Clean Air Engineering

500 W. Wood St. • Palatine, IL 60067 • 847-991-3300
Fax: 847-991-3385
Internet: www.cleanair.com

Ms. Dolly Potter
Environmental Engineer
Solvay Minerals, Inc.
20 miles west of Green River
Green River, Wyoming 82935

REPORT ON HAPS TESTING

Performed for:

SOLVAY MINERALS, INC.
CA-3 & CA 1 & 2 CALCINER STACKS
GREEN RIVER, WYOMING

Client Reference No: CO2863
CAE Project No: 7747-1
Revision 0: January 7, 1997

To the best of our knowledge, the data presented in this report are accurate and complete.

Submitted by,

Michael Pierce
Project Manager
(303)650-9745

Reviewed by,

John Chapman
Vice President
Research and Development

United States - Chicago 800-627-0033, Denver 303-650-9745, Houston 713-443-6400, Pittsburgh 412-787-9130
Belgium 32-2-270-0959 • France 33-42-08-33-43 • United Kingdom 44-1462-850626

CONTENTS

1 PROJECT OVERVIEW 1-1
Table 1-1: CA 3 Calciner Profile 1-2
Table 1-2: CA 1 & 2 Calciner Profile 1-2
Table 1-3: Compound (CAS) Numbers 1-3
Table 1-4: Summary of Test Results 1-4

2 RESULTS 2-1
Table 2-1: CA-3 Calciner Stack - Total Non-Methane/Ethane Hydrocarbons 2-1
Table 2-2: CA-3 Calciner Stack - Volatile Organic Compounds 2-2
Table 2-3: CA 1 & 2 Calciner Stack - Total Non-Methane/Ethane Hydrocarbons 2-3
Table 2-4: CA 1 & 2 Calciner Stack - Volatile Organic Compounds 2-4

3 DESCRIPTION OF INSTALLATION 3-1
Figure 3-1: Process Schematic 3-2

4 METHODOLOGY 4-1
Table 4-1: Summary of Sampling Procedures 4-1
SAMPLING POINT DETERMINATION 4-2
Figure 4-1: CA-3 Calciner Stack Velocity and Moisture Sampling Point Determination (EPA Method 1) 4-2
Figure 4-2: CA 1 & 2 Calciner Stack Velocity and Moisture Sampling Point Determination (EPA Method 1) 4-3
VELOCITY AND VOLUMETRIC FLOW RATE - EPA METHOD 2 4-4
GAS COMPOSITION AND MOLECULAR WEIGHT - EPA METHOD 3 4-4
MOISTURE CONTENT - EPA METHOD 4 4-4
Figure 4-3: EPA Method 2 Sampling Apparatus 4-5
Figure 4-4: EPA Methods 3 and 4 Sampling Apparatus 4-5
TOTAL HYDROCARBONS - EPA METHOD 25A 4-6
Figure 4-5: THC and GC Sampling System Schematic 4-7
VOLATILE EMISSIONS TESTING - EPA METHOD 18 4-8

5 APPENDIX 5-1
SAMPLE CALCULATIONS ..... A
PARAMETERS ..... B
CALIBRATION DATA C
FIELD DATA ..... D
FIELD DATA PRINTOUTS ..... E
OPERATING DATA ..... F

SOLVAY2016_6_001358

Project Overview

SOLVAY2016_6_001359

PROJECT OVERVIEW

Solvay Minerals contracted Clean Air Engineering to perform an air emissions test program for gas fired calciners CA 1 & 2 and for gas fired calciner CA-3. The purpose of the test program was to quantify total non-methane/ethane hydrocarbons and specific organic compounds in the exhaust gas of the calciners. The testing took place at the CA-3 Calciner Stack on July 25, 1996 and at the CA 1 & 2 Calciner Stack on July 26, 1996. EPA Methods performed were 1-4, 18 and 25A.

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, the peak previously identified as methylene chloride was not methylene chloride.

Coordinating the field testing were:

D. Potter - Solvay Minerals, Inc.
T. Brown - Solvay Minerals, Inc.
S. Cook - Solvay Minerals, Inc.
S. Ferguson - Clean Air Engineering

Source identifications are shown in Table 1-1 and Table 1-2.

SOLVAY2016_6_001360

PROJECT OVERVIEW

Table 1-1:
CA 3 Calciner Profile

Unit Identification Number	AQD No. 48, CA-3
Process	Calciner
Fuel	Natural Gas
Heat Content	1080 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

Table 1-2:
CA 1 & 2 Calciner Profile

Unit Identification Number	AQD No. 17, CA 1 & 2
Process	Calciner
Fuel	Natural Gas
Heat Content	1080 Btu/ft^3
Stack Height	180.5 feet
Stack Diameter	144 inches
Diameters to Upstream Disturbance	Approximately 3.6
Diameters to Downstream Disturbance	Approximately 4.4
Primary Control Equipment	2-Buell ESP

Chemical abstract service (CAS) numbers and molecular weights are listed in Table 1-3.

SOLVAY2016_6_001361

PROJECT OVERVIEW

Table 1-3:
Compound (CAS) Numbers

Compound Name	Molecular Weight	CAS No.
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
Ethane	30.07	74-84-0
Ethylbenzene	106.16	100-41-4
Hexane	86.17	110-54-3
Methane	16.04	74-82-8
Methylene Chloride	84.94	75-09-2
Styrene	104.14	100-42-5
THCs (as propane)	44.09	74-98-6
Toluene	92.13	108-88-3
Trichloroethene	131.40	79-01-6
Xylene	106.16	1330-20-7

SOLVAY2016_6_001362

PROJECT OVERVIEW

Table 1-4:
Summary of Test Results

Source Constituent	Sampling Method	Average Concentration (ppmdv)	Average Emission (lb/hr)	Average Emission (lb/ton of trona)
CA-3 Calciner				
Total Hydrocarbons (as propane)	EPA M 25A	773.3	393.0	2.534
Total Non-Methane/Ethane Hydrocarbons		--	300.9	1.940
Organic Compounds	EPA M 18			
1,1,1-Trichloroethane		1.26	1.98	0.0128
1,3 Butadiene		19.06	11.65	0.0751
2-Butanone		1.05	0.87	0.0056
Acrylonitrile		0.78	0.45	0.0029
Benzene		6.91	6.16	0.0397
Ethane		53.8	18.7	0.121
Ethyl Benzene		0.18	0.21	0.0014
Hexane		2.33	2.27	0.0147
Methane		395.1	73.4	0.473
Methylene Chloride		BDL	BDL	BDL
Styrene		0.37	0.43	0.0028
Toluene		1.55	1.62	0.0105
Trichloroethene		0.94	1.39	0.0089
Xylene		2.22	2.69	0.0174
CA 1 & 2 Calciner Stack				
Total Hydrocarbons (as propane)	EPA M 25A	546.0	569.0	2.03
Total Non-Methane/Ethane Hydrocarbons		--	415.6	1.48
Organic Compounds	EPA M 18			
1,1,1-Trichloroethane		BDL	BDL	BDL
1,3 Butadiene		16.28	20.81	0.0743
2-Butanone		4.77	8.09	0.0290
Acrylonitrile		1.16	1.45	0.0052
Benzene		6.48	11.96	0.0427
Ethane		34.4	24.4	0.087
Ethyl Benzene		0.81	2.03	0.0073
Hexane		2.49	5.07	0.0181
Methane		340.3	128.9	0.460
Methylene Chloride		BDL	BDL	BDL
Styrene		0.63	1.55	0.0056
Toluene		2.91	6.31	0.0226
Trichloroethene		3.37	10.50	0.0375
Xylene		2.87	7.19	0.0257

The test conditions and results of analysis are presented in Tables 2-1 through 2-4 on pages 2-1 through 2-4.

SOLVAY2016_6_001363

Results

SOLVAY2016_6_001364

RESULTS

Table 2-1:
CA-3 Calciner Stack - Total Non-Methane/Ethane Hydrocarbons

Run No.		1	2	3	Average
Date (1996)		July 25	July 25	July 25	
Start Time (approx.)		12:06	13:37	14:54	
Stop Time (approx.)		13:06	14:37	15:54	
Process Conditions[1]					
	Feed rate (ton of trona/hr)	155.1	155.1	155.1	**155.1**
Gas Conditions[2]					
T_s	Temperature (°F)	351	348	349	**349**
O_2	Oxygen (dry volume %)	13.0	12.3	12.1	**12.5**
CO_2	Carbon Dioxide (dry volume %)	9.0	9.7	9.9	**9.5**
B_{wo}	Moisture (volume %)	29.70	29.13	30.10	**29.64**
Q_{std}	Standard conditions (dscfm)	77,440	75,650	70,690	**74,593**
Total Hydrocarbons (as propane)					
C	Concentration (ppmdv)	625.2	706.3	988.3	**773.3**
E	Emission rate (lb/hr)	332.5	366.9	479.7	**393.0**
E	Emission rate (lb/ton of trona)	2.144	2.366	3.093	**2.534**
Methane					
C	Concentration (ppmdv)	354.0	400.3	431.0	**395.1**
E	Emission rate (lb/hr)	68.5	75.6	76.1	**73.4**
E	Emission rate (lb/ton of trona)	0.441	0.488	0.491	**0.473**
Ethane					
C	Concentration (ppmdv)	45.7	53.1	62.6	**53.8**
E	Emission rate (lb/hr)	16.6	18.8	20.7	**18.7**
E	Emission rate (lb/ton of trona)	0.107	0.121	0.134	**0.121**
Total Non-Methane/Ethane Hydrocarbons (as propane)					
E	Emission rate (lb/hr)	247.4	272.5	382.9	**300.9**
E	Emission rate (lb/ton of trona)	1.595	1.757	2.469	**1.940**

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

SOLVAY2016 6 001365

RESULTS

Table 2-2:
CA-3 Calciner Stack - Volatile Organic Compounds

Run No.		1	2	3	Average
Date (1995)		July 25	July 25	July 25	
Start Time (approx.)		11:58	13:39	14:56	
Stop Time (approx.)		13:13	14:30	16:12	
Process Conditions[1]					
	Feed rate (ton of trona/hr)	155.1	155.1	155.1	**155.1**
Gas Conditions[2]					
B_{wo}	Moisture (% by volume)	29.70	29.13	30.10	**29.64**
G_{std}	Volumetric flow rate, standard (dscfm)	77,440	75,650	70,690	**74,593**
1,1,1-Trichloroethane					
C	Concentration (ppmdv)	BDL	3.78	BDL	**1.26**
E	Emission rate (lb/hr)	BDL	5.94	BDL	**1.98**
E	Emission rate (lb/ton of trona)	BDL	0.0383	BDL	**0.0128**
1,3 Butadiene					
C	Concentration (ppmdv)	7.48	11.49	38.20	**19.06**
E	Emission rate (lb/hr)	4.88	7.32	22.74	**11.65**
E	Emission rate (lb/ton of trona)	0.0315	0.0472	0.1466	**0.0751**
2-Butanone					
C	Concentration (ppmdv)	0.88	0.87	1.40	**1.05**
E	Emission rate (lb/hr)	0.77	0.74	1.11	**0.87**
E	Emission rate (lb/ton of trona)	0.0049	0.0048	0.0072	**0.0056**
Acrylonitrile					
C	Concentration (ppmdv)	BDL	BDL	2.33	**0.78**
E	Emission rate (lb/hr)	BDL	BDL	1.36	**0.45**
E	Emission rate (lb/ton of trona)	BDL	BDL	0.0088	**0.0029**
Benzene					
C	Concentration (ppmdv)	4.42	4.88	11.43	**6.91**
E	Emission rate (lb/hr)	4.17	4.49	9.83	**6.16**
E	Emission rate (lb/ton of trona)	0.0269	0.0290	0.0634	**0.0397**
Ethyl Benzene					
C	Concentration (ppmdv)	BDL	BDL	0.54	**0.18**
E	Emission rate (lb/hr)	BDL	BDL	0.64	**0.21**
E	Emission rate (lb/ton of trona)	BDL	BDL	0.0041	**0.0014**
Hexane					
C	Concentration (ppmdv)	0.97	1.34	4.69	**2.33**
E	Emission rate (lb/hr)	1.01	1.36	4.45	**2.27**
E	Emission rate (lb/ton of trona)	0.0065	0.0088	0.0287	**0.0147**
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)	BDL	0.17	0.94	**0.37**
E	Emission rate (lb/hr)	BDL	0.21	1.08	**0.43**
E	Emission rate (lb/ton of trona)	BDL	0.0013	0.0070	**0.0028**
Toluene					
C	Concentration (ppmdv)	0.85	1.02	2.78	**1.55**
E	Emission rate (lb/hr)	0.95	1.10	2.82	**1.62**
E	Emission rate (lb/ton of trona)	0.0061	0.0071	0.0182	**0.0105**
Trichloroethene					
C	Concentration (ppmdv)	0.23	0.71	1.87	**0.94**
E	Emission rate (lb/hr)	0.36	1.09	2.71	**1.39**
E	Emission rate (lb/ton of trona)	0.0023	0.0070	0.0175	**0.0089**
Xylene					
C	Concentration (ppmdv)	1.45	1.78	3.42	**2.22**
E	Emission rate (lb/hr)	1.86	2.22	4.00	**2.69**
E	Emission rate (lb/ton of trona)	0.0120	0.0143	0.0258	**0.0174**

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 are taken from near simultaneous velocity and moisture testing.

SOLVAY2016_6_001366

RESULTS

Table 2-3:
CA 1 & 2 Calciner Stack - Total Non-Methane/Ethane Hydrocarbons

Run No.		1	2	3	Average
Date (1996)		July 26	July 26	July 26	
Start Time (approx.)		14:38	16:55	18:54	
Stop Time (approx.)		15:38	17:55	19:54	
Process Conditions[1]					
	Feed rate (ton of trona/hr)	282	280	278	**280**
Gas Conditions[2]					
T_s	Temperature (°F)	372	373	374	**373**
O_2	Oxygen (dry volume %)	13.8	13.6	13.7	**13.7**
CO_2	Carbon Dioxide (dry volume %)	8.0	8.0	7.9	**8.0**
B_{wo}	Moisture (volume %)	24.93	25.45	25.96	**25.45**
Q_{std}	Standard conditions (dscfm)	152,600	152,300	150,000	**151,633**
Total Hydrocarbons (as propane)					
C	Concentration (ppmdv)	627.8	528.5	481.8	**546.0**
E	Emission rate (lb/hr)	657.8	552.7	496.3	**569.0**
E	Emission rate (lb/ton of trona)	2.33	1.97	1.79	**2.03**
Methane					
C	Concentration (ppmdv)	343.1	331.4	346.4	**340.3**
E	Emission rate (lb/hr)	130.8	126.1	129.8	**128.9**
E	Emission rate (lb/ton of trona)	0.464	0.450	0.467	**0.460**
Ethane					
C	Concentration (ppmdv)	37.4	30.6	35.3	**34.4**
E	Emission rate (lb/hr)	26.7	21.8	24.8	**24.4**
E	Emission rate (lb/ton of trona)	0.095	0.078	0.089	**0.087**
Total Non-Methane/Ethane Hydrocarbons (as propane)					
E	Emission rate (lb/hr)	500.3	404.8	341.8	**415.6**
E	Emission rate (lb/ton of trona)	1.774	1.446	1.229	**1.483**

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

SOLVAY2016_6_001367

RESULTS

Table 2-4:
CA 1 & 2 Calciner Stack - Volatile Organic Compounds

Run No.		1	2	3	Average
Date (1995)		July 26	July 26	July 26	
Start Time (approx.)		14:38	16:56	18:49	
Stop Time (approx.)		16:32	18:12	20:21	
Process Conditions[1]					
	Feed rate (ton of trona/hr)	282	280	278	**280**
Gas Conditions[2]					
B_{wo}	Moisture (% by volume)	24.93	25.45	25.96	**25.45**
Q_{std}	Volumetric flow rate, standard (dscfm)	152,600	152,300	150,000	**151,633**
1,1,1-Trichloroethane					
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**
1,3 Butadiene					
C	Concentration (ppmdv)	19.23	15.10	14.51	**16.28**
E	Emission rate (lb/hr)	24.72	19.38	18.33	**20.81**
E	Emission rate (lb/ton of trona)	0.0877	0.0692	0.0659	**0.0743**
2-Butanone					
C	Concentration (ppmdv)	2.82	2.79	8.70	**4.77**
E	Emission rate (lb/hr)	4.84	4.77	14.65	**8.09**
E	Emission rate (lb/ton of trona)	0.0172	0.0170	0.0527	**0.0290**
Acrylonitrile					
C	Concentration (ppmdv)	1.59	0.48	1.40	**1.16**
E	Emission rate (lb/hr)	2.00	0.61	1.74	**1.45**
E	Emission rate (lb/ton of trona)	0.0071	0.0022	0.0063	**0.0052**
Benzene					
C	Concentration (ppmdv)	7.03	6.55	5.86	**6.48**
E	Emission rate (lb/hr)	13.05	12.13	10.70	**11.96**
E	Emission rate (lb/ton of trona)	0.0463	0.0433	0.0385	**0.0427**
Ethyl Benzene					
C	Concentration (ppmdv)	0.64	0.83	0.96	**0.81**
E	Emission rate (lb/hr)	1.61	2.09	2.38	**2.03**
E	Emission rate (lb/ton of trona)	0.0057	0.0075	0.0086	**0.0073**
Hexane					
C	Concentration (ppmdv)	3.05	2.16	2.26	**2.49**
E	Emission rate (lb/hr)	6.25	4.41	4.54	**5.07**
E	Emission rate (lb/ton of trona)	0.0222	0.0158	0.0163	**0.0181**
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)	0.13	0.89	0.88	**0.63**
E	Emission rate (lb/hr)	0.33	2.19	2.14	**1.55**
E	Emission rate (lb/ton of trona)	0.0012	0.0078	0.0077	**0.0056**
Toluene					
C	Concentration (ppmdv)	2.01	1.94	4.78	**2.91**
E	Emission rate (lb/hr)	4.40	4.25	10.29	**6.31**
E	Emission rate (lb/ton of trona)	0.0156	0.0152	0.0370	**0.0226**
Trichloroethene					
C	Concentration (ppmdv)	2.05	7.57	0.50	**3.37**
E	Emission rate (lb/hr)	6.41	23.58	1.53	**10.50**
E	Emission rate (lb/ton of trona)	0.0227	0.0842	0.0055	**0.0375**
Xylene					
C	Concentration (ppmdv)	2.29	3.31	3.00	**2.87**
E	Emission rate (lb/hr)	5.78	8.34	7.44	**7.19**
E	Emission rate (lb/ton of trona)	0.0205	0.0298	0.0267	**0.0257**

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 are taken from near simultaneous velocity and moisture testing.

SOLVAY2016_6_001368

Description of Installation

SOLVAY2016_6_001369

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 caustic/sulfite system is fed unfiltered saturated sodium carbonate solution from the soda ash process. Insolubles are separated by settling and filtration. At this point the caustic carbonate liquor is reacted with lime forming caustic soda. The remaining sodium carbonate liquor is reacted with sulfur dioxide forming sodium sulfite. At the completion of the refining process the caustic soda and the sodium sulfite are stored pending shipment.

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 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_001370

DESCRIPTION OF INSTALLATION

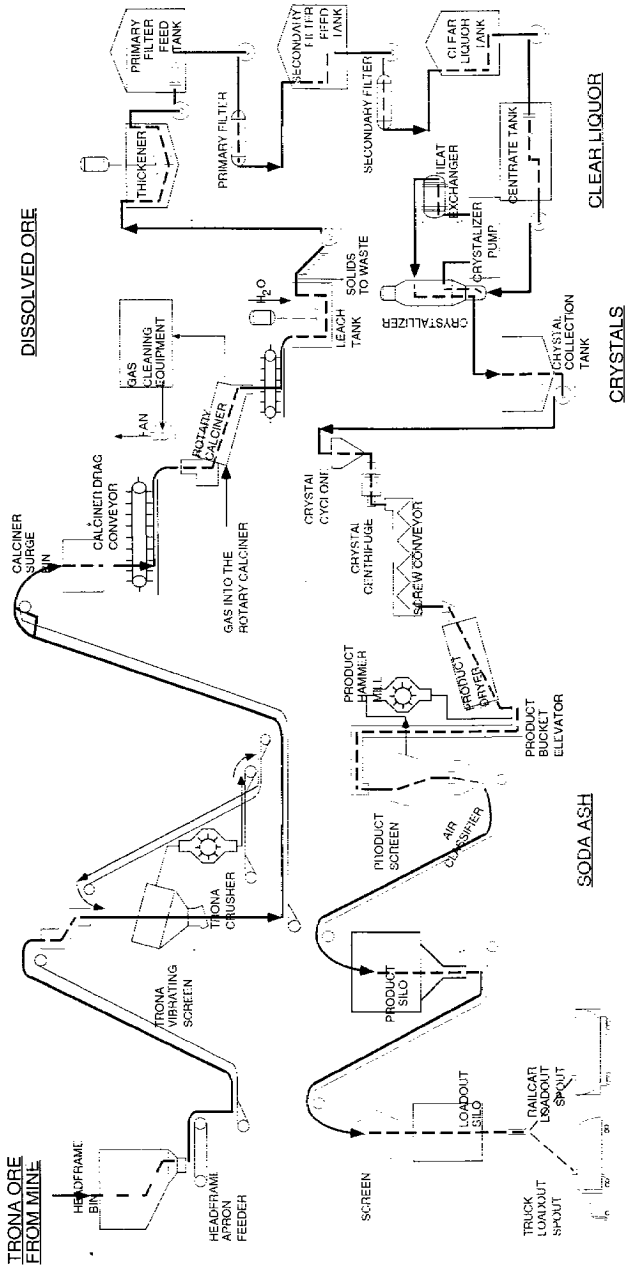


Figure 3-1: Process Schematic

SOLVAY2016_6_001371

Methodology

METHODOLOGY

The sampling followed procedures as detailed in U.S. Environmental Protection Agency (EPA) Methods 1, 2, 3, 4, 18 and 25A. 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 3	"Gas Analysis for the Determination of Dry Molecular Weight"
Method 4	"Determination of Moisture Content in Stack Gases"
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)"

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

These sampling, recovery and analytical procedures are summarized on pages 4-2 through 4-8.

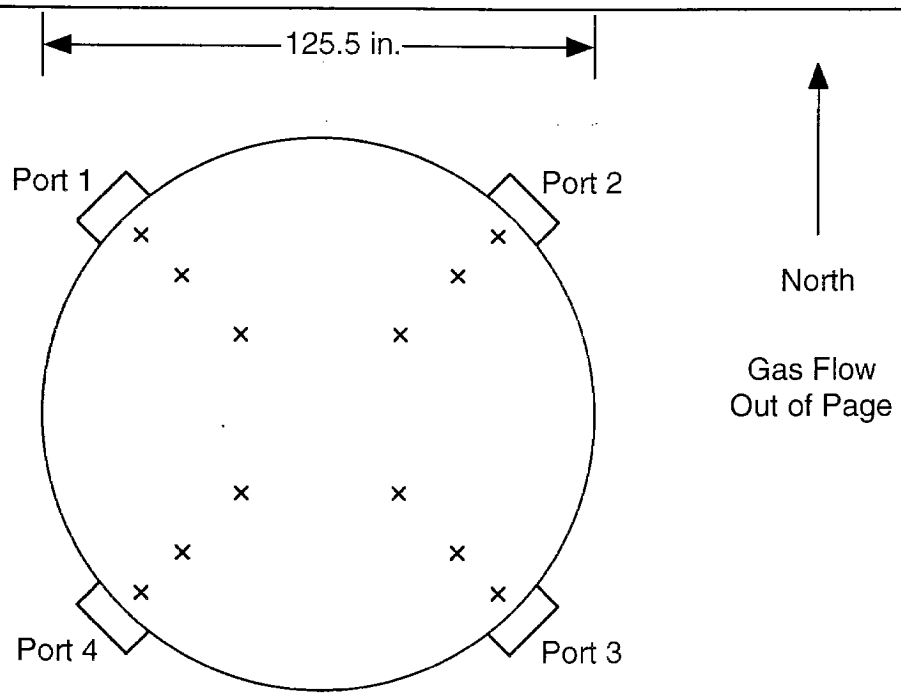
All equipment was calibrated at the Clean Air Engineering laboratory prior to shipment to the job site. A post calibration was performed on each meter box at the conclusion of testing to verify that calibration was maintained throughout the test program. Calibration sheets can be found in Appendix Section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

SOLVAY2016_6_001373

METHODOLOGY

SAMPLING POINT DETERMINATION

Sampling point locations were determined according to EPA Method 1.



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

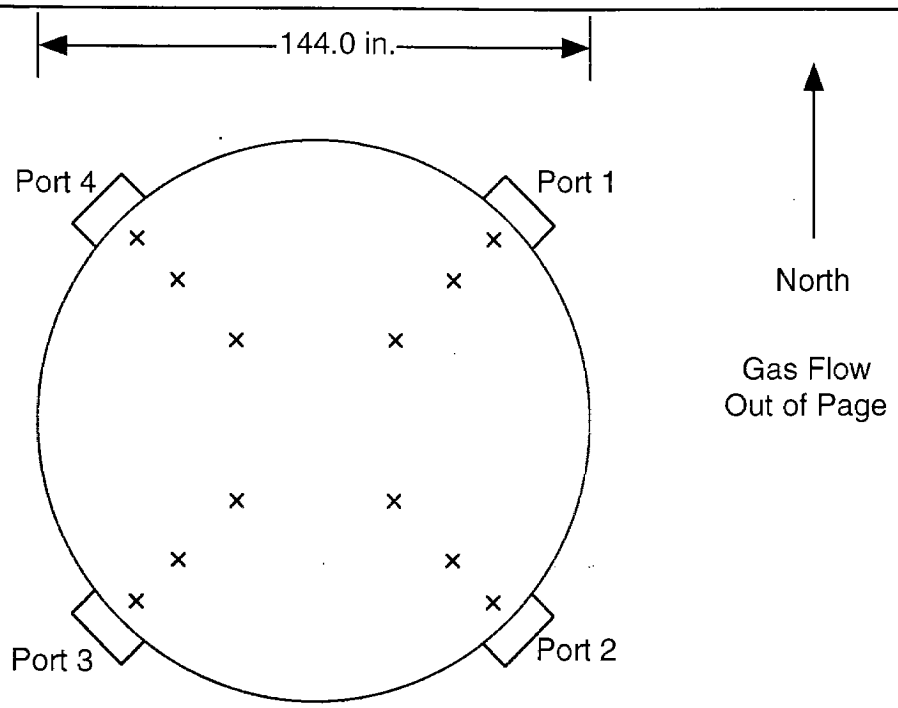
Diameters to upstream disturbance: 9.0 Limit: 2.0
Diameters to downstream disturbance: 5.5 Limit: 0.5

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

SOLVAY2016_6_001374

METHODOLOGY

SAMPLING POINT DETERMINATION (CONTINUED)



Traverse Point	Port to Point Distance (in.)
1	42.6
2	21.0
3	6.3

Diameters to upstream disturbance: 3.6 Limit: 2.0
Diameters to downstream disturbance: 4.4 Limit: 0.5

Figure 4-2: CA 1 & 2 Calciner Stack Velocity and Moisture Sampling Point Determination (EPA Method 1)

SOLVAY2016_6_001375

METHODOLOGY

VELOCITY AND VOLUMETRIC FLOW RATE - EPA METHOD 2

EPA Method 2 was used, in conjunction with Method 18 and 25A testing, to determine the gas velocity and flow rate at the sampling sites. Figure 4-3 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.

GAS COMPOSITION AND MOLECULAR WEIGHT - EPA METHOD 3

In order to determine the oxygen (O_2) concentration, carbon dioxide (CO_2) concentration and gas molecular weight, a time-integrated sample of the gas was obtained and analyzed in accordance with EPA Method 3. The gas sample was collected into a vinyl sample bag from the Method 4 testing. The contents of the bag were analyzed for O_2 and CO_2 concentrations using an Orsat gas analyzer.

MOISTURE CONTENT - EPA METHOD 4

The flue gas moisture content at the sampling sites was determined in accordance with EPA Method 4. Figure 4-4 includes the components of the EPA Method 4 sampling apparatus. The gas moisture was determined by quantitatively condensing the water in chilled knock-out jars. 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_001376

METHODOLOGY

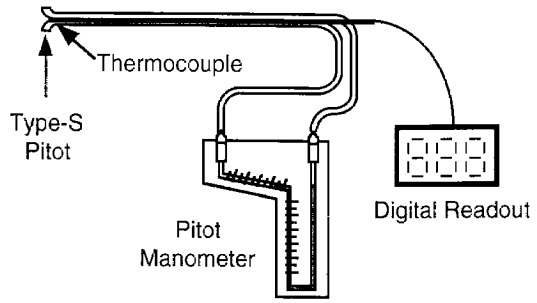


Figure 4-3: EPA Method 2 Sampling Apparatus

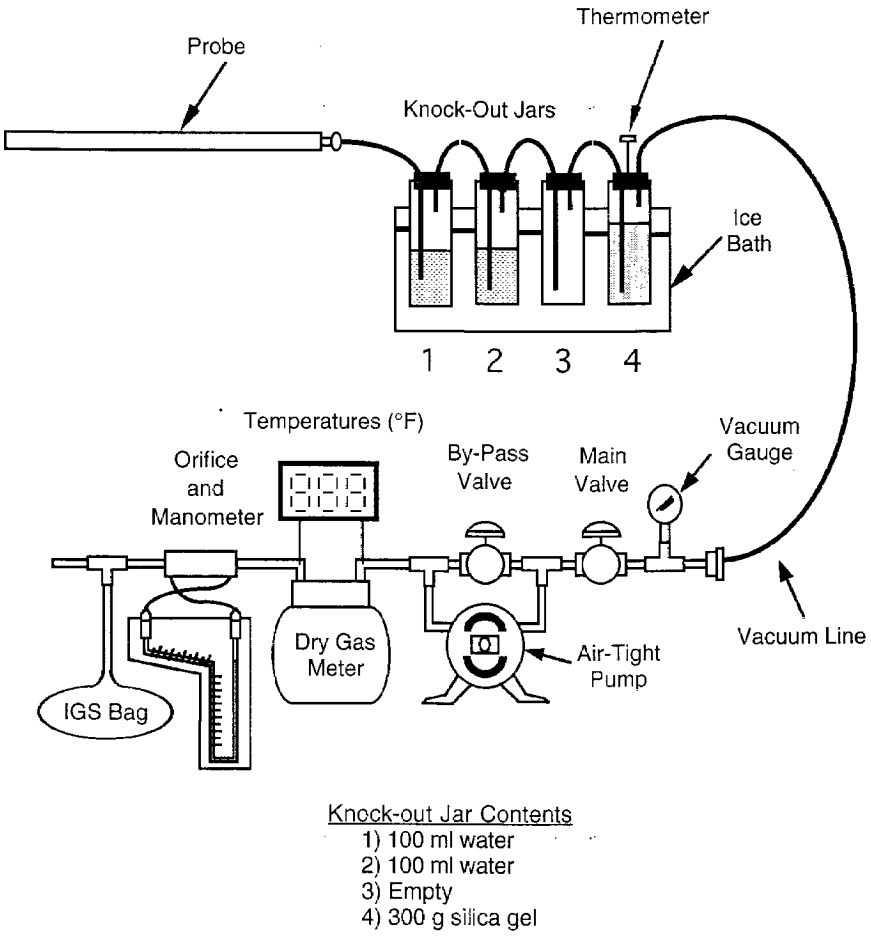


Figure 4-4: EPA Methods 3 and 4 Sampling Apparatus

SOLVAY2016_6_001377

METHODOLOGY

TOTAL HYDROCARBONS - EPA METHOD 25A

Gaseous monitoring of total hydrocarbon (THC) emissions from the CA-3 and CA 1 & 2 Calciner Stacks was performed using EPA Method 25A. A gas sample was continuously extracted from the stack and delivered to a Flame Ionization Analyzer (FIA) which measured the THC concentration in the gas on a wet volumetric basis. The analyzer was calibrated on-site using certified mixtures of calibration gases.

Figure 4-5 contains a general schematic of the THC and GC monitoring system. The system utilized a heated stainless steel probe for gas withdrawal. The end of the probe was equipped with a glass fiber filter for particulate removal. The exit of the probe was connected to a heated three-way stainless steel valve which facilitated system calibrations. A heated Teflon sample line delivered the sample gases from the stack to the instrumental system, which was located at ground level. 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.

The gas stream remained heated and was transported directly into a J.U.M. Engineering Model VE-7 Flame Ionization Analyzer and two GCs. The THC analyzer contained a heated pump for gas delivery.

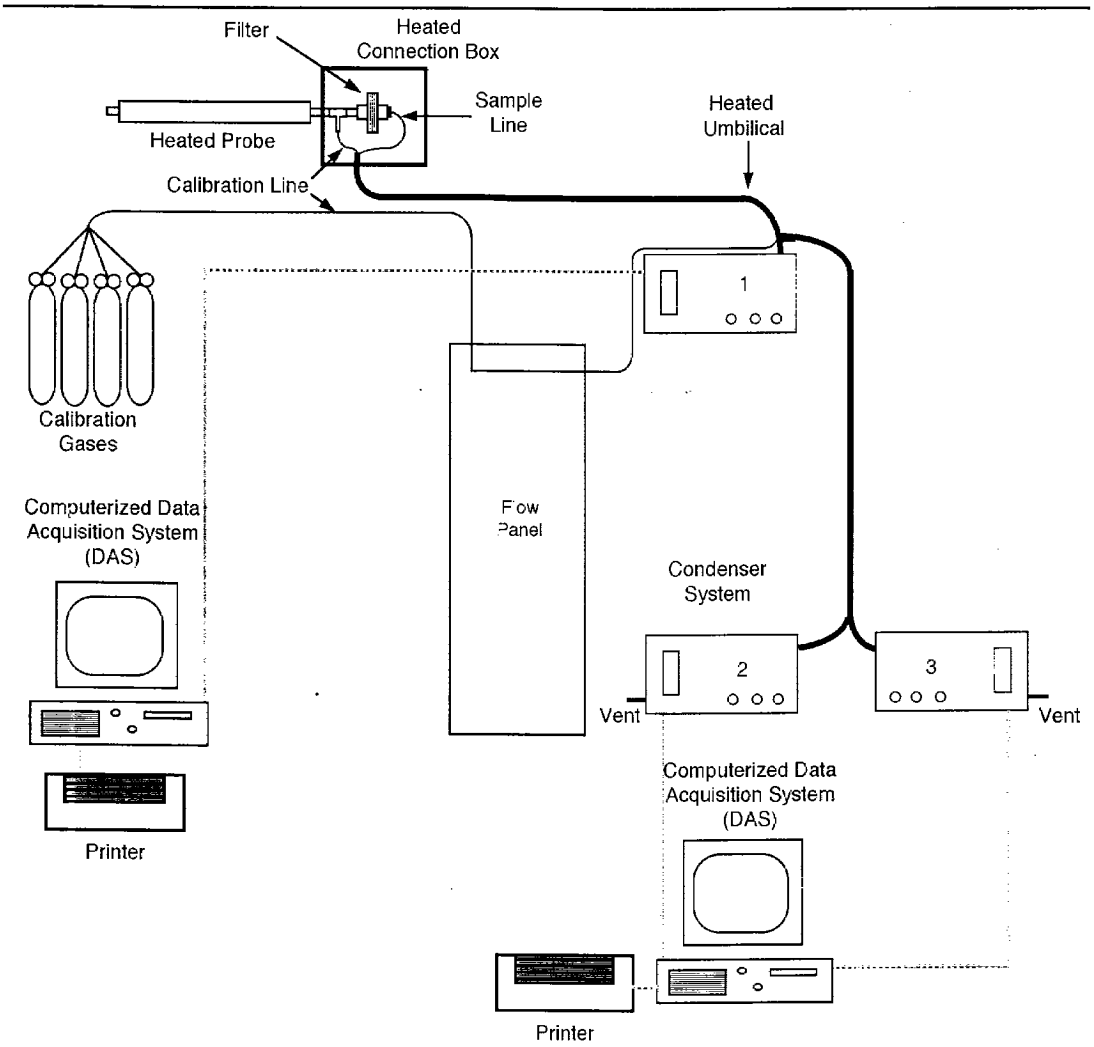
The analyzer was calibrated according to the reference method procedures using EPA Protocol No. 1 certified gas mixtures of propane in nitrogen. Before testing, the analyzer was calibrated by introducing zero and high-level (80-90% of span) gases into the sampling line at the exit of the heated probe and making any appropriate analyzer adjustments based on the analyzer response. Then, the calibration error of the system was determined by introducing low-level (25-35% of span) and mid-level (45-55% of span) gases into the analyzer system and recording the response without any adjustments made to the analyzer. The calibration errors for the low-level and mid-level gases were demonstrated to be less than 5% of the respective gas cylinder values.

Immediately following each of the three test runs, the zero gas and one up-scale gas were introduced into the sampling system to check for calibration drift. In order for a test run to be considered valid, the calibration drift between the pre-test and post-test calibrations were required to be demonstrated to be less than 3% of the analyzer span. The results of the pre-test and post-test drift checks were used to correct the average flue gas concentration measured during each test run for analyzer drift during that period.

SOLVAY2016_6_001378

METHODOLOGY

TOTAL HYDROCARBONS (CONTINUED)



No	Gas	Monitor	Range Used	Calibration Gas Concentrations
1)	THC	JUM VE-7	0-1000 ppm	249.5 ppm, 563.5 ppm, 852.2 ppm
2)	GC	HP Gas Chromatograph		
3)	GC	HP Gas Chromatograph		

Figure 4-5: THC and GC Sampling System Schematic

SOLVAY2016_6_001379

METHODOLOGY

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 4-5 illustrates a general schematic of the monitoring system set up. Two Hewlett Packard Benchtop Gas Chromatographs (GCs) each equipped with a FID (flame ionization detector) and a TCD (thermal conductivity detector), 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 reduced 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.

SOLVAY2016-6-001380

Appendix

APPENDIX

SAMPLE CALCULATIONS ..... A
PARAMETERS ..... B
CALIBRATION DATA C
FIELD DATA ..... D
FIELD DATA PRINTOUTS ..... E
OPERATING DATA ..... F

A

SAMPLE CALCULATIONS

A

SAMPLE CALCULATIONS
CA-3 CALCINER STACK - RUN 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)

$$V_{wstd} = (0.04707)(V_{lc})$$
$$= (0.04707)(261.0)$$
$$= 12.29 \text{ wscf}$$

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)

$$V_{mstd} = \frac{(17.64)(V_m)\left(P_{bar} + \frac{\Delta H}{13.6}\right)(Y_d)}{(460 + T_m)}$$
$$= \frac{(17.64)(38.72)\left(23.75 + \frac{1.70}{13.6}\right)(0.9971)}{(460 + 99)}$$
$$= 29.09 \text{ dscf}$$

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)

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

$$= 23.75 + \left(\frac{-0.3}{13.6}\right)$$

$$= 23.73 \text{ in. Hg}$$

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]

$$P_v = P_s$$

$$= 23.73 \text{ in. Hg}$$

Where:

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

5. Moisture content (%)

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

$$= \frac{12.29}{29.09 + 12.29}$$

$$= 0.2970$$

$$\times 100\% = 29.70\ \%$$

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 (%)

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

$$= \frac{(23.73)}{(23.73)}$$

$$= 1.0$$

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

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)

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

$$= 44.0\frac{(9.0)}{(100)} + 32.0\frac{(13.0)}{(100)} + 28.0\frac{(78.0)}{(100)}$$

$$= 29.96\ \frac{\text{lb}}{\text{lb}\cdot\text{mole}}$$

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)

$$M_s = (M_d)(1 - B_{wo}) + (M_{H_2O})(B_{wo})$$
$$= (29.96)(1 - 0.2970) + (18.0)(0.2970)$$
$$= 26.41 \frac{\text{lb}}{\text{lb} \cdot \text{mole}}$$

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)

$$V_s = (K_p)(C_p)\left(\overline{\sqrt{\Delta P}}\right)\left(\sqrt{\frac{(\overline{T_s} + 460)}{(M_s)(P_s)}}\right)$$
$$= (85.49)(0.84)(0.507)\left(\sqrt{\frac{(351 + 460)}{(26.41)(23.73)}}\right)$$
$$= 41.4 \frac{\text{ft}}{\text{sec}}$$

Where:

K_p	velocity pressure coefficient (dimensionless)
C_p	pitot tube constant
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)
$\overline{\sqrt{\Delta P}}$	average square roots of velocity heads of sample gas (in. H_2O)
460	°F to °R conversion constant

10. Total flow of sample gas (acfm)

$$Q_a = (60)(A_s)(V_s)$$
$$= (60)(85.90)(41.4)$$
$$= 213{,}400 \text{ acfm}$$

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)

SAMPLE CALCULATIONS (CONTINUED)

11. Total flow of sample gas (dscfm)

$$Q_{std} = \frac{(Q_a)(P_s)(17.64)(1-B_{wo})}{(\overline{T_s}+460)}$$

$$= \frac{(213,400)(23.73)(17.64)(1-0.2970)}{(351+460)}$$

$$= 77,440 \text{ dscfm}$$

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

12. Continuous emissions monitoring for total hydrocarbons (drift corrected in ppmwv)

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

$$= \left((429.7) - \left(\frac{2.8+3.2}{2}\right)\right)\frac{(563.5)}{\left(\left(\frac{541.5+558.5}{2}\right)-\left(\frac{2.8+3.2}{2}\right)\right)}$$

$$= 439.5 \text{ ppmwv}$$

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)

SAMPLE CALCULATIONS (CONTINUED)

13. Continuous emissions monitoring for total hydrocarbons as propane (moisture corrected to ppmdv)[1]

$$C_{ppmdv} = \frac{(C_{ppmwv})}{(1 - B_{wo})}$$

$$= \frac{(439.5)}{(1 - 0.2970)}$$

$$= 625.2 \text{ ppmdv}$$

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)

14. Continuous emissions monitoring for total hydrocarbons (lb/hr)[2]

$$E_{lb/hr} = \frac{(C_{ppm})(M_{THC})(Q_{std})(60)}{(385.3)(10^6)}$$

$$= \frac{(625.2)(44.10)(77,440)(60)}{(385.3)(10^6)}$$

$$= 332.5 \frac{lb}{hr}$$

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 organic compounds are performed in a similar manner.

[2] The calculations for organic compounds are performed in a similar manner using their respective molecular weights.

SAMPLE CALCULATIONS (CONTINUED)

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

$$E_{lb/ton\ of\ trona} = \frac{(E_{lb/hr})}{(E_{ton\ of\ trona/hr})} = \frac{(332.5)}{(155.1)} = 2.144\ \frac{lb}{ton\ of\ trona}$$

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)

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

$$E_{lb/hr} = (E_{lb/hr THC's}) - [(E_{lb/hr\ methane}) + (E_{lb/hr\ ethane})] = (332.5) - [(68.5) + (16.6)] = 247.4\ lb/hr\ total\ non-methane \backslash ethane\ hydrocarbons$$

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)

METHOD 18 SAMPLE CALCULATIONS
EP-5 CALCINER STACK - RUN 1
BUTADIENE (GAS) and HEXANE (LIQUID) - Bag No. 1

17. Volume of air used to dilute calibration standards (L)--tedlar bag preparation of G.C. calibration standards

$$V_m = (V_d)(t)$$
$$= (5.57)(14.50)$$
$$= 80.765 \text{ L}$$

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)

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

$$C_s = \frac{(V_g)(F_g)}{(V_m)}(10^6)$$
$$= \frac{(0.1)(1.0)}{(80,765)}(10^6)$$
$$= 1.24 \text{ ppm}$$

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

19. Percent of calibration standard in stock solution by volume (%)--tedlar bag preparation of liquid phase G.C. calibration standards

$$P_v = \left(\frac{V_l}{\sum_{i=1}^{n} v_{l_i}}\right) \times 100$$
$$= \left(\frac{0.30}{(0.50 + 0.50...)}\right) \times 100$$
$$= 8.57\ \%$$

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)

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

$$V_l = (P_v)(S_i)$$
$$= (0.0857)(6.0)$$
$$= 0.5142 \ \mu L$$

Where:

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

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

$$C_s = \frac{(\partial)(V_l)(T)}{(M_{wt})(453.6)(V_m)(P)}(21.85)(28.3)(1{,}000)$$
$$= \frac{(0.663)(0.5142)(544.72)}{(86.17)(453.6)(80.765)(23.98)}(21.85)(28.3)(1{,}000)$$
$$= 1.52 \text{ ppm}$$

Where:

C_s	concentration of calibration standard in tedlar bag (ppm)
∂	density of liquid phase calibration standard (g/mL)
V_l	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)

22. Calibration standard G.C. response factor (ppm/units of area)--(hexane G.C. calibration)

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

$$= \frac{(1.52)}{(71640)}$$

$$= 2.12.E-05 \text{ ppm / units of area}$$

Where:

F_r	calibration standard G.C. response factor (ppm/units of area)
C_s	concentration of calibration standard in tedlar bag (ppm)
$\overline{A}$	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.

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

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

$$= \frac{(28808-(-605))}{(49400)}$$

$$= 0.596 \text{ ppmwv}$$

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)

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

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

$$= 0.68 \text{ ppmwv}$$

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

25. Limit of detection (ppmwv-hexane)

$$LOD = (Sd)(t_{0.99},(n-1))$$

$$= \left(\sqrt{\frac{1}{n-1}\left[\sum_{i=1}^{n} X_i^2 - \left(\sum_{i=1}^{n} X_i\right)^2 \div n\right]}\right)(t_{0.99},(n-1))$$

$$= \left(\sqrt{\frac{1}{10-1}\left[\left(0.41^2 + 0.41^2 \ldots\right) - (0.41 + 0.41 \ldots)^2 \div 10\right]}\right)(2.8214)$$

$$= 0.01 \text{ ppmwv}$$

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

B

PARAMETERS

B

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA-3 Calciner Stack

VELOCITY AND MOISTURE PARAMETERS

Run No.		1	2	3
Date (1996)		July 25	July 25	July 25
Start Time (approx.)		12:10	13:43	14:58
Stop Time (approx.)		13:02	14:35	15:50
Sampling Conditions				
Y_d	Dry gas meter correction factor	0.9971	0.9971	0.9971
C_p	Pitot tube coefficient	0.84	0.84	0.84
Pg	Static pressure (in. H_2O)	-0.3	-0.3	-0.3
A_s	Sample location area (ft^2)	85.90	85.90	85.90
P_{bar}	Barometric pressure (in. Hg)	23.75	23.75	23.75
O_2	Oxygen (dry volume %)	13.0	12.3	12.1
CO_2	Carbon dioxide (dry volume %)	9.0	9.7	9.9
V_c	Liquid collected (ml)	261.0	254.5	265.0
V_m	Volume metered, meter conditions (ft^3)	38.72	38.85	38.60
T_m	Dry gas meter temperature (°F)	99	100	100
T_s	Sample temperature (°F)	351	348	349
ΔH	Meter box orifice pressure drop (in. H_2O)	1.70	1.70	1.70
Flow Results				
V_{wstd}	Volume of water collected (ft^3)	12.29	11.98	12.47
V_{mstd}	Volume metered, standard (ft^3)	29.09	29.14	28.96
P_s	Sample gas pressure, absolute (in. Hg)	23.73	23.73	23.73
P_v	Vapor pressure, actual (in. Hg)	23.73	23.73	23.73
B_{wo}	Moisture in sample (% by volume)	29.70	29.13	30.10
B_{ws}	Saturated moisture (% by volume)	100.00	100.00	100.00
$\sqrt{\Delta P}$	Velocity head ($\sqrt{in.}$ H_2O)	0.507	0.492	0.465
M_d	MW of sample gas, dry (lb/lb-mole)	29.96	30.04	30.07
M_s	MW of sample gas, wet (lb/lb-mole)	26.41	26.54	26.44
V_s	Velocity of sample (ft/sec)	41.4	40.0	37.9
Q_a	Volumetric flow rate, actual (acfm)	213,400	206,100	195,400
Q_{std}	Volumetric flow rate, standard (dscfm)	77,440	75,650	70,690

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA-3 Calciner Stack

CEM PARAMETERS

Run No.		1	2	3
Date (1996)		July 25	July 25	July 25
Start Time (approx.)		12:06	13:37	14:54
Stop Time (approx.)		13:06	14:37	15:54
Gas Conditions[1]				
O_2	Oxygen (dry volume %)	13.0	12.3	12.1
CO_2	Carbon Dioxide (dry volume %)	9.0	9.7	9.9
B_{wo}	Moisture in sample (% by volume)	29.70	29.13	30.10
Q_{std}	Volumetric flow rate, standard (dscfm)	77,440	75,650	70,690
Total Hydrocarbons (as propane)				
Data Acquisition				
C	Effluent gas concentration (ppmwv)	429.7	500.0	690.0
Calibration Gases				
C_{ti}	Calibration bias check, initial zero gas	2.8	3.2	7.0
C_{mi}	Calibration bias check, initial upscale gas	541.5	558.5	566.0
C_{tf}	Calibration bias check, final zero gas	3.2	7.0	7.6
C_{mf}	Calibration bias check, final upscale gas	558.5	566.0	562.5
C_{ma}	Actual concentration of upscale gas	563.5	563.5	563.5
Calculated Results				
C_{gas}	Concentration drift corrected (ppmwv)	439.5	500.6	690.8
C_{gas}	Concentration moisture corrected (ppmdv)	625.2	706.3	988.3
E	Emission rate (lb/hr)	332.5	366.9	479.7
Methane				
C_{gas}	Concentration (ppmwv)	248.9	283.7	301.3
C_{gas}	Concentration moisture corrected (ppmdv)	354.0	400.3	431.0
E	Emission rate (lb/hr)	68.5	75.6	76.1
Ethane				
C_{gas}	Concentration (ppmwv)	32.1	37.7	43.8
C_{gas}	Concentration moisture corrected (ppmdv)	45.7	53.1	62.6
E	Emission rate (lb/hr)	16.6	18.8	20.7
Total Non-Methane/Ethane Hydrocarbons (as propane)				
E	Emission rate (lb/hr)	247.4	272.5	382.9

[1] Gas conditions are taken from near simultaneous velocity and moisture testing.

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA-3 Calciner Stack

VOLATILE ORGANICS PARAMETERS

Run No.		1	2	3
Date (1995)		July 25	July 25	July 25
Start Time (approx.)		11:58	13:39	14:56
Stop Time (approx.)		13:13	14:30	16:12
Process Conditions[1]				
	Feed rate (ton of trona/hr)	155.1	155.1	155.1
Gas Conditions[2]				
B_{wo}	Moisture (% by volume)	29.70	29.13	30.10
Q_{std}	Volumetric flow rate, standard (dscfm)	77,440	75,650	70,690
1,1,1-Trichloroethane				
C	Concentration (ppmwv)	BDL	2.68	BDL
C	Concentration (ppmdv)	BDL	3.78	BDL
E	Emission rate (lb/hr)	BDL	5.94	BDL
E	Emission rate (lb/ton of trona)	BDL	0.0383	BDL
1,3 Butadiene				
C	Concentration (ppmwv)	5.26	8.14	26.70
C	Concentration (ppmdv)	7.48	11.49	38.20
E	Emission rate (lb/hr)	4.88	7.32	22.74
E	Emission rate (lb/ton of trona)	0.0315	0.0472	0.1466
2-Butanone				
C	Concentration (ppmwv)	0.62	0.62	0.98
C	Concentration (ppmdv)	0.88	0.87	1.40
E	Emission rate (lb/hr)	0.77	0.74	1.11
E	Emission rate (lb/ton of trona)	0.0049	0.0048	0.0072
Acrylonitrile				
C	Concentration (ppmwv)	BDL	BDL	1.63
C	Concentration (ppmdv)	BDL	BDL	2.33
E	Emission rate (lb/hr)	BDL	BDL	1.36
E	Emission rate (lb/ton of trona)	BDL	BDL	0.0088
Benzene				
C	Concentration (ppmwv)	3.11	3.46	7.99
C	Concentration (ppmdv)	4.42	4.88	11.43
E	Emission rate (lb/hr)	4.17	4.49	9.83
E	Emission rate (lb/ton of trona)	0.0269	0.0290	0.0634
Ethyl Benzene				
C	Concentration (ppmwv)	BDL	BDL	0.38
C	Concentration (ppmdv)	BDL	BDL	0.54
E	Emission rate (lb/hr)	BDL	BDL	0.64
E	Emission rate (lb/ton of trona)	BDL	BDL	0.0041

[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: 7747-1
CA-3 Calciner Stack

VOLATILE ORGANICS PARAMETERS

Run No.		1	2	3
Date (1995)		July 25	July 25	July 25
Start Time (approx.)		11:58	13:39	14:56
Stop Time (approx.)		13:13	14:30	16:12
Process Conditions[1]				
	Feed rate (ton of trona/hr)	155.1	155.1	155.1
Gas Conditions[2]				
B_{wo}	Moisture (% by volume)	29.70	29.13	30.10
Q_{std}	Volumetric flow rate, standard (dscfm)	77,440	75,650	70,690
Hexane				
C	Concentration (ppmwv)	0.68	0.95	3.28
C	Concentration (ppmdv)	0.97	1.34	4.69
E	Emission rate (lb/hr)	1.01	1.36	4.45
E	Emission rate (lb/ton of trona)	0.0065	0.0088	0.0287
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)	BDL	0.12	0.66
C	Concentration (ppmdv)	BDL	0.17	0.94
E	Emission rate (lb/hr)	BDL	0.21	1.08
E	Emission rate (lb/ton of trona)	BDL	0.0013	0.0070
Toluene				
C	Concentration (ppmwv)	0.60	0.72	1.94
C	Concentration (ppmdv)	0.85	1.02	2.78
E	Emission rate (lb/hr)	0.95	1.10	2.82
E	Emission rate (lb/ton of trona)	0.0061	0.0071	0.0182
Trichloroethene				
C	Concentration (ppmwv)	0.16	0.50	1.31
C	Concentration (ppmdv)	0.23	0.71	1.87
E	Emission rate (lb/hr)	0.36	1.09	2.71
E	Emission rate (lb/ton of trona)	0.0023	0.0070	0.0175
Xylene				
C	Concentration (ppmwv)	1.02	1.26	2.39
C	Concentration (ppmdv)	1.45	1.78	3.42
E	Emission rate (lb/hr)	1.86	2.22	4.00
E	Emission rate (lb/ton of trona)	0.0120	0.0143	0.0258

[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: 7747-1
CA 1&2 Calciner Stack

VELOCITY AND MOISTURE PARAMETERS

Run No.		1	2	3
Date (1996)		July 26	July 26	July 26
Start Time (approx.)		14:42	16:57	19:13
Stop Time (approx.)		15:47	17:52	20:10
Sampling Conditions				
Y_d	Dry gas meter correction factor	0.9971	0.9971	0.9971
C_p	Pitot tube coefficient	0.84	0.84	0.84
Pg	Static pressure (in. H_2O)	-0.3	-0.3	-0.3
A_s	Sample location area (ft^2)	113.10	113.10	113.10
P_{bar}	Barometric pressure (in. Hg)	23.75	23.75	23.75
O_2	Oxygen (dry volume %)	13.8	13.6	13.7
CO_2	Carbon dioxide (dry volume %)	8.0	8.0	7.9
V_b	Liquid collected (ml)	205.5	212.0	217.0
V_m	Volume metered, meter conditions (ft^3)	38.49	38.58	38.89
T_m	Dry gas meter temperature (°F)	95	94	101
T_s	Sample temperature (°F)	372	373	374
ΔH	Meter box orifice pressure drop (in. H_2O)	1.70	1.70	1.70
Flow Results				
V_{wstd}	Volume of water collected (ft^3)	9.67	9.98	10.21
V_{mstd}	Volume metered, standard (ft^3)	29.13	29.23	29.13
P_s	Sample gas pressure, absolute (in. Hg)	23.73	23.73	23.73
P_v	Vapor pressure, actual (in. Hg)	23.73	23.73	23.73
B_{wo}	Moisture in sample (% by volume)	24.93	25.45	25.96
B_{ws}	Saturated moisture (% by volume)	100.00	100.00	100.00
$\sqrt{\Delta P}$	Velocity head ($\sqrt{\text{in. } H_2O}$)	0.726	0.729	0.723
M_d	MW of sample gas, dry (lb/lb-mole)	29.83	29.82	29.81
M_s	MW of sample gas, wet (lb/lb-mole)	26.88	26.82	26.75
V_s	Velocity of sample (ft/sec)	59.6	59.9	59.5
Q_a	Volumetric flow rate, actual (acfm)	404,100	406,500	403,600
Q_{std}	Volumetric flow rate, standard (dscfm)	152,600	152,300	150,000

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA 1&2 Calciner Stack

CEM PARAMETERS

Run No.		1	2	3
Date (1996)		July 26	July 26	July 26
Start Time (approx.)		14:38	16:55	18:54
Stop Time (approx.)		15:38	17:55	19:54
Gas Conditions[1]				
O_2	Oxygen (dry volume %)	13.8	13.6	13.7
CO_2	Carbon Dioxide (dry volume %)	8.0	8.0	7.9
B_{wo}	Moisture in sample (% by volume)	24.93	25.45	25.96
Q_{std}	Volumetric flow rate, standard (dscfm)	152,600	152,300	150,000
Total Hydrocarbons (as propane)				
Data Acquisition				
C	Effluent gas concentration (ppmwv)	476.7	403.6	370.0
Calibration Gases				
C_{0i}	Calibration bias check, initial zero gas	-0.6	6.6	12.5
C_{mi}	Calibration bias check, initial upscale gas	568.9	569.8	576.3
C_{0f}	Calibration bias check, final zero gas	6.6	12.5	13.6
C_{mf}	Calibration bias check, final upscale gas	569.8	576.3	577.4
C_{ma}	Actual concentration of upscale gas	563.5	563.5	563.5
Calculated Results				
C_{gas}	Concentration drift corrected (ppmwv)	471.3	394.0	356.7
C_{gas}	Concentration moisture corrected (ppmdv)	627.8	528.5	481.8
E	Emission rate (lb/hr)	657.8	552.7	496.3
Methane				
C_{gas}	Concentration (ppmwv)	257.6	247.1	256.5
C_{gas}	Concentration moisture corrected (ppmdv)	343.1	331.4	346.4
E	Emission rate (lb/hr)	130.8	126.1	129.8
Ethane				
C_{gas}	Concentration (ppmwv)	28.1	22.8	26.1
C_{gas}	Concentration moisture corrected (ppmdv)	37.4	30.6	35.3
E	Emission rate (lb/hr)	26.7	21.8	24.8
Total Non-Methane/Ethane Hydrocarbons (as propane)				
E	Emission rate (lb/hr)	500.3	404.8	341.8

[1] Gas conditions are taken from near simultaneous velocity and moisture testing.

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA 1&2 Calciner Stack

VOLATILE ORGANICS PARAMETERS

Run No.		1	2	3
Date (1995)		July 26	July 26	July 26
Start Time (approx.)		14:38	16:56	18:49
Stop Time (approx.)		16:32	18:12	20:21
Process Conditions[1]				
	Feed rate (ton of trona/hr)	282	280	278
Gas Conditions[2]				
B_{wo}	Moisture (% by volume)	24.93	25.45	25.96
Q_{std}	Volumetric flow rate, standard (dscfm)	152,600	152,300	150,000
1,1,1-Trichloroethane				
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
1,3 Butadiene				
C	Concentration (ppmwv)	14.44	11.26	10.74
C	Concentration (ppmdv)	19.23	15.10	14.51
E	Emission rate (lb/hr)	24.72	19.38	18.33
E	Emission rate (lb/ton of trona)	0.0877	0.0692	0.0659
2-Butanone				
C	Concentration (ppmwv)	2.12	2.08	6.44
C	Concentration (ppmdv)	2.82	2.79	8.70
E	Emission rate (lb/hr)	4.84	4.77	14.65
E	Emission rate (lb/ton of trona)	0.0172	0.0170	0.0527
Acrylonitrile				
C	Concentration (ppmwv)	1.19	0.36	1.04
C	Concentration (ppmdv)	1.59	0.48	1.40
E	Emission rate (lb/hr)	2.00	0.61	1.74
E	Emission rate (lb/ton of trona)	0.0071	0.0022	0.0063
Benzene				
C	Concentration (ppmwv)	5.28	4.88	4.34
C	Concentration (ppmdv)	7.03	6.55	5.86
E	Emission rate (lb/hr)	13.05	12.13	10.70
E	Emission rate (lb/ton of trona)	0.0463	0.0433	0.0385
Ethyl Benzene				
C	Concentration (ppmwv)	0.48	0.62	0.71
C	Concentration (ppmdv)	0.64	0.83	0.96
E	Emission rate (lb/hr)	1.61	2.09	2.38
E	Emission rate (lb/ton of trona)	0.0057	0.0075	0.0086

[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: 7747-1
CA 1&2 Calciner Stack

VOLATILE ORGANICS PARAMETERS

Run No.		1	2	3
Date (1995)		July 26	July 26	July 26
Start Time (approx.)		14:38	16:56	18:49
Stop Time (approx.)		16:32	18:12	20:21
Process Conditions[1]				
	Feed rate (ton of trona/hr)	282	280	278
Gas Conditions[2]				
B_{wo}	Moisture (% by volume)	24.93	25.45	25.96
Q_{std}	Volumetric flow rate, standard (dscfm)	152,600	152,300	150,000
Hexane				
C	Concentration (ppmwv)	2.29	1.61	1.67
C	Concentration (ppmdv)	3.05	2.16	2.26
E	Emission rate (lb/hr)	6.25	4.41	4.54
E	Emission rate (lb/ton of trona)	0.0222	0.0158	0.0163
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)	0.10	0.66	0.65
C	Concentration (ppmdv)	0.13	0.89	0.88
E	Emission rate (lb/hr)	0.33	2.19	2.14
E	Emission rate (lb/ton of trona)	0.0012	0.0078	0.0077
Toluene				
C	Concentration (ppmwv)	1.51	1.45	3.54
C	Concentration (ppmdv)	2.01	1.94	4.78
E	Emission rate (lb/hr)	4.40	4.25	10.29
E	Emission rate (lb/ton of trona)	0.0156	0.0152	0.0370
Trichloroethene				
C	Concentration (ppmwv)	1.54	5.64	0.37
C	Concentration (ppmdv)	2.05	7.57	0.50
E	Emission rate (lb/hr)	6.41	23.58	1.53
E	Emission rate (lb/ton of trona)	0.0227	0.0842	0.0055
Xylene				
C	Concentration (ppmwv)	1.72	2.47	2.22
C	Concentration (ppmdv)	2.29	3.31	3.00
E	Emission rate (lb/hr)	5.78	8.34	7.44
E	Emission rate (lb/ton of trona)	0.0205	0.0298	0.0267

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

CALIBRATION DATA

C

TYPE S PITOT TUBE INSPECTION DATA

DATE 2/5/96

PITOT NUMBER M-6-2
12-1-94-1

Pitot Tube Assembly Level YES

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

α_1 = 1 deg. (<10), α_2 = 0 deg. (<10), β_1 = 3 deg. (<5), β_2 = 1 deg. (<5)

Y = 2 deg., 0 = 0 deg., A = .732 in.

Z = A sin Y = .026 in.; <1/8 in.

W = A sin 0 = .000 in.; <1/32 in.

Pa .366 in. Pb .366

P = (Pa +Pb)/2 .366 in.

Dt (tube dia.) = .25 in.

P/Dt = 1.46 (≥ 1.05 and ≤ 1.50)

COMMENTS: 6' EFF. PROBE, DEPT. 65, Cp = .84

WIND TUNNEL CALIBRATION REQUIRED? NO (Yes or No)

CALIBRATION BY: RON M. LUIKAART

Pyrometer Calibration Sheet

Pyrometer No.: Meter D-12
Calibrated By: R. Lindberg
Date: June 20, 1996

Office: Denver
Client: In House Check
Job or Reference No.: 65-0000

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

Calibration: X **Pre-Test** ____ 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	448°	225° C
500° F	498°	250° C
550° F	548°	275° C
600° F	599°	300° C

Calibration Reference Information

Reference Used: Omega Serial No: T-87031

Calibrated By: R&R INSTRM. Date Calibrated: 12/27/96

Calibration Report No.: 52722-1

CAE
Clean Air Engineering

Pyrometer Calibration Sheet

Pyrometer No.: Meter D-12
Calibrated By: R. Lindberg
Date: AUG. 9, 1996

Office: Denver
Client: SOLVAY MINERALS
Job or Reference No.: 7747

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	52°	25° C
100° F	101°	50° C
150° F	151°	75° C
200° F	202°	100° C
250° F	253°	125° C
300° F	302°	150° C
350° F	352°	175° C
400° F	400°	200° C
450° F	450°	225° C
500° F	500°	250° C
550° F	550°	275° C
600° F	600°	300° C

Calibration Reference Information

Reference Used: Omega Serial No: T-87031

Calibrated By: R&R INSTRM. Date Calibrated: 12/27/96

Calibration Report No.: 52722-1

CAE
Clean Air Engineering

Meter Box Full Test Calibration

DATE March 14, 1996 Operator R. Lindberg

Meter Box No: D-12	Meter Box ΔH@: 1.8349	Meter Box Yd: 0.9971	Barometric Pressure: 24.91

				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@
0.36	0.50	-0.60	1.0000	0.000	5.051	5.051	414.686	419.807	5.121	64.0	64.0	64.0	71	67	69.0	11.72	0.9925	1.7961
0.37	0.50	-0.60	1.0000	0.000	5.043	5.043	419.807	424.928	5.121	64.0	64.0	64.0	72	67	69.5	11.52	0.9919	1.7409
0.61	1.50	-1.30	1.0000	0.000	10.030	10.030	451.613	461.783	10.170	64.0	64.0	64.0	77	69	73.0	13.78	0.9949	1.8820
0.61	1.50	-1.30	1.0000	0.000	10.040	10.040	461.788	471.961	10.173	64.0	64.0	64.0	75	69	72.0	13.79	0.9937	1.8809
0.87	3.00	-2.10	1.0000	0.000	10.359	10.359	476.363	486.728	10.365	64.0	64.0	64.0	79	70	74.5	10.04	1.0042	1.8696
0.87	3.00	-2.10	1.0000	0.000	10.100	10.100	493.332	503.434	10.102	64.0	64.0	64.0	80	70	75.0	9.71	1.0056	1.8396
																AVERAGE	0.9971	1.8349

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
5.3	5.0
7.8	7.5
10.2	10.0
12.8	12.5
15.4	15.0
18.0	17.5
20.4	20.0

CAE
Clean Air Engineering

SOLVAY2016_6_001411

Meter Box Post Test Calibration

DATE: 8/5/96

Operator: R. Lindberg

Project Number: 7747

Client/Owner: SOLVAY MINERALS INC

Meter Box No: D-12				Meter Box Vacuum: 7.0						Meter Box Yd: 0.9971						Barometric Pressure: 24.88		
				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	Tî	Time	Y_d	H@
0.64	1.70	-1.50	1.0000	0.0	10.045	10.045	343.603	353.793	10.190	82.0	82.0	82.0	98.0	90.0	94.0	12.70	.9981	1.8609
0.64	1.70	-1.50	1.0000	0.0	10.083	10.083	353.793	363.835	10.042	82.0	82.0	82.0	98.0	90.0	94.0	12.76	1.0167	1.8644
0.64	1.70	-1.50	1.0000	0.0	11.061	11.061	363.835	374.966	11.131	82.0	82.0	82.0	98.0	91.0	94.5	14.00	1.0071	1.8617
																AVERAGE	1.0073	

Nomenclature

P_b	Barometric Pressure (in. Hg)
Q	Flow Rate (cfm)
ΔH	Orifice Pressure Differential (in. H_20)
ΔP	Inlet Pressure Differential (in. H_20)
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_20)

Equations

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

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

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

Clean Air Engineering

SOLVAY2016_6_001412

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
246 WOODWORK LANE
PALATINE, IL 60067

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

Purchase Order : 10867-71500
Scott Project # : 563182

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 : ALM016655 **Certificate Date :** 3/12/94 **Expiration Date :** 3/12/97
Cylinder Pressure + : 1900 psig **Previous Certificate Date :** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	249.5 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
SRM2645A	4/7/96	FF-26859	498.5 ppm Propane in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Propane: Beckman/400/1002059	3/10/94	Flame Ionization Detector

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

Components: Propane

First Triad Analysis

Date: 3/12/94 Response Units: mv

Z1=0.00	R1=100.00	T1=50.10
R2=100.00	Z2=0.00	T2=50.10
Z3=0.00	T3=50.10	R3=100.00

Avg Conc. of Cust. Cyl. 249.5 ppm

Second Triad Analysis

Calibration Curve

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

r=1.00000	SRM2645A
Constants:	A=-0.513420000
B=4.990100000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Analyst Don Eichler, Jr

SOLVAY2016_6_001413

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 : ALM002445
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	563.5 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
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: mv

Z1=0.00	R1=97.30	T1=56.40
R2=97.30	Z2=0.00	T2=56.30
Z3=0.00	T3=56.30	R3=97.30

Avg. Conc. of Cust. Cyl. 563.5 ppm

Second Triad Analysis

Calibration Curve

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

r=1.00000	NTRM 2646
Constants:	A=0.049241000
B=10.002000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Matt L. Bass
Analyst

SOLVAY2016_6_001414

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

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_001415

MISP/P-1

Solvay Minerals, Inc.
CAE Project No: 7747-1
CA-3 Calciner Stack

CEM CALIBRATION DATA SHEET

July 25, 1996

Run 1	A	B	C	D	E	F	G	H	I
Total Hydrocarbons									
Zero	0.0	0.0	0.0	0.00%	2.8	0.3%	3.2	0.3%	0.0%
Low Span	249.5	250.0	0.5	0.19%					
Mid Span	563.5	567.4	3.9	0.70%	541.5	-2.6%	558.5	-0.9%	1.7%
High Span	852.2	854.7	2.5	0.29%					
Run 2									
Total Hydrocarbons									
Zero	0.0	0.0	0.0	0.00%	3.2	0.3%	7.0	0.7%	0.4%
Low Span	249.5	250.0	0.5	0.19%					
Mid Span	563.5	567.4	3.9	0.70%	558.5	-0.9%	566.0	-0.1%	0.7%
High Span	852.2	854.7	2.5	0.29%					
Run 3									
Total Hydrocarbons									
Zero	0.0	0.0	0.0	0.00%	7.0	0.7%	7.6	0.8%	0.1%
Low Span	249.5	250.0	0.5	0.19%					
Mid Span	563.5	567.4	3.9	0.70%	566.0	-0.1%	562.5	-0.5%	-0.4%
High Span	852.2	854.7	2.5	0.29%					

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

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)

Solvay Minerals, Inc.
CAE Project No: 7747-1
CA 1&2 Calciner Stack

CEM CALIBRATION DATA SHEET

July 26, 1996

Run 1	A	B	C	D	E	F	G	H	I
Total Hydrocarbons									
Zero	0.0	-0.6	0.6	0.06%	-0.6	0.0%	6.6	0.7%	0.7%
Low Span	249.5	251.7	2.2	0.88%					
Mid Span	563.5	568.9	5.4	0.96%	568.9	0.0%	569.8	0.1%	0.1%
High Span	852.2	850.2	2.0	0.23%					
Run 2									
Total Hydrocarbons									
Zero	0.0	-0.6	0.6	0.06%	6.6	0.7%	12.5	1.3%	0.6%
Low Span	249.5	251.7	2.2	0.88%					
Mid Span	563.5	568.9	5.4	0.96%	569.8	0.1%	576.3	0.7%	0.6%
High Span	852.2	850.2	2.0	0.23%					
Run 3									
Total Hydrocarbons									
Zero	0.0	-0.6	0.6	0.06%	12.5	1.3%	13.6	1.4%	0.1%
Low Span	249.5	251.7	2.2	0.88%					
Mid Span	563.5	568.9	5.4	0.96%	576.3	0.7%	577.4	0.9%	0.1%
High Span	852.2	850.2	2.0	0.23%					

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

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)

SOLVAY MINERALS, INC.
CAE Project No. 7747-1
July 24, 1996

Target Compounds

Compound	Phase	Mol. Wt.	Density	Source	Stock No.	Lot No.	CAS No.
Methane	gas	16.04	na	Scott	LB1	08-23069	74-82-8
Ethane	gas	30.07	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	86.17	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	133.42	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	92.13	0.866	Aldrich	27,037-7	03762PN	108-88-3
Ethylbenzene	liquid	106.16	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, INC.
CAE Project No. 7747-1
July 24, 1996

GC-1 (new) 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

GC-1 (new) Reported Compounds

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

SOLVAY MINERALS, INC.
CAE Project No. 7747-1
July 24, 1996

GC-2 (old) 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

GC-2 (old) Reported Compounds

Methane
Ethane
1,3 Butadiene
Methylene Chloride
Acrylonitrile

SOLVAY MINERALS, INC.
CAE Project No. 7747-1
July 24, 1996

Calibration Bag Standards Set 1
Stock Solution (liquid phase)

The Stock Solution is a mixture of the liquid phase Target Analytes based on the following liquid volumes.

Compound	Volume (ml)	% Total by volume
Hexane	0.30	8.57%
Methylene Chloride	0.50	14.29%
1,1,1-Trichloroethane	0.50	14.29%
Benzene	0.30	8.57%
Trichloroethylene	0.50	14.29%
Toluene	0.30	8.57%
Ethylbenzene	0.30	8.57%
p-Xylene	0.10	2.86%
m-Xylene	0.30	8.57%
o-Xylene	0.10	2.86%
Styrene	0.30	8.57%
Total	**3.50**	**100%**

Calibration Bag Standards Set 1
Bag Generation (gas phase)

These Calibration Bag Standards are mixtures of zero nitrogen, stock solution, 1,3-butadiene and methane in tedlar bags based on the following data.

bag no.	flow (ml/min)	time (min)	stock inj (µl)	methane (ml)	butadi (µl)	T (amb) (^{0}F)	Pb (in Hg)
1	5,570	14.50	6	0	100	85	23.98
2	5,626	13.00	3	0	200	83	23.98
3	5,623	13.50	9	0	50	83	23.98
4	5,667	14.00	1.5	0	150	84	23.98

SOLVAY MINERALS, INC.
CAE Project No. 7747-1
July 24, 1996

Calibration Bag Standards Set 1
Results

Compound	Bag No. 1 (ppmv)	Bag No. 2 (ppmv)	Bag No. 3 (ppmv)	Bag No. 4 (ppmv)
Methane	0	0	0	0
1,3-Butadiene	1.24	2.73	0.66	1.89
Hexane	1.52	0.83	2.41	0.39
Methylene Chloride	5.13	2.82	8.16	1.30
1,1,1-Trichloroethane	3.30	1.81	5.24	0.84
Benzene	2.22	1.22	3.53	0.56
Trichloroethylene	3.66	2.02	5.83	0.93
Toluene	1.85	1.02	2.95	0.47
Ethylbenzene	1.61	0.89	2.56	0.41
p-Xylene	0.53	0.29	0.85	0.14
m-Xylene	1.61	0.89	2.56	0.41
o-Xylene	0.54	0.30	0.87	0.14
Styrene	1.72	0.94	2.73	0.44

SOLVAY MINERALS, INC.
CAE Project No. 7747-1
July 24, 1996

Calibration Bag Standards Set 2
Bag Generation

These Calibration Bag Standards are mixtures of zero nitrogen, Methane, Ethane 1,3-Butadiene, and Methylene Chloride in tedlar bags based on the following data.

Bag No.	flow (ml/min)	time (min)	methane (ml)	ethane (ml)	butadiene (µl)	MeCl (µl)	T (amb) (°F)	Pb (in Hg)
5	5,602	13.50	5	5	100	3	77	23.95
6	5,691	13.50	15	2.5	50	1	78	23.95

Calibration Bag Standards Set 2
Results

Compound	Bag No. 5 (ppmv)	Bag No. 6 (ppmv)
Methane	66.1	195.2
Ethane	66.1	32.5
1,3-Butadiene	1.32	0.65
Methylene Chloride	18.91	6.22

SOLVAY MINERALS, INC.
CAE Project No. 7747-1
July 24, 1996

Calibration Bag Standards Set 3
Bag Generation

These Calibration Bag Standards are mixtures of zero nitrogen, Methane, Ethane 2-Butanone and Acrylonitrile in tedlar bags based on the following data.

Bag No.	flow (ml/min)	time (min)	methane (ml)	ethane (ml)	2-but (μl)	acryl (μl)	T (amb) (°F)	Pb (in Hg)
7	5724	14.50	25	7.5	3	3	78	23.95
8	5739	13.00	10	10	1	2	80	23.95
9	5764	13.00	2.5	1	2	1	82	23.95

Calibration Bag Standards Set 3
Results

Compound	Bag No. 7 (ppmv)	Bag No. 8 (ppmv)	Bag No. 9 (ppmv)
Methane	301.1	134.0	33.4
Ethane	90.3	134.0	13.3
2-Butanone	12.35	4.60	9.19
Acrylonitrile	16.80	12.50	6.25

SOLVAY MINERALS, INC.
CAE Project No. 7747-1
July 24, 1996

Calibration Summary

GC-1 Bag No. 1

Compound	area 2	area 3	area 4	Average	%RSD
Hexane	71,936	71,554	71,430	71,640	0.37
1,1,1-Trichloroethane	55,349	55,204	55,174	55,242	0.17
Benzene	120,278	119,329	119,342	119,650	0.45
Trichloroethylene	109,713	110,167	110,288	110,056	0.28
Toluene	170,408	166,183	164,348	166,980	1.86
Ethylbenzene	176,137	173,557	171,470	173,721	1.35
p-Xylene	60,657	58,711	56,881	58,750	3.21
m-Xylene	231,750	226,516	220,278	226,181	2.54
o-Xylene	64,553	61,967	59,472	61,997	4.10
Styrene	252,511	245,743	240,159	246,138	2.51

GC-1 Bag No. 2

Compound	area 1	area 2	area 3	Average	%RSD
Hexane	40,054	40,153	40,151	40,119	0.14
1,1,1-Trichloroethane	30,964	31,039	31,056	31,020	0.16
Benzene	68,137	68,178	63,212	66,509	4.29
Trichloroethylene	61,740	61,938	50,341	58,006	11.45
Toluene	96,309	96,755	96,152	96,405	0.32
Ethylbenzene	99,282	99,213	98,501	98,999	0.44
p-Xylene	33,565	32,774	32,117	32,819	2.21
m-Xylene	130,147	127,952	126,493	128,197	1.43
o-Xylene	35,376	34,289	33,777	34,481	2.37
Styrene	144,946	142,566	140,500	142,671	1.56

GC-1 Bag No. 3

Compound	area 1	area 2	area 3	area 4	Average	%RSD
Hexane	121,767	120,033	119,944	118,780	120,131	0.86
1,1,1-Trichloroethane	95,946	93,356	93,156	91,715	93,543	1.66
Benzene	201,663	197,396	197,050	187,591	195,925	1.31
Trichloroethylene	172,626	177,669	178,441	147,460	169,049	1.87
Toluene	275,965	266,520	264,560	236,647	260,923	2.34
Ethylbenzene	316,659	283,943	279,159	287,575	291,834	6.99
p-Xylene	100,829	91,181	89,704	83,040	91,189	6.63
m-Xylene	391,525	355,571	349,347	302,059	349,626	6.51
o-Xylene	108,657	96,273	94,297	94,083	98,328	7.92
Styrene	440,312	391,740	383,122	308,816	380,998	8.09

SOLVAY MINERALS, INC.
CAE Project No. 7747-1
July 24, 1996

Calibration Summary

GC-1 Bag No. 4

Compound	area 1	area 2	area 3	area 4	area 5	area 6
Hexane	19,826	19,599	19,158	19,119	19,409	19,269
1,1,1-Trichloroethane	15,529	15,206	15,737	14,789	15,110	15,041
Benzene	30,048	29,995	28,111	28,211	28,479	28,819
Trichloroethylene	31,932	28,748	23,054	17,578	18,514	21,452
Toluene	59,068	50,967	37,131	24,985	36,682	41,045
Ethylbenzene	68,301	54,277	49,178	21,741	37,773	45,929
p-Xylene	22,777	17,798	20,468	12,547	12,229	15,576
m-Xylene	94,749	74,067	76,361	47,020	44,545	58,177
o-Xylene	28,009	20,302	37,560	14,562	12,238	16,527
Styrene	100,902	80,071	66,362	48,042	40,808	55,016

GC-1 Bag No. 4 (continued)

Compound	area 7	area 8	area 9	area 10	Average	%RSD
Hexane	19,338	19,391	19,220	19,336	19,370	1.10
1,1,1-Trichloroethane	14,975	14,992	14,400	14,906	15,079	2.47
Benzene	28,877	29,033	28,830	28,766	28,921	2.26
Trichloroethylene	22,232	22,586	22,066	22,624	23,173	18.56
Toluene	42,347	43,646	41,980	43,135	42,071	21.23
Ethylbenzene	47,878	49,817	48,267	50,401	47,298	24.98
p-Xylene	16,122	16,687	16,542	17,731	16,928	18.89
m-Xylene	61,306	64,219	62,901	66,673	65,412	22.25
o-Xylene	16,892	17,316	18,046	19,092	20,406	36.38
Styrene	57,984	60,763	56,839	60,068	63,208	26.86

SOLVAY MINERALS, INC.
CAE Project No. 7747-1
July 24, 1996

Calibration Summary

GC-1 Bag No. 7

Compound	area 2	area 3	area 4	Average	%RSD
2-Butanone	276,527	281,287	289,822	282,545	2.38

GC-1 Bag No. 8

Compound	area 1	area 2	area 3	area 4	area 5	area 6
2-Butanone	109,553	107,961	105,749	107,568	107,296	107,800

GC-1 Bag No. 8 (continued)

Compound	area 7	area 8	Average	%RSD
2-Butanone	109,679	108,023	107,954	1.16

GC-1 Bag No. 9

Compound	area 1	area 2	area 3	Average	%RSD
2-Butanone	227,578	229,759	228,679	228,672	0.48

Method Information

Column: 1 GP 5% SP1200 / 1.75% Bentone 34 on 100/120 mesh Supelcoport.

Integration Events

Events:	Value:	Time:
Initial Area Reject	1	INITIAL
Initial Peak Width	0.040	INITIAL
Shoulder Detection	OFF	INITIAL
Initial Threshold	3	INITIAL
Integrator OFF		0.000
Integrator ON		2.000
Threshold	2	3.005
Threshold	-1	7.800
Peak Width	0.100	7.800

Report Specification

Destination:	Report to File: Auto naming selected
Based on:	Area
Calculations:	ESTD
Printer Output:	None
Report Header:	None

Graphics Options

Title:	Vertical
Include:	
Axes Units:	On
Peak Names:	On
Retention Times:	On
Baselines:	On
Tick Marks:	On
Peak Labels Font:	Default 12

Calibration Table

Pk#	RT	Lvl	ppm	Amt/Area	Ref Istd I#	Name
1	3.310	1	1.52	2.1217e-005	1	Hexane
		2	0.83	2.0688e-005		
		3	2.41	2.0061e-005		
		4	0.39	2.0138e-005		
2	5.483	1	3.3	5.9737e-005	1	Trichloroethane
		2	1.81	5.835e-005		
		3	5.24	5.6017e-005		
		4	0.84	5.5745e-005		
3	6.937	1	2.22	1.8554e-005	1	Benzene
		2	1.22	1.8343e-005		
		3	3.53	1.8017e-005		
		4	0.56	1.9366e-005		
4	7.883	1	3.66	3.3256e-005	1	Trichloroethylene
		2	2.02	3.4824e-005		
		3	5.83	3.4487e-005		
		4	0.93	4.0297e-005		
5	9.149	7	12.35	4.369e-005	1	2-Butanone

		8	4.6	4.2611e-005	
		9	9.19	4.0189e-005	
6	10.878	1	1.85	1.1079e-005	1 Toluene
		2	1.02	1.058e-005	
		3	2.95	1.1306e-005	
		4	0.47	1.1164e-005	
7	14.325	1	1.61	9.2677e-006	1 Ethyl Benzene
		2	0.89	8.99e-006	
		3	2.56	8.7721e-006	
		4	0.41	8.6578e-006	
8	14.937	1	0.53	9.0213e-006	1 p-Xylene
		2	0.29	8.8364e-006	
		3	0.85	9.3213e-006	
		4	0.14	8.3098e-006	
9	15.268	1	1.61	7.1182e-006	1 m-Xylene
		2	0.89	6.9424e-006	
		3	2.56	7.3221e-006	
		4	0.41	6.3075e-006	
10	16.096	1	0.54	8.71e-006	1 o-Xylene
		2	0.3	8.7006e-006	
		3	0.87	8.848e-006	
		4	0.14	6.981e-006	
11	17.178	1	1.72	6.988e-006	1 Styrene
		2	0.94	6.5886e-006	
		3	2.73	7.1654e-006	
		4	0.44	7.0192e-006	

Calibration Settings

Title:
Solvay Minerals....New HP5890

Reference window:	10.000 %
Non-reference window:	10.000 %
Units of amount:	ppm
Multiplier:	1.0
RF uncal peaks:	0.0
ISTD# to adjust uncal peaks:	0
Sample Amount:	0.0

Sample ISTD Information

No Sample ISTD Amounts

Multilevel Information

Fit: Linear
Origin: Include

SOLVAY MINERALS, INC.
CAE Project No. 7747-1
July 24, 1996

Calibration Summary

GC-2 Bag No. 1

Compound	area 1	area 2	area 3	area 4	Average	%RSD
1,3-Butadiene	18,888	19,767	19,891	19,763	19,577	2.79
Methylene Chloride	18,345	18,886	15,670	23,100	19,000	9.06

GC-2 Bag No. 2

Compound	area 1	area 2	area 3	area 4	area 5	area 6
1,3-Butadiene	46,140	45,611	45,726	45,537	42,734	44,256
Methylene Chloride	10,509	10,409	10,338	10,188	9,818	10,268

GC-2 Bag No. 2 (continued)

Compound	area 7	area 8		Average	%RSD
1,3-Butadiene	44,758	37,339		44,013	6.60
Methylene Chloride	10,608	10,991		10,391	3.27

GC-2 Bag No. 5

Compound	area 1	area 2	area 3	area 4	Average	%RSD
Methane	280,502	282,959	281,732	280,702	281,474	0.44
Ethane	555,491	560,334	557,966	556,037	557,457	0.43
1,3-Butadiene	24,109	24,359	24,175	24,200	24,211	0.54
Methylene Chloride	75,981	76,331	75,633	75,793	75,935	0.46

GC-2 Bag No. 6

Compound	area 1	area 2	area 3	area 4	Average	%RSD
Methane	986,180	987,841	994,577	987,663	989,065	0.45
Ethane	297,426	283,742	285,669	283,694	287,633	2.58
1,3-Butadiene	11,326	11,300	11,536	11,383	11,386	1.14
Methylene Chloride	27,451	27,122	27,849	27,336	27,440	1.33

SOLVAY MINERALS, INC.
CAE Project No. 7747-1
July 24, 1996

Calibration Summary

GC-2 Bag No. 7

Compound	area 1	area 2	area 3	Average	%RSD
Methane	1,284,068	1,294,895	1,295,091	1,291,351	0.49
Ethane	770,991	777,348	777,327	775,222	0.47
1,3-Butadiene	5,525	5,510	5,693	5,576	1.82
Acrylonitrile	193,307	199,547	199,121	197,325	1.77

GC-2 Bag No. 8

Compound	area 1	area 2	area 3	area 4	area 5	Average	%RSD
Methane	581,253	594,678	594,836	596,183	586,862	590,762	1.09
Ethane	1,161,794	1,188,024	1,188,826	1,191,439	1,172,463	1,180,509	1.09
Acrylonitrile	139,706	156,388	221,675*	151,374	148,464	148,983	4.70

GC-2 Bag No. 9

Compound	area 1	area 2	area 3	area 4	area 5	area 6
Methane	148,915	148,127	147,709	148,279	148,459	147,924
Ethane	120,512	119,872	119,641	120,013	120,119	119,682
Acrylonitrile	86,926	84,127	81,931	93,363	83,372	79,982

Compound	area 7	Average	%RSD
Methane	148,005	148,203	0.27
Ethane	119,672	119,930	0.26
Acrylonitrile	81,977	84,525	5.27

Method Information

Column: 80/100 mesh Super Q

Integration Events

Events:	Value:	Time:
Initial Area Reject	1	INITIAL
Initial Peak Width	0.040	INITIAL
Shoulder Detection	OFF	INITIAL
Initial Threshold	4	INITIAL
Threshold	1	4.434
Threshold	-1	11.432
Peak Width	0.070	12.112

Report Specification

Destination:	Report to File: Auto naming selected
Based on:	Area
Calculations:	ESTD
Printer Output:	None
Report Header:	None

Graphics Options

Title:	Vertical
Include:	
Axes Units:	On
Peak Names:	On
Retention Times:	On
Baselines:	On
Tick Marks:	On
Peak Labels Font:	Default 12

Calibration Table

Pk#	RT	Lvl	ppm	Amt/Area	Ref Istd I#	Name
1	1.087	5	66.1	2.3484e-004	1	Methane
		6	195.2	1.9736e-004		
		7	301.1	2.3317e-004		
		8	134.0	2.2722e-004		
		9	33.4	2.2537e-004		
2	1.721	5	66.1	1.1857e-004	1	Ethane
		6	32.5	1.1299e-004		
		7	90.3	1.1648e-004		
		8	134.0	1.1371e-004		
		9	13.3	1.109e-004		
3	7.120	1	1.24	6.334e-005	1	Butadiene
		2	2.73	6.2027e-005		
		5	1.32	5.4521e-005		
		6	0.65	5.7086e-005		
4	13.312	1	5.13	0.00027	1	Methylene Chloride
		2	2.82	2.7139e-004		
		5	18.91	2.4903e-004		
		6	6.22	2.2668e-004		
5	14.836	7	16.8	8.5139e-005	1	Acrylonitrile
		8	12.5	8.3902e-005		

9 6.25 7.3942e-005

Calibration Settings

Title:

Reference window:	10.000 %
Non-reference window:	10.000 %
Units of amount:	ppm
Multiplier:	1.0
RF uncal peaks:	0.0
ISTD# to adjust uncal peaks:	0
Sample Amount:	0.0

Sample ISTD Information

No Sample ISTD Amounts

Multilevel Information

Fit: Linear
Origin: Include

SOLVAY MINERALS, INC.
CAE Project No. 7747-1
July 24, 1996

Detection Limits

By: 40 CFR App. B to Part 136
"Definition and Procedure for the
Determination of the Method Detection Limit"

Raw Data

Compound	actual (ppmv)	inj. 1 (ppmv)	inj. 2 (ppmv)	inj. 3 (ppmv)	inj. 4 (ppmv)	inj. 5 (ppmv)	inj. 6 (ppmv)
Hexane	**0.39**	0.41	0.41	0.40	0.40	0.41	0.40
1,1,1-Trichloroethane	**0.84**	0.91	0.89	0.92	0.87	0.89	0.88
Benzene	**0.56**	0.57	0.57	0.53	0.53	0.54	0.54
Trichloroethylene	**0.93**	1.13	1.02	0.83	0.64	0.67	0.77
2-Butanone	**4.60**	4.60	4.53	4.44	4.51	4.50	4.52
Toluene	**0.47**	0.65	0.55	0.40	0.26	0.39	0.44
Ethylbenzene	**0.41**	0.62	0.49	0.45	0.20	0.34	0.42
p-Xylene	**0.14**	0.20	0.16	0.18	0.11	0.10	0.13
m-Xylene	**0.41**	0.66	0.51	0.52	0.31	0.29	0.39
o-Xylene	**0.14**	0.24	0.17	0.32	0.12	0.09	0.13
Styrene	**0.44**	0.70	0.55	0.45	0.32	0.27	0.37
Methane	**33.4**	31.77	31.59	31.50	31.62	31.66	31.54
Ethane	**13.3**	14.03	13.96	13.93	13.97	13.99	13.94
Butadiene	**2.73**	2.82	2.79	2.80	2.79	2.61	2.71
Methylene Chloride	**2.82**	2.64	2.62	2.60	2.56	2.47	2.58
Acrylonitrile	**6.25**	7.10	6.86	6.67	7.65	6.79	6.50

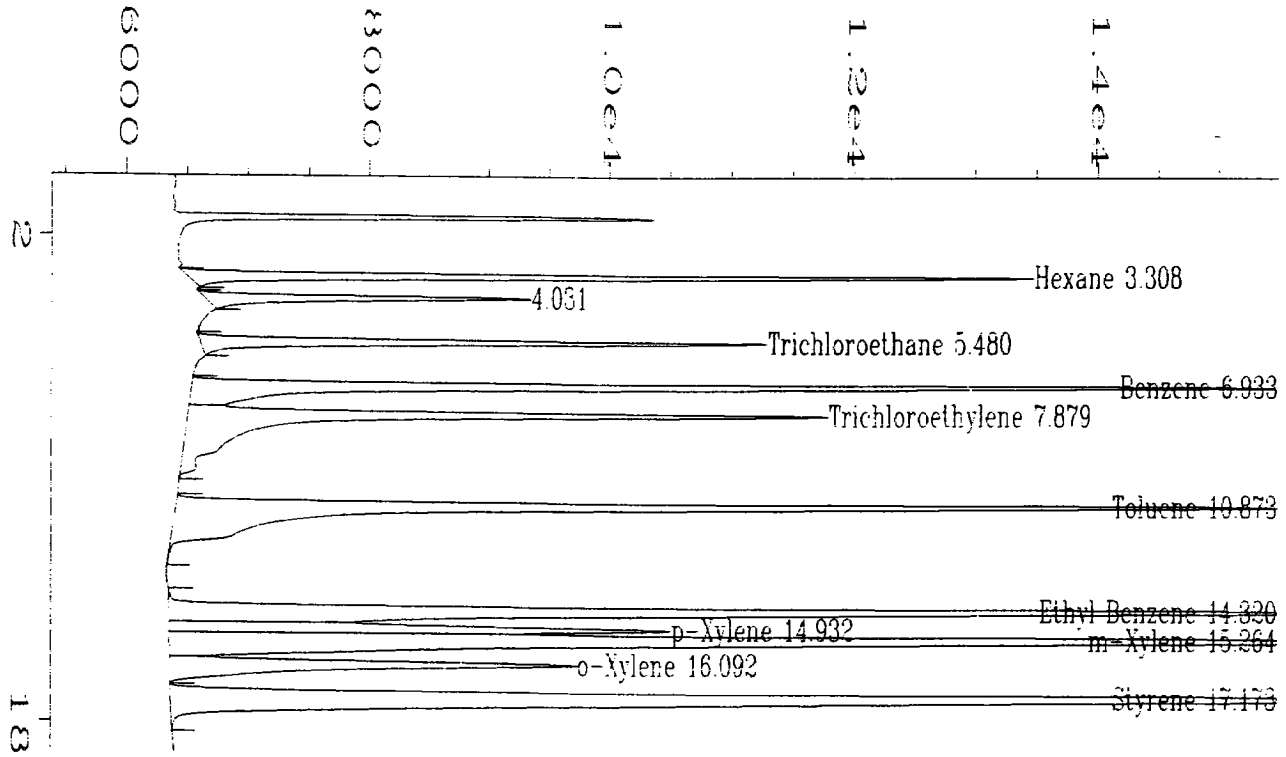
Compound	inj. 7 (ppmv)	inj. 8 (ppmv)	inj. 9 (ppmv)	inj. 10 (ppmv)		Average (ppmv)	Diffference (%)
Hexane	0.40	0.41	0.40	0.40		0.40	1.05
1,1,1-Trichloroethane	0.88	0.88	0.85	0.88		0.88	1.06
Benzene	0.55	0.55	0.54	0.54		0.55	0.97
Trichloroethylene	0.80	0.81	0.79	0.81		0.83	0.89
2-Butanone	4.61	4.53				4.53	0.99
Toluene	0.46	0.47	0.45	0.47		0.45	0.96
Ethylbenzene	0.43	0.45	0.44	0.46		0.43	1.05
p-Xylene	0.14	0.14	0.14	0.15		0.15	1.08
m-Xylene	0.41	0.43	0.42	0.45		0.44	1.07
o-Xylene	0.14	0.14	0.15	0.16		0.16	1.18
Styrene	0.39	0.41	0.38	0.40		0.42	0.97
Methane	31.56					31.61	0.95
Ethane	13.93					13.96	1.05
Butadiene	2.74	2.28				2.69	0.99
Methylene Chloride	2.67	2.76				2.61	0.93
Acrylonitrile	6.67					6.89	1.10

SOLVAY MINERALS, INC.
CAE Project No. 7747-1
July 24, 1996

Detection Limits

By: 40 CFR App. B to Part 136
"Definition and Procedure for the
Determination of the Method Detection Limit"

Compound	Standard Deviation	Student "t" Value (99% Probability)	Detection Limit (ppmv)
Hexane	0.0044	2.8214	0.01
1,1,1-Trichloroethane	0.0212	2.8214	0.06
Benzene	0.0117	2.8214	0.03
Trichloroethylene	0.1459	2.8214	0.41
2-Butanone	0.0535	2.9979	0.16
Toluene	0.1010	2.8214	0.28
Ethylbenzene	0.1048	2.8214	0.30
p-Xylene	0.0298	2.8214	0.08
m-Xylene	0.1074	2.8214	0.30
o-Xylene	0.0666	2.8214	0.19
Styrene	0.1218	2.8214	0.34
Methane	0.0889	3.1427	0.28
Ethane	0.0365	3.1427	0.11
Butadiene	0.1806	2.9979	0.54
Methylene Chloride	0.0841	2.9979	0.25
Acrylonitrile	0.3837	3.1427	1.21



==========

External Standard Report

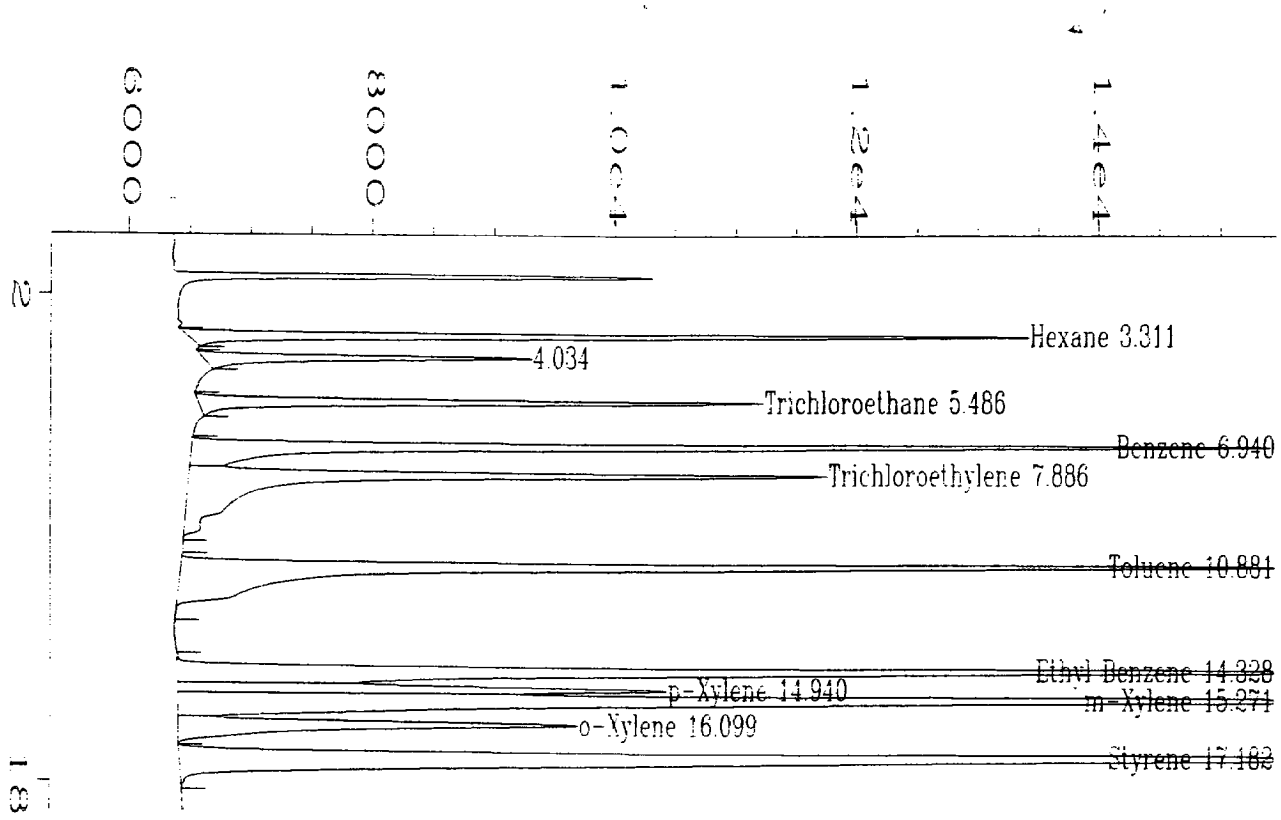
==========

Data File Name	: D:\SOLVAY\NEW_GC\CALS\BAG_1-02.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 24 Jul 96 07:09 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 11:42 AM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG_1-02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.308	71936	BB	0.156	1	1.469	Hexane
5.480	55349	BB	0.182	1	3.166	Trichloroethane
6.933	120278	BV	0.200	1	2.192	Benzene
7.879	109713	VB	0.288	1	3.765	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.873	170408	BB	0.263	1	1.904	Toluene
14.320	176137	BV	0.241	1	1.571	Ethyl Benzene
14.932	60657	VV	0.215	1	0.556	p-Xylene
15.264	231750	VV	0.263	1	1.669	m-Xylene
16.092	64553	VV	0.280	1	0.564	o-Xylene
17.173	252511	PB	0.304	1	1.782	Styrene

Not all calibrated peaks were found



==========

External Standard Report

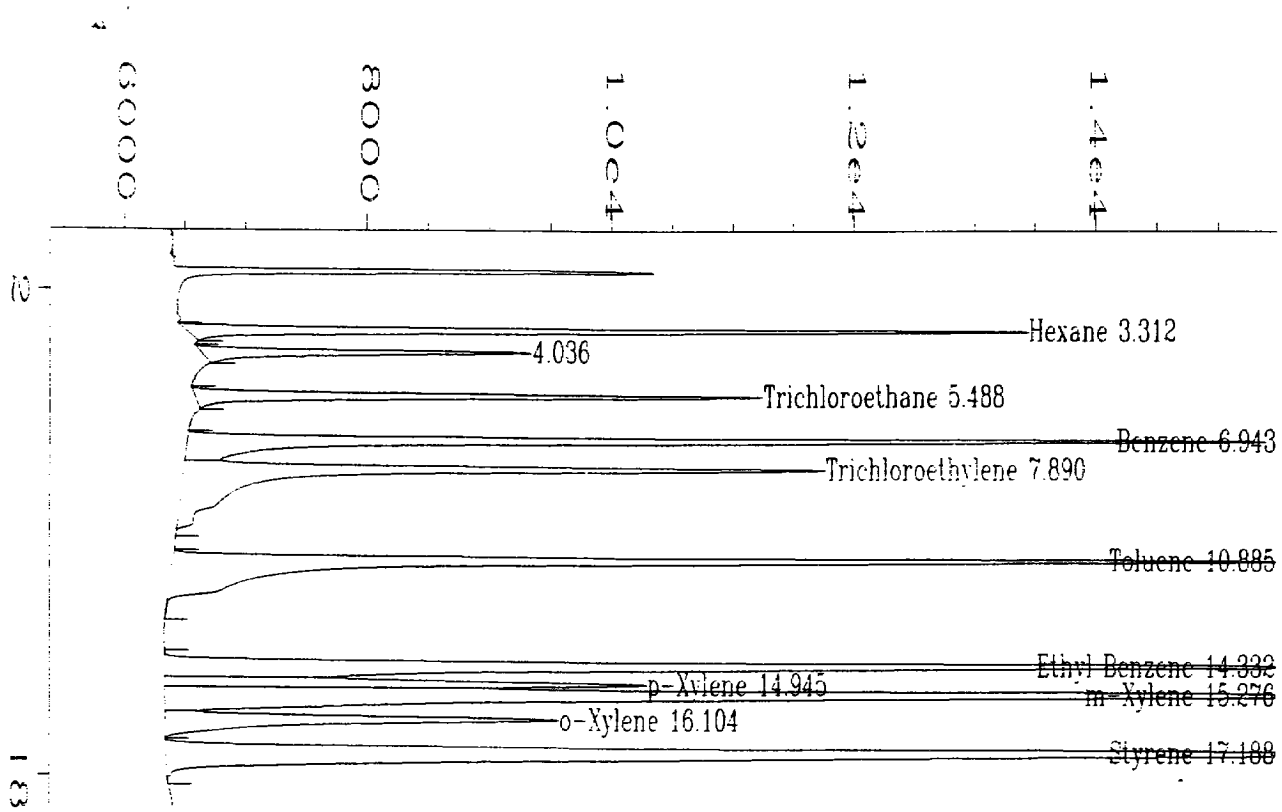
==========

Data File Name	: D:\SOLVAY\NEW_GC\CALS\BAG_1-03.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 24 Jul 96 07:34 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 11:43 AM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG_1-03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.311	71554	BB	0.155	1	1.461	Hexane
5.486	55204	BB	0.182	1	3.157	Trichloroethane
6.940	119329	BV	0.201	1	2.175	Benzene
7.886	110167	VB	0.290	1	3.780	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.881	166183	BB	0.260	1	1.856	Toluene
14.328	173557	BV	0.239	1	1.548	Ethyl Benzene
14.940	58711	VV	0.215	1	0.538	p-Xylene
15.271	226516	VV	0.261	1	1.630	m-Xylene
16.099	61967	VV	0.276	1	0.541	o-Xylene
17.182	245743	PB	0.303	1	1.734	Styrene

Not all calibrated peaks were found



==========

External Standard Report

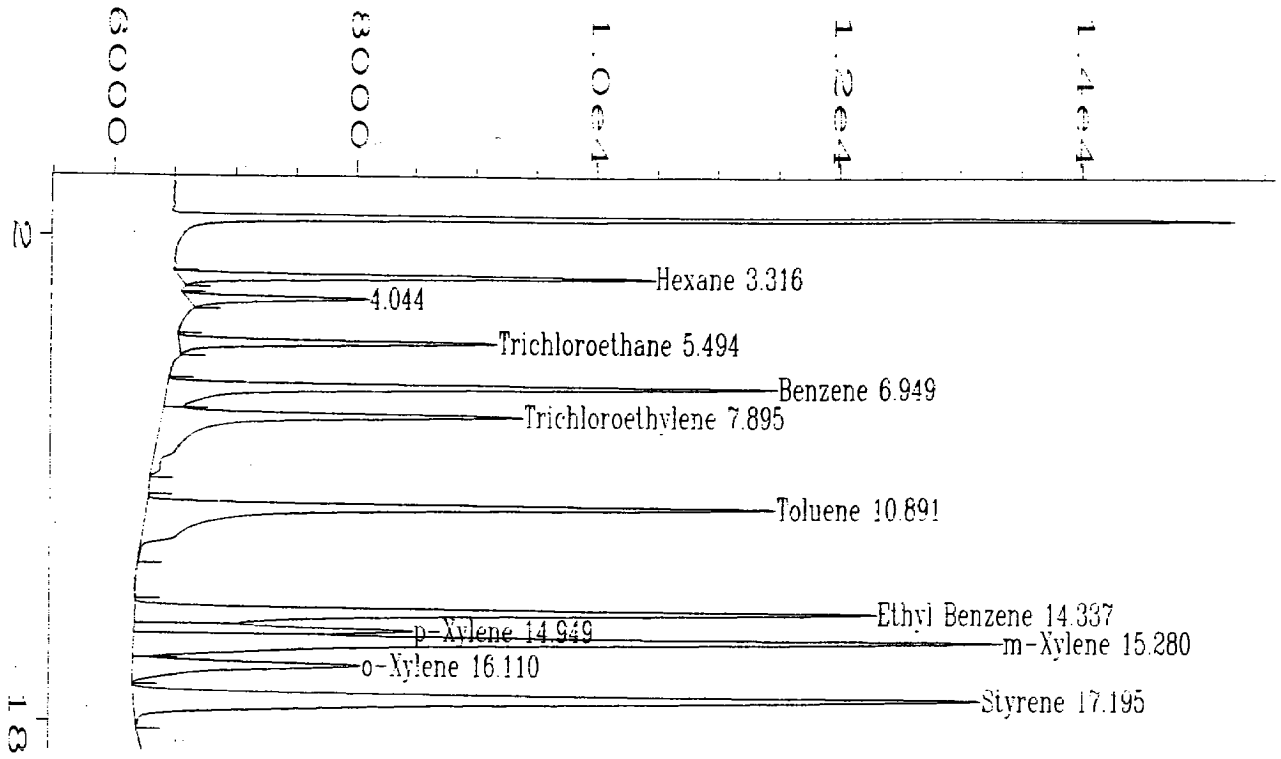
==========

Data File Name	: D:\SOLVAY\NEW_GC\CALS\BAG_1-04.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 24 Jul 96 08:01 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 11:43 AM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Fig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG_1-04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.312	71430	BB	0.156	1	1.459	Hexane
5.488	55174	BB	0.182	1	3.156	Trichloroethane
6.943	119342	BV	0.200	1	2.175	Benzene
7.890	110288	VB	0.290	1	3.784	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.885	164348	BB	0.257	1	1.835	Toluene
14.332	171470	BV	0.238	1	1.529	Ethyl Benzene
14.945	56881	VV	0.213	1	0.521	p-Xylene
15.276	220278	VV	0.258	1	1.584	m-Xylene
16.104	59472	VV	0.271	1	0.518	o-Xylene
17.188	240159	PV	0.301	1	1.694	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

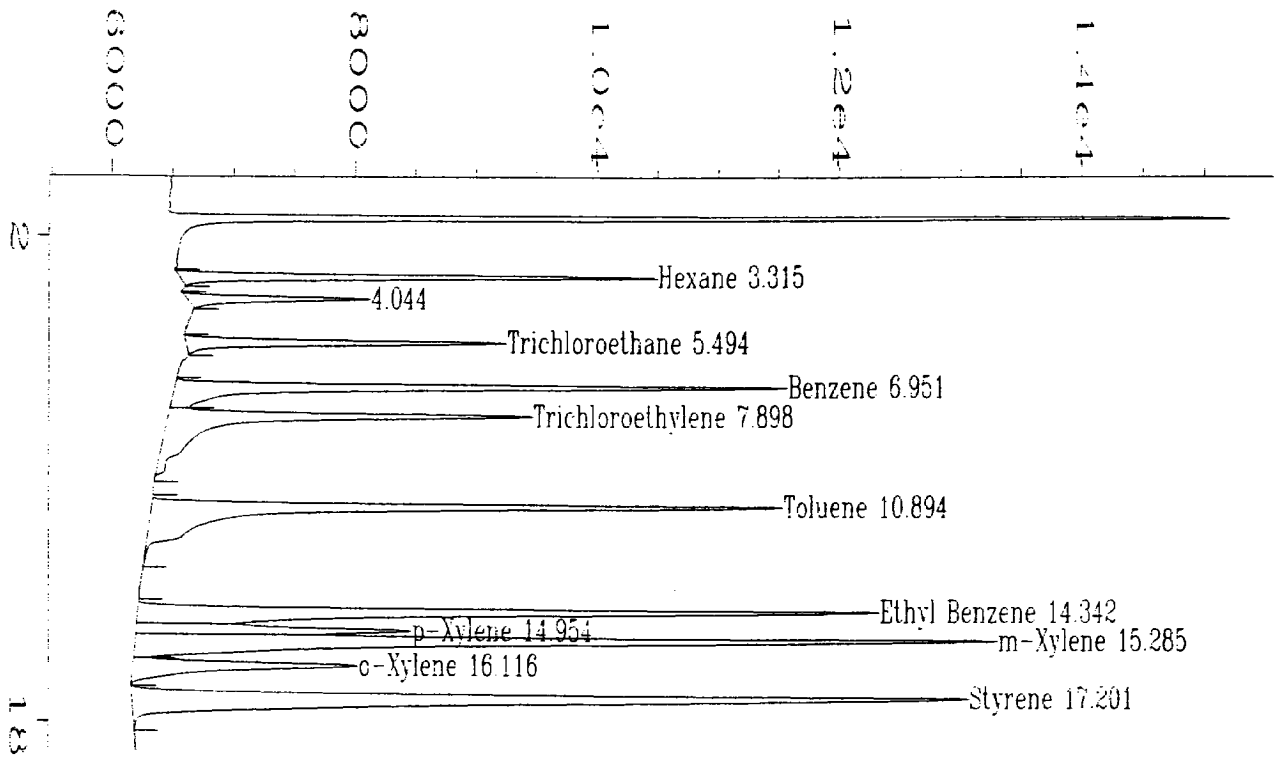
Data File Name : D:\SOLVAY\NEW_GC\CALS\BAG_2-01.D
Operator : J. Kaput
Instrument : NEW HP589
Sample Name : Calibration
Run Time Bar Code:
Acquired on : 24 Jul 96 08:25 PM
Report Created on: 04 Aug 96 11:43 AM
Last Recalib on : 03 AUG 96 04:50 PM
Multiplier : 1

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

Sig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG_2-01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.316	40054	BB	0.159	1	0.823	Hexane
5.494	30964	BB	0.181	1	1.784	Trichloroethane
6.949	68137	BV	0.200	1	1.253	Benzene
7.895	61740	VB	0.286	1	2.139	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.891	96309	BB	0.263	1	1.066	Toluene
14.337	99282	BV	0.239	1	0.889	Ethyl Benzene
14.949	33565	VV	0.214	1	0.302	p-Xylene
15.280	130147	VV	0.263	1	0.919	m-Xylene
16.110	35376	VV	0.278	1	0.302	o-Xylene
17.195	144946	PB	0.307	1	1.012	Styrene

Not all calibrated peaks were found



==========

External Standard Report

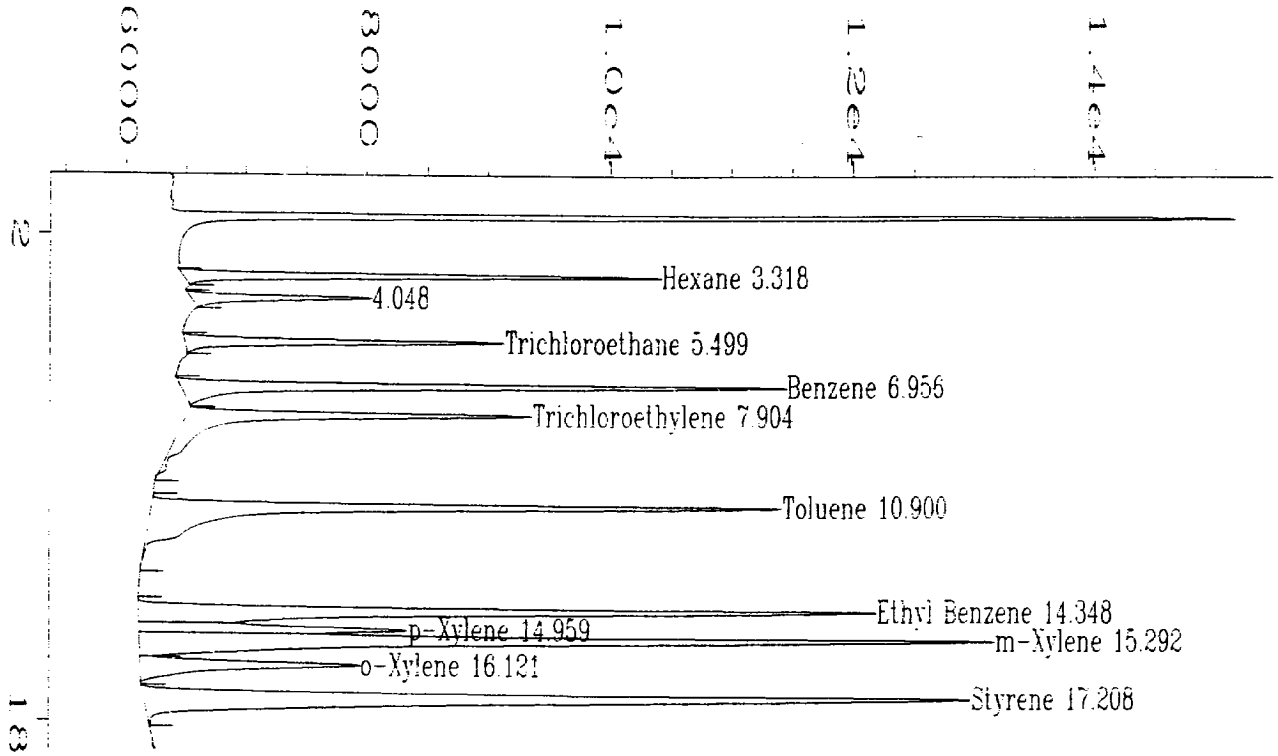
==========

ata File Name	: D:\SOLVAY\NEW_GC\CALS\BAG_2-02.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
ample Name	: Calibration	Injection Number	:
un Time Bar Code:		Sequence Line	:
Acquired on	: 24 Jul 96 08:51 PM	Instrument Method	: NEW-GC.MTH
eport Created on	: 04 Aug 96 11:43 AM	Analysis Method	: NEW-GC.MTH
ast Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

ig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG_2-02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.315	40153	BB	0.160	1	0.825	Hexane
5.494	31039	BB	0.181	1	1.788	Trichloroethane
6.951	68178	BV	0.200	1	1.253	Benzene
7.898	61938	VB	0.286	1	2.146	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.894	96755	BB	0.265	1	1.071	Toluene
14.342	99213	BV	0.239	1	0.889	Ethyl Benzene
14.954	32774	VV	0.214	1	0.295	p-Xylene
15.285	127952	VV	0.261	1	0.903	m-Xylene
16.116	34289	VV	0.276	1	0.292	o-Xylene
17.201	142566	PB	0.306	1	0.994	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

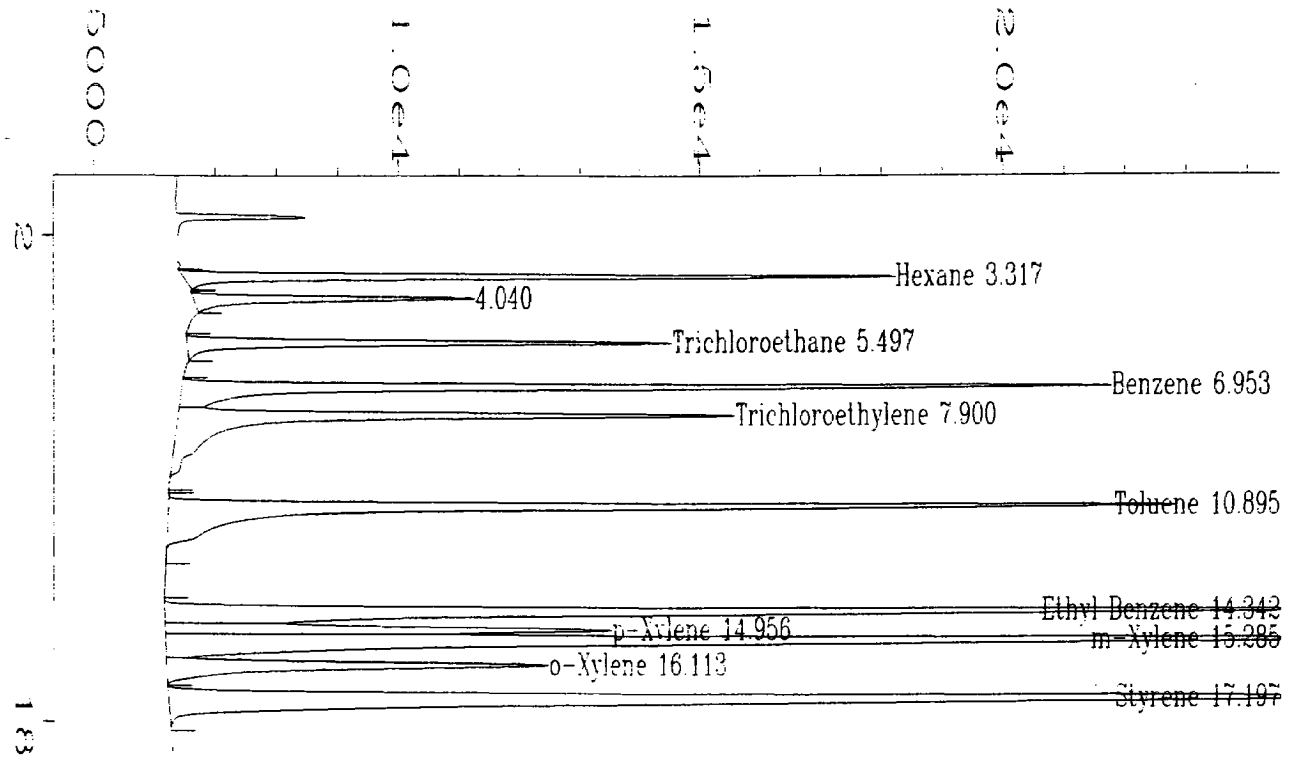
Data File Name : D:\SOLVAY\NEW_GC\CALS\BAG_2-03.D
Operator : J. Kaput
Instrument : NEW HP589
Sample Name : Calibration
Run Time Bar Code:
Acquired on : 24 Jul 96 09:15 PM
Report Created on: 04 Aug 96 11:43 AM
Last Recalib on : 03 AUG 96 04:50 PM
Multiplier : 1

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

Sig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG_2-03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.318	40151	BB	0.157	1	0.825	Hexane
5.499	31056	BB	0.181	1	1.789	Trichloroethane
6.956	63212	BB	0.190	1	1.164	Benzene
7.904	50341	BB	0.252	1	1.753	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.900	96152	BB	0.263	1	1.064	Toluene
14.348	98501	BV	0.239	1	0.882	Ethyl Benzene
14.959	32117	VV	0.213	1	0.289	p-Xylene
15.292	126493	VV	0.260	1	0.893	m-Xylene
16.121	33777	VV	0.273	1	0.287	o-Xylene
17.208	140500	PB	0.305	1	0.980	Styrene

Not all calibrated peaks were found



==========

External Standard Report

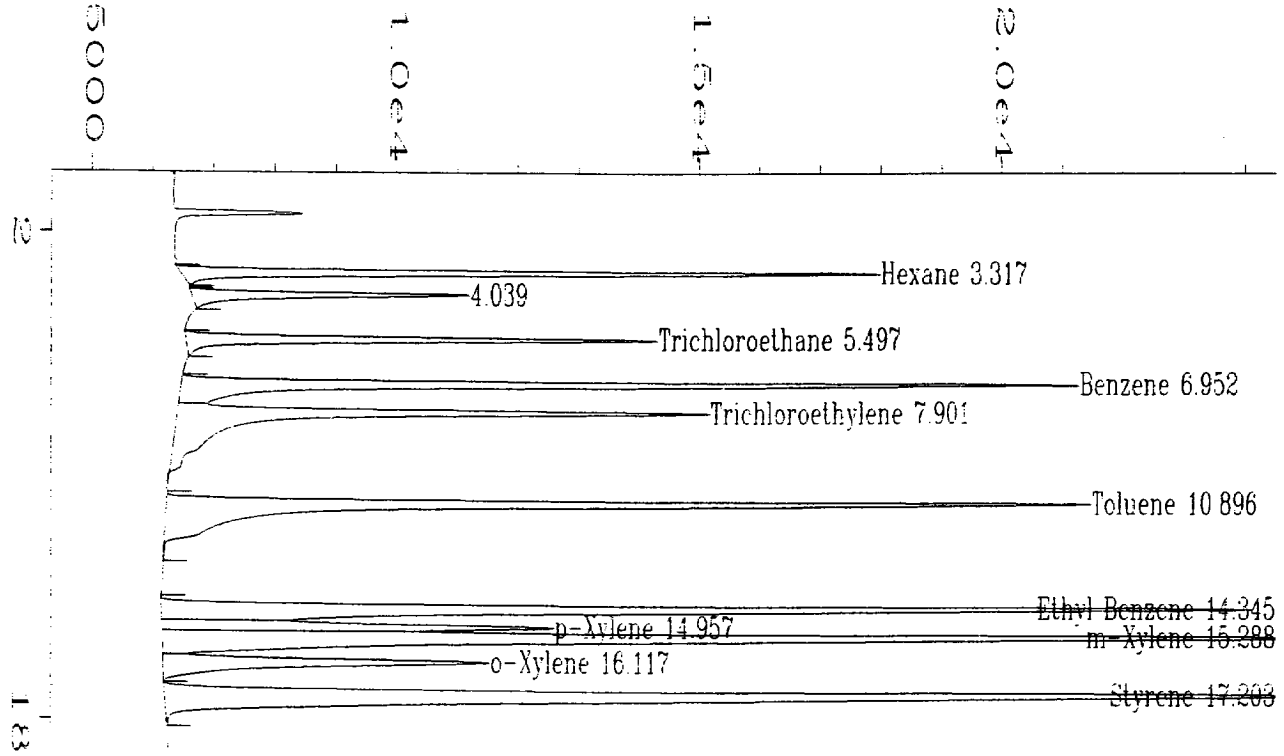
==========

Data File Name	: D:\SOLVAY\NEW_GC\CALS\BAG_3-01.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 24 Jul 96 09:40 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 11:43 AM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Fig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG_3-01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.317	121767	BB	0.158	1	2.478	Hexane
5.497	95946	BB	0.183	1	5.465	Trichloroethane
6.953	201663	BV	0.196	1	3.659	Benzene
7.900	172626	VB	0.264	1	5.897	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.895	275965	BB	0.241	1	3.097	Toluene
14.342	316659	BV	0.229	1	2.816	Ethyl Benzene
14.956	100829	VV	0.205	1	0.932	p-Xylene
15.285	391525	VV	0.245	1	2.848	m-Xylene
16.113	108657	VV	0.260	1	0.961	o-Xylene
17.197	440312	PV	0.286	1	3.128	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

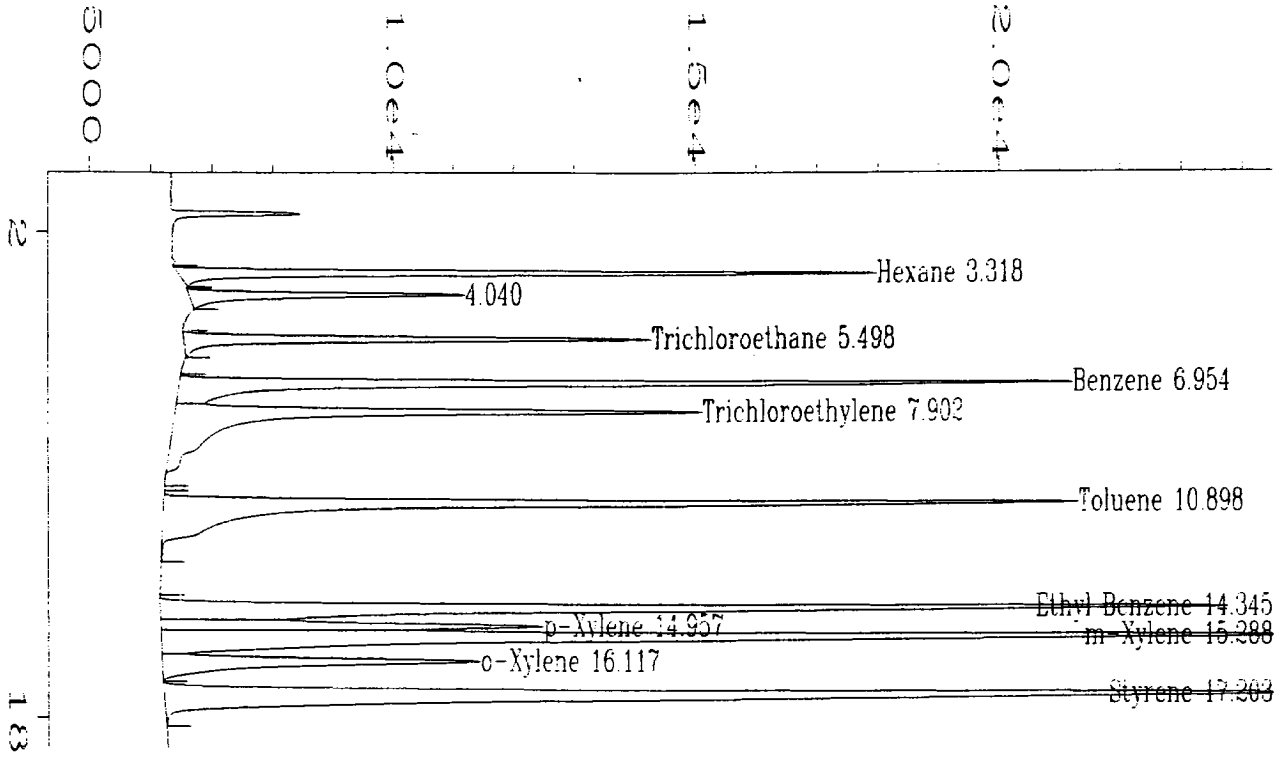
Data File Name : D:\SOLVAY\NEW_GC\CALS\BAG_3-02.D
Operator : J. Kaput
Instrument : NEW HP589
Sample Name : Calibration
Run Time Bar Code:
Acquired on : 24 Jul 96 10:06 PM
Report Created on: 04 Aug 96 11:44 AM
Last Recalib on : 03 AUG 96 04:50 PM
Multiplier : 1

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

Sig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG_3-02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.317	120033	BB	0.158	1	2.443	Hexane
5.497	93356	BB	0.183	1	5.319	Trichloroethane
6.952	197396	BV	0.198	1	3.582	Benzene
7.901	177669	VB	0.282	1	6.068	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.896	266520	BB	0.251	1	2.990	Toluene
14.345	283943	BV	0.235	1	2.526	Ethyl Benzene
14.957	91181	VV	0.209	1	0.842	p-Xylene
15.288	355571	VV	0.253	1	2.583	m-Xylene
16.117	96273	VV	0.266	1	0.849	o-Xylene
17.203	391740	PB	0.295	1	2.780	Styrene

Not all calibrated peaks were found



==========

External Standard Report

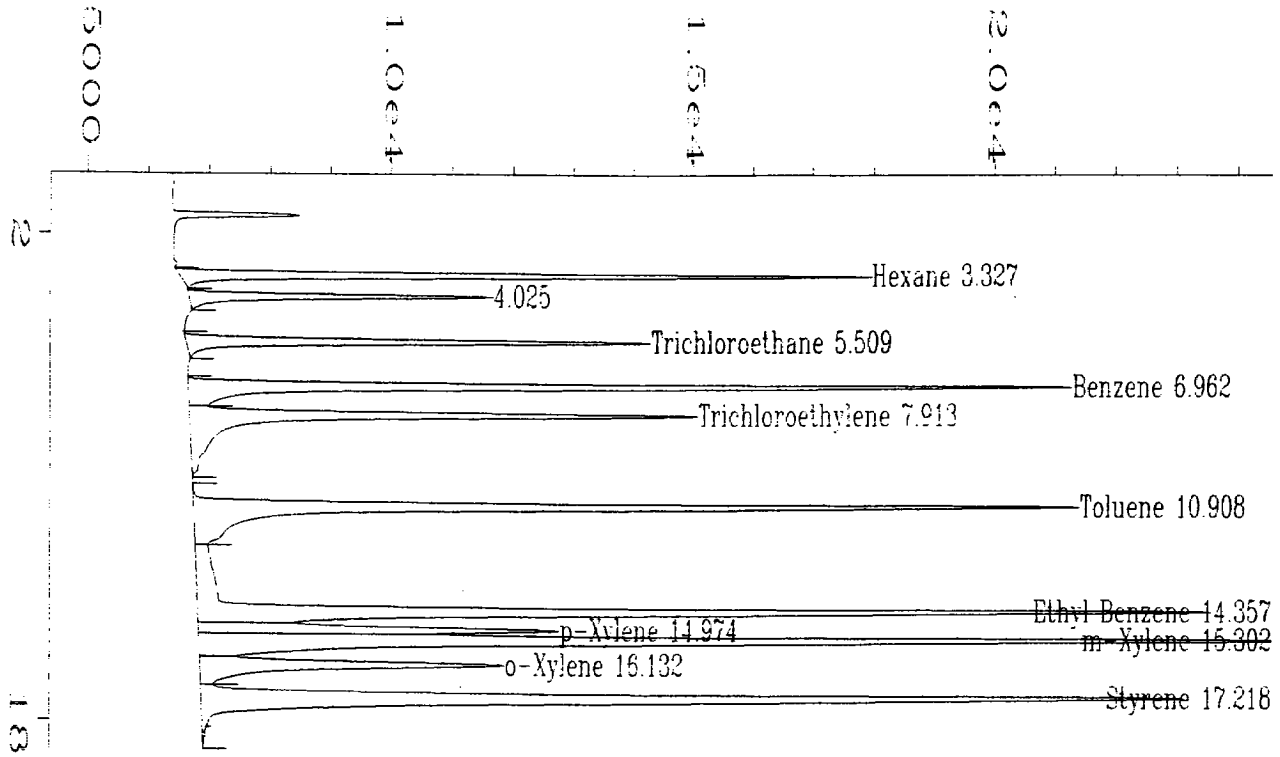
==========

Data File Name	: D:\SOLVAY\NEW_GC\CALS\BAG_3-03.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 24 Jul 96 10:31 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 11:44 AM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Fig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG_3-03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.318	119944	BB	0.157	1	2.441	Hexane
5.498	93156	BB	0.183	1	5.307	Trichloroethane
6.954	197050	BV	0.198	1	3.576	Benzene
7.902	178441	VB	0.285	1	6.094	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.898	264560	BB	0.252	1	2.968	Toluene
14.345	279159	BV	0.235	1	2.484	Ethyl Benzene
14.957	89704	VV	0.210	1	0.828	p-Xylene
15.288	349347	VV	0.254	1	2.537	m-Xylene
16.117	94297	VV	0.265	1	0.831	o-Xylene
17.203	383122	PB	0.296	1	2.719	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

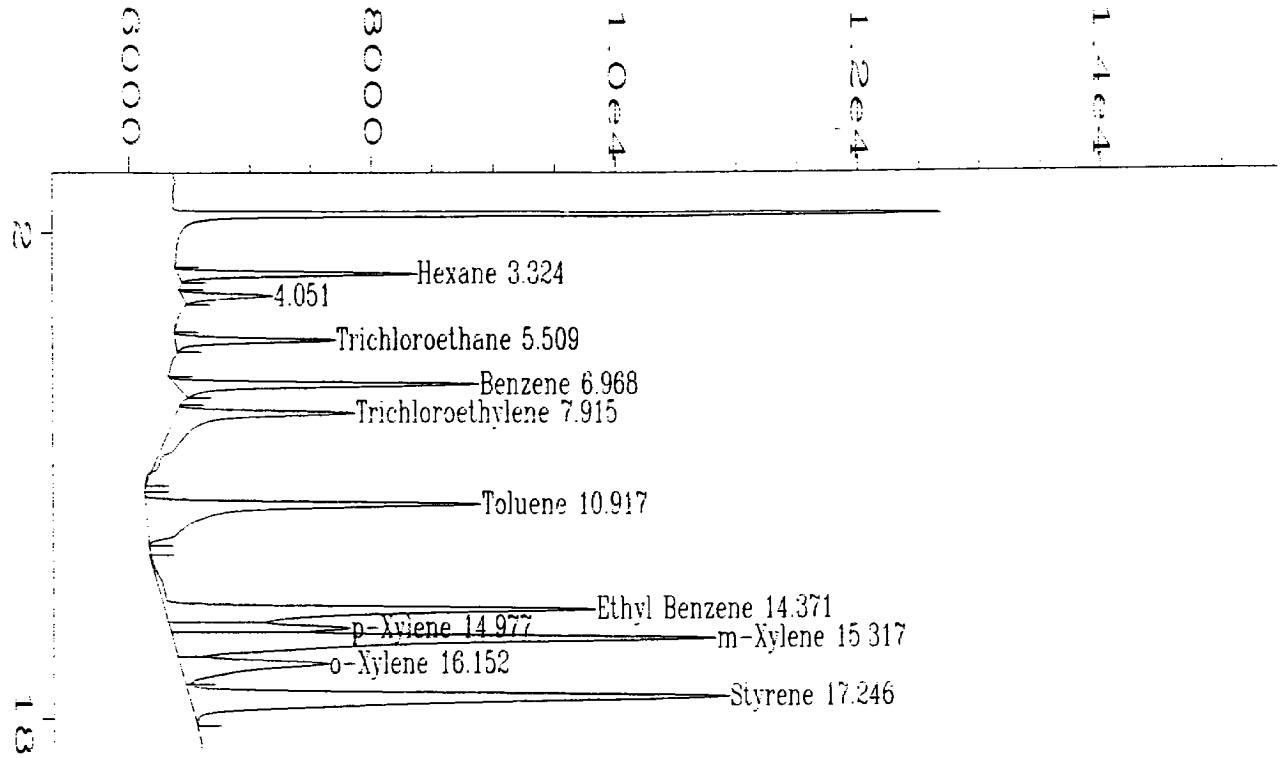
Data File Name : D:\SOLVAY\NEW_GC\CALS\BAG_3-04.D
Operator : J. Kaput
Instrument : NEW HP589
Sample Name : Calibration
Run Time Bar Code:
Acquired on : 25 Jul 96 08:10 AM
Report Created on: 04 Aug 96 11:44 AM
Last Recalib on : 03 AUG 96 04:50 PM
Multiplier : 1

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

Sig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG_3-04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.327	118780	BB	0.158	1	2.418	Hexane
5.509	91715	BB	0.183	1	5.226	Trichloroethane
6.962	187591	BV	0.192	1	3.406	Benzene
7.913	147460	VB	0.251	1	5.044	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.908	236647	BV	0.236	1	2.653	Toluene
14.357	287575	VV	0.251	1	2.559	Ethyl Benzene
14.974	83040	VV	0.208	1	0.766	p-Xylene
15.302	302059	VV	0.243	1	2.188	m-Xylene
16.132	94083	VV	0.276	1	0.830	o-Xylene
17.218	308816	VB	0.285	1	2.186	Styrene

Not all calibrated peaks were found



==========

External Standard Report

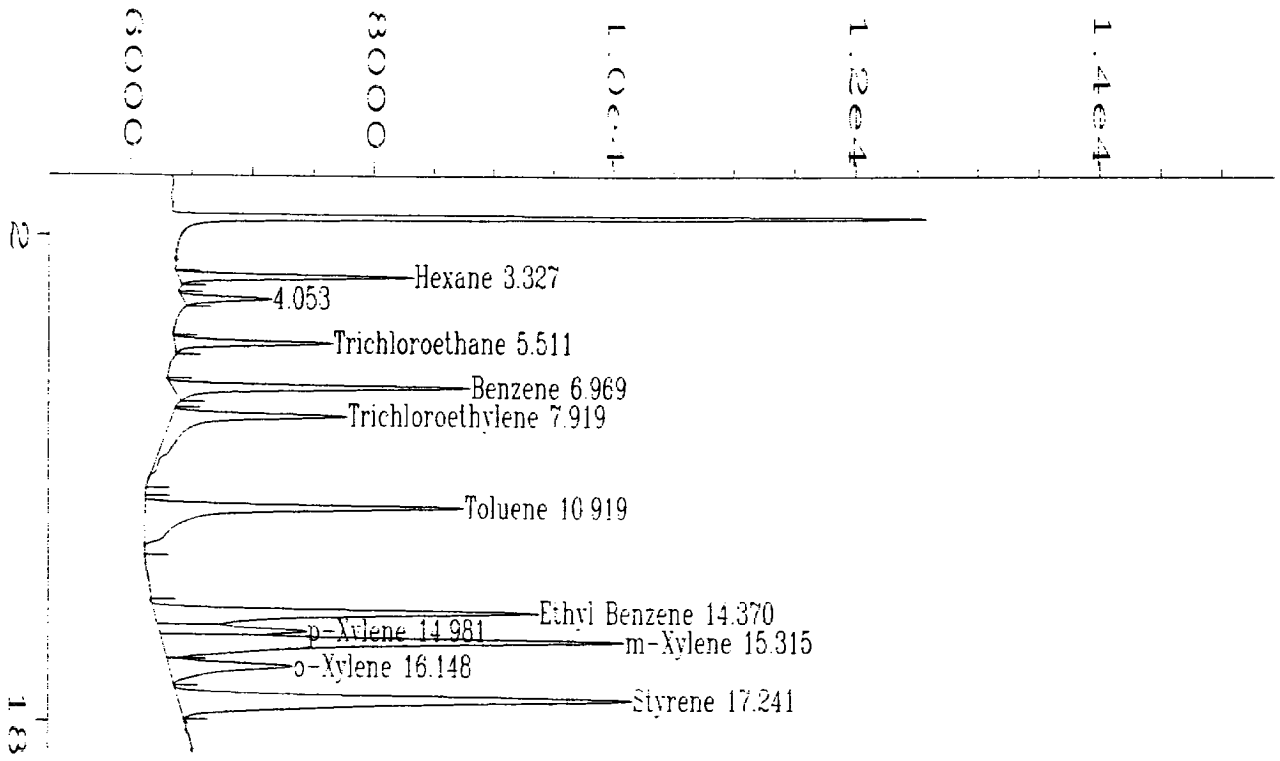
==========

Data File Name	: D:\SOLVAY\NEW_GC\CALS\BAG_4-01.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 25 Jul 96 08:33 AM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 11:44 AM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Fig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG_4-01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.324	19826	BB	0.157	1	0.414	Hexane
5.509	15529	BB	0.182	1	0.910	Trichloroethane
6.968	30048	BB	0.183	1	0.566	Benzene
7.915	31932	BB	0.298	1	1.129	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.917	59068	BB	0.297	1	0.645	Toluene
14.371	68301	BV	0.276	1	0.615	Ethyl Benzene
14.977	22777	VV	0.224	1	0.201	p-Xylene
15.317	94749	VV	0.299	1	0.658	m-Xylene
16.152	28009	VV	0.327	1	0.235	o-Xylene
17.246	100902	VB	0.331	1	0.696	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

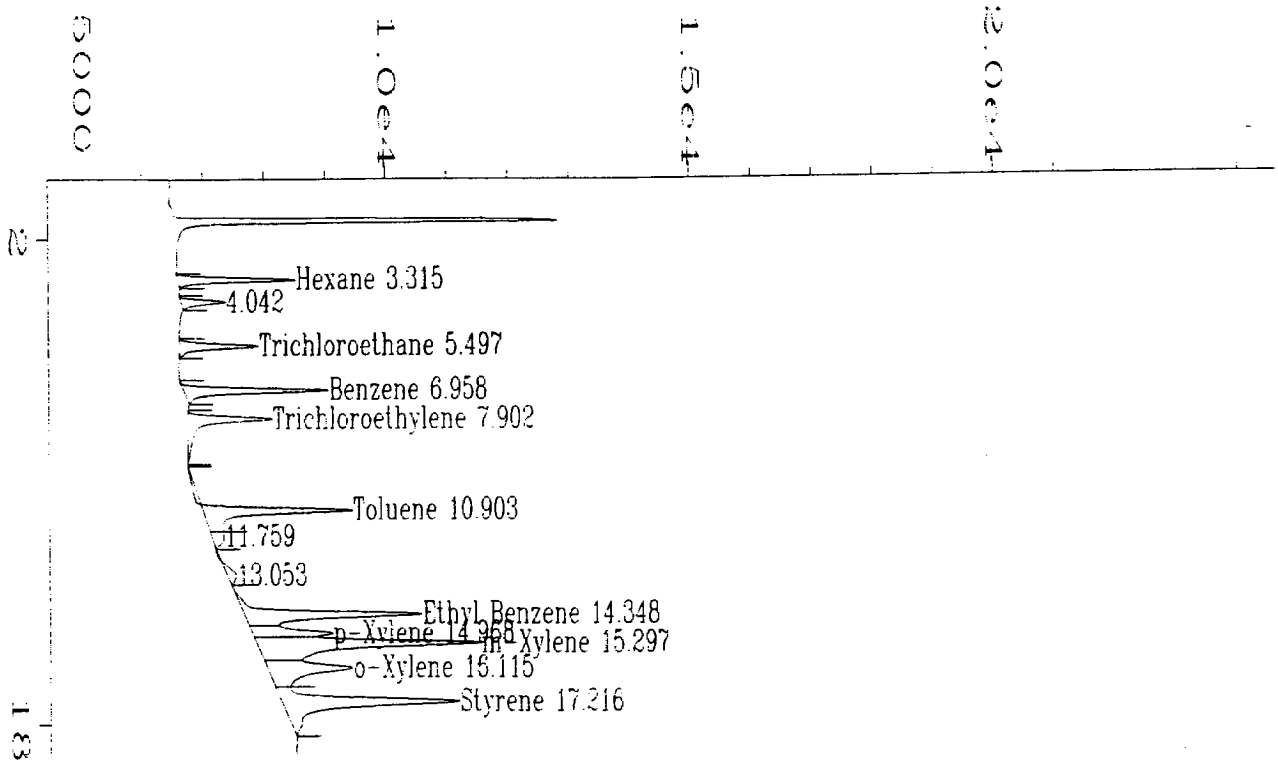
Data File Name : D:\SOLVAY\NEW_GC\CALS\BAG_4-02.D
Operator : J. Kaput
Instrument : NEW HP589
Sample Name : Calibration
Run Time Bar Code:
Acquired on : 25 Jul 96 09:02 AM
Report Created on: 04 Aug 96 11:44 AM
Last Recalib on : 03 AUG 96 04:50 PM
Multiplier : 1

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

Sig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG_4-02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.327	19599	BB	0.154	1	0.409	Hexane
5.511	15206	BB	0.180	1	0.892	Trichloroethane
6.969	29995	BB	0.184	1	0.565	Benzene
7.919	28748	BB	0.279	1	1.021	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.919	50967	BB	0.273	1	0.554	Toluene
14.370	54277	BV	0.250	1	0.490	Ethyl Benzene
14.981	17798	VV	0.216	1	0.155	p-Xylene
15.315	74067	VV	0.278	1	0.506	m-Xylene
16.148	20302	VV	0.290	1	0.166	o-Xylene
17.241	80071	PV	0.318	1	0.547	Styrene

Not all calibrated peaks were found



==========

External Standard Report

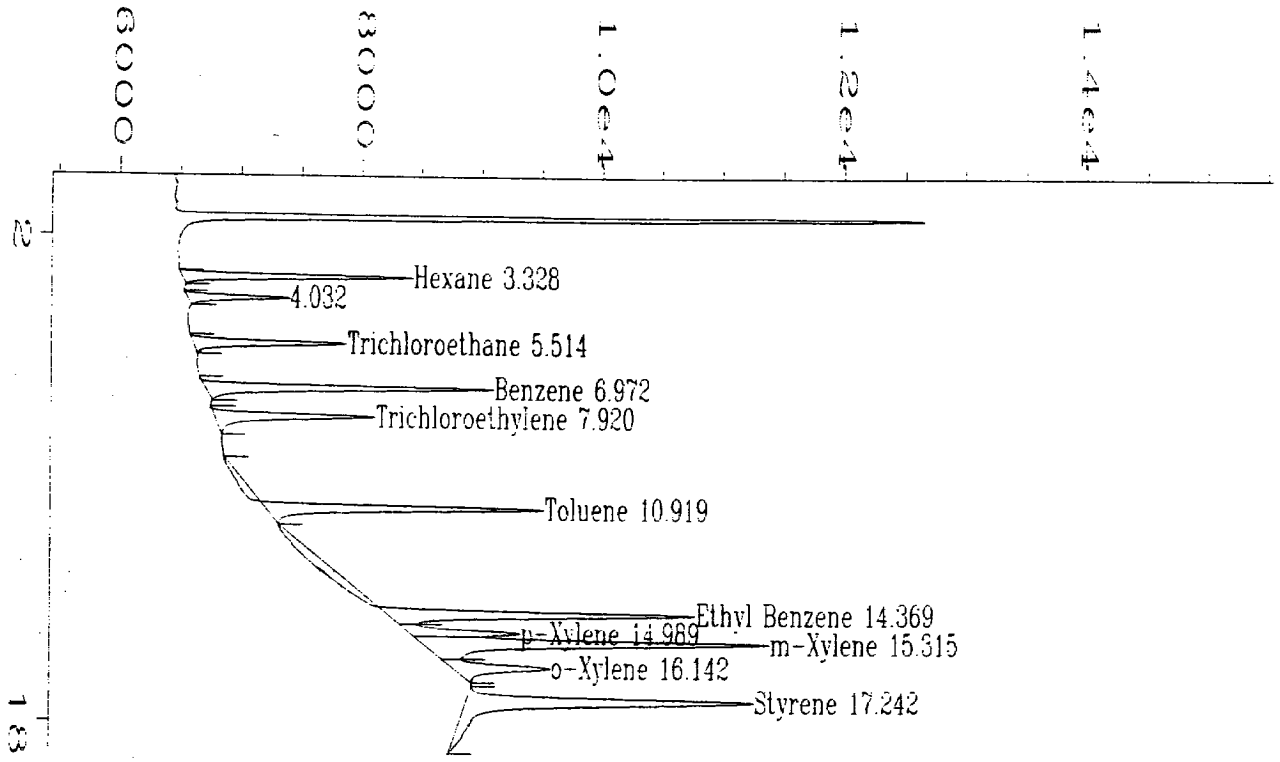
==========

Data File Name	: D:\SOLVAY\NEW_GC\CALS\BAG-4-03.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Vent	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 25 Jul 96 07:57 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 11:44 AM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG-4-03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.315	19158	BB	0.158	1	0.400	Hexane
5.497	15737	BB	0.183	1	0.922	Trichloroethane
6.958	28111	BB	0.182	1	0.531	Benzene
7.902	23054	BB	0.240	1	0.828	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.903	37131	BV	0.224	1	0.397	Toluene
14.348	49178	VV	0.247	1	0.445	Ethyl Benzene
14.968	20468	VV	0.227	1	0.180	p-Xylene
15.297	76361	VV	0.293	1	0.523	m-Xylene
16.115	37560	VV	0.377	1	0.321	o-Xylene
17.216	66362	VB	0.329	1	0.448	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

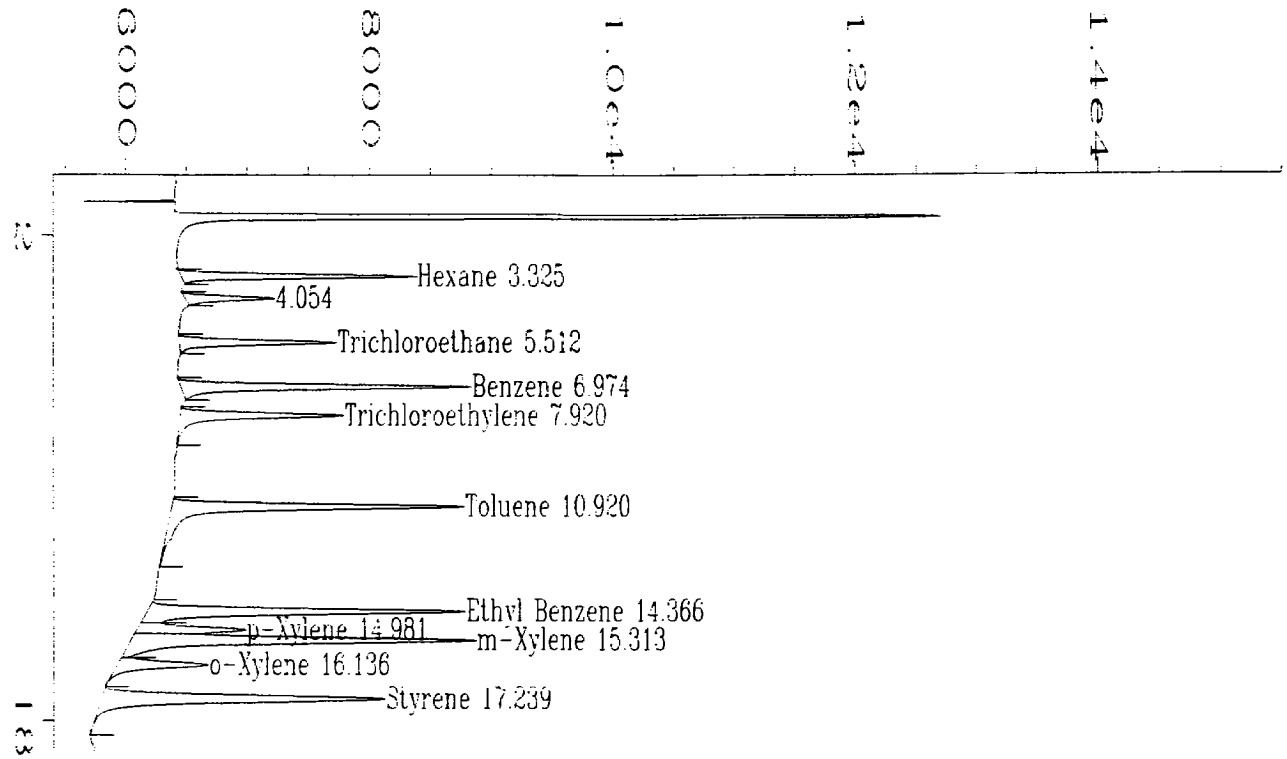
Data File Name : D:\SOLVAY\NEW_GC\CALS\BAG-4-04.D
Operator : J. Kaput
Instrument : NEW HP589
Sample Name : Vent
Run Time Bar Code:
Acquired on : 26 Jul 96 07:31 AM
Report Created on: 04 Aug 96 11:45 AM
Last Recalib on : 03 AUG 96 04:50 PM
Multiplier : 1

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

Sig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG-4-04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.328	19119	BB	0.156	1	0.399	Hexane
5.514	14789	BB	0.179	1	0.868	Trichloroethane
6.972	28211	BB	0.182	1	0.533	Benzene
7.920	17578	BB	0.200	1	0.642	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.919	24985	BV	0.173	1	0.260	Toluene
14.369	21741	PV	0.148	1	0.202	Ethyl Benzene
14.989	12547	VV	0.206	1	0.106	p-Xylene
15.315	47020	VV	0.240	1	0.306	m-Xylene
16.142	14562	VB	0.266	1	0.115	o-Xylene
17.242	48042	BBA	0.298	1	0.317	Styrene

Not all calibrated peaks were found



==========

External Standard Report

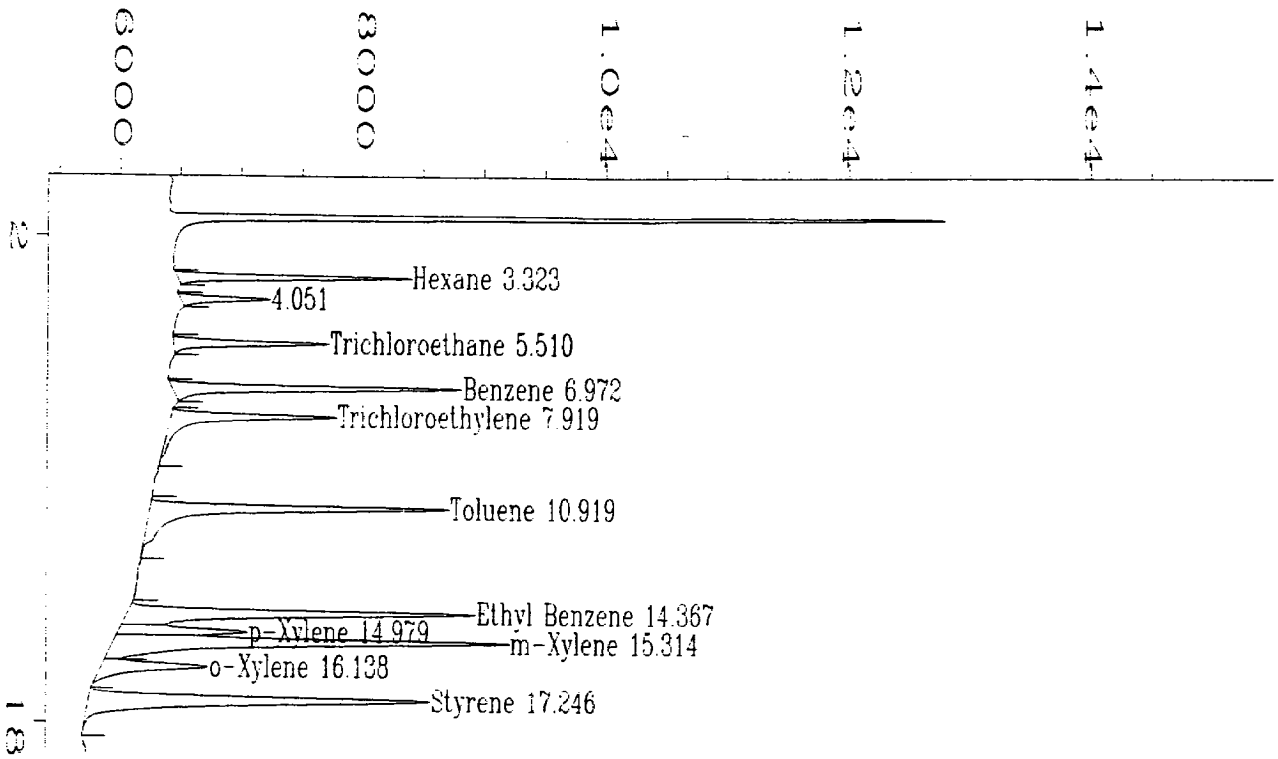
==========

ata File Name	: D:\SOLVAY\NEW_GC\CALS\BAG-4-05.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
ample Name	: Vent	Injection Number	:
un Time Bar Code	:	Sequence Line	:
Acquired on	: 26 Jul 96 08:20 AM	Instrument Method	: NEW-GC.MTH
eport Created on	: 04 Aug 96 11:45 AM	Analysis Method	: NEW-GC.MTH
ast Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

ig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG-4-05.D

et Time	Area	Type	Width	Ref#	ppm	Name
3.325	19409	BB	0.156	1	0.405	Hexane
5.512	15110	BB	0.182	1	0.886	Trichloroethane
6.974	28479	BB	0.182	1	0.538	Benzene
7.920	18514	BB	0.207	1	0.674	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.920	36682	BB	0.226	1	0.392	Toluene
14.366	37773	BV	0.218	1	0.344	Ethyl Benzene
14.981	12229	VV	0.204	1	0.103	p-Xylene
15.313	44545	VV	0.235	1	0.288	m-Xylene
16.136	12238	VV	0.246	1	0.0937	o-Xylene
17.239	40808	PB	0.264	1	0.265	Styrene

ot all calibrated peaks were found



==========

External Standard Report

==========

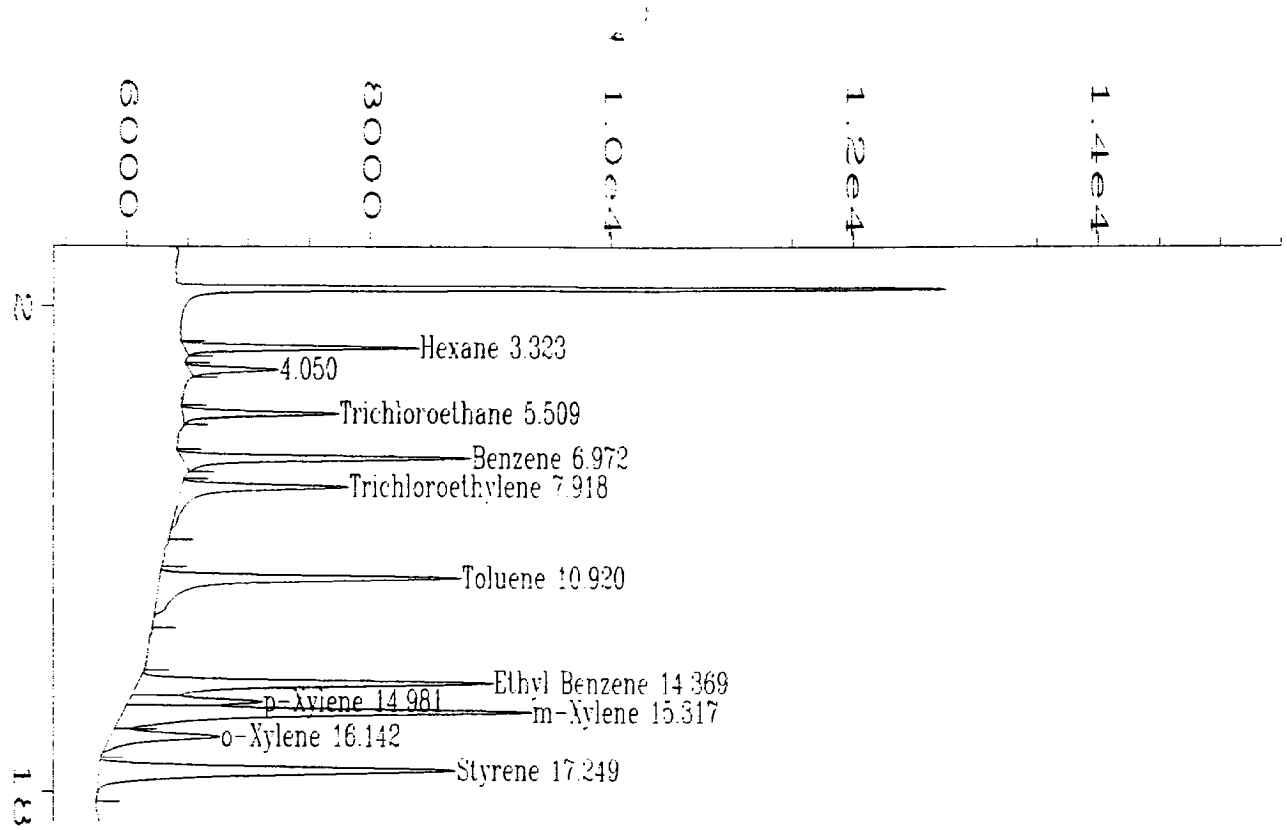
Data File Name : D:\SOLVAY\NEW_GC\CALS\BAG-4-06.D
Operator : J. Kaput
Instrument : NEW HP589
Sample Name : Vent
Run Time Bar Code:
Acquired on : 26 Jul 96 08:43 AM
Report Created on: 04 Aug 96 11:45 AM
Last Recalib on : 03 AUG 96 04:50 PM
Multiplier : 1

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

Sig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG-4-06.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.323	19269	BB	0.155	1	0.403	Hexane
5.510	15041	BB	0.182	1	0.882	Trichloroethane
6.972	28819	BB	0.183	1	0.544	Benzene
7.919	21452	BB	0.230	1	0.774	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.919	41045	BB	0.241	1	0.441	Toluene
14.367	45929	BV	0.238	1	0.416	Ethyl Benzene
14.979	15576	VV	0.217	1	0.134	p-Xylene
15.314	58177	VV	0.257	1	0.388	m-Xylene
16.138	16527	VV	0.275	1	0.132	o-Xylene
17.246	55016	PB	0.292	1	0.367	Styrene

Not all calibrated peaks were found



==========

External Standard Report

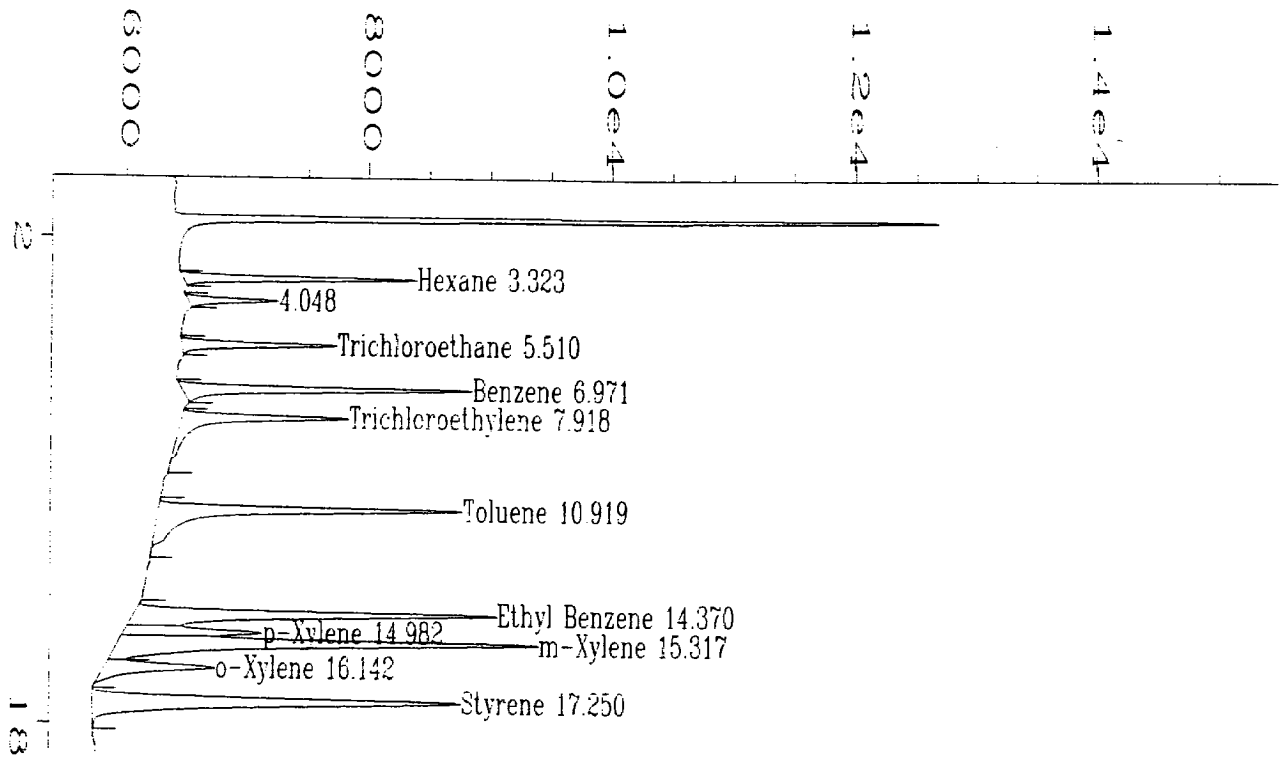
==========

Data File Name	: D:\SOLVAY\NEW_GC\CALS\BAG-4-07.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Vent	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 26 Jul 96 09:09 AM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 11:45 AM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Fig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG-4-07.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.323	19338	BB	0.156	1	0.404	Hexane
5.509	14975	BB	0.179	1	0.878	Trichloroethane
6.972	28877	BB	0.183	1	0.545	Benzene
7.918	22232	BB	0.235	1	0.800	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.920	42347	BB	0.247	1	0.456	Toluene
14.369	47878	BV	0.241	1	0.433	Ethyl Benzene
14.981	16122	VV	0.217	1	0.139	p-Xylene
15.317	61306	VV	0.264	1	0.412	m-Xylene
16.142	16892	VV	0.276	1	0.136	o-Xylene
17.249	57984	PB	0.294	1	0.388	Styrene

Not all calibrated peaks were found



==========

External Standard Report

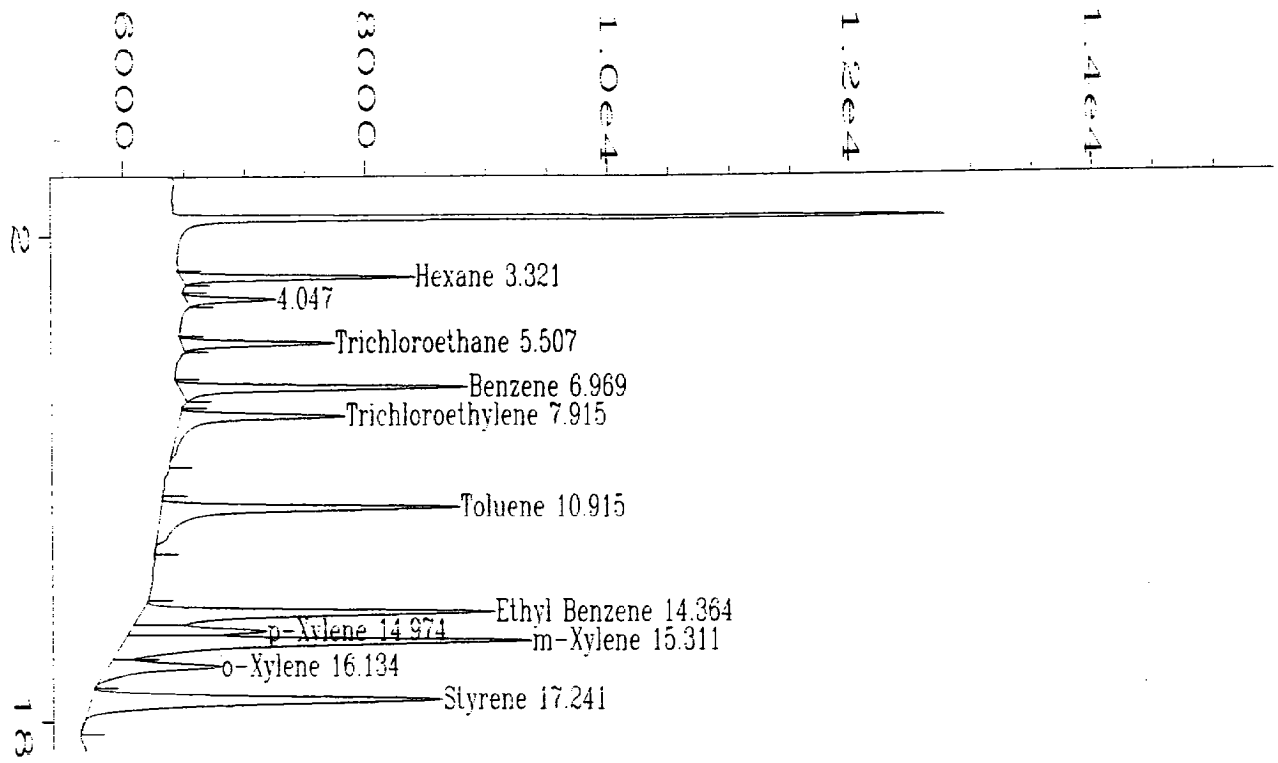
==========

Data File Name	: D:\SOLVAY\NEW_GC\CALS\BAG-4-08.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Vent	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 26 Jul 96 09:36 AM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 11:45 AM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG-4-08.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.323	19391	BB	0.156	1	0.405	Hexane
5.510	14992	BB	0.179	1	0.879	Trichloroethane
6.971	29033	BB	0.184	1	0.548	Benzene
7.918	22586	BB	0.238	1	0.812	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.919	43646	BB	0.251	1	0.471	Toluene
14.370	49817	BV	0.244	1	0.451	Ethyl Benzene
14.982	16687	VV	0.216	1	0.144	p-Xylene
15.317	64219	VV	0.268	1	0.433	m-Xylene
16.142	17316	VV	0.276	1	0.139	o-Xylene
17.250	60763	PB	0.298	1	0.408	Styrene

Not all calibrated peaks were found



==========

External Standard Report

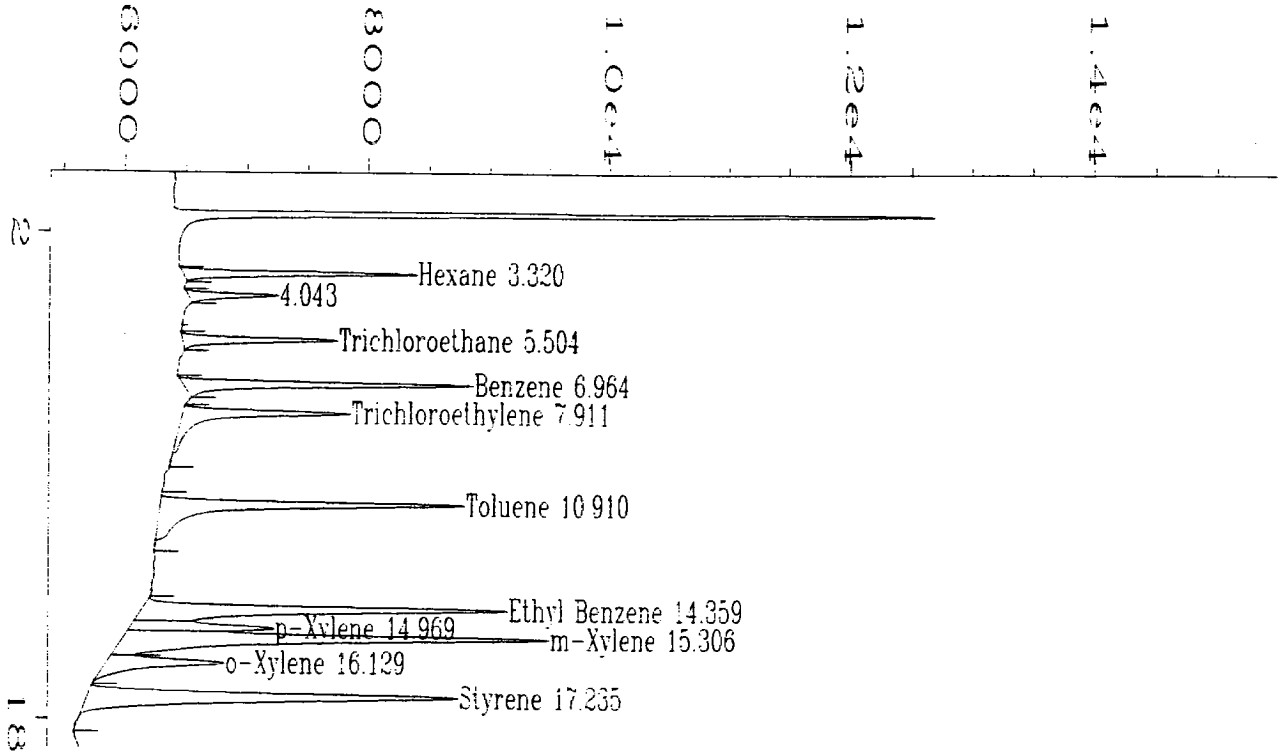
==========

Data File Name	: D:\SOLVAY\NEW_GC\CALS\BAG-4-09.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Vent	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 26 Jul 96 10:00 AM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 11:46 AM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG-4-09.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.321	19220	BB	0.155	1	0.402	Hexane
5.507	14400	BB	0.176	1	0.846	Trichloroethane
6.969	28830	BB	0.183	1	0.544	Benzene
7.915	22066	BB	0.234	1	0.794	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.915	41980	BB	0.246	1	0.452	Toluene
14.364	48267	BV	0.243	1	0.437	Ethyl Benzene
14.974	16542	VV	0.216	1	0.143	p-Xylene
15.311	62901	VV	0.268	1	0.423	m-Xylene
16.134	18046	VV	0.287	1	0.146	o-Xylene
17.241	56839	PB	0.293	1	0.380	Styrene

Not all calibrated peaks were found



==========

External Standard Report

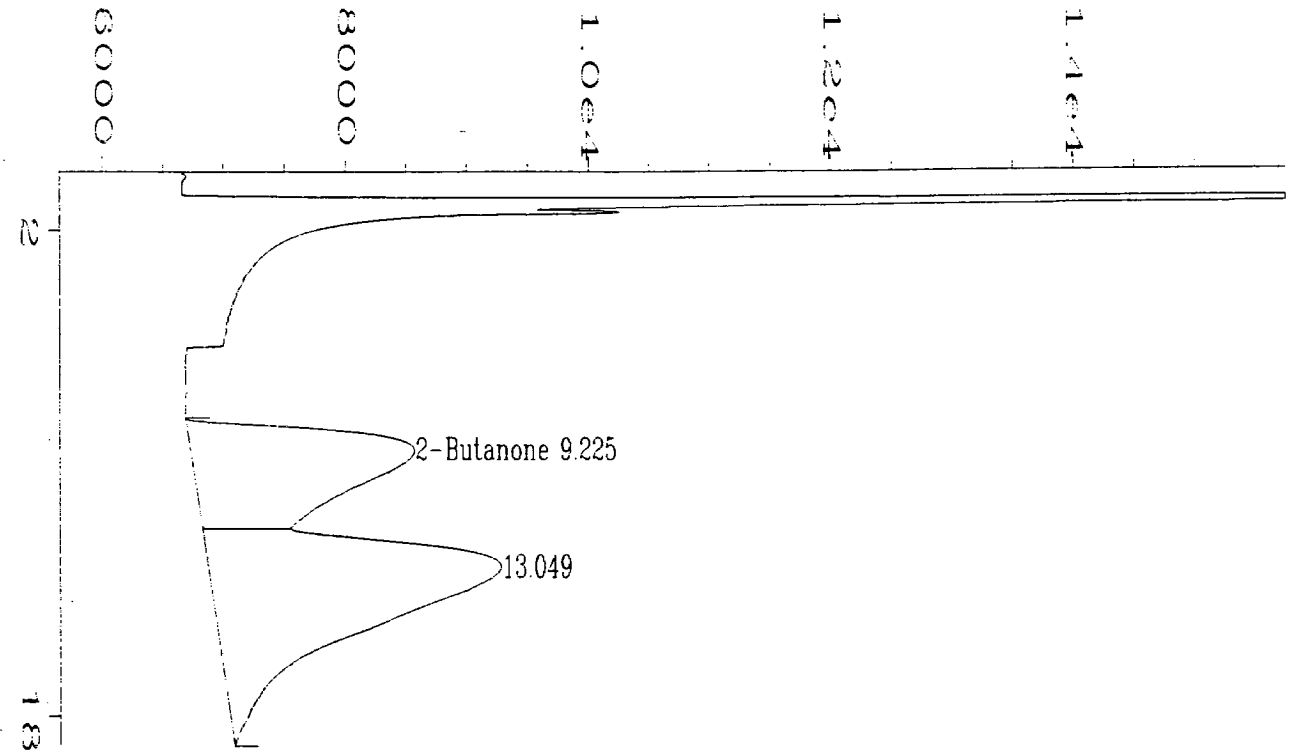
==========

Data File Name	: D:\SOLVAY\NEW_GC\CALS\BAG-4-10.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Vent	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 26 Jul 96 10:27 AM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 11:46 AM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG-4-10.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.320	19336	BB	0.158	1	0.404	Hexane
5.504	14906	BB	0.180	1	0.875	Trichloroethane
6.964	28766	BB	0.184	1	0.543	Benzene
7.911	22624	BB	0.237	1	0.813	Trichloroethylene
9.149	* not found *			1		2-Butanone
10.910	43135	BB	0.248	1	0.465	Toluene
14.359	50401	BV	0.246	1	0.456	Ethyl Benzene
14.969	17731	VV	0.221	1	0.154	p-Xylene
15.306	66673	VV	0.274	1	0.451	m-Xylene
16.129	19092	VV	0.291	1	0.155	o-Xylene
17.235	60068	PB	0.295	1	0.403	Styrene

Not all calibrated peaks were found



==========

External Standard Report

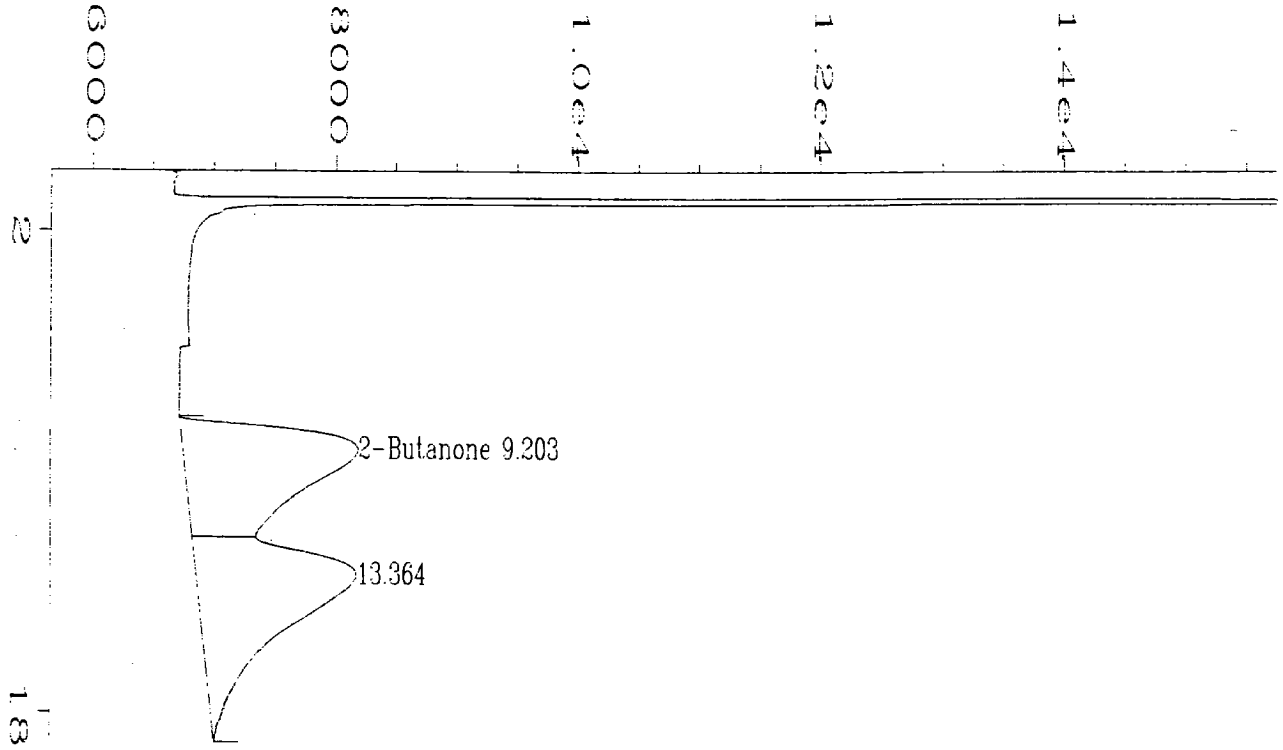
==========

Data File Name	: D:\SOLVAY\NEW_GC\CALS\BAG-7-02.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 27 Jul 96 11:10 AM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 11:46 AM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Fig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG-7-02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
5.483	* not found *			1		Trichloroethane
6.937	* not found *			1		Benzene
7.883	* not found *			1		Trichloroethylene
9.225	276527	BV	1.791	1	11.739	2-Butanone
10.878	* not found *			1		Toluene
14.325	* not found *			1		Ethyl Benzene
14.937	* not found *			1		p-Xylene
15.268	* not found *			1		m-Xylene
16.096	* not found *			1		o-Xylene
17.178	* not found *			1		Styrene

Not all calibrated peaks were found



==========

External Standard Report

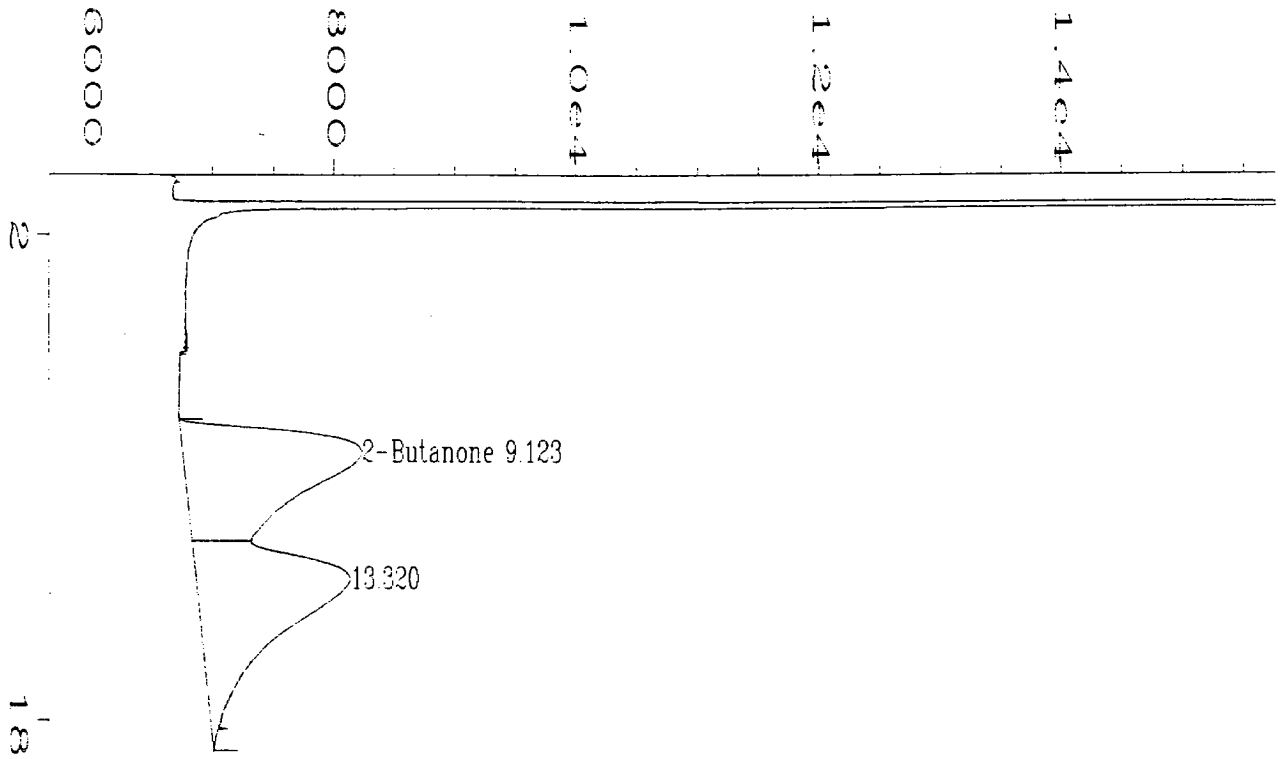
==========

Data File Name	: D:\SOLVAY\NEW_GC\CALS\BAG-9-01.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 27 Jul 96 12:25 PM	Instrument Method	: NEW-GC.MTH
Report Created on:	04 Aug 96 11:48 AM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG-9-01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
5.483	* not found *			1		Trichloroethane
6.937	* not found *			1		Benzene
7.883	* not found *			1		Trichloroethylene
9.203	227578	BV	1.869	1	9.646	2-Butanone
10.878	* not found *			1		Toluene
14.325	* not found *			1		Ethyl Benzene
14.937	* not found *			1		p-Xylene
15.268	* not found *			1		m-Xylene
16.096	* not found *			1		o-Xylene
17.178	* not found *			1		Styrene

Not all calibrated peaks were found



==========

External Standard Report

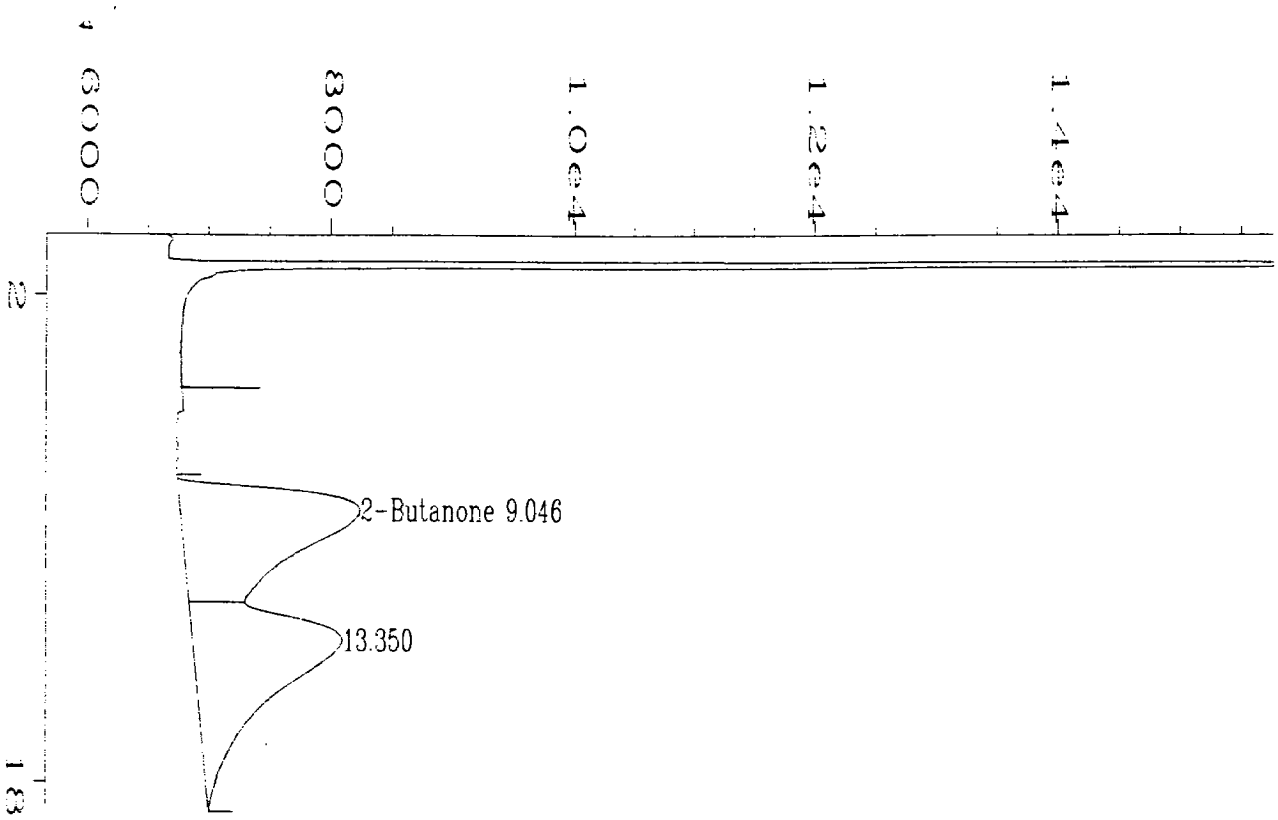
==========

ata File Name	: D:\SOLVAY\NEW_GC\CALS\BAG-9-02.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
ample Name	: Calibration	Injection Number	:
un Time Bar Code:		Sequence Line	:
Acquired on	: 27 Jul 96 12:50 PM	Instrument Method	: NEW-GC.MTH
eport Created on:	04 Aug 96 11:48 AM	Analysis Method	: NEW-GC.MTH
ast Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

ig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG-9-02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
5.483	* not found *			1		Trichloroethane
6.937	* not found *			1		Benzene
7.883	* not found *			1		Trichloroethylene
9.123	229759	BV	1.863	1	9.739	2-Butanone
10.878	* not found *			1		Toluene
14.325	* not found *			1		Ethyl Benzene
14.937	* not found *			1		p-Xylene
15.268	* not found *			1		m-Xylene
16.096	* not found *			1		o-Xylene
17.178	* not found *			1		Styrene

ot all calibrated peaks were found



==========

External Standard Report

==========

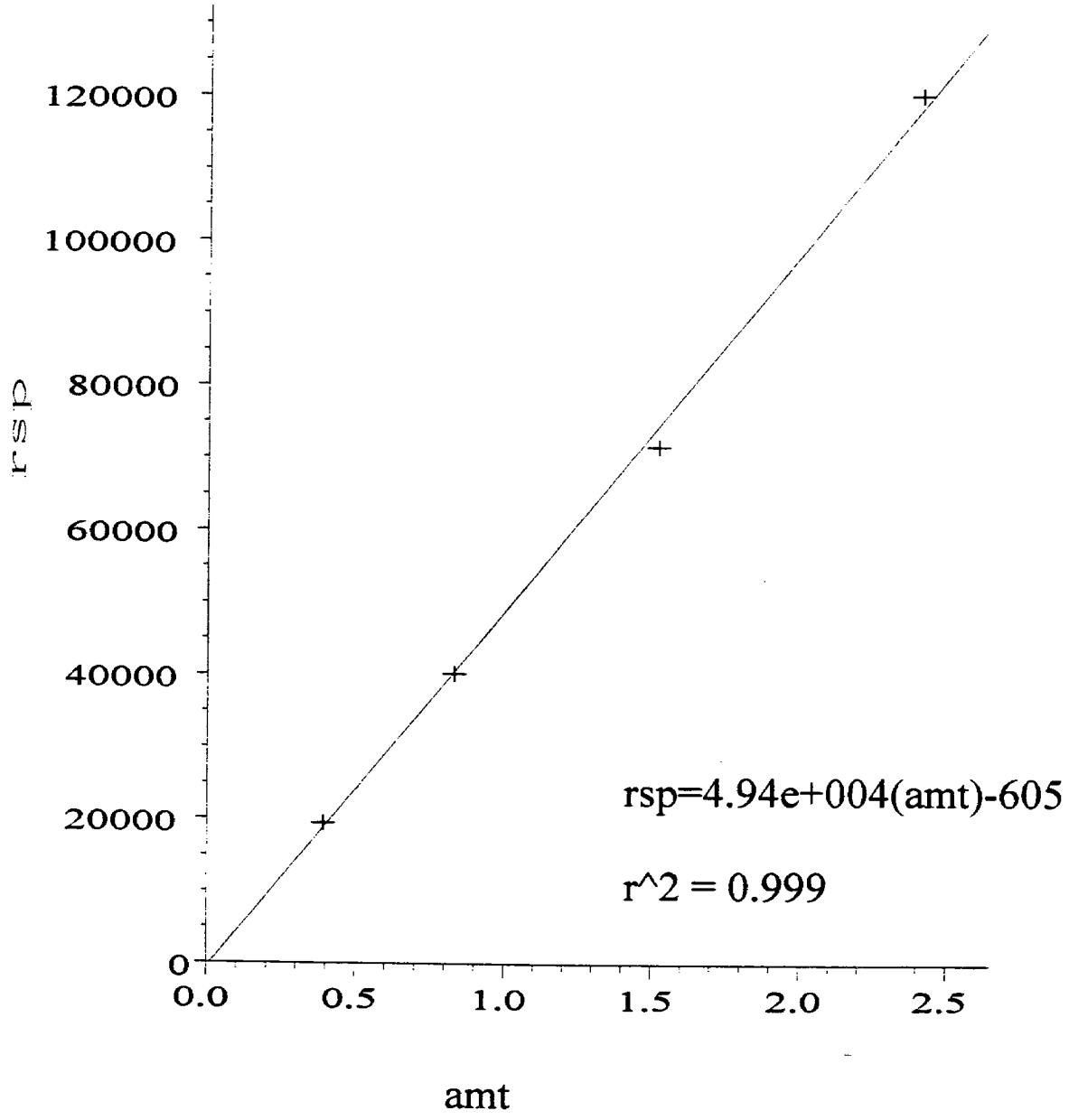
Data File Name	: D:\SOLVAY\NEW_GC\CALS\BAG-9-03.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 27 Jul 96 01:14 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 11:48 AM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\CALS\BAG-9-03.D

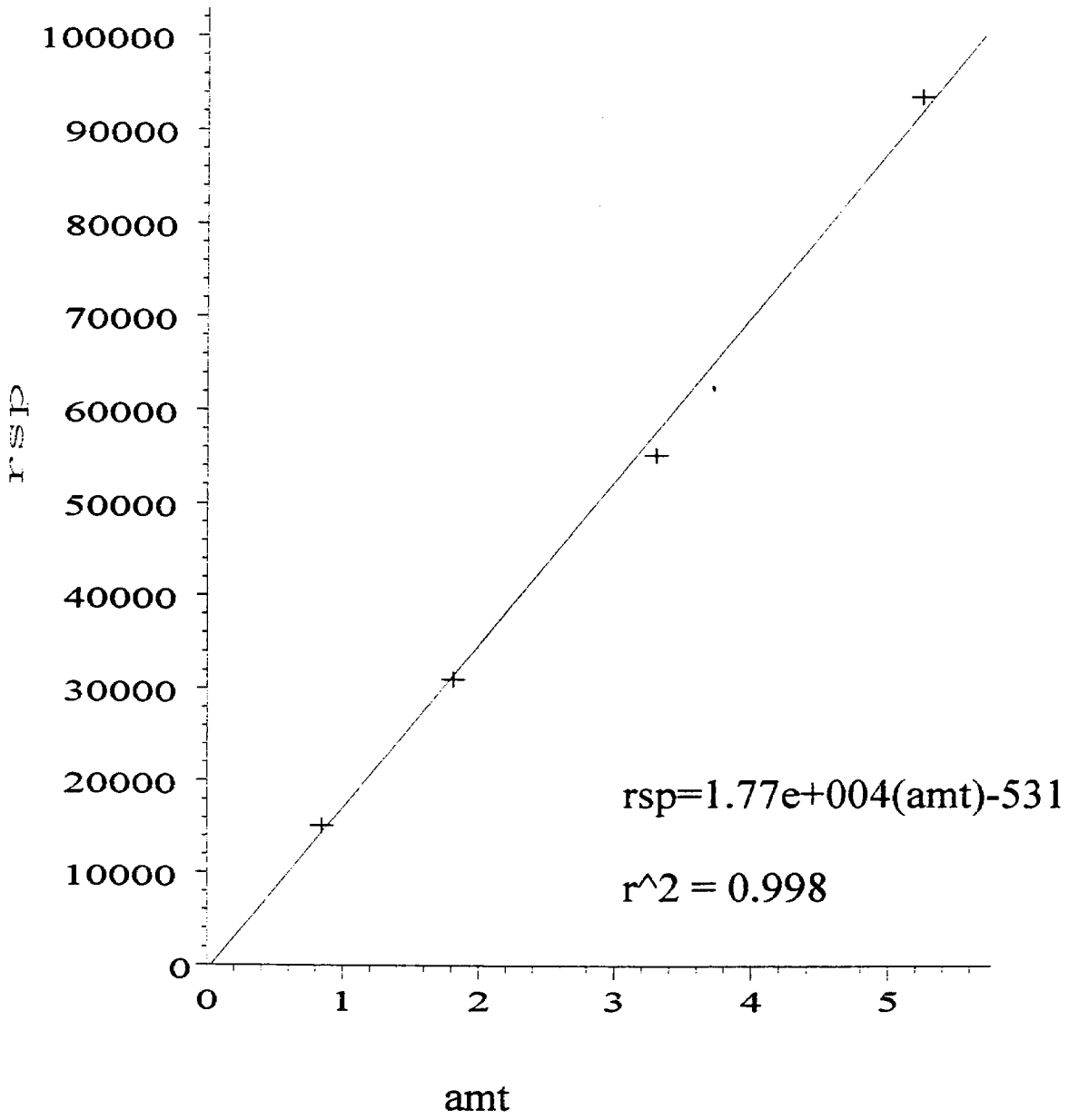
Ret Time	Area	Type	Width	Ref#	ppm	Name
3.310	* not found *			1		Hexane
5.483	* not found *			1		Trichloroethane
6.937	* not found *			1		Benzene
7.883	* not found *			1		Trichloroethylene
9.046	228679	BV	1.829	1	9.693	2-Butanone
10.878	* not found *			1		Toluene
14.325	* not found *			1		Ethyl Benzene
14.937	* not found *			1		p-Xylene
15.268	* not found *			1		m-Xylene
16.096	* not found *			1		o-Xylene
17.178	* not found *			1		Styrene

Not all calibrated peaks were found

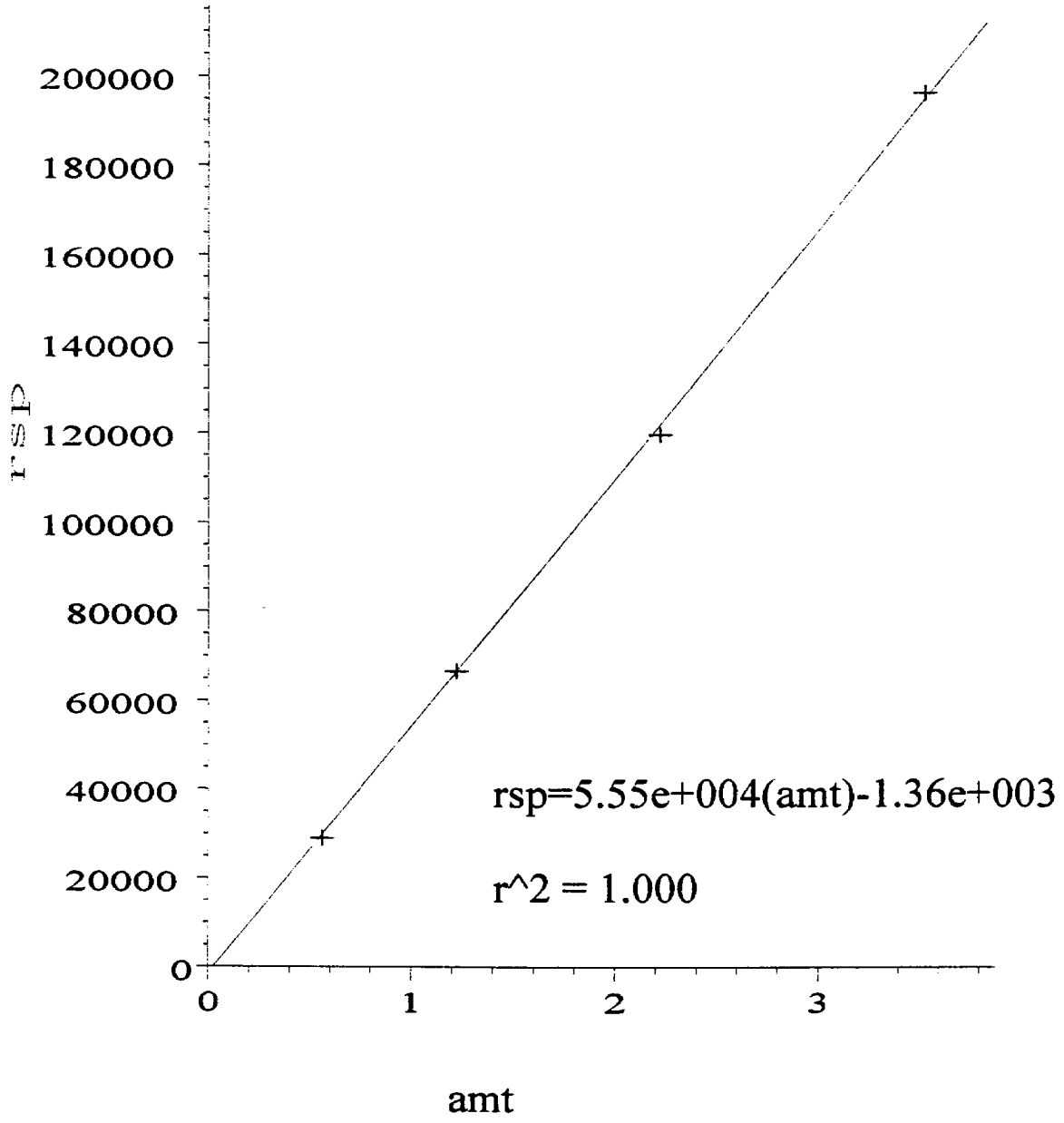
Hexane


120000
100000
80000
60000
40000
20000
0
rsp
0.0
0.5
1.0
1.5
2.0
2.5
amt
rsp=4.94e+004(amt)-605
r^2 = 0.999

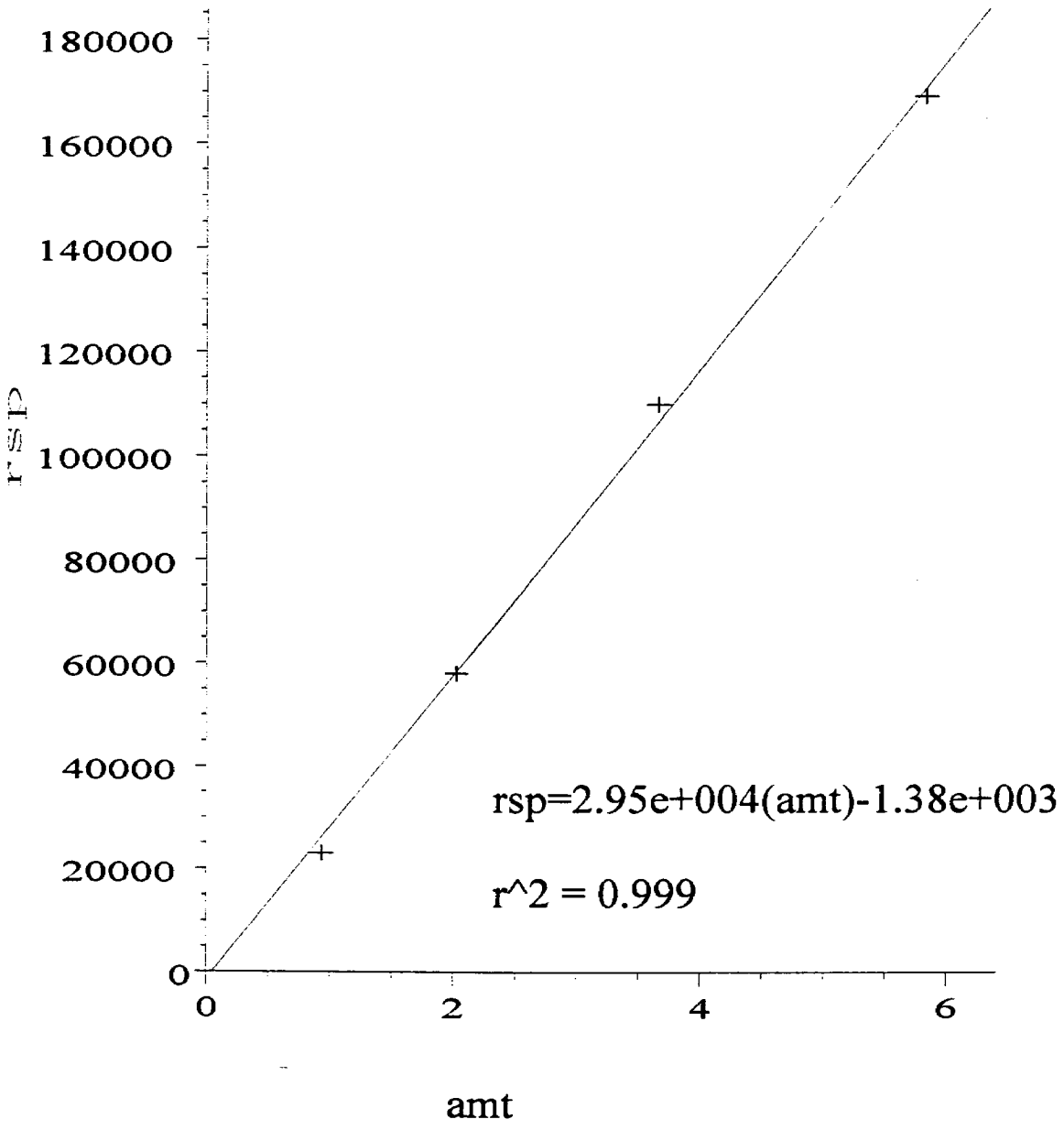
Trichloroethane



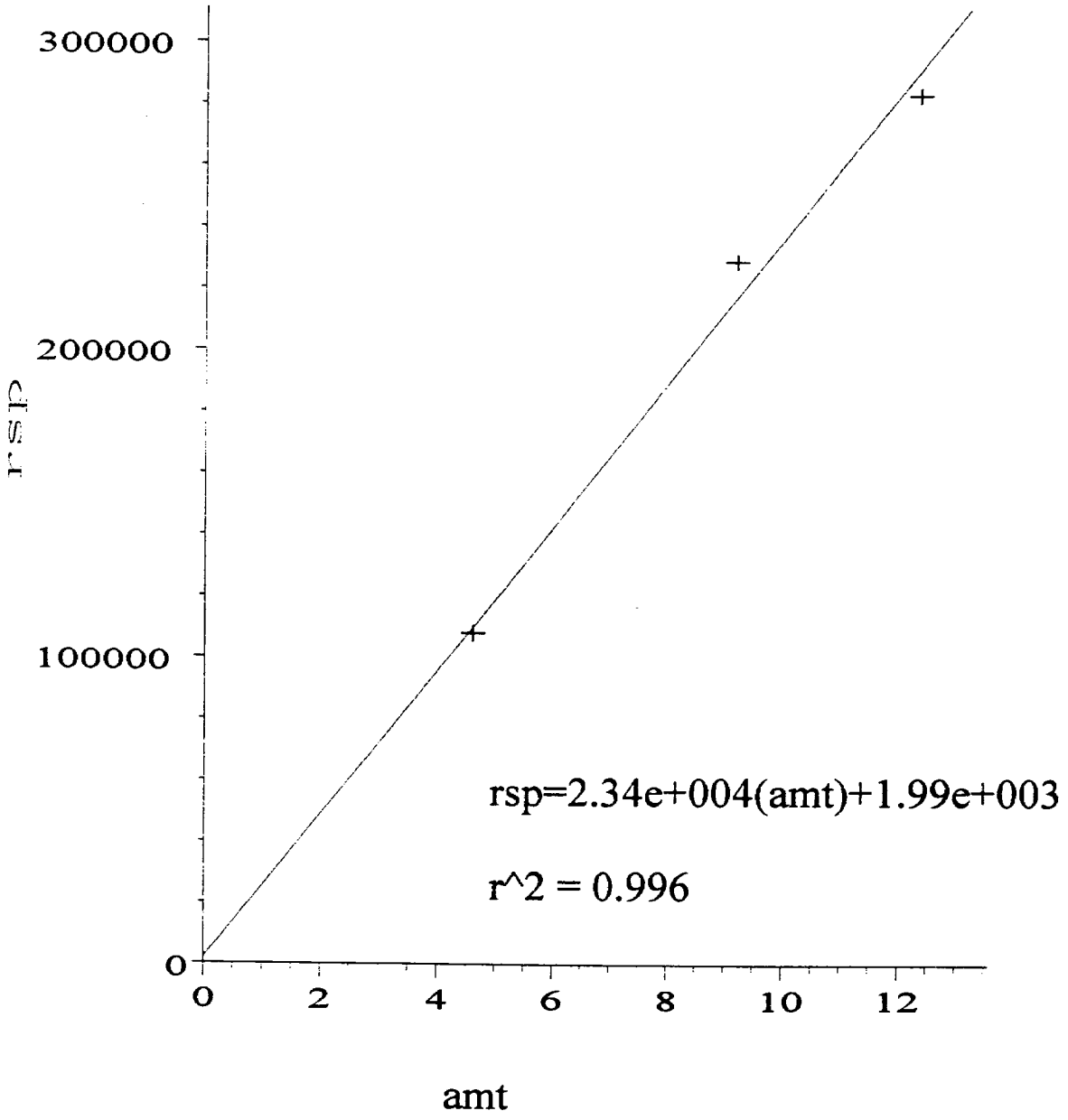
Benzene


200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
rsp
0
1
2
3
amt
rsp=5.55e+004(amt)-1.36e+003
r^2 = 1.000

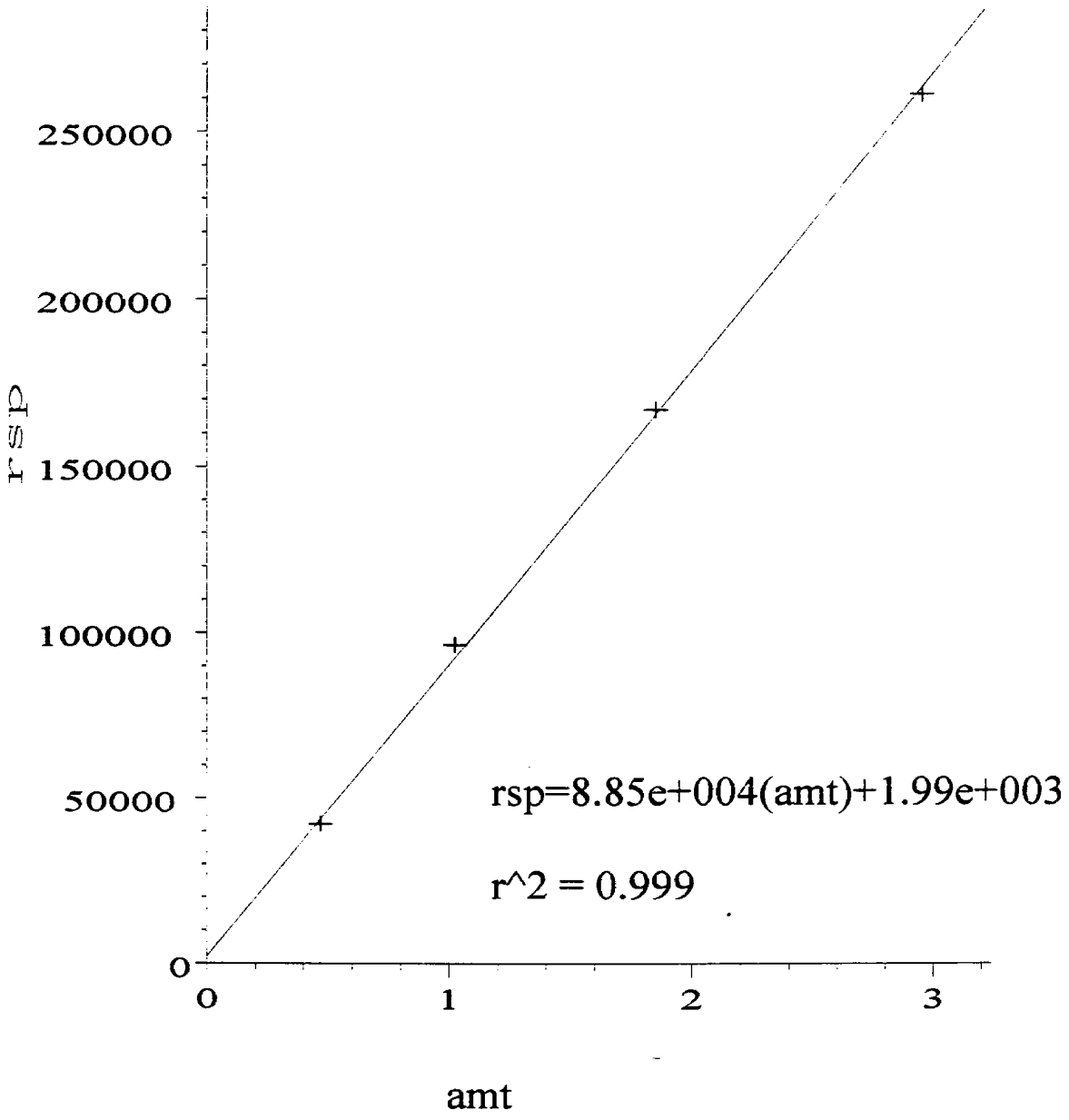
Trichloroethylene



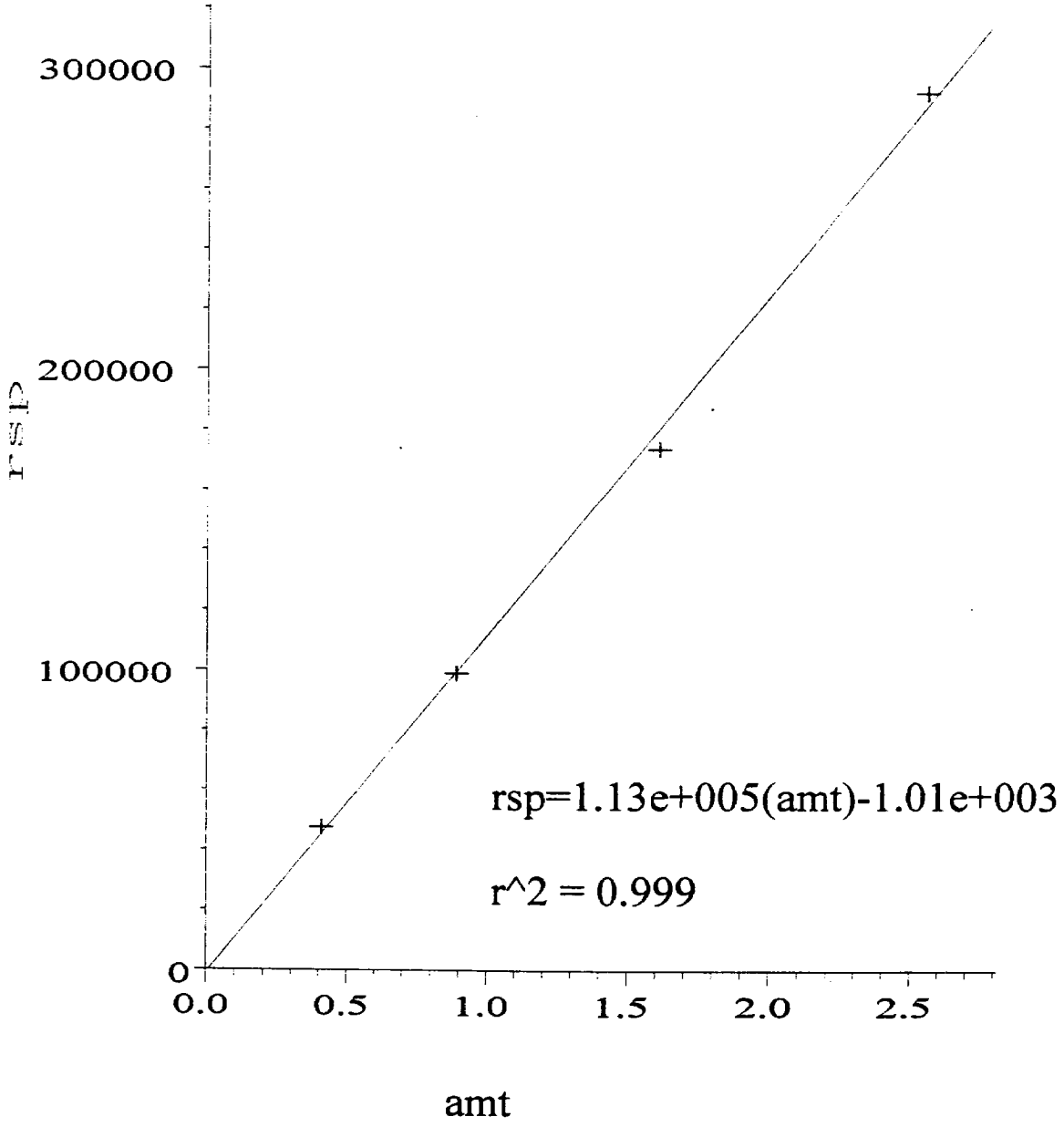
2-Butanone

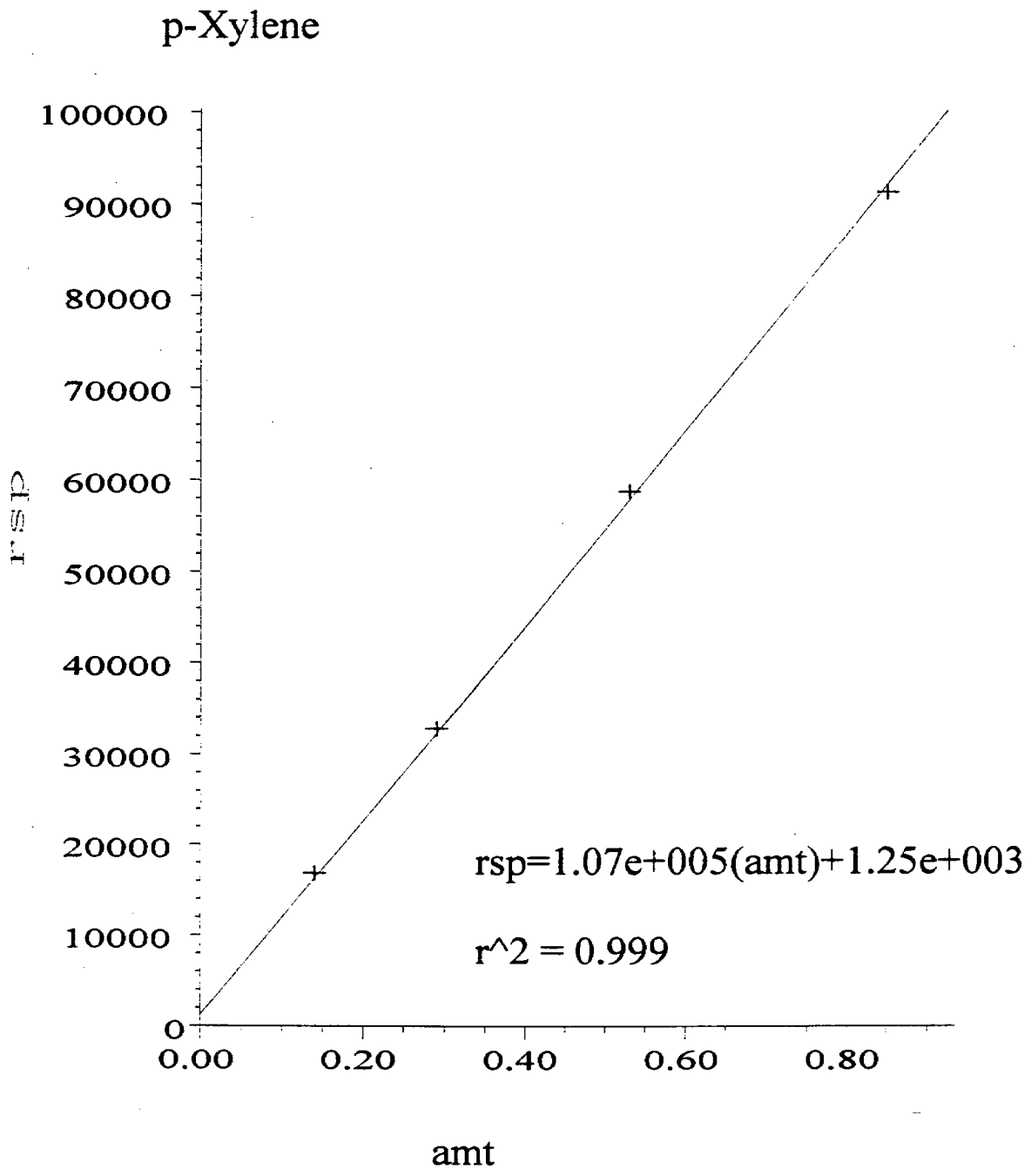

300000
200000
100000
0
rsp
0
2
4
6
8
10
12
amt
rsp=2.34e+004(amt)+1.99e+003
r^2 = 0.996

Toluene

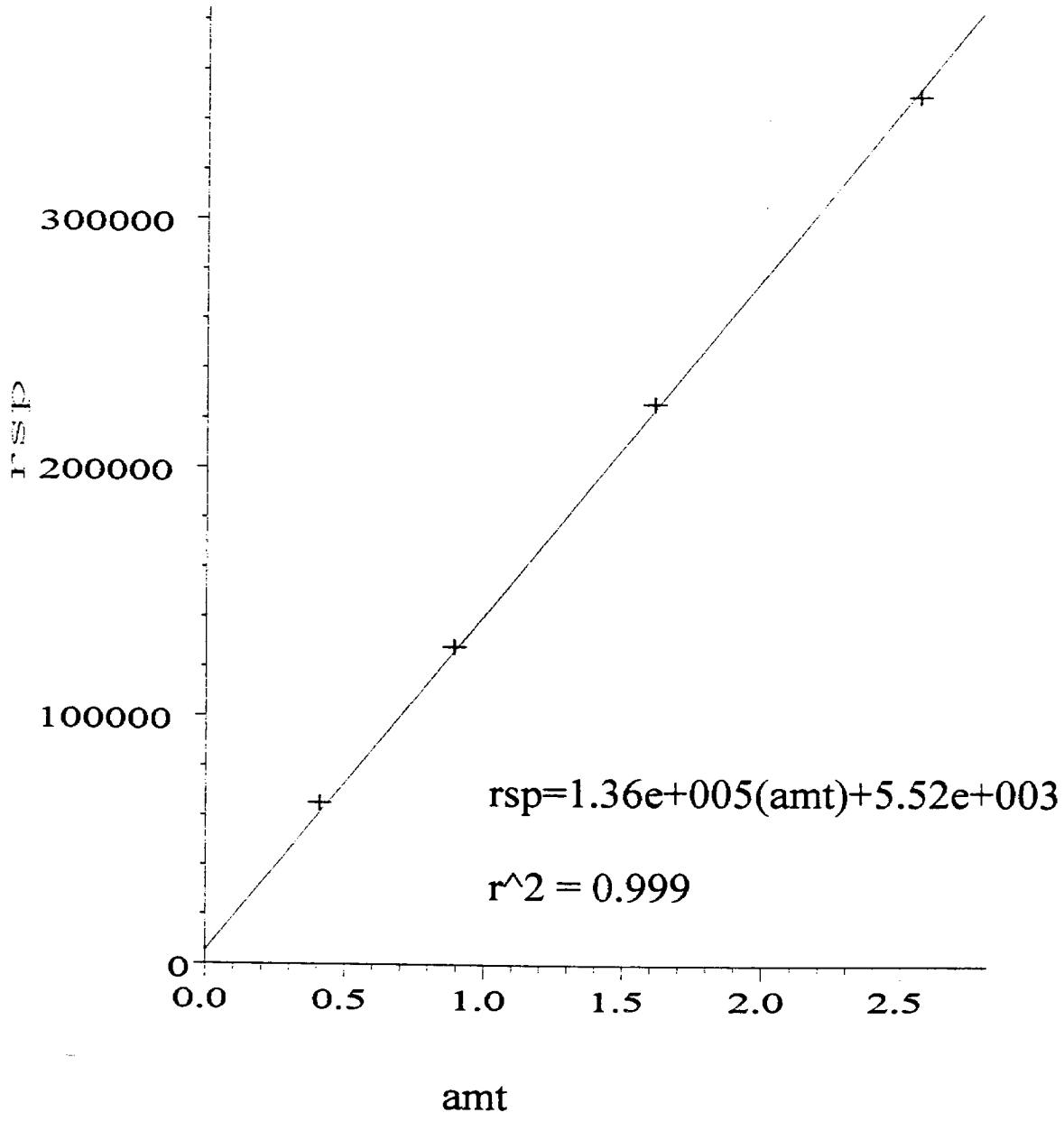

250000
200000
150000
100000
50000
0
rsp
0
1
2
3
amt
rsp=8.85e+004(amt)+1.99e+003
r^2 = 0.999

Ethyl Benzene

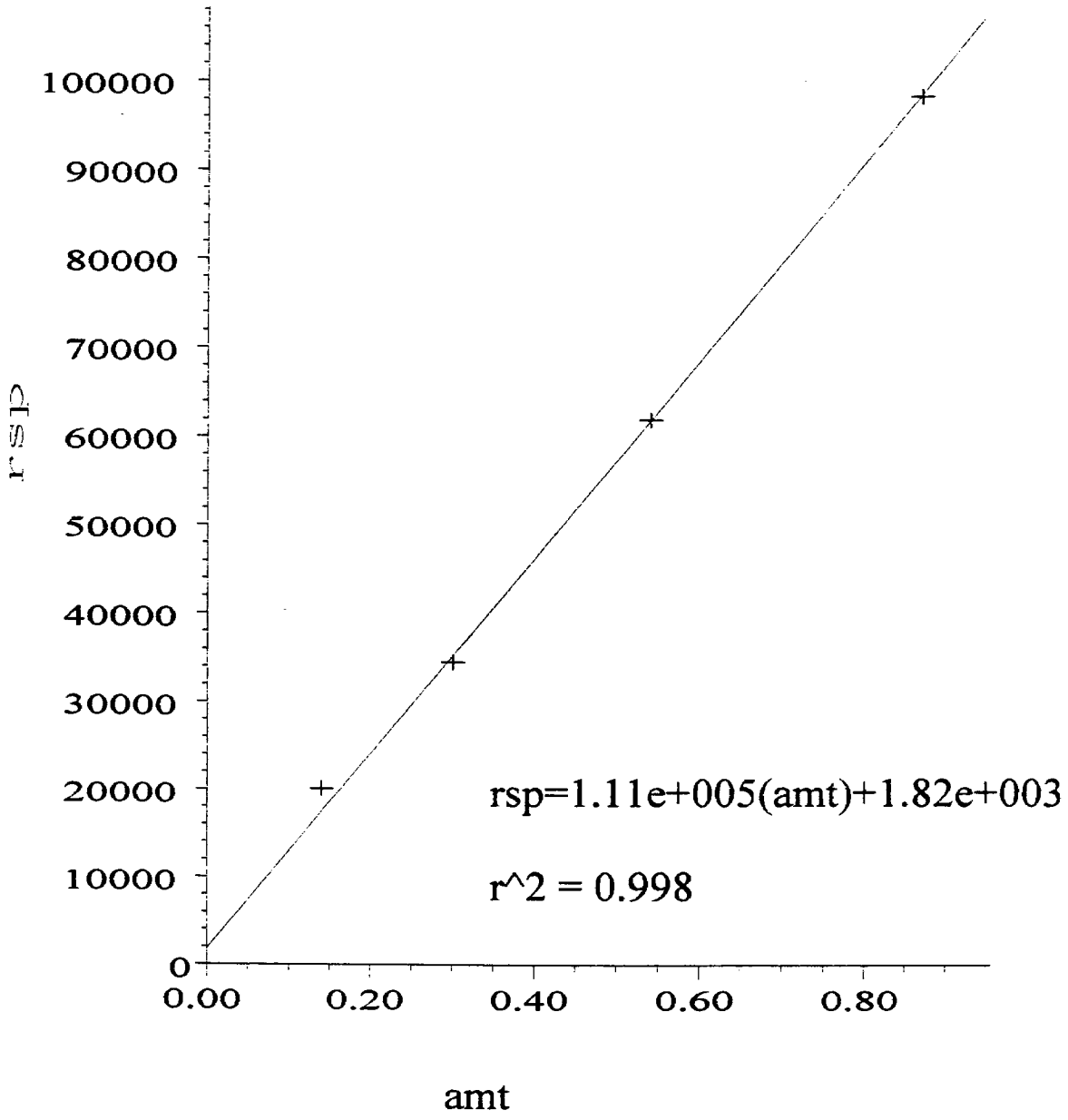



p-Xylene
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
rsp
0.00
0.20
0.40
0.60
0.80
amt
rsp=1.07e+005(amt)+1.25e+003
r^2 = 0.999

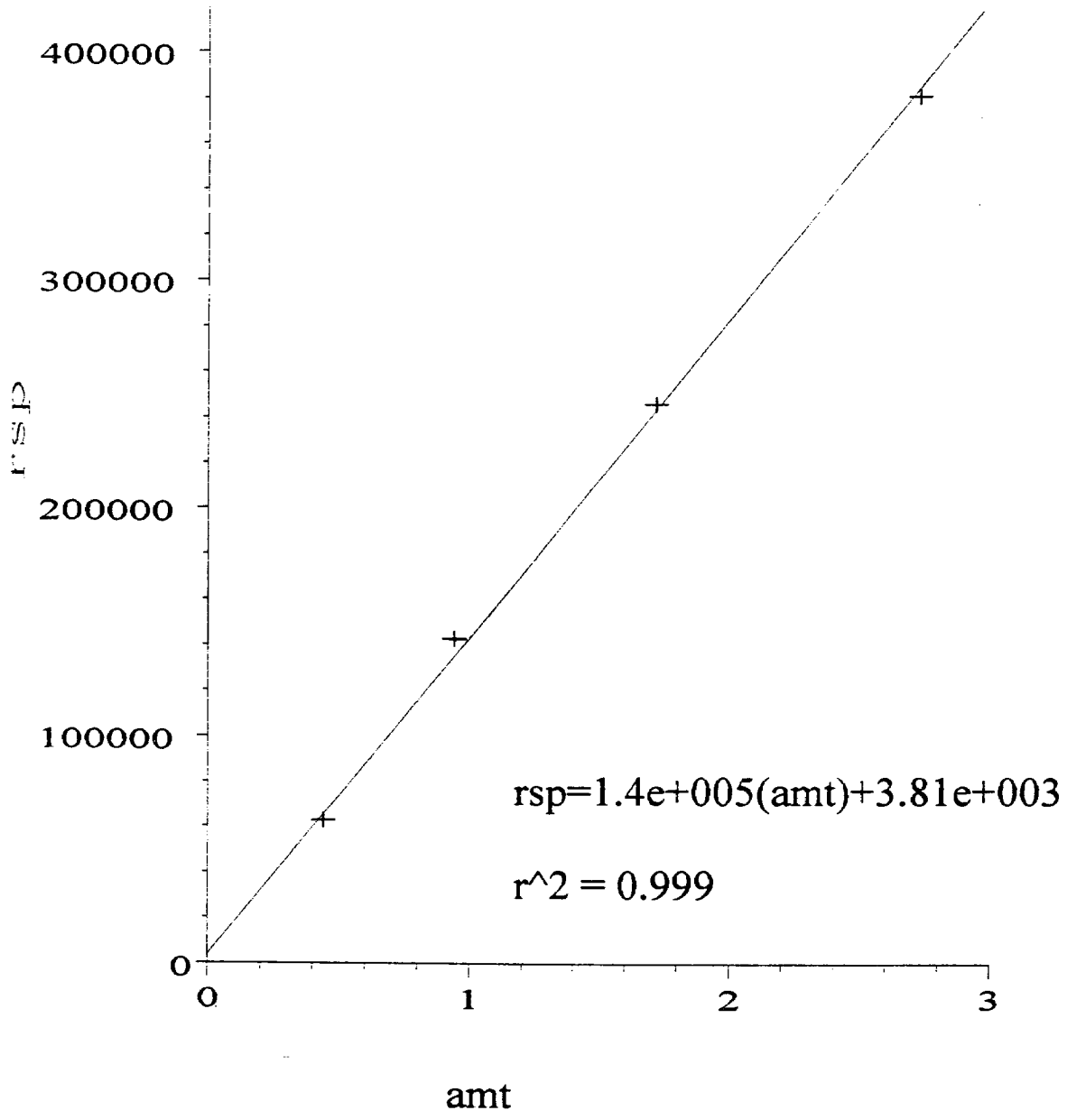
m-Xylene

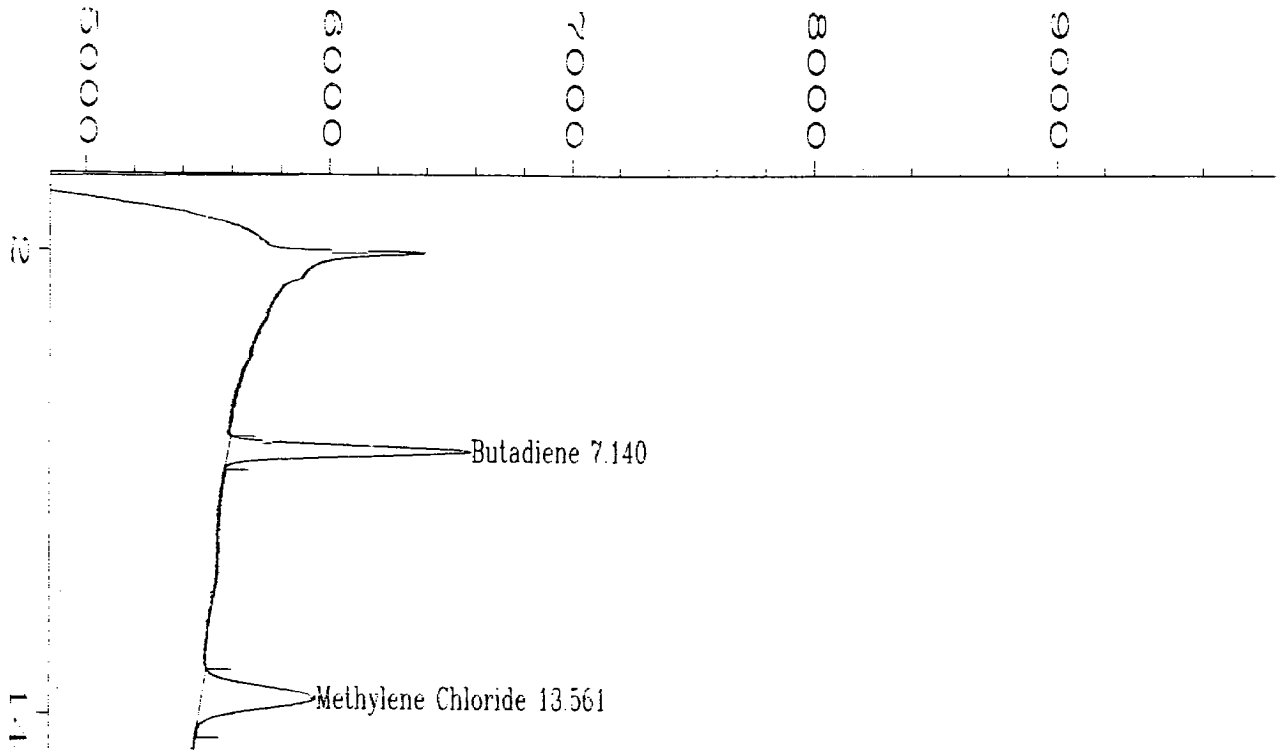

300000
200000
100000
0
rsp
0.0
0.5
1.0
1.5
2.0
2.5
amt
rsp=1.36e+005(amt)+5.52e+003
r^2 = 0.999

o-Xylene


100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
rsp
0.00
0.20
0.40
0.60
0.80
amt
rsp=1.11e+005(amt)+1.82e+003
r^2 = 0.998

Styrene


400000
300000
200000
100000
0
rsp
0
1
2
3
amt
rsp=1.4e+005(amt)+3.81e+003
r^2 = 0.999



==========

External Standard Report

==========

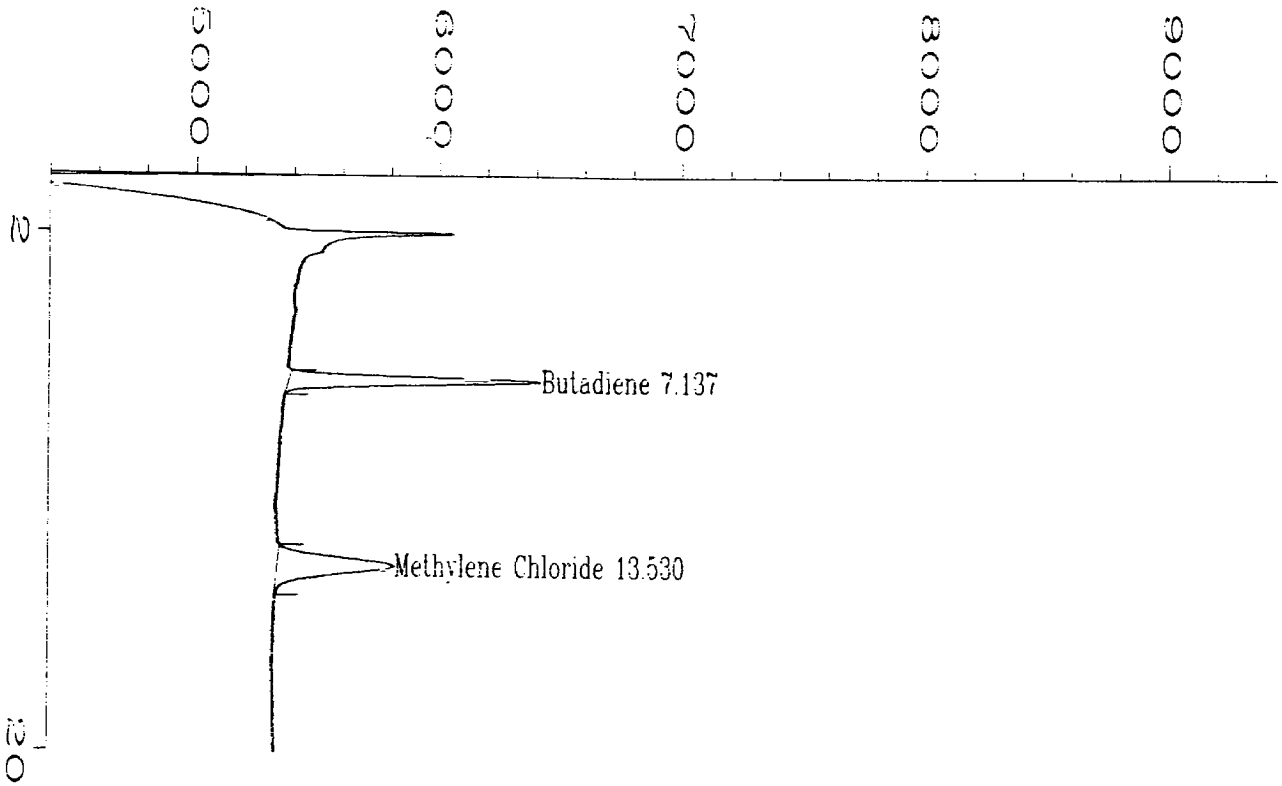
Data File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-1-01.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: EP 1 & 2	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 27 Jul 96 09:35 AM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:06 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-1-01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.087	* not found *			1		Methane
1.721	* not found *			1		Ethane
7.140	18888	BB	0.230	1	1.129	Butadiene
13.561	18345	BB	0.478	1	4.584	Methylene Chloride
14.836	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

ata File Name : D:\SOLVAY\OLD_GC\CALS\BAG-1-02.D
Operator : J. Kaput
Instrument : OLD HP589
ample Name : Calibration
un Time Bar Code:
Acquired on : 27 Jul 96 09:54 AM
eport Created on: 04 Aug 96 02:07 PM
ast Recalib on : 04 AUG 96 01:59 PM
Multiplier : 1

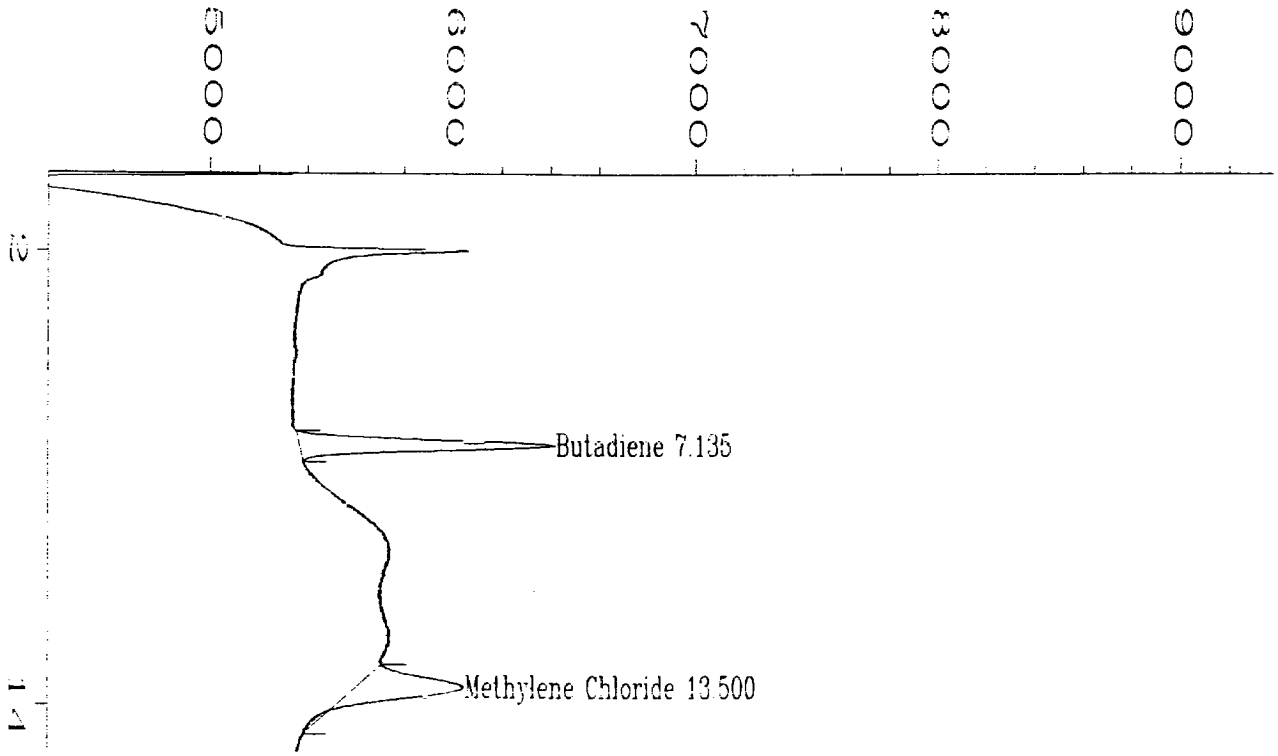
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH
Sample Amount : 0
ISTD Amount :

ig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-1-02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.087	* not found *			1		Methane
1.721	* not found *			1		Ethane
7.137	19767	BB	0.231	1	1.184	Butadiene
13.530	18886	BB	0.485	1	4.718	Methylene Chloride
14.836	* not found *			1		Acrylonitrile

ot all calibrated peaks were found

==========



==========

External Standard Report

==========

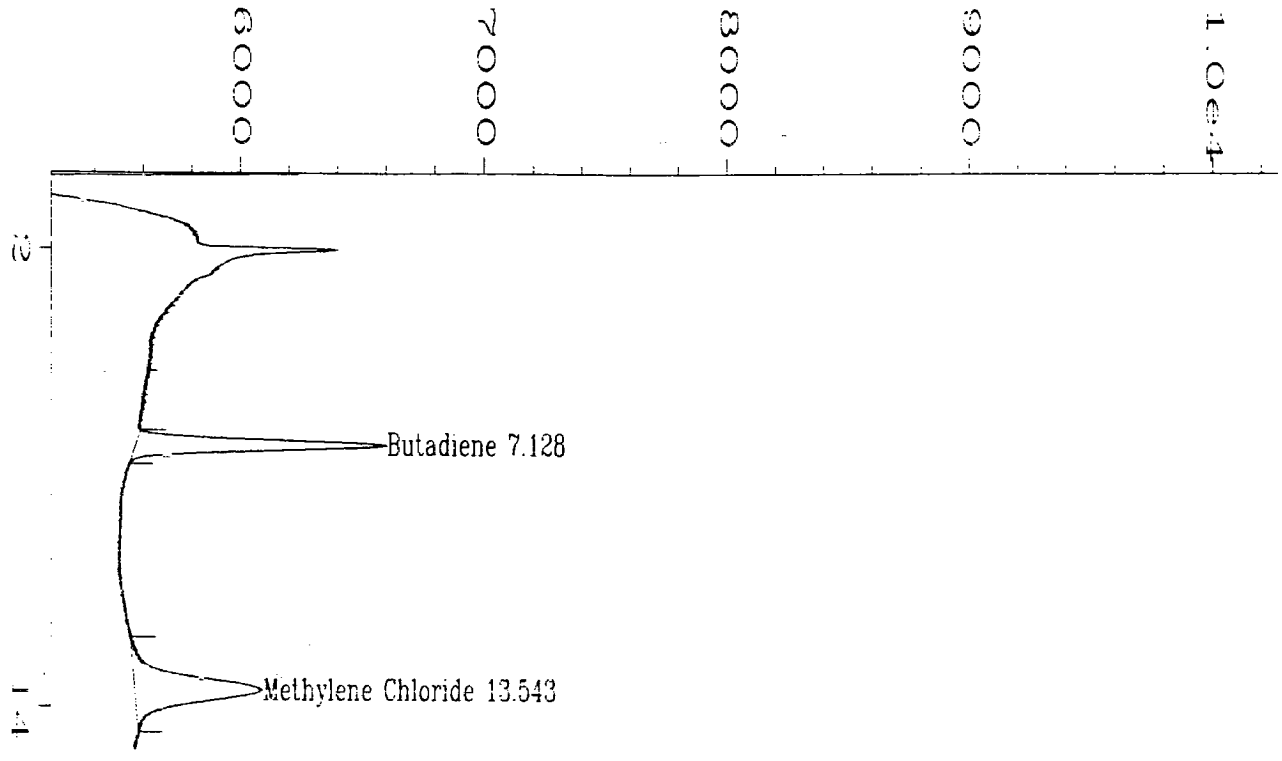
Data File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-1-03.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 27 Jul 96 10:18 AM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:07 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-1-03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.087	* not found *			1		Methane
1.721	* not found *			1		Ethane
7.135	19891	BB	0.229	1	1.191	Butadiene
13.500	15670	BB	0.439	1	3.921	Methylene Chloride
14.836	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

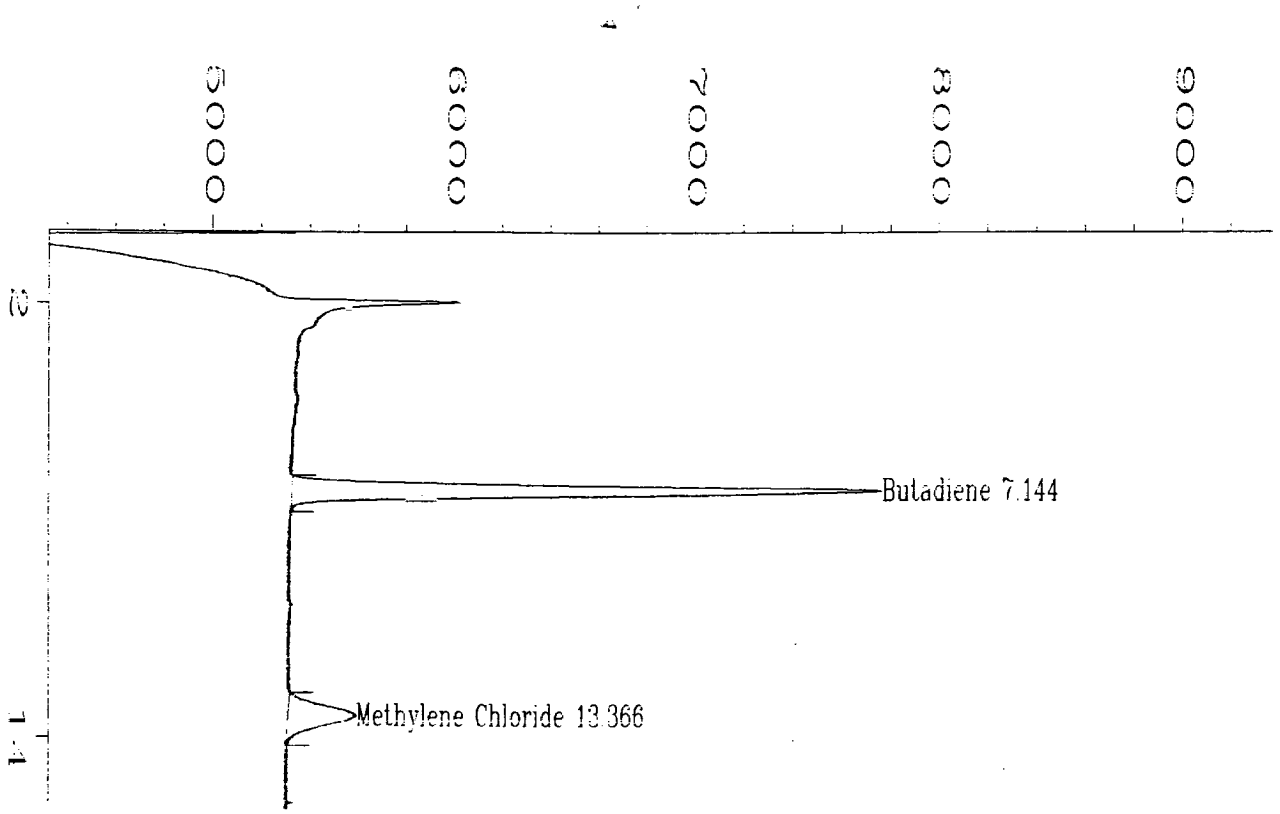
Data File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-1-04.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 27 Jul 96 10:46 AM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:07 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-1-04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.087	* not found *			1		Methane
1.721	* not found *			1		Ethane
7.128	19763	BB	0.236	1	1.183	Butadiene
13.543	23100	BB	0.530	1	5.761	Methylene Chloride
14.836	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

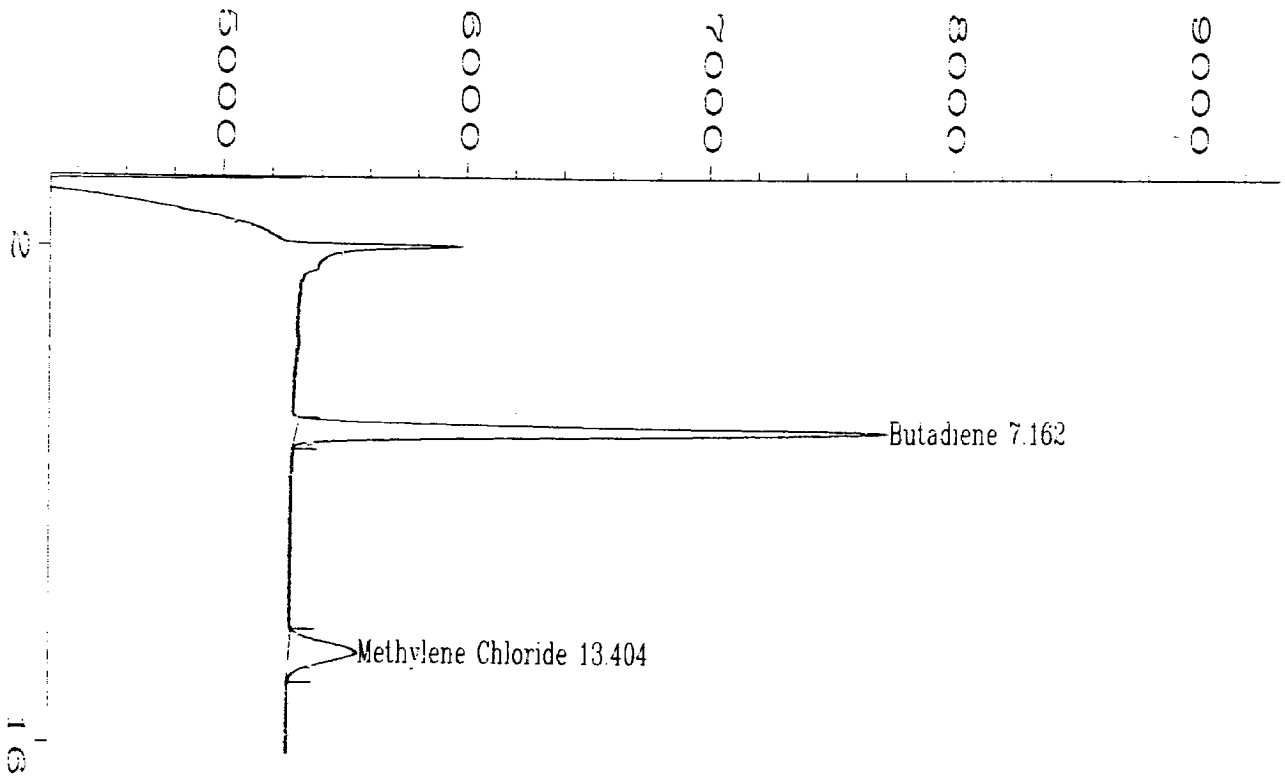
==========

```
Data File Name    : D:\SOLVAY\OLD_GC\CALS\BAG-2-01.D
Operator          : J. Kaput                          Page Number       : 1
Instrument        : OLD HP589                         Vial Number       :
Sample Name       : Calibration                       Injection Number  :
Run Time Bar Code:                                    Sequence Line     :
Acquired on       : 26 Jul 96  10:47 AM               Instrument Method: OLD-GC.MTH
Report Created on: 04 Aug 96  02:07 PM                Analysis Method   : OLD-GC.MTH
Last Recalib on   : 04 AUG 96 01:59 PM                Sample Amount     : 0
Multiplier        : 1                                 ISTD Amount       :

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-2-01.D
Ret Time     Area     Type Width Ref#  ppm                    Name
|-------|------------|----|-----|-----|--------|-----------------------------|
   1.087 * not found *            1             Methane
   1.721 * not found *            1             Ethane
   7.144        46140 BB   0.246  1       2.823 Butadiene
  13.366        10509 BB   0.464  1       2.644 Methylene Chloride
  14.836 * not found *            1             Acrylonitrile


Not all calibrated peaks were found
```

==========



==========

External Standard Report

==========

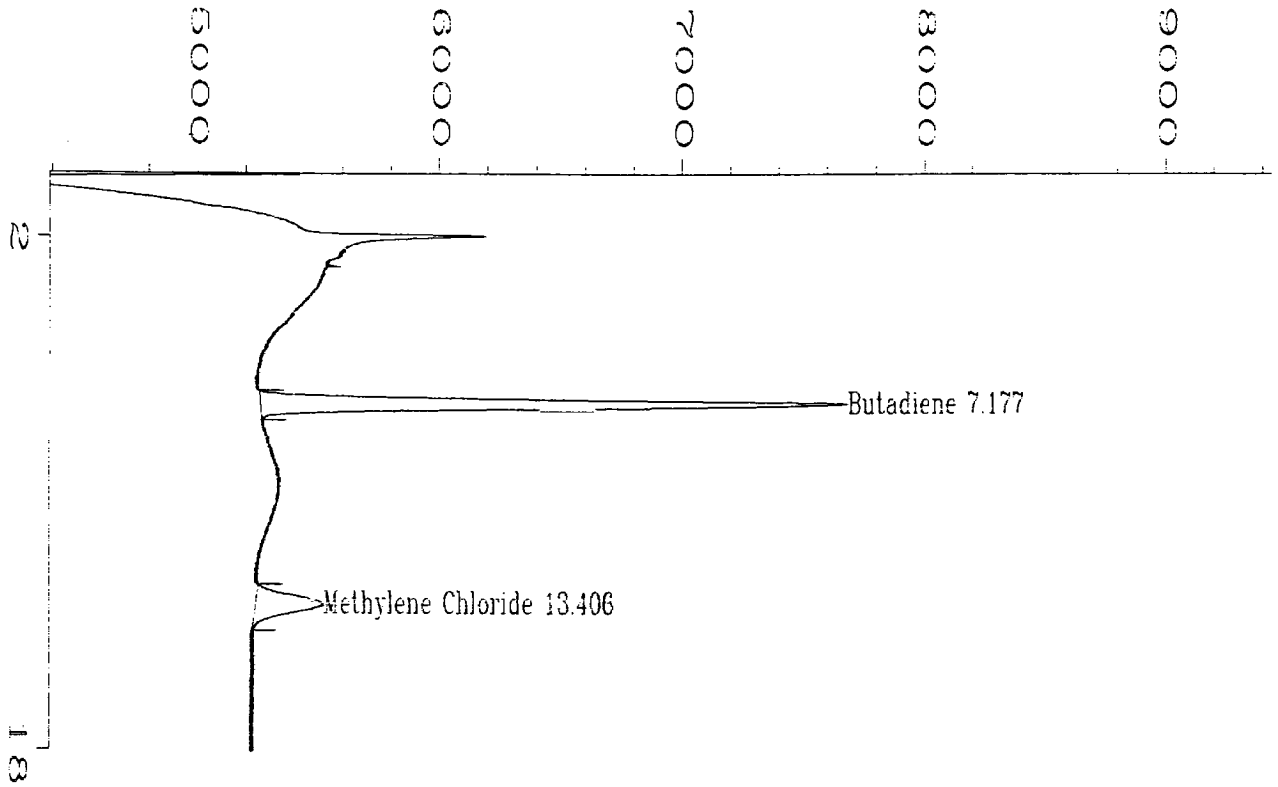
ata File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-2-02.D		
perator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
ample Name	: Calibration	Injection Number	:
un Time Bar Code	:	Sequence Line	:
Acquired on	: 26 Jul 96 11:07 AM	Instrument Method	: OLD-GC.MTH
eport Created on	: 04 Aug 96 02:07 PM	Analysis Method	: OLD-GC.MTH
ast Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

ig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-2-02.D

et Time	Area	Type	Width	Ref#	ppm	Name
1.087	* not found *			1		Methane
1.721	* not found *			1		Ethane
7.162	45611	BB	0.232	1	2.790	Butadiene
13.404	10409	BB	0.462	1	2.619	Methylene Chloride
14.836	* not found *			1		Acrylonitrile

ot all calibrated peaks were found

==========



==========

External Standard Report

==========

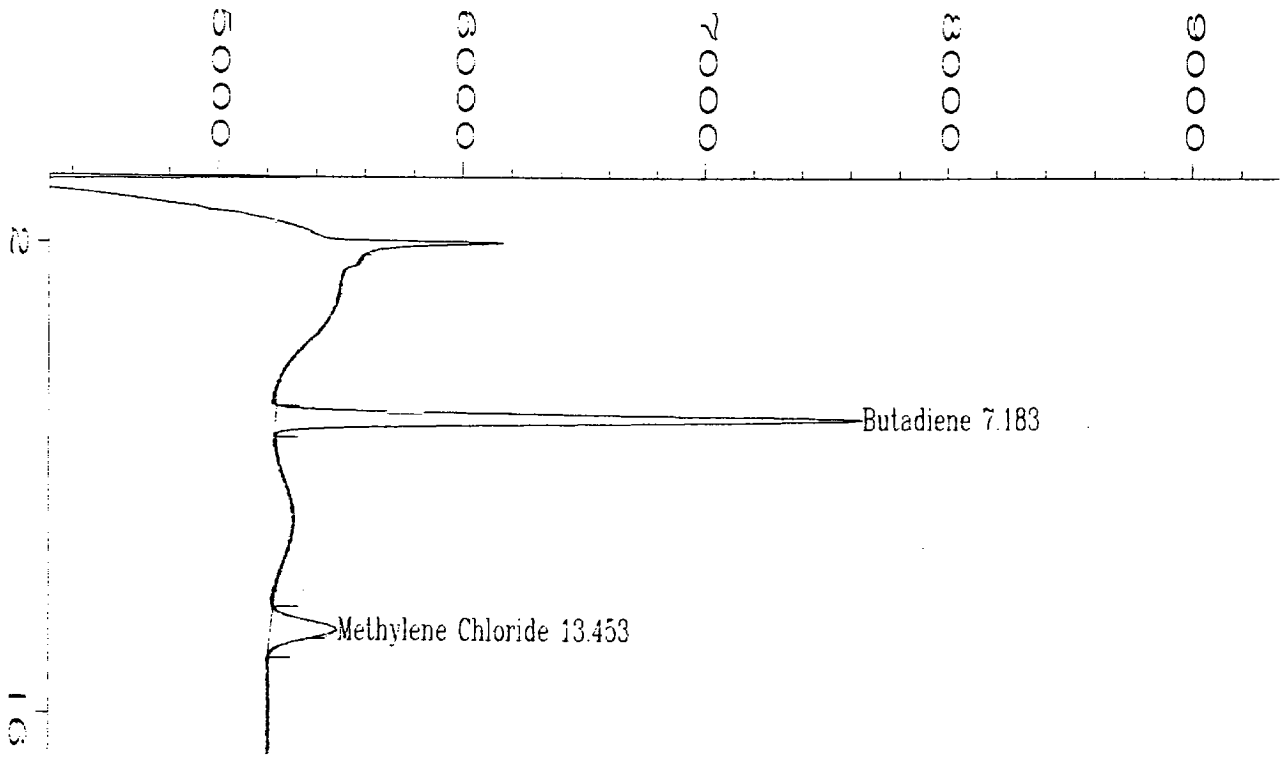
Data File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-2-03.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 26 Jul 96 11:38 AM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:07 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-2-03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.087	* not found *			1		Methane
1.721	* not found *			1		Ethane
7.177	45726	BB	0.226	1	2.797	Butadiene
13.406	10338	BB	0.457	1	2.601	Methylene Chloride
14.836	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

==========



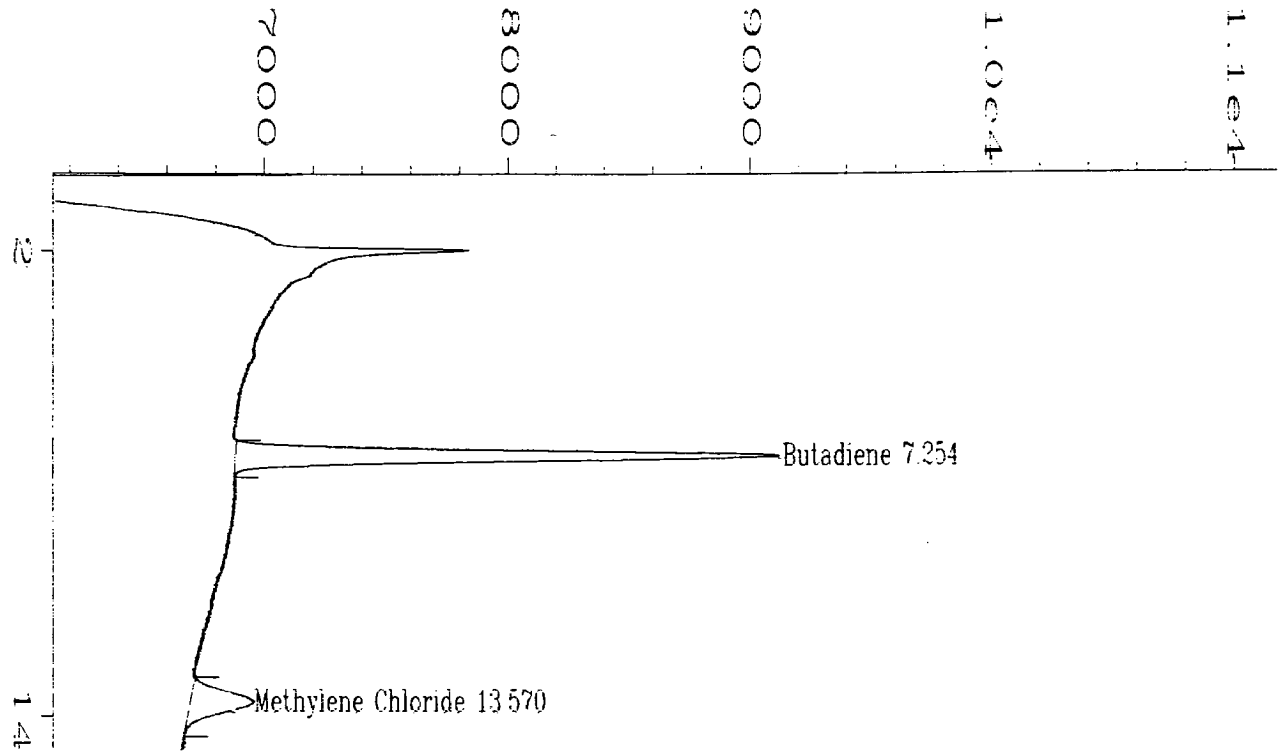
External Standard Report

ata File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-2-04.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
ample Name	: Calibration	Injection Number	:
un Time Bar Code:		Sequence Line	:
Acquired on	: 26 Jul 96 11:58 AM	Instrument Method:	OLD-GC.MTH
eport Created on:	04 Aug 96 02:08 PM	Analysis Method	: OLD-GC.MTH
ast Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

ig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-2-04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.087	* not found *			1		Methane
1.721	* not found *			1		Ethane
7.183	45537	BB	0.235	1	2.785	Butadiene
13.453	10188	BB	0.471	1	2.564	Methylene Chloride
14.836	* not found *			1		Acrylonitrile

ot all calibrated peaks were found



==========

External Standard Report

==========

Data File Name : D:\SOLVAY\OLD_GC\CALS\BAG-2-05.D
Operator : J. Kaput
Instrument : OLD HP589
Sample Name : Calibration
Run Time Bar Code:
Acquired on : 26 Jul 96 01:11 PM
Report Created on: 04 Aug 96 02:08 PM
Last Recalib on : 04 AUG 96 01:59 PM
Multiplier : 1

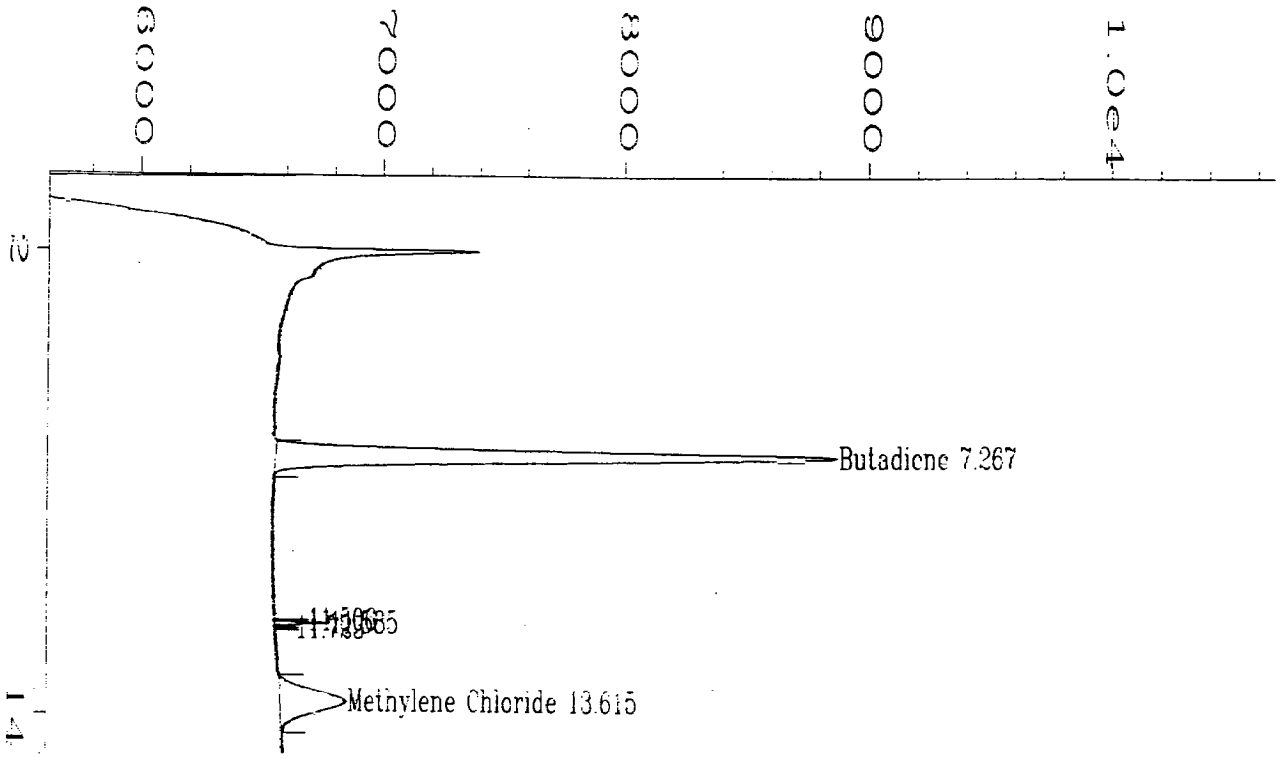
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-2-05.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.087	* not found *			1		Methane
1.721	* not found *			1		Ethane
7.254	42734	BB	0.232	1	2.611	Butadiene
13.570	9818	BB	0.438	1	2.473	Methylene Chloride
14.836	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

==========



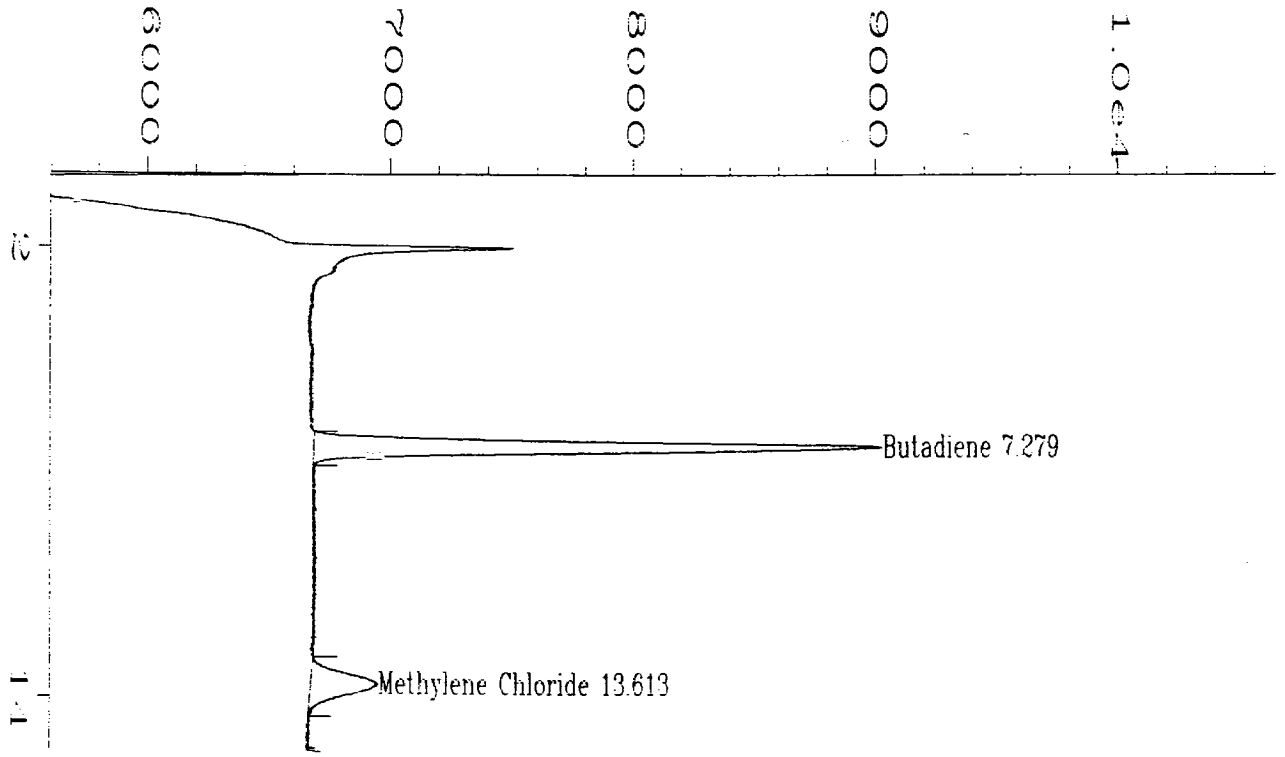
External Standard Report

Data File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-2-06.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 26 Jul 96 01:28 PM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:08 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Fig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-2-06.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.087	* not found *			1		Methane
1.721	* not found *			1		Ethane
7.267	44256	BB	0.249	1	2.705	Butadiene
13.615	10268	BB	0.480	1	2.584	Methylene Chloride
14.836	* not found *			1		Acrylonitrile

Not all calibrated peaks were found



==========

External Standard Report

==========

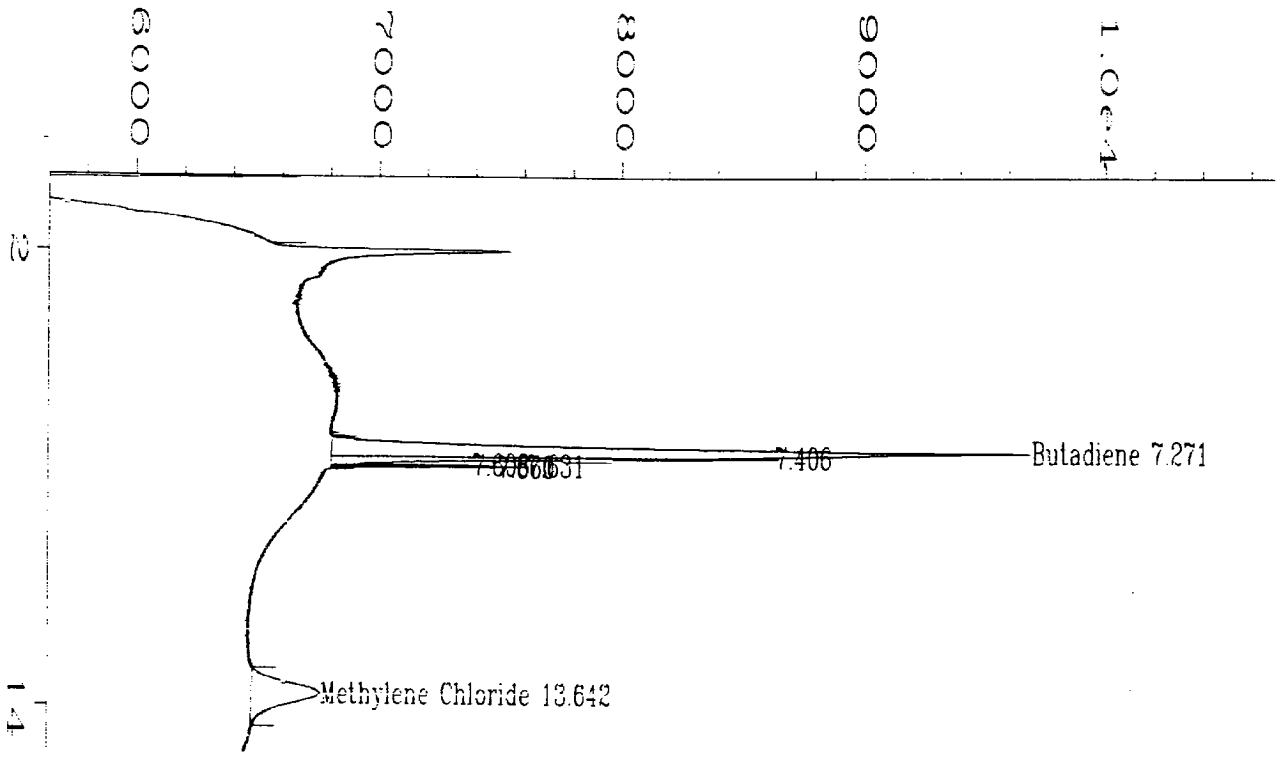
Data File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-2-07.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 26 Jul 96 01:43 PM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:08 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-2-07.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.087	* not found *			1		Methane
1.721	* not found *			1		Ethane
7.279	44758	BB	0.247	1	2.737	Butadiene
13.613	10608	BB	0.492	1	2.668	Methylene Chloride
14.836	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

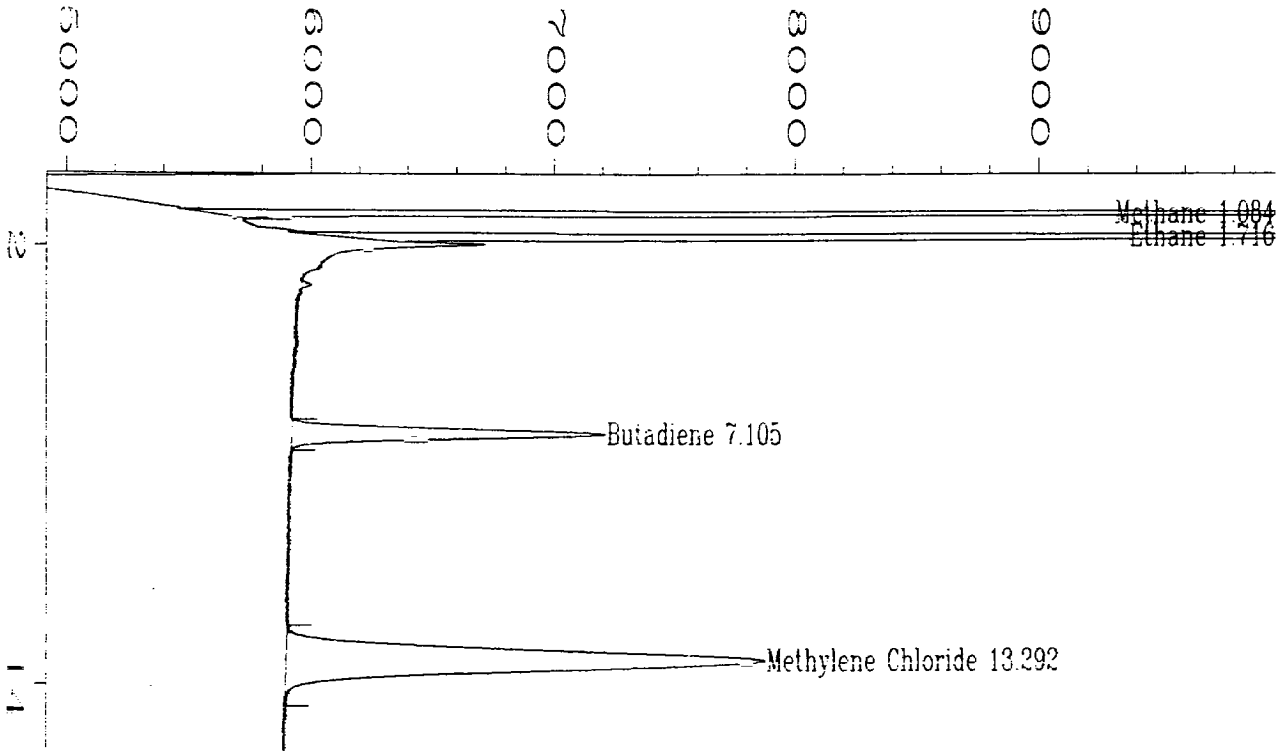
Data File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-2-08.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 26 Jul 96 02:00 PM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:08 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Fig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-2-08.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.087	* not found *			1		Methane
1.721	* not found *			1		Ethane
7.271	37339	BV	0.156	1	2.276	Butadiene
13.642	10991	BB	0.488	1	2.763	Methylene Chloride
14.836	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

Data File Name : D:\SOLVAY\OLD_GC\CALS\BAG-5-01.D
Operator : J. Kaput
Instrument : OLD HP589
Sample Name : Calibration
Run Time Bar Code:
Acquired on : 26 Jul 96 08:09 AM
Report Created on: 04 Aug 96 02:08 PM
Last Recalib on : 04 AUG 96 01:59 PM
Multiplier : 1

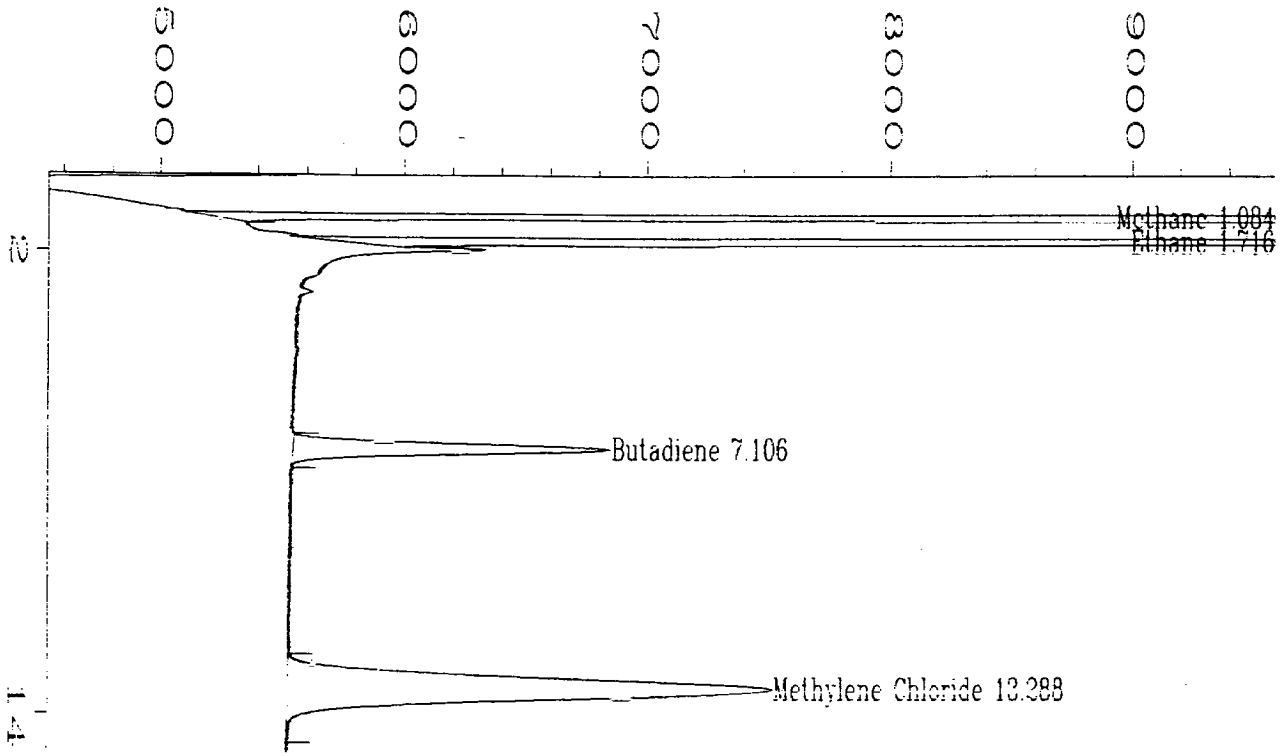
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-5-01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.084	280502	BB	0.090	1	61.251	Methane
1.716	555491	BV	0.090	1	63.959	Ethane
7.105	24109	BB	0.276	1	1.453	Butadiene
13.292	75981	BV	0.500	1	18.854	Methylene Chloride
14.836	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

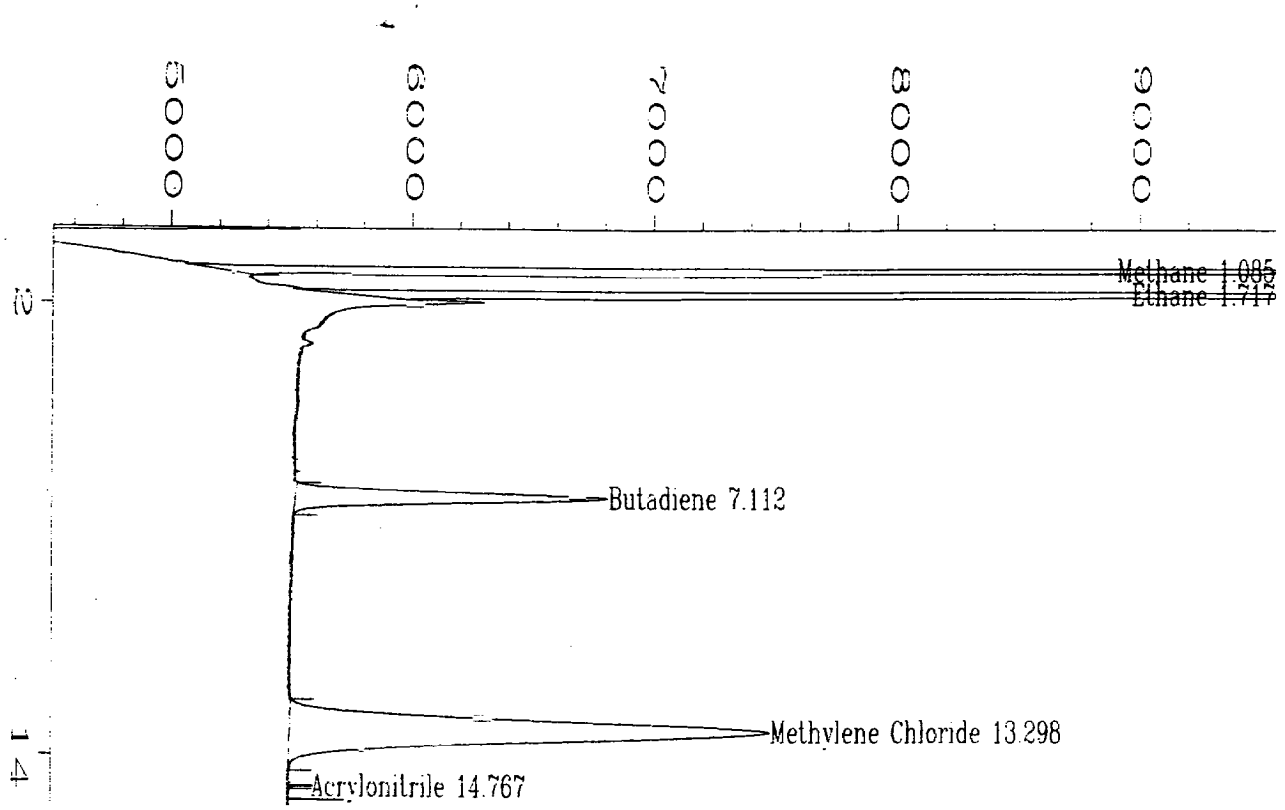
Data File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-5-02.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 26 Jul 96 08:26 AM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:09 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Fig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-5-02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.084	282959	BB	0.090	1	61.801	Methane
1.716	560334	BV	0.090	1	64.514	Ethane
7.106	24359	BB	0.270	1	1.469	Butadiene
13.288	76331	BB	0.514	1	18.941	Methylene Chloride
14.836	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

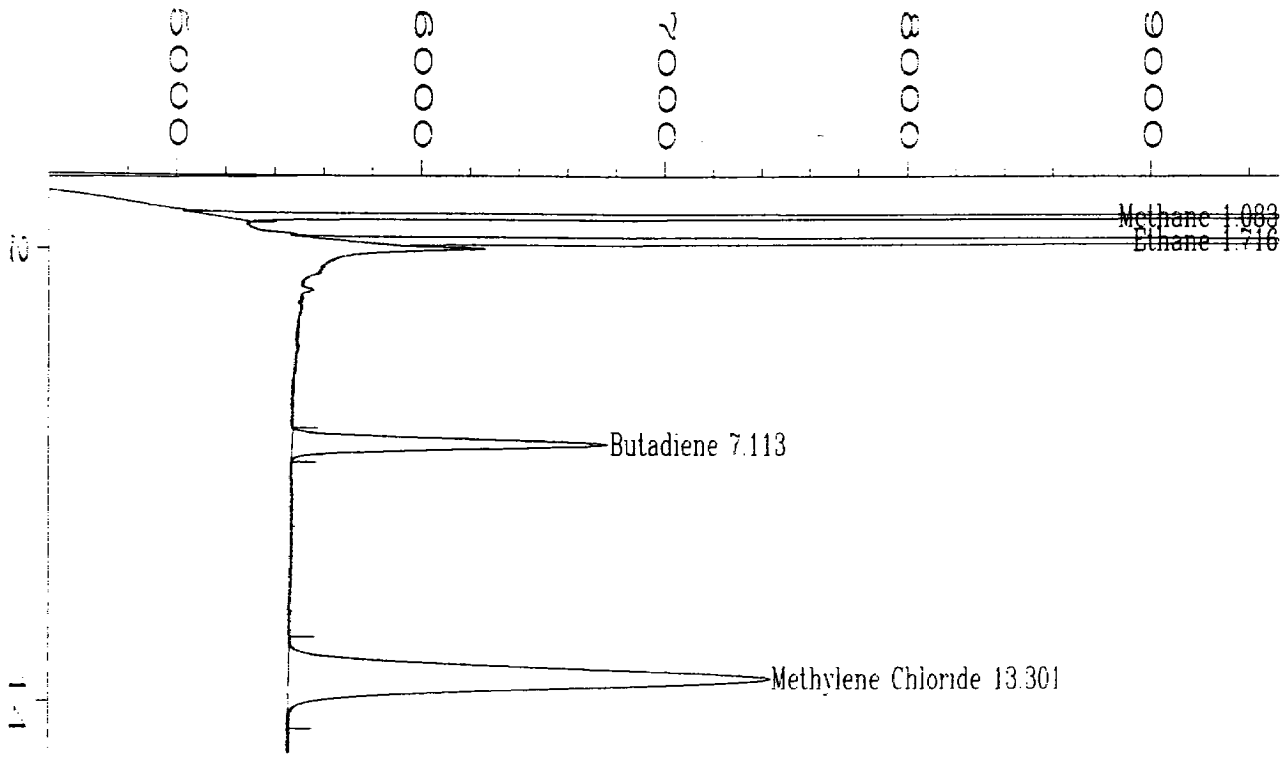
Data File Name : D:\SOLVAY\OLD_GC\CALS\BAG-5-03.D
Operator : J. Kaput
Instrument : OLD HP589
Sample Name : Calibration
Run Time Bar Code:
Acquired on : 26 Jul 96 08:43 AM
Report Created on: 04 Aug 96 02:09 PM
Last Recalib on : 04 AUG 96 01:59 PM
Multiplier : 1

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

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-5-03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.085	281732	BB	0.090	1	61.526	Methane
1.717	557966	BV	0.090	1	64.243	Ethane
7.112	24175	BB	0.270	1	1.458	Butadiene
13.298	75633	BV	0.464	1	18.768	Methylene Chloride
14.767	171	BB	0.029	1	-0.373	Acrylonitrile

==========



External Standard Report

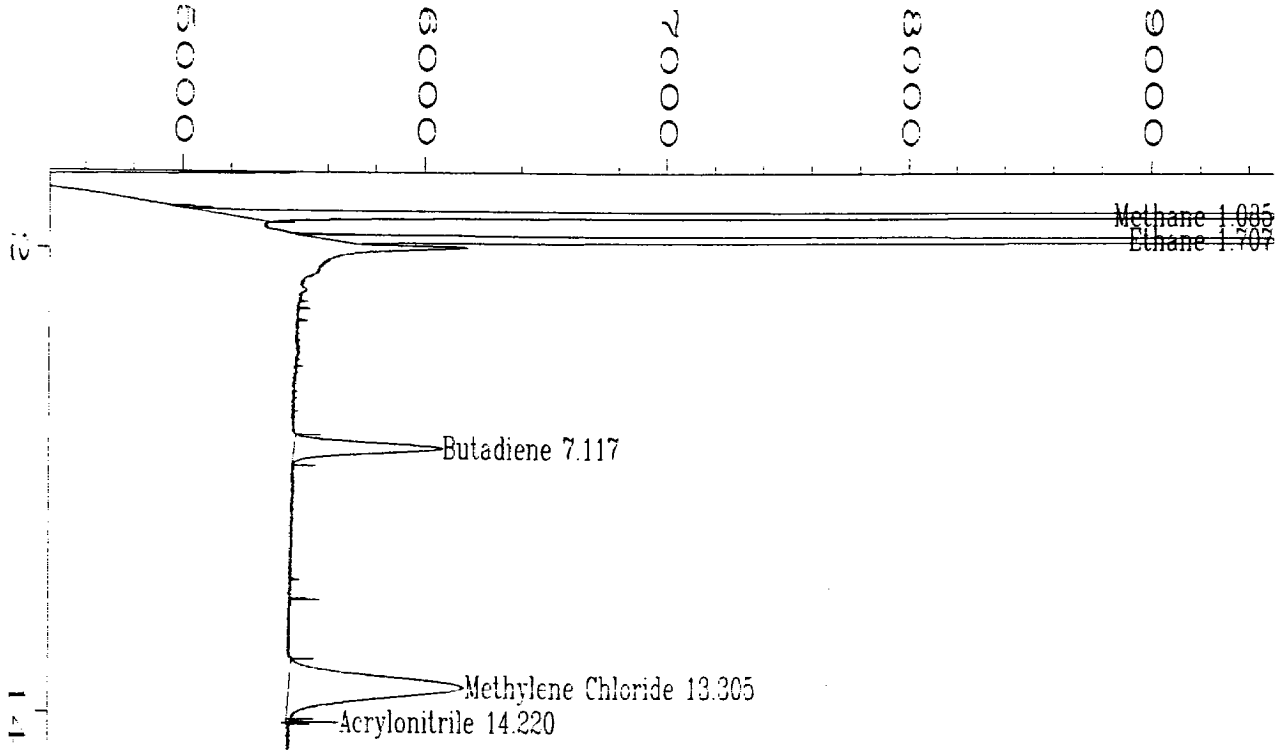
ata File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-5-04.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
ample Name	: Calibration	Injection Number	:
un Time Bar Code	:	Sequence Line	:
Acquired on	: 26 Jul 96 09:06 AM	Instrument Method	: OLD-GC.MTH
eport Created on	: 04 Aug 96 02:09 PM	Analysis Method	: OLD-GC.MTH
ast Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

ig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-5-04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.083	280702	BB	0.090	1	61.296	Methane
1.716	556037	BV	0.090	1	64.021	Ethane
7.113	24200	BB	0.281	1	1.459	Butadiene
13.301	75793	BB	0.504	1	18.807	Methylene Chloride
14.836 * not found *				1		Acrylonitrile

ot all calibrated peaks were found

SOLVAY2016_6_001486



==========

External Standard Report

==========

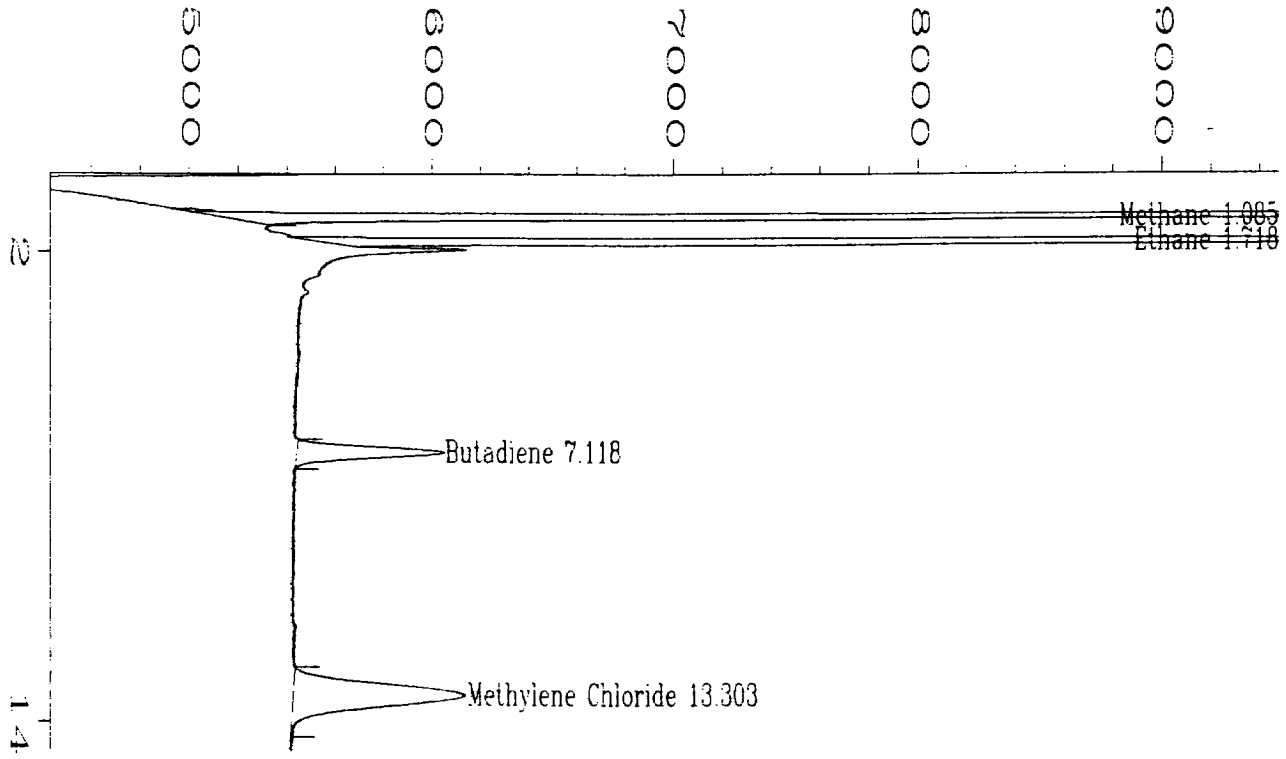
Data File Name : D:\SOLVAY\OLD_GC\CALS\BAG-6-01.D
Operator : J. Kaput
Instrument : OLD HP589
Sample Name : Calibration
Run Time Bar Code:
Acquired on : 26 Jul 96 09:28 AM
Report Created on: 04 Aug 96 02:09 PM
Last Recalib on : 04 AUG 96 01:59 PM
Multiplier : 1

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

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-6-01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.085	986180	BB	0.090	1	219.378	Methane
1.707	297426	PV	0.062	1	34.337	Ethane
7.117	11326	BB	0.229	1	0.659	Butadiene
13.305	27451	BV	0.460	1	6.838	Methylene Chloride
14.220	205	VB	0.030	1	-0.370	Acrylonitrile

==========



==========

External Standard Report

==========

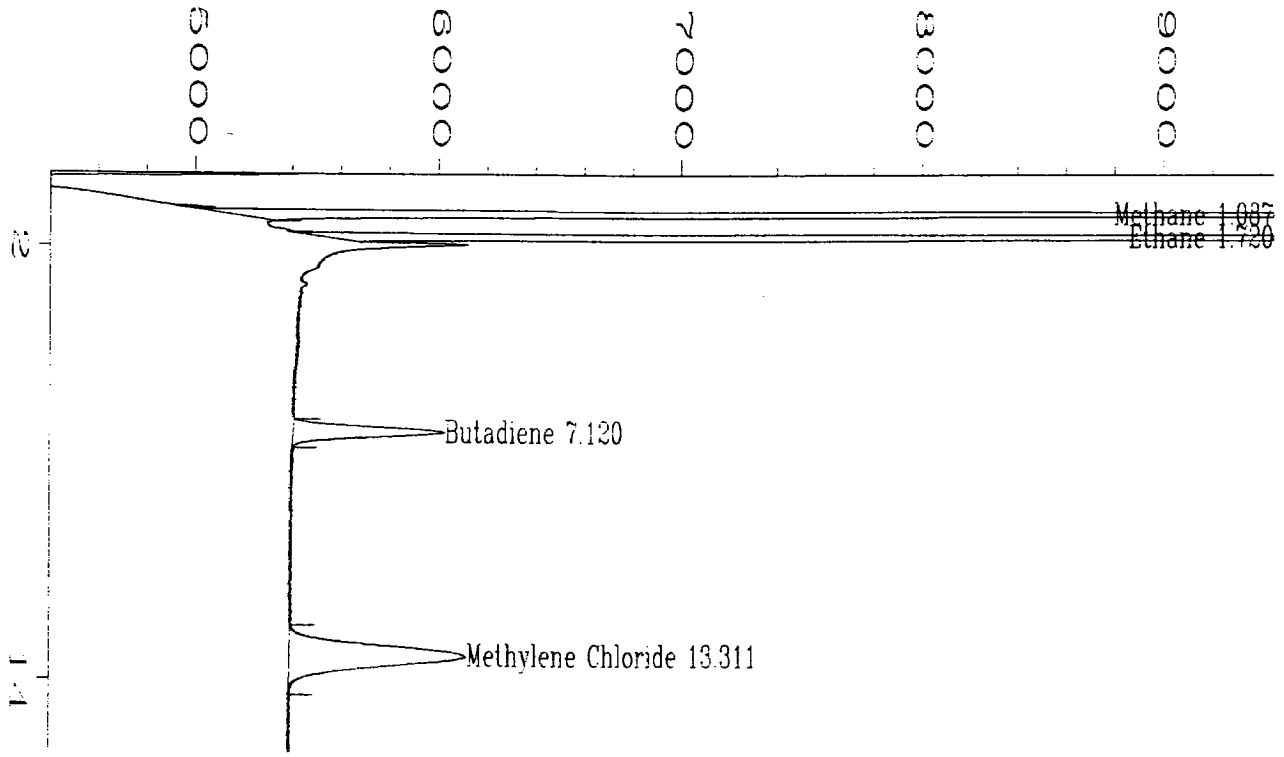
ata File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-6-02.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
ample Name	: Calibration	Injection Number	:
un Time Bar Code	:	Sequence Line	:
Acquired on	: 26 Jul 96 09:46 AM	Instrument Method	: OLD-GC.MTH
eport Created on	: 04 Aug 96 02:09 PM	Analysis Method	: OLD-GC.MTH
ast Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

ig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-6-02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.085	987841	BB	0.091	1	219.750	Methane
1.718	283742	BV	0.090	1	32.767	Ethane
7.118	11300	BB	0.234	1	0.657	Butadiene
13.303	27122	BB	0.463	1	6.757	Methylene Chloride
14.836	* not found *			1		Acrylonitrile

ot all calibrated peaks were found

==========



==========

External Standard Report

==========

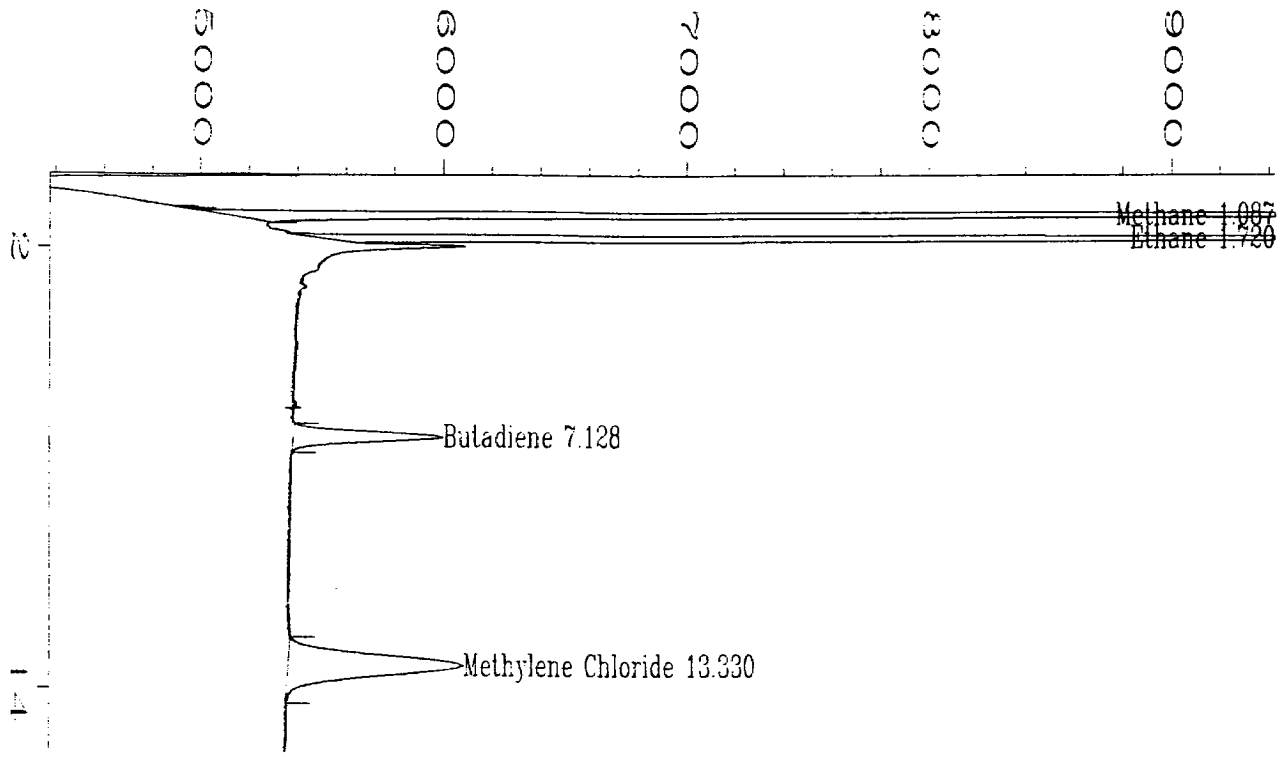
Data File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-6-03.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 26 Jul 96 10:02 AM	Instrument Method	: OLD-GC.MTH
Report Created on:	04 Aug 96 02:09 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-6-03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.087	994577	BB	0.091	1	221.259	Methane
1.720	285669	BV	0.091	1	32.988	Ethane
7.120	11536	BB	0.249	1	0.672	Butadiene
13.311	27849	BV	0.472	1	6.937	Methylene Chloride
14.836	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

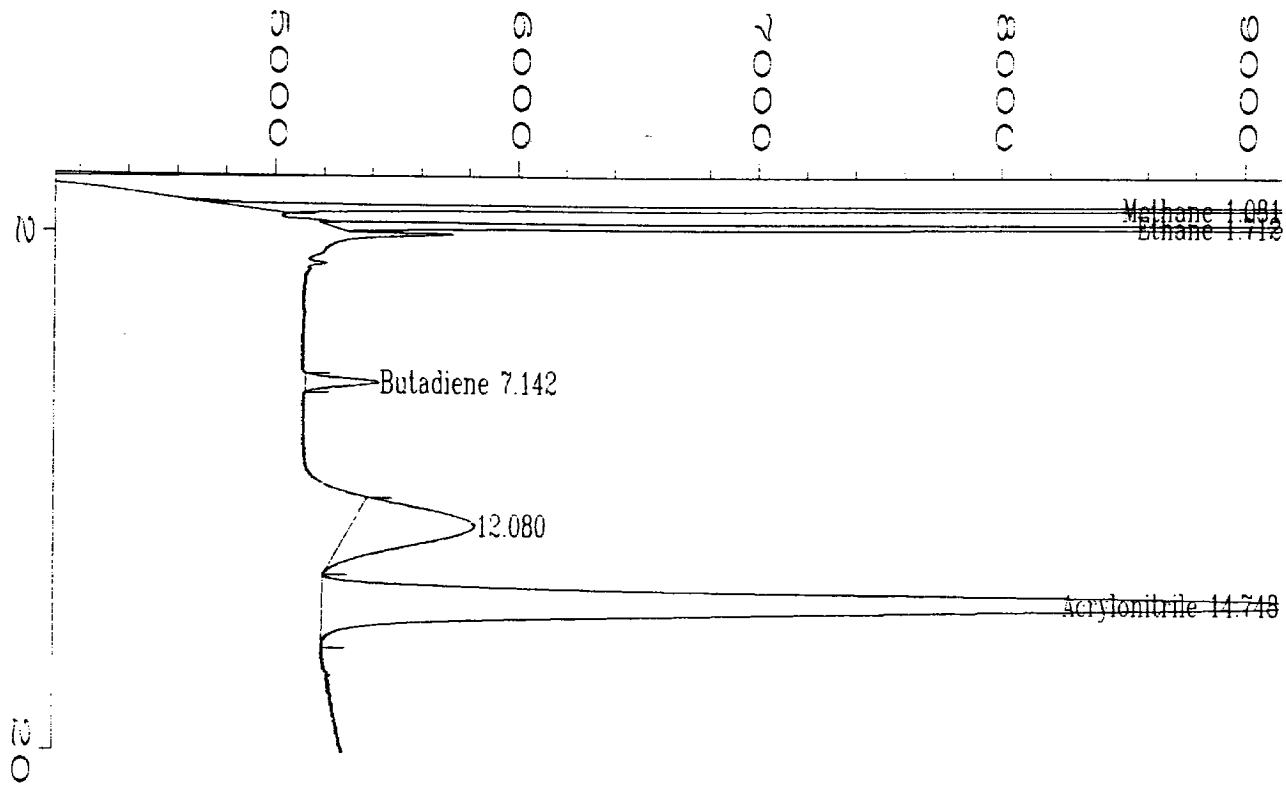
ata File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-6-04.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
ample Name	: Calibration	Injection Number	:
un Time Bar Code:		Sequence Line	:
Acquired on	: 26 Jul 96 10:20 AM	Instrument Method	: OLD-GC.MTH
eport Created on	: 04 Aug 96 02:09 PM	Analysis Method	: OLD-GC.MTH
ast Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

ig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-6-04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.087	987663	BB	0.091	1	219.710	Methane
1.720	283694	BV	0.091	1	32.761	Ethane
7.128	11383	BB	0.236	1	0.663	Butadiene
13.330	27336	BB	0.459	1	6.810	Methylene Chloride
14.836 * not found *				1		Acrylonitrile

ot all calibrated peaks were found

==========



==========

External Standard Report

==========

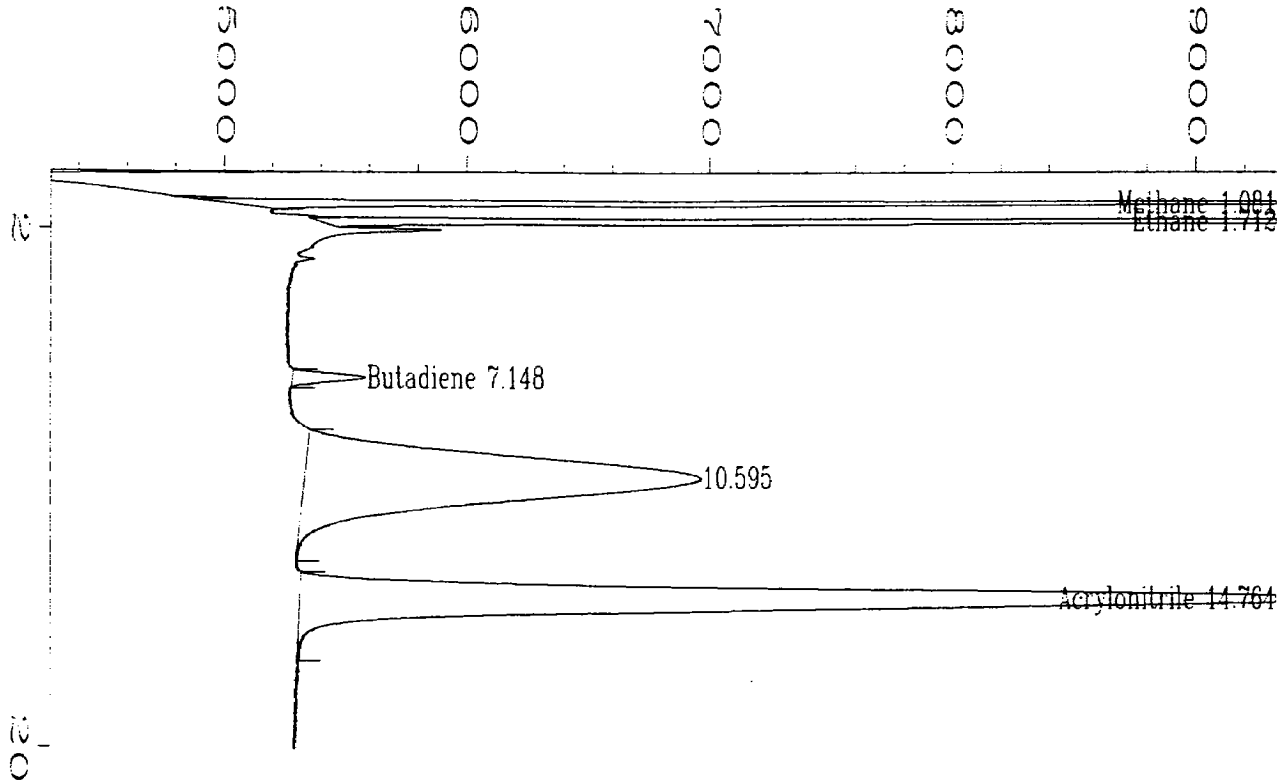
Data File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-7-01.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 27 Jul 96 01:00 PM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:10 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-7-01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.081	1284068	BB	0.090	1	286.128	Methane
1.712	770991	BB	0.091	1	88.694	Ethane
7.142	5525	BB	0.236	1	0.299	Butadiene
13.312	* not found *			1		Methylene Chloride
14.748	193307	PB	0.535	1	16.259	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

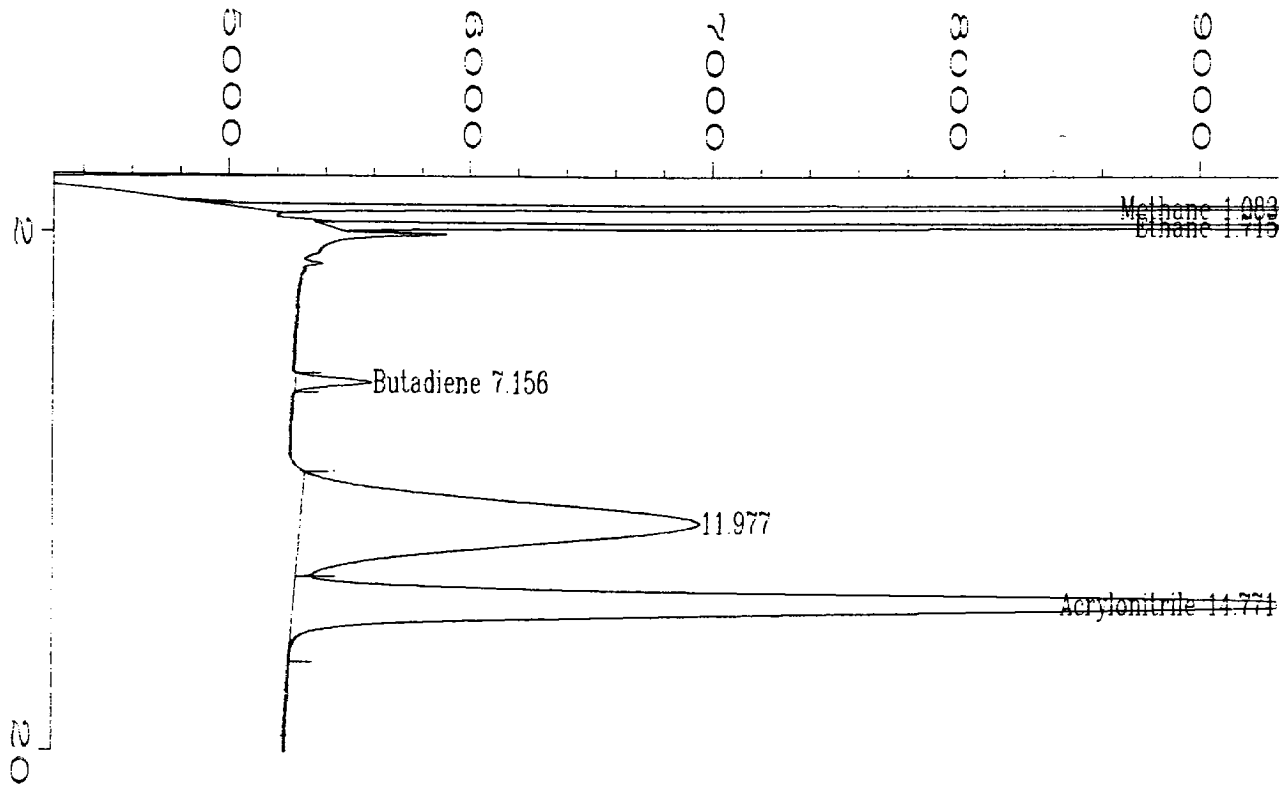
Data File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-7-02.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 27 Jul 96 01:23 PM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:10 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Fig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-7-02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.081	1294895	BB	0.091	1	288.554	Methane
1.712	777348	BB	0.091	1	89.424	Ethane
7.148	5510	BB	0.238	1	0.298	Butadiene
13.312	* not found *			1		Methylene Chloride
14.764	199547	BB	0.636	1	16.796	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

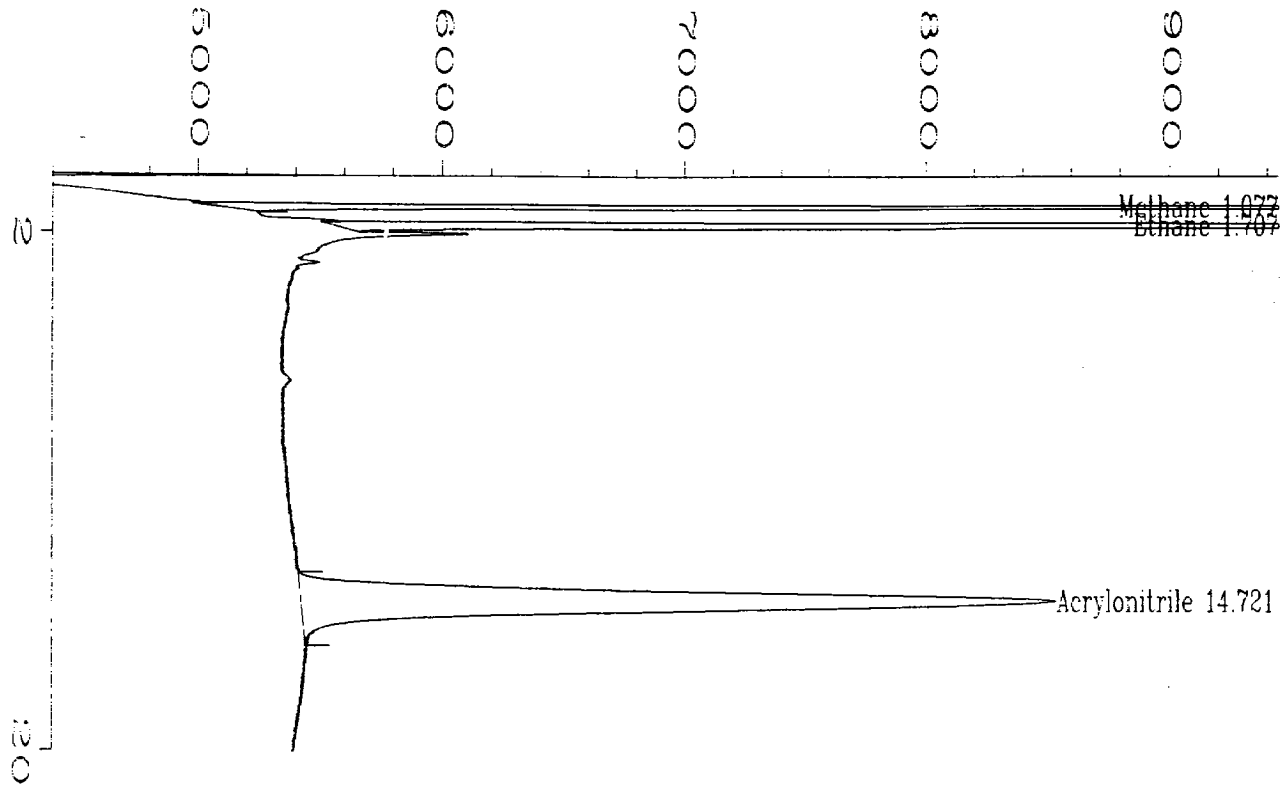
Data File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-7-03.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 27 Jul 96 01:46 PM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:10 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-7-03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.083	1295091	BB	0.091	1	288.598	Methane
1.715	777327	BB	0.091	1	89.421	Ethane
7.156	5693	BB	0.238	1	0.309	Butadiene
13.312	* not found *			1		Methylene Chloride
14.771	199121	VB	0.650	1	16.759	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

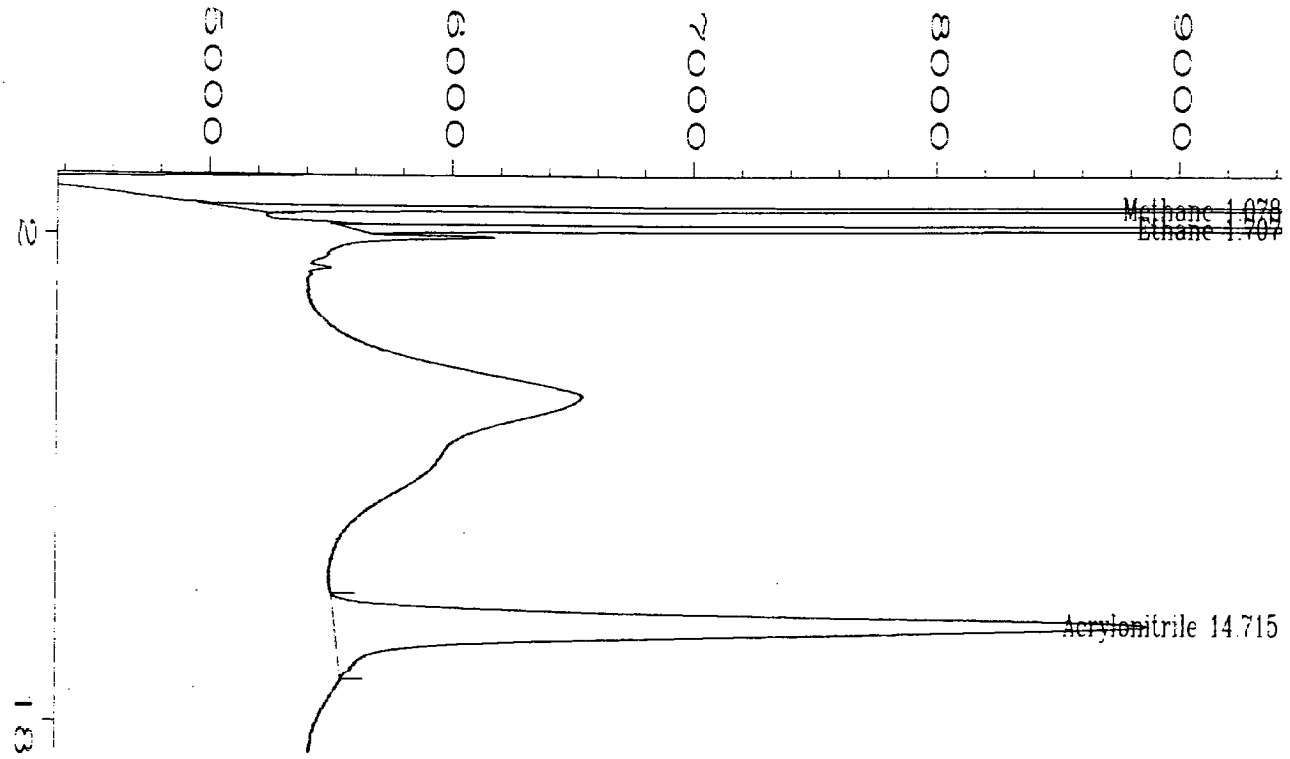
ata File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-8-01.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
ample Name	: Calibration	Injection Number	:
un Time Bar Code:		Sequence Line	:
Acquired on	: 27 Jul 96 11:05 AM	Instrument Method	: OLD-GC.MTH
eport Created on	: 04 Aug 96 02:10 PM	Analysis Method	: OLD-GC.MTH
ast Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

ig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-8-01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.077	581253	BB	0.089	1	128.643	Methane
1.707	1161794	BV	0.090	1	133.551	Ethane
7.120	* not found *			1		Butadiene
13.312	* not found *			1		Methylene Chloride
14.721	139706	BB	0.538	1	11.643	Acrylonitrile

ot all calibrated peaks were found

==========



==========

External Standard Report

==========

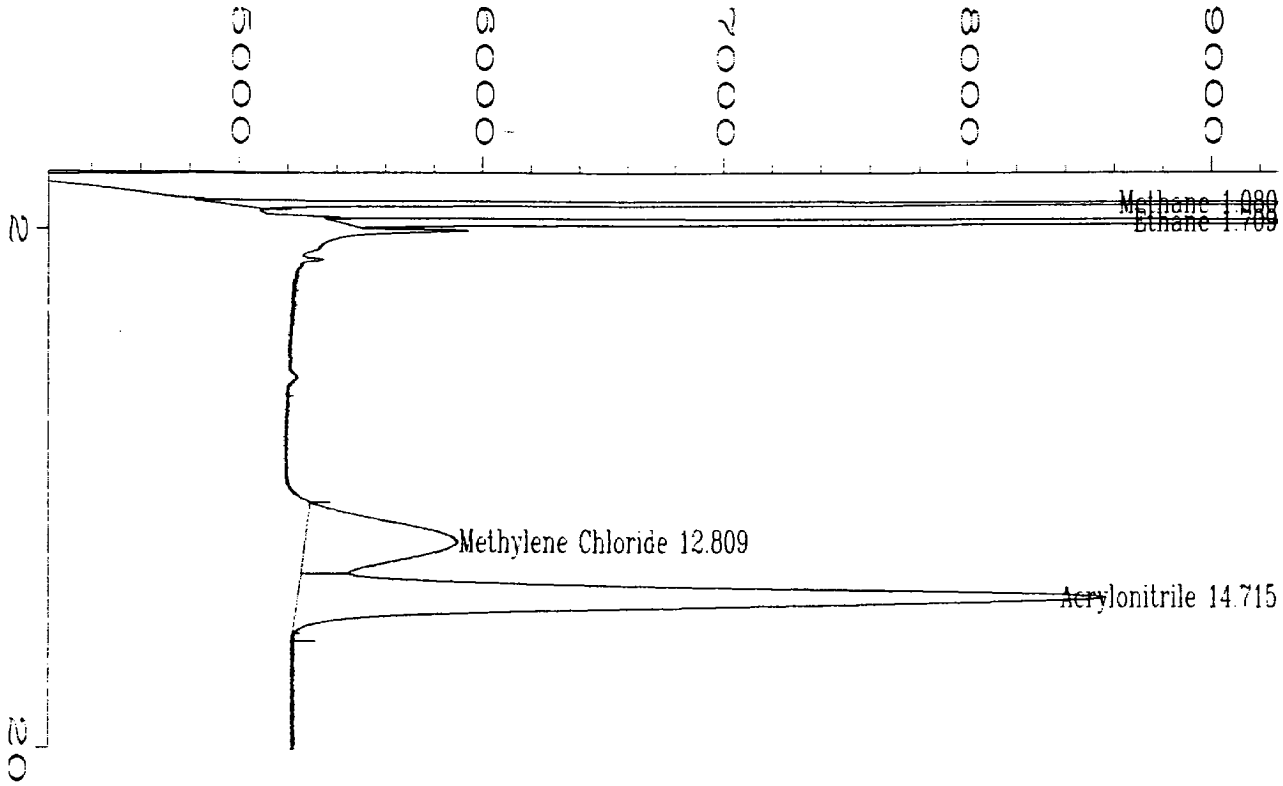
Data File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-8-02.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 27 Jul 96 11:32 AM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:10 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-8-02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.078	594678	BB	0.091	1	131.651	Methane
1.707	1188024	BV	0.091	1	136.562	Ethane
7.120	* not found *			1		Butadiene
13.312	* not found *			1		Methylene Chloride
14.715	156388	BB	0.577	1	13.079	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

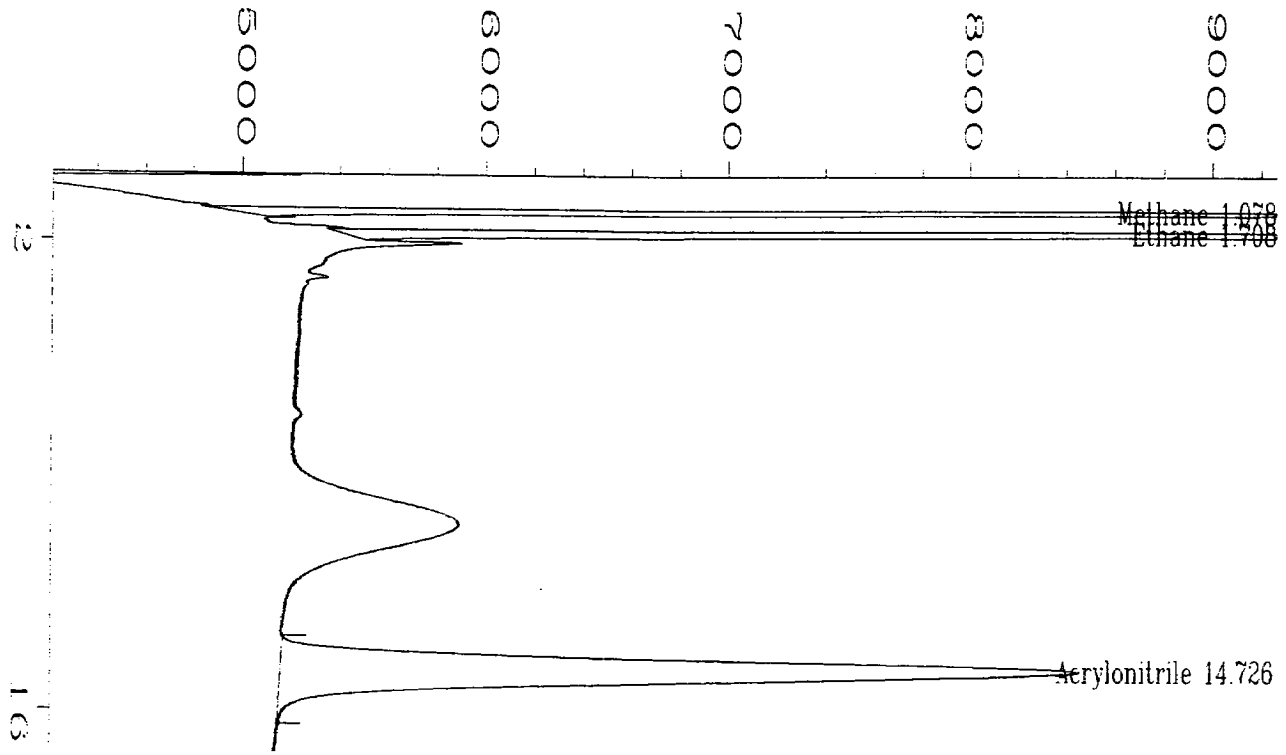
ata File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-8-04.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
ample Name	: Calibration	Injection Number	:
un Time Bar Code:		Sequence Line	:
Acquired on	: 27 Jul 96 12:14 PM	Instrument Method	: OLD-GC.MTH
eport Created on	: 04 Aug 96 02:11 PM	Analysis Method	: OLD-GC.MTH
ast Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

ig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-8-04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.080	596183	BB	0.091	1	131.988	Methane
1.709	1191439	BV	0.091	1	136.954	Ethane
7.120	* not found *			1		Butadiene
12.809	55739	BV	1.099	1	13.842	Methylene Chloride
14.715	151374	VB	0.561	1	12.648	Acrylonitrile

ot all calibrated peaks were found

==========



==========

External Standard Report

==========

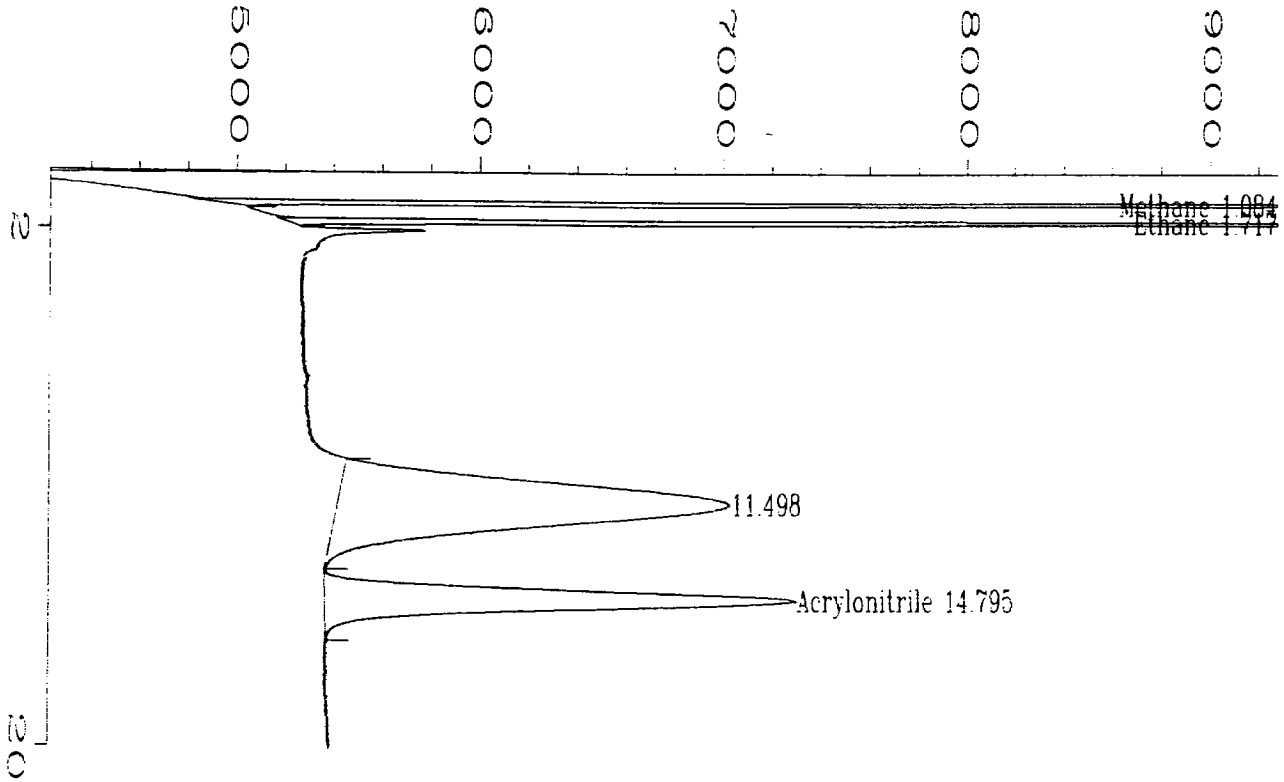
Data File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-8-05.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 27 Jul 96 12:37 PM	Instrument Method	: OLD-GC.MTH
Report Created on:	04 Aug 96 02:11 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-8-05.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.078	586862	BB	0.090	1	129.899	Methane
1.708	1172463	BV	0.090	1	134.776	Ethane
7.120	* not found *			1		Butadiene
13.312	* not found *			1		Methylene Chloride
14.726	148464	BB	0.543	1	12.397	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

ata File Name : D:\SOLVAY\OLD_GC\CALS\BAG-9-01.D
Operator : J. Kaput
Instrument : OLD HP589
ample Name : Calibration
un Time Bar Code:
Acquired on : 27 Jul 96 02:09 PM
eport Created on: 04 Aug 96 02:11 PM
ast Recalib on : 04 AUG 96 01:59 PM
Multiplier : 1

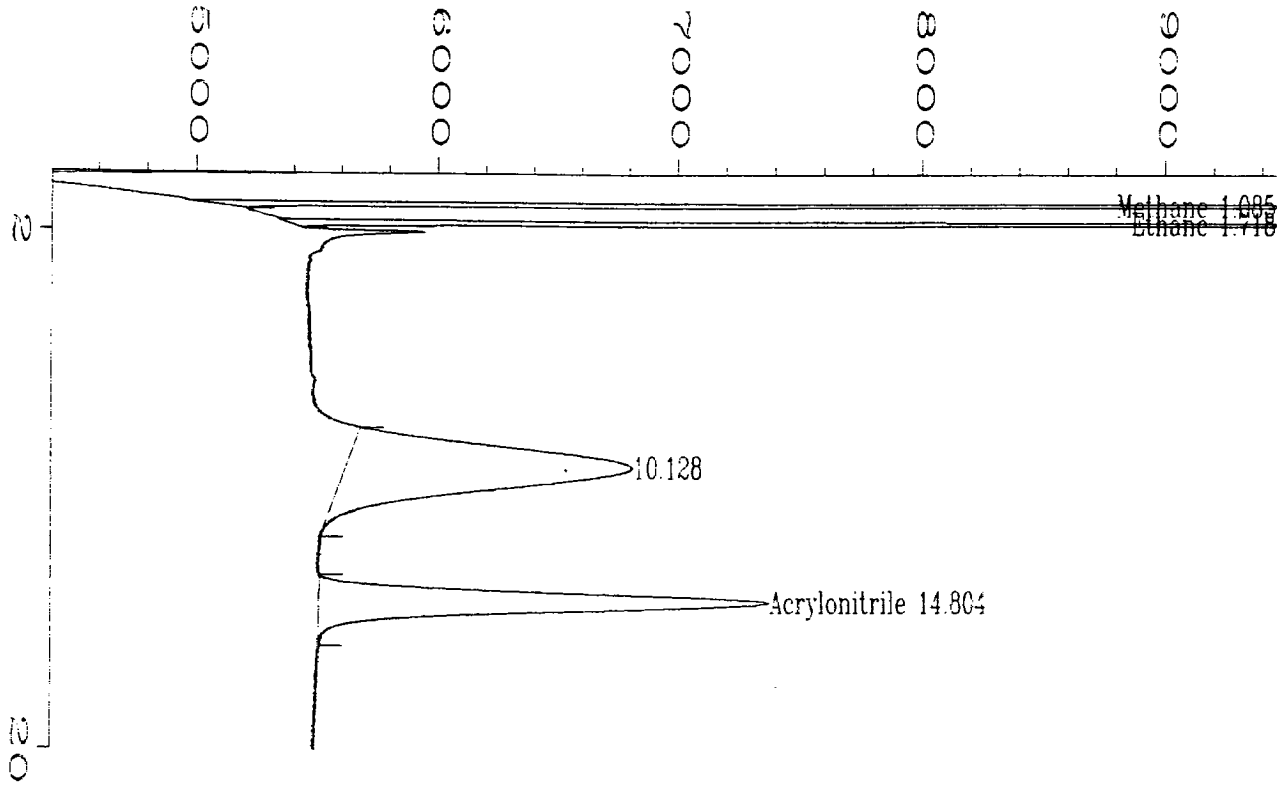
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH
Sample Amount : 0
ISTD Amount :

ig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-9-01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.084	148915	BB	0.090	1	31.765	Methane
1.717	120512	BB	0.091	1	14.031	Ethane
7.120	* not found *			1		Butadiene
13.312	* not found *			1		Methylene Chloride
14.795	86926	PB	0.533	1	7.098	Acrylonitrile

ot all calibrated peaks were found

==========



==========

External Standard Report

==========

Data File Name : D:\SOLVAY\OLD_GC\CALS\BAG-9-02.D
Operator : J. Kaput
Instrument : OLD HP589
Sample Name : Calibration
Run Time Bar Code:
Acquired on : 27 Jul 96 02:33 PM
Report Created on: 04 Aug 96 02:11 PM
Last Recalib on : 04 AUG 96 01:59 PM
Multiplier : 1

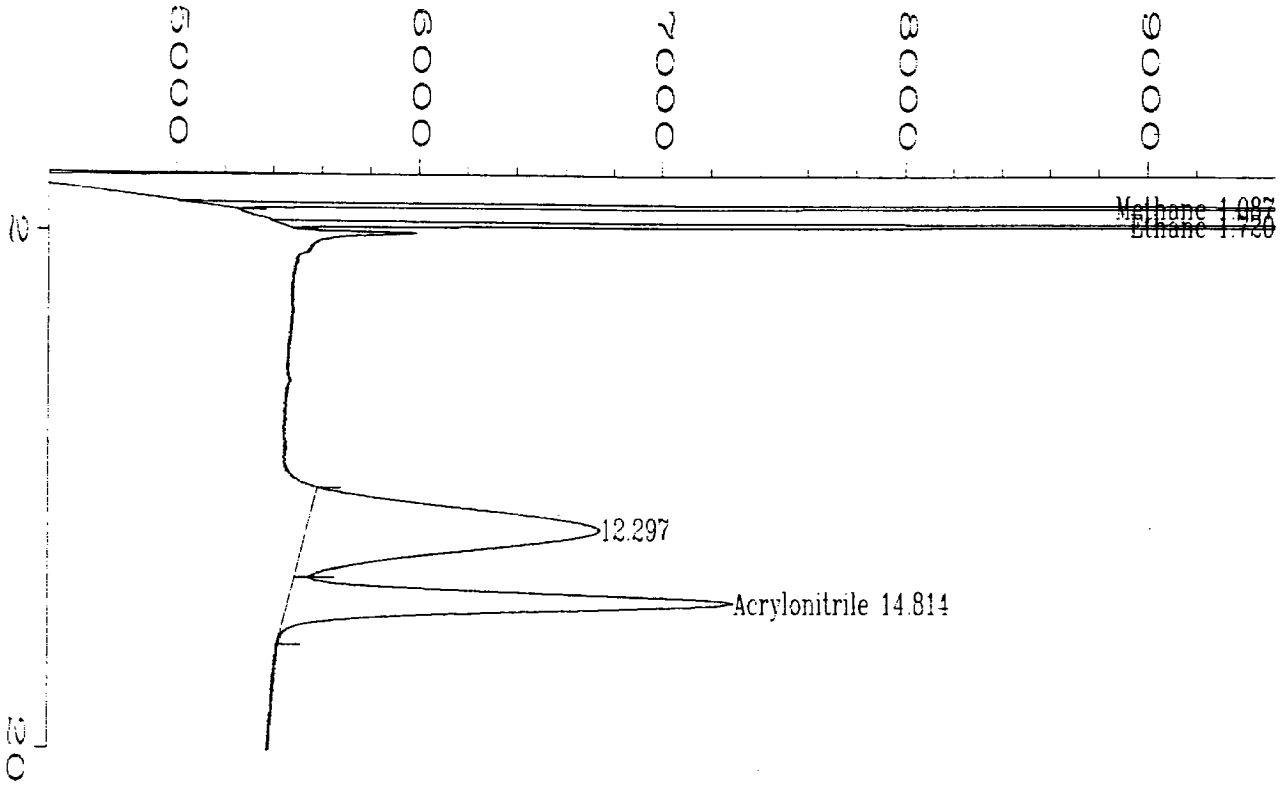
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-9-02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.085	148127	BB	0.090	1	31.588	Methane
1.718	119872	BB	0.091	1	13.957	Ethane
7.120	* not found *			1		Butadiene
13.312	* not found *			1		Methylene Chloride
14.804	84127	BB	0.540	1	6.857	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

ata File Name : D:\SOLVAY\OLD_GC\CALS\BAG-9-03.D
Operator : J. Kaput
Instrument : OLD HP589
ample Name : Calibration
un Time Bar Code:
Acquired on : 27 Jul 96 02:55 PM
eport Created on: 04 Aug 96 02:11 PM
ast Recalib on : 04 AUG 96 01:59 PM
Multiplier : 1

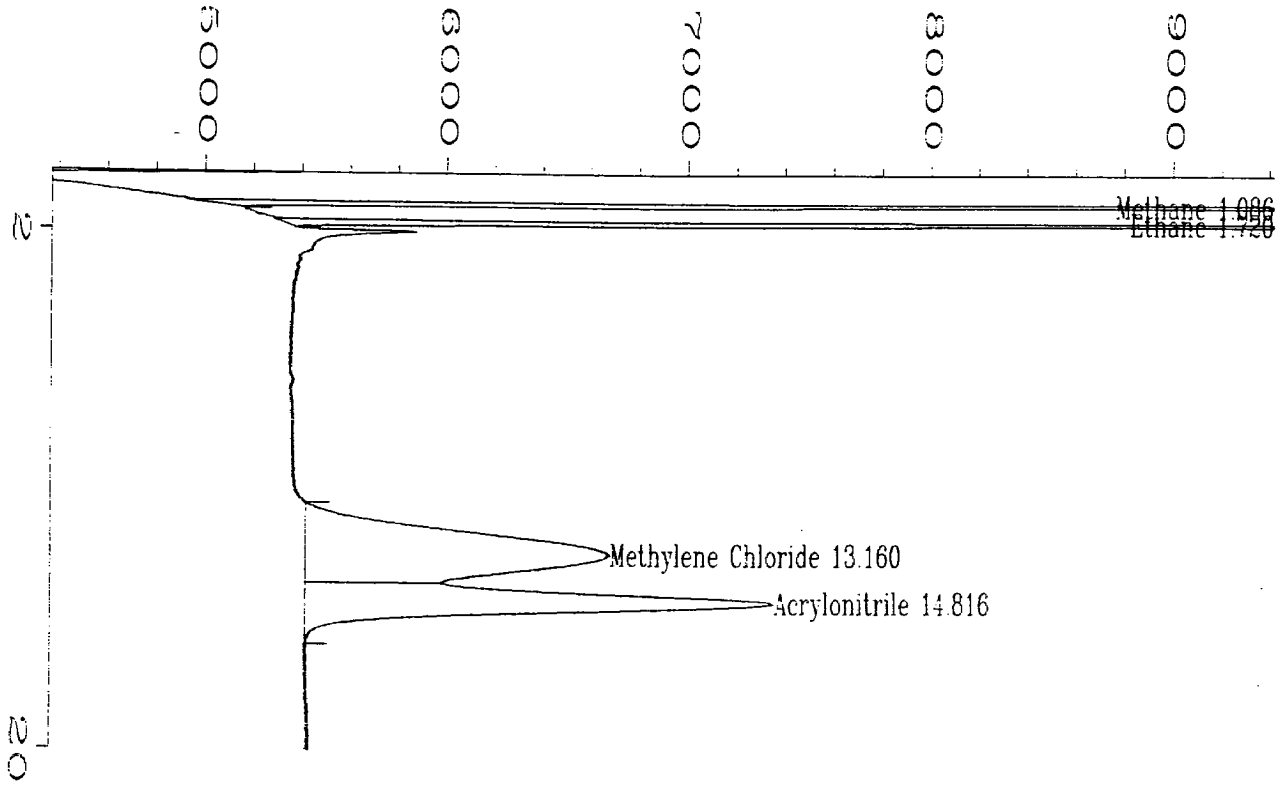
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH
Sample Amount : 0
ISTD Amount :

ig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-9-03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.087	147709	BB	0.090	1	31.495	Methane
1.720	119641	BB	0.091	1	13.931	Ethane
7.120	* not found *			1		Butadiene
13.312	* not found *			1		Methylene Chloride
14.814	81931	VB	0.543	1	6.668	Acrylonitrile

ot all calibrated peaks were found

==========



==========

External Standard Report

==========

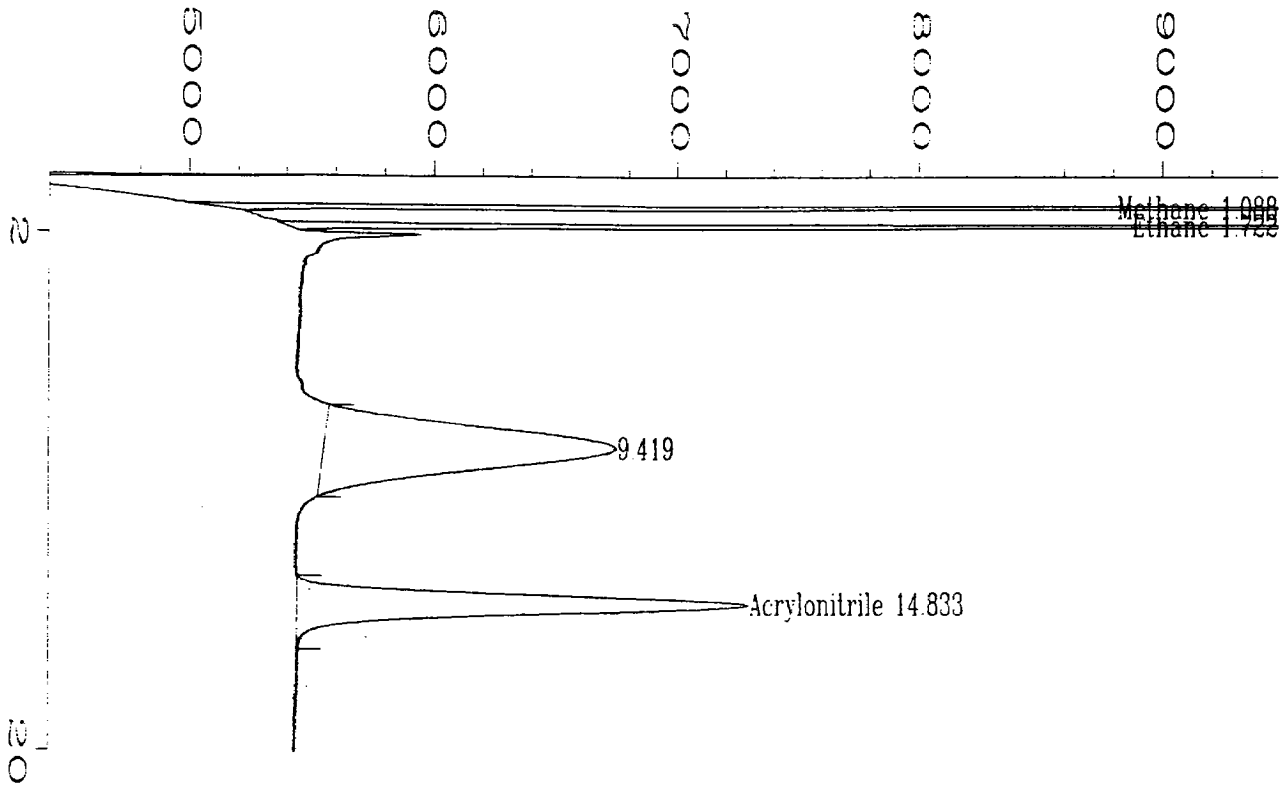
Data File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-9-04.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 27 Jul 96 03:16 PM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:12 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-9-04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.086	148279	BB	0.090	1	31.622	Methane
1.720	120013	BB	0.091	1	13.973	Ethane
7.120	* not found *			1		Butadiene
13.160	120015	BV	1.142	1	29.756	Methylene Chloride
14.816	93363	VB	0.571	1	7.652	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

ata File Name : D:\SOLVAY\OLD_GC\CALS\BAG-9-05.D
Operator : J. Kaput
Instrument : OLD HP589
ample Name : Calibration
un Time Bar Code:
Acquired on : 27 Jul 96 03:41 PM
eport Created on: 04 Aug 96 02:12 PM
ast Recalib on : 04 AUG 96 01:59 PM
Multiplier : 1

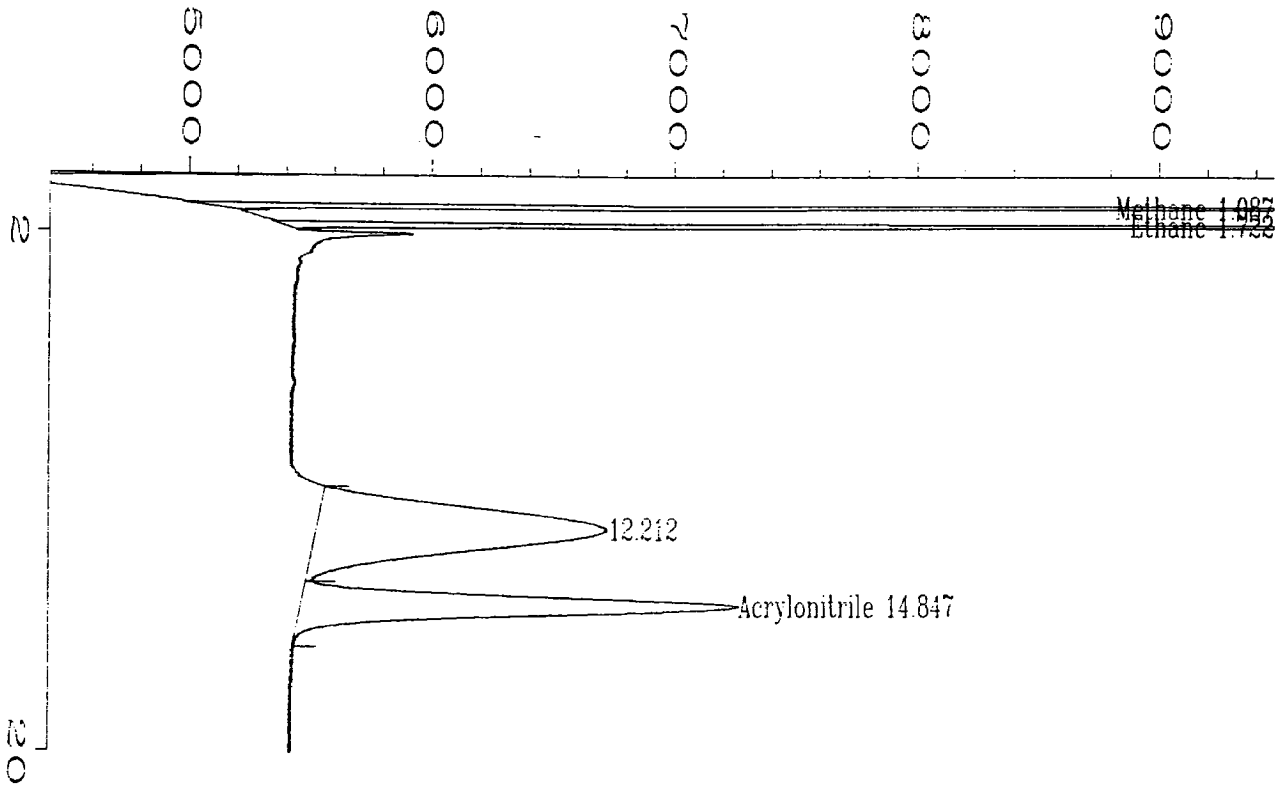
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH
Sample Amount : 0
ISTD Amount :

ig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-9-05.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.088	148459	BB	0.091	1	31.663	Methane
1.722	120119	BB	0.091	1	13.986	Ethane
7.120	* not found *			1		Butadiene
13.312	* not found *			1		Methylene Chloride
14.833	83372	BV	0.544	1	6.792	Acrylonitrile

ot all calibrated peaks were found

==========



==========

External Standard Report

==========

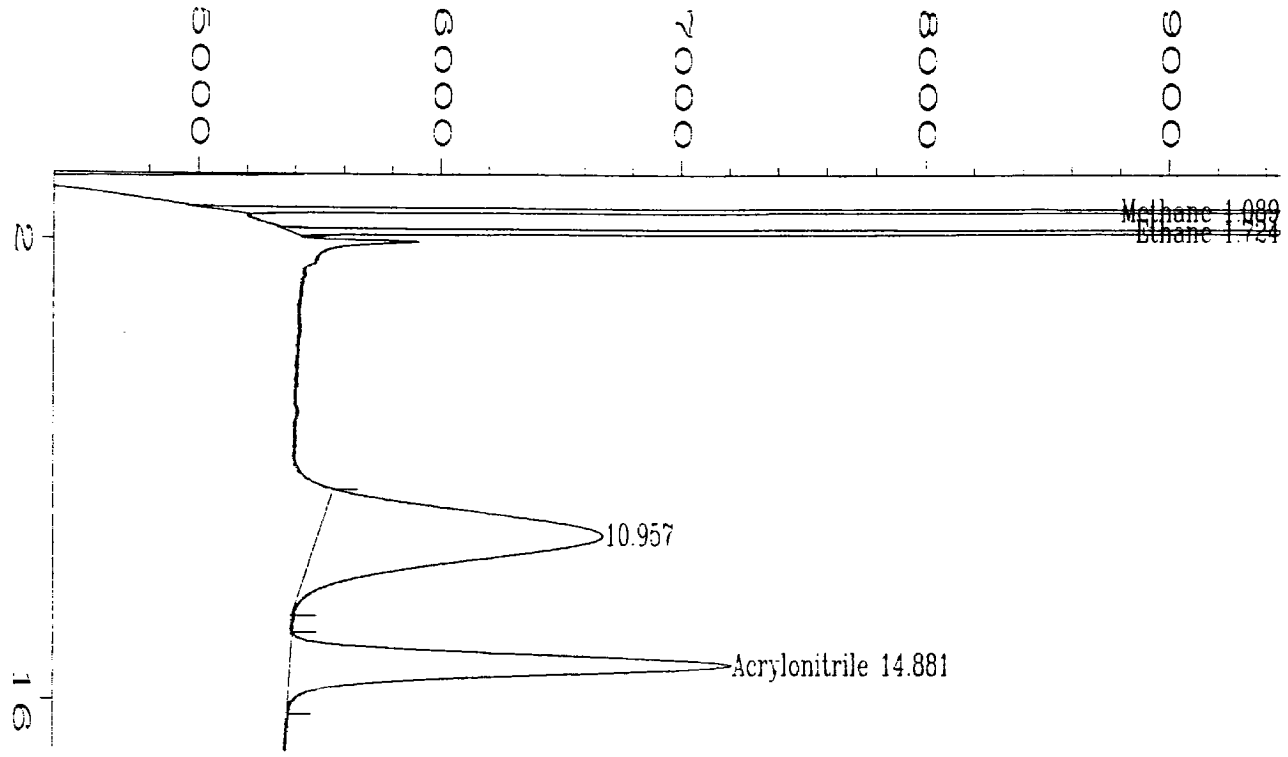
Data File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-9-06.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Calibration	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 27 Jul 96 04:04 PM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:12 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-9-06.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.087	147924	BB	0.090	1	31.543	Methane
1.722	119682	BB	0.091	1	13.935	Ethane
7.120	* not found *			1		Butadiene
13.312	* not found *			1		Methylene Chloride
14.847	79982	VB	0.531	1	6.500	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

ata File Name	: D:\SOLVAY\OLD_GC\CALS\BAG-9-07.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
ample Name	: Calibration	Injection Number	:
un Time Bar Code	:	Sequence Line	:
Acquired on	: 27 Jul 96 04:27 PM	Instrument Method	: OLD-GC.MTH
eport Created on	: 04 Aug 96 02:12 PM	Analysis Method	: OLD-GC.MTH
ast Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

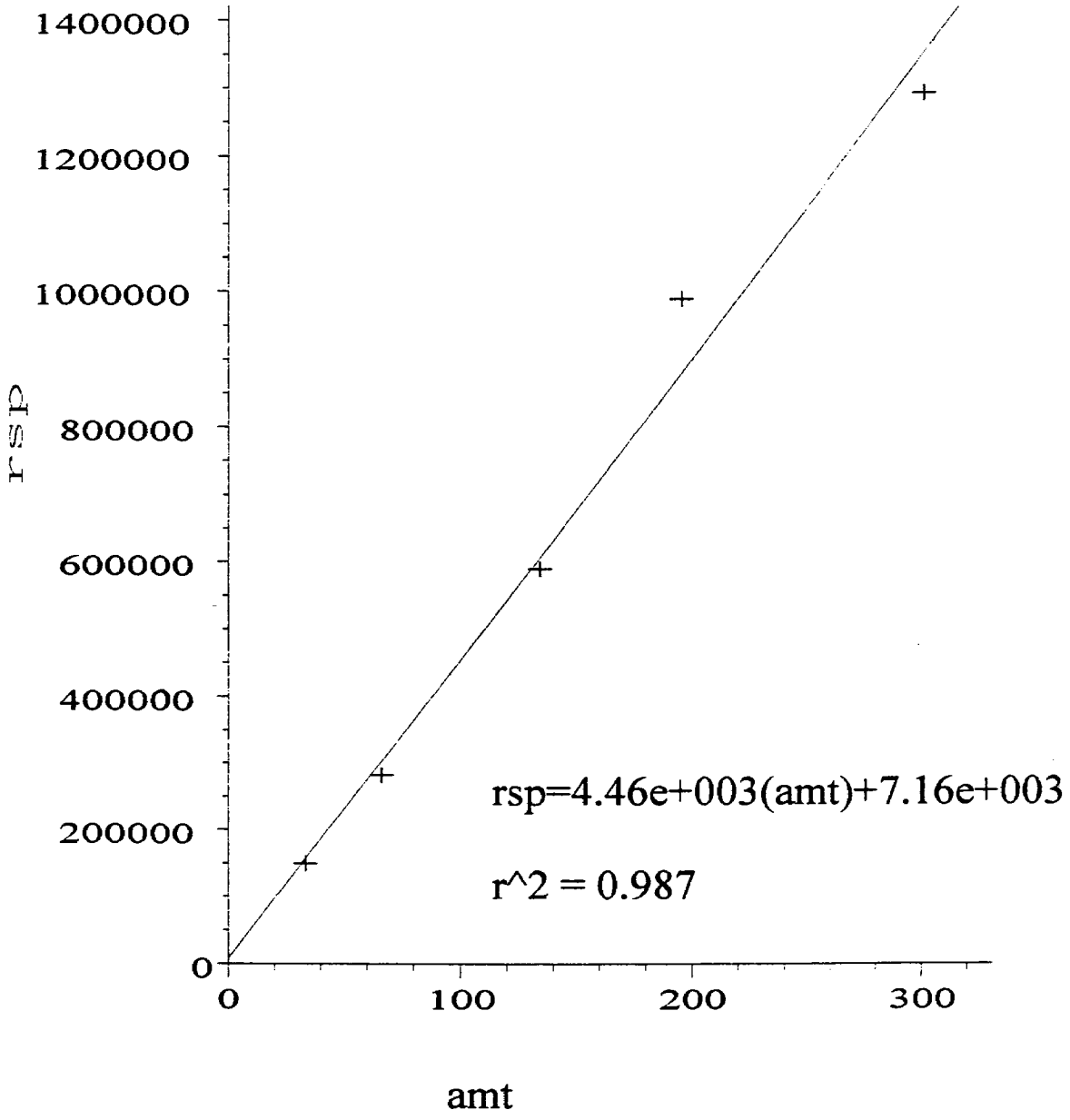
ig. 2 in D:\SOLVAY\OLD_GC\CALS\BAG-9-07.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.089	148005	BB	0.090	1	31.561	Methane
1.724	119672	BB	0.091	1	13.934	Ethane
7.120	* not found *			1		Butadiene
13.312	* not found *			1		Methylene Chloride
14.881	81977	BB	0.538	1	6.672	Acrylonitrile

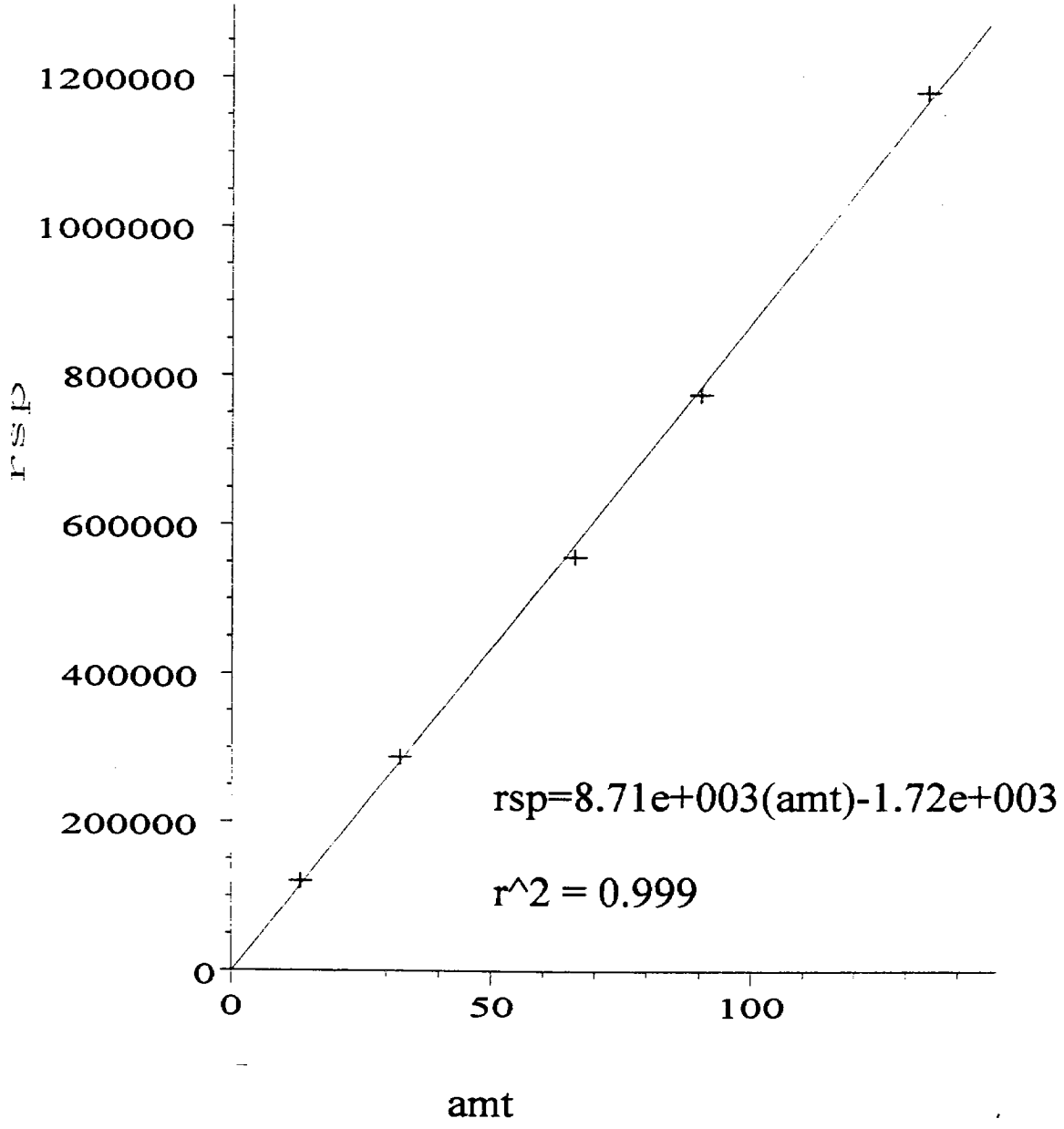
ot all calibrated peaks were found

==========

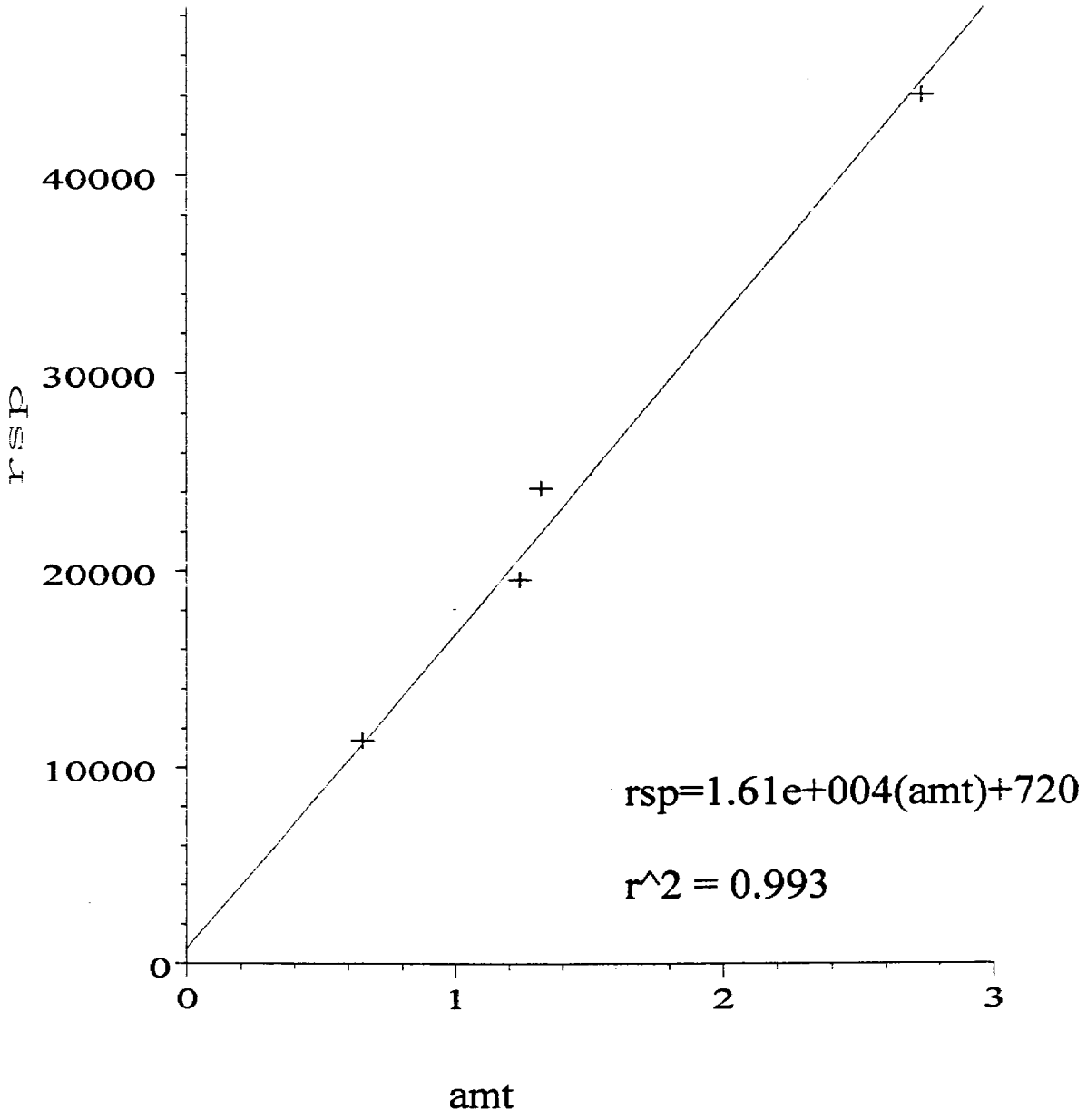
Methane


1400000
1200000
1000000
800000
600000
400000
200000
0
rsp
0
100
200
300
amt
rsp=4.46e+003(amt)+7.16e+003
r^2 = 0.987

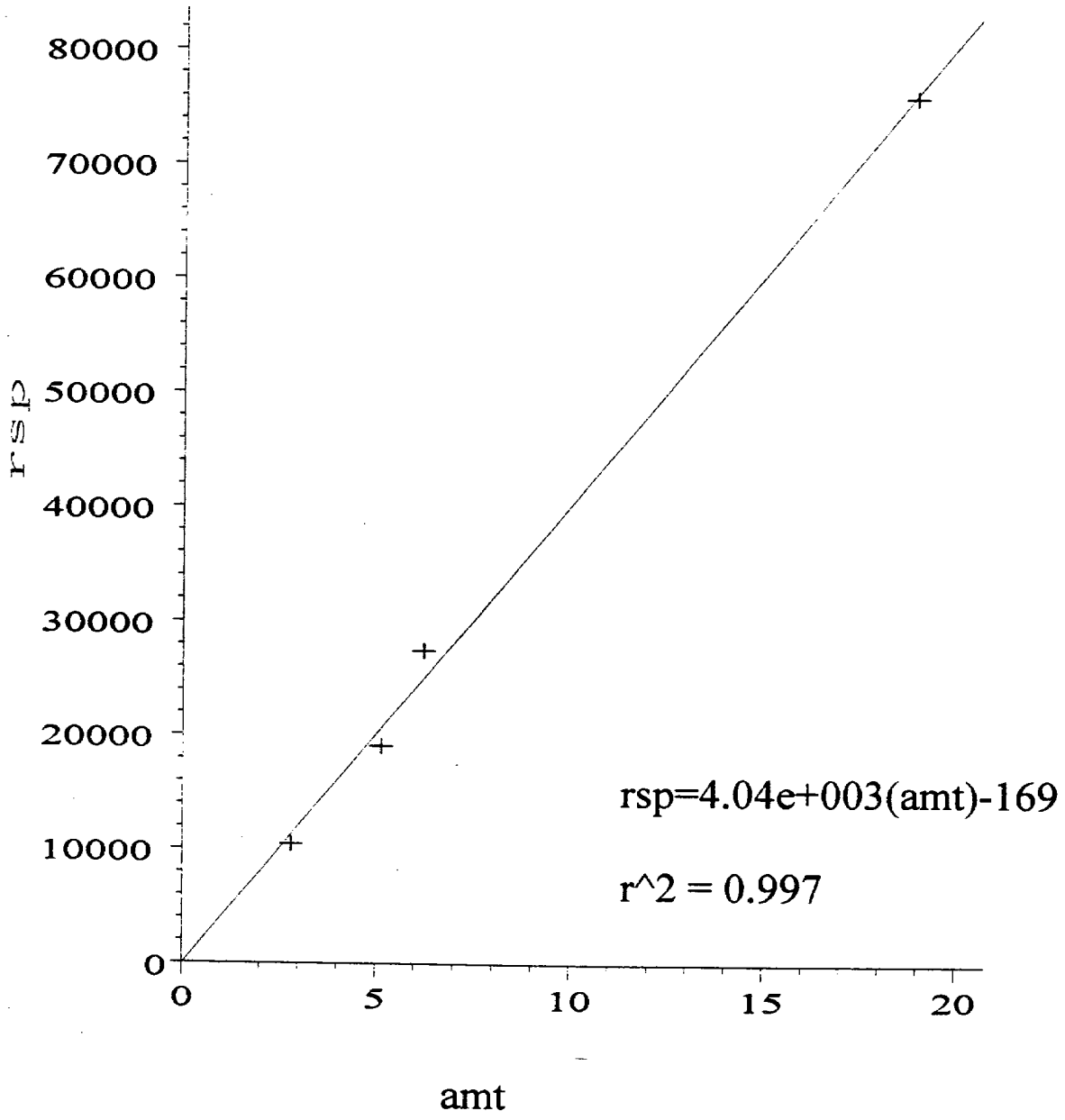
Ethane


1200000
1000000
800000
600000
400000
200000
0
rsp
0
50
100
amt
rsp=8.71e+003(amt)-1.72e+003
r^2 = 0.999

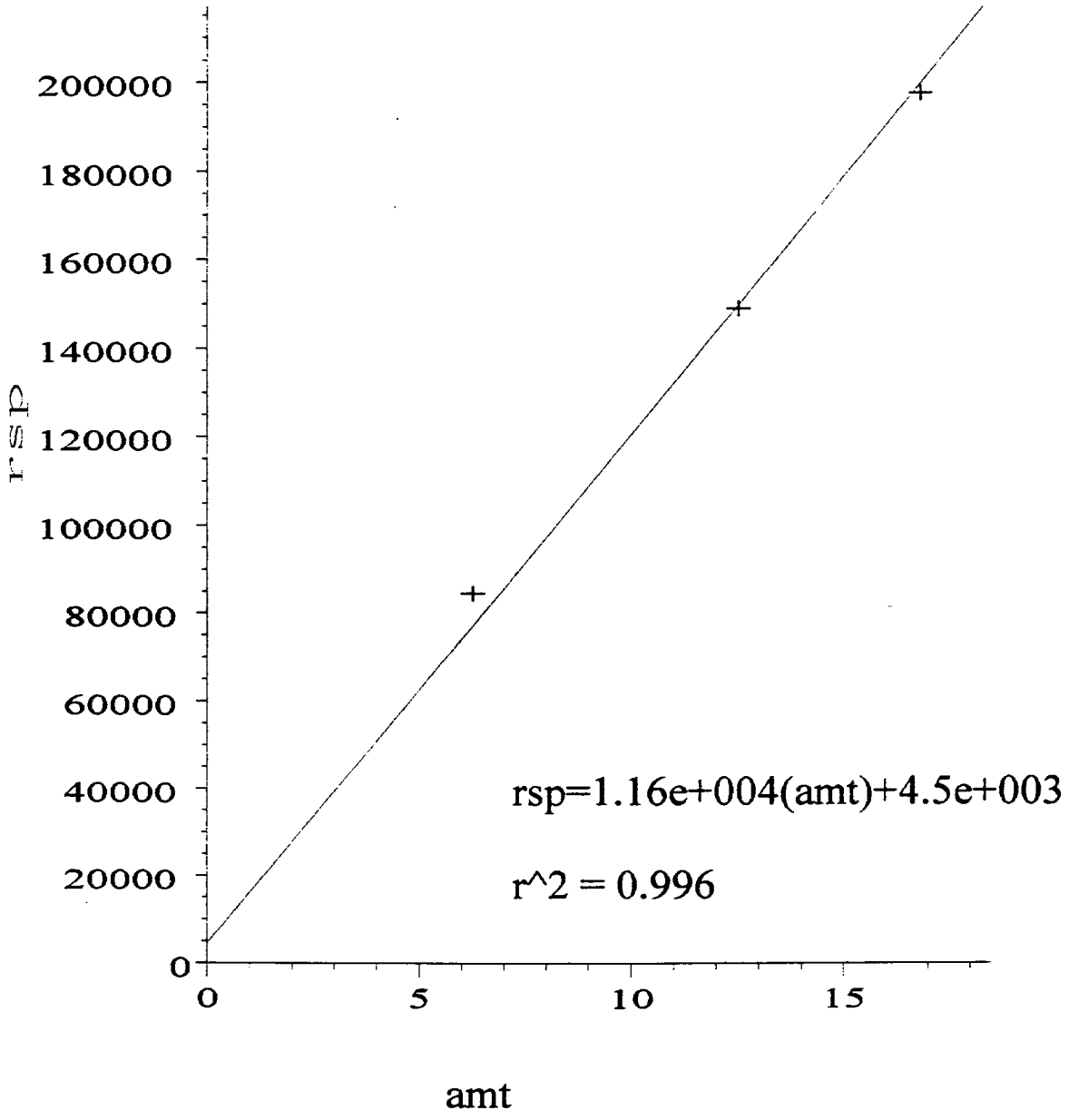
Butadiene


40000
30000
20000
10000
0
rsp
0
1
2
3
amt
rsp=1.61e+004(amt)+720
r^2 = 0.993

Methylene Chloride



Acrylonitrile

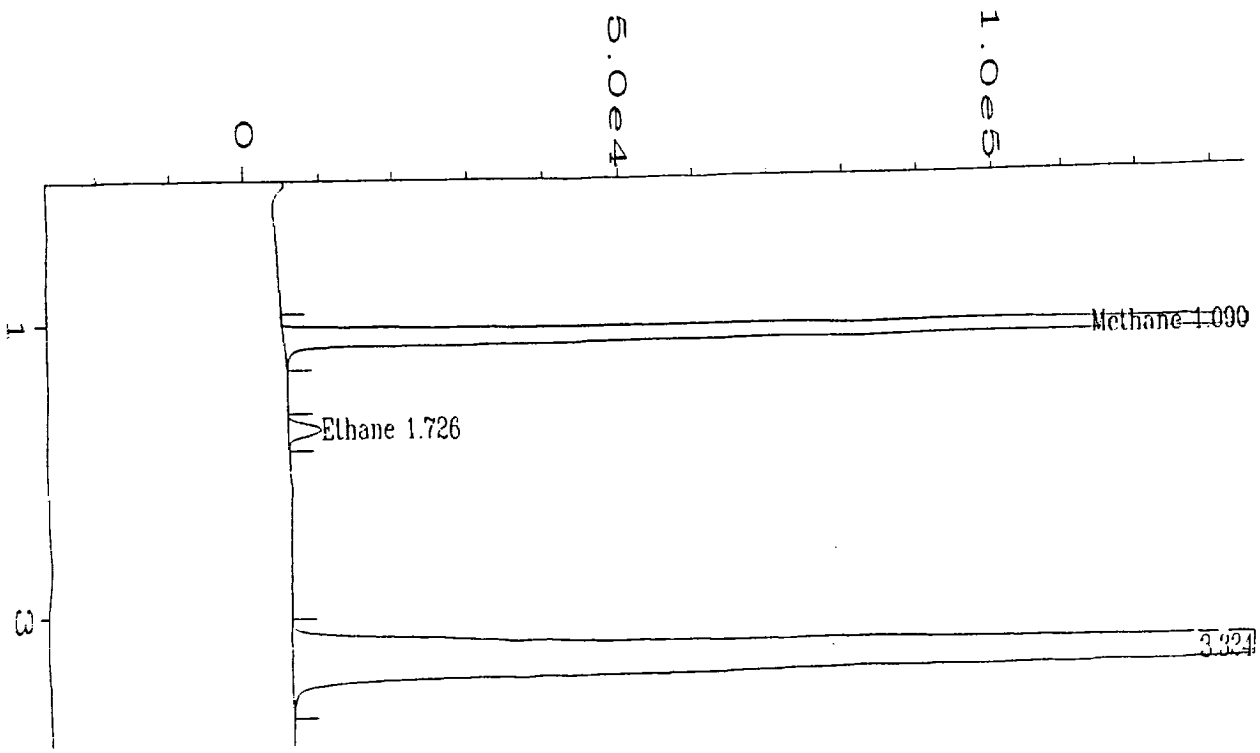


SOLVAY MINERALS, INC.
CAE Project No. 7747-1
July 24, 1996

Recovery Check

The recovery check compared area counts for the 250ppm Propane Calibration Gas. In a Tedlar Bag and Flowed to the Probe

Trial no.	**Standard (area count)**	**System (area count)**	**Recovery (%)**
1	2,538,172	2,582,912	101.76
2	2,524,518	2,626,325	104.03
3	2,531,317	2,584,761	102.11
4	**2,531,336**	**2,597,999**	102.63
		Average Recovery	**102.64**



==========

Area Percent Report

==========

Data File Name : D:\SOLVAY\OLD_GC\CALS\250BAG-1.D
Operator : J. Kaput
Instrument : OLD HP589
Sample Name : Calibration
Run Time Bar Code:
Acquired on : 27 Jul 96 04:45 PM
Report Created on: 04 Aug 96 03:00 PM

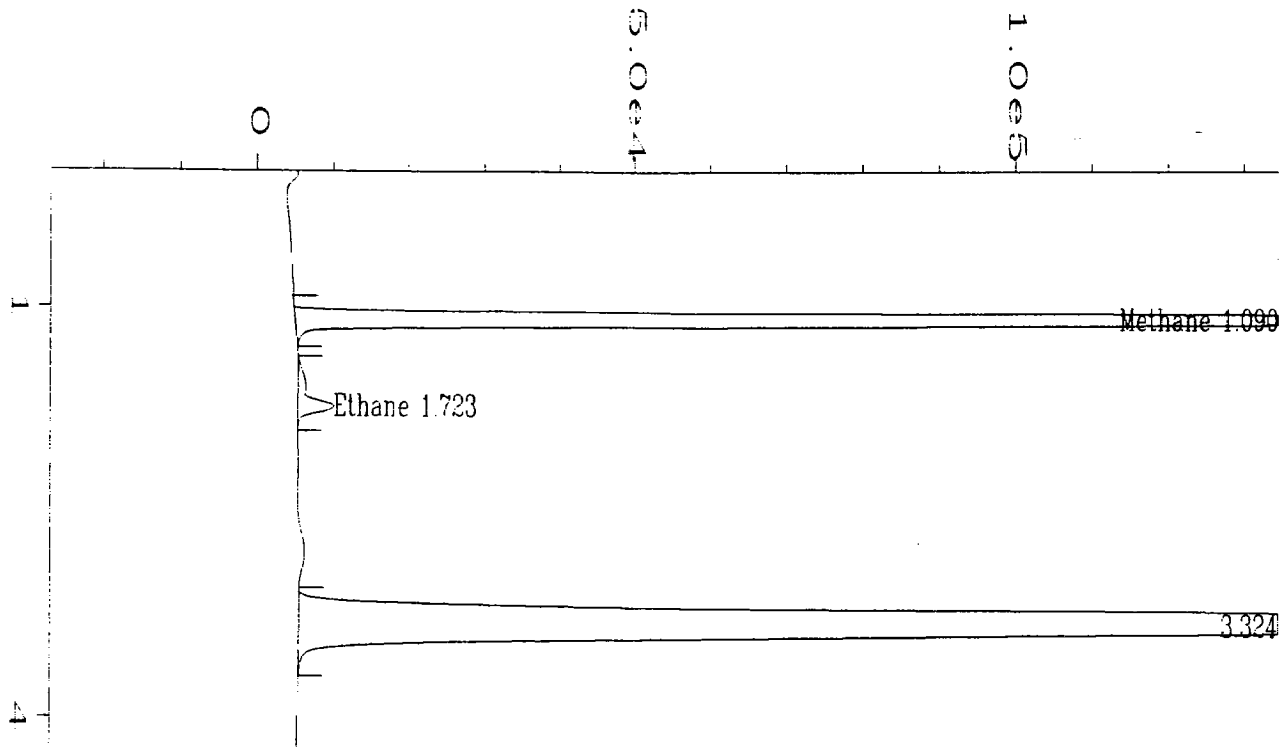
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\250BAG-1.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.090	1088865	198218	BB	0.091	29.8265
2	1.726	23628	4237	BB	0.092	0.6472
3	3.324	2538172	236041	BB	0.162	69.5263

Total area = 3650665

==========



==========

Area Percent Report

==========

ata File Name : D:\SOLVAY\OLD_GC\CALS\250BAG-2.D
Operator : J. Kaput
Instrument : OLD HP589
ample Name : Calibration
un Time Bar Code:
Acquired on : 27 Jul 96 04:51 PM
eport Created on: 04 Aug 96 03:00 PM

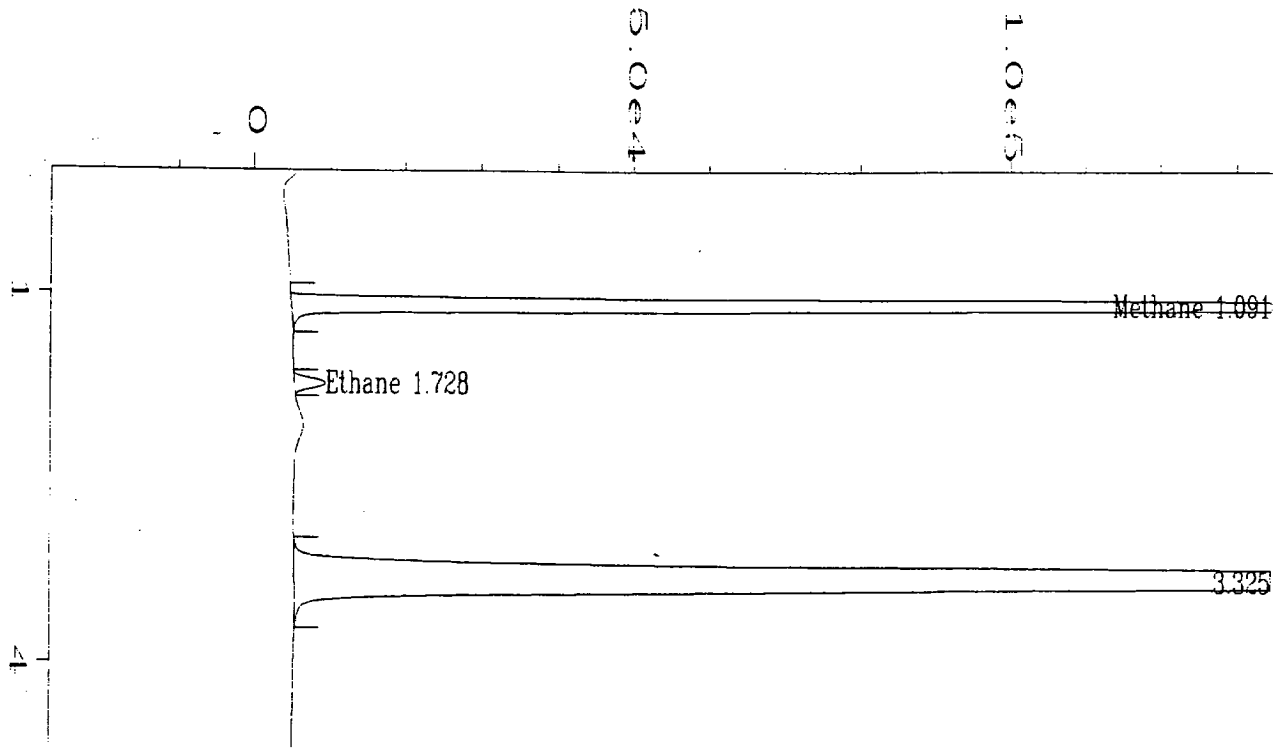
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\250BAG-2.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.090	1078596	197930	BB	0.091	29.6074
2	1.723	39887	4691	BB	0.126	1.0949
3	3.324	2524518	235929	BB	0.161	69.2978

Total area = 3643001

==========



==========

Area Percent Report

==========

Data File Name : D:\SOLVAY\OLD_GC\CALS\250BAG-3.D
Operator : J. Kaput
Instrument : OLD HP589
Sample Name : Calibration
Run Time Bar Code:
Acquired on : 27 Jul 96 04:55 PM
Report Created on: 04 Aug 96 03:01 PM

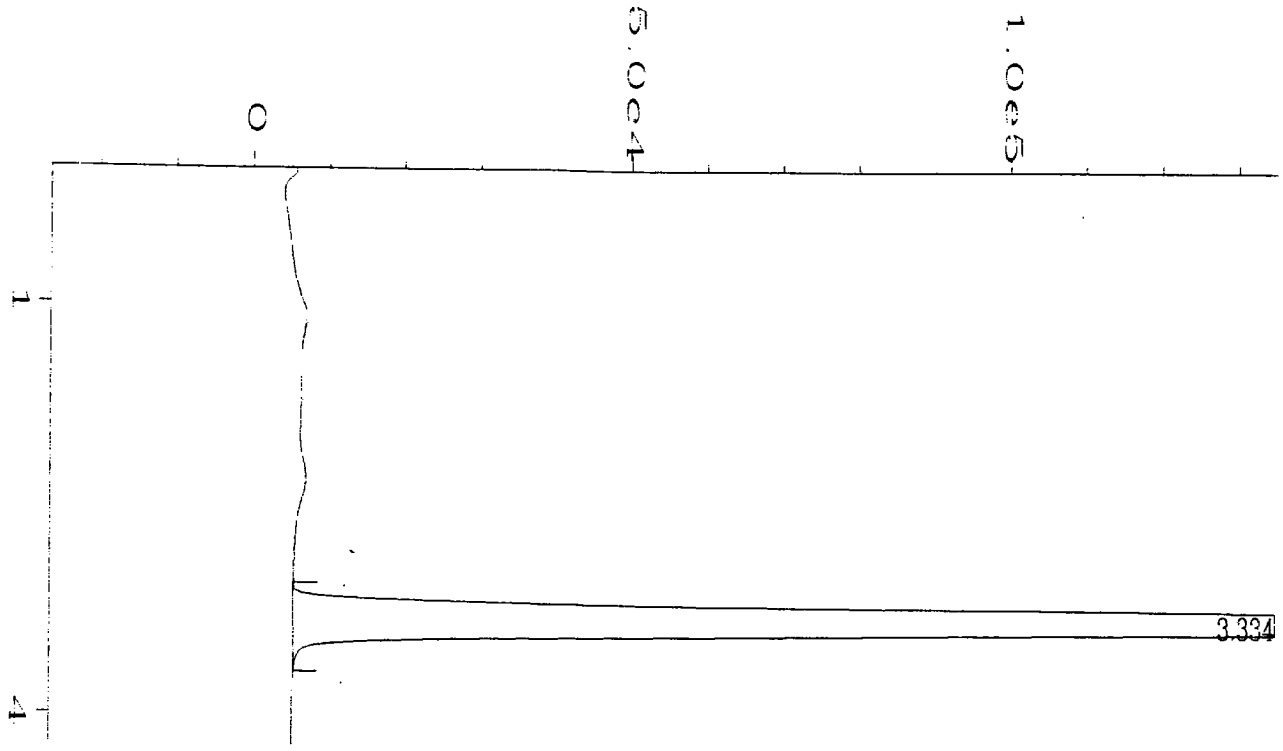
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\250BAG-3.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.091	1073357	197414	BB	0.090	29.5945
2	1.728	22210	4094	BB	0.090	0.6124
3	3.325	2531317	235974	BB	0.162	69.7932

Total area = 3626885

==========



==========

Area Percent Report

==========

ata File Name : D:\SOLVAY\OLD_GC\CALS\250PRO-1.D
perator : J. Kaput
Instrument : OLD HP589
ample Name : Calibration
un Time Bar Code:
Acquired on : 27 Jul 96 05:01 PM
eport Created on: 04 Aug 96 03:01 PM

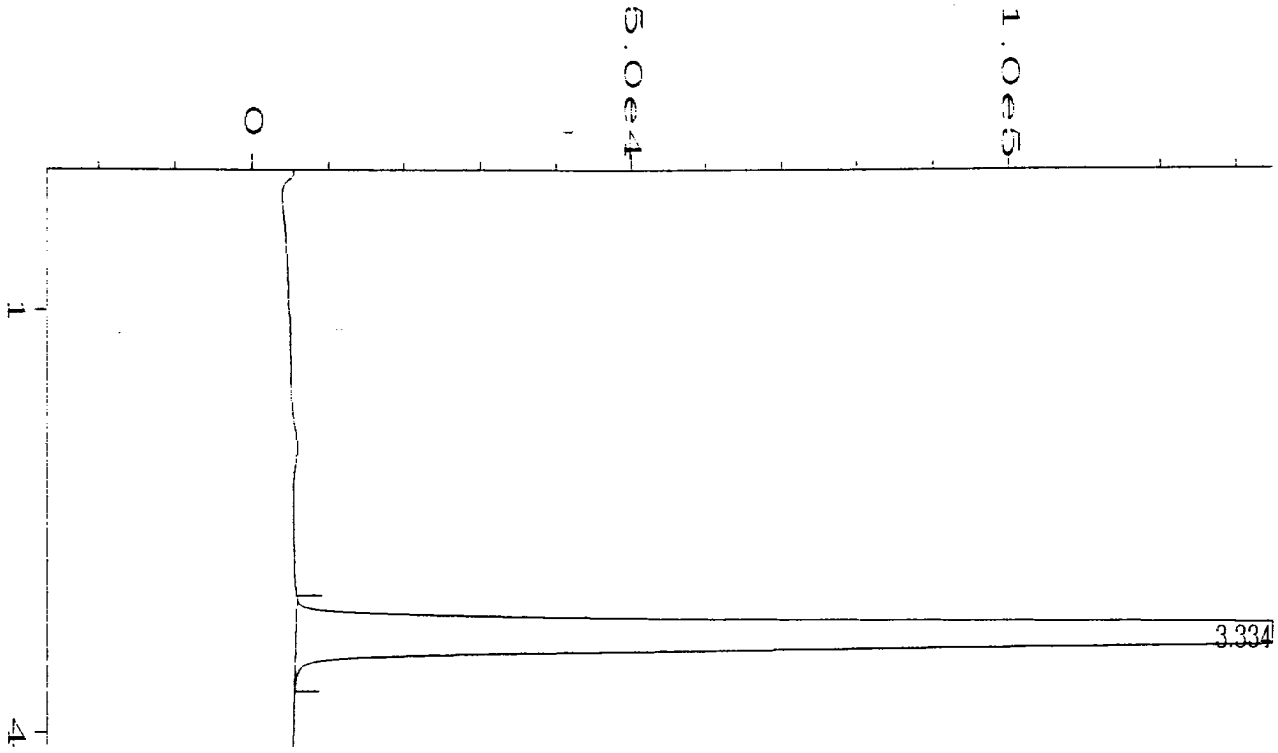
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\250PRO-1.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	3.334	2582912	235986	BB	0.136	100.0000

otal area = 2582912

==========



==========

Area Percent Report

==========

Data File Name : D:\SOLVAY\OLD_GC\CALS\250PRO-2.D
Operator : J. Kaput
Instrument : OLD HP589
Sample Name : Calibration
Run Time Bar Code:
Acquired on : 27 Jul 96 05:06 PM
Report Created on: 04 Aug 96 03:01 PM

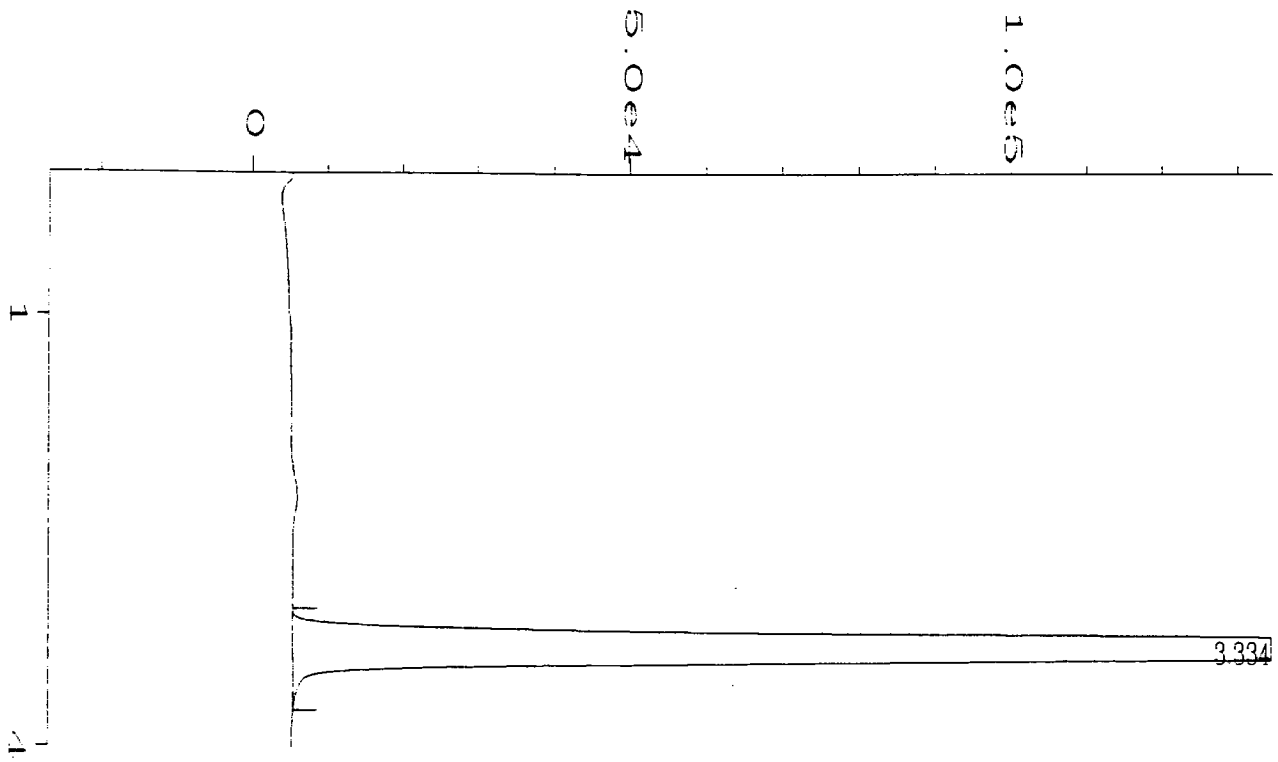
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\250PRO-2.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	3.334	2626325	235815	BB	0.140	100.0000

Total area = 2626325

==========



==========

Area Percent Report

==========

Data File Name : D:\SOLVAY\OLD_GC\CALS\250PRO-3.D
Operator : J. Kaput
Instrument : OLD HP589
Sample Name : Calibration
Run Time Bar Code:
Acquired on : 27 Jul 96 05:10 PM
Report Created on: 04 Aug 96 03:01 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH

Sig. 2 in D:\SOLVAY\OLD_GC\CALS\250PRO-3.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	3.334	2584761	236000	BB	0.137	100.0000

Total area = 2584761

==========

D

FIELD DATA

D

[redacted]tion[redacted]n: [redacted] [redacted] [redacted] of [redacted]

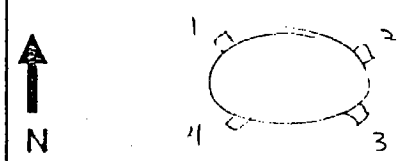
Moisture Determination
Field Data Sheet

Client SOLVAY[illegible]	Project Number 7747
Plant GREENRIVER, KY.	Unit E75
Date 7/25/96	Inlet/outlet/stack
Meter Operator	SD McGAFFICK
Probe Operator	RON M. LUIKAART

Sample Box Number	K.O.S
Pyrometer Number	D12
Meter Box Number	D12
Meter ΔH@ 1.8349	Meter Y_d .9971

Leak Rate Before:	.001 cc/m cf/m @	15	"Hg
Leak Rate After:	.000 cc/m cf/m @	10	"Hg

Schematic of Testing Location



First point all the way IN/OUT	Method 4	
Area (ft²) 85.90	Port Len. (in.) 4.75/12.5	Gas Flow IN OUT
Filter Material N/A		

Ambient Temp. (°F) 90	Bar. Press. (in. Hg) 23.75
Assumed Moisture (%)	

Heater Box Setting N/A	Probe Heater Setting N/A
Probe Length 8'	Probe Number
Probe Material S.S.	

IGS Bag ID Number R1	
% O_2 13.0	% CO_2 9.0
H_2O (ml) 248	Silica Gel (gm) 13
Total V_{lc} 261	

Start Time: 12:10 AM / PM	Stop Time: 13:02 AM / PM

Static = -.3

M-6-2

Traverse Point Number	Min/pt 4 / Clock Time	Pump Vacuum (in. Hg)	Stack Temp, Ts (°F)	Bath Temp, (°F)	Orifice Setting ΔH (in. H_2O)	Initial Volume 000.0 / Gas Sample Volume V_m Circle one: (L) (ft³)	Gas Sample Temperature at Dry Gas Meter: Inlet $T_{m\,in}$ (°F)	Gas Sample Temperature at Dry Gas Meter: Outlet $T_{m\,out}$ (°F)	Probe Temp. T_p (°F)	VELOCITY HEAD ΔPs		Notes
1-1	4	4	350	46	1.7	003.28	99	99	NA	.25		
2	8	4	354	46		006.50	100	100		.23		%Bwo = 29.7
3	12	4	348	47		009.72	102	101		.15		DSCFM = ~~53,627~~
2-1	16	4	347	49		012.95	102	102		.29		77,430
2	20	4	356	51		016.20	103	102		.27		
3	24	4	346	55		019.43	102	102		.21		
3-1	28	4	353	58		022.63	101	101		.35		
2	32	4	355	60		025.89	100	100		.33		
3	36	4	347	62		029.09	99	99		.27		
4-1	40	4	349	61		032.32	94	95		.30		
2	44	4	354	59		035.52	93	95		.28		
3	48	4	350	58		038.72	92	94		.19		
Average			4209		1.7	38.72	23	77		6.0817		
Total			351				9	9		.5068		

D:\v-forms\moisture

SOLVAY2016_6_001519

Location: Stack Run: 2

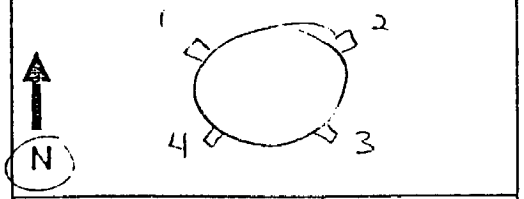
Moisture Determination
Field Data Sheet

Client	Solvay Minerals	Project Number	7747
Plant	Green River WY	Unit	EP 5
Date	7-25-96	Inlet/outlet/stack	
Meter Operator	RON M. LUIKAART		
Probe Operator	ED McGAFFICK		

Sample Box Number	K. Otts		
Pyrometer Number	D 12		
Meter Box Number	D 12		
Meter ΔH@	1.8349	Meter Y_d	~~.9771~~ .9171

Leak Rate Before:	.001	cc/m cfm@	15	"Hg
Leak Rate After:	.001	cc/m cfm@	14	"Hg

Schematic of Testing Location



First point all the way IN OUT	Method 4	
Area (ft^2) 85.90	Port Len. (in.) 4.75/12.5	Gas Flow IN OUT
Filter Material N/A		

STATIC -0.3

Ambient Temp. (°F)	90	Bar. Press. (in. Hg)	23.75
Assumed Moisture (%)			

Heater Box Setting	N/A	Probe Heater Setting	N/A
Probe Length	8'	Probe Number	
Probe Material	SS		

IGS Bag ID Number	R2		
% O_2	12.3	% CO_2	9.7
H_2O (ml)	242	Silica Gel (gm)	12.5
Total V_{lc}	254.5		

Start Time:	1343 AM PM	Stop Time:	1435 AM PM

M-6-2

Traverse Point Number	Min/pt 4 / Clock Time 0	Pump Vacuum (in. Hg)	Stack Temp, Ts (°F)	Bath Temp, (°F)	Orifice Setting ΔH (in. H_2O)	Initial Volume 38.90 / Gas Sample Volume V_m Circle one: (L) (ft^3)	Gas Sample Temperature at Dry Gas Meter: Inlet $T_{m\,in}$ (°F)	Outlet $T_{m\,out}$ (°F)	Probe Temp. T_p (°F)	ΔP_s		Notes
1-1	4	4	352	52	1.7	42.14	95	94	N/A	.30		
2	8	4	349	50		45.35	96	94		.26		
3	12	4	335	52		48.58	98	95		.20		%BWO = 29.1
3-1	16	4	353	53		51.81	100	95		.32		DSCFM = 75.662
2	20	4	353	53		54.99	102	97		.30		
3	24	4	348	54		58.23	103	98		.24		
1	28	4	352	56		61.48	102	100		.28		
2	32	4	352	57		64.72	103	100		.28		
3	36	4	341	59		67.96	103	100		.16		
1	40	4	350	58		71.22	103	101		.25		
2	44	4	353	60		74.48	107	103		.21		
3	48	4	341	60		77.75	104	102		.14		
Average			4179		1.7	38.85	23.95			.4847	RML	
Total			348				100			.4916		

SOLVAY2016_6_001520

D:\forms\moisture

Location [redacted] Run: [redacted] Moisture Determination [redacted] Page [redacted] of [redacted]

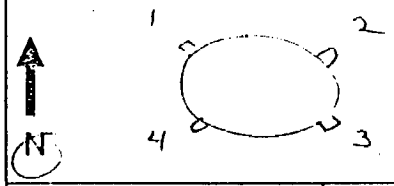
Field Data Sheet

Client SOLVAY MINERALS	Project Number 7747
Plant GREEN RIVER WY	Unit EPS
Date 7/25/96	Inlet/outlet/stack
Meter Operator E. McGaffick	
Probe Operator R. Lukaert	

Sample Box Number K.O.S	
Pyrometer Number D12	
Meter Box Number D12	
Meter ΔH@ 1.8349	Meter Y_d .9971

Leak Rate Before: .001 cc/m cf/m @ 16 "Hg	
Leak Rate After: .000 cc/m cf/m @ 10 "Hg	

Schematic of Testing Location



First point all the way IN OUT	Method 4	
Area (ft²) 85.90	Port Len. (in.) 4.75/12.5	Gas Flow IN OUT
Filter Material N/A		

STATIC -0.3

Ambient Temp. (°F) 90	Bar. Press. (in. Hg) 23.75
Assumed Moisture (%)	

Heater Box Setting N/A	Probe Heater Setting N/A
Probe Length 8'	Probe Number
Probe Material S.S.	

IGS Bag ID Number R3	
% O_2 ~~Ø~~ 12.1	% CO_2 9.9
H_2O (ml) 253	Silica Gel (gm) 12
Total V_{lc} 265	

Start Time: 14:58 AM / PM	Stop Time: 15:50 AM / PM

M-6-2

Traverse Point Number	Min/pt 4 / Clock Time	Pump Vacuum (in. Hg)	Stack Temp. Ts (°F)	Bath Temp. (°F)	Orifice Setting ΔH (in. H_2O)	Initial Volume 078.00 / Gas Sample Volume V_m Circle one: (L) (ft³)	Gas Sample Temperature at Dry Gas Meter: Inlet $T_{m\,in}$ (°F)	Outlet $T_{m\,out}$ (°F)	Probe Temp. T_p (°F)	ΔPs		Notes
1-1	4	4	350	62	1.7	081.28	96	98	N/A	.24		
2	8	4	352	57		084.53	96	99		.24		%BW = 30.1
3	12	4	347	54		087.87	95	98		.18		DSCFM = 70.680
2-1	16	4	352	52		091.28	94	96		.29		
2	20	4	353	50		094.10	95	96		.27		
3	24	4	349	50		097.29	99	97		.21		
3-1	28	4	350	51		100.50	101	98		.28		
2	32	4	349	51		103.89	103	100		.25		
3	36	4	345	52		106.95	105	100		.18		
4-1	40	4	348	51		110.18	104	101		.20		
2	44	4	347	52		113.39	106	103		.17		
3	48	4	344	53		116.60	108	104		.12		
Average			4186				23	92		5.5798		
Total			349		1.7	38.60	100			.4650		

D:\[illegible]\moisture

SOLVAY2016_6_00521

Orsat Readings

Client	SOLVAY MINERALS	Project Number	7747
Plant	GREEN RIVER, WY	Unit	EP-5
Date	7/25/96	Fuel Type	NATURAL GAS
Orsat ID	65-2	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	8.9	22.0	13.1		1210-1302	1330	SC
			2	9.0	21.9	12.9				
			3	9.0	22.0	13.0				
			Avg.	9.0		13.0				
2	STACK	RUN 2	1	9.7	22.0	12.3		1210-1302	1500	SC
			2	9.7	22.0	12.3				
			3	9.7	22.0	12.3				
			Avg.	~~22.0~~ SC	9.7	12.3				
3	STACK	RUN 3	1	9.9	22.0	12.1		1458-1550	1650	SC
			2	9.9	22.0	12.1				
			3	9.9	22.0	12.1				
			Avg.	9.9		12.1				
			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

Location: Stack Run: 1 Moisture Determination Page 1 of 1

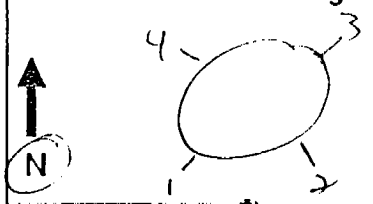
Field Data Sheet

Client: Solvay Minerals	Project Number: 7747
Plant: Green River WY	Unit: EP 1+2
Date: 7-26-96	Inlet/outlet/stack
Meter Operator: L. McGaffick	
Probe Operator: L. McGaffick	

Sample Box Number: Knock-Outs	
Pyrometer Number: D-12	
Meter Box Number: D-12	
Meter ΔH@: 1.8349	Meter Y_d: .9971

Leak Rate Before:	.001 cc/m cf/m @	16	"Hg
Leak Rate After:	000 cc/m cf/m @	10	"Hg

Schematic of Testing Location



First point all the way IN OUT	Method 4	
Area (ft^2): 113.1	Port Len. (in.): 6"	Gas Flow IN OUT
Filter Material: NA		

STATIC -0.3

Ambient Temp. (°F)	Bar. Press. (in. Hg): 23.75
Assumed Moisture (%)	

Heater Box Setting: NA	Probe Heater Setting: NA
Probe Length: 6'	Probe Number
Probe Material: SS	

IGS Bag ID Number: M4R1			
% O_2: 13.8		% CO_2: 8.0	
H_2O (ml): 192		Silica Gel (gm): 13.5	
Total V_{lc}: 205.5			

Start Time: 14:42 AM / PM	Stop Time: 15:47 AM / PM

M-6.2

Traverse Point Number	Min/pt 4 Clock Time 0	Pump Vacuum (in. Hg)	Stack Temp, Ts (°F)	Bath Temp, (°F)	Orifice Setting ΔH (in. H_2O)	Initial Volume 116.85 Gas Sample Volume V_m Circle one: (L) (ft^3)	Gas Sample Temperature at Dry Gas Meter Inlet $T_{m\,in}$ (°F)	Outlet $T_{m\,out}$ (°F)	Probe Temp. T_p (°F)	ΔP		Notes
3-1	4	4	373	55	1.7	120.17	91	93	NA	.60		
2	8	4	372	55		123.25	92	92		.59		%Bwo = 24.9
3	12	4	370	56		126.48	94	92		.43 (A)		DSCFM = 152,590
2-1	16	4	372	54		129.65	96	92		.58		
2	20	4	371	54		132.85	97	92		.57		
3	24	4	370	53		136.05	98	93		.51		
1-1	28	4	373	57		139.30	96	94		.59		
2	32	4	374	57		142.48	94	93		.57		
3	36	4	369	55		145.69	97	94		.39		
4-1	40	4	373	56		148.90	99	96		.60		
2	44	4	374	57		152.11	100	96		.58		
3	48	4	374	58		155.34	100	95		.36		
Average			4465				2276					
Total			372		1.7	38.49	95			0.726		

SOLVAY2016_6_00523

D:\vp\forms\moisture

Location: Stack Run: 2

Moisture Determination Field Data Sheet

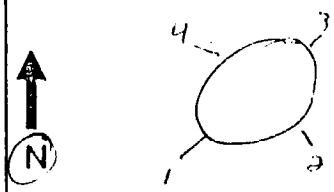
Page 1 of 1

Client Solvay Minerals	Project Number 7747
Plant Green River WY.	Unit EP 1+2
Date 7-26-96	Inlet/outlet/stack
Meter Operator E. McGuffick	
Probe Operator E. McGuffick	

Sample Box Number K.O.	
Pyrometer Number D-12	
Meter Box Number D-12	
Meter ΔH@ 1.8349	Meter Y_d .9971

Leak Rate Before: .002 cc/m cf/m @ 18 "Hg	
Leak Rate After: .000 cc/m cf/m @ 10 "Hg	

Schematic of Testing Location



First point all the way IN OUT	Method 4	
Area (ft^2) 113.1	Port Len. (in.) 6	Gas Flow IN OUT
Filter Material NA		

STATIC -0.3

Ambient Temp. (°F) 89	Bar. Press. (in. Hg) 23.75
Assumed Moisture (%)	

Heater Box Setting NA	Probe Heater Setting NA
Probe Length 6'	Probe Number
Probe Material SS	

IGS Bag ID Number M4R2	
% O_2 13.6	% CO_2 8.0
H_2O (ml) 203	Silica Gel (gm) 90
Total V_{lc} 212	

Start Time: 16:57 AM PM	Stop Time: 17:52 AM PM

M-6-2

Traverse Point Number	Min/pt 4 / Clock Time 0	Pump Vacuum (in. Hg)	Stack Temp, Ts (°F)	Bath Temp, (°F)	Orifice Setting ΔH (in. H_2O)	Initial Volume 155.60 / Gas Sample Volume V_m Circle one: (L) (ft^3)	Gas Sample Temperature at Dry Gas Meter: Inlet $T_{m\,in}$ (°F)	Outlet $T_{m\,out}$ (°F)	Probe Temp. T_p (°F)	ΔP_s		Notes
4-1	4	4	375	59	1.7	158.84	88	88	NA	.62		
2	8	4	377	57		162.03	92	90		.64		%Bwo = 25.4
3	12	4	373	55		165.25	93	90		.52		DSCFm = 152,300
2-1	16	4	373	54		168.42	95	91		.61		
2	20	4	372	54		171.59	96	92		.60		
	24	4	369	55		174.81	97	93		.39		
3-	28	4	373	56		178.21	98	93		.58		
	32	4	374	56		181.26	98	93		.56		
-	36	4	371	57		184.48	99	94		.38		
1-	40	4	372	58		187.72	97	95		.60		
2	44	4	375	60		190.95	99	95		.59		
3	48	4	371	61		194.18	99	95		.35		
Average			4475				2260			.7493		
Total			373		1.7	38.58	94			.7291		

D:\vpfo\...\moisture

SOLVAY2016_6_00524

L[redacted]ion: [redacted] [redacted]n: [redacted] [redacted] P[redacted] of [redacted]

Moisture Determination Field Data Sheet

Client: Solvay Minerals	Project Number: 7747
Plant: Green River WY.	Unit: EP 1+2
Date: 7-26-90	Inlet/outlet/stack
Meter Operator: E. McGuffick	
Probe Operator: "	

Sample Box Number: K.O.	
Pyrometer Number: D-12	
Meter Box Number: D-12	
Meter ΔH@: 1.8349	Meter Y_d: .9971

Leak Rate Before: .001	cc/m cf/m @	16	"Hg
Leak Rate After: .000	cc/m cf/m @	10	"Hg

Schematic of Testing Location

First point all the way IN OUT	Method 4	
Area (ft^2): 113.1	Port Len. (in.): 6"	Gas Flow IN OUT
Filter Material: NA		

STATIC -0.3

Ambient Temp. (°F): 85	Bar. Press. (in. Hg): 23.75
Assumed Moisture (%)	

Heater Box Setting: NA	Probe Heater Setting: NA
Probe Length: 6'	Probe Number
Probe Material: SS	

IGS Bag ID Number: M4 R3	
% O_2: 13.7	% CO_2: 7.9
H_2O (ml): 208	Silica Gel (gm): 9.0
Total V_{lc}: 217	

Start Time: 19:13 AM / PM	Stop Time: 20:10 AM / PM

M-6-2

Traverse Point Number	Min/pt 4 / Clock Time 0	Pump Vacuum (in. Hg)	Stack Temp, Ts (°F)	Bath Temp, (°F)	Orifice Setting ΔH (in. H_2O)	Initial Volume 194.40 / Gas Sample Volume V_m Circle one: (L) (ft^3)	Gas Sample Temperature at Dry Gas Meter: Inlet $T_{m\,in}$ (°F)	Outlet $T_{m\,out}$ (°F)	Probe Temp. T_p (°F)	ΔP_s		Notes
3-1	4	4	372	62	1.7	197.89	98	98	NA	.64		
2	8	4	373	59		201.04	97	96		.65		% Bw = 26.0
3	12	4	372	58		204.08	99	97		.35		DSCFM = 149,590
2-1	16	4	376	58		207.34	100	98		.61		
2	20	4	378	56		210.56	102	98		.61		
3	24	4	370	55		213.79	104	98		.40		
1-1	28	4	373	47		217.02	103	99		.62		
2	32	4	376	46		220.27	105	99		.58		
3	36	4	378	45		223.53	106	99		.38		
4-1	40	4	374	45		226.96	106	100		.60		
2	44	4	376	44		230.02	107	100		.57		
3	48	4	370	45		233.29	107	100		.34		
Average			4488				2416			8.6704		
Total			374		1.7	38.89	101			.7225		

D:\vpforms\moisture

SOLVAY2016_6_001525

Orsat Readings

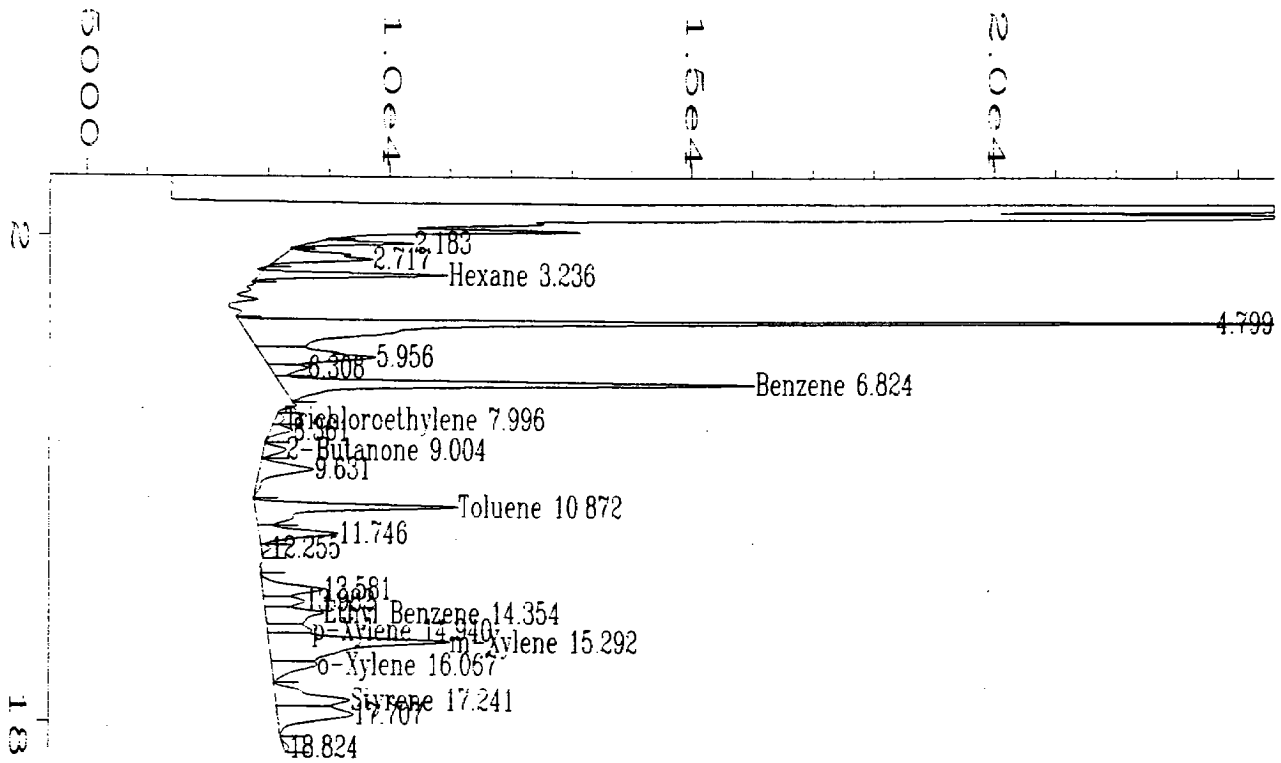
Client	Solvay Minerals	Project Number	7747
Plant	Green River, WY	Unit	EP - 1 & 2
Date	7/26/96	Fuel Type	Nat. Gas
Orsat ID	65-2	Leak Check?	OK

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

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	R1	1	8.0	21.8	13.8		1442-1547	1600	SF
Method - 4			2	8.0	21.8	13.8				
			3	8.0	21.8	13.8				
			Avg.	8.0		13.8				
2	Stack	R2	1	8.0	21.6	13.6		1657-1752	1830	SF
Method - 4			2	7.9	21.6	13.7				
			3	8.0	21.6	13.6				
			Avg.	8.0		13.6				
3	Stack	R3	1	7.9	21.6	13.7		1913-2010	2030	SF
Method - 4			2	7.8	21.6	13.8				
			3	7.9	21.6	13.7				
			Avg.	7.9		13.7				
			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



==========

External Standard Report

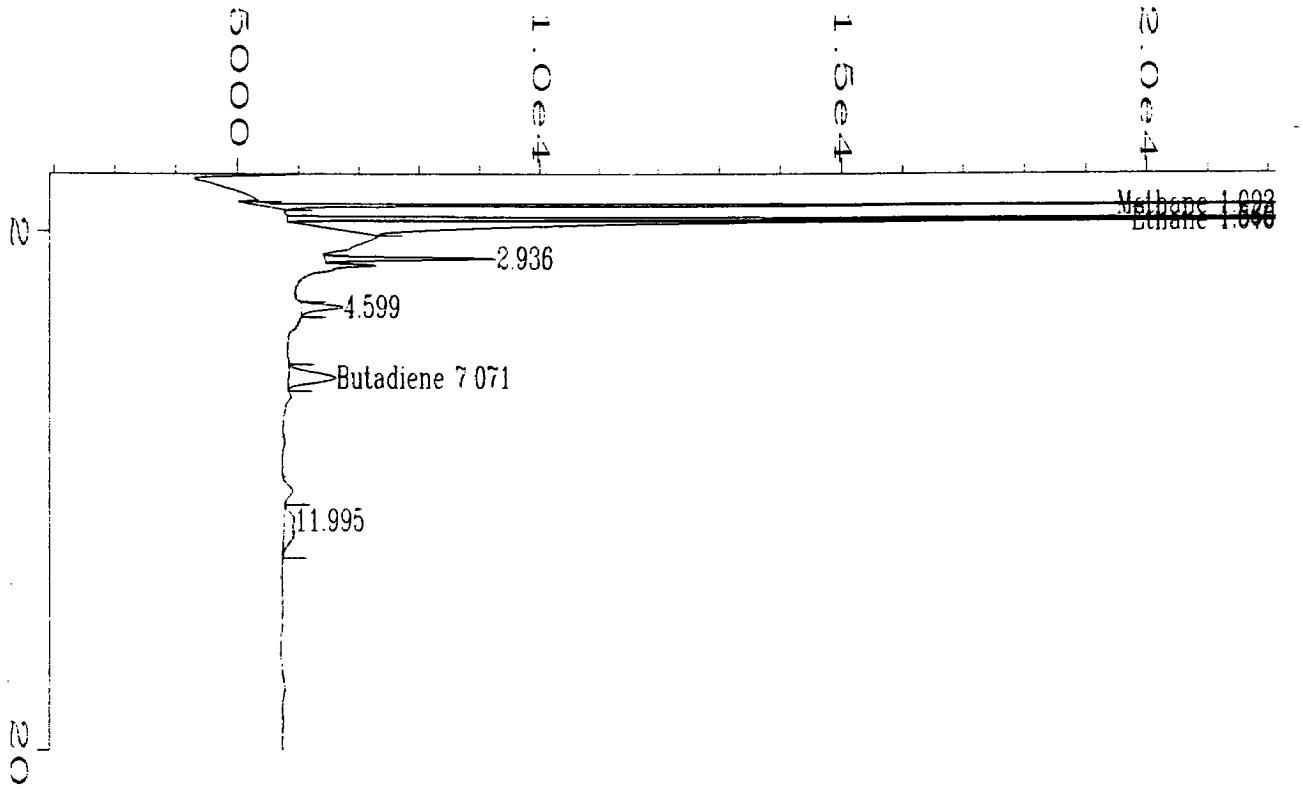
==========

Data File Name	: D:\SOLVAY\NEW_GC\EP-5\RUN-1-01.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 25 Jul 96 11:58 AM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 12:04 PM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\EP-5\RUN-1-01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.236	28808	BV	0.145	1	0.596	Hexane
5.483	* not found *			1		Trichloroethane
6.824	100252	VV	0.192	1	1.831	Benzene
7.996	2318	BV	0.264	1	0.125	Trichloroethylene
9.004	6450	PV	0.288	1	0.191	2-Butanone
10.872	56946	PV	0.246	1	0.621	Toluene
14.354	24666	VV	0.346	1	0.228	Ethyl Benzene
14.940	11021	VV	0.220	1	0.0914	p-Xylene
15.292	81112	VV	0.370	1	0.558	m-Xylene
16.067	16315	VV	0.310	1	0.130	o-Xylene
17.241	30285	VV	0.349	1	0.190	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

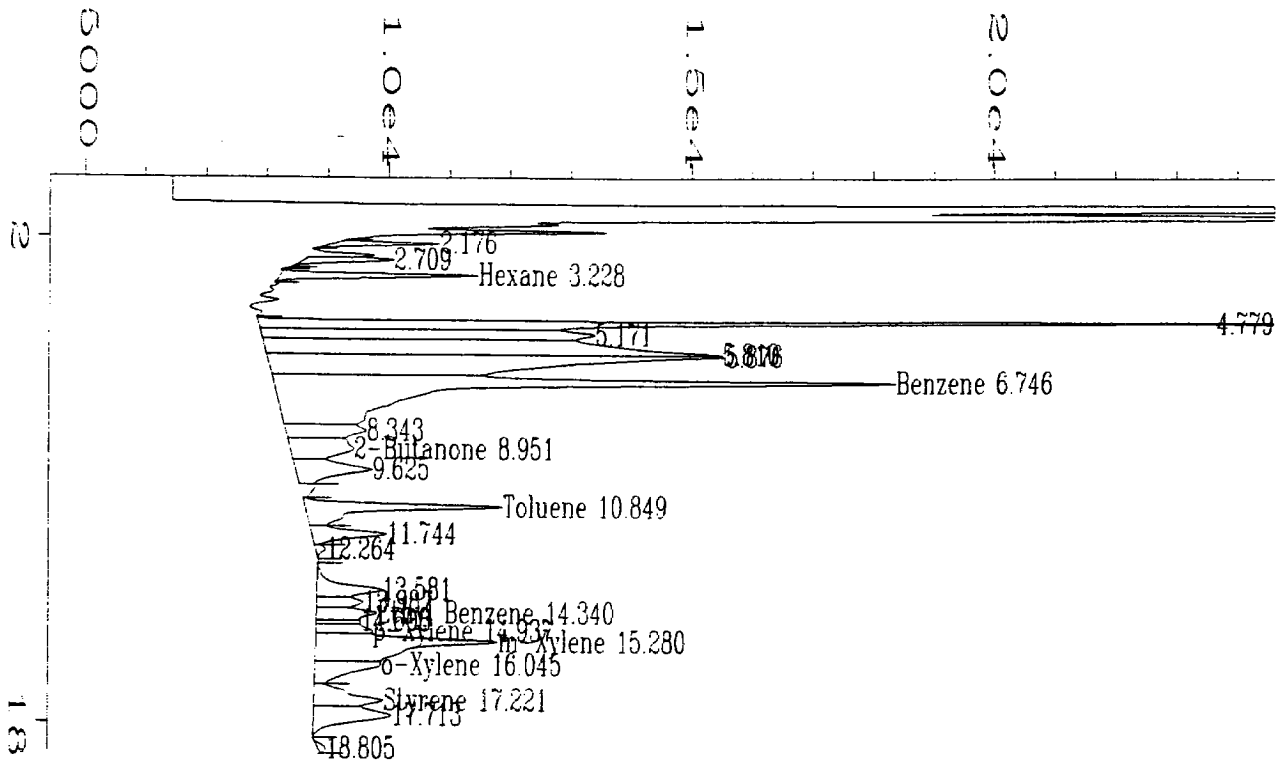
Data File Name	: D:\SOLVAY\OLD_GC\EP-5\RUN-1-01.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 25 Jul 96 11:58 AM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:52 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\EP-5\RUN-1-01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.093	616307	BB S	0.042	1	136.497	Methane
1.646	181446	HB S	0.043	1	21.025	Ethane
7.071	18609	BB	0.302	1	1.112	Butadiene
13.312	* not found *			1		Methylene Chloride
14.836	* not found *			1		Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

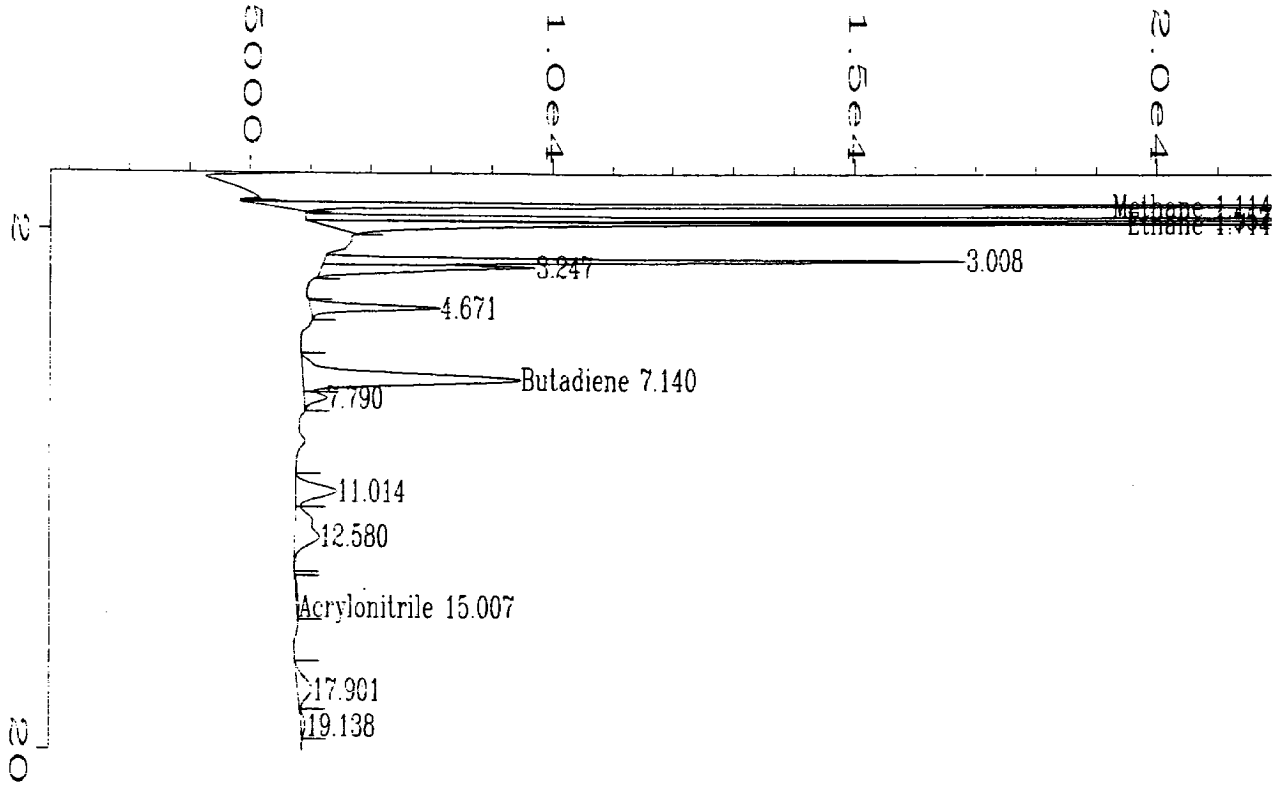
==========

ata File Name	: D:\SOLVAY\NEW_GC\EP-5\RUN-1-02.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
ample Name	: Run 1	Injection Number	:
un Time Bar Code	:	Sequence Line	:
Acquired on	: 25 Jul 96 12:23 PM	Instrument Method	: NEW-GC.MTH
eport Created on	: 04 Aug 96 12:05 PM	Analysis Method	: NEW-GC.MTH
ast Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

ig. 1 in D:\SOLVAY\NEW_GC\EP-5\RUN-1-02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.228	29520	BB	0.141	1	0.610	Hexane
5.483	* not found *			1		Trichloroethane
6.746	292137	VV	0.374	1	5.290	Benzene
7.883	* not found *			1		Trichloroethylene
8.951	37297	VV	0.429	1	1.510	2-Butanone
10.849	56722	VV	0.251	1	0.619	Toluene
14.340	19915	VV	0.277	1	0.186	Ethyl Benzene
14.937	15625	VV	0.215	1	0.135	p-Xylene
15.280	92700	VV	0.410	1	0.643	m-Xylene
16.045	28446	VV	0.320	1	0.239	o-Xylene
17.221	30401	VV	0.358	1	0.191	Styrene

ot all calibrated peaks were found



==========

External Standard Report

==========

Data File Name : D:\SOLVAY\OLD_GC\EP-5\RUN-1-02.D
Operator : J. Kaput
Instrument : OLD HP589
Sample Name : Run 1
Run Time Bar Code:
Acquired on : 25 Jul 96 12:23 PM
Report Created on: 04 Aug 96 02:52 PM
Last Recalib on : 04 AUG 96 01:59 PM
Multiplier : 1

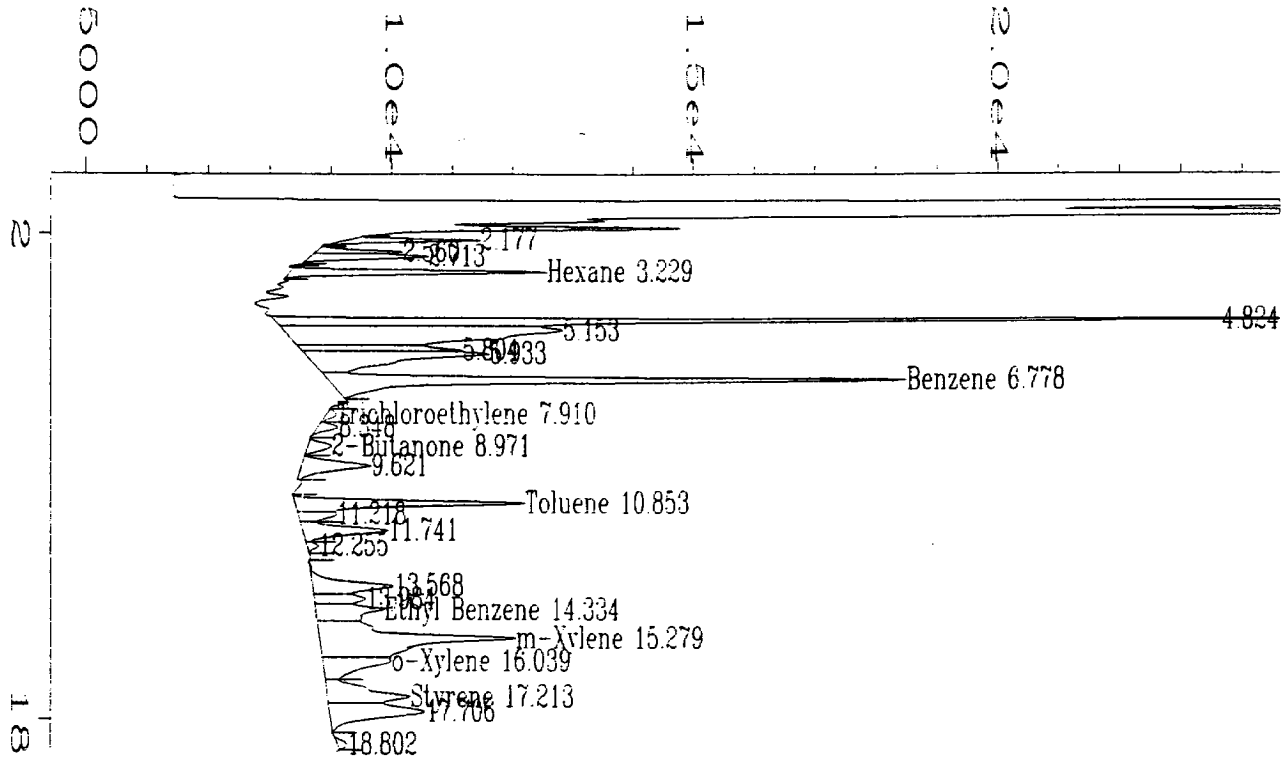
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\OLD_GC\EP-5\RUN-1-02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.114	1227996	HB S	0.084	1	273.564	Methane
1.714	309173	HB S	0.049	1	35.686	Ethane
7.140	94272	BV	0.398	1	5.814	Butadiene
13.312	* not found *			1		Methylene Chloride
15.007	1889	BB	0.734	1	-0.225	Acrylonitrile

Not all calibrated peaks were found

==========



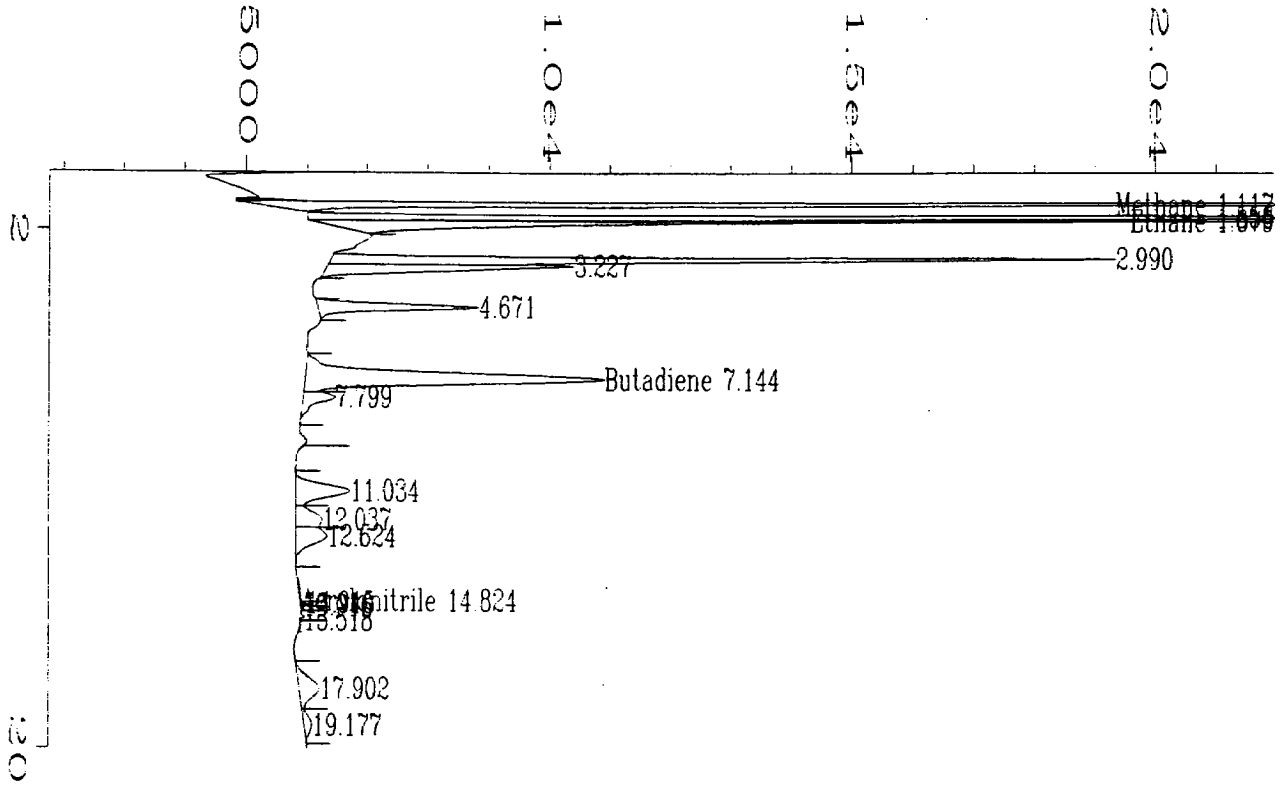
External Standard Report

Data File Name	: D:\SOLVAY\NEW_GC\EP-5\RUN-1-03.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 25 Jul 96 12:48 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 12:05 PM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Fig. 1 in D:\SOLVAY\NEW_GC\EP-5\RUN-1-03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.229	38780	BB	0.141	1	0.798	Hexane
5.483	* not found *			1		Trichloroethane
6.778	124914	VV	0.196	1	2.276	Benzene
7.910	2608	BV	0.270	1	0.135	Trichloroethylene
8.971	6991	PV	0.309	1	0.214	2-Butanone
10.853	52759	PV	0.209	1	0.574	Toluene
14.334	27473	VV	0.331	1	0.253	Ethyl Benzene
14.937	* not found *			1		p-Xylene
15.279	109352	VV	0.441	1	0.766	m-Xylene
16.039	31133	VV	0.374	1	0.264	o-Xylene
17.213	36522	VV	0.367	1	0.234	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

Data File Name : D:\SOLVAY\OLD_GC\EP-5\RUN-1-03.D
Operator : J. Kaput
Instrument : OLD HP589
Sample Name : Run 1
Run Time Bar Code:
Acquired on : 25 Jul 96 12:48 PM
Report Created on: 04 Aug 96 02:52 PM
Last Recalib on : 04 AUG 96 01:59 PM
Multiplier : 1

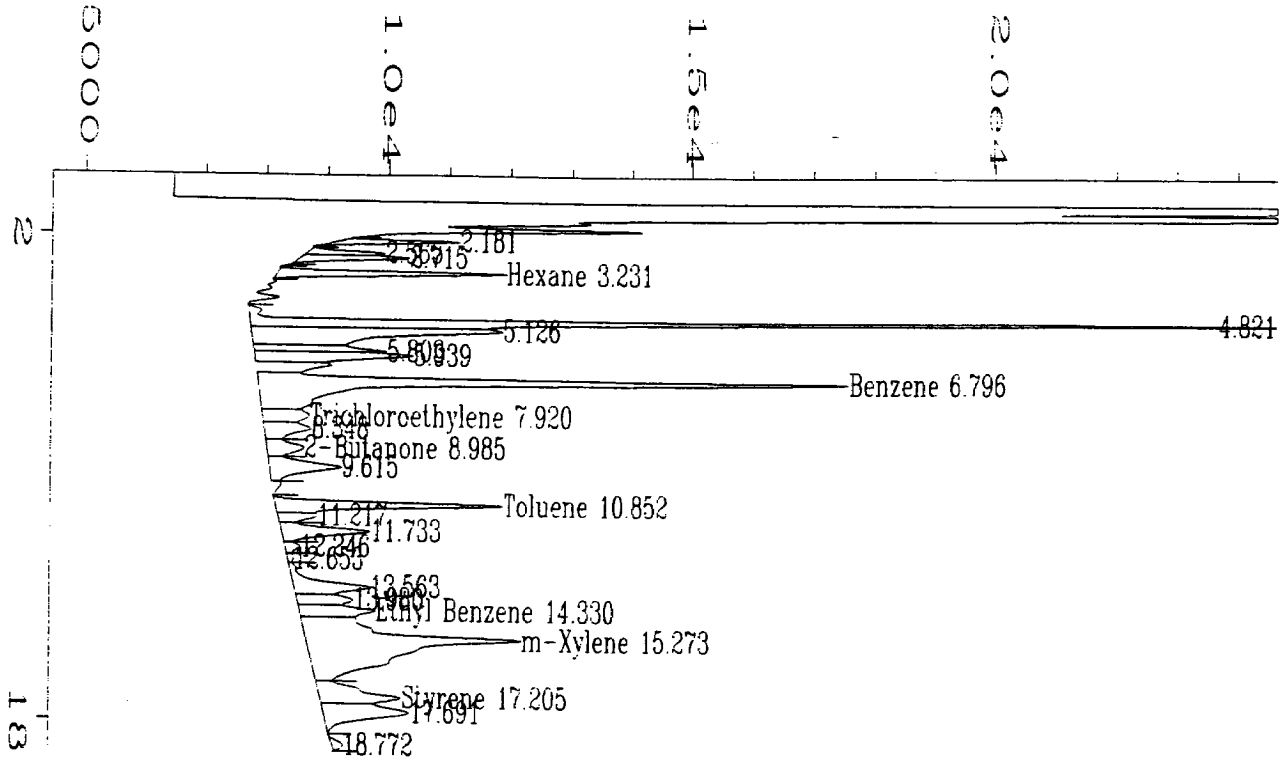
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\OLD_GC\EP-5\RUN-1-03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.117	1342388	HB S	0.092	1	299.196	Methane
1.679	301153	HB S	0.019	1	34.765	Ethane
7.144	130678	BV	0.403	1	8.076	Butadiene
13.312	* not found *			1		Methylene Chloride
14.824	626	PV	0.277	1	-0.334	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

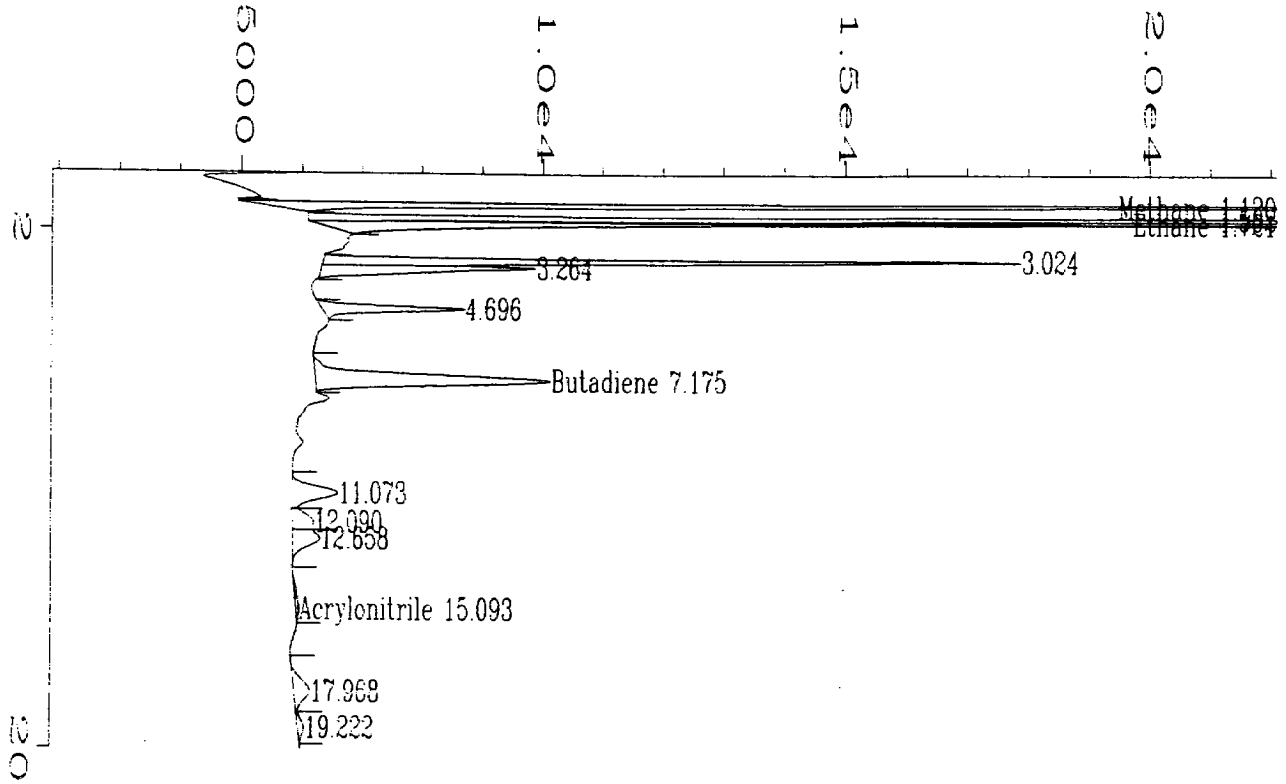
==========

Data File Name	: D:\SOLVAY\NEW_GC\EP-5\RUN-1-04.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 25 Jul 96 01:13 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 12:05 PM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\EP-5\RUN-1-04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.231	34856	BB	0.146	1	0.718	Hexane
5.483	* not found *			1		Trichloroethane
6.796	167509	VV	0.244	1	3.044	Benzene
7.920	17875	VV	0.348	1	0.652	Trichloroethylene
8.985	14850	VV	0.369	1	0.550	2-Butanone
10.852	52061	PV	0.210	1	0.566	Toluene
14.330	23969	VV	0.271	1	0.221	Ethyl Benzene
14.937	* not found *			1		p-Xylene
15.273	173087	VV	0.623	1	1.236	m-Xylene
16.096	* not found *			1		o-Xylene
17.205	36855	VV	0.375	1	0.237	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

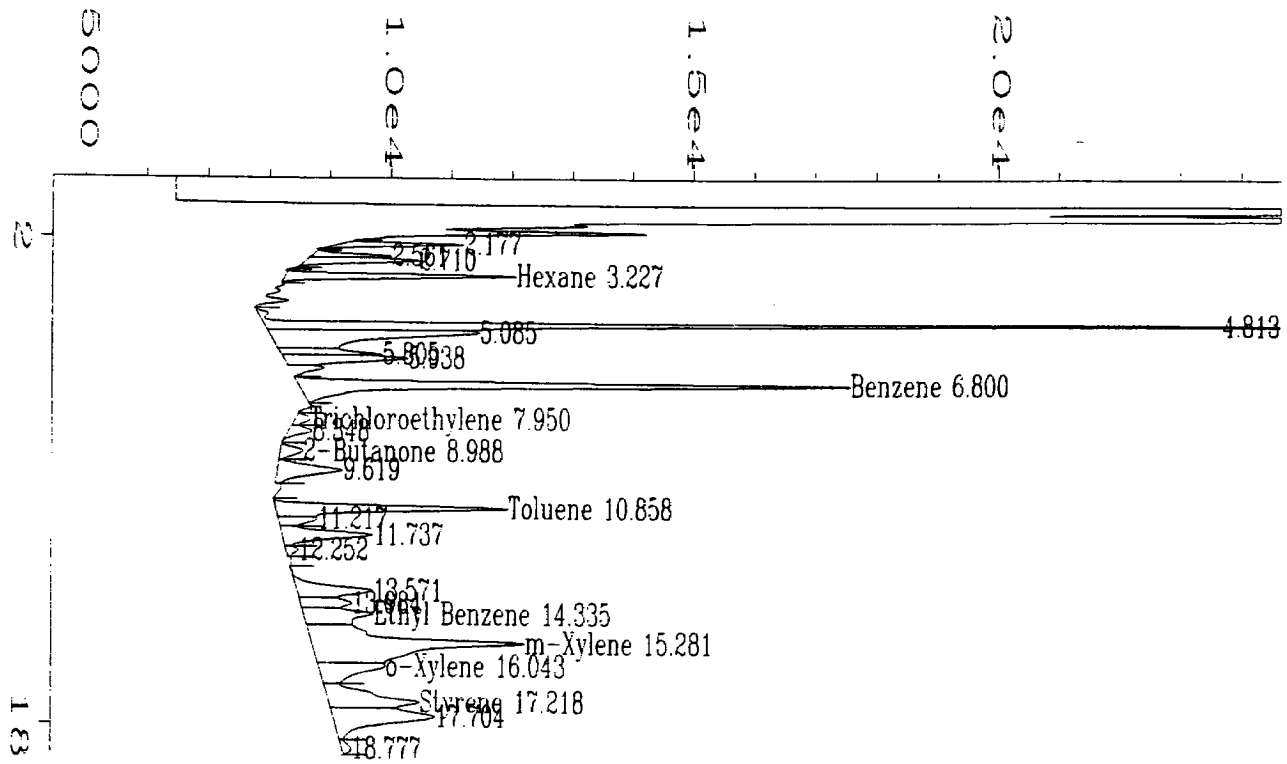
Data File Name	: D:\SOLVAY\OLD_GC\EP-5\RUN-1-04.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Run 1	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 25 Jul 96 01:13 PM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 04:46 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\EP-5\RUN-1-04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.120	1284558	HB S	0.088	1	286.238	Methane
1.721	320679	HB S	0.039	1	37.006	Ethane
7.175	97952	BV	0.387	1	6.042	Butadiene
13.312	* not found *			1		Methylene Chloride
15.093	3276	PB	0.673	1	-0.106	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

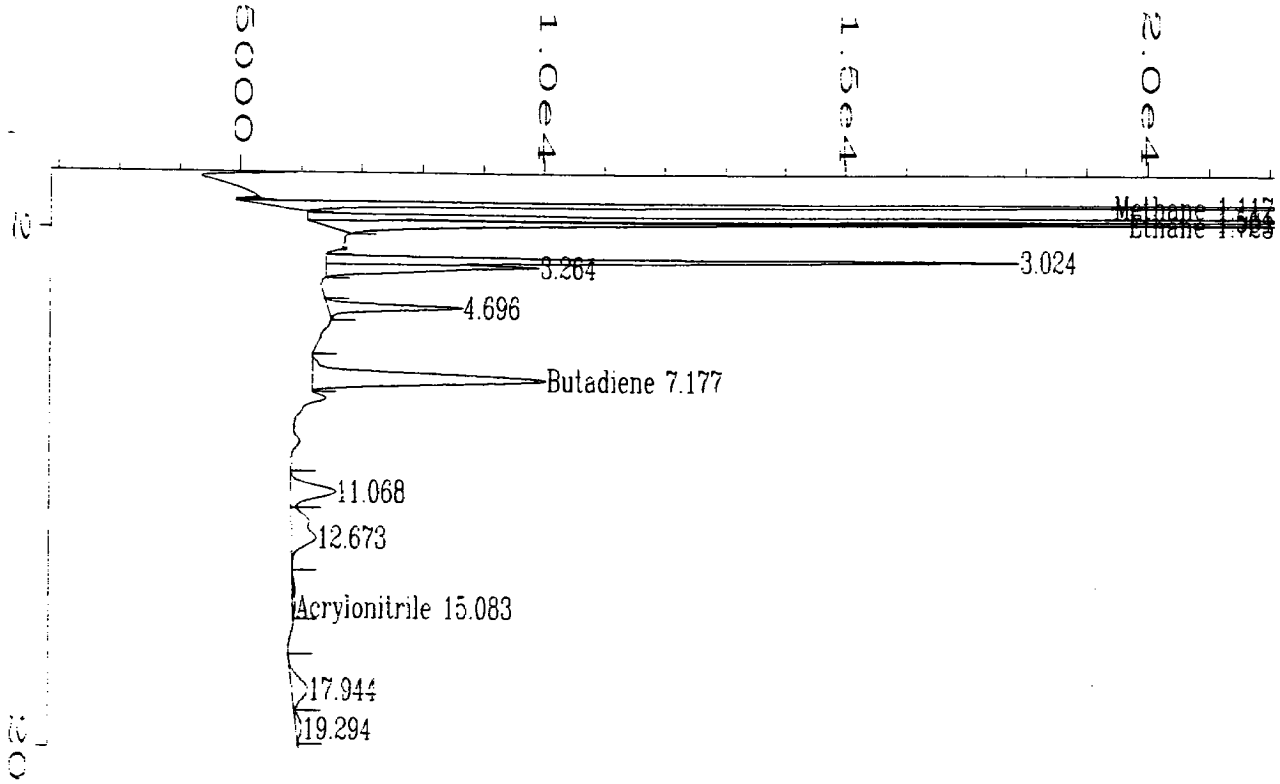
==========

Data File Name	: D:\SOLVAY\NEW_GC\EP-5\RUN-1-05.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Run 1	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 25 Jul 96 01:39 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 12:05 PM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\EP-5\RUN-1-05.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.227	35613	BB	0.147	1	0.734	Hexane
5.483	* not found *			1		Trichloroethane
6.800	115010	VV	0.190	1	2.097	Benzene
7.950	4081	BV	0.274	1	0.185	Trichloroethylene
8.988	6719	PV	0.309	1	0.202	2-Butanone
10.858	53676	PV	0.210	1	0.584	Toluene
14.335	28703	VV	0.340	1	0.263	Ethyl Benzene
14.937	* not found *			1		p-Xylene
15.281	119624	VV	0.447	1	0.842	m-Xylene
16.043	27460	VV	0.340	1	0.231	o-Xylene
17.218	41811	VV	0.384	1	0.272	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

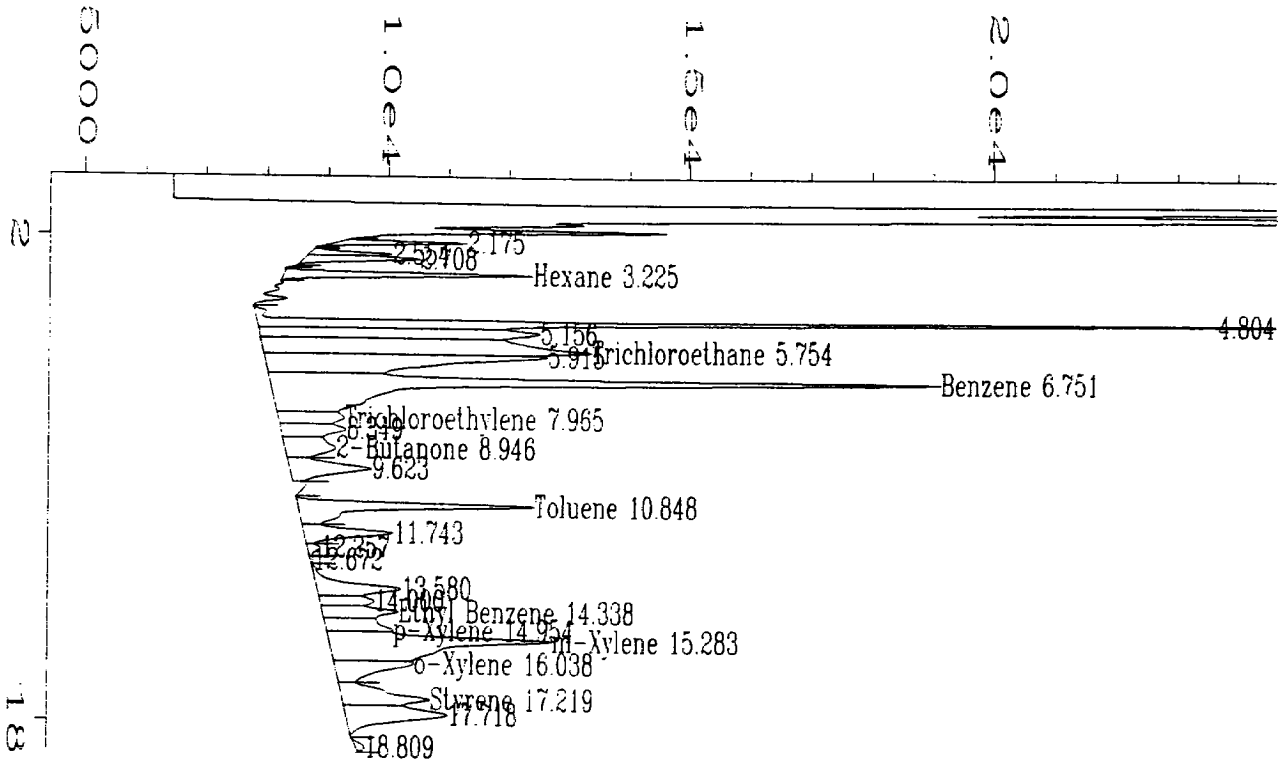
Data File Name	: D:\SOLVAY\OLD_GC\EP-5\RUN-1-05.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 25 Jul 96 01:39 PM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 04:47 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\EP-5\RUN-1-05.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.117	1252391	HB S	0.086	1	279.030	Methane
1.723	318974	HB S	0.020	1	36.811	Ethane
7.177	94827	BV	0.380	1	5.848	Butadiene
13.312	* not found *			1		Methylene Chloride
15.083	2771	PB	0.841	1	-0.149	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

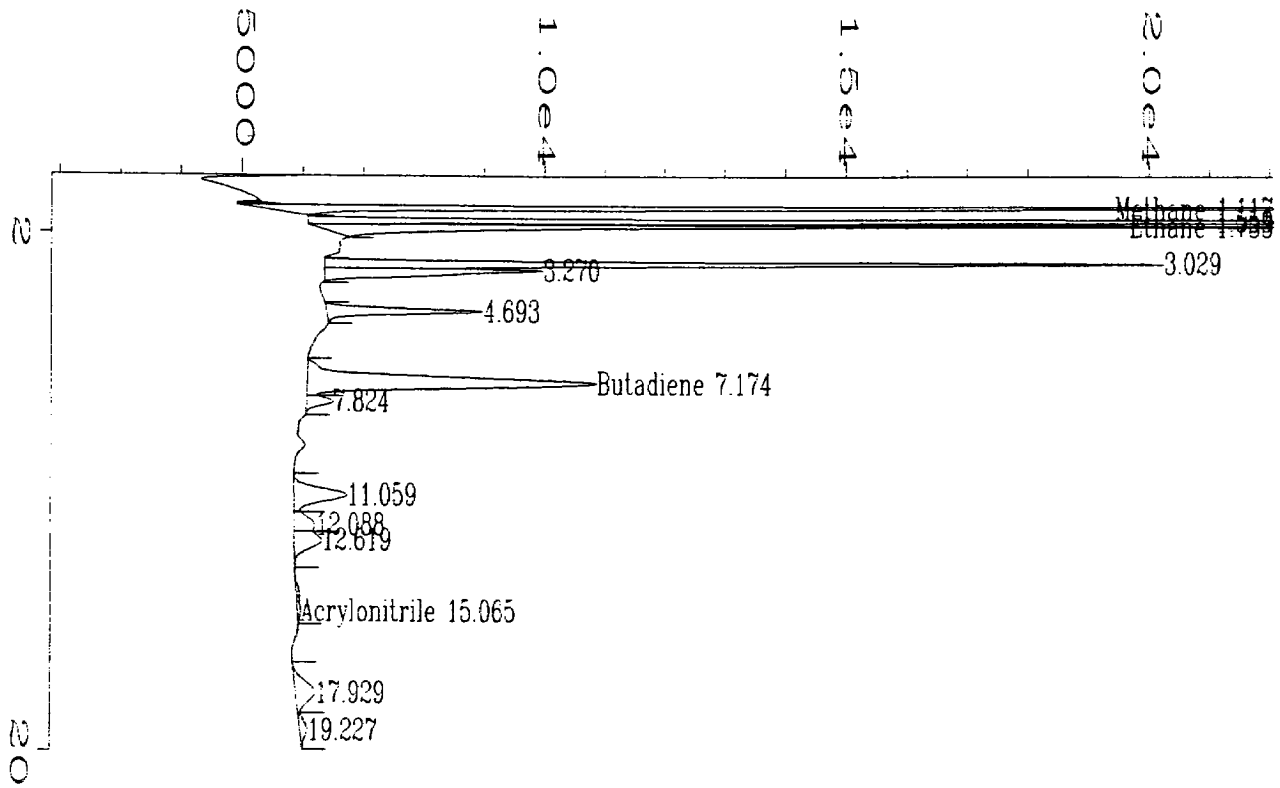
==========

Data File Name	: D:\SOLVAY\NEW_GC\EP-5\RUN-1-06.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 25 Jul 96 02:04 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 12:05 PM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\EP-5\RUN-1-06.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.225	37434	BB	0.144	1	0.770	Hexane
5.754	141255	VV	0.323	1	8.032	Trichloroethane
6.751	233304	VV	0.288	1	4.229	Benzene
7.965	22907	VV	0.267	1	0.823	Trichloroethylene
8.946	28052	VV	0.408	1	1.114	2-Butanone
10.848	65462	PV	0.245	1	0.717	Toluene
14.338	25154	VV	0.276	1	0.232	Ethyl Benzene
14.954	25897	VV	0.310	1	0.231	p-Xylene
15.283	115940	VV	0.418	1	0.815	m-Xylene
16.038	33014	VV	0.302	1	0.280	o-Xylene
17.219	40001	VV	0.376	1	0.259	Styrene

==========



==========

External Standard Report

==========

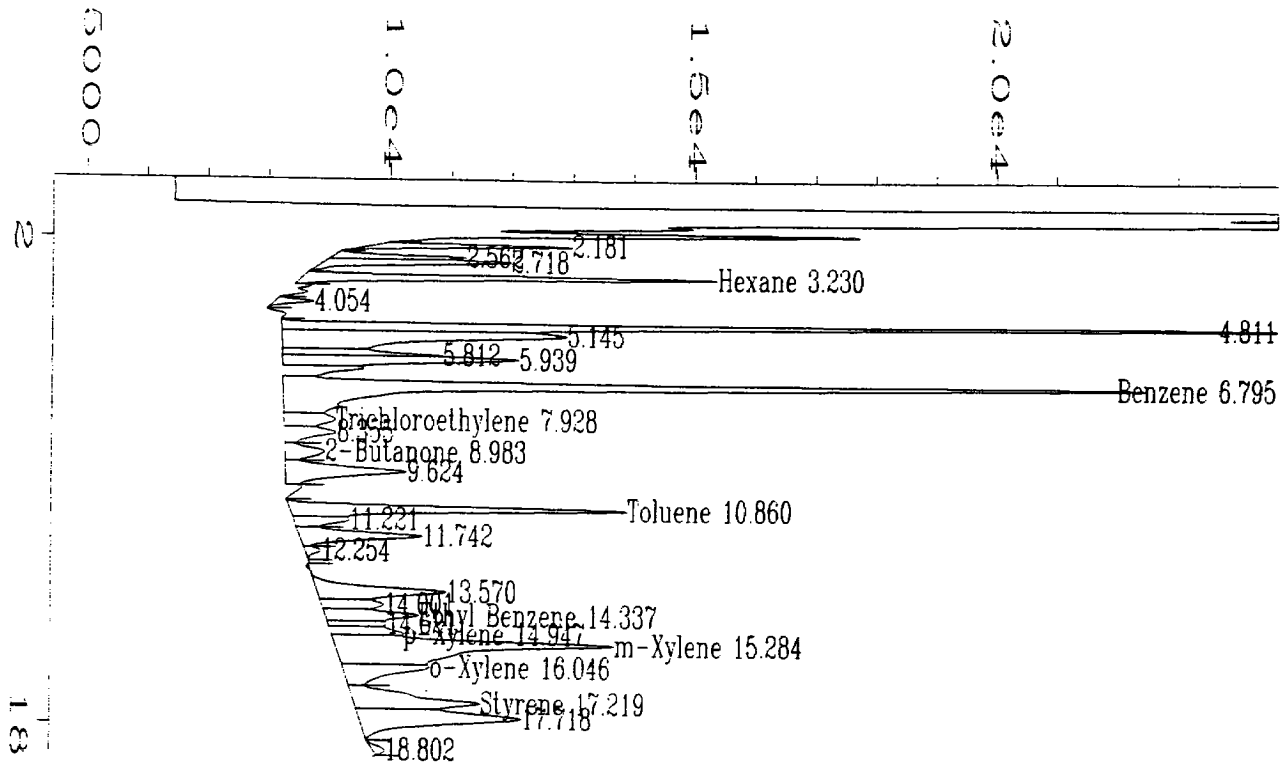
Data File Name	: D:\SOLVAY\OLD_GC\EP-5\RUN-1-06.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 25 Jul 96 02:04 PM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:53 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\EP-5\RUN-1-06.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.117	1278101	HB S	0.088	1	284.791	Methane
1.733	342966	HB S	0.021	1	39.564	Ethane
7.174	122311	BV	0.389	1	7.556	Butadiene
13.312	* not found *			1		Methylene Chloride
15.065	3620	PB	0.757	1	-0.0760	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

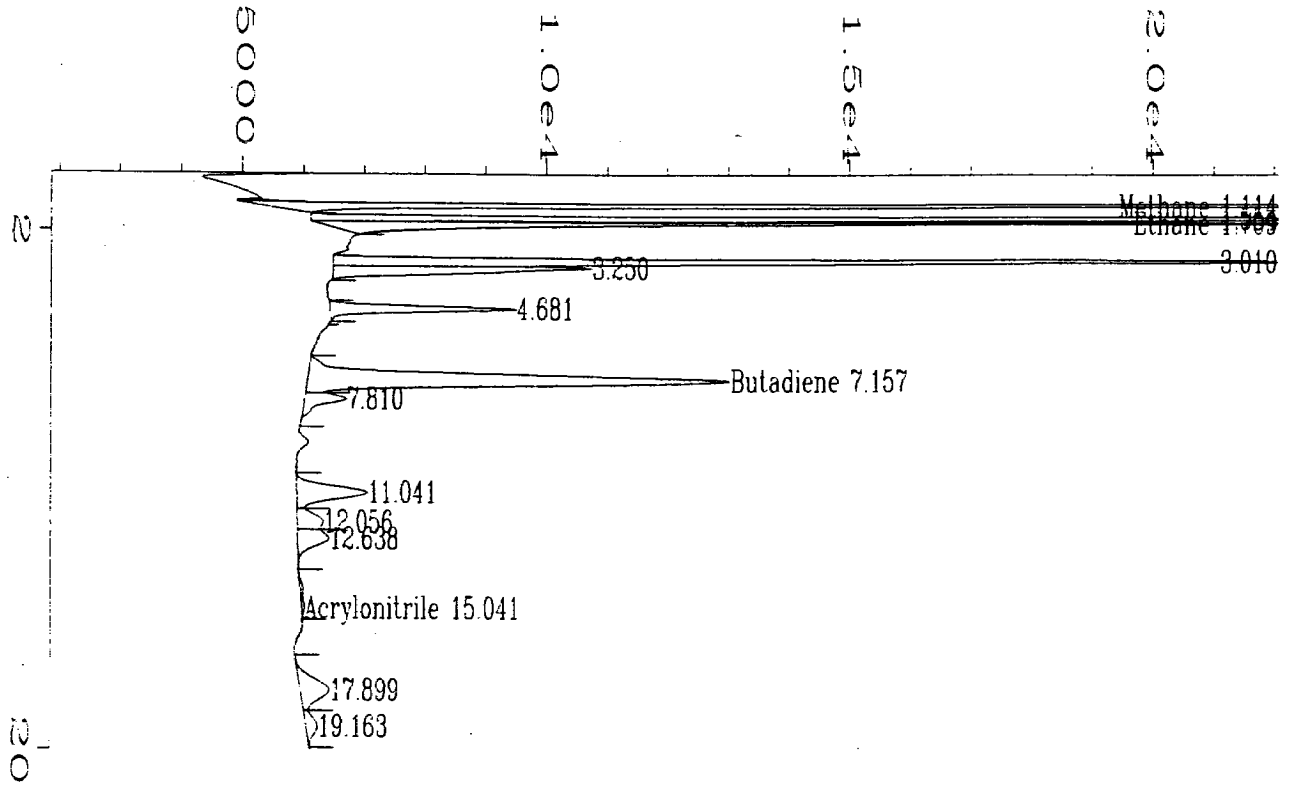
ata File Name : D:\SOLVAY\NEW_GC\EP-5\RUN-1-07.D
Operator : J. Kaput
Instrument : NEW HP589
ample Name : Run 1
un Time Bar Code:
Acquired on : 25 Jul 96 02:30 PM
eport Created on: 04 Aug 96 12:06 PM
ast Recalib on : 03 AUG 96 04:50 PM
Multiplier : 1

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

ig. 1 in D:\SOLVAY\NEW_GC\EP-5\RUN-1-07.D

et Time	Area	Type	Width	Ref#	ppm	Name
3.230	65287	PV	0.148	1	1.335	Hexane
5.483	* not found *			1		Trichloroethane
6.795	223997	VV	0.227	1	4.062	Benzene
7.928	18683	VV	0.335	1	0.680	Trichloroethylene
8.983	14880	VV	0.368	1	0.551	2-Butanone
10.860	76943	PV	0.209	1	0.847	Toluene
14.337	27687	VV	0.255	1	0.254	Ethyl Benzene
14.947	19073	VV	0.227	1	0.167	p-Xylene
15.284	131244	VV	0.385	1	0.928	m-Xylene
16.046	34798	VV	0.345	1	0.297	o-Xylene
17.219	54058	VV	0.363	1	0.360	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

Data File Name : D:\SOLVAY\OLD_GC\EP-5\RUN-1-07.D
Operator : J. Kaput
Instrument : OLD HP589
Sample Name : Run 1
Run Time Bar Code:
Acquired on : 25 Jul 96 02:30 PM
Report Created on: 04 Aug 96 02:53 PM
Last Recalib on : 04 AUG 96 01:59 PM
Multiplier : 1

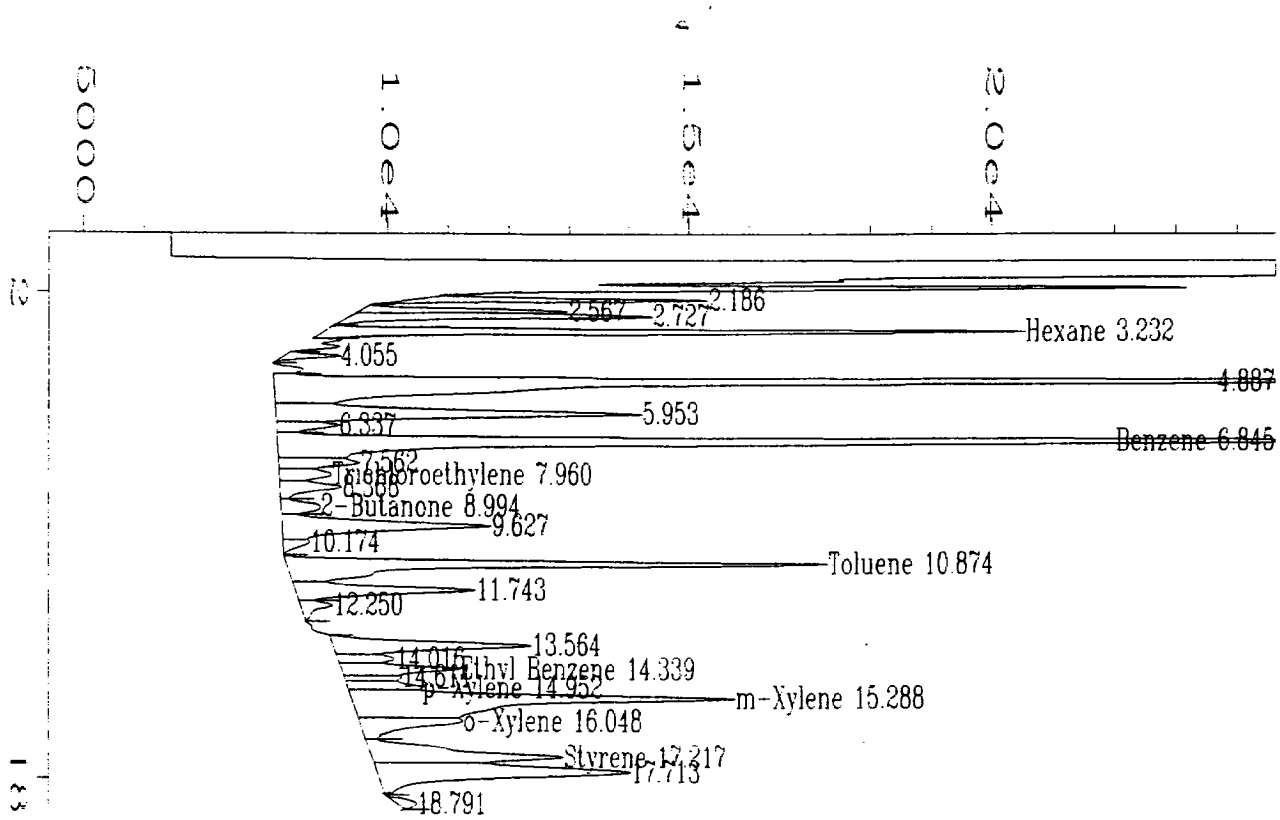
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\OLD_GC\EP-5\RUN-1-07.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.114	1289384	HB S	0.089	1	287.319	Methane
1.709	317019	HB S	0.020	1	36.586	Ethane
7.157	178207	BV	0.396	1	11.030	Butadiene
13.312	* not found *			1		Methylene Chloride
15.041	3138	PB	0.786	1	-0.118	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

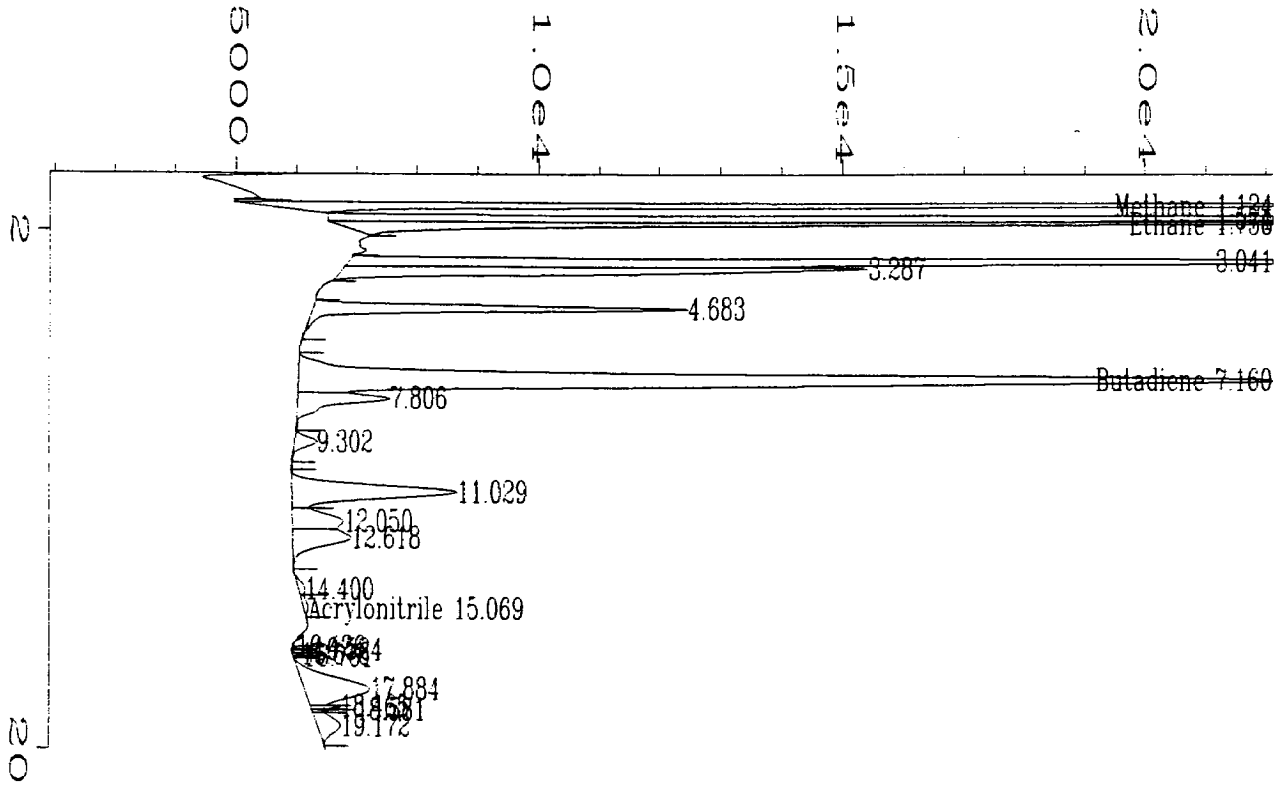
==========

Data File Name	: D:\SOLVAY\NEW_GC\EP-5\RUN-1-08.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Run 1	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 25 Jul 96 02:56 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 12:06 PM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Fig. 1 in D:\SOLVAY\NEW_GC\EP-5\RUN-1-08.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.232	113736	PV	0.152	1	2.316	Hexane
5.483	* not found *			1		Trichloroethane
6.845	326196	VV	0.199	1	5.904	Benzene
7.960	16692	VV	0.299	1	0.612	Trichloroethylene
8.994	14537	VV	0.316	1	0.536	2-Butanone
10.874	144157	PV	0.236	1	1.607	Toluene
14.339	33040	VV	0.244	1	0.302	Ethyl Benzene
14.952	17832	VV	0.241	1	0.155	p-Xylene
15.288	164105	VV	0.351	1	1.170	m-Xylene
16.048	36924	VV	0.300	1	0.316	o-Xylene
17.217	76814	VV	0.338	1	0.523	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

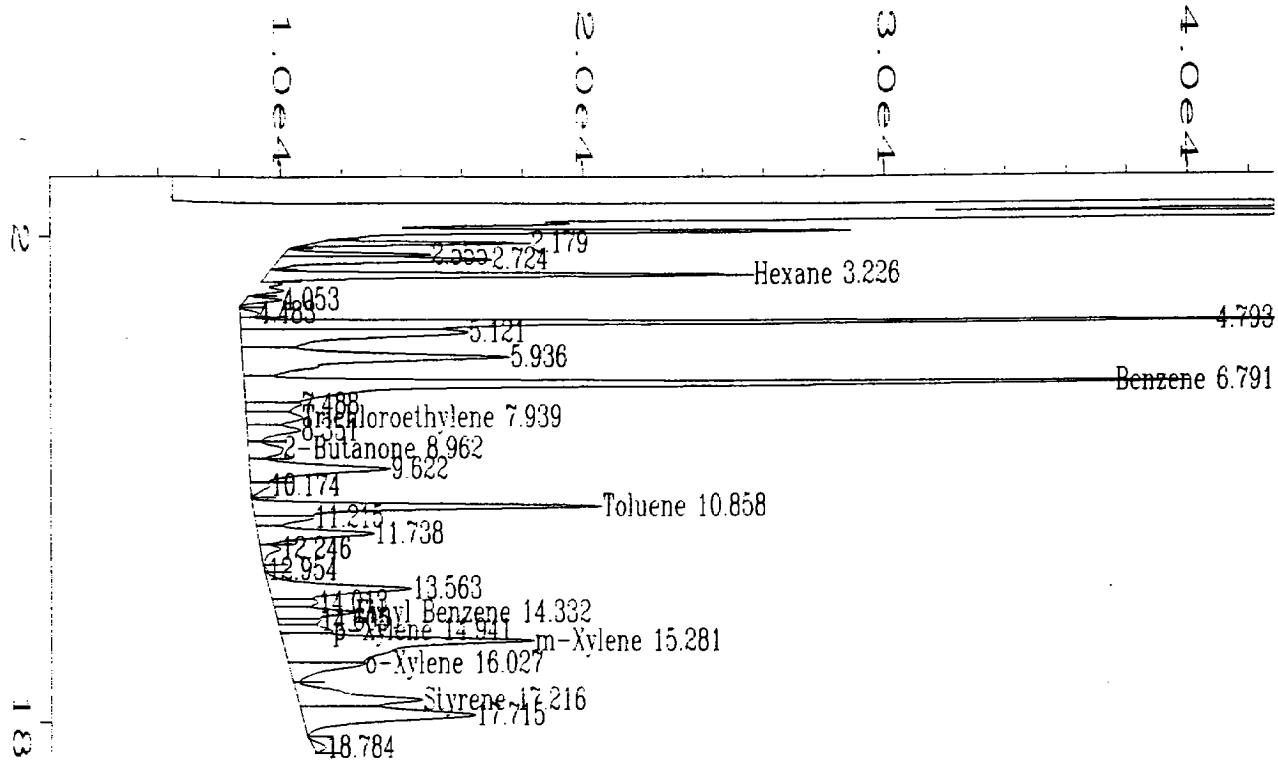
Data File Name	: D:\SOLVAY\OLD_GC\EP-5\RUN-1-08.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 25 Jul 96 02:56 PM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:53 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\EP-5\RUN-1-08.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.124	1695488	HB S	0.117	1	378.318	Methane
1.756	556038	HB S	0.089	1	64.021	Ethane
7.160	422743	BV	0.404	1	26.226	Butadiene
13.312	* not found *			1		Methylene Chloride
15.069	2657	VB	0.445	1	-0.159	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

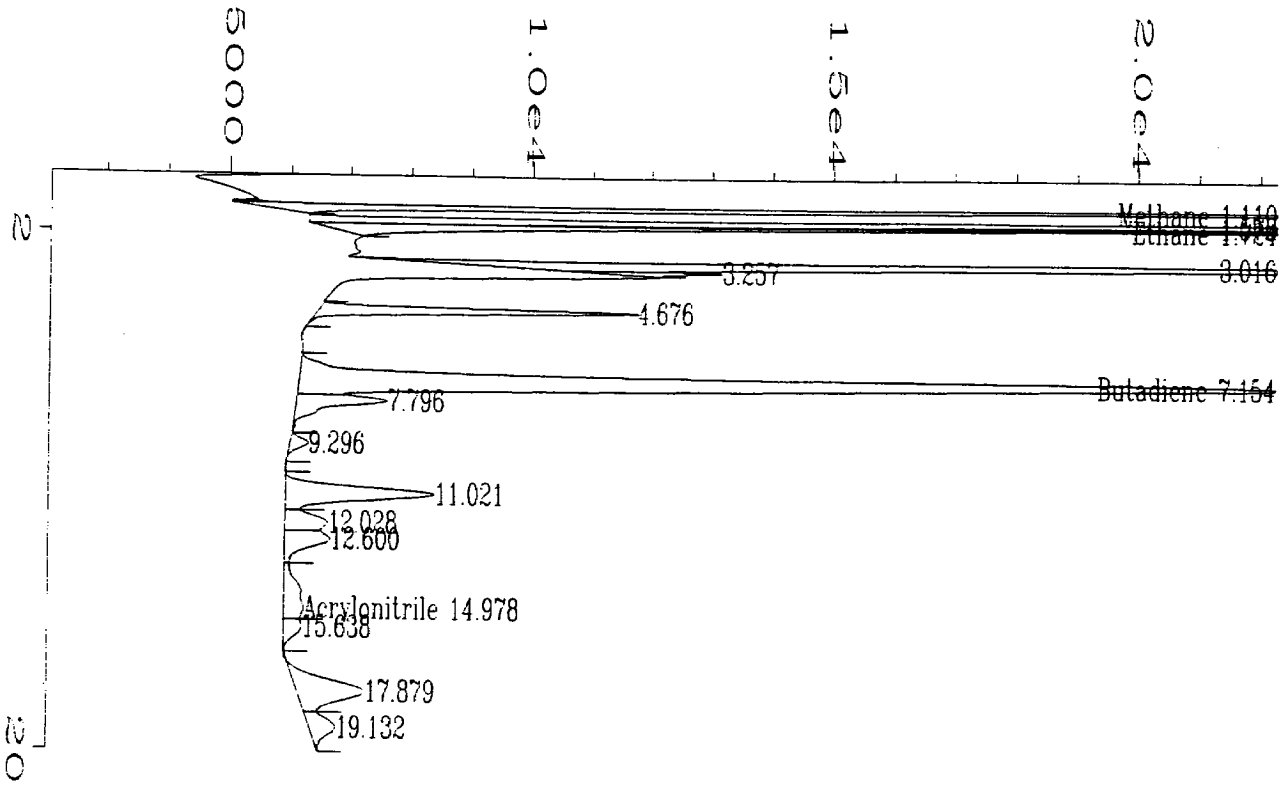
==========

Data File Name	: D:\SOLVAY\NEW_GC\EP-5\RUN-1-09.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Run 1	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 25 Jul 96 03:22 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 12:06 PM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\EP-5\RUN-1-09.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.226	153010	VV	0.146	1	3.111	Hexane
5.483	* not found *			1		Trichloroethane
6.791	449970	VV	0.211	1	8.134	Benzene
7.939	41926	VV	0.341	1	1.468	Trichloroethylene
8.962	29685	VV	0.348	1	1.184	2-Butanone
10.858	161965	PV	0.211	1	1.808	Toluene
14.332	45516	VV	0.248	1	0.412	Ethyl Benzene
14.941	24929	VV	0.211	1	0.222	p-Xylene
15.281	234896	VV	0.379	1	1.692	m-Xylene
16 027	49105	VV	0.289	1	0.425	o-Xylene
17 216	96049	VV	0.328	1	0.661	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

Data File Name : D:\SOLVAY\OLD_GC\EP-5\RUN-1-09.D
Operator : J. Kaput
Instrument : OLD HP589
Sample Name : Run 1
Run Time Bar Code:
Acquired on : 25 Jul 96 03:22 PM
Report Created on: 04 Aug 96 02:54 PM
Last Recalib on : 04 AUG 96 01:59 PM
Multiplier : 1

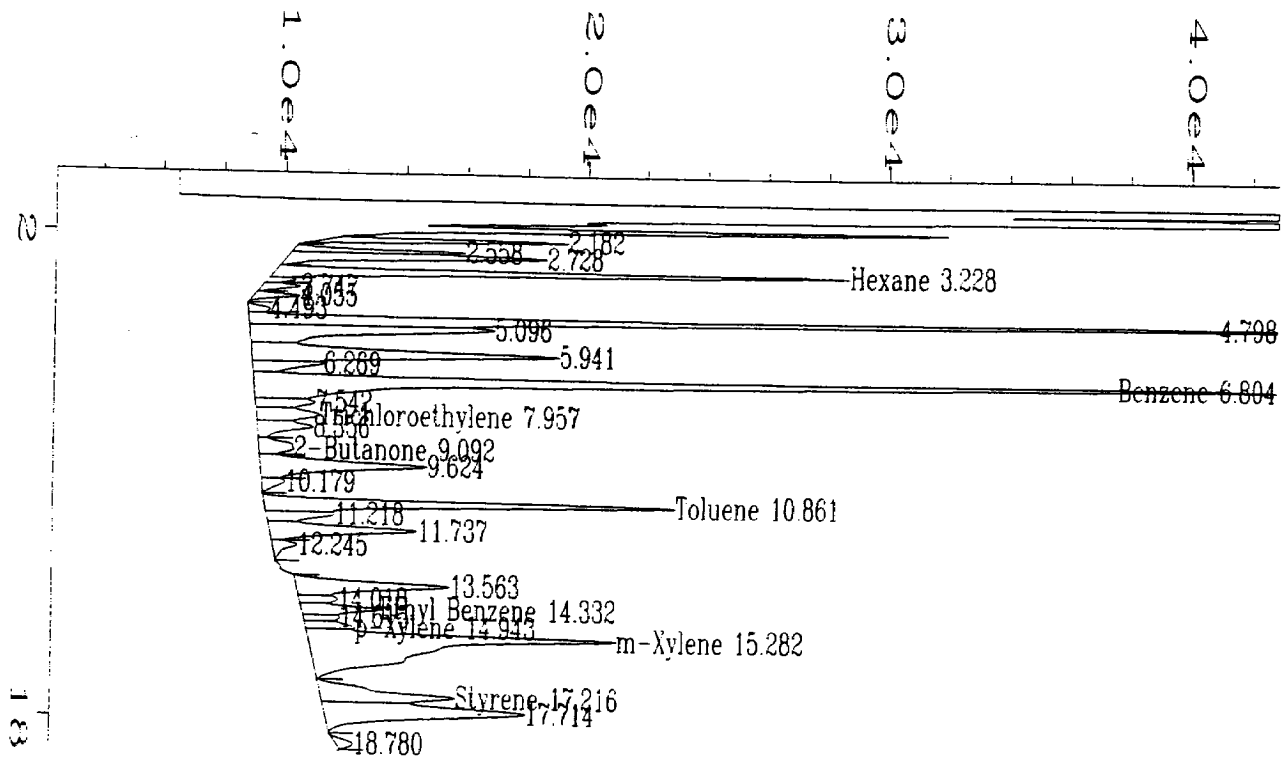
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\OLD_GC\EP-5\RUN-1-09.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.110	1265496	HB S	0.087	1	281.966	Methane
1.724	351974	HB S	0.048	1	40.598	Ethane
7.154	418939	BV	0.396	1	25.989	Butadiene
13.312	* not found *			1		Methylene Chloride
14.978	25841	VV	0.995	1	1.838	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

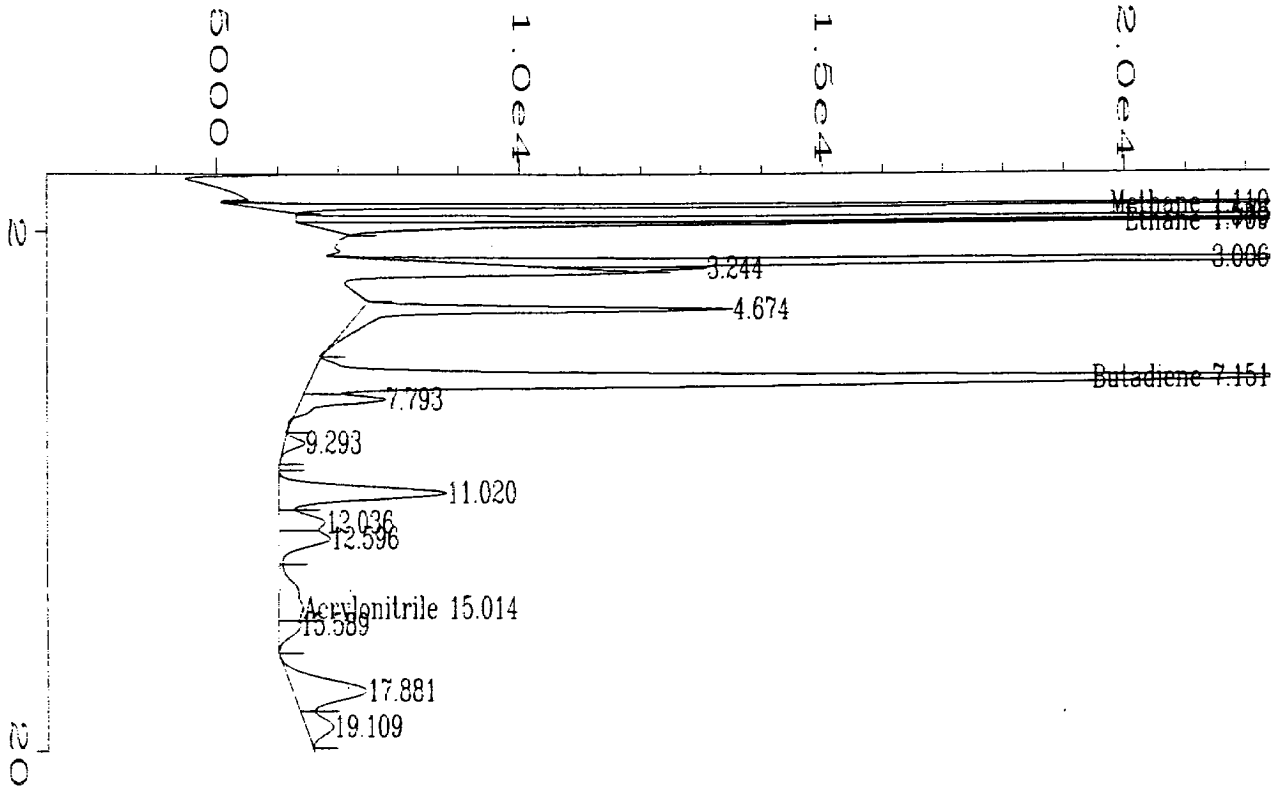
==========

Data File Name	: D:\SOLVAY\NEW_GC\EP-5\RUN-1-10.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 25 Jul 96 03:47 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 12:06 PM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Fig. 1 in D:\SOLVAY\NEW_GC\EP-5\RUN-1-10.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.228	183918	VV	0.149	1	3.737	Hexane
5.483	* not found *			1		Trichloroethane
6.804	480137	VV	0.209	1	8.678	Benzene
7.957	45004	VV	0.329	1	1.572	Trichloroethylene
9.092	28873	VV	0.337	1	1.149	2-Butanone
10.861	188513	PV	0.209	1	2.108	Toluene
14.332	41366	VV	0.232	1	0.376	Ethyl Benzene
14.943	22540	VV	0.204	1	0.199	p-Xylene
15.282	337930	VV	0.437	1	2.453	m-Xylene
16.096	* not found *			1		o-Xylene
17.216	99935	VV	0.319	1	0.689	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

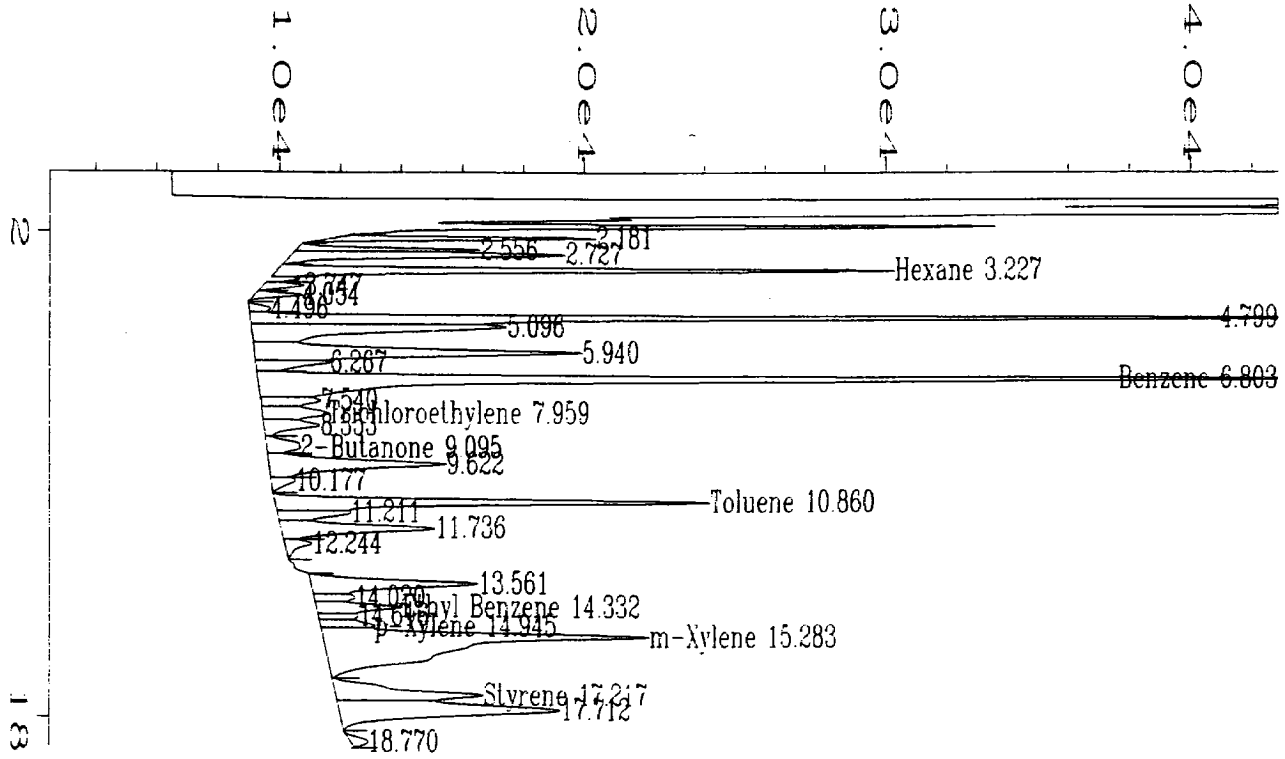
Data File Name	: D:\SOLVAY\OLD_GC\EP-5\RUN-1-10.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Run 1	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 25 Jul 96 03:47 PM	Instrument Method	: OLD-GC.MTH
Report Created on:	04 Aug 96 02:54 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\EP-5\RUN-1-10.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.110	1225804	HB S	0.084	1	273.072	Methane
1.709	303014	HB S	0.044	1	34.979	Ethane
7.151	428122	BV	0.393	1	26.560	Butadiene
13.312	* not found *			1		Methylene Chloride
15.014	31243	VV	0.944	1	2.303	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

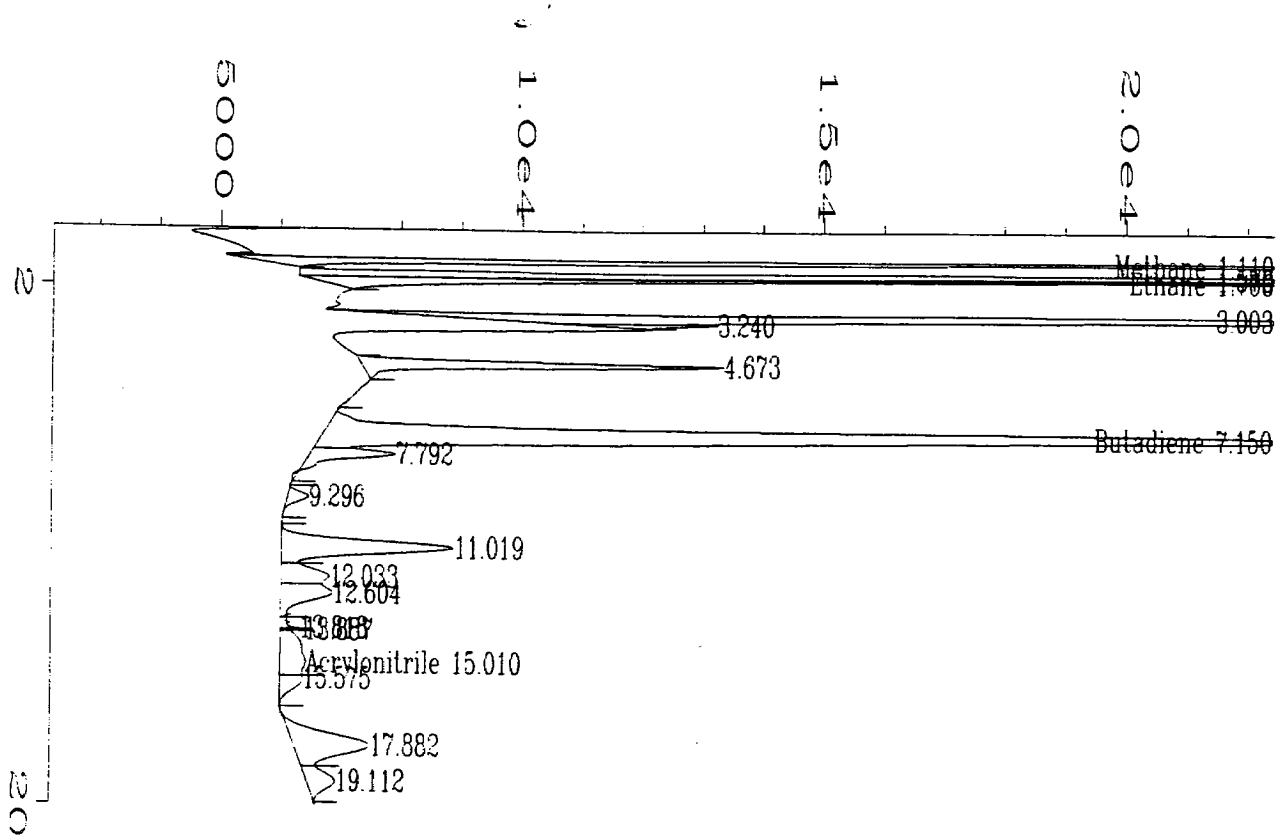
Data File Name : D:\SOLVAY\NEW_GC\EP-5\RUN-1-11.D
Operator : J. Kaput
Instrument : NEW HP589
Sample Name : Run 1
Run Time Bar Code:
Acquired on : 25 Jul 96 04:12 PM
Report Created on: 04 Aug 96 12:07 PM
Last Recalib on : 03 AUG 96 04:50 PM
Multiplier : 1

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

Sig. 1 in D:\SOLVAY\NEW_GC\EP-5\RUN-1-11.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.227	195447	VV	0.148	1	3.971	Hexane
5.483	* not found *			1		Trichloroethane
6.803	510533	VV	0.207	1	9.226	Benzene
7.959	45553	VV	0.328	1	1.590	Trichloroethylene
9.095	26829	VV	0.329	1	1.062	2-Butanone
10.860	199783	PV	0.210	1	2.236	Toluene
14.332	45426	VV	0.234	1	0.412	Ethyl Benzene
14.945	25265	VV	0.202	1	0.225	p-Xylene
15.283	370482	VV	0.454	1	2.693	m-Xylene
16.096	* not found *			1		o-Xylene
17.217	109788	VV	0.320	1	0.760	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

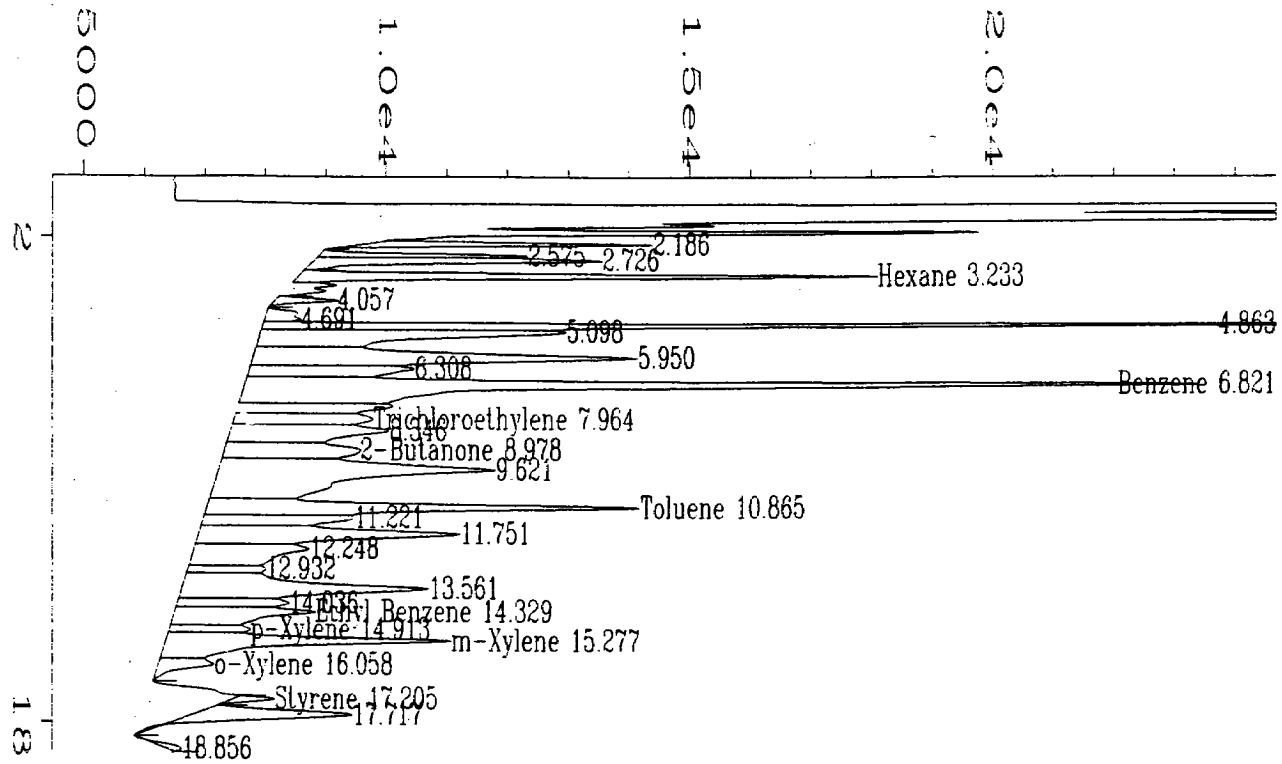
Data File Name	: D:\SOLVAY\OLD_GC\EP-5\RUN-1-11.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: Run 1	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 25 Jul 96 04:12 PM	Instrument Method	: OLD-GC.MTH
Report Created on:	04 Aug 96 04:40 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\EP-5\RUN-1-11.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.110	1219622	HB S	0.084	1	271.687	Methane
1.706	307387	HB S	0.019	1	35.481	Ethane
7.150	451580	BV	0.386	1	28.018	Butadiene
13.312	* not found *			1		Methylene Chloride
15.010	32295	VV	0.935	1	2.393	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

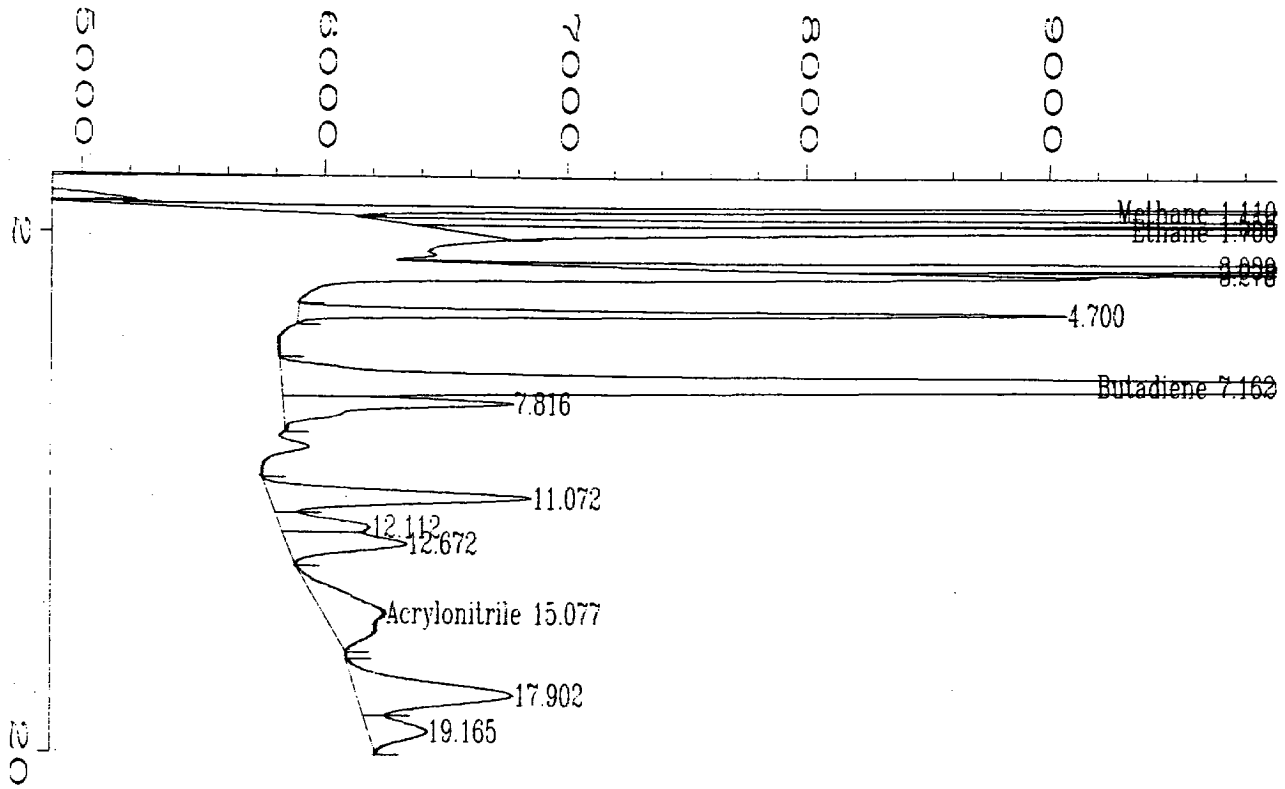
==========

Data File Name	: D:\SOLVAY\NEW_GC\EP1-2\RUNS-001.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: EP 1 & 2	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 26 Jul 96 02:38 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 12:09 PM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\EP1-2\RUNS-001.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.233	94066	VV	0.152	1	1.917	Hexane
5.483	* not found *			1		Trichloroethane
6.821	287146	VV	0.257	1	5.200	Benzene
7.964	50040	VV	0.325	1	1.742	Trichloroethylene
8.978	63464	VV	0.374	1	2.628	2-Butanone
10.865	126842	VV	0.255	1	1.411	Toluene
14.329	59965	VV	0.349	1	0.541	Ethyl Benzene
14.913	18991	VV	0.208	1	0.166	p-Xylene
15.277	104798	VV	0.311	1	0.732	m-Xylene
16.058	19600	VV	0.309	1	0.160	o-Xylene
17.205	7112	BV	0.175	1	0.0237	Styrene

* all calibrated peaks were found



==========

External Standard Report

==========

Data File Name : D:\SOLVAY\OLD_GC\EP1-2\RUNS-001.D
Operator : J. Kaput
Instrument : OLD HP589
Sample Name : EP 1 & 2
Run Time Bar Code:
Acquired on : 26 Jul 96 02:38 PM
Report Created on: 04 Aug 96 04:28 PM
Last Recalib on : 04 AUG 96 01:59 PM
Multiplier : 1

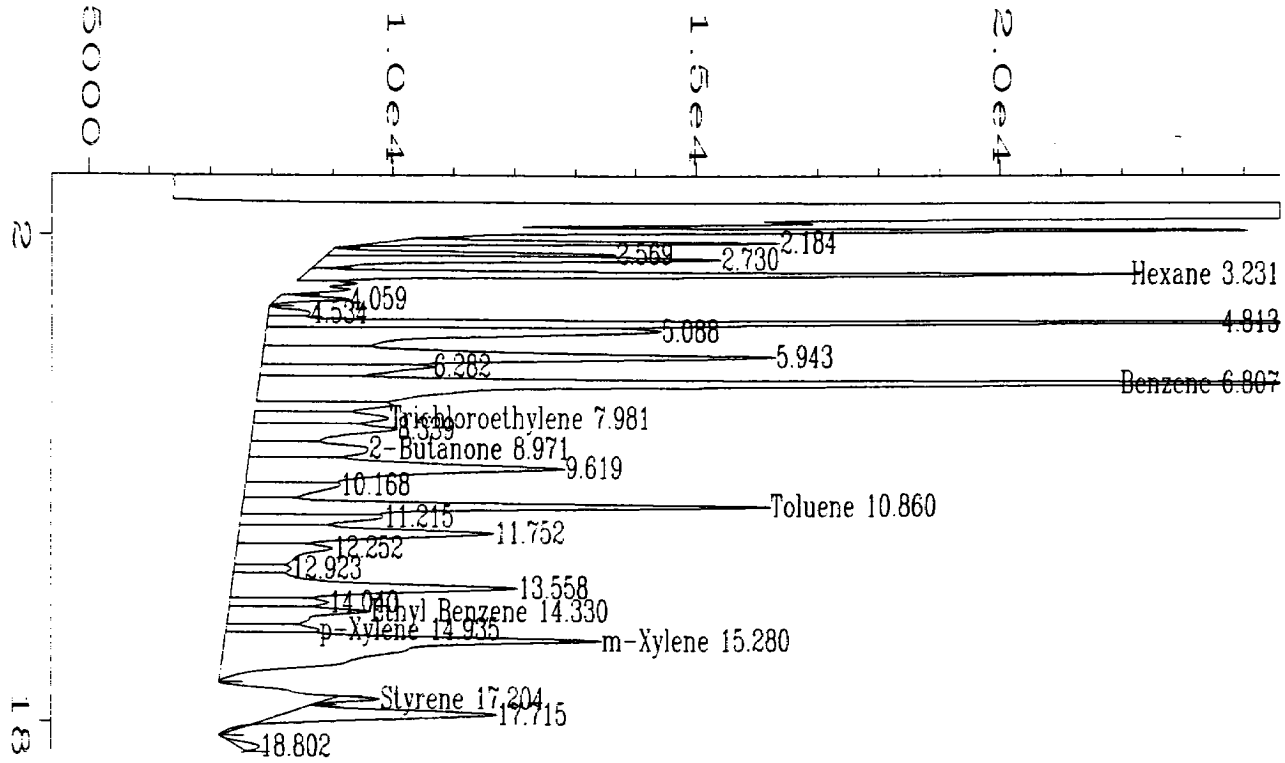
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\OLD_GC\EP1-2\RUNS-001.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.110	1203049	BB S	0.082	1	267.973	Methane
1.760	255533	VB	0.069	1	29.529	Ethane
7.162	217251	BV	0.413	1	13.456	Butadiene
13.312	* not found *			1		Methylene Chloride
15.077	23002	PB	1.074	1	1.593	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

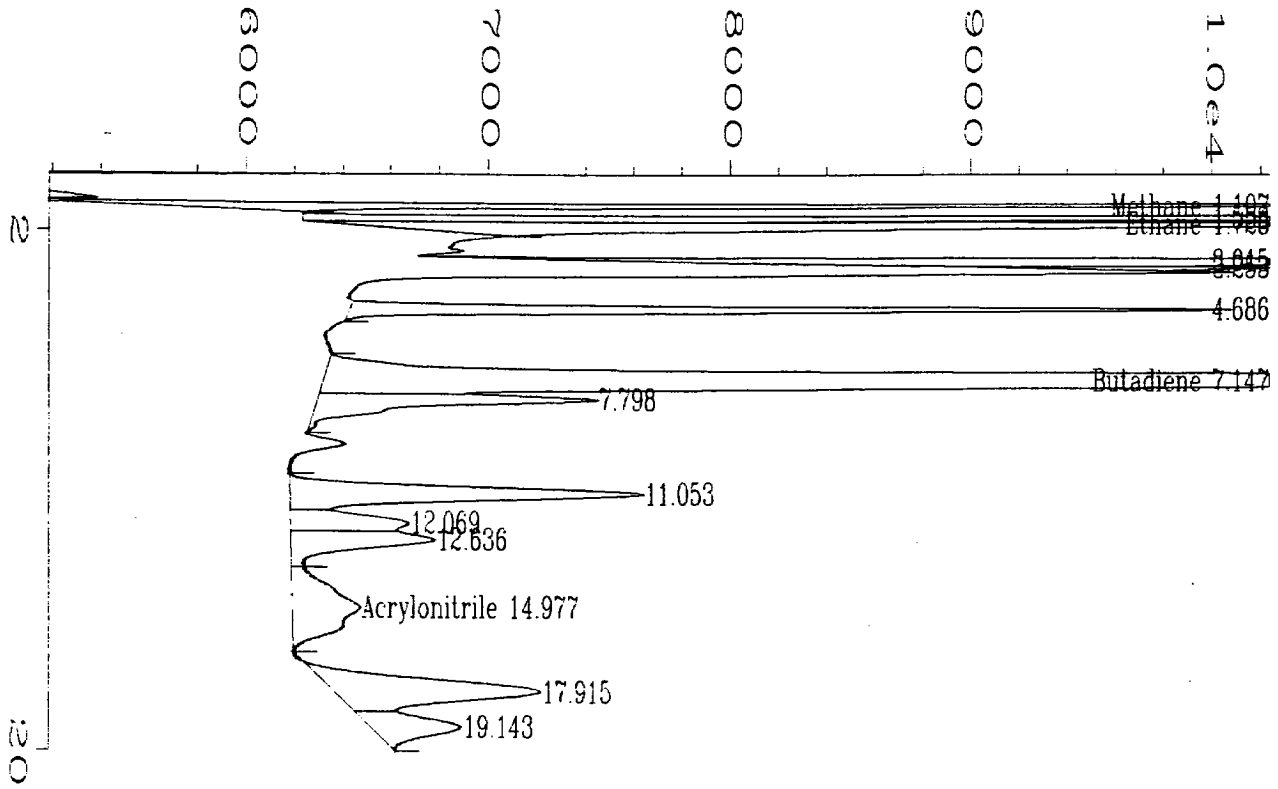
==========

Data File Name	: D:\SOLVAY\NEW_GC\EP1-2\RUNS-002.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: EP 1 & 2	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 26 Jul 96 03:03 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 12:10 PM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\EP1-2\RUNS-002.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.231	136304	VV	0.153	1	2.773	Hexane
5.483	* not found *			1		Trichloroethane
6.807	335124	VV	0.234	1	6.065	Benzene
7.981	47401	VV	0.319	1	1.653	Trichloroethylene
8.971	53796	VV	0.368	1	2.215	2-Butanone
10.860	136268	VV	0.231	1	1.518	Toluene
14.330	57019	VV	0.332	1	0.514	Ethyl Benzene
14.935	22402	VV	0.207	1	0.198	p-Xylene
15.280	222010	VV	0.471	1	1.597	m-Xylene
16.096	* not found *			1		o-Xylene
17.204	7686	BV	0.155	1	0.0278	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

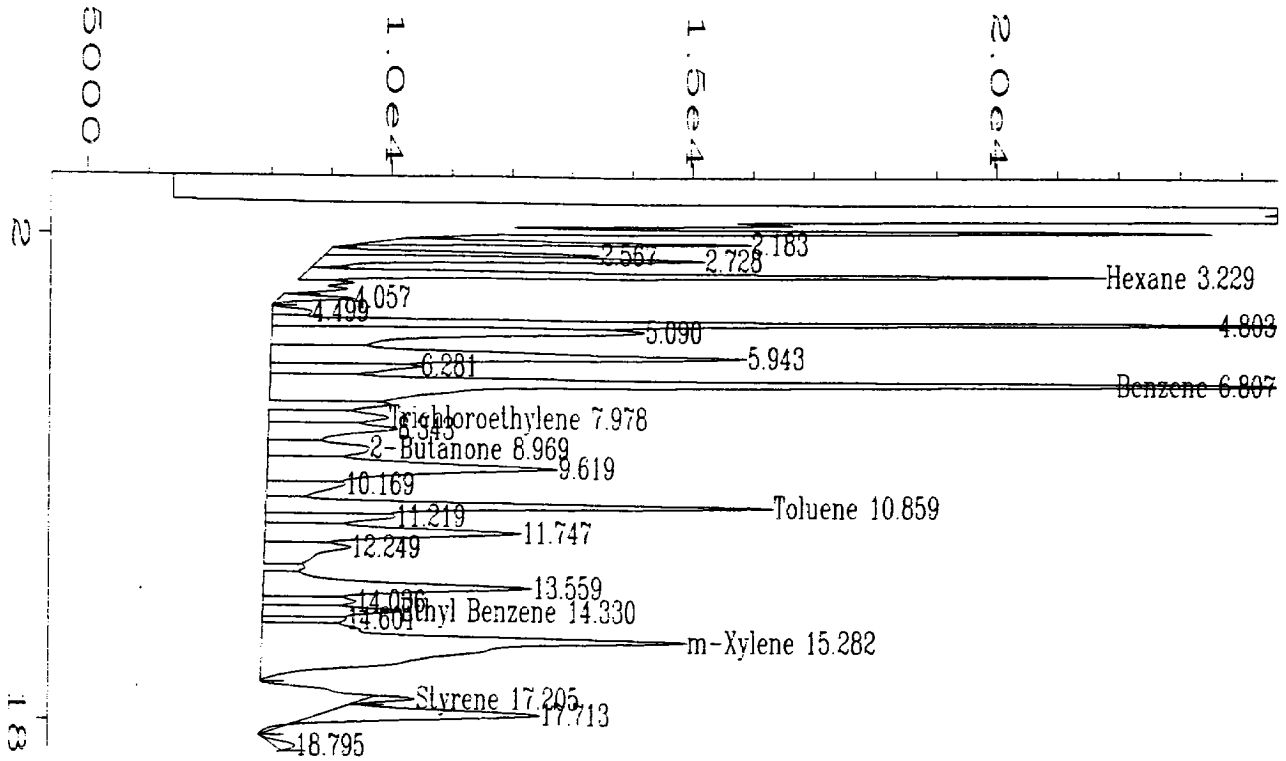
Data File Name	: D:\SOLVAY\OLD_GC\EP1-2\RUNS-002.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: EP 1 & 2	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 26 Jul 96 03:03 PM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 02:49 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\OLD_GC\EP1-2\RUNS-002.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.107	1135255	BB S	0.078	1	252.782	Methane
1.728	247326	HB S	0.046	1	28.587	Ethane
7.147	288306	BV	0.414	1	17.871	Butadiene
13.312	* not found *			1		Methylene Chloride
14.977	27551	VV	1.171	1	1.985	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

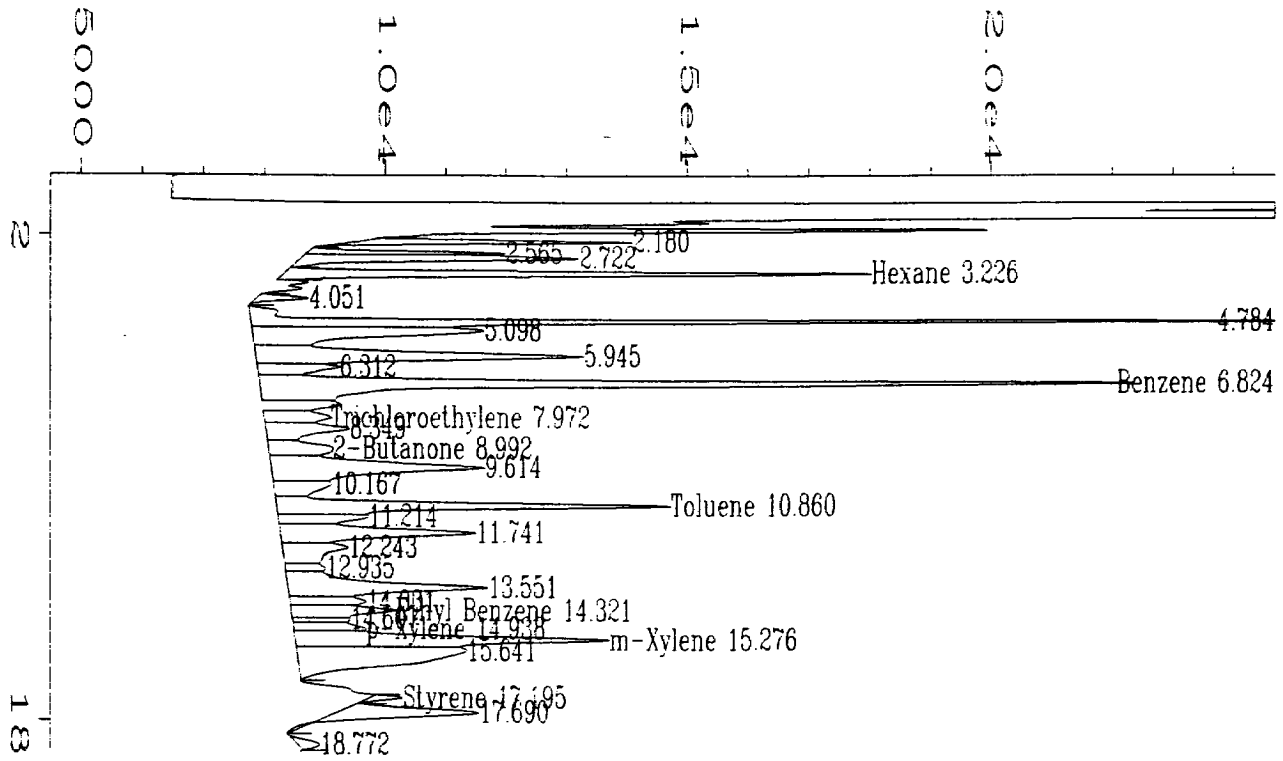
Data File Name : D:\SOLVAY\NEW_GC\EP1-2\RUNS-003.D
Operator : J. Kaput
Instrument : NEW HP589
Sample Name : EP 1 & 2
Run Time Bar Code:
Acquired on : 26 Jul 96 03:29 PM
Report Created on: 04 Aug 96 12:10 PM
Last Recalib on : 03 AUG 96 04:50 PM
Multiplier : 1

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

Fig. 1 in D:\SOLVAY\NEW_GC\EP1-2\RUNS-003.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.229	130939	VV	0.152	1	2.664	Hexane
5.483	* not found *			1		Trichloroethane
6.807	310594	VV	0.233	1	5.622	Benzene
7.978	42288	VV	0.319	1	1.480	Trichloroethylene
8.969	45536	VV	0.362	1	1.862	2-Butanone
10.859	128783	VV	0.227	1	1.433	Toluene
14.330	40992	VV	0.256	1	0.372	Ethyl Benzene
14.937	* not found *			1		p-Xylene
15.282	286921	VV	0.526	1	2.076	m-Xylene
16.096	* not found *			1		o-Xylene
17.205	8383	BV	0.171	1	0.0328	Styrene

Not all calibrated peaks were found



==========

External Standard Report

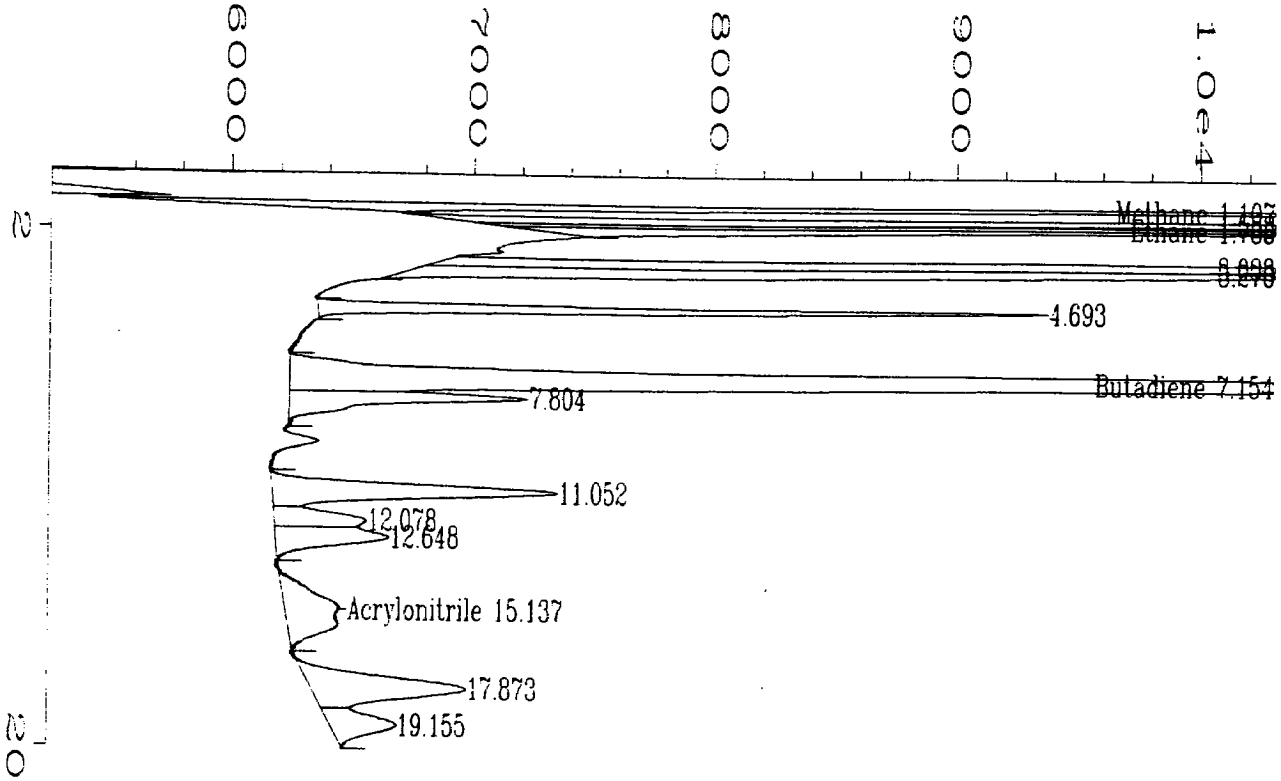
==========

Data File Name	: D:\SOLVAY\NEW_GC\EP1-2\RUNS-005.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: EP 1 & 2	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 26 Jul 96 04:56 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 12:10 PM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\EP1-2\RUNS-005.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.226	95716	VV	0.153	1	1.951	Hexane
5.483	* not found *			1		Trichloroethane
6.824	214025	VV	0.217	1	3.882	Benzene
7.972	22516	VV	0.312	1	0.810	Trichloroethylene
8.992	27124	VV	0.396	1	1.075	2-Butanone
10.860	101933	VV	0.230	1	1.130	Toluene
14.321	31932	VV	0.262	1	0.292	Ethyl Benzene
14.938	17712	VV	0.248	1	0.154	p-Xylene
15.276	99323	VV	0.274	1	0.692	m-Xylene
16.096	* not found *			1		o-Xylene
17.195	5523	BV	0.168	1	0.0123	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

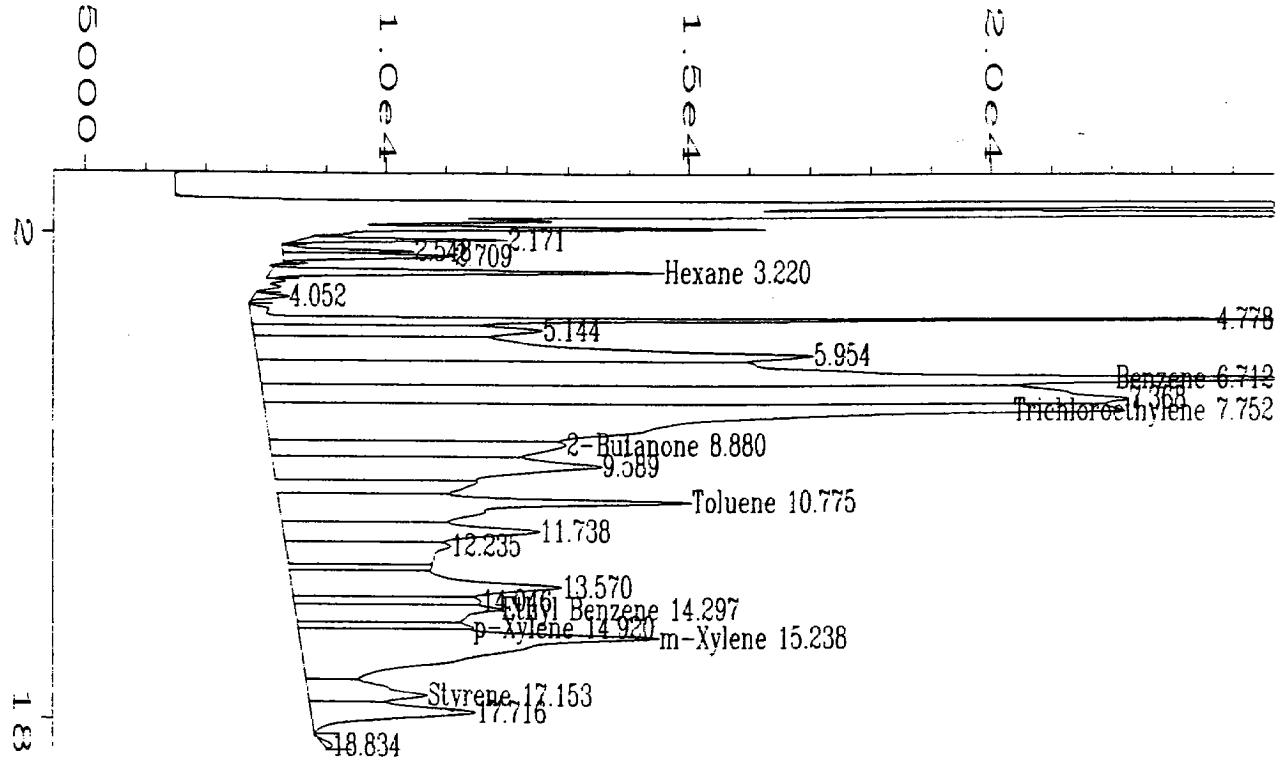
Data File Name	: D:\SOLVAY\OLD_GC\EP1-2\RUNS-006.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: EP 1 & 2	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 26 Jul 96 04:56 PM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 04:37 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Fig. 2 in D:\SOLVAY\OLD_GC\EP1-2\RUNS-006.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.107	1172433	BB S	0.080	1	261.113	Methane
1.736	130035	VV	0.053	1	15.124	Ethane
7.154	226669	BV	0.414	1	14.041	Butadiene
13.312	* not found *			1		Methylene Chloride
15.137	21396	PV	1.245	1	1.455	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

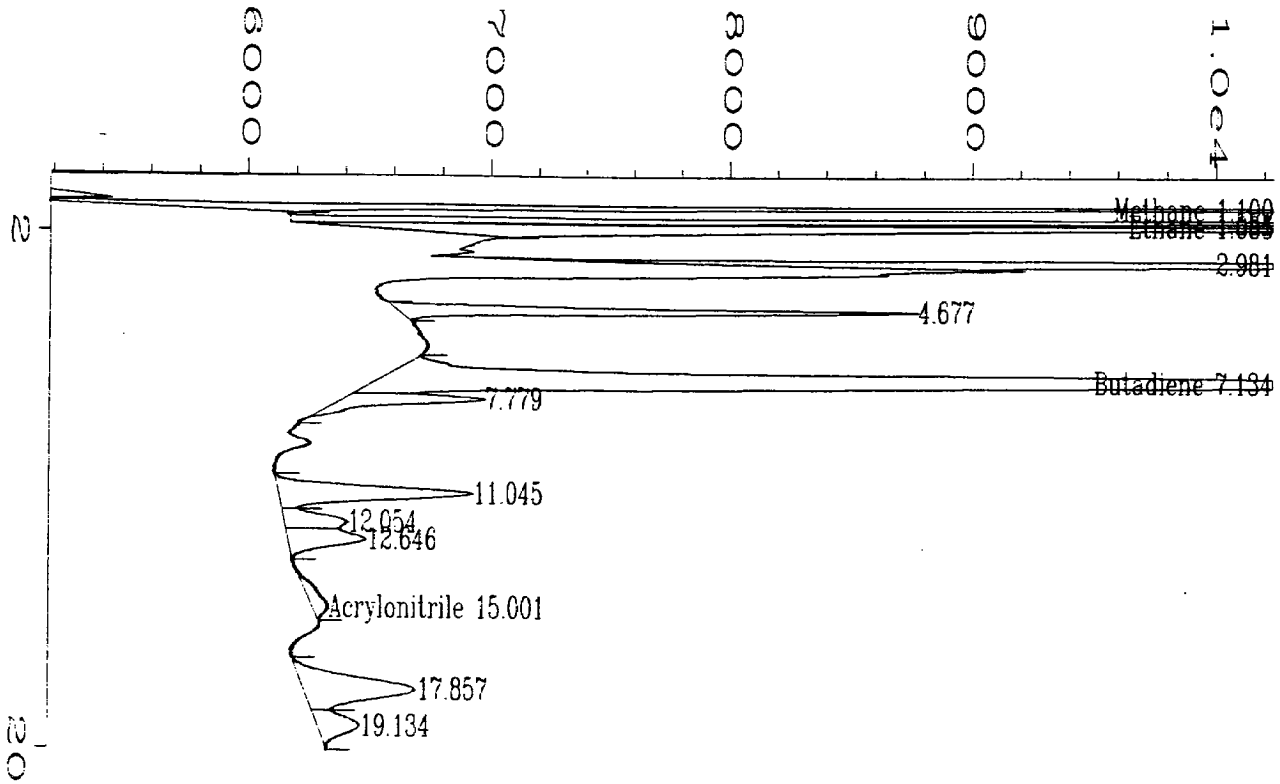
Data File Name : D:\SOLVAY\NEW_GC\EP1-2\RUNS-006.D
Operator : J. Kaput
Instrument : NEW HP589
Sample Name : EP 1 & 2
Run Time Bar Code:
Acquired on : 26 Jul 96 05:22 PM
Report Created on: 04 Aug 96 12:10 PM
Last Recalib on : 03 AUG 96 04:50 PM
Multiplier : 1

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

Sig. 1 in D:\SOLVAY\NEW_GC\EP1-2\RUNS-006.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.220	58074	BV	0.138	1	1.188	Hexane
5.483	* not found *			1		Trichloroethane
6.712	569556	VV	0.377	1	10.290	Benzene
7.752	640030	VV	0.548	1	21.737	Trichloroethylene
8.880	143162	VV	0.387	1	6.036	2-Butanone
10.775	220028	VV	0.424	1	2.465	Toluene
14.297	107659	VV	0.411	1	0.963	Ethyl Benzene
14.920	39825	VV	0.228	1	0.361	p-Xylene
15.238	296299	VV	0.634	1	2.145	m-Xylene
16.096	* not found *			1		o-Xylene
17.153	64294	VV	0.435	1	0.434	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

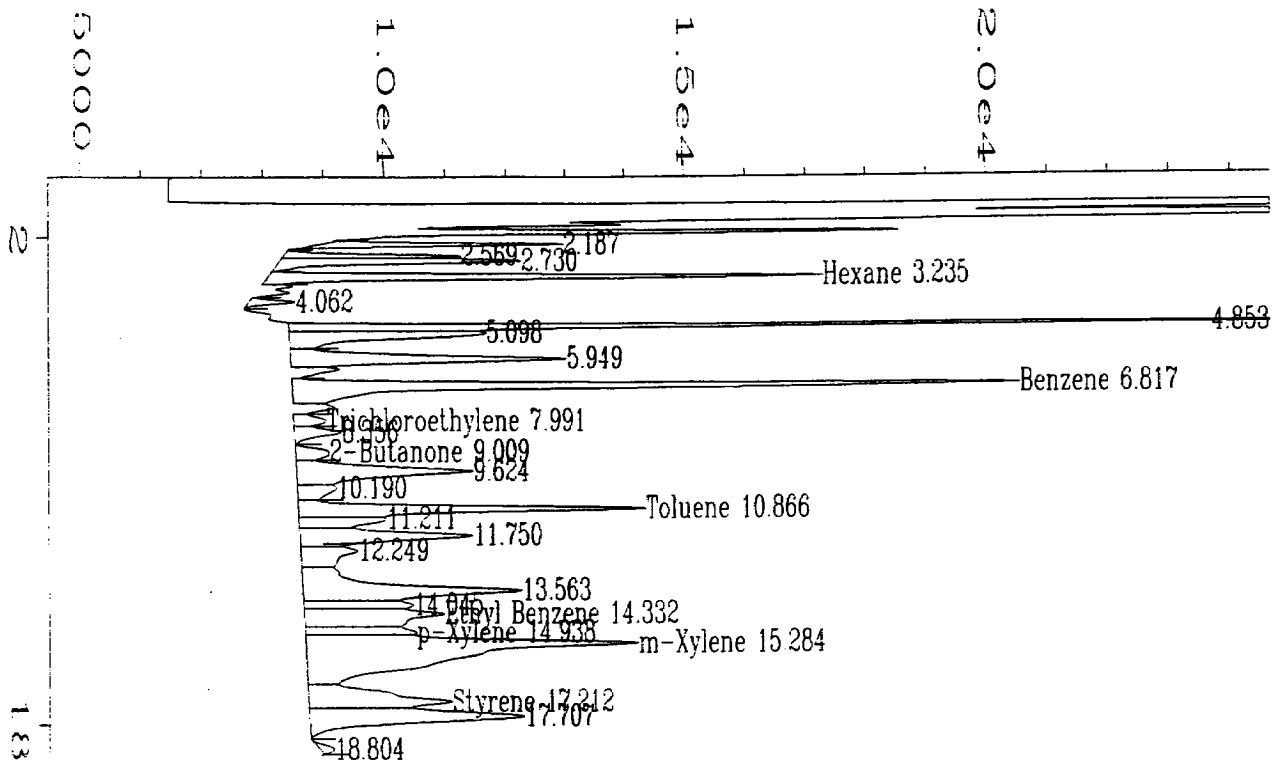
ata File Name	: D:\SOLVAY\OLD_GC\EP1-2\RUNS-007.D		
perator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
ample Name	: EP 1 & 2	Injection Number	:
un Time Bar Code:		Sequence Line	:
Acquired on	: 26 Jul 96 05:22 PM	Instrument Method	: OLD-GC.MTH
eport Created on	: 04 Aug 96 02:50 PM	Analysis Method	: OLD-GC.MTH
ast Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

ig. 2 in D:\SOLVAY\OLD_GC\EP1-2\RUNS-007.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.100	998387	HB S	0.068	1	222.113	Methane
1.685	214692	HB S	0.042	1	24.841	Ethane
7.134	152942	BV	0.410	1	9.460	Butadiene
13.312	* not found *			1		Methylene Chloride
15.001	3783	PB	0.697	1	-0.0619	Acrylonitrile

ot all calibrated peaks were found

==========



==========

External Standard Report

==========

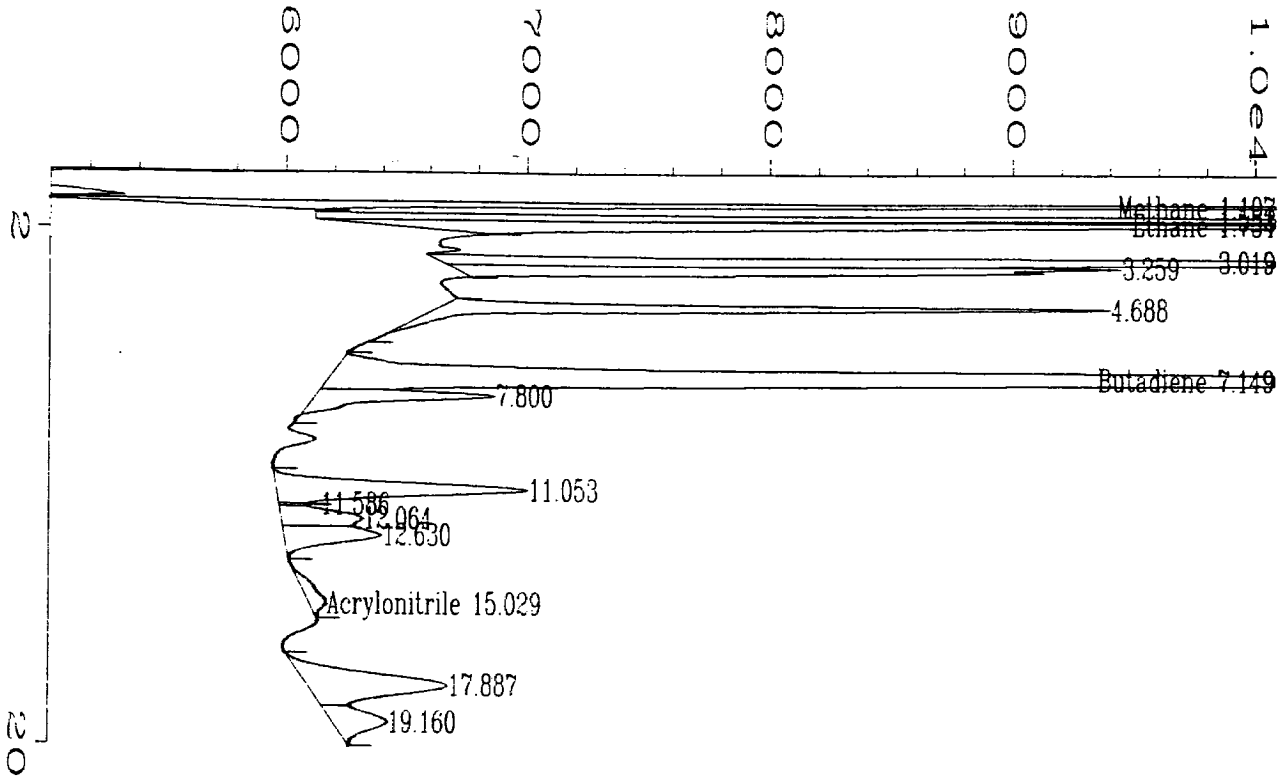
Data File Name : D:\SOLVAY\NEW_GC\EP1-2\RUNS-007.D
Operator : J. Kaput
Instrument : NEW HP589
Sample Name : EP 1 & 2
Run Time Bar Code:
Acquired on : 26 Jul 96 05:47 PM
Report Created on: 04 Aug 96 12:11 PM
Last Recalib on : 03 AUG 96 04:50 PM
Multiplier : 1

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

Sig. 1 in D:\SOLVAY\NEW_GC\EP1-2\RUNS-007.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.235	89062	VV	0.148	1	1.816	Hexane
5.483	* not found *			1		Trichloroethane
6.817	162939	VV	0.201	1	2.961	Benzene
7.991	9615	VV	0.282	1	0.373	Trichloroethylene
9.009	12160	VV	0.357	1	0.435	2-Butanone
10.866	88565	VV	0.227	1	0.979	Toluene
14.332	64650	VV	0.372	1	0.582	Ethyl Benzene
14.938	27785	VV	0.253	1	0.248	p-Xylene
15.284	227211	VV	0.531	1	1.636	m-Xylene
16.096	* not found *			1		o-Xylene
17.212	69466	VV	0.403	1	0.471	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

Data File Name : D:\SOLVAY\OLD_GC\EP1-2\RUNS-008.D
Operator : J. Kaput
Instrument : OLD HP589
Sample Name : EP 1 & 2
Run Time Bar Code:
Acquired on : 26 Jul 96 05:47 PM
Report Created on: 04 Aug 96 02:50 PM
Last Recalib on : 04 AUG 96 01:59 PM
Multiplier : 1

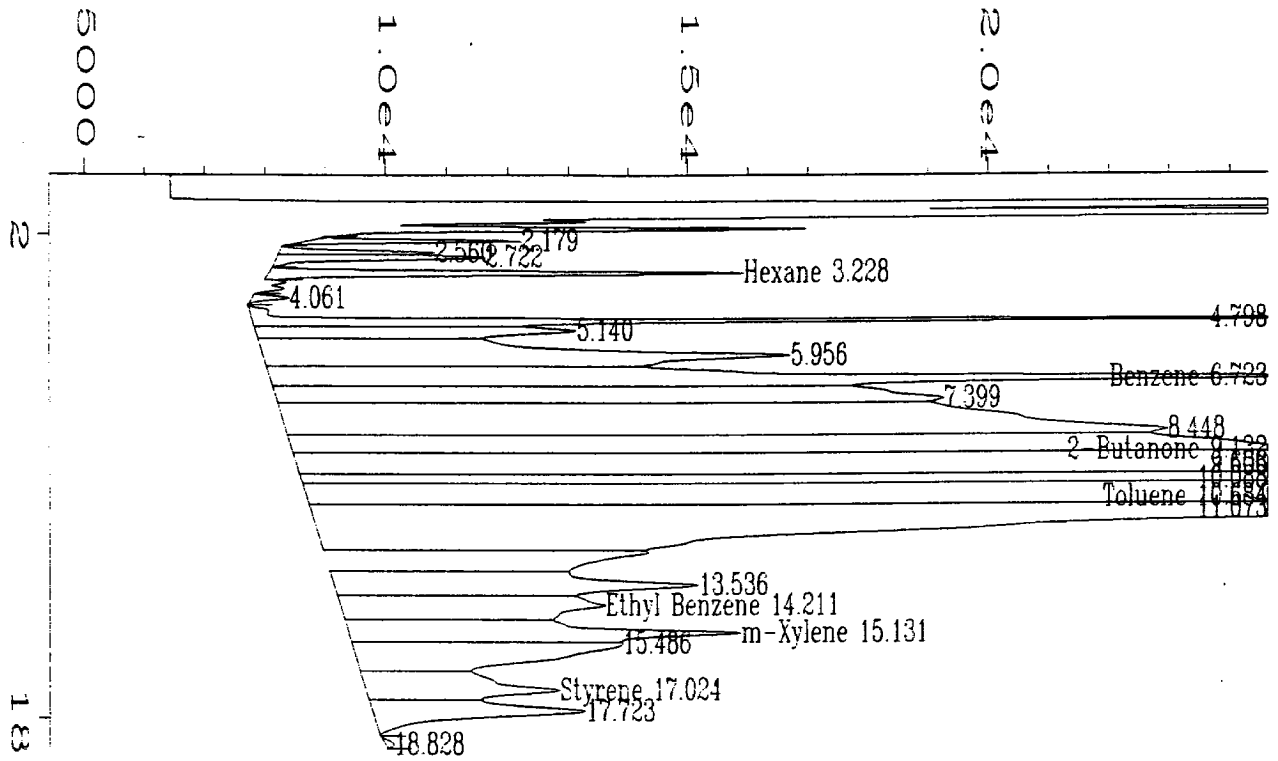
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: OLD-GC.MTH
Analysis Method : OLD-GC.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\OLD_GC\EP1-2\RUNS-008.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.107	1137660	HB S	0.078	1	253.321	Methane
1.734	220267	HB S	0.046	1	25.481	Ethane
7.149	189232	BV	0.407	1	11.715	Butadiene
13.312	* not found *			1		Methylene Chloride
15.029	4193	PB	0.713	1	-0.0266	Acrylonitrile

Not all calibrated peaks were found

==========



==========

External Standard Report

==========

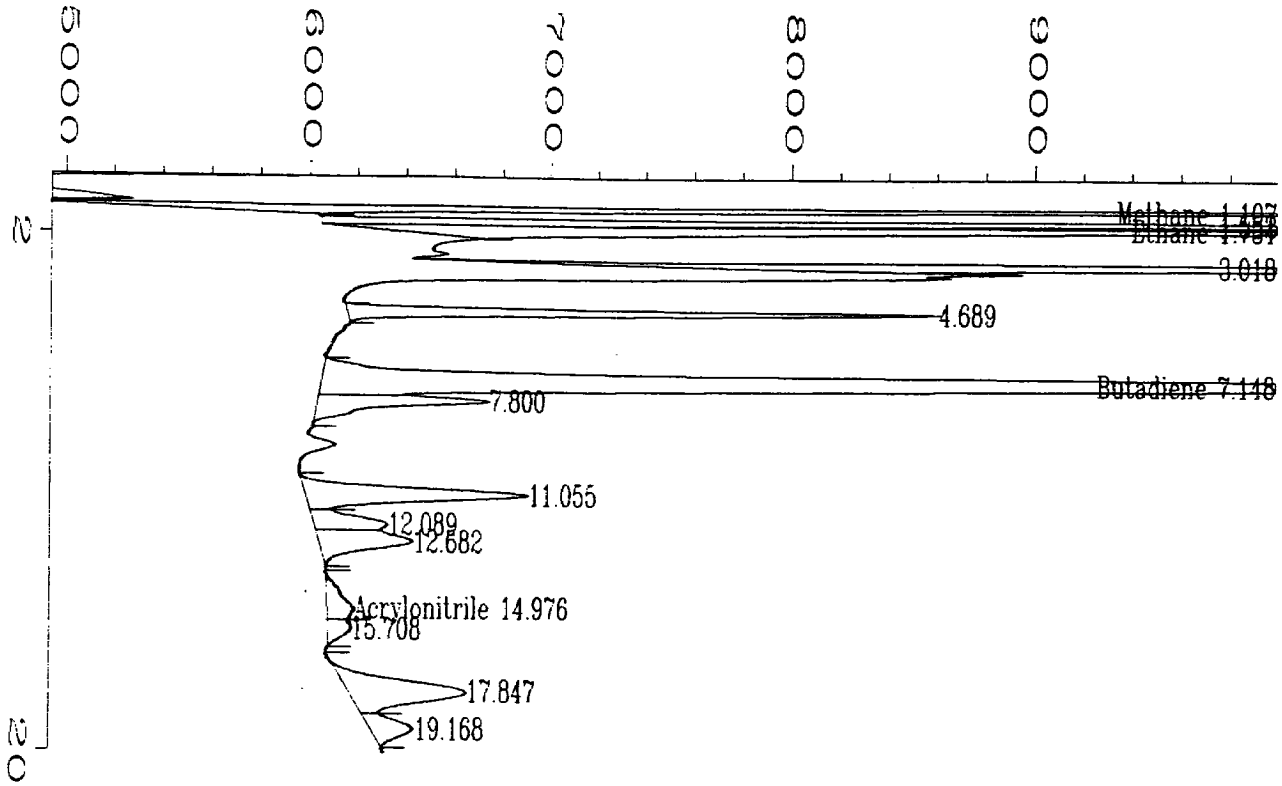
Data File Name : D:\SOLVAY\NEW_GC\EP1-2\RUNS-010.D
Operator : J. Kaput
Instrument : NEW HP589
Sample Name : EP 1 & 2
Run Time Bar Code:
Acquired on : 26 Jul 96 07:15 PM
Report Created on: 04 Aug 96 12:11 PM
Last Recalib on : 03 AUG 96 04:50 PM
Multiplier : 1

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

Sig. 1 in D:\SOLVAY\NEW_GC\EP1-2\RUNS-010.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.228	75949	BV	0.150	1	1.550	Hexane
5.483	* not found *			1		Trichloroethane
6.723	432834	VV	0.303	1	7.826	Benzene
7.883	* not found *			1		Trichloroethylene
9.132	570829	VV	0.559	1	24.323	2-Butanone
10.684	1004736	VV	0.459	1	11.335	Toluene
14.211	188494	VV	0.553	1	1.680	Ethyl Benzene
14.937	* not found *			1		p-Xylene
15.131	201562	VV	0.413	1	1.446	m-Xylene
16.096	* not found *			1		o-Xylene
17.024	132536	VV	0.546	1	0.923	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

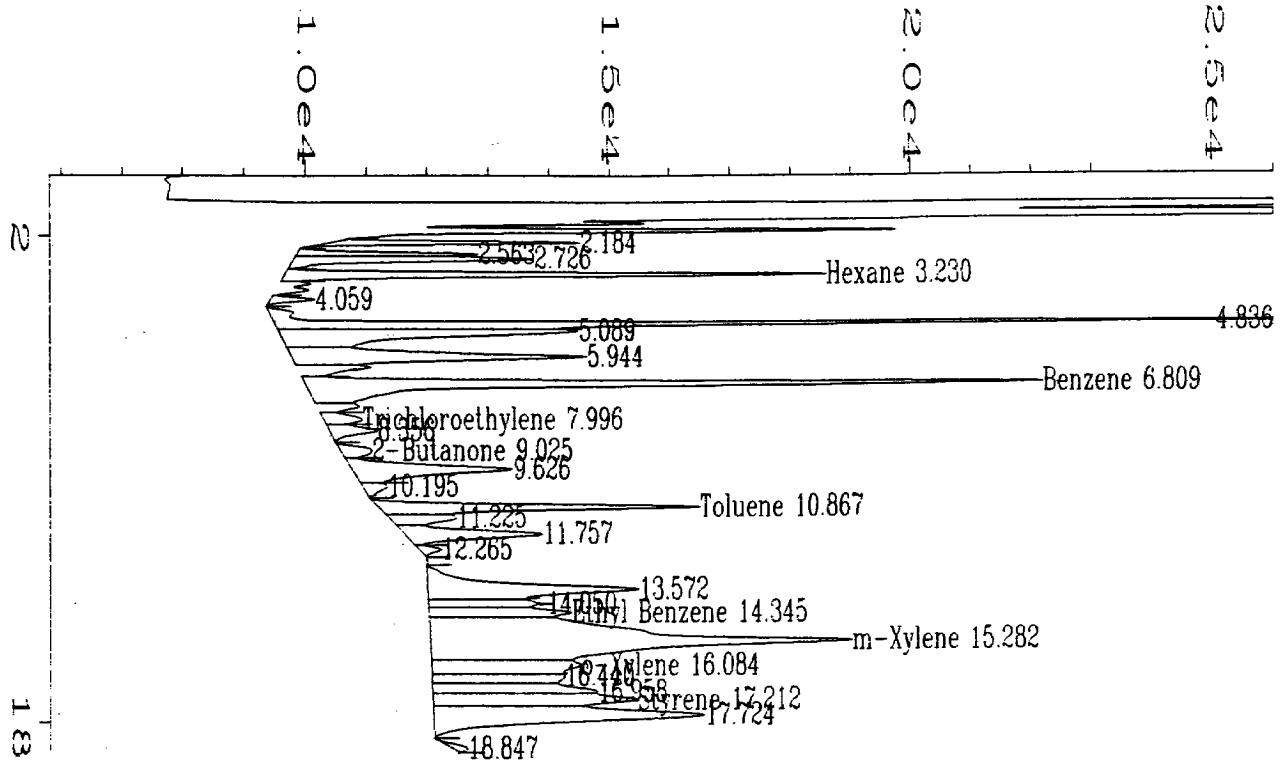
ata File Name	: D:\SOLVAY\OLD_GC\EP1-2\RUNS-011.D		
perator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
ample Name	: EP 1 & 2	Injection Number	:
un Time Bar Code:		Sequence Line	:
Acquired on	: 26 Jul 96 07:15 PM	Instrument Method	: OLD-GC.MTH
eport Created on	: 04 Aug 96 04:37 PM	Analysis Method	: OLD-GC.MTH
ast Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

ig. 2 in D:\SOLVAY\OLD_GC\EP1-2\RUNS-011.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.107	1141527	HB S	0.078	1	254.188	Methane
1.731	219316	HB S	0.045	1	25.372	Ethane
7.148	170102	BV	0.414	1	10.526	Butadiene
13.312	* not found *			1		Methylene Chloride
14.976	6046	BV	0.660	1	0.133	Acrylonitrile

ot all calibrated peaks were found

==========



==========

External Standard Report

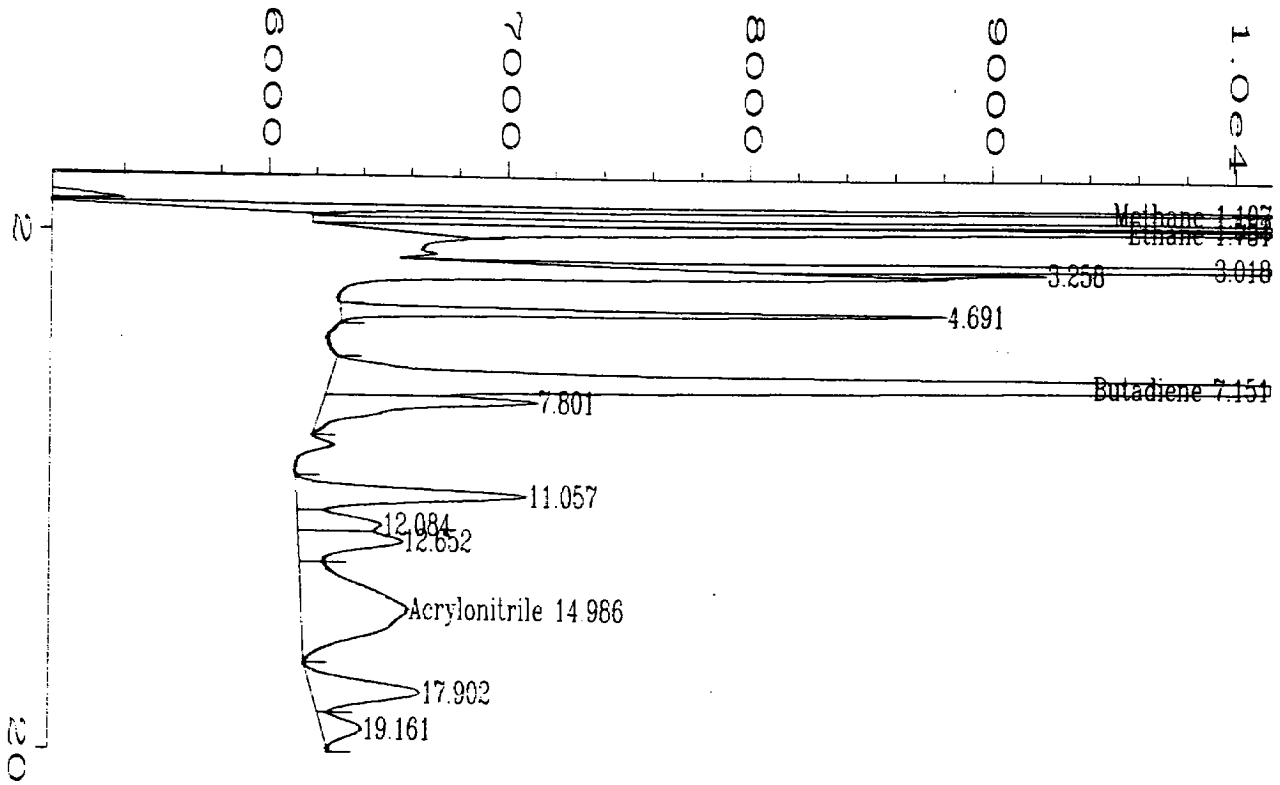
==========

Data File Name	: D:\SOLVAY\NEW_GC\EP1-2\RUNS-011.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: EP 1 & 2	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 26 Jul 96 07:55 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 12:11 PM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\EP1-2\RUNS-011.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.230	85891	VV	0.150	1	1.752	Hexane
5.483	* not found *			1		Trichloroethane
6.809	173023	VV	0.209	1	3.143	Benzene
7.996	11690	VV	0.285	1	0.443	Trichloroethylene
9.025	10702	PV	0.342	1	0.372	2-Butanone
10.867	73446	PV	0.209	1	0.808	Toluene
14.345	40840	VV	0.246	1	0.371	Ethyl Benzene
14.937	* not found *			1		p-Xylene
15.282	310670	VV	0.572	1	2.251	m-Xylene
16.084	64049	VV	0.351	1	0.559	o-Xylene
17.212	73707	VV	0.311	1	0.501	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

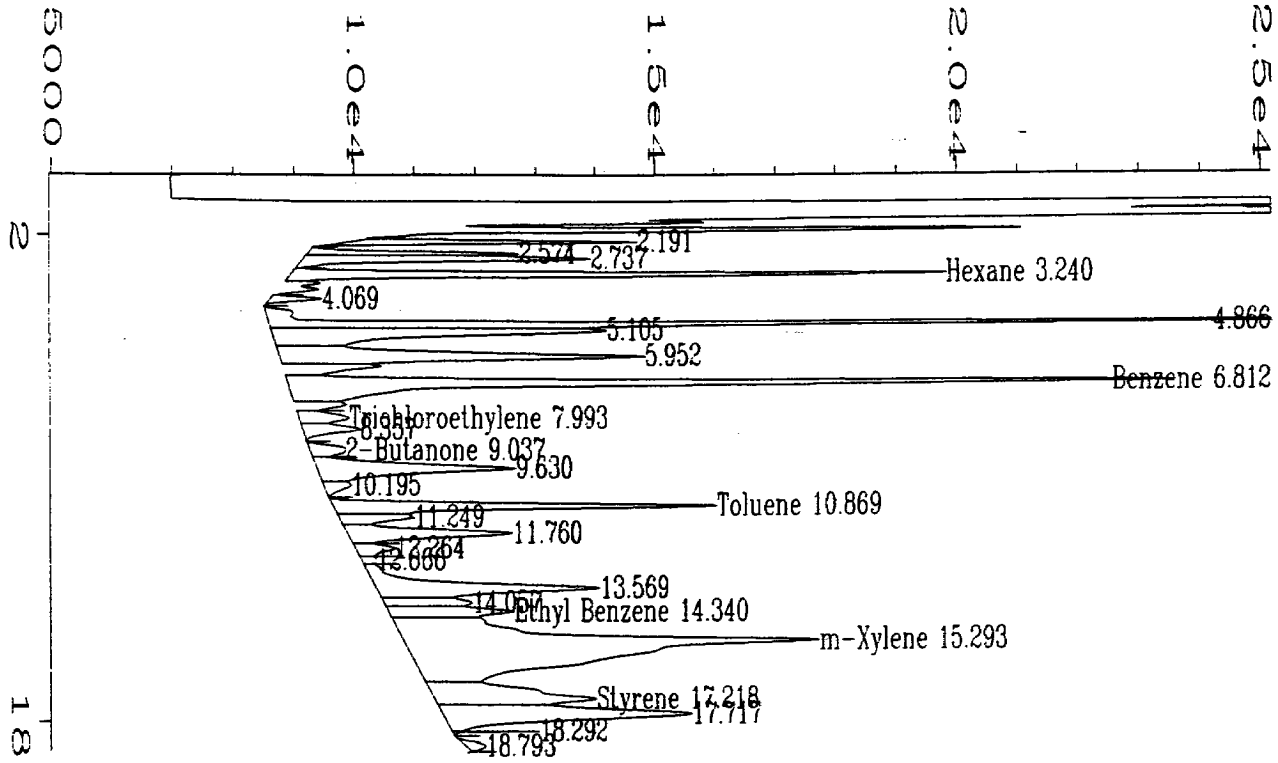
ata File Name	: D:\SOLVAY\OLD_GC\EP1-2\RUNS-012.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
ample Name	: EP 1 & 2	Injection Number	:
un Time Bar Code:		Sequence Line	:
Acquired on	: 26 Jul 96 07:55 PM	Instrument Method	: OLD-GC.MTH
eport Created on:	04 Aug 96 04:38 PM	Analysis Method	: OLD-GC.MTH
ast Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

ig. 2 in D:\SOLVAY\OLD_GC\EP1-2\RUNS-012.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.107	1162978	HB S	0.080	1	258.994	Methane
1.731	236472	HB S	0.044	1	27.341	Ethane
7.151	181322	BV	0.411	1	11.223	Butadiene
13.312	* not found *			1		Methylene Chloride
14.986	52616	VV	1.387	1	4.143	Acrylonitrile

ot all calibrated peaks were found

==========



==========

External Standard Report

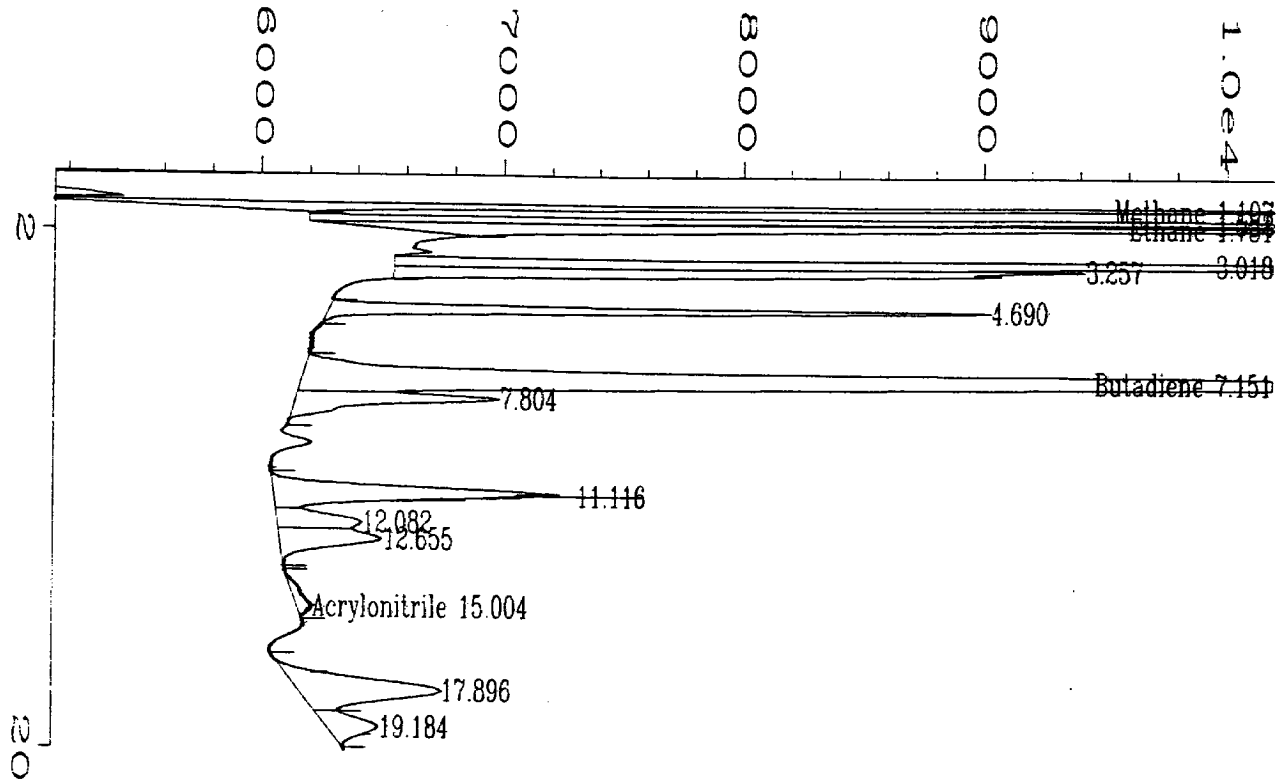
==========

Data File Name	: D:\SOLVAY\NEW_GC\EP1-2\RUNS-012.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: NEW HP589	Vial Number	:
Sample Name	: EP 1 & 2	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 26 Jul 96 08:21 PM	Instrument Method	: NEW-GC.MTH
Report Created on	: 04 Aug 96 12:11 PM	Analysis Method	: NEW-GC.MTH
Last Recalib on	: 03 AUG 96 04:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\SOLVAY\NEW_GC\EP1-2\RUNS-012.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.240	105946	VV	0.150	1	2.158	Hexane
5.483	* not found *			1		Trichloroethane
6.812	212660	VV	0.213	1	3.857	Benzene
7.993	15548	VV	0.289	1	0.574	Trichloroethylene
9.037	12590	PV	0.348	1	0.453	2-Butanone
10.869	88298	PV	0.209	1	0.976	Toluene
14.340	37690	VV	0.260	1	0.343	Ethyl Benzene
14.937	* not found *			1		p-Xylene
15.293	359722	VV	0.660	1	2.613	m-Xylene
16.096	* not found *			1		o-Xylene
17.218	83646	VV	0.417	1	0.572	Styrene

Not all calibrated peaks were found



==========

External Standard Report

==========

Data File Name	: D:\SOLVAY\OLD_GC\EP1-2\RUNS-013.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: OLD HP589	Vial Number	:
Sample Name	: EP 1 & 2	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 26 Jul 96 08:21 PM	Instrument Method	: OLD-GC.MTH
Report Created on	: 04 Aug 96 04:38 PM	Analysis Method	: OLD-GC.MTH
Last Recalib on	: 04 AUG 96 01:59 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Fig. 2 in D:\SOLVAY\OLD_GC\EP1-2\RUNS-013.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.107	1151229	HB S	0.079	1	256.362	Methane
1.731	229807	HB S	0.043	1	26.576	Ethane
7.151	197359	BV	0.411	1	12.220	Butadiene
13.312	* not found *			1		Methylene Chloride
15.004	3011	PB	0.656	1	-0.128	Acrylonitrile

Not all calibrated peaks were found

==========

F

FIELD DATA PRINTOUTS

E

Field Data Printout

Location:	CA-3 Calciner Stack	Method:	1,2,3,&4	Bar. Press. (in. Hg):	23.75
Test Run:	1	Testing Type:	Velocity/Bwo	Actual Moisture (%):	29.7
Client:	Solvay Minerals, Inc.				
Project No:	7747-1				
Test Date:	7/25/96			O_2 (dry volume %):	13.0
Meter ΔH@:	1.8349	Area (ft^2):	85.90	CO_2 (dry volume %):	9.0
Meter Y_d:	0.9971			Start Time (approx.):	12:10
Pitot C_p:	0.84	Filter No:	N/A	Stop Time (approx.):	13:02
Static P:	-0.3	Thimble No:	N/A	H_2O (condensate, ml):	248.0
Leak Rate Before:	0.001 cfm @ 15"Hg	Beaker No:	N/A	H_2O (silica, g):	13.0
Leak Rate After:	0.000 cfm @ 10"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)
	0.0	(in. H_2O)	(in. H_2O)	0.00	(°F)	(°F)	(°F)	($\sqrt{in.\ H_2O}$)	(ft^3)
1-01	4.0	0.25	1.70	3.28	350	99	99	0.50	3.28
1-02	8.0	0.23	1.70	6.50	354	100	100	0.48	3.22
1-03	12.0	0.15	1.70	9.72	348	102	101	0.39	3.22
2-01	16.0	0.29	1.70	12.95	347	102	102	0.54	3.23
2-02	20.0	0.27	1.70	16.20	356	103	102	0.52	3.25
2-03	24.0	0.21	1.70	19.43	346	102	102	0.46	3.23
3-01	28.0	0.35	1.70	22.63	353	101	101	0.59	3.20
3-02	32.0	0.33	1.70	25.89	355	100	100	0.57	3.26
3-03	36.0	0.27	1.70	29.09	347	99	99	0.52	3.20
4-01	40.0	0.30	1.70	32.32	349	94	95	0.55	3.23
4-02	44.0	0.28	1.70	35.52	354	93	95	0.53	3.20
4-03	48.0	0.19	1.70	38.72	350	92	94	0.44	3.20
Final	48.0	0.51	1.70	38.72	351	99			

Revision 0

Field Data Printout

Location: CA-3 Calciner Stack
Test Run: 2
Client: Solvay Minerals, Inc.
Project No: 7747-1
Test Date: 7/25/96
Meter ΔH@: 1.8349
Meter Y_d: 0.9971
Pitot C_p: 0.84
Static P: -0.3
Leak Rate Before: 0.001 cfm @ 15"Hg
Leak Rate After: 0.001 cfm @ 14"Hg

Method: 1,2,3,&4
Testing Type: Velocity/Bwo
Area (ft^2): 85.90
Filter No: N/A
Thimble No: N/A
Beaker No: N/A

Bar. Press. (in. Hg): 23.75
Actual Moisture (%): 29.1
O_2 (dry volume %): 12.3
CO_2 (dry volume %): 9.7
Start Time (approx.): 13:43
Stop Time (approx.): 14:35
H_2O (condensate, ml): 242.0
H_2O (silica, g): 12.5

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)
	0.0			38.90					
4-01	4.0	0.30	1.70	42.14	352	95	94	0.55	3.24
4-02	8.0	0.26	1.70	45.35	349	96	94	0.51	3.21
4-03	12.0	0.20	1.70	48.58	335	98	95	0.45	3.23
3-01	16.0	0.32	1.70	51.81	353	100	95	0.57	3.23
3-02	20.0	0.30	1.70	54.99	353	102	97	0.55	3.18
3-03	24.0	0.24	1.70	58.23	348	103	98	0.49	3.24
2-01	28.0	0.28	1.70	61.48	352	102	100	0.53	3.25
2-02	32.0	0.28	1.70	64.72	352	103	100	0.53	3.24
2-03	36.0	0.16	1.70	67.96	341	103	100	0.40	3.24
1-01	40.0	0.25	1.70	71.22	350	103	101	0.50	3.26
1-02	44.0	0.21	1.70	74.48	353	107	103	0.46	3.26
1-03	48.0	0.14	1.70	77.75	341	104	102	0.37	3.27
Final	48.0	0.49	1.70	38.85	348	100			

Revision 0

Field Data Printout

Location:	CA-3 Calciner Stack	Method:	1,2,3,&4	Bar. Press. (in. Hg):	23.75
Test Run:	3	Testing Type:	Velocity/Bwo	Actual Moisture (%):	30.1
Client:	Solvay Minerals, Inc.				
Project No:	7747-1				
Test Date:	7/25/96			O_2 (dry volume %):	12.1
Meter ΔH@:	1.8349	Area (ft^2):	85.90	CO_2 (dry volume %):	9.9
Meter Y_d:	0.9971			Start Time (approx.):	14:58
Pitot C_p:	0.84	Filter No:	N/A	Stop Time (approx.):	15:50
Static P:	-0.3	Thimble No:	N/A	H_2O (condensate, ml):	253.0
Leak Rate Before:	0.001 cfm @ 16"Hg	Beaker No:	N/A	H_2O (silica, g):	12.0
Leak Rate After:	0.000 cfm @ 10"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)
	0.0	(in. H_2O)	(in. H_2O)	(ft^3) 78.00	(°F)	(°F)	(°F)	($\sqrt{in.\ H_2O}$)	(ft^3)
1-01	4.0	0.24	1.70	81.28	350	96	98	0.49	3.28
1-02	8.0	0.24	1.70	84.53	352	96	99	0.49	3.25
1-03	12.0	0.18	1.70	87.87	347	95	98	0.42	3.34
2-01	16.0	0.29	1.70	91.28	352	94	96	0.54	3.41
2-02	20.0	0.27	1.70	94.10	353	95	96	0.52	2.82
2-03	24.0	0.21	1.70	97.29	349	99	97	0.46	3.19
3-01	28.0	0.28	1.70	100.50	350	101	98	0.53	3.21
3-02	32.0	0.25	1.70	103.89	349	103	100	0.50	3.39
3-03	36.0	0.18	1.70	106.95	345	105	100	0.42	3.06
4-01	40.0	0.20	1.70	110.18	348	104	101	0.45	3.23
4-02	44.0	0.17	1.70	113.39	347	106	103	0.41	3.21
4-03	48.0	0.12	1.70	116.60	344	108	104	0.35	3.21
Final	48.0	0.46	1.70	38.60	349	100			

Revision 0

Field Data Printout

Location:	CA 1&2 Calciner Stack	Method:	1,2,3&4	Bar. Press. (in. Hg):	23.75
Test Run:	1	Testing Type:	Velocity/Bwo	Actual Moisture (%):	24.9
Client:	Solvay Minerals, Inc.				
Project No:	7747-1				
Test Date:	7/26/96			O_2 (dry volume %):	13.8
Meter ΔH@:	1.8349	Area (ft^2):	113.10	CO_2 (dry volume %):	8.0
Meter Y_d:	0.9971			Start Time (approx.):	14:42
Pitot C_p:	0.84	Filter No:	N/A	Stop Time (approx.):	15:47
Static P:	-0.3	Thimble No:	N/A	H_2O (condensate, ml):	192.0
Leak Rate Before:	0.001 cfm @ 16"Hg	Beaker No:	N/A	H_2O (silica, g):	13.5
Leak Rate After:	0.000 cfm @ 10"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_{min} (°F)	Dry Gas Meter $T_{m\ out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.\ H_2O}$)	Volume (calculated) (ft^3)
	0.0			116.85					
3-01	4.0	0.60	1.70	120.17	373	91	93	0.77	3.32
3-02	8.0	0.59	1.70	123.25	372	92	92	0.77	3.08
3-03	12.0	0.43	1.70	126.48	370	94	92	0.66	3.23
2-01	16.0	0.58	1.70	129.65	372	96	92	0.76	3.17
2-02	20.0	0.57	1.70	132.85	371	97	92	0.75	3.20
2-03	24.0	0.51	1.70	136.05	370	98	93	0.71	3.20
1-01	28.0	0.59	1.70	139.30	373	96	94	0.77	3.25
1-02	32.0	0.57	1.70	142.48	374	94	93	0.75	3.18
1-03	36.0	0.39	1.70	145.69	369	97	94	0.62	3.21
4-01	40.0	0.60	1.70	148.90	373	99	96	0.77	3.21
4-02	44.0	0.58	1.70	152.11	374	100	96	0.76	3.21
4-03	48.0	0.36	1.70	155.34	374	100	95	0.60	3.23
Final	48.0	0.73	1.70	38.49	372	95			

Field Data Printout

Location:	CA 1&2 Calciner Stack	Method:	1,2,3&4	Bar. Press. (in. Hg):	23.75
Test Run:	2	Testing Type:	Velocity/Bwo	Actual Moisture (%):	25.4
Client:	Solvay Minerals, Inc.				
Project No:	7747-1				
Test Date:	7/26/96			O_2 (dry volume %):	13.6
Meter ΔH@:	1.8349	Area (ft^2):	113.10	CO_2 (dry volume %):	8.0
Meter Y_d:	0.9971			Start Time (approx.):	16:57
Pitot C_p:	0.84	Filter No:	N/A	Stop Time (approx.):	17:52
Static P:	-0.3	Thimble No:	N/A	H_2O (condensate, ml):	203.0
Leak Rate Before:	0.002 cfm @ 18"Hg	Beaker No:	N/A	H_2O (silica, g):	9.0
Leak Rate After:	0.000 cfm @ 10"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_{min} (°F)	Dry Gas Meter $T_{m\ out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.\ H_2O}$)	Volume (calculated) (ft^3)
	0.0			155.60					
4-01	4.0	0.62	1.70	158.84	375	88	88	0.79	3.24
4-02	8.0	0.64	1.70	162.03	377	92	90	0.80	3.19
4-03	12.0	0.52	1.70	165.25	373	93	90	0.72	3.22
2-01	16.0	0.61	1.70	168.42	373	95	91	0.78	3.17
2-02	20.0	0.60	1.70	171.59	372	96	92	0.77	3.17
2-03	24.0	0.39	1.70	174.81	369	97	93	0.62	3.22
3-01	28.0	0.58	1.70	178.21	373	98	93	0.76	3.40
3-02	32.0	0.56	1.70	181.26	374	98	93	0.75	3.05
3-03	36.0	0.38	1.70	184.48	371	99	94	0.62	3.22
1-01	40.0	0.60	1.70	187.72	372	97	95	0.77	3.24
1-02	44.0	0.59	1.70	190.95	375	99	95	0.77	3.23
1-03	48.0	0.35	1.70	194.18	371	99	95	0.59	3.23
Final	48.0	0.73	1.70	38.58	373	94			

Revision 0

Field Data Printout

Location:	CA 1&2 Calciner Stack	Method:	1,2,3&4	Bar. Press. (in. Hg):	23.75
Test Run:	3	Testing Type:	Velocity/Bwo	Actual Moisture (%):	26.0
Client:	Solvay Minerals, Inc.				
Project No:	7747-1				
Test Date:	7/26/96			O_2 (dry volume %):	13.7
Meter ΔH@:	1.8349	Area (ft^2):	113.10	CO_2 (dry volume %):	7.9
Meter Y_d:	0.9971			Start Time (approx.):	19:13
Pitot C_p:	0.84	Filter No:	N/A	Stop Time (approx.):	20:10
Static P:	-0.3	Thimble No:	N/A	H_2O (condensate, ml):	208.0
Leak Rate Before:	0.001 cfm @ 16"Hg	Beaker No:	N/A	H_2O (silica, g):	9.0
Leak Rate After:	0.000 cfm @ 10"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_{min} (°F)	Dry Gas Meter $T_{m\ out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.\ H_2O}$)	Volume (calculated) (ft^3)
	0.0			194.40					
3-01	4.0	0.64	1.70	197.89	372	98	98	0.80	3.49
3-02	8.0	0.65	1.70	201.04	373	97	96	0.81	3.15
3-03	12.0	0.35	1.70	204.08	372	99	97	0.59	3.04
2-01	16.0	0.61	1.70	207.34	376	100	98	0.78	3.26
2-02	20.0	0.61	1.70	210.56	378	102	98	0.78	3.22
2-03	24.0	0.40	1.70	213.79	370	104	98	0.63	3.23
1-01	28.0	0.62	1.70	217.02	373	103	99	0.79	3.23
1-02	32.0	0.58	1.70	220.27	376	105	99	0.76	3.25
1-03	36.0	0.38	1.70	223.53	378	106	99	0.62	3.26
4-01	40.0	0.60	1.70	226.96	374	106	100	0.77	3.43
4-02	44.0	0.57	1.70	230.02	376	107	100	0.75	3.06
4-03	48.0	0.34	1.70	233.29	370	107	100	0.58	3.27
Final	48.0	0.72	1.70	38.89	374	101			

Solvay Minerals, Inc.
CAE Project No: 7747-1
CA-3 Calciner Stack
7-25-1996

CALIBRATION ERROR

09:37:50

Time	NOx	SO2	THC	O2	CO2	CO	SO2 In	O2 In	CO2 In
	ppm	ppm	ppm	%	%	ppm	ppm	%	%
09:38:05	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
09:38:20	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0
09:38:35	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
09:38:50	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
09:39:05	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
09:39:20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09:39:35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09:39:50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09:40:05	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0
09:40:20	0.0	0.0	-0.4	0.0	0.0	0.0	0.0	0.0	0.0
09:40:35	0.0	0.0	-2.1	0.0	0.0	0.0	0.0	0.0	0.0
09:40:50	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0
09:41:05	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0
09:41:20	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0
09:41:35	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0
09:41:50	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0
09:42:05	0.0	0.0	21.6	0.0	0.0	0.0	0.0	0.0	0.0
09:42:20	0.0	0.0	133.4	0.0	0.0	0.0	0.0	0.0	0.0
09:42:35	0.0	0.0	508.6	0.0	0.0	0.0	0.0	0.0	0.0
09:42:50	0.0	0.0	531.9	0.0	0.0	0.0	0.0	0.0	0.0
09:43:05	0.0	0.0	534.7	0.0	0.0	0.0	0.0	0.0	0.0
09:43:20	0.0	0.0	627.1	0.0	0.0	0.0	0.0	0.0	0.0
09:43:35	0.0	0.0	824.4	0.0	0.0	0.0	0.0	0.0	0.0
09:43:50	0.0	0.0	858.0	0.0	0.0	0.0	0.0	0.0	0.0
09:44:05	0.0	0.0	853.4	0.0	0.0	0.0	0.0	0.0	0.0
09:44:20	0.0	0.0	855.2	0.0	0.0	0.0	0.0	0.0	0.0
09:44:35	0.0	0.0	855.5	0.0	0.0	0.0	0.0	0.0	0.0
09:44:50	0.0	0.0	853.9	0.0	0.0	0.0	0.0	0.0	0.0
09:45:05	0.0	0.0	856.2	0.0	0.0	0.0	0.0	0.0	0.0
09:45:20	0.0	0.0	852.8	0.0	0.0	0.0	0.0	0.0	0.0
09:45:35	0.0	0.0	831.9	0.0	0.0	0.0	0.0	0.0	0.0
09:45:50	0.0	0.0	828.0	0.0	0.0	0.0	0.0	0.0	0.0
09:46:05	0.0	0.0	586.1	0.0	0.0	0.0	0.0	0.0	0.0
09:46:20	0.0	0.0	524.9	0.0	0.0	0.0	0.0	0.0	0.0
09:46:35	0.0	0.0	535.3	0.0	0.0	0.0	0.0	0.0	0.0
09:46:50	0.0	0.0	654.3	0.0	0.0	0.0	0.0	0.0	0.0
09:47:05	0.0	0.0	573.2	0.0	0.0	0.0	0.0	0.0	0.0
09:47:20	0.0	0.0	571.7	0.0	0.0	0.0	0.0	0.0	0.0
09:47:35	0.0	0.0	572.1	0.0	0.0	0.0	0.0	0.0	0.0
09:47:50	0.0	0.0	575.0	0.0	0.0	0.0	0.0	0.0	0.0
09:48:05	0.0	0.0	585.9	0.0	0.0	0.0	0.0	0.0	0.0
09:48:20	0.0	0.0	595.4	0.0	0.0	0.0	0.0	0.0	0.0
09:48:35	0.0	0.0	596.6	0.0	0.0	0.0	0.0	0.0	0.0
09:48:50	0.0	0.0	591.7	0.0	0.0	0.0	0.0	0.0	0.0
09:49:05	0.0	0.0	279.8	0.0	0.0	0.0	0.0	0.0	0.0
09:49:20	0.0	0.0	6.9	0.0	0.0	0.0	0.0	0.0	0.0
09:49:35	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0
09:49:50	0.0	0.0	-0.4	0.0	0.0	0.0	0.0	0.0	0.0
09:50:05	0.0	0.0	-1.3	0.0	0.0	0.0	0.0	0.0	0.0
09:50:20	0.0	0.0	-1.9	0.0	0.0	0.0	0.0	0.0	0.0
09:50:35	0.0	0.0	-2.5	0.0	0.0	0.0	0.0	0.0	0.0
09:50:50	0.0	0.0	124.5	0.0	0.0	0.0	0.0	0.0	0.0
09:51:05	0.0	0.0	559.0	0.0	0.0	0.0	0.0	0.0	0.0

Solvay Minerals, Inc.
CAE Project No: 7747-1
CA-3 Calciner Stack
7-25-1996

CALIBRATION ERROR

09:37:50

Time	NOx ppm	SO2 ppm	THC ppm	O2 %	CO2 %	CO ppm	SO2 In ppm	O2 In %	CO2 In %
09:51:20	0.0	0.0	565.4	0.0	0.0	0.0	0.0	0.0	0.0
09:51:35	0.0	0.0	566.9	0.0	0.0	0.0	0.0	0.0	0.0
09:51:50	0.0	0.0	567.7	0.0	0.0	0.0	0.0	0.0	0.0
09:52:05	0.0	0.0	567.7	0.0	0.0	0.0	0.0	0.0	0.0
09:52:20	0.0	0.0	569.1	0.0	0.0	0.0	0.0	0.0	0.0
09:52:35	0.0	0.0	560.2	0.0	0.0	0.0	0.0	0.0	0.0
09:52:50	0.0	0.0	550.6	0.0	0.0	0.0	0.0	0.0	0.0
09:53:05	0.0	0.0	542.0	0.0	0.0	0.0	0.0	0.0	0.0
09:53:20	0.0	0.0	487.5	0.0	0.0	0.0	0.0	0.0	0.0
09:53:35	0.0	0.0	485.2	0.0	0.0	0.0	0.0	0.0	0.0
09:53:50	0.0	0.0	497.5	0.0	0.0	0.0	0.0	0.0	0.0
09:54:05	0.0	0.0	501.7	0.0	0.0	0.0	0.0	0.0	0.0
09:54:20	0.0	0.0	763.0	0.0	0.0	0.0	0.0	0.0	0.0
09:54:35	0.0	0.0	847.7	0.0	0.0	0.0	0.0	0.0	0.0
09:54:50	0.0	0.0	853.2	0.0	0.0	0.0	0.0	0.0	0.0
09:55:05	0.0	0.0	855.4	0.0	0.0	0.0	0.0	0.0	0.0
09:55:20	0.0	0.0	854.3	0.0	0.0	0.0	0.0	0.0	0.0
09:55:35	0.0	0.0	852.1	0.0	0.0	0.0	0.0	0.0	0.0
09:55:50	0.0	0.0	834.9	0.0	0.0	0.0	0.0	0.0	0.0
09:56:05	0.0	0.0	830.9	0.0	0.0	0.0	0.0	0.0	0.0
09:56:20	0.0	0.0	573.5	0.0	0.0	0.0	0.0	0.0	0.0
09:56:35	0.0	0.0	466.3	0.0	0.0	0.0	0.0	0.0	0.0
09:56:50	0.0	0.0	464.2	0.0	0.0	0.0	0.0	0.0	0.0
09:57:05	0.0	0.0	473.8	0.0	0.0	0.0	0.0	0.0	0.0
09:57:20	0.0	0.0	489.8	0.0	0.0	0.0	0.0	0.0	0.0
09:57:35	0.0	0.0	460.7	0.0	0.0	0.0	0.0	0.0	0.0
09:57:50	0.0	0.0	259.4	0.0	0.0	0.0	0.0	0.0	0.0
09:58:05	0.0	0.0	256.9	0.0	0.0	0.0	0.0	0.0	0.0
09:58:20	0.0	0.0	255.5	0.0	0.0	0.0	0.0	0.0	0.0
09:58:35	0.0	0.0	253.4	0.0	0.0	0.0	0.0	0.0	0.0
09:58:50	0.0	0.0	252.5	0.0	0.0	0.0	0.0	0.0	0.0
09:59:05	0.0	0.0	252.1	0.0	0.0	0.0	0.0	0.0	0.0
09:59:20	0.0	0.0	252.2	0.0	0.0	0.0	0.0	0.0	0.0
09:59:35	0.0	0.0	250.9	0.0	0.0	0.0	0.0	0.0	0.0
09:59:50	0.0	0.0	252.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00:05	0.0	0.0	251.3	0.0	0.0	0.0	0.0	0.0	0.0
10:00:20	0.0	0.0	251.8	0.0	0.0	0.0	0.0	0.0	0.0
10:00:35	0.0	0.0	251.6	0.0	0.0	0.0	0.0	0.0	0.0
10:00:50	0.0	0.0	251.1	0.0	0.0	0.0	0.0	0.0	0.0
10:01:05	0.0	0.0	249.7	0.0	0.0	0.0	0.0	0.0	0.0
10:01:20	0.0	0.0	249.2	0.0	0.0	0.0	0.0	0.0	0.0
10:01:35	0.0	0.0	22.8	0.0	0.0	0.0	0.0	0.0	0.0
10:01:50	0.0	0.0	-1.3	0.0	0.0	0.0	0.0	0.0	0.0
10:02:05	0.0	0.0	-2.5	0.0	0.0	0.0	0.0	0.0	0.0
10:02:20	0.0	0.0	-3.1	0.0	0.0	0.0	0.0	0.0	0.0
10:02:35	0.0	0.0	-3.2	0.0	0.0	0.0	0.0	0.0	0.0
10:02:50	0.0	0.0	-3.6	0.0	0.0	0.0	0.0	0.0	0.0
10:03:05	0.0	0.0	-3.9	0.0	0.0	0.0	0.0	0.0	0.0

Zero Gas	0.0
Cal Gas	250.0
Cal Gas	567.4
Cal Gas	854.7

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA-3 Calciner Stack
July 25, 1996

CALIBRATION BIAS 0

Time	NO_x (ppm)	SO_2 (ppm)	THC (ppm)	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 In (ppm)	O_2 In (%)	CO_2 In (%)
12:00:06	0.0	0.0	8.9	0.0	0.0	0.0	0.0	0.0	0.0
12:00:21	0.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0
12:00:36	0.0	0.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0
12:00:51	0.0	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0
12:01:06	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0
12:01:21	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0
12:01:36	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0
12:01:51	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0
12:02:06	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0
12:02:21	0.0	0.0	470.8	0.0	0.0	0.0	0.0	0.0	0.0
12:02:36	0.0	0.0	520.0	0.0	0.0	0.0	0.0	0.0	0.0
12:02:51	0.0	0.0	519.2	0.0	0.0	0.0	0.0	0.0	0.0
12:03:06	0.0	0.0	519.6	0.0	0.0	0.0	0.0	0.0	0.0
12:03:21	0.0	0.0	523.2	0.0	0.0	0.0	0.0	0.0	0.0
12:03:36	0.0	0.0	528.8	0.0	0.0	0.0	0.0	0.0	0.0
12:03:51	0.0	0.0	541.0	0.0	0.0	0.0	0.0	0.0	0.0
12:04:06	0.0	0.0	541.9	0.0	0.0	0.0	0.0	0.0	0.0
12:04:21	0.0	0.0	541.0	0.0	0.0	0.0	0.0	0.0	0.0
12:04:36	0.0	0.0	541.6	0.0	0.0	0.0	0.0	0.0	0.0
Zero Gas			2.8						
Cal Gas			541.5						

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA-3 Calciner Stack
July 25, 1996

REFERENCE METHOD RUN 1

Time	NO_x (ppm)	SO_2 (ppm)	THC (ppm)	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 In (ppm)	O_2 In (%)	CO_2 In (%)
12:07	0.0	0.0	431.2	0.0	0.0	0.0	0.0	0.0	0.0
12:08	0.0	0.0	443.1	0.0	0.0	0.0	0.0	0.0	0.0
12:09	0.0	0.0	443.0	0.0	0.0	0.0	0.0	0.0	0.0
12:10	0.0	0.0	445.7	0.0	0.0	0.0	0.0	0.0	0.0
12:11	0.0	0.0	445.1	0.0	0.0	0.0	0.0	0.0	0.0
12:12	0.0	0.0	436.4	0.0	0.0	0.0	0.0	0.0	0.0
12:13	0.0	0.0	435.1	0.0	0.0	0.0	0.0	0.0	0.0
12:14	0.0	0.0	434.1	0.0	0.0	0.0	0.0	0.0	0.0
12:15	0.0	0.0	434.1	0.0	0.0	0.0	0.0	0.0	0.0
12:16	0.0	0.0	435.0	0.0	0.0	0.0	0.0	0.0	0.0
12:17	0.0	0.0	436.9	0.0	0.0	0.0	0.0	0.0	0.0
12:18	0.0	0.0	426.2	0.0	0.0	0.0	0.0	0.0	0.0
12:19	0.0	0.0	423.9	0.0	0.0	0.0	0.0	0.0	0.0
12:20	0.0	0.0	424.6	0.0	0.0	0.0	0.0	0.0	0.0
12:21	0.0	0.0	425.2	0.0	0.0	0.0	0.0	0.0	0.0
12:22	0.0	0.0	414.2	0.0	0.0	0.0	0.0	0.0	0.0
12:23	0.0	0.0	418.3	0.0	0.0	0.0	0.0	0.0	0.0
12:24	0.0	0.0	415.5	0.0	0.0	0.0	0.0	0.0	0.0
12:25	0.0	0.0	416.7	0.0	0.0	0.0	0.0	0.0	0.0
12:26	0.0	0.0	415.8	0.0	0.0	0.0	0.0	0.0	0.0
12:27	0.0	0.0	422.1	0.0	0.0	0.0	0.0	0.0	0.0
12:28	0.0	0.0	420.5	0.0	0.0	0.0	0.0	0.0	0.0
12:29	0.0	0.0	406.6	0.0	0.0	0.0	0.0	0.0	0.0
12:30	0.0	0.0	419.0	0.0	0.0	0.0	0.0	0.0	0.0
12:31	0.0	0.0	437.7	0.0	0.0	0.0	0.0	0.0	0.0
12:32	0.0	0.0	429.3	0.0	0.0	0.0	0.0	0.0	0.0
12:33	0.0	0.0	433.8	0.0	0.0	0.0	0.0	0.0	0.0
12:34	0.0	0.0	435.1	0.0	0.0	0.0	0.0	0.0	0.0
12:35	0.0	0.0	429.1	0.0	0.0	0.0	0.0	0.0	0.0
12:36	0.0	0.0	427.3	0.0	0.0	0.0	0.0	0.0	0.0
12:37	0.0	0.0	432.4	0.0	0.0	0.0	0.0	0.0	0.0
12:38	0.0	0.0	430.5	0.0	0.0	0.0	0.0	0.0	0.0
12:39	0.0	0.0	427.6	0.0	0.0	0.0	0.0	0.0	0.0
12:40	0.0	0.0	437.9	0.0	0.0	0.0	0.0	0.0	0.0
12:41	0.0	0.0	433.6	0.0	0.0	0.0	0.0	0.0	0.0
12:42	0.0	0.0	428.3	0.0	0.0	0.0	0.0	0.0	0.0
12:43	0.0	0.0	437.5	0.0	0.0	0.0	0.0	0.0	0.0
12:44	0.0	0.0	437.0	0.0	0.0	0.0	0.0	0.0	0.0
12:45	0.0	0.0	444.2	0.0	0.0	0.0	0.0	0.0	0.0
12:46	0.0	0.0	446.0	0.0	0.0	0.0	0.0	0.0	0.0
12:47	0.0	0.0	434.8	0.0	0.0	0.0	0.0	0.0	0.0
12:48	0.0	0.0	430.2	0.0	0.0	0.0	0.0	0.0	0.0
12:49	0.0	0.0	431.9	0.0	0.0	0.0	0.0	0.0	0.0
12:50	0.0	0.0	428.4	0.0	0.0	0.0	0.0	0.0	0.0
12:51	0.0	0.0	430.8	0.0	0.0	0.0	0.0	0.0	0.0
12:52	0.0	0.0	435.5	0.0	0.0	0.0	0.0	0.0	0.0
12:53	0.0	0.0	432.9	0.0	0.0	0.0	0.0	0.0	0.0
12:54	0.0	0.0	429.1	0.0	0.0	0.0	0.0	0.0	0.0
12:55	0.0	0.0	430.4	0.0	0.0	0.0	0.0	0.0	0.0
12:56	0.0	0.0	428.0	0.0	0.0	0.0	0.0	0.0	0.0
12:57	0.0	0.0	435.9	0.0	0.0	0.0	0.0	0.0	0.0
12:58	0.0	0.0	440.8	0.0	0.0	0.0	0.0	0.0	0.0
12:59	0.0	0.0	427.3	0.0	0.0	0.0	0.0	0.0	0.0
13:00	0.0	0.0	422.1	0.0	0.0	0.0	0.0	0.0	0.0
13:01	0.0	0.0	420.7	0.0	0.0	0.0	0.0	0.0	0.0
13:02	0.0	0.0	418.0	0.0	0.0	0.0	0.0	0.0	0.0
13:03	0.0	0.0	420.5	0.0	0.0	0.0	0.0	0.0	0.0
13:04	0.0	0.0	419.8	0.0	0.0	0.0	0.0	0.0	0.0
13:05	0.0	0.0	421.7	0.0	0.0	0.0	0.0	0.0	0.0
13:06	0.0	0.0	426.3	0.0	0.0	0.0	0.0	0.0	0.0
Average			429.7						

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA-3 Calciner Stack
July 25, 1996

CALIBRATION BIAS 1

Time	NO_x (ppm)	SO_2 (ppm)	THC (ppm)	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 In (ppm)	O_2 In (%)	CO_2 In (%)
13:12:08	0.0	0.0	425.1	0.0	0.0	0.0	0.0	0.0	0.0
13:12:23	0.0	0.0	372.9	0.0	0.0	0.0	0.0	0.0	0.0
13:12:38	0.0	0.0	24.1	0.0	0.0	0.0	0.0	0.0	0.0
13:12:53	0.0	0.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0
13:13:08	0.0	0.0	10.8	0.0	0.0	0.0	0.0	0.0	0.0
13:13:23	0.0	0.0	8.8	0.0	0.0	0.0	0.0	0.0	0.0
13:13:38	0.0	0.0	7.4	0.0	0.0	0.0	0.0	0.0	0.0
13:13:53	0.0	0.0	6.4	0.0	0.0	0.0	0.0	0.0	0.0
13:14:08	0.0	0.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0
13:14:23	0.0	0.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0
13:14:38	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0
13:14:53	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0
13:15:08	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0
13:15:23	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0
13:15:38	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0
13:15:53	0.0	0.0	63.8	0.0	0.0	0.0	0.0	0.0	0.0
13:16:08	0.0	0.0	512.0	0.0	0.0	0.0	0.0	0.0	0.0
13:16:23	0.0	0.0	517.9	0.0	0.0	0.0	0.0	0.0	0.0
13:16:38	0.0	0.0	518.6	0.0	0.0	0.0	0.0	0.0	0.0
13:16:53	0.0	0.0	519.8	0.0	0.0	0.0	0.0	0.0	0.0
13:17:08	0.0	0.0	520.5	0.0	0.0	0.0	0.0	0.0	0.0
13:17:23	0.0	0.0	521.8	0.0	0.0	0.0	0.0	0.0	0.0
13:17:38	0.0	0.0	523.3	0.0	0.0	0.0	0.0	0.0	0.0
13:17:53	0.0	0.0	523.5	0.0	0.0	0.0	0.0	0.0	0.0
13:18:08	0.0	0.0	600.2	0.0	0.0	0.0	0.0	0.0	0.0
13:18:23	0.0	0.0	599.8	0.0	0.0	0.0	0.0	0.0	0.0
13:18:38	0.0	0.0	586.0	0.0	0.0	0.0	0.0	0.0	0.0
13:18:53	0.0	0.0	567.1	0.0	0.0	0.0	0.0	0.0	0.0
13:19:08	0.0	0.0	562.8	0.0	0.0	0.0	0.0	0.0	0.0
13:19:23	0.0	0.0	558.2	0.0	0.0	0.0	0.0	0.0	0.0
13:19:38	0.0	0.0	554.6	0.0	0.0	0.0	0.0	0.0	0.0
13:19:53	0.0	0.0	553.5	0.0	0.0	0.0	0.0	0.0	0.0
Zero Gas			3.2						
Cal Gas			558.5						

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA-3 Calciner Stack
July 25, 1996

REFERENCE METHOD RUN 2

Time	NO_x (ppm)	SO_2 (ppm)	THC (ppm)	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 In (ppm)	O_2 In (%)	CO_2 In (%)
13:38	0.0	0.0	450.9	0.0	0.0	0.0	0.0	0.0	0.0
13:39	0.0	0.0	451.4	0.0	0.0	0.0	0.0	0.0	0.0
13:40	0.0	0.0	462.5	0.0	0.0	0.0	0.0	0.0	0.0
13:41	0.0	0.0	468.4	0.0	0.0	0.0	0.0	0.0	0.0
13:42	0.0	0.0	462.7	0.0	0.0	0.0	0.0	0.0	0.0
13:43	0.0	0.0	453.0	0.0	0.0	0.0	0.0	0.0	0.0
13:44	0.0	0.0	450.6	0.0	0.0	0.0	0.0	0.0	0.0
13:45	0.0	0.0	472.9	0.0	0.0	0.0	0.0	0.0	0.0
13:46	0.0	0.0	473.6	0.0	0.0	0.0	0.0	0.0	0.0
13:47	0.0	0.0	455.7	0.0	0.0	0.0	0.0	0.0	0.0
13:48	0.0	0.0	456.3	0.0	0.0	0.0	0.0	0.0	0.0
13:49	0.0	0.0	456.4	0.0	0.0	0.0	0.0	0.0	0.0
13:50	0.0	0.0	456.3	0.0	0.0	0.0	0.0	0.0	0.0
13:51	0.0	0.0	465.0	0.0	0.0	0.0	0.0	0.0	0.0
13:52	0.0	0.0	472.4	0.0	0.0	0.0	0.0	0.0	0.0
13:53	0.0	0.0	464.2	0.0	0.0	0.0	0.0	0.0	0.0
13:54	0.0	0.0	474.1	0.0	0.0	0.0	0.0	0.0	0.0
13:55	0.0	0.0	466.8	0.0	0.0	0.0	0.0	0.0	0.0
13:56	0.0	0.0	470.0	0.0	0.0	0.0	0.0	0.0	0.0
13:57	0.0	0.0	494.8	0.0	0.0	0.0	0.0	0.0	0.0
13:58	0.0	0.0	494.2	0.0	0.0	0.0	0.0	0.0	0.0
13:59	0.0	0.0	476.6	0.0	0.0	0.0	0.0	0.0	0.0
14:00	0.0	0.0	469.3	0.0	0.0	0.0	0.0	0.0	0.0
14:01	0.0	0.0	464.8	0.0	0.0	0.0	0.0	0.0	0.0
14:02	0.0	0.0	474.9	0.0	0.0	0.0	0.0	0.0	0.0
14:03	0.0	0.0	487.5	0.0	0.0	0.0	0.0	0.0	0.0
14:04	0.0	0.0	485.5	0.0	0.0	0.0	0.0	0.0	0.0
14:05	0.0	0.0	484.3	0.0	0.0	0.0	0.0	0.0	0.0
14:06	0.0	0.0	492.1	0.0	0.0	0.0	0.0	0.0	0.0
14:07	0.0	0.0	497.4	0.0	0.0	0.0	0.0	0.0	0.0
14:08	0.0	0.0	501.0	0.0	0.0	0.0	0.0	0.0	0.0
14:09	0.0	0.0	505.9	0.0	0.0	0.0	0.0	0.0	0.0
14:10	0.0	0.0	503.4	0.0	0.0	0.0	0.0	0.0	0.0
14:11	0.0	0.0	499.0	0.0	0.0	0.0	0.0	0.0	0.0
14:12	0.0	0.0	493.5	0.0	0.0	0.0	0.0	0.0	0.0
14:13	0.0	0.0	490.7	0.0	0.0	0.0	0.0	0.0	0.0
14:14	0.0	0.0	494.8	0.0	0.0	0.0	0.0	0.0	0.0
14:15	0.0	0.0	511.1	0.0	0.0	0.0	0.0	0.0	0.0
14:16	0.0	0.0	507.4	0.0	0.0	0.0	0.0	0.0	0.0
14:17	0.0	0.0	496.6	0.0	0.0	0.0	0.0	0.0	0.0
14:18	0.0	0.0	514.2	0.0	0.0	0.0	0.0	0.0	0.0
14:19	0.0	0.0	526.6	0.0	0.0	0.0	0.0	0.0	0.0
14:20	0.0	0.0	524.9	0.0	0.0	0.0	0.0	0.0	0.0
14:21	0.0	0.0	524.2	0.0	0.0	0.0	0.0	0.0	0.0
14:22	0.0	0.0	532.3	0.0	0.0	0.0	0.0	0.0	0.0
14:23	0.0	0.0	533.4	0.0	0.0	0.0	0.0	0.0	0.0
14:24	0.0	0.0	537.6	0.0	0.0	0.0	0.0	0.0	0.0
14:25	0.0	0.0	540.1	0.0	0.0	0.0	0.0	0.0	0.0
14:26	0.0	0.0	546.5	0.0	0.0	0.0	0.0	0.0	0.0
14:27	0.0	0.0	549.4	0.0	0.0	0.0	0.0	0.0	0.0
14:28	0.0	0.0	550.2	0.0	0.0	0.0	0.0	0.0	0.0
14:29	0.0	0.0	551.9	0.0	0.0	0.0	0.0	0.0	0.0
14:30	0.0	0.0	554.9	0.0	0.0	0.0	0.0	0.0	0.0
14:31	0.0	0.0	554.4	0.0	0.0	0.0	0.0	0.0	0.0
14:32	0.0	0.0	560.0	0.0	0.0	0.0	0.0	0.0	0.0
14:33	0.0	0.0	564.1	0.0	0.0	0.0	0.0	0.0	0.0
14:34	0.0	0.0	560.7	0.0	0.0	0.0	0.0	0.0	0.0
14:35	0.0	0.0	562.6	0.0	0.0	0.0	0.0	0.0	0.0
14:36	0.0	0.0	559.2	0.0	0.0	0.0	0.0	0.0	0.0
14:37	0.0	0.0	546.7	0.0	0.0	0.0	0.0	0.0	0.0
Average			500.0						

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA-3 Calciner Stack
July 25, 1996

CALIBRATION BIAS 2

Time	NO_x (ppm)	SO_2 (ppm)	THC (ppm)	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 In (ppm)	O_2 In (%)	CO_2 In (%)
14:44:19	0.0	0.0	430.2	0.0	0.0	0.0	0.0	0.0	0.0
14:44:34	0.0	0.0	44.2	0.0	0.0	0.0	0.0	0.0	0.0
14:44:49	0.0	0.0	30.9	0.0	0.0	0.0	0.0	0.0	0.0
14:45:04	0.0	0.0	25.1	0.0	0.0	0.0	0.0	0.0	0.0
14:45:19	0.0	0.0	21.1	0.0	0.0	0.0	0.0	0.0	0.0
14:45:34	0.0	0.0	18.5	0.0	0.0	0.0	0.0	0.0	0.0
14:45:49	0.0	0.0	16.5	0.0	0.0	0.0	0.0	0.0	0.0
14:46:04	0.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
14:46:19	0.0	0.0	13.7	0.0	0.0	0.0	0.0	0.0	0.0
14:46:34	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0
14:46:49	0.0	0.0	11.4	0.0	0.0	0.0	0.0	0.0	0.0
14:47:04	0.0	0.0	10.4	0.0	0.0	0.0	0.0	0.0	0.0
14:47:19	0.0	0.0	9.8	0.0	0.0	0.0	0.0	0.0	0.0
14:47:34	0.0	0.0	9.2	0.0	0.0	0.0	0.0	0.0	0.0
14:47:49	0.0	0.0	8.6	0.0	0.0	0.0	0.0	0.0	0.0
14:48:04	0.0	0.0	8.1	0.0	0.0	0.0	0.0	0.0	0.0
14:48:19	0.0	0.0	7.5	0.0	0.0	0.0	0.0	0.0	0.0
14:48:34	0.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0
14:48:49	0.0	0.0	6.6	0.0	0.0	0.0	0.0	0.0	0.0
14:49:04	0.0	0.0	6.4	0.0	0.0	0.0	0.0	0.0	0.0
14:49:19	0.0	0.0	435.2	0.0	0.0	0.0	0.0	0.0	0.0
14:49:34	0.0	0.0	563.4	0.0	0.0	0.0	0.0	0.0	0.0
14:49:49	0.0	0.0	564.1	0.0	0.0	0.0	0.0	0.0	0.0
14:50:04	0.0	0.0	562.7	0.0	0.0	0.0	0.0	0.0	0.0
14:50:19	0.0	0.0	565.5	0.0	0.0	0.0	0.0	0.0	0.0
14:50:34	0.0	0.0	567.3	0.0	0.0	0.0	0.0	0.0	0.0
14:50:49	0.0	0.0	565.4	0.0	0.0	0.0	0.0	0.0	0.0
14:51:04	0.0	0.0	565.3	0.0	0.0	0.0	0.0	0.0	0.0
14:51:19	0.0	0.0	557.9	0.0	0.0	0.0	0.0	0.0	0.0
Zero Gas			7.0						
Cal Gas			566.0						

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA-3 Calciner Stack
July 25, 1996

REFERENCE METHOD RUN 3

Time	NO_x (ppm)	SO_2 (ppm)	THC (ppm)	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 In (ppm)	O_2 In (%)	CO_2 In (%)
14:55	0.0	0.0	572.7	0.0	0.0	0.0	0.0	0.0	0.0
14:56	0.0	0.0	593.3	0.0	0.0	0.0	0.0	0.0	0.0
14:57	0.0	0.0	606.4	0.0	0.0	0.0	0.0	0.0	0.0
14:58	0.0	0.0	608.3	0.0	0.0	0.0	0.0	0.0	0.0
14:59	0.0	0.0	607.1	0.0	0.0	0.0	0.0	0.0	0.0
15:00	0.0	0.0	612.3	0.0	0.0	0.0	0.0	0.0	0.0
15:01	0.0	0.0	618.8	0.0	0.0	0.0	0.0	0.0	0.0
15:02	0.0	0.0	636.8	0.0	0.0	0.0	0.0	0.0	0.0
15:03	0.0	0.0	639.7	0.0	0.0	0.0	0.0	0.0	0.0
15:04	0.0	0.0	645.9	0.0	0.0	0.0	0.0	0.0	0.0
15:05	0.0	0.0	654.9	0.0	0.0	0.0	0.0	0.0	0.0
15:06	0.0	0.0	673.1	0.0	0.0	0.0	0.0	0.0	0.0
15:07	0.0	0.0	673.3	0.0	0.0	0.0	0.0	0.0	0.0
15:08	0.0	0.0	679.9	0.0	0.0	0.0	0.0	0.0	0.0
15:09	0.0	0.0	682.4	0.0	0.0	0.0	0.0	0.0	0.0
15:10	0.0	0.0	672.3	0.0	0.0	0.0	0.0	0.0	0.0
15:11	0.0	0.0	665.7	0.0	0.0	0.0	0.0	0.0	0.0
15:12	0.0	0.0	661.4	0.0	0.0	0.0	0.0	0.0	0.0
15:13	0.0	0.0	667.6	0.0	0.0	0.0	0.0	0.0	0.0
15:14	0.0	0.0	681.6	0.0	0.0	0.0	0.0	0.0	0.0
15:15	0.0	0.0	695.1	0.0	0.0	0.0	0.0	0.0	0.0
15:16	0.0	0.0	707.4	0.0	0.0	0.0	0.0	0.0	0.0
15:17	0.0	0.0	708.9	0.0	0.0	0.0	0.0	0.0	0.0
15:18	0.0	0.0	708.7	0.0	0.0	0.0	0.0	0.0	0.0
15:19	0.0	0.0	704.4	0.0	0.0	0.0	0.0	0.0	0.0
15:20	0.0	0.0	704.1	0.0	0.0	0.0	0.0	0.0	0.0
15:21	0.0	0.0	701.1	0.0	0.0	0.0	0.0	0.0	0.0
15:22	0.0	0.0	695.6	0.0	0.0	0.0	0.0	0.0	0.0
15:23	0.0	0.0	698.0	0.0	0.0	0.0	0.0	0.0	0.0
15:24	0.0	0.0	702.7	0.0	0.0	0.0	0.0	0.0	0.0
15:25	0.0	0.0	708.4	0.0	0.0	0.0	0.0	0.0	0.0
15:26	0.0	0.0	700.1	0.0	0.0	0.0	0.0	0.0	0.0
15:27	0.0	0.0	707.2	0.0	0.0	0.0	0.0	0.0	0.0
15:28	0.0	0.0	703.7	0.0	0.0	0.0	0.0	0.0	0.0
15:29	0.0	0.0	696.2	0.0	0.0	0.0	0.0	0.0	0.0
15:30	0.0	0.0	692.7	0.0	0.0	0.0	0.0	0.0	0.0
15:31	0.0	0.0	704.1	0.0	0.0	0.0	0.0	0.0	0.0
15:32	0.0	0.0	705.8	0.0	0.0	0.0	0.0	0.0	0.0
15:33	0.0	0.0	706.6	0.0	0.0	0.0	0.0	0.0	0.0
15:34	0.0	0.0	700.9	0.0	0.0	0.0	0.0	0.0	0.0
15:35	0.0	0.0	689.8	0.0	0.0	0.0	0.0	0.0	0.0
15:36	0.0	0.0	691.0	0.0	0.0	0.0	0.0	0.0	0.0
15:37	0.0	0.0	694.9	0.0	0.0	0.0	0.0	0.0	0.0
15:38	0.0	0.0	689.4	0.0	0.0	0.0	0.0	0.0	0.0
15:39	0.0	0.0	705.6	0.0	0.0	0.0	0.0	0.0	0.0
15:40	0.0	0.0	707.9	0.0	0.0	0.0	0.0	0.0	0.0
15:41	0.0	0.0	703.9	0.0	0.0	0.0	0.0	0.0	0.0
15:42	0.0	0.0	709.1	0.0	0.0	0.0	0.0	0.0	0.0
15:43	0.0	0.0	714.9	0.0	0.0	0.0	0.0	0.0	0.0
15:44	0.0	0.0	722.6	0.0	0.0	0.0	0.0	0.0	0.0
15:45	0.0	0.0	729.5	0.0	0.0	0.0	0.0	0.0	0.0
15:46	0.0	0.0	735.4	0.0	0.0	0.0	0.0	0.0	0.0
15:47	0.0	0.0	734.9	0.0	0.0	0.0	0.0	0.0	0.0
15:48	0.0	0.0	735.1	0.0	0.0	0.0	0.0	0.0	0.0
15:49	0.0	0.0	744.6	0.0	0.0	0.0	0.0	0.0	0.0
15:50	0.0	0.0	746.2	0.0	0.0	0.0	0.0	0.0	0.0
15:51	0.0	0.0	751.0	0.0	0.0	0.0	0.0	0.0	0.0
15:52	0.0	0.0	757.0	0.0	0.0	0.0	0.0	0.0	0.0
15:53	0.0	0.0	763.5	0.0	0.0	0.0	0.0	0.0	0.0
15:54	0.0	0.0	769.7	0.0	0.0	0.0	0.0	0.0	0.0
Average			690.0						

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA-3 Calciner Stack
July 25, 1996

CALIBRATION BIAS 3

Time	NO_x (ppm)	SO_2 (ppm)	THC (ppm)	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 In (ppm)	O_2 In (%)	CO_2 In (%)
16:11:01	0.0	0.0	817.2	0.0	0.0	0.0	0.0	0.0	0.0
16:11:16	0.0	0.0	595.5	0.0	0.0	0.0	0.0	0.0	0.0
16:11:31	0.0	0.0	92.8	0.0	0.0	0.0	0.0	0.0	0.0
16:11:46	0.0	0.0	70.3	0.0	0.0	0.0	0.0	0.0	0.0
16:12:01	0.0	0.0	59.4	0.0	0.0	0.0	0.0	0.0	0.0
16:12:16	0.0	0.0	52.7	0.0	0.0	0.0	0.0	0.0	0.0
16:12:31	0.0	0.0	47.8	0.0	0.0	0.0	0.0	0.0	0.0
16:12:46	0.0	0.0	44.2	0.0	0.0	0.0	0.0	0.0	0.0
16:13:01	0.0	0.0	40.6	0.0	0.0	0.0	0.0	0.0	0.0
16:13:16	0.0	0.0	38.3	0.0	0.0	0.0	0.0	0.0	0.0
16:13:31	0.0	0.0	36.2	0.0	0.0	0.0	0.0	0.0	0.0
16:13:46	0.0	0.0	34.0	0.0	0.0	0.0	0.0	0.0	0.0
16:14:01	0.0	0.0	32.2	0.0	0.0	0.0	0.0	0.0	0.0
16:14:16	0.0	0.0	30.7	0.0	0.0	0.0	0.0	0.0	0.0
16:14:31	0.0	0.0	29.1	0.0	0.0	0.0	0.0	0.0	0.0
16:14:46	0.0	0.0	27.5	0.0	0.0	0.0	0.0	0.0	0.0
16:15:01	0.0	0.0	26.9	0.0	0.0	0.0	0.0	0.0	0.0
16:15:16	0.0	0.0	24.7	0.0	0.0	0.0	0.0	0.0	0.0
16:15:31	0.0	0.0	23.2	0.0	0.0	0.0	0.0	0.0	0.0
16:15:46	0.0	0.0	22.3	0.0	0.0	0.0	0.0	0.0	0.0
16:16:01	0.0	0.0	21.4	0.0	0.0	0.0	0.0	0.0	0.0
16:16:16	0.0	0.0	20.8	0.0	0.0	0.0	0.0	0.0	0.0
16:16:31	0.0	0.0	20.4	0.0	0.0	0.0	0.0	0.0	0.0
16:16:46	0.0	0.0	19.8	0.0	0.0	0.0	0.0	0.0	0.0
16:17:01	0.0	0.0	14.4	0.0	0.0	0.0	0.0	0.0	0.0
16:17:16	0.0	0.0	12.9	0.0	0.0	0.0	0.0	0.0	0.0
16:17:31	0.0	0.0	12.1	0.0	0.0	0.0	0.0	0.0	0.0
16:17:46	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0	0.0
16:18:01	0.0	0.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0
16:18:16	0.0	0.0	10.5	0.0	0.0	0.0	0.0	0.0	0.0
16:18:31	0.0	0.0	9.9	0.0	0.0	0.0	0.0	0.0	0.0
16:18:46	0.0	0.0	9.9	0.0	0.0	0.0	0.0	0.0	0.0
16:19:01	0.0	0.0	9.3	0.0	0.0	0.0	0.0	0.0	0.0
16:19:16	0.0	0.0	8.9	0.0	0.0	0.0	0.0	0.0	0.0
16:19:31	0.0	0.0	8.5	0.0	0.0	0.0	0.0	0.0	0.0
16:19:46	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0
16:20:01	0.0	0.0	7.8	0.0	0.0	0.0	0.0	0.0	0.0
16:20:16	0.0	0.0	7.6	0.0	0.0	0.0	0.0	0.0	0.0
16:20:31	0.0	0.0	7.3	0.0	0.0	0.0	0.0	0.0	0.0
16:20:46	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0
16:21:01	0.0	0.0	215.9	0.0	0.0	0.0	0.0	0.0	0.0
16:21:16	0.0	0.0	555.2	0.0	0.0	0.0	0.0	0.0	0.0
16:21:31	0.0	0.0	562.7	0.0	0.0	0.0	0.0	0.0	0.0
16:21:46	0.0	0.0	562.4	0.0	0.0	0.0	0.0	0.0	0.0
16:22:01	0.0	0.0	561.0	0.0	0.0	0.0	0.0	0.0	0.0
16:22:16	0.0	0.0	560.7	0.0	0.0	0.0	0.0	0.0	0.0
16:22:31	0.0	0.0	562.8	0.0	0.0	0.0	0.0	0.0	0.0
16:22:46	0.0	0.0	562.4	0.0	0.0	0.0	0.0	0.0	0.0
16:23:01	0.0	0.0	562.7	0.0	0.0	0.0	0.0	0.0	0.0
16:23:16	0.0	0.0	562.4	0.0	0.0	0.0	0.0	0.0	0.0
16:23:31	0.0	0.0	562.4	0.0	0.0	0.0	0.0	0.0	0.0
16:23:46	0.0	0.0	557.8	0.0	0.0	0.0	0.0	0.0	0.0
Zero Gas			7.6						
Cal Gas			562.5						

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA 1&2 Calciner Stack
July 26, 1996

CALIBRATION ERROR/CALIBRATION BIAS 0

Time	NO_x (ppm)	SO_2 (ppm)	THC (ppm)	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 In (ppm)	O_2 In (%)	CO_2 In (%)
14:14:04	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0
14:14:19	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
14:14:34	0.0	0.0	-0.4	0.0	0.0	0.0	0.0	0.0	0.0
14:14:49	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14:15:04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14:15:19	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0
14:15:34	0.0	0.0	-0.3	0.0	0.0	0.0	0.0	0.0	0.0
14:15:49	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	0.0
14:16:04	0.0	0.0	-0.6	0.0	0.0	0.0	0.0	0.0	0.0
14:16:19	0.0	0.0	-0.7	0.0	0.0	0.0	0.0	0.0	0.0
14:16:34	0.0	0.0	-0.7	0.0	0.0	0.0	0.0	0.0	0.0
14:16:49	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0
14:17:04	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0
14:17:19	0.0	0.0	387.0	0.0	0.0	0.0	0.0	0.0	0.0
14:17:34	0.0	0.0	969.0	0.0	0.0	0.0	0.0	0.0	0.0
14:17:49	0.0	0.0	860.9	0.0	0.0	0.0	0.0	0.0	0.0
14:18:04	0.0	0.0	859.7	0.0	0.0	0.0	0.0	0.0	0.0
14:18:19	0.0	0.0	862.2	0.0	0.0	0.0	0.0	0.0	0.0
14:18:34	0.0	0.0	863.1	0.0	0.0	0.0	0.0	0.0	0.0
14:18:49	0.0	0.0	858.6	0.0	0.0	0.0	0.0	0.0	0.0
14:19:04	0.0	0.0	850.1	0.0	0.0	0.0	0.0	0.0	0.0
14:19:19	0.0	0.0	849.3	0.0	0.0	0.0	0.0	0.0	0.0
14:19:34	0.0	0.0	851.2	0.0	0.0	0.0	0.0	0.0	0.0
14:19:49	0.0	0.0	859.1	0.0	0.0	0.0	0.0	0.0	0.0
14:20:04	0.0	0.0	851.9	0.0	0.0	0.0	0.0	0.0	0.0
14:20:19	0.0	0.0	836.9	0.0	0.0	0.0	0.0	0.0	0.0
14:20:34	0.0	0.0	50.3	0.0	0.0	0.0	0.0	0.0	0.0
14:20:49	0.0	0.0	7.3	0.0	0.0	0.0	0.0	0.0	0.0
14:21:04	0.0	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0
14:21:19	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0
14:21:34	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0
14:21:49	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0
14:22:04	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
14:22:19	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0
14:22:34	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	0.0
14:22:49	0.0	0.0	-0.7	0.0	0.0	0.0	0.0	0.0	0.0
14:23:04	0.0	0.0	-0.9	0.0	0.0	0.0	0.0	0.0	0.0
14:23:19	0.0	0.0	-1.1	0.0	0.0	0.0	0.0	0.0	0.0
14:23:34	0.0	0.0	434.4	0.0	0.0	0.0	0.0	0.0	0.0
14:23:49	0.0	0.0	559.4	0.0	0.0	0.0	0.0	0.0	0.0
14:24:04	0.0	0.0	567.6	0.0	0.0	0.0	0.0	0.0	0.0
14:24:19	0.0	0.0	572.0	0.0	0.0	0.0	0.0	0.0	0.0
14:24:34	0.0	0.0	570.2	0.0	0.0	0.0	0.0	0.0	0.0
14:24:49	0.0	0.0	572.8	0.0	0.0	0.0	0.0	0.0	0.0
14:25:04	0.0	0.0	569.7	0.0	0.0	0.0	0.0	0.0	0.0
14:25:19	0.0	0.0	567.4	0.0	0.0	0.0	0.0	0.0	0.0
14:25:34	0.0	0.0	569.7	0.0	0.0	0.0	0.0	0.0	0.0
14:25:49	0.0	0.0	562.6	0.0	0.0	0.0	0.0	0.0	0.0
14:26:04	0.0	0.0	549.0	0.0	0.0	0.0	0.0	0.0	0.0
14:26:19	0.0	0.0	508.5	0.0	0.0	0.0	0.0	0.0	0.0
14:26:34	0.0	0.0	398.7	0.0	0.0	0.0	0.0	0.0	0.0
14:26:49	0.0	0.0	426.6	0.0	0.0	0.0	0.0	0.0	0.0
14:27:04	0.0	0.0	260.6	0.0	0.0	0.0	0.0	0.0	0.0
14:27:19	0.0	0.0	256.2	0.0	0.0	0.0	0.0	0.0	0.0
14:27:34	0.0	0.0	254.6	0.0	0.0	0.0	0.0	0.0	0.0
14:27:49	0.0	0.0	252.5	0.0	0.0	0.0	0.0	0.0	0.0
14:28:04	0.0	0.0	251.2	0.0	0.0	0.0	0.0	0.0	0.0
14:28:19	0.0	0.0	252.8	0.0	0.0	0.0	0.0	0.0	0.0
14:28:34	0.0	0.0	251.2	0.0	0.0	0.0	0.0	0.0	0.0
14:28:49	0.0	0.0	251.0	0.0	0.0	0.0	0.0	0.0	0.0
14:29:04	0.0	0.0	250.2	0.0	0.0	0.0	0.0	0.0	0.0

Zero Gas	-0.6
Cal Gas	251.7
Cal Gas	568.9
Cal Gas	850.2

Revision 0

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA 1&2 Calciner Stack
July 26, 1996

REFERENCE METHOD RUN 1

Time	NO_x (ppm)	SO_2 (ppm)	THC (ppm)	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 In (ppm)	O_2 In (%)	CO_2 In (%)
14:39	0.0	0.0	434.1	0.0	0.0	0.0	0.0	0.0	0.0
14:40	0.0	0.0	430.6	0.0	0.0	0.0	0.0	0.0	0.0
14:41	0.0	0.0	440.7	0.0	0.0	0.0	0.0	0.0	0.0
14:42	0.0	0.0	445.4	0.0	0.0	0.0	0.0	0.0	0.0
14:43	0.0	0.0	436.1	0.0	0.0	0.0	0.0	0.0	0.0
14:44	0.0	0.0	440.9	0.0	0.0	0.0	0.0	0.0	0.0
14:45	0.0	0.0	437.8	0.0	0.0	0.0	0.0	0.0	0.0
14:46	0.0	0.0	443.7	0.0	0.0	0.0	0.0	0.0	0.0
14:47	0.0	0.0	449.3	0.0	0.0	0.0	0.0	0.0	0.0
14:48	0.0	0.0	449.7	0.0	0.0	0.0	0.0	0.0	0.0
14:49	0.0	0.0	458.2	0.0	0.0	0.0	0.0	0.0	0.0
14:50	0.0	0.0	462.0	0.0	0.0	0.0	0.0	0.0	0.0
14:51	0.0	0.0	465.6	0.0	0.0	0.0	0.0	0.0	0.0
14:52	0.0	0.0	462.6	0.0	0.0	0.0	0.0	0.0	0.0
14:53	0.0	0.0	468.3	0.0	0.0	0.0	0.0	0.0	0.0
14:54	0.0	0.0	466.1	0.0	0.0	0.0	0.0	0.0	0.0
14:55	0.0	0.0	475.9	0.0	0.0	0.0	0.0	0.0	0.0
14:56	0.0	0.0	470.0	0.0	0.0	0.0	0.0	0.0	0.0
14:57	0.0	0.0	479.3	0.0	0.0	0.0	0.0	0.0	0.0
14:58	0.0	0.0	479.0	0.0	0.0	0.0	0.0	0.0	0.0
14:59	0.0	0.0	475.2	0.0	0.0	0.0	0.0	0.0	0.0
15:00	0.0	0.0	483.8	0.0	0.0	0.0	0.0	0.0	0.0
15:01	0.0	0.0	482.3	0.0	0.0	0.0	0.0	0.0	0.0
15:02	0.0	0.0	482.0	0.0	0.0	0.0	0.0	0.0	0.0
15:03	0.0	0.0	487.1	0.0	0.0	0.0	0.0	0.0	0.0
15:04	0.0	0.0	495.9	0.0	0.0	0.0	0.0	0.0	0.0
15:05	0.0	0.0	505.7	0.0	0.0	0.0	0.0	0.0	0.0
15:06	0.0	0.0	503.7	0.0	0.0	0.0	0.0	0.0	0.0
15:07	0.0	0.0	492.0	0.0	0.0	0.0	0.0	0.0	0.0
15:08	0.0	0.0	489.0	0.0	0.0	0.0	0.0	0.0	0.0
15:09	0.0	0.0	487.8	0.0	0.0	0.0	0.0	0.0	0.0
15:10	0.0	0.0	491.8	0.0	0.0	0.0	0.0	0.0	0.0
15:11	0.0	0.0	497.4	0.0	0.0	0.0	0.0	0.0	0.0
15:12	0.0	0.0	489.6	0.0	0.0	0.0	0.0	0.0	0.0
15:13	0.0	0.0	498.5	0.0	0.0	0.0	0.0	0.0	0.0
15:14	0.0	0.0	491.0	0.0	0.0	0.0	0.0	0.0	0.0
15:15	0.0	0.0	496.1	0.0	0.0	0.0	0.0	0.0	0.0
15:16	0.0	0.0	500.9	0.0	0.0	0.0	0.0	0.0	0.0
15:17	0.0	0.0	492.8	0.0	0.0	0.0	0.0	0.0	0.0
15:18	0.0	0.0	499.7	0.0	0.0	0.0	0.0	0.0	0.0
15:19	0.0	0.0	502.7	0.0	0.0	0.0	0.0	0.0	0.0
15:20	0.0	0.0	493.4	0.0	0.0	0.0	0.0	0.0	0.0
15:21	0.0	0.0	491.4	0.0	0.0	0.0	0.0	0.0	0.0
15:22	0.0	0.0	498.9	0.0	0.0	0.0	0.0	0.0	0.0
15:23	0.0	0.0	483.4	0.0	0.0	0.0	0.0	0.0	0.0
15:24	0.0	0.0	489.8	0.0	0.0	0.0	0.0	0.0	0.0
15:25	0.0	0.0	487.8	0.0	0.0	0.0	0.0	0.0	0.0
15:26	0.0	0.0	482.9	0.0	0.0	0.0	0.0	0.0	0.0
15:27	0.0	0.0	484.9	0.0	0.0	0.0	0.0	0.0	0.0
15:28	0.0	0.0	487.8	0.0	0.0	0.0	0.0	0.0	0.0
15:29	0.0	0.0	483.2	0.0	0.0	0.0	0.0	0.0	0.0
15:30	0.0	0.0	486.1	0.0	0.0	0.0	0.0	0.0	0.0
15:31	0.0	0.0	471.1	0.0	0.0	0.0	0.0	0.0	0.0
15:32	0.0	0.0	476.7	0.0	0.0	0.0	0.0	0.0	0.0
15:33	0.0	0.0	483.1	0.0	0.0	0.0	0.0	0.0	0.0
15:34	0.0	0.0	481.8	0.0	0.0	0.0	0.0	0.0	0.0
15:35	0.0	0.0	475.2	0.0	0.0	0.0	0.0	0.0	0.0
15:36	0.0	0.0	471.9	0.0	0.0	0.0	0.0	0.0	0.0
15:37	0.0	0.0	470.4	0.0	0.0	0.0	0.0	0.0	0.0
15:38	0.0	0.0	461.1	0.0	0.0	0.0	0.0	0.0	0.0
Average			476.7						

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA 1&2 Calciner Stack
July 26, 1996

CALIBRATION BIAS 1

Time	NO_x (ppm)	SO_2 (ppm)	THC (ppm)	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 In (ppm)	O_2 In (%)	CO_2 In (%)
16:47:09	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0
16:47:24	0.0	0.0	7.3	0.0	0.0	0.0	0.0	0.0	0.0
16:47:39	0.0	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0
16:47:54	0.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0
16:48:09	0.0	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0
16:48:24	0.0	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0
16:48:39	0.0	0.0	6.6	0.0	0.0	0.0	0.0	0.0	0.0
16:48:54	0.0	0.0	6.3	0.0	0.0	0.0	0.0	0.0	0.0
16:49:09	0.0	0.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0
16:49:24	0.0	0.0	380.1	0.0	0.0	0.0	0.0	0.0	0.0
16:49:39	0.0	0.0	561.2	0.0	0.0	0.0	0.0	0.0	0.0
16:49:54	0.0	0.0	567.6	0.0	0.0	0.0	0.0	0.0	0.0
16:50:09	0.0	0.0	566.6	0.0	0.0	0.0	0.0	0.0	0.0
16:50:24	0.0	0.0	569.8	0.0	0.0	0.0	0.0	0.0	0.0
16:50:39	0.0	0.0	571.4	0.0	0.0	0.0	0.0	0.0	0.0
16:50:54	0.0	0.0	569.8	0.0	0.0	0.0	0.0	0.0	0.0
16:51:09	0.0	0.0	570.4	0.0	0.0	0.0	0.0	0.0	0.0
16:51:24	0.0	0.0	568.4	0.0	0.0	0.0	0.0	0.0	0.0
16:51:39	0.0	0.0	570.6	0.0	0.0	0.0	0.0	0.0	0.0
Zero Gas			6.6						
Cal Gas			569.8						

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA 1&2 Calciner Stack
July 26, 1996

REFERENCE METHOD RUN 2

Time	NO_x (ppm)	SO_2 (ppm)	THC (ppm)	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 In (ppm)	O_2 In (%)	CO_2 In (%)
16:56	0.0	0.0	388.0	0.0	0.0	0.0	0.0	0.0	0.0
16:57	0.0	0.0	392.0	0.0	0.0	0.0	0.0	0.0	0.0
16:58	0.0	0.0	392.1	0.0	0.0	0.0	0.0	0.0	0.0
16:59	0.0	0.0	403.5	0.0	0.0	0.0	0.0	0.0	0.0
17:00	0.0	0.0	402.0	0.0	0.0	0.0	0.0	0.0	0.0
17:01	0.0	0.0	399.4	0.0	0.0	0.0	0.0	0.0	0.0
17:02	0.0	0.0	401.1	0.0	0.0	0.0	0.0	0.0	0.0
17:03	0.0	0.0	404.2	0.0	0.0	0.0	0.0	0.0	0.0
17:04	0.0	0.0	408.9	0.0	0.0	0.0	0.0	0.0	0.0
17:05	0.0	0.0	416.5	0.0	0.0	0.0	0.0	0.0	0.0
17:06	0.0	0.0	414.0	0.0	0.0	0.0	0.0	0.0	0.0
17:07	0.0	0.0	414.4	0.0	0.0	0.0	0.0	0.0	0.0
17:08	0.0	0.0	423.8	0.0	0.0	0.0	0.0	0.0	0.0
17:09	0.0	0.0	423.6	0.0	0.0	0.0	0.0	0.0	0.0
17:10	0.0	0.0	416.1	0.0	0.0	0.0	0.0	0.0	0.0
17:11	0.0	0.0	412.9	0.0	0.0	0.0	0.0	0.0	0.0
17:12	0.0	0.0	412.3	0.0	0.0	0.0	0.0	0.0	0.0
17:13	0.0	0.0	420.5	0.0	0.0	0.0	0.0	0.0	0.0
17:14	0.0	0.0	415.5	0.0	0.0	0.0	0.0	0.0	0.0
17:15	0.0	0.0	410.9	0.0	0.0	0.0	0.0	0.0	0.0
17:16	0.0	0.0	411.8	0.0	0.0	0.0	0.0	0.0	0.0
17:17	0.0	0.0	411.5	0.0	0.0	0.0	0.0	0.0	0.0
17:18	0.0	0.0	412.2	0.0	0.0	0.0	0.0	0.0	0.0
17:19	0.0	0.0	420.4	0.0	0.0	0.0	0.0	0.0	0.0
17:20	0.0	0.0	411.0	0.0	0.0	0.0	0.0	0.0	0.0
17:21	0.0	0.0	399.3	0.0	0.0	0.0	0.0	0.0	0.0
17:22	0.0	0.0	398.5	0.0	0.0	0.0	0.0	0.0	0.0
17:23	0.0	0.0	395.1	0.0	0.0	0.0	0.0	0.0	0.0
17:24	0.0	0.0	396.0	0.0	0.0	0.0	0.0	0.0	0.0
17:25	0.0	0.0	394.9	0.0	0.0	0.0	0.0	0.0	0.0
17:26	0.0	0.0	405.4	0.0	0.0	0.0	0.0	0.0	0.0
17:27	0.0	0.0	412.5	0.0	0.0	0.0	0.0	0.0	0.0
17:28	0.0	0.0	409.3	0.0	0.0	0.0	0.0	0.0	0.0
17:29	0.0	0.0	403.3	0.0	0.0	0.0	0.0	0.0	0.0
17:30	0.0	0.0	403.6	0.0	0.0	0.0	0.0	0.0	0.0
17:31	0.0	0.0	408.3	0.0	0.0	0.0	0.0	0.0	0.0
17:32	0.0	0.0	411.6	0.0	0.0	0.0	0.0	0.0	0.0
17:33	0.0	0.0	409.5	0.0	0.0	0.0	0.0	0.0	0.0
17:34	0.0	0.0	412.3	0.0	0.0	0.0	0.0	0.0	0.0
17:35	0.0	0.0	404.6	0.0	0.0	0.0	0.0	0.0	0.0
17:36	0.0	0.0	405.6	0.0	0.0	0.0	0.0	0.0	0.0
17:37	0.0	0.0	402.7	0.0	0.0	0.0	0.0	0.0	0.0
17:38	0.0	0.0	398.5	0.0	0.0	0.0	0.0	0.0	0.0
17:39	0.0	0.0	400.3	0.0	0.0	0.0	0.0	0.0	0.0
17:40	0.0	0.0	400.4	0.0	0.0	0.0	0.0	0.0	0.0
17:41	0.0	0.0	396.6	0.0	0.0	0.0	0.0	0.0	0.0
17:42	0.0	0.0	396.6	0.0	0.0	0.0	0.0	0.0	0.0
17:43	0.0	0.0	399.9	0.0	0.0	0.0	0.0	0.0	0.0
17:44	0.0	0.0	397.1	0.0	0.0	0.0	0.0	0.0	0.0
17:45	0.0	0.0	398.4	0.0	0.0	0.0	0.0	0.0	0.0
17:46	0.0	0.0	404.4	0.0	0.0	0.0	0.0	0.0	0.0
17:47	0.0	0.0	395.7	0.0	0.0	0.0	0.0	0.0	0.0
17:48	0.0	0.0	393.4	0.0	0.0	0.0	0.0	0.0	0.0
17:49	0.0	0.0	392.9	0.0	0.0	0.0	0.0	0.0	0.0
17:50	0.0	0.0	382.7	0.0	0.0	0.0	0.0	0.0	0.0
17:51	0.0	0.0	387.2	0.0	0.0	0.0	0.0	0.0	0.0
17:52	0.0	0.0	389.3	0.0	0.0	0.0	0.0	0.0	0.0
17:53	0.0	0.0	387.5	0.0	0.0	0.0	0.0	0.0	0.0
17:54	0.0	0.0	388.1	0.0	0.0	0.0	0.0	0.0	0.0
17:55	0.0	0.0	393.8	0.0	0.0	0.0	0.0	0.0	0.0
Average			403.6						

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA 1&2 Calciner Stack
July 26, 1996

CALIBRATION BIAS 2

Time	NO_x (ppm)	SO_2 (ppm)	THC (ppm)	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 In (ppm)	O_2 In (%)	CO_2 In (%)
18:32:44	0.0	0.0	13.7	0.0	0.0	0.0	0.0	0.0	0.0
18:32:59	0.0	0.0	13.3	0.0	0.0	0.0	0.0	0.0	0.0
18:33:14	0.0	0.0	13.1	0.0	0.0	0.0	0.0	0.0	0.0
18:33:29	0.0	0.0	12.8	0.0	0.0	0.0	0.0	0.0	0.0
18:33:44	0.0	0.0	12.4	0.0	0.0	0.0	0.0	0.0	0.0
18:33:59	0.0	0.0	12.2	0.0	0.0	0.0	0.0	0.0	0.0
18:34:14	0.0	0.0	11.9	0.0	0.0	0.0	0.0	0.0	0.0
18:34:29	0.0	0.0	53.1	0.0	0.0	0.0	0.0	0.0	0.0
18:34:44	0.0	0.0	553.7	0.0	0.0	0.0	0.0	0.0	0.0
18:34:59	0.0	0.0	569.8	0.0	0.0	0.0	0.0	0.0	0.0
18:35:14	0.0	0.0	575.2	0.0	0.0	0.0	0.0	0.0	0.0
18:35:29	0.0	0.0	577.3	0.0	0.0	0.0	0.0	0.0	0.0
18:35:44	0.0	0.0	575.3	0.0	0.0	0.0	0.0	0.0	0.0
18:35:59	0.0	0.0	573.3	0.0	0.0	0.0	0.0	0.0	0.0
18:36:14	0.0	0.0	578.0	0.0	0.0	0.0	0.0	0.0	0.0
18:36:29	0.0	0.0	574.1	0.0	0.0	0.0	0.0	0.0	0.0
18:36:44	0.0	0.0	574.6	0.0	0.0	0.0	0.0	0.0	0.0
18:36:59	0.0	0.0	580.1	0.0	0.0	0.0	0.0	0.0	0.0
18:37:14	0.0	0.0	575.5	0.0	0.0	0.0	0.0	0.0	0.0
Zero Gas			12.5						
Cal Gas			576.3						

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA 1&2 Calciner Stack
July 26, 1996

REFERENCE METHOD RUN 3

Time	NO_x (ppm)	SO_2 (ppm)	THC (ppm)	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 In (ppm)	O_2 In (%)	CO_2 In (%)
18:55	0.0	0.0	349.9	0.0	0.0	0.0	0.0	0.0	0.0
18:56	0.0	0.0	353.2	0.0	0.0	0.0	0.0	0.0	0.0
18:57	0.0	0.0	354.7	0.0	0.0	0.0	0.0	0.0	0.0
18:58	0.0	0.0	356.4	0.0	0.0	0.0	0.0	0.0	0.0
18:59	0.0	0.0	357.6	0.0	0.0	0.0	0.0	0.0	0.0
19:00	0.0	0.0	362.7	0.0	0.0	0.0	0.0	0.0	0.0
19:01	0.0	0.0	367.3	0.0	0.0	0.0	0.0	0.0	0.0
19:02	0.0	0.0	366.8	0.0	0.0	0.0	0.0	0.0	0.0
19:03	0.0	0.0	364.8	0.0	0.0	0.0	0.0	0.0	0.0
19:04	0.0	0.0	366.6	0.0	0.0	0.0	0.0	0.0	0.0
19:05	0.0	0.0	364.7	0.0	0.0	0.0	0.0	0.0	0.0
19:06	0.0	0.0	364.8	0.0	0.0	0.0	0.0	0.0	0.0
19:07	0.0	0.0	365.0	0.0	0.0	0.0	0.0	0.0	0.0
19:08	0.0	0.0	368.7	0.0	0.0	0.0	0.0	0.0	0.0
19:09	0.0	0.0	365.5	0.0	0.0	0.0	0.0	0.0	0.0
19:10	0.0	0.0	366.6	0.0	0.0	0.0	0.0	0.0	0.0
19:11	0.0	0.0	369.9	0.0	0.0	0.0	0.0	0.0	0.0
19:12	0.0	0.0	368.5	0.0	0.0	0.0	0.0	0.0	0.0
19:13	0.0	0.0	369.8	0.0	0.0	0.0	0.0	0.0	0.0
19:14	0.0	0.0	365.0	0.0	0.0	0.0	0.0	0.0	0.0
19:15	0.0	0.0	368.6	0.0	0.0	0.0	0.0	0.0	0.0
19:16	0.0	0.0	368.5	0.0	0.0	0.0	0.0	0.0	0.0
19:17	0.0	0.0	372.9	0.0	0.0	0.0	0.0	0.0	0.0
19:18	0.0	0.0	366.3	0.0	0.0	0.0	0.0	0.0	0.0
19:19	0.0	0.0	366.0	0.0	0.0	0.0	0.0	0.0	0.0
19:20	0.0	0.0	368.4	0.0	0.0	0.0	0.0	0.0	0.0
19:21	0.0	0.0	373.2	0.0	0.0	0.0	0.0	0.0	0.0
19:22	0.0	0.0	370.9	0.0	0.0	0.0	0.0	0.0	0.0
19:23	0.0	0.0	372.0	0.0	0.0	0.0	0.0	0.0	0.0
19:24	0.0	0.0	369.9	0.0	0.0	0.0	0.0	0.0	0.0
19:25	0.0	0.0	367.1	0.0	0.0	0.0	0.0	0.0	0.0
19:26	0.0	0.0	368.0	0.0	0.0	0.0	0.0	0.0	0.0
19:27	0.0	0.0	368.5	0.0	0.0	0.0	0.0	0.0	0.0
19:28	0.0	0.0	371.2	0.0	0.0	0.0	0.0	0.0	0.0
19:29	0.0	0.0	370.3	0.0	0.0	0.0	0.0	0.0	0.0
19:30	0.0	0.0	371.6	0.0	0.0	0.0	0.0	0.0	0.0
19:31	0.0	0.0	375.0	0.0	0.0	0.0	0.0	0.0	0.0
19:32	0.0	0.0	372.0	0.0	0.0	0.0	0.0	0.0	0.0
19:33	0.0	0.0	373.6	0.0	0.0	0.0	0.0	0.0	0.0
19:34	0.0	0.0	368.4	0.0	0.0	0.0	0.0	0.0	0.0
19:35	0.0	0.0	372.5	0.0	0.0	0.0	0.0	0.0	0.0
19:36	0.0	0.0	371.1	0.0	0.0	0.0	0.0	0.0	0.0
19:37	0.0	0.0	368.2	0.0	0.0	0.0	0.0	0.0	0.0
19:38	0.0	0.0	369.6	0.0	0.0	0.0	0.0	0.0	0.0
19:39	0.0	0.0	370.3	0.0	0.0	0.0	0.0	0.0	0.0
19:40	0.0	0.0	369.4	0.0	0.0	0.0	0.0	0.0	0.0
19:41	0.0	0.0	374.8	0.0	0.0	0.0	0.0	0.0	0.0
19:42	0.0	0.0	374.1	0.0	0.0	0.0	0.0	0.0	0.0
19:43	0.0	0.0	374.5	0.0	0.0	0.0	0.0	0.0	0.0
19:44	0.0	0.0	372.0	0.0	0.0	0.0	0.0	0.0	0.0
19:45	0.0	0.0	378.8	0.0	0.0	0.0	0.0	0.0	0.0
19:46	0.0	0.0	376.8	0.0	0.0	0.0	0.0	0.0	0.0
19:47	0.0	0.0	376.7	0.0	0.0	0.0	0.0	0.0	0.0
19:48	0.0	0.0	379.3	0.0	0.0	0.0	0.0	0.0	0.0
19:49	0.0	0.0	380.3	0.0	0.0	0.0	0.0	0.0	0.0
19:50	0.0	0.0	382.3	0.0	0.0	0.0	0.0	0.0	0.0
19:51	0.0	0.0	380.4	0.0	0.0	0.0	0.0	0.0	0.0
19:52	0.0	0.0	382.4	0.0	0.0	0.0	0.0	0.0	0.0
19:53	0.0	0.0	388.3	0.0	0.0	0.0	0.0	0.0	0.0
19:54	0.0	0.0	385.8	0.0	0.0	0.0	0.0	0.0	0.0
Average			370.0						

SOLVAY MINERALS, INC.
CAE Project No: 7747-1
CA 1&2 Calciner Stack
July 26, 1996

CALIBRATION BIAS 3

Time	NO_x (ppm)	SO_2 (ppm)	THC (ppm)	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 In (ppm)	O_2 In (%)	CO_2 In (%)
20:25:51	0.0	0.0	15.1	0.0	0.0	0.0	0.0	0.0	0.0
20:26:06	0.0	0.0	14.7	0.0	0.0	0.0	0.0	0.0	0.0
20:26:21	0.0	0.0	14.5	0.0	0.0	0.0	0.0	0.0	0.0
20:26:36	0.0	0.0	14.1	0.0	0.0	0.0	0.0	0.0	0.0
20:26:51	0.0	0.0	13.9	0.0	0.0	0.0	0.0	0.0	0.0
20:27:06	0.0	0.0	13.7	0.0	0.0	0.0	0.0	0.0	0.0
20:27:21	0.0	0.0	13.3	0.0	0.0	0.0	0.0	0.0	0.0
20:27:36	0.0	0.0	13.0	0.0	0.0	0.0	0.0	0.0	0.0
20:27:51	0.0	0.0	287.5	0.0	0.0	0.0	0.0	0.0	0.0
20:28:06	0.0	0.0	570.9	0.0	0.0	0.0	0.0	0.0	0.0
20:28:21	0.0	0.0	576.4	0.0	0.0	0.0	0.0	0.0	0.0
20:28:36	0.0	0.0	578.4	0.0	0.0	0.0	0.0	0.0	0.0
20:28:51	0.0	0.0	577.5	0.0	0.0	0.0	0.0	0.0	0.0
20:29:06	0.0	0.0	576.4	0.0	0.0	0.0	0.0	0.0	0.0
20:29:21	0.0	0.0	578.3	0.0	0.0	0.0	0.0	0.0	0.0
20:29:36	0.0	0.0	577.0	0.0	0.0	0.0	0.0	0.0	0.0
20:29:51	0.0	0.0	578.3	0.0	0.0	0.0	0.0	0.0	0.0
20:30:06	0.0	0.0	580.7	0.0	0.0	0.0	0.0	0.0	0.0
20:30:21	0.0	0.0	577.4	0.0	0.0	0.0	0.0	0.0	0.0
Zero Gas			13.6						
Cal Gas			577.4						

SOLVAY MINERALS, INC.
CAE Project No. 7747-1
7/25/96

Chromatagraphic Data Reduction
Limits of Detection

Compound	(ppmwv)
2-Butanone	0.16
Hexane	0.01
Methylene Chloride	0.25
1,1,1-Trichloroethane	0.06
Benzene	0.03
Toluene	0.28
Ethylbenzene	0.30
Xylene	0.19
1,3 Butadiene	0.54
Styrene	0.34
Acrylonitrile	1.21
Trichloroethene	0.41
Methane	0.28
Ethane	0.11

CA-3 Calciner Stack - Run 1

Compound	7/25/96 11:58 (ppmwv)	7/25/96 12:23 (ppmwv)	7/25/96 12:48 (ppmwv)	7/25/96 13:13 (ppmwv)	Average
Hexane	0.60	0.61	0.80	0.72	0.68
1,1,1-Trichloroethane	BDL	BDL	BDL	BDL	BDL
Benzene	1.83	5.29	2.28	3.04	3.11
Trichloroethene	BDL	BDL	BDL	0.65	0.16
2-Butanone	0.19	1.51	0.21	0.55	0.62
Toluene	0.62	0.62	0.57	0.57	0.60
Ethylbenzene	BDL	BDL	BDL	BDL	BDL
Xylene	0.78	1.02	1.03	1.24	1.02
Styrene	BDL	BDL	BDL	BDL	BDL
Methane	136.50	273.56	299.20	286.24	248.87
Ethane	21.03	35.69	34.77	37.01	32.12
Butadiene	1.11	5.81	8.08	6.04	5.26
Methylene Chloride	BDL	BDL	BDL	BDL	BDL
Acrylonitrile	BDL	BDL	BDL	BDL	BDL

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

SOLVAY MINERALS, INC.
CAE Project No. 7747-1
7/25/96

Chromatagraphic Data Reduction

CA-3 Calciner Stack - Run 2

Compound	7/25/96 13:39 (ppmwv)	7/26/96 14:04 (ppmwv)	7/27/96 14:30 (ppmwv)	Average
Hexane	0.73	0.77	1.34	0.95
1,1,1-Trichloroethane	BDL	8.03	BDL	2.68
Benzene	2.10	4.23	4.06	3.46
Trichloroethene	BDL	0.82	0.68	0.50
2-Butanone	0.20	1.11	0.55	0.62
Toluene	0.58	0.72	0.85	0.72
Ethylbenzene	BDL	BDL	BDL	BDL
Xylene	1.07	1.33	1.39	1.26
Styrene	BDL	BDL	0.36	0.12
Methane	279.03	284.79	287.32	283.71
Ethane	36.81	39.56	36.59	37.65
Butadiene	5.85	7.56	11.03	8.14
Methylene Chloride	BDL	BDL	BDL	BDL
Acrylonitrile	BDL	BDL	BDL	BDL

CA-3 Calciner Stack - Run 3

Compound	7/25/96 14:56 (ppmwv)	7/25/96 15:22 (ppmwv)	7/25/96 15:47 (ppmwv)	7/25/96 16:12 (ppmwv)	Average
Hexane	2.32	3.11	3.74	3.97	3.28
1,1,1-Trichloroethane	BDL	BDL	BDL	BDL	BDL
Benzene	5.90	8.13	8.68	9.23	7.99
Trichloroethene	0.61	1.47	1.57	1.59	1.31
2-Butanone	0.54	1.18	1.15	1.06	0.98
Toluene	1.61	1.81	2.11	2.24	1.94
Ethylbenzene	0.30	0.41	0.38	0.41	0.38
Xylene	1.64	2.34	2.65	2.92	2.39
Styrene	0.52	0.66	0.69	0.76	0.66
Methane	378.32	281.97	273.07	271.69	301.26
Ethane	64.02	40.60	34.98	35.48	43.77
Butadiene	26.23	25.99	26.56	28.02	26.70
Methylene Chloride	BDL	BDL	BDL	BDL	BDL
Acrylonitrile	BDL	1.84	2.30	2.39	1.63

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

SOLVAY MINERALS, INC.
CAE Project No. 7747-1
7/26/96

Chromatagraphic Data Reduction
Limits of Detection

Compound	(ppmwv)
2-Butanone	0.16
Hexane	0.01
Methylene Chloride	0.25
1,1,1-Trichloroethane	0.06
Benzene	0.03
Toluene	0.28
Ethylbenzene	0.30
Xylene	0.19
1,3 Butadiene	0.54
Styrene	0.34
Acrylonitrile	1.21
Trichloroethene	0.41
Methane	0.28
Ethane	0.11

CA 1 & 2 Calciner Stack - Run 1

Compound	7/26/96 14:38 (ppmwv)	7/26/96 15:03 (ppmwv)	7/26/96 15:29 (ppmwv)	7/26/96 16:32 (ppmwv)	Average
Hexane	1.92	2.77	2.66	1.80	2.29
1,1,1-Trichloroethane	BDL	BDL	BDL	BDL	BDL
Benzene	5.20	6.07	5.62	4.24	5.28
Trichloroethene	1.74	1.65	1.48	1.29	1.54
2-Butanone	2.63	2.22	1.86	1.79	2.12
Toluene	1.41	1.52	1.43	1.68	1.51
Ethylbenzene	0.54	0.51	0.37	0.51	0.48
Xylene	1.06	1.80	2.08	1.96	1.72
Styrene	0.02	0.03	0.03	0.39	0.10
Methane	267.97	252.78	N/A	252.01	257.59
Ethane	29.53	28.59	N/A	26.08	28.07
Butadiene	13.46	17.87	N/A	12.00	14.44
Methylene Chloride	BDL	BDL	N/A	BDL	BDL
Acrylonitrile	1.59	1.99	N/A	BDL	1.19

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

N/A indicates injection was not performed.

SOLVAY MINERALS, INC.
CAE Project No. 7747-1
7/26/96

Chromatagraphic Data Reduction

CA 1 & 2 Calciner Stack - Run 2

Compound	7/26/96 16:56 (ppmwv)	7/26/96 17:22 (ppmwv)	7/26/96 17:47 (ppmwv)	7/26/96 18:12 (ppmwv)	Average
Hexane	1.95	1.19	1.82	1.50	1.61
1,1,1-Trichloroethane	BDL	BDL	BDL	BDL	BDL
Benzene	3.88	10.29	2.96	2.40	4.88
Trichloroethene	0.81	21.74	BDL	BDL	5.64
2-Butanone	1.08	6.04	0.44	0.77	2.08
Toluene	1.13	2.47	0.98	1.22	1.45
Ethylbenzene	BDL	0.96	0.58	0.92	0.62
Xylene	0.85	2.51	1.88	4.64	2.47
Styrene	BDL	0.43	0.47	1.73	0.66
Methane	261.11	222.11	253.32	251.85	247.10
Ethane	15.12	24.84	25.48	25.77	22.80
Butadiene	14.04	9.46	11.72	9.84	11.26
Methylene Chloride	BDL	BDL	BDL	BDL	BDL
Acrylonitrile	1.455	BDL	BDL	BDL	0.36

CA 1 & 2 Calciner Stack - Run 3

Compound	7/26/96 18:49 (ppmwv)	7/26/96 19:15 (ppmwv)	7/26/96 19:55 (ppmwv)	7/26/96 20:21 (ppmwv)	Average
Hexane	1.22	1.55	1.75	2.16	1.67
1,1,1-Trichloroethane	BDL	BDL	BDL	BDL	BDL
Benzene	2.55	7.83	3.14	3.86	4.34
Trichloroethene	0.48	BDL	0.44	0.57	0.37
2-Butanone	0.61	24.32	0.37	0.45	6.44
Toluene	1.06	11.34	0.81	0.98	3.54
Ethylbenzene	0.43	1.68	0.37	0.34	0.71
Xylene	2.03	1.45	2.81	2.61	2.22
Styrene	0.61	0.92	0.50	0.57	0.65
Methane	256.25	254.19	258.99	256.36	256.45
Ethane	25.16	25.37	27.34	26.58	26.11
Butadiene	8.98	10.53	11.22	12.22	10.74
Methylene Chloride	BDL	BDL	BDL	BDL	BDL
Acrylonitrile	BDL	BDL	4.14	BDL	1.04

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

RESULTS

Table 2-1:
CA-3 Calciner Stack - Total Non-Methane/Ethane Hydrocarbons

Run No.		1	2	3	Average
Date (1996)		July 25	July 25	July 25	
Start Time (approx.)		12:06	13:37	14:54	
Stop Time (approx.)		13:06	14:37	15:54	
Process Conditions[1]					
	Feed rate (ton of trona/hr)	155.1	155.1	155.1	**155.1**
Gas Conditions[2]					
T_s	Temperature (°F)	351	348	349	**349**
O_2	Oxygen (dry volume %)	13.0	12.3	12.1	**12.5**
CO_2	Carbon Dioxide (dry volume %)	9.0	9.7	9.9	**9.5**
B_{wo}	Moisture (volume %)	29.70	29.13	30.10	**29.64**
Q_{std}	Standard conditions (dscfm)	77,440	75,650	70,690	**74,593**
Total Hydrocarbons (as propane)					
C	Concentration (ppmdv)	625.2	706.3	988.3	**773.3**
E	Emission rate (lb/hr)	332.5	366.9	479.7	**393.0**
E	Emission rate (lb/ton of trona)	2.144	2.366	3.093	**2.534**
Methane					
C	Concentration (ppmdv)	354.0	400.3	431.0	**395.1**
E	Emission rate (lb/hr)	68.5	75.6	76.1	**73.4**
E	Emission rate (lb/ton of trona)	0.441	0.488	0.491	**0.473**
Ethane					
C	Concentration (ppmdv)	45.7	53.1	62.6	**53.8**
E	Emission rate (lb/hr)	16.6	18.8	20.7	**18.7**
E	Emission rate (lb/ton of trona)	0.107	0.121	0.134	**0.121**
Total Non-Methane/Ethane Hydrocarbons (as propane)					
E	Emission rate (lb/hr)	247.4	272.5	382.9	**300.9**
E	Emission rate (lb/ton of trona)	1.595	1.757	2.469	**1.940**

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

RESULTS

Table 2-2:
CA-3 Calciner Stack - Volatile Organic Compounds

Run No.	1	2	3	Average
Date (1995)	July 25	July 25	July 25	
Start Time (approx.)	11:58	13:39	14:56	
Stop Time (approx.)	13:13	14:30	16:12	
Process Conditions[1]				
Feed rate (ton of trona/hr)	155.1	155.1	155.1	155.1
Gas Conditions[2]				
B_{wo} Moisture (% by volume)	29.70	29.13	30.10	29.64
Q_{stc} Volumetric flow rate, standard (dscfm)	77,440	75,650	70,690	74,593
1,1,1-Trichloroethane				
C Concentration (ppmdv)	BDL	3.78	BDL	1.26
E Emission rate (lb/hr)	BDL	5.94	BDL	1.98
E Emission rate (lb/ton of trona)	BDL	0.0383	BDL	0.0128
1,3 Butadiene				
C Concentration (ppmdv)	7.48	11.49	38.20	19.06
E Emission rate (lb/hr)	4.88	7.32	22.74	11.65
E Emission rate (lb/ton of trona)	0.0315	0.0472	0.1466	0.0751
2-Butanone				
C Concentration (ppmdv)	0.88	0.87	1.40	1.05
E Emission rate (lb/hr)	0.77	0.74	1.11	0.87
E Emission rate (lb/ton of trona)	0.0049	0.0048	0.0072	0.0056
Acrylonitrile				
C Concentration (ppmdv)	BDL	BDL	2.33	0.78
E Emission rate (lb/hr)	BDL	BDL	1.36	0.45
E Emission rate (lb/ton of trona)	BDL	BDL	0.0088	0.0029
Benzene				
C Concentration (ppmdv)	4.42	4.88	11.43	6.91
E Emission rate (lb/hr)	4.17	4.49	9.83	6.16
E Emission rate (lb/ton of trona)	0.0269	0.0290	0.0634	0.0397
Ethyl Benzene				
C Concentration (ppmdv)	BDL	BDL	0.54	0.18
E Emission rate (lb/hr)	BDL	BDL	0.64	0.21
E Emission rate (lb/ton of trona)	BDL	BDL	0.0041	0.0014
Hexane				
C Concentration (ppmdv)	0.97	1.34	4.69	2.33
E Emission rate (lb/hr)	1.01	1.36	4.45	2.27
E Emission rate (lb/ton of trona)	0.0065	0.0088	0.0287	0.0147
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)	BDL	0.17	0.94	0.37
E Emission rate (lb/hr)	BDL	0.21	1.08	0.43
E Emission rate (lb/ton of trona)	BDL	0.0013	0.0070	0.0028
Toluene				
C Concentration (ppmdv)	0.85	1.02	2.78	1.55
E Emission rate (lb/hr)	0.95	1.10	2.82	1.62
E Emission rate (lb/ton of trona)	0.0061	0.0071	0.0182	0.0105
Trichloroethene				
C Concentration (ppmdv)	0.23	0.71	1.87	0.94
E Emission rate (lb/hr)	0.36	1.09	2.71	1.39
E Emission rate (lb/ton of trona)	0.0023	0.0070	0.0175	0.0089
Xylene				
C Concentration (ppmdv)	1.45	1.78	3.42	2.22
E Emission rate (lb/hr)	1.86	2.22	4.00	2.69
E Emission rate (lb/ton of trona)	0.0120	0.0143	0.0258	0.0174

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 are taken from near simultaneous velocity and moisture testing.

SOLVAY2016 6 001595

RESULTS

Table 2-3:
CA 1 & 2 Calciner Stack - Total Non-Methane/Ethane Hydrocarbons

Run No.		1	2	3	Average
Date (1996)		July 26	July 26	July 26	
Start Time (approx.)		14:38	16:55	18:54	
Stop Time (approx.)		15:38	17:55	19:54	
Process Conditions[1]					
	Feed rate (ton of trona/hr)	282	280	278	**280**
Gas Concitions[2]					
T_s	Temperature (°F)	372	373	374	**373**
O_2	Oxygen (dry volume %)	13.8	13.6	13.7	**13.7**
CO_2	Carbon Dioxide (dry volume %)	8.0	8.0	7.9	**8.0**
B_{wo}	Moisture (volume %)	24.93	25.45	25.96	**25.45**
Q_{std}	Standard conditions (dscfm)	152,600	152,300	150,000	**151,633**
Total Hydrocarbons (as propane)					
C	Concentration (ppmdv)	627.8	528.5	481.8	**546.0**
E	Emission rate (lb/hr)	657.8	552.7	496.3	**569.0**
E	Emission rate (lb/ton of trona)	2.33	1.97	1.79	**2.03**
Methane					
C	Concentration (ppmdv)	343.1	331.4	346.4	**340.3**
E	Emission rate (lb/hr)	130.8	126.1	129.8	**128.9**
E	Emission rate (lb/ton of trona)	0.464	0.450	0.467	**0.460**
Ethane					
C	Concentration (ppmdv)	37.4	30.6	35.3	**34.4**
E	Emission rate (lb/hr)	26.7	21.8	24.8	**24.4**
E	Emission rate (lb/ton of trona)	0.095	0.078	0.089	**0.087**
Total Non-Methane/Ethane Hydrocarbons (as propane)					
E	Emission rate (lb/hr)	500.3	404.8	341.8	**415.6**
E	Emission rate (lb/ton of trona)	1.774	1.446	1.229	**1.483**

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

RESULTS

Table 2-4:
CA 1 & 2 Calciner Stack - Volatile Organic Compounds

Run No.		1	2	3	Average
Date (1995)		July 26	July 26	July 26	
Start Time (approx.)		14:38	16:56	18:49	
Stop Time (approx.)		16:32	18:12	20:21	
Process Conditions[1]					
	Feed rate (ton of trona/hr)	282	280	278	280
Gas Conditions[2]					
B_{wo}	Moisture (% by volume)	24.93	25.45	25.96	25.45
Q_{std}	Volumetric flow rate, standard (dscfm)	152,600	152,300	150,000	151,633
1,1,1-Trichloroethane					
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
1,3 Butadiene					
C	Concentration (ppmdv)	19.23	15.10	14.51	16.28
E	Emission rate (lb/hr)	24.72	19.38	18.33	20.81
E	Emission rate (lb/ton of trona)	0.0877	0.0692	0.0659	0.0743
2-Butanone					
C	Concentration (ppmdv)	2.82	2.79	8.70	4.77
E	Emission rate (lb/hr)	4.84	4.77	14.65	8.09
E	Emission rate (lb/ton of trona)	0.0172	0.0170	0.0527	0.0290
Acrylonitrile					
C	Concentration (ppmdv)	1.59	0.48	1.40	1.16
E	Emission rate (lb/hr)	2.00	0.61	1.74	1.45
E	Emission rate (lb/ton of trona)	0.0071	0.0022	0.0063	0.0052
Benzene					
C	Concentration (ppmdv)	7.03	6.55	5.86	6.48
E	Emission rate (lb/hr)	13.05	12.13	10.70	11.96
E	Emission rate (lb/ton of trona)	0.0463	0.0433	0.0385	0.0427
Ethyl Benzene					
C	Concentration (ppmdv)	0.64	0.83	0.96	0.81
E	Emission rate (lb/hr)	1.61	2.09	2.38	2.03
E	Emission rate (lb/ton of trona)	0.0057	0.0075	0.0086	0.0073
Hexane					
C	Concentration (ppmdv)	3.05	2.16	2.26	2.49
E	Emission rate (lb/hr)	6.25	4.41	4.54	5.07
E	Emission rate (lb/ton of trona)	0.0222	0.0158	0.0163	0.0181
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)	0.13	0.89	0.88	0.63
E	Emission rate (lb/hr)	0.33	2.19	2.14	1.55
E	Emission rate (lb/ton of trona)	0.0012	0.0078	0.0077	0.0056
Toluene					
C	Concentration (ppmdv)	2.01	1.94	4.78	2.91
E	Emission rate (lb/hr)	4.40	4.25	10.29	6.31
E	Emission rate (lb/ton of trona)	0.0156	0.0152	0.0370	0.0226
Trichloroethene					
C	Concentration (ppmdv)	2.05	7.57	0.50	3.37
E	Emission rate (lb/hr)	6.41	23.58	1.53	10.50
E	Emission rate (lb/ton of trona)	0.0227	0.0842	0.0055	0.0375
Xylene					
C	Concentration (ppmdv)	2.29	3.31	3.00	2.87
E	Emission rate (lb/hr)	5.78	8.34	7.44	7.19
E	Emission rate (lb/ton of trona)	0.0205	0.0298	0.0267	0.0257

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 are taken from near simultaneous velocity and moisture testing.

OPERATING DATA

F

CALCINER EP-5

NOx and HAPS

7/25/1996

Field	Field Voltage f Maximum	Precip Current (DC ma)
1	59	1300
2	100	1700
3	100	1600
4	101	1700
5	99	1700
6	99	1750

CALCINER LOG SHEET
07-25-96 11:45PM

PM SHIFT INSPECTION CA1&2
AM SHIFT INSPECTION CA1&2 T. WILLIAMS

PM SHIFT INSPECTION CA3 _____
AM SHIFT INSPECTION CA3 _____

	1AM	3AM	5AM	7AM	9AM	11AM	1PM	3PM	5PM	7PM	9PM	11PM
A CALCINER TONS PER HOUR	136.	136.	131.	130.	127.	127.	125.	125.	124.	128.	138.	137.
A RAKE OVERFLOW TEMPERATURE	156.0	156.0	164.0	164.0	156.0	156.0	156.0	156.0	166.0	166.0	160.0	164.0
A CLASS. OVERFLOW SPECIFIC GRAVITY	1306.	1306.	1318.	1318.	1302.	1302.	1310.	1304.	1312.	1316.	1312.	1284.
A CALCINER ORE SPILL TEMP	284.	282.	284.	289.	284.	305.	317.	323.	279.	292.	276.	282.
B CALCINER TONS PER HOUR	94.9	95.0	90.1	90.1	85.8	90.1	100.	110.	120.	130.	140.	94.8
B RAKE OVERFLOW TEMPERATURE	156.0	156.0	164.0	164.0	164.0	164.0	160.0	160.0	166.0	166.0	160.0	164.0
B CLASS. OVERFLOW SPECIFIC GRAVITY	1304.	1304.	1318.	1318.	1320.	1320.	1300.	1304.	1312.	1322.	1306.	1288.
B CALCINER ORE SPILL TEMP	303.	305.	300.	290.	337.	271.	312.	279.	285.	288.	285.	316.
							#1	#2	#3			
C CALCINER TONS PER HOUR	130.	130.	130.	130.	157.	153.	154.	154.	154.	156.	154.	130.
C RAKE OVERFLOW TEMPERATURE	162.0	162.0	168.0	168.0	166.0	166.0	166.0	170.0	170.0	170.0	170.0	164.0
C CLASS. OVERFLOW SPECIFIC GRAVITY	1300.	1300.	1310.	1310.	1300.	1300.	1294.	1314.	1312.	1312.	1296.	1290.
C CALCINER ORE SPILL TEMP	314.	303.	302.	305.	360.	300.	314.	314.	286.	305.	305.	302.
CL-3 RAKE O/F SPEC. GRAVITY	1052.	1052.	1070.	1070.	1080.	1080.	1074.	1074.	1098.	1098.	1090.	1122.
CL-5 RAKE O/F SPEC. GRAVITY	1064.	1064.	1082.	1082.	1130.	1130.	1090.	1090.	1136.	1136.	1136.	1140.
WEAK LIQUOR SPECIFIC GRAVITY	1050.	1050.	1050.	1050.	1058.	1058.	1080.	1080.	1080.	1060.	1050.	1038.
CA1 PRI. LIQ.	299.	286.	286.	288.	267.	258.	254.	227.	236.	232.	244.	300.
CA2 PRI. LIQ.	209.	211.	209.	209.	230.	240.	281.	281.	278.	349.	351.	220.
SEC. LIQ	1000	1001	1003	1001	1001	1001	1001	1098	1211	1401	1400	1001

[illegible]AS TOT	2395.96
[illegible] TOT	413.49
[illegible]OT	2942.88

#1 12:00 - 13:00
#2 13:30 - 14:30
#3 15:00 - 16:00

SOLVAY2016_6

GROUP 160 ROTARY CALCINER (BURNER)

06:00	-2.0	129.8	????????	162.231	303.5	????????	447.53	5.603	
07:00	-2.0	129.8	????????	164.720	300.4	????????	448.31	5.686	
08:00	-1.9	129.2	????????	166.781	300.6	????????	456.10	5.757	
09:00	-2.0	131.0	????????	168.632	301.5	????????	460.51	5.824	
10:00	-2.0	149.1	????????	160.165	349.4	????????	486.39	5.544	71.7
11:00	-1.9	155.0	????????	163.637	396.7	????????	493.72	5.637	71.6
12:00	-2.1	154.9	????????	158.242	328.5	????????	460.87	5.479	71.6
13:00	-2.0	155.1	????????	161.011	302.4	????????	449.68	5.561	71.6
14:00	-2.0	155.1	????????	159.173	308.9	????????	453.67	5.509	71.5
15:00	-2.0	155.1	????????	156.441	310.8	????????	448.81	5.410	71.6

Run #1 12:00-13:00
Run #2 13:30-14:30
Run #3 15:00-16:00

	PCCA3A IN WATER VACUUM	WCBS8 TONS/hr TRONA	FCCA3AB * CENTER	FCCA3AA MAIN GAS CALCINER	TCDC5 HP DEG F PRODUCT	CA3_CONT RL_SWICH	TCCA3B DEG. F OFFGAS	FCCA3B COMB.
SP	-2.0	155.0	70.0*	144.694	305.0		392.00*	5.017

CA-3 Center

SOLVAY2016_6_001602

CALCINER EP-5

Formaldehyde Test

7/24/1996

Field	Field Voltage % of Maximum	Precip Current (DC ma)
1	55	1250
2	100	1700
3	100	1600
4	101	1700
5	99	1700
6	99	1750

CALCINER EP-1/2

Formaldehyde and HAPS

7/26/1996

Field	Volts	Precip Current (DC ma)
1A	311	324
1B	379	1383
1C	369	1403
1D	371	1407
1E	321	1411
1F	451	1407
2A	151	7
2B	444	1264
2C	452	1399
2D	441	1403
2E	447	1403
2F	434	1403

CALCINER LOG SHEET
07-26-96 11:45PM

PM SHIFT INSPECTION CA1&2
AM SHIFT INSPECTION CA1&2 T. WILLIAMS

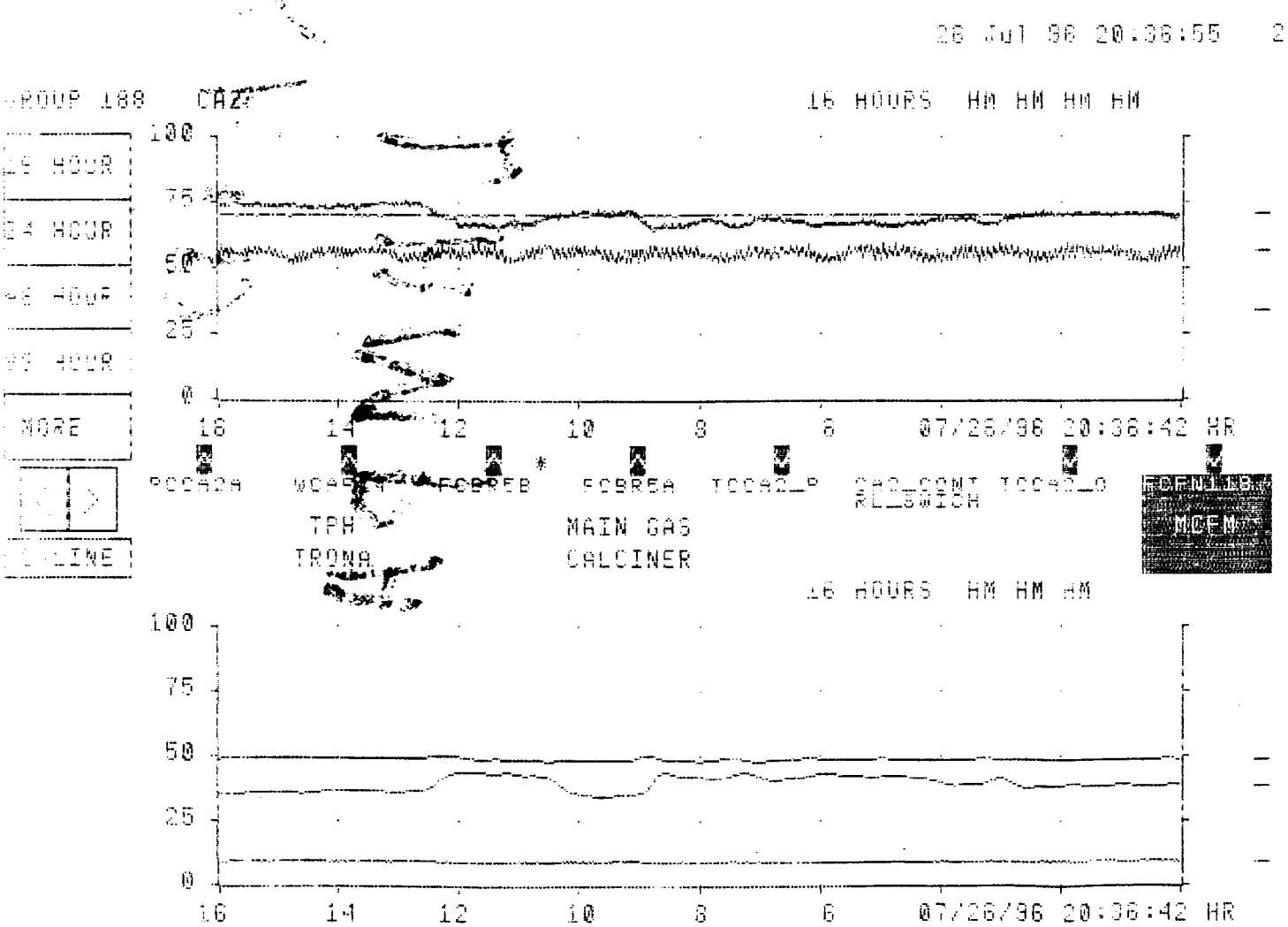
PM SHIFT INSPECTION CA3
AM SHIFT INSPECTION CA3

	1AM	3AM	5AM	7AM	9AM	11AM	1PM	3PM	5PM	7PM	9PM	11PM
A CALCINER TONS PER HOUR	139.	141.	139.	138.	140.	139.	140.	142.	140.	138.	146.	136.
A RAKE OVERFLOW TEMPERATURE	180.0	180.0	176.0	176.0	176.0	182.0	182.0	182.0	162.0	162.0	162.0	180.0
A CLASS. OVERFLOW SPECIFIC GRAVITY	1300.	1300.	1310.	1302.	1302.	1328.	1328.	1290.	1300.	1300.	1300.	1320.
A CALCINER ORE SPILL TEMP	309.	297.	299.	355.	218.	345.	344.	304.	322.	336.	301.	285.
B CALCINER TONS PER HOUR	140.	140.	140.	140.	140.	140.	140.	140.	140.	140.	140.	140.
B RAKE OVERFLOW TEMPERATURE	180.0	180.0	176.0	176.0	176.0	182.0	182.0	182.0	162.0	162.0	162.0	180.0
B CLASS. OVERFLOW SPECIFIC GRAVITY	1310.	1310.	1308.	1306.	1306.	1310.	1310.	1290.	1310.	1310.	1310.	1312.
B CALCINER ORE SPILL TEMP	274.	282.	292.	348.	278.	329.	343.	309.	311.	312.	306.	284.
C CALCINER TONS PER HOUR	153.	153.	155.	0.0	0.0	153.	0.0	14.9	114.	117.	117.	158.
C RAKE OVERFLOW TEMPERATURE	186.0	186.0	182.0	182.0	182.0	180.0	180.0	180.0	180.0	180.0	176.0	188.0
C CLASS. OVERFLOW SPECIFIC GRAVITY	1302.	1302.	1306.	1306.	1306.	1290.	1290.	1290.	1290.	1310.	1316.	1318.
C CALCINER ORE SPILL TEMP	306.	308.	317.	124.	113.	311.	296.	336.	255.	323.	316.	315.
CL-3 RAKE O/F SPEC. GRAVITY	1060.	1060.	1064.	1070.	1070.	1110.	1110.	1110.	1110.	1110.	1060.	1090.
CL-5 RAKE O/F SPEC. GRAVITY	1074.	1074.	1074.	1074.	1074.	1074.	1070.	1070.	1070.	1070.	1130.	1136.
WEAK LIQUOR SPECIFIC GRAVITY	142.0	142.0	1050.	1050.	1050.	1062.	1062.	1062.	1062.	1062.	1062.	1050.
1 PRI. LIQ.	246.	250.	247.	218.	218.	216.	302.	300.	295.	309.	296.	246.
PRI. LIQ.	351.	349.	351.	341.	341.	338.	337.	341.	344.	341.	341.	349.
LIQ	1402	1400	1400	1336	1347	1337	1400	1399	1305	1299	1298	1400

TOT 3115.96
TOT 2770.63
TOT 3735.61

#1 14:00 - 15:45
#2 16:20 - 18:10
#3 18:25 - 20:10

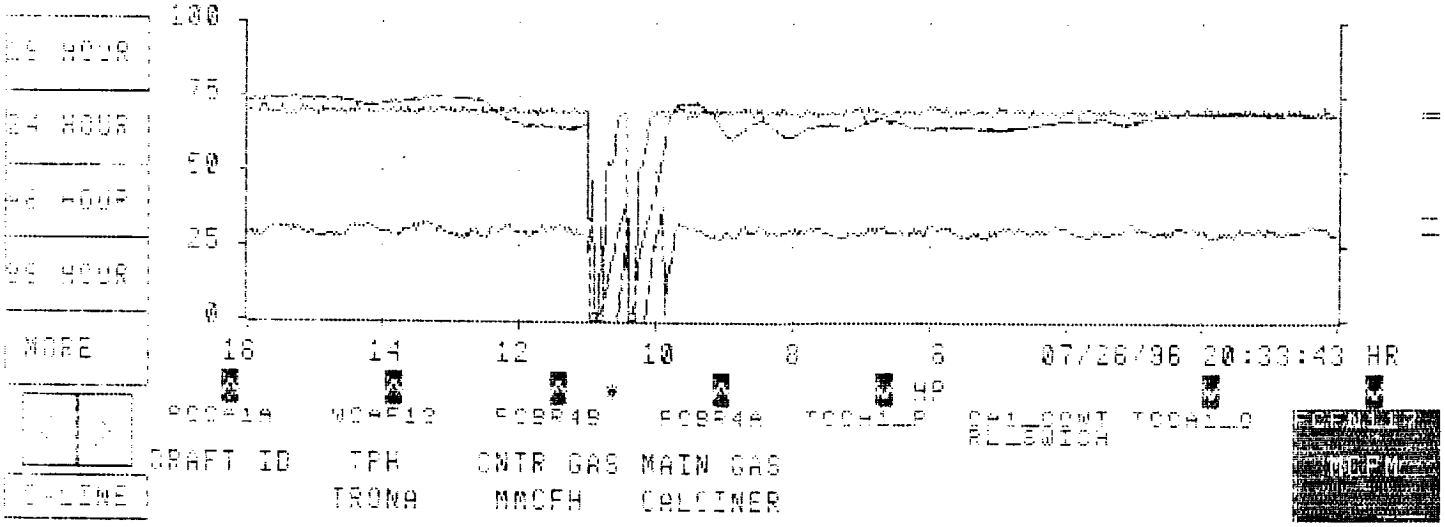
SO 6_001604


26 Jul 96 20:36:55 2
GROUP 188 CA2
16 HOURS HM HM HM HM
16 HOUR
24 HOUR
48 HOUR
96 HOUR
MORE
LINE
100
75
50
25
0
16
14
12
10
8
6
07/26/96 20:36:42 HR
PCCA2A
FCBREB
FCBREA
TCCA2_P
CA2_CONT
RL_SWICH
TCCA2_O
FCFN118
MCFM
TPH
TRONA
MAIN GAS
CALCINER
16 HOURS HM HM HM
100
75
50
25
0
16
14
12
10
8
6
07/26/96 20:36:42 HR

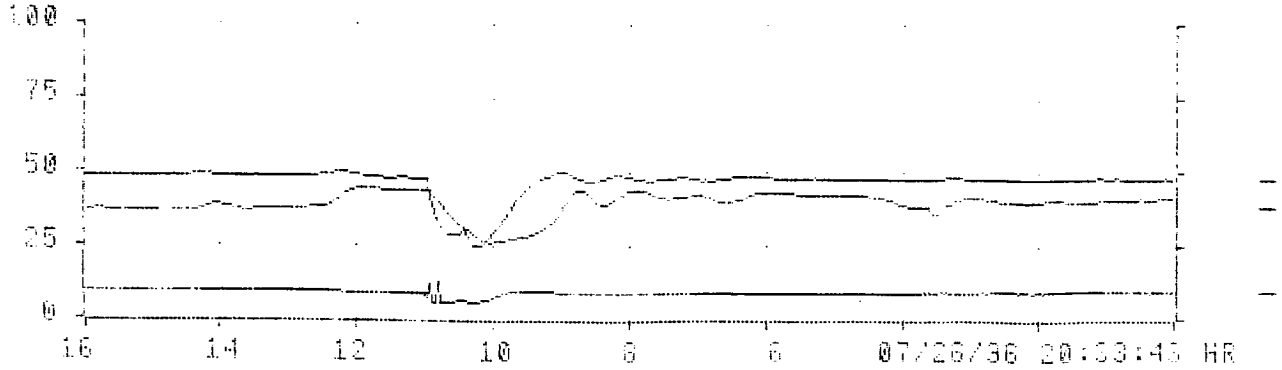
26 Jul 96 20:34:11 2

GROUP 183 CH1

16 HOURS HM HM HM HM



16 HOURS HM HM HM



SOLVAY2016_6_001606

GROUP 183 CH1

11:00	-3.59	116.2	86.03	86.032	224.6	????????	251.2	2.73
12:00	-2.03	140.1	138.21	138.233	287.6	????????	382.6	4.44
13:00	-1.53	139.9	132.50	132.490	334.0	????????	382.6	4.23
14:00	-2.04	140.0	135.74	135.728	323.3	????????	381.5	4.34
15:00	-1.98	140.2	133.82	133.768	338.6	????????	384.8	4.26
16:00	-2.03	140.0	132.64	132.641	336.8	????????	383.0	4.25
17:00	-1.99	140.0	137.30	137.288	315.6	????????	381.3	4.38
18:00	-1.99	139.9	138.73	138.681	321.2	????????	382.1	4.44
19:00	-2.02	140.3	143.12	143.037	320.0	????????	382.1	4.56
20:00	-2.00	140.2	143.33	143.348	323.0	????????	383.3	4.59

	PCCA1A	WCAF13	FCBR4B *	FCBR4A	TCCA1_P HP	CA1_CONTROL_SWICH	TCCA1_0	FCFN117
	DRAFT ID	TPH TRONA	CNTR GAS MMCFH	MAIN GAS CALCINER				MCFM
SP	-2.00	140.0	70.00*	141.483	305.0*		383.0	4.54
PV	-1.76	139.4	141.79	141.809	331.8		383.8	4.47
OPX	65.6	44.8	88.0	37.4	0.0	35.5	70.7	59.8
	AUTO	AUTO	MAN	CAS	MAN	CAS	AUTO	CAS

--200P 188 CH2

11:00	-2.3	139.5	145.5	145.630	288.0	????????	386.6	4.36
12:00	-2.4	139.9	143.3	143.397	293.1	????????	392.4	4.40
13:00	-2.4	140.0	136.5	136.804	336.6	????????	388.0	4.16
14:00	-2.4	140.0	133.5	133.445	336.7	????????	386.5	4.26
15:00	-2.4	140.0	138.5	138.498	338.3	????????	390.2	4.22
16:00	-2.3	140.0	136.0	136.008	335.3	????????	388.3	4.20
17:00	-2.4	140.0	141.4	141.322	321.6	????????	387.5	4.32
18:00	-2.3	140.0	141.5	141.533	316.5	????????	388.6	4.22
19:00	-2.4	140.0	145.5	145.368	305.6	????????	388.4	4.44
20:00	-2.4	140.0	145.7	145.719	308.1	????????	389.0	4.39

	PCCA2A	WCAF14	FCBR5B *	FCBR5A	TCCA2_P	CA2_CONT SWITCH	TCCA2_O	FCFN118
		TPH TRONA		MAIN GAS CALCINER				MCFM
P	-2.4	140.0	70.0*	145.035	305.0*		389.0	4.39
[illegible]	-2.2	140.0	144.5	144.407	313.3		387.7	4.18
[illegible]	42.6	41.6	70.0	26.6	0.0	36.3	72.6	48.5
	AUTO	AUTO	MAN	GAS	MAN	GAS	AUTO	GAS

CA2_CONTRL-- SWITCH OFFGAS OR PRODUCT
SWICH

SELKINP
SELECTW2

CALCINER LOG SHEET
07-24-96 11:45PM

PM SHIFT INSPECTION CA1&2
AM SHIFT INSPECTION CA1&2 T. WILLIAMS

PM SHIFT INSPECTION CA3
AM SHIFT INSPECTION CA3

	1AM	3AM	5AM	7AM	9AM	11AM	1PM	3PM	5PM	7PM	9PM	11PM
A CALCINER TONS PER HOUR	128.	0.0	0.0	0.0	130.	130.	132.	132.	132.	131.	131.	124.
A RAKE OVERFLOW TEMPERATURE	176.0	176.0	176.0	176.0	176.0	176.0	178.0	180.0	180.0	180.0	180.0	176.0
A CLASS. OVERFLOW SPECIFIC GRAVITY	1310.	1310.	1310.	1310.	1310.	1310.	1320.	1316.	1316.	1316.	1316.	1318.
A CALCINER ORE SPILL TEMP	292.	220.	138.	158.	272.	273.	313.	310.	304.	309.	287.	288.
B CALCINER TONS PER HOUR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.0	0.0
B RAKE OVERFLOW TEMPERATURE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
B CLASS. OVERFLOW SPECIFIC GRAVITY	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1316.	0.000	0.000	0.000	0.000
B CALCINER ORE SPILL TEMP	105.	111.	107.	106.	106.	108.	106.	104.	108.	104.	323.	92.6
							12:40 #1 - 14:50	15:10 #2 - 17:20	17:35 - 19:45 #3			
C CALCINER TONS PER HOUR	99.9	101.	112.	114.	115.	120.	121.	118.	122.	118.	130.	104.
C RAKE OVERFLOW TEMPERATURE	190.0	190.0	190.0	190.0	190.0	190.0	180.0	188.0	188.0	188.0	178.0	182.0
C CLASS. OVERFLOW SPECIFIC GRAVITY	1320.	1320.	1270.	1318.	1318.	1318.	1310.	1314.	1314.	1314.	1302.	1302.
C CALCINER ORE SPILL TEMP	306.	333.	266.	295.	299.	295.	325.	299.	300.	296.	278.	300.
CL-3 RAKE O/F SPEC. GRAVITY	1112.	1112.	1112.	1112.	1112.	1112.	1128.	1122.	1122.	1122.	1122.	1112.
CL-3 RAKE O/F SPEC. GRAVITY	1052.	1052.	1052.	1052.	1052.	1052.	1118.	1140.	1140.	1140.	1140.	1052.
WEAK LIQUOR SPECIFIC GRAVITY	1060.	1060.	1060.	1060.	1060.	1060.	1072.	1074.	1074.	1074.	1074.	1060.
CA1 PRI. LIQ.	281.	29.9	23.1	61.3	279.	281.	302.	299.	303.	295.	306.	275.
CA2 PRI. LIQ.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.1	202.	36.5
SEC LIQ	561.	78.4	47.1	198.	560.	592.	623.	666.	658.	658.	1000	560.

CA1 GAS TOT 2394.33
CA2 GAS TOT 922.88
CA3 GAS TOT 2144.22

SOLVAY2016-6_001609