Clean Air Engineering

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REPORT ON HAPS TESTING

Performed for:

SOLVAY MINERALS, INC.
EP 1&2 AND EP-5 CALCINER STACKS
GREEN RIVER, WYOMING

Client Reference No: C02608
CAE Project No: 7629-2
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To the best of our knowledge, the data presented in this report are accurate and complete.

Submitted by,

Michael Pierce
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Reviewed by,

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Project Overview

SOLVAY2016_6_001102

PROJECT OVERVIEW

Solvay Minerals contracted Clean Air Engineering to perform an air emissions test program at gas fired calciners EP 1&2, AQD No. 17 and at gas fired calciner EP-5, AQD No. 48. The purpose of the test program was to quantify total non-methane hydrocarbons, specific organic compounds, aldehydes and ketones in the exhaust gas of the calciners. EPA Methods performed were 1-4, 18, 25A and BIF (Boilers and Industrial Furnaces) Method 0011.

Four analyses were performed for each Method 18 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.

Because of poor instrument response and unusual peak shapes, a separate, independent calibration and detection limit was performed for 2-butanone and acrylonitrile. Method 18 detection limits can be found in Appendix F, Field Data Print Outs.

Due to the number of sampling probes operating concurrently, the BIF 0011 train at the EP 1&2 Stack was sampled in three of the four ports.

BIF 0011 results show acrolein was biased high by contribution from acetone on runs 2 and 3 for both Calciners EP 1&2 and EP-5. This is because acetone cannot be resolved from the major acrolein peak. An estimated high bias of approximately 250 µg is based on acetone field blank levels. Therefore, the acetone blank value was used to calculate the acrolein concentration.

The testing took place at the EP 1&2 Calciner Stack on December 14, 1995 and at the EP-5 Calciner Stack on December 15, 1995.

Coordinating the field testing were:

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

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

PROJECT OVERVIEW

Table 1-1:
EP 1 & 2 Calciner Profile

Unit Identification Number	AQD No. 17, EP 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

Table 1-2:
EP-5 Calciner Profile

Unit Identification Number	AD No. 48, EP-5
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 5.5
Diameters to Downstream Disturbance	Approximately 9.0
Primary Control Equipment	Flakt ESP

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

SOLVAY2015_5_001104

PROJECT OVERVIEW

Table 1-3:
Compound (CAS) Numbers

Compound Name	Molecular Weight	CAS No.
Acrylonitrile	53.06	107-13-1
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
Acetaldehyde	44.05	75-07-0
Acetone	58.08	67-64-1
Acrolein	56.06	107-02-8
Benzene	78.11	71-43-2
Ethylbenzene	106.17	100-41-4
Formaldehyde	30.03	50-00-0
Hexane	86.18	110-54-3
Methane	16.04	74-82-8
Methylene Chloride	84.94	75-09-2
Propionaldehyde	58.08	123-38-6
Toluene	92.14	108-88-3
Trichloroethene	131.40	79-01-6
THCs (as propane)	44.09	74-98-6
Styrene	104.14	100-42-5
Xylene	106.16	1330-20-7

A summary of test results is shown in Table 1-4.

PROJECT OVERVIEW

Table 1-4:
Summary of Test Results

Source Constituent	Sampling Method	Average Emission (ppmdv)	Average Emission (lb/hr)	Average Emission (lb/ton of trona)
EP 1&2 Calciner Stack (300 tons/hr feed rate)				
Total Hydrocarbons (propane)	EPA M 25A	549.7	621.2	2.071
Total Non-Methane Hydrocarbons (propane)		--	173.5	0.578
Organic Compounds	EPA M 18			
1,1,1-Trichloroethane		0.96	3.28	0.0109
Benzene		3.60	7.21	0.0240
Ethyl Benzene		0.08	0.20	0.0007
Hexane		2.13	4.71	0.0157
Methane		1089.7	447.7	1.4920
Methylene Chloride		0.17	0.37	0.0012
Styrene		1.05	2.82	0.0094
Toluene		1.27	3.00	0.0100
Trichloroethene		0.15	0.49	0.0016
Xylene		0.61	1.68	0.0056
Aldehydes & Ketones	BIF 0011			
Formaldehyde		0.28	0.22	0.0007
Acetaldehyde		0.02	0.03	0.0001
Propionaldehyde		0.01	0.01	0.0000
Acrolein		0.24	0.35	0.0012
EP-5 Calciner Stack (145 tons/hr feed rate)				
Total Hydrocarbons (propane)	EPA M 25A	298.4	103.8	0.716
Total Non-Methane Hydrocarbons (propane)		--	75.4	0.520
Organic Compounds	EPA M 18			
1,1,1-Trichloroethane		2.15	2.26	0.0156
Benzene		7.88	4.85	0.0335
Ethyl Benzene		0.17	0.14	0.0010
Hexane		3.19	2.17	0.0150
Methane		224.2	28.4	0.1960
Methylene Chloride		0.77	0.52	0.0036
Styrene		2.06	1.69	0.0117
Toluene		2.67	1.94	0.0134
Trichloroethene		0.38	0.40	0.0027
Xylene		1.32	1.11	0.0076
Aldehydes & Ketones	BIF 0011			
Formaldehyde		0.05	0.01	0.0001
Acetaldehyde		0.18	0.06	0.0004
Propionaldehyde		0.05	0.02	0.0001
Acrolein		0.42	0.19	0.0013

The test conditions and results of analysis are presented in Tables 2-1 through 2-6 on pages 2-1 through 2-6.

SOLVAY2015_5_001106

Results

SOLVAY2016_6_001107

RESULTS

Table 2-1:
EP 1&2 Calciner Stack - Total Non-Methane Hydrocarbons

Run No.		1	2	3	Average
Date (1995)		December 14	December 14	December 14	
Start Time (approx.)		10:00	12:32	14:43	
Stop Time (approx.)		11:00	13:32	15:43	
Process Conditions[1]					
	Feed rate (tons/hr of trona)	300	300	300	**300**
Gas Conditions[2]					
O_2	Oxygen (dry volume %)	13.5	13.6	13.6	**13.6**
CO_2	Carbon dioxide (dry volume %)	8.4	8.3	8.1	**8.3**
B_{wo}	Moisture (volume %)	25.09	24.88	24.54	**24.84**
Q_{std}	Standard conditions (dscfm)	161,700	166,300	165,400	**164,467**
Total Hydrocarbons (as propane)					
C	Concentration (ppmdv)	504.0	517.6	627.7	**549.7**
E	Emission rate (lb/hr)	559.6	591.1	712.9	**621.2**
E	Emission rate (lb/ton of trona)	1.865	1.970	2.376	**2.071**
Methane					
C	Concentration (ppmdv)	1089.1	1063.7	1116.3	**1089.7**
E	Emission rate (lb/hr)	439.9	441.9	461.2	**447.7**
E	Emission rate (lb/ton of trona)	1.466	1.473	1.537	**1.492**
Total Non-Methane Hydrocarbons (as propane)					
E	Emission rate (lb/hr)	119.7	149.2	251.6	**173.5**
E	Emission rate (lb/ton of trona)	0.399	0.497	0.839	**0.578**

[1] Feed rate provided by Solvay Minerals, Inc.
[2] Gas conditions are taken from near simultaneous BIF 0011 formaldehyde test.

SOLVAY2016_S_001108

RESULTS

Table 2-2:
EP 1&2 Calciner Stack - Volatile Organic Compounds

Run No.		1	2	3	Average
Date (1995)		December 14	December 14	December 14	
Start Time (approx.)		09:53	12:17	14:29	
Stop Time (approx.)		11:13	13:35	15:50	
Process Conditions[1]					
	Feed rate(ton of trona/hr)	300	300	300	**300**
Gas Conditions[2]					
B_{wo}	Moisture (% by volume)	25.09	24.88	24.54	**24.84**
Q_{std}	Volumetric flow rate, standard (dscfm)	167,700	166,300	165,400	**164,467**
1,1,1-Trichloroethane					
C	Concentration (ppmdv)	0.73	BDL	2.15	**0.96**
E	Emission rate (lb/hr)	2.47	BDL	7.38	**3.28**
E	Emission rate (lb/ton of trona)	0.0082	BDL	0.0246	**0.0109**
1,3 Butadiene					
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**
2-Butanone					
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**
Acrylonitrile					
C	Concentration (ppmdv)	BDL	BDL	BDL	**BDL**
E	Emission rate (lb/hr)	BDL	BDL	BDL	**BDL**
E	Emission rate (lb/ton of trona)	BDL	BDL	BDL	**BDL**
Benzene					
C	Concentration (ppmdv)	3.15	2.62	5.04	**3.60**
E	Emission rate (lb/hr)	6.20	5.30	10.13	**7.21**
E	Emission rate (lb/ton of trona)	0.0207	0.0177	0.0338	**0.0240**
Ethyl Benzene					
C	Concentration (ppmdv)	0.03	BDL	0.20	**0.08**
E	Emission rate (lb/hr)	0.07	BDL	0.54	**0.20**
E	Emission rate (lb/ton of trona)	0.0002	BDL	0.0018	**0.0007**
Hexane					
C	Concentration (ppmdv)	1.64	1.53	3.22	**2.13**
E	Emission rate (lb/hr)	3.56	3.42	7.15	**4.71**
E	Emission rate (lb/ton of trona)	0.0119	0.0114	0.0238	**0.0157**
Methylene Chloride					
C	Concentration (ppmdv)	0.52	BDL	BDL	**0.17**
E	Emission rate (lb/hr)	1.11	BDL	BDL	**0.37**
E	Emission rate (lb/ton of trona)	0.0037	BDL	BDL	**0.0012**
Styrene					
C	Concentration (ppmdv)	0.67	0.60	1.90	**1.05**
E	Emission rate (lb/hr)	1.75	1.62	5.08	**2.82**
E	Emission rate (lb/ton of trona)	0.0058	0.0054	0.0169	**0.0094**
Toluene					
C	Concentration (ppmdv)	1.07	0.96	1.79	**1.27**
E	Emission rate (lb/hr)	2.48	2.29	4.25	**3.00**
E	Emission rate (lb/ton of trona)	0.0083	0.0076	0.0142	**0.0100**
Trichloroethene					
C	Concentration (ppmdv)	BDL	BDL	0.44	**0.15**
E	Emission rate (lb/hr)	BDL	BDL	1.48	**0.49**
E	Emission rate (lb/ton of trona)	BDL	BDL	0.0049	**0.0016**
Xylene					
C	Concentration (ppmdv)	0.25	0.23	1.34	**0.61**
E	Emission rate (lb/hr)	0.68	0.70	3.66	**1.68**
E	Emission rate (lb/ton of trona)	0.0023	0.0023	0.0122	**0.0056**

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 BIF 0011 formaldehyde test.

RESULTS

Table 2-3:
EP 1&2 Calciner Stack - Aldehydes and Ketones

Run No.		1	2	3	Average
Date (1995)		December 14	December 14	December 14	
Start Time (approx.)		09:41	12:10	14:22	
Stop Time (approx.)		11:28	13:55	16:06	
Process Conditions					
	Feed Rate (tons/hr)[1]	300	300	300	**300**
Gas Conditions					
T_s	Temperature (°F)	380	374	380	**378**
B_{wc}	Moisture (volume %)	25.09	24.88	24.54	**24.84**
O_2	Oxygen (dry volume %)	13.5	13.6	13.6	**13.6**
CO_2	Carbon dioxide (dry volume %)	8.4	8.3	8.1	**8.3**
Volumetric Flow Rate					
Q_a	Actual conditions (acfm)	430,500	438,300	436,900	**435,200**
Q_{std}	Standard conditions (dscfm)	161,700	166,300	165,400	**164,500**
Formaldehyde					
C	Concentration (lb/dscf)	4.82E-08	4.76E-09	1.33E-08	**2.21E-08**
C	Concentration (µg/dscm)	7.71E+02	7.63E+01	2.14E+02	**3.54E+02**
C	Concentration (ppmdv)	0.62	0.06	0.17	**0.28**
E	Emission rate (lb/hr)	0.47	0.05	0.13	**0.22**
E	Emission rate (lb/ton of trona)	0.0016	0.0002	0.0004	**0.0007**
Acetaldehyde					
C	Concentration (lb/dscf)	1.07E-09	1.70E-09	5.74E-09	**2.83E-09**
C	Concentration (µg/dscm)	1.72E+01	2.72E+01	9.19E+01	**4.54E+01**
C	Concentration (ppmdv)	0.01	0.01	0.05	**0.02**
E	Emission rate (lb/hr)	0.01	0.02	0.06	**0.03**
E	Emission rate (lb/ton of trona)	0.0000	0.0001	0.0002	**0.0001**
Propionaldehyde					
C	Concentration (lb/dscf)	BDL	BDL	4.47E-09	**1.49E-09**
C	Concentration (µg/dscm)	BDL	BDL	7.17E+01	**2.39E+01**
C	Concentration (ppmdv)	BDL	BDL	0.03	**0.01**
E	Emission rate (lb/hr)	BDL	BDL	0.04	**0.01**
E	Emission rate (lb/ton of trona)	BDL	BDL	0.0001	**0.0000**
Acrolein					
C	Concentration (lb/dscf)	1.61E-08	1.86E-08	7.12E-08	**3.53E-08**
C	Concentration (µg/dscm)	2.58E+02	2.97E+02	1.14E+03	**5.65E+02**
C	Concentration (ppmdv)	0.11	0.13	0.49	**0.24**
E	Emission rate (lb/hr)	0.16	0.19	0.71	**0.35**
E	Emission rate (lb/ton of trona)	0.0005	0.0006	0.0024	**0.0012**
Acetone					
C	Concentration (lb/dscf)	BDL	BDL	BDL	**BDL**
C	Concentration (µg/dscm)	BDL	BDL	BDL	**BDL**
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**
2-Butanone					
C	Concentration (lb/dscf)	BDL	BDL	BDL	**BDL**
C	Concentration (µg/dscm)	BDL	BDL	BDL	**BDL**
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**

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.

SOLVAY2015_5_001110

RESULTS

Table 2-4:
EP-5 Calciner Stack - Total Non-Methane Hydrocarbons

Run No.		1	2	3	Average
Date (1995)		December 15	December 15	December 15	
Start Time (approx.)		08:37	11:00	13:05	
Stop Time (approx.)		09:37	12:00	14:05	
Process Conditions[1]					
	Feed rate (tons/hr of trona)	145	145	145	**145**
Gas Conditions[2]					
O_2	Oxygen (dry volume %)	8.4	9.0	8.8	**8.7**
CO_2	Carbon dioxide (dry volume %)	14.6	14.2	14.2	**14.3**
B_{wo}	Moisture (volume %)	35.58	35.98	35.86	**35.81**
Q_{std}	Standard conditions (dscfm)	50,830	50,130	51,170	**50,710**
Total Hydrocarbons (as propane)					
C	Concentration (ppmdv)	334.1	316.4	244.6	**298.4**
E	Emission rate (lb/hr)	116.6	108.9	86.0	**103.8**
E	Emission rate (lb/ton of trona)	0.804	0.751	0.593	**0.716**
Methane					
C	Concentration (ppmdv)	236.8	236.2	199.8	**224.2**
E	Emission rate (lb/hr)	30.1	29.6	25.5	**28.4**
E	Emission rate (lb/ton of trona)	0.207	0.204	0.176	**0.196**
Total Non-Methane Hydrocarbons (as propane)					
E	Emission rate (lb/hr)	86.6	79.3	60.4	**75.4**
E	Emission rate (lb/ton of trona)	0.597	0.547	0.417	**0.520**

[1] Feed rate provided by Solvay Minerals. inc.
[2] Gas conditions are taken from near simultaneous BIF 0011 formaldehyde test.

SOLVAY2014_0_001111

RESULTS

Table 2-5:
EP-5 Calciner Stack - Volatile Organic Compounds

Run No.		1	2	3	Average
Date (1995)		December 15	December 15	December 15	
Start Time (approx.)		08:28	10:49	13:00	
Stop Time (approx.)		09:46	12:07	13:22	
Process Conditions[1]					
	Feed rate(ton of trona/hr)	145	145	145	**145**
Gas Conditions[2]					
B_{wo}	Moisture (% by volume)	35.58	35.98	35.86	**35.81**
Q_{stc}	Volumetric flow rate, standard (dscfm)	50,830	50,130	51,170	**50,710**
1,1,1-Trichloroethane					
C	Concentration (ppmdv)	1.71	2.59	2.15	**2.15**
E	Emission rate (lb/hr)	1.80	2.70	2.29	**2.26**
E	Emission rate (lb/ton of trona)	0.0124	0.0186	0.0158	**0.0156**
1,3 Butadiene					
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**
2-Butanone					
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**
Acrylonitrile					
C	Concentration (ppmdv)	BDL	BDL	BDL	**BDL**
E	Emission rate (lb/hr)	BDL	BDL	BDL	**BDL**
E	Emission rate (lb/ton of trona)	BDL	BDL	BDL	**BDL**
Benzene					
C	Concentration (ppmdv)	8.82	8.34	6.47	**7.88**
E	Emission rate (lb/hr)	5.45	5.09	4.03	**4.85**
E	Emission rate (lb/ton of trona)	0.0376	0.0351	0.0278	**0.0335**
Ethyl Benzene					
C	Concentration (ppmdv)	0.22	0.17	0.12	**0.17**
E	Emission rate (lb/hr)	0.18	0.14	0.11	**0.14**
E	Emission rate (lb/ton of trona)	0.0013	0.0010	0.0007	**0.0010**
Hexane					
C	Concentration (ppmdv)	3.52	3.42	2.62	**3.19**
E	Emission rate (lb/hr)	2.40	2.30	1.80	**2.17**
E	Emission rate (lb/ton of trona)	0.0166	0.0159	0.0124	**0.0150**
Methylene Chloride					
C	Concentration (ppmdv)	1.83	0.48	BDL	**0.77**
E	Emission rate (lb/hr)	1.23	0.32	BDL	**0.52**
E	Emission rate (lb/ton of trona)	0.0085	0.0022	BDL	**0.0036**
Styrene					
C	Concentration (ppmdv)	2.03	2.37	1.76	**2.06**
E	Emission rate (lb/hr)	1.68	1.93	1.46	**1.69**
E	Emission rate (lb/ton of trona)	0.0116	0.0133	0.0101	**0.0117**
Toluene					
C	Concentration (ppmdv)	2.87	2.97	2.18	**2.67**
E	Emission rate (lb/hr)	2.09	2.13	1.60	**1.94**
E	Emission rate (lb/ton of trona)	0.0144	0.0147	0.0111	**0.0134**
Trichloroethene					
C	Concentration (ppmdv)	0.53	0.47	0.16	**0.38**
E	Emission rate (lb/hr)	0.55	0.48	0.16	**0.40**
E	Emission rate (lb/ton of trona)	0.0038	0.0033	0.0011	**0.0027**
Xylene					
C	Concentration (ppmdv)	1.96	1.20	0.81	**1.32**
E	Emission rate (lb/hr)	1.64	1.00	0.69	**1.11**
E	Emission rate (lb/ton of trona)	0.0113	0.0069	0.0047	**0.0076**

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 BIF 0011 formaldehyde test.

RESULTS

Table 2-6:
EP-5 Calciner Stack - Aldehydes and Ketones

Run No.		1	2	3	Average
Date (1995)		December 15	December 15	December 15	
Start Time (approx.)		08:26	10:47	12:57	
Stop Time (approx.)		10:11	12:30	14:40	
Process Conditions					
	Feed Rate (tons/hr)[1]	145	145	145	**145**
Gas Conditions					
T_s	Temperature (°F)	315	315	317	**315**
B_{wo}	Moisture (volume %)	35.58	35.98	35.86	**35.81**
O_2	Oxygen (dry volume %)	8.4	9.0	8.8	**8.7**
CO_2	Carbon dioxide (dry volume %)	14.6	14.2	14.2	**14.3**
Volumetric Flow Rate					
Q_a	Actual conditions (acfm)	144,500	143,400	146,400	**144,767**
Q_{std}	Standard conditions (dscfm)	50,830	50,130	51,170	**50,710**
Formaldehyde					
C	Concentration (lb/dscf)	3.99E-09	5.59E-09	2.97E-09	**4.19E-09**
C	Concentration (µg/dscm)	6.39E+01	8.96E+01	4.76E+01	**6.70E+01**
C	Concentration (ppmdv)	0.05	0.07	0.04	**0.05**
E	Emission rate (lb/hr)	0.01	0.02	0.01	**0.01**
E	Emission rate (lb/ton of trona)	0.0001	0.0001	0.0001	**0.0001**
Acetaldehyde					
C	Concentration (lb/dscf)	BDL	4.09E-09	5.85E-08	**2.08E-08**
C	Concentration (µg/dscm)	BDL	6.55E+01	9.36E+02	**3.34E+02**
C	Concentration (ppmdv)	BDL	0.04	0.51	**0.18**
E	Emission rate (lb/hr)	BDL	0.01	0.18	**0.06**
E	Emission rate (lb/ton of trona)	BDL	0.0001	0.0012	**0.0004**
Propionaldehyde					
C	Concentration (lb/dscf)	BDL	3.78E-09	1.75E-08	**7.09E-09**
C	Concentration (µg/dscm)	BDL	6.05E-01	2.80E+02	**1.14E+02**
C	Concentration (ppmdv)	BDL	0.03	0.12	**0.05**
E	Emission rate (lb/hr)	BDL	0.01	0.05	**0.02**
E	Emission rate (lb/ton of trona)	BDL	0.0001	0.0004	**0.0001**
Acrolein					
C	Concentration (lb/dscf)	2.01E-08	7.18E-08	9.02E-08	**6.07E-08**
C	Concentration (µg/dscm)	3.22E+02	1.15E+03	1.44E-03	**9.72E+02**
C	Concentration (ppmdv)	0.138	0.49	0.62	**0.42**
E	Emission rate (lb/hr)	0.061	0.22	0.28	**0.19**
E	Emission rate (lb/ton of trona)	0.0004	0.0015	0.0019	**0.0013**
Acetone					
C	Concentration (lb/dscf)	BDL	BDL	BDL	**BDL**
C	Concentration (µg/dscm)	BDL	BDL	BDL	**BDL**
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**
2-Butanone					
C	Concentration (lb/dscf)	BDL	BDL	BDL	**BDL**
C	Concentration (µg/dscm)	BDL	BDL	BDL	**BDL**
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**

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.

Description of Installation

SOLVAY2016_6_001114

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.

DESCRIPTION OF INSTALLATION

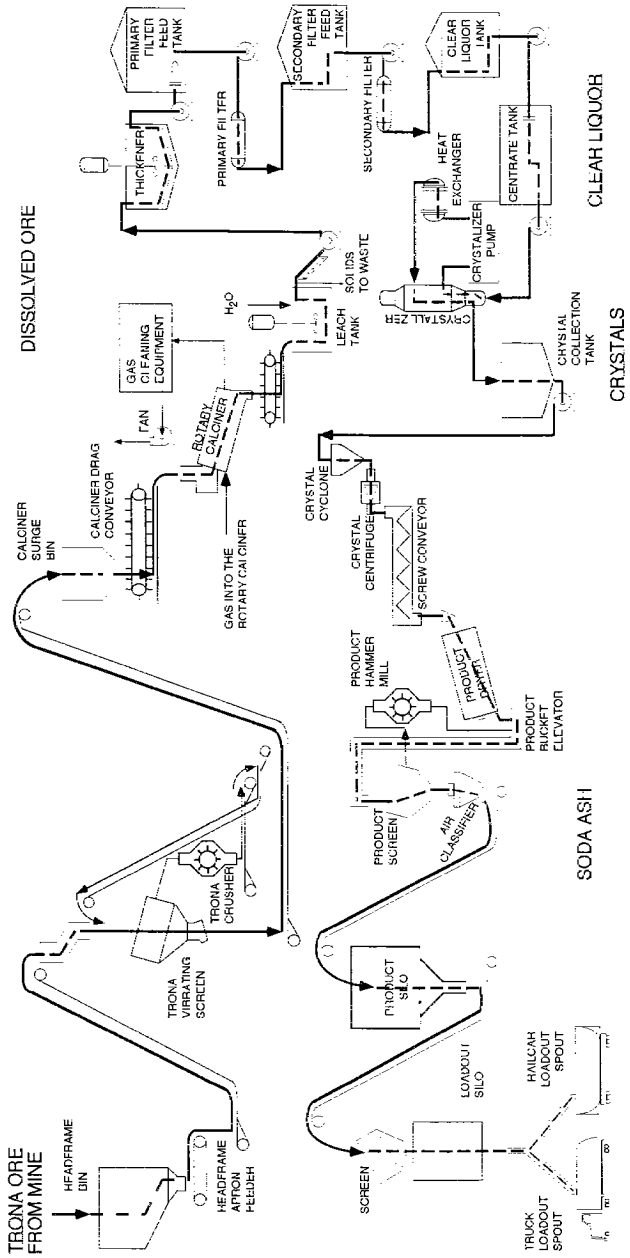


Figure 3-1: Process Schematic

SOLVAY2015_5_001116

Methodology

METHODOLOGY

The sampling followed procedures as detailed in U.S. Environmental Protection Agency (EPA) Methods 1, 2, 3, 4, 18, 25A and BIF 0011. 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)"
Title 40 CFR Part 266 Appendix IX	
Method 0011	"Sampling for Aldehyde and Ketone Emissions from Stationary Sources"

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

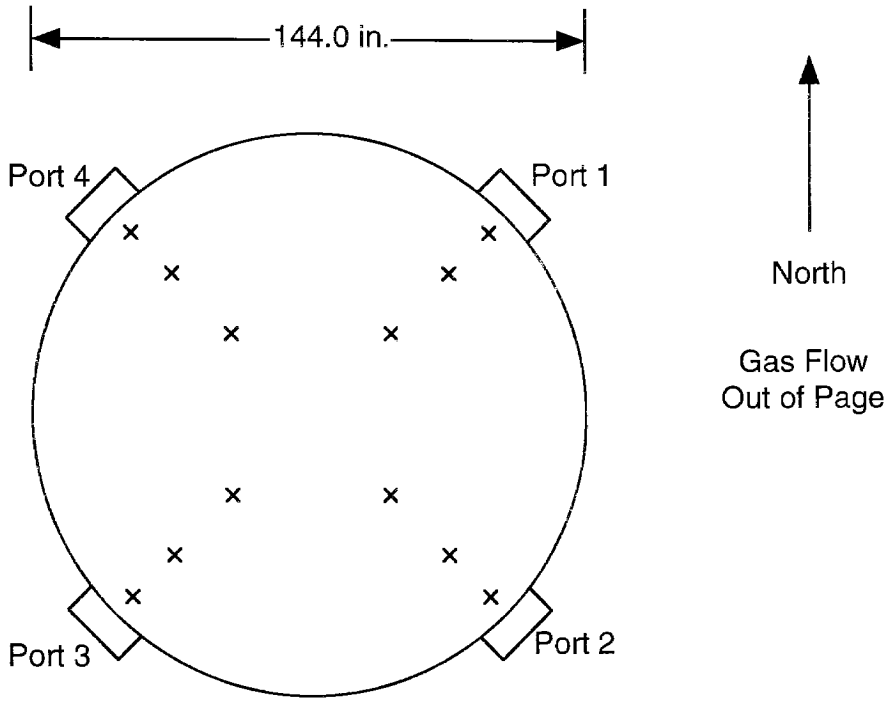
These sampling, recovery and analytical procedures are summarized on pages 4-2 through 4-9.

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.

METHODOLOGY

SAMPLING POINT DETERMINATION

Sampling point locations were determined according to EPA Method 1.



Sampling Point	Port to Point Distance (in.)
1	51.3
2	36.0
3	25.5
4	17.0
5	9.6
6	3.0

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

Figure 4-1: EP 1&2 Calciner Stack Sampling Point Determination (EPA Method 1)

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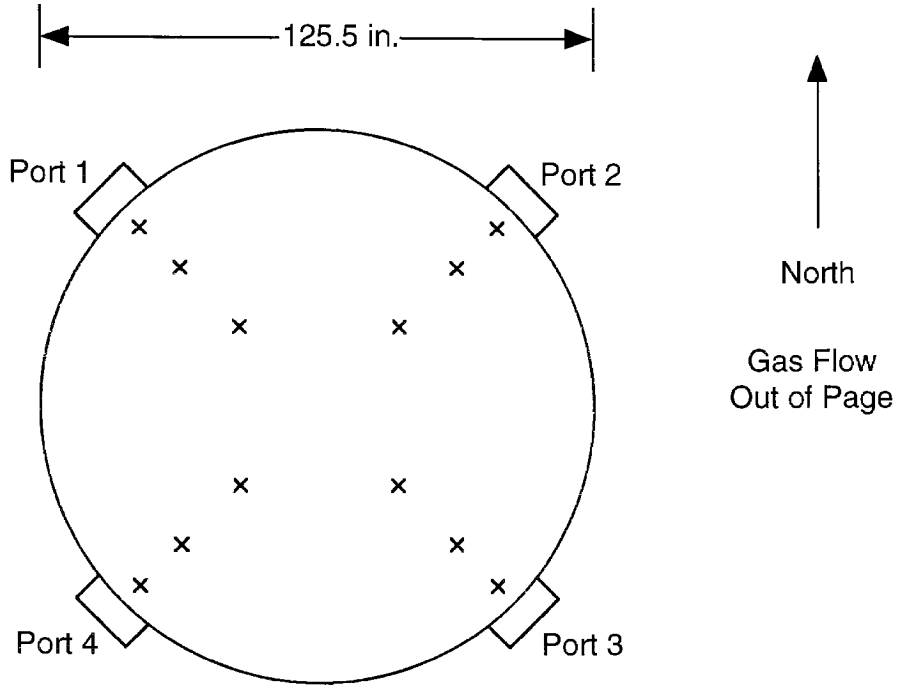
METHODOLOGY

SAMPLING POINT DETERMINATION (CONTINUED)



Sampling- 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 4-2: EP-5 Calciner Stack Sampling Point Determination (EPA Method 1)

SOLVAY2015_5_001120

METHODOLOGY

VELOCITY AND VOLUMETRIC FLOW RATE - EPA METHOD 2

EPA Method 2 was used, in conjunction with Method 0011 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 0011 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, in conjunction with Method 0011 testing. Figure 4-3 includes the components of the EPA Method 4 sampling apparatus. The gas moisture was determined by quantitatively condensing the water in chilled impingers. The amount of moisture condensed was determined gravimetrically. A dry gas meter was used to measure the volume of gas sampled. The amount of water condensed and the volume of gas sampled were used to calculate the gas moisture content in accordance with EPA Method 4.

SOLVAY2016_6_001121

METHODOLOGY

ALDEHYDE AND KETONE EMISSIONS - BIF METHOD 0011

BIF Method 0011 was used to measure aldehydes and ketones at the EP 1&2 Calciner Stack and at the EP-5 Calciner Stack. The method utilizes the reaction of formaldehyde with 2,4-dinitrophenylhydrazine (DNPH) to form the stable formaldehyde dinitrophenylhydrazone derivative. The derivative is extracted, solvent-exchanged, concentrated, and then analyzed by high performance liquid chromatography (HPLC).

Figure 4-3 shows the major components of the BIF 0011 sampling train. The sampling train contained a glass-lined temperature-controlled probe equipped with a pitot tube (for measuring stack gas flow rate) and a sharp-edged glass button-hook nozzle. The exit of the probe was connected directly to a series of four full size impingers. The first two impingers each contained 100 milliliters of 2, 4-DNPH. The third impinger was dry, and the fourth contained 300 grams of silica gel. The impingers were immersed in an ice bath for the duration of each test.

Procedures for selecting sampling locations and for operation of the train were derived from EPA Method 5 and associated Methods 1 through 4. The sampling train was leak-checked before and after each test run. Sampling was performed isokinetically (within ±10%) at each traverse point.

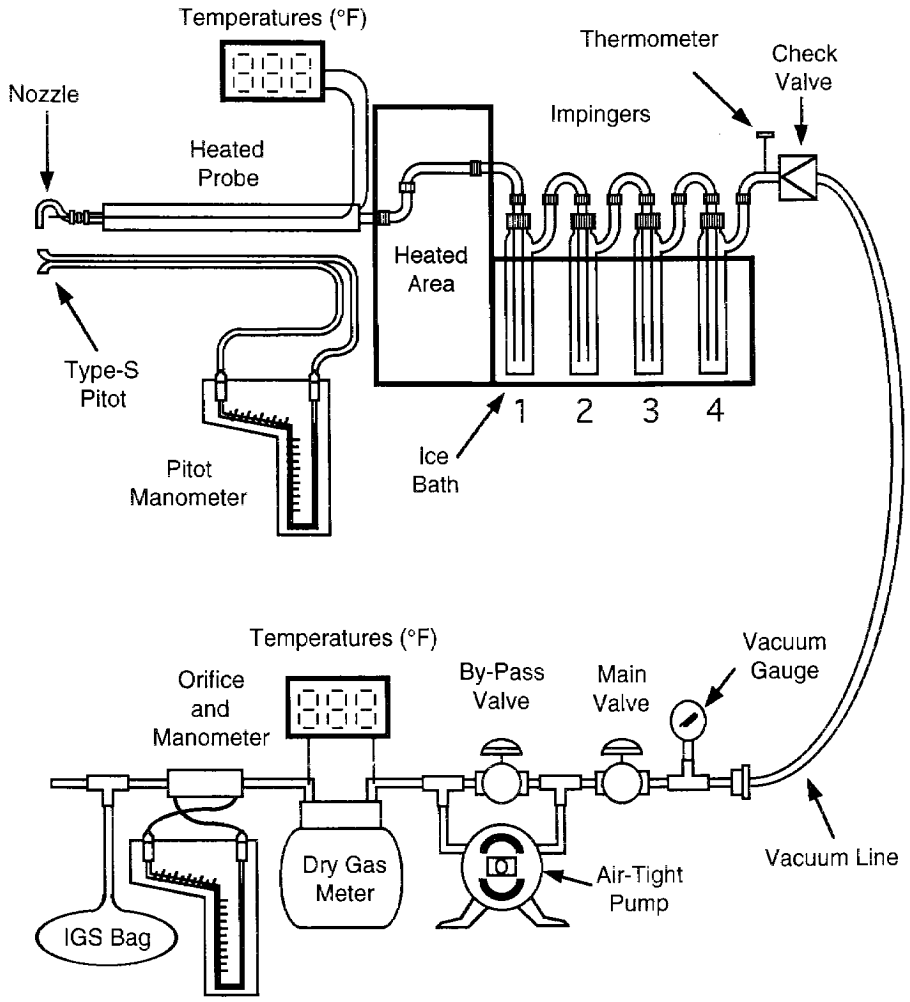
At the conclusion of each test run, the probe and nozzle were rinsed and brushed with methylene chloride, which was collected into a glass sample container. The volumes of the first three impinger solutions were measured, and the solutions transferred to a glass container. The impingers were quantitatively rinsed with methylene chloride and HPLC water. These rinses were collected along with the impinger solutions.

Analysis of the collected samples was performed by Zenon Environmental Laboratories located in Burlington, Ontario. The impinger contents and rinses from the sampling trains were analyzed for aldehydes and ketones in accordance with BIF 0011 procedures. The solutions were extracted with methylene chloride, and the DNPH-formaldehyde derivative was determined using reverse phase high performance liquid chromatography with an ultraviolet (UV) absorption detector operating at 360 nanometers. Identification and quantification of compounds in the samples was done by comparison of retention times and area counts, respectively, with those of standard samples.

SOLVAY2016_5_001122

METHODOLOGY

FORMALDEHYDE EMISSIONS (CONTINUED)



Impinger Contents
1) 100 ml DNPH
2) 100 ml DNPH
3) empty
4) 300 g silica gel

Figure 4-3: Aldehyde and Ketone Sampling Apparatus (BIF Method 0011)

SOLVAY2016 6_001123

METHODOLOGY

VOLATILE EMISSIONS TESTING - EPA METHOD 18

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

Figure 4-4 illustrates a general schematic of the monitoring system set up. A Hewlett Packard Benchtop Gas Chromatograph (GC) equipped with an FID (flame ionization detector) and TCD (thermal conductivity detector), was calibrated with a standard mixture containing the compounds of interest. An initial calibration consisting of five points was performed immediately after mobilization to the site. A known concentration of each compound was injected into the GC via a gas sampling valve. A continuous flow of gas was pushed through the valve at a constant rate and a five milliliter sample loop was filled with calibration gas.

In addition, an MTI 200 Gas Chromatograph coupled with a thermal conductivity detector was used for methane measurements.

At each test location a heated sample line was connected to the source and fed to the on-site GC. Data from the chromatograms 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. The area of each peak was mathematically compared to the concentration for the standard most similar in area or the average response factor. Results were calculated in ppm of each analyte.

METHODOLOGY

TOTAL HYDROCARBONS - EPA METHOD 25A

Gaseous monitoring of total hydrocarbon (THC) emissions from the EP 1&2 Calciner Stack and the EP-5 Calciner Stack were 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 4-4 contains a general schematic of the THC monitoring system. The system utilized a heated stainless steel probe for gas withdrawal. The end of the probe was equipped with a heated 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. The THC analyzer contained a heated pump for gas delivery.

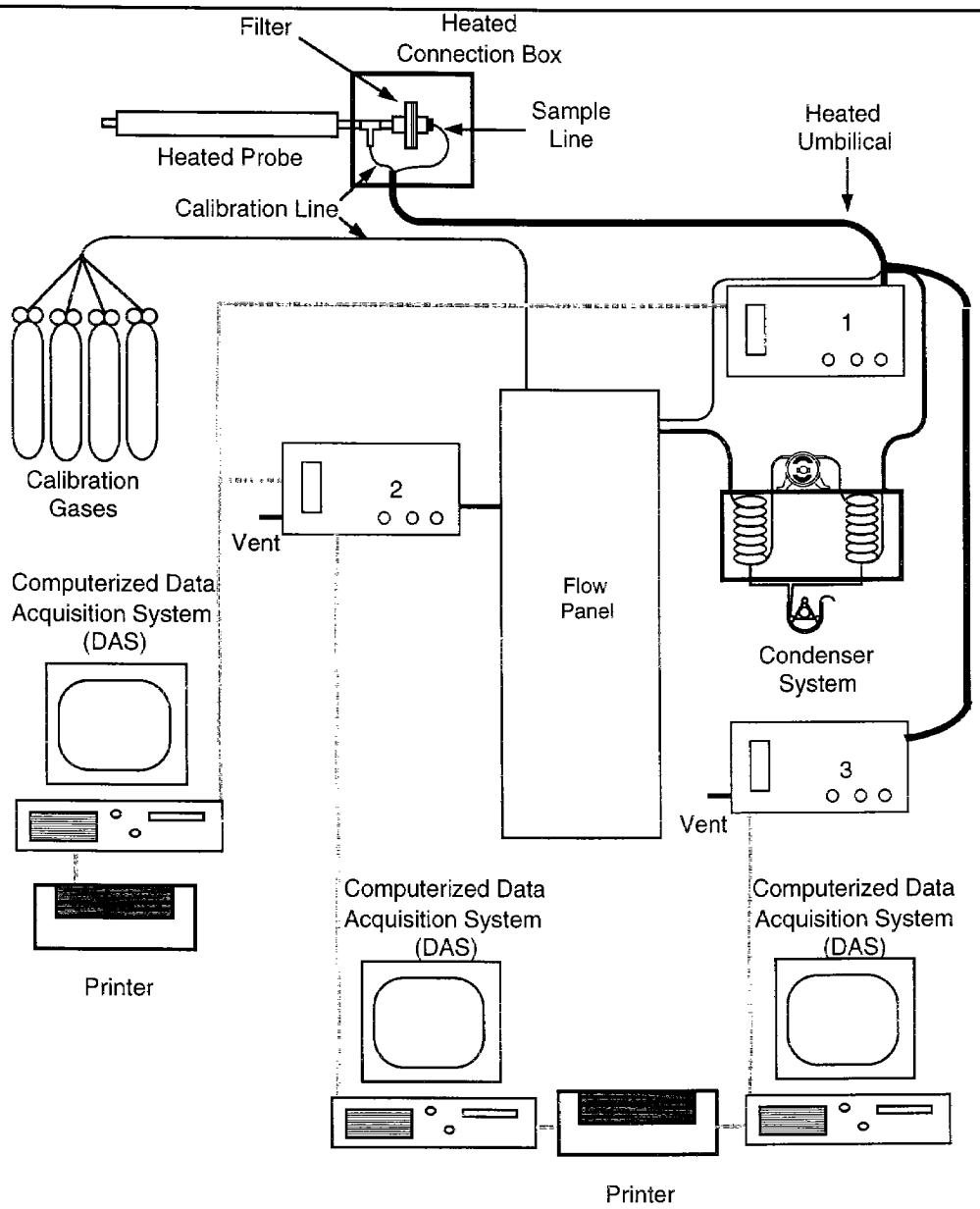
The analyzer was calibrated according to the reference method procedures using EPA Protocol No. 1 certified gas mixtures of propane in nitrogen. Before testing, the analyzer was calibrated by introducing zero and high-level (80-90% of span) gases into the sampling line at the exit of the heated probe 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.

SOLVAY 2016 3 001125

METHODOLOGY

TOTAL HYDROCARBONS (CONTINUED)



No	Gas	Monitor	Range Used	Calibration Gas Concentrations
1)	THC	JUM 2938	0-1000 ppm	252.4 ppm, 562.8 ppm, 835.0 ppm
2)	GC	MTI 200 Gas Chromatograph		
3)	GC	HP Gas Chromatograph		

Figure 4-4: EPA Methods 25A and 18 Monitoring System Schematic

SOLVAY2015_6_001126

Appendix

APPENDIX

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

A

SAMPLE CALCULATIONS

A

SAMPLE CALCULATIONS
EP 1&2 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)

$$V_{wstd} = (0.04707)(V_{lc})$$
$$= (0.04707)(380.3)$$
$$= 17.90 \text{ wscf}$$

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)

$$V_{mstd} = \frac{(17.64)(V_m)\left(P_{bar} + \frac{\Delta H}{13.6}\right)(Y_d)}{(460 + T_m)}$$

$$= \frac{(17.64)(65.80)\left(23.90 + \frac{1.38}{13.6}\right)(0.9984)}{(460 + 60)}$$

$$= 53.46 \text{ dscf}$$

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)

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

$$= 23.90 + \left(\frac{-0.3}{13.6}\right)$$

$$= 23.88 \text{ in. Hg}$$

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]

$$P_v = P_s$$

$$= 23.88 \text{ in. Hg}$$

Where:

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

5. Moisture content (%)

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

$$= \frac{17.90}{53.46 + 17.90}$$

$$= 0.2509$$

$$\times 100\% = 25.09\ \%$$

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 (%)

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

$$= \frac{(23.88)}{(23.88)}$$

$$= 1.0$$

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

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)

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

$$= 44.0\frac{(8.4)}{(100)} + 32.0\frac{(13.5)}{(100)} + 28.0\frac{(78.1)}{(100)}$$

$$= 29.88\ \frac{\text{lb}}{\text{lb}\cdot\text{mole}}$$

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)

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

$$= (29.88)(1 - 0.2509) + (18.0)(0.2509)$$

$$= 26.90 \frac{\text{lb}}{\text{lb} \cdot \text{mole}}$$

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)

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

$$= (85.49)(0.84)(0.773)\left(\sqrt{\frac{(380 + 460)}{(26.90)(23.88)}}\right)$$

$$= 63.4 \frac{\text{ft}}{\text{sec}}$$

Where:

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

SAMPLE CALCULATIONS (CONTINUED)

10. Total flow of sample gas (acfm)

$$Q_a = (60)(A_s)(V_s)$$
$$= (60)(113.10)(63.4)$$
$$= 430,500 \text{ acfm}$$

Where:

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

11. Total flow of sample gas (dscfm)

$$Q_{std} = \frac{(Q_a)(P_s)(17.64)(1-B_{wo})}{(\overline{T}_s + 460)}$$
$$= \frac{(430,500)(23.88)(17.64)(1-0.2509)}{(380+460)}$$
$$= 161,700 \text{ dscfm}$$

Where:

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

SAMPLE CALCULATIONS (CONTINUED)

12. Percent isokinetic (%)

$$I = \frac{(0.09450)(\overline{T_s} + 460)(V_{mstd})}{(P_s)(V_s)\left(\frac{(D_n)^2(\pi)}{(144)(4)}\right)(\Theta)(1 - B_{wo})}$$

$$= \frac{(0.09450)(380 + 460)(53.46)}{(23.88)(63.4)\left(\frac{(.270)^2(\pi)}{(144)(4)}\right)(96)(1 - 0.2509)}$$

$$= 98.0\ \%$$

Where:

D_n	diameter of nozzle (in)
B_{wo}	proportion of water vapor in the gas stream by volume
I	percent of isokinetic sampling (%)
P_s	absolute sample gas pressure (in. Hg)
T_s	average sample gas temperature (°F)
V_{mstd}	volume of gas sample through the dry gas meter at standard conditions (ft^3)
V_s	sample gas velocity (ft/sec)
Θ	total sampling time (min)
0.09450	constant
460	°F to °R conversion constant

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

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

$$= \left((374.7) - \left(\frac{0.1 + 7.3}{2}\right)\right)\frac{(562.8)}{\left(\left(\frac{568.9 + 544.7}{2}\right) - \left(\frac{0.1 + 7.3}{2}\right)\right)}$$

$$= 377.6 \text{ ppmwv}$$

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)

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

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

$$= \frac{(377.6)}{(1 - 0.2509)}$$

$$= 504.0 \text{ ppmdv}$$

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)

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

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

$$= \frac{(504.0)(44.10)(161,700)(60)}{(385.3)(10^6)}$$

$$= 559.6 \frac{lb}{hr}$$

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 volatile organic compounds are performed in a similar manner.

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

SAMPLE CALCULATIONS (CONTINUED)

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

$$E_{lb/ton\,of\,trona} = \frac{(E_{lb/hr})}{(E_{ton\,of\,trona/hr})} = \frac{(559.6)}{(300)} = 1.865\,\frac{lb}{ton\,of\,trona}$$

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)

17. Total non-methane hydrocarbons (lb/hr)

$$E_{lb/hr} = (E_{lb/hr\,THC's}) - (E_{lb/hr\,methane}) = (559.6) - (439.9) = 119.7\ lb/hr\ total\ non-methane\ hydrocarbons$$

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)

18. Formaldehyde concentration (µg/dscm)[2]

$$C_{\mu g/dscm} = \frac{(m_n)}{(V_{mstd})}(35.31) = \frac{(1{,}168)}{53.46}(35.31) = 7.71E+02\,\frac{\mu g}{dscm}$$

Where:

$C_{\mu g/dscm}$	concentration (µg/dscm)
m_n	net mass of formadehyde collected (µg)
V_{mstd}	volume of gas sample through the dry gas meter at standard conditions (ft^3)
35.31	conversion factor (ft^3/m^3)

[1] The calculations for methane, aldehydes, ketones and volatile organic compounds are performed in a similar manner.
[2] The calculations for other aldehydes and ketones are performed in a similar manner.

SAMPLE CALCULATIONS (CONTINUED)

19. Formaldehyde concentration (lb/dscf)[1]

$$C_{lb/dscf} = \frac{(m_n)}{(V_{mstd})(4.5359E^{+08})}$$

$$= \frac{(1,168)}{(53.46)(4.5359E^{+08})}$$

$$= 4.82E^{-08}\ \frac{lb}{dscf}$$

Where:

$C_{lb/dscf}$	concentration (lb/dscf)
m_n	net mass of formadehyde collected (μg)
V_{mstd}	volume of gas sample through the dry gas meter at standard conditions (ft^3)
$4.5359E^{08}$	conversion factor (μg/lb)

20. Formaldehyde emission (lb/hr)[1]

$$E_{lb/hr} = (C_{lb/dscf})(Q_{std})(60)$$

$$= (4.82E-08)(161,700)(60)$$

$$= 0.467\ \frac{lb}{hr}$$

Where:

$C_{lb/dscf}$	concentration (lb/dscf)
Q_{std}	volumetric flow rate at standard conditions, dry basis (dscfm)
$E_{lb/hr}$	emission rate (lb/hr)
60	conversion factor (min/hr)

[1] The calculations for other aldehydes and ketones are performed in a similar manner.

SAMPLE CALCULATIONS (CONTINUED)

21. Formaldehyde concentration (ppmdv)[1]

$$C_{ppmdv} = \left(C_{lb/dscf}\right)\left(\frac{(385.3)(10^6)}{M_{CHCO}}\right)$$

$$= \left(4.82E^{-08}\right)\left(\frac{(385.3)(10^6)}{30.03}\right)$$

$$= 0.618 \text{ ppmdv}$$

Where:

$C_{lb/dscf}$	concentration (lb/dscf)
10^6	conversion factor (ppm)
385.3	conversion factor (ft^3/lb·mole)
M_{CHCO}	molecular weight of formaldehyde
$E_{lb/hr}$	emission rate (lb/hr)

[1] The calculations for other aldehydes and ketones are performed in a similar manner using the appropriate molecular weight.

SAMPLE CALCULATIONS (CONTINUED)

METHOD 18 SAMPLE CALCULATIONS
EP 1&2 CALCINER STACK - RUN 1
BUTADIENE (GAS) and HEXANE (LIQUID) - Bag No. 1

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

$$V_m = (V_d)(t)$$
$$= (2.07)(20.0)$$
$$= 41.4 \text{ L}$$

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)

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

$$C_s = \frac{(V_g)(F_g)}{(V_m)}(10^6)$$
$$= \frac{(0.03)(1.0)}{(41,400)}(10^6)$$
$$= 0.72 \text{ ppm}$$

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

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

$$P_v = \left(\frac{V_l}{\sum_{i=1}^{n} v_{li}}\right) \times 100$$
$$= \left(\frac{1.00}{(0.70 + 0.80...)}\right) \times 100$$
$$= 9.90\ \%$$

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)

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

$$V_l = (P_v)(S_i)$$
$$= (0.099)(3.0)$$
$$= 0.297\ \mu L$$

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)

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

$$C_s = \frac{(\partial)(V_l)(T)}{(M_{wt})(453.6)(V_m)(P)}(21.85)(28.3)(1{,}000)$$
$$= \frac{(0.663)(0.297)(529.67)}{(86.18)(453.6)(41.4)(23.54)}(21.85)(28.3)(1{,}000)$$
$$= 1.69\ \text{ppm}$$

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)

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

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

$$= \frac{(1.69)}{(53022)}$$

$$= 3.19E-05 \text{ ppm / units of area}$$

Where:

F_r	calibration standard G.C. response factor (ppm/units of area)
C_s	concentration of calibration standard in tedlar bag (ppm)
A	average peak area obtained from 4 to 8 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.

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

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

$$= \frac{(18422-(-111))}{(31700)}$$

$$= 0.585 \text{ ppmwv}$$

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)

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

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

$$= 1.23 \text{ ppmwv}$$

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

SAMPLE CALCULATIONS (CONTINUED)

30. Limit of detection (ppmwv-hexane)

$$\text{LOD} = (S_d)(t_{0.99},(n-1))$$

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

$$= \left(\sqrt{\frac{1}{8-1}\left[\left(1.74^2 + 1.69^2 \ldots\right) - (1.74 + 1.69 \ldots)^2 \div 8\right]}\right)(2.998)$$

$$= 0.06 \text{ ppmwv}$$

Where:

LOD	limit of detection (ppmwv)
S_d	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: 7629-2
EP 1&2 Calciner Stack

CEM PARAMETERS

Run No.		1	2	3
Date (1995)		December 14	December 14	December 14
Start Time (approx.)		10:00	12:32	14:43
Stop Time (approx.)		11:00	13:32	15:43
Gas Conditions[1]				
O_2	Oxygen (dry volume %)	13.5	13.6	13.6
CO_2	Carbon dioxide (dry volume %)	8.4	8.3	8.1
B_{wo}	Moisture in sample (% by volume)	25.09	24.88	24.54
Q_{std}	Volumetric flow rate, standard (dscfm)	161,700	166,300	165,400
Total Hydrocarbons (as propane)				
Data Acquisition				
C	Effluent gas concentration (ppmwv)	374.7	382.1	472.6
Calibration Gases				
C_{ti}	Calibration bias check, initial zero gas	0.1	7.3	11.7
C_{mi}	Calibration bias check, initial upscale gas	568.9	544.7	552.9
C_{tf}	Calibration bias check, final zero gas	7.3	11.7	14.2
C_{mf}	Calibration bias check, final upscale gas	544.7	552.9	565.4
C_{ma}	Actual concentration of upscale gas	562.8	562.8	562.8
Calculated Results				
C_{gas}	Concentration drift corrected (ppmwv)	377.6	388.8	473.6
C_{gas}	Concentration moisture corrected (ppmdv)	504.0	517.6	627.7
E	Emission rate (lb/hr)	559.6	591.1	712.9
Methane				
C_{gas}	Concentration moisture corrected (ppmdv)	1089.1	1063.7	1116.3
E	Emission rate (lb/hr)	439.9	441.9	461.2
Total Non-Methane Hydrocarbons (as propane)				
E	Emission rate (lb/hr)	119.7	149.2	251.6

[1] Gas conditions are taken from near simultaneous BIF 0011 formaldehyde test.

SOLVAY MINERALS, INC.
CAE Project No: 7629-2
EP 1&2 Calciner Stack

VOLATILE ORGANICS PARAMETERS

Run No.		1	2	3
Date (1995)		December 14	December 14	December 14
Start Time (approx.)		9:53	12:17	14:29
Stop Time (approx.)		11:13	13:35	15:50
Process Conditions[1]				
	Feed rate(ton of trona/hr)	300	300	300
Gas Conditions[2]				
B_{wo}	Moisture (% by volume)	25.09	24.88	24.54
Q_{std}	Volumetric flow rate, standard (dscfm)	161,700	166,300	165,400
1,1,1-Trichloroethane				
C	Concentration (ppmwv)	0.55	BDL	1.62
C	Concentration (ppmdv)	0.73	BDL	2.15
E	Emission rate (lb/hr)	2.47	BDL	7.38
E	Emission rate (lb/ton of trona)	0.0082	BDL	0.0246
1,3 Butadiene				
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
2-Butanone				
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
Acrylonitrile				
C	Concentration (ppmwv)	BDL	BDL	BDL
C	Concentration (ppmdv)	BDL	BDL	BDL
E	Emission rate (lb/hr)	BDL	BDL	BDL
E	Emission rate (lb/ton of trona)	BDL	BDL	BDL
Benzene				
C	Concentration (ppmwv)	2.36	1.97	3.80
C	Concentration (ppmdv)	3.15	2.62	5.04
E	Emission rate (lb/hr)	6.20	5.30	10.13
E	Emission rate (lb/ton of trona)	0.0207	0.0177	0.0338
Ethyl Benzene				
C	Concentration (ppmwv)	0.02	BDL	0.15
C	Concentration (ppmdv)	0.03	BDL	0.20
E	Emission rate (lb/hr)	0.07	BDL	0.54
E	Emission rate (lb/ton of trona)	0.0002	BDL	0.0018

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 BIF 0011 formaldehyde test.

SOLVAY MINERALS, INC.
CAE Project No: 7629-2
EP 1&2 Calciner Stack

VOLATILE ORGANICS PARAMETERS

Run No.		1	2	3
Date (1995)		December 14	December 14	December 14
Start Time (approx.)		9:53	12:17	14:29
Stop Time (approx.)		11:13	13:35	15:50
Process Conditions[1]				
	Feed rate(ton of trona/hr)	300	300	300
Gas Conditions[2]				
B_{wo}	Moisture (% by volume)	25.09	24.88	24.54
Q_{std}	Volumetric flow rate, standard (dscfm)	161,700	166,300	165,400
Hexane				
C	Concentration (ppmwv)	1.23	1.15	2.43
C	Concentration (ppmdv)	1.64	1.53	3.22
E	Emission rate (lb/hr)	3.56	3.42	7.15
E	Emission rate (lb/ton of trona)	0.0119	0.0114	0.0238
Methylene Chloride				
C	Concentration (ppmwv)	0.39	BDL	BDL
C	Concentration (ppmdv)	0.52	BDL	BDL
E	Emission rate (lb/hr)	1.11	BDL	BDL
E	Emission rate (lb/ton of trona)	0.0037	BDL	BDL
Styrene				
C	Concentration (ppmwv)	0.50	0.45	1.43
C	Concentration (ppmdv)	0.67	0.60	1.90
E	Emission rate (lb/hr)	1.75	1.62	5.08
E	Emission rate (lb/ton of trona)	0.0058	0.0054	0.0169
Toluene				
C	Concentration (ppmwv)	0.80	0.72	1.35
C	Concentration (ppmdv)	1.07	0.96	1.79
E	Emission rate (lb/hr)	2.48	2.29	4.25
E	Emission rate (lb/ton of trona)	0.0083	0.0076	0.0142
Trichloroethene				
C	Concentration (ppmwv)	BDL	BDL	0.33
C	Concentration (ppmdv)	BDL	BDL	0.44
E	Emission rate (lb/hr)	BDL	BDL	1.48
E	Emission rate (lb/ton of trona)	BDL	BDL	0.0049
Xylene				
C	Concentration (ppmwv)	0.19	0.19	1.01
C	Concentration (ppmdv)	0.25	0.25	1.34
E	Emission rate (lb/hr)	0.68	0.70	3.66
E	Emission rate (lb/ton of trona)	0.0023	0.0023	0.0122

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 BIF 0011 formaldehyde test.

SOLVAY MINERALS, INC.
CAE Project No: 7629-2
EP 1&2 Calciner Stack

ALDEHYDE and KETONE PARAMETERS-BIF 0011

Run No.		1	2	3
Date (1995)		December 14	December 14	December 14
Start Time (approx.)		09:41	12:10	14:22
Stop Time (approx.)		11:28	13:55	16:06
Sampling Conditions				
Y_d	Dry gas meter correction factor	0.9984	0.9984	0.9984
C_p	Pitot tube coefficient	0.84	0.84	0.84
	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_b	Barometric Pressure (in. Hg)	23.90	23.90	23.90
D_n	Nozzle diameter (in.)	0.270	0.270	0.270
O_2	Oxygen (dry volume %)	13.5	13.6	13.6
CO_2	Carbon Dioxide (dry volume %)	8.4	8.3	8.1
V_{lc}	Liquid collected (ml)	380.3	384.4	374.4
V_m	Volume metered, meter conditions (ft^3)	65.80	68.42	68.14
T_m	Dry gas meter temperature (°F)	60	70	72
T_s	Stack temperature (°F)	380	374	380
ΔH	Meter box orifice pressure drop (in. H_2O)	1.38	1.45	1.42
Θ	Total sampling time (min)	96	96	96
Flow Results				
V_{wstd}	Volume of water collected (ft^3)	17.90	18.09	17.62
V_{mstd}	Volume metered, standard (ft^3)	53.46	54.62	54.20
P_s	Sample gas pressure, absolute (in. Hg)	23.88	23.88	23.88
P_v	Vapor pressure, actual (in. Hg)	23.88	23.88	23.88
B_{wo}	Moisture in sample (% by volume)	25.09	24.88	24.54
B_{ws}^*	Saturated moisture (% by volume)	100.00	100.00	100.00
$\sqrt{\Delta P}$	Velocity Head ($\sqrt{in.}$ H_2O)	0.773	0.790	0.785
M_d	MW of sample gas, dry (lb/lb-mole)	29.88	29.87	29.84
M_s	MW of sample gas, wet (lb/lb-mole)	26.90	26.92	26.93
V_s	Velocity of sample (ft/sec)	63.4	64.6	64.4
%I	Isokinetic sampling (%)	98.0	97.3	97.1
Q_a	Volumetric flow rate, actual (acfm)	430,500	438,300	436,900
Q_{std}	Volumetric flow rate, standard (dscfm)	161,700	166,300	165,400

SOLVAY MINERALS, INC.
CAE Project No: 7629-2
EP 1&2 Calciner Stack

ALDEHYDE and KETONE PARAMETERS-BIF 0011

Run No.			1	2	3
Date (1995)			December 14	December 14	December 14
Start Time (approx.)			09:41	12:10	14:22
Stop Time (approx.)			11:28	13:55	16:06
Gas Conditions					
O_2	Oxygen (dry volume %)		13.5	13.6	13.6
CO_2	Carbon Dioxide (dry volume %)		8.4	8.3	8.1
B_{wo}	Moisture in sample (% by volume)		25.09	24.88	24.54
Q_{std}	Volumetric flow rate, standard (dscfm)		161,700	166,300	165,400
Formaldehyde		**Blank**			
m_n	Matter collected (µg)	32	1,200	150	360
	Volume of sample (ml)	950	950	950	950
	Blank correction (µg)		32	32	32
$m_{n,net}$	Matter collected, net (µg)		1,168	118	328
C	Concentration (lb/dscf)		4.82E-08	4.76E-09	1.33E-08
C	Concentration (µg/dscm)		771	76	214
E	Emission rate (lb/hr)		0.467	0.048	0.132
C	Concentration (ppmdv)		0.618	0.061	0.171
Acetaldehyde		**Blank**			
m_n	Matter collected (µg)	19	45	61	160
	Volume of sample (ml)	950	950	950	950
	Blank correction (µg)		19	19	19
$m_{n,net}$	Matter collected, net (µg)		26	42	141
C	Concentration (lb/dscf)		1.07E-09	1.70E-09	5.74E-09
C	Concentration (µg/dscm)		17	27	92
E	Emission rate (lb/hr)		0.010	0.017	0.057
C	Concentration (ppmdv)		0.009	0.015	0.050
Propionaldehyde		**Blank**			
m_n	Matter collected (µg)	BDL	BDL	BDL	110
	Volume of sample (ml)	950	950	950	950
	Blank correction (µg)		0.0	0.0	0.0
$m_{n,net}$	Matter collected, net (µg)		BDL	BDL	110
C	Concentration (lb/dscf)		BDL	BDL	4.47E-09
C	Concentration (µg/dscm)		BDL	BDL	7.17E+01
E	Emission rate (lb/hr)		BDL	BDL	0.044
C	Concentration (ppmdv)		BDL	BDL	0.030
Acrolein		**Blank**			
m_n	Matter collected (µg)	250	390	710	2,000
	Volume of sample (ml)	950	950	950	950
	Blank correction (µg)		0	250	250
$m_{n,net}$	Matter collected, net (µg)		390	460	1,750
C	Concentration (lb/dscf)		1.61E-08	1.86E-08	7.12E-08
C	Concentration (µg/dscm)		258	297	1140
E	Emission rate (lb/hr)		0.156	0.185	0.706
C	Concentration (ppmdv)		0.111	0.128	0.489
Acetone		**Blank**			
m_n	Matter collected (µg)	250	210	BDL	BDL
	Volume of sample (ml)	950	950	950	950
	Blank correction (µg)		250	250	250
$m_{n,net}$	Matter collected, net (µg)[1]		-40	BDL	BDL
C	Concentration (lb/dscf)		BDL	BDL	BDL
C	Concentration (µg/dscm)		BDL	BDL	BDL
E	Emission rate (lb/hr)		BDL	BDL	BDL
C	Concentration (ppmdv)		BDL	BDL	BDL
2-Butanone		**Blank**			
m_n	Matter collected (µg)	BDL	BDL	BDL	BDL
	Volume of sample (ml)	950	950	950	950
	Blank correction (µg)		BDL	BDL	BDL
$m_{n,net}$	Matter collected, net (µg)		BDL	BDL	BDL
C	Concentration (lb/dscf)		BDL	BDL	BDL
C	Concentration (µg/dscm)		BDL	BDL	BDL
E	Emission rate (lb/hr)		BDL	BDL	BDL
C	Concentration (ppmdv)		BDL	BDL	BDL

1 Negative matter weights are assumed to be zero.
2 BDL indicates the sample was below the detection limit.

SOLVAY MINERALS, INC.
CAE Project No: 7629-2
EP-5 Calciner Stack

CEM PARAMETERS

Run No.		1	2	3
Date (1995)		December 15	December 15	December 15
Start Time (approx.)		08:37	11:00	13:05
Stop Time (approx.)		09:37	12:00	14:05
Gas Conditions[1]				
O_2	Oxygen (dry volume %)	8.4	9.0	8.8
CO_2	Carbon dioxide (dry volume %)	14.6	14.2	14.2
B_{wo}	Moisture in sample (% by volume)	35.58	35.98	35.86
Q_{std}	Volumetric flow rate, standard (dscfm)	50,830	50,130	51,170
Total Hydrocarbons (as propane)				
Data Acquisition				
C	Effluent gas concentration (ppmwv)	216.9	205.5	161.2
Calibration Gases				
C_{zi}	Calibration bias check, initial zero gas	3.4	15.3	15.0
C_{mi}	Calibration bias check, initial upscale gas	559.6	544.3	543.6
C_{zf}	Calibration bias check, final zero gas	15.3	15.0	11.3
C_{mf}	Calibration bias check, final upscale gas	544.3	543.6	544.4
C_{ma}	Actual concentration of upscale gas	562.8	562.8	562.8
Calculated Results				
C_{gas}	Concentration drift corrected (ppmwv)	215.2	202.6	156.9
C_{gas}	Concentration moisture corrected (ppmdv)	334.1	316.4	244.6
E	Emission rate (lb/hr)	116.6	108.9	86.0
Methane				
C_{gas}	Concentration moisture corrected (ppmdv)	236.8	236.2	199.8
E	Emission rate (lb/hr)	30.1	29.6	25.5
Total Non-Methane Hydrocarbons (as propane)				
E	Emission rate (lb/hr)	86.6	79.3	60.4

[1] Gas conditions are taken from near simultaneous BIF 0011 formaldehyde test.

SOLVAY MINERALS, INC.
CAE Project No: 7629-2
EP-5 Calciner Stack

VOLATILE ORGANICS PARAMETERS

Run No.		1	2	3
Date (1995)		December 15	December 15	December 15
Start Time (approx.)		8:28	10:49	13:00
Stop Time (approx.)		9:46	12:07	13:22
Process Conditions[1]				
	Feed rate(ton of trona/hr)	145	145	145
Gas Conditions[2]				
B_{wo}	Moisture (% by volume)	35.58	35.98	35.86
Q_{std}	Volumetric flow rate, standard (dscfm)	50,830	50,130	51,170
1,1,1-Trichloroethane				
C	Concentration (ppmwv)	1.10	1.66	1.38
C	Concentration (ppmdv)	1.71	2.59	2.15
E	Emission rate (lb/hr)	1.80	2.70	2.29
E	Emission rate (lb/ton of trona)	0.0124	0.0186	0.0158
1,3 Butadiene				
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
2-Butanone				
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
Acrylonitrile				
C	Concentration (ppmwv)	BDL	BDL	BDL
C	Concentration (ppmdv)	BDL	BDL	BDL
E	Emission rate (lb/hr)	BDL	BDL	BDL
E	Emission rate (lb/ton of trona)	BDL	BDL	BDL
Benzene				
C	Concentration (ppmwv)	5.68	5.34	4.15
C	Concentration (ppmdv)	8.82	8.34	6.47
E	Emission rate (lb/hr)	5.45	5.09	4.03
E	Emission rate (lb/ton of trona)	0.0376	0.0351	0.0278
Ethyl Benzene				
C	Concentration (ppmwv)	0.14	0.11	0.08
C	Concentration (ppmdv)	0.22	0.17	0.12
E	Emission rate (lb/hr)	0.18	0.14	0.11
E	Emission rate (lb/ton of trona)	0.0013	0.0010	0.0007

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 BIF 0011 formaldehyde test.

SOLVAY MINERALS, INC.
CAE Project No: 7629-2
EP-5 Calciner Stack

VOLATILE ORGANICS PARAMETERS

Run No.		1	2	3
Date (1995)		December 15	December 15	December 15
Start Time (approx.)		8:28	10:49	13:00
Stop Time (approx.)		9:46	12:07	13:22
Process Conditions[1]				
	Feed rate(ton of trona/hr)	145	145	145
Gas Conditions[2]				
B_{wo}	Moisture (% by volume)	35.58	35.98	35.86
Q_{std}	Volumetric flow rate, standard (dscfm)	50,830	50,130	51,170
Hexane				
C	Concentration (ppmwv)	2.27	2.19	1.68
C	Concentration (ppmdv)	3.52	3.42	2.62
E	Emission rate (lb/hr)	2.40	2.30	1.80
E	Emission rate (lb/ton of trona)	0.0166	0.0159	0.0124
Methylene Chloride				
C	Concentration (ppmwv)	1.18	0.31	BDL
C	Concentration (ppmdv)	1.83	0.48	BDL
E	Emission rate (lb/hr)	1.23	0.32	BDL
E	Emission rate (lb/ton of trona)	0.0085	0.0022	BDL
Styrene				
C	Concentration (ppmwv)	1.31	1.52	1.13
C	Concentration (ppmdv)	2.03	2.37	1.76
E	Emission rate (lb/hr)	1.68	1.93	1.46
E	Emission rate (lb/ton of trona)	0.0116	0.0133	0.0101
Toluene				
C	Concentration (ppmwv)	1.85	1.90	1.40
C	Concentration (ppmdv)	2.87	2.97	2.18
E	Emission rate (lb/hr)	2.09	2.13	1.60
E	Emission rate (lb/ton of trona)	0.0144	0.0147	0.0111
Trichloroethene				
C	Concentration (ppmwv)	0.34	0.30	0.10
C	Concentration (ppmdv)	0.53	0.47	0.16
E	Emission rate (lb/hr)	0.55	0.48	0.16
E	Emission rate (lb/ton of trona)	0.0038	0.0033	0.0011
Xylene				
C	Concentration (ppmwv)	1.26	0.77	0.52
C	Concentration (ppmdv)	1.96	1.20	0.81
E	Emission rate (lb/hr)	1.64	1.00	0.69
E	Emission rate (lb/ton of trona)	0.0113	0.0069	0.0047

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 BIF 0011 formaldehyde test.

SOLVAY MINERALS, INC.
CAE Project No: 7629-2
EP-5 Calciner Stack

ALDEHYDE and KETONE PARAMETERS-BIF 0011

Run No.		1	2	3
Date (1995)		December 15	December 15	December 15
Start Time (approx.)		08:26	10:47	12:57
Stop Time (approx.)		10:11	12:30	14:40
Sampling Conditions				
Y_d	Dry gas meter correction factor	0.9984	0.9984	0.9984
C_p	Pitot tube coefficient	0.84	0.84	0.84
	Static Pressure (in. H_2O)	-0.2	-0.2	-0.2
A_s	Sample location area (ft^2)	85.90	85.90	85.90
P_b	Barometric Pressure (in. Hg)	24.00	24.00	24.00
D_n	Nozzle diameter (in.)	0.375	0.375	0.375
O_2	Oxygen (dry volume %)	8.4	9.0	8.8
CO_2	Carbon Dioxide (dry volume %)	14.6	14.2	14.2
V_c	Liquid collected (ml)	514.9	515.3	524.2
V_m	Volume metered, meter conditions (ft^3)	55.04	55.03	56.98
T_m	Dry gas meter temperature (°F)	72	80	87
T_s	Stack temperature (°F)	315	315	317
ΔH	Meter box orifice pressure drop (in. H_2O)	0.95	0.94	0.96
Θ	Total sampling time (min)	96	96	96
Flow Results				
V_{wstd}	Volume of water collected (ft^3)	24.24	24.26	24.67
V_{mstd}	Volume metered, standard (ft^3)	43.88	43.16	44.12
P_s	Sample gas pressure, absolute (in. Hg)	23.99	23.99	23.99
P_v	Vapor pressure, actual (in. Hg)	23.99	23.99	23.99
B_{wo}	Moisture in sample (% by volume)	35.58	35.98	35.86
B_{ws}^*	Saturated moisture (% by volume)	100.00	100.00	100.00
$\sqrt{\Delta P}$	Velocity Head ($\sqrt{in.}$ H_2O)	0.351	0.348	0.355
M_d	MW of sample gas, dry (lb/lb-mole)	30.67	30.63	30.62
M_s	MW of sample gas, wet (lb/lb-mole)	26.16	26.09	26.10
V_s	Velocity of sample (ft/sec)	28.0	27.8	28.4
%I	Isokinetic sampling (%)	100.7	100.5	100.6
Q_a	Volumetric flow rate, actual (acfm)	144,500	143,400	146,400
Q_{std}	Volumetric flow rate, standard (dscfm)	50,830	50,130	51,170

SOLVAY MINERALS, INC.
CAE Project No: 7629-2
EP-5 Calciner Stack

ALDEHYDE and KETONE PARAMETERS-BIF 0011

Run No.			1	2	3
Date (1995)			December 15	December 15	December 15
Start Time (approx.)			08:26	10:47	12:57
Stop Time (approx.)			10:11	12:30	14:40
Gas Conditions					
O_2	Oxygen (dry volume %)		8.4	9.0	8.8
CO_2	Carbon Dioxide (dry volume %)		14.6	14.2	14.2
B_{wo}	Moisture in sample (% by volume)		35.58	35.98	35.86
Q_{std}	Volumetric flow rate, standard (dscfm)		50,830	50,130	51,170
Formaldehyde		**Blank**			
m_n	Matter collected (µg)	32	130	160	110
	Volume of sample (ml)	950	1,500	1,500	1,500
	Blank correction (µg)		51	51	51
$m_{n,net}$	Matter collected, net (µg)		79	109	59
C	Concentration (lb/dscf)		3.99E-09	5.59E-09	2.97E-09
C	Concentration (µg/dscm)		64	90	48
E	Emission rate (lb/hr)		0.012	0.017	0.009
C	Concentration (ppmdv)		0.051	0.072	0.038
Acetaldehyde		**Blank**			
m_n	Matter collected (µg)	19	26	110	1,200
	Volume of sample (ml)	950	1,500	1,500	1,500
	Blank correction (µg)		30	30	30
$m_{n,net}$	Matter collected, net (µg)[1]		-4	80	1,170
C	Concentration (lb/dscf)		BDL	4.09E-09	5.85E-08
C	Concentration (µg/dscm)		BDL	65	936
E	Emission rate (lb/hr)		BDL	0.012	0.179
C	Concentration (ppmdv)		BDL	0.036	0.511
Propionaldehyde		**Blank**			
m_n	Matter collected (µg)	BDL	BDL	74	350
	Volume of sample (ml)	950	1,500	1,500	1,500
	Blank correction (µg)		0.0	0.0	0.0
$m_{n,net}$	Matter collected, net (µg)		BDL	74	350
C	Concentration (lb/dscf)		BDL	3.78E-09	1.75E-08
C	Concentration (µg/dscm)		BDL	61	280
E	Emission rate (lb/hr)		BDL	0.011	0.054
C	Concentration (ppmdv)		BDL	0.025	0.116
Acrolein		**Blank**			
m_n	Matter collected (µg)	250	400	1,800	2,200
	Volume of sample (ml)	950	1,500	1,500	1,500
	Blank correction (µg)		0	395	395
$m_{n,net}$	Matter collected, net (µg)		400	1,405	1,805
C	Concentration (lb/dscf)		2.01E-08	7.18E-08	9.02E-08
C	Concentration (µg/dscm)		322	1,150	1,445
E	Emission rate (lb/hr)		0.061	0.216	0.277
C	Concentration (ppmdv)		0.138	0.493	0.620
Acetone		**Blank**			
m_n	Matter collected (µg)	250	170	BDL	BDL
	Volume of sample (ml)	950	1,500	1,500	1,500
	Blank correction (µg)		395	395	395
$m_{n,net}$	Matter collected, net (µg)		BDL	BDL	BDL
C	Concentration (lb/dscf)		BDL	BDL	BDL
C	Concentration (µg/dscm)		BDL	BDL	BDL
E	Emission rate (lb/hr)		BDL	BDL	BDL
C	Concentration (ppmdv)		BDL	BDL	BDL
2-Butanone		**Blank**			
m_n	Matter collected (µg)	BDL	BDL	BDL	BDL
	Volume of sample (ml)	950	1,500	1,500	1,500
	Blank correction (µg)		BDL	BDL	BDL
$m_{n,net}$	Matter collected, net (µg)		BDL	BDL	BDL
C	Concentration (lb/dscf)		BDL	BDL	BDL
C	Concentration (µg/dscm)		BDL	BDL	BDL
E	Emission rate (lb/hr)		BDL	BDL	BDL
C	Concentration (ppmdv)		BDL	BDL	BDL

[1] Negative matter weights are assumed to be zero.

CALIBRATION DATA

C

Meter Box Full Test Calibration

Date: 7-06-95

Operator: D. CHIOVARE

Meter Box No.: D-5	Meter Box ΔH@: 1.8373	Meter Box Yd: .9984	Barometric Pressure: 25.22

				Standard Meter Gas Volume			Meter Box Gas Volume (ft³)			Std. Meter Temperature (°F)			Meter Box Temperature (°F)					
Q	ΔH	ΔP	Y_{ds}	Initial	Final	V_{ds} Net	Initial	Final	V_d Net	In	Out	T_{ds} Ave.	In	T_o Out	T_d Ave.	Θ Time	Y_d	ΔH@
.35	.5	-1.2	1.0000	0	5.500	5.500	425.655	431.499	5.844	72	72	72	104	99	101.5	12.97	.9882	1.7800
.35	.5	-1.2	1.0000	0	5.000	5.000	438.230	443.535	5.305	72	72	72	103.5	99.5	101.5	11.79	.9897	1.7782
.59	1.5	-1.8	1.0000	0	10.000	10.000	344.643	355.021	10.378	72	72	72	101	91	96	14.10	.9972	1.9373
.59	1.5	-1.8	1.0000	0	10.000	10.000	355.021	365.414	10.393	72	72	72	103	93	98	14.07	.9993	1.9217
.85	3.0	-3.2	1.0000	0	10.008	10.008	311.108	321.149	10.041	72	72	72	93	83	88	9.82	1.0081	1.9041
.84	3.0	-3.2	1.0000	0	10.003	10.003	321.149	331.246	10.097	72	72	72	97	86	91.5	9.89	1.0083	1.9225
															Average		.9984	1.8373

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 (ft³)
- V_{ds} Standard Meter Volume - Dry (ft³)
- 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

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

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

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

Calibrations

Vacuum Gauge		Thermometers		
Standard (in. Hg)	Vacuum Gauge	Standard (°F)	Inlet	Outlet

SOLVAY2016_6_001160

CS 001 Full Test-English
CNMS/TRG.R2-2/7/94

Clean Air Engineering

Critical Orifice Calibration Data Sheet

CAE Project 65-7629

Full Test Cal. Date : 07/06/95

Client SOLVAY MINERALS

Critical Orfice Cal. Date: 10/02/95

Date 12/19/95

METER D-5

Meter Yd 0.9984

Meter ΔH@ 1.8373

Pbar 25.00

Orifice Used ? Orifice C-3 0.5580

Run #	Volume	Elapsed Time	Tmi	Tmo	Tamb	ΔH	Vacuum
	294.00		70	65	64		
1	297.60	5.0	70	65	64	1.50	16
2	301.19	10.0	70	65	64	1.50	16
3	304.79	15.0	70	65	64	1.50	16

Run #	Vmstd	Vcrstd	Diff
1	3.02	3.05	-0.95%
2	3.01	3.05	-1.22%
3	3.02	3.05	-0.95%
avg	3.02	3.05	-1.04%

Critical Orifice Calibration Data Sheet

CAE Project 65-7629

Full Test Cal. Date : 07/06/95

Client SOLVAY MINERALS

Critical Orfice Cal. Date: 10/02/95

Date 12/19/95

METER D-5

Meter Yd 0.9984

Meter ΔH@ 1.8373

Pbar 25.00

Orifice Used ? Orifice B-2 0.4270

Run #	Volume	Elapsed Time	Tmi	Tmo	Tamb	ΔH	Vacuum
	318.50		71	68	67		
1	321.27	5.0	72	68	67	0.84	18
2	324.04	10.0	72	68	67	0.84	18
3	326.82	15.0	73	69	67	0.84	18

Run #	Vmstd	Vcrstd	Diff
1	2.31	2.33	-0.74%
2	2.31	2.33	-0.78%
3	2.31	2.33	-0.52%
avg	2.31	2.33	-0.68%

Nozzle Calibration Sheet

Client: Solvay Minerals, Inc.

Calibrated by: R. Mitchelik / SF

Date: 12/12/95 - 12/15/95

Job or Ref No: 7629

Unit: EP 1+2 / EP 5

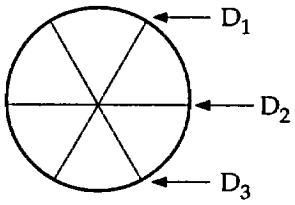
Runs: 1-3

Nozzle Identification	D_1 (inches)	D_2 (inches)	D_3 (inches)	ΔD (inches)	ΔD_{ave} (inches)
EP-1,2 Nozzle 1 M-5/202	.272	.272	.272	.000	.272
EP-5 2 M-5/202	0.374	0.374	0.374	0.000	0.374
EP-1,2 M-0011 Formaldehyde	0.270	0.270	0.270	0.000	0.270
EP-1,2 MM-5 Formaldehyde	0.252	0.252	0.251	0.001	0.252
EP-5 MM-5 Formaldehyde	0.375	0.375	0.375	0.000	0.375
EP-5 M-0011 Formaldehyde	0.375	0.375	0.375	0.000	0.375

D_1, D_2, D_3 = three nozzle diameter measurements

ΔD = maximum difference between any two diameters
$\Delta D \leq 0.004$ inches*

ΔD_{avg} = average of D_1, D_2, D_3



* (40 CFR 60, Appendix A, Method 5, Section 5.1)

CAE Clean Air Engineering
SOLVAY2016_6_001163

SAMPLE PROBE CALIBRATION DATA

Probe Type & I.D. number: 12-1-94-2 6'M5

Thermocouple Calibration

Reference Type: _____ Reference I.D. No: _____ Pyrometer I.D. No: _____ Degrees: F / C

Point No.	Target Temp.	Reference Temp	Indicated Temp	Temp Difference	% Difference	Specification
1	ice-32F					
2	ambient-70F					%Difference ≤ 1.5
3	hot oil-160F					
4	boiling H2O-212F					
5	hot oil-320F					

Does assembly meet specifications? YES / NO—→ If "NO" thermocouple must be replaced.

Geometric Pitot Calibration — diagram on reverse

Is pitot assembly in good repair? YES / NO If "NO" explain: _____

☑ "S" Pitot

Measurement		Specification
α1= 1	α2= 1	<10°
β1= 1	β2= 2	<5°
γ= 1	θ= 1	
Pa= .353	Pb= .352	Pa + Pb = A
A= .705	D1= .250	

Calculations

z = A sinγ =	.0123	<0.125"
w = A sinθ =	.0123	<0.03125"

Does assembly meet specifications? YES / NO ——→ *If "YES" "S" pitot Cp=0.84; Std pitot Cp=0.99*
If "NO" wind tunnel calibration is required.

☐ Standard Pitot

Measurement		Specification
Tube O.D.	_____ "	(D)
Static Hole I.D.	_____ "	(D X 0.1)
Length,		
Tip to Static	_____ "	(8 X D Minimum)
Static to Bend	_____ "	(8 X D Minimum)

Does assembly meet specifications? YES / NO

Wind Tunnel Pitot Calibration

Reference Pitot I.D. No: _____ Reference Pitot Cp: _____

SIDE A:

Trial No.	Reference ΔP	Probe ΔP	Probe Cp	Cp Deviation
1				
2				
3				

Average Probe Cp= _____
Side A "S" = _____

SIDE B:

Trial No.	Reference ΔP	Probe ΔP	Probe Cp	Cp Deviation
1				
2				
3				

Average Probe Cp= _____
Side B "S" = _____

Where,
Probe Cp=√(Reference ΔP / Probe ΔP)
Cp Deviation=Probe Cp - Average Probe Cp
"S" =√((Σ (Reference Cp - Cp Deviation))/2)

Specification
Avg Cp Side A - Avg Cp Side B < 0.01
and
"S" Side A and "S" Side B ≤ 0.02

Does assembly meet specifications? YES / NO ——→ *If "YES" Cp=Average of A and B Side Cp values.*
If "NO" pitot must be replaced.

PITOT Cp = .84 Calibrated by: EM Date: 12-6-95

SOLVAY2016_6_001164

Scott Specialty Gases, Inc.

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

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

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

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

Purchase Order : 12021-71500
Scott Project # : 570587

ANALYTICAL INFORMATION

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

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

ANALYZED CYLINDER

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

Balance Gas: Nitrogen

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

REFERENCE STANDARD

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

INSTRUMENTATION

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

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

Components
Propane

First Triad Analysis

Date: 9/7/94 Response Units: ppm

Z1=0.00	R1=97.30	T1=25.30
R2=97.30	Z2=0.00	T2=25.20
Z3=0.00	T3=25.20	R3=97.30

Avg. Conc. of Cust. Cyl. 252.4 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

SOLVAY2016_6_001165

Special Notes

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 : ALM018248
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	562.8 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

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

REFERENCE STANDARD

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

INSTRUMENTATION

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

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

Components
Propane

First Triad Analysis

Date: 9/7/94 Response Units: mv

Z1=0.00	R1=97.30	T1=56.30
R2=97.30	Z2=0.00	T2=56.20
Z3=0.00	T3=56.30	R3=97.30

Avg Conc of Cust. Cyl 562.8 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

SOLVAY2016_6_001166

Mott / Bass

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (313) 589-2950 FAX: (313) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
CAE INSTRUMENTAL RENTAL
246 WOODWORK LANE
PALATINE, IL. 60067-9760

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

Purchase Order 10084-71500
Scott Project # 559258

ANALYTICAL INFORMATION

Certified to exceed the minimum specifications of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number ALM009204 **Certification Date** 12-6-93 **Expiration Date** 12-6-96
Cylinder Pressure 1900 psig **Previous Certification Dates** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	835.0 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

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

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
CRM 2646	12-31-93	AAL-18432	973.2 ppm Propane in N_2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Prop: Beckman/400/1002059	12-6-93	Flame Ionization Detector

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

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Propane	Date: 12-6-93 Response Units: mv Z1=0.00 R1=96.40 T1=82.70 R2=96.40 Z2=0.00 T2=82.70 Z3=0.00 T3=82.70 R3=96.40 Avg. Conc. of Cust. Cyl. 835.0 ppm		Concentration=A+Bx+Cx^2+Dx^3+Ex^4 r=0.99999 CRM 2646 Constants: A=0.7421058 B: 10.10758 C=0 D=0 E=0
			Concentration=A+Bx+Cx^2+Dx^3+Ex^4
			Concentration=A+Bx+Cx^2+Dx^3+Ex^4

Scott Specialty Gases, Inc.

Shipped 1290 COMBERMERE STREET
to: TROY MI 48083
Phone: 313-589-2950 Fax: 313-589-2134

CERTIFICATE OF ANALYSIS

C A E INSTRUMENT RENTAL
246 WOODWORK LANE
PALATINE IL 60067

PROJECT #: 05-43552
PO#: 6917-71500
ITEM #: 05022713 2AL
DATE: 11/03/92

CYLINDER #: ALM016855 ANALYTICAL ACCURACY: +-1%

COMPONENT	REQUESTED GAS CONC MOLES		ANALYSIS (MOLES)	
METHANE	.95	PCT	.9550	PCT
AIR		BAL		BAL

ACUBLEND MASTER GAS
ALM028732 ALM030335

ANALYTICAL METHOD: AMG

ANALYST: _____ ANALYST APPROVED BY: _____ SUPERVISOR

SOLVAY2016_6_001168

Reference Method Sampling System

Client: SOLVAY MINERALS, INC.
Plant: GREEN RIVER, WY
Unit: EP-1,2, EP-5
Location: STACK, STACK
Run #'s: 1-3, 1-3

Job #: 7629
Operator: S. FERGUSON
Date: 12/14/95 – 12/15/95
Data Acquisition: Chart / Computer
File Names: CAL00-CAL03, RUN01-RUN03

Instrumentation Data for Reference Method:

#	Constituent	Manufacturer	Serial/Asset#	Range Used	Oper. Principle	Units Reported
1	THC	JUM	IC560	0-1,000	FID	PPM, lb/hr
2						
3						
4						
5						
6						

Reference Method System Performance Checks:

System Leak Check Passed: ✓ System Response Time: 1 MIN
Calibration Error Check Passed: ✓

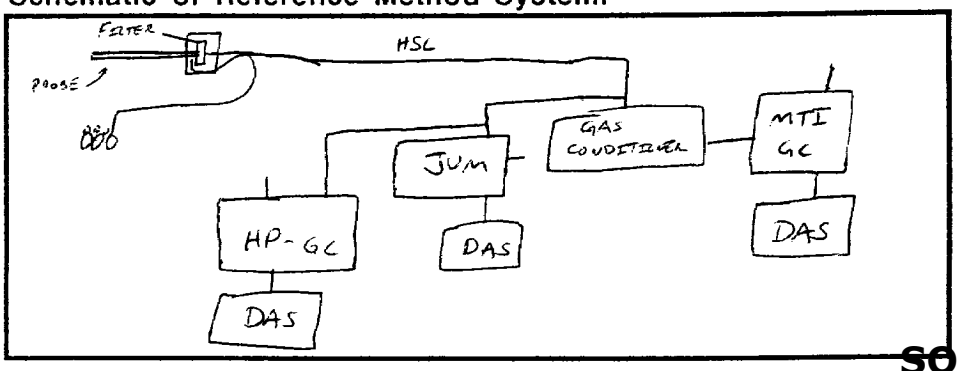
RATA: Yes No (circle one)
If yes, circle the units the RATA is based on, and include DS 077 to describe the facility's CEM system.

Calibration Materials Data:

#	Constituent	Concentration	Cylinder ID	Protocol?
1	PROPANE	252.4	ALM023815	YES / NO
2	PROPANE	562.8	ALM018248	YES / NO
3	PROPANE	835.0	ALM009204	YES / NO
4				YES / NO
5				YES / NO
6				YES / NO
7				YES / NO
8				YES / NO
9				YES / NO
10				YES / NO
11				YES / NO
12				YES / NO
13				YES / NO
14				YES / NO

Comments:

Schematic of Reference Method System:



Clean Air Engineering

SOLVAY2016 6 001169

SOLVAY MINERALS
CAE Job No. 7629-2
12/11/95

Target Compounds

Compound	Phase	Mol. Wt.	Density	Source	Stock No.	Lot No.	CAS No.
Methane	gas	16.00	na	Scott	0801652	08-23069	74-82-8
1,3 Butadiene	gas	54.09	na	Scott	not Available	not Available	106-99-0
Hexane	liquid	86.18	0.663	Aldrich	13,938-6	04827DN	110-54-3
Methylene Chloride	liquid	84.94	1.326	Aldrich	27,056-3	not Available	75-09-2
1,1,1-Trichloroethane	liquid	133.41	1.338	Aldrich	39,546-3	93H5953	71-55-6
Benzene	liquid	78.11	0.879	Aldrich	27,070-9	07214MG	71-43-2
Trichloroethylene	liquid	131.40	1.465	Aldrich	25,140-2	04925EN	79-01-6
Toluene	liquid	92.14	0.866	Aldrich	27,037-7	not Available	108-88-3
Ethylbenzene	liquid	106.17	0.867	Aldrich	29,684-8	03634CG	100-41-4
p-Xylene	liquid	106.16	0.861	Aldrich	31,719-5	00813LN	106-42-3
m-Xylene	liquid	106.16	0.868	Aldrich	18,556-6	06920AG	108-38-3
o-Xylene	liquid	106.16	0.880	Aldrich	29,588-4	04337AN	95-47-6
Styrene	liquid	104.14	0.906	Aldrich	24,086-9	03701DZ	100-42-5
2-Butanone**	liquid	72.10	0.805	Aldrich	11,026-4	13414DG	78-93-3
Acrylonitrile**	liquid	53.06	0.806	Aldrich	11,021-3	04701PG	107-13-1

** A seperate and independent calibration and detection limit determination was required for both the 2-Butanone and the Acrylonitrile. Very poor response and unusual peak shapes prompted this decision.

GC 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: 6.00 min

Tot Time: 21.00 min
Reset: 5 min

SOLVAY MINERALS
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Stock Solution

The Stock Solution is a mixture of the liquid phase Target Analytes in a 20ml vial, based on the following liquid volumes.

compound	volume (ml)	% tot by volume
Hexane	1.00	9.90%
Methylene Chloride	0.70	6.93%
1,1,1-Trichloroethane	0.80	7.92%
Benzene	0.80	7.92%
Trichloroethylene	0.80	7.92%
Toluene	1.00	9.90%
Ethylbenzene	1.00	9.90%
p-Xylene	1.00	9.90%
m-Xylene	1.00	9.90%
o-Xylene	1.00	9.90%
Styrene	1.00	9.90%

Calibration Bag Standards

Raw Data

The Calibration Bag Standards are mixtures of 0 air, stock solution, butadiene and methane in tedlar bags based on the following data.

bag #	0 Air flow (ml/min)	time (min)	stock inj (ul)	methane (ml)	butadi (ul)	T (amb) (F)	Pb (in Hg)
1	2070	20.00	3	10	30	70	23.54
2	2093	20.00	0.6	5	60	70	23.54
3	2115	20.00	2	15	90	70	23.54
4	2142	19.00	4	2.5	100	70	23.54
5	2155	20.75	6	20	50	70	23.54

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Calibration Bag Standards

Results

bag #1

compound	ppmv
Methane	242
Butadiene	0.72
Hexane	1.69
Methylene Chloride	2.41
1,1,1-Trichloroethane	1.77
Benzene	1.98
Trichloroethylene	1.96
Toluene	2.07
Ethylbenzene	1.80
p-Xylene	1.78
m-Xylene	1.80
o-Xylene	1.82
Styrene	1.91

bag #2

compound	ppmv
Methane	119
Butadiene	1.43
Hexane	0.33
Methylene Chloride	0.48
1,1,1-Trichloroethane	0.35
Benzene	0.39
Trichloroethylene	0.39
Toluene	0.41
Ethylbenzene	0.36
p-Xylene	0.35
m-Xylene	0.36
o-Xylene	0.36
Styrene	0.38

bag #3

compound	ppmv
Methane	354
Butadiene	2.13
Hexane	1.10
Methylene Chloride	1.57
1,1,1-Trichloroethane	1.15
Benzene	1.29
Trichloroethylene	1.28
Toluene	1.35
Ethylbenzene	1.17
p-Xylene	1.16
m-Xylene	1.17
o-Xylene	1.19
Styrene	1.25

bag #4

compound	ppmv
Methane	61
Butadiene	2.46
Hexane	2.30
Methylene Chloride	3.26
1,1,1-Trichloroethane	2.39
Benzene	2.69
Trichloroethylene	2.66
Toluene	2.81
Ethylbenzene	2.44
p-Xylene	2.42
m-Xylene	2.44
o-Xylene	2.47
Styrene	2.60

bag #5

compound	ppmv
Methane	447
Butadiene	1.12
Hexane	3.13
Methylene Chloride	4.45
1,1,1-Trichloroethane	3.27
Benzene	3.67
Trichloroethylene	3.63
Toluene	3.83
Ethylbenzene	3.33
p-Xylene	3.30
m-Xylene	3.33
o-Xylene	3.38
Styrene	3.54

SOLVAY MINERALS
CAE Job No. 7629-2
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Calibration Summary

Bag #1

	area 1	area 2	area 3	area 4	area 5	area 6	area 7	area 8	area avg	%rsd
Methane	1144123	1104737	1143890	1136143	1139803	1138316	1125323	1135275	1133451	1.1[illegible]
Butadiene	24494	23736	25133	26073	24794	24912	16538	24210	23736	12.59
Hexane	53392	52331	53473	53371	52937	53485	52437	52752	53022	0.89
MeCl	11738	9389	9893	9790	11039	11109	10417	8877	10282	9.42
TCA	20515	19564	20012	19956	19932	24695	19742	19667	20510	8.36
Benzene	68447	67293	69197	69248	68782	68296	68529	68555	68543	0.89
TCE	25285	24345	24999	24789	24606	23613	24323	24302	24533	2.09
Toluene	82684	82417	82851	82915	82201	82129	82163	81895	82407	0.45
EBE	86325	84581	85579	86471	84315	85569	84760	84235	85229	1.03
p-Xylene	82985	79088	78778	79508	78560	80286	77867	77103	79272	2.25
m-Xylene	93660	90907	88770	90098	92779	89163	87978	86412	89971	2.69
o-Xylene	94279	86773	85961	87069	86055	84882	85428	83425	86734	3.75
Styrene	104885	95128	97196	97085	90421	92305	93552	87344	94740	5.58

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Calibration Summary

Bag #2

	area 1	area 2	area 3	area 4	area avg	% rsd
Methane	569647	564439	567940	566757	567196	0.39
Butadiene	34282	33833	33858	33898	33968	0.62
Hexane	10711	10588	10831	10556	10672	1.18
*** Methylene Chloride		1058			na	na
Trichloroethane	3832	3871	3838	3863	3851	0.49
Benzene	14781	14773	14637	14608	14700	0.61
Trichloroethylene	5364	5318	5255	5264	5300	0.96
Toluene	20276	20051	19749	19808	19971	1.21
Ethylbenzene	21716	21955	21884	22281	21959	1.08
p-Xylene	19409	18116	17415	17363	18076	5.27
m-Xylene	** 38218	26201	25298	26363	25954	2.21
o-Xylene	** 26154	21409	22135	22846	22130	3.25
Styrene	19506	21843	21210	21199	20940	4.79

** Denotes area count was not used for cal curve generation.
*** Denotes cal bag was not used for cal curve generation for this compound.

Bag #3

	area 1	area 2	area 3	area 4	area avg	% rsd
Methane	1936290	1932567	1922806	1927593	1929814	0.30
Butadiene	60642	60032	59993	60377	60261	0.51
Hexane	34659	34443	34266	34416	34446	0.47
Methylene Chloride	6355	6410	5410	5499	5919	9.08
Trichloroethane	13086	12805	12950	12971	12953	0.89
Benzene	44862	44620	44861	44577	44730	0.34
Trichloroethylene	15587	15256	15568	15215	15407	1.29
Toluene	54578	53821	54236	53843	54120	0.67
Ethylbenzene	57467	57262	56370	55909	56752	1.30
p-Xylene	51119	50845	51226	50754	50986	0.44
m-Xylene	61871	61846	62417	61781	61979	0.48
o-Xylene	60103	59698	60212	59883	59974	0.38
Styrene	59998	59287	58582	58906	59193	1.03

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Calibration Summary

Bag #4

	area 1	area 2	area 3	area 4	area avg	% rsd
Methane	299234	297240	298205	298277	298239	0.27
Butadiene	52673	53426	52662	52590	52838	0.75
Hexane	73866	73804	73608	73859	73784	0.16
Methylene Chloride	25315	**13637	**31520	24321	24818	2.83
Trichloroethane	26763	26724	26690	26796	26743	0.17
Benzene	92742	92897	91967	92973	92645	0.50
Trichloroethylene	33002	33094	32403	33125	32906	1.03
Toluene	111302	111901	110675	111703	111395	0.49
Ethylbenzene	115934	116236	115268	116344	115946	0.42
p-Xylene	109083	109492	107956	109611	109036	0.69
m-Xylene	123611	122942	121606	123351	122878	0.73
o-Xylene	121054	119266	118102	120166	119647	1.06
Styrene	124883	124861	122166	123464	123844	1.05

Bag #5

	area 1	area 2	area 3	area 4	area avg	% rsd
Methane	2272115	2299261	2300495	2301279	2293288	0.62
Butadiene	40897	41922	41951	42870	41910	1.92
Hexane	97778	98875	99438	99472	98891	0.80
Methylene Chloride	28535	25098	23203	18388	23806	17.78
Trichloroethane	35550	35913	36075	37754	36323	2.70
Benzene	122142	123844	124773	125434	124048	1.15
Trichloroethylene	43352	44084	44626	47578	44910	4.13
Toluene	146859	149168	150488	150792	149327	1.20
Ethylbenzene	151790	154785	156609	156628	154953	1.47
p-Xylene	143413	146502	148689	148550	146789	1.68
m-Xylene	159032	162079	164153	163973	162309	1.46
o-Xylene	153969	157341	159222	159518	157513	1.62
Styrene	162938	166376	168847	167312	166368	1.50

SOLVAY MINERALS
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Calibration Summary

Response Factors

Response factors are the concentration of a given bag divided by the average area.

	bag #1	bag #2	bag #3	bag #4	bag #5
Methane	2.131E-04	2.106E-04	1.837E-04	2.060E-04	1.949E-04
Butadiene	3.053E-05	4.219E-05	3.529E-05	4.650E-05	2.667E-05
Hexane	3.193E-05	3.138E-05	3.206E-05	3.112E-05	3.169E-05
Methylene Chloride	2.339E-04	na	2.650E-04	1.314E-04	1.870E-04
Trichloroethane	8.609E-05	9.069E-05	8.892E-05	8.955E-05	8.998E-05
Benzene	2.891E-05	2.666E-05	2.889E-05	2.901E-05	2.956E-05
Trichloroethylene	8.002E-05	7.325E-05	8.311E-05	8.091E-05	8.090E-05
Toluene	2.510E-05	2.049E-05	2.493E-05	2.518E-05	2.564E-05
Ethylbenzene	2.109E-05	1.619E-05	2.066E-05	2.102E-05	2.147E-05
p-Xylene	2.252E-05	1.953E-05	2.283E-05	2.220E-05	2.251E-05
m-Xylene	2.000E-05	1.371E-05	1.894E-05	1.986E-05	2.052E-05
o-Xylene	2.103E-05	1.630E-05	1.984E-05	2.068E-05	2.144E-05
Styrene	2.021E-05	1.808E-05	2.110E-05	2.097E-05	2.130E-05

SOLVAY MINERALS
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Detection Limits

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

Raw Data

	inj 1	inj 2	inj 3	inj 4	inj 5	inj 6	inj 7	inj 8
Methane	226	218	224	224	224	223	224	224
Butadiene	0.90	0.92	1.29	0.95	1.27	1.26	1.01	1.14
Hexane	1.74	1.69	1.75	1.74	1.74	1.76	1.73	1.73
Methylene Chloride	2.44	2.27	2.01	2.29	2.29	1.58	2.27	1.85
Trichloroethane	1.64	1.73	1.77	1.77	1.77	0.98	1.76	1.75
Benzene	2.00	1.96	2.02	2.02	2.01	1.89	2.00	1.99
Trichloroethylene	2.05	1.97	2.03	2.02	2.00	1.69	1.97	1.98
Toluene	1.98	1.94	1.99	2.00	1.98	1.98	1.97	1.97
Ethylbenzene	1.77	1.74	1.78	1.78	1.76	1.83	1.77	1.76
p-Xylene	1.78	1.71	1.72	1.73	1.69	1.78	1.71	1.71
m-Xylene	1.68	1.64	1.65	1.67	1.64	1.69	1.66	1.66
o-Xylene	1.70	1.67	1.69	1.71	1.68	1.69	1.68	1.64
Styrene	1.88	1.93	1.94	1.93	1.88	1.86	1.87	1.81

Detection Limits

At 99% Probability

Methane	6.81
Butadiene	0.50
Hexane	0.06
Methylene Chloride	0.86
Trichloroethane	0.82
Benzene	0.12
Trichloroethylene	0.34
Toluene	0.05
Ethylbenzene	0.08
p-Xylene	0.10
m-Xylene	0.05
o-Xylene	0.06
Styrene	0.13
MEK	2.50
Acrylonitrile	11.80

SOLVAY MINERALS
CAE Job No. 7629-2
12/11/95

Detection Limits

By Calibration Curve x Intercepts
for Equation y=mx+b where:
y= instrument response (area counts)
m= slope
x= concentration (ppm)
b= constant

	equation	Detection limit
Methane	y= 5.25e3x-3.48e4	7
Butadiene	y= 2.25e4x+5.97e3	0.27
Hexane	y= 3.17e4x-111	0.00
Methylene Chloride	y= 5.4e3x-1.38e3	0.26
Trichloroethane	y= 1.12e4x+122	0.01
Benzene	y= 3.38e4x+946	0.03
Trichloroethylene	y= 1.23e4x+127	0.01
Toluene	y= 3.92e4x+3.85e3	0.10
Ethylbenzene	y= 4.6e4x+2.76e3	0.06
p-Xylene	y= 4.43e4x+733	0.02
m-Xylene	y= 4.78e4x+4.7e3	0.10
o-Xylene	y= 4.62e4x+3.24e3	0.07
Styrene	y= 4.69e4x+1.89e3	0.04

Summary

Reportable Limits of Detection based on
the greater of the two Detection Limit Determinations.

Methane	7
Butadiene	0.50
Hexane	0.06
Methylene Chloride	0.86
Trichloroethane	0.82
Benzene	0.12
Trichloroethylene	0.34
Toluene	0.10
Ethylbenzene	0.08
p-Xylene	0.10
m-Xylene	0.10
o-Xylene	0.07
Styrene	0.13

SOLVAY MINERALS
CAE Job No. 7629-2
12/11/95

Calibration Bags

Raw Data

bag #	flow (cc/min)	time (min)	T amb (F)	Pb (in Hg)	MEK inj (ul)	Acryl inj (ul)
6	956	10.75	68	23.80	4	4
7	959	10.75	68	23.80	2	2
8	961	10.75	68	23.80	1	1

Results

bag #	MEK (ppm)	Acrylonitrile (ppm)
6	131.4	178.8
7	65.5	89.1
8	32.7	44.4

Calibration Summary

Bag #6

	area 1	area 2	area 3
MEK	1761083	1883811	1907781
Acrylonitrile	1893211	2028195	2129021

Bag #7

	area 1	area 2	area 3	area 4	area 5	area 6	area 7
MEK	851940	894566	849556	896827	867025	909396	915697
Acrylonitrile	928993	975594	901410	969012	903426	975876	974149

Bag #8

	area 1	area 2	area 3
MEK	494666	425966	407699
Acrylonitrile	388002	288440	121978

SOLVAY MINERALS
CAE Job No. 7629-2
12/11/95

Response Factors

	cal #6		cal #7		cal #8	
	avg area	RF	avg area	RF	avg area	RF
MEK	1850892	7.099E-05	883572	7.408E-05	442777	7.376E-05
Acrylonitrile	2016809	8.863E-05	946923	9.404E-05	266140	1.670E-04

Detection Limits

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

Raw Data

	inj 1	inj 2	inj 3	inj 4	in 5	inj 6	inj 7
MEK	64.241	63.838	63.669	64.361	65.459	65.148	65.667
Acrylonitrile	96.038	93.725	93.07	95.412	96.454	95.142	95.58

Detection Limits

At 99% Probability

MEK	2.50
Acrylonitrile	3.86

By Calibration Curve x Intercepts
for Equation y=mx+b where:
y= instrument response (area counts)
m= slope
x= concentration (ppm)
b= constant

	equation	Detection limit
MEK	y=1.41e4x-1.46e4	1.04
Acryl	y=1.13e4x-1.33e5	11.77

Integration Events

Events:	Value:	Time:
Initial Area Reject	1000	INITIAL
Initial Peak Width	0.040	INITIAL
Shoulder Detection	OFF	INITIAL
Initial Threshold	1	INITIAL
Peak Width	0.430	0.683
Threshold	6	0.846
Peak Width	0.040	1.600
Tangent Skim		1.632
Threshold	0	1.632
Baseline All Valleys ON		4.879
Baseline All Valleys OFF		6.200
Threshold	1	11.311
Threshold	2	18.753
Peak Width	0.100	18.753

Report Specification

Destination:	Report/Chromatogram to Printer Report to File: Auto naming selected
Based on:	Area
Calculations:	ESTD
Printer Output:	Combined Chromatogram and Report
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	1.380	1	242.0	2.131e-004			1	Methane
		2	119.0	2.106e-004				
		3	354.0	1.837e-004				
		4	61.0	2.06e-004				
		5	447.0	1.949e-004				
2	1.873	1	0.72	3.053e-005			1	Butadiene
		2	1.43	4.219e-005				
		3	2.13	3.529e-005				
		4	2.46	4.65e-005				
		5	1.12	2.667e-005				
3	4.190	1	1.69	3.193e-005			1	Hexane
		2	0.33	3.138e-005				
		3	1.1	3.206e-005				
		4	2.3	3.112e-005				
		5	3.13	3.169e-005				
4	5.134	1	2.41	2.339e-004			1	Methylene Chloride

		3	1.57	2.65e-004	
		5	4.45	1.87e-004	
5	6.635	1	1.77	8.609e-005	1 Trichloroethane
		2	0.35	9.069e-005	
		3	1.15	8.892e-005	
		4	2.39	8.955e-005	
		5	3.27	8.998e-005	
6	7.977	1	131.4	7.099e-005	1 Methyl Ethyl Ketone
		2	65.5	7.408e-005	
		3	32.7	7.376e-005	
7	8.281	1	1.98	2.891e-005	1 Benzene
		2	0.39	2.666e-005	
		3	1.29	2.889e-005	
		4	2.69	2.901e-005	
		5	3.67	2.956e-005	
8	9.197	1	1.96	8.002e-005	1 Trichloroethylene
		2	0.39	7.325e-005	
		3	1.28	8.311e-005	
		4	2.66	8.091e-005	
		5	3.63	8.09e-005	
9	12.072	1	178.8	8.863e-005	1 Acrylonitrile
		2	89.1	9.404e-005	
		3	89.1	1.67e-004	
10	12.368	1	2.07	2.109e-005	1 Toluene
		2	0.41	2.049e-005	
		3	1.35	2.493e-005	
		4	2.81	2.518e-005	
		5	3.83	2.564e-005	
11	15.903	1	1.8	2.109e-005	1 Ethylbenzene
		2	0.36	1.619e-005	
		3	1.17	2.066e-005	
		4	2.44	2.102e-005	
		5	3.33	2.147e-005	
12	16.597	1	1.78	2.252e-005	1 p-Xylene
		2	0.35	1.953e-005	
		3	1.16	2.283e-005	
		4	2.42	2.22e-005	
		5	3.3	2.251e-005	
13	17.023	1	1.8	0.00002	1 m-Xylene
		2	0.36	1.371e-005	
		3	1.17	1.894e-005	
		4	2.44	1.986e-005	
		5	3.33	2.052e-005	
14	18.024	1	1.82	2.103e-005	1 o-Xylene
		2	0.36	1.63e-005	
		3	1.19	1.984e-005	
		4	2.47	2.068e-005	
		5	3.38	2.144e-005	
15	19.516	1	1.91	2.021e-005	1 Styrene
		2	0.38	1.808e-005	
		3	1.25	2.11e-005	
		4	2.6	2.097e-005	
		5	3.54	2.13e-005	

Calibration Settings

Title:

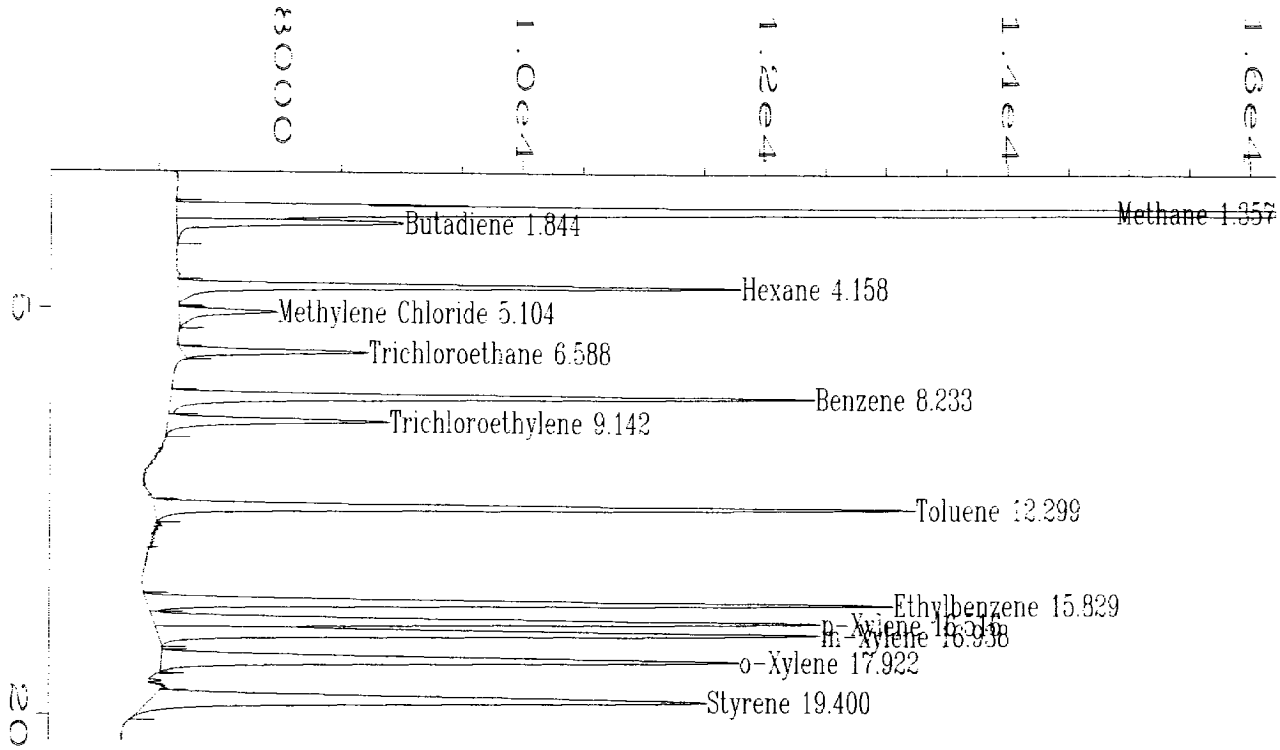
Reference window:	5.000 %
Non-reference window:	5.000 %
Units of amount:	ppm
Multiplier:	1.0
RF uncal peaks:	0.0
ISTD# to adjust uncal peaks:	0
Sample Amount:	0.0

Sample ISTD Information

No Sample ISTD Amounts

Multilevel Information

Fit: Linear
Origin: Include



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External Standard Report

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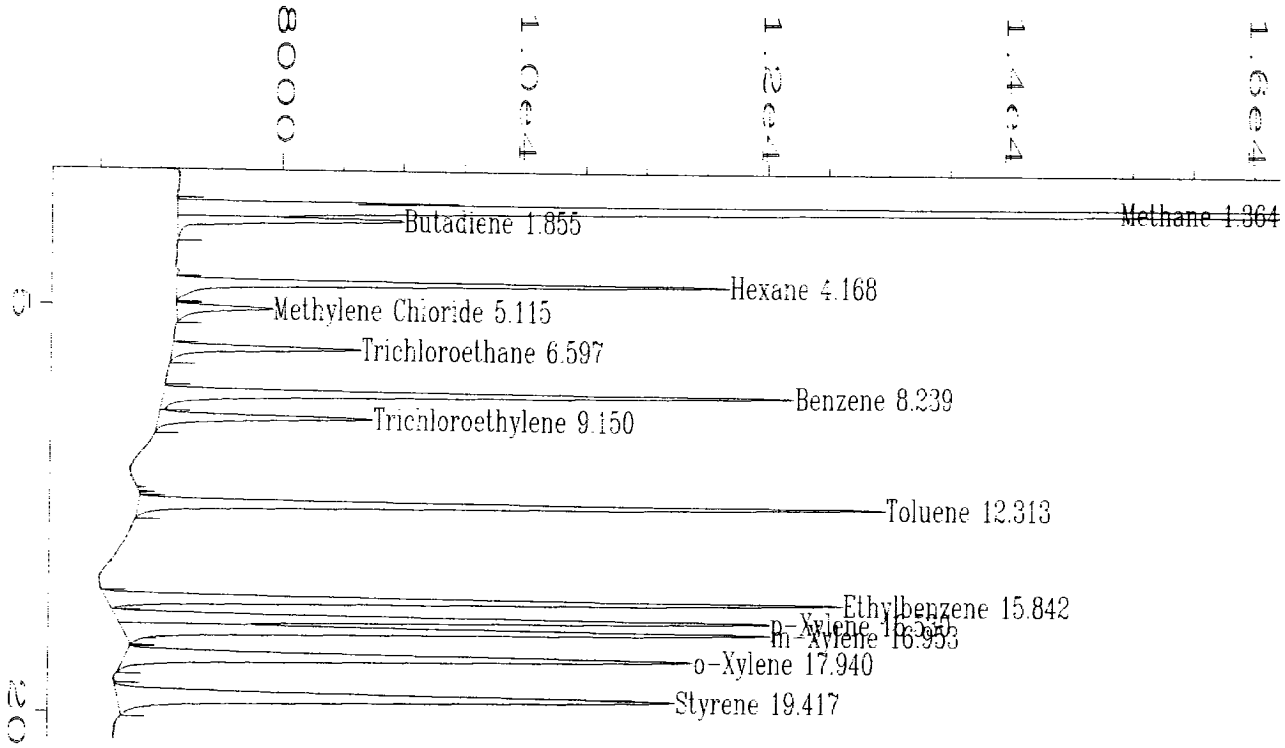
Data File Name	: D:\SOLVAY\HP\CALS\BAG1_001.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: 1/10 evap1 rng4	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 13 Dec 95 09:30 AM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 01:49 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\CALS\BAG1_001.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.357	1151140	BV	0.176	1	225.703	Methane
1.844	26286	HB S	0.234	1	0.903	Butadiene
4.158	55105	BB	0.174	1	1.741	Hexane
5.104	11796	BB	0.203	1	2.439	Methylene Chloride
6.588	18468	BV	0.153	1	1.644	Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.233	68474	BV	0.185	1	1.996	Benzene
9.142	25392	VB	0.201	1	2.051	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.299	81562	BB	0.162	1	1.984	Toluene
15.829	84287	BV	0.206	1	1.771	Ethylbenzene
16.516	79322	VV	0.210	1	1.775	p-Xylene
16.938	84790	VB	0.224	1	1.676	m-Xylene
17.922	81681	BV	0.219	1	1.697	o-Xylene
19.400	89942	BB	0.301	1	1.879	Styrene



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External Standard Report

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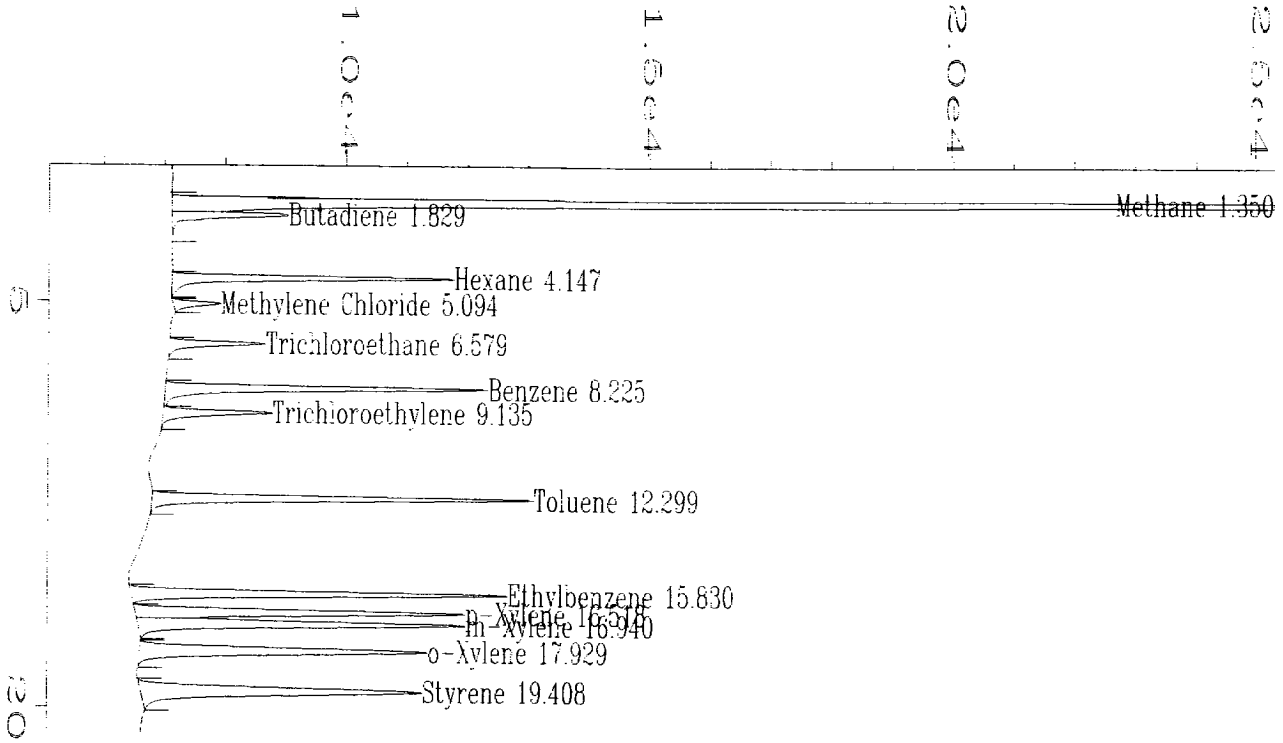
Data File Name : D:\SOLVAY\HP\CALS\BAG1_002.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 10:03 AM
Report Created on: 21 Dec 95 01:49 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\HP\CALS\BAG1_002.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.364	1110576	BV	0.172	1	217.984	Methane
1.855	26739	HB S	0.239	1	0.923	Butadiene
4.168	53615	BB	0.170	1	1.694	Hexane
5.115	10872	BB	0.172	1	2.268	Methylene Chloride
6.597	19429	BB	0.189	1	1.730	Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.239	67372	BV	0.184	1	1.964	Benzene
9.150	24444	VB	0.187	1	1.974	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.313	79870	BB	0.185	1	1.940	Toluene
15.842	83028	BV	0.200	1	1.744	Ethylbenzene
16.530	76349	VV	0.206	1	1.708	p-Xylene
16.953	83306	VB	0.230	1	1.644	m-Xylene
17.940	80395	BB	0.243	1	1.669	o-Xylene
19.417	92213	BB	0.277	1	1.927	Styrene



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External Standard Report

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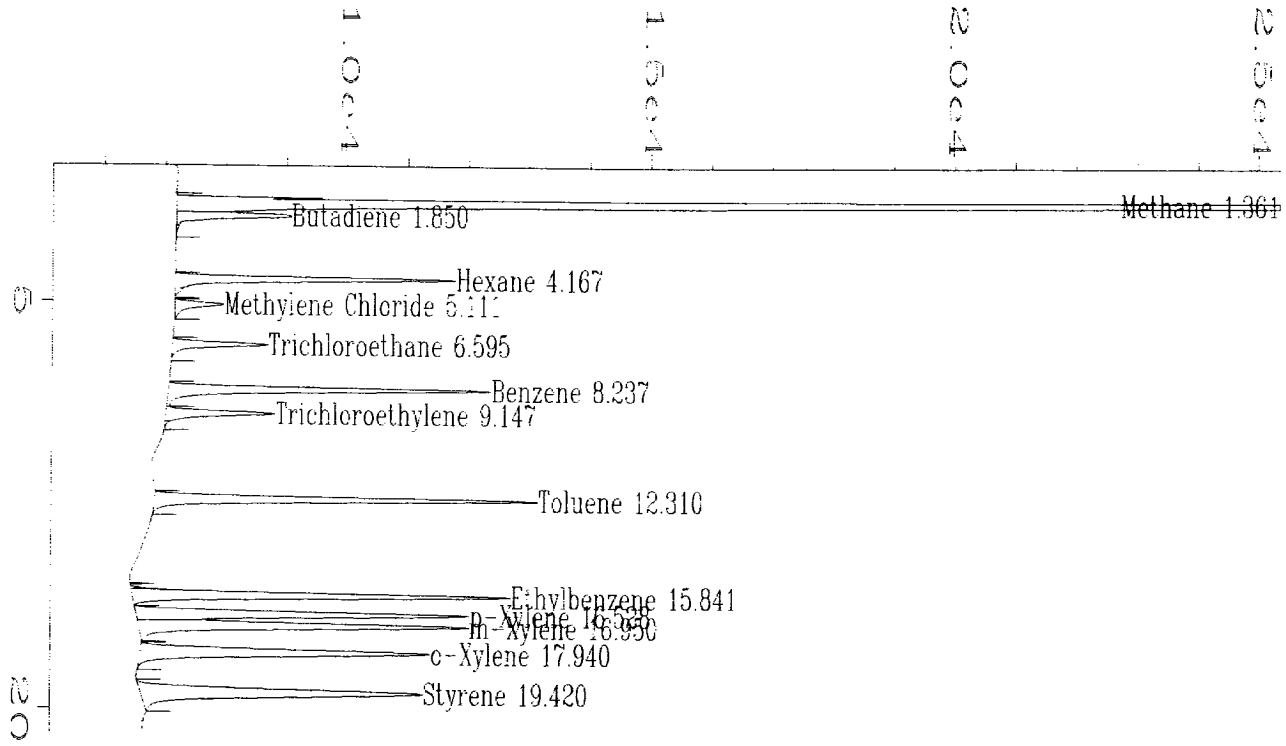
Data File Name : D:\SOLVAY\HP\CALS\BAG1_003.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 10:30 AM
Report Created on: 21 Dec 95 01:49 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\HP\CALS\BAG1_003.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.350	1143605	BH S	0.271	1	224.269	Methane
1.829	34906	HB S	0.302	1	1.286	Butadiene
4.147	55267	BB	0.173	1	1.747	Hexane
5.094	9494	BB	0.158	1	2.013	Methylene Chloride
6.579	19900	BB	0.179	1	1.772	Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.225	69247	BV	0.185	1	2.019	Benzene
9.135	25071	VB	0.195	1	2.025	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.299	81864	BB	0.187	1	1.991	Toluene
15.830	84539	BV	0.200	1	1.777	Ethylbenzene
16.518	76872	VV	0.205	1	1.719	p-Xylene
16.940	83735	VB	0.215	1	1.653	m-Xylene
17.929	81499	BB	0.247	1	1.693	o-Xylene
19.408	92659	BB	0.300	1	1.937	Styrene



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External Standard Report

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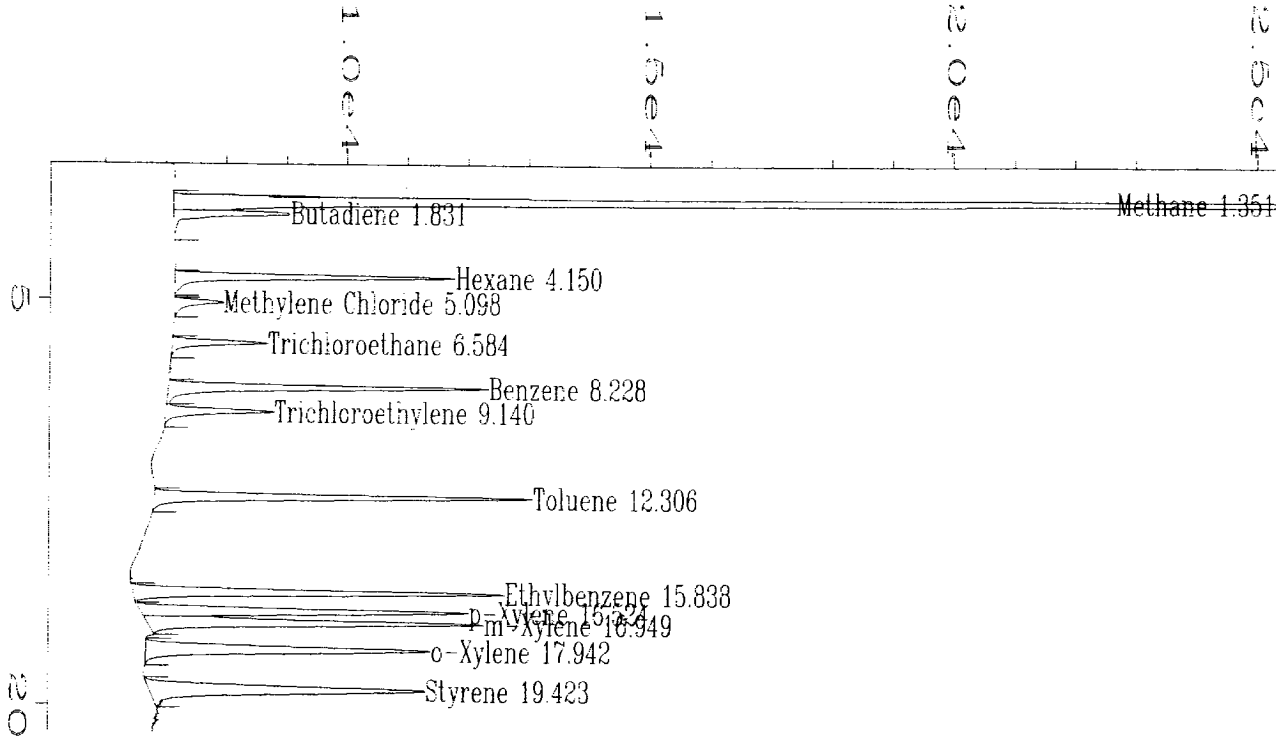
Data File Name : D:\SOLVAY\HP\CALS\BAG1_004.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 10:59 AM
Report Created on: 21 Dec 95 01:49 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\HP\CALS\BAG1_004.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.361	1141597	BV	0.176	1	223.887	Methane
1.850	27259	HB S	0.240	1	0.946	Butadiene
4.167	55123	BB	0.174	1	1.742	Hexane
5.111	11010	BB	0.185	1	2.293	Methylene Chloride
6.595	19923	BB	0.178	1	1.774	Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.237	69273	BV	0.187	1	2.020	Benzene
9.147	24944	VB	0.200	1	2.015	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.310	82082	BB	0.183	1	1.997	Toluene
15.841	84631	VV	0.200	1	1.779	Ethylbenzene
16.528	77538	VV	0.206	1	1.734	p-Xylene
16.950	84661	VB	0.224	1	1.673	m-Xylene
17.940	82045	BB	0.249	1	1.705	o-Xylene
19.420	92191	BB	0.298	1	1.927	Styrene



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External Standard Report

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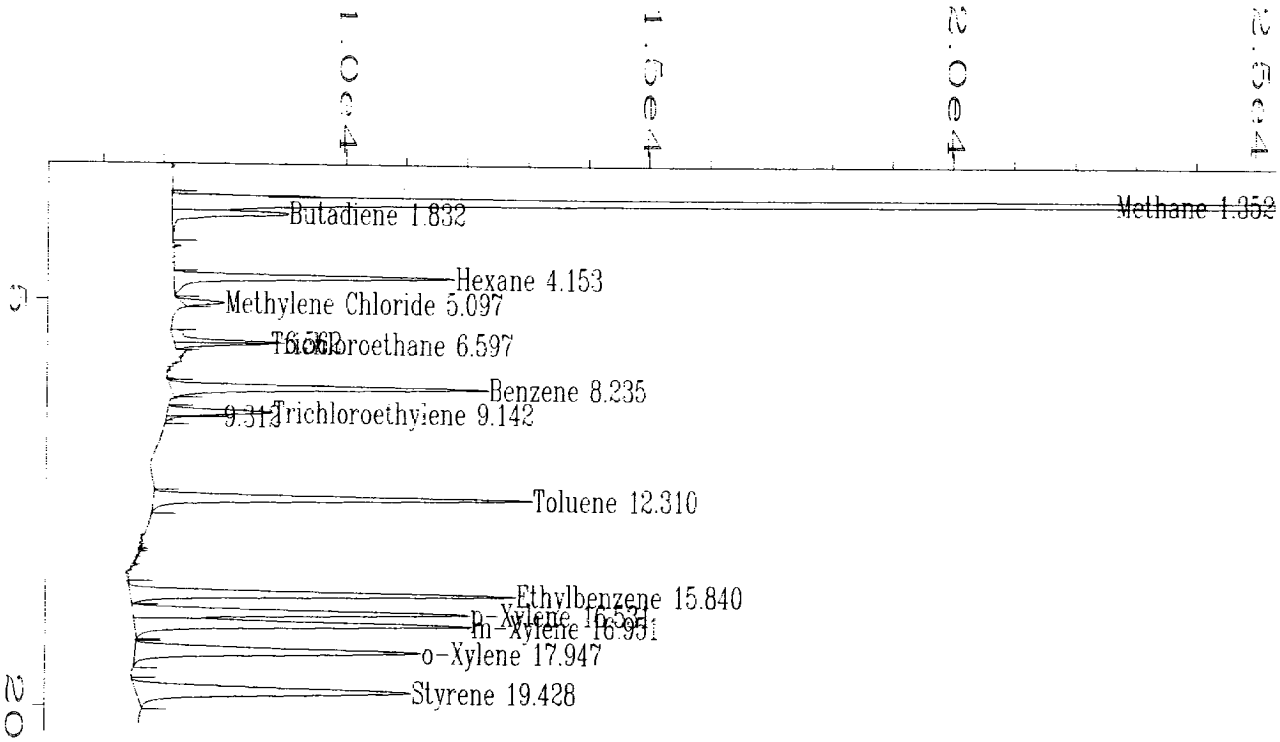
Data File Name : D:\SOLVAY\HP\CALS\BAG1_005.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 11:25 AM
Report Created on: 21 Dec 95 01:50 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\HP\CALS\BAG1_005.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.351	1139660	BH S	0.271	1	223.519	Methane
1.831	34651	HB S	0.301	1	1.274	Butadiene
4.150	54948	BB	0.173	1	1.736	Hexane
5.098	11005	BB	0.173	1	2.293	Methylene Chloride
6.584	19873	BB	0.181	1	1.770	Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.228	68844	BV	0.185	1	2.007	Benzene
9.140	24740	VB	0.200	1	1.998	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.306	81431	BB	0.187	1	1.980	Toluene
15.838	83765	BV	0.196	1	1.760	Ethylbenzene
16.524	75722	PV	0.175	1	1.693	p-Xylene
16.949	83171	VV	0.189	1	1.642	m-Xylene
17.942	80686	BB	0.245	1	1.675	o-Xylene
19.423	89761	BV	0.252	1	1.875	Styrene



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External Standard Report

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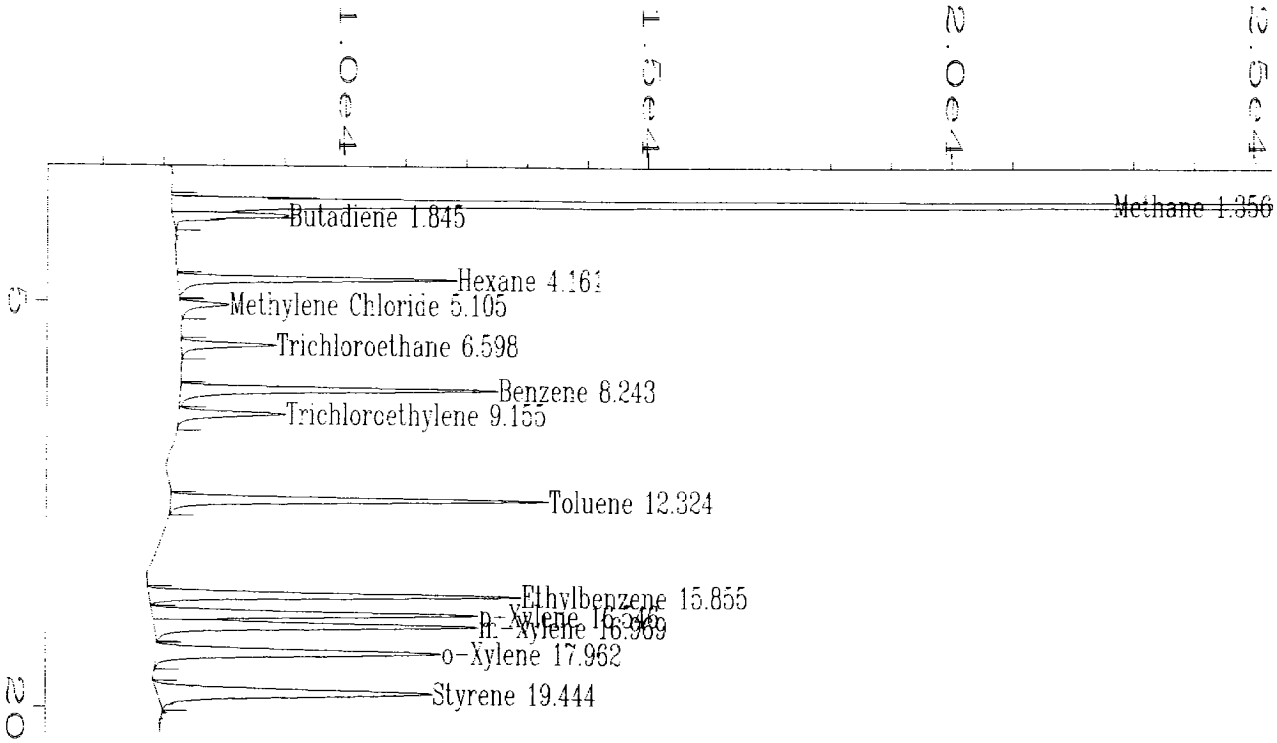
Data File Name : D:\SOLVAY\HP\CALS\BAG1_006.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 11:52 AM
Report Created on: 21 Dec 95 01:50 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\HP\CALS\BAG1_006.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.352	1138231	BH S	0.173	1	223.247	Methane
1.832	34421	HB S	0.299	1	1.264	Butadiene
4.153	55689	BV	0.171	1	1.760	Hexane
5.097	7166	PB	0.148	1	1.582	Methylene Chloride
6.597	11092	VV	0.090	1	0.983	Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.235	64974	VV	0.174	1	1.893	Benzene
9.142	20939	BV	0.176	1	1.689	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.310	81429	BB	0.187	1	1.980	Toluene
15.840	87044	BV	0.175	1	1.831	Ethylbenzene
16.531	79379	VV	0.176	1	1.776	p-Xylene
16.951	85605	VB	0.191	1	1.693	m-Xylene
17.947	81272	BB	0.241	1	1.688	o-Xylene
19.428	89191	BB	0.294	1	1.863	Styrene



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External Standard Report

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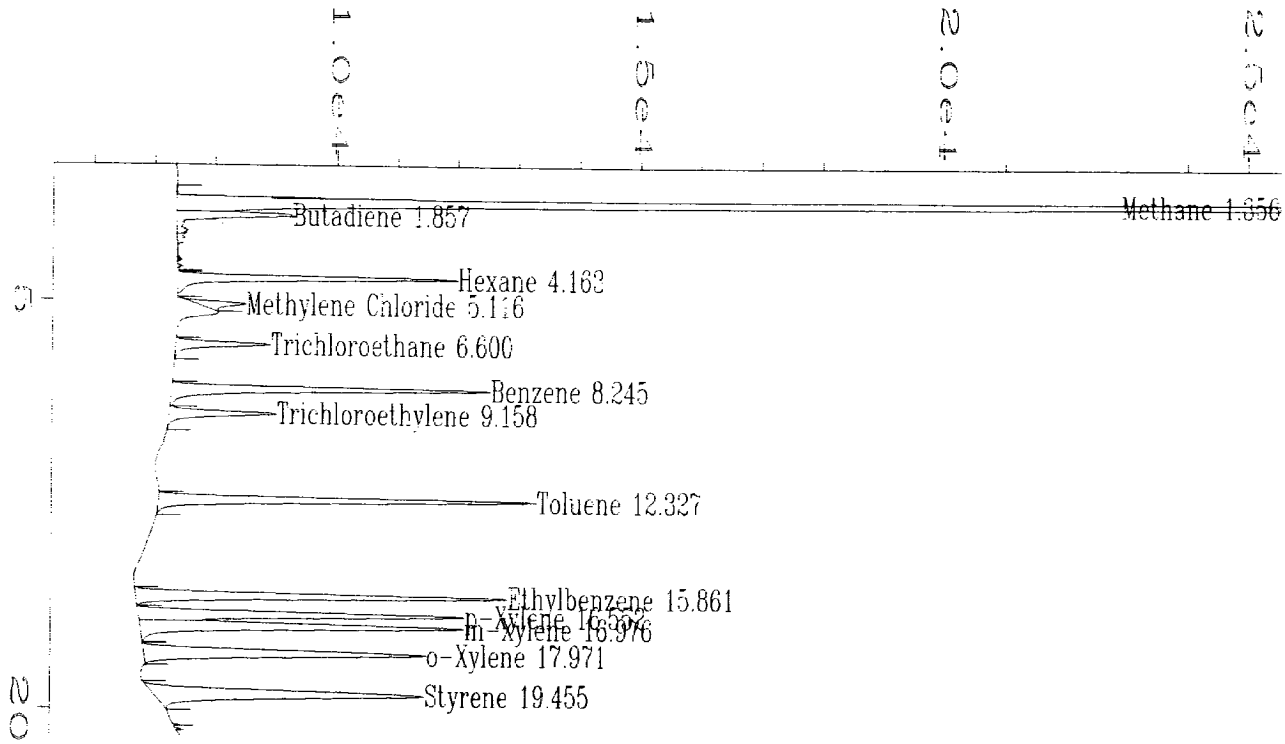
Data File Name : D:\SOLVAY\HP\CALS\BAG1_007.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 12:19 PM
Report Created on: 21 Dec 95 01:50 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\HP\CALS\BAG1_007.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.356	1139960	BV	0.174	1	223.576	Methane
1.845	28656	HB S	0.250	1	1.008	Butadiene
4.161	54754	BB	0.174	1	1.730	Hexane
5.105	10855	BB	0.185	1	2.265	Methylene Chloride
6.598	19767	BB	0.183	1	1.760	Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.243	68517	BV	0.189	1	1.997	Benzene
9.155	24448	VB	0.194	1	1.974	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.324	81133	BB	0.185	1	1.973	Toluene
15.855	84012	BV	0.198	1	1.765	Ethylbenzene
16.546	76380	VV	0.209	1	1.708	p-Xylene
16.969	84104	VB	0.229	1	1.661	m-Xylene
17.962	81098	BB	0.243	1	1.684	o-Xylene
19.444	89309	BB	0.295	1	1.866	Styrene



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External Standard Report

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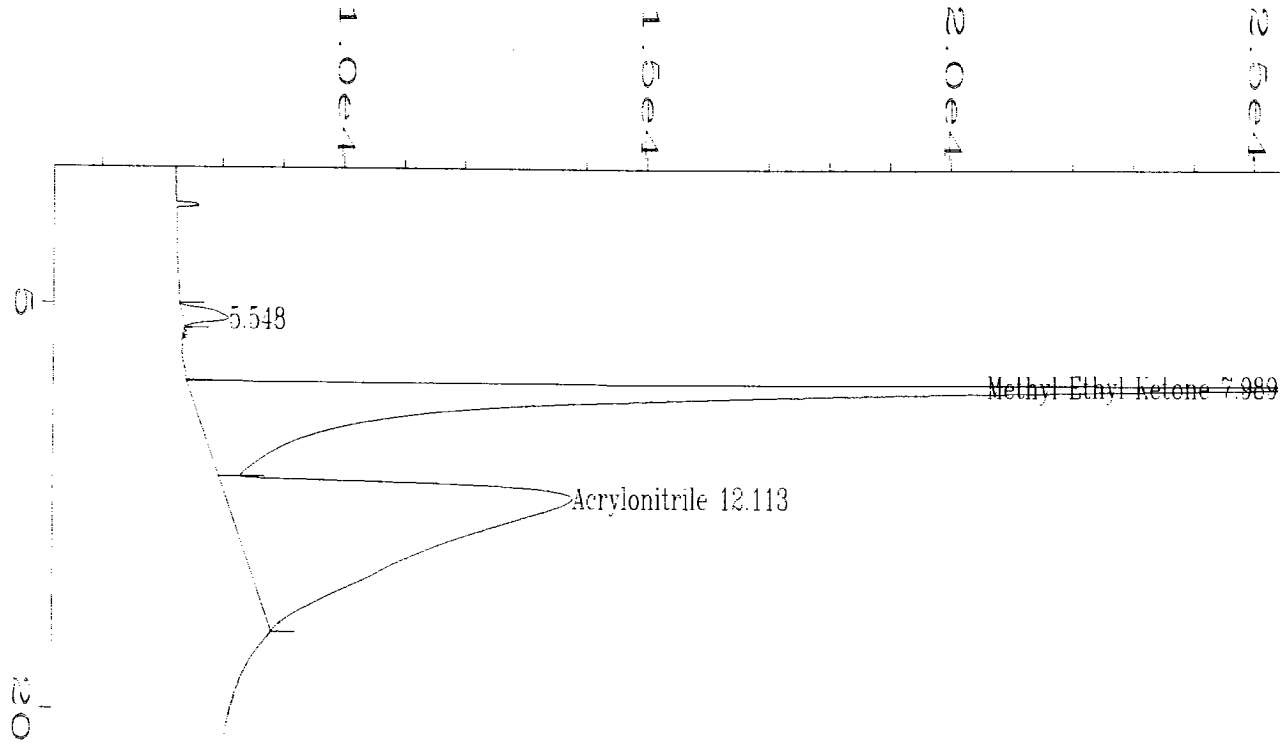
Data File Name : D:\SOLVAY\HP\CALS\BAG1_008.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 12:46 PM
Report Created on: 21 Dec 95 01:50 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\HP\CALS\BAG1_008.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.356	1142870	BV	0.175	1	224.130	Methane
1.857	31550	HB S	0.276	1	1.136	Butadiene
4.163	54647	BV	0.177	1	1.727	Hexane
5.116	8629	PB	0.148	1	1.853	Methylene Chloride
6.600	19612	BB	0.189	1	1.747	Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.245	68363	BV	0.184	1	1.993	Benzene
9.158	24451	VB	0.197	1	1.975	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.327	81006	BB	0.189	1	1.969	Toluene
15.861	83818	BV	0.204	1	1.761	Ethylbenzene
16.552	76358	VV	0.208	1	1.708	p-Xylene
16.976	83818	VB	0.225	1	1.655	m-Xylene
17.971	79170	BV	0.244	1	1.642	o-Xylene
19.455	86485	BB	0.293	1	1.805	Styrene



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External Standard Report

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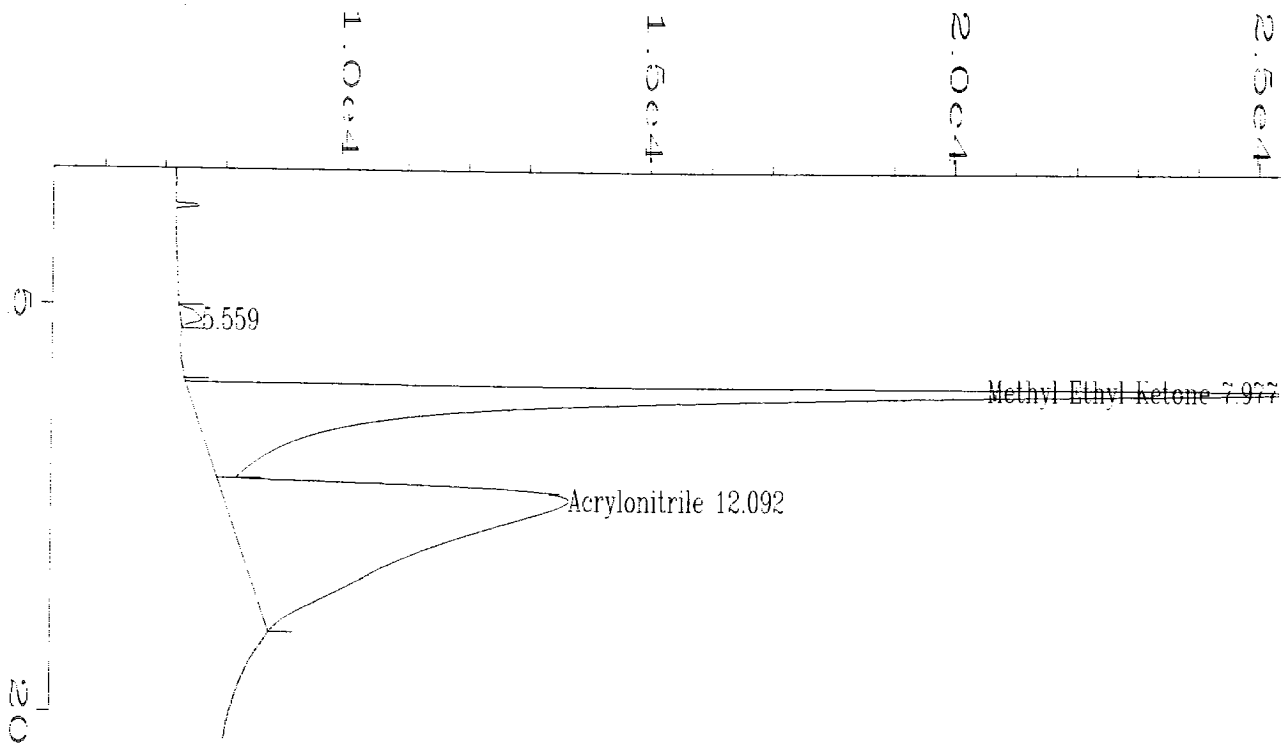
Data File Name	: D:\SOLVAY\HP\CALS\BAG-7_01.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: EP 5 Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 15 Dec 95 05:34 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 01:41 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-7_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.380	* not found *			1		Methane
1.873	* not found *			1		Butadiene
4.190	* not found *			1		Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.989	891069	BV	0.546	1	64.241	Methyl Ethyl Ketone
8.281	* not found *			1		Benzene
9.197	* not found *			1		Trichloroethylene
12.113	951217	VB	2.007	1	96.038	Acrylonitrile
12.368	* not found *			1		Toluene
15.903	* not found *			1		Ethylbenzene
16.597	* not found *			1		p-Xylene
17.023	* not found *			1		m-Xylene
18.024	* not found *			1		o-Xylene
19.516	* not found *			1		Styrene



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External Standard Report

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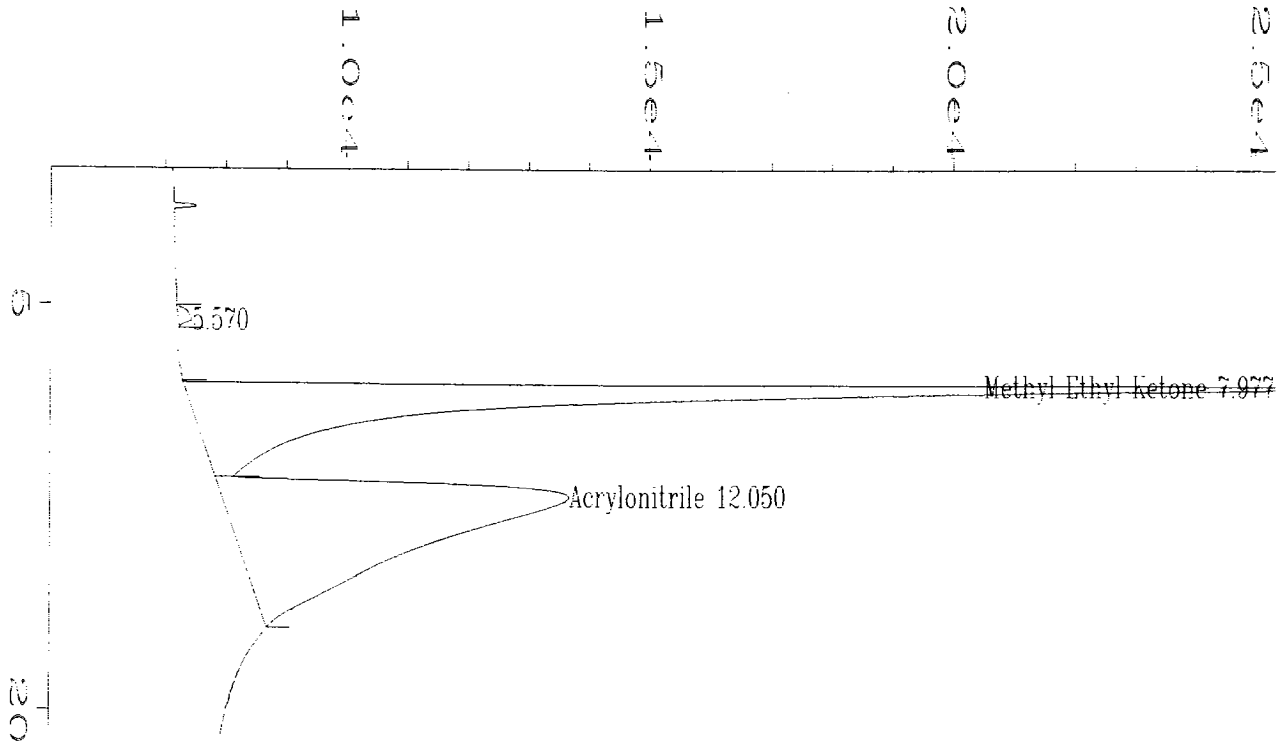
Data File Name	: D:\SOLVAY\HP\CALS\BAG-7_02.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: EP 5 Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 15 Dec 95 06:00 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 01:42 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-7_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.380	* not found *			1		Methane
1.873	* not found *			1		Butadiene
4.190	* not found *			1		Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	885386	BV	0.546	1	63.838	Methyl Ethyl Ketone
8.281	* not found *			1		Benzene
9.197	* not found *			1		Trichloroethylene
12.092	925107	VB	1.950	1	93.725	Acrylonitrile
12.368	* not found *			1		Toluene
15.903	* not found *			1		Ethylbenzene
16.597	* not found *			1		p-Xylene
17.023	* not found *			1		m-Xylene
18.024	* not found *			1		o-Xylene
19.516	* not found *			1		Styrene



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External Standard Report

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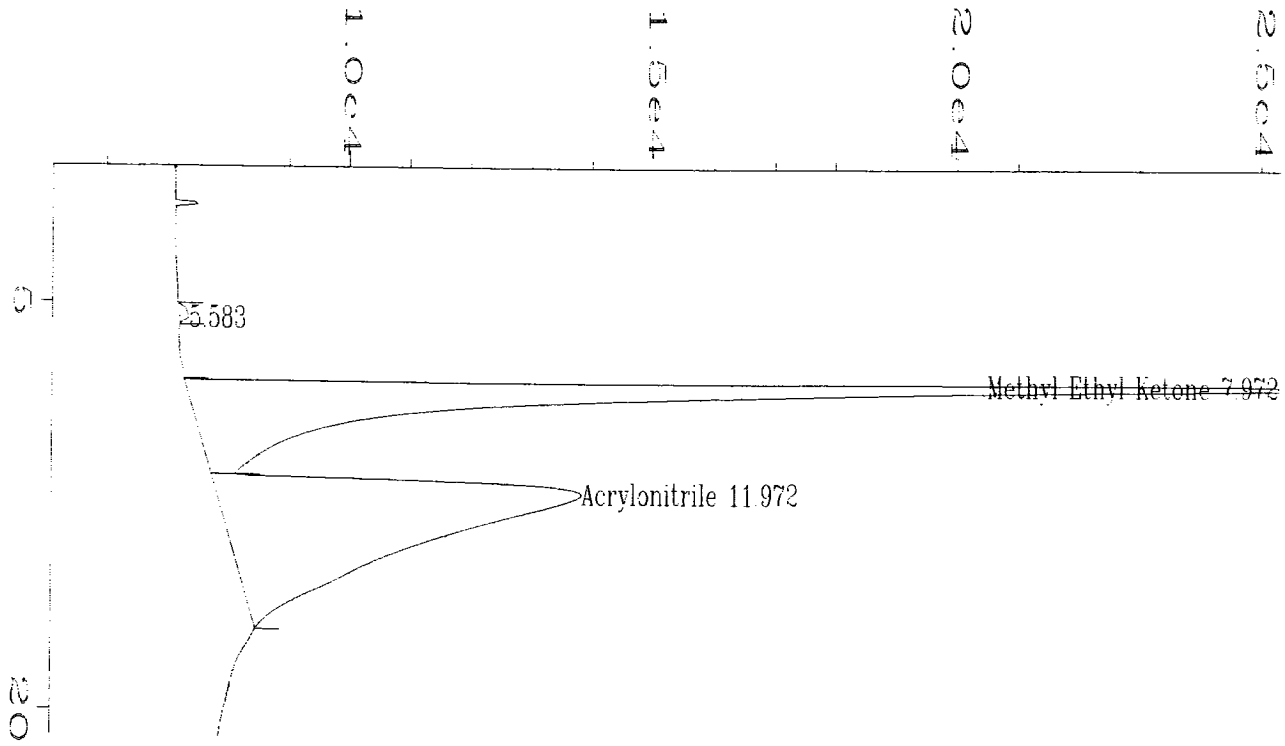
Data File Name	: D:\SOLVAY\HP\CALS\BAG-7_03.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: EP 5 Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 15 Dec 95 06:27 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 01:43 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-7_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.380	* not found *			1		Methane
1.873	* not found *			1		Butadiene
4.190	* not found *			1		Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	883009	BV	0.534	1	63.669	Methyl Ethyl Ketone
8.281	* not found *			1		Benzene
9.197	* not found *			1		Trichloroethylene
12.050	917713	VB	1.920	1	93.070	Acrylonitrile
12.368	* not found *			1		Toluene
15.903	* not found *			1		Ethylbenzene
16.597	* not found *			1		p-Xylene
17.023	* not found *			1		m-Xylene
18.024	* not found *			1		o-Xylene
19.516	* not found *			1		Styrene



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External Standard Report

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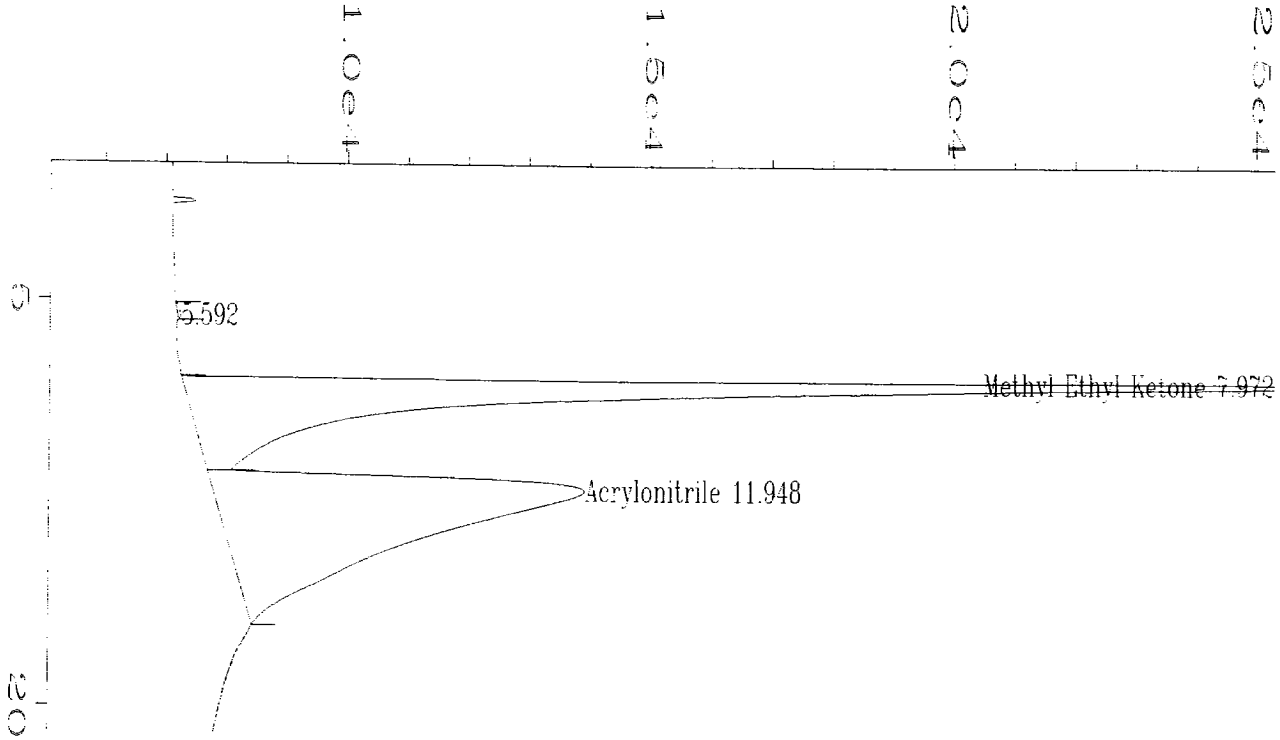
Data File Name	: D:\SOLVAY\HP\CALS\BAG-7_04.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: EP 5 Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 15 Dec 95 06:59 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 01:43 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-7_04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.380	* not found *			1		Methane
1.873	* not found *			1		Butadiene
4.190	* not found *			1		Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.972	892753	BV	0.513	1	64.361	Methyl Ethyl Ketone
8.281	* not found *			1		Benzene
9.197	* not found *			1		Trichloroethylene
11.972	944152	VB	1.879	1	95.412	Acrylonitrile
12.368	* not found *			1		Toluene
15.903	* not found *			1		Ethylbenzene
16.597	* not found *			1		p-Xylene
17.023	* not found *			1		m-Xylene
18.024	* not found *			1		o-Xylene
19.516	* not found *			1		Styrene



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External Standard Report

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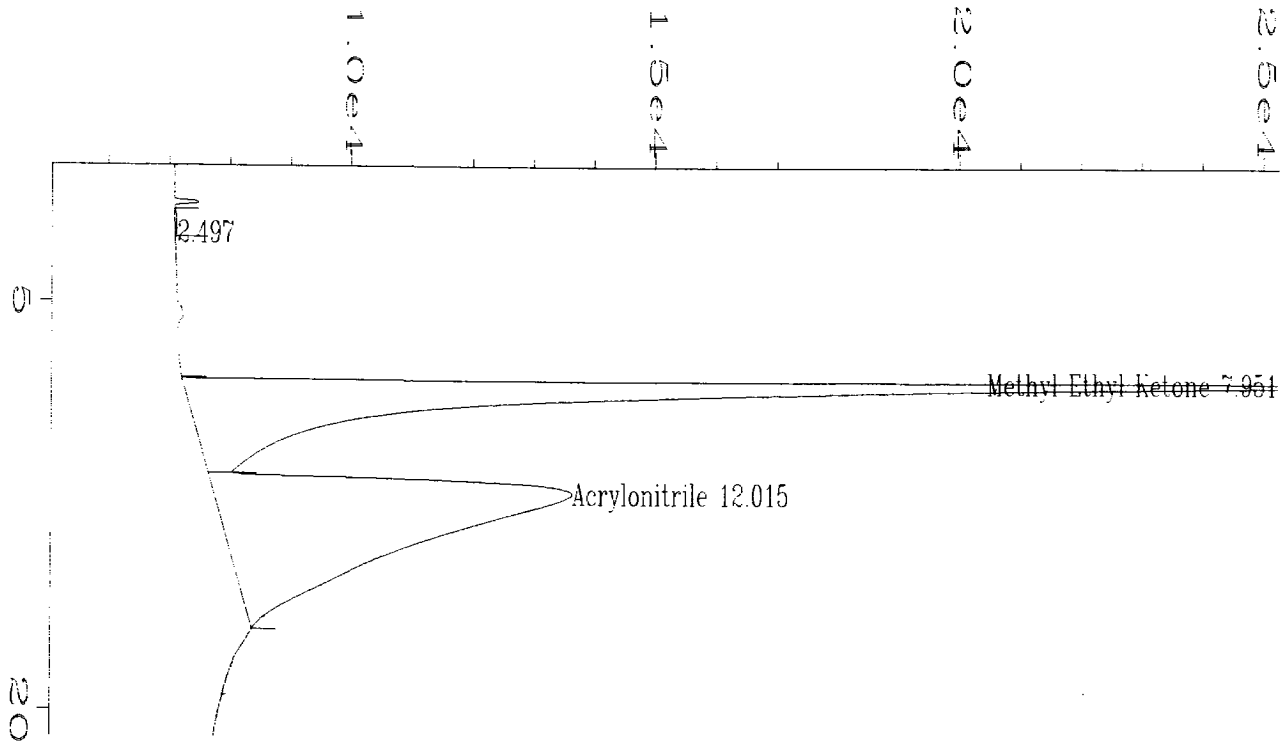
Data File Name : D:\SOLVAY\HP\CALS\BAG-7_05.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 15 Dec 95 07:29 PM
Report Created on: 21 Dec 95 01:44 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-7_05.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.380	* not found *			1		Methane
1.873	* not found *			1		Butadiene
4.190	* not found *			1		Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.972	908243	BV	0.515	1	65.459	Methyl Ethyl Ketone
8.281	* not found *			1		Benzene
9.197	* not found *			1		Trichloroethylene
11.948	955910	VB	1.864	1	96.454	Acrylonitrile
12.368	* not found *			1		Toluene
15.903	* not found *			1		Ethylbenzene
16.597	* not found *			1		p-Xylene
17.023	* not found *			1		m-Xylene
18.024	* not found *			1		o-Xylene
19.516	* not found *			1		Styrene



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External Standard Report

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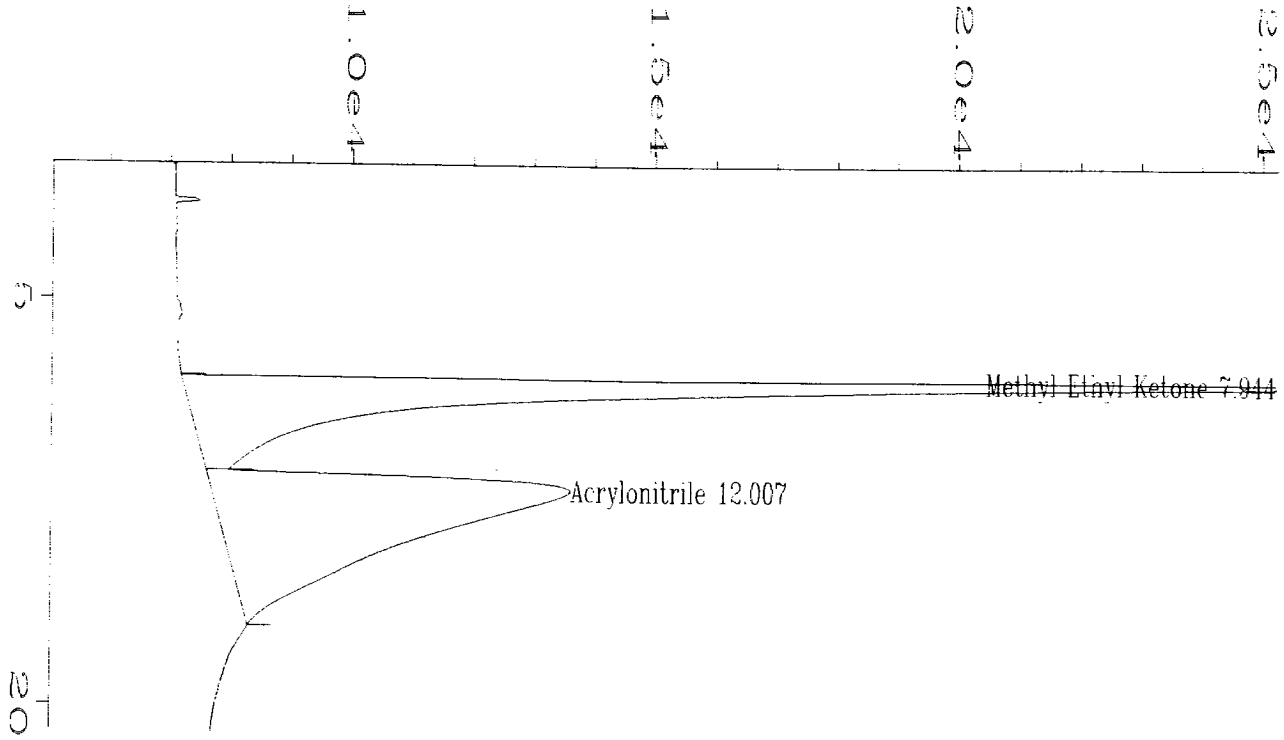
Data File Name : D:\SOLVAY\HP\CALS\BAG-7_06.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 15 Dec 95 07:54 PM
Report Created on: 21 Dec 95 01:44 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-7_06.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.380	* not found *			1		Methane
1.873	* not found *			1		Butadiene
4.190	* not found *			1		Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.951	903859	BV	0.534	1	65.148	Methyl Ethyl Ketone
8.281	* not found *			1		Benzene
9.197	* not found *			1		Trichloroethylene
12.015	941106	VB	1.883	1	95.142	Acrylonitrile
12.368	* not found *			1		Toluene
15.903	* not found *			1		Ethylbenzene
16.597	* not found *			1		p-Xylene
17.023	* not found *			1		m-Xylene
18.024	* not found *			1		o-Xylene
19.516	* not found *			1		Styrene



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External Standard Report

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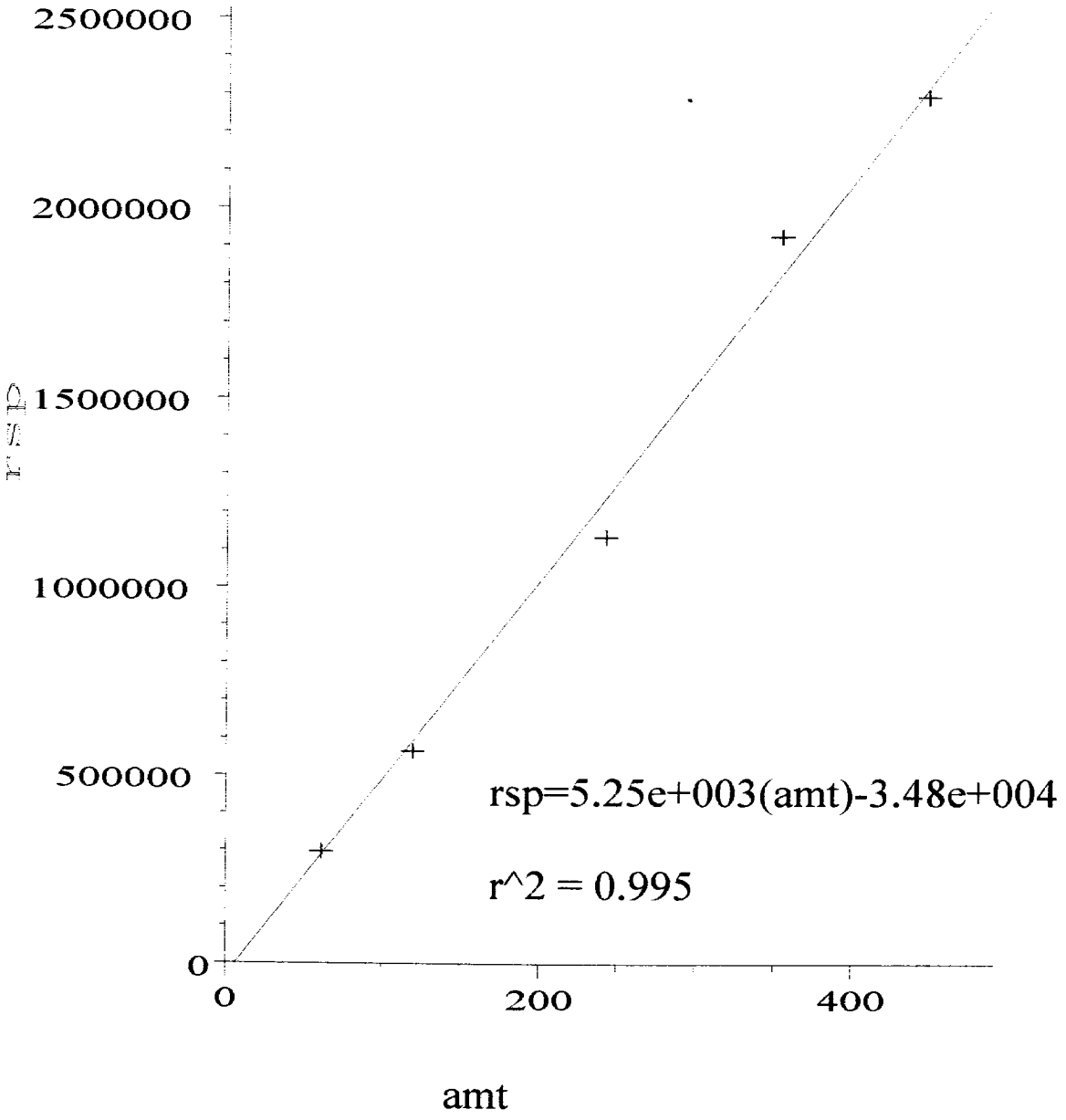
Data File Name : D:\SOLVAY\HP\CALS\BAG-7_07.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 15 Dec 95 08:20 PM
Report Created on: 21 Dec 95 01:45 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

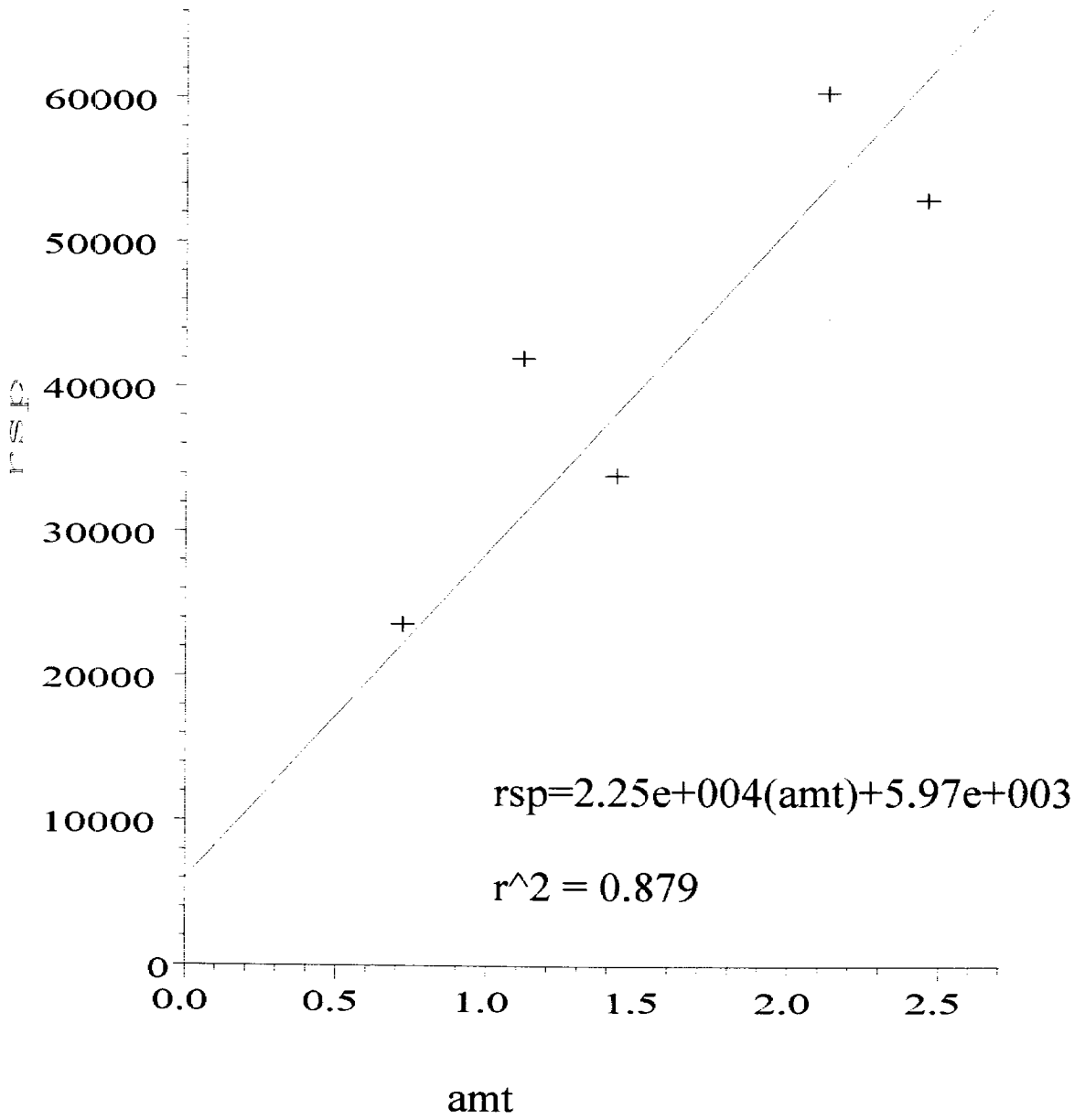
Sig. 2 in D:\SOLVAY\HP\CALS\BAG-7_07.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.380	* not found *			1		Methane
1.873	* not found *			1		Butadiene
4.190	* not found *			1		Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.944	911176	BV	0.530	1	65.667	Methyl Ethyl Ketone
8.281	* not found *			1		Benzene
9.197	* not found *			1		Trichloroethylene
12.007	946050	VB	1.907	1	95.580	Acrylonitrile
12.368	* not found *			1		Toluene
15.903	* not found *			1		Ethylbenzene
16.597	* not found *			1		p-Xylene
17.023	* not found *			1		m-Xylene
18.024	* not found *			1		o-Xylene
19.516	* not found *			1		Styrene

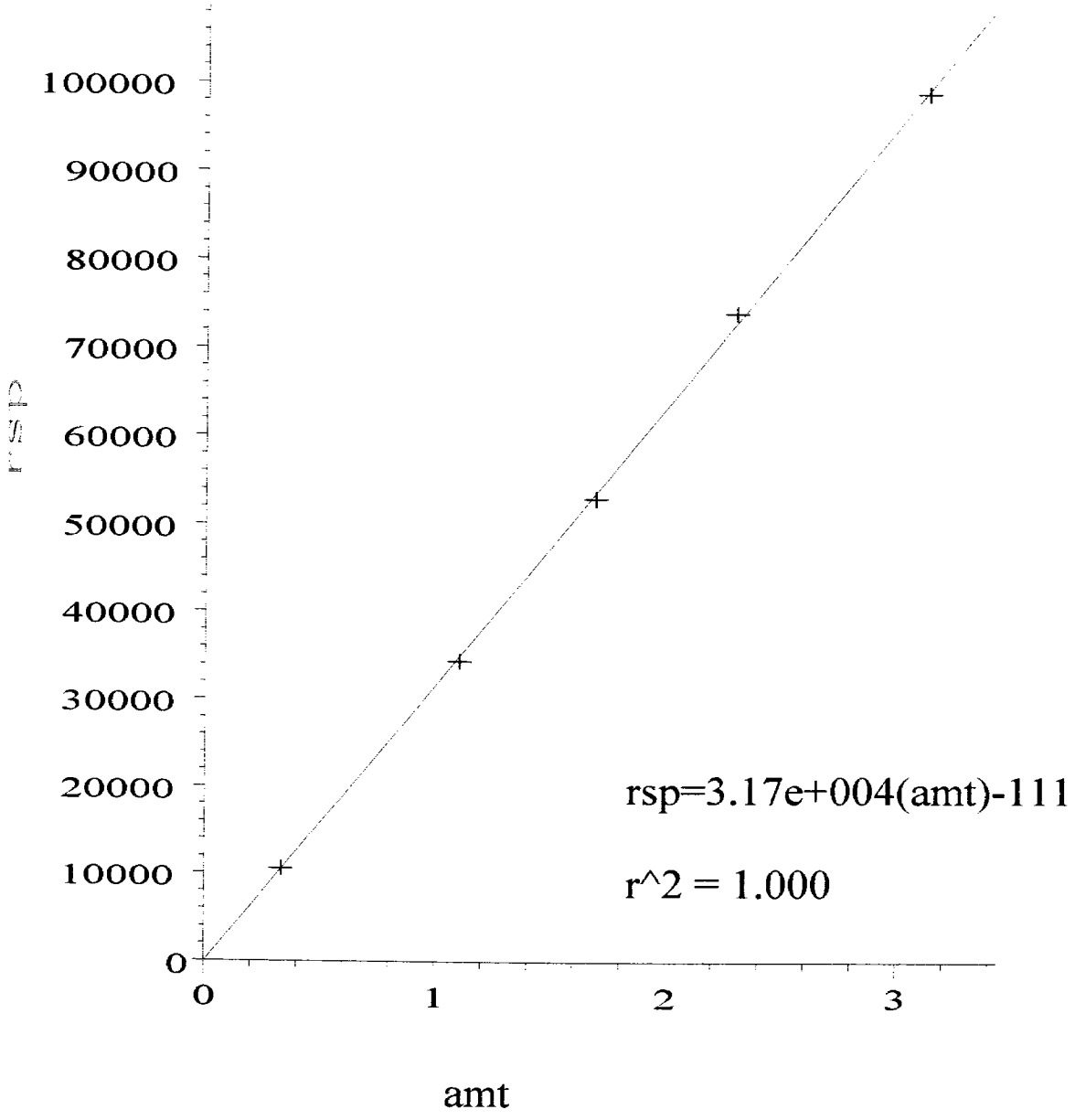
Methane


2500000
2000000
1500000
1000000
500000
0
rsp
0
200
400
amt
rsp=5.25e+003(amt)-3.48e+004
r^2 = 0.995

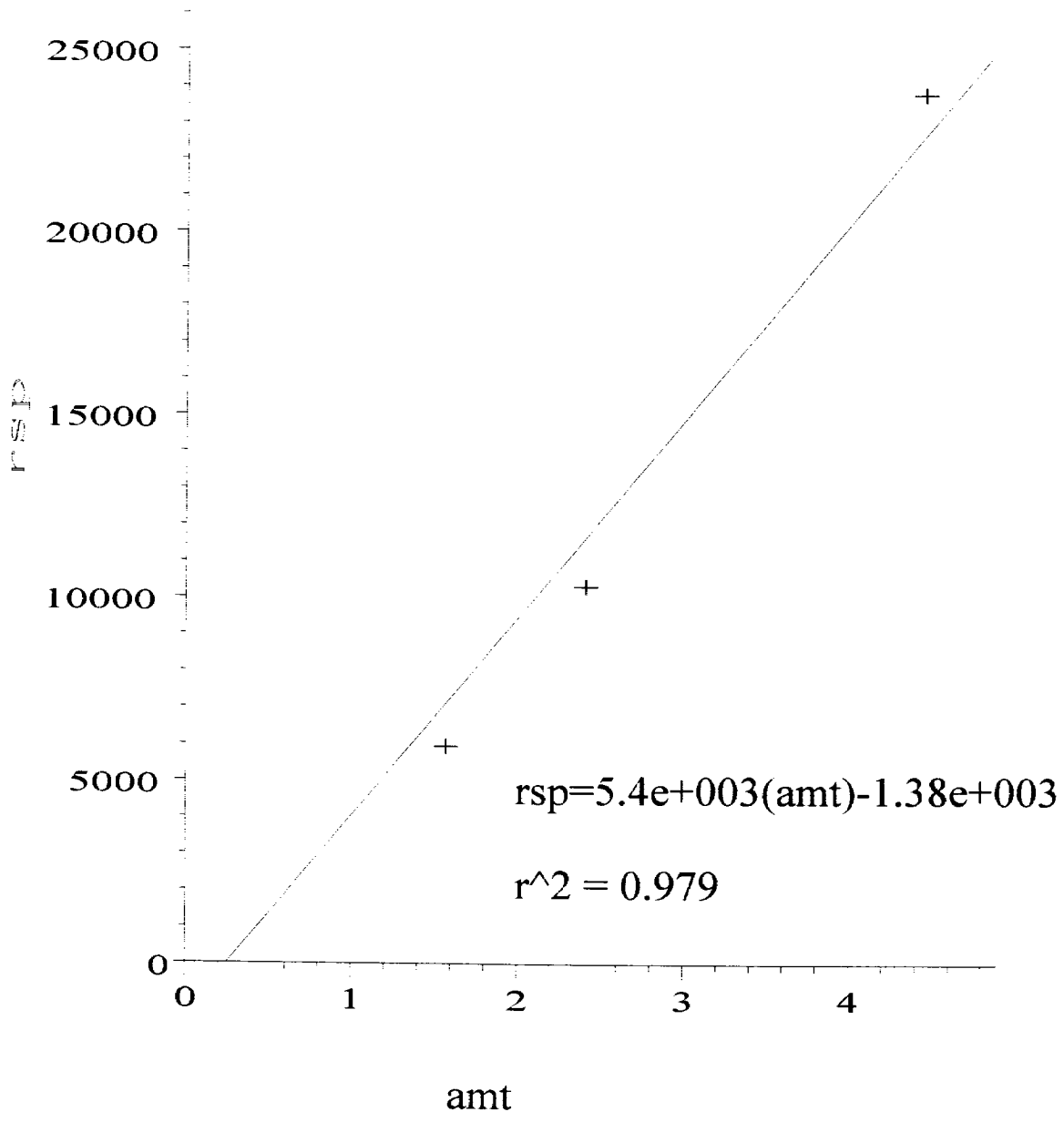
Butadiene


60000
50000
40000
30000
20000
10000
0
0.0
0.5
1.0
1.5
2.0
2.5
amt
rsp=2.25e+004(amt)+5.97e+003
r^2 = 0.879

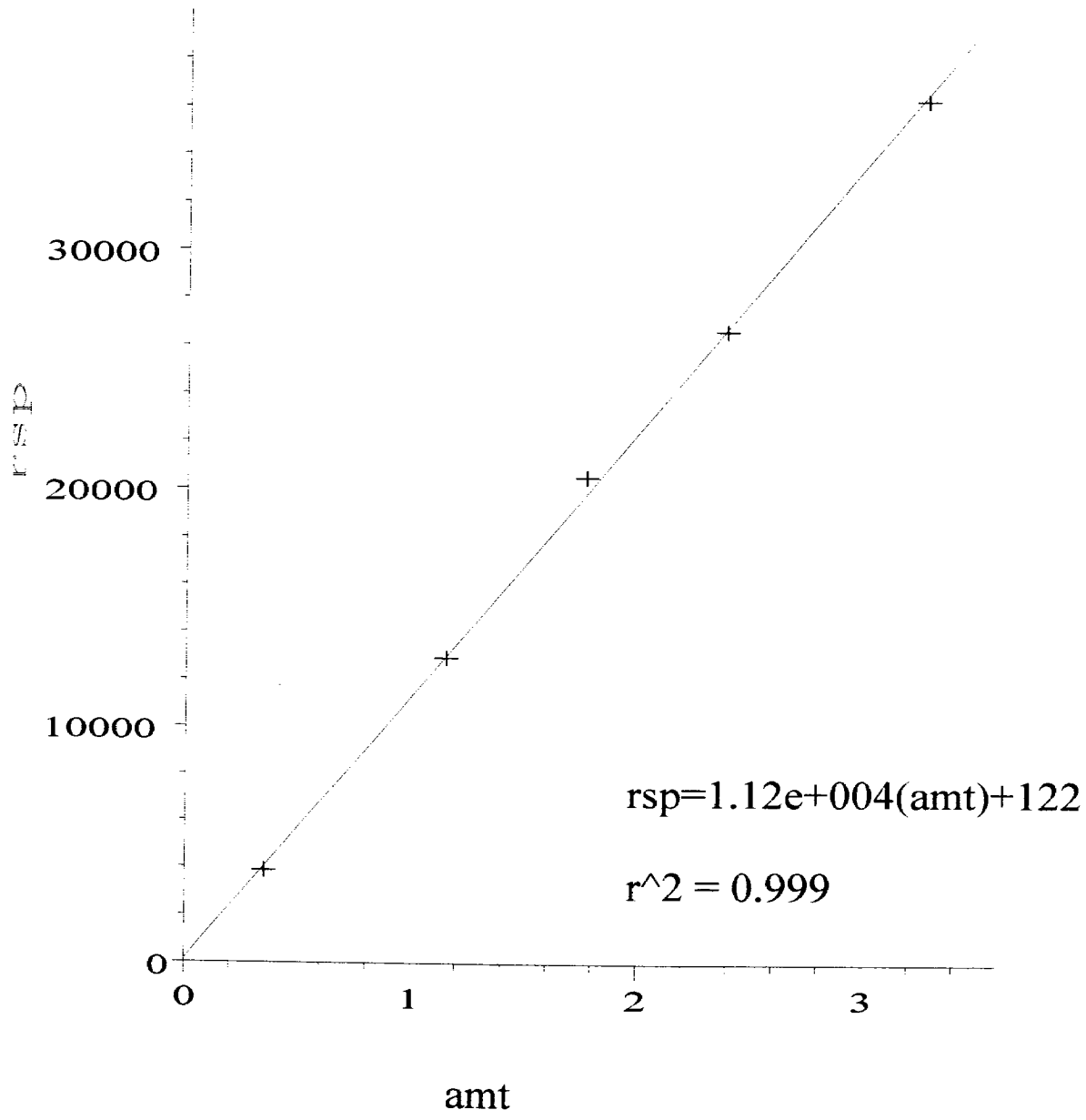
Hexane


100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
rsp
0
1
2
3
amt
rsp=3.17e+004(amt)-111
r^2 = 1.000

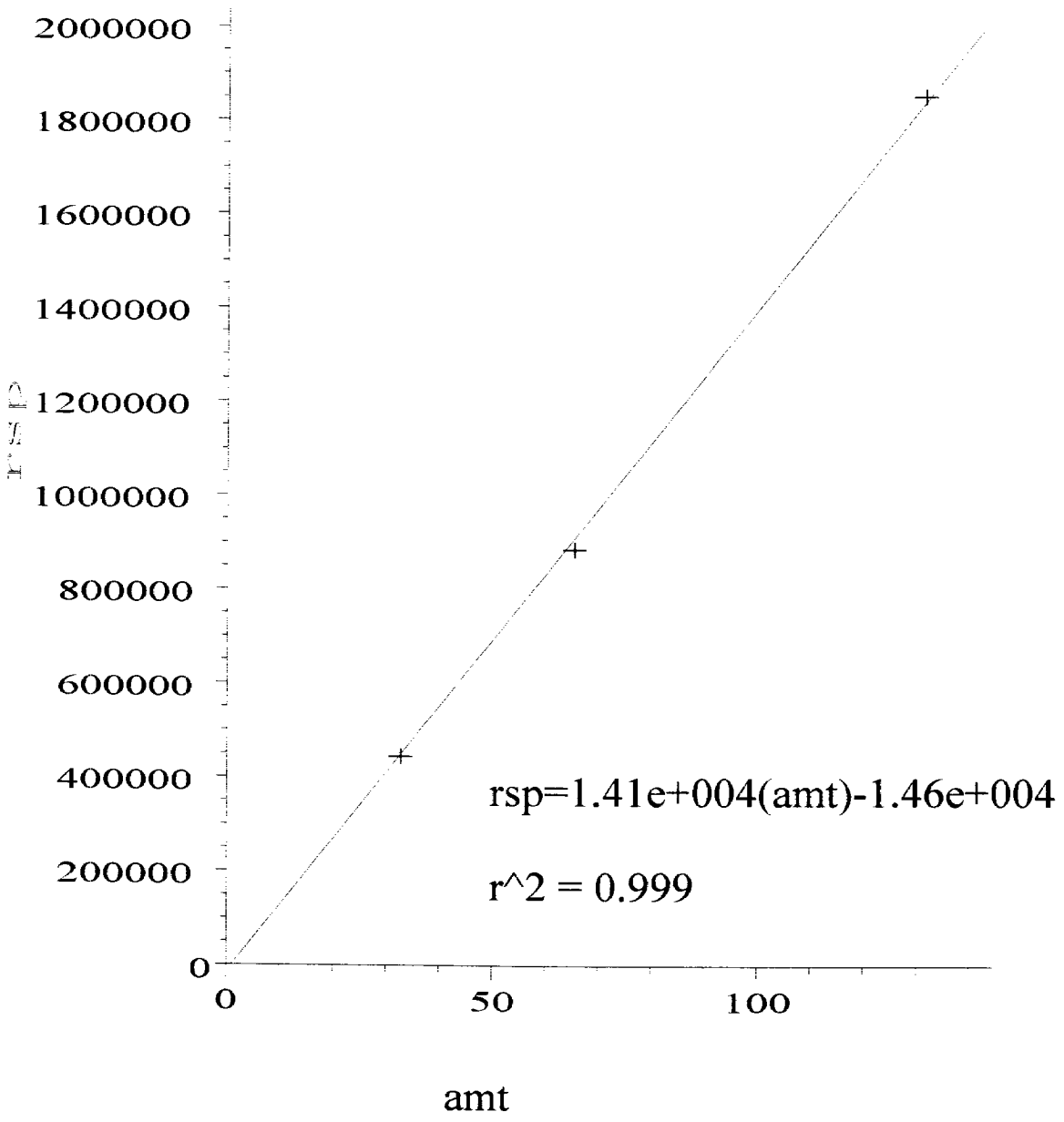
Methylene Chloride



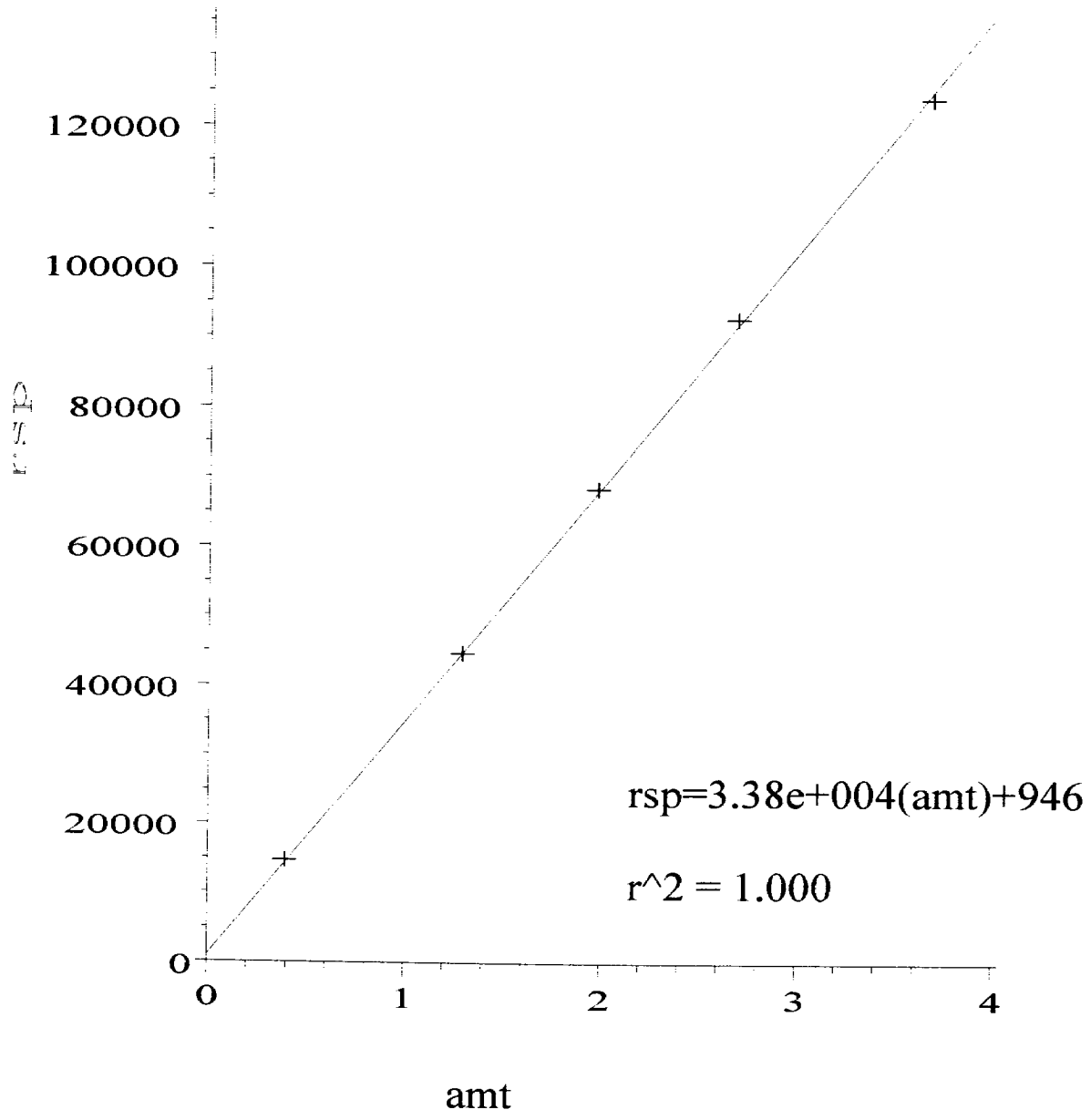
Trichloroethane



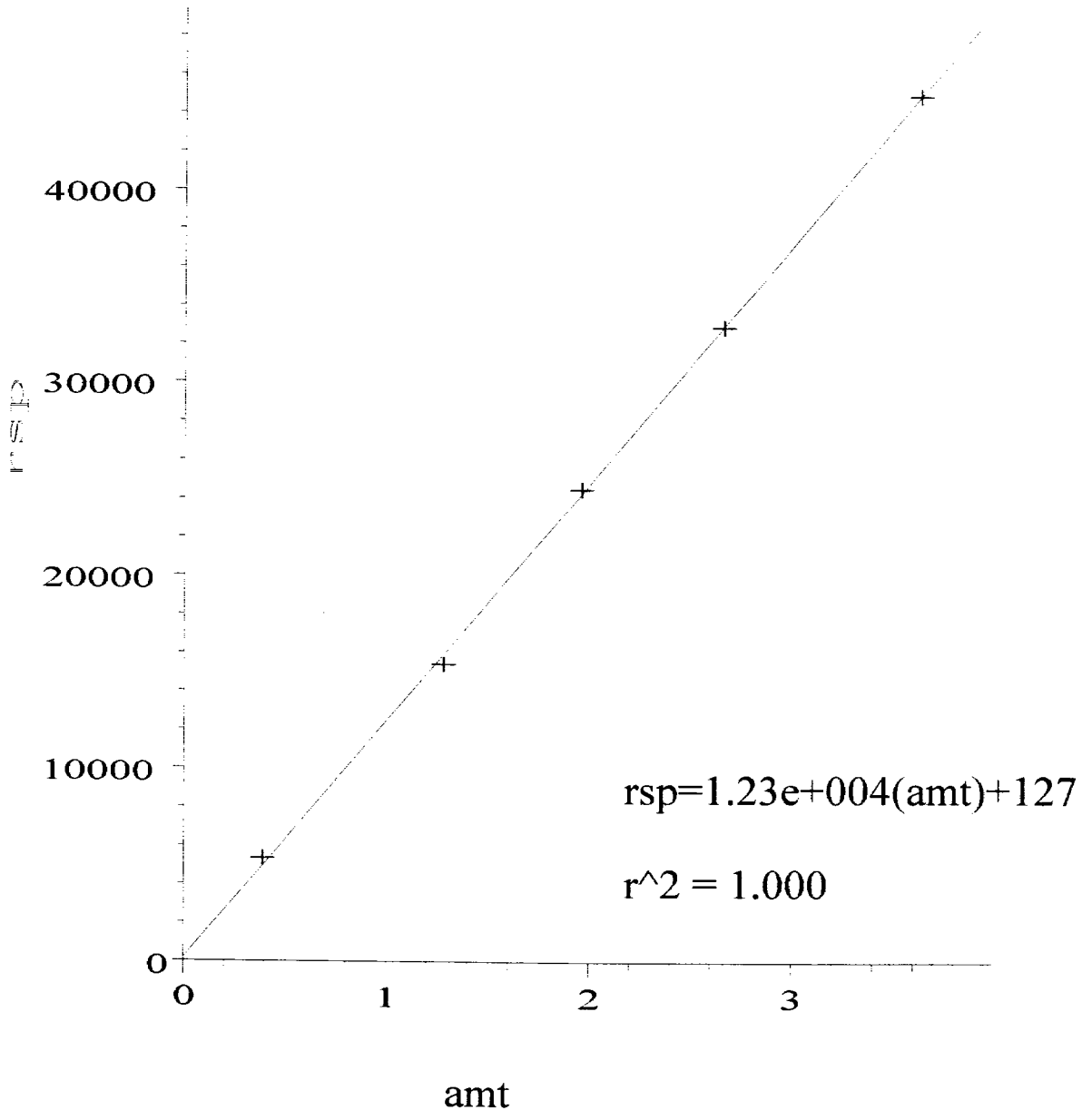
Methyl Ethyl Ketone



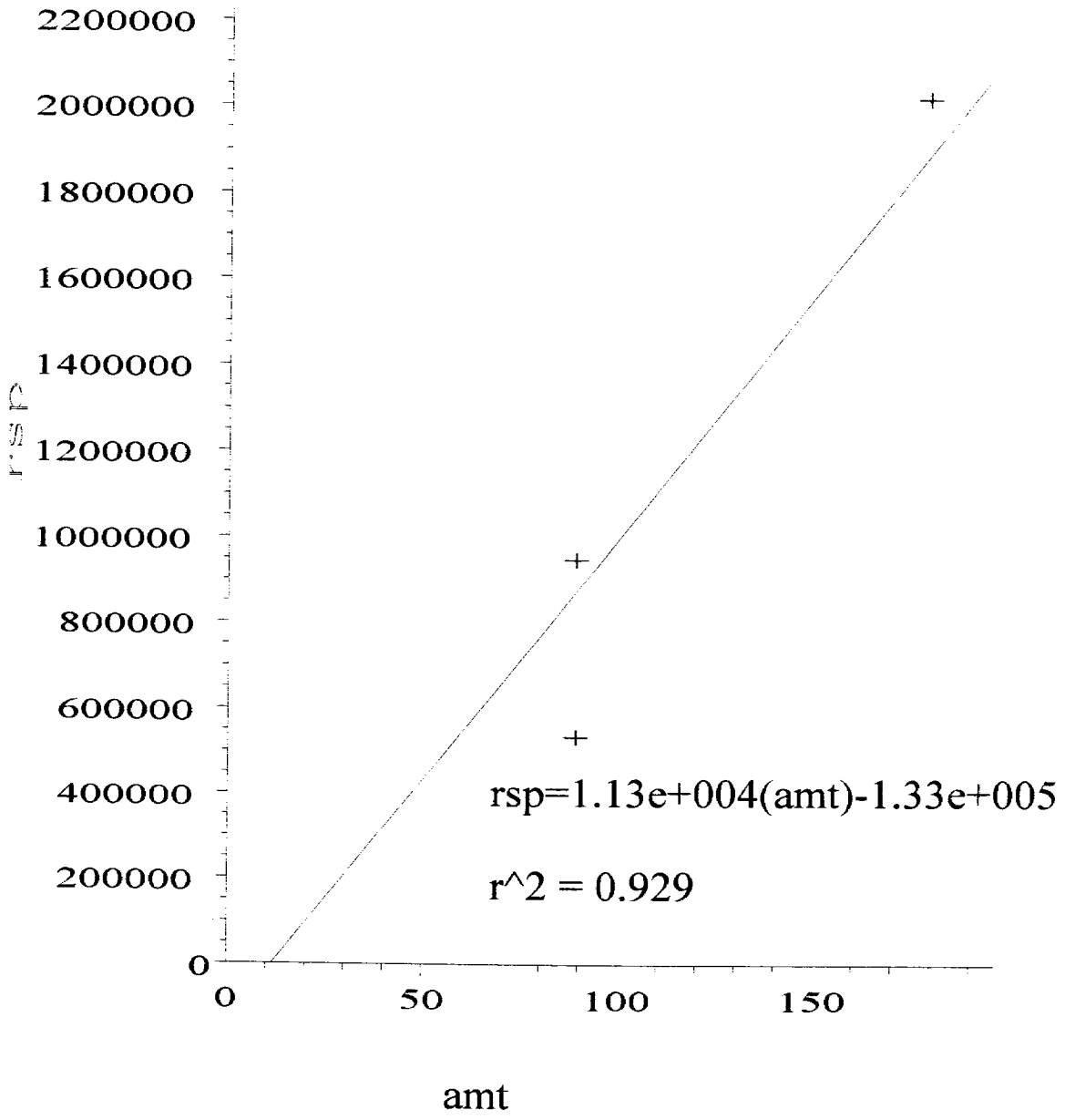
Benzene


120000
100000
80000
60000
40000
20000
0
0
1
2
3
4
amt
rsp=3.38e+004(amt)+946
r^2 = 1.000

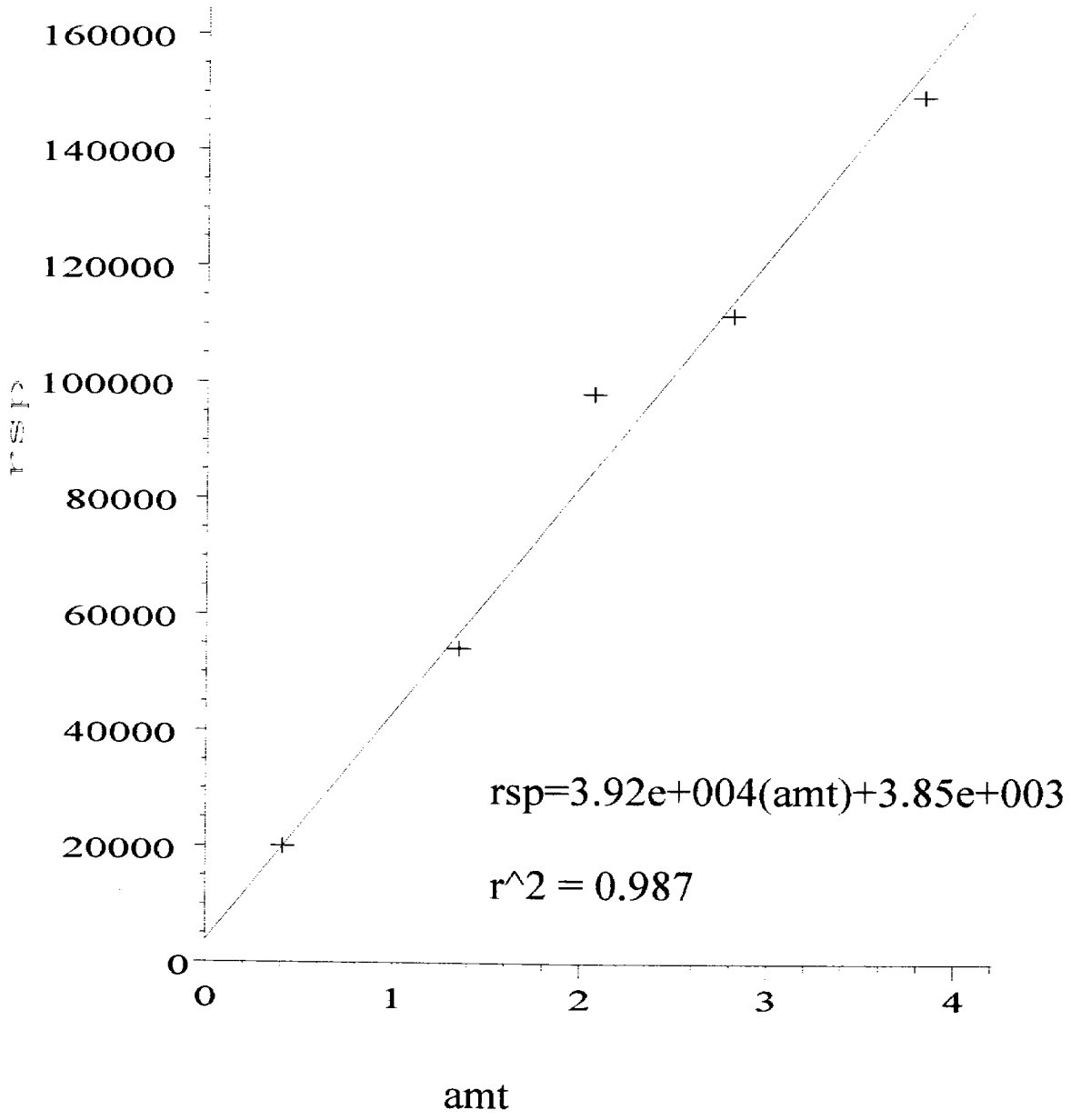
Trichloroethylene



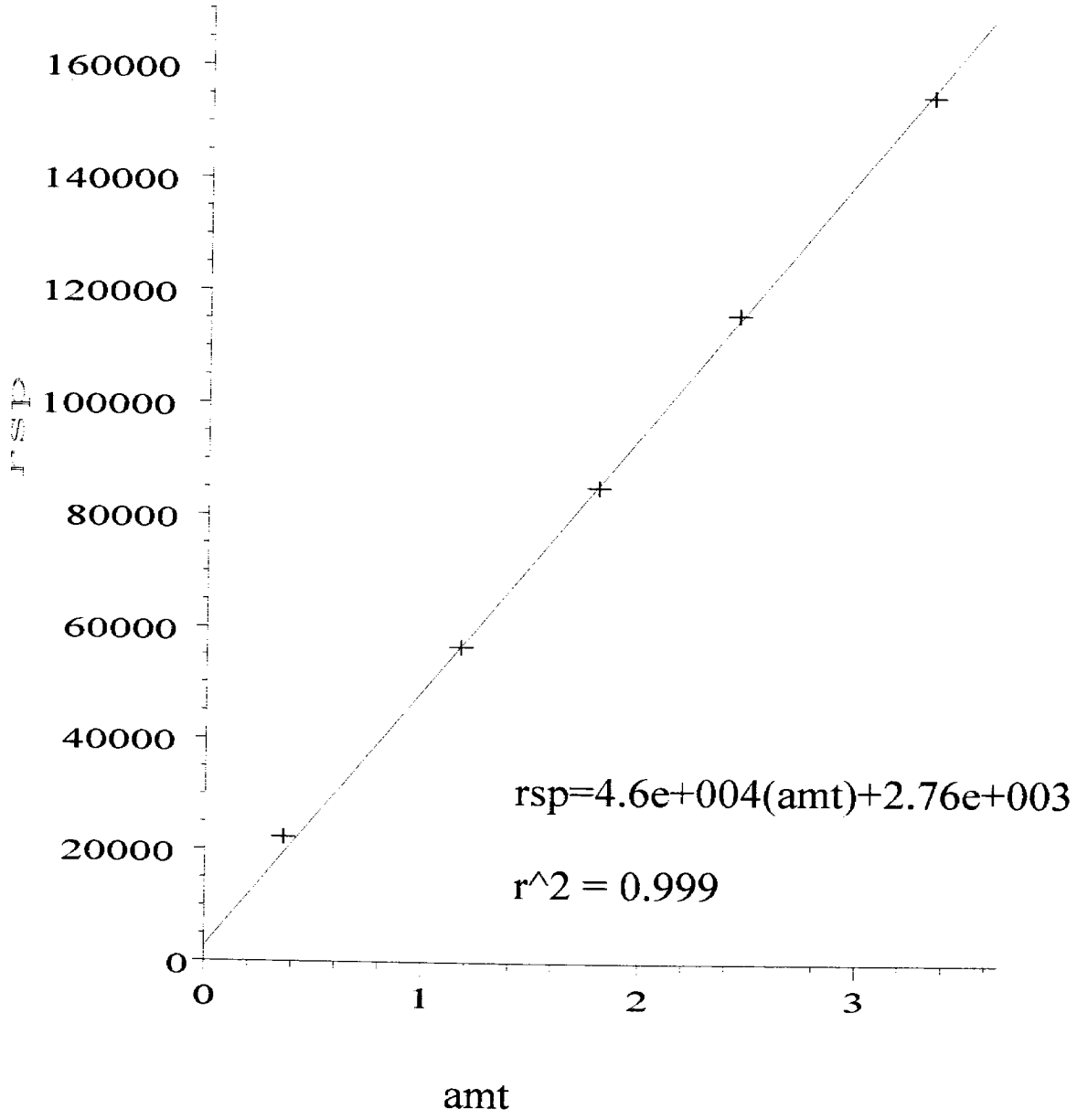
Acrylonitrile



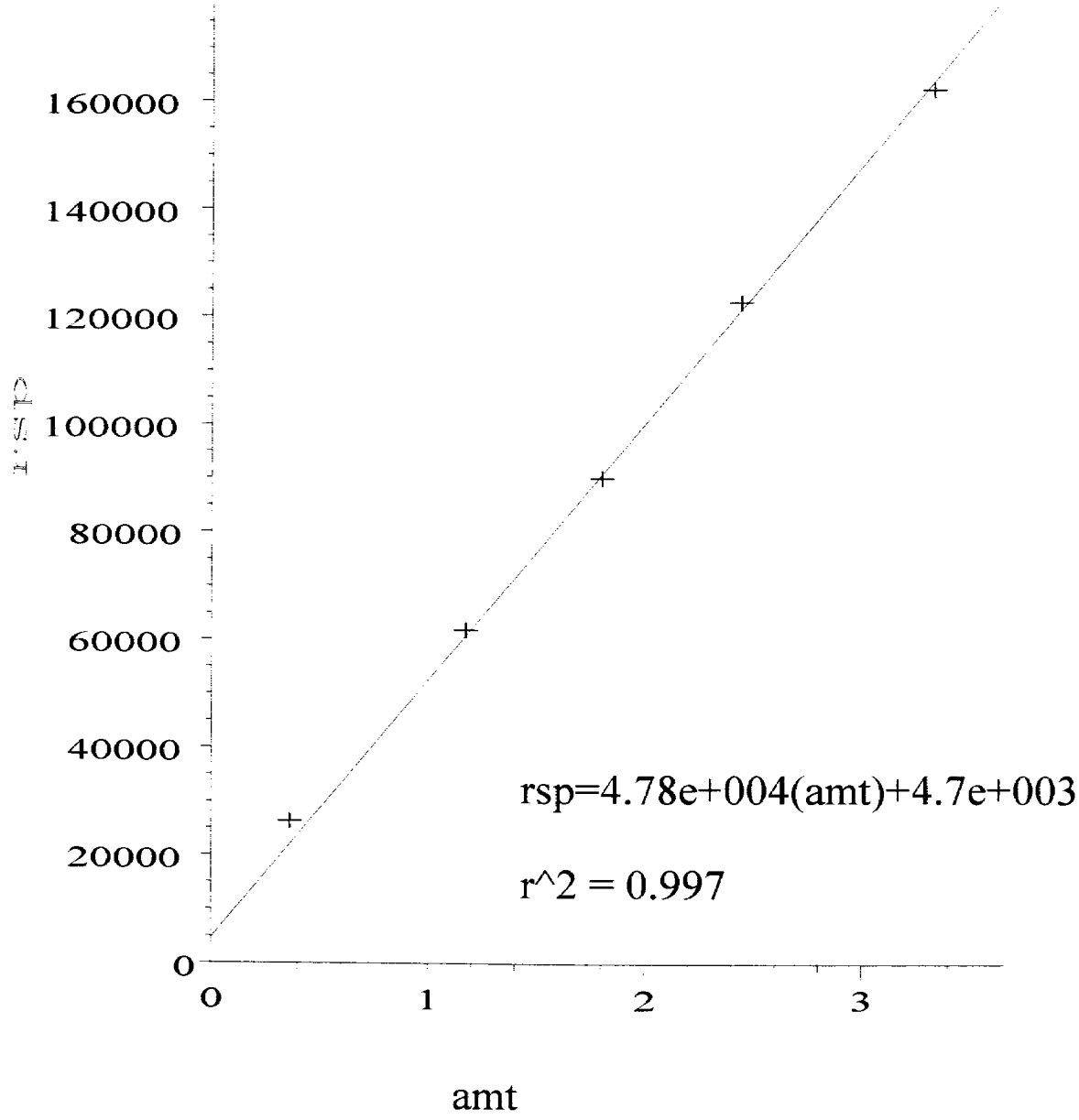
Toluene


160000
140000
120000
100000
80000
60000
40000
20000
0
rsp
0
1
2
3
4
amt
rsp=3.92e+004(amt)+3.85e+003
r^2 = 0.987

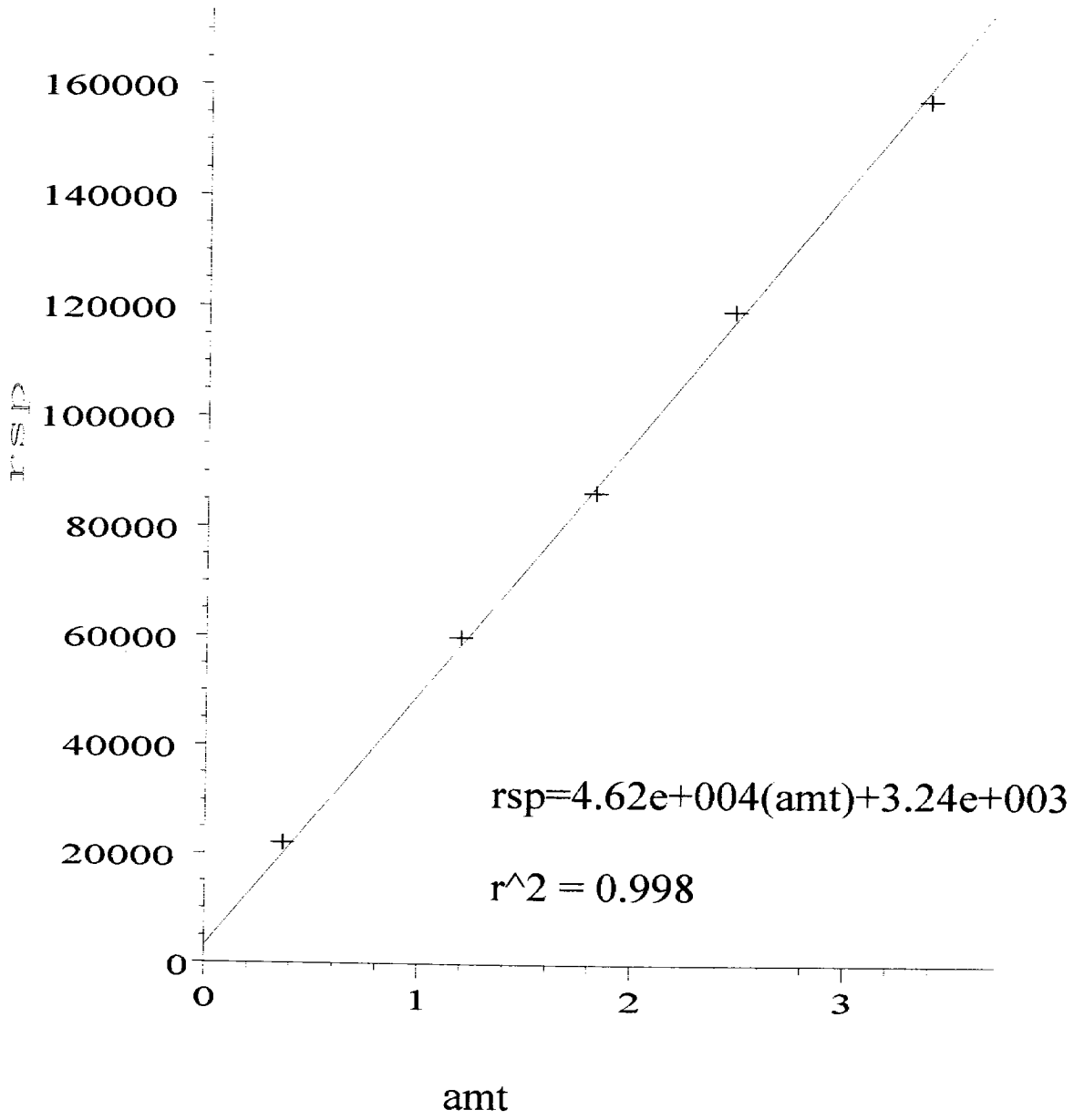
Ethylbenzene

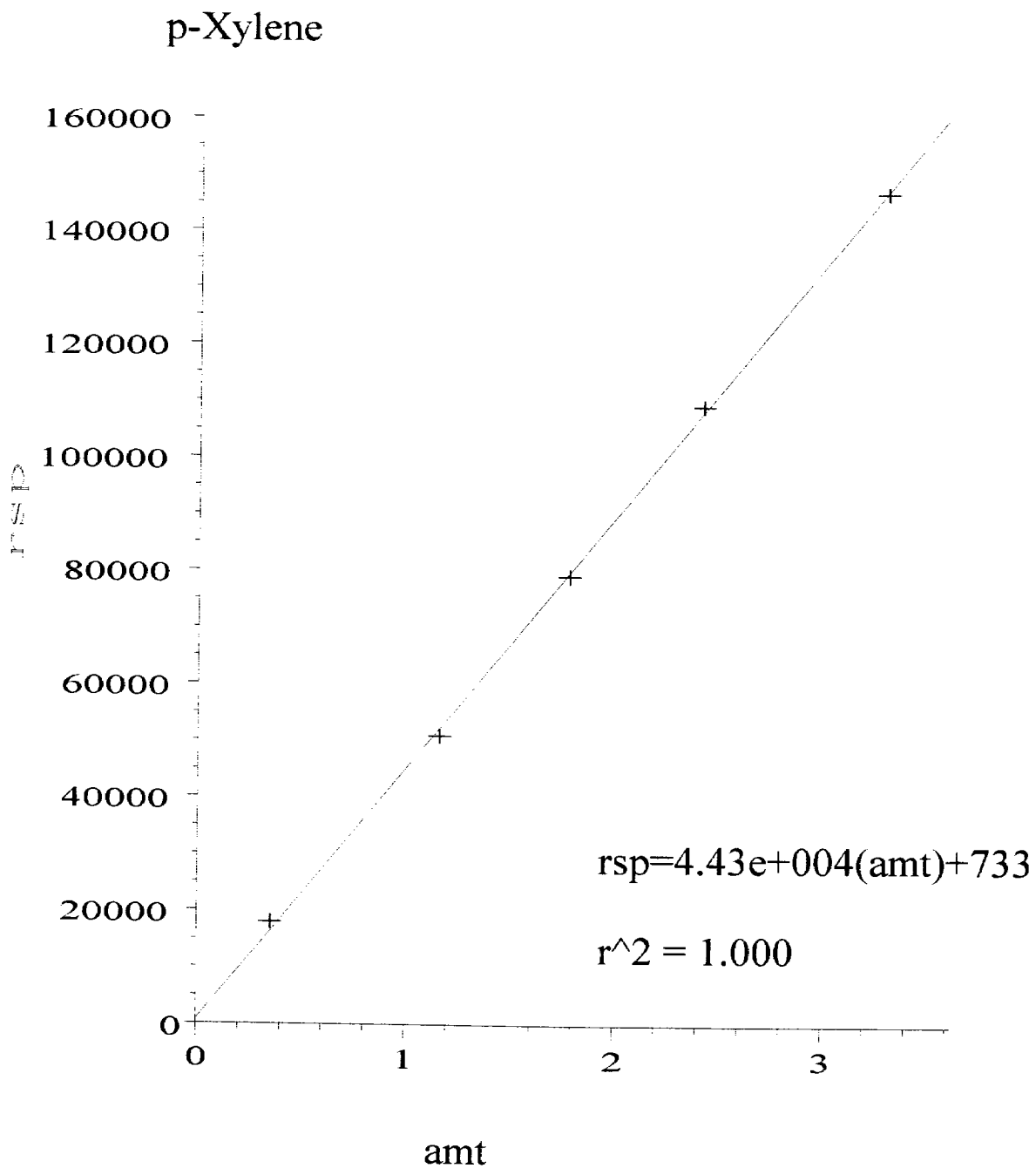


m-Xylene

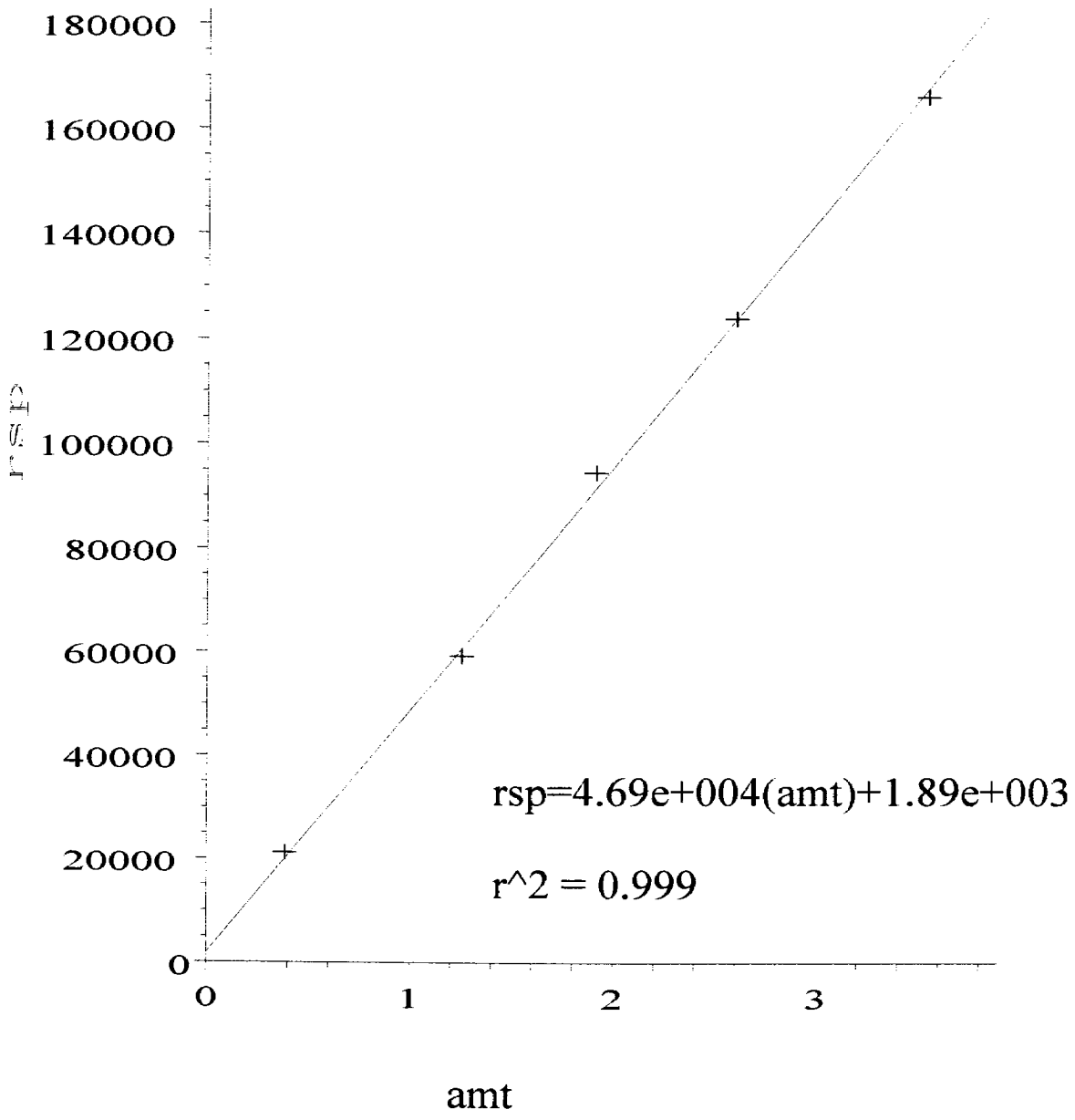

160000
140000
120000
100000
80000
60000
40000
20000
0
0
1
2
3
amt
rsp=4.78e+004(amt)+4.7e+003
r^2 = 0.997

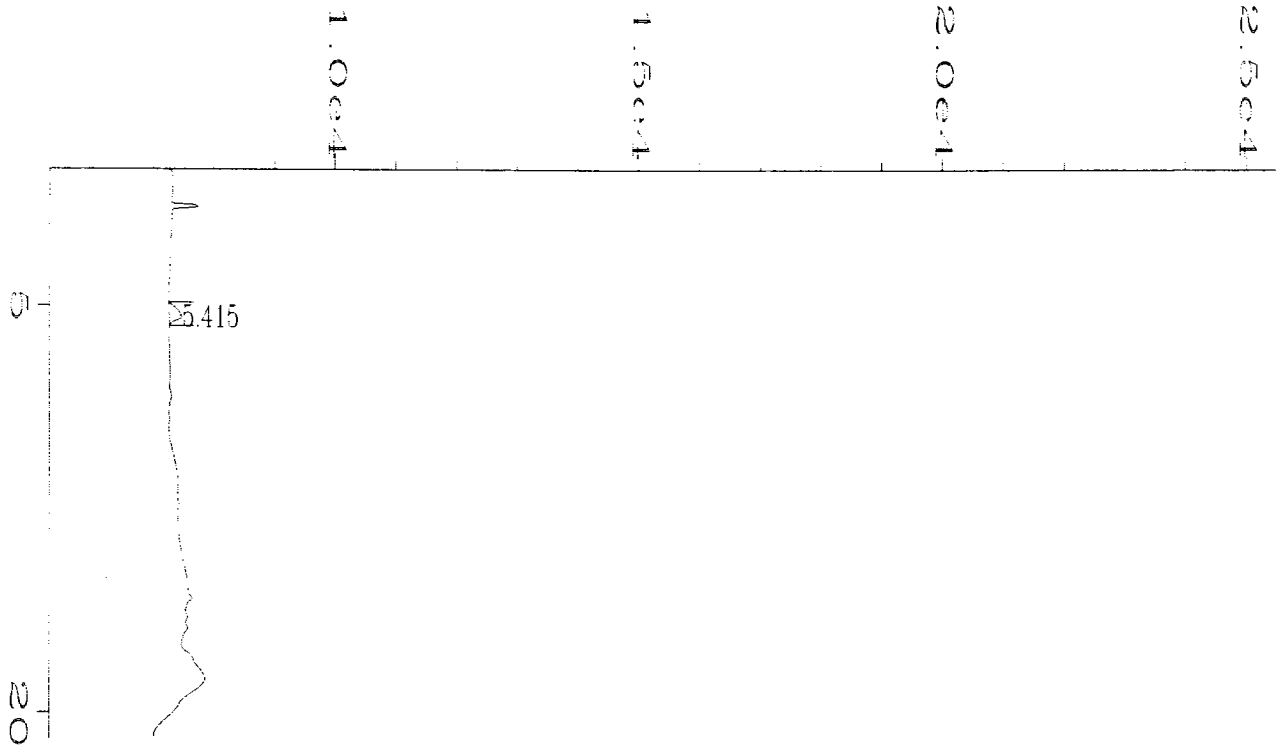
o-Xylene


160000
140000
120000
100000
80000
60000
40000
20000
0
rsp
0
1
2
3
amt
rsp=4.62e+004(amt)+3.24e+003
r^2 = 0.998


p-Xylene
160000
140000
120000
100000
80000
60000
40000
20000
0
rsp
0
1
2
3
amt
rsp=4.43e+004(amt)+733
r^2 = 1.000

Styrene


180000
160000
140000
120000
100000
80000
60000
40000
20000
0
rsp
0
1
2
3
amt
rsp=4.69e+004(amt)+1.89e+003
r^2 = 0.999



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External Standard Report

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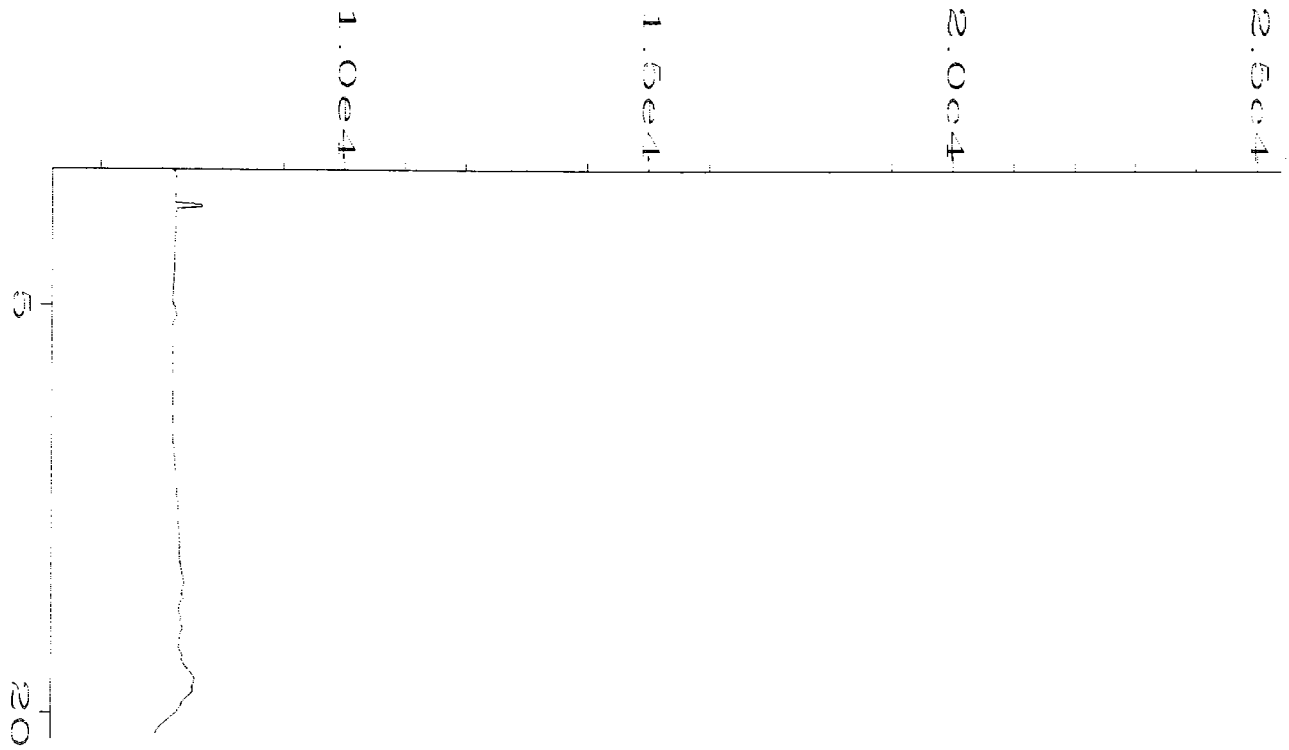
Data File Name	: D:\SOLVAY\HP\CALS\0-AIR_01.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: 1/10 evap1 rng4	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 12 Dec 95 05:15 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:08 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\CALS\0-AIR_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.380	* not found *			1		Methane
1.873	* not found *			1		Butadiene
4.190	* not found *			1		Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.281	* not found *			1		Benzene
9.197	* not found *			1		Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.368	* not found *			1		Toluene
15.903	* not found *			1		Ethylbenzene
16.597	* not found *			1		p-Xylene
17.023	* not found *			1		m-Xylene
18.024	* not found *			1		o-Xylene
19.516	* not found *			1		Styrene

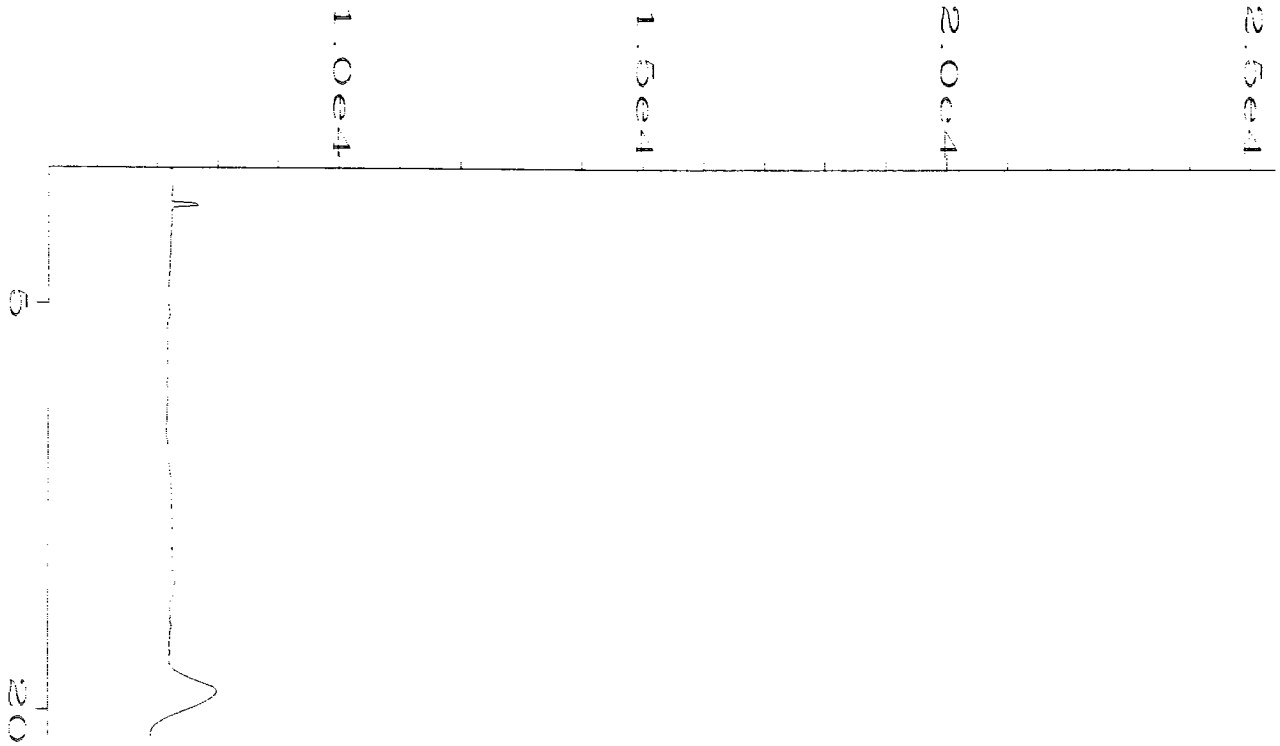


External Standard Report

Data File Name	: D:\SOLVAY\HP\CALS\0-AIR_02.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: 1/10 evap1 rng4	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 12 Dec 95 05:42 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:08 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\CALS\0-AIR_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.380	* not found *			1		Methane
1.873	* not found *			1		Butadiene
4.190	* not found *			1		Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.281	* not found *			1		Benzene
9.197	* not found *			1		Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.368	* not found *			1		Toluene
15.903	* not found *			1		Ethylbenzene
16.597	* not found *			1		p-Xylene
17.023	* not found *			1		m-Xylene
18.024	* not found *			1		o-Xylene
19.516	* not found *			1		Styrene



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External Standard Report

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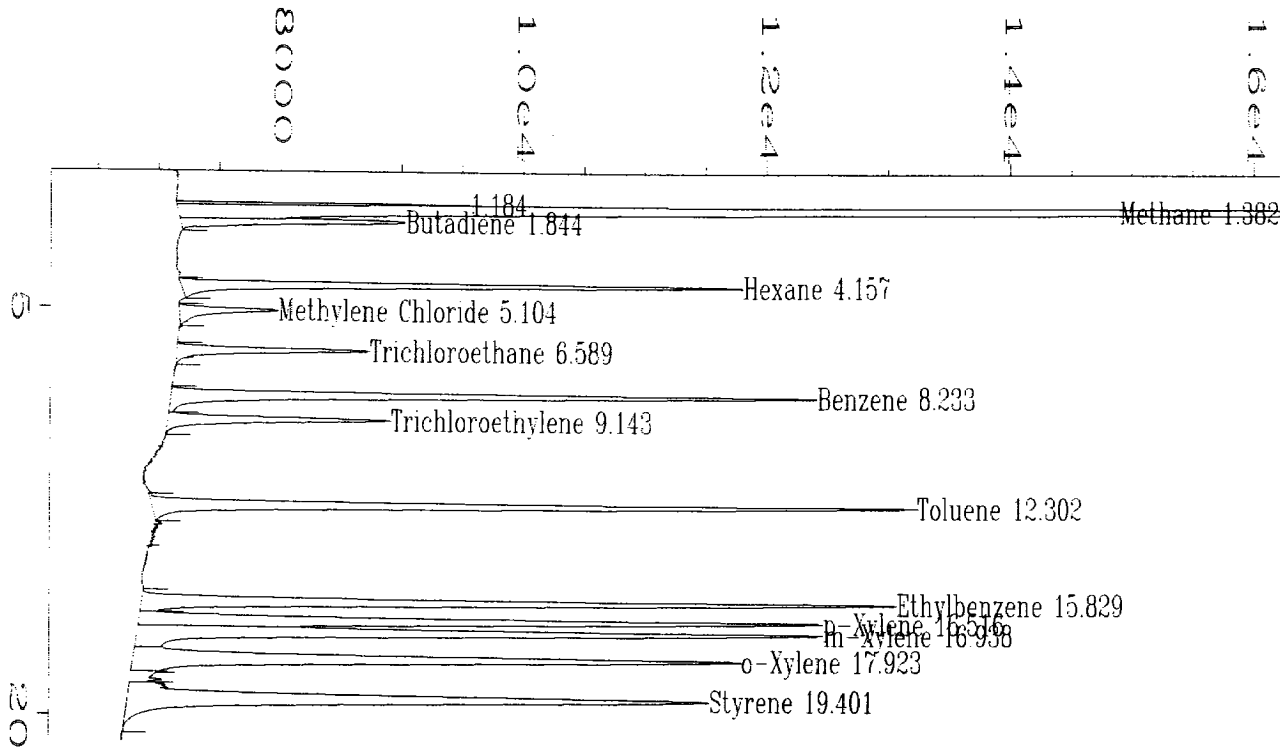
Data File Name	: D:\SOLVAY\HP\CALS\0-AIR_03.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: 1/10 evap1 rng4	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 12 Dec 95 06:13 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:08 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\CALS\0-AIR_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.380	* not found *			1		Methane
1.873	* not found *			1		Butadiene
4.190	* not found *			1		Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.281	* not found *			1		Benzene
9.197	* not found *			1		Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.368	* not found *			1		Toluene
15.903	* not found *			1		Ethylbenzene
16.597	* not found *			1		p-Xylene
17.023	* not found *			1		m-Xylene
18.024	* not found *			1		o-Xylene
19.516	* not found *			1		Styrene



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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG1_001.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 09:30 AM
Report Created on: 21 Dec 95 12:06 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG1_001.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.184	6777	2403	BV	0.043	0.3568
2	1.382	1144123	108878	VV	0.173	60.2312
3	1.844	24494	1846	VB	0.206	1.2894
4	4.157	53392	4623	BB	0.181	2.8108
5	5.104	11738	813	BB	0.216	0.6179
6	6.589	20515	1585	BB	0.195	1.0800
7	8.233	68447	5315	BV	0.195	3.6033
8	9.143	25285	1826	VB	0.209	1.3311
9	12.302	82648	6268	BV	0.204	4.3509
10	15.829	86325	6205	BV	0.215	4.5445
11	16.516	82985	5626	VV	0.229	4.3687
12	16.938	93660	5645	VV	0.251	4.9306
13	17.923	94279	4974	VV	0.287	4.9632
14	19.401	104885	4778	VB	0.330	5.5216

Total area = 1899551

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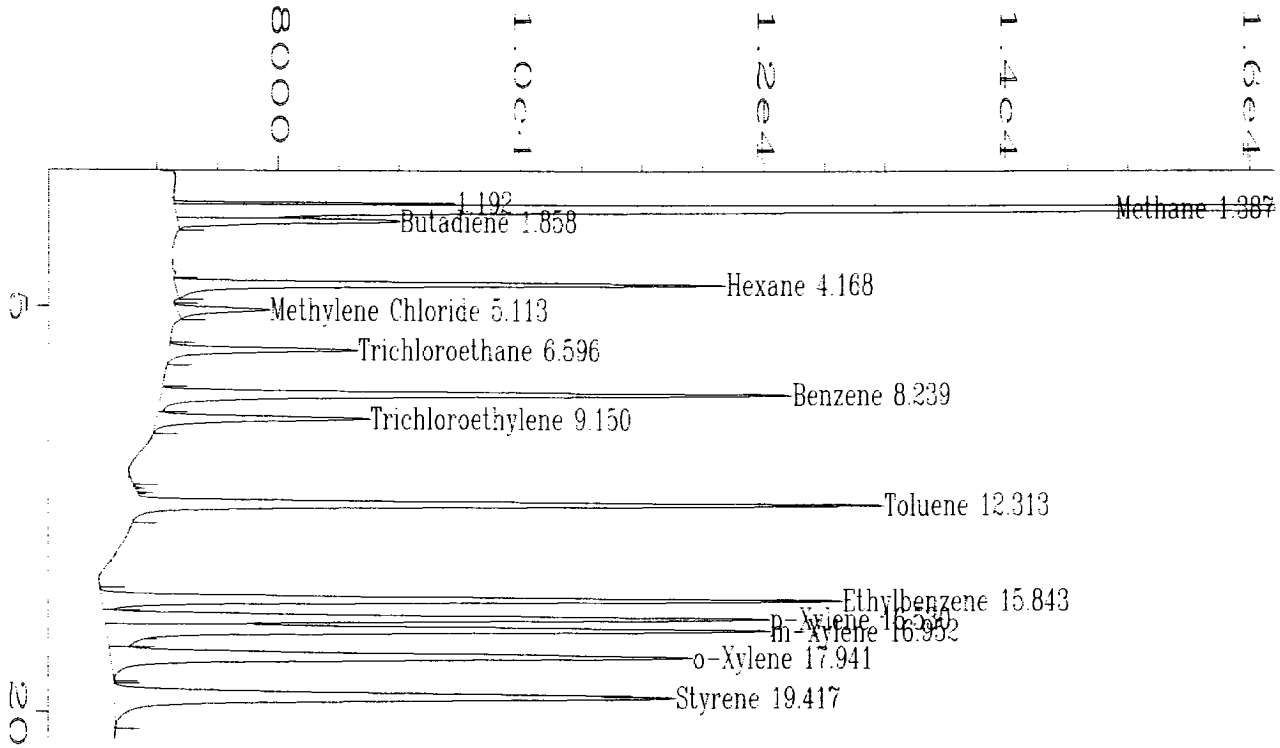

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG1_002.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 10:03 AM
Report Created on: 21 Dec 95 12:06 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG1_002.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.192	6635	2319	BV	0.044	0.3632
2	1.387	1104737	107516	VV	0.144	60.4698
3	1.858	23736	1828	VB	0.175	1.2992
4	4.168	52331	4538	BB	0.168	2.8644
5	5.113	9389	762	BB	0.183	0.5139
6	6.596	19564	1555	BB	0.192	1.0709
7	8.239	67293	5199	BV	0.196	3.6834
8	9.150	24345	1762	VB	0.208	1.3326
9	12.313	82417	6187	BB	0.205	4.5112
10	15.843	84581	6101	BV	0.214	4.6297
11	16.530	79088	5476	VV	0.224	4.3290
12	16.952	90907	5465	VV	0.252	4.9759
13	17.941	86773	4794	VB	0.276	4.7497
14	19.417	95128	4621	BB	0.286	5.2070

Total area = 1826924

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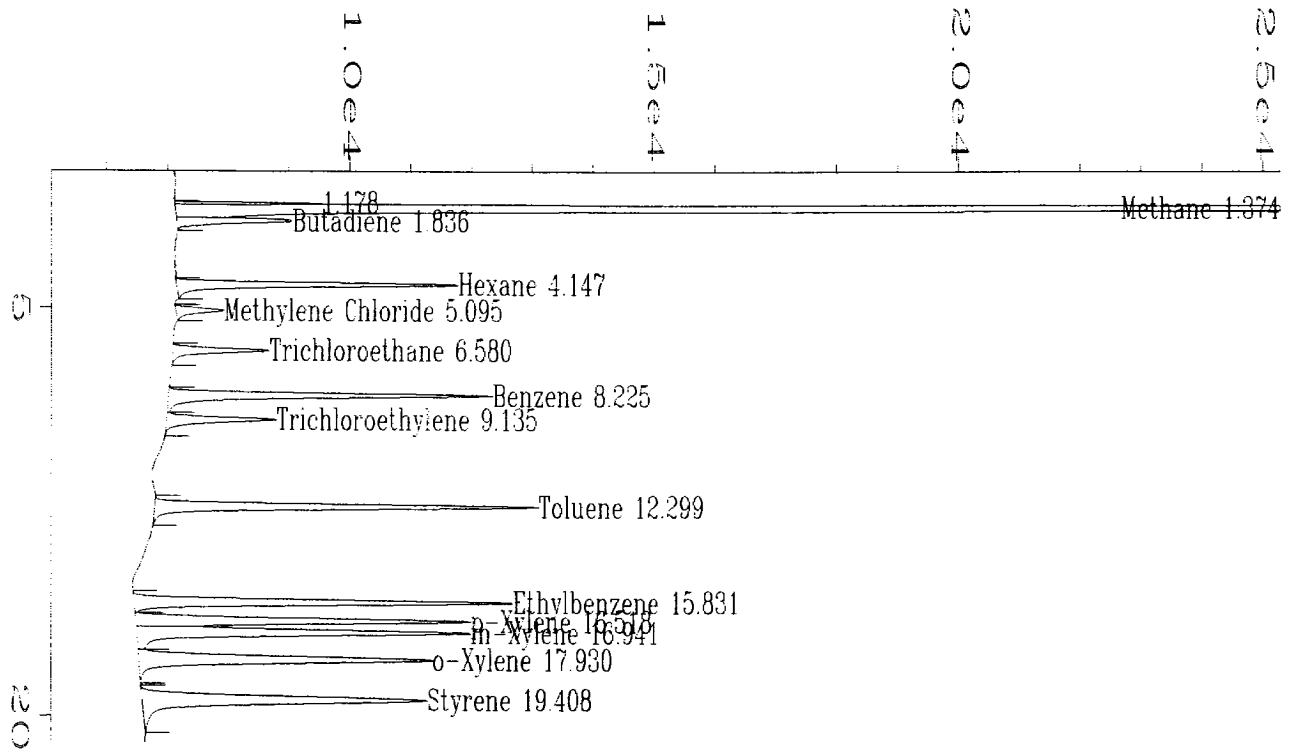

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG1_003.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 10:30 AM
Report Created on: 21 Dec 95 12:07 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG1_003.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.178	6803	2415	BV	0.043	0.3633
2	1.374	1143890	109869	VV	0.145	61.0877
3	1.836	25133	1886	VB	0.181	1.3422
4	4.147	53473	4632	BB	0.169	2.8556
5	5.095	9893	785	BB	0.191	0.5283
6	6.580	20012	1586	BB	0.192	1.0687
7	8.225	69197	5326	BV	0.197	3.6954
8	9.135	24999	1802	VB	0.209	1.3351
9	12.299	82851	6314	BB	0.202	4.4246
10	15.831	85579	6226	BV	0.213	4.5702
11	16.518	78778	5508	VV	0.223	4.2070
12	16.941	88770	5494	VV	0.246	4.7406
13	17.930	85961	4827	VB	0.274	4.5906
14	19.408	97196	4689	BB	0.315	5.1906

Total area = 1872537

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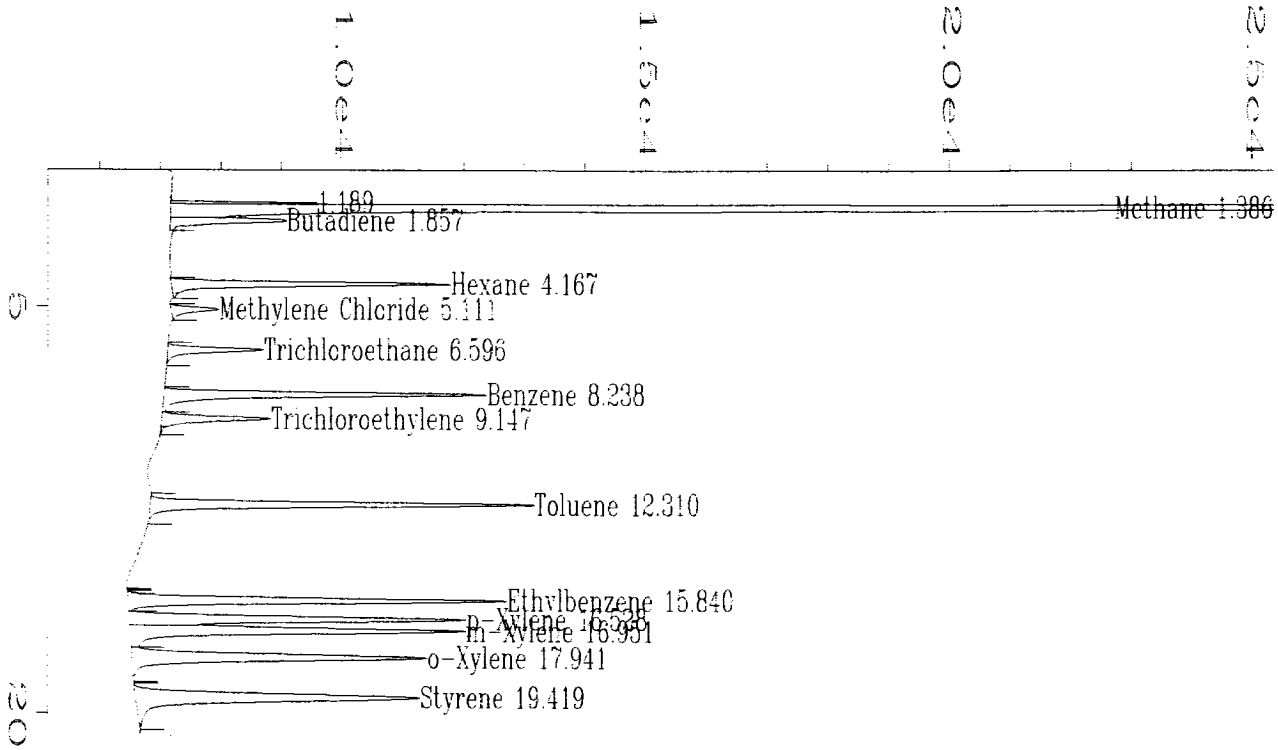

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG1_004.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 10:59 AM
Report Created on: 21 Dec 95 12:07 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG1_004.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.189	6780	2404	BV	0.043	0.3627
2	1.386	1136143	108111	VV	0.149	60.7792
3	1.857	26073	1907	VV	0.185	1.3948
4	4.167	53371	4604	BB	0.170	2.8551
5	5.111	9790	785	BB	0.189	0.5237
6	6.596	19956	1581	BB	0.193	1.0676
7	8.238	69248	5313	BV	0.197	3.7045
8	9.147	24789	1797	VB	0.209	1.3261
9	12.310	82915	6333	BB	0.202	4.4357
10	15.840	86471	6253	PV	0.214	4.6259
11	16.528	79508	5551	VV	0.223	4.2533
12	16.951	90098	5534	VV	0.247	4.8199
13	17.941	87069	4868	VB	0.276	4.6579
14	19.419	97085	4688	BB	0.315	5.1936

Total area = 1869297

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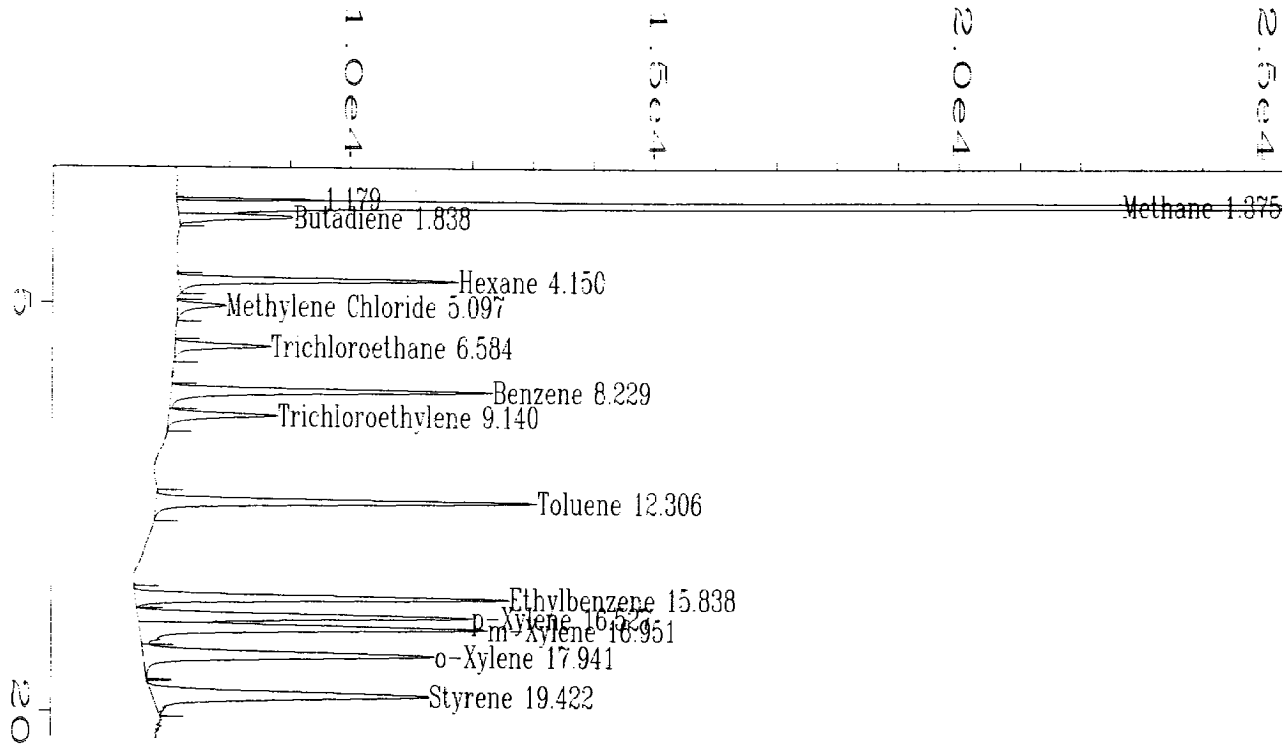

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG1_005.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 11:25 AM
Report Created on: 21 Dec 95 12:07 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG1_005.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.179	6791	2412	BV	0.043	0.3645
2	1.375	1139803	109798	VV	0.171	61.1806
3	1.838	24794	1875	VB	0.205	1.3308
4	4.150	52937	4603	BB	0.180	2.8415
5	5.097	11039	805	BB	0.202	0.5926
6	6.584	19932	1578	BB	0.193	1.0699
7	8.229	68782	5287	BV	0.197	3.6920
8	9.140	24606	1787	VB	0.208	1.3207
9	12.306	82201	6266	BB	0.202	4.4123
10	15.838	84315	6150	BV	0.213	4.5257
11	16.527	78560	5479	VV	0.219	4.2168
12	16.951	92779	5737	VV	0.241	4.9800
13	17.941	86055	4791	VB	0.276	4.6191
14	19.422	90421	4557	BV	0.307	4.8535

Total area = 1863014

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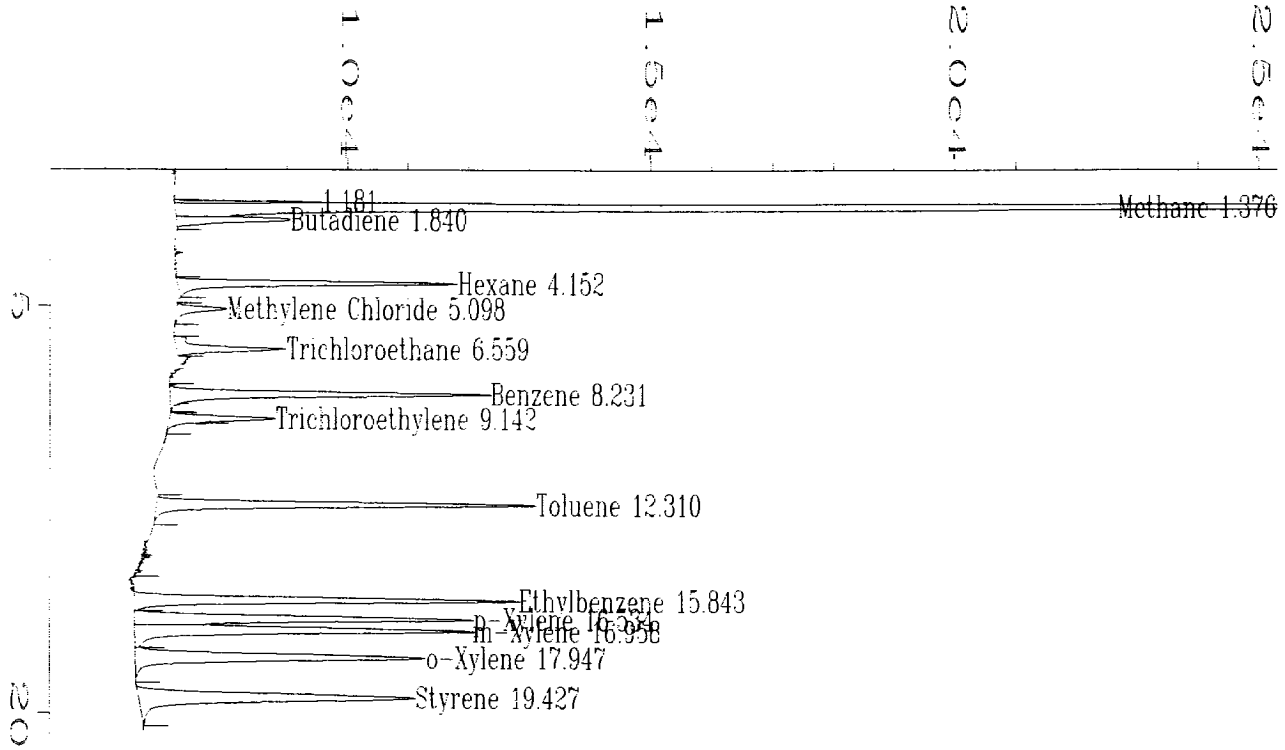

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG1_006.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 11:52 AM
Report Created on: 21 Dec 95 12:07 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG1_006.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.181	6801	2411	BV	0.043	0.3646
2	1.376	1138316	109607	VV	0.171	61.0174
3	1.840	24912	1875	VB	0.205	1.3354
4	4.152	53485	4616	BB	0.178	2.8670
5	5.098	11109	830	BB	0.197	0.5955
6	6.559	24695	1805	BV	0.186	1.3237
7	8.231	68296	5276	BB	0.198	3.6609
8	9.142	23613	1749	BB	0.204	1.2657
9	12.310	82129	6262	BB	0.202	4.4024
10	15.843	85569	6332	BV	0.213	4.5868
11	16.534	80286	5566	VV	0.220	4.3036
12	16.958	89163	5607	VV	0.233	4.7794
13	17.947	84882	4779	VB	0.274	4.5500
14	19.427	92305	4563	BB	0.310	4.9478

Total area = 1865561

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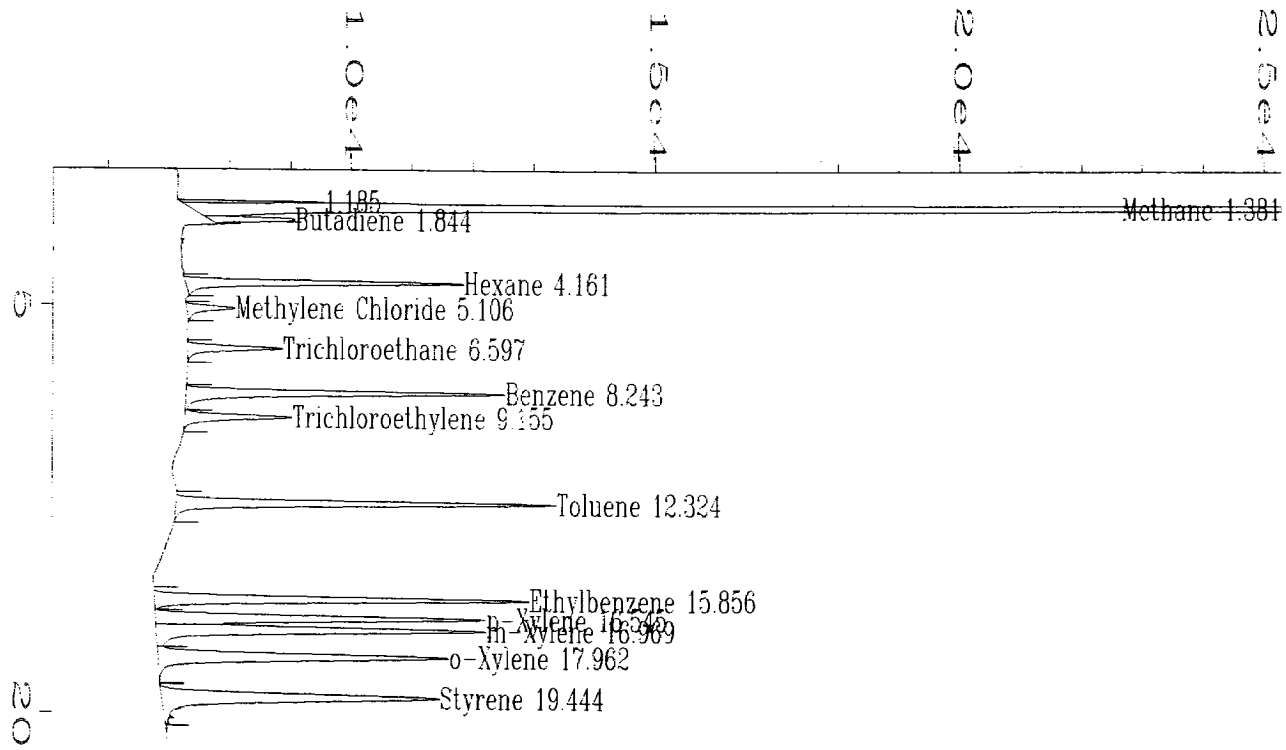

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG1_007.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 12:19 PM
Report Created on: 21 Dec 95 12:07 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG1_007.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.185	6594	2357	BV	0.043	0.3592
2	1.381	1125323	108553	VV	0.171	61.3037
3	1.844	16538	1381	VV	0.176	0.9009
4	4.161	52437	4574	BB	0.175	2.8566
5	5.106	10417	800	BB	0.196	0.5675
6	6.597	19742	1566	BB	0.193	1.0755
7	8.243	68529	5250	BV	0.198	3.7332
8	9.155	24323	1770	VB	0.207	1.3250
9	12.324	82163	6254	BB	0.202	4.4759
10	15.856	84760	6159	BV	0.213	4.6174
11	16.545	77867	5433	VV	0.224	4.2419
12	16.969	87978	5420	VV	0.247	4.7927
13	17.962	85428	4780	VB	0.275	4.6538
14	19.444	93552	4568	BB	0.312	5.0964

Total area = 1835652

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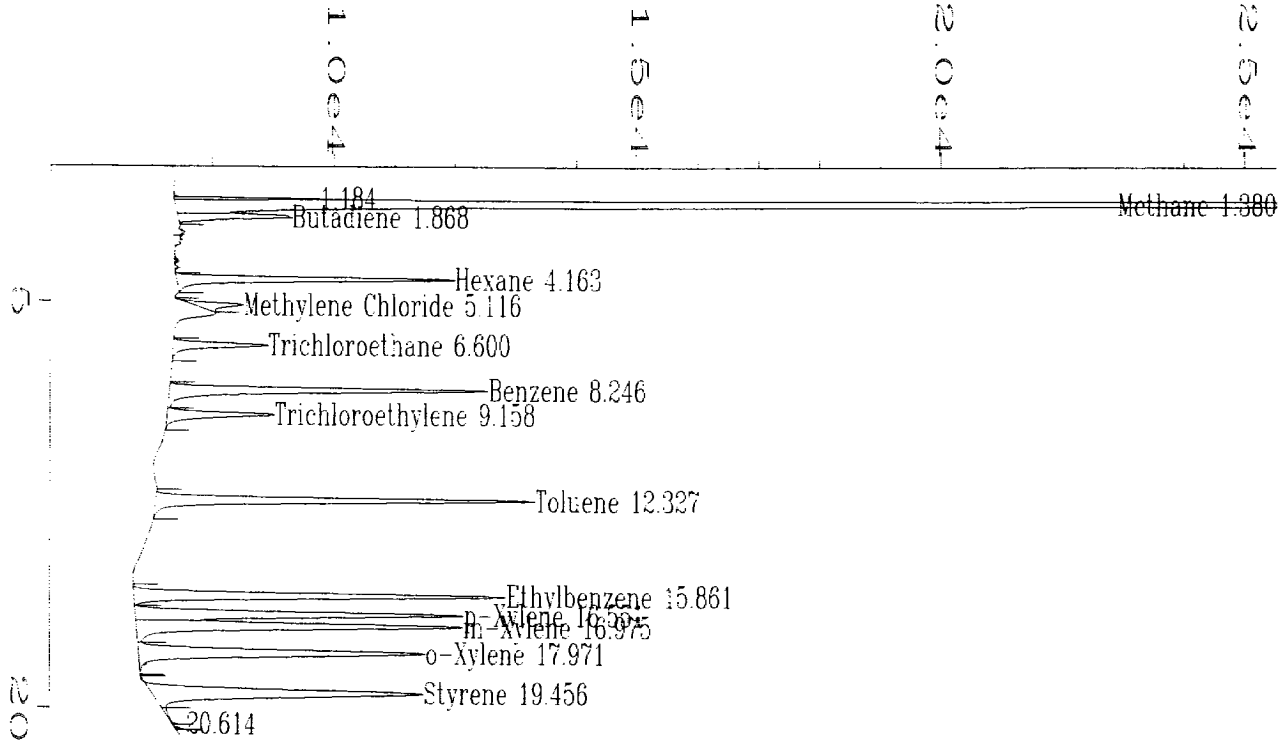

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG1_008.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 12:46 PM
Report Created on: 21 Dec 95 12:08 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG1_008.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.184	6772	2389	BV	0.043	0.3676
2	1.380	1135275	108645	VV	0.149	61.6194
3	1.868	24210	1885	VV	0.154	1.3141
4	4.163	52752	4583	BB	0.172	2.8632
5	5.116	8877	791	BB	0.173	0.4818
6	6.600	19667	1562	BB	0.192	1.0675
7	8.246	68555	5253	BV	0.197	3.7210
8	9.158	24302	1775	VB	0.207	1.3190
9	12.327	81895	6245	BB	0.202	4.4450
10	15.861	84235	6132	BV	0.213	4.5720
11	16.551	77103	5399	VV	0.223	4.1849
12	16.975	86412	5382	VV	0.245	4.6902
13	17.971	83425	4722	VB	0.272	4.5280
14	19.456	87344	4471	BV	0.302	4.7408
15	20.614	1576	175	VV	0.162	0.0856

Total area = 1842399

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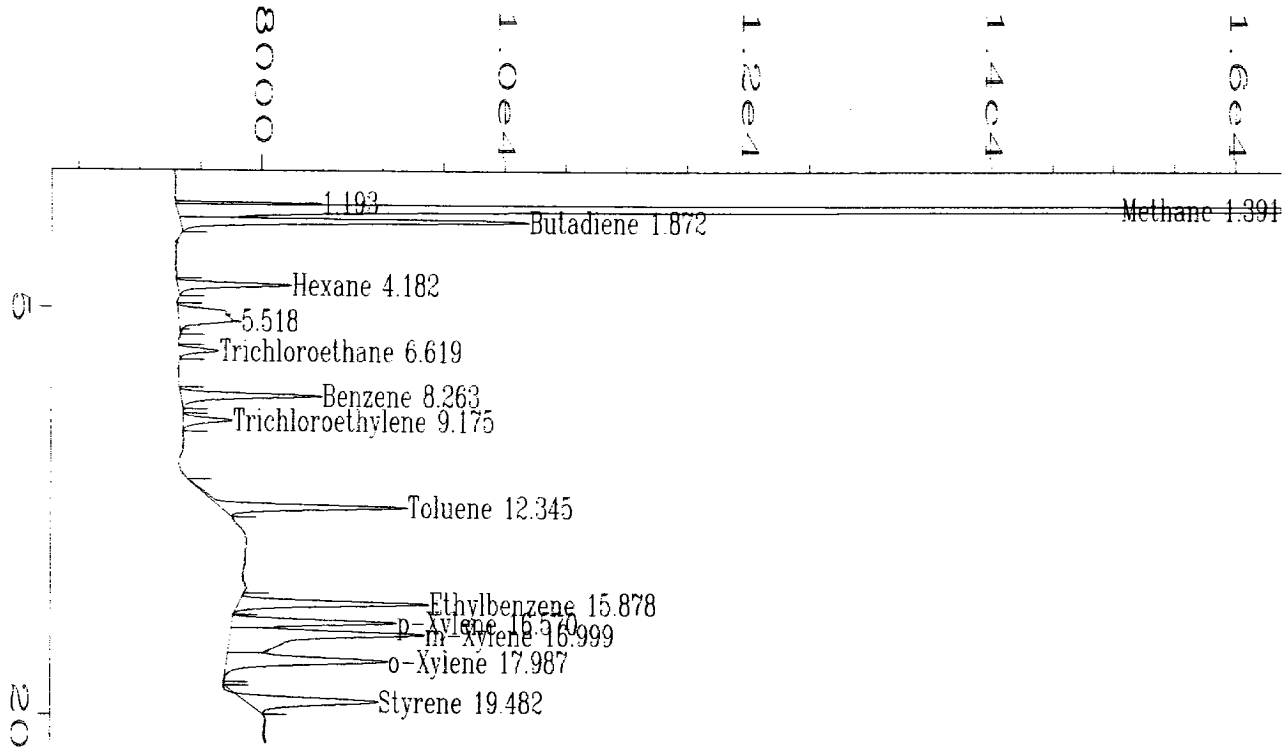

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-2_01.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 01:15 PM
Report Created on: 21 Dec 95 12:01 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-2_01.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.193	3367	1194	BV	0.043	0.4195
2	1.391	569647	53953	VV	0.174	70.9717
3	1.872	34282	2863	VB	0.191	4.2712
4	4.182	10711	938	BB	0.181	1.3345
5	5.518	15375	509	BB	0.370	1.9155
6	6.619	3832	324	BB	0.183	0.4774
7	8.263	14781	1156	BB	0.194	1.8415
8	9.175	5364	405	BB	0.199	0.6683
9	12.345	20276	1539	BB	0.200	2.5262
10	15.878	21716	1566	BV	0.212	2.7056
11	16.570	19409	1353	PV	0.222	2.4181
12	16.999	38218	1597	VV	0.339	4.7616
13	17.987	26154	1326	VB	0.295	3.2586
14	19.482	19506	1084	BB	0.280	2.4302

Total area = 802640

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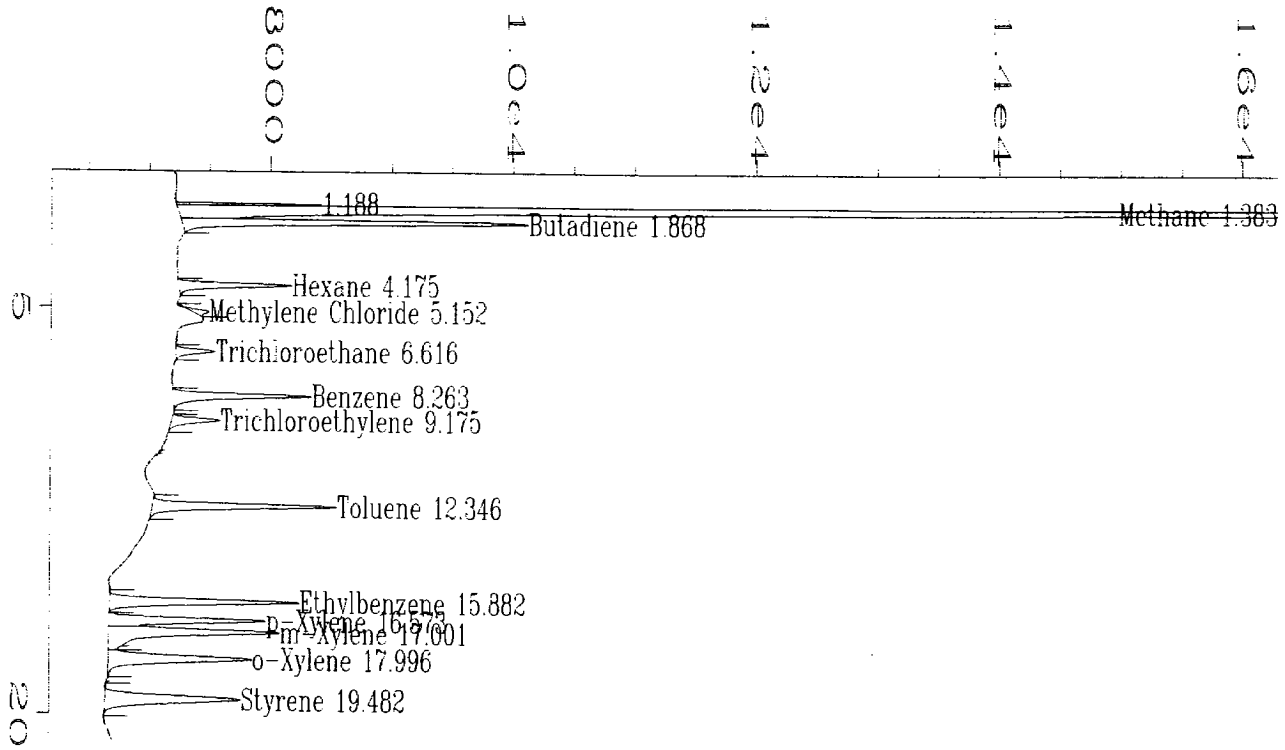

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-2_02.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 01:52 PM
Report Created on: 21 Dec 95 12:01 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-2_02.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.188	3370	1195	BV	0.043	0.4395
2	1.383	564439	54193	VV	0.172	73.6072
3	1.868	33833	2854	VB	0.189	4.4121
4	4.175	10588	932	BB	0.178	1.3807
5	5.152	1058	124	BB	0.168	0.1379
6	6.616	3871	324	BB	0.185	0.5049
7	8.263	14773	1135	BB	0.197	1.9266
8	9.175	5318	399	BB	0.205	0.6935
9	12.346	20051	1521	BB	0.203	2.6147
10	15.882	21955	1564	BV	0.217	2.8631
11	16.573	18116	1294	PV	0.220	2.3625
12	17.001	26201	1409	VV	0.274	3.4169
13	17.996	21409	1184	VB	0.279	2.7918
14	19.482	21843	1118	BB	0.302	2.8485

Total area = 766826

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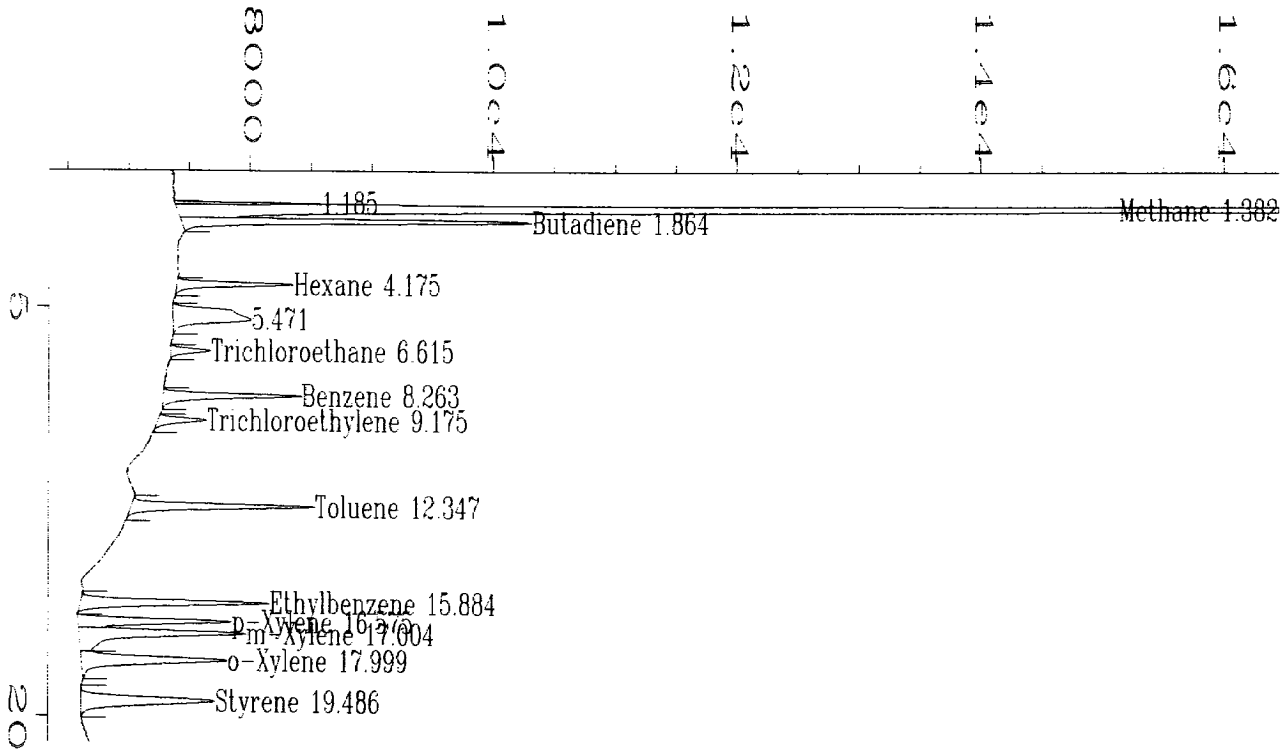

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-2_03.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 02:18 PM
Report Created on: 21 Dec 95 12:01 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-2_03.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.185	3381	1194	BV	0.043	0.4292
2	1.382	567940	54460	VV	0.148	72.1100
3	1.864	33858	2871	VB	0.188	4.2989
4	4.175	10831	950	BB	0.180	1.3752
5	5.471	20171	640	BB	0.404	2.5610
6	6.615	3838	325	BB	0.184	0.4873
7	8.263	14637	1137	BB	0.195	1.8585
8	9.175	5255	399	BB	0.201	0.6673
9	12.347	19749	1508	BB	0.202	2.5074
10	15.884	21884	1553	BV	0.218	2.7786
11	16.575	17415	1258	PV	0.218	2.2112
12	17.004	25298	1367	VV	0.273	3.2120
13	17.999	22135	1191	VB	0.287	2.8104
14	19.486	21210	1096	BB	0.304	2.6930

Total area = 787602

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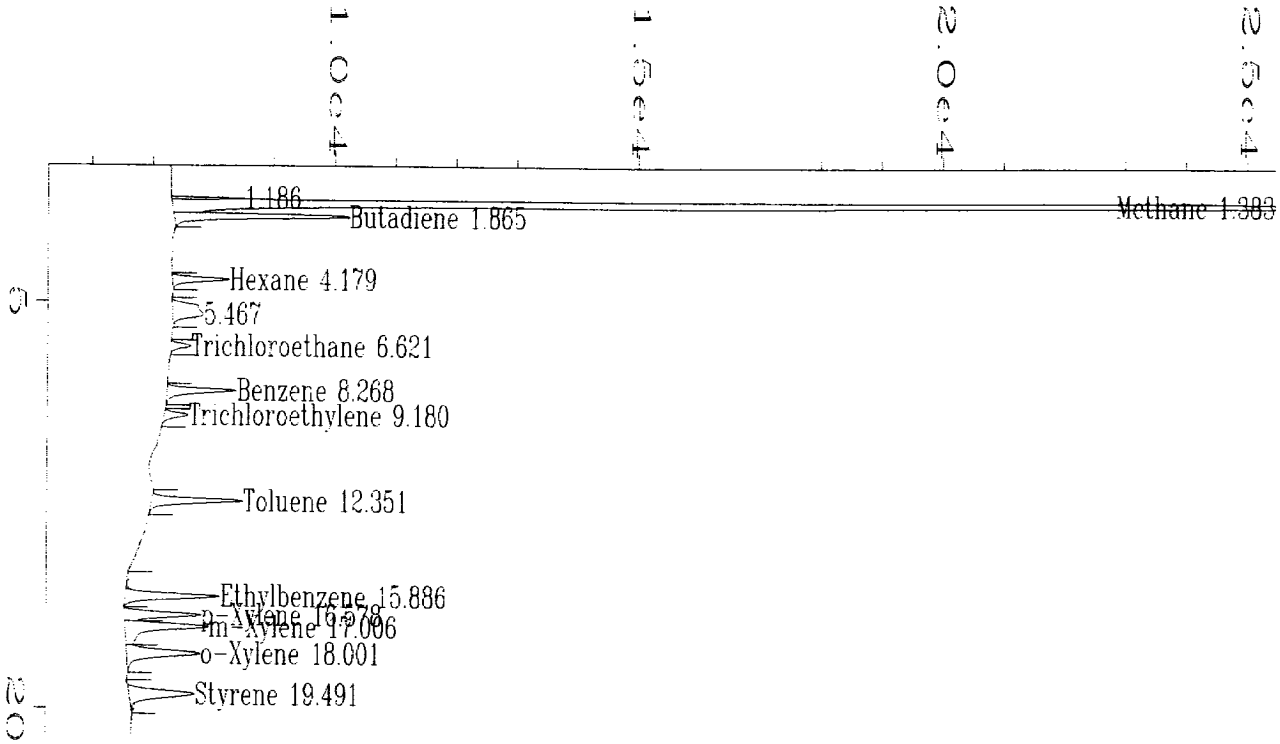

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-2_04.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 02:45 PM
Report Created on: 21 Dec 95 12:02 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-2_04.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.186	3384	1193	BV	0.043	0.4313
2	1.383	566757	54311	VV	0.172	72.2257
3	1.865	33898	2866	VB	0.189	4.3198
4	4.179	10556	940	BB	0.177	1.3452
5	5.467	16513	514	BB	0.423	2.1043
6	6.621	3863	325	BB	0.183	0.4923
7	8.268	14608	1140	BB	0.194	1.8616
8	9.180	5264	399	BB	0.202	0.6708
9	12.351	19808	1511	BB	0.202	2.5242
10	15.886	22281	1553	BV	0.221	2.8394
11	16.578	17363	1252	PV	0.217	2.2127
12	17.006	26363	1374	VV	0.282	3.3596
13	18.001	22846	1205	VB	0.290	2.9114
14	19.491	21199	1079	BB	0.307	2.7015

Total area = 784703

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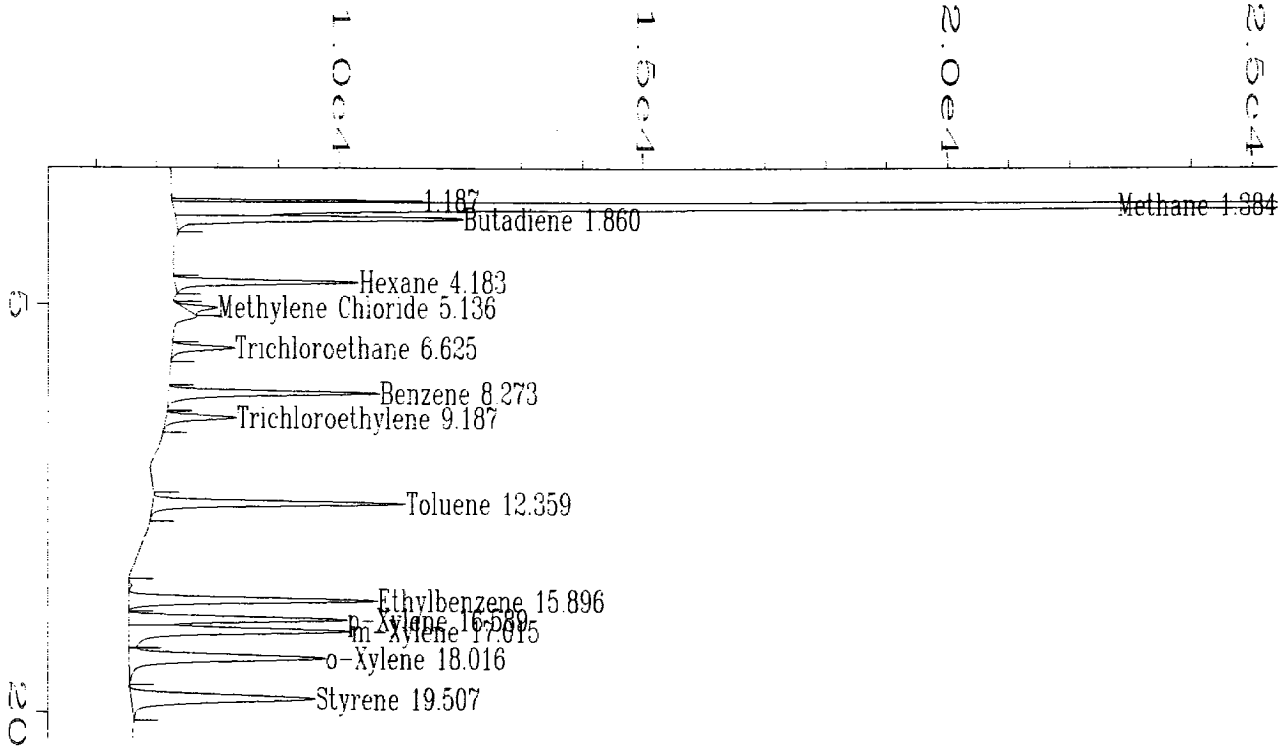

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-3_01.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 03:11 PM
Report Created on: 21 Dec 95 12:02 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-3_01.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.187	11657	4113	BV	0.043	0.4723
2	1.384	1936290	184502	VV	0.173	78.4471
3	1.860	60642	4726	VB	0.200	2.4569
4	4.183	34659	3035	BB	0.177	1.4042
5	5.136	6355	545	BB	0.176	0.2575
6	6.625	13086	1036	BB	0.192	0.5302
7	8.273	44862	3475	BB	0.195	1.8175
8	9.187	15587	1161	BB	0.203	0.6315
9	12.359	54578	4161	BB	0.203	2.2112
10	15.896	57467	4097	BV	0.218	2.3282
11	16.589	51119	3584	PV	0.223	2.0711
12	17.015	61871	3648	VV	0.257	2.5067
13	18.016	60103	3218	VB	0.282	2.4350
14	19.507	59998	3027	BB	0.305	2.4307

Total area = 2468275

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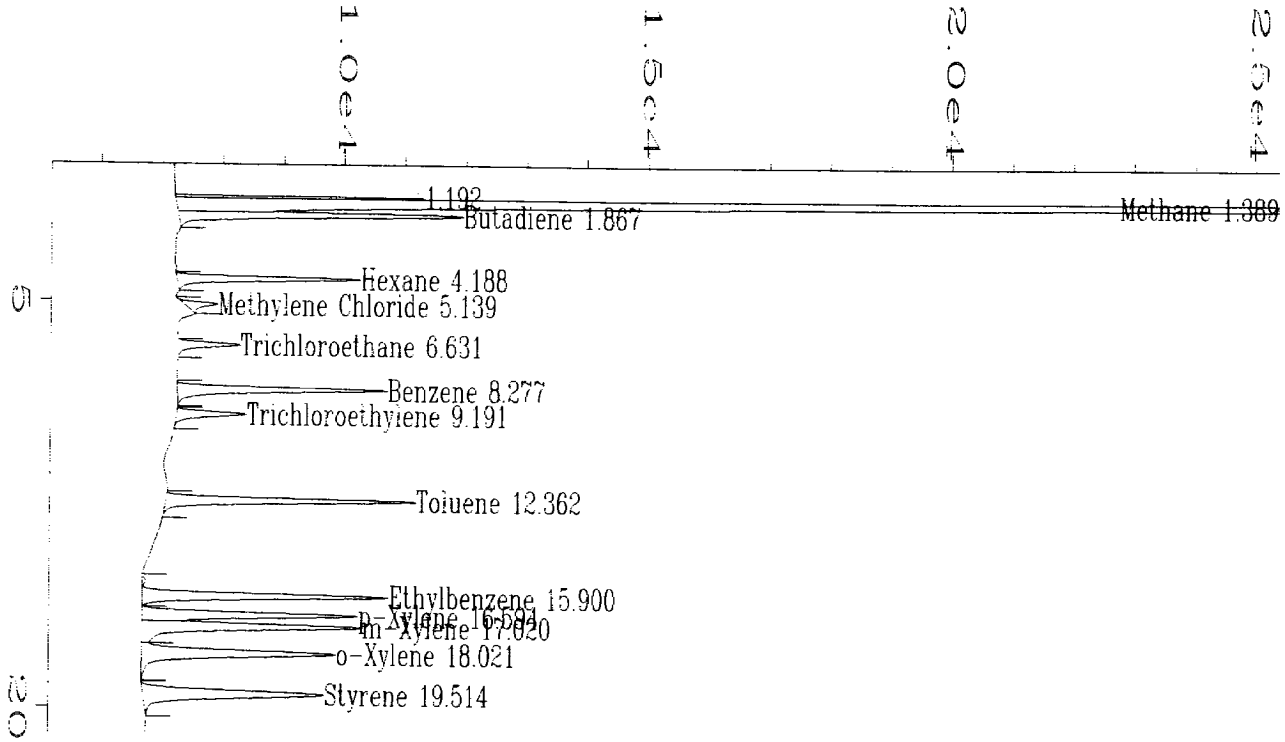

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-3_02.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 03:38 PM
Report Created on: 21 Dec 95 12:02 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-3_02.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.192	11619	4097	BV	0.043	0.4722
2	1.389	1932567	183555	VV	0.156	78.5433
3	1.867	60032	4686	VB	0.176	2.4398
4	4.188	34443	3018	BB	0.179	1.3998
5	5.139	6410	542	BB	0.179	0.2605
6	6.631	12805	1024	BB	0.189	0.5204
7	8.277	44620	3459	BB	0.196	1.8134
8	9.191	15256	1148	BB	0.200	0.6200
9	12.362	53821	4117	BB	0.201	2.1874
10	15.900	57262	4056	BV	0.219	2.3273
11	16.594	50845	3554	VV	0.224	2.0664
12	17.020	61846	3624	VV	0.259	2.5136
13	18.021	59698	3188	VB	0.284	2.4263
14	19.514	59287	2979	BB	0.305	2.4095

Total area = 2460511

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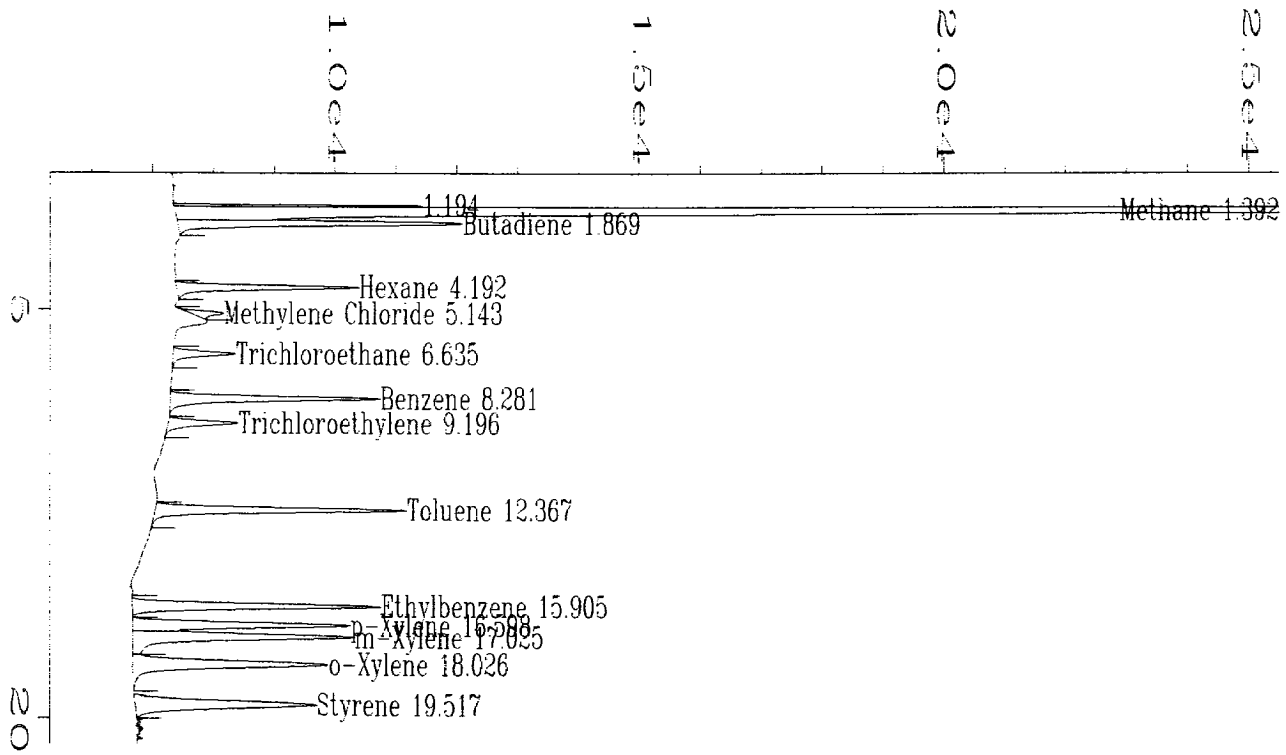

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-3_03.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 04:06 PM
Report Created on: 21 Dec 95 12:02 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-3_03.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.194	11600	4079	BV	0.043	0.4734
2	1.392	1922806	182602	VV	0.174	78.4660
3	1.869	59993	4675	VB	0.201	2.4482
4	4.192	34266	3001	BB	0.179	1.3983
5	5.143	5410	519	BB	0.148	0.2208
6	6.635	12950	1024	BB	0.193	0.5284
7	8.281	44861	3452	BB	0.197	1.8307
8	9.196	15568	1156	BB	0.204	0.6353
9	12.367	54236	4142	BB	0.202	2.2133
10	15.905	56370	4084	BV	0.215	2.3004
11	16.598	51226	3579	VV	0.225	2.0904
12	17.025	62417	3646	VV	0.260	2.5471
13	18.026	60212	3207	VB	0.285	2.4571
14	19.517	58582	2985	BV	0.275	2.3906

Total area = 2450496

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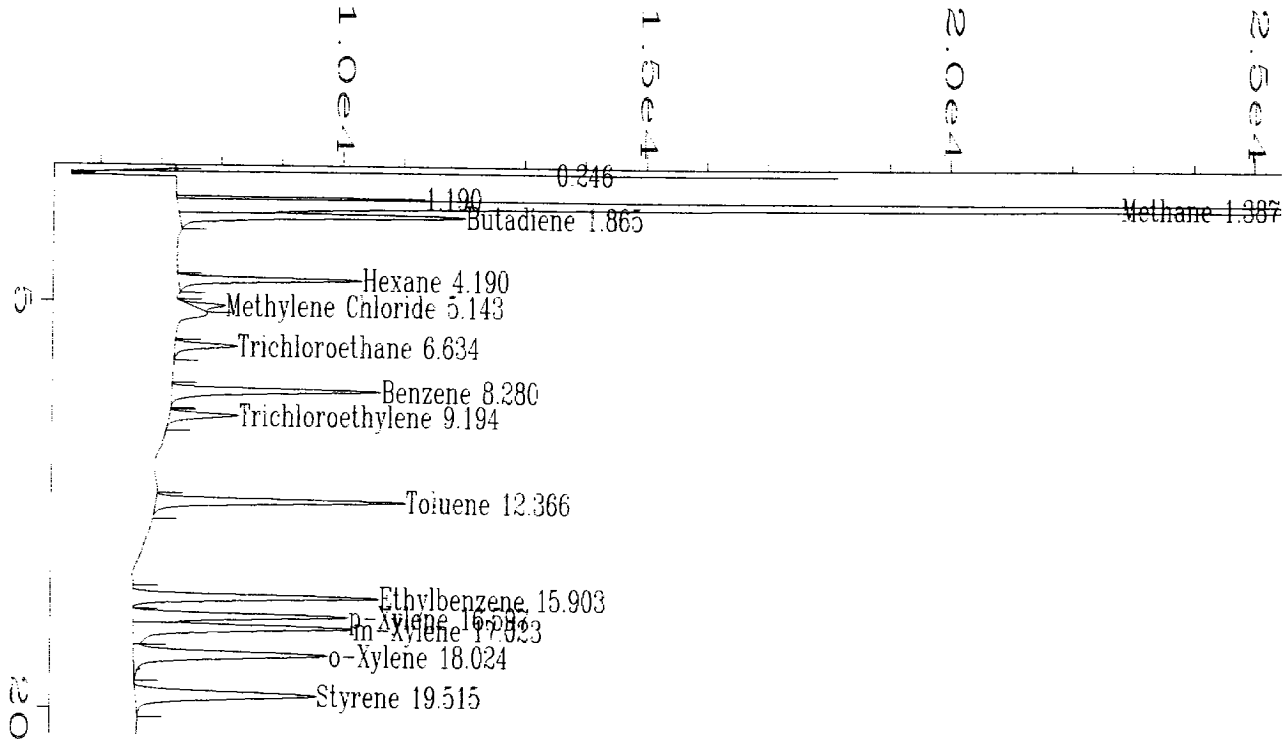

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-3_04.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 04:32 PM
Report Created on: 21 Dec 95 12:02 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-3_04.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	0.246	5293	9125	BB	0.010	0.2153
2	1.190	11608	4086	BV	0.043	0.4721
3	1.387	1927593	183526	VV	0.145	78.4012
4	1.865	60377	4708	VB	0.171	2.4557
5	4.190	34416	3022	BB	0.168	1.3998
6	5.143	5499	527	BB	0.163	0.2237
7	6.634	12971	1026	BB	0.192	0.5276
8	8.280	44577	3451	BB	0.196	1.8131
9	9.194	15215	1146	BB	0.203	0.6189
10	12.366	53843	4118	BB	0.202	2.1900
11	15.903	55909	4056	BV	0.215	2.2740
12	16.597	50754	3552	PV	0.224	2.0643
13	17.023	61781	3624	VV	0.258	2.5128
14	18.024	59883	3201	VB	0.284	2.4356
15	19.515	58906	2982	BB	0.302	2.3959

Total area = 2458626

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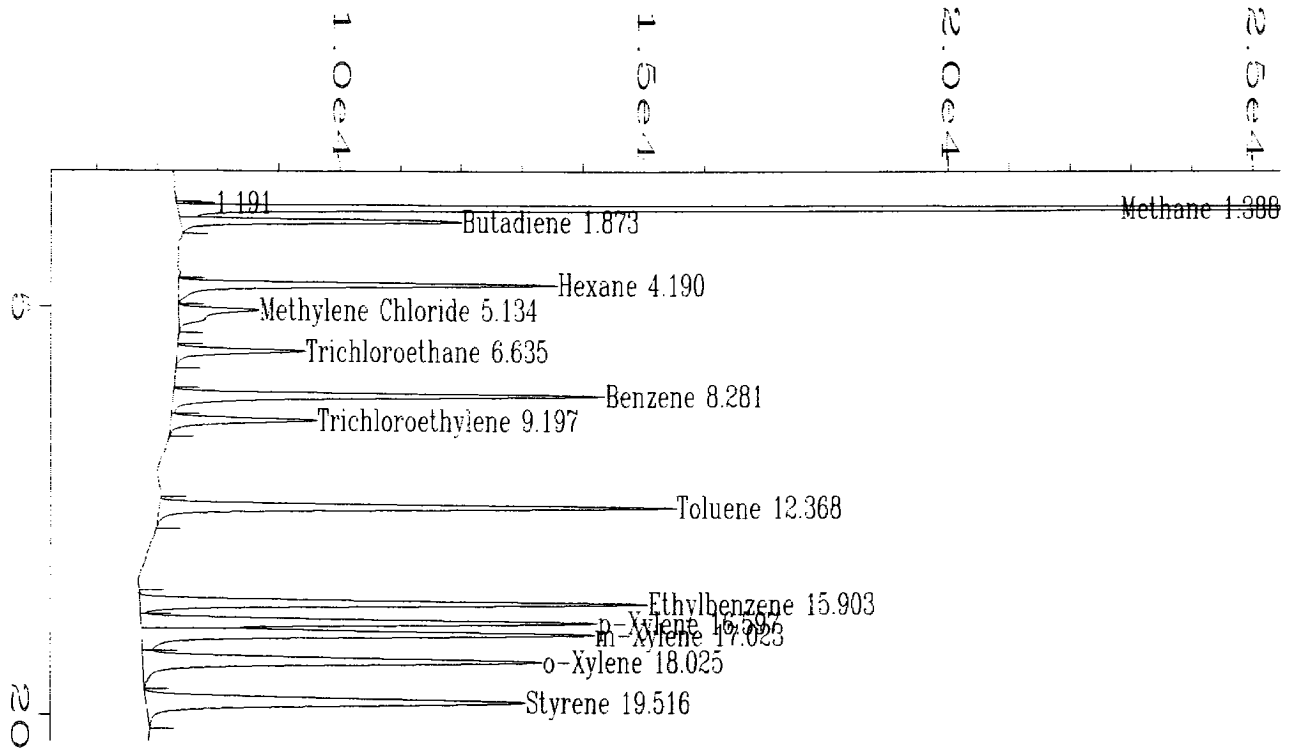

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-4_01.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 04:59 PM
Report Created on: 21 Dec 95 12:03 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-4_01.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.191	1767	620	BV	0.044	0.1347
2	1.388	299234	28514	VV	0.173	22.8209
3	1.873	52673	4620	VB	0.184	4.0171
4	4.190	73866	6231	BV	0.184	5.6333
5	5.134	25315	1325	VB	0.265	1.9306
6	6.635	26763	2106	BB	0.194	2.0410
7	8.281	92742	7099	BV	0.198	7.0729
8	9.197	33002	2404	VB	0.208	2.5169
9	12.368	111302	8497	BB	0.202	8.4884
10	15.903	115934	8350	BV	0.216	8.8416
11	16.597	109083	7505	VV	0.227	8.3191
12	17.023	123611	7451	VV	0.252	9.4271
13	18.025	121054	6563	VV	0.283	9.2321
14	19.516	124883	6241	PB	0.309	9.5241

Total area = 1311229

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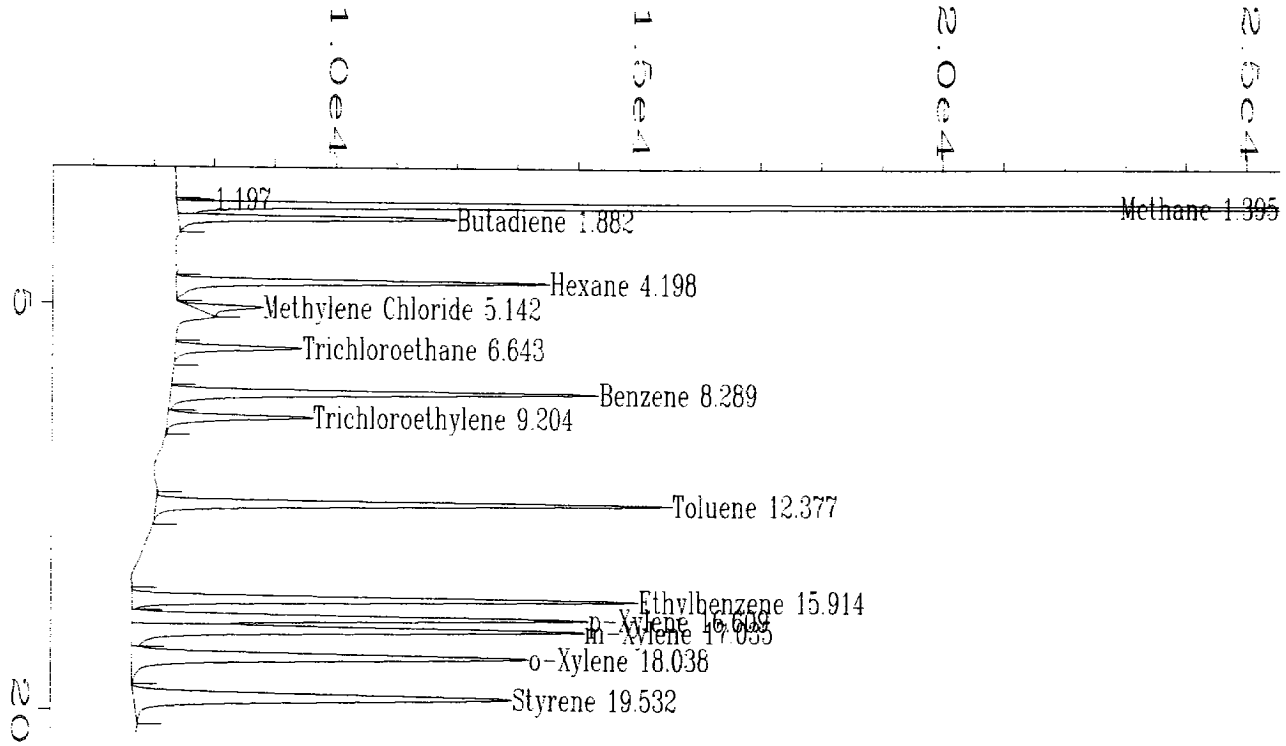

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-4_02.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 05:26 PM
Report Created on: 21 Dec 95 12:03 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-4_02.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.197	1734	615	BV	0.043	0.1337
2	1.395	297240	28221	VV	0.147	22.9130
3	1.882	53426	4592	VB	0.166	4.1184
4	4.198	73804	6160	BB	0.187	5.6892
5	5.142	13637	1139	BB	0.182	1.0512
6	6.643	26724	2096	BB	0.195	2.0600
7	8.289	92897	7063	BV	0.199	7.1611
8	9.204	33094	2390	VB	0.209	2.5511
9	12.377	111901	8515	BB	0.203	8.6260
10	15.914	116236	8345	BV	0.216	8.9601
11	16.609	109492	7525	VV	0.227	8.4403
12	17.035	122942	7460	VV	0.251	9.4771
13	18.038	119266	6535	VV	0.281	9.1938
14	19.532	124861	6240	PB	0.310	9.6250

Total area = 1297253

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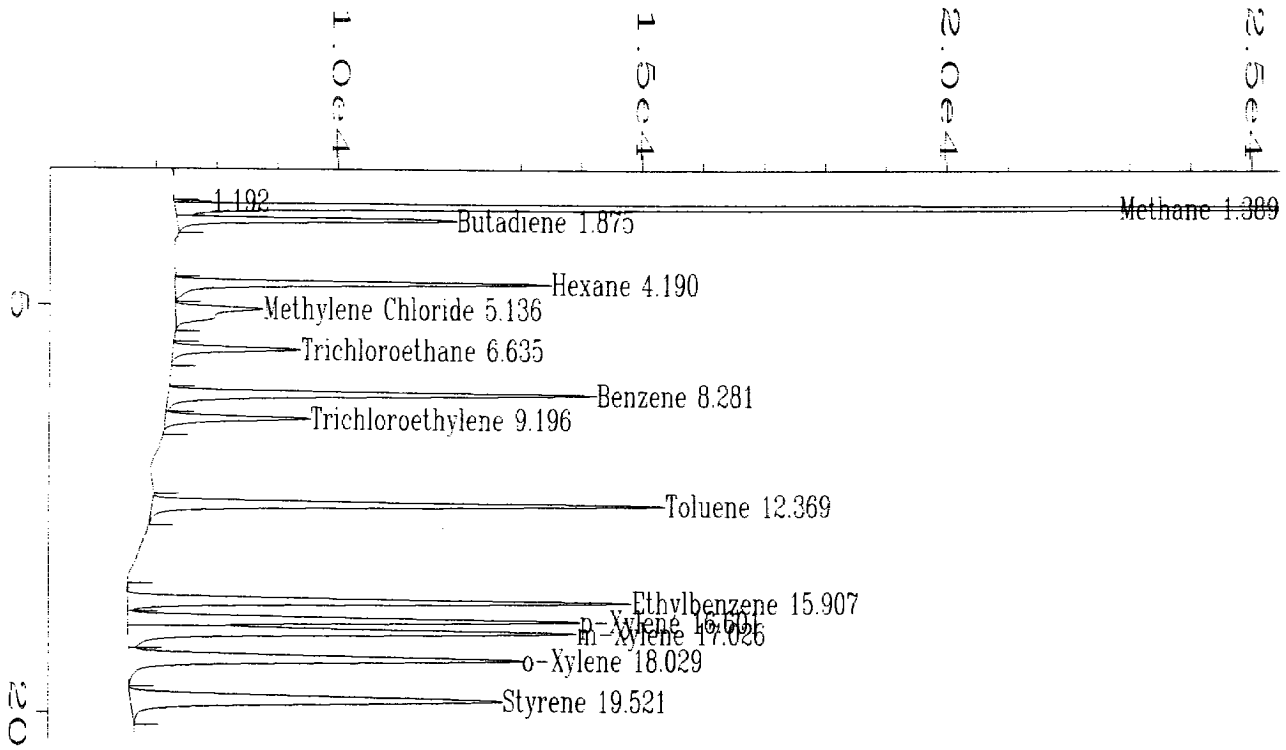

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-4_03.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 05:53 PM
Report Created on: 21 Dec 95 12:03 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-4_03.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.192	1769	623	BV	0.044	0.1356
2	1.389	298205	28459	VV	0.173	22.8580
3	1.875	52662	4604	VB	0.185	4.0366
4	4.190	73608	6195	BV	0.185	5.6422
5	5.136	31520	1437	VB	0.298	2.4160
6	6.635	26690	2100	BB	0.195	2.0458
7	8.281	91967	7042	BV	0.198	7.0494
8	9.196	32403	2377	VB	0.206	2.4838
9	12.369	110675	8436	BB	0.202	8.4835
10	15.907	115268	8278	BV	0.216	8.8355
11	16.601	107956	7429	VV	0.226	8.2751
12	17.026	121606	7372	VV	0.252	9.3213
13	18.029	118102	6472	VV	0.280	9.0527
14	19.521	122166	6117	PB	0.310	9.3643

Total area = 1304597

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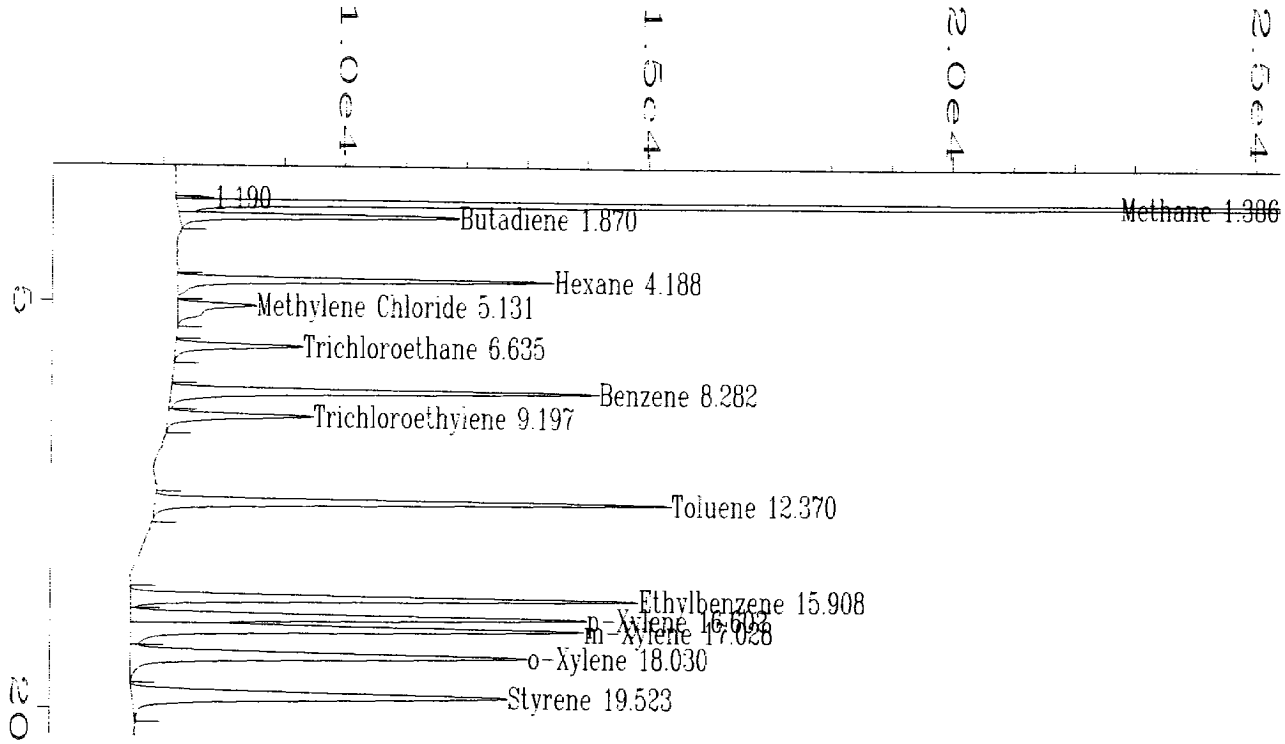

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-4_04.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 06:19 PM
Report Created on: 21 Dec 95 12:03 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-4_04.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.190	1782	624	BV	0.043	0.1362
2	1.386	298277	28509	VV	0.147	22.7978
3	1.870	52590	4614	VB	0.184	4.0195
4	4.188	73859	6207	BB	0.185	5.6451
5	5.131	24321	1295	BB	0.258	1.8589
6	6.635	26796	2096	BB	0.195	2.0480
7	8.282	92973	7056	BV	0.199	7.1060
8	9.197	33125	2393	VB	0.209	2.5318
9	12.370	111703	8503	BB	0.202	8.5376
10	15.908	116344	8365	BV	0.216	8.8924
11	16.602	109611	7523	VV	0.227	8.3778
12	17.028	123351	7475	VV	0.252	9.4279
13	18.030	120166	6545	VV	0.283	9.1845
14	19.523	123464	6188	PB	0.311	9.4365

Total area = 1308359

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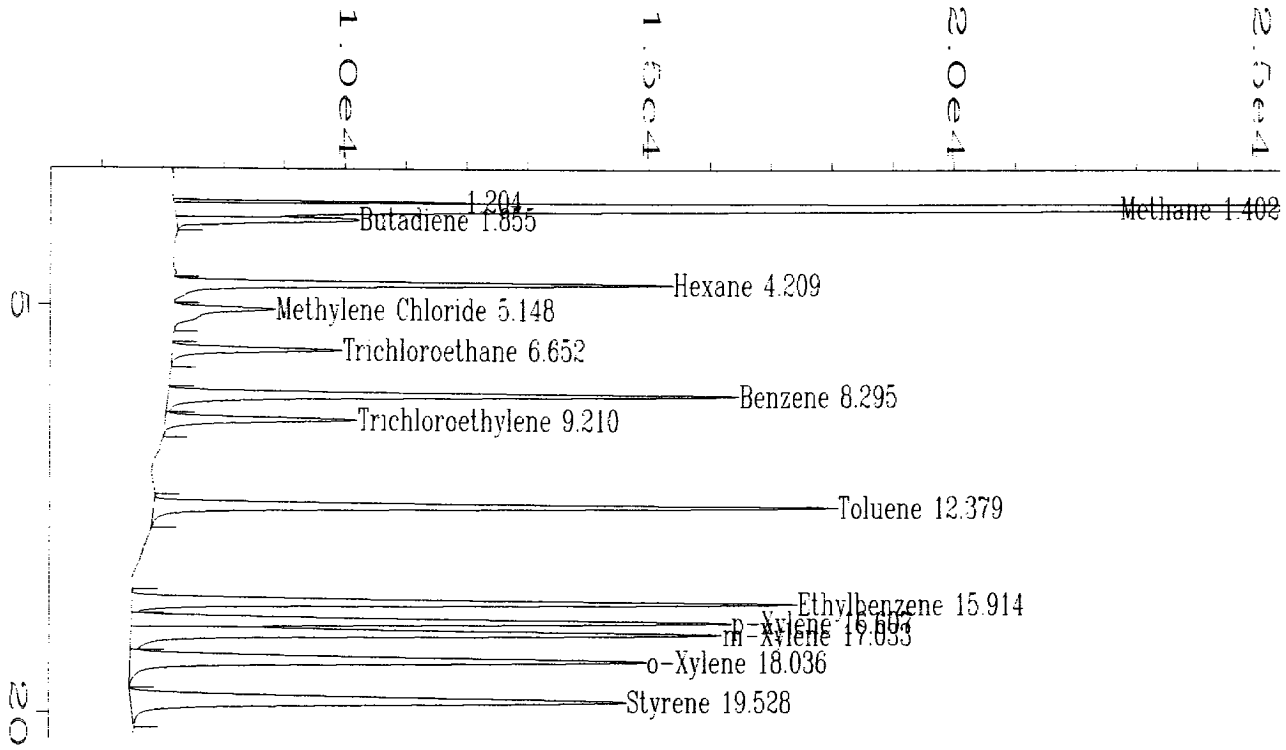

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-5_01.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 06:49 PM
Report Created on: 21 Dec 95 12:03 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-5_01.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.204	13716	4801	BV	0.044	0.3840
2	1.402	2272115	215551	VV	0.174	63.6075
3	1.855	40897	3003	VB	0.209	1.1449
4	4.209	97778	8211	BV	0.185	2.7373
5	5.148	28535	1672	VB	0.240	0.7988
6	6.652	35550	2800	BB	0.194	0.9952
7	8.295	122142	9389	BV	0.197	3.4193
8	9.210	43352	3162	VB	0.207	1.2136
9	12.379	146859	11246	BB	0.201	4.1113
10	15.914	151790	10940	BV	0.215	4.2493
11	16.607	143413	9856	VV	0.226	4.0148
12	17.033	159032	9730	VV	0.250	4.4521
13	18.036	153969	8488	VV	0.281	4.3103
14	19.528	162938	8149	PB	0.310	4.5614

Total area = 3572086

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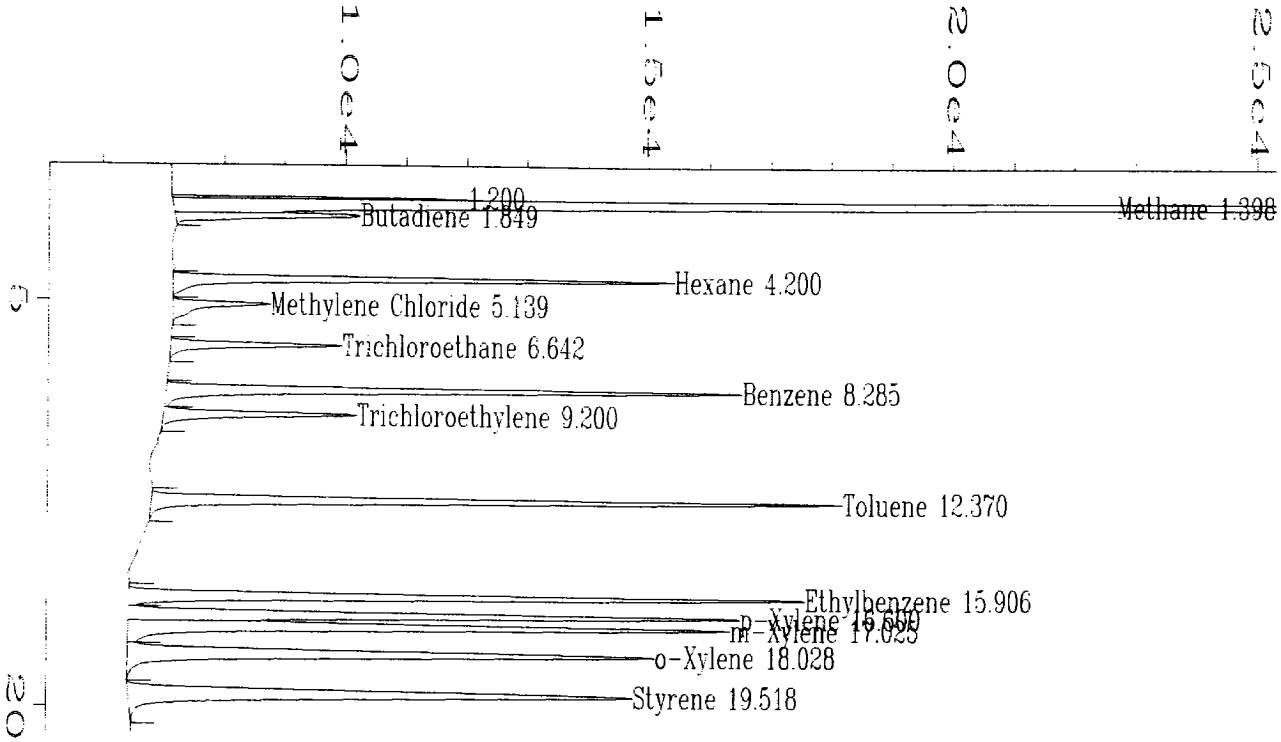

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-5_02.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 07:17 PM
Report Created on: 21 Dec 95 12:03 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-5_02.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.200	13788	4863	BV	0.043	0.3810
2	1.398	2299261	216791	VV	0.175	63.5324
3	1.849	41922	3041	VB	0.212	1.1584
4	4.200	98875	8266	BV	0.185	2.7321
5	5.139	25098	1607	VB	0.223	0.6935
6	6.642	35913	2824	BB	0.194	0.9923
7	8.285	123844	9483	BV	0.198	3.4220
8	9.200	44084	3195	VB	0.208	1.2181
9	12.370	149168	11382	BB	0.202	4.1217
10	15.906	154785	11140	BV	0.216	4.2770
11	16.600	146502	10063	VV	0.226	4.0481
12	17.025	162079	9910	VV	0.249	4.4785
13	18.028	157341	8684	VV	0.280	4.3476
14	19.518	166376	8315	PB	0.311	4.5973

Total area = 3619036

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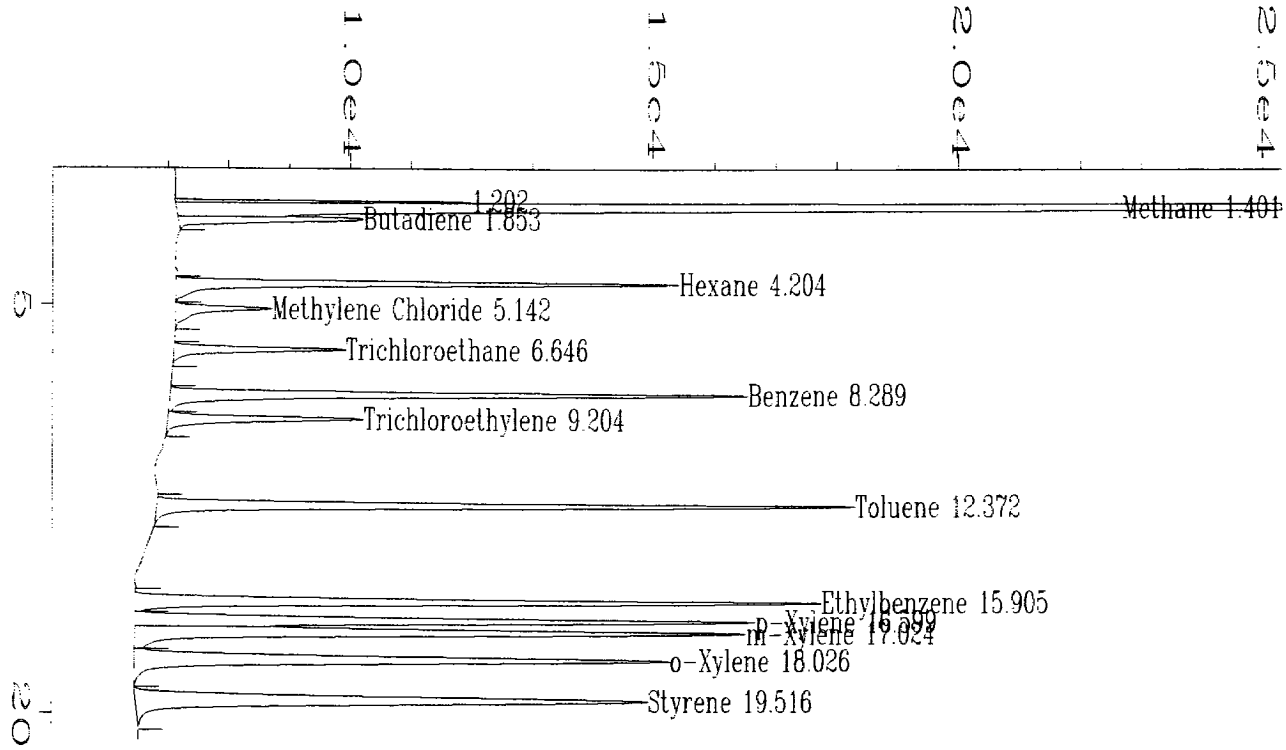

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-5_03.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 07:48 PM
Report Created on: 21 Dec 95 12:04 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-5_03.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.202	13801	4865	BV	0.043	0.3799
2	1.401	2300495	216328	VV	0.175	63.3332
3	1.853	41951	3037	VB	0.212	1.1549
4	4.204	99438	8275	BV	0.186	2.7376
5	5.142	23203	1578	VB	0.215	0.6388
6	6.646	36075	2828	BB	0.195	0.9932
7	8.289	124773	9506	BV	0.199	3.4350
8	9.204	44626	3222	VB	0.209	1.2286
9	12.372	150488	11478	BB	0.202	4.1430
10	15.905	156609	11273	BV	0.216	4.3115
11	16.599	148689	10197	VV	0.227	4.0934
12	17.024	164153	10047	VV	0.249	4.5192
13	18.026	159222	8797	VV	0.280	4.3834
14	19.516	168847	8425	PB	0.311	4.6484

Total area = 3632370

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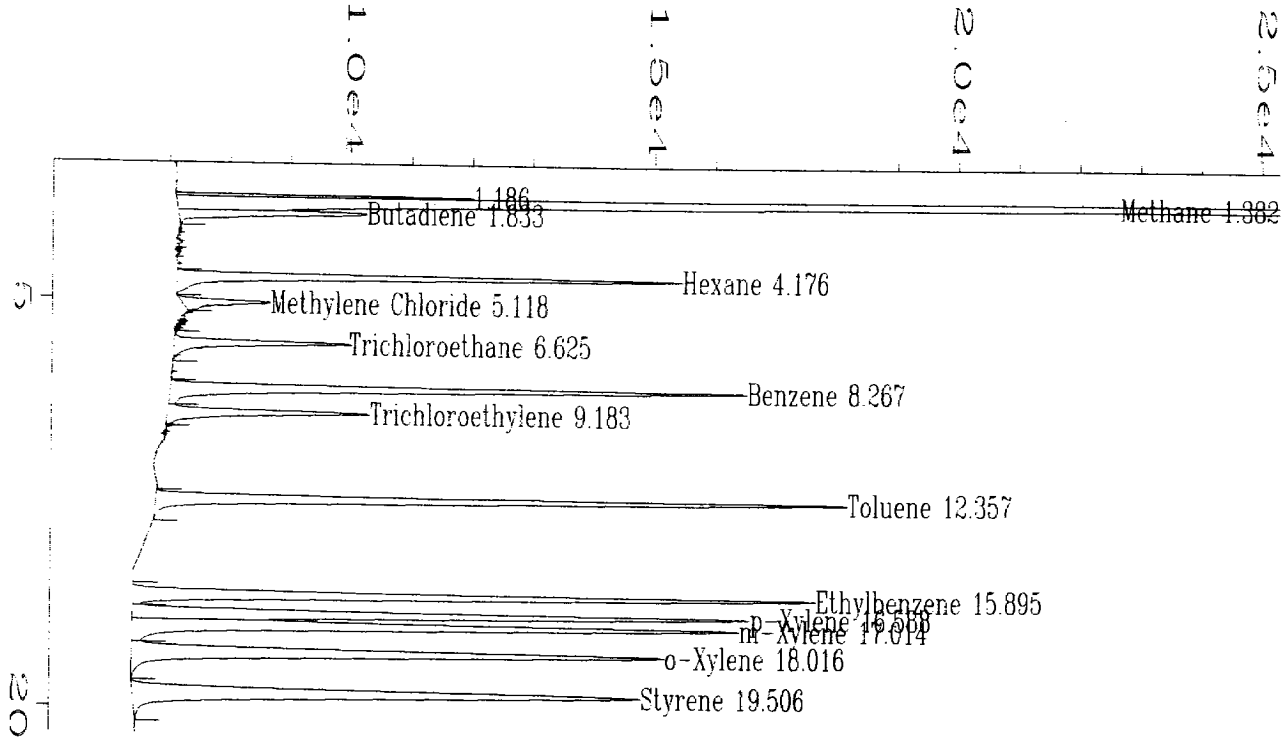

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Area Percent Report

==========

Data File Name : D:\SOLVAY\HP\CALS\BAG-5_04.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 13 Dec 95 08:13 PM
Report Created on: 21 Dec 95 12:04 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-5_04.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.186	13892	4884	BV	0.043	0.3823
2	1.382	2301279	221209	VV	0.171	63.3361
3	1.833	42870	3095	VB	0.212	1.1799
4	4.176	99472	8326	BV	0.184	2.7377
5	5.118	18388	1463	PV	0.174	0.5061
6	6.625	37754	2891	PB	0.163	1.0391
7	8.267	125434	9509	BV	0.199	3.4522
8	9.183	47578	3333	VV	0.213	1.3095
9	12.357	150792	11392	BB	0.204	4.1501
10	15.895	156628	11248	BV	0.216	4.3107
11	16.588	148550	10172	VV	0.227	4.0884
12	17.014	163973	10002	VV	0.250	4.5129
13	18.016	159518	8781	VV	0.281	4.3903
14	19.506	167312	8376	PB	0.311	4.6048

Total area = 3633440

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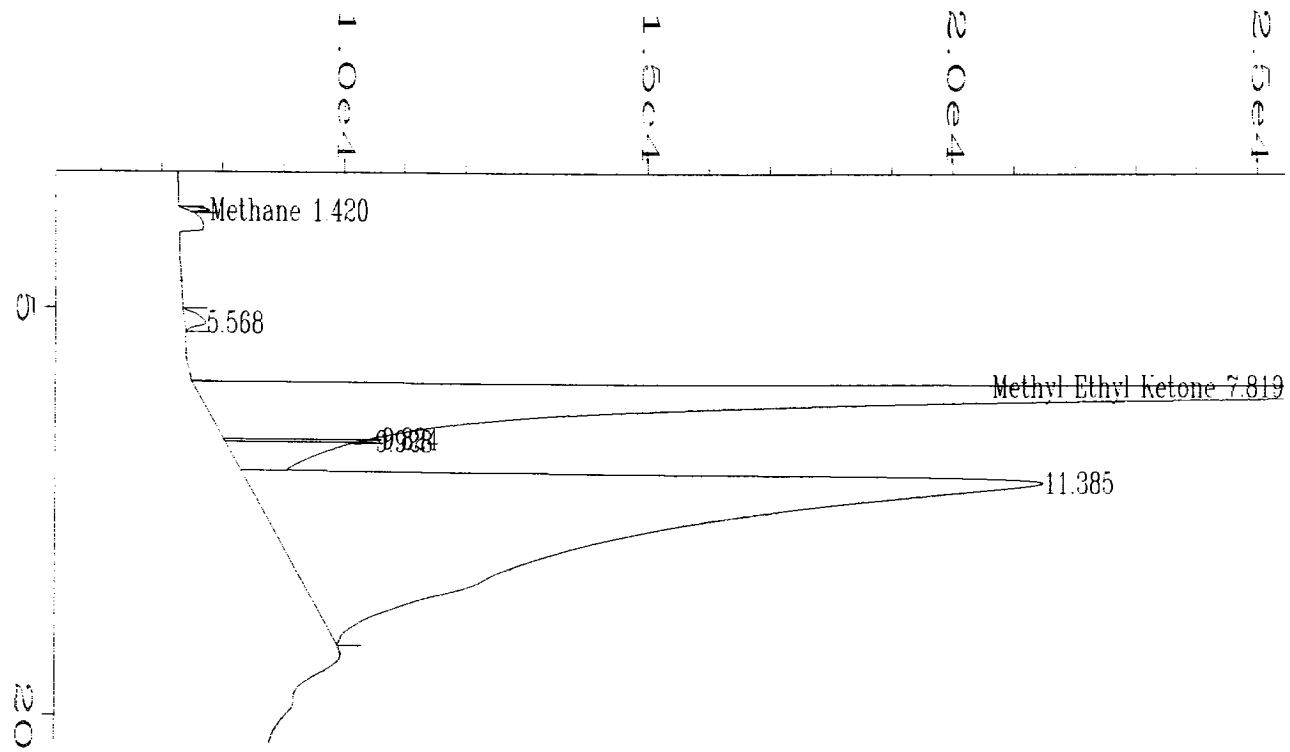

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-6_01.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 15 Dec 95 03:50 PM
Report Created on: 21 Dec 95 12:04 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-6_01.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.420	2984	346	BV	0.117	0.0791
2	5.568	9791	344	BB	0.351	0.2597
3	7.819	1761083	64570	BV	0.349	46.7096
4	9.824	13456	2594	VV	0.086	0.3569
5	9.928	89755	2426	VV	0.439	2.3806
6	11.385	1893211	13086	VB	1.707	50.2141

Total area = 3770279

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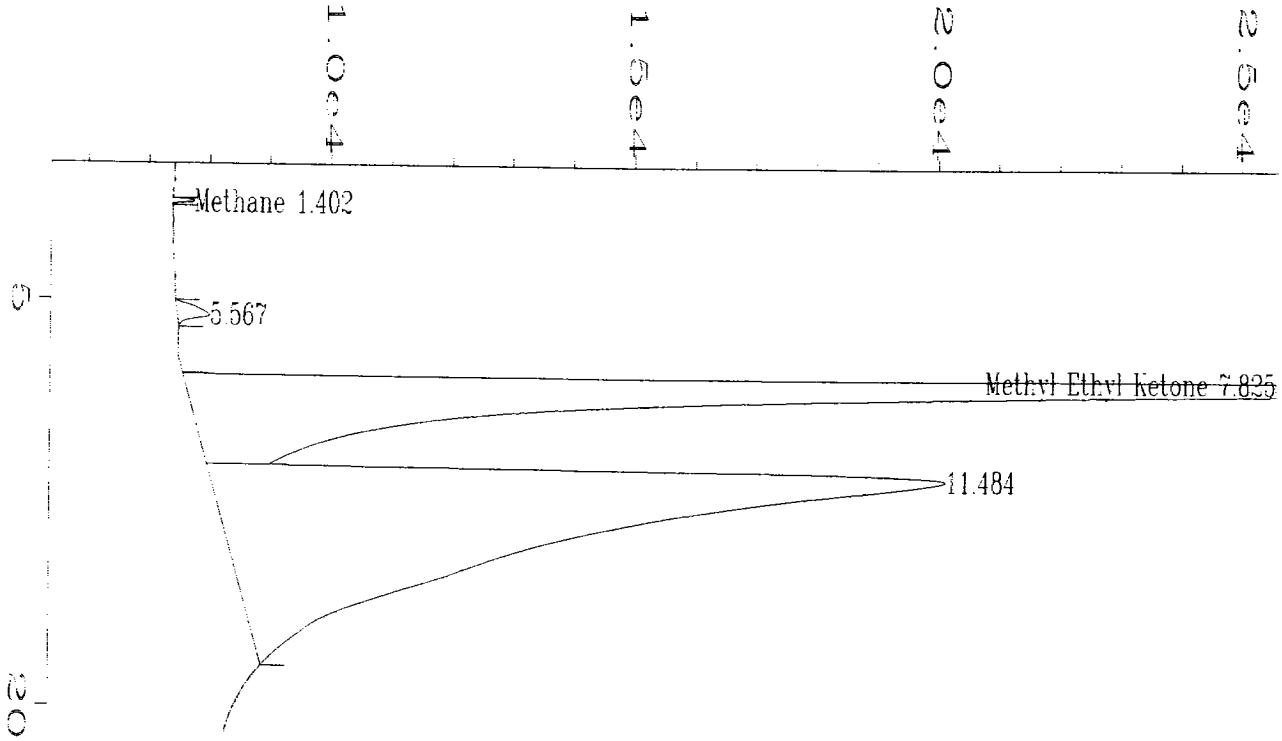

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-6_02.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 15 Dec 95 04:40 PM
Report Created on: 21 Dec 95 12:04 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-6_02.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.402	3042	359	BB	0.120	0.0774
2	5.567	14923	531	BB	0.343	0.3797
3	7.825	1883811	61764	BV	0.386	47.9345
4	11.484	2028195	12107	VB	1.997	51.6084

Total area = 3929972

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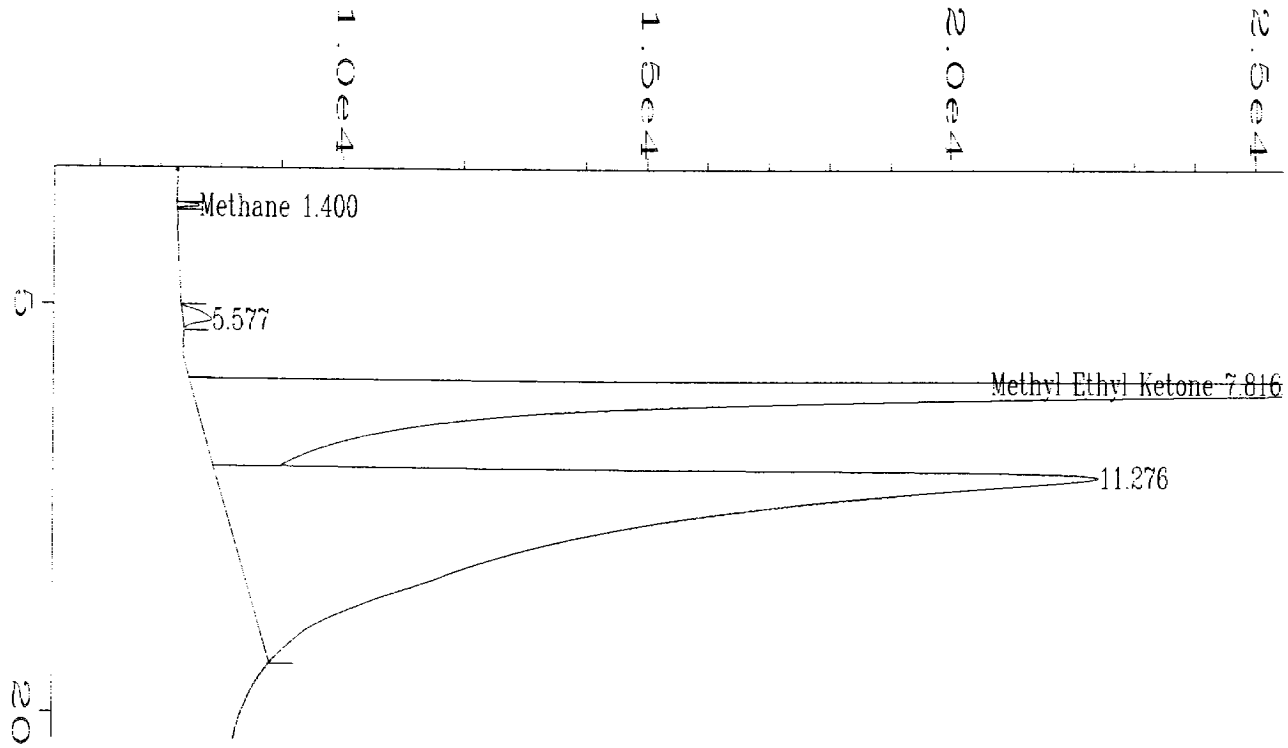

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-6_03.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 15 Dec 95 05:07 PM
Report Created on: 21 Dec 95 12:04 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-6_03.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.400	3152	365	BB	0.120	0.0778
2	5.577	13379	472	BB	0.346	0.3301
3	7.816	1907781	66365	BV	0.369	47.0670
4	11.276	2129021	14503	VB	1.730	52.5252

Total area = 4053333

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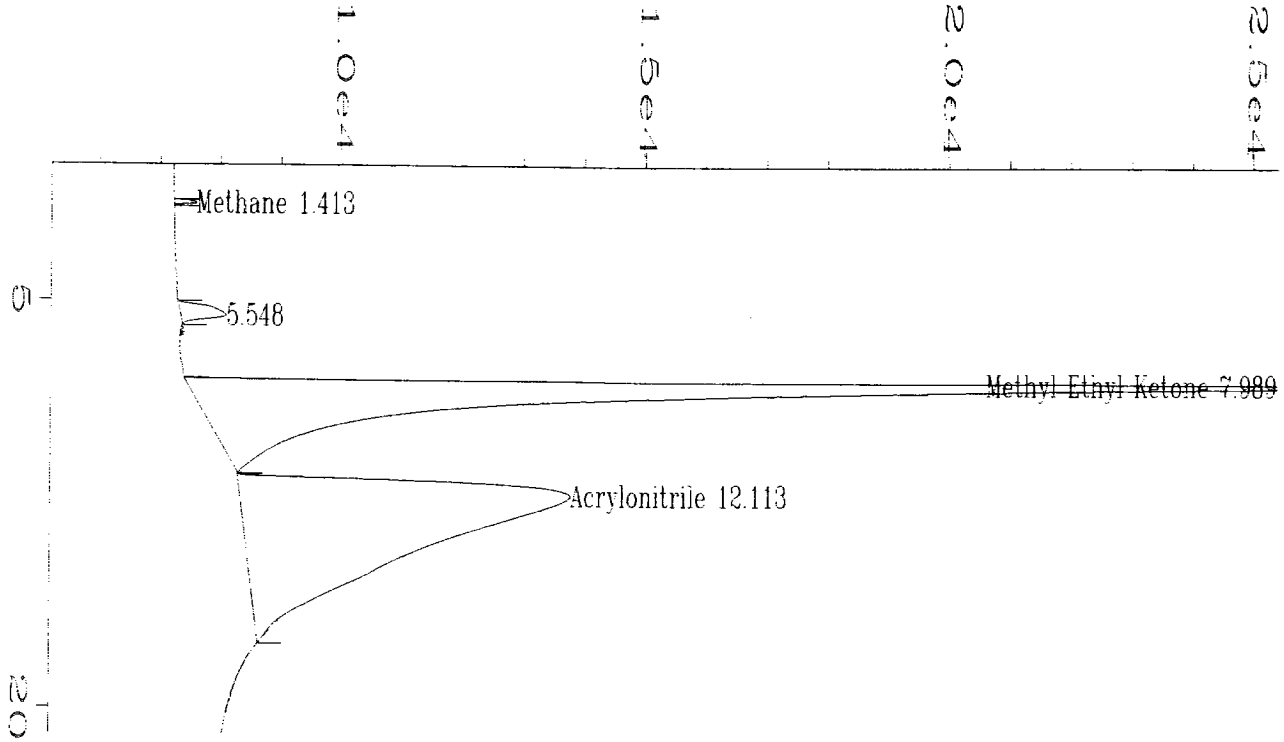

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-7_01.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 15 Dec 95 05:34 PM
Report Created on: 21 Dec 95 12:05 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-7_01.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.413	3155	361	BB	0.119	0.1747
2	5.548	22086	748	BV	0.357	1.2228
3	7.989	851940	20757	BB	0.525	47.1682
4	12.113	928993	5440	BB	2.043	51.4343

Total area = 1806175

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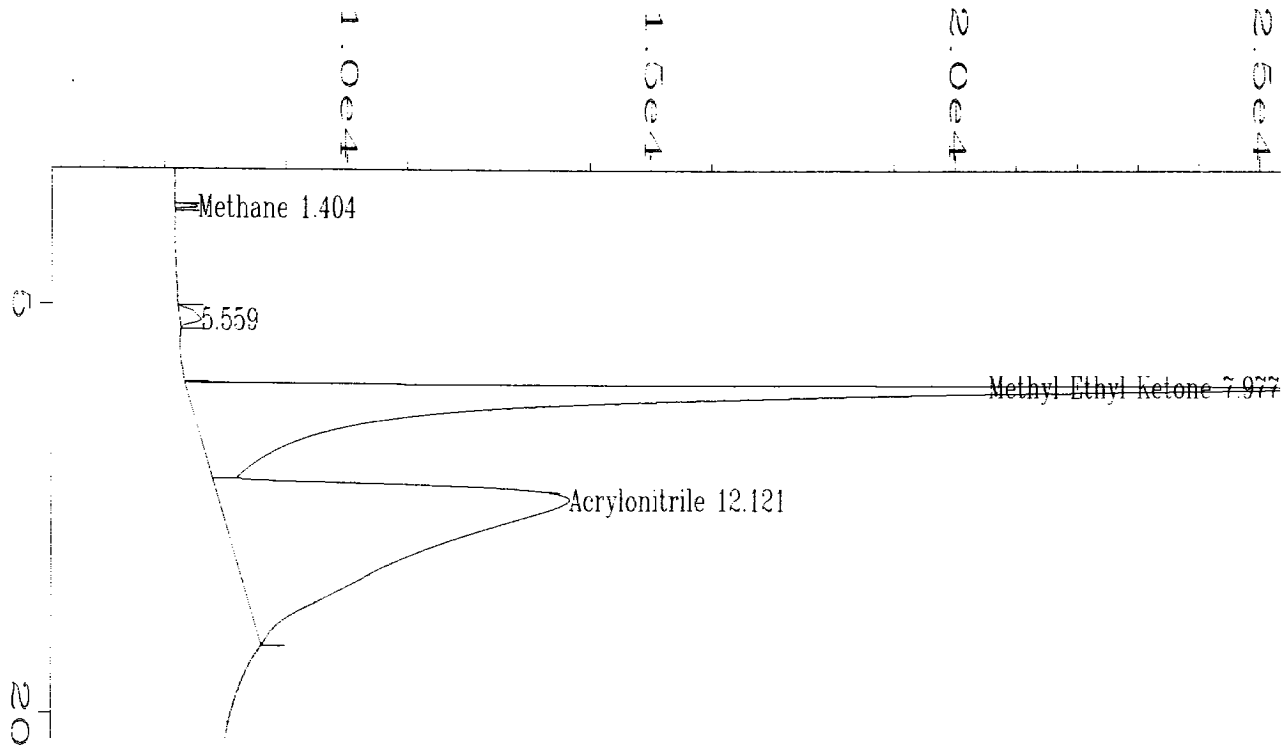

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-7_02.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 15 Dec 95 06:00 PM
Report Created on: 21 Dec 95 12:05 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-7_02.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.404	3274	375	BB	0.118	0.1738
2	5.559	10045	342	BB	0.361	0.5333
3	7.977	894566	20714	BV	0.551	47.4954
4	12.121	975594	5772	VB	2.012	51.7974

Total area = 1883480

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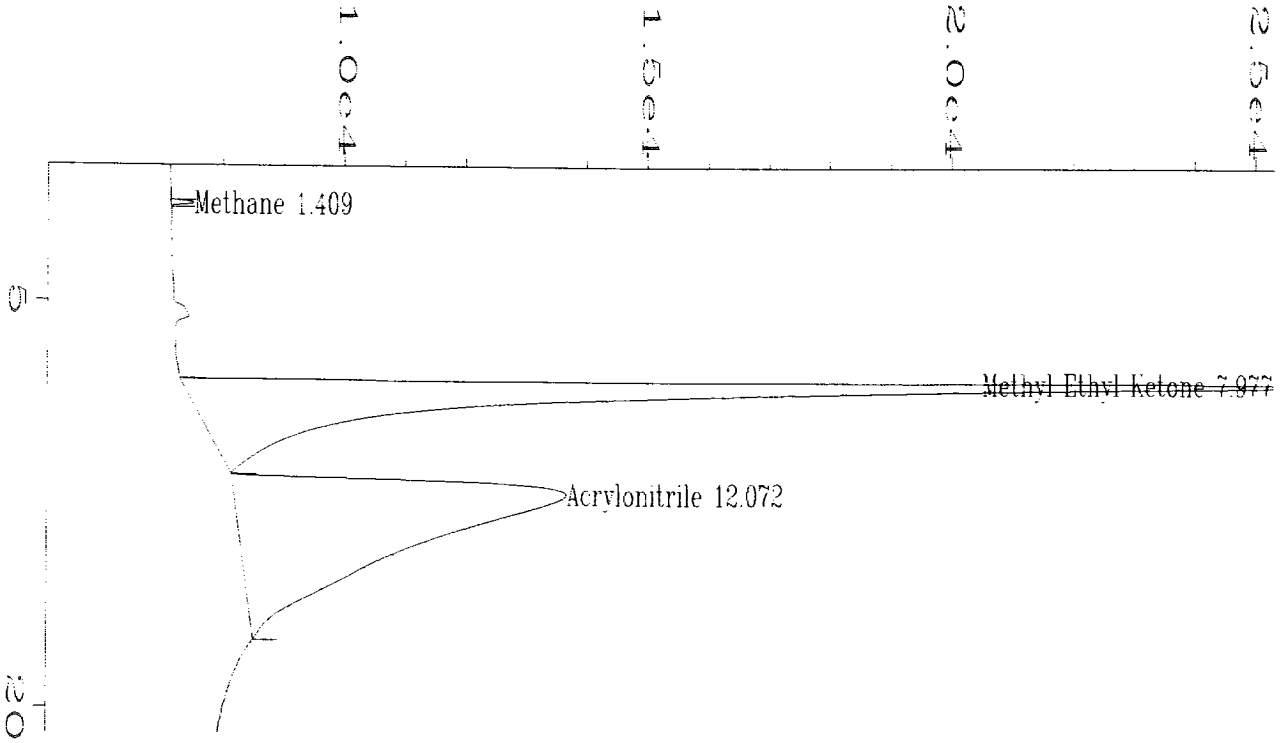

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-7_03.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 15 Dec 95 06:27 PM
Report Created on: 21 Dec 95 12:05 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-7_03.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.409	3283	373	BB	0.118	0.1871
2	7.977	849556	21041	BB	0.515	48.4285
3	12.072	901410	5478	BB	1.980	51.3844

Total area = 1754249

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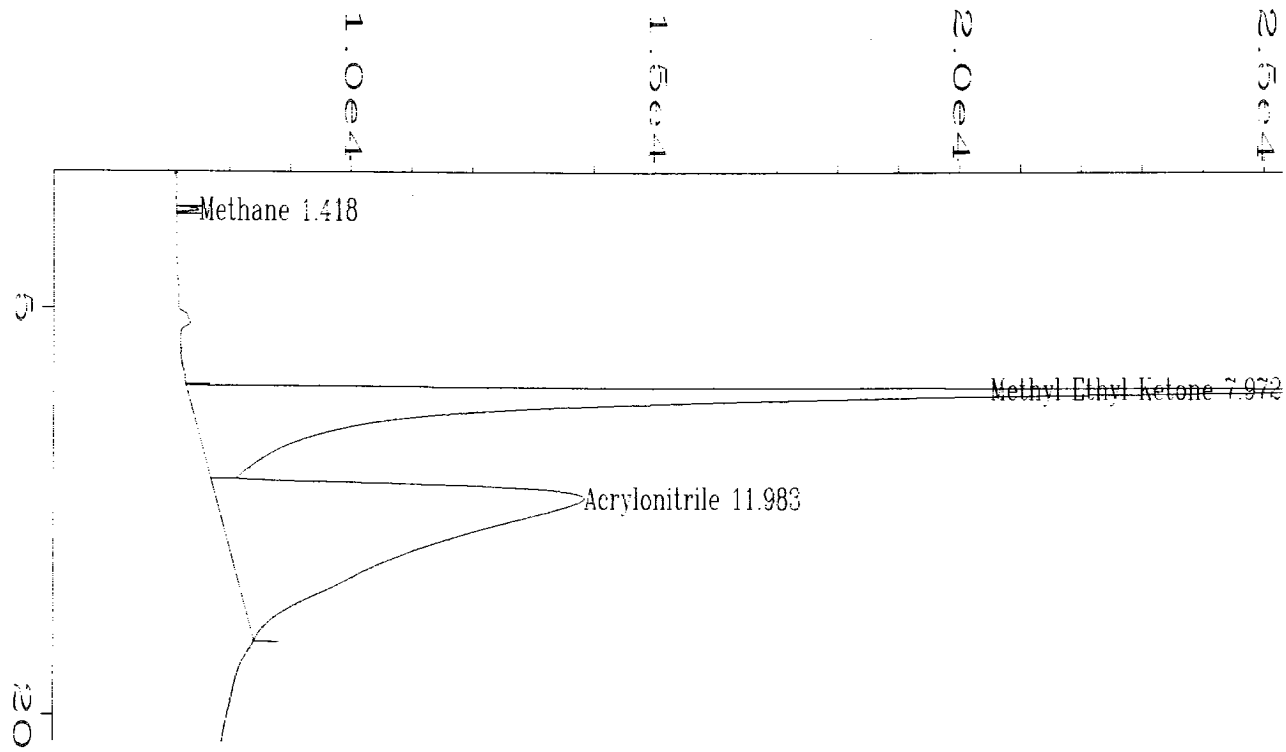

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-7_04.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 15 Dec 95 06:59 PM
Report Created on: 21 Dec 95 12:05 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-7_04.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.418	3231	362	BB	0.122	0.1729
2	7.972	896827	21977	BV	0.515	47.9825
3	11.983	969012	6060	VB	1.912	51.8446

Total area = 1869070

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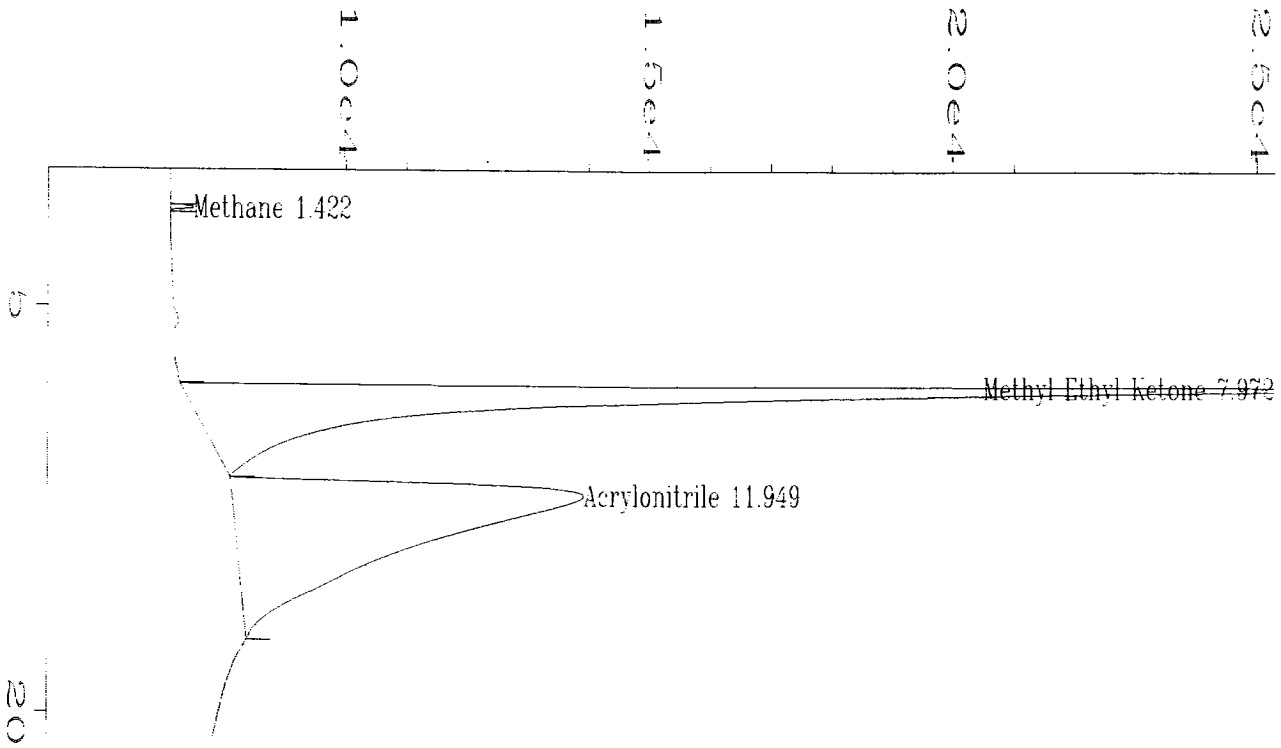

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-7_05.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 15 Dec 95 07:29 PM
Report Created on: 21 Dec 95 12:05 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-7_05.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.422	3306	370	BB	0.119	0.1864
2	7.972	867025	22065	BB	0.494	48.8807
3	11.949	903426	5801	BB	1.855	50.9329

Total area = 1773757

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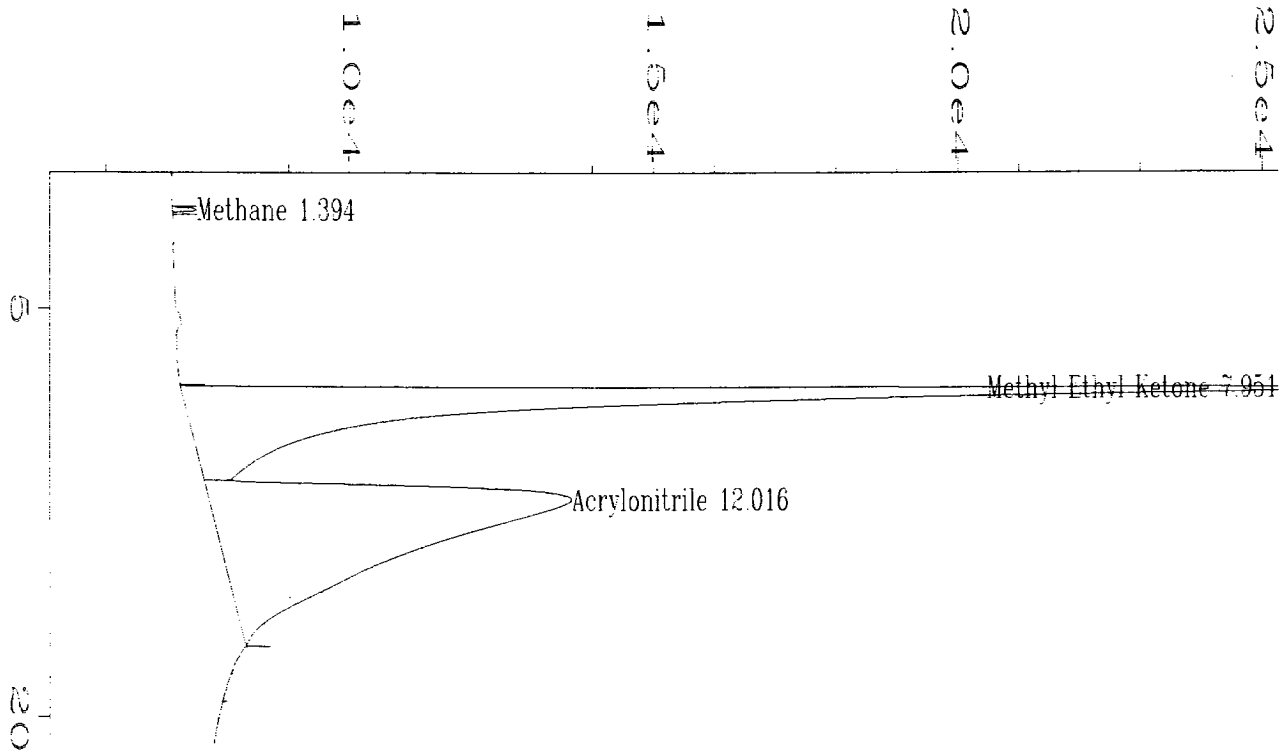

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-7_06.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 15 Dec 95 07:54 PM
Report Created on: 21 Dec 95 12:05 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-7_06.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.394	3429	390	BB	0.122	0.1816
2	7.951	909396	21637	BV	0.537	48.1493
3	12.016	975876	5968	VB	1.945	51.6692

Total area = 1888701

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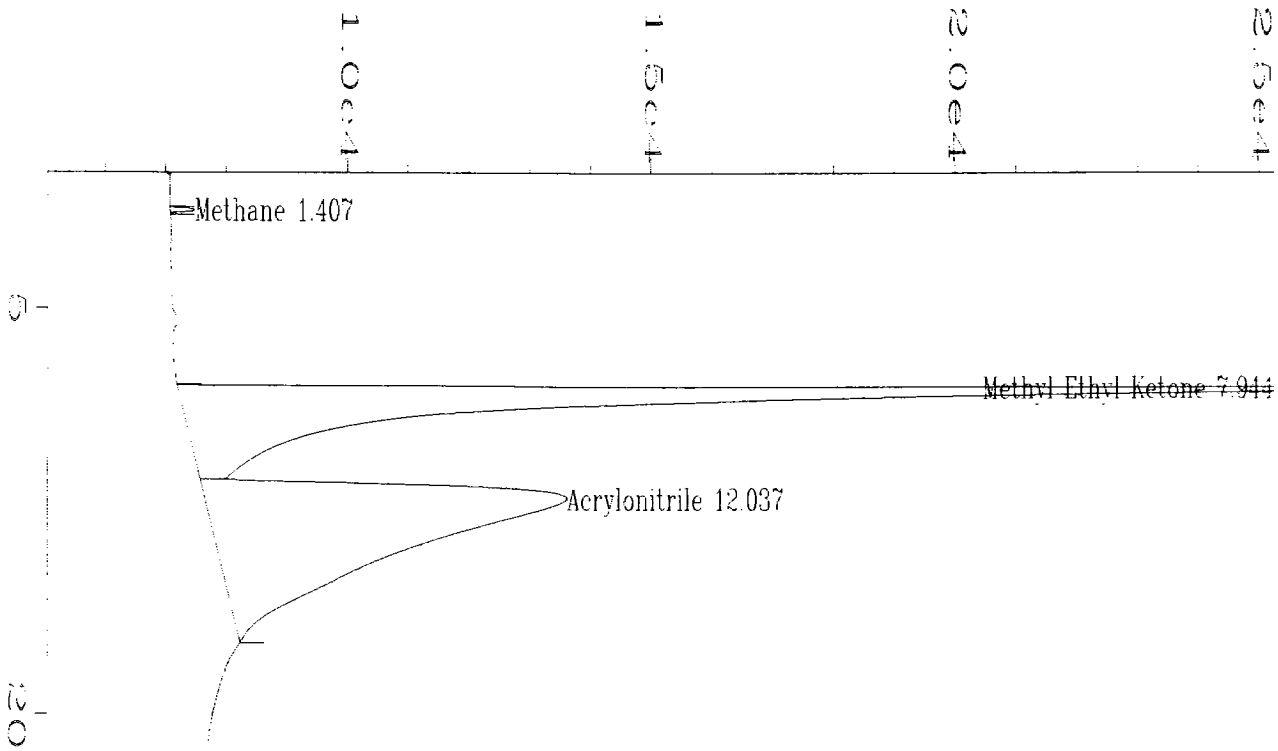

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-7_07.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 15 Dec 95 08:20 PM
Report Created on: 21 Dec 95 12:06 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-7_07.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.407	3526	396	BB	0.125	0.1862
2	7.944	915697	21833	BV	0.532	48.3633
3	12.037	974149	5967	VB	1.932	51.4505

Total area = 1893372

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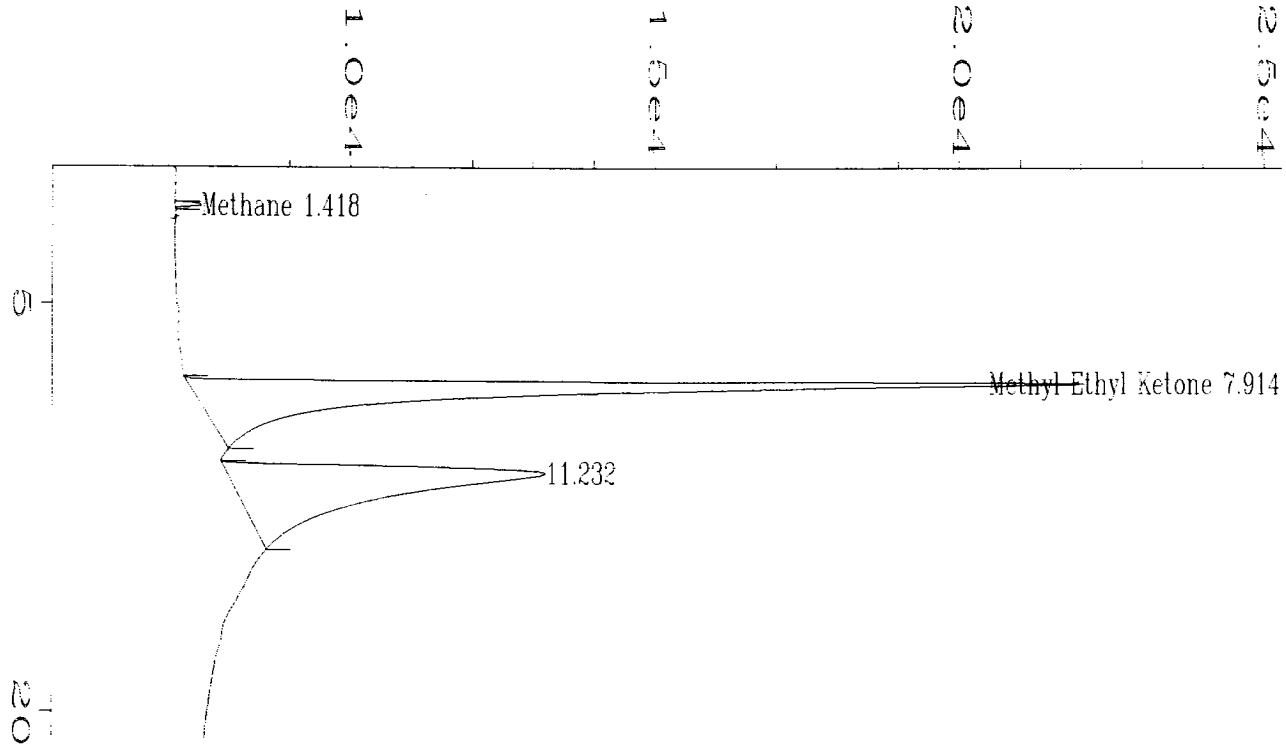

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-8_01.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 16 Dec 95 09:34 AM
Report Created on: 21 Dec 95 12:06 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-8_01.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.418	3928	421	BB	0.125	0.4430
2	7.914	494666	14755	BB	0.435	55.7939
3	11.232	388002	5235	BB	0.883	43.7631

Total area = 886596

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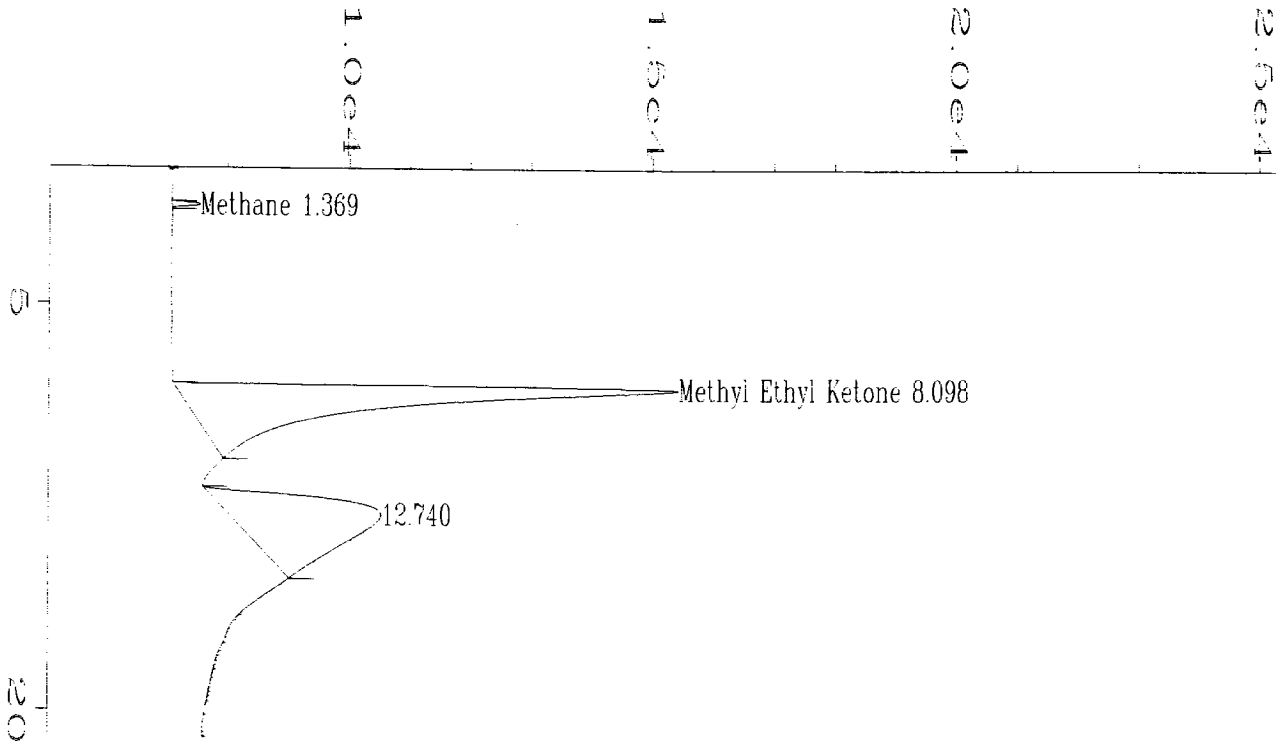

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-8_02.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 16 Dec 95 09:58 AM
Report Created on: 21 Dec 95 12:06 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-8_02.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.369	4069	457	BB	0.121	0.5664
2	8.098	425966	8280	BB	0.647	59.2876
3	12.740	288440	2506	BB	1.494	40.1461

Total area = 718475

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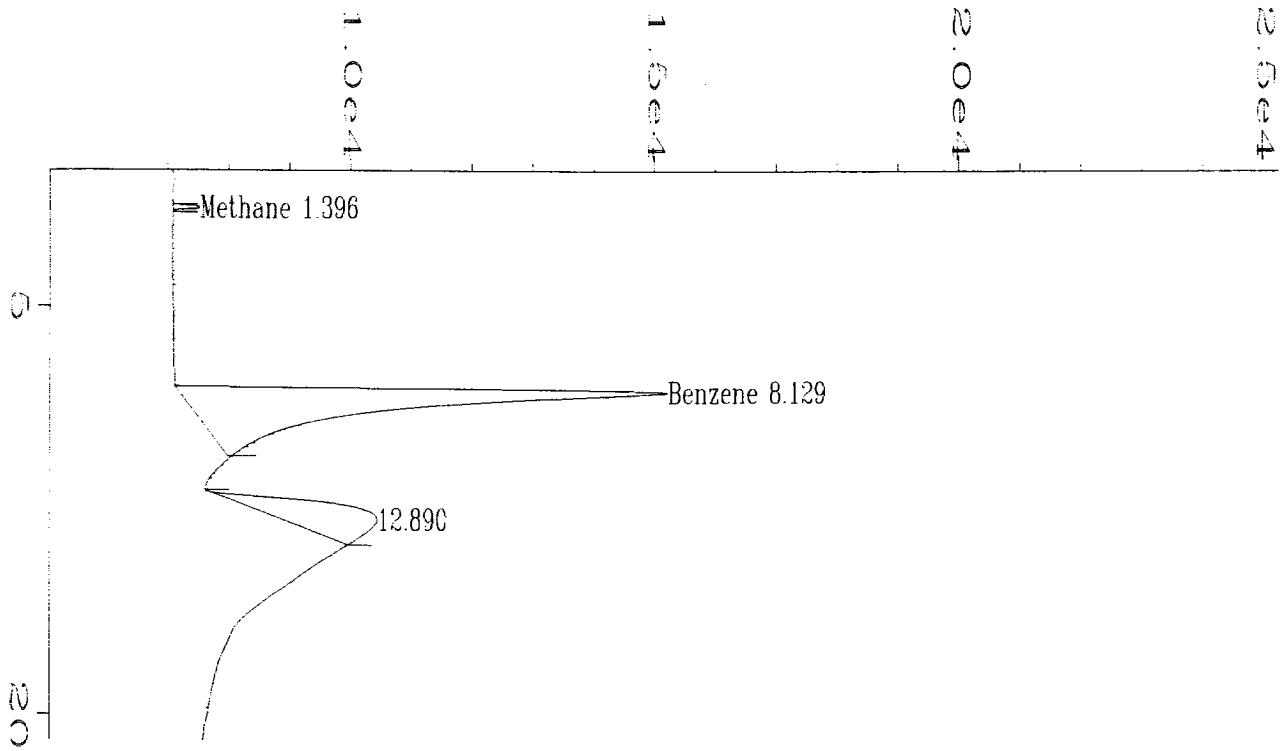

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Area Percent Report

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Data File Name : D:\SOLVAY\HP\CALS\BAG-8_03.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 16 Dec 95 10:24 AM
Report Created on: 21 Dec 95 12:06 PM

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOL-CAL.MTH

Sig. 2 in D:\SOLVAY\HP\CALS\BAG-8_03.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.396	3977	439	BB	0.121	0.7453
2	8.129	407699	8050	BV	0.620	76.3976
3	12.890	121978	1525	BB	1.072	22.8571

Total area = 533654

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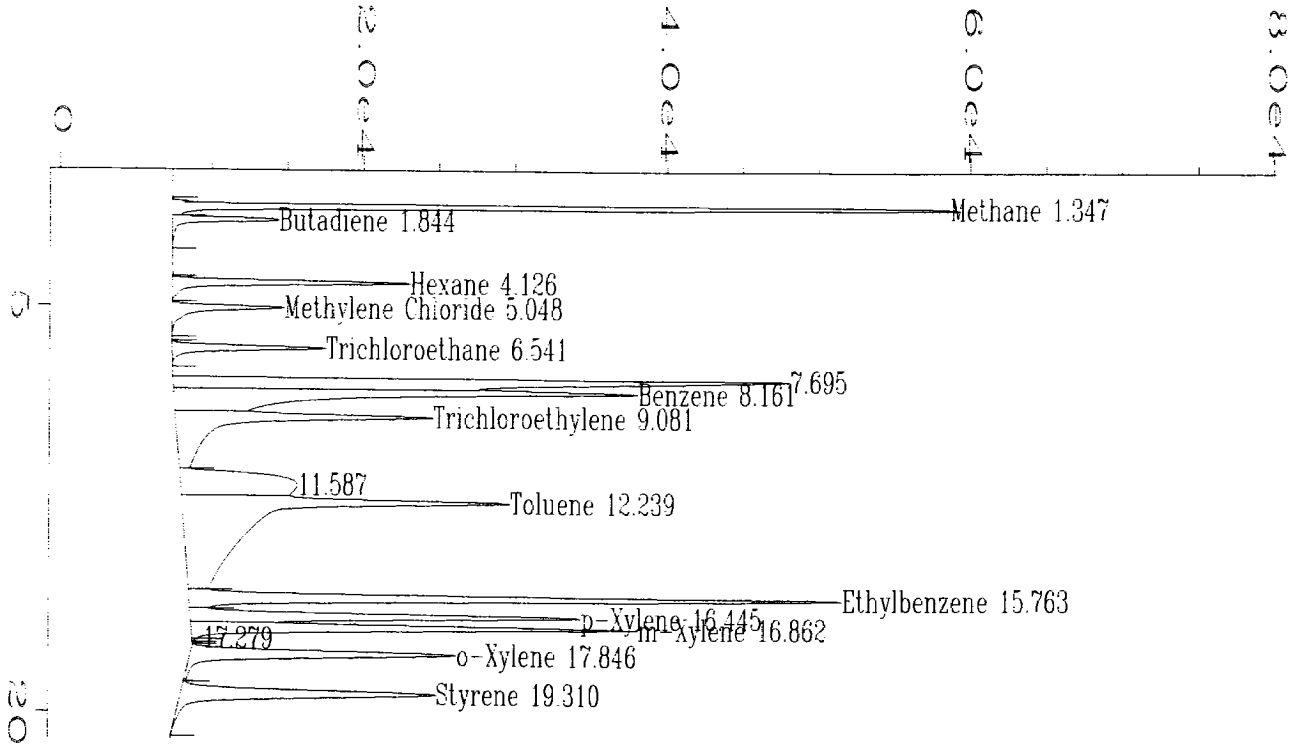

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External Standard Report

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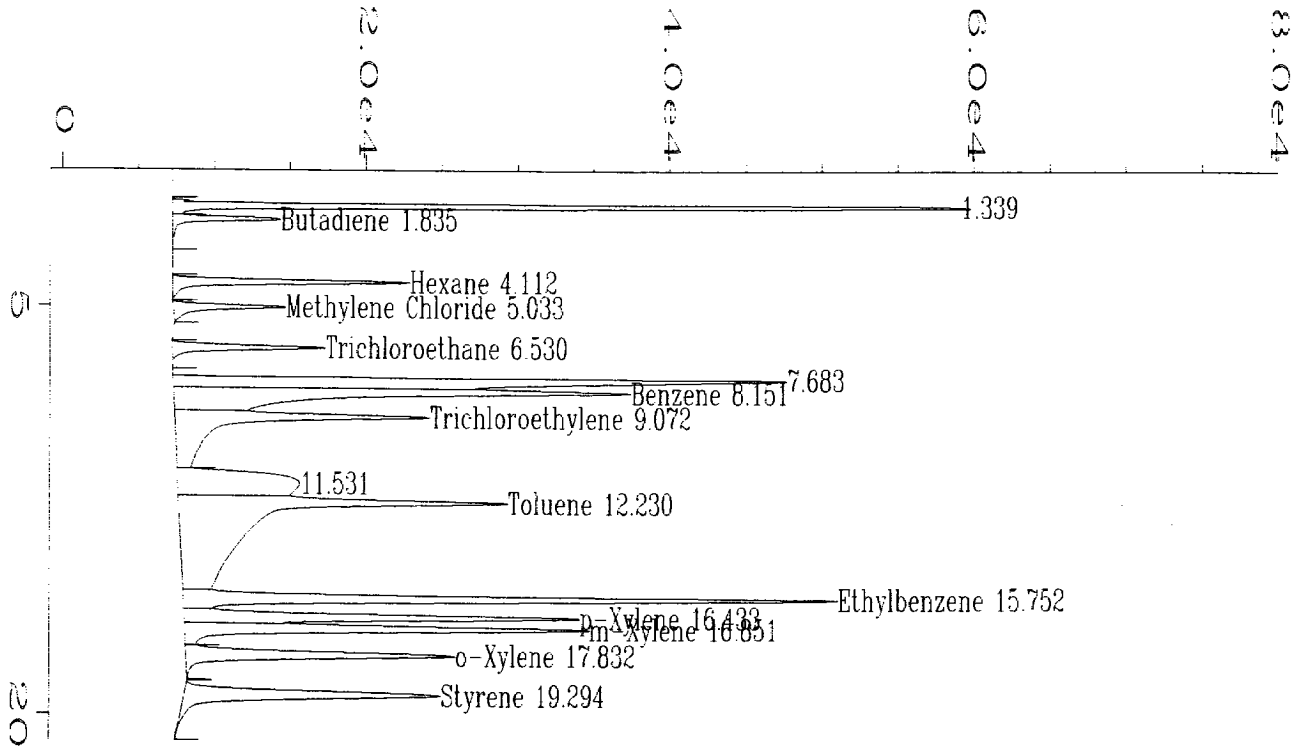
Data File Name	: D:\SOLVAY\HP\12-12\MEK-ACR1.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: 1/10 evap1 rng4	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 12 Dec 95 03:54 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:09 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-12\MEK-ACR1.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.347	537947	BV	0.174	1	109.008	Methane
1.844	83979	HB S	0.201	1	3.466	Butadiene
4.126	186130	VV	0.178	1	5.874	Hexane
5.048	104188	VB	0.196	1	19.547	Methylene Chloride
6.541	127957	BV	0.187	1	11.456	Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.161	700043	VV	0.302	1	20.665	Benzene
9.081	445974	VV	0.352	1	36.193	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.239	988638	VV	0.580	1	25.138	Toluene
15.763	613491	VV	0.213	1	13.269	Ethylbenzene
16.445	380385	VV	0.216	1	8.573	p-Xylene
16.862	414424	VV	0.171	1	8.571	m-Xylene
17.846	311144	BV	0.260	1	6.660	o-Xylene
19.310	340155	VB	0.308	1	7.219	Styrene



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External Standard Report

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Data File Name	: D:\SOLVAY\HP\12-12\MEK-ACR2.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: 1/10 evap1 rng4	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 12 Dec 95 04:21 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:09 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-12\MEK-ACR2.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.380	* not found *			1		Methane
1.835	83908	HB S	0.197	1	3.463	Butadiene
4.112	183595	VV	0.179	1	5.794	Hexane
5.033	95541	PB	0.179	1	17.945	Methylene Chloride
6.530	126838	BB	0.187	1	11.356	Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.151	690213	VV	0.300	1	20.374	Benzene
9.072	451116	VV	0.358	1	36.610	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.230	1050664	VV	0.609	1	26.721	Toluene
15.752	630668	VV	0.218	1	13.642	Ethylbenzene
16.433	394161	VV	0.222	1	8.885	p-Xylene
16.851	439523	VV	0.235	1	9.097	m-Xylene
17.832	320291	VB	0.268	1	6.858	o-Xylene
19.294	346536	BBA	0.312	1	7.355	Styrene

SOLVAY MINERALS
CAE Project No. 7629-2
12/14/95

MTI-GC Calibration Summary

bag1.dif	method.	Methane	
		RT	AREA
12/14/95	9:20:36 AM	13.81	6026292
12/14/95	9:21:33 AM	13.81	5857752
12/14/95	9:22:29 AM	13.81	5888752
12/14/95	9:23:25 AM	13.81	5876508
12/14/95	9:24:21 AM	13.81	5893572
		avg	**5908575.2**

bag2.dif		Methane	
		RT	AREA
12/14/95	9:11:07 AM	13.87	1486076
12/14/95	9:12:03 AM	13.87	1474788
12/14/95	9:13:00 AM	13.87	1448904
12/14/95	9:13:56 AM	13.89	1439020
12/14/95	9:14:52 AM	13.87	1428444
		avg	**1455446.4**

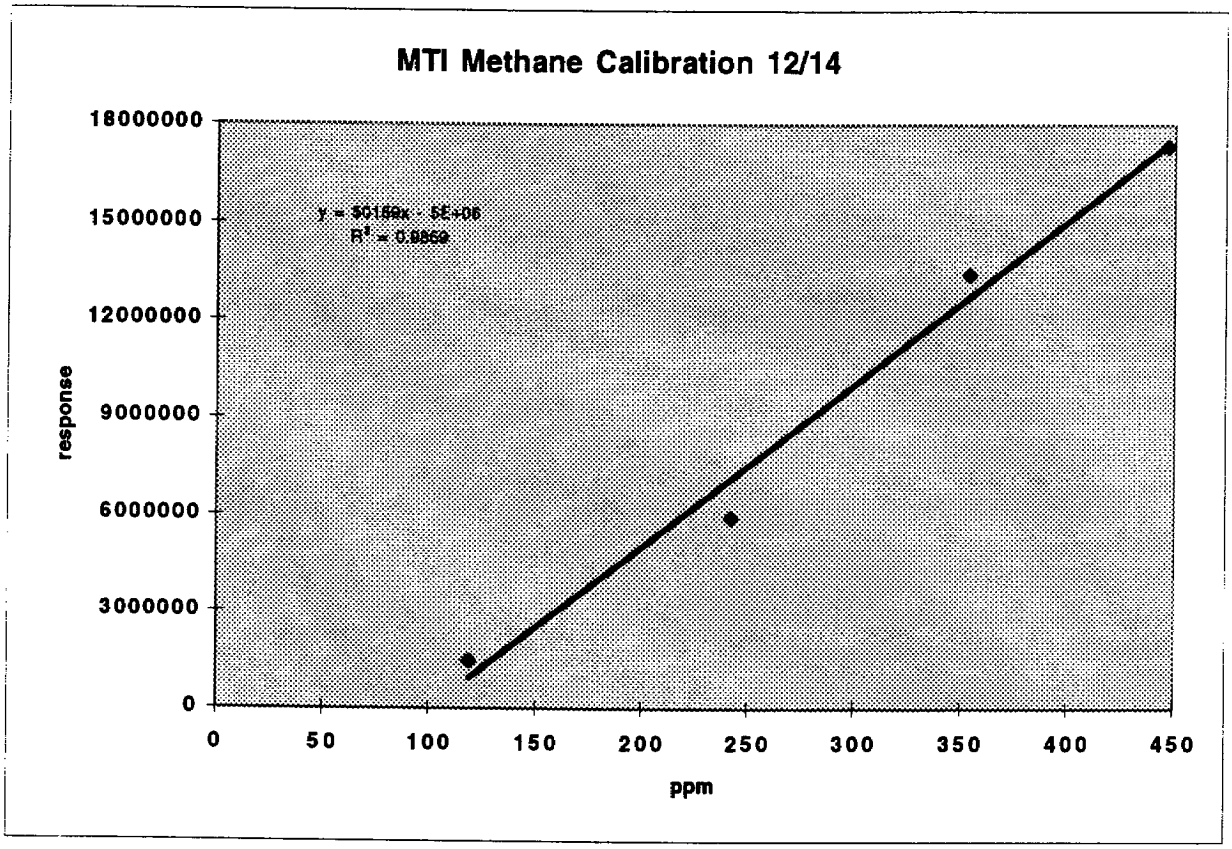
bag3.dif		Methane	
		RT	AREA
12/14/95	9:32:54 AM	13.81	13651792
12/14/95	9:33:50 AM	13.81	13019117
12/14/95	9:34:47 AM	13.81	13544136
12/14/95	9:35:43 AM	13.81	13275024
12/14/95	9:36:39 AM	13.83	13512504
		avg	**13400514.6**

SOLVAY MINERALS
CAE Project No. 7629-2
12/14/95

MTI-GC Calibration Summary (continued)

bag5.dif		Methane	
		RT	AREA
12/14/95	9:42:15 AM	13.83	17448148
12/14/95	9:43:12 AM	13.81	17337980
12/14/95	9:44:08 AM	13.81	17351536
12/14/95	9:45:04 AM	13.83	16989414
12/14/95	9:46:01 AM	13.83	17431376
		avg	17311690.8

bag #	conc. (ppm)	avg. area
1	242	5908575.2
2	119	1455446.4
3	354	13400514.6
5	447	17311690.8



SOLVAY MINERALS
CAE Project No. 7629-2
12/15/95

MTI-GC Calibration Summary

bag1.dif	METHOD.	Methane	
		RT	AREA
12/15/95	3:23 PM	13.95	3774648
12/15/95	3:24 PM	13.95	3900284
12/15/95	3:25 PM	13.97	3876923
12/15/95	3:26 PM	13.97	3866719
12/15/95	3:27 PM	13.95	4083888
		avg	3900492.4

bag2.dif	METHOD.	Methane	
		RT	AREA
12/15/95	3:37 PM	14.01	316760
12/15/95	3:38 PM	13.99	333813
12/15/95	3:39 PM	14.01	331060
12/15/95	3:40 PM	13.99	337770
12/15/95	3:41 PM	13.99	298006
		avg	323481.8

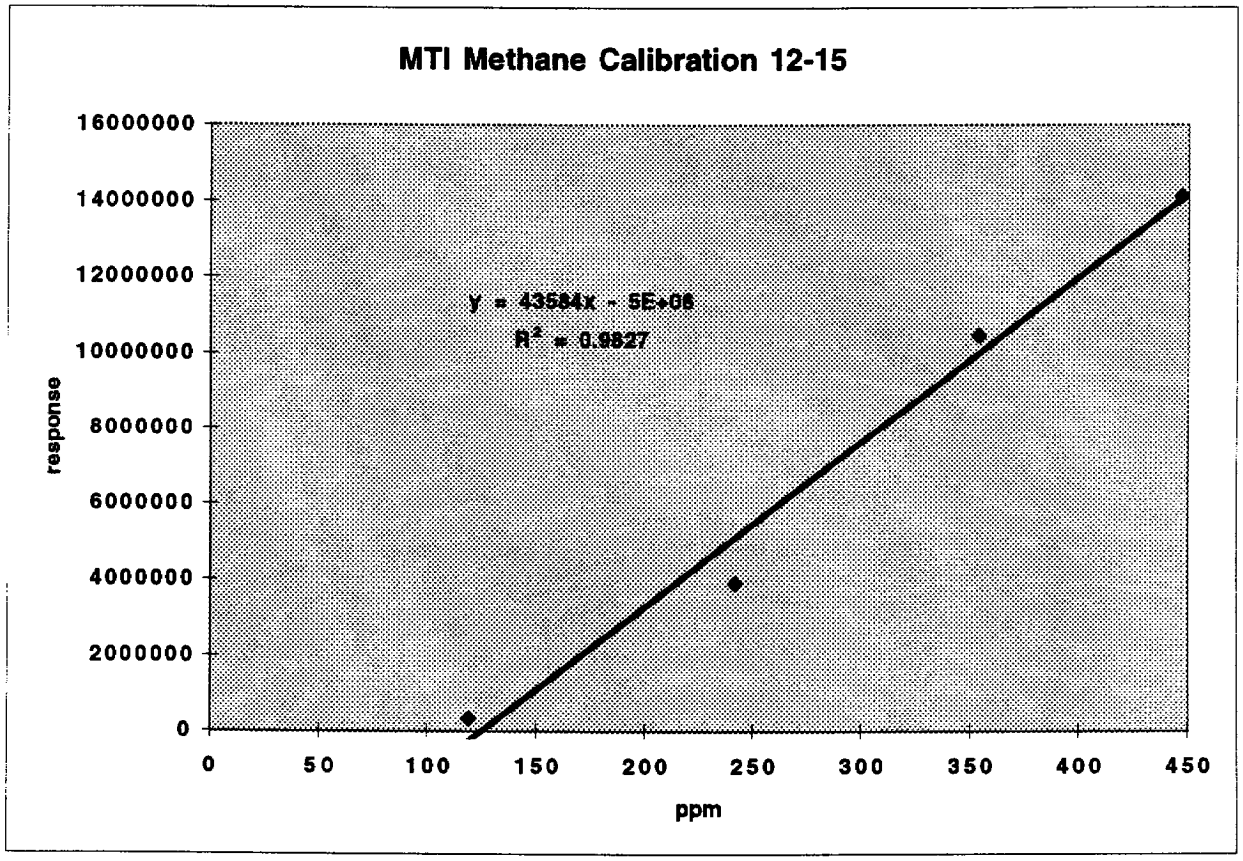
bag3.dif	METHOD.	Methane	
		RT	AREA
12/15/95	3:45 PM	13.97	10550232
12/15/95	3:46 PM	13.97	10526173
12/15/95	3:47 PM	13.97	10501373
12/15/95	3:48 PM	13.95	10469516
12/15/95	3:49 PM	13.95	10258528
		avg	10461164.4

SOLVAY MINERALS
CAE Project No. 7629-2
12/15/95

MTI-GC Calibration Summary (continued)

bag5.dif	METHOD.	Methane	
		RT	AREA
12/15/95	3:53 PM	13.95	14246052
12/15/95	3:54 PM	13.97	14011600
12/15/95	3:55 PM	13.95	14112333
12/15/95	3:56 PM	13.97	13989021
12/15/95	3:57 PM	13.95	14184152
		avg	**14108631.6**

bag #	**conc. (ppm)**	**avg. area**
1	242	3900492.4
2	119	323481.8
3	354	10461164.4
5	447	14108631.6



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FIELD DATA

D

SOLVAY MINERALS, INC.
CAE Project No: 7629
EP 1&2 Calciner Stack
December 14, 1995

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 (%)
09:23:37	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09:23:52	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
09:24:07	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
09:24:22	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
09:24:37	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
09:24:52	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
09:25:07	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
09:25:22	0.0	0.0	15.3	0.0	0.0	0.0	0.0	0.0	0.0
09:25:37	0.0	0.0	716.8	0.0	0.0	0.0	0.0	0.0	0.0
09:25:52	0.0	0.0	834.8	0.0	0.0	0.0	0.0	0.0	0.0
09:26:07	0.0	0.0	838.2	0.0	0.0	0.0	0.0	0.0	0.0
09:26:22	0.0	0.0	839.8	0.0	0.0	0.0	0.0	0.0	0.0
09:26:37	0.0	0.0	843.0	0.0	0.0	0.0	0.0	0.0	0.0
09:26:52	0.0	0.0	841.9	0.0	0.0	0.0	0.0	0.0	0.0
09:27:07	0.0	0.0	842.2	0.0	0.0	0.0	0.0	0.0	0.0
09:27:22	0.0	0.0	843.2	0.0	0.0	0.0	0.0	0.0	0.0
09:27:37	0.0	0.0	845.8	0.0	0.0	0.0	0.0	0.0	0.0
09:27:52	0.0	0.0	844.4	0.0	0.0	0.0	0.0	0.0	0.0
09:28:07	0.0	0.0	601.2	0.0	0.0	0.0	0.0	0.0	0.0
09:28:22	0.0	0.0	571.4	0.0	0.0	0.0	0.0	0.0	0.0
09:28:37	0.0	0.0	569.0	0.0	0.0	0.0	0.0	0.0	0.0
09:28:52	0.0	0.0	568.5	0.0	0.0	0.0	0.0	0.0	0.0
09:29:07	0.0	0.0	569.4	0.0	0.0	0.0	0.0	0.0	0.0
09:29:22	0.0	0.0	568.7	0.0	0.0	0.0	0.0	0.0	0.0
09:29:37	0.0	0.0	457.0	0.0	0.0	0.0	0.0	0.0	0.0
09:29:52	0.0	0.0	260.6	0.0	0.0	0.0	0.0	0.0	0.0
09:30:07	0.0	0.0	258.0	0.0	0.0	0.0	0.0	0.0	0.0
09:30:22	0.0	0.0	256.9	0.0	0.0	0.0	0.0	0.0	0.0
09:30:37	0.0	0.0	256.5	0.0	0.0	0.0	0.0	0.0	0.0
09:30:52	0.0	0.0	256.4	0.0	0.0	0.0	0.0	0.0	0.0
09:31:07	0.0	0.0	255.9	0.0	0.0	0.0	0.0	0.0	0.0
09:31:22	0.0	0.0	255.8	0.0	0.0	0.0	0.0	0.0	0.0
09:31:37	0.0	0.0	256.1	0.0	0.0	0.0	0.0	0.0	0.0
09:31:52	0.0	0.0	111.7	0.0	0.0	0.0	0.0	0.0	0.0
09:32:07	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0
09:32:22	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0
09:32:37	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0
09:32:52	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0
09:33:07	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0
09:33:22	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0
09:33:37	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0
09:33:52	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
09:34:07	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
09:34:22	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
09:34:37	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0
09:34:52	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0
09:35:07	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0
09:35:22	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
09:35:37	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
09:35:52	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
09:36:07	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
09:36:22	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
09:36:37	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Zero Gas			0.1						
Cal Gas			568.9						

SOLVAY MINERALS, INC.
CAE Project No: 7629-2
EP 1&2 Calciner Stack
December 14, 1995

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 (%)
10:01	0.0	0.0	369.0	0.0	0.0	0.0	0.0	0.0	0.0
10:02	0.0	0.0	376.4	0.0	0.0	0.0	0.0	0.0	0.0
10:03	0.0	0.0	380.2	0.0	0.0	0.0	0.0	0.0	0.0
10:04	0.0	0.0	375.7	0.0	0.0	0.0	0.0	0.0	0.0
10:05	0.0	0.0	369.1	0.0	0.0	0.0	0.0	0.0	0.0
10:06	0.0	0.0	371.5	0.0	0.0	0.0	0.0	0.0	0.0
10:07	0.0	0.0	372.3	0.0	0.0	0.0	0.0	0.0	0.0
10:08	0.0	0.0	378.7	0.0	0.0	0.0	0.0	0.0	0.0
10:09	0.0	0.0	380.1	0.0	0.0	0.0	0.0	0.0	0.0
10:10	0.0	0.0	378.7	0.0	0.0	0.0	0.0	0.0	0.0
10:11	0.0	0.0	372.5	0.0	0.0	0.0	0.0	0.0	0.0
10:12	0.0	0.0	380.5	0.0	0.0	0.0	0.0	0.0	0.0
10:13	0.0	0.0	390.3	0.0	0.0	0.0	0.0	0.0	0.0
10:14	0.0	0.0	375.0	0.0	0.0	0.0	0.0	0.0	0.0
10:15	0.0	0.0	391.9	0.0	0.0	0.0	0.0	0.0	0.0
10:16	0.0	0.0	397.0	0.0	0.0	0.0	0.0	0.0	0.0
10:17	0.0	0.0	390.1	0.0	0.0	0.0	0.0	0.0	0.0
10:18	0.0	0.0	400.5	0.0	0.0	0.0	0.0	0.0	0.0
10:19	0.0	0.0	396.5	0.0	0.0	0.0	0.0	0.0	0.0
10:20	0.0	0.0	400.7	0.0	0.0	0.0	0.0	0.0	0.0
10:21	0.0	0.0	397.7	0.0	0.0	0.0	0.0	0.0	0.0
10:22	0.0	0.0	388.4	0.0	0.0	0.0	0.0	0.0	0.0
10:23	0.0	0.0	390.6	0.0	0.0	0.0	0.0	0.0	0.0
10:24	0.0	0.0	392.1	0.0	0.0	0.0	0.0	0.0	0.0
10:25	0.0	0.0	365.4	0.0	0.0	0.0	0.0	0.0	0.0
10:26	0.0	0.0	352.2	0.0	0.0	0.0	0.0	0.0	0.0
10:27	0.0	0.0	353.1	0.0	0.0	0.0	0.0	0.0	0.0
10:28	0.0	0.0	371.1	0.0	0.0	0.0	0.0	0.0	0.0
10:29	0.0	0.0	356.6	0.0	0.0	0.0	0.0	0.0	0.0
10:30	0.0	0.0	333.2	0.0	0.0	0.0	0.0	0.0	0.0
10:31	0.0	0.0	349.9	0.0	0.0	0.0	0.0	0.0	0.0
10:32	0.0	0.0	346.9	0.0	0.0	0.0	0.0	0.0	0.0
10:33	0.0	0.0	348.0	0.0	0.0	0.0	0.0	0.0	0.0
10:34	0.0	0.0	351.6	0.0	0.0	0.0	0.0	0.0	0.0
10:35	0.0	0.0	359.4	0.0	0.0	0.0	0.0	0.0	0.0
10:36	0.0	0.0	366.0	0.0	0.0	0.0	0.0	0.0	0.0
10:37	0.0	0.0	346.2	0.0	0.0	0.0	0.0	0.0	0.0
10:38	0.0	0.0	360.7	0.0	0.0	0.0	0.0	0.0	0.0
10:39	0.0	0.0	372.0	0.0	0.0	0.0	0.0	0.0	0.0
10:40	0.0	0.0	391.4	0.0	0.0	0.0	0.0	0.0	0.0
10:41	0.0	0.0	381.2	0.0	0.0	0.0	0.0	0.0	0.0
10:42	0.0	0.0	379.3	0.0	0.0	0.0	0.0	0.0	0.0
10:43	0.0	0.0	376.5	0.0	0.0	0.0	0.0	0.0	0.0
10:44	0.0	0.0	370.9	0.0	0.0	0.0	0.0	0.0	0.0
10:45	0.0	0.0	360.4	0.0	0.0	0.0	0.0	0.0	0.0
10:46	0.0	0.0	358.5	0.0	0.0	0.0	0.0	0.0	0.0
10:47	0.0	0.0	355.0	0.0	0.0	0.0	0.0	0.0	0.0
10:48	0.0	0.0	373.1	0.0	0.0	0.0	0.0	0.0	0.0
10:49	0.0	0.0	373.5	0.0	0.0	0.0	0.0	0.0	0.0
10:50	0.0	0.0	375.6	0.0	0.0	0.0	0.0	0.0	0.0
10:51	0.0	0.0	369.5	0.0	0.0	0.0	0.0	0.0	0.0
10:52	0.0	0.0	373.7	0.0	0.0	0.0	0.0	0.0	0.0
10:53	0.0	0.0	379.7	0.0	0.0	0.0	0.0	0.0	0.0
10:54	0.0	0.0	380.4	0.0	0.0	0.0	0.0	0.0	0.0
10:55	0.0	0.0	395.0	0.0	0.0	0.0	0.0	0.0	0.0
10:56	0.0	0.0	390.3	0.0	0.0	0.0	0.0	0.0	0.0
10:57	0.0	0.0	394.5	0.0	0.0	0.0	0.0	0.0	0.0
10:58	0.0	0.0	388.3	0.0	0.0	0.0	0.0	0.0	0.0
10:59	0.0	0.0	389.6	0.0	0.0	0.0	0.0	0.0	0.0
11:00	0.0	0.0	380.1	0.0	0.0	0.0	0.0	0.0	0.0
Average			374.7						

SOLVAY2016_6_001263

SOLVAY MINERALS, INC.
CAE Project No: 7629
EP 1&2 Calciner Stack
December 14, 1995

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 (%)
11:16:26	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0
11:16:41	0.0	0.0	12.1	0.0	0.0	0.0	0.0	0.0	0.0
11:16:56	0.0	0.0	11.8	0.0	0.0	0.0	0.0	0.0	0.0
11:17:11	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0	0.0
11:17:26	0.0	0.0	11.2	0.0	0.0	0.0	0.0	0.0	0.0
11:17:41	0.0	0.0	10.9	0.0	0.0	0.0	0.0	0.0	0.0
11:17:56	0.0	0.0	10.8	0.0	0.0	0.0	0.0	0.0	0.0
11:18:11	0.0	0.0	10.5	0.0	0.0	0.0	0.0	0.0	0.0
11:18:26	0.0	0.0	10.4	0.0	0.0	0.0	0.0	0.0	0.0
11:18:41	0.0	0.0	10.2	0.0	0.0	0.0	0.0	0.0	0.0
11:18:56	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0
11:19:11	0.0	0.0	9.8	0.0	0.0	0.0	0.0	0.0	0.0
11:19:26	0.0	0.0	9.7	0.0	0.0	0.0	0.0	0.0	0.0
11:19:41	0.0	0.0	9.5	0.0	0.0	0.0	0.0	0.0	0.0
11:19:56	0.0	0.0	9.4	0.0	0.0	0.0	0.0	0.0	0.0
11:20:11	0.0	0.0	92.9	0.0	0.0	0.0	0.0	0.0	0.0
11:20:26	0.0	0.0	487.9	0.0	0.0	0.0	0.0	0.0	0.0
11:20:41	0.0	0.0	493.2	0.0	0.0	0.0	0.0	0.0	0.0
11:20:56	0.0	0.0	495.6	0.0	0.0	0.0	0.0	0.0	0.0
11:21:11	0.0	0.0	497.5	0.0	0.0	0.0	0.0	0.0	0.0
11:21:26	0.0	0.0	497.2	0.0	0.0	0.0	0.0	0.0	0.0
11:21:41	0.0	0.0	498.1	0.0	0.0	0.0	0.0	0.0	0.0
11:21:56	0.0	0.0	500.7	0.0	0.0	0.0	0.0	0.0	0.0
11:22:11	0.0	0.0	503.9	0.0	0.0	0.0	0.0	0.0	0.0
11:22:26	0.0	0.0	511.2	0.0	0.0	0.0	0.0	0.0	0.0
11:22:41	0.0	0.0	514.5	0.0	0.0	0.0	0.0	0.0	0.0
11:22:56	0.0	0.0	514.6	0.0	0.0	0.0	0.0	0.0	0.0
11:23:11	0.0	0.0	513.9	0.0	0.0	0.0	0.0	0.0	0.0
11:23:26	0.0	0.0	517.9	0.0	0.0	0.0	0.0	0.0	0.0
11:23:41	0.0	0.0	521.9	0.0	0.0	0.0	0.0	0.0	0.0
11:23:56	0.0	0.0	526.2	0.0	0.0	0.0	0.0	0.0	0.0
11:24:11	0.0	0.0	526.9	0.0	0.0	0.0	0.0	0.0	0.0
11:24:26	0.0	0.0	527.6	0.0	0.0	0.0	0.0	0.0	0.0
11:24:41	0.0	0.0	528.4	0.0	0.0	0.0	0.0	0.0	0.0
11:24:56	0.0	0.0	529.2	0.0	0.0	0.0	0.0	0.0	0.0
11:25:11	0.0	0.0	530.1	0.0	0.0	0.0	0.0	0.0	0.0
11:25:26	0.0	0.0	541.3	0.0	0.0	0.0	0.0	0.0	0.0
11:25:41	0.0	0.0	543.6	0.0	0.0	0.0	0.0	0.0	0.0
11:25:56	0.0	0.0	542.3	0.0	0.0	0.0	0.0	0.0	0.0
11:26:11	0.0	0.0	542.1	0.0	0.0	0.0	0.0	0.0	0.0
11:26:26	0.0	0.0	542.6	0.0	0.0	0.0	0.0	0.0	0.0
11:26:41	0.0	0.0	542.9	0.0	0.0	0.0	0.0	0.0	0.0
11:26:56	0.0	0.0	543.6	0.0	0.0	0.0	0.0	0.0	0.0
11:27:11	0.0	0.0	543.9	0.0	0.0	0.0	0.0	0.0	0.0
11:27:26	0.0	0.0	544.9	0.0	0.0	0.0	0.0	0.0	0.0
11:27:41	0.0	0.0	545.3	0.0	0.0	0.0	0.0	0.0	0.0
11:27:56	0.0	0.0	539.3	0.0	0.0	0.0	0.0	0.0	0.0
11:28:11	0.0	0.0	537.0	0.0	0.0	0.0	0.0	0.0	0.0
11:28:26	0.0	0.0	534.1	0.0	0.0	0.0	0.0	0.0	0.0
11:28:41	0.0	0.0	47.4	0.0	0.0	0.0	0.0	0.0	0.0
11:28:56	0.0	0.0	11.7	0.0	0.0	0.0	0.0	0.0	0.0
11:29:11	0.0	0.0	9.9	0.0	0.0	0.0	0.0	0.0	0.0
11:29:26	0.0	0.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0
11:29:41	0.0	0.0	8.5	0.0	0.0	0.0	0.0	0.0	0.0
11:29:56	0.0	0.0	8.1	0.0	0.0	0.0	0.0	0.0	0.0
11:30:11	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0
11:30:26	0.0	0.0	7.4	0.0	0.0	0.0	0.0	0.0	0.0
11:30:41	0.0	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0
11:30:56	0.0	0.0	7.3	0.0	0.0	0.0	0.0	0.0	0.0

Zero Gas	7.3
Cal Gas	544.7

SOLVAY MINERALS, INC.
CAE Project No: 7629-2
EP 1&2 Calciner Stack
December 14, 1995

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 (%)
12:33	0.0	0.0	458.0	0.0	0.0	0.0	0.0	0.0	0.0
12:34	0.0	0.0	459.0	0.0	0.0	0.0	0.0	0.0	0.0
12:35	0.0	0.0	439.3	0.0	0.0	0.0	0.0	0.0	0.0
12:36	0.0	0.0	415.2	0.0	0.0	0.0	0.0	0.0	0.0
12:37	0.0	0.0	387.1	0.0	0.0	0.0	0.0	0.0	0.0
12:38	0.0	0.0	378.9	0.0	0.0	0.0	0.0	0.0	0.0
12:39	0.0	0.0	387.2	0.0	0.0	0.0	0.0	0.0	0.0
12:40	0.0	0.0	394.3	0.0	0.0	0.0	0.0	0.0	0.0
12:41	0.0	0.0	395.6	0.0	0.0	0.0	0.0	0.0	0.0
12:42	0.0	0.0	408.6	0.0	0.0	0.0	0.0	0.0	0.0
12:43	0.0	0.0	405.4	0.0	0.0	0.0	0.0	0.0	0.0
12:44	0.0	0.0	411.3	0.0	0.0	0.0	0.0	0.0	0.0
12:45	0.0	0.0	410.3	0.0	0.0	0.0	0.0	0.0	0.0
12:46	0.0	0.0	405.7	0.0	0.0	0.0	0.0	0.0	0.0
12:47	0.0	0.0	392.1	0.0	0.0	0.0	0.0	0.0	0.0
12:48	0.0	0.0	397.3	0.0	0.0	0.0	0.0	0.0	0.0
12:49	0.0	0.0	399.1	0.0	0.0	0.0	0.0	0.0	0.0
12:50	0.0	0.0	391.7	0.0	0.0	0.0	0.0	0.0	0.0
12:51	0.0	0.0	379.5	0.0	0.0	0.0	0.0	0.0	0.0
12:52	0.0	0.0	385.0	0.0	0.0	0.0	0.0	0.0	0.0
12:53	0.0	0.0	381.9	0.0	0.0	0.0	0.0	0.0	0.0
12:54	0.0	0.0	380.1	0.0	0.0	0.0	0.0	0.0	0.0
12:55	0.0	0.0	383.6	0.0	0.0	0.0	0.0	0.0	0.0
12:56	0.0	0.0	391.3	0.0	0.0	0.0	0.0	0.0	0.0
12:57	0.0	0.0	389.7	0.0	0.0	0.0	0.0	0.0	0.0
12:58	0.0	0.0	394.2	0.0	0.0	0.0	0.0	0.0	0.0
12:59	0.0	0.0	398.2	0.0	0.0	0.0	0.0	0.0	0.0
13:00	0.0	0.0	388.4	0.0	0.0	0.0	0.0	0.0	0.0
13:01	0.0	0.0	376.5	0.0	0.0	0.0	0.0	0.0	0.0
13:02	0.0	0.0	380.3	0.0	0.0	0.0	0.0	0.0	0.0
13:03	0.0	0.0	382.8	0.0	0.0	0.0	0.0	0.0	0.0
13:04	0.0	0.0	377.9	0.0	0.0	0.0	0.0	0.0	0.0
13:05	0.0	0.0	368.9	0.0	0.0	0.0	0.0	0.0	0.0
13:06	0.0	0.0	378.1	0.0	0.0	0.0	0.0	0.0	0.0
13:07	0.0	0.0	369.3	0.0	0.0	0.0	0.0	0.0	0.0
13:08	0.0	0.0	369.2	0.0	0.0	0.0	0.0	0.0	0.0
13:09	0.0	0.0	364.0	0.0	0.0	0.0	0.0	0.0	0.0
13:10	0.0	0.0	370.8	0.0	0.0	0.0	0.0	0.0	0.0
13:11	0.0	0.0	352.4	0.0	0.0	0.0	0.0	0.0	0.0
13:12	0.0	0.0	330.1	0.0	0.0	0.0	0.0	0.0	0.0
13:13	0.0	0.0	344.2	0.0	0.0	0.0	0.0	0.0	0.0
13:14	0.0	0.0	339.5	0.0	0.0	0.0	0.0	0.0	0.0
13:15	0.0	0.0	346.9	0.0	0.0	0.0	0.0	0.0	0.0
13:16	0.0	0.0	360.4	0.0	0.0	0.0	0.0	0.0	0.0
13:17	0.0	0.0	352.0	0.0	0.0	0.0	0.0	0.0	0.0
13:18	0.0	0.0	371.4	0.0	0.0	0.0	0.0	0.0	0.0
13:19	0.0	0.0	360.0	0.0	0.0	0.0	0.0	0.0	0.0
13:20	0.0	0.0	346.1	0.0	0.0	0.0	0.0	0.0	0.0
13:21	0.0	0.0	349.0	0.0	0.0	0.0	0.0	0.0	0.0
13:22	0.0	0.0	360.1	0.0	0.0	0.0	0.0	0.0	0.0
13:23	0.0	0.0	370.8	0.0	0.0	0.0	0.0	0.0	0.0
13:24	0.0	0.0	384.2	0.0	0.0	0.0	0.0	0.0	0.0
13:25	0.0	0.0	370.0	0.0	0.0	0.0	0.0	0.0	0.0
13:26	0.0	0.0	377.8	0.0	0.0	0.0	0.0	0.0	0.0
13:27	0.0	0.0	382.1	0.0	0.0	0.0	0.0	0.0	0.0
13:28	0.0	0.0	379.2	0.0	0.0	0.0	0.0	0.0	0.0
13:29	0.0	0.0	382.1	0.0	0.0	0.0	0.0	0.0	0.0
13:30	0.0	0.0	379.2	0.0	0.0	0.0	0.0	0.0	0.0
13:31	0.0	0.0	369.9	0.0	0.0	0.0	0.0	0.0	0.0
13:32	0.0	0.0	370.2	0.0	0.0	0.0	0.0	0.0	0.0
Average			382.1						

SOLVAY MINERALS, INC.
CAE Project No: 7629
EP 1&2 Calciner Stack
December 14, 1995

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 (%)
13:42:42	0.0	0.0	20.4	0.0	0.0	0.0	0.0	0.0	0.0
13:42:57	0.0	0.0	19.1	0.0	0.0	0.0	0.0	0.0	0.0
13:43:12	0.0	0.0	18.5	0.0	0.0	0.0	0.0	0.0	0.0
13:43:27	0.0	0.0	18.1	0.0	0.0	0.0	0.0	0.0	0.0
13:43:42	0.0	0.0	17.8	0.0	0.0	0.0	0.0	0.0	0.0
13:43:57	0.0	0.0	17.4	0.0	0.0	0.0	0.0	0.0	0.0
13:44:12	0.0	0.0	17.0	0.0	0.0	0.0	0.0	0.0	0.0
13:44:27	0.0	0.0	16.6	0.0	0.0	0.0	0.0	0.0	0.0
13:44:42	0.0	0.0	16.5	0.0	0.0	0.0	0.0	0.0	0.0
13:44:57	0.0	0.0	51.7	0.0	0.0	0.0	0.0	0.0	0.0
13:45:12	0.0	0.0	503.0	0.0	0.0	0.0	0.0	0.0	0.0
13:45:27	0.0	0.0	512.1	0.0	0.0	0.0	0.0	0.0	0.0
13:45:42	0.0	0.0	514.6	0.0	0.0	0.0	0.0	0.0	0.0
13:45:57	0.0	0.0	516.8	0.0	0.0	0.0	0.0	0.0	0.0
13:46:12	0.0	0.0	519.4	0.0	0.0	0.0	0.0	0.0	0.0
13:46:27	0.0	0.0	521.4	0.0	0.0	0.0	0.0	0.0	0.0
13:46:42	0.0	0.0	522.2	0.0	0.0	0.0	0.0	0.0	0.0
13:46:57	0.0	0.0	523.3	0.0	0.0	0.0	0.0	0.0	0.0
13:47:12	0.0	0.0	524.8	0.0	0.0	0.0	0.0	0.0	0.0
13:47:27	0.0	0.0	526.3	0.0	0.0	0.0	0.0	0.0	0.0
13:47:42	0.0	0.0	527.4	0.0	0.0	0.0	0.0	0.0	0.0
13:47:57	0.0	0.0	528.0	0.0	0.0	0.0	0.0	0.0	0.0
13:48:12	0.0	0.0	529.7	0.0	0.0	0.0	0.0	0.0	0.0
13:48:27	0.0	0.0	531.4	0.0	0.0	0.0	0.0	0.0	0.0
13:48:42	0.0	0.0	533.3	0.0	0.0	0.0	0.0	0.0	0.0
13:48:57	0.0	0.0	534.6	0.0	0.0	0.0	0.0	0.0	0.0
13:49:12	0.0	0.0	535.7	0.0	0.0	0.0	0.0	0.0	0.0
13:49:27	0.0	0.0	537.3	0.0	0.0	0.0	0.0	0.0	0.0
13:49:42	0.0	0.0	539.3	0.0	0.0	0.0	0.0	0.0	0.0
13:49:57	0.0	0.0	541.0	0.0	0.0	0.0	0.0	0.0	0.0
13:50:12	0.0	0.0	541.5	0.0	0.0	0.0	0.0	0.0	0.0
13:50:27	0.0	0.0	543.5	0.0	0.0	0.0	0.0	0.0	0.0
13:50:42	0.0	0.0	546.0	0.0	0.0	0.0	0.0	0.0	0.0
13:50:57	0.0	0.0	548.9	0.0	0.0	0.0	0.0	0.0	0.0
13:51:12	0.0	0.0	549.8	0.0	0.0	0.0	0.0	0.0	0.0
13:51:27	0.0	0.0	549.8	0.0	0.0	0.0	0.0	0.0	0.0
13:51:42	0.0	0.0	551.5	0.0	0.0	0.0	0.0	0.0	0.0
13:51:57	0.0	0.0	553.2	0.0	0.0	0.0	0.0	0.0	0.0
13:52:12	0.0	0.0	553.7	0.0	0.0	0.0	0.0	0.0	0.0
13:52:27	0.0	0.0	551.8	0.0	0.0	0.0	0.0	0.0	0.0
13:52:42	0.0	0.0	551.7	0.0	0.0	0.0	0.0	0.0	0.0
13:52:57	0.0	0.0	264.1	0.0	0.0	0.0	0.0	0.0	0.0
13:53:12	0.0	0.0	18.1	0.0	0.0	0.0	0.0	0.0	0.0
13:53:27	0.0	0.0	15.2	0.0	0.0	0.0	0.0	0.0	0.0
13:53:42	0.0	0.0	14.1	0.0	0.0	0.0	0.0	0.0	0.0
13:53:57	0.0	0.0	13.4	0.0	0.0	0.0	0.0	0.0	0.0
13:54:12	0.0	0.0	12.8	0.0	0.0	0.0	0.0	0.0	0.0
13:54:27	0.0	0.0	12.6	0.0	0.0	0.0	0.0	0.0	0.0
13:54:42	0.0	0.0	12.1	0.0	0.0	0.0	0.0	0.0	0.0
13:54:57	0.0	0.0	11.9	0.0	0.0	0.0	0.0	0.0	0.0
13:55:12	0.0	0.0	11.7	0.0	0.0	0.0	0.0	0.0	0.0
13:55:27	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0	0.0
Zero Gas			11.7						
Cal Gas			552.9						

SOLVAY MINERALS, INC.
CAE Project No: 7629-2
EP 1&2 Calciner Stack
December 14, 1995

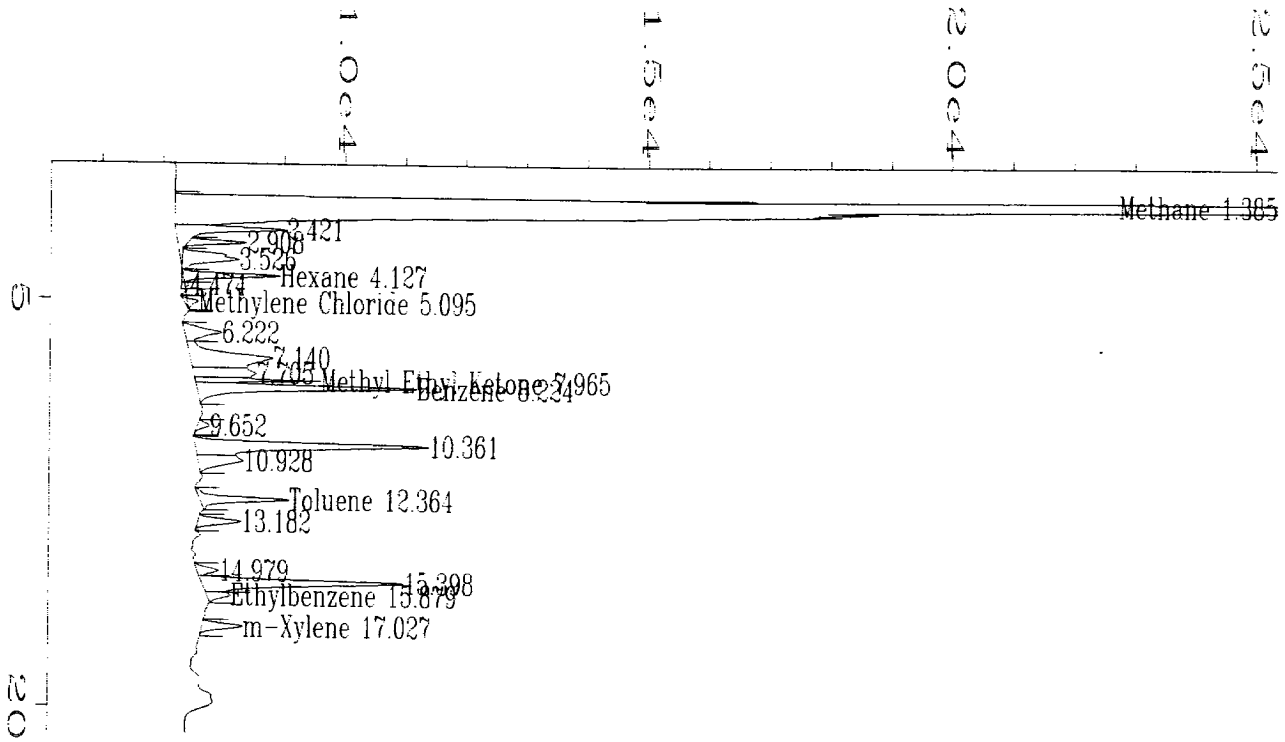
REFERENCE METHOD RUN 3

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 (%)
14:44	0.0	0.0	507.6	0.0	0.0	0.0	0.0	0.0	0.0
14:45	0.0	0.0	506.5	0.0	0.0	0.0	0.0	0.0	0.0
14:46	0.0	0.0	515.0	0.0	0.0	0.0	0.0	0.0	0.0
14:47	0.0	0.0	492.3	0.0	0.0	0.0	0.0	0.0	0.0
14:48	0.0	0.0	495.0	0.0	0.0	0.0	0.0	0.0	0.0
14:49	0.0	0.0	501.2	0.0	0.0	0.0	0.0	0.0	0.0
14:50	0.0	0.0	507.0	0.0	0.0	0.0	0.0	0.0	0.0
14:51	0.0	0.0	496.7	0.0	0.0	0.0	0.0	0.0	0.0
14:52	0.0	0.0	492.5	0.0	0.0	0.0	0.0	0.0	0.0
14:53	0.0	0.0	487.5	0.0	0.0	0.0	0.0	0.0	0.0
14:54	0.0	0.0	457.3	0.0	0.0	0.0	0.0	0.0	0.0
14:55	0.0	0.0	428.9	0.0	0.0	0.0	0.0	0.0	0.0
14:56	0.0	0.0	429.5	0.0	0.0	0.0	0.0	0.0	0.0
14:57	0.0	0.0	442.7	0.0	0.0	0.0	0.0	0.0	0.0
14:58	0.0	0.0	444.5	0.0	0.0	0.0	0.0	0.0	0.0
14:59	0.0	0.0	456.4	0.0	0.0	0.0	0.0	0.0	0.0
15:00	0.0	0.0	454.5	0.0	0.0	0.0	0.0	0.0	0.0
15:01	0.0	0.0	467.8	0.0	0.0	0.0	0.0	0.0	0.0
15:02	0.0	0.0	474.4	0.0	0.0	0.0	0.0	0.0	0.0
15:03	0.0	0.0	466.0	0.0	0.0	0.0	0.0	0.0	0.0
15:04	0.0	0.0	459.5	0.0	0.0	0.0	0.0	0.0	0.0
15:05	0.0	0.0	467.7	0.0	0.0	0.0	0.0	0.0	0.0
15:06	0.0	0.0	465.0	0.0	0.0	0.0	0.0	0.0	0.0
15:07	0.0	0.0	476.3	0.0	0.0	0.0	0.0	0.0	0.0
15:08	0.0	0.0	489.1	0.0	0.0	0.0	0.0	0.0	0.0
15:09	0.0	0.0	479.5	0.0	0.0	0.0	0.0	0.0	0.0
15:10	0.0	0.0	503.9	0.0	0.0	0.0	0.0	0.0	0.0
15:11	0.0	0.0	485.9	0.0	0.0	0.0	0.0	0.0	0.0
15:12	0.0	0.0	473.0	0.0	0.0	0.0	0.0	0.0	0.0
15:13	0.0	0.0	486.6	0.0	0.0	0.0	0.0	0.0	0.0
15:14	0.0	0.0	496.5	0.0	0.0	0.0	0.0	0.0	0.0
15:15	0.0	0.0	504.6	0.0	0.0	0.0	0.0	0.0	0.0
15:16	0.0	0.0	489.2	0.0	0.0	0.0	0.0	0.0	0.0
15:17	0.0	0.0	483.8	0.0	0.0	0.0	0.0	0.0	0.0
15:18	0.0	0.0	472.5	0.0	0.0	0.0	0.0	0.0	0.0
15:19	0.0	0.0	482.4	0.0	0.0	0.0	0.0	0.0	0.0
15:20	0.0	0.0	492.6	0.0	0.0	0.0	0.0	0.0	0.0
15:21	0.0	0.0	497.1	0.0	0.0	0.0	0.0	0.0	0.0
15:22	0.0	0.0	477.8	0.0	0.0	0.0	0.0	0.0	0.0
15:23	0.0	0.0	491.1	0.0	0.0	0.0	0.0	0.0	0.0
15:24	0.0	0.0	486.0	0.0	0.0	0.0	0.0	0.0	0.0
15:25	0.0	0.0	489.6	0.0	0.0	0.0	0.0	0.0	0.0
15:26	0.0	0.0	476.8	0.0	0.0	0.0	0.0	0.0	0.0
15:27	0.0	0.0	491.3	0.0	0.0	0.0	0.0	0.0	0.0
15:28	0.0	0.0	495.3	0.0	0.0	0.0	0.0	0.0	0.0
15:29	0.0	0.0	488.1	0.0	0.0	0.0	0.0	0.0	0.0
15:30	0.0	0.0	429.8	0.0	0.0	0.0	0.0	0.0	0.0
15:31	0.0	0.0	434.5	0.0	0.0	0.0	0.0	0.0	0.0
15:32	0.0	0.0	443.3	0.0	0.0	0.0	0.0	0.0	0.0
15:33	0.0	0.0	441.2	0.0	0.0	0.0	0.0	0.0	0.0
15:34	0.0	0.0	440.2	0.0	0.0	0.0	0.0	0.0	0.0
15:35	0.0	0.0	438.4	0.0	0.0	0.0	0.0	0.0	0.0
15:36	0.0	0.0	446.7	0.0	0.0	0.0	0.0	0.0	0.0
15:37	0.0	0.0	439.4	0.0	0.0	0.0	0.0	0.0	0.0
15:38	0.0	0.0	451.3	0.0	0.0	0.0	0.0	0.0	0.0
15:39	0.0	0.0	461.0	0.0	0.0	0.0	0.0	0.0	0.0
15:40	0.0	0.0	459.1	0.0	0.0	0.0	0.0	0.0	0.0
15:41	0.0	0.0	460.0	0.0	0.0	0.0	0.0	0.0	0.0
15:42	0.0	0.0	445.2	0.0	0.0	0.0	0.0	0.0	0.0
15:43	0.0	0.0	442.8	0.0	0.0	0.0	0.0	0.0	0.0
Average			472.6						

SOLVAY MINERALS, INC.
CAE Project No: 7629
EP 1&2 Calciner Stack
December 14, 1995

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 (%)
15:56:54	0.0	0.0	21.1	0.0	0.0	0.0	0.0	0.0	0.0
15:57:09	0.0	0.0	20.8	0.0	0.0	0.0	0.0	0.0	0.0
15:57:24	0.0	0.0	20.5	0.0	0.0	0.0	0.0	0.0	0.0
15:57:39	0.0	0.0	20.2	0.0	0.0	0.0	0.0	0.0	0.0
15:57:54	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0
15:58:09	0.0	0.0	19.7	0.0	0.0	0.0	0.0	0.0	0.0
15:58:24	0.0	0.0	19.5	0.0	0.0	0.0	0.0	0.0	0.0
15:58:39	0.0	0.0	19.3	0.0	0.0	0.0	0.0	0.0	0.0
15:58:54	0.0	0.0	19.0	0.0	0.0	0.0	0.0	0.0	0.0
15:59:09	0.0	0.0	18.8	0.0	0.0	0.0	0.0	0.0	0.0
15:59:24	0.0	0.0	18.6	0.0	0.0	0.0	0.0	0.0	0.0
15:59:39	0.0	0.0	18.4	0.0	0.0	0.0	0.0	0.0	0.0
15:59:54	0.0	0.0	18.2	0.0	0.0	0.0	0.0	0.0	0.0
16:00:09	0.0	0.0	18.1	0.0	0.0	0.0	0.0	0.0	0.0
16:00:24	0.0	0.0	17.9	0.0	0.0	0.0	0.0	0.0	0.0
16:00:39	0.0	0.0	17.8	0.0	0.0	0.0	0.0	0.0	0.0
16:00:54	0.0	0.0	17.7	0.0	0.0	0.0	0.0	0.0	0.0
16:01:09	0.0	0.0	17.5	0.0	0.0	0.0	0.0	0.0	0.0
16:01:24	0.0	0.0	17.3	0.0	0.0	0.0	0.0	0.0	0.0
16:01:39	0.0	0.0	17.1	0.0	0.0	0.0	0.0	0.0	0.0
16:01:54	0.0	0.0	17.1	0.0	0.0	0.0	0.0	0.0	0.0
16:02:09	0.0	0.0	17.1	0.0	0.0	0.0	0.0	0.0	0.0
16:02:24	0.0	0.0	16.9	0.0	0.0	0.0	0.0	0.0	0.0
16:02:39	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0
16:02:54	0.0	0.0	97.5	0.0	0.0	0.0	0.0	0.0	0.0
16:03:09	0.0	0.0	553.3	0.0	0.0	0.0	0.0	0.0	0.0
16:03:24	0.0	0.0	560.2	0.0	0.0	0.0	0.0	0.0	0.0
16:03:39	0.0	0.0	562.2	0.0	0.0	0.0	0.0	0.0	0.0
16:03:54	0.0	0.0	562.9	0.0	0.0	0.0	0.0	0.0	0.0
16:04:09	0.0	0.0	563.6	0.0	0.0	0.0	0.0	0.0	0.0
16:04:24	0.0	0.0	564.6	0.0	0.0	0.0	0.0	0.0	0.0
16:04:39	0.0	0.0	565.2	0.0	0.0	0.0	0.0	0.0	0.0
16:04:54	0.0	0.0	565.8	0.0	0.0	0.0	0.0	0.0	0.0
16:05:09	0.0	0.0	566.1	0.0	0.0	0.0	0.0	0.0	0.0
16:05:24	0.0	0.0	564.3	0.0	0.0	0.0	0.0	0.0	0.0
16:05:39	0.0	0.0	563.8	0.0	0.0	0.0	0.0	0.0	0.0
16:05:54	0.0	0.0	301.7	0.0	0.0	0.0	0.0	0.0	0.0
16:06:09	0.0	0.0	21.5	0.0	0.0	0.0	0.0	0.0	0.0
16:06:24	0.0	0.0	18.3	0.0	0.0	0.0	0.0	0.0	0.0
16:06:39	0.0	0.0	17.1	0.0	0.0	0.0	0.0	0.0	0.0
16:06:54	0.0	0.0	16.3	0.0	0.0	0.0	0.0	0.0	0.0
16:07:09	0.0	0.0	15.9	0.0	0.0	0.0	0.0	0.0	0.0
16:07:24	0.0	0.0	15.5	0.0	0.0	0.0	0.0	0.0	0.0
16:07:39	0.0	0.0	15.3	0.0	0.0	0.0	0.0	0.0	0.0
16:07:54	0.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
16:08:09	0.0	0.0	14.8	0.0	0.0	0.0	0.0	0.0	0.0
16:08:24	0.0	0.0	14.6	0.0	0.0	0.0	0.0	0.0	0.0
16:08:39	0.0	0.0	14.4	0.0	0.0	0.0	0.0	0.0	0.0
16:08:54	0.0	0.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0
16:09:09	0.0	0.0	14.2	0.0	0.0	0.0	0.0	0.0	0.0
16:09:24	0.0	0.0	14.1	0.0	0.0	0.0	0.0	0.0	0.0
Zero Gas			14.2						
Cal Gas			565.4						



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External Standard Report

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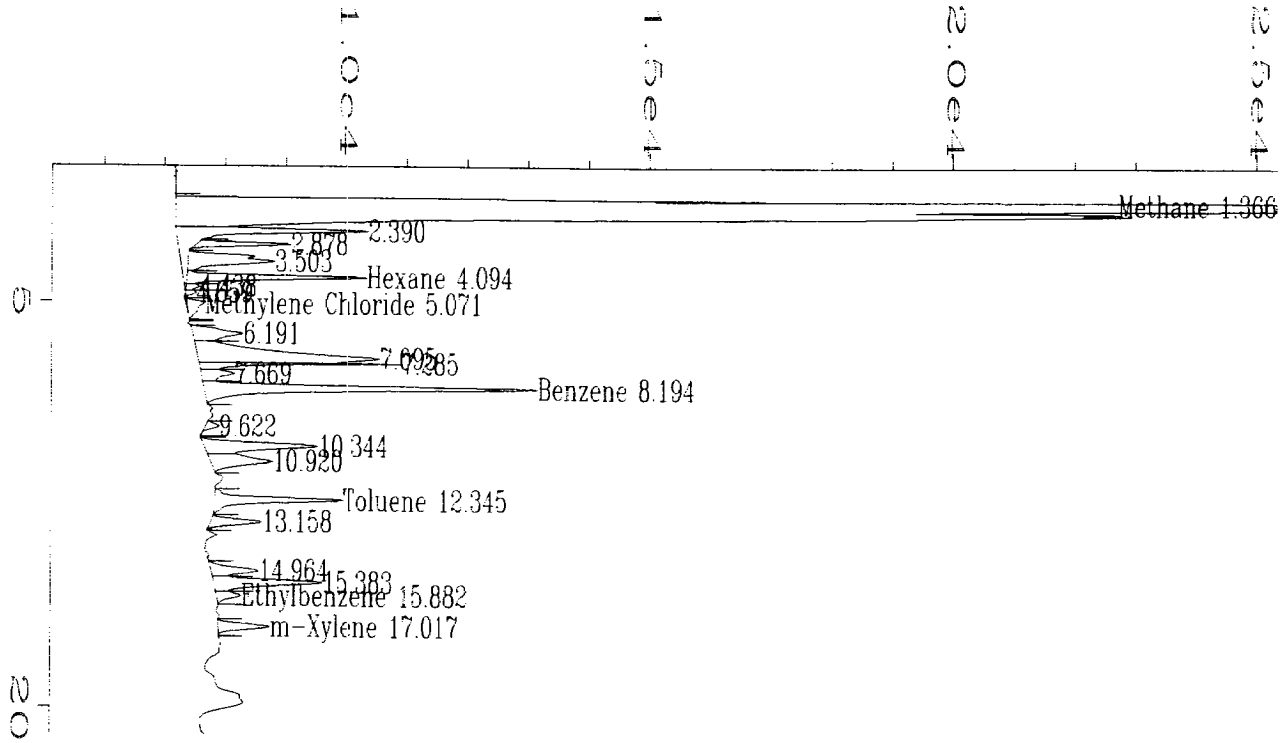
Data File Name	: D:\SOLVAY\HP\12-14\E1-2R1_1.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: 1/10 evap1 rng4	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 14 Dec 95 10:53 AM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:11 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-14\E1-2R1_1.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.385	3281662	BH S	0.223	1	631.159	Methane
1.873	* not found *			1		Butadiene
4.127	18422	VV T	0.185	1	0.585	Hexane
5.095	2994	PB T	0.220	1	0.809	Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.965	13522	VV	0.083	1	1.998	Methyl Ethyl Ketone
8.224	51709	VV	0.200	1	1.501	Benzene
9.197	* not found *			1		Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.364	19467	BB	0.195	1	0.399	Toluene
15.879	5698	VB	0.186	1	0.0638	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.027	9374	BB	0.174	1	0.0979	m-Xylene
18.024	* not found *			1		o-Xylene
19.516	* not found *			1		Styrene



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External Standard Report

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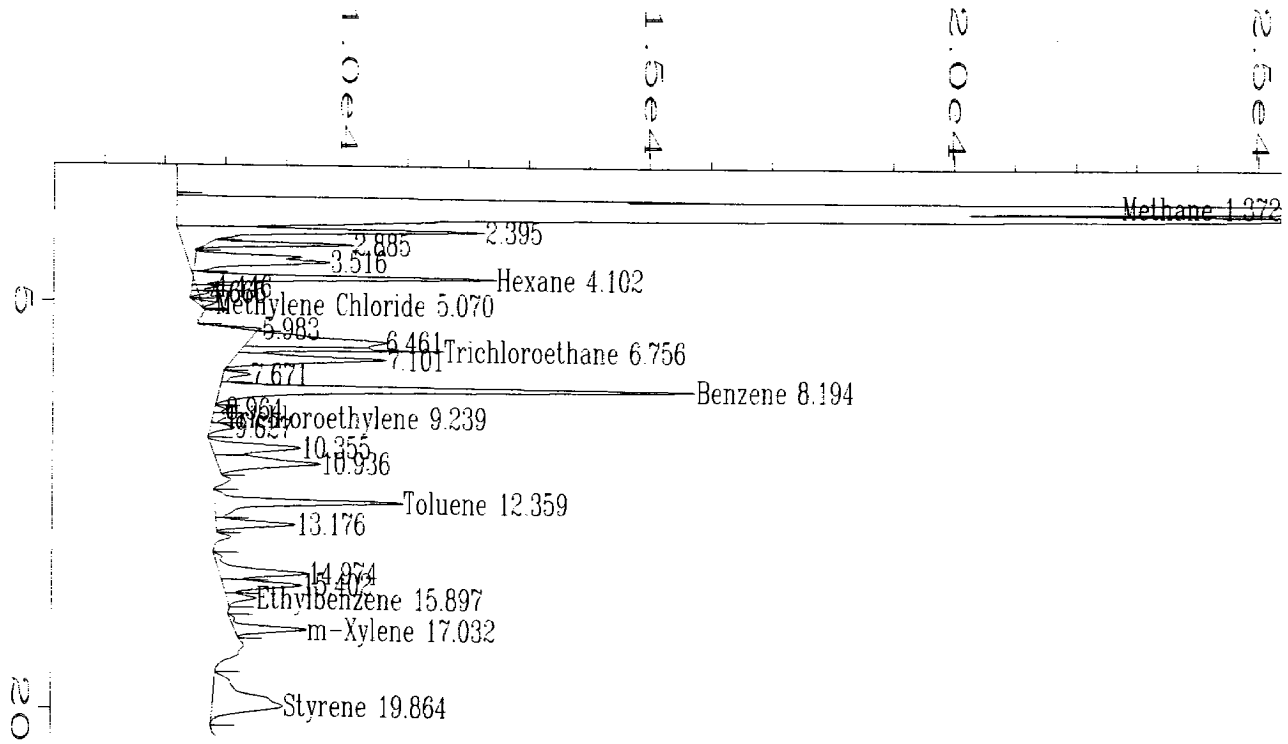
Data File Name : D:\SOLVAY\HP\12-14\E1-2R1_2.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 14 Dec 95 11:19 AM
Report Created on: 21 Dec 95 12:11 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\HP\12-14\E1-2R1_2.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.366	3328768	BH S	0.225	1	640.124	Methane
1.873	* not found *			1		Butadiene
4.094	33403	VV T	0.188	1	1.057	Hexane
5.071	7002	PB T	0.372	1	1.551	Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.194	76762	VV	0.198	1	2.241	Benzene
9.197	* not found *			1		Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.345	30196	BB	0.190	1	0.672	Toluene
15.882	6132	VB	0.198	1	0.0733	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.017	11887	BB	0.183	1	0.150	m-Xylene
18.024	* not found *			1		o-Xylene
19.516	* not found *			1		Styrene



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External Standard Report

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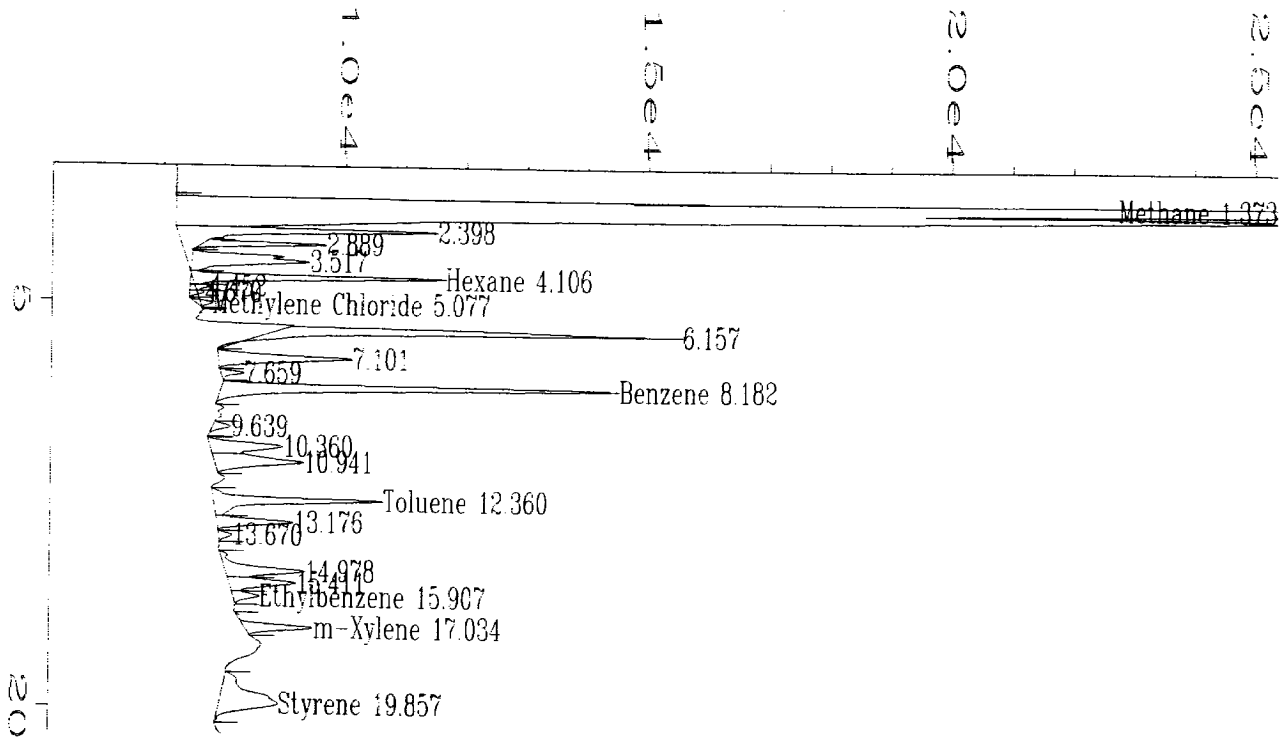
Data File Name	: D:\SOLVAY\HP\12-14\E1-2R1_3.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: 1/10 evap1 rng4	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 14 Dec 95 11:46 AM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:11 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-14\E1-2R1_3.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.372	3409150	BH S	0.227	1	655.421	Methane
1.873	* not found *			1		Butadiene
4.102	56206	VV T	0.182	1	1.776	Hexane
5.070	3195	PB T	0.183	1	0.846	Methylene Chloride
6.756	24742	VV	0.091	1	2.206	Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.194	106879	VV	0.194	1	3.131	Benzene
9.239	3568	VV	0.223	1	0.279	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.359	48125	BV	0.220	1	1.130	Toluene
15.897	6942	VB	0.180	1	0.0909	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.032	17751	BB	0.185	1	0.273	m-Xylene
18.024	* not found *			1		o-Xylene
19.864	53985	BB	0.593	1	1.112	Styrene

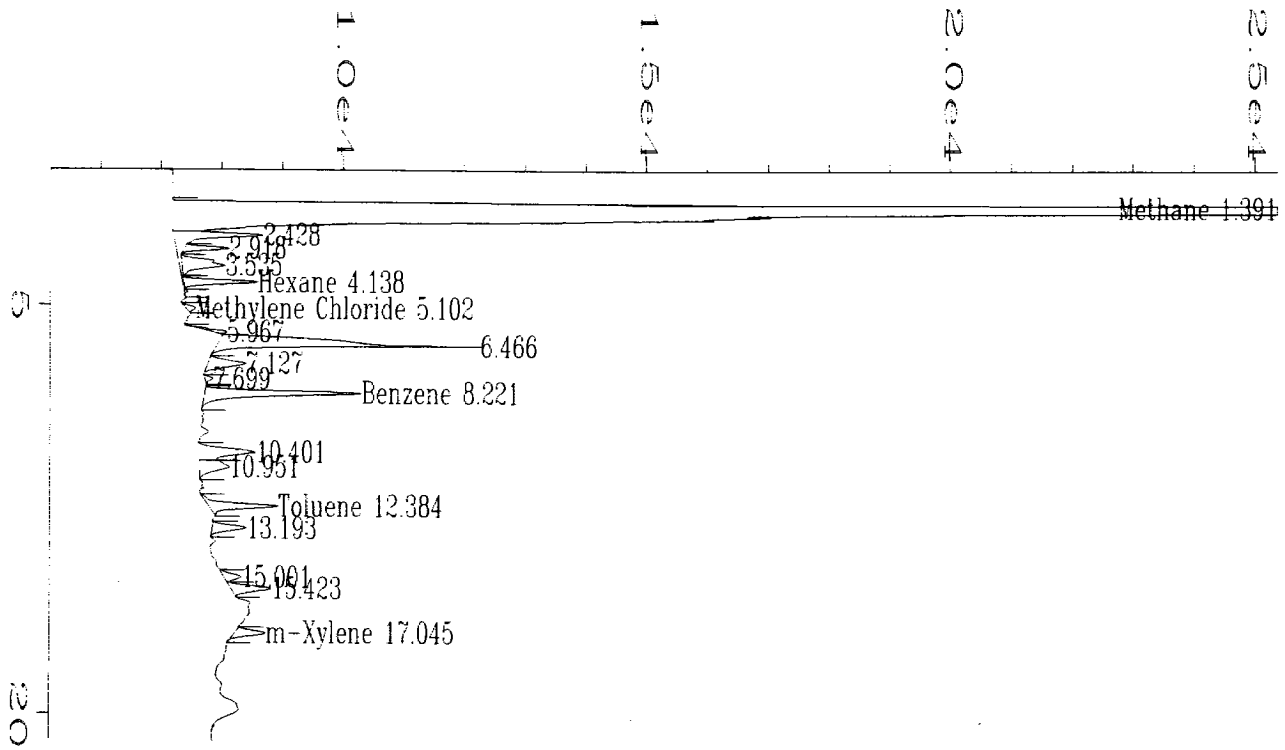


External Standard Report

Data File Name	: D:\SOLVAY\HP\12-14\E1-2R1_4.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: 1/10 evap1 rng4	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 14 Dec 95 12:13 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:11 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-14\E1-2R1_4.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.373	3370223	BH S	0.226	1	648.013	Methane
1.873	* not found *			1		Butadiene
4.106	47652	VV T	0.183	1	1.506	Hexane
5.077	2925	PB T	0.188	1	0.796	Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.182	87763	BV	0.194	1	2.566	Benzene
9.197	* not found *			1		Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.360	43702	BV	0.217	1	1.017	Toluene
15.907	6236	VB	0.180	1	0.0755	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.034	16057	BV	0.176	1	0.238	m-Xylene
18.024	* not found *			1		o-Xylene
19.857	44280	BB	0.574	1	0.905	Styrene



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External Standard Report

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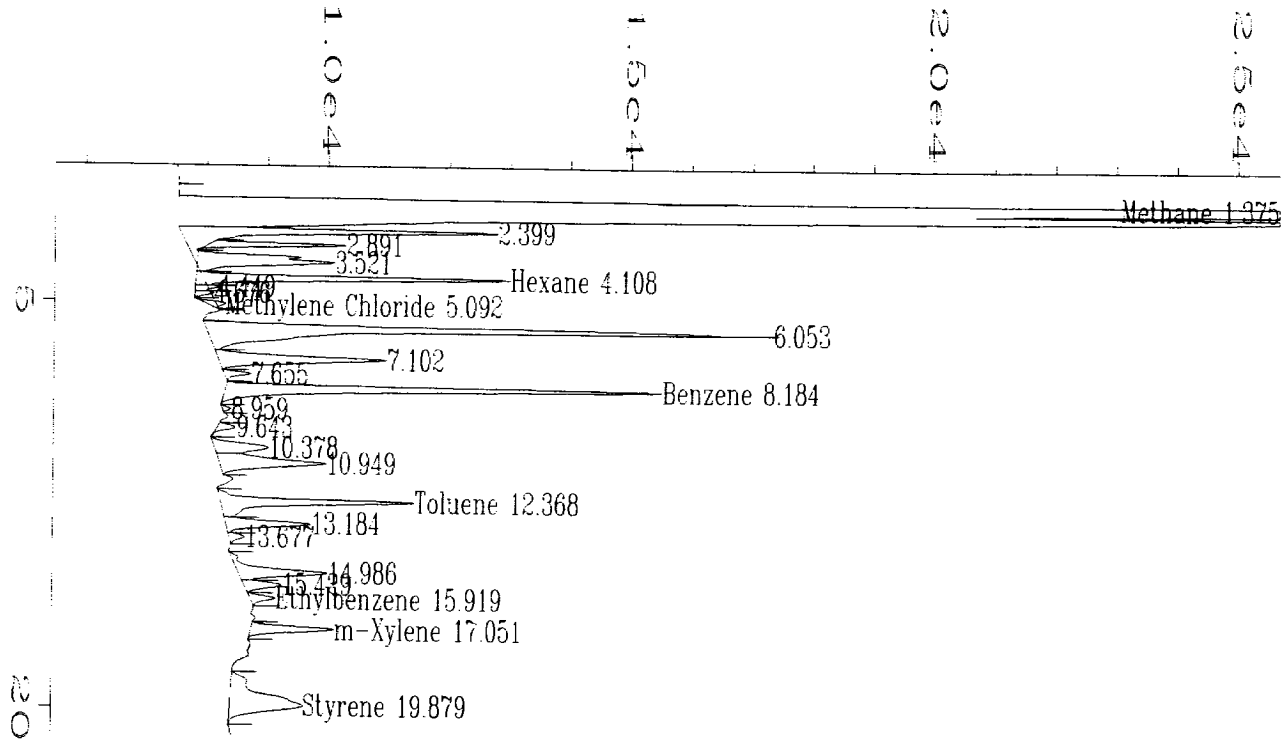
Data File Name	: D:\SOLVAY\HP\12-14\E1-2R2_1.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: 1/10 evap1 rng4	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 14 Dec 95 01:17 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:11 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-14\E1-2R2_1.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.391	3172036	BH S	0.217	1	610.297	Methane
1.873	* not found *			1		Butadiene
4.138	12887	PV T	0.175	1	0.410	Hexane
5.102	1577	BB	0.135	1	0.547	Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.221	34348	BV	0.194	1	0.987	Benzene
9.197	* not found *			1		Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.384	15233	BB	0.176	1	0.290	Toluene
15.903	* not found *			1		Ethylbenzene
16.597	* not found *			1		p-Xylene
17.045	6969	BB	0.183	1	0.0475	m-Xylene
18.024	* not found *			1		o-Xylene
19.516	* not found *			1		Styrene



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External Standard Report

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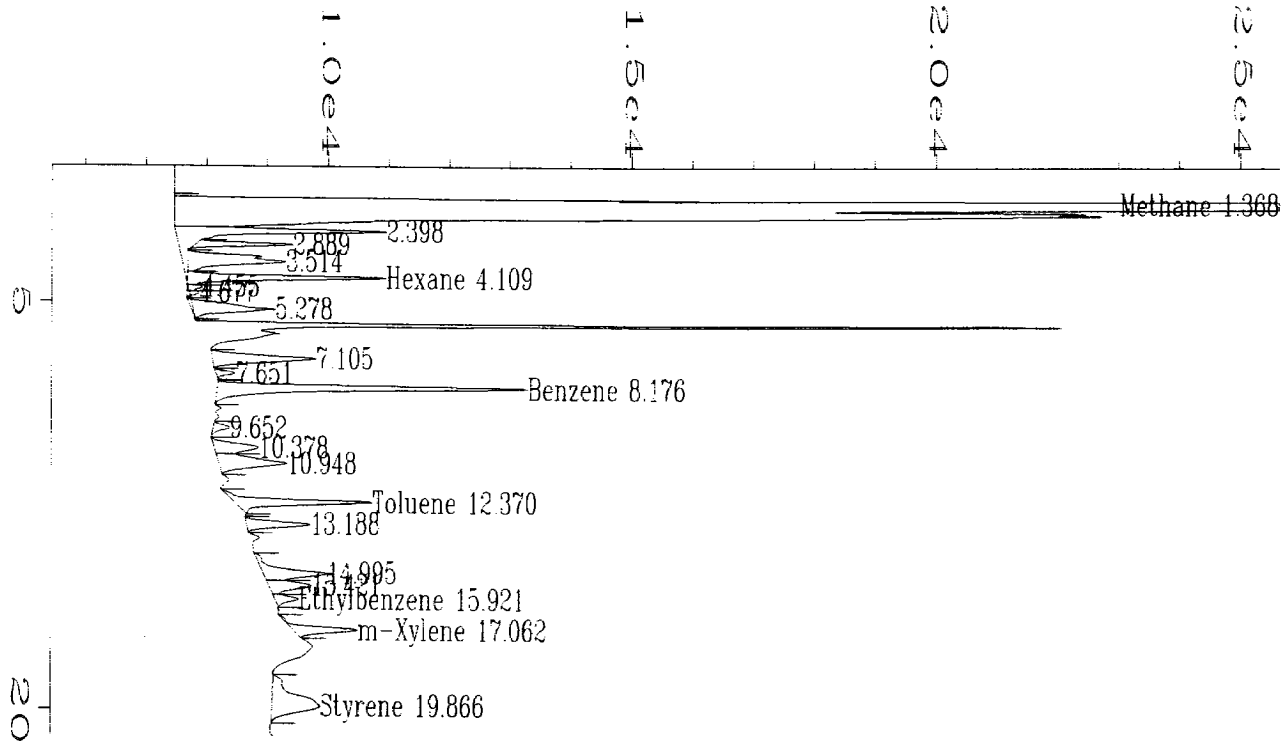
Data File Name : D:\SOLVAY\HP\12-14\E1-2R2_2.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 14 Dec 95 01:43 PM
Report Created on: 21 Dec 95 12:12 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\HP\12-14\E1-2R2_2.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.375	3443667	BH S	0.230	1	661.990	Methane
1.873	* not found *			1		Butadiene
4.108	58257	VV T	0.182	1	1.841	Hexane
5.092	3109	PB T	0.190	1	0.830	Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.184	96464	BV	0.191	1	2.823	Benzene
9.197	* not found *			1		Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.368	49893	BV	0.224	1	1.175	Toluene
15.919	5334	VB	0.162	1	0.0559	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.051	19710	BB	0.187	1	0.314	m-Xylene
18.024	* not found *			1		o-Xylene
19.879	52903	BB	0.569	1	1.089	Styrene



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External Standard Report

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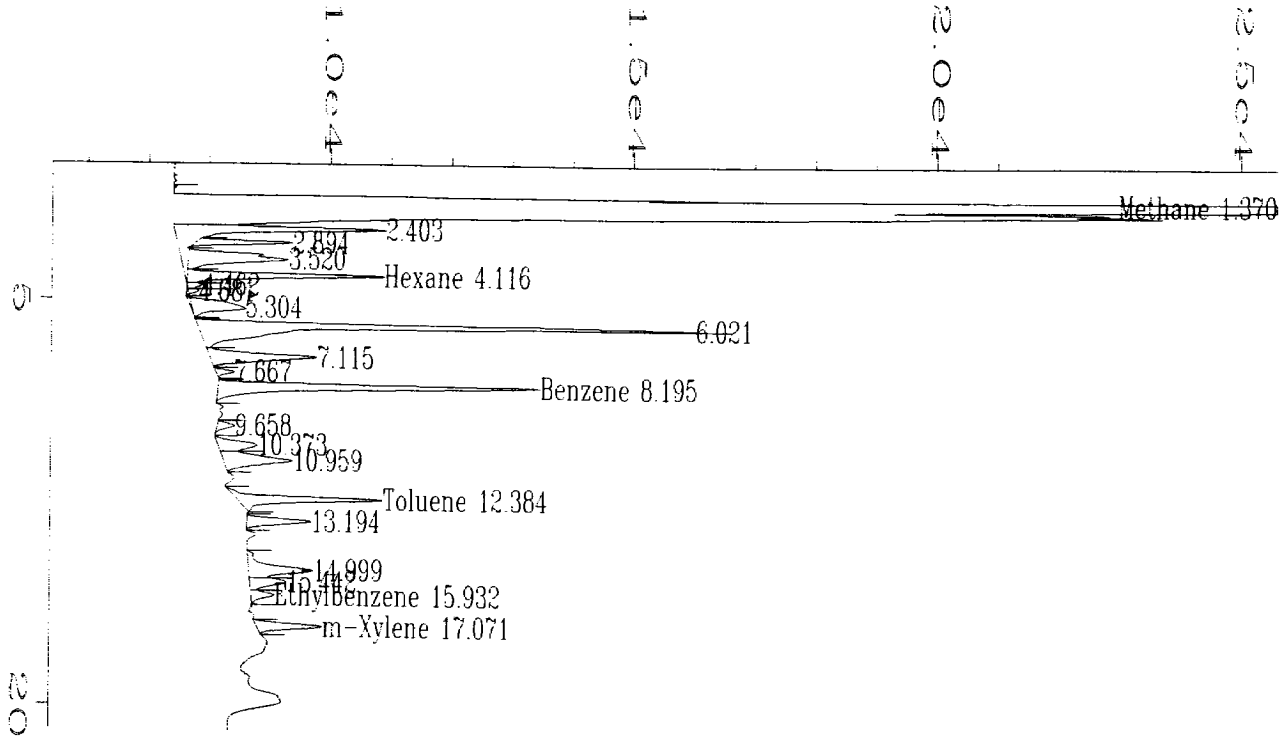
Data File Name : D:\SOLVAY\HP\12-14\E1-2R2_3.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 14 Dec 95 02:09 PM
Report Created on: 21 Dec 95 12:12 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\HP\12-14\E1-2R2_3.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.368	3232853	BH S	0.218	1	621.871	Methane
1.873	* not found *			1		Butadiene
4.109	36815	VV T	0.183	1	1.165	Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.176	68365	BV	0.182	1	1.993	Benzene
9.197	* not found *			1		Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.370	30455	BB	0.186	1	0.679	Toluene
15.921	5580	VB	0.180	1	0.0613	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.062	15053	BV	0.181	1	0.217	m-Xylene
18.024	* not found *			1		o-Xylene
19.866	35873	BB	0.557	1	0.725	Styrene



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External Standard Report

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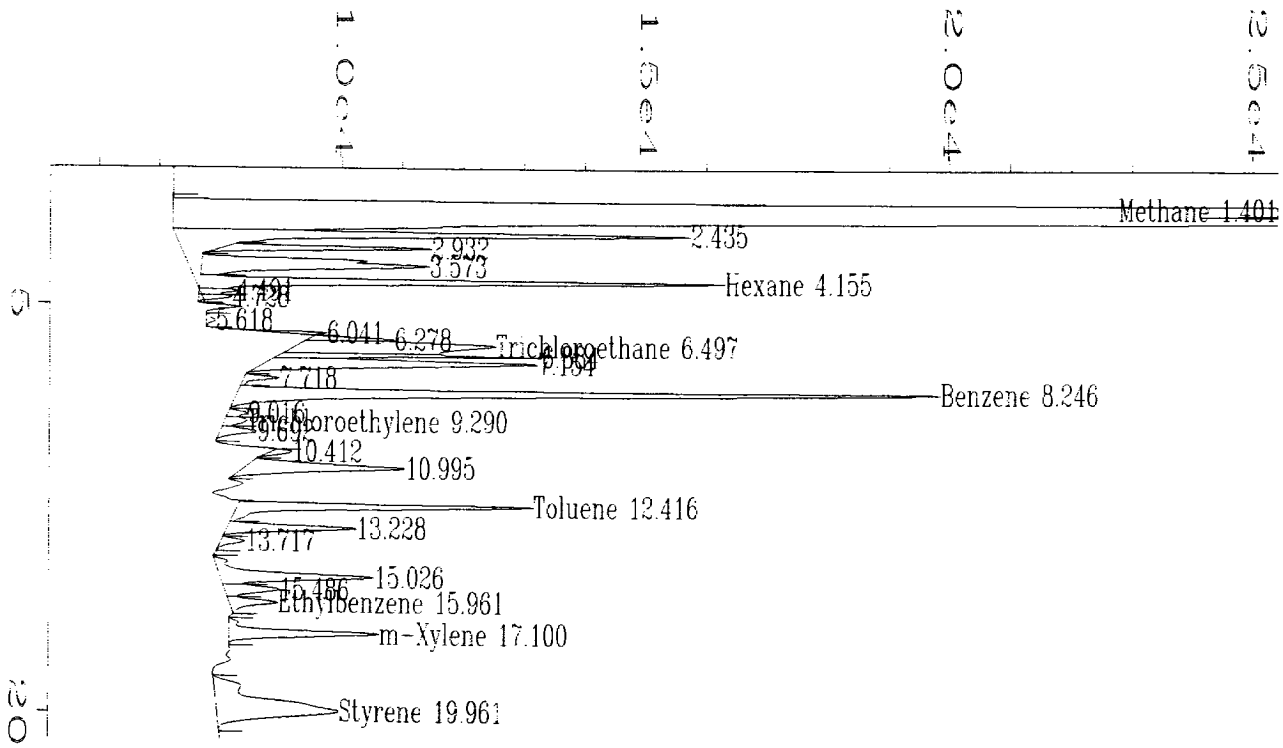
Data File Name : D:\SOLVAY\HP\12-14\E1-2R2_4.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 14 Dec 95 02:35 PM
Report Created on: 21 Dec 95 12:12 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\HP\12-14\E1-2R2_4.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.370	3364147	BH S	0.227	1	646.857	Methane
1.873	* not found *			1		Butadiene
4.116	37433	VV T	0.193	1	1.184	Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.195	71525	BV	0.197	1	2.086	Benzene
9.197	* not found *			1		Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.384	32945	BB	0.202	1	0.743	Toluene
15.932	5840	VB	0.191	1	0.0669	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.071	15051	BB	0.170	1	0.217	m-Xylene
18.024	* not found *			1		o-Xylene
19.516	* not found *			1		Styrene



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External Standard Report

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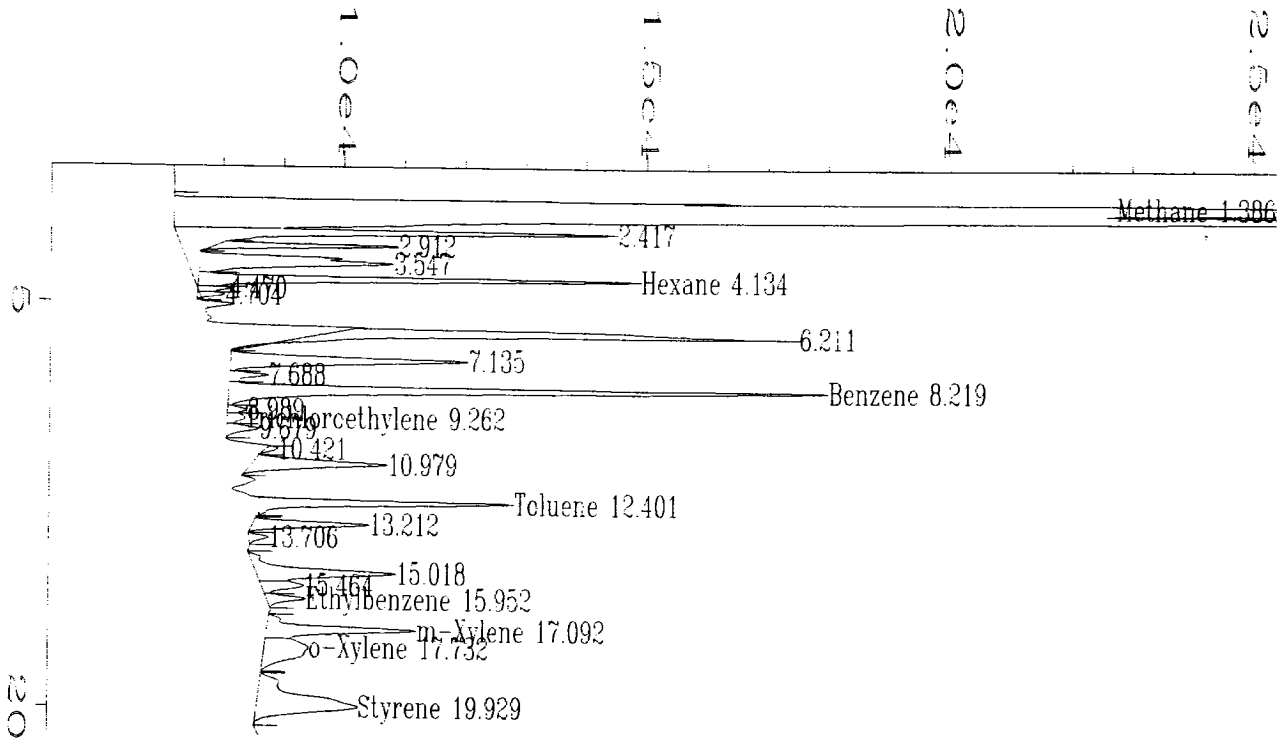
Data File Name	: D:\SOLVAY\HP\12-14\E1-2R3_1.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: 1/10 evap1 rng4	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 14 Dec 95 03:29 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:12 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-14\E1-2R3_1.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.401	3924281	BH S	0.259	1	753.455	Methane
1.873	* not found *			1		Butadiene
4.155	99975	VV T	0.187	1	3.157	Hexane
5.134	* not found *			1		Methylene Chloride
6.497	72496	VV	0.272	1	6.486	Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.246	157641	VV	0.200	1	4.632	Benzene
9.290	6172	VV	0.221	1	0.491	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.416	64791	BV	0.190	1	1.556	Toluene
15.961	12314	VB	0.191	1	0.208	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.100	39449	BB	0.217	1	0.727	m-Xylene
18.024	* not found *			1		o-Xylene
19.961	88532	BB	0.583	1	1.849	Styrene



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External Standard Report

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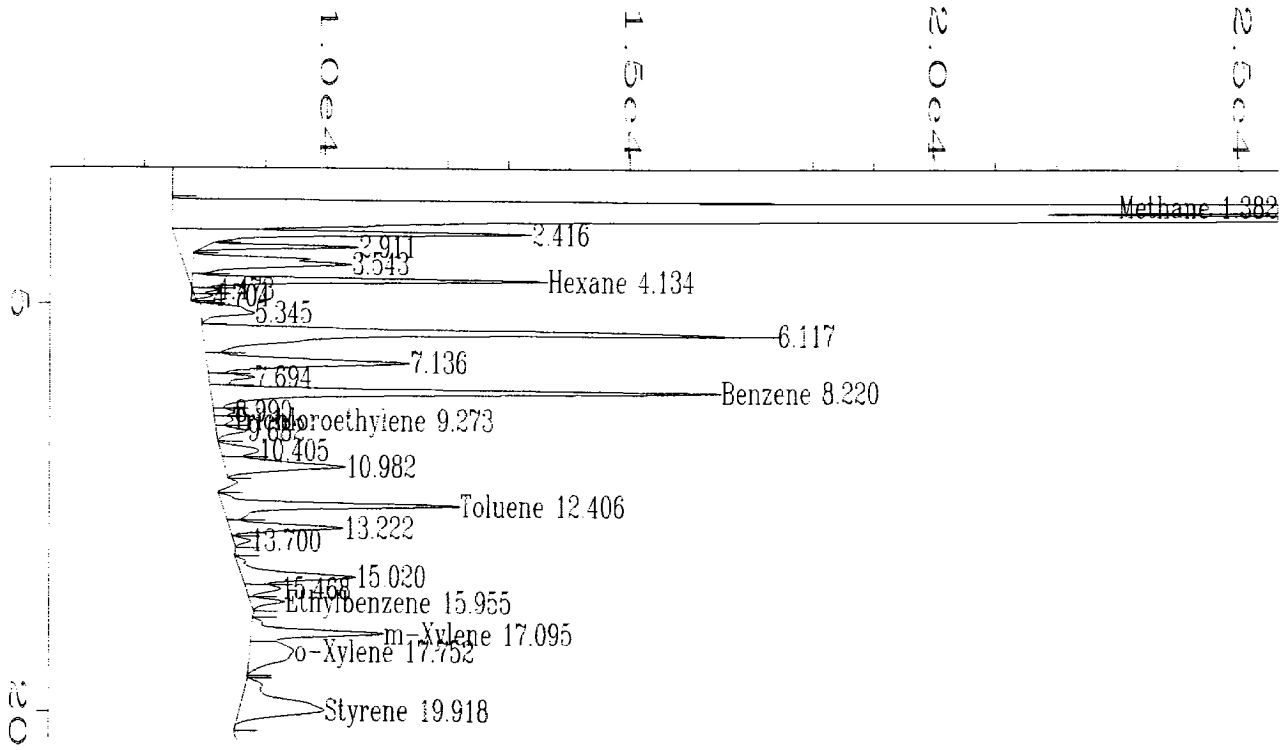
Data File Name	: D:\SOLVAY\HP\12-14\E1-2R3_2.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: 1/10 evap1 rng4	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 14 Dec 95 03:56 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:13 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-14\E1-2R3_2.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.386	3708879	BH S	0.245	1	712.462	Methane
1.873	* not found *			1		Butadiene
4.134	83727	VV T	0.185	1	2.644	Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.219	138421	VV	0.207	1	4.064	Benzene
9.262	5011	VV	0.221	1	0.396	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.401	53344	BV	0.188	1	1.263	Toluene
15.952	9084	VB	0.171	1	0.137	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.092	44252	BV	0.237	1	0.827	m-Xylene
17.732	33769	VB	0.654	1	0.660	o-Xylene
19.929	73017	BB	0.558	1	1.518	Styrene



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External Standard Report

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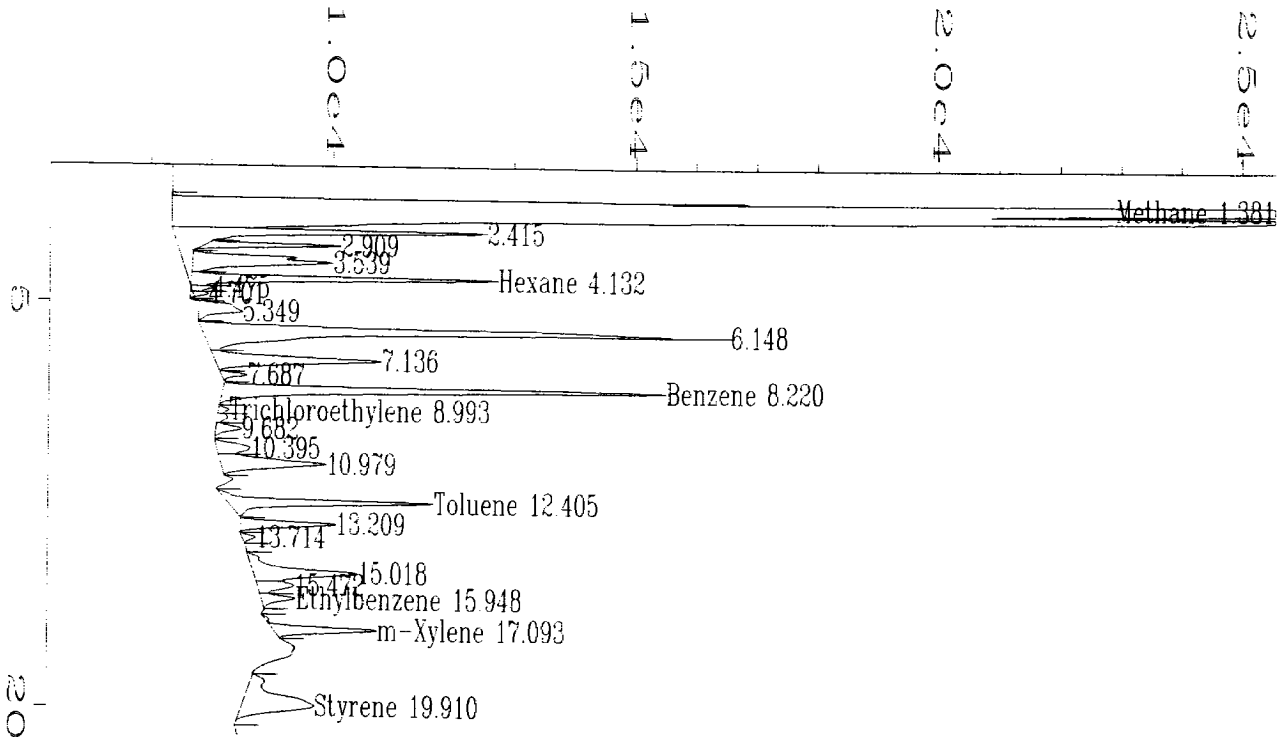
Data File Name	: D:\SOLVAY\HP\12-14\E1-2R3_3.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: 1/10 evap1 rng4	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 14 Dec 95 04:23 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:13 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-14\E1-2R3_3.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.382	3591171	BH S	0.239	1	690.061	Methane
1.873	* not found *			1		Butadiene
4.134	66506	VV T	0.184	1	2.101	Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.220	122768	VV	0.209	1	3.601	Benzene
9.273	5227	VV	0.235	1	0.414	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.406	60996	BV	0.222	1	1.459	Toluene
15.955	7867	VB	0.185	1	0.111	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.095	38939	BV	0.241	1	0.716	m-Xylene
17.752	34631	VB	0.654	1	0.679	o-Xylene
19.918	62269	BB	0.554	1	1.288	Styrene



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External Standard Report

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Data File Name : D:\SOLVAY\HP\12-14\E1-2R3_4.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : 1/10 evap1 rng4
Run Time Bar Code:
Acquired on : 14 Dec 95 04:50 PM
Report Created on: 21 Dec 95 12:13 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\HP\12-14\E1-2R3_4.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.381	3491213	BH S	0.233	1	671.039	Methane
1.873	* not found *			1		Butadiene
4.132	57539	VV T	0.184	1	1.818	Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.220	99021	BV	0.193	1	2.899	Benzene
8.993	1834	PV	0.138	1	0.139	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.405	48401	BB	0.202	1	1.137	Toluene
15.948	8640	VB	0.194	1	0.128	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.093	24625	BV	0.194	1	0.417	m-Xylene
18.024	* not found *			1		o-Xylene
19.910	52006	BB	0.542	1	1.069	Styrene

TEST LOCATION: Stack

UNIT: EP 1+2 **RUN:** 1

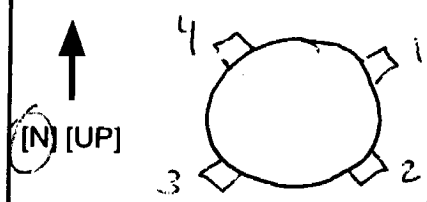
FORMALDEHYDE TESTING FIELD DATA SHEET

METHOD: 0011 **PAGE** 1 **OF** 2

Client: Schwy Minerals	Project No. 7629
Plant: Green River WY	Date: 12-14-95
Meter Operator: E. Mellick	
Probe Operator: R Lukaart	

Meter Box No. D5	Sample Box No. 65-9
Meter Yd .9984	Meter ΔH@ 1.8373
K Factor 2.3	Pitot Cp .84
Leak Rate Before .003 [cfm] [Lpm] @ 15 (in.Hg)	
Leak Rate After .003 [cfm] [Lpm] @ 8 (in.Hg)	
Pitot Leak Check Before: ☒	After: Good ☒ Bad ☐

Cross-Section of Test Location



A=113.184

Duct Dimensions (in.) 144.0			
Static Press. (in. H_2O) -0.3	Port Len. (in.) 6.0	Gas Flow [In] [Out] of page	First point all the way [In] [Out]

Amb. Temp. (°F) 30	Bar. Press. 23.90 [in. Hg] [mbar]
Probe I.D. No. Pitot # 12-8-14-2	
Liner Material GLASS 1 ft	

Filter No. N/A		
Thimble No. N/A		
Nozzle Diameter .270	Nozzle I.D. .270	

H_2O 359.7 [ml] [gm]	Silica Gel (gm) 20.6
Total V_{lc} 380.3	

Start Time: 09:41	Stop Time: 11:28

Traverse Point Number	Min/pt 4 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft^3] [L] 897.50	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet T_{min} (°F)	DGM Outlet T_{mout} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
2-1	4	.60	1.4	900.24	385	248	250	36	48	43	4	N/A	
2	8	.65	1.5	903.05	384	249	250	32	50	44	4		
3	12	.63	1.4	905.78	385	250	250	33	51	44	4		
4	16	.60	1.4	908.53	385	250	250	35	54	44	4		
5	20	.52	1.2	911.10	384	249	250	37	56	45	4		
6	24	.35	.81	913.24	376	250	250	39	60	48	4		
3-1	28	.62	1.4	916.09	384	250	250	41	60	50	5		
2	32	.65	1.5	918.87	383	250	250	43	61	50	5		
3	36	.65	1.5	921.67	384	250	250	45	62	51	5		
4	40	.60	1.4	924.43	384	250	250	47	62	52	5		
5	44	.57	1.3	927.08	384	249	250	49	64	55	5		
6	48	.38	.87	929.32	378	250	251	50	66	56	5		
	Total	*9.007	15.68	65.80	4596				1276				
	Average	.7726	1.38		380				60				

SOLVAY2016_6_00128

DS-001 General
CNVS/TRG.R3-4/6/94

* Sum of square roots.

Circle correct bracketed units on data sheet.

Clean Air Engineering

TEST LOCATION: Stack

UNIT: EP1+2 **RUN:** 1

Formaldehyde TESTING FIELD DATA SHEET

METHOD: 0011 **PAGE** 2 **OF** 2

Client: Solvay Minerals	Project No. 7629
Plant: Green River, WY.	Date: 12-14-95
Meter Operator: E. McGathick	
Probe Operator: R. Lukkart	

Meter Box No. D5	Sample Box No.
Meter Yd .9984	Meter ΔH@ 1.8373
K Factor 23	Pitot Cp .84
Leak Rate Before	[cfm] [Lpm] @ (in.Hg)
Leak Rate After	[cfm] [Lpm] @ (in.Hg)
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐

Cross-Section of Test Location

[N] [UP]

Duct Dimensions (in.)

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

Amb. Temp. (°F)	Bar. Press. [in. Hg] [mbar]
Probe I.D. No.	
Liner Material	

Filter No.		
Thimble No.		
Nozzle Diameter	Nozzle I.D.	

H_2O [ml] [gm]	Silica Gel (gm)
Total V_{lc}	

Start Time:	Stop Time:

Traverse Point Number	Min/pt 4 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft^3] [L] 929.32	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet T_{min} (°F)	DGM Outlet T_{mout} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
3-1	52	.75	1.7	932.33	383	250	250	51	67	60	5	N/A	
2	56	.74	1.7	935.37	382	250	250	46	68	60	5		
3	60	.74	1.7	938.40	383	250	250	43	69	61	5		
4	64	.71	1.6	941.38	382	249	250	40	70	61	5		
5	68	.65	1.5	944.25	382	250	251	38	71	62	5		
6	72	.43	.99	946.65	378	250	250	37	72	63	5		
1	76	.65	1.5	949.53	379	250	250	40	71	65	5		
2	80	.65	1.5	952.41	374	250	250	36	72	66	5		
3	84	.67	1.5	955.40	373	250	249	36	73	66	5		
4	88	.65	1.5	958.17	372	250	250	36	73	67	5		
5	92	.60	1.4	960.98	368	250	250	37	73	67	5		
6	96	.40	.92	963.30	367	250	250	38	73	68	5		
	Total	*4.535	17.51		4523				16	18			
	Average												

SOLVAY2016_6_001282

DS 001 General
CNVS/TRG.R3-4/6/94

* Sum of square roots.

Circle correct bracketed units on data sheet.

Clean Air Engineering

TEST LOCATION: Stack

UNIT: EP1+2 RUN: 2

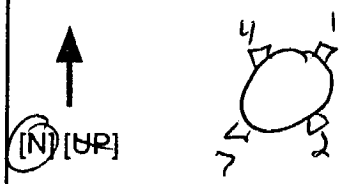
Formaldehyde TESTING FIELD DATA SHEET

METHOD: 0011 PAGE 1 OF 2

Client Solvay Minerals	Project No. 7629
Plant Green River WY.	Date 12-14-95
Meter Operator E. Mitchell	
Probe Operator R. Leikeart	

Meter Box No. D-5	Sample Box No. 71-11
Meter Yd 1.8373	Meter ΔH@ .9984
K Factor 2.3	Pitot Cp .84
Leak Rate Before .003 [cfm] [Lpm] @ 15 (in.Hg)	
Leak Rate After .004 [cfm] [Lpm] @ 8 (in.Hg)	
Pitot Leak Check Before: ☒	After: Good ☒ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.)			
Static Press. (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-.3	6.0		

Amb. Temp. (°F) 40	Bar. Press. 23.90 [in. Hg] [mbar]
Probe I.D. No. ~~12-2-94-2~~ 12-1-94-2	
Liner Material Glass	

Filter No. NA		
Thimble No. NA		
Nozzle Diameter .270	Nozzle I.D.	

H_2O 362.0 [ml] [gm]	Silica Gel (gm) 22.4
Total V_{lc} 384.4	

Start Time: 12:10	Stop Time: 13:55

Traverse Point Number	Min/pt 4 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft^3] [L] 964.05	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet T_{min} (°F)	DGM Outlet T_{mout} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
1-1	4	.65	1.5	967.98	373	245	240	50	66	66	5	NA	
2	8	.70	1.6	969.91	369	245	244	42	65	65	5		
3	12	.68	1.6	973.01	369	247	248	38	65	64	5		
4	16	.68	1.6	975.88	368	250	251	37	68	64	5		
5	20	.63	1.4	978.68	367	251	249	39	69	65	5		
6	24	.40	.92	981.03	360	250	250	41	71	65	5		
1-1	28	.65	1.5	983.89	372	250	250	42	72	65	5		
2	32	.66	1.5	986.78	370	250	251	45	73	66	5		
3	36	.68	1.6	989.75	370	250	250	46	73	66	5		
4	40	.65	1.5	992.67	370	249	250	49	73	66	5		
5	44	.60	1.4	995.49	367	250	250	49	72	65	5		
6	48	.58	1.3	998.21	368	250	249	48	72	65	5		
	Total	*9.504	17.42	68.42	4427				1621				
	Average	.7896	1.45		374				70				

SOLVAY2016_6_00128

D-8001 General
CNVS/TRG.R3-4/6/94

* Sum of square roots.

Circle correct bracketed units on data sheet.

Clean Air Engineering

TEST LOCATION: Stack

UNIT: EP 1,2 RUN: 2

Formaldehyde TESTING FIELD DATA SHEET

METHOD: 0011 PAGE 2 OF 2

Client	Solvay Minerals	Project No.	7629
Plant	Green River U.Y.	Date	12-14-95
Meter Operator	E. Mbatick		
Probe Operator	R. Luikaart		

Meter Box No.	D-5	Sample Box No.	
Meter Yd	.9984	Meter ΔH@	1.8373
K Factor	2.3	Pitot Cp	.84
Leak Rate Before	[cfm] [Lpm] @ (in.Hg)		
Leak Rate After	[cfm] [Lpm] @ (in.Hg)		
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐		

Cross-Section of Test Location

[N] [UP]

Duct Dimensions (in.)

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

Amb. Temp. (°F)	Bar. Press. [in. Hg] [mbar]
Probe I.D. No.	
Liner Material	

Filter No.		
Thimble No.		
Nozzle Diameter	Nozzle I.D.	

H_2O [ml] [gm]	Silica Gel (gm)
Total V_{lc}	

Start Time:	Stop Time:

Traverse Point Number	Min/pt 4 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft^3] [L] 998.21	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet T_{min} (°F)	DGM Outlet T_{mout} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
2-1	52	.68	1.6	1001.18	380	250	250	46	72	67	5	NA	
2	56	.70	1.6	1004.18	379	250	249	44	72	67	5		
3	60	.68	1.6	1007.16	381	250	250	44	72	67	5		
4	64	.61	1.4	1010.02	381	250	250	45	73	67	5		
5	68	.53	1.2	1012.66	381	250	250	47	74	68	5		
6	72	.30	.69	1014.70	370	250	250	48	74	68	5		
-1	76	.70	1.6	1017.69	379	250	250	50	75	71	5		
2	80	.73	1.7	1020.78	379	250	250	43	75	70	6		
3	84	.75	1.7	1023.87	380	249	250	42	76	70	6		
4	88	.70	1.6	1026.84	381	250	250	42	76	70	6		
5	92	.68	1.6	1029.87	381	250	250	43	77	71	6		
6	96	.47	1.1	1032.47	379	250	250	45	77	71	6		
	Total	*4.447	17.39		1551				1720				
	Average												

SOLVAY2016 6 0012

001 General
CNVS/TRG.R3-4/6/94

* Sum of square roots.

Circle correct bracketed units on data sheet.

Clean Air Engineering

TEST LOCATION: Stack

UNIT: EP1+2 **RUN:** 3

Formaldehyde **TESTING**

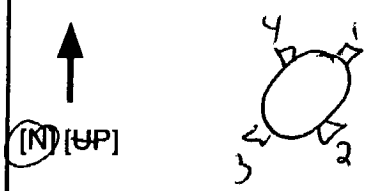
FIELD DATA SHEET

METHOD: 0011 **PAGE** 1 **OF** 2

Client: Solvay Minerals	Project No.: 7629
Plant: Green River WY.	Date: 12-14-95
Meter Operator: E. Mitchell	
Probe Operator: R. Luikaart	

Meter Box No.: D-5	Sample Box No.: 65-9
Meter Yd: .9984	Meter ΔH@: 1.8373
K Factor: 2.3	Pitot Cp: .84
Leak Rate Before: .007 [cfm] [Lpm] @ 15 (in.Hg)	
Leak Rate After: .003 [cfm] [Lpm] @ 8 (in.Hg)	
Pitot Leak Check Before: ☒	After: Good ☒ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.): 144.0			
Static Press. (in. H_2O): -.30	Port Len. (in.): 6.	Gas Flow [In] [Out] of page	First point all the way [In] [Out]

Amb. Temp. (°F): 44	Bar. Press.: 23.90 [in. Hg] [mbar]
Probe I.D. No.: ~~12-2-94-2~~ 12-1-94-2	
Liner Material: glass	

Filter No.: NA		
Thimble No.: NA		
Nozzle Diameter: .270	Nozzle I.D.: .270	

H_2O: 354.5 [ml] [gm]	Silica Gel (gm): 19.9
Total V_{lc}: 374.4	

Start Time: 14:22	Stop Time: 16:06

Traverse Point Number	Min/pt 4 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft^3] [L] 32.80	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet T_{min} (°F)	DGM Outlet T_{mout} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
3-1	4	.66	1.5	35.79	380	247	240	50	74	73	5	NA	
2	8	.70	1.6	38.80	381	250	245	41	71	71	5		
3	12	.70	1.6	41.82	383	250	248	40	72	71	5		
4	16	.70	1.6	44.83	383	249	250	41	73	71	5		
5	20	.62	1.4	47.67	383	250	250	40	74	72	5		
6	24	.41	.94	50.07	380	250	250	42	76	72	5		
1	28	.65	1.5	53.00	382	250	250	46	77	74	5		
2	32	.70	1.6	56.03	382	250	250	44	77	73	5		
3	36	.73	1.7	59.15	382	250	250	45	77	72	5		
4	40	.69	1.6	62.18	383	250	250	45	77	73	5		
5	44	.65	1.5	65.14	382	250	250	45	76	73	5		
6	48	.44	1.0	67.63	380	250	250	44	75	72	5		
	Total	*9.548	~~19.93~~ 19.54	68.14	4581				1766				
	Average	.7846	~~1.27~~ 1.42		380				72				

* Sum of square roots.

Circle correct bracketed units on data sheet.

SOLVAY2016_6_001281

DC-001 General
CNVS/TRG.R3-4/6/94

Clean Air Engineering

TEST LOCATION: Stack

UNIT: EP 1+2 **RUN:** 3

Formaldehyde TESTING FIELD DATA SHEET

METHOD: 0011 **PAGE** 2 **OF** 2

Client	Solvay Minerals	Project No.	7629
Plant	Green River WY	Date	12-14-96
Meter Operator	E. McGuffick		
Probe Operator	R. Luikaart		

Meter Box No.	D-5	Sample Box No.	65-9
Meter Yd	.9984	Meter ΔH@	1.8373
K Factor	2.3	Pitot Cp	.81
Leak Rate Before	[cfm] [Lpm] @ (in.Hg)		
Leak Rate After	[cfm] [Lpm] @ (in.Hg)		
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐		

Cross-Section of Test Location

[N] [UP]

Duct Dimensions (in.)

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

Amb. Temp. (°F)	Bar. Press. [in. Hg] [mbar]
Probe I.D. No.	
Liner Material	

Filter No.		
Thimble No.		
Nozzle Diameter	Nozzle I.D.	

H_2O [ml] [gm]	Silica Gel (gm)
Total V_{lc}	

Start Time:	Stop Time:

Traverse Point Number	Min/pt 4 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft^3] [L] 67.63	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet T_{min} (°F)	DGM Outlet T_{mout} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
1-1	52	.66	1.5	70.55	378	250	250	43	73	72	5	NA	
2	56	.69	1.6	73.57	374	250	250	41	71	71	5		
3	60	.65	1.5	76.51	373	250	250	40	70	69	5		
4	64	.65	1.5	79.47	373	250	250	39	71	69	5		
5	68	.60	1.4	82.25	372	250	250	40	71	69	5		
6	72	.41	.94	84.59	365	249	250	39	71	68	5		
1	76	.66	1.5	87.49	382	250	250	40	70	69	5		
2	80	.66	1.5	90.38	383	250	250	39	69	67	5		
3	84	.66	1.5	93.25	384	250	250	38	69	67	5		
4	88	.62	1.4	96.05	385	250	250	38	70	67	5		
5	92	.62	1.4	98.85	385	250	250	39	71	67	5		
6	96	.36	.83	100.94	379	250	250	40	70	67	5		
	Total	* 9.2824	16.57		4533				1668				
	Average												

SOLVAY2016_6_001285

D8.001 General
CNVS/TRG.R3-4/6/94

* Sum of square roots.

Circle correct bracketed units on data sheet.

Clean Air Engineering

Orsat Readings

Client: Solvay Minerals, Inc	Project Number: 7629
Plant: Green River, WY	Unit: EP-1,2
Date: 12/14/95	Fuel Type: Natural Gas Calciner
Orsat ID: 65-2	Leak Check? ✓

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

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	EP-1,2 Stack	EP-12 Stac	1	8.3	22.0	13.7			1300	SF
		M-0011	2	8.4	21.8	13.4				
			3	8.4	21.8	13.4				
			Avg.	8.4		13.5	0.88			
2	Stack	EP-1,2	1	8.4	22.0	13.6			1500	SF
	M-0011		2	8.3	22.0	13.7				
			3	8.3	21.9	13.6				
			Avg.	8.3		13.6				
3	Stack	EP-1,2	1	8.1	21.7	13.6			1720	SF
	M-0011		2	8.2	21.8	13.6				
			3	8.1	21.7	13.6				
			Avg.	8.1		13.6				
			1							
			2							
			3							
			Avg.							
1	Stack	EP-1,2	1	8.1	21.6	13.5			1300	SF
	MM-5		2	8.1	21.6	13.5				
			3	8.1	21.6	13.5				
			Avg.	8.1		13.5	0.91			
2	Stack	EP-1,2	1	7.9	21.6	13.7			1500	SF
	MM-5		2	8.0	21.8	13.8				
			3	8.0	21.7	13.7				
			Avg.	8.0		13.7				
3	Stac	EP-1,2	1	8.0	21.8	13.8			1720	SF
	MM5		2	7.9	21.6	13.7				
			3	8.0	21.6	13.6				
			Avg.	8.0		13.7				
			1							
			2							
			3							
			Avg.							

CAE P3 ver 1.0
D:\vpforms\orsat

SOLVAY MINERALS, INC.
CAE Project No: 7629
EP-5 Calciner Stack
December 15, 1995

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 (%)
07:55:47	0.0	0.0	6.9	0.0	0.0	0.0	0.0	0.0	0.0
07:56:02	0.0	0.0	5.7	0.0	0.0	0.0	0.0	0.0	0.0
07:56:17	0.0	0.0	4.9	0.0	0.0	0.0	0.0	0.0	0.0
07:56:32	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0
07:56:47	0.0	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0
07:57:02	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0
07:57:17	0.0	0.0	100.7	0.0	0.0	0.0	0.0	0.0	0.0
07:57:32	0.0	0.0	915.0	0.0	0.0	0.0	0.0	0.0	0.0
07:57:47	0.0	0.0	940.0	0.0	0.0	0.0	0.0	0.0	0.0
07:58:02	0.0	0.0	944.9	0.0	0.0	0.0	0.0	0.0	0.0
07:58:17	0.0	0.0	938.3	0.0	0.0	0.0	0.0	0.0	0.0
07:58:32	0.0	0.0	884.0	0.0	0.0	0.0	0.0	0.0	0.0
07:58:47	0.0	0.0	886.0	0.0	0.0	0.0	0.0	0.0	0.0
07:59:02	0.0	0.0	835.7	0.0	0.0	0.0	0.0	0.0	0.0
07:59:17	0.0	0.0	836.6	0.0	0.0	0.0	0.0	0.0	0.0
07:59:32	0.0	0.0	837.8	0.0	0.0	0.0	0.0	0.0	0.0
07:59:47	0.0	0.0	838.2	0.0	0.0	0.0	0.0	0.0	0.0
08:00:02	0.0	0.0	841.2	0.0	0.0	0.0	0.0	0.0	0.0
08:00:17	0.0	0.0	842.9	0.0	0.0	0.0	0.0	0.0	0.0
08:00:32	0.0	0.0	848.1	0.0	0.0	0.0	0.0	0.0	0.0
08:00:47	0.0	0.0	846.3	0.0	0.0	0.0	0.0	0.0	0.0
08:01:02	0.0	0.0	846.8	0.0	0.0	0.0	0.0	0.0	0.0
08:01:17	0.0	0.0	845.6	0.0	0.0	0.0	0.0	0.0	0.0
08:01:32	0.0	0.0	854.4	0.0	0.0	0.0	0.0	0.0	0.0
08:01:47	0.0	0.0	842.7	0.0	0.0	0.0	0.0	0.0	0.0
08:02:02	0.0	0.0	843.0	0.0	0.0	0.0	0.0	0.0	0.0
08:02:17	0.0	0.0	843.5	0.0	0.0	0.0	0.0	0.0	0.0
08:02:32	0.0	0.0	830.8	0.0	0.0	0.0	0.0	0.0	0.0
08:02:47	0.0	0.0	824.9	0.0	0.0	0.0	0.0	0.0	0.0
08:03:02	0.0	0.0	785.2	0.0	0.0	0.0	0.0	0.0	0.0
08:03:17	0.0	0.0	560.6	0.0	0.0	0.0	0.0	0.0	0.0
08:03:32	0.0	0.0	556.7	0.0	0.0	0.0	0.0	0.0	0.0
08:03:47	0.0	0.0	556.0	0.0	0.0	0.0	0.0	0.0	0.0
08:04:02	0.0	0.0	555.5	0.0	0.0	0.0	0.0	0.0	0.0
08:04:17	0.0	0.0	555.7	0.0	0.0	0.0	0.0	0.0	0.0
08:04:32	0.0	0.0	555.5	0.0	0.0	0.0	0.0	0.0	0.0
08:04:47	0.0	0.0	555.8	0.0	0.0	0.0	0.0	0.0	0.0
08:05:02	0.0	0.0	557.8	0.0	0.0	0.0	0.0	0.0	0.0
08:05:17	0.0	0.0	565.1	0.0	0.0	0.0	0.0	0.0	0.0
08:05:32	0.0	0.0	566.1	0.0	0.0	0.0	0.0	0.0	0.0
08:05:47	0.0	0.0	411.4	0.0	0.0	0.0	0.0	0.0	0.0
08:06:02	0.0	0.0	258.7	0.0	0.0	0.0	0.0	0.0	0.0
08:06:17	0.0	0.0	256.8	0.0	0.0	0.0	0.0	0.0	0.0
08:06:32	0.0	0.0	256.0	0.0	0.0	0.0	0.0	0.0	0.0
08:06:47	0.0	0.0	255.6	0.0	0.0	0.0	0.0	0.0	0.0
08:07:02	0.0	0.0	255.4	0.0	0.0	0.0	0.0	0.0	0.0
08:07:17	0.0	0.0	255.2	0.0	0.0	0.0	0.0	0.0	0.0
08:07:32	0.0	0.0	253.4	0.0	0.0	0.0	0.0	0.0	0.0
08:07:47	0.0	0.0	250.1	0.0	0.0	0.0	0.0	0.0	0.0
08:08:02	0.0	0.0	249.8	0.0	0.0	0.0	0.0	0.0	0.0
08:08:17	0.0	0.0	70.1	0.0	0.0	0.0	0.0	0.0	0.0
08:08:32	0.0	0.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0
08:08:47	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0
08:09:02	0.0	0.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0
08:09:17	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0
08:09:32	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0
08:09:47	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0
08:10:02	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0
08:10:17	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0
08:10:32	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0

Zero Gas	3.4
Cal Gas	559.6

SOLVAY MINERALS, INC.
CAE Project No: 7629-2
EP-5 Calciner Stack
December 15, 1995

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 (%)
08:38	0.0	0.0	294.6	0.0	0.0	0.0	0.0	0.0	0.0
08:39	0.0	0.0	274.8	0.0	0.0	0.0	0.0	0.0	0.0
08:40	0.0	0.0	295.4	0.0	0.0	0.0	0.0	0.0	0.0
08:41	0.0	0.0	297.8	0.0	0.0	0.0	0.0	0.0	0.0
08:42	0.0	0.0	289.3	0.0	0.0	0.0	0.0	0.0	0.0
08:43	0.0	0.0	298.0	0.0	0.0	0.0	0.0	0.0	0.0
08:44	0.0	0.0	302.4	0.0	0.0	0.0	0.0	0.0	0.0
08:45	0.0	0.0	289.1	0.0	0.0	0.0	0.0	0.0	0.0
08:46	0.0	0.0	298.0	0.0	0.0	0.0	0.0	0.0	0.0
08:47	0.0	0.0	288.6	0.0	0.0	0.0	0.0	0.0	0.0
08:48	0.0	0.0	285.4	0.0	0.0	0.0	0.0	0.0	0.0
08:49	0.0	0.0	264.4	0.0	0.0	0.0	0.0	0.0	0.0
08:50	0.0	0.0	277.6	0.0	0.0	0.0	0.0	0.0	0.0
08:51	0.0	0.0	282.7	0.0	0.0	0.0	0.0	0.0	0.0
08:52	0.0	0.0	280.8	0.0	0.0	0.0	0.0	0.0	0.0
08:53	0.0	0.0	272.2	0.0	0.0	0.0	0.0	0.0	0.0
08:54	0.0	0.0	273.8	0.0	0.0	0.0	0.0	0.0	0.0
08:55	0.0	0.0	276.0	0.0	0.0	0.0	0.0	0.0	0.0
08:56	0.0	0.0	269.5	0.0	0.0	0.0	0.0	0.0	0.0
08:57	0.0	0.0	276.0	0.0	0.0	0.0	0.0	0.0	0.0
08:58	0.0	0.0	246.9	0.0	0.0	0.0	0.0	0.0	0.0
08:59	0.0	0.0	245.1	0.0	0.0	0.0	0.0	0.0	0.0
09:00	0.0	0.0	236.7	0.0	0.0	0.0	0.0	0.0	0.0
09:01	0.0	0.0	242.9	0.0	0.0	0.0	0.0	0.0	0.0
09:02	0.0	0.0	224.4	0.0	0.0	0.0	0.0	0.0	0.0
09:03	0.0	0.0	241.3	0.0	0.0	0.0	0.0	0.0	0.0
09:04	0.0	0.0	249.0	0.0	0.0	0.0	0.0	0.0	0.0
09:05	0.0	0.0	245.0	0.0	0.0	0.0	0.0	0.0	0.0
09:06	0.0	0.0	243.6	0.0	0.0	0.0	0.0	0.0	0.0
09:07	0.0	0.0	239.8	0.0	0.0	0.0	0.0	0.0	0.0
09:08	0.0	0.0	238.7	0.0	0.0	0.0	0.0	0.0	0.0
09:09	0.0	0.0	221.9	0.0	0.0	0.0	0.0	0.0	0.0
09:10	0.0	0.0	224.2	0.0	0.0	0.0	0.0	0.0	0.0
09:11	0.0	0.0	219.2	0.0	0.0	0.0	0.0	0.0	0.0
09:12	0.0	0.0	208.9	0.0	0.0	0.0	0.0	0.0	0.0
09:13	0.0	0.0	202.7	0.0	0.0	0.0	0.0	0.0	0.0
09:14	0.0	0.0	199.9	0.0	0.0	0.0	0.0	0.0	0.0
09:15	0.0	0.0	190.0	0.0	0.0	0.0	0.0	0.0	0.0
09:16	0.0	0.0	189.2	0.0	0.0	0.0	0.0	0.0	0.0
09:17	0.0	0.0	186.3	0.0	0.0	0.0	0.0	0.0	0.0
09:18	0.0	0.0	169.1	0.0	0.0	0.0	0.0	0.0	0.0
09:19	0.0	0.0	158.0	0.0	0.0	0.0	0.0	0.0	0.0
09:20	0.0	0.0	156.9	0.0	0.0	0.0	0.0	0.0	0.0
09:21	0.0	0.0	150.8	0.0	0.0	0.0	0.0	0.0	0.0
09:22	0.0	0.0	147.1	0.0	0.0	0.0	0.0	0.0	0.0
09:23	0.0	0.0	141.6	0.0	0.0	0.0	0.0	0.0	0.0
09:24	0.0	0.0	144.7	0.0	0.0	0.0	0.0	0.0	0.0
09:25	0.0	0.0	146.3	0.0	0.0	0.0	0.0	0.0	0.0
09:26	0.0	0.0	147.8	0.0	0.0	0.0	0.0	0.0	0.0
09:27	0.0	0.0	141.3	0.0	0.0	0.0	0.0	0.0	0.0
09:28	0.0	0.0	137.9	0.0	0.0	0.0	0.0	0.0	0.0
09:29	0.0	0.0	132.1	0.0	0.0	0.0	0.0	0.0	0.0
09:30	0.0	0.0	131.2	0.0	0.0	0.0	0.0	0.0	0.0
09:31	0.0	0.0	132.1	0.0	0.0	0.0	0.0	0.0	0.0
09:32	0.0	0.0	135.2	0.0	0.0	0.0	0.0	0.0	0.0
09:33	0.0	0.0	131.4	0.0	0.0	0.0	0.0	0.0	0.0
09:34	0.0	0.0	127.8	0.0	0.0	0.0	0.0	0.0	0.0
09:35	0.0	0.0	131.6	0.0	0.0	0.0	0.0	0.0	0.0
09:36	0.0	0.0	133.2	0.0	0.0	0.0	0.0	0.0	0.0
09:37	0.0	0.0	133.0	0.0	0.0	0.0	0.0	0.0	0.0
Average			216.9						

SOLVAY MINERALS, INC.
CAE Project No: 7629
EP-5 Calciner Stack
December 15, 1995

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 (%)
10:01:57	0.0	0.0	513.1	0.0	0.0	0.0	0.0	0.0	0.0
10:02:12	0.0	0.0	514.6	0.0	0.0	0.0	0.0	0.0	0.0
10:02:27	0.0	0.0	515.5	0.0	0.0	0.0	0.0	0.0	0.0
10:02:42	0.0	0.0	516.8	0.0	0.0	0.0	0.0	0.0	0.0
10:02:57	0.0	0.0	518.4	0.0	0.0	0.0	0.0	0.0	0.0
10:03:12	0.0	0.0	520.1	0.0	0.0	0.0	0.0	0.0	0.0
10:03:27	0.0	0.0	521.1	0.0	0.0	0.0	0.0	0.0	0.0
10:03:42	0.0	0.0	523.2	0.0	0.0	0.0	0.0	0.0	0.0
10:03:57	0.0	0.0	525.8	0.0	0.0	0.0	0.0	0.0	0.0
10:04:12	0.0	0.0	528.6	0.0	0.0	0.0	0.0	0.0	0.0
10:04:27	0.0	0.0	534.8	0.0	0.0	0.0	0.0	0.0	0.0
10:04:42	0.0	0.0	542.2	0.0	0.0	0.0	0.0	0.0	0.0
10:04:57	0.0	0.0	543.4	0.0	0.0	0.0	0.0	0.0	0.0
10:05:12	0.0	0.0	544.2	0.0	0.0	0.0	0.0	0.0	0.0
10:05:27	0.0	0.0	543.9	0.0	0.0	0.0	0.0	0.0	0.0
10:05:42	0.0	0.0	544.2	0.0	0.0	0.0	0.0	0.0	0.0
10:05:57	0.0	0.0	544.2	0.0	0.0	0.0	0.0	0.0	0.0
10:06:12	0.0	0.0	544.5	0.0	0.0	0.0	0.0	0.0	0.0
10:06:27	0.0	0.0	535.2	0.0	0.0	0.0	0.0	0.0	0.0
10:06:42	0.0	0.0	532.4	0.0	0.0	0.0	0.0	0.0	0.0
10:06:57	0.0	0.0	404.4	0.0	0.0	0.0	0.0	0.0	0.0
10:07:12	0.0	0.0	24.2	0.0	0.0	0.0	0.0	0.0	0.0
10:07:27	0.0	0.0	19.6	0.0	0.0	0.0	0.0	0.0	0.0
10:07:42	0.0	0.0	18.2	0.0	0.0	0.0	0.0	0.0	0.0
10:07:57	0.0	0.0	17.4	0.0	0.0	0.0	0.0	0.0	0.0
10:08:12	0.0	0.0	16.9	0.0	0.0	0.0	0.0	0.0	0.0
10:08:27	0.0	0.0	16.5	0.0	0.0	0.0	0.0	0.0	0.0
10:08:42	0.0	0.0	16.2	0.0	0.0	0.0	0.0	0.0	0.0
10:08:57	0.0	0.0	16.0	0.0	0.0	0.0	0.0	0.0	0.0
10:09:12	0.0	0.0	15.7	0.0	0.0	0.0	0.0	0.0	0.0
10:09:27	0.0	0.0	15.6	0.0	0.0	0.0	0.0	0.0	0.0
10:09:42	0.0	0.0	15.6	0.0	0.0	0.0	0.0	0.0	0.0
10:09:57	0.0	0.0	15.4	0.0	0.0	0.0	0.0	0.0	0.0
10:10:12	0.0	0.0	15.3	0.0	0.0	0.0	0.0	0.0	0.0
10:10:27	0.0	0.0	15.2	0.0	0.0	0.0	0.0	0.0	0.0
Zero Gas			15.3						
Cal Gas			544.3						

SOLVAY MINERALS, INC.
CAE Project No: 7629-2
EP-5 Calciner Stack
December 15, 1995

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 (%)
11:01	0.0	0.0	193.9	0.0	0.0	0.0	0.0	0.0	0.0
11:02	0.0	0.0	197.7	0.0	0.0	0.0	0.0	0.0	0.0
11:03	0.0	0.0	205.4	0.0	0.0	0.0	0.0	0.0	0.0
11:04	0.0	0.0	207.6	0.0	0.0	0.0	0.0	0.0	0.0
11:05	0.0	0.0	208.5	0.0	0.0	0.0	0.0	0.0	0.0
11:06	0.0	0.0	198.0	0.0	0.0	0.0	0.0	0.0	0.0
11:07	0.0	0.0	212.1	0.0	0.0	0.0	0.0	0.0	0.0
11:08	0.0	0.0	209.8	0.0	0.0	0.0	0.0	0.0	0.0
11:09	0.0	0.0	213.3	0.0	0.0	0.0	0.0	0.0	0.0
11:10	0.0	0.0	212.9	0.0	0.0	0.0	0.0	0.0	0.0
11:11	0.0	0.0	207.9	0.0	0.0	0.0	0.0	0.0	0.0
11:12	0.0	0.0	211.0	0.0	0.0	0.0	0.0	0.0	0.0
11:13	0.0	0.0	217.6	0.0	0.0	0.0	0.0	0.0	0.0
11:14	0.0	0.0	218.5	0.0	0.0	0.0	0.0	0.0	0.0
11:15	0.0	0.0	220.9	0.0	0.0	0.0	0.0	0.0	0.0
11:16	0.0	0.0	219.6	0.0	0.0	0.0	0.0	0.0	0.0
11:17	0.0	0.0	218.9	0.0	0.0	0.0	0.0	0.0	0.0
11:18	0.0	0.0	216.1	0.0	0.0	0.0	0.0	0.0	0.0
11:19	0.0	0.0	222.4	0.0	0.0	0.0	0.0	0.0	0.0
11:20	0.0	0.0	224.5	0.0	0.0	0.0	0.0	0.0	0.0
11:21	0.0	0.0	231.6	0.0	0.0	0.0	0.0	0.0	0.0
11:22	0.0	0.0	226.4	0.0	0.0	0.0	0.0	0.0	0.0
11:23	0.0	0.0	225.5	0.0	0.0	0.0	0.0	0.0	0.0
11:24	0.0	0.0	222.2	0.0	0.0	0.0	0.0	0.0	0.0
11:25	0.0	0.0	225.7	0.0	0.0	0.0	0.0	0.0	0.0
11:26	0.0	0.0	227.3	0.0	0.0	0.0	0.0	0.0	0.0
11:27	0.0	0.0	213.4	0.0	0.0	0.0	0.0	0.0	0.0
11:28	0.0	0.0	223.8	0.0	0.0	0.0	0.0	0.0	0.0
11:29	0.0	0.0	224.2	0.0	0.0	0.0	0.0	0.0	0.0
11:30	0.0	0.0	218.2	0.0	0.0	0.0	0.0	0.0	0.0
11:31	0.0	0.0	217.4	0.0	0.0	0.0	0.0	0.0	0.0
11:32	0.0	0.0	222.7	0.0	0.0	0.0	0.0	0.0	0.0
11:33	0.0	0.0	218.5	0.0	0.0	0.0	0.0	0.0	0.0
11:34	0.0	0.0	220.0	0.0	0.0	0.0	0.0	0.0	0.0
11:35	0.0	0.0	217.7	0.0	0.0	0.0	0.0	0.0	0.0
11:36	0.0	0.0	214.4	0.0	0.0	0.0	0.0	0.0	0.0
11:37	0.0	0.0	217.1	0.0	0.0	0.0	0.0	0.0	0.0
11:38	0.0	0.0	205.1	0.0	0.0	0.0	0.0	0.0	0.0
11:39	0.0	0.0	203.1	0.0	0.0	0.0	0.0	0.0	0.0
11:40	0.0	0.0	203.1	0.0	0.0	0.0	0.0	0.0	0.0
11:41	0.0	0.0	195.9	0.0	0.0	0.0	0.0	0.0	0.0
11:42	0.0	0.0	194.1	0.0	0.0	0.0	0.0	0.0	0.0
11:43	0.0	0.0	192.4	0.0	0.0	0.0	0.0	0.0	0.0
11:44	0.0	0.0	195.9	0.0	0.0	0.0	0.0	0.0	0.0
11:45	0.0	0.0	192.1	0.0	0.0	0.0	0.0	0.0	0.0
11:46	0.0	0.0	183.0	0.0	0.0	0.0	0.0	0.0	0.0
11:47	0.0	0.0	189.3	0.0	0.0	0.0	0.0	0.0	0.0
11:48	0.0	0.0	186.3	0.0	0.0	0.0	0.0	0.0	0.0
11:49	0.0	0.0	184.2	0.0	0.0	0.0	0.0	0.0	0.0
11:50	0.0	0.0	187.6	0.0	0.0	0.0	0.0	0.0	0.0
11:51	0.0	0.0	190.4	0.0	0.0	0.0	0.0	0.0	0.0
11:52	0.0	0.0	188.3	0.0	0.0	0.0	0.0	0.0	0.0
11:53	0.0	0.0	182.7	0.0	0.0	0.0	0.0	0.0	0.0
11:54	0.0	0.0	174.2	0.0	0.0	0.0	0.0	0.0	0.0
11:55	0.0	0.0	184.3	0.0	0.0	0.0	0.0	0.0	0.0
11:56	0.0	0.0	186.3	0.0	0.0	0.0	0.0	0.0	0.0
11:57	0.0	0.0	177.7	0.0	0.0	0.0	0.0	0.0	0.0
11:58	0.0	0.0	178.9	0.0	0.0	0.0	0.0	0.0	0.0
11:59	0.0	0.0	181.3	0.0	0.0	0.0	0.0	0.0	0.0
12:00	0.0	0.0	170.1	0.0	0.0	0.0	0.0	0.0	0.0
Average			205.5						

SOLVAY MINERALS, INC.
CAE Project No: 7629
EP-5 Calciner Stack
December 15, 1995

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 (%)
12:33:36	0.0	0.0	522.3	0.0	0.0	0.0	0.0	0.0	0.0
12:33:51	0.0	0.0	523.5	0.0	0.0	0.0	0.0	0.0	0.0
12:34:06	0.0	0.0	522.9	0.0	0.0	0.0	0.0	0.0	0.0
12:34:21	0.0	0.0	523.1	0.0	0.0	0.0	0.0	0.0	0.0
12:34:36	0.0	0.0	524.0	0.0	0.0	0.0	0.0	0.0	0.0
12:34:51	0.0	0.0	523.8	0.0	0.0	0.0	0.0	0.0	0.0
12:35:06	0.0	0.0	524.6	0.0	0.0	0.0	0.0	0.0	0.0
12:35:21	0.0	0.0	524.6	0.0	0.0	0.0	0.0	0.0	0.0
12:35:36	0.0	0.0	525.6	0.0	0.0	0.0	0.0	0.0	0.0
12:35:51	0.0	0.0	526.0	0.0	0.0	0.0	0.0	0.0	0.0
12:36:06	0.0	0.0	531.8	0.0	0.0	0.0	0.0	0.0	0.0
12:36:21	0.0	0.0	535.9	0.0	0.0	0.0	0.0	0.0	0.0
12:36:36	0.0	0.0	535.9	0.0	0.0	0.0	0.0	0.0	0.0
12:36:51	0.0	0.0	536.6	0.0	0.0	0.0	0.0	0.0	0.0
12:37:06	0.0	0.0	536.7	0.0	0.0	0.0	0.0	0.0	0.0
12:37:21	0.0	0.0	537.1	0.0	0.0	0.0	0.0	0.0	0.0
12:37:36	0.0	0.0	538.2	0.0	0.0	0.0	0.0	0.0	0.0
12:37:51	0.0	0.0	540.7	0.0	0.0	0.0	0.0	0.0	0.0
12:38:06	0.0	0.0	543.1	0.0	0.0	0.0	0.0	0.0	0.0
12:38:21	0.0	0.0	542.8	0.0	0.0	0.0	0.0	0.0	0.0
12:38:36	0.0	0.0	542.9	0.0	0.0	0.0	0.0	0.0	0.0
12:38:51	0.0	0.0	543.5	0.0	0.0	0.0	0.0	0.0	0.0
12:39:06	0.0	0.0	543.5	0.0	0.0	0.0	0.0	0.0	0.0
12:39:21	0.0	0.0	543.9	0.0	0.0	0.0	0.0	0.0	0.0
12:39:36	0.0	0.0	538.7	0.0	0.0	0.0	0.0	0.0	0.0
12:39:51	0.0	0.0	531.2	0.0	0.0	0.0	0.0	0.0	0.0
12:40:06	0.0	0.0	483.2	0.0	0.0	0.0	0.0	0.0	0.0
12:40:21	0.0	0.0	28.3	0.0	0.0	0.0	0.0	0.0	0.0
12:40:36	0.0	0.0	20.8	0.0	0.0	0.0	0.0	0.0	0.0
12:40:51	0.0	0.0	19.0	0.0	0.0	0.0	0.0	0.0	0.0
12:41:06	0.0	0.0	18.3	0.0	0.0	0.0	0.0	0.0	0.0
12:41:21	0.0	0.0	17.6	0.0	0.0	0.0	0.0	0.0	0.0
12:41:36	0.0	0.0	17.3	0.0	0.0	0.0	0.0	0.0	0.0
12:41:51	0.0	0.0	16.8	0.0	0.0	0.0	0.0	0.0	0.0
12:42:06	0.0	0.0	16.5	0.0	0.0	0.0	0.0	0.0	0.0
12:42:21	0.0	0.0	16.2	0.0	0.0	0.0	0.0	0.0	0.0
12:42:36	0.0	0.0	16.1	0.0	0.0	0.0	0.0	0.0	0.0
12:42:51	0.0	0.0	15.8	0.0	0.0	0.0	0.0	0.0	0.0
12:43:06	0.0	0.0	15.7	0.0	0.0	0.0	0.0	0.0	0.0
12:43:21	0.0	0.0	15.6	0.0	0.0	0.0	0.0	0.0	0.0
12:43:36	0.0	0.0	15.5	0.0	0.0	0.0	0.0	0.0	0.0
12:43:51	0.0	0.0	15.5	0.0	0.0	0.0	0.0	0.0	0.0
12:44:06	0.0	0.0	15.3	0.0	0.0	0.0	0.0	0.0	0.0
12:44:21	0.0	0.0	15.1	0.0	0.0	0.0	0.0	0.0	0.0
12:44:36	0.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
12:44:51	0.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0

Zero Gas	15.0
Cal Gas	543.6

Revision 0

SOLVAY MINERALS, INC.
CAE Project No: 7629-2
EP-5 Calciner Stack
December 15, 1995

REFERENCE METHOD RUN 3

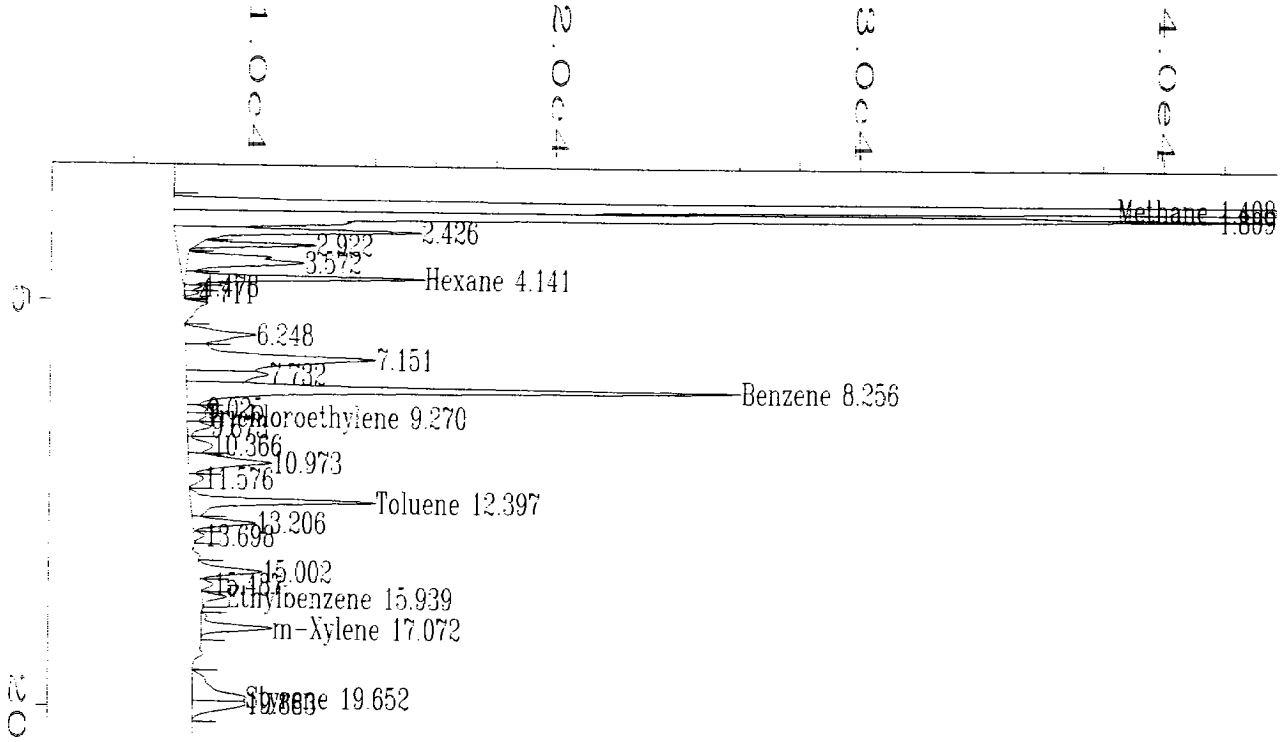
Time	NO_x (ppm)	SO_2 (ppm)	THC (ppm)	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 In (ppm)	O_2 In (%)	CO_2 In (%)
13:06	0.0	0.0	154.3	0.0	0.0	0.0	0.0	0.0	0.0
13:07	0.0	0.0	160.1	0.0	0.0	0.0	0.0	0.0	0.0
13:08	0.0	0.0	162.7	0.0	0.0	0.0	0.0	0.0	0.0
13:09	0.0	0.0	163.0	0.0	0.0	0.0	0.0	0.0	0.0
13:10	0.0	0.0	162.3	0.0	0.0	0.0	0.0	0.0	0.0
13:11	0.0	0.0	159.5	0.0	0.0	0.0	0.0	0.0	0.0
13:12	0.0	0.0	158.6	0.0	0.0	0.0	0.0	0.0	0.0
13:13	0.0	0.0	162.6	0.0	0.0	0.0	0.0	0.0	0.0
13:14	0.0	0.0	160.8	0.0	0.0	0.0	0.0	0.0	0.0
13:15	0.0	0.0	165.6	0.0	0.0	0.0	0.0	0.0	0.0
13:16	0.0	0.0	161.8	0.0	0.0	0.0	0.0	0.0	0.0
13:17	0.0	0.0	162.8	0.0	0.0	0.0	0.0	0.0	0.0
13:18	0.0	0.0	148.3	0.0	0.0	0.0	0.0	0.0	0.0
13:19	0.0	0.0	159.3	0.0	0.0	0.0	0.0	0.0	0.0
13:20	0.0	0.0	165.1	0.0	0.0	0.0	0.0	0.0	0.0
13:21	0.0	0.0	163.1	0.0	0.0	0.0	0.0	0.0	0.0
13:22	0.0	0.0	152.5	0.0	0.0	0.0	0.0	0.0	0.0
13:23	0.0	0.0	150.6	0.0	0.0	0.0	0.0	0.0	0.0
13:24	0.0	0.0	138.3	0.0	0.0	0.0	0.0	0.0	0.0
13:25	0.0	0.0	148.4	0.0	0.0	0.0	0.0	0.0	0.0
13:26	0.0	0.0	154.0	0.0	0.0	0.0	0.0	0.0	0.0
13:27	0.0	0.0	153.9	0.0	0.0	0.0	0.0	0.0	0.0
13:28	0.0	0.0	151.9	0.0	0.0	0.0	0.0	0.0	0.0
13:29	0.0	0.0	153.8	0.0	0.0	0.0	0.0	0.0	0.0
13:30	0.0	0.0	150.3	0.0	0.0	0.0	0.0	0.0	0.0
13:31	0.0	0.0	147.6	0.0	0.0	0.0	0.0	0.0	0.0
13:32	0.0	0.0	151.8	0.0	0.0	0.0	0.0	0.0	0.0
13:33	0.0	0.0	154.7	0.0	0.0	0.0	0.0	0.0	0.0
13:34	0.0	0.0	148.9	0.0	0.0	0.0	0.0	0.0	0.0
13:35	0.0	0.0	152.6	0.0	0.0	0.0	0.0	0.0	0.0
13:36	0.0	0.0	153.4	0.0	0.0	0.0	0.0	0.0	0.0
13:37	0.0	0.0	145.7	0.0	0.0	0.0	0.0	0.0	0.0
13:38	0.0	0.0	150.6	0.0	0.0	0.0	0.0	0.0	0.0
13:39	0.0	0.0	158.5	0.0	0.0	0.0	0.0	0.0	0.0
13:40	0.0	0.0	165.9	0.0	0.0	0.0	0.0	0.0	0.0
13:41	0.0	0.0	159.8	0.0	0.0	0.0	0.0	0.0	0.0
13:42	0.0	0.0	158.8	0.0	0.0	0.0	0.0	0.0	0.0
13:43	0.0	0.0	163.6	0.0	0.0	0.0	0.0	0.0	0.0
13:44	0.0	0.0	159.7	0.0	0.0	0.0	0.0	0.0	0.0
13:45	0.0	0.0	162.5	0.0	0.0	0.0	0.0	0.0	0.0
13:46	0.0	0.0	169.3	0.0	0.0	0.0	0.0	0.0	0.0
13:47	0.0	0.0	164.7	0.0	0.0	0.0	0.0	0.0	0.0
13:48	0.0	0.0	163.6	0.0	0.0	0.0	0.0	0.0	0.0
13:49	0.0	0.0	162.3	0.0	0.0	0.0	0.0	0.0	0.0
13:50	0.0	0.0	164.2	0.0	0.0	0.0	0.0	0.0	0.0
13:51	0.0	0.0	171.1	0.0	0.0	0.0	0.0	0.0	0.0
13:52	0.0	0.0	171.8	0.0	0.0	0.0	0.0	0.0	0.0
13:53	0.0	0.0	171.7	0.0	0.0	0.0	0.0	0.0	0.0
13:54	0.0	0.0	169.6	0.0	0.0	0.0	0.0	0.0	0.0
13:55	0.0	0.0	168.4	0.0	0.0	0.0	0.0	0.0	0.0
13:56	0.0	0.0	170.2	0.0	0.0	0.0	0.0	0.0	0.0
13:57	0.0	0.0	177.9	0.0	0.0	0.0	0.0	0.0	0.0
13:58	0.0	0.0	168.2	0.0	0.0	0.0	0.0	0.0	0.0
13:59	0.0	0.0	175.6	0.0	0.0	0.0	0.0	0.0	0.0
14:00	0.0	0.0	160.9	0.0	0.0	0.0	0.0	0.0	0.0
14:01	0.0	0.0	172.5	0.0	0.0	0.0	0.0	0.0	0.0
14:02	0.0	0.0	180.4	0.0	0.0	0.0	0.0	0.0	0.0
14:03	0.0	0.0	176.8	0.0	0.0	0.0	0.0	0.0	0.0
14:04	0.0	0.0	179.6	0.0	0.0	0.0	0.0	0.0	0.0
14:05	0.0	0.0	173.2	0.0	0.0	0.0	0.0	0.0	0.0
Average			161.2						

SOLVAY MINERALS, INC.
CAE Project No: 7629
EP-5 Calciner Stack
December 15, 1995

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 (%)
14:59:45	0.0	0.0	528.0	0.0	0.0	0.0	0.0	0.0	0.0
15:00:00	0.0	0.0	527.4	0.0	0.0	0.0	0.0	0.0	0.0
15:00:15	0.0	0.0	527.7	0.0	0.0	0.0	0.0	0.0	0.0
15:00:30	0.0	0.0	526.4	0.0	0.0	0.0	0.0	0.0	0.0
15:00:45	0.0	0.0	526.0	0.0	0.0	0.0	0.0	0.0	0.0
15:01:00	0.0	0.0	526.0	0.0	0.0	0.0	0.0	0.0	0.0
15:01:15	0.0	0.0	526.7	0.0	0.0	0.0	0.0	0.0	0.0
15:01:30	0.0	0.0	526.4	0.0	0.0	0.0	0.0	0.0	0.0
15:01:45	0.0	0.0	541.1	0.0	0.0	0.0	0.0	0.0	0.0
15:02:00	0.0	0.0	544.6	0.0	0.0	0.0	0.0	0.0	0.0
15:02:15	0.0	0.0	544.7	0.0	0.0	0.0	0.0	0.0	0.0
15:02:30	0.0	0.0	544.0	0.0	0.0	0.0	0.0	0.0	0.0
15:02:45	0.0	0.0	543.4	0.0	0.0	0.0	0.0	0.0	0.0
15:03:00	0.0	0.0	542.9	0.0	0.0	0.0	0.0	0.0	0.0
15:03:15	0.0	0.0	542.9	0.0	0.0	0.0	0.0	0.0	0.0
15:03:30	0.0	0.0	542.6	0.0	0.0	0.0	0.0	0.0	0.0
15:03:45	0.0	0.0	542.5	0.0	0.0	0.0	0.0	0.0	0.0
15:04:00	0.0	0.0	542.1	0.0	0.0	0.0	0.0	0.0	0.0
15:04:15	0.0	0.0	542.4	0.0	0.0	0.0	0.0	0.0	0.0
15:04:30	0.0	0.0	542.5	0.0	0.0	0.0	0.0	0.0	0.0
15:04:45	0.0	0.0	542.2	0.0	0.0	0.0	0.0	0.0	0.0
15:05:00	0.0	0.0	541.7	0.0	0.0	0.0	0.0	0.0	0.0
15:05:15	0.0	0.0	541.4	0.0	0.0	0.0	0.0	0.0	0.0
15:05:30	0.0	0.0	542.4	0.0	0.0	0.0	0.0	0.0	0.0
15:05:45	0.0	0.0	541.3	0.0	0.0	0.0	0.0	0.0	0.0
15:06:00	0.0	0.0	540.7	0.0	0.0	0.0	0.0	0.0	0.0
15:06:15	0.0	0.0	540.8	0.0	0.0	0.0	0.0	0.0	0.0
15:06:30	0.0	0.0	540.0	0.0	0.0	0.0	0.0	0.0	0.0
15:06:45	0.0	0.0	540.4	0.0	0.0	0.0	0.0	0.0	0.0
15:07:00	0.0	0.0	539.2	0.0	0.0	0.0	0.0	0.0	0.0
15:07:15	0.0	0.0	538.7	0.0	0.0	0.0	0.0	0.0	0.0
15:07:30	0.0	0.0	538.3	0.0	0.0	0.0	0.0	0.0	0.0
15:07:45	0.0	0.0	538.0	0.0	0.0	0.0	0.0	0.0	0.0
15:08:00	0.0	0.0	537.8	0.0	0.0	0.0	0.0	0.0	0.0
15:08:15	0.0	0.0	537.1	0.0	0.0	0.0	0.0	0.0	0.0
15:08:30	0.0	0.0	536.0	0.0	0.0	0.0	0.0	0.0	0.0
15:08:45	0.0	0.0	536.0	0.0	0.0	0.0	0.0	0.0	0.0
15:09:00	0.0	0.0	534.2	0.0	0.0	0.0	0.0	0.0	0.0
15:09:15	0.0	0.0	532.5	0.0	0.0	0.0	0.0	0.0	0.0
15:09:30	0.0	0.0	530.9	0.0	0.0	0.0	0.0	0.0	0.0
15:09:45	0.0	0.0	529.8	0.0	0.0	0.0	0.0	0.0	0.0
15:10:00	0.0	0.0	528.9	0.0	0.0	0.0	0.0	0.0	0.0
15:10:15	0.0	0.0	526.7	0.0	0.0	0.0	0.0	0.0	0.0
15:10:30	0.0	0.0	524.9	0.0	0.0	0.0	0.0	0.0	0.0
15:10:45	0.0	0.0	524.0	0.0	0.0	0.0	0.0	0.0	0.0
15:11:00	0.0	0.0	522.6	0.0	0.0	0.0	0.0	0.0	0.0
15:11:15	0.0	0.0	520.4	0.0	0.0	0.0	0.0	0.0	0.0
15:11:30	0.0	0.0	517.9	0.0	0.0	0.0	0.0	0.0	0.0
15:11:45	0.0	0.0	514.9	0.0	0.0	0.0	0.0	0.0	0.0
15:12:00	0.0	0.0	513.8	0.0	0.0	0.0	0.0	0.0	0.0
15:12:15	0.0	0.0	513.3	0.0	0.0	0.0	0.0	0.0	0.0
15:12:30	0.0	0.0	511.1	0.0	0.0	0.0	0.0	0.0	0.0
15:12:45	0.0	0.0	509.7	0.0	0.0	0.0	0.0	0.0	0.0
15:13:00	0.0	0.0	508.3	0.0	0.0	0.0	0.0	0.0	0.0
15:13:15	0.0	0.0	507.7	0.0	0.0	0.0	0.0	0.0	0.0
15:13:30	0.0	0.0	507.9	0.0	0.0	0.0	0.0	0.0	0.0
15:13:45	0.0	0.0	505.8	0.0	0.0	0.0	0.0	0.0	0.0
15:14:00	0.0	0.0	505.2	0.0	0.0	0.0	0.0	0.0	0.0
15:14:15	0.0	0.0	504.1	0.0	0.0	0.0	0.0	0.0	0.0
15:14:30	0.0	0.0	502.8	0.0	0.0	0.0	0.0	0.0	0.0
15:14:45	0.0	0.0	502.3	0.0	0.0	0.0	0.0	0.0	0.0

15:15:00	0.0	0.0	501.6	0.0	0.0	0.0	0.0	0.0	0.0
15:15:15	0.0	0.0	500.9	0.0	0.0	0.0	0.0	0.0	0.0
15:15:30	0.0	0.0	500.4	0.0	0.0	0.0	0.0	0.0	0.0
15:15:45	0.0	0.0	499.0	0.0	0.0	0.0	0.0	0.0	0.0
15:16:00	0.0	0.0	498.5	0.0	0.0	0.0	0.0	0.0	0.0
15:16:15	0.0	0.0	497.4	0.0	0.0	0.0	0.0	0.0	0.0
15:16:30	0.0	0.0	496.6	0.0	0.0	0.0	0.0	0.0	0.0
15:16:45	0.0	0.0	495.7	0.0	0.0	0.0	0.0	0.0	0.0
15:17:00	0.0	0.0	495.8	0.0	0.0	0.0	0.0	0.0	0.0
15:17:15	0.0	0.0	495.0	0.0	0.0	0.0	0.0	0.0	0.0
15:17:30	0.0	0.0	494.4	0.0	0.0	0.0	0.0	0.0	0.0
15:17:45	0.0	0.0	493.5	0.0	0.0	0.0	0.0	0.0	0.0
15:18:00	0.0	0.0	495.0	0.0	0.0	0.0	0.0	0.0	0.0
15:18:15	0.0	0.0	513.1	0.0	0.0	0.0	0.0	0.0	0.0
15:18:30	0.0	0.0	516.0	0.0	0.0	0.0	0.0	0.0	0.0
15:18:45	0.0	0.0	303.2	0.0	0.0	0.0	0.0	0.0	0.0
15:19:00	0.0	0.0	19.0	0.0	0.0	0.0	0.0	0.0	0.0
15:19:15	0.0	0.0	15.5	0.0	0.0	0.0	0.0	0.0	0.0
15:19:30	0.0	0.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0
15:19:45	0.0	0.0	13.5	0.0	0.0	0.0	0.0	0.0	0.0
15:20:00	0.0	0.0	13.1	0.0	0.0	0.0	0.0	0.0	0.0
15:20:15	0.0	0.0	12.6	0.0	0.0	0.0	0.0	0.0	0.0
15:20:30	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0
15:20:45	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0
15:21:00	0.0	0.0	12.2	0.0	0.0	0.0	0.0	0.0	0.0
15:21:15	0.0	0.0	11.8	0.0	0.0	0.0	0.0	0.0	0.0
15:21:30	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0	0.0
15:21:45	0.0	0.0	11.7	0.0	0.0	0.0	0.0	0.0	0.0
15:22:00	0.0	0.0	11.6	0.0	0.0	0.0	0.0	0.0	0.0
15:22:15	0.0	0.0	11.6	0.0	0.0	0.0	0.0	0.0	0.0
15:22:30	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0	0.0
15:22:45	0.0	0.0	11.3	0.0	0.0	0.0	0.0	0.0	0.0
15:23:00	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0	0.0
15:23:15	0.0	0.0	11.3	0.0	0.0	0.0	0.0	0.0	0.0
15:23:30	0.0	0.0	11.4	0.0	0.0	0.0	0.0	0.0	0.0
15:23:45	0.0	0.0	11.3	0.0	0.0	0.0	0.0	0.0	0.0
15:24:00	0.0	0.0	11.4	0.0	0.0	0.0	0.0	0.0	0.0
15:24:15	0.0	0.0	11.3	0.0	0.0	0.0	0.0	0.0	0.0
15:24:30	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0	0.0
15:24:45	0.0	0.0	11.4	0.0	0.0	0.0	0.0	0.0	0.0
15:25:00	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0	0.0
15:25:15	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0	0.0
15:25:30	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0	0.0
15:25:45	0.0	0.0	11.6	0.0	0.0	0.0	0.0	0.0	0.0
15:26:00	0.0	0.0	11.7	0.0	0.0	0.0	0.0	0.0	0.0
15:26:15	0.0	0.0	11.7	0.0	0.0	0.0	0.0	0.0	0.0
15:26:30	0.0	0.0	11.7	0.0	0.0	0.0	0.0	0.0	0.0
15:26:45	0.0	0.0	11.8	0.0	0.0	0.0	0.0	0.0	0.0
15:27:00	0.0	0.0	11.8	0.0	0.0	0.0	0.0	0.0	0.0
15:27:15	0.0	0.0	11.8	0.0	0.0	0.0	0.0	0.0	0.0
15:27:30	0.0	0.0	11.9	0.0	0.0	0.0	0.0	0.0	0.0
15:27:45	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0
15:28:00	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0
15:28:15	0.0	0.0	11.9	0.0	0.0	0.0	0.0	0.0	0.0
15:28:30	0.0	0.0	11.9	0.0	0.0	0.0	0.0	0.0	0.0
Zero Gas			11.3						
Cal Gas			544.4						



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External Standard Report

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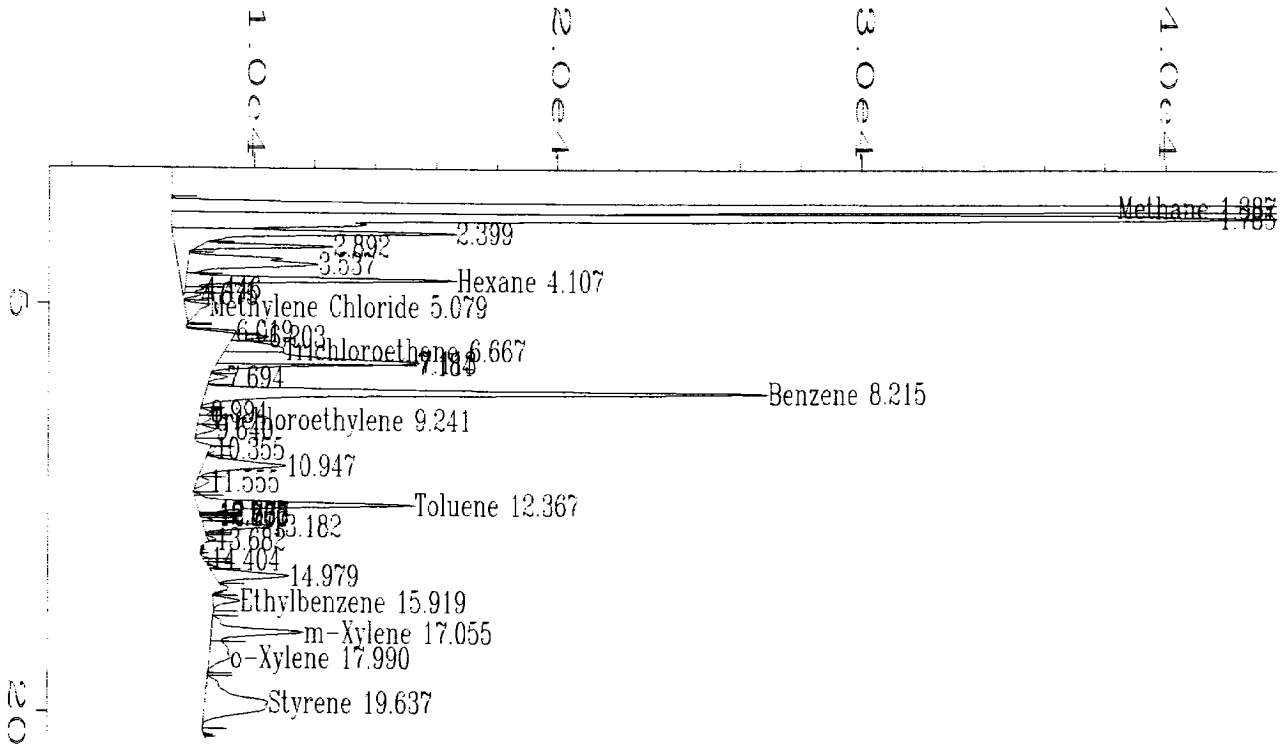
Data File Name : D:\SOLVAY\HP\12-15\EP5R1_01.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 15 Dec 95 09:28 AM
Report Created on: 21 Dec 95 12:13 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\HP\12-15\EP5R1_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.408	2478254	BH S	0.179	1	478.264	Methane
1.873	* not found *			1		Butadiene
4.141	91075	VV T	0.193	1	2.876	Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.256	277850	VV	0.221	1	8.185	Benzene
9.270	10726	VV	0.217	1	0.860	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.397	93107	PV	0.216	1	2.278	Toluene
15.939	11008	VB	0.175	1	0.179	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.072	37366	BB	0.225	1	0.683	m-Xylene
18.024	* not found *			1		o-Xylene
19.652	49763	BV	0.392	1	1.022	Styrene



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External Standard Report

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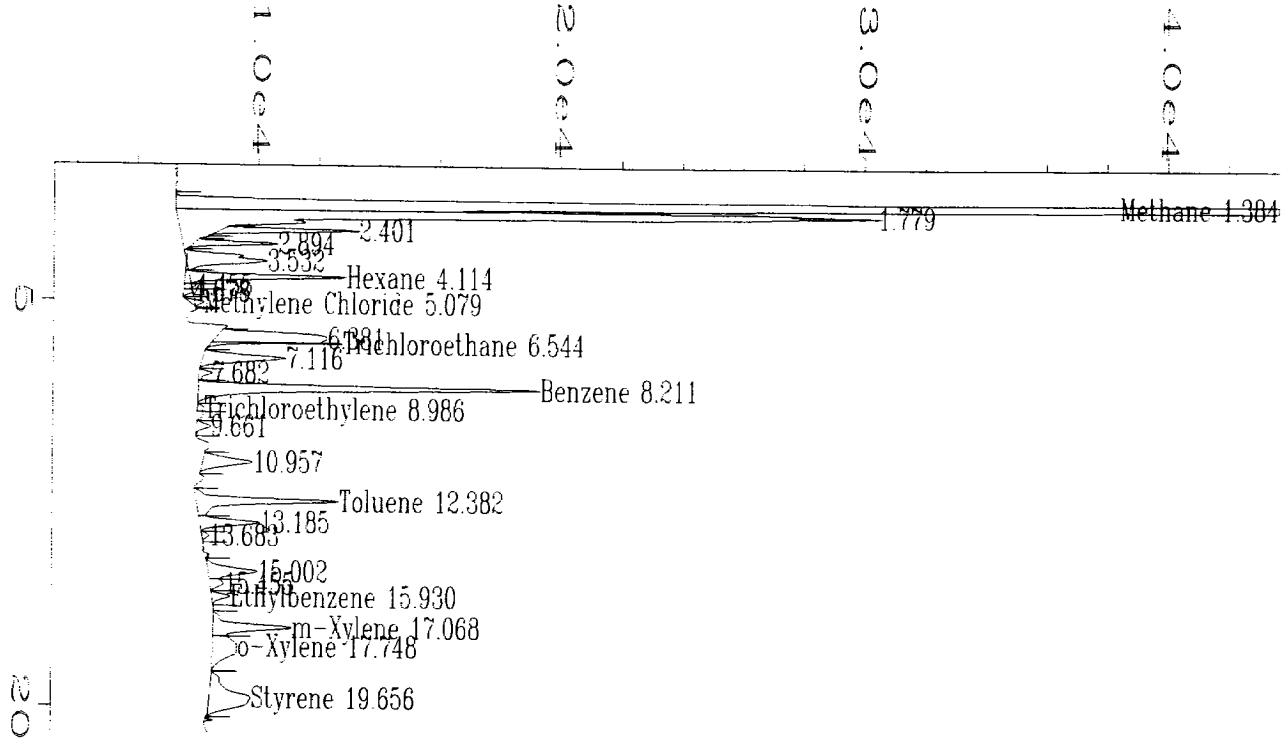
Data File Name	: D:\SOLVAY\HP\12-15\EP5R1_02.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: EP 5 Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 15 Dec 95 09:54 AM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:14 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-15\EP5R1_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.387	2573854	BH S	0.177	1	496.458	Methane
1.873	* not found *			1		Butadiene
4.107	101118	VV T	0.183	1	3.193	Hexane
5.079	18029	PB T	0.363	1	3.593	Methylene Chloride
6.667	35381	VV	0.221	1	3.160	Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.215	248575	PV	0.200	1	7.320	Benzene
9.241	6321	VV	0.211	1	0.503	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.367	97832	VV	0.163	1	2.399	Toluene
15.919	11334	BB	0.168	1	0.186	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.055	54197	BV	0.233	1	1.036	m-Xylene
17.990	29565	VB	0.530	1	0.569	o-Xylene
19.637	101624	BB	0.629	1	2.128	Styrene



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External Standard Report

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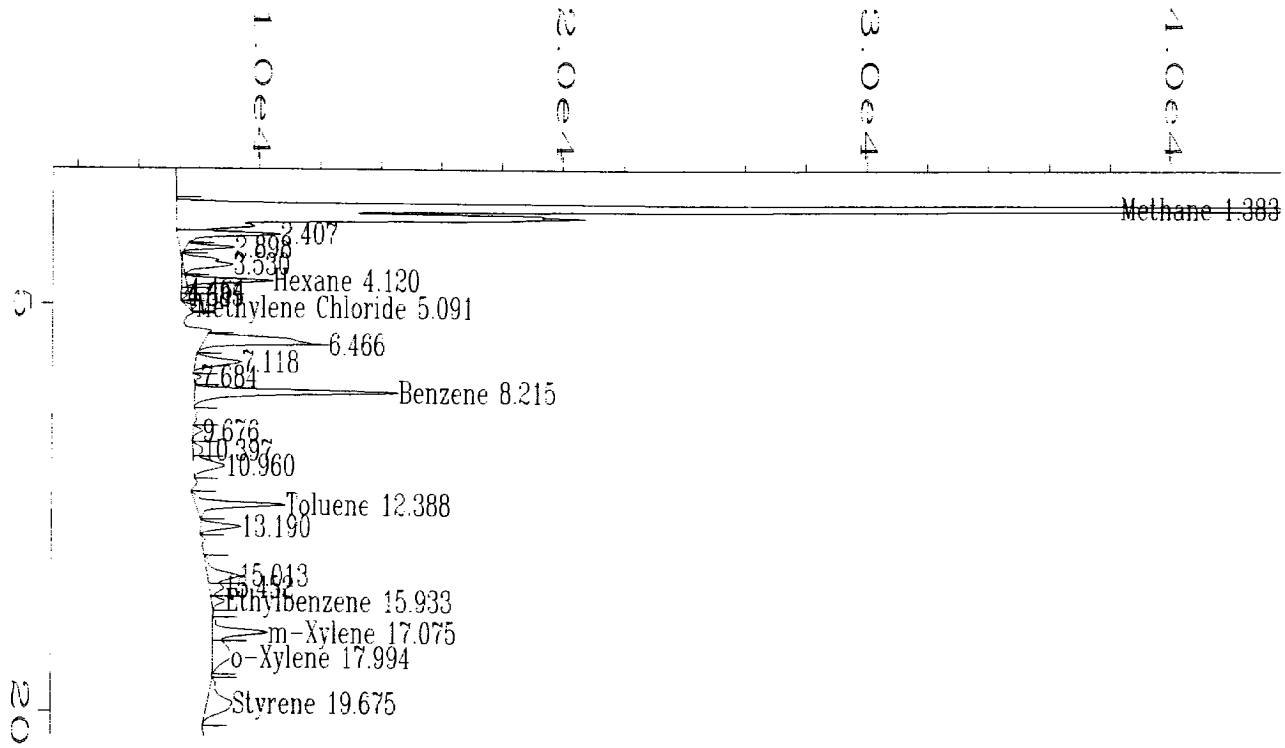
Data File Name	: D:\SOLVAY\HP\12-15\EP5R1_03.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: EP 5 Run 1	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 15 Dec 95 10:20 AM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:14 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-15\EP5R1_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.384	1820857	BH S	0.234	1	353.156	Methane
1.873	* not found *			1		Butadiene
4.114	60391	VV T	0.190	1	1.908	Hexane
5.079	4787	PB T	0.187	1	1.141	Methylene Chloride
6.544	13928	VV	0.075	1	1.237	Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.211	154716	VV	0.202	1	4.545	Benzene
8.986	2604	VV	0.147	1	0.201	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.382	72590	BV	0.223	1	1.755	Toluene
15.930	7932	VB	0.159	1	0.112	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.068	46600	BV	0.249	1	0.877	m-Xylene
17.748	39420	VB	0.671	1	0.783	o-Xylene
19.656	64320	BV	0.663	1	1.332	Styrene



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External Standard Report

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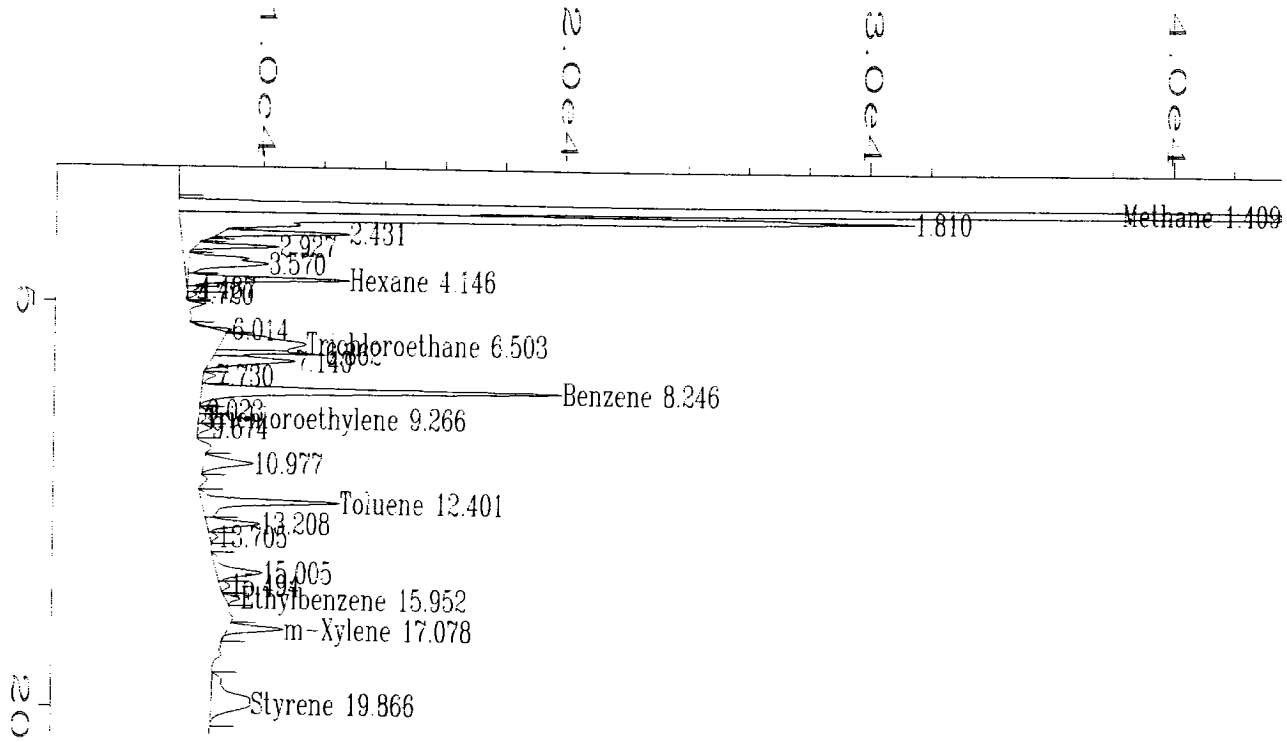
Data File Name	: D:\SOLVAY\HP\12-15\EP5R1_04.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: EP 5 Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 15 Dec 95 10:46 AM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:14 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-15\EP5R1_04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.383	1510787	BH S	0.259	1	294.147	Methane
1.873	* not found *			1		Butadiene
4.120	34320	VV T	0.191	1	1.086	Hexane
5.091	3128	PB T	0.188	1	0.834	Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.215	91045	BV	0.196	1	2.663	Benzene
9.197	* not found *			1		Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.388	41907	BB	0.204	1	0.971	Toluene
15.933	6516	VB	0.186	1	0.0816	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.075	31381	BV	0.219	1	0.558	m-Xylene
17.994	28510	VB	0.596	1	0.547	o-Xylene
19.675	37815	BB	0.606	1	0.767	Styrene



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External Standard Report

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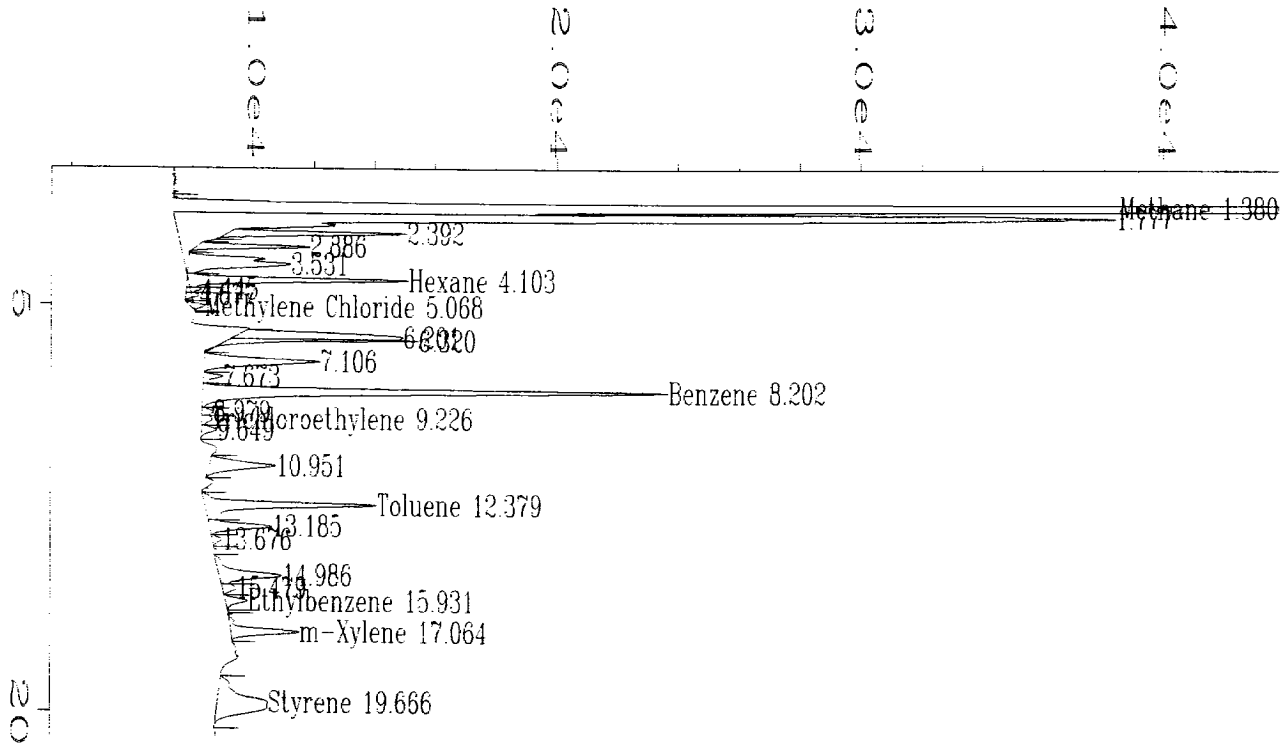
Data File Name : D:\SOLVAY\HP\12-15\EP5R2_01.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 15 Dec 95 11:49 AM
Report Created on: 21 Dec 95 12:14 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\HP\12-15\EP5R2_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.409	1820939	BH S	0.241	1	353.172	Methane
1.873	* not found *			1		Butadiene
4.146	60523	VV T	0.190	1	1.912	Hexane
5.134	* not found *			1		Methylene Chloride
6.503	74401	BV	0.326	1	6.656	Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.246	158896	VV	0.198	1	4.669	Benzene
9.266	3937	VV	0.215	1	0.309	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.401	71218	BV	0.220	1	1.720	Toluene
15.952	6045	PB	0.151	1	0.0714	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.078	26272	BB	0.195	1	0.451	m-Xylene
18.024	* not found *			1		o-Xylene
19.866	65987	BB	0.640	1	1.368	Styrene

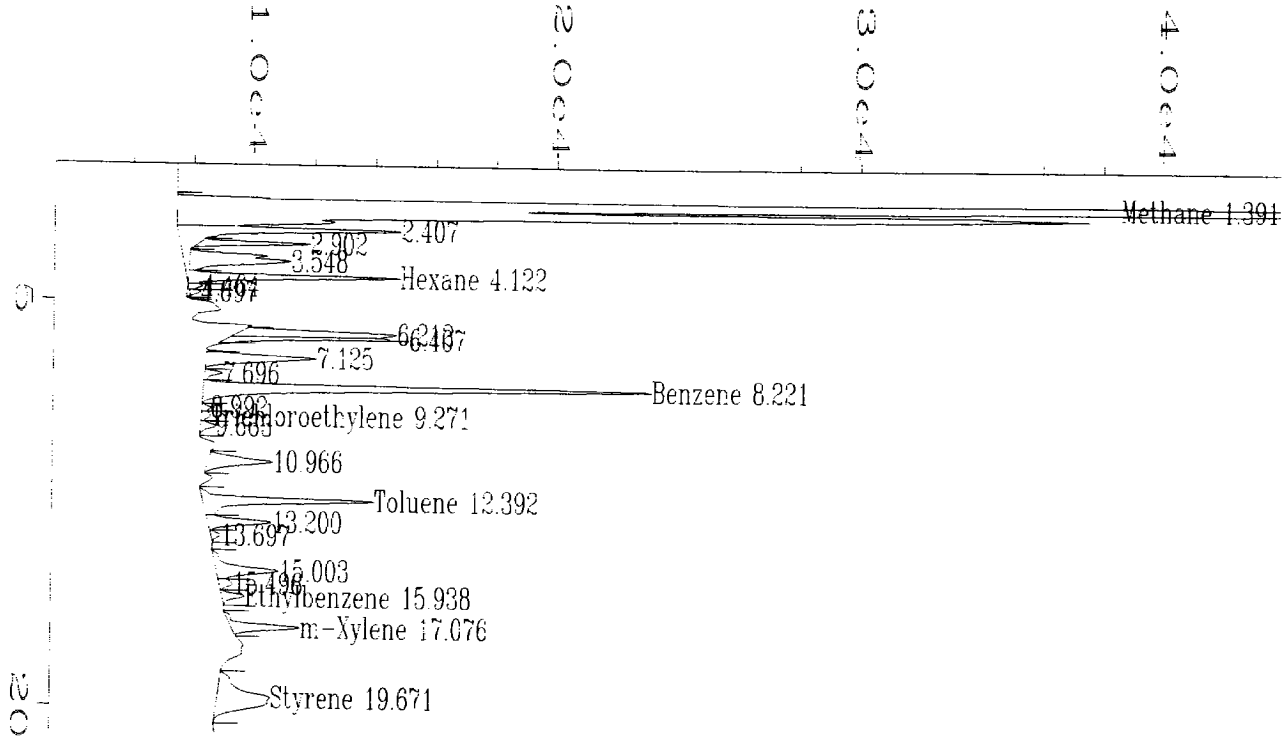


External Standard Report

Data File Name	: D:\SOLVAY\HP\12-15\EP5R2_02.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: EP 5 Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 15 Dec 95 12:15 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:15 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-15\EP5R2_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.380	2238108	BH S	0.227	1	432.562	Methane
1.873	* not found *			1		Butadiene
4.103	81400	VV T	0.181	1	2.571	Hexane
5.068	5302	PB T	0.181	1	1.236	Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.202	208992	VV	0.205	1	6.150	Benzene
9.226	5669	VV	0.223	1	0.450	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.379	86153	PV	0.211	1	2.101	Toluene
15.931	9455	VB	0.173	1	0.145	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.064	34937	BV	0.199	1	0.633	m-Xylene
18.024	* not found *			1		o-Xylene
19.666	80070	BB	0.718	1	1.668	Styrene



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External Standard Report

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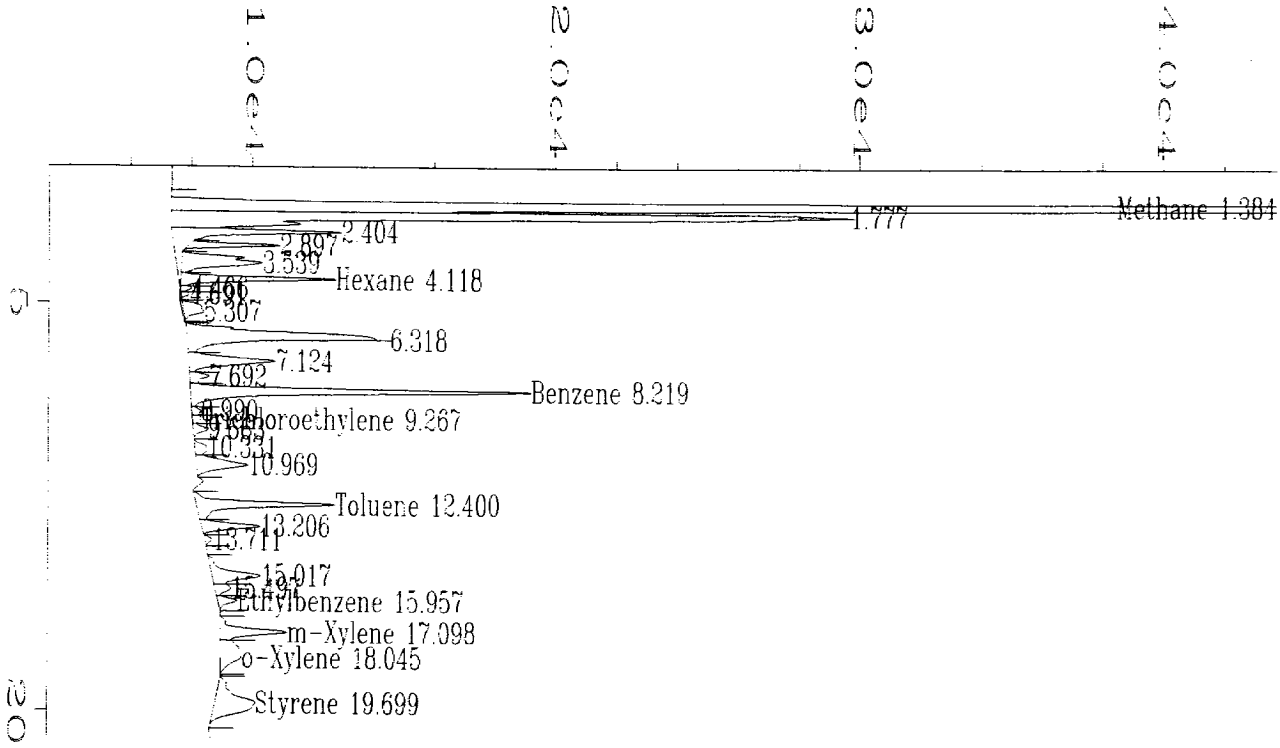
Data File Name : D:\SOLVAY\HP\12-15\EP5R2_03.D
Operator : J. Kaput
Instrument : HP 5890
Sample Name : EP 5 Run 1
Run Time Bar Code:
Acquired on : 15 Dec 95 12:41 PM
Report Created on: 21 Dec 95 12:15 PM
Last Recalib on : 14 DEC 95 01:06 PM
Multiplier : 1

Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: SOLVAY1.MTH
Analysis Method : SOLVAY1.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\SOLVAY\HP\12-15\EP5R2_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.391	2728872	BH S	0.203	1	525.959	Methane
1.873	* not found *			1		Butadiene
4.122	78123	VV T	0.187	1	2.467	Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.221	200151	VV	0.202	1	5.888	Benzene
9.271	4986	VV	0.215	1	0.394	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.392	85645	PV	0.217	1	2.088	Toluene
15.938	10240	VB	0.175	1	0.163	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.076	34214	BV	0.200	1	0.617	m-Xylene
18.024	* not found *			1		o-Xylene
19.671	83537	BB	0.624	1	1.742	Styrene



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External Standard Report

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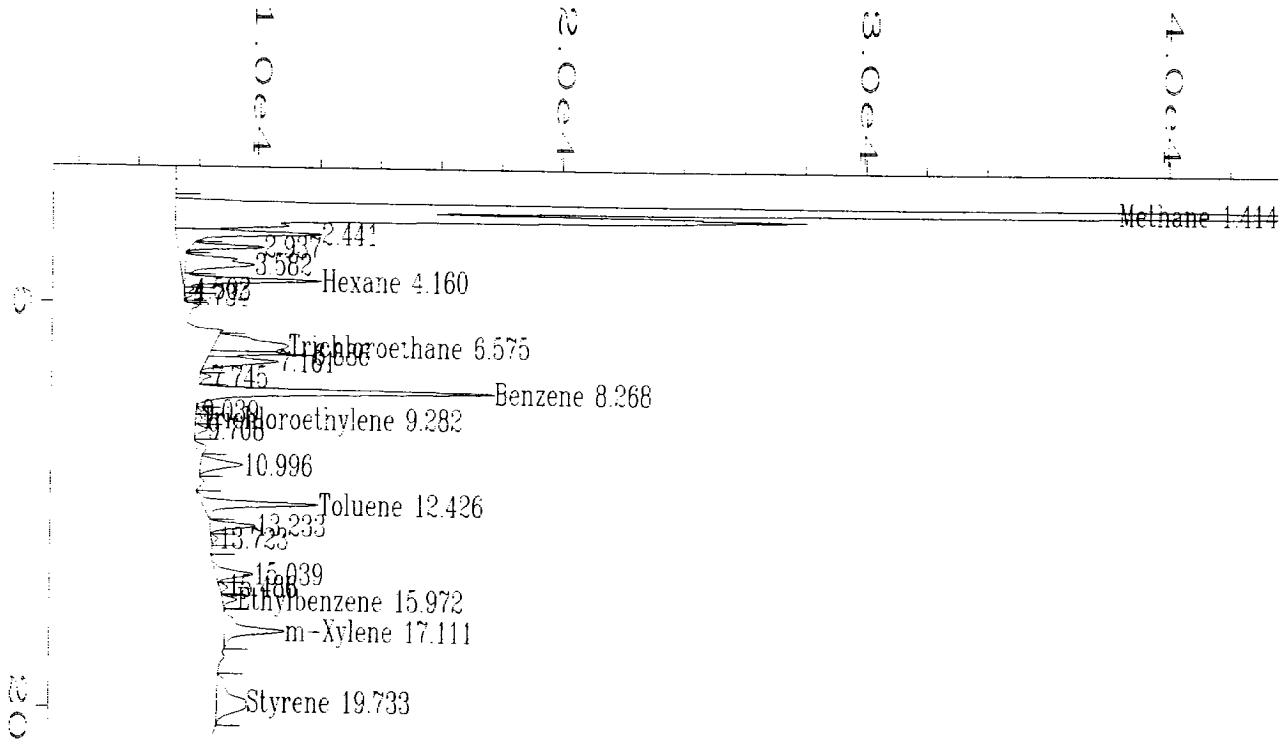
Data File Name	: D:\SOLVAY\HP\12-15\EP5R2_04.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: EP 5 Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 15 Dec 95 01:07 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:15 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-15\EP5R2_04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.384	1728859	BH S	0.231	1	335.648	Methane
1.873	* not found *			1		Butadiene
4.118	56770	VV T	0.187	1	1.794	Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.219	157940	VV	0.205	1	4.641	Benzene
9.267	4684	VV	0.234	1	0.370	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.400	69883	BV	0.219	1	1.685	Toluene
15.957	9129	VB	0.176	1	0.138	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.098	39282	BV	0.238	1	0.724	m-Xylene
18.045	33522	VB	0.604	1	0.655	o-Xylene
19.699	62675	BB	0.618	1	1.297	Styrene



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External Standard Report

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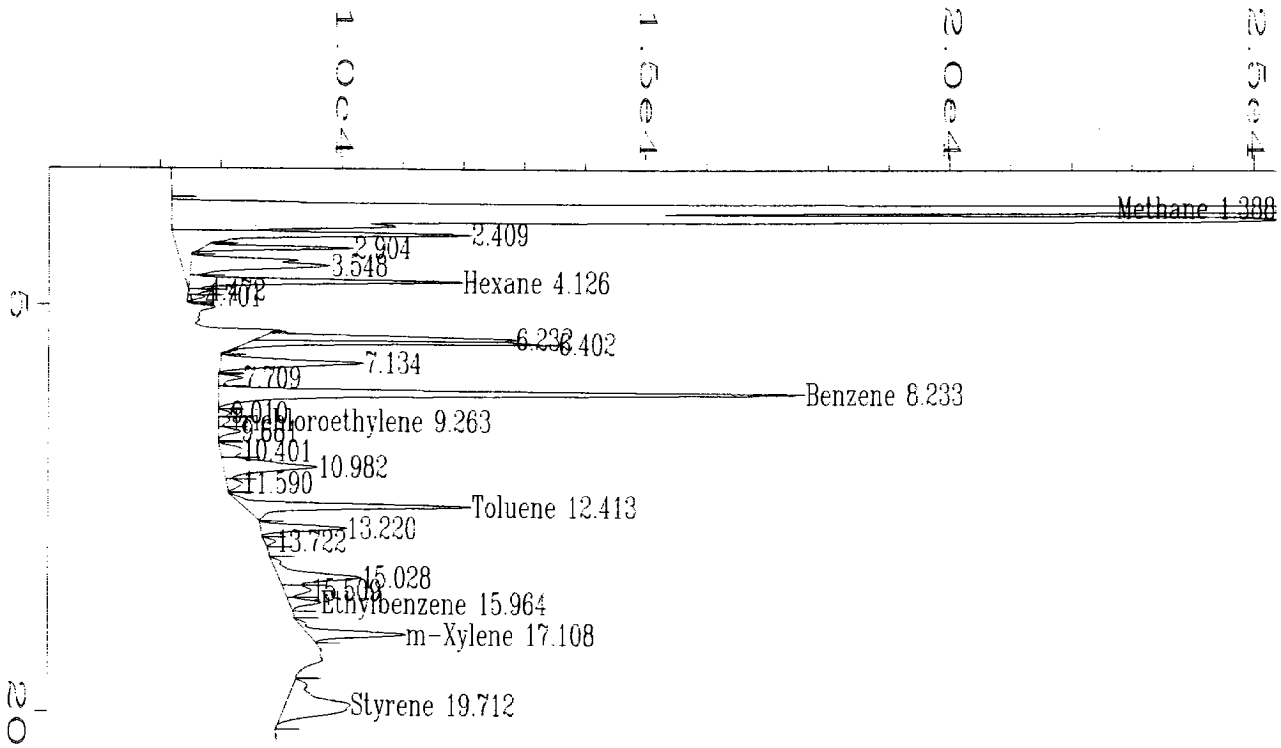
Data File Name	: D:\SOLVAY\HP\12-15\EP5R3_01.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: EP 5 Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 15 Dec 95 02:00 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:15 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-15\EP5R3_01.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.414	1995448	BH S	0.209	1	386.382	Methane
1.873	* not found *			1		Butadiene
4.160	51833	VV T	0.185	1	1.638	Hexane
5.134	* not found *			1		Methylene Chloride
6.575	61902	BV	0.304	1	5.536	Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.268	131280	VV	0.199	1	3.853	Benzene
9.282	3438	VV	0.231	1	0.269	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.426	53087	BB	0.196	1	1.257	Toluene
15.972	6188	BB	0.160	1	0.0745	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.111	43392	BB	0.271	1	0.810	m-Xylene
18.024	* not found *			1		o-Xylene
19.733	49086	BB	0.676	1	1.007	Styrene



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External Standard Report

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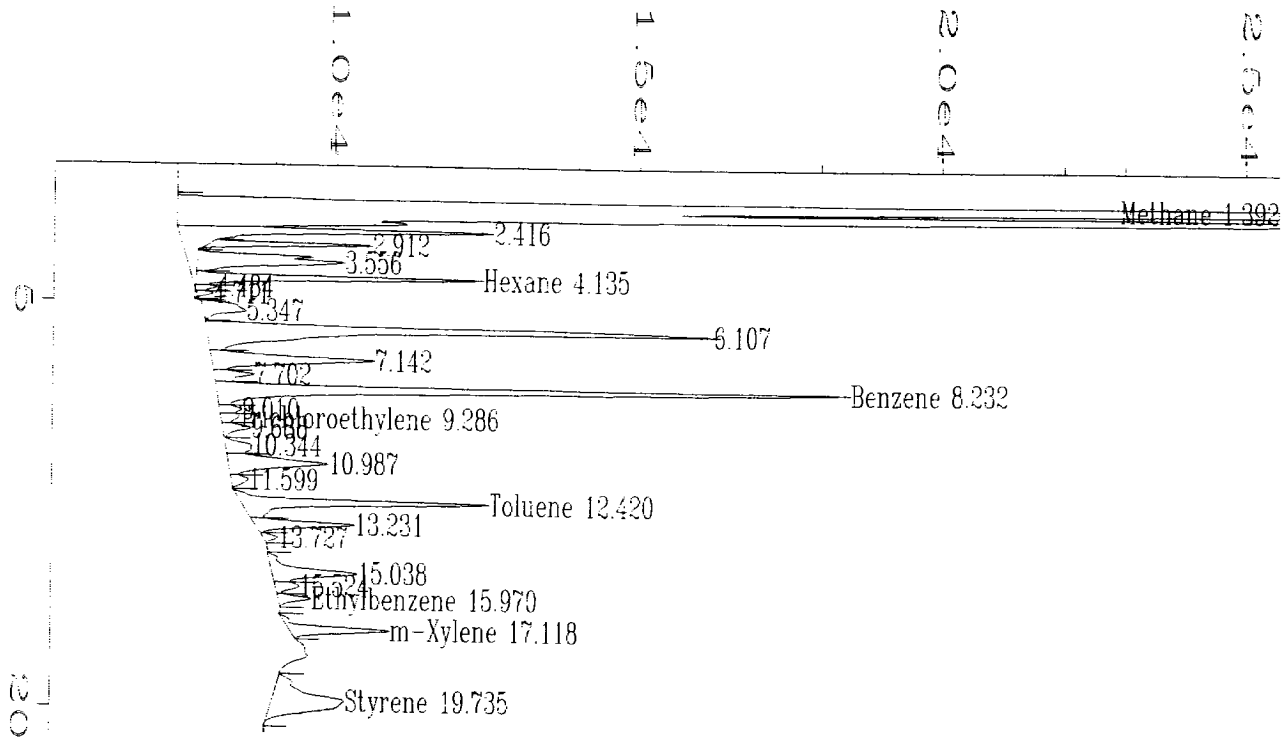
Data File Name	: D:\SOLVAY\HP\12-15\EP5R3_02.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: EP 5 Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 15 Dec 95 02:26 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:15 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-15\EP5R3_02.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.388	1958833	BH S	0.198	1	379.414	Methane
1.873	* not found *			1		Butadiene
4.126	50983	VV T	0.183	1	1.611	Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.233	130949	VV	0.198	1	3.843	Benzene
9.263	2970	VV	0.225	1	0.231	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.413	52815	BB	0.199	1	1.250	Toluene
15.964	7439	VB	0.186	1	0.102	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.108	25256	BB	0.215	1	0.430	m-Xylene
18.024	* not found *			1		o-Xylene
19.712	50956	BB	0.643	1	1.047	Styrene



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External Standard Report

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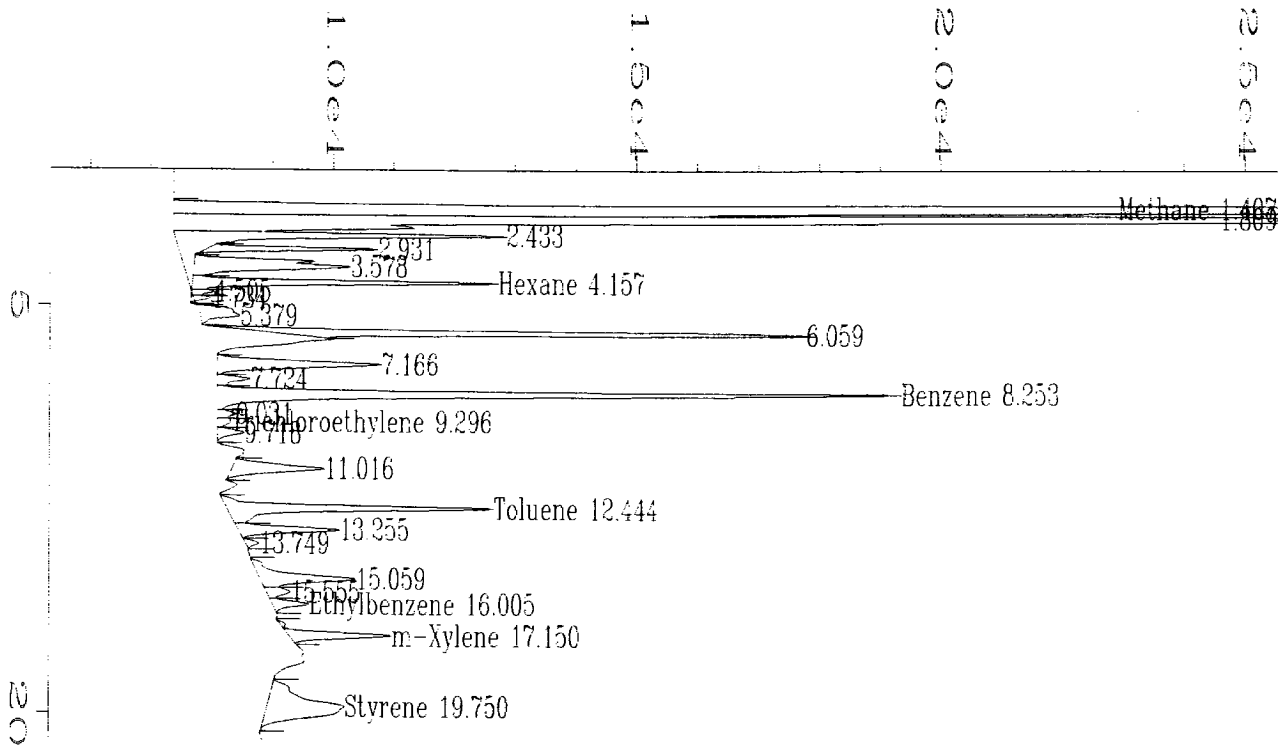
Data File Name	: D:\SOLVAY\HP\12-15\EP5R3_03.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: EP 5 Run 1	Injection Number	:
Run Time Bar Code:		Sequence Line	:
Acquired on	: 15 Dec 95 02:53 PM	Instrument Method	: SOLVAY1.MTH
Report Created on:	21 Dec 95 12:16 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-15\EP5R3_03.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.392	2021625	BH S	0.198	1	391.364	Methane
1.873	* not found *			1		Butadiene
4.135	52934	VV T	0.181	1	1.673	Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.232	148439	VV	0.212	1	4.360	Benzene
9.286	5104	VV	0.221	1	0.404	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.420	62771	BV	0.216	1	1.504	Toluene
15.970	7507	VB	0.175	1	0.103	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.118	25223	BV	0.206	1	0.429	m-Xylene
18.024	* not found *			1		o-Xylene
19.735	57231	BB	0.670	1	1.181	Styrene



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External Standard Report

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Data File Name	: D:\SOLVAY\HP\12-15\EP5R3_04.D		
Operator	: J. Kaput	Page Number	: 1
Instrument	: HP 5890	Vial Number	:
Sample Name	: EP 5 Run 1	Injection Number	:
Run Time Bar Code	:	Sequence Line	:
Acquired on	: 15 Dec 95 03:22 PM	Instrument Method	: SOLVAY1.MTH
Report Created on	: 21 Dec 95 12:16 PM	Analysis Method	: SOLVAY1.MTH
Last Recalib on	: 14 DEC 95 01:06 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 2 in D:\SOLVAY\HP\12-15\EP5R3_04.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
1.407	1688100	BH S	0.233	1	327.891	Methane
1.873	* not found *			1		Butadiene
4.157	56935	VV T	0.183	1	1.799	Hexane
5.134	* not found *			1		Methylene Chloride
6.635	* not found *			1		Trichloroethane
7.977	* not found *			1		Methyl Ethyl Ketone
8.253	154291	VV	0.200	1	4.533	Benzene
9.296	3708	VV	0.227	1	0.291	Trichloroethylene
12.072	* not found *			1		Acrylonitrile
12.444	66857	BV	0.217	1	1.608	Toluene
16.005	8539	VB	0.180	1	0.126	Ethylbenzene
16.597	* not found *			1		p-Xylene
17.150	24977	BV	0.182	1	0.424	m-Xylene
18.024	* not found *			1		o-Xylene
19.750	62994	BB	0.602	1	1.304	Styrene

TEST LOCATION: EP5 STACK

UNIT: EP5 **RUN:** 1

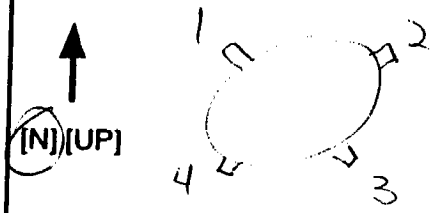
FORMALDEHYDE TESTING FIELD DATA SHEET

METHOD: 0011 **PAGE** 1 **OF** 2

Client SOLVAY MINERALS	Project No. 7624
Plant GREEN RIVER, W.Y.	Date 12/15/95
Meter Operator RON M. LUIKAART	
Probe Operator ED McGAFFICK	

Meter Box No. D5	Sample Box No. 71-11
Meter Yd .9984	Meter ΔH@ 1.8373
K Factor RM ~~6.9~~ 7.6	Pitot Cp .84
Leak Rate Before .004 (cfm) [Lpm] @ 15 (in.Hg)	
Leak Rate After .003 (cfm) [Lpm] @ 13 (in.Hg)	
Pitot Leak Check Before: ☑	After: Good ☑ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.) 105.5

Static Press. (in. H_2O)	Port Len. (in.)	Gas Flow [In] (Out] of page	First point all the way (In] [Out]
-0.2	5, 12.5		

Amb. Temp. (°F) 40	Bar. Press. 24.00 (in. Hg) [mbar]
Probe I.D. No. ~~12-2-94-2~~ 12-1-94-2	
Liner Material GLASS	

Filter No. N/A		
Thimble No. N/A		
Nozzle Diameter .375	Nozzle I.D. .375	

H_2O 497.1 [ml] (gm)	Silica Gel (gm) 17.8
Total V_{lc} 514.9	

Start Time: 0826	Stop Time: 10:11

Traverse Point Number	Min/pt 8 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft³] [L] 101.23	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet T_{min} (°F)	DGM Outlet T_{mout} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
4-1	4	.13	.99	103.70	317	245	243	39	71	71	4	N/A	
1	8	.13	.99	105.96	317	247	245	39	71	71	4		
2	12	.11	.84	108.13	314	246	248	38	71	70	4		
2	16	.11	.84	110.30	315	245	249	40	72	71	4		
3	20	.09	.68	112.27	304	247	250	40	72	70	4		
3	24	.09	.68	114.24	304	246	247	41	73	71	4		
5-1	28	.16	1.2	116.81	319	243	251	42	73	70	5		
1	32	.16	1.2	119.37	321	247	250	46	73	69	5		
2	36	.17	1.3	122.05	319	245	251	49	73	69	5		
2	40	.17	1.3	124.73	319	249	250	51	74	68	5		
3	44	.12	.91	127.00	310	247	249	55	74	69	4		
3	48	.12	.91	129.27	312	248	250	55	74	68	4		
	Total		11.84	55.04									
	Average	.13513	.195		303	315 ~~314~~			72				

* Sum of square roots.

Circle correct bracketed units on data sheet.

DS 001 General
CNVS/TRG B3-4/6/94

SOLVAY2016_6_001308

TEST LOCATION: EP5 STACK

UNIT: EP5 **RUN:** 1

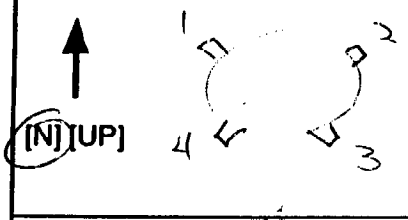
FORMALDEHYDE TESTING FIELD DATA SHEET

METHOD: 0011 **PAGE** 2 **OF** 2

Client SOLVAY MINERALS	Project No. 7699
Plant GREEN RIVER, WY	Date 12/15/95
Meter Operator RON M. LUIKAART	
Probe Operator ED McGAFFICK	

Meter Box No.	Sample Box No.
Meter Yd	Meter ΔH@
K Factor	Pitot Cp
Leak Rate Before	[cfm] [Lpm] @ (in.Hg)
Leak Rate After	[cfm] [Lpm] @ (in.Hg)
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.)	125.5		
Static Press. (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-0.2	5, 12.5	[Out]	[In]

Amb. Temp. (°F)	Bar. Press. [in. Hg] [mbar]
Probe I.D. No.	
Liner Material	

Filter No.		
Thimble No.		
Nozzle Diameter	Nozzle I.D.	

H_2O [ml] [gm]	Silica Gel (gm)
Total V_{lc}	

Start Time:	Stop Time:

Traverse Point Number	Min/pt 8 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft^3] [L]	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet T_{min} (°F)	DGM Outlet T_{mout} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
2-1	52	.16	1.2	131.86	319	246	249	54	72	68	5	N/A	
1	56	.16	1.2	134.43	320	247	250	48	71	67	5		
2	60	.15	1.1	136.91	319	245	248	47	71	67	5		
2	64	.15	1.1	139.38	319	247	249	44	71	68	5		
3	68	.11	.84	141.56	311	246	248	43	73	69	4		
3	72	.11	.84	143.76	312	247	249	44	74	69	4		
1	76	.11	.84	145.91	314	248	246	46	75	71	4		
1	80	.11	.84	148.11	319	246	247	45	75	70	4		
2	84	.11	.84	150.29	317	249	246	45	76	71	4		
2	88	.11	.84	152.50	317	248	247	47	77	72	4		
3	92	.08	.61	154.38	309	247	250	49	79	72	3		
3	96	.08	.61	156.27	310	245	249	49	80	74	3		
	Total	*	10.86										
	Average		.95										

SOLVAY2016_6_001309

DS 001 General

[redacted]VS/T[redacted]R-4/6[redacted]

* Sum of square roots.

Circle correct bracketed units on data sheet.

TEST LOCATION: EP5 STACK

FORMALDEHYDE TESTING FIELD DATA SHEET

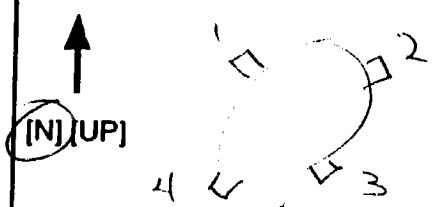
METHOD: 0011 **PAGE** 1 ~~2~~ RML **OF** 2

UNIT: EP5 **RUN:** 2

Client SOLVAY MINERALS	Project No. 7629
Plant GREEN RIVER, WY.	Date 12/15/95
Meter Operator ROAM LUIKAART	
Probe Operator ED McGAFFICK	

Meter Box No. D5	Sample Box No. 65-9
Meter Yd .9984	Meter ΔH@ 1.8373
K Factor RML 6.976	Pitot Cp .84
Leak Rate Before .003 [cfm] [Lpm] @ 15 (in.Hg)	
Leak Rate After .003 [cfm] [Lpm] @ 14 (in.Hg)	
Pitot Leak Check Before: ☑	After: Good ☑ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.) 125.5

Static Press. (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-0.2	5, 12.5	[Out]	[In]

Amb. Temp. (°F) 45	Bar. Press. 24.00 [in. Hg] [mbar]
Probe I.D. No. ~~12-2-94-2~~ 12-1-94-2	
Liner Material GLASS	

Filter No. N/A		
Thimble No. N/A		
Nozzle Diameter .375	Nozzle I.D. .375	

H_2O 502.4 [ml] [gm]	Silica Gel (gm) 12.9
Total V_{lc} 515.3	
Start Time: ~~10:33~~ 10:47 RML	Stop Time: 12:30

Traverse Point Number	Min/pt 8 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft^3] [L] 156.77	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet T_{min} (°F)	DGM Outlet T_{mout} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
1-1	4	.14	1.1	159.26	316	246	247	53	78	77	4	N/A	
1	8	.14	1.1	161.69	315	247	249	47	74	73	4		
2	12	.11	.84	163.90	314	246	248	46	74	73	4		
2	16	.11	.84	166.11	316	247	250	49	76	74	4		
3	20	.08	.61	167.99	305	248	249	52	79	75	3		
3	24	.08	.61	169.90	307	246	250	53	81	76	3		
4	28	.16	1.2	172.44	320	247	249	54	81	77	4		
4	32	.16	1.2	175.03	320	248	250	46	81	76	4		
2	36	.16	1.2	177.61	319	247	249	43	82	76	4		
2	40	.16	1.2	180.23	320	248	250	45	83	77	4		
3	44	.12	.91	182.50	313	247	247	46	84	77	4		
3	48	.12	.91	184.78	313	245	249	47	84	78	4		
	Total		11.72		3778				18.66				
	Average	.3481	.94	55.03	315				80				

* Sum of square roots.

Circle correct bracketed units on data sheet.

SOLVAY_2016_6_0013 10

DS 001 General
CNVS/TRG R3-4/6/94

Clean Air Engineering

TEST LOCATION: EP5 STACK

FORMALDEHYDE TESTING FIELD DATA SHEET

METHOD: 0011 **PAGE** 2 **OF** 2

UNIT: EP5 **RUN:** 2

Client SOLVAY MINERALS	Project No. 7629
Plant GREEN RIVER, WY.	Date 12/15/95
Meter Operator RON M. LUIKAART	
Probe Operator E.D. McGAFFICK	

Meter Box No. D5	Sample Box No.
Meter Yd .9984	Meter ΔH@ 1.8373
K Factor	Pitot Cp
Leak Rate Before	[cfm] [Lpm] @ (in.Hg)
Leak Rate After	[cfm] [Lpm] @ (in.Hg)
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐

Cross-Section of Test Location

[N] [UP]

Duct Dimensions (in.) 125.5			
Static Press. (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]

Amb. Temp. (°F)	Bar. Press. [in. Hg] [mbar]
Probe I.D. No.	
Liner Material	

Filter No.		
Thimble No.		
Nozzle Diameter	Nozzle I.D.	

H_2O [ml] [gm]	Silica Gel (gm)
Total V_{lc}	

Start Time:	Stop Time:

Traverse Point Number	Min/pt 8 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft^3] [L]	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet T_{min} (°F)	DGM Outlet T_{mout} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
3-1	52	.16	1.2	187.40	319	246	249	49	84	79	5	N/A	
1	56	.16	1.2	190.02	319	247	251	50	85	79	5		
2	60	.16	1.2	192.62	317	246	248	50	86	79	5		
2	64	.16	1.2	195.26	319	245	250	51	86	79	5		
3	68	.12	.91	197.56	310	247	251	55	87	80	5		
3	72	.12	.91	199.85	310	248	250	56	87	80	5		
4-1	76	.11	.84	202.04	318	247	249	58	86	81	4		
1	80	.11	.84	204.26	318	245	251	54	87	81	4		
2	84	.09	.68	206.26	315	247	249	50	87	81	4		
2	88	.09	.68	208.26	315	248	250	49	87	81	4		
3	92	.07	.53	210.03	307	246	249	49	86	81	3		
3	96	.07	.53	211.80	306	249	248	49	86	82	3		
	Total												
	Average												

SOLVAY2016_6_0013111

DS 001 General

[redacted]/S/T[redacted]-4/6[redacted]

* Sum of square roots.

[redacted] Circle correct bracket[redacted]its o[redacted]a sh[redacted]

TEST LOCATION: EP5 STACK

FORMALDEHYDE TESTING FIELD DATA SHEET

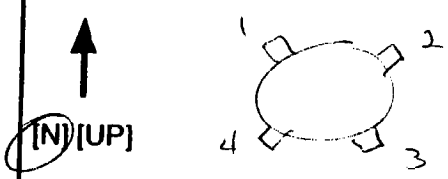
METHOD: 0011 **PAGE** 1 **OF** 2

UNIT: EP5 **RUN:** 3

Client SOLVAY MINERALS	Project No. 7629
Plant GREEN RIVER, WY.	Date 12/15/95
Meter Operator RONALD VIKAART	
Probe Operator ED McGAFFICK	

Meter Box No. D5	Sample Box No. 71-11
Meter Yd .9984	Meter ΔH@ 1.8373
K Factor 7.6	Pitot Cp .84
Leak Rate Before .003 [cfm] [Lpm] @ 15 (in.Hg)	
Leak Rate After .003 [cfm] [Lpm] @ 14 (in.Hg)	
Pitot Leak Check Before: ☑	After: Good ☑ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.) 125.5

Static Press. (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-0.2	5, 12.5		

Amb. Temp. (°F) 50	Bar. Press. 24.00 [in. Hg] [mbar]	
Probe I.D. No. ~~12-2-94-2~~ 12-1-94-2		
Liner Material GLASS		

Filter No. N/A		
Thimble No. N/A		
Nozzle Diameter .375	Nozzle I.D. .375	

H_2O 509.8 [ml] [gm]	Silica Gel (gm) 14.4
Total V_{lc} 524.2	

Start Time: 12:57	Stop Time: 14:40

Traverse Point Number	Min/pt 8 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft^3] [L] 212.31	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet T_{min} (°F)	DGM Outlet T_{mout} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
4-1	4	.11	.84	214.67	317	248	247	46	82	80	3	N/A	
1	8	.11	.84	216.89	317	247	251	42	82	81	3		
2	12	.11	.84	219.11	317	248	250	40	83	81	3		
2	16	.11	.84	221.28	316	249	251	40	85	81	3		
3	20	.08	.61	223.18	308	247	249	40	86	81	3		
3	24	.08	.61	225.10	307	246	248	41	86	82	3		
1	28	.15	1.1	227.65	316	245	249	44	87	83	4		
1	32	.15	1.1	230.17	317	247	250	43	87	82	4		
2	36	.14	1.1	232.68	316	246	249	45	88	82	4		
2	40	.14	1.1	235.23	317	248	250	43	89	83	4		
3	44	.16	1.2	237.86	310	246	249	40	90	84	4		
3	48	.16	1.2	240.50	309	247	250	42	90	84	4		
	Total	*	11.38	~~269~~ RML	3767				26	19			
	Average	.3552	.96	56.98	317				87				

* Sum of square roots.

Circle correct bracketed units on data sheet.

DS 001 General
CNVS/TRG R3 4/6/94

SOLVAY2016_6_001312

TEST LOCATION: EP5 STACK FORMALDEHYDE **TESTING**

FIELD DATA SHEET

METHOD: 0011 **PAGE** 2 **OF** 2

UNIT: EP 5 **RUN:** 3

Client SOLVAY MINERALS	Project No. 7629
Plant GREEN RIVER, WY.	Date 12/15/95
Meter Operator RON M. LUIKAART	
Probe Operator ED McGAFFICK	

Meter Box No.	Sample Box No.
Meter Yd	Meter ΔH@
K Factor	Pitot Cp
Leak Rate Before	[cfm] [Lpm] @ (in.Hg)
Leak Rate After	[cfm] [Lpm] @ (in.Hg)
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐

Cross-Section of Test Location

[N] [UP]

Duct Dimensions (in.) 125.5

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

Amb. Temp. (°F)	Bar. Press. [in. Hg] [mbar]
Probe I.D. No.	
Liner Material	

Filter No.		
Thimble No.		
Nozzle Diameter	Nozzle I.D.	

H_2O [ml] [gm]	Silica Gel (gm)
Total V_{lc}	

Start Time:	Stop Time:

Traverse Point Number	Min/pt 8 Elapsed Time	Velocity Head ΔP's (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume - V_m Init. Vol. [ft^3] [L]	Stack Temp. T_s (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet T_{min} (°F)	DGM Outlet T_{mout} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T_t (°F)	Notes
2-1	52	.15	1.1	243.06	318	247	246	48	90	86	4	N/A	
1	56	.15	1.1	245.59	321	249	250	53	91	86	4		
2	60	.16	1.2	248.25	321	247	248	43	92	86	5		
2	64	.16	1.2	250.90	322	246	249	42	93	87	5		
3	68	.12	.91	253.23	315	247	250	40	94	88	4		
3	72	.12	.91	255.53	316	245	249	40	94	88	4		
1	76	.13	.99	257.95	320	247	250	45	94	89	4		
1	80	.13	.99	260.38	322	248	249	45	94	89	4		
2	84	.13	.99	262.78	322	247	250	47	94	89	4		
2	88	.13	.99	265.23	322	245	246	46	94	90	4		
3	92	.09	.68	267.25	315	246	249	48	95	90	4		
3	96	.09	.68	269.29	315	248	250	47	95	90	4		
	Total												
	Average												

SOLVAY2016_6_001313

DS 001 General

* Sum of square roots.

Circle correct bracket units on data sh[redacted]

[redacted]/VS/T[redacted]3-4/6[redacted]

Orsat Readings

Client SOLVAY MINERALS, INC	Project Number 7629
Plant GREEN RIVER, WY	Unit EP-5
Date 12/ /95	Fuel Type NAT. GAS CALCINER
Orsat ID 65-2	Leak Check? ✓

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

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	EP-5 0011	1	14.6	23.0	8.4			1100	SR
	M-0011		2	14.6	23.0	8.4				
			3	14.6	23.0	8.4				
			Avg.	14.6		8.4	0.86		SR 1400	
2	STACK	EP-5 0011	1	14.2	23.0	9.0			~~1100~~	SR
	M-0011		2	14.2	23.0	9.0				
			3	14.2	23.0	9.0				
			Avg.	14.2		9.0				
3	STACK	EP-5 0011	1	14.2	23.0	8.8			1530	SR
	M-0011		2	14.2	22.9	8.7				
			3	14.2	23.0	8.8				
			Avg.	14.2		8.8				
			1							
			2							
			3							
			Avg.							
1	STACK	MM-5	1	14.6	23.1	8.5			1100	SR
	MM-5		2	14.5	23.0	8.5				
			3	14.6	23.0	8.4				
			Avg.	14.6		8.5	0.			
2	STACK	MM-5	1	13.8	~~22.8~~ 22.6	9.0			1450	SR
	MM-5		2	13.8	22.8	9.0				
			3	13.8	22.8	9.0				
			Avg.	13.8		9.0				
3	STACK	MM-5	1	14.0	23.0	9.0			1530	SR
	MM-5		2	14.0	23.0	9.0				
			3	14.0	23.0	9.0				
			Avg.	14.0		9.0				
			1							
			2							
			3							
			Avg.							

CAE P3 ver 1.0
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E

FIELD DATA PRINTOUTS

E

SOLVAY MINERALS
CAE Project No. 7629-2
12/14/95

Run Summary

12/14/95

EP 1&2 Run 1

DATE	TIME (CST)		Methane		
		Inj #	RT	AREA	AMT
12/14/95	10:41 AM	1	13.87	53973368	1164
12/14/95	10:42 AM	2	13.87	54742072	1179
12/14/95	10:43 AM	3	13.87	55548584	1195
12/14/95	10:44 AM	4	13.87	56257320	1209
12/14/95	10:45 AM	5	13.87	57579560	1235
12/14/95	10:46 AM	6	13.87	57104816	1226
12/14/95	10:47 AM	7	13.87	56221028	1208
12/14/95	10:48 AM	8	13.87	56560824	1215
12/14/95	10:49 AM	9	13.87	64247616	1366
12/14/95	10:50 AM	10	13.87	64255844	1366
12/14/95	10:51 AM	11	13.87	68282728	1446
12/14/95	10:52 AM	12	13.87	66295536	1406
12/14/95	10:53 AM	13	13.87	64229236	1366
12/14/95	10:54 AM	14	13.87	60731656	1297
12/14/95	10:55 AM	15	13.87	57521520	1234
12/14/95	10:56 AM	16	13.87	54707896	1179
12/14/95	10:57 AM	17	13.87	55813176	1200
12/14/95	10:58 AM	18	13.87	55906248	1202
12/14/95	10:59 AM	19	13.87	54123712	1167
12/14/95	11:00 AM	20	13.87	52080076	1127
12/14/95	11:01 AM	21	13.87	53295388	1151
12/14/95	11:02 AM	22	13.87	53023776	1146
12/14/95	11:03 AM	23	13.87	53155196	1148
12/14/95	11:04 AM	24	13.85	54868496	1182
12/14/95	11:05 AM	25	13.87	52917952	1144
12/14/95	11:06 AM	26	13.87	48919548	1065
12/14/95	11:07 AM	27	13.87	53310592	1151
12/14/95	11:08 AM	28	13.85	51668744	1119
12/14/95	11:09 AM	29	13.85	50404436	1094
12/14/95	11:10 AM	30	13.87	50168376	1090
12/14/95	11:11 AM	31	13.87	53233848	1150
12/14/95	11:12 AM	32	13.85	51454560	1115
12/14/95	11:13 AM	33	13.87	52502576	1135
12/14/95	11:14 AM	34	13.87	50406512	1094
12/14/95	11:15 AM	35	13.87	49320904	1073
12/14/95	11:16 AM	36	13.87	48846184	1064
12/14/95	11:17 AM	37	13.87	47966248	1046
12/14/95	11:18 AM	38	13.87	47772520	1042
12/14/95	11:19 AM	39	13.87	47027224	1028
12/14/95	11:20 AM	40	13.87	45985392	1007
12/14/95	11:21 AM	41	13.87	45695176	1002
12/14/95	11:22 AM	42	13.87	[illegible]	[illegible]

SOLVAY MINERALS
CAE Project No. 7629-2
12/14/95

Run Summary

12/14/95

12/14/95	11:23 AM	43	13.87	45112280	990
12/14/95	11:24 AM	44	13.87	43015704	949
12/14/95	11:25 AM	45	13.87	43558104	960
12/14/95	11:26 AM	46	13.87	43178420	952
12/14/95	11:27 AM	47	13.87	43875320	966
12/14/95	11:28 AM	48	13.87	42700120	943
12/14/95	11:29 AM	49	13.87	41872784	926
12/14/95	11:30 AM	50	13.87	43348664	955
12/14/95	11:31 AM	51	13.87	44142320	971
12/14/95	11:32 AM	52	13.87	43386476	956
12/14/95	11:33 AM	53	13.87	43386880	956
12/14/95	11:34 AM	54	13.87	45347104	995
12/14/95	11:35 AM	55	13.87	49775752	1082
12/14/95	11:36 AM	56	13.87	48336208	1053
12/14/95	11:37 AM	57	13.87	48877824	1064
12/14/95	11:38 AM	58	13.87	47125840	1030
12/14/95	11:39 AM	59	13.87	44905576	986
12/14/95	11:40 AM	60	13.89	40432440	898
12/14/95	11:41 AM	61	13.89	42231696	933
12/14/95	11:42 AM	62	13.89	43277868	954
12/14/95	11:44 AM	63	13.89	47963960	1046
12/14/95	11:45 AM	64	13.89	47320648	1034
12/14/95	11:46 AM	65	13.89	46733720	1022
12/14/95	11:47 AM	66	13.89	46747560	1022
12/14/95	11:48 AM	67	13.89	45663444	1001
12/14/95	11:49 AM	68	13.89	46561308	1019
12/14/95	11:50 AM	69	13.89	46752812	1022
12/14/95	11:51 AM	70	13.89	48070488	1048
12/14/95	11:52 AM	71	13.89	49373272	1074
12/14/95	11:53 AM	72	13.89	49727572	1081
12/14/95	11:54 AM	73	13.89	49143496	1069
12/14/95	11:55 AM	74	13.89	47006048	1027
12/14/95	11:56 AM	75	13.89	47256280	1032
12/14/95	11:57 AM	76	13.89	49151520	1070
12/14/95	11:58 AM	77	13.89	48781744	1062
12/14/95	11:59 AM	78	13.91	48015212	1047
12/14/95	12:00 PM	79	13.89	48700064	1061
12/14/95	12:01 PM	80	13.89	44301992	974
12/14/95	12:02 PM	81	13.89	44445644	977
12/14/95	12:03 PM	82	13.89	49576040	1078
			Average		**1089**

SOLVAY MINERALS
CAE Project No. 7629-2
12/14/95

Run Summary

12/14/95

EP 1&2 Run 2

DATE	TIME (CST)		Methane		
		Inj #	RT	AREA	AMT
12/14/95	1:28 PM	1	13.93	51811924	1122
12/14/95	1:29 PM	2	13.93	52825828	1142
12/14/95	1:30 PM	3	13.93	50829016	1102
12/14/95	1:31 PM	4	13.95	50018248	1087
12/14/95	1:32 PM	5	13.93	53137576	1148
12/14/95	1:33 PM	6	13.95	48636696	1059
12/14/95	1:34 PM	7	13.95	49145512	1069
12/14/95	1:35 PM	8	13.95	53738400	1160
12/14/95	1:36 PM	9	13.95	51095476	1108
12/14/95	1:37 PM	10	13.95	54086892	1167
12/14/95	1:38 PM	11	13.95	54494456	1175
12/14/95	1:39 PM	12	13.95	53811412	1161
12/14/95	1:40 PM	13	13.95	54372096	1172
12/14/95	1:41 PM	14	13.95	53394116	1153
12/14/95	1:42 PM	15	13.95	51795744	1121
12/14/95	1:43 PM	16	13.95	50411408	1094
12/14/95	1:44 PM	17	13.95	52276240	1131
12/14/95	1:45 PM	18	13.95	52713336	1140
12/14/95	1:46 PM	19	13.95	49872352	1084
12/14/95	1:47 PM	20	13.95	49024040	1067
12/14/95	1:48 PM	21	13.95	48932976	1065
12/14/95	1:49 PM	22	13.95	49339288	1073
12/14/95	1:50 PM	23	13.95	50071496	1088
12/14/95	1:51 PM	24	13.95	49675468	1080
12/14/95	1:52 PM	25	13.95	50222432	1091
12/14/95	1:53 PM	26	13.95	50053656	1087
12/14/95	1:54 PM	27	13.95	51274288	1111
12/14/95	1:55 PM	28	13.95	49990608	1086
12/14/95	1:56 PM	29	13.95	48929000	1065
12/14/95	1:57 PM	30	13.95	48167056	1050
12/14/95	1:58 PM	31	13.95	48242000	1052
12/14/95	1:59 PM	32	13.95	47447328	1036
12/14/95	2:00 PM	33	13.95	47420160	1035
12/14/95	2:01 PM	34	13.95	48609204	1059
12/14/95	2:02 PM	35	13.95	47056352	1028
12/14/95	2:03 PM	36	13.95	46751896	1022
12/14/95	2:04 PM	37	13.95	45257168	993
12/14/95	2:05 PM	38	13.95	47150176	1030
12/14/95	2:06 PM	39	13.95	46430284	1016
12/14/95	2:07 PM	40	13.95	45240944	993
12/14/95	2:08 PM	41	13.95	46593200	1019
12/14/95	2:09 PM	42	13.95	[illegible]	[illegible]

SOLVAY MINERALS
CAE Project No. 7629-2
12/14/95

Run Summary

12/14/95

12/14/95	2:10 PM	43	13.95	45284432	994
12/14/95	2:11 PM	44	13.95	46929184	1026
12/14/95	2:12 PM	45	13.95	44364148	975
12/14/95	2:13 PM	46	13.95	48232088	1051
12/14/95	2:14 PM	47	13.95	47708540	1041
12/14/95	2:15 PM	48	13.95	46111104	1010
12/14/95	2:16 PM	49	13.97	45280796	993
12/14/95	2:17 PM	50	13.95	44409356	976
12/14/95	2:18 PM	51	13.95	46501160	1017
12/14/95	2:19 PM	52	13.95	49264908	1072
12/14/95	2:21 PM	53	13.95	47318828	1033
12/14/95	2:22 PM	54	13.95	48320832	1053
12/14/95	2:23 PM	55	13.95	46655884	1020
12/14/95	2:24 PM	56	13.97	46712220	1022
12/14/95	2:25 PM	57	13.95	46829976	1024
12/14/95	2:26 PM	58	13.97	45220416	992
12/14/95	2:27 PM	59	13.97	46366784	1015
12/14/95	2:28 PM	60	13.97	45740152	1002
12/14/95	2:29 PM	61	13.97	45499532	998
				Average	**1064**

SOLVAY MINERALS
CAE Project No. 7629-2
12/14/95

Run Summary

12/14/95

EP 1&2 Run 3

DATE	TIME (CST)		Methane		
			RT	AREA	AMT
12/14/95	3:39 PM	1	14.01	49557528	1077
12/14/95	3:40 PM	2	13.99	47153456	1030
12/14/95	3:41 PM	3	13.99	48651276	1060
12/14/95	3:42 PM	4	13.99	49600668	1078
12/14/95	3:43 PM	5	14.01	49063832	1068
12/14/95	3:44 PM	6	14.01	48732952	1061
12/14/95	3:45 PM	7	14.01	48421056	1055
12/14/95	3:46 PM	8	14.01	49614652	1079
12/14/95	3:47 PM	9	14.01	48618236	1059
12/14/95	3:48 PM	10	14.01	50182784	1090
12/14/95	3:49 PM	11	14.01	48111056	1049
12/14/95	3:50 PM	12	14.01	49079800	1068
12/14/95	3:51 PM	13	14.01	47047664	1028
12/14/95	3:52 PM	14	13.99	50606336	1098
12/14/95	3:53 PM	15	13.99	49539992	1077
12/14/95	3:54 PM	16	14.01	49863816	1084
12/14/95	3:55 PM	17	13.99	49503360	1076
12/14/95	3:56 PM	18	13.99	50463584	1095
12/14/95	3:57 PM	19	13.99	49030768	1067
12/14/95	3:58 PM	20	13.99	50634784	1099
12/14/95	3:59 PM	21	13.99	49738000	1081
12/14/95	4:00 PM	22	13.99	48822424	1063
12/14/95	4:01 PM	23	13.99	50739812	1101
12/14/95	4:02 PM	24	13.99	50073080	1088
12/14/95	4:03 PM	25	13.99	52211260	1130
12/14/95	4:04 PM	26	13.99	52975944	1145
12/14/95	4:05 PM	27	13.99	54647276	1178
12/14/95	4:06 PM	28	13.99	53640048	1158
12/14/95	4:07 PM	29	13.99	52194056	1129
12/14/95	4:08 PM	30	13.99	53503688	1155
12/14/95	4:09 PM	31	13.99	53741648	1160
12/14/95	4:10 PM	32	13.99	53195912	1149
12/14/95	4:11 PM	33	13.99	53034656	1146
12/14/95	4:12 PM	34	13.99	52273632	1131
12/14/95	4:13 PM	35	13.99	53669336	1158
12/14/95	4:14 PM	36	13.99	54814320	1181
12/14/95	4:15 PM	37	13.99	53324908	1152
12/14/95	4:17 PM	38	13.99	54494624	1175
12/14/95	4:18 PM	39	13.99	54008704	1165
12/14/95	4:19 PM	40	13.99	54457724	1174
12/14/95	4:20 PM	41	13.99	53130400	1148
12/14/95	4:21 PM	42	13.99	[illegible]	[illegible]

SOLVAY MINERALS
CAE Project No. 7629-2
12/14/95

Run Summary

12/14/95

12/14/95	4:22 PM	43	13.99	56264716	1209
12/14/95	4:23 PM	44	13.99	53574608	1156
12/14/95	4:24 PM	45	13.99	51761164	1121
12/14/95	4:25 PM	46	13.99	51414392	1114
12/14/95	4:26 PM	47	13.99	53152664	1148
12/14/95	4:27 PM	48	13.99	55132968	1187
12/14/95	4:28 PM	49	13.99	52966552	1145
12/14/95	4:29 PM	50	13.99	53904064	1163
12/14/95	4:30 PM	51	13.99	51281960	1111
12/14/95	4:31 PM	52	13.99	51771344	1121
12/14/95	4:32 PM	53	13.99	52334624	1132
12/14/95	4:33 PM	54	13.99	51587712	1117
12/14/95	4:34 PM	55	13.99	54387504	1172
12/14/95	4:35 PM	56	13.99	52814444	1142
12/14/95	4:36 PM	57	13.99	53250296	1150
12/14/95	4:37 PM	58	13.99	50537736	1097
12/14/95	4:38 PM	59	13.99	50818048	1102
12/14/95	4:39 PM	60	13.99	49513440	1077
12/14/95	4:40 PM	61	13.99	51223992	1110
				Average	**1116**

Solvay Minerals, Inc.
CAE Job No. 7629-2
12/14/95

Chromatagraphic Data Reduction

Limits of Detection

Compound	(ppmwv)
2-Butanone	2.50
Hexane	0.06
Methylene Chloride	0.86
1,1,1-Trichloroethane	0.82
Benzene	0.12
Toluene	0.05
Ethylbenzene	0.08
Xylene	0.07
1,3 Butadiene	0.50
Styrene	0.13
Acrylonitrile	11.80
Trichloroethene	0.34

EP 1 & 2 Calciner Stack - Run 1

Compound	12/14/95 9:53 (ppmwv)	12/14/95 10:19 (ppmwv)	12/14/95 10:46 (ppmwv)	12/14/95 11:13 (ppmwv)	Average
1,3 Butadiene	BDL	BDL	BDL	BDL	BDL
Hexane	0.59	1.06	1.78	1.51	1.23
Methylene Chloride	BDL	1.55	BDL	BDL	0.39
1,1,1-Trichloroethane	BDL	BDL	2.21	BDL	0.55
2-Butanone	BDL	BDL	BDL	BDL	BDL
Benzene	1.50	2.24	3.13	2.57	2.36
Trichloroethene	BDL	BDL	BDL	BDL	BDL
Acrylonitrile	BDL	BDL	BDL	BDL	BDL
Toluene	0.40	0.67	1.13	1.02	0.80
Ethylbenzene	BDL	BDL	0.09	BDL	0.02
Xylene	0.10	0.15	0.27	0.24	0.19
Styrene	BDL	BDL	1.11	0.91	0.50

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 Job No. 7629-2
12/14/95

Chromatagraphic Data Reduction

EP 1 & 2 Calciner Stack - Run 2

Compound	12/14/95 12:17 (ppmwv)	12/14/95 12:43 (ppmwv)	12/14/95 13:09 (ppmwv)	12/14/95 13:35 (ppmwv)	Average
1,3 Butadiene	BDL	BDL	BDL	BDL	BDL
Hexane	0.41	1.84	1.17	1.18	1.15
Methylene Chloride	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	BDL	BDL	BDL	BDL	BDL
2-Butanone	BDL	BDL	BDL	BDL	BDL
Benzene	0.99	2.82	1.99	2.09	1.97
Trichloroethene	BDL	BDL	BDL	BDL	BDL
Acrylonitrile	BDL	BDL	BDL	BDL	BDL
Toluene	0.29	1.18	0.68	0.74	0.72
Ethylbenzene	BDL	BDL	BDL	BDL	BDL
Xylene	BDL	0.31	0.22	0.22	0.19
Styrene	BDL	1.09	0.73	BDL	0.45

EP 1 & 2 Calciner Stack - Run 3

Compound	12/14/95 14:29 (ppmwv)	12/14/95 14:56 (ppmwv)	12/14/95 15:23 (ppmwv)	12/14/95 15:50 (ppmwv)	Average
1,3 Butadiene	BDL	BDL	BDL	BDL	BDL
Hexane	3.16	2.64	2.10	1.82	2.43
Methylene Chloride	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	6.49	BDL	BDL	BDL	1.62
2-Butanone	BDL	BDL	BDL	BDL	BDL
Benzene	4.63	4.06	3.60	2.90	3.80
Trichloroethene	0.49	0.40	0.41	BDL	0.33
Acrylonitrile	BDL	BDL	BDL	BDL	BDL
Toluene	1.56	1.26	1.46	1.14	1.35
Ethylbenzene	0.21	0.14	0.11	0.13	0.15
Xylene	0.73	1.49	1.40	0.42	1.01
Styrene	1.85	1.52	1.29	1.07	1.43

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

Field Data Printout

Location: EP 1&2 Calciner Stack
Test Run: 1
Client: Solvay Minerals, Inc.
Project No: 7629-2
Test Date: 12/14/95
Meter ΔH@: 1.8373
Meter Y_d: 0.9984
Pitot C_p: 0.84
Static P: -0.3

Method: BIF 0011
Testing Type: Formaldehyde

Area (ft^2): 113.10

Filter No: N/A
Thimble No: N/A
Beaker No: N/A

Bar. Press. (in. Hg): 23.90
Assumed Moisture (%): 25.09

Nozzle Diameter (D_n): 0.270
O_2 (dry volume %): 13.5
CO_2 (dry volume %): 8.4
Start Time (approx.): 09:41
Stop Time (approx.): 11:28
H_2O (condensate, ml): 359.7
H_2O (silica, g): 20.6

Traverse Point	Run Time	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (ft^3)	Stack T_s (°F)	Dry Gas Meter $T_{m\,in}$ (°F)	Dry Gas Meter $T_{m\,out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.}$ H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			897.50						
2-01	4.0	0.60	1.40	900.24	385	48	43	0.77	2.74	100.8
2-02	8.0	0.65	1.50	903.05	384	50	44	0.81	2.81	99.0
2-03	12.0	0.63	1.40	905.78	385	51	44	0.79	2.73	97.6
2-04	16.0	0.60	1.40	908.53	385	54	44	0.77	2.75	100.5
2-05	20.0	0.52	1.20	911.10	384	56	45	0.72	2.57	100.5
2-06	24.0	0.35	0.81	913.24	376	60	48	0.59	2.14	100.7
2-01	28.0	0.62	1.40	916.09	384	60	50	0.79	2.85	101.2
2-02	32.0	0.65	1.50	918.87	383	61	50	0.81	2.78	96.3
2-03	36.0	0.65	1.50	921.67	384	62	51	0.81	2.80	96.8
2-04	40.0	0.60	1.40	924.43	384	62	52	0.77	2.76	99.2
2-05	44.0	0.57	1.30	927.08	384	64	55	0.75	2.65	97.2
2-06	48.0	0.38	0.87	929.32	378	66	56	0.62	2.24	99.9
3-01	52.0	0.75	1.70	932.33	383	67	60	0.87	3.01	95.6
3-02	56.0	0.74	1.70	935.37	382	68	60	0.86	3.04	97.1
3-03	60.0	0.74	1.70	938.40	383	69	61	0.86	3.03	96.6
3-04	64.0	0.71	1.60	941.38	382	70	61	0.84	2.98	96.8
3-05	68.0	0.65	1.50	944.25	382	71	62	0.81	2.87	97.3
3-06	72.0	0.43	0.99	946.65	378	72	63	0.66	2.40	99.4
1-01	76.0	0.65	1.50	949.53	379	71	65	0.81	2.88	97.1
1-02	80.0	0.65	1.50	952.41	374	72	66	0.81	2.88	96.7
1-03	84.0	0.67	1.50	955.40	373	73	66	0.82	2.99	98.7
1-04	88.0	0.65	1.50	958.17	372	73	67	0.81	2.77	92.7
1-05	92.0	0.60	1.40	960.98	368	73	67	0.77	2.81	97.6
1-06	96.0	0.40	0.92	963.30	367	73	68	0.63	2.32	98.4
Final	96.0		1.38	65.80	380	60		0.77		

Field Data Printout

Location:	EP 1&2 Calciner Stack	Method:	BIF 0011	Bar. Press. (in. Hg):	23.90
Test Run:	2	Testing Type:	Formaldehyde	Assumed Moisture (%):	24.88
Client:	Solvay Minerals, Inc.				
Project No:	7629-2			Nozzle Diameter (D_n):	0.270
Test Date:	12/14/95			O_2 (dry volume %):	13.6
Meter ΔH@:	1.8373	Area (ft^2):	113.10	CO_2 (dry volume %):	8.3
Meter Y_d:	0.9984			Start Time (approx.):	12:10
Pitot C_p:	0.84	Filter No:	N/A	Stop Time (approx.):	13:55
Static P:	-0.3	Thimble No:	N/A	H_2O (condensate, ml):	362.0
		Beaker No:	N/A	H_2O (silica, g):	22.4

Traverse Point	Run Time	Pitot ΔP_s	Sample ΔH	Metered (ft^3)	Stack T_s	Dry Gas Meter $T_{m\,in}$	Dry Gas Meter $T_{m\,out}$	$\sqrt{\Delta P_s}$ (calculated)	Volume (calculated)	Isokinetics (calculated)
	0.0	(in. H_2O)	(in. H_2O)	964.05	(°F)	(°F)	(°F)	($\sqrt{in.\ H_2O}$)	(ft^3)	(%)
1-01	4.0	0.65	1.50	967.98	373	66	66	0.81	3.93	132.3*
1-02	8.0	0.70	1.60	969.91	369	65	65	0.84	1.93	62.6*
1-03	12.0	0.68	1.60	973.01	369	65	64	0.82	3.10	102.1
1-04	16.0	0.68	1.60	975.88	368	68	64	0.82	2.87	94.2
1-05	20.0	0.63	1.40	978.68	367	69	65	0.79	2.80	95.2
1-06	24.0	0.40	0.92	981.03	360	71	65	0.63	2.35	99.5
1-01	28.0	0.65	1.50	983.89	372	72	65	0.81	2.86	95.7
1-02	32.0	0.66	1.50	986.78	370	73	66	0.81	2.89	95.7
1-03	36.0	0.68	1.60	989.75	370	73	66	0.82	2.97	96.9
1-04	40.0	0.65	1.50	992.67	370	73	66	0.81	2.92	97.5
1-05	44.0	0.60	1.40	995.49	367	72	65	0.77	2.82	97.9
1-06	48.0	0.58	1.30	998.21	368	72	65	0.76	2.72	96.1
2-01	52.0	0.68	1.60	1001.18	380	72	67	0.82	2.97	97.5
2-02	56.0	0.70	1.60	1004.18	379	72	67	0.84	3.00	97.0
2-03	60.0	0.68	1.60	1007.16	381	72	67	0.82	2.98	97.9
2-04	64.0	0.61	1.40	1010.02	381	73	67	0.78	2.86	99.1
2-05	68.0	0.53	1.20	1012.66	381	74	68	0.73	2.64	97.9
2-06	72.0	0.30	0.69	1014.70	370	74	68	0.55	2.04	99.7
3-01	76.0	0.70	1.60	1017.69	379	75	71	0.84	2.99	96.1
3-02	80.0	0.73	1.70	1020.78	379	75	70	0.85	3.09	97.3
3-03	84.0	0.75	1.70	1023.87	380	76	70	0.87	3.09	96.0
3-04	88.0	0.70	1.60	1026.84	381	76	70	0.84	2.97	95.5
3-05	92.0	0.68	1.60	1029.87	381	77	71	0.82	3.03	98.7
3-06	96.0	0.47	1.10	1032.47	379	77	71	0.69	2.60	101.6
Final	96.0		1.45	68.42	374	70		0.79		

Field Data Printout

Location: EP 1&2 Calciner Stack
Test Run: 3
Client: Solvay Minerals, Inc.
Project No: 7629-2
Test Date: 12/14/95
Meter ΔH@: 1.8373
Meter Y_d: 0.9984
Pitot C_p: 0.84
Static P: -0.3

Method: BIF 0011
Testing Type: Formaldehyde

Area (ft^2): 113.10

Filter No: N/A
Thimble No: N/A
Beaker No: N/A

Bar. Press. (in. Hg): 23.90
Assumed Moisture (%): 24.54

Nozzle Diameter (D_n): 0.270
O_2 (dry volume %): 13.6
CO_2 (dry volume %): 8.1
Start Time (approx.): 14:22
Stop Time (approx.): 16:06
H_2O (condensate, ml): 354.5
H_2O (silica, g): 19.9

Traverse Point	Run Time	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (ft^3)	Stack T_s (°F)	Dry Gas Meter $T_{m\,in}$ (°F)	Dry Gas Meter $T_{m\,out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.}$ H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			32.80						
3-01	4.0	0.66	1.50	35.79	380	74	73	0.81	2.99	98.5
3-02	8.0	0.70	1.60	38.80	381	71	71	0.84	3.01	96.8
3-03	12.0	0.70	1.60	41.82	383	72	71	0.84	3.02	97.1
3-04	16.0	0.70	1.60	44.83	383	73	71	0.84	3.01	96.7
3-05	20.0	0.62	1.40	47.67	383	74	72	0.79	2.84	96.7
3-06	24.0	0.41	0.94	50.07	380	76	72	0.64	2.40	100.0
3-01	28.0	0.65	1.50	53.00	382	77	74	0.81	2.93	97.0
3-02	32.0	0.70	1.60	56.03	382	77	73	0.84	3.03	96.8
3-03	36.0	0.73	1.70	59.15	382	77	72	0.85	3.12	97.7
3-04	40.0	0.69	1.60	62.18	383	77	73	0.83	3.03	97.5
3-05	44.0	0.65	1.50	65.14	382	76	73	0.81	2.96	98.2
3-06	48.0	0.44	1.00	67.63	380	75	72	0.66	2.49	100.3
1-01	52.0	0.66	1.50	70.55	378	73	72	0.81	2.92	96.2
1-02	56.0	0.69	1.60	73.57	374	71	71	0.83	3.02	97.4
1-03	60.0	0.65	1.50	76.51	373	70	69	0.81	2.94	97.9
1-04	64.0	0.65	1.50	79.43	373	71	69	0.81	2.92	97.1
1-05	68.0	0.60	1.40	82.25	372	71	69	0.77	2.82	97.5
1-06	72.0	0.41	0.94	84.59	365	71	68	0.64	2.34	97.5
2-01	76.0	0.66	1.50	87.49	382	70	69	0.81	2.90	96.3
2-02	80.0	0.66	1.50	90.38	383	69	67	0.81	2.89	96.3
2-03	84.0	0.66	1.50	93.25	384	69	67	0.81	2.87	95.7
2-04	88.0	0.62	1.40	96.05	385	70	67	0.79	2.80	96.3
2-05	92.0	0.62	1.40	98.85	385	71	67	0.79	2.80	96.2
2-06	96.0	0.36	0.83	100.94	379	70	67	0.60	2.09	93.8
Final	96.0		1.42	68.14	380	72		0.78		

SOLVAY MINERALS
CAE Project No. 7629
12/15/95

Run Summary

12/15/95

EP-5 Run 1

Date	Time (CST)	Inj#	Methane		
			RT	AREA	AMT
12/15/95	9:42 AM	1	13.79	6190424	268
12/15/95	9:43 AM	2	13.81	6549552	276
12/15/95	9:44 AM	3	13.81	6627752	278
12/15/95	9:45 AM	4	13.81	6434646	274
12/15/95	9:46 AM	5	13.81	6504948	275
12/15/95	9:47 AM	6	13.81	6327334	271
12/15/95	9:48 AM	7	13.81	6372196	272
12/15/95	9:49 AM	8	13.81	6385366	273
12/15/95	9:50 AM	9	13.81	6316906	271
12/15/95	9:51 AM	10	13.81	6346232	272
12/15/95	9:51 AM	11	13.81	6040748	265
12/15/95	9:52 AM	12	13.81	6154996	267
12/15/95	9:53 AM	13	13.81	5939124	262
12/15/95	9:54 AM	14	13.81	6191952	268
12/15/95	9:55 AM	15	13.81	6197646	268
12/15/95	9:56 AM	16	13.81	6495180	275
12/15/95	9:57 AM	17	13.81	6087344	266
12/15/95	9:58 AM	18	13.81	5884760	261
12/15/95	9:59 AM	19	13.81	5765336	259
12/15/95	10:00 AM	20	13.81	5807630	259
12/15/95	10:01 AM	21	13.81	6007404	264
12/15/95	10:02 AM	22	13.81	6080496	266
12/15/95	10:03 AM	23	13.81	6089196	266
12/15/95	10:04 AM	24	13.81	5941796	263
12/15/95	10:05 AM	25	13.81	5776338	259
12/15/95	10:06 AM	26	13.83	5787092	259
12/15/95	10:07 AM	27	13.81	5656062	256
12/15/95	10:08 AM	28	13.81	5679884	257
12/15/95	10:08 AM	29	13.83	5776186	259
12/15/95	10:09 AM	30	13.81	5607870	255
12/15/95	10:10 AM	31	13.81	5339766	249
12/15/95	10:11 AM	32	13.81	5290030	248
12/15/95	10:12 AM	33	13.81	5332716	249
12/15/95	10:13 AM	34	13.81	5324396	249
12/15/95	10:14 AM	35	13.81	5286036	248
12/15/95	10:15 AM	36	13.81	5012748	241
12/15/95	10:16 AM	37	13.81	4878368	238
12/15/95	10:17 AM	38	13.81	4354672	227
12/15/95	10:18 AM	39	13.81	4405802	228
12/15/95	10:19 AM	40	13.83	4386258	227
12/15/95	10:20 AM	41	13.83	4207904	223

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SOLVAY MINERALS
CAE Project No. 7629
12/15/95

Run Summary

12/15/95

12/15/95	10:21 AM	42	13.81	4239772	224
12/15/95	10:22 AM	43	13.83	3936270	217
12/15/95	10:23 AM	44	13.83	3741222	213
12/15/95	10:24 AM	45	13.83	3604920	210
12/15/95	10:24 AM	46	13.83	3513078	207
12/15/95	10:25 AM	47	13.83	3231146	201
12/15/95	10:26 AM	48	13.83	3282258	202
12/15/95	10:27 AM	49	13.83	3173102	200
12/15/95	10:28 AM	50	13.83	3186300	200
12/15/95	10:29 AM	51	13.83	3076056	197
12/15/95	10:30 AM	52	13.83	3067270	197
12/15/95	10:31 AM	53	13.83	2912816	194
12/15/95	10:32 AM	54	13.83	2877388	193
12/15/95	10:33 AM	55	13.83	2804538	191
12/15/95	10:34 AM	56	13.83	2707688	189
12/15/95	10:35 AM	57	13.83	2620830	187
12/15/95	10:36 AM	58	13.83	2754072	190
12/15/95	10:37 AM	59	13.83	2681960	189
12/15/95	10:38 AM	60	13.83	2868126	193
12/15/95	10:39 AM	61	13.83	2845552	192
12/15/95	10:40 AM	62	13.85	2649308	188
12/15/95	10:41 AM	63	13.85	2369606	181
12/15/95	10:41 AM	64	13.83	2647532	188
				Average	**237**

SOLVAY MINERALS
CAE Project No. 7629
12/15/95

Run Summary

12/15/95

EP-5 Run 2

Date	Time (CST)	Inj#	Methane		
			RT	AREA	AMT
12/15/95	12:05 PM	1	13.83	4750566	236
12/15/95	12:06 PM	2	13.83	4912628	239
12/15/95	12:07 PM	3	13.83	5148976	245
12/15/95	12:08 PM	4	13.83	5029734	242
12/15/95	12:09 PM	5	13.83	5068194	243
12/15/95	12:10 PM	6	13.83	5015056	242
12/15/95	12:11 PM	7	13.83	5043778	242
12/15/95	12:12 PM	8	13.83	5154980	245
12/15/95	12:13 PM	9	13.83	5278320	247
12/15/95	12:14 PM	10	13.83	5348160	249
12/15/95	12:15 PM	11	13.83	5360378	249
12/15/95	12:16 PM	12	13.83	4963988	240
12/15/95	12:17 PM	13	13.83	5061992	243
12/15/95	12:18 PM	14	13.83	5150678	245
12/15/95	12:19 PM	15	13.83	5196372	246
12/15/95	12:20 PM	16	13.83	5402918	250
12/15/95	12:20 PM	17	13.83	5417300	251
12/15/95	12:21 PM	18	13.85	5113240	244
12/15/95	12:22 PM	19	13.85	5067848	243
12/15/95	12:23 PM	20	13.83	5199254	246
12/15/95	12:24 PM	21	13.83	5506714	253
12/15/95	12:25 PM	22	13.85	5394490	250
12/15/95	12:26 PM	23	13.85	5511458	253
12/15/95	12:27 PM	24	13.85	5454742	251
12/15/95	12:28 PM	25	13.85	5243502	247
12/15/95	12:29 PM	26	13.83	5166128	245
12/15/95	12:30 PM	27	13.85	5092210	243
12/15/95	12:31 PM	28	13.83	5040884	242
12/15/95	12:32 PM	29	13.83	5227194	246
12/15/95	12:33 PM	30	13.83	5227120	246
12/15/95	12:34 PM	31	13.83	5019190	242
12/15/95	12:35 PM	32	13.85	4782200	236
12/15/95	12:35 PM	33	13.83	4797196	237
12/15/95	12:36 PM	34	13.85	4951764	240
12/15/95	12:37 PM	35	13.85	4816182	237
12/15/95	12:38 PM	36	13.85	5093498	243
12/15/95	12:39 PM	37	13.85	5011618	241
12/15/95	12:40 PM	38	13.85	4809822	237
12/15/95	12:41 PM	39	13.85	4745682	235
12/15/95	12:42 PM	40	13.85	4884926	239
12/15/95	12:43 PM	41	13.85	4862104	238

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SOLVAY MINERALS
CAE Project No. 7629
12/15/95

Run Summary

12/15/95

12/15/95	12:44 PM	42	13.85	5099334	243
12/15/95	12:45 PM	43	13.85	5000620	241
12/15/95	12:46 PM	44	13.85	4842248	238
12/15/95	12:47 PM	45	13.85	4421422	228
12/15/95	12:48 PM	46	13.85	4719568	235
12/15/95	12:49 PM	47	13.85	4466568	229
12/15/95	12:50 PM	48	13.87	4406032	228
12/15/95	12:51 PM	49	13.87	4237586	224
12/15/95	12:51 PM	50	13.85	4133554	221
12/15/95	12:52 PM	51	13.85	3985186	218
12/15/95	12:53 PM	52	13.87	3981020	218
12/15/95	12:54 PM	53	13.85	4192184	223
12/15/95	12:55 PM	54	13.85	4278074	225
12/15/95	12:56 PM	55	13.87	4360326	227
12/15/95	12:57 PM	56	13.87	4191668	223
12/15/95	12:58 PM	57	13.87	3896526	216
12/15/95	12:59 PM	58	13.87	3721054	212
12/15/95	1:00 PM	59	13.87	3996938	218
12/15/95	1:01 PM	60	13.87	3967694	218
12/15/95	1:02 PM	61	13.87	4027706	219
12/15/95	1:03 PM	62	13.87	3766998	213
12/15/95	1:04 PM	63	13.87	3978582	218
12/15/95	1:05 PM	64	13.87	3753922	213
12/15/95	1:06 PM	65	13.87	3905128	216
				Average	**236**

SOLVAY MINERALS
CAE Project No. 7629
12/15/95

Run Summary

12/15/95

EP-5 Run 3

Date	Time (CST)	Inj#	Methane RT	Methane AREA	Methane AMT
12/15/95	2:10 PM	1	13.89	2965458	195
12/15/95	2:11 PM	2	13.89	2968278	195
12/15/95	2:12 PM	3	13.89	3106826	198
12/15/95	2:13 PM	4	13.89	3093798	198
12/15/95	2:14 PM	5	13.89	3060618	197
12/15/95	2:15 PM	6	13.89	3025596	196
12/15/95	2:16 PM	7	13.89	3035888	197
12/15/95	2:17 PM	8	13.89	2923632	194
12/15/95	2:18 PM	9	13.89	2922296	194
12/15/95	2:19 PM	10	13.89	2899148	193
12/15/95	2:20 PM	11	13.89	3159832	199
12/15/95	2:21 PM	12	13.89	3013088	196
12/15/95	2:22 PM	13	13.89	3020958	196
12/15/95	2:23 PM	14	13.89	3055820	197
12/15/95	2:24 PM	15	13.89	2993988	196
12/15/95	2:25 PM	16	13.89	3145866	199
12/15/95	2:25 PM	17	13.89	3260692	202
12/15/95	2:26 PM	18	13.89	3164354	200
12/15/95	2:27 PM	19	13.89	3099658	198
12/15/95	2:28 PM	20	13.89	3261380	202
12/15/95	2:29 PM	21	13.89	3074154	197
12/15/95	2:30 PM	22	13.89	3085904	198
12/15/95	2:31 PM	23	13.89	3051042	197
12/15/95	2:32 PM	24	13.89	3238240	201
12/15/95	2:33 PM	25	13.89	3168550	200
12/15/95	2:34 PM	26	13.89	3118752	198
12/15/95	2:35 PM	27	13.89	2895800	193
12/15/95	2:36 PM	28	13.91	2912464	194
12/15/95	2:37 PM	29	13.89	3046966	197
12/15/95	2:38 PM	30	13.89	3095408	198
12/15/95	2:39 PM	31	13.89	3011604	196
12/15/95	2:40 PM	32	13.91	2832788	192
12/15/95	2:40 PM	33	13.89	2862184	193
12/15/95	2:41 PM	34	13.91	2837536	192
12/15/95	2:42 PM	35	13.91	2889556	193
12/15/95	2:43 PM	36	13.91	3016804	196
12/15/95	2:44 PM	37	13.91	3094078	198
12/15/95	2:45 PM	38	13.91	3059220	197
12/15/95	2:46 PM	39	13.91	3044884	197
12/15/95	2:47 PM	40	13.91	2861660	193
12/15/95	2:48 PM	41	13.91	3042306	197
12/15/95	2:49 PM	42	13.91	[illegible]	[illegible]

SOLVAY MINERALS
CAE Project No. 7629
12/15/95

Run Summary

12/15/95

12/15/95	2:50 PM	43	13.91	3137116	199
12/15/95	2:51 PM	44	13.91	3292474	202
12/15/95	2:52 PM	45	13.91	3232850	201
12/15/95	2:53 PM	46	13.91	3234316	201
12/15/95	2:54 PM	47	13.91	3279250	202
12/15/95	2:55 PM	48	13.91	3291702	202
12/15/95	2:55 PM	49	13.91	3307354	203
12/15/95	2:56 PM	50	13.91	3392066	205
12/15/95	2:57 PM	51	13.91	3454618	206
12/15/95	2:58 PM	52	13.91	3420278	205
12/15/95	2:59 PM	53	13.91	3385736	205
12/15/95	3:00 PM	54	13.91	3661384	211
12/15/95	3:01 PM	55	13.91	3558102	208
12/15/95	3:02 PM	56	13.91	3572128	209
12/15/95	3:03 PM	57	13.91	3621546	210
12/15/95	3:04 PM	58	13.91	3508620	207
12/15/95	3:05 PM	59	13.91	3331994	203
12/15/95	3:06 PM	60	13.91	3578796	209
12/15/95	3:07 PM	61	13.91	3537300	208
12/15/95	3:08 PM	62	13.91	3537088	208
12/15/95	3:09 PM	63	13.93	3359694	204
12/15/95	3:10 PM	64	13.91	3439240	206
12/15/95	3:11 PM	65	13.91	3340170	203
12/15/95	3:11 PM	66	13.91	3392306	205
12/15/95	3:12 PM	67	13.91	3361982	204
12/15/95	3:13 PM	68	13.93	3271510	202
				Average	**200**

Solvay Minerals, Inc.
CAE Job No. 7629-2
12/15/95

Chromatagraphic Data Reduction

Limits of Detection

Compound	(ppmwv)
2-Butanone	2.50
Hexane	0.06
Methylene Chloride	0.86
1,1,1-Trichloroethane	0.82
Benzene	0.12
Toluene	0.05
Ethylbenzene	0.08
Xylene	0.07
1,3 Butadiene	0.50
Styrene	0.13
Acrylonitrile	11.80
Trichloroethene	0.34

EP-5 Calciner Stack - Run 1

Compound	12/15/95 8:28 (ppmwv)	12/15/95 8:54 (ppmwv)	12/15/95 9:20 (ppmwv)	12/15/95 9:46 (ppmwv)	Average
1,3 Butadiene	BDL	BDL	BDL	BDL	BDL
Hexane	2.88	3.19	1.91	1.09	2.27
Methylene Chloride	BDL	3.59	1.14	BDL	1.18
1,1,1-Trichloroethane	BDL	3.16	1.24	BDL	1.10
2-Butanone	BDL	BDL	BDL	BDL	BDL
Benzene	8.19	7.32	4.55	2.66	5.68
Trichloroethene	0.86	0.50	BDL	BDL	0.34
Acrylonitrile	BDL	BDL	BDL	BDL	BDL
Toluene	2.28	2.40	1.76	0.97	1.85
Ethylbenzene	0.18	0.19	0.11	0.08	0.14
Xylene	0.68	1.61	1.66	1.11	1.26
Styrene	1.02	2.13	1.33	0.77	1.31

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 Job No. 7629-2
12/15/95

Chromatagraphic Data Reduction

EP-5 Calciner Stack - Run 2

Compound	12/15/95 10:49 (ppmwv)	12/15/95 11:15 (ppmwv)	12/15/95 11:41 (ppmwv)	12/15/95 12:07 (ppmwv)	Average
1,3 Butadiene	BDL	BDL	BDL	BDL	BDL
Hexane	1.91	2.57	2.47	1.79	2.19
Methylene Chloride	BDL	1.24	BDL	BDL	0.31
1,1,1-Trichloroethane	6.66	BDL	BDL	BDL	1.66
2-Butanone	BDL	BDL	BDL	BDL	BDL
Benzene	4.67	6.15	5.89	4.64	5.34
Trichloroethene	BDL	0.45	0.39	0.37	0.30
Acrylonitrile	BDL	BDL	BDL	BDL	BDL
Toluene	1.72	2.10	2.09	1.69	1.90
Ethylbenzene	BDL	0.15	0.16	0.14	0.11
Xylene	0.45	0.63	0.62	1.38	0.77
Styrene	1.37	1.67	1.74	1.30	1.52

EP-5 Calciner Stack - Run 3

Compound	12/15/95 13:00 (ppmwv)	12/15/95 13:26 (ppmwv)	12/15/95 13:53 (ppmwv)	12/15/95 14:22 (ppmwv)	Average
1,3 Butadiene	BDL	BDL	BDL	BDL	BDL
Hexane	1.64	1.61	1.67	1.80	1.68
Methylene Chloride	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	5.54	BDL	BDL	BDL	1.38
2-Butanone	BDL	BDL	BDL	BDL	BDL
Benzene	3.85	3.84	4.36	4.53	4.15
Trichloroethene	BDL	BDL	0.40	BDL	0.10
Acrylonitrile	BDL	BDL	BDL	BDL	BDL
Toluene	1.26	1.25	1.50	1.61	1.40
Ethylbenzene	BDL	0.10	0.10	0.13	0.08
Xylene	0.81	0.43	0.43	0.42	0.52
Styrene	1.01	1.05	1.18	1.30	1.13

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

Field Data Printout

Location:	EP-5 Calciner Stack	Method:	BIF 0011	Bar. Press. (in. Hg):	24.00
Test Run:	1	Testing Type:	Formaldehyde	Assumed Moisture (%):	35.58
Client:	Solvay Minerals, Inc.				
Project No:	7629-2			Nozzle Diameter (D_n):	0.375
Test Date:	12/15/95			O_2 (dry volume %):	8.4
Meter ΔH@:	1.8373	Area (ft^2):	85.90	CO_2 (dry volume %):	14.6
Meter Y_d:	0.9984			Start Time (approx.):	08:26
Pitot C_p:	0.84	Filter No:	N/A	Stop Time (approx.):	10:11
Static P:	-0.2	Thimble No:	N/A	H_2O (condensate, ml):	497.1
		Beaker No:	N/A	H_2O (silica, g):	17.8

Traverse Point	Run Time	Pitot ΔP_s	Sample ΔH	Metered	Stack T_s	Dry Gas Meter $T_{m\,in}$	Dry Gas Meter $T_{m\,out}$	$\sqrt{\Delta P_s}$ (calculated)	Volume (calculated)	Isokinetics (calculated)
	0.0	(in. H_2O)	(in. H_2O)	(ft^3) 101.23	(°F)	(°F)	(°F)	($\sqrt{in.}$ H_2O)	(ft^3)	(%)
4-01	4.0	0.13	0.99	103.70	317	71	71	0.36	2.47	106.0
4-01	8.0	0.13	0.99	105.96	317	71	71	0.36	2.26	97.0
4-02	12.0	0.11	0.84	108.13	314	71	70	0.33	2.17	101.1
4-02	16.0	0.11	0.84	110.30	315	72	71	0.33	2.17	101.0
4-03	20.0	0.09	0.68	112.27	304	72	70	0.30	1.97	100.7
4-03	24.0	0.09	0.68	114.24	304	73	71	0.30	1.97	100.5
3-01	28.0	0.16	1.20	116.81	319	73	70	0.40	2.57	99.5
3-01	32.0	0.16	1.20	119.39	321	73	69	0.40	2.58	100.1
3-02	36.0	0.17	1.30	122.05	319	73	69	0.41	2.66	100.1
3-02	40.0	0.17	1.30	124.73	319	74	68	0.41	2.68	100.8
3-03	44.0	0.12	0.91	127.00	310	74	69	0.35	2.27	100.8
3-03	48.0	0.12	0.91	129.27	312	74	68	0.35	2.27	101.1
2-01	52.0	0.16	1.20	131.86	319	72	68	0.40	2.59	100.6
2-01	56.0	0.16	1.20	134.43	320	71	67	0.40	2.57	100.1
2-02	60.0	0.15	1.10	136.91	319	71	67	0.39	2.48	99.6
2-02	64.0	0.15	1.10	139.38	319	71	68	0.39	2.47	99.1
2-03	68.0	0.11	0.84	141.56	311	73	69	0.33	2.18	101.3
2-03	72.0	0.11	0.84	143.76	312	74	69	0.33	2.20	102.2
1-01	76.0	0.11	0.84	145.91	314	75	71	0.33	2.15	99.7
1-01	80.0	0.11	0.84	148.11	319	75	70	0.33	2.20	102.5
1-02	84.0	0.11	0.84	150.29	317	76	71	0.33	2.18	101.2
1-02	88.0	0.11	0.84	152.50	317	77	72	0.33	2.21	102.4
1-03	92.0	0.08	0.61	154.38	309	79	72	0.28	1.88	101.4
1-03	96.0	0.08	0.61	156.27	310	80	74	0.28	1.89	101.7
Final	96.0		0.95	55.04	315	72		0.35		

Field Data Printout

Location: EP-5 Calciner Stack
Test Run: 2
Client: Solvay Minerals, Inc.
Project No: 7629-2
Test Date: 12/15/95
Meter ΔH@: 1.8373
Meter Y_d: 0.9984
Pitot C_p: 0.84
Static P: -0.2

Method: BIF 0011
Testing Type: Formaldehyde

Area (ft^2): 85.90

Filter No: N/A
Thimble No: N/A
Beaker No: N/A

Bar. Press. (in. Hg): 24.00
Assumed Moisture (%): 35.98

Nozzle Diameter (D_n): 0.375
O_2 (dry volume %): 9.0
CO_2 (dry volume %): 14.2
Start Time (approx.): 10:47
Stop Time (approx.): 12:30
H_2O (condensate, ml): 502.4
H_2O (silica, g): 12.9

Traverse Point	Run Time	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (ft^3)	Stack T_s (°F)	Dry Gas Meter $T_{m\,in}$ (°F)	Dry Gas Meter $T_{m\,out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.}$ H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			156.77						
1-01	4.0	0.14	1.10	159.26	316	78	77	0.37	2.49	102.2
1-01	8.0	0.14	1.10	161.69	315	74	73	0.37	2.43	100.4
1-02	12.0	0.11	0.84	163.90	314	74	73	0.33	2.21	102.9
1-02	16.0	0.11	0.84	166.11	316	76	74	0.33	2.21	102.7
1-03	20.0	0.08	0.61	167.99	305	79	75	0.28	1.88	101.3
1-03	24.0	0.08	0.61	169.90	307	81	76	0.28	1.91	102.8
2-01	28.0	0.16	1.20	172.44	320	81	77	0.40	2.54	97.5
2-01	32.0	0.16	1.20	175.03	320	81	76	0.40	2.59	99.5
2-02	36.0	0.16	1.20	177.61	319	82	76	0.40	2.58	99.0
2-02	40.0	0.16	1.20	180.23	320	83	77	0.40	2.62	100.4
2-03	44.0	0.12	0.91	182.50	313	84	77	0.35	2.27	99.8
2-03	48.0	0.12	0.91	184.78	313	84	78	0.35	2.28	100.2
3-01	52.0	0.16	1.20	187.40	319	84	79	0.40	2.62	100.1
3-01	56.0	0.16	1.20	190.02	319	85	79	0.40	2.62	100.0
3-02	60.0	0.16	1.20	192.62	317	86	79	0.40	2.60	99.0
3-02	64.0	0.16	1.20	195.26	319	86	79	0.40	2.64	100.7
3-03	68.0	0.12	0.91	197.56	310	87	80	0.35	2.30	100.4
3-03	72.0	0.12	0.91	199.85	310	87	80	0.35	2.29	100.0
4-01	76.0	0.11	0.84	202.04	318	86	81	0.33	2.19	100.3
4-01	80.0	0.11	0.84	204.26	318	87	81	0.33	2.22	101.6
4-02	84.0	0.09	0.68	206.26	315	87	81	0.30	2.00	101.0
4-02	88.0	0.09	0.68	208.26	315	87	81	0.30	2.00	101.0
4-03	92.0	0.07	0.53	210.03	307	86	81	0.26	1.77	100.8
4-03	96.0	0.07	0.53	211.80	306	86	82	0.26	1.77	100.7
Final	96.0		0.94	55.03	315	80		0.35		

Field Data Printout

Location:	EP-5 Calciner Stack	Method:	BIF 0011	Bar. Press. (in. Hg):	24.00
Test Run:	3	Testing Type:	Formaldehyde	Assumed Moisture (%):	35.86
Client:	Solvay Minerals, Inc.				
Project No:	7629-2			Nozzle Diameter (D_n):	0.375
Test Date:	12/15/95			O_2 (dry volume %):	8.8
Meter ΔH@:	1.8373	Area (ft^2):	85.90	CO_2 (dry volume %):	14.2
Meter Y_d:	0.9984			Start Time (approx.):	12:57
Pitot C_p:	0.84	Filter No:	N/A	Stop Time (approx.):	14:40
Static P:	-0.2	Thimble No:	N/A	H_2O (condensate, ml):	509.8
		Beaker No:	N/A	H_2O (silica, g):	14.4

Traverse Point	Run Time	Pitot ΔP_s	Sample ΔH	Metered	Stack T_s	Dry Gas Meter $T_{m\,in}$	Dry Gas Meter $T_{m\,out}$	$\sqrt{\Delta P_s}$ (calculated)	Volume (calculated)	Isokinetics (calculated)
	0.0	(in. H_2O)	(in. H_2O)	212.31 (ft^3)	(°F)	(°F)	(°F)	($\sqrt{in.\ H_2O}$)	(ft^3)	(%)
4-01	4.0	0.11	0.84	214.67	317	82	80	0.33	2.36	108.4
4-01	8.0	0.11	0.84	216.89	317	82	81	0.33	2.22	101.9
4-02	12.0	0.11	0.84	219.11	317	83	81	0.33	2.22	101.8
4-02	16.0	0.11	0.84	221.28	316	85	81	0.33	2.17	99.2
4-03	20.0	0.08	0.61	223.18	308	86	81	0.28	1.90	101.2
4-03	24.0	0.08	0.61	225.10	307	86	82	0.28	1.92	102.1
3-01	28.0	0.15	1.10	227.65	316	87	83	0.39	2.55	99.6
3-01	32.0	0.15	1.10	230.17	317	87	82	0.39	2.52	98.5
3-02	36.0	0.14	1.10	232.68	316	88	82	0.37	2.51	101.4
3-02	40.0	0.14	1.10	235.23	317	89	83	0.37	2.55	102.9
3-03	44.0	0.16	1.20	237.86	310	90	84	0.40	2.63	98.7
3-03	48.0	0.16	1.20	240.50	309	90	84	0.40	2.64	99.0
2-01	52.0	0.15	1.10	243.06	318	90	86	0.39	2.56	99.5
2-01	56.0	0.15	1.10	245.59	321	91	86	0.39	2.53	98.5
2-02	60.0	0.16	1.20	248.25	321	92	86	0.40	2.66	100.2
2-02	64.0	0.16	1.20	250.90	322	93	87	0.40	2.65	99.7
2-03	68.0	0.12	0.91	253.23	315	94	88	0.35	2.33	100.5
2-03	72.0	0.12	0.91	255.53	316	94	88	0.35	2.30	99.3
1-01	76.0	0.13	0.99	257.95	320	94	89	0.36	2.42	100.5
1-01	80.0	0.13	0.99	260.38	322	94	89	0.36	2.43	101.1
1-02	84.0	0.13	0.99	262.78	322	94	89	0.36	2.40	99.8
1-02	88.0	0.13	0.99	265.23	322	94	90	0.36	2.45	101.8
1-03	92.0	0.09	0.68	267.25	315	95	90	0.30	2.02	100.2
1-03	96.0	0.09	0.68	269.29	315	95	90	0.30	2.04	101.2
Final	96.0		0.96	56.98	317	87		0.36		

F

LABORATORY DATA

F

ZENON
Environmental
Laboratories

5555 North Service Road
Burlington Ontario
Canada L7L 5H7

Tel 905 332 8788
Fax 905 332 9169

Certificate of Analysis

CLIENT INFORMATION

Attention: Kim Collins
Client Name: Clean Air Engineering
Project: 7629
Project Desc: Formaldehyde Analysis

Address: 7000 North Broadway,
Building 2 Unit 200
Denver, CO
80221
Fax Number: 303-650-9747
Phone Number: 303-650-9745

LABORATORY INFORMATION

Contact: Ron McLeod/Yvonne Bond
Project: AN951371
Date Received: 95/12/18
Date Reported: 96/01/02

Submission No.: 5L0427
Sample No.: 055368-055374

Regional
Laboratories:
British Columbia
Ontario
Quebec

NOTES: ***'-' = not analysed '<' = less than Method Detection Limit (MDL) 'NA' = no data available***
LOQ can by determined for all analytes by multiplying the appropriate MDL X 3.33
Solids data is based on dry weight except for biota analyses.
Organic analyses are not corrected for extraction recovery standards except for isotope dilution methods, (i.e. CARB 429 PAH, all PCDD/F and DBD/DBF analyses)

Methods used by Zenon are based upon those found in 'Standard Methods for the Examination of Water and Wastewater', Seventeenth Edition. Other methods are based on the principles of MISA or EPA methodologies.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Any and all use of these test results shall be limited to the actual cost of the pertinent analysis done. There is no other warranty expressed or implied. Your samples will be retained at Zenon for a period of three weeks from receipt of data or as per contract.

COMMENTS:

* Acetone not resolved from the major acrolein peak.
** Acrolein is biased high by contribution from acetone. An estimated high bias of approximately 250 ug is based on the field blank levels.

All major aldehydes and ketones observed in the samples were identified in this analysis.

Certified by: _____

SOLVAY2016_6_001342

Zenon Environmental Laboratories - Certificate of Analysis

SOLVAY2016_6_001343

Client ID:			M0011 C+R EP1+2 Run1	M0011 C+R EP1+2 Run2	M0011 C+R EP1+2 Run3	M0011 C+R EP5 Run1	M0011 C+R EP5 Run2	M0011 C+R EP5 Run3	M0011 Field Blank	M0011 Field Blank
Zenon ID:			055368 95	055369 95	055370 95	055371 95	055372 95	055373 95	055374 95	055374 95
Date Sampled:			95/12/14	95/12/14	95/12/14	95/12/15	95/12/15	95/12/15	95/12/15	95/12/15
Component		**Units**								Duplicate
Impinger volume measured		ml	950	950	950	1500	1500	1500	950	950
Formaldehyde	1	ug	1200	150	360	130	160	110	32	29
Acetaldehyde	1	"	45	61	160	26	110	1200	19	16
Propionaldeyde	1	"	<	<	110	<	74	350	<	<
Acrolein	1	"	390	710**	2000**	400	1800**	2200**	<	<
Acetone	1	"	210	<*	<*	170	<*	<*	250	250
2-Butanone	1	"	<	<	<	<	<	<	<	<

ZEL Summary of Analysis Pre. Dates

Batch Code:	**0101EX00**
Aldehydes/Ketones	055368
	055369
	055370
	055371
	055372
	055373
	055374
Analysis Date:	95/12/30
Preparation Date:	95/12/22

SOLVAY2016_6_001344

G

CHAIN OF CUSTODY

G

CHAIN OF CUSTODY RECORD

№ 05474

PROJ. NO. 7629
DEPT. NO. 65
PROJECT NAME: Solvay Minerals
SAMPLERS: (Signature) Robert Michalak

LAB NO.	SAMPLE NO.	DATE	TIME	SAMPLE LOCATION	NO. OF CONTAINERS	Total aldehyde and ketone (as formaldehyde)	HPLC for (aldehyde/ketone) (acetone, formaldehyde, propanal, butanone, acrolein, acrylonitrile)	REMARKS
		12/14/95		MMS (owens) C+R EP 1-7 Run 1	1	X		Questions? Call Michael Pierce @ (303) 650-9745
		12/14/95		" Run 2	1	X		
		12/14/95		" Run 3	1	X		
		12/15/95		MMS (owens) C+R EP5 Run 1	1	X		
		12/15/95		" Run 2	2	X		
		12/15/95		" Run 3	2	X		
		12/14/95		MOOH C+R EP 1-7 Run 1	1		X X	
		12/14/95		" " Run 2	1		X X	
		12/14/95		" " Run 3	1		X X	
		12/15/95		MOOH C+R EP5 Run 1	2		X X	
		12/15/95		" " Run 2	2		X X	
		12/15/95		" " Run 3	2		X X	
		12/15/95		MMS (owens) Field Blank	1	X		
		12/15/95		MOOH Field Blank	1		X X	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Robert Michalak	12/15/95 P.M.	FEDEX			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by:	Date / Time		

REMARKS:

SOLVAY2095_6_0013347

CAE
Clean Air Engineering
500 W. Wood Street
Palatine, IL 60067
708/991-3300

WHITE-PRINT FILE COPY YELLOW-RECORD FILE COPY PINK-RETAIN COPY GOLD CUSTOMER COPY

H

OPERATING DATA

H

CA – 1&2 (EP – 1&2)

DECEMBER 14, 1995

	TIME	FIELD	VOLTAGE	CURRENT (DC mA)	S/M	
		A	486	332	0	
START	9:41	B	186	1391	0	
#1		C	187	1403	0	#1
STOP	11:28	D	181	1403	0	
		E	181	1403	0	
START	12:10	F	187	1403	0	
#2						
STOP	13:55	A	5	15	10	
		B	184	1335	8	
START	14:22	C	487	1399	0	#2
#3		D	184	1403	0	
STOP	16:06	E	185	1407	0	
		F	187	1407	0	

DATA LISTING

NAME: CALCINER/DRYER LOCATION: SOLVAY MINERALS STATION ID:

CHAN NAME	#30FT	#40FT	#50FT
CHAN UNITS	%	%	%
FULL SCALE	100.0	100.0	100.0
ZERO OFFSET	0.0	0.0	0.0
START / CHANNEL	01	02	03
12/14/95 09:36	0.8 9:41	-25.0	2.0
12/14/95 09:42	1.0	-25.0C	2.0
12/14/95 09:48	1.1	-0.3C	1.9
12/14/95 09:54	1.0	6.9<	2.0
12/14/95 10:00	1.2	2.9	2.0
12/14/95 10:06	1.3	3.3	2.0
12/14/95 10:12	1.2	3.6	1.9
12/14/95 10:18	1.2	3.7	1.9
12/14/95 10:24	1.3 #1	3.7	1.9
12/14/95 10:30	1.3	3.7	1.8
12/14/95 10:36	1.1	3.9	1.8
12/14/95 10:42	1.3	3.6	1.8
12/14/95 10:48	1.2	2.9	1.8
12/14/95 10:54	1.0	3.0	1.8
12/14/95 11:00	1.3	3.0	1.8
12/14/95 11:06	1.3	3.2	1.8
12/14/95 11:12	1.0	25.4	1.8
12/14/95 11:18	1.3	-2.3	1.8
12/14/95 11:24	1.2	8.8<	1.8
12/14/95 11:30	1.2 11:28	2.2<	1.8
12/14/95 11:36	1.1	1.2	1.7
12/14/95 11:42	1.2	1.2	1.8
12/14/95 11:48	1.4	1.2	1.7
12/14/95 11:54	1.1	1.1	1.7
12/14/95 12:00	1.1	1.1	1.7
12/14/95 12:06	1.1	1.1	1.7
12/14/95 12:12	0.9 12:40	1.1	1.7
12/14/95 12:18	1.1	1.3	1.7
12/14/95 12:24	1.0	1.3	1.8
12/14/95 12:30	0.9	1.2	1.8
12/14/95 12:36	1.2	1.3	1.8
12/14/95 12:42	0.9	1.2	1.8
12/14/95 12:48	1.0	1.3	1.8
12/14/95 12:54	1.0	1.2	1.8
12/14/95 13:00	1.0 #2	1.2	7.0
12/14/95 13:06	0.9	1.3	1.9
12/14/95 13:12	0.8	1.2	13.3
12/14/95 13:18	1.1	1.2	18.8
12/14/95 13:24	8.3	1.1	1.7
12/14/95 13:30	13.6	1.2	1.6
12/14/95 13:36	16.7	1.3<	1.7
12/14/95 13:42	4.4	1.5<	1.7
12/14/95 13:48	1.3	2.2	1.7
12/14/95 13:54	1.5 13:55	10.0	1.7
12/14/95 14:00	1.4	9.5	1.7
12/14/95 14:06	1.4	17.3	1.7
12/14/95 14:12	1.3	19.5	1.7
12/14/95 14:18	1.4	3.9	1.7

SOLVAY2016_6_001351

DATA LISTING

NAME: CALCINER/DRYER LOCATION: SOLVAY MINERALS STATION ID:

CHAN NAME		#30PT	#40PT	#50PT
CHAN UNITS		%	%	%
FULL SCALE		100.0	100.0	100.0
ZERO OFFSET		0.0	0.0	0.0
START / CHANNEL		01	02	03
12/14/95	14:24	1.4 14:22	2.3	1.7
12/14/95	14:30	1.3	2.4	1.7
12/14/95	14:36	1.3	2.5	1.8
12/14/95	14:42	1.4	1.5C	1.8
12/14/95	14:48	1.2	10.1<	1.8
12/14/95	14:54	1.4	1.8	1.8
12/14/95	15:00	1.5	1.7	1.8
12/14/95	15:06	1.5 #3	1.7	1.6
12/14/95	15:12	1.4	1.8	1.8
12/14/95	15:18	1.7	1.8	1.8
12/14/95	15:24	2.0	1.5	1.8
12/14/95	15:30	1.6	1.8	1.8
12/14/95	15:36	2.0	1.8	1.8
12/14/95	15:42	2.2	1.6	1.8
12/14/95	15:48	2.1	1.6	1.8
12/14/95	15:54	2.8	1.5	1.8
12/14/95	16:00	2.4	1.6	1.8
12/14/95	16:06	1.9 16:06	1.6	1.8
12/14/95	16:12	2.2	1.5	1.8
		13:12	09:36	13:30
Minimum 6-minute Values		0.8	-25.0	1.6
Maximum		16.7	25.4	18.8
		13:36	11:12	13:18
Average		1.9	2.9	2.3
Total		124.8	185.2	152.7
Recovery (%)		100.00	95.52	100.00

SOLVAY2016_6_001352

95

DATA LISTING

NAME: CALCINER/DRYER LOCATION: SOLVAY MINERALS STATION ID:

CHAN NAME		#3OPT	#4OPT	#5OPT
CHAN UNITS		%	%	%
FULL SCALE		100.0	100.0	100.0
ZERO OFFSET		0.0	0.0	0.0
START / CHANNEL		01	03	03
12/15/95	13:12	1.4	1.5	1.3
12/15/95	13:18	1.3	1.5	1.3
12/15/95	13:24	1.3	1.4	1.3
12/15/95	13:30	1.4	1.5	1.3
12/15/95	13:36	1.5	1.4	1.3
12/15/95	13:42	1.2	1.4	1.3
12/15/95	13:48	1.3	1.4	1.3
12/15/95	13:54	1.3	1.3	1.3
12/15/95	14:00	1.1	1.5	1.3
12/15/95	14:06	1.3	1.4	1.3
12/15/95	14:12	1.4	1.4	1.3
12/15/95	14:18	1.2	1.4	1.3
12/15/95	14:24	1.3	1.4	1.3
12/15/95	14:30	1.3	1.4	1.3
12/15/95	14:36	1.2	1.4	1.3
12/15/95	14:42	1.1	0.80	1.3
		14:00	13:54	12:12
Minimum		1.1	1.3	1.3
6-minute Values				
Maximum		15.5	2.3	11.2
		08:42	10:12	08:42
Average		1.8	1.5	1.7
Total		112.4	96.8	104.3
Recovery (%)		98.44	98.44	98.44

GA-3

#3

14:40

SOLVAY2016_6_001353

Hourly Averages
PVR

PV RETRIEVAL REQUEST

14:07 18 Dec 95
PAGE 3

LEGEND: ' = Calculated time ~ = Time changed " = HG data * = Less than expected # samples

DATE/ TIME	IIFN28 AMP MOTOR	EP5C COMBUST GASSES	AISM5A PERCENT DUST	AISM5B PERCENT DUST	IIFN10 AMPS MOTOR	IIFN11 AMPS MOTOR
12/14/95 16:00	50.2	????????	1.5	????????	81.8	74.2
17:00	50.9	????????	1.4	????????	82.3	74.4
18:00	50.4	????????	1.4	????????	82.8	75.0
19:00	51.1	????????	1.4	????????	82.6	75.2
20:00	51.2	????????	1.3	????????	82.7	74.7
21:00	50.5	????????	1.3	????????	83.0	75.7
22:00	50.4	????????	1.3	????????	83.7	76.3
23:00	50.8	????????	4.6	????????	83.1	75.9
12/15/95 00:00	51.1	????????	1.2	????????	83.4	76.0
01:00	51.0	????????	1.2	????????	83.1	75.3
02:00	51.1	????????	1.3	????????	83.0	75.4
03:00	50.8	????????	1.4	????????	82.5	75.6
04:00	50.7	????????	1.2	????????	82.2	75.5
05:00	50.8	????????	1.3	????????	82.3	75.4
06:00	50.6	????????	1.3	????????	82.3	75.0
07:00	50.8	????????	4.5	????????	82.4	74.7
08:00	51.3	????????	1.4	????????	82.8	75.0
09:00	50.7	????????	1.5	????????	80.9	74.2
10:00	50.1	????????	1.4	????????	81.6	73.8
11:00	50.3	????????	1.5	????????	81.1	72.4
12:00	50.5	????????	1.5	????????	80.9	74.5
13:00	50.7	????????	1.5	????????	82.3	74.4
14:00	50.9	????????	1.3	????????	81.9	74.4
15:00	50.7	????????	3.5	????????	81.6	74.1
16:00	51.4	????????	1.4	????????	81.9	74.3
17:00	51.1	????????	1.5	????????	81.7	74.6
18:00	51.3	????????	1.4	????????	81.8	74.5

CA-3 12/15/95

8:26
#1
10:11
10:47
#2
12:30
12:57
#3
14:40

SOLVAY2016_6_001354

Hourly Averages
PVR

PV RETRIEVAL REQUEST

15:55 15 Dec 95
PAGE 4

LEGEND: ' = Calculated time ~ = Time changed " = HG data * = Less than expected # samples

DATE/ TIME	PCCA3A IN WATER VACUUM	FCCA3AA GAS TO CALCINER	FCCA3B	TCDC5 DEG F PRODUCT	CA3 CONTRL_ SWICH	TCCA3B DEG. F OFFGAS	IIDC5 AMPS MOTOR	WCBS8 TONS/hr TRONA
12/14/95 20	-2.0	142.352	2.577	303.5	????????	380.70	33.0	144.7
21	-2.0	139.163	2.545	315.3	????????	389.49	33.0	145.3
22	1.9	139.454	2.519	310.8	????????	380.54	34.2	144.9
23	-2.0	141.632	2.569	307.0	????????	377.26	33.1	144.9
12/15/95 00	-2.0	143.042	2.616	304.8	????????	381.60	33.6	145.5
01	-2.0	142.576	2.616	310.9	????????	381.54	33.2	145.3
02	-2.0	142.830	2.579	309.0	????????	385.14	33.9	144.9
03	-2.0	143.272	2.621	308.0	????????	382.10	33.8	144.9
04	-2.0	143.116	2.622	310.6	????????	384.95	33.6	145.1
05	1	143.563	2.606	309.6	????????	386.12	33.7	144.6
06		141.385	2.562	315.0	????????	383.91	33.4	144.8
07	-2.1	141.484	2.553	311.0	????????	380.90	33.7	144.9
08	-2.0	142.569	2.585	307.0	????????	382.53	33.6	145.0
09	2.1	138.976	2.521	319.4	????????	388.12	32.3	145.1
10	-2.0	135.542	2.472	321.6	????????	381.66	32.7	144.9
11	2.1	137.410	2.493	306.8	????????	377.96	33.3	145.1
12	1.9	138.297	2.519	307.0	????????	383.06	32.8	145.0
13	2.1	139.829	2.531	306.2	????????	376.73	33.2	144.9
14	1.9	140.202	2.529	307.2	????????	382.14	33.4	145.2
15	-2.0	138.973	2.524	313.5	????????	388.38	33.5	145.1
15:5	-1.9	143.968	2.624	296.7	????????	384.68	34.2	145.3

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Hourly Averages
PVR

PV RETRIEVAL REQUEST

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LEGEND: ' = Calculated time ~ = Time changed " = HG data * = Less than expected # samples

DATE/ TIME	TCCA3C DEG. F COMB	CA3_RATIO	AIEP5A PERCENT OXYGEN	AIEP5B PERCENT METHANE	FCCA3AA GAS TO CALCINER	TCDC5 DEG F PRODUCT	TTCA3B OFF GAS	FCCA3B	
12/14/95 16:00	????????	2.436	4.3	0.00	133.815	312.7	378.8	2.436	
17:00	????????	2.527	4.3	0.00	139.055	295.4	379.4	2.527	
18:00	????????	2.475	4.5	0.00	135.237	317.3	371.7	2.478	CA-3 12/15/95
19:00	????????	2.554	4.4	0.00	140.813	295.4	378.6	2.558	
20:00	????????	2.577	4.5	0.00	142.352	303.5	380.7	2.577	
21:00	????????	2.545	4.5	0.00	139.163	315.3	389.5	2.545	
22:00	????????	2.519	4.5	0.00	139.454	310.8	380.5	2.519	
23:00	????????	2.566	4.5	0.00	141.632	307.0	377.3	2.569	
12/15/95 00:00	????????	2.616	4.5	0.00	143.042	304.8	381.6	2.616	
01:00	????????	2.612	4.4	0.00	142.576	310.9	381.6	2.616	
02:00	????????	2.579	4.5	0.00	142.830	309.0	385.1	2.579	
03:00	????????	2.621	4.5	0.00	143.272	308.0	382.1	2.621	
04:00	????????	2.622	4.5	0.00	143.116	310.6	384.9	2.622	
05:00	????????	2.606	4.4	0.00	143.563	309.6	386.1	2.606	
06:00	????????	2.562	4.4	0.00	141.385	315.0	383.9	2.562	
07:00	????????	2.553	4.4	0.00	141.484	311.0	380.9	2.553	
08:00	????????	2.587	4.4	0.00	142.569	307.0	382.5	2.585	8:26
09:00	????????	2.521	4.2	0.00	138.976	319.4	388.1	2.521	#1
10:00	????????	2.472	4.5	0.00	135.542	321.6	381.7	2.472	10:11
11:00	????????	2.493	4.4	0.00	137.410	306.8	378.0	2.493	10:47
12:00	????????	2.522	4.3	0.00	138.397	307.0	383.0	2.519	#2
13:00	????????	2.531	4.3	0.00	139.829	306.2	376.7	2.531	12:30
14:00	????????	2.529	4.4	0.00	140.292	307.2	382.1	2.529	12:57
15:00	????????	2.524	4.5	0.00	138.973	313.5	388.4	2.524	#3
16:00	????????	2.628	4.5	0.00	144.120	296.7	384.4	2.627	14:40
17:00	????????	2.619	4.5	0.00	143.057	310.2	387.2	2.619	
18:00	????????	2.621	4.6	0.00	143.319	308.5	390.7	2.621	

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