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ENGINEERING DATA TRANSMITTAL

Page 1 of 1

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ENGINEERING DATA TRANSMITTAL

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1	HNF-SD-WM-RPT-308	~~70~~ 0 Wm 9/23/97	0	Report on Sampling and Analysis of Exhaust Air at the 221-T and 2706-T Buildings	N/A	2		

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Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
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(See Approval Designator for required signatures)

(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN
		Design Authority									
		Design Agent									
2	1	Cog.Eng. M. Stauffer	M. Stauffer		S3-90			Safety			
2	1	Cog. Mgr. LL Lockrem			S3-90			Env.			

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Report on Sampling and Analysis of Exhaust Air at the 221-T and 2706-T Buildings

Prepared by **Markus Stauffer**, SGN Eurisys Services Corporation
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Key Words: Exhaust air, stack sampling, T-Plant, 221-T, 2706-T, volatile organic compounds

Abstract: This report presents analytical results from exhaust air samples collected at stacks 221-T and 2706-T of the T-Plant. The samples were collected with SUMMA canisters over a 24 hour interval and were analyzed by gas chromatography-mass spectrometry using a modified EPA TO-14 procedure. The data suggest that the buildings had generally low concentrations of volatile organic compounds (< 40 ppbv). However, samples from building 2706-T did have significant amounts of non-target higher-boiling hydrocarbons, probably from a petroleum destillation fraction.

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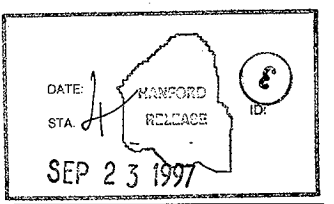

Release Approval — Date — Release Stamp

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Report On Sampling and Analysis of Exhaust Air at the 221-T and 2706-T Buildings

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CONTENTS

LIST OF TABLES

LIST OF TERMS

DQO	data quality objectives
EPA	Environmental Protection Agency
GS/MS	gas chromatograph/mass spectrometer
LOI	Letter of Instruction
MDL	method detection limit
PNNL	Pacific Northwest National Laboratory
ppbv	parts per billion volume
QA/QC	Quality Assurance/Quality Control
SAP	Sampling and Analysis Plan
SAS	Special Analytical Support
SWD	Solid Waste Disposal
TIC	total ion chromotogram
VOC	volative organic compound

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1.0 SUMMARY

Special Analytical Support (SAS) collected exhaust samples from buildings 221-T and 2706-T ("T-Plant") to determine the type and concentration of volatile organic compound emissions. Six integrated samples covering a 24-hour interval were taken from exhaust stacks at each location using evacuated SUMMA canisters. These samples were analyzed by gas chromatography-mass spectrometry using a modified EPA TO-14 procedure. The analytical system was calibrated with 36 compounds (target compounds), which are of special concern to the Solid Waste Division. The stack sample data suggest that the buildings had generally low concentrations (< 40 ppbv) of target volatile organic compounds compared to background ambient air. The maximum concentrations found above the Method Detection Limit of 10 ppbv were: acetone (33 ppbv), 2-butanone (37 ppbv), and n-butanol (10 ppbv) at 2706-T; and acetone (19 ppbv), 2-propanol (22 ppbv), 2-butanol (21 ppbv) and n-butanol (16 ppbv) at 221-T. The stack from building 2706-T did contain significant amounts of non-target compounds: higher-boiling hydrocarbons, probably from a petroleum destillation fraction , were found in all these samples.

This study represents an initial screening to establish a baseline for volatile organic compounds at the T-Plant. The data are considered semi-quantitative. Additional sampling and analyses with a higher level QA/QC protocol are needed for the quantitative estimation of the annual volative organic compound (VOC) emissions from the T-Plant.

2.0 INTRODUCTION

The Hanford T-Plant Complex is a decontamination facility used for treatment and processing of containerized mixed-wastes under the management of the Solid Waste Disposal Division. The 2706-T building provides decontamination and treatment services for large equipment, such as railroad and process equipment, buses, trucks, and automobiles. The 221-T building is used for the decontamination and treatment of containerized wastes, process equipment such as pumps and instrumentation, and the storage of spent nuclear fuel. An extensive ventilation system collects the indoor air at each facility and exhausts through stacks.

Special Analytical Support conducted a screening study to determine the type and concentration of volatile organic compounds in the exhaust stack gases of the T-Plant. This allowed the identification of compounds that are of potential concern for air emission permitting. This study is the initial measurement to establish a baseline for the VOCs at the T-Plant.

The objectives of the study were detailed in the Letter of Instructions (LOI), issued as an internal memorandum, 87600-RDP-96-031 (Pierce, 1996). The strategy for collecting and analyzing the air samples was outlined in the Sampling and Analysis Plan (SAP), WHC-SD-WM-WAP-005, Rev. 0 (Lockrem, 1996). The Data Quality Objectives (DQO) were described in an internal memorandum, 87600-RDP-96-031 (Pierce, 1996).

3.0 SAMPLING

3.1 SAMPLING EQUIPMENT

Stack samples were collected with sampling units designed and built by Pacific Northwest National Laboratory (PNNL). These self-contained air samplers deliver a continuous gas stream via an air pump to six evacuated SUMMA[1] canisters (Rasmussen, Hillsboro, OR). These spherical stainless steel containers (6.0 liters) have an electro-polished interior that is considered chemically inert. The canisters were cleaned by a combination of mass dilution with Ultrapure air (Scott-Marrin, Riverside, CA), and evacuation. A microprocessor was programmed so each can was filled with exhaust gas over a 4-hour interval.

[1]SUMMA is a trademark of Molectrics, Inc., Cleveland, Ohio.

3.2 SAMPLE TYPES

All samples collected at the two exhaust stacks were integrated samples. Each stack was sampled over a 24-hour interval by continuously drawing the exhaust gas into one of six evacuated SUMMA™ canisters.

3.3 SAMPLING CHRONOLOGY

Sample collection was documented in a controlled logbook: WHC-N-499 #1, p. 143 through 145. Two sampling boxes each containing six SUMMA™ canisters were moved under chain-of-custody on October 8, 1996 to the T-Plant, next to the two exhaust stacks.

Collection box # 5 was installed at the 2706-T stack. The transfer line to the sampler was pushed about 10 inches into the last test port of the exhaust duct, downstream of the HEPA filter unit, and secured with a custom-made port adapter. Exhaust gas collection started at 10:55 AM on October 10, 1996. The unit was programmed to fill the six SUMMA™ canisters over a 24-hour interval; it was moved to the analytical laboratory the following day.

At building 221-T, collection box # 7 was set up at the east side of the ducts at the entrance to the stack. The inlet of the sampling unit was connected via 1/8 inch stainless steel tubing to the duct. The end of the tube was inserted through an existing port about 10 inches into the exhaust flow with a tapered rubber stopper providing a seal. Sample collection was started at 10:30 AM. The valves on the unit were closed the following day, and the unit was then moved to the analytical laboratory. It was discovered that a line in the sampler used for cleaning the SUMMA™ canisters had leaked during sampling. The canisters were cleaned and the unit prepared for a new collection cycle. Sampling started on October 16, 1996 at 10:00 AM; the valves on the unit were closed at 10:00 AM the following day. The sampler was then moved to the SAS laboratory for analyses.

3.4 QUALITY CONTROLS

The evacuated cans were shipped to the sampling site under chain-of-custody. After sample collection, the pressure was checked on each SUMMA™ canister to ensure uniform filling and no leakage.

4.0 ANALYSIS

The pressure was checked on each filled SUMMA™ canister before analysis. All canisters in sampler # 5 had a pressure between 24 and 25.5 psig. Canisters in sampler # 7 had a pressures between 26 and 27.5 psig except canister 7-8 which was at 16 psig. The air samples were analyzed using a modified EPA procedure TO-14, "Determination of Volatile Organic Compounds in Ambient Air Using SUMMA Passivated Canister Sampling and Gas Chromatographic Analysis". A system with a gas chromatograph for compound separation and with mass spectrometer detection (GC/MS) optimized for trace level organic analyses was used for qualitative and quantitative measurements.

4.1 ANALYTICAL EQUIPMENT

The GC-MS system consisted of the following components:

Gas Chromatograph:

A Hewlett Packard gas chromatograph (GC), model 5890 series II-Plus that was fitted with a 6-port sampling valve. The capillary column (DB-5; J & W Scientific, Folsom, CA) had an internal diameter of 0.32 mm, a length of 60 m and 1.0 mm film thickness, and a helium carrier with 1.5 mL/min flow rate.

Mass Spectrometer:

A Hewlett Packard™ mass spectrometer (MS), model 5972 MSD was used in the electron impact mode with a scan range from 29 to 300 amu.

Controlling Software:

HP 3365 HPChem Station for GC control
HP G1034 MSChem for data acquisition and MS control
Wiley 138 and NBS mass spectral libraries for compound identification.

4.2 SAMPLE ANALYSIS

An accurately measured volume of sample gas was drawn from the SUMMA™ canister (100 torr pressure differential, corresponding to about 790 mL of air under standard conditions). The VOCs were condensed on a trap filled with chemically modified (DMCS treated) glass beads (Alltech, Deerfield, IL) by cooling to -185 °C (liquid argon). The GC/MS analysis was started by heating the trap to about 85 °C. The trap contents were thus transferred onto the GC column via the GC sampling valve, and refocused on the GC column at -50 °C. After 1 minute, the GC was heated at 6 °C/min to 180 °C, then ramped at 25 °C/min to 250 °C, and finally held at 250 °C for 2 minutes.

4.3 COMPOUND IDENTIFICATION AND QUANTITATION

A three-point calibration curve was generated using 1000 ppbv, 500 ppbv and 100 ppbv standards (Scott-Merrin, Riverside, CA). Each standard contained 40 compounds of special concern to Solid Waste Disposal (SWD) but only 36 compounds were used for quantitation of the air samples. No comprehensive study was done for this screening study to establish a Method Detection Limit (MDL). However, it was found that 10 ppbv per compound could reproducibly be measured. The MDL was therefore established at 10 ppbv or better. The following four compounds did not give reproducible data under the conditions used for the analyses: 2-butoxy-ethanol (monobutyl ether ethylene glycol), propane, methanol, and methoxy-2-propanol. However, the presence of these four compounds in a sample can still be established from the qualitative mass spectral library searches.

For each sample analyzed, a total ion chromatogram (TIC) was generated, which is the sum of the mass spectra over the mass range from 29 to 300 amu. This chromatogram is included in Appendix A for each sample. The TIC data were further processed by extracting the masses characteristic for each target compound. These extracted ion chromatograms were integrated and the area counts used to quantitate the 36 target compounds used in the calibration.

In order to identify other compounds in a sample besides the 36 target compounds used for the calibration, two spectral libraries (Wiley 138, NBS/NIST) were searched. The mass spectrum for each compound was compared with the 190,000 spectra in these data bases. A compound was considered **tentatively identified** if the match quality between the unknown and the library was 70 percent or better. These library searches with tentatively identified compounds are included in Appendix A. **It is important to remember that tentatively identified compounds are not**

necessarily indicative of the presence of these compounds in the sample. It requires at least two independent parameters to confirm the presence of a compound **(positive identification).** Generally, this is done by analyzing a sample of the suspected compound under identical conditions. Target compounds were considered positively identified when:

- The retention times matched, and
- The primary ions were present.

4.4 METHOD MODIFICATIONS

The TO-14 air analysis method was developed by the Environmental Protecton Agency (EPA) for the measurement of non-polar and slightly polar organic compounds such as halogenated compounds, aromatics, and paraffinic hydrocarbons. Two modifications of the procedure were made to accommodate polar compounds. The untreated glass beads used for cryogenic trapping of the analytes were replaced with beads with a chemically modified surface (DMCS treated, Alltech, Deerfield, IL). Furthermore, the ultra zero air supply was fitted with a humidifier. It was used to purge the sample inlet system with moist, pure air, especially after analyzing a sample rich in polar compounds, and after every calibration sample. These two modifications drastically reduced adsorption of the polars and eliminated carry-over of these compounds.

4.5 QUALITY CONTROLS

Sampling Equipment:

The sample volumes were determined by measuring the system pressure differential at the beginning and end of the cryogenic trapping using an absolute vacuum gauge. The gauge was calibrated by the Westinghouse Hanford Company Standards Labs (ID # 518-31-04-002); the current calibration expired May 16, 1997.

Analytical Equipment:

A diagnostic check (High Sensitivity Autotune) of the GC/MS was made daily using the PFTBA tuning standards. Daily baseline blanks using a sample of highly purified air (Ultrapure Air, Scott-Merrin, Riverside, CA) were run to verify baseline characteristics.

Calibration Standards:

A three-point calibration curve was generated using a primary 1000 ppbv standard and secondary 500 and 100 ppbv standards (Scott-Merrin, Riverside, CA). The 500 ppbv standard was used as a calibration check standard and was analyzed each day during the analysis cycles. No comprehensive study was done for this screening project to establish an MDL. However, it was found that 10 ppbv per compound could reproducibly be measured. The MDL was therefore established at 10 ppbv or better.

Analysis Records:

All entries were recorded in controlled logbook WHC-N-1236 # 1, pp. 102 through 104.

5.0 RESULTS

The analytical data for the target compounds of the T-Plant baseline study are listed in Table 1 for building 221-T, and in Table 2 for building 2706-T. The qualitative library searches of the GC/MS analyses are in Appendix A. Also included in the Appendix are total ion chromatograms from the GC/MS analyses for each stack sample.

5.1 BUILDING 221-T

The data in Table 1 show low concentrations of target compounds. Most VOC concentrations are below the anticipated MDL of 10 ppbv. Acetone has a high concentration of 19 ppb in the first sample, and then drops below detection in the last two SUMMA™ samples. A similar trend is observed for 2-propanol, which changes from 22 ppbv in the first sample to about 4 ppb in the last one. 2-butanone has two "hits" at 21 and 18 ppbv, but is absent in the other samples. N-butanol was found at 16 ppbv in the first SUMMA™ sample.

Non-target compounds are listed in Appendix A. Prominent in all samples is cyclohexanone. This compound was previously found in low concentrations in this same set of SUMMA™ canisters and is believed to be a contaminant from the sampling unit. Other tentatively identified compounds are cyclobutanol and trimethyl decane.

5.2 BUILDING 2706-T

These six integrated SUMMA™ samples show low concentrations of target VOCs at the 2706-T stack during the sampling interval. Most are below the anticipated MDL of 10 ppbv for each compound. The concentrations for acetone fluctuated between 7 and 33 ppbv. The levels of 2-butanone ranged from 37 ppbv to below detection . N-Butanol was found in one sample at 10 ppbv.

The chromatograms and library searches show a unique fingerprint of late-eluting, high-boiling non-target compounds in all six samples. They are not resolved under the chromatographic conditions and are therefore in a "hump" constituting many different compounds. The library searches indicate that most are normal, branched (aliphatic), or cyclic hydrocarbons with carbon numbers from about C_{10} to C_{14} . This is characteristic of a medium petroleum destillation fraction, such as paint thinner or kerosene.

Table 1. GC-MS Data for 221-T Stack Samples. (2 sheets)

SAMPLE	FILE NAME	CONCENTRATION	VINYL CHLORIDE	ETHANOL	ACETONE	2-PROPANOL	1,1-DICHLOROETHENE	FREON 113	DICHLOROMETHANE	1,1-DICHLOROETHANE	2-BUTANONE	N-HEXANE	1,2-DICHLOROETHENE	CHLOROFORM	TETRAHYDROFURAN	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHANE	BENZENE
7-5	103196_2.D	PPB	0	0	19	22	0	0	4	0	21	0	0	0	0	0	0	6
7-6	103196_4.D	PPB	0	0	6	8	0	0	0	0	0	0	0	0	0	0	0	0
7-7	110196_2.D	PPB	0	0	14	10	0	0	4	0	18	0	0	0	0	0	0	0
7-8	110196_3.D	PPB	0	0	12	9	0	0	4	0	0	0	0	0	0	0	0	0
7-9	110696_2.D	PPB	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
7-10	110696_3.D	PPB	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0

Table 1. GC-MS Data for 221-T Stack Samples. (2 sheets)

SAMPLE	CARBON TETRACHLORIDE	CYCLOHEXANE	N-BUTANOL	1-METHOXY-2-PROPANOL	TRICHLOROETHENE	4-METHYL-2-PENTANONE	TOLUENE	1,1,2-TRICHLOROETHANE	TETRACHLOROETHENE	CHLOROBENZENE	ETHYLBENZENE	M-XYLENE	STYRENE	O-XYLENE	1,1,2,2-TETRACHLOROETHANE	1,3,5-TRIMETHYLBENZENE	1,2,4-TRIMETHYLBENZENE	1,3-DICHLOROBENZENE	1,2-DICHLOROBENZENE	1,4-DICHLOROBENZENE
7-5	7	0	16	0	0	9	7	0	0	0	1	3	0	2	0	2	1	0	0	0
7-6	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
7-7	5	0	7	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0
7-8	7	0	0	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0
7-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-10	0	0	0	0	0	0	1	0	0	\	0	0	0	0	0	0	0	0	0	0

Table 2. GC-MS Data for 2706-T Stack Samples. (2 sheets)

SAMPLE	FILE NAME	CONCENTRATION	VINYL CHLORIDE	ETHANOL	ACETONE	2-PROPANOL	1,1-DICHLOROETHENE	FREON 113	DICHLOROMETHANE	1,1-DICHLOROETHANE	2-BUTANONE	N-HEXANE	1,2-DICHLOROETHENE	CHLOROFORM	TETRAHYDROFURAN	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHANE	BENZENE
5-5	110696_4.D	PPB	0	0	28	3	0	0	0	0	17	0	0	0	0	0	0	0
5-6	110796_2.D	PPB	0	0	7	3	0	0	0	0	19	0	0	0	0	0	0	0
5-7	110796_3.D	PPB	0	0	33	5	0	0	0	0	37	0	0	0	0	0	0	4
5-8	110796_4.D	PPB	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0
5-9	110796_5.D	PPB	0	0	20	3	0	0	0	0	15	0	0	0	0	0	0	4
5-10	110796_6.D	PPB	0	0	10	2	0	0	0	0	0	0	0	0	0	0	0	3

Table 2. GC-MS Data for 2706-T Stack Samples. (2 sheets)

SAMPLE	CARBON TETRACHLORIDE	CYCLOHEXANE	N-BUTANOL	1-METHOXY-2-PROPANOL	TRICHLOROETHENE	4-METHYL-2-PENTANONE	TOLUENE	1,1,2-TRICHLOROETHANE	TETRACHLOROETHENE	CHLOROBENZENE	ETHYLBENZENE	M-XYLENE	STYRENE	O-XYLENE	1,1,2,2-TETRACHLOROETHANE	1,3,5-TRIMETHYLBENZENE	1,2,4-TRIMETHYLBENZENE	1,3-DICHLOROBENZENE	1,2-DICHLOROBENZENE	1,4-DICHLOROBENZENE
5-5	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
5-6	0	0	2	0	0	0	3	0	0	0	1	4	0	2	2	2	5	0	0	0
5-7	0	0	10	0	0	0	2	0	0	0	1	0	0	0	0	0	2	0	0	0
5-8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
5-9	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5-10	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0

6.0 CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to establish a baseline for the VOCs at the T-Plant. The samples collected at 221-T are generally low in VOCs (< 22 ppbv). The stack gases at 2706-T also contained low concentrations of target compounds (< 37 ppbv). However, all the samples from this stack contained significant amounts of hydrocarbons. No quantitation of these compounds is possible because no calibration (internal or external) is available at this time for these compounds.

This initial study of the organic emissions from T-Plant has some limitations:

1) The data only provide a "snapshot" of the VOC emissions over a relatively short time interval. The day and time of the sampling was chosen at random. This limits the validity of the data when extrapolating emissions over long time periods. Additional sampling and analysis cycles are needed to get an understanding of the long-term emissions from this facility.

2) The stack gases are a mixture of different ventilation streams from various sections of the building. The high flow rates at the stack dilute individual streams of high VOCs. The samples therefore represent an average of the emissions and provide data only on the amounts and types of the total emissions from the plant. It does not give information on the local VOC concentrations in different parts of the facility, such as is necessary for toxicological studies.

3) The 2706-T stack did contain significant concentrations of higher-boiling hydrocarbon compounds. The concentrations cannot be determined because calibration standards were not used for these compounds. Any additional sampling and analysis cycles should include the quantitation of these compounds.

7.0 REFERENCES

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APPENDIX A

ANALYTICAL DATA FOR SAMPLING AND ANALYSIS OF EXHAUST AIR

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BUILDING 221-T

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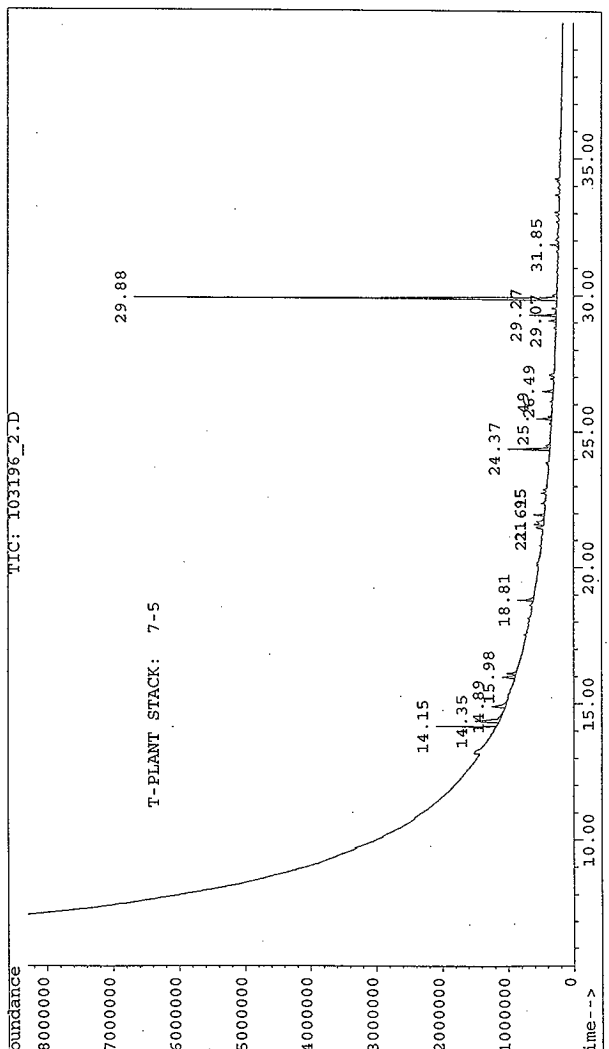
File : C:\HPCHEM\1\DATA\103196_2.D
Operator : MS
Acquired : 31 Oct 96 11:39 am using AcqMethod CWC
Instrument : 5972 - In
Sample Name: 7-5
Misc Info : 50 TORR
Vial Number: 1
Abundance
TIC: I03196_2.D
T-PLANT STACK: 7-5
29.88
14.15
14.35
14.89
15.98
18.81
221695
24.37
25.49
29.27
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10.00
15.00
20.00
25.00
30.00
35.00

ANALYSIS REPORT FOR CWC AIR SAMPLES

File Name: 103196_2.D
Analyst: MS
Analysis Date: 10/31/96
Method: CWC
Sample Name: 7-5

COMPOUND NAME	CAS #	Concentration	Units	Comments
ISO-BUTANE	75-28-5	0	PPB	
VINYL CHLORIDE	75-01-4	0	PPB	
ETHANOL	64-17-5	0	PPB	
ACETONE	67-64-1	19	PPB	
2-PROPANOL	67-63-0	22	PPB	
1,1-DICHLOROETHENE	75-35-4	0	PPB	
FREON 113	76-13-1	0	PPB	
DICHLOROMETHANE	75-09-2	4	PPB	
1,1-DICHLOROETHANE	75-34-3	0	PPB	
2-BUTANONE	78-93-3	21	PPB	
N-HEXANE	110-54-3	0	PPB	
1,2-DICHLOROETHENE	156-59-2	0	PPB	
CHLOROFORM	67-66-3	0	PPB	
TETRAHYDROFURAN	109-99-9	0	PPB	
1,1,1-TRICHLOROETHANE	71-55-6	0	PPB	
1,2-DICHLOROETHANE	107-06-2	0	PPB	
BENZENE	71-43-2	6	PPB	
CARBON TETRACHLORIDE	56-23-5	7	PPB	
CYCLOHEXANE	110-82-7	0	PPB	
N-BUTANOL	71-36-3	16	PPB	
TRICHLOROETHENE	79-01-6	0	PPB	
4-METHYL-2-PENTANONE	108-10-1	9	PPB	
TOLUENE	108-88-3	7	PPB	
1,1,2-TRICHLOROETHANE	79-00-5	0	PPB	
TETRACHLOROETHENE	127-18-4	0	PPB	
CHLOROBENZENE	108-90-7	0	PPB	
ETHYLBENZENE	100-41-4	1	PPB	
M-XYLENE	108-38-3	3	PPB	
STYRENE	100-42-5	0	PPB	
O-XYLENE	95-47-6	2	PPB	
1,1,2,2-TETRACHLORETHANE	79-34-5	0	PPB	
1,3,5-TRIMETHYLBENZENE	108-67-8	2	PPB	
1,2,4-TRIMETHYLBENZENE	95-63-6	1	PPB	
1,3-DICHLOROBENZENE	541-73-1	0	PPB	
1,2-DICHLOROBENZENE	95-50-1	0	PPB	
1,4-DICHLOROBENZENE	106-46-7	0	PPB	

Information from Data File:
File : C:\HPCHEM\1\DATA\103196_2.D
Operator : MS
Acquired : 31 Oct 96 11:39 am using AcqMethod CWC
Sample Name: 7-5
Misc Info : 50 TORR
Vial Number: 1

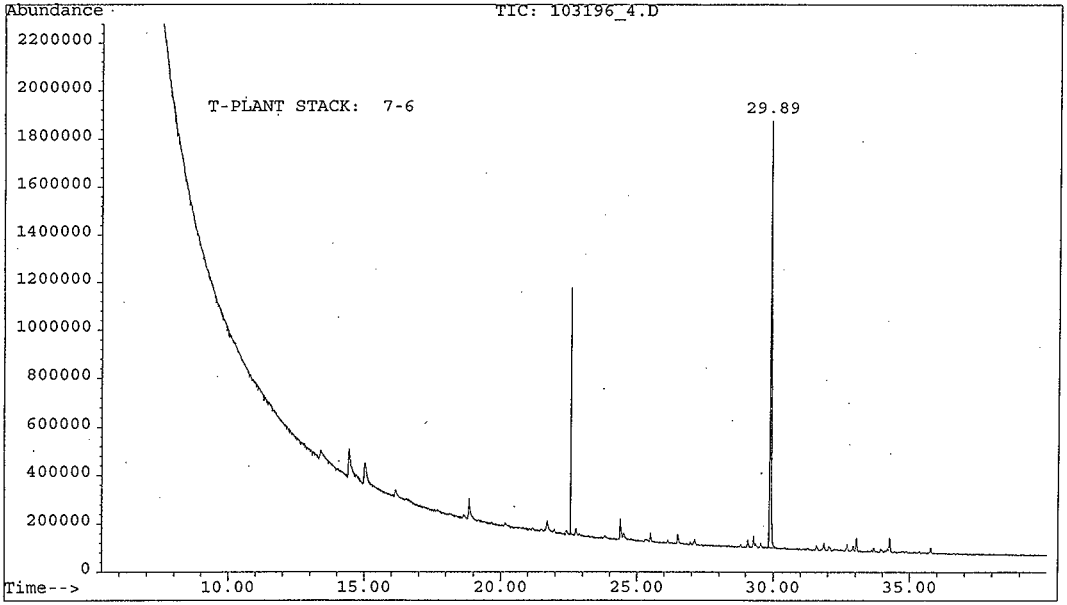
Search Libraries: C:\DATABASE\WILEY138.L Minimum Quality: 70
C:\DATABASE\NBS54K.L Minimum Quality: 70

Unknown Spectrum: Apex
Integration Params: VOA.E (RTEINT used)

Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
23	25.48	1.40	C:\DATABASE\WILEY138.L			
			Benzene, methyl-	117432	000108-88-3	86
			Tricyclo[4.1.0.0(2,7)]hept-3-ene	423	035618-58-7	74
30	29.88	45.22	C:\DATABASE\WILEY138.L			
			Cyclohexanone	117746	000108-94-1	90

Wed Jul 09 08:21:36 1997

File : C:\HPCHEM\1\DATA\103196_4.D
Operator : MS
Acquired : 31 Oct 96 4:15 pm using AcqMethod CWC
Instrument : 5972 - In
Sample Name: 7-6
Misc Info : 100 TORR
Vial Number: 1



ANALYSIS REPORT FOR CWC AIR SAMPLES

File Name: 103196_4.D
Analyst: MS
Analysis Date: 10/31/96
Method: CWC
Sample Name: 7-6

COMPOUND NAME	CAS #	Concentration	Units	Comments
ISO-BUTANE	75-28-5	0	PPB	
VINYL CHLORIDE	75-01-4	0	PPB	
ETHANOL	64-17-5	0	PPB	
ACETONE	67-64-1	6	PPB	
2-PROPANOL	67-63-0	8	PPB	
1,1-DICHLOROETHENE	75-35-4	0	PPB	
FREON 113	76-13-1	0	PPB	
DICHLOROMETHANE	75-09-2	0	PPB	
1,1-DICHLOROETHANE	75-34-3	0	PPB	
2-BUTANONE	78-93-3	0	PPB	
N-HEXANE	110-54-3	0	PPB	
1,2-DICHLOROETHENE	156-59-2	0	PPB	
CHLOROFORM	67-66-3	0	PPB	
TETRAHYDROFURAN	109-99-9	0	PPB	
1,1,1-TRICHLOROETHANE	71-55-6	0	PPB	
1,2-DICHLOROETHANE	107-06-2	0	PPB	
BENZENE	71-43-2	0	PPB	
CARBON TETRACHLORIDE	56-23-5	0	PPB	
CYCLOHEXANE	110-82-7	0	PPB	
N-BUTANOL	71-36-3	0	PPB	
TRICHLOROETHENE	79-01-6	0	PPB	
4-METHYL-2-PENTANONE	108-10-1	0	PPB	
TOLUENE	108-88-3	1	PPB	
1,1,2-TRICHLOROETHANE	79-00-5	0	PPB	
TETRACHLOROETHENE	127-18-4	0	PPB	
CHLOROBENZENE	108-90-7	0	PPB	
ETHYLBENZENE	100-41-4	0	PPB	
M-XYLENE	108-38-3	0	PPB	
STYRENE	100-42-5	0	PPB	
O-XYLENE	95-47-6	0	PPB	
1,1,2,2-TETRACHLORETHANE	79-34-5	0	PPB	
1,3,5-TRIMETHYLBENZENE	108-67-8	0	PPB	
1,2,4-TRIMETHYLBENZENE	95-63-6	0	PPB	
1,3-DICHLOROBENZENE	541-73-1	0	PPB	
1,2-DICHLOROBENZENE	95-50-1	0	PPB	
1,4-DICHLOROBENZENE	106-46-7	0	PPB	

Information from Data File:
File : C:\HPCHEM\1\DATA\103196_4.D
Operator : MS
Acquired : 31 Oct 96 4:15 pm using AcqMethod CWC
Sample Name: 7-6
Misc Info : 100 TORR
Vial Number: 1

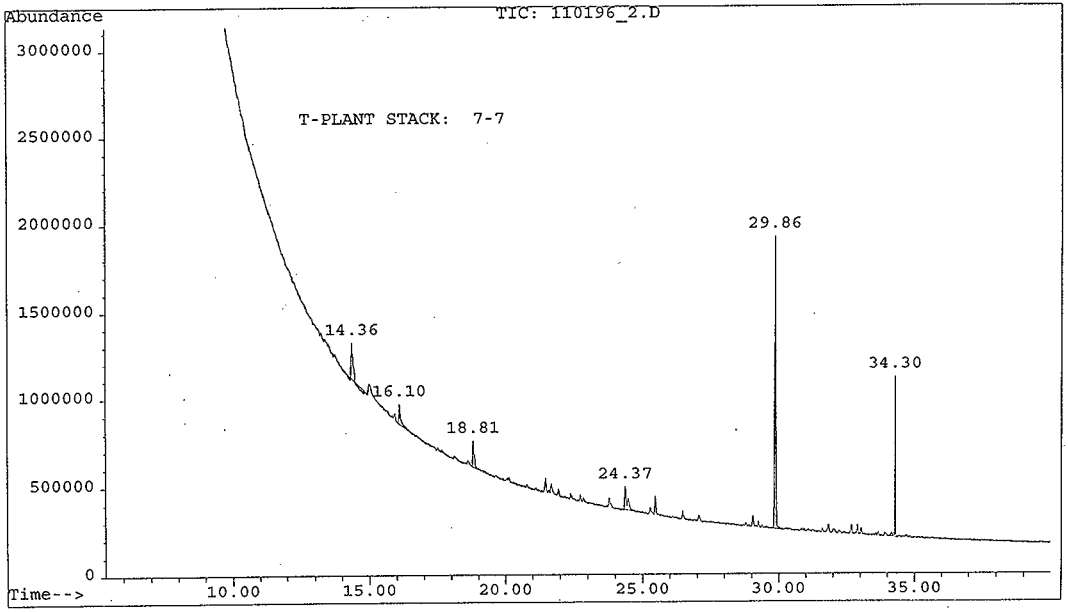
Search Libraries: C:\DATABASE\WILEY138.L Minimum Quality: 70
C:\DATABASE\NBS54K.L Minimum Quality: 70

Unknown Spectrum: Apex
Integration Params: VOA.E (RTEINT used)

Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
14	29.89	29.38	C:\DATABASE\WILEY138.L			
			Cyclohexanone	117746	000108-94-1	93

Wed Jul 09 08:26:09 1997

File : C:\HPCHEM\1\DATA\110196_2.D
Operator : MS
Acquired : 1 Nov 96 12:43 pm using AcqMethod CWC
Instrument : 5972 - In
Sample Name: 7-7
Misc Info : 100 TORR
Vial Number: 1



ANALYSIS REPORT FOR CWC AIR SAMPLES

File Name: 110196_2.D
Analyst: MS
Analysis Date: 11/01/96
Method: CWC
Sample Name: 7-7

COMPOUND NAME	CAS #	Concentration	Units	Comments
ISO-BUTANE	75-28-5	0	PPB	
VINYL CHLORIDE	75-01-4	0	PPB	
ETHANOL	64-17-5	0	PPB	
ACETONE	67-64-1	14	PPB	
2-PROPANOL	67-63-0	10	PPB	
1,1-DICHLOROETHENE	75-35-4	0	PPB	
FREON 113	76-13-1	0	PPB	
DICHLOROMETHANE	75-09-2	4	PPB	
1,1-DICHLOROETHANE	75-34-3	0	PPB	
2-BUTANONE	78-93-3	18	PPB	
N-HEXANE	110-54-3	0	PPB	
1,2-DICHLOROETHENE	156-59-2	0	PPB	
CHLOROFORM	67-66-3	0	PPB	
TETRAHYDROFURAN	109-99-9	0	PPB	
1,1,1-TRICHLOROETHANE	71-55-6	0	PPB	
1,2-DICHLOROETHANE	107-06-2	0	PPB	
BENZENE	71-43-2	0	PPB	
CARBON TETRACHLORIDE	56-23-5	5	PPB	
CYCLOHEXANE	110-82-7	0	PPB	
N-BUTANOL	71-36-3	7	PPB	
TRICHLOROETHENE	79-01-6	0	PPB	
4-METHYL-2-PENTANONE	108-10-1	0	PPB	
TOLUENE	108-88-3	3	PPB	
1,1,2-TRICHLOROETHANE	79-00-5	0	PPB	
TETRACHLOROETHENE	127-18-4	0	PPB	
CHLOROBENZENE	108-90-7	0	PPB	
ETHYLBENZENE	100-41-4	2	PPB	
M-XYLENE	108-38-3	0	PPB	
STYRENE	100-42-5	0	PPB	
O-XYLENE	95-47-6	0	PPB	
1,1,2,2-TETRACHLORETHANE	79-34-5	0	PPB	
1,3,5-TRIMETHYLBENZENE	108-67-8	0	PPB	
1,2,4-TRIMETHYLBENZENE	95-63-6	0	PPB	
1,3-DICHLOROBENZENE	541-73-1	0	PPB	
1,2-DICHLOROBENZENE	95-50-1	0	PPB	
1,4-DICHLOROBENZENE	106-46-7	0	PPB	

Information from Data File:
File : C:\HPCHEM\1\DATA\110196_2.D
Operator : MS
Acquired : 1 Nov 96 12:43 pm using AcqMethod CWC
Sample Name: 7-7
Misc Info : 100 TORR
Vial Number: 1

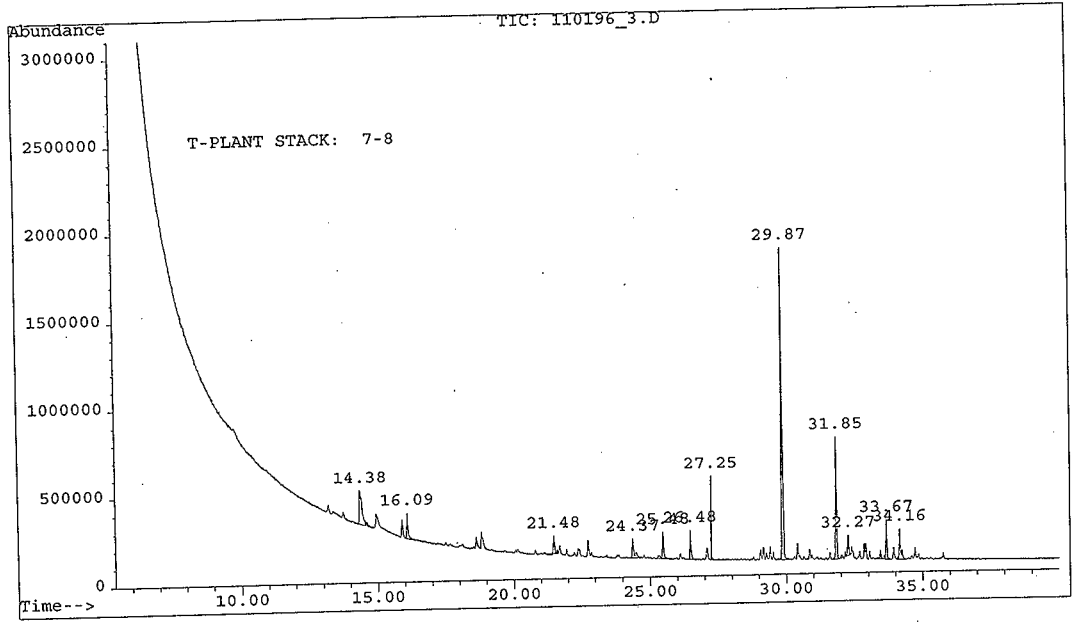
Search Libraries: C:\DATABASE\WILEY138.L Minimum Quality: 70
C:\DATABASE\NBS54K.L Minimum Quality: 70

Unknown Spectrum: Apex
Integration Params: VOA.E (RTEINT used)

Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
20	26.47	1.31	C:\DATABASE\WILEY138.L			
			Cyclobutanol	116441	002919-23-5	78
23	29.86	47.12	C:\DATABASE\WILEY138.L			
			Cyclohexanone	117746	000108-94-1	93

Wed Jul 09 08:30:51 1997

File : C:\HPCHEM\1\DATA\110196_3.D
Operator : MS
Acquired : 1 Nov 96 3:55 pm using AcqMethod CWC
Instrument : 5972 - In
Sample Name: 7-8
Misc Info : 100 TORR
Vial Number: 1



ANALYSIS REPORT FOR CWC AIR SAMPLES

File Name: 110196_3.D
Analyst: MS
Analysis Date: 11/01/96
Method: CWC
Sample Name: 7-8

COMPOUND NAME	CAS #	Concentration	Units	Comments
ISO-BUTANE	75-28-5	0	PPB	
VINYL CHLORIDE	75-01-4	0	PPB	
ETHANOL	64-17-5	0	PPB	
ACETONE	67-64-1	12	PPB	
2-PROPANOL	67-63-0	9	PPB	
1,1-DICHLOROETHENE	75-35-4	0	PPB	
FREON 113	76-13-1	0	PPB	
DICHLOROMETHANE	75-09-2	4	PPB	
1,1-DICHLOROETHANE	75-34-3	0	PPB	
2-BUTANONE	78-93-3	0	PPB	
N-HEXANE	110-54-3	0	PPB	
1,2-DICHLOROETHENE	156-59-2	0	PPB	
CHLOROFORM	67-66-3	0	PPB	
TETRAHYDROFURAN	109-99-9	0	PPB	
1,1,1-TRICHLOROETHANE	71-55-6	0	PPB	
1,2-DICHLOROETHANE	107-06-2	0	PPB	
BENZENE	71-43-2	0	PPB	
CARBON TETRACHLORIDE	56-23-5	7	PPB	
CYCLOHEXANE	110-82-7	0	PPB	
N-BUTANOL	71-36-3	0	PPB	
TRICHLOROETHENE	79-01-6	0	PPB	
4-METHYL-2-PENTANONE	108-10-1	0	PPB	
TOLUENE	108-88-3	5	PPB	
1,1,2-TRICHLOROETHANE	79-00-5	0	PPB	
TETRACHLOROETHENE	127-18-4	0	PPB	
CHLOROBENZENE	108-90-7	0	PPB	
ETHYLBENZENE	100-41-4	1	PPB	
M-XYLENE	108-38-3	0	PPB	
STYRENE	100-42-5	0	PPB	
O-XYLENE	95-47-6	0	PPB	
1,1,2,2-TETRACHLORETHANE	79-34-5	0	PPB	
1,3,5-TRIMETHYLBENZENE	108-67-8	0	PPB	
1,2,4-TRIMETHYLBENZENE	95-63-6	0	PPB	
1,3-DICHLOROBENZENE	541-73-1	0	PPB	
1,2-DICHLOROBENZENE	95-50-1	0	PPB	
1,4-DICHLOROBENZENE	106-46-7	0	PPB	

Information from Data File:
File : C:\HPCHEM\1\DATA\110196_3.D
Operator : MS
Acquired : 1 Nov 96 3:55 pm using AcqMethod CWC
Sample Name: 7-8
Misc Info : 100 TORR
Vial Number: 1

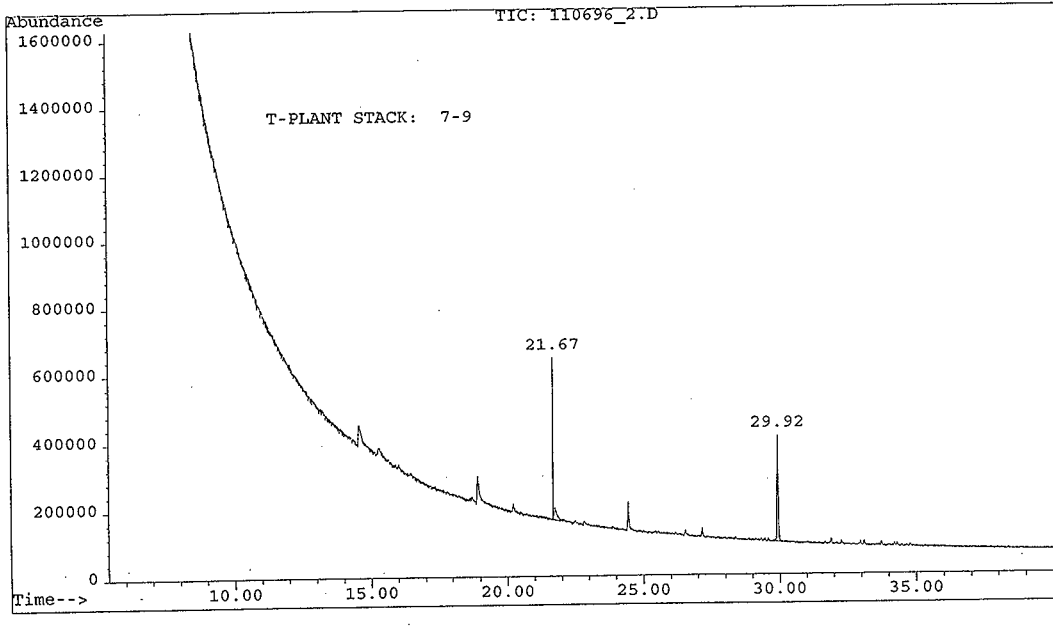
Search Libraries: C:\DATABASE\WILEY138.L Minimum Quality: 70
C:\DATABASE\NBS54K.L Minimum Quality: 70

Unknown Spectrum: Apex
Integration Params: VOA.E (RTEINT used)

Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
7	16.09	2.00	C:\DATABASE\WILEY138.L			
			Methane, dichloro-	116806	000075-09-2	70
16	25.48	1.89	C:\DATABASE\WILEY138.L			
			Benzene, methyl-	117432	000108-88-3	93
20	29.06	0.73	C:\DATABASE\WILEY138.L			
			Benzene, 1,2-dimethyl-	118571	000095-47-6	91
25	29.87	24.08	C:\DATABASE\WILEY138.L			
			Cyclohexanone	819	000108-94-1	91
29	31.84	8.44	C:\DATABASE\WILEY138.L			
			Decane, 2,2,8-trimethyl-	27775	062238-01-1	72

Wed Jul 09 08:33:40 1997

File : C:\HPCHEM\1\DATA\110696_2.D
Operator : MS
Acquired : 6 Nov 96 11:08 am using AcqMethod CWC
Instrument : 5972 - In
Sample Name: 7-9
Misc Info : 100 TORR
Vial Number: 1



ANALYSIS REPORT FOR CWC AIR SAMPLES

File Name: 110696_2.D
Analyst: MS
Analysis Date: 11/06/96
Method: CWC
Sample Name: **7-9**

COMPOUND NAME	CAS #	Concentration	Units	Comments
ISO-BUTANE	75-28-5	0	PPB	
VINYL CHLORIDE	75-01-4	0	PPB	
ETHANOL	64-17-5	0	PPB	
ACETONE	67-64-1	0	PPB	
2-PROPANOL	67-63-0	2	PPB	
1,1-DICHLOROETHENE	75-35-4	0	PPB	
FREON 113	76-13-1	0	PPB	
DICHLOROMETHANE	75-09-2	0	PPB	
1,1-DICHLOROETHANE	75-34-3	0	PPB	
2-BUTANONE	78-93-3	0	PPB	
N-HEXANE	110-54-3	0	PPB	
1,2-DICHLOROETHENE	156-59-2	0	PPB	
CHLOROFORM	67-66-3	0	PPB	
TETRAHYDROFURAN	109-99-9	0	PPB	
1,1,1-TRICHLOROETHANE	71-55-6	0	PPB	
1,2-DICHLOROETHANE	107-06-2	0	PPB	
BENZENE	71-43-2	0	PPB	
CARBON TETRACHLORIDE	56-23-5	0	PPB	
CYCLOHEXANE	110-82-7	0	PPB	
N-BUTANOL	71-36-3	0	PPB	
TRICHLOROETHENE	79-01-6	0	PPB	
4-METHYL-2-PENTANONE	108-10-1	0	PPB	
TOLUENE	108-88-3	0	PPB	
1,1,2-TRICHLOROETHANE	79-00-5	0	PPB	
TETRACHLOROETHENE	127-18-4	0	PPB	
CHLOROBENZENE	108-90-7	0	PPB	
ETHYLBENZENE	100-41-4	0	PPB	
M-XYLENE	108-38-3	0	PPB	
STYRENE	100-42-5	0	PPB	
O-XYLENE	95-47-6	0	PPB	
1,1,2,2-TETRACHLORETHANE	79-34-5	0	PPB	
1,3,5-TRIMETHYLBENZENE	108-67-8	0	PPB	
1,2,4-TRIMETHYLBENZENE	95-63-6	0	PPB	
1,3-DICHLOROBENZENE	541-73-1	0	PPB	
1,2-DICHLOROBENZENE	95-50-1	0	PPB	
1,4-DICHLOROBENZENE	106-46-7	0	PPB	

Information from Data File:
File : C:\HPCHEM\1\DATA\110696_2.D
Operator : MS
Acquired : 6 Nov 96 11:08 am using AcqMethod CWC
Sample Name: 7-9
Misc Info : 100 TORR
Vial Number: 1

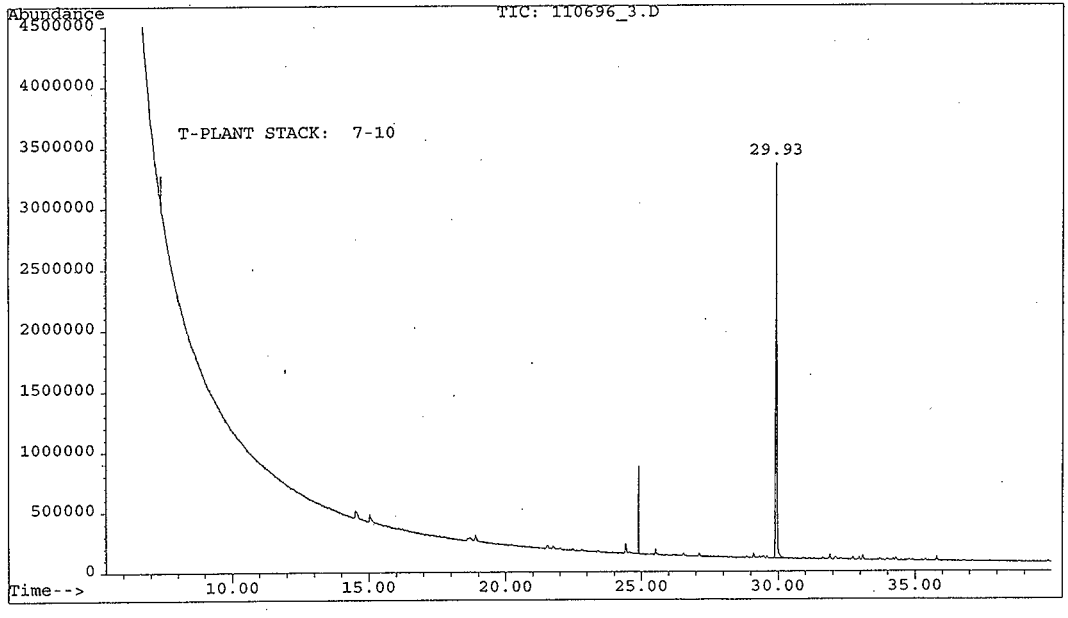
Search Libraries: C:\DATABASE\WILEY138.L Minimum Quality: 70
C:\DATABASE\NBS54K.L Minimum Quality: 70

Unknown Spectrum: Apex
Integration Params: VOA.E (RTEINT used)

Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
15	29.91	31.20	C:\DATABASE\WILEY138.L			
			Cyclohexanone	117743	000108-94-1	90

Wed Jul 09 08:39:01 1997

File : C:\HPCHEM\1\DATA\110696_3.D
Operator : MS
Acquired : 6 Nov 96 2:21 pm using AcqMethod CWC
Instrument : 5972 - In
Sample Name: 7-10
Misc Info : 100 TORR
Vial Number: 1



ANALYSIS REPORT FOR CWC AIR SAMPLES

File Name: 110696_3.D
Analyst: MS
Analysis Date: 11/06/96
Method: CWC
Sample Name: **7-10**

COMPOUND NAME	CAS #	Concentration	Units	Comments
ISO-BUTANE	75-28-5	0	PPB	
VINYL CHLORIDE	75-01-4	0	PPB	
ETHANOL	64-17-5	0	PPB	
ACETONE	67-64-1	0	PPB	
2-PROPANOL	67-63-0	4	PPB	
1,1-DICHLOROETHENE	75-35-4	0	PPB	
FREON 113	76-13-1	0	PPB	
DICHLOROMETHANE	75-09-2	0	PPB	
1,1-DICHLOROETHANE	75-34-3	0	PPB	
2-BUTANONE	78-93-3	0	PPB	
N-HEXANE	110-54-3	0	PPB	
1,2-DICHLOROETHENE	156-59-2	0	PPB	
CHLOROFORM	67-66-3	0	PPB	
TETRAHYDROFURAN	109-99-9	0	PPB	
1,1,1-TRICHLOROETHANE	71-55-6	0	PPB	
1,2-DICHLOROETHANE	107-06-2	0	PPB	
BENZENE	71-43-2	0	PPB	
CARBON TETRACHLORIDE	56-23-5	0	PPB	
CYCLOHEXANE	110-82-7	0	PPB	
N-BUTANOL	71-36-3	0	PPB	
TRICHLOROETHENE	79-01-6	0	PPB	
4-METHYL-2-PENTANONE	108-10-1	0	PPB	
TOLUENE	108-88-3	1	PPB	
1,1,2-TRICHLOROETHANE	79-00-5	0	PPB	
TETRACHLOROETHENE	127-18-4	0	PPB	
CHLOROBENZENE	108-90-7	0	PPB	
ETHYLBENZENE	100-41-4	0	PPB	
M-XYLENE	108-38-3	0	PPB	
STYRENE	100-42-5	0	PPB	
O-XYLENE	95-47-6	0	PPB	
1,1,2,2-TETRACHLORETHANE	79-34-5	0	PPB	
1,3,5-TRIMETHYLBENZENE	108-67-8	0	PPB	
1,2,4-TRIMETHYLBENZENE	95-63-6	0	PPB	
1,3-DICHLOROBENZENE	541-73-1	0	PPB	
1,2-DICHLOROBENZENE	95-50-1	0	PPB	
1,4-DICHLOROBENZENE	106-46-7	0	PPB	

Information from Data File:
File : C:\HPCHEM\1\DATA\110696_3.D
Operator : MS
Acquired : 6 Nov 96 2:21 pm using AcqMethod CWC
Sample Name: 7-10
Misc Info : 100 TORR
Vial Number: 1

Search Libraries: C:\DATABASE\WILEY138.L Minimum Quality: 70
C:\DATABASE\NBS54K.L Minimum Quality: 70

Unknown Spectrum: Apex
Integration Params: VOA.E (RTEINT used)

Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
17	29.93	75.69	C:\DATABASE\WILEY138.L			
			Cyclohexanone	117746	000108-94-1	91
			Cyclopentanone, 2-methyl-	117739	001120-72-5	78

Wed Jul 09 08:40:40 1997

BUILDING 2706-T

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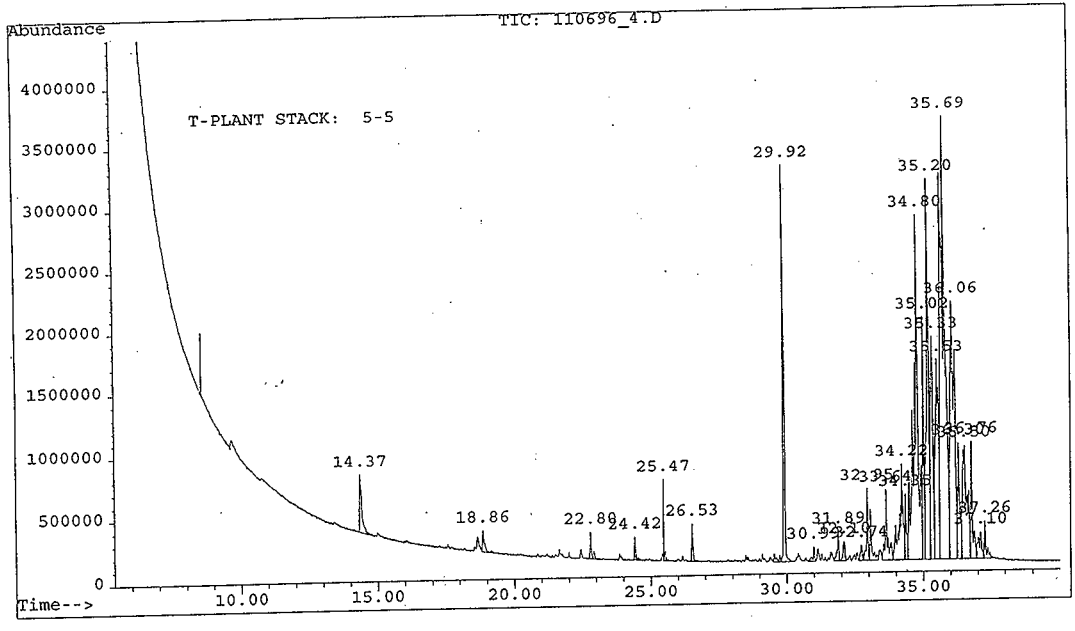
File : C:\HPCHEM\1\DATA\110696_4.D
Operator : MS
Acquired : 6 Nov 96 4:48 pm using AcqMethod CWC
Instrument : 5972 - In
Sample Name: 5-5
Misc Info : 100 TORR
Vial Number: 1



ANALYSIS REPORT FOR CWC AIR SAMPLES

File Name: 110696_4.D
Analyst: MS
Analysis Date: 11/06/96
Method: CWC
Sample Name: 5-5

COMPOUND NAME	CAS #	Concentration	Units	Comments
ISO-BUTANE	75-28-5	0	PPB	
VINYL CHLORIDE	75-01-4	0	PPB	
ETHANOL	64-17-5	0	PPB	
ACETONE	67-64-1	28	PPB	
2-PROPANOL	67-63-0	3	PPB	
1,1-DICHLOROETHENE	75-35-4	0	PPB	
FREON 113	76-13-1	0	PPB	
DICHLOROMETHANE	75-09-2	0	PPB	
1,1-DICHLOROETHANE	75-34-3	0	PPB	
2-BUTANONE	78-93-3	17	PPB	
N-HEXANE	110-54-3	0	PPB	
1,2-DICHLOROETHENE	156-59-2	0	PPB	
CHLOROFORM	67-66-3	0	PPB	
TETRAHYDROFURAN	109-99-9	0	PPB	
1,1,1-TRICHLOROETHANE	71-55-6	0	PPB	
1,2-DICHLOROETHANE	107-06-2	0	PPB	
BENZENE	71-43-2	0	PPB	
CARBON TETRACHLORIDE	56-23-5	0	PPB	
CYCLOHEXANE	110-82-7	0	PPB	
N-BUTANOL	71-36-3	0	PPB	
TRICHLOROETHENE	79-01-6	0	PPB	
4-METHYL-2-PENTANONE	108-10-1	0	PPB	
TOLUENE	108-88-3	2	PPB	
1,1,2-TRICHLOROETHANE	79-00-5	0	PPB	
TETRACHLOROETHENE	127-18-4	0	PPB	
CHLOROBENZENE	108-90-7	0	PPB	
ETHYLBENZENE	100-41-4	1	PPB	
M-XYLENE	108-38-3	0	PPB	
STYRENE	100-42-5	0	PPB	
O-XYLENE	95-47-6	0	PPB	
1,1,2,2-TETRACHLORETHANE	79-34-5	0	PPB	
1,3,5-TRIMETHYLBENZENE	108-67-8	0	PPB	
1,2,4-TRIMETHYLBENZENE	95-63-6	0	PPB	
1,3-DICHLOROBENZENE	541-73-1	0	PPB	
1,2-DICHLOROBENZENE	95-50-1	0	PPB	
1,4-DICHLOROBENZENE	106-46-7	0	PPB	

Information from Data File:
File : C:\HPCHEM\1\DATA\110696_4.D
Operator : MS
Acquired : 6 Nov 96 4:48 pm using AcqMethod CWC
Sample Name: 5-5
Misc Info : 100 TORR
Vial Number: 1

Search Libraries: C:\DATABASE\WILEY138.L Minimum Quality: 70
C:\DATABASE\NBS54K.L Minimum Quality: 70

Unknown Spectrum: Apex
Integration Params: VOA.E (RTEINT used)

Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
25	29.92	11.82	C:\DATABASE\WILEY138.L			
			Cyclohexanone	819	000108-94-1	87
37	32.74	0.56	C:\DATABASE\WILEY138.L			
			Cyclohexane, 1,4-dimethyl-	2730	000589-90-2	72
42	33.64	1.44	C:\DATABASE\WILEY138.L			
			Nonane, 2,6-dimethyl-	15630	017302-28-2	72
53	34.80	8.53	C:\DATABASE\WILEY138.L			
			1-ETHYL-2,2,6-TRIMETHYLCYCLOHEXANE	14851	000000-00-0	78
55	35.01	4.29	C:\DATABASE\WILEY138.L			
			Dodecane, 3-methyl-	27733	017312-57-1	72
57	35.21	8.39	C:\DATABASE\WILEY138.L			
			Naphthalene, decahydro-, trans-	122342	000493-02-7	98
			Naphthalene, decahydro-	122339	000091-17-8	93
			1,1'-Bicyclopentyl	122324	001636-39-1	87
63	35.72	0.59	C:\DATABASE\WILEY138.L			
			1R,2T,4T,5C-TETRAMETHYLCYCLOHEXANE	9527	019899-39-9	72
			1-METHYL-3-PROPYL-CYCLOOCTANE	20780	000000-00-0	72
70	36.37	0.15	C:\DATABASE\WILEY138.L			
			2-METHYLDECALIN (PROBABLY CIS)	13880	000000-00-0	76
			Naphthalene, decahydro-2-methyl-	124048	002958-76-1	76
71	36.47	0.77	C:\DATABASE\WILEY138.L			
			Naphthalene, decahydro-2-methyl-	124047	002958-76-1	72
72	36.52	0.72	C:\DATABASE\WILEY138.L			
			Naphthalene, decahydro-	122340	000091-17-8	94
			Naphthalene, decahydro-, cis-	8834	000493-01-6	94
			Spiro[4.5]decane	8822	00176-63-6	93

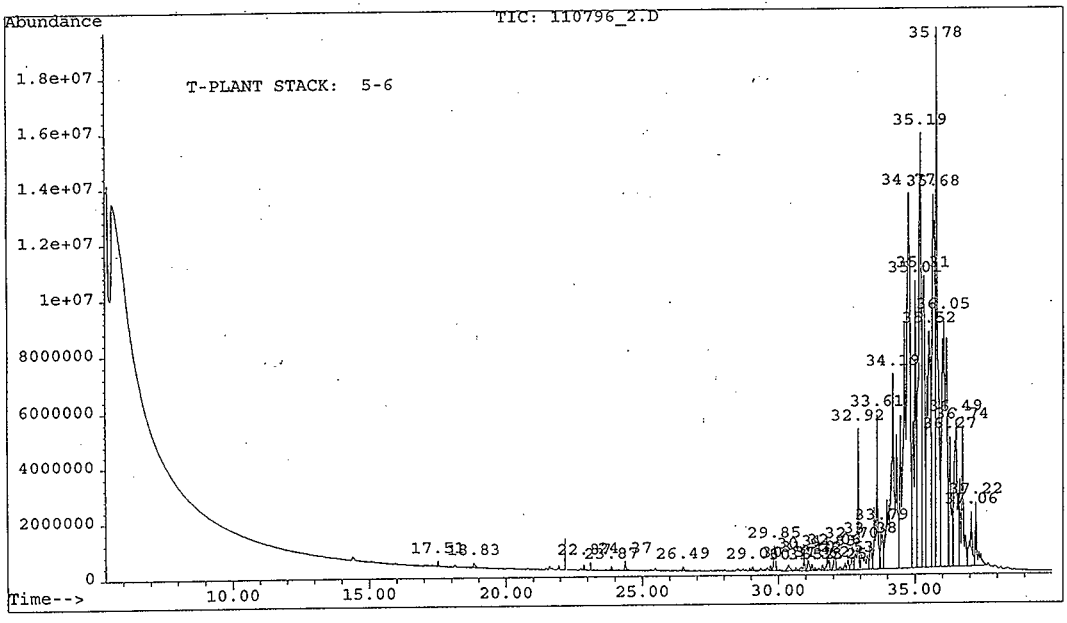
Sample 5-5 (continued)

75 36.76 2.75 C:\DATABASE\WILEY138.L
Naphthalene, decahydro-2-methyl- 124046 002958-76-1 93
TRANS-ANTI-1-METHYL-DECAHYDRONAPHTHAL 13878 000000-00-0 90
Bicyclo[4.1.0]heptan-2-one, 3,5,5-tri 13725 029750-24-1 70

79 37.25 0.92 C:\DATABASE\WILEY138.L
TRANS-ANTI-1-METHYL-DECAHYDRONAPHTHAL 13878 000000-00-0 98

Wed Jul 09 08:45:47 1997

File : C:\HPCHEM\1\DATA\110796_2.D
Operator : MS
Acquired : 7 Nov 96 1:15 pm using AcqMethod CWC
Instrument : 5972 - In
Sample Name: 5-6
Misc Info : 100 TORR
Vial Number: 1



ANALYSIS REPORT FOR CWC AIR SAMPLES

File Name: 110796_2.D
Analyst: MS
Analysis Date: 11/07/96
Method: CWC
Sample Name: 5-6

COMPOUND NAME	CAS #	Concentration	Units	Comments
ISO-BUTANE	75-28-5	0	PPB	
VINYL CHLORIDE	75-01-4	0	PPB	
ETHANOL	64-17-5	0	PPB	
ACETONE	67-64-1	7	PPB	
2-PROPANOL	67-63-0	3	PPB	
1,1-DICHLOROETHENE	75-35-4	0	PPB	
FREON 113	76-13-1	0	PPB	
DICHLOROMETHANE	75-09-2	0	PPB	
1,1-DICHLOROETHANE	75-34-3	0	PPB	
2-BUTANONE	78-93-3	19	PPB	
N-HEXANE	110-54-3	0	PPB	
1,2-DICHLOROETHENE	156-59-2	0	PPB	
CHLOROFORM	67-66-3	0	PPB	
TETRAHYDROFURAN	109-99-9	0	PPB	
1,1,1-TRICHLOROETHANE	71-55-6	0	PPB	
1,2-DICHLOROETHANE	107-06-2	0	PPB	
BENZENE	71-43-2	0	PPB	
CARBON TETRACHLORIDE	56-23-5	0	PPB	
CYCLOHEXANE	110-82-7	0	PPB	
N-BUTANOL	71-36-3	2	PPB	
TRICHLOROETHENE	79-01-6	0	PPB	
4-METHYL-2-PENTANONE	108-10-1	0	PPB	
TOLUENE	108-88-3	3	PPB	
1,1,2-TRICHLOROETHANE	79-00-5	0	PPB	
TETRACHLOROETHENE	127-18-4	0	PPB	
CHLOROBENZENE	108-90-7	0	PPB	
ETHYLBENZENE	100-41-4	1	PPB	
M-XYLENE	108-38-3	4	PPB	
STYRENE	100-42-5	0	PPB	
O-XYLENE	95-47-6	2	PPB	
1,1,2,2-TETRACHLORETHANE	79-34-5	2	PPB	
1,3,5-TRIMETHYLBENZENE	108-67-8	2	PPB	
1,2,4-TRIMETHYLBENZENE	95-63-6	5	PPB	
1,3-DICHLOROBENZENE	541-73-1	0	PPB	
1,2-DICHLOROBENZENE	95-50-1	0	PPB	
1,4-DICHLOROBENZENE	106-46-7	0	PPB	

Information from Data File:
File : C:\HPCHEM\1\DATA\110796_2.D
Operator : MS
Acquired : 7 Nov 96 1:15 pm using AcqMethod CWC
Sample Name: 5-6
Misc Info : 100 TORR
Vial Number: 1

Search Libraries: C:\DATABASE\WILEY138.L Minimum Quality: 70
C:\DATABASE\NBS54K.L Minimum Quality: 70

Unknown Spectrum: Apex
Integration Params: VOA.E (RTEINT used)

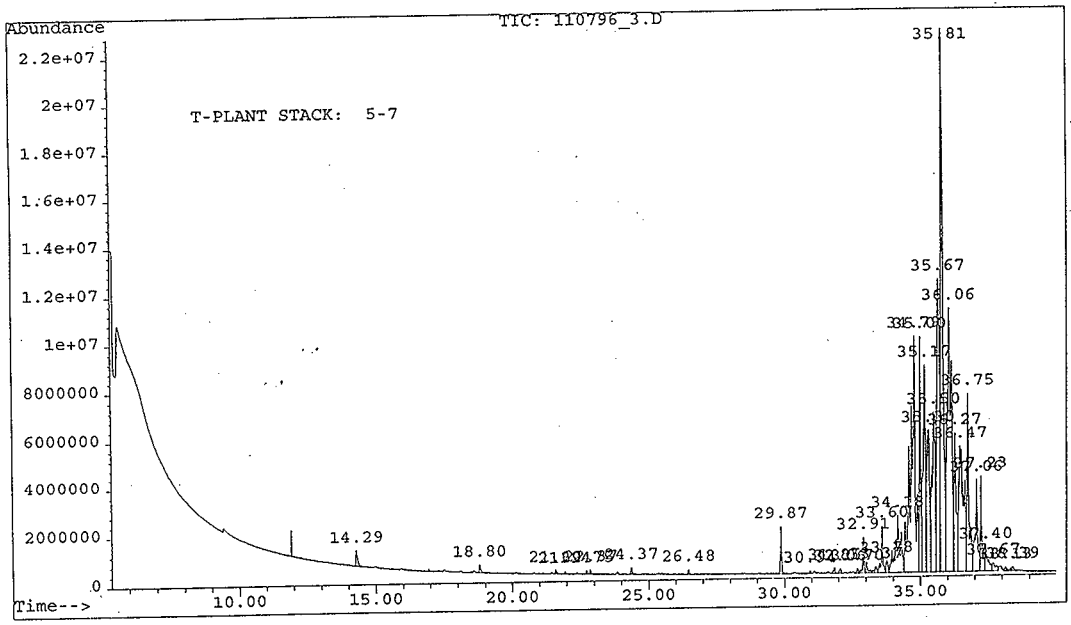
Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
15	29.05	0.12	C:\DATABASE\WILEY138.L			
			Benzene, 1,3-dimethyl-	118576	000108-38-3	83
			Benzene, 1,2-dimethyl-	118564	000095-47-6	80
22	30.94	0.33	C:\DATABASE\WILEY138.L			
			Octane, 3,6-dimethyl-	122744	015869-94-0	70
36	32.91	3.71	C:\DATABASE\WILEY138.L			
			Decane	122728	000124-18-5	91
			Nonane, 2-methyl-	122732	000871-83-0	80
43	33.61	4.08	C:\DATABASE\WILEY138.L			
			Nonane, 2,6-dimethyl-	15630	017302-28-2	90
			Decane, 4-methyl-	124560	02847-72-5	83
			Octane, 2,3,7-trimethyl-	15638	062016-34-6	80
49	34.19	3.88	C:\DATABASE\WILEY138.L			
			Cyclohexane, pentyl-	14841	004292-92-6	80
			Cyclohexane, butyl-	122508	001678-93-9	74
50	34.32	1.93	C:\DATABASE\WILEY138.L			
			Cyclohexane, 1-ethyl-2-methyl-, cis-	5460	04923-77-7	72
56	34.76	1.78	C:\DATABASE\WILEY138.L			
			1-ETHYL-2,2,6-TRIMETHYLCYCLOHEXANE	14851	000000-00-0	95
			2-Decene, 4-methyl-, (Z)-	14806	074630-30-1	83
			1,1-DIMETHYL-2-PROPYLCYCLOHEXANE	124363	81983-71-3	74
60	35.20	11.17	C:\DATABASE\WILEY138.L			
			Naphthalene, decahydro-, trans-	122344	000493-02-7	97
			Naphthalene, decahydro-	122339	000091-17-8	96
			1,1'-Bicyclopentyl	122324	001636-39-1	87

Sample 5-6 (continued)

73	36.36	0.18	C:\DATABASE\WILEY138.L			
			Naphthalene, decahydro-2-methyl-	124048	002958-76-1	81
			2-METHYLDECALIN (PROBABLY CIS)	13880	000000-00-0	81
			CIS-SYN-2-METHYL-DECAHYDRONAPHTHALENE	13879	000000-00-0	72
74	36.45	0.77	C:\DATABASE\WILEY138.L			
			Naphthalene, decahydro-2-methyl-	124046	002958-76-1	83
			Bicyclo[4.1.0]heptane, 3-methyl-	118911	041977-47-3	76
75	36.50	1.23	C:\DATABASE\WILEY138.L			
			Spiro[4.5]decane	122327	000176-63-6	98
			Naphthalene, decahydro-	122340	000091-17-8	97
			Naphthalene, decahydro-, cis-	8834	000493-01-6	96
76	36.58	0.31	C:\DATABASE\WILEY138.L			
			(4R,5R)-5-METHYLSPIRO(3.5)NONAN-1-ONE	13769	065147-56-0	74
78	36.74	3.65	C:\DATABASE\WILEY138.L			
			Naphthalene, decahydro-2-methyl-	124046	002958-76-1	95
			TRANS-ANTI-1-METHYL-DECAHYDRONAPHTHAL	13878	000000-00-0	91
			Pulegone	123989	000089-82-7	70
79	36.83	0.55	C:\DATABASE\WILEY138.L			
			3-Hexadecyne	45098	061886-62-2	87
			Dihydrocarvone	13696	005948-04-9	72
			7-Tetradecyne	32140	035216-11-6	72
83	37.22	1.70	C:\DATABASE\WILEY138.L			
			TRANS-ANTI-1-METHYL-DECAHYDRONAPHTHAL	13878	000000-00-0	98
			2-METHYLDECALIN (PROBABLY TRANS)	13881	002958-76-1	90
			TRANS-BICYCLO[5.1.0]OCTANE	2299	21370-66-1	76
84	37.33	0.18	C:\DATABASE\WILEY138.L			
			exo-2-Methyltricyclo[5.2.1.0(4,10)]de	12966	64822-63-5	76
85	37.39	0.13	C:\DATABASE\WILEY138.L			
			Naphthalene, decahydro-2-methyl-	124046	002958-76-1	89

Wed Jul 09 08:53:34 1997

File : C:\HPCHEM\1\DATA\110796_3.D
Operator : MS
Acquired : 7 Nov 96 2:23 pm using AcqMethod CWC
Instrument : 5972 - In
Sample Name: 5-7
Misc Info : 100 TORR
Vial Number: 1



ANALYSIS REPORT FOR CWC AIR SAMPLES

File Name: 110796_3.D
Analyst: MS
Analysis Date: 11/07/96
Method: CWC
Sample Name: 5-7

COMPOUND NAME	CAS #	Concentration	Units	Comments
ISO-BUTANE	75-28-5	0	PPB	
VINYL CHLORIDE	75-01-4	0	PPB	
ETHANOL	64-17-5	0	PPB	
ACETONE	67-64-1	33	PPB	
2-PROPANOL	67-63-0	5	PPB	
1,1-DICHLOROETHENE	75-35-4	0	PPB	
FREON 113	76-13-1	0	PPB	
DICHLOROMETHANE	75-09-2	0	PPB	
1,1-DICHLOROETHANE	75-34-3	0	PPB	
2-BUTANONE	78-93-3	37	PPB	
N-HEXANE	110-54-3	0	PPB	
1,2-DICHLOROETHENE	156-59-2	0	PPB	
CHLOROFORM	67-66-3	0	PPB	
TETRAHYDROFURAN	109-99-9	0	PPB	
1,1,1-TRICHLOROETHANE	71-55-6	0	PPB	
1,2-DICHLOROETHANE	107-06-2	0	PPB	
BENZENE	71-43-2	4	PPB	
CARBON TETRACHLORIDE	56-23-5	0	PPB	
CYCLOHEXANE	110-82-7	0	PPB	
N-BUTANOL	71-36-3	10	PPB	
TRICHLOROETHENE	79-01-6	0	PPB	
4-METHYL-2-PENTANONE	108-10-1	0	PPB	
TOLUENE	108-88-3	2	PPB	
1,1,2-TRICHLOROETHANE	79-00-5	0	PPB	
TETRACHLOROETHENE	127-18-4	0	PPB	
CHLOROBENZENE	108-90-7	0	PPB	
ETHYLBENZENE	100-41-4	1	PPB	
M-XYLENE	108-38-3	0	PPB	
STYRENE	100-42-5	0	PPB	
O-XYLENE	95-47-6	0	PPB	
1,1,2,2-TETRACHLORETHANE	79-34-5	0	PPB	
1,3,5-TRIMETHYLBENZENE	108-67-8	0	PPB	
1,2,4-TRIMETHYLBENZENE	95-63-6	2	PPB	
1,3-DICHLOROBENZENE	541-73-1	0	PPB	
1,2-DICHLOROBENZENE	95-50-1	0	PPB	
1,4-DICHLOROBENZENE	106-46-7	0	PPB	

Information from Data File:
File : C:\HPCHEM\1\DATA\110796_3.D
Operator : MS
Acquired : 7 Nov 96 2:23 pm using AcqMethod CWC
Sample Name: 5-7
Misc Info : 100 TORR
Vial Number: 1

Search Libraries: C:\DATABASE\WILEY138.L Minimum Quality: 70
C:\DATABASE\NBS54K.L Minimum Quality: 70

Unknown Spectrum: Apex
Integration Params: VOA.E (RTEINT used)

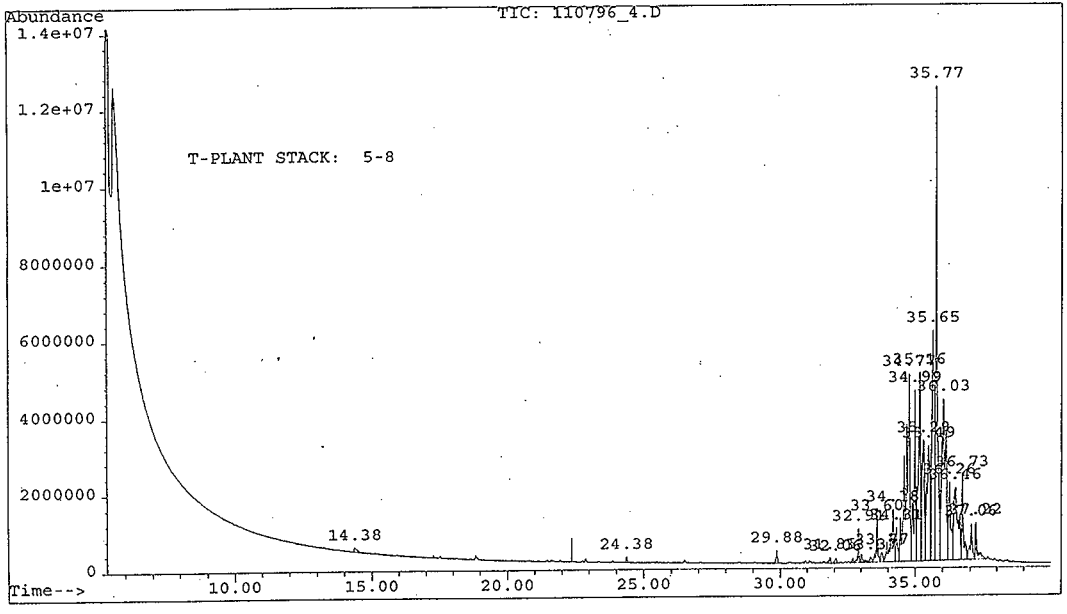
Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
12	29.87	1.56	C:\DATABASE\WILEY138.L			
			Cyclohexanone	117743	000108-94-1	83
16	32.69	0.10	C:\DATABASE\WILEY138.L			
			Cyclohexane, 1,4-dimethyl-	2730	000589-90-2	72
17	32.91	0.94	C:\DATABASE\WILEY138.L			
			Decane	122728	000124-18-5	91
21	33.60	1.14	C:\DATABASE\WILEY138.L			
			Nonane, 2,6-dimethyl-	15630	017302-28-2	80
32	34.79	5.43	C:\DATABASE\WILEY138.L			
			Decane, 2-methyl-	124552	006975-98-0	83
			Heptadecane, 2,6,10,14-tetramethyl-	133325	018344-37-1	80
			Hexacosane	135387	000630-01-3	72
34	35.00	5.43	C:\DATABASE\NBS54K.L			
			Undecane, 2,9-dimethyl-	16185	017301-26-7	72
36	35.17	4.27	C:\DATABASE\WILEY138.L			
			Naphthalene, decahydro-, trans-	122342	000493-02-7	98
			Naphthalene, decahydro-	122339	000091-17-8	93
			1,1'-Bicyclopentyl	122326	001636-39-1	80
43	35.81	18.83	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,14-tetramethyl-	35850	018344-37-1	72
48	36.45	1.05	C:\DATABASE\WILEY138.L			
			Naphthalene, decahydro-2-methyl-	124047	002958-76-1	70
49	36.50	0.60	C:\DATABASE\WILEY138.L			
			Naphthalene, decahydro-, cis-	122337	000493-01-6	93
			Naphthalene, decahydro-	122340	000091-17-8	93
			Spiro[4.5]decane	8822	000176-63-6	70

Sample 5-7 (continued)

50	36.58	0.22	C:\DATABASE\WILEY138.L		
			Bicyclo[3.1.0]hexan-3-one, 4-methyl-1	13718	001125-12-8 81
			Cyclohexane, 1-methyl-4-(1-methylethe	8809	001124-25-0 72
52	36.74	4.94	C:\DATABASE\WILEY138.L		
			Naphthalene, decahydro-2-methyl-	124046	002958-76-1 95
			TRANS-ANTI-1-METHYL-DECAHYDRONAPHTHAL	13878	000000-00-0 91
			5-Octadecyne	56713	071899-42-8 72
53	36.84	0.65	C:\DATABASE\WILEY138.L		
			3-Hexadecyne	45098	061886-62-2 74
54	36.99	0.15	C:\DATABASE\WILEY138.L		
			Bicyclo[4.1.0]heptane, 3-methyl-	118911	041977-47-3 83
55	37.06	1.92	C:\DATABASE\WILEY138.L		
			Cyclopentane, 1-methyl-3-(1-methyleth	5452	053771-88-3 70
56	37.23	2.51	C:\DATABASE\WILEY138.L		
			TRANS-ANTI-1-METHYL-DECAHYDRONAPHTHAL	13878	000000-00-0 98
			Naphthalene, decahydro-2-methyl-	124047	002958-76-1 94
			TRANS-BICYCLO[5.1.0]OCTANE	2299	021370-66-1 70
57	37.33	0.21	C:\DATABASE\WILEY138.L		
			exo-2-Methyltricyclo[5.2.1.0(4,10)]de	12966	064822-63-5 76
58	37.40	0.27	C:\DATABASE\WILEY138.L		
			Naphthalene, decahydro-2-methyl-	124047	002958-76-1 89
			CIS-SYN-2-METHYL-DECAHYDRONAPHTHALENE	13879	000000-00-0 70

Wed Jul 09 09:02:01 1997

File : C:\HPCHEM\1\DATA\110796_4.D
Operator : MS
Acquired : 7 Nov 96 3:37 pm using AcqMethod CWC
Instrument : 5972 - In
Sample Name: 5-8
Misc Info : 100 TORR
Vial Number: 1



ANALYSIS REPORT FOR CWC AIR SAMPLES

File Name: 110796_4.D
Analyst: MS
Analysis Date: 11/07/96
Method: CWC
Sample Name: 5-8

COMPOUND NAME	CAS #	Concentration	Units	Comments
ISO-BUTANE	75-28-5	0	PPB	
VINYL CHLORIDE	75-01-4	0	PPB	
ETHANOL	64-17-5	0	PPB	
ACETONE	67-64-1	8	PPB	
2-PROPANOL	67-63-0	0	PPB	
1,1-DICHLOROETHENE	75-35-4	0	PPB	
FREON 113	76-13-1	0	PPB	
DICHLOROMETHANE	75-09-2	0	PPB	
1,1-DICHLOROETHANE	75-34-3	0	PPB	
2-BUTANONE	78-93-3	0	PPB	
N-HEXANE	110-54-3	0	PPB	
1,2-DICHLOROETHENE	156-59-2	0	PPB	
CHLOROFORM	67-66-3	0	PPB	
TETRAHYDROFURAN	109-99-9	0	PPB	
1,1,1-TRICHLOROETHANE	71-55-6	0	PPB	
1,2-DICHLOROETHANE	107-06-2	0	PPB	
BENZENE	71-43-2	0	PPB	
CARBON TETRACHLORIDE	56-23-5	0	PPB	
CYCLOHEXANE	110-82-7	0	PPB	
N-BUTANOL	71-36-3	0	PPB	
TRICHLOROETHENE	79-01-6	0	PPB	
4-METHYL-2-PENTANONE	108-10-1	0	PPB	
TOLUENE	108-88-3	0	PPB	
1,1,2-TRICHLOROETHANE	79-00-5	0	PPB	
TETRACHLOROETHENE	127-18-4	0	PPB	
CHLOROBENZENE	108-90-7	0	PPB	
ETHYLBENZENE	100-41-4	0	PPB	
M-XYLENE	108-38-3	0	PPB	
STYRENE	100-42-5	0	PPB	
O-XYLENE	95-47-6	0	PPB	
1,1,2,2-TETRACHLORETHANE	79-34-5	0	PPB	
1,3,5-TRIMETHYLBENZENE	108-67-8	0	PPB	
1,2,4-TRIMETHYLBENZENE	95-63-6	1	PPB	
1,3-DICHLOROBENZENE	541-73-1	0	PPB	
1,2-DICHLOROBENZENE	95-50-1	0	PPB	
1,4-DICHLOROBENZENE	106-46-7	0	PPB	

Information from Data File:
File : C:\HPCHEM\1\DATA\110796_4.D
Operator : MS
Acquired : 7 Nov 96 3:37 pm using AcqMethod CWC
Sample Name: 5-8
Misc Info : 100 TORR
Vial Number: 1

Search Libraries: C:\DATABASE\WILEY138.L Minimum Quality: 70
C:\DATABASE\NBS54K.L Minimum Quality: 70

Unknown Spectrum: Apex
Integration Params: VOA.E (RTEINT used)

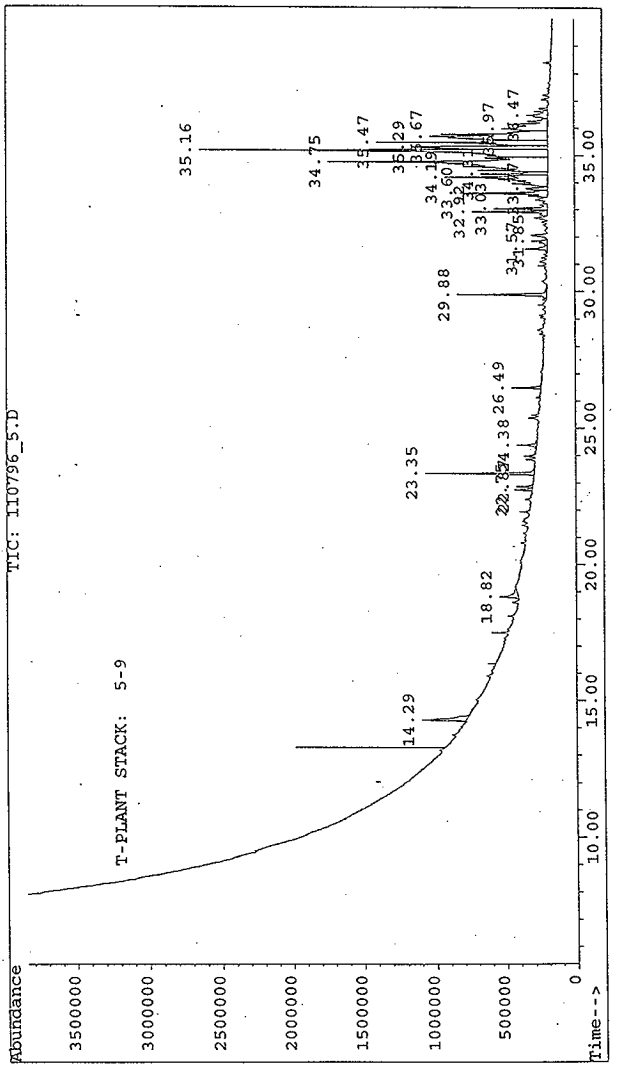
Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
14	32.91	1.15	C:\DATABASE\WILEY138.L			
			Decane	122728	000124-18-5	91
18	33.60	1.35	C:\DATABASE\WILEY138.L			
			Nonane, 2,6-dimethyl-	15630	017302-28-2	80
30	34.98	4.47	C:\DATABASE\WILEY138.L			
			Decane, 3-methyl-	15625	013151-34-3	72
33	35.16	5.48	C:\DATABASE\WILEY138.L			
			Naphthalene, decahydro-, trans-	122342	000493-02-7	98
			Naphthalene, decahydro-	122339	000091-17-8	93
			1,1'-Bicyclopentyl	122324	001636-39-1	87
39	35.76	11.68	C:\DATABASE\WILEY138.L			
			Dodecane	126001	000112-40-3	72
44	36.44	0.79	C:\DATABASE\WILEY138.L			
			Naphthalene, decahydro-2-methyl-	124046	002958-76-1	83
			Bicyclo[4.1.0]heptane, 3-methyl-	118911	041977-47-3	76
45	36.48	0.45	C:\DATABASE\WILEY138.L			
			Spiro[4.5]decane	122327	000176-63-6	96
			Naphthalene, decahydro-, cis-	122337	000493-01-6	94
			Naphthalene, decahydro-	122340	000091-17-8	94
48	36.73	2.86	C:\DATABASE\WILEY138.L			
			Naphthalene, decahydro-2-methyl-	124046	002958-76-1	95
			TRANS-ANTI-1-METHYL-DECAHYDRONAPHTHAL	13878	000000-00-0	91
			Spiro[3.5]nonan-1-one, 5-methyl-, tra	13770	065147-56-0	74
51	37.05	1.05	C:\DATABASE\WILEY138.L			
			Cyclopentane, 1-methyl-3-(1-methyleth	5452	053771-88-3	81

Sample 5-8 (continued)

52 37.21 1.26 C:\DATABASE\WILEY138.L
TRANS-ANTI-1-METHYL-DECAHYDRONAPHTHAL 13878 000000-00-0 98
2-METHYLDECALIN (PROBABLY TRANS) 13881 002958-76-1 81

Wed Jul 09 09:09:33 1997

File : C:\HPCHEM\1\DATA\110796_5.D
Operator : MS
Acquired : 7 Nov 96 5:13 pm using AcqMethod CWC
Instrument : 5972 - In
Sample Name: 5-9
Misc Info : 100 TORR
Vial Number: 1



ANALYSIS REPORT FOR CWC AIR SAMPLES

File Name: 110796_5.D
Analyst: MS
Analysis Date: 11/07/96
Method: CWC
Sample Name: 5-9

COMPOUND NAME	CAS #	Concentration	Units	Comments
ISO-BUTANE	75-28-5	0	PPB	
VINYL CHLORIDE	75-01-4	0	PPB	
ETHANOL	64-17-5	0	PPB	
ACETONE	67-64-1	20	PPB	
2-PROPANOL	67-63-0	3	PPB	
1,1-DICHLOROETHENE	75-35-4	0	PPB	
FREON 113	76-13-1	0	PPB	
DICHLOROMETHANE	75-09-2	0	PPB	
1,1-DICHLOROETHANE	75-34-3	0	PPB	
2-BUTANONE	78-93-3	15	PPB	
N-HEXANE	110-54-3	0	PPB	
1,2-DICHLOROETHENE	156-59-2	0	PPB	
CHLOROFORM	67-66-3	0	PPB	
TETRAHYDROFURAN	109-99-9	0	PPB	
1,1,1-TRICHLOROETHANE	71-55-6	0	PPB	
1,2-DICHLOROETHANE	107-06-2	0	PPB	
BENZENE	71-43-2	4	PPB	
CARBON TETRACHLORIDE	56-23-5	0	PPB	
CYCLOHEXANE	110-82-7	0	PPB	
N-BUTANOL	71-36-3	0	PPB	
TRICHLOROETHENE	79-01-6	0	PPB	
4-METHYL-2-PENTANONE	108-10-1	0	PPB	
TOLUENE	108-88-3	1	PPB	
1,1,2-TRICHLOROETHANE	79-00-5	0	PPB	
TETRACHLOROETHENE	127-18-4	0	PPB	
CHLOROBENZENE	108-90-7	0	PPB	
ETHYLBENZENE	100-41-4	0	PPB	
M-XYLENE	108-38-3	0	PPB	
STYRENE	100-42-5	0	PPB	
O-XYLENE	95-47-6	0	PPB	
1,1,2,2-TETRACHLORETHANE	79-34-5	0	PPB	
1,3,5-TRIMETHYLBENZENE	108-67-8	0	PPB	
1,2,4-TRIMETHYLBENZENE	95-63-6	0	PPB	
1,3-DICHLOROBENZENE	541-73-1	0	PPB	
1,2-DICHLOROBENZENE	95-50-1	0	PPB	
1,4-DICHLOROBENZENE	106-46-7	0	PPB	

9Information from Data File:
File : C:\HPCHEM\1\DATA\110796_5.D
Operator : MS
Acquired : 7 Nov 96 5:13 pm using AcqMethod CWC
Sample Name: 5-9
Misc Info : 100 TORR
Vial Number: 1

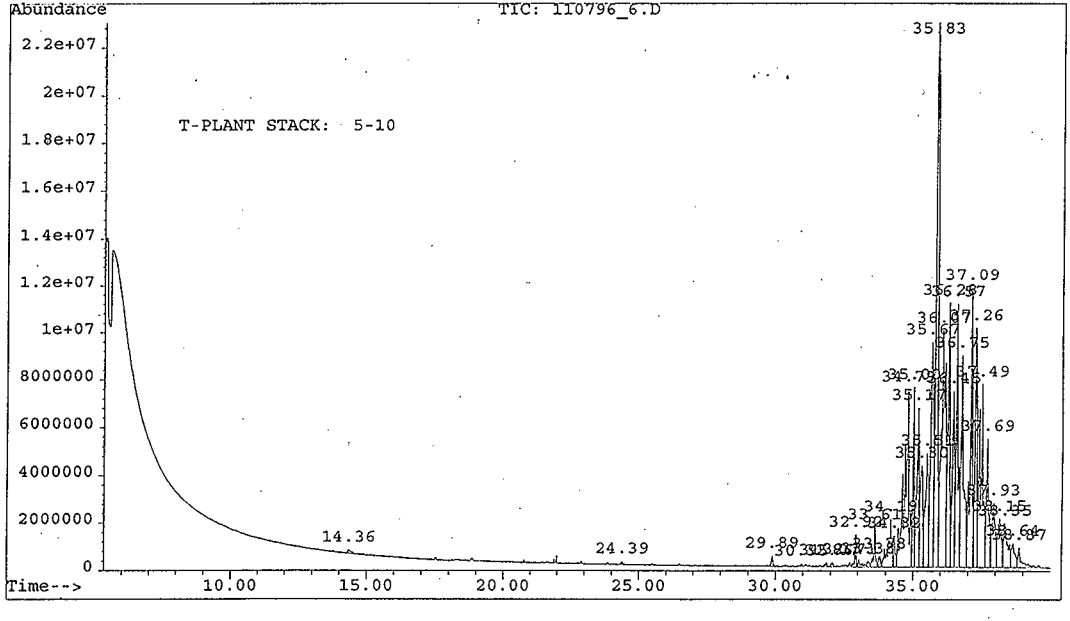
Search Libraries: C:\DATABASE\WILEY138.L Minimum Quality: 70
C:\DATABASE\NBS54K.L Minimum Quality: 70

Unknown Spectrum: Apex
Integration Params: VOA.E (RTEINT used)

Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
51	34.75	7.69	C:\DATABASE\WILEY138.L			
			1-ETHYL-2,2,6-TRIMETHYLCYCLOHEXANE	14851	000000-00-0	81
			1,1-DIMETHYL-2-PROPYLCYCLOHEXANE	14847	081983-71-3	80
			2-Decene, 4-methyl-, (Z)-	14806	074630-30-1	74
54	35.16	16.44	C:\DATABASE\WILEY138.L			
			Naphthalene, decahydro-, trans-	122344	000493-02-7	97
			Naphthalene, decahydro-	122339	000091-17-8	93
			1,1'-Bicyclopentyl	8819	01636-39-1	80

Wed Jul 09 09:17:22 1997

File : C:\HPCHEM\1\DATA\110796_6.D
Operator : MS
Acquired : 7 Nov 96 6:09 pm using AcqMethod CWC
Instrument : 5972 - In
Sample Name: 5-10
Misc Info : 100 TORR
Vial Number: 1



ANALYSIS REPORT FOR CWC AIR SAMPLES

File Name: 110796_6.D
Analyst: MS
Analysis Date: 11/07/96
Method: CWC
Sample Name: 5-10

COMPOUND NAME	CAS #	Concentration	Units	Comments
ISO-BUTANE	75-28-5	0	PPB	
VINYL CHLORIDE	75-01-4	0	PPB	
ETHANOL	64-17-5	0	PPB	
ACETONE	67-64-1	10	PPB	
2-PROPANOL	67-63-0	2	PPB	
1,1-DICHLOROETHENE	75-35-4	0	PPB	
FREON 113	76-13-1	0	PPB	
DICHLOROMETHANE	75-09-2	0	PPB	
1,1-DICHLOROETHANE	75-34-3	0	PPB	
2-BUTANONE	78-93-3	0	PPB	
N-HEXANE	110-54-3	0	PPB	
1,2-DICHLOROETHENE	156-59-2	0	PPB	
CHLOROFORM	67-66-3	0	PPB	
TETRAHYDROFURAN	109-99-9	0	PPB	
1,1,1-TRICHLOROETHANE	71-55-6	0	PPB	
1,2-DICHLOROETHANE	107-06-2	0	PPB	
BENZENE	71-43-2	3	PPB	
CARBON TETRACHLORIDE	56-23-5	0	PPB	
CYCLOHEXANE	110-82-7	0	PPB	
N-BUTANOL	71-36-3	0	PPB	
TRICHLOROETHENE	79-01-6	0	PPB	
4-METHYL-2-PENTANONE	108-10-1	0	PPB	
TOLUENE	108-88-3	2	PPB	
1,1,2-TRICHLOROETHANE	79-00-5	0	PPB	
TETRACHLOROETHENE	127-18-4	0	PPB	
CHLOROBENZENE	108-90-7	0	PPB	
ETHYLBENZENE	100-41-4	0	PPB	
M-XYLENE	108-38-3	0	PPB	
STYRENE	100-42-5	0	PPB	
O-XYLENE	95-47-6	0	PPB	
1,1,2,2-TETRACHLORETHANE	79-34-5	0	PPB	
1,3,5-TRIMETHYLBENZENE	108-67-8	0	PPB	
1,2,4-TRIMETHYLBENZENE	95-63-6	2	PPB	
1,3-DICHLOROBENZENE	541-73-1	0	PPB	
1,2-DICHLOROBENZENE	95-50-1	0	PPB	
1,4-DICHLOROBENZENE	106-46-7	0	PPB	

Information from Data File:
File : C:\HPCHEM\1\DATA\110796_6.D
Operator : MS
Acquired : 7 Nov 96 6:09 pm using AcqMethod CWC
Sample Name: 5-10
Misc Info : 100 TORR
Vial Number: 1

Search Libraries: C:\DATABASE\WILEY138.L Minimum Quality: 70
C:\DATABASE\NBS54K.L Minimum Quality: 70

Unknown Spectrum: Apex
Integration Params: VOA.E (RTEINT used)

Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
7	33.61	0.83	C:\DATABASE\WILEY138.L			
			Nonane, 2,6-dimethyl-	15630	017302-28-2	87
16	34.79	3.86	C:\DATABASE\WILEY138.L			
			Decane, 2-methyl-	124551	006975-98-0	83
20	35.18	2.94	C:\DATABASE\WILEY138.L			
			Naphthalene, decahydro-, trans-	122342	000493-02-7	98
			Naphthalene, decahydro-	122339	000091-17-8	93
			1,1'-Bicyclopentyl	122324	001636-39-1	87
27	35.85	22.33	C:\DATABASE\WILEY138.L			
			Heptadecane, 2,6,10,14-tetramethyl-	133325	018344-37-1	83
			Decane	10235	000124-18-5	78
			Hexadecane	130127	000544-76-3	78
33	36.57	4.25	C:\DATABASE\WILEY138.L			
			Dodecane, 2,6,11-trimethyl-	40639	031295-56-4	72
35	36.75	4.58	C:\DATABASE\WILEY138.L			
			Naphthalene, decahydro-2-methyl-	124046	02958-76-1	94
			TRANS-ANTI-1-METHYL-DECAHYDRONAPHTHAL	13878	000000-00-0	86
38	37.09	6.62	C:\DATABASE\WILEY138.L			
			Cyclopentane, 1-methyl-3-(1-methyleth	5452	053771-88-3	76
40	37.38	2.50	C:\DATABASE\WILEY138.L			
			Undecane, 4-methyl-	21653	002980-69-0	76
			Nonane, 5-butyl-	127266	017312-63-9	70
45	38.15	0.67	C:\DATABASE\WILEY138.L			
			9-Eicosyne	66577	071899-38-2	72

Wed Jul 09 09:25:56 1997

DISTRIBUTION SHEET

To	From	Page 1 of 1
Distribution	M. Stauffer	Date 9/15/97
Project Title/Work Order		EDT No. 620334
HNF-SD-WM-RPT-308, Rev. 0, Report on Sampling and Analysis of Exhaust Air at the 221-T and 2706-T Buildings		ECN No. N/A

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
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