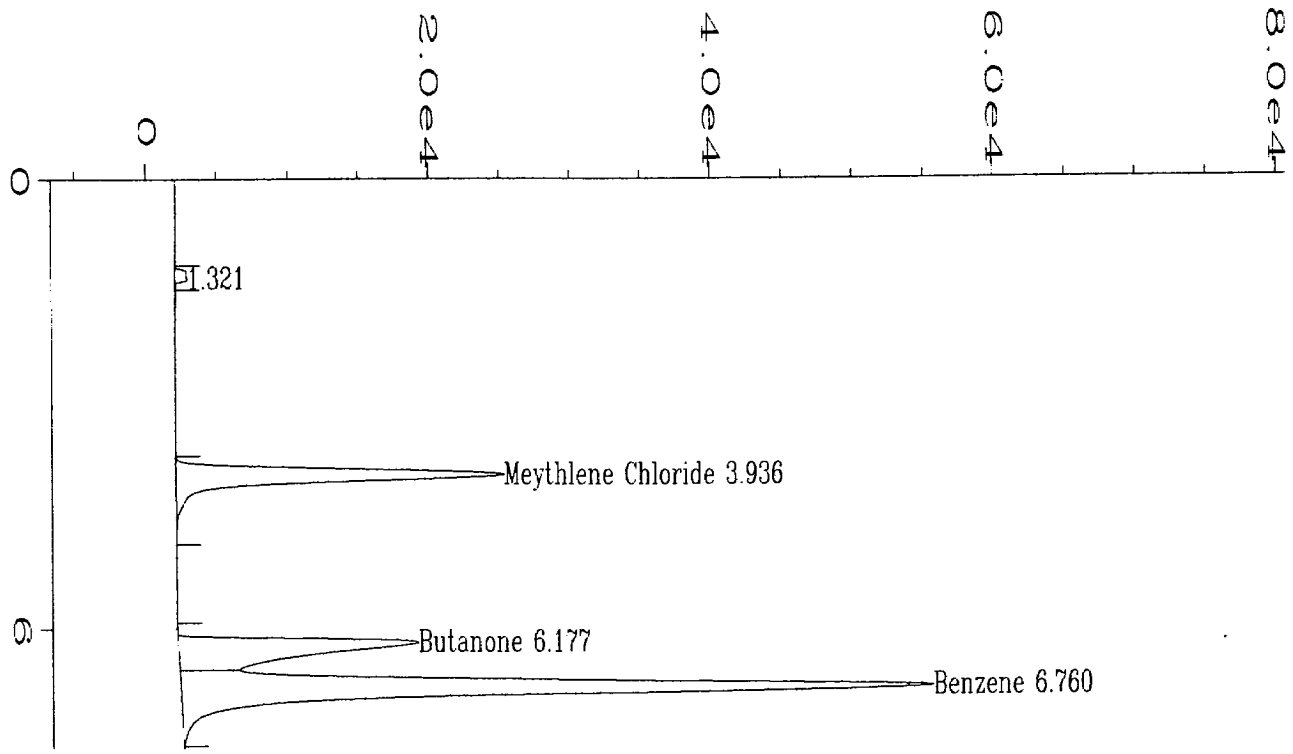
Data File Name	: D:\GC2\BAG4B_1.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 09:10 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:12 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG4B_1.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
3.940	273825	BB	0.186	1	35.803	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.207	244817	BV	0.224	1	11.572	Butanone
6.762	760267	VBA	0.209	1	12.639	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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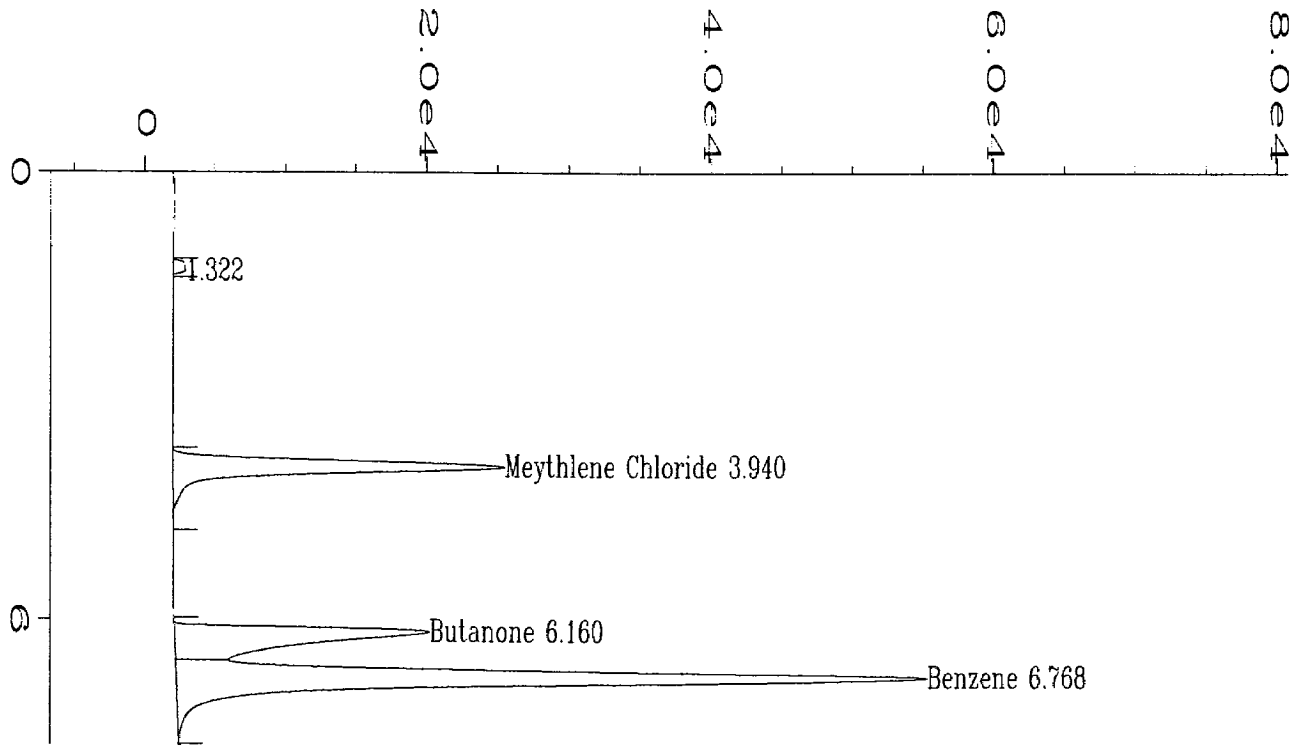
Data File Name	: D:\GC2\BAG4B_2.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 09:23 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:12 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG4B_2.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
3.936	273138	BB	0.181	1	35.714	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.177	260981	BV	0.223	1	12.335	Butanone
6.760	724769	VBA	0.204	1	12.050	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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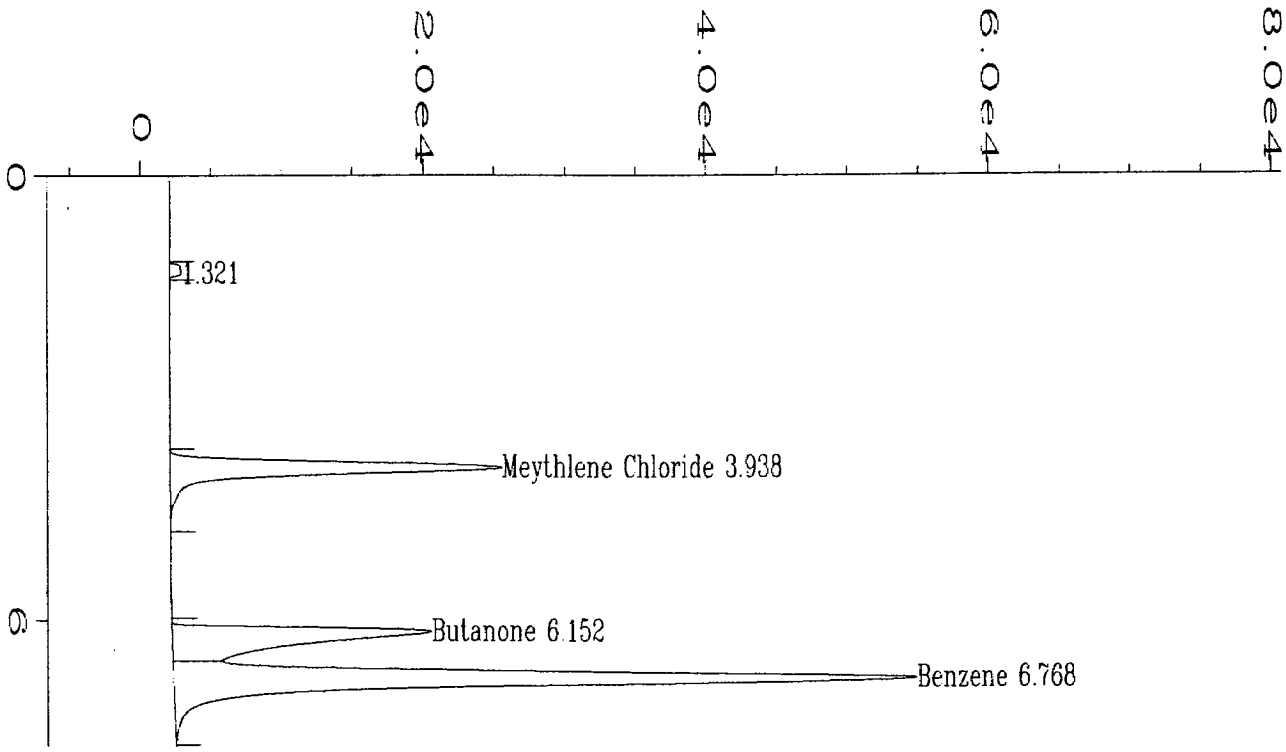
Data File Name	: D:\GC2\BAG4B_3.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 09:38 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:13 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG4B_3.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
3.940	273871	BB	0.184	1	35.809	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.160	276971	BV	0.221	1	13.089	Butanone
6.768	723342	VBA	0.204	1	12.026	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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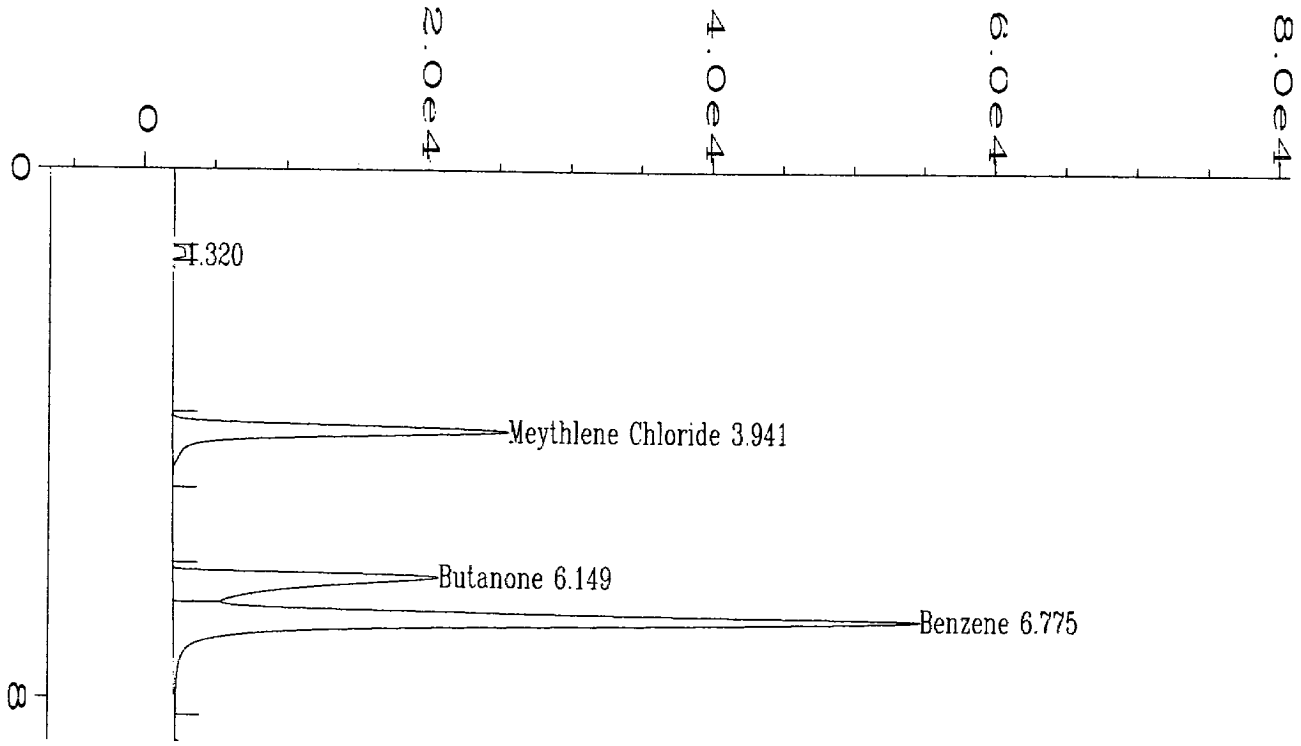
Data File Name	: D:\GC2\BAG4B_4.D		
Operator	: Kurt Weppprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 09:50 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:13 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG4B_4.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
3.938	270692	BB	0.178	1	35.397	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.152	278900	BV	0.222	1	13.180	Butanone
6.768	710401	VBA	0.203	1	11.812	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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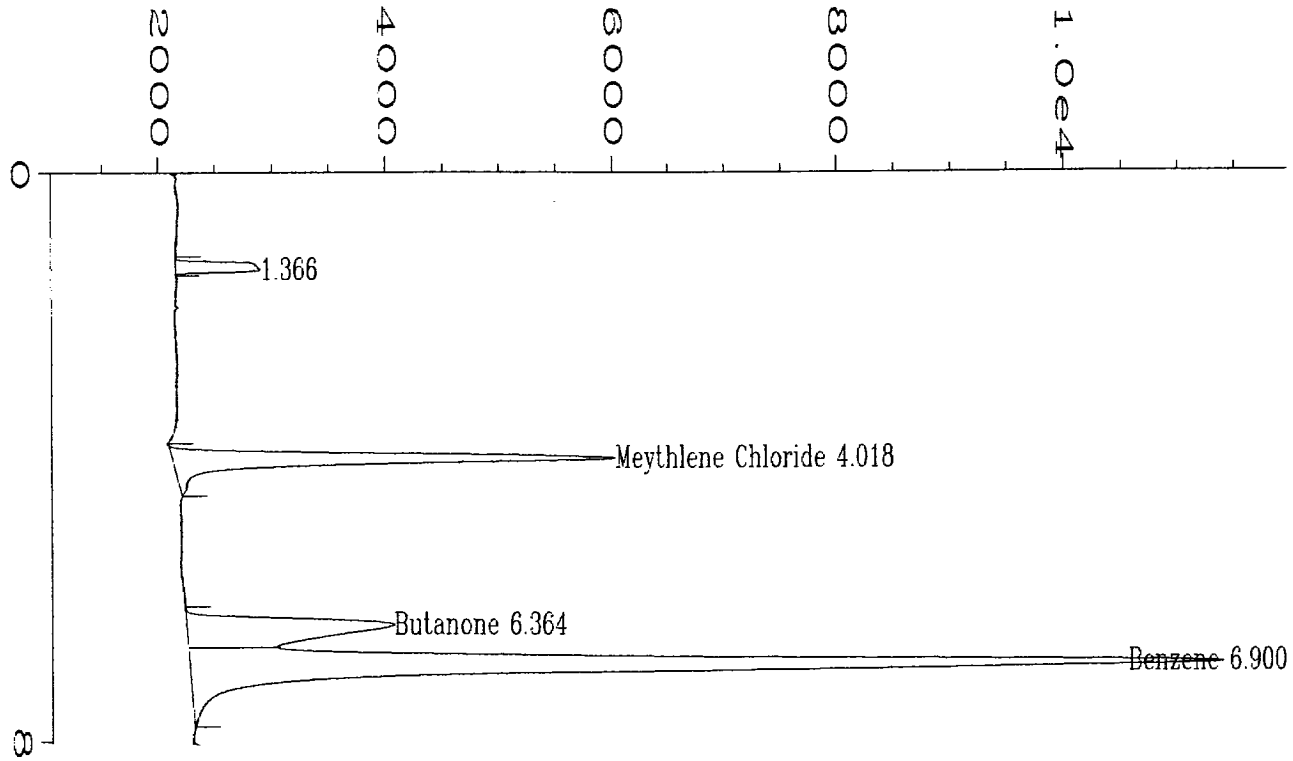
Data File Name	: D:\GC2\BAG4B_5.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 10:03 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:13 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG4B_5.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
3.941	271458	BB	0.178	1	35.496	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.149	284833	BV	0.223	1	13.461	Butanone
6.775	719791	VB	0.205	1	11.968	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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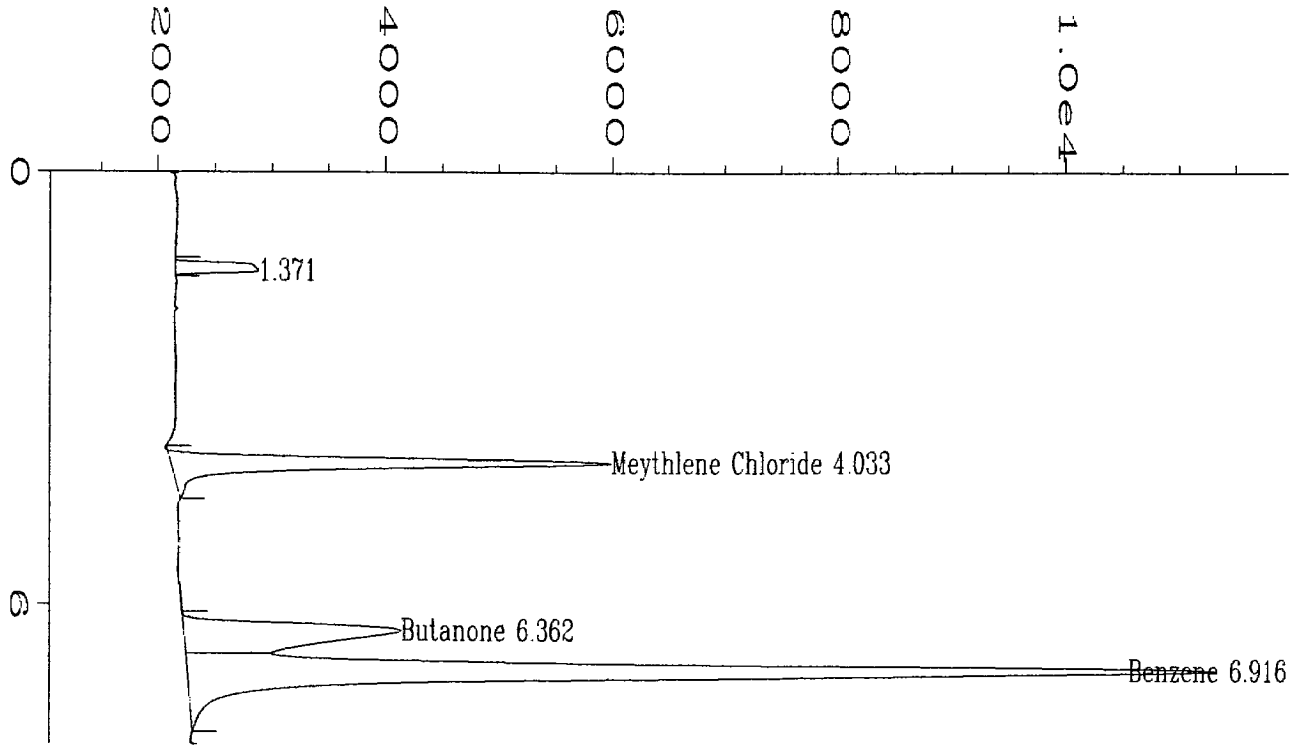
Data File Name	: D:\GC2\BAG5B_04.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 29 May 97 07:39 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:15 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG5B_04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
4.018	38316	BB	0.144	1	5.266	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.364	34272	BV	0.226	1	1.634	Butanone
6.900	126586	VB	0.196	1	2.128	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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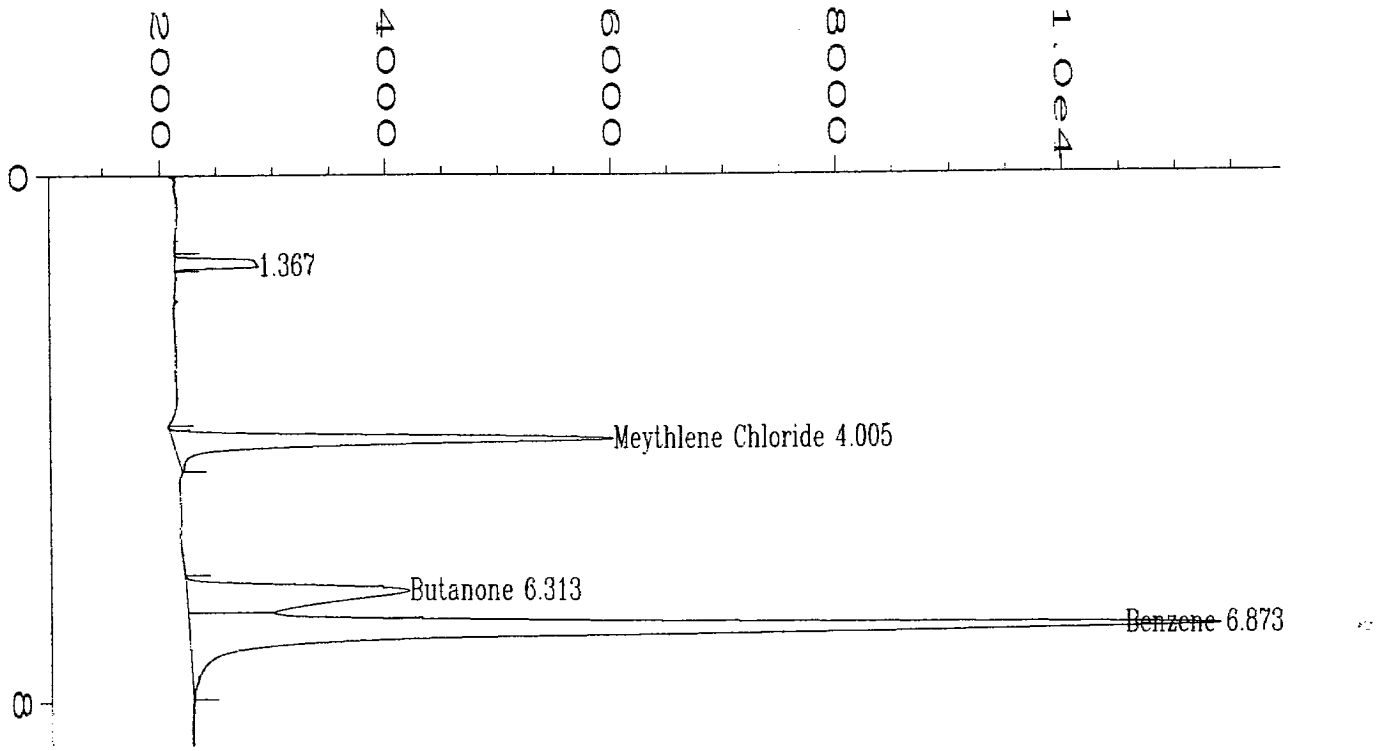
Data File Name : D:\GC2\BAG5B_05.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 29 May 97 07:53 AM
Report Created on: 24 Jun 97 01:15 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\BAG5B_05.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
4.033	38057	BB	0.146	1	5.232	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.362	36603	BV	0.239	1	1.744	Butanone
6.916	125311	VB	0.196	1	2.107	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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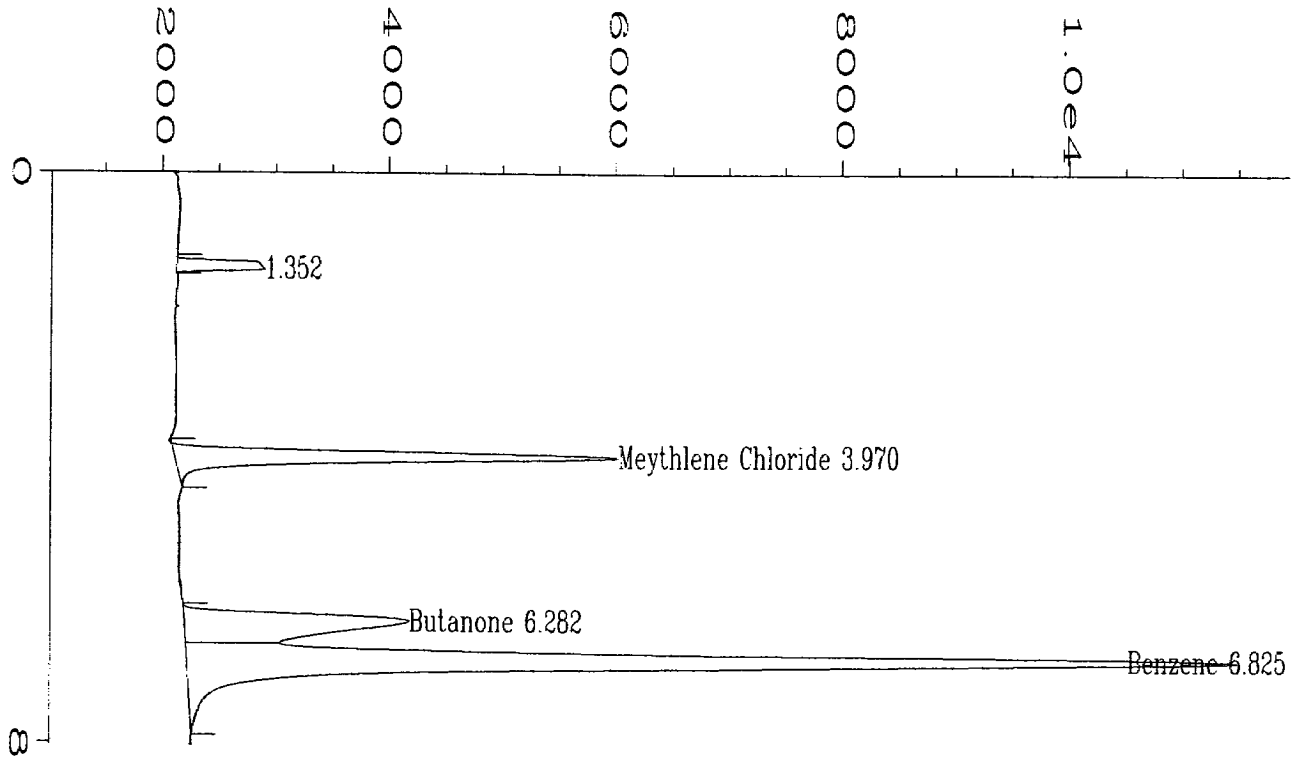
Data File Name	: D:\GC2\BAG5B_06.D		
Operator	: Kurt Weppprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 29 May 97 08:06 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:16 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG5B_06.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
4.005	37637	BB	0.141	1	5.178	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.313	38087	BV	0.280	1	1.814	Butanone
6.873	127541	VB	0.207	1	2.144	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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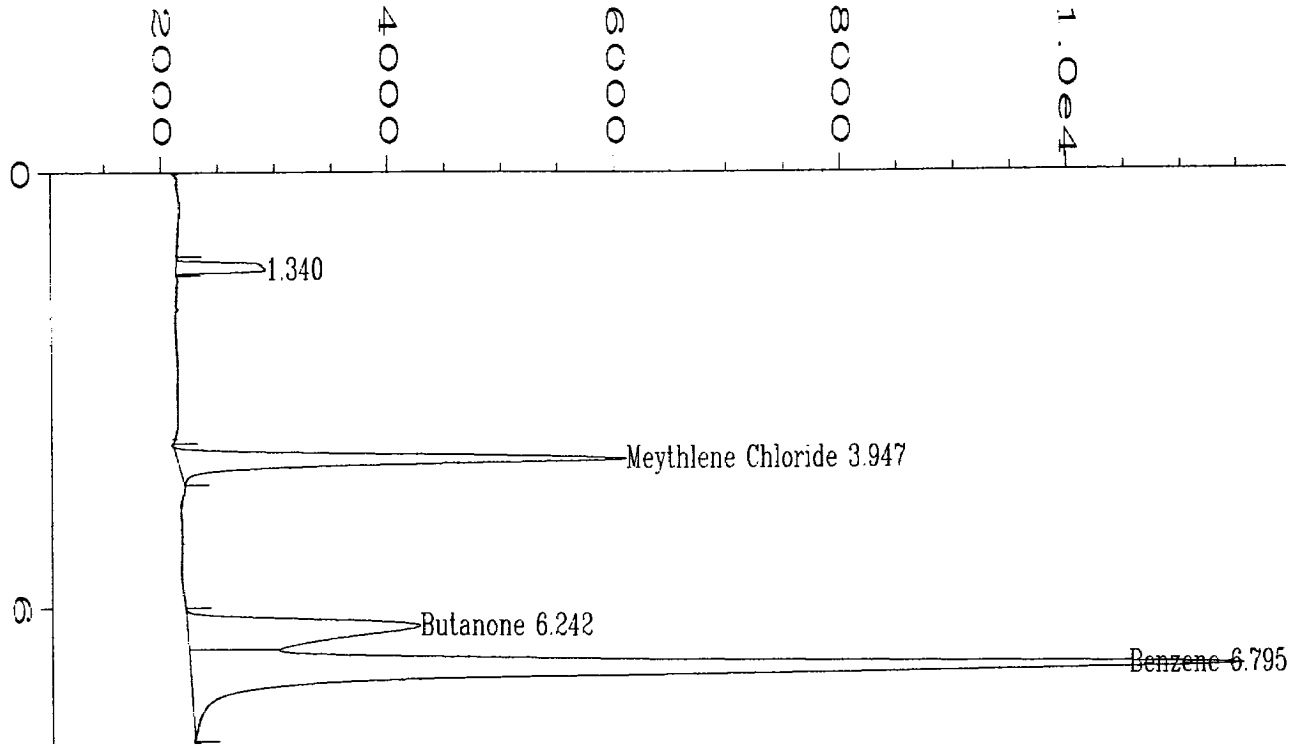
Data File Name : D:\GC2\BAG5B_07.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 29 May 97 08:20 AM
Report Created on: 24 Jun 97 01:16 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\BAG5B_07.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
3.970	37093	BB	0.139	1	5.107	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.282	37700	BV	0.278	1	1.796	Butanone
6.825	129274	VB	0.208	1	2.173	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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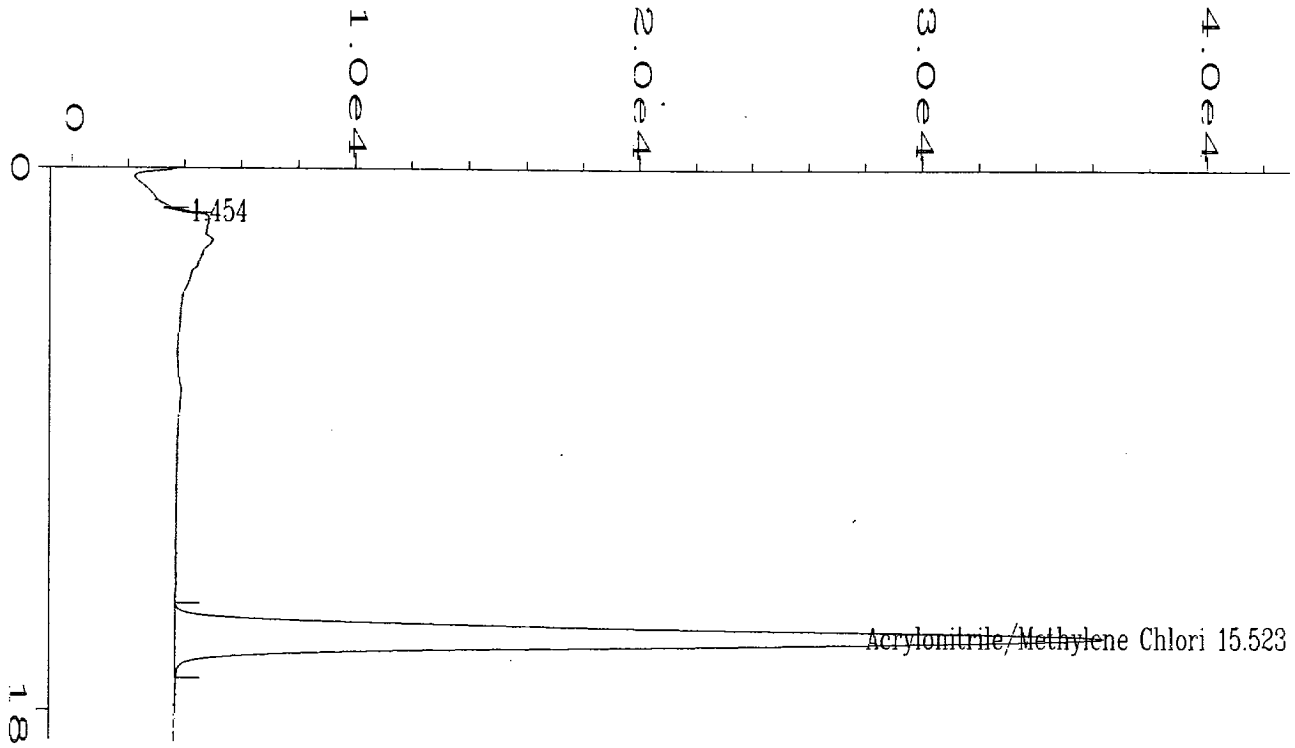
Data File Name	: D:\GC2\BAG5B_08.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 29 May 97 08:33 AM	Instrument Method	: GC2.MTH
Report Created on	: 24 Jun 97 01:16 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\BAG5B_08.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
3.947	36783	BB	0.141	1	5.067	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.242	38900	BV	0.271	1	1.852	Butanone
6.795	129004	VBA	0.207	1	2.169	Benzene
7.856	* not found *			1		Trichloroethylene
10.764	* not found *			1		Toluene
14.024	* not found *			1		Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.900	* not found *			1		p-Xylene
15.800	* not found *			1		o-Xylene
16.800	* not found *			1		Styrene

Not all calibrated peaks were found



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External Standard Report

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Data File Name	: D:\GC1\JUNK_1.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	: acr. & methylch	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 20 May 97 09:56 PM	Instrument Method	: GC1.MTH
Report Created on	: 26 Jun 97 10:50 AM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\JUNK_1.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.542	* not found *			1		Methane
2.240	* not found *			1		Ethane
8.573	* not found *			1		Butadiene
15.523	1335888	BV	0.494	1	84.023	Acrylonitrile/Methylene Chlori

Not all calibrated peaks were found

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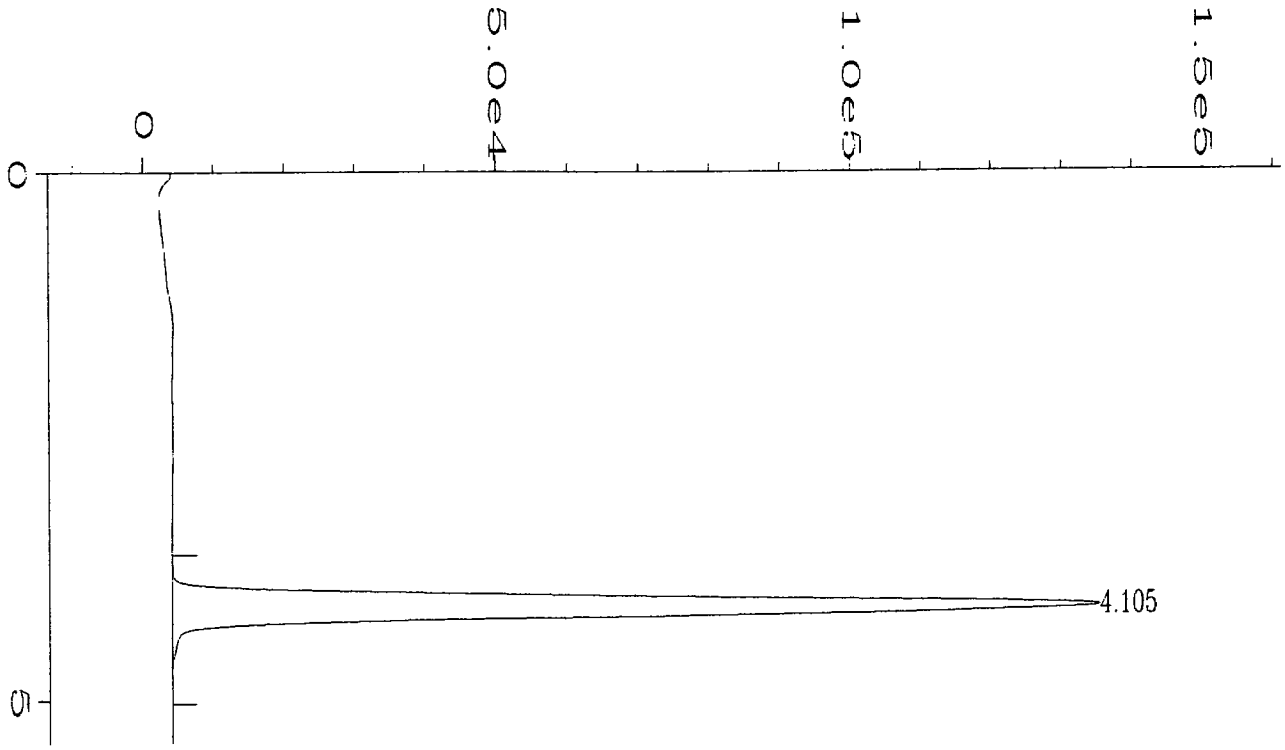

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Area Percent Report

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Data File Name : D:\GC1\SYS_1.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 30 May 97 07:44 AM
Report Created on: 23 Jun 97 03:40 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC1.MTH
Analysis Method : GC1.MTH

Sig. 2 in D:\GC1\SYS_1.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	4.105	1618072	131402	BB	0.198	100.0000

Total area = 1618072

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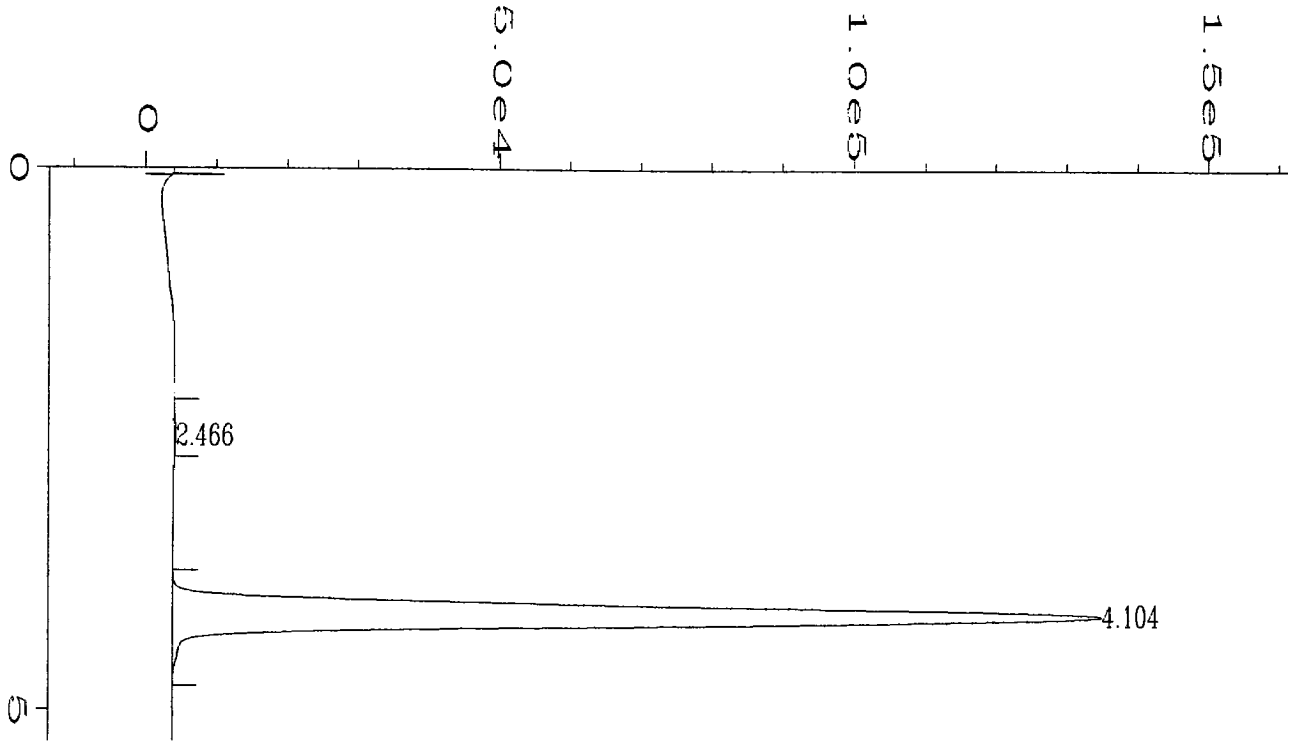

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Area Percent Report

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Data File Name : D:\GC1\SYS_2.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 30 May 97 07:50 AM
Report Created on: 23 Jun 97 03:40 PM

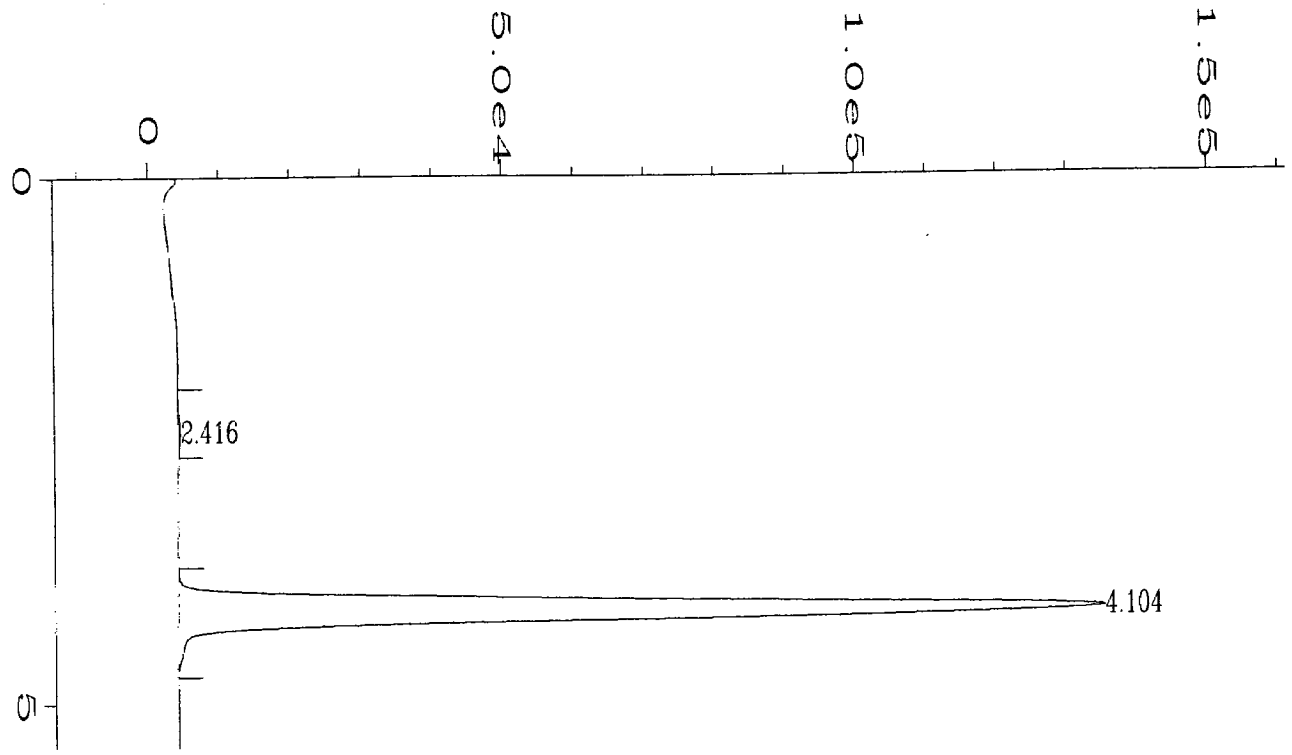
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC1.MTH
Analysis Method : GC1.MTH

Sig. 2 in D:\GC1\SYS_2.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	2.466	3875	233	BB	0.217	0.2390
2	4.104	1617339	131326	BB	0.198	99.7610

Total area = 1621213

==========



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Area Percent Report

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Data File Name : D:\GC1\SYS_3.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 30 May 97 07:56 AM
Report Created on: 23 Jun 97 03:40 PM

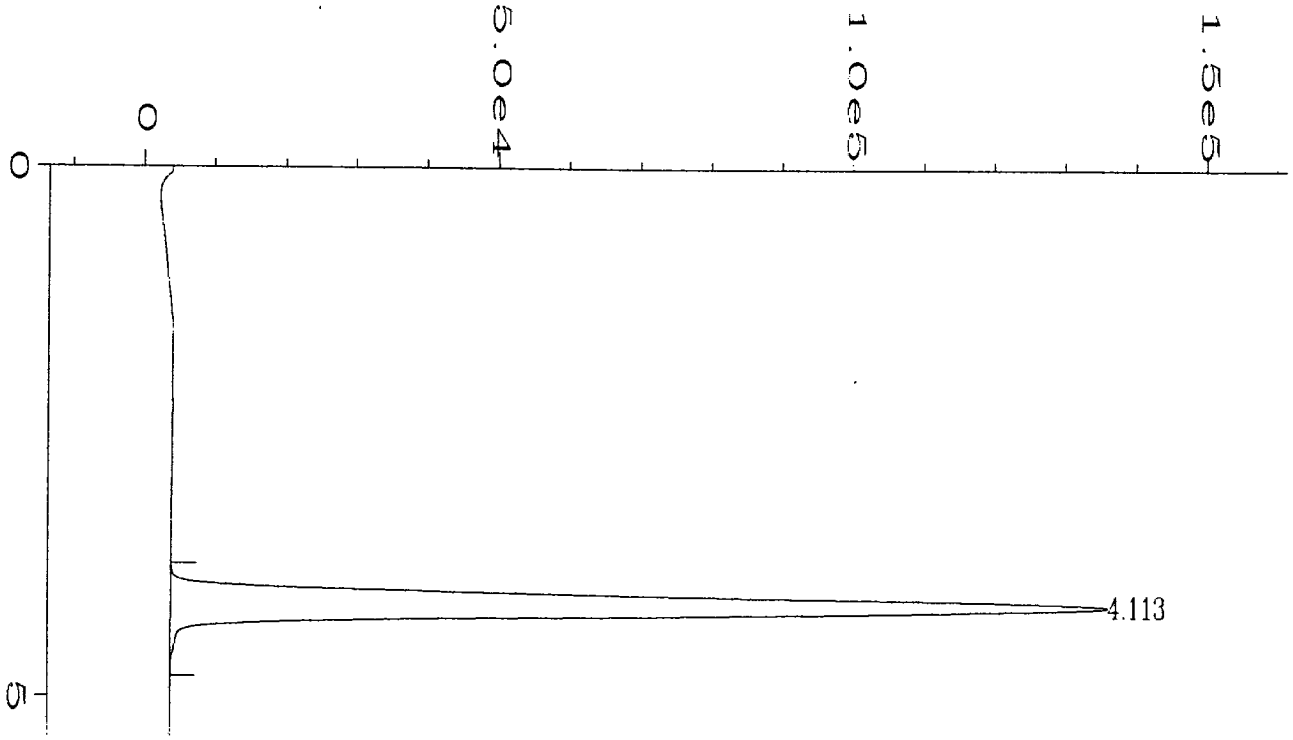
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC1.MTH
Analysis Method : GC1.MTH

Sig. 2 in D:\GC1\SYS_3.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	2.416	4011	258	BB	0.207	0.2469
2	4.104	1620500	131395	BV	0.198	99.7531

Total area = 1624512

==========



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Area Percent Report

==========

Data File Name : D:\GC1\LINL_1.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 30 May 97 07:20 AM
Report Created on: 23 Jun 97 03:40 PM

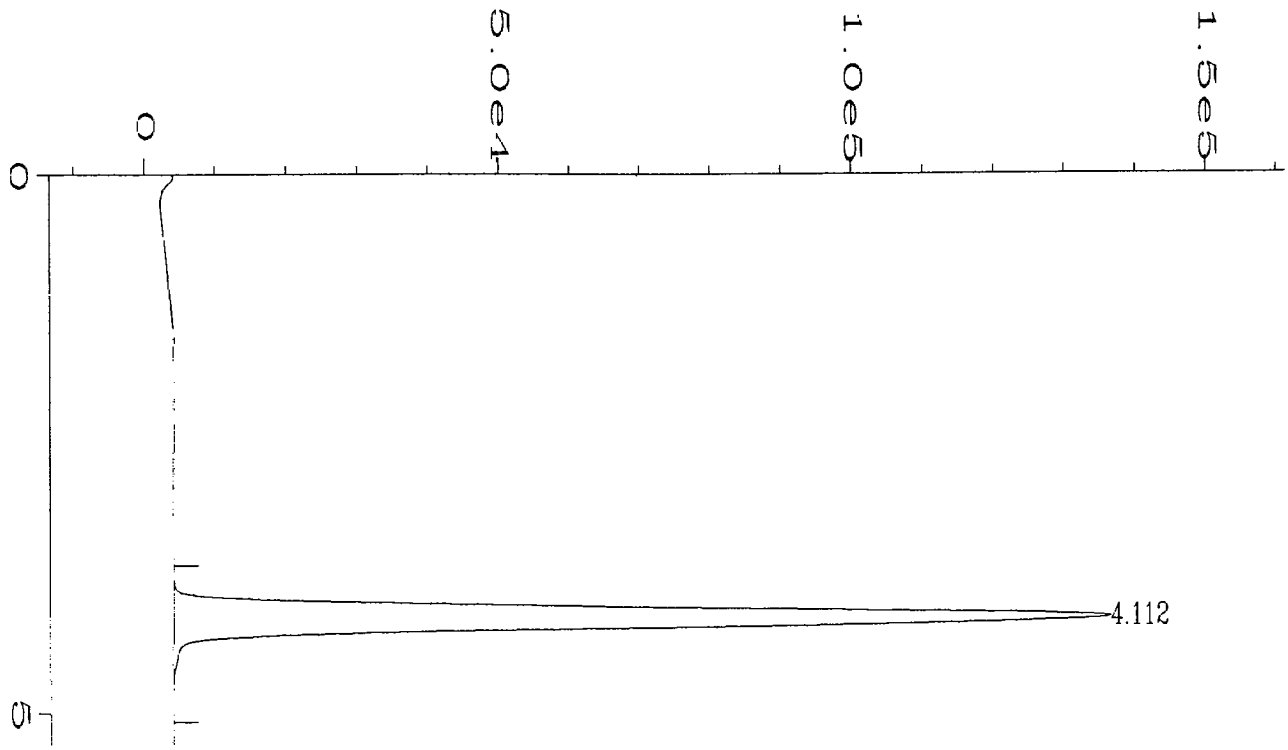
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC1.MTH
Analysis Method : GC1.MTH

Sig. 2 in D:\GC1\LINL_1.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	4.113	1635442	132356	BV	0.199	100.0000

Total area = 1635442

==========



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Area Percent Report

==========

Data File Name : D:\GC1\LINL_2.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 30 May 97 07:29 AM
Report Created on: 23 Jun 97 03:40 PM

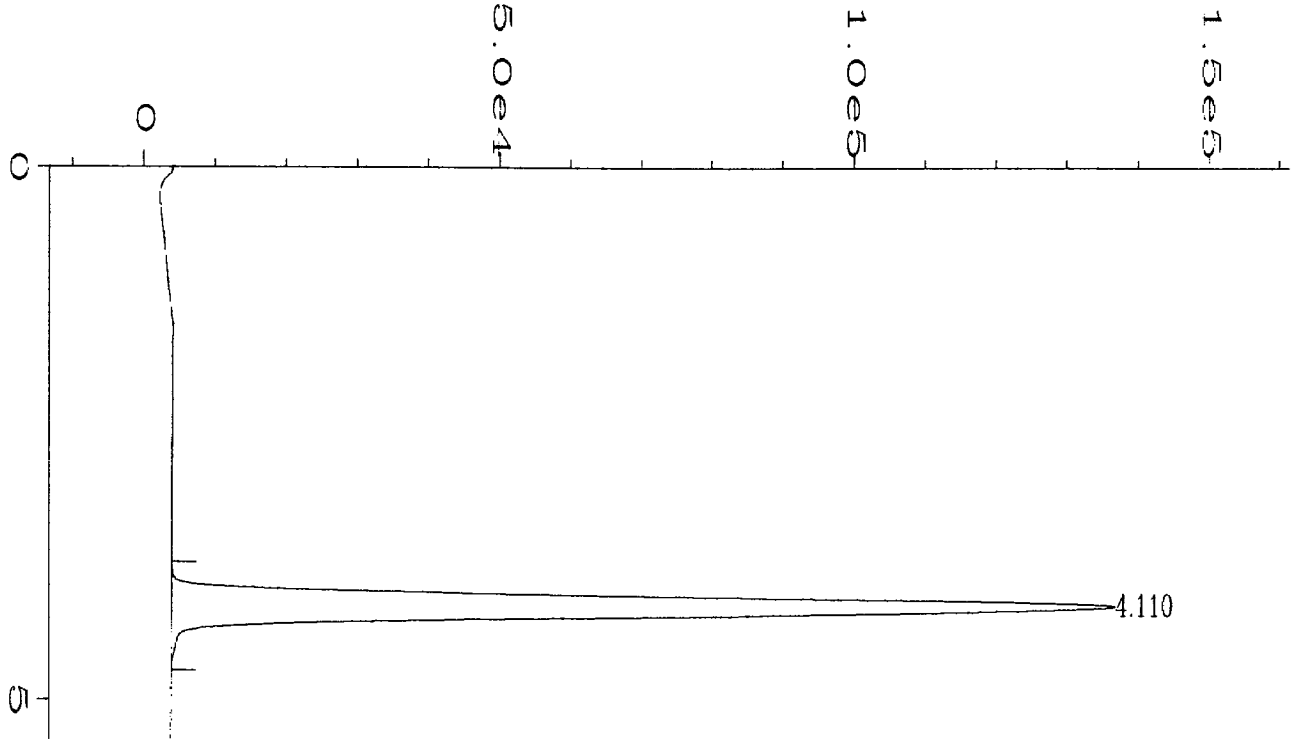
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC1.MTH
Analysis Method : GC1.MTH

Sig. 2 in D:\GC1\LINL_2.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	4.112	1640966	132659	BB	0.199	100.0000

Total area = 1640966

==========



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Area Percent Report

==========

Data File Name : D:\GC1\LINL_3.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 30 May 97 07:38 AM
Report Created on: 23 Jun 97 03:40 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC1.MTH
Analysis Method : GC1.MTH

Sig. 2 in D:\GC1\LINL_3.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	4.110	1645113	133000	BV	0.198	100.0000

Total area = 1645113

==========

D

FIELD DATA

D

Orsat Readings

Client	SOLVAY MINERALS	Project Number	7955
Plant	GREEN RIVER	Unit	CA 3
Date	5/22/97	Fuel Type	NAT GAS
Orsat ID	65	Leak Check?	OK

$$F_o = \frac{20.9 - \%O_2}{\%CO_2}$$

F_o = 1.083 to 1.230 (for bituminous coal)

Run Number	Location	Bag ID	Trial	Percent CO_2	Percent $CO_2 + O_2$	Percent O_2	F_o	Sample Time	Analysis Time	Analyst
1	STACK	RUN 1	1	12.6	22.2	9.6			1900	JC
		CA3	2	12.7	22.2					
			3	12.6	22.2					
			Avg.	12.6	22.2	9.6				
2	STACK	RUN 2	1	12.8	22.5				1915	JC
		CA3	2	12.7	22.4					
			3	12.8	22.5					
			Avg.	12.8	22.5	9.7				
3	STACK	RUN 3	1	13.0	22.6	9.6			1930	JC
		CA3	2	13.0	22.5					
			3	13.1	22.6					
			Avg.	13.0	22.6	9.6				
			1							
			2							
			3							
			Avg.							
			1							
			2							
			3							
			Avg.							
			1							
			2							
			3							
			Avg.							
			1							
			2							
			3							
			Avg.							
			1							
			2							
			3							
			Avg.							

CAE P3 ver 1.0
D:\vpforms\orsat

TEST LOCATION: Stack

UNIT: CALCINER #3 **RUN:** 1

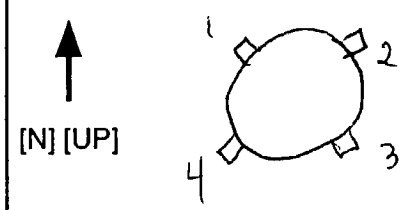
PARTICULATE TESTING FIELD DATA SHEET

METHOD: 5/202 **PAGE** 1 **OF** 1

Client: SOLVAY	Project No.: 7955
Plant: GR. WY	Date: 5-22-97
Meter Operator: R. LINDBERG	
Probe Operator: R. LUIKART	

Meter Box No.: D-12	Sample Box No.: D-5
Meter Yd: 1.0077	Meter ΔH@: 1.7517
K Factor: 7.6	Pitot Cp: .84
Leak Rate Before: .004 (cfm) [Lpm] @ 16 (in.Hg)	
Leak Rate After: .004 (cfm) [Lpm] @ 10 (in.Hg)	
Pitot Leak Check Before: ☒	After: Good ☒ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.): 125.5

Static Press. (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-.5	12.0 + 5.0		

Amb. Temp. (°F): 78	Bar. Press.: 23.70 (in. Hg) [mbar]
Probe I.D. No.: M-6-1-65	
Liner Material: GLASS	

Filter No.: ~~086344~~ 085344	
Thimble No.: —	
Nozzle Diameter: .375	Nozzle I.D.: 65

H_2O: 409.5 [ml] (gm)	Silica Gel (gm): 10.4
Total V_{lc}: 419.9	

Start Time: 1200	Stop Time: 1306

Traverse Point Number	Min/pt 5 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft³] [L] 534.00	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
1-1	5	.23	1.7	538.07	308	250	246	54	88	86	6	N/A	*MID LOAD
2	10	.23	1.7	542.10	309	250	247	54	89	87	6		
3	15	.20	1.5	545.93	306	250	250	52	90	87	5		
2-1	20	.28	2.1	550.47	307	249	243	56	92	87	7		
2	25	.30	2.3	555.25	310	248	245	56	93	88	8		
3	30	.25	1.9	559.61	305	249	249	47	95	89	7		
3-1	35	.26	2.0	564.01	301	250	249	49	95	90	7		
2	40	.25	1.9	568.37	308	250	249	47	95	89	7		
3	45	.19	1.4	572.14	305	249	250	49	93	90	5		
4-1	50	.20	1.5	575.97	304	248	249	54	94	90	5		
2	55	.20	1.5	579.84	309	250	249	54	96	90	5		
3	60	.16	1.2	583.36	301	249	250	54	96	90	5		
	Total			49.36									
	Average	.477	1.725		306					91			

SOLVAY2016_6_002051

DS 001 General [redacted] * [redacted] of sq[redacted] root[redacted] Circle correct bracketed units on data sheet.

CNVS/TRG.R3-4/6/94

CAE

C[redacted] Air E[redacted]eeri[redacted]

PARTICULATE TESTING FIELD DATA SHEET

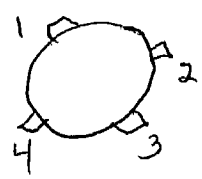
TEST LOCATION: STACK CALCINER **UNIT:** #3 **RUN:** 2A (3)

METHOD: 5/202 **PAGE** 1 **OF** 1

Client: SOLVAY	Project No.: 7955
Plant: G.R. WY	Date: 5-22-97
Meter Operator: R LINDBERG	
Probe Operator: R. LINKART	

Meter Box No.: D-12	Sample Box No.: D-5
Meter Yd: 1.0077	Meter ΔH@: 1.7577
K Factor: 7.6	Pitot Cp: .84
Leak Rate Before: .004 (cfm) [Lpm] @ 15 (in.Hg)	
Leak Rate After: .004 (cfm) [Lpm] @ 14 (in.Hg)	
Pitot Leak Check Before: ☒	After: Good ☒ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.): 125.5

Static Press. (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-.5	12.5	Out	In

Amb. Temp. (°F): 70	Bar. Press.: 23.70 (in. Hg) [mbar]
Probe I.D. No.: M-6-1	
Liner Material: GLASS	

Filter No.: ~~086360~~ 085360	085360	
Thimble No.: ~~N/A 375~~		
Nozzle Diameter: .375	Nozzle I.D.: 65	

H_2O: 396.1 [ml] (gm)	Silica Gel (gm): 15.7
Total V_{lc}: 411.8	

Start Time: 1540	Stop Time: 1648

Traverse Point Number	Min/pt 5 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft^3] [L] 669.410	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 260	Filter T_f (°F) Set Points 260	Cond. Temp. T_c (°F)	DGM Inlet T_{min} (°F)	DGM Outlet T_{mout} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
4-1	5	.23	1.7	673.60	310	243	236	60	80	78	7	N/A	* MID LOAD
2	10	.20	1.5	677.58	308	249	243	56	84	79	7		
3	15	.21	1.1	681.08	300	245	246	56	84	79	6		
3-1	20	.24	1.8	685.37	309	257	253	58	86	81	9		
2	25	.25	1.9	689.82	309	259	256	58	89	82	9		
3	30	.18	1.4	693.63	301	259	258	60	91	84	7		
2-1	35	.30	2.3	698.48	311	261	256	63	91	85	12		
2	40	.28	2.1	703.16	314	249	248	62	92	85	12		Low Probe &
3	45	.20	1.5	707.13	303	249	250	65	91	85	8		Filter set
1-1	50	.22	1.7	711.33	311	249	250	65	90	86	9		points to 250°
2	55	.23	1.7	714.48	311	250	241	63	91	86	9		
3	60	.15	1.1	719.08	302	247	240	63	91	86	7		
	Total			49.68									
	Average	.465	1.7		307				86				

* Sum of square roots.

Circle correct bracketed units on data sheet.

Clean Air Engineering

DS 001 General
CNVS/TRG.R3-4/6/94

SOLVAY2016_9_0020052

TEST LOCATION: Stack

UNIT: Calciner #3 **RUN:** RH B 4

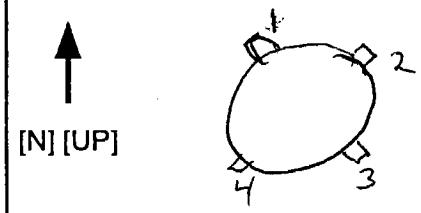
Particulate TESTING FIELD DATA SHEET

METHOD: 5/202 **PAGE** 1 **OF** 1

Client Solvay	Project No. 7955
Plant GR. WY	Date 5-22-97
Meter Operator R. Lindberg	
Probe Operator R. Luikaart	

Meter Box No. D-12	Sample Box No. 71-11
Meter Yd 1.0077	Meter ΔH@ 1.7517
K Factor 7.6	Pitot Cp .84
Leak Rate Before .004 [cfm] [Lpm] @ 15 (in.Hg)	
Leak Rate After .003 [cfm] [Lpm] @ 15 (in.Hg)	
Pitot Leak Check Before: ☒	After: Good ☒ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.) 125.5			
Static Press. (in. H_2O) .-5	Port Len. (in.) 12.5 + 5	Gas Flow [In] [Out] of page	First point all the way [In] [Out]

Amb. Temp. (°F) 72	Bar. Press 23.70 [in. Hg] [mbar]
Probe I.D. No. M-6.1-65	
Liner Material GLASS	

Filter No. 085981		
Thimble No. —		
Nozzle Diameter .375	Nozzle I.D. 65	

H_2O 385.3 [ml] [gm]	Silica Gel (gm) 19.2
Total V_{lc} 404.5	
Start Time: ~~1720~~ 1730 RRR	Stop Time: 1835

Traverse Point Number	Min/pt 5 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft³] [L] 719.45	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
1-1	5	.23	1.7	723.69	310	248	246	66	86	85	8	N/A	*MID LOAD
2	10	.25	1.9	728.07	310	250	247	46	88	85	9		(728.07) RRR
3	15	.18	1.4	731.91	301	248	252	49	89	85	7		
2-1	20	.30	2.3	736.71	312	250	252	55	90	86	12		
2	25	.28	2.1	741.36	311	250	253	56	90	86	12		
3	30	.23	1.7	745.59	302	250	250	64	90	86	9		
3-1	35	.25	1.9	750.03	311	249	250	60	90	86	10		
2	40	.23	1.7	754.23	311	251	250	59	90	86	10		
3	45	.15	~~1.4~~ 1.1	757.79	303	249	249	55	91	86	7		
4-1	50	.20	1.5	761.75	311	251	249	56	90	86	7		ΔH = 1.5 RRR
2	55	.18	1.4	765.59	313	250	251	54	91	86	7		
3	60	.14	1.1	769.08	301	247	248	55	91	86	6		
	Total			49.63									
	Average	.464	1.65		308				88				

SOLVAY2016_6_002053

DS 001 General
CNVS/TRG.R3-4/6/94

* Sum of square roots

Circle correct bracketed units on data sheet.

CAE
Cl[redacted]Air E[redacted]eerin[redacted]

PARTICULATE TESTING FIELD DATA SHEET

TEST LOCATION: STACK

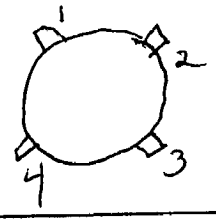
UNIT: CALCINER #3 **RUN:** 5

METHOD: 5/202 **PAGE** 1 **OF** 1

Client SOLVAY	Project No. 7955
Plant GREEN RIVER	Date 5/28/97
Meter Operator RON LINDBERG	
Probe Operator Bill DIMITROFF	

Meter Box No. D 12	Sample Box No. 71-11
Meter Yd 1.0077	Meter ΔH@ 1.7517
K Factor 7.8	Pitot Cp .84
Leak Rate Before .006 [cfm] [Lpm] @ 16 (in.Hg)	
Leak Rate After .006 [cfm] [Lpm] @ 18 (in.Hg)	
Pitot Leak Check Before: ☒	After: Good ☒ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.) 125.5

Static Press. (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-.4	5.5/120		

Amb. Temp. (°F) 60	Bar. Press. 24.08 [in. Hg] [mbar]
Probe I.D. No. M-6-1	
Liner Material GLASS	

Filter No. 095987	
Thimble No. NA	
Nozzle Diameter .375	Nozzle I.D. NA

H_2O 350.7 [ml] [gm]	Silica Gel (gm) 15.7
Total V_{lc} 366.4	

Start Time: 0830	Stop Time: 0937

Traverse Point Number	Min/pt 5.0 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft³] [L] 894.00	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 248	Filter T_f (°F) Set Points 248	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
P4-1	5.0	.18	1.4	897.72	295	251	249	47	72	70	10	N/A	*LOW LOAD
-2	10	RH ~~.18~~ .16	~~1.4~~ 1.2	901.17	294	250	251	47	73	70	9		ΔP = .16 ΔH = 1.2
-3	15	.13	1.0	904.43	290	250	250	46	75	71	8		
P3-1	20	.23	1.8	908.40	295	252	253	50	75	71	14		ΔH ~ 1.7
-2	25	.18	1.4	912.18	295	250	254	57	75	71	12		
-3	30	.15	1.1	915.62	290	250	255	62	75	71	10		ΔH ~ 1.7
P2-1	35	.28	2.2	919.70	296	252	244	62	76	72	15		
-2	40	.27	2.1	923.67	299	250	240	62	77	73	15		ΔH ~ 1.6
-3	45	.23	1.8	927.67	295	250	240	62	78	74	15		ΔH - 1.6
P1-1	50	.19	1.5	931.55	297	250	245	64	76	74	12		
-2	55	.20	1.6	935.55	296	250	253	62	77	74	14		
-3	60	.16	1.2	939.10	291	240	247	63	78	74	18		
	Total			45.10									
	Average	441	1.525		294					74			

(73.8)

* Sum of square roots.

Circle correct bracketed units on data sheet.

DS 001 General
CNVS/TRG.R3-4/6/94

Clean Air Engineering

SOLVAY2016_6_002054

TEST LOCATION: Stack

UNIT: Calciner #3 **RUN:** 6

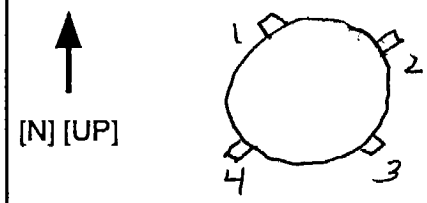
Particulate TESTING FIELD DATA SHEET

METHOD: 5/202 **PAGE** 1 **OF** 1

Client Solvay	Project No. 7955
Plant GR. WY	Date 5-28-97
Meter Operator Ron Lindberg	
Probe Operator Bill Dimi	

Meter Box No. D-12	Sample Box No.
Meter Yd 1.0077	Meter ΔH@ 1.7517
K Factor 7.8	Pitot Cp .84
Leak Rate Before .006 [cfm] [Lpm] @ 15 (in.Hg)	
Leak Rate After .006 [cfm] [Lpm] @ 15 (in.Hg)	
Pitot Leak Check Before: ☒	After: Good ☒ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.)	125.5

Static Press. (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-.3	12.5 + 5		

Amb. Temp. (°F) 66	Bar. Press. 24.08 [in. Hg] [mbar]
Probe I.D. No. M-6-1	
Liner Material GLASS	

Filter No. 095988		
Thimble No. —		
Nozzle Diameter .375	Nozzle I.D. 65	

H_2O 351.0 [ml] [gm]	Silica Gel (gm) 12.2
Total V_{lc} 363.2	

Start Time: 1023	Stop Time: 1129

Traverse Point Number	Min/pt 5 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft³] [L] 942.38 ~~924.38~~	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 260	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
1-1	5	.19	1.5	946.25	295	248	240	66	79	78	10	N/A	* LOW LOAD
2	10	.20	1.6	950.25	296	249	245	58	82	79	12		
3	15	.16	1.2	953.80	290	249	253	56	84	79	8		
2-1	20	.26	2.0	958.00	295	251	258	57	85	80	14		ΔH: 1.7
2	25	.26	2.0	962.17	297	250	252	60	86	82	14		ΔH: 1.7
3	30	.22	1.7	966.34	293	250	254	57	86	82	14		
3-1	35	.20	1.6	970.35	295	251	255	60	86	83	13		
2	40	.19	1.5	974.26	294	250	255	58	87	84	12		
3	45	.14	1.1	977.75	289	250	254	60	88	84	9		
4-1	50	.17	1.3	981.46	295	250	256	63	89	85	10		
2	55	.15	1.2	985.03	294	250	255	60	91	86	10		
3	60	.11	.86	988.07	288	249	251	60	91	86	7		
	Total			45.69					86				
	Average	.430	1.463		293				88				

SOLVAY2016_6_002055

DS 001 General
CNVS/TRG.R3-4/6/94

* Sum of square roots

Circle correct bracketed units on data sheet.

C[redacted]Air E[redacted]eeri[redacted]

TEST LOCATION: STACK

UNIT: CALCINER #3 RUN: 7

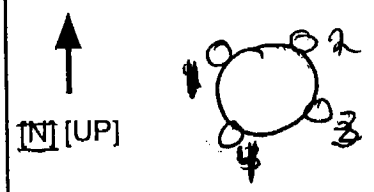
PARTICULATE TESTING FIELD DATA SHEET

METHOD: 5/202 PAGE 1 OF 1

Client: SOLVAY	Project No.: 7955
Plant: GREEN RIVER	Date: 5/27/97
Meter Operator: RON LINDBERG	
Probe Operator: BILL DIMITROFF	

Meter Box No.: D-12	Sample Box No.: 71-11
Meter Yd: 1.0077	Meter ΔH@: 1.7517
K Factor: 7.8	Pitot Cp: .84
Leak Rate Before: .007 [cfm] [Lpm] @ 15 (in.Hg)	
Leak Rate After: .003 [cfm] [Lpm] @ 11 (in.Hg)	
Pitot Leak Check Before: ☒ After: Good ☒ Bad ☐	

Cross-Section of Test Location



Amb. Temp. (°F): 70	Bar. Press.: 24.08 [in. Hg] [mbar]
Probe I.D. No.: M-6-1	
Liner Material: GLASS	

Filter No.: 095989	
Thimble No.: NA	
Nozzle Diameter: .375	Nozzle I.D.: NA

H_2O: 368.5 [ml] [gm]	Silica Gel (gm): 12.7
Total V_{lc}: 381.2	

Start Time: 1215	Stop Time: 1321

Duct Dimensions (in.)	125.5		
Static Press. (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-.3	5.5/12.0		

Traverse Point Number	Min/pt 5.0 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft^3] [L] 996.00	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 248	Filter T_f (°F) Set Points 248	Cond. Temp. T_c (°F)	DGM Inlet T_{min} (°F)	DGM Outlet T_{mout} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
P4-1	~~+05~~	.20	1.6	1000.06	293	244	248	67	87	86	6	NA	*LOW LOXΔ
-2	10	.18	1.4	1003.83	293	249	247	64	88	86	6		
-3	15	.13	1.0	1007.09	289	249	247	64	89	86	4		
P3-1	20	.24	1.9	1011.46	295	245	250	60	89	86	7		
-2	25	.24	1.9	1015.85	294	250	240	52	90	86	8		
-3	30	.17	1.3	1019.60	289	249	240	52	91	86	5		
P2-1	35	.28	2.2	1024.35	295	251	245	56	91	87	9		
-2	40	.27	2.1	1028.97	298	250	244	52	92	87	8		
-3	45	.24	1.9	1033.43	293	250	243	52	92	87	7		
P1-1	50	.21	1.6	1037.50	299	249	247	56	91	87	6		
-2	55	.23	1.8	1041.87	299	250	253	56	91	87	7		
-3	60	.15	1.2	1045.60	292	248	247	57	91	86			
	Total	*		49.60									
	Average	.4157	1.658		294				88				

* Sum of square roots.

Circle correct bracketed units on data sheet.

DS 001 General
CNVS/TRG.R3-4/6/94

Clean Air Engineering

SOLVAY2016_6_002056

TEST LOCATION: STACK

PARTICULATE TESTING FIELD DATA SHEET

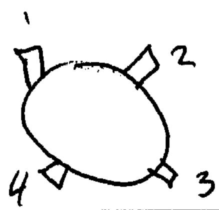
METHOD: 5/202 **PAGE** 1 **OF** 1

UNIT: CA/CANER #3 **RUN:** 8

Client SOLVAY	Project No. 7955
Plant GREEN RIVER	Date 5/30/97
Meter Operator Bill DIMITROFF	
Probe Operator RON LINDBERG	

Meter Box No. B 12	Sample Box No.
Meter Yd 1.0077	Meter ΔH@ 1.7517
K Factor 7.8	Pitot Cp .84
Leak Rate Before .007 [cfm] [Lpm] @ 15 (in.Hg)	
Leak Rate After .008 [cfm] [Lpm] @ 17 (in.Hg)	
Pitot Leak Check Before: ☒	After: Good ☒ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.) 125.5			
Static Press. (in. H_2O) -.40	Port Len. (in.) 5.5/12.0	Gas Flow [In] [Out] of page	First point all the way [In] [Out]

Amb. Temp. (°F) 58	Bar. Press. 24.17 [in. Hg] [mbar]
Probe I.D. No. M 6-1-65	
Liner Material GLASS	

Filter No. ~~095981~~ 095991	
Thimble No. NA	
Nozzle Diameter .375	Nozzle I.D. NA

H_2O 376.6 [ml] [gm]	Silica Gel (gm) 13.6
Total V_{lc} 390.2	

Start Time: 08 17	Stop Time: 9:20

Traverse Point Number	Min/pt 5.0 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft³] [L] 46.35	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 248	Filter T_f (°F) Set Points 248	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
P1-1	5.0	.24	1.9	50.65	308	251	248	60	82	84	12	NA	
-2	10	.22	1.7	54.81	316	246	247	60	81	83	12		
-3	15	.14	1.1	58.33	311	247	244	60	81	81	8		CHANGE K-FACTOR
P2-1	20	.30	2.3	62.63	314	248	249	58	83	80	14		TO 7.7 2.0 ΔH
-2	25	.30	2.3	86.92	318	250	251	55	83	80	14		1.9 ΔH
-3	30	.19	1.5	70.91	313	250	250	56	83	80	12		
P3-1	35	.32	2.5	75.21	310	248	249	57	82	79	14		1.8 ΔH
-2	40	.30	2.3	79.40	319	250	250	54	82	79	14		1.8 ΔH
-3	45	.26	2.0	83.61	314	250	248	54	81	79	14		1.8 ΔH
P4-1	50	.34	2.6	87.85	313	250	250	57	81	78	14		1.8 ΔH
-2	55	.26	2.0	92.05	315	250	252	57	81	78	14		1.8 ΔH
-3	60	~~.13~~	~~1.0~~	~~94.35~~	~~316~~	~~250~~	250	~~56~~	~~81~~	~~78~~	10		STOP TEST @ 9:20 TOTAL TEST TIME = 58:2
Total		*5.9413	23.2	48.00	3767				981	959			
Average		.4951	1.93		314				81				

[redacted]DS 00[redacted]eneral[redacted] * [redacted] of sq[redacted] root[redacted] Circle correct bracketed units on data sheet. [redacted]

CNVS/[redacted]G.R3-4/6/94

C[redacted] Air E[redacted]eerin[redacted]

SOLVAY2016 6 002057

TRAIN SET-UP DATA
METH 5/202

CA3

CLIENT SOLVAY

JOB # 7955

5/22/97

RUN # 1 BOX # D5 FILTER # 085344

		Gross	Tare	Net	Total
Imp. 1	100 ml DI H2O	763.1	528.6	234.5	
Imp. 2	100 ml DI H2O	695.7	538.8	156.9	
Imp. 3	100 ml DI H2O	549.9	531.8	18.1	409.5
Imp. 4	Silica Gel	754.2	743.8	10.4	10.4
					419.9

RUN # 2 BOX # 71-11 FILTER # 085345

		Gross	Tare	Net	Total
Imp. 1	100 ml DI H2O		531.1		
Imp. 2	100 ml DI H2O		544.9	ABORT	
Imp. 3	100 ml DI H2O		532.7		
Imp. 4	Silica Gel		~~781.3~~ BMC 775.2		

RUN # 3 (2A) BOX # D5 FILTER # 085360

		Gross	Tare	Net	Total
Imp. 1	100 ml DI H2O	765.7	527.6	238.1	
Imp. 2	100 ml DI H2O	692.5	542.0	150.5	
Imp. 3	100 ml DI H2O	540.2	532.7	7.5	396.1
Imp. 4	Silica Gel	802.1	786.4	15.7	15.7
					411.8

TRAIN SET-UP DATA
METH 5/202

CLIENT SOLVAY

CA 3

JOB # 7955

RUN # 4 BOX # 71-11 FILTER # 085981

5/22/97

		Gross	Tare	Net	Total
Imp. 1	100 ml DI H2O	771.0	529.2	241.8	
Imp. 2	100 ml DI H2O	663.7	549.1	114.6	
Imp. 3	100 ml DI H2O	564.7	535.8	28.9	385.3
Imp. 4	Silica Gel	805.5	786.3	19.2	19.2
					404.5

RUN # _____ BOX # _____ FILTER # _____

		Gross	Tare	Net	Total
Imp. 1	100 ml DI H2O				
Imp. 2	100 ml DI H2O				
Imp. 3	100 ml DI H2O				
Imp. 4	Silica Gel				

RUN # _____ BOX # _____ FILTER # _____

		Gross	Tare	Net	Total
Imp. 1	100 ml DI H2O				
Imp. 2	100 ml DI H2O				
Imp. 3	100 ml DI H2O				
Imp. 4	Silica Gel				

CA3

TRAIN SET-UP DATA
METH 5/202

CLIENT Solvay

JOB # 7955

RUN # ~~1~~ 5 BOX # 71-11 FILTER # 095987

		Gross	Tare	Net	Total
Imp. 1	100 ml DI H2O	763.3	555.2	208.1	
Imp. 2	100 ml DI H2O	660.8	545.1	115.7	
Imp. 3	100 ml DI H2O	551.9	525.0	26.9	350.7
Imp. 4	Silica Gel	706.5	690.8	15.7	366.4

RUN # ~~2~~ 6 BOX # 71-14C FILTER # 095988

		Gross	Tare	Net	Total
Imp. 1	100 ml DI H2O	759.0	537.3	221.7	
Imp. 2	100 ml DI H2O	649.3	525.1	124.2	
Imp. 3	100 ml DI H2O	535.3	530.2	5.1	351.0
Imp. 4	Silica Gel	709.4	697.2	12.2	363.2

RUN # 7 BOX # 7-11 FILTER # 095989

		Gross	Tare	Net	Total
Imp. 1	100 ml DI H2O	727.3	524.0	203.3	
Imp. 2	100 ml DI H2O	699.2	547.4	151.8	
Imp. 3	100 ml DI H2O	539.3	525.9	13.4	368.5
Imp. 4	Silica Gel	709.8	697.1	12.7	12.7
					381.2

TRAIN SET-UP DATA
METH 5/202

CLIENT Solvay

JOB # 75 7955

RUN # 8 BOX # 71-146 FILTER # 095981

		Gross	Tare	Net	Total
Imp. 1	100 ml DI H2O	753.7	544.5	209.2	
Imp. 2	100 ml DI H2O	676.1 ~~722.9~~ PWK	527.3	148.8	
Imp. 3	100 ml DI H2O	552.4	533.8	18.6	376.6
Imp. 4	Silica Gel	722.9	709.3	13.6	13.6
					390.2

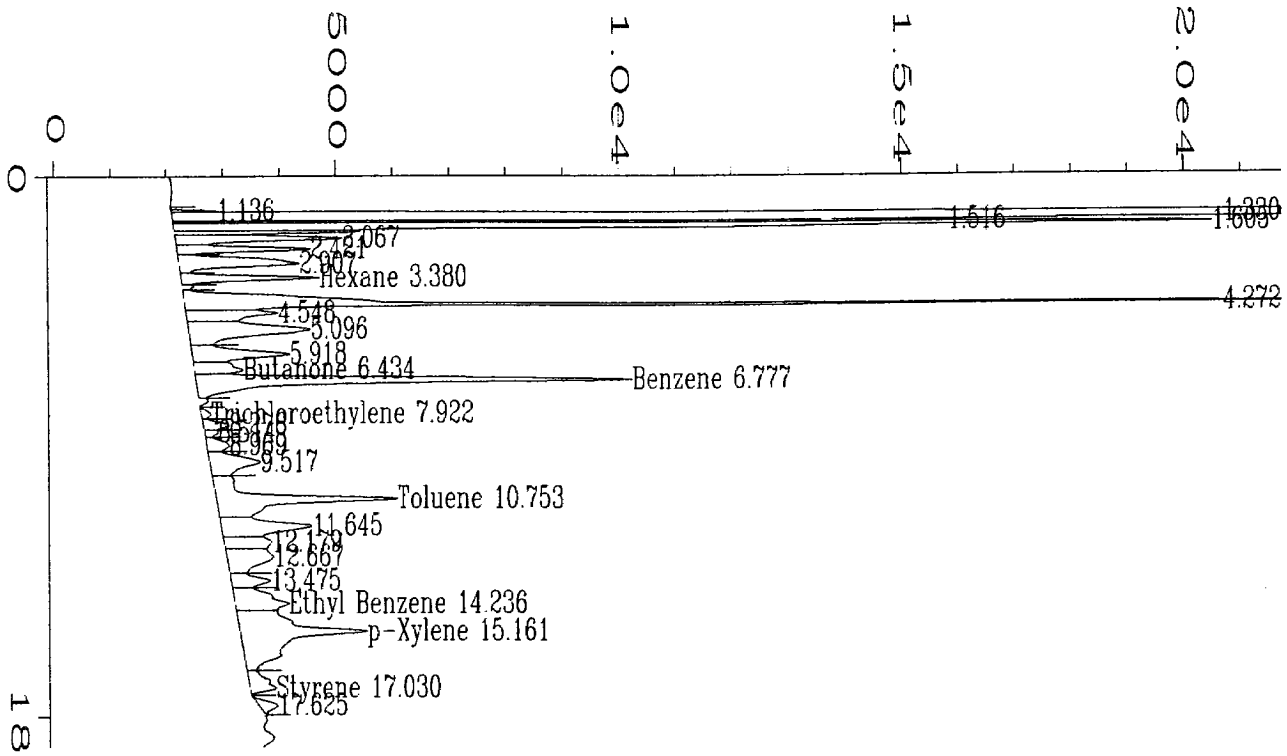
RUN # 9 BOX # 71-11 FILTER # 085201

y not do Run

		Gross	Tare	Net	Total
Imp. 1	100 ml DI H2O		528.0		
Imp. 2	100 ml DI H2O		549.2		
Imp. 3	100 ml DI H2O		527.2		
Imp. 4	Silica Gel		669.4		

RUN # 10 BOX # FILTER #

		Gross	Tare	Net	Total
Imp. 1	100 ml DI H2O				
Imp. 2	100 ml DI H2O				
Imp. 3	100 ml DI H2O				
Imp. 4	Silica Gel				



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External Standard Report

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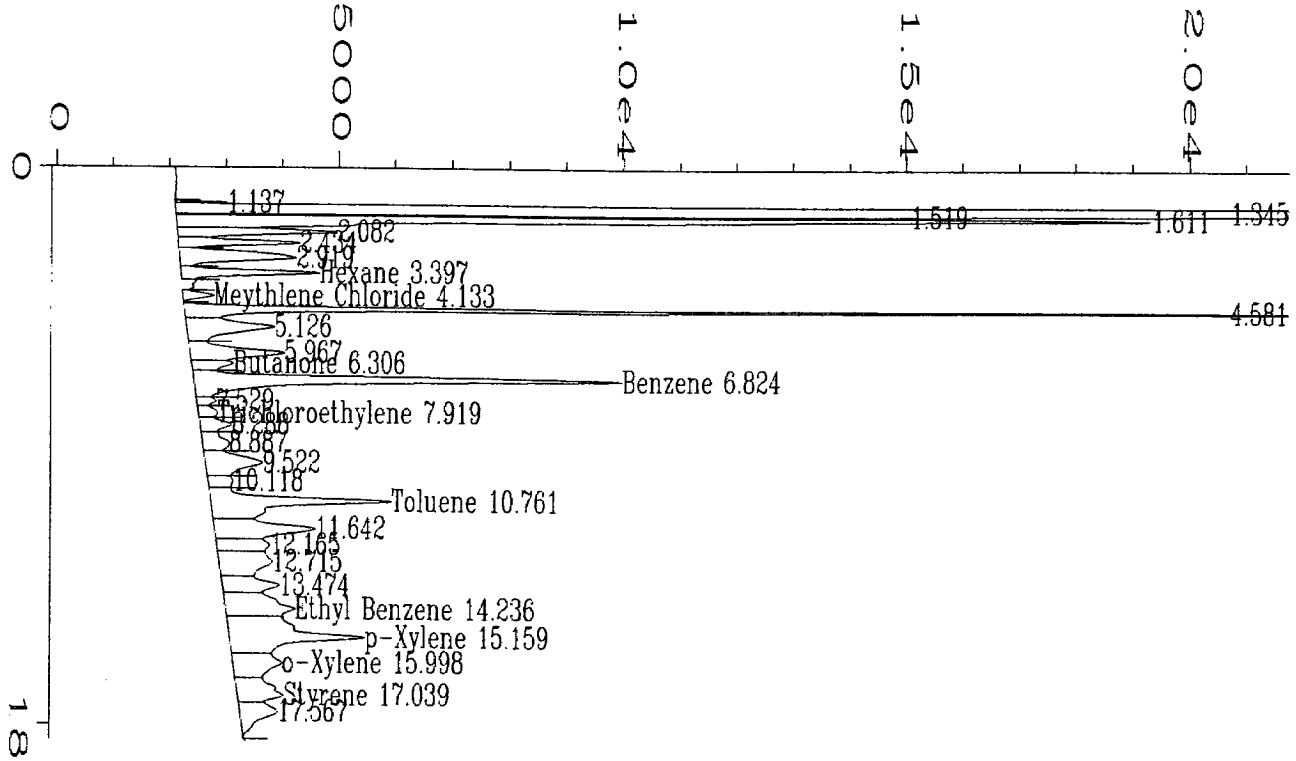
Data File Name	: D:\GC2\5-22\G2R1_01.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 11:51 AM	Instrument Method	: GC2.MTH
Report Created on	: 23 Jun 97 02:16 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\5-22\G2R1_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.380	26893	VV	0.172	1	0.552	Hexane
4.000	* not found *			1		Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.434	16950	VV	0.272	1	0.816	Butanone
6.777	111437	VV	0.215	1	1.877	Benzene
7.922	2437	PV	0.214	1	0.135	Trichloroethylene
10.753	75967	VV	0.327	1	1.285	Toluene
14.236	31392	VV	0.438	1	0.471	Ethyl Benzene
14.649	* not found *			1		m-Xylene
15.161	101019	VV	0.578	1	1.216	p-Xylene
15.800	* not found *			1		o-Xylene
17.030	14043	VV	0.402	1	0.168	Styrene

Not all calibrated peaks were found



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External Standard Report

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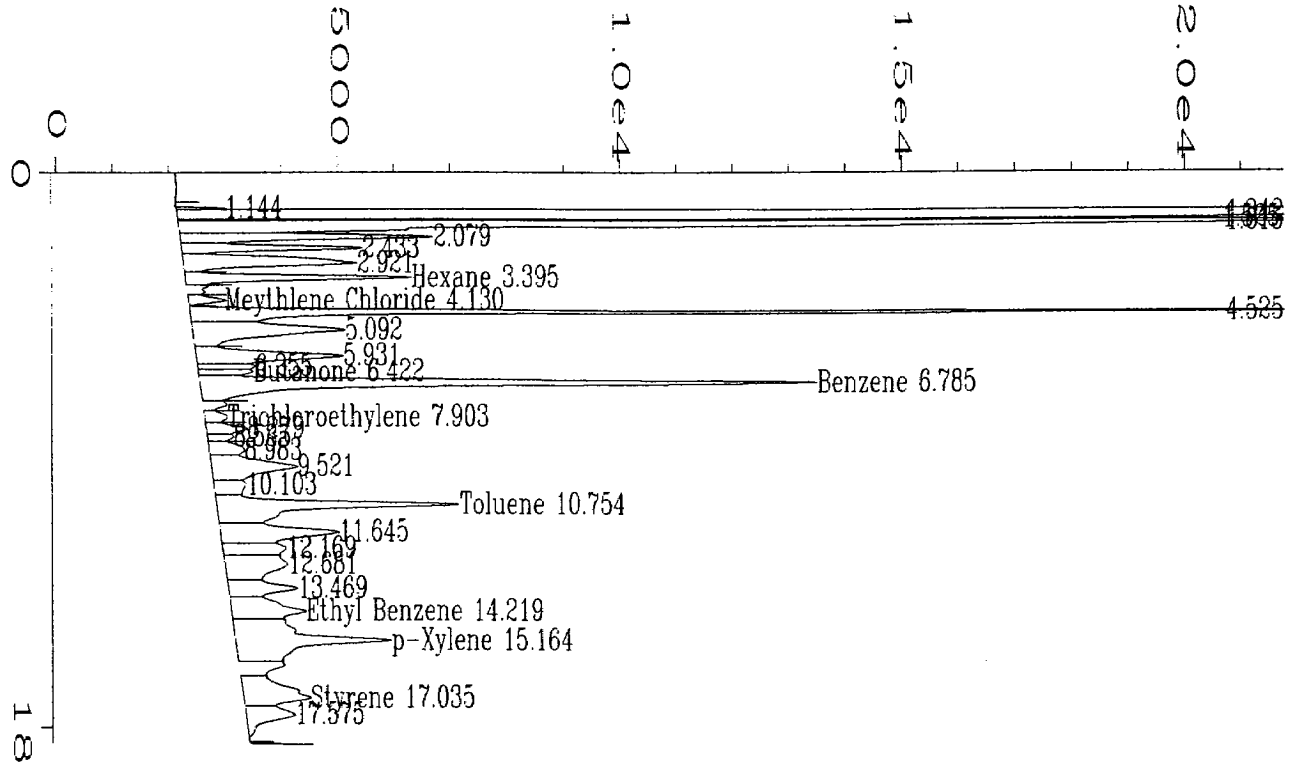
Data File Name : D:\GC2\5-22\G2R1_02.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 22 May 97 12:18 PM
Report Created on: 23 Jun 97 02:17 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\5-22\G2R1_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.397	29069	VV	0.187	1	0.596	Hexane
4.133	6830	VV	0.188	1	1.183	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.306	11621	VV	0.222	1	0.565	Butanone
6.824	114732	VV	0.224	1	1.932	Benzene
7.919	6547	VV	0.300	1	0.346	Trichloroethylene
10.761	72314	VV	0.316	1	1.223	Toluene
14.236	44265	VV	0.473	1	0.665	Ethyl Benzene
14.649	* not found *			1		m-Xylene
15.159	89772	VV	0.493	1	1.071	p-Xylene
15.998	32006	VV	0.495	1	0.309	o-Xylene
17.039	29826	VV	0.482	1	0.387	Styrene

Not all calibrated peaks were found



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External Standard Report

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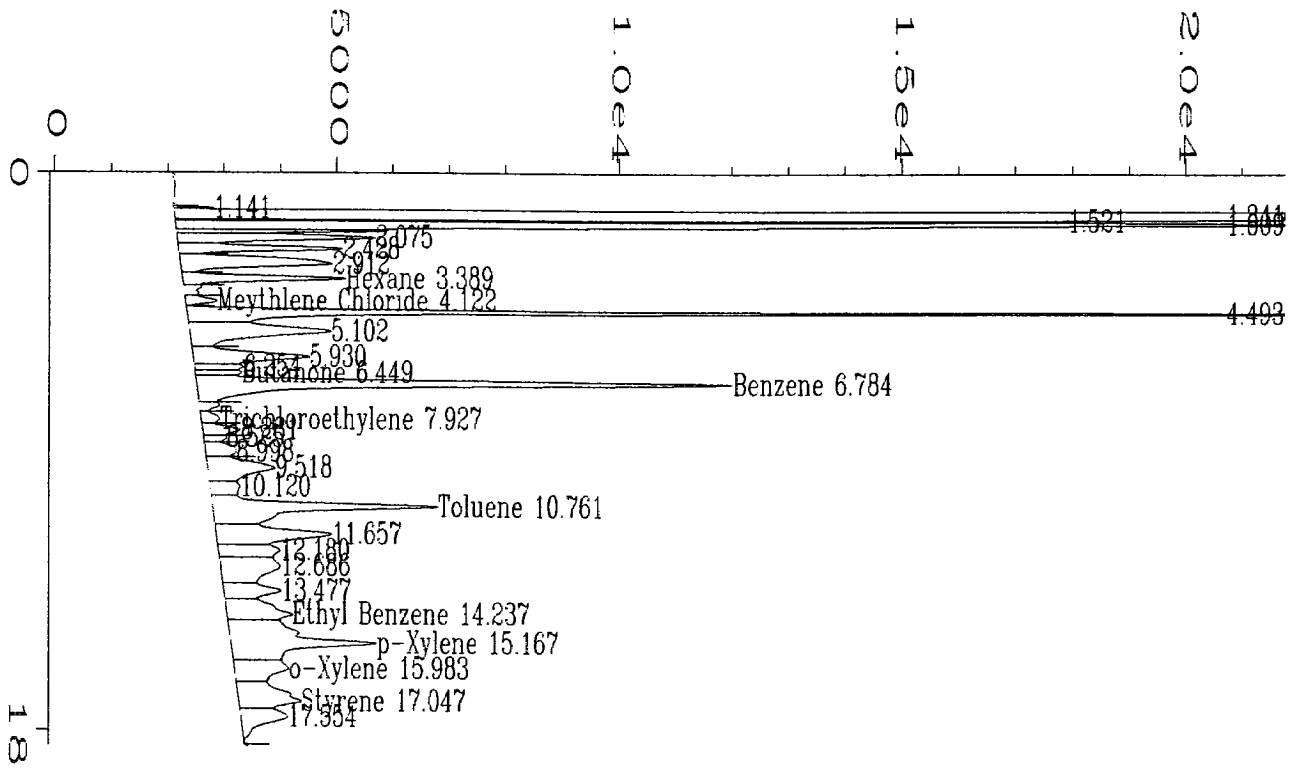
Data File Name	: D:\GC2\5-22\G2R1_03.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 12:46 PM	Instrument Method	: GC2.MTH
Report Created on	: 23 Jun 97 02:17 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\5-22\G2R1_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.395	46226	VV	0.181	1	0.942	Hexane
4.130	8395	VV	0.194	1	1.386	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.422	10402	VV	0.157	1	0.507	Butanone
6.785	160715	VV	0.218	1	2.695	Benzene
7.903	7722	VV	0.294	1	0.407	Trichloroethylene
10.754	89630	VV	0.292	1	1.516	Toluene
14.219	40913	VV	0.418	1	0.614	Ethyl Benzene
14.649	* not found *			1		m-Xylene
15.164	103278	VV	0.488	1	1.245	p-Xylene
15.800	* not found *			1		o-Xylene
17.035	46491	VV	0.510	1	0.619	Styrene

Not all calibrated peaks were found



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External Standard Report

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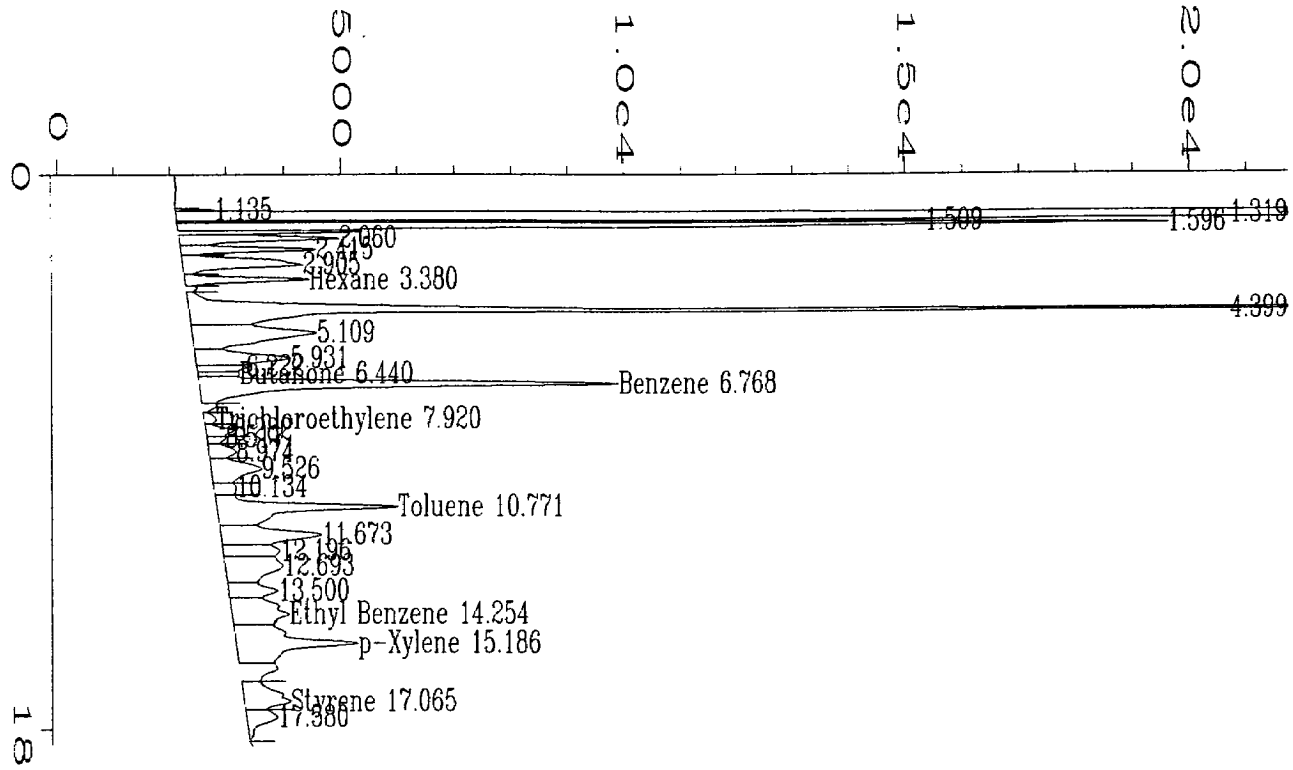
Data File Name	: D:\GC2\5-22\G2R2_01.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 01:31 PM	Instrument Method	: GC2.MTH
Report Created on	: 23 Jun 97 02:17 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\5-22\G2R2_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.389	33815	VV	0.185	1	0.692	Hexane
4.122	7548	VV	0.202	1	1.276	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.449	8502	VV	0.153	1	0.418	Butanone
6.784	142845	VV	0.223	1	2.398	Benzene
7.927	6017	VV	0.282	1	0.319	Trichloroethylene
10.761	86225	VV	0.303	1	1.458	Toluene
14.237	36888	VV	0.425	1	0.554	Ethyl Benzene
14.649	* not found *			1		m-Xylene
15.167	97333	VV	0.492	1	1.168	p-Xylene
15.983	32966	VV	0.465	1	0.321	o-Xylene
17.047	41752	VV	0.494	1	0.553	Styrene

Not all calibrated peaks were found



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External Standard Report

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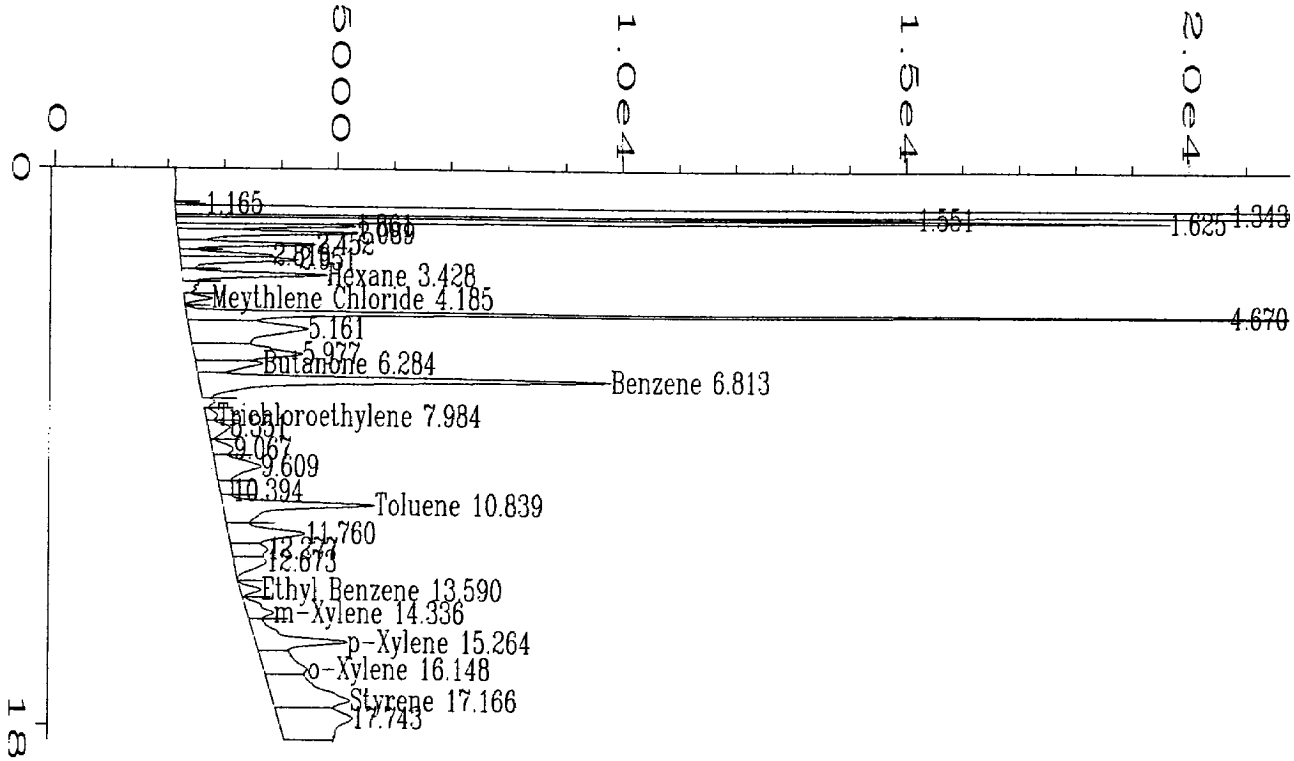
Data File Name	: D:\GC2\5-22\G2R3_01.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 03:30 PM	Instrument Method	: GC2.MTH
Report Created on	: 23 Jun 97 02:17 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\5-22\G2R3_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.380	23646	VV	0.170	1	0.486	Hexane
4.000	* not found *			1		Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.440	6432	VV	0.148	1	0.320	Butanone
6.768	115680	VV	0.229	1	1.948	Benzene
7.920	3691	VV	0.283	1	0.199	Trichloroethylene
10.771	71736	VV	0.315	1	1.213	Toluene
14.254	40775	VV	0.528	1	0.612	Ethyl Benzene
14.649	* not found *			1		m-Xylene
15.186	75142	VV	0.464	1	0.882	p-Xylene
15.800	* not found *			1		o-Xylene
17.065	31031	VV	0.496	1	0.404	Styrene

Not all calibrated peaks were found



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External Standard Report

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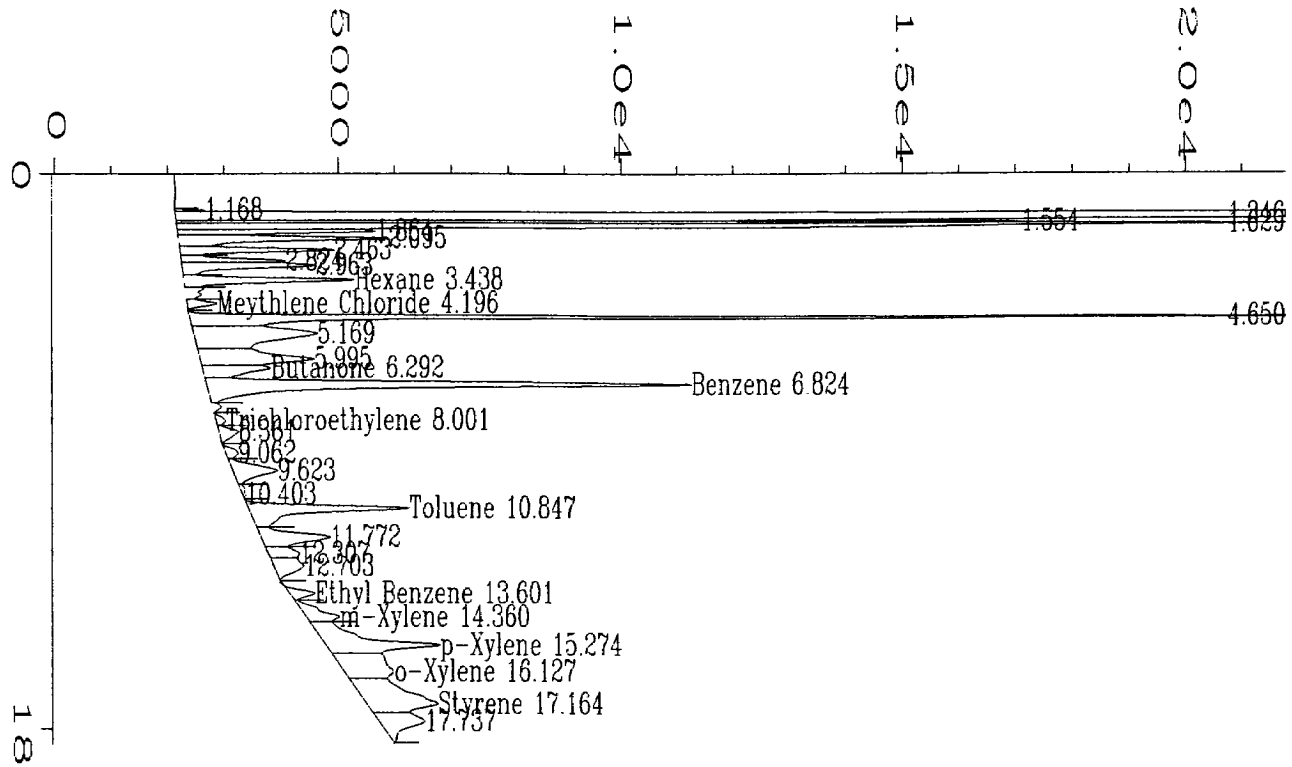
Data File Name : D:\GC2\5-22\G2R4_01.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 22 May 97 05:25 PM
Report Created on: 23 Jun 97 02:18 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\5-22\G2R4_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.428	27903	VV	0.166	1	0.572	Hexane
4.185	5817	VV	0.182	1	1.052	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.284	21553	VV	0.250	1	1.034	Butanone
6.813	103981	VV	0.212	1	1.754	Benzene
7.984	3814	VV	0.247	1	0.206	Trichloroethylene
10.839	53227	VV	0.282	1	0.901	Toluene
13.590	5597	PV	0.240	1	0.0826	Ethyl Benzene
14.336	12009	VV	0.349	1	0.148	m-Xylene
15.264	39886	VV	0.342	1	0.427	p-Xylene
16.148	29298	VV	0.636	1	0.275	o-Xylene
17.166	63869	VV	0.605	1	0.861	Styrene

Not all calibrated peaks were found



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External Standard Report

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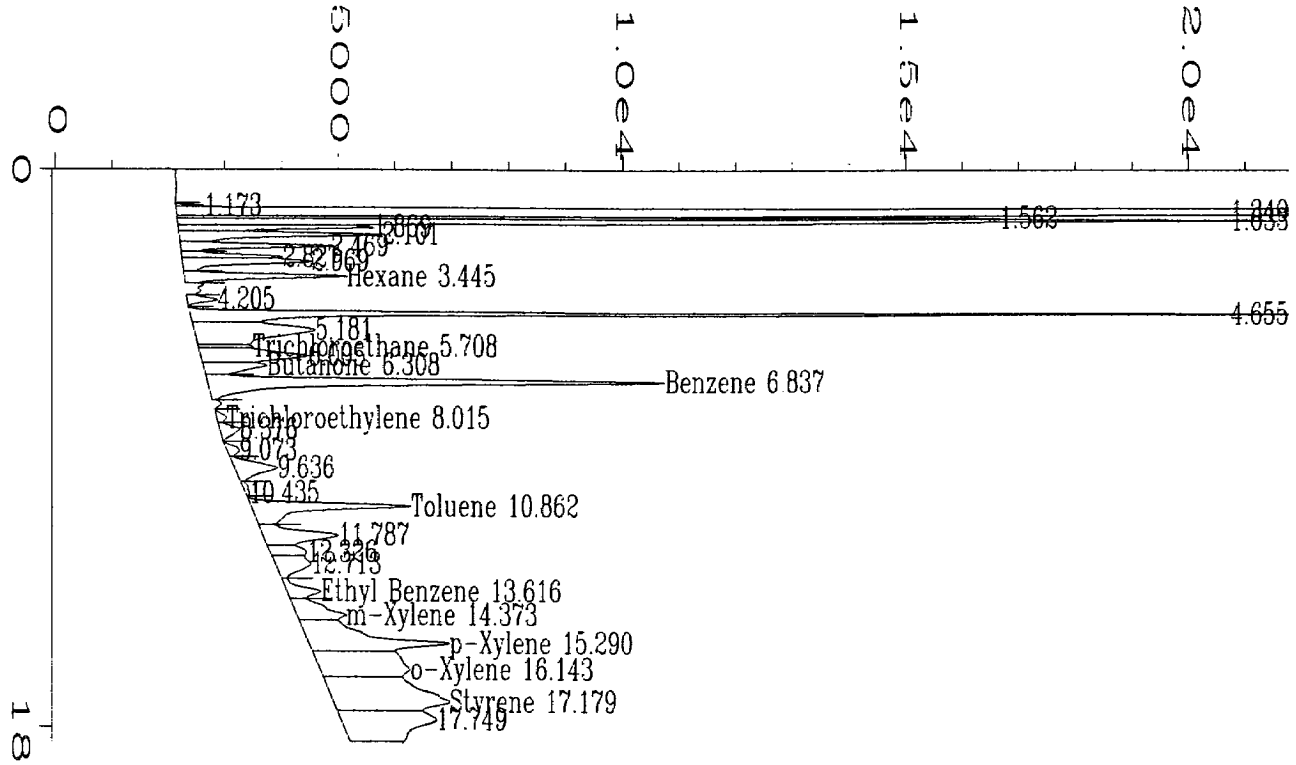
Data File Name : D:\GC2\5-22\G2R4_02.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 22 May 97 05:54 PM
Report Created on: 23 Jun 97 02:18 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\5-22\G2R4_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.438	32732	VV	0.167	1	0.670	Hexane
4.196	6098	VV	0.176	1	1.088	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.292	20924	VV	0.243	1	1.004	Butanone
6.824	119638	VV	0.209	1	2.013	Benzene
8.001	2506	VV	0.201	1	0.138	Trichloroethylene
10.847	47612	PV	0.245	1	0.806	Toluene
13.601	6456	PV	0.231	1	0.0956	Ethyl Benzene
14.360	14035	VV	0.328	1	0.179	m-Xylene
15.274	55992	VV	0.378	1	0.635	p-Xylene
16.127	40287	VV	0.591	1	0.413	o-Xylene
17.164	59378	VV	0.611	1	0.798	Styrene

Not all calibrated peaks were found



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External Standard Report

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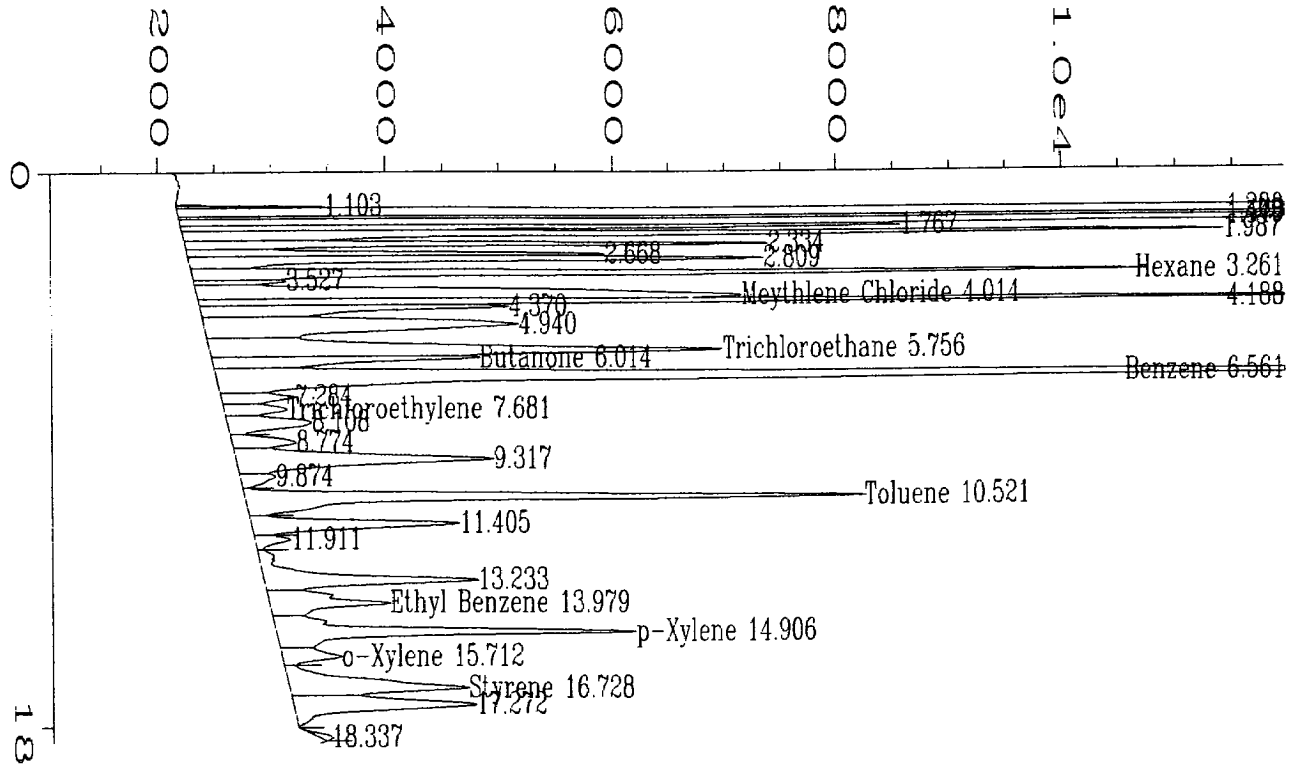
Data File Name	: D:\GC2\5-22\G2R4_03.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 06:24 PM	Instrument Method	: GC2.MTH
Report Created on	: 23 Jun 97 02:18 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\5-22\G2R4_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.445	30904	VV	0.163	1	0.633	Hexane
4.000	* not found *			1		Meythlene Chloride
5.708	5670	VV	0.098	1	0.345	Trichloroethane
6.308	19655	VV	0.241	1	0.944	Butanone
6.837	112274	VV	0.208	1	1.891	Benzene
8.015	2411	VV	0.242	1	0.133	Trichloroethylene
10.862	50078	VV	0.256	1	0.847	Toluene
13.616	12568	VV	0.309	1	0.188	Ethyl Benzene
14.373	24863	VV	0.383	1	0.343	m-Xylene
15.290	79940	VV	0.431	1	0.944	p-Xylene
16.143	75563	VV	0.614	1	0.856	o-Xylene
17.179	108731	VV	0.680	1	1.484	Styrene

Not all calibrated peaks were found



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External Standard Report

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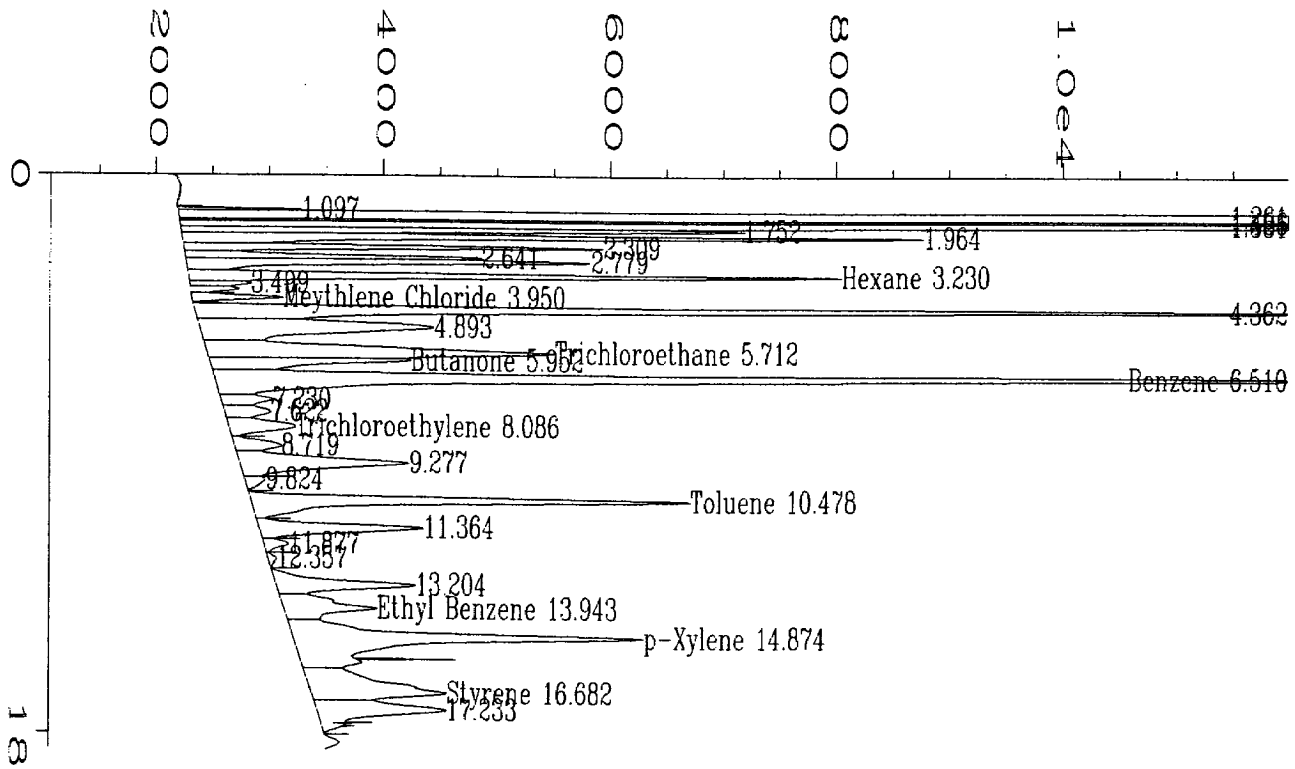
Data File Name	: D:\GC2\5-28\D2G2R1_1.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 28 May 97 08:31 AM	Instrument Method	: GC2.MTH
Report Created on	: 23 Jun 97 02:42 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\5-28\D2G2R1_1.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.261	86494	VV	0.156	1	1.755	Hexane
4.014	88388	VV	0.254	1	11.758	Meythlene Chloride
5.756	90784	VV	0.279	1	5.181	Trichloroethane
6.014	34134	VV	0.203	1	1.628	Butanone
6.561	227988	VV	0.208	1	3.810	Benzene
7.681	10339	VV	0.259	1	0.542	Trichloroethylene
10.521	85925	VV	0.232	1	1.453	Toluene
13.979	28503	VV	0.364	1	0.428	Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.906	59566	VV	0.273	1	0.681	p-Xylene
15.712	11725	VV	0.321	1	0.0544	o-Xylene
16.728	42080	VV	0.365	1	0.558	Styrene

Not all calibrated peaks were found



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External Standard Report

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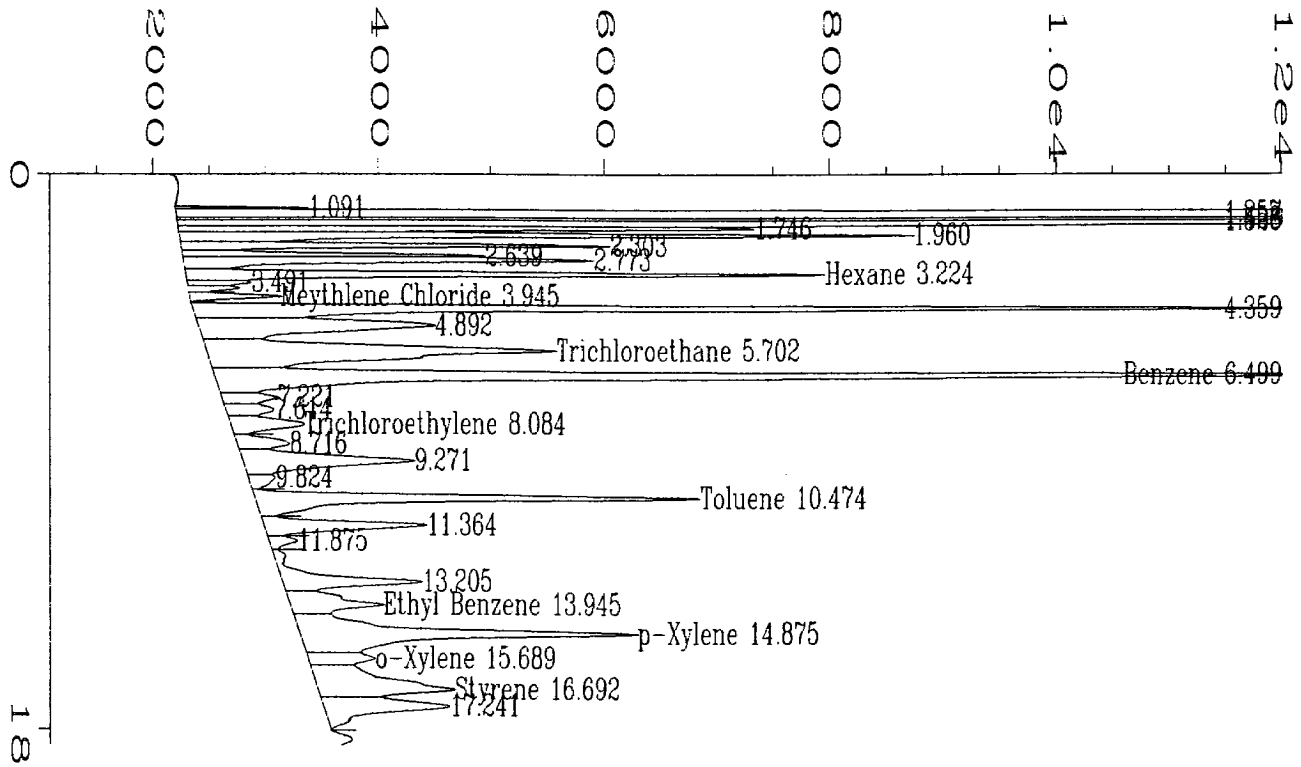
Data File Name : D:\GC2\5-28\2G2R1_2.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 28 May 97 08:57 AM
Report Created on: 23 Jun 97 02:42 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\5-28\2G2R1_2.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.230	57695	VV	0.155	1	1.173	Hexane
3.950	8007	VV	0.156	1	1.335	Meythlene Chloride
5.712	62329	VV	0.284	1	3.564	Trichloroethane
5.952	24630	VV	0.232	1	1.179	Butanone
6.510	152503	VV	0.209	1	2.558	Benzene
8.086	13434	VV	0.366	1	0.701	Trichloroethylene
10.478	59539	PV	0.231	1	1.007	Toluene
13.943	22676	VV	0.374	1	0.340	Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.874	87833	VV	0.386	1	1.046	p-Xylene
15.800	* not found *			1		o-Xylene
16.682	44861	VV	0.492	1	0.596	Styrene

Not all calibrated peaks were found



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External Standard Report

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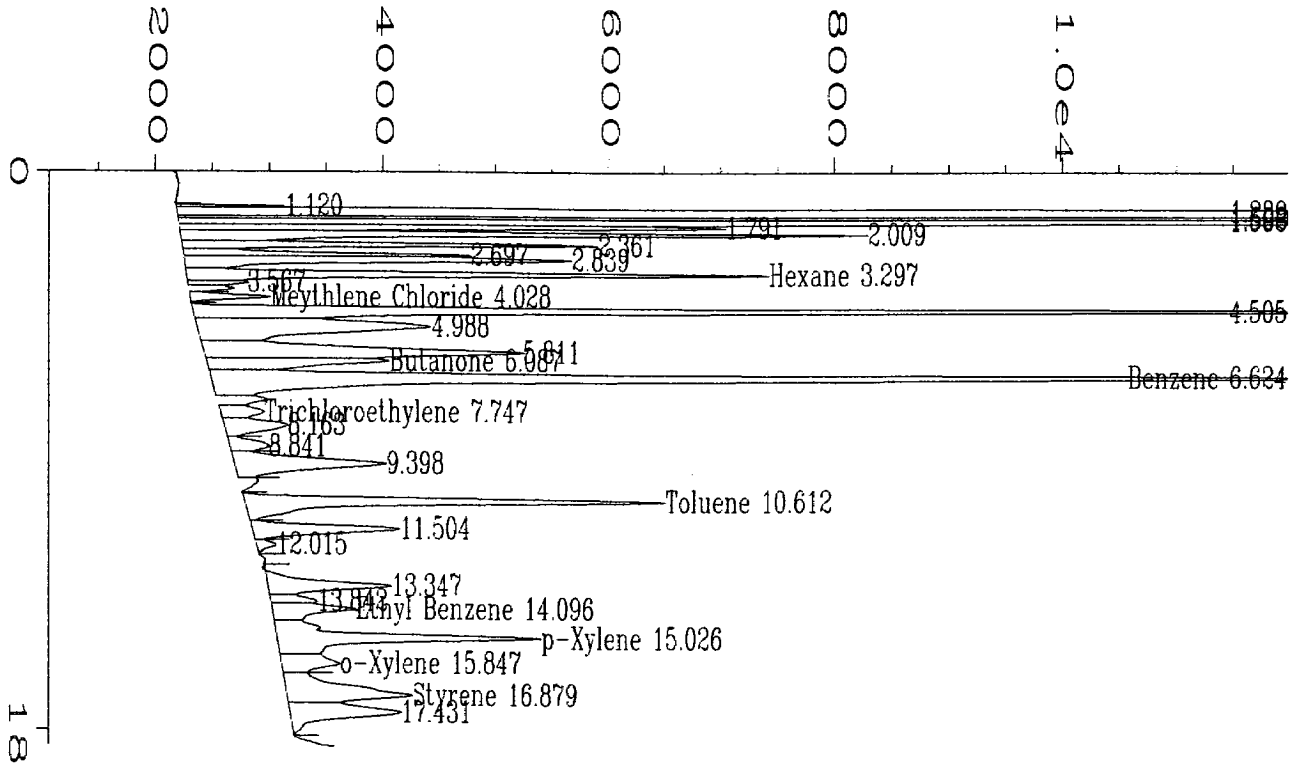
Data File Name	: D:\GC2\5-28\2G2R1_3.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 28 May 97 09:23 AM	Instrument Method	: GC2.MTH
Report Created on	: 23 Jun 97 02:42 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\5-28\2G2R1_3.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.224	57907	VV	0.158	1	1.178	Hexane
3.945	8186	VV	0.159	1	1.359	Meythlene Chloride
5.702	90264	VV	0.390	1	5.151	Trichloroethane
6.257	* not found *			1		Butanone
6.499	156164	VV	0.210	1	2.619	Benzene
8.084	15429	VV	0.365	1	0.804	Trichloroethylene
10.474	62953	VV	0.238	1	1.065	Toluene
13.945	22316	VV	0.365	1	0.334	Ethyl Benzene
14.649	* not found *			1		m-Xylene
14.875	78215	VV	0.359	1	0.922	p-Xylene
15.689	12361	VV	0.295	1	0.0624	o-Xylene
16.692	45026	VV	0.483	1	0.599	Styrene

Not all calibrated peaks were found



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External Standard Report

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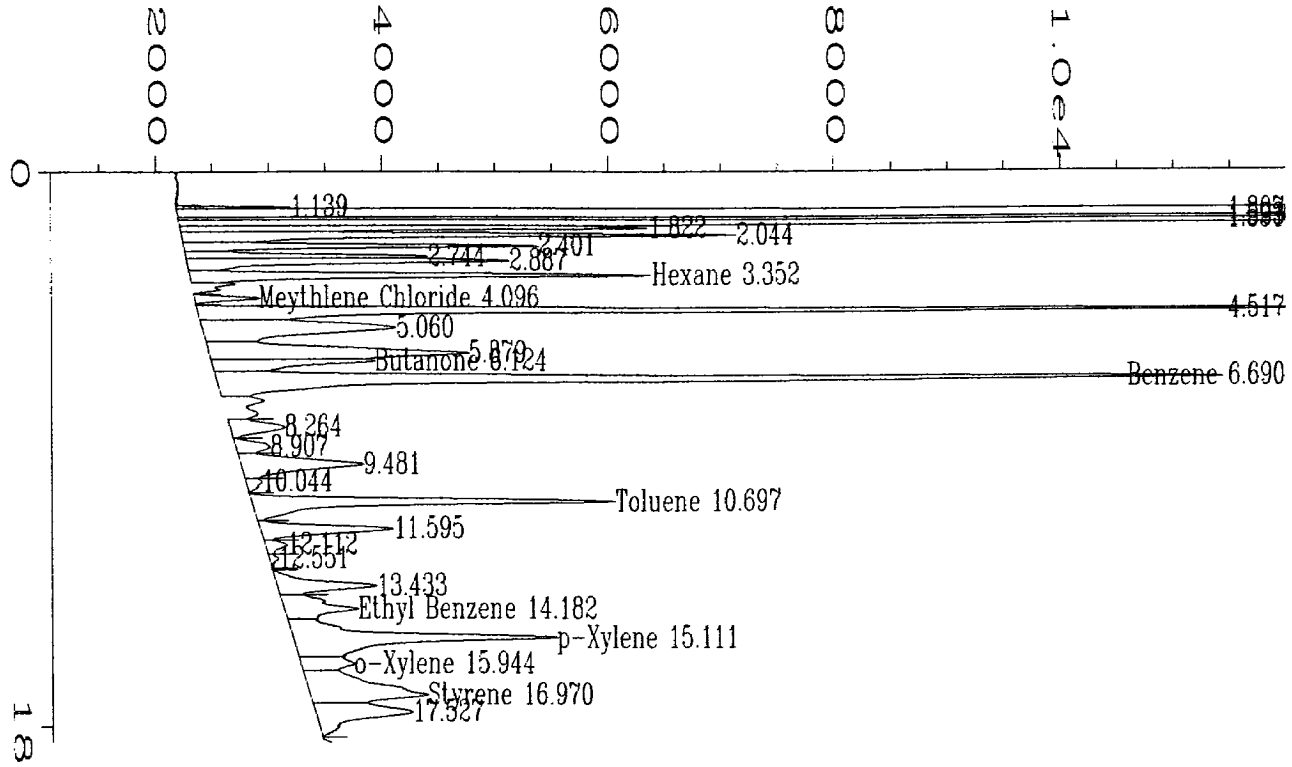
Data File Name	: D:\GC2\5-28\G2R6_1.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 28 May 97 10:15 AM	Instrument Method	: GC2.MTH
Report Created on	: 23 Jun 97 02:42 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\5-28\G2R6_1.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.297	52781	VV	0.156	1	1.074	Hexane
4.028	7107	VV	0.159	1	1.219	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.087	26448	VV	0.225	1	1.265	Butanone
6.624	153626	VV	0.211	1	2.577	Benzene
7.747	7462	VV	0.249	1	0.393	Trichloroethylene
10.612	57435	PV	0.231	1	0.972	Toluene
14.096	14989	VV	0.287	1	0.224	Ethyl Benzene
14.649	* not found *			1		m-Xylene
15.026	48714	VV	0.296	1	0.541	p-Xylene
15.847	13781	VV	0.373	1	0.0802	o-Xylene
16.879	34885	VV	0.422	1	0.458	Styrene

Not all calibrated peaks were found



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External Standard Report

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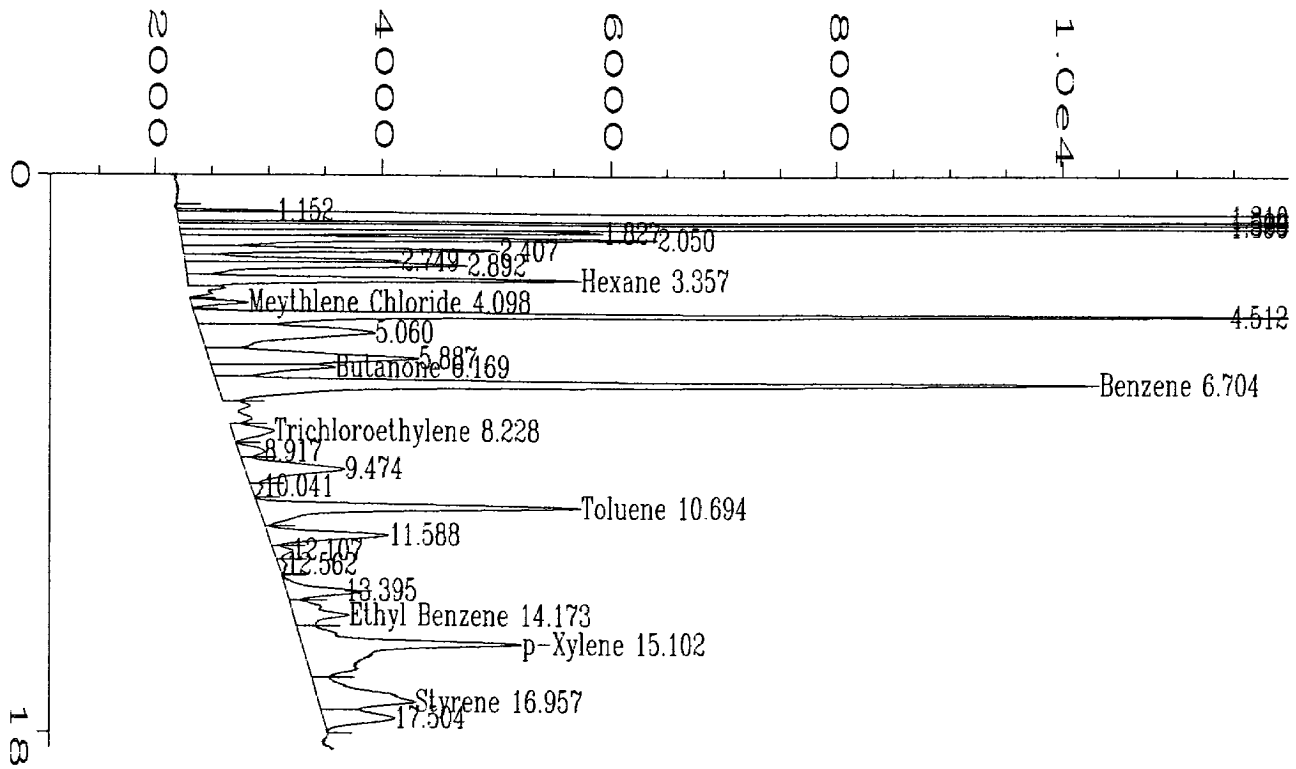
Data File Name	: D:\GC2\5-28\G2R6_2.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 28 May 97 10:43 AM	Instrument Method	: GC2.MTH
Report Created on	: 23 Jun 97 02:42 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\5-28\G2R6_2.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.352	41957	VV	0.157	1	0.856	Hexane
4.096	5425	VV	0.147	1	1.001	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.124	21384	VV	0.209	1	1.026	Butanone
6.690	126413	VV	0.210	1	2.126	Benzene
7.856	* not found *			1		Trichloroethylene
10.697	49230	PV	0.229	1	0.833	Toluene
14.182	18443	VV	0.380	1	0.276	Ethyl Benzene
14.649	* not found *			1		m-Xylene
15.111	59130	VV	0.349	1	0.675	p-Xylene
15.944	10820	VV	0.314	1	0.0431	o-Xylene
16.970	41263	VV	0.517	1	0.546	Styrene

Not all calibrated peaks were found



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External Standard Report

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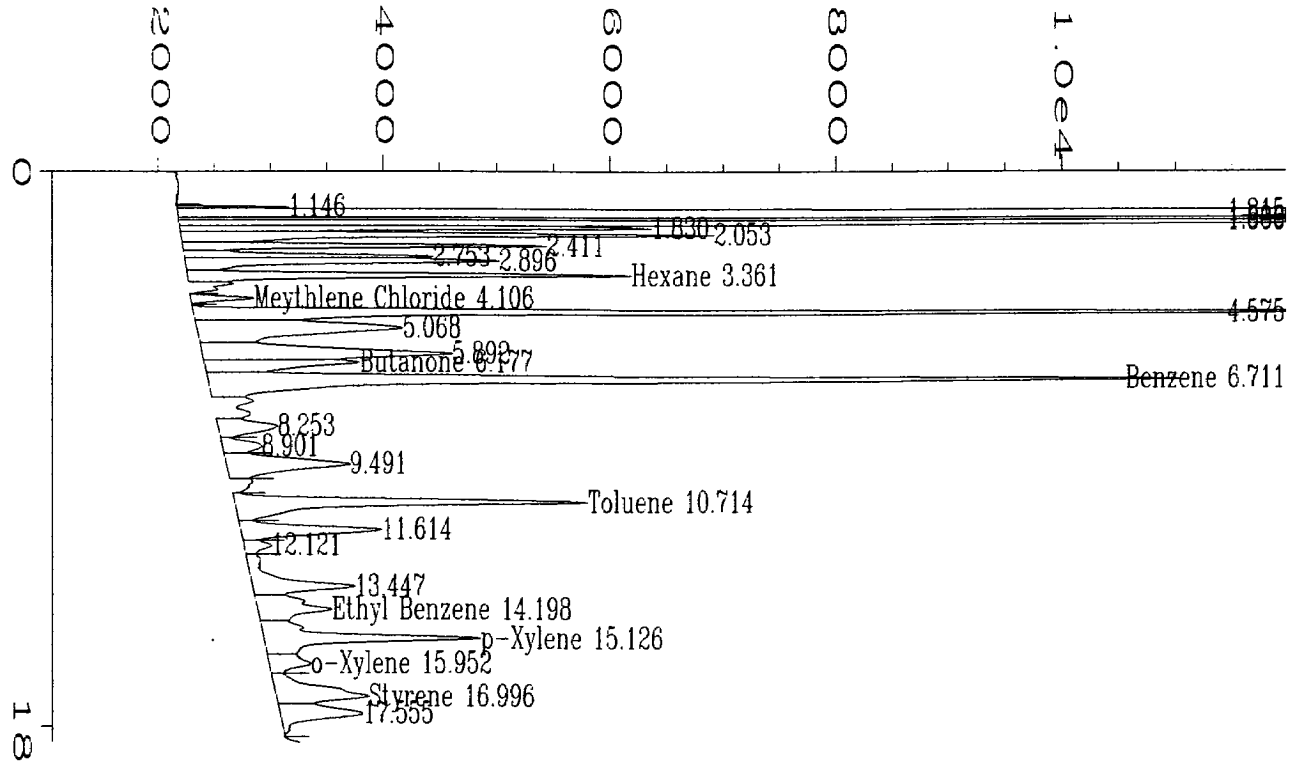
Data File Name : D:\GC2\5-28\G2R6_3.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 28 May 97 11:10 AM
Report Created on: 23 Jun 97 02:43 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\5-28\G2R6_3.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.357	34803	VV	0.154	1	0.711	Hexane
4.098	4647	PV	0.148	1	0.900	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.169	17312	VV	0.221	1	0.834	Butanone
6.704	108400	VV	0.207	1	1.827	Benzene
8.228	7798	VV	0.293	1	0.411	Trichloroethylene
10.694	43383	PV	0.229	1	0.734	Toluene
14.173	13401	VV	0.365	1	0.200	Ethyl Benzene
14.649	* not found *			1		m-Xylene
15.102	59108	VV	0.411	1	0.675	p-Xylene
15.800	* not found *			1		o-Xylene
16.957	30033	VV	0.471	1	0.390	Styrene

Not all calibrated peaks were found



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External Standard Report

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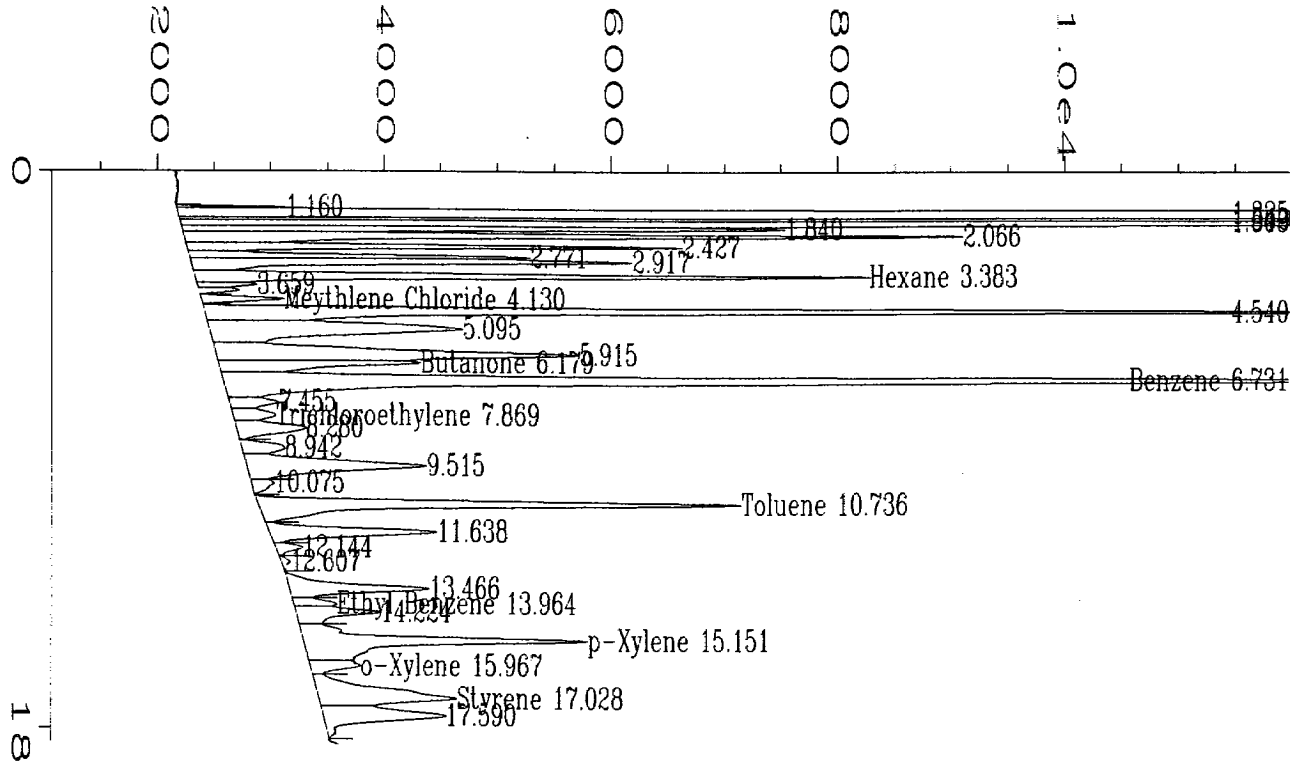
Data File Name	: D:\GC2\5-28\G2R7_1.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 28 May 97 12:06 PM	Instrument Method	: GC2.MTH
Report Created on	: 23 Jun 97 02:43 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\5-28\G2R7_1.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.361	40205	VV	0.157	1	0.820	Hexane
4.106	5579	VV	0.157	1	1.021	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.177	23733	VV	0.236	1	1.137	Butanone
6.711	124685	VV	0.214	1	2.097	Benzene
7.856	* not found *			1		Trichloroethylene
10.714	51700	VV	0.243	1	0.875	Toluene
14.198	20583	VV	0.412	1	0.308	Ethyl Benzene
14.649	* not found *			1		m-Xylene
15.126	41406	VV	0.306	1	0.447	p-Xylene
15.952	9551	VV	0.364	1	0.0271	o-Xylene
16.996	25217	VV	0.411	1	0.323	Styrene

Not all calibrated peaks were found



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External Standard Report

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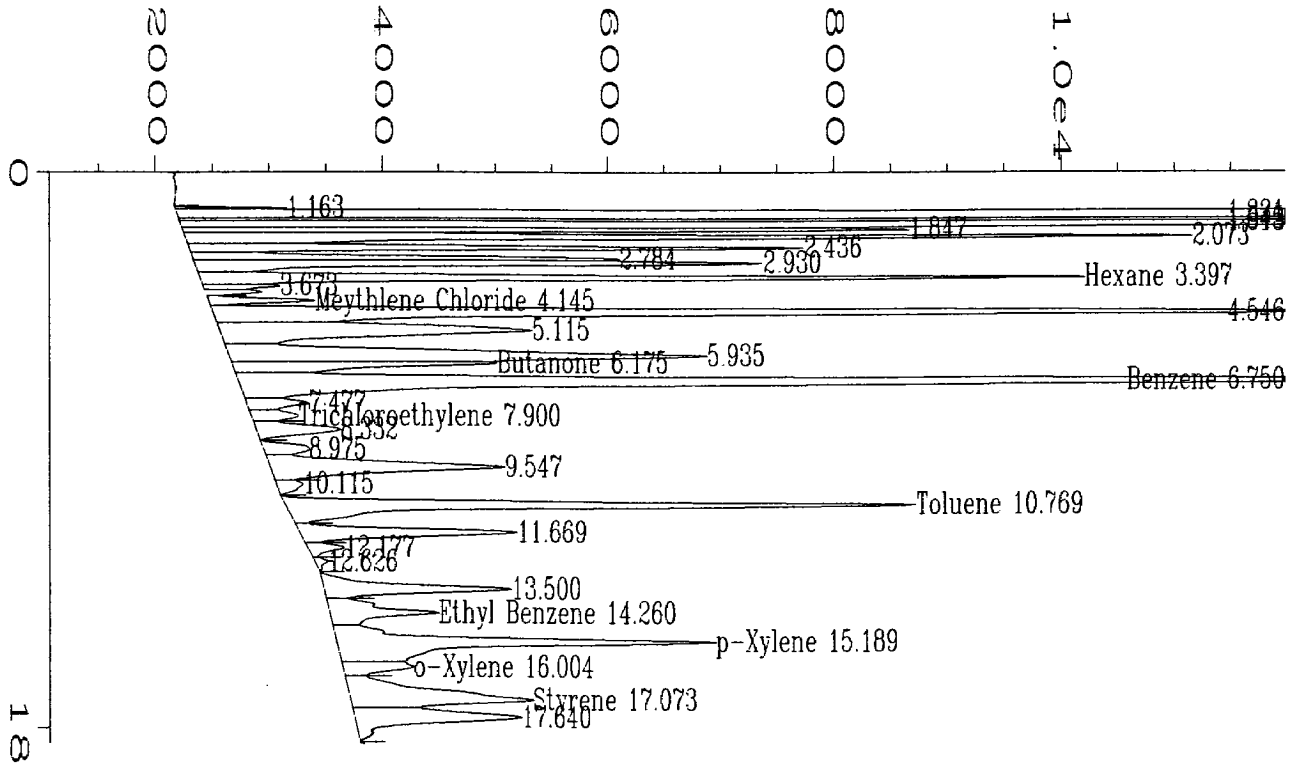
Data File Name : D:\GC2\5-28\G2R7_2.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 28 May 97 12:34 PM
Report Created on: 23 Jun 97 02:43 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\5-28\G2R7_2.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.383	60496	VV	0.155	1	1.230	Hexane
4.130	7247	VV	0.151	1	1.237	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.179	26799	VV	0.209	1	1.281	Butanone
6.731	171389	VV	0.209	1	2.872	Benzene
7.869	7226	VV	0.249	1	0.381	Trichloroethylene
10.736	65567	PV	0.230	1	1.109	Toluene
13.964	5077	VV	0.224	1	0.0748	Ethyl Benzene
14.649	* not found *			1		m-Xylene
15.151	56664	VV	0.315	1	0.644	p-Xylene
15.967	8449	VV	0.265	1	0.0133	o-Xylene
17.028	37604	VV	0.414	1	0.496	Styrene

Not all calibrated peaks were found



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External Standard Report

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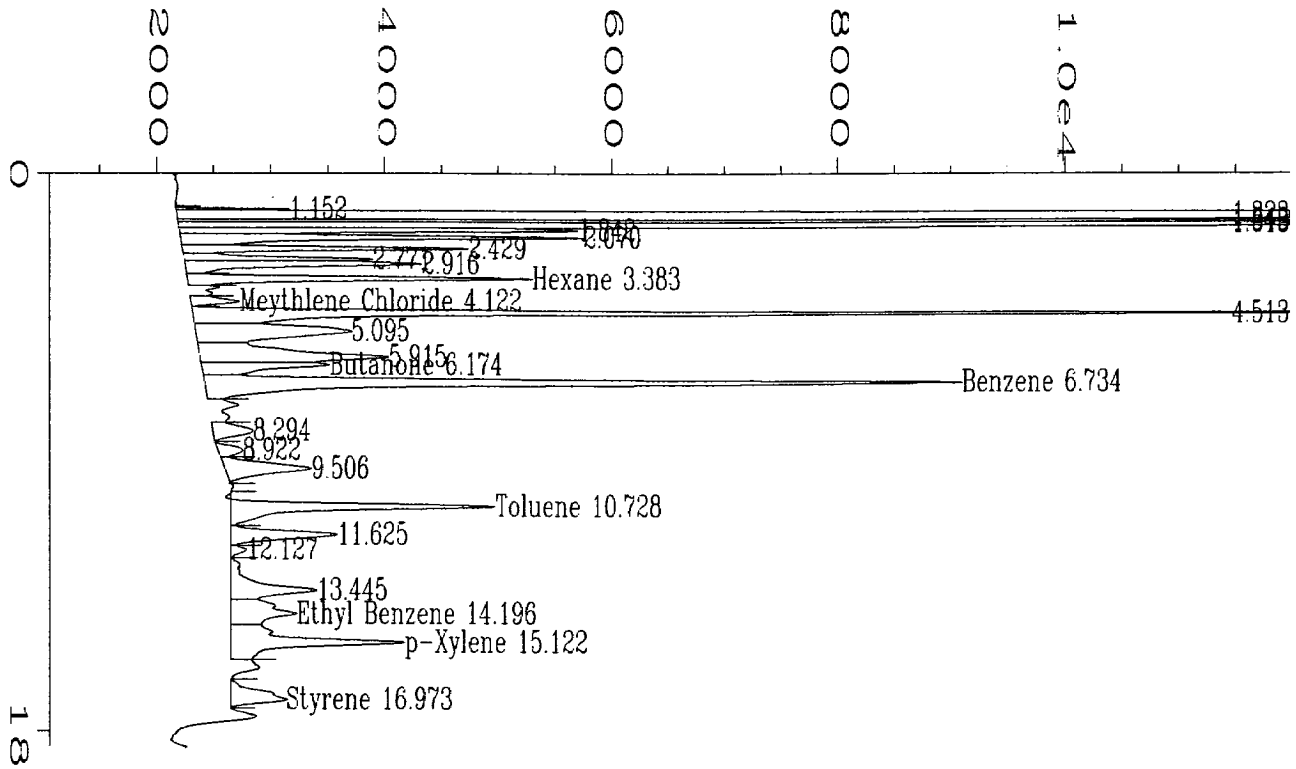
Data File Name	: D:\GC2\5-28\G2R7_3.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 28 May 97 01:02 PM	Instrument Method	: GC2.MTH
Report Created on	: 23 Jun 97 02:43 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\5-28\G2R7_3.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.397	80714	VV	0.159	1	1.638	Hexane
4.145	9804	VV	0.165	1	1.569	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.175	31543	VV	0.225	1	1.505	Butanone
6.750	220760	VV	0.208	1	3.690	Benzene
7.900	7591	VV	0.280	1	0.400	Trichloroethylene
10.769	86014	PV	0.229	1	1.454	Toluene
14.260	23445	VV	0.333	1	0.351	Ethyl Benzene
14.649	* not found *			1		m-Xylene
15.189	77009	VV	0.321	1	0.906	p-Xylene
16.004	12718	VV	0.291	1	0.0669	o-Xylene
17.073	51310	VV	0.426	1	0.686	Styrene

Not all calibrated peaks were found



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External Standard Report

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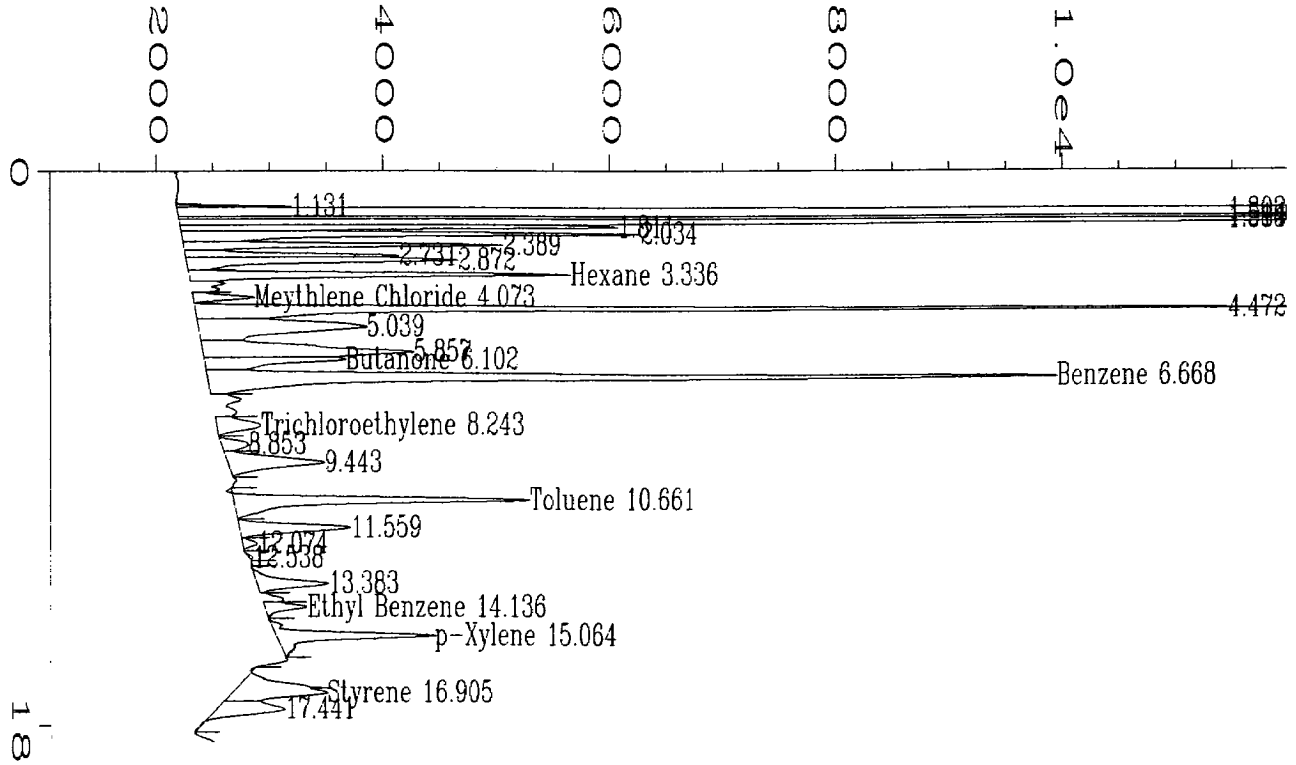
Data File Name : D:\GC2\G2R8_01.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 30 May 97 08:11 AM
Report Created on: 23 Jun 97 02:52 PM
Last Recalib on : 04 JUN 97 04:54 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC2.MTH
Analysis Method : GC2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\GC2\G2R8_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.383	29980	VV	0.153	1	0.614	Hexane
4.122	5431	VV	0.183	1	1.002	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.174	17066	VV	0.215	1	0.822	Butanone
6.734	93050	VV	0.208	1	1.572	Benzene
7.856	* not found *			1		Trichloroethylene
10.728	35203	BV	0.226	1	0.596	Toluene
14.196	18453	VV	0.423	1	0.276	Ethyl Benzene
14.649	* not found *			1		m-Xylene
15.122	35297	VV	0.324	1	0.368	p-Xylene
15.800	* not found *			1		o-Xylene
16.973	12559	VV	0.353	1	0.147	Styrene

Not all calibrated peaks were found



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External Standard Report

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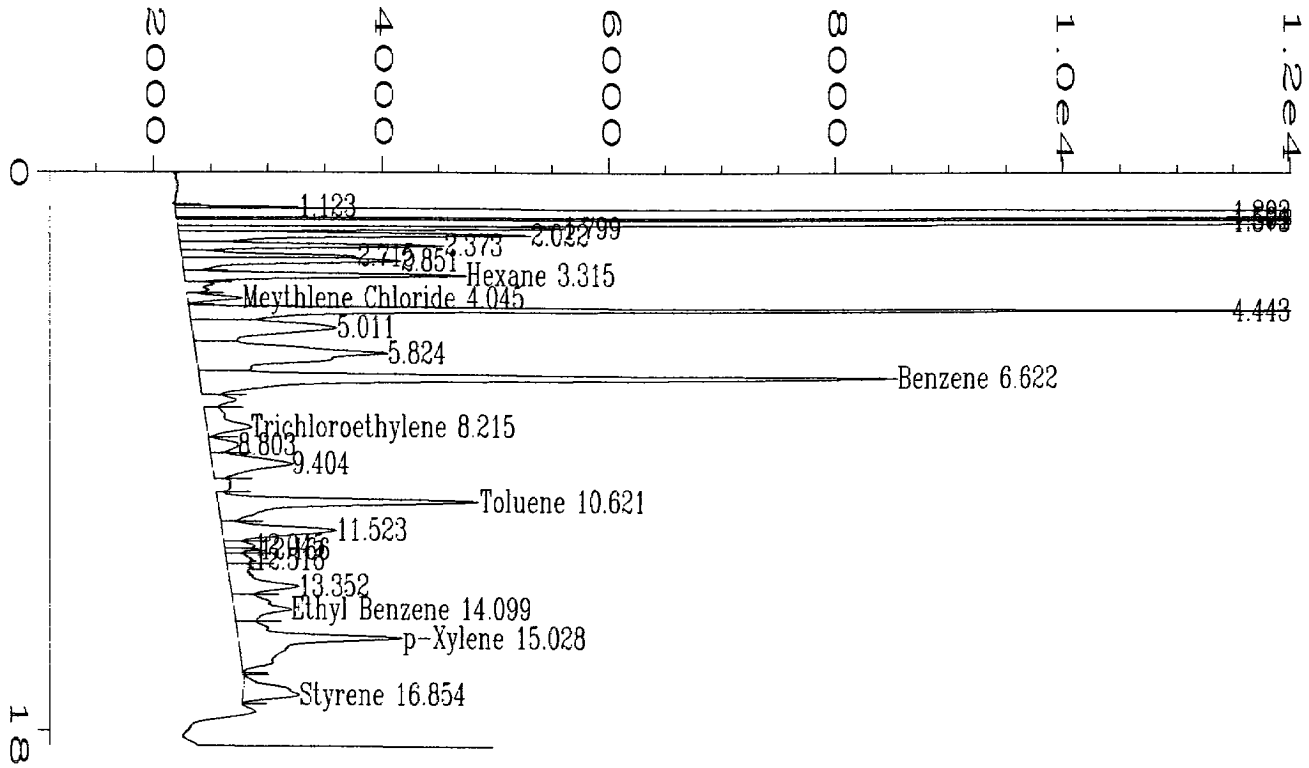
Data File Name	: D:\GC2\G2R8_02.D		
Operator	: Kurt Weppprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 30 May 97 08:36 AM	Instrument Method	: GC2.MTH
Report Created on	: 23 Jun 97 02:52 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\G2R8_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.336	33681	VV	0.154	1	0.689	Hexane
4.073	6085	VV	0.174	1	1.086	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.102	18713	VV	0.210	1	0.900	Butanone
6.668	102830	VV	0.200	1	1.734	Benzene
8.242	8627	VV	0.275	1	0.453	Trichloroethylene
10.661	38887	BV	0.223	1	0.658	Toluene
14.136	5432	VV	0.222	1	0.0802	Ethyl Benzene
14.649	* not found *			1		m-Xylene
15.064	22056	PB	0.237	1	0.197	p-Xylene
15.800	* not found *			1		o-Xylene
16.905	24481	BV	0.393	1	0.313	Styrene

Not all calibrated peaks were found



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External Standard Report

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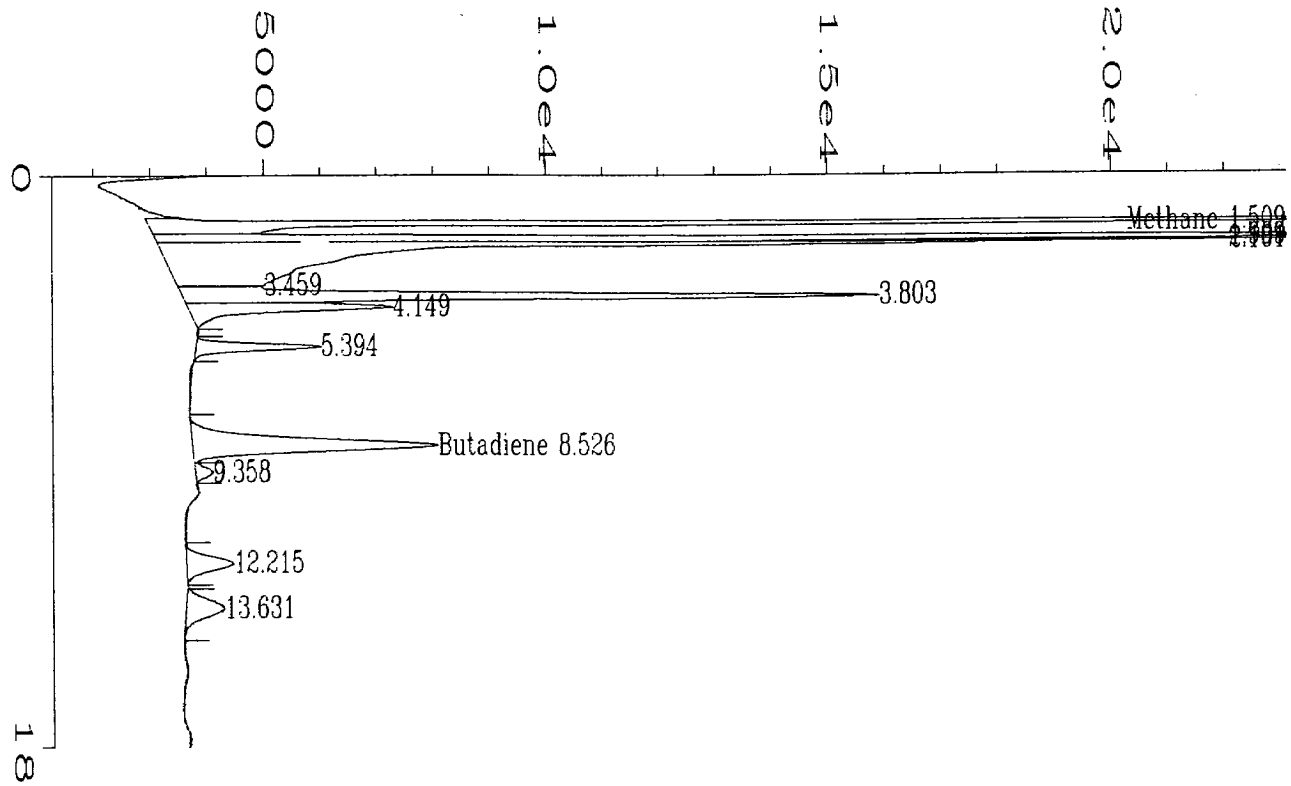
Data File Name	: D:\GC2\G2R8_03.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 30 May 97 09:02 AM	Instrument Method	: GC2.MTH
Report Created on	: 23 Jun 97 02:52 PM	Analysis Method	: GC2.MTH
Last Recalib on	: 04 JUN 97 04:54 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\GC2\G2R8_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.315	24854	VV	0.154	1	0.511	Hexane
4.045	5280	VV	0.172	1	0.982	Meythlene Chloride
5.513	* not found *			1		Trichloroethane
6.257	* not found *			1		Butanone
6.622	86885	VV	0.210	1	1.470	Benzene
8.215	11717	VV	0.427	1	0.613	Trichloroethylene
10.621	39500	VV	0.250	1	0.669	Toluene
14.099	15825	VV	0.416	1	0.237	Ethyl Benzene
14.649	* not found *			1		m-Xylene
15.028	41839	VB	0.391	1	0.452	p-Xylene
15.800	* not found *			1		o-Xylene
16.854	13327	BV	0.364	1	0.158	Styrene

Not all calibrated peaks were found



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External Standard Report

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Data File Name	: D:\GC1\5-22\G1R1_01.D		
Operator	: Kurt Weppprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 11:51 AM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:13 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\5-22\G1R1_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.509	1399693	VV	0.094	1	216.633	Methane
2.240	* not found *			1		Ethane
8.526	121397	BV	0.399	1	5.103	Butadiene
15.400	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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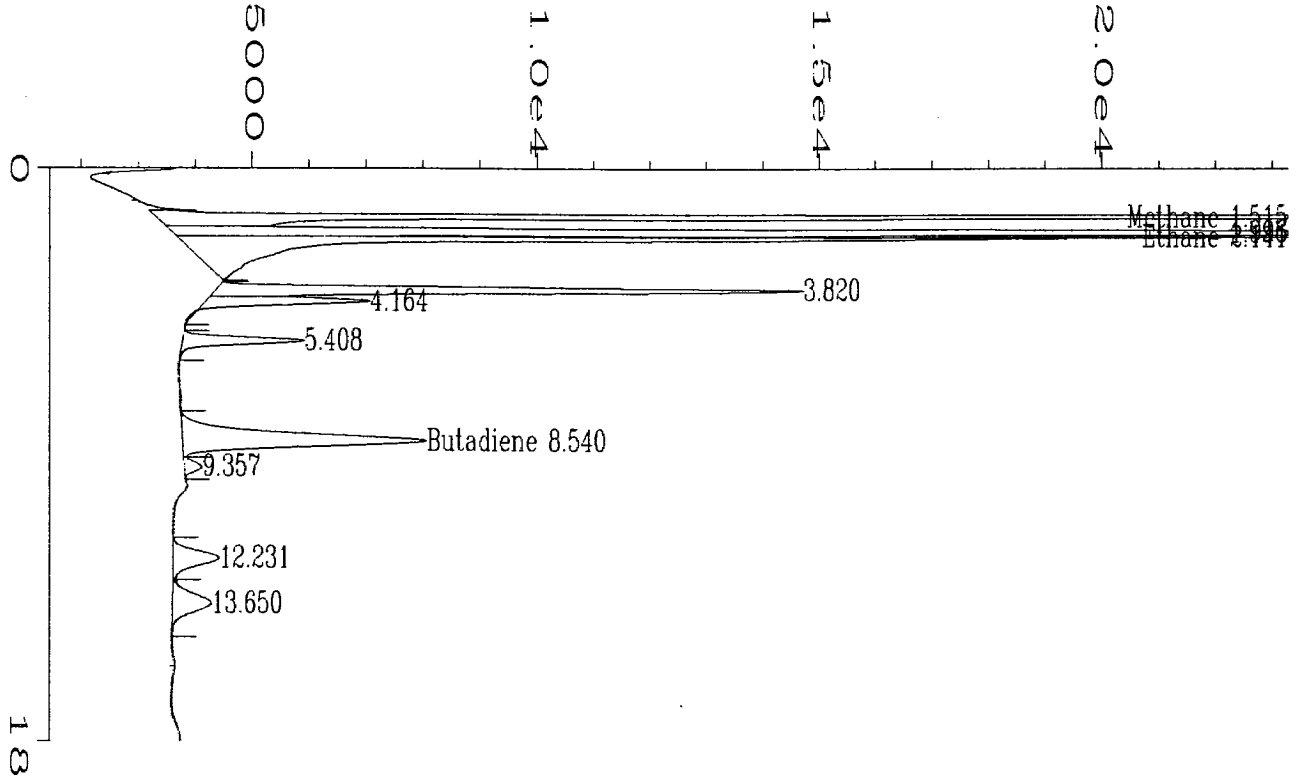

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External Standard Report

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Data File Name	: D:\GC1\5-22\G1R1_02.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 12:19 PM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:14 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\5-22\G1R1_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.515	1734149	VV	0.106	1	268.014	Methane
2.141	223643	VB	0.090	1	16.784	Ethane
8.540	120276	BV	0.422	1	5.057	Butadiene
15.400	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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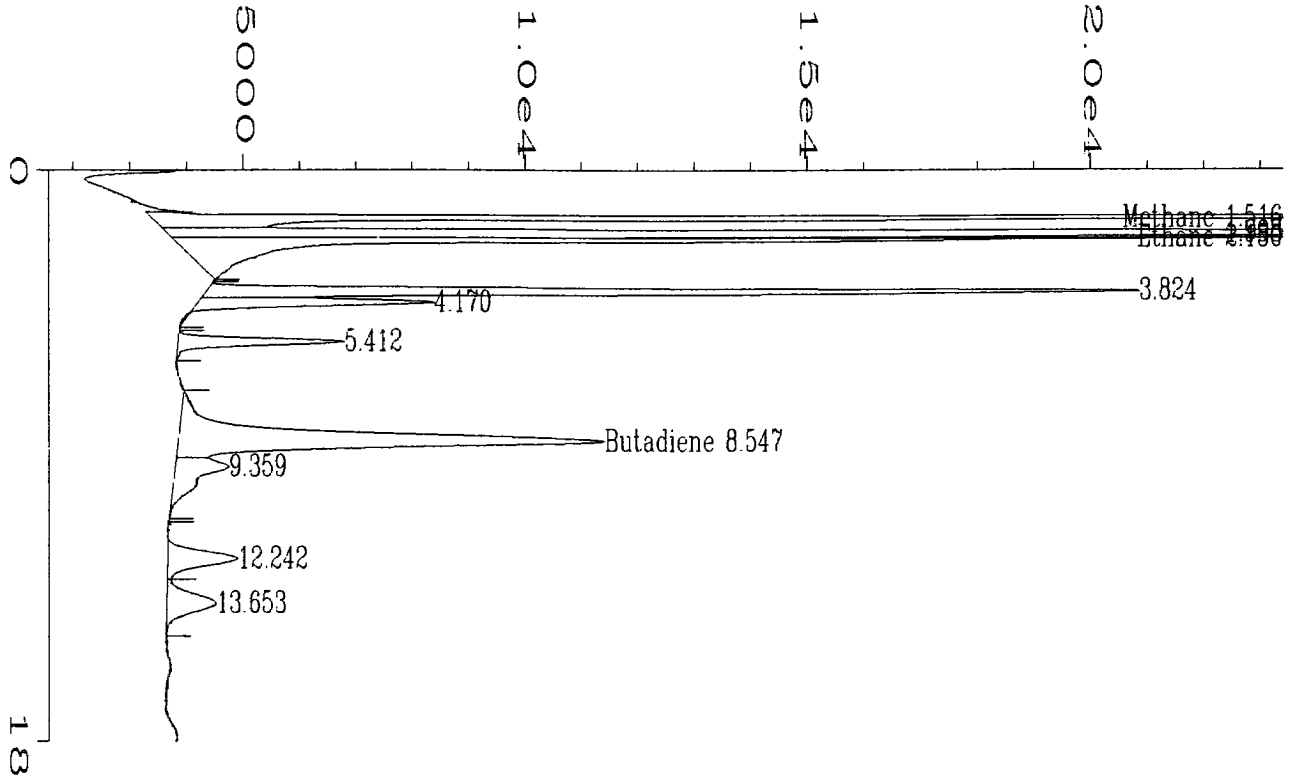

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External Standard Report

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Data File Name	: D:\GC1\5-22\G1R1_03.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 12:46 PM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:14 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\5-22\G1R1_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.516	1713291	VV	0.108	1	264.810	Methane
2.150	211939	VB	0.094	1	15.887	Ethane
8.547	236814	BV	0.463	1	9.847	Butadiene
15.400	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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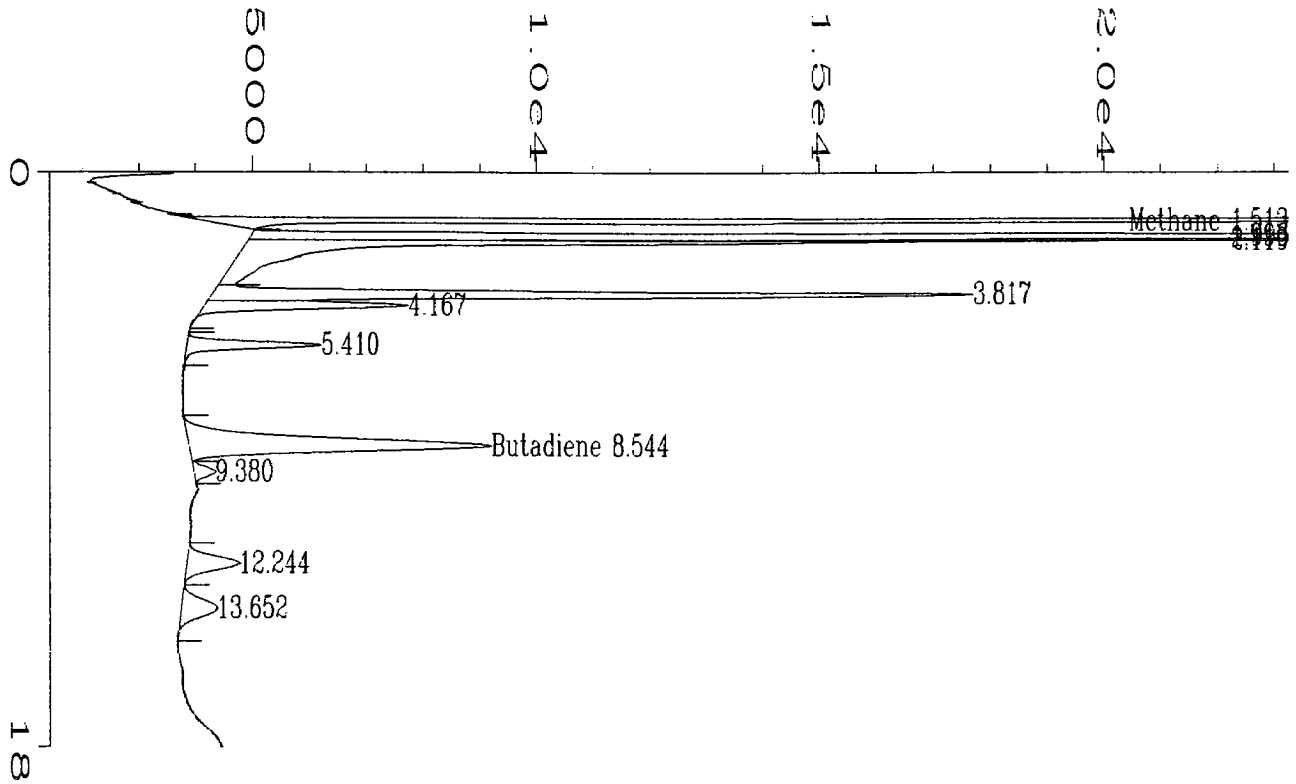

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External Standard Report

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Data File Name	: D:\GC1\5-22\G1R2_01.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 01:31 PM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:14 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\5-22\G1R2_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.513	1142998	PB	0.099	1	177.198	Methane
2.240	* not found *			1		Ethane
8.544	149672	BV	0.420	1	6.265	Butadiene
15.400	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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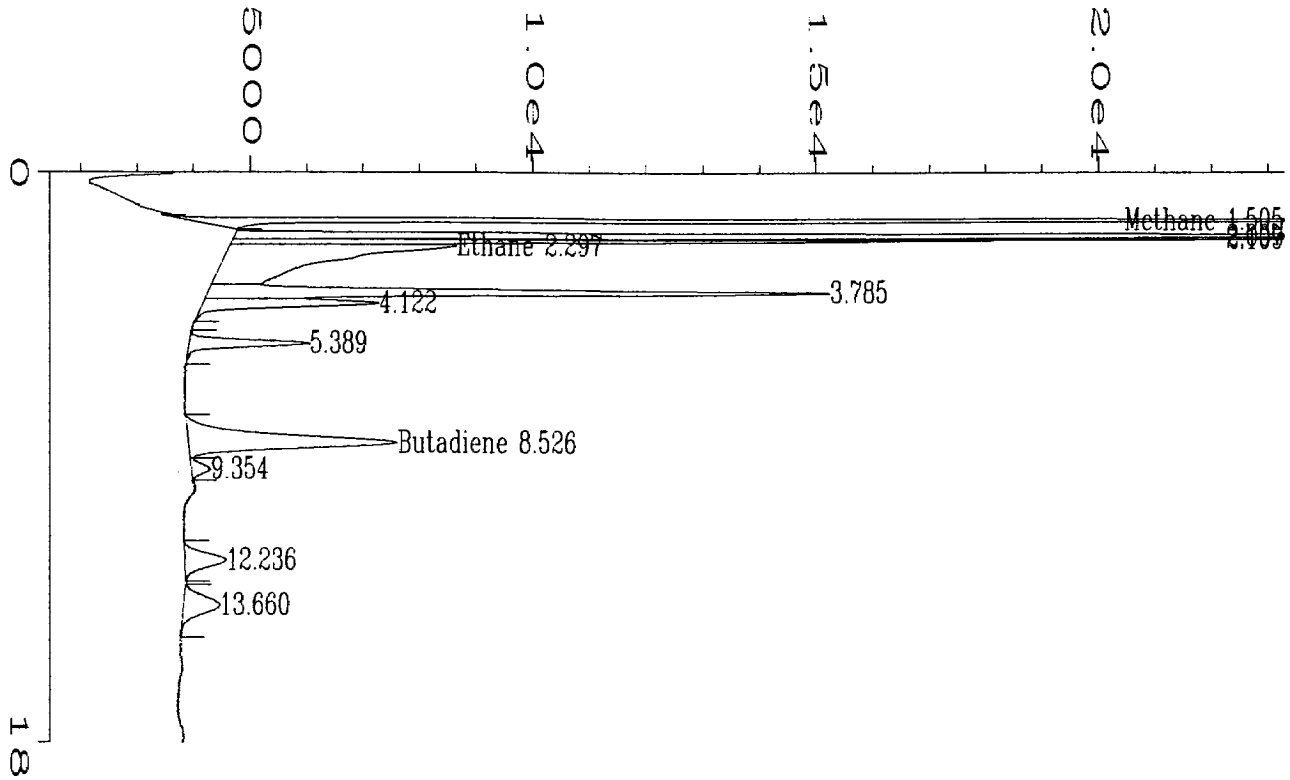

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External Standard Report

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Data File Name	: D:\GC1\5-22\G1R3_01.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 03:30 PM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:14 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\5-22\G1R3_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.505	932254	PB	0.082	1	144.823	Methane
2.297	151674	VV	0.450	1	11.268	Ethane
8.526	104876	BV	0.397	1	4.424	Butadiene
15.400	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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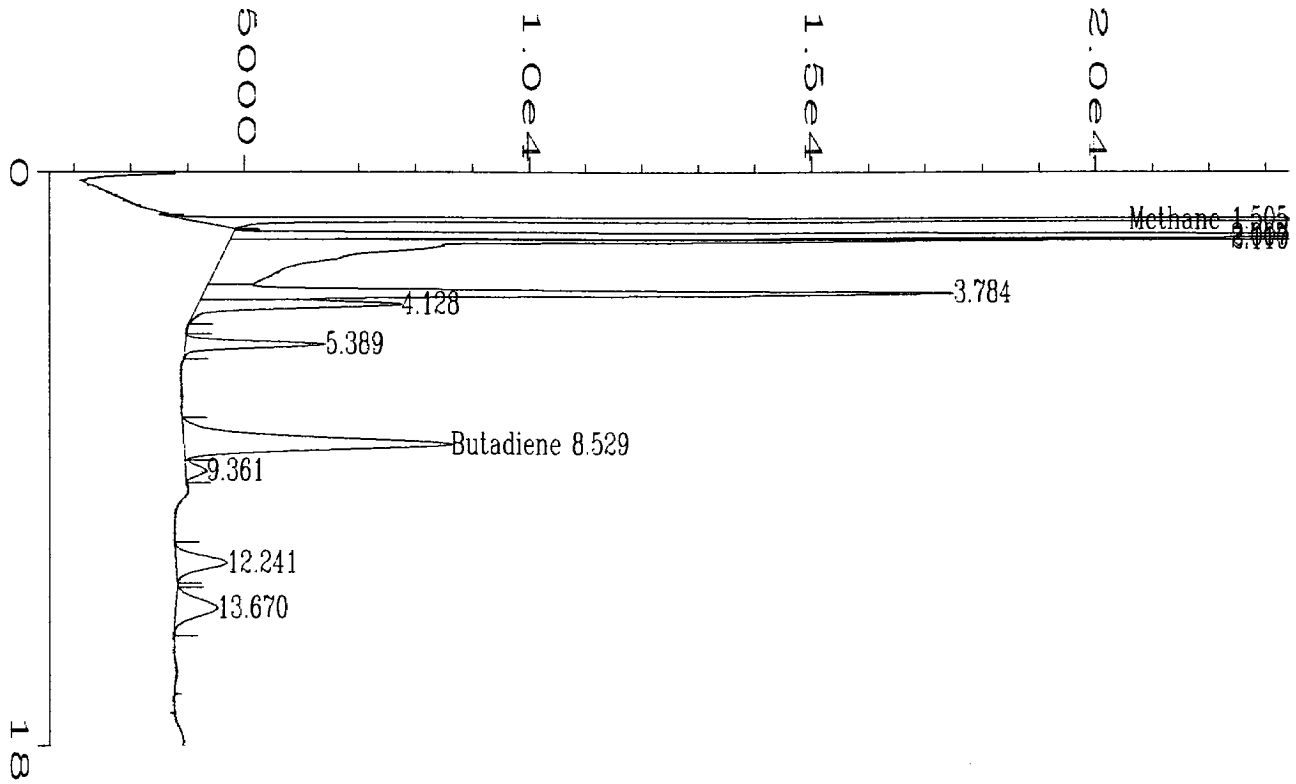

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External Standard Report

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Data File Name	: D:\GC1\5-22\G1R3_02.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 03:58 PM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:14 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\5-22\G1R3_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.505	958932	PB	0.083	1	148.921	Methane
2.240	* not found *			1		Ethane
8.529	130912	BV	0.391	1	5.494	Butadiene
15.400	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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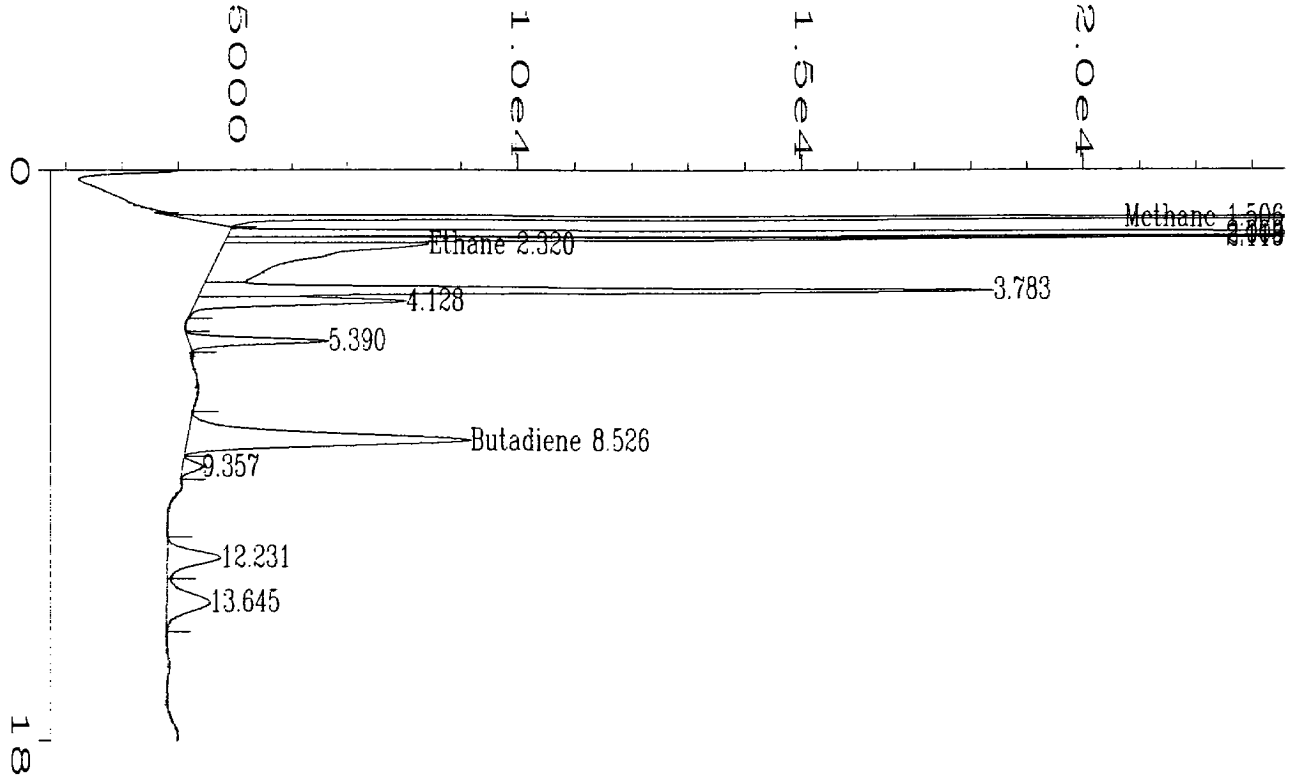

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External Standard Report

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Data File Name : D:\GC1\5-22\G1R3_03.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 22 May 97 04:26 PM
Report Created on: 23 Jun 97 03:15 PM
Last Recalib on : 22 MAY 97 07:14 AM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC1.MTH
Analysis Method : GC1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\GC1\5-22\G1R3_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.506	946734	PB	0.081	1	147.047	Methane
2.320	125207	VV	0.408	1	9.239	Ethane
8.526	137050	BV	0.390	1	5.746	Butadiene
15.400	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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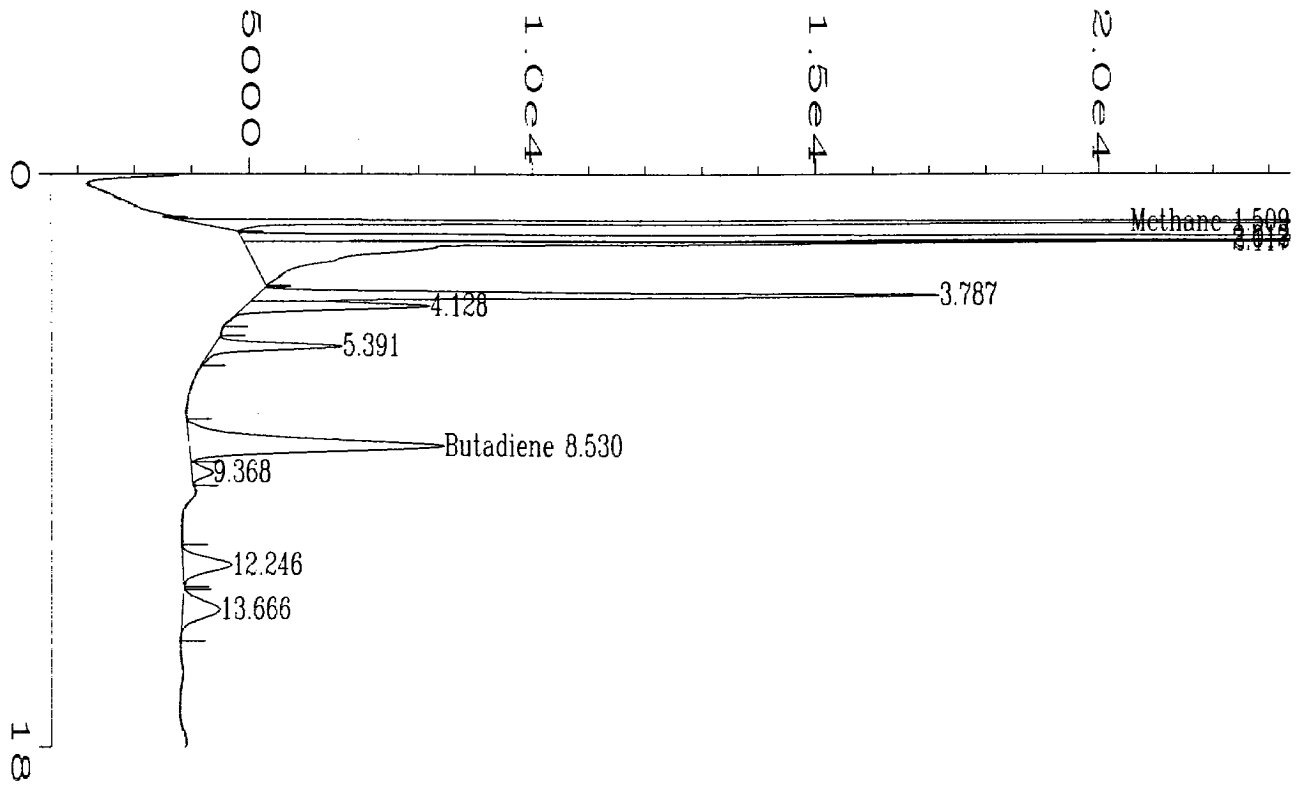

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External Standard Report

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Data File Name : D:\GC1\5-22\G1R4_01.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 22 May 97 05:25 PM
Report Created on: 23 Jun 97 03:15 PM
Last Recalib on : 22 MAY 97 07:14 AM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC1.MTH
Analysis Method : GC1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\GC1\5-22\G1R4_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.509	857239	PB	0.080	1	133.298	Methane
2.240	* not found *			1		Ethane
8.530	124396	BV	0.391	1	5.226	Butadiene
15.400	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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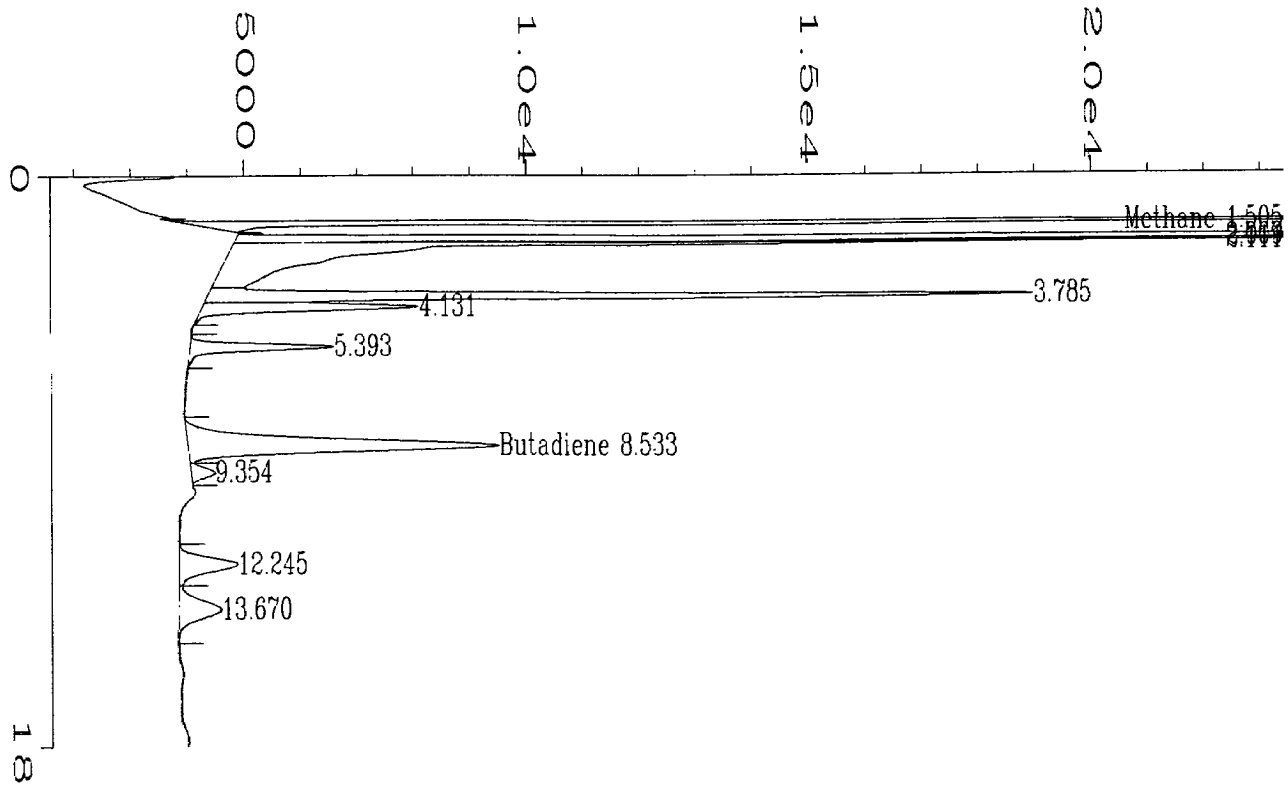

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External Standard Report

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Data File Name	: D:\GC1\5-22\G1R4_02.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 05:54 PM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:15 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\5-22\G1R4_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.505	853616	PB	0.081	1	132.742	Methane
2.240	* not found *			1		Ethane
8.533	151259	BV	0.407	1	6.330	Butadiene
15.400	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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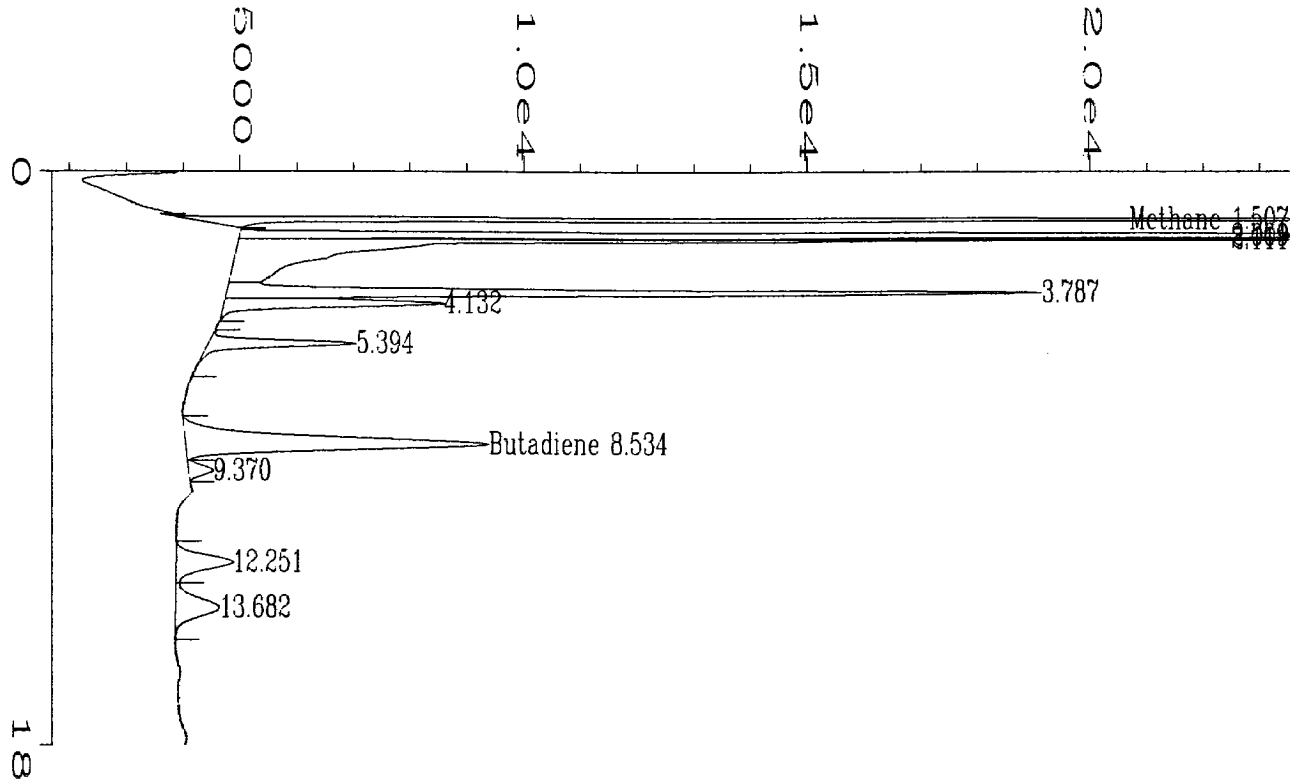

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External Standard Report

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Data File Name	: D:\GC1\5-22\G1R4_03.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 22 May 97 06:24 PM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:15 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\5-22\G1R4_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.507	848652	PB	0.082	1	131.979	Methane
2.240	* not found *			1		Ethane
8.534	147179	BV	0.407	1	6.163	Butadiene
15.400	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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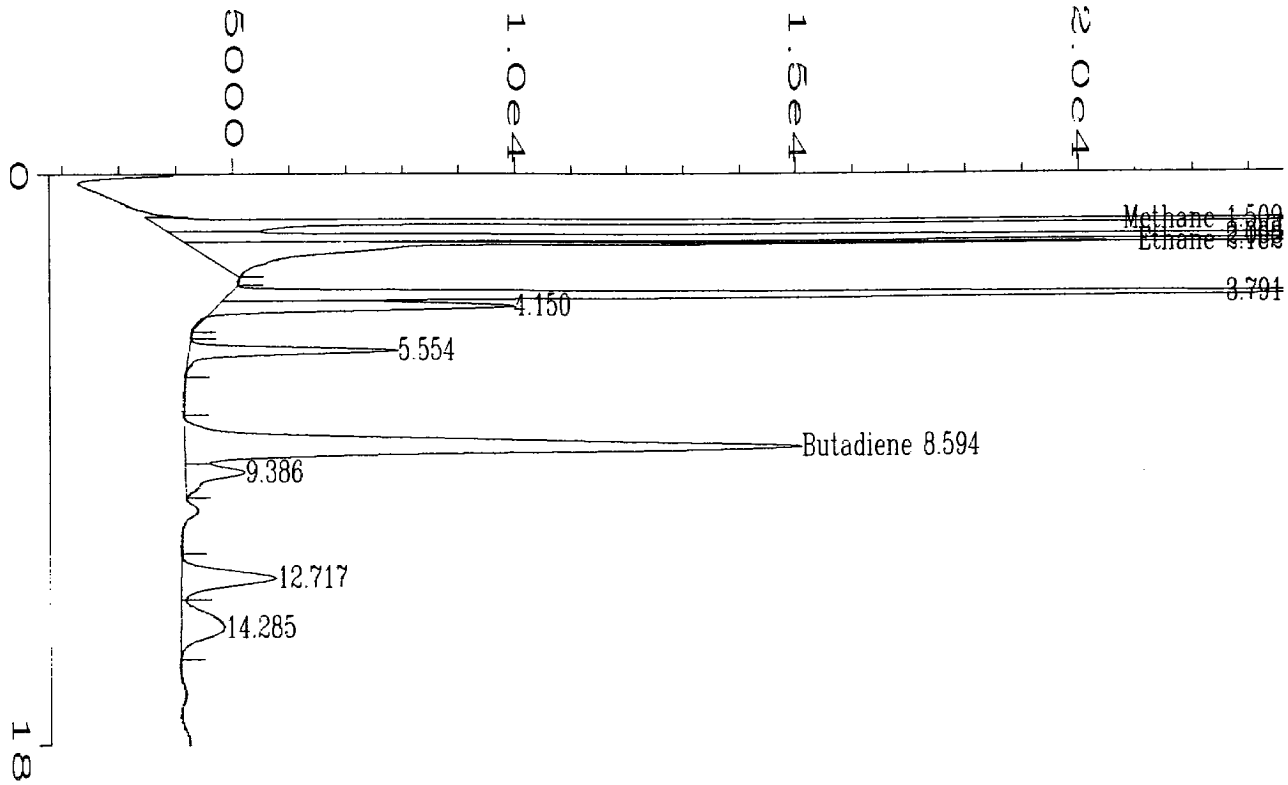

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External Standard Report

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Data File Name	: D:\GC1\5-28\D2G1R1_1.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 28 May 97 08:31 AM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:28 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\5-28\D2G1R1_1.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.509	1995011	VV	0.084	1	308.089	Methane
2.182	252121	VB	0.032	1	18.967	Ethane
8.594	308139	BV	0.432	1	12.779	Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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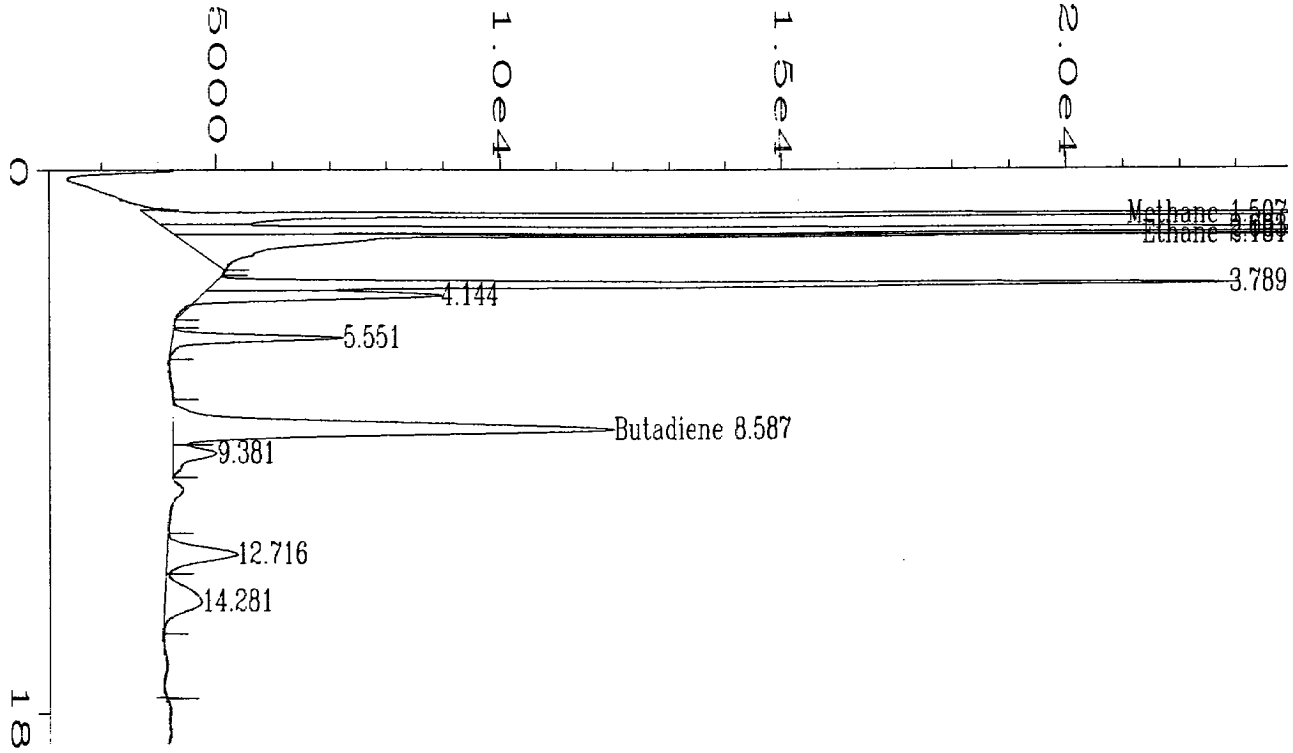

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External Standard Report

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Data File Name	: D:\GC1\5-28\2G1R1_2.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 28 May 97 08:57 AM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:28 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\5-28\2G1R1_2.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.507	1848041	VV	0.088	1	285.511	Methane
2.181	231970	VB	0.047	1	17.422	Ethane
8.587	220076	BV	0.440	1	9.159	Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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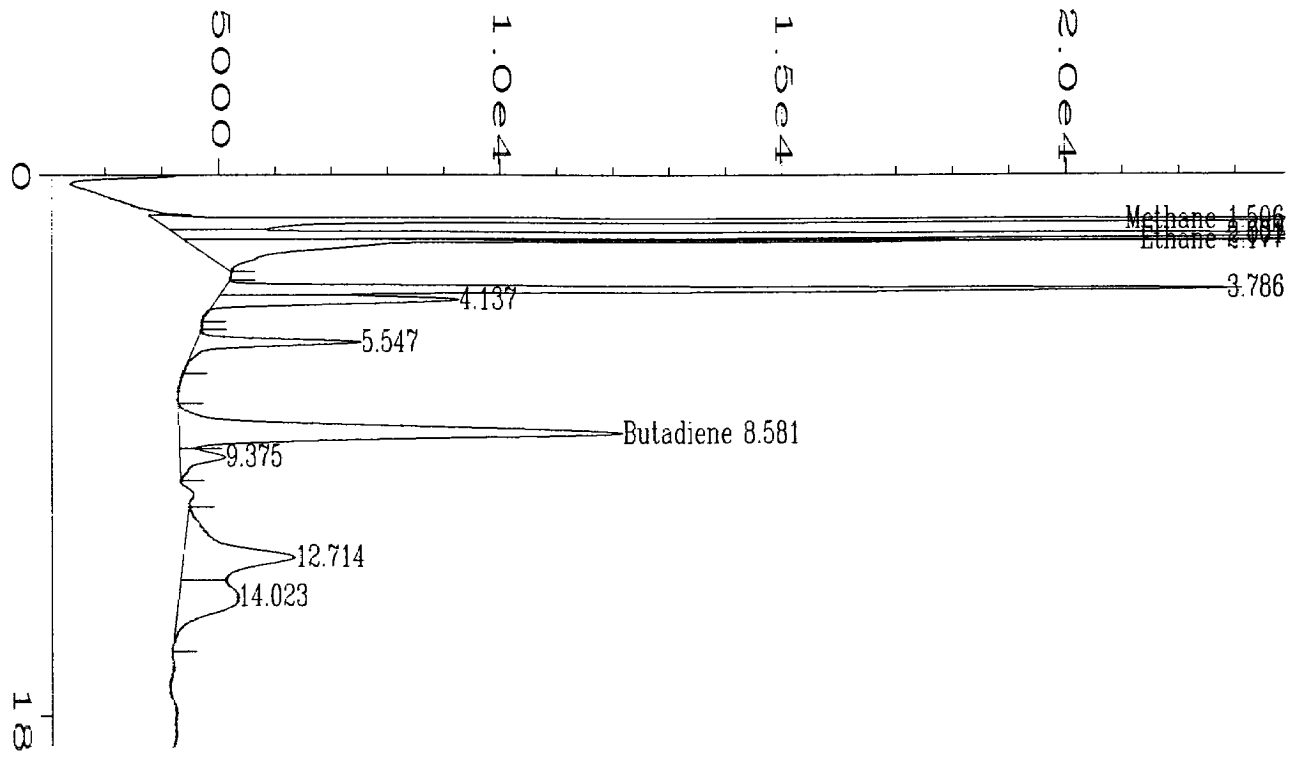

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External Standard Report

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Data File Name	: D:\GC1\5-28\2G1R1_3.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 28 May 97 09:23 AM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:28 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\5-28\2G1R1_3.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.506	2098534	VV	0.088	1	323.993	Methane
2.177	244866	VB	0.057	1	18.411	Ethane
8.581	225455	BV	0.436	1	9.380	Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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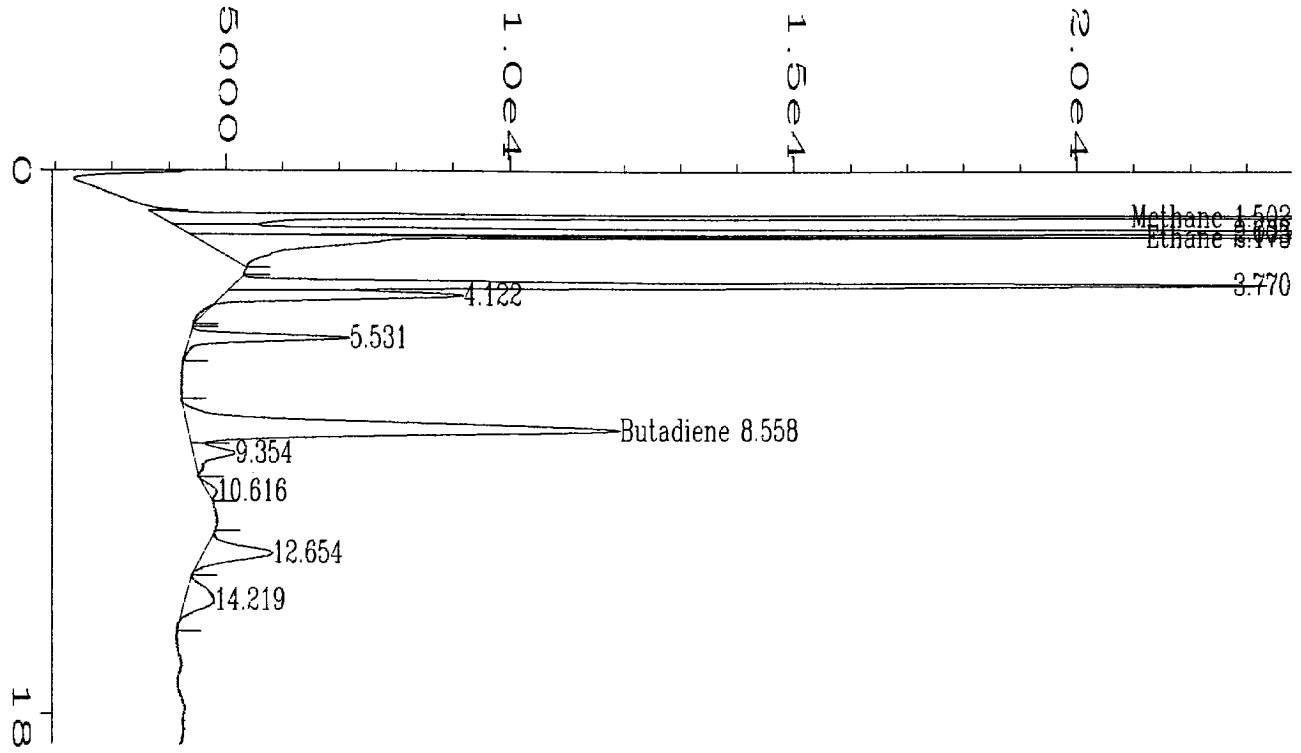

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External Standard Report

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Data File Name	: D:\GC1\5-28\G1R6_1.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 28 May 97 10:15 AM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:28 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\5-28\G1R6_1.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.502	1749599	VV	0.082	1	270.388	Methane
2.173	222474	VB	0.044	1	16.695	Ethane
8.558	212776	BV	0.424	1	8.859	Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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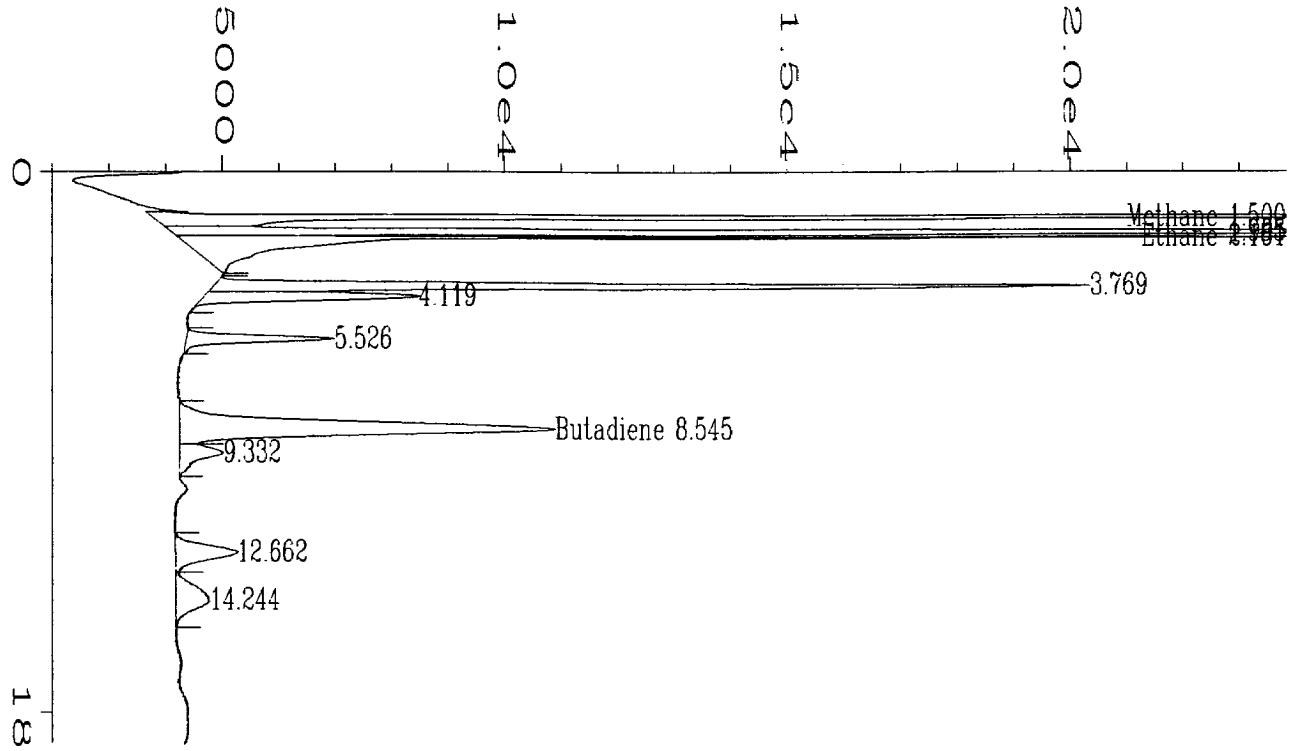

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External Standard Report

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Data File Name	: D:\GC1\5-28\G1R6_2.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 28 May 97 10:43 AM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:28 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\5-28\G1R6_2.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.500	1792187	VV	0.086	1	276.930	Methane
2.161	224985	VB	0.044	1	16.887	Ethane
8.545	193205	BV	0.394	1	8.054	Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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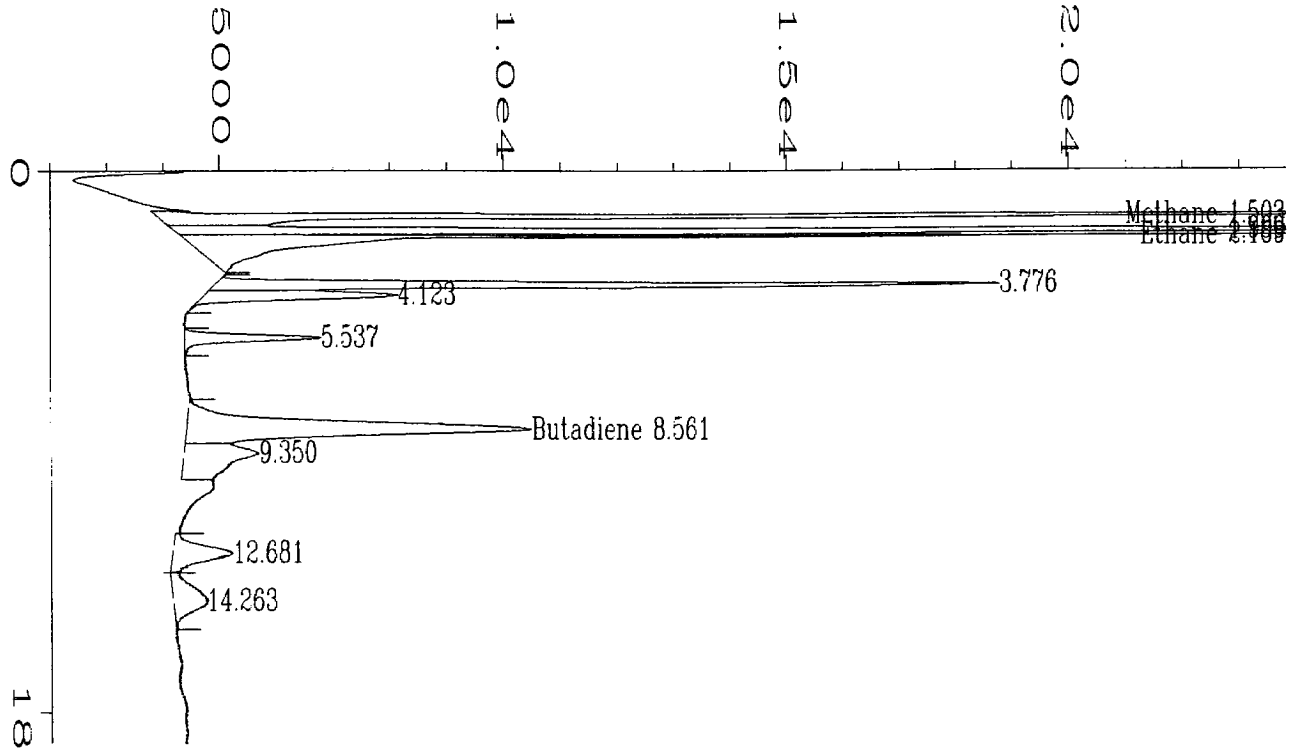

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External Standard Report

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Data File Name : D:\GC1\5-28\G1R6_3.D
Operator : Kurt Wepprecht
Instrument : INSTRUMEN
Sample Name :
Run Time Bar Code:
Acquired on : 28 May 97 11:10 AM
Report Created on: 28 Jul 97 10:08 AM
Last Recalib on : 22 MAY 97 07:14 AM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: GC1.MTH
Analysis Method : GC1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\GC1\5-28\G1R6_3.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.503	1697307	VV	0.085	1	262.354	Methane
2.169	223091	VB	0.043	1	16.742	Ethane
8.561	189151	BV	0.465	1	7.888	Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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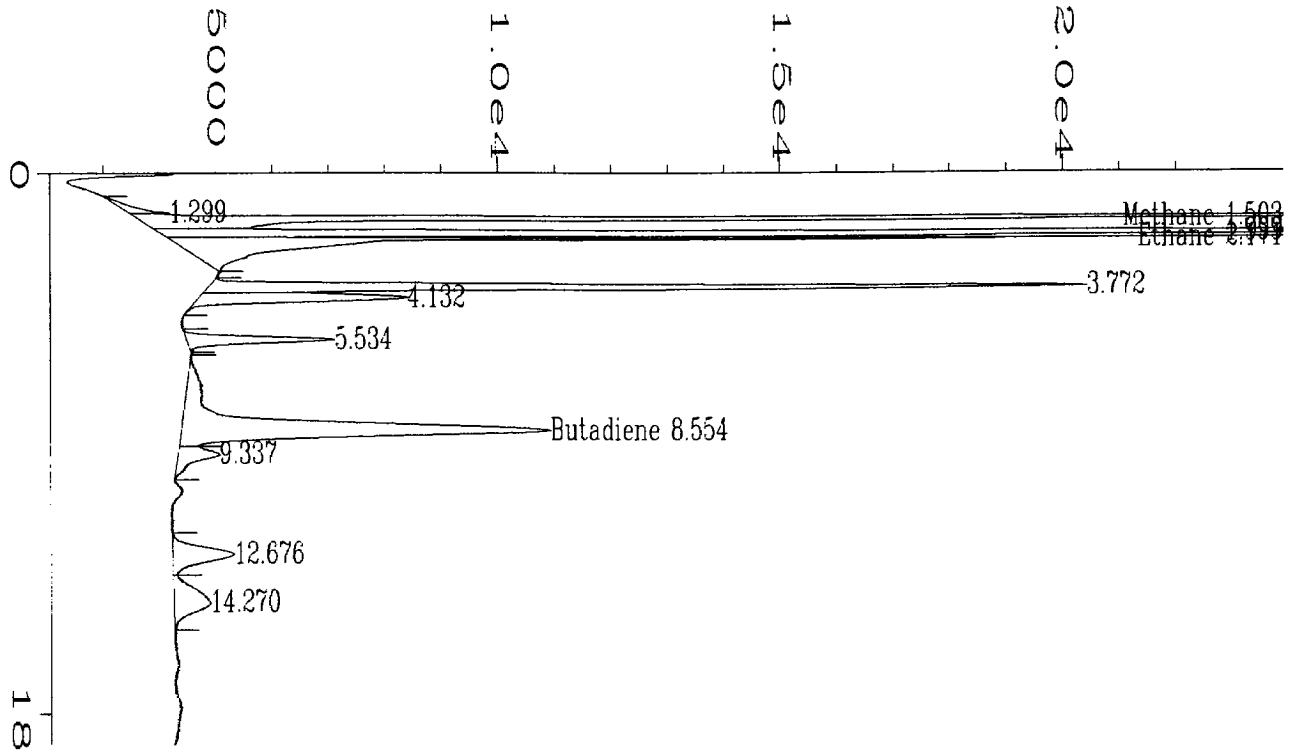

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External Standard Report

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Data File Name	: D:\GC1\5-28\G1R7_1.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 28 May 97 12:06 PM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:29 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\5-28\G1R7_1.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.503	1834748	VV	0.085	1	283.469	Methane
2.171	218278	VB	0.041	1	16.373	Ethane
8.554	218072	BV	0.469	1	9.077	Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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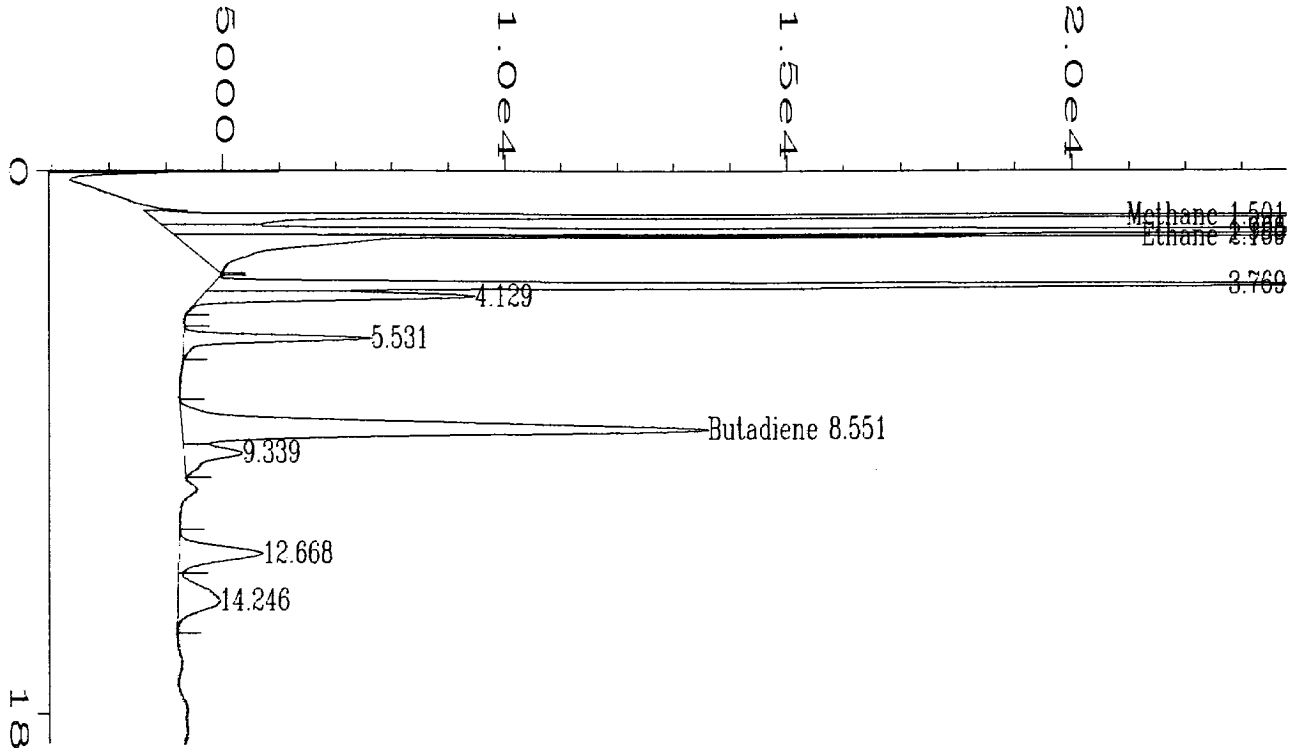

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External Standard Report

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Data File Name	: D:\GC1\5-28\G1R7_2.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 28 May 97 12:34 PM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:29 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\5-28\G1R7_2.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.501	1741906	VV	0.084	1	269.206	Methane
2.169	225414	VB	0.044	1	16.920	Ethane
8.551	267193	BV	0.435	1	11.096	Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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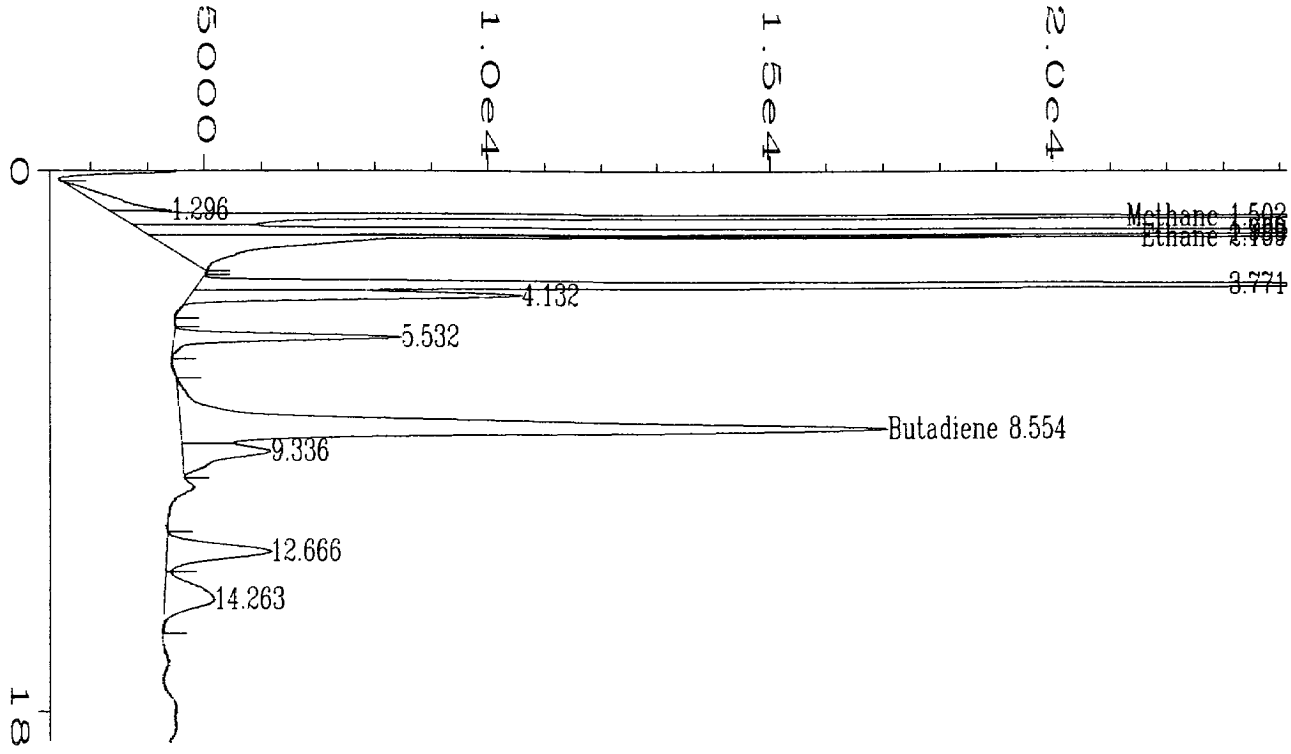

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External Standard Report

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Data File Name	: D:\GC1\5-28\G1R7_3.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 28 May 97 01:02 PM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:29 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\5-28\G1R7_3.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.502	1891790	VV	0.086	1	292.232	Methane
2.169	246428	VB	0.052	1	18.531	Ethane
8.554	380813	BV	0.458	1	15.766	Butadiene
16.300 * not found *				1		Acrylonitrile

Not all calibrated peaks were found

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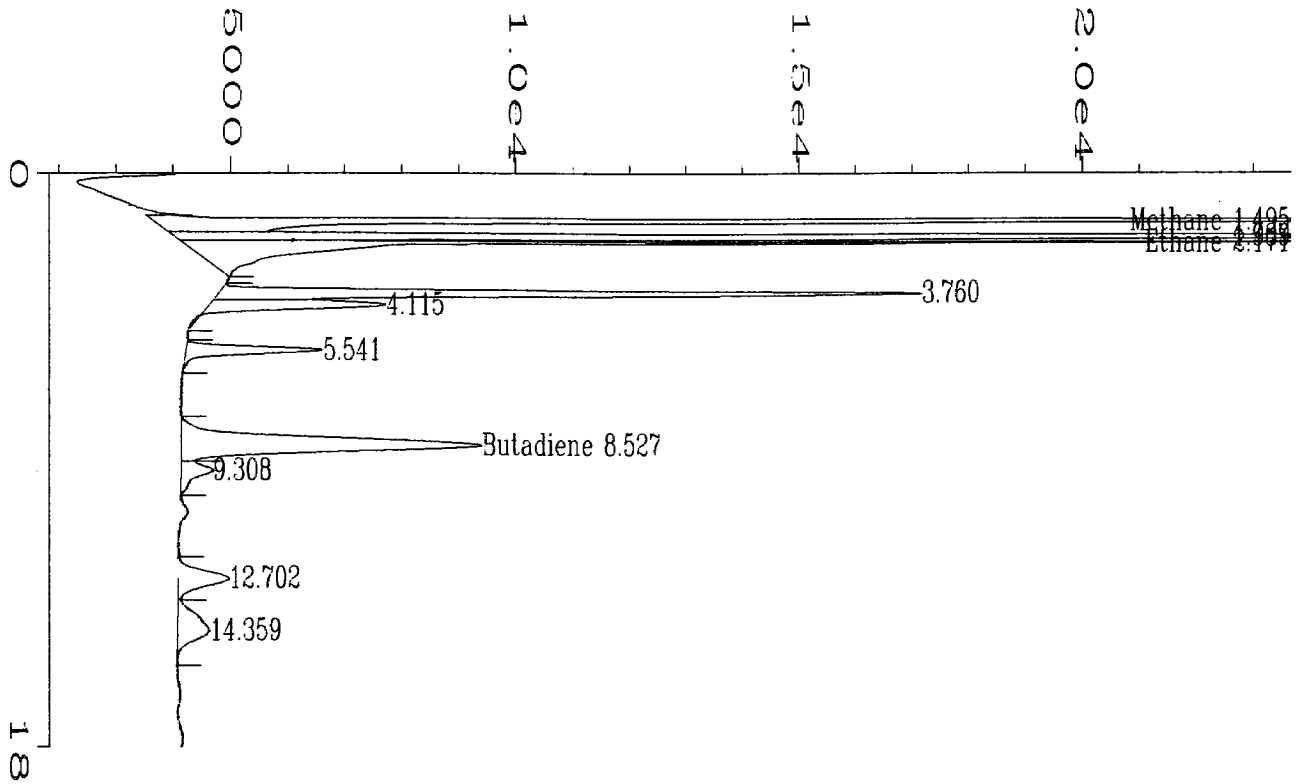

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External Standard Report

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Data File Name	: D:\GC1\G1R8_01.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 30 May 97 08:10 AM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:29 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\G1R8_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.495	2496325	VV	0.086	1	385.104	Methane
2.171	254788	VB	0.046	1	19.171	Ethane
8.527	154222	BV	0.444	1	6.452	Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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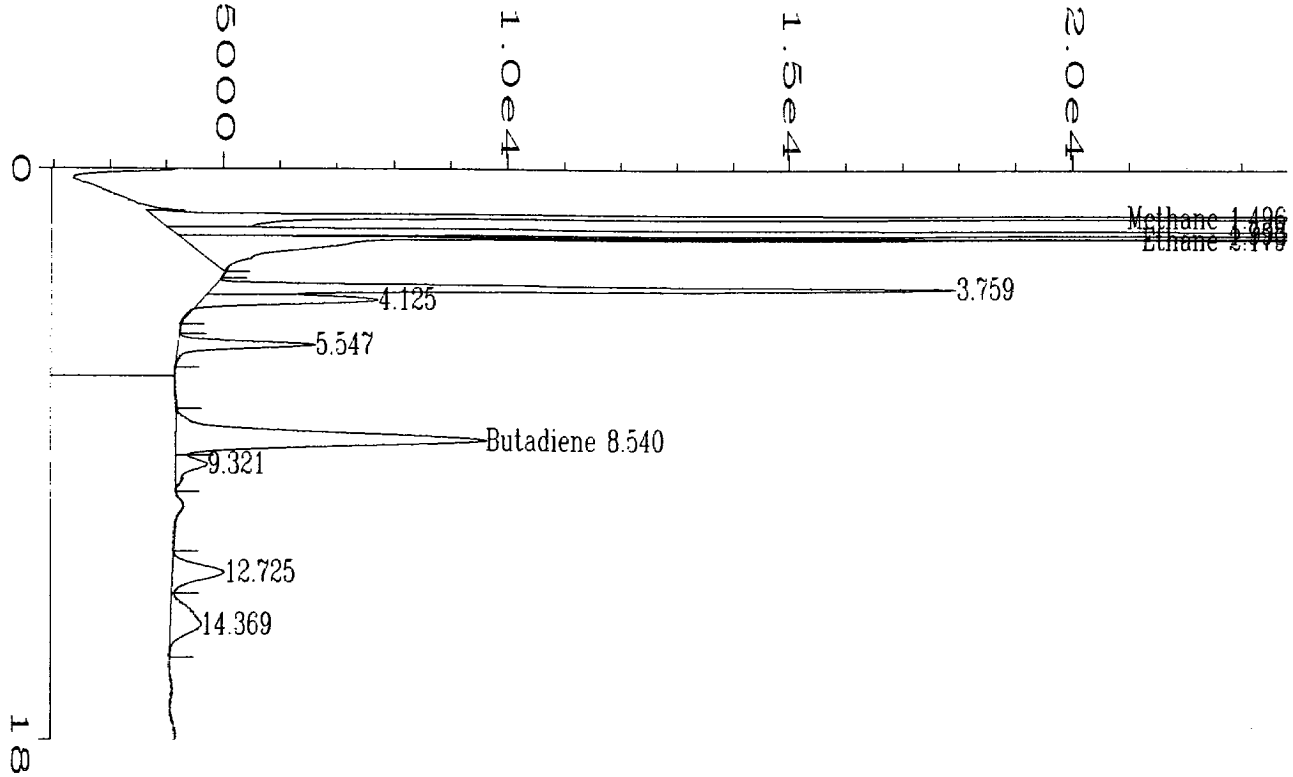

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External Standard Report

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Data File Name	: D:\GC1\G1R8_02.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 30 May 97 08:36 AM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:29 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\G1R8_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.496	1894127	VV	0.084	1	292.591	Methane
2.179	213307	VB	0.050	1	15.992	Ethane
8.540	159066	BV	0.449	1	6.651	Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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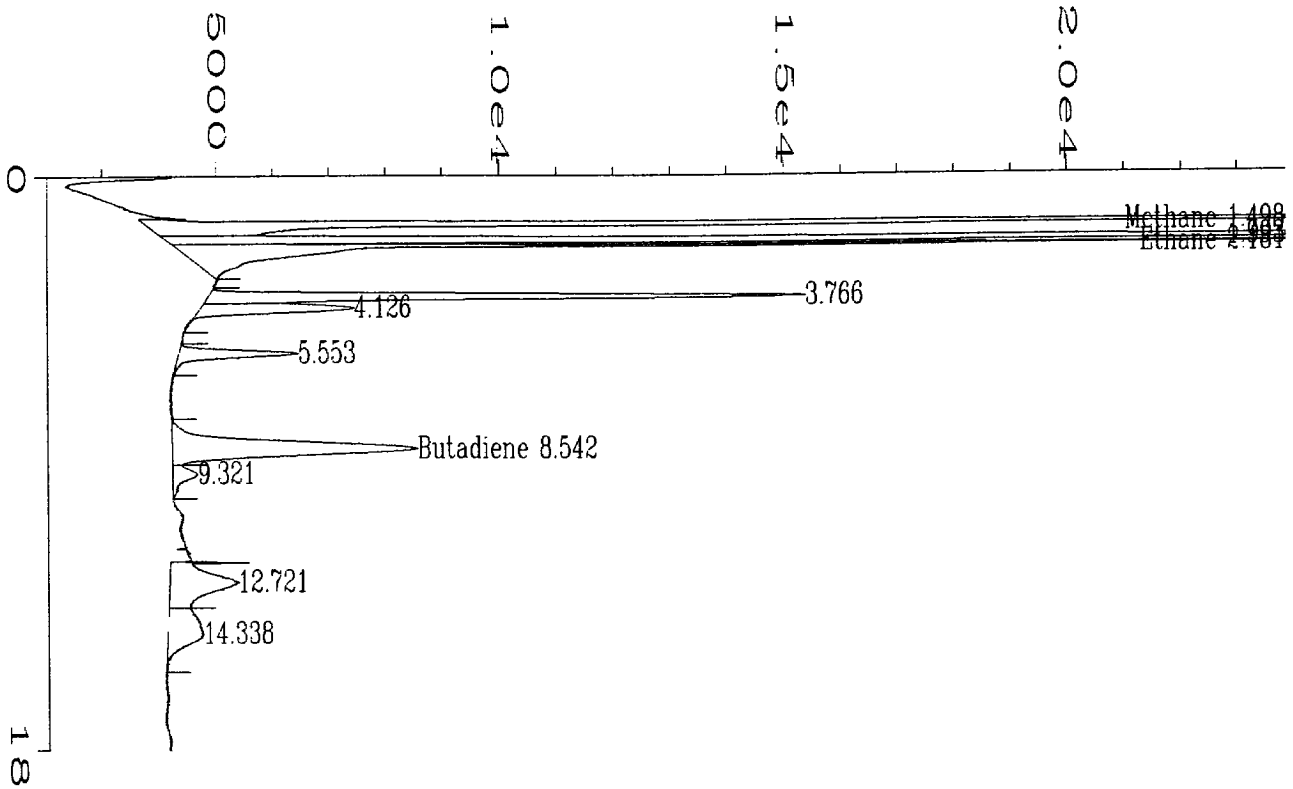

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External Standard Report

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Data File Name	: D:\GC1\G1R8_03.D		
Operator	: Kurt Wepprecht	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	:
Sample Name	:	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 30 May 97 09:02 AM	Instrument Method	: GC1.MTH
Report Created on	: 23 Jun 97 03:29 PM	Analysis Method	: GC1.MTH
Last Recalib on	: 22 MAY 97 07:14 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\GC1\G1R8_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.498	2360565	VV	0.087	1	364.247	Methane
2.181	235384	VB	0.048	1	17.684	Ethane
8.542	128559	BV	0.446	1	5.397	Butadiene
16.300	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

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E

FIELD DATA PRINTOUTS

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Field Data Printout

Location: CA-3 Calciner
Test Run: 1
Client: Solvay Minerals, Inc.
Project No: 7955
Test Date: 5/22/97
Meter ΔH@: 1.7517
Meter Y_d: 1.0077
Pitot C_p: 0.84
Static P: -0.5
Leak Rate Before: 0.004 cfm @ 16 "Hg
Leak Rate After: 0.004 cfm @ 10 "Hg

Method: 5/202
Testing Type: Particulate
Area (ft^2): 85.9
Filter No: 85344
F 1/2 Beaker No: F57
B 1/2 In Beaker No: X47
B 1/2 Org. Beaker No: XX77

Bar. Press. (in. Hg): 23.70
Actual Moisture (%): 34.2
Nozzle Diameter (D_n): 0.375
O_2 (dry volume %): 9.6
CO_2 (dry volume %): 12.6
Start Time (approx.): 12:00
Stop Time (approx.): 13:06
H_2O (condensate, ml): 409.5
H_2O (silica, g): 10.4

Traverse Point	Run Time	Pitot ΔP_s	Sample ΔH	Metered (ft^3)	Stack T_s	Dry Gas Meter $T_{m\ in}$	Dry Gas Meter $T_{m\ out}$	$\sqrt{\Delta P_s}$ (calculated)	Volume (calculated)	Isokinetics (calculated)
	0.0	(in. H_2O)	(in. H_2O)	534.00	(°F)	(°F)	(°F)	($\sqrt{in.\ H_2O}$)	(ft^3)	(%)
1-01	5.0	0.23	1.70	538.07	308	88	86	0.48	4.07	99.9
1-02	10.0	0.23	1.70	542.10	309	89	87	0.48	4.03	98.8
1-03	15.0	0.20	1.50	545.93	306	90	87	0.45	3.83	100.3
2-01	20.0	0.28	2.10	550.47	307	92	87	0.53	4.54	100.6
2-02	25.0	0.30	2.30	555.25	310	93	88	0.55	4.78	102.4
2-03	30.0	0.25	1.90	559.61	305	95	89	0.50	4.36	101.6
3-01	35.0	0.26	2.00	564.01	301	95	90	0.51	4.40	100.2
3-02	40.0	0.25	1.90	568.37	308	95	89	0.50	4.36	101.8
3-03	45.0	0.19	1.40	572.14	305	93	90	0.44	3.77	100.7
4-01	50.0	0.20	1.50	575.97	304	94	90	0.45	3.83	99.6
4-02	55.0	0.20	1.50	579.84	309	96	90	0.45	3.87	100.8
4-03	60.0	0.16	1.20	583.36	301	96	90	0.40	3.52	101.8
Final	60.0	0.48	1.73	49.36	306	91				

Field Data Printout

Location: CA-3 Calciner
Test Run: 3
Client: Solvay Minerals, Inc.
Project No: 7955
Test Date: 5/22/97
Meter ΔH@: 1.7517
Meter Y_d: 1.0077
Pitot C_p: 0.84
Static P: -0.5
Leak Rate Before: 0.004 cfm @ 15 "Hg
Leak Rate After: 0.004 cfm @ 14 "Hg

Method: 5/202
Testing Type: Particulate
Area (ft^2): 85.9
Filter No: 85360
F 1/2 Beaker No: B8
B 1/2 In Beaker No: D19
B 1/2 Org. Beaker No: F28

Bar. Press. (in. Hg): 23.70
Actual Moisture (%): 33.5
Nozzle Diameter (D_n): 0.375
O_2 (dry volume %): 9.7
CO_2 (dry volume %): 12.8
Start Time (approx.): 15:40
Stop Time (approx.): 16:48
H_2O (condensate, ml): 396.1
H_2O (silica, g): 15.7

Traverse Point	Run Time	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (ft^3)	Stack T_s (°F)	Dry Gas Meter $T_{m\ in}$ (°F)	Dry Gas Meter $T_{m\ out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.\ H_2O}$)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			669.40						
4-01	5.0	0.23	1.70	673.60	310	80	78	0.48	4.20	103.8
4-02	10.0	0.20	1.50	677.58	308	84	79	0.45	3.98	104.8
4-03	15.0	0.14	1.10	681.08	300	84	79	0.37	3.50	109.4
3-01	20.0	0.24	1.80	685.37	309	86	81	0.49	4.29	102.9
3-02	25.0	0.25	1.90	689.82	309	89	82	0.50	4.45	104.2
3-03	30.0	0.18	1.40	693.63	301	91	84	0.42	3.81	104.0
2-01	35.0	0.30	2.30	698.48	311	91	85	0.55	4.85	103.4
2-02	40.0	0.28	2.10	703.16	314	92	85	0.53	4.68	103.4
2-03	45.0	0.20	1.50	707.13	303	91	85	0.45	3.97	102.9
1-01	50.0	0.22	1.70	711.33	311	90	86	0.47	4.20	104.4
1-02	55.0	0.23	1.70	714.48	311	91	86	0.48	3.15	76.5*
1-03	60.0	0.15	1.10	719.08	302	91	86	0.39	4.60	137.3*
Final	60.0	0.46	1.65	49.68	307	86				

Field Data Printout

Location:	CA-3 Calciner	Method:	5/202	Bar. Press. (in. Hg):	23.70
Test Run:	4	Testing Type:	Particulate	Actual Moisture (%):	33.2
Client:	Solvay Minerals, Inc.				
Project No:	7955	Area (ft^2):	85.9	Nozzle Diameter (D_n):	0.375
Test Date:	5/22/97			O_2 (dry volume %):	9.6
Meter ΔH@:	1.7517	Filter No:	85981	CO_2 (dry volume %):	13.0
Meter Y_d:	1.0077	F 1/2 Beaker No:	V5	Start Time (approx.):	17:30
Pitot C_p:	0.84	B 1/2 In Beaker No:	XX20	Stop Time (approx.):	18:35
Static P:	-0.5	B 1/2 Org. Beaker No:	XX88	H_2O (condensate, ml):	385.3
Leak Rate Before:	0.004 cfm @ 15 "Hg			H_2O (silica, g):	19.2
Leak Rate After:	0.003 cfm @ 15 "Hg				

Traverse Point	Run Time	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (ft^3)	Stack T_s (°F)	Dry Gas Meter $T_{m\ in}$ (°F)	Dry Gas Meter $T_{m\ out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.\ H_2O}$)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			719.45						
1-01	5.0	0.23	1.70	723.69	310	86	85	0.48	4.24	103.2
1-02	10.0	0.25	1.90	728.07	310	88	85	0.50	4.38	102.1
1-03	15.0	0.18	1.40	731.91	301	89	85	0.42	3.84	104.6
2-01	20.0	0.30	2.30	736.71	312	90	86	0.55	4.80	102.1
2-02	25.0	0.28	2.10	741.36	311	90	86	0.53	4.65	102.3
2-03	30.0	0.23	1.70	745.59	302	90	86	0.48	4.23	101.9
3-01	35.0	0.25	1.90	750.03	311	90	86	0.50	4.44	103.3
3-02	40.0	0.23	1.70	754.23	311	90	86	0.48	4.20	101.8
3-03	45.0	0.15	1.10	757.79	303	91	86	0.39	3.56	106.0
4-01	50.0	0.20	1.50	761.75	311	90	86	0.45	3.96	102.8
4-02	55.0	0.18	1.40	765.59	313	91	86	0.42	3.84	105.1
4-03	60.0	0.14	1.10	769.08	301	91	86	0.37	3.49	107.4
Final	60.0	0.46	1.65	49.63	308	88				

Field Data Printout

Location:	CA-3 Calciner	Method:	5/202	Bar. Press. (in. Hg):	24.08
Test Run:	5	Testing Type:	Particulate	Actual Moisture (%):	32.2
Client:	Solvay Minerals, Inc.				
Project No:	7955	Area (ft^2):	85.9	Nozzle Diameter (D_n):	0.375
Test Date:	5/28/97			O_2 (dry volume %):	10.3
Meter ΔH@:	1.7517	Filter No:	95987	CO_2 (dry volume %):	12.5
Meter Y_d:	1.0077	F 1/2 Beaker No:	XX25	Start Time (approx.):	08:30
Pitot C_p:	0.84	B 1/2 In Beaker No:	F26	Stop Time (approx.):	09:37
Static P:	-0.4	B 1/2 Org. Beaker No:	X81	H_2O (condensate, ml):	350.7
Leak Rate Before:	0.006 cfm @ 16 "Hg			H_2O (silica, g):	15.7
Leak Rate After:	0.006 cfm @ 18 "Hg				

Traverse Point	Run Time	Pitot ΔP_s	Sample ΔH	Metered	Stack T_s	Dry Gas Meter $T_{m\ in}$	Dry Gas Meter $T_{m\ out}$	$\sqrt{\Delta P_s}$ (calculated)	Volume (calculated)	Isokinetics (calculated)
	0.0	(in. H_2O)	(in. H_2O)	894.00	(°F)	(°F)	(°F)	($\sqrt{in.\ H_2O}$)	(ft^3)	(%)
4-01	5.0	0.18	1.40	897.72	295	72	70	0.42	3.72	103.4
4-02	10.0	0.16	1.20	901.17	294	73	70	0.40	3.45	101.5
4-03	15.0	0.13	1.00	904.43	290	75	71	0.36	3.26	105.8
3-01	20.0	0.23	1.70	908.40	295	75	71	0.48	3.97	97.4
3-02	25.0	0.18	1.40	912.18	295	75	71	0.42	3.78	104.7
3-03	30.0	0.15	1.10	915.62	290	75	71	0.39	3.44	104.0
2-01	35.0	0.28	1.70	919.70	296	76	72	0.53	4.08	90.6
2-02	40.0	0.27	1.60	923.67	299	77	73	0.52	3.97	89.8*
2-03	45.0	0.23	1.60	927.67	295	78	74	0.48	4.00	97.5
1-01	50.0	0.19	1.50	931.55	297	76	74	0.44	3.88	104.4
1-02	55.0	0.20	1.60	935.55	296	77	74	0.45	4.00	104.8
1-03	60.0	0.16	1.20	939.10	291	78	74	0.40	3.55	103.4
Final	60.0	0.44	1.42	45.10	294	74				

Field Data Printout

Location:	CA-3 Calciner	Method:	5/202	Bar. Press. (in. Hg):	24.08
Test Run:	6	Testing Type:	Particulate	Actual Moisture (%):	32.1
Client:	Solvay Minerals, Inc.				
Project No:	7955	Area (ft^2):	85.9	Nozzle Diameter (D_n):	0.375
Test Date:	5/28/97			O_2 (dry volume %):	10.3
Meter ΔH@:	1.7517	Filter No:	95988	CO_2 (dry volume %):	12.6
Meter Y_d:	1.0077	F 1/2 Beaker No:	XX65	Start Time (approx.):	10:23
Pitot C_p:	0.84	B 1/2 In Beaker No:	X29	Stop Time (approx.):	11:29
Static P:	-0.3	B 1/2 Org. Beaker No:	60	H_2O (condensate, ml):	351.0
Leak Rate Before:	0.006 cfm @ 15 "Hg			H_2O (silica, g):	12.2
Leak Rate After:	0.006 cfm @ 15 "Hg				

Traverse Point	Run Time	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (ft^3)	Stack T_s (°F)	Dry Gas Meter $T_{m\ in}$ (°F)	Dry Gas Meter $T_{m\ out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.\ H_2O}$)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			942.38						
1-01	5.0	0.19	1.50	946.25	295	79	78	0.44	3.87	103.3
1-02	10.0	0.20	1.60	950.25	296	82	79	0.45	4.00	103.7
1-03	15.0	0.16	1.20	953.80	290	84	79	0.40	3.55	102.2
2-01	20.0	0.26	1.70	958.00	295	85	80	0.51	4.20	95.1
2-02	25.0	0.26	1.70	962.17	297	86	82	0.51	4.17	94.3
2-03	30.0	0.22	1.70	966.34	293	86	82	0.47	4.17	102.3
3-01	35.0	0.20	1.60	970.35	295	86	83	0.45	4.01	103.2
3-02	40.0	0.19	1.50	974.26	294	87	84	0.44	3.91	102.9
3-03	45.0	0.14	1.10	977.75	289	88	84	0.37	3.49	106.4
4-01	50.0	0.17	1.30	981.46	295	89	85	0.41	3.71	103.0
4-02	55.0	0.15	1.20	985.03	294	91	86	0.39	3.57	105.1
4-03	60.0	0.11	0.86	988.07	288	91	86	0.33	3.04	104.0
Final	60.0	0.43	1.41	45.69	293	84				

Field Data Printout

Location:	CA-3 Calciner	Method:	5/202	Bar. Press. (in. Hg):	24.08
Test Run:	7	Testing Type:	Particulate	Actual Moisture (%):	31.6
Client:	Solvay Minerals, Inc.				
Project No:	7955	Area (ft^2):	85.9	Nozzle Diameter (D_n):	0.375
Test Date:	5/28/97			O_2 (dry volume %):	10.2
Meter ΔH@:	1.7517	Filter No:	95989	CO_2 (dry volume %):	12.6
Meter Y_d:	1.0077	F 1/2 Beaker No:	X37	Start Time (approx.):	12:15
Pitot C_p:	0.84	B 1/2 In Beaker No:	XX91	Stop Time (approx.):	13:21
Static P:	-0.3	B 1/2 Org. Beaker No:	V8	H_2O (condensate, ml):	368.5
Leak Rate Before:	0.007 cfm @ 15 "Hg			H_2O (silica, g):	12.7
Leak Rate After:	0.003 cfm @ 11 "Hg				

Traverse Point	Run Time	Pitot ΔP_s	Sample ΔH	Metered (ft^3)	Stack T_s	Dry Gas Meter $T_{m\ in}$	Dry Gas Meter $T_{m\ out}$	$\sqrt{\Delta P_s}$ (calculated)	Volume (calculated)	Isokinetics (calculated)
	0.0	(in. H_2O)	(in. H_2O)	996.00	(°F)	(°F)	(°F)	($\sqrt{in.\ H_2O}$)	(ft^3)	(%)
4-01	5.0	0.20	1.60	1000.06	293	87	86	0.45	4.06	103.2
4-02	10.0	0.18	1.40	1003.83	293	88	86	0.42	3.77	100.8
4-03	15.0	0.13	1.00	1007.09	289	89	86	0.36	3.26	102.1
3-01	20.0	0.24	1.90	1011.46	295	89	86	0.49	4.37	101.4
3-02	25.0	0.24	1.90	1015.85	294	90	86	0.49	4.39	101.7
3-03	30.0	0.17	1.30	1019.60	289	91	86	0.41	3.75	102.6
2-01	35.0	0.28	2.20	1024.35	295	91	87	0.53	4.75	101.9
2-02	40.0	0.27	2.10	1028.97	298	92	87	0.52	4.62	101.0
2-03	45.0	0.24	1.90	1033.43	293	92	87	0.49	4.46	103.0
1-01	50.0	0.21	1.60	1037.50	299	91	87	0.46	4.07	100.9
1-02	55.0	0.23	1.80	1041.87	299	91	87	0.48	4.37	103.6
1-03	60.0	0.15	1.20	1045.60	292	91	86	0.39	3.73	108.9
Final	60.0	0.46	1.66	49.60	294	88				

Field Data Printout

Location:	CA-3 Calciner	Method:	M5/202	Bar. Press. (in. Hg):	24.17
Test Run:	8	Testing Type:	Particulate	Actual Moisture (%):	33.5
Client:	Solvay Minerals, Inc.				
Project No:	7955	Area (ft^2):	85.9	Nozzle Diameter (D_n):	0.375
Test Date:	5/30/97			O_2 (dry volume %):	9.7
Meter ΔH@:	1.7517	Filter No:	95991	CO_2 (dry volume %):	12.9
Meter Y_d:	1.0077	F 1/2 Beaker No:	68.0000	Start Time (approx.):	08:17
Pitot C_p:	0.84	B 1/2 In Beaker No:	XX29	Stop Time (approx.):	09:20
Static P:	-0.4	B 1/2 Org. Beaker No:	D10	H_2O (condensate, ml):	376.6
Leak Rate Before:	0.007 cfm @ 15 "Hg			H_2O (silica, g):	13.6
Leak Rate After:	0.008 cfm @ 17 "Hg				

Traverse Point	Run Time	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (ft^3)	Stack T_s (°F)	Dry Gas Meter $T_{m\ in}$ (°F)	Dry Gas Meter $T_{m\ out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.\ H_2O}$)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			46.35						
1-01	5.0	0.24	1.90	50.65	308	82	84	0.49	4.30	104.2
1-02	10.0	0.22	1.70	54.81	316	81	83	0.47	4.16	106.0
1-03	15.0	0.14	1.10	58.33	311	81	81	0.37	3.52	112.0*
2-01	20.0	0.30	2.00	62.63	314	83	80	0.55	4.30	93.8
2-02	25.0	0.30	1.90	66.92	318	83	80	0.55	4.29	93.8
2-03	30.0	0.19	1.50	70.91	313	83	80	0.44	3.99	109.2
3-01	35.0	0.32	1.80	75.21	310	82	79	0.57	4.30	90.7
3-02	40.0	0.30	1.80	79.40	319	82	79	0.55	4.19	91.9
3-03	45.0	0.26	1.80	83.61	314	81	79	0.51	4.21	98.9
4-01	50.0	0.34	1.80	87.85	313	81	78	0.58	4.24	87.1*
4-02	55.0	0.26	1.80	92.05	315	81	78	0.51	4.20	98.8
Final	55.0	0.51	1.74	45.70	314	81				

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
May 22,1997

CALIBRATION ERROR

	NOx ppm	O2 %	CO2 %	CO ppm
Zero	0.0	0.00	0.02	2.3
High	106.6	21.10	21.25	1519.2
Mid	46.7	10.13	10.18	
Low				

11:14:34	0.0	-0.02	0.02	2.1
11:14:49	0.0	-0.01	0.02	2.3
11:15:04	0.0	0.00	0.02	2.3
11:15:19	0.0	0.00	0.02	2.3
11:15:34	0.0	-0.01	0.03	2.2
11:15:49	0.0	0.00	0.02	2.3
11:16:04	0.0	0.01	0.02	2.0
11:16:19	63.8	0.01	0.02	34.7
11:16:34	97.9	0.00	0.02	20.8
11:16:49	102.7	0.00	0.03	3.3
11:17:04	104.2	0.00	0.03	2.3
11:17:19	105.5	0.00	0.02	2.3
11:17:34	106.2	0.00	0.02	2.2
11:17:49	106.5	0.00	0.02	2.3
11:18:04	106.5	0.00	0.02	2.3
11:18:19	106.7	0.00	0.02	2.4
11:18:34	104.6	0.01	0.02	2.3
11:18:49	52.8	0.00	0.02	2.4
11:19:04	48.0	0.00	0.03	0.5
11:19:19	47.5	0.00	0.02	-0.7
11:19:34	47.1	0.00	0.02	-0.8
11:19:49	47.0	0.00	0.02	-0.6
11:20:04	46.8	-0.01	0.03	-0.8
11:20:19	46.7	0.00	0.03	-0.8
11:20:34	46.6	-0.01	0.02	-0.8
11:20:49	39.3	5.53	4.45	7.1
11:21:04	4.9	10.06	9.97	26.1
11:21:19	2.8	10.61	9.95	10.1
11:21:34	5.3	19.61	18.23	8.4
11:21:49	2.1	21.03	21.01	8.5
11:22:04	1.7	21.08	21.19	1.5
11:22:19	1.4	21.09	21.23	-0.7
11:22:34	1.2	21.10	21.24	-0.7
11:22:49	1.0	21.10	21.25	-0.7
11:23:04	0.9	21.11	21.26	-0.8
11:23:19	0.8	21.12	21.27	-0.8
11:23:34	0.7	21.12	21.28	-0.7
11:23:49	0.7	21.12	21.28	-0.7
11:24:04	0.6	21.01	21.29	-0.8
11:24:19	0.6	20.91	21.29	-0.7
11:24:34	0.5	20.14	19.71	-0.7
11:24:49	0.5	11.12	11.15	-0.8
11:25:04	0.5	10.18	10.41	-0.7
11:25:19	0.4	10.15	10.33	-0.8
11:25:34	0.4	10.14	10.23	-0.7
11:25:49	0.4	10.14	10.18	-0.7
11:26:04	0.4	10.14	10.18	-0.7
11:26:19	0.3	10.13	10.18	-0.7
11:26:34	0.3	10.13	10.18	-0.7
11:26:49	0.3	10.12	10.07	-0.7
11:27:04	0.3	2.28	1.79	202.9
11:27:19	0.3	0.11	0.32	1092.0
11:27:34	0.3	0.06	0.10	1475.8
11:27:49	0.3	0.05	0.07	1517.3
11:28:04	0.2	0.04	0.06	1517.4
11:28:19	0.2	0.04	0.06	1522.8
11:28:34	0.2	0.04	0.05	1525.2
11:28:49	0.2	0.03	0.05	1521.1
11:29:04	0.2	0.65	0.54	1481.8

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
May 22,1997

CALIBRATION BIAS 00

	NOx ppm	O2 %	CO2 %	CO ppm
Zero	0.6	0.05	0.04	4.2
Span	45.8	9.97	10.07	1516.3
11:37:34	2.1	0.13	0.06	9.2
11:37:49	2.0	0.12	0.05	9.2
11:38:04	1.9	0.13	0.05	9.2
11:38:19	1.8	0.12	0.05	9.2
11:38:34	1.7	0.12	0.05	9.2
11:38:49	1.6	0.12	0.05	7.0
11:39:04	1.6	0.13	0.05	6.7
11:39:19	1.5	0.12	0.05	6.7
11:39:34	1.4	0.11	0.05	6.7
11:39:49	1.6	0.02	0.04	8.3
11:40:04	1.2	0.02	0.05	5.4
11:40:19	1.1	0.01	0.05	4.3
11:40:34	1.0	0.01	0.05	4.3
11:40:49	1.0	0.01	0.05	4.2
11:41:04	1.0	0.01	0.04	4.3
11:41:19	1.0	0.01	0.04	4.3
11:41:34	0.9	0.00	0.04	4.2
11:41:49	0.9	0.01	0.04	4.1
11:42:04	0.9	0.01	0.04	4.2
11:42:19	0.8	0.05	0.04	4.3
11:42:34	0.7	0.05	0.04	4.2
11:42:49	0.7	0.05	0.04	4.2
11:43:04	0.6	0.05	0.04	4.2
11:43:19	0.6	0.05	0.04	4.2
11:43:34	0.6	0.05	0.04	4.2
11:43:49	0.6	0.04	0.04	4.2
11:44:04	14.2	0.02	0.04	4.2
11:44:19	43.7	0.01	0.04	2.2
11:44:34	45.3	0.01	0.04	1.8
11:44:49	45.5	0.01	0.04	1.8
11:45:04	45.7	0.00	0.04	1.8
11:45:19	45.7	0.00	0.03	1.8
11:45:34	45.8	0.01	0.04	1.8
11:45:49	45.8	0.00	0.04	1.8
11:46:04	45.5	1.81	1.79	1.8
11:46:19	10.5	9.20	9.07	1.8
11:46:34	1.1	9.90	9.93	1.8
11:46:49	0.8	9.94	10.01	1.8
11:47:04	0.7	9.95	10.04	1.8
11:47:19	0.7	9.96	10.06	1.8
11:47:34	0.6	9.97	10.07	1.8
11:47:49	0.6	9.97	10.07	1.8
11:48:04	1.5	9.85	10.77	8.3
11:48:19	13.2	6.00	5.91	389.3
11:48:34	2.8	0.30	0.76	854.9
11:48:49	1.0	0.07	0.23	1264.1
11:49:04	0.7	0.05	0.13	1451.3
11:49:19	0.7	0.04	0.10	1506.0
11:49:34	0.7	0.03	0.09	1510.1
11:49:49	0.7	0.03	0.08	1515.9
11:50:04	0.7	0.02	0.07	1515.2
11:50:19	0.6	0.02	0.07	1517.9
11:50:34	0.6	0.02	0.06	1522.0
11:50:49	0.6	0.02	0.06	1518.8
11:51:04	0.6	0.02	0.06	1517.7
11:51:19	0.5	0.00	0.05	1517.3
11:51:34	3.7	3.38	4.88	1521.3

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
May 22,1997

CALIBRATION BIAS 00

	THC ppm
Zero	-0.7
High	854.7
Mid	481.0
Low	253.4

11:35:49	-0.7
11:36:49	160.8
11:37:49	859.1
11:38:49	854.7
11:39:49	671.5
11:40:49	481.0
11:41:49	480.0
11:42:49	288.3
11:43:49	218.5
11:44:49	-5.4
11:45:49	-6.9
11:46:49	-7.7
11:47:49	-2.5
11:48:49	6.5
11:49:49	2.7
11:50:49	4.9
11:51:49	92.4

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
May 22,1997

RUN 01

Time	NOx ppm	THC ppm	O2 %	CO2 %	CO ppm
	29.1	188.8	9.51	13.82	1,873.6
In Zero	0.6	-0.7	0.05	0.04	4.2
In Span	45.8	253.4	9.97	10.07	1516.3
Fn Zero	1.1	0.5	0.05	0.07	4.3
Fn Span	47.6	241.6	9.97	10.09	1515.4
Tank	45.9	252.4	10.10	10.10	1,515.0
Avg	**28.3**	**287.2**	**9.46**	**13.76**	**1,869.3**
12:00	29.6	154.6	9.34	14.05	1841.6
12:01	29.3	137.7	9.33	14.06	1834.3
12:02	29.1	131.1	9.44	13.89	1814.5
12:03	29.4	156.6	9.47	13.86	1794.1
12:04	29.9	163.4	9.37	13.97	1822.9
12:05	29.8	163.7	9.38	13.95	1828.1
12:06	29.8	170.8	9.35	14.00	1842.6
12:07	29.4	151.4	9.34	14.00	1852.6
12:08	29.0	171.3	9.40	13.92	1841.4
12:09	29.2	169.7	9.46	13.84	1844.4
12:10	29.6	170.4	9.37	13.96	1847.4
12:11	29.4	179.8	9.38	13.93	1867.2
12:12	29.7	183.9	9.35	13.99	1873.0
12:13	29.4	187.8	9.33	14.03	1883.5
12:14	29.0	186.4	9.39	13.95	1880.9
12:15	29.1	178.4	9.45	13.86	1862.4
12:16	29.5	182.5	9.39	13.96	1858.4
12:17	29.3	171.8	9.38	13.97	1852.3
12:18	29.4	182.6	9.34	14.03	1885.0
12:19	29.1	184.1	9.32	14.06	1889.2
12:20	28.6	182.5	9.38	13.97	1899.0
12:21	28.9	183.4	9.44	13.89	1879.8
12:22	29.7	187.4	9.36	14.02	1885.1
12:23	29.3	187.4	9.37	14.01	1877.0
12:24	29.3	191.5	9.33	14.08	1903.5
12:25	28.8	189.8	9.34	14.05	1935.7
12:26	28.1	186.4	9.43	13.95	1938.2
12:27	28.6	184.4	9.49	13.87	1899.1
12:28	29.1	187.8	9.39	13.99	1918.7
12:29	28.7	190.3	9.48	13.89	1883.0
12:30	28.9	193.1	9.45	13.94	1856.2
12:31	28.8	193.7	9.43	13.96	1861.1
12:32	28.2	187.7	9.48	13.88	1863.9
12:33	28.7	183.3	9.50	13.84	1858.2
12:34	29.6	184.8	9.39	14.01	1869.3
12:35	29.5	182.9	9.38	14.03	1890.2
12:36	29.7	190.8	9.36	14.07	1889.9
12:37	29.3	192.4	9.35	14.09	1860.1
12:38	28.7	197.2	9.42	13.98	1890.0
12:39	28.9	198.4	9.50	13.87	1895.1
12:40	29.8	205.1	9.38	14.03	1882.7
12:41	29.7	210.7	9.36	14.05	1891.1
12:42	29.8	224.8	9.33	14.09	1919.3
12:43	29.6	230.0	9.33	14.08	1916.2
12:44	28.9	225.6	9.38	14.00	1920.2
12:45	29.3	233.3	9.41	13.96	1914.5
12:46	29.7	240.6	9.35	14.04	1936.9
12:47	29.9	242.2	9.36	14.04	1923.9
12:48	29.8	244.2	9.33	14.06	1922.5
12:49	29.8	242.6	9.30	14.10	1938.9
12:50	29.2	241.9	9.37	14.00	1923.1
12:51	29.3	242.6	9.42	13.95	1928.4
12:52	29.8	238.4	9.35	14.03	1936.8
12:53	21.4	55.5	13.95	8.26	1753.7
12:54	25.3	174.9	10.97	11.80	1406.3
12:55	30.1	222.9	9.34	14.02	1928.0
12:56	29.7	192.8	9.39	13.94	1942.5
12:57	29.2	119.1	10.02	13.08	1939.6
12:58	28.0	184.4	10.09	12.96	1806.4
12:59	30.5	201.0	9.38	13.96	1915.4

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
May 22,1997

CALIBRATION BIAS 01

	NOx ppm	O2 %	CO2 %	CO ppm
Zero	1.1	0.05	0.07	4.3
Span	47.6	9.97	10.09	1515.4
13:10:04	2.2	0.05	0.13	16.6
13:10:19	2.0	0.04	0.12	11.9
13:10:34	1.9	0.04	0.11	9.2
13:10:49	1.8	0.03	0.10	8.7
13:11:04	1.7	0.03	0.10	6.7
13:11:19	2.0	0.03	0.10	6.7
13:11:34	2.0	0.03	0.10	6.7
13:11:49	2.3	0.05	0.11	6.7
13:12:04	2.1	0.03	0.10	6.7
13:12:19	2.0	0.02	0.09	6.7
13:12:34	1.8	0.02	0.08	6.7
13:12:49	1.6	0.02	0.08	6.2
13:13:04	1.4	0.03	0.08	4.3
13:13:19	1.7	0.06	0.08	11.6
13:13:34	1.5	0.06	0.07	13.3
13:13:49	1.4	0.06	0.06	9.1
13:14:04	1.3	0.05	0.06	5.4
13:14:19	1.1	0.05	0.07	4.3
13:14:34	1.1	0.05	0.07	4.3
13:14:49	1.1	0.06	0.07	4.3
13:15:04	1.1	0.06	0.07	4.3
13:15:19	1.1	0.05	0.07	4.3
13:15:34	2.8	0.06	0.08	4.3
13:15:49	35.3	0.02	0.07	4.3
13:16:04	45.9	0.01	0.07	4.3
13:16:19	46.6	0.01	0.06	4.3
13:16:34	46.7	0.01	0.06	4.3
13:16:49	46.8	0.01	0.06	4.3
13:17:04	47.5	0.03	0.07	4.3
13:17:19	47.6	0.02	0.07	4.3
13:17:34	47.6	0.01	0.07	4.3
13:17:49	47.2	0.54	0.61	4.3
13:18:04	20.7	8.35	8.09	3.0
13:18:19	1.9	9.86	9.86	1.8
13:18:34	1.6	9.92	9.99	1.8
13:18:49	1.3	9.93	10.03	1.8
13:19:04	1.2	9.93	10.04	1.8
13:19:19	1.4	9.95	10.05	1.8
13:19:34	1.4	9.94	10.05	3.1
13:19:49	1.4	9.95	10.06	4.3
13:20:04	1.4	9.95	10.07	4.3
13:20:19	1.1	9.96	10.06	2.2
13:20:34	1.0	9.96	10.08	1.8
13:20:49	0.9	9.96	10.09	1.8
13:21:04	0.9	9.97	10.09	1.8
13:21:19	0.9	9.97	10.09	1.8
13:21:34	0.8	9.96	10.10	1.8
13:21:49	1.3	10.44	9.63	2.3
13:22:04	1.3	11.22	8.98	4.3
13:22:19	1.5	10.14	10.03	6.8
13:22:34	6.2	7.75	7.73	161.1
13:22:49	1.4	0.60	1.05	649.2
13:23:04	1.1	0.10	0.35	1164.8
13:23:19	1.3	0.06	0.18	1422.9
13:23:34	0.9	0.05	0.15	1500.6
13:23:49	0.8	0.04	0.13	1515.3
13:24:04	0.7	0.03	0.11	1515.7
13:24:19	0.9	0.03	0.11	1522.3
13:24:34	1.0	0.04	0.11	1520.1
13:24:49	1.0	0.03	0.10	1517.7
13:25:04	1.0	0.02	0.10	1514.9
13:25:19	0.9	0.03	0.09	1515.0
13:25:34	0.8	0.02	0.08	1516.4
13:25:49	0.7	0.01	0.08	1517.9

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
May 22,1997

CALIBRATION BIAS 01

	THC ppm
Zero	0.5
Low	241.6
13:00:49	184.9
13:01:49	30.9
13:02:49	176.6
13:03:49	188.9
13:04:49	132.8
13:05:49	174.2
13:06:49	201.6
13:07:49	163.6
13:08:49	85.9
13:09:49	15.6
13:10:49	9.8
13:11:49	8.1
13:12:49	5.7
13:13:49	223.5
13:14:49	241.6
13:15:49	100.5
13:16:49	3.9
13:17:49	1.9
13:18:49	0.0
13:19:49	1.0
13:20:49	-1.5
13:21:49	0.3
13:22:49	6.2
13:23:49	-1.7
13:24:49	0.2
13:25:49	-2.2

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
May 22,1997

RUN 03

Time	NOx ppm	THC ppm	O2 %	CO2 %	CO ppm
	31.6	141.1	9.42	13.12	1,820.5
In Zero	1.1	0.5	0.05	0.07	4.3
In Span	47.6	241.6	9.97	10.09	1515.4
Fn Zero	0.9	-0.8	0.03	0.12	6.7
Fn Span	46.3	252.3	9.96	10.00	1518.0
Tank	45.9	252.4	10.10	10.10	1,515.0
Avg	**30.6**	**212.2**	**9.38**	**13.03**	**1,815.0**
15:40	31.7	127.4	9.41	13.20	1859.3
15:41	31.9	126.9	9.41	13.20	1857.3
15:42	31.8	123.9	9.38	13.21	1876.9
15:43	32.1	120.2	9.30	13.27	1868.6
15:44	31.5	118.9	9.35	13.21	1861.7
15:45	31.4	119.3	9.46	13.08	1822.5
15:46	32.1	121.6	9.44	13.12	1780.2
15:47	32.1	120.1	9.45	13.10	1770.8
15:48	32.4	117.8	9.43	13.10	1728.2
15:49	33.1	117.6	9.38	13.14	1692.1
15:50	32.9	119.6	9.42	13.10	1687.8
15:51	32.5	123.6	9.52	13.00	1692.4
15:52	32.8	127.8	9.43	13.07	1710.1
15:53	32.9	130.6	9.40	13.09	1742.8
15:54	32.8	132.4	9.40	13.07	1760.4
15:55	33.0	134.4	9.36	13.09	1755.3
15:56	32.8	133.7	9.34	13.08	1777.6
15:57	32.4	133.7	9.48	12.93	1762.8
15:58	32.5	138.7	9.47	12.96	1741.7
15:59	32.0	143.4	9.50	12.92	1714.3
16:00	31.4	145.5	9.52	12.90	1740.8
16:01	31.4	145.4	9.47	12.94	1759.7
16:02	31.0	144.6	9.49	12.91	1805.3
16:03	31.1	144.0	9.54	12.87	1789.8
16:04	31.7	140.7	9.44	12.98	1813.4
16:05	32.7	138.2	9.32	13.10	1823.9
16:06	32.7	140.7	9.35	13.09	1814.0
16:07	32.2	144.8	9.44	13.04	1780.4
16:08	31.5	145.9	9.49	13.01	1762.3
16:09	31.2	145.8	9.54	12.97	1777.3
16:10	31.6	146.7	9.45	13.07	1819.9
16:11	31.6	146.5	9.46	13.08	1837.5
16:12	31.6	145.9	9.42	13.13	1835.6
16:13	32.2	143.1	9.32	13.22	1848.3
16:14	31.6	143.1	9.36	13.19	1870.9
16:15	31.9	142.8	9.41	13.16	1859.7
16:16	32.1	147.3	9.41	13.19	1839.5
16:17	31.7	148.7	9.45	13.16	1826.5
16:18	31.7	149.6	9.41	13.20	1851.8
16:19	31.5	149.1	9.38	13.24	1875.5
16:20	30.9	149.3	9.43	13.19	1866.5
16:21	31.0	150.1	9.46	13.18	1874.3
16:22	31.1	149.8	9.43	13.20	1852.3
16:23	31.1	150.3	9.44	13.19	1865.7
16:24	31.3	150.4	9.38	13.25	1873.1
16:25	30.9	150.9	9.37	13.25	1881.5
16:26	30.3	152.0	9.42	13.21	1905.6
16:27	30.5	152.8	9.45	13.18	1874.7
16:28	30.7	152.0	9.41	13.21	1891.8
16:29	30.8	152.5	9.42	13.20	1898.0
16:30	30.8	151.9	9.37	13.24	1881.8
16:31	30.8	152.1	9.37	13.24	1871.0
16:32	30.5	151.9	9.42	13.19	1860.3
16:33	30.6	152.5	9.45	13.16	1860.1
16:34	30.8	152.6	9.43	13.17	1843.3
16:35	30.5	153.8	9.44	13:15	1845.0
16:36	30.3	154.6	9.37	13.21	1873.6
16:37	30.6	152.8	9.38	13.19	1871.9
16:38	30.7	151.8	9.38	13.17	1879.6
16:39	31.4	150.8	9.39	13.15	1867.7

SOLVAY MINERALS, INC.
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CALIBRATION BIAS 03

	NOx ppm	O2 %	CO2 %	CO ppm
Zero	0.9	0.03	0.12	6.7
Span	46.3	9.96	10.00	1518.0
17:11:11	1.3	0.05	0.15	14.9
17:11:26	1.2	0.04	0.14	11.5
17:11:41	1.1	0.04	0.14	9.2
17:11:56	1.0	0.04	0.13	9.0
17:12:11	0.9	0.04	0.12	6.7
17:12:26	0.9	0.03	0.12	6.7
17:12:41	0.9	0.03	0.12	6.7
17:12:56	1.1	0.04	0.12	6.7
17:13:11	1.3	0.10	0.24	8.7
17:13:26	1.7	0.15	0.32	24.8
17:13:41	1.6	0.16	0.33	51.0
17:13:56	1.6	0.15	0.33	59.4
17:14:11	1.6	0.15	0.33	61.2
17:14:26	1.5	0.16	0.33	62.8
17:14:41	1.5	0.16	0.34	63.5
17:14:56	1.5	0.16	0.34	63.6
17:15:11	1.5	0.16	0.34	66.0
17:15:26	1.5	0.16	0.35	65.9
17:15:41	1.5	0.17	0.35	68.4
17:15:56	1.5	0.17	0.34	68.4
17:16:11	2.2	0.09	0.16	65.1
17:16:26	34.9	0.12	0.27	50.2
17:16:41	11.2	0.16	0.35	48.5
17:16:56	2.0	0.16	0.35	60.8
17:17:11	1.8	0.17	0.36	69.5
17:17:26	1.7	0.17	0.36	73.2
17:17:41	1.7	0.06	0.16	66.3
17:17:56	1.4	0.06	0.11	41.3
17:18:11	0.8	0.06	0.10	15.6
17:18:26	0.8	0.06	0.10	7.5
17:18:41	0.7	0.06	0.10	6.7
17:18:56	0.7	0.05	0.10	6.7
17:19:11	0.7	0.00	0.02	6.3
17:19:26	0.7	0.06	0.10	6.7
17:19:41	0.6	0.05	0.10	6.7
17:19:56	0.6	0.05	0.11	5.1
17:20:11	27.4	0.25	0.49	15.7
17:20:26	45.7	0.30	0.58	63.3
17:20:41	46.1	0.29	0.57	109.3
17:20:56	46.3	0.29	0.56	119.6
17:21:11	46.2	0.29	0.56	121.3
17:21:26	46.3	0.29	0.56	122.8
17:21:41	46.3	0.29	0.56	122.8
17:21:56	46.4	0.28	0.55	122.8
17:22:11	46.4	0.28	0.56	122.8
17:22:26	46.3	0.24	0.47	122.9
17:22:41	31.8	6.32	6.34	101.3
17:22:56	1.7	9.78	9.70	53.3
17:23:11	1.0	9.91	9.91	15.7
17:23:26	0.8	9.93	9.95	5.9
17:23:41	0.7	9.94	9.97	4.3
17:23:56	0.7	9.94	9.98	4.3
17:24:11	0.6	9.95	9.99	4.3
17:24:26	0.6	9.95	10.00	4.3
17:24:41	0.6	9.96	10.00	4.3
17:24:56	0.6	9.96	10.01	4.3
17:25:11	0.5	9.96	10.01	4.3
17:25:26	1.0	5.70	5.18	12.4
17:25:41	0.7	0.30	0.77	603.8
17:25:56	0.5	0.09	0.28	1178.7
17:26:11	0.5	0.06	0.19	1459.1
17:26:26	0.5	0.05	0.17	1507.2
17:26:41	0.5	0.05	0.16	1519.1
17:26:56	0.5	0.04	0.14	1520.7
17:27:11	0.4	0.04	0.14	1524.5
17:27:26	0.4	0.03	0.13	1523.5
17:27:41	0.4	0.03	0.13	1515.9
17:27:56	0.4	0.03	0.13	1519.6
17:28:11	0.4	0.90	1.47	1518.4
17:28:26	22.1	7.83	11.01	1552.0

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
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CALIBRATION BIAS 03

	THC ppm
Zero	-0.8
Low	252.3
17:11:26	0.3
17:12:26	-1.8
17:13:26	415.9
17:14:26	468.1
17:15:26	467.3
17:16:26	336.3
17:17:26	455.2
17:18:26	252.3
17:19:26	250.2
17:20:26	77.7
17:21:26	2.6
17:22:26	0.4
17:23:26	-6.4
17:24:26	-6.8
17:25:26	-6.3
17:26:26	2.4

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
May 22,1997

RUN 04

Time	NOx ppm	THC ppm	O2 %	CO2 %	CO ppm
	35.3	142.1	9.27	13.27	1,839.7
In Zero	0.9	-0.8	0.03	0.12	6.7
In Span	46.3	252.3	9.96	10.00	1518.0
Fn Zero	0.8	-0.7	0.06	0.12	6.6
Fn Span	46.1	254.3	9.97	10.04	1520.8
Tank	45.9	252.4	10.10	10.10	1,515.0
Avg	**34.5**	**213.6**	**9.23**	**13.15**	**1,833.1**
17:30	34.6	130.2	9.27	13.20	1814.8
17:31	34.9	132.6	9.25	13.26	1828.8
17:32	34.4	132.4	9.31	13.22	1839.3
17:33	34.5	131.2	9.37	13.19	1833.5
17:34	35.0	131.3	9.30	13.26	1837.4
17:35	35.3	130.9	9.30	13.26	1832.0
17:36	35.1	131.8	9.29	13.28	1825.7
17:37	35.0	133.0	9.26	13.31	1849.6
17:38	34.5	130.1	9.33	13.24	1840.3
17:39	34.6	129.3	9.39	13.20	1817.1
17:40	35.3	129.3	9.28	13.31	1816.3
17:41	35.6	128.4	9.28	13.31	1830.6
17:42	35.3	129.9	9.28	13.31	1828.5
17:43	35.3	129.3	9.24	13.35	1852.6
17:44	34.7	129.1	9.28	13.31	1861.7
17:45	34.7	128.0	9.37	13.22	1838.9
17:46	35.3	129.7	9.30	13.29	1830.4
17:47	35.4	131.8	9.29	13.30	1830.0
17:48	35.2	133.0	9.27	13.31	1855.3
17:49	35.3	133.7	9.24	13.34	1851.4
17:50	35.0	132.0	9.25	13.32	1853.6
17:51	35.5	131.2	9.28	13.29	1831.4
17:52	35.9	132.6	9.22	13.35	1838.3
17:53	35.9	132.9	9.25	13.33	1816.7
17:54	35.9	137.2	9.29	13.31	1790.3
17:55	35.5	139.9	9.26	13.32	1795.5
17:56	35.0	140.2	9.28	13.29	1832.2
17:57	34.6	140.3	9.39	13.19	1841.3
17:58	35.3	142.0	9.31	13.26	1819.9
17:59	35.6	142.8	9.29	13.28	1822.6
18:00	35.7	142.6	9.27	13.29	1822.3
18:01	36.2	142.6	9.14	13.40	1839.6
18:02	35.9	144.0	9.19	13.35	1841.4
18:03	35.8	144.9	9.27	13.26	1836.0
18:04	36.2	146.5	9.22	13.32	1818.7
18:05	35.9	149.5	9.28	13.25	1813.1
18:06	36.0	150.7	9.25	13.27	1809.5
18:07	35.7	153.3	9.23	13.28	1831.8
18:08	34.7	155.5	9.28	13.22	1855.6
18:09	34.8	155.8	9.34	13.16	1850.9
18:10	35.5	156.7	9.26	13.25	1835.9
18:11	35.7	155.6	9.26	13.23	1831.8
18:12	35.8	155.4	9.24	13.26	1839.8
18:13	35.8	156.0	9.21	13.29	1864.2
18:14	35.2	155.6	9.25	13.25	1887.5
18:15	35.0	153.6	9.34	13.17	1864.6
18:16	35.4	154.4	9.26	13.26	1870.3
18:17	35.7	152.2	9.20	13.30	1888.4
18:18	36.0	151.9	9.20	13.32	1867.0
18:19	35.6	155.2	9.22	13.31	1843.5
18:20	34.9	153.4	9.32	13.21	1836.0
18:21	34.6	153.6	9.40	13.14	1819.4
18:22	34.9	155.5	9.31	13.22	1850.5
18:23	35.0	152.9	9.31	13.21	1863.1
18:24	35.2	152.8	9.29	13.23	1859.8
18:25	35.0	151.3	9.28	13.25	1857.1
18:27	35.7	146.5	9.22	13.28	1839.6
18:28	36.0	146.2	9.20	13.31	1853.4
18:29	36.0	146.4	9.22	13.30	1865.8
18:30	35.8	148.0	9.21	13.31	1869.1

SOLVAY MINERALS, INC.
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CA-3 Stack
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CALIBRATION BIAS 04

	NOx ppm	O2 %	CO2 %	CO ppm
Zero	0.8	0.1	0.1	6.6
Span	46.1	9.97	10.04	1520.8
18:38:47	1.0	0.03	0.14	8.7
18:39:01	0.9	0.03	0.13	6.7
18:39:17	0.9	0.02	0.13	6.7
18:39:32	0.9	0.03	0.13	6.7
18:39:46	0.8	0.03	0.13	6.6
18:40:02	0.8	0.03	0.13	6.7
18:40:16	0.8	0.03	0.13	7.2
18:40:32	1.2	0.07	0.13	13.1
18:40:46	0.9	0.07	0.13	13.9
18:41:02	0.8	0.07	0.10	10.3
18:41:17	0.8	0.07	0.12	6.9
18:41:31	0.8	0.06	0.12	6.7
18:41:47	0.8	0.06	0.12	6.6
18:42:01	0.8	0.06	0.12	6.6
18:42:17	0.8	0.06	0.12	6.5
18:42:31	0.8	0.06	0.12	6.6
18:42:46	0.7	0.07	0.13	6.6
18:43:02	27.5	0.03	0.12	6.7
18:43:16	44.8	0.05	0.18	5.6
18:43:32	46.0	0.09	0.24	15.7
18:43:46	46.0	0.08	0.24	30.4
18:44:02	46.1	0.09	0.24	34.9
18:44:17	46.1	0.08	0.24	36.0
18:44:31	46.1	0.09	0.24	36.0
18:44:47	46.2	0.08	0.24	36.0
18:45:01	46.1	0.09	0.24	36.0
18:45:17	46.1	0.09	0.24	36.0
18:45:31	46.1	0.09	0.24	36.0
18:45:47	46.1	0.09	0.24	36.0
18:46:02	46.1	0.09	0.24	36.0
18:46:16	43.3	3.43	3.64	34.1
18:46:32	4.8	9.54	9.43	19.7
18:46:46	1.1	9.89	9.90	9.2
18:47:02	0.9	9.92	9.96	5.2
18:47:16	0.8	9.94	9.99	4.3
18:47:31	0.7	9.94	10.00	4.3
18:47:47	0.7	9.95	10.01	4.3
18:48:01	0.7	9.96	10.02	4.2
18:48:17	0.6	9.96	10.03	4.3
18:48:31	0.6	9.96	10.02	4.2
18:48:47	0.6	9.97	10.03	4.3
18:49:01	0.6	9.97	10.04	4.3
18:49:16	0.5	9.97	10.04	4.3
18:49:32	0.6	9.90	10.44	4.2
18:49:46	10.7	7.24	7.40	259.3
18:50:02	1.5	0.51	1.03	800.5
18:50:16	0.8	0.10	0.34	1260.4
18:50:32	0.7	0.07	0.22	1459.3
18:50:47	0.6	0.06	0.19	1508.1
18:51:01	0.6	0.05	0.18	1517.5
18:51:17	0.6	0.04	0.16	1519.9
18:51:31	0.5	0.04	0.15	1524.9
18:51:47	0.5	0.04	0.15	1524.1
18:52:01	0.5	0.03	0.15	1524.9
18:52:17	0.5	0.03	0.14	1528.8
18:52:32	0.5	0.03	0.14	1523.6
18:52:46	0.5	0.03	0.13	1527.0
18:53:02	0.5	0.02	0.13	1523.5
18:53:16	0.4	0.02	0.13	1524.5
18:53:32	0.5	0.01	-1.69	1519.0
18:53:46	0.4	0.15	0.40	1523.4

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
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CALIBRATION BIAS 04

	THC ppm
Zero	-0.7
Low	254.3
18:37:32	2.6
18:38:31	0.0
18:39:32	-1.3
18:40:32	117.9
18:41:31	254.1
18:42:31	254.5
18:43:32	5.8
18:44:31	-1.1
18:45:31	-1.7
18:46:32	-4.2
18:47:31	-6.1
18:48:31	-6.1
18:49:32	6.7
18:50:32	-0.3
18:51:31	3.0
18:52:32	2.6
18:53:32	1.3
18:54:31	115.2

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 STACK
5-28-1997

CALIBRATION ERROR 01

	NOx ppm	THC ppm,w	O2 %	CO2 %	CO ppm
Zero	0.1	0.1	0.01	-0.04	-1.0
High	106.9	857.6	20.86	18.10	1,520.7
Mid	46.4	487.0	10.10	10.10	602.7
Low		256.4			

07:21:55	0.1	-5	0.02	-0.05	1218
07:22:10	0.1	-5	0.01	-0.04	811
07:22:25	0.1	-5	0.01	-0.04	1
07:22:40	0.1	-5	0.02	-0.04	-2
07:22:55	58.3	-5	0.03	-0.04	-2
07:23:10	106.5	-5	0.01	-0.04	1
07:23:25	106.9	-5	0.01	-0.05	1
07:23:40	106.8	-5	0.01	-0.04	-74
07:23:55	106.9	-4	0.00	-0.04	13
07:24:10	106.9	-4	0.03	-0.04	2
07:24:25	60.2	-6	0.01	-0.04	-66
07:24:40	47.6	-5	0.00	-0.04	1
07:24:55	47.0	-6	0.00	-0.04	1
07:25:10	46.7	-5	0.00	-0.05	1
07:25:25	46.6	-5	0.00	-0.05	-1
07:25:40	46.5	-6	-0.01	-0.04	-4
07:25:55	46.1	-6	6.95	5.06	-4
07:26:10	5.2	-6	20.16	17.04	-4
07:26:25	0.9	-6	20.91	17.94	-4
07:26:40	0.7	-6	20.95	18.04	-4
07:26:55	0.5	-6	20.96	18.06	-4
07:27:10	0.5	-6	20.97	18.08	-4
07:27:25	0.4	-6	20.98	18.09	-4
07:27:40	0.4	-6	20.97	18.09	-4
07:27:55	0.3	-5	20.86	18.09	-4
07:28:10	0.3	-5	20.85	18.10	-4
07:28:25	0.3	-6	20.86	18.10	-4
07:28:40	0.3	-6	20.86	18.10	-4
07:28:55	0.2	-6	20.00	16.82	-4
07:29:10	0.9	-6	10.99	10.74	7
07:29:25	0.3	-7	10.12	10.14	67
07:29:40	0.2	-6	10.09	10.08	1
07:29:55	0.2	-7	10.08	10.08	22
07:30:10	0.2	-6	10.00	9.98	159
07:30:25	0.7	-6	4.63	3.96	54

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07:30:40	0.2	-6	0.14	0.41	526
07:30:55	0.2	-6	0.04	0.02	1158
07:31:10	0.2	-6	0.03	-0.01	1442
07:31:25	0.2	-6	0.02	-0.02	1520
07:31:40	0.2	-6	0.02	-0.02	1522
07:31:55	0.2	-7	0.02	-0.02	
07:32:10	0.2	-7	0.01	-0.03	
07:32:25	0.1	-6	0.01	-0.04	1520
07:32:40	0.1	-6	0.01	-0.04	
07:32:55	0.1	-6	0.00	-0.05	1520
07:33:10	0.1	-7	0.00	-0.04	1606
07:33:25	0.1	-7	0.00	-0.03	2274
07:33:40	0.1	-6	0.00	-0.04	1521
07:33:55	0.1	-6	0.00	-0.04	1525
07:34:10	0.1	-6	0.00	-0.04	1531
07:34:25	0.1	-6	0.00	-0.04	1528
07:34:40	0.1	-7	0.06	0.04	1524
07:34:55	0.1	-6	0.33	0.31	1438
07:35:10	0.1	-6	0.00	-0.01	1085
07:35:25	0.1	-7	0.00	-0.04	727
07:35:40	0.1	-7	-0.01	-0.04	626
07:35:55	0.1	-7	-0.01	-0.05	605
07:36:10	0.1	-7	-0.01	-0.04	602
07:36:25	0.1	-7	-0.01	-0.04	602
07:36:40	0.1	-7	-0.01	-0.04	615
07:36:55	0.1	-7	2.17	0.01	753
07:37:10	0.2	161	19.05	0.03	544
07:37:25	0.7	6	19.39	1.10	325
07:37:40	0.7	-7	20.24	11.93	369
07:37:55	0.4	-5	20.65	14.71	246
07:38:10	0.3	1	20.66	14.95	174
07:38:25	0.3	0	20.67	15.00	62
07:38:40	0.3	0	20.67	15.02	22
07:38:55	0.3	0	20.67	15.02	-6
07:39:10	0.2	0	20.68	15.03	2
07:39:25	0.2	0	20.68	15.03	1
07:39:40	0.2	0	20.68	16.38	7
07:39:55	0.2	0	20.67	17.79	2
07:40:10	0.2	0	20.68	17.92	-70
07:40:25	0.2	0	20.68	17.92	2
07:40:40	0.2	57	20.69	17.89	2
07:40:55	0.2	820	17.44	14.77	2
07:41:10	1.0	856	1.68	2.22	2
07:41:25	0.6	854	0.33	0.50	2

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07:41:40	0.7	856	0.25	0.18	3
07:41:55	0.7	858	0.23	0.12	11
07:42:10	0.7	858	0.21	0.08	9
07:42:25	0.7	858	0.20	0.06	9
07:42:40	0.7	555	0.19	0.04	9
07:42:55	0.9	490	0.10	0.03	9
07:43:10	0.5	489	0.02	0.01	8
07:43:25	0.5	488	0.06	0.01	6
07:43:40	0.5	488	0.05	0.00	2
07:43:55	0.5	487	0.05	0.00	2
07:44:10	0.5	487	0.04	-0.01	2
07:44:25	0.5	487	0.04	0.00	2
07:44:40	0.5	487	0.04	-0.01	2
07:44:55	0.5	487	0.04	-0.01	2
07:45:10	0.5	476	0.04	-0.01	2
07:45:25	0.5	264	0.07	-0.01	2
07:45:40	0.3	258	0.08	-0.02	2
07:45:55	0.3	257	0.08	-0.02	2
07:46:10	0.3	256	-0.02	-0.16	-9
07:46:25	0.2	256	0.07	-0.03	2
07:46:40	0.4	256	0.00	-0.05	2
07:46:55	0.2	134	-0.15	-0.13	-1
07:47:10	0.2	5	10.63	-0.01	2

Note: Some of the upscale CO calibration readings were deleted because of unknown electronic interference.

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CALIBRATION BIAS 00

	NOx	THC	O2	CO2	CO
	ppm	ppm,w	%	%	ppm
Zero	0.6	1.6	0.05	0.00	7.3
Span	45.9	479.6	9.94	9.93	1516.1
07:51:20	46.0	4.5	0.07	0.04	212.0
07:51:35	46.0	3.6	0.05	0.02	36.7
07:51:50	45.9	2.9	0.05	0.00	-69.6
07:52:05	45.9	2.4	0.04	-0.02	8.5
07:52:20	45.9	2.0	0.04	-0.01	4.1
07:52:35	45.8	2.3	0.03	-0.01	-43.0
07:52:50	39.1	1.7	4.47	3.96	1780.9
07:53:05	2.7	1.7	9.67	9.40	2.4
07:53:20	0.9	1.7	9.90	9.84	640.4
07:53:35	0.7	1.7	9.92	9.91	2882.0
07:53:50	0.6	1.7	9.94	9.93	3325.0
07:54:05	0.5	1.6	9.94	9.93	2.4
07:54:20	0.5	1.6	9.94	9.93	2.4
07:54:35	0.5	1.6	9.95	9.96	2.4
07:54:50	0.4	280.6	9.94	9.96	2.4
07:55:05	0.8	474.0	3.59	3.70	2.4
07:55:20	0.6	477.8	0.18	0.62	22.9
07:55:35	0.7	479.2	0.08	0.14	77.1
07:55:50	0.7	479.9	0.06	0.06	153.4
07:56:05	0.7	479.9	0.05	0.04	2.4
07:56:20	0.7	413.6	0.04	0.03	2.4
07:56:35	0.7	22.5	0.09	0.08	11.0
07:56:50	0.4	17.7	0.05	0.03	219.6
07:57:05	0.4	16.2	0.03	0.01	880.5
07:57:20	0.3	15.5	0.02	0.00	1315.8
07:57:35	0.3	14.9	0.02	0.00	1488.0
07:57:50	0.3	14.5	0.02	-0.01	1504.5
07:58:05	0.3	14.2	0.02	-0.01	1364.5
07:58:20	0.3	14.0	0.02	-0.02	2345.0
07:58:35	0.3	13.7	0.02	-0.03	1691.0
07:58:50	0.3	13.7	0.01	-0.02	1642.3
07:59:05	0.3	13.5	0.01	-0.02	1514.1
07:59:20	0.3	13.2	0.01	-0.02	1510.0
07:59:35	0.3	12.9	0.01	-0.02	1510.3
07:59:50	0.3	12.7	0.01	-0.02	1519.0
08:00:05	0.3	12.5	0.01	-0.02	1515.9
08:00:20	0.3	188.5	0.07	0.06	1509.4
08:00:35	8.5	278.0	6.11	6.26	1573.5
08:00:50	27.7	274.6	9.83	11.79	1793.2
08:01:05	28.6	38.5	8.86	10.74	1972.3
08:01:20	11.8	7.5	1.16	2.04	1991.8
08:01:35	1.6	7.3	0.06	0.37	1773.9
08:01:50	1.0	8.6	0.03	0.06	1617.0
08:02:05	0.8	10.0	0.02	0.01	1531.6
08:02:20	0.7	11.2	0.02	0.00	1518.4
08:02:35	0.6	12.2	0.01	-0.01	1512.5
08:02:50	0.5	12.9	0.01	-0.02	1516.1
08:03:05	0.5	13.3	0.01	-0.02	1516.1
08:03:20	0.5	6.0	0.01	-0.02	1516.1
08:03:35	0.4	1.5	0.01	-0.02	1434.8
08:03:50	0.4	1.3	0.01	-0.02	996.3
08:04:05	0.4	0.8	0.00	-0.02	339.4
08:04:20	0.4	0.5	0.00	-0.02	78.1
08:04:35	0.4	0.2	0.00	-0.02	10.6
08:04:50	0.4	0.2	0.00	-0.02	7.3
08:05:05	0.4	0.1	0.00	-0.02	7.3
08:05:20	0.3	0.0	0.00	-0.02	7.3
08:05:35	0.4	0.0	0.00	-0.02	7.3
08:05:50	0.3	0.0	0.00	-0.02	7.3

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RUN 05

	NOx ppm	THC ppm,w	O2 %	CO2 %	CO ppm
	27.6	281.0	10.08	12.28	2,054.4
In Zero	0.6	1.6	0.05	0.00	7.3
In Span	45.9	479.6	9.94	9.93	1,516.1
Fn Zero	1.0	3.6	0.02	0.01	1.3
Fn Span	47.5	478.5	9.90	9.93	1,516.4
Tank	46.0	472.5	10.10	10.10	1,515.0
Avg	**26.9**	**407.2**	**10.26**	**12.50**	**2,054.3**
08:29	28.2	322.3	10.08	12.14	2,134.8
08:30	29.0	319.6	10.05	12.24	2,128.0
08:31	29.0	321.4	10.00	12.29	2,129.4
08:32	28.8	321.2	9.97	12.33	2,161.7
08:33	28.5	320.9	10.01	12.28	2,138.1
08:34	29.0	321.2	10.01	12.28	2,127.9
08:35	29.1	322.9	9.98	12.30	2,135.8
08:36	29.3	323.1	9.98	12.31	2,158.3
08:37	29.5	323.5	9.94	12.34	2,139.2
08:38	29.1	325.9	9.96	12.34	2,103.2
08:39	28.6	324.5	10.03	12.26	2,060.1
08:40	28.2	323.0	10.09	12.18	2,083.1
08:41	27.8	322.9	10.10	12.18	2,075.2
08:42	28.3	328.1	10.06	12.23	2,087.4
08:43	27.7	339.6	10.01	12.28	2,106.9
08:44	27.9	323.9	9.98	12.33	2,085.7
08:45	27.8	314.4	10.01	12.30	2,067.7
08:46	27.4	320.6	10.08	12.22	2,024.5
08:47	27.2	316.5	10.04	12.27	2,030.5
08:48	28.5	304.6	10.00	12.31	2,038.3
08:49	28.7	301.7	9.96	12.35	2,048.5
08:50	27.7	303.3	10.05	12.27	2,002.6
08:51	25.5	309.6	10.28	12.06	1,881.2
08:52	25.3	300.8	10.31	12.01	1,907.1
09:07	26.2	259.2	10.16	12.20	2,079.4
09:08	26.4	261.5	10.12	12.22	2,094.9
09:09	25.6	261.8	10.16	12.21	2,078.2
09:10	25.6	258.7	10.17	12.21	2,090.8
09:11	25.6	256.6	10.23	12.15	2,061.4
09:12	25.7	253.9	10.25	12.14	2,043.3
09:13	26.4	246.4	10.13	12.24	2,124.1
09:14	27.1	245.2	10.05	12.33	2,118.3
09:15	26.6	245.5	10.07	12.32	2,110.7
09:16	26.3	242.8	10.09	12.29	2,128.8
09:17	26.4	242.0	10.14	12.25	2,098.0
09:18	26.5	246.3	10.18	12.20	2,069.5
09:19	26.9	248.8	10.15	12.24	2,028.8
09:20	27.1	250.1	10.10	12.31	2,030.4
09:21	26.7	250.9	10.12	12.30	2,011.8
09:22	27.1	244.0	10.08	12.33	1,997.7
09:23	27.5	243.0	10.08	12.33	2,009.0
09:24	27.7	243.7	10.08	12.33	2,016.8
09:25	28.0	246.4	10.08	12.34	2,012.6
09:26	28.2	249.1	10.02	12.40	2,009.4
09:27	27.9	251.6	10.04	12.39	2,021.9
09:28	27.0	258.5	10.15	12.29	1,967.2
09:29	27.0	259.1	10.20	12.22	1,943.4
09:30	27.3	259.8	10.19	12.23	1,966.6
09:31	28.0	263.8	10.12	12.32	1,965.4
09:32	28.1	262.3	10.07	12.37	1,991.8
09:33	28.1	257.9	10.03	12.41	2,006.9
09:34	28.2	257.5	10.05	12.40	2,022.4
09:35	27.9	259.6	10.10	12.34	2,036.9
09:36	28.5	259.7	10.11	12.34	2,010.9
09:37	29.0	261.5	10.04	12.41	2,000.7
09:38	29.2	265.2	9.99	12.43	2,044.0
09:39	28.7	264.2	10.03	12.41	2,055.0
09:40	28.7	266.1	10.07	12.40	2,055.7

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CALIBRATION BIAS 05

	NOx ppm	THC ppm,w	O2 %	CO2 %	CO ppm
Zero	1.0	3.6	0.02	0.01	1.3
Span	47.5	478.5	9.90	9.93	1516.4

09:45:23	47.8	8.5	0.03	0.01	7.3
09:45:38	47.6	8.0	0.03	0.01	7.3
09:45:53	47.6	7.8	0.02	0.01	7.3
09:46:08	47.4	7.4	0.02	0.00	7.3
09:46:23	47.4	7.1	0.02	0.00	7.3
09:46:38	47.4	5.8	0.02	0.00	7.3
09:46:53	41.4	3.8	4.33	3.61	7.4
09:47:08	3.5	3.8	9.62	9.26	7.3
09:47:23	1.4	3.7	9.86	9.77	6.1
09:47:38	1.1	3.7	9.89	9.87	1.2
09:47:53	1.0	3.6	9.89	9.91	1.3
09:48:08	1.0	3.6	9.90	9.93	1.3
09:48:23	0.9	3.5	9.91	9.94	1.3
09:48:38	0.8	3.5	9.91	9.95	1.2
09:48:53	1.1	4.7	7.27	7.23	16.2
09:49:08	1.5	7.7	0.49	1.20	269.0
09:49:23	0.8	9.6	0.09	0.28	891.2
09:49:38	0.7	10.4	0.06	0.10	1338.7
09:49:53	0.7	10.9	0.04	0.06	1489.4
09:50:08	0.7	11.1	0.04	0.05	1516.7
09:50:23	0.7	11.0	0.03	0.03	1516.9
09:50:38	0.7	10.7	0.03	0.02	1516.1
09:50:53	0.7	10.4	0.02	0.02	1516.1
09:51:08	0.6	10.1	0.02	0.01	1519.0
09:51:23	0.6	196.4	0.02	0.01	1520.7
09:51:38	1.4	313.7	0.07	0.00	1412.6
09:51:53	0.9	478.5	0.09	0.05	862.6
09:52:08	1.1	481.5	0.02	0.01	295.1
09:52:23	0.9	475.4	0.02	0.00	51.9
09:52:38	0.9	478.6	0.01	0.00	14.7
09:52:53	0.9	478.6	0.01	0.00	8.0
09:53:08	0.9	478.1	0.01	-0.01	7.3

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RUN 06

	NOx ppm	THC ppm,w	O2 %	CO2 %	CO ppm
	28.6	227.2	10.07	12.38	1,884.6
In Zero	1.0	3.6	0.02	0.01	1.3
In Span	47.5	478.5	9.90	9.93	1,516.4
Fn Zero	0.9	4.8	0.03	0.01	1.2
Fn Span	46.1	485.1	9.89	9.93	1,519.2
Tank	46.0	472.5	10.10	10.10	1,515.0
Avg	**27.7**	**325.0**	**10.27**	**12.60**	**1,881.5**
10:23	29.4	246.4	9.97	12.35	1,852.1
10:24	30.1	248.9	10.05	12.42	1,854.9
10:25	30.2	248.5	9.99	12.47	1,898.5
10:26	30.0	247.9	9.97	12.50	1,895.5
10:27	29.6	246.7	10.01	12.45	1,837.1
10:28	29.5	242.2	10.06	12.41	1,818.2
10:29	29.0	242.8	10.06	12.41	1,830.7
10:30	29.1	243.7	10.10	12.37	1,850.5
10:31	29.3	245.9	10.07	12.40	1,841.8
10:32	29.2	246.9	10.04	12.43	1,831.2
10:33	28.6	243.9	10.07	12.39	1,837.5
10:34	28.3	242.4	10.12	12.32	1,843.0
10:35	28.1	243.1	10.11	12.34	1,834.8
10:36	28.5	240.4	10.11	12.34	1,862.3
10:37	29.1	234.7	10.03	12.41	1,881.6
10:38	29.2	232.6	9.98	12.46	1,888.5
10:39	28.6	231.8	10.02	12.44	1,873.0
10:40	28.3	231.4	10.07	12.39	1,911.9
10:41	28.3	231.0	10.06	12.38	1,902.0
10:42	28.5	227.9	10.09	12.37	1,839.1
10:43	28.7	232.1	10.08	12.37	1,841.7
10:44	28.1	237.3	10.10	12.36	1,848.8
10:45	27.7	235.1	10.12	12.33	1,859.6
10:46	27.4	234.7	10.17	12.27	1,817.9
10:47	27.3	235.2	10.16	12.28	1,862.0
10:48	28.0	233.1	10.15	12.29	1,889.1
10:49	28.6	224.9	10.03	12.39	1,919.1
10:50	28.7	223.1	9.99	12.44	1,941.1
10:51	28.3	222.9	10.04	12.40	1,906.9
10:52	27.9	221.7	10.10	12.33	1,879.9
10:53	28.0	220.5	10.06	12.37	1,878.6
10:54	28.3	221.2	10.07	12.37	1,886.1
10:55	28.6	224.1	10.06	12.37	1,890.7
10:56	28.0	228.3	10.10	12.34	1,857.6
10:57	27.4	227.0	10.13	12.32	1,857.8
10:58	27.3	228.0	10.18	12.27	1,847.0
10:59	27.3	236.9	10.15	12.31	1,843.7
11:00	27.8	238.6	10.16	12.30	1,819.9
11:01	28.1	230.9	10.06	12.39	1,887.1
11:02	28.2	227.2	10.03	12.44	1,914.9
11:03	27.7	226.0	10.05	12.41	1,898.5

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RUN 06

	NOx ppm	THC ppm,w	O2 %	CO2 %	CO ppm
11:04	27.8	224.9	10.09	12.34	1,878.1
11:05	27.8	224.2	10.07	12.39	1,887.3
11:06	28.2	223.5	10.07	12.38	1,918.6
11:07	28.5	223.4	10.04	12.41	1,912.4
11:08	28.8	220.0	10.01	12.43	1,891.7
11:09	28.4	217.8	10.04	12.41	1,865.0
11:10	28.2	217.6	10.09	12.35	1,871.8
11:11	28.5	216.9	10.07	12.38	1,873.3
11:12	29.0	217.2	10.08	12.37	1,852.3
11:13	29.7	217.5	10.02	12.41	1,839.0
11:14	29.7	217.5	10.01	12.45	1,832.5
11:15	28.8	219.8	10.07	12.39	1,836.6
11:16	28.6	219.6	10.15	12.31	1,767.4
11:17	28.2	212.7	10.12	12.30	1,863.0
11:18	28.9	212.1	10.10	12.34	1,924.9
11:19	29.0	213.4	10.08	12.35	1,943.6
11:20	28.7	210.1	10.05	12.38	1,964.2
11:21	28.5	209.9	10.02	12.41	2,010.6
11:22	28.7	209.5	10.06	12.37	1,960.6
11:23	28.7	210.9	10.03	12.40	1,942.7
11:24	28.9	211.6	10.07	12.36	1,909.9
11:25	29.1	212.7	10.01	12.41	1,969.2
11:26	29.0	212.6	10.00	12.43	2,010.3
11:27	28.5	211.8	10.02	12.41	1,996.3
11:28	28.2	213.2	10.07	12.36	1,989.1
11:29	28.3	213.2	10.04	12.37	1,968.4
11:30	28.6	211.6	10.06	12.38	1,941.4

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
5-28-1997

CALIBRATION BIAS 06

	NOx	THC	O2	CO2	CO
	ppm	ppm,w	%	%	ppm
Zero	0.9	4.8	0.03	0.01	1.2
Span	46.1	485.1	9.89	9.93	1519.2
11:42:21	46.3	11.2	0.05	0.03	14.6
11:42:36	46.2	10.4	0.04	0.01	7.2
11:42:51	46.1	9.7	0.03	0.02	7.3
11:43:06	46.1	9.3	0.03	0.02	7.3
11:43:21	46.1	8.8	0.03	0.02	7.3
11:43:36	46.0	7.1	0.03	0.01	7.3
11:43:51	37.2	5.5	5.12	4.40	7.3
11:44:06	2.6	5.3	9.67	9.42	7.3
11:44:21	1.3	5.1	9.85	9.83	6.9
11:44:36	1.1	5.0	9.87	9.89	1.2
11:44:51	1.0	4.9	9.89	9.92	1.2
11:45:06	0.9	4.8	9.89	9.93	1.2
11:45:21	0.9	4.7	9.90	9.94	1.2
11:45:36	0.8	5.8	9.90	9.94	1.2
11:45:51	0.9	6.0	5.86	5.91	18.6
11:46:06	0.8	8.0	0.30	0.95	370.1
11:46:21	0.8	9.3	0.08	0.22	942.1
11:46:36	0.8	9.9	0.05	0.09	1377.7
11:46:51	0.7	10.1	0.04	0.06	1490.7
11:47:06	0.7	10.1	0.03	0.04	1512.6
11:47:21	0.7	10.0	0.03	0.03	1521.2
11:47:36	0.7	9.9	0.04	0.02	1520.4
11:47:51	0.7	9.7	0.02	-0.01	1515.8
11:48:06	0.7	232.7	0.02	0.00	1516.0
11:48:21	0.9	484.2	0.06	0.06	1486.4
11:48:36	1.0	483.1	0.02	0.02	1047.0
11:48:51	0.9	484.3	0.01	0.01	463.3
11:49:06	0.9	484.7	0.01	0.00	82.1
11:49:21	0.9	484.8	0.01	0.00	17.2
11:49:36	0.9	485.4	0.01	0.00	7.3
11:49:51	0.9	485.2	0.01	0.00	7.3

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
5-28-1997

RUN 07

	NOx ppm	THC ppm,w	O2 %	CO2 %	CO ppm
	29.8	299.2	9.97	12.36	2,158.2
In Zero	0.9	4.8	0.03	0.01	1.2
In Span	46.1	485.1	9.89	9.93	1,519.2
Fn Zero	0.5	2.4	0.10	0.00	1.2
Fn Span	44.6	475.8	9.91	9.90	1,519.6
Tank	46.0	472.5	10.10	10.10	1,515.0
Avg	**30.0**	**428.2**	**10.17**	**12.59**	**2,152.5**
12:16	27.1	227.0	10.06	12.35	1,975.7
12:17	27.2	230.2	10.06	12.37	1,964.1
12:18	27.7	231.7	10.06	12.38	1,972.3
12:19	28.0	234.1	10.02	12.41	2,011.4
12:20	28.1	241.3	10.02	12.41	2,001.8
12:21	27.4	243.1	10.06	12.36	1,991.5
12:22	27.4	244.9	10.10	12.31	1,989.2
12:23	27.4	247.8	10.09	12.32	2,010.1
12:24	27.9	249.6	10.08	12.32	2,041.6
12:25	28.7	247.8	9.98	12.41	2,048.1
12:26	29.0	250.8	9.90	12.49	2,103.8
12:27	28.7	253.0	9.93	12.45	2,121.0
12:28	28.5	253.7	9.98	12.41	2,106.2
12:29	28.5	256.0	9.98	12.39	2,076.5
12:30	29.1	259.1	9.99	12.39	2,092.2
12:31	29.1	262.0	9.97	12.42	2,095.4
12:32	29.4	262.3	9.90	12.47	2,109.1
12:33	29.0	264.8	9.92	12.47	2,142.7
12:34	28.6	266.4	10.01	12.38	2,089.1
12:35	28.2	266.7	10.07	12.32	2,062.2
12:36	28.6	266.9	10.06	12.30	2,075.8
12:37	29.0	269.7	10.03	12.36	2,035.4
12:38	29.1	272.2	9.97	12.44	2,070.7
12:39	29.1	269.0	9.90	12.49	2,142.0
12:40	29.3	270.9	9.94	12.46	2,124.3
12:41	29.3	272.6	9.96	12.42	2,141.2
12:42	29.4	273.3	9.97	12.41	2,155.8
12:43	29.9	277.8	9.93	12.45	2,163.5
12:44	30.1	284.9	9.89	12.50	2,199.2
12:45	29.7	299.4	9.90	12.46	2,166.6
12:46	29.9	304.5	9.94	12.39	2,178.2
12:47	29.6	308.4	10.00	12.36	2,174.1
12:48	29.8	316.5	10.01	12.33	2,188.1
12:49	29.9	322.3	9.99	12.35	2,184.2
12:50	30.3	327.1	9.91	12.43	2,211.7
12:51	30.0	330.5	9.92	12.42	2,221.6
12:52	30.0	331.9	9.96	12.35	2,227.0
12:53	29.8	335.2	10.00	12.32	2,247.2
12:54	30.9	332.5	9.92	12.39	2,251.9
12:55	31.7	330.5	9.83	12.48	2,279.8
12:56	32.1	334.3	9.76	12.53	2,299.9

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
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RUN 07

	NOx	THC	O2	CO2	CO
	ppm	ppm,w	%	%	ppm
12:57	31.8	335.7	9.78	12.53	2,314.7
12:58	31.9	336.8	9.86	12.45	2,293.0
12:59	31.3	337.9	9.93	12.35	2,255.3
13:00	31.9	338.3	9.91	12.36	2,238.3
13:01	32.2	340.0	9.90	12.34	2,211.1
13:02	31.8	345.6	9.90	12.37	2,216.2
13:03	31.4	345.9	9.92	12.33	2,243.9
13:04	31.3	344.5	9.96	12.28	2,250.3
13:05	30.9	343.3	10.00	12.22	2,261.4
13:06	31.5	343.9	9.95	12.27	2,293.3
13:07	31.8	345.4	9.92	12.30	2,280.6
13:08	31.9	342.8	9.88	12.34	2,274.5
13:09	31.5	338.9	9.92	12.31	2,237.8
13:10	30.8	338.2	10.04	12.19	2,153.9
13:11	29.5	338.7	10.16	12.06	2,105.6
13:12	30.1	338.0	10.09	12.11	2,152.7
13:13	30.6	337.3	10.04	12.19	2,188.3
13:14	30.7	334.1	9.96	12.27	2,216.4
13:15	30.3	334.3	9.95	12.27	2,242.9
13:16	30.3	330.2	10.01	12.19	2,247.2
13:17	30.3	325.4	9.97	12.24	2,235.7
13:18	31.3	325.0	9.91	12.30	2,263.8
13:19	31.2	326.0	9.94	12.26	2,198.6
13:20	31.0	329.8	9.95	12.27	2,139.5
13:21	30.5	328.1	9.96	12.24	2,183.3

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
5-28-1997

CALIBRATION BIAS 07

	NOx	THC	O2	CO2	CO
	ppm	ppm,w	%	%	ppm
Zero	0.5	2.4	0.10	0.00	1.2
Span	44.6	475.8	9.91	9.90	1519.6
13:57:09	44.3	4.0	0.15	0.00	16.1
13:57:24	44.4	3.9	0.12	0.00	7.1
13:57:39	44.6	3.8	0.10	0.00	3.3
13:57:54	44.7	3.8	0.09	-0.01	1.2
13:58:09	44.7	3.8	0.08	-0.01	1.2
13:58:24	44.8	3.3	0.07	-0.01	1.2
13:58:39	39.0	2.4	4.42	3.77	1.2
13:58:54	2.7	2.4	9.63	9.29	1.2
13:59:09	0.7	2.4	9.87	9.79	1.1
13:59:24	0.6	2.4	9.89	9.86	1.2
13:59:39	0.5	2.3	9.90	9.89	1.2
13:59:54	0.5	2.4	9.91	9.91	1.2
14:00:09	0.4	2.4	9.91	9.90	1.2
14:00:24	0.4	2.4	9.91	9.90	1.2
14:00:39	0.5	3.2	6.44	6.42	7.8
14:00:54	0.5	5.6	0.39	1.03	341.1
14:01:09	0.4	7.2	0.10	0.23	902.1
14:01:24	0.4	8.1	0.07	0.10	1347.8
14:01:39	0.4	8.7	0.06	0.06	1484.6
14:01:54	0.4	8.6	0.05	0.05	1511.3
14:02:09	0.4	8.6	0.04	0.03	1519.5
14:02:24	0.4	8.6	0.04	0.01	1520.7
14:02:39	0.4	8.2	0.04	0.00	1518.8
14:02:54	0.4	7.9	0.03	0.01	1515.4
14:03:09	0.4	352.6	0.04	0.02	1514.4
14:03:24	0.8	478.4	0.06	0.05	1405.7
14:03:39	0.7	480.8	0.03	-0.01	914.3
14:03:54	0.7	482.1	0.02	-0.01	303.8
14:04:09	0.7	482.7	0.02	-0.01	61.9
14:04:24	0.7	476.9	0.02	0.00	13.6
14:04:39	0.7	475.1	0.01	0.01	9.1
14:04:54	0.7	475.5	0.01	0.00	6.8
14:05:09	0.7	475.3	0.02	0.01	6.8

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
5-30-1997

CALIBRATION ERROR 02

	NOx	THC	O2	CO2	CO
	ppm	ppm,w	%	%	ppm
Zero	0.0	-0.9	0.03	-0.01	1.2
High	107.4	852.2	20.82	18.15	1520.9
Mid	46.7	483.1	10.06	10.09	602.8
Low		255.7			
07:26:16	0.0	-0.5	0.07	-0.01	1.2
07:26:31	0.0	-0.1	0.04	-0.01	1.2
07:26:46	0.0	-0.2	0.03	-0.01	1.2
07:27:01	0.1	-0.6	0.02	-0.01	1.2
07:27:16	0.0	-0.4	0.03	-0.03	1.2
07:27:31	49.9	-0.6	0.11	-0.03	1.2
07:27:46	105.5	0.9	0.02	-0.02	1.2
07:28:01	106.2	-0.2	0.01	-0.02	1.2
07:28:16	107.1	-0.5	0.01	-0.01	1.2
07:28:31	107.4	-0.5	0.01	-0.01	1.2
07:28:46	107.3	-0.2	0.00	-0.01	1.2
07:29:01	107.5	-0.5	0.00	-0.01	1.2
07:29:16	107.0	-0.3	0.08	-0.01	1.2
07:29:31	51.7	-0.5	0.01	-0.01	2.9
07:29:46	46.9	-0.4	0.00	-0.02	3.7
07:30:01	46.8	-0.5	0.00	-0.01	1.2
07:30:16	46.7	-0.6	-0.01	-0.01	1.2
07:30:31	46.7	-0.2	-0.01	-0.01	1.2
07:30:46	46.6	-0.5	-0.02	-0.02	1.2
07:31:01	46.8	-0.2	5.81	4.01	2.9
07:31:16	7.1	-0.4	19.67	16.64	13.2
07:31:31	0.9	0.0	20.61	17.87	15.8
07:31:46	0.6	-0.5	20.66	18.16	5.6
07:32:01	0.5	-0.6	20.69	18.16	-0.1
07:32:16	0.4	-0.6	20.78	18.16	-3.7
07:32:31	0.4	-0.6	20.82	18.14	-3.7
07:32:46	0.3	-0.1	20.82	18.14	-3.7
07:33:01	0.3	0.4	20.83	18.18	-3.7
07:33:16	0.3	-0.7	20.59	18.10	-6.1

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
5-30-1997

CALIBRATION ERROR 02

	NOx	THC	O2	CO2	CO
	ppm	ppm,w	%	%	ppm
Zero	0.0	-0.9	0.03	-0.01	1.2
High	107.4	852.2	20.82	18.15	1520.9
Mid	46.7	483.1	10.06	10.09	602.8
Low		255.7			
07:33:31	0.3	-0.8	20.46	18.05	-11.5
07:33:46	0.3	-0.8	20.64	18.09	-5.9
07:34:01	0.2	-0.5	18.58	15.70	-3.7
07:34:16	0.9	-0.6	10.53	10.68	-0.7
07:34:31	0.2	-0.5	10.09	10.16	1.2
07:34:46	0.2	-0.5	10.07	10.10	1.2
07:35:01	0.2	-0.6	10.06	10.09	-3.3
07:35:16	0.2	-0.5	10.06	10.10	-3.7
07:35:31	0.2	-0.2	10.06	10.09	-0.4
07:35:46	0.2	-0.2	10.01	10.05	-3.7
07:36:01	0.4	0.0	9.87	9.36	-2.4
07:36:16	0.5	-0.3	1.38	1.52	141.1
07:36:31	0.2	-0.3	0.07	0.26	781.7
07:36:46	0.1	0.4	0.03	0.03	1283.2
07:37:01	0.1	-0.2	0.02	0.01	1495.8
07:37:16	0.1	-0.4	0.01	0.01	1520.9
07:37:31	0.1	-0.5	0.01	0.01	1520.9
07:37:46	0.1	0.3	0.00	0.01	1520.9
07:38:01	0.1	0.8	0.00	0.00	1521.0
07:38:16	0.1	0.9	0.00	-0.01	1520.8
07:38:31	0.1	-0.2	0.45	0.42	1504.9
07:38:46	0.1	-0.4	0.04	0.08	1272.5
07:39:01	0.1	-0.5	0.00	0.00	855.2
07:39:16	0.1	-0.5	-0.01	-0.02	649.9
07:39:31	0.1	-0.5	-0.01	-0.02	606.4
07:39:46	0.1	-0.6	-0.01	-0.01	601.6
07:40:01	0.1	0.6	-0.01	-0.01	605.0
07:40:16	0.1	-0.3	-0.01	0.00	601.7
07:40:31	0.1	0.6	-0.01	-0.01	599.3

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
5-30-1997

CALIBRATION ERROR 02

	NOx	THC	O2	CO2	CO
	ppm	ppm,w	%	%	ppm
Zero	0.0	-0.9	0.03	-0.01	1.2
High	107.4	852.2	20.82	18.15	1520.9
Mid	46.7	483.1	10.06	10.09	602.8
Low		255.7			
07:40:46	0.1	0.6	8.14	0.01	597.9
07:41:01	0.3	48.1	20.33	0.05	450.9
07:41:16	0.5	73.6	19.89	0.22	223.6
07:41:31	0.7	0.4	18.27	10.16	391.7
07:41:46	0.3	-0.5	20.56	17.35	612.2
07:42:01	0.3	-0.8	20.63	17.88	399.3
07:42:16	0.3	-0.9	20.63	17.96	151.0
07:42:31	0.2	-0.9	20.63	18.00	30.9
07:42:46	0.2	-0.9	20.63	18.02	9.3
07:43:01	0.2	-1.0	20.63	18.04	1.6
07:43:16	0.2	96.5	20.64	18.05	1.2
07:43:31	0.2	819.0	16.68	14.48	1.2
07:43:46	1.0	854.1	1.44	2.15	1.2
07:44:01	0.5	854.8	0.29	0.52	6.9
07:44:16	0.6	852.7	0.23	0.20	7.3
07:44:31	0.6	859.9	0.20	0.12	7.3
07:44:46	0.6	850.7	0.18	0.08	7.3
07:45:01	0.6	851.2	0.17	0.06	7.3
07:45:16	0.6	852.6	0.16	0.06	7.3
07:45:31	0.6	852.2	0.15	0.06	7.3
07:45:46	0.6	851.9	0.15	0.05	7.3
07:46:01	0.6	852.5	0.15	0.05	7.3
07:46:16	0.5	674.1	0.14	0.04	7.3
07:46:31	0.8	487.1	0.08	0.04	7.3
07:46:46	0.4	485.0	0.02	0.03	7.3
07:47:01	0.4	484.3	0.01	0.03	7.3
07:47:16	0.4	483.8	0.01	0.03	7.3
07:47:31	0.4	483.5	0.01	0.02	7.3
07:47:46	0.4	483.2	0.01	0.02	7.3

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
5-30-1997

CALIBRATION ERROR 02

	NOx	THC	O2	CO2	CO
	ppm	ppm,w	%	%	ppm
Zero	0.0	-0.9	0.03	-0.01	1.2
High	107.4	852.2	20.82	18.15	1520.9
Mid	46.7	483.1	10.06	10.09	602.8
Low		255.7			
07:48:01	0.4	482.8	0.01	0.02	7.3
07:48:16	0.4	475.9	0.00	0.02	7.3
07:48:31	0.4	261.6	0.04	0.02	7.3
07:48:46	0.3	258.0	0.05	0.02	7.3
07:49:01	0.2	256.9	0.04	0.02	7.3
07:49:16	0.2	256.5	0.04	0.02	7.3
07:49:31	0.2	256.1	0.04	0.01	7.1
07:49:46	0.2	255.8	0.03	0.00	6.8
07:50:01	0.2	255.6	0.03	0.01	6.7
07:50:16	0.2	255.6	0.03	0.01	6.8
07:50:31	0.2	255.0	0.04	0.00	6.8

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
5-30-1997

CALIBRATION BIAS 08

	NOx ppm	THC ppm,w	O2 %	CO2 %	CO ppm
Zero	0.3	1.2	0.01	0.03	1.2
Span	46.5	482.2	9.95	10.04	1513.1
Average			20.65	18.11	Alternate tank, to be used if the mid-level gas is depleted.
07:28:38	46.4	1.2	0.02	0.02	7.3
07:28:53	46.5	1.2	0.02	0.03	7.3
07:29:08	46.5	1.0	0.02	0.03	7.3
07:29:23	46.4	1.1	0.01	0.02	4.5
07:29:38	46.5	0.9	0.01	0.03	2.0
07:29:53	46.4	1.0	0.01	0.03	7.3
07:30:08	40.0	1.2	4.51	3.69	7.2
07:30:23	2.6	1.2	9.67	9.38	4.5
07:30:38	0.6	1.2	9.91	9.92	1.2
07:30:53	0.4	1.2	9.93	9.99	1.2
07:31:08	0.4	1.2	9.94	10.03	1.2
07:31:23	0.3	1.3	9.95	10.04	1.2
07:31:38	0.3	1.2	9.96	10.05	1.2
07:31:53	0.3	1.2	9.96	10.06	1.2
07:32:08	0.2	2.0	6.49	6.56	25.8
07:32:23	0.2	6.5	0.36	1.08	344.0
07:32:38	0.2	9.4	0.07	0.27	928.4
07:32:53	0.2	11.1	0.04	0.13	1353.2
07:33:08	0.2	12.2	0.03	0.10	1487.0
07:33:23	0.2	12.7	0.02	0.08	1511.2
07:33:38	0.2	12.9	0.02	0.07	1515.1
07:33:53	0.2	12.9	0.01	0.06	1513.8
07:34:08	0.2	12.7	0.01	0.06	1510.6
07:34:23	0.2	12.4	0.00	0.05	1509.1
07:34:38	0.2	5.9	-0.04	0.04	1510.5
07:34:53	0.2	58.9	1.31	0.05	1502.0
07:35:08	0.2	78.8	0.13	0.04	1362.4
07:35:23	0.2	79.1	0.04	0.04	827.6
07:35:38	0.2	79.1	0.03	0.04	298.0
07:35:53	0.2	83.2	0.03	0.02	51.2
07:36:08	0.2	84.6	0.03	0.01	13.6
07:36:23	0.2	84.6	0.03	0.02	7.3
07:36:38	0.2	84.6	0.03	0.02	7.3
07:36:53	0.2	428.6	0.04	0.04	7.3
07:37:08	0.6	479.5	0.03	0.05	7.3
07:37:23	0.4	481.0	0.00	0.04	7.3
07:37:38	0.4	481.7	-0.01	0.04	-75.4
07:37:53	0.4	482.2	-0.01	0.03	29.2
07:38:08	0.4	482.3	-0.01	0.03	98.9
07:38:23	0.4	482.1	-0.01	0.03	-6.3
07:38:38	0.4	481.2	-0.01	0.03	-86.3
07:38:53	0.4	328.5	0.32	0.40	305.8
07:39:08	11.2	48.9	4.59	5.12	1029.0
07:39:23	3.2	3.1	17.01	13.95	2706.3
07:39:38	0.4	1.5	20.45	17.69	838.2
07:39:53	0.3	1.2	20.59	17.99	95.5
07:40:08	0.2	1.2	20.62	18.06	31.7
07:40:23	0.2	0.9	20.64	18.09	9.9
07:40:38	0.2	0.3	20.65	18.11	2.4
07:40:53	0.2	0.1	20.66	18.13	1.2
07:41:08	0.2	-0.1	20.67	18.14	-13.9
07:41:23	0.2	11.2	20.68	18.15	-61.6
07:41:38	0.2	83.2	16.69	14.68	-14.5
07:41:53	0.2	84.8	1.36	2.22	115.3
07:42:08	0.2	85.2	0.21	0.56	3377.9
07:42:23	0.2	85.4	0.14	0.23	-93.8
07:42:38	0.2	85.4	0.11	0.17	7.2
07:42:53	0.2	85.6	0.09	0.14	70.4
07:43:08	0.2	85.5	0.08	0.12	7.3

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
5-30-1997

CALIBRATION BIAS 080

	NOx	THC	O2	CO2	CO
	ppm	ppm,w	%	%	ppm
Zero	0.3	0.5	0.01	-0.01	1.2
Span	45.6	481.6	9.91	9.97	1517.5
07:54:14	45.5	0.0	0.01	-0.01	7.3
07:54:29	45.6	-0.2	0.01	-0.02	7.0
07:54:44	45.5	-0.2	0.00	-0.02	7.3
07:54:59	45.5	-0.2	0.01	0.00	3.3
07:55:14	45.6	-0.3	0.00	0.00	4.5
07:55:29	45.7	0.8	0.00	0.00	5.2
07:55:44	40.3	0.7	4.20	3.60	4.0
07:55:59	2.9	0.7	9.61	9.33	2.4
07:56:14	0.6	0.7	9.87	9.87	1.2
07:56:29	0.4	0.7	9.90	9.94	1.2
07:56:44	0.4	0.5	9.91	9.96	1.2
07:56:59	0.3	0.5	9.92	9.98	1.2
07:57:14	0.3	0.5	9.92	9.99	1.2
07:57:29	0.3	1.7	9.93	9.99	1.2
07:57:44	0.2	0.6	7.76	7.71	6.4
07:57:59	0.2	4.9	0.58	1.28	251.3
07:58:14	0.2	7.7	0.07	0.30	857.3
07:58:29	0.2	9.4	0.03	0.10	1308.6
07:58:44	0.2	10.6	0.02	0.05	1489.5
07:58:59	0.2	11.2	0.01	0.05	1515.9
07:59:14	0.2	11.4	0.00	0.04	1517.3
07:59:29	0.2	11.3	-0.25	-0.07	1501.3
07:59:44	0.2	11.7	0.00	0.03	1513.5
07:59:59	0.2	11.5	0.00	0.03	1517.8
08:00:14	0.1	292.0	0.00	0.03	1521.1
08:00:29	0.5	472.5	0.04	0.08	1448.5
08:00:44	0.4	479.5	0.00	0.02	944.5
08:00:59	0.4	480.6	-0.01	0.02	360.8
08:01:14	0.4	481.2	-0.01	0.01	61.4
08:01:29	0.4	481.4	-0.01	0.01	14.5
08:01:44	0.4	481.9	-0.01	0.01	7.3
08:01:59	0.4	481.5	-0.01	0.01	7.3
08:02:14	0.4	476.3	-0.01	0.01	7.3

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
5-30-1997

RUN 08

	NOx ppm	THC ppm,w	O2 %	CO2 %	CO ppm
	31.8	228.4	9.57	12.86	1,466.7
In Zero	0.3	1.2	0.01	0.03	1.2
In Span	46.5	482.2	9.95	10.04	1,513.1
Fn Zero	0.7	1.3	0.03	0.03	3.7
Fn Span	46.7	474.7	9.95	10.05	1,516.5
Tank	46.0	472.5	10.10	10.10	1,515.0
Avg	**31.2**	**338.2**	**9.72**	**12.93**	**1,466.8**
08:18	31.4	230.1	9.52	12.92	1,531.4
08:19	31.6	232.2	9.49	12.95	1,496.6
08:20	30.4	268.5	9.67	12.79	1,483.7
08:21	29.6	253.4	9.71	12.73	1,486.0
08:22	30.3	242.6	9.62	12.81	1,499.5
08:23	31.3	234.4	9.54	12.88	1,481.7
08:24	31.5	246.2	9.60	12.83	1,500.2
08:25	29.9	274.4	9.79	12.65	1,474.9
08:26	29.4	279.9	9.84	12.58	1,453.2
08:27	29.1	276.3	9.84	12.55	1,562.1
08:28	28.1	292.3	9.99	12.41	1,414.6
08:29	28.4	282.4	9.97	12.43	1,388.8
08:30	29.9	255.1	9.80	12.59	1,404.1
08:31	30.3	248.1	9.71	12.69	1,411.0
08:32	29.8	260.7	9.80	12.61	1,392.1
08:33	29.5	253.2	9.80	12.60	
08:34	29.6	245.6	9.78	12.62	
08:35	30.4	240.4	9.77	12.63	
08:36	30.7	234.5	9.78	12.63	
08:37	29.6	253.2	9.88	12.54	1,403.8
08:38	30.2	240.4	9.74	12.63	1,392.3
08:39	30.8	230.1	9.65	12.74	
08:40	30.7	228.5	9.65	12.75	
08:41	31.1	223.5	9.62	12.79	1,414.5
08:42	32.2	215.6	9.54	12.87	1,452.9
08:43	32.5	216.4	9.50	12.92	1,441.5
08:44	32.8	217.4	9.46	12.96	1,447.0
08:45	32.3	216.5	9.47	12.95	1,461.9
08:46	32.2	220.6	9.50	12.93	1,482.4
08:47	32.2	230.0	9.53	12.88	1,480.6
08:48	32.1	233.0	9.59	12.84	1,471.0
08:49	32.6	224.8	9.47	12.95	1,457.9
08:50	32.9	220.1	9.42	13.01	1,455.4
08:51	32.6	214.4	9.41	13.01	1,470.3
08:52	32.5	213.8	9.45	12.98	1,446.7
08:53	32.8	211.6	9.46	12.97	1,484.9
08:54	33.0	206.6	9.45	12.95	
08:55	32.9	209.3	9.43	12.97	
08:56	33.0	209.4	9.41	13.03	1,441.1
08:57	32.4	208.0	9.46	12.99	1,448.9
08:58	32.4	201.5	9.45	13.00	
08:59	33.1	202.2	9.42	13.03	
09:00	33.2	200.3	9.45	13.00	
09:01	33.1	202.1	9.45	13.01	
09:02	33.2	203.4	9.42	13.04	
09:03	32.6	205.5	9.46	13.00	
09:04	32.5	209.4	9.52	12.96	
09:05	33.0	209.9	9.51	12.97	
09:06	33.6	203.2	9.49	12.99	
09:07	33.7	200.6	9.38	13.08	
09:08	34.0	204.2	9.35	13.12	1,486.0
09:09	33.3	211.2	9.40	13.07	1,504.3
09:10	33.1	214.9	9.46	13.02	1,487.0
09:11	33.5	221.9	9.47	12.99	1,474.9
09:12	33.5	226.1	9.53	12.93	1,492.6
09:13	33.2	224.7	9.50	12.95	1,493.9
09:14	33.7	222.9	9.41	13.04	1,480.7

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
5-30-1997

RUN 08

	NOx ppm	THC ppm,w	O2 %	CO2 %	CO ppm	
09:15	33.1	221.2	9.42	13.02	1,521.8	
09:16	33.0	221.0	9.44	13.00	1,525.3	
09:17	32.2	205.3	9.88	12.62	1,500.1	
						Lost Unit
09:18	8.2	71.1	17.59	5.19	875.8	
09:19	2.4	34.5	19.63	2.71	264.0	
09:20	1.9	24.0	20.07	2.07	192.0	
09:21	1.6	18.1	20.30	1.69	166.7	
09:22	1.5	13.8	20.30	1.24	169.0	
09:23	1.5	11.3	20.55	1.18	167.6	
09:24	1.4	9.6	20.60	1.08	155.8	
09:25	1.4	8.4	20.64	0.99	149.2	
09:26	1.4	7.7	20.67	0.93	141.3	
09:27	1.3	7.1	20.69	0.87	133.1	
09:28	1.2	6.5	20.71	0.82	125.6	
09:29	1.2	6.0	20.72	0.78	118.4	

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Stack
5-30-1997

CALIBRATION BIAS 08

	NOx	THC	O2	CO2	CO
	ppm	ppm,w	%	%	ppm
Zero	0.7	1.3	0.03	0.03	3.7
Span	46.7	474.7	9.95	10.05	1516.5
09:33:05	46.6	3.1	0.04	0.02	3.7
09:33:20	46.6	2.8	0.03	0.02	3.7
09:33:35	46.7	2.6	0.03	0.03	3.7
09:33:50	46.7	2.4	0.03	0.04	3.7
09:34:05	46.8	2.3	0.03	0.04	3.7
09:34:20	46.7	2.2	0.02	0.04	3.7
09:34:35	46.7	2.3	0.02	0.04	3.7
09:34:50	35.3	1.6	5.72	4.95	3.7
09:35:05	1.9	1.5	9.76	9.59	3.7
09:35:20	0.9	1.4	9.92	9.97	3.7
09:35:35	0.7	1.4	9.94	10.03	3.7
09:35:50	0.7	1.3	9.95	10.05	3.7
09:36:05	0.6	1.3	9.95	10.06	3.7
09:36:20	0.6	1.3	9.96	10.07	3.7
09:36:35	0.6	1.3	9.96	10.08	3.7
09:36:50	0.5	1.3	9.96	10.09	3.7
09:37:05	0.5	1.3	9.96	10.09	3.7
09:37:20	0.5	1.3	9.97	10.10	3.7
09:37:35	0.5	1.6	10.10	9.98	3.7
09:37:50	0.6	2.3	7.55	7.37	10.8
09:38:05	0.5	7.6	0.52	1.25	269.1
09:38:20	0.5	9.5	0.09	0.33	865.4
09:38:35	0.5	10.5	0.05	0.16	1297.1
09:38:50	0.5	11.0	0.04	0.12	1482.7
09:39:05	0.4	11.1	0.03	0.10	1514.2
09:39:20	0.4	11.0	0.02	0.09	1516.3
09:39:35	0.4	10.7	0.02	0.08	1516.2
09:39:50	0.4	10.4	0.01	0.08	1516.4
09:40:05	0.4	10.1	0.01	0.07	1517.0
09:40:20	0.4	9.7	0.01	0.07	1521.5
09:40:35	0.4	399.8	0.01	0.07	1519.3
09:40:50	0.8	472.1	0.01	0.08	1381.5
09:41:05	0.6	474.0	0.00	0.06	829.0
09:41:20	0.7	474.3	0.00	0.06	274.1
09:41:35	0.7	474.4	0.00	0.06	62.9
09:41:50	0.7	474.8	0.00	0.06	14.2
09:42:05	0.7	474.8	0.00	0.06	8.6
09:42:20	0.7	475.1	0.00	0.05	8.6
09:42:35	0.6	475.0	-0.10	-0.08	8.0
09:42:50	0.7	469.0	-0.31	-0.26	-2.1
09:43:05	0.6	92.0	0.87	0.45	2050.9

Solvay Minerals
CAE Job No. 7955
5/20/97

Run Data

GC #2

Run#1

5/22/1997	11:51am	12:18am	12:46pm	Average
Hexane	0.552	0.596	0.942	0.697
Methylene Chloride*	bdl	bdl	bdl	bdl
1,1,1-Trichloroethane	bdl	bdl	bdl	bdl
2-Butanone	0.816	0.565	0.507	0.629
Benzene	1.877	1.932	2.695	2.168
Trichloroethylene	0.135	0.346	0.407	0.296
Toluene	1.285	1.223	1.516	1.341
Ethylbenzene	0.471	0.665	0.614	0.583
m-Xylene	bdl	bdl	bdl	bdl
p-Xylene	1.216	1.071	1.245	1.177
o-Xylene	bdl	0.309	bdl	0.103
Styrene	0.168	0.387	0.619	0.391

Run#2

5/22/1997	1:31pm
Hexane	0.692
Methylene Chloride*	bdl
1,1,1-Trichloroethane	bdl
2-Butanone	0.418
Benzene	2.398
Trichloroethylene	0.319
Toluene	1.458
Ethylbenzene	0.554
m-Xylene	bdl
p-Xylene	1.168
o-Xylene	0.321
Styrene	0.553

Run#3

5/22/1997	3:30pm	
Hexane	0.486	Only one injection was preformed
Methylene Chloride*	bdl	during the run, due to column contamniation.
1,1,1-Trichloroethane	bdl	
2-Butanone	0.32	
Benzene	1.948	
Trichloroethylene	0.199	
Toluene	1.213	
Ethylbenzene	0.612	
m-Xylene	bdl	
p-Xylene	0.882	
o-Xylene	bdl	
Styrene	0.404	

Solvay Minerals
CAE Job No. 7955
5/20/97

Run Data

	Run#4			
5/22/1997	5:25pm	5:54pm	6:24pm	Average
Hexane	0.572	0.67	0.633	0.625
Methylene Chloride*	1.052	1.088	bdl	0.713
1,1,1-Trichloroethane	bdl	bdl	0.345	0.115
2-Butanone	1.034	1.004	0.944	0.994
Benzene	1.754	2.013	1.891	1.886
Trichloroethylene	0.206	0.138	0.133	0.159
Toluene	0.901	0.806	0.847	0.851
Ethylbenzene	0.0826	0.0956	0.188	0.122
m-Xylene	0.148	0.179	0.343	0.223
p-Xylene	0.427	0.635	0.944	0.669
o-Xylene	0.275	0.413	0.856	0.515
Styrene	0.861	0.798	1.484	1.048

	Run#5			
5/28/1997	8:31am	8:57am	9:23am	Average
Hexane	1.755	1.173	1.178	1.369
Methylene Chloride*	11.758	1.335	1.359	4.817
1,1,1-Trichloroethane	5.181	3.564	5.151	4.632
2-Butanone	1.628	1.179	bdl	0.936
Benzene	3.81	2.558	2.619	2.996
Trichloroethylene	0.542	0.701	0.804	0.682
Toluene	1.453	1.007	1.065	1.175
Ethylbenzene	0.428	0.34	0.334	0.367
m-Xylene	bdl	bdl	bdl	bdl
p-Xylene	0.681	1.046	0.922	0.883
o-Xylene	0.0544	bdl	0.0624	0.0389
Styrene	0.558	0.596	0.599	0.584

	Run#6			
5/28/1997	10:15am	10:43am	11:10am	Average
Hexane	1.074	0.856	0.711	0.880
Methylene Chloride*	1.219	1.001	0.900	1.040
1,1,1-Trichloroethane	bdl	bdl	bdl	bdl
2-Butanone	1.265	1.026	0.834	1.042
Benzene	2.577	2.126	1.827	2.177
Trichloroethylene	0.393	bdl	0.411	0.268
Toluene	0.972	0.833	0.734	0.846
Ethylbenzene	0.224	0.276	0.200	0.233
m-Xylene	bdl	bdl	bdl	bdl
p-Xylene	0.541	0.675	0.675	0.630
o-Xylene	0.0802	0.0431	bdl	0.0411
Styrene	0.458	0.546	0.390	0.465

Solvay Minerals
CAE Job No. 7955
5/20/97

Run Data

	Run#7			
5/28/1997	12:06pm	12:34pm	1:01pm	Average
Hexane	0.820	1.230	1.638	1.229
Methylene Chloride*	1.021	1.237	1.569	1.276
1,1,1-Trichloroethane	bdl	bdl	bdl	bdl
2-Butanone	1.137	1.281	1.505	1.308
Benzene	2.097	2.872	3.690	2.886
Trichloroethylene	bdl	0.381	0.400	0.260
Toluene	0.875	1.109	1.454	1.146
Ethylbenzene	0.308	0.0748	0.351	0.245
m-Xylene	bdl	bdl	bdl	bdl
p-Xylene	0.447	0.644	0.906	0.666
o-Xylene	0.0271	0.0133	0.0669	0.036
Styrene	0.323	0.496	0.686	0.502

	Run#8			
5/30/1997	8:11am	8:36am	9:02am	Average
Hexane	0.614	0.689	0.511	0.605
Methylene Chloride*	1.002	1.086	0.982	1.023
1,1,1-Trichloroethane	bdl	bdl	bdl	bdl
2-Butanone	0.822	0.900	bdl	0.574
Benzene	1.572	1.734	1.470	1.592
Trichloroethylene	bdl	0.453	0.613	0.355
Toluene	0.596	0.658	0.669	0.641
Ethylbenzene	0.276	0.0802	0.237	0.198
m-Xylene	bdl	bdl	bdl	bdl
p-Xylene	0.368	0.197	0.452	0.339
o-Xylene	bdl	bdl	bdl	bdl
Styrene	0.147	0.313	0.158	0.206

*** Methylene Chloride peak is in question, MeCl and Acrylonitrile coellute on GC1 and during the runs nothing was observed at that time.**

Solvay Minerals
CAE Job No. 7955
5/20/97

Run Data

GC #1

Run#1

5/22/1997	11:51am	12:19pm	12:46pm	Average
Methane	216.633	268.014	264.810	249.819
Ethane	bdl	16.784	15.887	10.890
1,3 Butadiene	5.103	5.057	9.847	6.669
Acrylonitrile	bdl	bdl	bdl	bdl

Run#2

5/22/1997	1:31pm
Methane	177.198
Ethane	bdl
1,3 Butadiene	6.265
Acrylonitrile	bdl

Run#3

5/22/1997	3:30pm	3:58pm	4:26pm	Average
Methane	144.823	148.921	147.047	146.930
Ethane	11.268	bdl	9.239	6.836
1,3 Butadiene	4.424	5.494	5.746	5.221
Acrylonitrile	bdl	bdl	bdl	bdl

Run#4

5/22/1997	5:25pm	5:54pm	6:24pm	average
Methane	133.298	132.742	131.979	132.673
Ethane	bdl	bdl	bdl	bdl
1,3 Butadiene	5.226	6.330	6.163	5.906
Acrylonitrile	bdl	bdl	bdl	bdl

Run#5

5/28/1997	8:31am	8:57am	9:23am	Average
Methane	308.089	285.511	323.993	305.864
Ethane	18.967	17.422	18.411	18.267
1,3 Butadiene	12.779	9.159	9.380	10.439
Acrylonitrile	bdl	bdl	bdl	bdl

Solvay Minerals
CAE Job No. 7955
5/20/97

Run Data

		Run#6		
5/28/1997	10:15am	10:43am	11:10am	Average
Methane	270.388	276.93	262.354	269.891
Ethane	16.695	16.887	16.742	16.775
1,3 Butadiene	8.859	8.054	7.888	8.267
Acrylonitrile	bdl	bdl	bdl	bdl

		Run#7		
5/28/1997	12:06pm	12:34pm	1:02pm	Average
Methane	283.469	269.206	292.232	281.636
Ethane	16.373	16.920	18.531	17.275
1,3 Butadiene	9.077	11.096	15.766	11.980
Acrylonitrile	bdl	bdl	bdl	bdl

		Run#8		
5/30/1997	8:10am	8:36am	9:02am	Average
Methane	385.104	292.591	364.247	347.314
Ethane	19.171	15.992	17.684	17.616
1,3 Butadiene	6.452	6.651	5.397	6.167
Acrylonitrile	bdl	bdl	bdl	bdl

F

LABORATORY DATA

F

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Calciner

PARTICULATE WEIGHT SHEET

Run No.	Blank	1	3	4
Date (1997)		May 22	May 22	May 22
Start Time (approx.)		12:00	15:40	17:30
Stop Time (approx.)		13:06	16:48	18:35
Front Half DI H_2O Wash				
ID Identifier	X3	F57	B8	V5
Sample volume (ml)	100	80	155	170
Aliquot used (ml)	100	80	155	170
Tare weight (g)	107.1977	122.3074	106.2944	100.2792
Gross weight (g)	107.1988	122.3090	106.2973	100.2811
Correction factor (g)		0.0008	0.0016	0.0017
m_n Net weight (g) [1]	0.0010	0.0008	0.0014	0.0002
Front Half Particulate Filter				
ID Identifier		85344	85360	85981
Tare weight (g)		0.3742	0.3745	0.3766
Gross weight (g)		0.3751	0.3761	0.3787
m_n Net weight (g)		0.0009	0.0016	0.0021
Total Front Half Particulate				
m_n Matter collected (g)		0.0017	0.0030	0.0023
Back Half Inorganic Particulate				
ID Identifier	X3	X47	D19	XX20
Sample volume (ml)	100	815	845	885
H_2O Condensate		409.5	396.1	385.3
Sample volume minus-H_2O		406	449	500
Aliquot used (ml)	100	100	100	100
Tare weight (g)	107.1977	109.7544	105.6645	107.9438
Gross weight (g)	107.1988	109.7564	105.6661	107.9457
Correction factor (g)		0.0041	0.0045	0.0050
m_n Net weight (g) [1]	0.0010	0.0122	0.0090	0.0118
Back Half Organic Particulate				
ID Identifier	XX83	XX77	F28	XX88
Sample volume (ml)	225	205	210	205
Aliquot used (ml)	225	205	210	205
Tare weight (g)	108.4118	110.0079	125.3898	110.0375
Gross weight (g)	108.4123	110.0521	125.4459	110.0966
Correction factor (g)		0.0005	0.0005	0.0005
m_n Net weight (g)	0.0005	0.0437	0.0556	0.0586
Total Back Half Particulate				
m_n Matter collected (g)		0.0560	0.0647	0.0705
Total Particulate				
m_n Matter collected (g)		0.0577	0.0676	0.0728

The back half fractions are the soluble fractions.
The total particulate includes all of the front half and back half fractions.
[1] The maximum allowable blank (0.010 g/l) was used for all calculations.

SOLVAY MINERALS, INC.
CAE Project No: 7955
CA-3 Calciner

PARTICULATE WEIGHT SHEET

Run No.	Blank	5	6	7	8
Date (1997)		May 28	May 28	May 28	May 30
Start Time (approx.)		08:30	10:23	12:15	08:17
Stop Time (approx.)		09:37	11:29	13:21	09:20
Front Half DI H_2O Wash					
ID Identifier	X3	XX25	XX65	X37	68
Sample volume (ml)	100	165	180	150	175
Aliquot used (ml)	100	165	180	150	175
Tare weight (g)	107.1977	103.4238	108.9031	110.9680	104.1328
Gross weight (g)	107.1988	103.4309	108.9071	110.9702	104.1363
Correction factor (g)		0.0017	0.0018	0.0015	0.0018
m_n Net weight (g) [1]	0.0010	0.0054	0.0022	0.0007	0.0018
Front Half Particulate Filter					
ID Identifier		95987	95988	95989	95991
Tare weight (g)		0.3713	0.3718	0.3680	0.3820
Gross weight (g)		0.3758	0.3734	0.3724	0.3849
m_n Net weight (g)		0.0045	0.0016	0.0044	0.0029
Total Front Half Particulate					
m_n Matter collected (g)		0.0099	0.0038	0.0051	0.0047
Back Half Inorganic Particulate					
ID Identifier		F26	X29	XX91	XX29
Sample volume (ml)	100	890	945	985	955
H_2O Condensate		350.7	351.0	368.5	376.6
Sample volume minus-H_2O		539	594	617	578
Aliquot used (ml)	100	100	100	100	100
Tare weight (g)	107.1977	120.7794	111.1982	103.0707	110.3070
Gross weight (g)	107.1988	120.7817	111.2004	103.0734	110.3088
Correction factor (g)		0.0054	0.0059	0.0062	0.0058
m_n Net weight (g) [1]	0.0010	0.0151	0.0149	0.0204	0.0114
Back Half Organic Particulate					
ID Identifier		X81	60	V8	D10
Sample volume (ml)	225	205	215	210	215
Aliquot used (ml)	225	205	215	210	215
Tare weight (g)	108.4118	108.3512	107.9306	125.2667	105.5931
Gross weight (g)	108.4123	108.4069	107.9702	125.3254	105.6255
Correction factor (g)		0.0005	0.0005	0.0005	0.0005
m_n Net weight (g)	0.0005	0.0552	0.0391	0.0582	0.0319
Total Back Half Particulate					
m_n Matter collected (g)		0.0703	0.0540	0.0787	0.0433
Total Particulate					
m_n Matter collected (g)		0.0803	0.0578	0.0838	0.0480

The back half fractions are the soluble fractions.
The total particulate includes all of the front half and back half fractions.
[1] The maximum allowable blank (0.010 g/l) was used for all calculations.

Particulate Testing
Weight Sheet

Client	Solvay Minerals	Project Number	65-7955	Analyst	TW
Plant	Greenriver, WY	Unit	Meta Stack, CA3	Balance	Ohaus GA200D
Test Date	5/21/97-5/30/97	Method	5/202		

Description		I.D. and Sample Description*	Sample volume (ml)**	Date/Time		Gross Weight (g)	Tare Weight (g)	Date/Time		Net Weight (g)
Type	Acetone	66	100	6/9	08:27	103.8071	103.8069	6/3	08:42	
Run	Blank	Clean		6/9	16:20	103.8067				
Location	All	-01	Beaker			103.8067				-0.0002
Type	F1/2 Acetone Rinse	V3	45	6/9	08:28	126.4064	126.4051	5/27	09:29	
Run	1	Grey Particulate		6/9	16:20	126.4059				
Location	Meta	-02	Beaker			126.4059				0.0008
Type	F1/2 Acetone Rinse	T77	45	6/9	08:26	102.8009	102.7999	5/27	16:21	
Run	2	Slight Residue		6/9	16:21	102.8006				
Location	Meta	-03	Beaker			102.8006				0.0007
Type	F1/2 Acetone Rinse	X96	40	6/9	08:27	110.0625	110.0611	5/27	16:22	
Run	3	Grey Particulate		6/9	16:21	110.0621				
Location	Meta	-04	Beaker			110.0621				0.0010
Type	De-Ionized Water	X3	100	6/9	16:25	107.1986	107.1977	5/23	14:57	
Run	Blank	Slight Residue		6/10	07:48	107.1988				
Location	All	-05	Beaker			107.1988				0.0011
Type	F1/2 Water Rinse	F57	80	6/9	08:35	122.3094	122.3074	5/27	16:23	
Run	1	Brown Residue		6/9	16:26	122.3090				
Location	CA3	-06	Beaker			122.3090				0.0016
Type	F1/2 Water Rinse	B8	155	6/9	08:30	106.2976	106.2944	5/27	16:23	
Run	3	Brown Particulate		6/9	16:27	106.2973				
Location	CA3	-07	Beaker			106.2973				0.0029
Type	F1/2 Water Rinse	V5	170	6/9	08:33	100.2813	100.2792	6/3	08:40	
Run	4	Brown Particulate		6/9	16:29	100.2811				
Location	CA3	-08	Beaker			100.2811				0.0019
Type	F1/2 Water Rinse	XX25	165	6/9	08:29	103.4311	103.4238	5/23	14:54	
Run	5	Brown Particulate		6/9	16:30	103.4309				
Location	CA3	-09	Beaker			103.4309				0.0071
Type	F1/2 Water Rinse	XX65	180	6/9	16:32	108.9068	108.9031	5/23	14:55	
Run	6	Brown Particulate		6/10	07:49	108.9071				
Location	CA3	-10	Beaker			108.9071				0.0040

*Description of Particulate

Analyst Signature: [signature]

** Two volumes (e.g. 500/100) indicate an aliquot was taken.
Indicate (T)himble, (F)ilter, or (B)eaker in box below.

Clean Air Engineering

SOLVAY2016_6_002155

Particulate Testing
Weight Sheet

Client	Solvay Minerals	Project Number	65-7955	Analyst	TW
Plant	Greenriver, WY	Unit	CA3	Balance	Ohaus GA200D
Test Date	5/21/97-5/30/97	Method	5/202		

Description		I.D. and Sample Description*	Sample volume (ml)**	Date/Time	Gross Weight (g)	Tare Weight (g)	Date/Time	Net Weight (g)
Type	F1/2 Water Rinse	X37	150	6/9 16:27	110.9698	110.9680	6/3 08:39	
Run	7	Brown Particulate		6/10 07:48	110.9702			
Location	CA3	-11	Beaker		110.9702			0.0022
Type	F1/2 Water Rinse	68	175	6/9 16:29	104.1359	104.1328	6/3 08:39	
Run	8	Brown Residue		6/10 07:47	104.1363			
Location	CA3	-12	Beaker		104.1363			0.0035
Type	B1/2 Inorganic	X47	815	6/9 16:30	109.7560	109.7544	6/3 08:52	
Run	1	Brown Residue	100	6/10 07:47	109.7564			
Location	CA3	-13	Beaker		109.7564			0.0020
Type	B1/2 Inorganic	D19	845	6/9 16:31	105.6657	105.6645	6/3 08:52	
Run	3	Brown Residue	100	6/10 07:49	105.6661			
Location	CA3	-14	Beaker		105.6661			0.0016
Type	B1/2 Inorganic	XX20	885	6/9 08:36	107.9460	107.9438	6/3 08:53	
Run	4	Brown Residue	100	6/9 16:25	107.9457			
Location	CA3	-15	Beaker		107.9457			0.0019
Type	B1/2 Inorganic	F26	890	6/9 16:32	120.7812	120.7794	6/3 08:55	
Run	5	Brown Residue	100	6/10 07:47	120.7817			
Location	CA3	-16	Beaker		120.7817			0.0023
Type	B1/2 Inorganic	X29	945	6/9 08:35	111.2008	111.1982	6/3 08:38	
Run	6	Brown Residue	100	6/9 16:26	111.2004			
Location	CA3	-17	Beaker		111.2004			0.0022
Type	B1/2 Inorganic	XX91	985	6/9 08:34	103.0737	103.0707	6/3 08:49	
Run	7	Brown Residue	100	6/9 16:25	103.0734			
Location	CA3	-18	Beaker		103.0734			0.0027
Type	B1/2 Inorganic	XX29	955	6/9 16:31	110.3084	110.3070	6/3 08:48	
Run	8	Brown Residue	100	6/10 07:49	110.3088			
Location	CA3	-19	Beaker		110.3088			0.0018
Type	Dichloromethane	XX83	225	6/9 08:38	108.4126	108.4118	5/23 14:55	
Run	Blank	Slight Residue		6/9 16:17	108.4123			
Location	All	-20	Beaker		108.4123			0.0005

*Description of Particulate

Analyst Signature: [signature]

** Two volumes (e.g. 500/100) indicate an aliquot was taken.
Indicate (T)himble, (F)ilter, or (B)eaker in box below.

CAE
Clean Air Engineering

SOLVAY2016_6_002156

Particulate Testing
Weight Sheet

Client	Solvay Minerals	Project Number	65-7955	Analyst	TW
Plant	Greenriver, WY	Unit	CA3	Balance	Ohaus GA200D
Test Date	5/21/97-5/30/97	Method	5/202		

Description		I.D. and Sample Description*	Sample volume (ml)**	Date/Time	Gross Weight (g)	Tare Weight (g)	Date/Time	Net Weight (g)
Type	B1/2 Organic	XX77	205	6/9 16:15	110.0523	110.0079	5/23 14:56	
Run	1	Oily Brown Residue		6/10 07:52	110.0521			
Location	CA3	-21	Beaker		110.0521			0.0442
Type	B1/2 Organic	F28	210	6/9 16:18	125.4457	125.3898	5/23 14:49	
Run	3	Oily Brown Residue		6/10 07:51	125.4459			
Location	CA3	-22	Beaker		125.4459			0.0561
Type	B1/2 Organic	XX88	205	6/9 16:17	110.0963	110.0375	6/3 08:53	
Run	4	Oily Brown Residue		6/10 07:50	110.0966			
Location	CA3	-23	Beaker		110.0966			0.0591
Type	B1/2 Organic	X81	205	6/9 16:18	108.4066	108.3512	6/3 08:54	
Run	5	Oily Brown Residue		6/10 07:51	108.4069			
Location	CA3	-24	Beaker		108.4069			0.0557
Type	B1/2 Organic	60	215	6/9 16:14	107.9697	107.9306	6/3 08:48	
Run	6	Oily Brown Residue		6/10 07:52	107.9702			
Location	CA3	-25	Beaker		107.9702			0.0396
Type	B1/2 Organic	V8	210	6/9 16:15	125.3253	125.2667	6/3 08:47	
Run	7	Oily Brown Residue		6/10 07:50	125.3254			
Location	CA3	-26	Beaker		125.3254			0.0587
Type	B1/2 Organic	D10	215	6/10 14:57	105.6251	105.5931	6/3 08:47	
Run	8	Oily Brown Residue		6/11 08:00	105.6255			
Location	CA3	-27	Beaker		105.6255			0.0324
Type								
Run								
Location								
Type								
Run								
Location								
Type								
Run								
Location								

*Description of Particulate

Analyst Signature: Timothy Wright

** Two volumes (e.g. 500/100) indicate an aliquot was taken.
Indicate (T)himble, (F)ilter, or (B)eaker in box below.

CAE
Clean Air Engineering

Particulate Testing
Weight Sheet

Client Solvay Minerals	Project Number 7955	Analyst MJD
Plant Wyoming	Unit CA-3	Balance AND
Test Date 5/22 5/28 5/30		

Description	Wt. No.	I.D. and Sample Description[1]	Sample volume (ml)[2]	Date/ Time	Gross Weight (g)	Tare Weight (g)	Date/ Time	Net Weight (g)
Type GFF	1	085344		6-3/0839	0.3758	0.3741	7/17/96/1351	
Run 1				6-3/1534	0.3751	0.3742	5-16/1554	
Location CA-3		Yellowish tint	T (F) B		0.3751	0.3742		
Type GFF	2	085360		6-3/0840	0.3760	0.3745	11-27/1516	
Run 3				6-3/1528	0.3761	0.3745	5-16/1551	
Location CA-3		Yellowish tint	T (F) B		0.3761	0.3745		
Type GFF	3	085981		6-3/0842	0.3787	0.3764	8-29-96/0957	
Run 4				6-3/1525	0.3787	0.3767	3-7/0949	
Location CA-3		Yellowish Tint	T (F) B		0.3787	0.3766		
Type GFF	4	095987		6-3/0845	0.3763	0.3712	10-18/1541	
Run 5				6-3/1522	0.3756	0.3714	3-7/1107	
Location CA-3		Yellowish Tint	T (F) B	6-5/1000	0.3759 0.3758	0.3713		
Type GFF	5	095988		6-3/0844	0.3733	0.3716	10-18/1540	
Run 6				6-3/1524	0.3734	0.3719	3-7/1107	
Location CA-3		Yellowish Tint	T (F) B		0.3734	0.3718		
Type GFF	6	095989		6-3/0846	0.3724	0.3678	10-18/1538	
Run 7				6-3/1514	0.3724	0.3681	3-7/1108	
Location CA-3		Yellow tint	T (F) B		0.3724	0.3680		
Type GFF	7	095991		6-3/0848	0.3849	0.3818	10-18/1546	
Run 8				6-3/1513	0.3849	0.3822	3-7/1113	
Location CA-3		Brownish-Yellow	T (F) B		.3849	0.3820		
Type	8							
Run								
Location			T F B					
Type	9							
Run								
Location			T F B					
Type	10							
Run								
Location			T F B					

[1] Note appearance of particulate
[2] Two volumes (e.g. 500/100) indicate an aliquot was taken.
Indicate (T)himble, (F)ilter, or (B)eaker in box below.

CAE P4 ver 1.0
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SOLVAY MINERALS, INC.
GREEN RIVER, WYOMING

Client Reference No: 4500005271
CAE Project No: 7955-3

CHAIN OF CUSTODY

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Revision 0

CHAIN OF CUSTODY RECORD

№ 11086

PROJ. NO. 7955
DEPT. NO. 65
PROJECT NAME: SOLVAY MINERALS
SAMPLERS: (Signature) Ron M. Linkaart

LAB NO.	SAMPLE NO.	DATE	TIME	SAMPLE LOCATION	NO. OF CONTAINERS	GFF-DENVER LAB	F½ D.I.	B½ D.I.	B½ MeCl2	F½ ACETONE	PROBE WASH	REMARKS
	R1	5/22/97		CA3	4	1	1	1	1			
	R3	"		"	4	1	1	1	1			
	R4	"		"	4	1	1	1	1			
	—	"		"	1	~~1~~	RML				1	
	R1	5/21/97		META	2	1				1		
	R2	"		"	2	1				1		
	R3	"		"	2	1				1		
	—	"		"	1						1	
	R5	5/28/97		CA3	4	1	1	1	1			
	R6	"			4	1	1	1	1			
	R7	"			4	1	1	1	1			
		5/30/97										
	R8	"			4	1	1	1	1			
		"		DI H_2O Blank	1							
		"		Dichloromethane Blank	1							

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Ron M. Linkaart	5/23/97 10:00	[signature]	[signature]	6/2/97	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by:	Date / Time		

REMARKS:

Clean Air Engineering
500 W. Wood Street
Palatine, IL 60067
708/991-3300

SOLVAY2016_6_002161

H

OPERATING DATA

H

SOLVAY MINERALS
CALCINER CA-3, AQD #48
CONTROL SOURCE EP-5
TEST DATE: MAY 22, 1997

TIME	ORE FEED RATE	FUEL FLOW	SPILL TEMP.	OFF GAS TEMP.	CALCINER DRAFT	OFF GAS	OFF GAS	CALCINER	BUCKET ELEVATOR
	TPH	SCFM	^0F	^0F	H_20	O_2	CH_4	AMPS	AMPS
00:00:00	163.19	3372.92	323.90	425.13	-2.06	4.88	0.01	149.91	
01:00:00	164.69	3372.43	317.95	422.92	-1.88	4.88	0.01	146.72	
02:00:00	163.58	3372.75	308.26	422.69	-1.96	4.88	0.01	149.59	
03:00:00	162.72	3370.25	310.60	419.50	-1.93	4.89	0.01	145.26	
04:00:00	160.81	3370.63	303.73	419.27	-2.02	4.89	0.01	145.88	
05:00:00	161.31	3367.75	300.97	417.23	-2.01	4.89	0.01	148.07	
06:00:00	162.86	3370.68	297.49	411.44	-2.09	4.89	0.01	143.66	18
07:00:00	180.04	3369.40	287.68	403.25	-1.96	4.89	<0.01	152.11	18
08:00:00	207.38	3370.07	291.89	411.16	-1.99	4.89	<0.01	151.45	18
09:00:00	200.14	3371.41	299.62	418.78	-1.95	4.90	<0.01	148.26	19
10:00:00	202.92	3373.44	310.38	420.22	-1.98	4.90	<0.01	148.20	19
11:00:00	206.20	3372.31	306.91	418.64	-2.02	4.90	<0.01	148.22	19
12:00:00	197.50	3372.26	318.30	427.24	-2.04	4.90	<0.01	148.59	19
13:00:00	195.92	3298.37	329.33	428.30	-1.94	4.90	<0.01	144.62	18
14:00:00	195.57	3286.56	320.95	419.55	-1.98	4.91	<0.01	147.65	19
15:00:00	194.05	3257.45	319.48	419.14	-1.94	4.91	<0.01	147.64	18
16:00:00	195.54	3251.26	308.86	414.05	-2.06	4.91	<0.01	146.90	19
17:00:00	193.17	3275.91	327.86	433.31	-1.89	4.90	<0.01	148.66	18
18:00:00	194.43	3266.41	330.95	429.75	-1.99	4.90	<0.01	144.97	18
19:00:00	193.46	3266.35	313.29	417.40	-1.94	4.89	<0.01	143.42	18
20:00:00	207.80	3281.31	289.52	409.54	-1.99	4.88	<0.01	144.98	18
21:00:00	211.74	3371.13	279.60	407.65	-1.95	4.88	<0.01	154.56	18
22:00:00	196.70	3469.17	302.99	431.85	-1.91	4.87	<0.01	138.06	18
23:00:00	197.11	3453.82	369.18	459.29	-2.05	4.86	<0.01	135.99	18
TEST AVG. 12:00-19:00	198.02	3313.48	314.82	421.46	-1.98	4.90	<0.01	147.38	18.50

SOLVAY2016_6_002164

SOURCE:	CA-3, EP-5				
AQD # 48	TEST DATE:				
	5/22/97	TIME	TIME	TIME	TIME
		12 NOON	13:50	15:40	17:30
	TRC #1				
	% OUTPUT	23	27	37	37
	PRIMARY VOLTAGE				
	VOLTS AC	240	250	250	250
	PRIMARY CURRENT				
	AMPS AC	140	120	120	140
	FIELD VOLTAGE				
	KILOVOLTS DC	38	38	38	38
	FIELD CURRENT				
	MILLIAMPS DC	750	500	750	700
	TRC #2				
	% OUTPUT	100	101	100	100
	PRIMARY VOLTAGE				
	VOLTS AC	340	340	330	335
	PRIMARY CURRENT				
	AMPS AC	320	320	320	320
	FIELD VOLTAGE				
	KILOVOLTS DC	44	44	44	44
	FIELD CURRENT				
	MILLIAMPS DC	1700	1700	1700	1700
	TRC #3				
	% OUTPUT	97	98	98	98
	PRIMARY VOLTAGE				
	VOLTS AC	300	300	300	300
	PRIMARY CURRENT				
	AMPS AC	320	320	320	320
	FIELD VOLTAGE				
	KILOVOLTS DC	42	42	42	42
	FIELD CURRENT				
	MILLIAMPS DC	1750	1750	1750	1750

SOLVAY2016_6_002165

	TRC #4				
	% OUTPUT	100	100	100	100
	PRIMARY VOLTAGE				
	VOLTS AC	300	315	300	300
	PRIMARY CURRENT				
	AMPS AC	290	315	320	330
	FIELD VOLTAGE				
	KILOVOLTS DC	40	40	38	38
	FIELD CURRENT				
	MILLIAMPS DC	1700	1700	1700	1700
	TRC #5				
	% OUTPUT	100	100	100	100
	PRIMARY VOLTAGE				
	VOLTS AC	320	280	320	320
	PRIMARY CURRENT				
	AMPS AC	310	325	320	320
	FIELD VOLTAGE				
	KILOVOLTS DC	38	38	40	40
	FIELD CURRENT				
	MILLIAMPS DC	1700	1700	1700	1700
	TRC #6				
	% OUTPUT	100	100	100	100
	PRIMARY VOLTAGE				
	VOLTS AC	310	305	310	310
	PRIMARY CURRENT				
	AMPS AC	310	305	310	310
	FIELD VOLTAGE				
	KILOVOLTS DC	42	42	42	42
	FIELD CURRENT				
	MILLIAMPS DC	1750	1750	1750	1750

SOLVAY2016_6_002166

Current Date : 05-23-1997
Current Time : 11:29:30

Daily Parameter Report - Auxiliary Averages
Solvay Minerals, Inc.

Logger Name : SOLVAY1
Logger Id : 01

Stack EP-5 : CA-3
Boiler/Unit : SM05

Parameter : OP_SM05
Units : PERCENT

OPACITY

Date	Time 006M	00	06	12	18	24	30	36	42	48	54
						Minute					
05/22/97	00:00	2.8	2.9	2.8	2.9	2.8	C	C	2.8	2.9	2.9
05/22/97	01:00	2.8	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.8
05/22/97	02:00	2.8	2.9	2.8	2.8	2.8	2.9	2.8	2.8	2.9	2.8
05/22/97	03:00	2.8	2.8	2.8	2.8	2.9	2.9	2.9	2.8	2.8	2.8
05/22/97	04:00	2.8	2.9	2.9	2.8	2.9	2.8	2.9	2.8	2.8	2.9
05/22/97	05:00	2.9	2.9	2.9	2.9	2.9	2.8	2.9	2.8	2.9	2.9
05/22/97	06:00	2.9	2.9	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9
05/22/97	07:00	2.8	2.9	2.8	2.8	2.8	2.8	2.9	2.9	2.9	2.9
05/22/97	08:00	2.8	2.9	2.9	2.9	2.9	C	C	2.9	2.9	2.9
05/22/97	09:00	2.8	2.9	2.8	2.8	2.7	2.7	2.7	6.1	1.7	1.8
05/22/97	10:00	1.8	1.8	1.6	1.7	1.7	1.7	1.7	1.7	1.8	1.8
05/22/97	11:00	1.7	1.7	1.7	1.8	1.8	1.9	1.9	1.8	1.9	1.9
05/22/97	12:00	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.9	1.9
05/22/97	13:00	1.8	2.0	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9
05/22/97	14:00	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.9
05/22/97	15:00	1.9	1.9	1.9	2.0	2.0	1.9	2.0	1.9	1.9	1.9
05/22/97	16:00	1.9	1.9	2.0	2.0	2.0	C	C	1.9	1.9	1.9
05/22/97	17:00	1.9	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9	1.9
05/22/97	18:00	1.8	1.9	1.8	1.9	1.9	1.8	1.9	1.8	1.9	1.8
05/22/97	19:00	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.9
05/22/97	20:00	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9
05/22/97	21:00	1.8	2.0	1.9	2.0	2.0	2.0	2.1	2.1	2.0	2.0
05/22/97	22:00	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
05/22/97	23:00	1.9	2.0	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9

Max	6.1
Min	1.6
Mean	2.3
Records	234

Status: '<' - Less than ##% Data, 'P' - Power Fail, 'D' - Disabled, 'T' - Out-of-Control, 'F' - Boiler Off-Line,
Flags : 'B' - Bad Status, 'C' - Calibration, 'M' - Maintenance, 'O' - Analog Over, 'A' - Arithmetic Error,
'U' - Analog Underrange, '+' - Maximum, '-' - Minimum, 'R' - Rate of Change, 'H' - High-High Alrm,
'L' - Low-Low Alarm, 'h' - High Alarm, 'l' - Low Alarm, 'J' - High Rate of Change, 'j' - Low Rate of Change,
'V' - DIS #1 Obs, 'W' - DIS #2 Obs, 'X' - DIS #3 Obs, 'Y' - DIS #4 Obs, 'Z' - DIS #5 Obs.

SOLVAY2016_6_002167

SOLVAY MINERALS
CALCINER CA-3, AQD #48
CONTROL SOURCE EP-5
TEST DATE: MAY 28, 1997

TIME	ORE FEED RATE TPH	FUEL FLOW SCFM	SPILL TEMP. ^0F	OFF GAS TEMP. ^0F	CALCINER DRAFT H_20	OFF GAS O_2	OFF GAS CH_4	CALCINER AMPS	BUCKET ELEVATOR AMPS
0:00:00	179.87	3037.26	327.75	403.72	-1.97	5.45	0.01	148.56	
1:00:00	180.76	3037.37	315.58	401.70	-1.98	5.45	0.01	150.22	
2:00:00	182.01	3037.15	306.95	396.21	-1.95	5.45	0.01	151.02	
3:00:00	181.12	3037.65	303.77	395.34	-2.07	5.45	0.01	148.70	
4:00:00	181.32	3036.99	308.10	395.58	-2.07	5.46	0.01	150.11	
5:00:00	178.97	3038.22	317.88	402.78	-1.91	5.46	0.01	146.40	
6:00:00	180.89	3037.22	312.45	395.67	-2.10	5.46	0.01	149.38	
7:00:00	178.22	3037.04	310.05	398.06	-1.99	5.47	0.01	148.71	19
8:00:00	178.15	3008.43	325.17	407.66	-2.09	5.47	0.01	148.60	19
9:00:00	179.94	2989.91	306.89	307.65	-1.99	5.44	0.01	152.91	19
10:00:00	180.35	2995.88	311.84	316.73	-1.98	5.41	0.01	149.38	20
11:00:00	179.68	3009.58	307.26		-2.01	5.39	0.01	152.05	19
12:00:00	177.93	3031.42	324.21	295.05	-1.94	5.36	0.01	143.18	19
13:00:00	181.02	2927.78	335.78	290.34	-2.03	5.33	0.01	151.20	20
14:00:00	181.69	2944.76	305.41	188	-1.96	5.30	0.01	152.16	19
15:00:00	183.85	2991.85	298.08	373.00	-2.05	5.27	0.01	152.69	20
16:00:00	186.11	3027.13	307.07		-2.00	5.24	0.01	153.24	20
17:00:00	189.88	3086.77	308.49		-2.10	5.20	0.01	146.79	20
18:00:00	191.24	3131.34	297.82	197.91	-2.03	5.16	0.01	153.17	20
19:00:00	189.01	3194.63	311.51	319.41	-1.98	5.13	0.01	144.31	20
20:00:00	189.26	3203.41	325.02	412.04	-2.00	5.09	0.01	146.41	20
21:00:00	191.19	3223.59	323.00	413.15	-2.00	5.16	0.01	143.72	19
22:00:00	190.85	3224.75	323.51	416.90	-2.00	5.25	0.01	147.97	19
23:00:00	192.16	3222.73	324.91	413.93	-1.96	5.19	0.01	148.24	19
TEST AVG.	180.97	2991.86	313.52	311.20	-2.01	5.36	0.01	150.60	19.44
08:00-14:00									

SOLVAY2016_6_002168

AQD # 48	TEST DATE:				
	5/28/97	TIME	TIME	TIME	
		8:57	10:30	13:20	
	TRC #1				
	% OUTPUT	13	15	15	
	PRIMARY VOLTAGE	180	180	200	
	VOLTS AC				
	PRIMARY CURRENT	100	100	100	
	AMPS AC				
	FIELD VOLTAGE	30	30	32	
	KILOVOLTS DC				
	FIELD CURRENT	250	250	250	
	MILLIAMPS DC				
	TRC #2				
	% OUTPUT	94	102	100	
	PRIMARY VOLTAGE	340	340	340	
	VOLTS AC				
	PRIMARY CURRENT	340	340	320	
	AMPS AC				
	FIELD VOLTAGE	44	45	44	
	KILOVOLTS DC				
	FIELD CURRENT	1700	1700	1700	
	MILLIAMPS DC				
	TRC #3				
	% OUTPUT	98	98	98	
	PRIMARY VOLTAGE	310	310	310	
	VOLTS AC				
	PRIMARY CURRENT	320	315	320	
	AMPS AC				
	FIELD VOLTAGE	43	44	43	
	KILOVOLTS DC				
	FIELD CURRENT	1700	1700	1700	
	MILLIAMPS DC				

SOLVAY2016_6_002169

	TRC #4				
	% OUTPUT	102	97	102	
	PRIMARY VOLTAGE	300	305	305	
	VOLTS AC				
	PRIMARY CURRENT	345	325	325	
	AMPS AC				
	FIELD VOLTAGE	37	37	37	
	KILOVOLTS DC				
	FIELD CURRENT	1700	1700	1700	
	MILLIAMPS DC				
	TRC #5				
	% OUTPUT	95	103	101	
	PRIMARY VOLTAGE	325	325	325	
	VOLTS AC				
	PRIMARY CURRENT	315	315	310	
	AMPS AC				
	FIELD VOLTAGE	41	41	41	
	KILOVOLTS DC				
	FIELD CURRENT	1700	1700	1700	
	MILLIAMPS DC				
	TRC #6				
	% OUTPUT	99	96	101	
	PRIMARY VOLTAGE	340	320	320	
	VOLTS AC				
	PRIMARY CURRENT	305	305	305	
	AMPS AC				
	FIELD VOLTAGE	44	44	44	
	KILOVOLTS DC				
	FIELD CURRENT	1750	1750	1750	
	MILLIAMPS DC				

SOLVAY2016_6_002170

Current Date : 05-29-1997
Current Time : 08:59:46

Daily Parameter Report - Auxiliary Averages
Solvay Minerals, Inc.

Logger Name : SOLVAY1
Logger Id : 01

Stack :
Boiler/Unit : SM05

Parameter : OP_SM05
Units : PERCENT

Date	Time 006M	Minute 00	06	12	18	24	30	36	42	48	54
05/28/97	00:00	2.5	2.6	2.5	2.6	2.5	C	C	2.5	2.6	2.6
05/28/97	01:00	2.5	2.6	2.5	2.6	2.6	2.5	2.6	2.5	2.6	2.5
05/28/97	02:00	2.6	2.7	2.6	2.7	2.6	2.5	2.6	2.6	2.6	2.6
05/28/97	03:00	2.6	2.6	2.5	2.6	2.5	2.5	2.6	2.6	2.6	2.6
05/28/97	04:00	2.5	2.6	2.5	2.6	2.6	2.6	2.7	2.5	2.7	2.5
05/28/97	05:00	2.5	2.6	2.5	2.6	2.6	2.6	2.7	2.5	2.6	2.6
05/28/97	06:00	2.5	2.7	2.5	2.7	2.7	2.6	2.7	2.6	2.8	2.8
05/28/97	07:00	2.6	2.6	2.4	2.6	2.6	2.5	2.6	2.5	2.6	2.6
05/28/97	08:00	2.4	2.6	2.5	2.6	2.5	C	C	9.1	3.7	3.7
05/28/97	09:00	3.8	3.8	3.6	3.7	3.7	3.7	3.8	3.7	3.8	3.8
05/28/97	10:00	3.8	3.8	3.7	3.7	3.5	3.6	3.7	3.5	3.7	3.7
05/28/97	11:00	3.7	3.6	3.5	3.7	3.7	3.6	3.7	3.6	3.7	3.7
05/28/97	12:00	3.7	3.7	3.6	3.7	3.7	3.8	3.8	3.7	3.8	3.7
05/28/97	13:00	3.7	3.7	3.7	3.7	3.7	3.7	3.8	3.7	3.8	3.7
05/28/97	14:00	3.7	3.8	3.7	3.8	3.7	3.6	3.7	3.5	3.8	3.7
05/28/97	15:00	3.6	3.8	3.6	3.7	3.7	3.6	3.7	3.6	3.7	3.7
05/28/97	16:00	3.6	3.8	3.5	3.7	3.7	C	C	3.6	3.7	3.6
05/28/97	17:00	3.6	3.6	3.5	3.6	3.5	3.4	3.6	3.6	3.6	3.6
05/28/97	18:00	3.6	3.6	3.5	3.7	3.5	3.5	3.5	3.4	3.6	3.6
05/28/97	19:00	3.5	3.5	3.4	3.6	3.6	3.5	3.6	3.4	3.5	3.5
05/28/97	20:00	3.5	3.6	3.5	3.6	3.5	3.5	3.6	3.5	3.6	3.5
05/28/97	21:00	3.5	3.6	3.4	3.6	3.5	3.5	3.6	3.5	3.6	3.5
05/28/97	22:00	3.5	3.6	3.5	3.7	3.5	3.5	3.6	3.4	3.6	3.5
05/28/97	23:00	3.5	3.5	3.3	3.5	3.5	3.4	3.5	3.3	3.5	3.5

Max 9.1
Min 2.4
Mean 3.3
Records 234

Status Flags:
'<' - Less than ##% Data, 'P' - Power Fail, 'D' - Disabled, 'T' - Out-of-Control, 'F' - Boiler Off-Line,
'B' - Bad Status, 'C' - Calibration, 'M' - Maintenance, 'O' - Analog Over, 'A' - Arithmetic Error,
'U' - Analog Underrange, '+' - Maximum, '-' - Minimum, 'R' - Rate of Change, 'H' - High-High Alrm,
'L' - Low-Low Alarm, 'h' - High Alarm, 'l' - Low Alarm, 'J' - High Rate of Change, 'j' - Low Rate of Change,
'V' - DIS #1 Obs, 'W' - DIS #2 Obs, 'X' - DIS #3 Obs, 'Y' - DIS #4 Obs, 'Z' - DIS #5 Obs.

SOLVAY2016_6_002171

SOLVAY MINERALS
CALCINER CA-3, AQD #48
CONTROL SOURCE EP-5
TEST DATE: MAY 30, 1997

TIME	ORE FEED RATE	FUEL FLOW	SPILL TEMP.	OFF GAS TEMP.	CALCINER DRAFT	OFF GAS	OFF GAS	CALCINER	BUCKET ELEVATOR
	TPH	SCFM	^0F	^0F	H_2O	O_2	CH_4	AMPS	AMPS
0:00:00	203.30	3452.86	327.64	429.80	-2.06	5.08	0.01	142.36	20
1:00:00	209.56	3505.70	313.57	427.48	-2.09	5.08	0.01	147.16	20
2:00:00	212.63	3570.67	309.62	427.63	-1.94	5.08	0.01	142.09	20
3:00:00	214.24	3630.06	304.62	430.41	-2.02	5.09	0.01	142.53	22
4:00:00	216.72	3602.24	301.26	431.46	-1.96	5.09	0.01	145.68	22
5:00:00	216.12	3620.26	301.43	431.13	-2.10	5.10	0.01	143.91	21
6:00:00	214.66	3605.94	302.53	431.49	-2.04	5.10	0.01	145.84	21
7:00:00	214.36	3629.46	299.98	429.97	-1.93	5.10	0.01	142.00	21
8:00:00	216.87	3612.50	303.10	431.27	-2.03	5.10	0.01	143.15	21
9:00:00	96.08	1612.66	254.52	272.70	-2.02	9.80	0.01	129.94	21
10:00:00	174.78	2947.47	306.07	363.53	-2.12	6.05	0.01	141.37	19
11:00:00	45.42	738.14	231.13	290.83	-2.13	13.70	0.01	92.22	23
12:00:00	164.89	2993.87	313.37	406.06	-1.98	5.40	0.01	148.14	20
13:00:00	165.01	2939.41	355.51	425.37	-2.03	5.26	0.01	140.01	21
14:00:00	163.90	2913.28	374.47	432.10	-1.97	5.30	0.01	137.56	20
15:00:00	163.27	2903.88	370.03	427.98	-2.03	5.40	0.01	142.00	20
16:00:00	163.94	2872.15	348.21	416.30	-2.00	5.43	0.01	140.66	19
17:00:00	165.40	2872.09	328.73	402.41	-2.08	5.42	0.01	146.35	
18:00:00	165.29	2834.02	328.69	406.16	-1.98	5.41	0.01	147.80	
19:00:00	162.99	2830.29	333.52	408.11	-1.99	5.40	0.01	147.19	
20:00:00	163.13	2807.87	338.50	408.08	-1.94	5.39	0.01	148.00	
21:00:00	169.93	2801.49	321.75	396.31	-2.16	5.38	0.01	148.86	
22:00:00	177.21	2853.90	288.88	378.39	-2.01	5.37	0.01	157.78	
23:00:00	177.87	2980.33	291.84	390.07	-1.96	5.37	0.01	150.25	
TEST AVG.	215.62	3620.98	301.54	430.62	-1.98	5.10	0.01	142.58	21.00

SOLVAY2016_6_002172

SOURCE:	CA-3, EP-5		
AQD # 48	TEST DATE:		
	5/30/97	TIME	
		8:30	
	TRC #1		
	% OUTPUT	14	
	PRIMARY VOLTAGE		
	VOLTS AC	100	
	PRIMARY CURRENT		
	AMPS AC	100	
	FIELD VOLTAGE		
	KILOVOLTS DC	28	
	FIELD CURRENT		
	MILLIAMPS DC	500	
	TRC #2		
	% OUTPUT	98	
	PRIMARY VOLTAGE		
	VOLTS AC	340	
	PRIMARY CURRENT		
	AMPS AC	320	
	FIELD VOLTAGE		
	KILOVOLTS DC	44	
	FIELD CURRENT		
	MILLIAMPS DC	1700	
	TRC #3		
	% OUTPUT	97	
	PRIMARY VOLTAGE		
	VOLTS AC	300	
	PRIMARY CURRENT		
	AMPS AC	320	
	FIELD VOLTAGE		
	KILOVOLTS DC	42	
	FIELD CURRENT		
	MILLIAMPS DC	1750	

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	TRC #4		
	% OUTPUT	100	
	PRIMARY VOLTAGE		
	VOLTS AC	300	
	PRIMARY CURRENT		
	AMPS AC	290	
	FIELD VOLTAGE		
	KILOVOLTS DC	40	
	FIELD CURRENT		
	MILLIAMPS DC	1700	
	TRC #5		
	% OUTPUT	100	
	PRIMARY VOLTAGE		
	VOLTS AC	320	
	PRIMARY CURRENT		
	AMPS AC	310	
	FIELD VOLTAGE		
	KILOVOLTS DC	38	
	FIELD CURRENT		
	MILLIAMPS DC	1700	
	TRC #6		
	% OUTPUT	100	
	PRIMARY VOLTAGE		
	VOLTS AC	310	
	PRIMARY CURRENT		
	AMPS AC	310	
	FIELD VOLTAGE		
	KILOVOLTS DC	42	
	FIELD CURRENT		
	MILLIAMPS DC	1750	

Current Date : 06-03-1997
Current Time : 15:54:19

Daily Parameter Report - Auxiliary Averages
Solvay Minerals, Inc.

Logger Name : SOLVAY1
Logger Id : 01

Stack :
Boiler/Unit : SM05

Parameter : OP_SM05
Units : PERCENT

Date	Time 006M	00	06	12	18	24	30	36	42	48	54
						Minute					
05/30/97	00:00	3.4	3.5	3.4	3.5	3.4	C	C	3.3	3.5	3.4
05/30/97	01:00	3.4	3.4	3.4	3.5	3.3	3.4	3.4	3.3	3.5	3.4
05/30/97	02:00	3.4	3.4	3.3	3.4	3.3	3.3	3.4	3.3	3.4	3.3
05/30/97	03:00	3.4	3.5	3.4	3.5	3.4	3.4	3.4	3.3	3.4	3.4
05/30/97	04:00	3.5	3.4	3.2	3.4	3.3	3.4	3.4	3.4	3.4	3.3
05/30/97	05:00	3.4	3.4	3.5	3.4	3.3	3.4	3.4	3.3	3.4	3.5
05/30/97	06:00	3.5	3.6	3.5	3.4	3.4	3.4	3.5	3.5	3.6	3.5
05/30/97	07:00	3.4	3.5	3.4	3.4	3.4	3.4	3.4	3.3	3.3	3.2
05/30/97	08:00	3.3	3.4	3.3	3.4	3.3	C	C	3.3	3.4	3.3
05/30/97	09:00	3.3	3.4	3.3	3.5	3.4	3.6	3.6	3.4	3.2	3.2
05/30/97	10:00	3.2	3.3	3.2	3.5	3.3	3.4	3.4	3.4	3.4	3.4
05/30/97	11:00	3.3	3.3	3.3	3.2	3.1	3.1	3.4	3.4	3.2	3.2
05/30/97	12:00	3.3	3.4	3.4	3.5	3.5	3.5	3.5	3.5	3.4	3.5
05/30/97	13:00	3.5	3.5	3.4	3.4	3.4	3.4	3.5	3.4	3.4	3.4
05/30/97	14:00	3.4	3.5	3.4	3.5	3.4	3.5	3.5	3.5	3.6	3.5
05/30/97	15:00	3.5	3.5	3.4	3.5	3.4	3.6	3.6	3.4	3.5	3.4
05/30/97	16:00	3.4	3.4	3.4	3.5	3.4	C	C	3.4	3.5	3.4
05/30/97	17:00	3.4	3.4	3.3	3.4	3.4	3.4	3.4	3.3	3.4	3.4
05/30/97	18:00	3.5	3.4	3.3	3.4	3.3	3.4	3.5	3.3	3.5	3.3
05/30/97	19:00	3.3	3.4	3.3	3.5	3.3	3.4	3.4	3.3	3.4	3.3
05/30/97	20:00	3.3	3.4	3.3	3.4	3.3	3.4	3.4	3.2	3.4	3.3
05/30/97	21:00	3.4	3.4	3.3	3.5	3.3	3.4	3.4	3.3	3.4	3.3
05/30/97	22:00	3.5	3.4	3.3	3.5	3.4	3.5	3.5	3.4	3.5	3.4
05/30/97	23:00	3.6	3.5	3.3	3.5	3.4	3.5	3.5	3.4	3.5	3.4

Max	3.6
Min	3.1
Mean	3.4
Records	234

Status: '<' - Less than ##% Data, 'P' - Power Fail, 'D' - Disabled, 'T' - Out-of-Control, 'F' - Boiler Off-Line,
Flags: 'B' - Bad Status, 'C' - Calibration, 'M' - Maintenance, 'O' - Analog Over, 'A' - Arithmetic Error,
'U' - Analog Underrange, '+' - Maximum, '-' - Minimum, 'R' - Rate of Change, 'H' - High-High Alrm,
'L' - Low-Low Alarm, 'h' - High Alarm, 'l' - Low Alarm, 'J' - High Rate of Change, 'j' - Low Rate of Change,
'V' - DIS #1 Obs, 'W' - DIS #2 Obs, 'X' - DIS #3 Obs, 'Y' - DIS #4 Obs, 'Z' - DIS #5 Obs.

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