A-89-08
IV-J-364

Note: This is a reference cited in *AP 42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources.* AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

ENTROPY
ENVIRONMENTALISTS INC.

POST OFFICE BOX 12291
RESEARCH TRIANGLE PARK
NORTH CAROLINA 27709-2291
919-781-3550

VOLUME II

Stationary Source Sampling Report

SUPPLEMENTAL ANALYTICAL DATA

EEI REF. NO. 5553-A

Signal Environmental Systems Inc
Cogeneration Facility, Claremont, New Hampshire

DIOXINS/FURANS EMISSIONS COMPLIANCE TESTING

UNIT 1

June 24 and July 14, 15, and 17, 1987

NOTE: **Portions of this document are not legible. However, is it the best reproduction available.**

TRIANGLE LABORATORIES, INC.
4915F PROSPECTUS DRIVE
RESEARCH TRIANGLE PARK, NC 27713
919 544-5729

CASE NARRATIVE

DATE: 31 July 1987
CLIENT ID: Entropy Environmentalists, Inc.
TLI NO.: 8701481
OBJECTIVE: ANALYSIS OF FOUR MM5 SAMPLES FOR THE PRESENCE OF TRI- THROUGH OCTACHLORODIBENZODIOXINS AND DIBENZOFURANS

The samples were processed following methods derived from the ASME analytical protocol. The Document Control package contains all laboratory records received or generated during the sample handling by Triangle Laboratories.

Note: The aqueous samples were processed and analyzed separately from the other components (XAD, filter, rinses) of the MM5 train.

On the enclosed sample data sheets, the concentration of analytes are given in ng per sample. "RT" is the gas chromatographic retention time in minutes and seconds, "number" is the number of GC peaks identified as PCDD/PCDF isomers in the totals reported for each homologous series, and "ratio" is the integrated ion abundance ratio observed for the M to M+2 ions of the tetra- through pentachlorinated isomers and M+2 to M+4 for the hexa- through octachlorinated isomers. "DL" is the detection limit for samples presenting an analyte response that is less than 2.5 times the background level. "EMPC", representing the estimated maximum possible concentration, is reported for GC/MS signals eluting within the PCDD/PCDF retention time windows established with the daily GC performance analysis, and which are characterized by a signal-to-noise ratio in excess of 2.5:1 but do not meet all of the qualitative identification criteria listed below. The "EMPC" is calculated by using the same expression used for reporting the identified analyte concentrations. The "DL" and "EMPC" are both reported in ng.

For quantifications, the sum of the peak areas for the two ions monitored is used. When no peak is detected, an area of 8 counts for each ion (total 16 counts) is used to calculate the detection limit.

The samples were fortified with the internal and surrogate standards as summarized in Tables 1 and 2. The $^{13}C_{12}$-2,3,7,8-TCDD internal standard is used to quantitate TCDDs and TCDFs, $^{13}C_{12}$-1,2,3,7,8-PeCDD is used to quantitate PeCDDs and PeCDFs, $^{13}C_{12}$-1,2,3,6,7,8-HxCDD is used to quantitate HxCDDs and HxCDFs, $^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD is used to quantitate HpCDDs and

HpCDFs, and $^{13}C_{12}$-OCDD is used to quantitate OCDD and OCDF.

For GC/MS analysis, the final residue was dissolved in 20 uL of a toluene solution containing the recovery standards shown in Tables 1 and 2. The recoveries of the carbon-labeled tetra- and penta-chlorinated dibenzodioxins internal standards were calculated by using $^{13}C_{12}$-1,2,3,4-TCDD as the recovery standard. The recoveries of higher homologues (hexa- through octachlorinated congeners) were determined relative to $^{13}C_{12}$-1,2,3,7,8,9-HxCDD. The concentrations of $^{37}Cl_4$-2,3,7,8-TCDD and $^{13}C_{12}$-2,3,7,8-TCDF in the final extract are calculated relative to $^{13}C_{12}$-2,3,7,8-TCDD. The concentration of the third surrogate standard (i.e., $^{13}C_{12}$-1,2,3,4,7,8-HxCDF) is measured against $^{13}C_{12}$-1,2,3,6,7,8-HxCDD.

The samples were analyzed by using a VG 7070H mass spectrometer operated in the selected ion recording mode, at a resolving power of 8,000. A VG 11/250 data system was used to acquire the data. A Varian 3700 GC , equipped with a fused-silica capillary column, was employed. One uL of the 20-uL final sample volume was analyzed by using the GC conditions summarized in Table 3.

The mass spectrometer response was calibrated with the help of the set of six initial calibration solutions shown in Table 4. A continuing calibration was demonstrated every 12 hours by injecting one uL of solution number 4 from Table 4. The response factors (RFs) used for the calculation of the analyte concentrations were obtained from the daily continuing calibration check (*vide infra*). For the total homologous PCDD/PCDF concentrations (e.g., total HxCDDs), the RFs were taken, when applicable, as the average of the RFs for the individual congeners listed in the continuing calibration reporting form. Note that when only one isomer is present, a discrepancy may appear between the reported concentration for the individual isomer and the total, as a result of using a different RF. The continuing calibration delta RF (on the data sheets) corresponds to the relative percent difference between the daily RF and the initial calibration RF.

[redacted]

The positive identification criteria used for the characterization of polychlorinated dibenzodioxins and dibenzofurans are as follows:

1) The integrated ion abundance ratio (M+/M+2 or M+2/M+4) must be within 15% of the theoretical value. The acceptable ion abundance ratio ranges for the identification of chlorine-containing compounds are:

M/M+2
tetra 0.65-0.89
penta 0.52-0.70

M+2/M+4
hexa 1.05-1.41
hepta 0.87-1.17
octa 0.75-1.01

2) The retention time for the analytes must be within 3 s of the corresponding ^{13}C-labeled internal standard or surrogate standard.

3) The monitored ions for an analyte must maximize within 3 s.

4) The identification of specific isomers that do not have a corresponding ^{13}C-labeled standards is done by comparison of the relative retention time (RRT) of the analyte to the nearest internal standard retention time with reference (i.e., within 0.005 RRT units) to the comparable RRTs found in the continuing calibration.

5) The signal-to-noise ratio (S/N) for all monitored ions must be greater than 2.5.

6) The confirmation of 2,3,7,8-TCDD and 2,3,7,8-TCDF must satisfy all of the above identification criteria.

An acceptable continuing calibration run must meet the following criteria:

1) The measured RFs (for the unlabeled as well as labeled compounds) obtained during the continuing calibration run must be within 20 percent for tetra- through heptachlorinated compounds and 25 percent for octachlorinated compounds of the mean values established during the initial calibration.

2) The ion-abundance ratios must be within the allowed control limits listed above.

For Triangle Laboratories,

Analyst	QA Project Officer	Program Manager
Michael D. Chu	Hani S. Karam	Yves Tondeur

TABLE 1. Nature and Quantities of Standards Added to the Solid Components (XAD, filter, Rinses) of the MM5 Samples.

Compound	Type of Standard	Amount added in ng
$^{13}C_{12}$-2,3,7,8-TCDF	SS	2
$^{37}Cl_4$-2,3,7,8-TCDD	SS	2
$^{13}C_{12}$-1,2,3,4-TCDD	RS	10
$^{13}C_{12}$-2,3,7,8-TCDD	IS	10
$^{13}C_{12}$-1,2,3,7,8-PeCDD	IS	10
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	SS	2
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	RS	10
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	IS	10
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	IS	10
$^{13}C_{12}$-OCDD	IS	20

IS = Internal Standard; SS = Surrogate Standard; RS = Recovery Standard

Note: The RS's are added to the sample extract before GC/MS analysis.

TABLE 2. Nature and Quantities of Standards Added to the Aqueous Components of the MM5 Samples.

Compound	Type of Standard	Amount added in ng
$^{13}C_{12}$-2,3,7,8-TCDF	SS	10
$^{37}Cl_4$-2,3,7,8-TCDD	SS	10
$^{13}C_{12}$-1,2,3,4-TCDD	RS	10
$^{13}C_{12}$-2,3,7,8-TCDD	IS	10
$^{13}C_{12}$-1,2,3,7,8-PeCDD	IS	10
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	SS	10
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	RS	10
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	IS	10
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	IS	10
$^{13}C_{12}$-OCDD	IS	20

IS = Internal Standard; SS = Surrogate Standard; RS = Recovery Standard

Note: The RS's are added to the sample extract before GC/MS analysis.

TABLE 3: GAS CHROMATOGRAPHY CONDITIONS

Column type	DB-5
Length (m)	60
i.d. (mm)	0.25
Film Thickness (um)	0.25
Carrier Gas	Helium
Carrier Gas Flow (mL/min)	1-2
Injection Mode	splitless
Valve Time (s)	30
Initial Temperature (° C)	150
Program Temperature	150° C to 190° C ballistically then 3° C/min up to 300° C.

TABLE 3: COMPOSITION OF THE INITIAL CALIBRATION SOLUTIONS

Compound / Sol. Number	Concentrations (pg/uL) 1	2	3	4	5	6
Unlabeled Analytes						
1,2,4-TrCDD	5	10	50	100	500	1000
2,3,8-TrCDD	5	10	50	100	500	1000
2,3,7,8-TCDD	5	10	50	100	500	1000
2,3,7,8-TCDF	5	10	50	100	500	1000
1,2,3,7,8-PeCDD	25	50	250	500	2500	5000
1,2,3,7,8-PeCDF	25	50	250	500	2500	5000
2,3,4,7,8-PeCDF	25	50	250	500	2500	5000
1,2,3,4,7,8-HxCDD	25	50	250	500	2500	5000
1,2,3,6,7,8-HxCDD	25	50	250	500	2500	5000
1,2,3,7,8,9-HxCDD	25	50	250	500	2500	5000
1,2,3,4,7,8-HxCDF	25	50	250	500	2500	5000
1,2,3,6,7,8-HxCDF	25	50	250	500	2500	5000
1,2,3,7,8,9-HxCDF	25	50	250	500	2500	5000
2,3,4,6,7,8-HxCDF	25	50	250	500	2500	5000
1,2,3,4,6,7,8-HpCDD	25	50	250	500	2500	5000
1,2,3,4,6,7,8-HpCDF	25	50	250	500	2500	5000
1,2,3,4,7,8,9-HpCDF	25	50	250	500	2500	5000
OCDD	50	100	500	1000	5000	10000
OCDF	50	100	500	1000	5000	10000
Internal Standards						
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200
Surrogate Standards						
$^{37}Cl_4$-2,3,7,8-TCDD	5	10	50	100	500	1000
$^{13}C_{12}$-2,3,7,8-TCDF	5	10	50	100	500	1000
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	5	10	50	100	500	1000
Recovery Standard						
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100

TABLE 4. Nature and Amount of Internal/Surrogate Standards added to the solid components of the HHC Fraction (amount are given in ng)

8701481M

Record#	NAME	AREA	AMOUNT	ID	INTID	INDEX
1	13C12-TCDF	32694.58	2.0	SURR1	IS1	1
2	37CL-TCDD	26947.34	2.0	SURR2	IS1	2
3	1234-13C12-TCDD	22294.17	10.0	RS1	IS1	3
4	2378-13C12-TCDD	26054.94	10.0	IS1	RS1	4
5	13C12-PCDD	14142.51	10.0	IS2	RS1	5
6	13C12-HxCDF	38790.43	2.0	SURR3	IS3	6
7	13C-123789HxCDD	29089.24	10.0	RS2	IS3	7
8	13C12-HxCDD	15748.45	10.0	IS3	RS2	8
9	13C12-HpCDD	17292.77	10.0	IS4	RS2	9
10	13C12-OCDD	27657.88	20.0	IS5	RS2	10

SURR = SURROGATE STANDARD
RS = RECOVERY STANDARD
IS = INTERNAL STANDARD

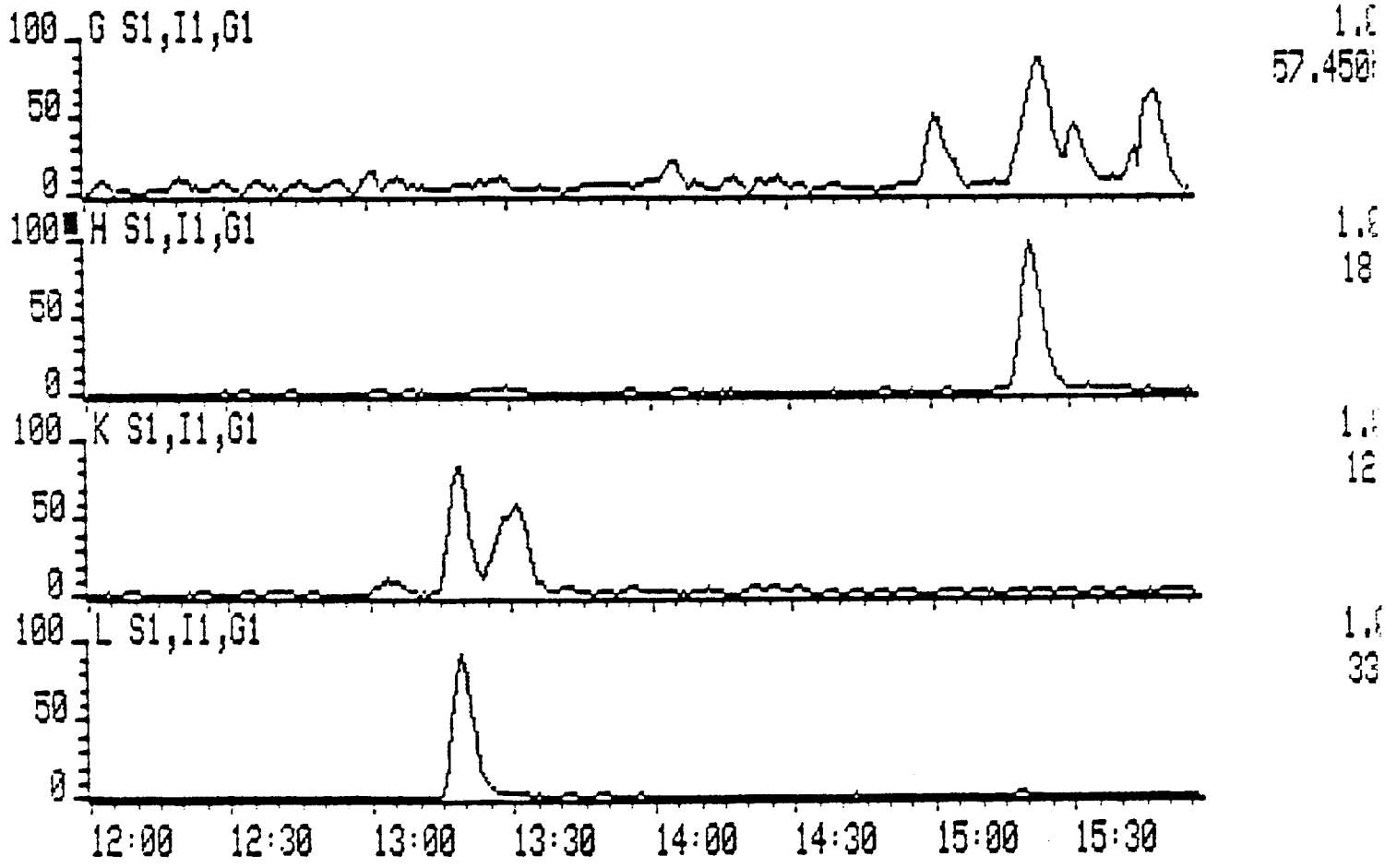
TABLE 5. Nature and Amount of Internal / Surrogate Standards added to the Aqueous Components of the HMS Train. (amount are given in ng).

8701481A

Record#	NAME	AREA	AMOUNT	ID	INTID	INDEX
1	13C12-TCDF	32694.58	10.0	SURR1	IS1	1
2	37CL-TCDD	26947.34	10.0	SURR2	IS1	2
3	1234-13C12-TCDD	22294.17	10.0	RS1	IS1	3
4	2378-13C12-TCDD	26054.94	10.0	IS1	RS1	4
5	13C12-PCDD	14142.51	10.0	IS2	RS1	5
6	13C12-HxCDF	38790.43	10.0	SURR3	IS3	6
7	13C-123789HxCDD	29089.24	10.0	RS2	IS3	7
8	13C12-HxCDD	15748.45	10.0	IS3	RS2	8
9	13C12-HpCDD	17292.77	10.0	IS4	RS2	9
10	13C12-OCDD	27657.38	20.0	IS5	RS2	10

SURR = SURROGATE STANDARD
RS = Recovery Standard
IS = Internal Standard

M872086 29-JUL-87 05:19 70E (EI+) Sys:CON
GR 1 G: 305.8987 H: 315.9419 I: 317.9389 J: 319.8965 K: 321.8936
Text:COLUMN PERFORMANCE



TRIANGLE LABORATORIES, INC

DOCUMENT CONTROL

TRIANGLE LABS

PCDD/PCDF SAMPLE TRACKING & MANAGEMENT FORM

TLI Project Number: #7C1481
Customer ID: ENTROPY
Number of Samples: 4
Number of QC Samples: -
Number of Confirmations: _____

Due Date: 7-27-87
Turnaround: 30 days
Received on: 29 JUNE 87
Received by: YT

Total of Billable Samples: _____ Quotation #: _____

Sample Preparation Information (circle selection)

Matrix Type: Soil Water Ash Sludge Fish Adipose Other[a]: MMS
Extraction Method: Soxhlet Sep.Fun. Dean Stark Jar Other[a]: MMS
Cleanup Procedure[b]: 8280 A540-8280 Region-V (ASME) Other[a]: ___

Detection Limit:	____ ppt	____ ppb	
Fortification Level:	____ ppt	____ ppb	Vol. SF Sln: ____ uL
Sample Size:	____ g	____ L	SF Sln ID: ____
Percent Moisture:	Yes	(No)	SF=sample fortification
Percent Lipid:	Yes	(No)	

Quality Control

Duplicate:	Yes	(No)	Dup. Sample ID: ____
Matrix Spike[c]*:*	Yes	(No)	MS Sample ID: ____
Matrix Spike Dup.:	Yes	(No)	Vol. Spiking Sln: ____ uL
Method Blank:	(Yes)	No	Spiking Sln ID: ____

HRGC/HRMS

Mono-Octa:	Yes	(No)	
Tetra-Octa:	Yes	(No)	
2,3,7,8-TCDD Specificity:	Yes	No	(confirmation)
2,3,7,8-TCDF Specificity:	(Yes)	No	(confirmation)
Toxicity Equivalency Factor:	Yes	(No)	
PCDD/PCDF Ret. Time Window:	Yes	(No)	GC Perf. Sln ID: ____
Recovery Standards:	Vol.: ____ uL		Sln ID: ____
Special Requirements:	TRI - OCTA		

Data Package Assembly

Special Requirements: _____

****

(a) Other & Special Instructions:

****

(b) 8280: ... TLI SOP # 612; A540-8280: ... TLI SOP # 610;
Region-V: ... TLI SOP # 608; ASME: ... TLI SOP # 606

(c) Matrix Spike Fortification Levels:
Tetra- through heptachlorinated unlabeled compounds: _____ ppt/ppb
Octachlorinated unlabeled compounds: _____ ppt/ppb

70

6-29-87 TLI# 8701481 Entropy

-4 mm5 for dioxin analysis.
All in good condition. No seals
on sample jars. Rec'd by Y. Tondeur.

TLI#	Client ID		
2-70-1	1-1	Filter (F)	SES - Claremont
2-70-2		XAD	SES - #2
- 2-70-3		Impinger Rinse (IR)	
2-70-4		Front Half Rinse (F1/2)	
2-70-5		Back Half Rinse (B1/2)	
- 2-70-6		Impinger Reagent (IRg)	
2-70-7	1-2	F	SES Claremont
2-70-8		XAD	SES #3
- 2-70-9		IR	
2-70-10		F1/2	
2-70-11		B1/2	
- 2-70-12		IRg	
2-70-13	1-3	F	SES Claremont
2-70-14		XAD	SES #4
- 2-70-15		IR	
2-70-16		F1/2	
2-70-17		B1/2	
- 2-70-18		IRg	
2-70-19	1 F-B	F	SES Claremont
2-70-20		XAD	SES #5
- 2-70-21		IR	
2-70-22		F1/2	
2-70-23		B1/2	

[illegible] 6-30-87

8701481 7/2/87

Soxhlet

Client #	Soxhlet	Aqueous
(1) Clean	1-1 Filter SES Claremont (F) XAD SES - #2 Front half Rinse (F/2) Back half Rinse (B/2)	(1Aq) Impinger rinse (I D. H_2O Impinger Reagent (I
(2)	1-2 F SES Claremont XAD SES #3 F/2 B/2	(2Aq) IR D. H_2O
(3)	1-3 F SES Claremont XAD SES #4 F/2 B/2	(3Aq) IR D. H_2O
(4)	1F-B F SES Claremont XAD SES #5 F/2 B/2	(4Aq) IR D. H_2O
(5)	TL1Blank (IS spike only)	Combined HPLC D. H_2O (Surr spike on
Spikes =	100 µl IS only	100 µl IS 100 µl Surr

(1), (2), (3), (4) XAD cartridges were pre Surr spiked
(5) Soxhlet and (5) impinger were spiked & XAD were kept

8701481 A
8701481 M

TRIANGLE LABORATORIES, INC.

Analyst Worksheet

7/2/87
TLI Project No.: 8701481

Amount of 13C 1234-TCDD added 500 pg/uL in 20uL

Client: Entrapsy

	TLI SAMPLE NUMBER	CUSTOMER SAMPLE NUMBER	INTERNAL STANDARDS ADDED *	SURROGATES ADDED*	QUANTITY EXTRACTED	FILE #	Report sheets generated
	2-70-						
1	1,2,4,5	1-1	100 ul	Pre Spiked		M872026	✓
1Aq	3,6	1-1	100 ul	100 ul		M872025	✓
2	7,8,10,11	1-2	100 ul	Pre Spiked		M872028	✓
2Aq	9,12	1-2	100 ul	100 ul		M872027	✓
3	13,14,16,17	1-3	100 ul	Pre Spiked		M872030	✓
3Aq	15,18	1-3	100 ul	100 ul		M872029	✓
4	19,20,22,23	1-FB	100 ul	Pre Spiked		M872032	✓
4Aq	21,24	1-FB	100 ul	100 ul		M872031	✓
5	Soil/Aqueous	TLI Blank	100 ul	100 ul		M872024	✓
				CONCAL - M872023			

* 0.1ng/ul of internal standards and surrogates, except for 13C-OCDD which is 0.2ng/ul

DO TRIDEL BEFORE TLI_ADD
Sample wt = 1
OUT_NG

[illegible] 27 July

No. of Billable Sampl
Initials

TRIANGLE LABORATORIES, INC.

Laboratory Workorder Form

Project Number: 870148.1
Customer: Entropy

DUE DATE: 7-27-87

	ANALYTE	MATRIX	NO. SAMPLES	CHEMISTRY	ANALYSIS	REPORT	QC
1.		4 MMS	4		Tri. COD/F		
2.							
3.							
4.							
5.							
6.							

NOTES: Tri-Octa + Confirm

RECORD of ANALYSIS:

SAMPLE CUSTODY:
RECEIVED BY: Y Toodeur DATE: 6-29-87
NOTES: In MS lab

CHEMISTRY:
RESPONSIBLE CHEMIST: DUE DATE:
DATE STARTED: DATE COMPLETED:
NOTES:

MASS SPECTROMETRY (LOW OR HIGH)
RESPONSIBLE SPECTROCOPIST: DUE DATE:
DATE STARTED: DATE COMPLETED:
NOTES:

DATA REVIEW:
RESPONSIBLE CHEMIST: DUE DATE:
DATE STARTED: DATE COMPLETED:
NOTES:

QUALITY CONTROL:
RESPONSIBLE CHEMIST: DUE DATE:
DATE STARTED: DATE COMPLETED:
NOTES:

5/2/86

ENTROPY
ENVIRONMENTALISTS INC.

POST OFFICE BOX 12291
RESEARCH TRIANGLE PARK
NORTH CAROLINA 27709-2291
919-781-3550

REQUEST FOR ANALYSIS

PURCHASE ORDER # 5553A-2 JOB NAME:

LABORATORY: TLI

DATE SAMPLES WERE TRANSMITTED: 6/29/87 EXPECTED DATE OF RESULTS: 7/27/87

SAMPLE MATRIX: 4 each of filter, XAD trap, Impingers reagent, Front half rinse, back half rinse, and impingers rinse

TYPE OF ANALYSIS REQUESTED: tri-octa dioxin/furan screen and 2,3,7,8-TCDD/F confirms

Sample #	I.D. for	filters, XAD, reagent and rinses		
1	1-1			
2	1-2			
3	1-3			
4	1-FB			

SUBMITTED BY: Bruce [illegible]

L-0005A
0/06

ENTROPY
ENVIRONMENTALISTS INC.

POST OFFICE BOX 12291
RESEARCH TRIANGLE PARK
NORTH CAROLINA 27709-2291
919-781-3550

INTERLABORATORY SAMPLE TRANSFER CHAIN-OF-CUSTODY FORM

Please return this form along with the analytical results.

The samples referenced on ~~EPI~~ Purchase Order Number: 5553A-2 were shipped via truck on 6/29/87 by BH to TLI

Samples received at Triangle Labs on 29 June 87 by Yves TOURDEUR.

Note any broken seals, leakage, spillage, and/or damage to the samples.

TRIANGLE LABORATORIES, INC.
PCDD/PCDF ANALYSIS

ANALYST: SP
DATE: 07/29/87

FILE NAME: M872024
SAMPLE ID: TLI BLANK
CASE NO: ENTROPY
PROJ NO: 8701481

CONCAL: M872023

NAME	AMT (ng)	NUMBER	DL	EMPC	RATIO	RT
TOTAL TRICDD	ND			0.196	0.04	
2378-TCDD	ND		0.020			
TOTAL TCDD	ND			0.051	3.37	
12378-PCDD	ND		0.018			
TOTAL PCDD	ND		0.018			
123478-HxCDD	ND		0.020			
123678-HxCDD	ND		0.020			
123789-HxCDD	ND		0.022			
TOTAL HxCDD	ND			0.083	4.47	
1234678-HpCDD	ND			0.056	1.21	
TOTAL HpCDD	ND			0.112	1.26	
OCDD	ND			0.170	1.15	
TOTAL TRICDF	ND		0.030			
2378-TCDF	ND			0.022	0.40	
TOTAL TCDF	ND			0.022	0.40	
12378-PCDF	ND		0.015			
23478-PCDF	ND		0.015			
TOTAL PCDF	ND		0.015			
123478-HxCDF	ND		0.013			
123678-HxCDF	ND		0.013			
234678-HxCDF	ND		0.015			
123789-HxCDF	ND		0.018			
TOTAL HxCDF	ND			0.015	0.98	
1234678-HpCDF	ND			0.074	0.71	
1234789-HpCDF	ND		0.018			
TOTAL HpCDF	ND		0.018			
OCDF	ND		0.040			

SURROGATE RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
13C12-TCDF	8.94	89.40	0.76	26.10
37CL-TCDD	9.28	92.80		26.53
13C12-HxCDF	9.90	99.30	1.23	37.23

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
2378-13C12-TCDD	8.07	80.70	0.76	26.33
13C12-PCDD	10.28	102.80	0.57	31.40
13C12-HxCDD	7.84	78.40	1.21	38.35
13C12-HpCDD	7.62	76.20	1.06	44.13
13C12-OCDD	13.47	84.20	0.88	49.22

M872024B
MATCHED GC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
286	0.04	17.48	222.00	.F.	.F.	0.000
304	0.40	25.10	67.00	.F.	.T.	0.973
316	0.61	25.48	1079.46	.F.	.F.	0.960
316	0.76	26.10	28073.35	.T.	.T.	0.973
316	0.53	26.30	726.98	.F.	.F.	0.986
320	3.37	26.11	122.30	.F.	.F.	0.974
328	0.00	26.53	22209.96	.T.	.T.	1.000
332	0.79	26.41	21317.99	.T.	.T.	0.993
332	0.76	26.53	23082.79	.T.	.T.	1.000
366	0.57	31.49	13191.10	.T.	.T.	1.000
374	0.98	36.09	54.62	.F.	.F.	0.937
386	1.23	37.23	35499.13	.T.	.T.	0.969
390	4.47	37.23	203.26	.F.	.F.	0.969
402	1.21	38.35	14005.95	.T.	.T.	1.000
402	1.26	39.04	29555.86	.T.	.T.	1.013
408	0.71	42.45	245.31	.F.	.T.	0.967
424	1.30	43.09	124.00	.F.	.F.	0.976
424	1.21	44.14	122.13	.F.	.T.	1.000
436	1.06	44.13	16592.80	.T.	.T.	1.000
458	1.15	49.22	191.61	.F.	.T.	1.000
470	0.88	49.22	25707.68	.T.	.T.	1.000
*** Total ***						
***	23.29	718.72	232395.28			19.690

M872024I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
270	10.00	13.00
272	10.00	14.00
286	10.00	15.00 — 8 @ 17:48
288	214.00	17.48
304	10.00	16.00 — 12 @ 26:10
306	165.56	31.50 — INS: 306: 45 @ 26:18
316	410.02	25.48
316	12106.85	26.10
316	252.48	26.30
318	669.44	25.48
318	15966.50	26.10
318	474.50	26.30
320	94.30	26.11
322	10.00	17.00 — 28 @ 26:11
328	22209.96	26.53
332	9389.48	26.41
332	9969.43	26.53
334	11928.51	26.41
334	13113.36	26.52
334	122.02	31.49
338	10.00	18.00
340	10.00	19.00
354	10.00	20.00
356	10.00	21.00
366	4765.30	31.49
368	8425.80	31.49
374	27.06	36.09
376	27.56	36.09
386	19604.81	37.23
388	15894.32	37.23
390	166.13	37.23
392	37.13	37.22
402	7671.49	38.35
402	16463.31	39.04
404	6334.46	38.35
404	13092.55	39.04
408	101.45	42.45
408	30.19	43.19
410	143.86	42.45
410	542.46	49.22
424	66.92	44.14 — 43:09 ? { 424: 70 @ 43:09
426	55.21	44.14 — { 426: 54 @ 43:09
426	8543.37	44.13
428	8049.43	44.13
428	348.30	49.25
442	10.00	22.00
444	10.00	23.00
458	102.54	49.22
460	89.07	49.22
470	12013.68	49.22

M8720241
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
470	10.00	24.00
472	13694.00	49.22
*** Total ***		
****	233496.81	1655.57

M872024B
MATCHED GC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
316	0.61	25.48	1079.46	.F.	.F.	0.960
316	0.76	26.10	28073.35	.T.	.T.	0.973
316	0.53	26.30	726.98	.F.	.F.	0.986
328	0.00	26.53	22209.96	.T.	.T.	1.000
332	0.79	26.41	21317.99	.T.	.T.	0.993
332	0.76	26.53	23082.79	.T.	.T.	1.000
366	0.57	31.49	13191.10	.T.	.T.	1.000
374	0.98	36.09	54.62	.F.	.F.	0.937
386	1.23	37.23	35499.13	.T.	.T.	0.969
390	4.47	37.23	203.26	.F.	.F.	0.969
402	1.21	38.35	14005.95	.T.	.T.	1.000
402	1.26	39.04	29555.86	.T.	.T.	1.013
408	0.71	42.45	245.31	.F.	.T.	0.967
424	1.21	44.14	122.13	.F.	.T.	1.000
436	1.06	44.13	16592.80	.T.	.T.	1.000
458	1.15	49.22	191.61	.F.	.T.	1.000
470	0.38	49.22	25707.68	.T.	.T.	1.000
*** Total ***						
***	18.18	605.94	231859.98			16.767

:8872824 24-JUL-97 04:03 70E (EI+) Sus:DBSHTST
GR 2 A: 292.9825 B: 303.9816 C: 305.8987 D: 315.9419 E: 317.9389
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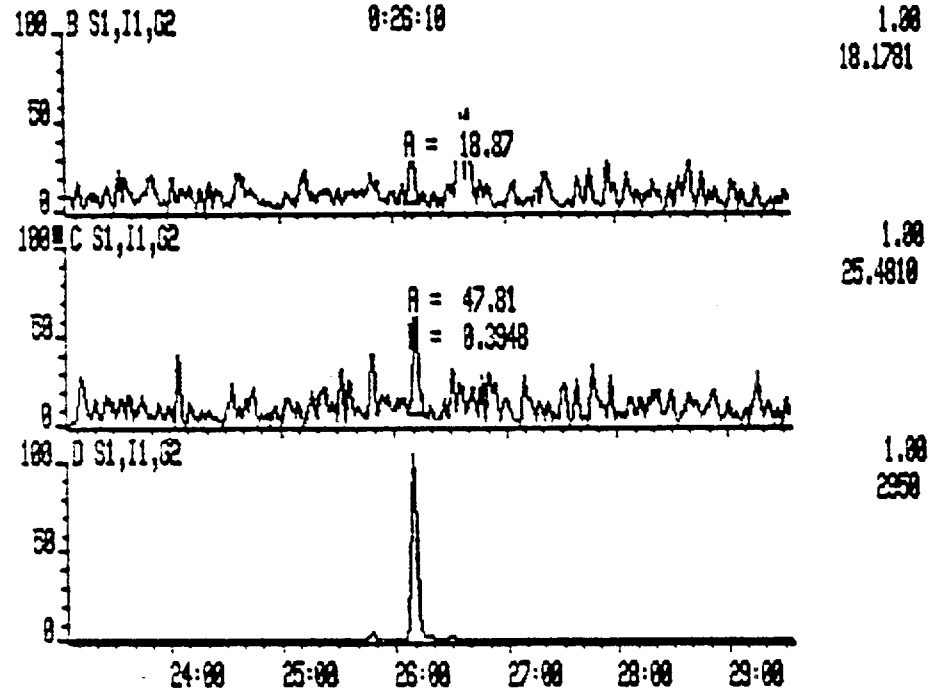
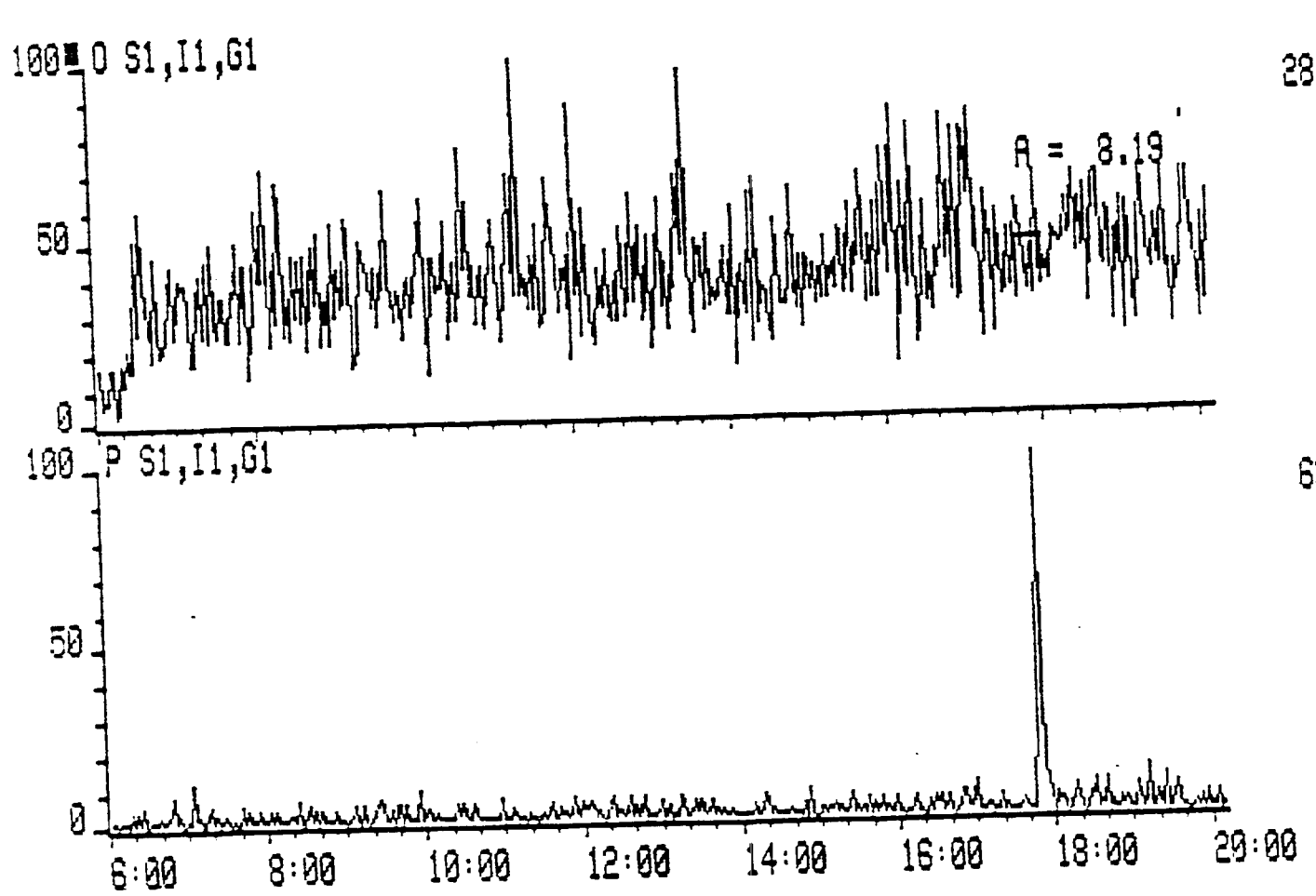
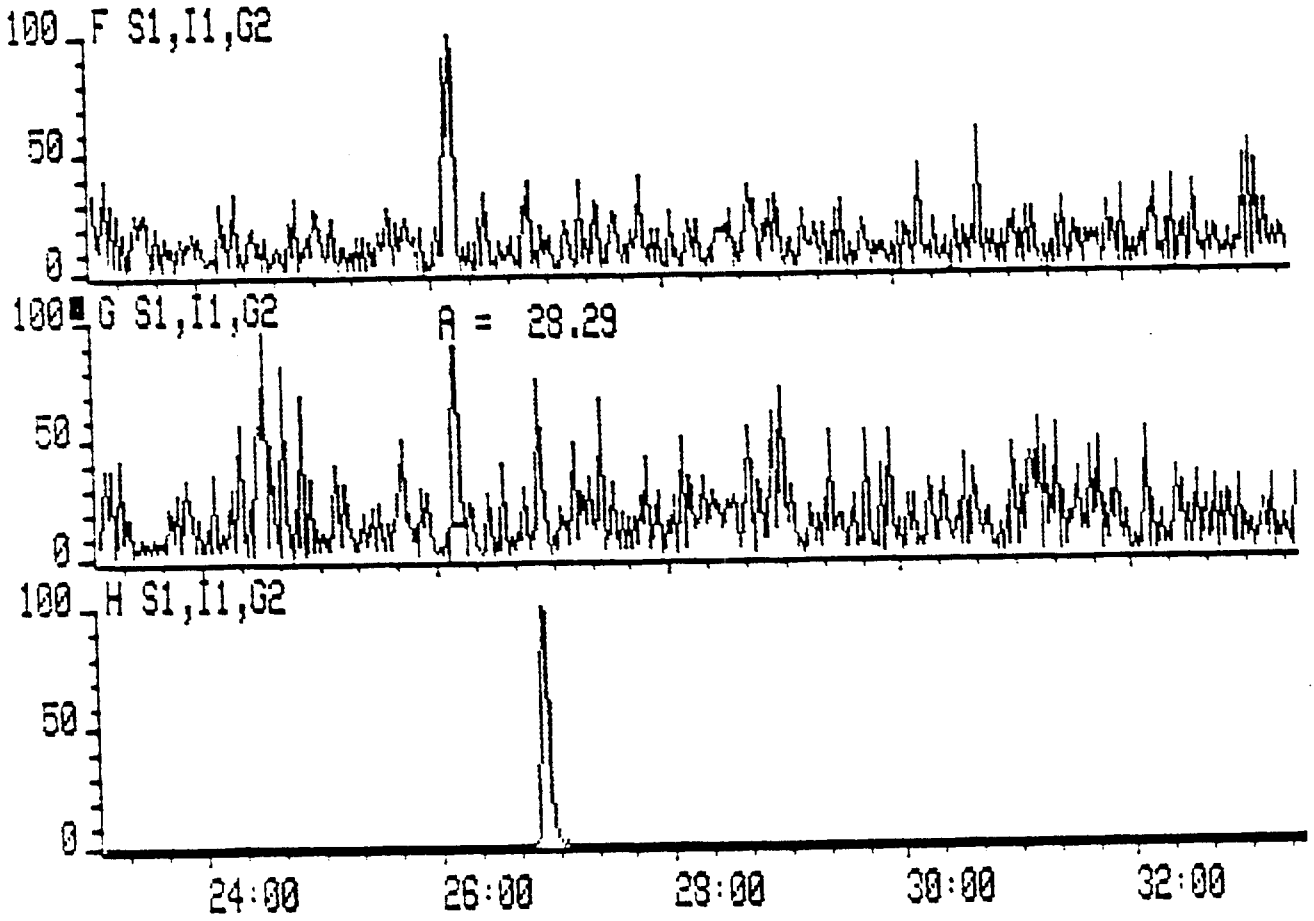


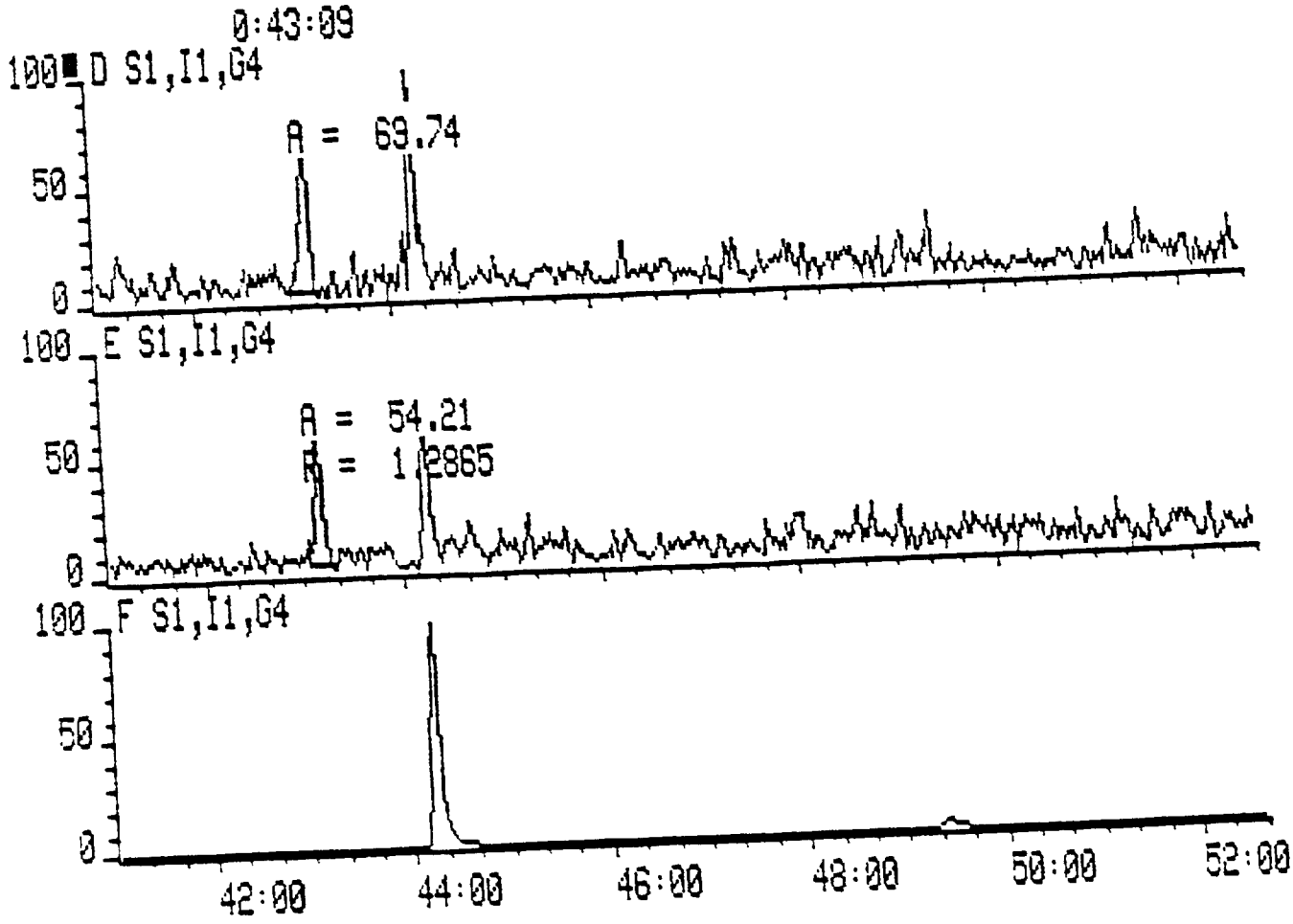
M872024 24-JUL-87 04:03 70E (EI+) Sys:DBSHTST
GR 1 M: 269.9406 N: 271.9377 O: 285.9355 P: 287.9326 Q: 339.8790
Text:BLANK



M872024 24-JUL-87 04:03 70E (EI+) Sys:DB5ATST
GR 2 F: 319.8965 G: 321.8936 H: 327.8847 I: 331.9368 J: 333.9338
Text:BLANK



MS72024 24-JUL-87 04:03 70E (EI+) Sys:DB5ATST
GR 4 D: 423.7766 E: 425.7737 F: 435.8169 G: 437.8139 H: 430.9729
Text:BLANK



...+ 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
...mple 1 Injection 1 Group 1 Mass 269.9406
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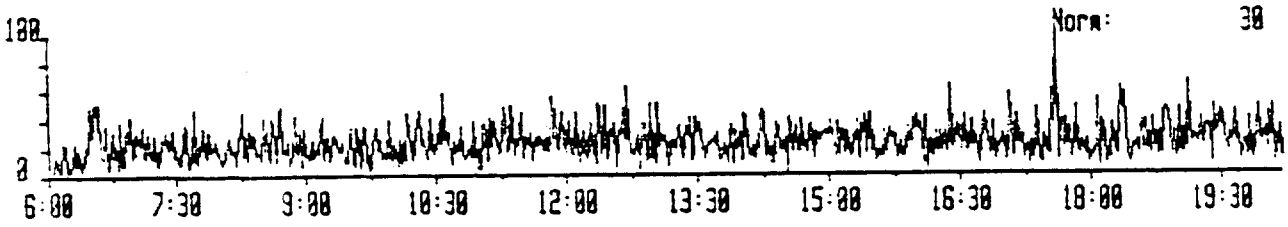
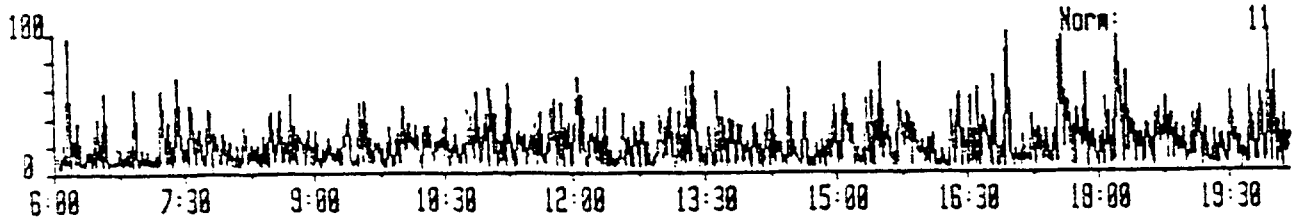


M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 1 Mass 271.9377
Text:BLANK



M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 1 Mass 285.9355
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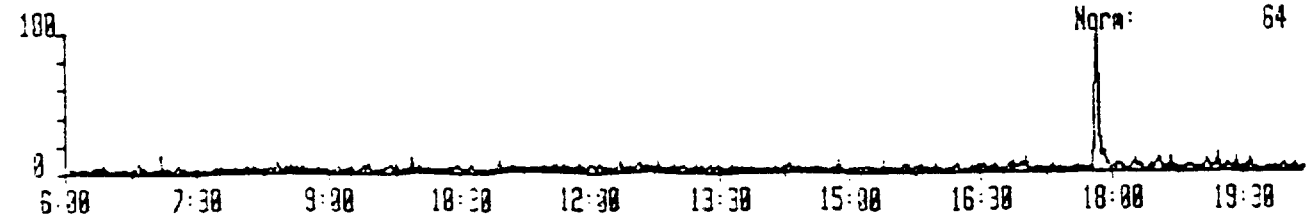
M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:BLANK



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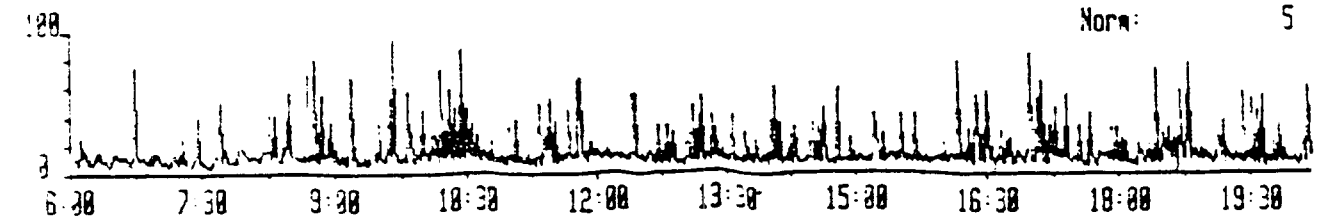
Sample 1 Injection 1 Group 1 Mass 339.8798
Text:BLANK



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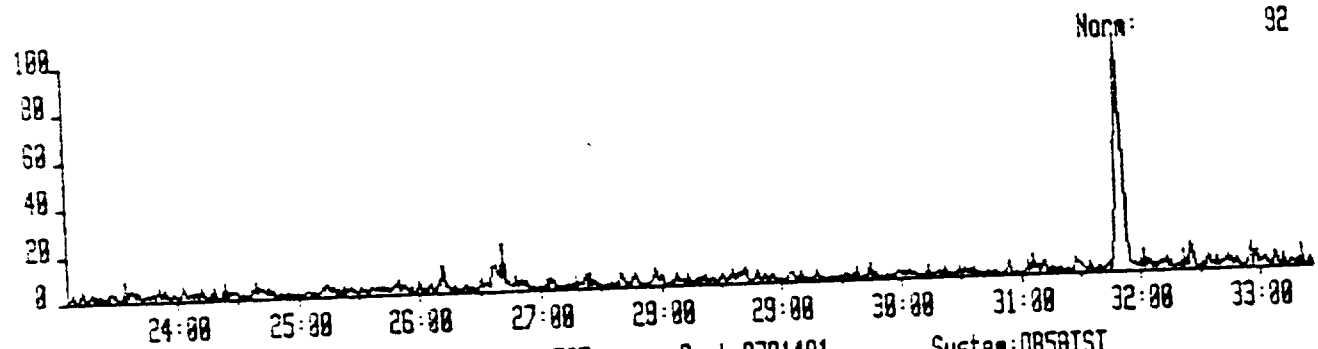
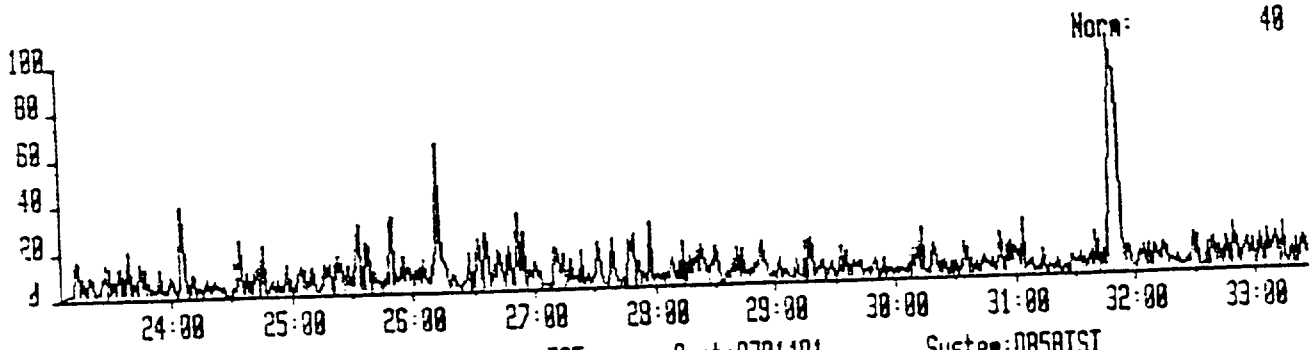
Sample 1 Injection 1 Group 2 Mass 303.9816
Text:BLANK



M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 305.8987
Text:BLANK



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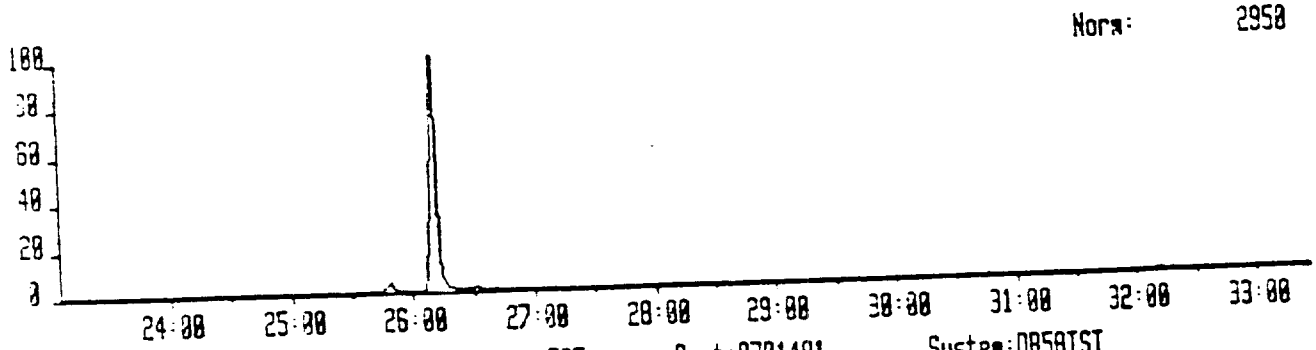
Sample 1 Injection 1 Group 2 Mass 315.9419
Text:BLANK



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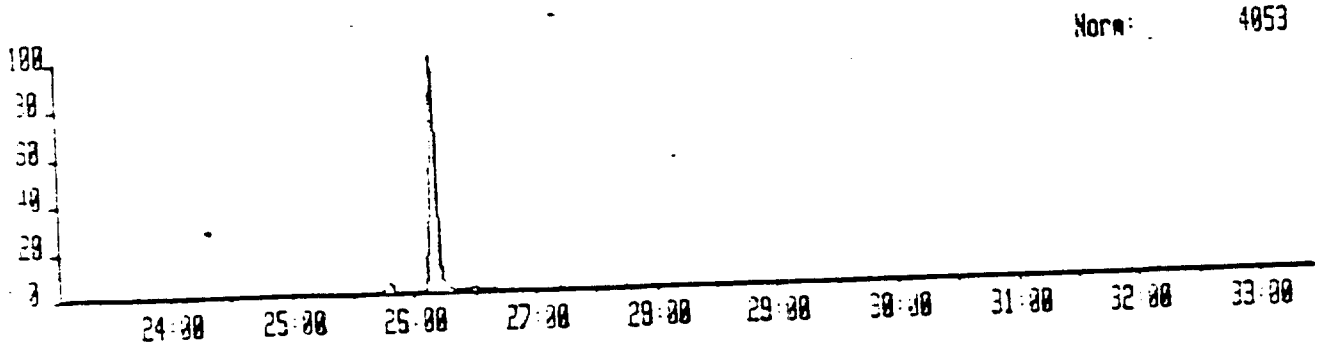
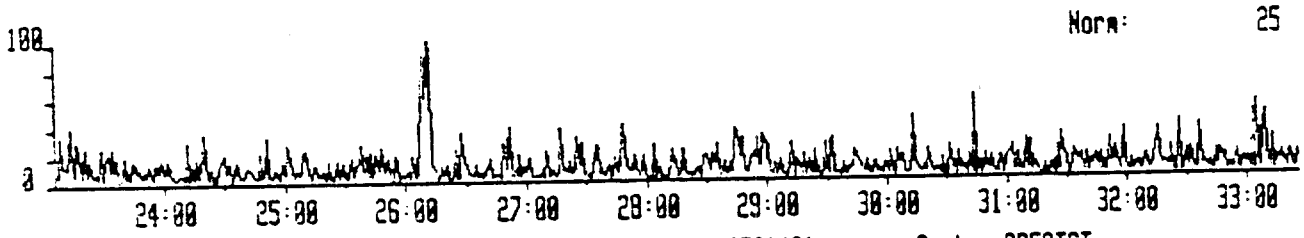
Sample 1 Injection 1 Group 2 Mass 317.3389
Text:BLANK



M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:BLANK



M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 321.8936
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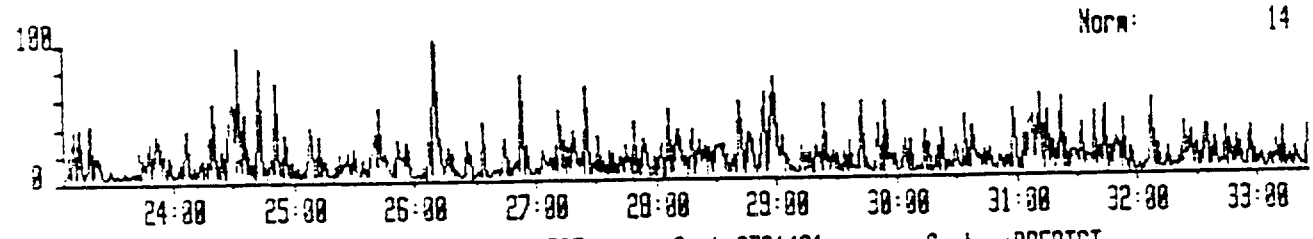

M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 327.8847
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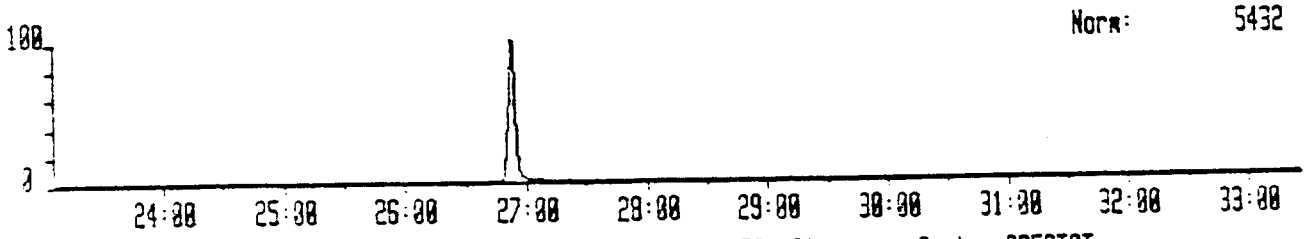

M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 331.9368
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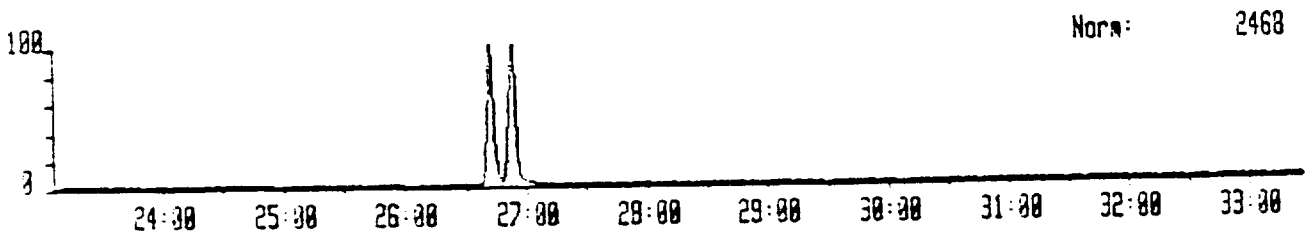

M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 333.9338
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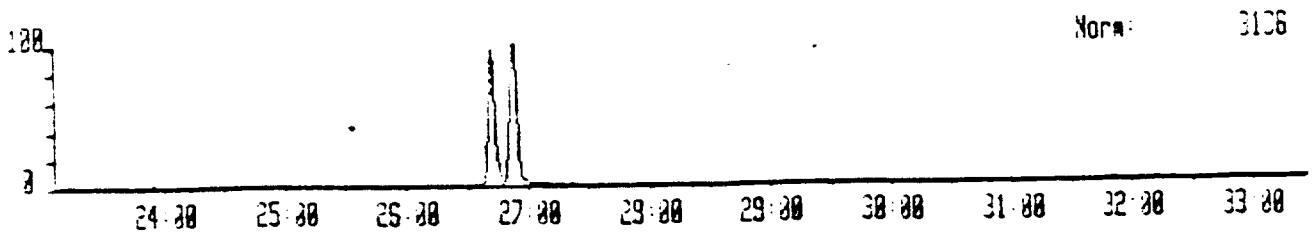
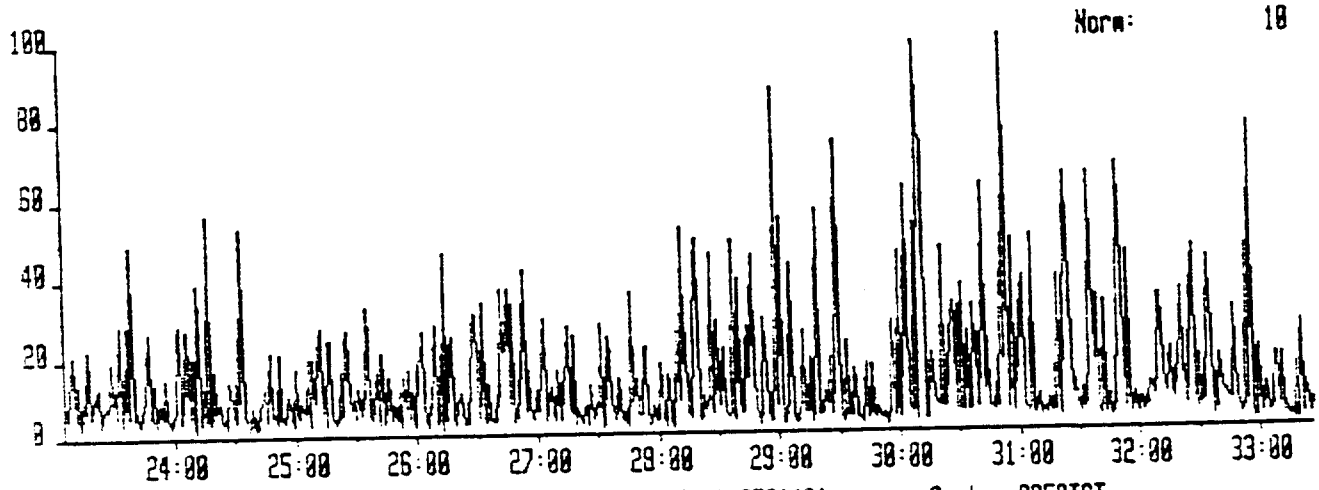
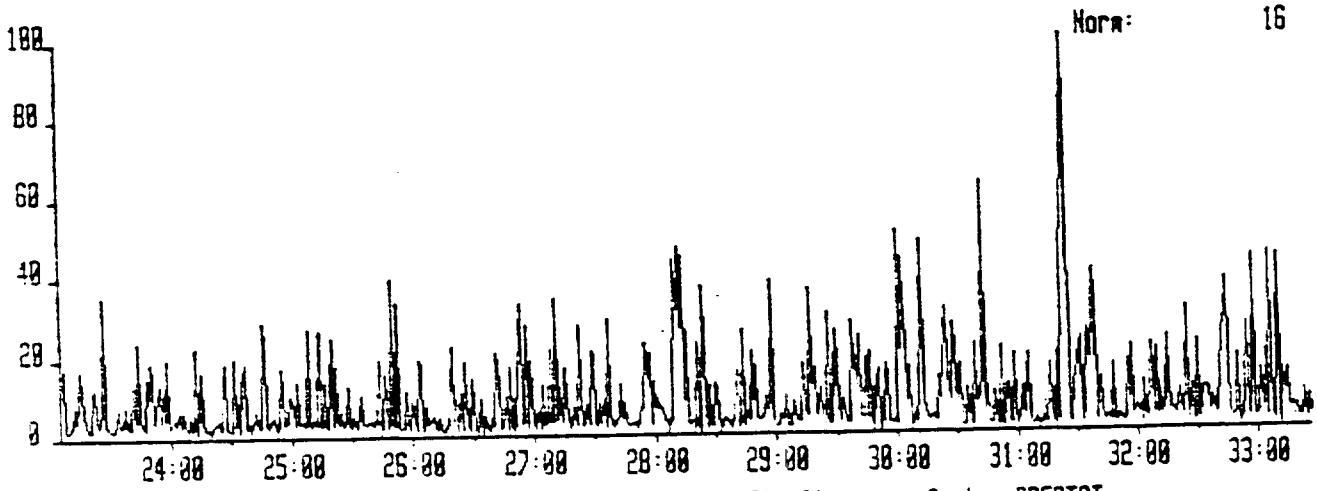


M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:BLANK



M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:BLANK



M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 407.8003
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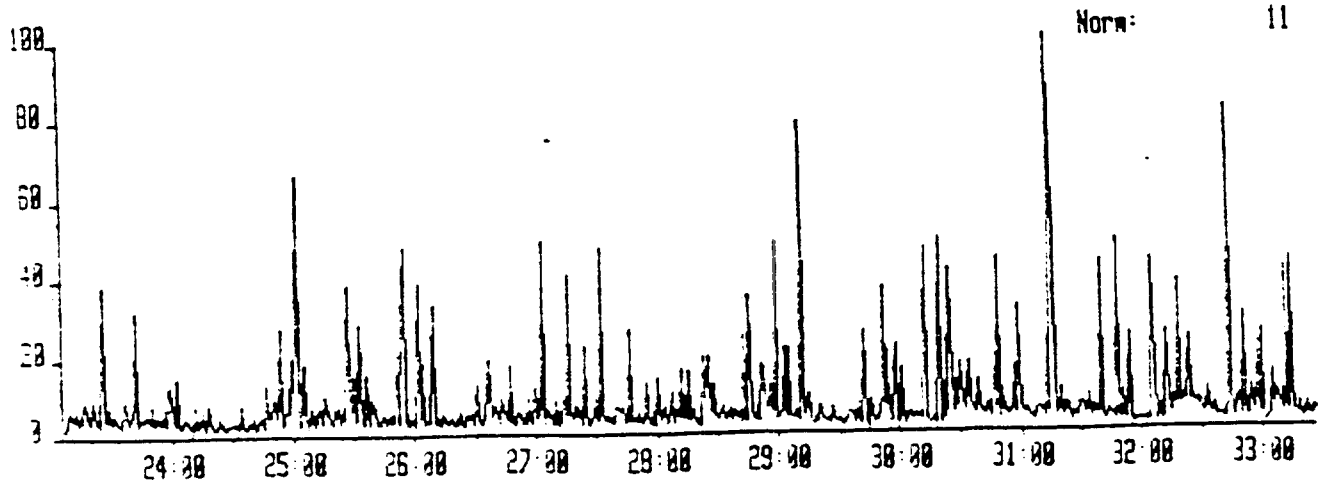
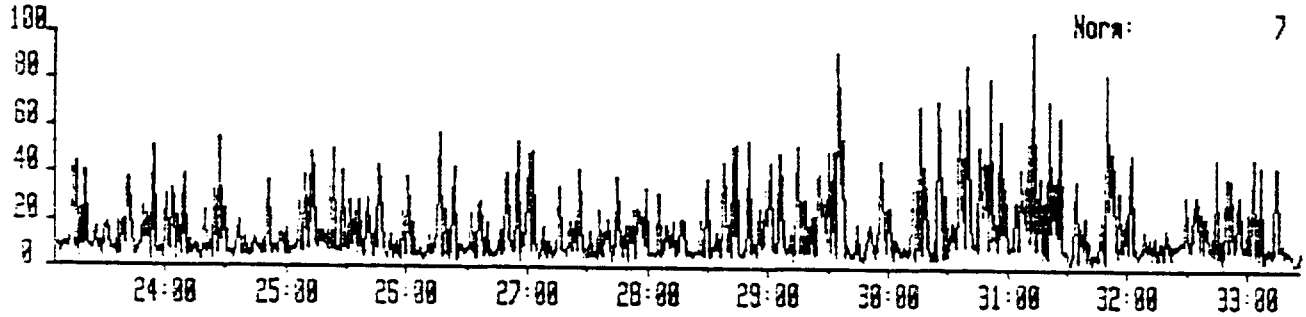
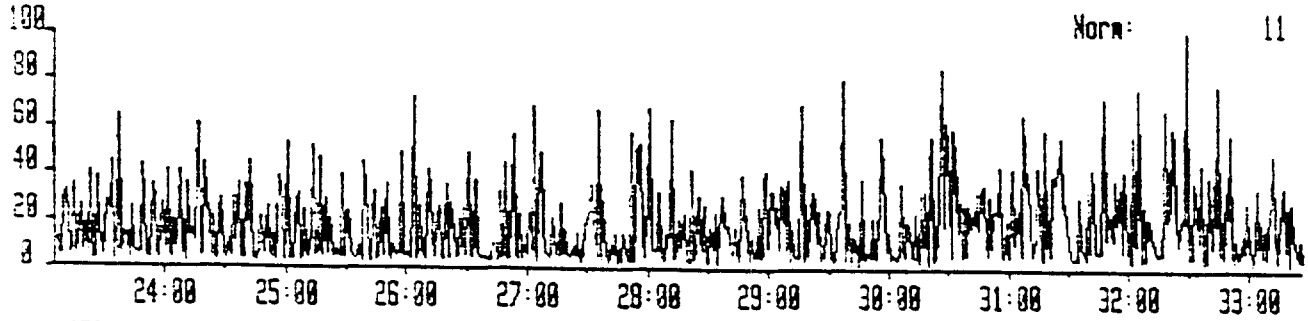


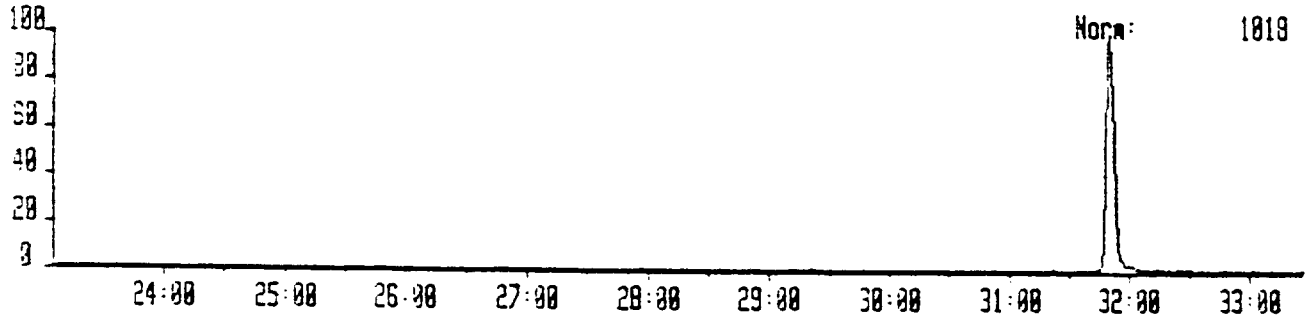
M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:BLANK



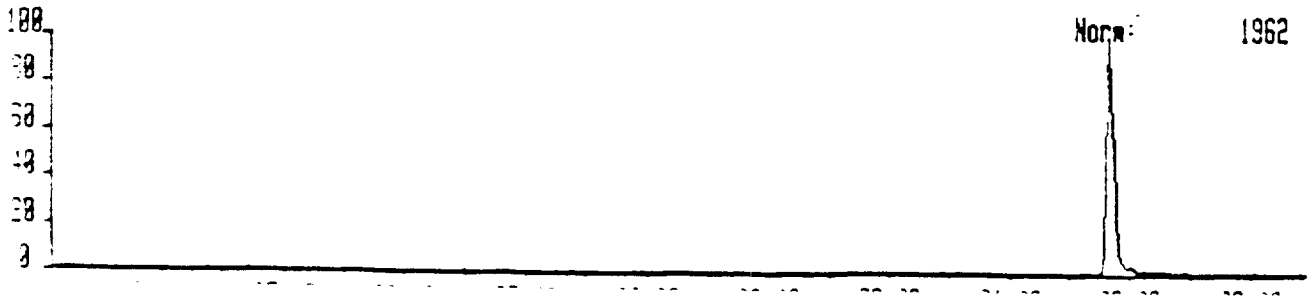
M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 355.8546
Text:BLANK



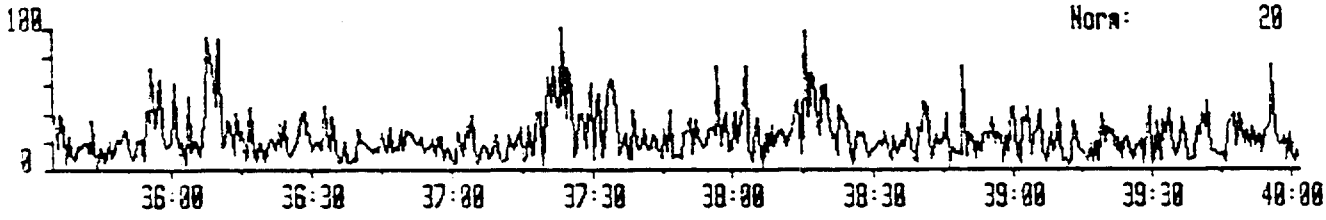
M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 365.8977
Text:BLANK



M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 367.8948
Text:BLANK



M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 373.8297
Text:BLANK



M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 375.8178
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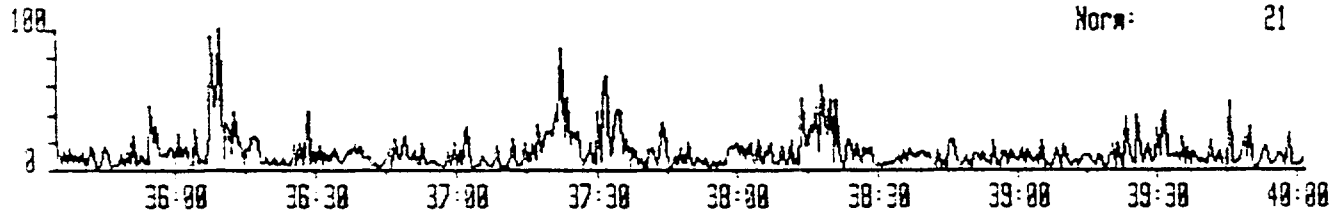
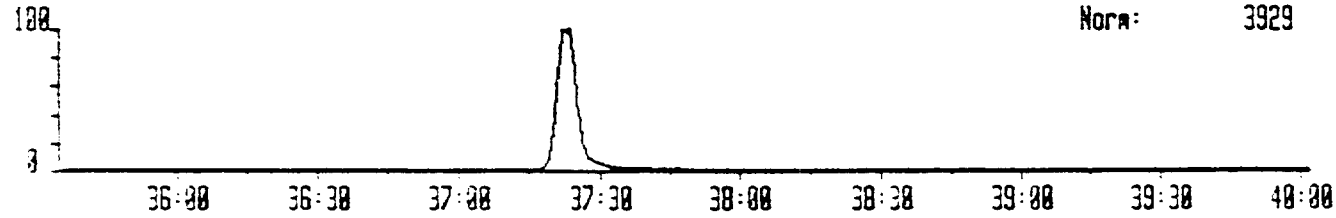


M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 385.8689
Text:BLANK



M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 387.8580
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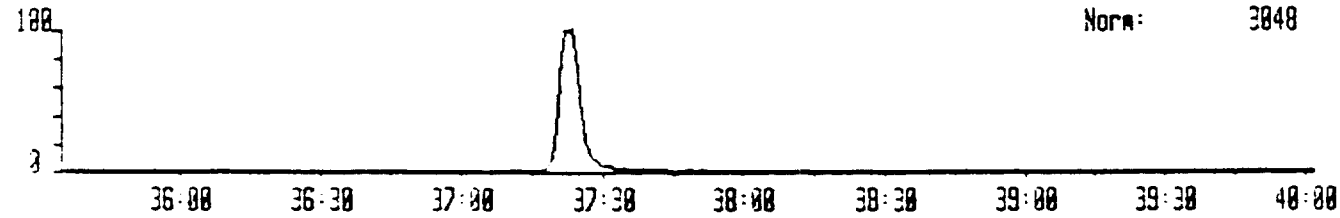

M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 443.7584
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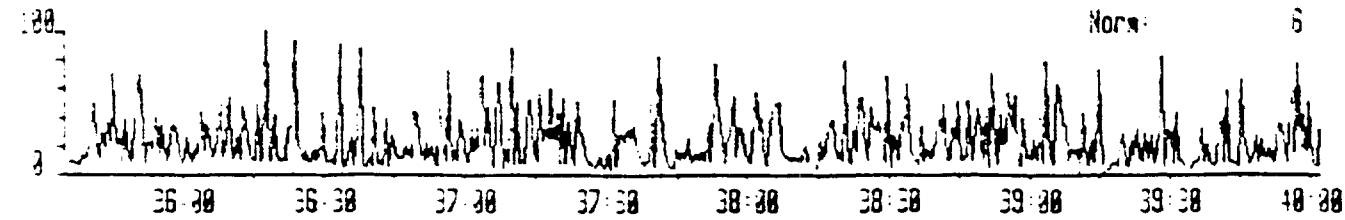

M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 3 Mass 389.8156
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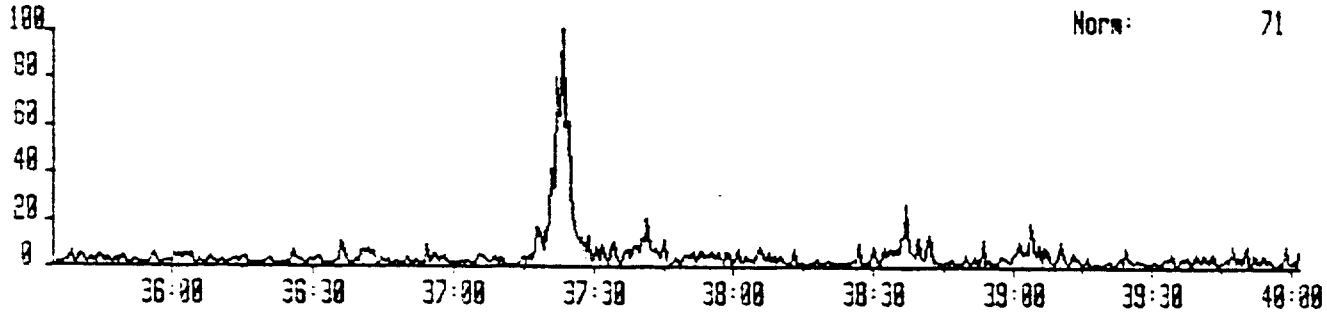

M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 3 Mass 391.8127
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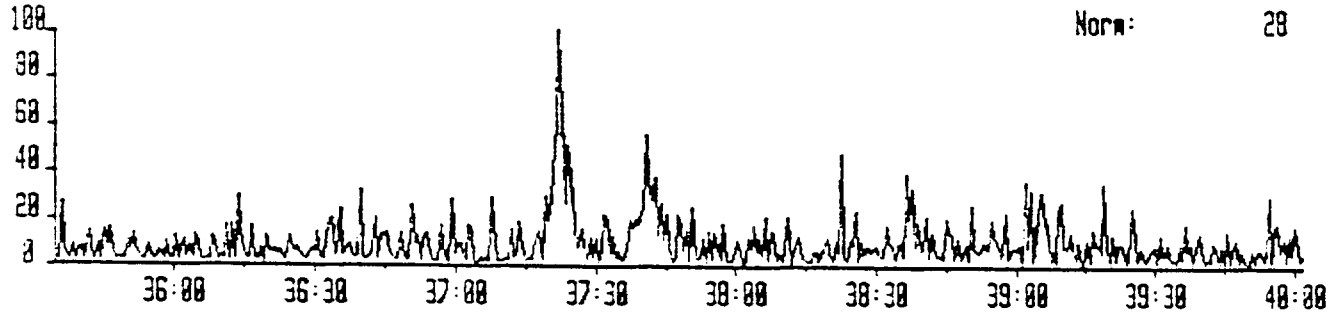
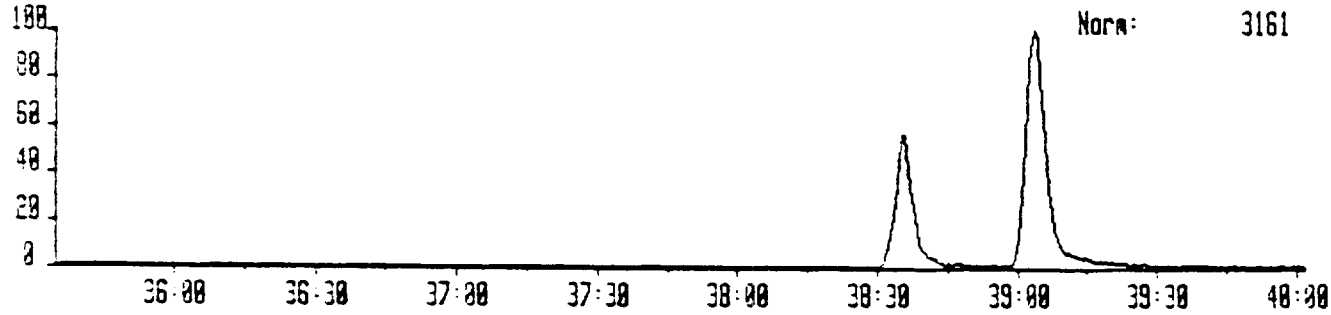


M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text:BLANK



M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 3 Mass 403.8529
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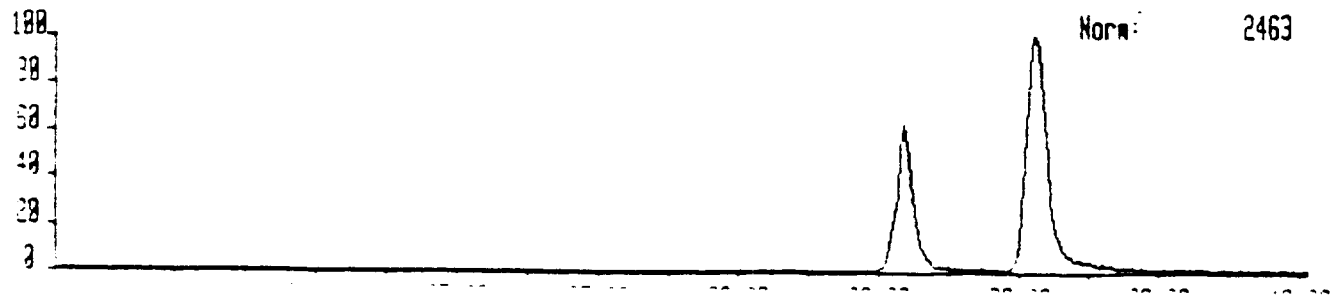

M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 4 Mass 407.7817
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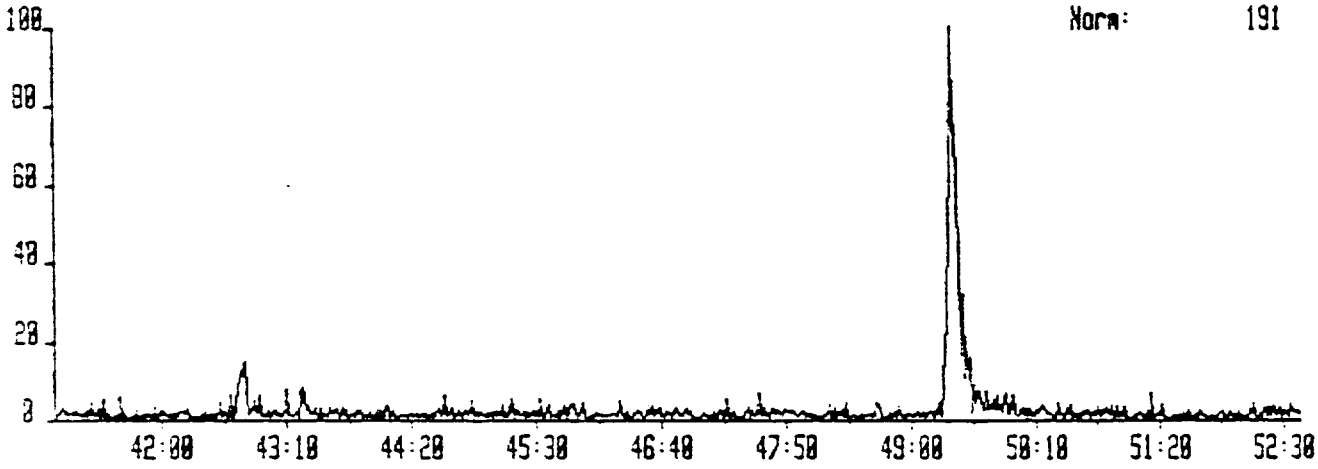

M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 4 Mass 409.7788
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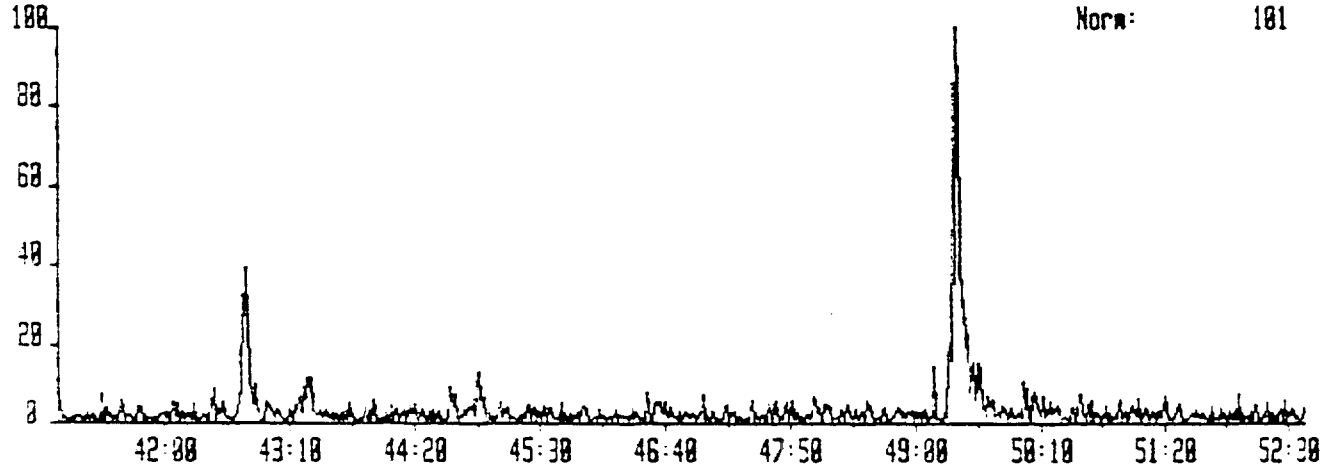

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Sample 1 Injection 1 Group 4 Mass 477.7288
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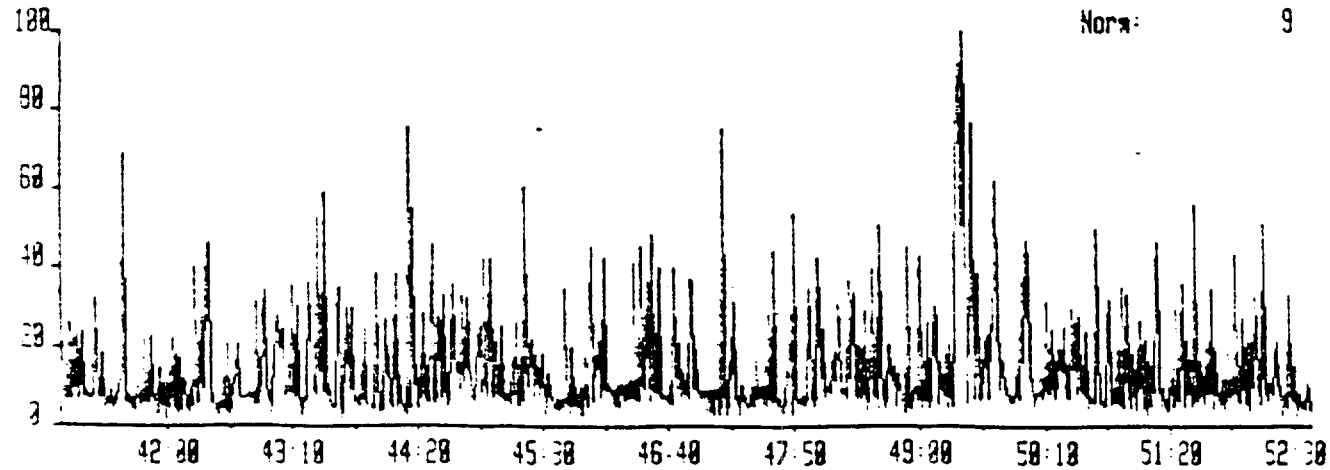

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Sample 1 Injection 1 Group 4 Mass 423.7766
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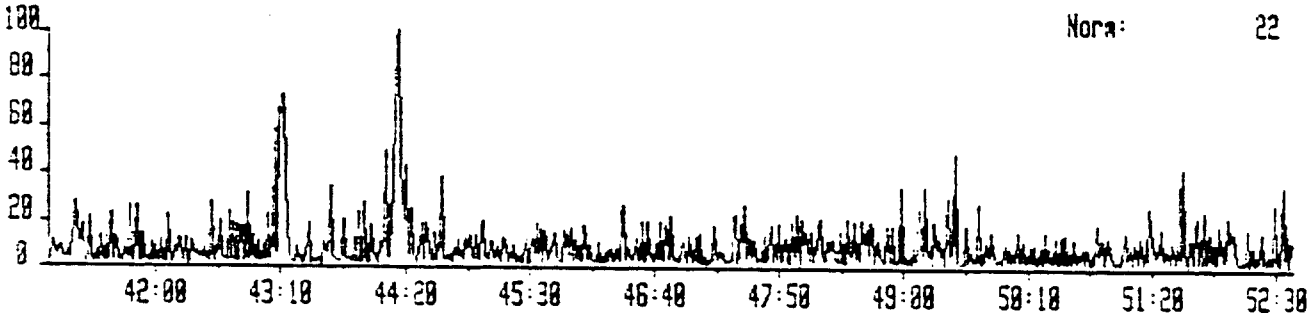

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Sample 1 Injection 1 Group 4 Mass 425.7737
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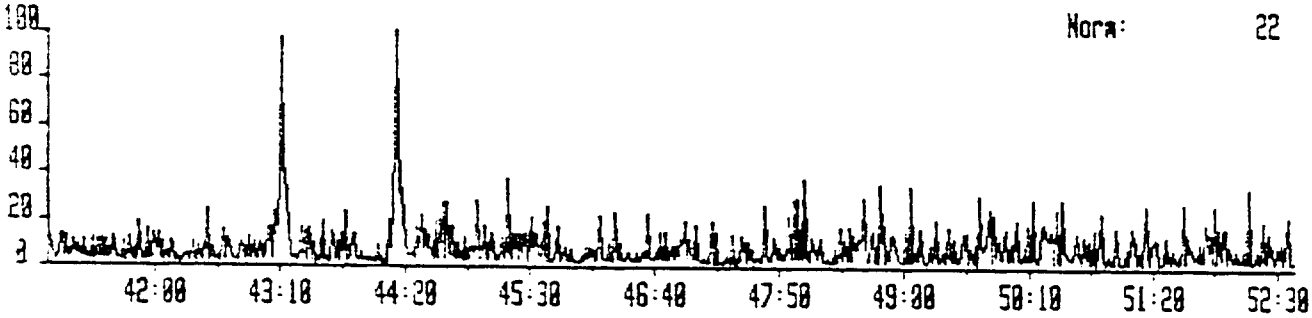

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Sample 1 Injection 1 Group 4 Mass 435.3169
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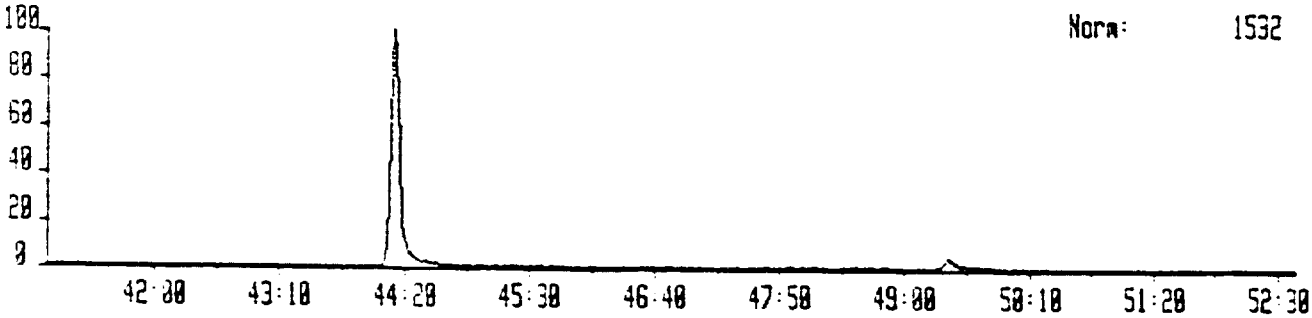

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Sample 1 Injection 1 Group 4 Mass 437.3139
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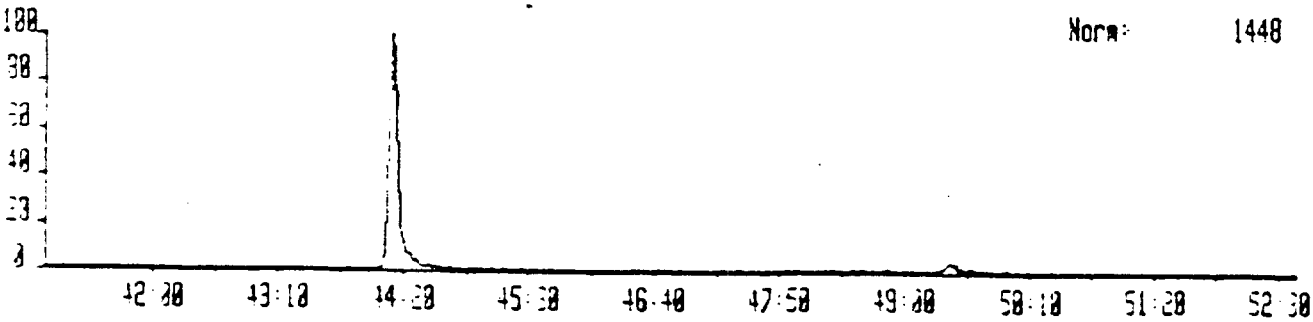

M872824 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 441.7428
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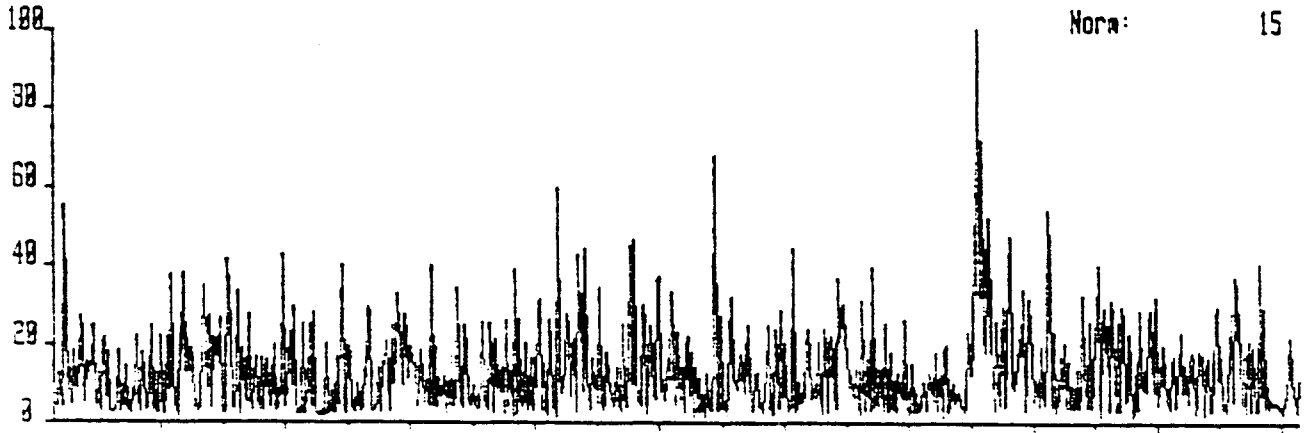

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Sample 1 Injection 1 Group 4 Mass 443.7399
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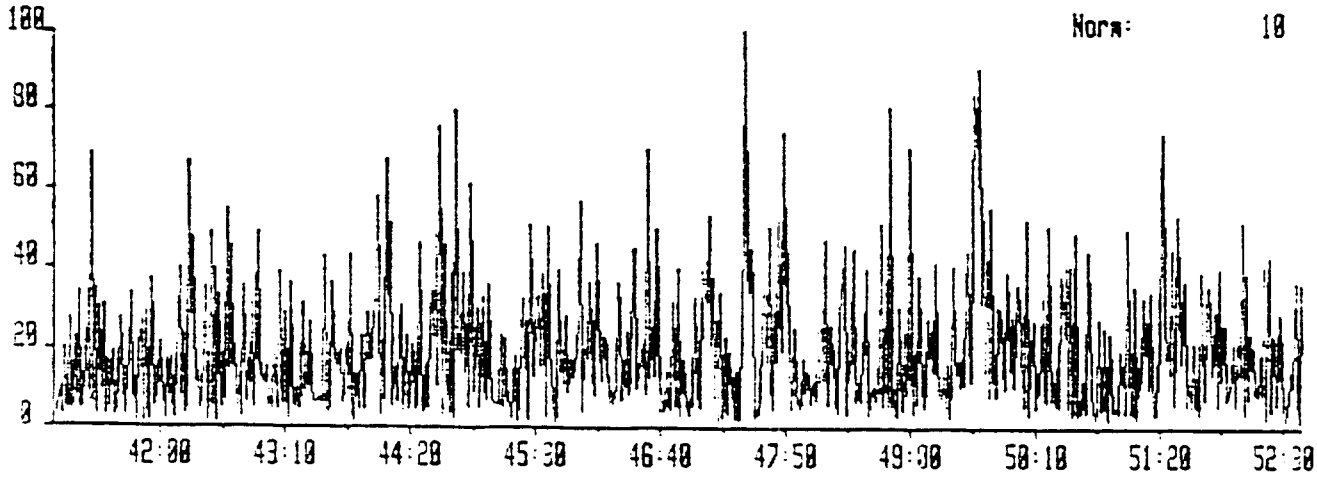

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Sample 1 Injection 1 Group 4 Mass 511.6810
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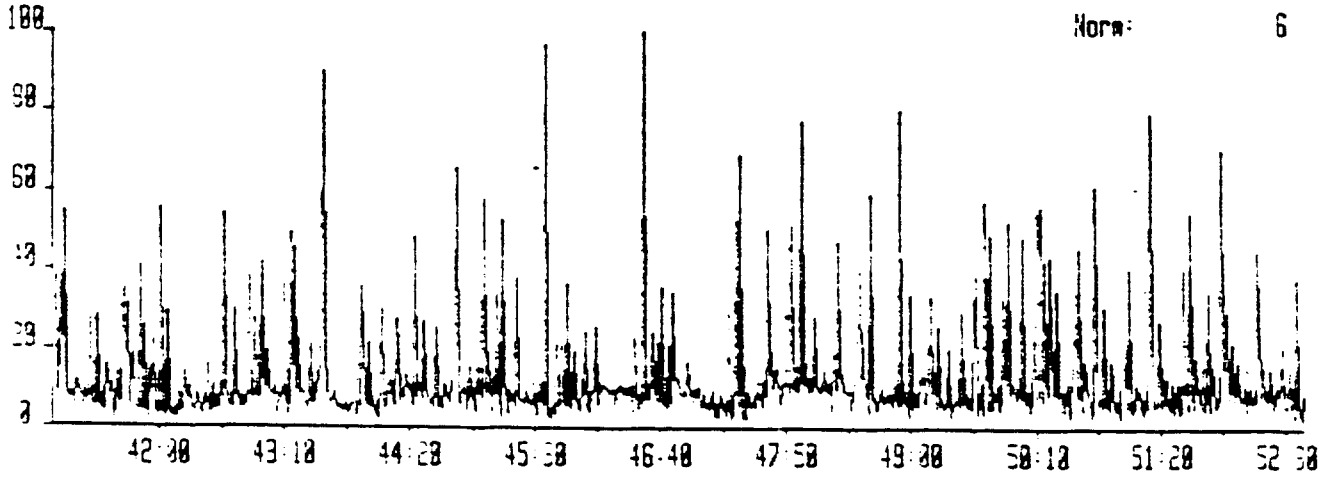

M872824 24-JUL-87 Sir Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 457.7377
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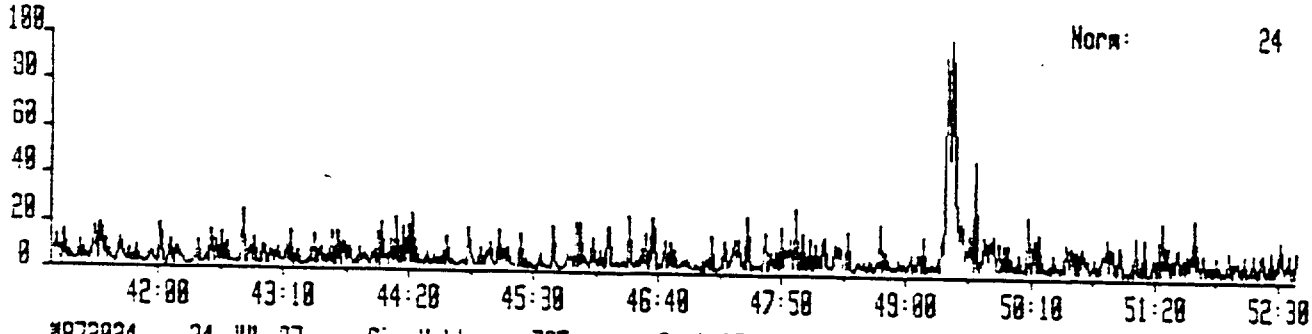

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Sample 1 Injection 1 Group 4 Mass 459.7347
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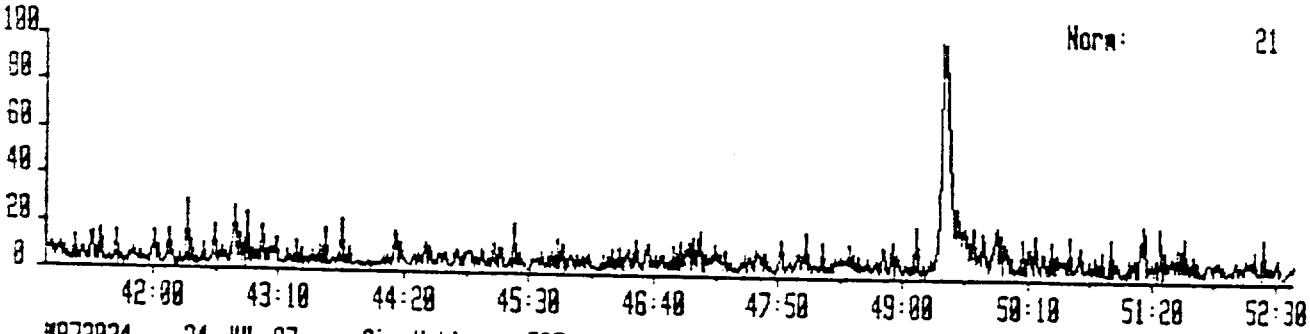

M872824 24-JUL-87 Sir Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 469.7779
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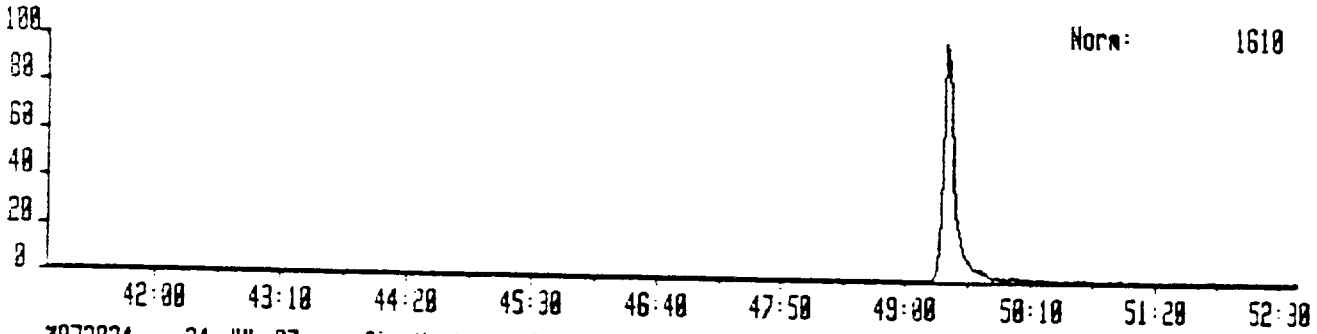

M872824 24-JUL-87 Sir Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 471.7758
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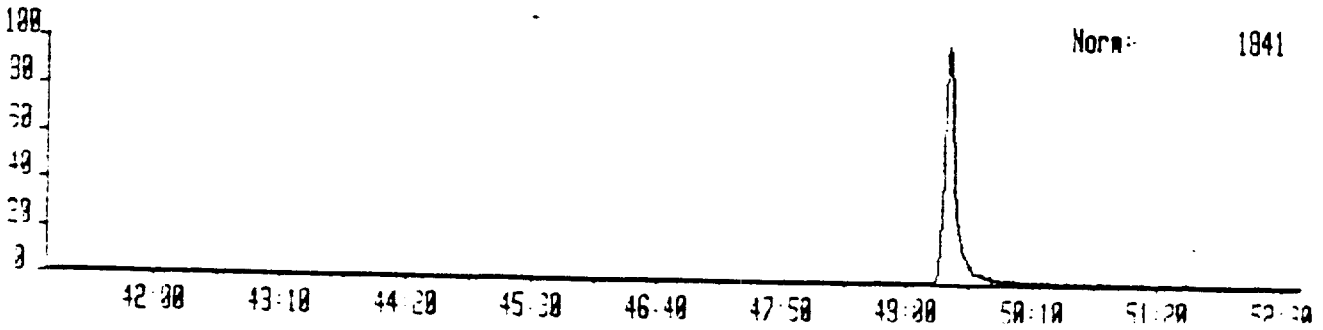

TRIANGLE LABORATORIES, INC.
PCDD/PCDF ANALYSIS (D)

ANALYST: IK
DATE: 08/21/87

FILE NAME: M872282
SAMPLE ID: BLANK
CASE NO: ENTROPY
PROJ NO: 8701511

CONCAL: M872278

NAME	AMT (ng)	NUMBER	DL	EMPC	RATIO	RT
TOTAL TRICDD	ND		0.235			
2378-TCDD	ND		0.018			
TOTAL TCDD	ND			0.054	3.83	
12378-PCDD	ND		0.030			
TOTAL PCDD	ND		0.030			
123478-HxCDD	ND		0.022			
123678-HxCDD	ND		0.020			
123789-HxCDD	ND		0.025			
TOTAL HxCDD	ND			0.040	5.80	
1234678-HpCDD	ND		0.022			
TOTAL HpCDD	ND		0.022			
OCDD	ND			0.147	0.61	
TOTAL TRICDF	ND		0.080			
2378-TCDF	ND		0.015			
TOTAL TCDF	ND			0.076	1.64	
12378-PCDF	ND		0.018			
23478-PCDF	ND		0.020			
TOTAL PCDF	ND		0.018			
123478-HxCDF	ND		0.013			
123678-HxCDF	ND		0.010			
234678-HxCDF	ND		0.015			
123789-HxCDF	ND			0.015	0.91	
TOTAL HxCDF	ND		0.013			
1234678-HpCDF	ND		0.013			
1234789-HpCDF	ND			0.021	0.82	
TOTAL HpCDF	ND			0.019	0.82	
OCDF	ND		0.025			

SURROGATE RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
13C12-TCDF	7.61	76.10	0.79	24.18
37CL-TCDD	8.87	88.70		25.00
13C12-HxCDF	8.47	84.70	1.25	35.17

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
2378-13C12-TCDD	8.92	89.20	0.79	24.59
13C12-PCDD	10.61	106.10	0.64	29.49
13C12-HxCDD	8.74	87.40	1.41	36.30
13C12-HpCDD	9.69	96.90	0.99	42.15
13C12-OCDD	20.23	101.15	0.94	46.58

M872282I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
270	10.00	10.00
272	10.00	11.00
286	10.00	12.00
288	81.48	13.02
304	12.96	22.13
304	168.46	23.40
304	17.25	23.47
304	40.99	23.53
304	55.29	24.48
304	20.05	24.55
306	102.76	23.40
306	19.68	24.19
306	29.67	25.10
306	10.99	27.05
306	17.70	27.33
306	19.42	28.56
306	17.13	29.04
306	239.38	29.49
306	17.12	31.10
306	13.43	31.16
316	488.24	23.55
316	12410.71	24.18
318	659.09	23.55
318	15696.09	24.18
318	261.87	24.46
318	127.08	26.21
318	154.46	29.34
318	107.86	29.55
320	18.39	22.33
320	116.29	24.18
320	14.79	24.28
320	24.52	27.04
322	19.70	23.39
322	30.33	24.18
322	18.04	25.21
322	27.20	25.35
322	18.50	27.59
322	18.47	28.43
328	22000.22	25.00
332	179.22	21.50
332	190.91	22.42
332	175.47	22.49
332	220.42	23.07
332	174.75	23.36
332	8628.91	24.48
332	11233.77	24.59
332	284.01	25.26
332	116.12	25.40
332	225.29	26.16
332	207.40	27.06

M872282I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
332	119.29	27.40
334	10859.38	24.48
334	14230.42	24.59
338	10.00	13.00
340	14.62	23.15
340	19.27	31.30
354	13.08	31.21
356	15.28	23.09
356	25.53	29.33
366	3442.33	29.49
368	5405.29	29.49
374	16.26	34.08
374	27.21	34.11
374	26.98	35.22
374	18.44	35.57
374	16.07	36.12
374	19.54	36.18
374	13.35	36.32
374	54.66	36.55
374	18.56	37.20
374	32.91	37.45
374	13.75	37.56
374	25.93	38.22
374	10.53	38.27
374	14.79	38.33
374	32.50	38.45
376	16.29	35.45
376	11.55	36.12
376	15.08	36.52
376	20.50	37.21
376	11.07	37.24
376	20.55	37.47
386	18229.31	35.17
386	387.46	35.36
388	14576.37	35.16
390	79.63	35.17
390	11.59	37.13
392	13.74	35.17
392	18.58	38.28
402	7404.76	36.30
402	12949.71	36.57
402	192.18	37.23
404	5269.64	36.30
404	10067.02	36.57
408	25.94	42.37
408	28.52	42.49
408	24.55	43.07
408	45.57	43.33
408	26.07	44.00
410	45.34	40.56

M872282I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
410	23.18	41.04
410	56.39	41.13
410	34.94	42.48
410	22.34	43.53
410	20.01	45.03
410	48.72	45.53
410	1026.08	46.58
410	73.17	47.23
410	22.37	48.06
424	43.94	42.23
424	24.36	42.33
424	18.49	43.39
424	18.12	44.03
426	50.63	42.18
426	19.95	43.52
426	51.79	44.30
426	24.65	47.22
426	20.28	49.31
426	15.56	50.57
436	81.35	41.13
436	8206.22	42.15
436	36.42	42.56
436	26.61	43.52
436	16.86	45.59
438	56.14	41.12
438	8254.02	42.14
438	26.50	44.06
438	27.16	46.01
438	526.07	47.01
438	130.13	47.16
442	22.29	40.43
442	17.90	41.05
442	45.37	42.41
442	23.82	44.33
442	28.18	46.40
442	78.68	47.10
442	15.99	47.39
442	23.41	48.07
442	21.51	49.14
442	25.80	49.27
442	18.66	50.58
444	28.22	40.16
444	26.56	40.31
444	22.73	43.49
444	104.70	47.11
444	22.69	48.23
444	22.62	49.57
444	19.07	50.11
444	16.76	50.20
458	16.16	44.13

M872282I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
458	29.30	44.32
458	86.71	46.58
460	142.64	46.58
470	15.18	46.04
470	16217.37	46.58
470	102.30	47.44
470	83.74	47.56
470	29.51	48.28
470	39.60	48.42
472	17258.46	46.58
472	22.59	48.30
472	31.63	48.50
472	61.69	49.07
472	20.90	51.05
*** Total ***		
****	232494.06	5875.11

M872282B
MATCHED EGC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
304	1.64	23.40	271.22	.F.	.F.	0.947
316	0.74	23.55	1147.33	.T.	.F.	0.957
315	0.79	24.18	28106.80	.T.	.T.	0.973
320	3.83	24.18	146.62	.F.	.F.	0.973
328	0.00	25.00	22000.22	.T.	.T.	1.001
332	0.79	24.48	19488.29	.T.	.T.	0.993
332	0.79	24.59	25464.19	.T.	.T.	1.000
366	0.64	29.49	8847.62	.T.	.T.	1.000
374	1.39	36.12	27.62	.T.	.T.	0.992
374	0.91	37.20	39.06	.F.	.T.	1.023
374	1.60	37.45	53.46	.F.	.F.	1.034
386	1.25	35.17	32805.68	.T.	.T.	0.967
390	5.80	35.17	93.37	.F.	.F.	0.967
402	1.41	36.30	12674.40	.T.	.T.	1.000
402	1.29	36.57	23016.73	.T.	.T.	1.012
408	0.82	42.49	63.46	.F.	.T.	1.013
436	1.45	41.13	137.49	.F.	.F.	0.976
436	0.99	42.15	16460.24	.T.	.T.	1.000
436	0.62	45.59	44.02	.F.	.F.	1.088
442	0.75	47.10	183.38	.T.	.T.	1.004
458	0.61	46.58	229.35	.F.	.T.	1.000
470	0.94	46.58	33475.83	.T.	.T.	1.000
470	1.31	48.28	52.10	.F.	.F.	1.032
*** Total ***						
***	30.36	812.75	224828.48			22.952

M872282 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 1 Mass 269.9486
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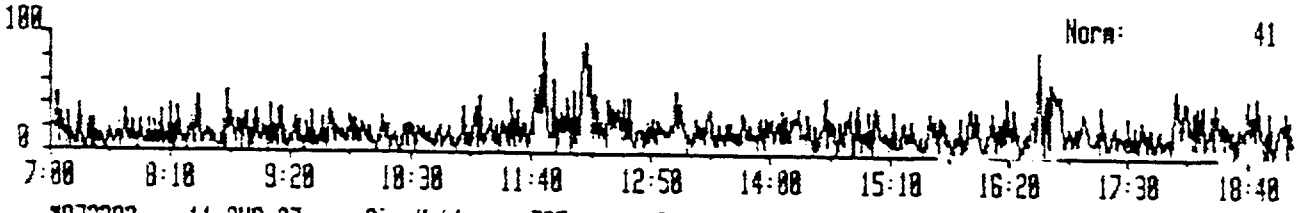

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Sample 1 Injection 1 Group 1 Mass 271.9377
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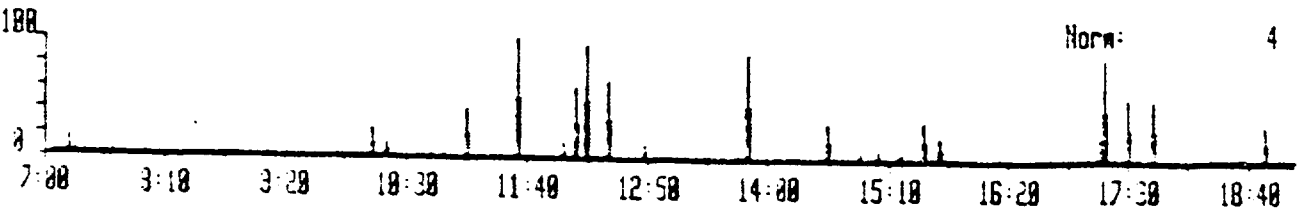
Sample 1 Injection 1 Group 1 Mass 285.9355
Text:BLANK

M872282 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:BLANK

M872282 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 1 Mass 339.8790
Text:BLANK



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Sample 1 Injection 1 Group 2 Mass 303.9816
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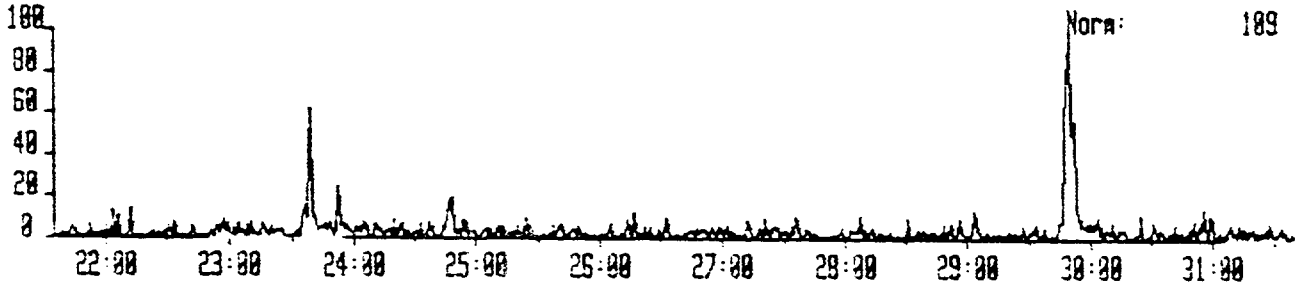

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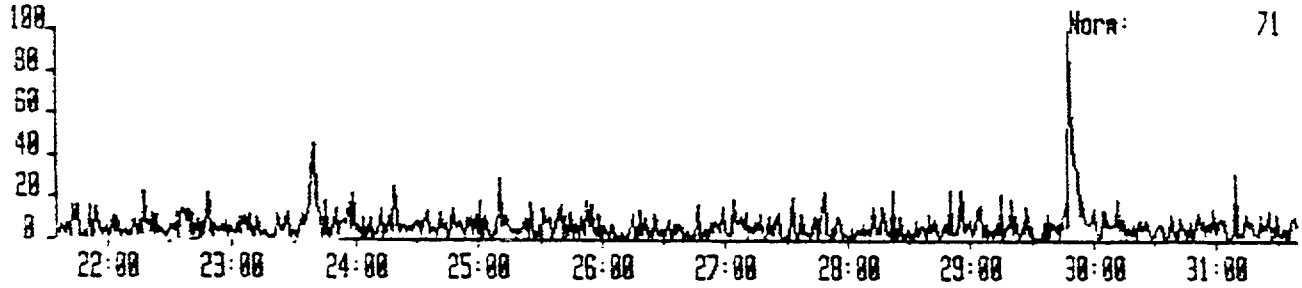
Sample 1 Injection 1 Group 2 Mass 305.9987
Text:BLANK



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Sample 1 Injection 1 Group 2 Mass 315.9419
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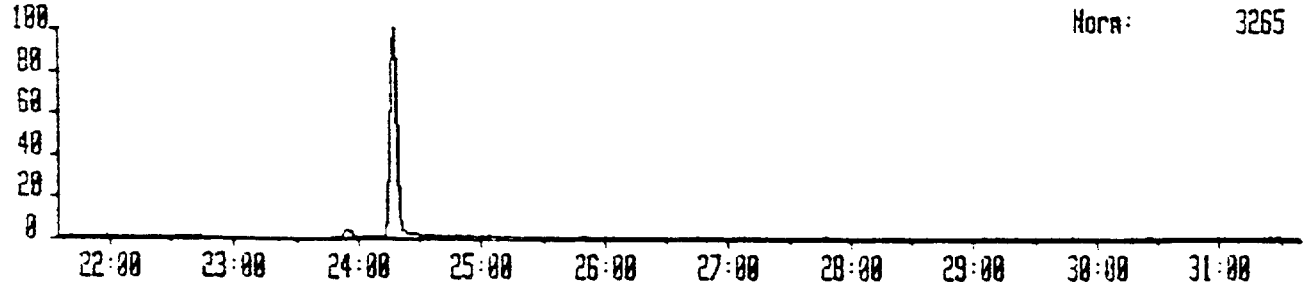
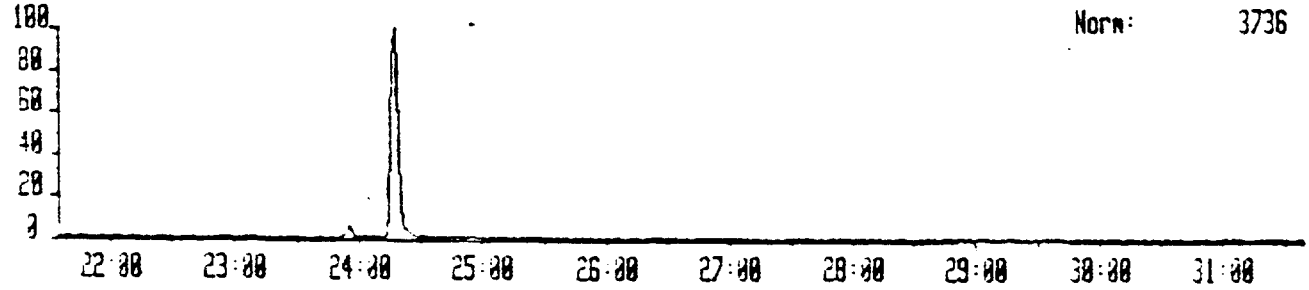
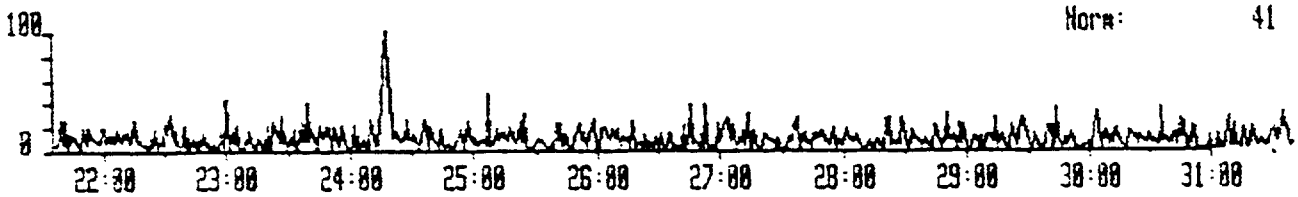


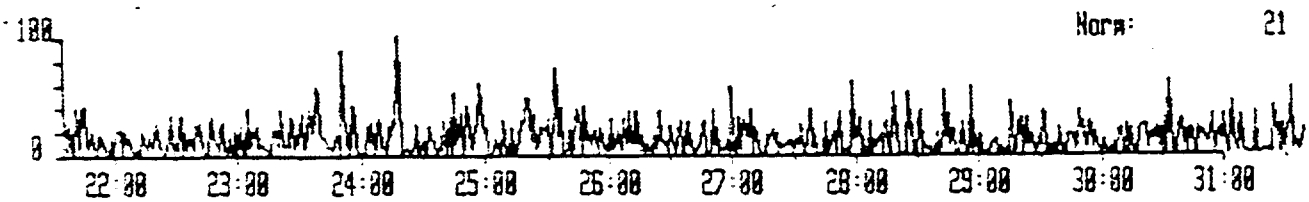
M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 317.9389
Text:BLANK



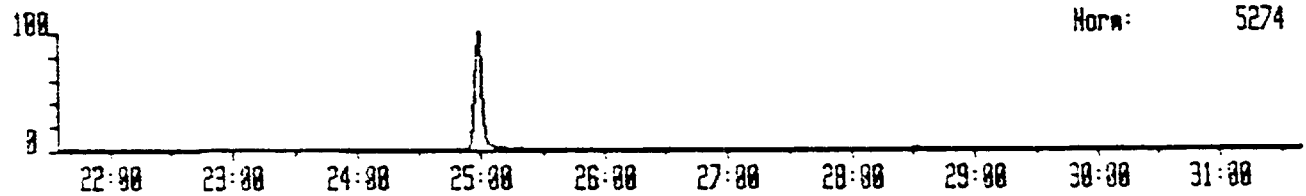
M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:BLANK



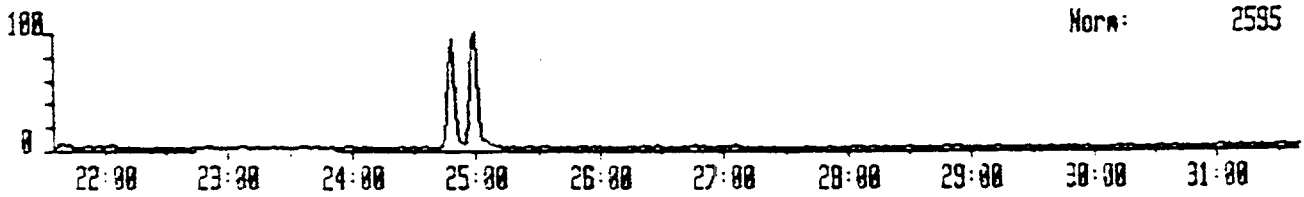
M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:BLANK



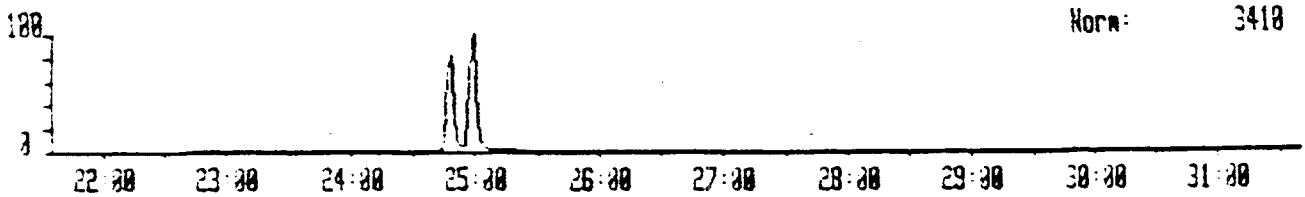
M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:BLANK



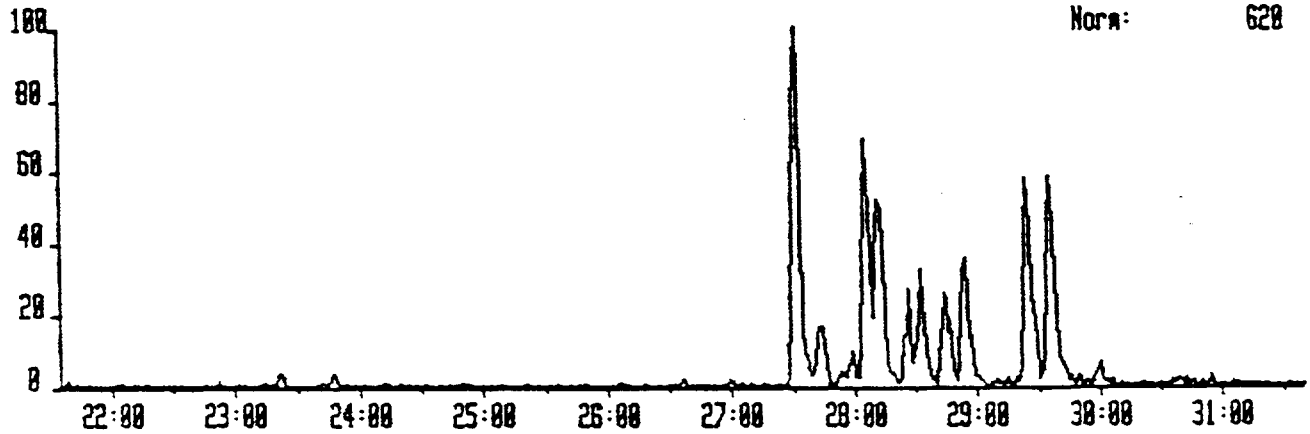
M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 331.9368
Text:BLANK



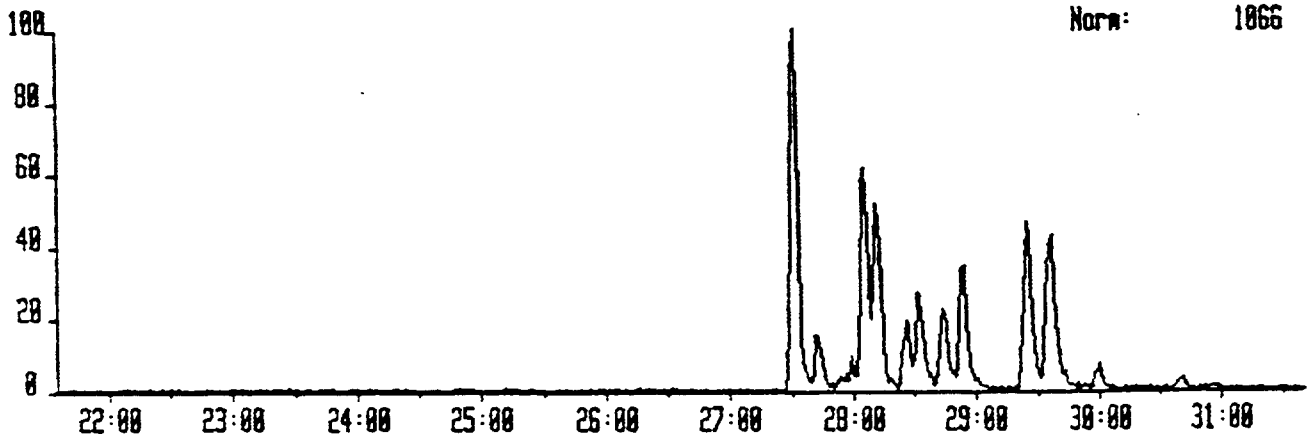
M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 333.9338
Text:BLANK



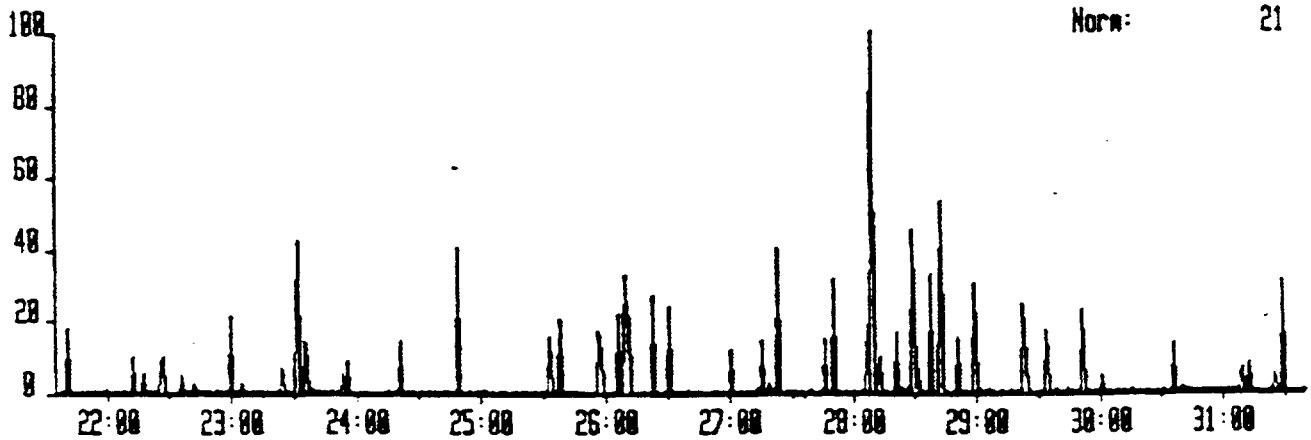
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:ENTROPY I2-MM5-4



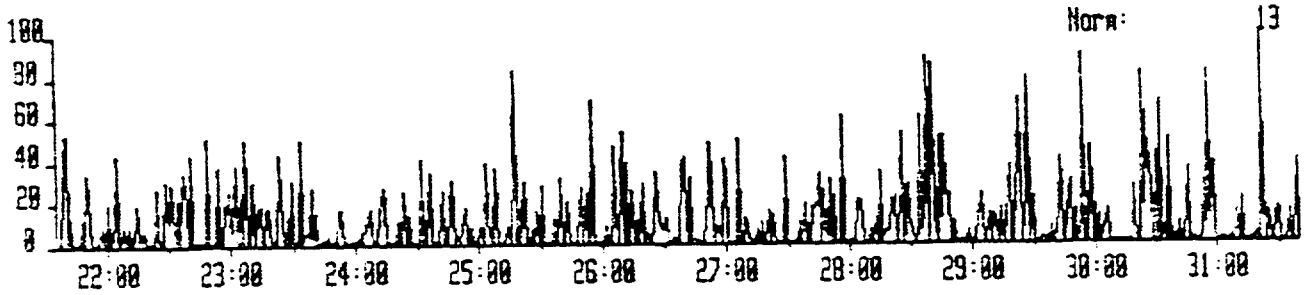
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:ENTROPY I2-MM5-4



M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 407.8883
Text:ENTROPY I2-MM5-4



MB72282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:BLANK



MB72282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 355.8546
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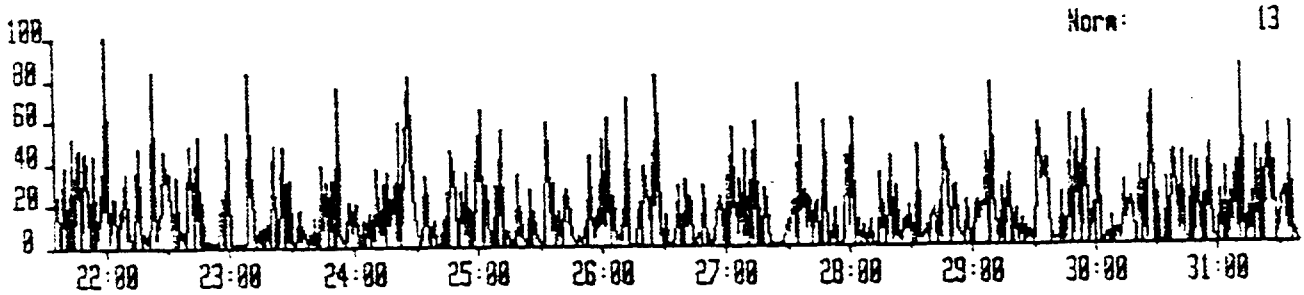
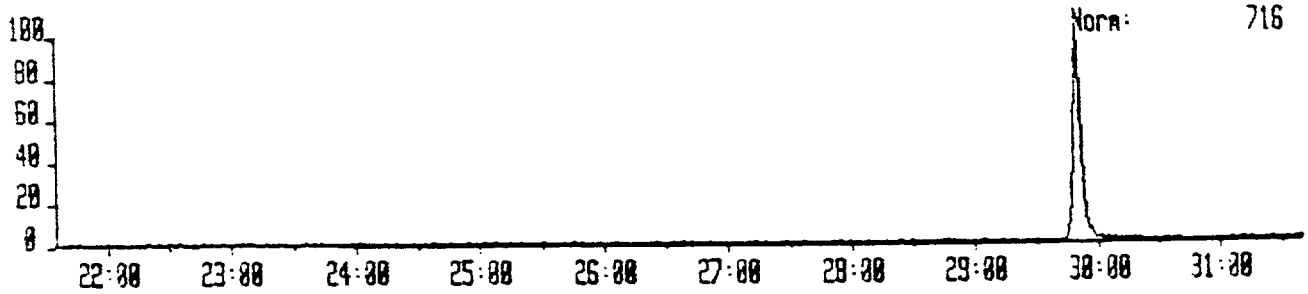
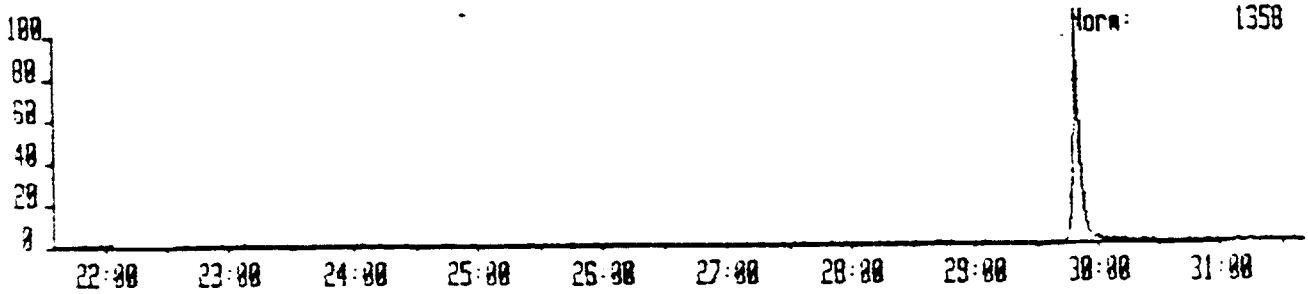


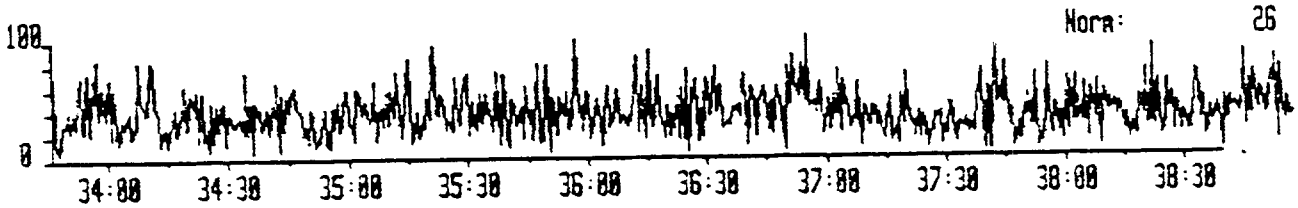
MB72282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 365.8977
Text:BLANK



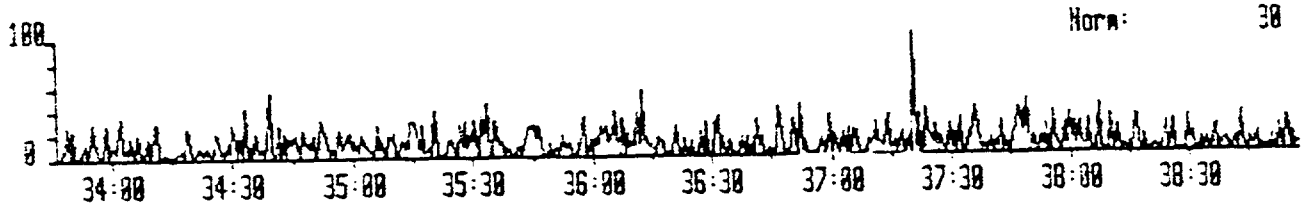
MB72282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 367.8948
Text:BLANK



M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 373.8287
Text:BLANK



M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 375.3178
Text:BLANK



M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 385.8689
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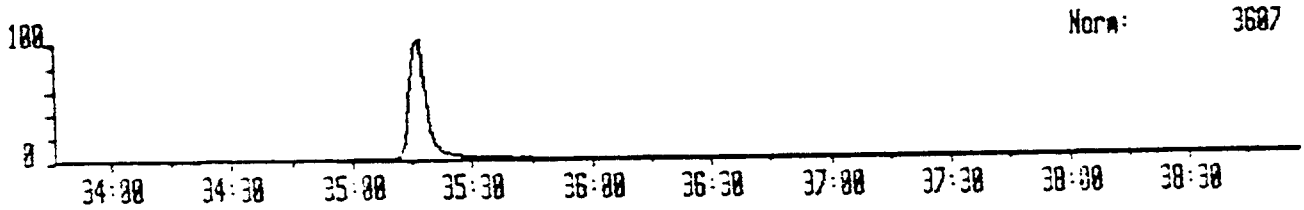

M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 387.8588
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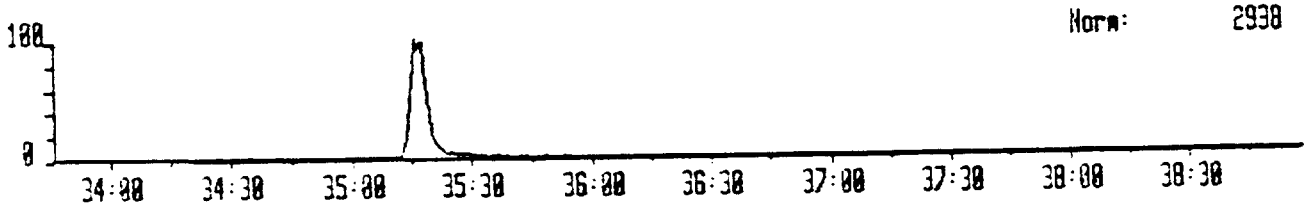

M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 443.7584
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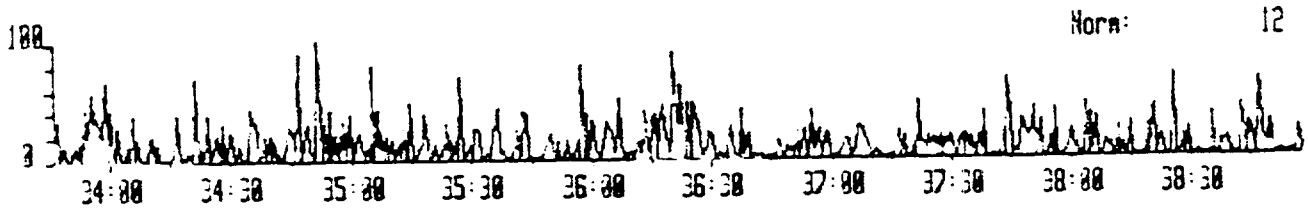

M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 389.8156
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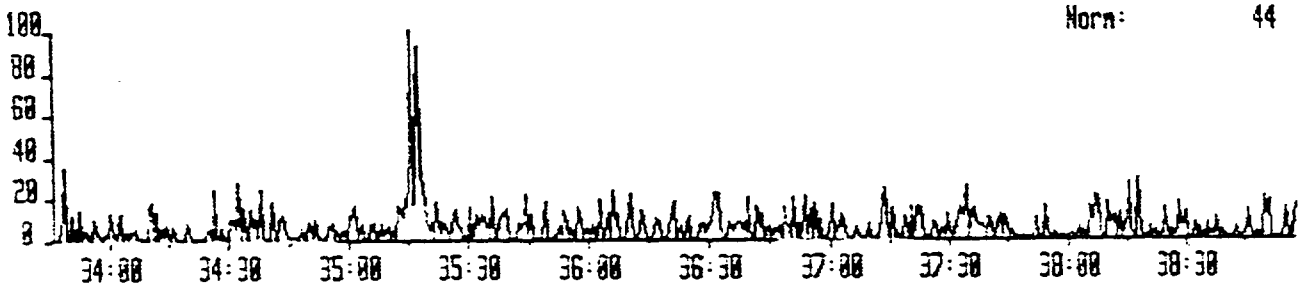

M872292 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 391.3127
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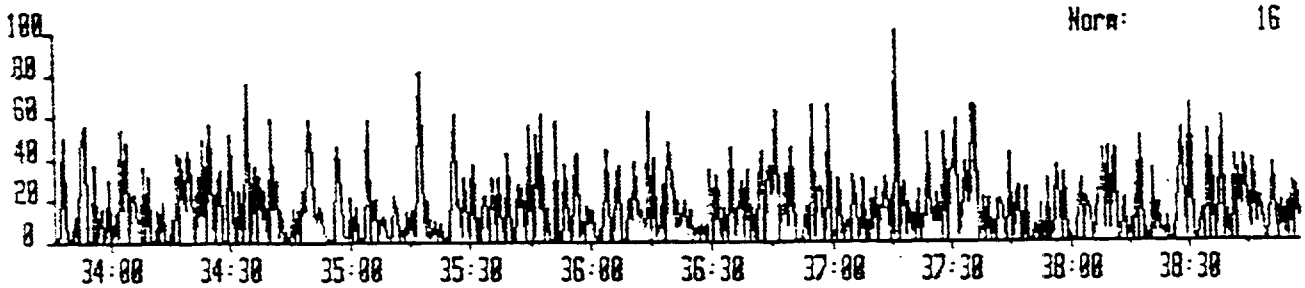

M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 401.8558
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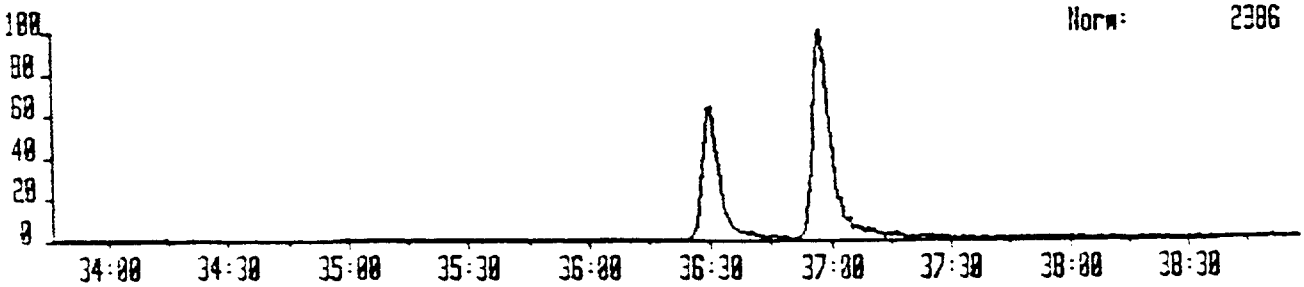

M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 403.8529
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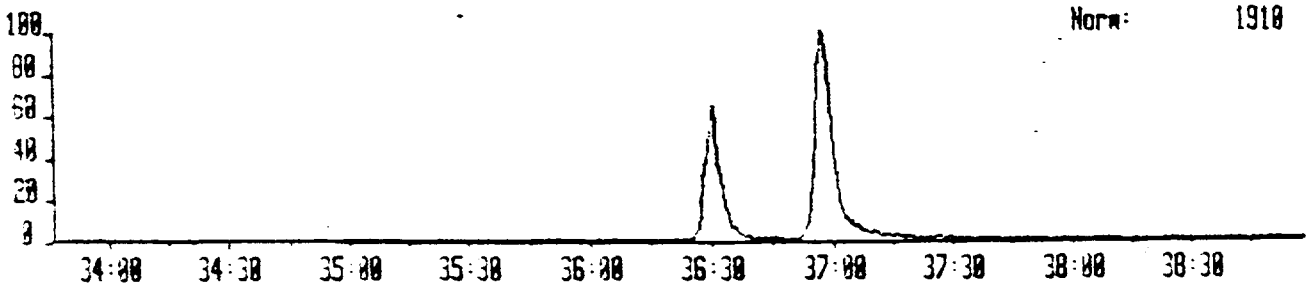
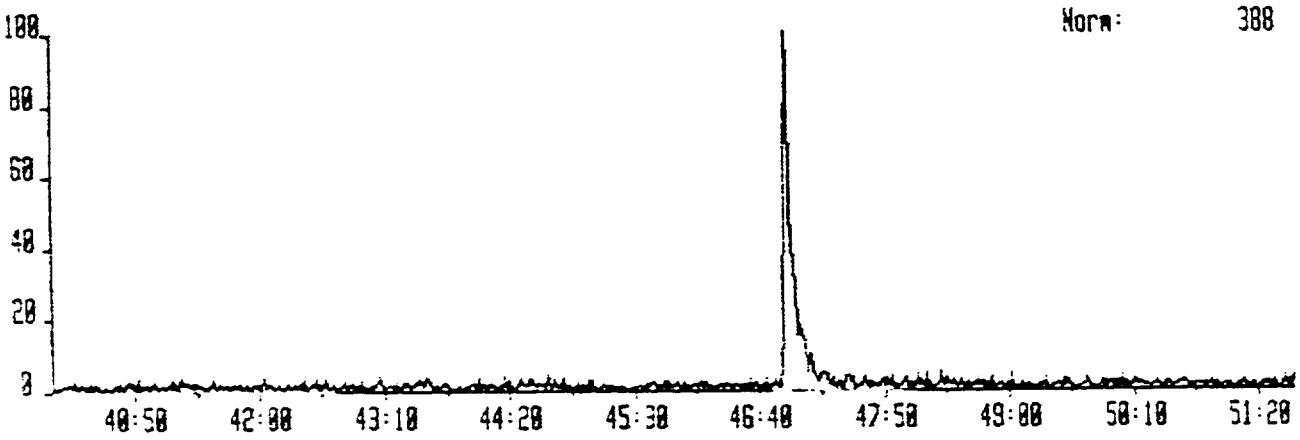


M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 407.7817
Text:BLANK



M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 409.7788
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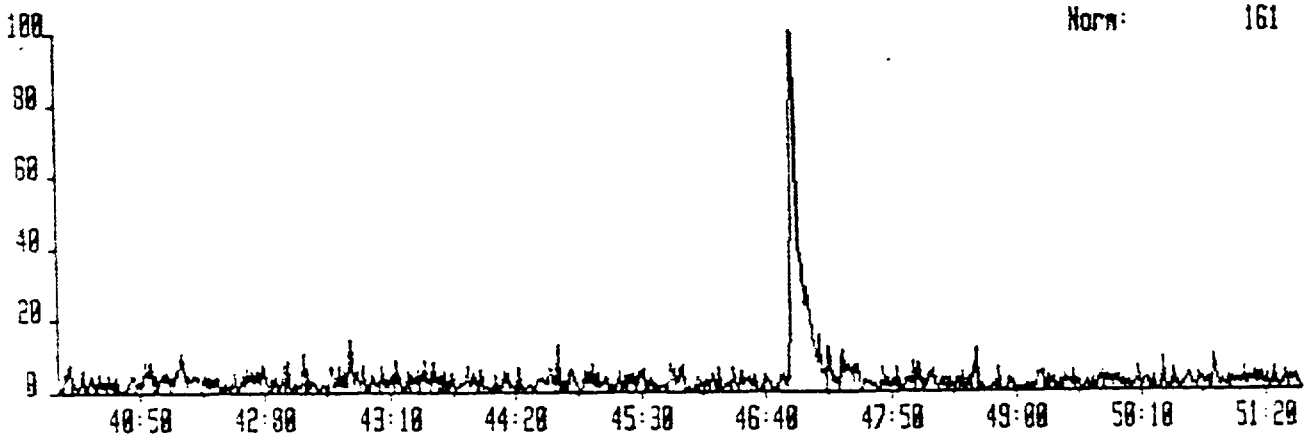
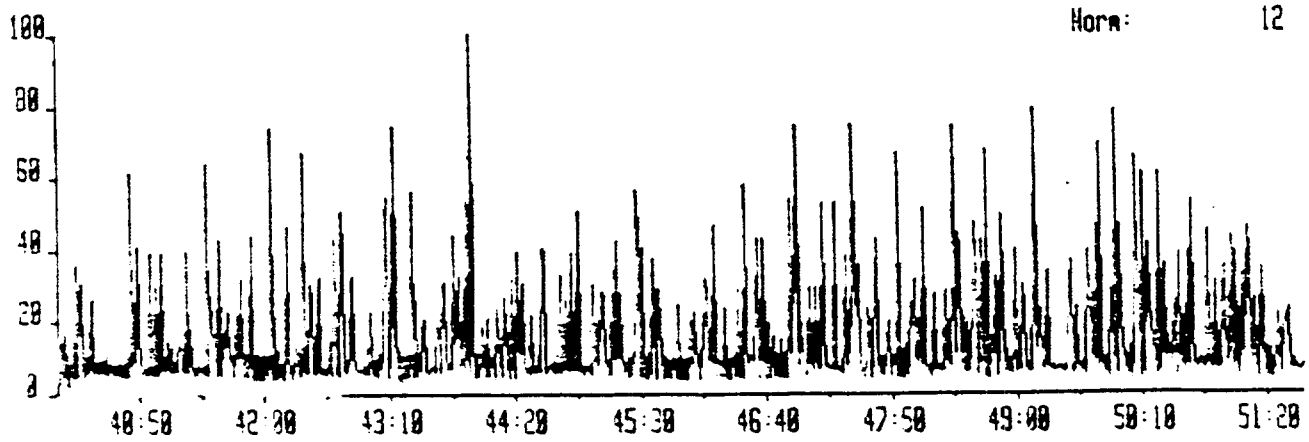


M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 477.7280
Text:BLANK



M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 423.7766
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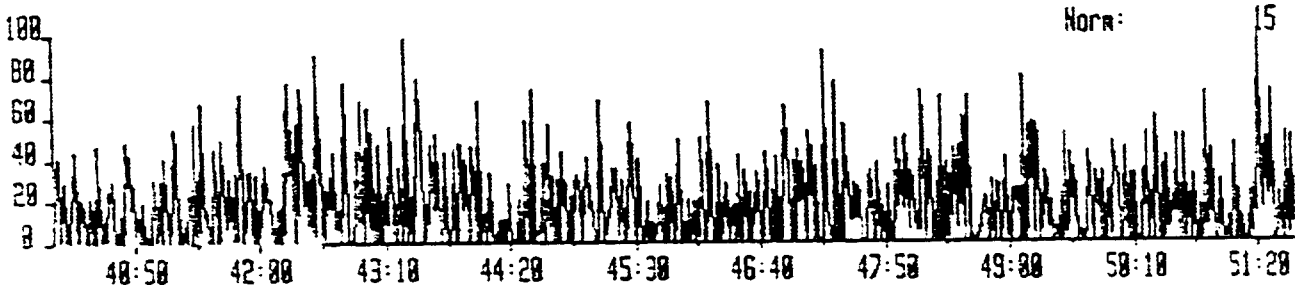

M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 425.7737
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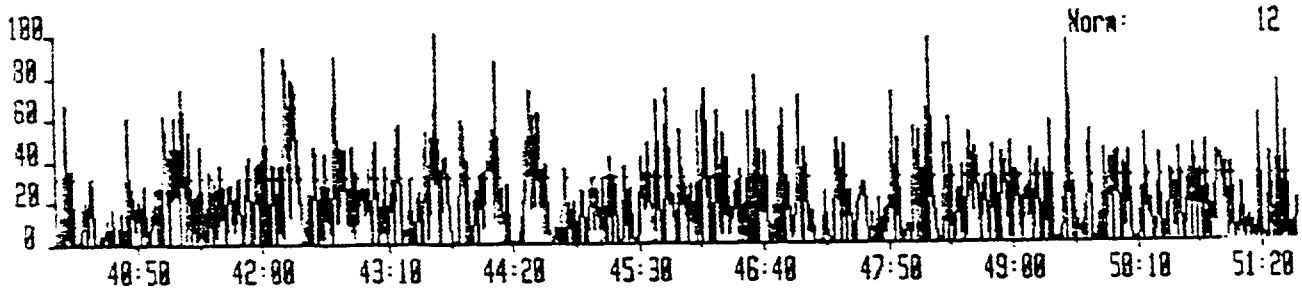

M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 435.8169
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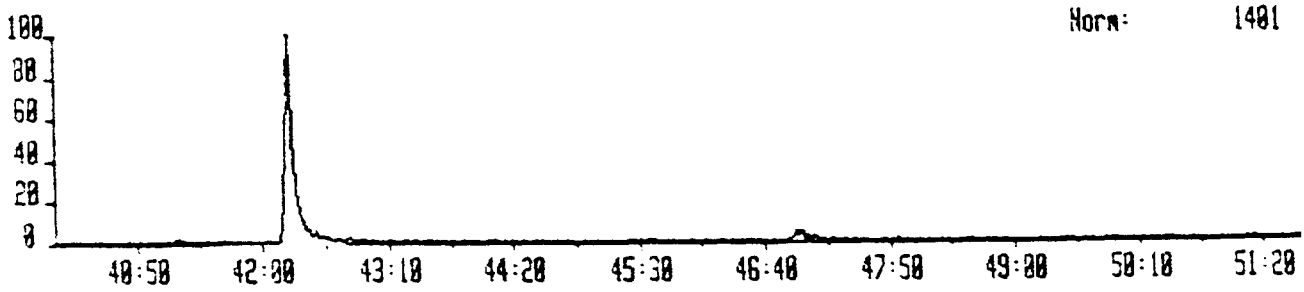

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Sample 1 Injection 1 Group 4 Mass 437.8139
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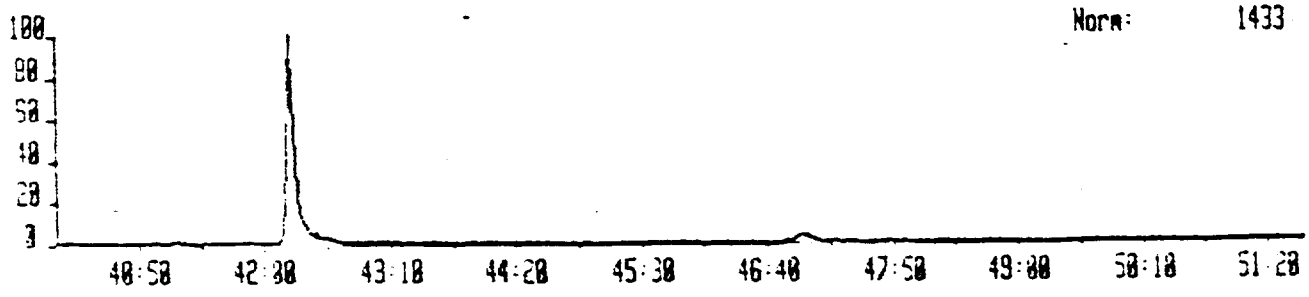

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Sample 1 Injection 1 Group 4 Mass 441.7428
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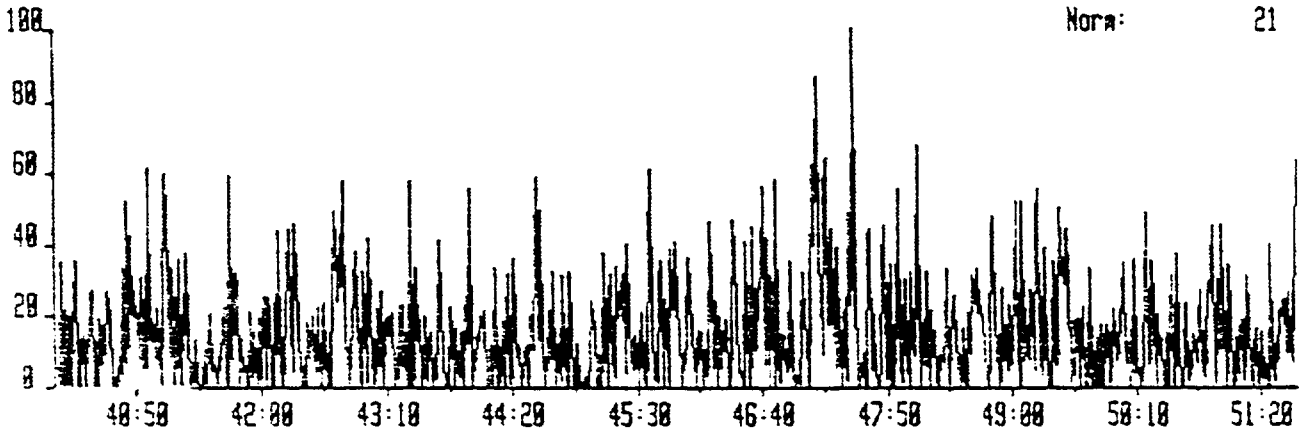

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Sample 1 Injection 1 Group 4 Mass 443.7399
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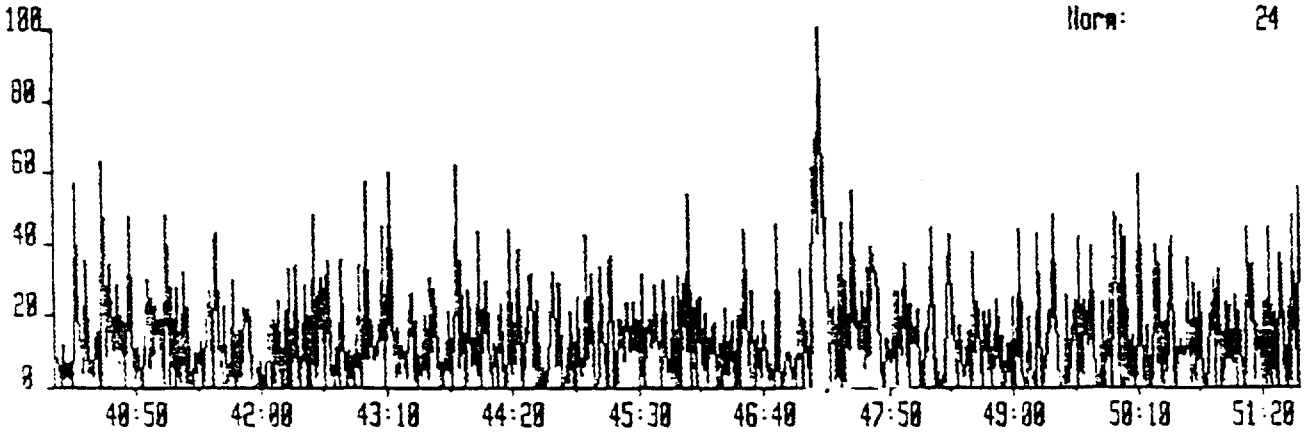

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Sample 1 Injection 1 Group 4 Mass 511.6810
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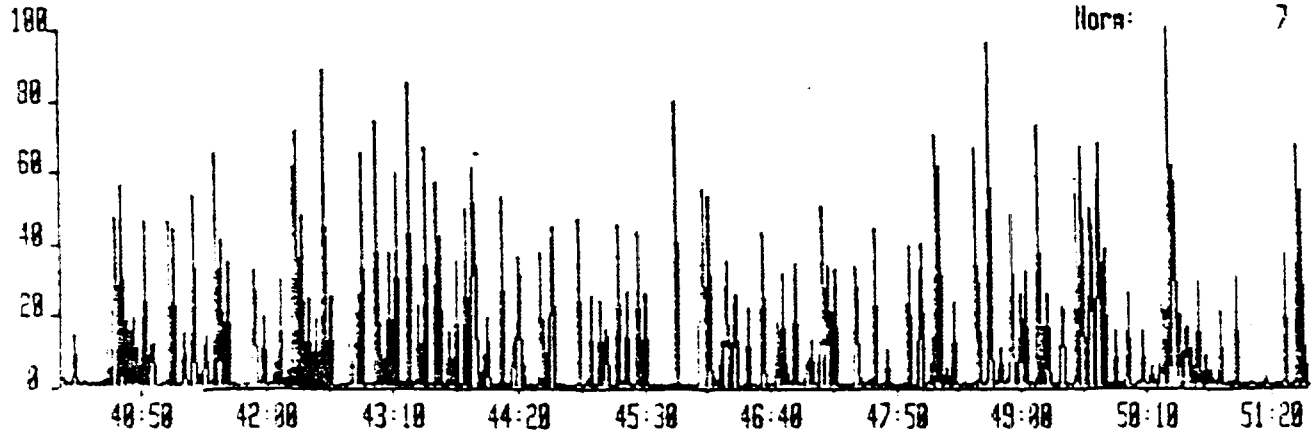

M872282 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 457.7377
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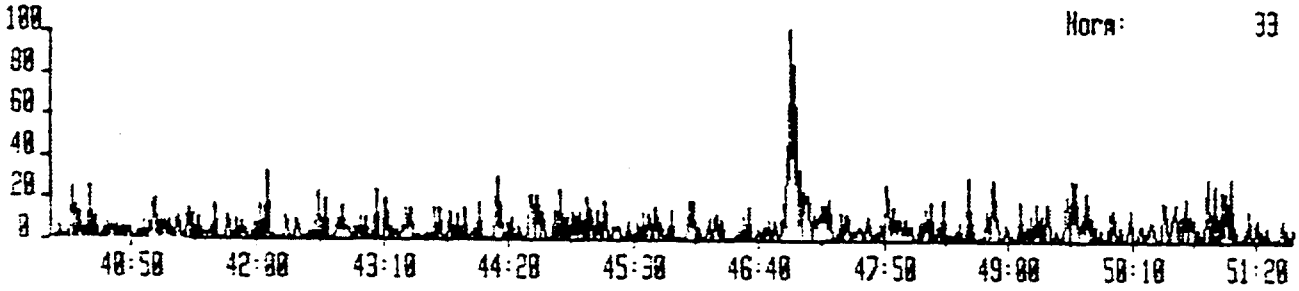

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Sample 1 Injection 1 Group 4 Mass 459.7347
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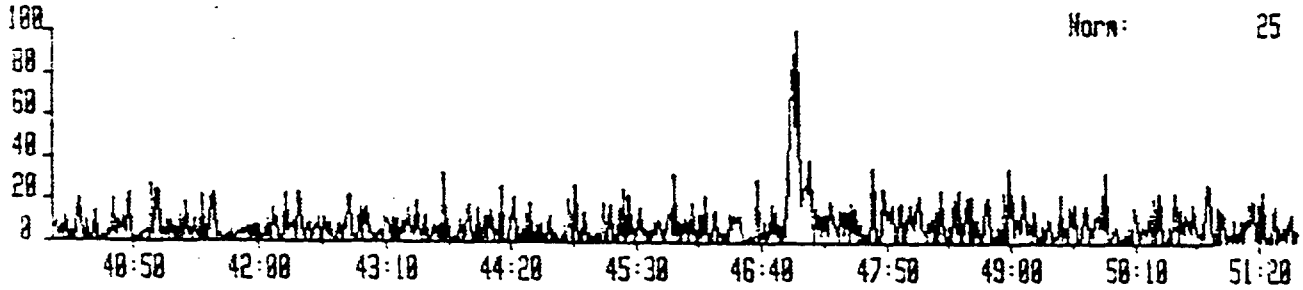

M872282 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:BLANK

M872282 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 471.7758
Text:BLANK

TRIANGLE LABORATORIES, INC.
PCDD/PCDF ANALYSIS

ANALYST: DJH
DATE: 07/30/87
FILE NAME: M872026
SAMPLE ID: 1-1 MM5
CASE NO: ENTROPY
PROJ NO: 8701481
CONCAL: M872023

NAME	AMT (ng)	NUMBER	DL	EMPC	RATIO	RT
TOTAL TRICDD	3.366	5				
2378-TCDD	ND				1.04	
TOTAL TCDD	5.687	7		0.036	0.41	
12378-PCDD	0.329				0.76	
TOTAL PCDD	7.781	11			0.67	31.50
123478-HxCDD	0.443				0.60	
123678-HxCDD	1.076				1.12	38.30
123789-HxCDD	1.741				1.29	38.38
TOTAL HxCDD	16.564	7			1.30	39.02
1234678-HpCDD	6.586				1.24	
TOTAL HpCDD	14.348	2			0.98	44.14
OCDD	10.437				1.01	
TOTAL TRICDF	11.443	8			0.89	49.23
2378-TCDF	3.517				1.00	
TOTAL TCDF	16.655	14			0.72	26.12
12378-PCDF	0.496				0.74	
23478-PCDF	1.078				0.62	30.30
TOTAL PCDF	10.101	10			0.62	31.24
123478-HxCDF	2.388				0.61	
123678-HxCDF	0.952				1.23	37.22
234678-HxCDF	1.469				1.28	37.32
123789-HxCDF	0.167				1.25	38.20
TOTAL HxCDF	8.644	9			1.17	39.32
1234678-HpCDF	4.615				1.23	
1234789-HpCDF	ND				1.01	42.45
TOTAL HpCDF	6.174	3		0.199	1.30	
OCDF	0.967				0.98	
					0.88	49.37

SURROGATE RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
13C12-TCDF	1.93	96.50	0.78	26.09
37CL-TCDD	2.01	100.50		26.53
13C12-HxCDF	2.06	103.00	1.21	37.23

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
2378-13C12-TCDD	9.78	97.80	0.79	26.52
13C12-PCDD	11.07	110.70	0.59	31.49
13C12-HxCDD	8.81	88.10	1.25	38.36
13C12-HpCDD	8.78	87.80	1.06	44.13
13C12-OCDD	13.23	66.15	0.87	49.22

M872026B
MATCHED GC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
270	1.08	16.42	1435.71	.T.	.F.	0.000
270	1.02	16.58	1066.31	.T.	.F.	0.000
270	1.02	17.24	755.62	.T.	.F.	0.000
270	1.00	17.34	6566.63	.T.	.F.	0.000
270	1.38	17.54	3025.48	.F.	.F.	0.000
270	1.00	18.14	2607.22	.T.	.F.	0.000
270	1.00	18.22	4385.16	.T.	.F.	0.000
270	0.94	18.36	651.32	.T.	.F.	0.000
270	0.96	18.43	7992.80	.T.	.F.	0.000
270	0.83	19.40	384.05	.F.	.F.	0.000
286	1.01	18.13	3087.26	.T.	.F.	0.000
286	0.98	18.28	849.26	.T.	.F.	0.000
286	1.03	19.05	526.43	.T.	.F.	0.000
286	1.07	19.15	332.96	.T.	.F.	0.000
286	1.13	19.28	484.59	.T.	.F.	0.000
304	0.84	24.03	1947.08	.T.	.F.	0.000
304	0.71	24.21	10659.69	.T.	.F.	0.895
304	0.67	24.38	4758.02	.T.	.F.	0.906
304	0.68	24.58	4792.31	.T.	.F.	0.917
304	0.70	25.13	7546.44	.T.	.F.	0.929
304	0.73	25.25	8949.72	.T.	.F.	0.939
304	0.70	25.37	5255.70	.T.	.F.	0.946
304	0.67	25.48	2958.12	.T.	.F.	0.953
304	0.77	26.01	3122.73	.T.	.F.	0.960
304	0.72	26.12	15201.20	.T.	.F.	0.968
304	0.71	26.36	3420.45	.T.	.T.	0.975
304	0.74	26.50	2756.81	.T.	.F.	0.990
304	0.88	27.05	440.77	.T.	.F.	0.999
304	0.86	27.48	171.28	.T.	.F.	1.008
304	0.63	27.58	234.09	.F.	.F.	1.035
316	0.73	25.47	363.95	.T.	.F.	1.041
316	0.78	26.09	8410.77	.T.	.F.	0.960
320	0.58	24.30	719.09	.F.	.T.	0.973
320	0.74	24.51	3744.63	.T.	.F.	0.912
320	0.79	25.06	2041.02	.T.	.F.	0.925
320	0.72	25.43	4525.18	.T.	.F.	0.934
320	0.80	25.57	2621.76	.T.	.F.	0.957
320	0.88	26.21	1200.65	.T.	.F.	0.966
320	0.69	26.46	4584.09	.T.	.F.	0.981
320	0.41	26.51	121.00	.F.	.F.	0.996
320	0.42	27.03	357.84	.F.	.T.	0.999
320	0.70	27.13	363.54	.T.	.F.	1.007
328	0.00	26.53	6840.43	.T.	.F.	1.013
328	0.00	27.15	171.72	.T.	.T.	1.001
332	0.79	26.40	24403.18	.T.	.F.	1.014
332	0.79	26.52	32013.66	.T.	.T.	0.993
332	0.83	27.05	282.51	.T.	.T.	1.000
338	0.60	29.31	9607.07	.T.	.F.	1.008
338	0.55	29.39	1965.39	.T.	.F.	0.928
338	0.60	30.02	6154.76	.T.	.F.	0.932
					.F.	0.944

M872026B
MATCHED GC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
338	0.62	30.09	5180.93	.T.	.F.	0.948
338	0.57	30.24	2035.79	.T.	.F.	0.955
338	0.62	30.30	2106.22	.T.	.T.	0.959
338	0.68	30.42	2081.21	.T.	.F.	0.965
338	0.64	30.52	3110.13	.T.	.F.	0.970
338	0.62	31.24	4379.61	.T.	.T.	0.987
338	0.60	31.35	5364.82	.T.	.F.	0.993
338	0.76	32.00	445.45	.F.	.F.	1.006
354	0.62	29.35	7934.23	.T.	.F.	0.930
354	0.56	30.09	1038.70	.T.	.F.	0.948
354	0.56	30.27	5447.51	.T.	.F.	0.957
354	0.63	30.37	1125.83	.T.	.F.	0.962
354	0.54	30.52	3326.75	.T.	.F.	0.970
354	0.55	31.04	1064.69	.T.	.F.	0.976
354	0.59	31.11	1395.00	.T.	.F.	0.980
354	0.57	31.26	2294.30	.T.	.F.	0.988
354	0.51	31.36	754.74	.F.	.F.	0.993
354	0.67	31.50	1108.56	.T.	.T.	1.001
354	0.61	32.01	833.37	.T.	.F.	1.006
354	0.65	32.28	655.22	.T.	.F.	1.020
366	0.59	31.49	16345.28	.T.	.T.	1.000
374	1.23	35.57	2318.91	.T.	.F.	0.931
374	1.23	36.09	10566.62	.T.	.F.	0.937
374	1.44	36.23	707.47	.F.	.F.	0.943
374	1.22	36.35	1397.28	.T.	.F.	0.948
374	1.96	36.49	392.91	.F.	.F.	0.954
374	1.23	37.22	11732.04	.T.	.T.	0.968
374	1.28	37.32	5130.72	.T.	.T.	0.972
374	1.31	37.41	770.13	.T.	.F.	0.976
374	1.14	37.49	25.04	.T.	.F.	0.980
374	1.42	37.57	1683.21	.F.	.F.	0.983
374	1.25	38.20	6105.11	.T.	.T.	0.993
374	1.17	39.32	570.71	.T.	.T.	1.024
386	1.21	37.23	9010.67	.T.	.T.	0.968
390	1.25	36.41	6137.78	.T.	.F.	0.950
390	1.24	37.21	19599.71	.T.	.F.	0.968
390	1.19	37.41	12040.66	.T.	.F.	0.976
390	1.28	37.55	2508.98	.T.	.F.	0.982
390	1.12	38.30	1396.50	.T.	.T.	0.997
390	1.29	38.38	3359.28	.T.	.T.	1.001
390	1.30	39.02	4784.30	.T.	.T.	1.011
402	1.25	38.36	17150.33	.T.	.T.	1.000
402	1.21	39.04	31384.08	.T.	.T.	1.012
408	1.01	42.45	18871.27	.T.	.T.	0.967
408	0.87	43.07	2478.15	.T.	.F.	0.975
408	1.07	43.20	1761.71	.T.	.F.	0.980
408	1.30	44.53	677.22	.F.	.T.	1.015
424	1.03	43.10	21010.86	.T.	.F.	0.976
424	0.98	44.14	17826.76	.T.	.T.	1.000
436	1.06	44.13	20444.08	.T.	.T.	1.000

M872026B
MATCHED GC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
442	0.88	49.37	1561.24	.T.	.T.	1.005
458	0.89	49.23	15184.08	.T.	.T.	1.000
470	0.87	49.22	33216.38	.T.	.T.	1.000
*** Total ***						
***	89.80	3114.5	566689.98			85.810

M8720261
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
270	746.66	16.42
270	539.20	16.58
270	381.48	17.24
270	3276.42	17.34
270	1755.00	17.54
270	1304.33	18.14
270	2193.12	18.22
270	314.80	18.36
270	3911.91	18.43
270	174.37	19.40
272	689.05	16.42
272	527.11	16.58
272	374.14	17.25
272	3290.21	17.34
272	1270.48	17.54
272	458.06	18.00
272	1302.89	18.14
272	2192.04	18.22
272	336.52	18.36
272	4080.89	18.43
272	209.68	19.40
286	1552.77	18.13
286	420.79	18.28
286	267.58	19.05
286	172.26	19.15
286	256.91	19.28
288	153.53	17.48
288	1534.49	18.13
288	428.47	18.28
288	258.85	19.06
288	160.70	19.15
288	227.68	19.27
304	886.89	24.03
304	4409.31	24.21
304	1904.47	24.38
304	1944.28	24.58
304	3117.59	25.13
304	3783.56	25.25
304	2158.80	25.37
304	1187.87	25.48
304	1363.10	26.01
304	6376.08	26.12
304	1418.61	26.36
304	1174.30	26.50
304	206.60	27.05
304	79.01	27.48
304	90.05	27.58
306	1060.19	24.03
306	6249.88	24.21
306	2353.55	24.38

M8720261
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME	
306	2348.03	24.58	
306	4423.35	25.13	
306	5166.16	25.25	
306	3096.90	25.37	
306	1770.25	25.48	
306	1759.63	26.01	
306	3825.12	26.12	
306	2001.84	26.36	
306	1582.51	26.50	
306	234.17	27.04	
306	14.98	27.14	
306	11.30	27.19	
306	15.46	27.24	
306	92.27	27.48	
306	144.04	27.58	
306	19.00	28.07	
306	68.67	29.31	
306	20.99	29.39	
306	240.30	31.49	
306	37.32	32.00	
306	46.43	32.57	
316	153.36	25.47	
316	3695.62	26.09	
318	210.59	25.47	
318	4715.15	26.09	
320	263.35	24.30	
320	23.12	24.41	
320	1597.81	24.51	
320	897.81	25.06	
320	1889.46	25.43	
320	1168.49	25.57	
320	79.15	26.09	
320	563.19	26.21	
320	1874.56	26.46	← 320 35@ 26:57
320	105.95	27.03	
320	149.92	27.13	
320	63.17	27.54	
322	455.74	24.30	
322	2146.82	24.51	
322	1143.21	25.06	
322	24.13	25.19	
322	2635.72	25.43	
322	1453.27	25.57	
322	637.46	26.21	
322	2709.53	26.45	
322	251.89	27.03	← 322 56 @ 26:51
322	213.82	27.12	
322	73.06	27.27	
322	72.14	29.35	
322	60.50	30.23	

M872026I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
322	55.46	30.34
322	97.89	30.54
322	80.90	32.27
322	62.34	33.16
328	6840.43	26.53
328	171.72	27.15
332	220.03	24.12
332	113.83	25.42
332	130.81	26.04
332	10762.46	26.40
332	14169.20	26.52
332	123.49	27.05
332	130.60	27.55
334	13640.72	26.40
334	17844.46	26.52
334	154.02	27.04
334	117.02	31.49
338	3609.46	29.31
338	696.27	29.39
338	2302.45	30.02
338	1986.95	30.09
338	741.22	30.24
338	808.11	30.30
338	839.97	30.42
338	1211.38	30.52
338	1669.68	31.24
338	2019.60	31.35
338	192.18	32.00
340	5997.61	29.30
340	1269.12	29.39
340	3852.31	30.02
340	3193.08	30.09
340	1294.57	30.24
340	1298.11	30.31
340	1241.24	30.42
340	1898.75	30.52
340	14.41	31.06
340	13.70	31.12
340	2709.93	31.24
340	3345.22	31.35
340	253.27	32.00
340	173.61	32.41
354	3042.10	29.35
354	370.73	30.09
354	1965.13	30.27
354	433.34	30.37
354	1172.30	30.52
354	373.57	31.04
354	497.25	31.11 — 519 @ 31:11
354	337.56	31.26

Ck

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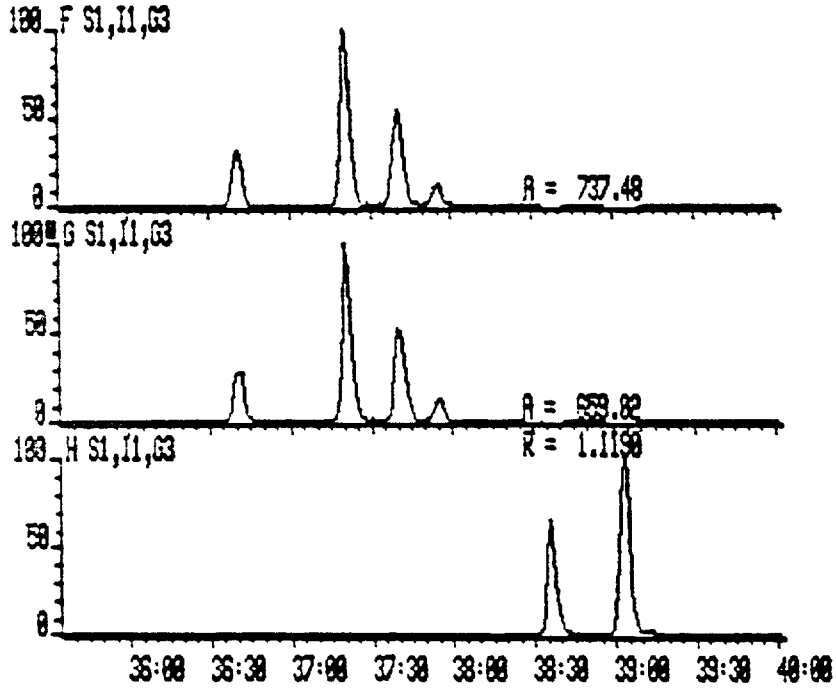
M8720261
RAW MASS AND AREA DATA

	MASS	AREA	RET.TIME	
Clk	354	253.41	31.36	-NC
	354	445.46	31.50	
	354	316.33	32.01	
	354	257.30	32.28	
	356	4892.13	29.34	
	356	667.37	30.09	
	356	3482.38	30.27	
	356	691.39	30.37	
	356	2154.45	30.52	
	356	686.12	31.04	
	356	985.07	31.10	← 776 @ 31:11
	356	1456.74	31.26	
	356	501.33	31.36	-NC
	356	663.10	31.49	
	356	517.04	32.01	
	356	397.92	32.28	
	356	13.46	32.39	
	366	6084.35	31.49	
	368	10260.93	31.48	
	374	1280.93	35.57	
	374	5832.33	36.09	
Clk	374	418.03	36.23	-NC
	374	769.08	36.35	
	374	12.43	36.43	
	374	260.04	36.49	
	374	6476.36	37.22	
	374	2885.20	37.32	
	374	436.83	37.41	
	374	13.36	37.49	
Clk	374	987.01	37.57	-NC
	374	3387.67	38.20	
	374	307.69	39.32	
↓	376	1037.98	35.57	
	376	4734.29	36.09	
	376	289.44	36.23	-NC
	376	623.20	36.35	
	376	132.87	36.49	
	376	5255.68	37.21	
	376	2245.52	37.33	
	376	333.30	37.41	
	376	11.68	37.49	
	376	696.20	37.57	-NC
	376	2717.44	38.20	
	376	23.08	39.27	
	376	263.02	39.32	
	386	1035.14	37.23	
	388	109.56	36.42	
	388	1075.23	37.23	
	388	156.46	37.41	
	390	3413.30	36.41	

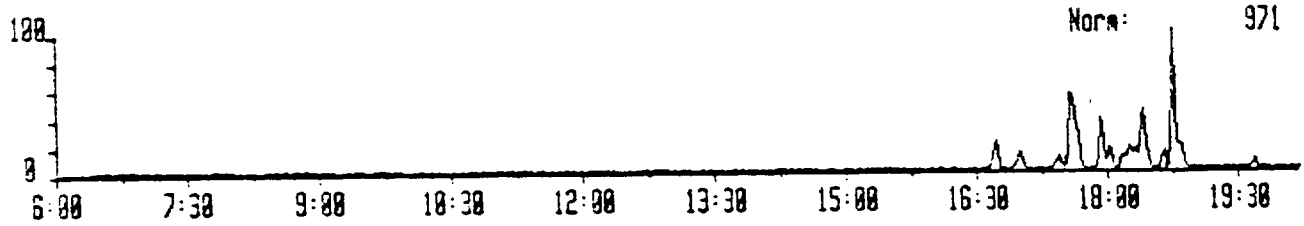
M872026I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME	
390	10835.77	37.21	
390	6536.05	37.41	
390	1406.78	37.55	
390	1070.81	38.30	737.5
390	1393.54	38.38	
390	2708.58	39.02	
392	2724.48	36.41	
392	3763.94	37.21	
392	5504.61	37.41	
392	1102.20	37.55	
392	745.18	38.30	659
392	1465.74	38.37	
392	18.01	38.47	
392	2075.72	39.02	
402	9522.22	38.36	
402	17161.07	39.04	
404	7628.11	38.36	
404	14223.01	39.04	
408	9489.76	42.45	
408	1149.42	43.07	
408	910.31	43.20	
408	382.59	44.53	
410	9381.51	42.45	
410	1328.73	43.07	
410	851.40	43.20	
410	294.63	44.53	
410	941.56	49.22	
424	10685.76	43.10	
424	8844.97	44.14	
426	10325.10	43.10	
426	8981.79	44.14	
426	222.60	49.24	
436	10503.13	44.13	
438	9940.90	44.13	
438	480.90	49.23	
442	730.31	49.37	
444	830.93	49.37	
458	7134.13	49.23	
460	8049.35	49.23	
470	15433.91	49.22	
470	10.00	11.00	
472	17782.47	49.22	
*** Total ***			
****	571762.76	7347.13	

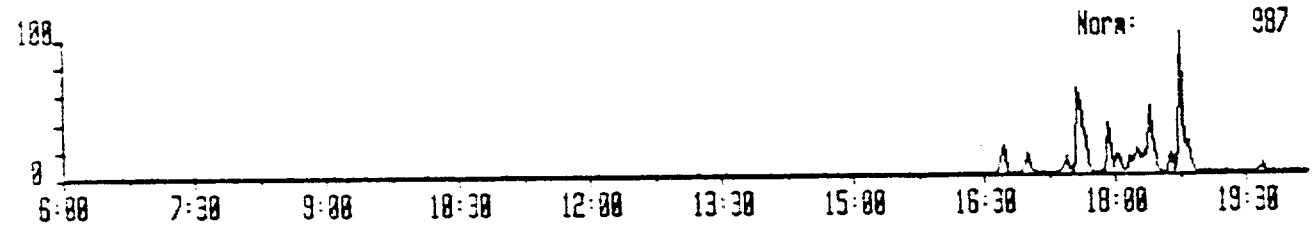
J72826 24-JUL-87 05:58 70E (EI+) Sus:DBSHTST
GR 3 F: 389.3156 G: 391.3127 H: 401.3558 I: 403.3529 J: 392.3791
Text:1-1



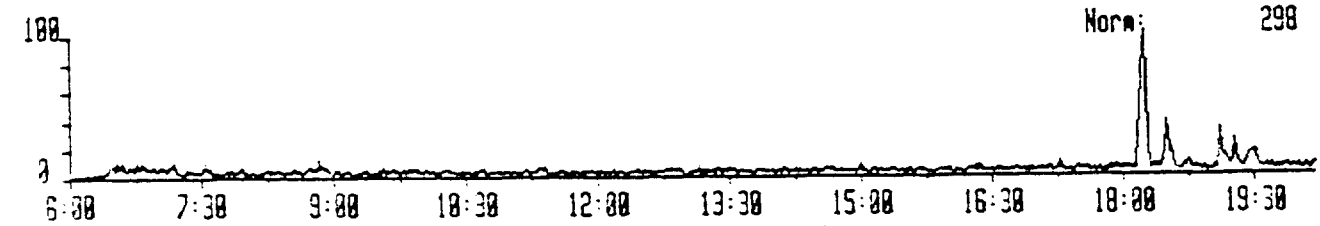
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 1 Mass 269.9486
Text:1-1



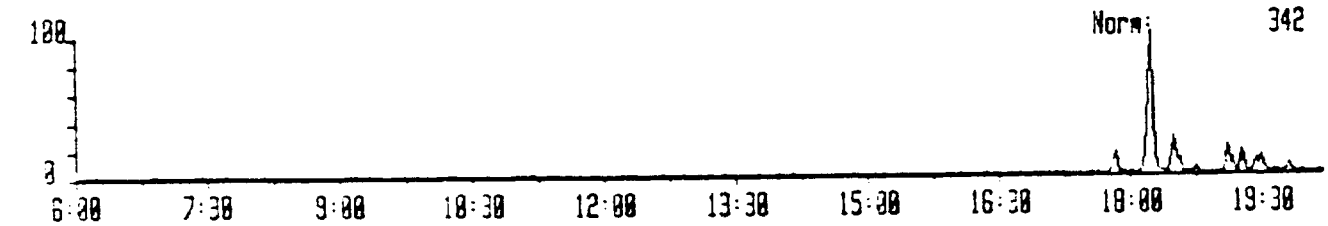
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 1 Mass 271.9377
Text:1-1



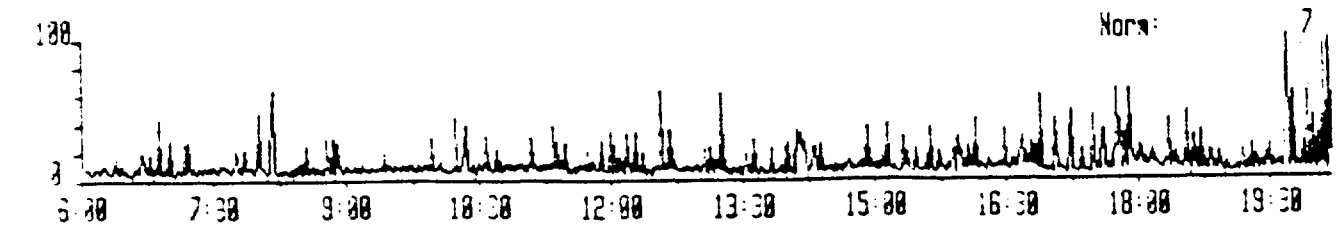
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 1 Mass 285.9355
Text:1-1



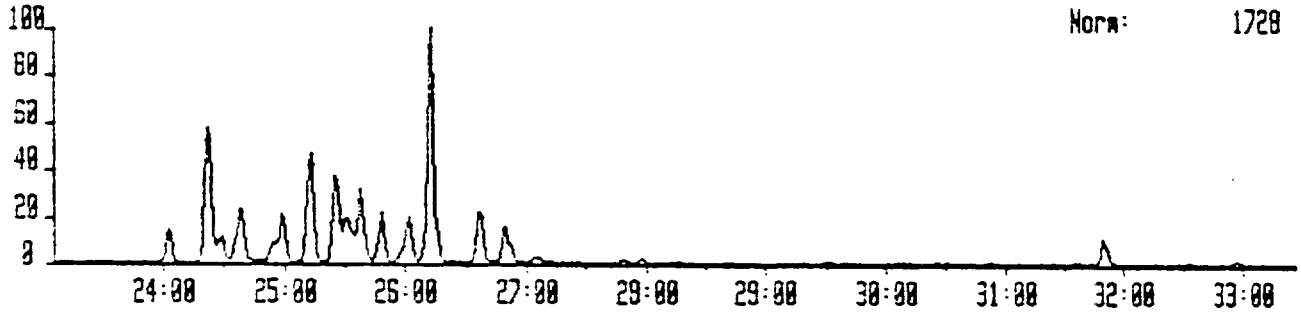
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:1-1



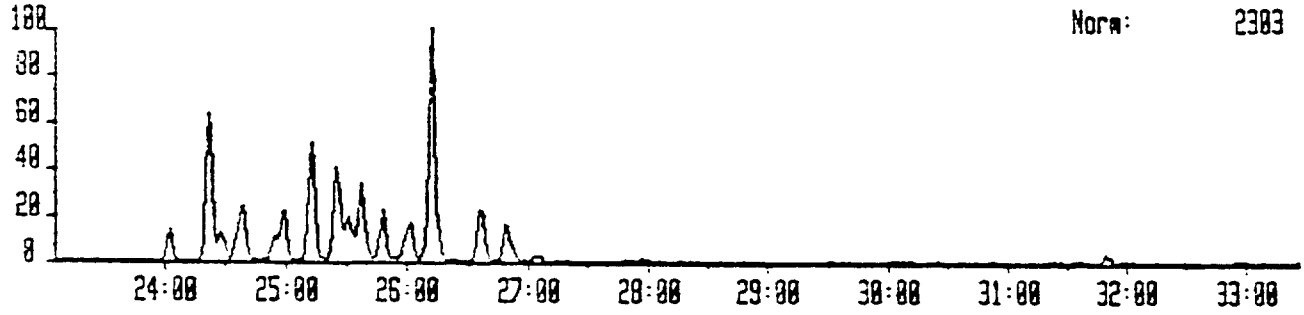
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 1 Mass 339.8798
Text:1-1



M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:D85ATST
Sample 1 Injection 1 Group 2 Mass 303.9816
Text:1-1

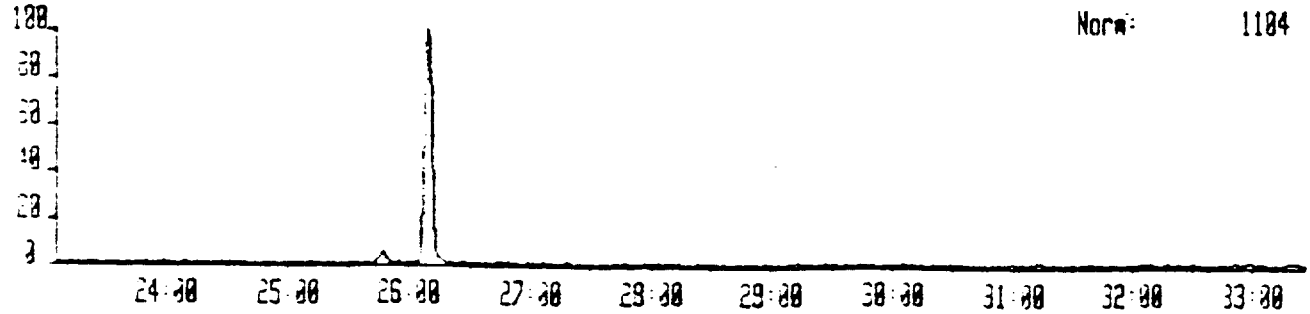


M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:D85ATST
Sample 1 Injection 1 Group 2 Mass 305.8987
Text:1-1

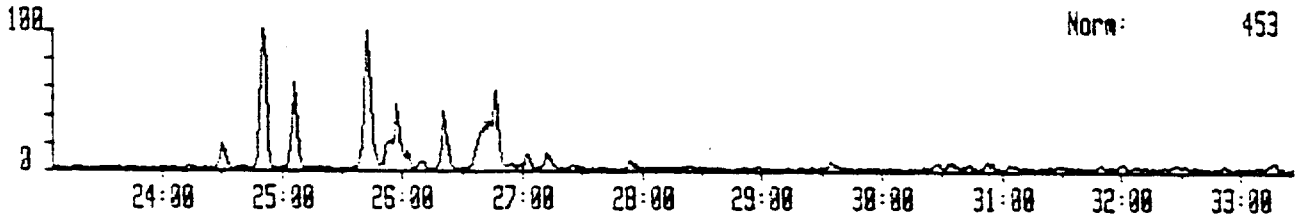


M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:D85ATST
Sample 1 Injection 1 Group 2 Mass 315.3419
Text:1-1

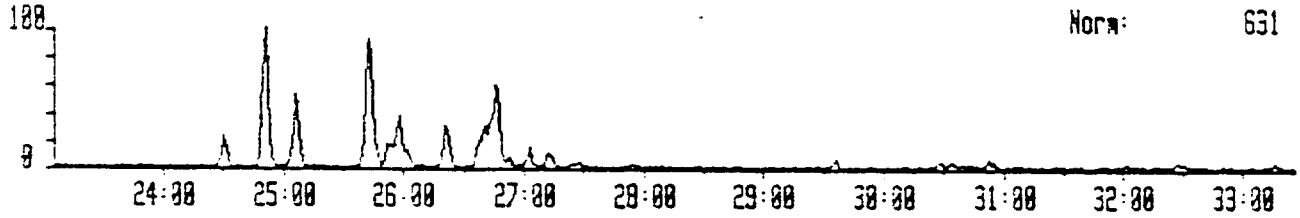
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:D85ATST
Sample 1 Injection 1 Group 2 Mass 317.9389
Text:1-1



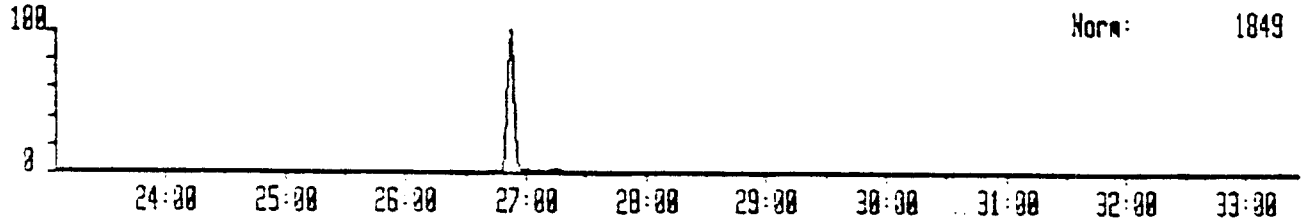
M872026 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:1-1



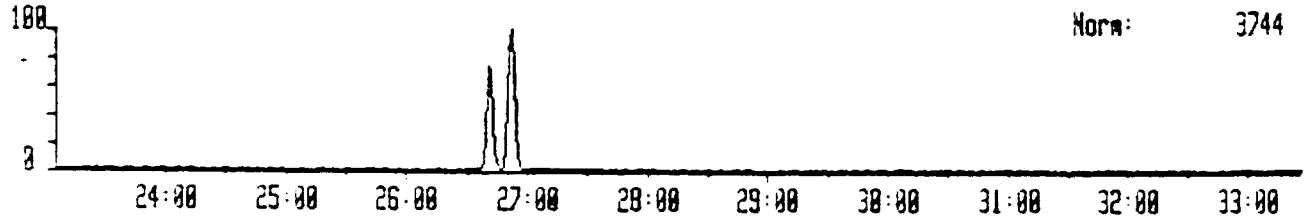
M872026 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:1-1



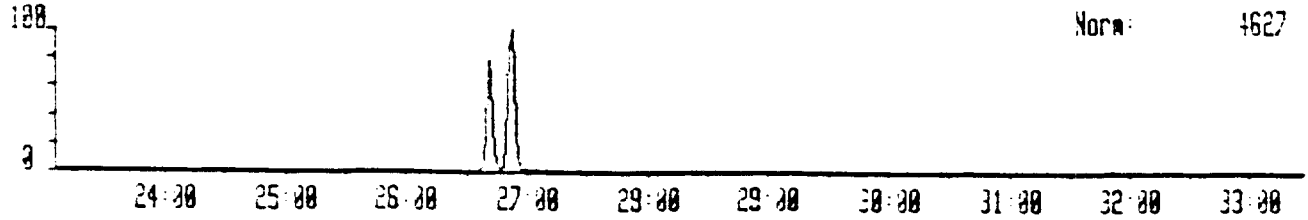
M872026 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:1-1



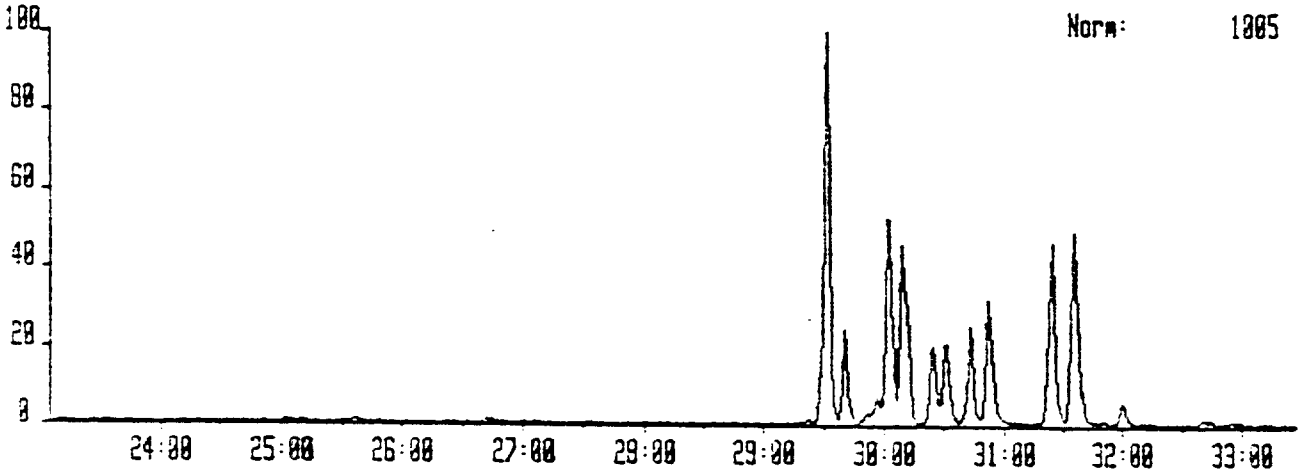
M872026 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 331.9368
Text:1-1



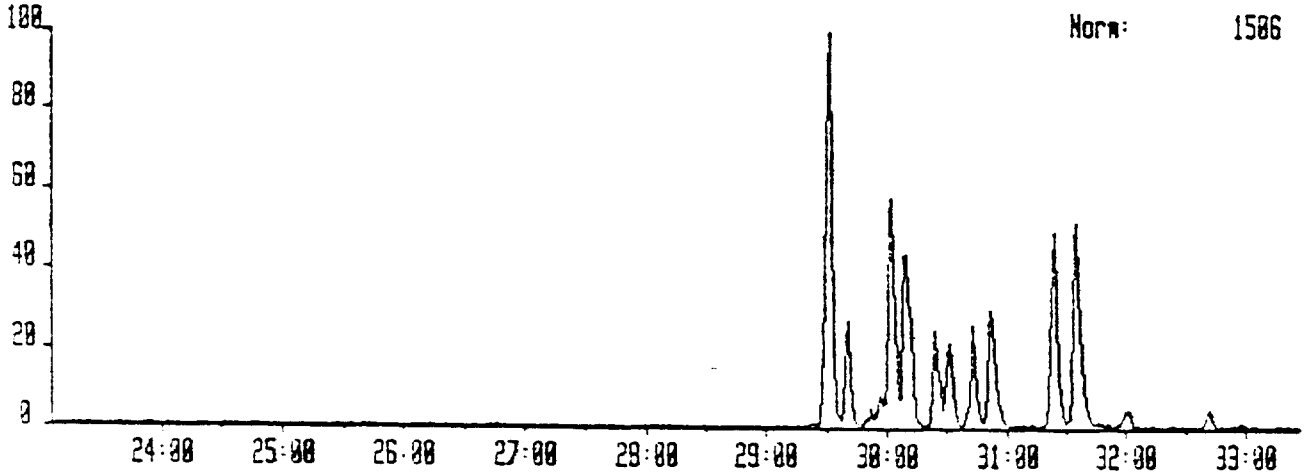
M872026 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 333.9338
Text:1-1



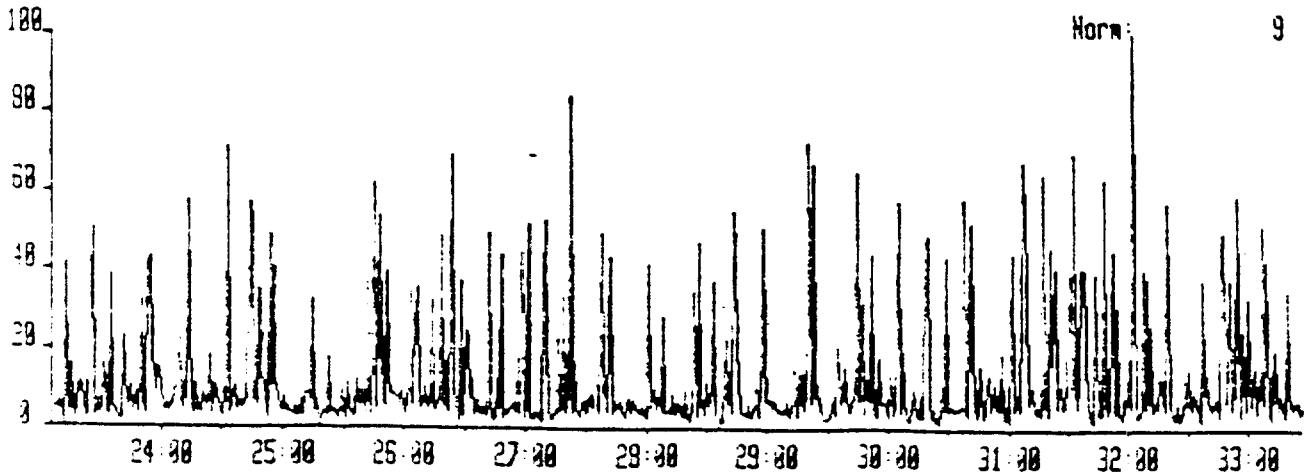
M872026 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:1-1



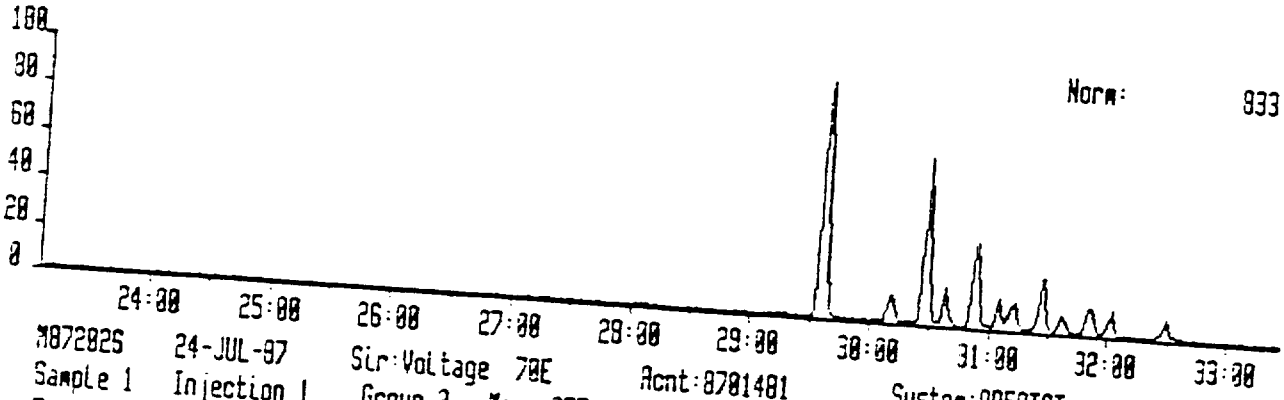
M872026 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:1-1



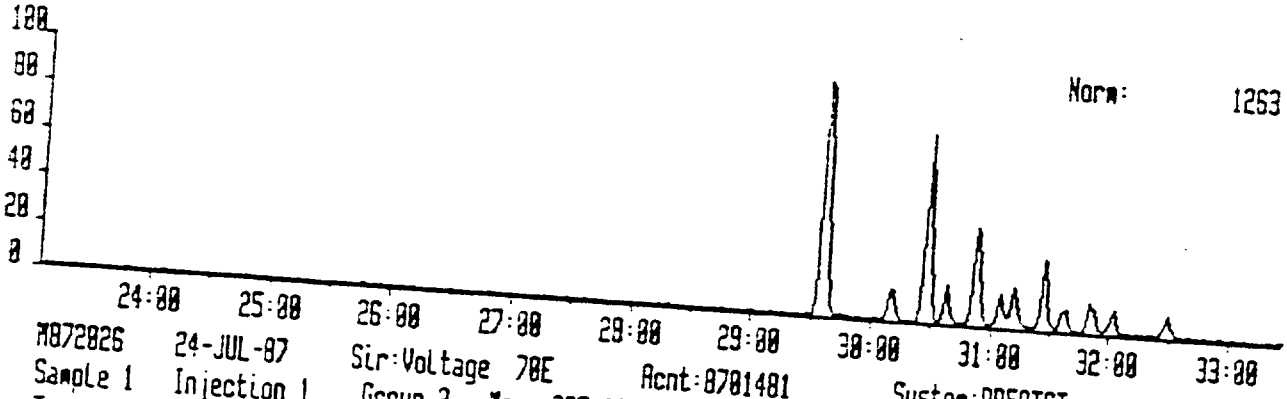
M872026 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 407.8803
Text:1-1



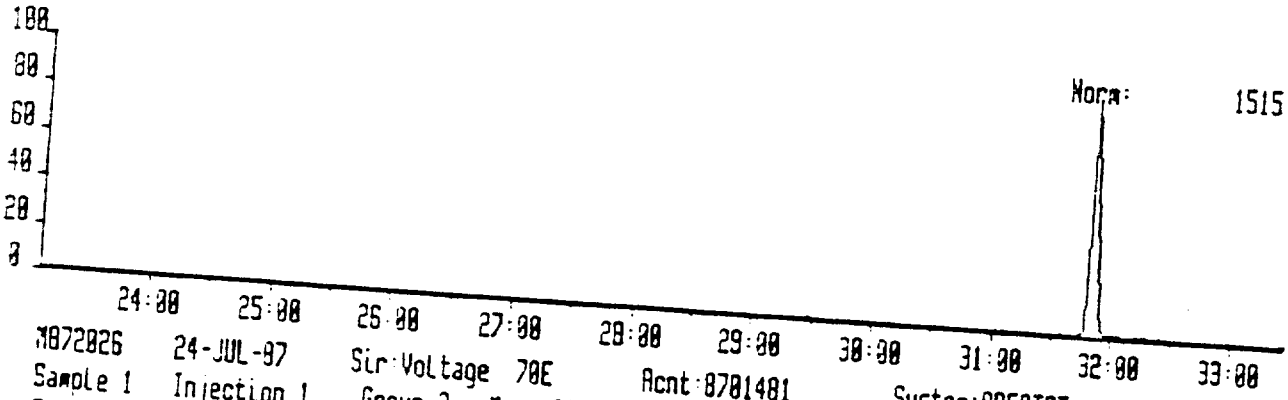
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:1-1



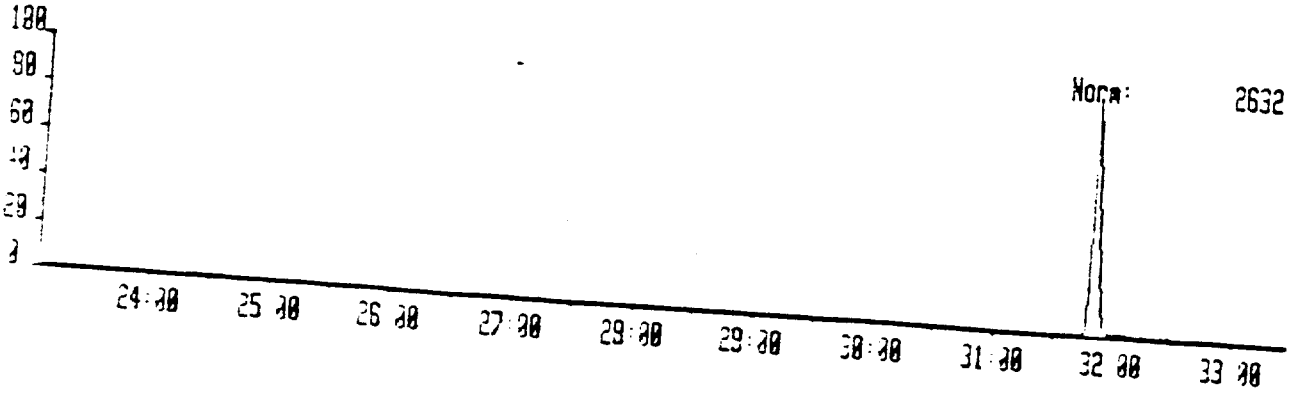
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 355.8546
Text:1-1



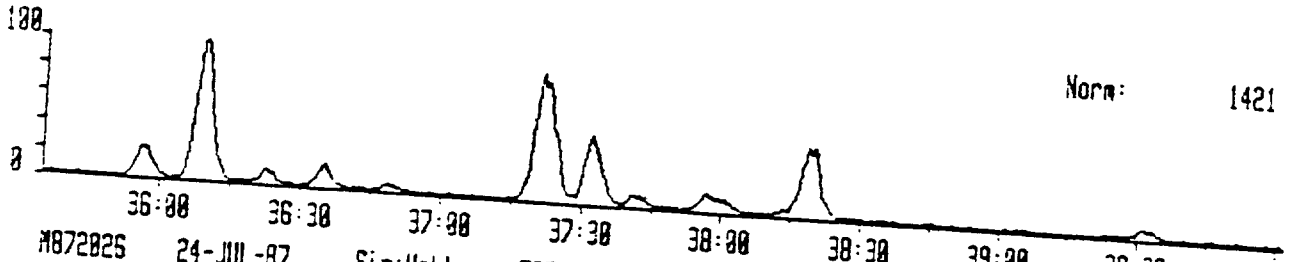
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 365.8977
Text:1-1



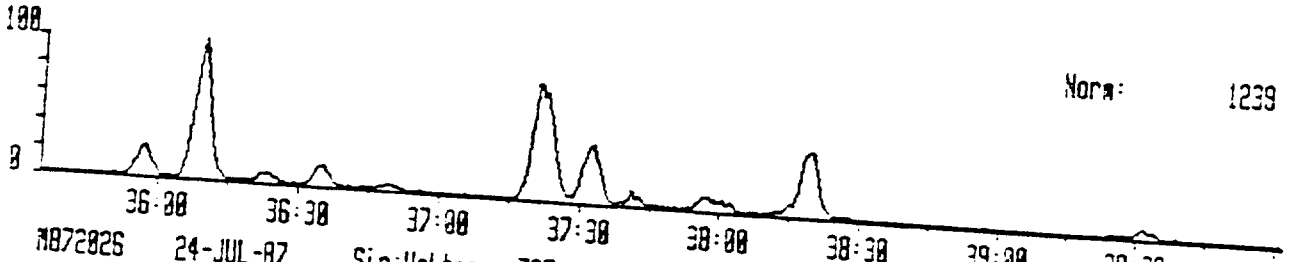
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 367.9948
Text:1-1



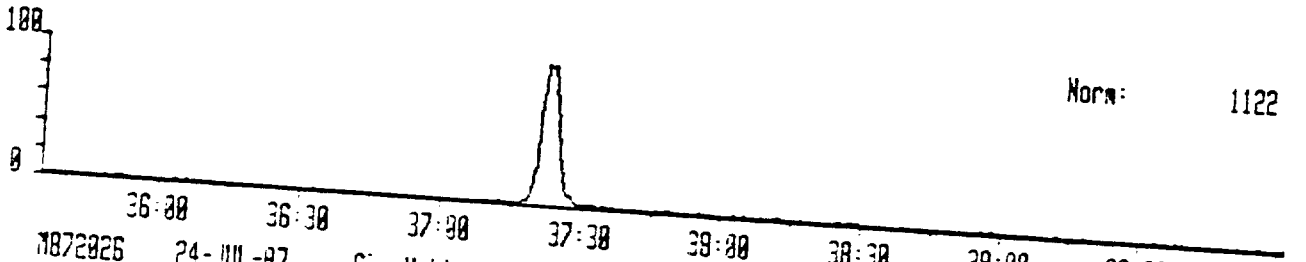
M872026 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 373.3287
Text:1-1



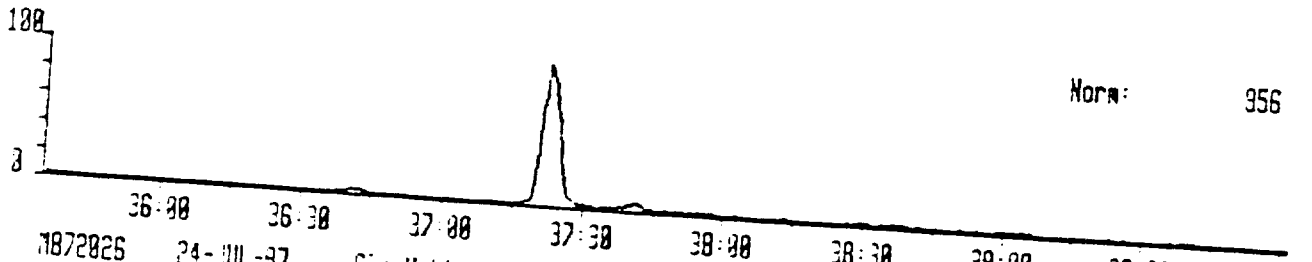
M872026 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 375.3178
Text:1-1



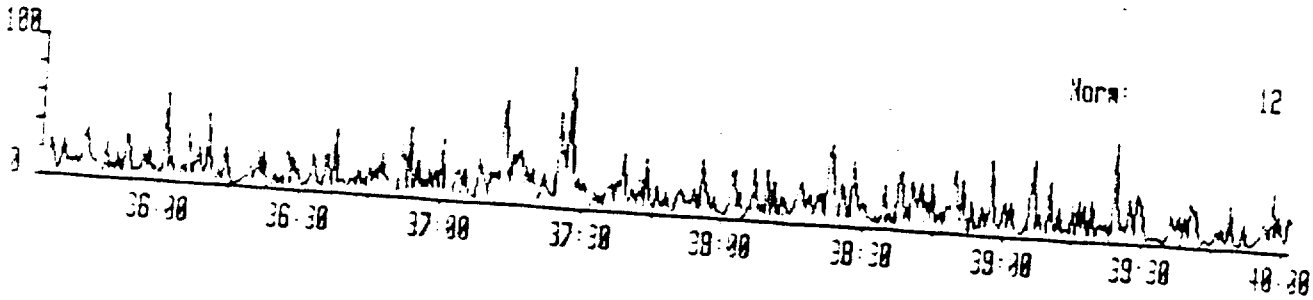
M872026 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 385.3689
Text:1-1



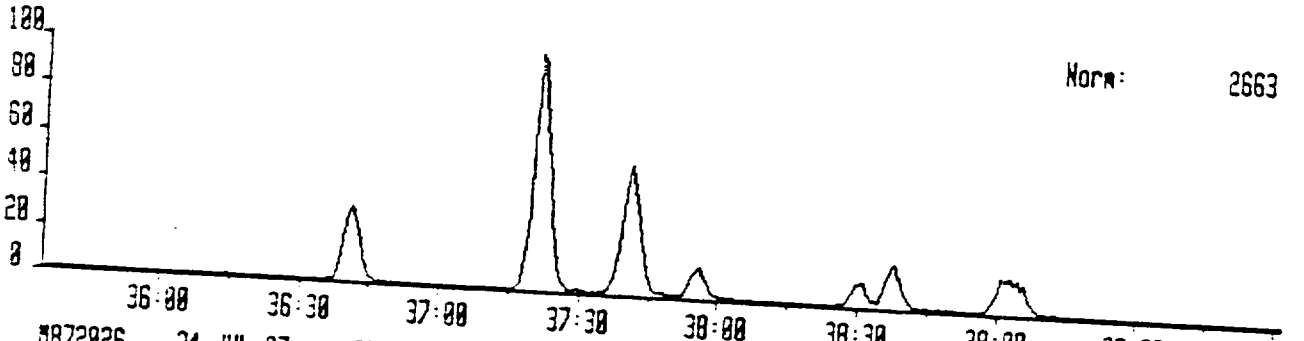
M872026 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 387.8588
Text:1-1



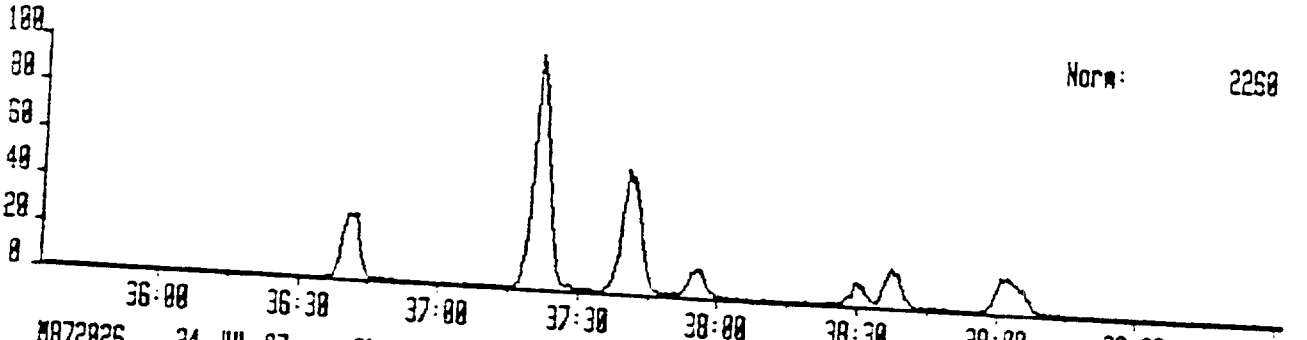
M872026 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:1-1



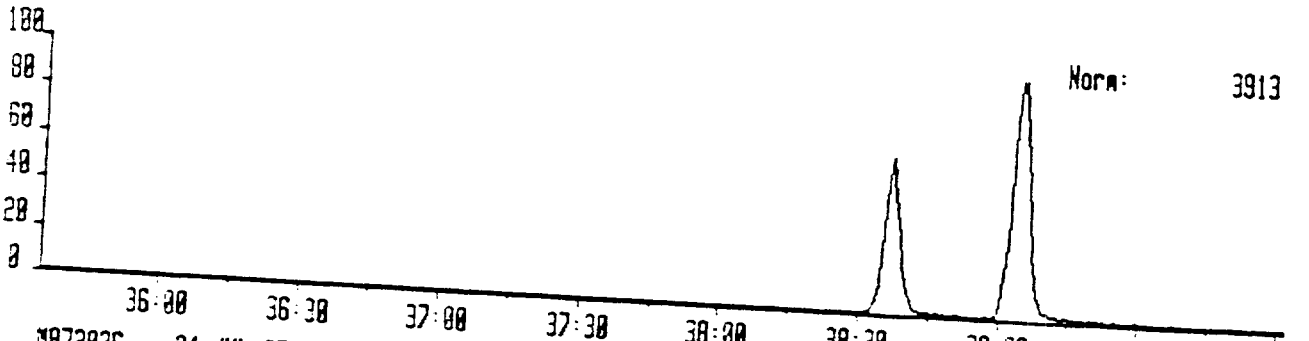
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 389.8156
Text:1-1



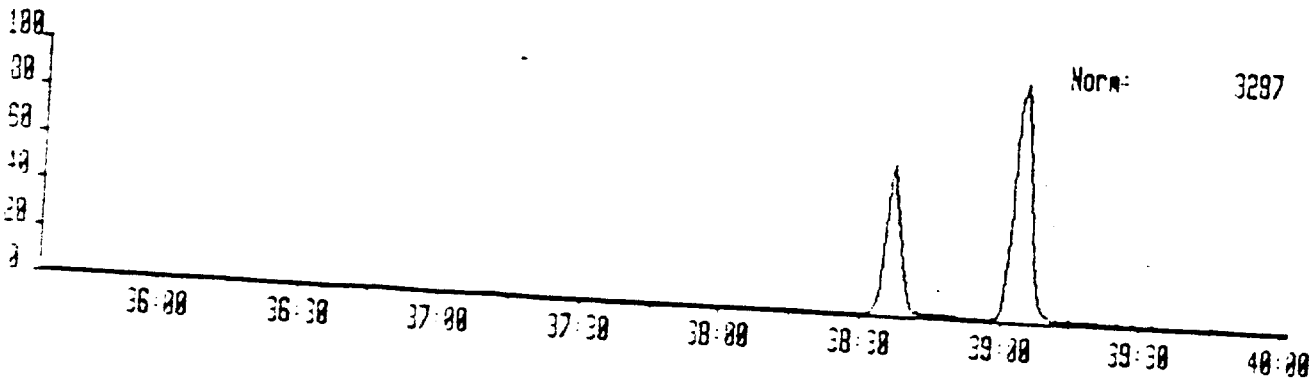
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 391.8127
Text:1-1



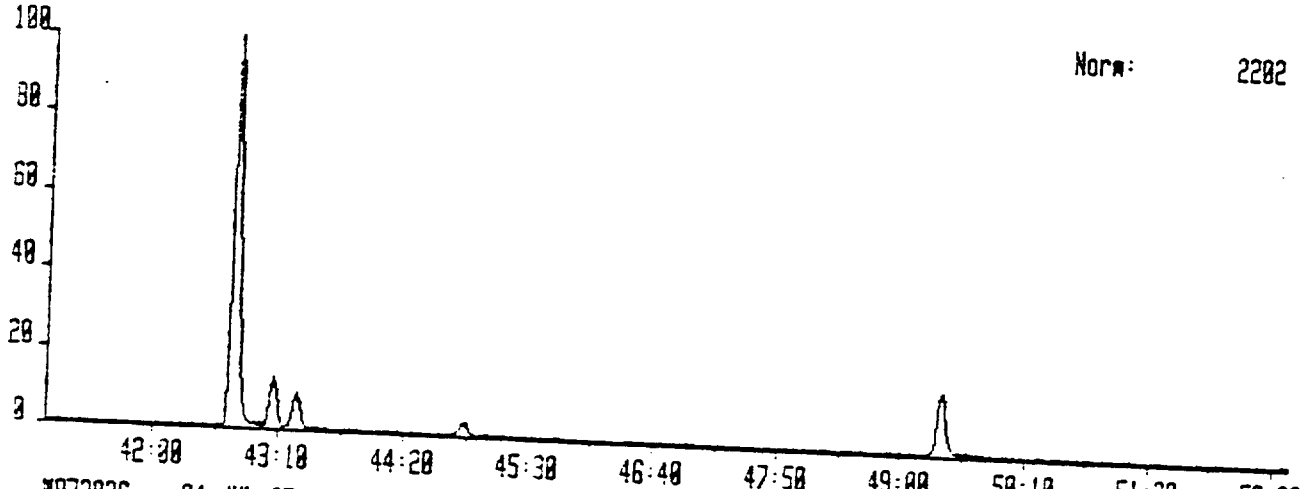
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text:1-1



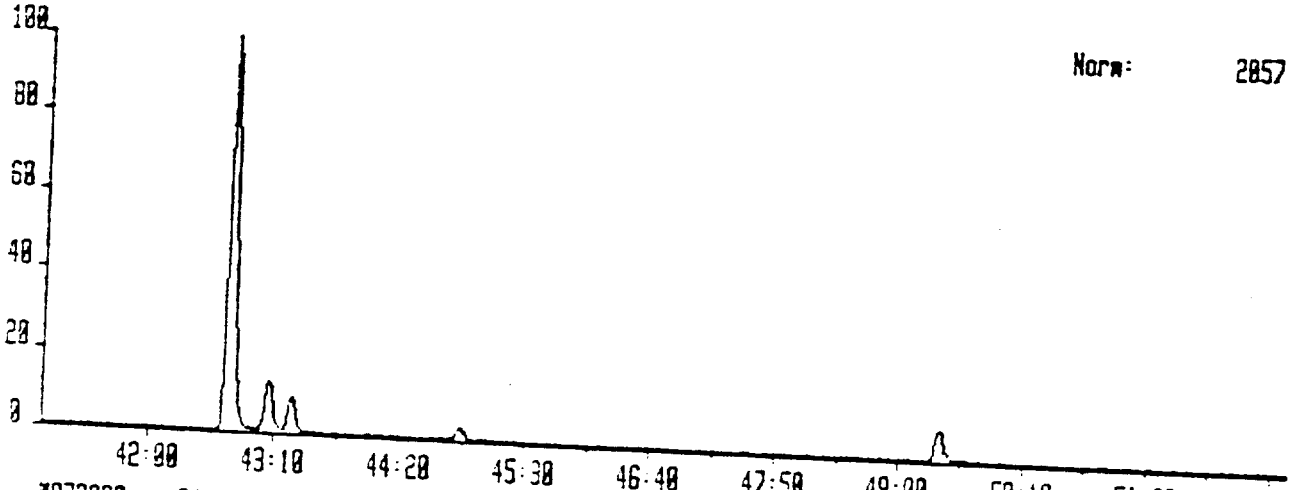
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 403.8529
Text:1-1



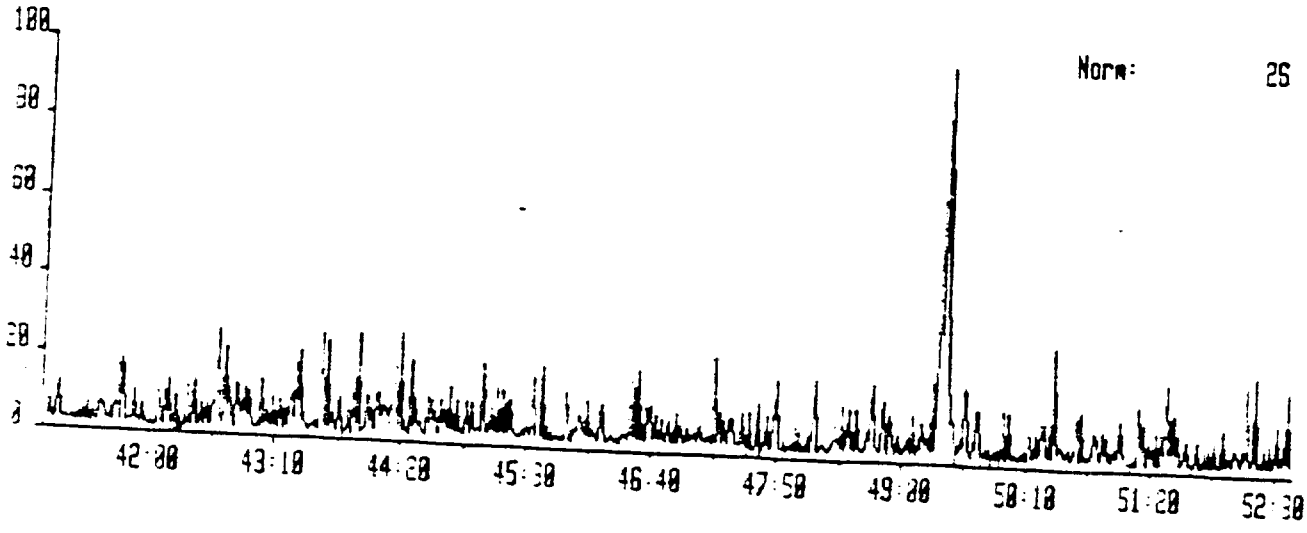
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 487.7817
Text:1-1



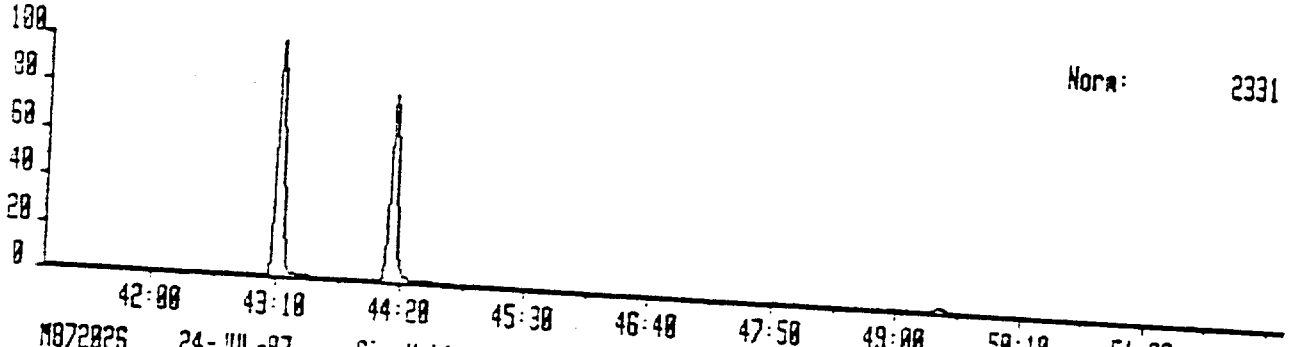
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 489.7788
Text:1-1



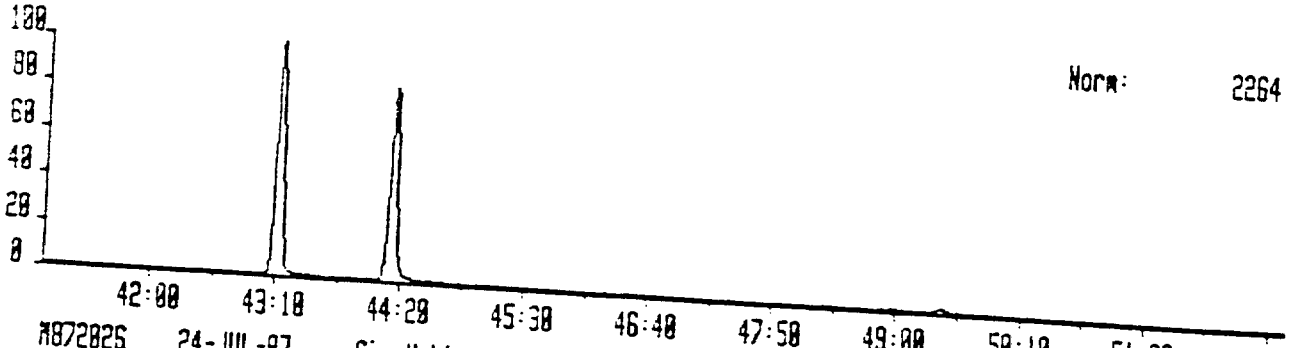
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 477.7288
Text:1-1



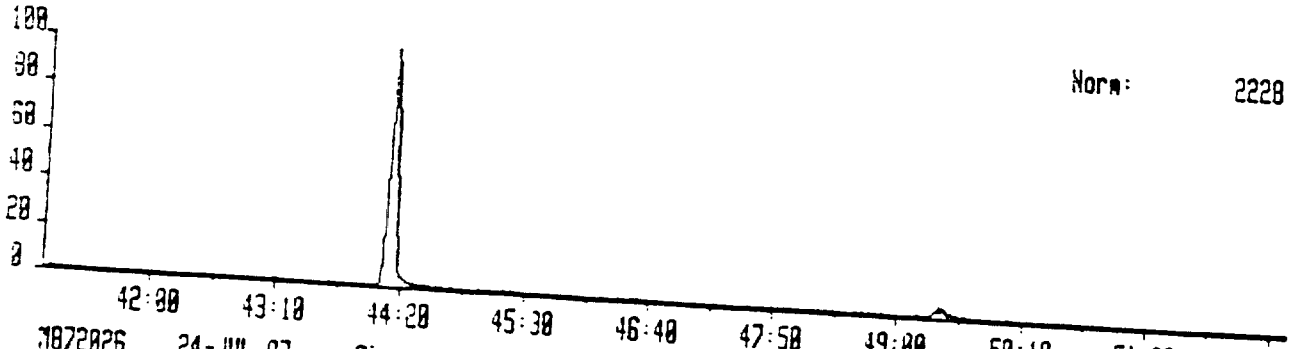
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:1-1



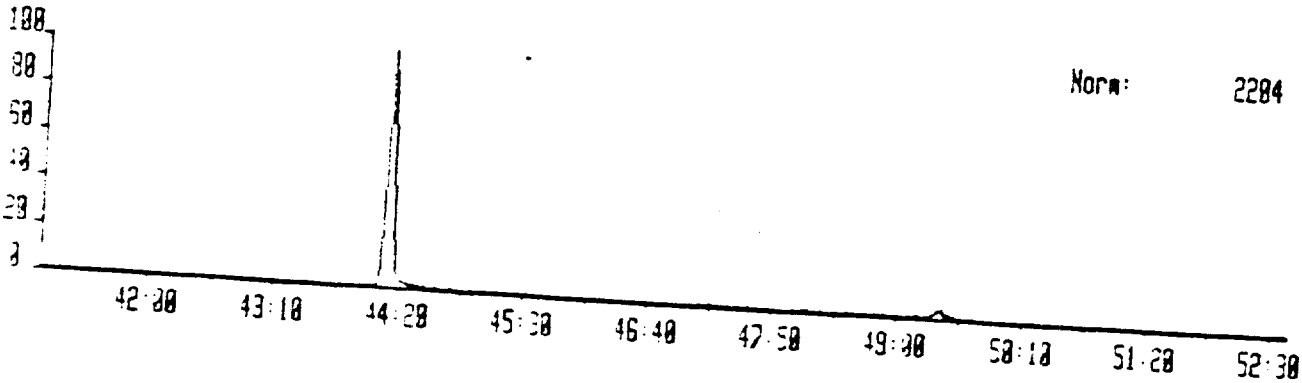
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:1-1



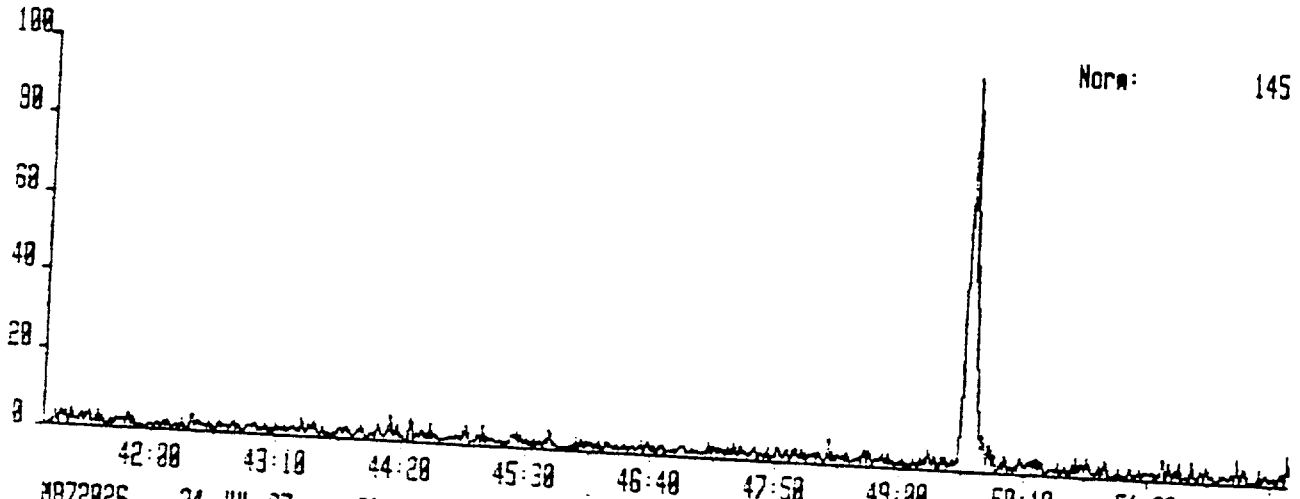
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:1-1



M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:1-1

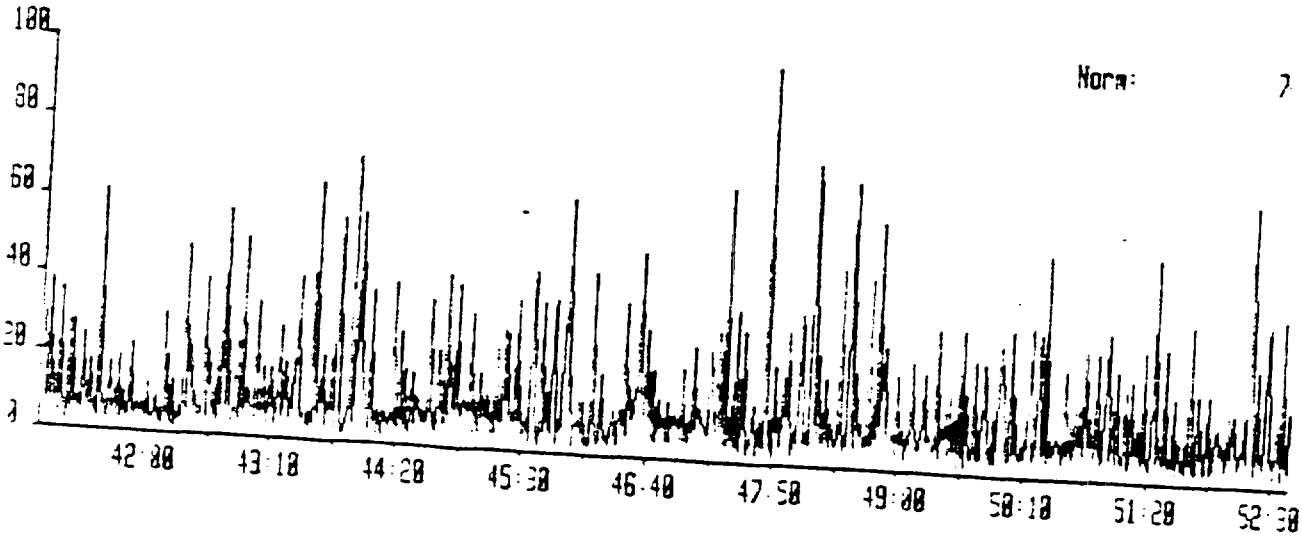


M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 441.7429
Text:1-1

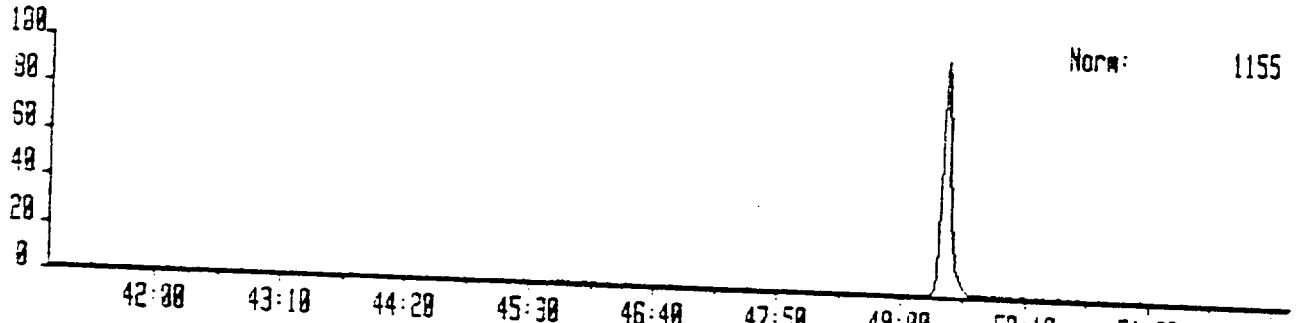


M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:1-1

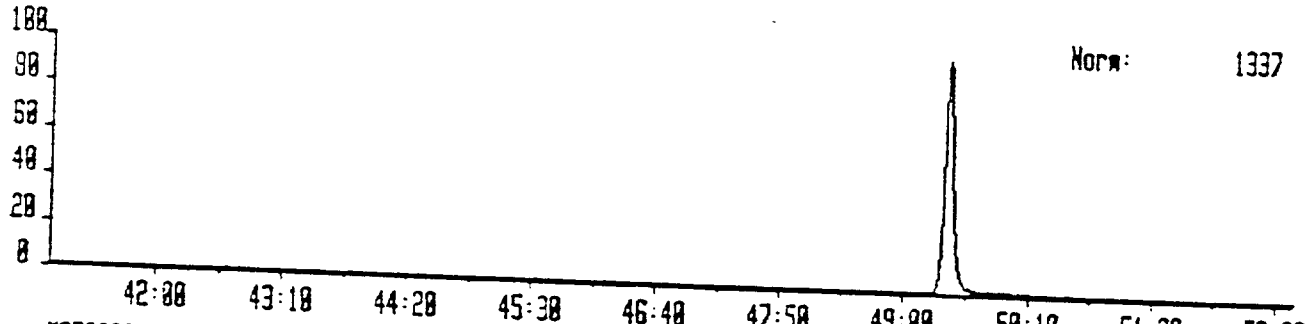
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 511.6810
Text:1-1



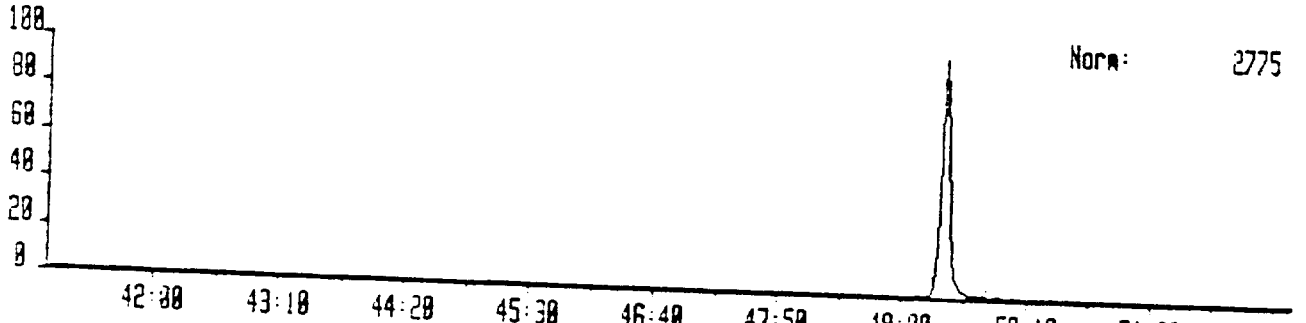
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:1-1



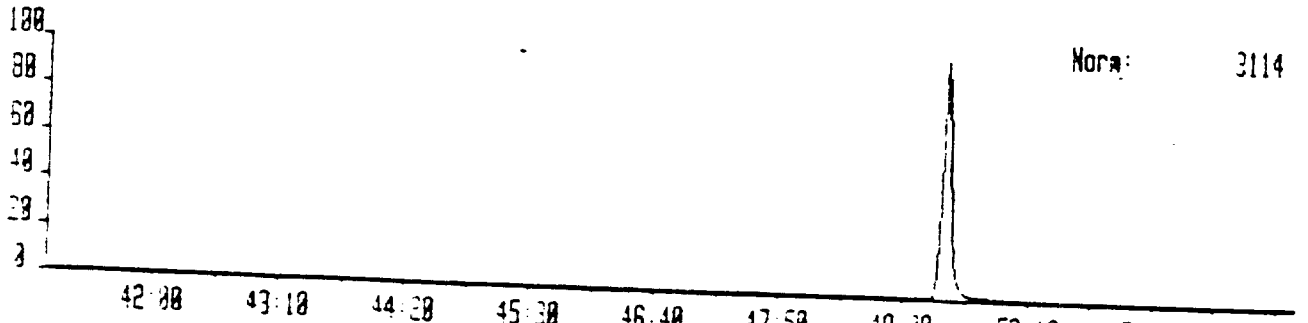
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:1-1



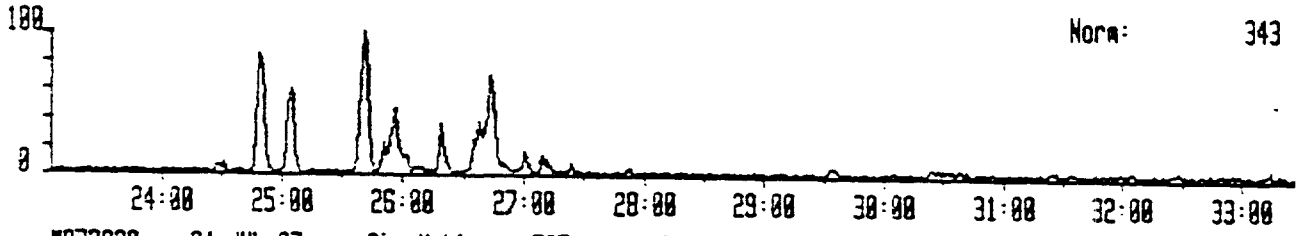
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:1-1



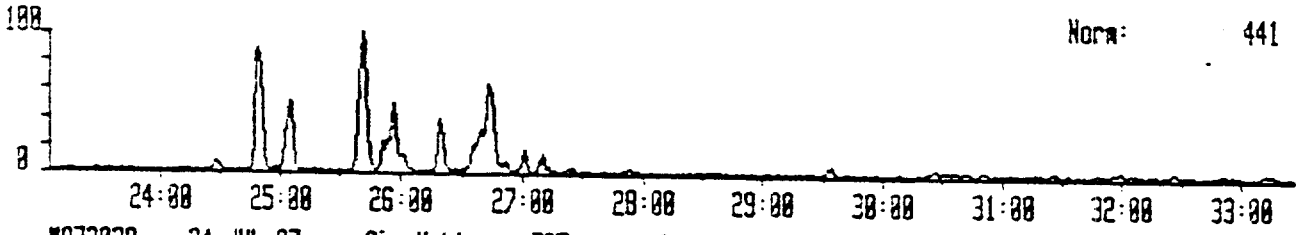
M872826 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 4 Mass 471.7750
Text:1-1



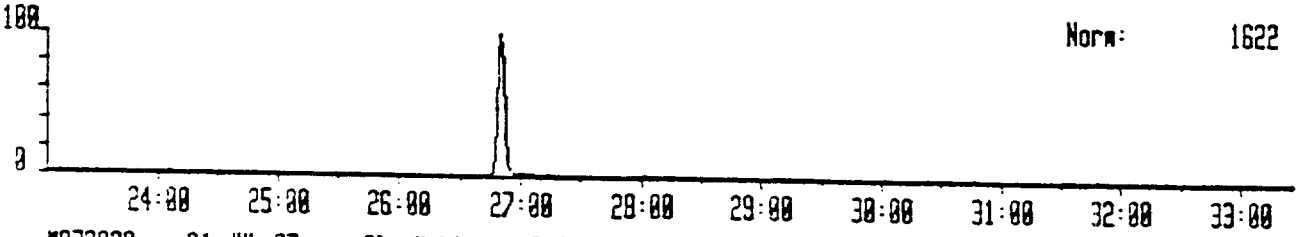
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:1-2



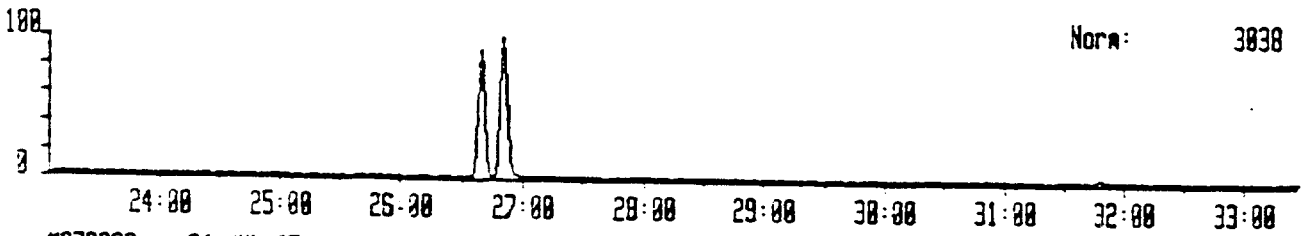
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:1-2



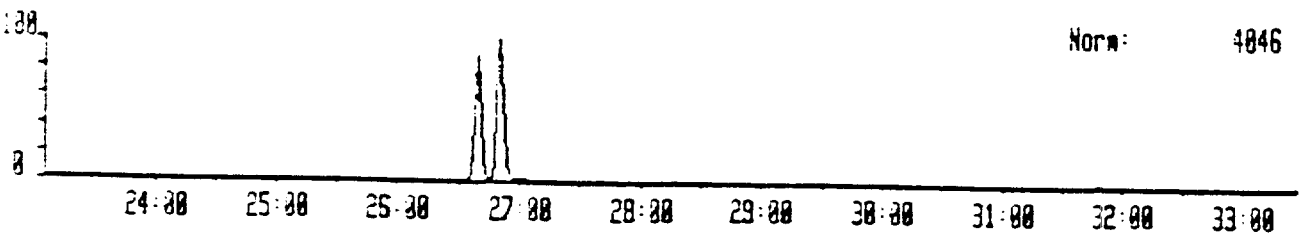
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:1-2



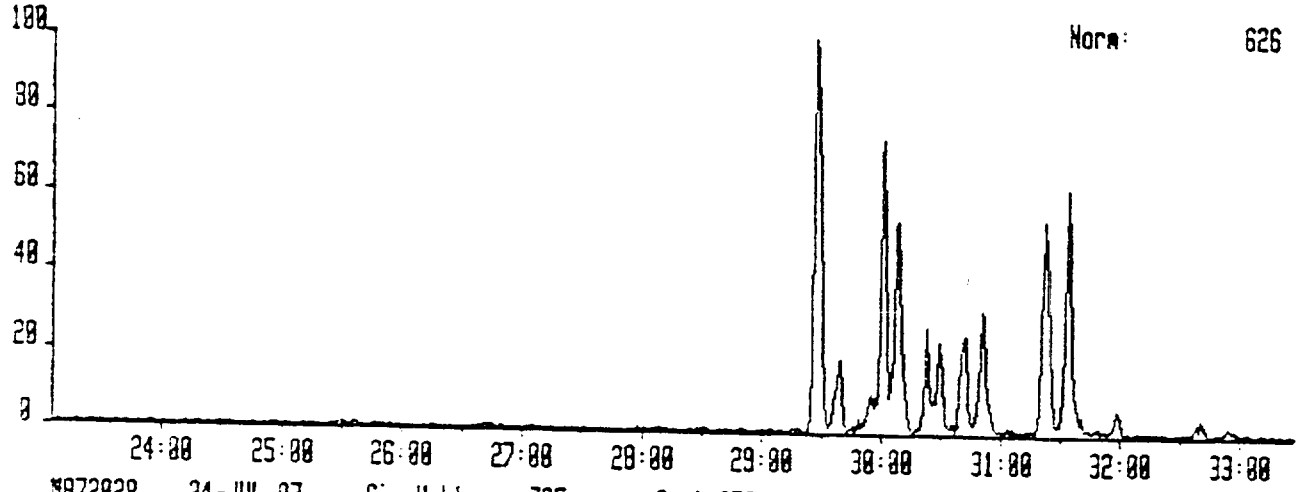
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 331.9368
Text:1-2



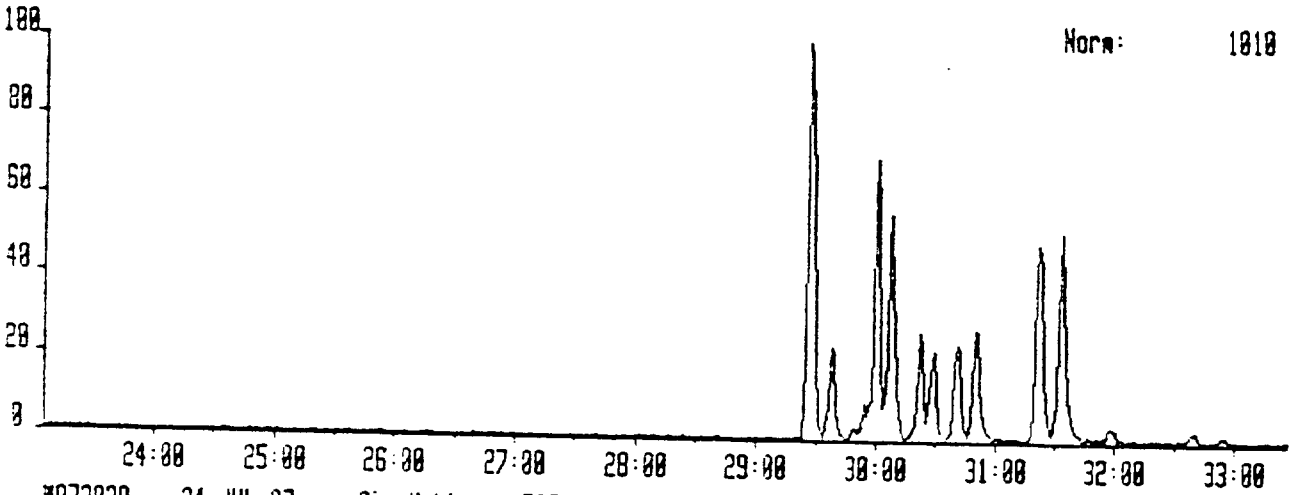
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 333.9338
Text:1-2



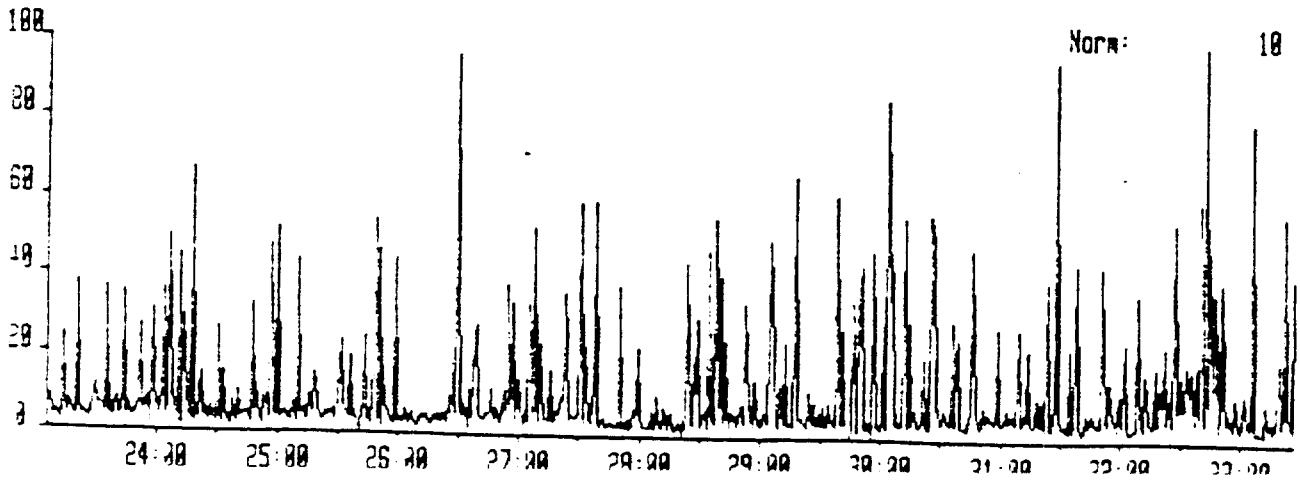
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:1-2



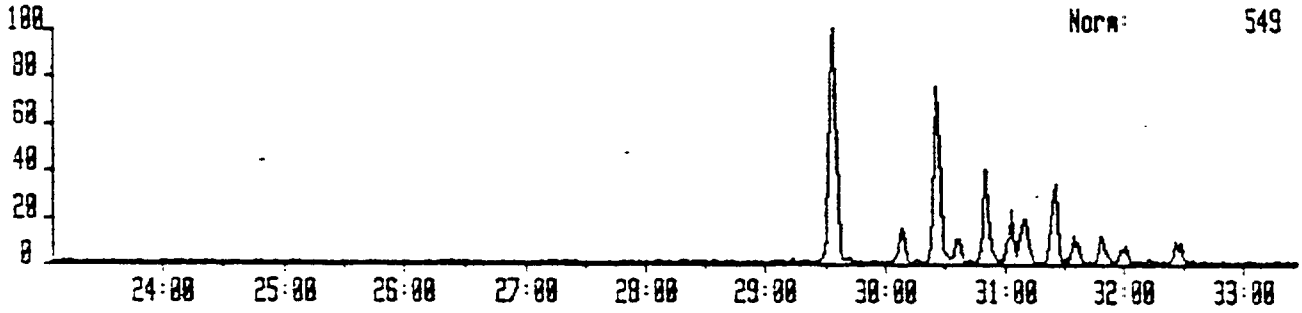
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:1-2



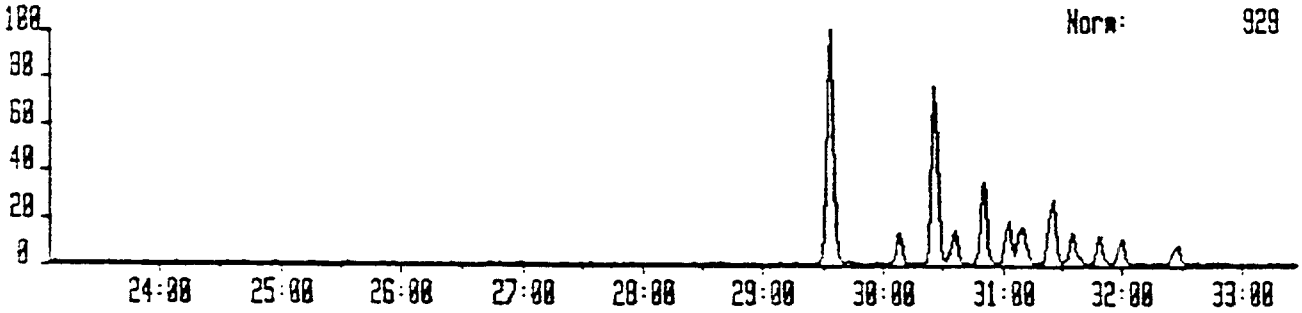
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 407.8883
Text:1-2



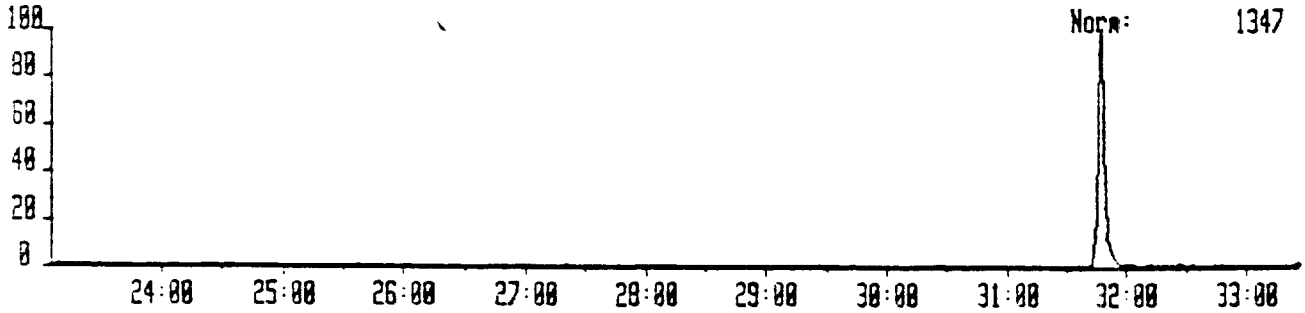
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:1-2



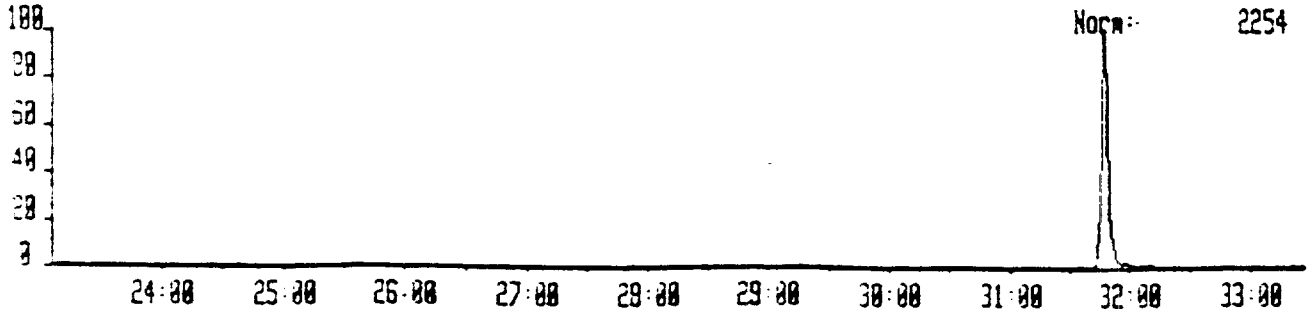
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 355.8546
Text:1-2



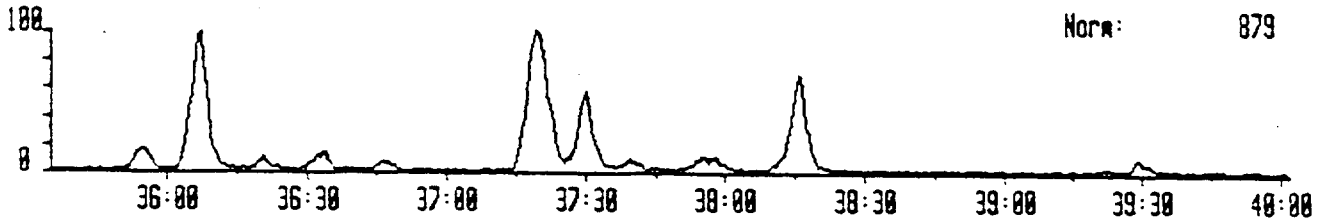
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 365.8977
Text:1-2



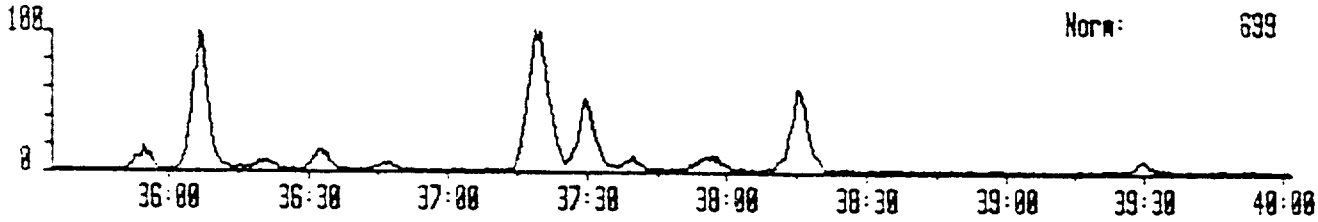
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 367.8948
Text:1-2



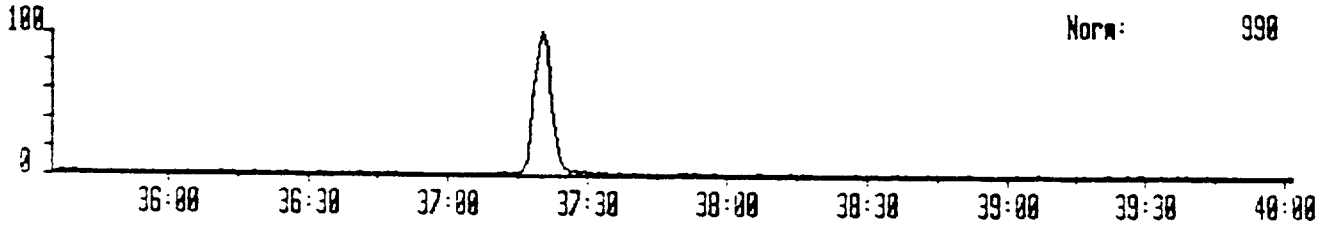
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 373.8287
Text:1-2



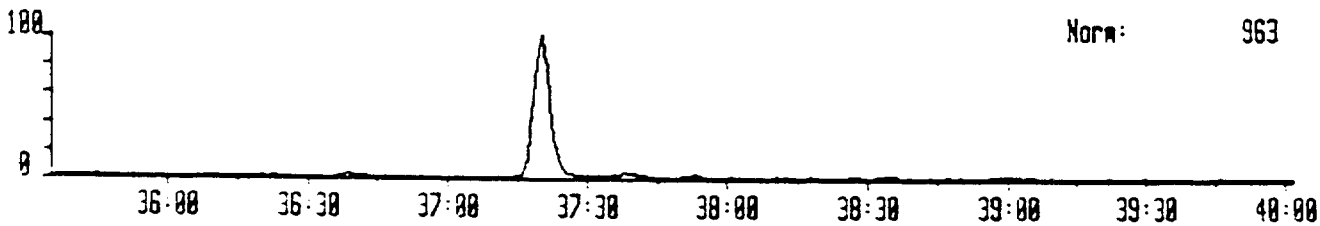
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 375.8178
Text:1-2



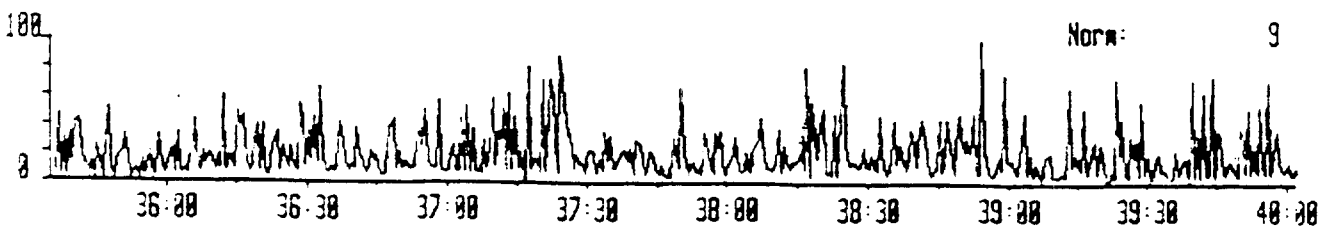
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 385.8689
Text:1-2



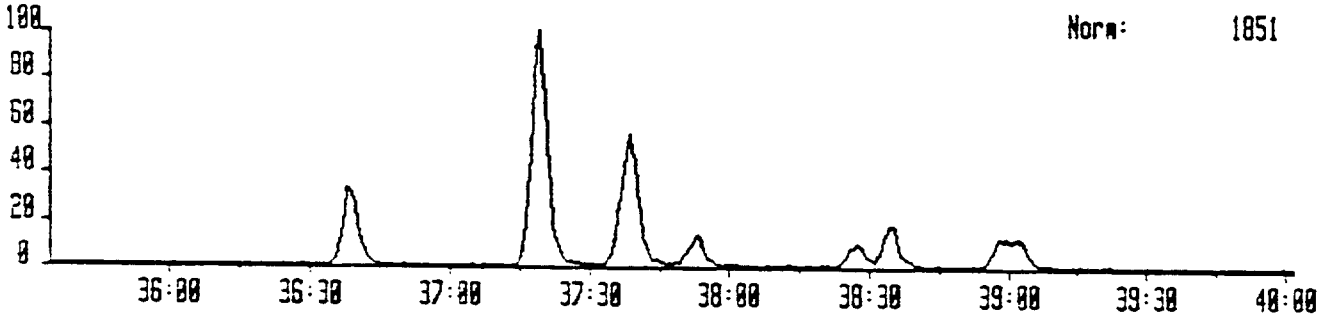
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 387.8588
Text:1-2



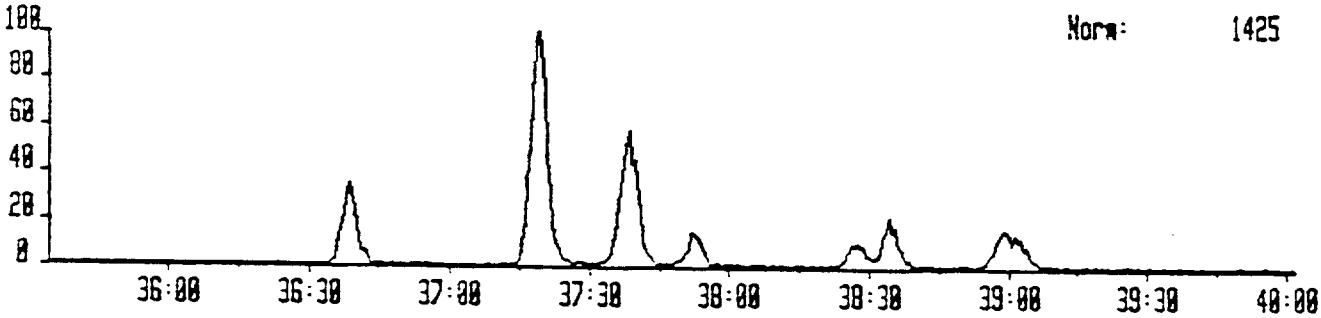
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:1-2



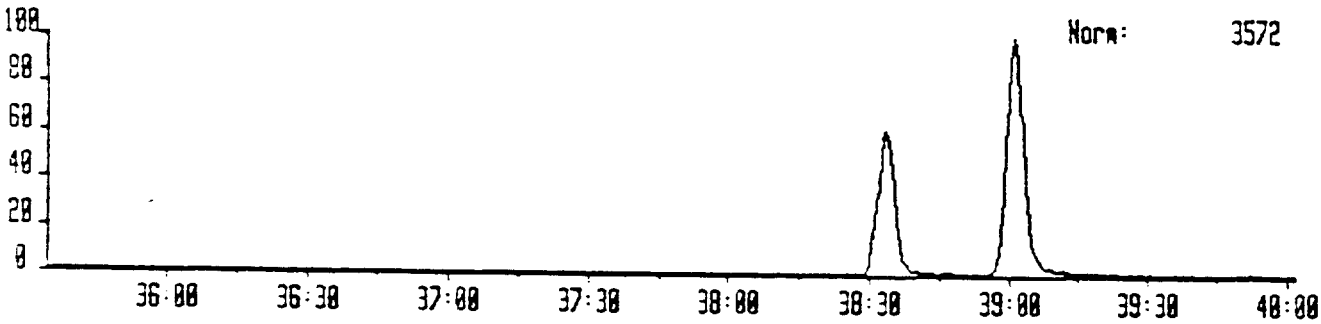
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 389.8156
Text:1-2



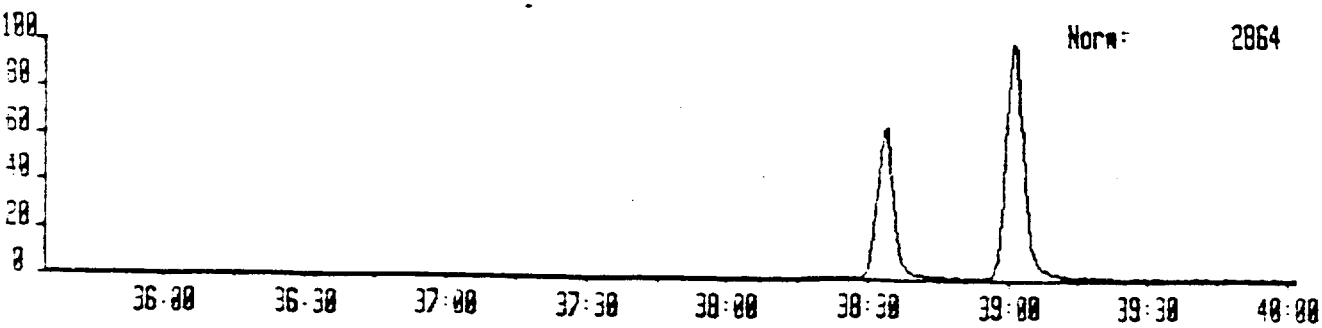
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 391.8127
Text:1-2



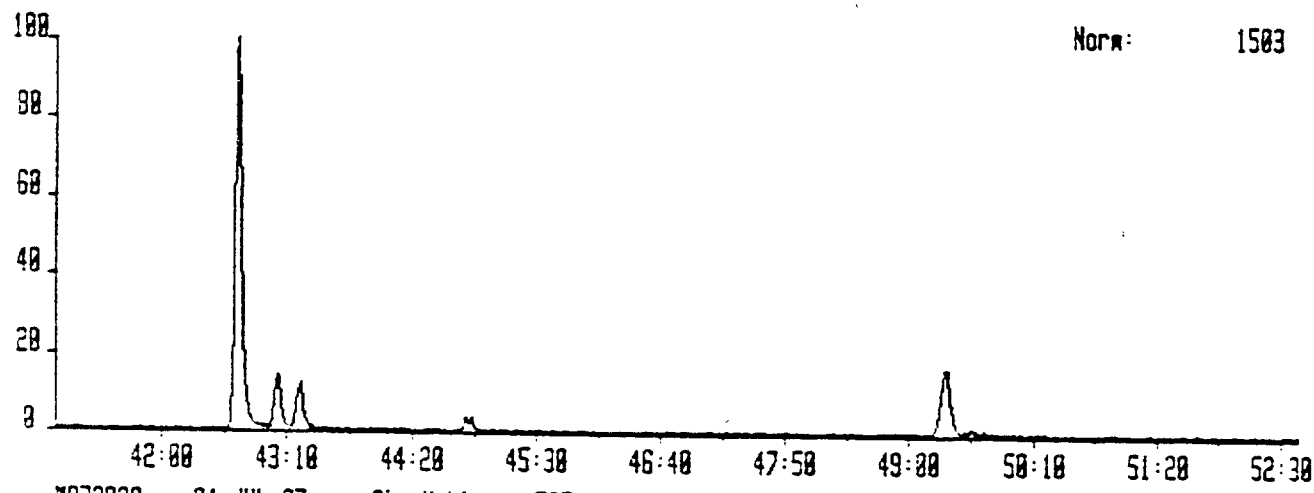
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text:1-2



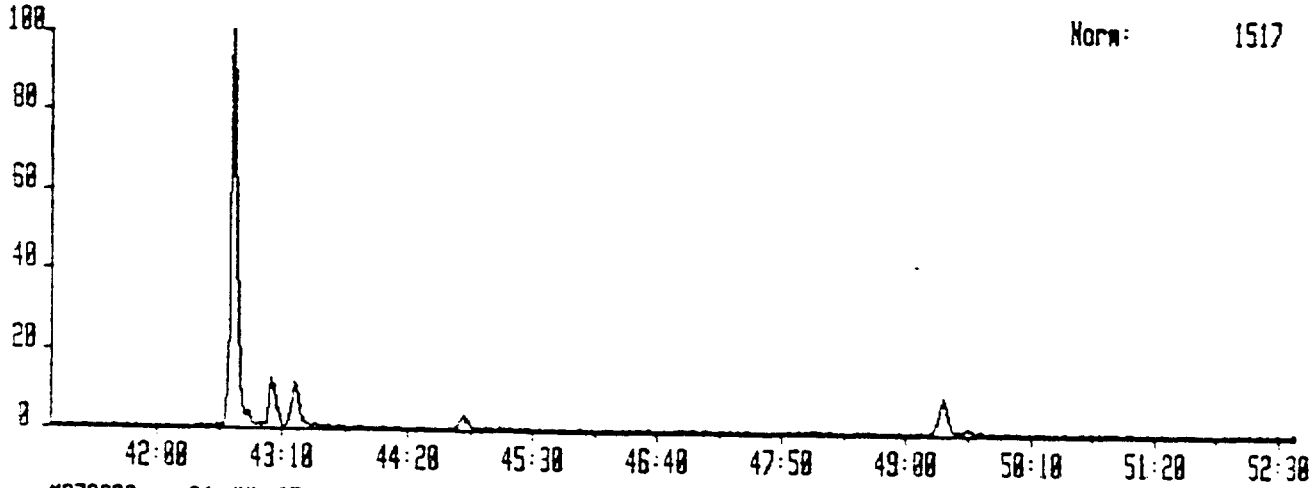
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 403.8529
Text:1-2



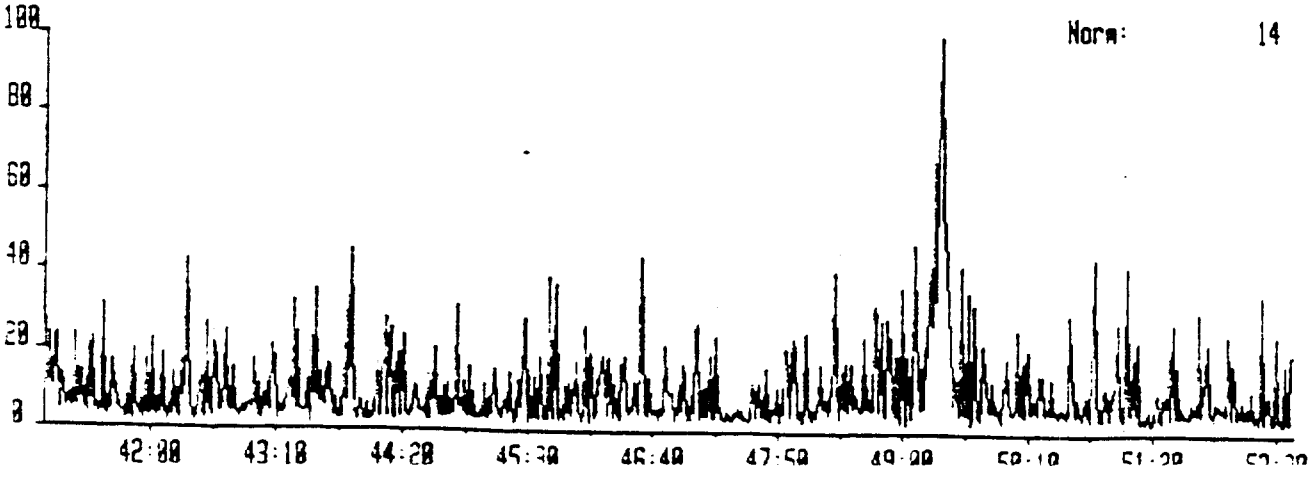
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 407.7817
Text:1-2



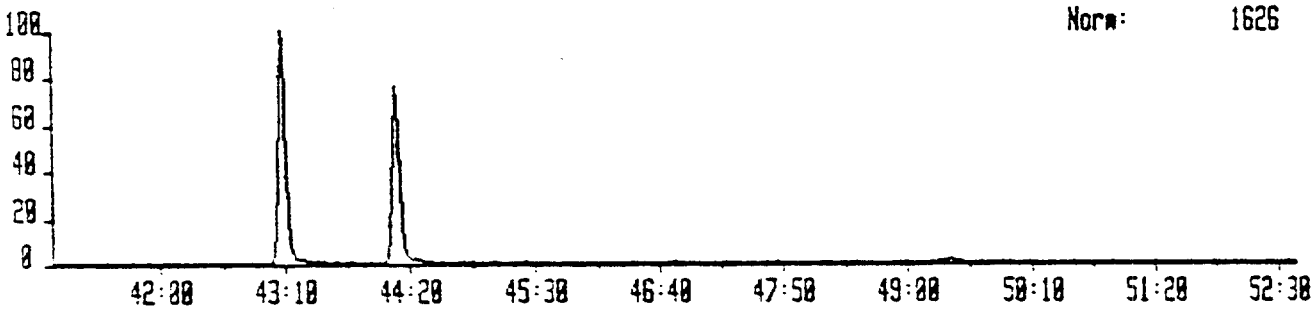
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 409.7788
Text:1-2



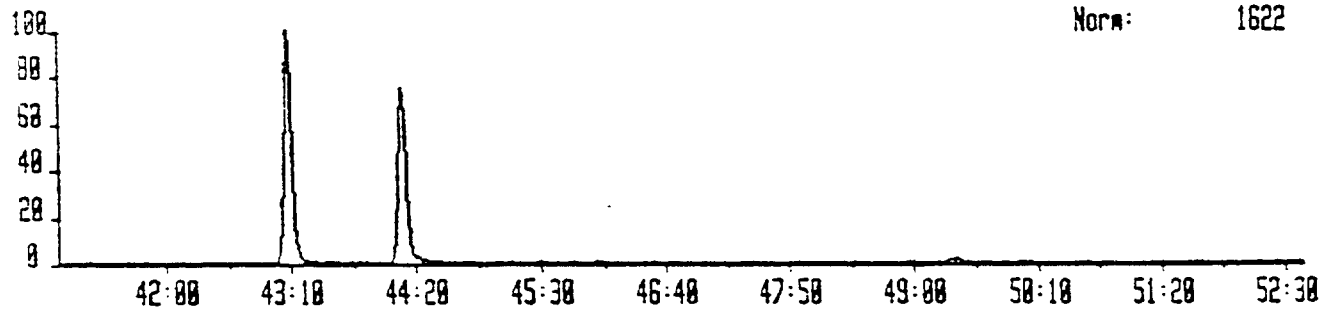
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 477.7288
Text:1-2



M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:1-2

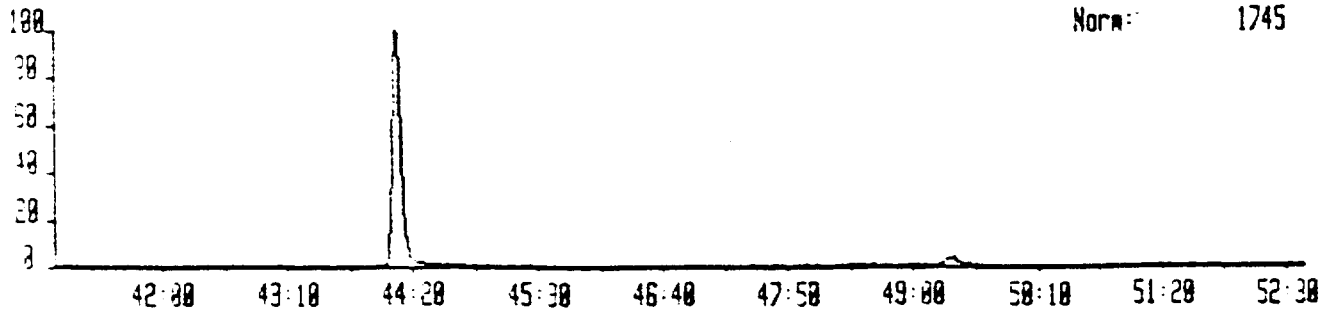


M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:1-2

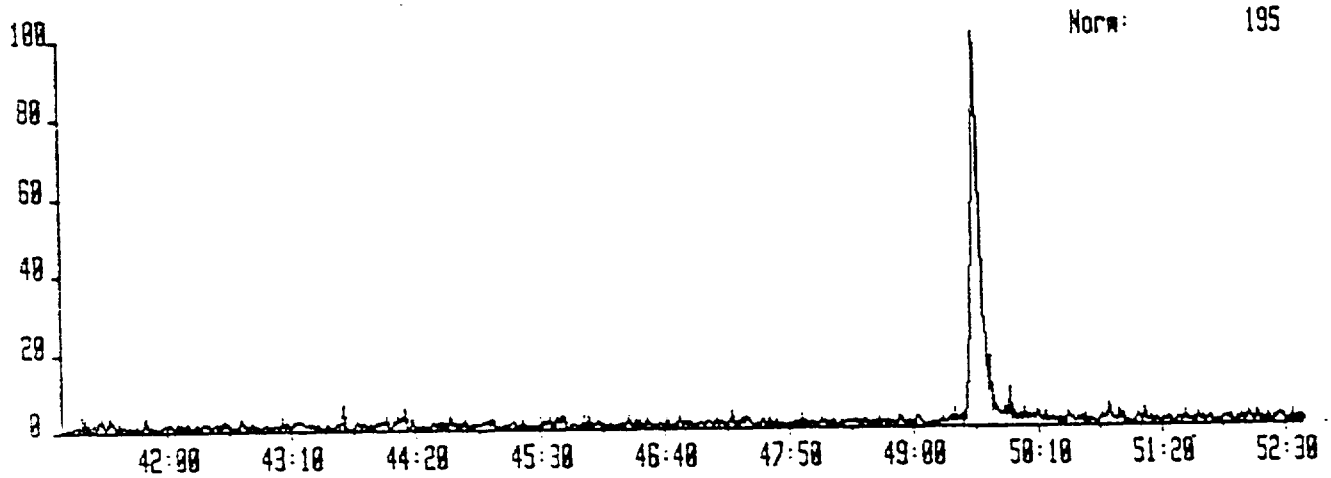


M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:1-2

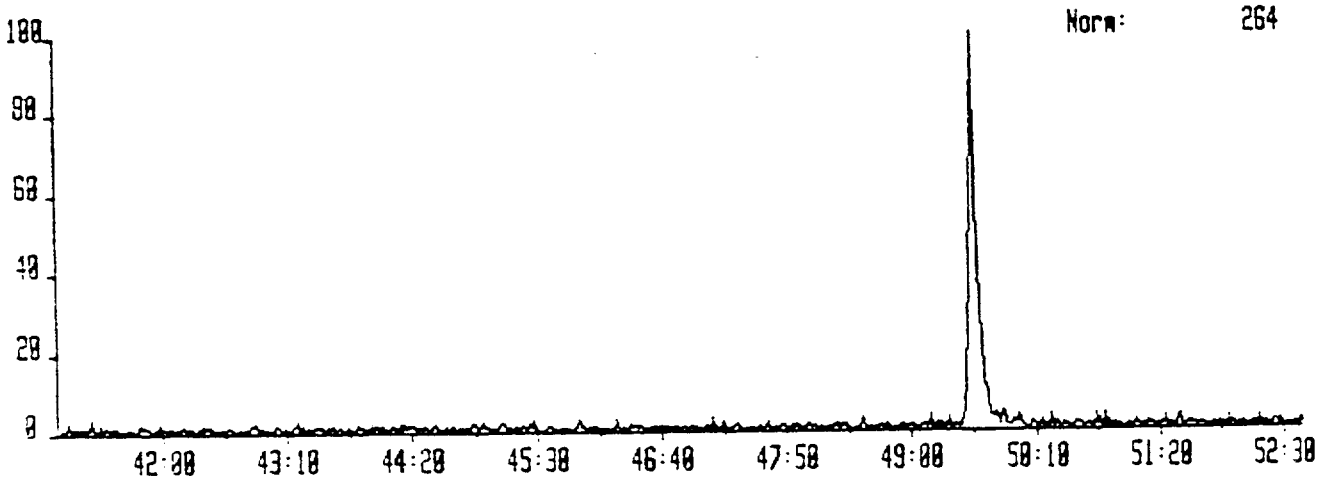
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:1-2



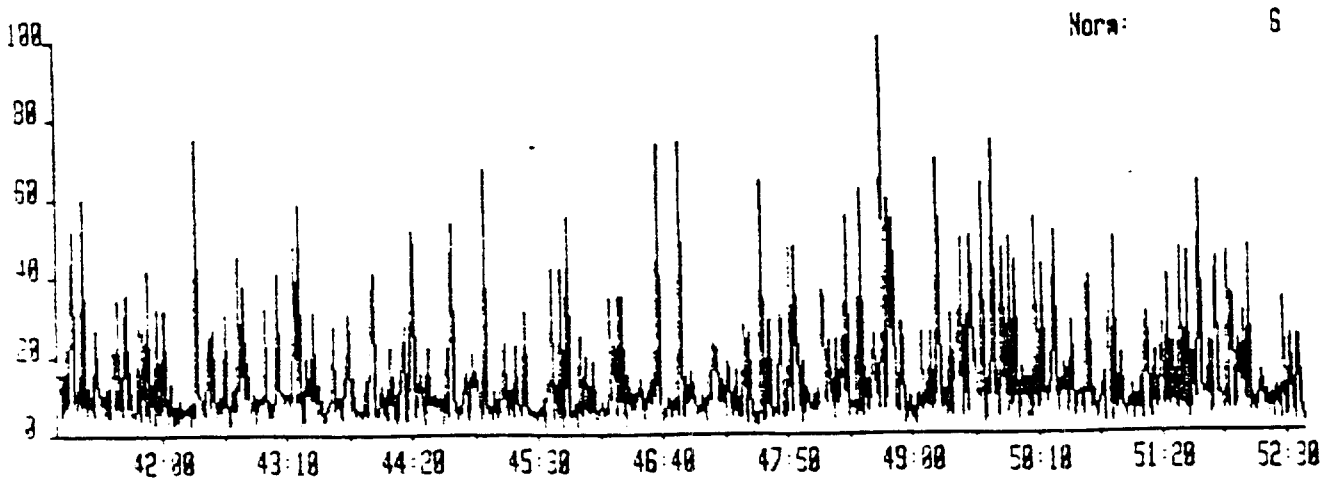
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 441.7428
Text:1-2



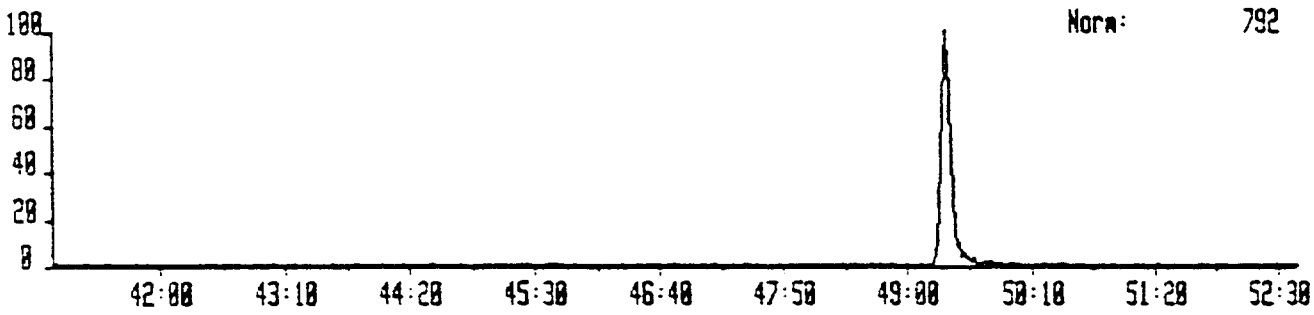
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:1-2



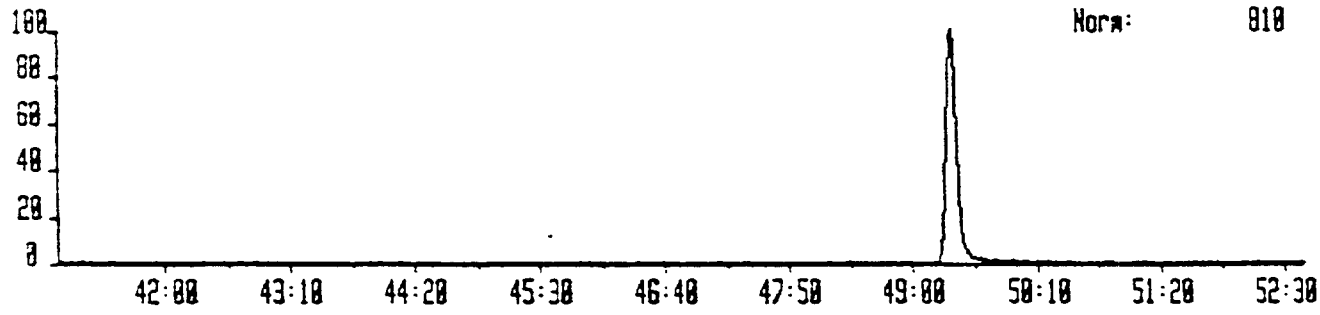
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 511.6810
Text:1-2



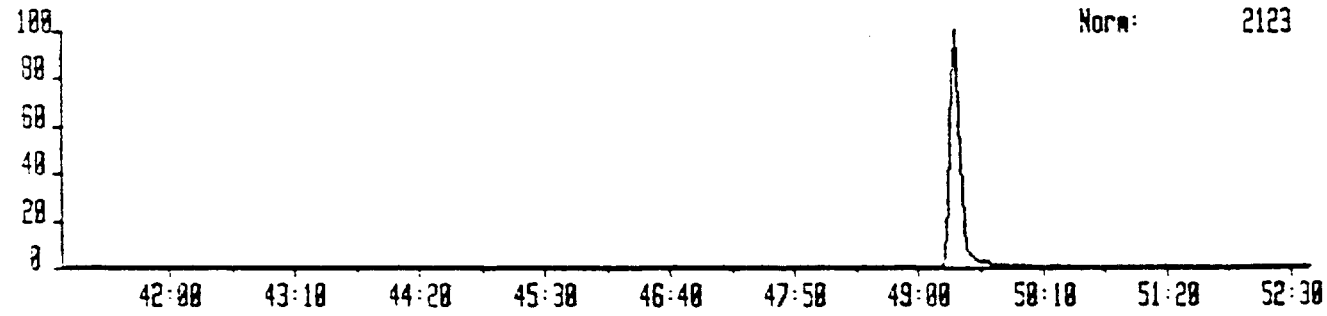
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:1-2



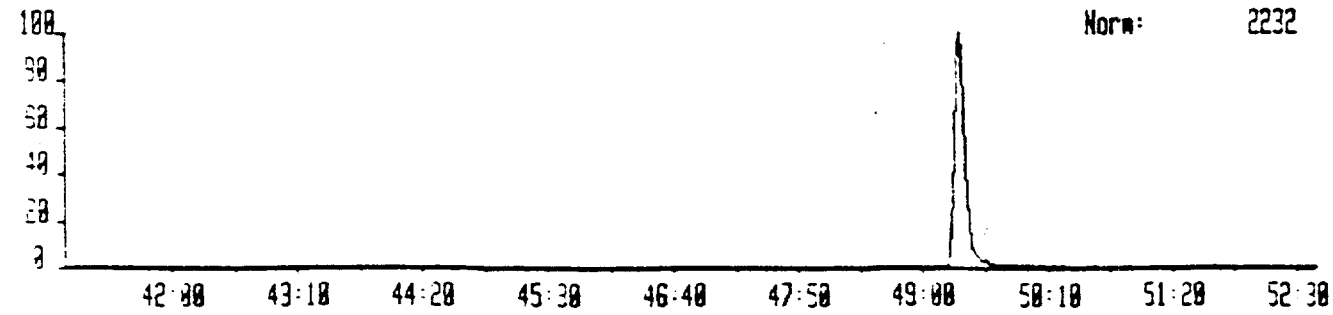
M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:1-2



M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:1-2



M872828 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 4 Mass 471.7750
Text:1-2



TRIANGLE LABORATORIES, INC.
PCDD/PCDF ANALYSIS

ANALYST: DJH FILE NAME: M872030 CONCAL: M872023
DATE: 07/30/87 SAMPLE ID: 1-3 MM5
CASE NO: ENTROPY
PROJ NO: 8701481

NAME	AMT (ng)	NUMBER	DL	EMPC	RATIO	RT
TOTAL TRICDD	1.072	3			0.99	
2378-TCDD	ND			0.027	1.38	
TOTAL TCDD	2.258	6			0.75	
12378-PCDD	0.107				0.70	31.48
TOTAL PCDD	2.213	7			0.61	
123478-HxCDD	0.180				1.35	38.27
123678-HxCDD	0.336				1.23	38.35
123789-HxCDD	ND			0.574	1.45	
TOTAL HxCDD	5.023	6			1.26	
1234678-HpCDD	2.612				1.04	44.13
TOTAL HpCDD	5.723	2			1.03	
OCDD	4.344				0.90	49.22
TOTAL TRICDF	5.089	6			0.99	
2378-TCDF	1.762				0.75	26.10
TOTAL TCDF	6.605	9			0.73	
12378-PCDF	0.163				0.53	30.29
23478-PCDF	0.460				0.59	31.22
TOTAL PCDF	3.818	10			0.62	
123478-HxCDF	0.845				1.28	37.20
123678-HxCDF	0.334				1.37	37.31
234678-HxCDF	0.528				1.33	38.17
123789-HxCDF	ND		0.013			
TOTAL HxCDF	3.145	6			1.32	
1234678-HpCDF	1.873				1.03	42.44
1234789-HpCDF	0.112				1.04	44.51
TOTAL HpCDF	2.438	3			0.99	
OCDF	0.593				0.90	49.36

SURROGATE RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
13C12-TCDF	1.97	98.50	0.74	26.08
37CL-TCDD	1.99	99.50		26.51
13C12-HxCDF	1.91	95.50	1.20	37.21

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
2378-13C12-TCDD	0.85	98.50	0.78	26.50
13C12-PCDD	11.54	115.40	0.58	31.47
13C12-HxCDD	9.94	99.40	1.19	38.34
13C12-HpCDD	8.38	83.80	1.04	44.12
13C12-OCDD	11.59	57.95	0.92	49.21

M872030B
MATCHED GC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
270	0.91	16.38	645.32	.T.	.F.	0.000
270	1.02	16.52	626.48	.T.	.F.	0.000
270	1.76	17.19	869.31	.F.	.F.	0.000
270	1.01	17.31	3676.87	.T.	.F.	0.000
270	0.94	17.51	1704.38	.T.	.F.	0.000
270	1.28	18.09	1298.94	.F.	.F.	0.000
270	1.07	18.16	2161.35	.T.	.F.	0.000
270	0.64	18.31	472.23	.F.	.F.	0.000
270	0.98	18.41	3827.55	.T.	.F.	0.000
270	2.14	19.38	185.43	.F.	.F.	0.000
286	1.06	18.07	1462.08	.T.	.F.	0.000
286	0.96	18.22	291.11	.T.	.F.	0.000
286	0.95	19.04	125.10	.T.	.F.	0.000
304	0.74	24.01	1103.82	.T.	.F.	0.395
304	0.80	24.20	5447.17	.T.	.F.	0.907
304	0.72	24.37	2826.23	.T.	.F.	0.917
304	0.72	24.57	3026.97	.T.	.F.	0.930
304	0.69	25.11	3652.10	.T.	.F.	0.939
304	0.73	25.24	4447.76	.T.	.F.	0.947
304	0.57	25.35	2676.02	.F.	.F.	0.953
304	0.63	25.45	1156.00	.F.	.F.	0.960
304	0.57	25.59	1569.24	.F.	.F.	0.968
304	0.75	26.10	8502.56	.T.	.T.	0.975
304	0.70	26.33	1412.00	.T.	.F.	0.989
304	0.69	26.47	1454.26	.T.	.F.	0.998
304	0.64	27.03	177.70	.F.	.F.	1.008
304	1.35	27.47	127.34	.F.	.F.	1.035
304	0.54	27.55	114.55	.F.	.F.	1.040
316	0.73	25.46	407.38	.T.	.F.	0.960
316	0.74	26.08	9562.04	.T.	.T.	0.974
316	0.58	26.27	4320.68	.F.	.F.	0.986
320	0.65	24.28	633.08	.T.	.F.	0.912
320	0.71	24.49	1762.81	.T.	.F.	0.925
320	0.58	25.04	1005.28	.F.	.F.	0.934
320	0.80	25.41	2128.37	.T.	.F.	0.957
320	0.71	25.56	1247.06	.T.	.F.	0.966
320	0.83	26.13	500.00	.T.	.F.	0.980
320	0.81	26.43	2137.00	.T.	.F.	0.996
320	1.38	26.50	102.40	.F.	.T.	1.000
320	0.98	27.01	228.24	.F.	.F.	1.007
320	1.18	27.10	206.96	.F.	.F.	1.012
328	0.00	26.51	7476.49	.T.	.T.	1.001
328	0.00	27.13	137.64	.T.	.F.	1.014
332	0.80	26.38	27047.58	.T.	.T.	0.993
332	0.78	26.50	35746.02	.T.	.T.	1.000
338	0.61	29.26	4597.72	.T.	.F.	0.926
338	0.73	29.38	1042.37	.F.	.F.	0.932
338	0.64	30.00	2810.38	.T.	.F.	0.944
338	0.53	30.08	2273.56	.T.	.F.	0.948
338	0.68	30.22	872.37	.T.	.F.	0.955

M872030B
MATCHED GC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
338	0.53	30.29	798.74	.T.	.T.	0.959
338	0.63	30.41	833.62	.T.	.F.	0.965
338	0.59	30.51	1397.82	.T.	.F.	0.971
338	0.59	31.22	2158.67	.T.	.T.	0.987
338	0.62	31.34	2284.59	.T.	.F.	0.993
338	0.68	31.59	202.32	.T.	.F.	1.006
338	0.85	32.39	119.42	.F.	.F.	1.027
354	0.58	29.33	3450.84	.T.	.F.	0.930
354	0.51	30.08	449.48	.F.	.F.	0.948
354	0.60	30.26	2286.64	.T.	.F.	0.958
354	0.58	30.36	489.17	.T.	.F.	0.963
354	0.52	30.51	1210.96	.T.	.F.	0.971
354	0.70	31.03	493.54	.T.	.F.	0.977
354	0.47	31.09	605.93	.F.	.F.	0.980
354	0.45	31.25	1133.49	.F.	.F.	0.988
354	0.47	31.36	446.31	.F.	.F.	0.994
354	0.70	31.48	416.29	.T.	.T.	1.001
354	0.85	32.00	308.54	.F.	.F.	1.007
354	0.57	32.27	268.44	.T.	.F.	1.021
366	0.58	31.47	18881.56	.T.	.T.	1.000
374	1.32	35.56	1271.29	.T.	.F.	0.932
374	1.27	36.08	5021.56	.T.	.F.	0.937
374	1.51	36.23	276.66	.F.	.F.	0.943
374	1.33	36.34	442.25	.T.	.F.	0.948
374	0.95	36.48	106.37	.F.	.F.	0.954
374	1.28	37.20	4735.82	.T.	.T.	0.968
374	1.37	37.31	2052.44	.T.	.T.	0.973
374	1.85	37.40	313.39	.F.	.F.	0.977
374	1.51	37.57	628.59	.F.	.F.	0.984
374	1.33	38.17	2500.34	.T.	.T.	0.993
374	0.94	39.31	234.37	.F.	.F.	1.025
386	1.20	37.21	9553.52	.T.	.T.	0.968
390	1.25	36.40	2338.92	.T.	.F.	0.951
390	1.28	37.20	7616.08	.T.	.F.	0.968
390	1.24	37.39	4561.83	.T.	.F.	0.976
390	1.18	37.54	869.34	.T.	.F.	0.983
390	1.35	38.27	648.87	.T.	.T.	0.997
390	1.23	38.35	1194.91	.T.	.T.	1.000
390	1.45	39.00	1798.56	.F.	.T.	1.011
402	1.19	38.34	19557.38	.T.	.T.	1.000
402	1.23	39.02	31730.60	.T.	.T.	1.012
408	1.03	42.44	7391.17	.T.	.T.	0.967
408	0.91	43.06	1048.43	.T.	.F.	0.973
408	1.43	43.18	767.44	.F.	.F.	0.980
408	1.04	44.51	368.03	.T.	.T.	1.015
424	1.02	43.09	3128.82	.T.	.F.	0.976
424	1.04	44.13	6824.65	.T.	.T.	1.000
436	1.01	44.12	19733.16	.T.	.T.	1.000
442	0.96	49.36	347.79	.T.	.T.	1.005
458	0.90	49.22	5595.82	.T.	.T.	1.000

M872030B
MATCHED GC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
470	0.92	49.21	29410.55	.T.	.T.	1.000
*** Total ***						
***	90.67	3067.6	377246.53			85.847

M872030I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
270	307.25	16.38
270	316.83	16.52
270	553.80	17.19
270	1846.77	17.31
270	827.98	17.51
270	729.48	18.09
270	1115.48	18.16
270	184.56	18.31
270	1890.14	18.41
270	126.33	19.38
272	338.07	16.38
272	309.65	16.52
272	243.49	17.13
272	315.51	17.19
272	1830.10	17.31
272	876.40	17.51
272	569.46	18.09
272	1045.87	18.16
272	287.67	18.31
272	1937.41	18.41
272	59.10	19.38
286	751.26	18.07
286	142.83	18.22
286	60.84	19.04
288	128.67	17.44
288	710.82	18.07
288	148.28	18.22
288	64.26	19.05
304	469.71	24.01
304	2424.48	24.20
304	1186.70	24.37
304	1269.89	24.57
304	1486.55	25.11
304	1877.64	25.24
304	973.30	25.35
304	562.55	25.47 - 447 @ 25:45
304	568.44	25.59
304	3637.40	26.10
304	684.05	26.34 - 574 @ 26:33
304	595.62	26.47
304	69.46	27.03
304	73.10	27.47
304	40.12	27.55
306	634.11	24.01
306	3022.69	24.20
306	1630.33	24.37
306	1757.08	24.57
306	2165.55	25.12
306	2370.12	25.24
306	1702.72	25.35

M872030I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME	
306	886.72	25.46	-709 @ 25:45
306	1001.24	25.59	
306	4865.16	26.10	
306	1090.74	26.34	-833 @ 26:33
306	858.64	26.47	
306	108.24	27.03	
306	54.24	27.47	
306	74.43	27.56	
306	36.43	29.28	
306	381.33	31.48	
306	78.66	32.55	
316	172.55	25.46	
316	4067.66	26.08	
316	1588.18	26.27	
318	1263.86	24.27	
318	234.83	25.46	
318	5494.38	26.08	
318	2732.50	26.27	
320	249.02	24.28	
320	731.66	24.49	
320	369.56	25.04	
320	946.27	25.41	
320	516.54	25.56	
320	57.42	26.08	
320	255.17	26.20	-227 @ 26:18
320	95.74	26.27	
320	978.14	26.43	— 2650 - ~~Do not cal~~ 320: 59.4 @ 26:50
320	113.21	27.01	
320	112.21	27.10	
322	384.06	24.23	
322	1031.15	24.49	
322	635.72	25.04	
322	1182.10	25.41	
322	730.52	25.56	
322	11.71	26.11	
322	280.83	26.19	- 273 @ 26:18
322	1208.86	26.43	
322	115.03	27.02	— 322 = 543 @ 26:50
322	94.75	27.11	
322	51.43	28.55	
328	7476.49	26.51	
328	137.64	27.13	
332	130.75	25.08	
332	12029.41	26.38	
332	15672.33	26.50	
332	110.85	27.19	
334	15018.17	26.38	
334	20074.59	26.50	
334	150.83	27.11	
334	159.96	31.48	

M872030I
RAW MASS AND AREA DATA

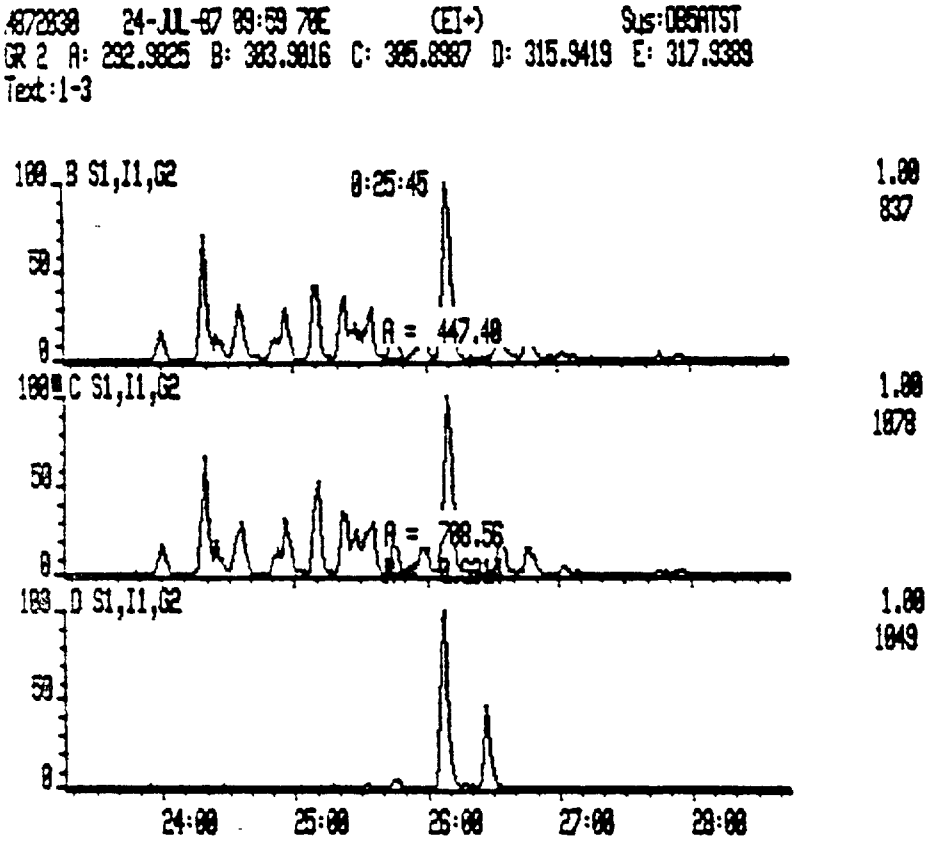
	MASS	AREA	RET.TIME	
	338	1734.88	29.26	
	338	439.17	29.38	
	338	1093.64	30.00	
CK	338	879.90	30.08	~~326 @ 30.07~~ -IGNORE
	338	354.59	30.22	
	338	277.01	30.29	
	338	321.38	30.41	
	338	519.48	30.51	
	338	803.51	31.22	
	338	912.00	31.34	
	338	20.53	31.47	
	338	82.02	31.59	
	338	54.98	32.39	
	340	2862.85	29.26	
	340	603.20	29.38	
	340	1716.74	30.00	
	340	1398.66	30.07	~~1331 @ 30.27~~ -IGNORE
	340	517.78	30.23	
	340	521.73	30.29	
	340	512.24	30.41	
	340	878.34	30.51	
	340	34.92	31.01	
	340	11.33	31.08	
	340	1355.16	31.22	
	340	1472.59	31.34	
	340	120.30	31.57	
	340	64.44	32.39	
	354	1268.73	29.33	
	354	150.88	30.08	
	354	854.46	30.26	
	354	180.25	30.36	
	354	413.77	30.51	
	354	203.58	31.03	
	354	194.99	31.09	
	354	350.75	31.25	
	354	142.85	31.36	
	354	171.65	31.48	
	354	141.86	32.00	
	354	19.57	32.08	
	354	97.81	32.27	
	356	2182.11	29.33	
	356	298.60	30.07	
	356	1432.18	30.26	
	356	308.92	30.36	
	356	707.19	30.51	
	356	289.36	31.02	
	356	410.04	31.09	
	356	782.74	31.25	
	356	388.46	31.36	
	356	244.64	31.48	

M872030I
RAW MASS AND AREA DATA

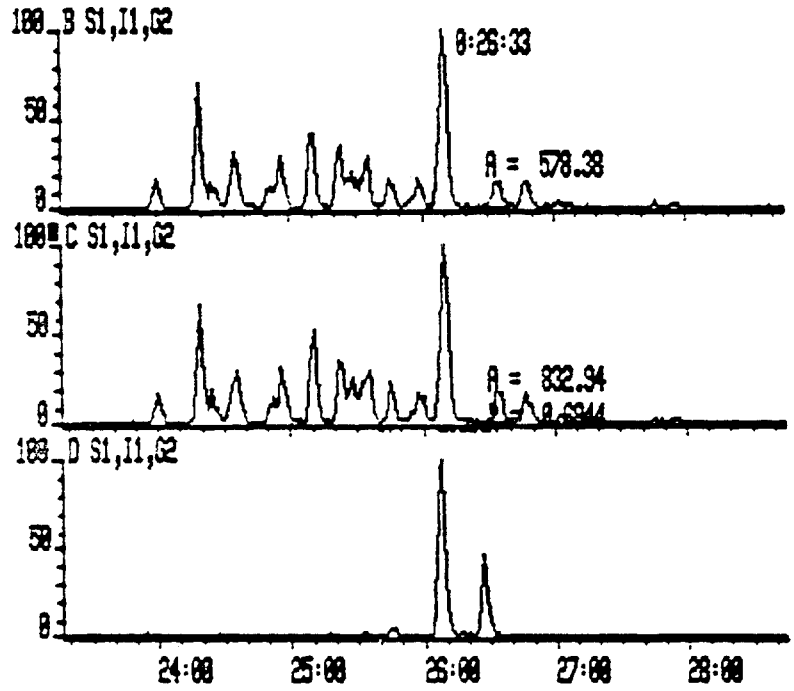
MASS	AREA	RET.TIME
356	166.68	32.00
356	170.63	32.27
366	6914.30	31.47
368	11967.26	31.47
374	722.37	35.56
374	2807.67	36.08
374	166.64	36.23
374	252.52	36.34
374	51.88	36.48
374	2655.57	37.20
374	1185.67	37.31
374	203.40	37.40
374	378.59	37.57
374	1427.22	38.17
374	24.11	38.29
374	113.84	39.31
376	548.92	35.56
376	2213.89	36.09
376	110.02	36.22
376	189.73	36.34
376	54.49	36.48
376	2080.25	37.20
376	866.77	37.31
376	109.99	37.41
376	250.00	37.55
376	1073.12	38.17
376	120.53	39.31
386	5208.68	37.21
388	4344.84	37.21
390	1299.85	36.40
390	4269.73	37.20
390	2525.13	37.39
390	471.40	37.54
390	372.92	38.27
390	658.87	38.35
390	1064.36	39.00
392	1039.07	36.40
392	3346.35	37.20
392	2036.70	37.39
392	397.94	37.54
392	275.95	38.27
392	536.04	38.35
392	734.20	38.59
402	10620.41	38.34
402	17474.01	39.02
404	8936.07	38.34
404	14256.59	39.02
408	3742.17	42.44
408	409.57	43.06
408	451.66	43.18

M872030I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
408	187.51	44.51
410	3649.00	42.44
410	548.86	43.06
410	315.78	43.19
410	180.52	44.52
410	873.93	49.22
424	4112.75	43.09
424	3484.80	44.13
426	4016.07	43.09
426	3339.35	44.13
426	49.61	49.23
436	10080.74	44.12
438	9652.42	44.12
438	467.41	49.22
442	402.16	49.36
444	445.63	49.36
458	2651.30	49.22
460	2944.52	49.22
470	14074.39	49.21
470	10.00	12.00
472	15336.16	49.21
*** Total ***		
****	382249.17	6721.93


4872838 24-JUL-87 09:59 70E (EI+) Sys:DB5HTST
GR 2 A: 292.9825 B: 303.9816 C: 305.8987 D: 315.9419 E: 317.3389
Text:1-3
189_B S1,I1,G2
0:25:45
A = 447.48
1.00
837
189_C S1,I1,G2
A = 788.56
1.00
1878
189_D S1,I1,G2
1.00
1049
24:00
25:00
26:00
27:00
28:00

#872838 24-JUL-87 09:59 70E (EI+) Sus:DBSHTST
GR 2 A: 292.9825 B: 303.9816 C: 305.8987 D: 315.9419 E: 317.9389
Text:1-3

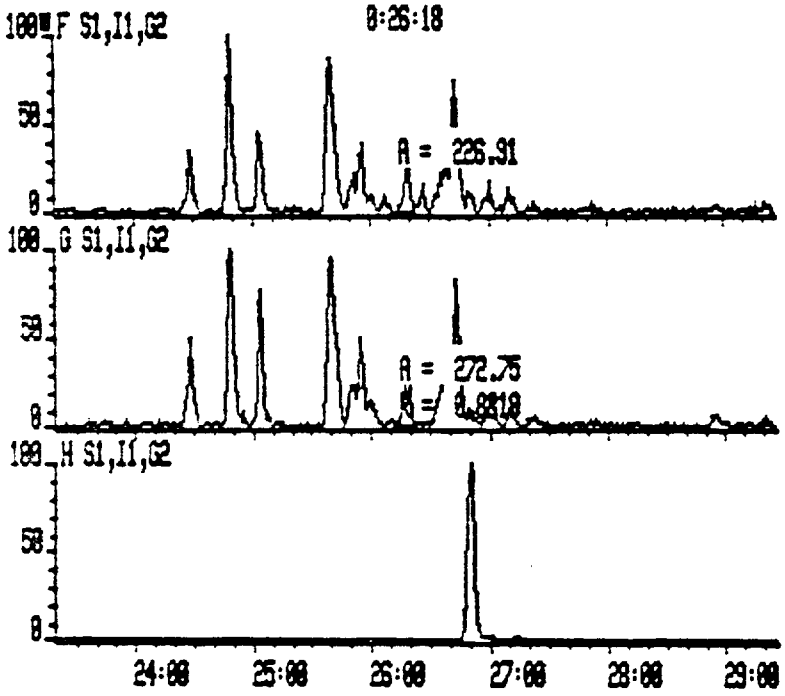


1.00
837

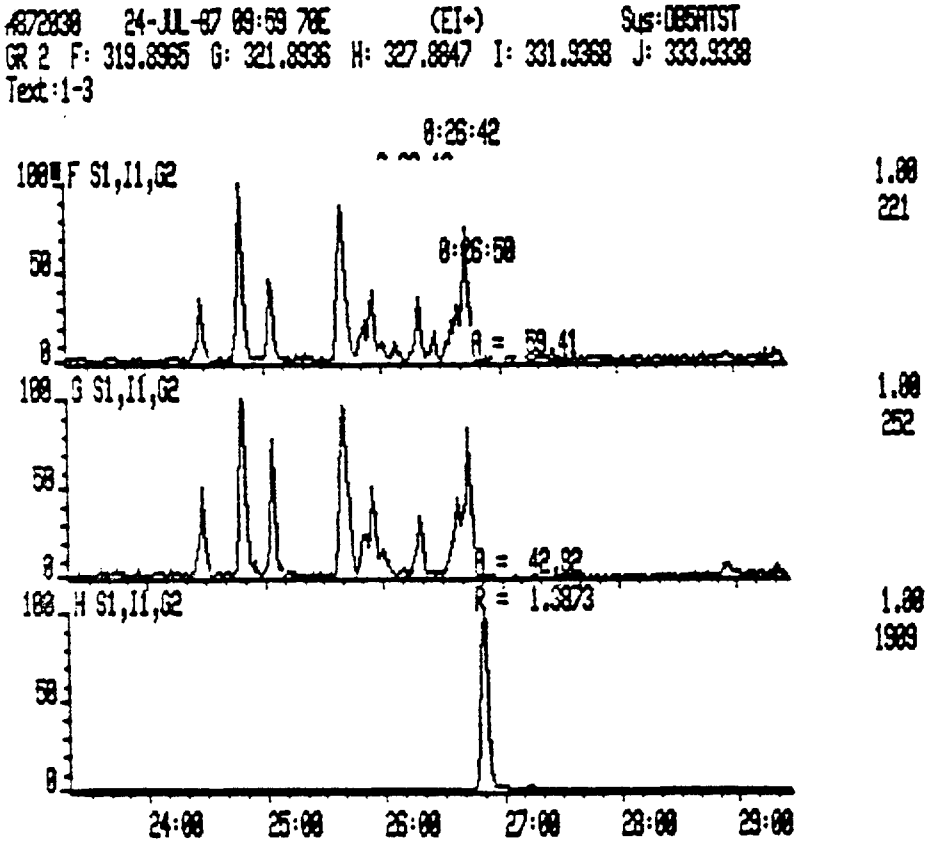
1.00
1078

1.00
1049

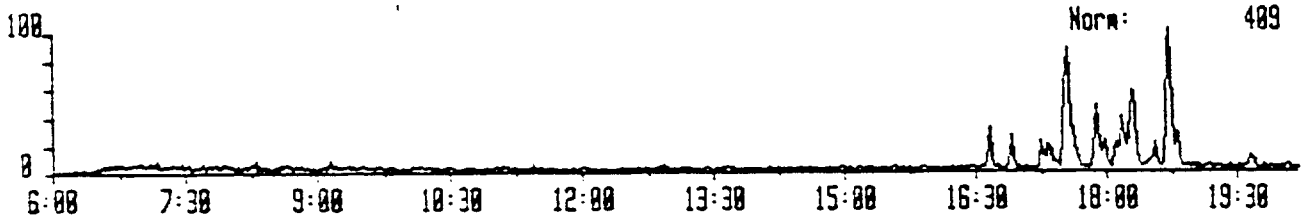
A872838 24-JUL-87 09:59 70E (EI+) Sys:DBSRTST
GR 2 F: 319.8965 G: 321.8936 H: 327.8847 I: 331.9368 J: 333.9338
Text:1-3



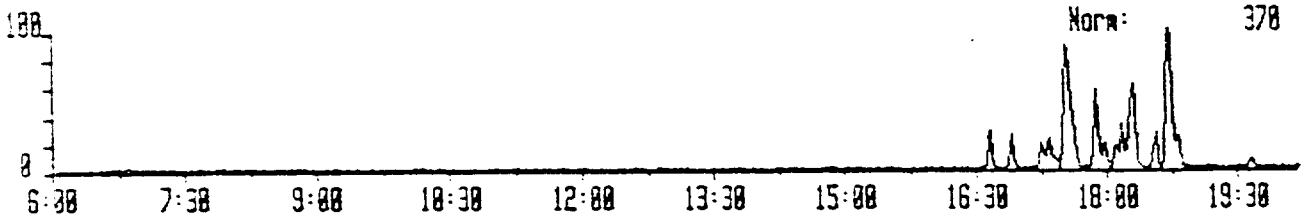
1.00
221
1.00
252
1.00
1909


4872838 24-JUL-87 09:59 70E (EI+) Sus:DBSRTST
GR 2 F: 319.8965 G: 321.8936 H: 327.8847 I: 331.9368 J: 333.9338
Text:1-3
8:26:42
F S1,I1,G2
8:25:58
R = 39.41
1.00
221
G S1,I1,G2
R = 42.82
1.00
252
H S1,I1,G2
R = 1.3873
1.00
1909
24:00
25:00
26:00
27:00
28:00
29:00

M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 1 Mass 269.9406
Text:1-3

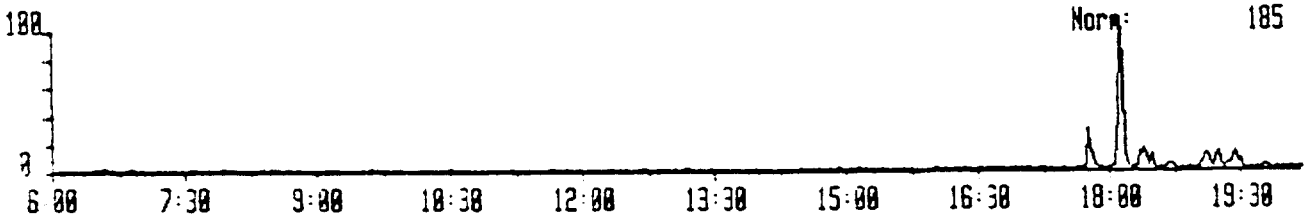


M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 1 Mass 271.9377
Text:1-3

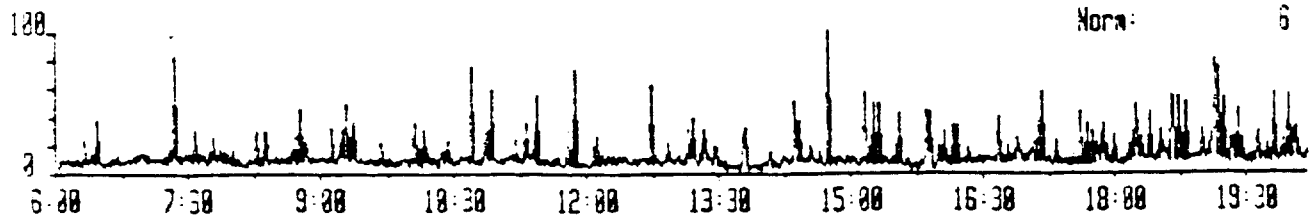


M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 1 Mass 285.9355
Text:1-3

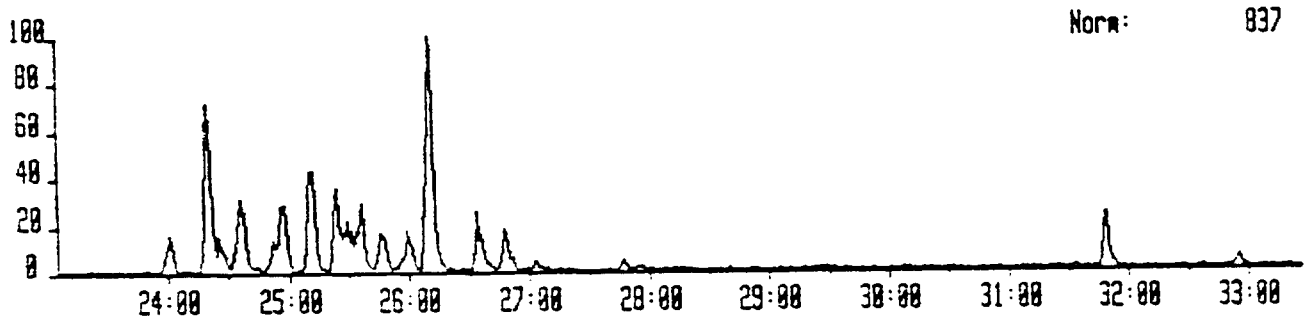
M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:1-3



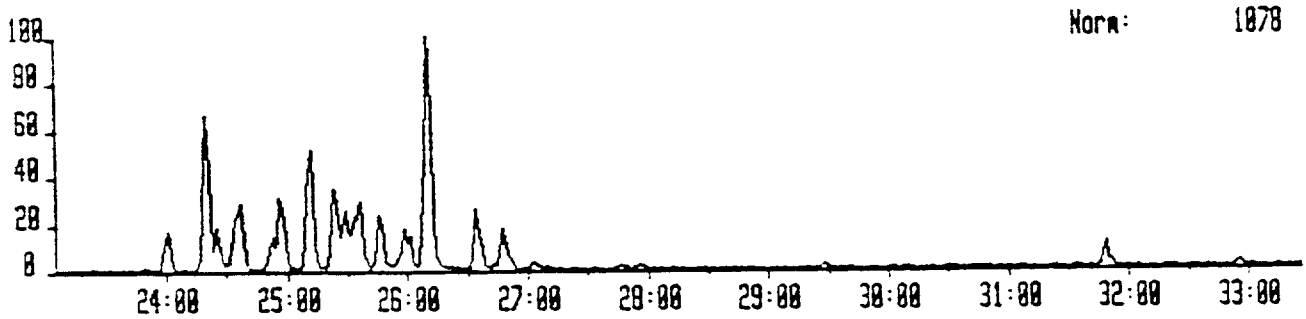
M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 1 Mass 339.8798
Text:1-3



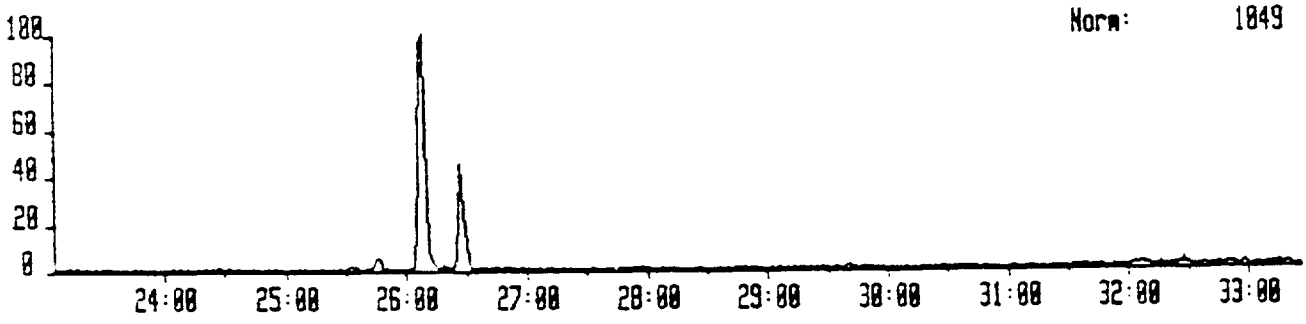
M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 2 Mass 303.9016
Text:1-3



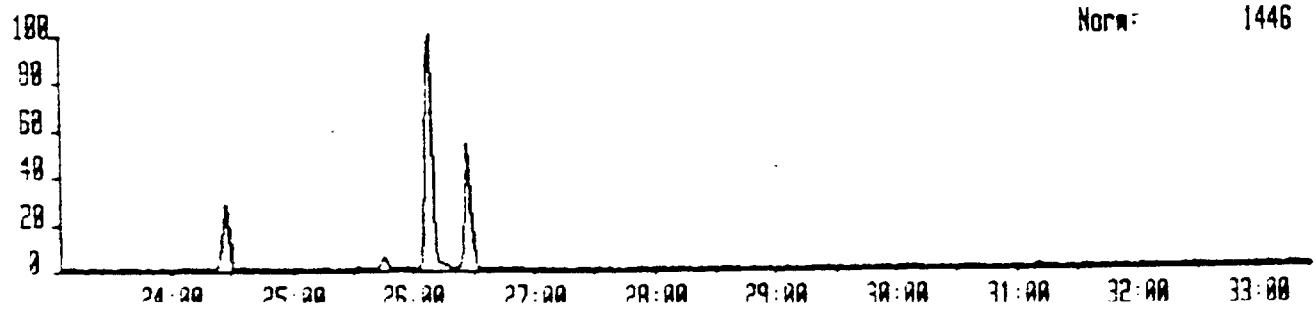
M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 2 Mass 305.8987
Text:1-3



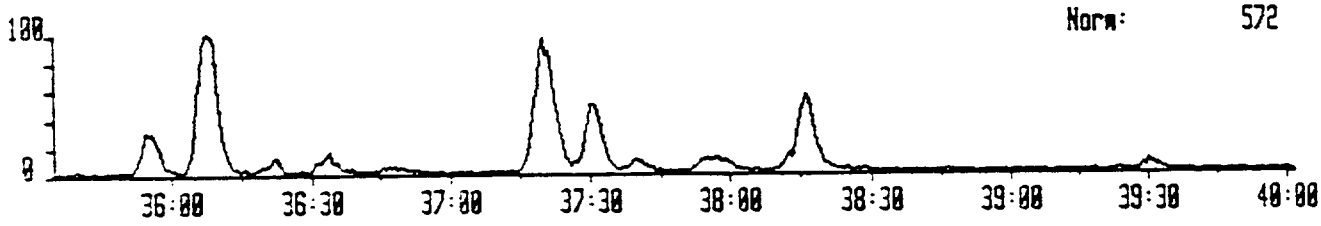
M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 2 Mass 315.9419
Text:1-3



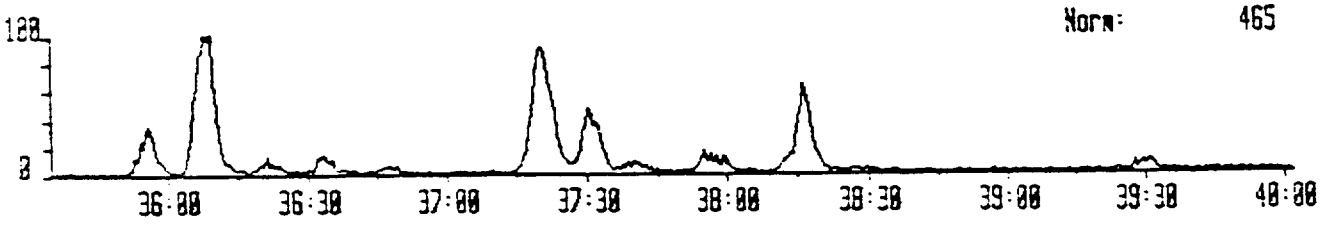
M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 2 Mass 317.9389
Text:1-3



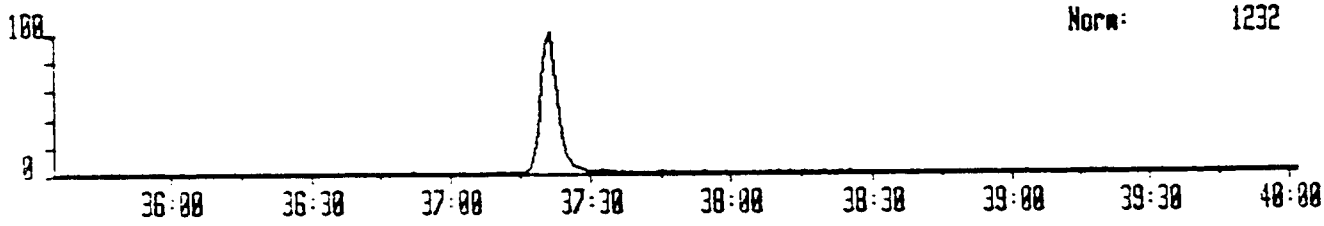
M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 373.8207
Text:1-3



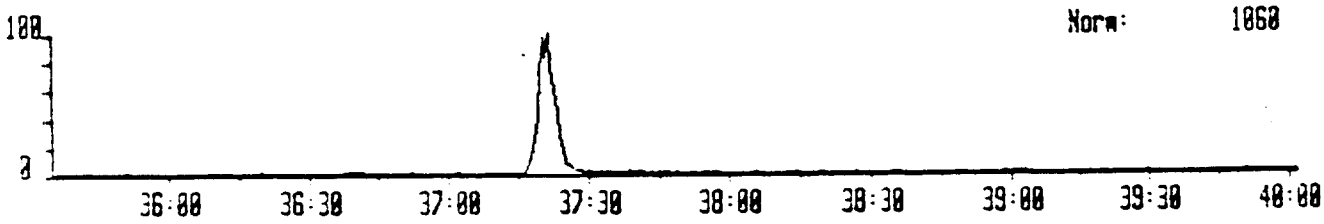
M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 375.8178
Text:1-3



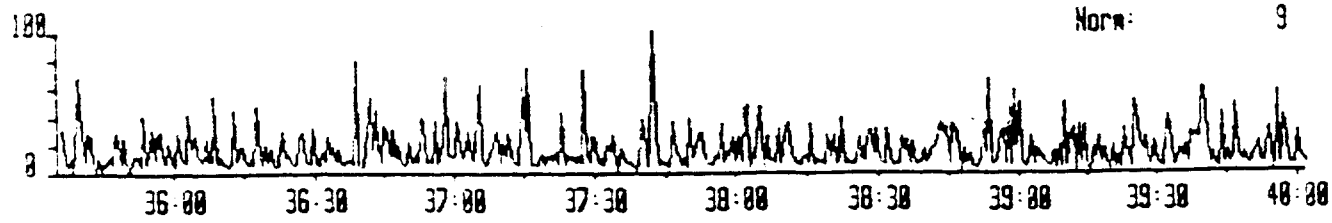
M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 385.8689
Text:1-3



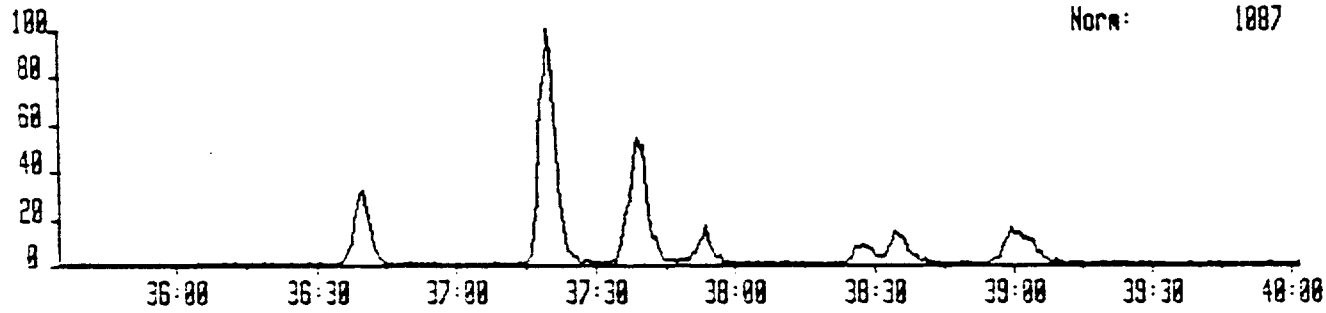
M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 387.8588
Text:1-3



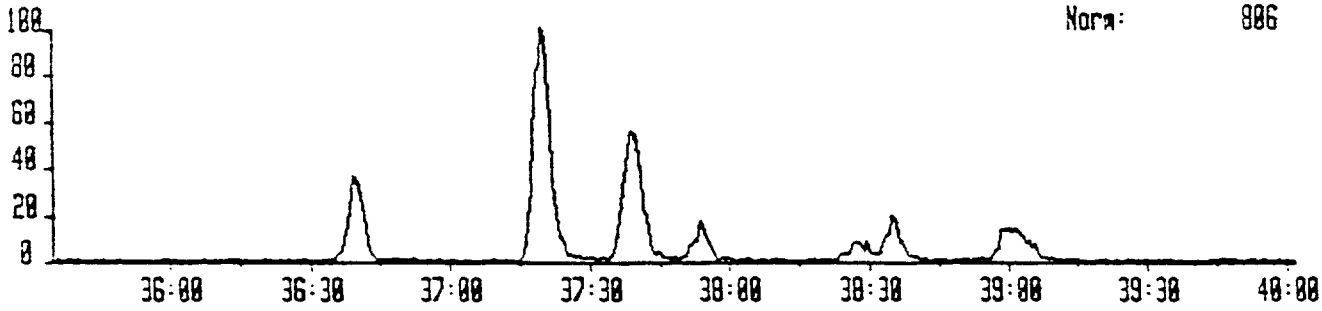
M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:1-3



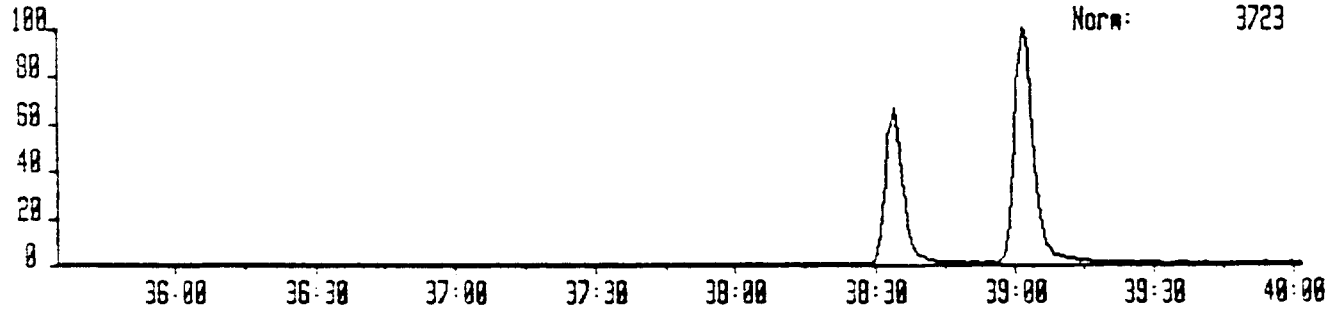
M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 389.8156
Text:1-3



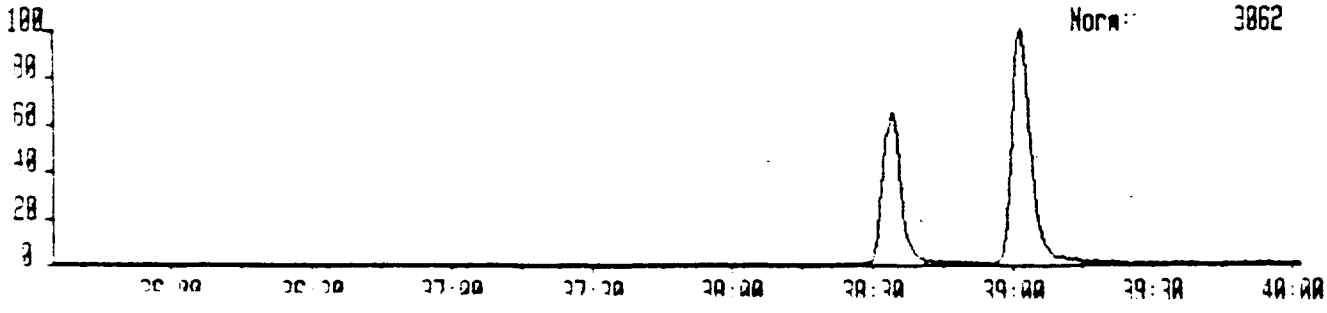
M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 391.8127
Text:1-3



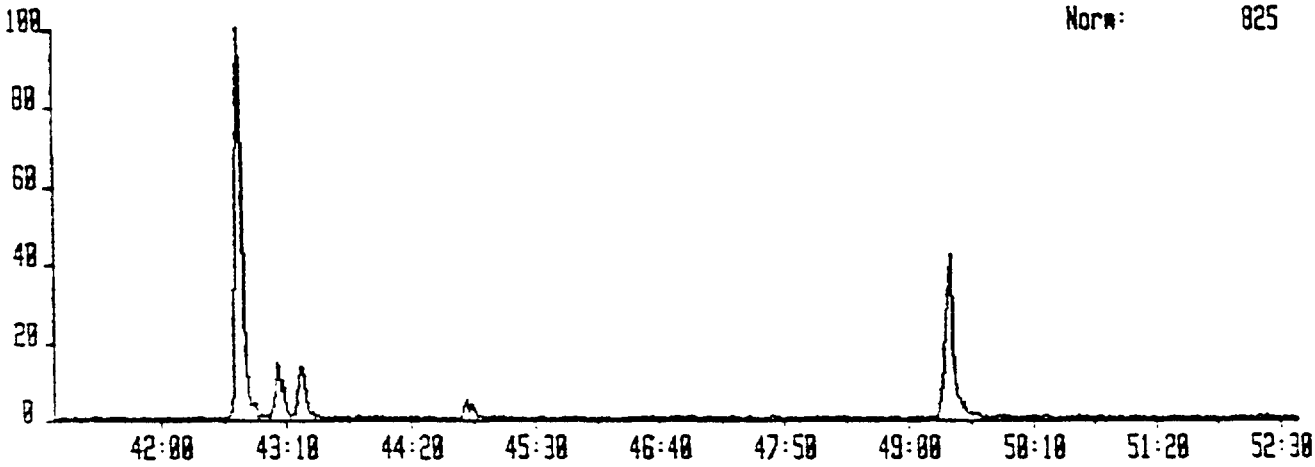
M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text:1-3



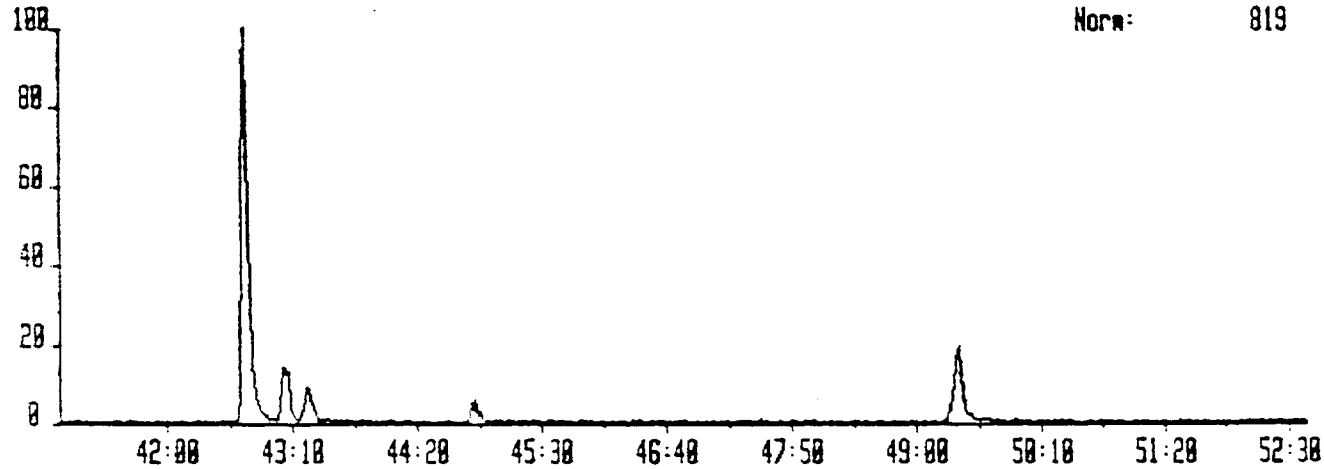
M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 403.8529
Text:1-3



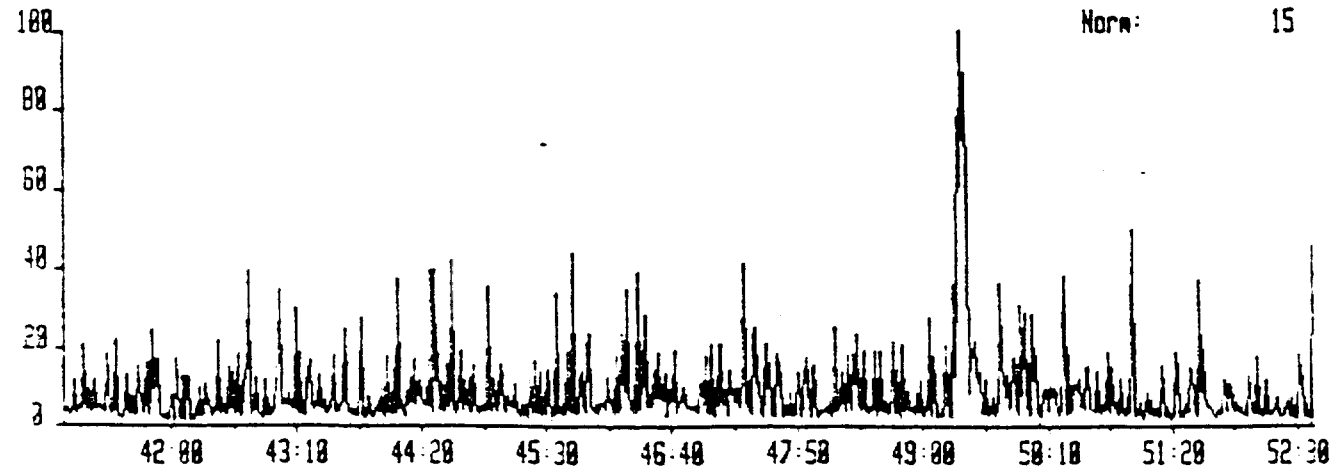
M872830 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 407.7817
Text:1-3



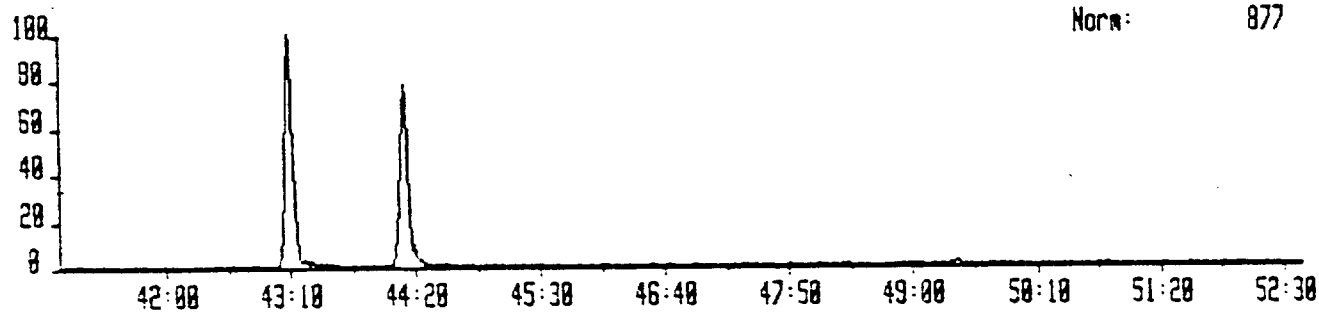
M872830 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 409.7788
Text:1-3



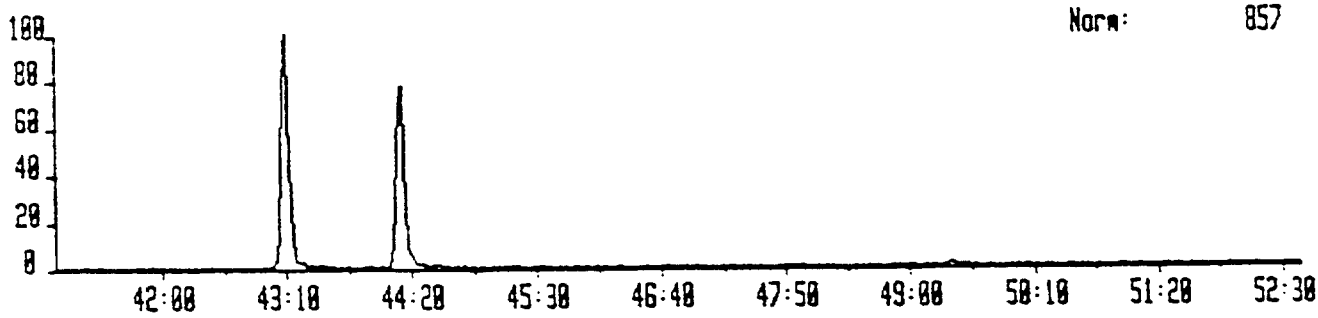
M872830 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 477.7200
Text:1-3



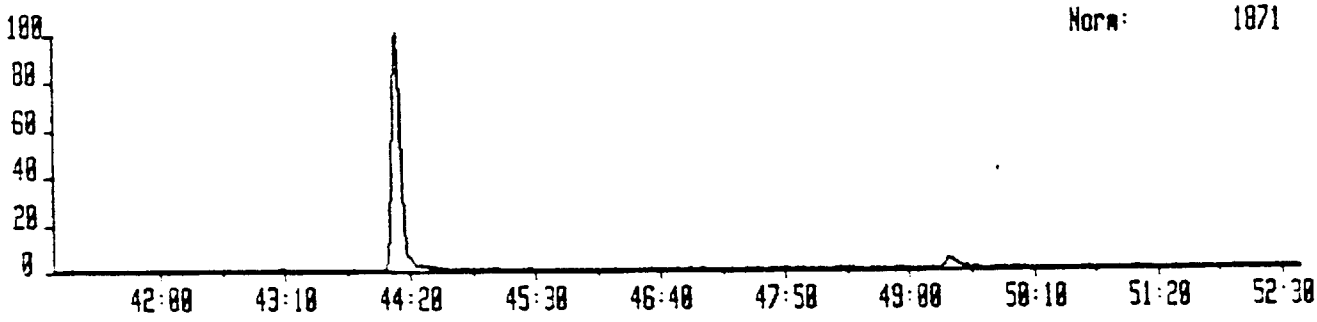
M872838 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:1-3



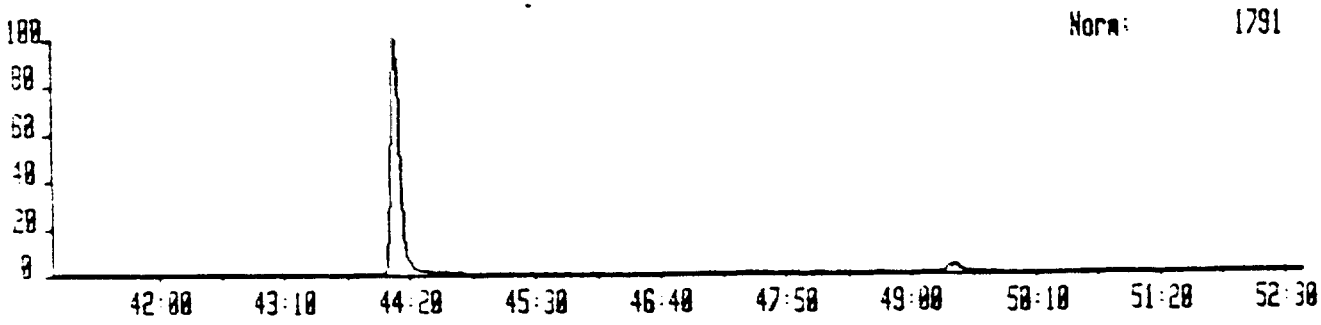
M872838 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:1-3



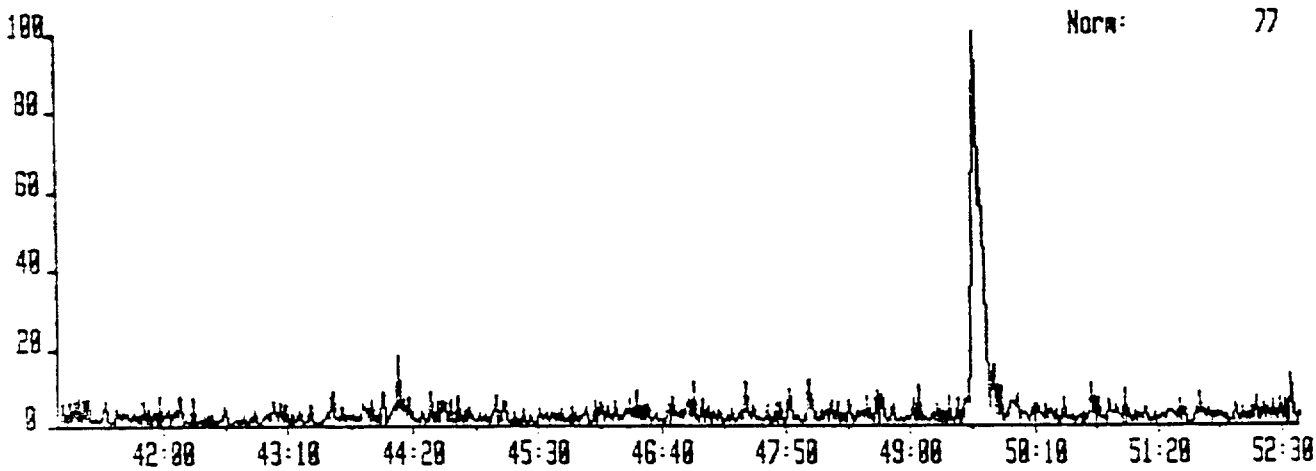
M872838 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:1-3



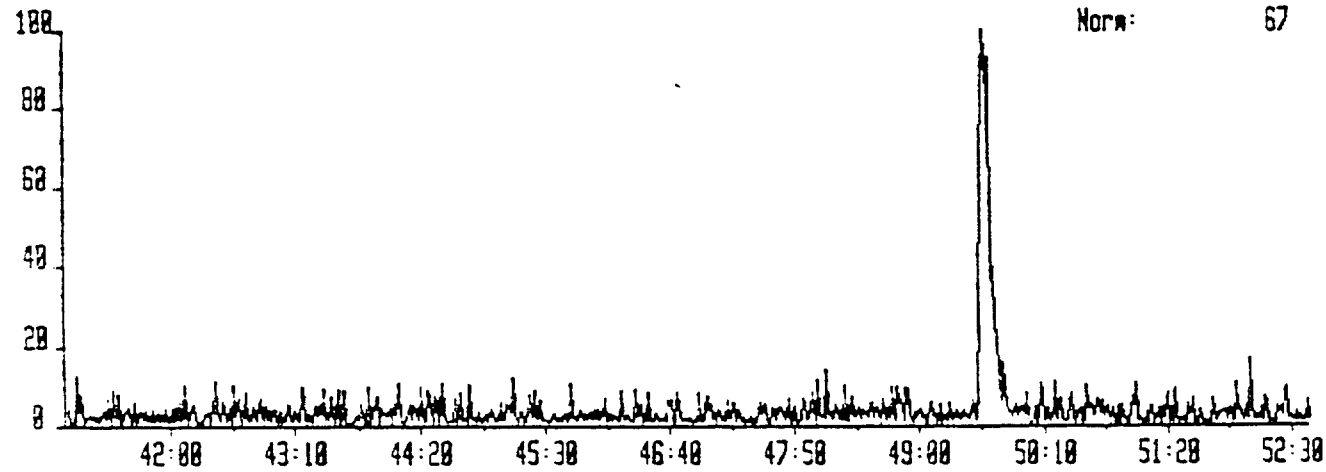
M872838 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:1-3



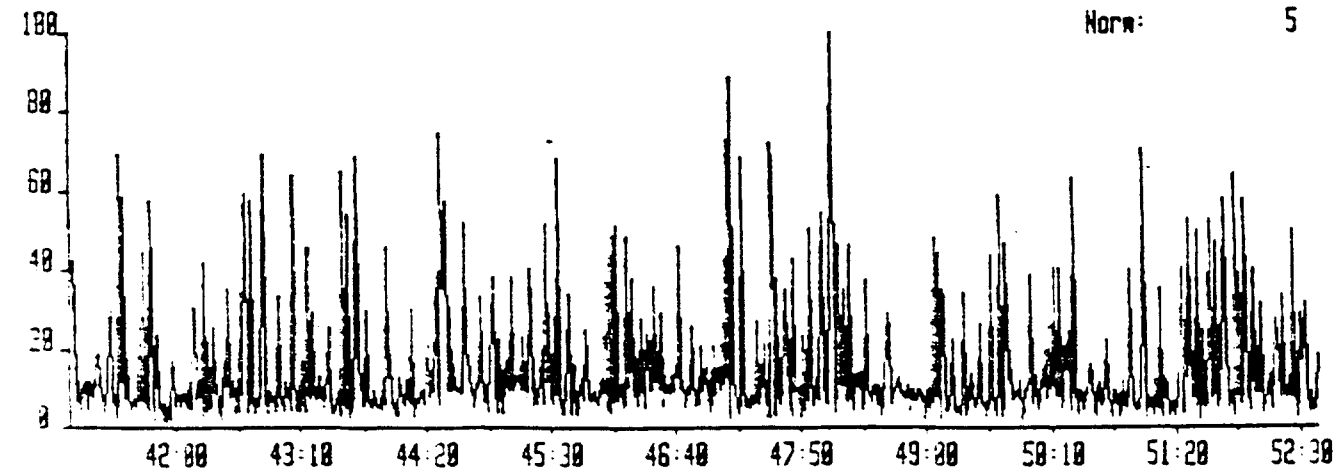
M872838 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 441.7428
Text:1-3



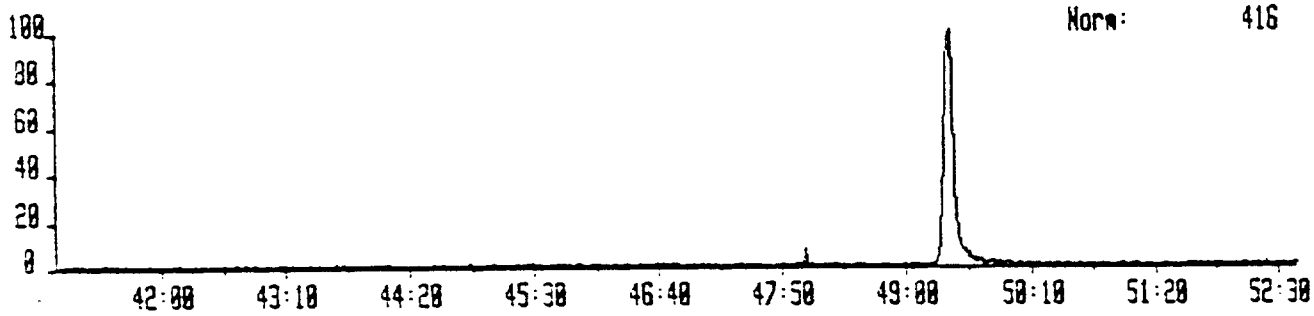
M872838 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:1-3



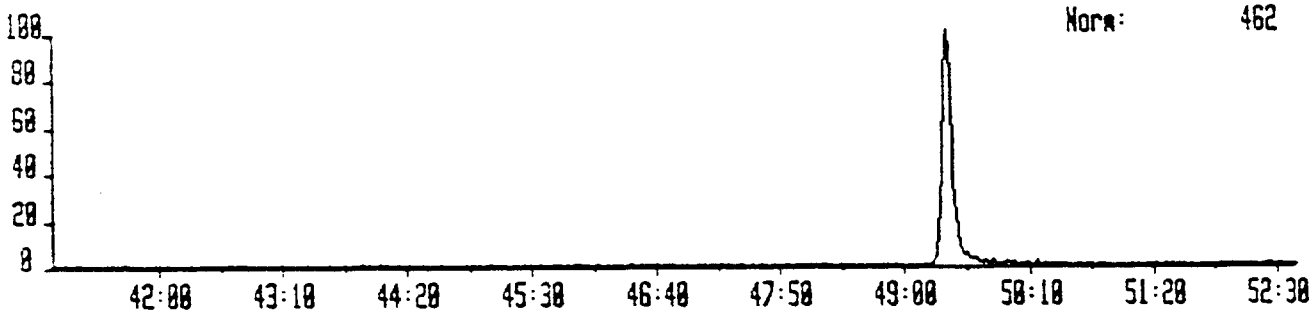
M872838 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 511.6818
Text:1-3



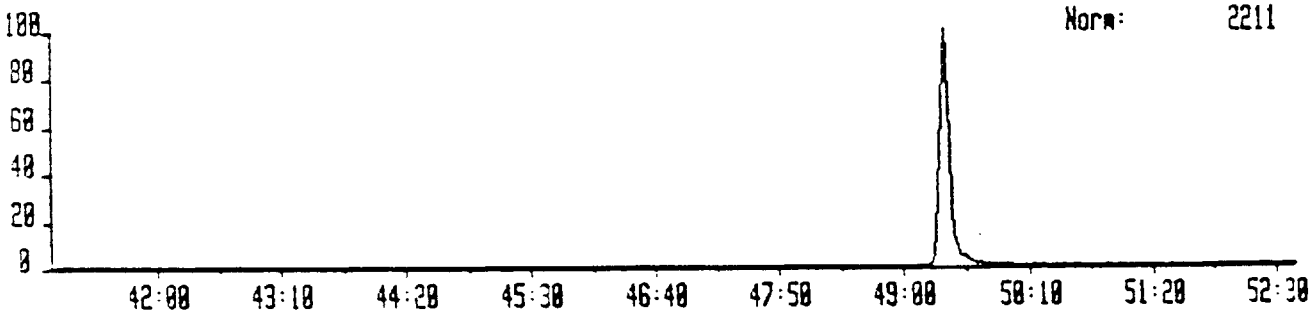
M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:1-3



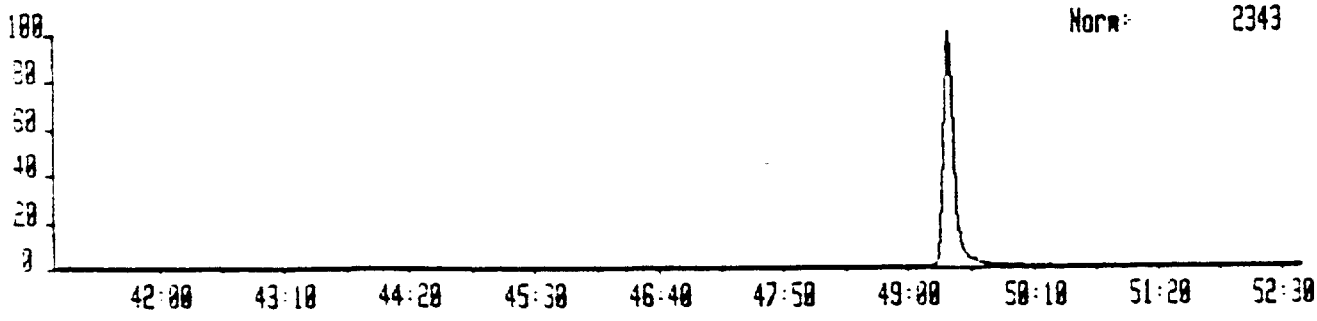
M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:1-3



M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:1-3



M872030 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 471.7758
Text:1-3



TRIANGLE LABORATORIES, INC.
PCDD/PCDF ANALYSIS

ANALYST: SP
DATE: 07/30/87

FILE NAME: M872032
SAMPLE ID: 1-FB
CASE NO: ENTROPY
PROJ NO: 8701481

CONCAL: M872023

NAME	AMT (ng)	NUMBER	DL	EMPC	RATIO	RT
TOTAL TRICDD	ND			0.143	0.06	
2378-TCDD	ND		0.010			
TOTAL TCDD	ND			0.024	7.36	
12378-PCDD	ND		0.013			
TOTAL PCDD	ND		0.013			
123478-HxCDD	ND		0.010			
123678-HxCDD	ND		0.010			
123789-HxCDD	ND		0.013			
TOTAL HxCDD	ND			0.040	4.20	
1234678-HpCDD	ND			0.043	0.57	
TOTAL HpCDD	0.041	1			1.07	
OCDD	0.416				0.92	49.20
TOTAL TRICDF	ND			0.072	0.85	
2378-TCDF	ND		0.008			
TOTAL TCDF	ND			0.020	1.48	
12378-PCDF	ND		0.010			
23478-PCDF	ND		0.010			
TOTAL PCDF	ND		0.010			
123478-HxCDF	ND			0.015	1.92	
123678-HxCDF	ND			0.009	1.56	
234678-HxCDF	ND		0.008			
123789-HxCDF	ND		0.010			
TOTAL HxCDF	0.017	1			1.21	
1234678-HpCDF	0.244				1.13	42.40
1234789-HpCDF	ND			0.026	1.19	
TOTAL HpCDF	0.308	2			1.12	
OCDF	1.241				0.79	49.34

SURROGATE RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
13C12-TCDF	1.86	93.00	0.79	26.07
37CL-TCDD	1.83	91.50		26.51
13C12-HxCDF	1.85	92.50	1.27	37.20

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
2378-13C12-TCDD	0.50	95.00	0.78	25.49
13C12-PCDD	10.24	102.40	0.60	31.46
13C12-HxCDD	9.23	92.30	1.23	38.33
13C12-HpCDD	8.65	86.50	1.08	44.11
13C12-OCDD	11.84	59.20	0.91	49.19

M872032B
MATCHED GC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
270	0.85	18.18	217.40	.F.	.F.	0.000
286	0.06	17.45	304.35	.F.	.F.	0.000
304	1.48	27.46	117.47	.F.	.F.	1.035
316	0.94	25.45	473.39	.F.	.F.	0.960
316	0.79	26.07	10944.80	.T.	.T.	0.974
320	7.36	26.07	108.67	.F.	.F.	0.974
328	0.00	26.51	3330.38	.T.	.T.	1.001
332	0.79	26.38	33982.91	.T.	.T.	0.993
332	0.78	26.49	43338.23	.T.	.T.	1.000
366	0.60	31.46	21058.05	.T.	.T.	1.000
374	1.21	36.08	109.40	.T.	.F.	0.937
374	1.92	37.19	106.30	.F.	.T.	0.968
374	1.56	37.30	69.40	.F.	.T.	0.973
386	1.27	37.20	11873.50	.T.	.T.	0.968
390	4.20	37.20	174.76	.F.	.F.	0.968
402	1.23	38.33	25171.99	.T.	.T.	1.000
402	1.22	39.01	43975.83	.T.	.T.	1.012
408	1.13	42.40	1376.00	.T.	.T.	0.966
408	0.67	43.04	259.73	.F.	.F.	0.975
408	1.12	43.16	216.00	.T.	.F.	0.979
408	1.19	44.50	123.24	.F.	.T.	1.015
424	1.07	43.06	153.00	.T.	.F.	0.975
424	0.57	44.11	159.93	.F.	.T.	1.000
436	1.08	44.11	28241.27	.T.	.T.	1.000
442	0.79	49.34	2511.74	.T.	.T.	1.005
458	0.92	49.20	759.49	.T.	.T.	1.000
470	0.91	49.19	41644.17	.T.	.T.	1.000
*** Total ***						
***	35.71	965.94	275801.40			24.673

M872032I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
	99.8	
270	~~95.31~~	18.18
272	10.00	14.00 ← 117.6 @ 18:18
286	10.00	15.00 ← 16.8 @ 17:45 (for EMPC)
288	287.55	17.45
304	62.34	26.38
304	70.05	27.46
306	47.42	27.46
306	474.97	31.47
306	42.73	32.54
316	229.24	25.45
316	4835.15	26.07
318	244.15	25.45
318	6109.65	26.07
318	105.18	32.57
Ck 320	95.67	26.07 Ck
322	10.00	16.00 — 13 @ 26:06
328	8330.38	26.51
332	156.61	24.03
332	114.50	24.53
332	122.28	25.07
332	15023.24	26.38
332	19005.19	26.49
332	119.11	28.14
332	155.49	28.48
334	18959.67	26.38
334	24333.04	26.49
334	203.24	31.47
338	10.00	17.00
340	10.00	18.00
354	10.00	19.00
356	10.00	20.00
366	7863.56	31.46
368	13194.49	31.46
374	10.00	21.00
376	10.00	22.00
386	6640.45	37.20
388	5233.05	37.20
390	141.17	37.20
392	33.59	37.20
402	13898.09	38.33
402	24196.88	39.01
404	11273.90	38.33
404	19778.35	39.01
408	752.76	42.43 — 729 @ 42:40
408	104.13	43.04 NC
408	31.03	43.18 — 114 @ 43:16
408	66.99	44.30 NC
410	633.34	42.43 — 647 @ 42:40
410	155.60	43.04
410	104.34	43.17 — 102 @ 43:16

374
59.8 @ 36:08
~~49.6~~ 69.9 @ 37:19
42.3 @ 37:30

376
49.6 @ 36:08
36.4 @ 37:19
27.1 @ 37:30

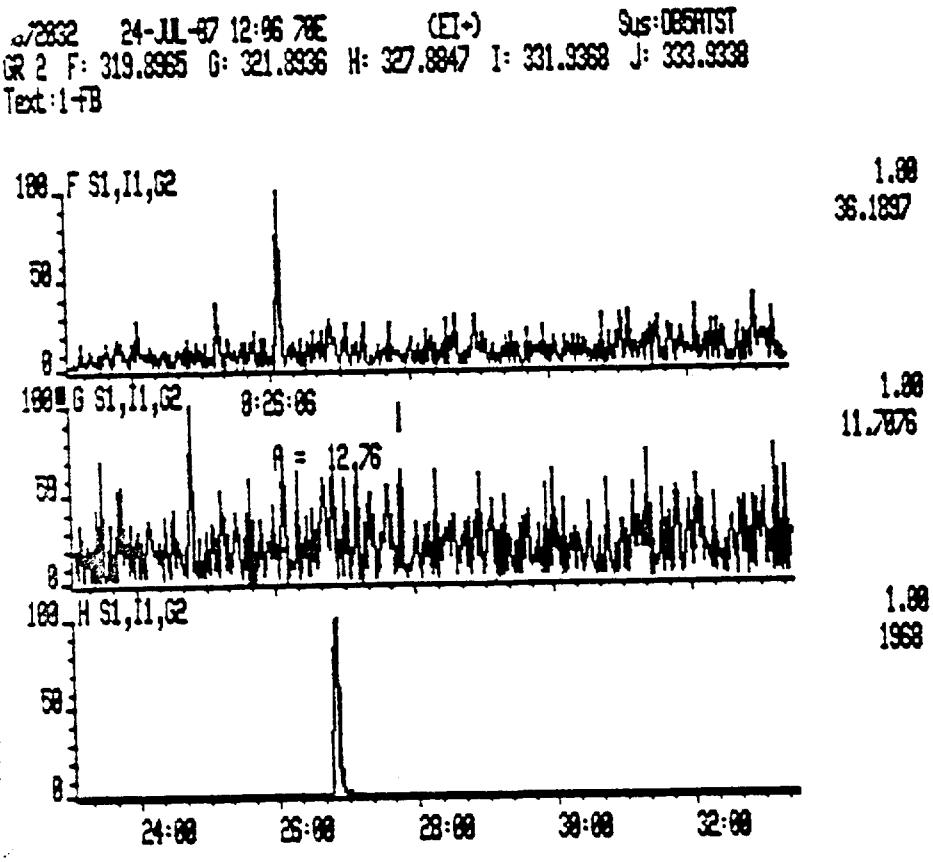
M872032I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
410	56.25	44.51
410	1327.74	49.19
424	54.05	43.08 -79 @ 43:06
424	57.97	44.11
426	72.83	43.08 -79 @ 43:06
426	101.96	44.11
436	14650.62	44.11
438	13590.65	44.11
438	811.21	49.19
442	1109.03	49.34
444	1402.71	49.34
444	44.82	52.22
458	364.82	49.20
460	394.67	49.20
470	19818.04	49.19
470	10.00	23.00
472	21826.13	49.19
*** Total ***		
****	279157.98	2242.95

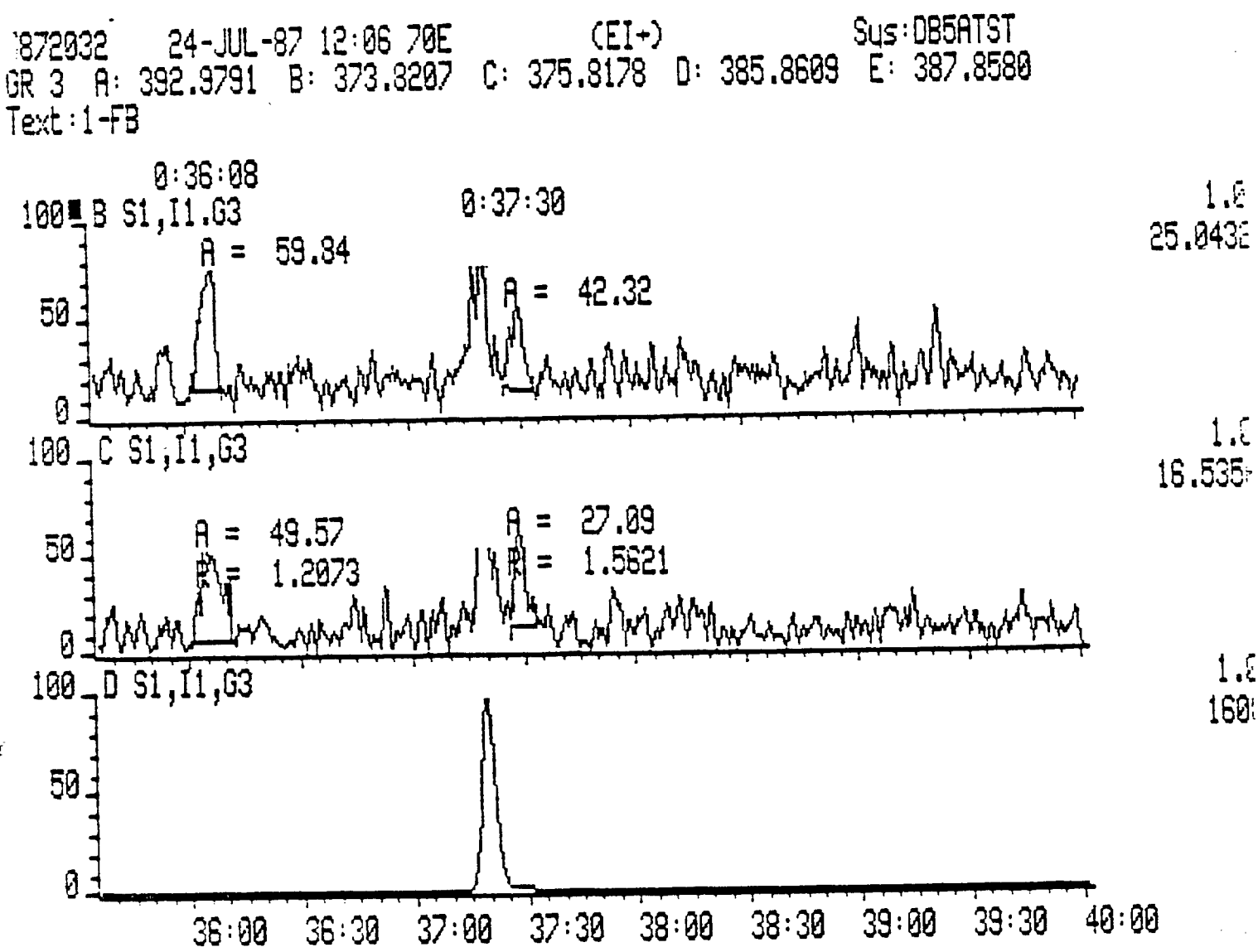
M872032B

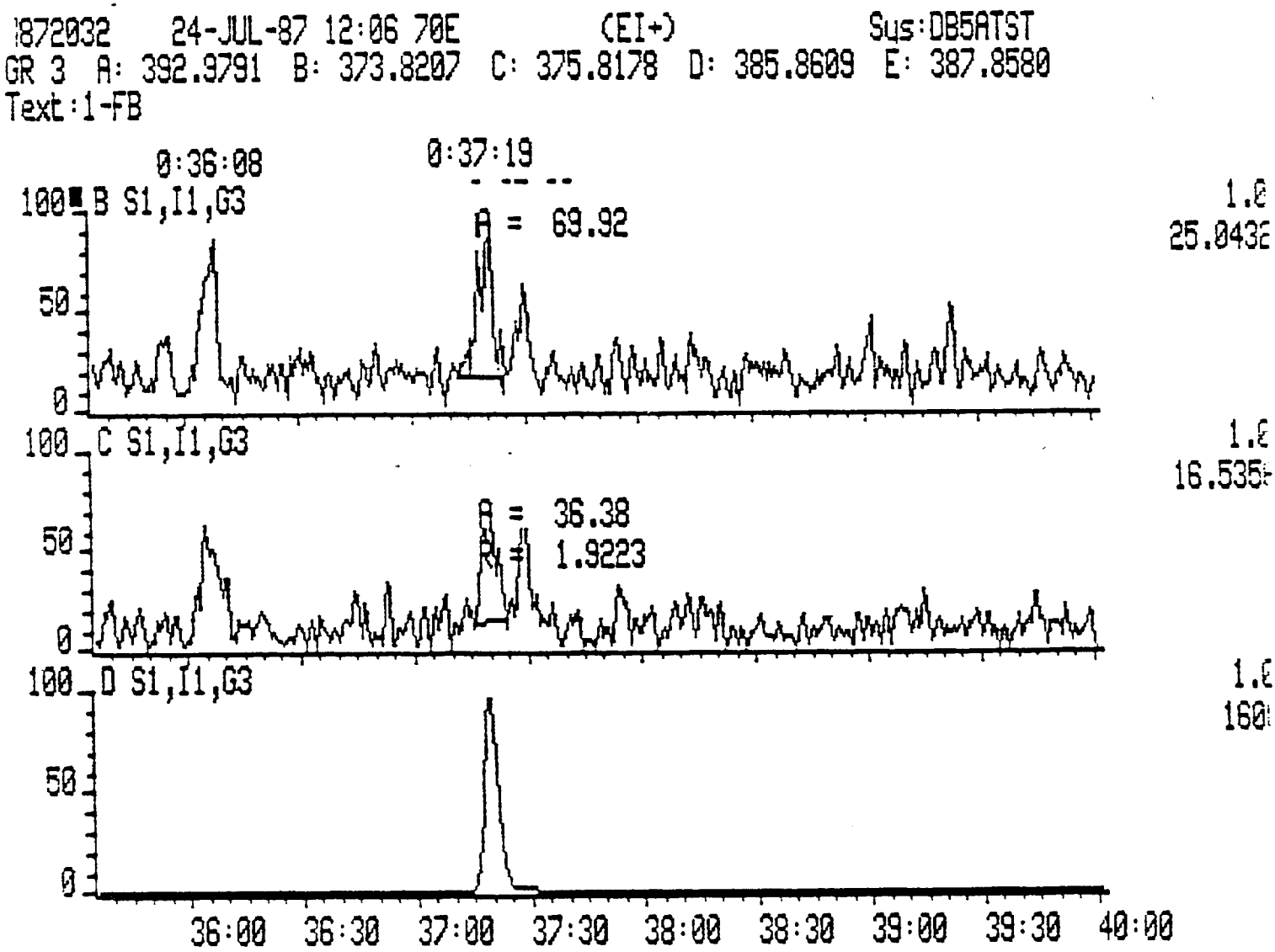
MATCHED GC PEAKS /RATIO/ RET TIME

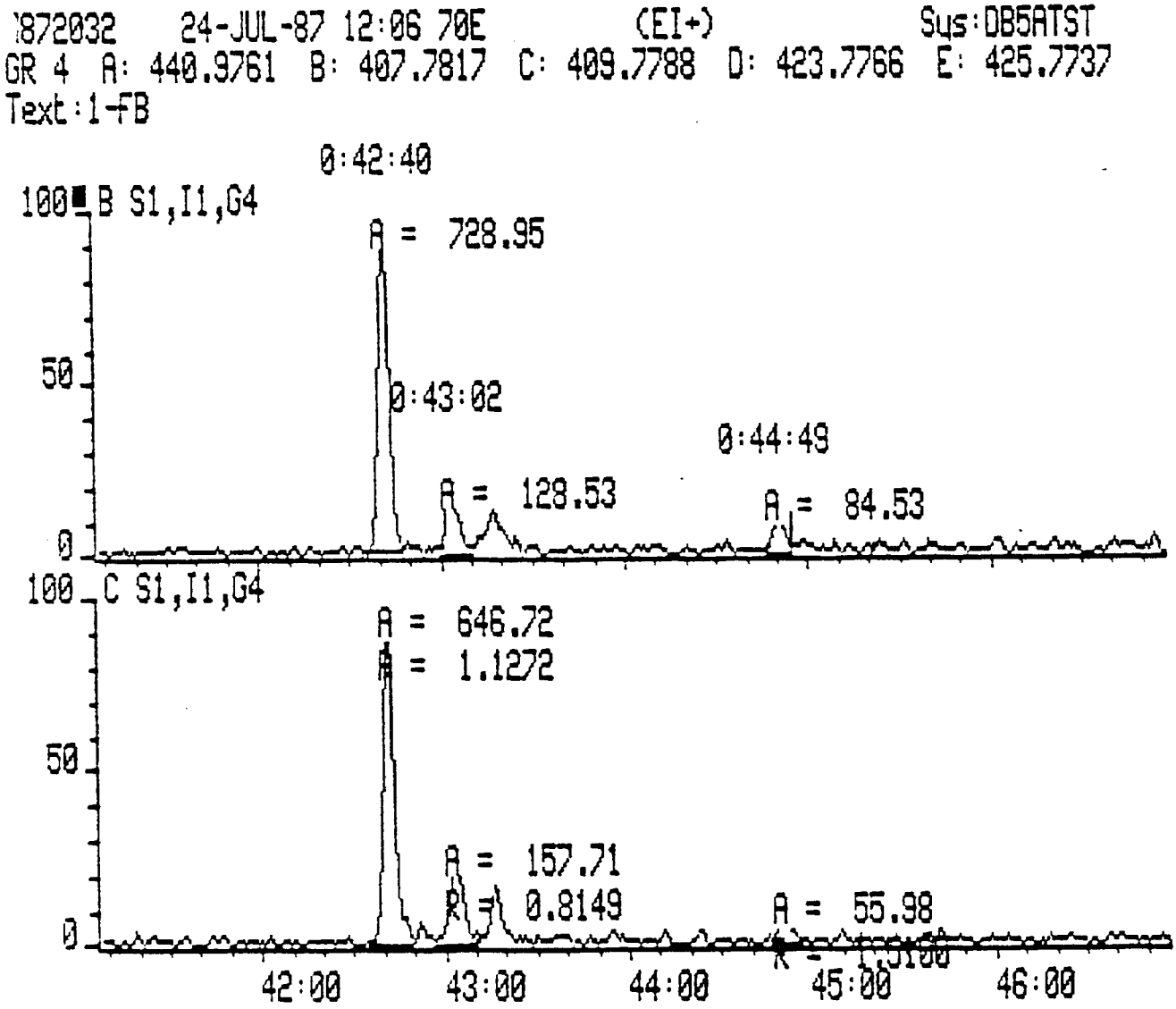
M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
304	1.48	27.46	117.47	.F.	.F.	1.035
316	0.94	25.45	473.39	.F.	.F.	0.960
316	0.79	26.07	10944.80	.T.	.T.	0.974
328	0.00	26.51	8330.38	.T.	.T.	1.001
332	0.79	26.38	33982.91	.T.	.T.	0.993
332	0.78	26.49	43338.23	.T.	.T.	1.000
366	0.60	31.46	21058.05	.T.	.T.	1.000
386	1.27	37.20	11873.50	.T.	.T.	0.968
390	4.20	37.20	174.76	.F.	.F.	0.968
402	1.23	38.33	25171.99	.T.	.T.	1.000
402	1.22	39.01	43975.83	.T.	.T.	1.012
408	1.19	42.43	1386.10	.F.	.T.	0.967
408	0.67	43.04	259.73	.F.	.F.	0.975
408	0.78	43.18	185.37	.F.	.F.	0.980
408	1.19	44.50	123.24	.F.	.T.	1.015
424	0.74	43.08	126.88	.F.	.F.	0.976
424	0.57	44.11	159.93	.F.	.T.	1.000
436	1.08	44.11	28241.27	.T.	.T.	1.000
442	0.79	49.34	2511.74	.T.	.T.	1.005
458	0.92	49.20	759.49	.T.	.T.	1.000
470	0.91	49.19	41644.17	.T.	.T.	1.000
*** Total ***						
***	22.14	793.74	274839.23			20.329



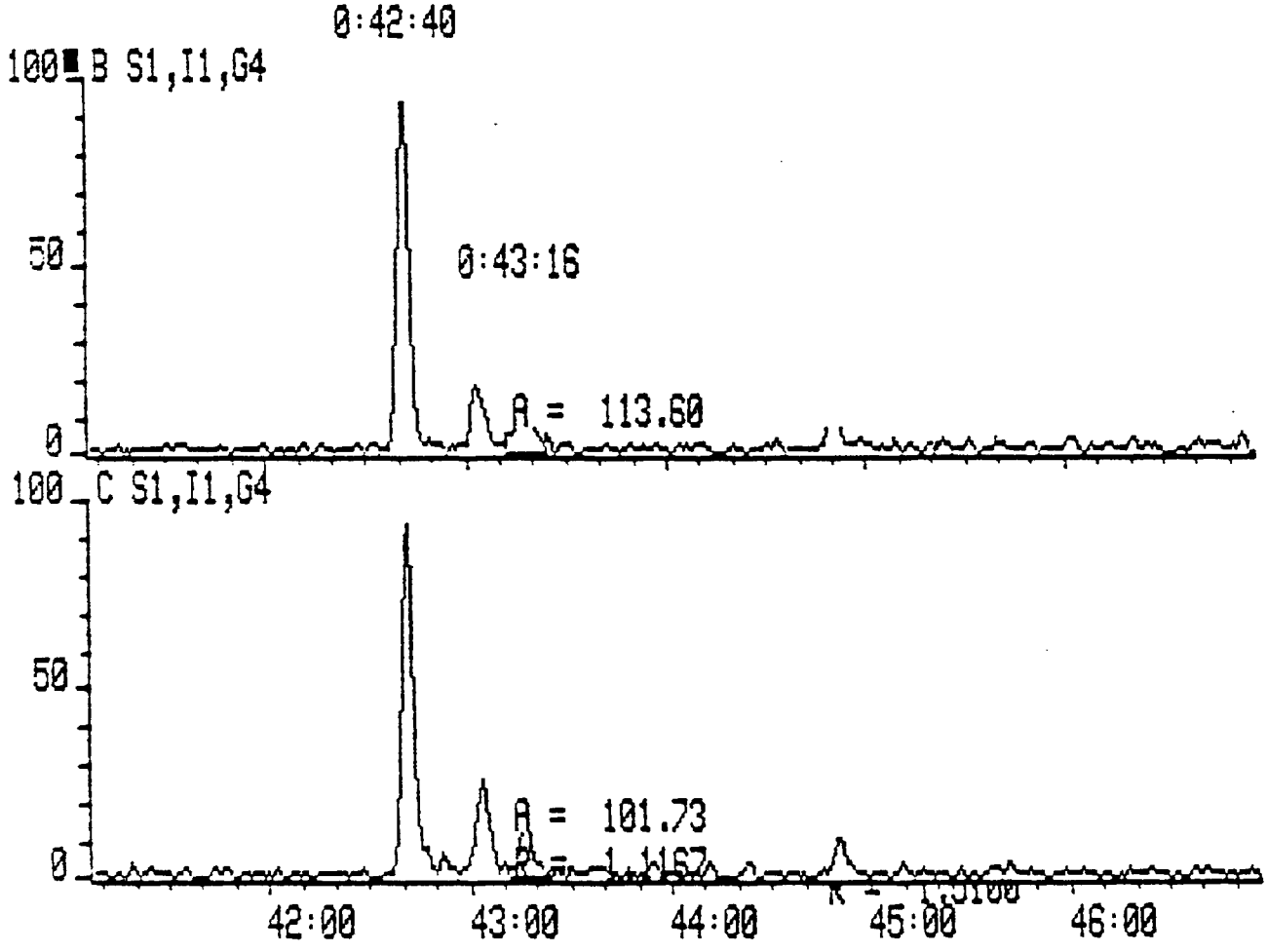
/2832 24-JUL-87 12:06 70E (EI+) Sus:DB5RTST
GR 2 F: 319.8965 G: 321.8936 H: 327.8847 I: 331.9368 J: 333.9338
Text:1-FB
100 F S1,I1,G2
50
0
1.00
36.1897
100 G S1,I1,G2
0:25:06
A = 12.76
50
0
1.00
11.7076
100 H S1,I1,G2
50
0
1.00
1968
24:00
26:00
28:00
30:00
32:00


872032 24-JUL-87 12:06 70E (EI+) Sys:DB5ATST
GR 3 A: 392.9791 B: 373.8207 C: 375.8178 D: 385.8609 E: 387.8580
Text:1-FB
0:36:08
0:37:30
B S1,I1,G3
A = 59.84
A = 42.32
C S1,I1,G3
A = 49.57
R = 1.2073
A = 27.09
R = 1.5621
D S1,I1,G3
100
50
0
36:00
36:30
37:00
37:30
38:00
38:30
39:00
39:30
40:00

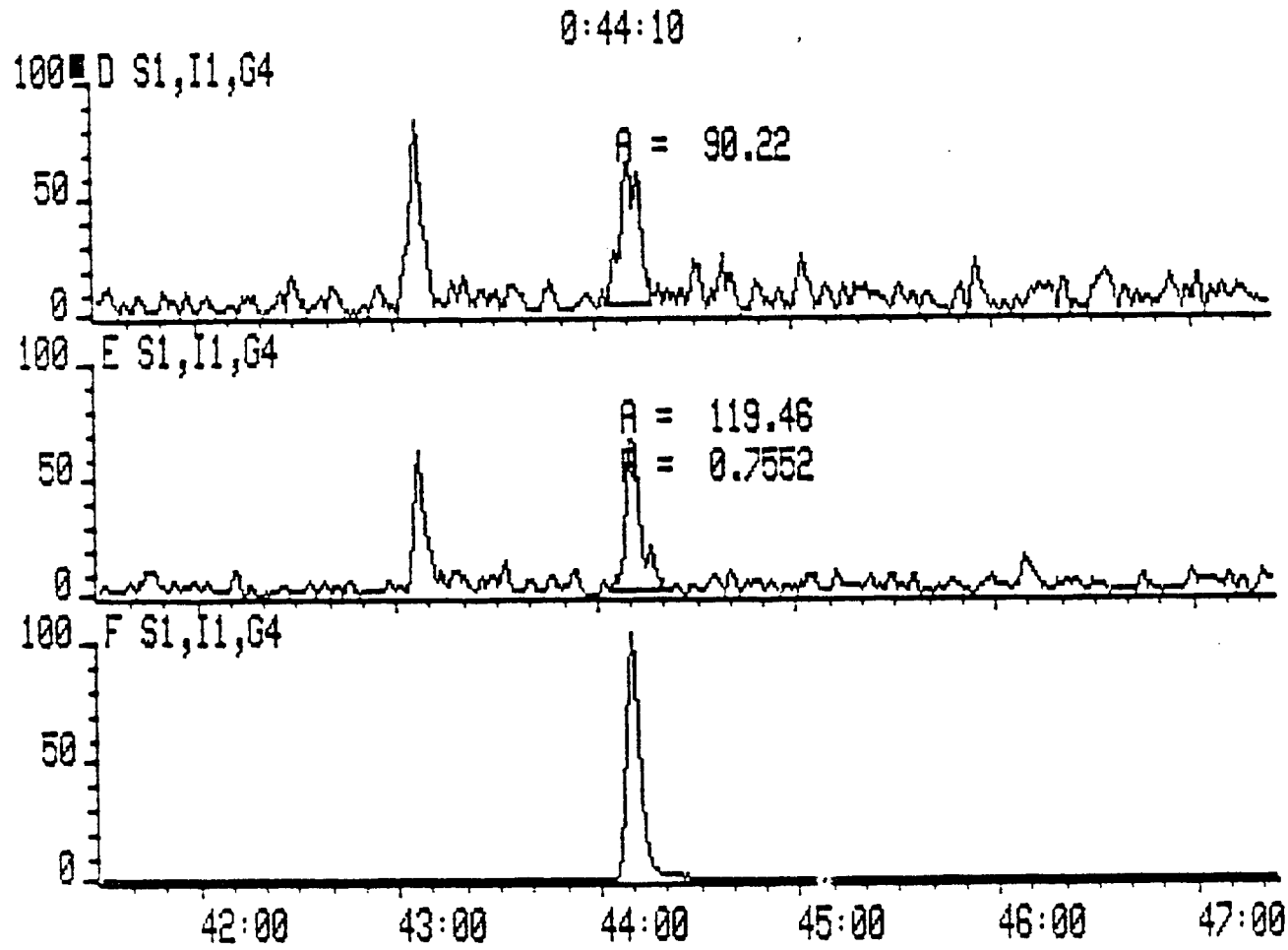

!872032 24-JUL-87 12:06 70E (EI+) Sus:DB5ATST
GR 3 A: 392.9791 B: 373.8207 C: 375.8178 D: 385.8609 E: 387.8580
Text:1-FB
0:36:08
0:37:19
B S1,I1,G3
A = 69.92
C S1,I1,G3
A = 36.38
R = 1.9223
D S1,I1,G3
100
50
0
36:00
36:30
37:00
37:30
38:00
38:30
39:00
39:30
40:00


872032 24-JUL-87 12:06 70E (EI+) Sys:DB5ATST
GR 4 A: 440.9761 B: 407.7817 C: 409.7788 D: 423.7766 E: 425.7737
Text:1-FB
0:42:40
100
B S1,I1,G4
A = 728.95
50
0:43:02
0:44:49
A = 128.53
A = 84.53
0
100
C S1,I1,G4
A = 646.72
A = 1.1272
50
A = 157.71
R = 0.8149
A = 55.98
0
42:00
43:00
44:00
45:00
46:00

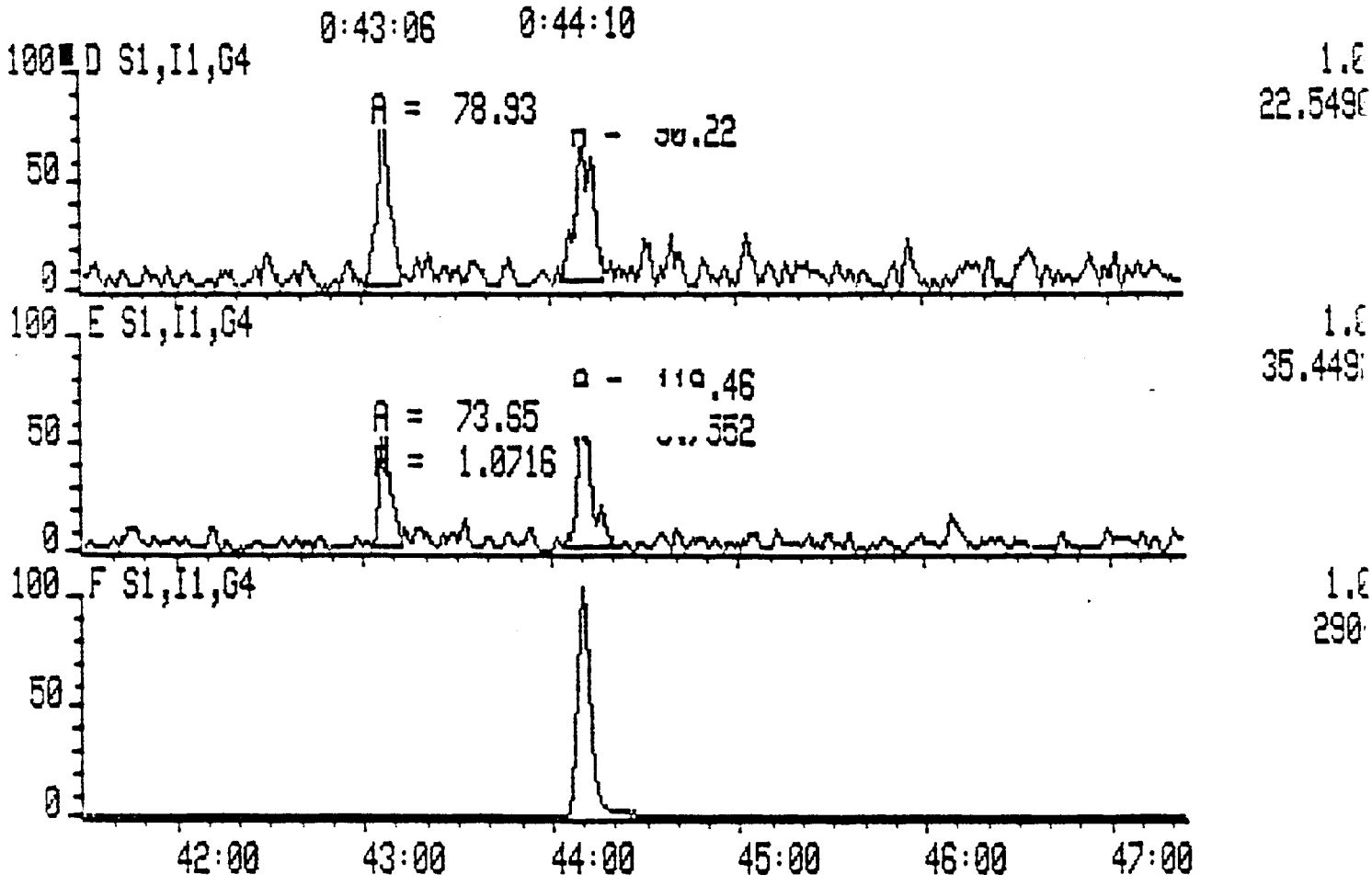
:872032 24-JUL-87 12:06 70E (EI+) Sys:DB5ATST
GR 4 A: 440.9761 B: 407.7817 C: 409.7788 D: 423.7766 E: 425.7737
Text:1-FB



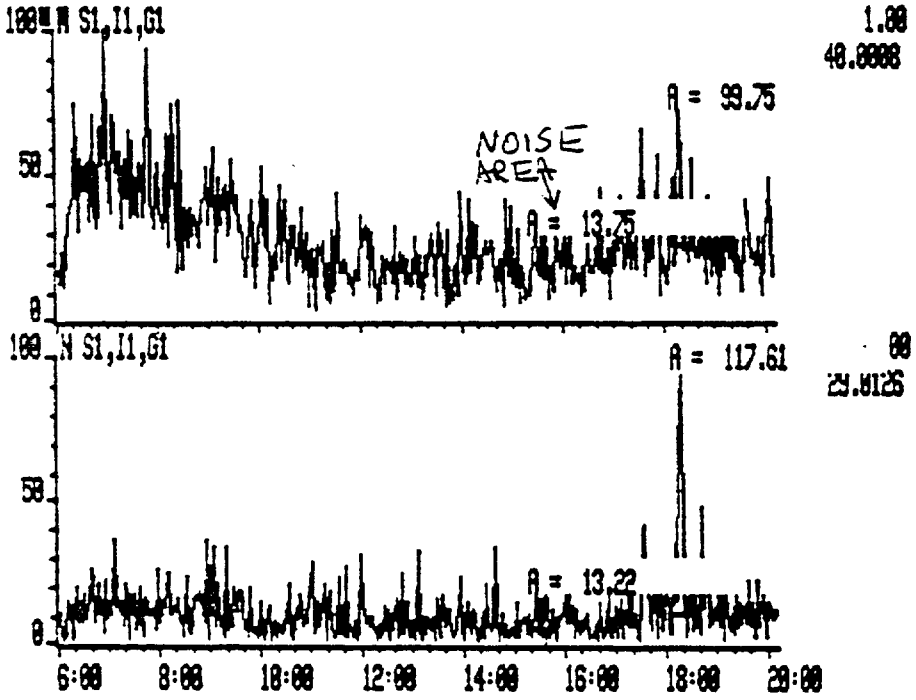
1872032 24-JUL-87 12:06 70E (EI+) Sys:DB5ATST
GR 4 D: 423.7766 E: 425.7737 F: 435.8169 G: 437.8139 H: 430.9729
Text:1-FB



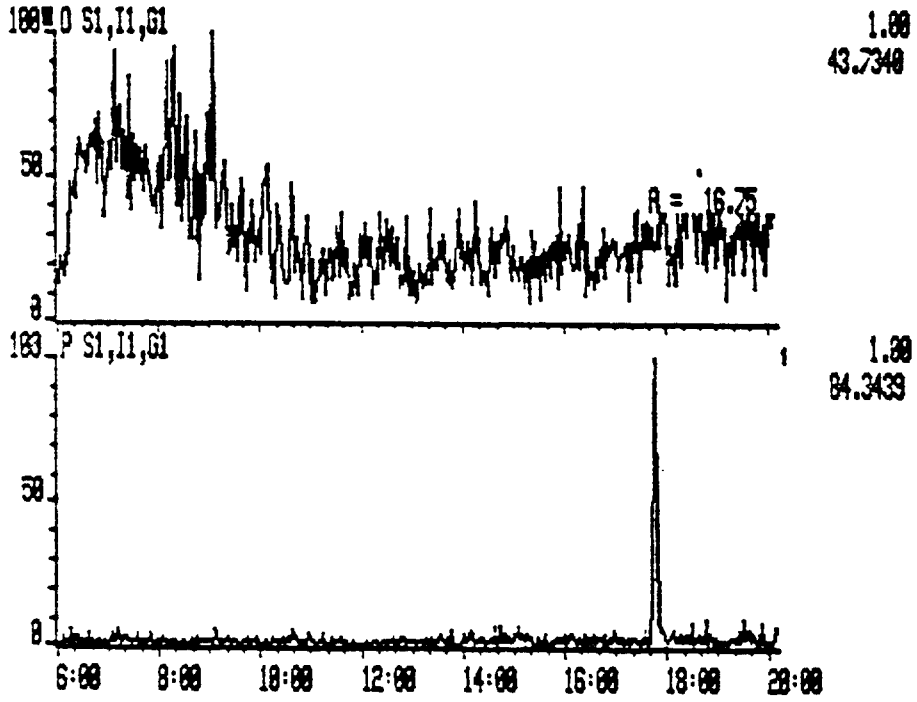
M872032 24-JUL-87 12:06 70E (EI+) Sus:DB5ATST
GR 4 D: 423.7766 E: 425.7737 F: 435.8169 G: 437.8139 H: 430.9729
Text:1-FB



MS/2832 - 24-JUL-87 12:06 78E (EI+) Sus:DBSHTST
GR 1 M: 259.9486 N: 271.3377 O: 285.3355 P: 287.3326 Q: 339.8798
Text:1-FB



M872832 - 24-JUL-87 12:06 70E (EI+) Sus:DBSRTST
AR 1 M: 259.9406 N: 271.3377 O: 285.3355 P: 287.3326 Q: 339.8798
Text:1+FB

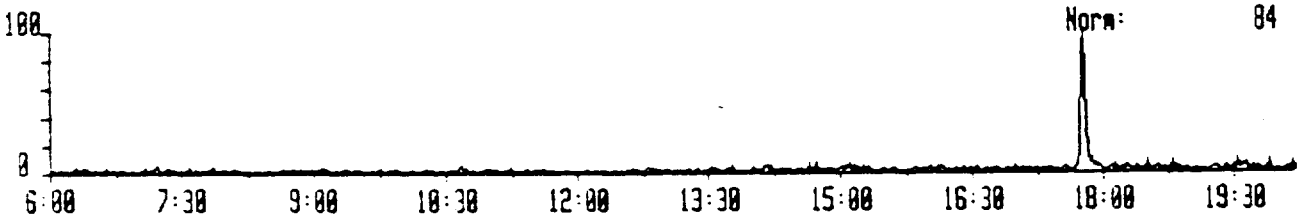


M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 1 Mass 269.9406
Text:1-FB

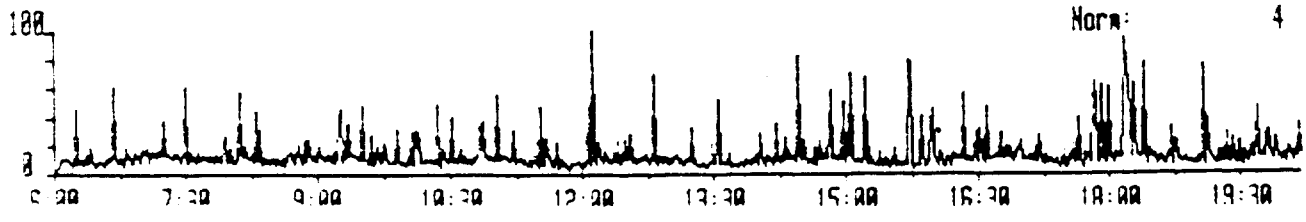
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 1 Mass 271.9377
Text:1-FB

M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 1 Mass 285.9355
Text:1-FB

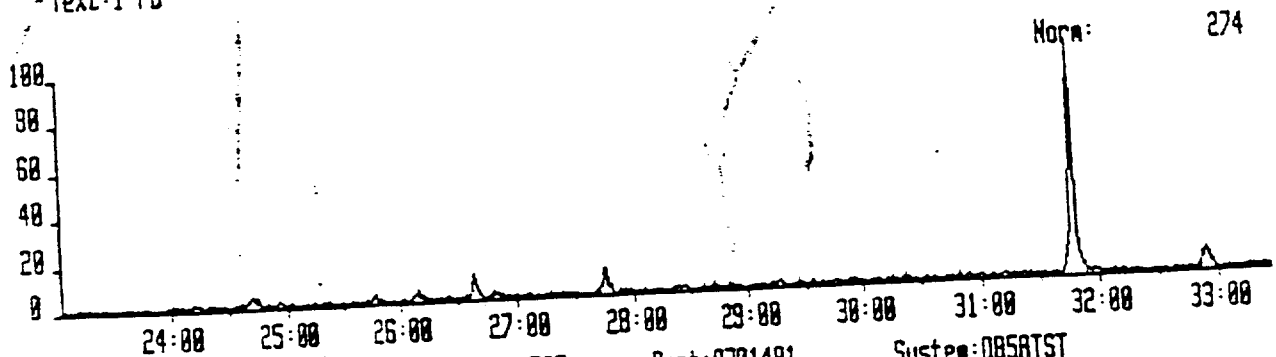
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:1-FB



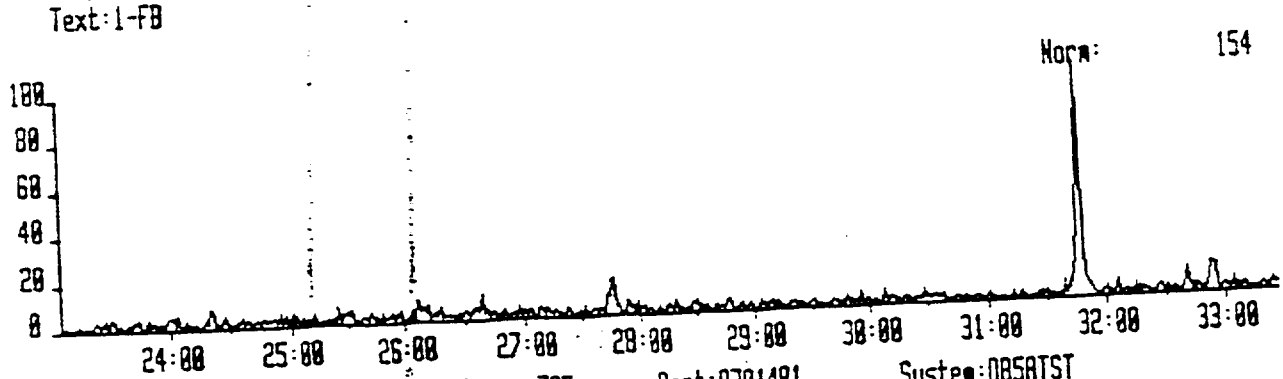
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 1 Mass 339.8798
Text:1-FB



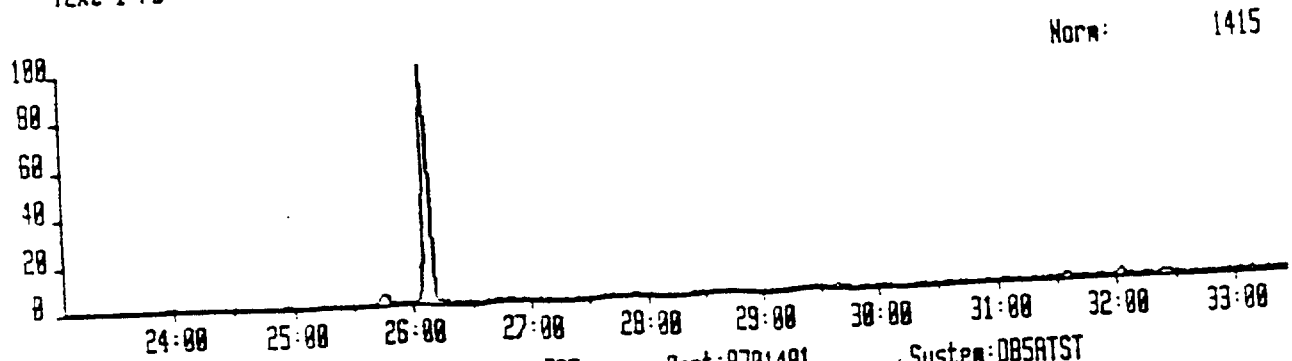
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5RTST
Sample 1 Injection 1 Group 2 Mass 383.9816
Text:1-FB



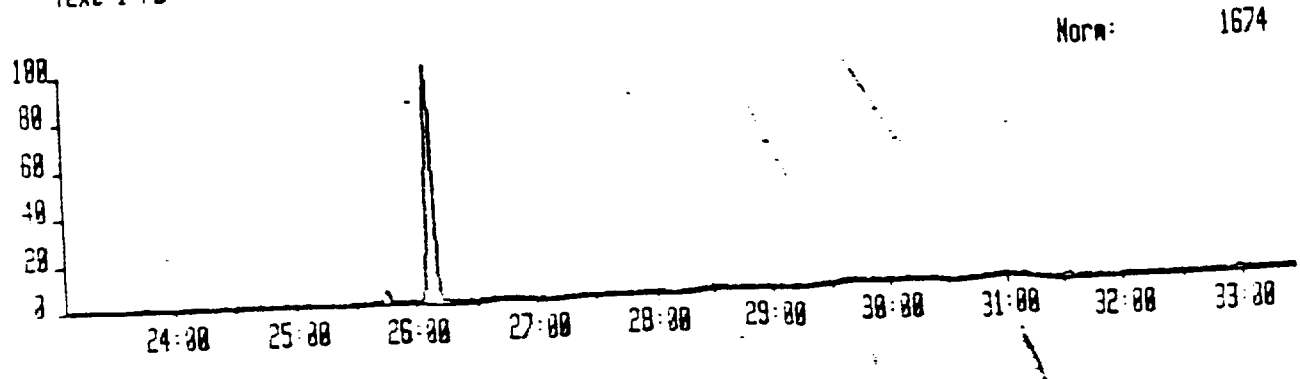
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5RTST
Sample 1 Injection 1 Group 2 Mass 385.8987
Text:1-FB



M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5RTST
Sample 1 Injection 1 Group 2 Mass 315.9419
Text:1-FB

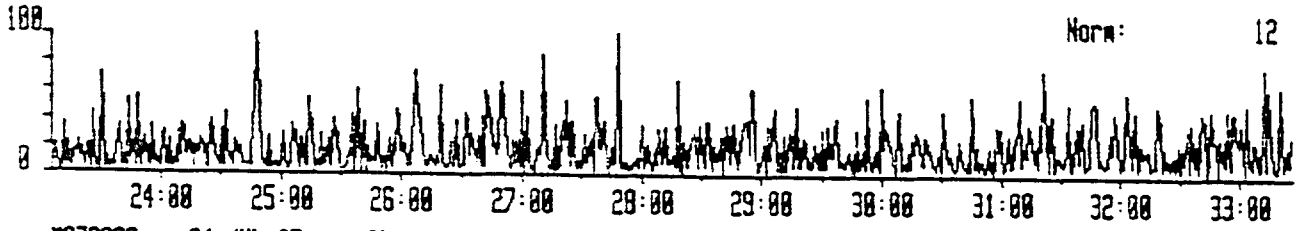


M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5RTST
Sample 1 Injection 1 Group 2 Mass 317.9389
Text:1-FB

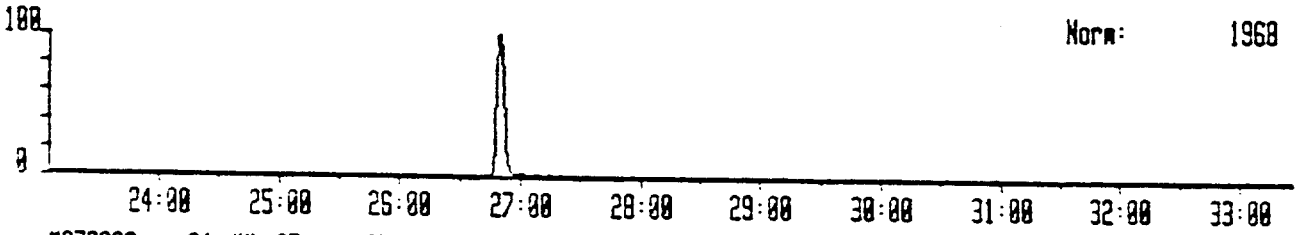


M872032 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:1-FB

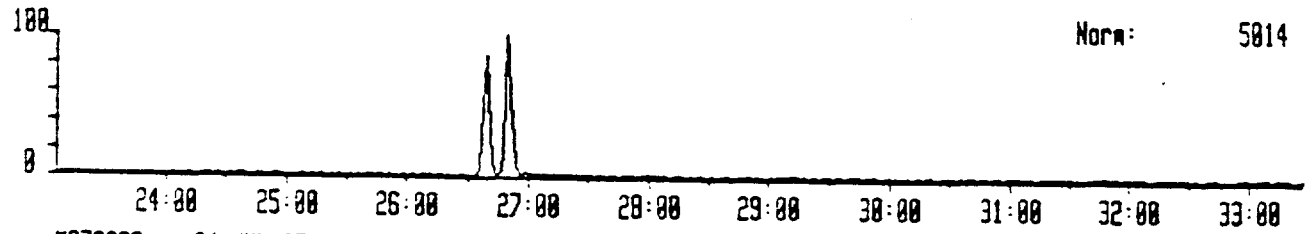
M872032 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:1-FB



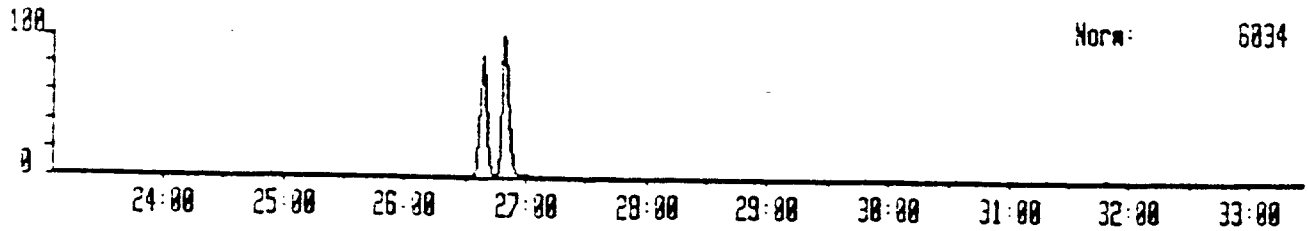
M872032 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:1-FB



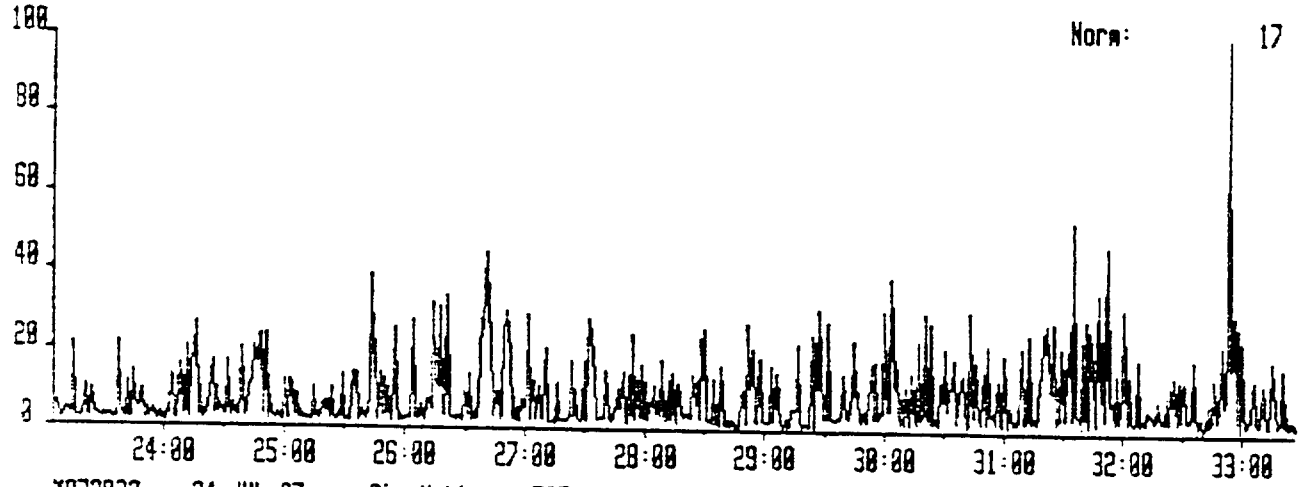
M872032 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 331.9368
Text:1-FB



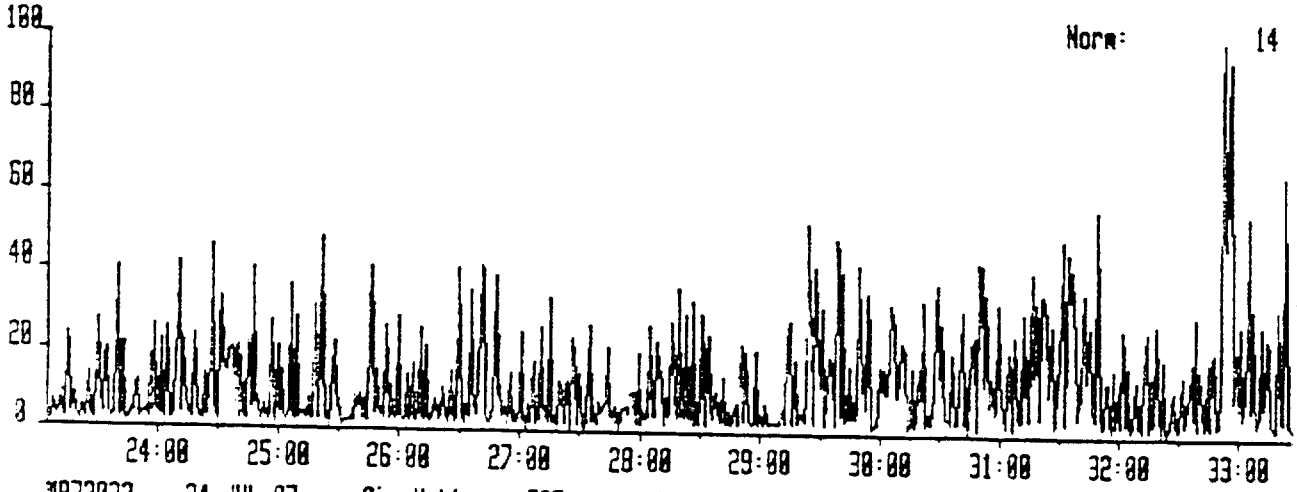
M872032 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 333.9338
Text:1-FB



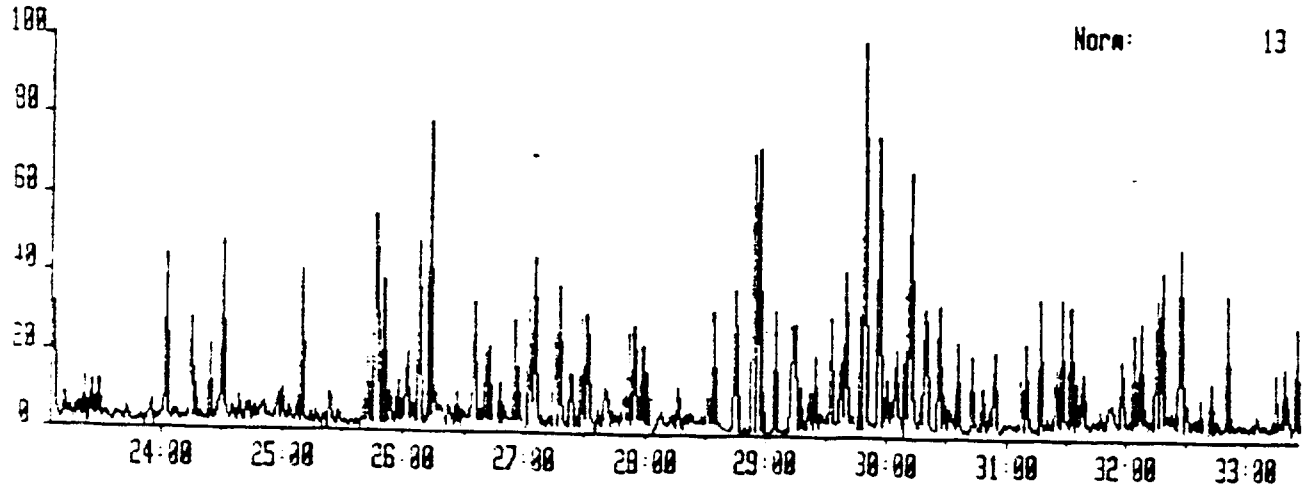
M872032 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:1-FB



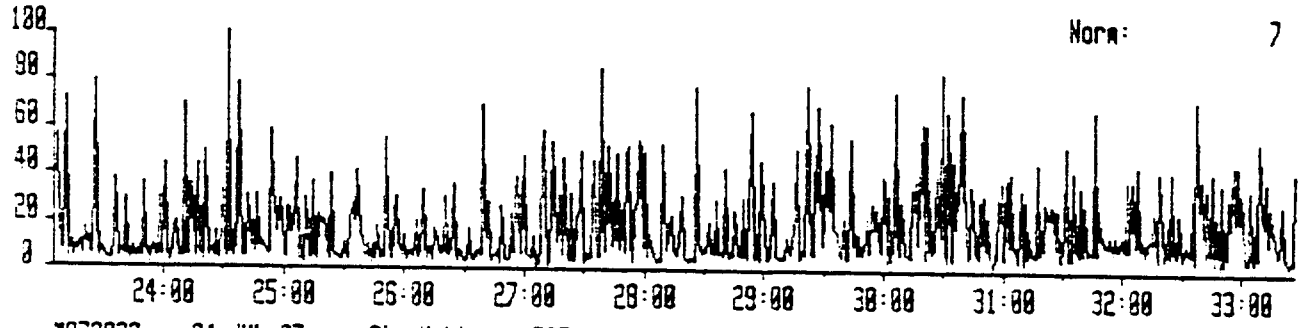
M872032 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:1-FB



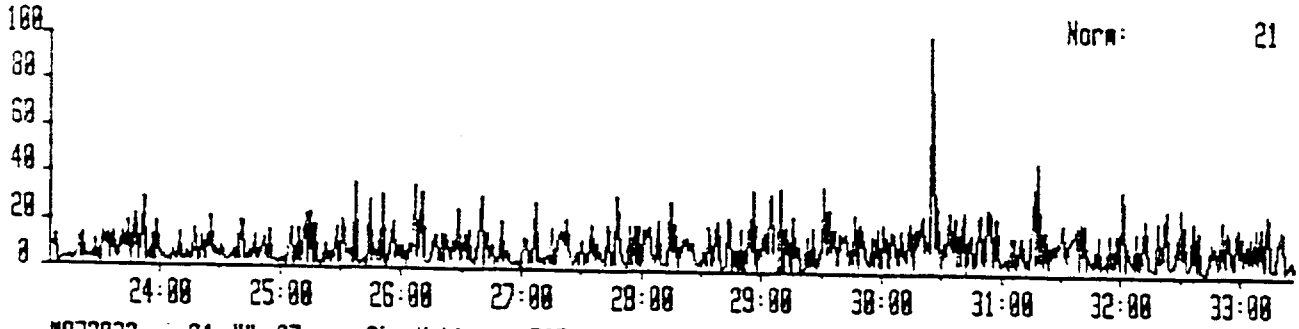
M872032 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 407.8883
Text:1-FB



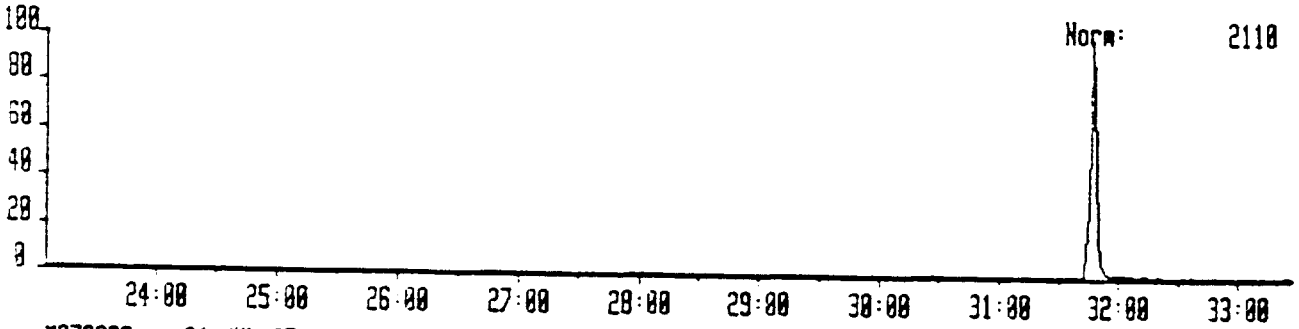
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:1-FB



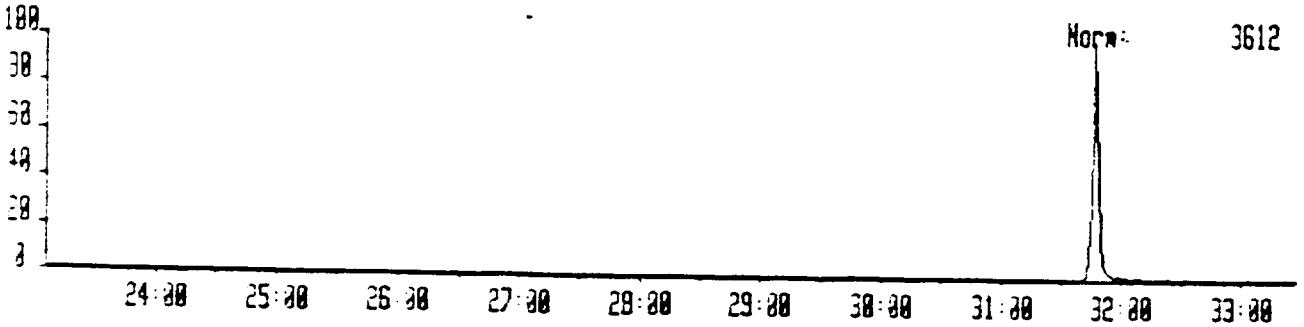
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 355.8546
Text:1-FB



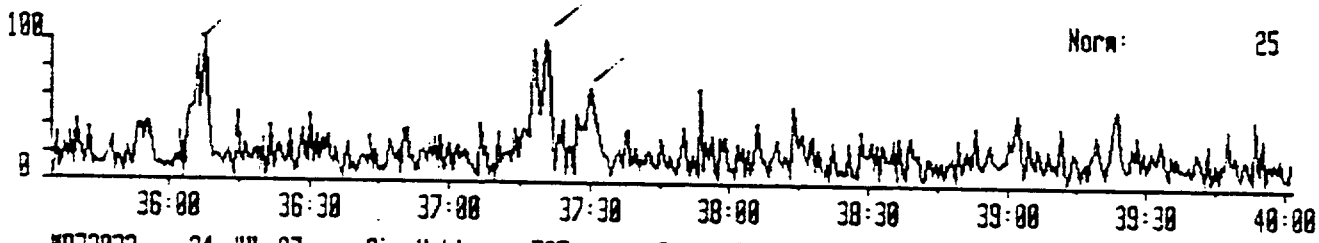
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 365.8977
Text:1-FB



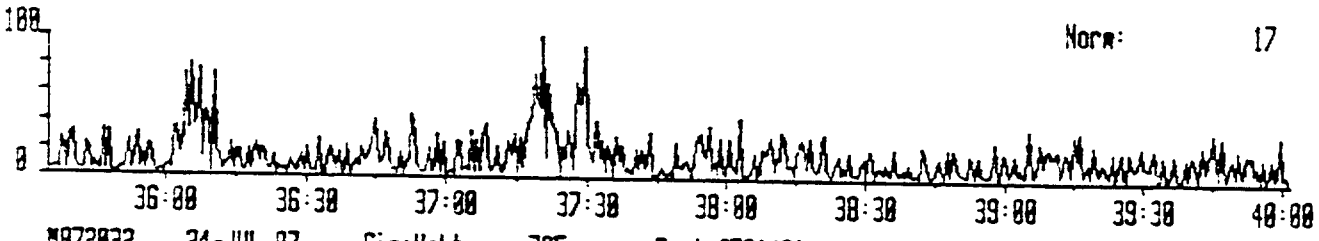
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 367.8948
Text:1-FB



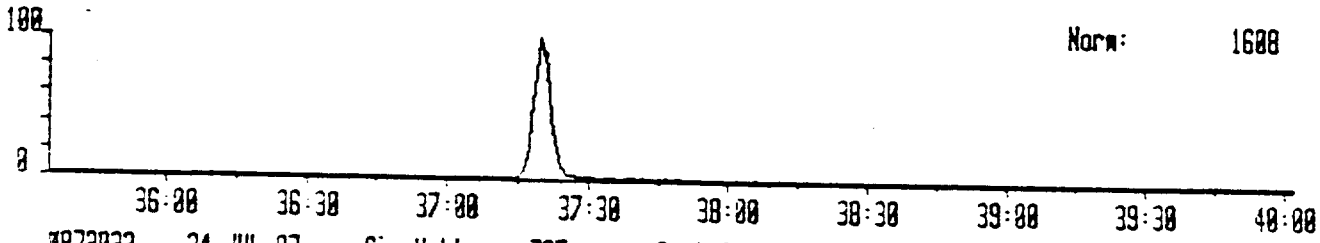
M872032 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 373.3287
Text:1-FB



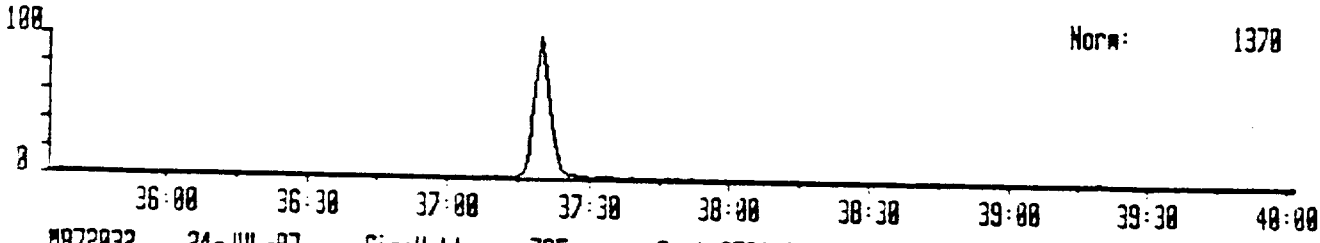
M872032 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 375.8178
Text:1-FB



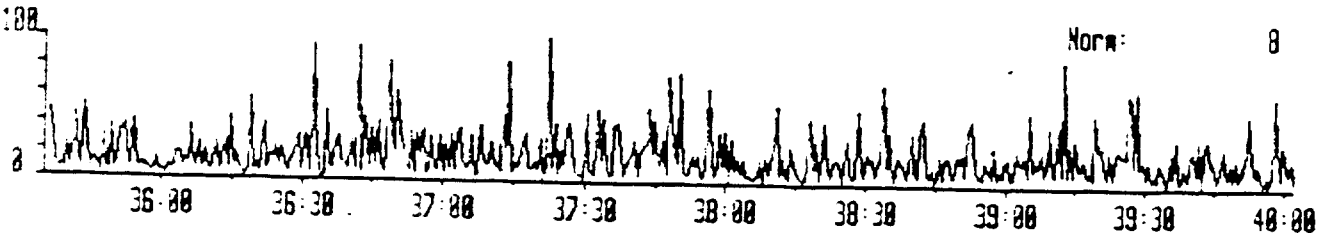
M872032 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 385.8689
Text:1-FB



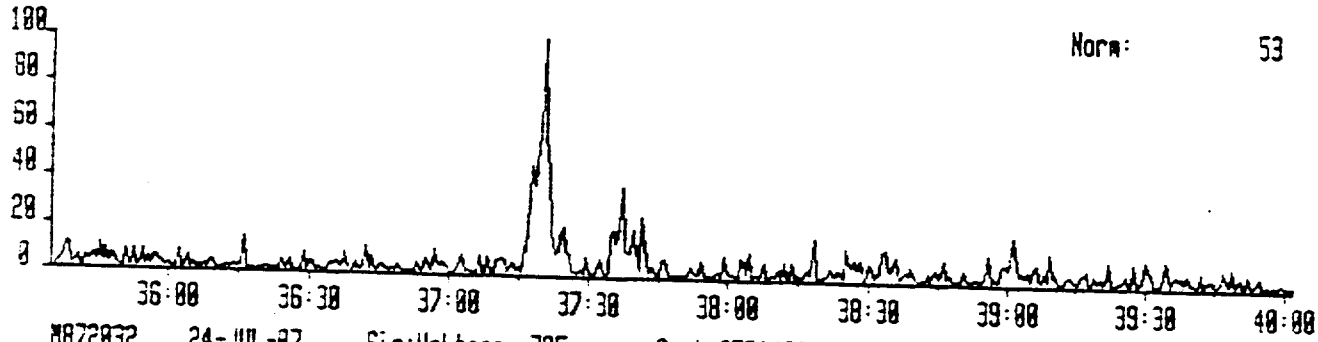
M872032 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 387.8588
Text:1-FB



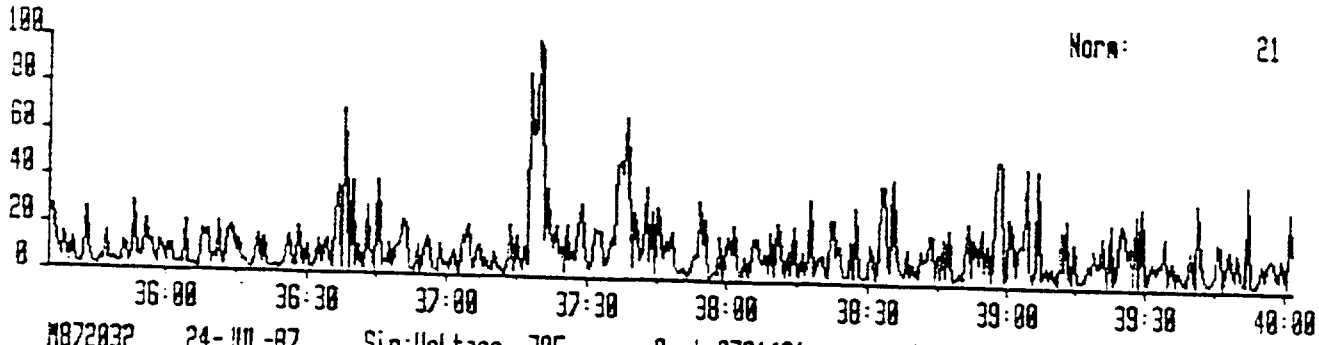
M872032 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:1-FB



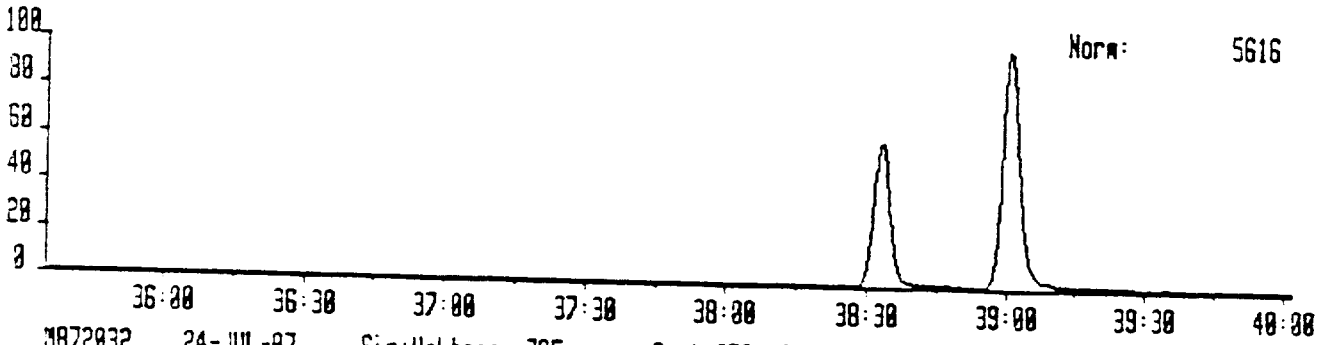
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 389.8156
Text:1-FB



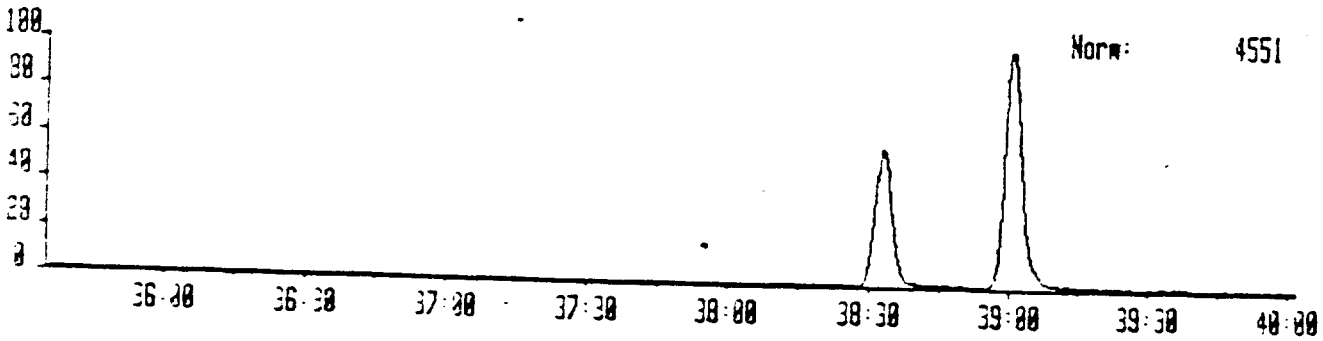
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 391.8127
Text:1-FB



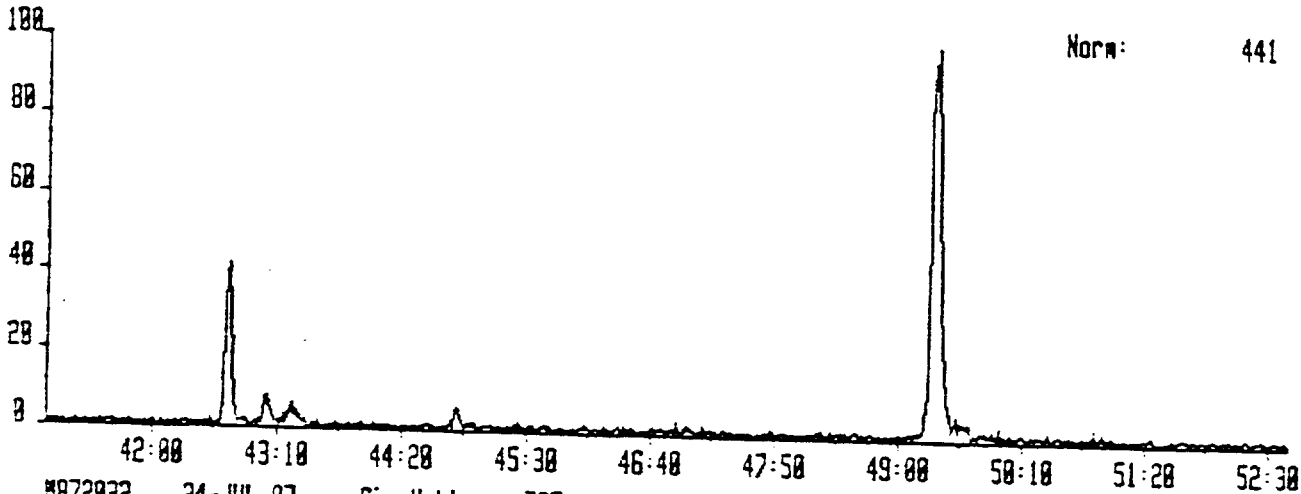
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text:1-FB



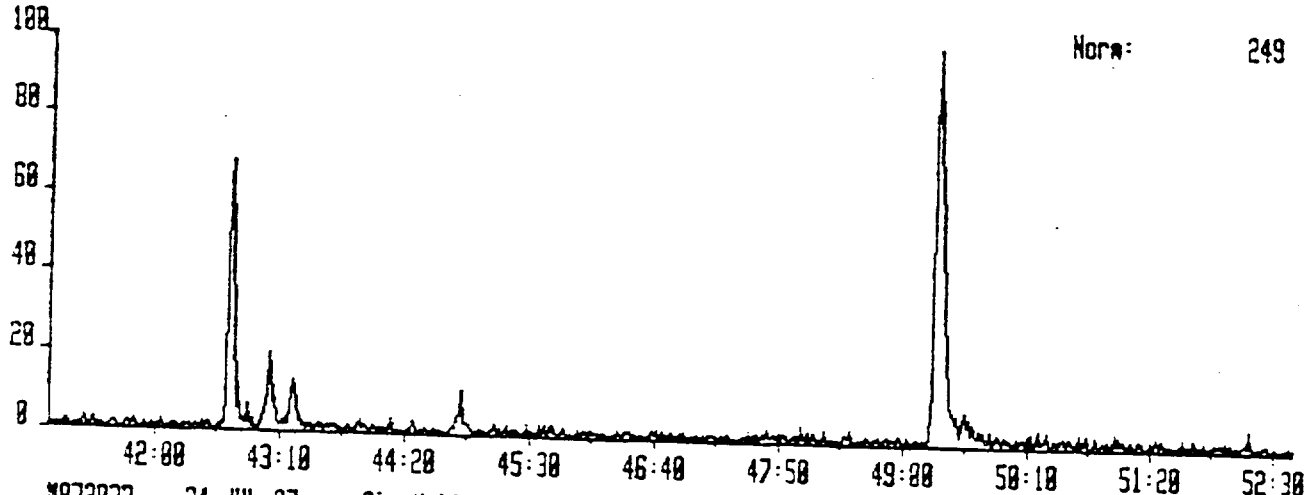
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 403.8529
Text:1-FB



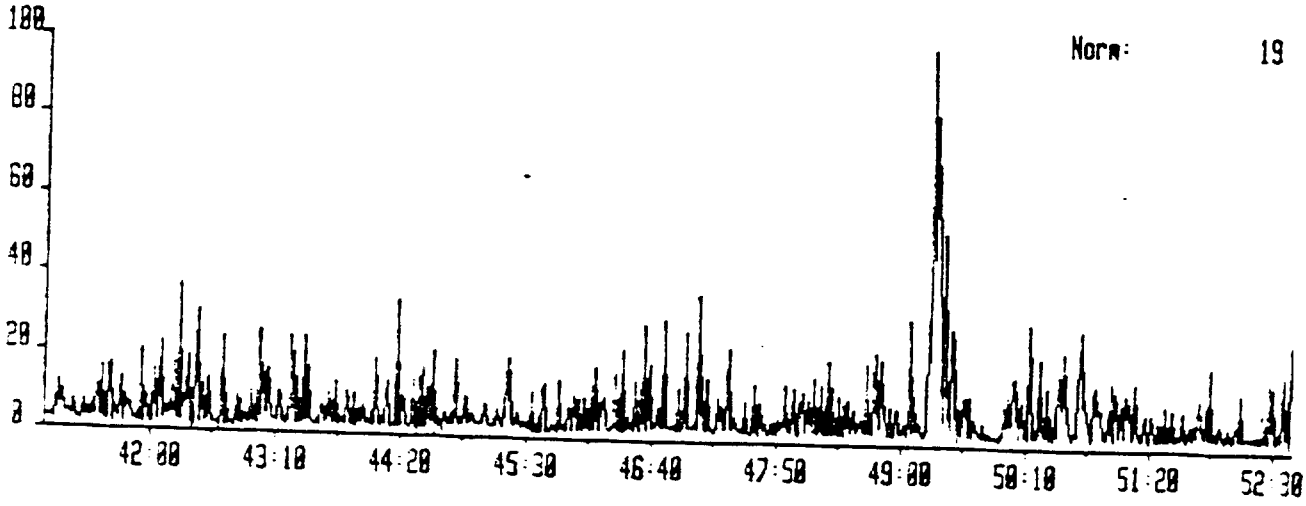
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 4 Mass 487.7817
Text:1-FB



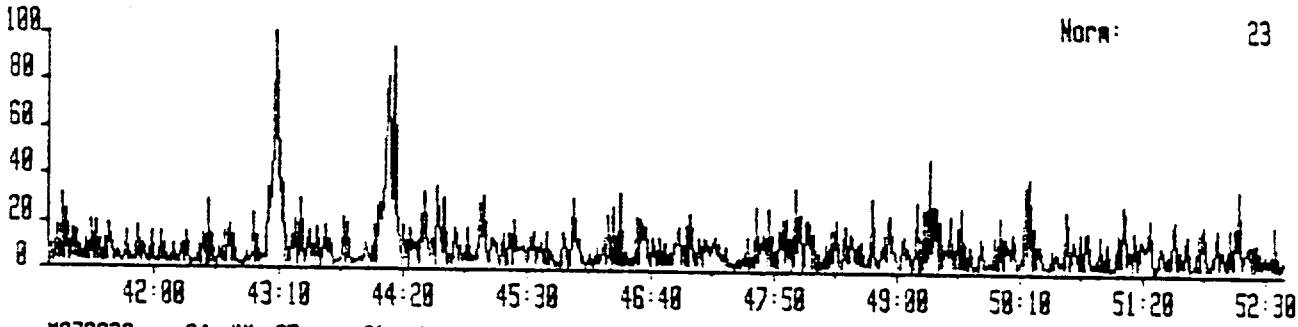
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 4 Mass 489.7788
Text:1-FB



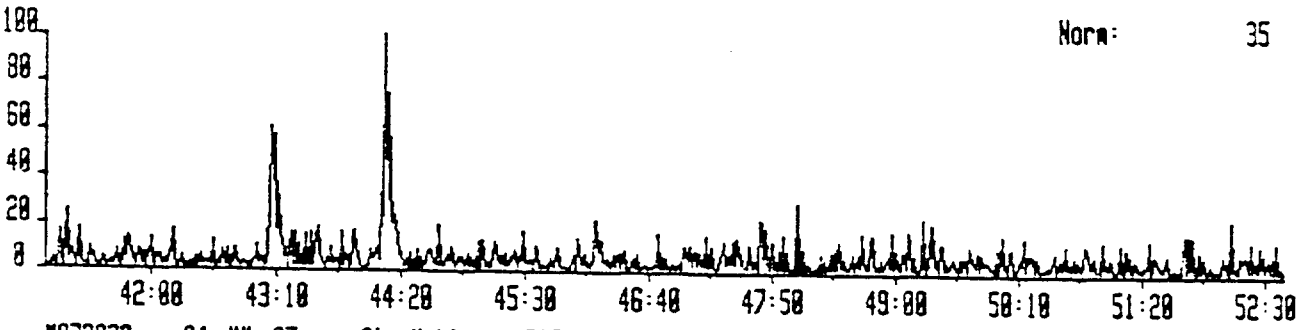
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 4 Mass 477.7288
Text:1-FB



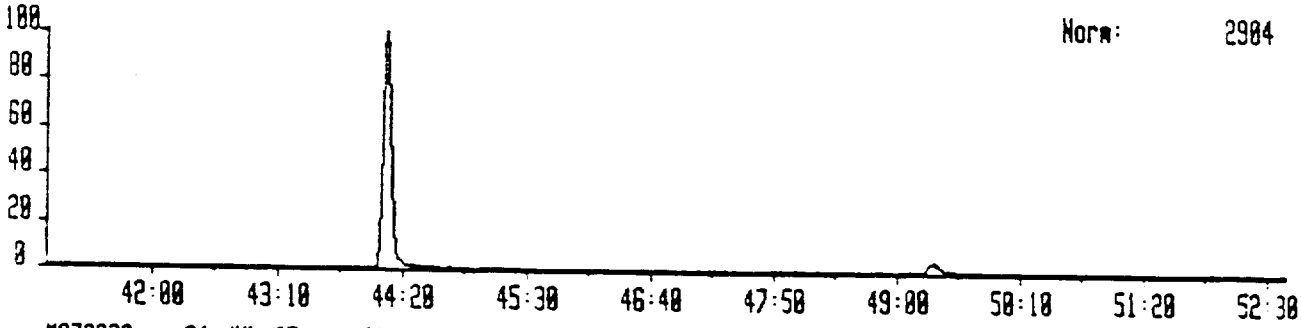
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 Systen:DB5RTST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:1-FB



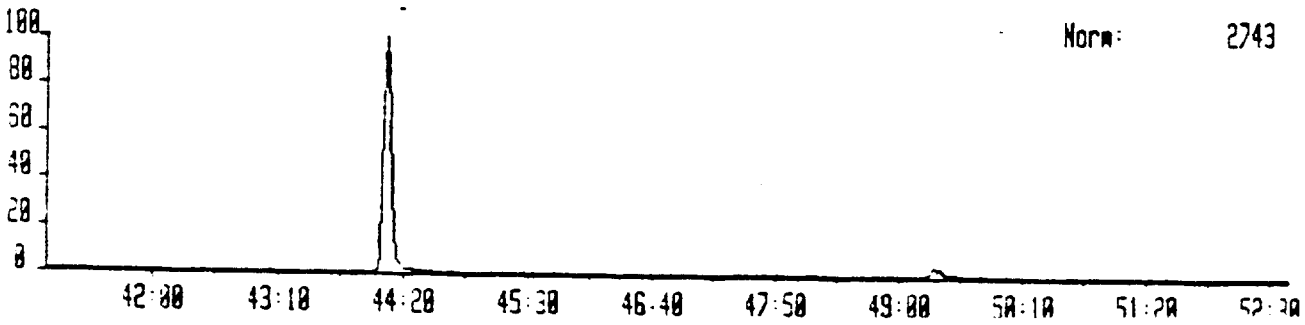
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 Systen:DB5RTST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:1-FB



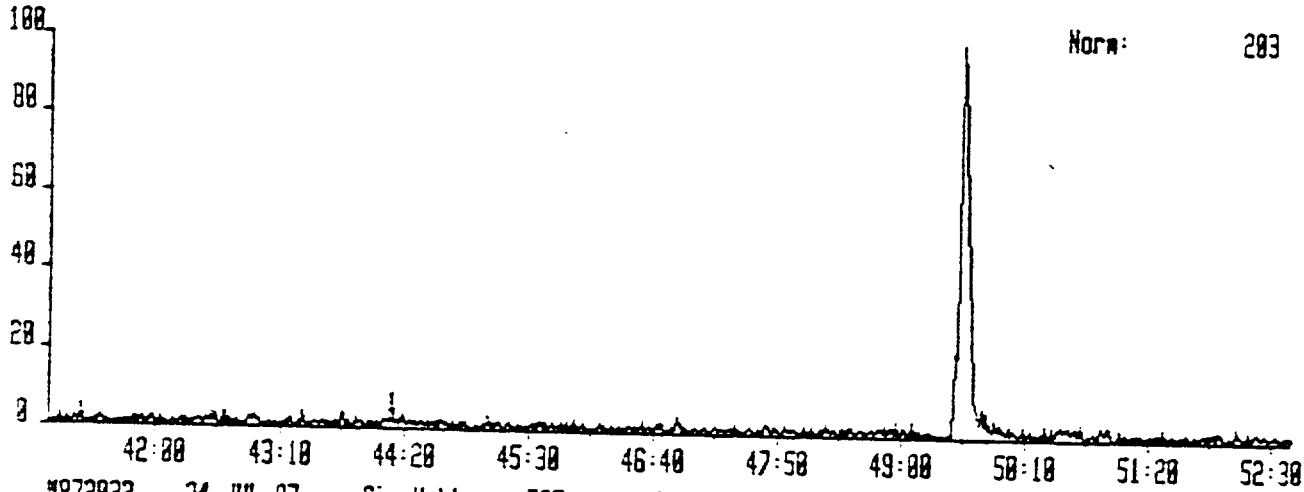
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 Systen:DB5RTST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:1-FB



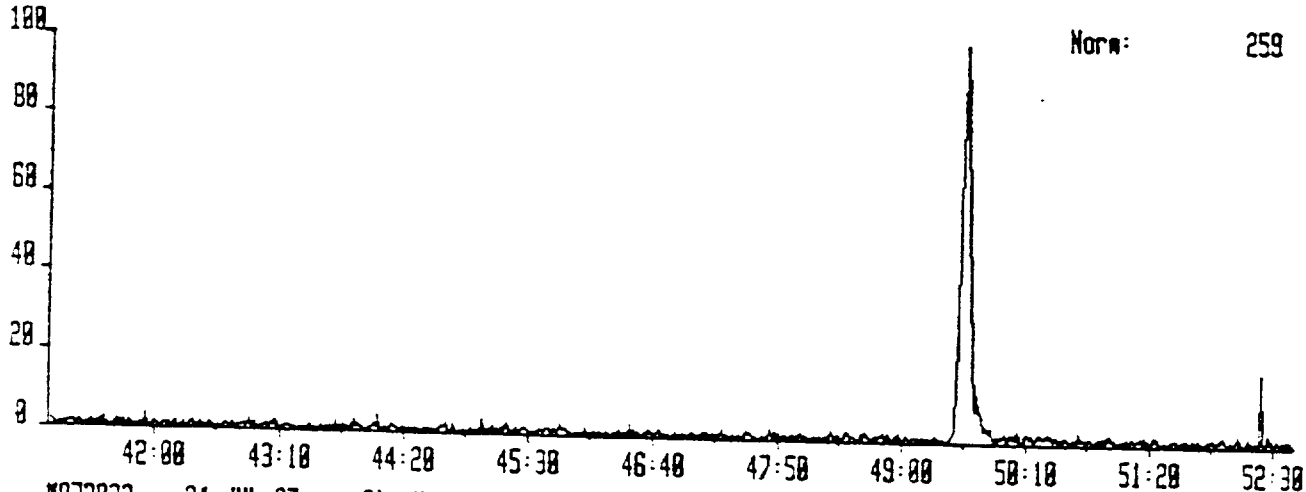
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 Systen:DB5RTST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:1-FB



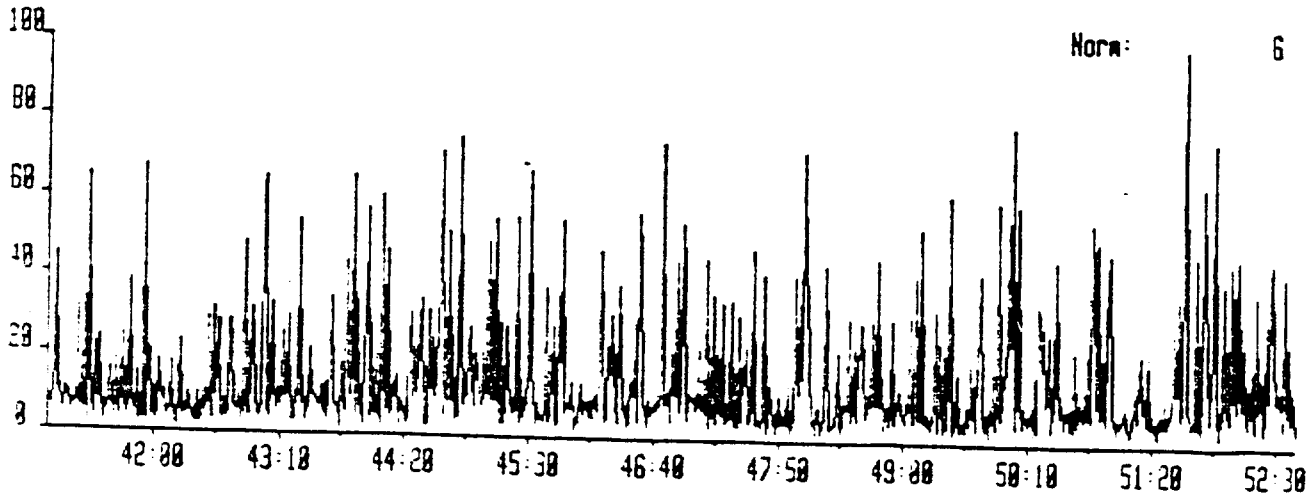
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 4 Mass 441.7428
Text:1-FB



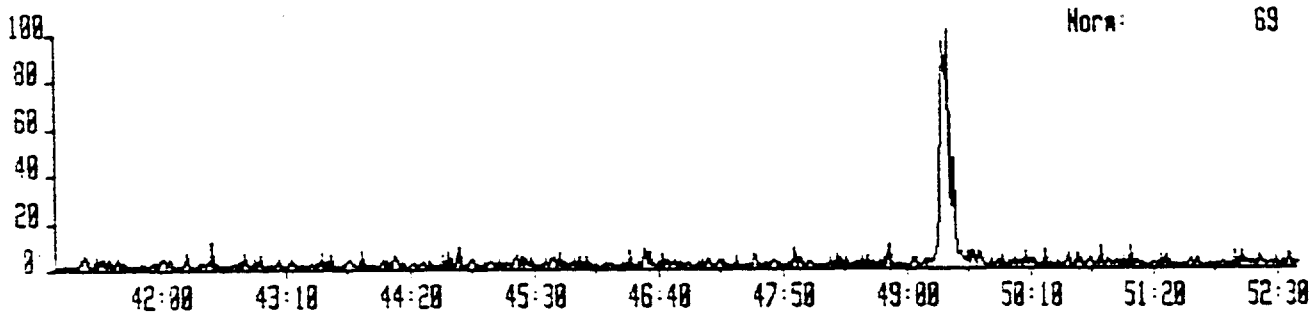
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:1-FB



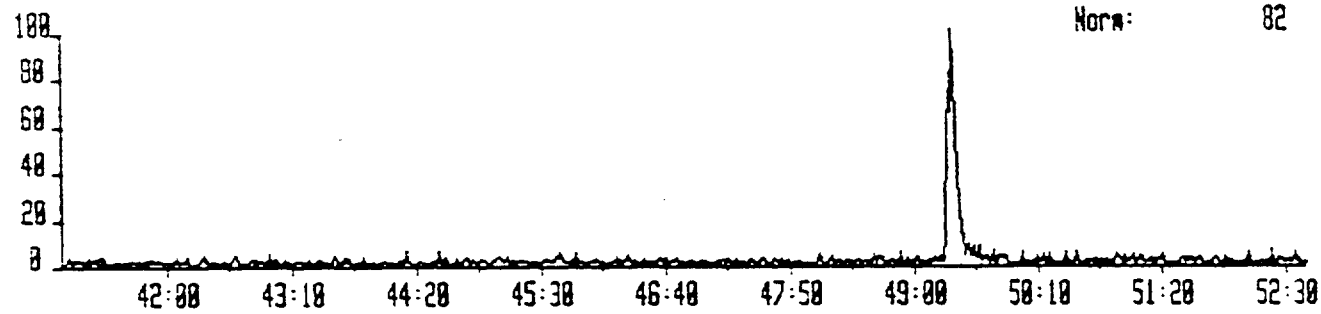
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 4 Mass 511.6818
Text:1-FB



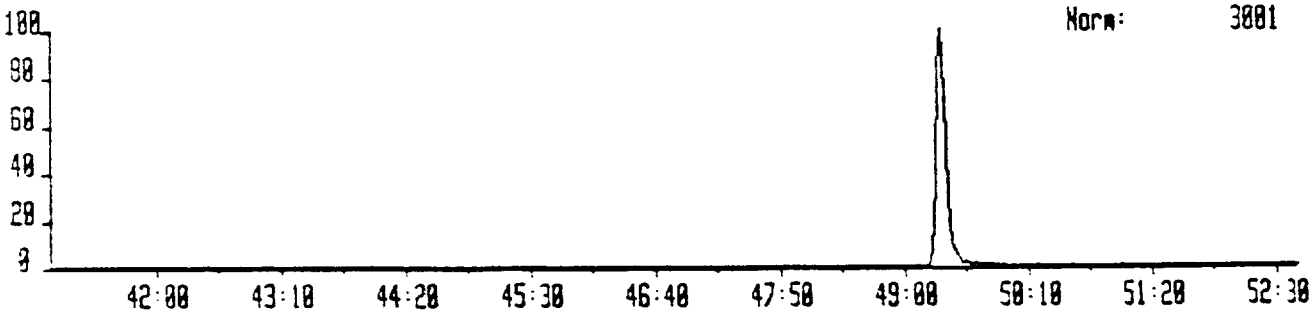
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:1-FB



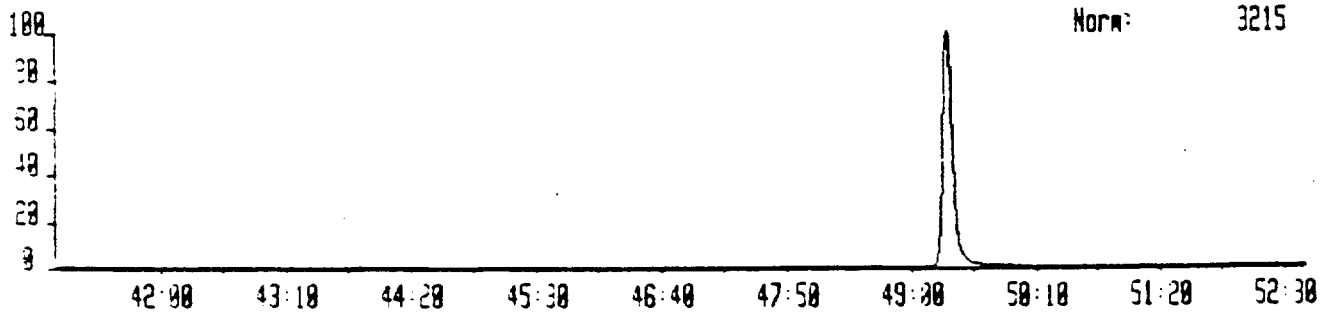
M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:1-FB



M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:1-FB



M872832 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 471.7758
Text:1-FB



TRIANGLE LABORATORIES, INC.
MONO - OCTA DIOXIN CONTINUING CALIBRATION

ANALYST JAJ FILE NAME M872023 ICAL DATE 7-22-87
DATE 7-22-87 STANDARD CONCAL 100 QC check CV 7.85

NAME	DAILY RF	CODE	RATIO	RT	DELTA RF	DELTA AS PERCENT
TOTAL MCDF	1.007	1	3.064		-0.95	-49%
TOTAL MCDD	0.887	1	3.017		-0.40	-31%
TOTAL DCDF	0.358	1	5.754		-0.11	-24%
TOTAL DCDD	0.694	1	1.562		-0.03	-4%
TOTAL TRICDF	0.695	1	1.021		0.11	18%
TOTAL TRICDD	0.490	1	0.897		0.11	30%
2378-TCDF	1.350	1	0.756	26.11	0.03	3%
TOTAL TCDF	1.350	1	0.756		0.03	3%
2378-TCDD	1.048	1	0.826	26.53	0.03	3%
TOTAL TCDD	1.048	1	0.826		0.03	3%
12378-PCDF	2.600	1	0.624	30.32	-0.11	-4%
23478-PCDF	2.486	1	0.640	31.24	-0.01	0%
TOTAL PCDF	2.543	1	0.632		-0.06	-2%
12378-PCDD	2.062	1	0.605	31.50	0.12	6%
TOTAL PCDD	2.062	1	0.605		0.12	6%
123478-HxCDF	2.865	1	1.234	37.24	-0.38	-12%
123678-HxCDF	3.141	1	1.233	37.32	-0.46	-13%
234678-HxCDF	2.423	1	1.242	38.18	-0.32	-12%
123789-HxCDF	1.992	1	1.255	39.26	-0.19	-9%
TOTAL HxCDF	2.605	1	1.239		-0.34	-11%
123478-HxCDD	1.840	1	1.291	38.29	-0.18	-9%
123678-HxCDD	1.820	1	1.237	38.36	-0.18	-9%
123789-HxCDD	1.602	1	1.215	39.05	-0.17	-9%
TOTAL HxCDD	1.754	1	1.249		-0.18	-9%
1234678-HpCDF	2.000	1	1.030	42.45	-0.26	-11%
1234789-HpCDF	1.662	1	1.014	44.53	-0.12	-7%
TOTAL HpCDF	1.831	1	1.023		-0.19	-9%
1234678-HpCDD	1.324	1	1.047	44.14	-0.01	-1%
TOTAL HpCDD	1.324	1	1.047		-0.01	-1%
OCDF	0.972	1	0.868	49.38	-0.12	-11%
OCDD	0.876	1	0.888	49.24	-0.05	-5%

SURROGATE RESPONSE FACTOR SUMMARY

NAME	DAILY RF	CODE	RATIO	RT	DELTA RF	DELTA AS PERCENT
13C12-TCDF	1.361	2.00	0.826	26.11	-0.06	-4%
37C1-TCDD	2.401	2.00		26.53	-0.01	0%
13C12-HxCDF	2.552	2.00	1.276	37.23	-0.10	-4%

INTERNAL STANDARDS RESPONSE FACTOR SUMMARY

NAME	DAILY RF	CODE	RATIO	RT	DELTA RF	DELTA AS PERCENT
2378-13C12-TCDD	1.342	3.00	0.771	26.52	-0.03	-2%
13C12-PCDD	0.605	3.00	0.555	31.49	0.10	20%
13C12-HxCDD	0.620	3.00	1.271	38.36	0.01	2%
13C12-HpCDD	0.742	3.00	1.061	44.14	-0.08	-10%

TRIANGLE LABORATORIES, INC.
DIOXIN/FURAN DATA SHEET

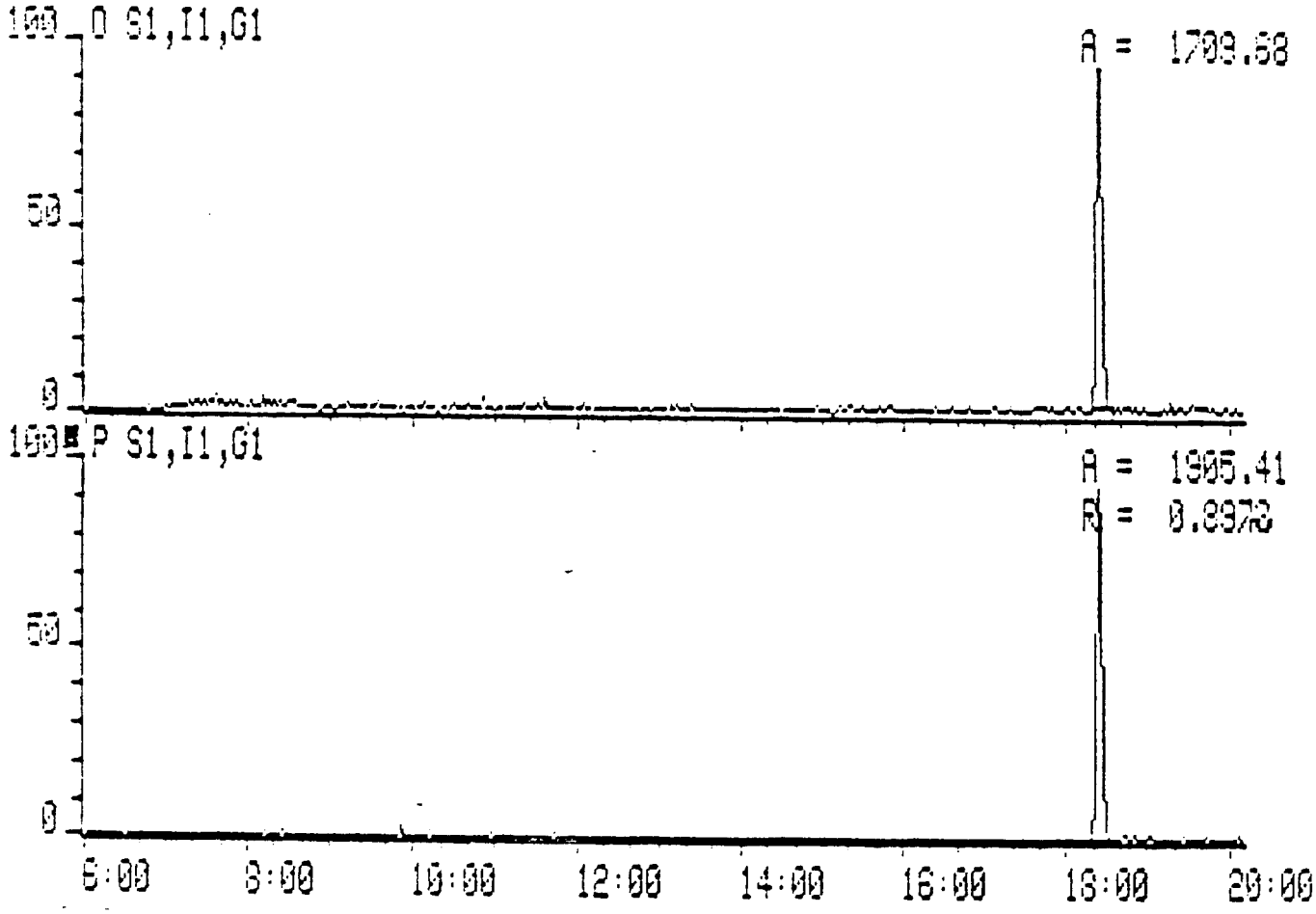
FILE NAME : M972023
CHEMIST : JAJ
SAMPLE WT : _____

TLI PROJECT # : _____
DATE : 7/30/86
SAMPLE ID : 1 CONCAL
CONCAL # : _____

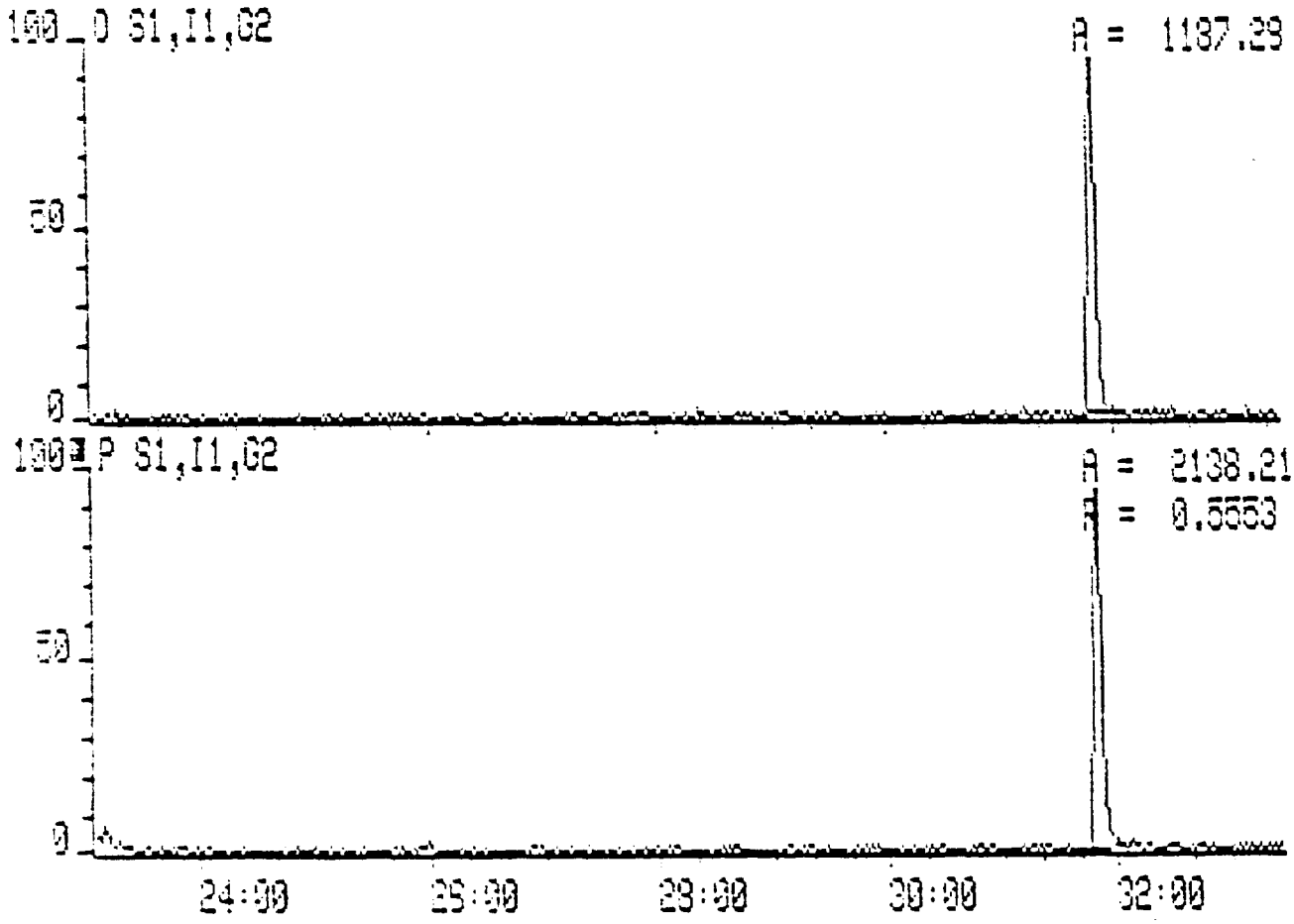
COMPOUND	M/Z	RATIO RANGE	AREA	RETENTION TIME	NO. OF ISOMERS
TOTAL MCDF	202	(2.61-3.53)	5595		___
	204		1826		
TOTAL MCDD	218	(2.61-3.53)	4911		___
	220		1628		
PCDE	272		-		
TOTAL DCDF	238	(5.21-7.05)	2250		___
	240		392		
TOTAL DCDD	252	(1.30-1.76)	3120		___
	254		1998		
PCDE	306		-		
TOTAL TRICDF	270	(0.87-1.17)	2588		___
	272		2535		
TOTAL TRICDD	286	(0.87-1.17)	1710		___
	288		1905		
PCDE	340				
2378-TCDF	304	(0.65-0.89)	4285	26.11	
	306		5669		
TOTAL TCDF	304	(0.65-0.89)			___
	306				
13C12-TCDF	316	(0.65-0.89)	4539	26.11	
	318		5493		
2378-TCDD	320	(0.65-0.89)	3495	26.53	
	322		4231		
TOTAL TCDD	320	(0.65-0.89)			___
	322				
37C1-TCDD	328		7707	26.53	
1234-13C12-TCDD	332	(0.65-0.89)	2411	26.42	
	334		3082		
2378-13C12-TCDD	332	(0.65-0.89)	3210	26.52	
	334		4161		
PCDE	374		-		
12378-PeCDF	338	(0.52-0.70)	16601	30.32	
	340		~~16129~~ 26620		
23478-PeCDF	338	(0.52-0.70)	16129	31.24	
	340		25202		
TOTAL PeCDF	338	(0.52-0.70)			___
	340				
12378-PeCDD	354	(0.52-0.70)	12917	31.50	
	356		21368		
TOTAL PeCDD	354	(0.52-0.70)			___
	356				

COMPOUND	M/Z	RATIO RANGE	AREA	RETENTION TIME	NO. OF ISOMERS
13C12-PeCDD	366	(0.52-0.70)	1197		
	368		2138		
123478-HxCDF	374	(1.05-1.41)	32172	37.24	
	376		26080		
123678-HxCDF	374	(1.05-1.41)	35263	37.32	
	376		29601		
234678-HxCDF	374	(1.05-1.41)	27292	38.18	
	376		21973		
123789-HxCDF	374	(1.05-1.41)	22544	39.26	
	376		17966		
TOTAL HxCDF	374	(1.05-1.41)			
	376				
13C12HxCDF	386	(1.05-1.41)	5520	37.23	
	388		4560		
123478-HxCDD	390	(1.05-1.41)	21044	38.29	
	392		16330		
123678-HxCDD	390	(1.05-1.41)	20459	38.36	
	392		16541		
123789-HxCDD	390	(1.05-1.41)	17867	39.05	
	392		14708		
TOTAL HxCDD	390	(1.05-1.41)			
	392				
13C12-HxCDD	402	(1.05-1.41)	2276	38.36	
(123678)	404		1791		
HxCDD-13C	402	(1.05-1.41)	3636	39.03	
(123789)	404		2927		
PCDE	408				
PCDE	444				
1234678-HpCDF	408	(0.87-1.17)	24698	42.45	
	410		23473		
1234789-HpCDF	408	(0.87-1.17)	20363	44.53	
	410		20060		
TOTAL HpCDF	408	(0.87-1.17)			
	410				
1234678-HpCDD	424	(0.87-1.17)	16482	44.14	
	426		15742		
TOTAL HpCDD	424	(0.87-1.17)			
	426				
13C12-HpCDD	436	(0.87-1.17)	2505	44.14	
	438		2362		
PCDE	478				
OCDF	442	(0.75-1.01)	23711	49.38	
	444		27324		
OCDD	458	(0.75-1.01)	21638	49.24	
	460		24359		
13C12-OCDD	470	(0.75-1.01)	4414	49.24	
	472		5591		
PCDE	512				

M672023 24-JUL-87 02:16 70E (EI+) Sus:DB5ATST
GR 1 M: 283.3406 N: 271.9377 O: 295.9355 P: 287.9326 Q: 339.8790
Text:CONCAL



M872083 24-JUL-87 02:16 70E (EI+) Sus:DB5RTST
GR 2 M: 353.8575 N: 355.8546 O: 365.8377 P: 367.8348 Q: 407.8003
Text:CONCAL



M872023

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 202.02

	AREA	RETENTION TIME
1	5.594515E+03	0:10:34

M872023

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 204.02

	AREA	RETENTION TIME
1	1.825589E+03	0:10:34
2	7.528540E+01	0:12:50

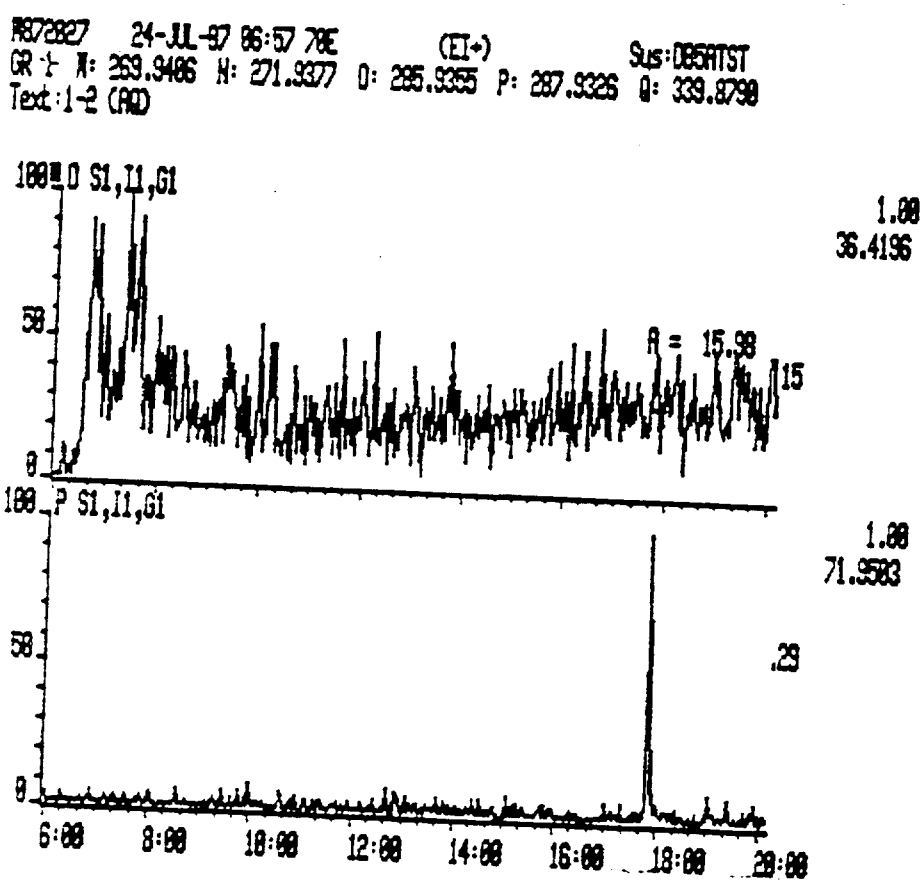
M872023

M872031B
MATCHED GC PEAKS /RATIO/ RET TIME

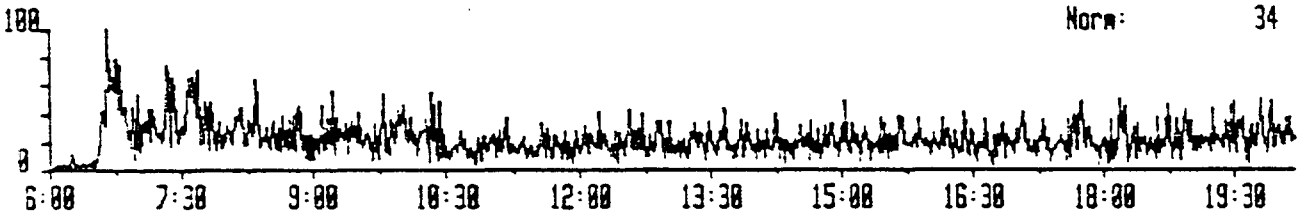
M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
286	0.06	17.44	268.09	.F.	.F.	0.000
316	0.89	25.45	1215.07	.T.	.F.	0.960
316	0.81	26.07	31609.40	.T.	.T.	0.973
320	9.51	26.07	336.35	.F.	.F.	0.973
328	0.00	26.51	24906.30	.T.	.T.	1.001
332	0.79	26.38	25073.29	.T.	.T.	0.993
332	0.76	26.50	25412.04	.T.	.T.	1.000
366	0.58	31.47	13847.10	.T.	.T.	1.000
386	1.25	37.21	39992.14	.T.	.T.	0.969
390	3.25	37.20	327.25	.F.	.F.	0.968
402	1.22	38.33	17134.82	.T.	.T.	1.000
402	1.25	39.01	30947.67	.T.	.T.	1.012
424	0.93	43.07	114.00	.T.	.F.	0.976
424	0.92	44.12	171.30	.T.	.T.	1.000
436	1.02	44.11	19505.35	.T.	.T.	1.000
442	1.36	49.34	171.66	.F.	.T.	1.005
458	0.78	49.20	674.00	.T.	.T.	1.000
470	0.91	49.20	29968.52	.T.	.T.	1.000
*** Total ***						
***	26.29	636.58	261674.35			16.830

M872031I
RAW MASS AND AREA DATA

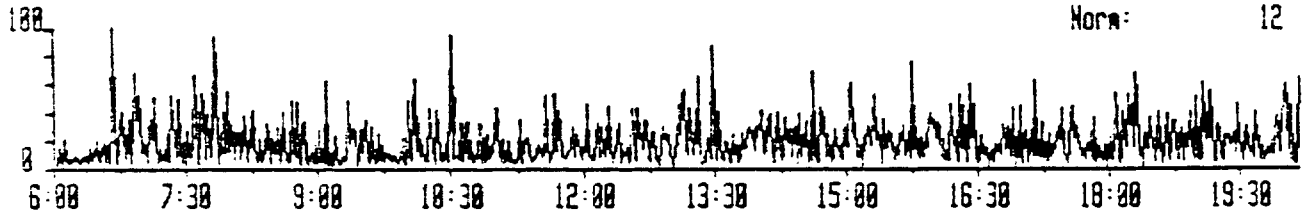
MASS	AREA	RET.TIME	
270	10.00	14.00	
272	10.00	15.00	
286	10.00	16.00	- 14 @ 17:44
288	254.09	17.44	
304	10.00	17.00	
306	355.72	31.47	
316	573.10	25.45	
316	14120.81	26.07	
318	641.97	25.45	
318	17488.59	26.07	
320	304.35	26.07	
322	10.00	18.00	- 32 @ 26:07
328	24906.30	26.51	
332	105.88	24.48	
332	101.74	26.07	
332	11080.07	26.38	
332	10998.63	25.50	
332	146.46	27.09	
332	199.25	28.48	
334	13993.22	26.38	
334	14413.41	26.50	
334	160.79	31.47	
338	10.00	19.00	
340	10.00	20.00	
354	10.00	21.00	
356	10.00	22.00	
366	5102.67	31.47	
368	8744.43	31.47	
374	10.00	23.00	
376	10.00	24.00	
386	22201.79	37.21	
388	17790.35	37.20	
390	250.25	37.20	
392	10.00	23.00	← 77 @ 37:20
402	9421.02	38.33	
402	17197.30	39.01	
404	7713.30	38.33	
404	13749.87	39.01	
408	10.00	26.00	
410	862.02	49.20	← 55 @ 43:07
424	48.49	43.09	
424	82.11	44.12	← (INS): 426: 59 @ 43:07
426	89.19	44.12	
436	9838.69	44.11	
438	9666.66	44.11	
438	497.33	49.21	
442	98.33	49.34	
444	72.73	49.36	
458	273.34	49.21	- 295 @ 49:22
460	332.34	49.21	- 379 @ 49:20


MS72827 24-JUL-97 06:57 70E (EI+) Sus:DBSRTST
GR 1- M: 259.9486 H: 271.9377 O: 285.9355 P: 287.9326 Q: 339.8798
Text:1-2 (PKD)
100 O S1,I1,G1
1.00
36.4196
50
A = 15.98
15
0
100 P S1,I1,G1
1.00
71.9583
50
.29
0
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00

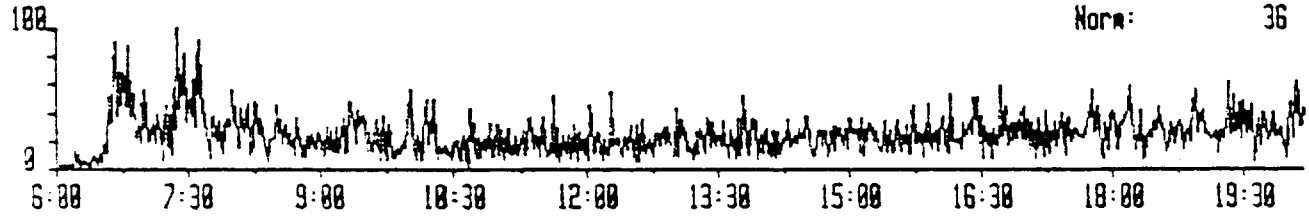
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 1 Mass 269.9486
Text:1-2 (AQ)



M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 1 Mass 271.9377
Text:1-2 (AQ)

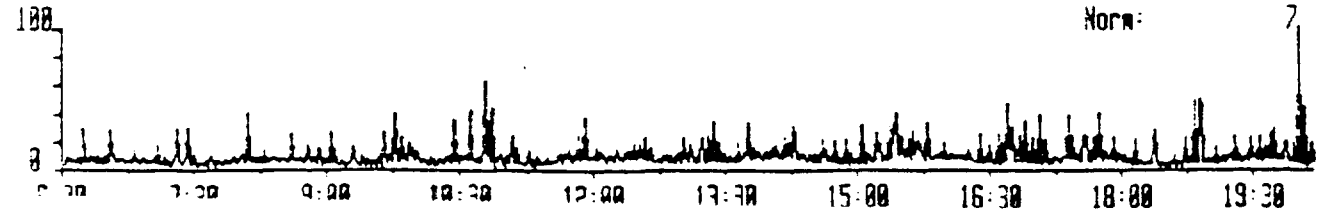


M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 1 Mass 285.9355
Text:1-2 (AQ)

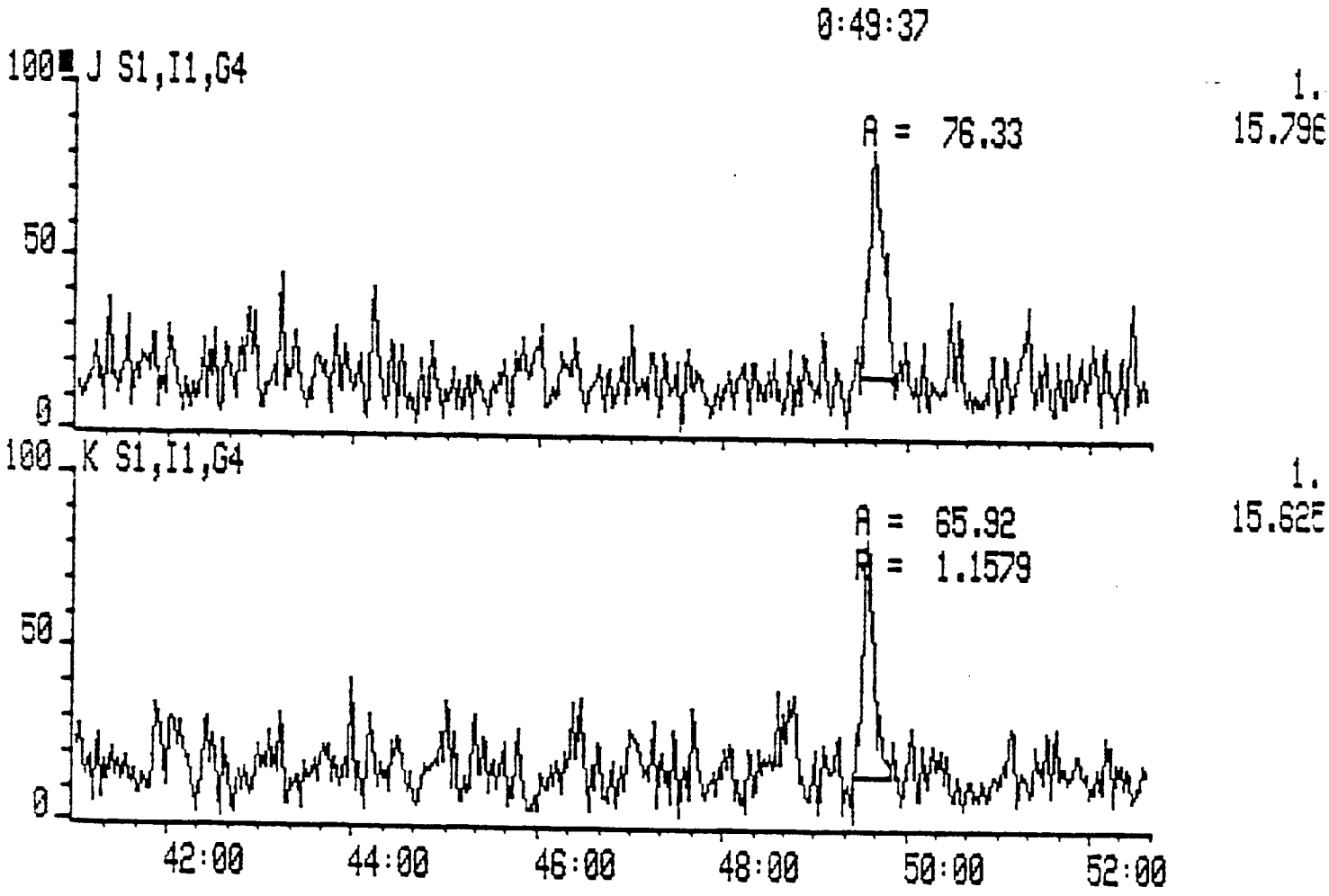


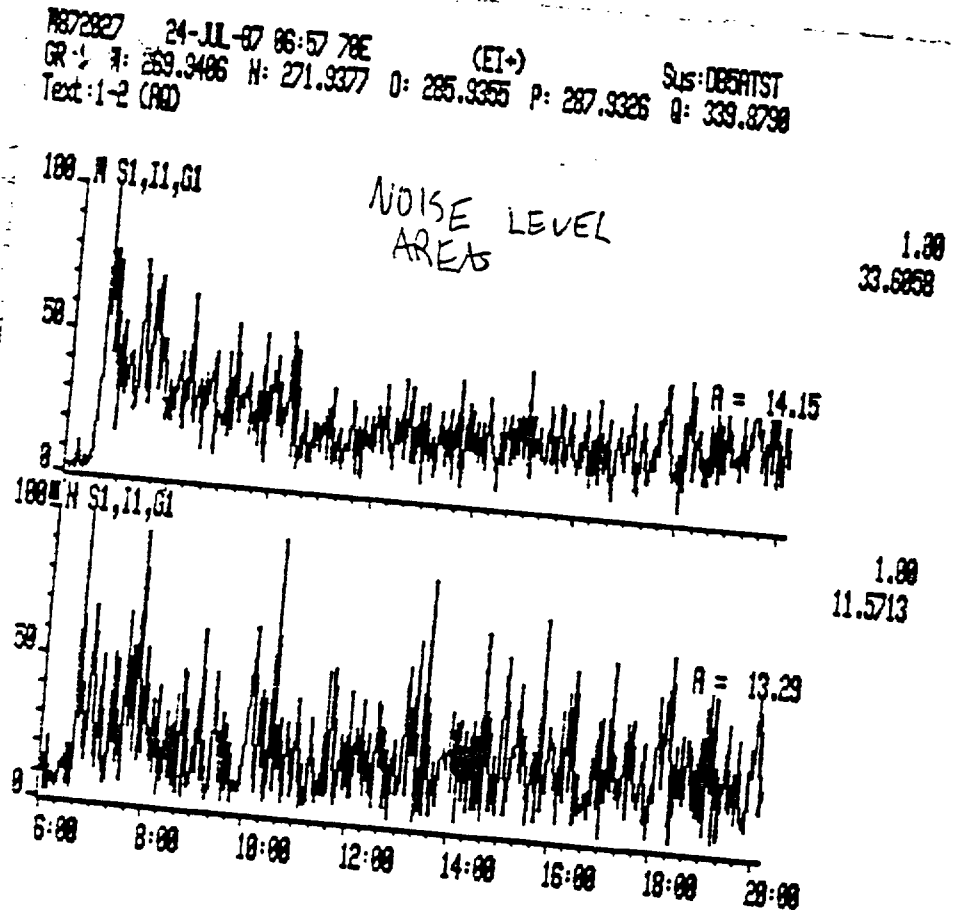
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:1-2 (AQ)

M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 1 Mass 339.8798
Text:1-2 (AQ)

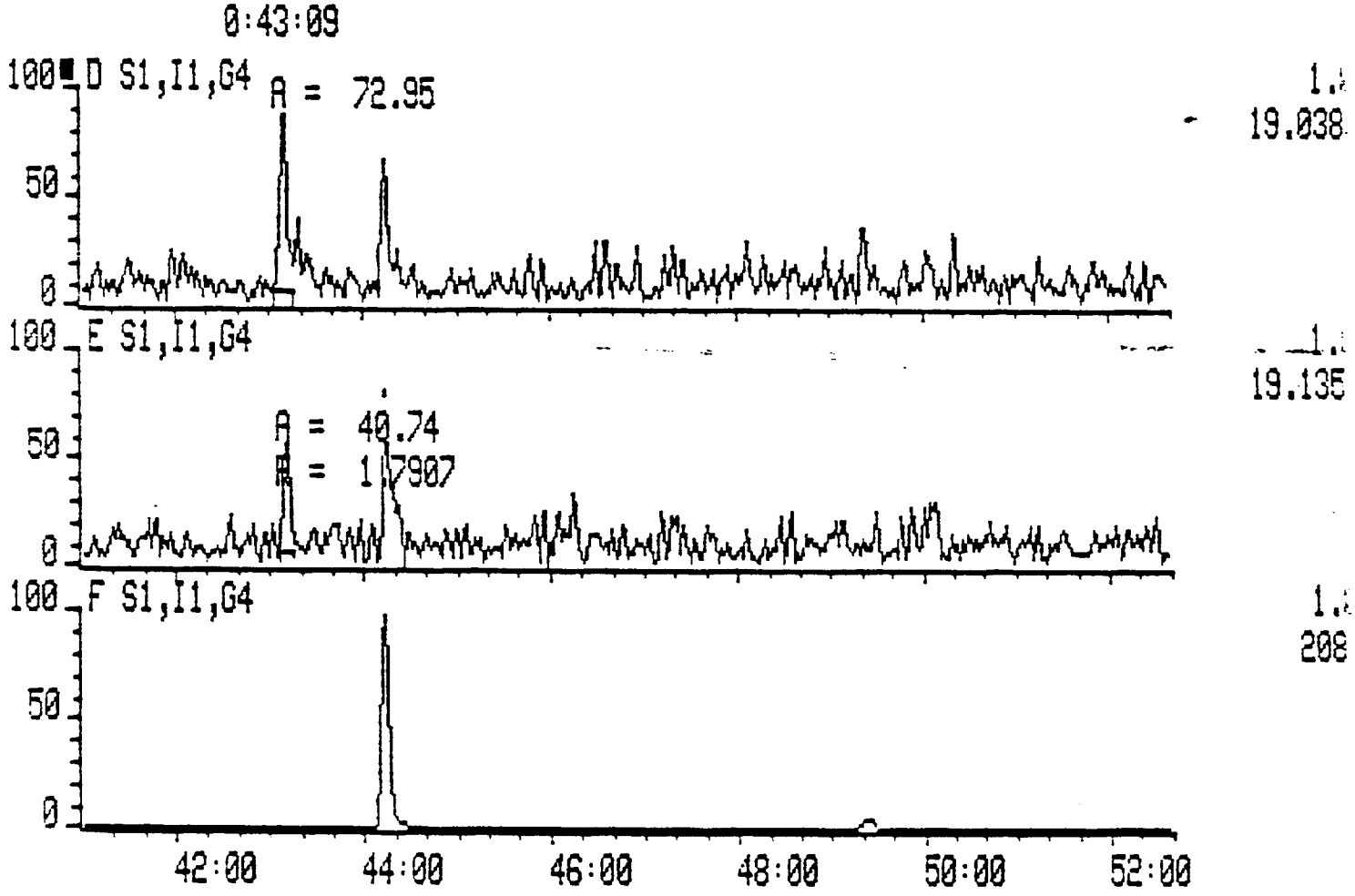


M872027 24-JUL-87 06:57 70E (EI+) Sus:DB5ATST
GR 4 I: 477.7200 J: 441.7428 K: 443.7399 L: 457.7377 M: 459.7347
Text:1-2 (AQ)

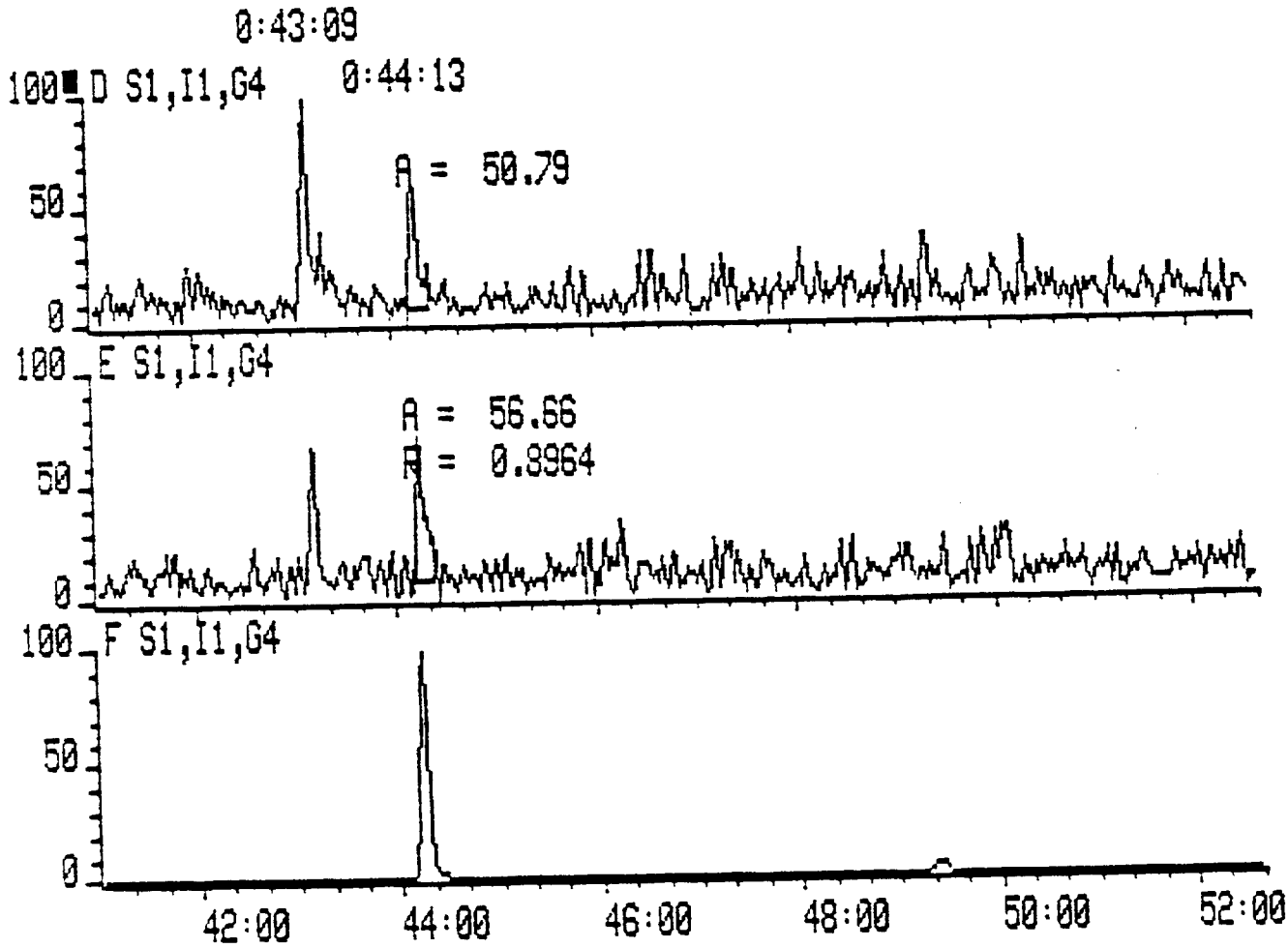



M872827 24-JUL-87 06:57 78E
GR-1 A: 259.3486 H: 271.9377 O: 285.9355 P: 287.9326 (ET+)
Text:1-2 (RAD)
Sys:DBSRTST
Q: 339.8798
100 M S1,I1,G1
NOISE LEVEL AREA
1.00
33.6858
50
0
A = 14.15
100 M S1,I1,G1
1.00
11.5713
50
0
A = 13.29
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00

M872027 24-JUL-87 06:57 70E (EI+) Sys:DB5ATST
GR 4 D: 423.7766 E: 425.7737 F: 435.8169 G: 437.8139 H: 430.9729
Text:1-2 (AQ)



M872027 24-JUL-87 06:57 70E (EI+) Sys:DB5ATST
GR 4 D: 423.7766 E: 425.7737 F: 435.8169 G: 437.8139 H: 430.3729
Text:1-2 (AQ)

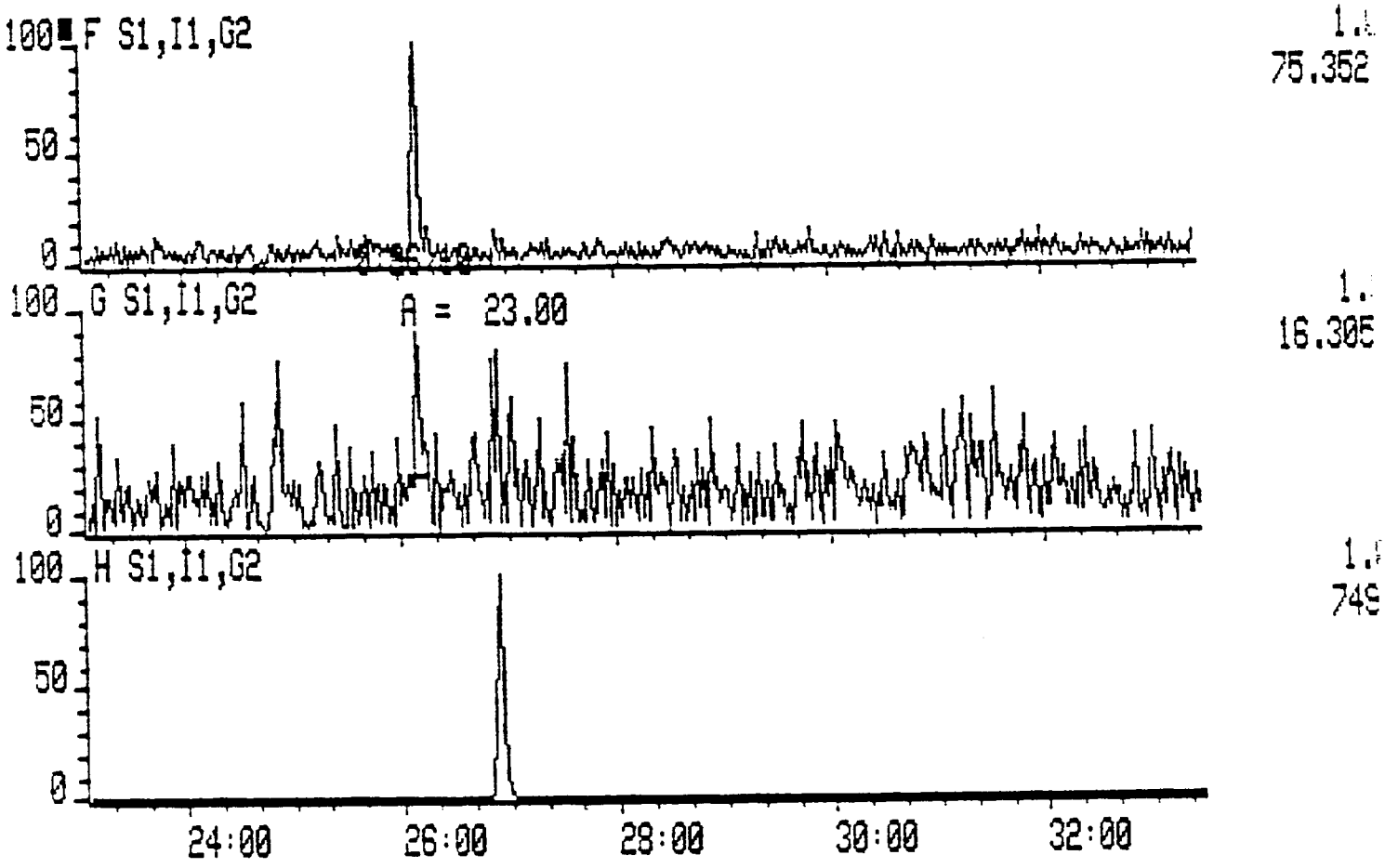


1.
19.03E

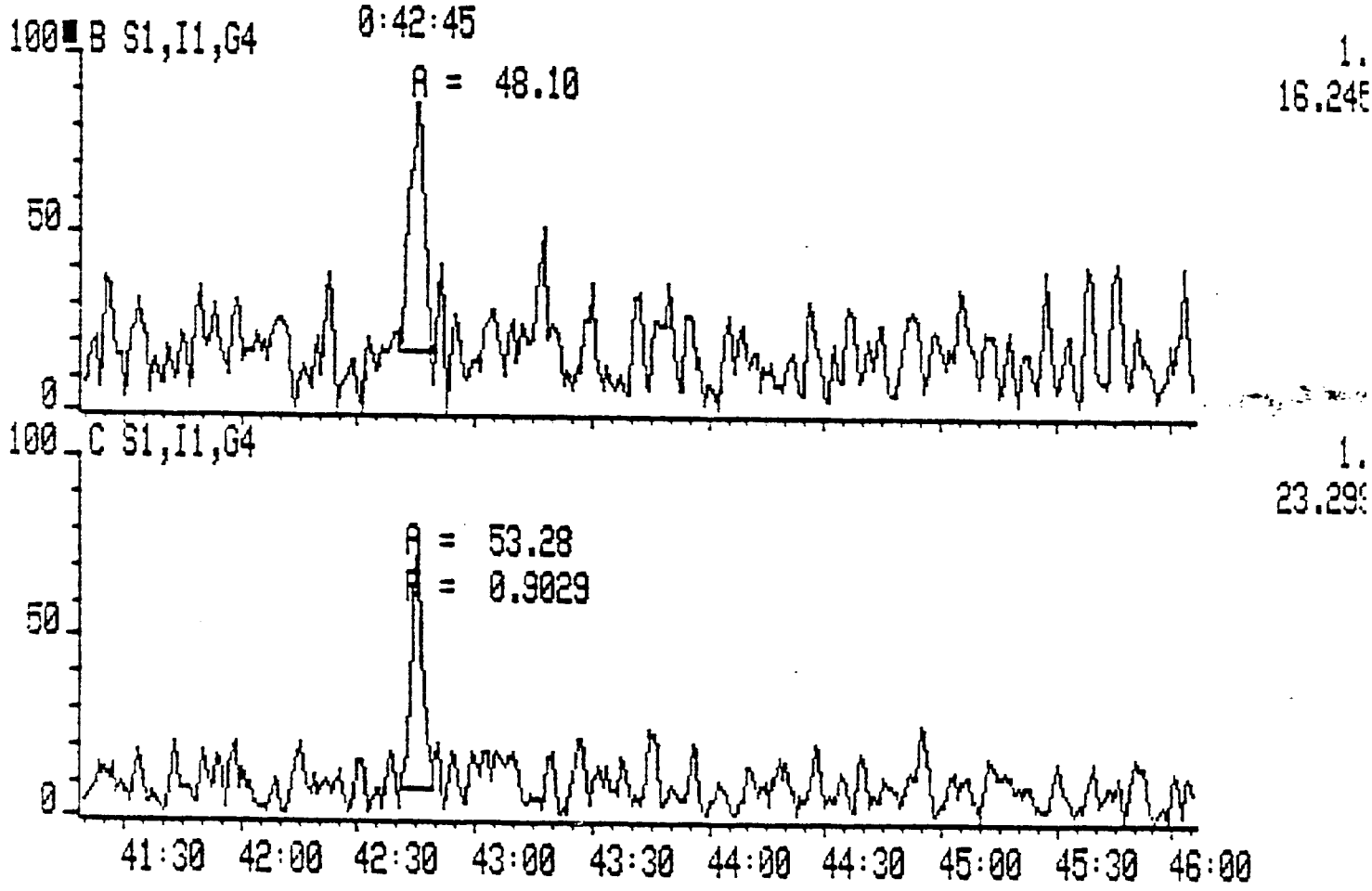
1.
19.13E

1.
20E

M872027 24-JUL-87 06:57 70E (EI+) Sys:DB5ATST
GR 2 F: 319.8965 G: 321.8936 H: 327.8847 I: 331.9368 J: 333.9338
Text:1-2 (AQ)



M872027 24-JUL-87 06:57 70E (EI+) Sus:DB5ATST
GR 4 F: 435.8169 G: 437.8139 H: 430.9729 I: 477.7200 J: 441.7428
Text:1-2 (AQ)



M872027I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
472	16853.87	49.22
*** Total ***		
****	280012.82	1585.92

M872027B
MATCHED GC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
315	0.67	25.49	1465.33	.T.	.F.	0.960
316	0.79	26.10	34624.27	.T.	.T.	0.973
328	0.00	26.54	27499.41	.T.	.T.	1.001
332	0.79	26.41	25215.73	.T.	.T.	0.993
332	0.84	26.53	27981.11	.T.	.T.	1.000
366	0.60	31.50	15009.79	.T.	.T.	1.000
386	1.24	37.23	40589.12	.T.	.T.	0.968
390	3.51	37.23	343.27	.F.	.F.	0.968
402	1.20	38.36	17867.53	.T.	.T.	1.000
402	1.24	39.04	32560.05	.T.	.T.	1.012
436	1.04	44.13	20908.96	.T.	.T.	1.000
458	0.88	49.23	355.56	.T.	.T.	1.000
470	0.94	49.22	32626.37	.T.	.T.	1.000
*** Total ***						
***	13.74	457.01	277046.50			12.875

M872027B
MATCHED GC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
286	0.06	17.48	262.37	.F.	.F.	0.000
316	0.67	25.49	1465.33	.T.	.F.	0.960
316	0.79	26.10	34624.27	.T.	.T.	0.973
320	12.07	26.10	300.68	.F.	.F.	0.973
323	0.00	26.54	27499.41	.T.	.T.	1.001
332	0.79	26.41	25215.73	.T.	.T.	0.993
332	0.34	26.53	27981.11	.T.	.T.	1.000
366	0.60	31.50	15009.79	.T.	.T.	1.000
386	1.24	37.23	40589.12	.T.	.T.	0.968
390	3.51	37.23	343.27	.F.	.F.	0.968
402	1.20	38.36	17867.53	.T.	.T.	1.000
402	1.24	39.04	32560.05	.T.	.T.	1.012
408	0.90	42.45	101.40	.T.	.T.	0.967
424	1.79	43.09	113.70	.F.	.F.	0.976
424	0.90	44.13	107.50	.T.	.T.	1.000
436	1.04	44.13	20908.96	.T.	.T.	1.000
442	1.16	49.37	142.20	.F.	.T.	1.005
458	0.88	49.23	355.56	.T.	.T.	1.000
470	0.94	49.22	32626.37	.T.	.T.	1.000
*** Total ***						
***	30.62	679.63	278074.35			17.796

M872027I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
270	10.00	14.00
272	10.00	15.00
286	10.00	16.00
288	246.37	17.48
304	44.07	26.41
306	260.71	31.50
316	588.40	25.49
316	15252.31	26.10
318	876.93	25.49
318	19371.96	26.10
320	277.68	26.10
322	10.00	17.00
328	27499.41	26.54
332	119.42	24.09
332	174.30	26.24
332	11143.37	26.41
332	12765.44	26.53
334	14072.36	26.41
334	15215.67	26.53
334	172.72	31.49
338	10.00	18.00
340	10.00	19.00
354	10.00	20.00
356	10.00	21.00
366	5632.11	31.50
368	9377.68	31.50
374	10.00	22.00
376	10.00	23.00
386	22454.71	37.23
388	18134.41	37.23
390	267.24	37.23
392	76.03	37.23
402	9755.63	38.36
402	18041.64	39.04
404	8111.90	38.36
404	14518.41	39.04
408	10.00	24.00
410	49.86	42.45
410	340.31	49.22
424	52.62	43.10
426	65.49	44.1
436	10669.39	44.13
438	10239.57	44.13
438	522.77	49.23
442	10.00	25.00
444	10.00	26.00
458	166.70	49.23
460	188.86	49.22
470	15772.50	49.22
470*	10.00	27.00

16 @ 17:48

23 @ 26:10

408, 48.1 @ 42:45

53.3 @ 42:45

73 @ 43:09

INS 424: 50.8 @ 44:13

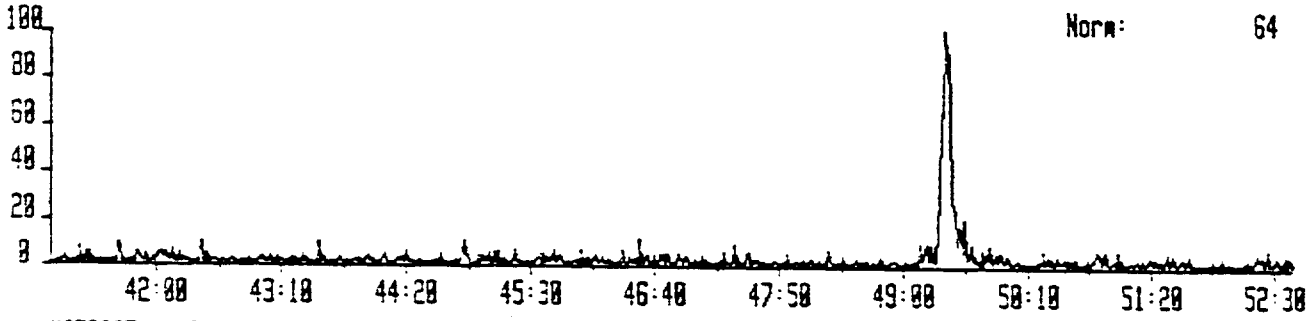
56.7 44:13

INS 426: 44 @ 43:09 40.7

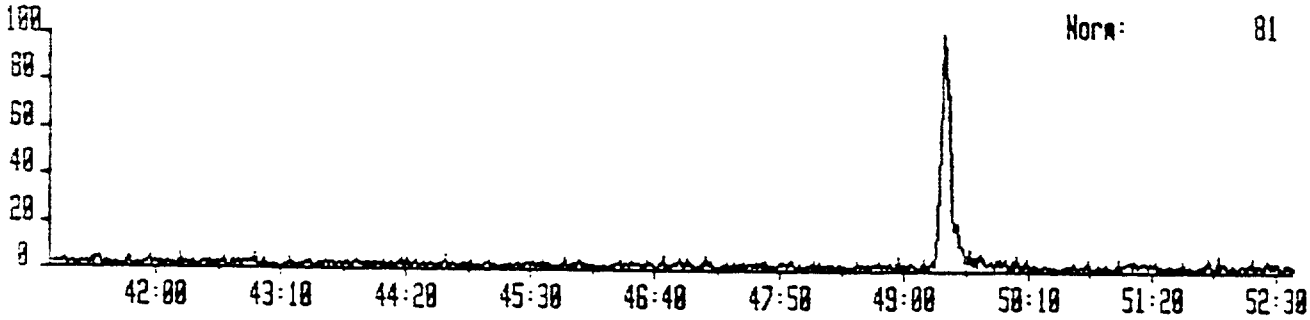
76.3 @ 49:37

65.2 @ 45:37

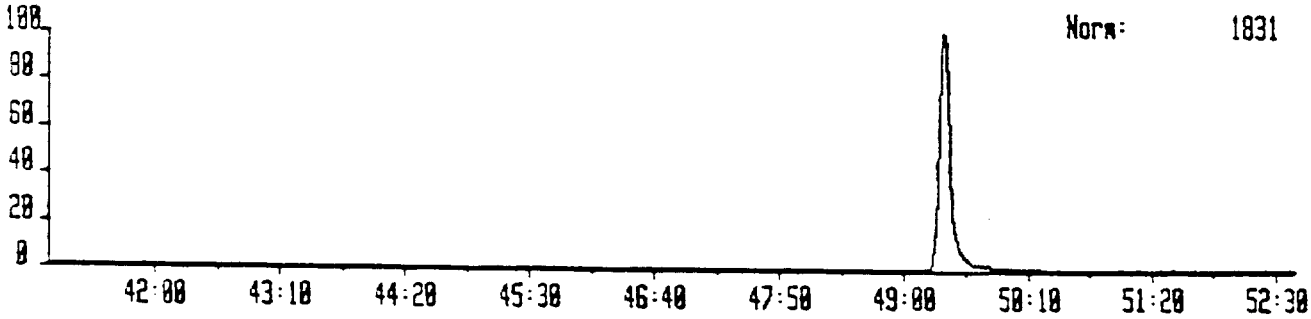
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:1-1 (AQ)



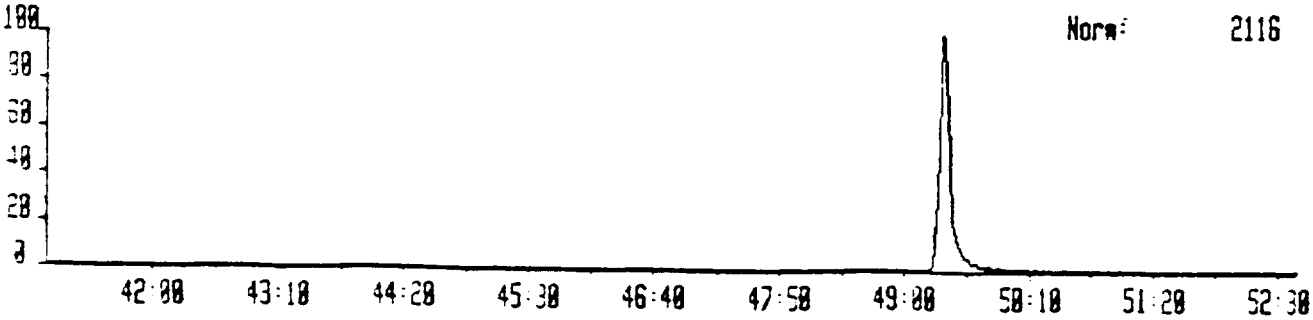
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:1-1 (AQ)



M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:1-1 (AQ)



M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 471.7750
Text:1-1 (AQ)



TRIANGLE LABORATORIES, INC.
PCDD/PCDF ANALYSIS

ANALYST: DJH
DATE: 07/29/87
FILE NAME: M872027
SAMPLE ID: 1-2 AQUEOUS
CASE NO: ENTROPY
PROJ NO: 8701481
CONCAL: M872023

NAME	AMT (ng)	NUMBER	DL	EMPC	RATIO	RT
TOTAL TRICDD	ND			0.191	0.06	
2378-TCDD	ND		0.018			
TOTAL TCDD	ND			0.103	12.07	
12378-PCDD	ND		0.015			
TOTAL PCDD	ND		0.015			
123478-HxCDD	ND		0.015			
123678-HxCDD	ND		0.015			
123789-HxCDD	ND		0.018			
TOTAL HxCDD	ND			0.110	3.51	
1234678-HpCDD	0.039				0.90	44.13
TOTAL HpCDD	0.039	1			0.90	
OCDD	0.249				0.88	49.23
TOTAL TRICDF	ND		0.025			
2378-TCDF	ND		0.013			
TOTAL TCDF	ND		0.013			
12378-PCDF	ND		0.013			
23478-PCDF	ND		0.013			
TOTAL PCDF	ND		0.013			
123478-HxCDF	ND		0.010			
123678-HxCDF	ND		0.010			
234678-HxCDF	ND		0.013			
123789-HxCDF	ND		0.015			
TOTAL HxCDF	ND		0.010			
1234678-HpCDF	0.024				0.90	42.45
1234789-HpCDF	ND		0.015			
TOTAL HpCDF	0.026	1			0.90	
OCDF	ND			0.090	1.16	

SURROGATE RECOVERY SUMMARY

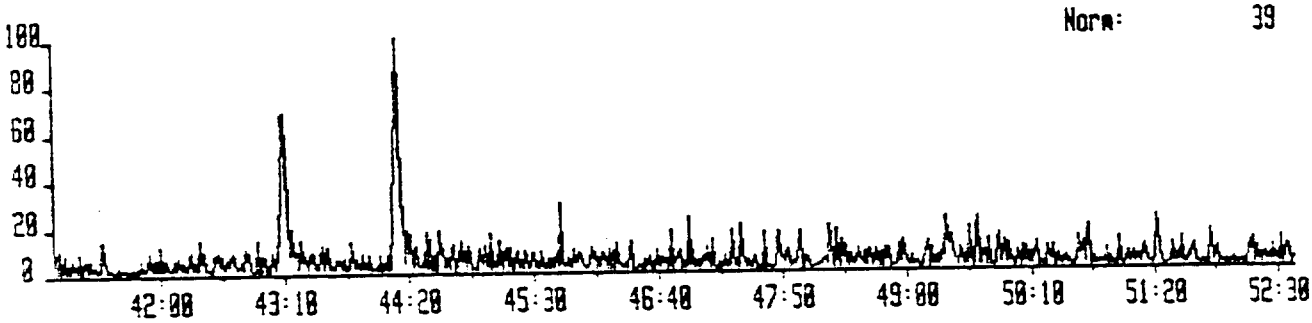
NAME	AMT (ng)	% REC.	RATIO	RT
13C12-TCDF	9.09	90.90	0.79	26.10
37CL-TCDD	8.97	89.70		26.54
13C12-HxCDF	8.90	89.00	1.24	37.23

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
2378-13C12-TCDD	8.27	82.70	0.84	26.53
13C12-PCDD	9.84	98.40	0.60	31.50
13C12-HxCDD	8.85	88.50	1.20	38.36
13C12-HpCDD	8.65	86.50	1.04	44.13
13C12-OCDD	12.53	62.65	0.94	49.22

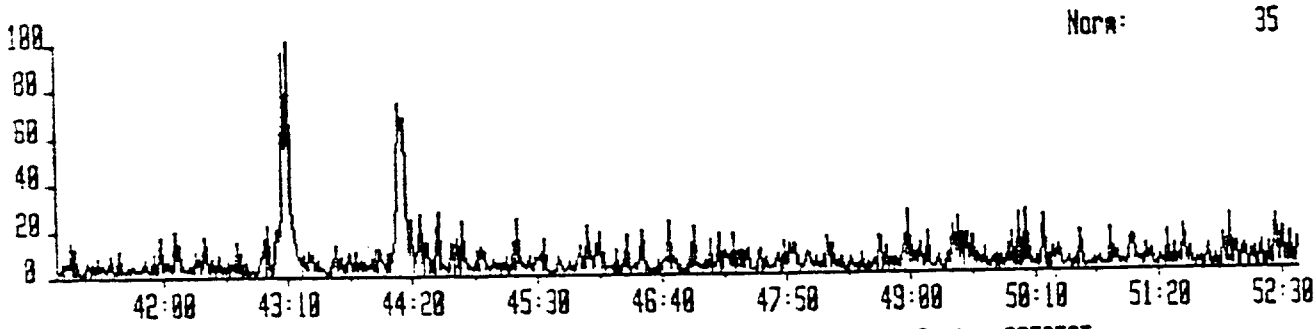
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:1-1 (AQ)

Norm: 39



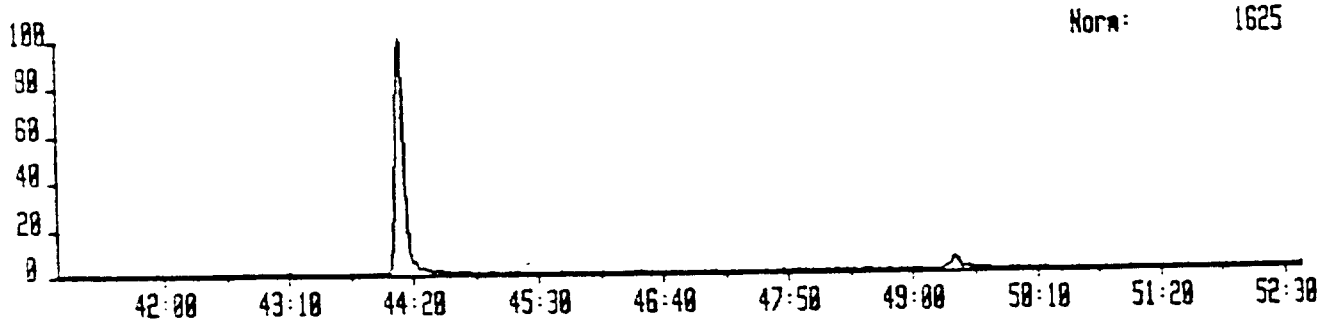
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:1-1 (AQ)

Norm: 35



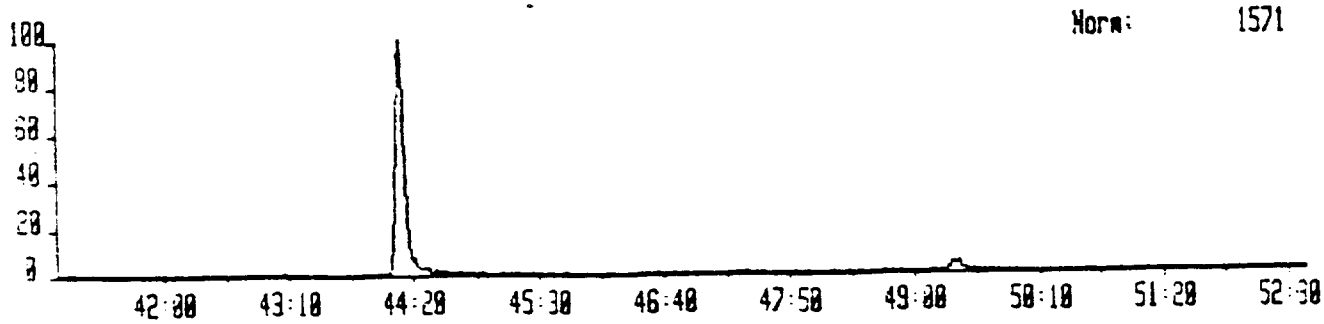
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:1-1 (AQ)

Norm: 1625

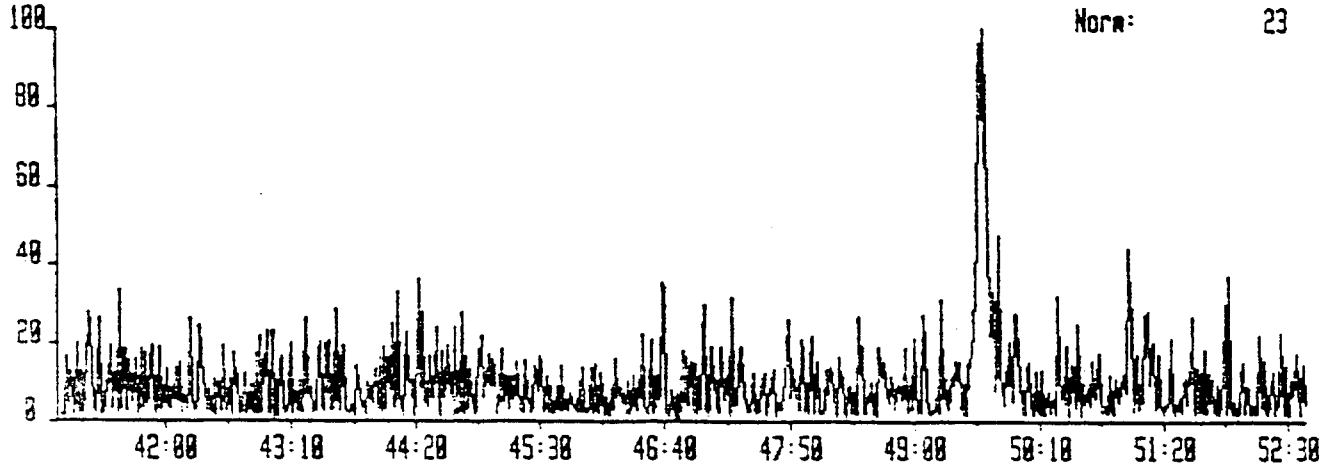


M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:1-1 (AQ)

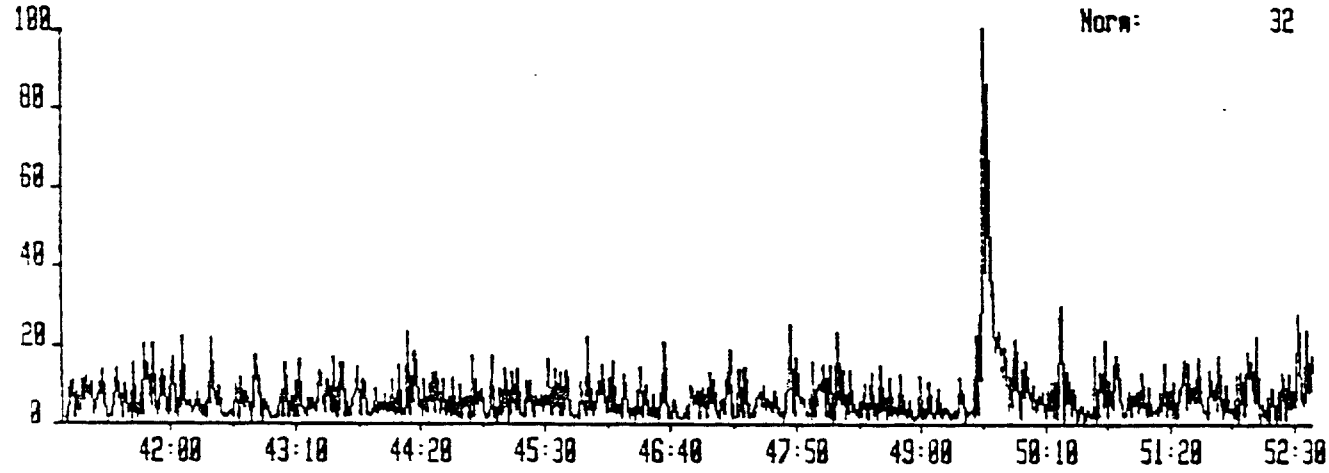
Norm: 1571



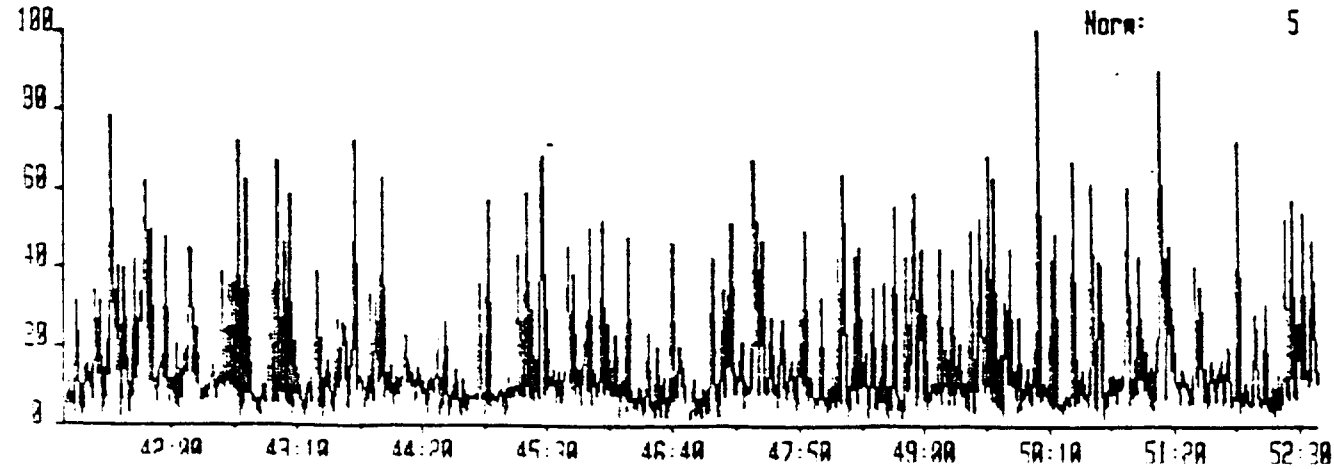
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 441.7428
Text:1-1 (AQ)



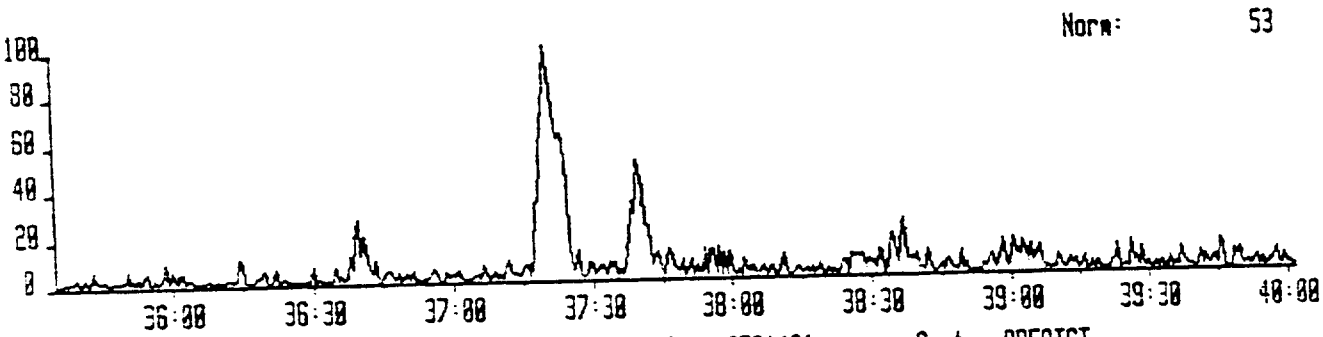
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:1-1 (AQ)



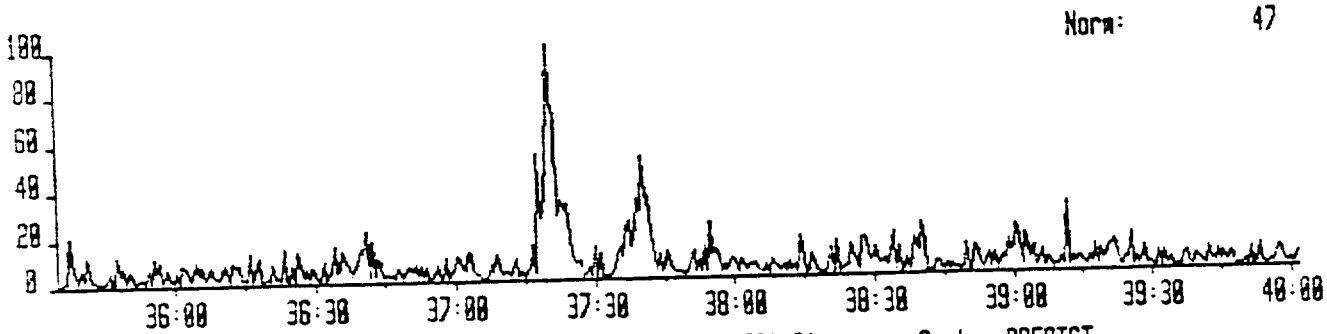
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 511.6810
Text:1-1 (AQ)



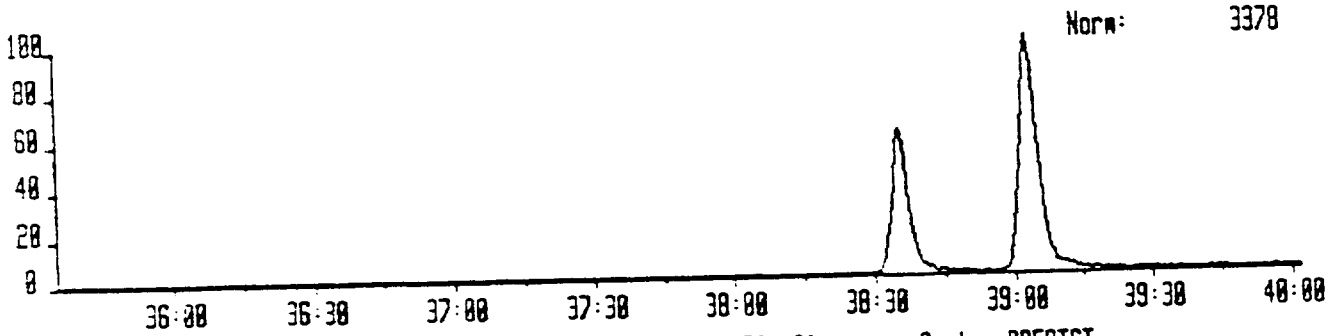
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 389.8156
Text:1-1 (AQ)



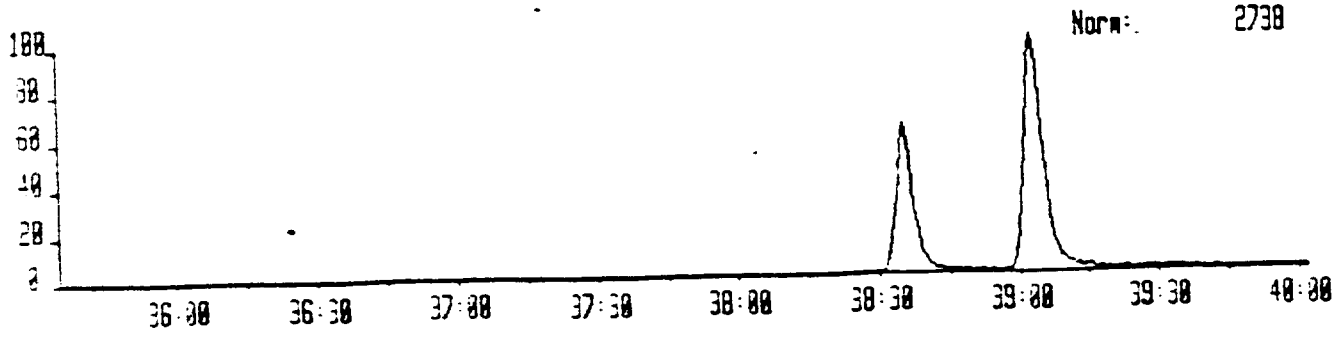
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 391.8127
Text:1-1 (AQ)



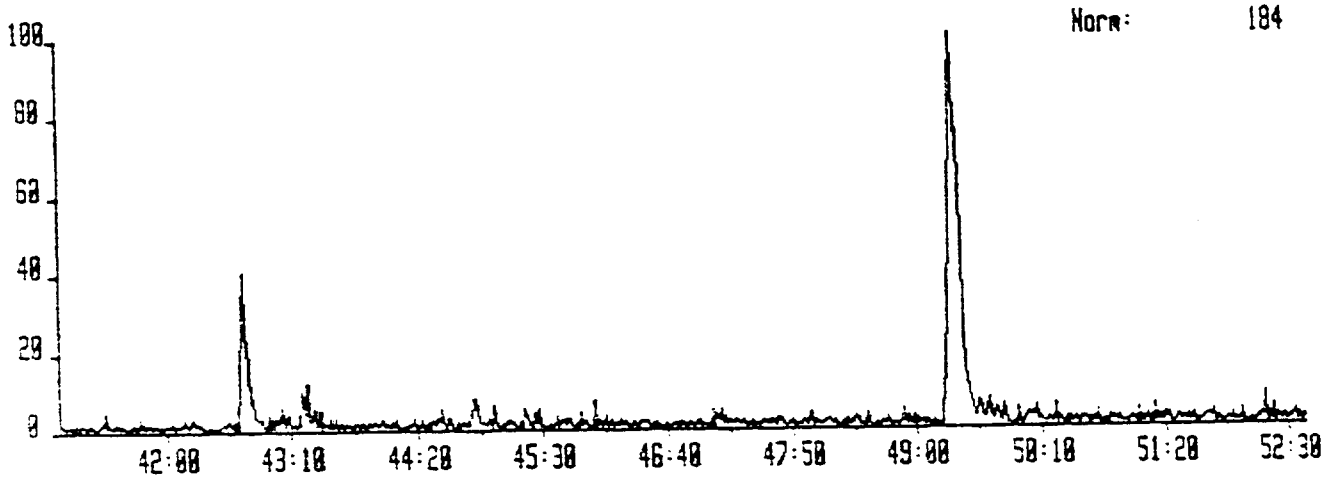
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text:1-1 (AQ)



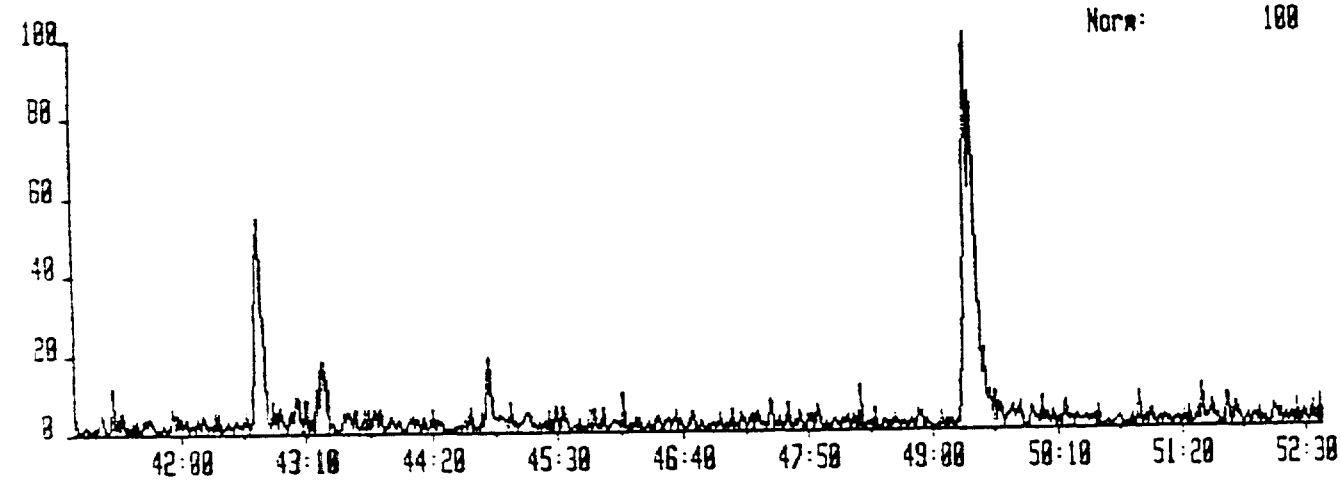
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 403.8529
Text:1-1 (AQ)



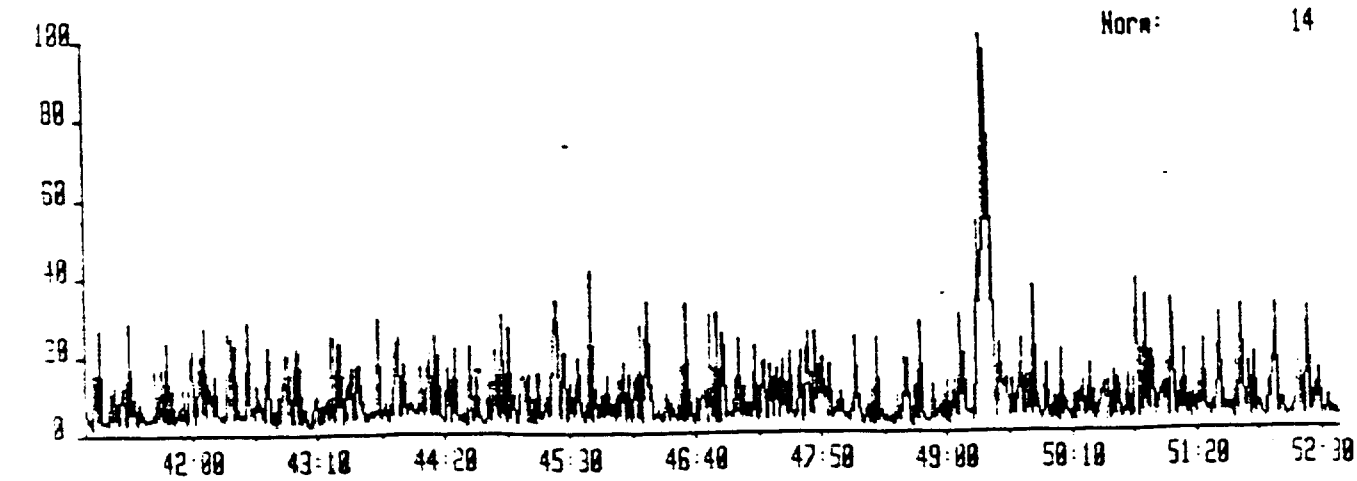
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 407.7817
Text:1-1 (AQ)



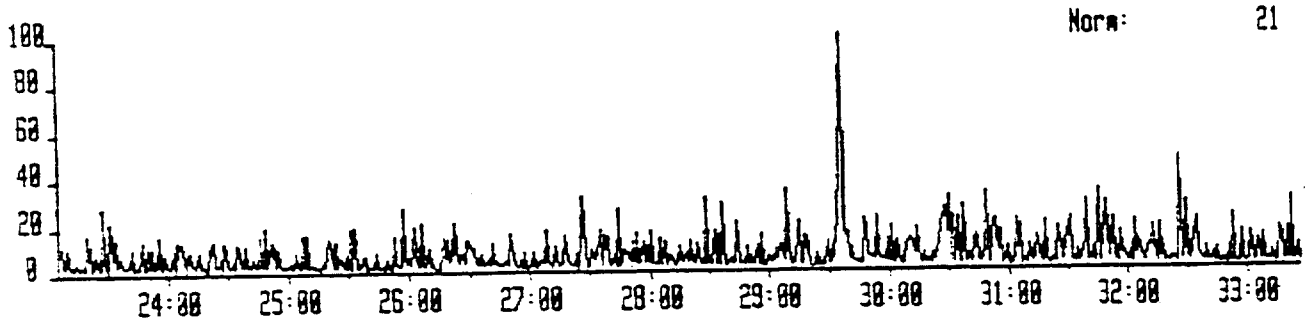
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 409.7788
Text:1-1 (AQ)



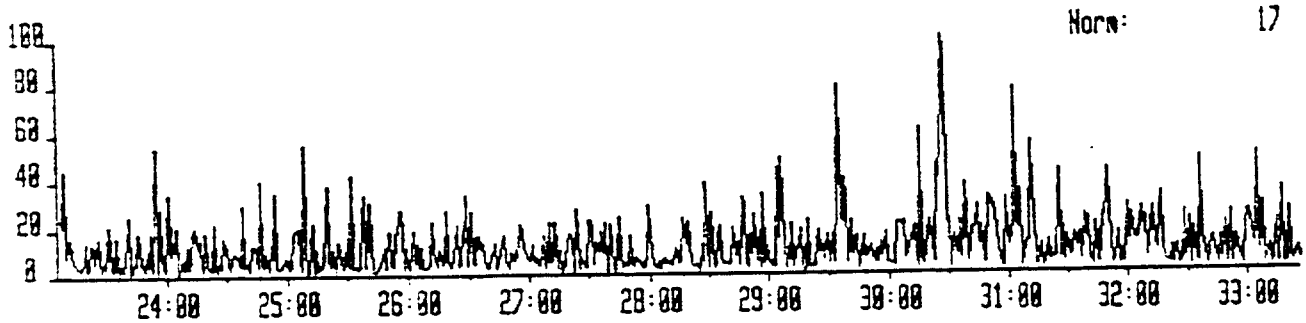
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 477.7200
Text:1-1 (AQ)



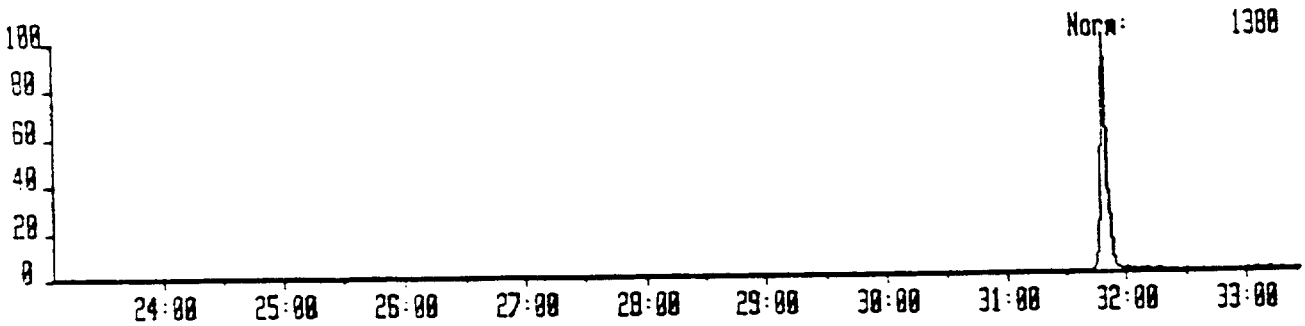
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:1-1 (AQ)



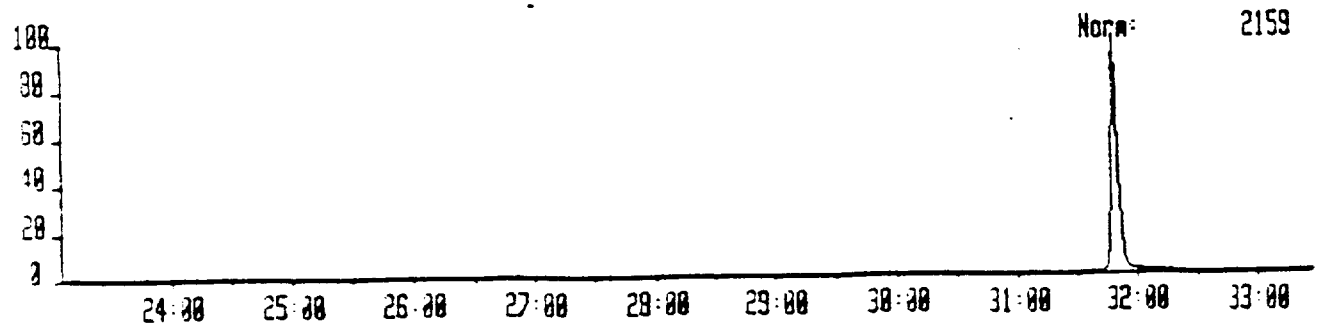
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 355.8546
Text:1-1 (AQ)



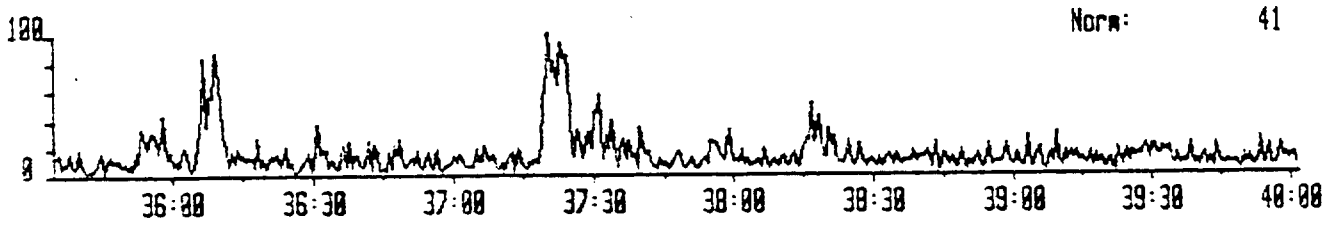
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 365.8977
Text:1-1 (AQ)



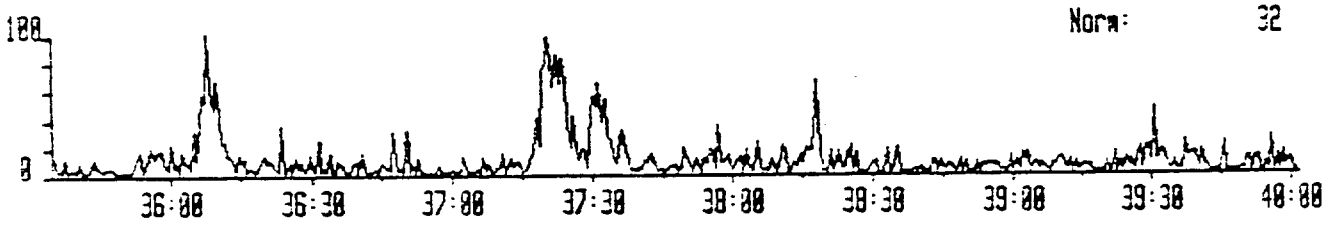
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 367.8948
Text:1-1 (AQ)



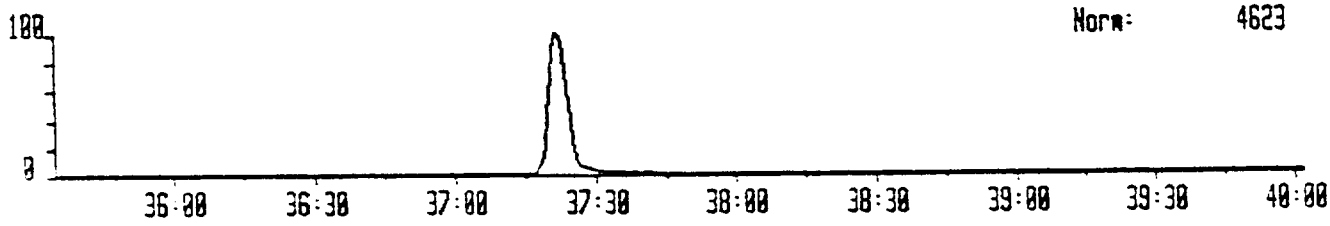
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 373.8207
Text:1-1 (AQ)



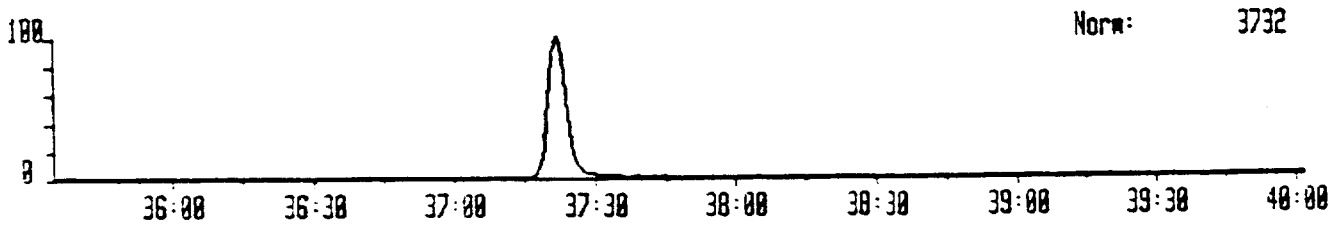
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 375.8178
Text:1-1 (AQ)



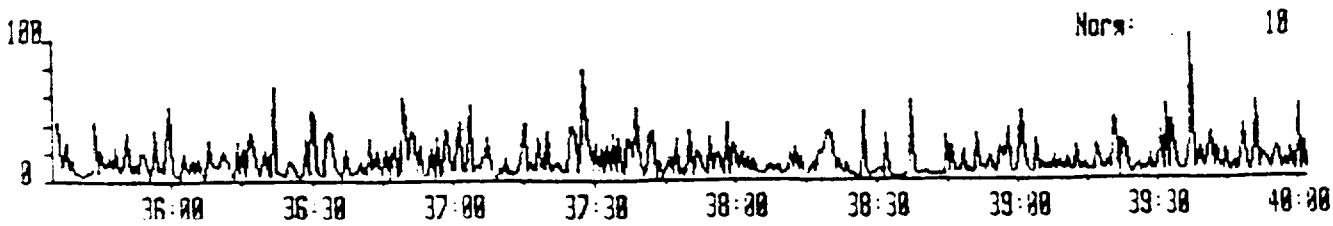
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 385.8609
Text:1-1 (AQ)



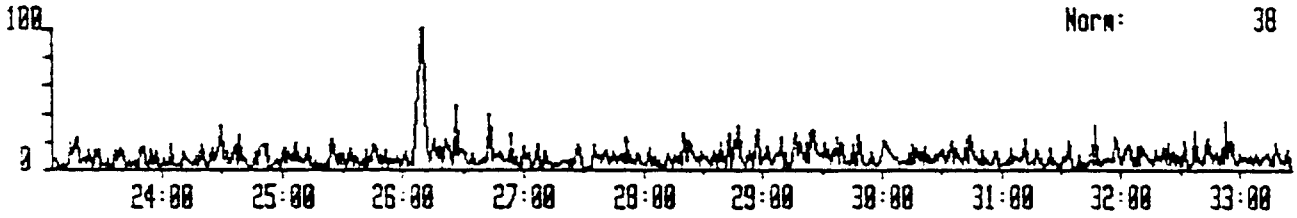
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 387.8588
Text:1-1 (AQ)



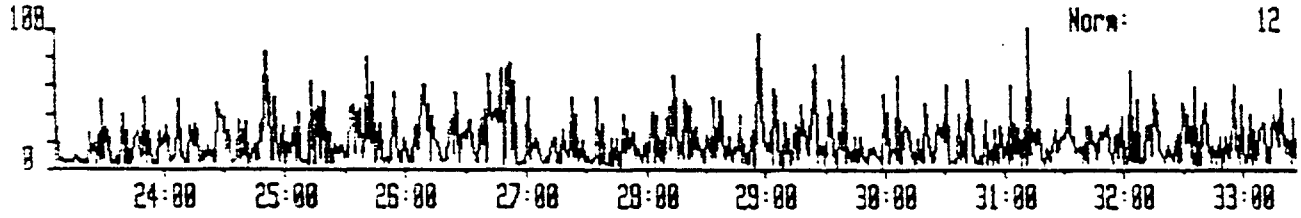
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:1-1 (AQ)



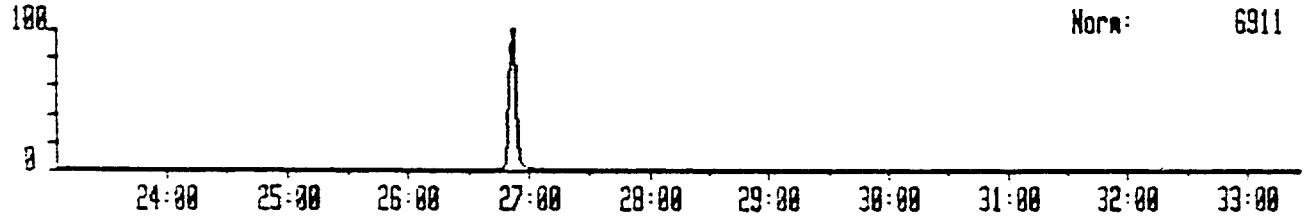
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:1-1 (AQ)



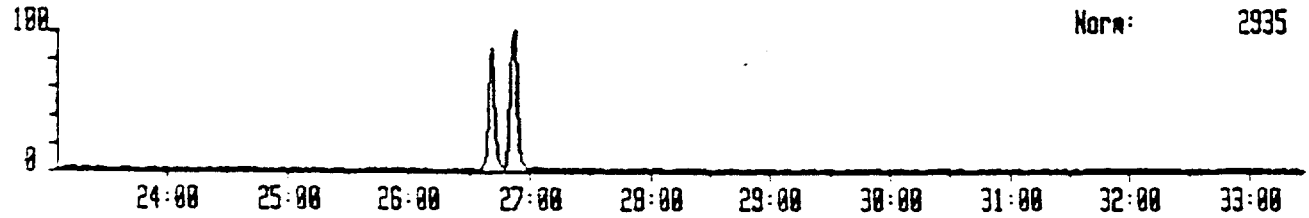
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:1-1 (AQ)



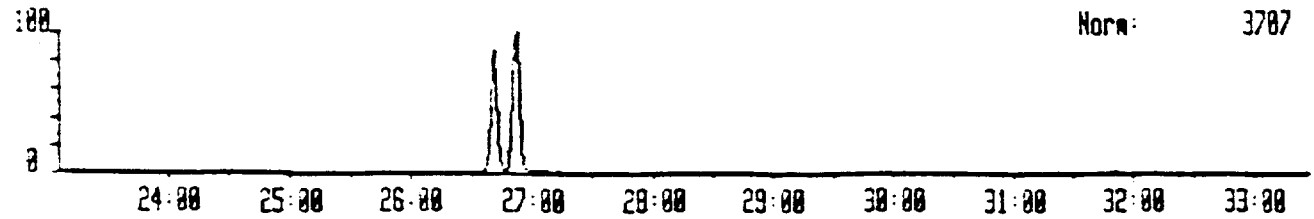
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:1-1 (AQ)



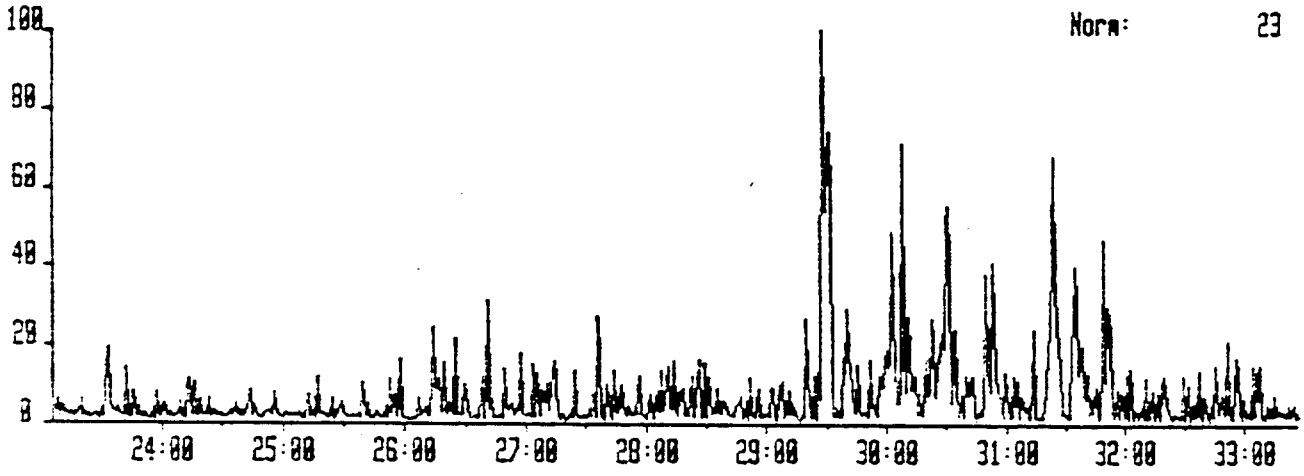
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 331.9368
Text:1-1 (AQ)



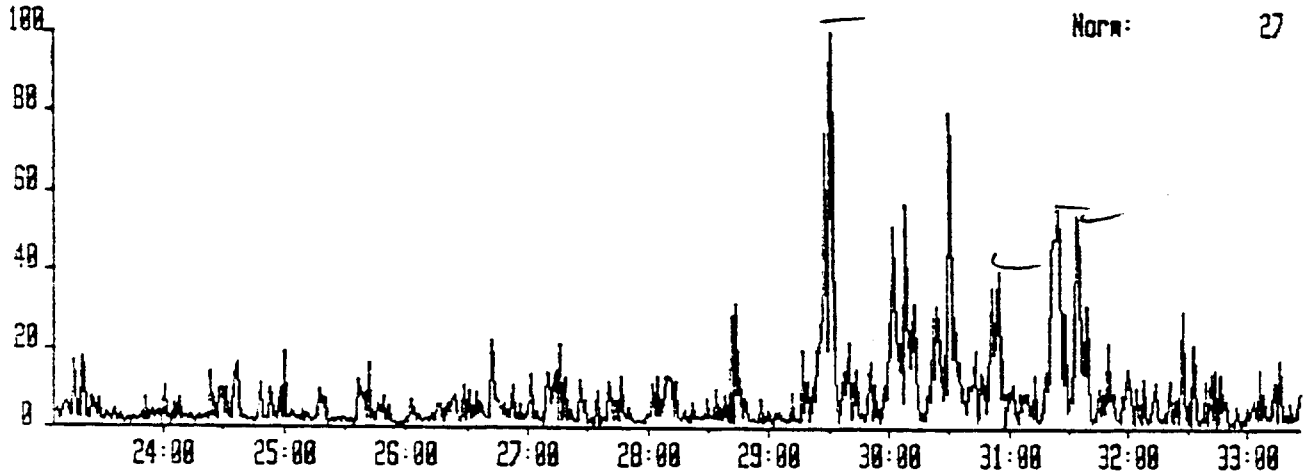
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 333.9338
Text:1-1 (AQ)



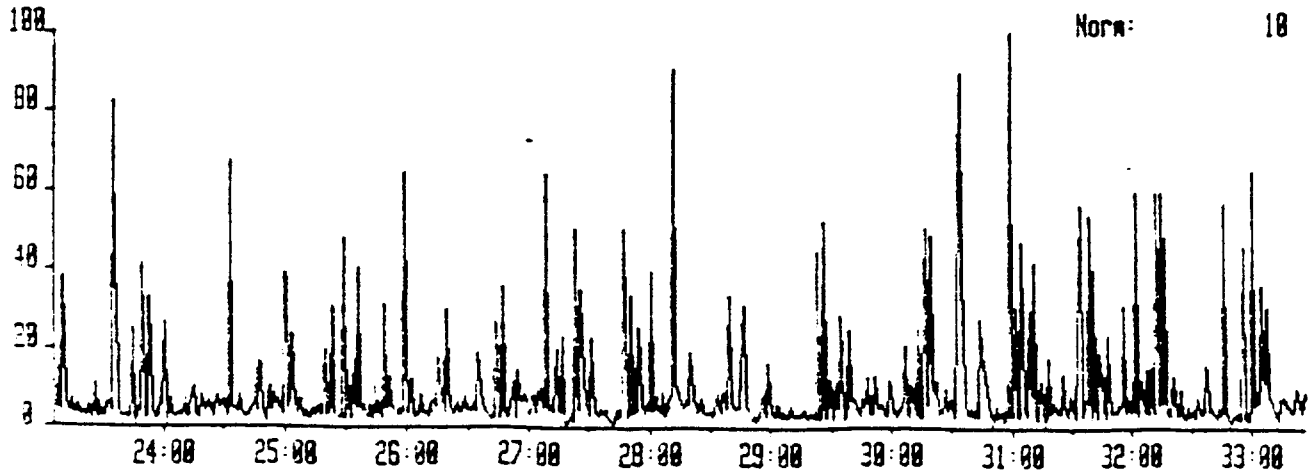
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:1-1 (AQ)



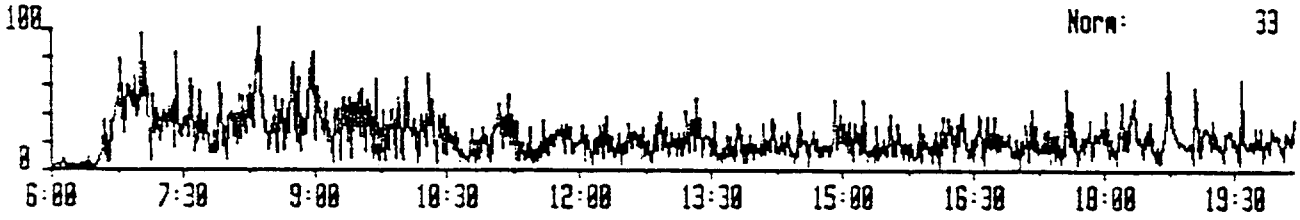
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:1-1 (AQ)



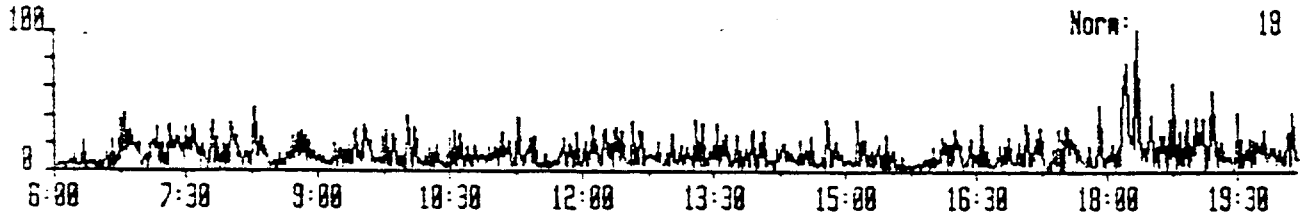
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 407.8803
Text:1-1 (AQ)



M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 1 Mass 269.9486
Text:1-1 (AQ)

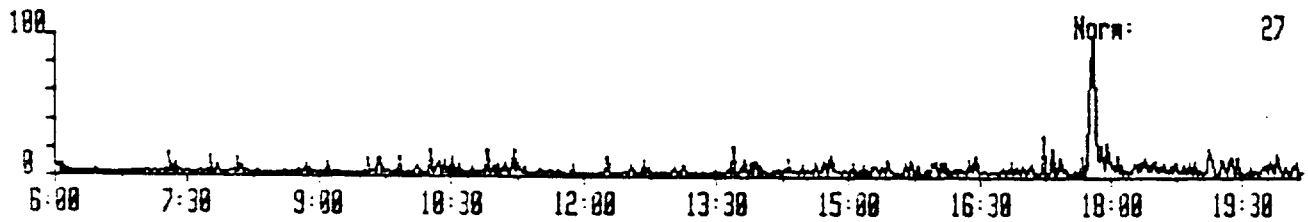


M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 1 Mass 271.9377
Text:1-1 (AQ)



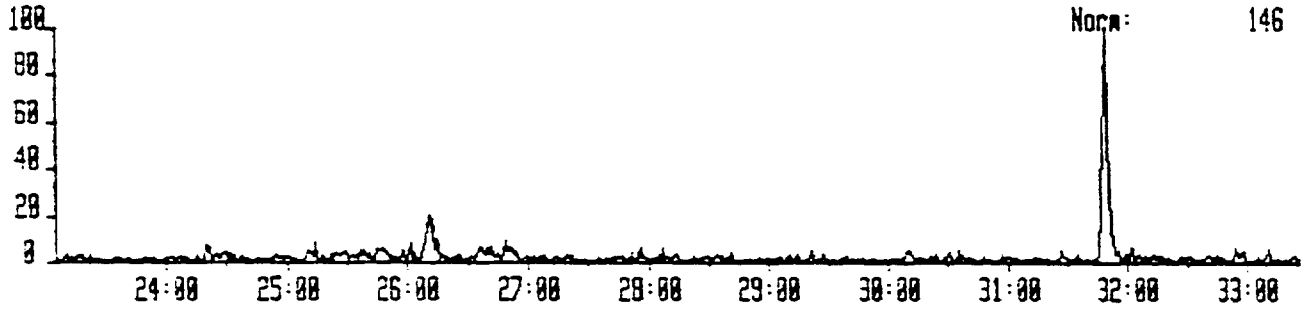
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 1 Mass 285.9355
Text:1-1 (AQ)

M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:1-1 (AQ)

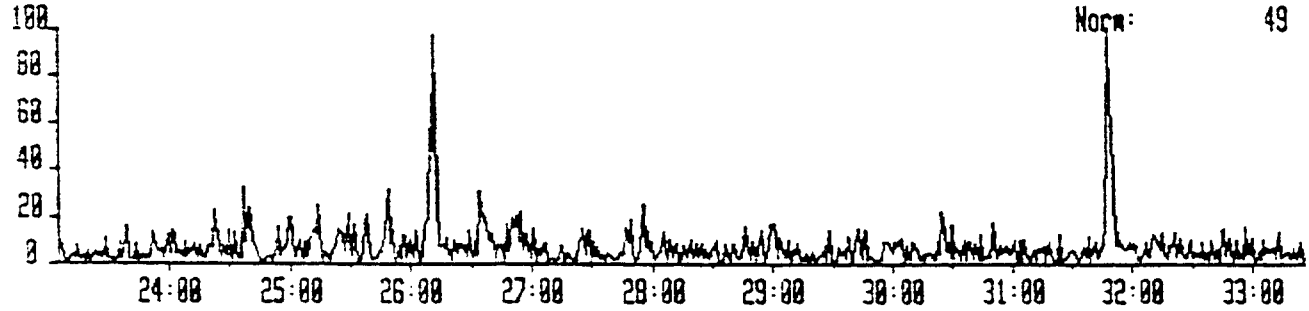


M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 1 Mass 339.8798
Text:1-1 (AQ)

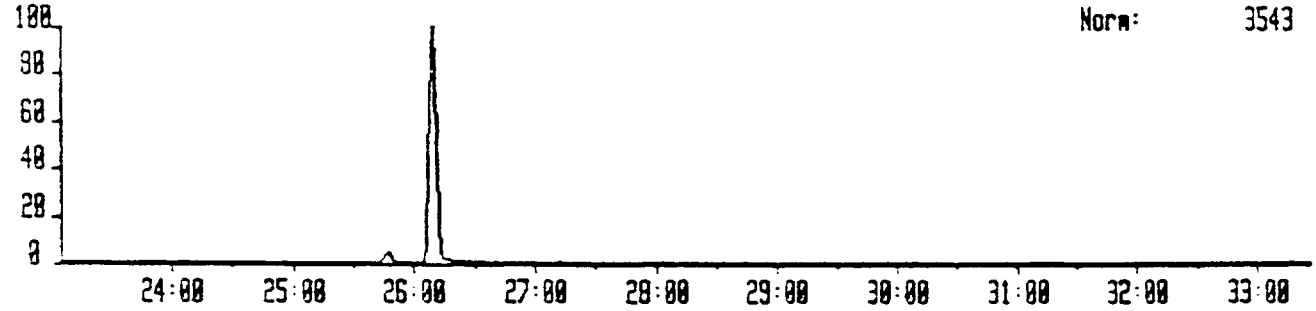
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 303.9816
Text:1-1 (AQ)



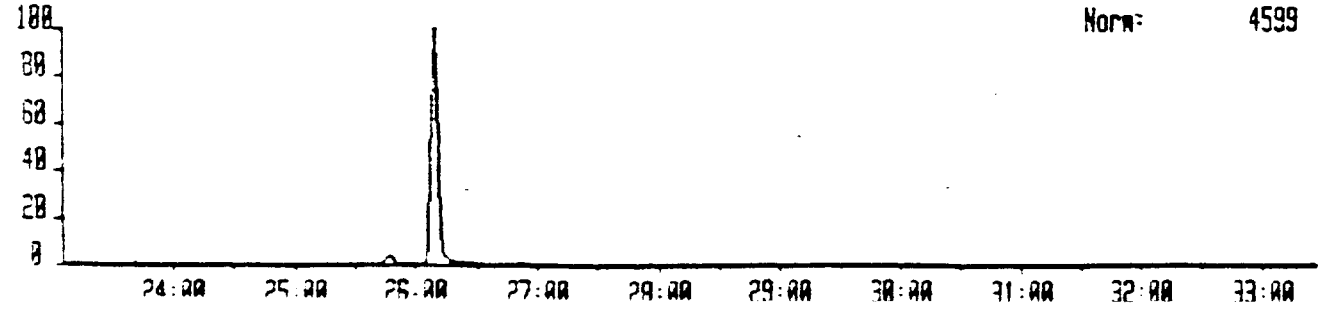
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 305.9987
Text:1-1 (AQ)



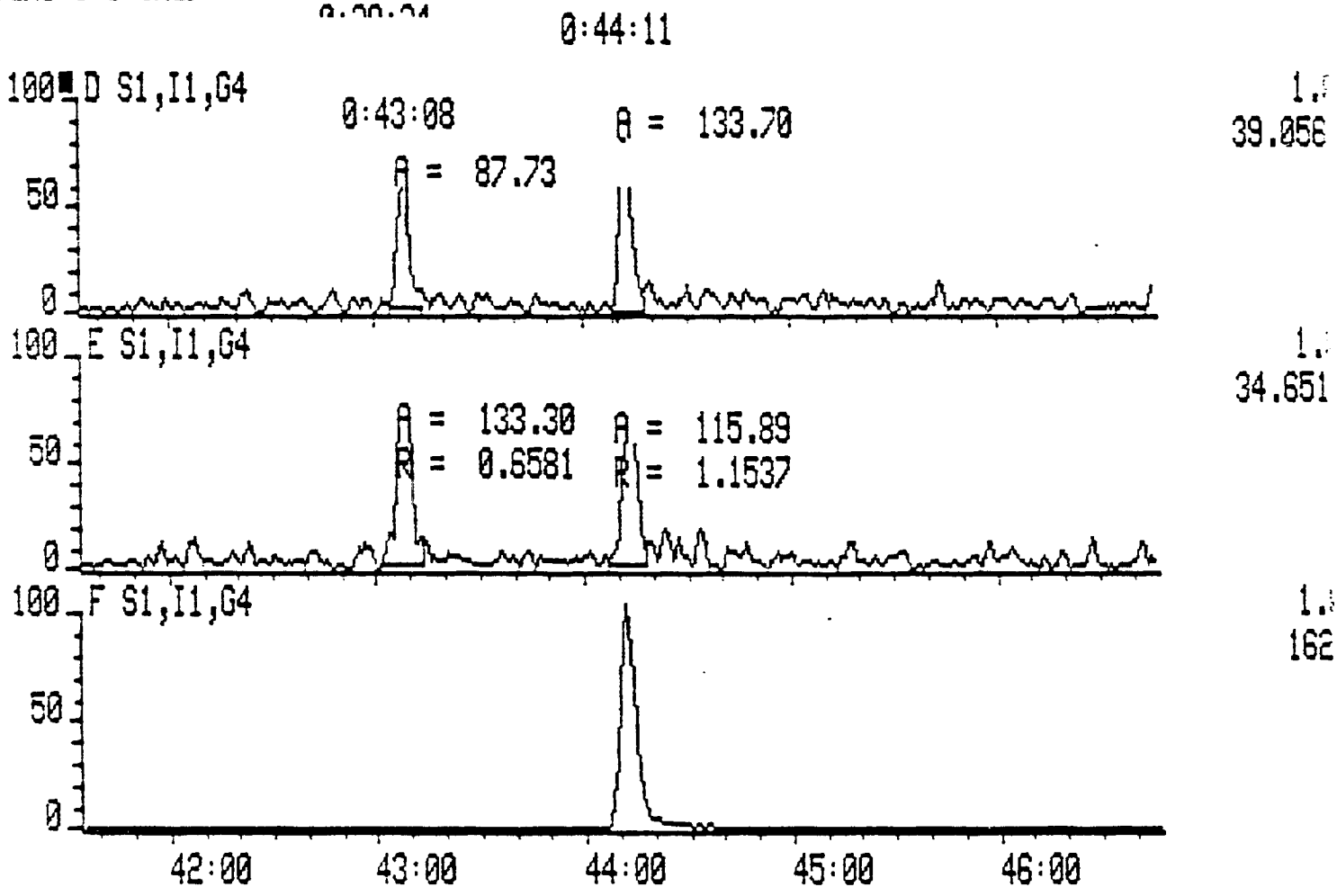
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 315.9419
Text:1-1 (AQ)



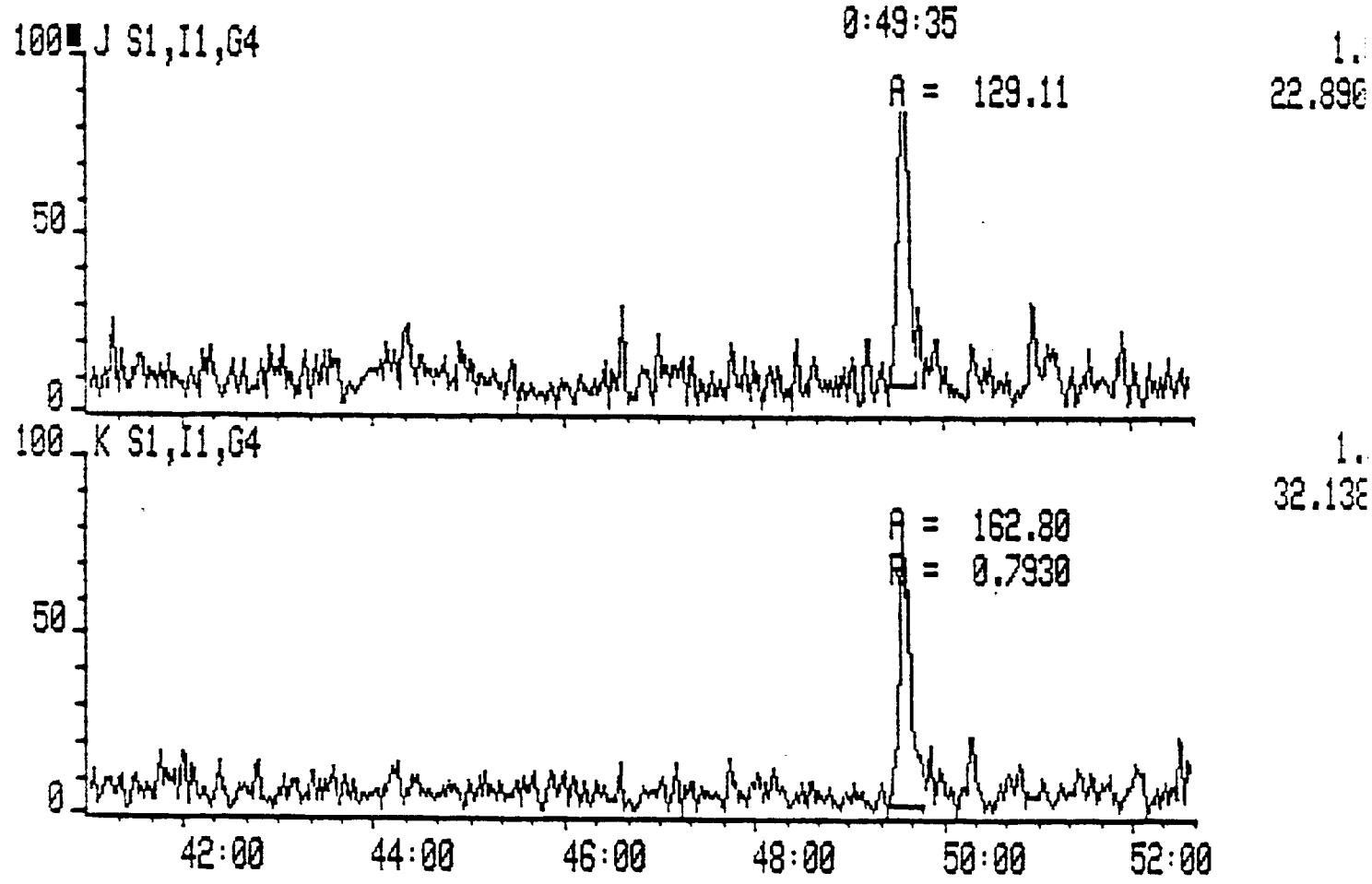
M872825 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 317.9389
Text:1-1 (AQ)



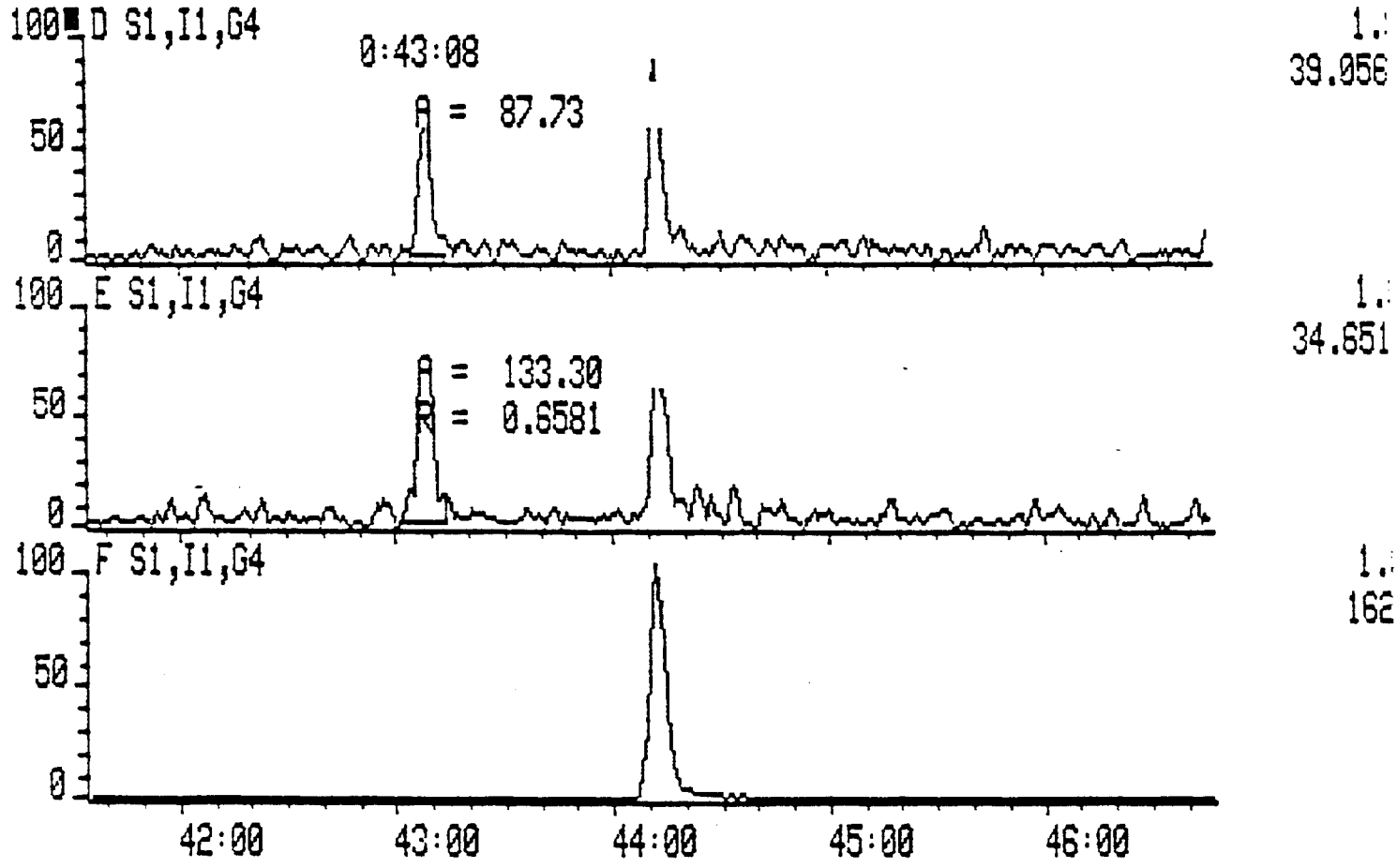
1872025 24-JUL-87 05:01 70E (EI+) Sys:DB5ATST
GR 4 D: 423.7766 E: 425.7737 F: 435.8169 G: 437.8139 H: 430.9729
Text:1-1 (AQ)



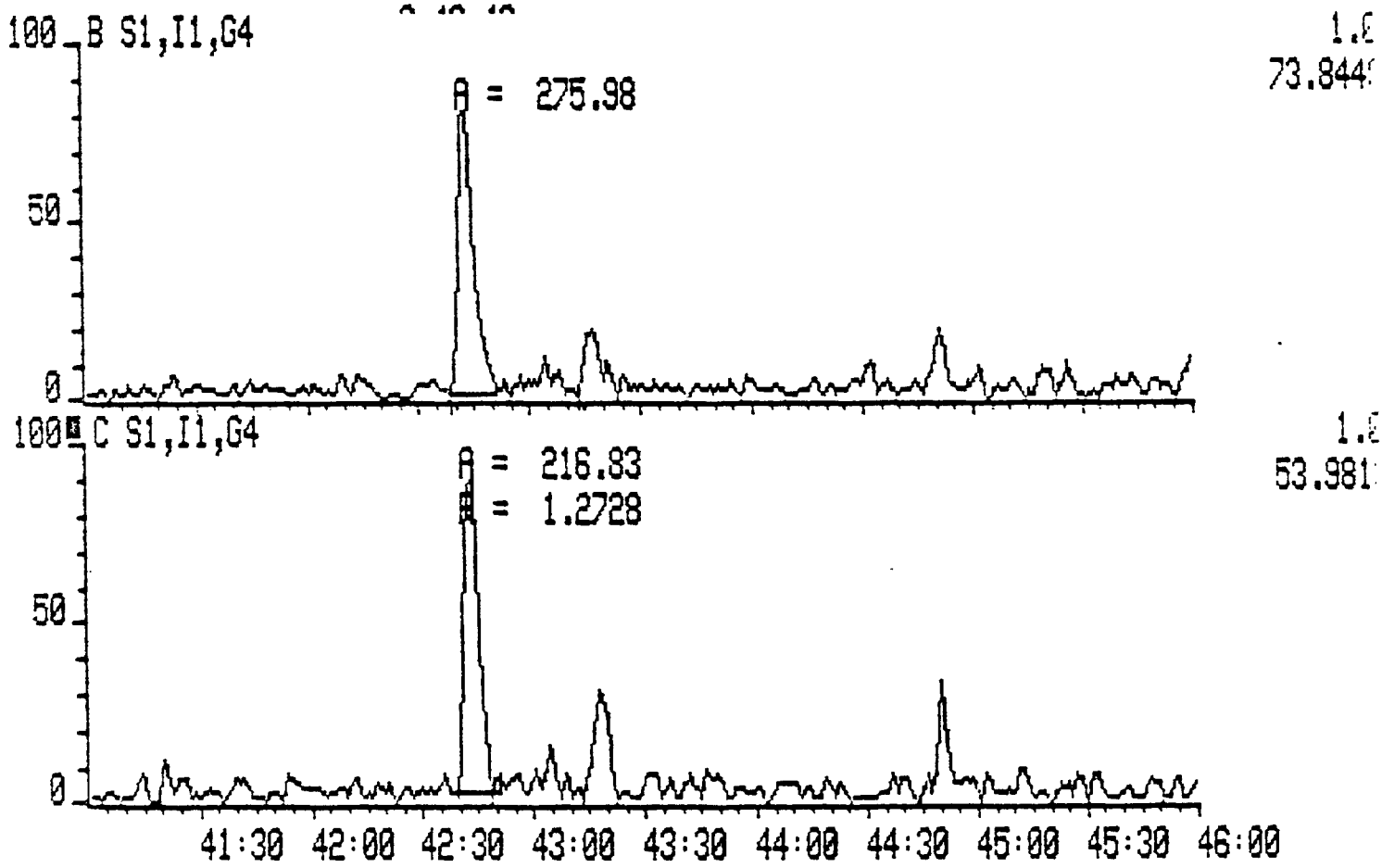
M872025 24-JUL-87 05:01 70E (EI+) Sus:DB5ATST
GR 4 I: 477.7200 J: 441.7428 K: 443.7399 L: 457.7377 M: 459.7347
Text:1-1 (AQ)



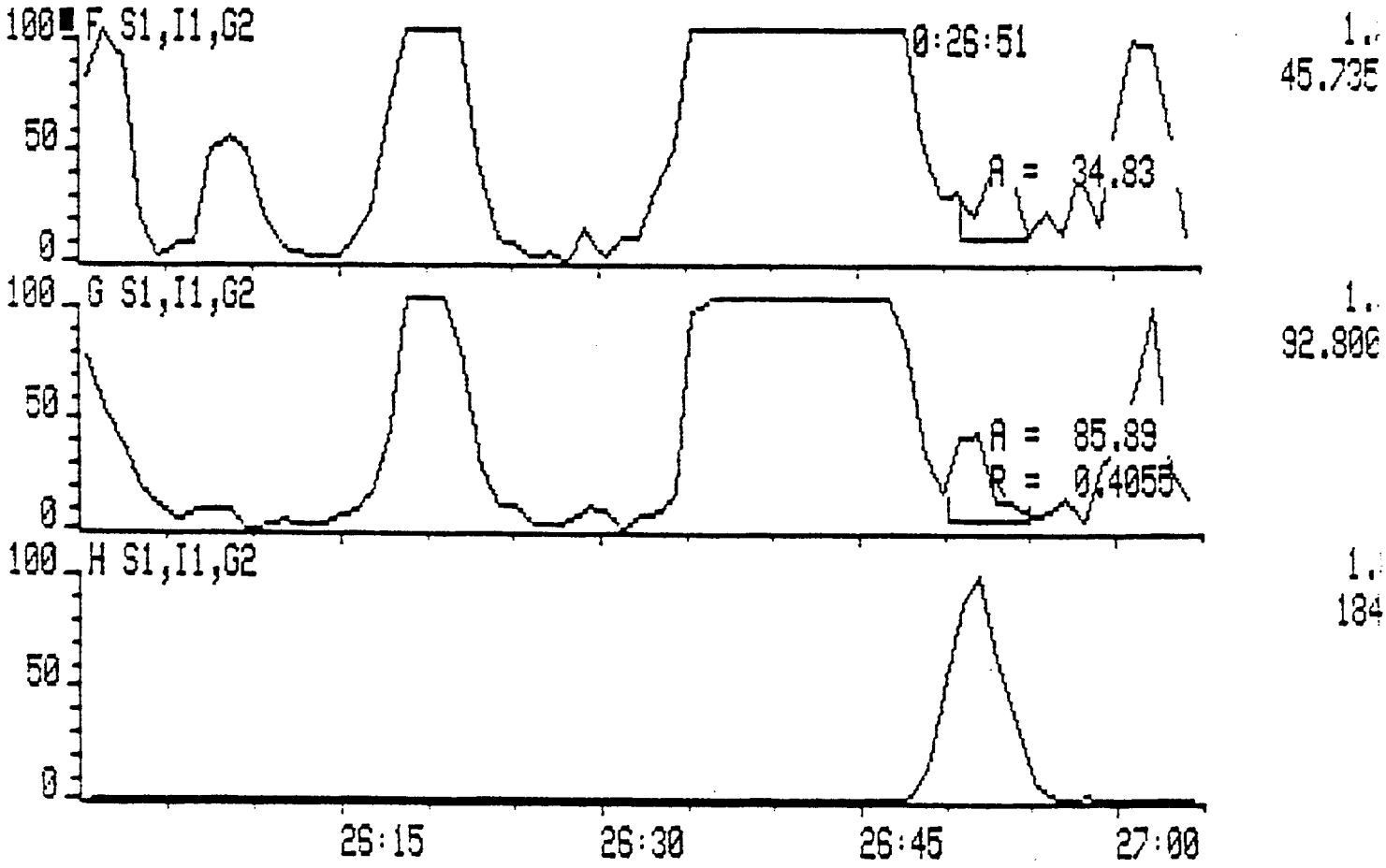
1872025 24-JUL-87 05:01 70E (EI+) Sys:DB5ATST
GR 4 D: 423.7766 E: 425.7737 F: 435.8169 G: 437.8139 H: 430.9729
Text:1-1 (AQ)



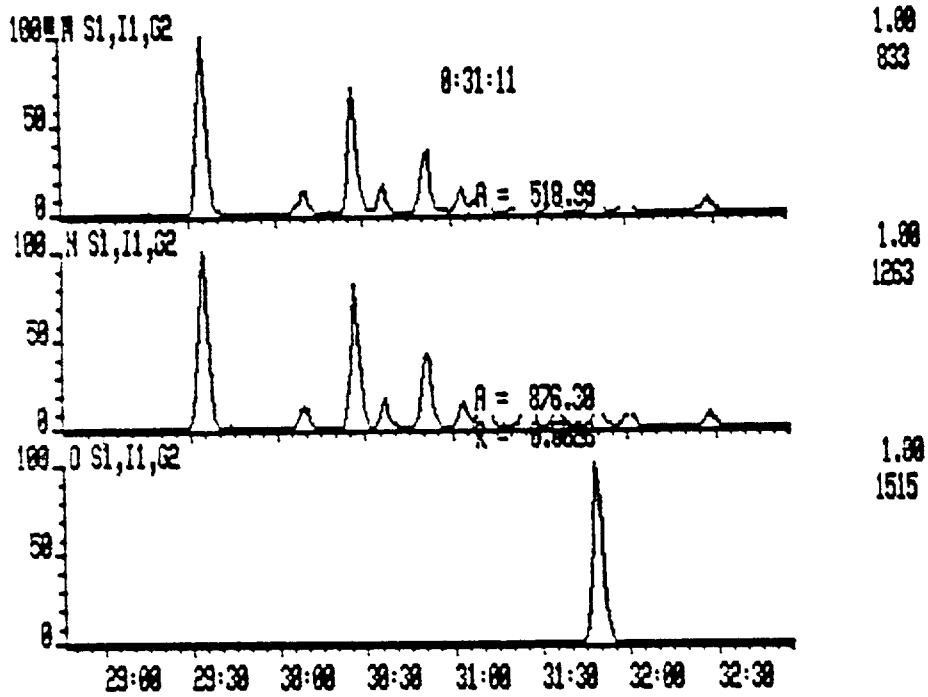
1872025 24-JUL-87 05:01 70E (EI+) Sys:DB5ATST
GR 4 F: 435.8169 G: 437.8139 H: 430.9729 I: 477.7200 J: 441.7428
Text:1-1 (AQ)



M872026 24-JUL-87 05:58 70E (EI+) Sys:DB5ATST
GR 2 F: 319.8965 G: 321.8936 H: 327.8847 I: 331.9368 J: 333.9338
Text:1-1



372826 24-JUL-97 05:58 70E (EI+) Sus:DB5ATST
GR 2 K: 337.8626 L: 339.8597 M: 353.8575 N: 355.8546 O: 365.8977
Text:1-1



	AREA	RETENTION TIME
1	4.910928E+03	0:11:17
2	2.339673E+02	0:16:38
3	5.662571E+02	0:18:44

M872023

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 220.01

	AREA	RETENTION TIME
1	1.417895E+03	0:06:33
2	1.628241E+03	0:11:17
3	5.348572E+02	0:11:36
4	6.797507E+02	0:11:59
5	7.327371E+02	0:12:16
6	6.984507E+02	0:15:12

M872023

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 237.98

	AREA	RETENTION TIME
1	2.249723E+03	0:14:08

M872023

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 239.97

	AREA	RETENTION TIME
1	4.7707[illegible]9E-01	0:07:09
2	3.915589E+02	0:14:08
3	1.079094E+02	0:16:05
4	2.002480E+02	0:16:30
5	1.000825E+02	0:17:40
6	2.380867E+02	0:19:04
7	3.906993E-01	0:19:42

M872023

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 251.97

	AREA	RETENTION TIME
1	2.903018E+02	0:09:46
2	3.120047E+03	0:14:51
3	4.953094E+02	0:19:22

M872023

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 253.97

	AREA	RETENTION TIME
1	1.998157E+03	0:14:50
2	1.963366E+02	0:19:09
3	2.081118E+02	0:19:22

M872023

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 269.94

	AREA	RETENTION TIME
1	2.587575E+03	0:18:20

M872023

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 271.94

	AREA	RETENTION TIME
1	2.534824E+03	0:18:20

M872023

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 285.94

	AREA	RETENTION TIME
1	1.849228E+03	0:18:23
2	1.051400E+02	0:19:34

M872023

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 287.93

	AREA	RETENTION TIME
1	2.026326E+03	0:18:23

M872023

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 303.90

	AREA	RETENTION TIME
1	1.056738E+02	0:25:48
2	4.285061E+03	0:26:11
3	6.276476E+02	0:30:31
4	5.099963E+02	0:31:24
5	1.257697E+02	0:31:50

M872023

	AREA	RETENTION TIME
1	5.668830E+03	0:26:12
2	6.693192E+02	0:30:32
3	6.245638E+02	0:31:24

M872023

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 315.94

	AREA	RETENTION TIME
1	1.839468E+02	0:25:47
2	4.539470E+03	0:26:11

M872023

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 317.94

	AREA	RETENTION TIME
1	3.049721E+02	0:25:48
2	5.492803E+03	0:26:11

M872023

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 319.90

	AREA	RETENTION TIME
1	3.495343E+02	0:25:50
2	1.137943E+02	0:31:51

M872023

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 321.89

	AREA	RETENTION TIME
1	4.231267E+03	0:26:53
2	6.171757E+02	0:31:51

M872023

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 327.88

	AREA	RETENTION TIME
1	7.706854E+03	0:26:53

M872023

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 331.94

	AREA	RETENTION TIME
1	2.410747E+03	0:26:42
2	3.210352E+03	0:26:52

M872023

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 333.93

	AREA	RETENTION TIME
1	3.082061E+03	0:26:42
2	4.161042E+03	0:26:52

M872023

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 337.86

	AREA	RETENTION TIME
1	1.660105E+04	0:30:32
2	1.612852E+04	0:31:24

M872023

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 339.86

	AREA	RETENTION TIME
1	2.662025E+04	0:30:32
2	2.520167E+04	0:31:24

M872023

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 353.86

	AREA	RETENTION TIME
1	1.291577E+04	0:31:50

M872023

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 355.95

	AREA	RETENTION TIME
1	2.136752E+04	0:31:50

M872023

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 365.90

	AREA	RETENTION TIME
1	1.298613E+03	0:31:49

M872023

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 367.89

	AREA	RETENTION TIME
1	2.234837E+03	0:31:50

M872023

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 373.82

	AREA	RETENTION TIME
1	3.217181E+04	0:37:24
2	3.115347E+04	0:37:32
3	2.709132E+04	0:38:13
4	2.254095E+04	0:39:26

M872023

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 375.32

	AREA	RETENTION TIME
1	2.608037E+04	0:37:24
2	2.860137E+04	0:37:32
3	2.197330E+04	0:38:18
4	1.796592E+04	0:39:26

M872023

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 385.86

	AREA	RETENTION TIME
1	5.820451E+03	0:37:23

M872023

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 387.86

	AREA	RETENTION TIME
1	4.559721E+03	0:37:23
2	5.988521E+02	0:38:29
3	4.228057E+02	0:38:37
4	4.259114E+02	0:39:04

M872023

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 389.32

	AREA	RETENTION TIME
1	2.108409E+04	0:38:29
2	2.045910E+04	0:38:36
3	1.786084E+04	0:39:03

	AREA	RETENTION TIME
1	2.469776E+04	0:42:45
2	2.036338E+04	0:44:53
3	3.938978E+02	0:49:23
4	1.799056E+03	0:49:41

M872023

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 409.78

	AREA	RETENTION TIME
1	2.397317E+04	0:42:45
2	2.008022E+04	0:44:53
3	1.534412E+03	0:49:38

M872023

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 423.78

	AREA	RETENTION TIME
1	1.648227E+04	0:44:14
2	9.152929E+02	0:49:24

M872023

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 425.77

	AREA	RETENTION TIME
1	1.574226E+04	0:44:14
2	1.027957E+03	0:49:25

M872023

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 435.82

	AREA	RETENTION TIME
1	2.304850E+03	0:44:14

M872023

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 437.91

	AREA	RETENTION TIME
1	2.362457E+03	0:44:14
2	2.025262E+02	0:49:26

M872023

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 441.74

	AREA	RETENTION TIME
1	2.371087E+04	0:49:38

M872023

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 443.74

	AREA	RETENTION TIME
1	2.732379E+04	0:49:39

M872023

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 457.74

	AREA	RETENTION TIME
1	2.163810E+04	0:49:24

M872023

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 459.73

	AREA	RETENTION TIME
1	2.435923E+04	0:49:24

M872023

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 469.78

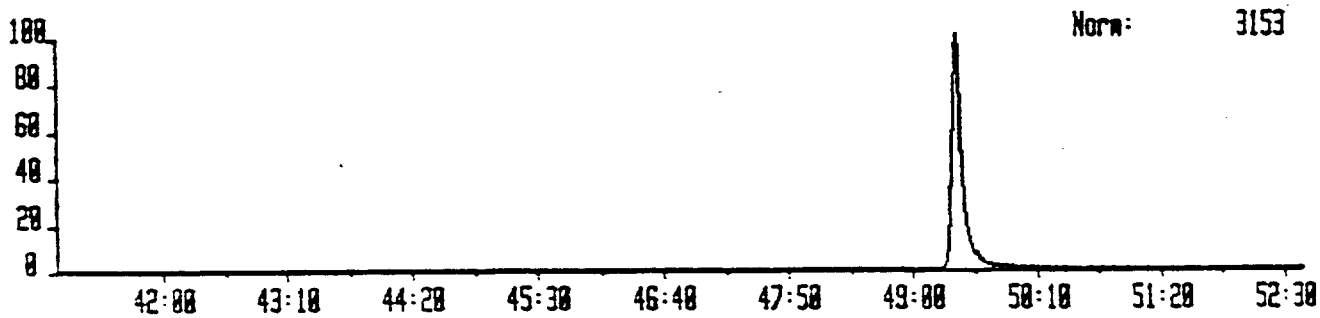
	AREA	RETENTION TIME
1	4.914414E+03	0:49:24

M872023

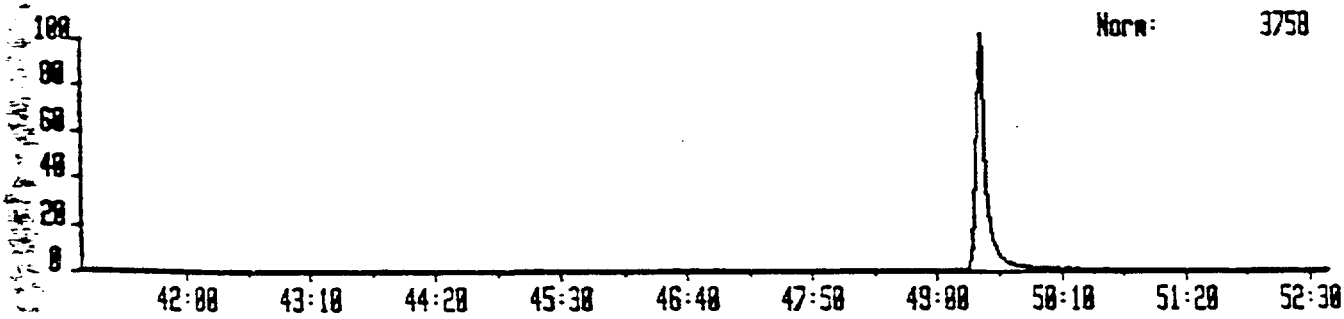
SAMPLE

	AREA	RETENTION TIME
1	5.591208E+03	0:49:24

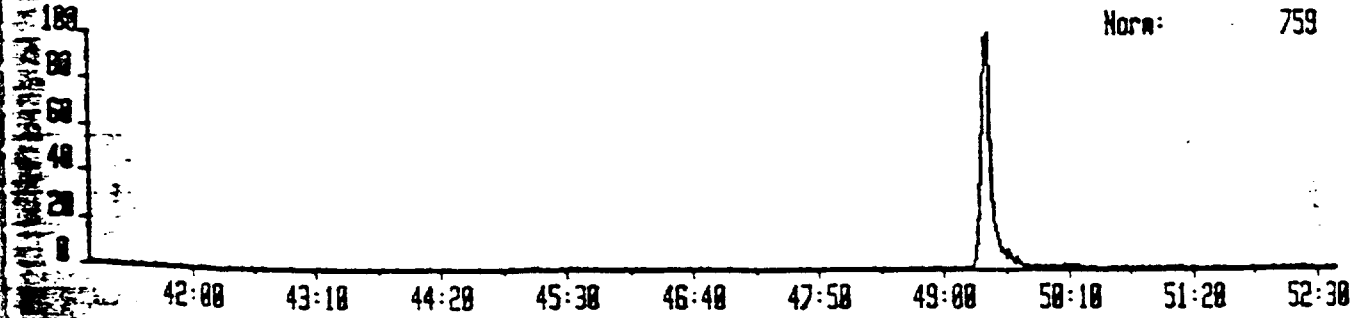
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:CONCAL



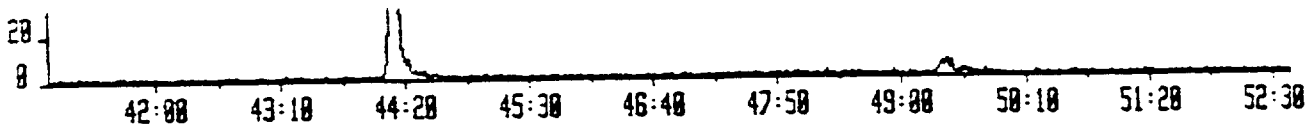
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:CONCAL



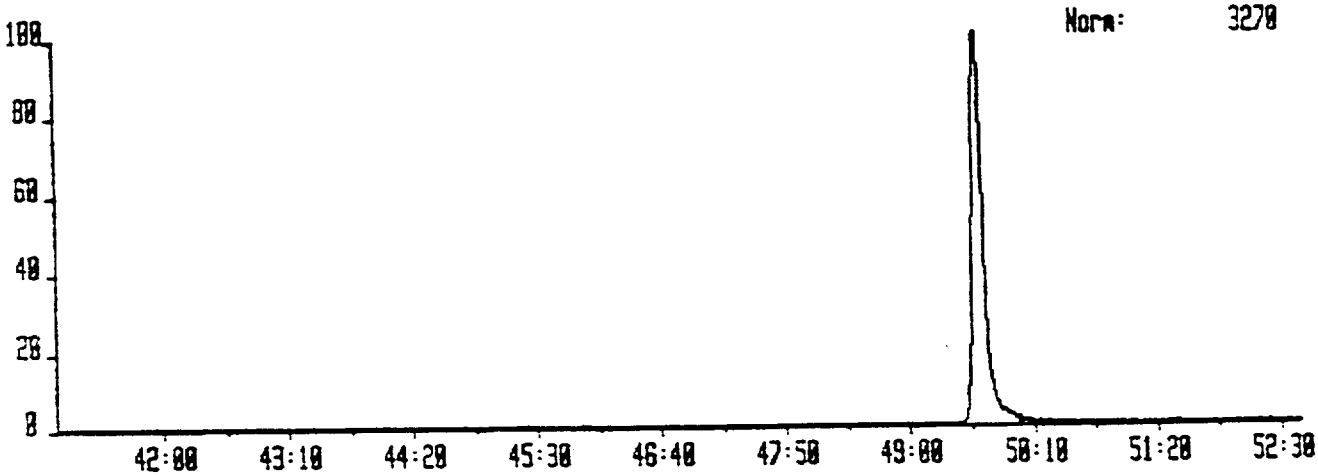
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:CONCAL



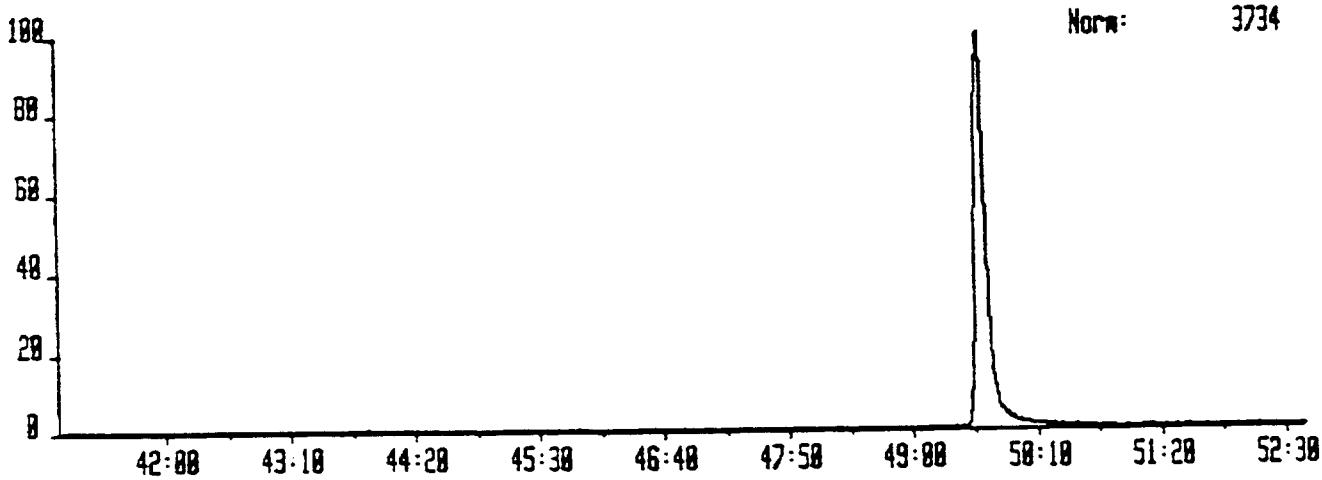
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 4 Mass 471.7758
Text:CONCAL



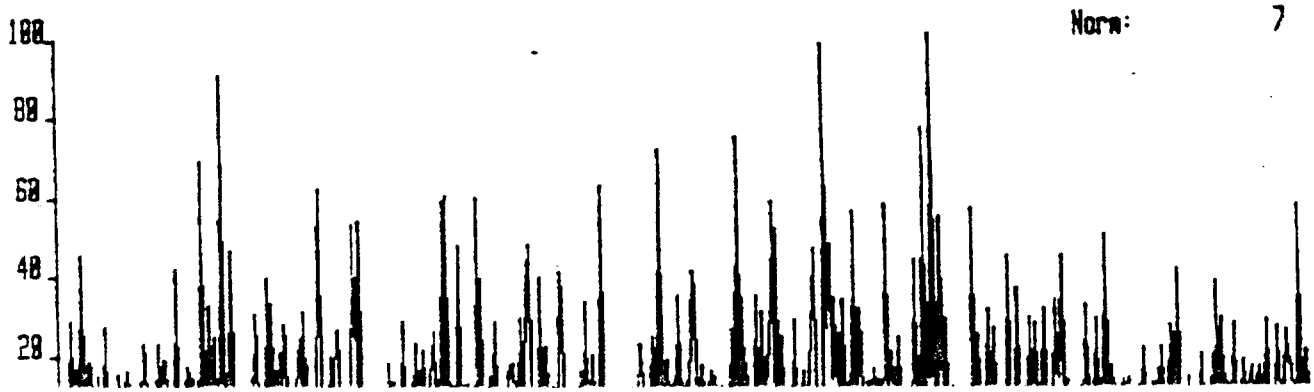
M872023 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 4 Mass 441.7428
Text:CONCAL



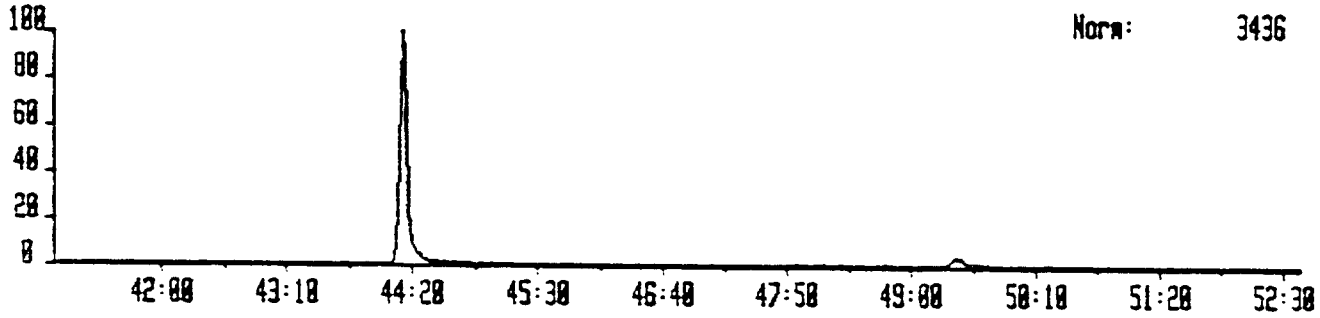
M872023 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:CONCAL



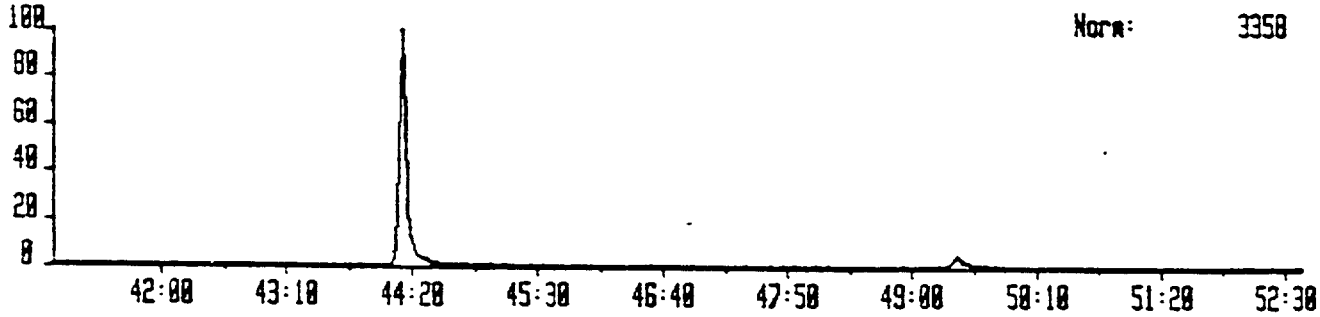
M872023 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 4 Mass 511.6818
Text:CONCAL



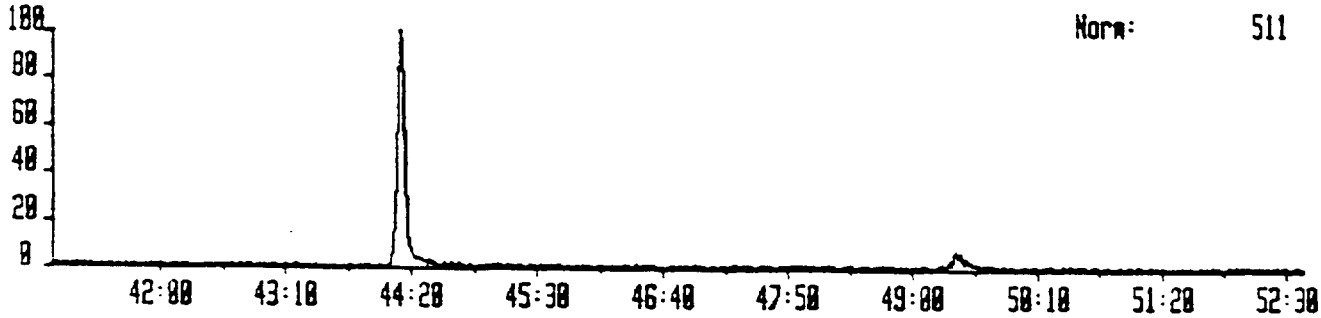
M872823 24-JUL-87 Sir:Voltage 70E Acnt: Systen:DBSATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:CONCAL



M872823 24-JUL-87 Sir:Voltage 70E Acnt: Systen:DBSATST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:CONCAL



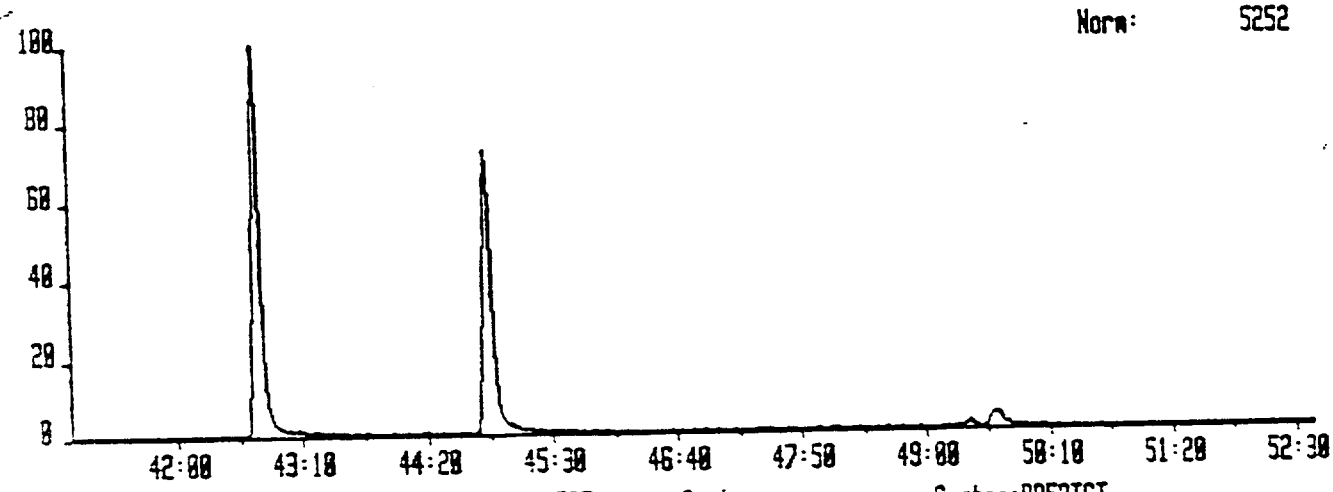
M872823 24-JUL-87 Sir:Voltage 70E Acnt: Systen:DBSATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:CONCAL



M872823 24-JUL-87 Sir:Voltage 70E Acnt: Systen:DBSATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:CONCAL

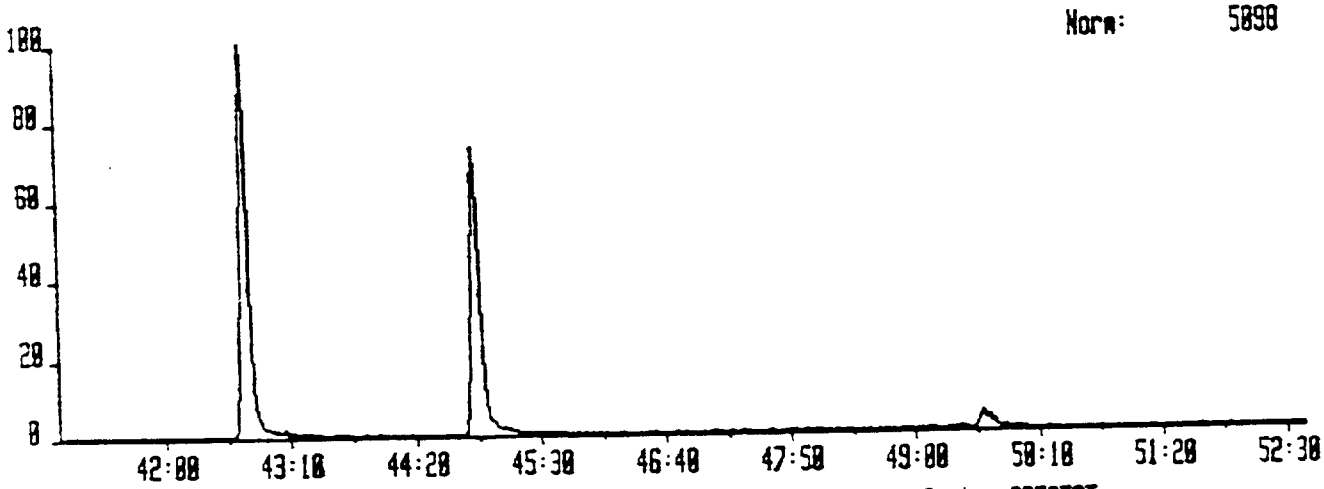
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 4 Mass 407.7817
Text:CONCAL

Norm: 5252



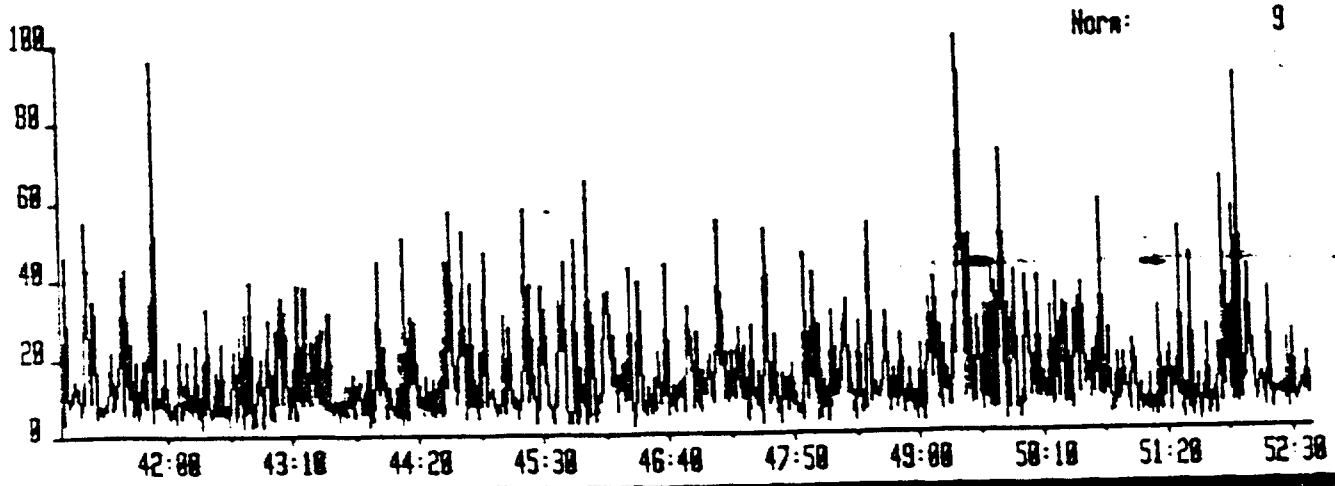
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 4 Mass 409.7788
Text:CONCAL

Norm: 5898

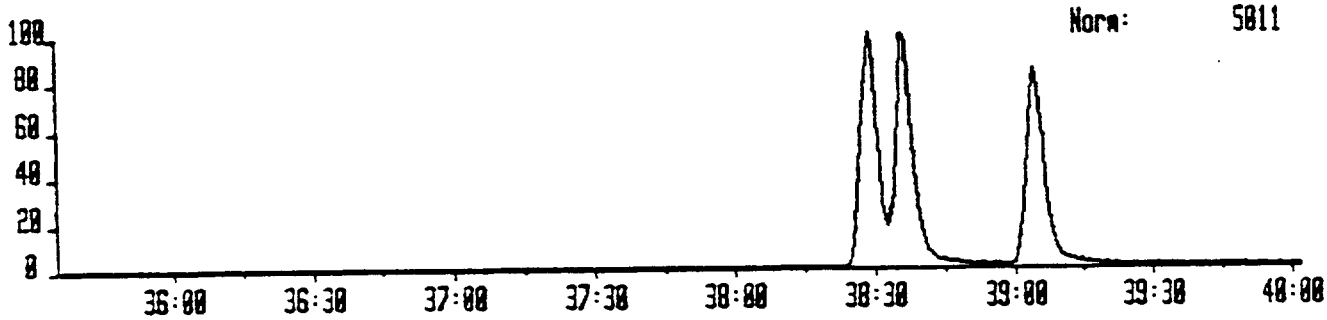


M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 4 Mass 477.7200
Text:CONCAL

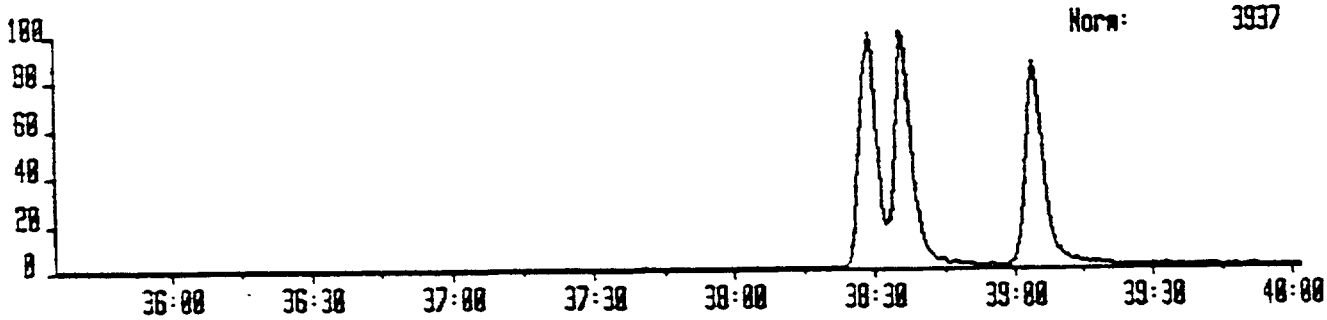
Norm: 9



M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 389.8156
Text:CONCAL

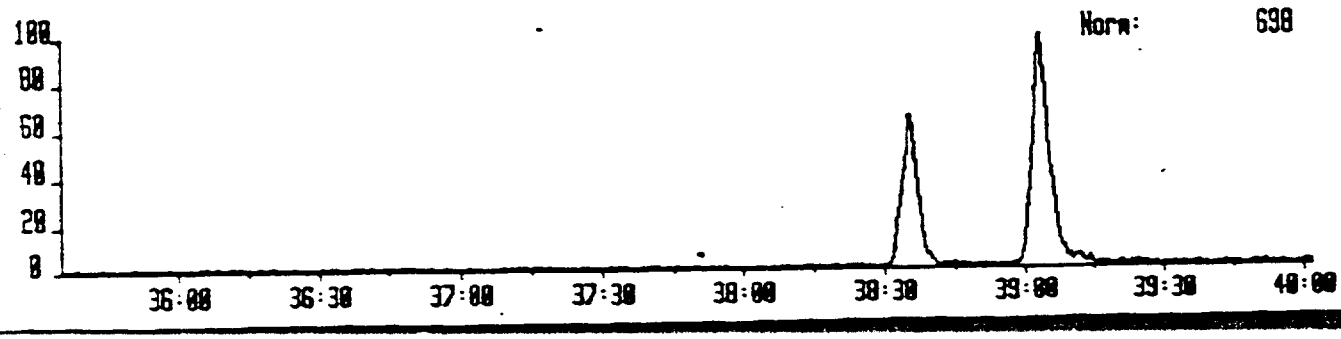


M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 391.8127
Text:CONCAL

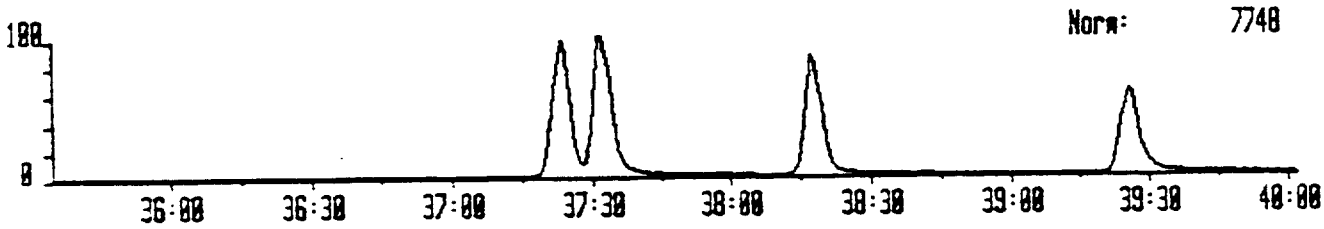


M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text:CONCAL

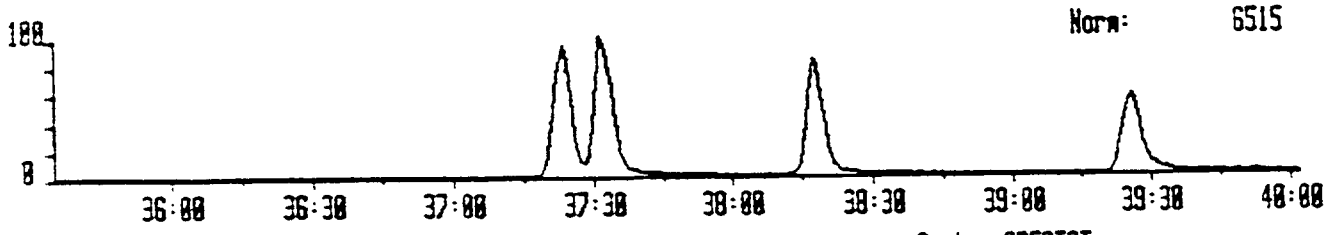
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 403.8529
Text:CONCAL



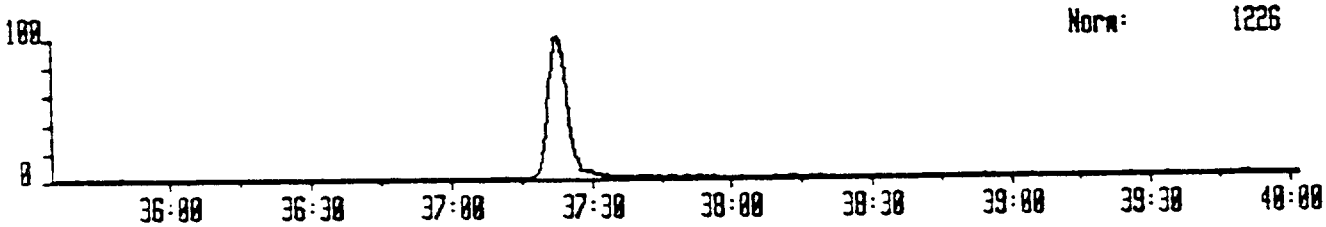
M872823 24-JUL-87 Sir:Voltage 70E Acnt: Systen:DB5ATST
Sample 1 Injection 1 Group 3 Mass 373.8207
Text:CONCAL



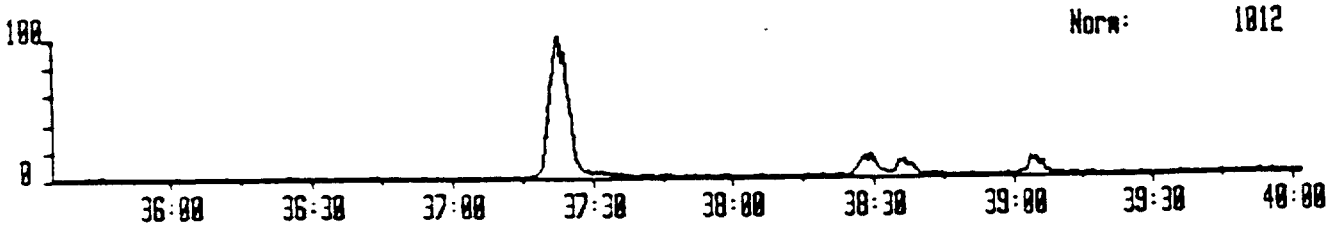
M872823 24-JUL-87 Sir:Voltage 70E Acnt: Systen:DB5ATST
Sample 1 Injection 1 Group 3 Mass 375.8178
Text:CONCAL



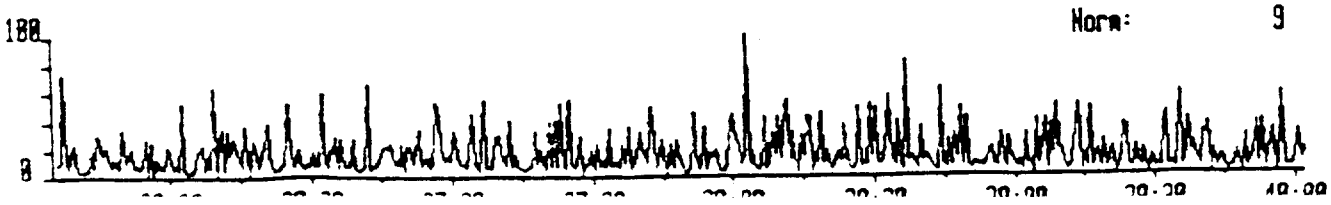
M872823 24-JUL-87 Sir:Voltage 70E Acnt: Systen:DB5ATST
Sample 1 Injection 1 Group 3 Mass 385.8689
Text:CONCAL



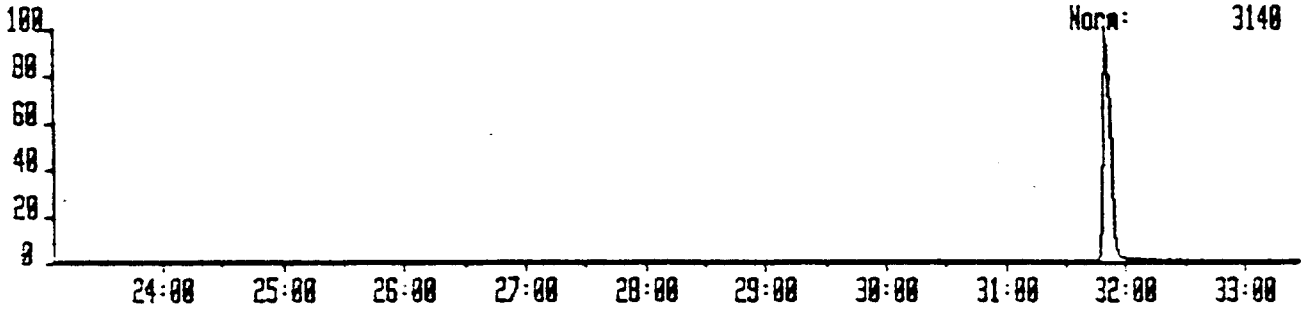
M872823 24-JUL-87 Sir:Voltage 70E Acnt: Systen:DB5ATST
Sample 1 Injection 1 Group 3 Mass 387.8580
Text:CONCAL



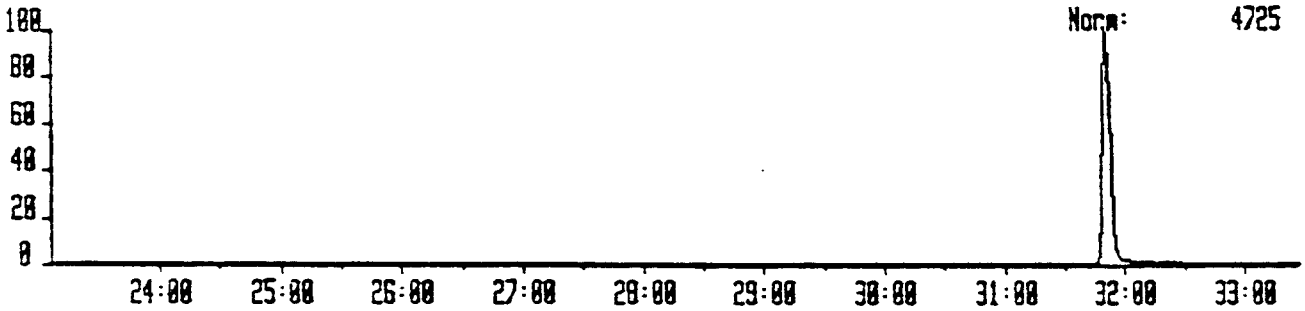
M872823 24-JUL-87 Sir:Voltage 70E Acnt: Systen:DB5ATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:CONCAL



M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:OBSATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:CONCAL



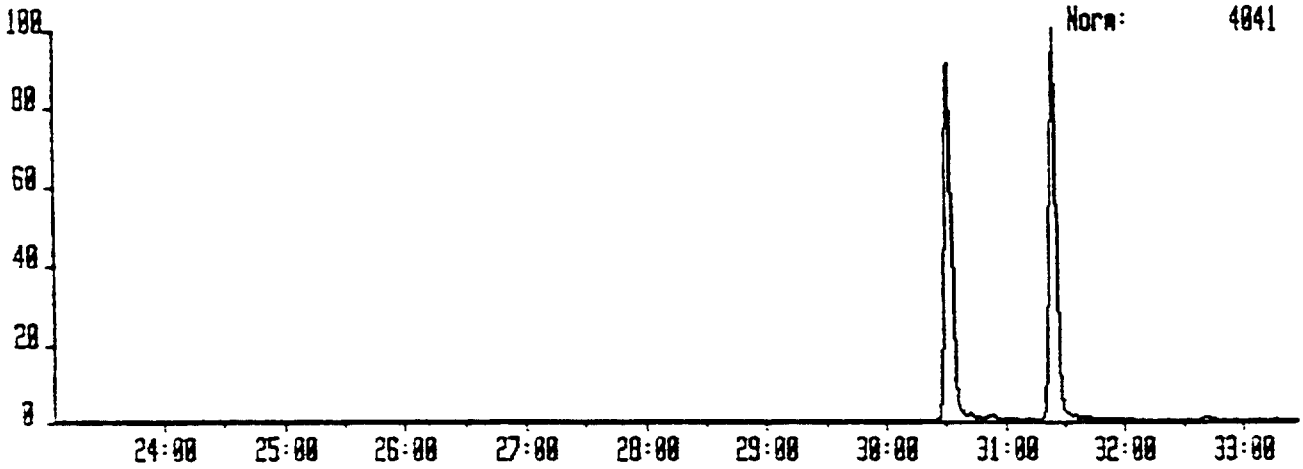
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:OBSATST
Sample 1 Injection 1 Group 2 Mass 355.8546
Text:CONCAL



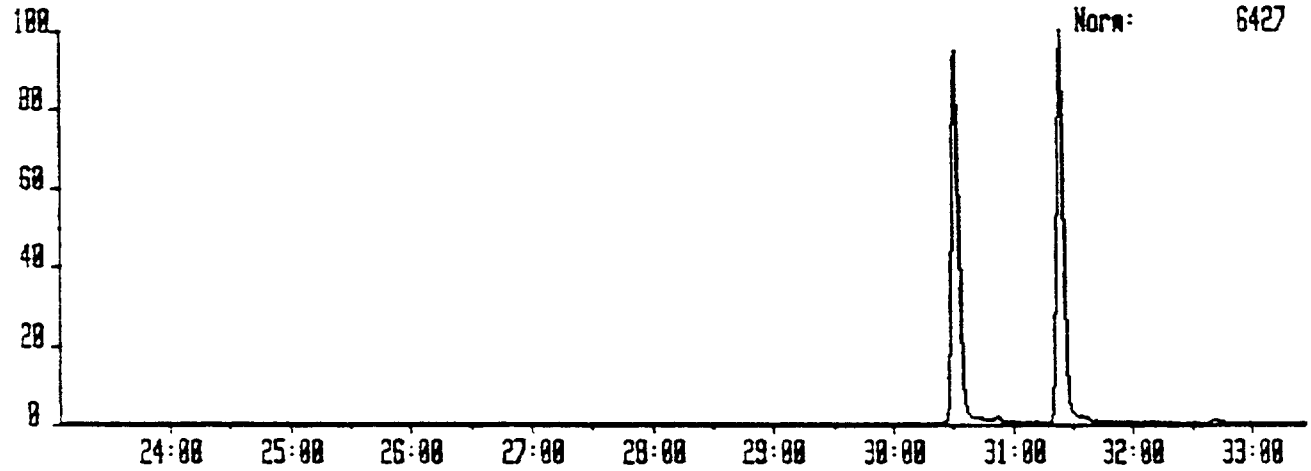
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:OBSATST
Sample 1 Injection 1 Group 2 Mass 365.8977
Text:CONCAL

M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:OBSATST
Sample 1 Injection 1 Group 2 Mass 367.8948
Text:CONCAL

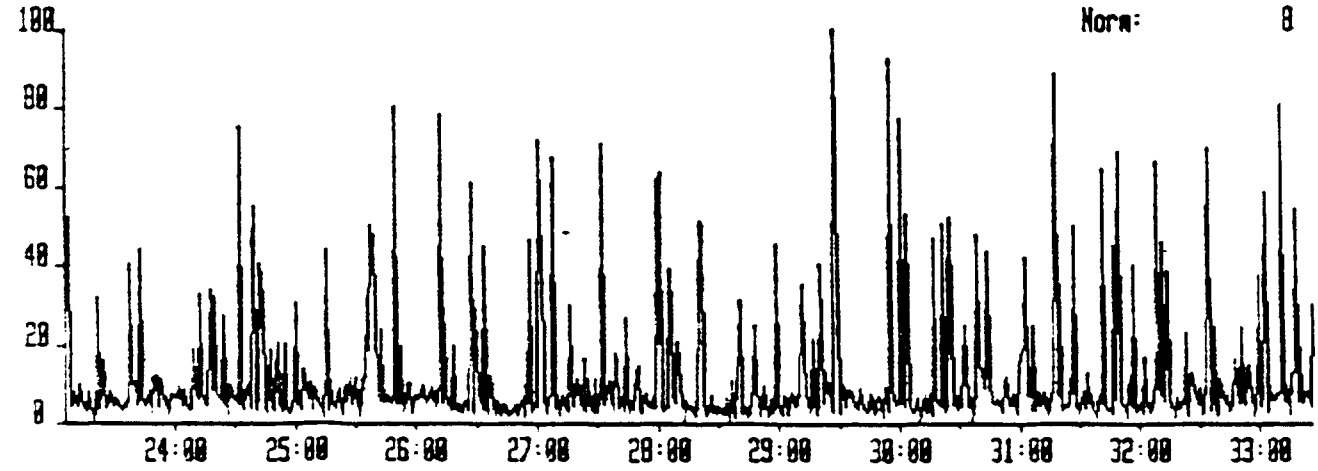
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:CONCAL



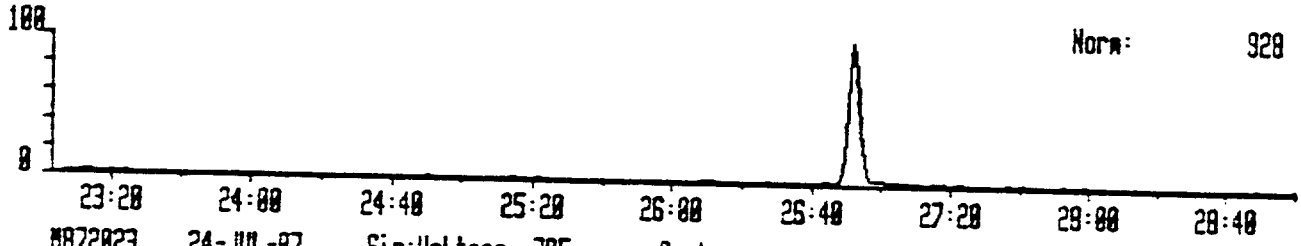
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:CONCAL



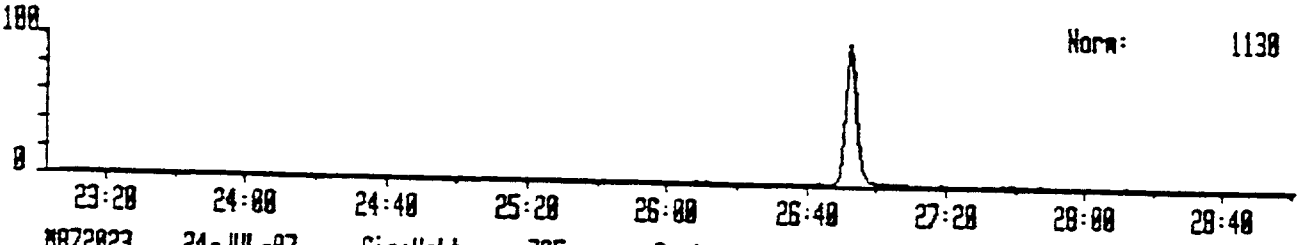
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 2 Mass 407.8883
Text:CONCAL



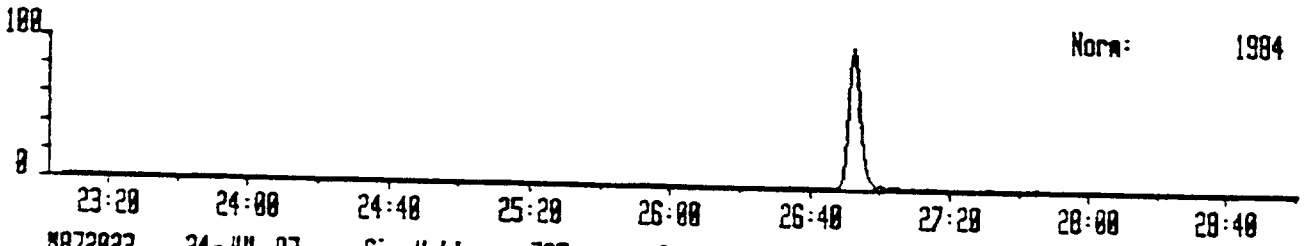
M872023 24-JUL-87 Sir:Voltage 70E Rcnt: System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:CONCAL



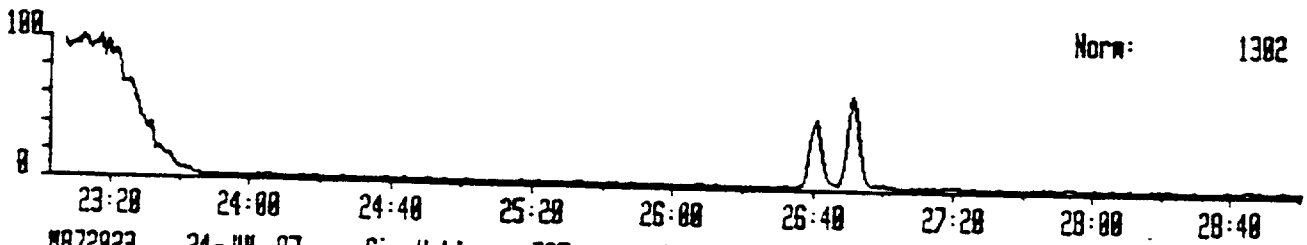
M872023 24-JUL-87 Sir:Voltage 70E Rcnt: System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:CONCAL



M872023 24-JUL-87 Sir:Voltage 70E Rcnt: System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:CONCAL

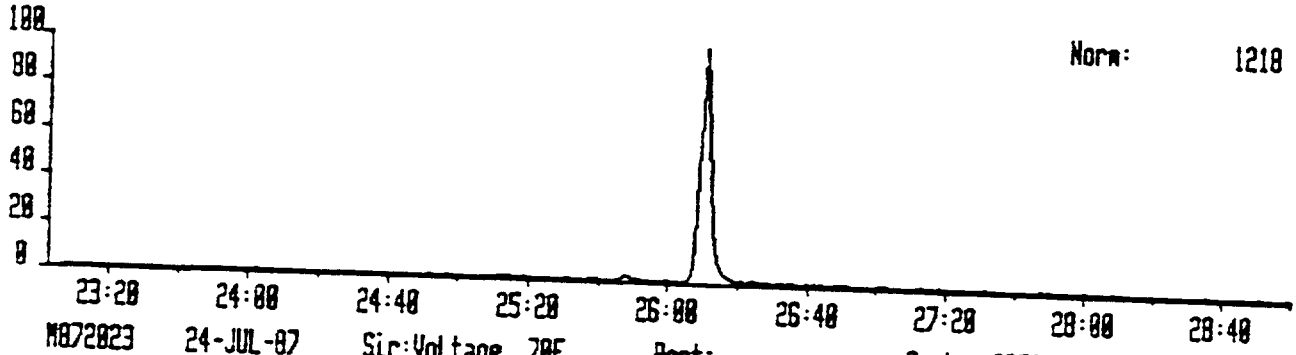


M872023 24-JUL-87 Sir:Voltage 70E Rcnt: System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 331.9368
Text:CONCAL

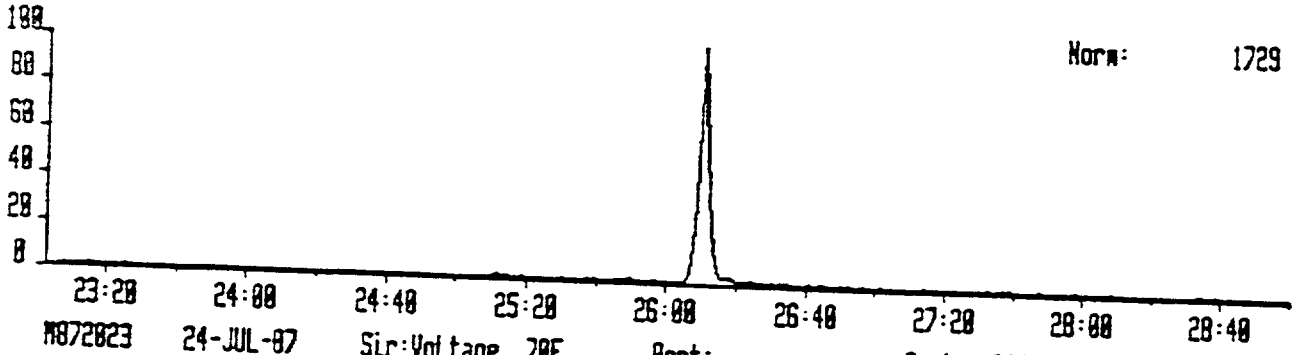


M872023 24-JUL-87 Sir:Voltage 70E Rcnt: System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 333.9338
Text:CONCAL

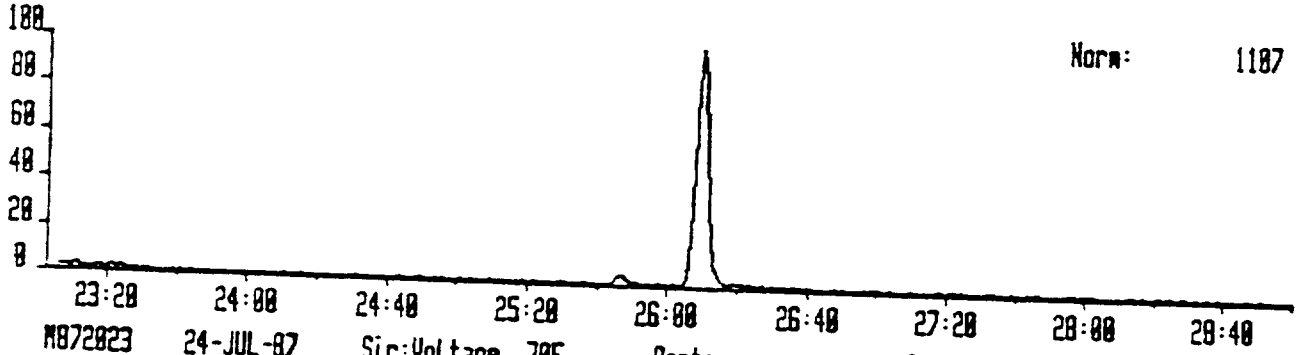
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 303.9816
Text:CONCAL



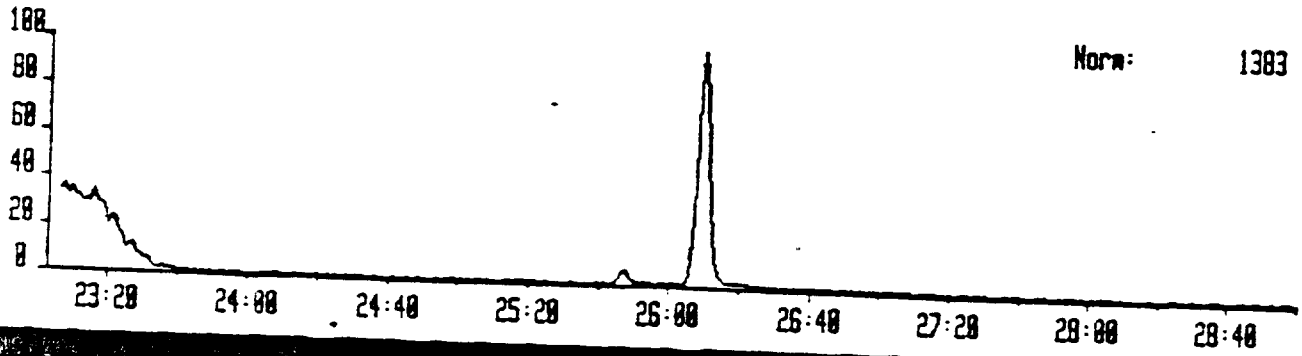
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 305.8987
Text:CONCAL



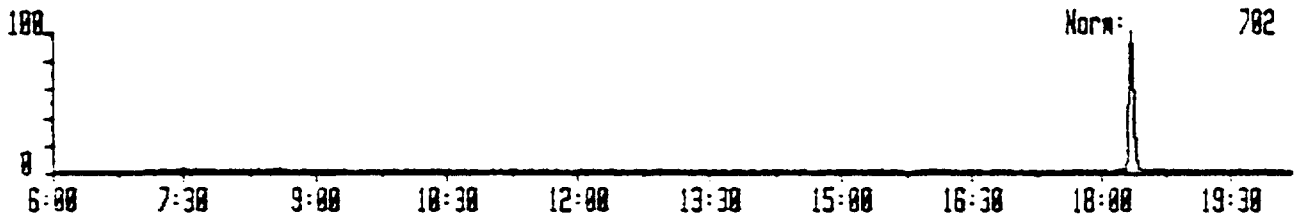
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 315.9419
Text:CONCAL



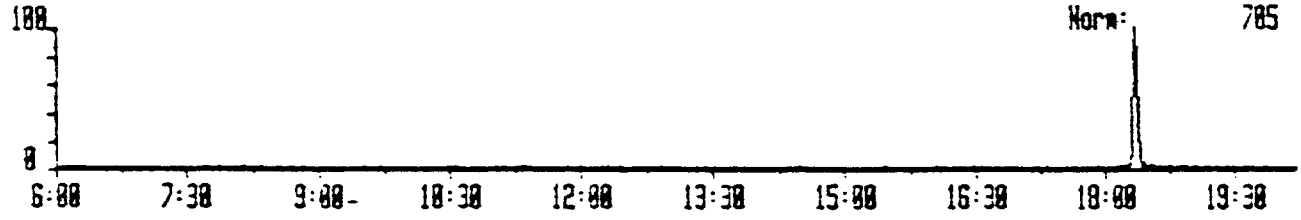
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 317.9389
Text:CONCAL



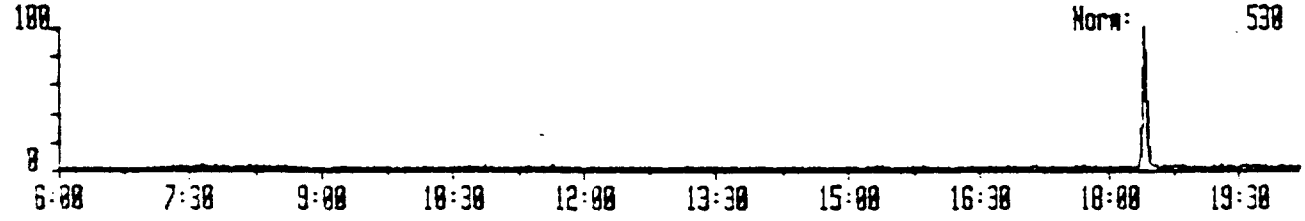
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 1 Mass 269.9486
Text:CONCAL



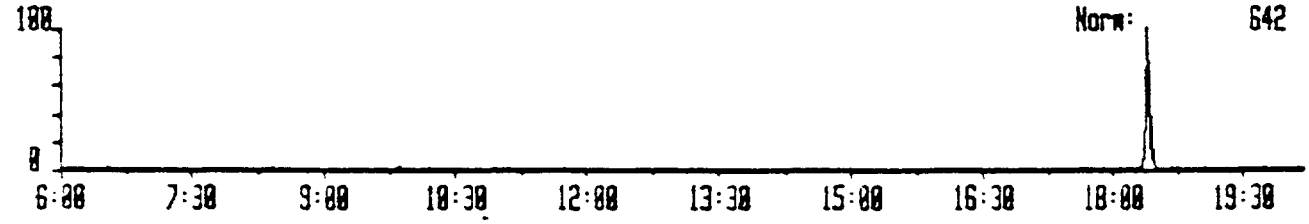
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 1 Mass 271.9377
Text:CONCAL



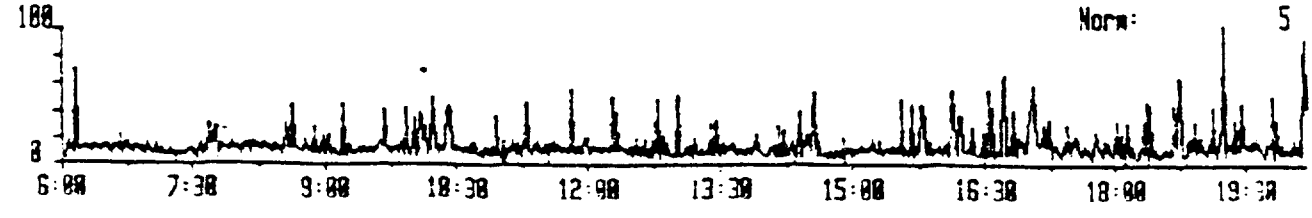
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 1 Mass 285.9355
Text:CONCAL



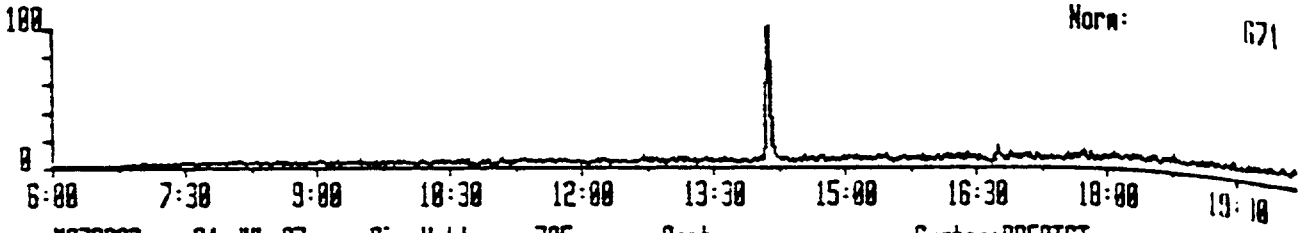
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:CONCAL



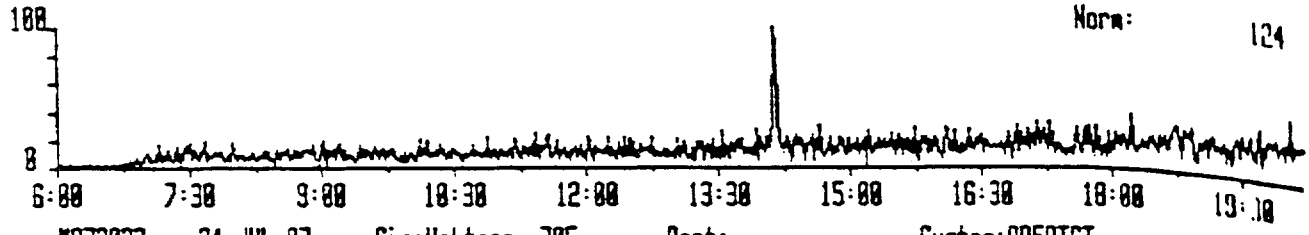
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DBSATST
Sample 1 Injection 1 Group 1 Mass 339.8798
Text:CONCAL



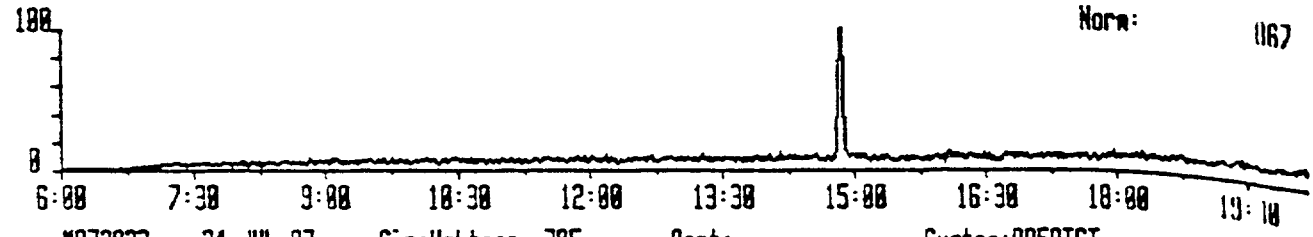
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:OBSATST
Sample 1 Injection 1 Group 1 Mass 237.9767
Text:CONCAL



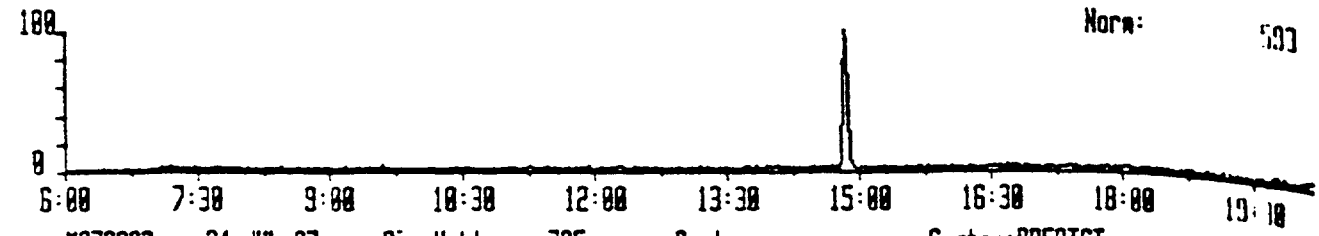
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:OBSATST
Sample 1 Injection 1 Group 1 Mass 239.9738
Text:CONCAL



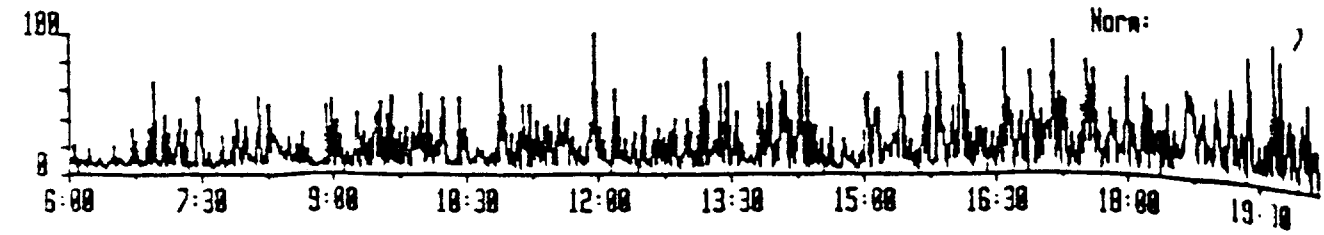
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:OBSATST
Sample 1 Injection 1 Group 1 Mass 251.9745
Text:CONCAL



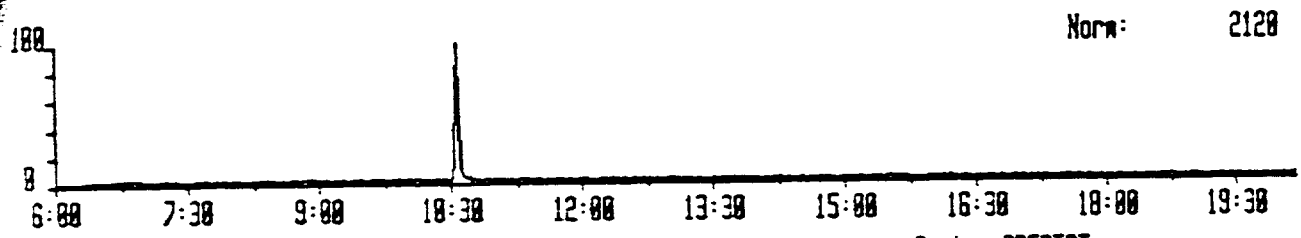
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:OBSATST
Sample 1 Injection 1 Group 1 Mass 253.9716
Text:CONCAL



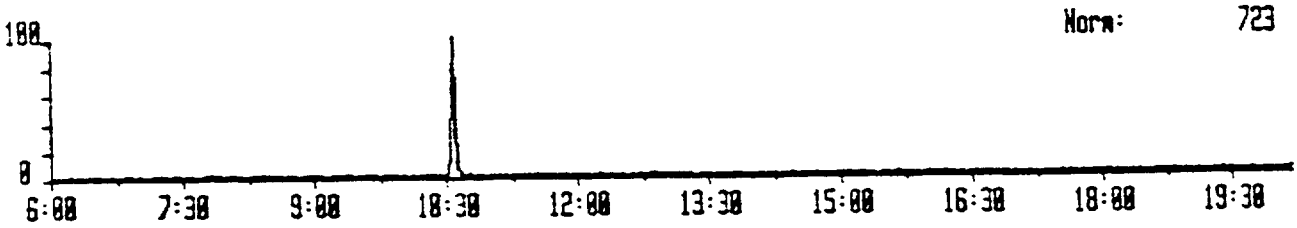
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:OBSATST
Sample 1 Injection 1 Group 1 Mass 385.9288
Text:CONCAL



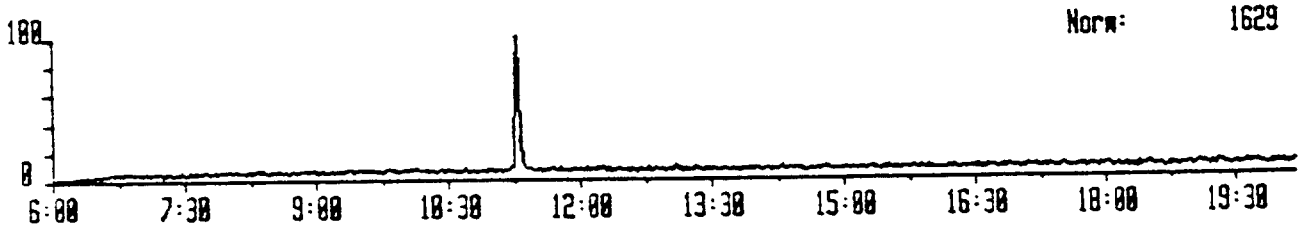
M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DB5ATST
Sample 1 Injection 1 Group 1 Mass 202.0186
Text:CONCAL



M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DB5ATST
Sample 1 Injection 1 Group 1 Mass 284.0157
Text:CONCAL

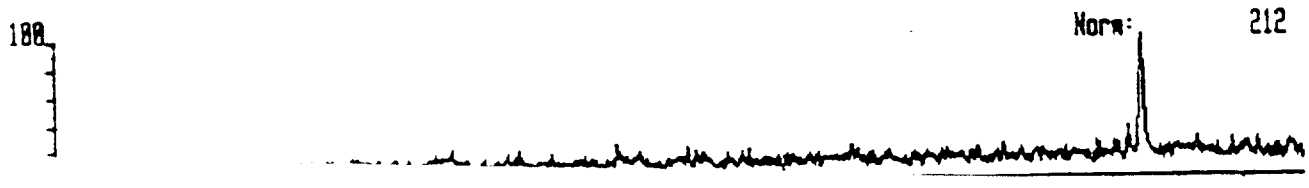


M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DB5ATST
Sample 1 Injection 1 Group 1 Mass 218.0135
Text:CONCAL



M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DB5ATST
Sample 1 Injection 1 Group 1 Mass 228.0186
Text:CONCAL

M872823 24-JUL-87 Sir:Voltage 70E Acnt: System:DB5ATST
Sample 1 Injection 1 Group 1 Mass 271.9670
Text:CONCAL



TRIANGLE LABORATORIES, INC.
PCDD/PCDF ANALYSIS

ANALYST: DJH
DATE: 07/29/87
FILE NAME: M872025
SAMPLE ID: 1-1 AQUEOUS
CASE NO: ENTROPY
PROJ NO: 8701481
CONCAL: M872023

NAME	AMT (ng)	NUMBER	DL	EMPC	RATIO	RT
TOTAL TRICDD	ND			0.061	0.05	
2378-TCDD	ND		0.018			
TOTAL TCDD	ND			0.051	8.68	
12378-PCDD	ND		0.018			
TOTAL PCDD	ND			0.041	0.79	
123478-HxCDD	ND		0.018			
123678-HxCDD	ND		0.018			
123789-HxCDD	ND		0.020			
TOTAL HxCDD	ND			0.177	1.43	
1234678-HpCDD	0.109				1.15	44.11
TOTAL HpCDD	0.109	1			1.15	
OCDD	ND			0.668	0.73	
TOTAL TRICDF	ND		0.028			
2378-TCDF	0.075				0.78	26.10
TOTAL TCDF	0.075	1			0.78	
12378-PCDF	ND		0.013			
23478-PCDF	0.033				0.66	31.21
TOTAL PCDF	0.058	2			0.61	
123478-HxCDF	0.059				1.33	37.21
123678-HxCDF	ND			0.021	0.69	
234678-HxCDF	ND		0.013			
123789-HxCDF	ND		0.015			
TOTAL HxCDF	0.110	2			1.28	
1234678-HpCDF	ND			0.141	1.30	
1234789-HpCDF	ND		0.018			
TOTAL HpCDF	0.036	1			0.99	
OCDF	0.216				0.80	49.35

SURROGATE RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
13C12-TCDF	9.22	92.20	0.79	26.09
37CL-TCDD	9.76	97.60		26.52
13C12-HxCDF	9.65	96.50	1.26	37.22

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
2378-13C12-TCDD	8.71	87.10	0.79	26.51
13C12-PCDD	10.48	104.80	0.60	31.48
13C12-HxCDD	8.73	87.30	1.21	38.35
13C12-HpCDD	8.01	80.10	1.05	44.12
13C12-OCDD	11.88	59.40	0.01	49.21

M872025B
MATCHED GC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
286	0.05	17.48	77.43	.F.	.F.	0.000
304	0.78	26.10	265.27	.T.	.T.	0.975
316	0.88	25.47	1213.35	.T.	.F.	0.960
316	0.79	26.09	32694.58	.T.	.T.	0.974
320	8.68	26.09	140.37	.F.	.F.	0.974
328	0.00	26.52	26947.34	.T.	.T.	1.001
332	0.78	26.40	22294.17	.T.	.T.	0.993
332	0.79	26.51	26054.94	.T.	.T.	1.000
338	0.86	29.27	171.60	.F.	.F.	0.926
338	0.72	30.50	64.60	.F.	.F.	0.970
338	0.66	31.21	116.70	.T.	.T.	0.986
338	0.56	31.33	93.10	.T.	.F.	0.992
354	1.39	29.34	56.90	.F.	.F.	0.930
354	0.20	30.26	63.50	.F.	.F.	0.957
366	0.60	31.48	14142.51	.T.	.T.	1.000
374	1.22	36.08	189.00	.T.	.F.	0.937
374	1.33	37.21	264.27	.T.	.T.	0.968
374	0.69	37.30	103.00	.F.	.T.	0.972
386	1.26	37.22	38790.43	.T.	.T.	0.968
390	1.87	37.21	255.97	.F.	.F.	0.968
390	0.99	37.39	133.00	.F.	.F.	0.976
402	1.21	38.35	15748.45	.T.	.T.	1.000
402	1.22	39.03	29089.24	.T.	.T.	1.012
408	1.30	42.44	486.62	.F.	.T.	0.967
408	0.39	43.18	115.37	.T.	.F.	0.980
424	0.83	43.09	194.96	.F.	.F.	0.976
424	1.15	44.11	249.60	.T.	.T.	1.000
436	1.05	44.12	17292.77	.T.	.T.	1.000
442	0.80	49.35	291.00	.T.	.T.	1.005
458	0.73	49.22	808.73	.F.	.T.	1.000
470	0.91	49.21	27657.88	.T.	.T.	1.000
*** Total ***						
***	35.29	1078.6	256166.65			29.367

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07/29/87

M872025I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
270	10.00	15.00
272	10.00	16.00
286	10.00	17.00 — 4 @ 17:48
288	73.43	17.46
304	116.19	26.10
306	149.08	26.11
306	139.89	31.48
316	566.48	25.47
316	14391.85	26.09
318	646.87	25.47
318	18302.73	26.09
320	125.87	26.09
322	10.00	18.00 — 14.5 @ 26:08
328	26947.34	26.52
332	195.06	26.28
332	9753.97	26.40
332	11498.66	26.51
334	12540.20	26.40
334	14556.28	26.51
334	142.55	31.48
338	71.25	29.29
340	10.00	19.00
354	33 ~~10.00~~	~~29.00~~ 29.34
356	24 ~~10.00~~	~~21.00~~ 29.34
366	5315.05	31.48
368	8827.46 374 41.9 @ 37.6	31.48
374	102.02	36.09 — 10%, 36:08
374	150.95	37.21 — ok
376	62.86	36.08 — 85, 36:05
376	113.32	37.21 — ok
376	37.54	37.32 — 61.1, 37:30
386	21648.36	37.22
388	17142.07	37.22
390	231.92	37.21
390	55.81	37.40 — 66 @ 37:39
392	124.05	37.20
402	8620.22	38.35 — 392: 67 @ 37:39
402	15965.22	39.03
404	7128.23	38.35
404	13124.02	39.03
408	275.42	42.44 — NC
408	57.49	43.18 — ok
410	211.20	42.44 — NC
410	57.88	43.19 — ok
410	32.94	44.51
410	634.98	49.20
424	88.60	42.09 — NC
424	127.72	44.13 — 133.7 @ 44:11
426	106.36	42.09 — NC
426	107.27	44.13 — 115.9 @ 44:11

338
79.3 @ 29:27
27 @ 30:50
46.5 @ 31:21
53.3 @ 31:33

340
92.3 @ 29.27
37.6 @ 30:50
70.2 @ 31:21
59.8 @ 31:33

354
33.1 @ 29:34
10.8 @ 30:26

356
23.2 @ 29:34
52.7 @ 30:26

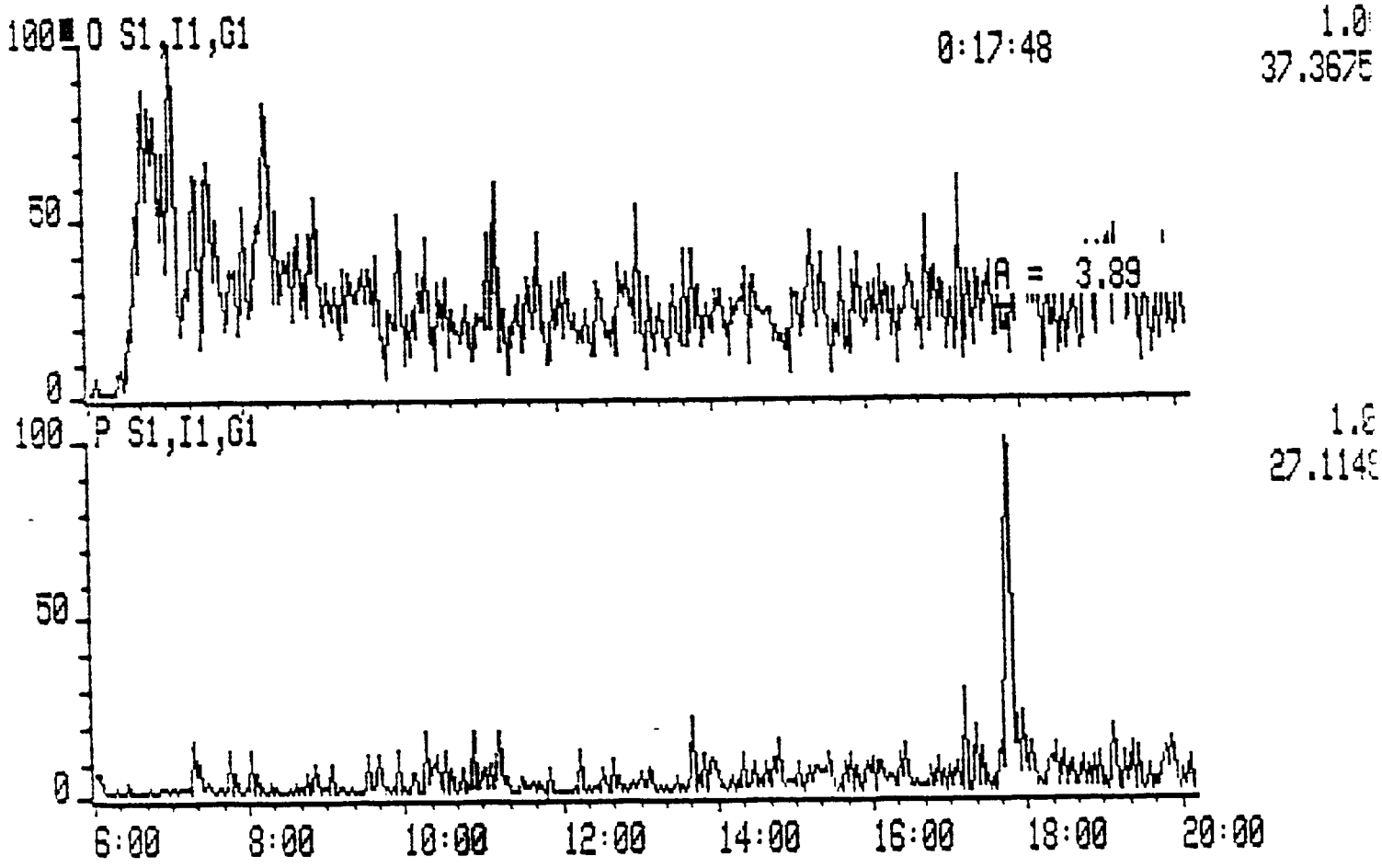
M872025I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
436	8839.03	44.12
438	8453.74	44.12
438	438.87	49.22
442	92.15	49.37 -129 @ 49:35
444	110.46	49.34 -162 @ 49:35
458	341.82	49.22
460	466.91	49.21
470	13159.42	49.21
470	10.00	22.00
472	14498.46	49.21
*** Total ***		
****	257047.52	2058.05

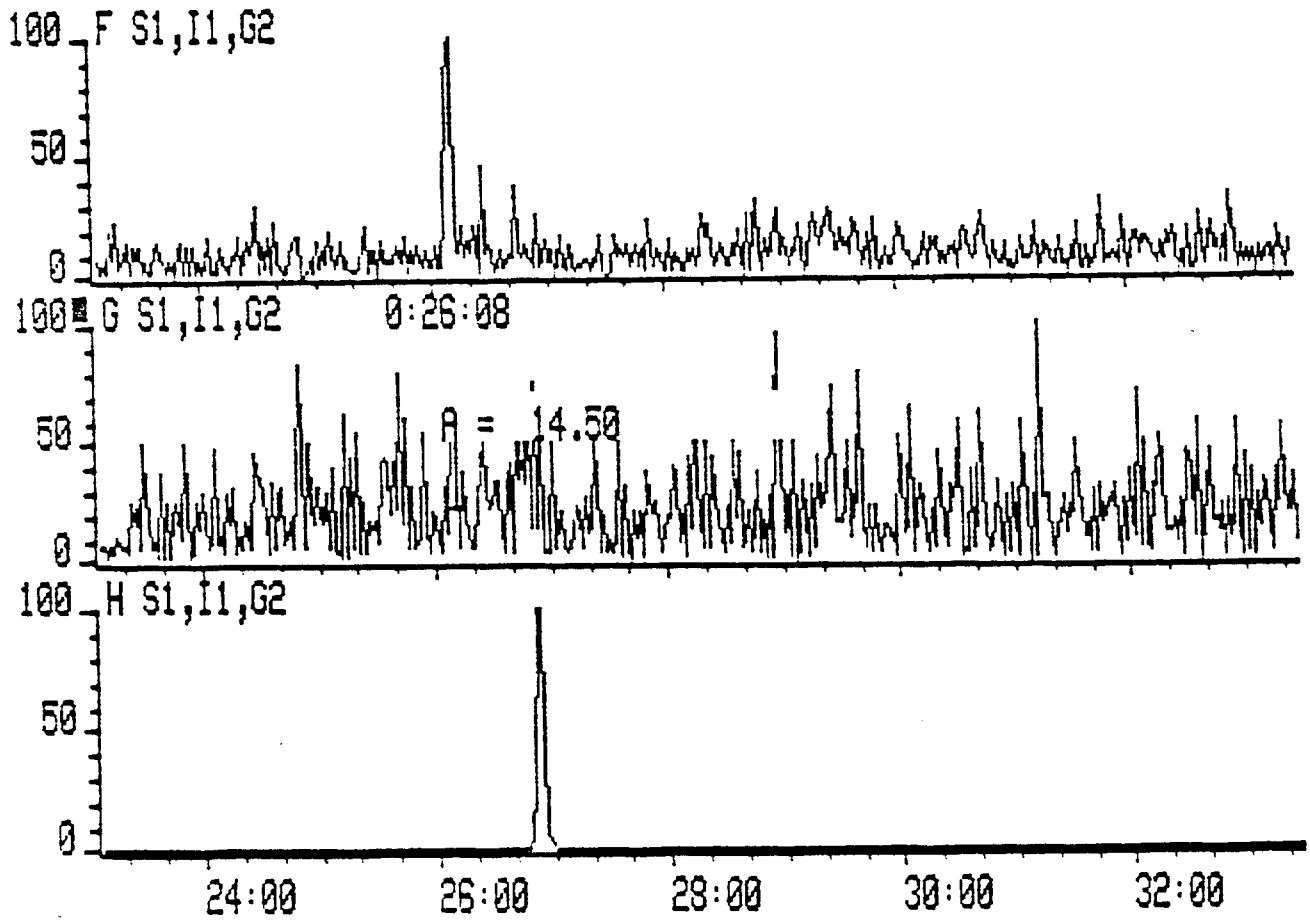
M872025B
MATCHED GC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
304	0.78	26.10	265.27	.T.	.T.	0.975
316	0.88	25.47	1213.35	.T.	.F.	0.960
316	0.79	26.09	32694.58	.T.	.T.	0.974
328	0.00	26.52	26947.34	.T.	.T.	1.001
332	0.78	26.40	22294.17	.T.	.T.	0.993
332	0.79	26.51	26054.94	.T.	.T.	1.000
366	0.60	31.48	14142.51	.T.	.T.	1.000
374	1.62	36.09	164.88	.F.	.F.	0.937
374	1.33	37.21	264.27	.T.	.T.	0.968
386	1.26	37.22	38790.43	.T.	.T.	0.968
390	1.87	37.21	355.97	.F.	.F.	0.968
402	1.21	38.35	15748.45	.T.	.T.	1.000
402	1.22	39.03	29089.24	.T.	.T.	1.012
408	1.30	42.44	486.62	.F.	.T.	0.967
408	0.99	43.18	115.37	.T.	.F.	0.980
424	0.83	43.09	194.96	.F.	.F.	0.976
424	1.19	44.13	234.99	.F.	.T.	1.000
436	1.05	44.12	17292.77	.T.	.T.	1.000
458	0.73	49.22	808.73	.F.	.T.	1.000
470	0.91	49.21	27657.88	.T.	.T.	1.000
*** Total ***						
***	20.13	729.07	254816.72			19.679

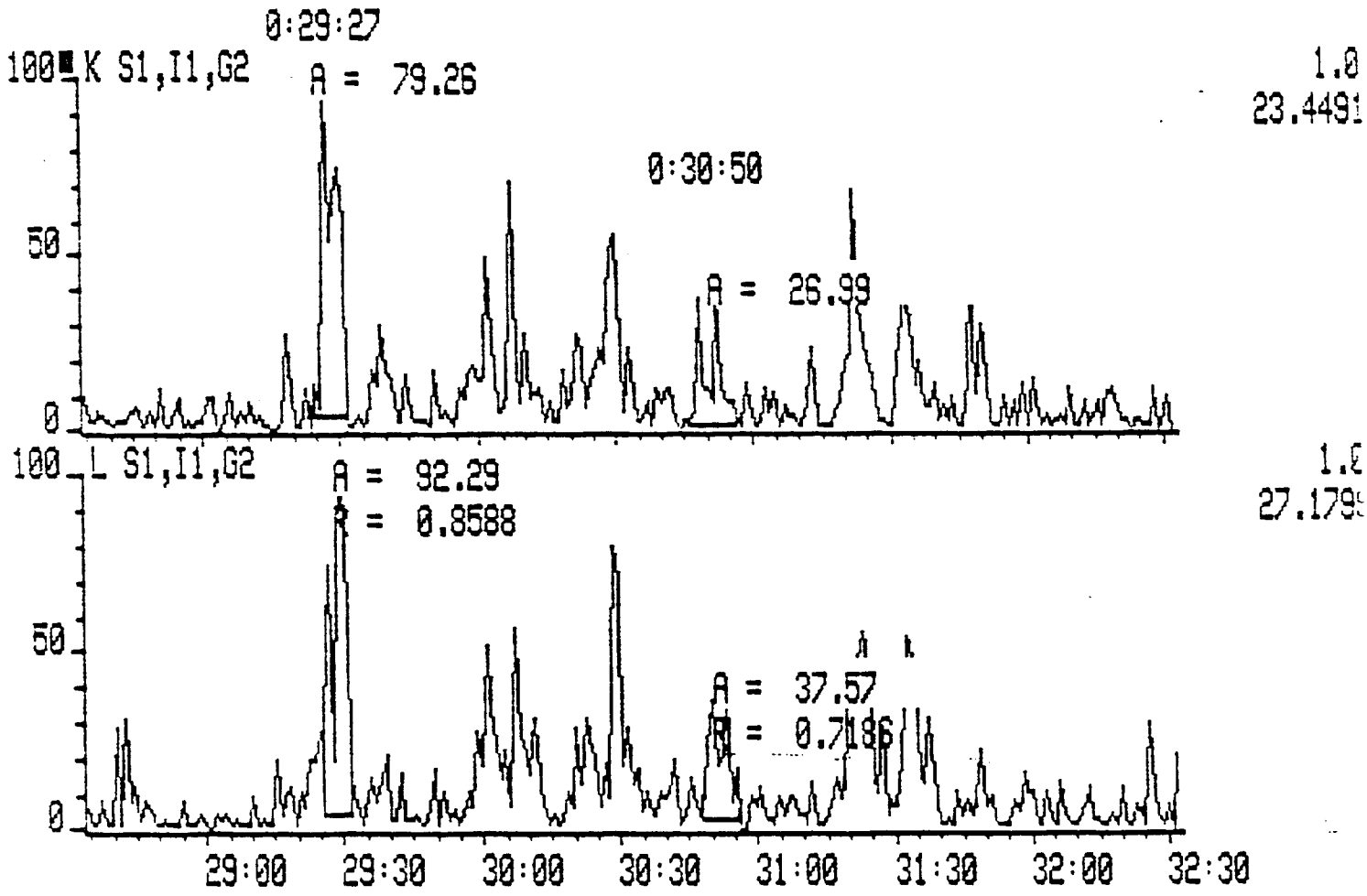
372025 24-JUL-87 05:01 70E (EI+) Sys:DB5ATST
GR 1 M: 269.9406 N: 271.9377 O: 285.9355 P: 287.9326 Q: 339.8790
Text:1-1 (AQ)



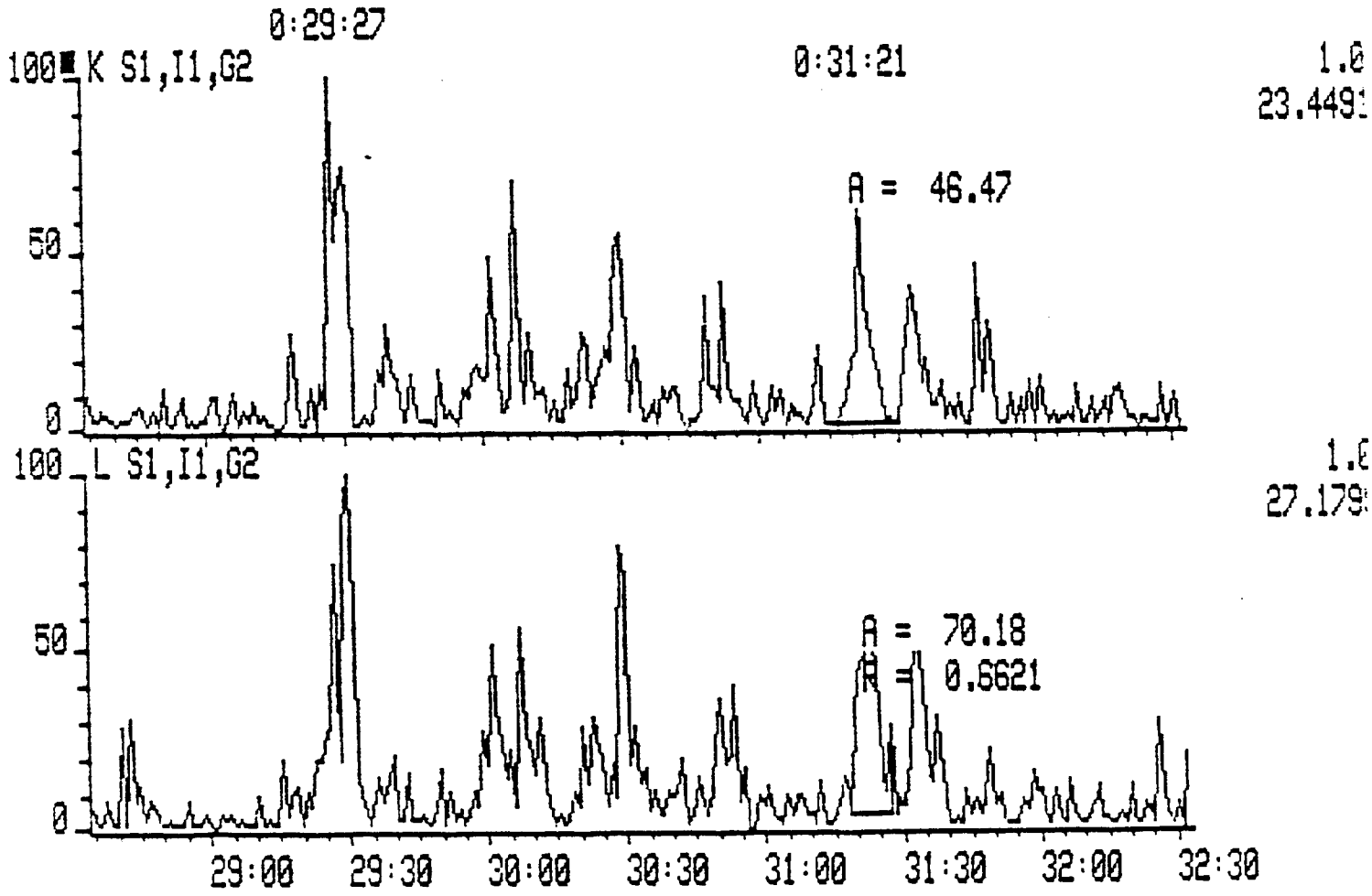
1872025 24-JUL-87 05:01 70E (EI+) Sus:DB5ATST
GR 2 F: 319.8965 G: 321.8936 H: 327.8847 I: 331.9368 J: 333.9338
Text:1-1 (AQ)

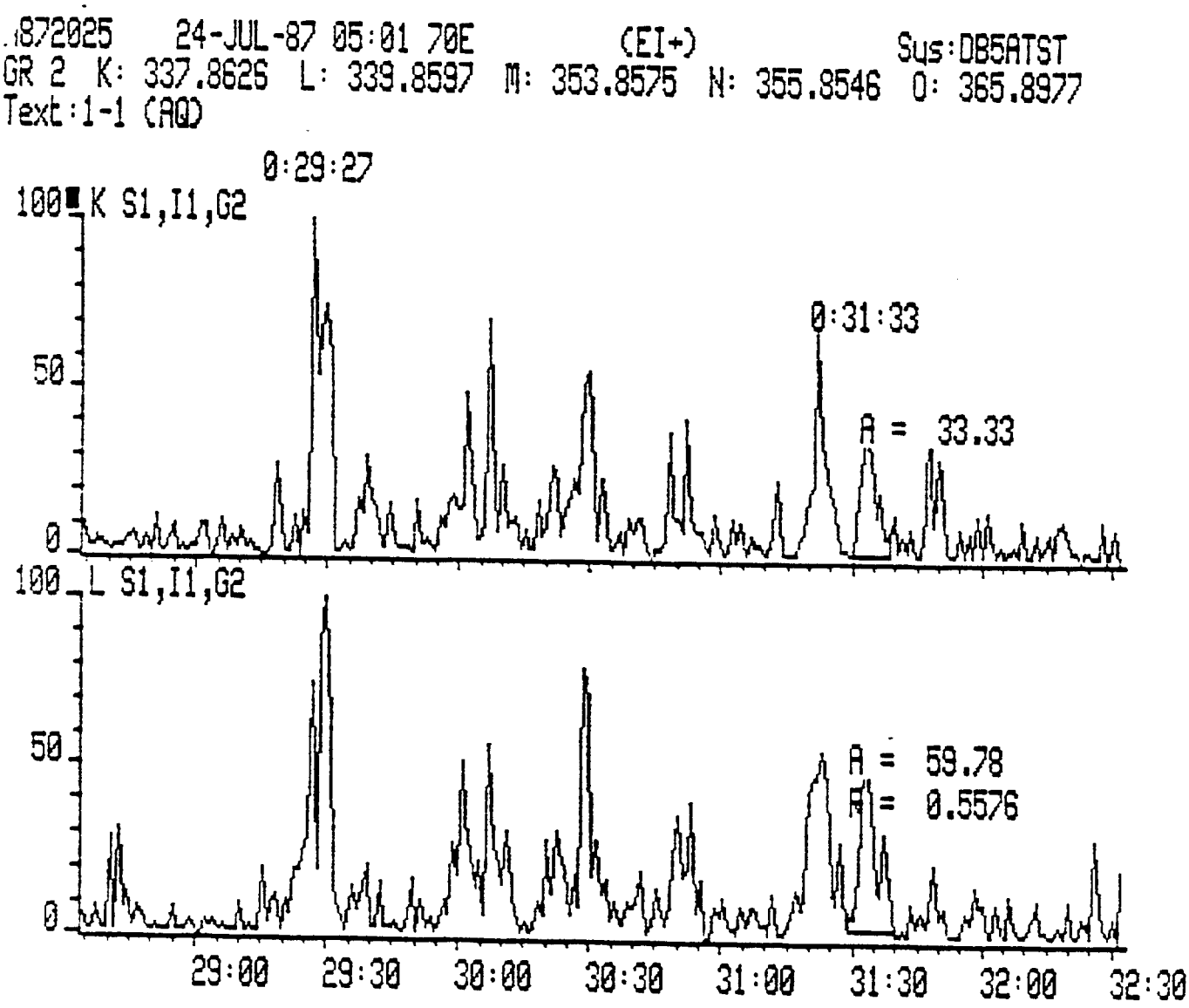


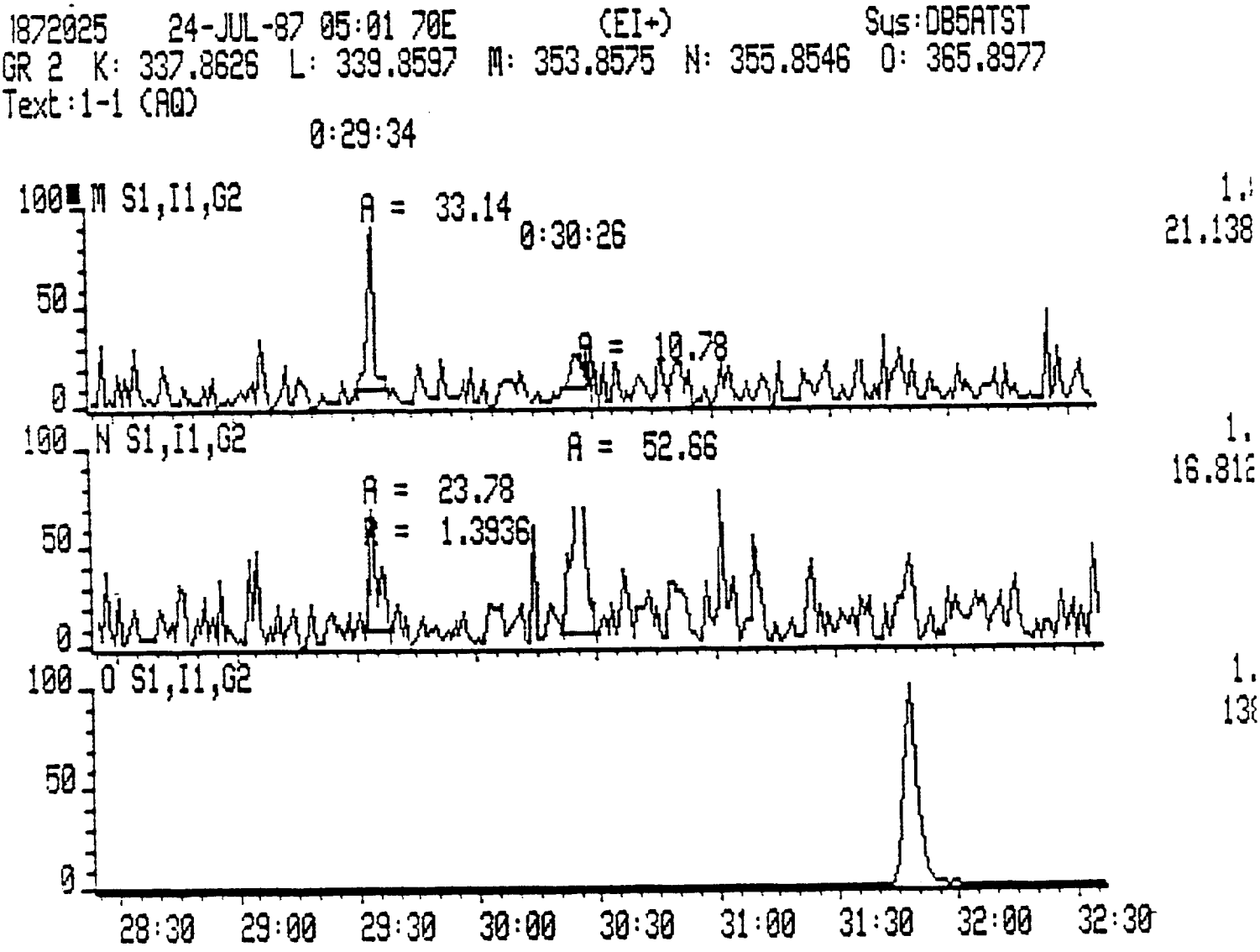
372025 24-JUL-87 05:01 70E (EI+) Sus:DB5ATST
GR 2 K: 337.8626 L: 339.8597 M: 353.8575 N: 355.8546 O: 365.8977
Text:1-1 (AQ)



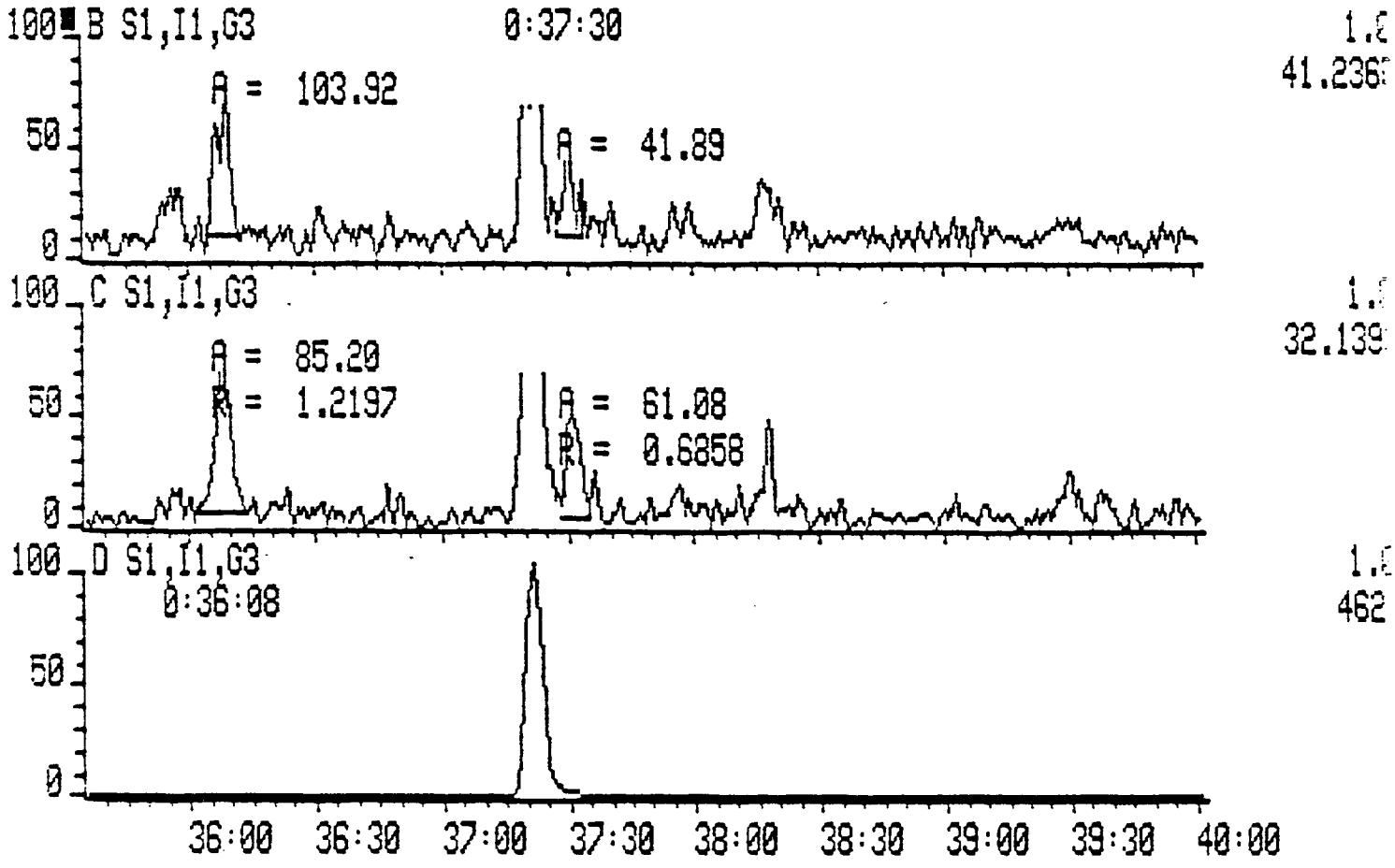
372025 24-JUL-87 05:01 70E (EI+) Sus:DB5ATST
GR 2 K: 337.8626 L: 339.8597 M: 353.8575 N: 355.8546 O: 365.8977
Text:1-1 (AQ)



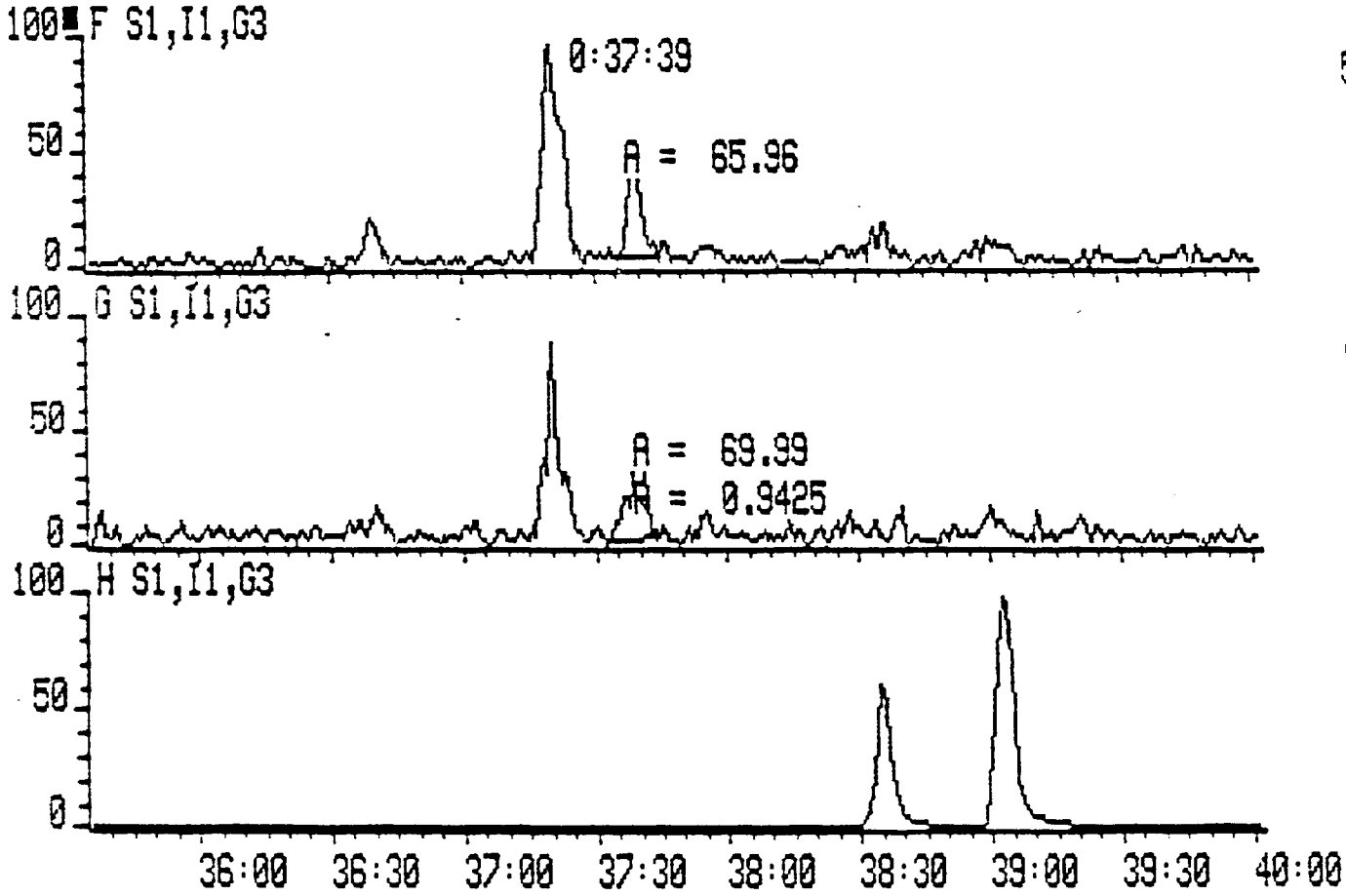

.872025 24-JUL-87 05:01 70E (EI+) Sus:DB5ATST
GR 2 K: 337.8626 L: 339.8597 M: 353.8575 N: 355.8546 O: 365.8977
Text:1-1 (AQ)
0:29:27
100 K S1,I1,G2
50
0
0:31:33
A = 33.33
100 L S1,I1,G2
50
0
A = 59.78
A = 0.5576
29:00
29:30
30:00
30:30
31:00
31:30
32:00
32:30


1872025 24-JUL-87 05:01 70E (EI+) Sus:DB5ATST
GR 2 K: 337.8626 L: 339.8597 M: 353.8575 N: 355.8546 O: 365.8977
Text:1-1 (AQ)
0:29:34
100 M S1,I1,G2
A = 33.14
0:30:26
A = 10.78
50
0
100 N S1,I1,G2
A = 52.66
A = 23.78
A = 1.3936
50
0
100 O S1,I1,G2
50
0
28:30
29:00
29:30
30:00
30:30
31:00
31:30
32:00
32:30

M872025 24-JUL-87 05:01 70E (EI+) Sys:DB5ATST
GR 3 A: 392.9791 B: 373.8207 C: 375.8178 D: 385.8609 E: 387.8580
Text:1-1 (AQ)



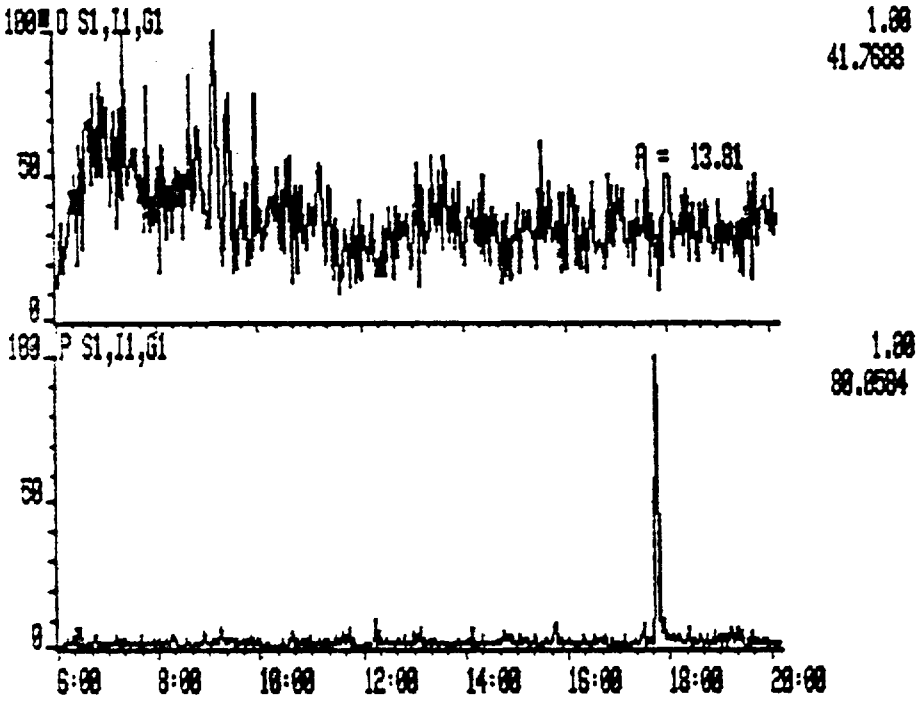
MS72025 24-JUL-87 05:01 70E (EI+) Sys:DB5ATST
GR 3 F: 389.8156 G: 391.8127 H: 401.8558 I: 403.8529 J: 392.9791
Text:1-1 (AQ)



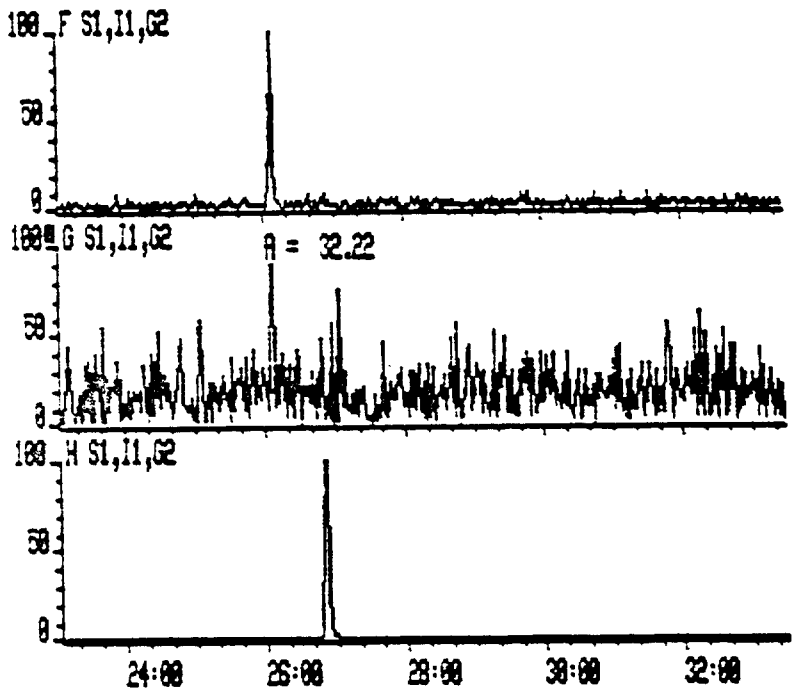
M872031I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
470	14258.34	49.20
470	10.00	27.00
472	15710.18	49.19
*** Total ***		
****	264053.11	1677.58

#872831 - 24-JUL-87 11:08 70E (EI+) Sus:DBSHTST
GR 1 A: 269.9486 N: 271.9377 O: 285.9355 P: 287.9326 Q: 339.8798
Text:1+TB (AD)



.072831 ' 24-JUL-87 11:08 70E (EI+) Sys:DBSRTST
GR 2 M: 353.8575 N: 355.8546 O: 365.8977 P: 367.8948 Q: 407.8883
Text:1-FB (AVD

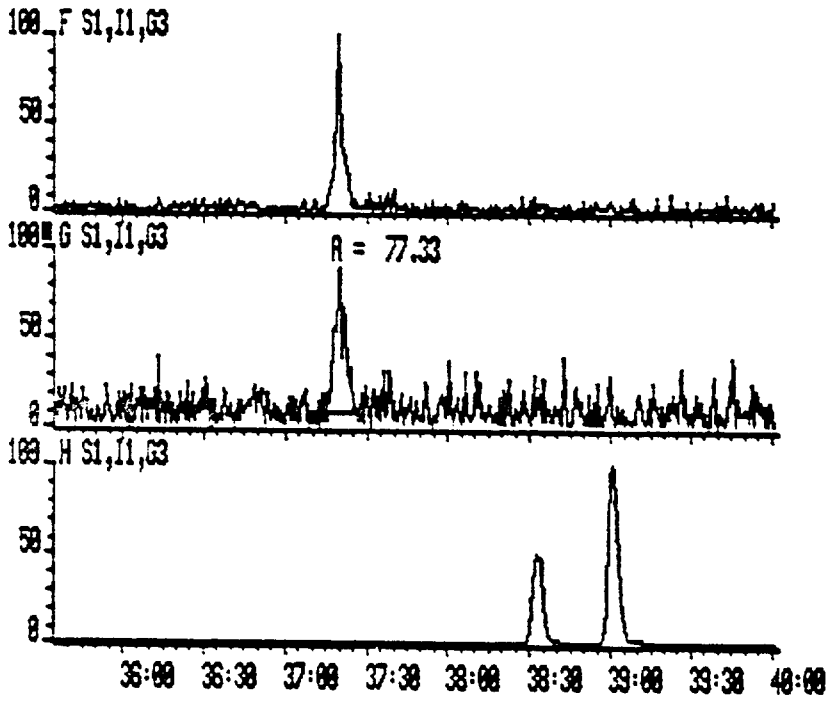


1.00
130

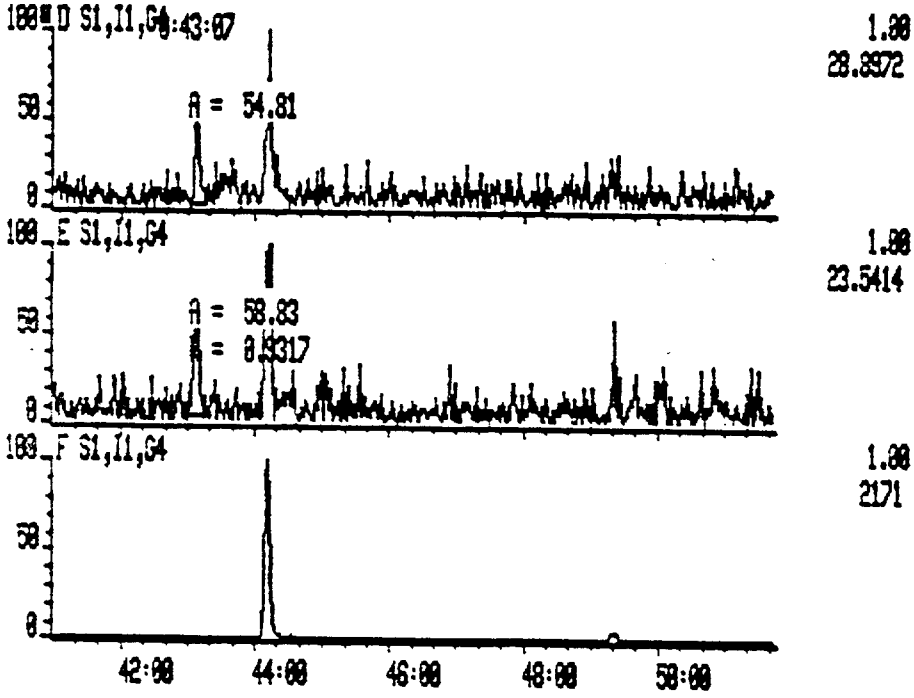
1.00
15.8586

1.00
5946

872831 , 24-JUL-97 11:08 70E (EI+) Sys:DBSRTST
GR 3 F: 389.8156 G: 391.8127 H: 481.8558 I: 483.8529 J: 392.9791
Text:1-FB (AVG)



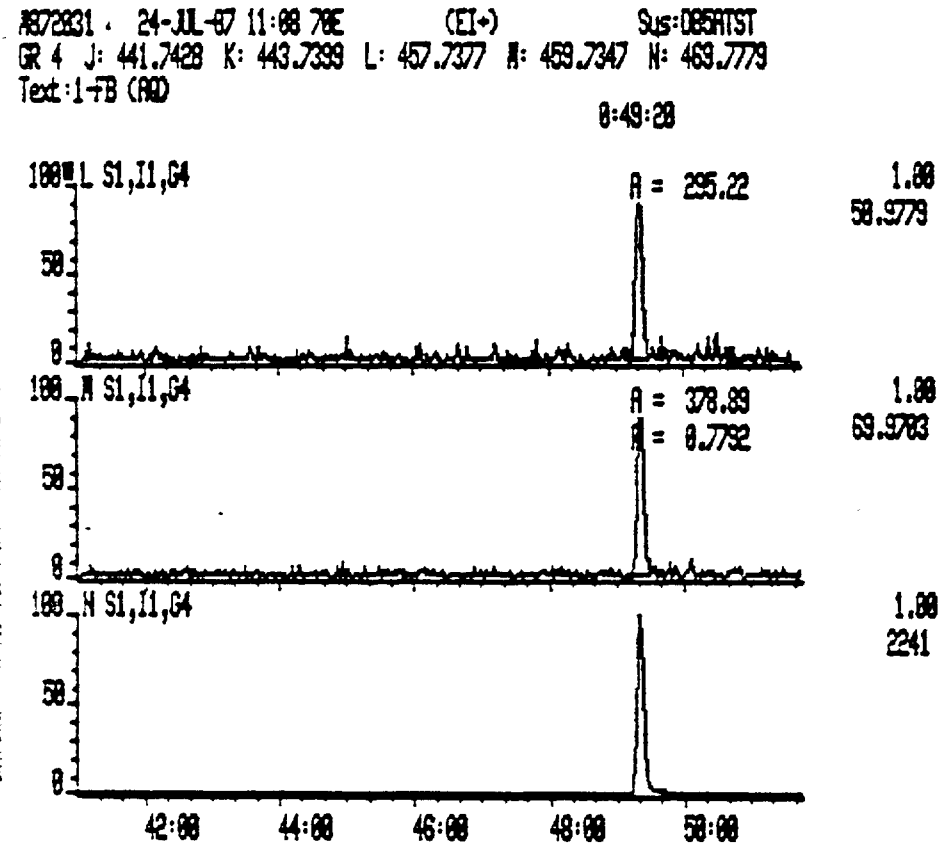
M072831 ' 24-JUL-87 11:08 70E (EI+) Sus:DBSRTST
GR 4 I: 477.7288 J: 441.7428 K: 443.7399 L: 457.7377 M: 459.7347
Text:1+FB (RAD



1.00
28.8972

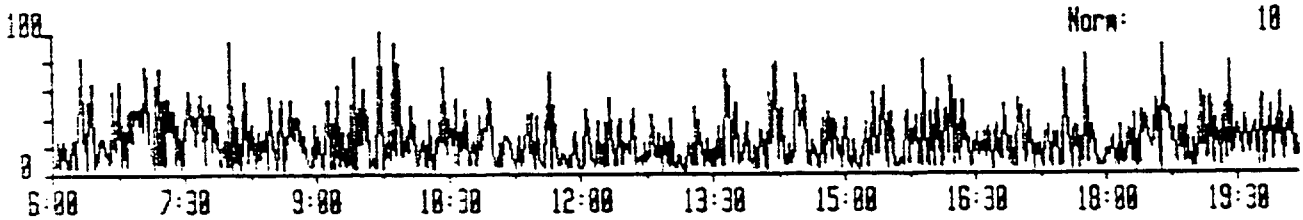
1.00
23.5414

1.00
2171


A872831 - 24-JUL-87 11:08 70E (EI+) Sus:DBSHTST
GR 4 J: 441.7428 K: 443.7399 L: 457.7377 M: 459.7347 N: 469.7779
Text:1-FB (RAD
0:49:28
100 L S1,I1,G4
A = 295.22
1.00
58.9779
50
0
100 M S1,I1,G4
A = 378.89
R = 0.7792
1.00
69.9763
50
0
100 N S1,I1,G4
1.00
2241
50
0
42:00
44:00
46:00
48:00
50:00

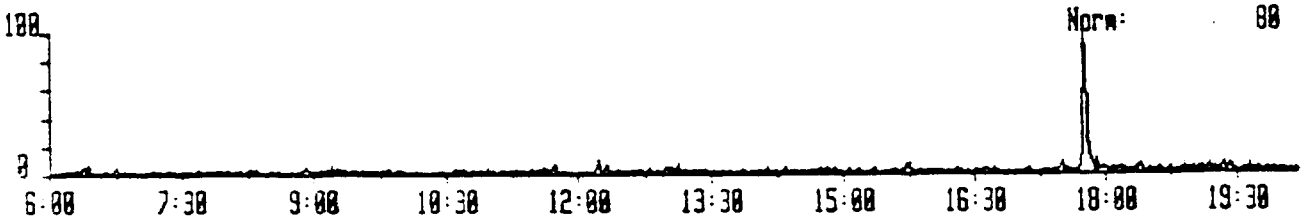
M872031 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 1 Mass 269.9486
Text:1-FB (AQ)

M872031 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 1 Mass 271.9377
Text:1-FB (AQ)

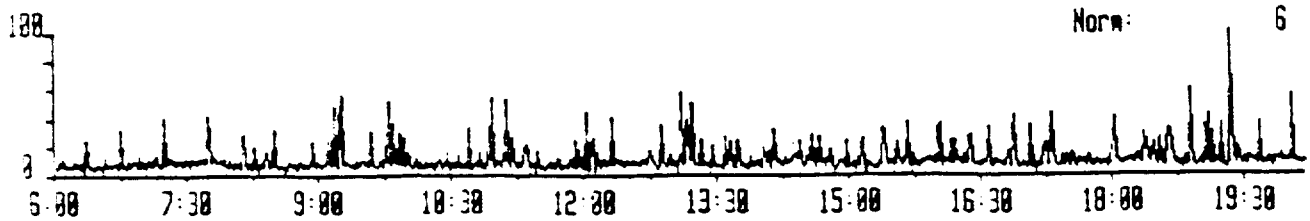


M872031 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 1 Mass 285.9355
Text:1-FB (AQ)

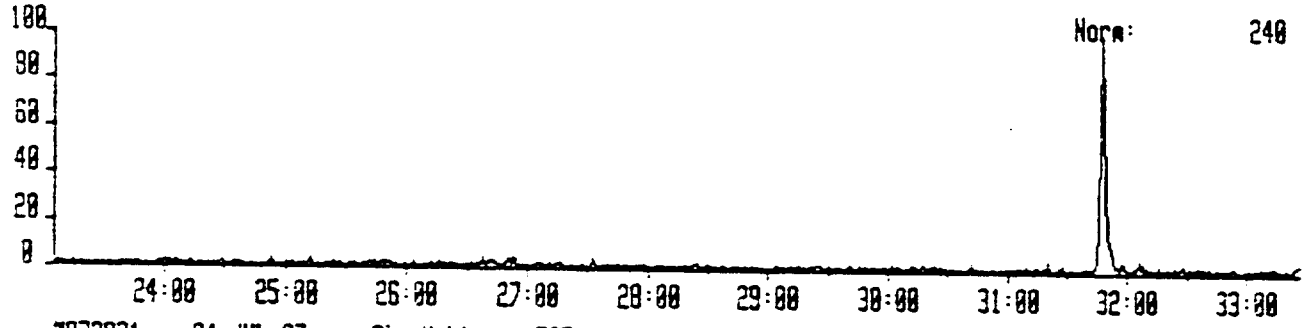
M872031 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:1-FB (AQ)



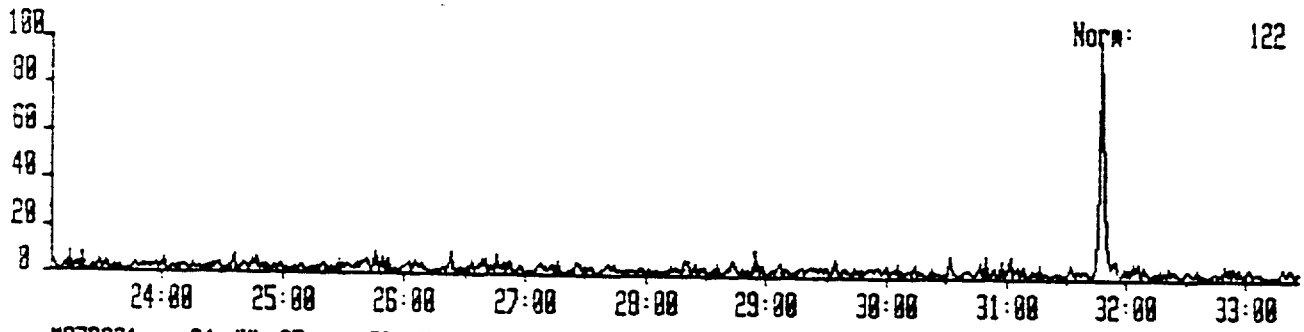
M872031 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 1 Mass 339.8798
Text:1-FB (AQ)



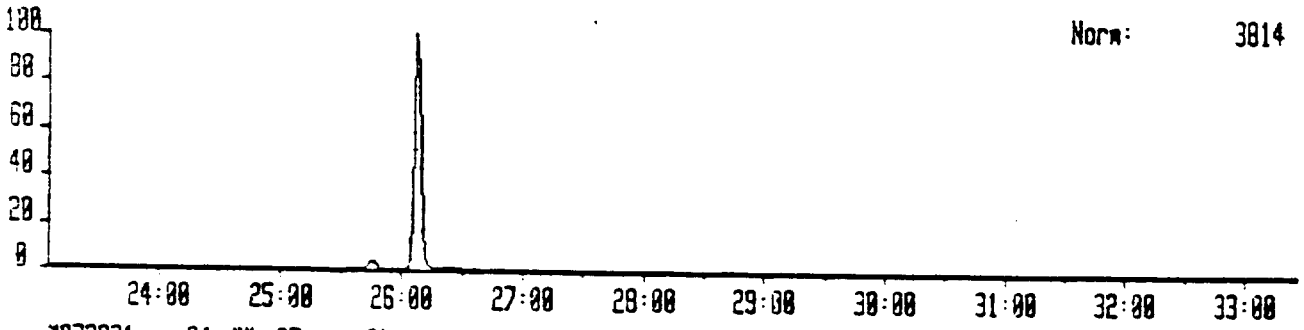
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 303.9816
Text:1-FB (AQ)



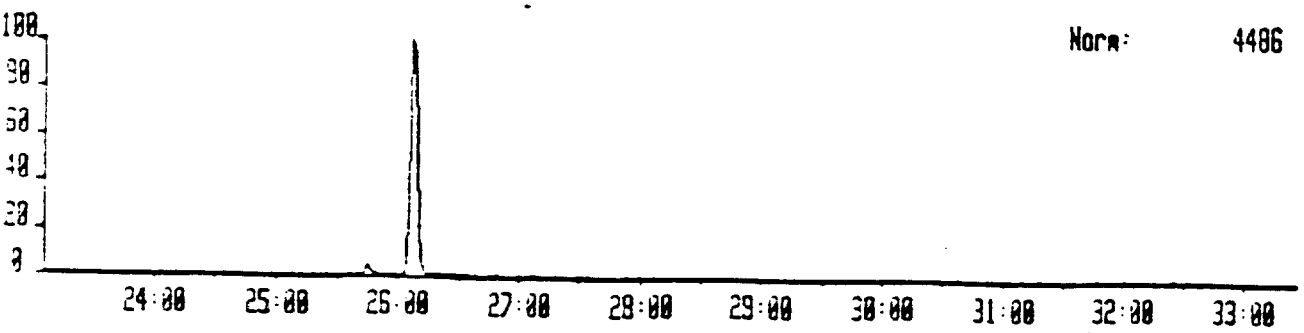
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 305.8987
Text:1-FB (AQ)



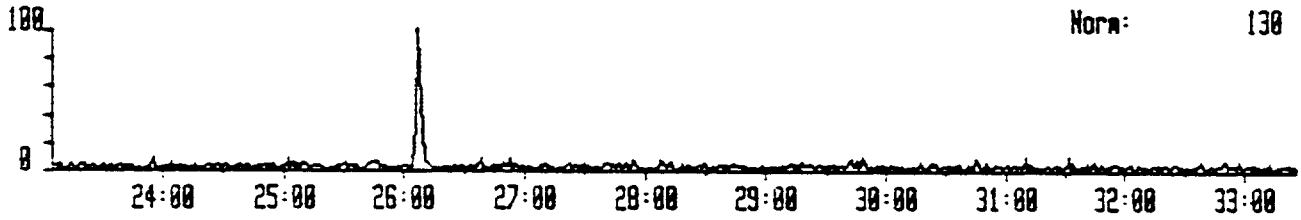
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 315.9419
Text:1-FB (AQ)



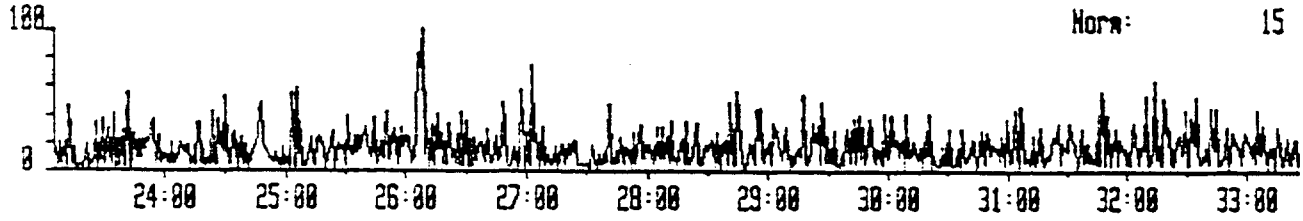
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 317.9389
Text:1-FB (AQ)



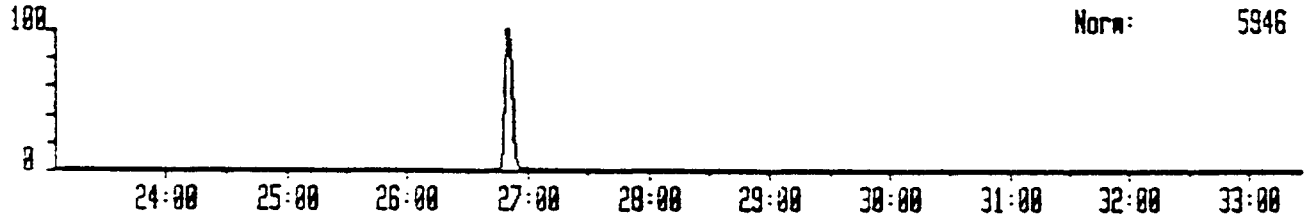
M872031 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:1-FB (AQ)



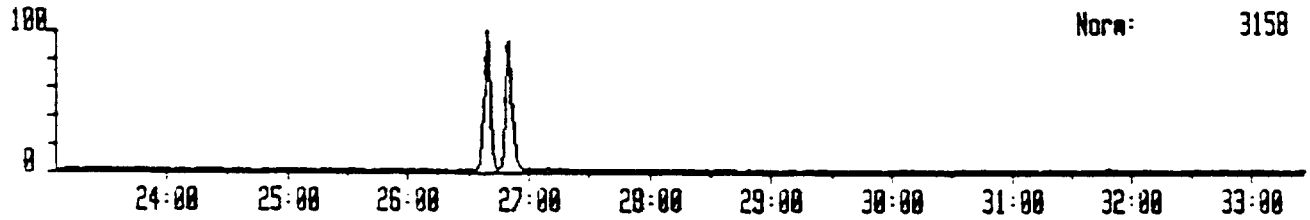
M872031 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:1-FB (AQ)



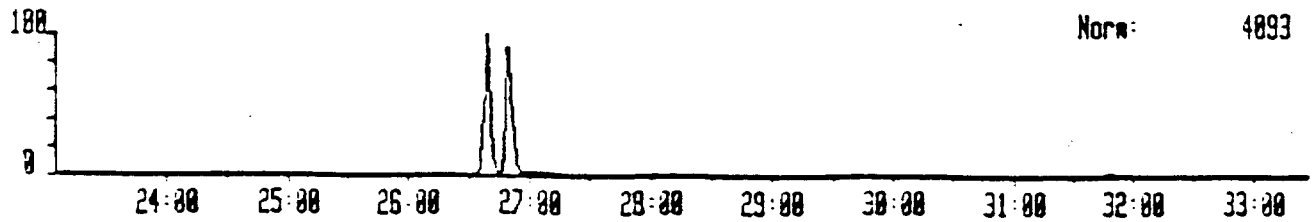
M872031 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:1-FB (AQ)



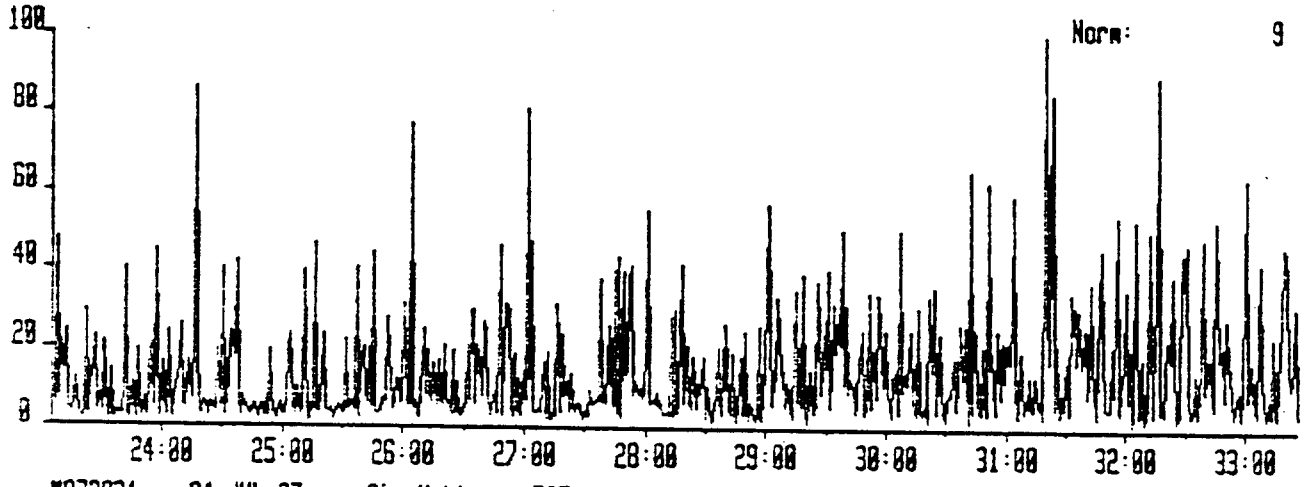
M872031 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 331.9368
Text:1-FB (AQ)



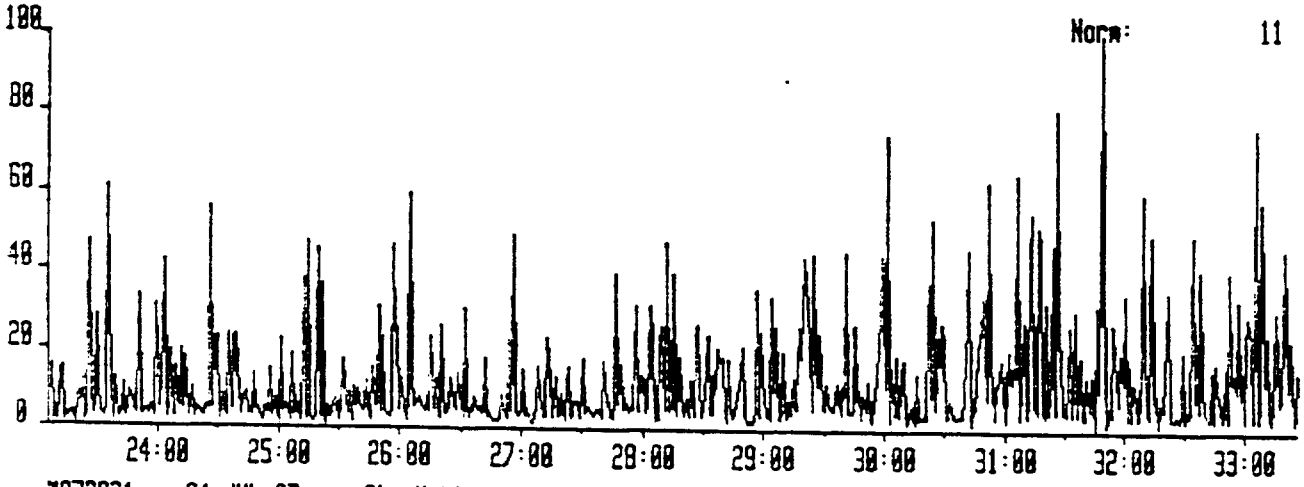
M872031 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 333.9338
Text:1-FB (AQ)



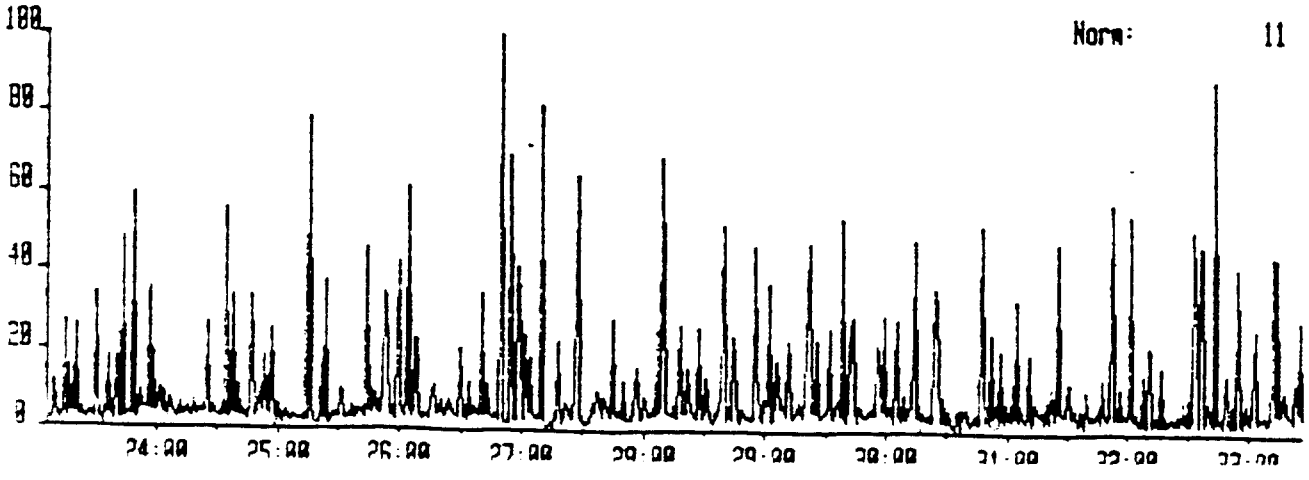
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:1-FB (AQ)



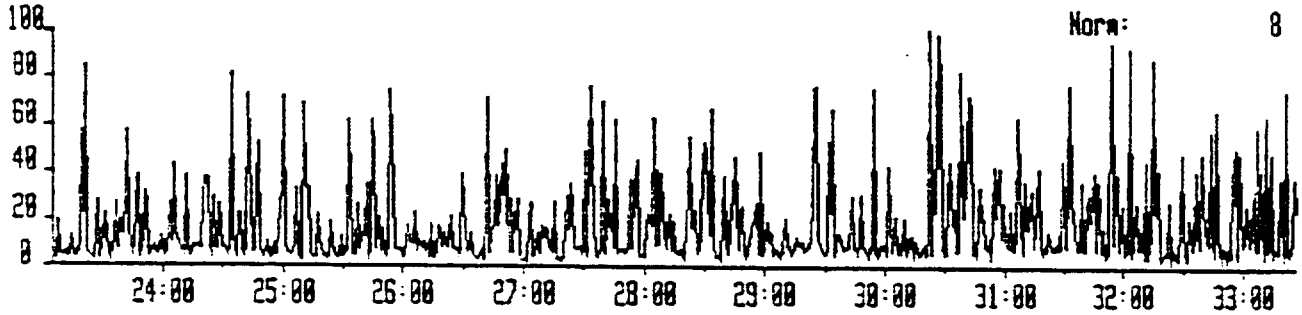
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:1-FB (AQ)



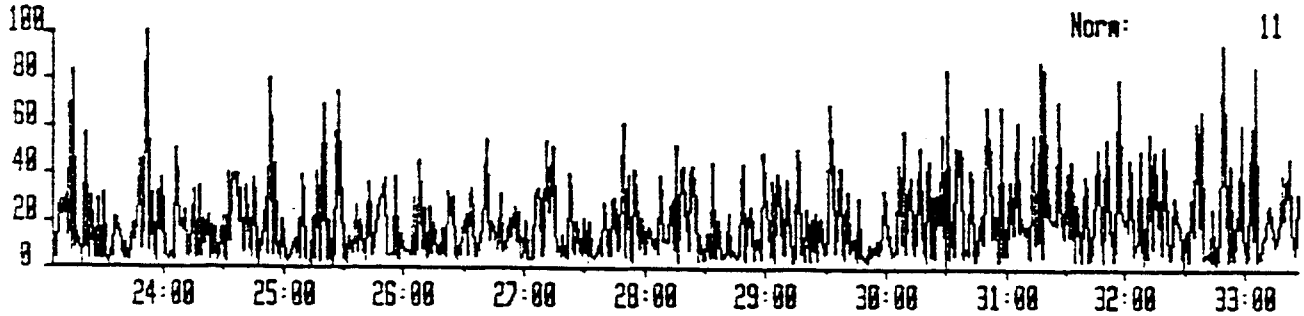
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 407.8883
Text:1-FB (AQ)



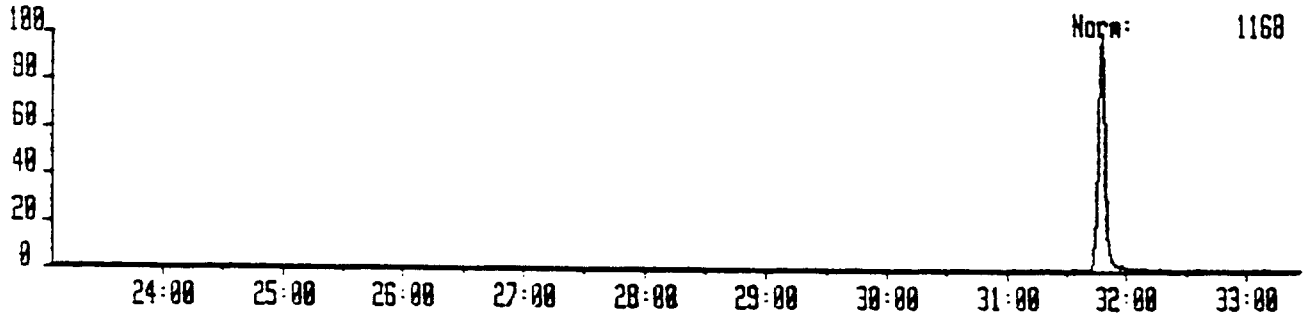
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:1-FB (AQ)



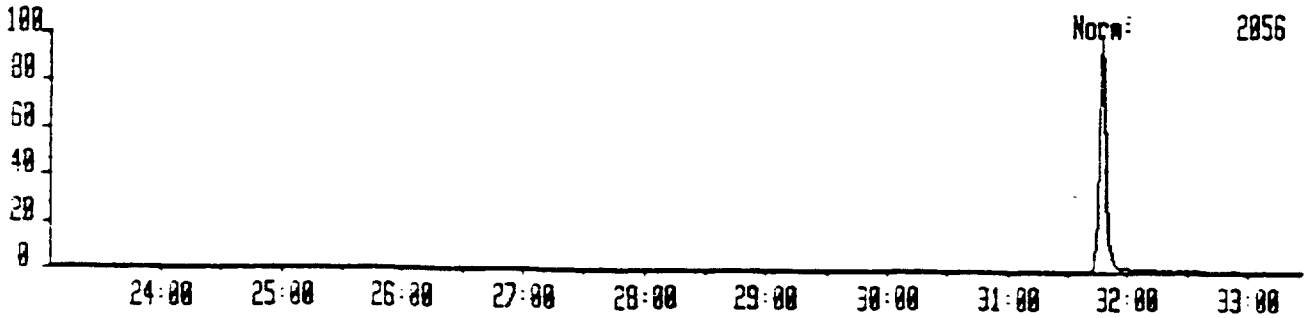
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 355.8546
Text:1-FB (AQ)



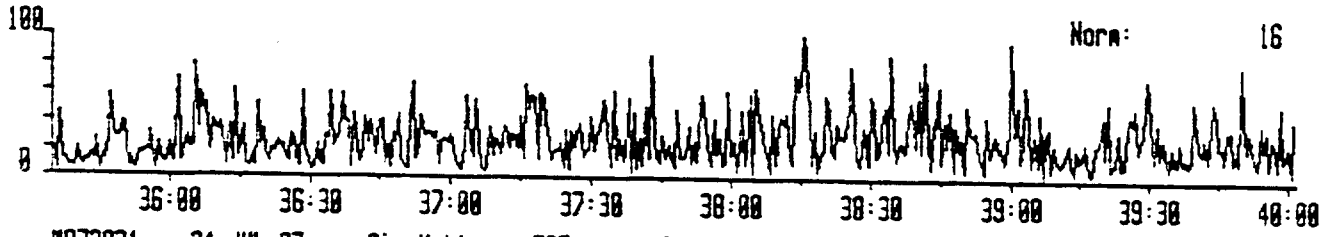
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 365.8977
Text:1-FB (AQ)



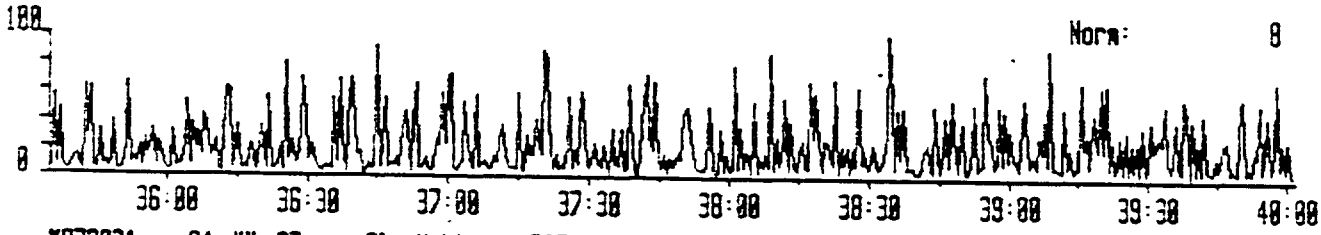
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 367.8948
Text:1-FB (AQ)



M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 373.8287
Text:1-FB (AQ)

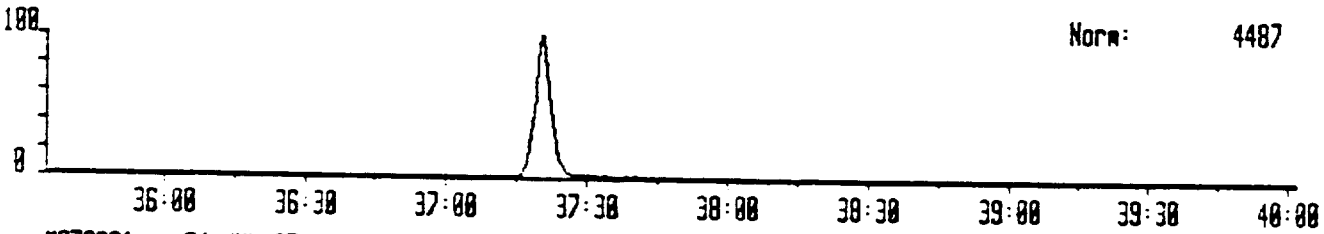


M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 375.8178
Text:1-FB (AQ)

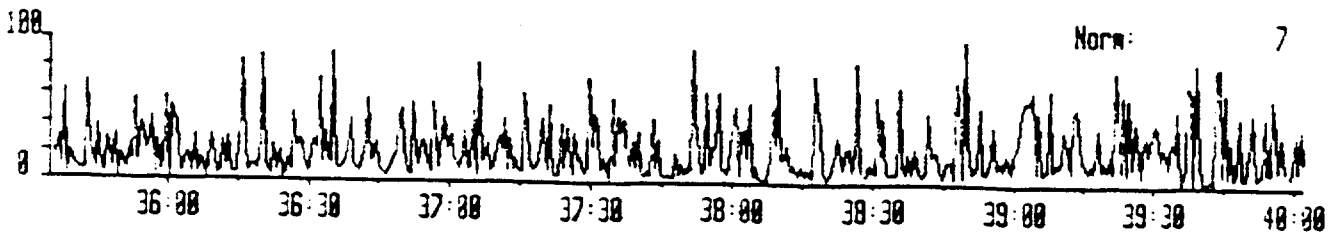


M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 385.8609
Text:1-FB (AQ)

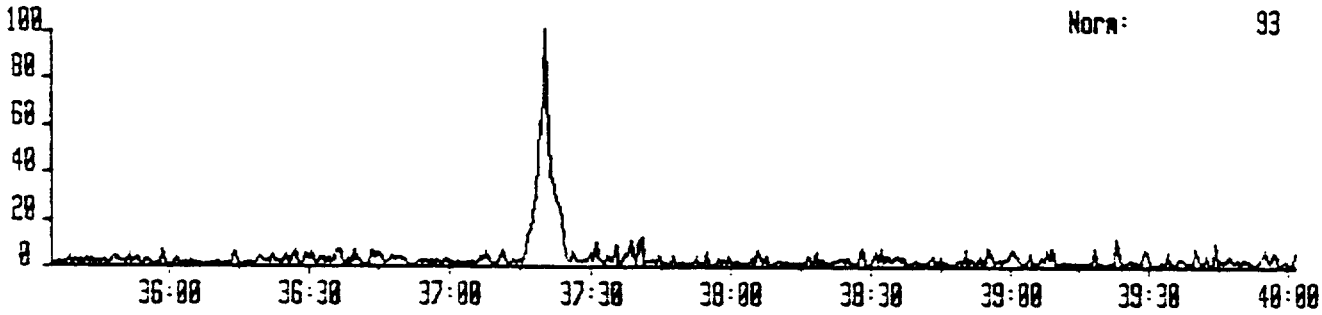
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 387.8588
Text:1-FB (AQ)



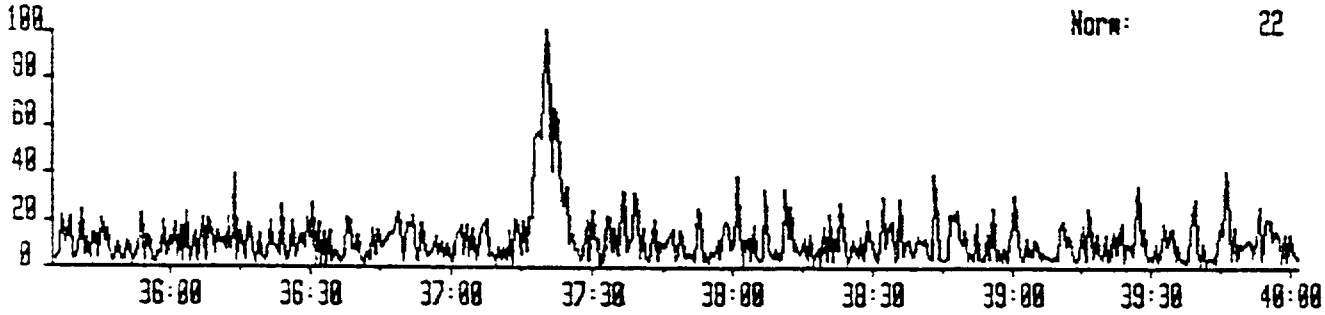
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:1-FB (AQ)



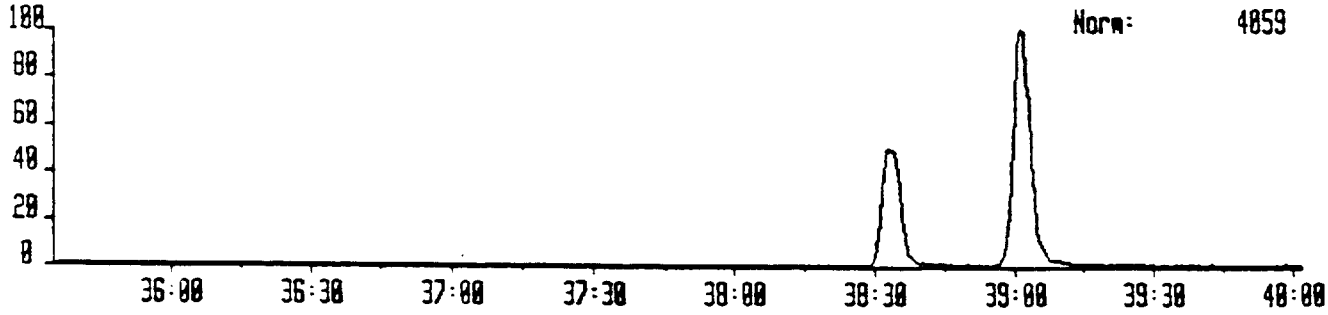
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 389.8156
Text:1-FB (AQ)



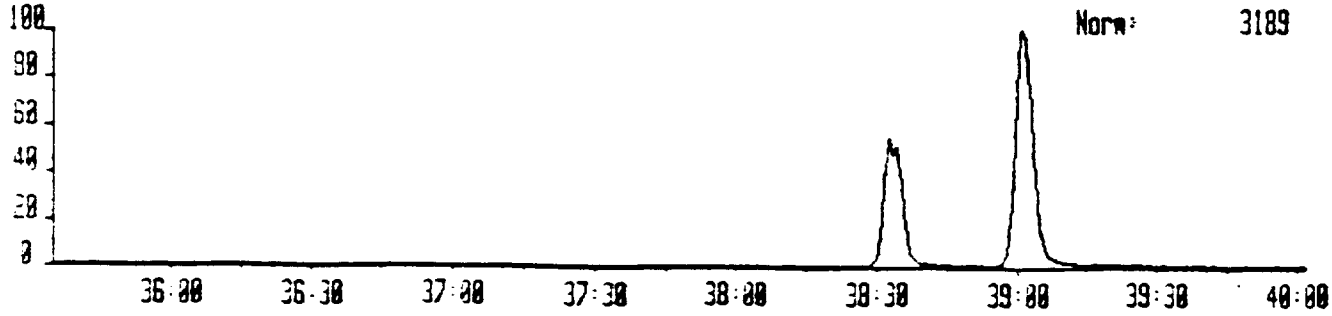
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 391.8127
Text:1-FB (AQ)



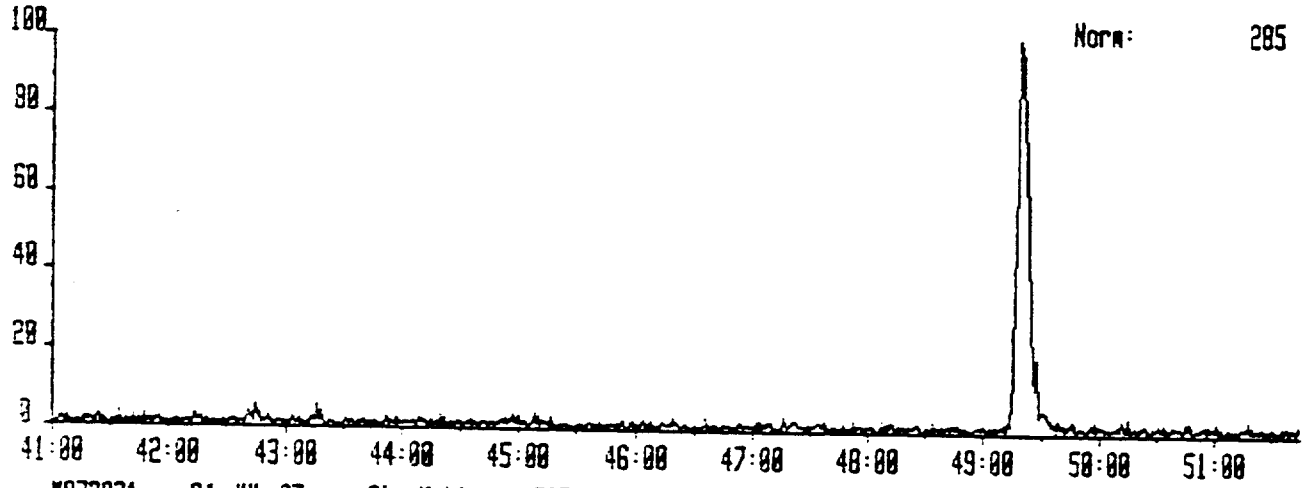
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text:1-FB (AQ)



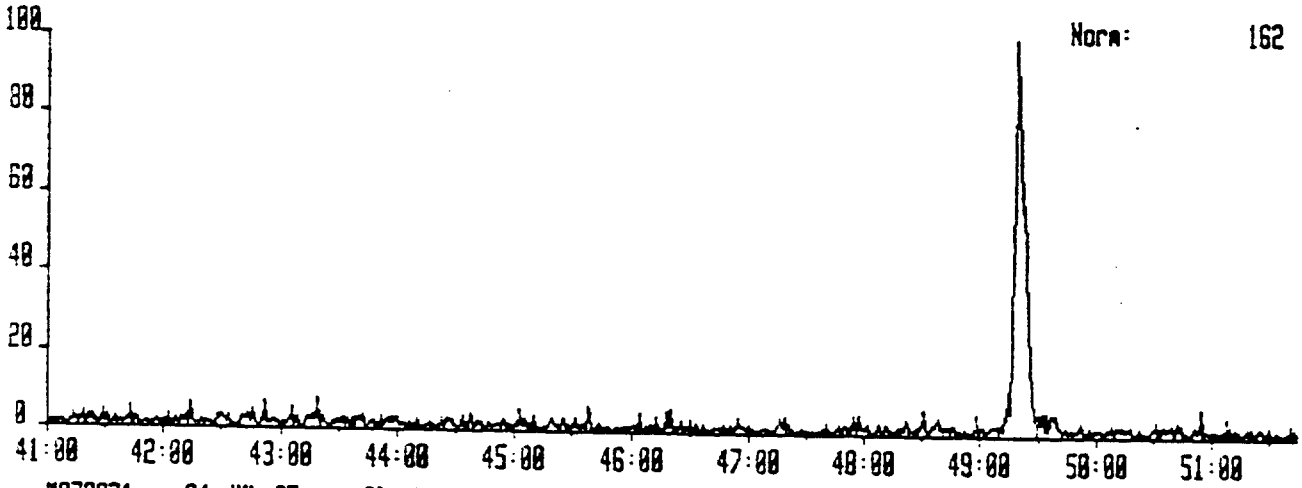
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 403.8529
Text:1-FB (AQ)



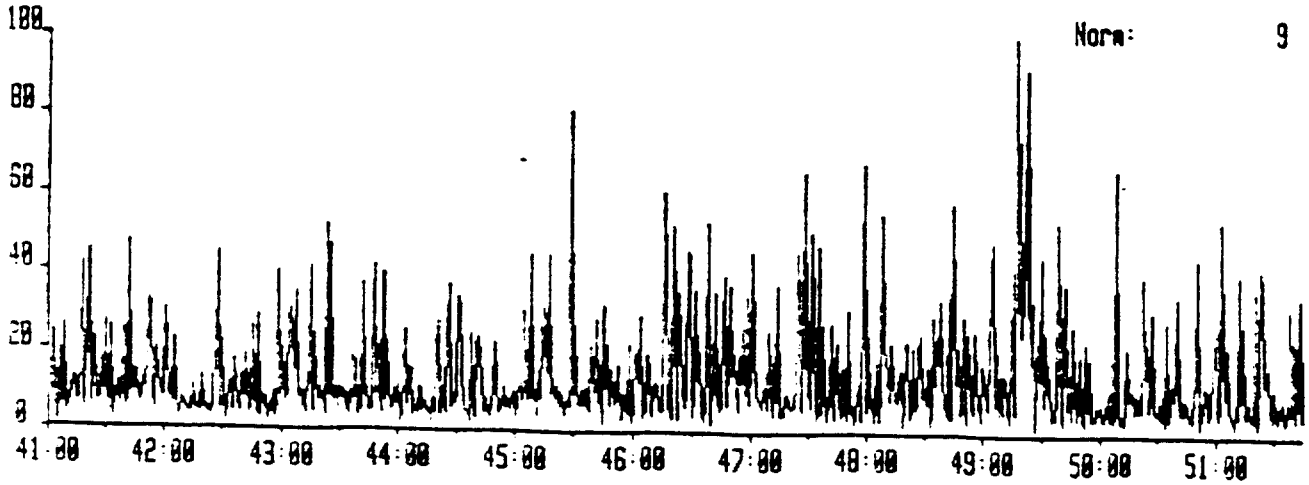
M872031 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 407.7817
Text:1-FB (AQ)



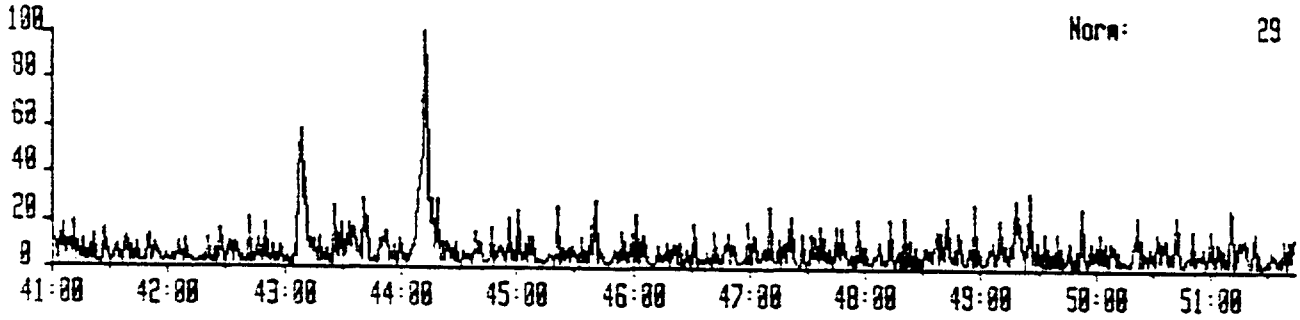
M872031 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 409.7788
Text:1-FB (AQ)



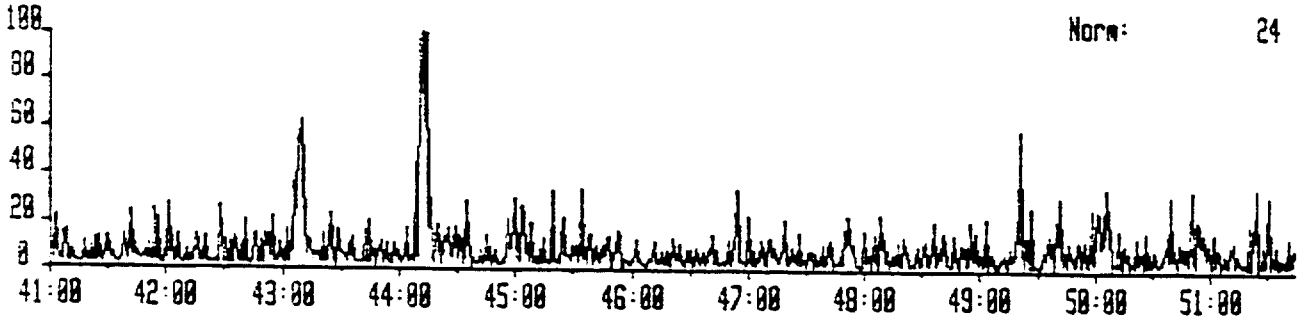
M872031 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 477.7200
Text:1-FB (AQ)



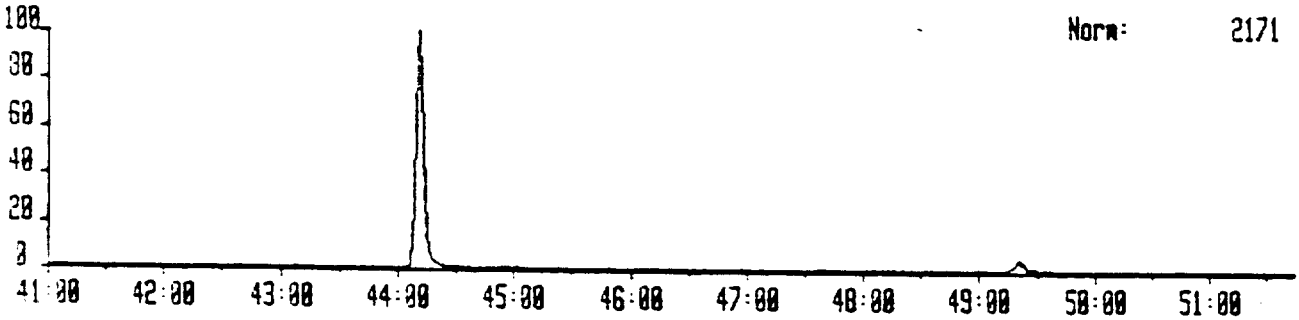
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:1-FB (AQ)



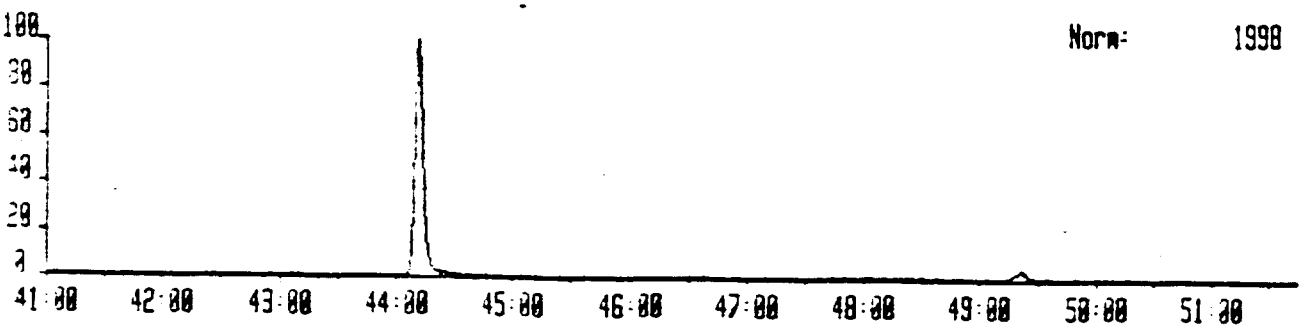
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:1-FB (AQ)



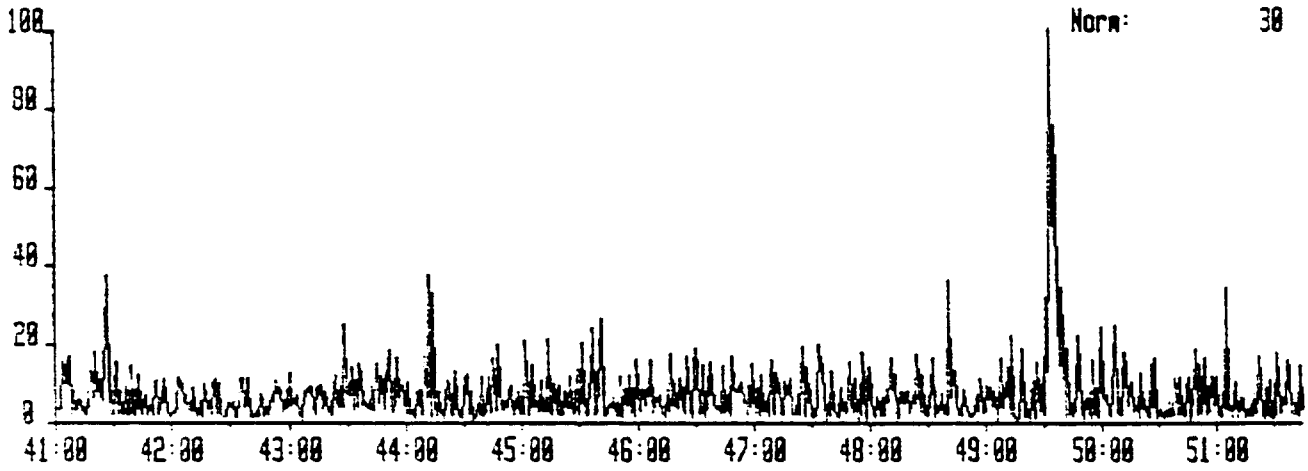
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:1-FB (AQ)



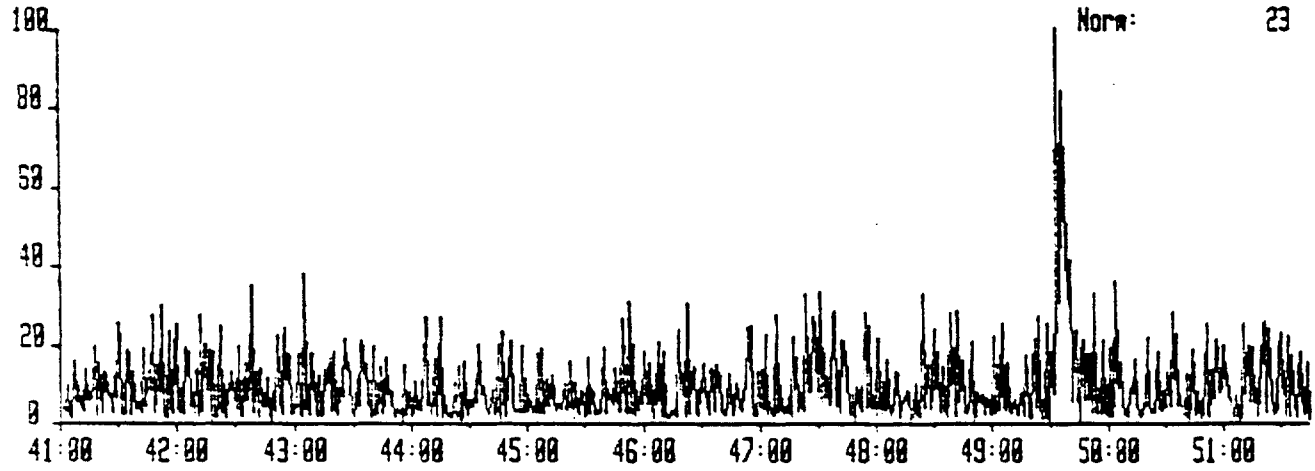
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:1-FB (AQ)



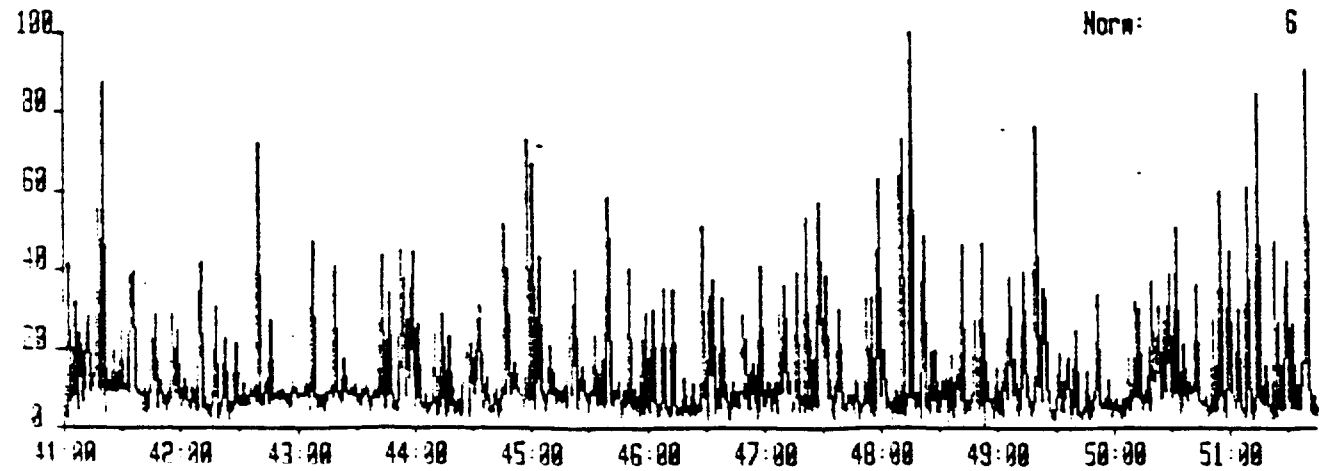
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 4 Mass 441.7428
Text:1-FB (AQ)



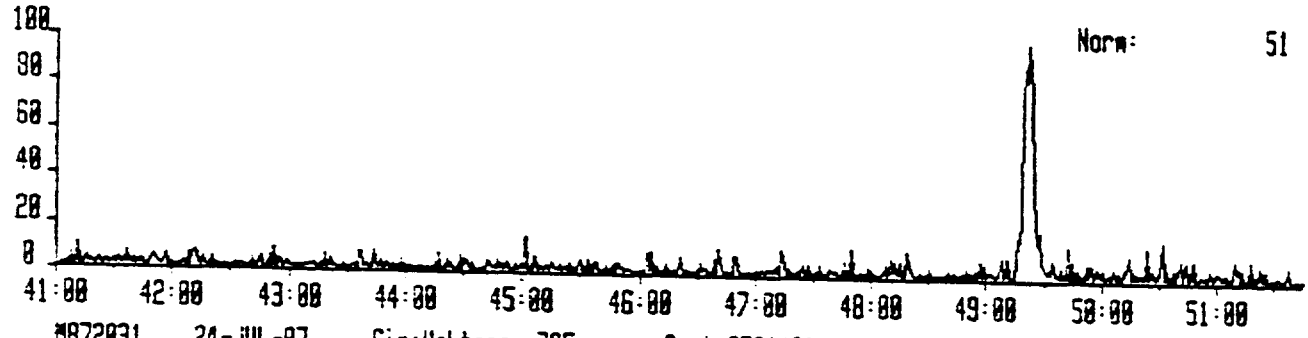
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:1-FB (AQ)



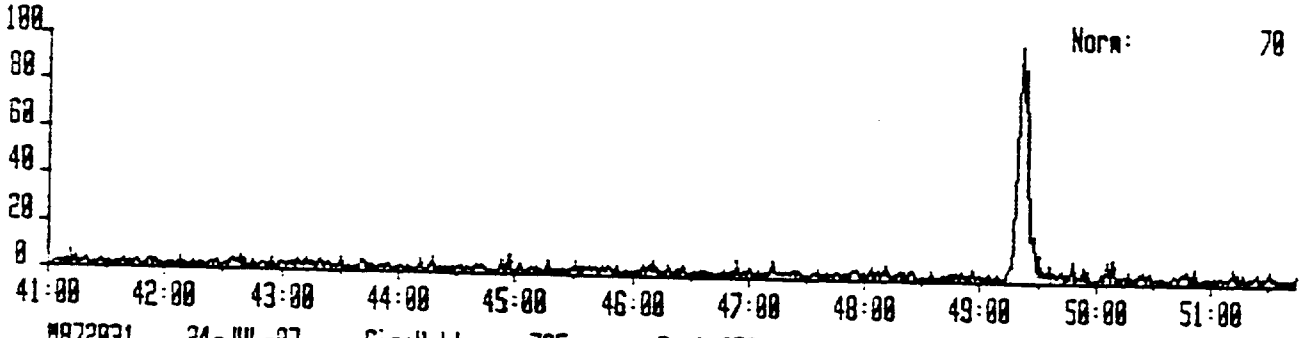
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 4 Mass 511.6818
Text:1-FB (AQ)



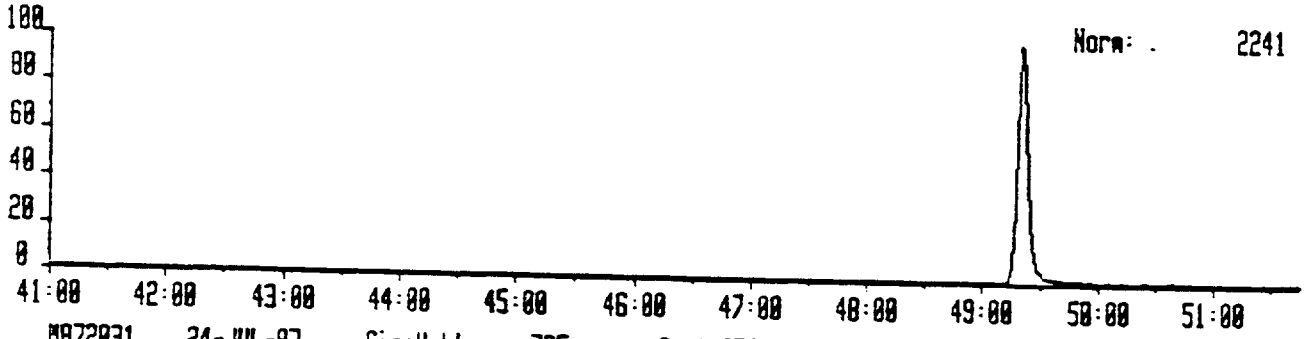
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:1-FB (AQ)



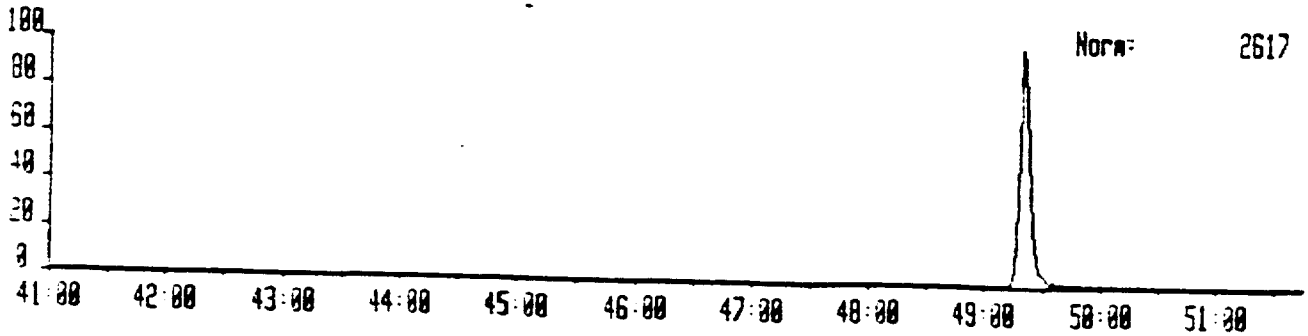
M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:1-FB (AQ)



M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:1-FB (AQ)



M872831 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 4 Mass 471.7758
Text:1-FB (AQ)



TRIANGLE LABORATORIES, INC
2,3,7,8-TCDD/TCDF ANALYSIS

ANALYST	MDC	FILE #	M872124
DATE	7-31-87	CONCAL #	M872105
		TLI #	8701481
SAMPLE ID	ENTROPY 1-1 (AQ)		

NAME	AMT (ng)	DL	EMPC	RATIO	RT
2378-TCDF	ND	0.03		1.000	
2378-TCDD	ND	0.03		1.000	

SURROGATE RESULTS SUMMARY

NAME	AMT (ng)	% RECOVERY	RATIO	RT
13C12-TCDF	10.67	106.73	0.769	15.14
37C1-TCDD	10.53	105.33		13.14

INTERNAL STANDARDS RECOVERY RESULTS

NAME	AMT (ng)	% RECOVERY	RATIO	RT
2378-13C12-TCDD	8.96	89.57	0.839	13.11

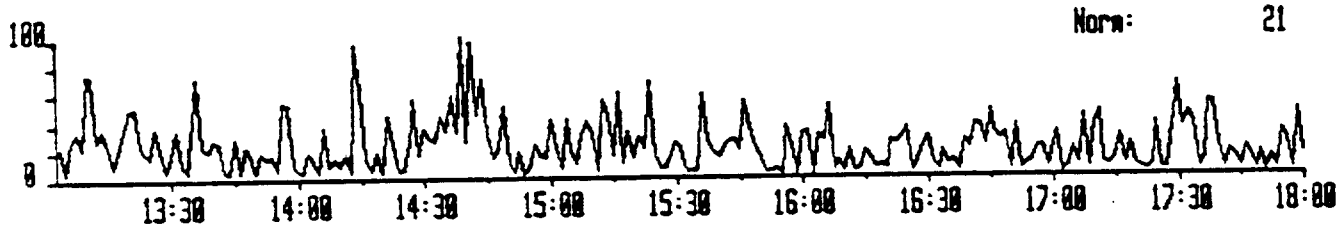
TRIANGLE LABORATORIES, INC.
DIOXIN/FURAN DATA SHEET

FILE NAME : n87524
CHEMIST :
SAMPLE ID : 1-1 AQ

TLI PROJECT # : 87 61487
DATE : 7-30-87
CONCAL:

COMPOUND	M/Z	AREA	RETENTION TIME
2,3,7,8-TCDF	304	10	
	306	10	
13C12-TCDF	316	8437	14-14
	318	~~10785~~	
2,3,7,8-TCDD	320	≥ 10	
	322	10	
2,3,7,8-37Cl-TCDD	328	15364	13 12
2,3,7,8-13C12-TCDD	332	~~4903~~	13-11
	334	7240	
1,2,3,4-13C12-TCDD	332	5791	13-22
	334	6979	

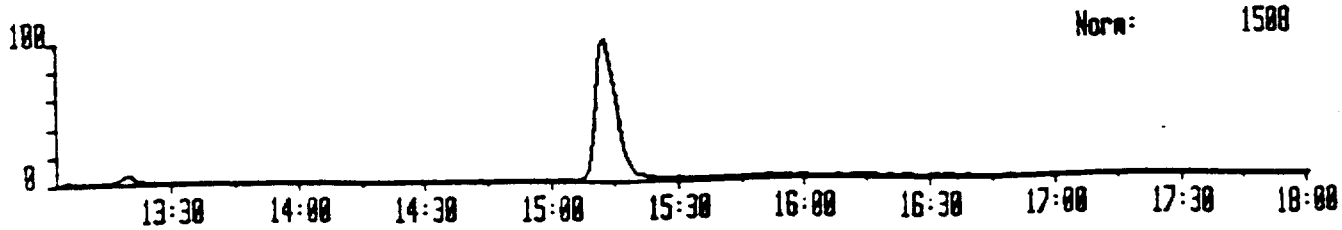
772124 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
ample 1 Injection 1 Group 1 Mass 240.9379
Text:ENTROPY 1-1 AQ CONFIRM



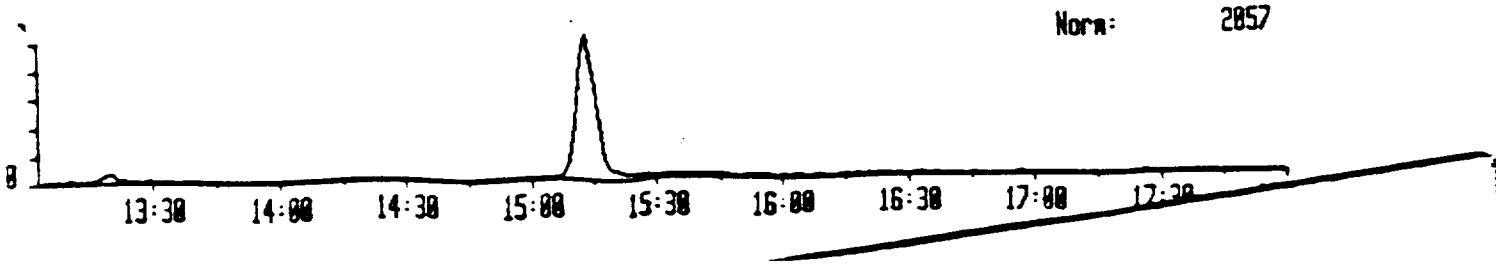
M872124 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 303.9816
Text:ENTROPY 1-1 AQ CONFIRM

M872124 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 305.8987
Text:ENTROPY 1-1 AQ CONFIRM

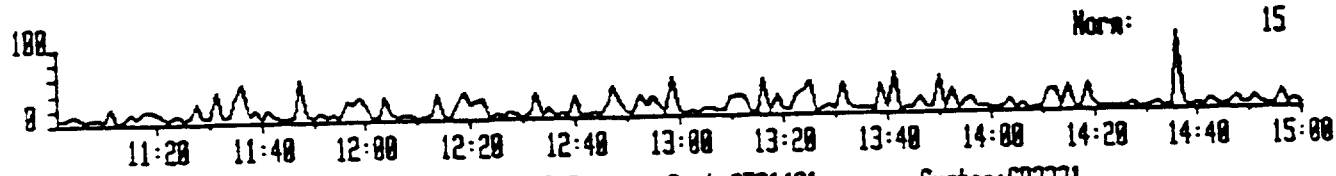
M872124 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 315.9419
Text:ENTROPY 1-1 AQ CONFIRM



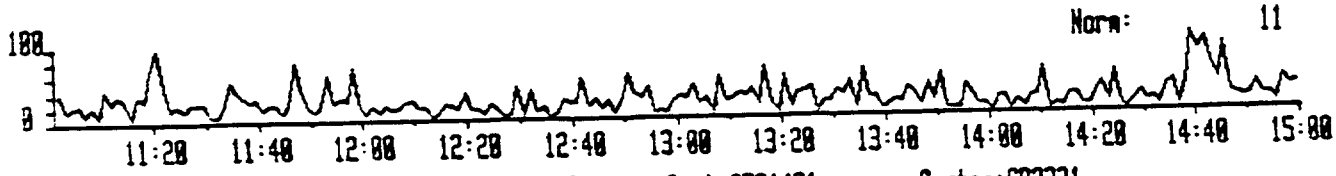
M872124 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 317.9389
Text:ENTROPY 1-1 AQ CONFIRM



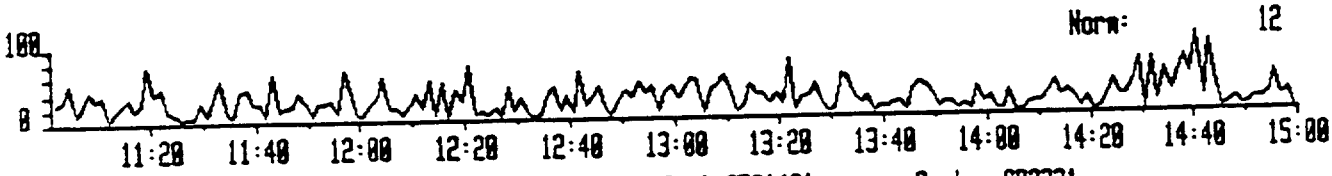
M872124 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 256.9329
Text:ENTROPY 1-1 AQ CONFIRM



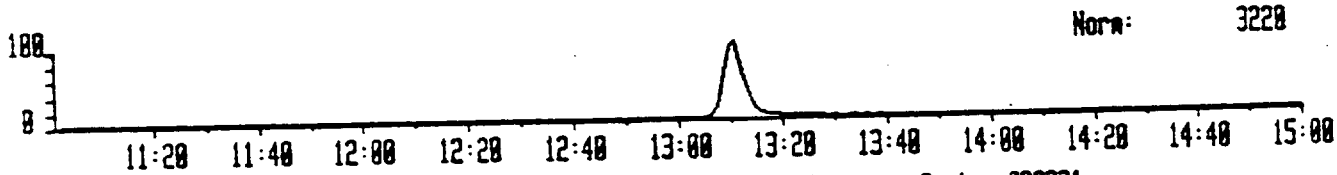
M872124 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 319.8965
Text:ENTROPY 1-1 AQ CONFIRM



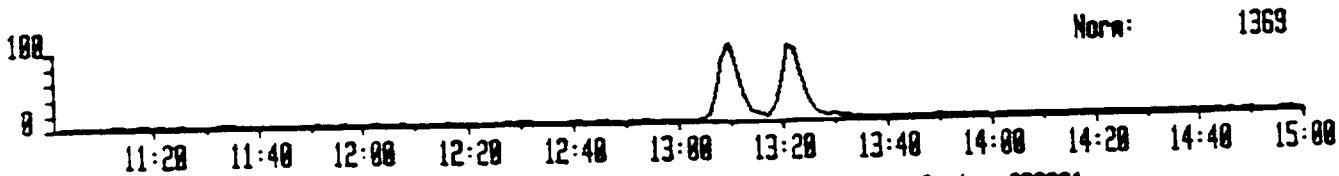
M872124 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 321.8936
Text:ENTROPY 1-1 AQ CONFIRM



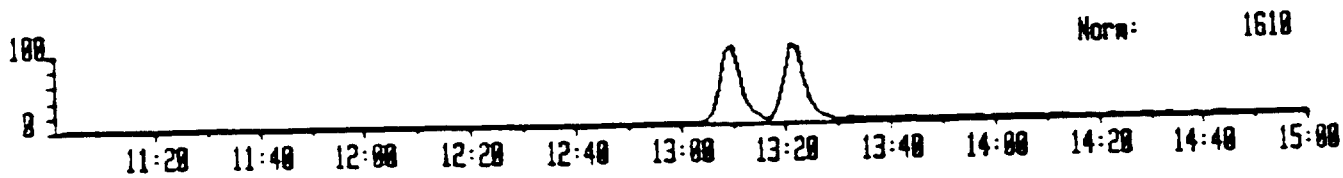
M872124 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 327.8847
Text:ENTROPY 1-1 AQ CONFIRM

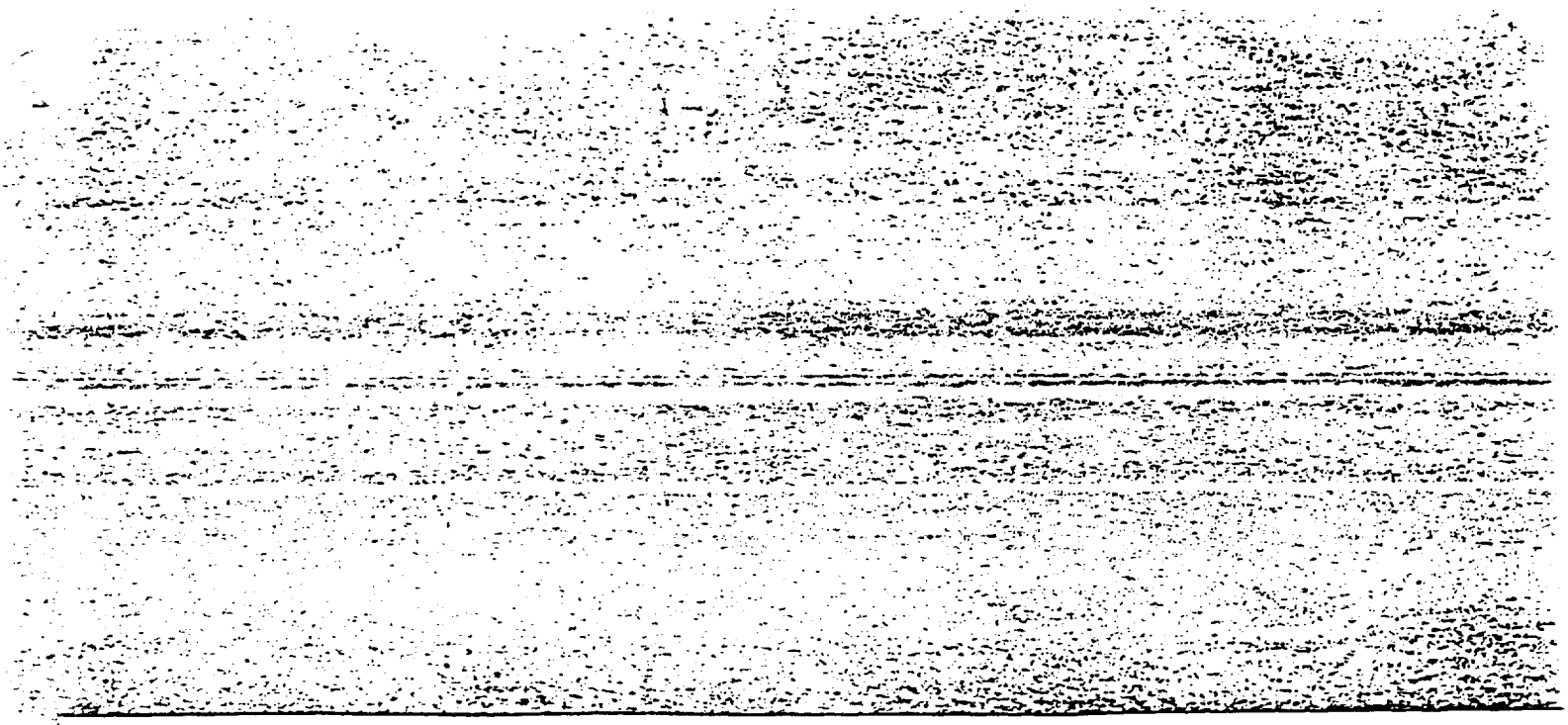


M872124 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 331.9368
Text:ENTROPY 1-1 AQ CONFIRM



M872124 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 333.9338
Text:ENTROPY 1-1 AQ CONFIRM





331.94

M872124

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 303.90

	AREA	RETENTION TIME
1	8.762914E+01	0:12:51
2	9.881421E+01	0:13:24
3	3.170234E+01	0:15:55
4	7.644789E+02	0:18:08

M872124

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 305.90

	AREA	RETENTION TIME
1	2.824106E+01	0:12:45
2	7.134034E+01	0:12:51
3	8.783070E+01	0:15:09
4	5.269013E+01	0:15:39
5	3.464261E+02	0:18:10

M872124

AMPLE 1 INJECTION 1 GROUP 1 CHANNEL 315.94

	AREA	RETENTION TIME
1	4.023168E+02	0:13:20
2	8.437482E+03	0:15:14

M872124

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 317.94

	AREA	RETENTION TIME
1	5.348826E+02	0:13:20
2	1.096533E+04	0:15:14

M872124

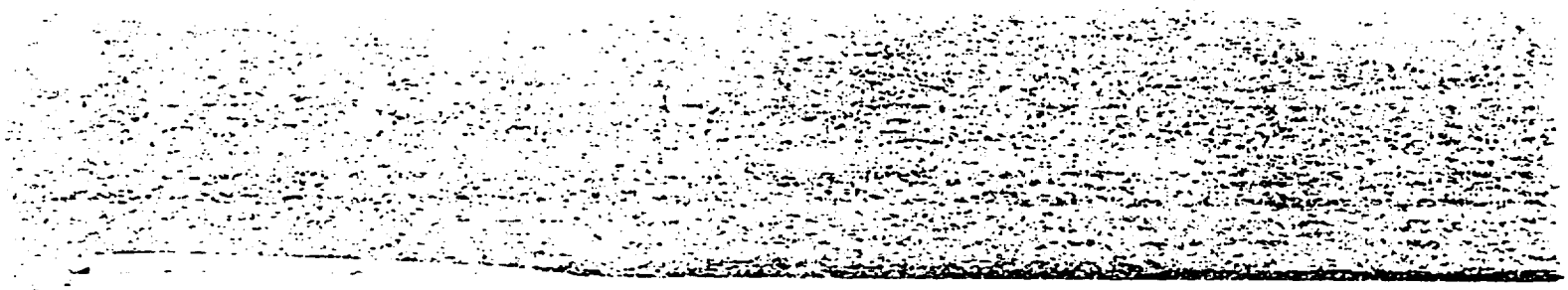
SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 319.90

	AREA	RETENTION TIME
1	1.424383E+02	0:10:20
2	4.668326E+01	0:11:22
3	2.437506E+02	0:15:13

M872124

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 321.89

	AREA	RETENTION TIME
1	8.299678E+01	0:15:14



M872124

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 327.88

	AREA	RETENTION TIME
1	1.536371E+04	0:13:12

M872124

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 331.94

	AREA	RETENTION TIME
1	5.908192E+03	0:13:11
2	5.791001E+03	0:13:22

M872124

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 333.93

	AREA	RETENTION TIME
1	7.040206E+03	0:13:11
2	6.978574E+03	0:13:22

TRIANGLE LABORATORIES, INC
2,3,7,8-TCDD/TCDF ANALYSIS

ANALYST	MDC	FILE #	M872125
DATE	7-31-87	CONCAL #	M872105
		TLI #	8701481
SAMPLE ID	ENTROPY 1-1		

NAME	AMT (ng)	DL	EMPC	RATIO	RT
2378-TCDF	0.42			0.801	15.17
2378-TCDD	0.23			0.693	13.14

SURROGATE RESULTS SUMMARY

NAME	AMT (ng)	% RECOVERY	RATIO	RT
13C12-TCDF	2.04	101.79	0.683	15.18
37Cl-TCDD	2.14	107.20		13.14

INTERNAL STANDARDS RECOVERY RESULTS

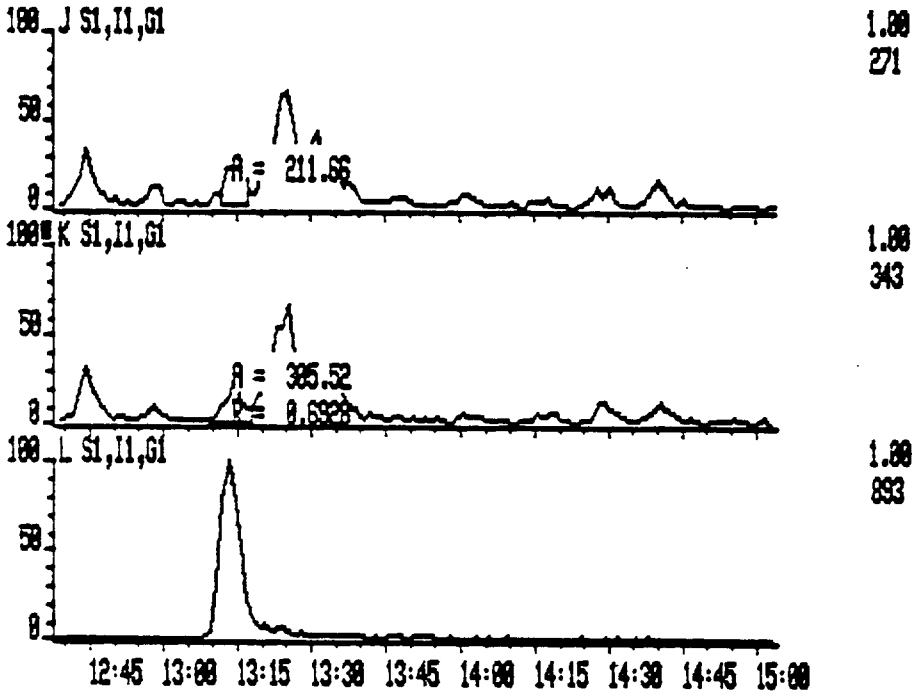
NAME	AMT (ng)	% RECOVERY	RATIO	RT
2378-13C12-TCDD	10.30	103.02	0.747	13.13

TRIANGLE LABORATORIES, INC.
DIOXIN/FURAN DATA SHEET

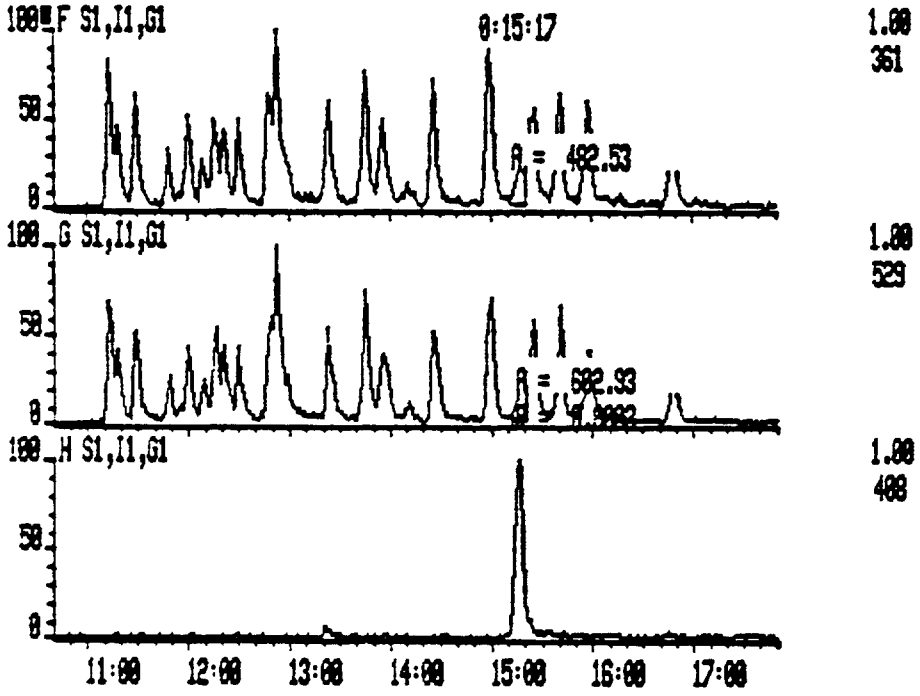
FILE NAME : M872125 TLI PROJECT # : 87 0481
CHEMIST : MC DATE : 7-30-87
SAMPLE ID : 1-1 CONCAL:

COMPOUND	M/Z	AREA	RETENTION TIME
2,3,7,8-TCDF	304	~~482~~ 483	15:17
	306	603	
13C12-TCDF	316	2321	15-18
	318	3397	
2,3,7,8-TCDD	320	~~318~~ 212	13-14
	322	~~294~~ 306	
2,3,7,8-37C1-TCDD	328	4527	13-14
2,3,7,8-13C12-TCDD	332	8552	13-13
	334	11454	
1,2,3,4-13C12-TCDD	332	6985	1324
	334	10170	

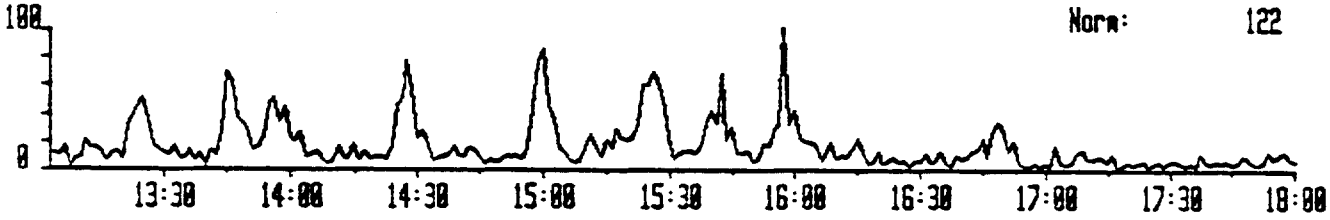
872125 30-JUL-87 23:27 70E (EI+) Sys:SP2331
GR 1 H: 315.9419 I: 317.9389 J: 319.8965 K: 321.8936 L: 327.8847
Text:ENTROPY 1-1 CONFIRM



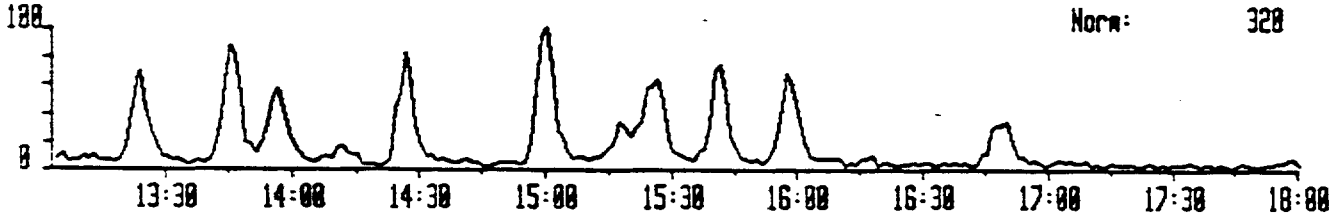
M872125 30-JUL-87 23:27 70E (EI+) Sus:SP2331
GR 1 E: 292.9825 F: 303.9816 G: 305.8987 H: 315.9419 I: 317.9389
Text:ENTROPY 1-1 CONFIRM



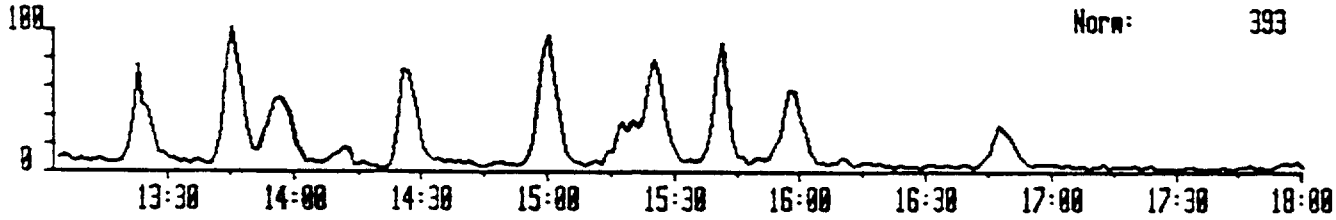
M872125 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 240.9379
Text:ENTROPY 1-1 CONFIRM



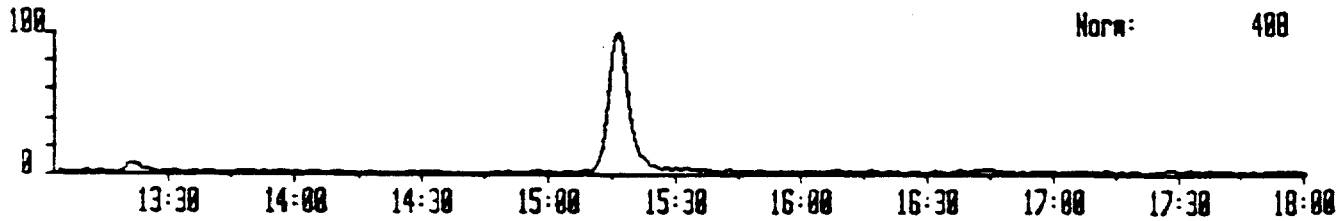
M872125 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 303.9016
Text:ENTROPY 1-1 CONFIRM



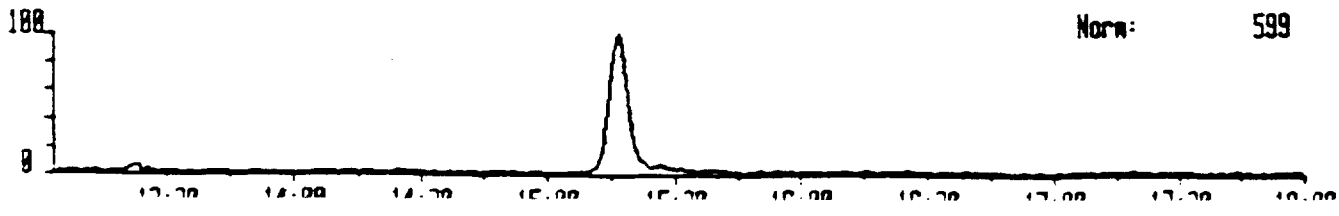
M872125 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 385.8987
Text:ENTROPY 1-1 CONFIRM



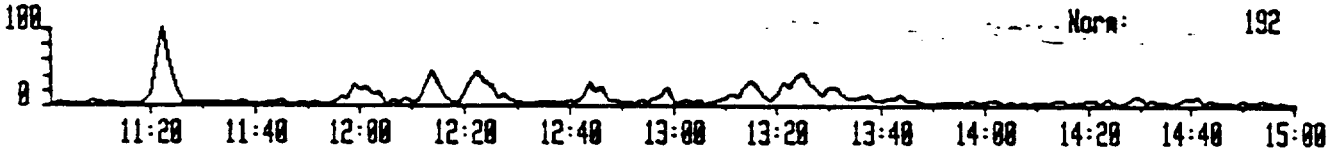
M872125 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 315.9419
Text:ENTROPY 1-1 CONFIRM



M872125 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 317.9389
Text:ENTROPY 1-1 CONFIRM



M872125 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 256.9328
Text:ENTROPY 1-1 CONFIRM

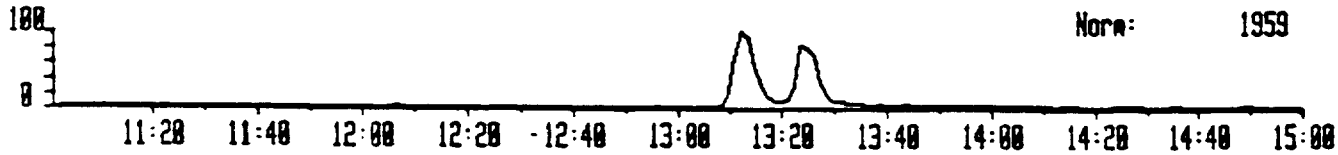


M872125 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 319.8965
Text:ENTROPY 1-1 CONFIRM

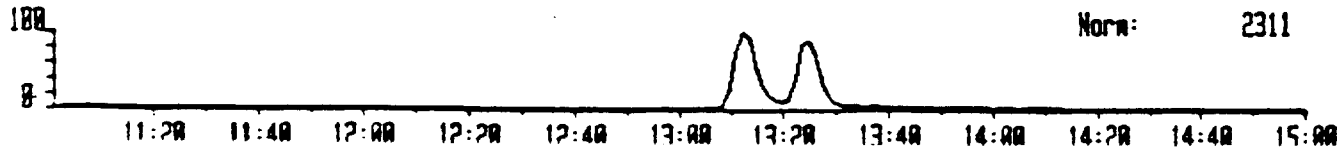
M872125 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 321.8936
Text:ENTROPY 1-1 CONFIRM

M872125 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 327.8847
Text:ENTROPY 1-1 CONFIRM

M872125 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 331.9368
Text:ENTROPY 1-1 CONFIRM



M872125 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 333.9338
Text:ENTROPY 1-1 CONFIRM



TRIANGLE LABORATORIES, INC.
PCDD/PCDF ANALYSIS

ANALYST: RV
DATE: 29/07/87
FILE NAME: M872031
SAMPLE ID: 1-FB AQUEOUS
CASE NO: ENTROPY
PROJ NO: 8701481
CONCAL: M872023

NAME	AMT (ng)	NUMBER	DL	EMPC	RATIO	RT
TOTAL TRICDD	ND					
2378-TCDD	ND			0.215	0.06	
TOTAL TCDD	ND		0.020			
12378-PCDD	ND			0.126	9.51	
TOTAL PCDD	ND		0.018			
123478-HxCDD	ND		0.018			
123678-HxCDD	ND		0.015			
123789-HxCDD	ND		0.015			
TOTAL HxCDD	ND		0.018			
1234678-HpCDD	0.066			0.109	3.25	
TOTAL HpCDD	0.110	2			0.92	44.12
OCDD	0.513				0.93	
TOTAL TRICDF	ND				0.78	49.20
2378-TCDF	ND		0.028			
TOTAL TCDF	ND		0.015			
12378-PCDF	ND		0.015			
23478-PCDF	ND		0.015			
TOTAL PCDF	ND		0.015			
123478-HxCDF	ND		0.015			
123678-HxCDF	ND		0.010			
234678-HxCDF	ND		0.010			
123789-HxCDF	ND		0.013			
TOTAL HxCDF	ND		0.015			
1234678-HpCDF	ND		0.010			
1234789-HpCDF	ND		0.013			
TOTAL HpCDF	ND		0.015			
OCDF	ND		0.015			
				0.118	1.36	

SURROGATE RECOVERY SUMMARY

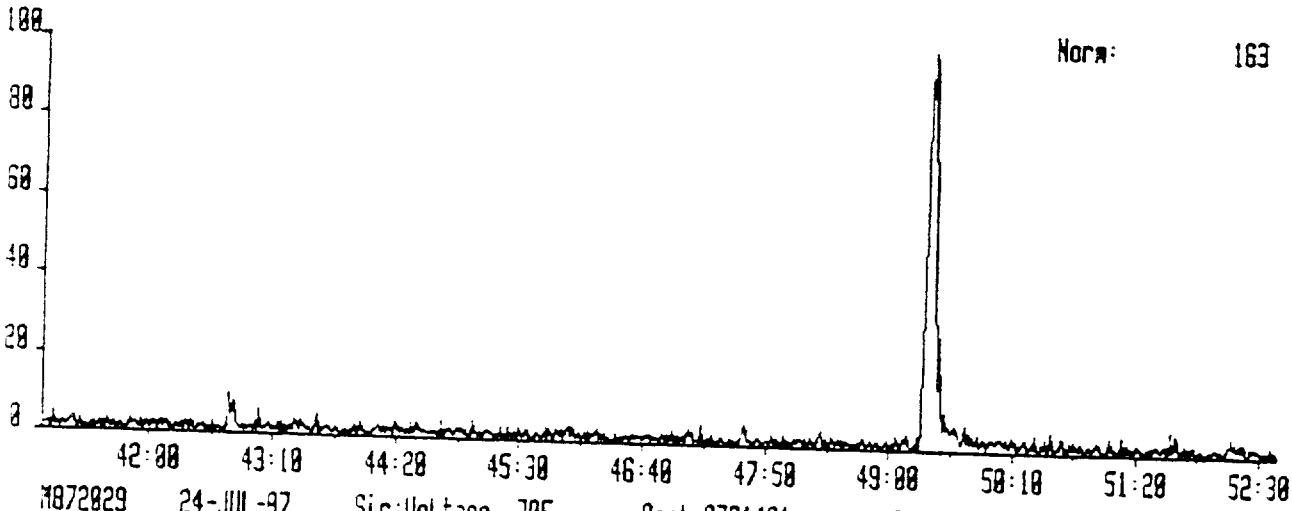
NAME	AMT (ng)	% REC.	RATIO	RT
13C12-TCDF	9.14	91.40	0.81	26.07
37CL-TCDD	9.43	94.30		26.51
13C12-HxCDF	9.15	91.50	1.25	37.21

INTERNAL STANDARDS RECOVERY SUMMARY

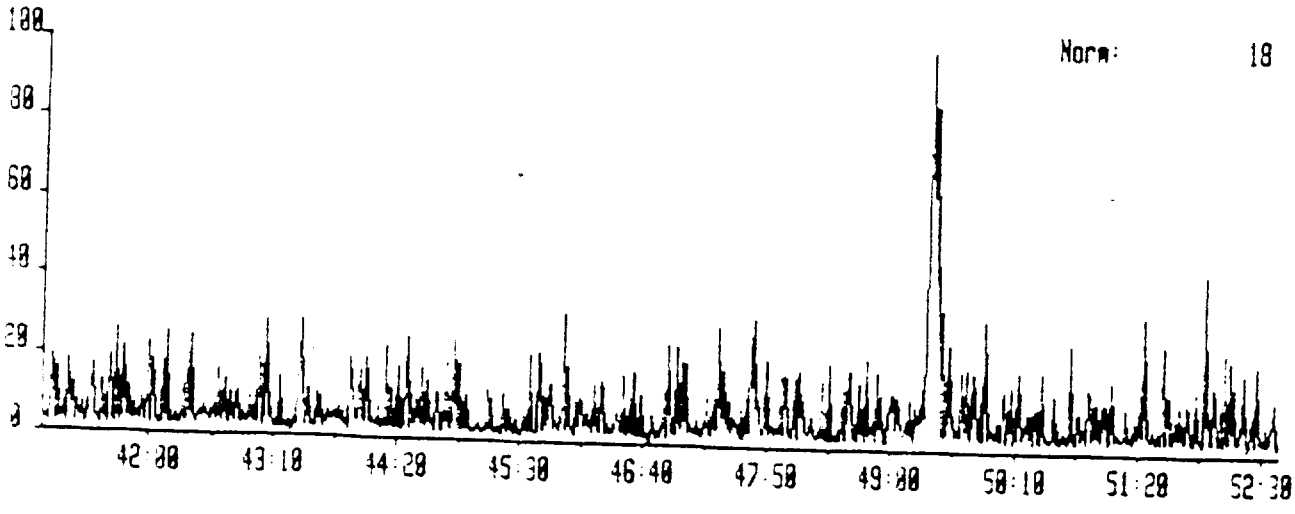
NAME	AMT (ng)	% REC.	RATIO	RT
2378-13C12-TCDD	7.55	75.50	0.76	25.50
13C12-PCDD	9.13	91.30	0.58	31.47
13C12-HxCDD	8.93	89.30	1.22	38.33
13C12-HpCDD	8.49	84.90	1.02	44.11
13C12-OCDD	12.11	60.55	0.91	49.20

M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 4 Mass 487.7817
Text:1-3 (AQ)

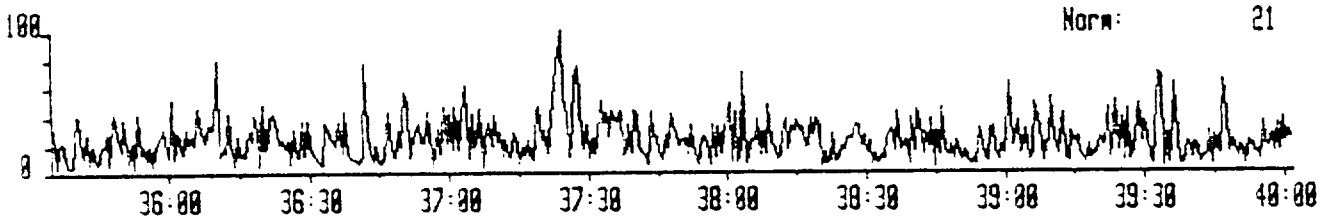
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 4 Mass 489.7788
Text:1-3 (AQ)



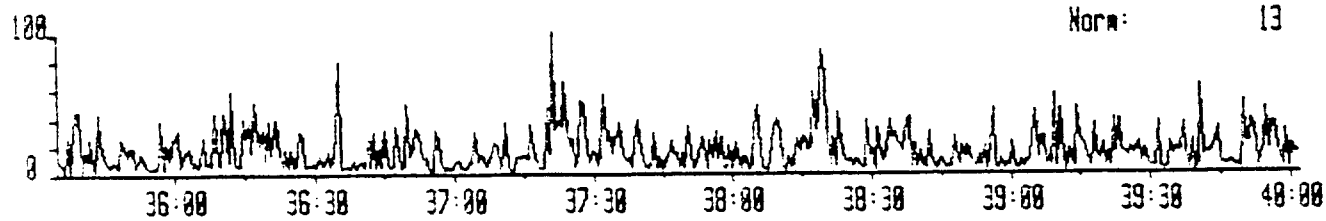
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 4 Mass 477.7200
Text:1-3 (AQ)



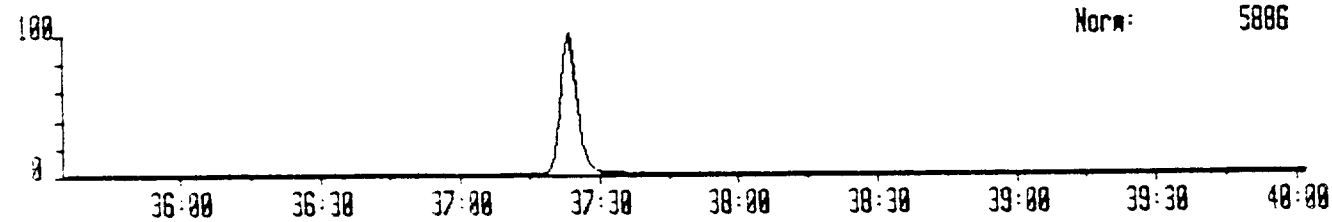
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 373.8287
Text:1-3 (AQ)



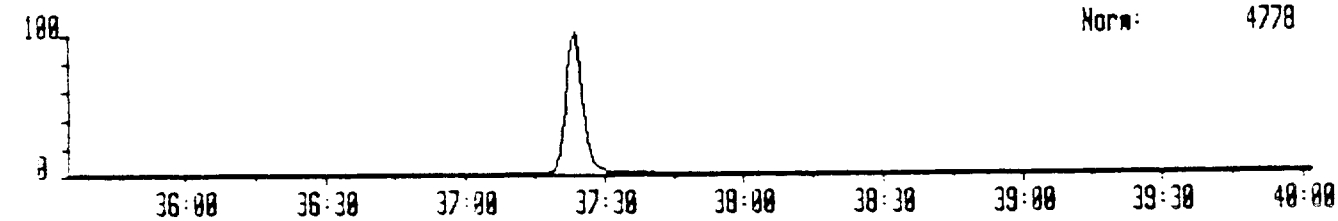
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 375.9178
Text:1-3 (AQ)



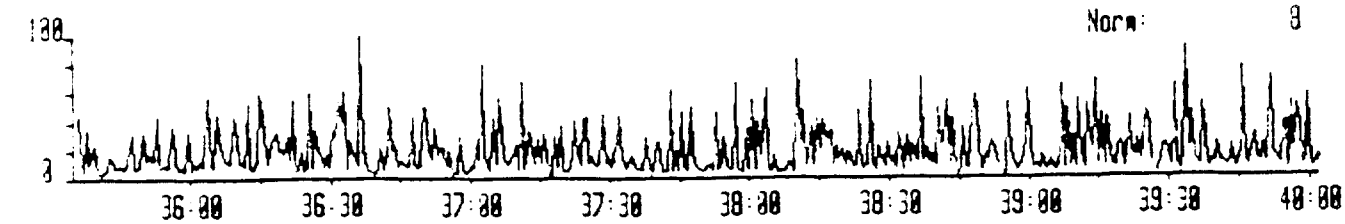
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 385.8689
Text:1-3 (AQ)



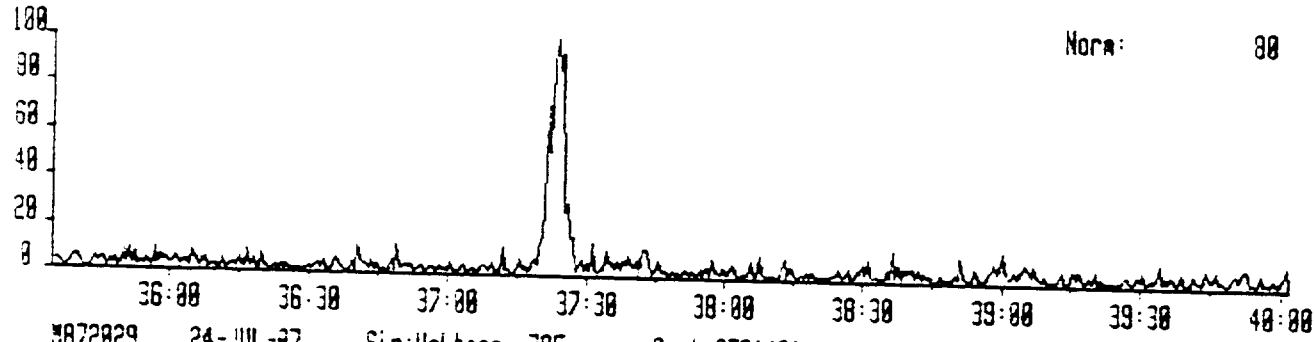
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 387.3588
Text:1-3 (AQ)



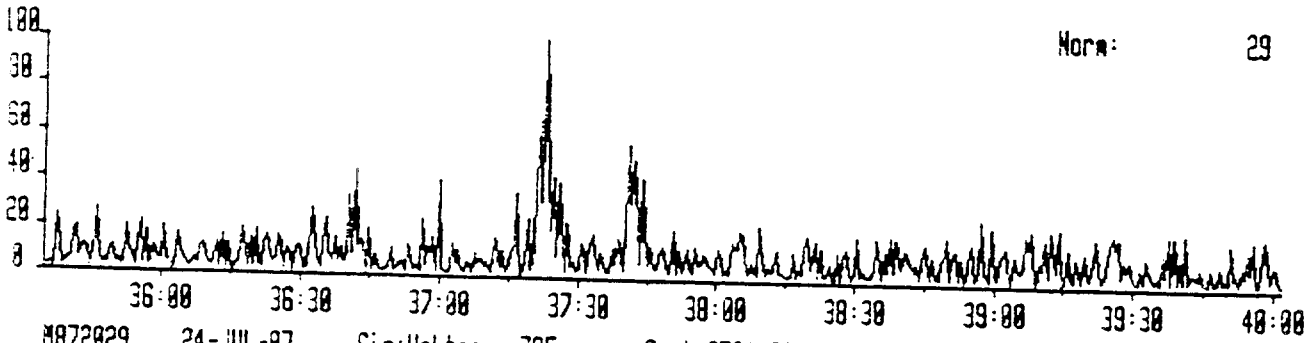
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:1-3 (AQ)



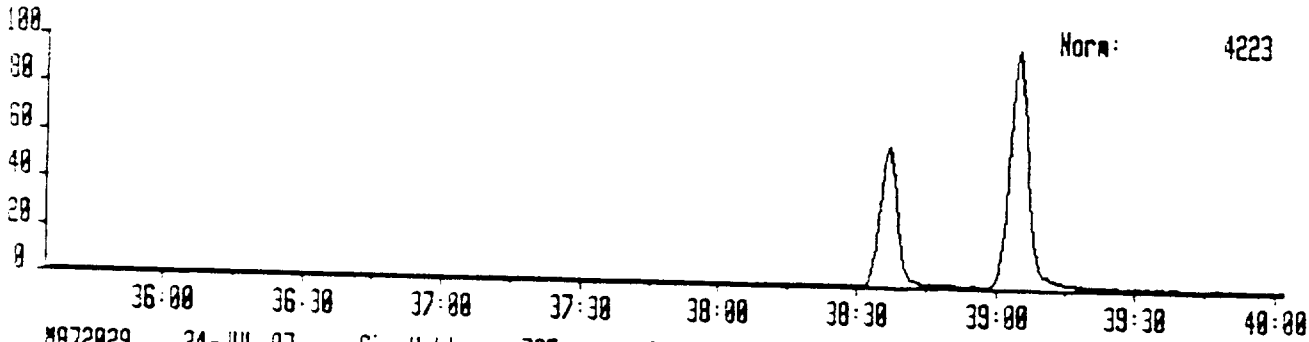
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 389.8156
Text:1-3 (AQ)



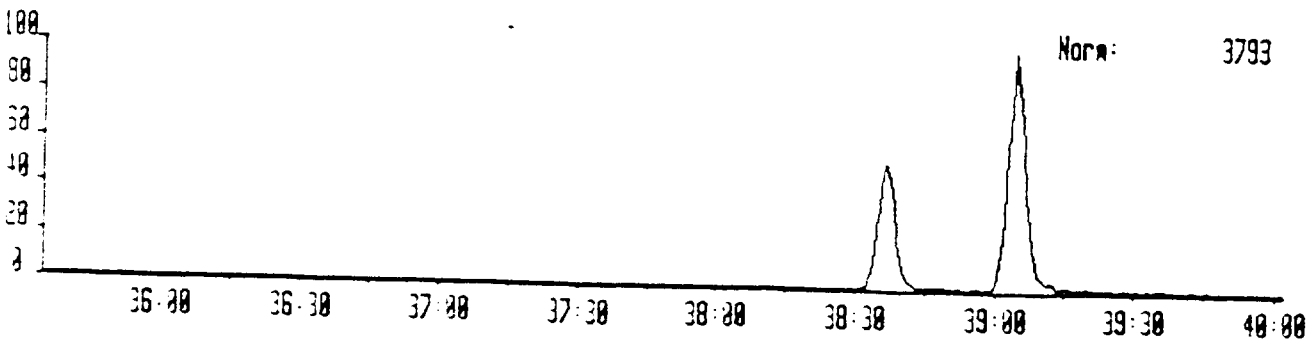
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 391.8127
Text:1-3 (AQ)



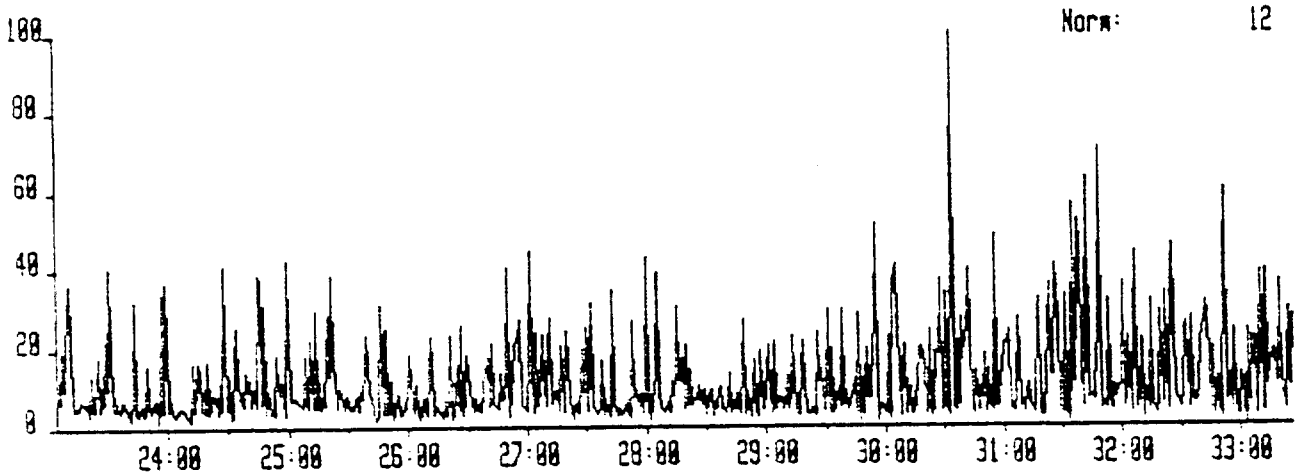
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text:1-3 (AQ)



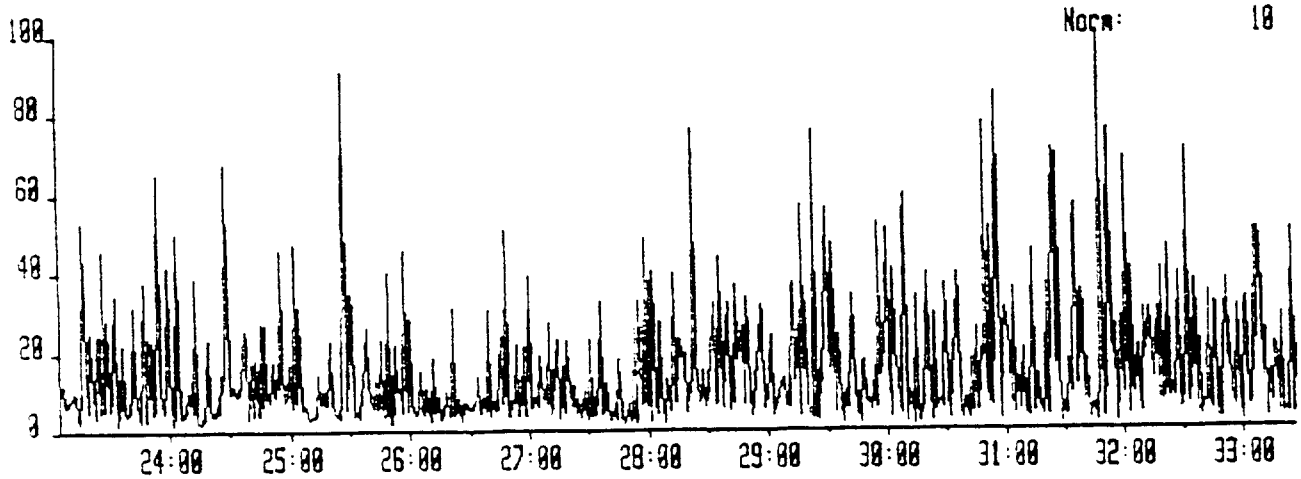
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 3 Mass 403.8529
Text:1-3 (AQ)



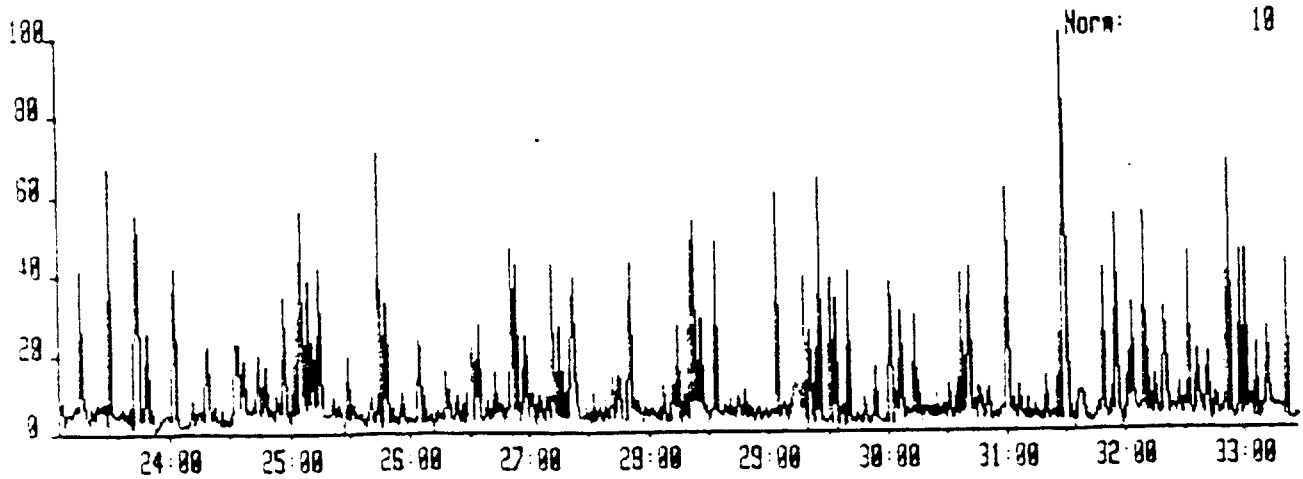
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:1-3 (AQ)



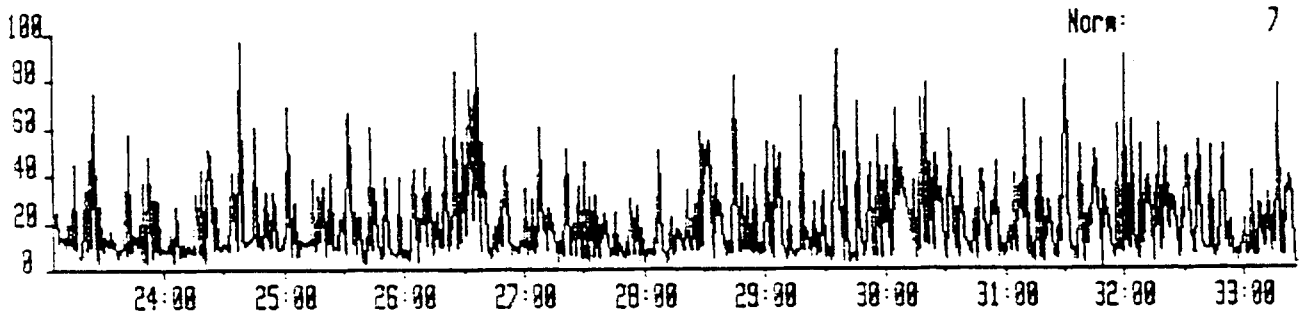
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 2 Mass 339.3597
Text:1-3 (AQ)



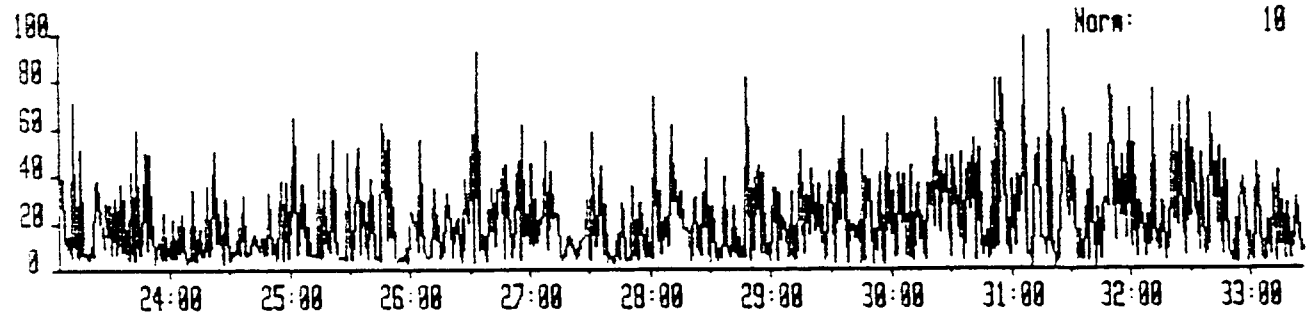
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 2 Mass 407.9003
Text:1-3 (AQ)



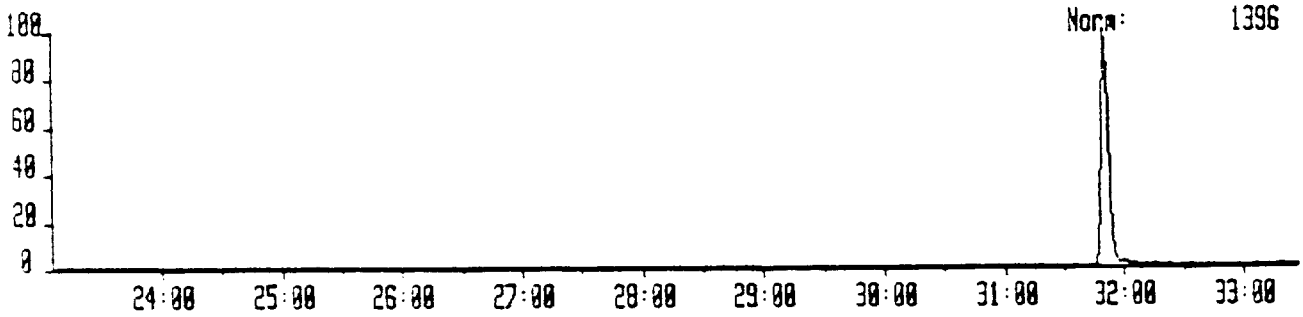
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 353.9575
Text:1-3 (AQ)



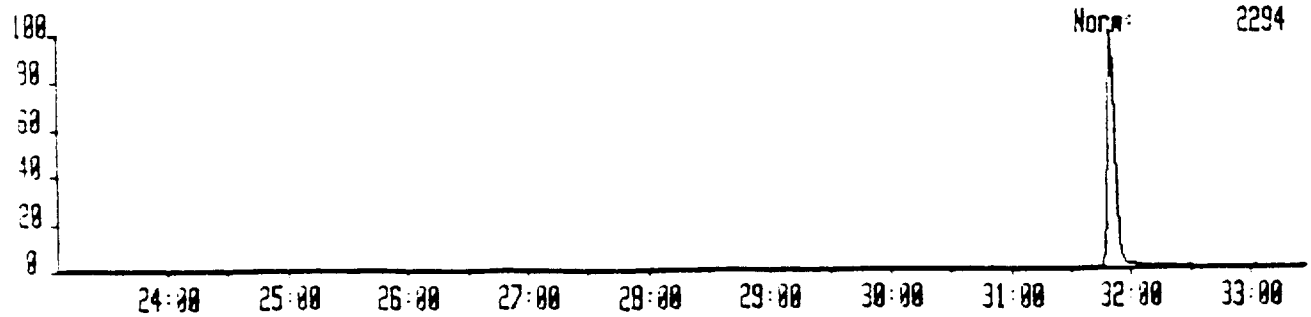
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 355.8546
Text:1-3 (AQ)



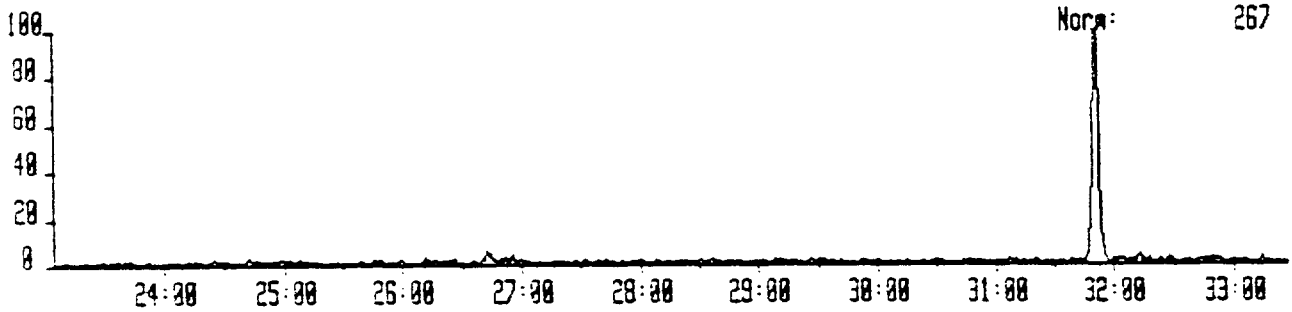
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 365.3977
Text:1-3 (AQ)



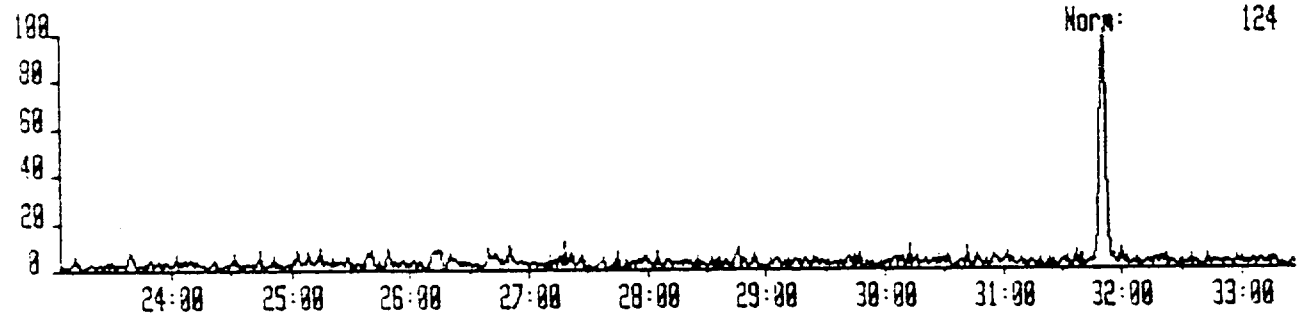
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DB5ATST
Sample 1 Injection 1 Group 2 Mass 367.8948
Text:1-3 (AQ)



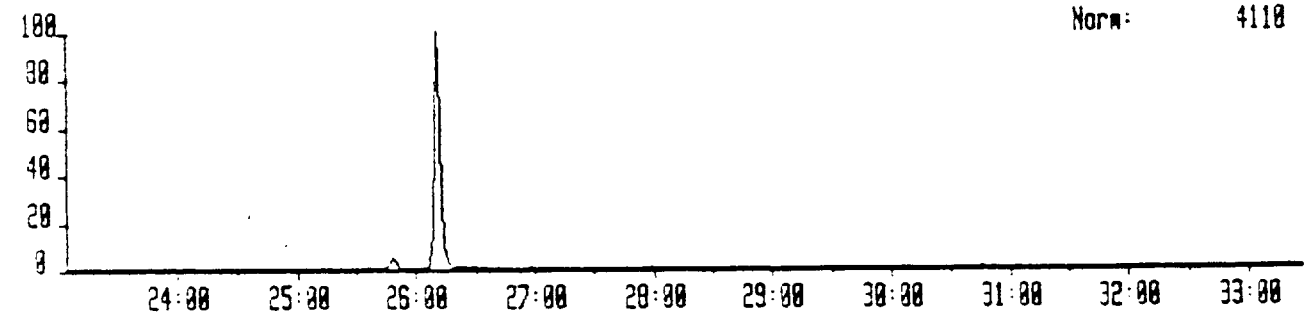
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 303.9816
Text:1-3 (AQ)



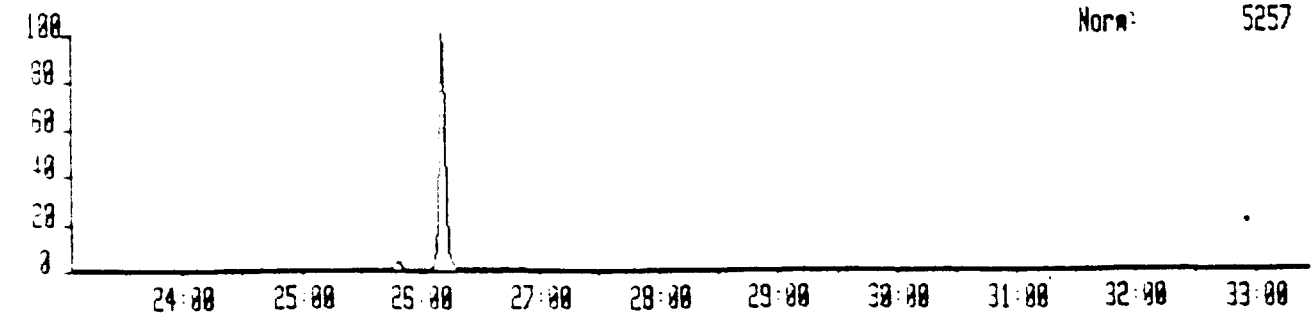
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 305.9987
Text:1-3 (AQ)



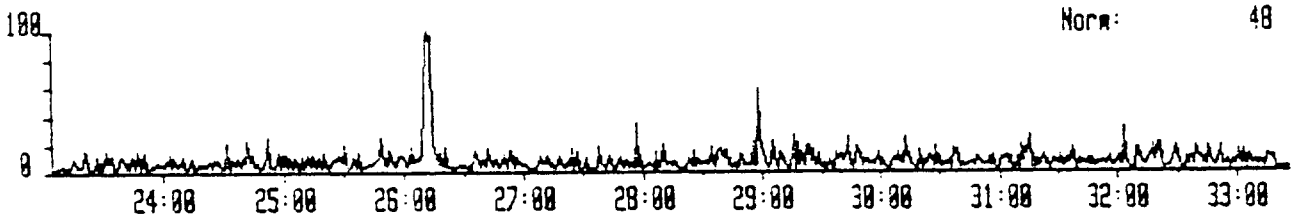
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 315.9419
Text:1-3 (AQ)



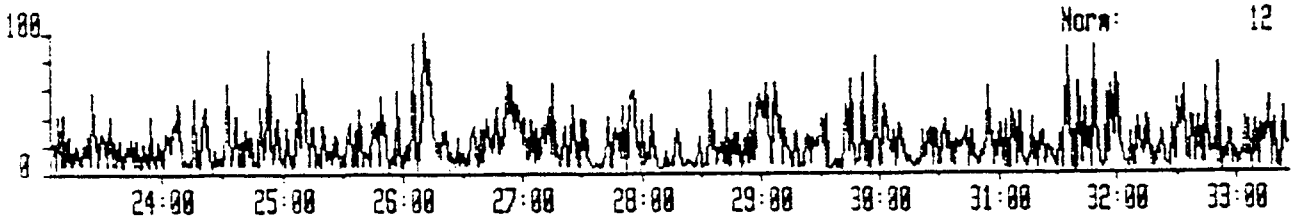
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 317.9389
Text:1-3 (AQ)



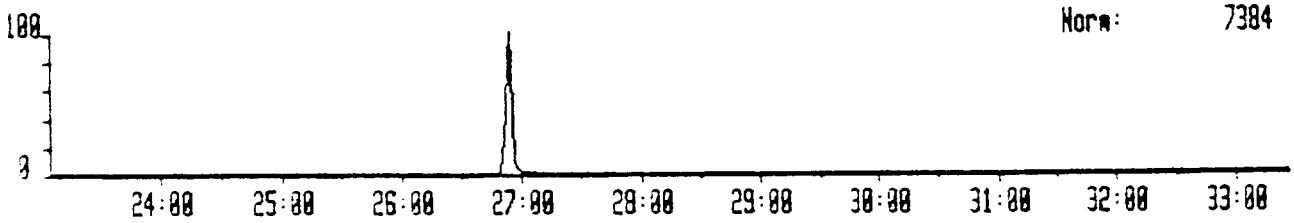
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:1-3 (AQ)



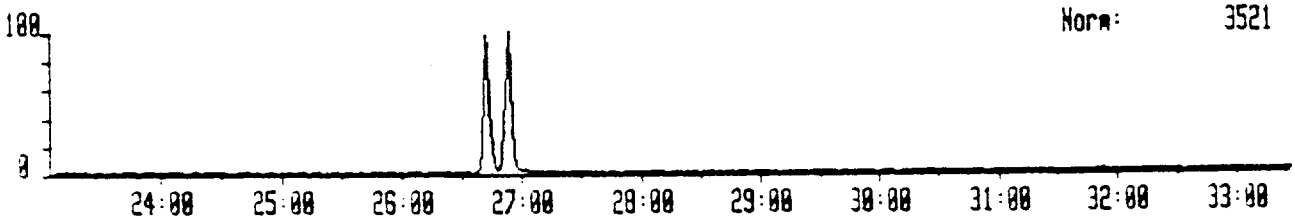
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:1-3 (AQ)



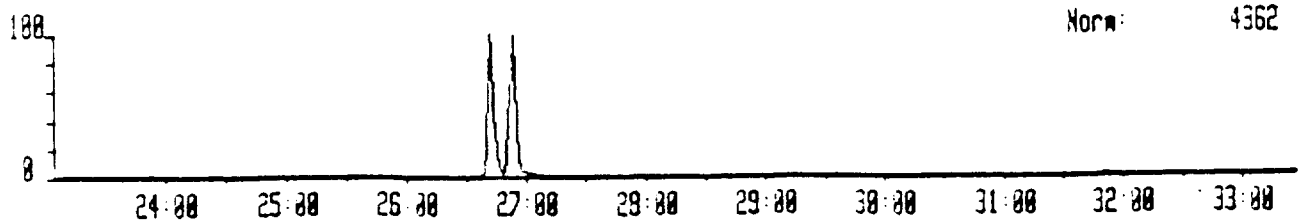
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:1-3 (AQ)



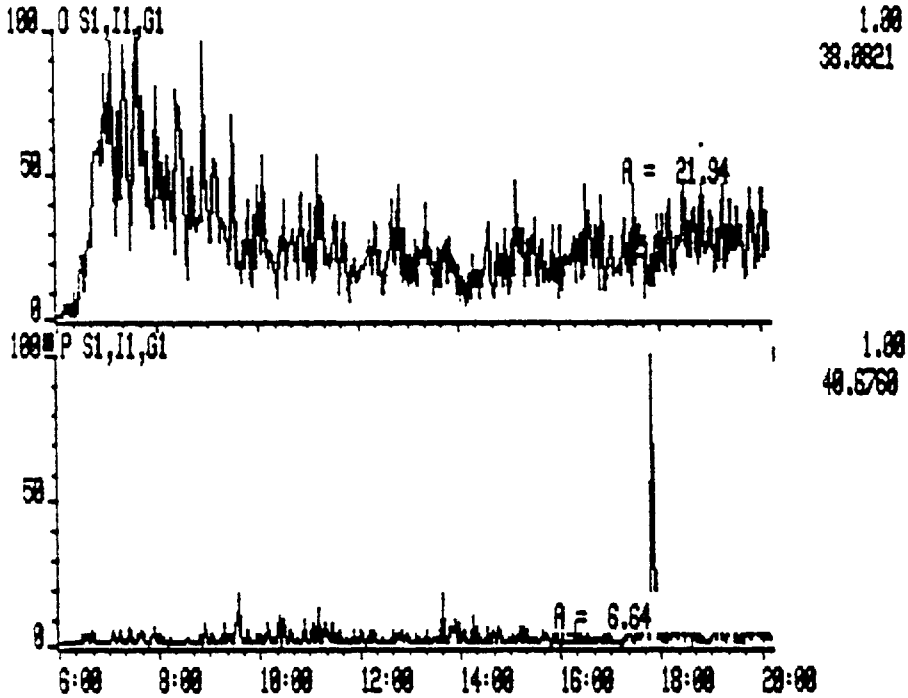
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 331.9368
Text:1-3 (AQ)



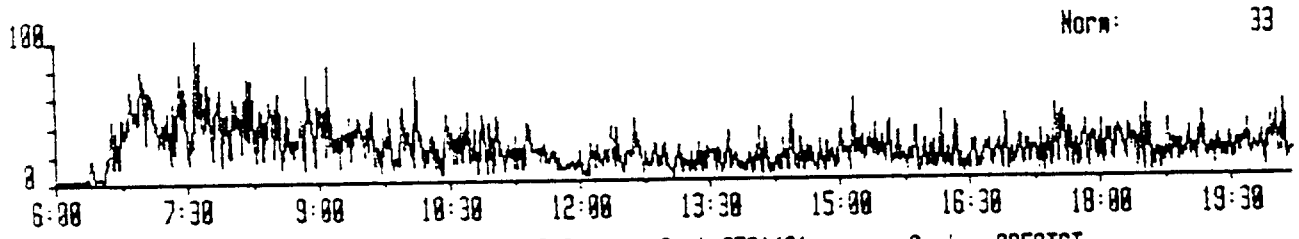
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 333.9338
Text:1-3 (AQ)



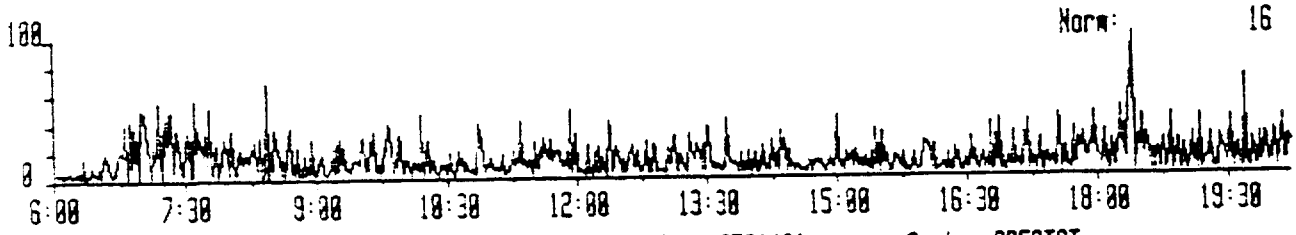
'872 24-JUL-87 09:01 70E (EI+) Sus:DB5ATST
R 59.9406 N: 271.9377 O: 285.9355 P: 287.9326 Q: 339.8790
Text: (AQ)



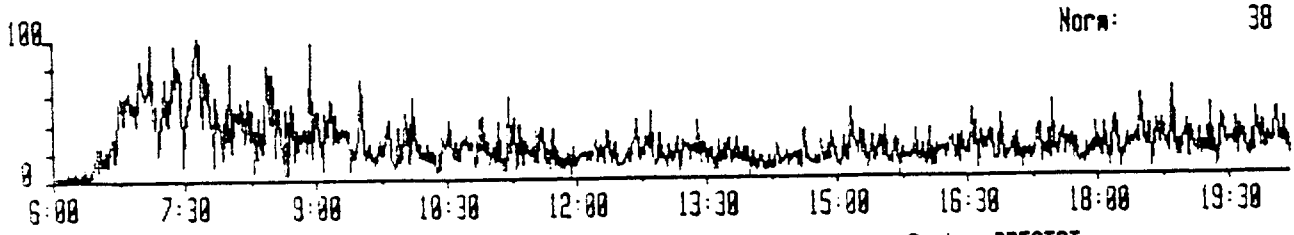
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 1 Mass 269.9486
Text:1-3 (AQ)



M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 1 Mass 271.9377
Text:1-3 (AQ)

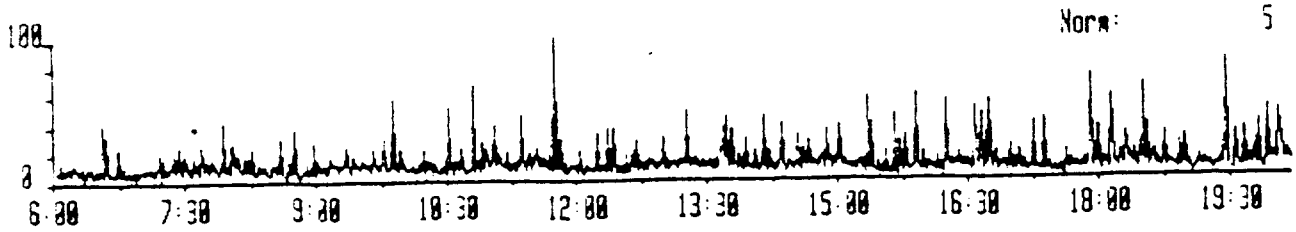


M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 1 Mass 285.9355
Text:1-3 (AQ)

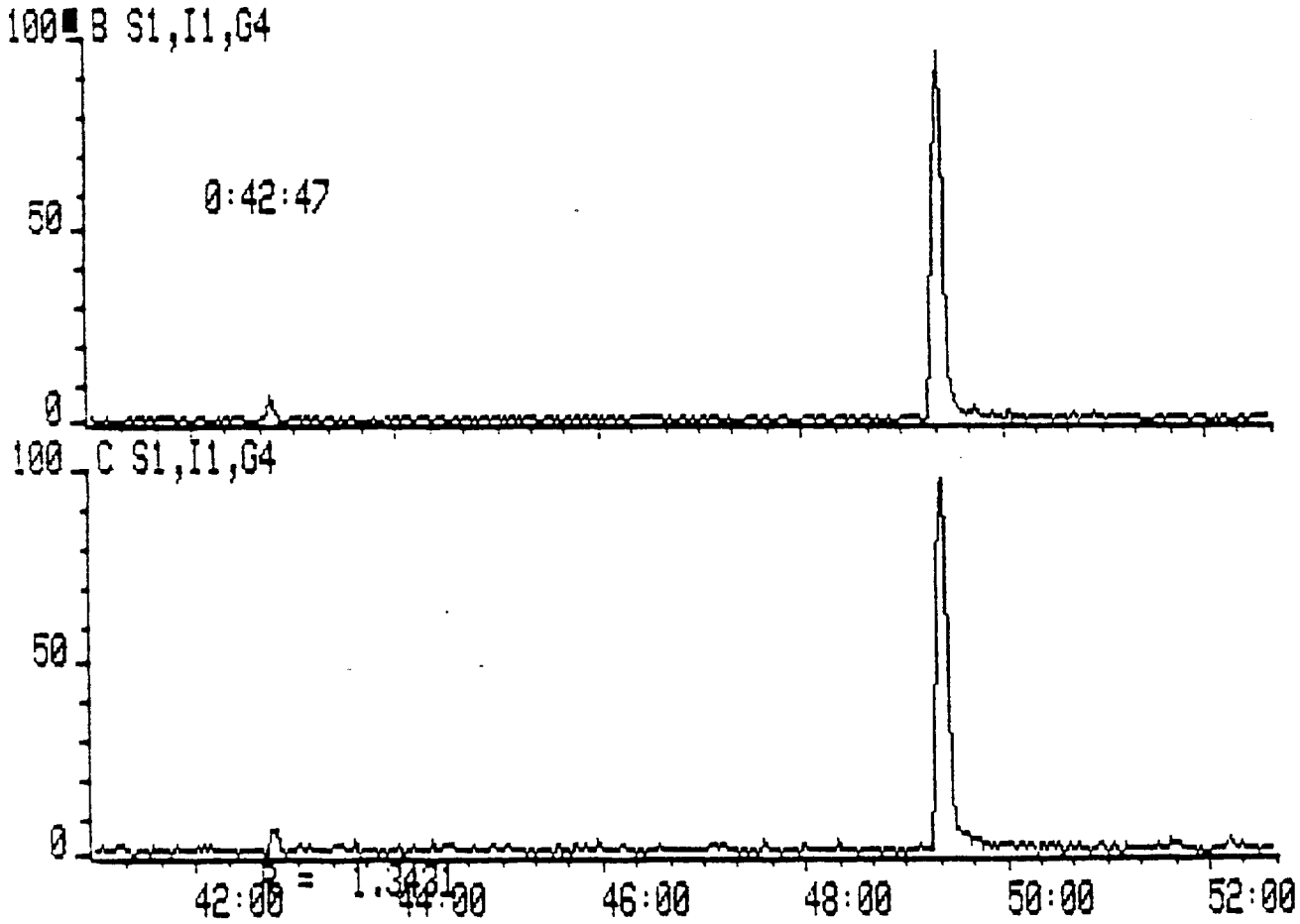


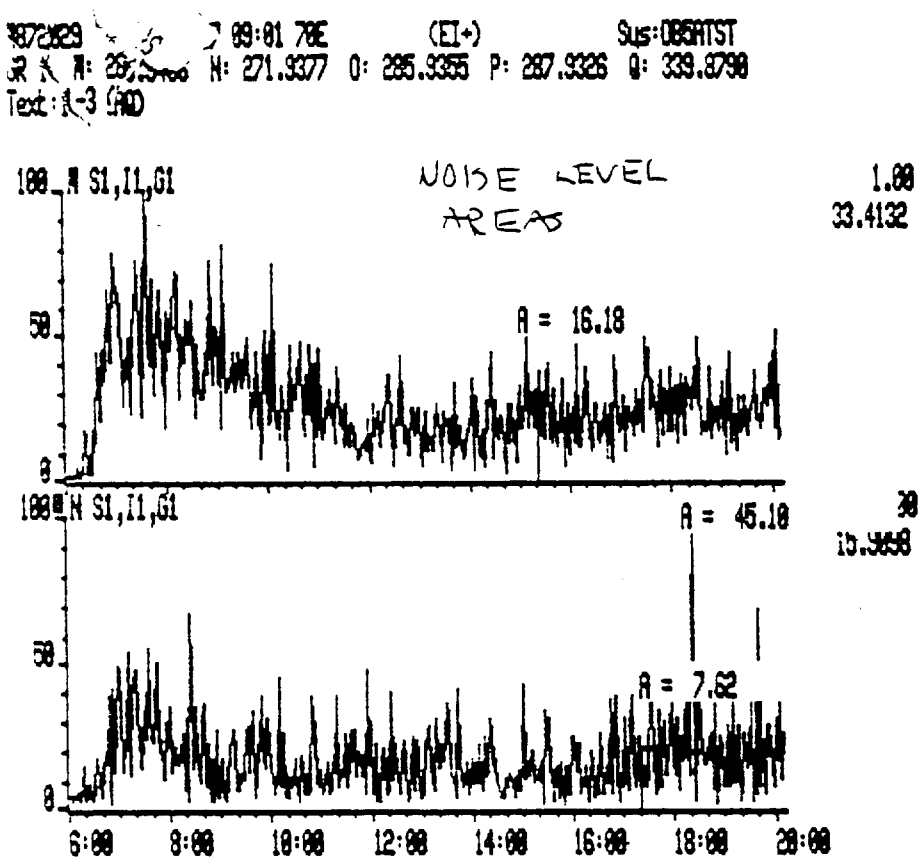
M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:1-3 (AQ)

M872829 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 1 Mass 339.8798
Text:1-3 (AQ)



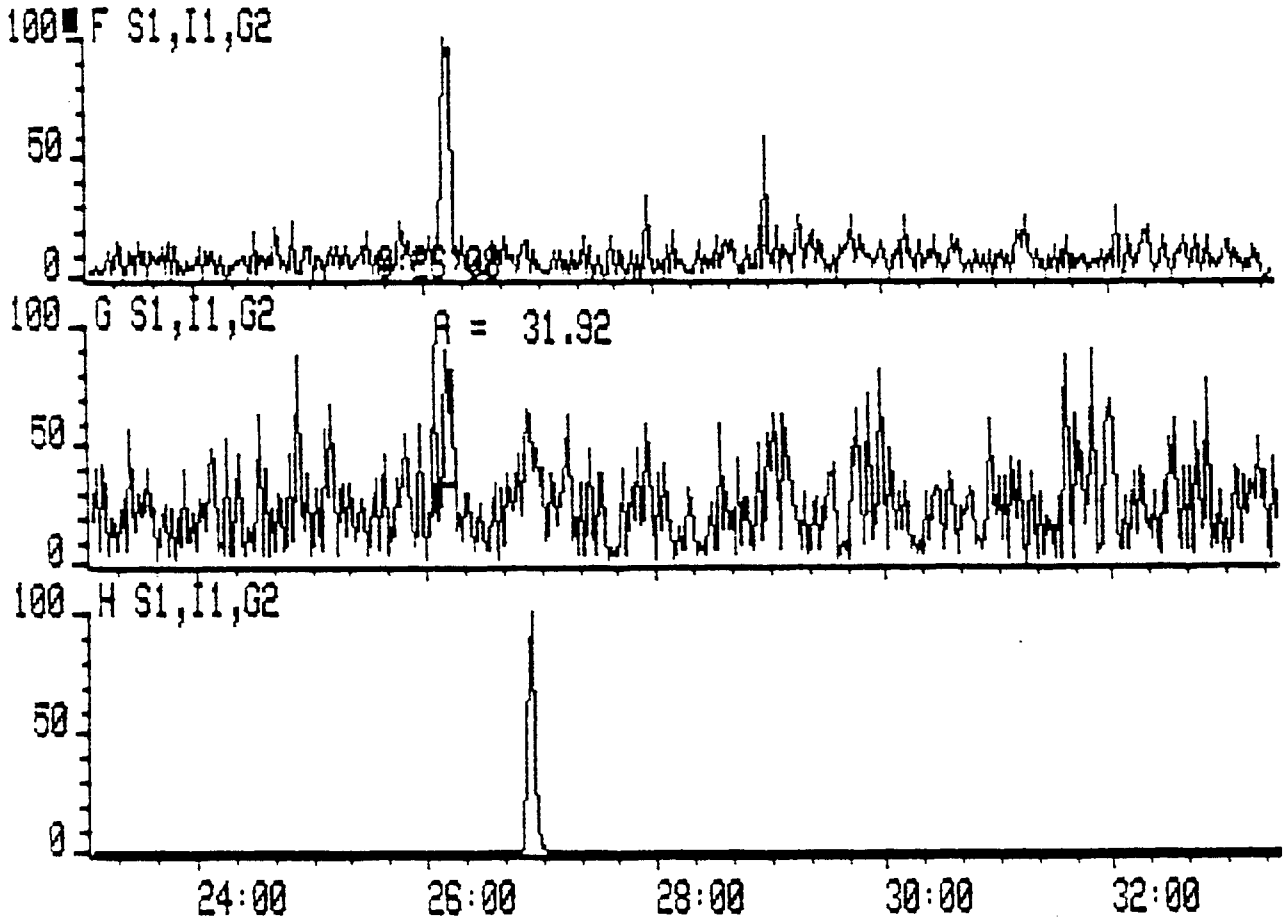
M872029 24-JUL-87 09:01 70E (EI+) Sys:DB5ATST
GR 4 A: 440.9761 B: 407.7817 C: 409.7788 D: 423.7766 E: 425.7737
Text:1-3 (AQ)





(EI+)
Sus:DB5ATST
N: 271.9377 O: 285.9355 P: 287.9326 Q: 339.8790
Text: 1-3 (AQ)
NOISE LEVEL
AREAS
100 M S1,I1,G1
1.00
33.4132
A = 16.18
50
0
100 N S1,I1,G1
A = 45.10
A = 7.62
50
0
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00

:872029 24-JUL-87 09:01 70E (EI+) Sys:DB5ATST
GR 2 F: 319.8965 G: 321.8936 H: 327.8847 I: 331.9368 J: 333.9338
Text:1-3 (AQ)

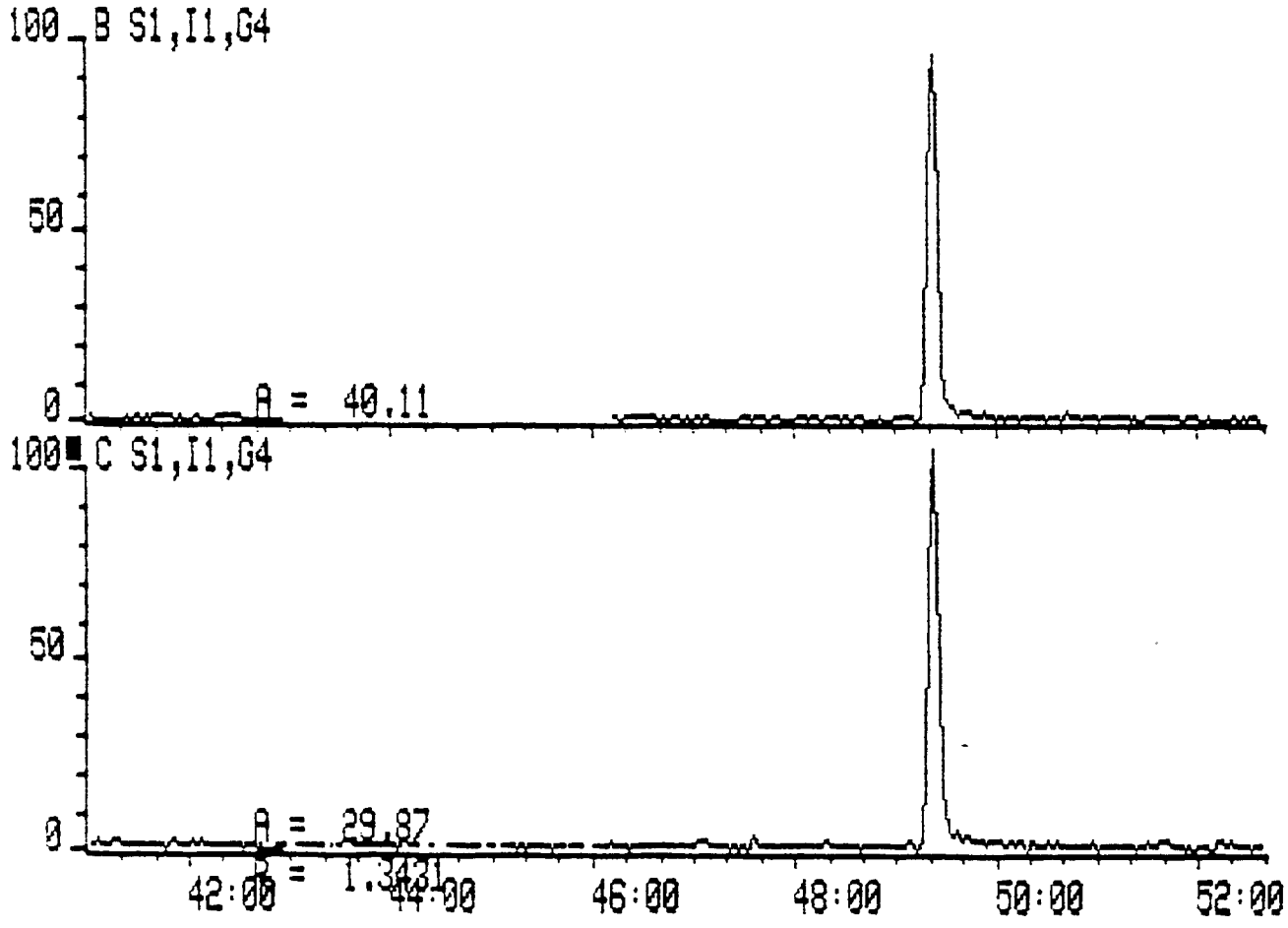


1.8
47.854

1.8
11.641

1.8
738

M872029 24-JUL-87 09:01 70E (EI+) Sys:DB5ATST
GR 4 A: 440.9761 B: 407.7817 C: 409.7788 D: 423.7766 E: 425.7737
Text:1-3 (AQ)



M872029I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME	
270	10.00	13.00	
272	10.00	14.00	
286	10.00	15.00	← 22 @ 17:48
288	114.97	17.48	
304	10.00	16.00	
306	411.24	31.51	
316	672.46	25.49	
316	15617.82	26.10	
318	773.75	25.49	
318	20309.35	26.10	
320	206.61	26.11	
322	10.00	17.00	← 32 @ 26:09
328	28698.19	26.54	
332	117.67	24.25	
332	100.06	26.13	
332	12244.85	26.41	
332	12981.11	26.53	
332	110.11	28.18	
334	15656.88	26.41	
334	15782.16	26.53	
334	159.49	31.50	
338	10.00	18.00	
340	10.00	19.00	
354	10.00	20.00	
356	10.00	21.00	
366	5835.32	31.50	
368	9518.77	31.49	
374	10.00	22.00	
376	10.00	23.00	
386	24499.49	37.23	
388	20108.84	37.23	
390	268.22	37.23	
392	44.67	37.23	
402	10794.06	38.37	
402	19735.30	39.04	
404	8645.33	38.37	
404	16001.70	39.04	
408	64.79	42.46	← 40.1 @ 42:47
410	1009.04	49.25	(IS) 29.9 @ 42:47
424	10.00	24.00	
426	10.00	25.00	
436	12023.87	44.14	
438	11177.48	44.14	
438	780.30	49.23	
442	50.99	49.36	
444	71.61	49.35	
458	147.38	49.23	
460	189.56	49.21	
470	17288.58	49.22	
470	10.00	26.00	

M872029I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
472	19276.07	49.22
*** Total ***		
****	301628.99	1585.31

TRIANGLE LABORATORIES, INC.
PCDD/PCDF ANALYSIS

ANALYST: RV
DATE: 29/07/87

FILE NAME: M872029
SAMPLE ID: 1-3 AQUEOUS
CASE NO: ENTROPY
PROJ NO: 8701481

CONCAL: M872023

NAME	AMT (ng)	NUMBER	DL	EMPC	RATIO	RT
TOTAL TRICDD	ND			0.097	0.19	
2378-TCDD	ND		0.018			
TOTAL TCDD	ND			0.079	6.46	
12378-PCDD	ND		0.015			
TOTAL PCDD	ND		0.015			
123478-HxCDD	ND		0.015			
123678-HxCDD	ND		0.015			
123789-HxCDD	ND		0.015			
TOTAL HxCDD	ND			0.092	6.00	
1234678-HpCDD	ND		0.018			
TOTAL HpCDD	ND		0.018			
OCDD	0.210				0.78	49.23
TOTAL TRICDF	ND		0.025			
2378-TCDF	ND		0.013			
TOTAL TCDF	ND		0.013			
12378-PCDF	ND		0.013			
23478-PCDF	ND		0.013			
TOTAL PCDF	ND		0.013			
123478-HxCDF	ND		0.010			
123678-HxCDF	ND		0.008			
234678-HxCDF	ND		0.010			
123789-HxCDF	ND		0.013			
TOTAL HxCDF	ND		0.010			
1234678-HpCDF	ND			0.015	1.34	
1234789-HpCDF	ND		0.013			
TOTAL HpCDF	ND		0.013			
OCDF	ND			0.069	0.71	

SURROGATE RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
13C12-TCDF	9.18	91.80	0.77	26.10
37CL-TCDD	9.21	92.10		26.54
13C12-HxCDF	8.99	89.90	1.22	37.23

INTERNAL STANDARDS RECOVERY SUMMARY

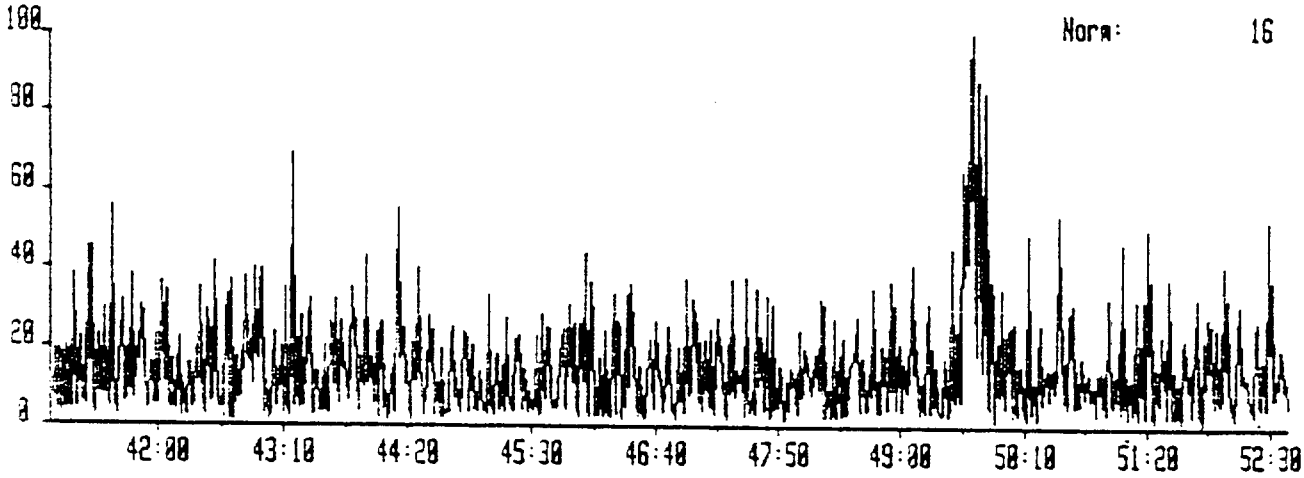
NAME	AMT (ng)	% REC.	RATIO	RT
2378-13C12-TCDD	7.68	76.80	0.82	26.58
13C12-PCDD	9.10	91.00	0.61	31.50
13C12-HxCDD	8.77	87.70	1.23	38.37
13C12-HpCDD	8.73	87.30	1.08	44.14
13C12-OCDD	12.79	63.95	0.90	49.22

07/30/87

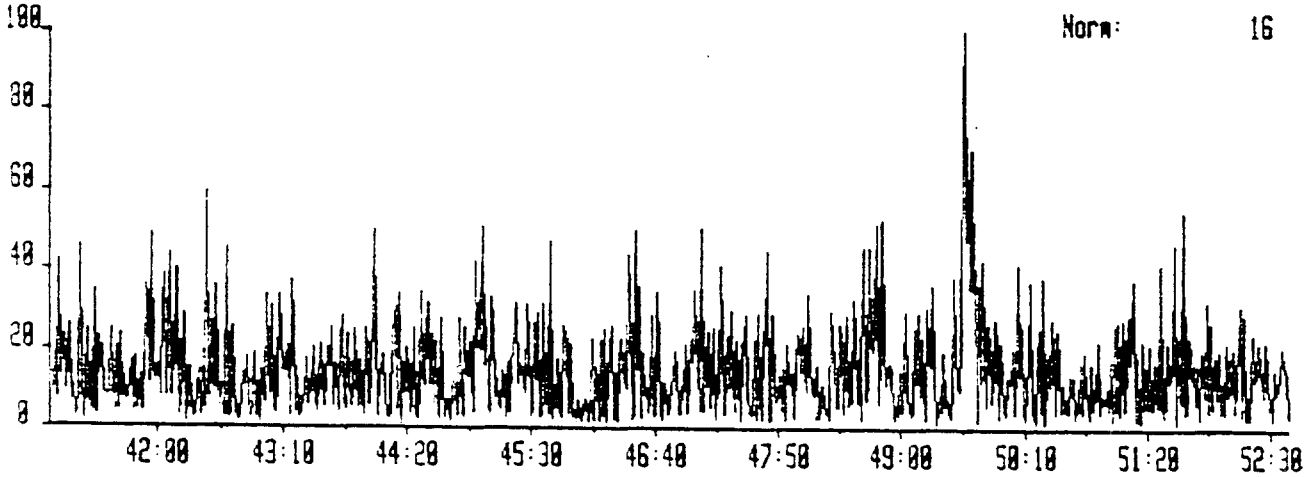
M872029B
MATCHED GC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
286	0.19	17.48	136.97	.F.	.F.	0.000
316	0.87	25.49	1446.21	.T.	.F.	0.960
316	0.77	26.10	35927.17	.T.	.T.	0.973
320	6.46	26.11	238.61	.F.	.F.	0.974
328	0.00	26.54	28698.19	.T.	.T.	1.001
332	0.78	26.41	27901.73	.T.	.T.	0.993
332	0.82	26.53	28763.27	.T.	.T.	1.000
366	0.61	31.50	15354.09	.T.	.T.	1.000
386	1.22	37.23	44608.33	.T.	.T.	0.963
390	6.00	37.23	312.89	.F.	.F.	0.968
402	1.25	38.37	19439.39	.T.	.T.	1.000
402	1.23	39.04	35737.00	.T.	.T.	1.012
408	1.34	42.47	70.00	.F.	.T.	0.967
436	1.08	44.14	23201.35	.T.	.T.	1.000
442	0.71	49.36	122.60	.F.	.T.	1.005
458	0.78	49.23	336.94	.T.	.T.	1.000
470	0.90	49.22	36564.65	.T.	.T.	1.000
*** Total ***						
***	25.01	592.45	298859.39			15.821

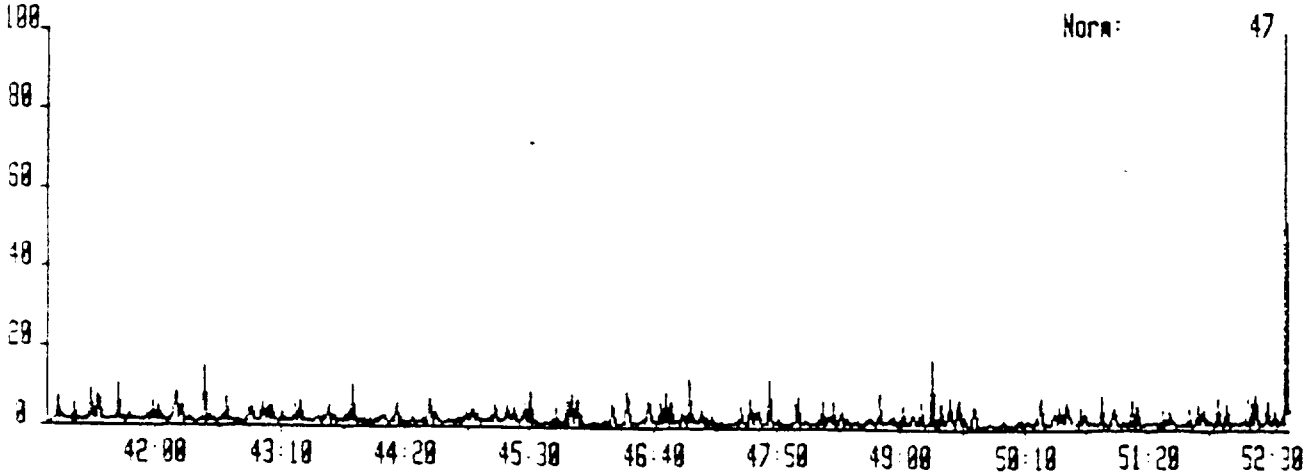
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 4 Mass 441.7428
Text:1-2 (AQ)



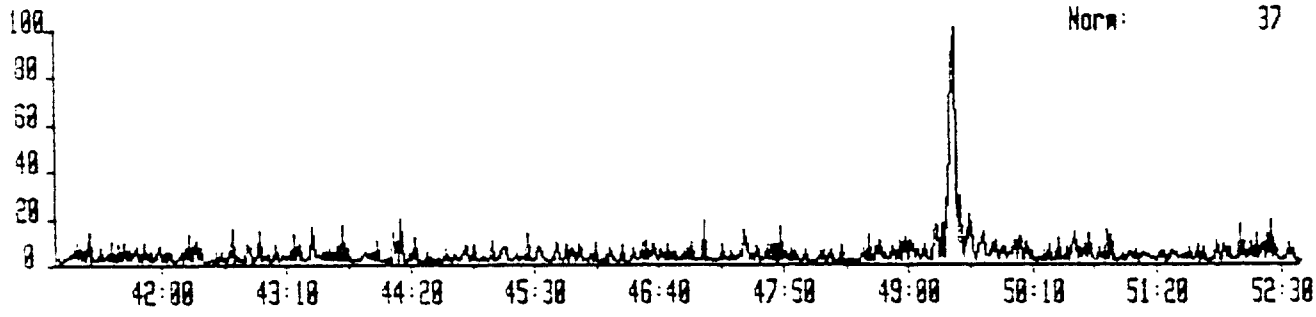
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:1-2 (AQ)



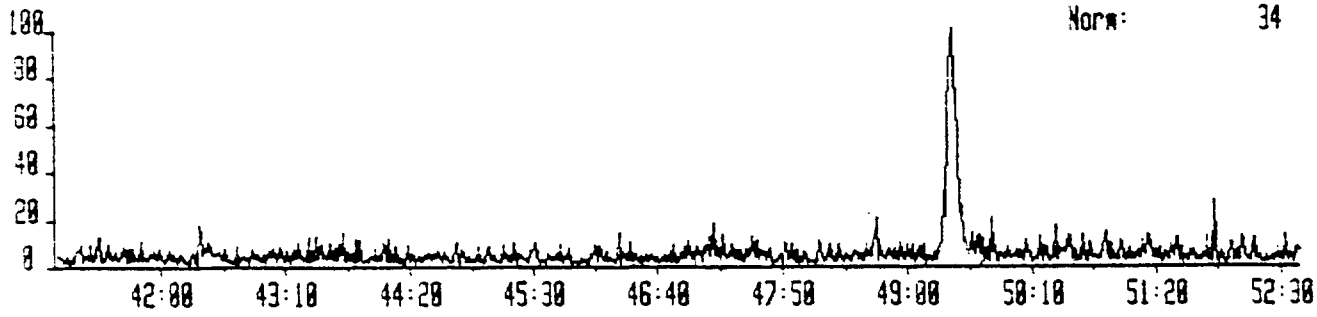
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:OBSATST
Sample 1 Injection 1 Group 4 Mass 511.6810
Text:1-2 (AQ)



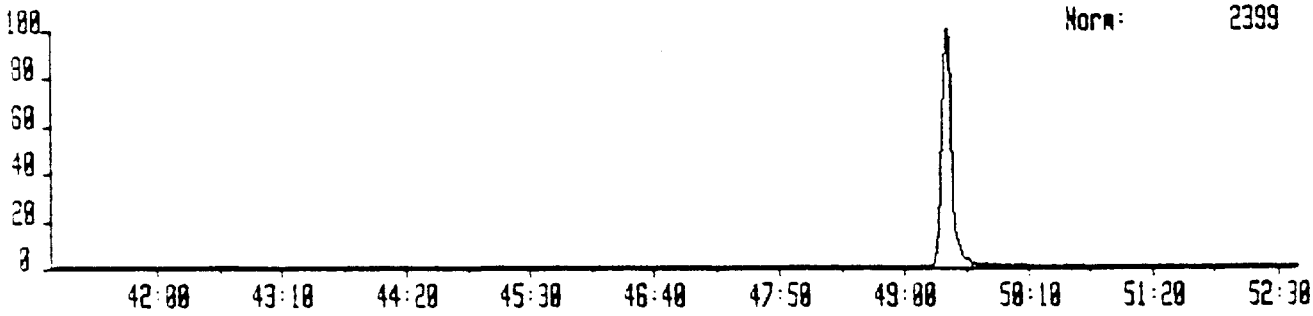
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:1-2 (AQ)



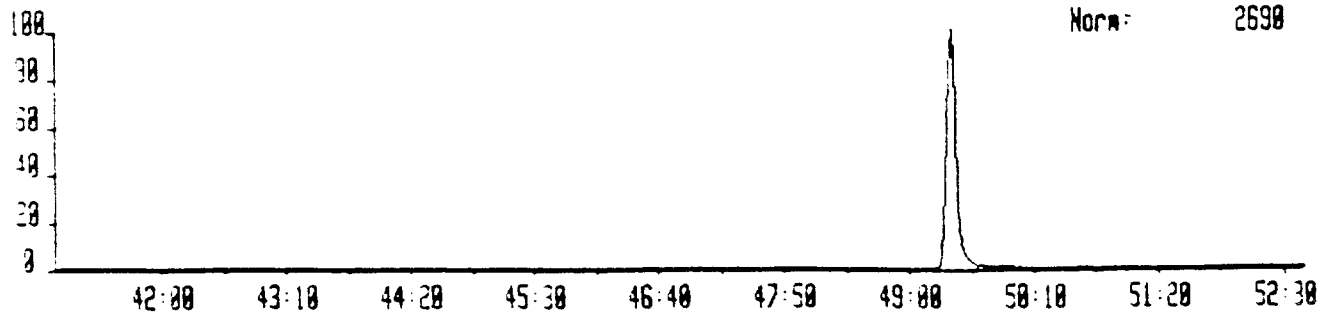
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:1-2 (AQ)



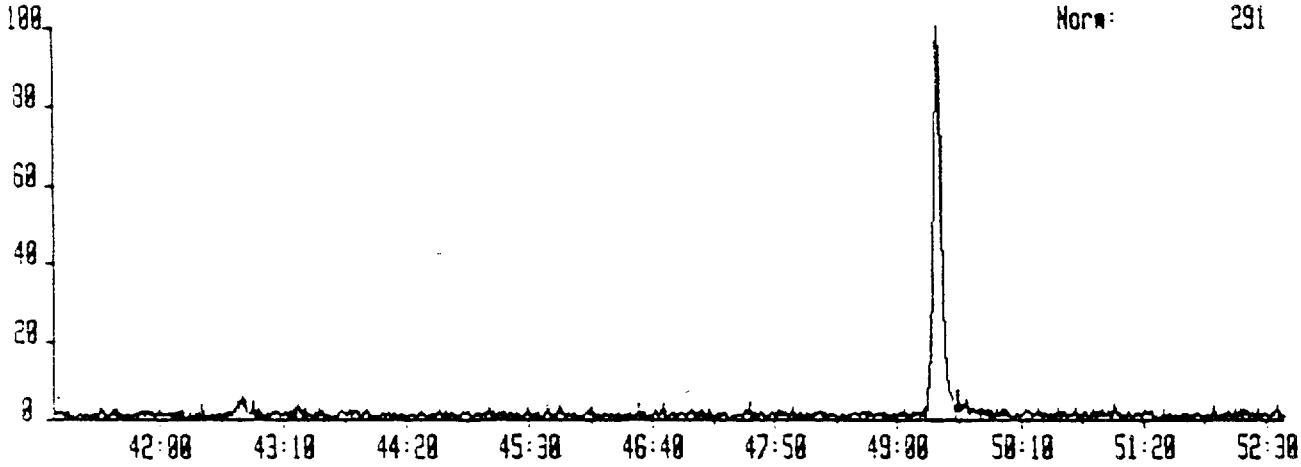
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:1-2 (AQ)



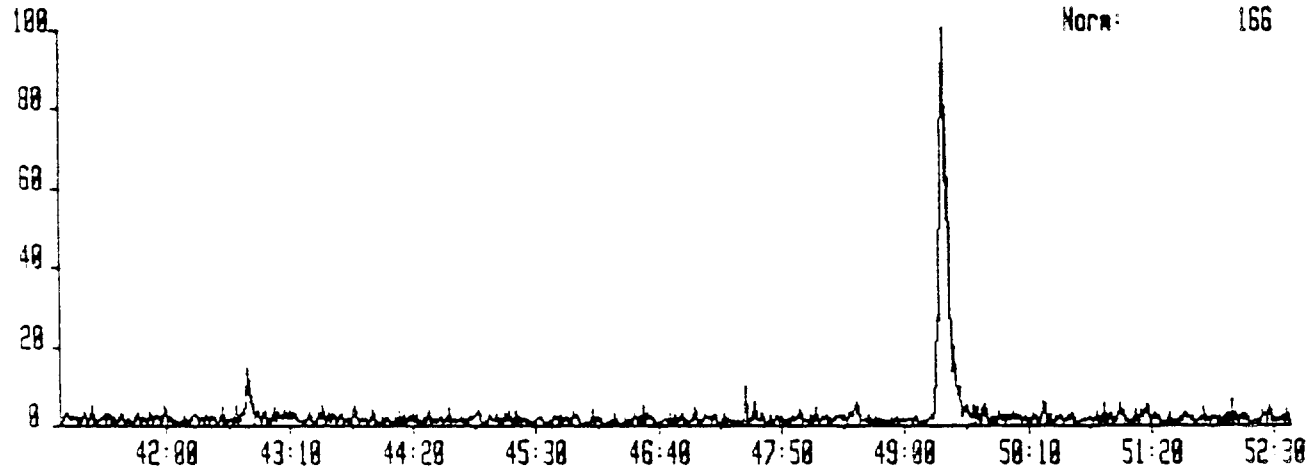
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 471.7758
Text:1-2 (AQ)



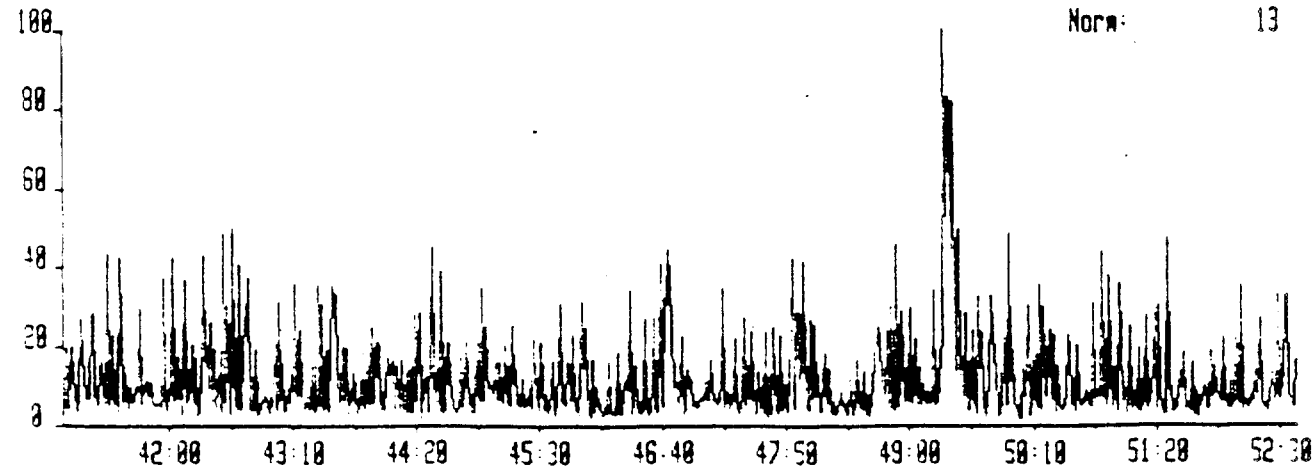
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 4 Mass 407.7817
Text:1-2 (AQ)



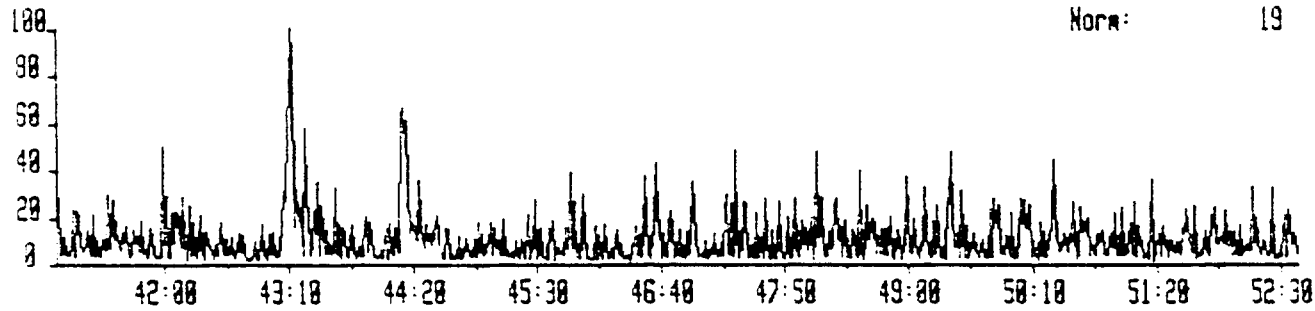
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 4 Mass 409.7788
Text:1-2 (AQ)



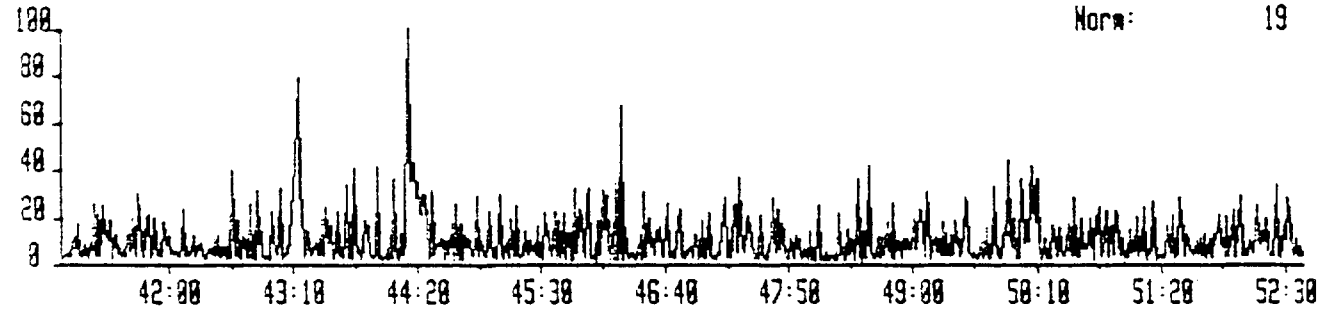
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 4 Mass 477.7200
Text:1-2 (AQ)



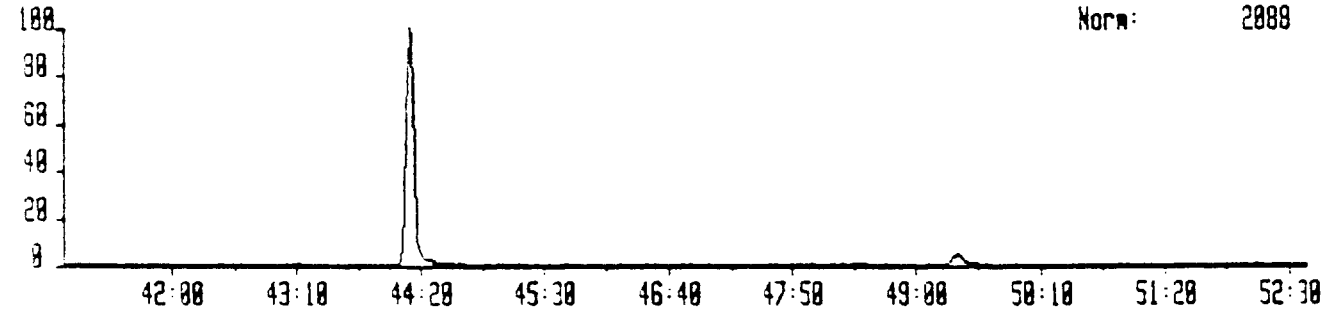
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:1-2 (AQ)



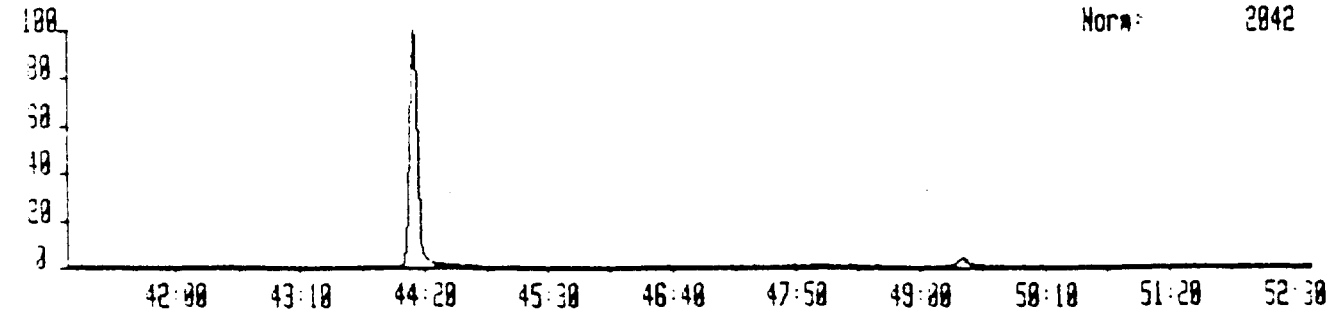
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:1-2 (AQ)



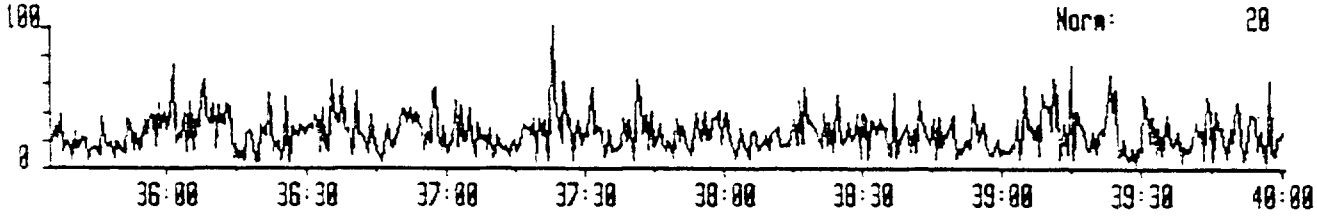
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:1-2 (AQ)



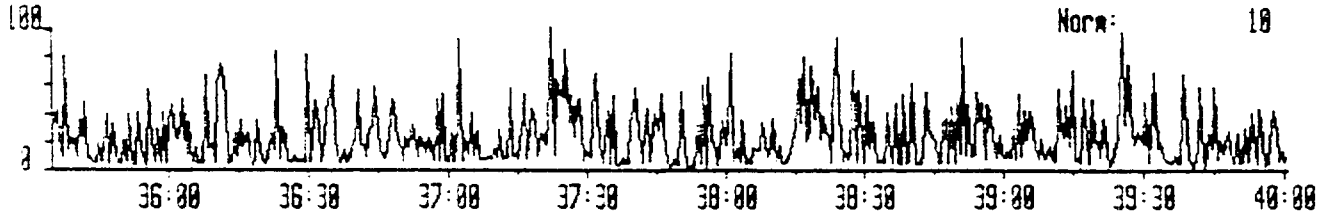
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:1-2 (AQ)



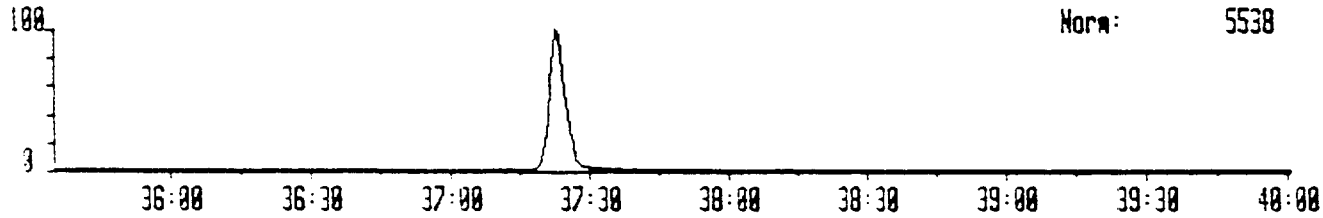
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 3 Mass 373.8207
Text:1-2 (AQ)



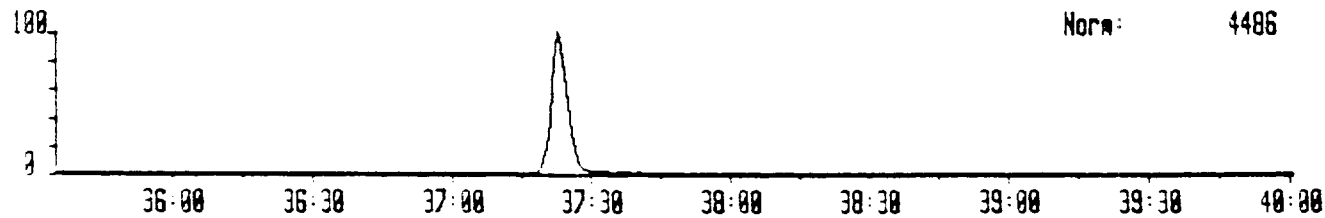
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 3 Mass 375.8178
Text:1-2 (AQ)



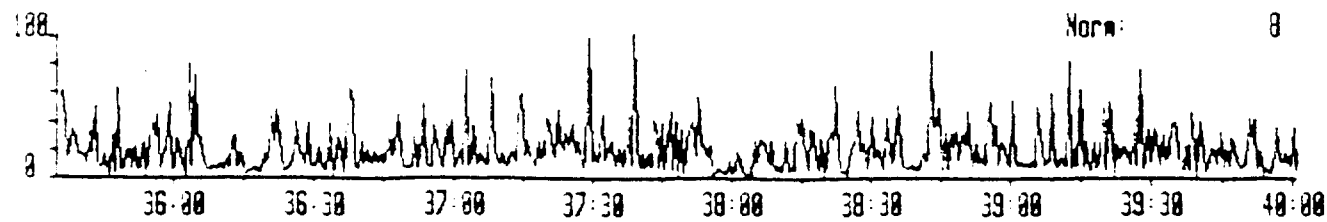
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 3 Mass 385.8689
Text:1-2 (AQ)



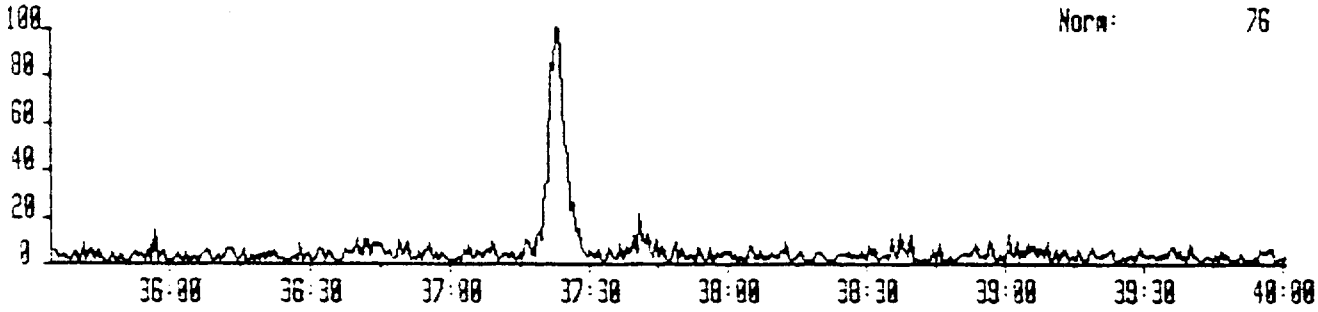
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 3 Mass 387.8588
Text:1-2 (AQ)



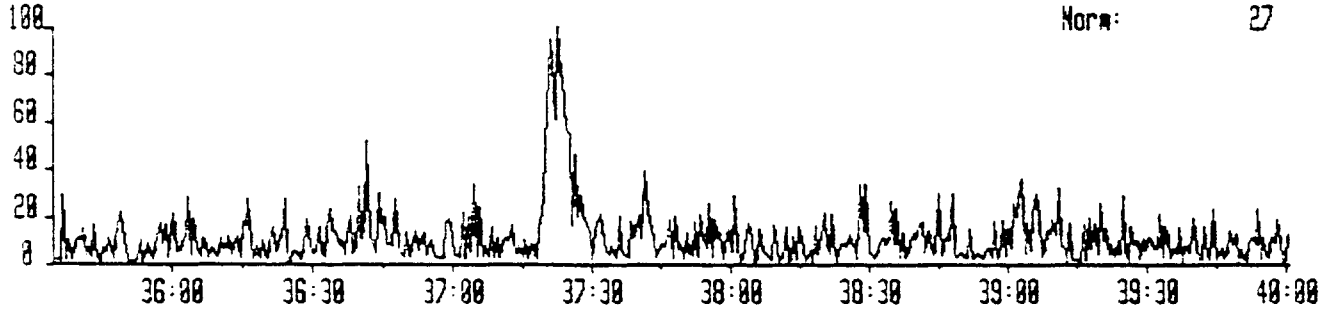
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:1-2 (AQ)



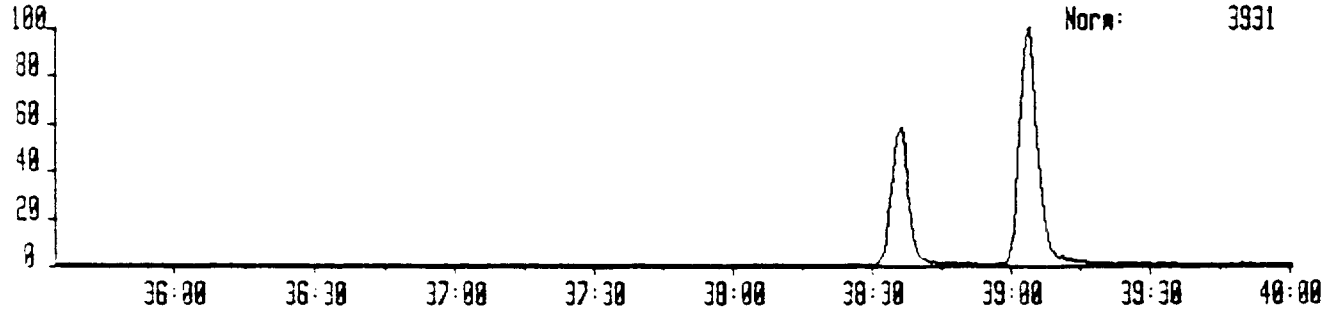
M872027 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 3 Mass 389.8156
Text:1-2 (AQ)



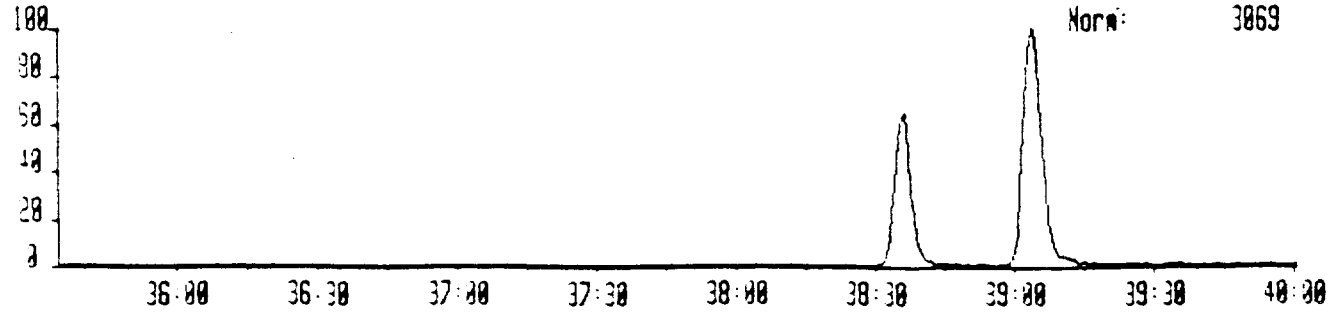
M872027 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 3 Mass 391.3127
Text:1-2 (AQ)



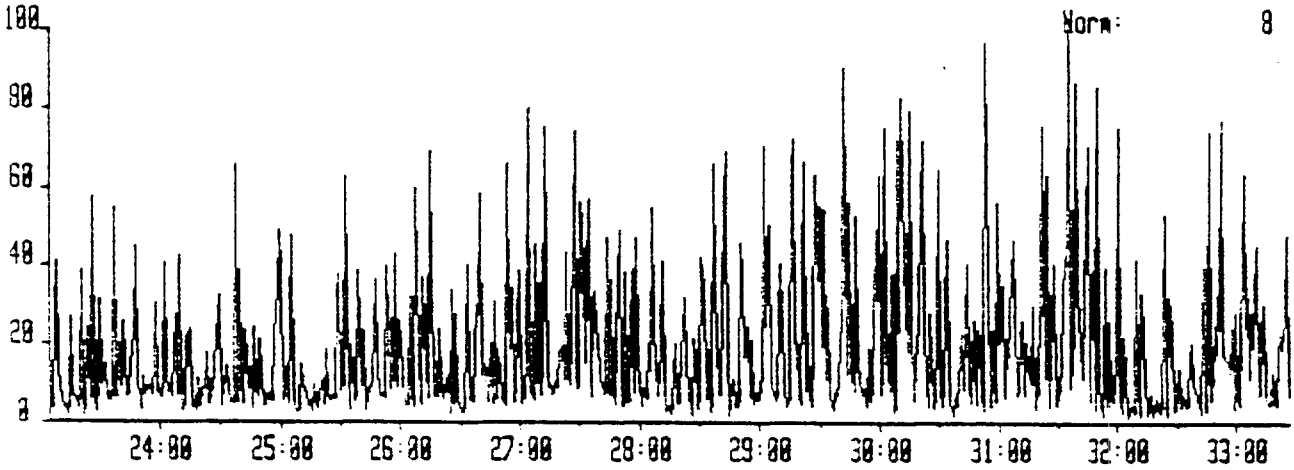
M872027 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text:1-2 (AQ)



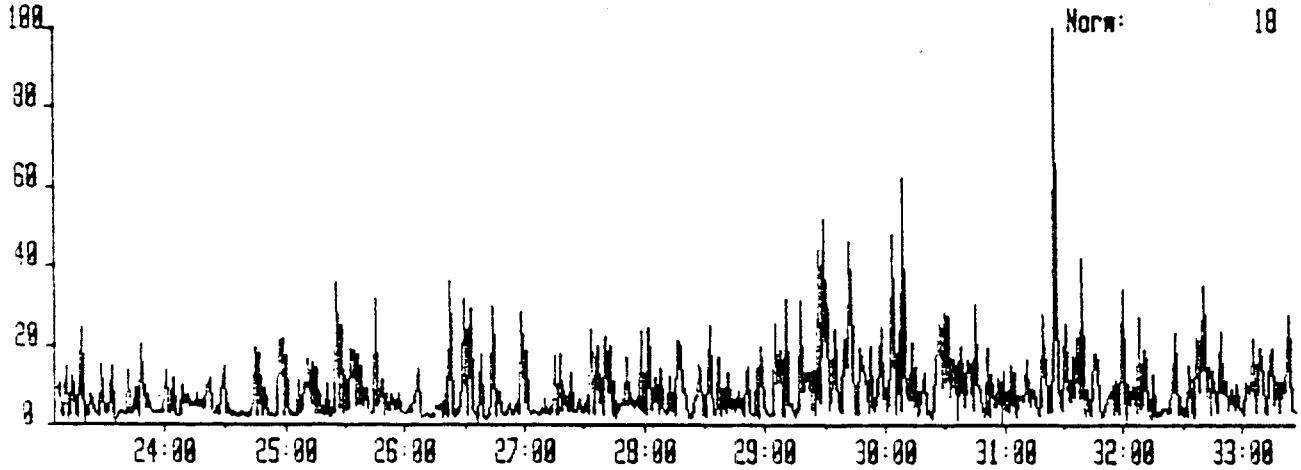
M872027 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 3 Mass 403.8529
Text:1-2 (AQ)



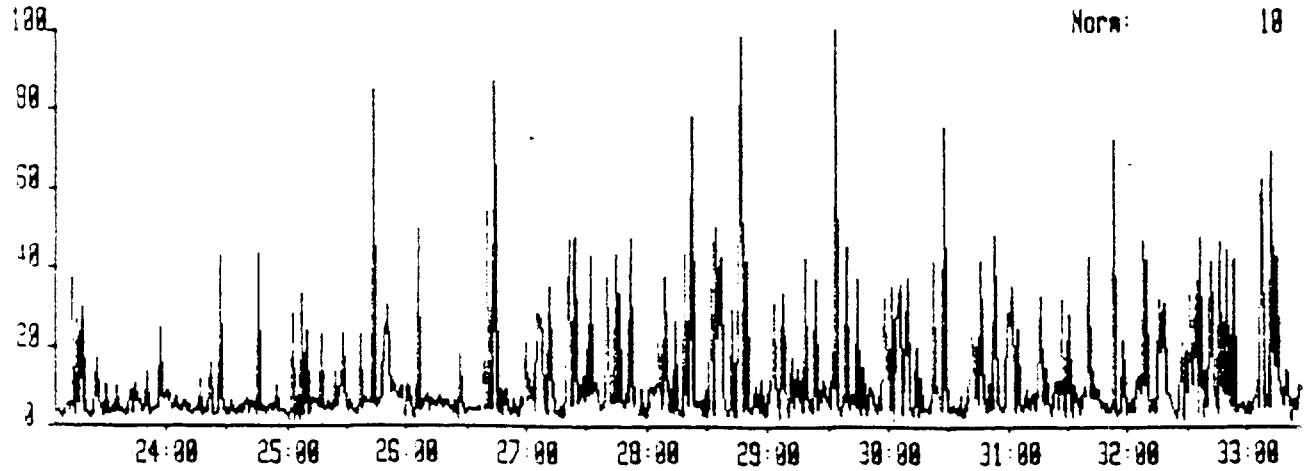
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:1-2 (AQ)



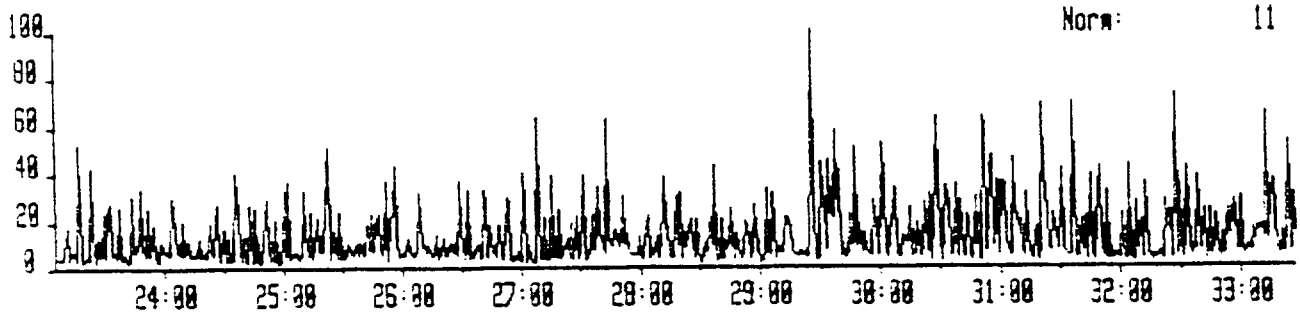
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:1-2 (AQ)



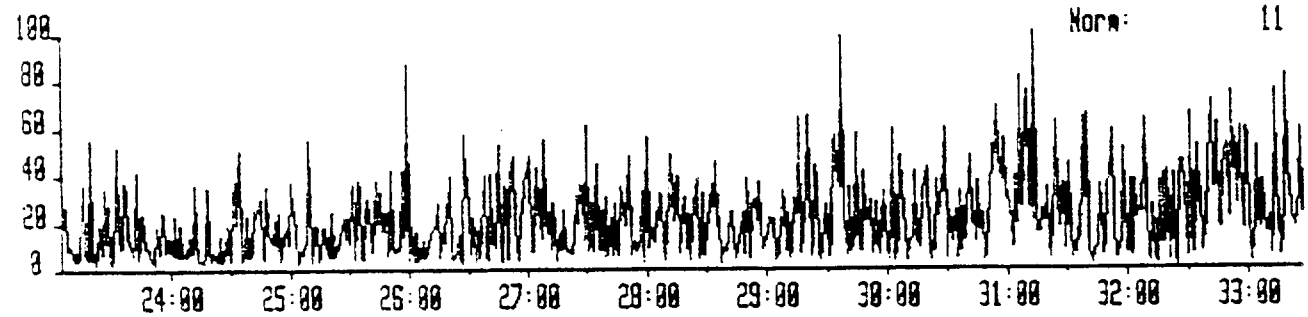
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 487.8883
Text:1-2 (AQ)



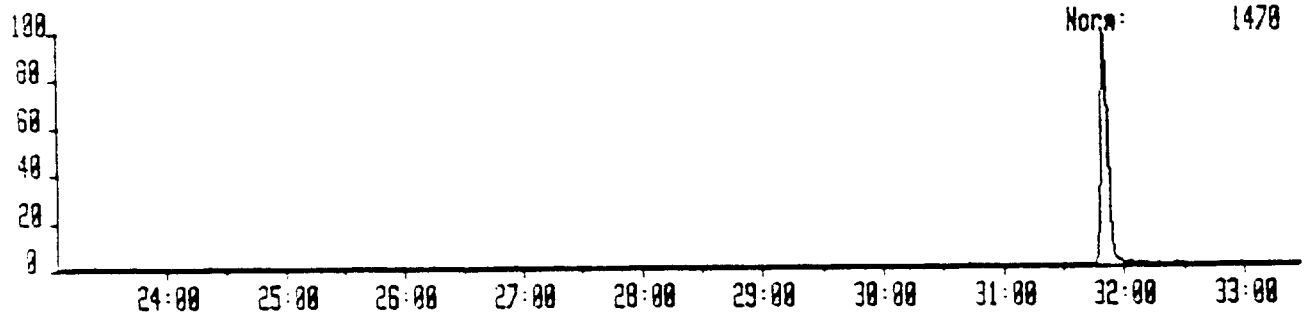
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:1-2 (AQ)



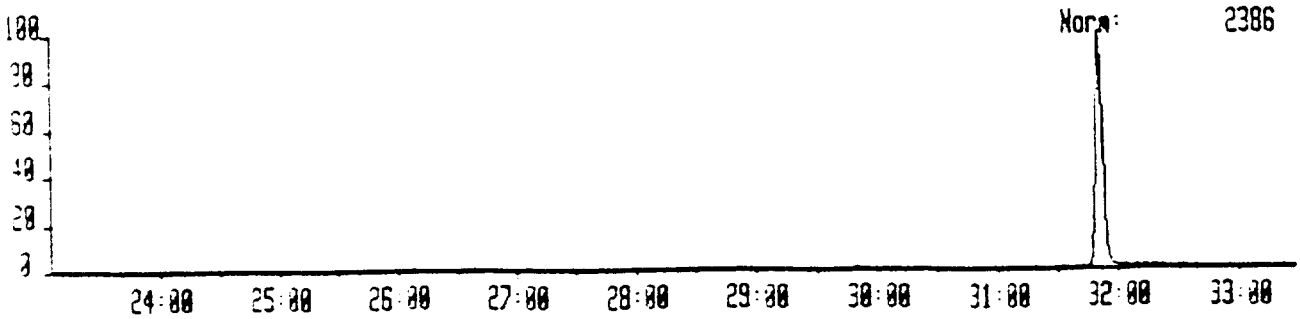
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 355.8546
Text:1-2 (AQ)



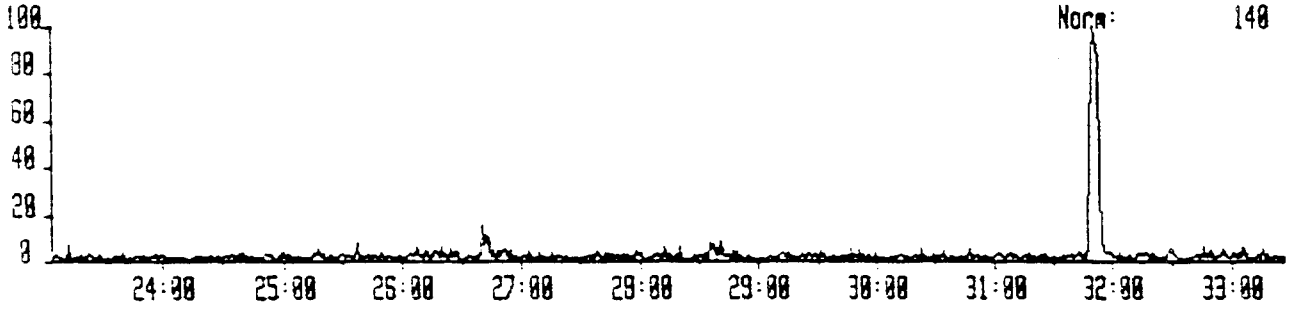
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 365.8977
Text:1-2 (AQ)



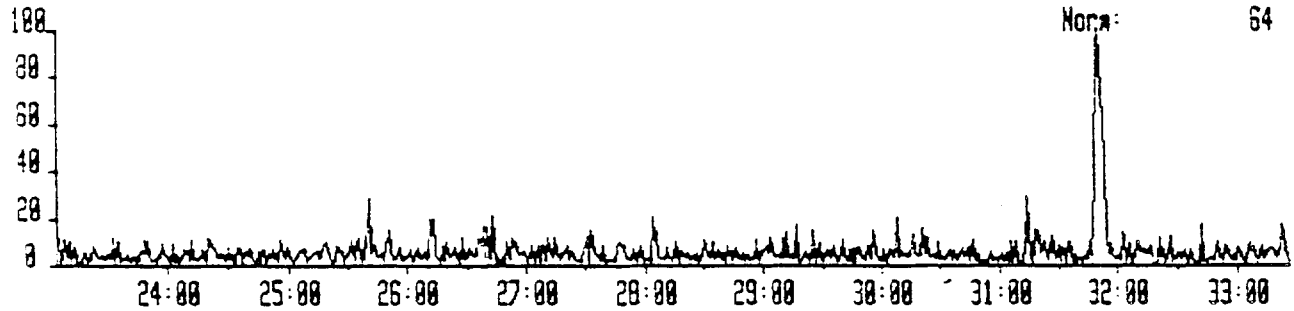
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 367.8948
Text:1-2 (AQ)



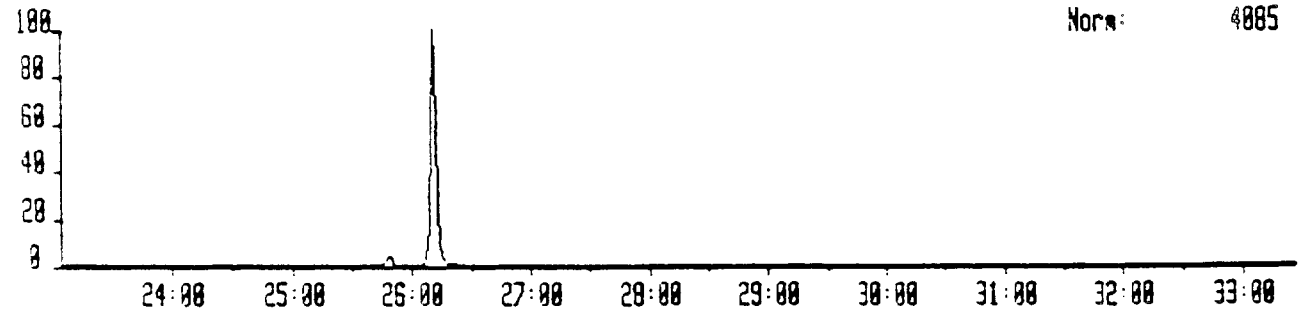
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 303.9816
Text:1-2 (AQ)



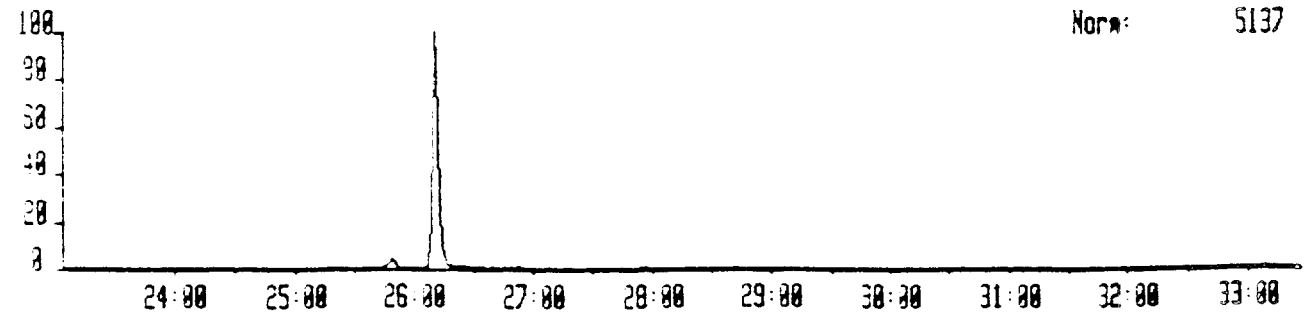
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 305.8987
Text:1-2 (AQ)



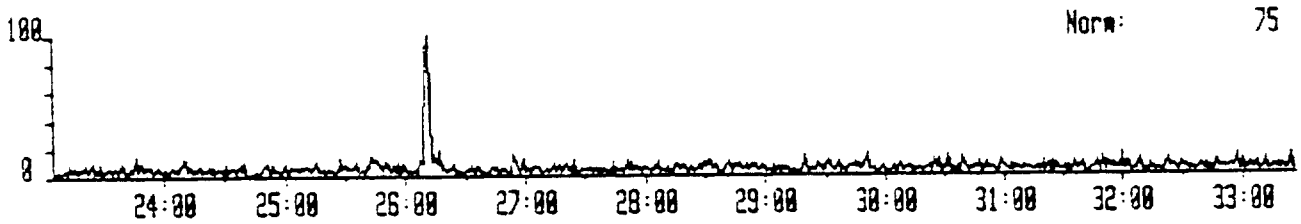
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 315.9419
Text:1-2 (AQ)



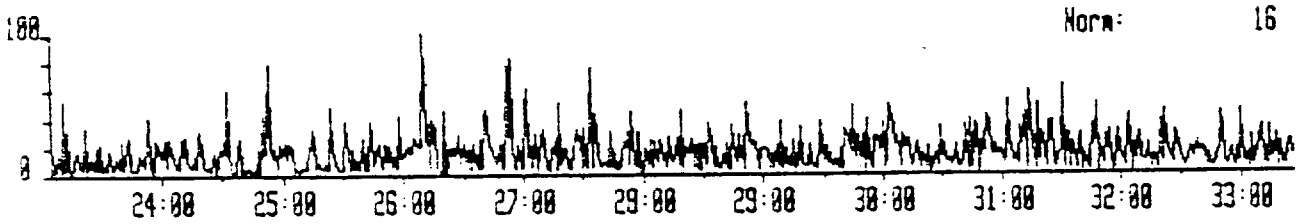
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:DBSATST
Sample 1 Injection 1 Group 2 Mass 317.9389
Text:1-2 (AQ)



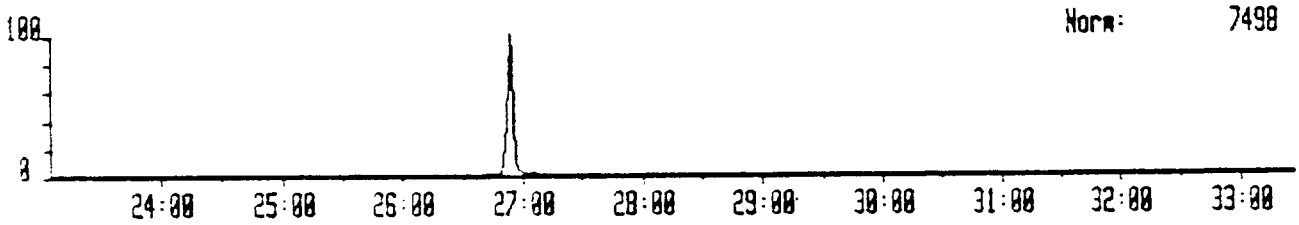
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:1-2 (AQ)



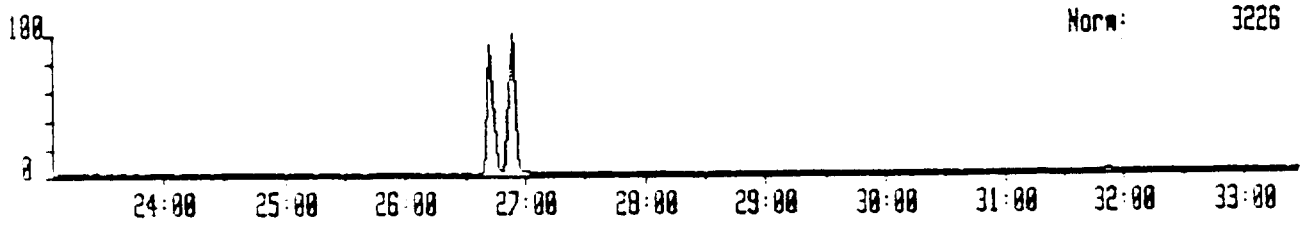
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:1-2 (AQ)



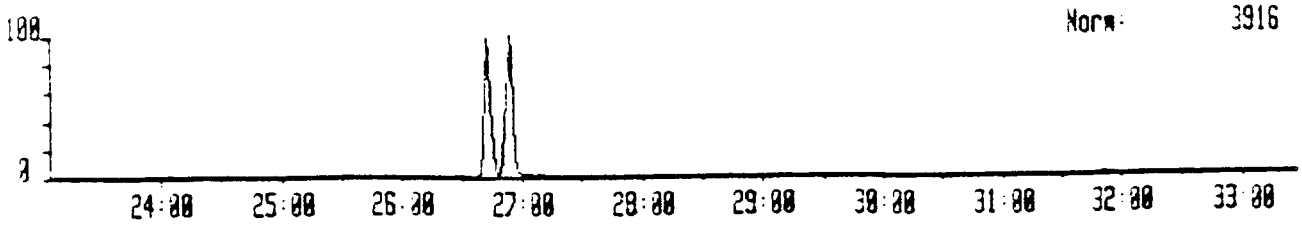
M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:1-2 (AQ)



M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 331.9368
Text:1-2 (AQ)



M872827 24-JUL-87 Sir:Voltage 70E Acnt:8701481 System:085ATST
Sample 1 Injection 1 Group 2 Mass 333.9338
Text:1-2 (AQ)



	AREA	RETENTION TIME
1	1.165795E+03	0:11:23
2	6.197480E+02	0:12:00
3	7.350662E+02	0:12:14
4	9.135612E+02	0:12:23
5	5.154315E+02	0:12:45
6	1.476872E+02	0:12:59
7	4.203862E+02	0:13:14
8	2.121407E+03	0:13:25
9	1.670054E+02	0:14:18
10	1.909143E+02	0:14:29
11	2.034080E+02	0:14:38

M872126

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 327.88

	AREA	RETENTION TIME
1	5.790440E+03	0:13:14

M872126

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 331.94

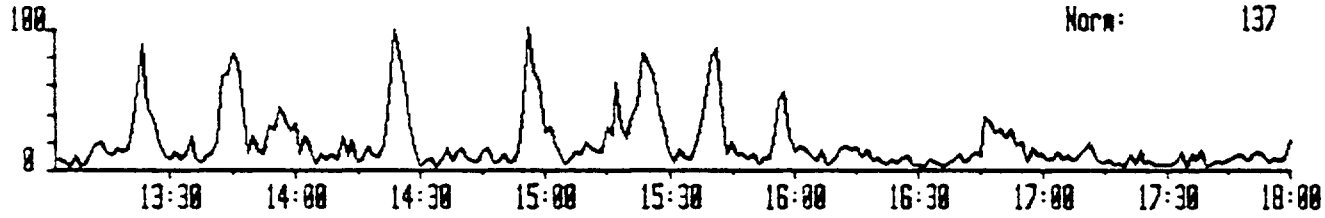
	AREA	RETENTION TIME
1	1.183289E+04	0:13:13
2	1.071860E+04	0:13:24

M872126

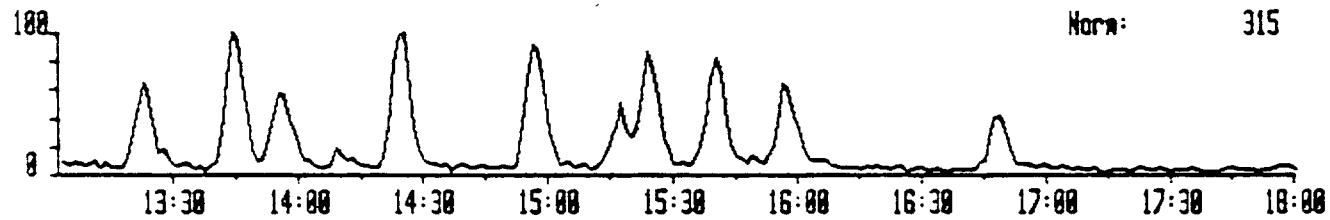
SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 333.93

	AREA	RETENTION TIME
1	1.528970E+04	0:13:13
2	1.271136E+04	0:13:24

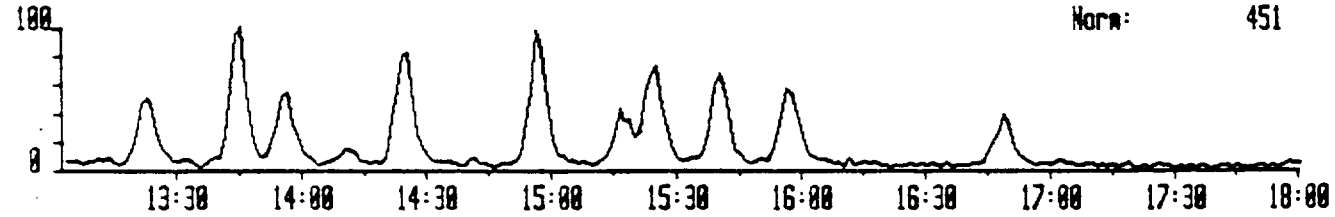
M872126 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 240.9379
Text:ENTROPY 1-2 CONFIRM



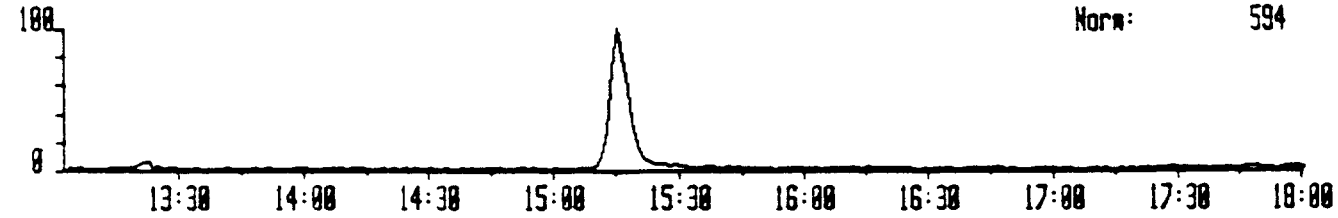
M872126 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 303.9816
Text:ENTROPY 1-2 CONFIRM



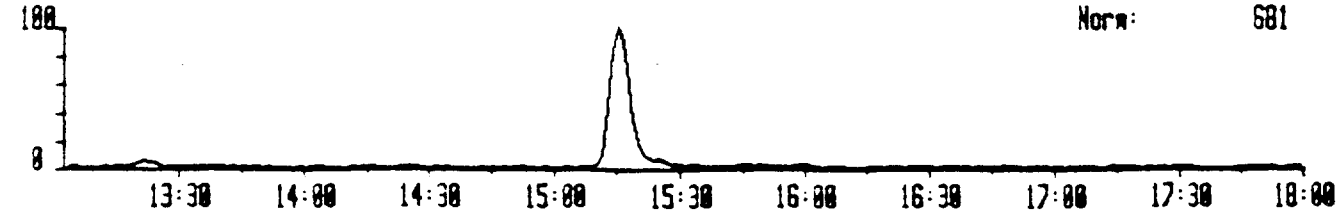
M872126 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 305.8987
Text:ENTROPY 1-2 CONFIRM



M872126 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 315.9419
Text:ENTROPY 1-2 CONFIRM

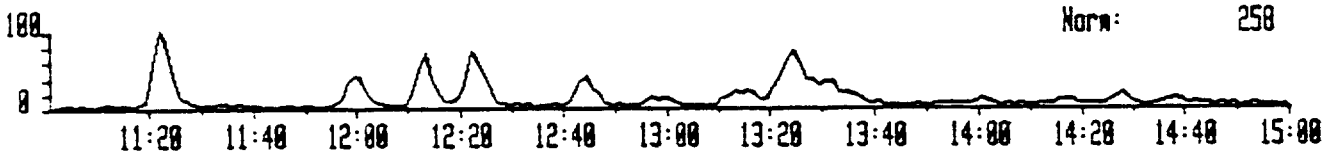


M872126 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 317.9389
Text:ENTROPY 1-2 CONFIRM



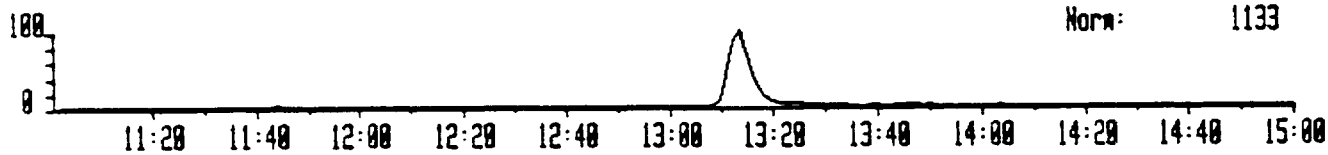
M872126 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 256.9328
Text:ENTROPY 1-2 CONFIRM

M872126 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 319.8965
Text:ENTROPY 1-2 CONFIRM

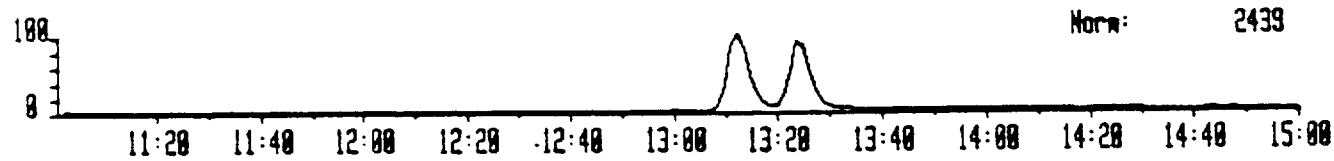


M872126 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 321.8936
Text:ENTROPY 1-2 CONFIRM

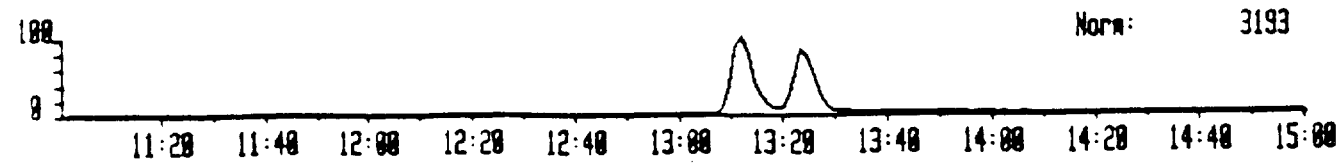
M872126 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 327.8847
Text:ENTROPY 1-2 CONFIRM



M872126 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 331.9368
Text:ENTROPY 1-2 CONFIRM



M872126 30-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 333.9338
Text:ENTROPY 1-2 CONFIRM



5	1.777088E+02	0:12:44
7	1.481247E+02	0:13:14
8	7.707635E+02	0:13:23

M872127

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 321.89

	AREA	RETENTION TIME
1	2.421624E+02	0:10:48
2	5.757004E+02	0:11:22
3	3.294291E+02	0:11:59
4	3.857980E+02	0:12:12
5	4.474862E+02	0:12:22
6	2.459504E+02	0:12:44
7	1.897164E+02	0:13:14
8	1.044031E+03	0:13:23
9	1.018858E+02	0:14:17
10	8.200239E+01	0:14:28

M872127

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 327.88

	AREA	RETENTION TIME
1	4.505381E+03	0:13:13
2	1.037233E+02	0:15:30

M872127

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 331.94

	AREA	RETENTION TIME
1	9.373270E+03	0:13:12
2	8.607033E+03	0:13:23

M872127

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 333.93

6	1.777088E+02	0:12:44
7	1.481247E+02	0:13:14
8	7.707635E+02	0:13:23

M872127

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 321.89

	AREA	RETENTION TIME
1	2.421624E+02	0:10:48
2	5.757004E+02	0:11:22
3	3.294291E+02	0:11:59
4	3.857980E+02	0:12:12
5	4.474862E+02	0:12:22
6	2.459504E+02	0:12:44
7	1.897164E+02	0:13:14
8	1.044031E+03	0:13:23
9	1.018858E+02	0:14:17
10	8.200239E+01	0:14:28

M872127

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 327.88

	AREA	RETENTION TIME
1	4.505381E+03	0:13:13
2	1.037233E+02	0:15:30

M872127

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 331.94

	AREA	RETENTION TIME
1	9.373270E+03	0:13:12
2	8.607033E+03	0:13:23

M872127

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 333.93

12	4.940153E+02	0:16:49
13	5.168256E+02	0:18:14

M872127

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 315.94

	AREA	RETENTION TIME
1	1.976051E+02	0:13:20
2	2.575033E+03	0:15:15

M872127

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 317.94

	AREA	RETENTION TIME
1	1.702577E+02	0:13:21
2	5.548238E+02	0:13:30
3	3.398856E+03	0:15:15
4	4.245894E+02	0:17:08

M872127

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 319.90

	AREA	RETENTION TIME
1	4.930736E+02	0:10:48
2	5.647876E+02	0:11:22
3	2.194174E+02	0:11:58
4	2.847805E+02	0:12:13
5	3.396340E+02	0:12:23

M872127

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 303.90

	AREA	RETENTION TIME
1	5.918636E+02	0:12:15
2	2.568300E+02	0:12:29
3	1.255202E+03	0:12:52
4	5.151222E+02	0:13:22
5	6.201571E+02	0:13:44
6	4.000981E+02	0:13:55
7	7.293690E+02	0:14:24
8	5.602640E+02	0:14:56
9	8.056377E+02	0:15:24
10	4.892345E+02	0:15:40
11	4.452061E+02	0:15:56
12	3.039356E+02	0:16:47
13	9.405481E+02	0:18:12

M872127

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 305.90

	AREA	RETENTION TIME
1	1.663763E+02	0:12:09
2	9.584138E+02	0:12:15
3	1.663112E+03	0:12:53
4	6.948326E+02	0:13:23
5	8.252520E+02	0:13:44
6	5.989027E+02	0:13:55
7	8.996701E+02	0:14:22
8	8.500375E+02	0:14:55
9	1.167090E+03	0:15:24
10	7.581894E+02	0:15:40
11	6.233646E+02	0:15:57

M872127

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 303.90

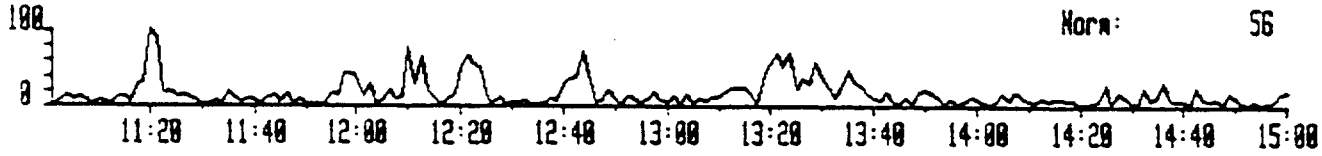
	AREA	RETENTION TIME
1	5.918636E+02	0:12:15
2	2.568300E+02	0:12:29
3	1.255202E+03	0:12:52
4	5.151222E+02	0:13:22
5	6.201571E+02	0:13:44
6	4.000981E+02	0:13:55
7	7.293690E+02	0:14:24
8	5.602640E+02	0:14:56
9	8.056377E+02	0:15:24
10	4.892345E+02	0:15:40
11	4.452061E+02	0:15:56
12	3.039356E+02	0:16:47
13	9.405481E+02	0:18:12

M872127

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 305.90

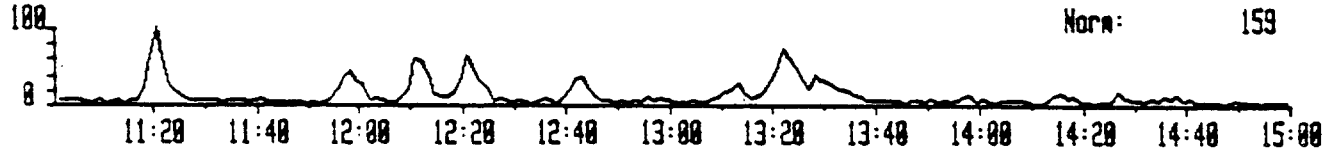
	AREA	RETENTION TIME
1	1.663763E+02	0:12:09
2	9.584138E+02	0:12:15
3	1.663112E+03	0:12:53
4	6.948326E+02	0:13:23
5	8.252320E+02	0:13:44
6	5.989027E+02	0:13:55
7	8.996701E+02	0:14:22
8	8.500375E+02	0:14:55
9	1.167090E+03	0:15:24
10	7.581894E+02	0:15:40
11	6.233646E+02	0:15:57

M872127 31-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 256.9328
Text:ENTROPY 1-3 CONFIRM

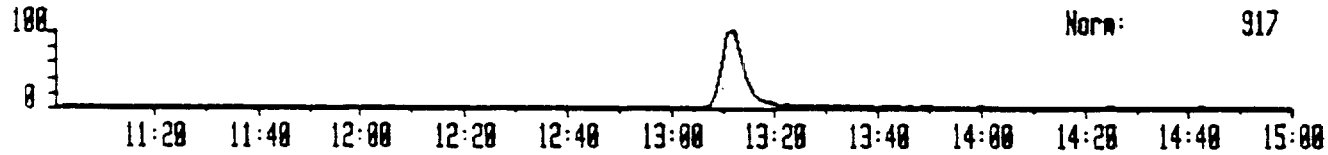


M872127 31-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 319.8965
Text:ENTROPY 1-3 CONFIRM

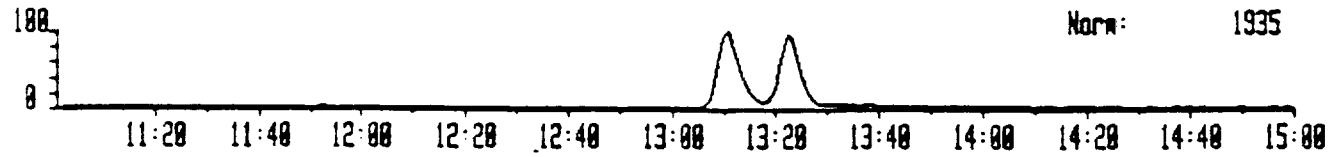
M872127 31-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 321.8936
Text:ENTROPY 1-3 CONFIRM



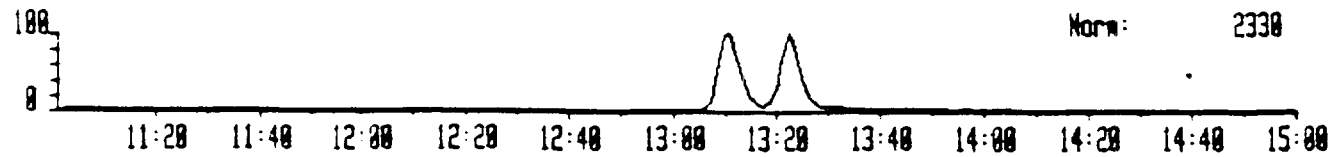
M872127 31-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 327.8847
Text:ENTROPY 1-3 CONFIRM



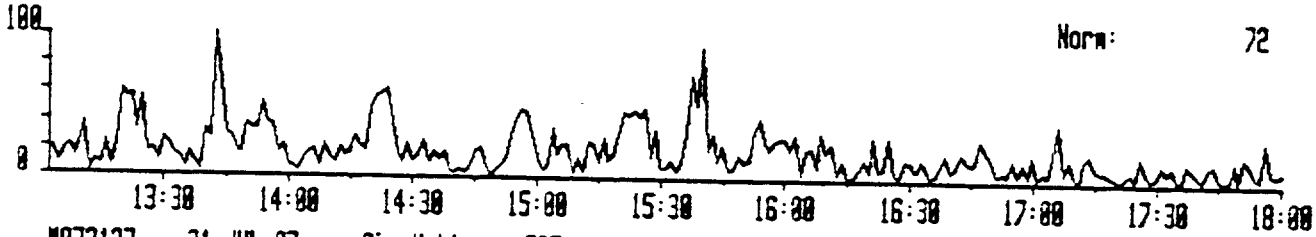
M872127 31-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 331.9368
Text:ENTROPY 1-3 CONFIRM



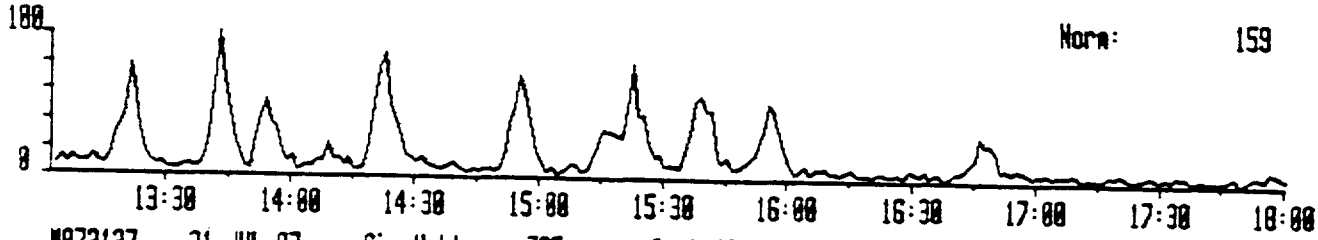
M872127 31-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 333.9338
Text:ENTROPY 1-3 CONFIRM



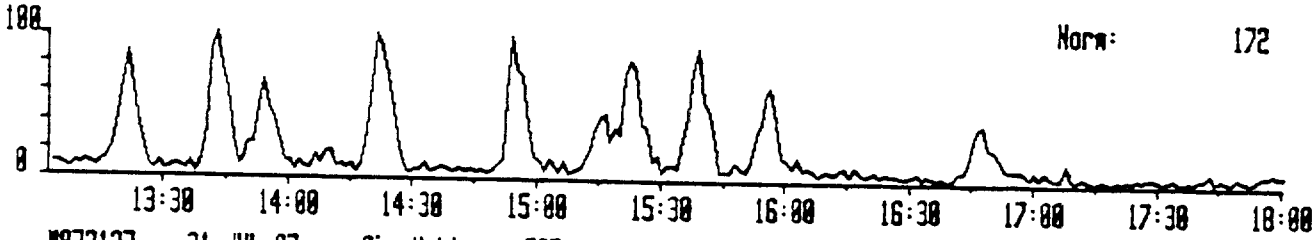
M872127 31-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 240.9379
Text:ENTROPY 1-3 CONFIRM



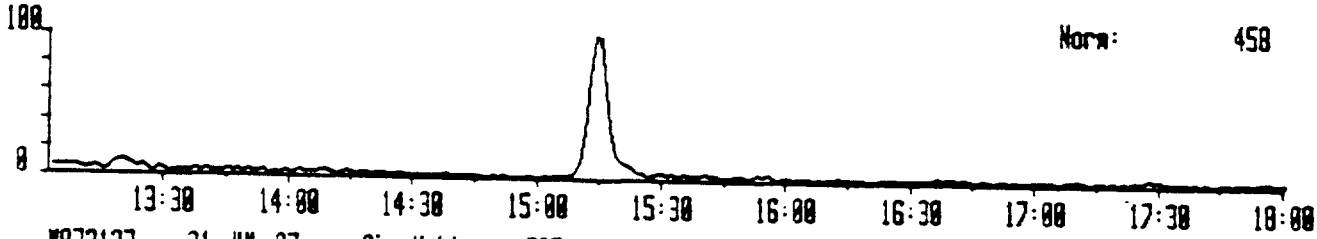
M872127 31-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 303.9816
Text:ENTROPY 1-3 CONFIRM



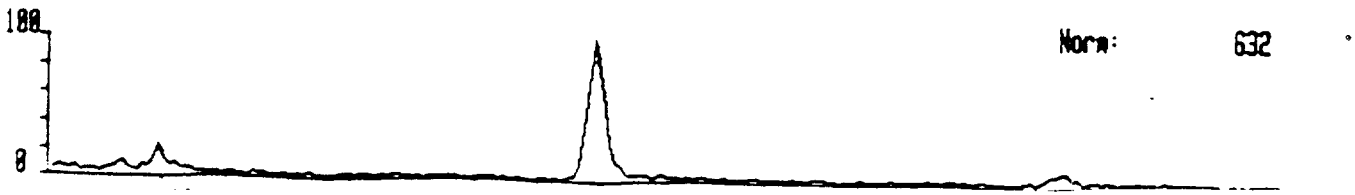
M872127 31-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 305.8987
Text:ENTROPY 1-3 CONFIRM



M872127 31-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 315.9419
Text:ENTROPY 1-3 CONFIRM



M872127 31-JUL-87 Sir:Voltage 70E Acnt:8701481 System:SP2331
Sample 1 Injection 1 Group 1 Mass 317.9389
Text:ENTROPY 1-3 CONFIRM



TRIANGLE LABORATORIES, INC
2,3,7,8-TCDD/TCDF ANALYSIS

ANALYST	MDC	FILE #	M872127
DATE	7-31-87	CONCAL #	M872105
		TLI #	8701481

SAMPLE ID ENTROPY 1-3

NAME	AMT (ng)	DL	EMPC	RATIO	RT
2378-TCDF	0.23			0.761	15.15
2378-TCDD	0.14			0.779	13.14

SURROGATE RESULTS SUMMARY

NAME	AMT (ng)	% RECOVERY	RATIO	RT
13C12-TCDF	2.04	102.19	0.758	15.15
37Cl-TCDD	1.95	97.33		13.13

INTERNAL STANDARDS RECOVERY RESULTS

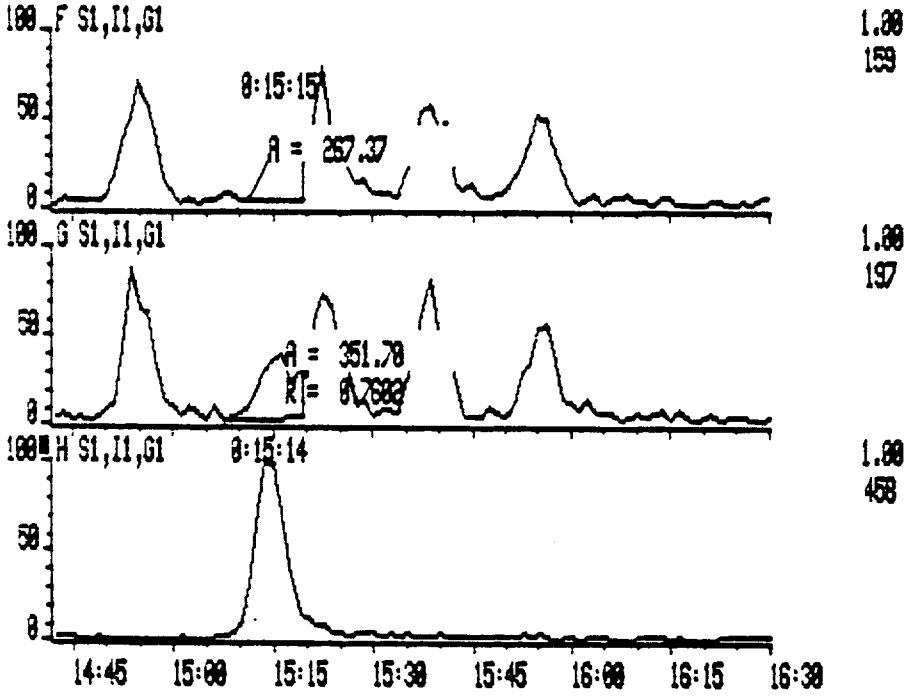
NAME	AMT (ng)	% RECOVERY	RATIO	RT
2378-13C12-TCDD	9.62	96.20	0.819	13.13

TRIANGLE LABORATORIES, INC.
DIOXIN/FURAN DATA SHEET

FILE NAME : M87127 TLI PROJECT # : 3701481
CHEMIST : MC DATE : 7-30-87
SAMPLE ID : 1-3 CONCAL:

COMPOUND	M/Z	AREA	RETENTION TIME
2,3,7,8-TCDF	304	267	15-15
	306	351	
13C12-TCDF	316	2575	15-15
	318	3399	
2,3,7,8-TCDD	320	148	13-14
	322	180	
2,3,7,8-37Cl-TCDD	328	4505	13-13
2,3,7,8-13C12-TCDD	332	9313	13-12
	334	11442	
1,2,3,4-13C12-TCDD	332	~~3607~~	13-23
	334	~~10512~~	

A872127 31-JUL-87 00:24 78E (EI+) Sys:SP2331
GR 1 E: 292.3825 F: 303.3816 G: 305.3987 H: 315.3419 I: 317.3389
Text:ENTROPY 1-3 CONFIRM



TRIANGLE LABORATORIES, INC.
4915F PROSPECTUS DRIVE
RESEARCH TRIANGLE PARK, NC 27713
919 544-5729

CASE NARRATIVE

DATE: 25 Aug 1987
CLIENT ID: Entropy Environmentalists, Inc.
TLI NO.: 8701511
OBJECTIVE: ANALYSIS OF SIXTEEN MM5 SAMPLES FOR THE PRESENCE OF TRI- THROUGH OCTACHLORODIBENZODIOXINS AND DIBENZOFURANS

Sample Preparation

The samples were prepared by using the methods described in the ASME analytical protocol. The carbon column used in the final cleanup step was prepared by mixing Celite 545 and AX-21 carbon. All the samples (including the quality control method blank samples) were fortified with 10 ng of the tetra- through heptachlorinated internal standards and 20 ng of the octachlorinated dibenzodioxin internal standard. This was accomplished by using the sample fortification solution described in Table 1. Note that the surrogate standards (5 ng of each) were added to the XAD traps before the sampling session.

The solution contains eight carbon-labeled PCDD/PCDF standards. The $^{13}C_{12}$-2,3,7,8-TCDD internal standard is used to quantitate TCDDs and TCDFs, $^{13}C_{12}$-1,2,3,7,8-PeCDD is used to quantitate PeCDDs and PeCDFs, $^{13}C_{12}$-1,2,3,6,7,8-HxCDD is used to quantitate HxCDDs and HxCDFs, $^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD is used to quantitate HpCDDs and HpCDFs, and $^{13}C_{12}$-OCDD is used to quantitate OCDD and OCDF.

Document Control

The Document Control package contains all laboratory records received or generated during the sample handling by Triangle Laboratories. In addition, representative quality control (QC) charts are provided in the Document Control section. Two types of QC charts are included; the first one consists in plotting the percent recoveries of all labeled internal and surrogate standards used during the sample preparation while the second set of QC charts represents the variation of the continuing calibration response factors for the fifteen 2,3,7,8-substituted PCDD/PCDFs, OCDF and OCDD. Both types of QC charts were obtained from recent analyses of large batches (>20 samples) of soil samples by using similar extraction-cleanup and HRGC/HRMS analysis procedures as the samples reported herein. These charts

will be updated regularly for large batches of soil samples in order to demonstrate the statistical control of the measurement system. [UWL/LWL = Upper/Lower Warning Limits (2 standard deviations; UQCL/LQCL = Upper/Lower Control Limits (3 standard deviations).]

Data Package

A separate sample data package is provided for the full-screen and confirmation analyses. On the enclosed sample data sheets, the concentrations are given in ng per sample. "RT" is the gas chromatographic retention time in minutes and seconds, "number" is the number of GC peaks identified as PCDD/PCDF isomers in the totals reported for each homologous series, and "ratio" is the integrated ion abundance ratio observed for the M to M+2 ions of the tetra- through pentachlorinated isomers and M+2 to M+4 for the hexa- through octachlorinated isomers. "DL" is the detection limit for samples presenting an analyte response that is less than 2.5 times the background level. "EMPC", representing the estimated maximum possible concentration, is reported for GC/MS signals eluting within the PCDD/PCDF retention time windows established with the daily GC performance analysis, and which are characterized by a signal-to-noise ratio in excess of 2.5:1 but do not meet all of the qualitative identification criteria listed below. The "EMPC" is calculated by using the same expression used for reporting the identified analyte concentrations. The "DL" and "EMPC" are both reported in ng per sample.

For quantifications, the sum of the peak areas for the two ions monitored is used. When no peak is detected, an area of 10 counts for each ion (total 20 counts) is used to calculate the detection limit. The results of the samples are given on a wet weight basis.

High-Resolution Gas Chromatography / High-Resolution Mass Spectrometry

For GC/MS analysis, the final residue was dissolved in 20 uL of a toluene solution containing the recovery standards shown in Table 1. The recoveries of the carbon-labeled tetra- and penta-chlorinated dibenzodioxins internal standards were calculated by using $^{13}C_{12}$-1,2,3,4-TCDD as the recovery standard. The recoveries of higher homologues (hexa- through octachlorinated congeners) were determined relative to $^{13}C_{12}$-1,2,3,7,8,9-HxCDD. The concentrations of $^{37}Cl_4$-2,3,7,8-TCDD and $^{13}C_{12}$-2,3,7,8-TCDF in the final extract are calculated relative to $^{13}C_{12}$-2,3,7,8-TCDD. The concentration of the third surrogate standard (i.e., $^{13}C_{12}$-1,2,3,4,7,8-HxCDF) is measured against $^{13}C_{12}$-1,2,3,6,7,8-HxCDD.

The samples were analyzed by using a VG 7070H mass spectrometer operated in the selected ion recording mode, at a resolving power

of 8,000. A VG 11/250 data system was used to acquire the data. A Varian 3700 GC , equipped with a fused-silica capillary column, was employed. One uL of the 20-uL final sample volume was analyzed by using the GC conditions summarized in Table 3.

Initial Calibration

The mass spectrometer response was calibrated with the help of the set of six initial calibration solutions shown in Table 2.

An acceptable calibration must meet the following criteria:

1) The percent relative standard deviations for the mean response factors from each of the unlabeled analytes (Table 2) and of the internal standards (Table 2) must be less than 20 percent.

2) The signal-to-noise ratio (S/N) for the GC signals present in every selected ion current profile must be $\geq$ 2.5.

3) The ion abundance ratios must be within the specified control limits (see identification criteria).

Continuing Calibration

A continuing calibration was demonstrated every 12 hours by injecting one uL of solution number 4 from Table 2. The response factors (RFs) used for the calculation of the analyte concentrations were obtained from the daily continuing calibration check (*vide infra*). For the total homologous PCDD/PCDF concentrations (e.g., total HxCDDs), the RFs were taken, when applicable, as the average of the RFs for the individual congeners listed in the continuing calibration reporting form. Note that when only one isomer is present, a discrepancy may appear between the reported concentration for the individual isomer and the total, as a result of using a different RF.

The continuing calibration delta RF (on the data sheets) corresponds to the relative percent difference between the daily RF and the initial calibration RF.

An acceptable continuing calibration run must meet the following criteria:

1) The measured RFs (for the unlabeled as well as labeled compounds) obtained during the continuing calibration run must be within 20 percent for tetra- through heptachlorinated compounds and 25 percent for octachlorinated compounds of the mean values established during the initial calibration.

2) The ion-abundance ratios must be within the allowed control limits listed below.

Confirmation Analyses

For confirmation of 2,3,7,8-TCDD and 2,3,7,8-TCDF, the samples were analyzed on a second high-resolution GC column (SP-2331/DB-17) while monitoring (in addition to the molecular ions) the COCl fragment ions also under high-resolution mass spectrometric conditions.

Identification Criteria

The positive identification criteria used for the characterization of polychlorinated dibenzodioxins and dibenzofurans are as follows:

1) The integrated ion abundance ratio (M+/M+2 or M+2/M+4) must be within 15 percent of the theoretical value. The acceptable ion abundance ratio ranges for the identification of chlorine-containing compounds are:

M/M+2
- tetra 0.65-0.89
- penta 0.52-0.70

M+2/M+4
- hexa 1.05-1.41
- hepta 0.87-1.17
- octa 0.75-1.01

2) The retention time for the analytes must be within 3 s of the corresponding ^{13}C-labeled internal standard or surrogate standard.

3) The monitored ions for an analyte must maximize within 3 s.

4) The identification of specific isomers that do not have a corresponding ^{13}C-labeled standards is done by comparison of the relative retention time (RRT) of the analyte to the nearest internal standard retention time with reference (i.e., within 0.005 RRT units) to the comparable RRTs found in the continuing calibration.

5) The (S/N) for all monitored ions must be greater than 2.5.

6) The confirmation of 2,3,7,8-TCDD, 2,3,7,8-TCDF and other 2,3,7,8-substituted PCDD/PCDFs must satisfy all of the above identification criteria.

For Triangle Laboratories,

Analyst	QA Project Officer	Program Manager
Michael D. Chu	Hani S. Karam	Yves Tondeur

TABLE 1: COMPOSITION OF THE SAMPLE FORTIFICATION AND RECOVERY STANDARDS SOLUTIONS
(concentrations in pg/uL)

Analyte	Sample Fortification Solution	Recovery Standards Solution
$^{13}C_{12}$-2,3,7,8-TCDD (IS)	100	-
$^{13}C_{12}$-1,2,3,4-TCDD (RS)	-	500
$^{37}Cl_4$-2,3,7,8-TCDD (SS)	100	-
$^{13}C_{12}$-2,3,7,8-TCDF (SS)	100	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD (IS)	100	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD (IS)	100	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD (RS)	-	500
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF (SS)	100	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD (IS)	100	-
$^{13}C_{12}$-OCDD (IS)	200	-

IS = Internal Standard; SS = Surrogate Standard; RS = Recovery Standard

Note: The volume of the recovery standards solution added to the final extract before GC/MS analysis is 20 uL.

TABLE 2: COMPOSITION OF THE INITIAL CALIBRATION SOLUTIONS

Compound / Sol. Number	Concentrations (pg/uL) 1	2	3	4	5	6
Unlabeled Analytes						
2,3,7,8-TCDD	5	10	50	100	500	1000
2,3,7,8-TCDF	5	10	50	100	500	1000
1,2,3,7,8-PeCDD	25	50	250	500	2500	5000
1,2,3,7,8-PeCDF	25	50	250	500	2500	5000
2,3,4,7,8-PeCDF	25	50	250	500	2500	5000
1,2,3,4,7,8-HxCDD	25	50	250	500	2500	5000
1,2,3,6,7,8-HxCDD	25	50	250	500	2500	5000
1,2,3,7,8,9-HxCDD	25	50	250	500	2500	5000
1,2,3,4,7,8-HxCDF	25	50	250	500	2500	5000
1,2,3,6,7,8-HxCDF	25	50	250	500	2500	5000
1,2,3,7,8,9-HxCDF	25	50	250	500	2500	5000
2,3,4,6,7,8-HxCDF	25	50	250	500	2500	5000
1,2,3,4,6,7,8-HpCDD	25	50	250	500	2500	5000
1,2,3,4,6,7,8-HpCDF	25	50	250	500	2500	5000
1,2,3,4,7,8,9-HpCDF	25	50	250	500	2500	5000
OCDD	50	100	500	1000	5000	10000
OCDF	50	100	500	1000	5000	10000
Internal Standards						
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200
Surrogate Standards						
$^{37}Cl_4$-2,3,7,8-TCDD	5	10	50	100	500	1000
$^{13}C_{12}$-2,3,7,8-TCDF	5	10	50	100	500	1000
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	5	10	50	100	500	1000
Recovery Standard						
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100

TABLE 3: GAS CHROMATOGRAPHY CONDITIONS

Column type	DB-5
Length (m)	60
i.d. (mm)	0.25
Film Thickness (um)	0.25
Carrier Gas	Helium
Carrier Gas Flow (mL/min)	1-2
Injection Mode	splitless
Valve Time (s)	30
Initial Temperature (° C)	150
Program Temperature	150° C to 190° C ballistically then 3° C/min up to 300° C.

TRIANGLE LABORATORIES, INC

DOCUMENT CONTROL

94

7-22-87 TLI # 8701511 Entropy 7-22

16 MM5 samples for dioxin samples.
Sample labels were not clear.
On COC sample labelled I-1-MM5-BLK;
samples containers read I1-MM5-BLK2.

TLI #	Client ID
2-94-1	I1-MM5-4
2-94-2	
2-94-3	
2-94-4	
2-94-5	
2-94-6	
2-94-7	I1-MM5-5
2-94-8	
2-94-9	
2-94-10	
2-94-11	
2-94-12	
2-94-13	I1-MM5-6
2-94-14	
2-94-15	
2-94-16	
2-94-17	
2-94-18	
2-94-19	I1-MM5-7
2-94-20	
2-94-21	

XAD (X)
Filter (F)
Reagent (R)
Impingis Rinse (IR) 2bts
Condensers Rinse (C)
Probe Rinse (P)

I1-MM5-5 - X
- F
- R
- IR
- C
- P

I1-MM5-6 - X
- F
- R
- IR
- C
- P

I1-MM5-7 - X
- F
- R

23.87

7-22-87 TU#8701511 Entropy cont'd.

TU#	Client ID
2-95-1	H1-MM5-7-C
2-95-2	" " " -P
2-95-3	H1-MM5-8-X
2-95-4	-F
2-95-5	-R
2-95-6	-IR
2-95-7	-C
2-95-8	-P
2-95-9	H1-MM5-BLK 2-X
2-95-10	-F
2-95-11	-R
2-95-12	-IR
2-95-13	-C
2-95-14	-P
2-95-15	H2-MM5-2-X
2-95-16	-F
2-95-17	-R
2-95-18	-IR
2-95-19	-C
2-95-20	-P
2-95-21	H2-MM5-3-X
2-95-22	-F
2-95-23	-R
2-95-24	-IR
2-95-25	-C

7-23-87

96
7-22-97 TL1#8701511 Entropy cont'd TU=

TL1#	Client ID
2-96-1	I2-MM5-4-X
2-96-2	-F
2-96-3	-R
2-96-4	-HR
2-96-5	-C
2-96-6	-P
2-96-7	I2-MM5-5-X
2-96-8	-F
2-96-9	-R
2-96-10	-HR
2-96-11	-C
2-96-12	-P
2-96-13	I2-MM5-6-X
2-96-14	-F
2-96-15	-R
2-96-16	-HR
2-96-17	-C
2-96-18	-P
2-96-19	I2-MM5-7-X
2-96-20	-F
2-96-21	-R
2-96-22	-HR
2-96-23	-C
2-96-24	-P
2-96-25	I2-MM5-8-X
2-96-26	-F

7-22-97

TU#8701511 Entropy

TU#	Client ID
2-97-1	I2-MM5-8-R
2-97-2	-IR
2-97-3	-C
2-97-4	-P
2-97-5	I2-MM5-9-X
2-97-6	-F
2-97-7	-R
2-97-8	-IR
2-97-9	-C
2-97-10	-P
2-97-11	I2-MM5-BLK1-X
2-97-12	-F
2-97-13	-R
2-97-14	-IR
2-97-15	-C
2-97-16	-P
2-97-17	I2-MM5-BLK2-X
2-97-18	-F
2-97-19	-R
2-97-20	-IR
2-97-21	-C
2-97-22	-P

Kathy Everette
7-23-87

TRIANGLE LABORATORIES, INC.

9/30/87

Analyst Worksheet

TLI Project No.: 8701511

Amount of 13C 1234-TCDD added _____ pg/uL in 20

Client: ENTROPY

Cartridges were pre soaked w 5 mg

LAB NO.	TLI SAMPLE NUMBER	CUSTOMER SAMPLE NUMBER	INTERNAL STANDARDS ADDED *	SURROGATES ADDED * (Dit) (7/10/87)	QUANTITY EXTRACTED		FILE #
1	2-94-1 thru 2-94-6	[illegible]	100 ul	—			
2	2-94-7 thru 2-94-12	[illegible]		—			M272283
3	2-94-13 thru 2-94-19	[illegible]		—			84
4	2-94-20 thru 2-95-2	[illegible]		—			85
5	2-95-3 thru 2-95-8	[illegible]		—			86
6	2-95-9 thru 2-95-14	[illegible]		—			87
7	2-95-15 thru 2-95-20	[illegible]		—			88
8	2-95-21 thru 2-95-26	[illegible]		—			89
9	2-96-1 thru 2-96-6	[illegible]		—			91
10	2-96-7 thru 2-96-12	[illegible]		—			92
11	2-96-13 thru 2-96-19	[illegible]		—			93
12	2-96-20 thru 2-97-24	[illegible]		—			98
13	2-96-25 thru 2-97-4	[illegible]		—			99
14	2-97-5 thru 2-97-10	[illegible]		—			00
15	2-97-11 thru 2-97-16	[illegible]	✓	—			01
							02

* 0.1ng/ul of internal standards and surrogates, except for 13C-OCDD which is 0.2ng/ul

TRIANGLE LABORATORIES, INC. Page 2 of 2

Analyst Worksheet

TLI Project No.: 8701511

Amount of 13C 1234-TCDD added _____ pg/uL in 20[illegible]

Client: ENTROPY

LAB NO.	TLI SAMPLE NUMBER	CUSTOMER SAMPLE NUMBER	INTERNAL STANDARDS ADDED *	SURROGATES ADDED*	QUANTITY EXTRACTED	FILE #
16	2-[illegible] 2-[illegible]-22	[illegible]	100 ul	—		03
17	TLI Blank	#1	↓	100 ul		M 272222
18	TLI Blank	#2	↓	100 ul		97

* 0.1ng/ul of internal standards and surragates, except for 13C-OCDD which is 0.2ng/ul

ENTROPY # 5553 A-4

ENVIRONMENTALISTS INC
POST OFFICE BOX 12291
RESEARCH TRIANGLE PARK
NORTH CAROLINA 27709-2291
919-781-3550

REQUEST FOR ANALYSIS

PURCHASE ORDER # 5553 A-4 JOB NAME: __

LABORATORY: TLI

DATE SAMPLES WERE TRANSMITTED: 7/22/87 EXPECTED DATE OF RESULTS: 8/19/87

SAMPLE MATRIX: FILTERS XAD TRAPS, IMPINGER REAGENT RINSES BLANKS

TYPE OF ANALYSIS REQUESTED: TRI-OCTA DIOXIN/FURAN SCREEN AND 2,3,7,8 TCDD/F CONFIRMS

	# OF SAMPLES	SAMPLE ID	FOR XAD, FILTERS, REAGENT, RINSES, BLANKS		
7/17	1	I-1 MM5-4			
7/17	2	I-1-MM5-5			
7/18	3	I-1-MM5-6			
7/18	4	I-1-MM5-7			
7/18	5	I-1-MM5-8			
7/17	6	I-1 MM5-BLK			
7/14	7	I2-MM5-2			
7/14	8	I2-MM5-3			
7/14	9	I2-MM5-4			
7/15	10	I2 MM5 5			
7/15	11	I-2 MM5-6			

SUBMITTED BY: [illegible]

REQUEST FOR ANALYSIS

PURCHASE ORDER # 5553A-4

#5553A-4

	# OF SAMPLES	SAMPLE ID FOR FILTERS, XAD, IMPINGER AND RINSES
7/16	12	I-2-MM5-7
7/16	13	I-2-MM5-8
7/16	14	I-2-MM5-9
7/14	15	I-2-MM5-BLK 1
7/16	16	I-2-MM5-BLK 2

No. of Billable Samples _____

Initials _____

TRIANGLE LABORATORIES, INC.

Laboratory Workorder Form

Project Number: 870511 DUE DATE: 8-19-87

Customer: Entropy

	ANALYTE	MATRIX	NO. SAMPLES	CHEMISTRY	ANALYSIS	REPORT	QC
1.		MMS	11e		TR. CDD/F		
2.							
3.							
4.							
5.							
6.							

NOTES:

RECORD of ANALYSIS:

SAMPLE CUSTODY:
RECEIVED BY: Kathy Durette DATE: 7-22-87
NOTES: In MS lab

CHEMISTRY: DUE DATE: _____
RESPONSIBLE CHEMIST: _____
DATE STARTED: _____ DATE COMPLETED: _____
NOTES:

MASS SPECTROMETRY (LOW OR HIGH) DUE DATE: _____
RESPONSIBLE SPECTROCOPIST: _____
DATE STARTED: _____ DATE COMPLETED: _____
NOTES:

DATA REVIEW: DUE DATE: _____
RESPONSIBLE CHEMIST: _____
DATE STARTED: _____ DATE COMPLETED: _____
NOTES:

QUALITY CONTROL: DUE DATE: _____
RESPONSIBLE CHEMIST: _____
DATE STARTED: _____ DATE COMPLETED: _____
NOTES:

SALES ORDER 10385

TRIANGLE LABORATORIES, INC.
4915 PROSPECTIVE DRIVE
RESEARCH TRIANGLE PARK, NC 27713
(919) 544-5720

CUSTOMER NO. EEI01

BILL TO:

ENTROPY ENVIRONMENTALISTS, INC.
P.O. BOX 12291
RES. TRI. PARK, NC 27709

SHIP TO:

ENTROPY ENVIRONMENTALISTS, INC.
P.O. BOX 12291
RES. TRI. PARK, NC 27709

DATE	SHIP VIA	F.O.B.	TERMS
[illegible]	UPS	Origin	Net 15 Days

PURCHASE ORDER NUMBER	ORDER DATE	SALESPERSON	OUR ORDER NUMBER
[illegible]	[illegible]	[illegible]	[illegible]

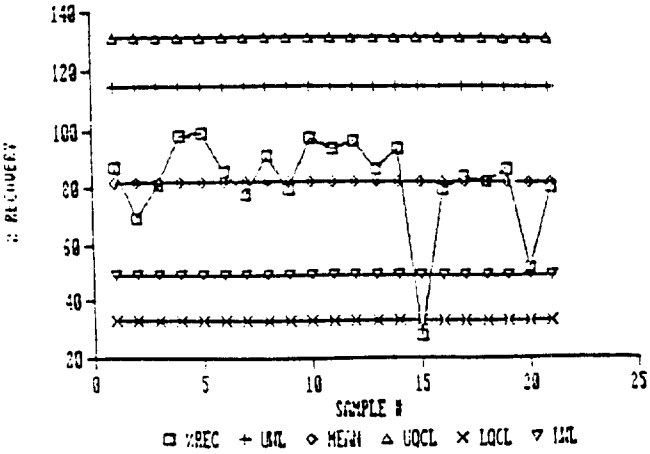
QUANTITY REQUIRED	QUANTITY SHIPPED	QUANTITY B.O.	ITEM NUMBER	DESCRIPTION
16			23061	TRIDOX,MMS COMP,DATA

Total
Total
Total

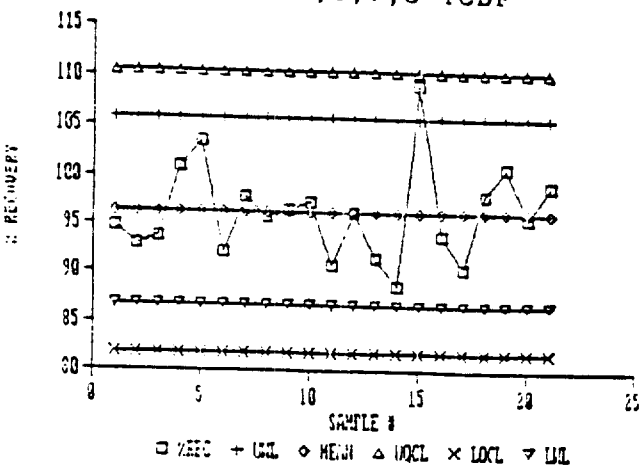
PACKING LIST

Thank You

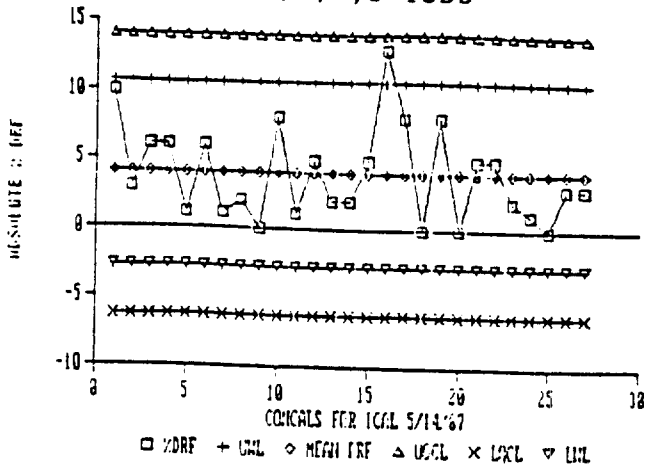
% RECOVERY 13C12-HXCDF SURROGATE
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF



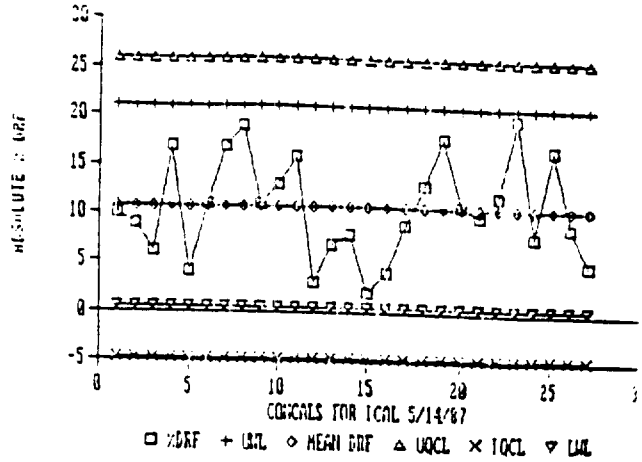
% RECOVERY 13C12-TCDF SURROGATE
$^{13}C_{12}$-2,3,7,8-TCDF



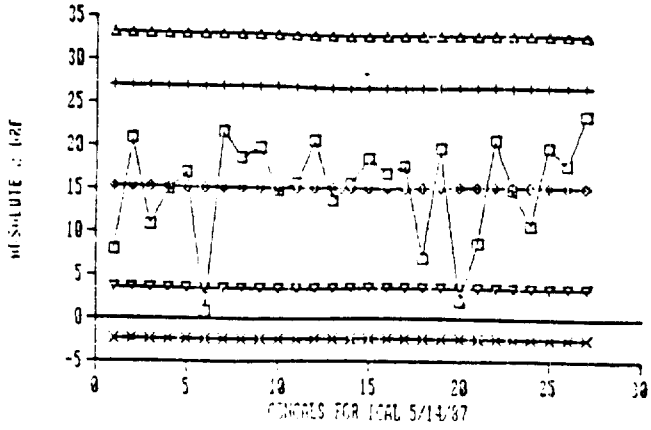
REL. DELTA RESPONSE FACTOR
2,3,7,8-TCDD



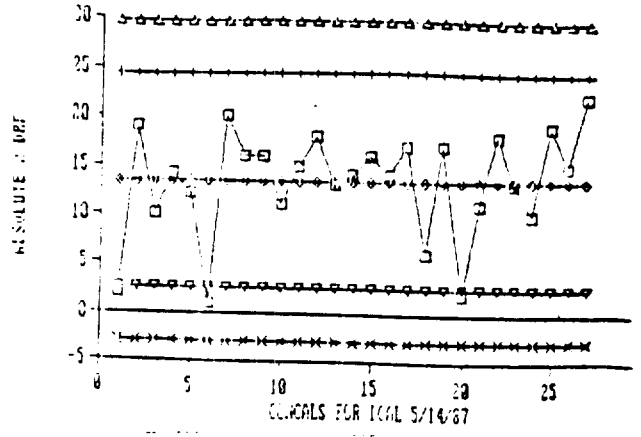
2,3,7,8-TCDF



REL. DELTA RESPONSE FACTOR
2,3,4,7,8-PeCDF



1,2,3,7,8-PeCDF



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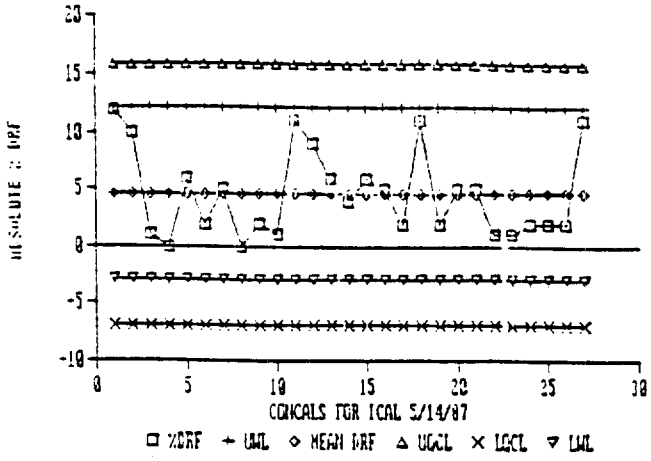
1,2,3,7,8-PeCDD



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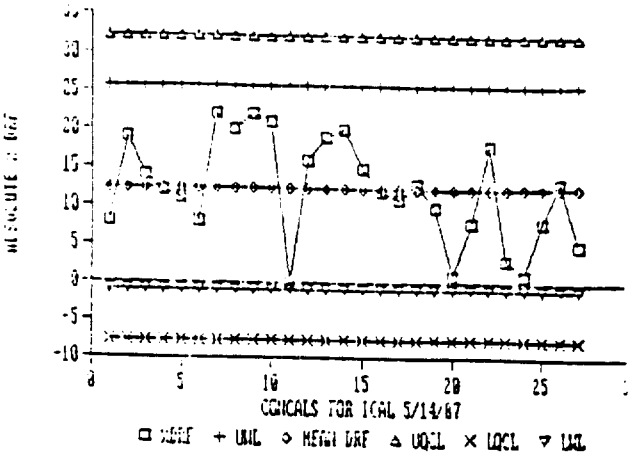
1,2,3,6,7,8-HxCDF



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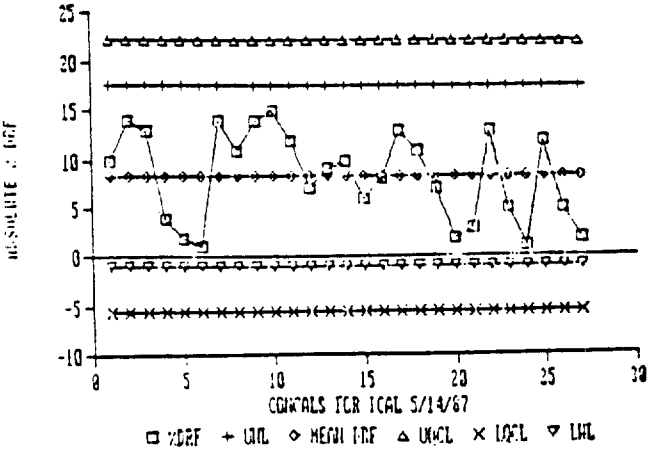
1,2,3,4,7,8-HxCDF



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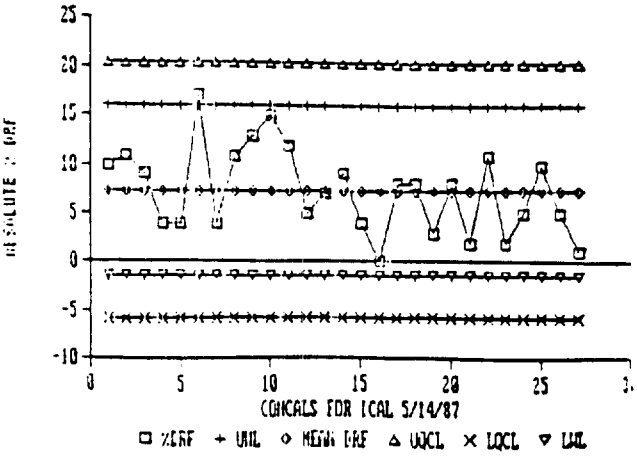
2,3,4,6,7,8-HxCDF



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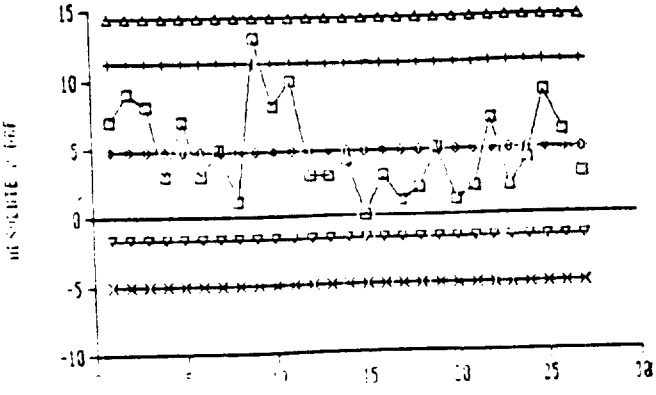
1,2,3,4,7,8-HxCDD



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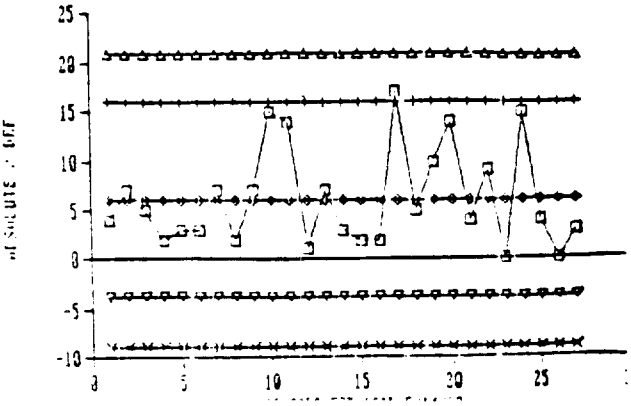

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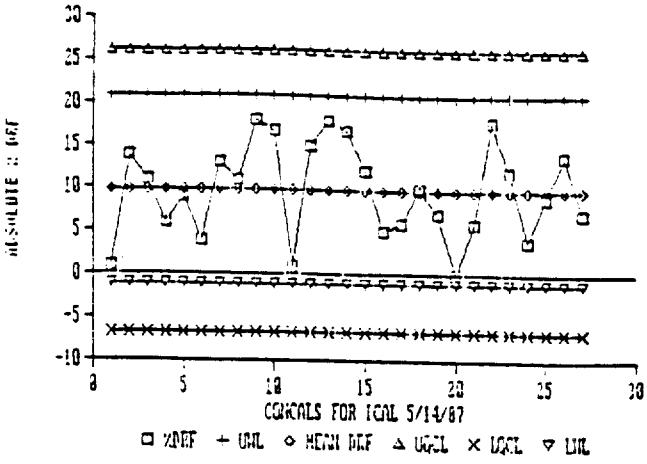
1,2,3,6,7,8-HxCDD



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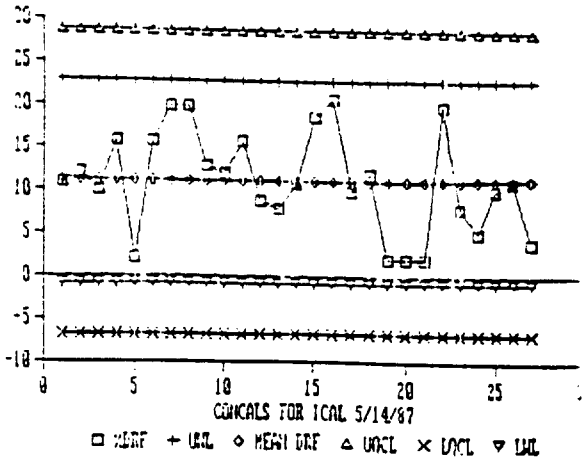
1,2,3,4,6,7,8-HpCDF



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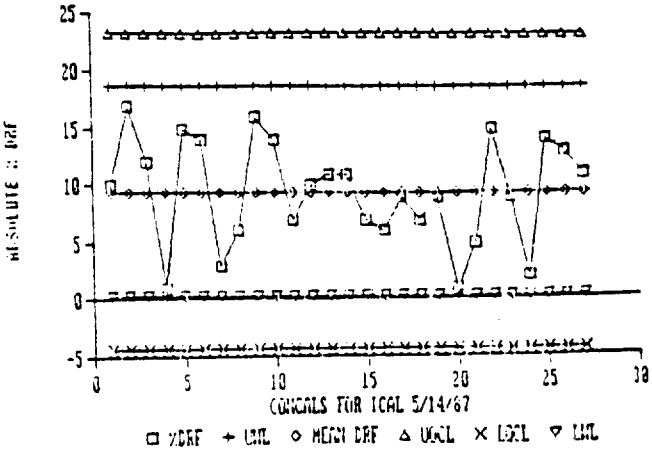
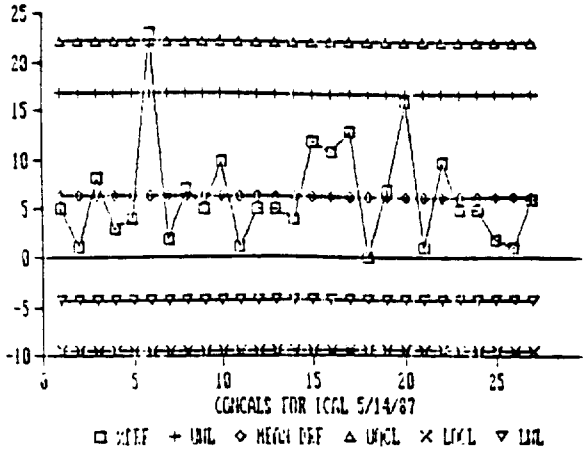
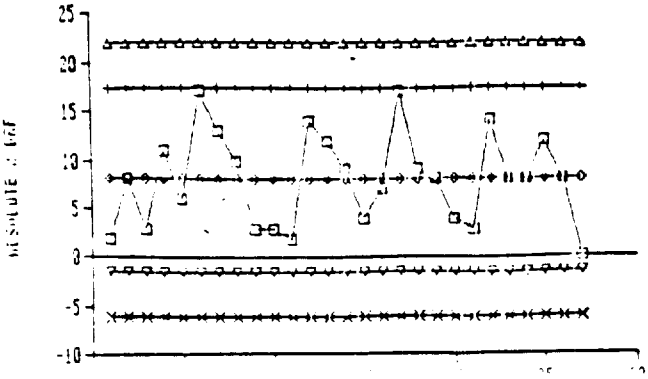
1,2,3,7,8,9-HxCDD



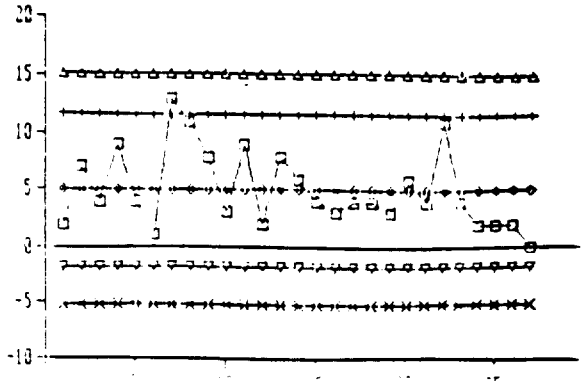
REL. DELTA RESPONSE FACTOR
1,2,3,4,7,8,9-HpCDF

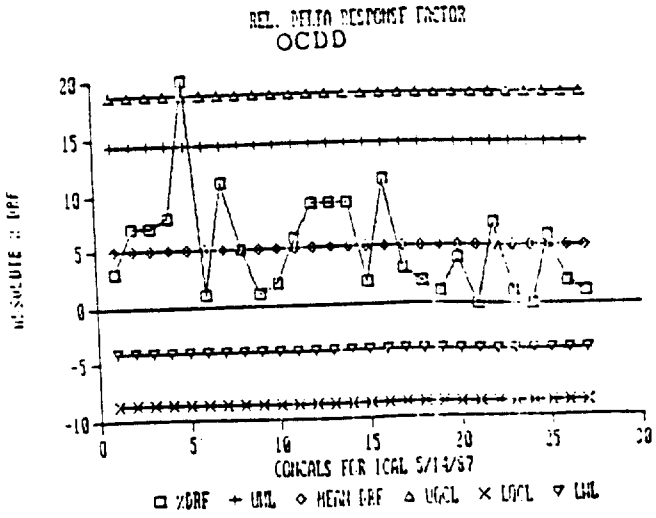


REL. DELTA RESPONSE FACTOR
OCDF



REL. DELTA RESPONSE FACTOR
1,2,3,4,6,7,8-HpCDD




REL. RELTV RESPONSE FACTOR
OCDD
20
15
10
5
0
-5
-10
0
5
10
15
20
25
30
CONCALS FOR ICAL 5/13/87
%DRF
UAL
MEAN RRF
UQCL
LQCL
LAL

TRIANGLE LABORATORIES, INC.

PCDD/PCDF ANALYSIS (D)

ANALYST: IK
DATE: 08/21/87

FILE NAME: M872288
SAMPLE ID: I1-MM5-BLK
CASE NO:
PROJ NO:

CONCAL:

NAME	AMT (ng)	NUMBER	DL	EMPC	RATIO	RT
TOTAL TRICDD	ND		0.248			
2378-TCDD	ND		0.020			
TOTAL TCDD	ND		0.020			
12378-PCDD	ND		0.030			
TOTAL PCDD	ND		0.030			
123478-HxCDD	ND		0.022			
123678-HxCDD	ND		0.020			
123789-HxCDD	ND		0.025			
TOTAL HxCDD	ND			0.047	2.66	
1234678-HpCDD	ND			0.052	0.93	
TOTAL HpCDD	ND			0.052	0.93	
OCDD	0.329				0.76	46.57
TOTAL TRICDF	ND		0.085			
2378-TCDF	ND		0.015			
TOTAL TCDF	ND		0.015			
12378-PCDF	ND		0.018			
23478-PCDF	ND		0.020			
TOTAL PCDF	ND		0.020			
123478-HxCDF	ND		0.013			
123678-HxCDF	ND		0.010			
234678-HxCDF	ND		0.015			
123789-HxCDF	ND		0.020			
TOTAL HxCDF	ND		0.013			
1234678-HpCDF	ND			0.030	1.96	
1234789-HpCDF	ND		0.015			
TOTAL HpCDF	0.010	1			0.99	
OCDF	0.267				0.99	47.07

SURROGATE RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
13C12-TCDF	4.39	87.80	0.81	24.16
37CL-TCDD	5.21	104.20		24.58
13C12-HxCDF	4.42	88.40	1.30	35.16

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
2378-13C12-TCDD	7.92	79.20	0.79	24.57
13C12-PCDD	9.53	95.30	0.66	29.48
13C12-HxCDD	3.57	35.70	1.33	36.29
13C12-HpCDD	10.32	103.20	1.07	42.14
13C12-OCDD	21.75	108.75	0.87	46.56

M872288I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
270	10.00	10.00
272	10.00	11.00
286	10.00	12.00
288	10.00	13.00
304	18.40	25.54
306	23.82	22.06
306	49.99	22.25
306	23.76	22.40
306	16.88	23.24
306	29.96	23.32
306	28.95	24.15
306	19.46	25.17
306	44.07	25.33
306	28.44	25.39
306	14.72	26.03
306	22.27	29.08
306	23.23	29.34
306	185.82	29.48
306	24.73	29.58
316	274.52	23.53
316	6829.63	24.16
318	347.22	23.54
318	8423.01	24.16
318	110.78	24.48
320	18.38	22.43
320	21.86	22.59
320	11.15	23.06
320	38.92	24.16
320	24.58	24.23
320	24.90	25.16
320	36.22	26.11
322	12.80	28.08
322	20.95	28.50
322	20.35	30.46
322	14.05	30.53
328	12199.81	24.58
332	126.81	21.54
332	217.14	22.13
332	126.23	23.00
332	260.91	23.28
332	367.77	23.36
332	302.16	23.57
332	9195.12	24.46
332	10610.17	24.57
332	154.80	25.37
332	191.73	26.01
332	129.77	26.43
332	171.79	27.31
334	11469.92	24.46
334	13367.95	24.57

M872288I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
338	10.00	14.00
340	10.00	15.00
354	10.00	16.00
356	15.03	24.31
356	27.64	30.03
366	3341.67	29.48
368	5084.77	29.48
374	16.39	33.59
374	18.03	34.07
374	15.44	34.13
374	21.08	34.16
374	16.09	34.25
374	16.46	35.11
374	31.75	36.26
374	14.88	37.26
374	13.11	38.07
374	18.73	38.23
374	12.45	38.28
374	17.87	38.41
374	13.57	38.49
376	12.27	36.12
386	9681.54	35.16
388	7459.03	35.15
390	80.04	35.14
392	17.21	34.42
392	30.09	35.15
392	10.78	36.41
392	17.26	36.48
392	20.48	37.40
392	10.29	37.44
402	7228.94	36.29
402	13581.06	36.57
404	5452.51	36.29
404	9912.59	36.57
408	17.41	40.31
408	80.76	40.46
408	19.36	41.10
408	37.65	42.51
410	17.54	40.32
410	41.18	40.46
410	31.73	40.55
410	26.22	41.30
410	35.75	42.25
410	40.75	44.11
410	27.80	45.22
410	36.47	46.23
410	1067.22	46.57
410	26.86	48.23
410	18.19	48.59
410	24.18	50.41

M872288I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
410	24.67	51.05
424	64.54	41.13
424	59.62	42.16
424	20.99	43.17
426	21.76	40.21
426	29.07	41.12
426	64.38	42.14
426	28.21	42.20
426	29.93	43.16
426	24.68	47.10
436	42.95	41.11
436	18.94	41.20
436	9270.60	42.14
436	33.89	43.31
436	44.79	43.47
436	26.84	44.42
436	17.64	45.14
436	43.26	45.40
438	28.93	41.12
438	8630.37	42.14
438	145.09	42.35
438	34.83	43.21
438	37.72	46.14
438	525.08	46.58
438	71.79	47.13
438	28.32	47.22
438	20.87	47.47
438	23.78	48.10
442	33.76	42.15
442	23.12	43.53
442	34.24	46.42
442	15.54	46.54
442	281.07	47.07
442	18.80	47.26
442	21.60	47.50
442	29.62	48.33
442	34.04	50.04
442	22.60	50.22
442	27.96	50.55
444	23.56	43.05
444	22.22	44.05
444	282.87	47.06
444	48.37	48.15
444	41.84	48.47
444	30.38	49.19
444	27.62	50.53
458	243.38	46.57
458	30.78	47.16
460	320.44	46.58
470	17082.40	46.56

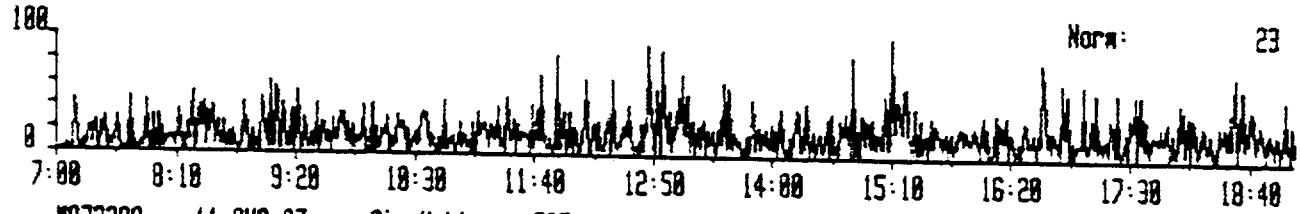
M872288I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
470	35.44	47.57
470	22.24	48.38
470	23.14	49.20
470	20.72	50.51
470	23.20	51.17
472	19664.91	46.56
472	160.05	47.33
472	66.87	47.38
472	64.02	47.48
472	29.79	48.03
472	34.56	48.24
*** Total ***		
****	197758.71	5829.92

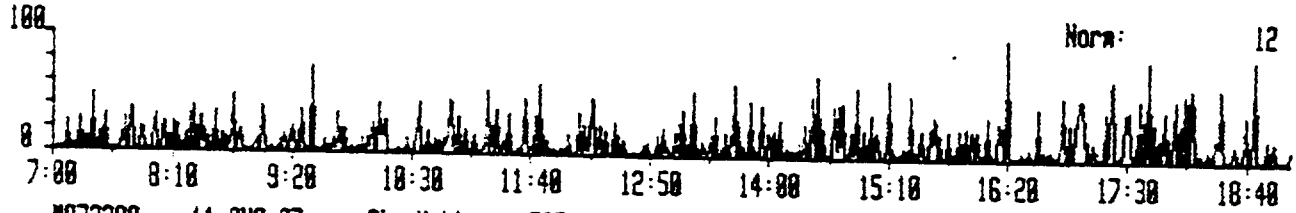
M872288B
MATCHED EGC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
316	0.79	23.53	621.74	.T.	.F.	0.957
316	0.81	24.16	15252.64	.T.	.T.	0.973
328	0.00	24.58	12199.81	.T.	.T.	1.001
332	0.80	24.46	20665.04	.T.	.T.	0.993
332	0.79	24.57	23978.12	.T.	.T.	1.000
366	0.66	29.48	8426.44	.T.	.T.	1.000
386	1.30	35.16	17140.57	.T.	.T.	0.967
390	2.66	35.14	110.13	.F.	.F.	0.966
402	1.33	36.29	12681.45	.T.	.T.	1.000
402	1.37	36.57	23493.65	.T.	.T.	1.013
408	0.99	40.31	34.95	.T.	.F.	0.959
408	1.96	40.46	121.94	.F.	.T.	0.965
424	2.22	41.13	93.61	.F.	.F.	0.976
424	0.93	42.16	124.00	.T.	.T.	1.001
424	0.70	43.17	50.92	.F.	.F.	1.025
436	1.48	41.11	71.88	.F.	.F.	0.975
436	1.07	42.14	17900.97	.T.	.T.	1.000
442	0.99	47.07	563.94	.T.	.T.	1.004
442	1.01	50.55	55.58	.T.	.F.	1.085
458	0.76	46.57	563.82	.T.	.T.	1.000
470	0.87	46.56	36747.31	.T.	.T.	1.000
*** Total ***						
***	23.49	775.17	190898.51			20.860

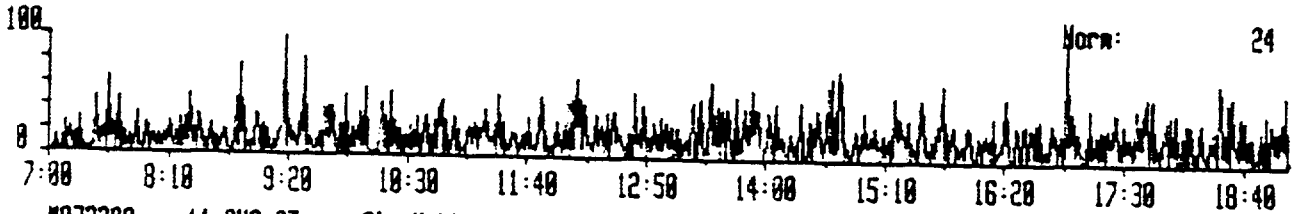
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 269.9406
Text:IL-MM5-BK2



M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 271.9377
Text:IL-MM5-BK2

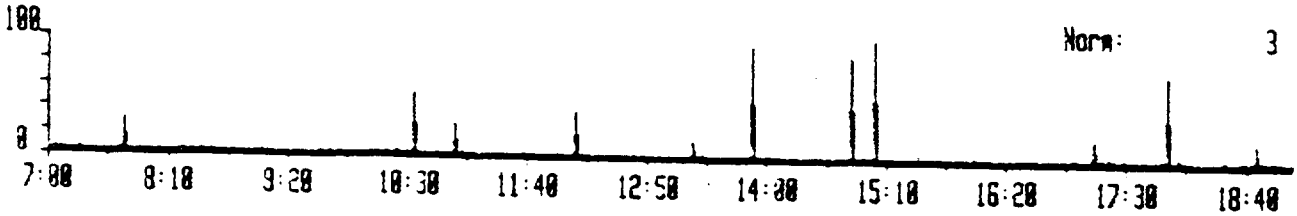


M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 285.9355
Text:IL-MM5-BK2

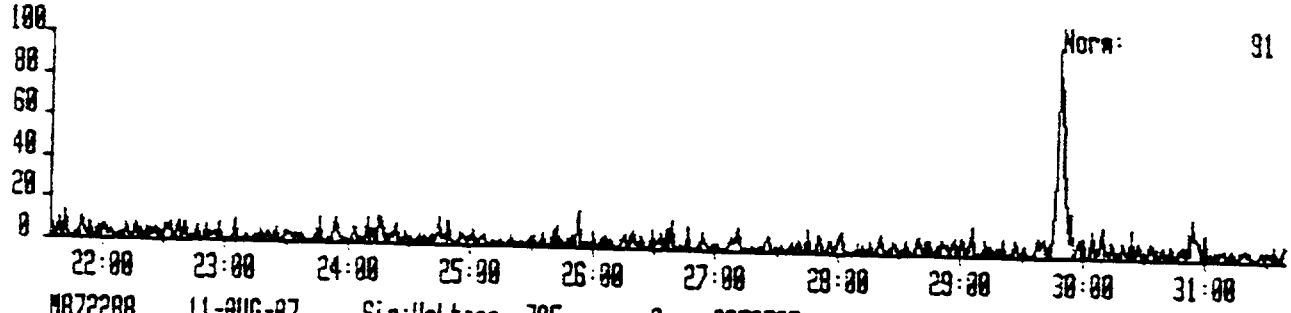


M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:IL-MM5-BK2

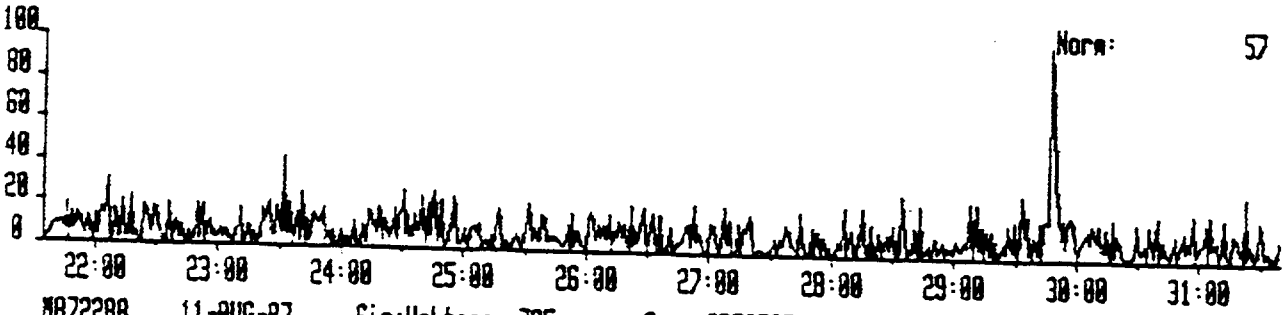
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 339.8790
Text:IL-MM5-BK2



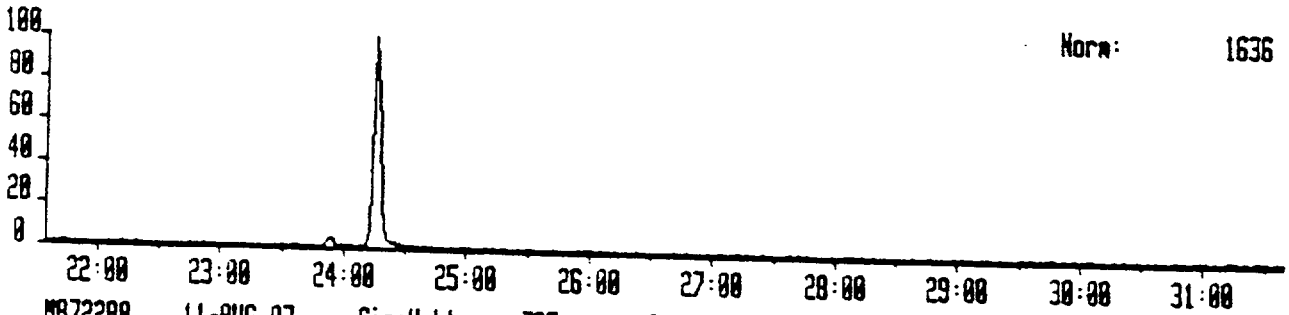
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 303.9816
Text:IL-MM5-8K2



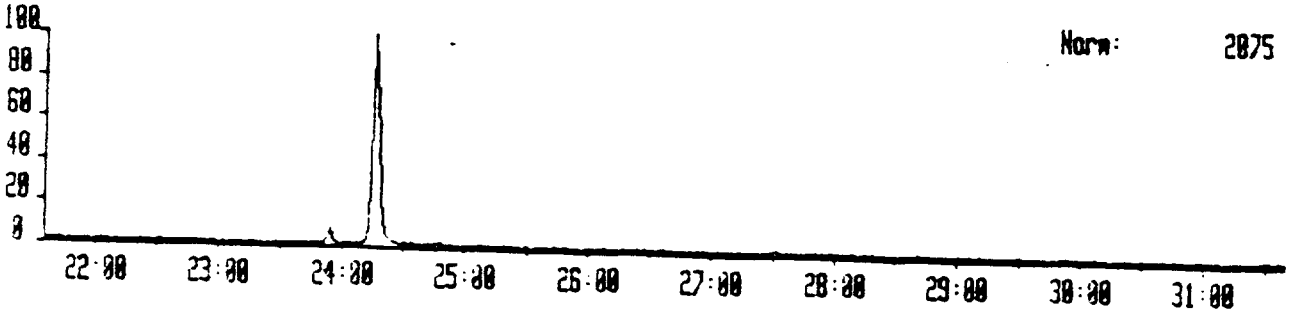
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 305.8987
Text:IL-MM5-8K2



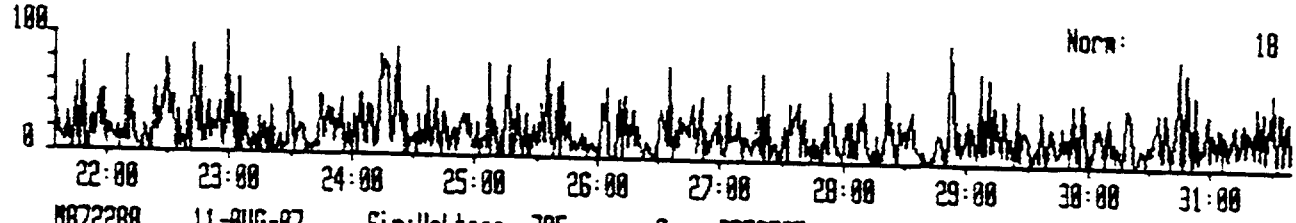
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 315.9419
Text:IL-MM5-8K2



M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 317.9389
Text:IL-MM5-8K2

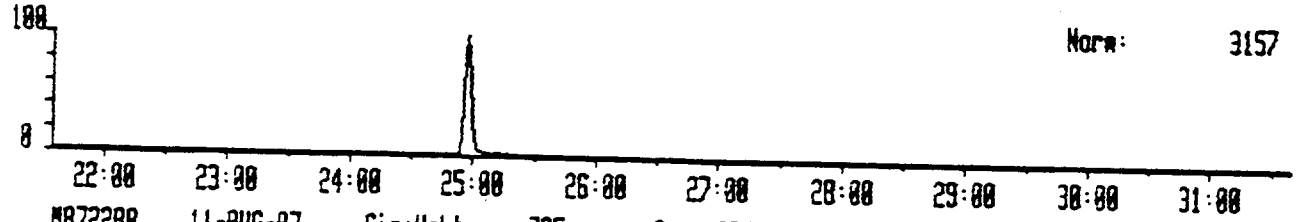


M872288 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:IL-MM5-8K2

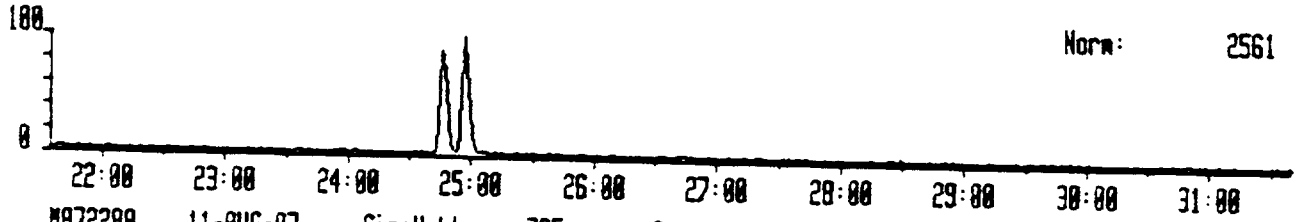


M872288 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:IL-MM5-8K2

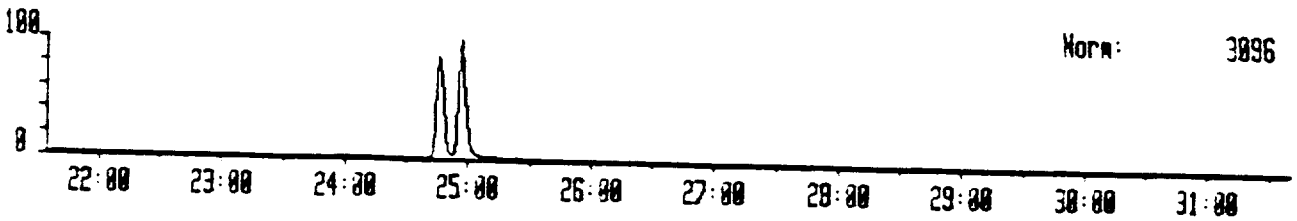
M872288 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:IL-MM5-8K2



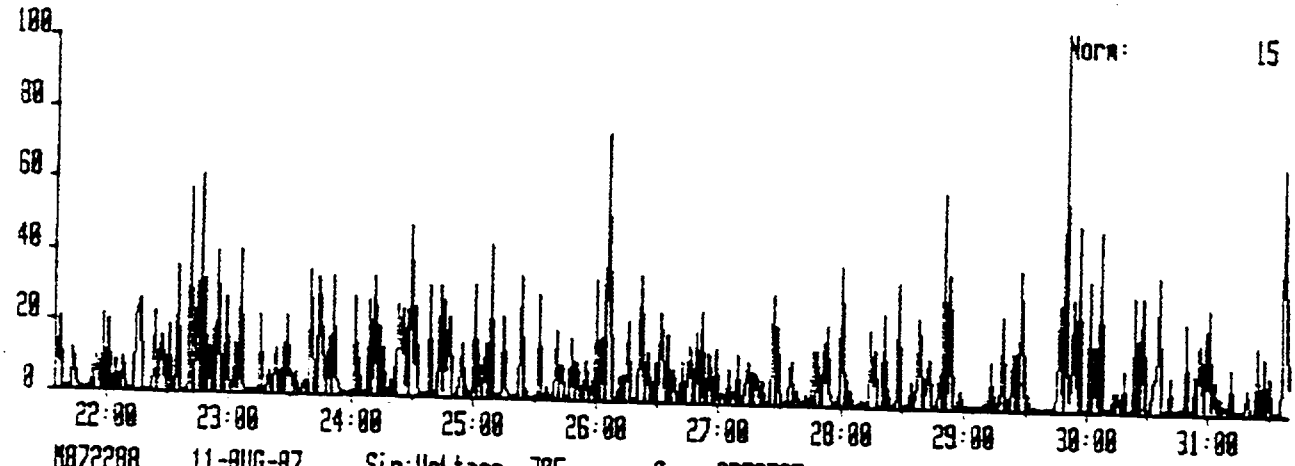
M872288 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 331.9368
Text:IL-MM5-8K2



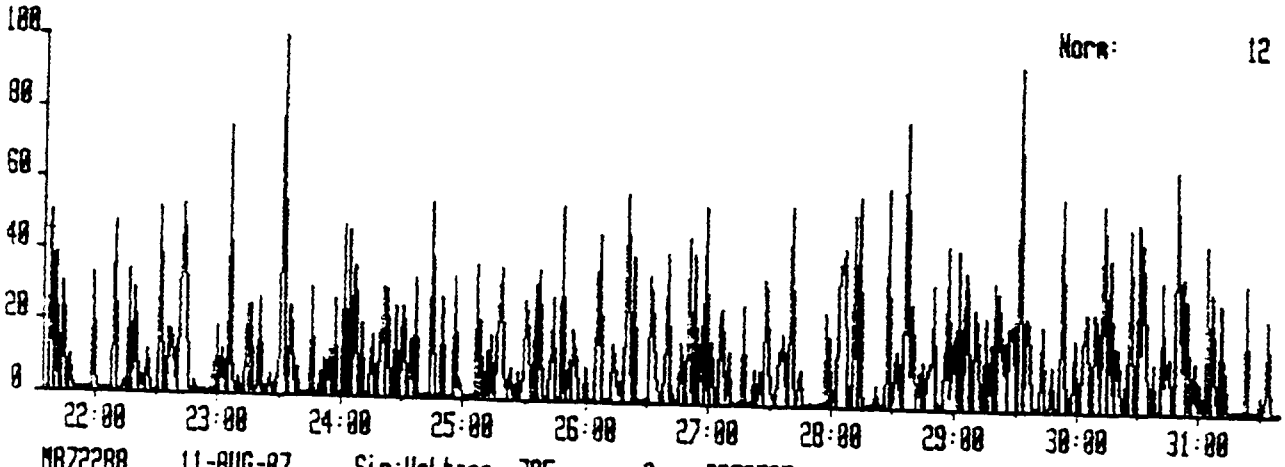
M872288 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 333.9338
Text:IL-MM5-8K2



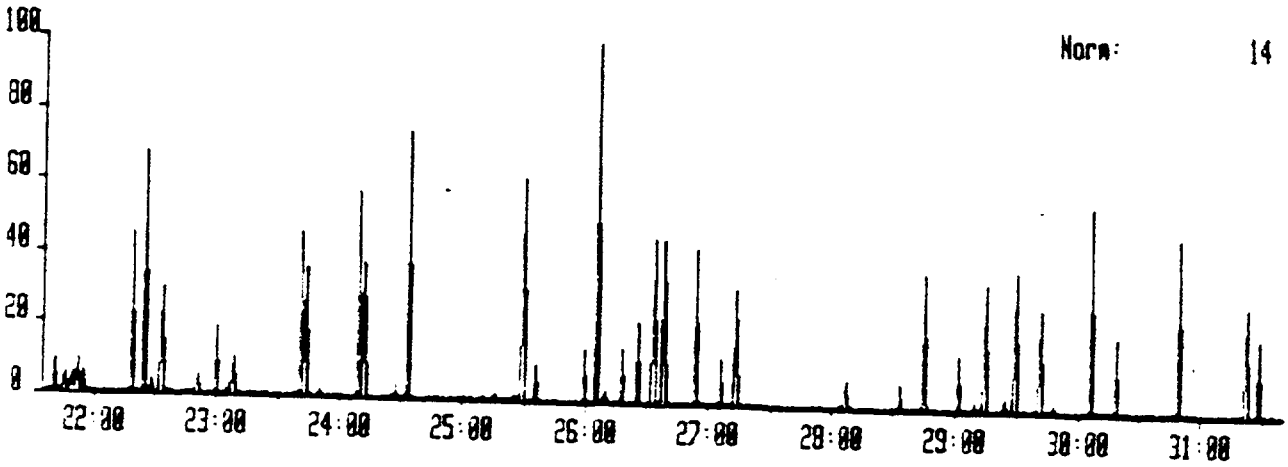
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSRTST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:IL-MM5-BK2



M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSRTST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:IL-MM5-BK2

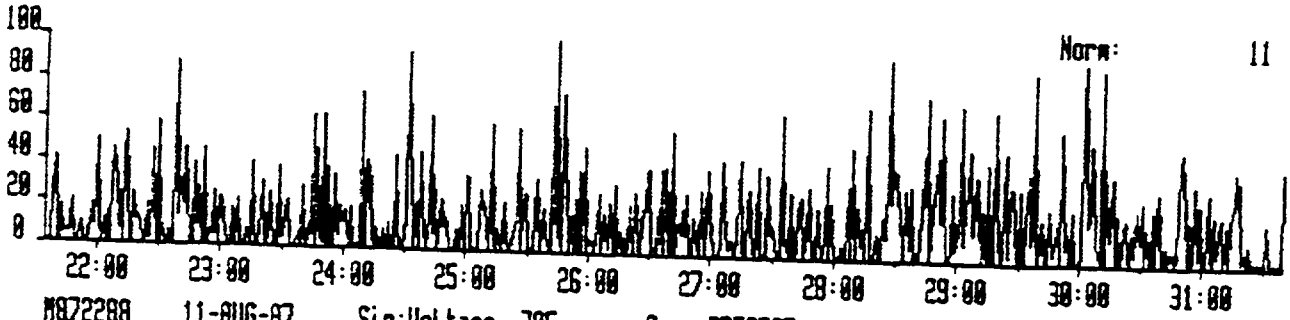


M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSRTST
Sample 1 Injection 1 Group 2 Mass 487.8883
Text:IL-MM5-BK2

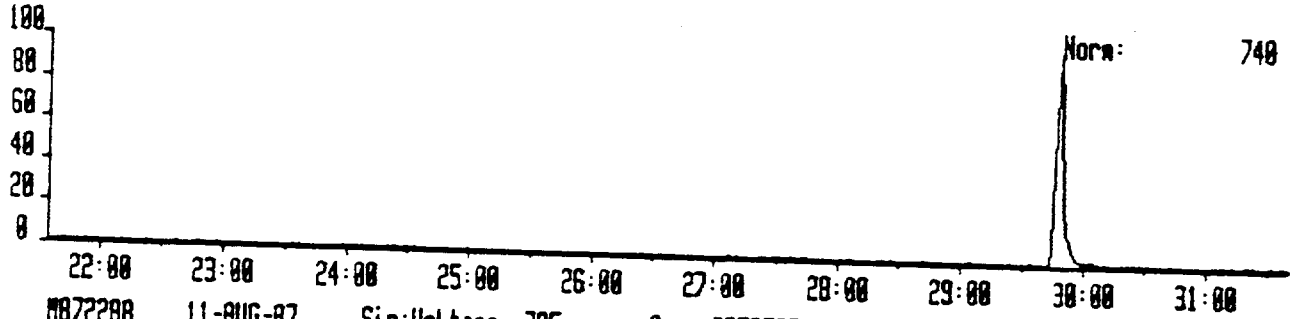


M872288 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:IL-MM5-8K2

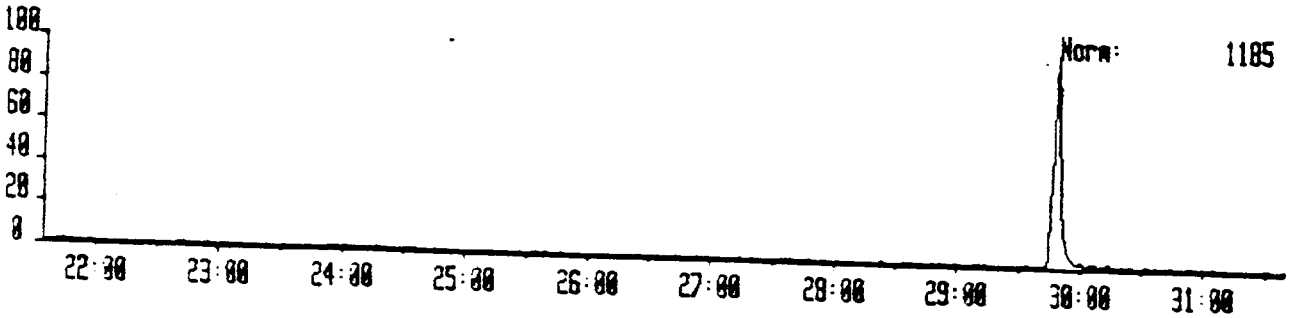
M872288 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 355.8546
Text:IL-MM5-8K2



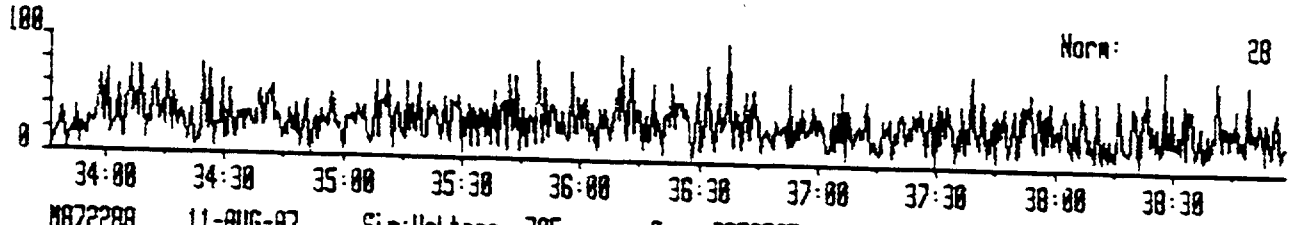
M872288 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 365.8977
Text:IL-MM5-8K2



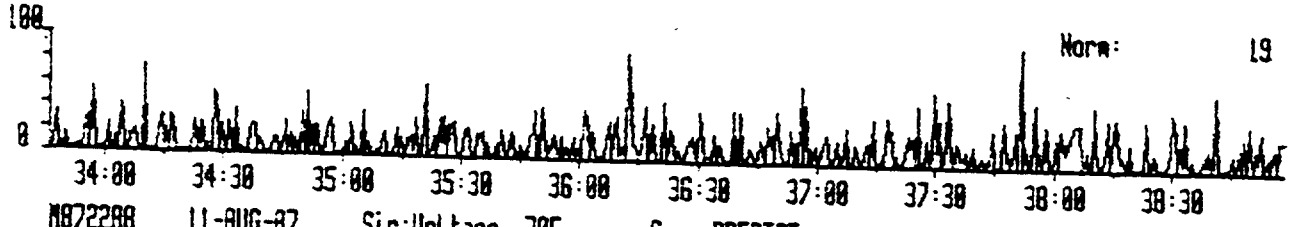
M872288 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 367.8948
Text:IL-MM5-8K2



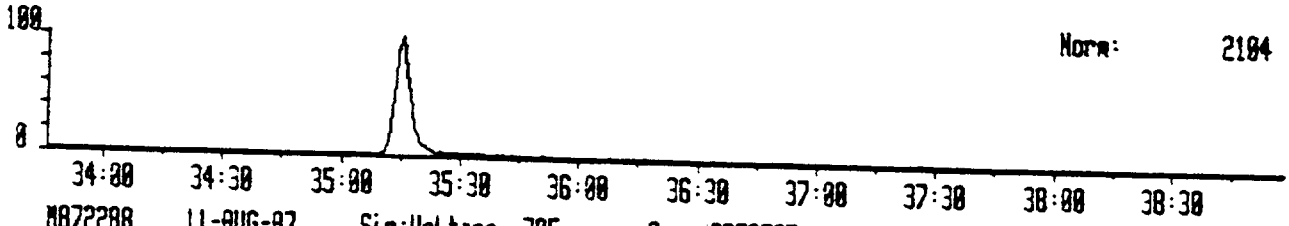
M872288 11-AUG-87 Sir:Voltage 70E Sys: 085ATST
Sample 1 Injection 1 Group 3 Mass 373.8287
Text:IL-MM5-8K2



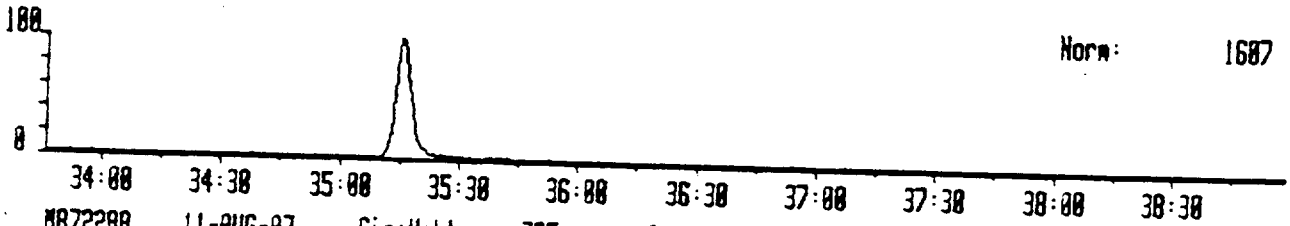
M872288 11-AUG-87 Sir:Voltage 70E Sys: 085ATST
Sample 1 Injection 1 Group 3 Mass 375.8178
Text:IL-MM5-8K2



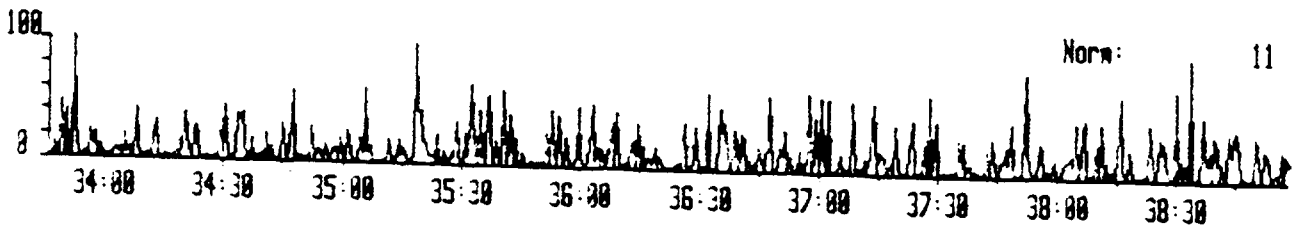
M872288 11-AUG-87 Sir:Voltage 70E Sys: 085ATST
Sample 1 Injection 1 Group 3 Mass 385.8689
Text:IL-MM5-8K2



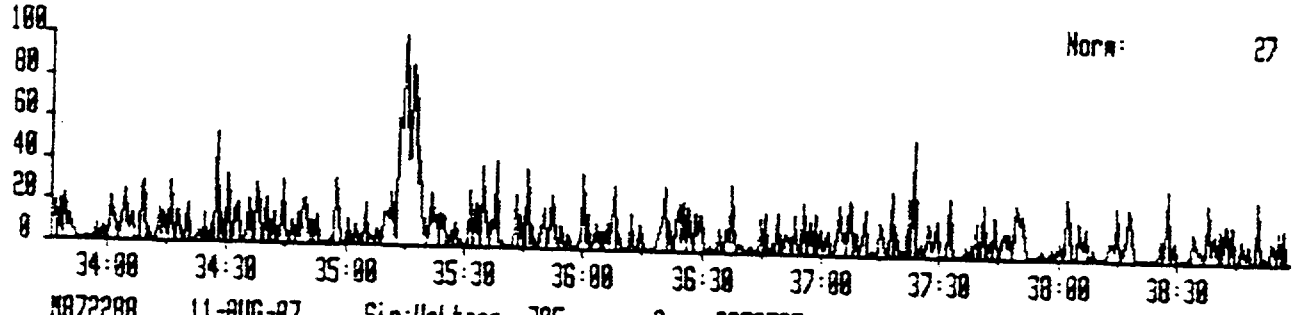
M872288 11-AUG-87 Sir:Voltage 70E Sys: 085ATST
Sample 1 Injection 1 Group 3 Mass 387.8588
Text:IL-MM5-8K2



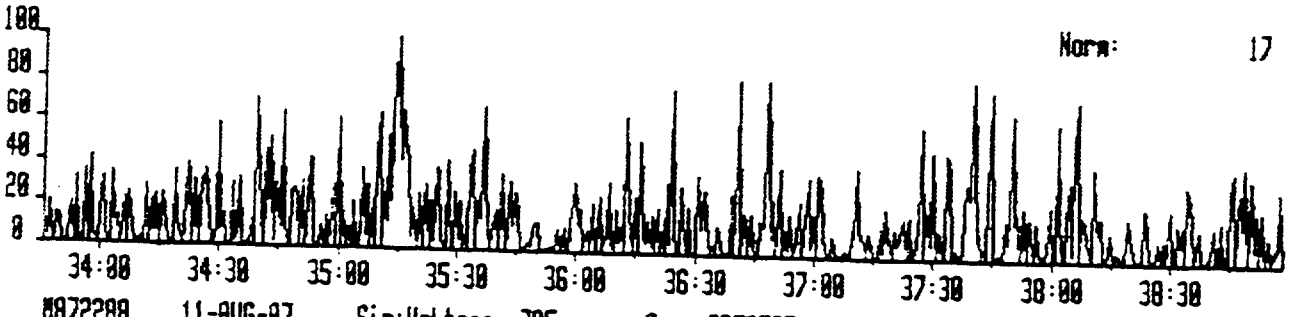
M872288 11-AUG-87 Sir:Voltage 70E Sys: 085ATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:IL-MM5-8K2



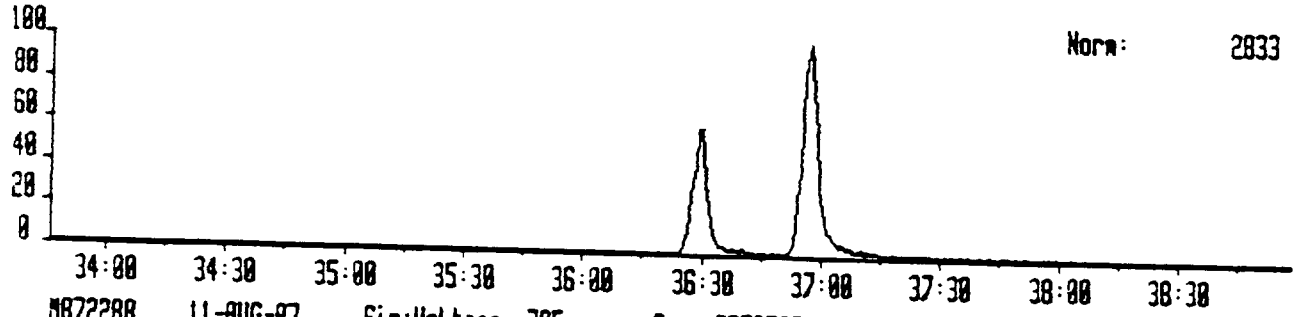
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 389.8156
Text:IL-MM5-BK2



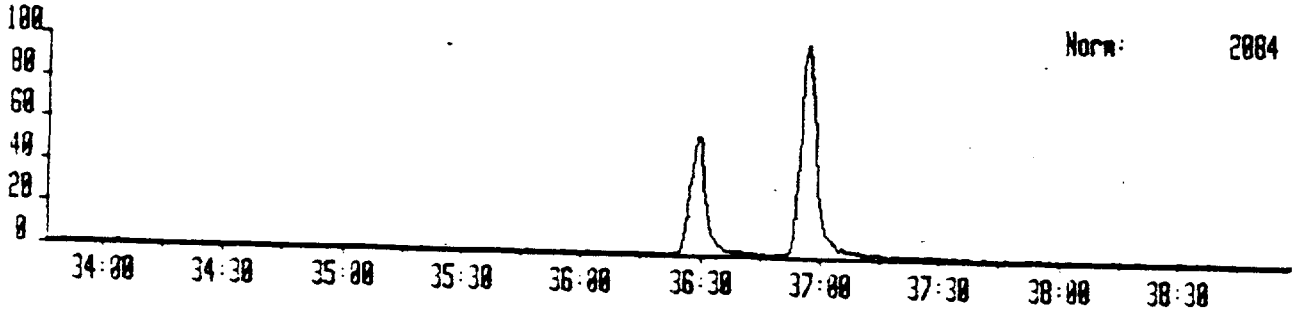
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 391.9127
Text:IL-MM5-BK2



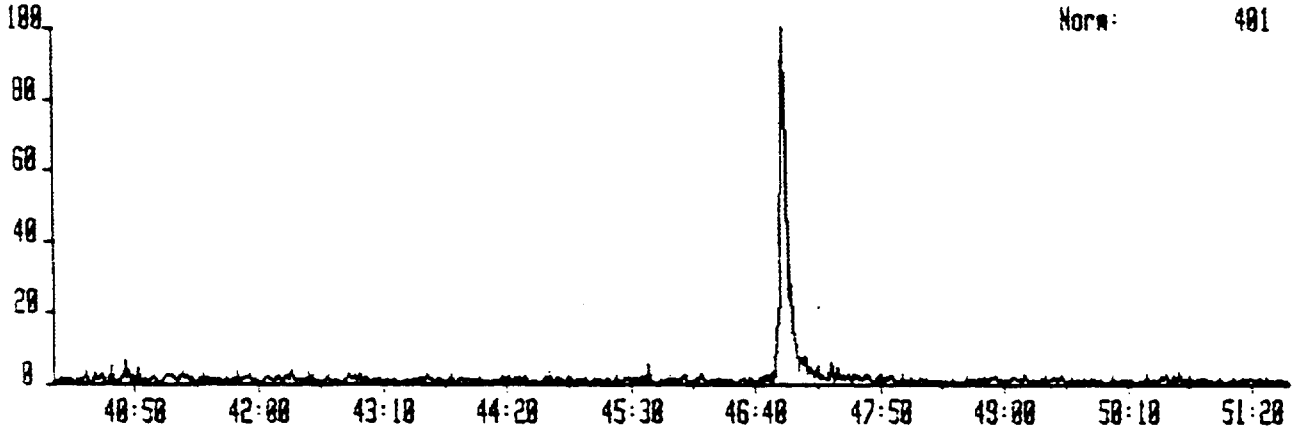
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text:IL-MM5-BK2



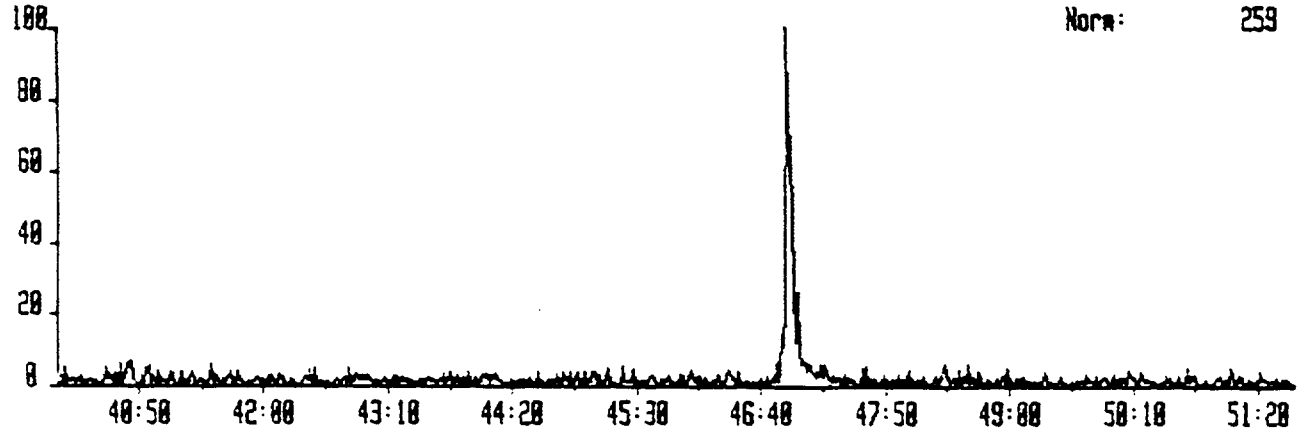
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 403.8529
Text:IL-MM5-BK2



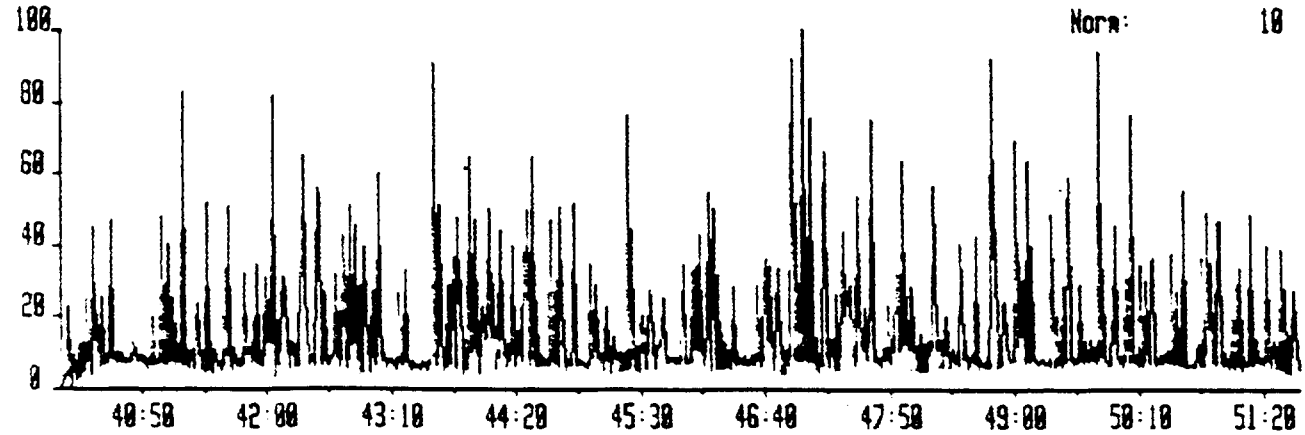
M872288 11-AUG-87 Sir:Voltage 70E Sys: 085ATST
Sample 1 Injection 1 Group 4 Mass 407.7817
Text:IL-MM5-8K2



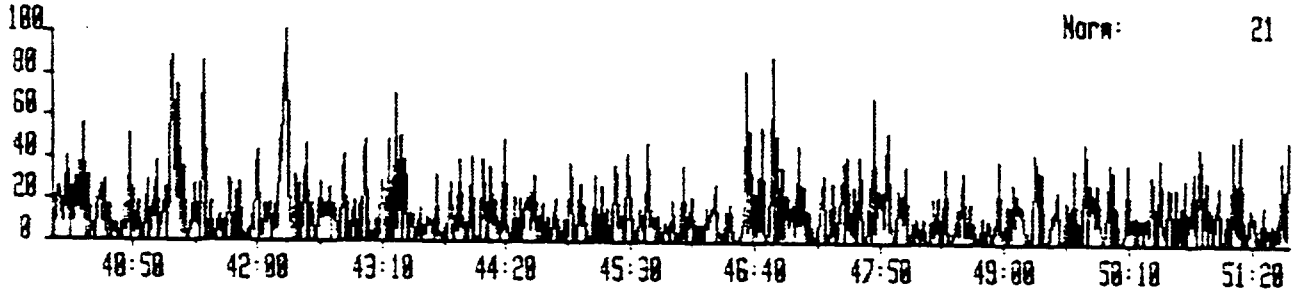
M872288 11-AUG-87 Sir:Voltage 70E Sys: 085ATST
Sample 1 Injection 1 Group 4 Mass 409.7788
Text:IL-MM5-8K2



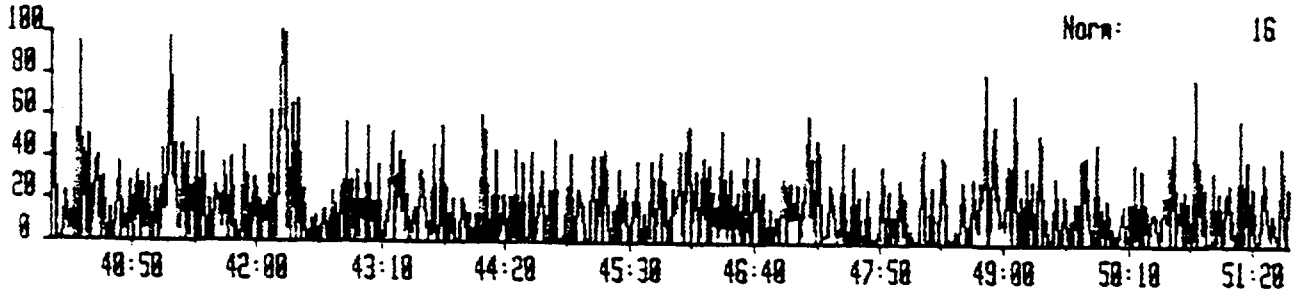
M872288 11-AUG-87 Sir:Voltage 70E Sys: 085ATST
Sample 1 Injection 1 Group 4 Mass 477.7200
Text:IL-MM5-8K2



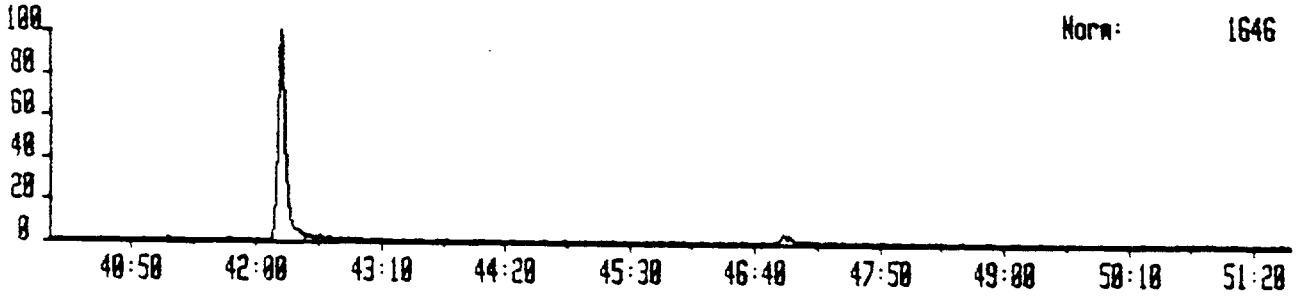
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:IL-MM5-BK2



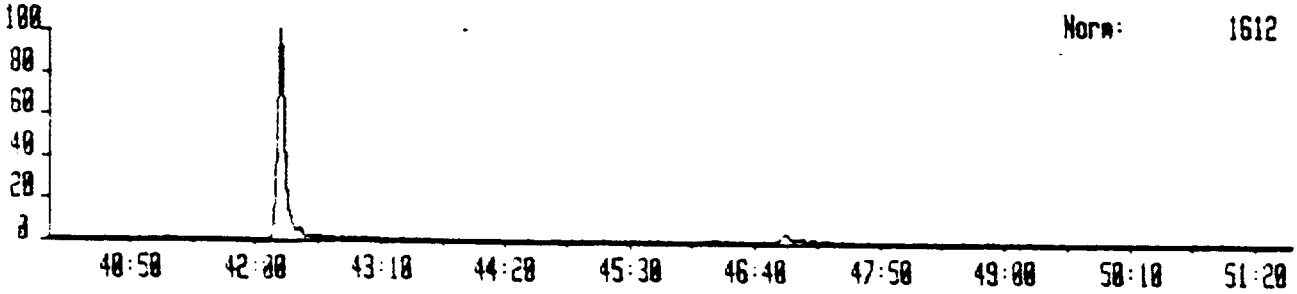
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:IL-MM5-BK2



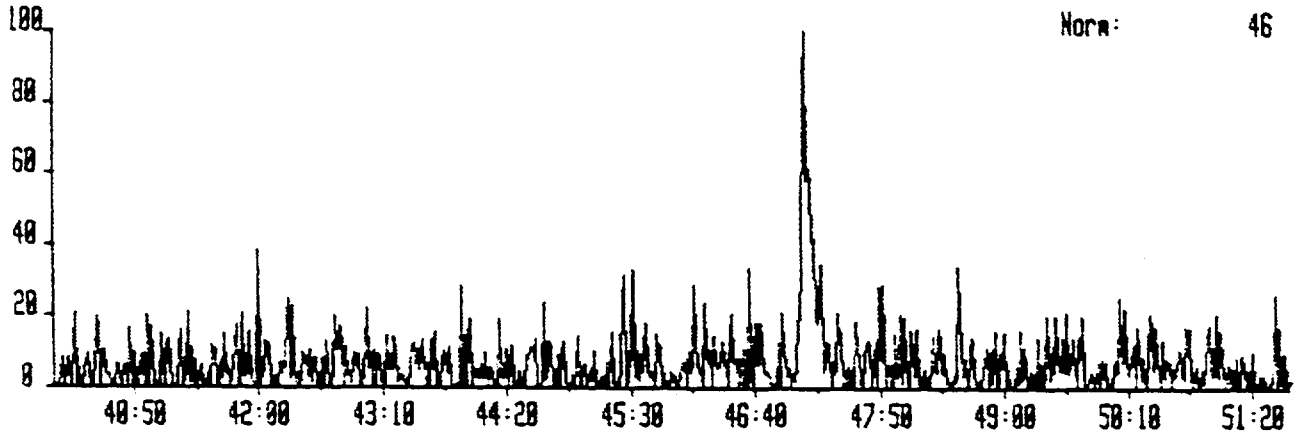
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:IL-MM5-BK2



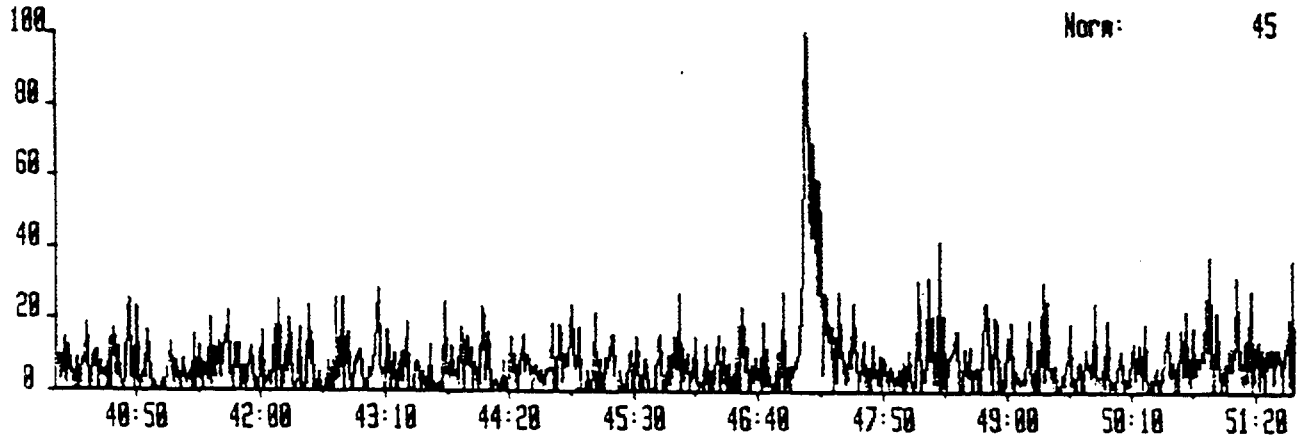
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:IL-MM5-BK2



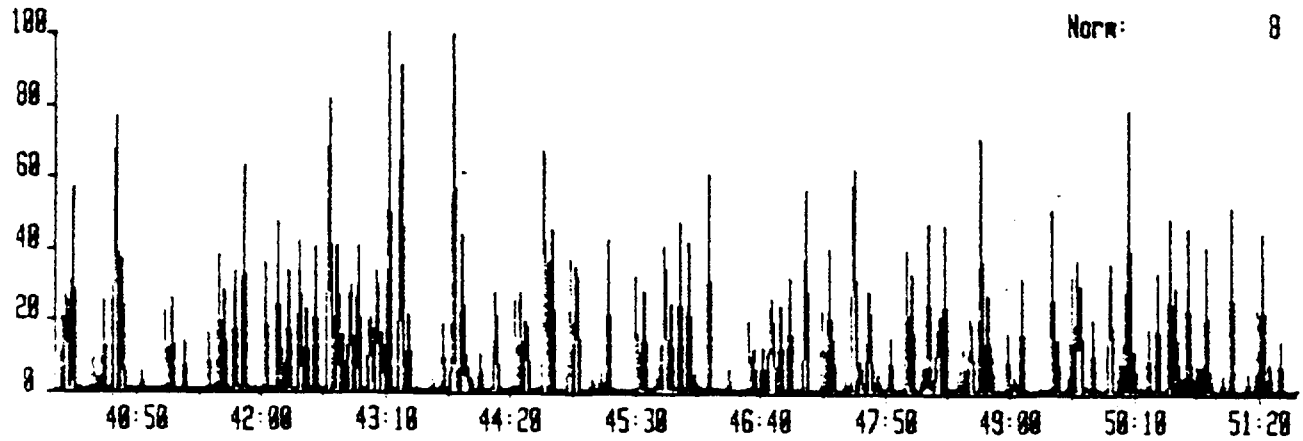
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSRTST
Sample 1 Injection 1 Group 4 Mass 441.7428
Text:IL-MM5-BK2



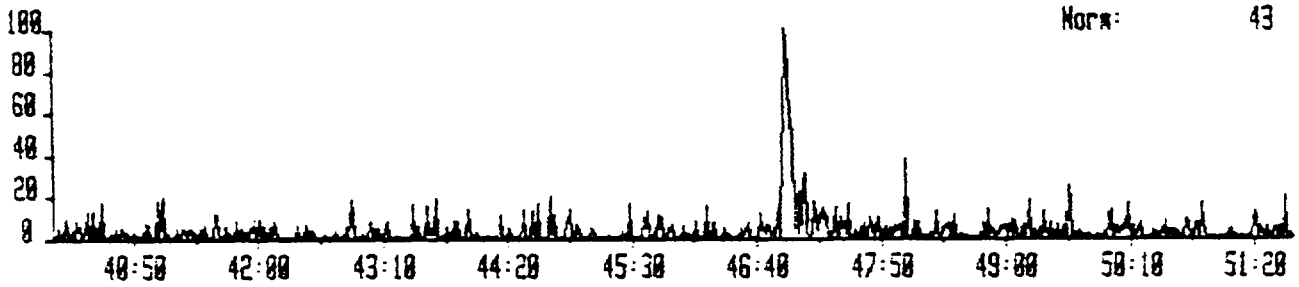
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSRTST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:IL-MM5-BK2



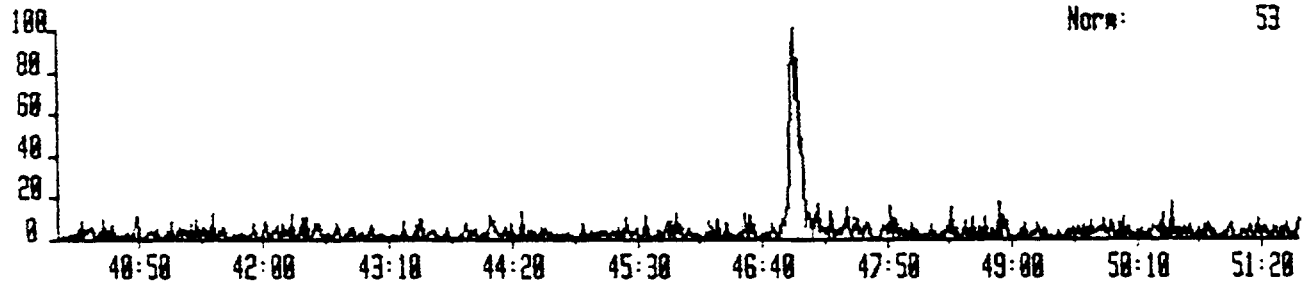
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSRTST
Sample 1 Injection 1 Group 4 Mass 511.6810
Text:IL-MM5-BK2



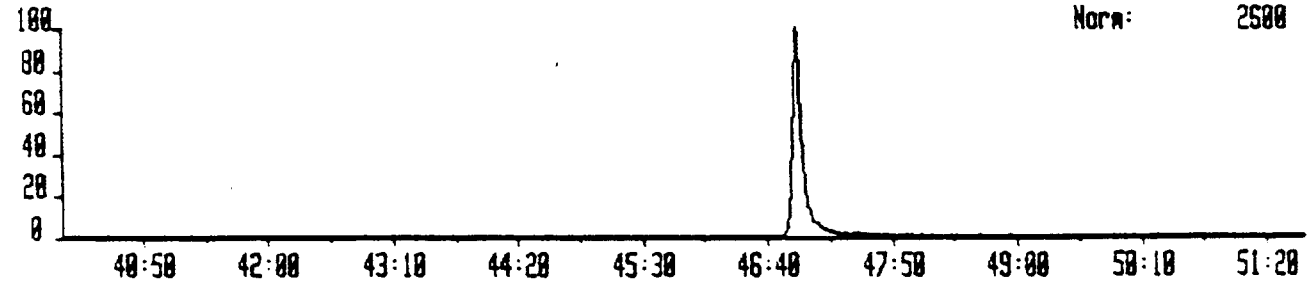
M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:IL-MM5-8K2



M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:IL-MM5-8K2



M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:IL-MM5-8K2



M872288 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 471.7758
Text:IL-MM5-8K2

TRIANGLE LABORATORIES, INC.
PCDD/PCDF ANALYSIS

ANALYST: IK FILE NAME: M872283 CONCAL: M872278
DATE: 08/21/87 SAMPLE ID: I1-MM5-4
CASE NO: ENTROPY
PROJ NO: 8701511

NAME	AMT (ng)	NUMBER	DL	EMPC	RATIO	RT
TOTAL TRICDD	4.361	1			1.09	
2378-TCDD	ND		0.022			
TOTAL TCDD	6.177	8			0.76	
12378-PCDD	0.392				0.57	29.50
TOTAL PCDD	8.530	9			0.60	
123478-HxCDD	0.529				1.33	36.23
123678-HxCDD	1.045				1.20	36.31
123789-HxCDD	1.657				1.22	36.57
TOTAL HxCDD	15.263	7			1.25	
1234678-HpCDD	6.738				0.99	42.15
TOTAL HpCDD	13.320	2			0.97	
OCDD	8.456				0.85	46.58
TOTAL TRICDF	26.363	7			0.99	
2378-TCDF	3.961				0.76	24.20
TOTAL TCDF	16.672	13			0.75	
12378-PCDF	0.476				0.65	28.31
23478-PCDF	1.136				0.64	29.24
TOTAL PCDF	9.174	9			0.63	
123478-HxCDF	1.736				1.27	35.17
123678-HxCDF	0.729				1.26	35.26
234678-HxCDF	1.187				1.26	36.12
123789-HxCDF	0.025				1.27	37.20
TOTAL HxCDF	6.797	10			1.26	
1234678-HpCDF	2.861				1.04	40.47
1234789-HpCDF	ND			0.204	1.28	
TOTAL HpCDF	3.588	2			1.07	
OCDF	0.959				0.86	47.09

SURROGATE RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
13C12-TCDF	4.75	95.00	0.79	24.17
37CL-TCDD	5.06	101.20		24.59
13C12-HxCDF	4.59	91.80	1.21	35.16

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
2378-13C12-TCDD	8.53	85.30	0.80	24.58
13C12-PCDD	11.01	110.10	0.58	29.49
13C12-HxCDD	8.40	84.00	1.33	36.30
13C12-HpCDD	9.37	93.70	1.04	42.14
13C12-OCDD	20.33	101.65	0.90	46.57

M872283I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
270	833.39	15.28
270	532.98	15.42
270	802.81	16.05
270	3565.00	16.18
270	1810.09	16.37
270	1115.04	16.54
270	2431.36	17.01
270	561.02	17.16
270	4338.57	17.25
270	217.23	18.18
286	790.64	16.53
286	163.08	17.48
304	970.59	22.14
304	6453.15	22.33
304	3177.89	22.48
304	2935.68	23.09
304	5422.93	23.22
304	6130.03	23.36
304	4129.46	23.45
304	2201.99	23.56
304	2094.76	24.08
304	12055.05	24.20
304	2619.98	24.42
304	1998.93	24.56
304	551.99	25.09
304	29.20	25.25
304	138.79	26.01
316	655.72	23.54
316	14864.54	24.17
320	328.15	22.42
320	2934.41	23.02
320	1432.73	23.16
320	3414.44	23.51
320	1905.82	24.05
320	784.92	24.28
320	3244.15	24.53
320	349.18	25.08
320	476.95	25.17
320	174.20	25.32
320	99.57	27.38
328	10712.17	24.59
328	178.99	25.22
332	17282.03	24.47
332	21585.06	24.58
338	58.61	27.20
338	5186.86	27.29
338	1013.08	27.42
338	3890.01	28.04
338	2693.48	28.11
338	979.88	28.24

M8722831
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
338	1257.64	28.31
338	1184.61	28.42
338	2010.55	28.52
338	2714.76	29.24
338	3114.58	29.35
338	113.77	29.50
338	298.77	29.58
338	145.43	30.40
354	5123.55	27.38
354	477.57	28.11
354	3051.06	28.29
354	684.09	28.38
354	2008.82	28.53
354	563.70	29.05
354	885.41	29.12
354	1371.71	29.27
354	456.84	29.37
354	621.31	29.50
354	561.65	30.02
354	347.19	30.29
366	8144.78	29.49
374	960.73	33.53
374	6274.86	34.04
374	536.04	34.18
374	702.04	34.30
374	294.59	34.43
374	6163.13	35.17
374	3026.17	35.26
374	499.15	35.35
374	49.45	35.43
374	874.59	35.52
374	3467.28	36.12
374	63.65	36.24
374	54.45	37.20
374	335.11	37.24
386	14695.94	35.16
390	3141.63	34.36
390	11570.73	35.16
390	7255.38	35.35
390	1355.76	35.48
390	1008.19	36.23
390	2247.60	36.31
390	2870.35	36.57
390	75.51	37.06
402	10469.11	36.30
402	19776.88	36.57
408	8885.04	40.47
408	1244.35	41.08
408	1138.61	41.21
408	506.34	42.51

M8722831
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
424	12039.01	41.13
424	12323.25	42.15
424	62.79	43.47
424	55.31	45.43
436	13669.50	42.14
442	1596.00	47.09
458	11416.88	46.58
470	28910.57	46.57
470	297.10	47.35
470	68.12	49.26
*** Total ***		
****	387436.16	3252.60

M872283B
MATCHED EGC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
270	0.97	15.28	833.39	.T.	.F.	0.000
270	1.18	15.42	532.98	.F.	.F.	0.000
270	0.99	16.05	802.81	.T.	.F.	0.000
270	1.08	16.18	3565.00	.T.	.F.	0.000
270	0.91	16.37	1810.09	.T.	.F.	0.000
270	1.19	16.54	1115.04	.F.	.F.	0.000
270	0.87	17.01	2431.36	.T.	.F.	0.000
270	1.25	17.16	561.02	.F.	.F.	0.000
270	1.02	17.25	4338.57	.T.	.F.	0.000
270	1.06	18.18	217.23	.T.	.F.	0.000
286	1.09	16.53	790.64	.T.	.F.	0.000
286	0.63	17.48	163.08	.F.	.F.	0.000
304	0.77	22.14	970.59	.T.	.F.	0.891
304	0.72	22.33	6453.15	.T.	.F.	0.903
304	0.87	22.48	3177.89	.T.	.F.	0.913
304	0.65	23.09	2935.68	.T.	.F.	0.927
304	0.72	23.22	5422.93	.T.	.F.	0.936
304	0.83	23.36	6130.03	.T.	.F.	0.945
304	0.72	23.45	4129.46	.T.	.F.	0.951
304	0.81	23.56	2201.99	.T.	.F.	0.959
304	0.71	24.08	2094.76	.T.	.F.	0.967
304	0.76	24.20	12055.05	.T.	.T.	0.975
304	0.70	24.42	2619.98	.T.	.F.	0.989
304	0.80	24.56	1998.93	.T.	.F.	0.999
304	0.68	25.09	551.99	.T.	.F.	1.007
304	1.56	25.25	29.20	.F.	.F.	1.018
304	0.49	26.01	138.79	.F.	.F.	1.042
316	0.61	23.54	655.72	.F.	.F.	0.957
316	0.79	24.17	14864.54	.T.	.T.	0.973
320	0.64	22.42	328.15	.F.	.F.	0.909
320	0.76	23.02	2934.41	.T.	.F.	0.923
320	0.75	23.16	1432.73	.T.	.F.	0.932
320	0.80	23.51	3414.44	.T.	.F.	0.955
320	0.78	24.05	1905.82	.T.	.F.	0.965
320	0.79	24.28	784.92	.T.	.F.	0.980
320	0.83	24.53	3244.15	.T.	.F.	0.997
320	0.67	25.08	349.18	.T.	.F.	1.007
320	1.45	25.17	476.95	.F.	.F.	1.013
320	0.68	25.32	174.20	.T.	.F.	1.023
320	0.92	27.38	99.57	.F.	.F.	1.107
328	0.00	24.59	10712.17	.T.	.T.	1.001
328	0.00	25.22	178.99	.T.	.F.	1.016
332	0.79	24.47	17282.03	.T.	.T.	0.993
332	0.80	24.58	21585.06	.T.	.T.	1.000
338	0.81	27.20	58.61	.F.	.F.	0.917
338	0.66	27.29	5186.86	.T.	.F.	0.922
338	0.68	27.42	1013.08	.T.	.F.	0.929
338	0.67	28.04	3890.01	.T.	.F.	0.941
338	0.58	28.11	2693.48	.T.	.F.	0.945
338	0.48	28.24	979.88	.F.	.F.	0.952

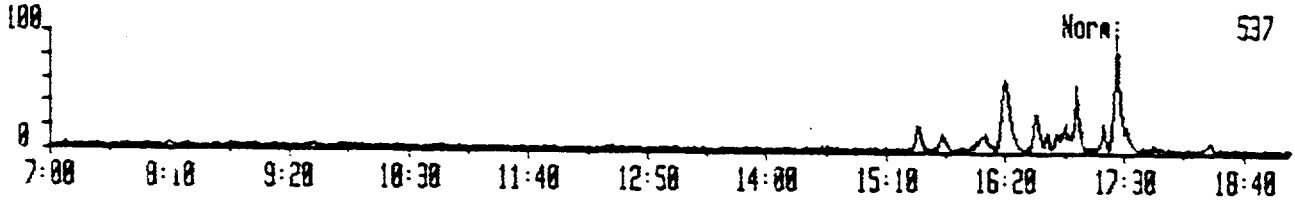
M872283B
MATCHED EGC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
338	0.65	28.31	1257.64	.T.	.T.	0.956
338	0.65	28.42	1184.61	.T.	.F.	0.963
338	0.59	28.52	2010.55	.T.	.F.	0.968
338	0.64	29.24	2714.76	.T.	.T.	0.986
338	0.56	29.35	3114.58	.T.	.F.	0.992
338	0.50	29.50	113.77	.F.	.F.	1.001
338	0.81	29.58	298.77	.F.	.F.	1.005
338	0.81	30.40	145.43	.F.	.F.	1.029
354	0.66	27.38	5123.55	.T.	.F.	0.927
354	0.56	28.11	477.57	.T.	.F.	0.945
354	0.55	28.29	3051.06	.T.	.F.	0.955
354	0.79	28.38	684.09	.F.	.F.	0.960
354	0.54	28.53	2008.82	.T.	.F.	0.969
354	0.50	29.05	563.70	.F.	.F.	0.975
354	0.65	29.12	885.41	.T.	.F.	0.979
354	0.51	29.27	1371.71	.F.	.F.	0.988
354	0.52	29.37	456.84	.T.	.F.	0.993
354	0.57	29.50	621.31	.T.	.T.	1.001
354	0.63	30.02	561.65	.T.	.F.	1.007
354	0.68	30.29	347.19	.T.	.F.	1.022
366	0.58	29.49	8144.78	.T.	.T.	1.000
374	1.28	33.53	960.73	.T.	.F.	0.928
374	1.22	34.04	6274.86	.T.	.F.	0.933
374	1.24	34.18	536.04	.T.	.F.	0.940
374	1.28	34.30	702.04	.T.	.F.	0.945
374	1.56	34.43	294.59	.F.	.F.	0.951
374	1.27	35.17	6163.13	.T.	.T.	0.967
374	1.26	35.26	3026.17	.T.	.T.	0.971
374	1.31	35.35	499.15	.T.	.F.	0.975
374	1.23	35.43	49.45	.T.	.F.	0.979
374	1.50	35.52	874.59	.F.	.F.	0.983
374	1.26	36.12	3467.28	.T.	.T.	0.992
374	1.01	36.24	63.65	.F.	.F.	0.997
374	1.27	37.20	54.45	.T.	.T.	1.023
374	0.99	37.24	335.11	.F.	.F.	1.025
386	1.21	35.16	14695.94	.T.	.T.	0.966
390	1.13	34.36	3141.63	.T.	.F.	0.948
390	1.22	35.16	11570.73	.T.	.F.	0.966
390	1.23	35.35	7255.38	.T.	.F.	0.975
390	1.39	35.48	1355.76	.T.	.F.	0.981
390	1.33	36.23	1008.19	.T.	.T.	0.997
390	1.20	36.31	2247.60	.T.	.T.	1.000
390	1.22	36.57	2870.95	.T.	.T.	1.012
390	1.42	37.06	75.51	.F.	.F.	1.016
402	1.33	36.30	10469.11	.T.	.T.	1.000
402	1.37	36.57	19776.88	.T.	.T.	1.012
408	1.04	40.47	8885.04	.T.	.T.	0.966
408	0.73	41.08	1244.35	.F.	.F.	0.974
408	1.10	41.21	1138.61	.T.	.F.	0.979
408	1.28	42.51	506.34	.F.	.T.	1.015

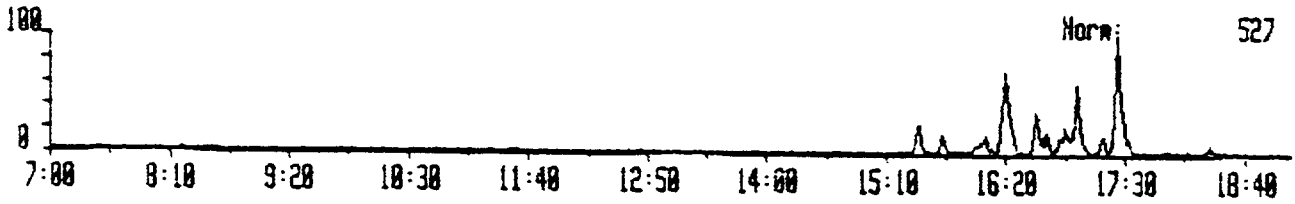
M872283B
MATCHED EGC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
424	0.95	41.13	12039.01	.T.	.F.	0.976
424	0.99	42.15	12323.25	.T.	.T.	1.000
424	1.28	43.47	62.79	.F.	.F.	1.037
424	1.43	45.43	55.31	.F.	.F.	1.082
436	1.04	42.14	13669.50	.T.	.T.	1.000
442	0.86	47.09	1596.00	.T.	.T.	1.004
458	0.85	46.58	11416.88	.T.	.T.	1.000
470	0.90	46.57	28910.57	.T.	.T.	1.000
470	2.88	47.35	297.10	.F.	.F.	1.013
470	0.70	49.26	68.12	.F.	.F.	1.053
*** Total ***						
***	100.7	3252.6	387436.16			95.981

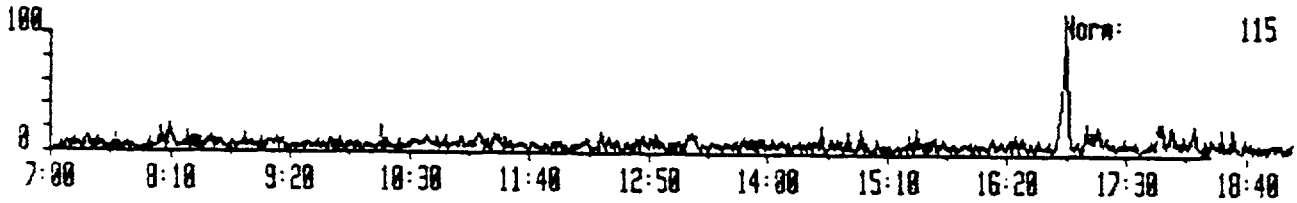
M872283 11-AUG-87 Sir:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 1 Mass 269.9486
Text:IL-MMS-4



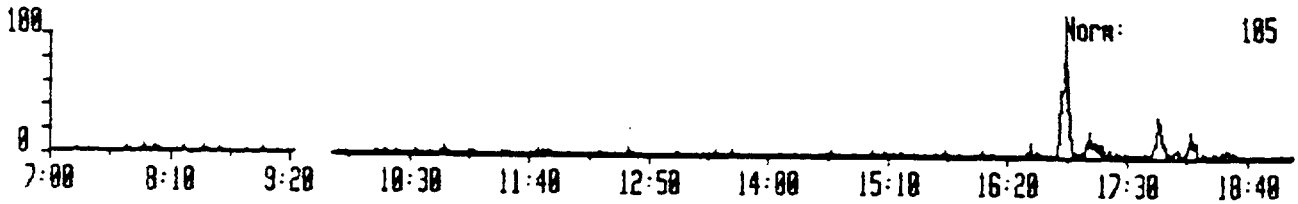
M872283 11-AUG-87 Sir:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 1 Mass 271.9377
Text:IL-MMS-4



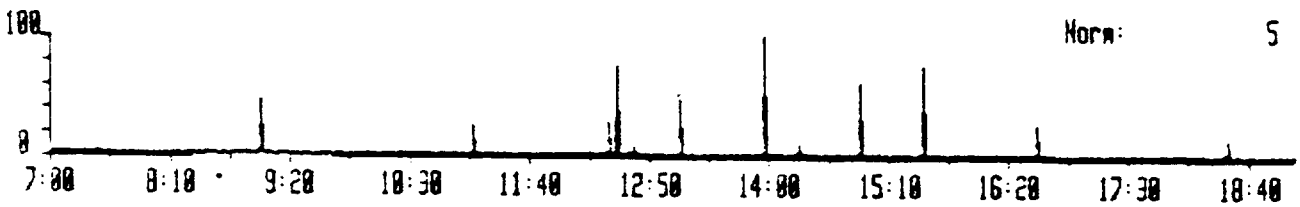
M872283 11-AUG-87 Sir:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 1 Mass 285.9355
Text:IL-MMS-4



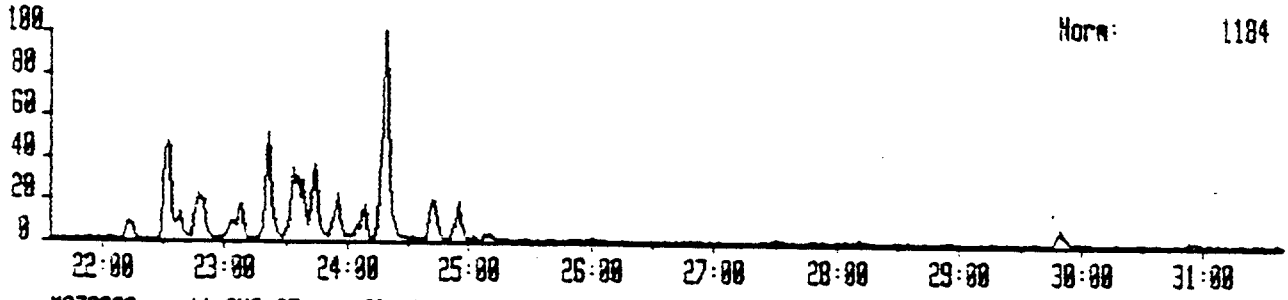
M872283 11-AUG-87 Sir:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:IL-MMS-4



M872283 11-AUG-87 Sir:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 1 Mass 339.8790
Text:IL-MMS-4

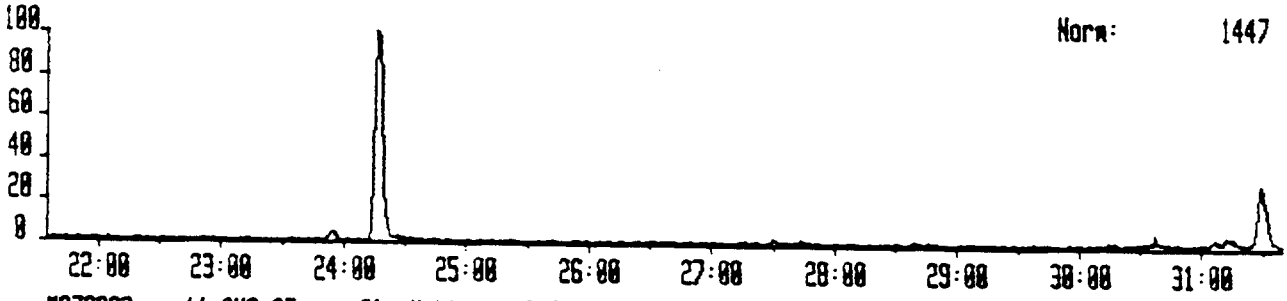


M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 303.9816
Text:IL-MM5-4

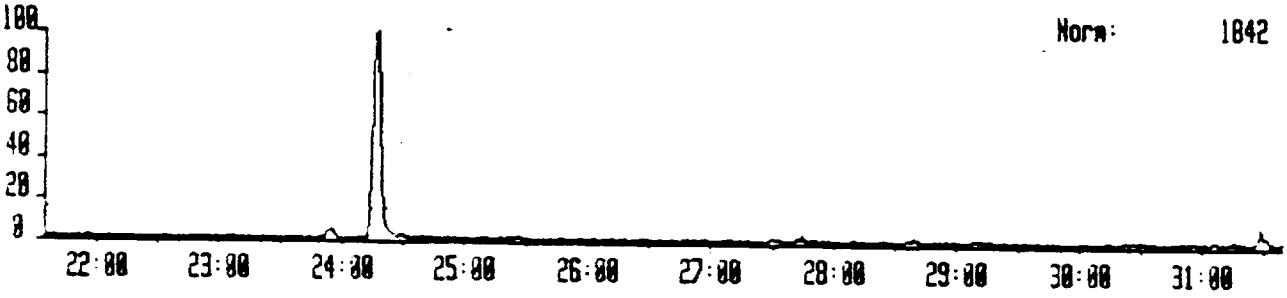


M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 305.9987
Text:IL-MM5-4

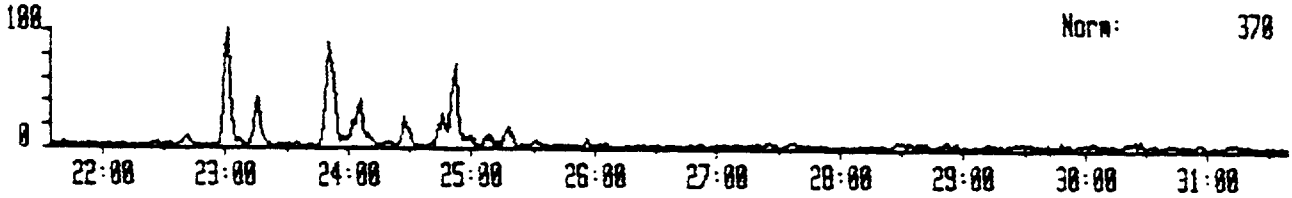
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 315.9419
Text:IL-MM5-4



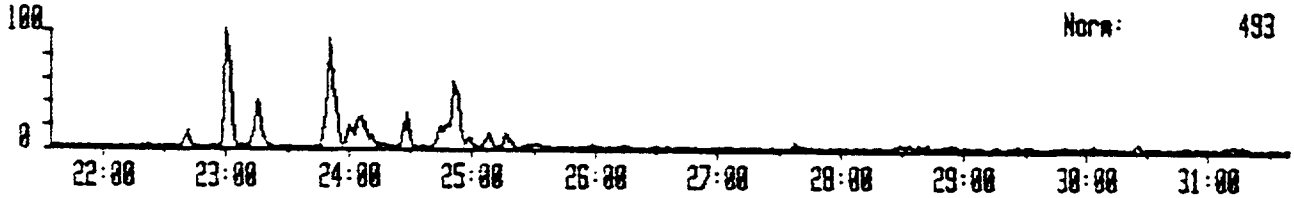
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 317.9389
Text:IL-MM5-4



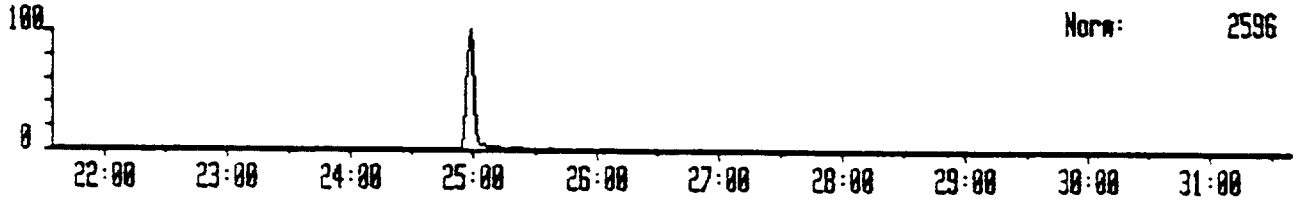
M872283 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:IL-MM5-4



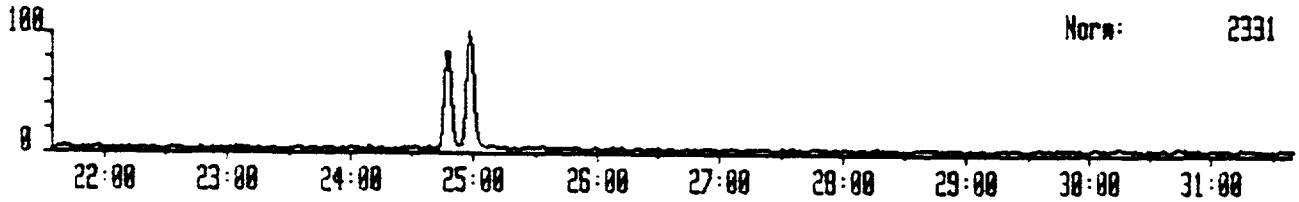
M872283 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:IL-MM5-4



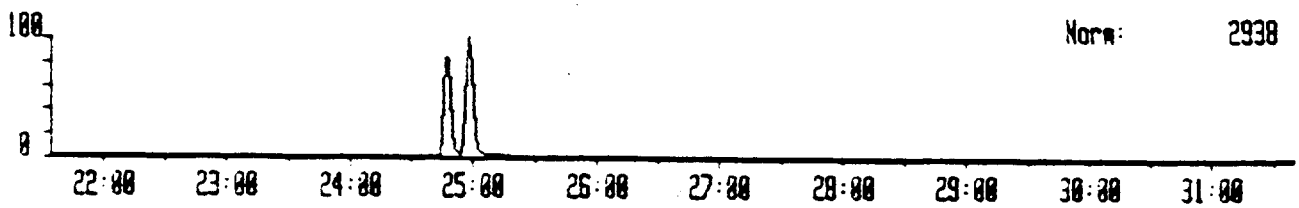
M872283 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:IL-MM5-4



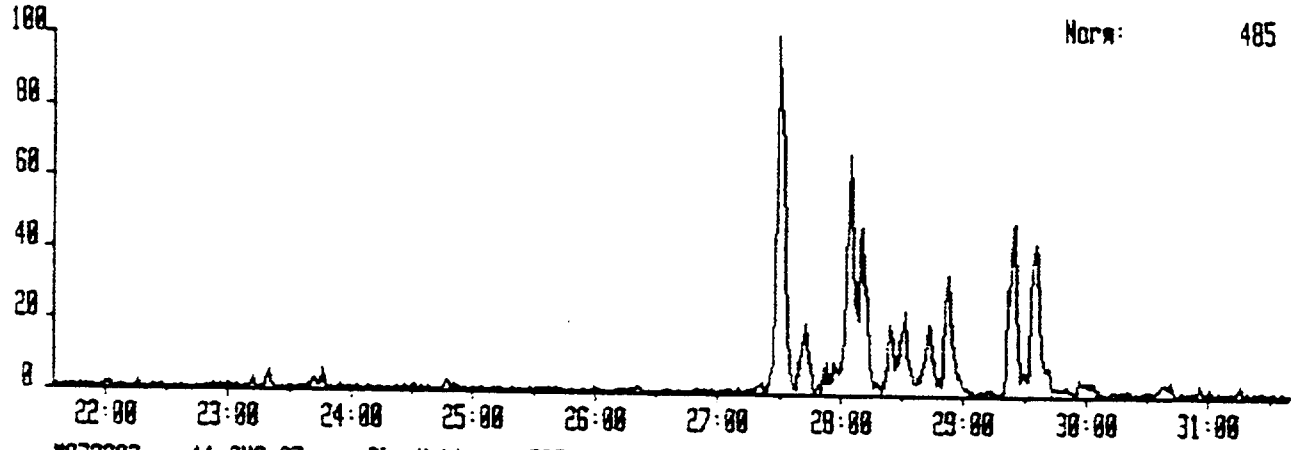
M872283 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 331.9368
Text:IL-MM5-4



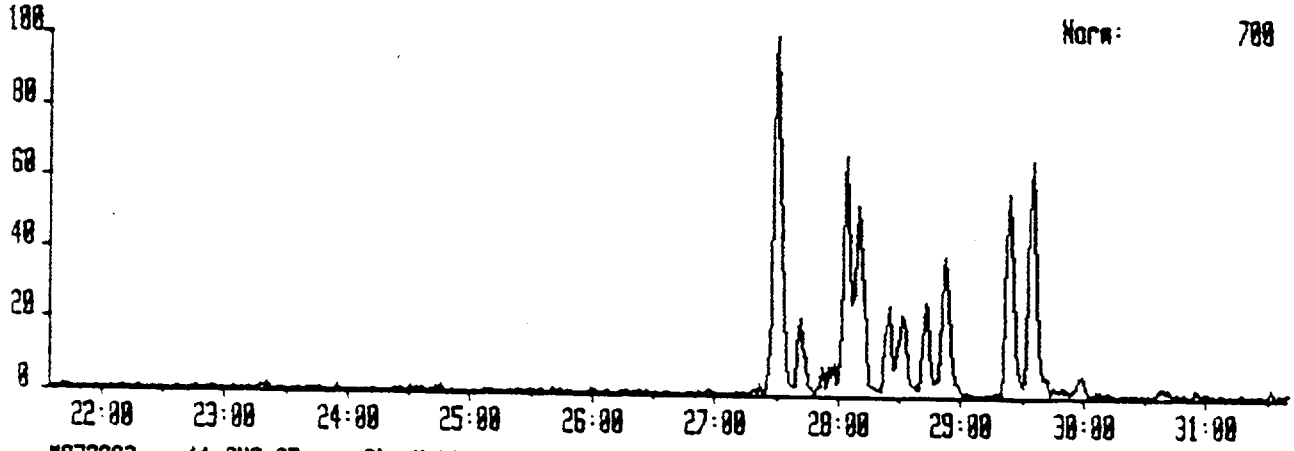
M872283 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 333.9338
Text:IL-MM5-4



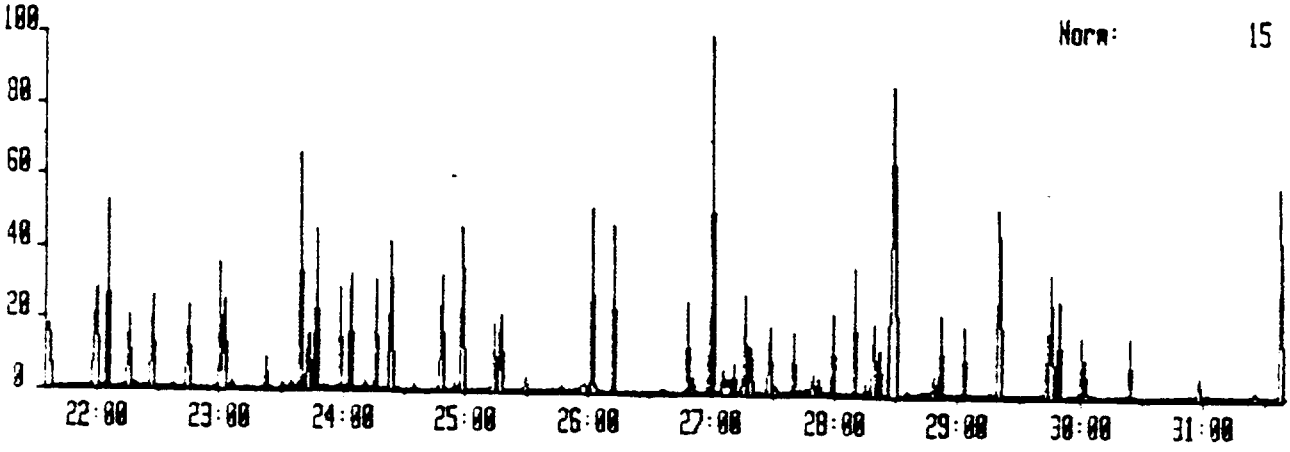
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:IL-MM5-4



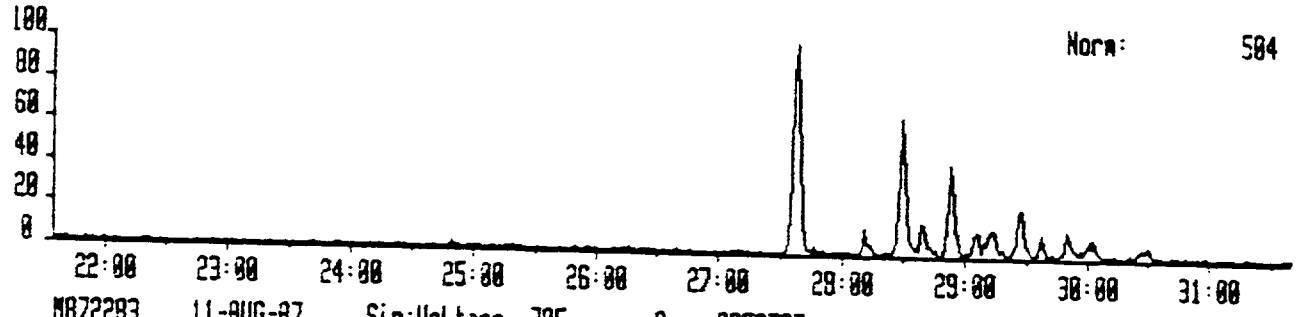
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:IL-MM5-4



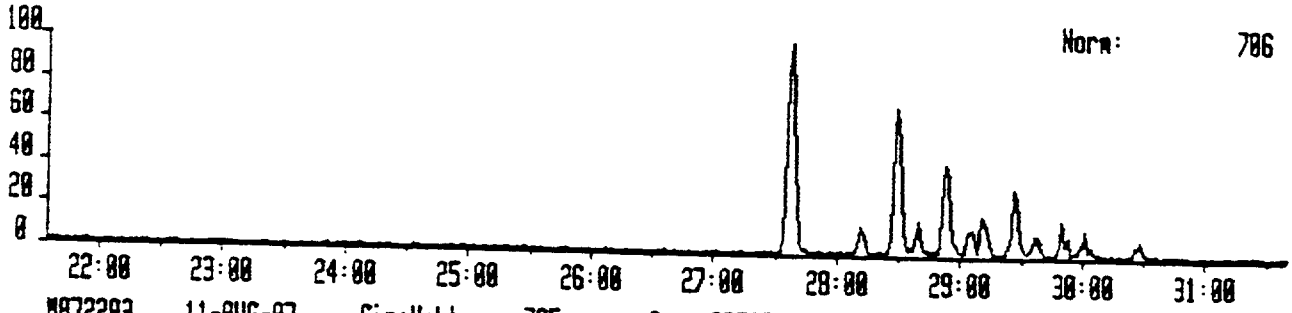
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 407.8883
Text:IL-MM5-4



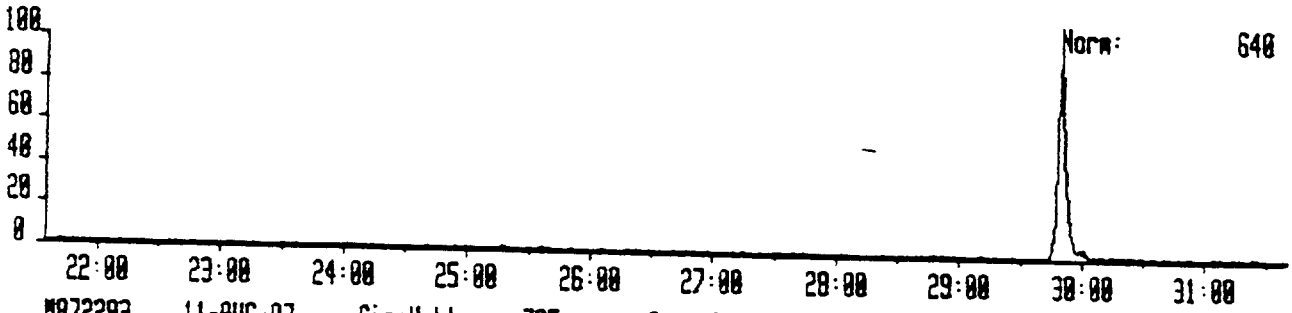
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:IL-MM5-4



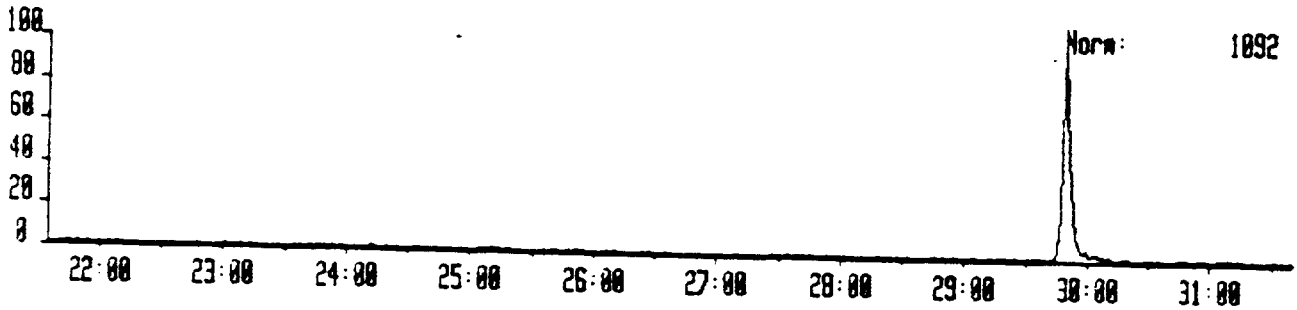
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 355.9546
Text:IL-MM5-4



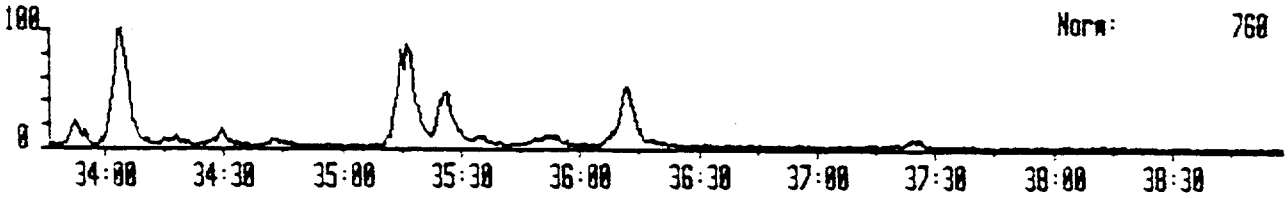
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 365.8977
Text:IL-MM5-4



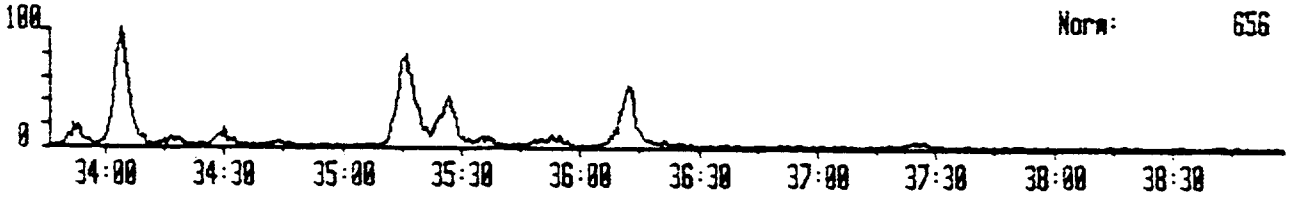
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 367.8948
Text:IL-MM5-4



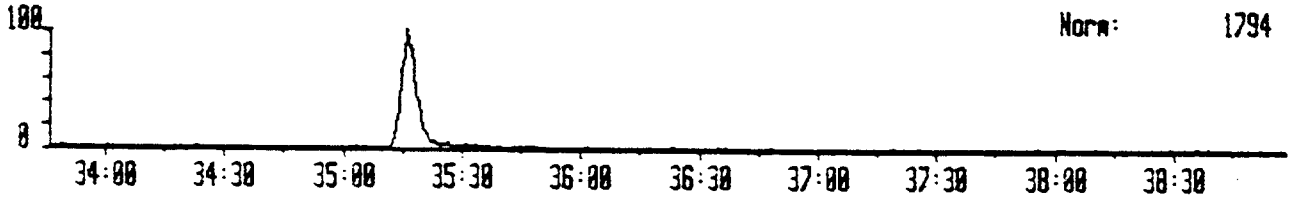
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 373.8207
Text:IL-MM5-4



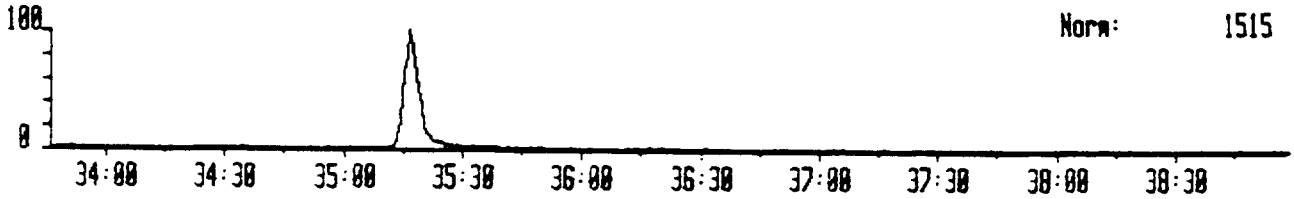
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 375.8178
Text:IL-MM5-4



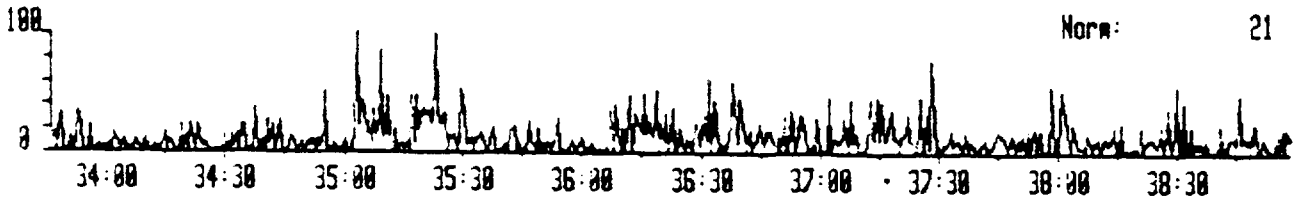
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 385.8689
Text:IL-MM5-4



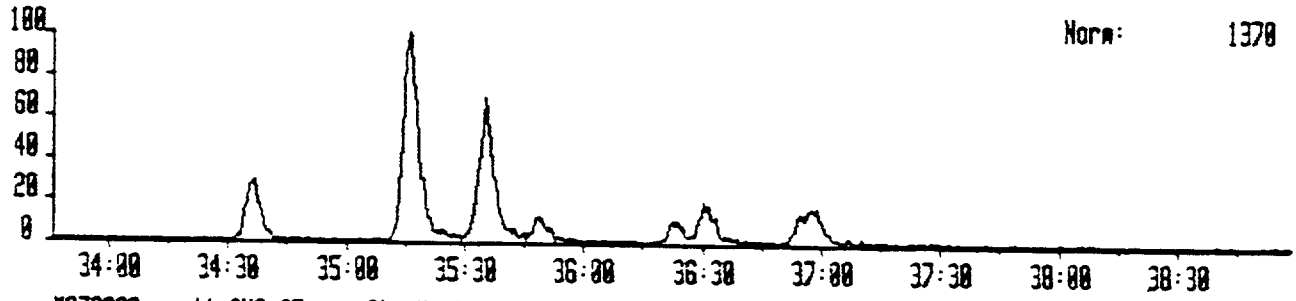
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 387.8588
Text:IL-MM5-4



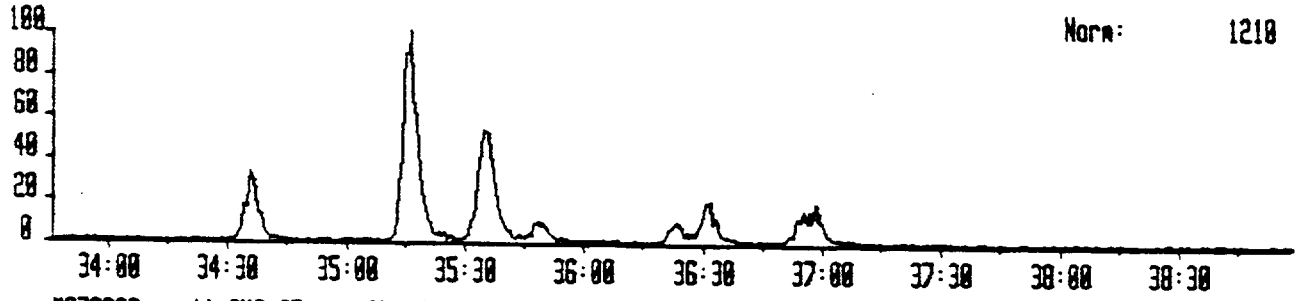
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:IL-MM5-4



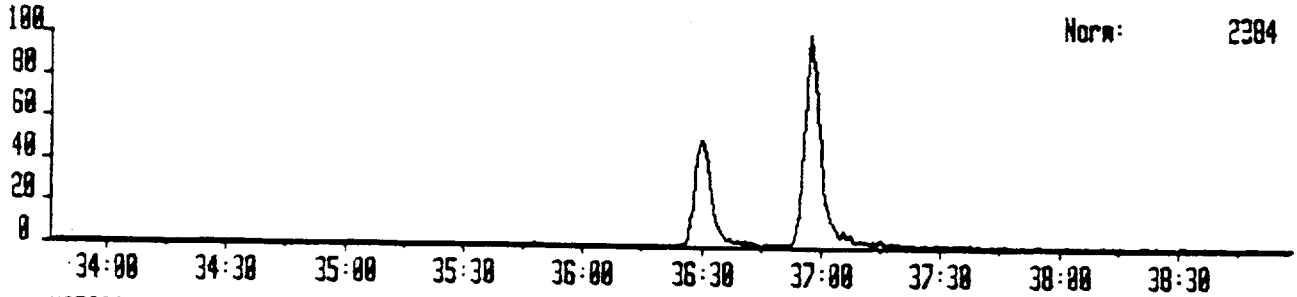
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 389.8156
Text:IL-MM5-4



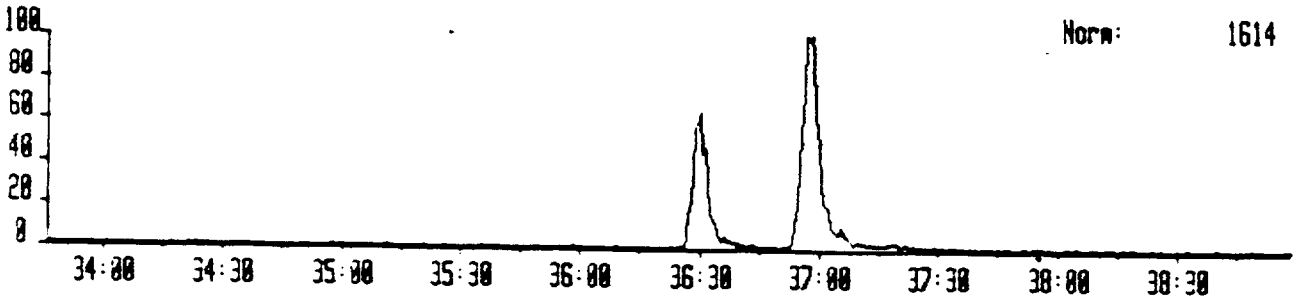
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 391.8127
Text:IL-MM5-4



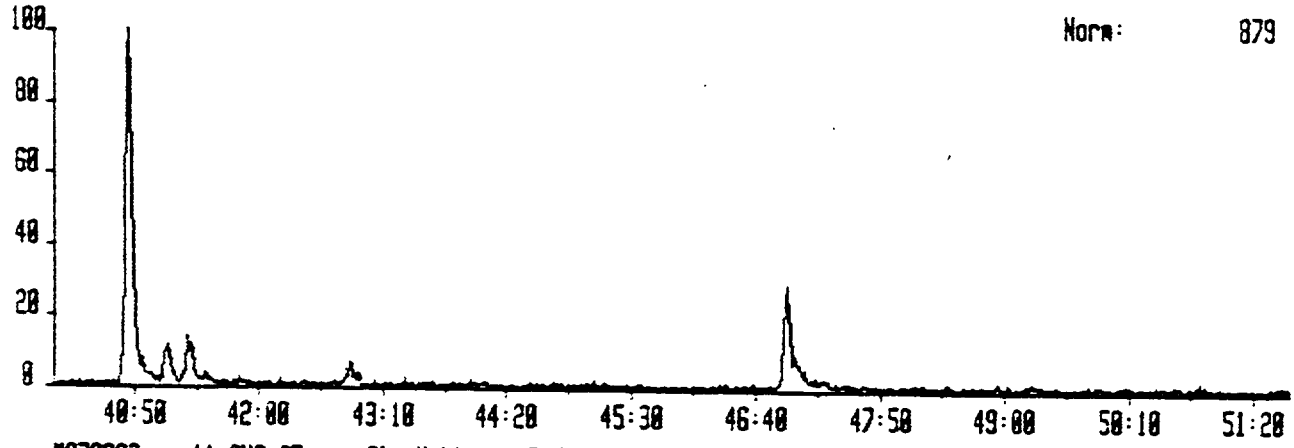
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text:IL-MM5-4



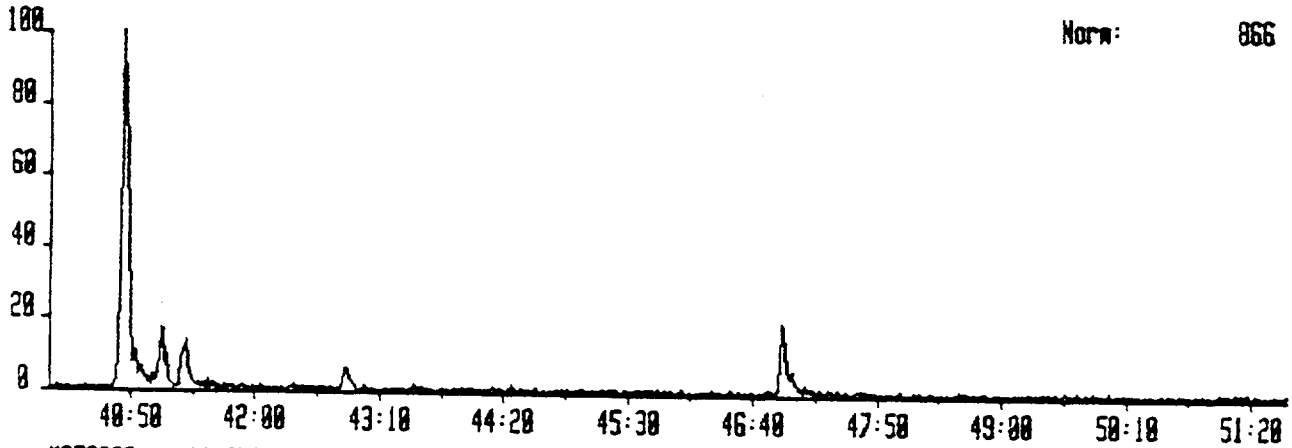
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 403.8529
Text:IL-MM5-4



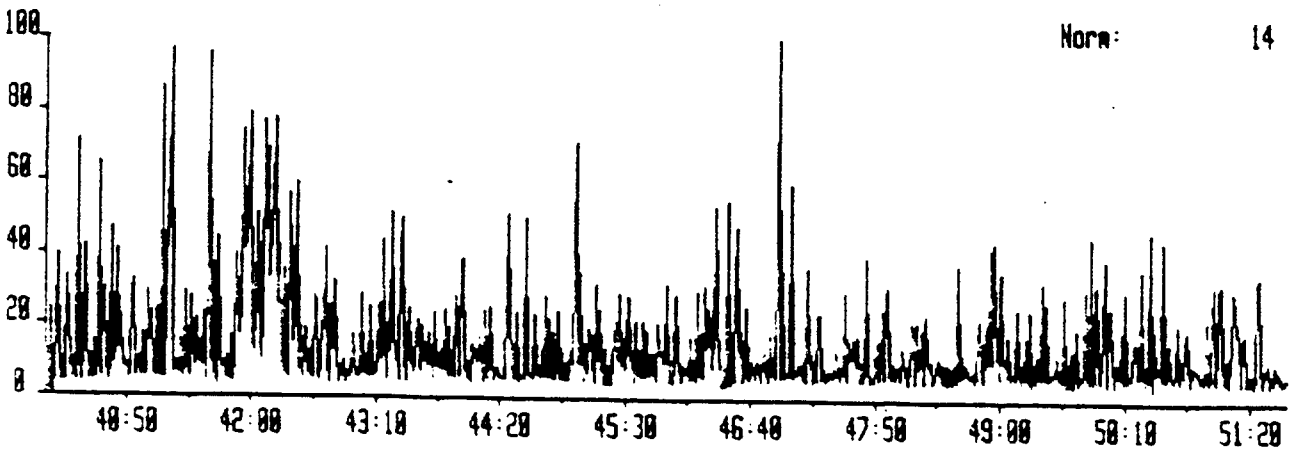
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 407.7817
Text:IL-MMS-4



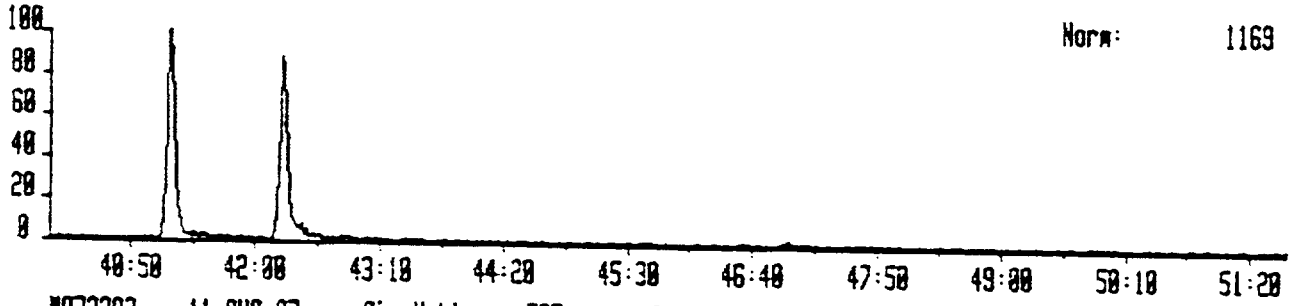
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 409.7788
Text:IL-MMS-4



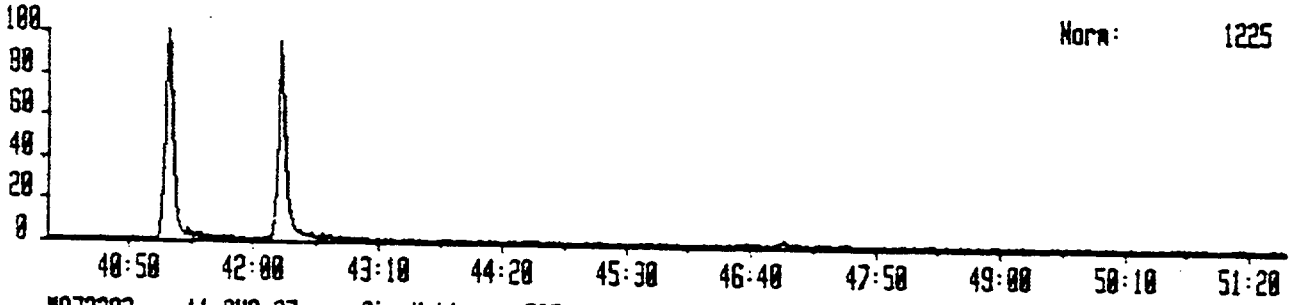
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 477.7288
Text:IL-MMS-4



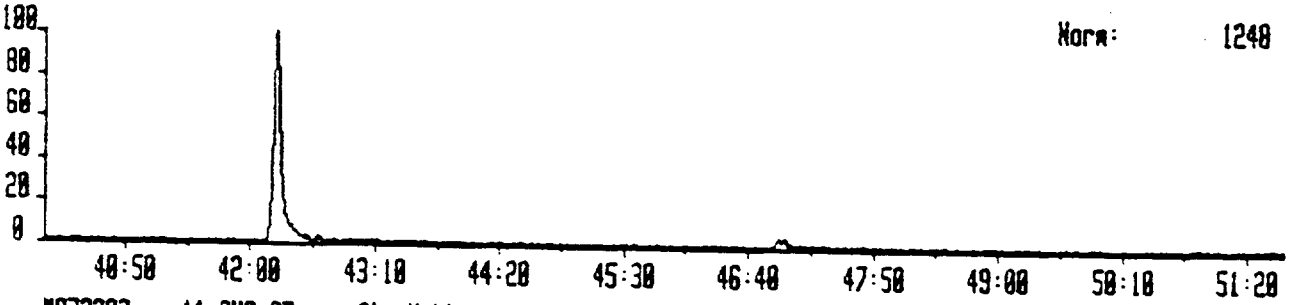
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:IL-MMS-4



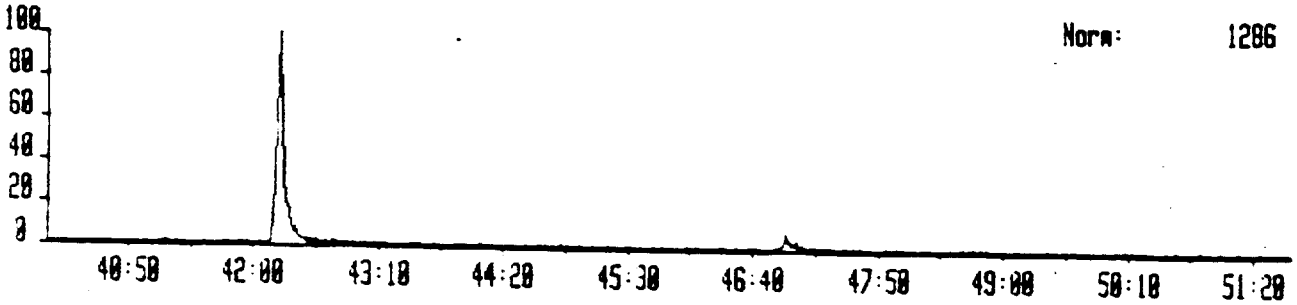
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:IL-MMS-4



M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:IL-MMS-4



M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:IL-MMS-4



M872126

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 315.94

	AREA	RETENTION TIME
1	1.434642E+02	0:13:23
2	3.216362E+03	0:15:16
3	6.533751E+01	0:17:50

M872126

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 317.94

	AREA	RETENTION TIME
1	1.738363E+02	0:13:23
2	4.097998E+03	0:15:16

M872126

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 319.90

	AREA	RETENTION TIME
1	1.004211E+03	0:11:23
2	4.879717E+02	0:12:00
3	6.147571E+02	0:12:14
4	8.274645E+02	0:12:23
5	4.360040E+02	0:12:45

M872126

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 303.90

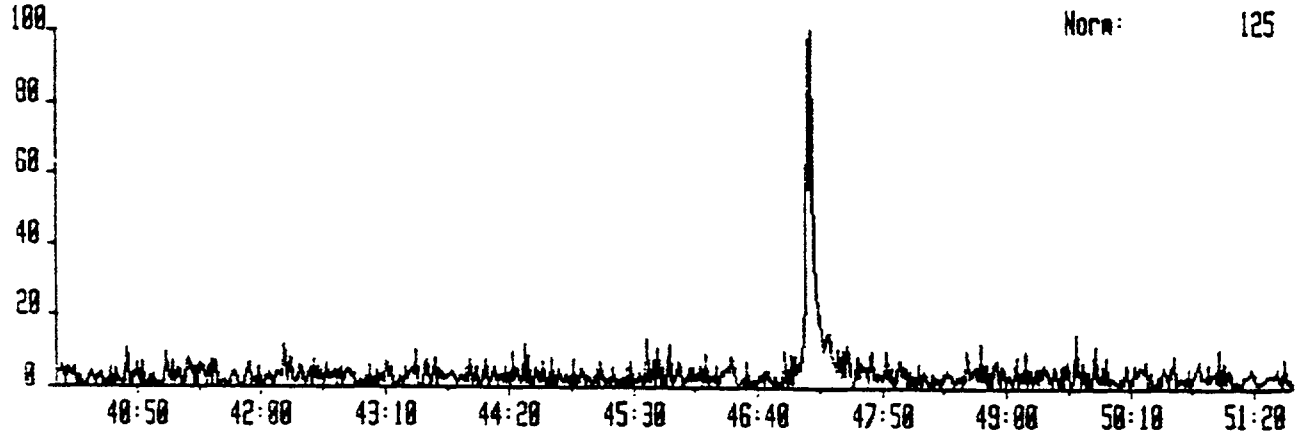
	AREA	RETENTION TIME
1	9.533676E+02	0:12:22
2	3.354144E+02	0:12:30
3	2.460902E+03	0:12:54
4	1.079419E+03	0:13:24
5	1.589390E+03	0:13:45
6	1.046620E+03	0:13:56
7	1.681161E+03	0:14:26
8	1.500638E+03	0:14:57
9	5.951648E+02	0:15:19
10	1.268437E+03	0:15:25
11	1.192663E+03	0:15:41
12	1.013487E+03	0:15:57
13	6.732203E+02	0:16:50
14	1.126180E+03	0:18:18

M872126

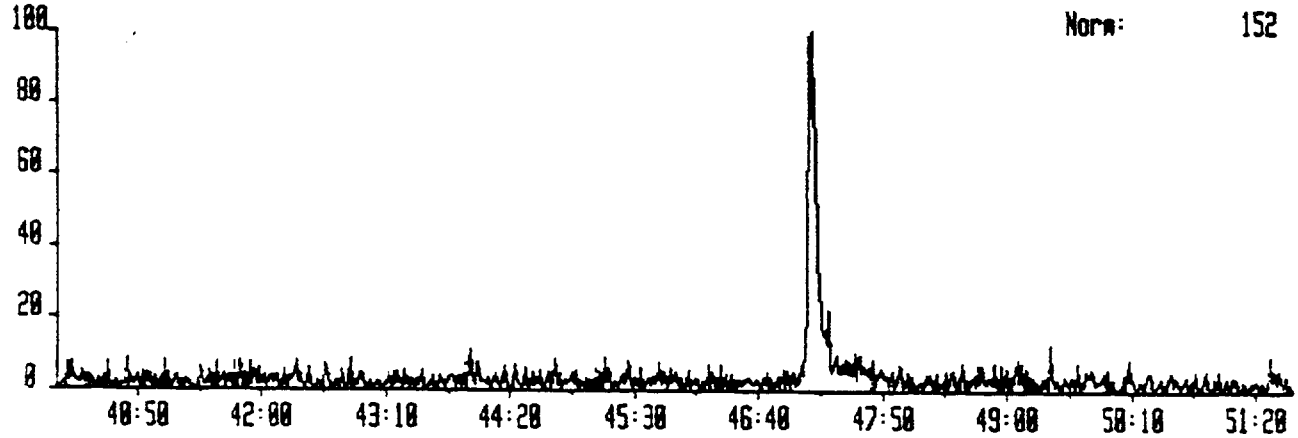
SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 305.90

	AREA	RETENTION TIME
1	2.572847E+02	0:12:10
2	1.284466E+03	0:12:23
3	6.193339E+02	0:12:31
4	3.589368E+03	0:12:54
5	1.321584E+03	0:13:24
6	2.069177E+03	0:13:46
7	1.227346E+03	0:13:57
8	1.947213E+03	0:14:26
9	2.003294E+03	0:14:57
10	8.498187E+02	0:15:17
11	1.604288E+03	0:15:26
12	1.396190E+03	0:15:41
13	1.414890E+03	0:15:57
14	8.487123E+02	0:16:50

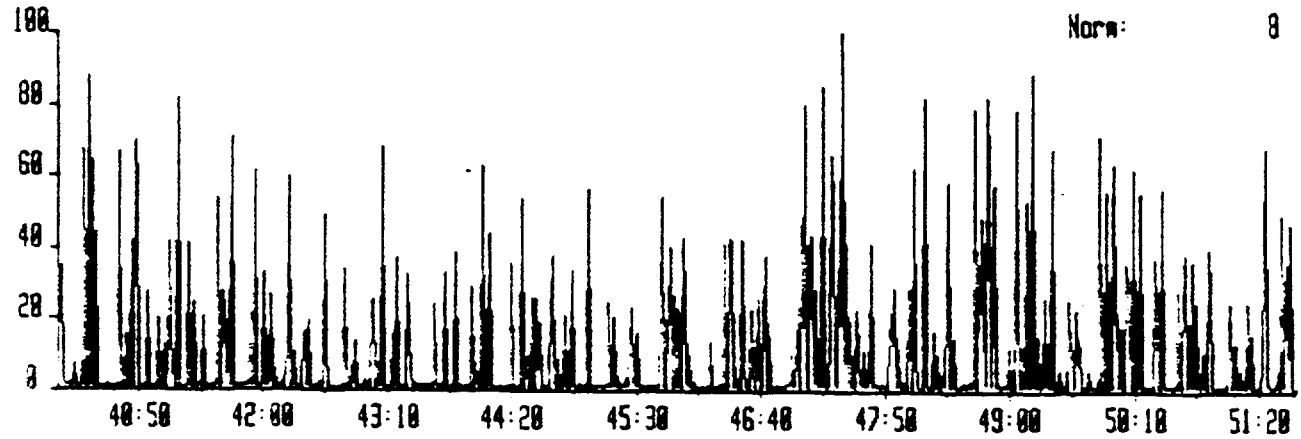
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 441.7428
Text:IL-MM5-4



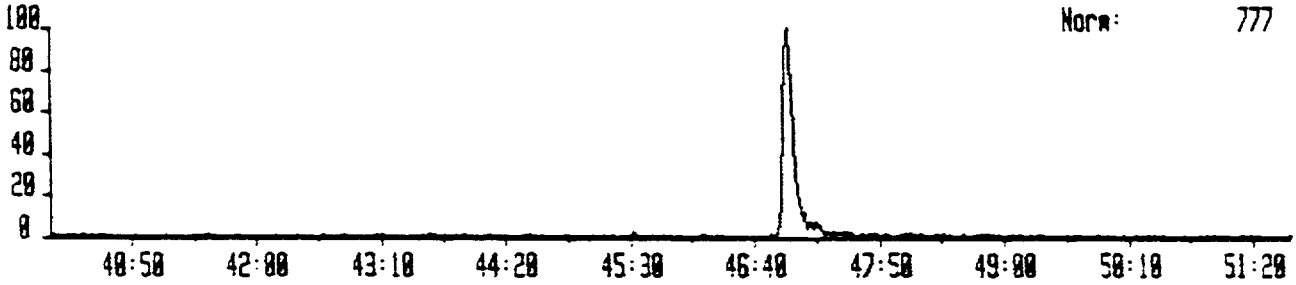
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:IL-MM5-4



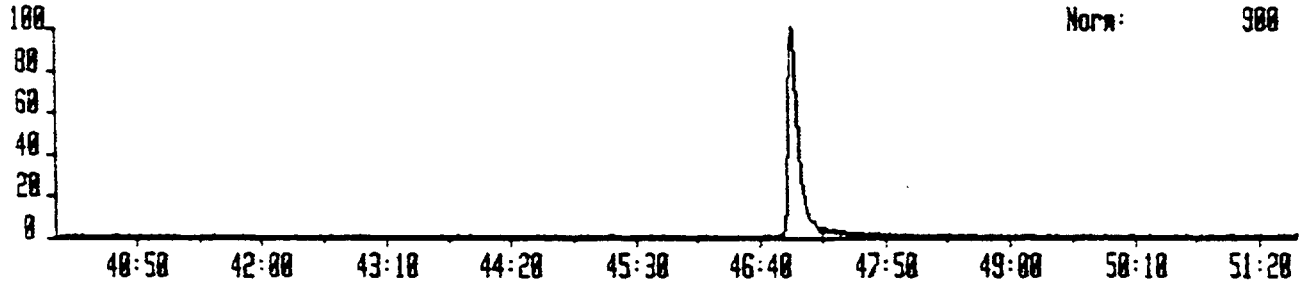
M872283 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 511.6810
Text:IL-MM5-4



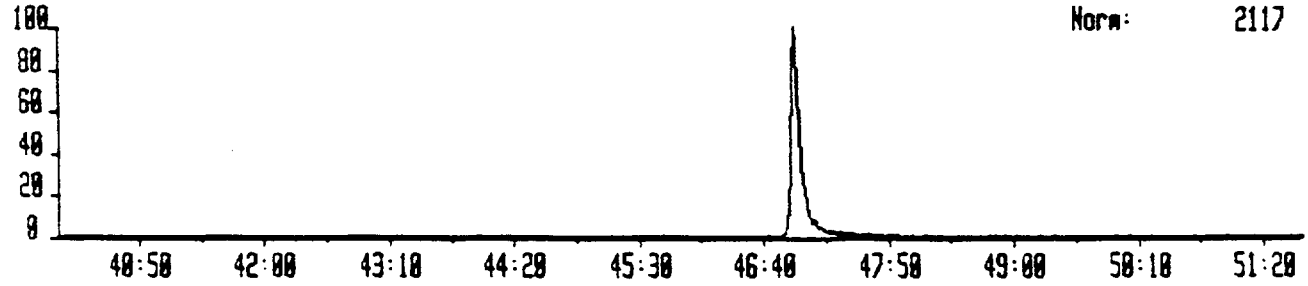
M872283 11-AUG-87 Sir:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:IL-MM5-4



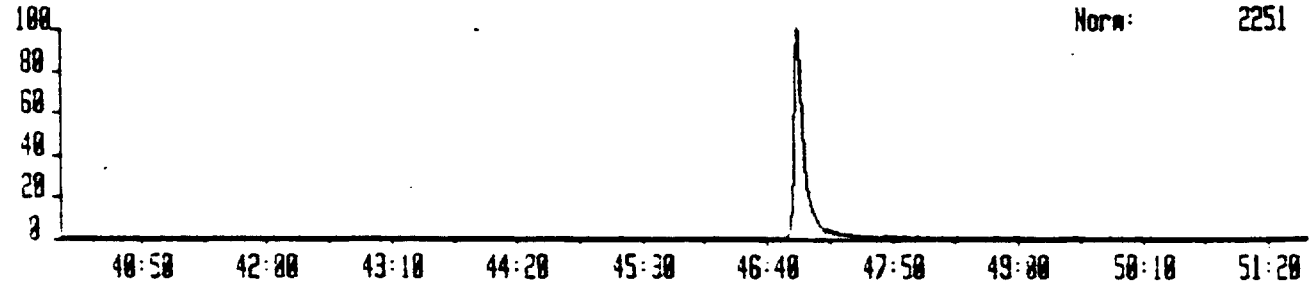
M872283 11-AUG-87 Sir:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:IL-MM5-4



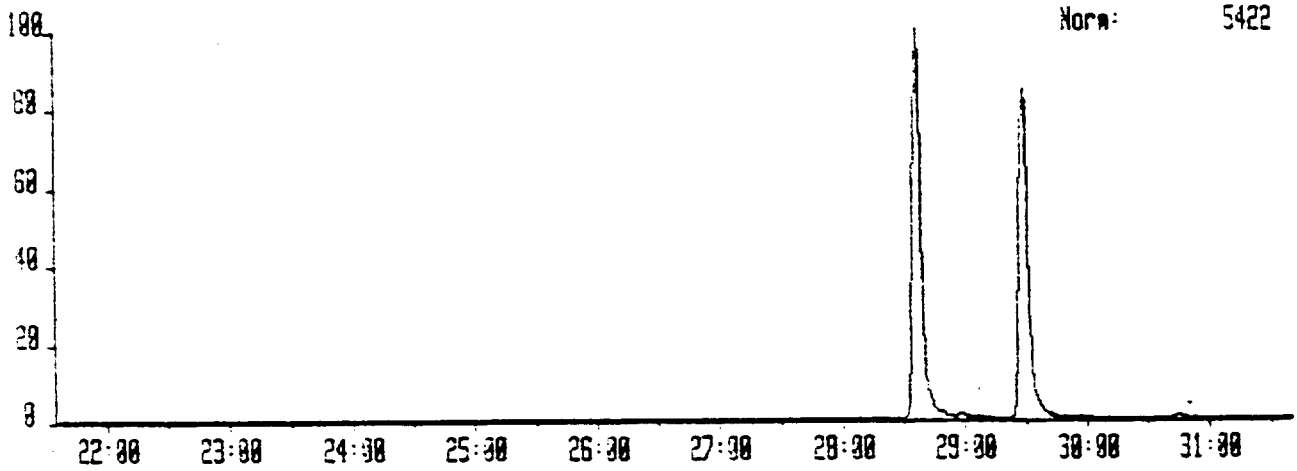
M872283 11-AUG-87 Sir:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:IL-MM5-4



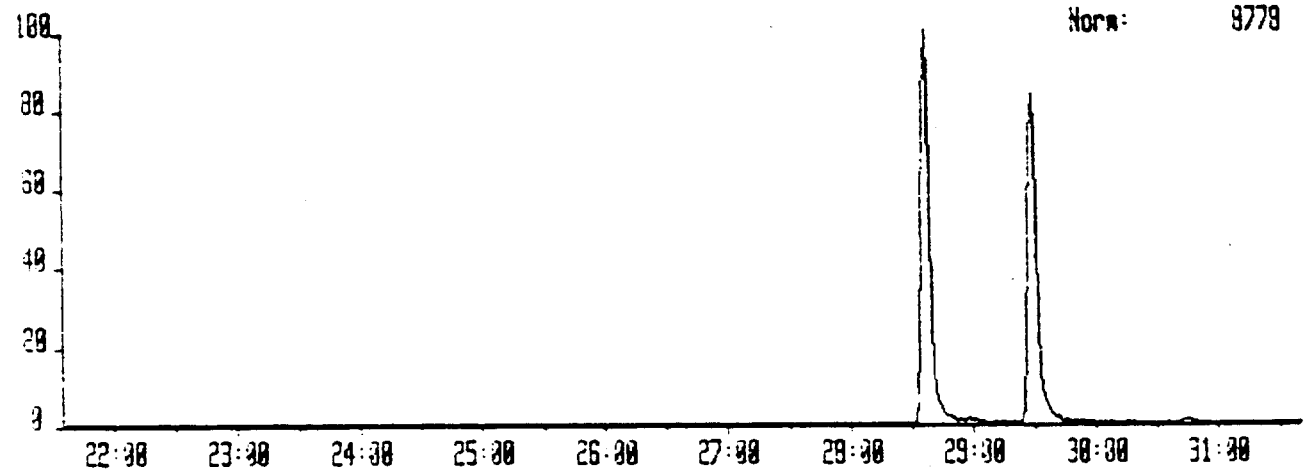
M872283 11-AUG-87 Sir:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 4 Mass 471.7758
Text:IL-MM5-4



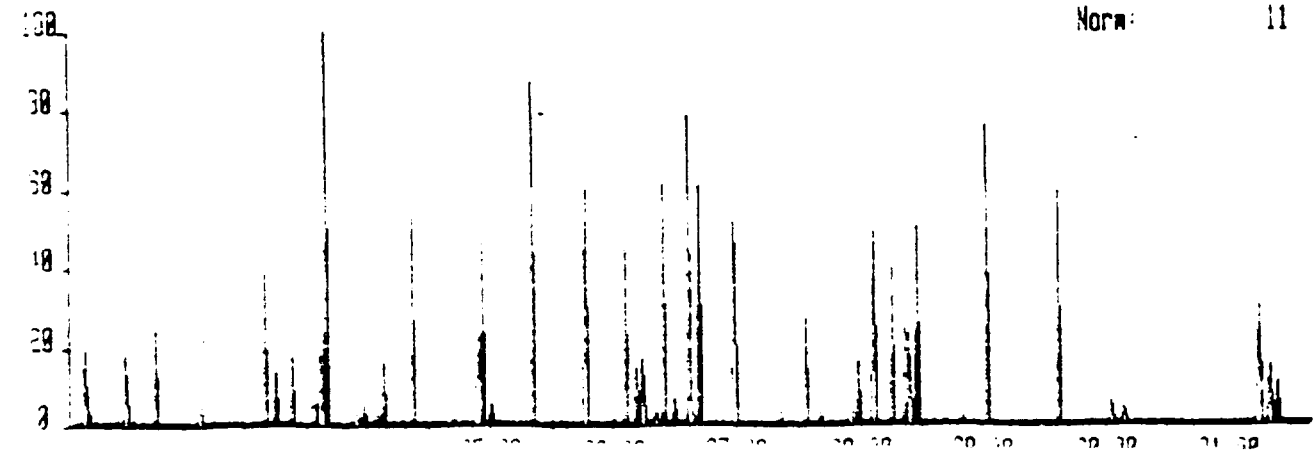
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:CONCAL



M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 339.9597
Text:CONCAL



M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 407.8883
Text:CONCAL



TRIANGLE LABORATORIES, INC.
DIOXIN/FURAN DATA SHEET

FILE NAME : M8-12278 — TLI PROJECT # : ENTROPY
CHEMIST : [illegible] — DATE : 9-20-87
SAMPLE ID : —
SAMPLE WT : 1 — CONCAL # : [illegible]

COMPOUND	M/Z	RATIO RANGE	AREA	RETENTION TIME	NO. OF ISOMERS
TOTAL HCDF	202	(2.61-3.53)	14097	9.50	____
	204		5174		
TOTAL HCDD	218	(2.61-3.53)	11217	10.29	____
	220		> 201		
PCDE	272		4	13.08	
TOTAL DCDF	238	(5.21-7.05)	4315		____
	240		984		
TOTAL DCDD	252	(1.30-1.76)	11251	13.48	____
	254		2620		
PCDE	306		41		
TOTAL TRICDF	270	(0.87-1.17)	1408	17.07	____
	272		1125		
TOTAL TRICDD	286	(0.87-1.17)	615	17.40	____
	288		502		
PCDE	340				
2378-TCDF	304	(0.65-0.89)	8636	24.23	
	306		11573		
TOTAL TCDF	304	(0.65-0.89)	____		____
	306				
13C12-TCDF	316	(0.65-0.89)	9396	24.22	
	318		11394		
2378-TCDD	320	(0.65-0.89)	6704	25.03	
	322		8504		
TOTAL TCDD	320	(0.65-0.89)	____		____
	322				
37C1-TCDD	328		1413	25.03	
1234-13C12-TCDD	332	(0.65-0.89)	4210	24.42	
	334		5172		
2378-13C12-TCDD	332	(0.65-0.89)	6386	25.03	
	334		7948		
PCDE	374				
12378-PeCDF	338	(0.52-0.70)	28122	28.37	
	340		41674		
23478-PeCDF	338	(0.52-0.70)	23837	29.29	
	340		31501		
TOTAL PeCDF	338	(0.52-0.70)	____		____
	340				
12378-PeCDD	354	(0.52-0.70)	17552	29.56	
	356		25414		
TOTAL PeCDD	354	(0.52-0.70)	____		____
	356				

COMPOUND	M/Z	RATIO RANGE	AREA	RETENTION TIME	NO. OF ISOMERS
13C12-PeCDD	366	(0.52-0.70)	1492	29.56	
	368		2691		
123478-HxCDF	374	(1.05-1.41)	40104	35.23	
	376		33523		
123678-HxCDF	374	(1.05-1.41)	48120	35.32	
	376		37951		
234678-HxCDF	374	(1.05-1.41)	33784	36.18	
	376		26792		
123789-HxCDF	374	(1.05-1.41)	24752	37.24	
	376		20238		
TOTAL HxCDF	374	(1.05-1.41)			
	376				
13C12HxCDF	386	(1.05-1.41)	7274	35.23	
	388		6000		
123478-HxCDD	390	(1.05-1.41)	22174	36.29	
	392		17316		
123678-HxCDD	390	(1.05-1.41)	24893	36.36	
	392		17115		
123789-HxCDD	390	(1.05-1.41)	19880	37.05	
	392		16058		
TOTAL HxCDD	390	(1.05-1.41)			
	392				
13C12-HxCDD	402	(1.05-1.41)	2483	36.36	
(123678)	404		1860		
HxCDD-13C	402	(1.05-1.41)	3904	37.04	
(123789)	404		2991		
PCDE	408				
PCDE	444				
1234678-HpCDF	408	(0.87-1.17)	28552	40.53	
	410		24250		
1234789-HpCDF	408	(0.87-1.17)	23395	42.58	
	410		22823		
TOTAL HpCDF	408	(0.87-1.17)			
	410				
1234678-HpCDD	424	(0.87-1.17)	17552	42.21	
	426		16474		
TOTAL HpCDD	424	(0.87-1.17)			
	426				
13C12-HpCDD	436	(0.87-1.17)	2648	42.21	
	438		2440		
PCDE	478				
OCDF	442	(0.75-1.01)	28077	47.17	
	444		29007		
OCDD	458	(0.75-1.01)	30984	47.06	
	460		25346		
13C12-OCDD	470	(0.75-1.01)	4976	47.04	
	472		4942		
PCDE	512				

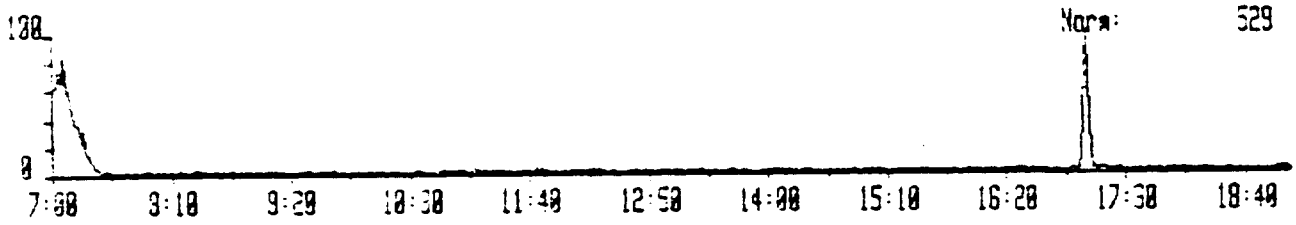
872273
CONTINUING CALIB RT

NAME	RT	M_Z	REL_RT	ID	INTID
2378-TCDF	24.23	304	0.973	AN	IS1
13C12-TCDF	24.22	316	0.973	SURR	IS1
2378-TCDD	25.03	320	1.000	AN	IS1
37CL-TCDD	25.03	328	1.000	SURR	IS1
1234-13C12-TCDD	24.52	332	0.993	RS1	IS1
2378-13C12-TCDD	25.03	332	1.000	IS1	RS1
12378-PCDF	28.37	338	0.956	AN	IS2
23478-PCDF	29.29	338	0.985	AN	IS2
12378-PCDD	29.56	354	1.000	AN	IS2
13C12-PCDD	29.56	366	1.000	IS2	RS1
123478-HxCDF	35.23	374	0.967	AN	IS3
123678-HxCDF	35.32	374	0.971	AN	IS3
234678-HxCDF	36.18	374	0.992	AN	IS3
123789-HxCDF	37.24	374	1.022	AN	IS3
13C12-HxCDF	35.23	386	0.967	SURR	IS3
123478-HxCDD	36.29	390	0.997	AN	IS3
123678-HxCDD	36.36	390	1.000	AN	IS3
123789-HxCDD	37.05	390	1.013	AN	IS3
13C-123789HxCDD	37.04	402	1.013	RS2	IS3
13C12-HxCDD	36.36	402	1.000	IS3	RS2
1234678-HpCDF	40.53	408	0.965	AN	IS4
1234789-HpCDF	42.58	408	1.015	AN	IS4
1234678-HpCDD	42.21	424	1.000	AN	IS4
13C12-HpCDD	42.21	436	1.000	IS4	RS2
OCDF	47.17	442	1.005	AN	IS5
OCDD	47.06	458	1.001	AN	IS5
13C12-OCDD	47.04	470	1.000	IS5	RS2
*** Total ***					
	935.94	***	26.808		

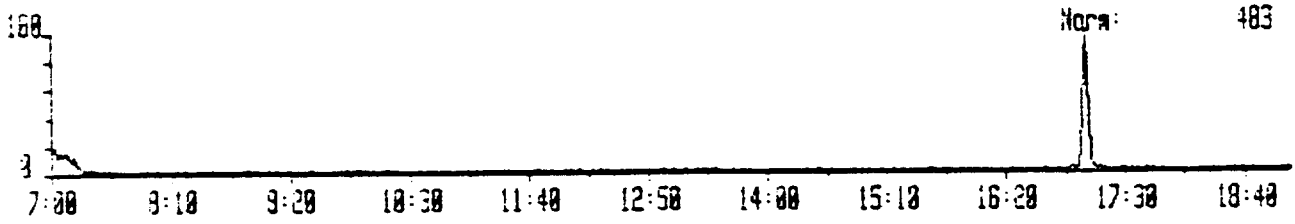
8722?3R
CONTINUING CALIB RF

NAME	RESP FACT.	ID	INTID
2378-TCDF	0.000	AN	IS1
13C12-TCDF	0.000	SURR	IS1
2378-TCDD	0.000	AN	IS1
37CL-TCDD	0.000	SURR	IS1
1234-13C12-TCDD	0.000	RS1	IS1
2378-13C12-TCDD	0.000	IS1	RS1
12378-PCDF	0.000	AN	IS2
23478-PCDF	0.000	AN	IS2
12378-PCDD	0.000	AN	IS2
13C12-PCDD	0.000	IS2	RS1
123478-HxCDF	0.000	AN	IS3
123678-HxCDF	0.000	AN	IS3
234678-HxCDF	0.000	AN	IS3
123789-HxCDF	0.000	AN	IS3
13C12-HxCDF	0.000	SURR	IS3
123478-HxCDD	0.000	AN	IS3
123678-HxCDD	0.000	AN	IS3
123789-HxCDD	0.000	AN	IS3
13C-123789HxCDD	0.000	RS2	IS3
13C12-HxCDD	0.000	IS3	RS2
1234678-HpCDF	0.000	AN	IS4
1234789-HpCDF	0.000	AN	IS4
1234678-HpCDD	0.000	AN	IS4
13C12-HpCDD	0.000	IS4	RS2
OCDF	0.000	AN	IS5
OCDD	0.000	AN	IS5
13C12-OCDD	0.000	IS5	RS2
*** Total ***	0.000		

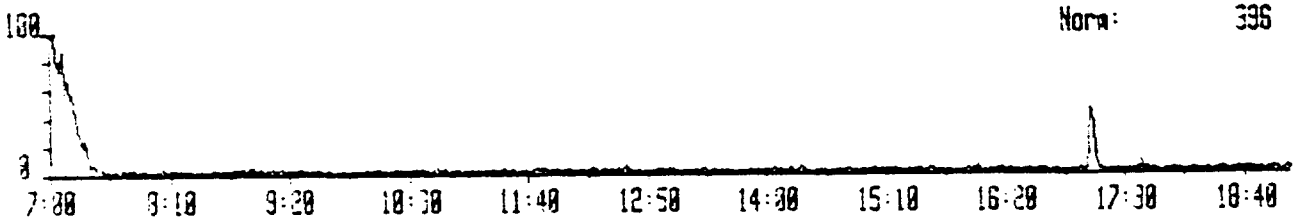
M872278 11-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 1 Mass 263.2406
Text:CONCAL



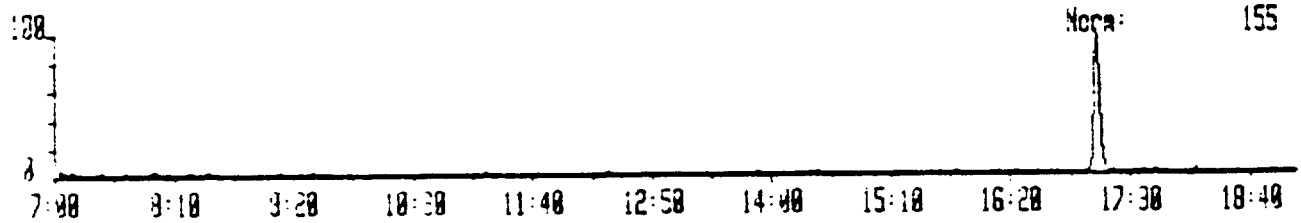
M872278 11-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 1 Mass 271.3377
Text:CONCAL



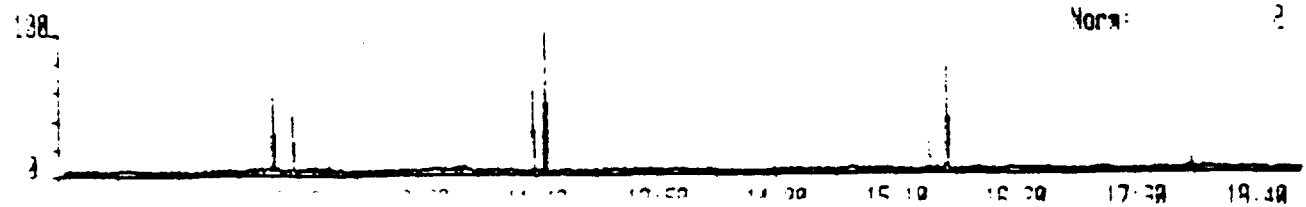
M872278 11-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 1 Mass 285.3355
Text:CONCAL



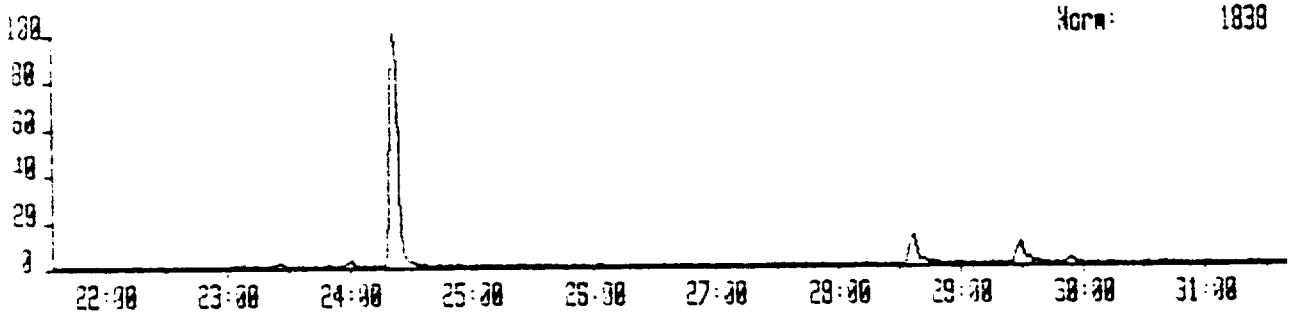
M872278 11-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 1 Mass 297.9326
Text:CONCAL



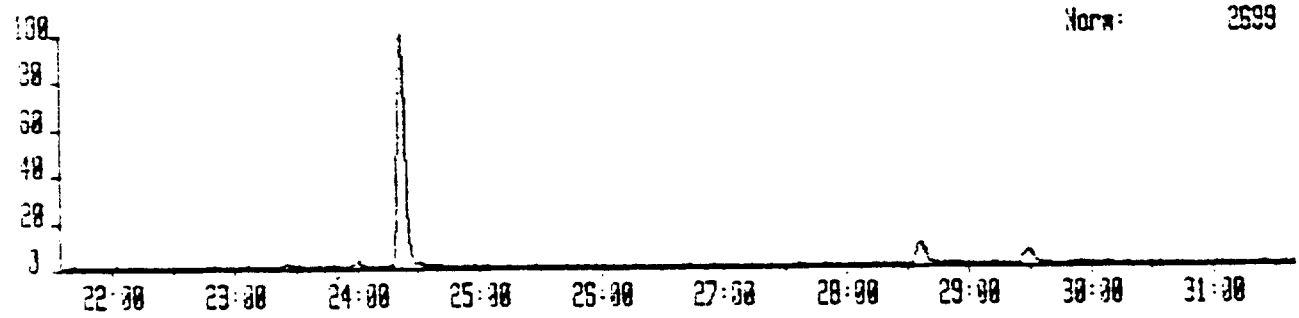
M872278 11-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 1 Mass 339.3798
Text:CONCAL



M872278 11-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 2 Mass 303.3016
Text:CONCAL

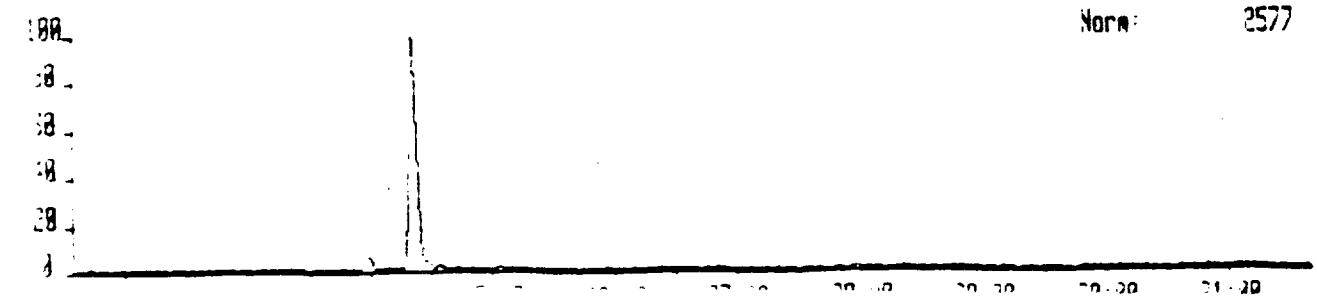


M872278 11-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 2 Mass 305.3387
Text:CONCAL

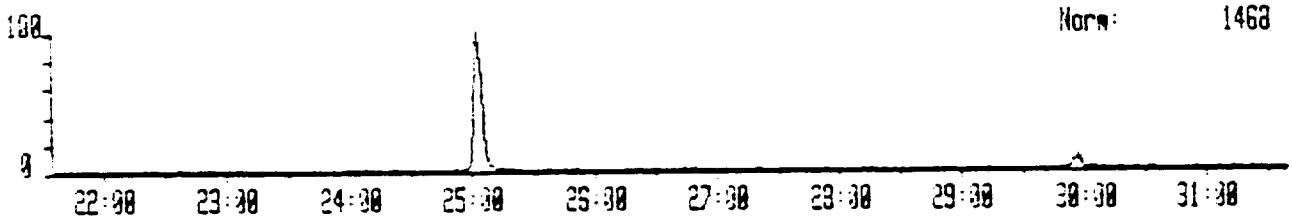


M872278 11-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 2 Mass 315.3419
Text:CONCAL

M872278 11-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 2 Mass 317.3389
Text:CONCAL



M872278 11-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:CONCAL



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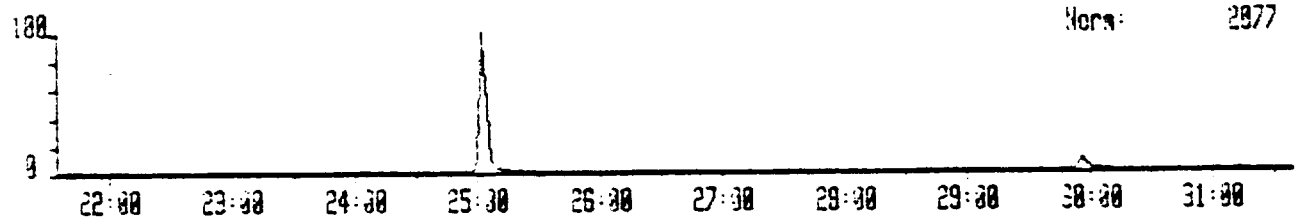
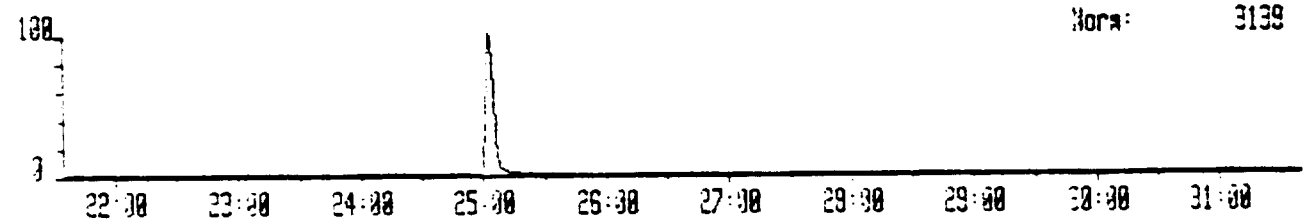
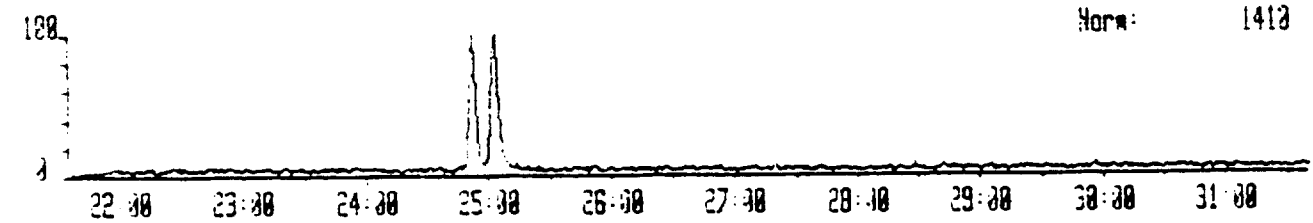
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:CONCAL



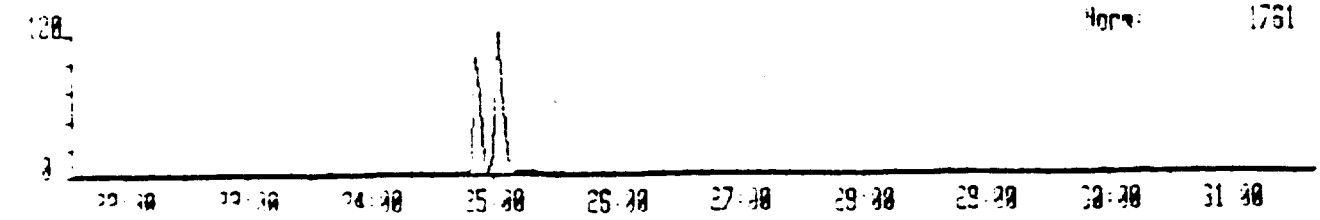
M872278 11-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:CONCAL



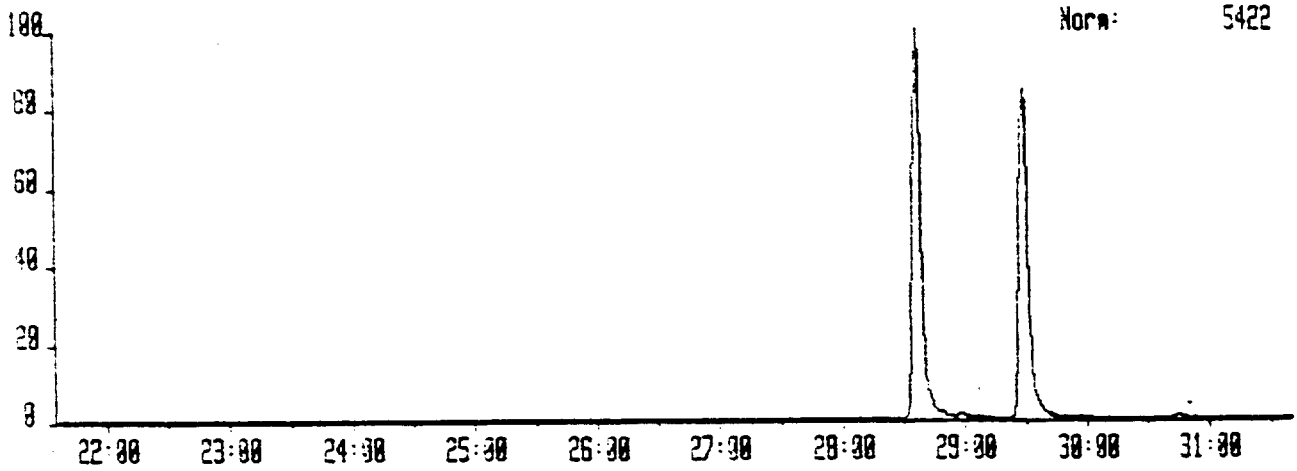
M872278 11-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 2 Mass 331.8868
Text:CONCAL



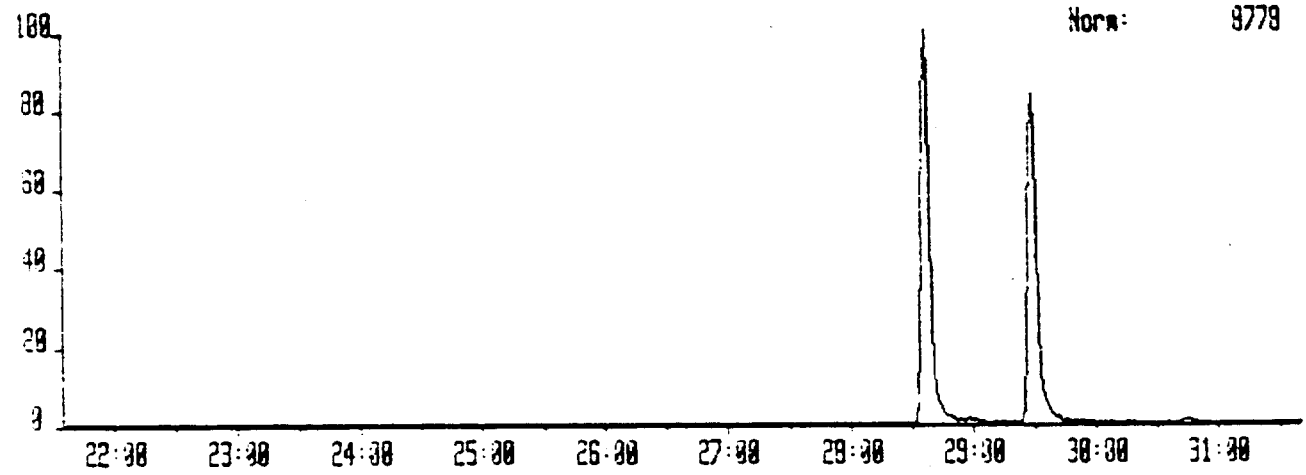
M872278 11-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 2 Mass 333.8838
Text:CONCAL



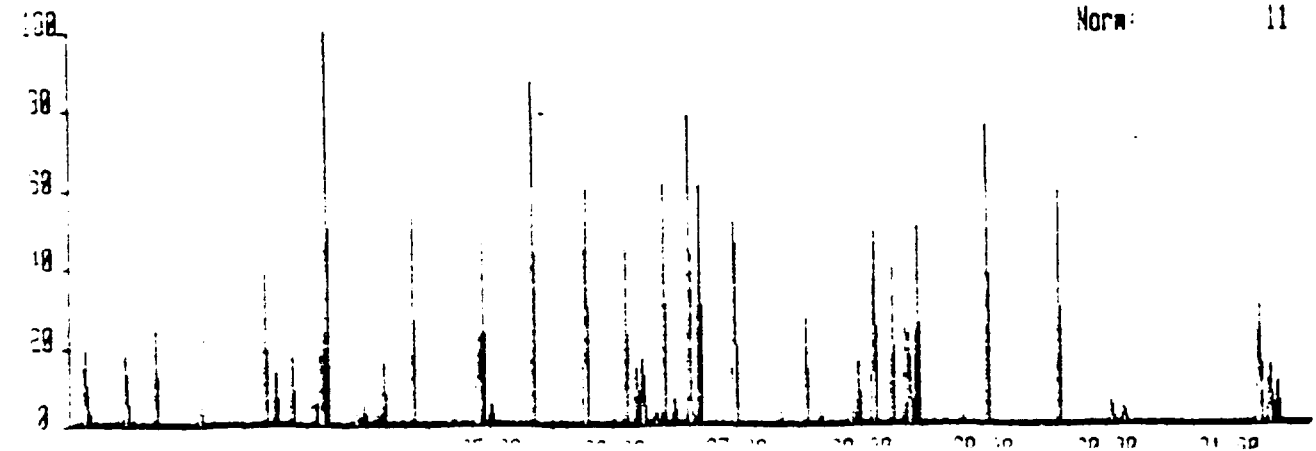
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:CONCAL



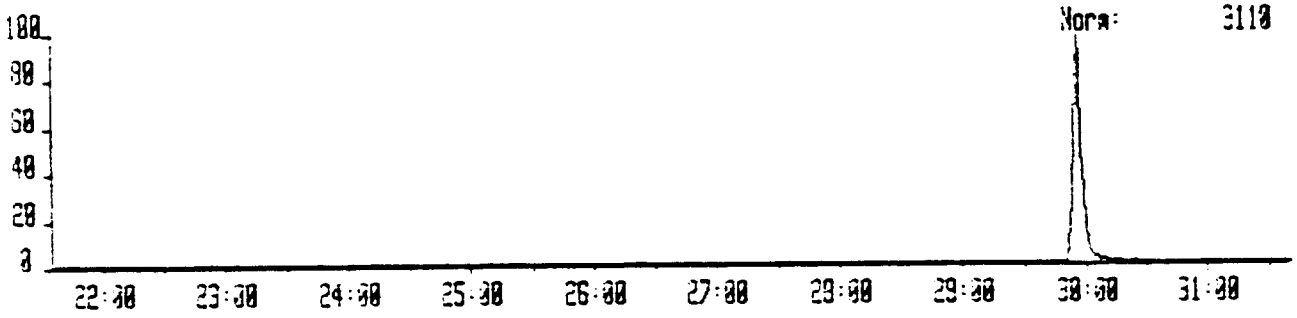
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 339.9597
Text:CONCAL



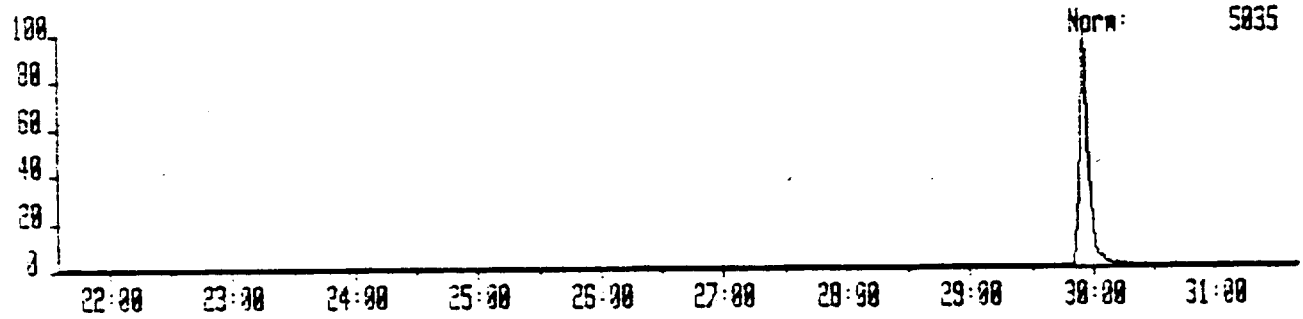
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 407.8883
Text:CONCAL



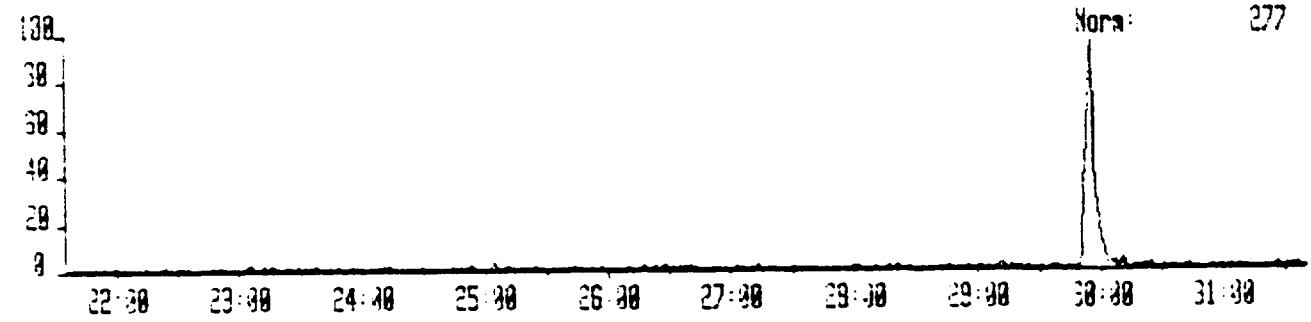
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 353.3575
Text:CONCAL



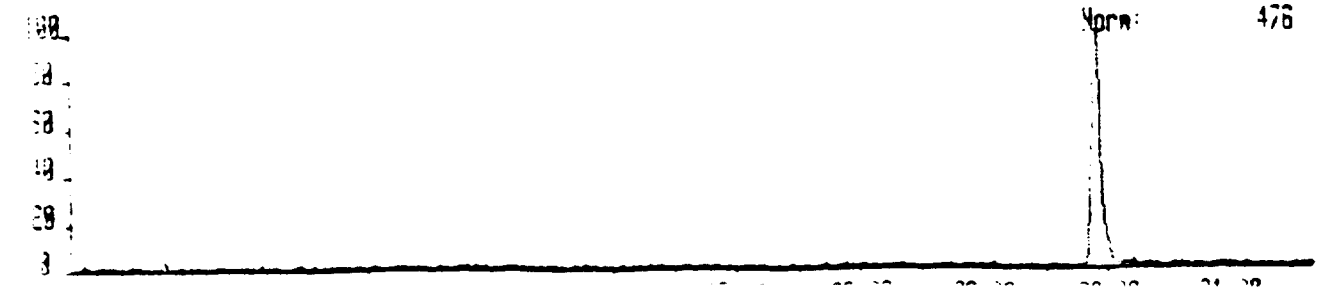
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 355.3546
Text:CONCAL



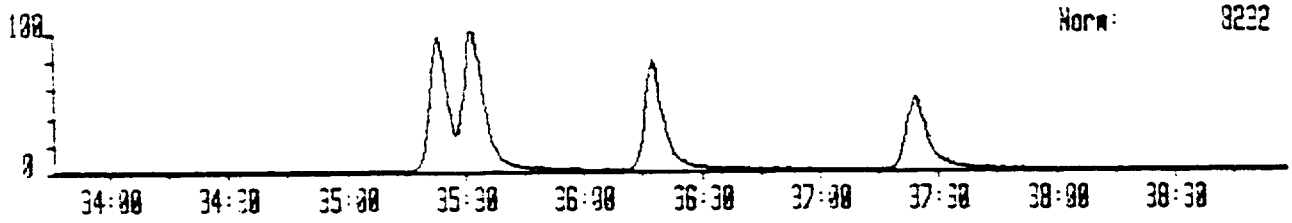
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 365.3977
Text:CONCAL



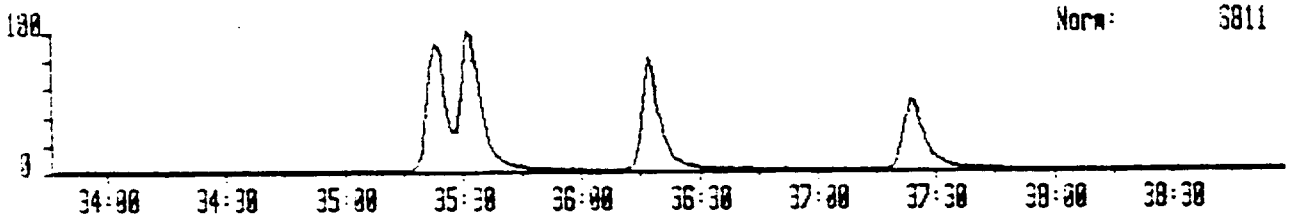
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 367.3948
Text:CONCAL



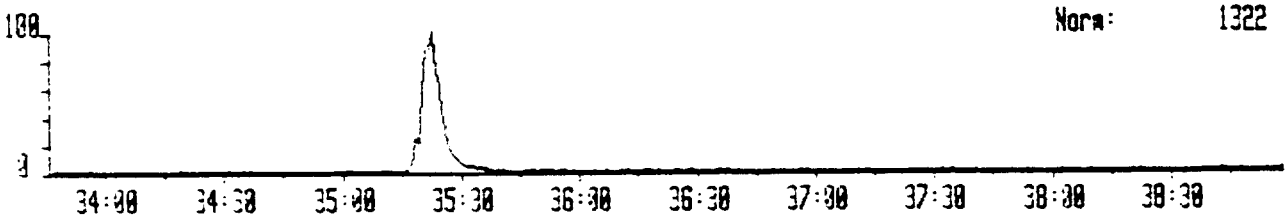
M872279 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 373.3297
Text:CONCAL



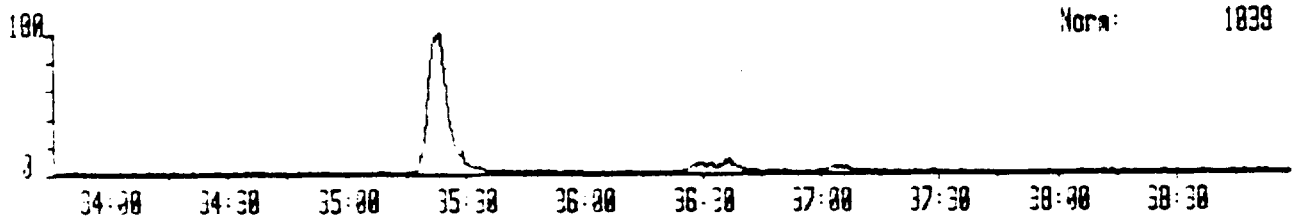
M872279 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 375.3178
Text:CONCAL



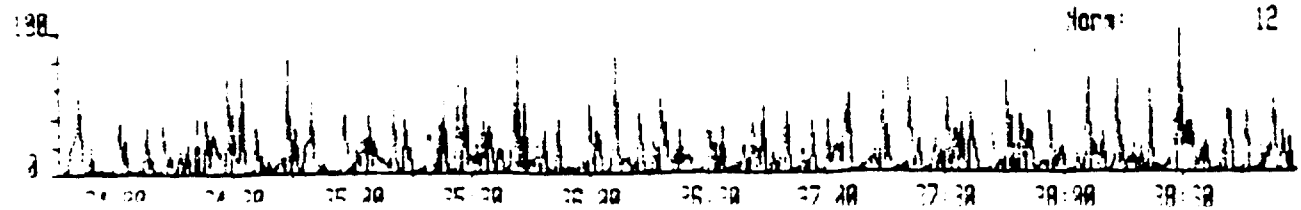
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 385.8609
Text:CONCAL



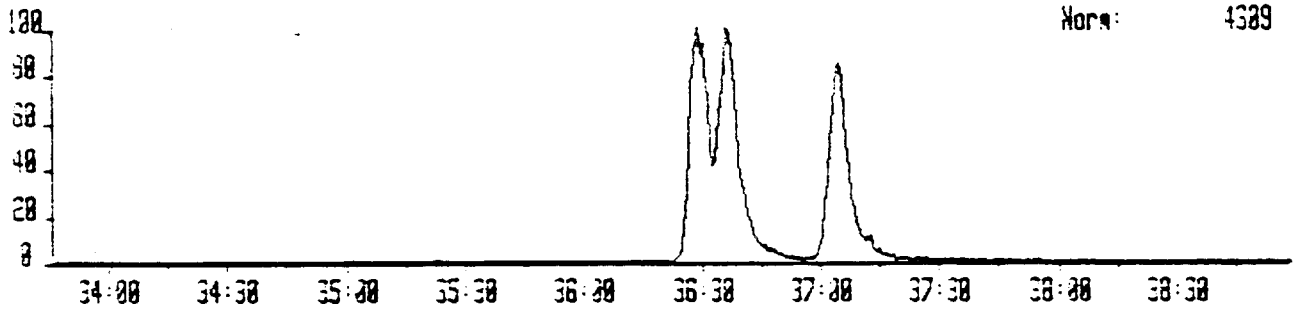
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 387.3588
Text:CONCAL



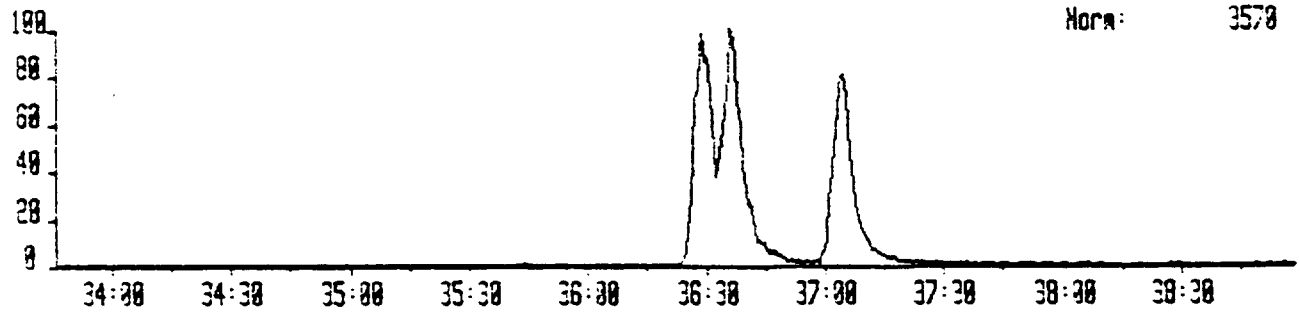
M872279 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:CONCAL



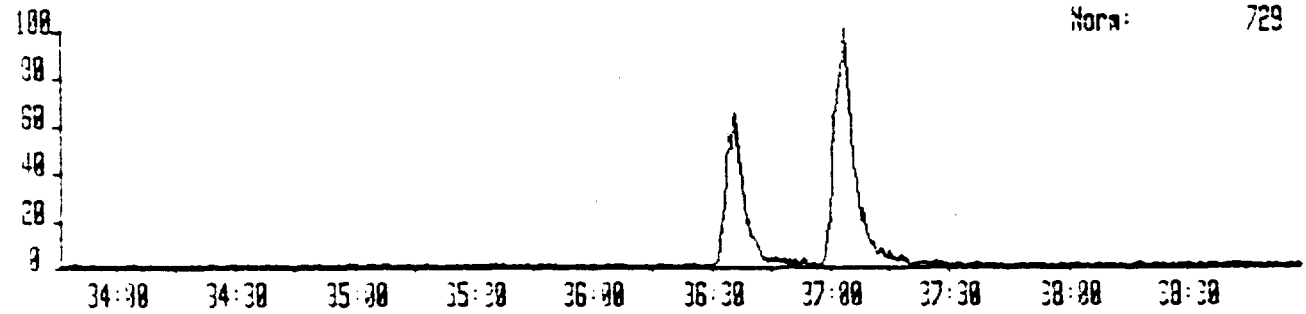
M972278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 389.3156
Text:CONCAL



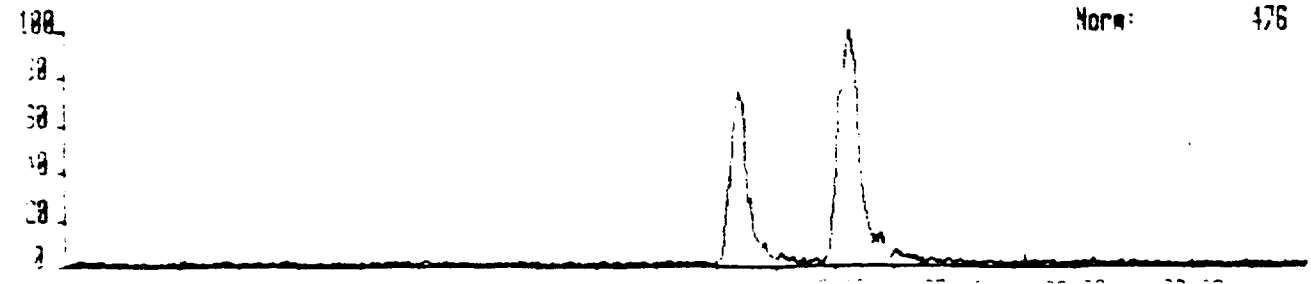
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 391.3127
Text:CONCAL



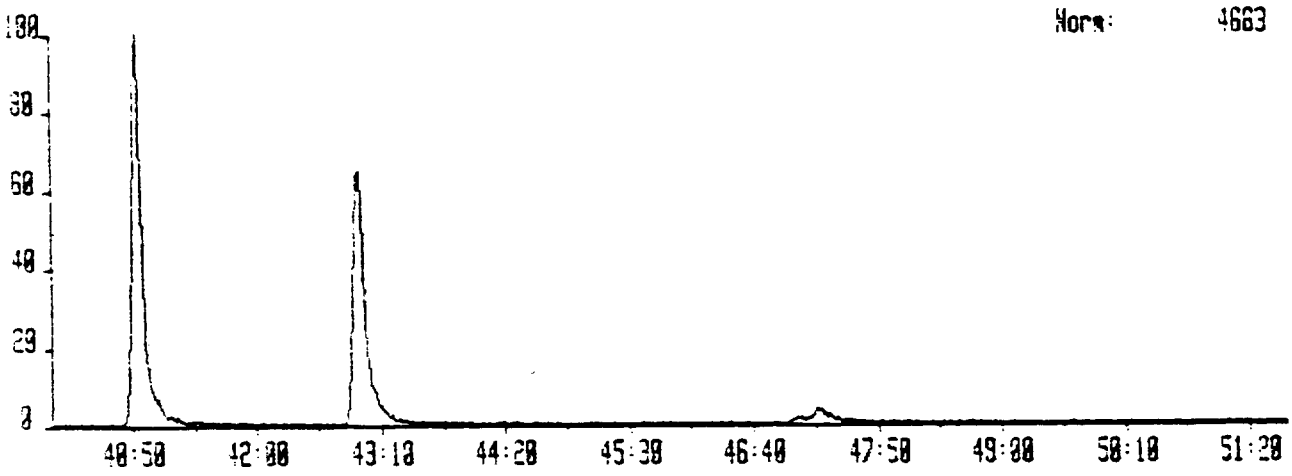
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 401.3558
Text:CONCAL



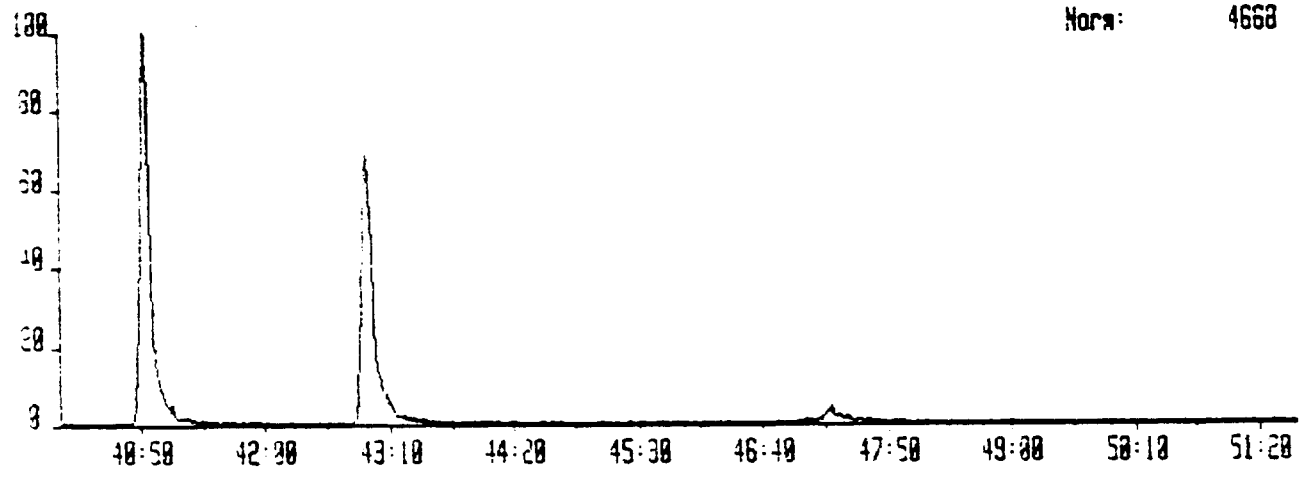
M972278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 403.3529
Text:CONCAL



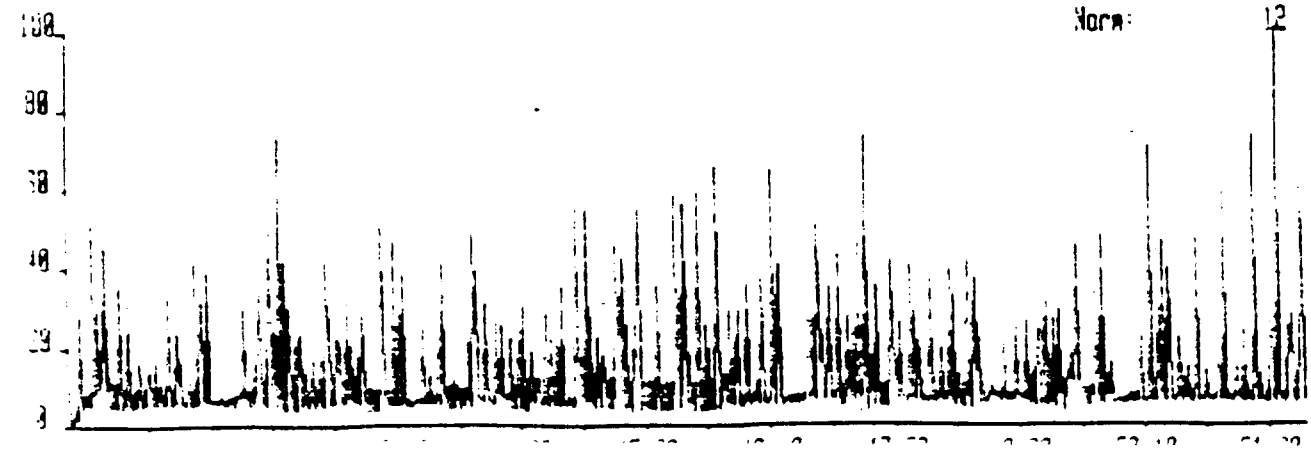
M872278 11-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 4 Mass 407.7817
Text:CONCAL



M872278 11-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 4 Mass 409.7788
Text:CONCAL



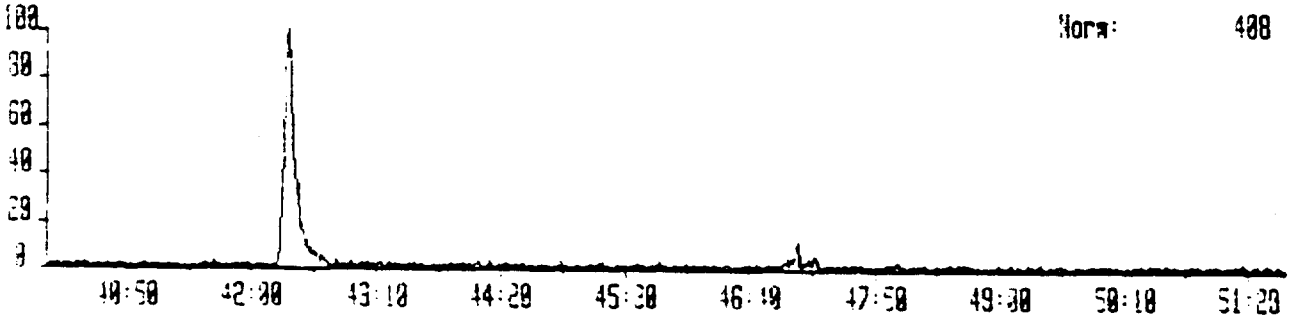
M872278 11-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 4 Mass 477.7200
Text:CONCAL



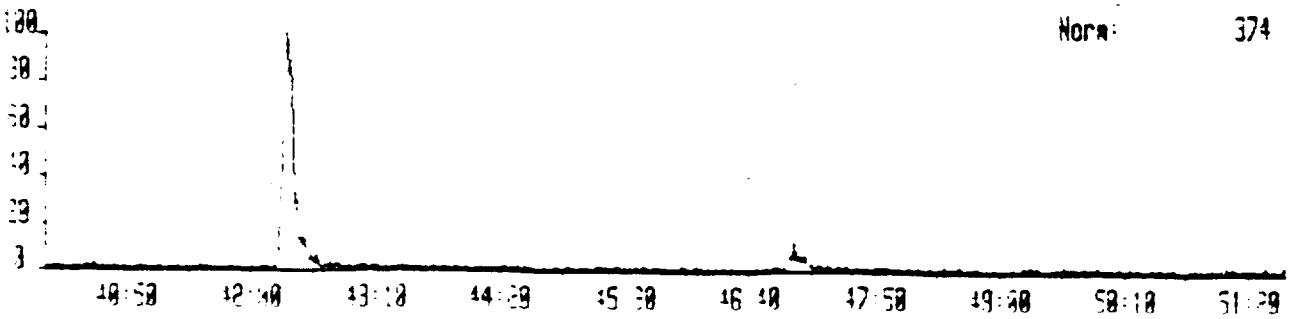
M872278 11-AUG-87 Str:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:CONCAL

M872278 11-AUG-87 Str:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 425.7727
Text:CONCAL

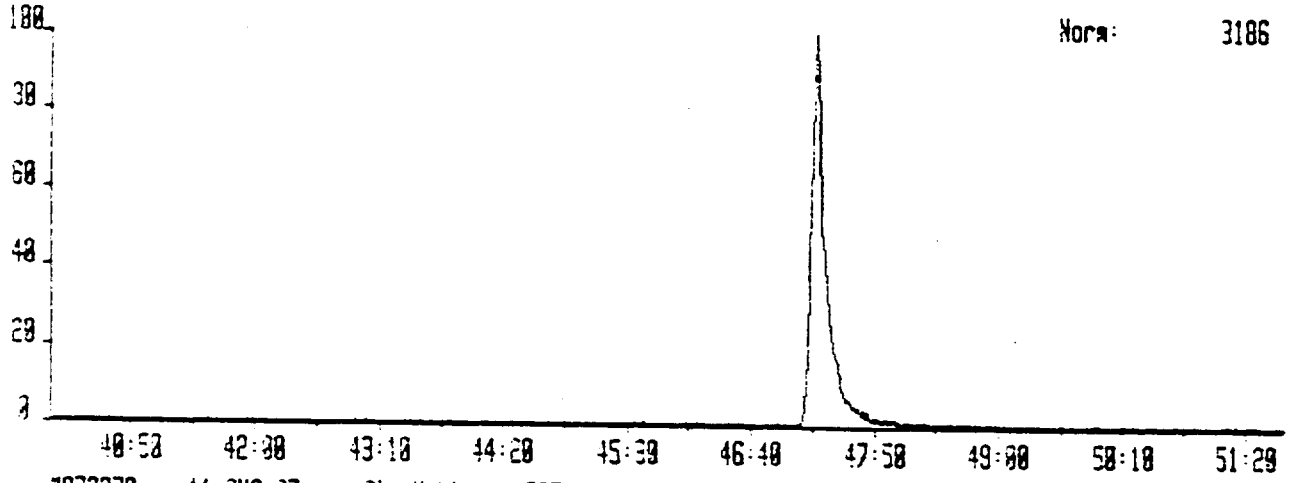
M872278 11-AUG-87 Str:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:CONCAL



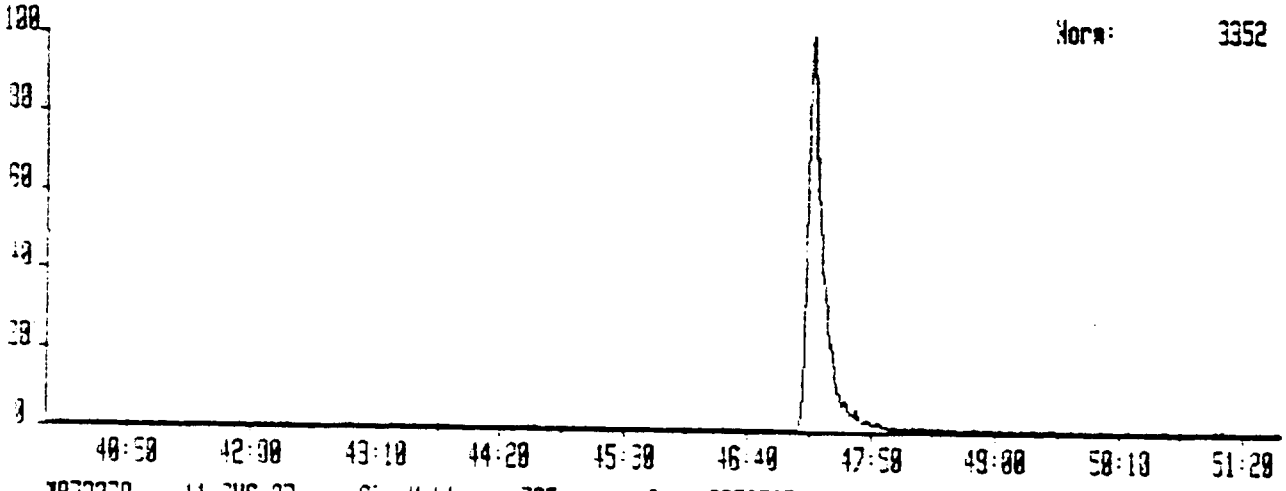
M872278 11-AUG-87 Str:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:CONCAL



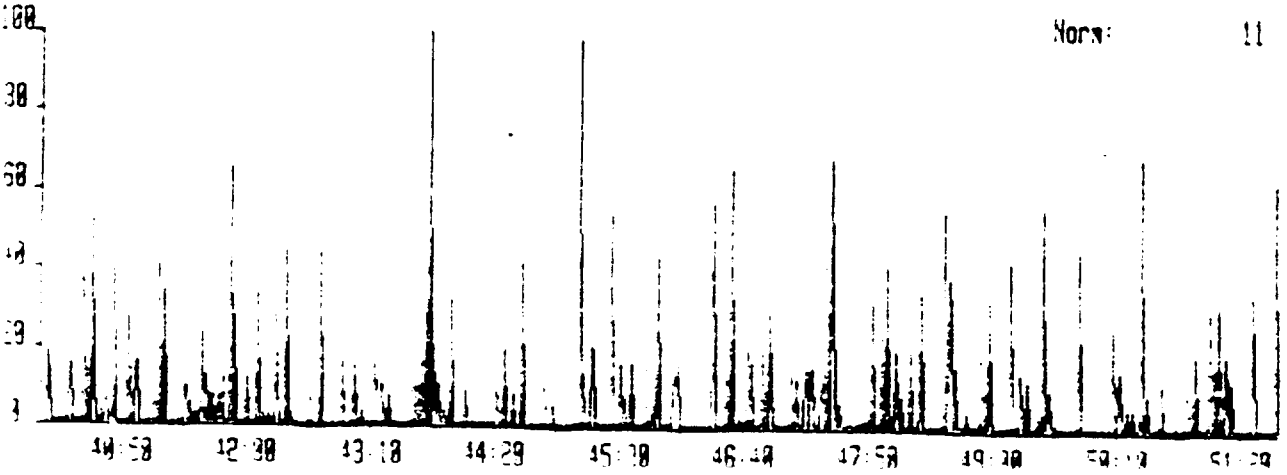
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 441.7428
Text:CONCAL



M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:CONCAL

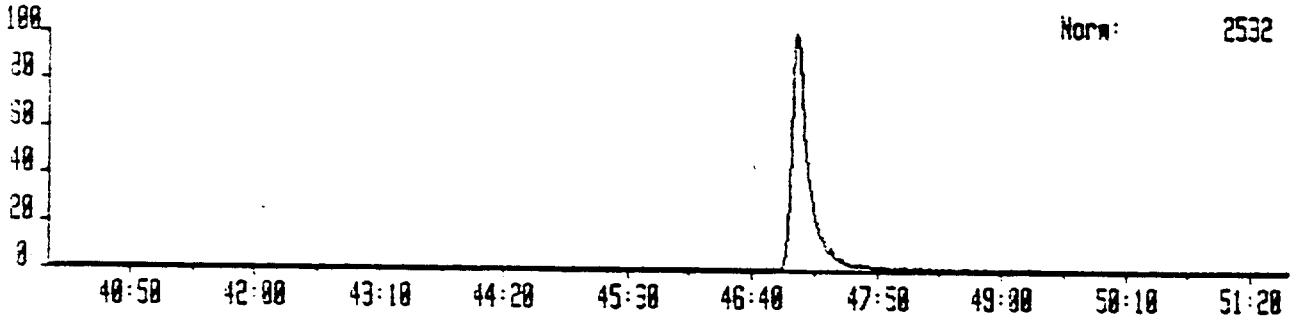


M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 511.3810
Text:CONCAL

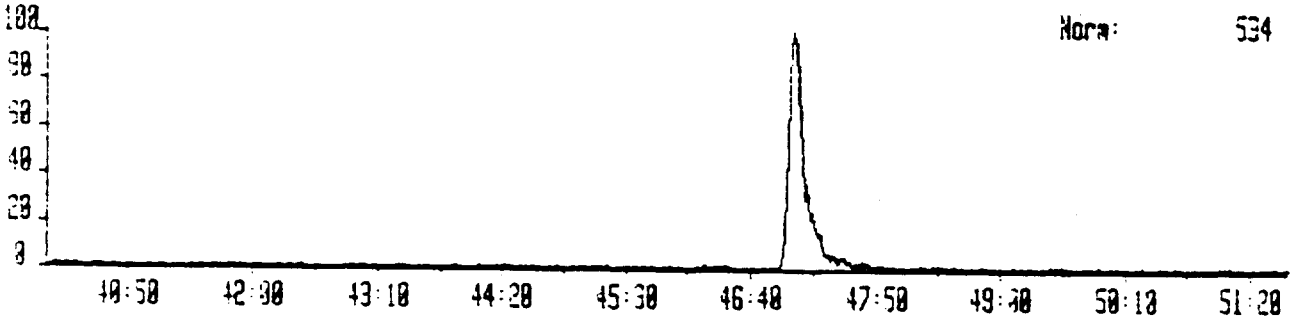


M872278 11-AUG-87 Str:Voltage 70E Sys: 085ATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:CONCAL

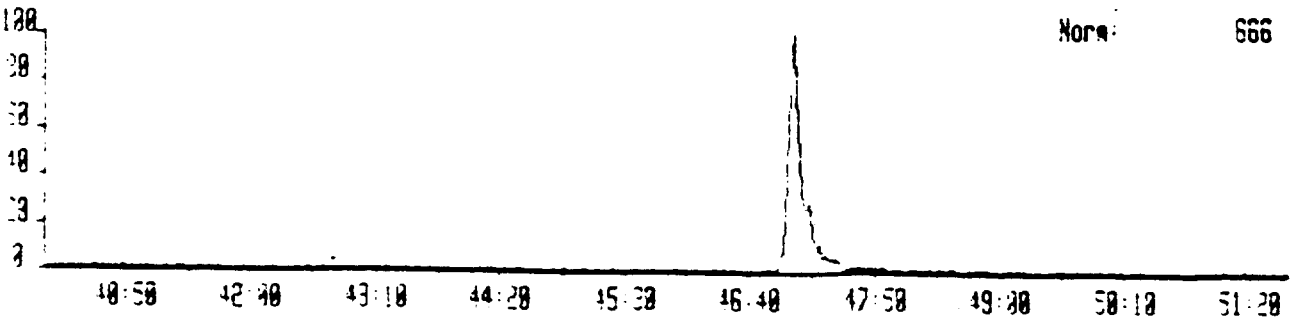
M872278 11-AUG-87 Str:Voltage 70E Sys: 065ATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:CONCAL

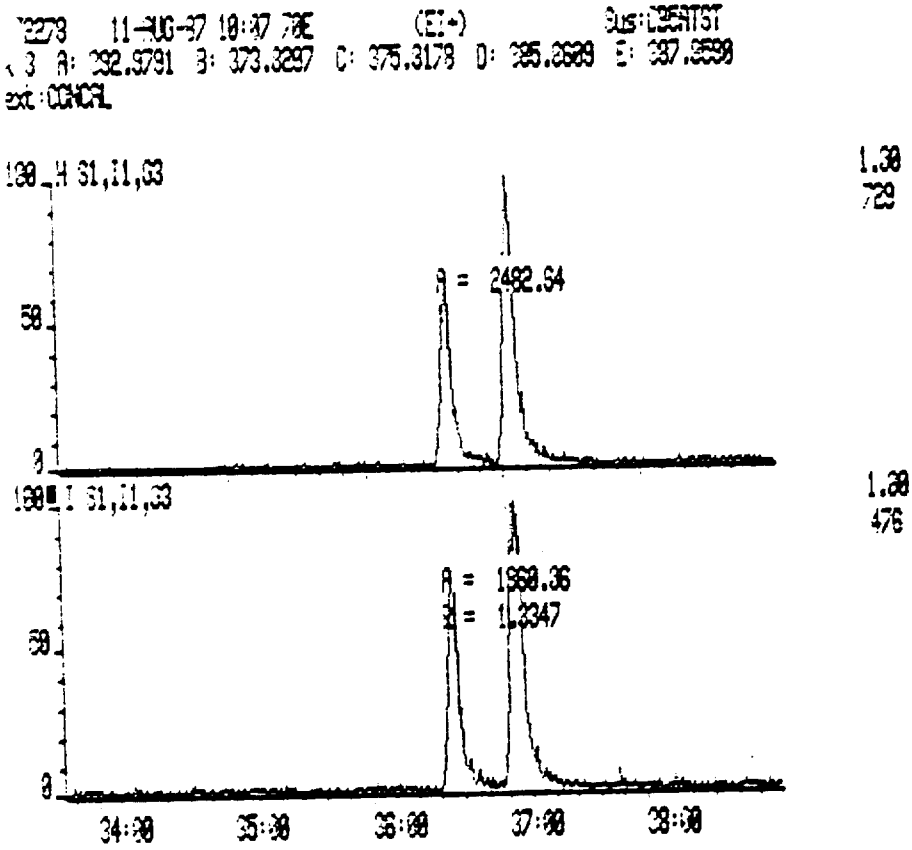


M872278 11-AUG-87 Str:Voltage 70E Sys: 085ATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:CONCAL

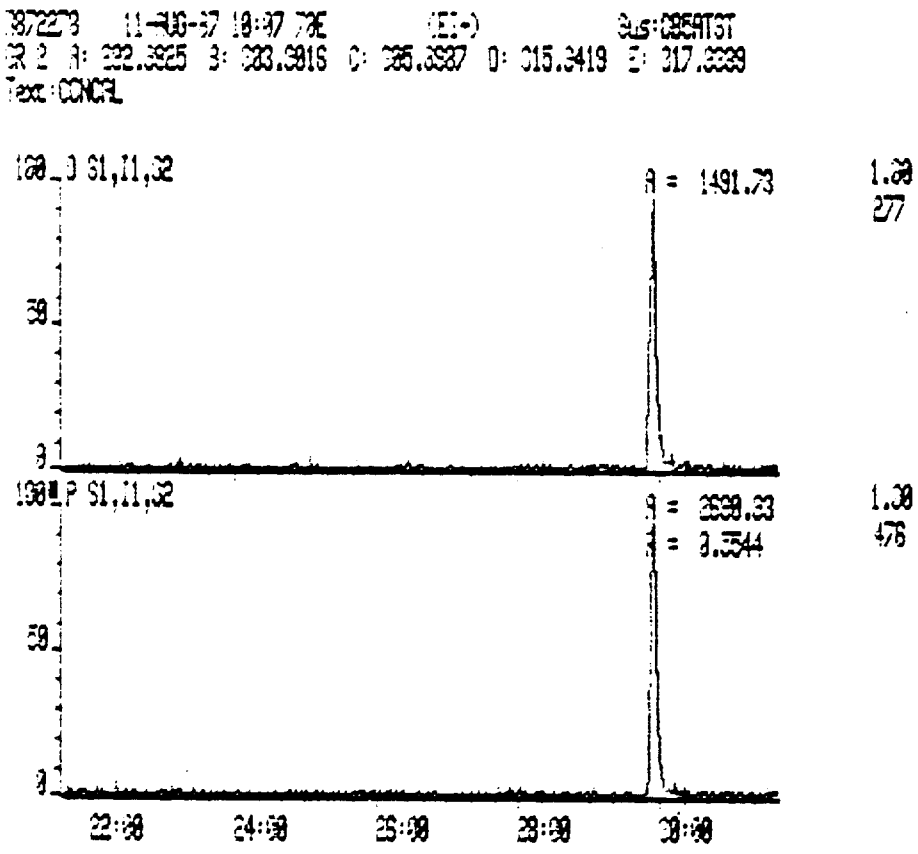


M872278 11-AUG-87 Str:Voltage 70E Sys: 085ATST
Sample 1 Injection 1 Group 4 Mass 471.7758
Text:CONCAL

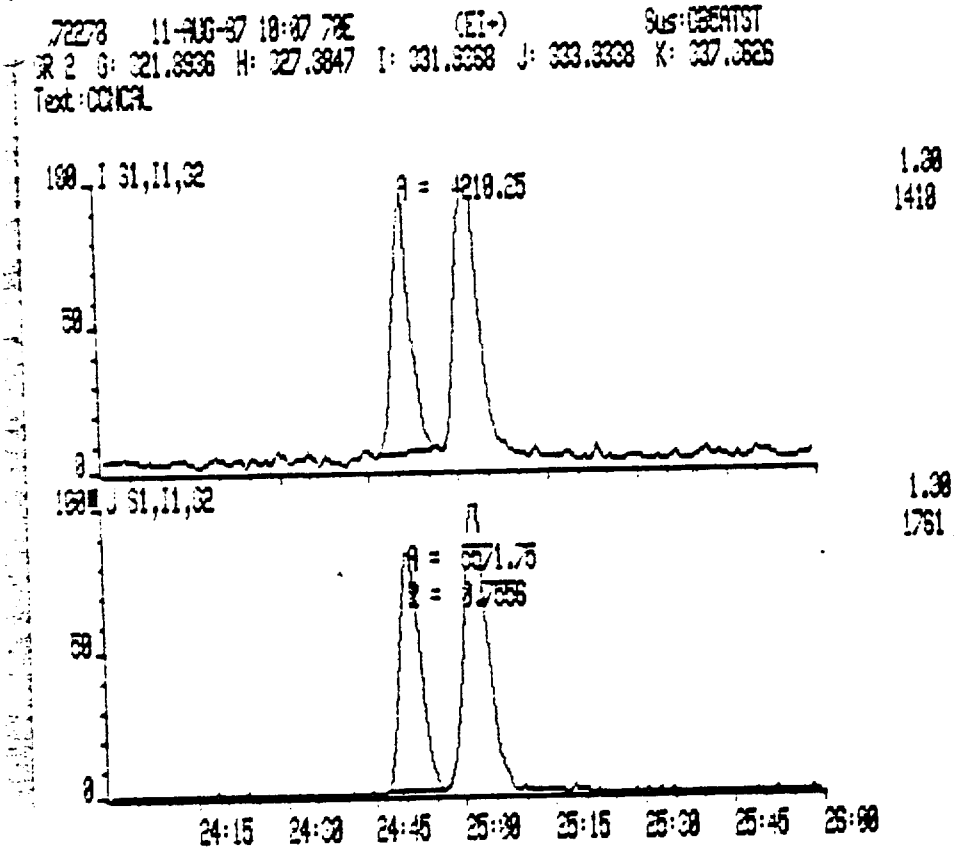




11-AUG-87 10:07 70E
(EI+)
A: 392.9791 B: 373.3297 C: 375.3178 D: 385.2609 E: 387.9590
ext:CONCAL
100 H S1,I1,G3
50
0
A = 2482.64
1.30
729
100 I S1,I1,G3
50
0
A = 1960.36
B = 1.3347
1.30
476
34:00
35:00
36:00
37:00
38:00



11-AUG-87 10:07 70E
Sus:C85ATST
Text:CONCAL
100 D S1,I1,S2
A = 1491.73
1.00
277
50
0
100 P S1,I1,S2
1.00
476
50
0
22:00
24:00
26:00
28:00
30:00



72278 11-AUG-87 10:07 70E (EI+) Sus:OBERTST
GR 2 G: 321.8936 H: 327.3847 I: 331.3368 J: 333.3338 K: 337.3626
Text:CONCAL
100 I S1,I1,S2
A = 4210.25
1.30
1410
50
0
100 J S1,I1,S2
A = 5571.75
1.30
1761
50
0
24:15
24:30
24:45
25:00
25:15
25:30
25:45
26:00

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 202.02

	AREA	RETENTION TIME
1	1.409730E+04	0:09:50

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 204.02

	AREA	RETENTION TIME
1	5.174558E+03	0:09:50
2	3.959208E+02	0:15:52
3	2.513680E+02	0:17:30

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 218.01

	AREA	RETENTION TIME
1	1.121674E+04	0:10:29

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 220.01

	AREA	RETENTION TIME
1	5.030752E-03	0:10:29
2	5.201403E-03	0:11:28

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 237.98

	AREA	RETENTION TIME
1	4.314569E+03	0:13:08

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 239.97

	AREA	RETENTION TIME
1	9.345949E-02	0:13:07
2	8.492700E-02	0:17:23

M872278

	AREA	RETENTION TIME
1	1.437670E+03	0:07:08
2	4.231319E+03	0:13:48
3	5.577883E+02	0:18:25

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 253.97

	AREA	RETENTION TIME
1	2.619803E+03	0:13:48

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 269.94

	AREA	RETENTION TIME
1	1.907727E+03	0:17:07

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 271.94

	AREA	RETENTION TIME
1	1.725136E+03	0:17:07

M872273

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 285.94

	AREA	RETENTION TIME
1	6.184380E+02	0:17:10

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 287.93

	AREA	RETENTION TIME
1	5.880506E+02	0:17:10

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 203.90

	AREA	RETENTION TIME
1	2.005564E+02	0:24:01
2	8.636529E+03	0:24:23
3	1.034926E+03	0:28:37
4	9.362886E+02	0:29:30
5	2.298005E+02	0:29:55

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 205.90

	AREA	RETENTION TIME
1	1.157308E+04	0:24:23

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 315.94

	AREA	RETENTION TIME
1	4.710678E-02	0:23:59
2	9.396401E-03	0:24:22

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 317.94

	AREA	RETENTION TIME
1	5.946940E+02	0:23:59
2	1.139421E+04	0:24:21

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 319.90

	AREA	RETENTION TIME
1	3.304576E+03	0:25:03
2	7.502568E+02	0:29:38

M872278

	AREA	RETENTION TIME
1	3.504395E+03	0:25:03
2	1.064632E+03	0:29:57

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 327.38

	AREA	RETENTION TIME
1	1.410336E+04	0:25:03

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 331.94

	AREA	RETENTION TIME
1	5.158519E+03	0:24:52
2	6.385921E+03	0:25:03

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 333.93

	AREA	RETENTION TIME
1	5.360022E+03	0:24:51
2	7.947963E+03	0:25:04

M872273

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 337.86

	AREA	RETENTION TIME
1	2.612187E+04	0:28:37
2	2.383731E+04	0:29:29

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 339.86

	AREA	RETENTION TIME
1	4.167373E+04	0:28:37
2	3.750068E+04	0:29:29

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 353.86

	AREA	RETENTION TIME
1	1.533247E+04	0:29:56

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 355.35

	AREA	RETENTION TIME
1	2.541364E+04	0:29:56

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 365.90

	AREA	RETENTION TIME
1	1.432948E+03	0:29:56

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 367.89

	AREA	RETENTION TIME
1	2.547639E+03	0:29:56

M872278

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 373.32

	AREA	RETENTION TIME
1	4.010391E+04	0:35:23
2	4.812013E+04	0:35:32
3	3.379389E+04	0:36:18
4	2.475241E+04	0:37:24

M872279

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 375.32

	AREA	RETENTION TIME
1	3.352302E+04	0:35:23
2	3.795055E+04	0:35:31
3	2.679190E+04	0:36:17
4	2.023729E+04	0:37:25

M872278

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 385.86

	AREA	RETENTION TIME
1	7.273504E+03	0:35:23

M872278

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 387.86

	AREA	RETENTION TIME
1	5.999804E+03	0:35:23
2	4.103330E+02	0:36:30
3	3.556094E+02	0:36:37
4	1.891150E+02	0:37:02

M872278

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 389.82

	AREA	RETENTION TIME
1	2.217349E+04	0:36:29
2	2.489294E+04	0:36:36
3	1.988035E+04	0:37:05

M972278

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 391.81

	AREA	RETENTION TIME
1	1.734583E+04	0:36:29
2	1.971476E+04	0:36:36
3	1.605827E+04	0:37:05

M872278

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 401.86

	AREA	RETENTION TIME
1	2.305870E+03	0:36:36
2	3.903618E+03	0:37:04

M872278

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 403.35

	AREA	RETENTION TIME
1	1.748557E+03	0:36:36
2	2.990674E+03	0:37:04

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 407.79

	AREA	RETENTION TIME
1	2.355170E+04	0:40:53
2	2.339471E+04	0:42:58

M872278

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 409.78

	AREA	RETENTION TIME
1	2.925037E+04	0:40:52
2	2.292263E+04	0:42:57
3	1.115877E+03	0:47:18

M872278

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 423.78

	AREA	RETENTION TIME
1	1.755251E+04	0:42:21

M872278

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 425.77

	AREA	RETENTION TIME
1	1.647061E+04	0:42:21
2	9.750949E+02	0:47:06

M872279

	AREA	RETENTION TIME
1	2.647829E+03	0:42:21
2	1.961078E+02	0:47:08

M872278

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 437.81

	AREA	RETENTION TIME
1	2.409992E+03	0:42:20
2	3.179871E+01	0:51:08

M872278

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 441.74

	AREA	RETENTION TIME
1	2.807661E+04	0:47:17

M872278

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 443.74

	AREA	RETENTION TIME
1	2.800742E+04	0:47:17

M872273

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 457.74

	AREA	RETENTION TIME
1	2.098422E+04	0:47:06

M872278

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 459.73

	AREA	RETENTION TIME
1	2.534571E+04	0:47:05

M872278

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 469.78

	AREA	RETENTION TIME
1	4.975363E+03	0:47:04

M872273

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 471.77

	AREA	RETENTION TIME
1	4.942499E+03	0:47:05

TRIANGLE LABORATORIES, INC
2,3,7,8-TCDD/TCDF ANALYSIS

ANALYST	MDC	FILE #	M872307
DATE	8-25-87	CONCAL #	M872304
		TLI #	8701511
SAMPLE ID	I1-MM5-4		

NAME	AMT (ng)	DL	EMPC	RATIO	RT
2378-TCDF	0.60			0.734	15.30
2378-TCDD	ND		0.27	0.821	13.28

SURROGATE RESULTS SUMMARY

NAME	AMT (ng)	% RECOVERY	RATIO	RT
13C12-TCDF	4.74	94.70	0.738	15.33
37Cl-TCDD	4.72	94.49		13.29

INTERNAL STANDARDS RECOVERY RESULTS

NAME	AMT (ng)	% RECOVERY	RATIO	RT
2378-13C12-TCDD	8.84	88.42	0.879	13.28

TRIANGLE LABORATORIES, INC.
DIOXIN/FURAN DATA SHEET

FILE NAME: M87230? TLI # 8701511

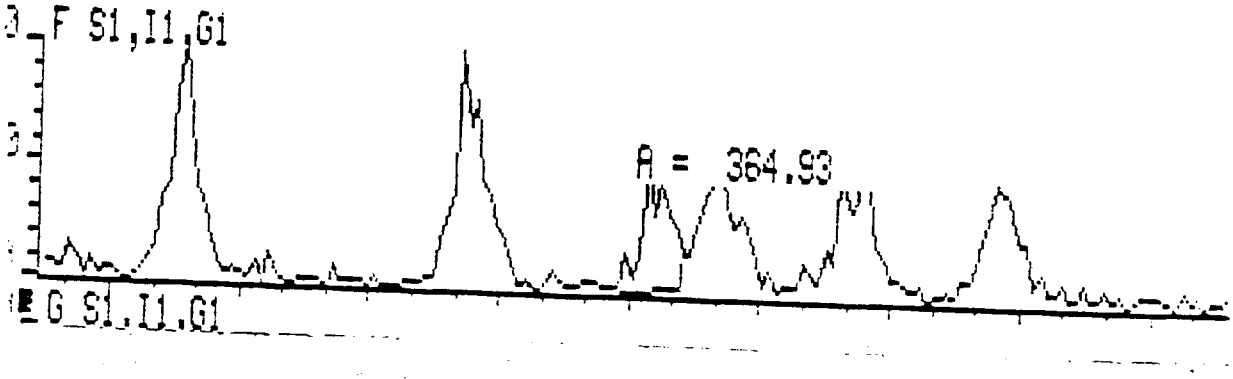
CHEMIST : mc DATE

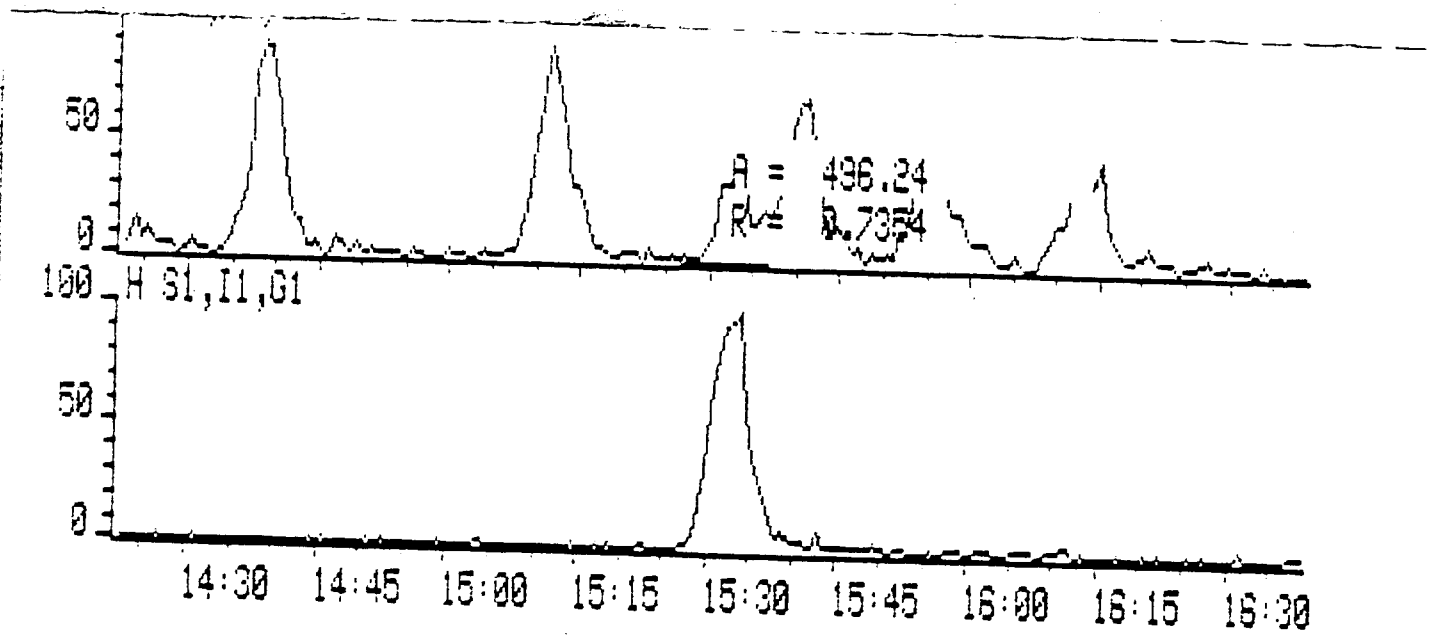
SAMPLE WT: SAMPLE ID:

CONCAL :

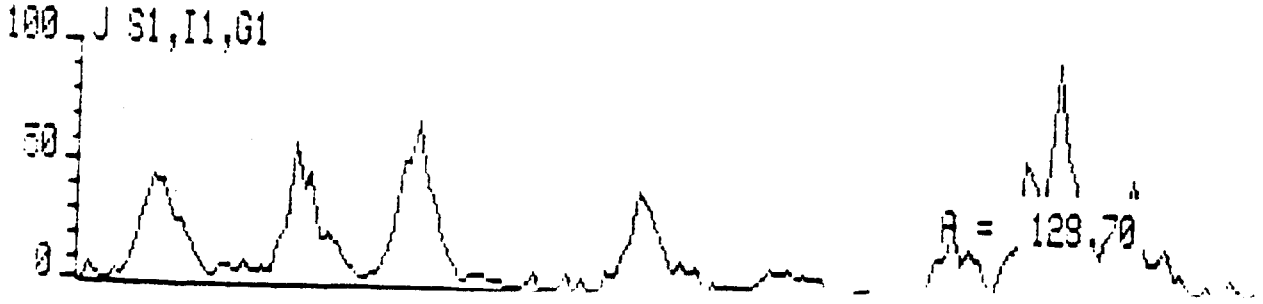
COMPOUND	M/Z	AREA	RT
2378-TCDF	304	364	15.30
	306	496	
13C12-TCDF	316	2961	15-33
	318	4010	
2378-TCDD	320	~~164~~ 128 could & no M-cell	13-28
	322	~~157~~ 156	
2378-37C1-TCDD	328	5248	13 29
2378-13C12-TCDD	332	4699	
	334	5343	13-28
1234-13C12-TCDD	332	4176	13-39
	334	4910	

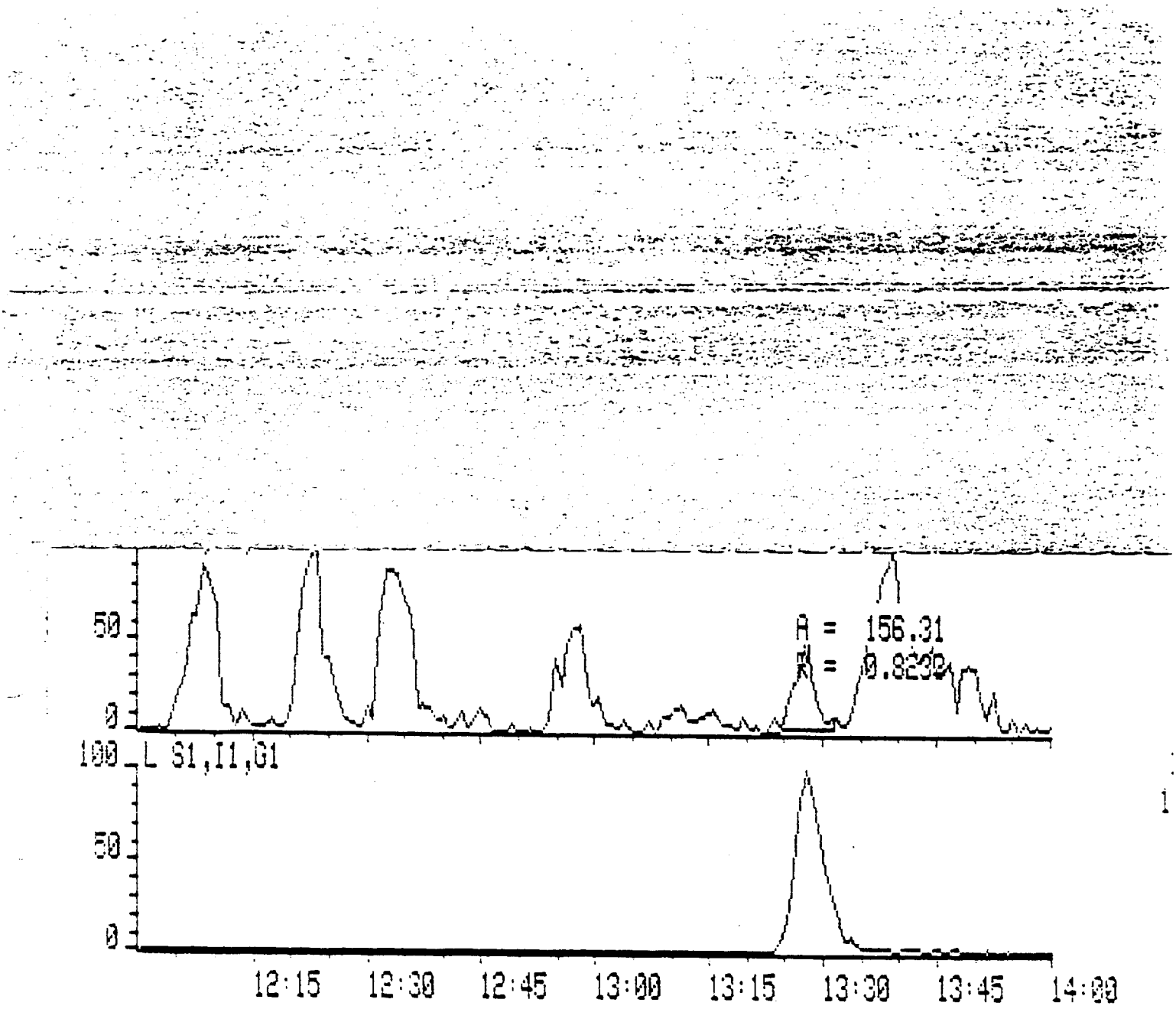
2307 13-AUG-87 13:12 70E (EI-) Sus:SP2331
1 H: 315.9419 I: 317.9389 J: 318.8965 K: 321.8936 L: 327.8847
t:I1-MM5-4

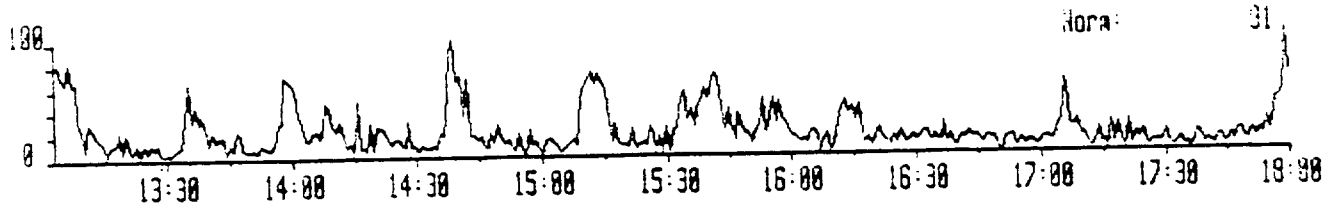




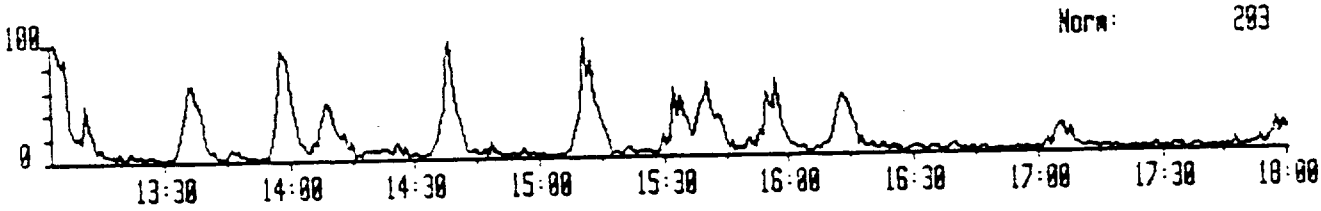
M872307 13-AUG-87 13:12 70E (EI+) Sus:SP2331
GR 1 H: 315.9413 I: 317.9389 J: 319.8965 K: 321.8936 L: 327.8847
Text:I1-MM5-4



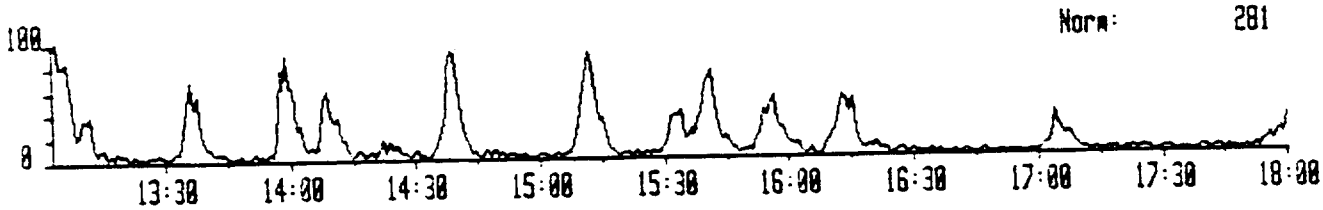

50
0
A = 156.31
100
L S1,I1,G1
50
0
12:15
12:30
12:45
13:00
13:15
13:30
13:45
14:00



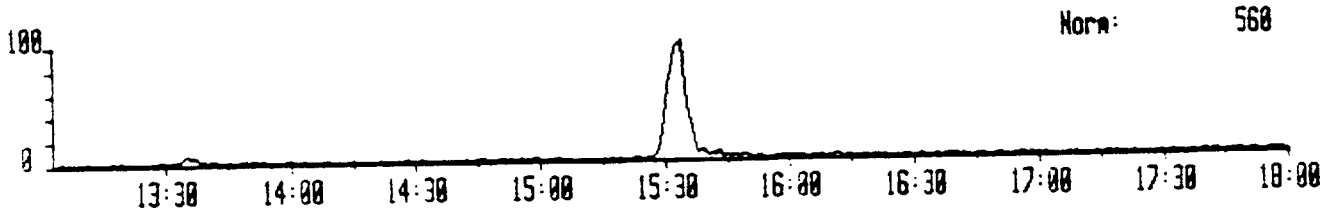
M872307 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 303.9816
Text:I1-MM5-4



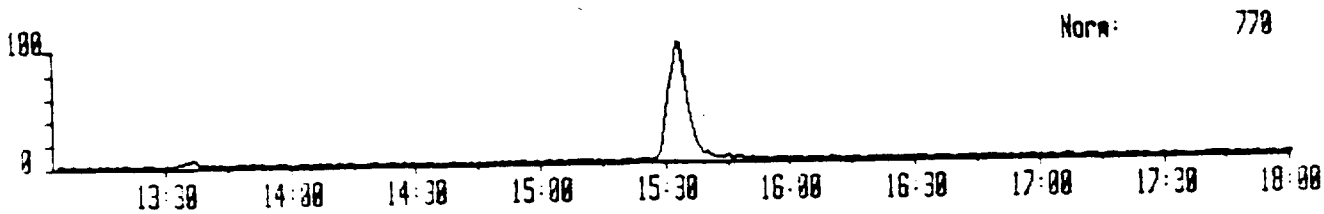
M872307 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 305.9987
Text:I1-MM5-4



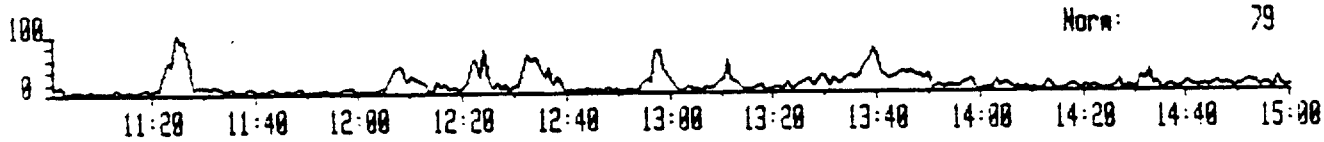
M872307 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 315.9419
Text:I1-MM5-4



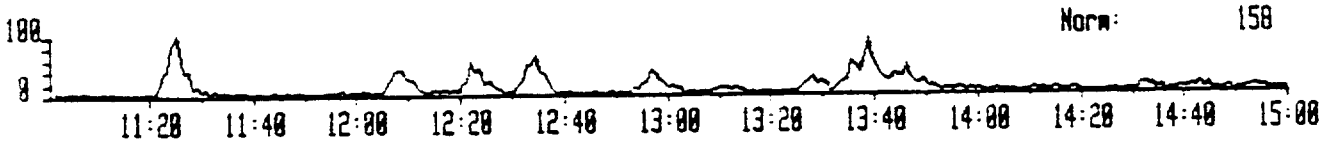
M872307 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 317.9389
Text:I1-MM5-4



M872307 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 256.9328
Text:I1-MM5-4

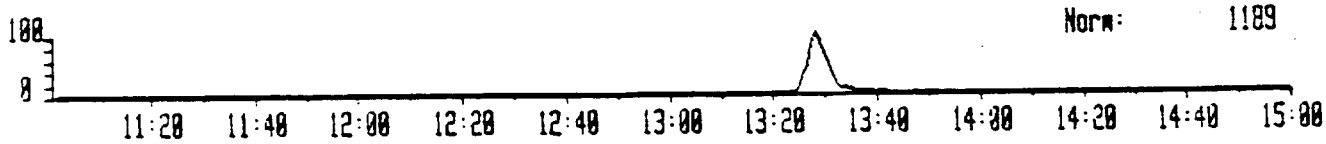


M872307 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 319.8965
Text:I1-MM5-4

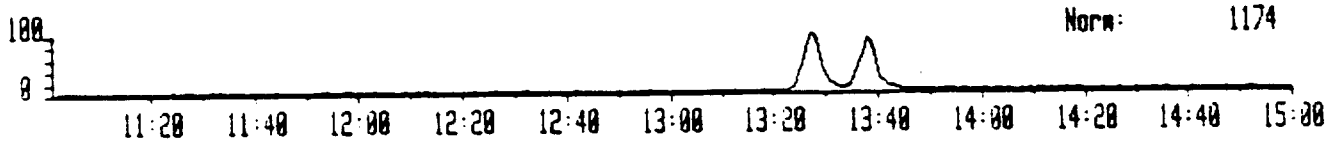


M872307 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 321.8936
Text:I1-MM5-4

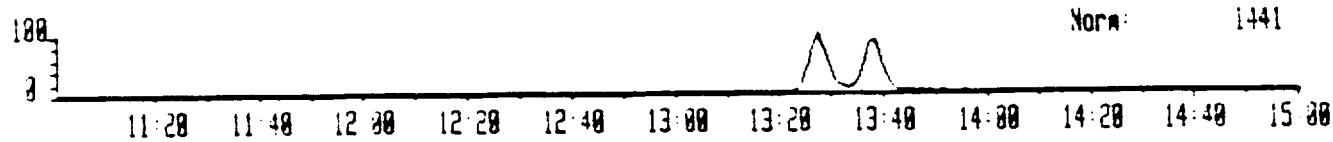
M872307 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 327.8847
Text:I1-MM5-4



M872307 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 331.9368
Text:I1-MM5-4



M872307 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 333.9338
Text:I1-MM5-4



M872307

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 303.90

	AREA	RETENTION TIME
1	4.660110E+02	0:13:04
2	6.249438E+02	0:13:36
3	7.635286E+02	0:13:59
4	4.368768E+02	0:14:09
5	7.863632E+02	0:14:39
6	7.981238E+02	0:15:11
7	4.167071E+02	0:15:41
8	5.432325E+02	0:15:58
9	4.681918E+02	0:16:13

M872307

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 305.90

	AREA	RETENTION TIME
1	7.805220E+02	0:13:04
2	1.661652E+02	0:13:13
3	7.573218E+02	0:13:37
4	1.015295E+03	0:14:00
5	7.095267E+02	0:14:10
6	1.102182E+03	0:14:39
7	1.102601E+03	0:15:12
8	3.748617E+02	0:15:35
9	1.019520E+03	0:15:42
10	6.771506E+02	0:15:57
11	8.000206E+02	0:16:13
12	3.777234E+02	0:17:04

M872307

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 315.94

	AREA	RETENTION TIME

3	5.751465E+01	0:16:12

M872307

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 317.94

	AREA	RETENTION TIME
1	2.409175E+02	0:13:37
2	4.009588E+03	0:15:33

M872307

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 319.90

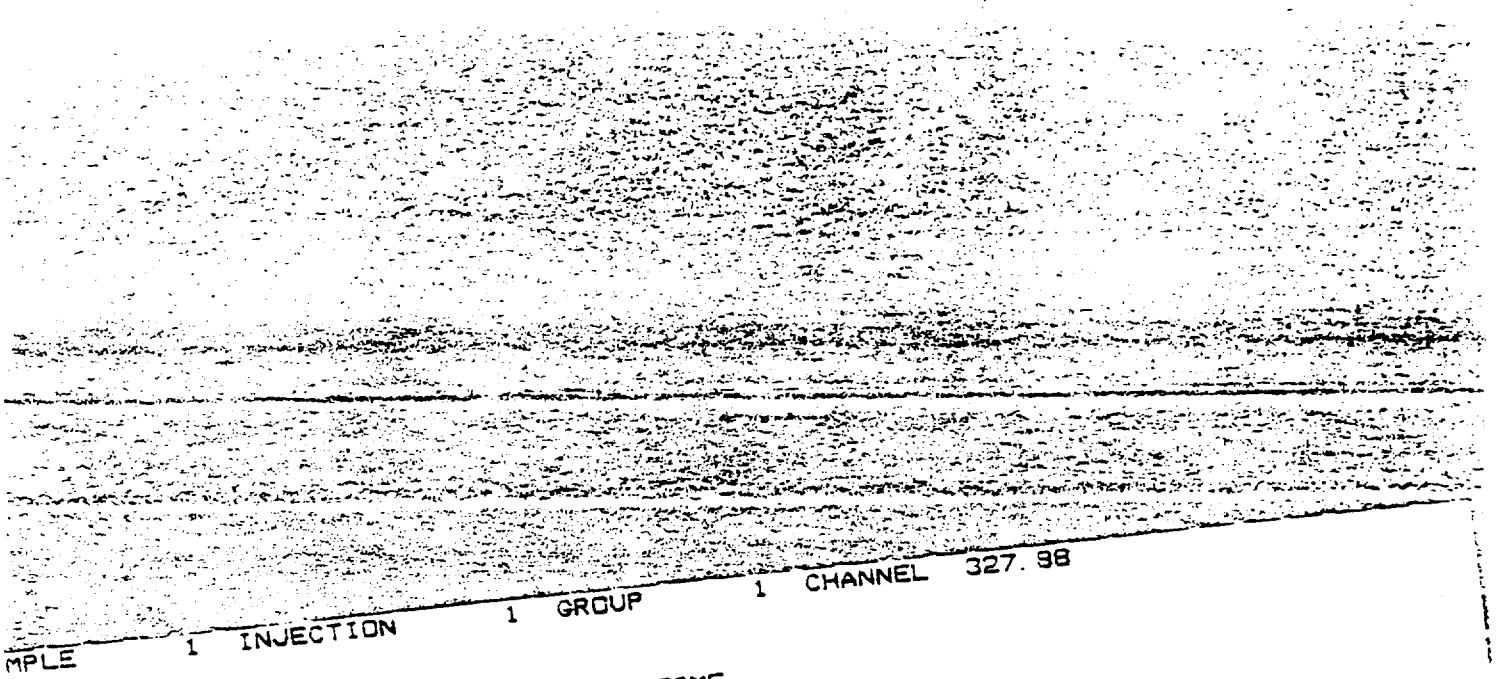
	AREA	RETENTION TIME
1	5.819256E+02	0:11:26
2	2.789351E+02	0:12:08
3	2.761557E+02	0:12:22
4	3.924255E+02	0:12:35
5	2.583184E+02	0:12:57
6	1.642746E+02	0:13:28
7	5.842805E+02	0:13:39
8	5.926844E+01	0:14:53

M872307

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 321.89

	AREA	RETENTION TIME
1	7.034036E+02	0:11:26
2	4.359440E+02	0:12:09
3	4.210366E+02	0:12:24
4	4.307655E+02	0:12:34
5	2.989519E+02	0:12:59
6	1.162919E+02	0:13:12
7	1.670547E+02	0:13:29
8	7.709052E+02	0:13:40

M872307



MPLE 1 INJECTION 1 GROUP 1 CHANNEL 327.98

	AREA	RETENTION TIME
1	5.247558E+03	0:13:29

M872307

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 331.94

	AREA	RETENTION TIME
1	4.698980E+03	0:13:28
2	4.175908E+03	0:13:39

M872307

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 333.93

	AREA	RETENTION TIME
1	5.342501E+03	0:13:28
2	4.910033E+03	0:13:39

TRIANGLE LABORATORIES, INC.
TCDD/TCDF CONTINUING CALIBRATION

DATE/TIME RUN 11:0 8/13
ANALYST MDC FILE NAME M872304 ICAL DATE 7-22-8
DATE 8-15-87 STANDARD 100 QC CHECK [X]HK

NAME	DAILY RF	CODE	RATIO	RT	DELTA RF	%DELTA RF
2378-TCDF	1.419	1	0.701	15.28	0.099	7.53%
2378-TCDD	1.064	1	0.749	13.21	0.022	2.09%

SURROGATE RESPONSE FACTOR SUMMARY

NAME	DAILY RF	CODE	RATIO	RT	DELTA RF	%DELTA RF
13C12-TCDF	1.466	2	0.740	15.25	0.103	7.57%
37Cl-TCDD	2.364	2		13.21	-0.041	-1.69%

INTERNAL STANDARDS RESPONSE FACTOR SUMMARY

NAME	DAILY RF	CODE	RATIO	RT	DELTA RF	%DELTA RF
2378-13C12-TCDD	1.250	3	0.877	13.20	-0.131	-9.50%

TRIANGLE LABORATORIES, INC.
DIOXIN/FURAN DATA SHEET

FILE NAME: M872304 TLI # 8701536

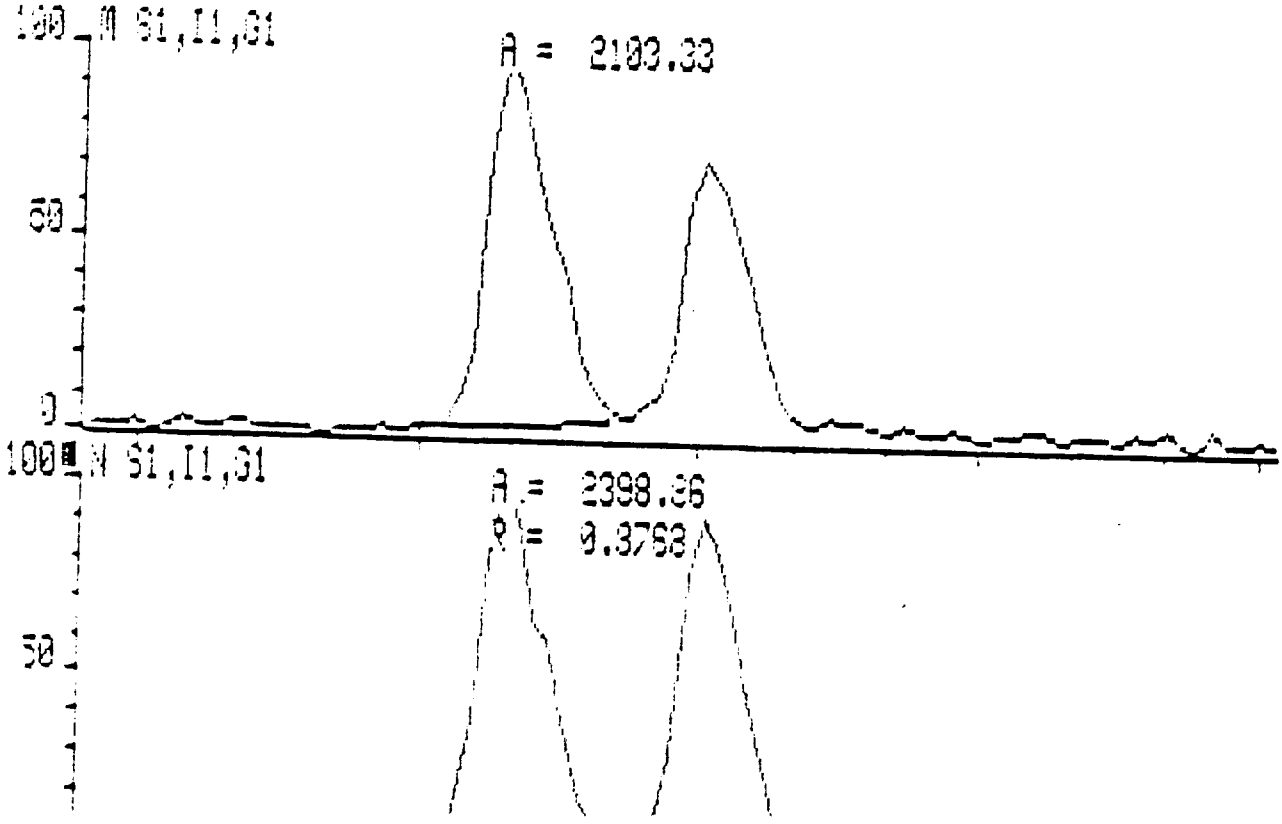
CHEMIST : HT DATE 8-17-87

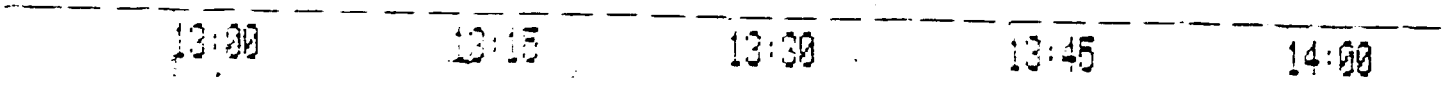
SAMPLE WT: — SAMPLE ID: —

CONCAL : concal 100

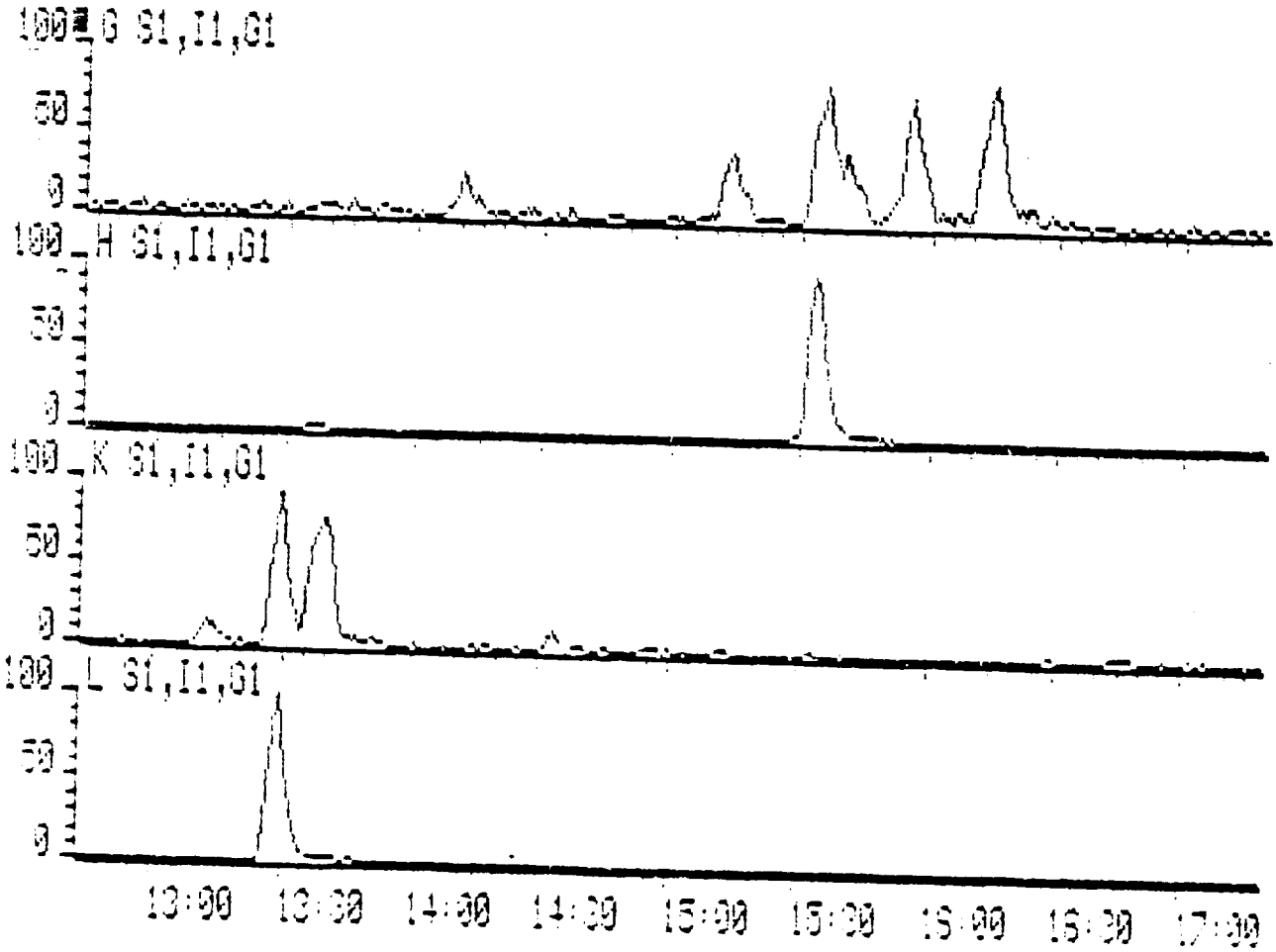
COMPOUND	M/Z	AREA	RT
2378-TCDF	304	2633	15.28
	306	3757	
13C12-TCDF	316	2807	15.25
	318	3794	
2378-TCDD	320	2051	13.21
	322	2738	
2378-37C1-TCDD	328	4972	13.21
2378-13C12-TCDD	332	2103 ~~2154 1058~~	13.20
	334	2327 ~~2365 3941~~	
1234-13C12-TCDD	332	1560	13.31
	334	2041	

M872304 13-AUG-87 11:11 70E (EI-) Sus:SP2331
GR 1 A: 240.3379 B: 242.3349 C: 256.3323 D: 258.3298 E: 292.3825
Text:CONCAL




13:00
13:15
13:30
13:45
14:00

MS72005 13-AUG-87 12:43 70E (EI-) Sub:SP2001
GR 1 G: 305.8987 H: 316.3419 I: 317.3389 J: 319.8966 K: 321.8936
Text:COLUMN PERFORMANCE



M872304

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 303.90

	AREA	RETENTION TIME
1	2.632828E-03	0:15:28
2	2.501952E-02	0:17:10

M872304

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 305.90

	AREA	RETENTION TIME
1	3.757089E-03	0:15:23
2	2.190505E-02	0:17:10
3	4.643688E-01	0:18:23

M872304

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 313.94

	AREA	RETENTION TIME
1	1.302652E-02	0:10:28
2	2.306863E-03	0:13:23

LE 1 INJECTION 1 GROUP 1 CHANNEL 317.94

	AREA	RETENTION TIME
1	1.943572E+02	0:13:28
2	3.793560E+03	0:15:26

M872304

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 319.90

	AREA	RETENTION TIME
1	2.051419E+03	0:13:21
2	4.440483E+01	0:17:23
3	1.925167E+02	0:19:25

M872304

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 321.89

	AREA	RETENTION TIME
1	2.738048E+03	0:13:20
2	3.298511E+02	0:19:25

M872304

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 327.38

	AREA	RETENTION TIME
1	4.271870E+03	0:13:21
2	3.894549E+01	0:17:07

M872C04

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 331.94

	AREA	RETENTION TIME
1	2.154299E+03	0:13:20
2	1.359635E+03	0:13:31

M872C04

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 303.93

	AREA	RETENTION TIME
1	2.364844E+03	0:13:20
2	2.042410E+03	0:13:31
3	2.199836E+01	0:14:39

A-89-08
IV-J-365

ENTROPY
ENVIRONMENTALISTS INC.

POST OFFICE BOX 12291
RESEARCH TRIANGLE PARK
NORTH CAROLINA 27709-2291
919-781-3550

VOLUME III

Stationary Source Sampling Report

SUPPLEMENTAL ANALYTICAL DATA

EEI REF. NO. 5553-A

Signal Environmental Systems, Inc.
Claremont Facility
Claremont, New Hampshire

DIOXINS/FURANS EMISSIONS COMPLIANCE TESTING

UNIT 2

June 24 and July 14, 15 and 17, 1987

TRIANGLE LABORATORIES, INC.
4915F PROSPECTUS DRIVE
RESEARCH TRIANGLE PARK, NC 27713
919 544-5729

CASE NARRATIVE

DATE: 25 Aug 1987
CLIENT ID: Entropy Environmentalists, Inc.
TLI NO.: 8701511
OBJECTIVE: ANALYSIS OF SIXTEEN MM5 SAMPLES FOR THE PRESENCE OF TRI- THROUGH OCTACHLORODIBENZODIOXINS AND DIBENZOFURANS

Sample Preparation

The samples were prepared by using the methods described in the ASME analytical protocol. The carbon column used in the final cleanup step was prepared by mixing Celite 545 and AX-21 carbon. All the samples (including the quality control method blank samples) were fortified with 10 ng of the tetra- through heptachlorinated internal standards and 20 ng of the octachlorinated dibenzodioxin internal standard. This was accomplished by using the sample fortification solution described in Table 1. Note that the surrogate standards (5 ng of each) were added to the XAD traps before the sampling session.

The solution contains eight carbon-labeled PCDD/PCDF standards. The $^{13}C_{12}$-2,3,7,8-TCDD internal standard is used to quantitate TCDDs and TCDFs, $^{13}C_{12}$-1,2,3,7,8-PeCDD is used to quantitate PeCDDs and PeCDFs, $^{13}C_{12}$-1,2,3,6,7,8-HxCDD is used to quantitate HxCDDs and HxCDFs, $^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD is used to quantitate HpCDDs and HpCDFs, and $^{13}C_{12}$-OCDD is used to quantitate OCDD and OCDF.

Document Control

The Document Control package contains all laboratory records received or generated during the sample handling by Triangle Laboratories. In addition, representative quality control (QC) charts are provided in the Document Control section. Two types of QC charts are included; the first one consists in plotting the percent recoveries of all labeled internal and surrogate standards used during the sample preparation while the second set of QC charts represents the variation of the continuing calibration response factors for the fifteen 2,3,7,8-substituted PCDD/PCDFs, OCDF and OCDD. Both types of QC charts were obtained from recent analyses of large batches (>20 samples) of soil samples by using similar extraction-cleanup and HRGC/HRMS analysis procedures as the samples reported herein. These charts

will be updated regularly for large batches of soil samples in order to demonstrate the statistical control of the measurement system. [UWL/LWL = Upper/Lower Warning Limits (2 standard deviations; UQCL/LQCL = Upper/Lower Control Limits (3 standard deviations).]

Data Package

A separate sample data package is provided for the full-screen and confirmation analyses. On the enclosed sample data sheets, the concentrations are given in ng per sample. "RT" is the gas chromatographic retention time in minutes and seconds, "number" is the number of GC peaks identified as PCDD/PCDF isomers in the totals reported for each homologous series, and "ratio" is the integrated ion abundance ratio observed for the M to M+2 ions of the tetra- through pentachlorinated isomers and M+2 to M+4 for the hexa- through octachlorinated isomers. "DL" is the detection limit for samples presenting an analyte response that is less than 2.5 times the background level. "EMPC", representing the estimated maximum possible concentration, is reported for GC/MS signals eluting within the PCDD/PCDF retention time windows established with the daily GC performance analysis, and which are characterized by a signal-to-noise ratio in excess of 2.5:1 but do not meet all of the qualitative identification criteria listed below. The "EMPC" is calculated by using the same expression used for reporting the identified analyte concentrations. The "DL" and "EMPC" are both reported in ng per sample.

For quantifications, the sum of the peak areas for the two ions monitored is used. When no peak is detected, an area of 10 counts for each ion (total 20 counts) is used to calculate the detection limit. The results of the samples are given on a wet weight basis.

High-Resolution Gas Chromatography / High-Resolution Mass Spectrometry

For GC/MS analysis, the final residue was dissolved in 20 uL of a toluene solution containing the recovery standards shown in Table 1. The recoveries of the carbon-labeled tetra- and penta-chlorinated dibenzodioxins internal standards were calculated by using $^{13}C_{12}$-1,2,3,4-TCDD as the recovery standard. The recoveries of higher homologues (hexa- through octachlorinated congeners) were determined relative to $^{13}C_{12}$-1,2,3,7,8,9-HxCDD. The concentrations of $^{37}Cl_4$-2,3,7,8-TCDD and $^{13}C_{12}$-2,3,7,8-TCDF in the final extract are calculated relative to $^{13}C_{12}$-2,3,7,8-TCDD. The concentration of the third surrogate standard (i.e., $^{13}C_{12}$-1,2,3,4,7,8-HxCDF) is measured against $^{13}C_{12}$-1,2,3,6,7,8-HxCDD.

The samples were analyzed by using a VG 7070H mass spectrometer operated in the selected ion recording mode, at a resolving power

of 8,000. A VG 11/250 data system was used to acquire the data. A Varian 3700 GC , equipped with a fused-silica capillary column, was employed. One uL of the 20-uL final sample volume was analyzed by using the GC conditions summarized in Table 3.

Initial Calibration

The mass spectrometer response was calibrated with the help of the set of six initial calibration solutions shown in Table 2.

An acceptable calibration must meet the following criteria:

1) The percent relative standard deviations for the mean response factors from each of the unlabeled analytes (Table 2) and of the internal standards (Table 2) must be less than 20 percent.

2) The signal-to-noise ratio (S/N) for the GC signals present in every selected ion current profile must be $\geq$ 2.5.

3) The ion abundance ratios must be within the specified control limits (see identification criteria).

Continuing Calibration

A continuing calibration was demonstrated every 12 hours by injecting one uL of solution number 4 from Table 2. The response factors (RFs) used for the calculation of the analyte concentrations were obtained from the daily continuing calibration check (*vide infra*). For the total homologous PCDD/PCDF concentrations (e.g., total HxCDDs), the RFs were taken, when applicable, as the average of the RFs for the individual congeners listed in the continuing calibration reporting form. Note that when only one isomer is present, a discrepancy may appear between the reported concentration for the individual isomer and the total, as a result of using a different RF.

The continuing calibration delta RF (on the data sheets) corresponds to the relative percent difference between the daily RF and the initial calibration RF.

An acceptable continuing calibration run must meet the following criteria:

1) The measured RFs (for the unlabeled as well as labeled compounds) obtained during the continuing calibration run must be within 20 percent for tetra- through heptachlorinated compounds and 25 percent for octachlorinated compounds of the mean values established during the initial calibration.

2) The ion-abundance ratios must be within the allowed control limits listed below.

Confirmation Analyses

For confirmation of 2,3,7,8-TCDD and 2,3,7,8-TCDF, the samples were analyzed on a second high-resolution GC column (SP-2331/DB-17) while monitoring (in addition to the molecular ions) the COCl fragment ions also under high-resolution mass spectrometric conditions.

Identification Criteria

The positive identification criteria used for the characterization of polychlorinated dibenzodioxins and dibenzofurans are as follows:

1) The integrated ion abundance ratio (M+/M+2 or M+2/M+4) must be within 15 percent of the theoretical value. The acceptable ion abundance ratio ranges for the identification of chlorine-containing compounds are:

M/M+2
- tetra 0.65-0.89
- penta 0.52-0.70

M+2/M+4
- hexa 1.05-1.41
- hepta 0.87-1.17
- octa 0.75-1.01

2) The retention time for the analytes must be within 3 s of the corresponding ^{13}C-labeled internal standard or surrogate standard.

3) The monitored ions for an analyte must maximize within 3 s.

4) The identification of specific isomers that do not have a corresponding ^{13}C-labeled standards is done by comparison of the relative retention time (RRT) of the analyte to the nearest internal standard retention time with reference (i.e., within 0.005 RRT units) to the comparable RRTs found in the continuing calibration.

5) The (S/N) for all monitored ions must be greater than 2.5.

6) The confirmation of 2,3,7,8-TCDD, 2,3,7,8-TCDF and other 2,3,7,8-substituted PCDD/PCDFs must satisfy all of the above identification criteria.

For Triangle Laboratories,

Analyst	QA Project Officer	Program Manager
Michael D. Chu	Hani S. Karam	Yves Tondeur

TABLE 1: COMPOSITION OF THE SAMPLE FORTIFICATION AND RECOVERY STANDARDS SOLUTIONS
(concentrations in pg/uL)

Analyte	Sample Fortification Solution	Recovery Standards Solution
$^{13}C_{12}$-2,3,7,8-TCDD (IS)	100	-
$^{13}C_{12}$-1,2,3,4-TCDD (RS)	-	500
$^{37}Cl_4$-2,3,7,8-TCDD (SS)	100	-
$^{13}C_{12}$-2,3,7,8-TCDF (SS)	100	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD (IS)	100	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD (IS)	100	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD (RS)	-	500
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF (SS)	100	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD (IS)	100	-
$^{13}C_{12}$-OCDD (IS)	200	-

IS = Internal Standard; SS = Surrogate Standard; RS = Recovery Standard

Note: The volume of the recovery standards solution added to the final extract before GC/MS analysis is 20 uL.

TABLE 2: COMPOSITION OF THE INITIAL CALIBRATION SOLUTIONS

Compound / Sol. Number	Concentrations (pg/uL) 1	2	3	4	5	6
Unlabeled Analytes						
2,3,7,8-TCDD	5	10	50	100	500	1000
2,3,7,8-TCDF	5	10	50	100	500	1000
1,2,3,7,8-PeCDD	25	50	250	500	2500	5000
1,2,3,7,8-PeCDF	25	50	250	500	2500	5000
2,3,4,7,8-PeCDF	25	50	250	500	2500	5000
1,2,3,4,7,8-HxCDD	25	50	250	500	2500	5000
1,2,3,6,7,8-HxCDD	25	50	250	500	2500	5000
1,2,3,7,8,9-HxCDD	25	50	250	500	2500	5000
1,2,3,4,7,8-HxCDF	25	50	250	500	2500	5000
1,2,3,6,7,8-HxCDF	25	50	250	500	2500	5000
1,2,3,7,8,9-HxCDF	25	50	250	500	2500	5000
2,3,4,6,7,8-HxCDF	25	50	250	500	2500	5000
1,2,3,4,6,7,8-HpCDD	25	50	250	500	2500	5000
1,2,3,4,6,7,8-HpCDF	25	50	250	500	2500	5000
1,2,3,4,7,8,9-HpCDF	25	50	250	500	2500	5000
OCDD	50	100	500	1000	5000	10000
OCDF	50	100	500	1000	5000	10000
Internal Standards						
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200
Surrogate Standards						
$^{37}Cl_4$-2,3,7,8-TCDD	5	10	50	100	500	1000
$^{13}C_{12}$-2,3,7,8-TCDF	5	10	50	100	500	1000
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	5	10	50	100	500	1000
Recovery Standard						
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100

TABLE 3: GAS CHROMATOGRAPHY CONDITIONS

Column type	DB-5
Length (m)	60
i.d. (mm)	0.25
Film Thickness (um)	0.25
Carrier Gas	Helium
Carrier Gas Flow (mL/min)	1-2
Injection Mode	splitless
Valve Time (s)	30
Initial Temperature (° C)	150
Program Temperature	150° C to 190° C ballistically then 3° C/min up to 300° C.

TRIANGLE LABORATORIES, INC

DOCUMENT CONTROL

TRIANGLE LABS

PCDD/PCDF SAMPLE TRACKING & MANAGEMENT FORM

TLI Project Number: 8701511
Customer ID: ENTROPY
Number of Samples: 16
Number of QC Samples: ____
Number of Confirmations: 13

Due Date: 19 July 87
Turnaround: 30 days
Received on: 22 July 87
Received by: KA

Total of Billable Samples: ____ Quotation #: ____

Sample Preparation Information (circle selection)

Matrix Type: Soil Water Ash Sludge Fish Adipose Other[a]: ~~N/S~~

Extraction Method: Soxhlet Sep.Fun. Dean Stark Jar Other[a]: ~~N/S~~

Cleanup Procedure[b]: 8280 A540-8280 Region-V ASME Other[a]: ~~N/S~~

Detection Limit:	~~ppt~~ ____	____ ppb	
Fortification Level:	~~N/S~~ ppt	____ ppb	Vol. SF Sln: ____ uL
Sample Size:	~~N/S~~ g	____ L	SF Sln ID: ____
Percent Moisture:	Yes	~~No~~	SF=sample fortification
Percent Lipid:	Yes	~~No~~	

Quality Control

Duplicate:	Yes	~~No~~	Dup. Sample ID:	~~N/S~~
Matrix Spike[c]*:*	Yes	~~No~~	MS Sample ID:	~~N/S~~
Matrix Spike Dup.:	Yes	~~No~~	Vol. Spiking Sln:	~~N/S~~ uL
Method Blank:	~~Yes~~	No	Spiking Sln ID:	~~N/S~~

HRGC/HRMS

Mono-Octa:	Yes	~~No~~	
~~*Tetra-*~~*Octa:*	~~Yes~~	No	
2,3,7,8-TCDD Specificity:	~~Yes~~	No	(confirmation)
2,3,7,8-TCDF Specificity:	~~Yes~~	No	(confirmation)
Toxicity Equivalency Factor:	Yes	~~No~~	
PCDD/PCDF Ret. Time Window:	Yes	~~No~~	GC Perf. Sln ID: ____
Recovery Standards:	Vol.: ____ uL		Sln ID: ____
Special Requirements:	____		

TRI

Data Package Assembly

Special Requirements: ____

****

(a) Other & Special Instructions:

****

(b) 8280: ... TLI SOP # 612; A540-8280: ... TLI SOP # 610;
Region-V: ... TLI SOP # 608; ASME: ... TLI SOP # 608

(c) Matrix Spike Fortification Levels:
Tetra- through heptachlorinated unlabeled compounds: ____ ppt/ppb
Octachlorinated unlabeled compounds: ____ ppt/ppb

94

7-22-87 TLI # 8701511 Entropy

16 MM5 samples for dioxin samples.
Sample labels were not clear.
On COC sample labelled I-1-MM5-BLK;
samples containers read II-MM5-BCK2.

TLI #	Client ID	
2-94-1	II-MM5-4	XAD (X)
2-94-2		Filter (F)
2-94-3		Reagent (R)
2-94-4		Impangis Rinse (IR) 2bts
2-94-5		Condensers Rinse (C)
2-94-6		Probe Rinse (P)
2-94-7	II-MM5-5	- X
2-94-8		- F
2-94-9		- R
2-94-10		- IR
2-94-11		- C
2-94-12		- P
2-94-13	II-MM5-6	- X
2-94-14		- F
2-94-15		- R
2-94-16		- IR
2-94-17		- C
2-94-18		- P
2-94-19	II-MM5-7	- X
2-94-20		- F

7-22-87

1-22-87 TU#8701511 Entropy cont'd.

TU#	Client ID
2-95-1	I1-MM5-7-C
2-95-2	" " "-P
2-95-3	I1-MM5-8-X
2-95-4	-F
2-95-5	-R
2-95-6	-IR
2-95-7	-C
2-95-8	-P
2-95-9	I1-MM5-BLK 2-X
2-95-10	-F
2-95-11	-R
2-95-12	-IR
2-95-13	-C
2-95-14	-P
2-95-15	I2-MM5-2-X
2-95-16	-F
2-95-17	-R
2-95-18	-IR
2-95-19	-C
2-95-20	-P
2-95-21	I2-MM5-3-X
2-95-22	-F
2-95-23	-R
2-95-24	-IR

96
7-22-87 TLI#8701511 Entropy cont'd TU=

TLI#	Client ID
2-96-1	I2-MM5-4-X
2-96-2	-F
2-96-3	-R
2-96-4	-IR
2-96-5	-C
2-96-6	-P
2-96-7	I2-MM5-5-X
2-96-8	-F
2-96-9	-R
2-96-10	-IR
2-96-11	-C
2-96-12	-P
2-96-13	I2-MM5-6-X
2-96-14	-F
2-96-15	-R
2-96-16	-IR
2-96-17	-C
2-96-18	-P
2-96-19	I2-MM5-7-X
2-96-20	-F
2-96-21	-R
2-96-22	-IR
2-96-23	-C
2-96-24	-P

7-22-87

TU=8701511 Entropy

TLI #	Client ID
2-97-1	I2 - MM5 - 8 - R
2-97-2	-IR
2-97-3	- C
2-97-4	- P
2-97-5	I2 - MM5 - 9 - X
2-97-6	- F
2-97-7	- R
2-97-8	- IR
2-97-9	- C
2-97-10	- P
2-97-11	I2 - MM5 - BLK1 - X
2-97-12	- F
2-97-13	- R
2-97-14	- IR
2-97-15	- C
2-97-16	- P
2-97-17	I2 - MM5 - BLK2 - X
2-97-18	- F
2-97-19	- R
2-97-20	- IR
2-97-21	- C
2-97-22	- P

Kathy Everette
7-23-87

TRIANGLE LABORATORIES, INC. page 1 of 2

9/30/87 Analyst Worksheet

TLI Project No.: 8701511 Amount of 13C 1234-TCDD added _____ pg/uL in 20uL

Client: ENTROPY Cartridges were pre spiked @ 5 ng

LAB No.	TLI SAMPLE NUMBER	CUSTOMER SAMPLE NUMBER	INTERNAL STANDARDS ADDED *	SURROGATES ADDED * (Dit) (7/10/87)	QUANTITY EXTRACTED	FILE #
1	2-94-1 thru 2-94-6	L1-MMS-4-X, -F, -R, -ER, -C, -P	100 ul	—		
2	2-94-7 thru 2-94-12	L1-MMS-5-X, -F, -R, -ER, -C,		—		1272283
3	2-94-13 thru 2-94-18	L1-MMS-6-X, -F, -R, -ER, -C,		—		84
4	2-94-19 thru 2-95-2	L1-MMS-7-X, -F, -R, -ER, -C,		—		85
5	2-95-3 thru 2-95-8	L1-MMS-8-X, -F, -R, -ER, -C,		—		86
6	2-95-9 thru 2-95-14	L1-MMS-9-X, -F, -R, -ER,		—		87
7	2-95-15 thru 2-95-20	9/14 L2-MMS-2-X, -F, -R, -ER, -P		—		88
8	2-95-21 thru 2-95-26	9/14 L2-MMS-3-X, -F, -R, -ER,		—		89
9	2-96-1 thru 2-96-6	9/14 L2-MMS-4-X, -F, -R, -ER, -C,		—		91
10	2-96-7 thru 2-96-12	9/15 L2-MMS-5-X, -F, -R, -ER,		—		92
11	2-96-13 thru 2-96-18	9/15 L2-MMS-6-X, -F, -R, -ER, -C,		—		93
12	2-96-19 thru 2-97-24	9/15 L2-MMS-7-X, -F, -R, -ER, -C,		—		98
13	2-96-25 thru 2-97-4	9/16 L2-MMS-8-X, -F, -R, -ER, -C,		—		99
14	2-97-5 thru 2-97-10	9/16 L2-MMS-9-X, -F, -R, -ER,		—		00
15	2-97-11 thru 2-97-16	L2-MMS-[illegible]-X -F, -R, -ER	↓	—		01
						02

* 0.1ng/ul of internal standards and surrogates, except for 13C-OCDD which is 0.2ng/ul

TRIANGLE LABORATORIES, INC.

Analyst Worksheet

TLI Project No.: 8701511 Amount of 13C 1234-TCDD added _____ pg/uL in 20uL

Client: ENTROPY

LAB NO.	TLI SAMPLE NUMBER	CUSTOMER SAMPLE NUMBER	INTERNAL STANDARDS ADDED*	SURROGATES ADDED *	QUANTITY EXTRACTED	FILE #
16	2-47-11 thru 2-47-22	[illegible]	100 µl	—		03
17	TLI Blank	#1	↓	100 µl		M27223d
18	TLI Blank	#2	↓	100 µl		97

* 0.1ng/ul of internal standards and surrogates, except for 13C-OCDD which is 0.2ng/ul

ENTROPY # 5553 A-4

ENVIRONMENTALISTS INC.
POST OFFICE BOX 12291
RESEARCH TRIANGLE PARK
NORTH CAROLINA 27709-2291
919-781-3550

REQUEST FOR ANALYSIS

PURCHASE ORDER # 5553 A-4 JOB NAME:

LABORATORY: TLI

DATE SAMPLES WERE TRANSMITTED: 7/22/87 EXPECTED DATE OF RESULTS: 8/19/87

SAMPLE MATRIX: FILTERS, XAD TRAPS, IMPINGER, REAGENT, RINSES BLANKS

TYPE OF ANALYSIS REQUESTED: TRI-OCTA DIOXIN/FURAN SCREEN AND 2,3,7,8 TCDD/F CONFIRMS

	# OF SAMPLES	SAMPLE ID	FOR XAD, FILTERS, REAGENT, RINSES, BLANKS		
7/17	1	I-1 MM5-4			
7/17	2	I-1-MM5-5			
7/18	3	I-1-MM5-6			
7/18	4	I-1-MM5-7			
7/18	5	I-1-MM5-8			
7/17	6	I-1-MM5-BLK			
7/14	7	I2-MM5-2			
7/14	8	I2-MM5-3			
7/14	9	I2-MM5-4			
7/15	10	I2-MM5-5			
7/15	11	I-2-MM5-6			

REQUEST FOR ANALYSIS

PURCHASE ORDER # 5553A-4

#5553A-4

	# OF SAMPLES	SAMPLE ID FOR FILTERS, XAD, IMPINGER AND RINSES			
7/16	12	I-2-MM5-7			
7/16	13	I-2-MM5-8			
7/16	14	I-2-MM5-9			
7/14	15	I-2-MM5-BLK1			
7/16	16	I-2 MM5-BLK 2			

No. of Billable Sample _____

Initials _____

TRIANGLE LABORATORIES, INC.

Laboratory Workorder Form

Project Number: 8701511 DUE DATE: 8-19-87

Customer: Entropy

	ANALYTE	MATRIX	NO. SAMPLES	CHEMISTRY	ANALYSIS	REPORT	QC
1.	_____	MMS	11e	_____	Tr. CDD/F	_____	--
2.	_____	_____	_____	_____	_____	_____	--
3.	_____	_____	_____	_____	_____	_____	--
4.	_____	_____	_____	_____	_____	_____	--
5.	_____	_____	_____	_____	_____	_____	--
6.	_____	_____	_____	_____	_____	_____	--

NOTES:

RECORD of ANALYSIS:

SAMPLE CUSTODY:
RECEIVED BY: Kathy Durette DATE: 7-22-87
NOTES: In MS lab

CHEMISTRY: DUE DATE: _____
RESPONSIBLE CHEMIST: _____
DATE STARTED: _____ DATE COMPLETED: _____
NOTES:

MASS SPECTROMETRY (LOW OR HIGH) DUE DATE: _____
RESPONSIBLE SPECTROCOPIST: _____
DATE STARTED: _____ DATE COMPLETED: _____
NOTES:

DATA REVIEW: DUE DATE: _____
RESPONSIBLE CHEMIST: _____
DATE STARTED: _____ DATE COMPLETED: _____
NOTES:

QUALITY CONTROL: DUE DATE: _____
RESPONSIBLE CHEMIST: _____
DATE STARTED: _____ DATE COMPLETED: _____
NOTES:

5/2/86

SALES ORDER 10385

TRIANGLE LABORATORIES, INC.
4915 PROSPECTIVE DRIVE
RESEARCH TRIANGLE PARK, NC 27713
(919) 544-5720

CUSTOMER NO. EEI01

BILL TO:

ENTROPY ENVIRONMENTALISTS, INC.
P.O. BOX 12291
RES. TRI. PARK, NC 27709

SHIP TO:

ENTROPY ENVIRONMENTALISTS, INC.
P.O. BOX 12291
RES. TRI. PARK, NC 27709

DATE	SHIP VIA	F.O.B.	TERMS
07/31/87	UPS	Origin	Net 15 Days

PURCHASE ORDER NUMBER	ORDER DATE	SALESPERSON	OUR ORDER NUMBER
[illegible]	07/22/87	RM	2511

QUANTITY REQUIRED	QUANTITY SHIPPED	QUANTITY B.O.	ITEM NUMBER	DESCRIPTION
16			22061	TRIDOX,MM5 COMP,DATA

Total
Total
Total

PACKING LIST

SALES ORDER 10385

TRIANGLE LABORATORIES, INC.
4915 PROSPECTIVE DRIVE
RESEARCH TRIANGLE PARK, NC 27713
(919) 544-5720

CUSTOMER NO. EEI01

BILL TO:

ENTROPY ENVIRONMENTALISTS, INC.
P.O. BOX 12291
RES. TRI. PARK, NC 27709

SHIP TO:

ENTROPY ENVIRONMENTALISTS, INC.
P.O. BOX 12291
RES. TRI. PARK, NC 27709

DATE	SHIP VIA	F.O.B.	TERMS
07/31/87	UPS	Origin	Net 15 Days

PURCHASE ORDER NUMBER	ORDER DATE	SALESPERSON	OUR ORDER NUMBER
[illegible]	07/22/87	[illegible]	[illegible]

QUANTITY REQUIRED	QUANTITY SHIPPED	B.O.	ITEM NUMBER	DESCRIPTION
16			22061	TRIDOX,MM5 COMP,DATA
				Total
				Total
				Total

PACKING LIST

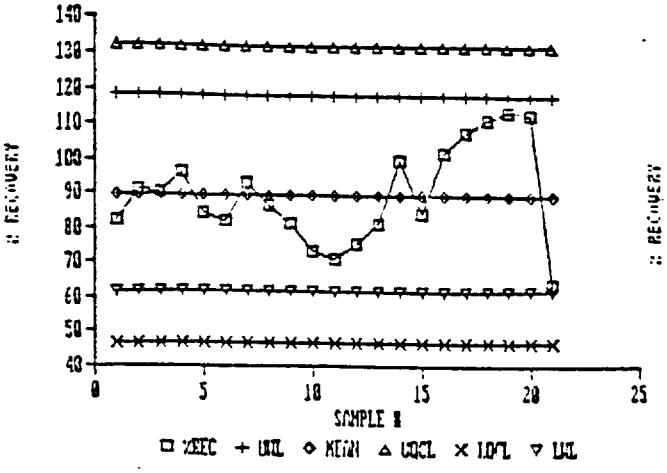
Thank You

TRIANGLE LABS

Triangle Laboratories QC Charts Page 1/5

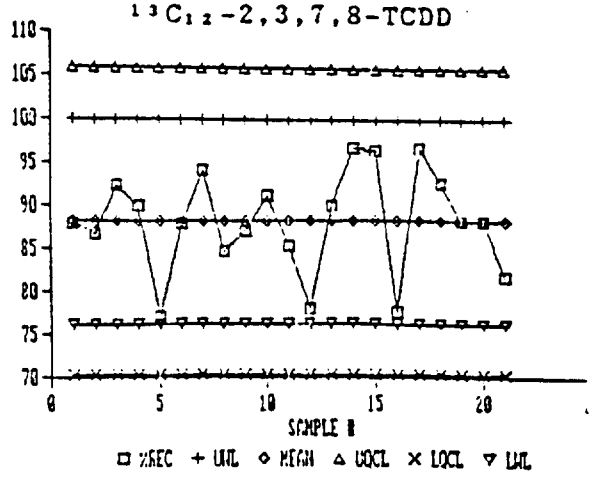
% RECOVERY 13C12-PCDD INTERNAL STANDARD

$^{13}C_{12}$-1,2,3,7,8-PeCDD



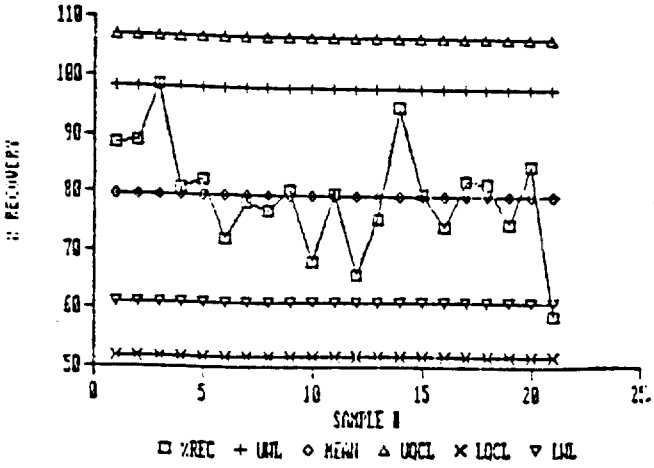
% RECOVERY 13C12-TCDD INTERNAL STANDARD

$^{13}C_{12}$-2,3,7,8-TCDD



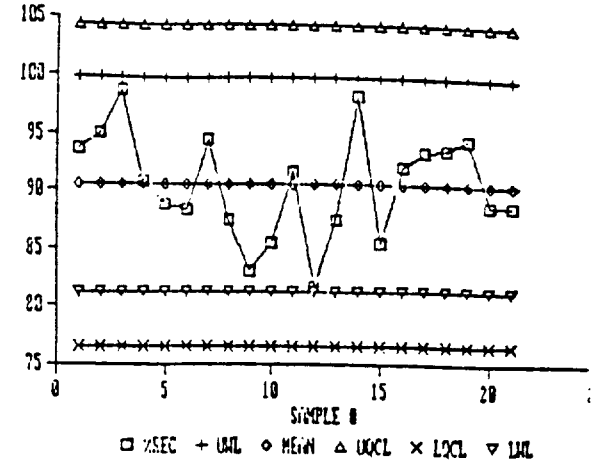
%RECOVERY 13C12-HPCDD INTERNAL STANDARD

$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD



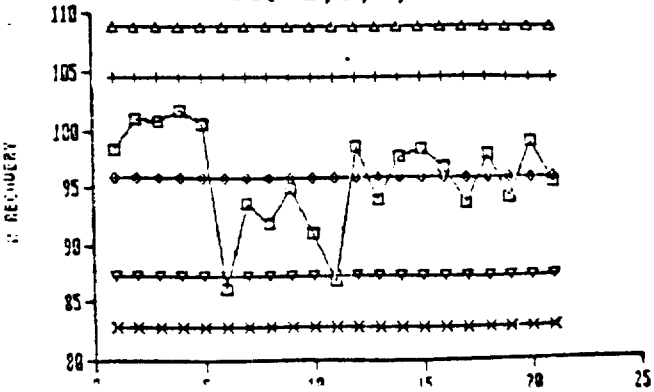
[illegible] 13C12-HxCDD [illegible]

$^{13}C_{12}$-1,2,3,6,7,8-HxCDD



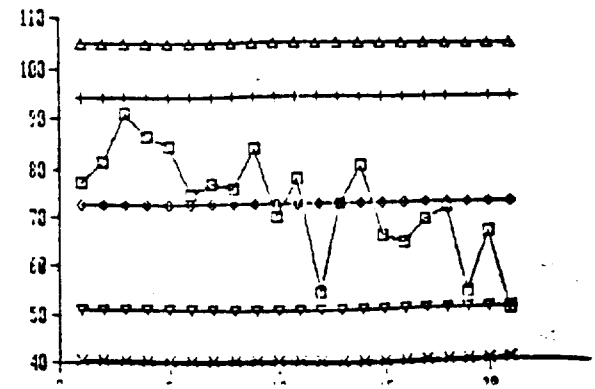
[illegible] 13CL-TCDD STANDARD

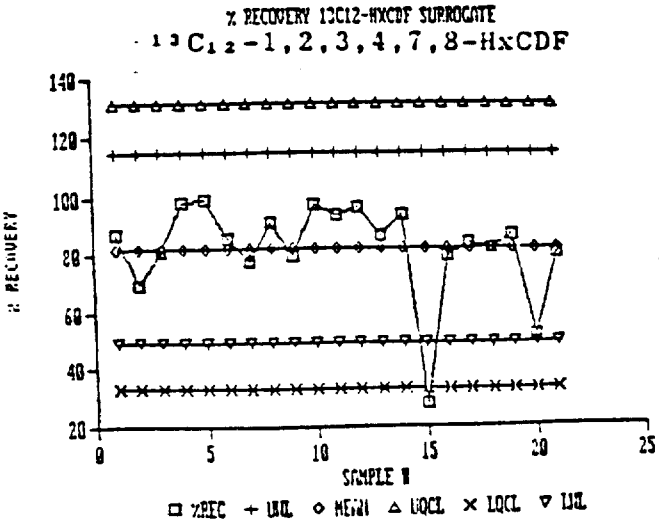
$^{37}Cl_4$-2,3,7,8-TCDD

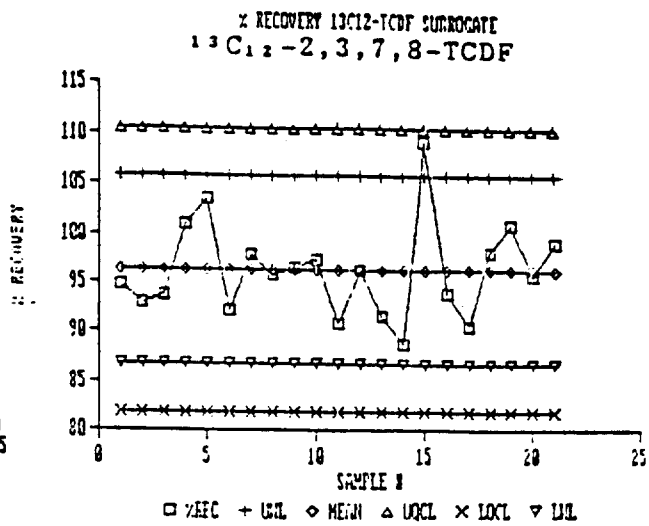


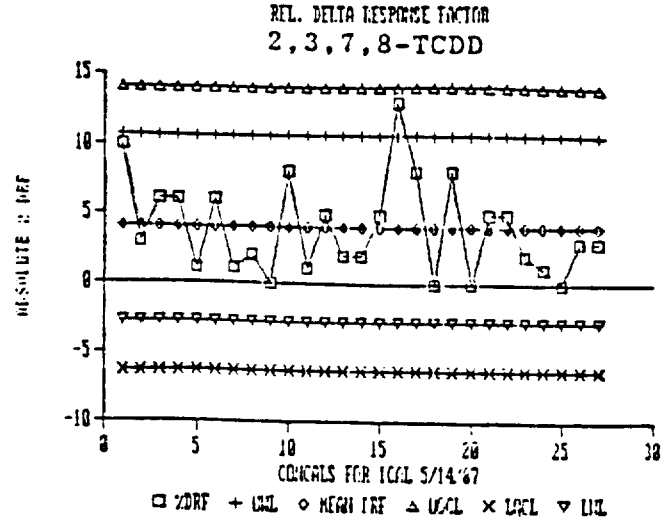
%RECOVERY 13C12-OCDD Internal Standard

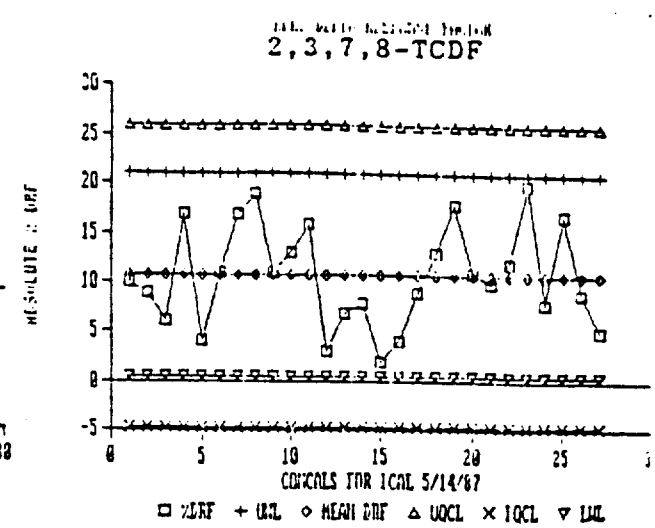
$^{13}C_{12}$-OCDD

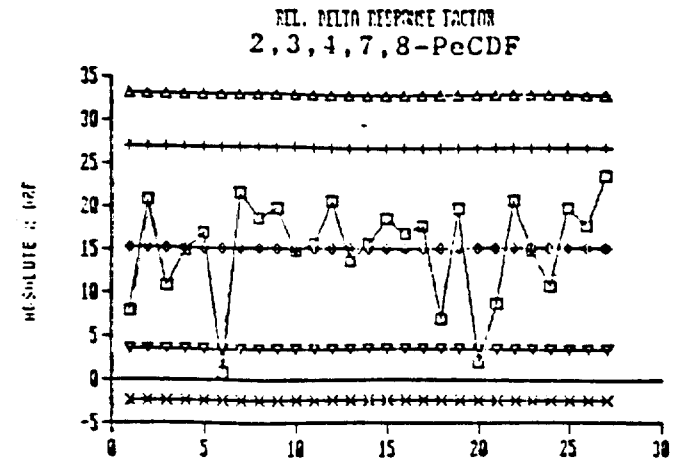


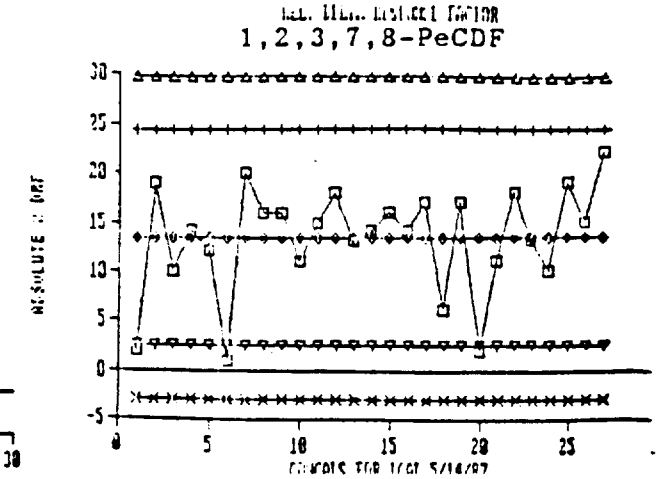

% RECOVERY 13C12-HXCDF SURROGATE
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF
% RECOVERY
SAMPLE #
%REC + UWL ◇ MEAN △ UQCL × LQCL ▽ LWL


% RECOVERY 13C12-TCDF SURROGATE
$^{13}C_{12}$-2,3,7,8-TCDF
% RECOVERY
SAMPLE #
%REC + UWL ◇ MEAN △ UQCL × LQCL ▽ LWL

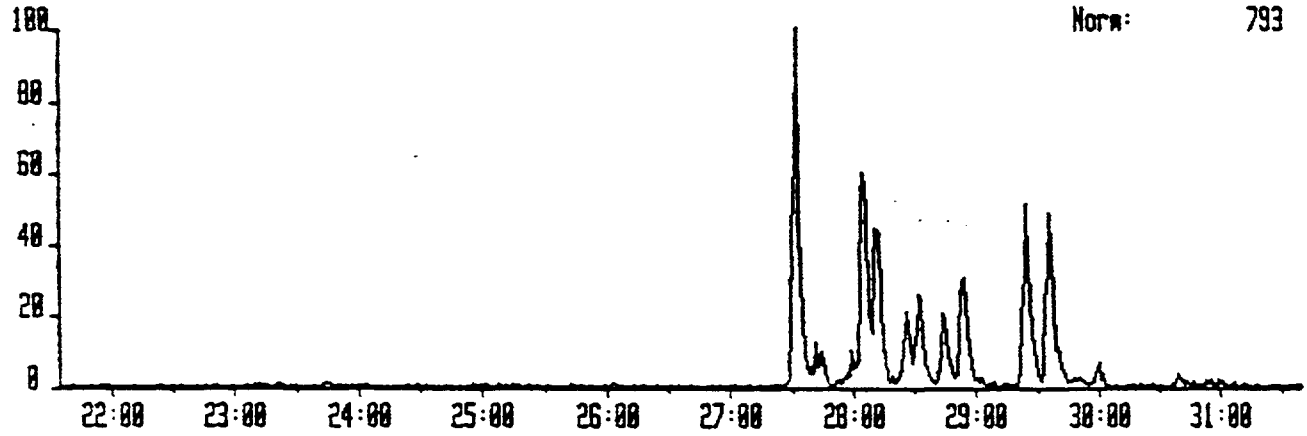

REL. DELTA RESPONSE FACTOR
2,3,7,8-TCDD
RELATIVE % DIF
CONCALS FOR ICAL 5/14/87
%DRF + UWL ◇ MEAN DRF △ UQCL × LQCL ▽ LWL


REL. DELTA RESPONSE FACTOR
2,3,7,8-TCDF
RELATIVE % DIF
CONCALS FOR ICAL 5/14/87
%DRF + UWL ◇ MEAN DRF △ UQCL × LQCL ▽ LWL

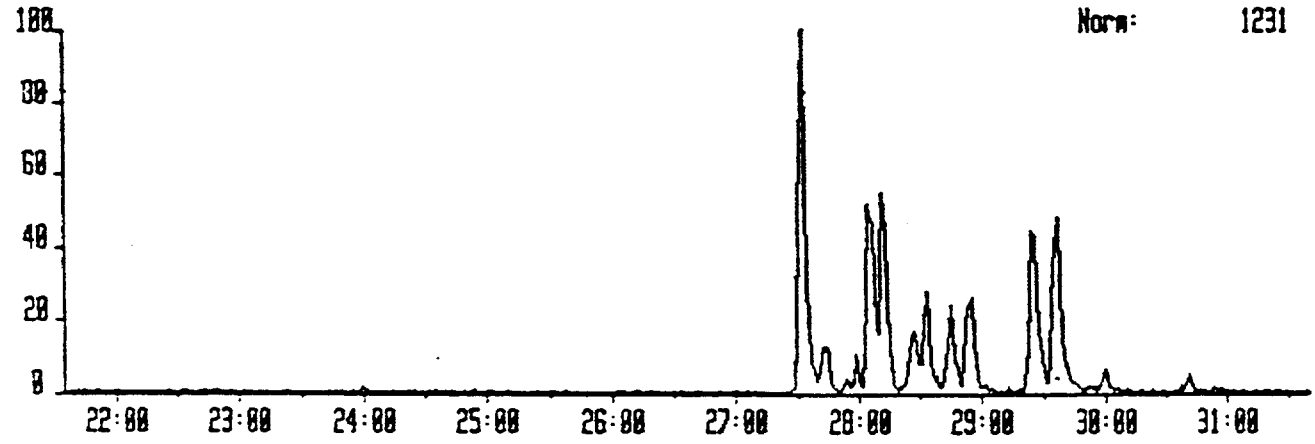

REL. DELTA RESPONSE FACTOR
2,3,4,7,8-PeCDF
RELATIVE % DIF


1,2,3,7,8-PeCDF
RELATIVE % DIF

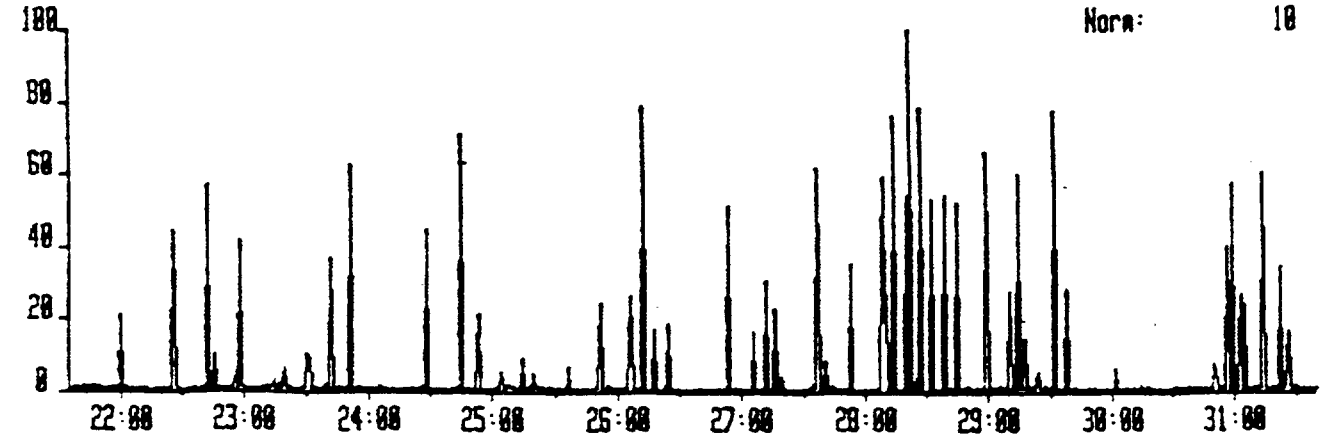
M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:ENTROPY I2-MM5-3



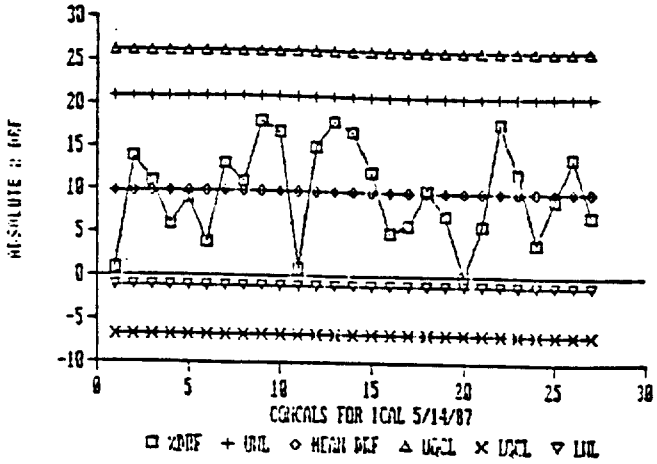
M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:ENTROPY I2-MM5-3



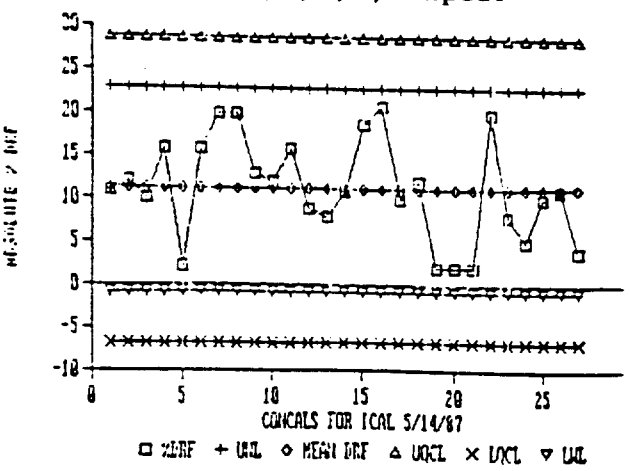
M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 407.8883
Text:ENTROPY I2-MM5-3



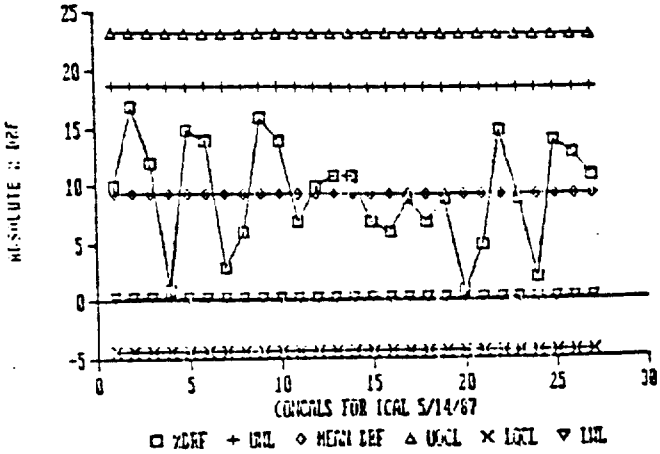
REL. DELTA RESPONSE FACTOR
1,2,3,6,7,8-HxCDD



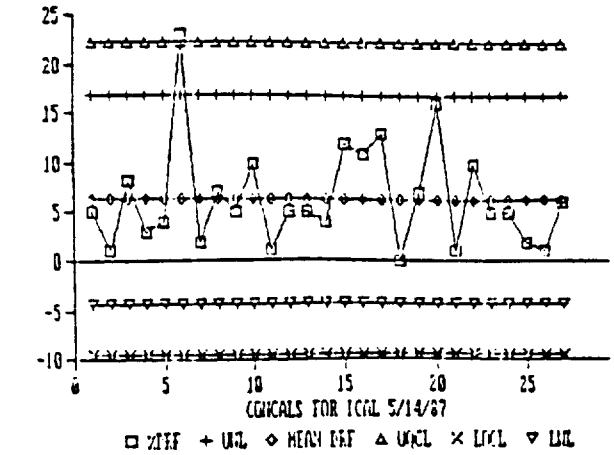
REL. DELTA RESPONSE FACTOR
1,2,3,4,6,7,8-HpCDF



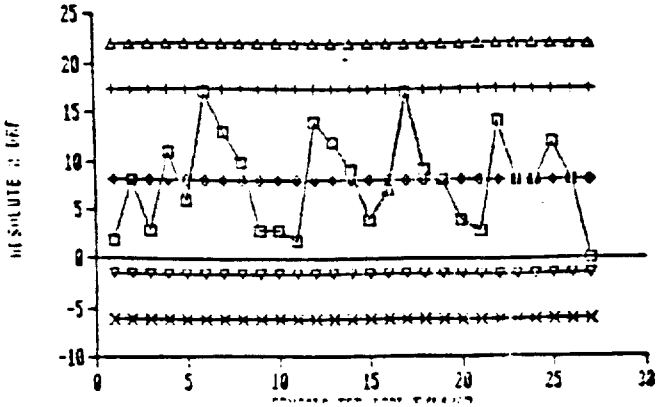
REL. DELTA RESPONSE FACTOR
1,2,3,7,8,9-HxCDD



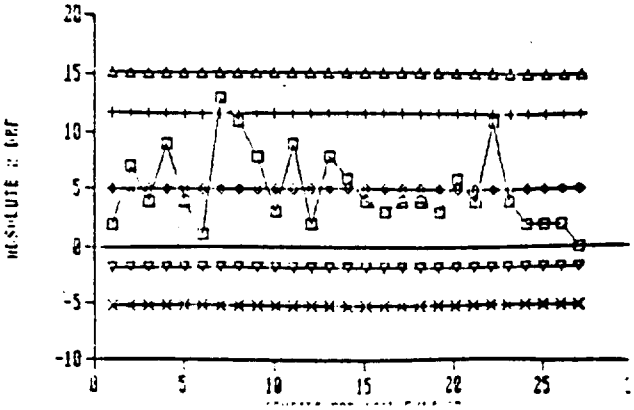
REL. DELTA RESPONSE FACTOR
1,2,3,4,7,8,9-HpCDF



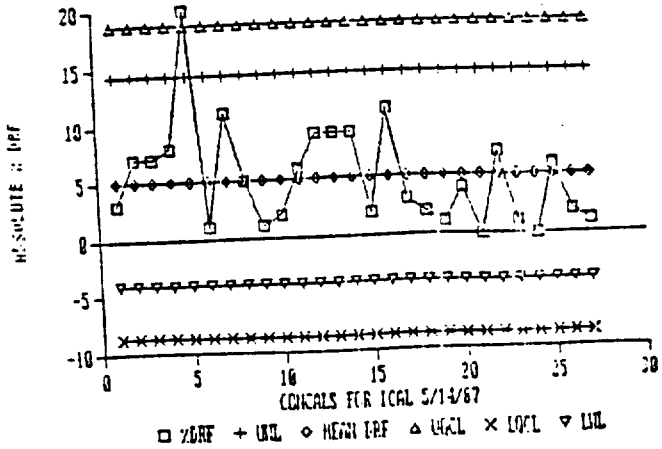
REL. DELTA RESPONSE FACTOR
OCDF



REL. DELTA RESPONSE FACTOR
1,2,3,4,6,7,8-HpCDD



REL. RETIO RESPONSE FACTOR
OCDD



TRIANGLE LABORATORIES, INC.
PCDD/PCDF ANALYSIS (D)

ANALYST: IK
DATE: 08/21/87
FILE NAME: M872282
SAMPLE ID: BLANK
CASE NO: ENTROPY
PROJ NO: 8701511
CONCAL: M872278

NAME	AMT (ng)	NUMBER	DL	EMPC	RATIO	RT
TOTAL TRICDD	ND		0.235			
2378-TCDD	ND		0.018			
TOTAL TCDD	ND			0.054	3.83	
12378-PCDD	ND		0.030			
TOTAL PCDD	ND		0.030			
123478-HxCDD	ND		0.022			
123678-HxCDD	ND		0.020			
123789-HxCDD	ND		0.025			
TOTAL HxCDD	ND			0.040	5.80	
1234678-HpCDD	ND		0.022			
TOTAL HpCDD	ND		0.022			
OCDD	ND			0.147	0.61	
TOTAL TRICDF	ND		0.080			
2378-TCDF	ND		0.015			
TOTAL TCDF	ND			0.076	1.64	
12378-PCDF	ND		0.018			
23478-PCDF	ND		0.020			
TOTAL PCDF	ND		0.018			
123478-HxCDF	ND		0.013			
123678-HxCDF	ND		0.010			
234678-HxCDF	ND		0.015			
123789-HxCDF	ND			0.015	0.91	
TOTAL HxCDF	ND		0.013			
1234678-HpCDF	ND		0.013			
1234789-HpCDF	ND			0.021	0.82	
TOTAL HpCDF	ND			0.019	0.82	
OCDF	ND		0.025			

SURROGATE RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
13C12-TCDF	7.61	76.10	0.79	24.18
37CL-TCDD	8.87	88.70		25.00
13C12-HxCDF	8.47	84.70	1.25	35.17

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
2378-13C12-TCDD	8.92	89.20	0.79	24.59
13C12-PCDD	10.61	106.10	0.64	29.49
13C12-HxCDD	8.74	87.40	1.41	36.30
13C12-HpCDD	9.69	96.90	0.99	42.15
13C12-OCDD	20.23	101.15	0.94	46.58

M872282I
RAW MASS AND AREA DATA

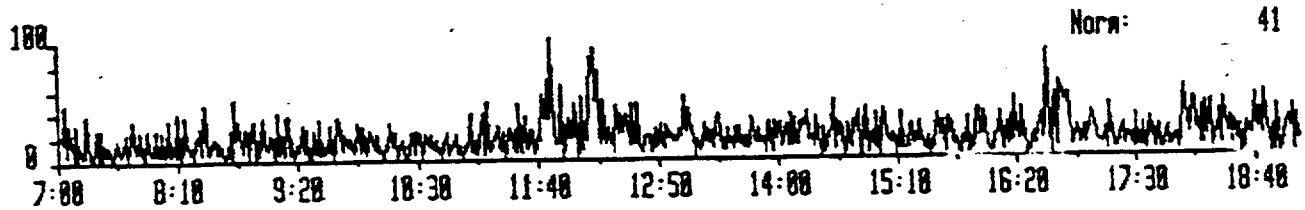
MASS	AREA	RET.TIME
270	10.00	10.00
272	10.00	11.00
286	10.00	12.00
288	81.48	13.02
304	12.96	22.13
304	168.46	23.40
304	17.25	23.47
304	40.99	23.53
304	55.29	24.48
304	20.05	24.55
306	102.76	23.40
306	19.68	24.19
306	29.67	25.10
306	10.99	27.05
306	17.70	27.33
306	19.42	28.56
306	17.13	29.04
306	239.38	29.49
306	17.12	31.10
306	13.43	31.16
316	488.24	23.55
316	12410.71	24.18
318	659.09	23.55
318	15696.09	24.18
318	261.87	24.46
318	127.08	26.21
318	154.46	29.34
318	107.86	29.55
320	18.39	22.33
320	116.29	24.18
320	14.79	24.28
320	24.52	27.04
322	19.70	23.39
322	30.33	24.18
322	18.04	25.21
322	27.20	25.35
322	18.50	27.59
322	18.47	28.43
328	22000.22	25.00
332	179.22	21.50
332	190.91	22.42
332	175.47	22.49
332	220.42	23.07
332	174.75	23.36
332	8628.91	24.48
332	11233.77	24.59
332	284.01	25.26
332	116.12	25.40
332	225.29	26.16
332	207.40	27.06

M872282B

MATCHED EGC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
304	1.64	23.40	271.22	.F.	.F.	0.947
316	0.74	23.55	1147.33	.T.	.F.	0.957
316	0.79	24.18	28106.80	.T.	.T.	0.973
320	3.83	24.18	146.62	.F.	.F.	0.973
328	0.00	25.00	22000.22	.T.	.T.	1.001
332	0.79	24.48	19488.29	.T.	.T.	0.993
332	0.79	24.59	25464.19	.T.	.T.	1.000
366	0.64	29.49	8847.62	.T.	.T.	1.000
374	1.39	36.12	27.62	.T.	.T.	0.992
374	0.91	37.20	39.06	.F.	.T.	1.023
374	1.60	37.45	53.46	.F.	.F.	1.034
386	1.25	35.17	32805.68	.T.	.T.	0.967
390	5.80	35.17	93.37	.F.	.F.	0.967
402	1.41	36.30	12674.40	.T.	.T.	1.000
402	1.29	36.57	23016.73	.T.	.T.	1.012
408	0.82	42.49	63.46	.F.	.T.	1.013
436	1.45	41.13	137.49	.F.	.F.	0.976
436	0.99	42.15	16460.24	.T.	.T.	1.000
436	0.62	45.59	44.02	.F.	.F.	1.088
442	0.75	47.10	183.38	.T.	.T.	1.004
458	0.61	46.58	229.35	.F.	.T.	1.000
470	0.94	46.58	33475.83	.T.	.T.	1.000
470	1.31	48.28	52.10	.F.	.F.	1.032
*** Total ***						
***	30.36	812.75	224828.48			22.952

M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 269.9486
Text:BLANK



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Sample 1 Injection 1 Group 1 Mass 271.9377
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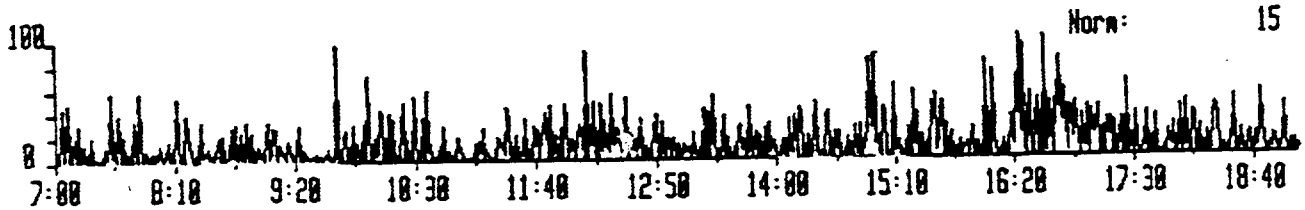

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Sample 1 Injection 1 Group 1 Mass 285.9355
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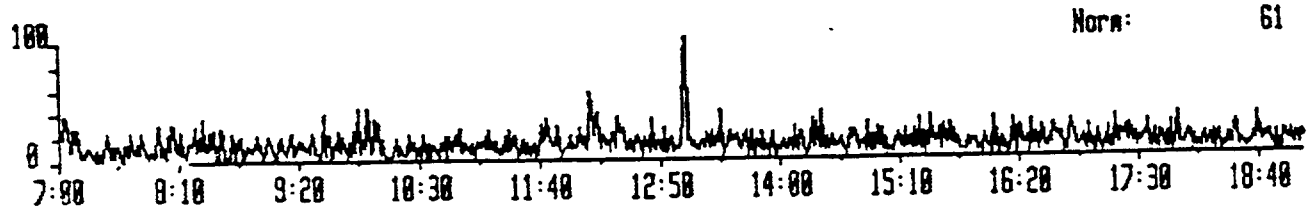

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Sample 1 Injection 1 Group 1 Mass 287.9326
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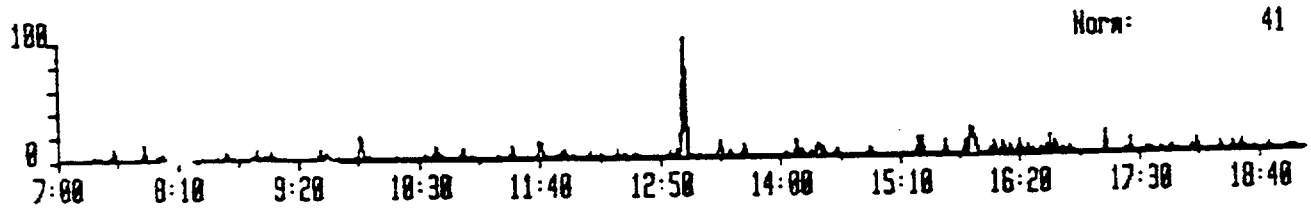

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Sample 1 Injection 1 Group 1 Mass 339.8798
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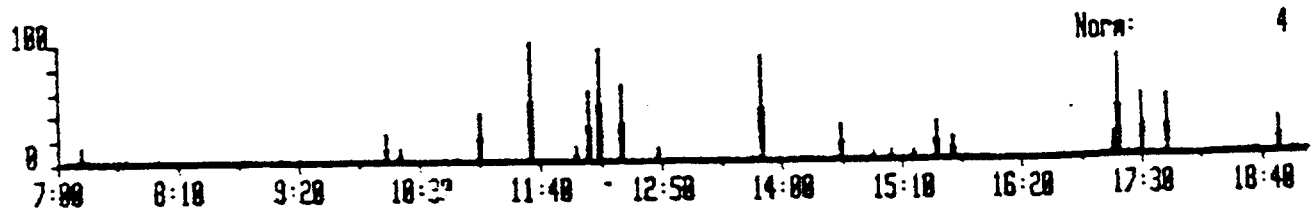

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Sample 1 Injection 1 Group 2 Mass 303.9816
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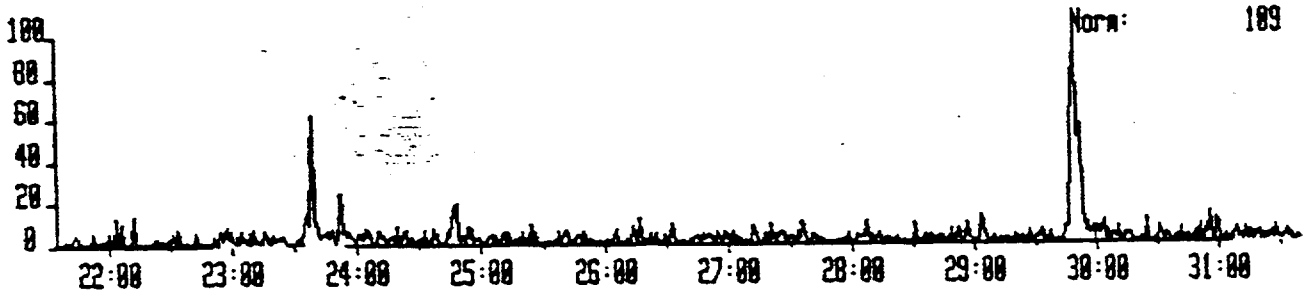

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Sample 1 Injection 1 Group 2 Mass 305.8987
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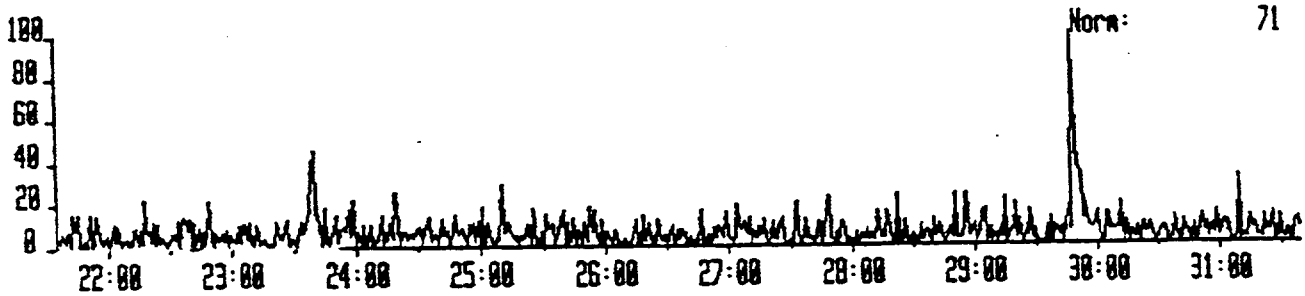

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Sample 1 Injection 1 Group 2 Mass 315.9419
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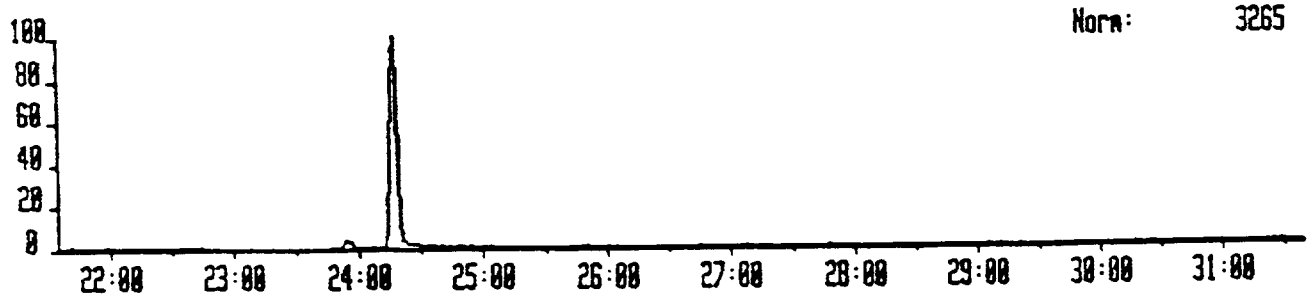

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Sample 1 Injection 1 Group 2 Mass 317.9389
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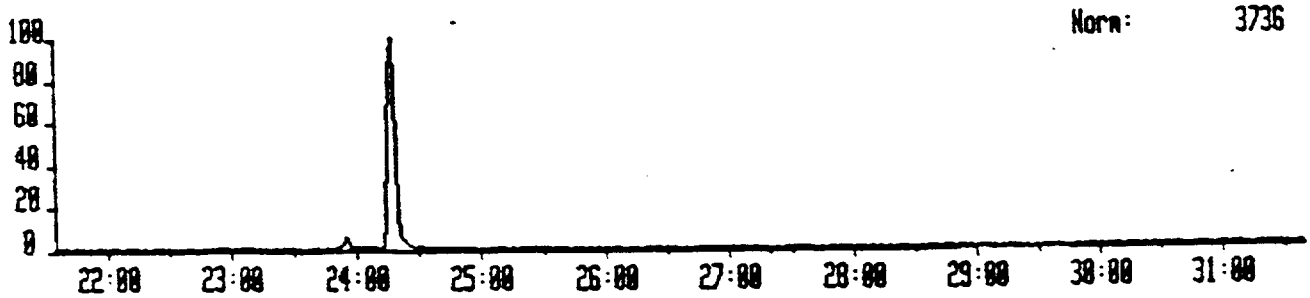

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Sample 1 Injection 1 Group 2 Mass 319.8965
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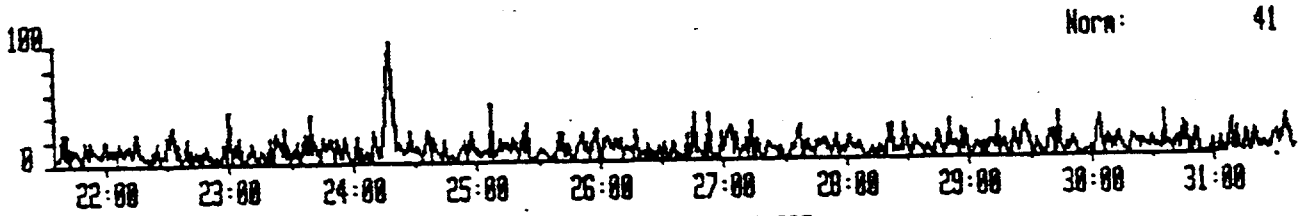

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Sample 1 Injection 1 Group 2 Mass 321.8936
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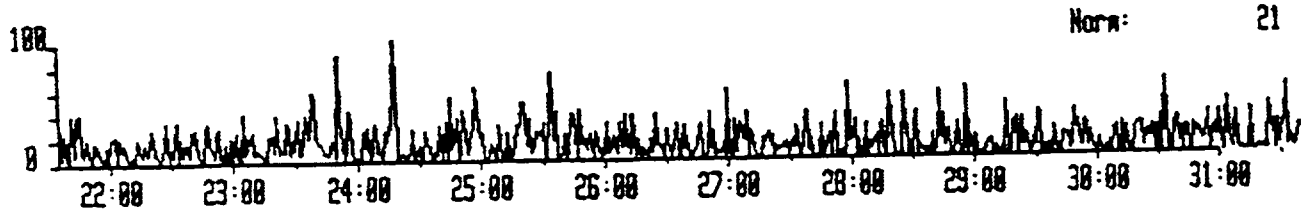

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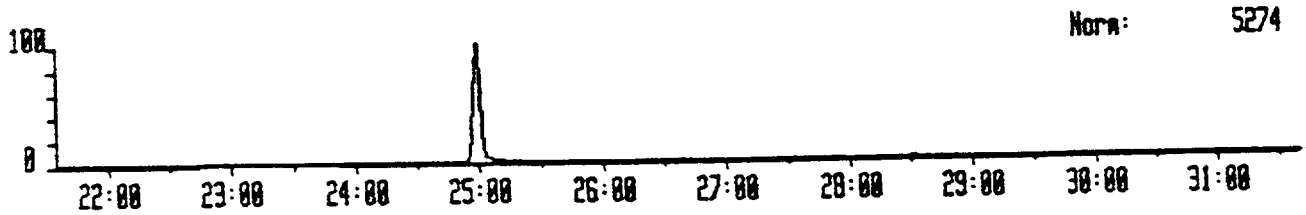

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Sample 1 Injection 1 Group 2 Mass 331.9368
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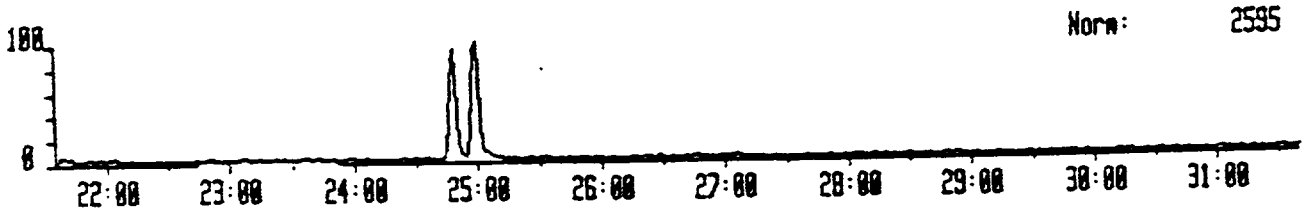

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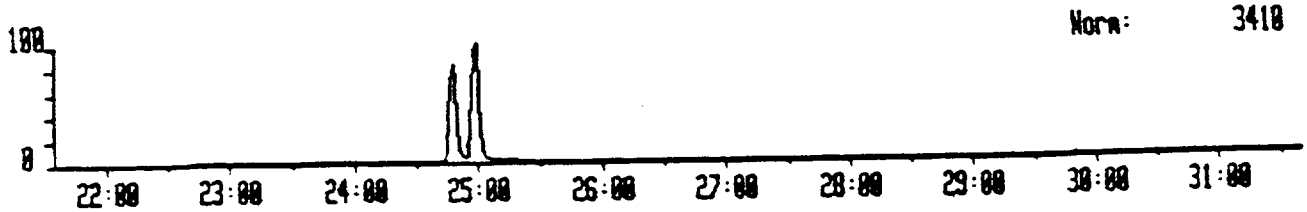

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Sample 1 Injection 1 Group 2 Mass 337.8626
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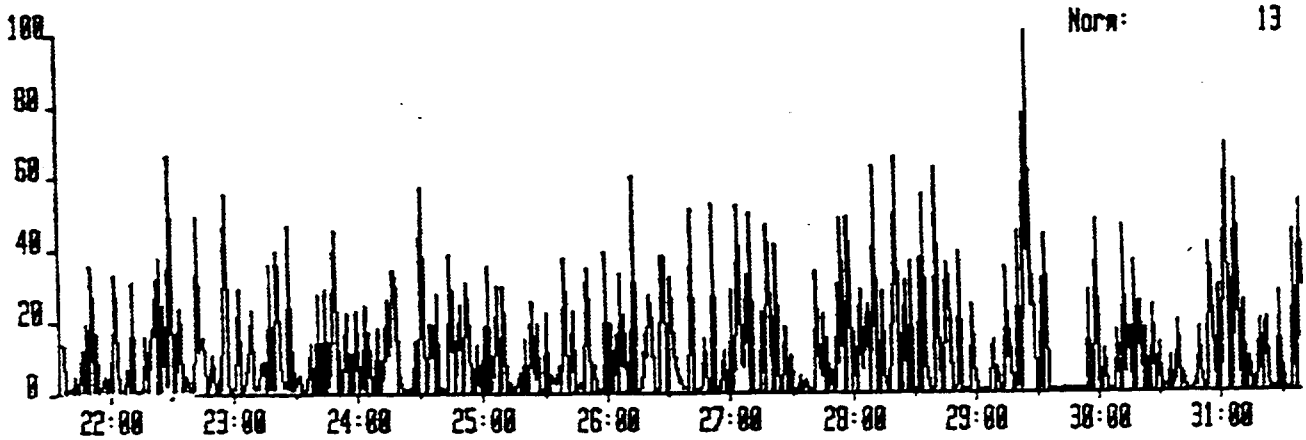

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Sample 1 Injection 1 Group 2 Mass 339.8597
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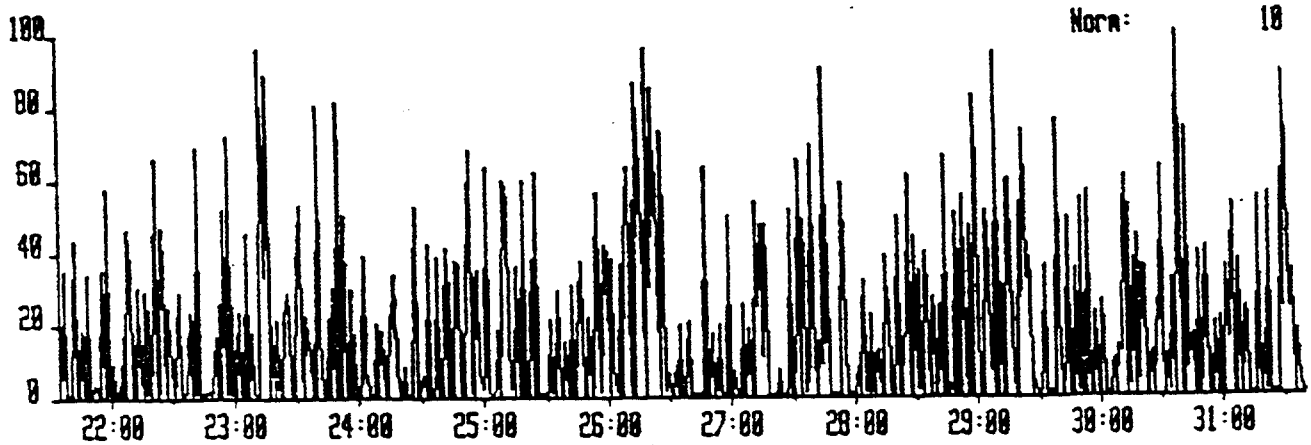

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Sample 1 Injection 1 Group 2 Mass 407.8883
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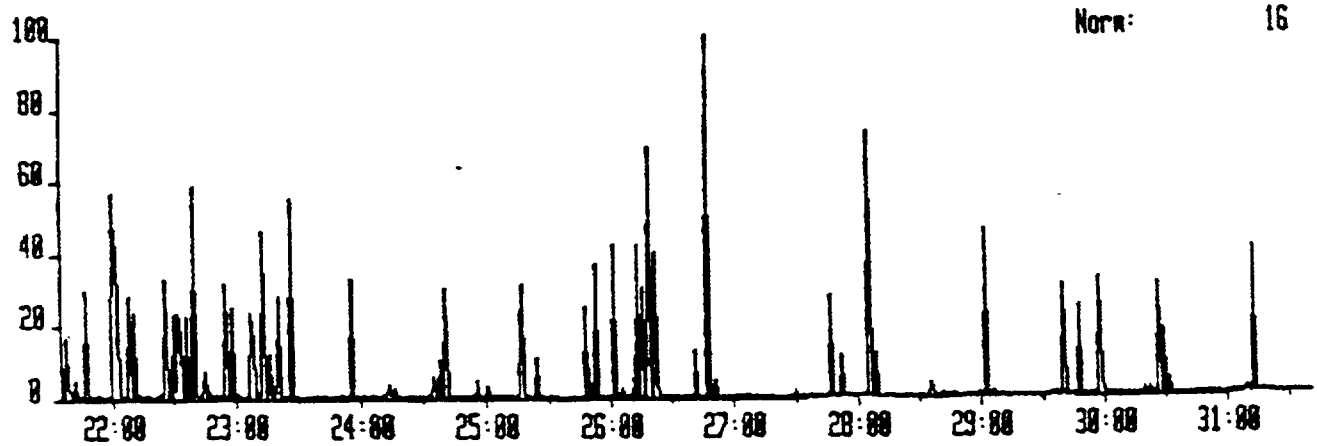

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Sample 1 Injection 1 Group 2 Mass 353.8575
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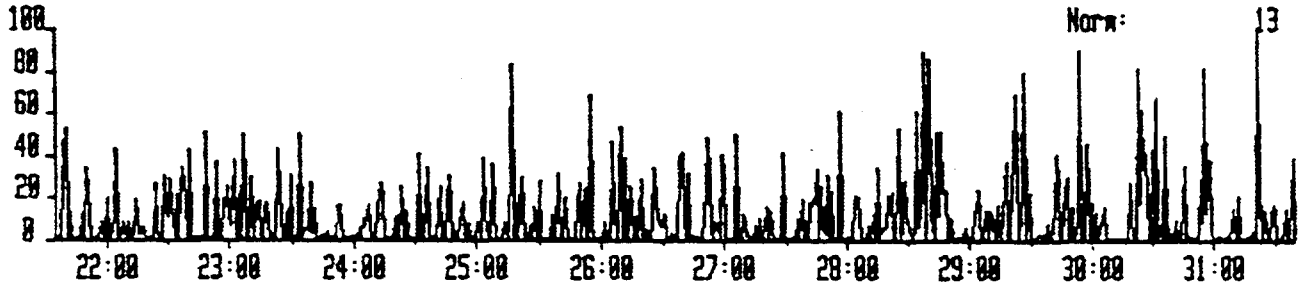

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Sample 1 Injection 1 Group 2 Mass 355.8546
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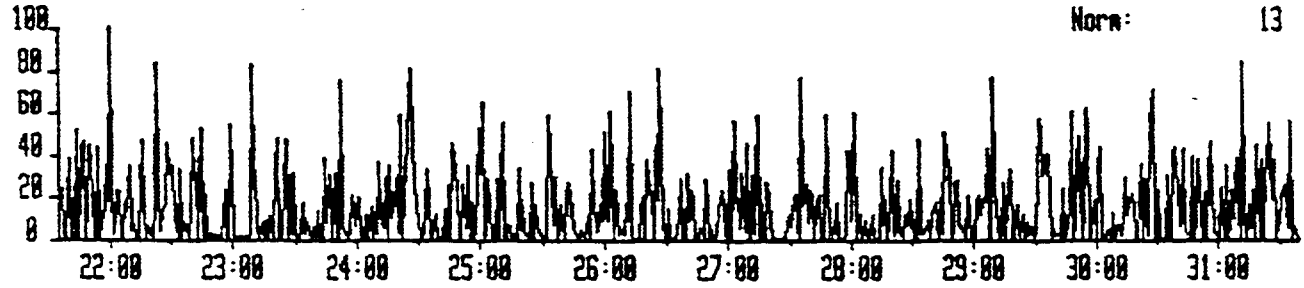

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Sample 1 Injection 1 Group 2 Mass 365.8977
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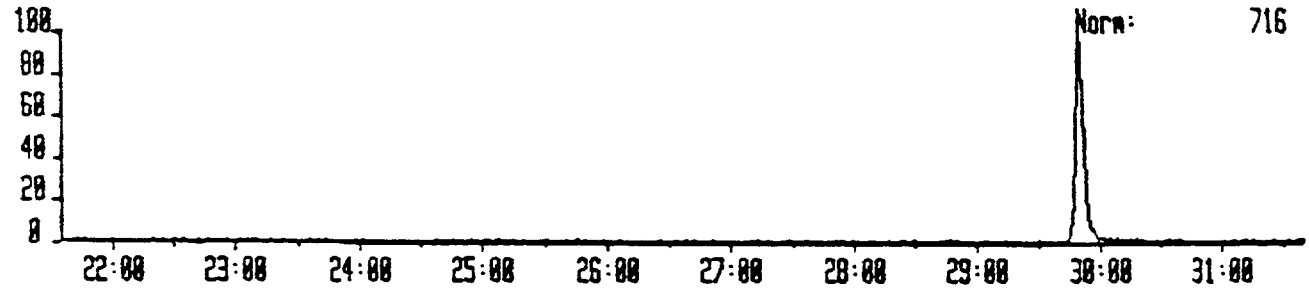

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Sample 1 Injection 1 Group 2 Mass 367.8948
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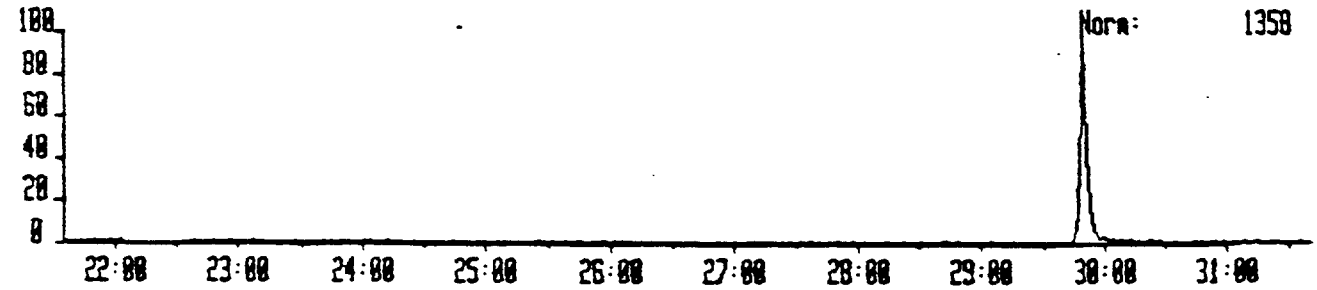

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Sample 1 Injection 1 Group 3 Mass 373.8287
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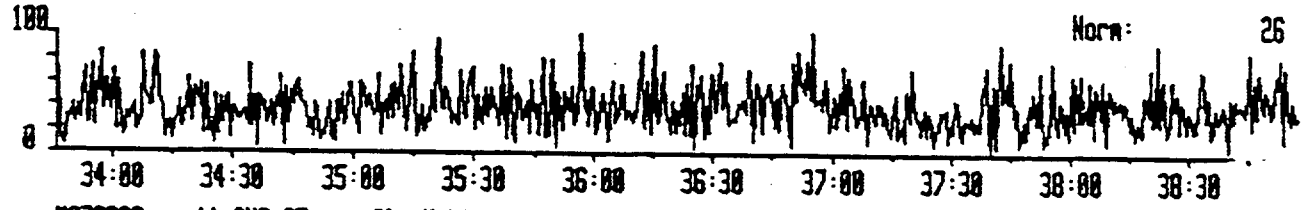

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Sample 1 Injection 1 Group 3 Mass 375.8178
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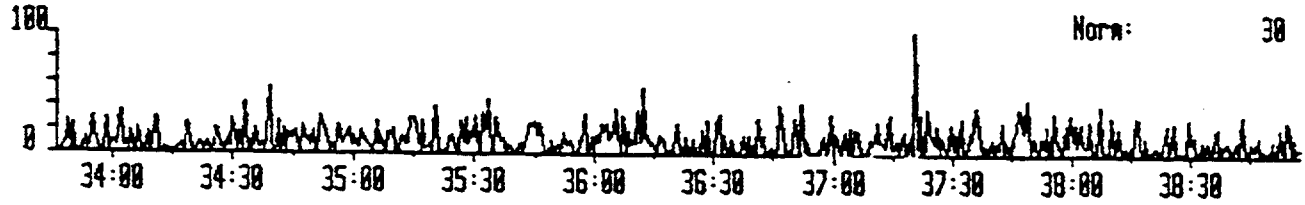

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Sample 1 Injection 1 Group 3 Mass 385.8689
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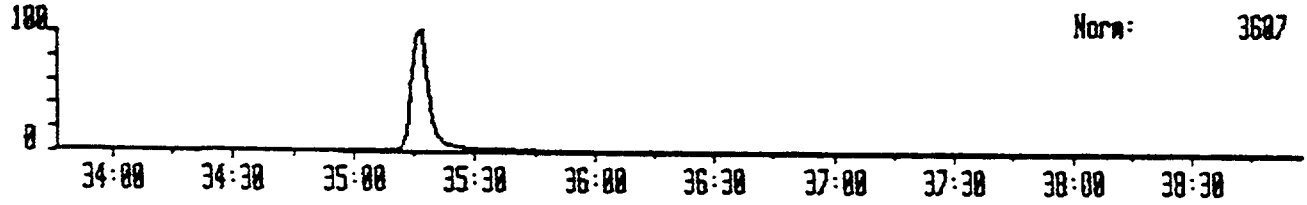

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Sample 1 Injection 1 Group 3 Mass 387.8580
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M872282 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 443.7584
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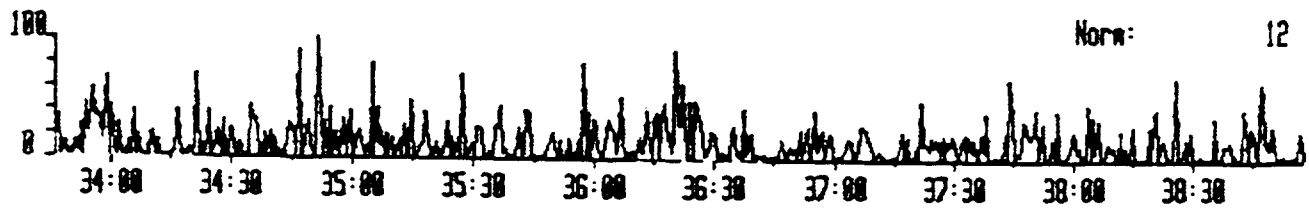

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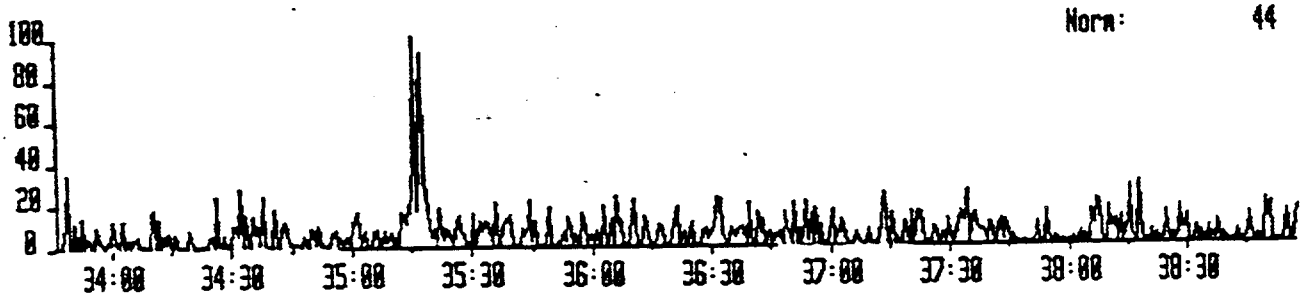
Sample 1 Injection 1 Group 3 Mass 389.8156
Text:BLANK



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Sample 1 Injection 1 Group 3 Mass 391.8127
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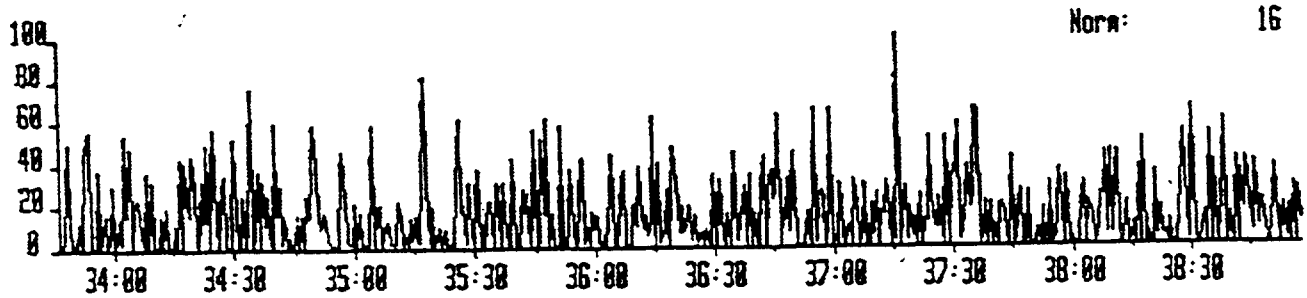

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Sample 1 Injection 1 Group 3 Mass 401.8558
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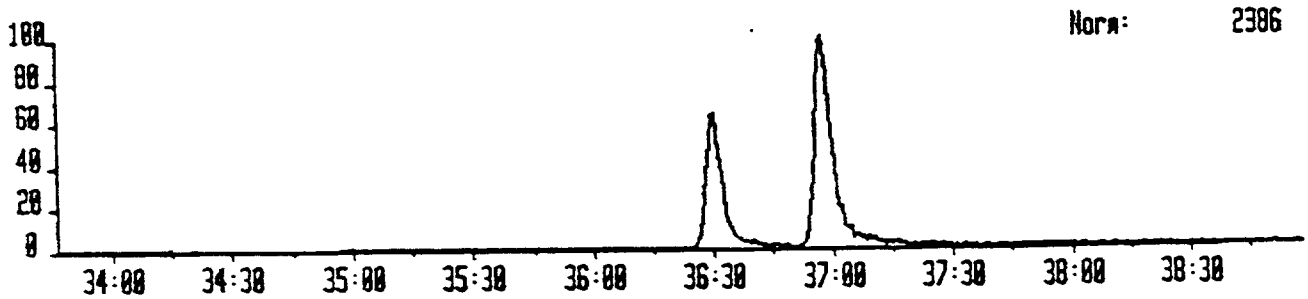

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Sample 1 Injection 1 Group 3 Mass 403.8529
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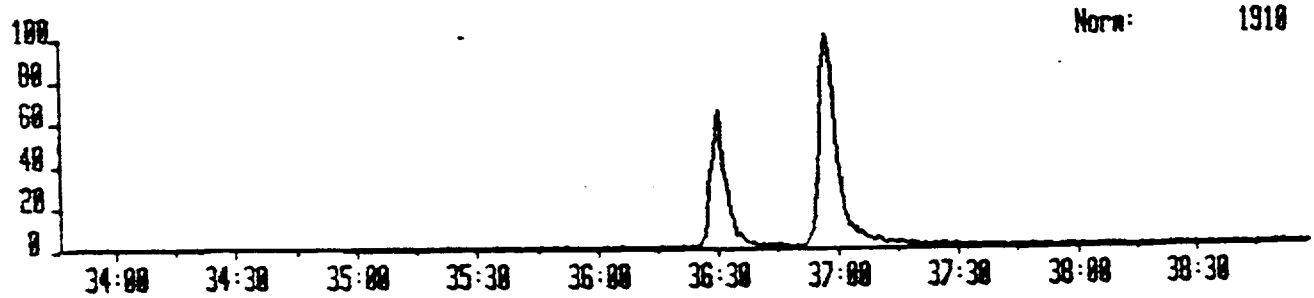

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Sample 1 Injection 1 Group 4 Mass 407.7817
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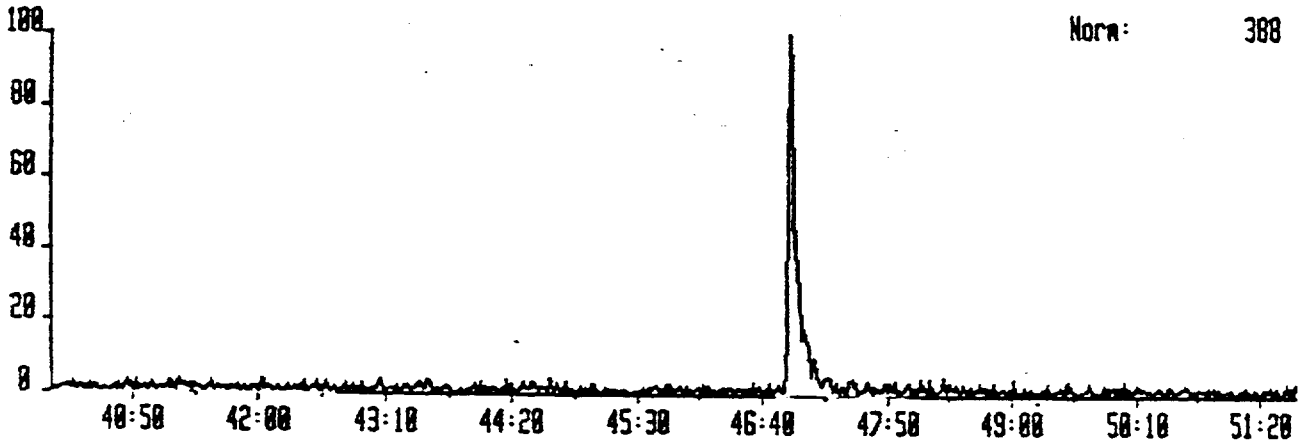

M872282 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 409.7788
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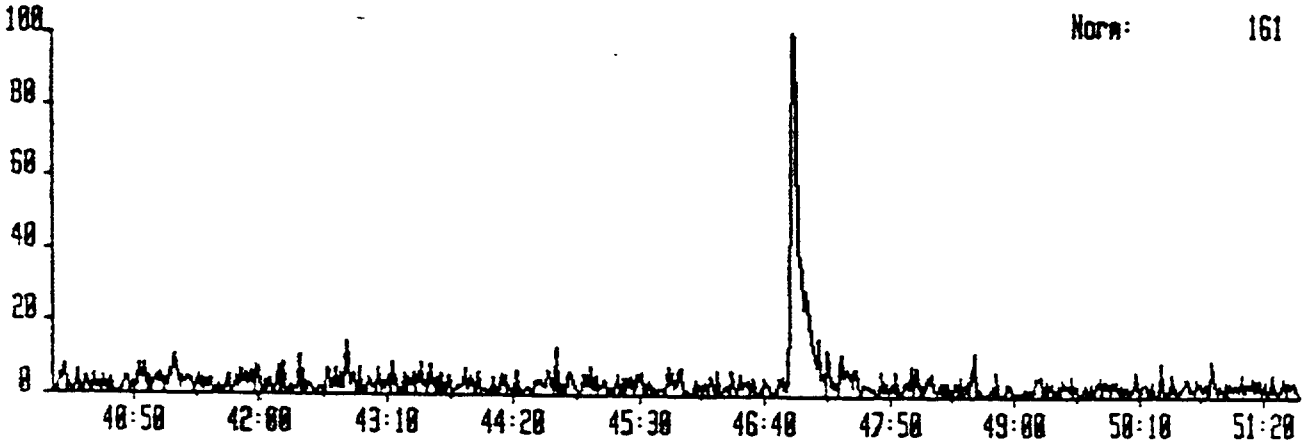

M872282 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 477.7288
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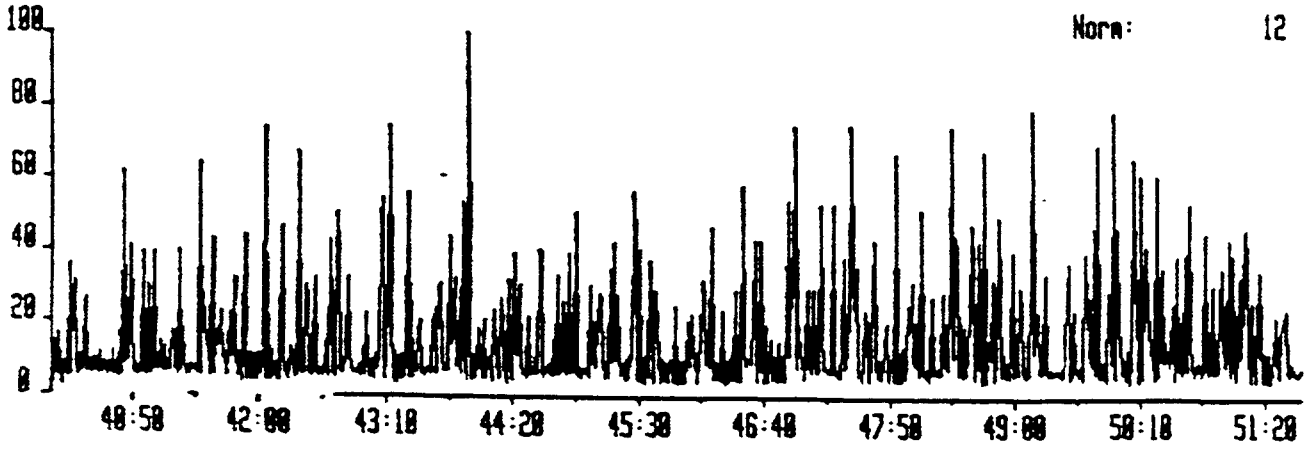
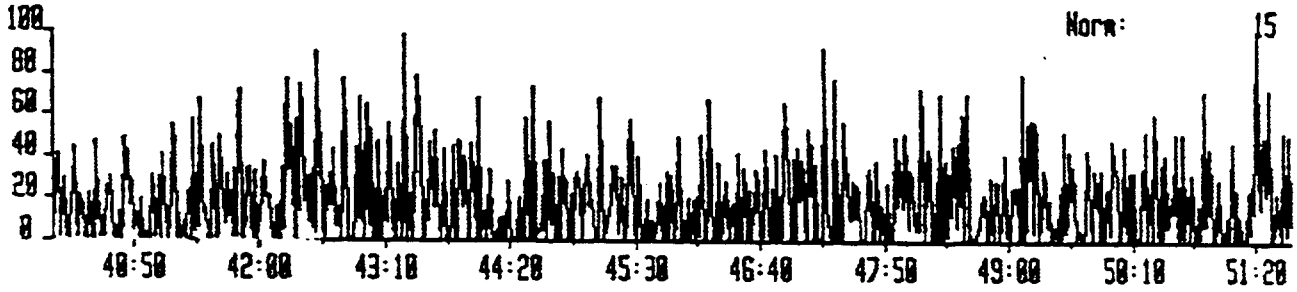
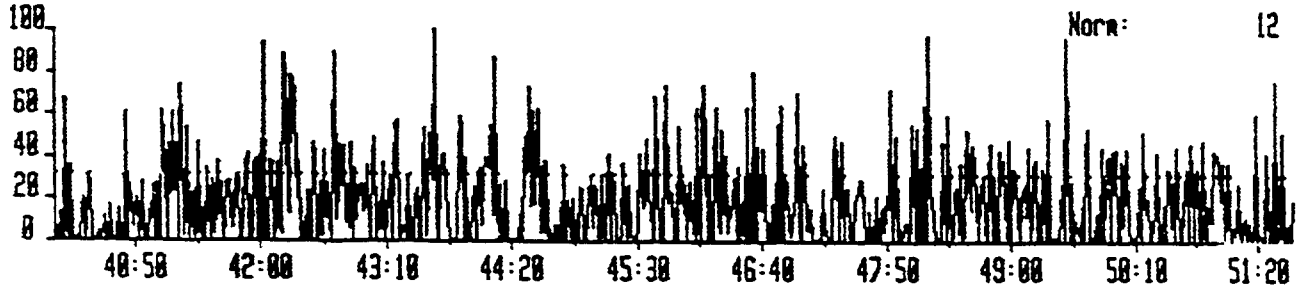


M872282 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:BLANK

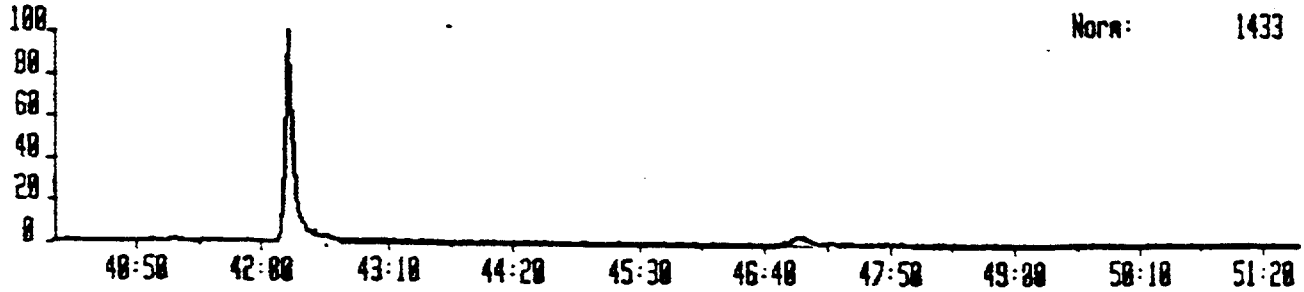


M872282 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:BLANK



M872282 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:BLANK

M872282 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:BLANK



M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 441.7428
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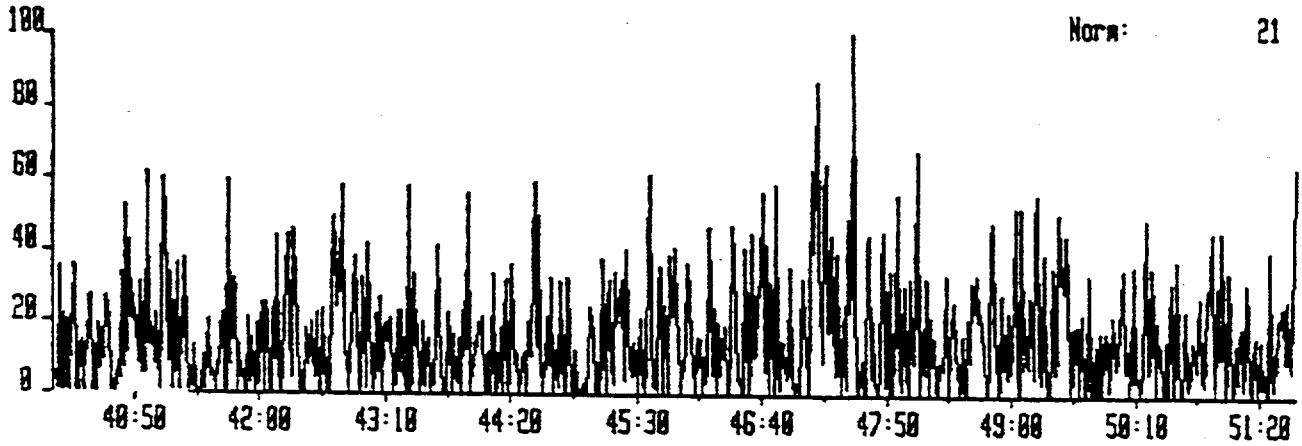

M872282 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 443.7399
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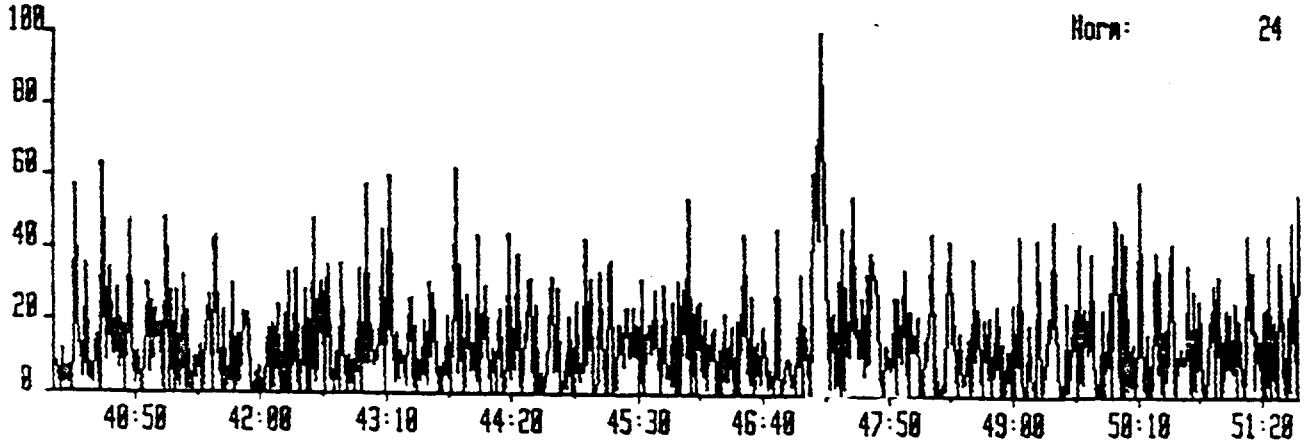

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Sample 1 Injection 1 Group 4 Mass 511.6810
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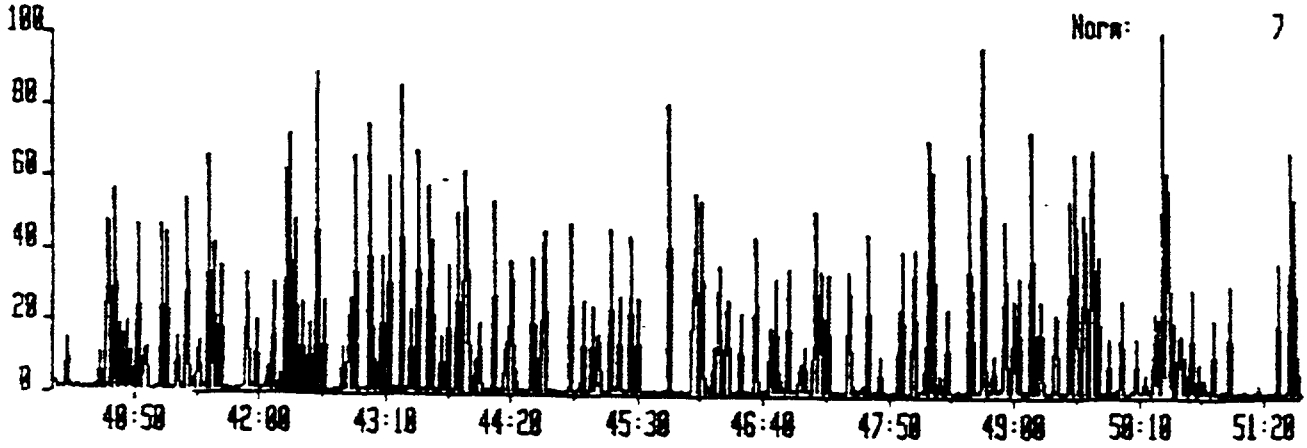

M872282 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 457.7377
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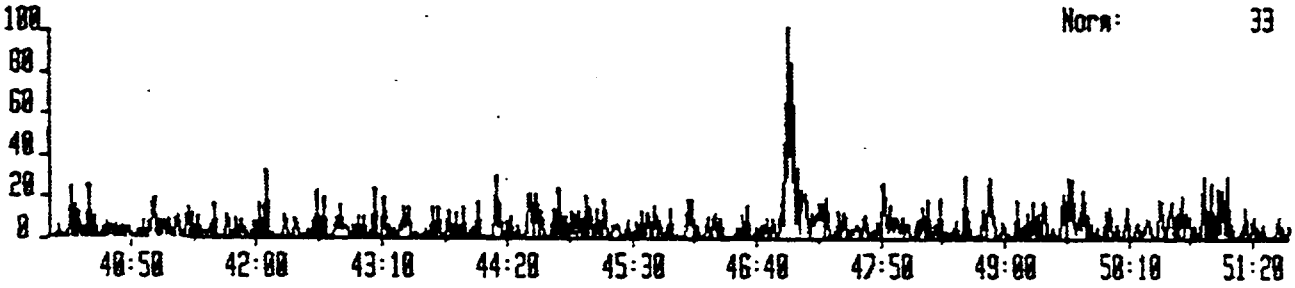
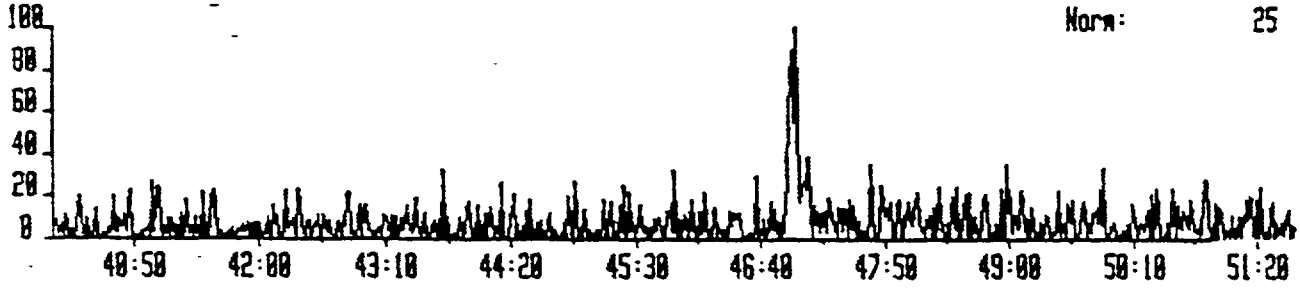
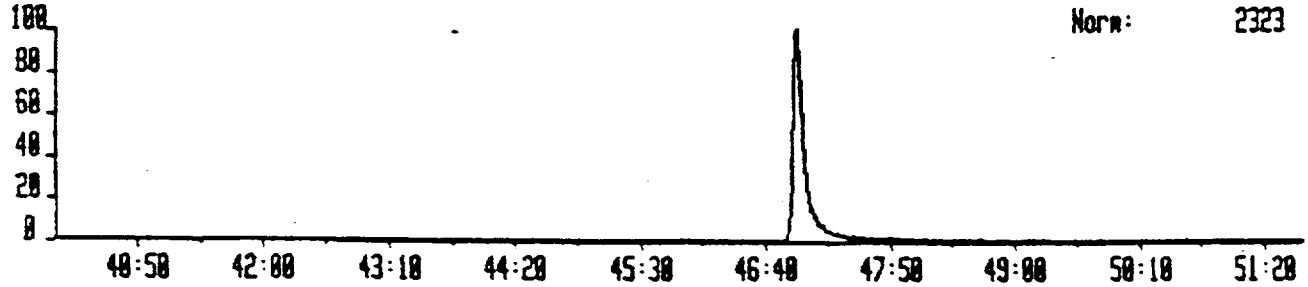


M872282 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:BLANK



M872282 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:BLANK

M872282 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 471.7750
Text:BLANK



TRIANGLE LABORATORIES, INC.
PCDD/PCDF ANALYSIS (D)

ANALYST: IK
DATE: 08/24/87
FILE NAME: M872302
SAMPLE ID: I2-MM5-BLK1
CASE NO: ENTROPY
PROJ NO: 8701511
CONCAL: M872296

NAME	AMT (ng)	NUMBER	DL	EMPC	RATIO	RT
TOTAL TRICDD	ND		0.018			
2378-TCDD	ND		0.007			
TOTAL TCDD	ND			0.023	1.10	
12378-PCDD	ND		0.007			
TOTAL PCDD	0.015	1			0.60	
123478-HxCDD	ND		0.007			
123678-HxCDD	ND		0.007			
123789-HxCDD	ND		0.010			
TOTAL HxCDD	0.033	1			1.16	
1234678-HpCDD	0.091				1.04	42.15
TOTAL HpCDD	0.091	1			1.04	
OCDD	ND			0.897	0.73	
TOTAL TRICDF	ND			0.117	1.77	
2378-TCDF	ND			0.020	0.54	
TOTAL TCDF	ND			0.061	0.70	
12378-PCDF	ND		0.005			
23478-PCDF	ND			0.006	0.33	
OTAL PCDF	ND			0.016	1.01	
123478-HxCDF	ND			0.010	0.26	
123678-HxCDF	ND			0.007	3.33	
234678-HxCDF	ND		0.005			
123789-HxCDF	ND		0.007			
TOTAL HxCDF	ND			0.039	1.83	
1234678-HpCDF	ND			0.063	1.49	
1234789-HpCDF	ND		0.007			
TOTAL HpCDF	ND			0.107	1.26	
OCDF	0.152				0.83	47.08

SURROGATE RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
13C12-TCDF	4.88	97.60	0.81	24.17
37CL-TCDD	5.33	106.60		24.59
13C12-HxCDF	4.86	97.20	1.25	35.17

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
2378-13C12-TCDD	10.52	105.20	0.81	24.58
13C12-PCDD	14.82	148.20	0.62	29.49
13C12-HxCDD	8.84	88.40	1.26	36.30
13C12-HpCDD	9.00	90.00	1.02	42.14
13C12-OCDD	13.13	65.65	0.92	46.56

M872302B
MATCHED EGC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
270	2.97	16.19	244.69	.F.	.F.	0.000
270	0.57	17.01	248.00	.F.	.F.	0.000
304	0.51	22.14	102.72	.F.	.F.	0.891
304	0.54	24.19	201.29	.F.	.T.	0.974
304	1.04	25.52	303.21	.F.	.F.	1.036
316	0.58	23.54	2173.86	.F.	.F.	0.957
316	0.81	24.17	47223.94	.T.	.T.	0.973
320	1.80	22.40	64.52	.F.	.F.	0.908
320	0.40	23.02	106.32	.F.	.F.	0.923
328	0.00	24.59	37768.11	.T.	.T.	1.001
332	0.83	24.47	47511.20	.T.	.T.	0.993
332	0.81	24.58	71544.85	.T.	.T.	1.000
338	0.33	29.23	55.37	.F.	.T.	0.985
338	1.69	30.55	83.80	.F.	.F.	1.037
354	0.60	27.38	96.56	.T.	.F.	0.927
354	1.54	28.29	79.14	.F.	.F.	0.955
366	0.63	29.49	34570.66	.T.	.T.	1.000
374	1.91	34.05	203.02	.F.	.F.	0.934
374	0.26	35.15	112.11	.F.	.T.	0.966
374	3.33	35.28	100.32	.F.	.T.	0.972
386	1.25	35.17	47474.31	.T.	.T.	0.967
390	1.65	34.36	40.33	.F.	.F.	0.948
390	2.45	35.17	675.86	.F.	.F.	0.967
390	1.16	35.37	206.93	.T.	.F.	0.976
402	1.26	36.30	37549.05	.T.	.T.	1.000
402	1.25	36.58	59418.58	.T.	.T.	1.013
408	1.49	40.47	617.86	.F.	.T.	0.966
408	1.45	41.08	89.18	.F.	.F.	0.974
408	0.83	41.20	207.67	.F.	.F.	0.979
424	0.78	41.13	402.70	.F.	.F.	0.976
424	1.04	42.15	492.32	.T.	.T.	1.000
436	1.33	41.11	163.22	.F.	.F.	0.975
436	1.02	42.14	36622.11	.T.	.T.	1.000
442	0.83	47.08	501.68	.T.	.T.	1.004
458	0.73	46.57	2260.10	.F.	.T.	1.000
470	0.92	46.56	56033.27	.T.	.T.	1.000
*** Total ***						
***	40.59	1163.7	485548.86			33.177

M872302I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
270	68.57	14.14
270	183.00	16.19
270	89.79	17.01
270	47.11	17.17
270	49.80	17.53
272	61.69	16.18
272	64.29	16.53
272	158.21	17.01
286	84.35	14.14
286	81.75	14.25
286	41.86	15.02
286	44.47	15.39
286	56.45	16.10
286	71.40	16.20
286	101.73	17.11
286	72.62	17.20
286	69.18	17.37
286	44.39	18.41
288	10.00	10.00
304	34.66	22.14
304	70.29	24.19
304	19.53	24.39
304	45.54	24.48
304	154.45	25.52
304	28.48	26.07
306	68.06	22.14
306	19.46	22.21
306	71.58	22.48
306	52.90	23.02
306	26.66	23.07
306	28.44	23.38
306	64.41	23.45
306	96.57	23.59
306	131.00	24.19
306	32.01	24.58
306	148.76	25.52
306	37.57	26.24
306	28.34	26.33
306	32.60	26.37
306	11.40	26.47
306	30.04	26.54
306	47.53	27.02
306	93.02	27.25
306	22.51	28.12
306	831.13	29.50
306	70.70	30.04
306	85.04	30.56
306	12.74	31.12
306	28.50	31.21
316	796.86	23.54

M872302I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
316	21105.80	24.17
316	168.89	24.35
318	158.08	21.56
318	123.26	22.15
318	274.86	22.42
318	166.25	23.07
318	1377.00	23.54
318	26118.14	24.17
318	133.22	25.01
318	171.01	25.31
318	200.68	26.02
318	165.78	26.32
318	159.69	28.17
318	122.87	28.37
318	159.96	29.12
318	470.78	29.37
318	256.69	30.04
318	120.44	30.25
318	398.56	31.05
318	165.92	31.16
320	17.26	22.24
320	20.78	22.31
320	41.50	22.40
320	30.52	23.02
320	316.05	24.17
320	33.97	24.29
320	18.52	24.58
320	42.91	26.07
320	29.68	26.17
320	45.43	26.31
320	22.97	26.42
320	16.03	26.48
320	45.86	26.58
320	20.47	27.42
322	23.02	22.42
322	75.80	23.03
322	34.67	23.18
322	21.25	23.34
322	23.51	23.51
322	32.22	30.42
322	61.02	30.58
328	37768.11	24.59
332	127.90	22.09
332	345.09	23.06
332	374.08	23.23
332	195.43	23.37
332	371.55	23.47
332	272.26	24.01
332	334.68	24.28
332	21575.24	24.47

M872302I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
332	31986.65	24.58
332	384.93	25.32
332	380.69	25.40
332	270.37	25.55
332	265.67	26.15
332	103.36	26.32
332	272.90	26.53
332	190.01	27.05
332	344.93	27.26
332	264.22	27.48
334	25935.96	24.47
334	39558.20	24.58
334	299.29	29.49
338	19.47	28.12
338	13.87	29.23
338	52.70	30.55
340	50.25	27.31
340	56.76	28.04
340	41.50	29.24
340	19.33	29.59
340	31.10	30.55
354	36.30	27.38
354	47.97	28.29
356	19.25	22.40
356	49.17	23.58
356	60.26	27.38
356	31.17	28.29
356	34.47	28.41
356	27.29	28.53
356	15.30	29.05
356	20.50	29.28
366	13372.74	29.49
368	21197.92	29.49
374	42.06	33.51
374	133.35	34.05
374	25.47	34.26
374	36.84	34.30
374	37.65	34.44
374	19.83	34.50
374	23.33	35.15
374	33.83	35.20
374	77.13	35.28
374	26.66	35.46
374	15.41	36.00
374	16.18	36.08
374	22.61	36.29
374	19.51	36.58
374	14.83	37.12
374	42.60	37.25
374	26.56	37.46

M872302I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
374	24.12	37.57
374	25.47	38.00
374	29.03	38.09
374	45.81	38.25
374	25.72	38.30
374	34.95	38.36
374	11.27	38.51
376	69.67	34.05
376	88.78	35.17
376	23.19	35.28
386	26413.78	35.17
388	21060.53	35.17
390	25.11	34.36
390	480.24	35.17
390	12.56	35.25
390	110.92	35.37
390	20.52	36.32
390	13.35	38.38
390	10.33	38.48
392	15.22	34.37
392	195.62	35.16
392	96.01	35.36
392	15.38	36.23
392	17.67	37.32
392	11.78	37.40
392	13.21	37.47
402	20918.38	36.30
402	33029.15	36.58
404	16630.67	36.30
404	26389.43	36.58
408	18.17	40.23
408	369.52	40.47
408	52.75	41.08
408	93.90	41.20
408	32.94	43.01
408	18.11	44.41
408	32.57	45.15
410	248.34	40.47
410	36.43	41.08
410	113.77	41.21
410	18.27	41.44
410	77.94	42.06
410	27.34	43.11
410	34.41	43.31
410	28.54	43.41
410	21.88	43.59
410	19.93	44.54
410	25.26	45.49
410	1349.39	46.57
410	37.15	47.10

M872302I
RAW MASS AND AREA DATA

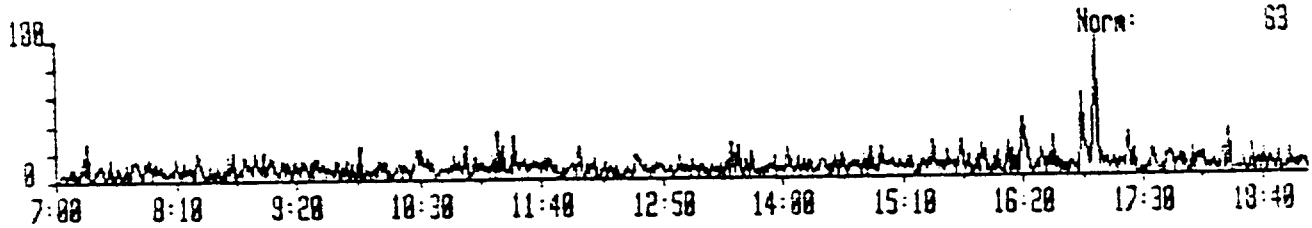
MASS	AREA	RET.TIME
410	19.15	47.18
410	37.47	47.31
410	37.75	47.41
410	24.88	48.53
410	26.92	49.17
410	19.29	49.26
424	176.32	41.13
424	251.18	42.15
426	226.38	41.13
426	241.14	42.15
426	43.81	46.58
426	25.60	47.14
436	26.38	40.23
436	50.15	40.32
436	48.71	40.47
436	93.07	41.11
436	34.88	42.02
436	18533.78	42.14
436	139.07	42.37
436	60.36	42.49
436	68.24	43.26
436	25.63	43.43
436	54.26	44.40
436	18.14	44.49
438	70.15	41.12
438	18088.33	42.14
438	26.37	44.05
438	32.00	44.21
438	16.62	45.07
438	692.38	46.57
438	32.28	48.09
442	21.34	41.31
442	88.63	42.14
442	21.71	44.25
442	17.01	46.22
442	227.53	47.08
442	20.80	47.46
442	31.29	47.58
442	29.61	48.12
444	31.24	40.13
444	27.25	41.00
444	28.53	44.02
444	274.15	47.09
444	17.18	47.35
444	30.32	48.42
444	17.59	49.41
444	36.53	50.15
444	18.58	50.26
444	22.02	51.05
458	26.70	42.19

M872302I
RAW MASS AND AREA DATA

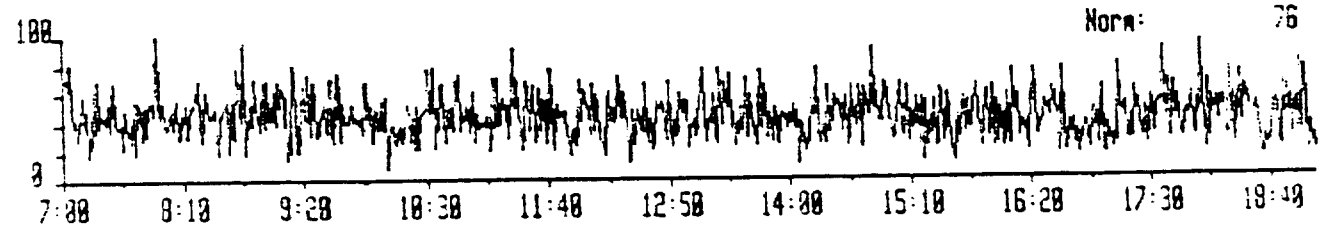
MASS	AREA	RET.TIME
458	950.99	46.57
458	26.78	47.22
460	1309.11	46.57
470	26902.31	46.56
470	145.18	47.22
470	19.19	51.26
472	19.13	45.09
472	29130.96	46.56
*** Total ***		
****	502292.88	8440.77

M872382 13-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 269.9406
Text:ENTROPY I2-AM5-BLK1

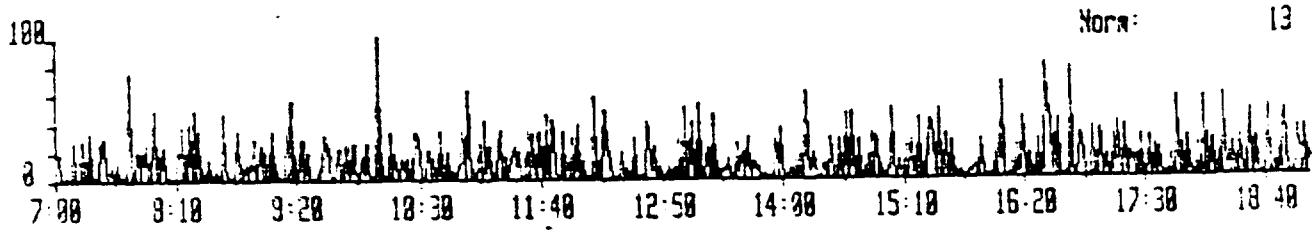
M872382 13-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 271.9377
Text:ENTROPY I2-AM5-BLK1



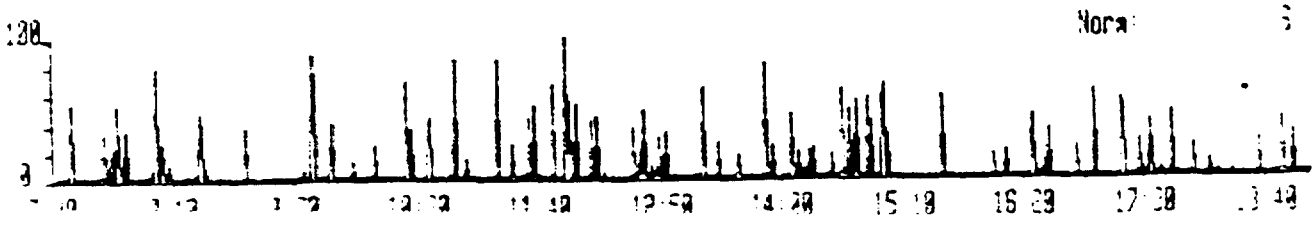
M872382 13-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 295.9355
Text:ENTROPY I2-AM5-BLK1



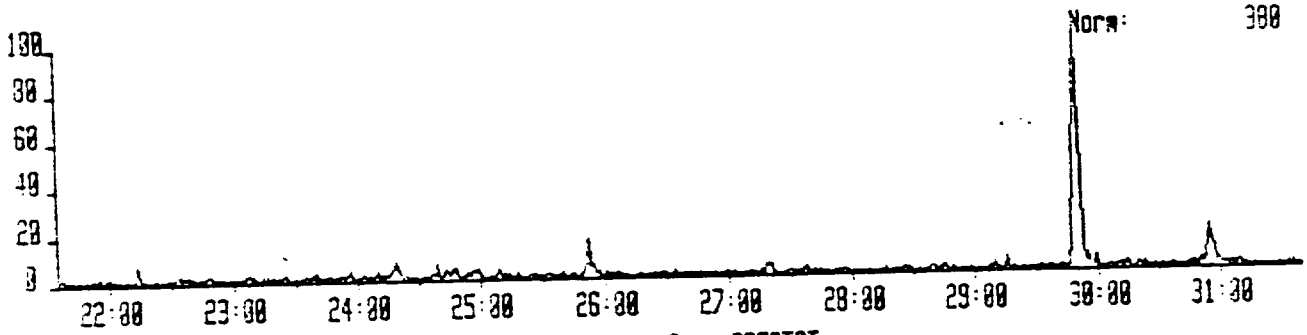
M872382 13-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:ENTROPY I2-AM5-BLK1



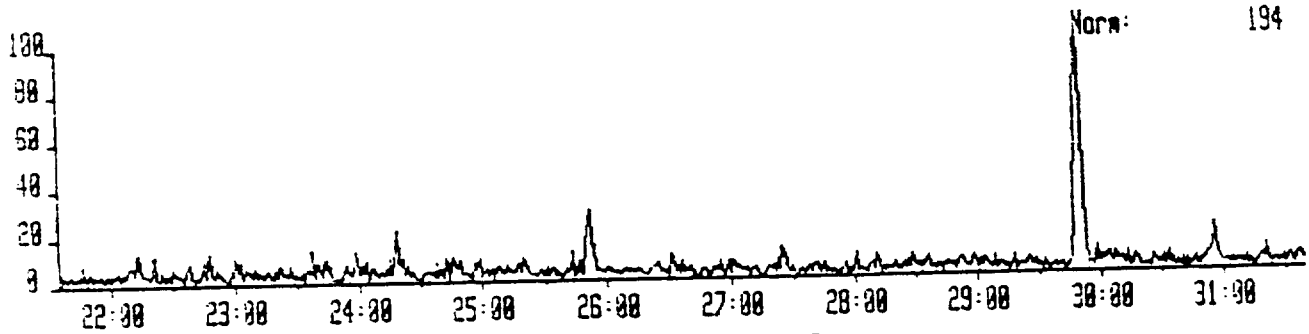
M872382 13-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 339.3798
Text:ENTROPY I2-AM5-BLK1



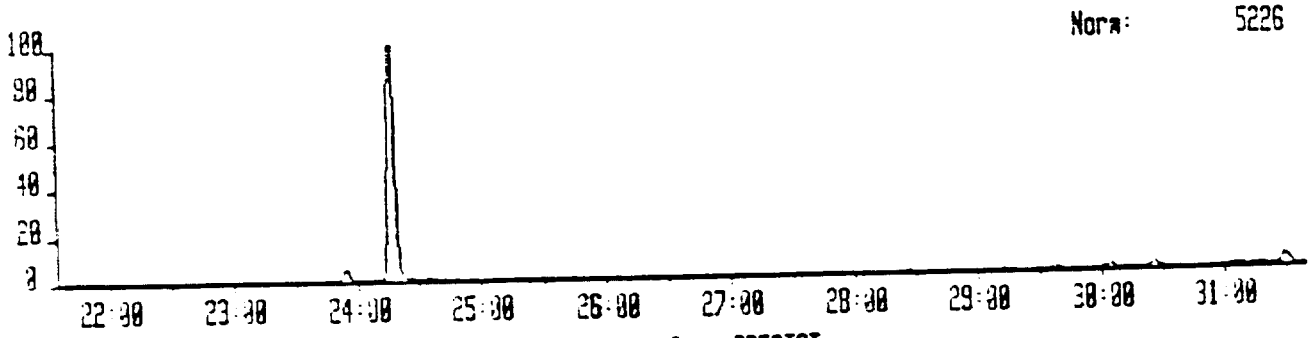
M872382 13-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 303.9016
Text:ENTROPY I2-AM5-BLK1



M872382 13-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 305.9987
Text:ENTROPY I2-AM5-BLK1

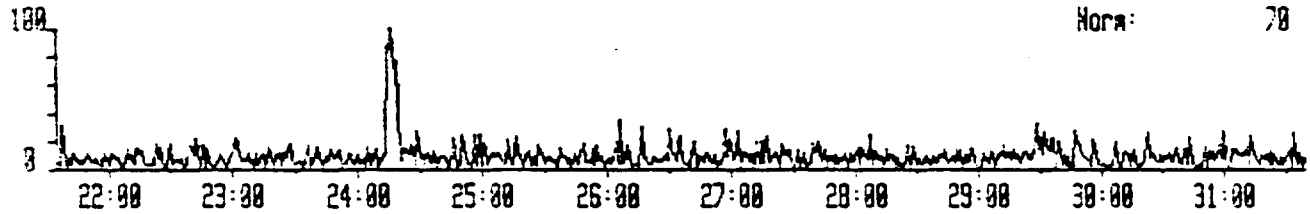


M872382 13-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 315.9419
Text:ENTROPY I2-AM5-BLK1

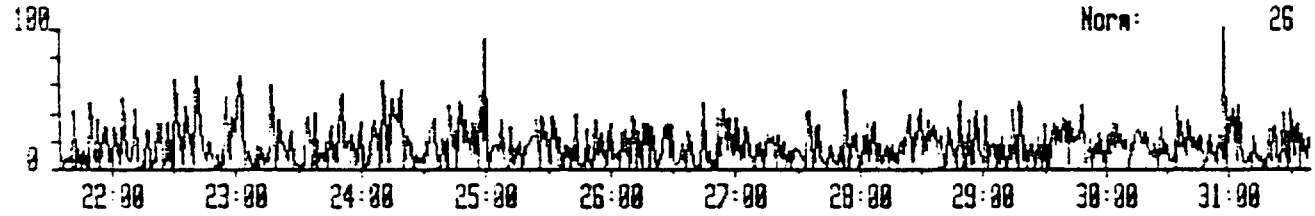


M872382 13-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 317.3389
Text:ENTROPY I2-AM5-BLK1

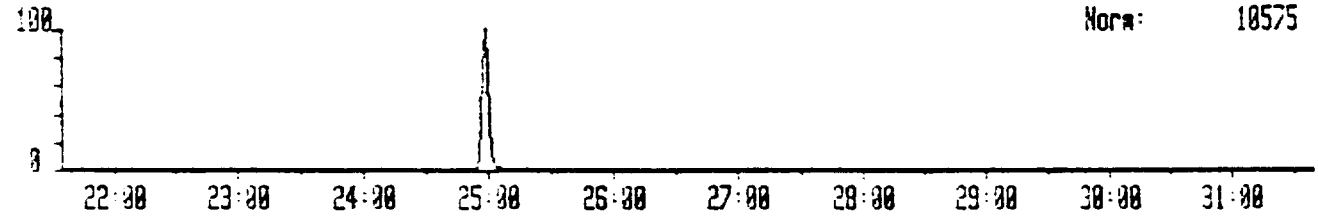
M872382 13-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:ENTROPY I2-AMS-BLK1



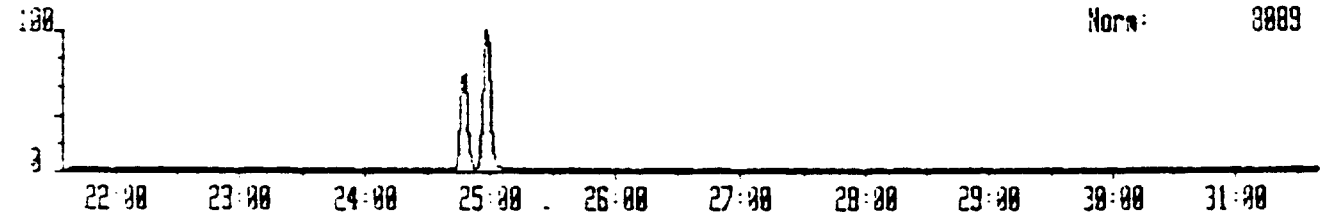
M872382 13-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:ENTROPY I2-AMS-BLK1



M872382 13-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:ENTROPY I2-AMS-BLK1

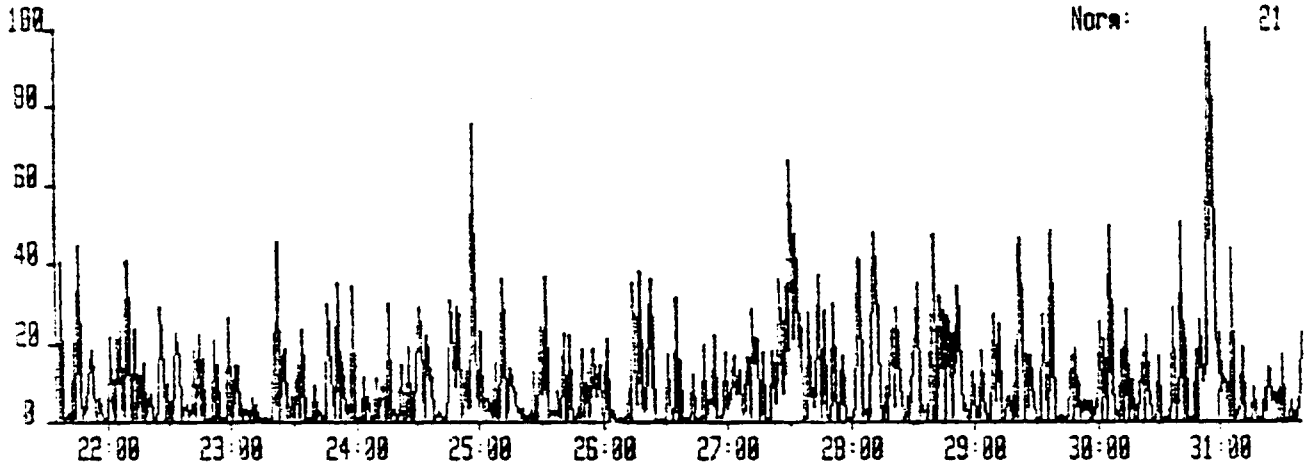


M872382 13-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 331.9368
Text:ENTROPY I2-AMS-BLK1

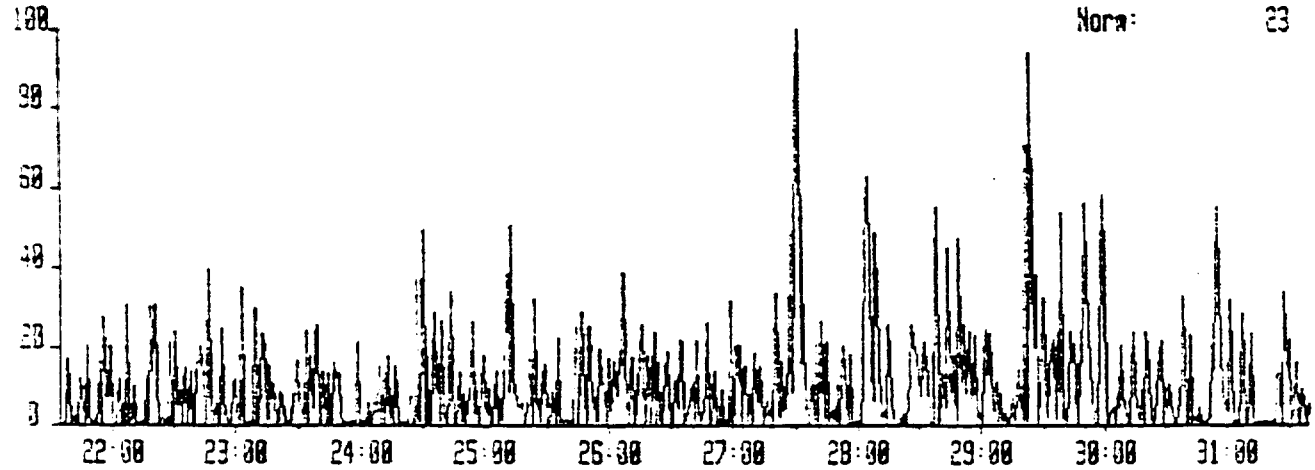


M872382 13-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 333.9338
Text:ENTROPY I2-AMS-BLK1

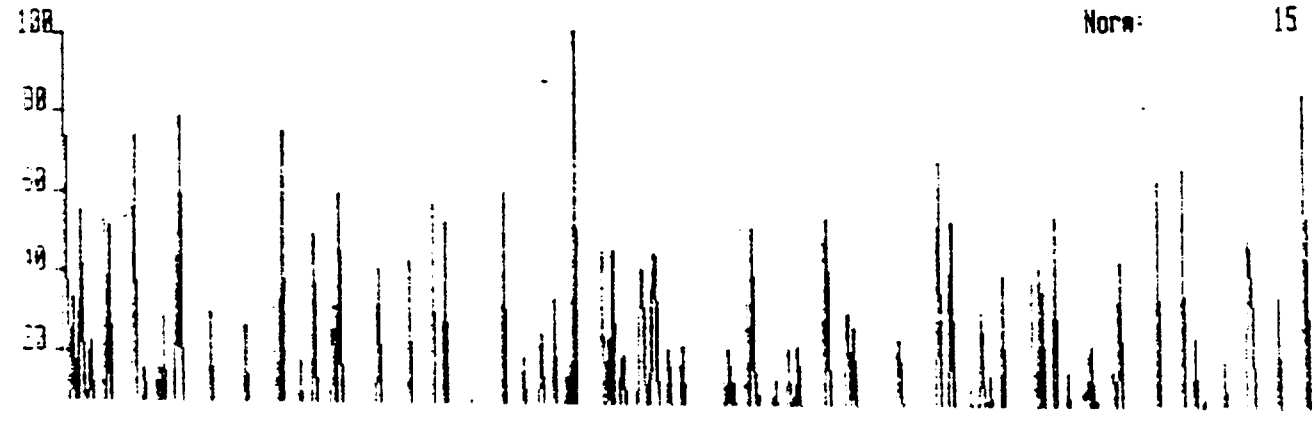
M8/C30C 13-AUG-87 Str:Voltage /0E Sys: OBSATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:ENTROPY I2-AMS-BLK1



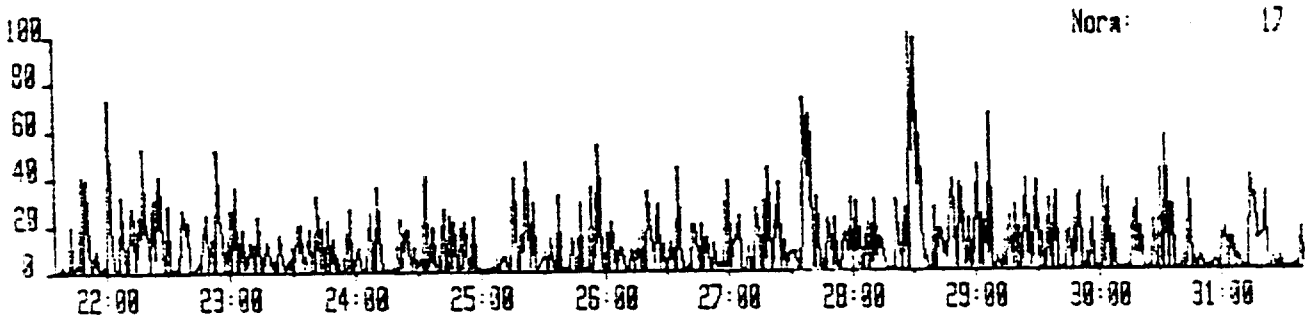
M872302 13-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 2 Mass 339.3597
Text:ENTROPY I2-AMS-BLK1



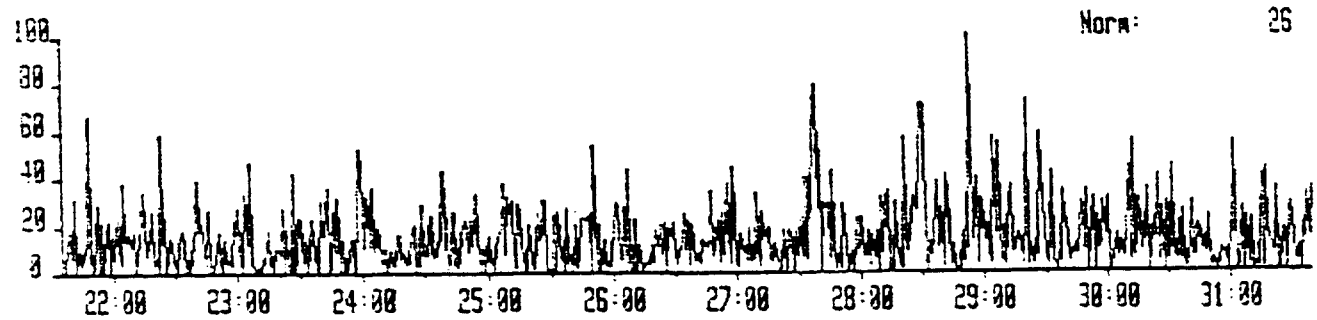
M872302 13-AUG-87 Str:Voltage 70E Sys: OBSATST
Sample 1 Injection 1 Group 2 Mass 407.8003
Text:ENTROPY I2-AMS-BLK1



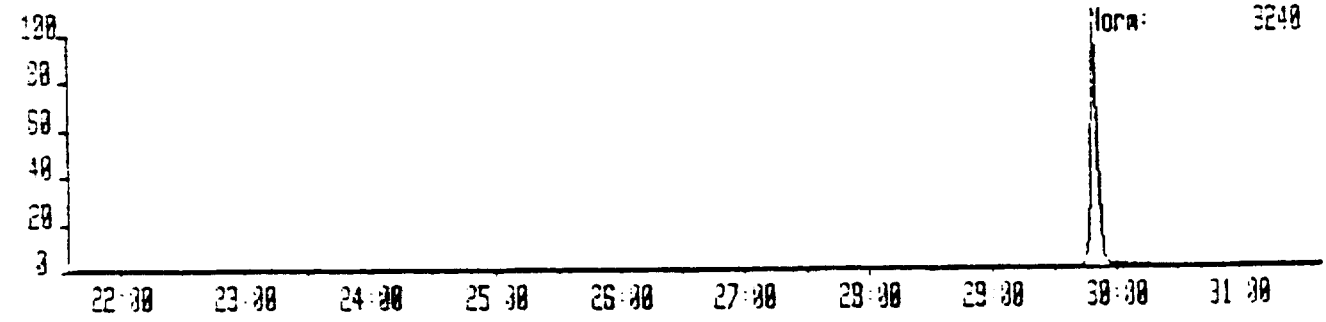
M872382 13-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:ENTROPY I2-MM5-BLK1



M872382 13-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 355.8546
Text:ENTROPY I2-MM5-BLK1

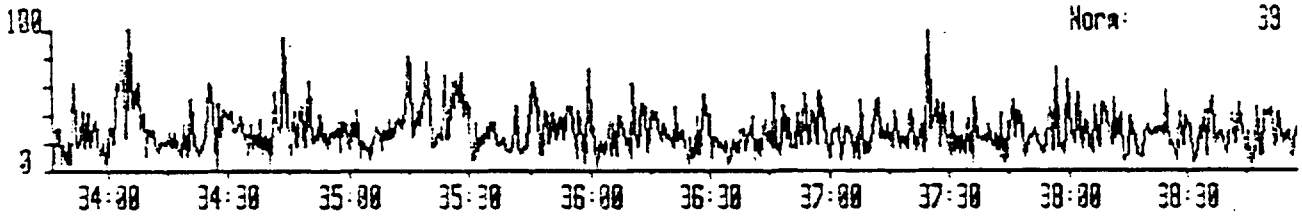


M872382 13-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 365.8977
Text:ENTROPY I2-MM5-BLK1

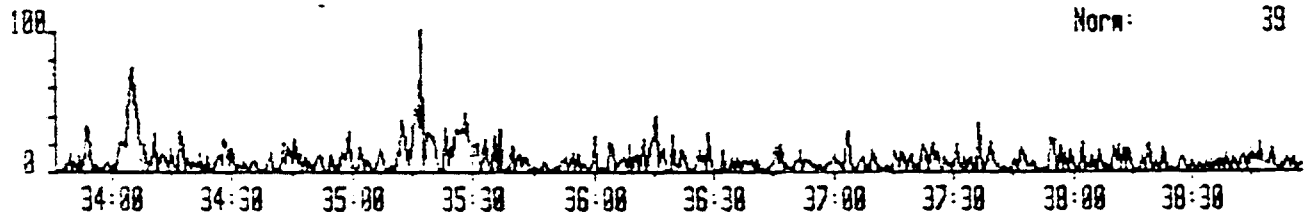


M872382 13-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 367.8948
Text:ENTROPY I2-MM5-BLK1

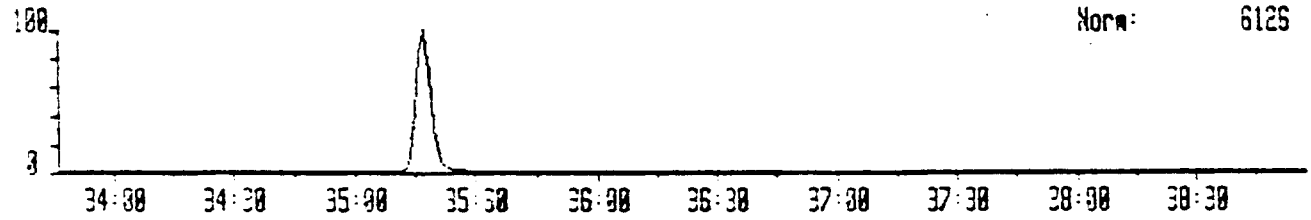
M872382 13-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 373.9287
Text:ENTROPY I2-AMS-BLK1



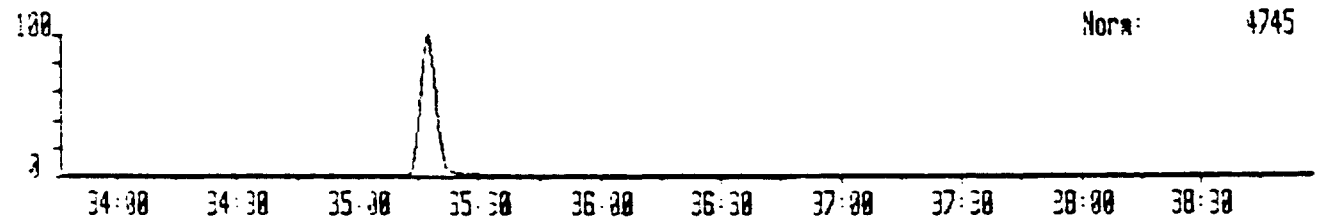
M872382 13-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 375.8178
Text:ENTROPY I2-AMS-BLK1



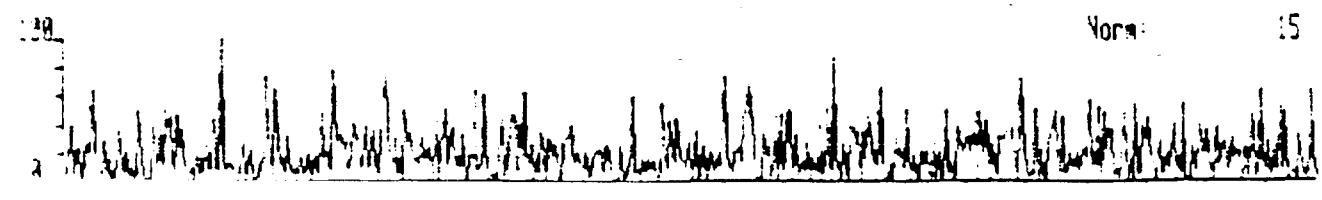
M872382 13-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 385.8609
Text:ENTROPY I2-AMS-BLK1



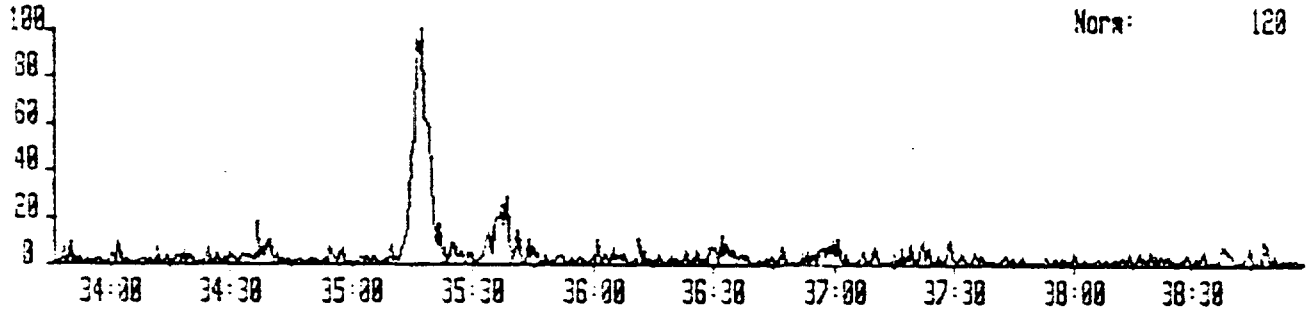
M872382 13-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 387.8580
Text:ENTROPY I2-AMS-BLK1



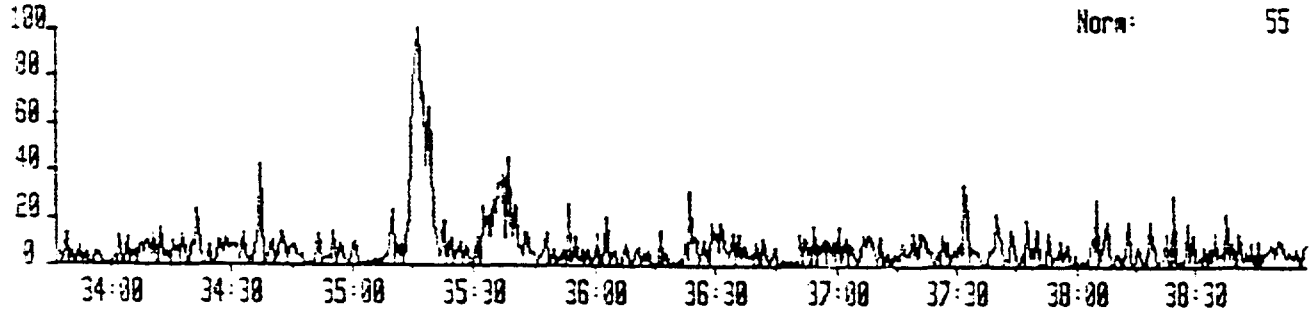
M872382 13-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:ENTROPY I2-AMS-BLK1



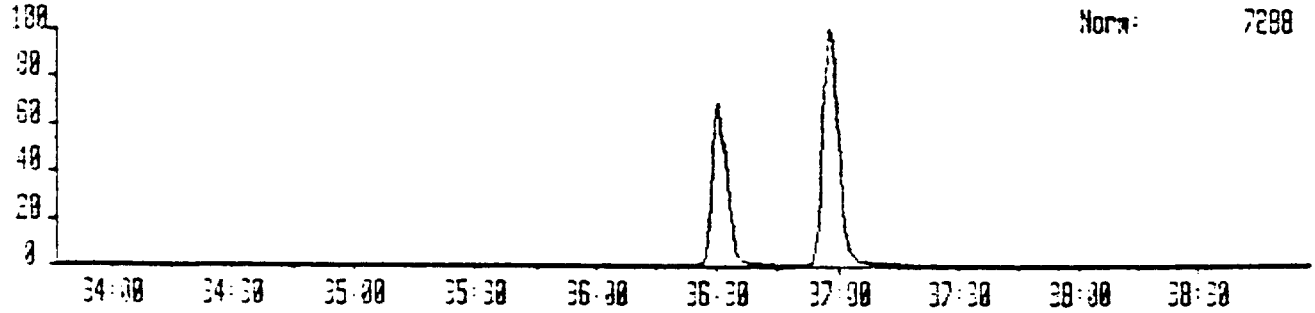
M872382 13-AUG-87 Sir Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 389.8156
Text: ENTROPY I2-AM5-BLK1



M872382 13-AUG-87 Sir Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 391.8127
Text: ENTROPY I2-AM5-BLK1

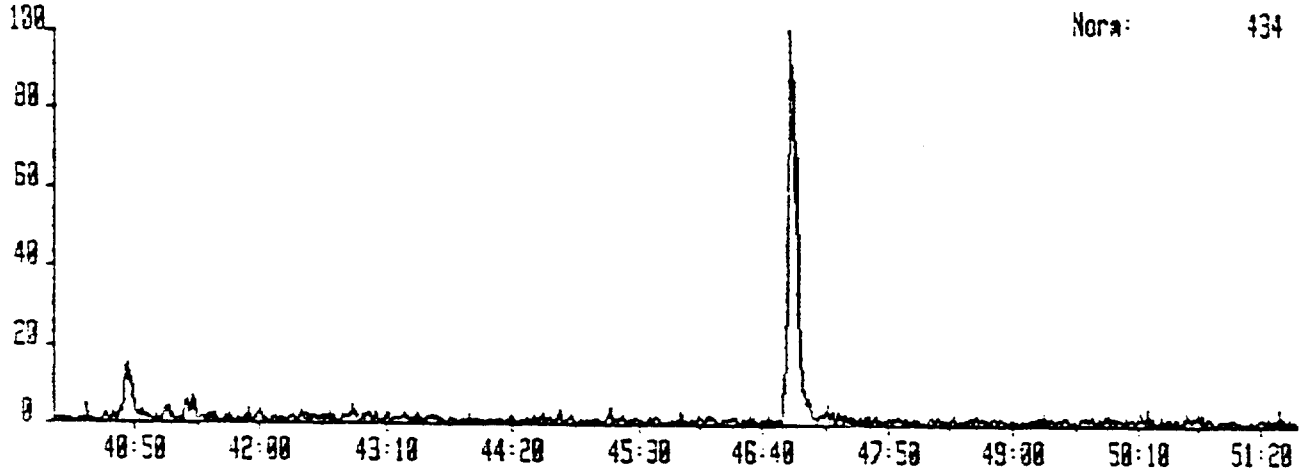


M872382 13-AUG-87 Sir Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text: ENTROPY I2-AM5-BLK1

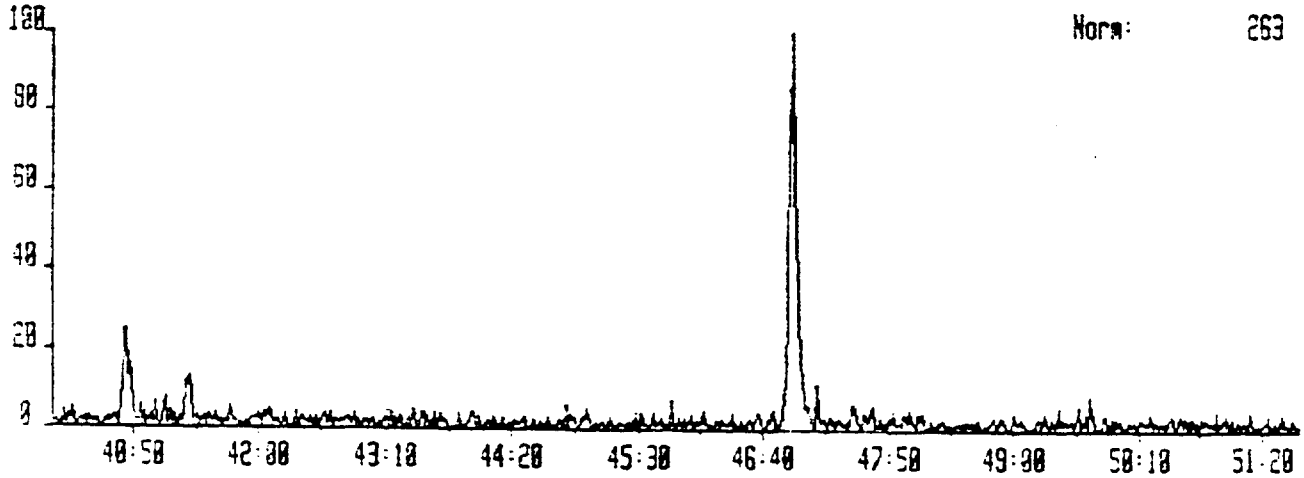


M872382 13-AUG-87 Sir Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 403.8529
Text: ENTROPY I2-AM5-BLK1

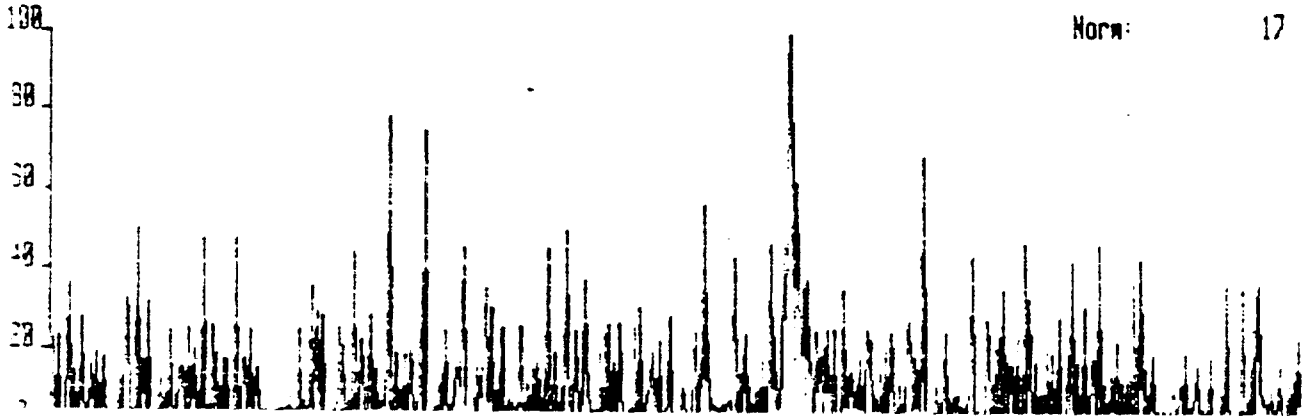
M872382 13-AUG-87 Str:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 407.7817
Text:ENTROPY I2-MM5-BLK1



M872382 13-AUG-87 Str:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 409.7788
Text:ENTROPY I2-MM5-BLK1

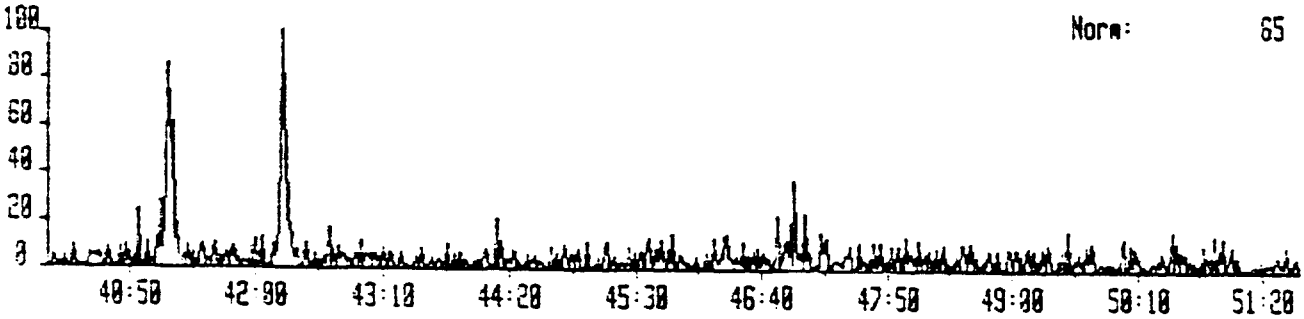


M872382 13-AUG-87 Str:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 477.7200
Text:ENTROPY I2-MM5-BLK1

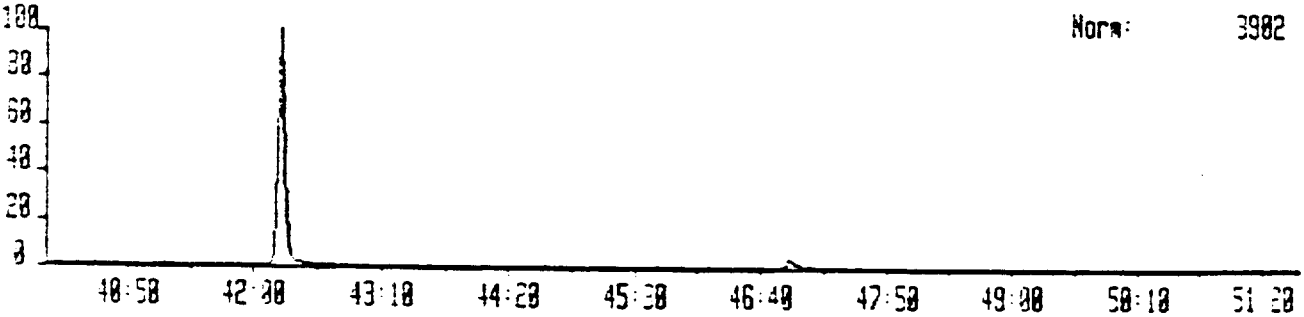


M872302 13-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:ENTROPY I2-AM5-BLK1

M872302 13-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:ENTROPY I2-AM5-BLK1

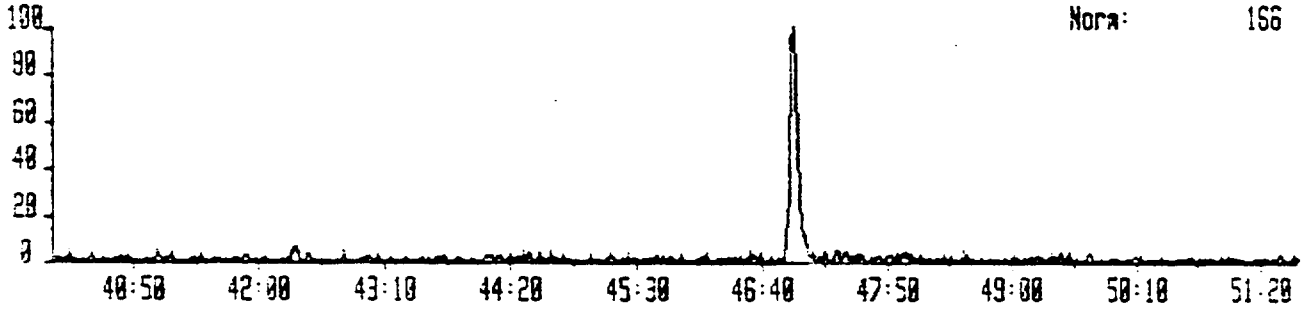


M872302 13-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:ENTROPY I2-AM5-BLK1

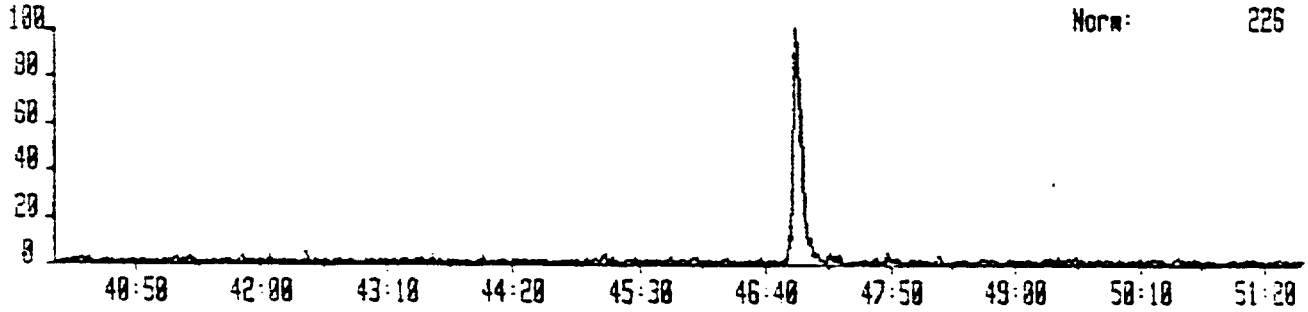


M872302 13-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:ENTROPY I2-AM5-BLK1

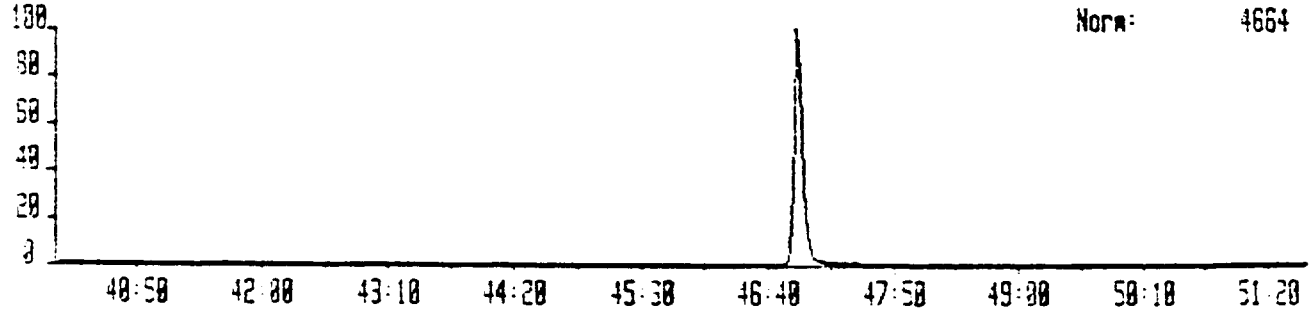
M872302 13-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:ENTROPY I2-AM5-BLK1



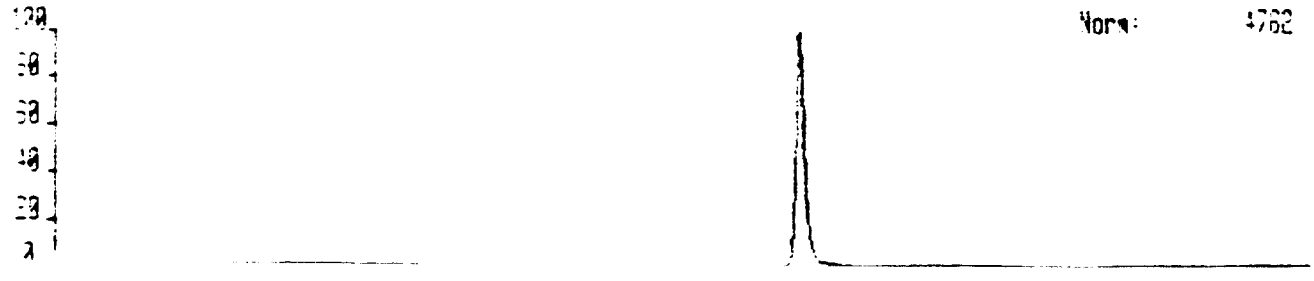
M872302 13-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:ENTROPY I2-AM5-BLK1



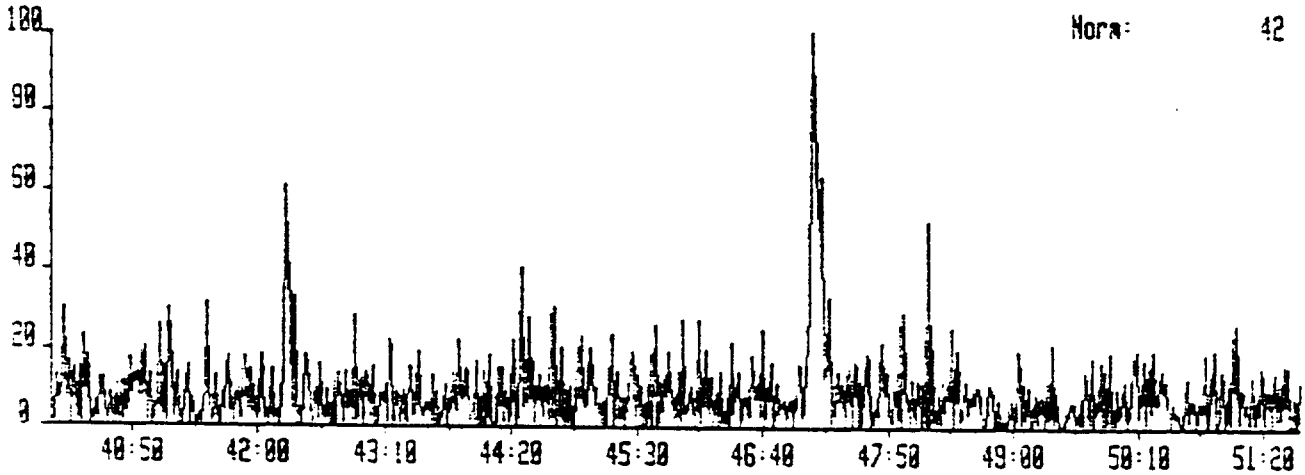
M872302 13-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:ENTROPY I2-AM5-BLK1



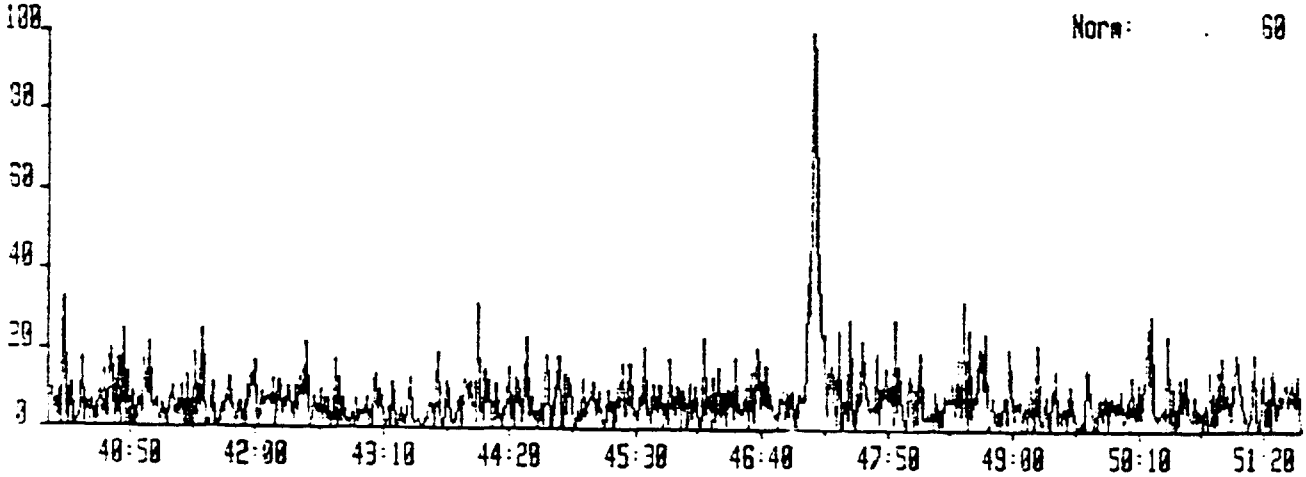
M872302 13-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 471.7758
Text:ENTROPY I2-AM5-BLK1



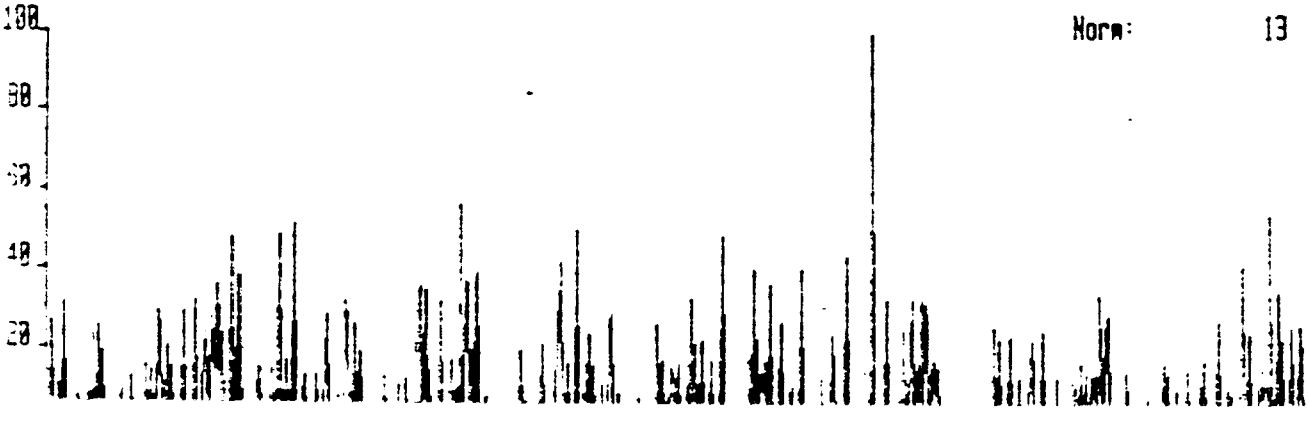
M872302 13-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 441.7428
Text:ENTROPY I2-MMS-BLK1



M872302 13-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:ENTROPY I2-MMS-BLK1



M872302 13-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 511.6810
Text:ENTROPY I2-MMS-BLK1



TRIANGLE LABORATORIES, INC.
PCDD/PCDF ANALYSIS (D)

ANALYST: MC
DATE: 08/25/87
FILE NAME: M872289
SAMPLE ID: I2-MM5-2
CASE NO: ENTROPY
PROJ NO: 8701511
CONCAL: M872278

NAME	AMT (ng)	NUMBER	DL	EMPC	RATIO	RT
TOTAL TRICDD	2.710	1			1.15	
2378-TCDD	ND		0.022			
TOTAL TCDD	6.955	8			0.77	
12378-PCDD	ND			0.474	0.98	
TOTAL PCDD	7.709	5			0.59	
123478-HxCDD	0.366				1.24	36.20
123678-HxCDD	0.689				1.41	36.28
123789-HxCDD	ND			0.916	2.22	
TOTAL HxCDD	10.553	6			1.27	
1234678-HpCDD	3.942				0.95	42.13
TOTAL HpCDD	8.476	2			0.95	
OCDD	5.512				0.86	46.55
TOTAL TRICDF	12.747	4			1.10	
2378-TCDF	4.320				0.72	24.18
TOTAL TCDF	19.340	12			0.74	
12378-PCDF	ND			0.824	0.95	
23478-PCDF	1.187				0.66	29.22
TOTAL PCDF	6.024	5			0.62	
123478-HxCDF	1.797				1.30	35.13
123678-HxCDF	0.723				1.25	35.24
234678-HxCDF	ND			1.206	1.48	
123789-HxCDF	ND		0.025			
TOTAL HxCDF	4.439	5			1.22	
1234678-HpCDF	3.106				0.97	40.44
1234789-HpCDF	ND			0.231	1.28	
TOTAL HpCDF	4.603	3			1.08	
OCDF	0.785				0.81	47.07

SURROGATE RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
13C12-TCDF	4.71	94.20	0.78	24.15
37CL-TCDD	5.29	105.80		24.57
13C12-HxCDF	4.71	94.20	1.18	35.14

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
2378-13C12-TCDD	7.76	77.60	0.78	24.56
13C12-PCDD	8.64	86.40	0.63	29.47
13C12-HxCDD	8.07	80.70	1.33	36.27
13C12-HpCDD	8.68	86.80	1.08	42.12
13C12-OCDD	16.64	83.20	0.94	46.54

M8722891
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
270	410.54	15.27
270	346.36	15.41
270	139.11	16.01
270	1490.48	16.17
270	689.12	16.36
270	429.33	16.53
270	960.98	17.00
270	228.72	17.15
270	1307.63	17.24
270	88.71	18.16
272	357.98	15.27
272	281.62	15.41
272	113.89	16.05
272	1298.89	16.17
272	528.54	16.35
272	1317.84	16.59
272	197.34	17.15
272	1379.65	17.24
286	259.06	16.51
286	44.10	17.05
286	41.07	17.46
288	225.22	16.51
304	277.19	22.13
304	3818.38	22.31
304	1705.14	22.46
304	1292.11	23.06
304	3127.11	23.20
304	2725.01	23.32
304	1554.68	23.43
304	1299.76	23.54
304	1049.46	24.06
304	5425.31	24.18
304	1466.82	24.40
304	1051.70	24.54
304	183.50	25.07
304	53.64	25.16
304	14.72	25.26
304	33.52	25.49
304	105.34	25.58
304	38.55	26.07
306	453.85	22.12
306	5150.86	22.31
306	2284.07	22.47
306	1881.86	23.07
306	3757.34	23.20
306	4179.46	23.32
306	1798.61	23.43
306	1591.85	23.54
306	1503.75	24.06
306	7532.39	24.17

M872289I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
306	1923.58	24.40
306	1435.16	24.53
306	274.49	25.08
306	93.63	25.16
306	43.78	25.24
306	112.38	25.59
306	21.05	26.16
306	30.86	26.23
306	12.64	27.00
306	12.35	27.07
306	59.87	27.28
306	41.91	27.40
306	43.79	29.22
306	28.60	29.31
306	137.27	29.46
306	35.35	30.53
306	21.10	31.06
316	211.68	23.53
316	6384.32	24.15
318	368.80	23.53
318	8146.75	24.15
318	131.92	24.54
318	112.20	29.21
320	32.40	22.18
320	72.29	22.40
320	1401.22	22.59
320	842.52	23.14
320	1452.47	23.49
320	832.09	24.03
320	77.90	24.14
320	390.20	24.26
320	1695.19	24.50
320	198.89	25.06
320	174.88	25.16
320	104.58	25.30
320	50.79	25.58
320	39.74	27.34
322	89.02	22.40
322	1727.70	22.59
322	1028.92	23.14
322	11.40	23.27
322	15.37	23.32
322	2092.98	23.49
322	1114.58	24.03
322	14.30	24.18
322	524.70	24.26
322	2134.52	24.51
322	196.53	25.06
322	228.40	25.16
322	77.02	25.29

M8722891
RAW MASS AND AREA DATA

MASS	AREA	RET. TIME
322	29.59	26.57
322	31.92	27.52
322	14.67	28.16
322	139.47	28.27
322	70.61	28.38
322	90.56	28.52
322	72.15	29.01
322	57.59	29.08
322	48.03	29.24
322	47.32	29.34
322	47.05	29.47
322	69.92	29.57
322	52.83	30.01
322	22.58	30.12
322	37.75	30.24
322	42.72	30.32
322	201.86	31.10
328	10919.65	24.57
332	142.20	22.08
332	285.93	23.06
332	236.65	23.38
332	176.49	24.14
332	8388.53	24.45
332	9345.82	24.56
332	129.38	25.54
332	229.97	26.22
332	251.12	26.33
332	226.90	26.42
332	276.88	26.55
332	198.56	27.27
332	188.61	27.58
334	10329.21	24.45
334	11928.02	24.56
338	2010.71	27.27
338	326.29	27.40
338	1523.58	28.01
338	996.77	28.07
338	898.22	28.29
338	468.74	28.40
338	816.07	28.50
338	955.02	29.22
338	1213.81	29.33
338	64.43	29.48
338	146.89	29.57
338	13.41	30.06
338	45.76	30.36
340	10.76	25.17
340	3239.79	27.27
340	591.33	27.40
340	385.44	27.55

M8722891
RAW MASS AND AREA DATA

MASS	AREA	RET. TIME
340	1589.99	28.02
340	2424.17	28.07
340	949.90	28.28
340	822.77	28.40
340	981.82	28.51
340	1454.05	29.22
340	1785.02	29.33
340	103.96	29.44
340	187.12	29.56
340	74.77	30.39
354	1576.29	27.35
354	198.75	28.09
354	1037.84	28.26
354	207.69	28.37
354	547.55	28.51
354	133.58	29.03
354	270.89	29.09
354	362.05	29.25
354	165.12	29.34
354	316.78	29.47
354	142.22	29.58
354	20.04	30.08
354	82.50	30.25
356	14.06	24.25
356	3001.39	27.34
356	270.16	28.09
356	1534.57	28.27
356	417.61	28.36
356	966.76	28.51
356	399.45	29.02
356	432.20	29.09
356	662.01	29.24
356	182.48	29.35
356	322.63	29.47
356	198.32	29.59
356	16.29	30.09
356	165.71	30.25
366	2670.49	29.47
368	4248.91	29.47
374	61.91	33.50
374	2469.40	34.02
374	204.15	34.16
374	464.97	34.27
374	10.06	34.34
374	238.70	34.40
374	3338.89	35.13
374	1547.64	35.24
374	454.44	35.32
374	309.43	35.48
374	422.42	35.51

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RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
374	1949.76	36.10
374	17.84	36.38
374	23.46	36.53
374	18.38	36.58
374	69.01	37.15
374	269.29	37.22
374	15.72	37.51
374	40.39	38.02
374	22.97	38.08
374	21.34	38.14
374	41.09	38.24
374	16.07	38.31
374	13.12	38.40
376	59.11	33.51
376	1840.88	34.02
376	260.00	34.16
376	295.08	34.27
376	153.42	34.40
376	2576.07	35.13
376	1234.60	35.24
376	228.79	35.34
376	29.38	35.39
376	452.02	35.51
376	1316.69	36.09
376	21.81	36.26
376	15.08	36.36
376	130.96	37.21
386	7573.62	35.14
388	6403.75	35.14
390	1299.69	34.33
390	15.36	34.45
390	4764.45	35.13
390	2837.55	35.32
390	492.04	35.47
390	35.61	35.57
390	358.08	36.20
390	804.51	36.28
390	20.28	36.38
390	1014.65	36.55
392	1025.70	34.33
392	40.35	34.43
392	3799.00	35.13
392	79.73	35.26
392	2232.78	35.32
392	411.66	35.47
392	288.89	36.20
392	569.35	36.29
392	28.72	36.37
392	415.70	36.52
392	457.39	36.56

M8722891

RAW MASS AND AREA DATA

MASS	AREA	RET. TIME
392	23.97	37.35
402	5535.67	36.27
402	10936.62	36.55
404	4173.13	36.27
404	8163.74	36.55
408	4248.67	40.44
408	895.63	41.06
408	636.26	41.18
408	20.06	42.17
408	26.65	42.25
408	287.94	42.48
408	34.34	44.05
408	21.79	44.35
408	41.98	44.57
408	39.14	45.29
408	28.80	45.58
410	4388.58	40.44
410	765.64	41.05
410	579.99	41.18
410	54.03	41.37
410	17.23	41.49
410	39.85	42.00
410	26.45	42.08
410	17.53	42.21
410	225.16	42.49
410	23.29	43.00
410	49.66	44.05
410	28.80	44.22
410	37.90	45.43
410	622.67	46.55
410	75.05	47.07
410	26.95	48.39
410	16.92	50.44
424	18.78	40.22
424	17.09	40.55
424	3640.90	41.10
424	116.17	41.39
424	3146.91	42.13
424	23.36	42.34
424	41.49	42.51
424	31.88	43.12
424	33.86	44.28
426	3784.20	41.10
426	88.86	41.29
426	16.71	42.00
426	3307.85	42.13
426	31.58	43.16
426	47.27	47.54
426	62.66	50.42
436	15.54	40.23

RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
436	30.51	41.07
436	6347.16	42.12
436	69.96	42.50
436	20.04	45.54
438	5892.06	42.12
438	43.38	42.43
438	25.14	43.28
438	112.84	46.39
438	295.04	46.55
438	39.98	47.10
438	30.03	47.22
438	16.13	48.54
438	15.20	49.08
438	19.56	49.53
438	24.72	50.15
442	17.90	41.07
442	23.87	45.24
442	36.30	45.47
442	30.50	46.02
442	26.14	46.14
442	461.37	47.07
442	74.02	47.21
442	25.15	49.43
444	15.24	40.48
444	76.84	45.32
444	571.05	47.05
444	28.92	48.23
444	23.53	48.31
444	17.33	51.04
458	62.23	43.35
458	27.02	43.50
458	16.35	46.23
458	2716.65	46.55
460	3165.25	46.55
470	11097.16	46.54
470	100.72	47.35
472	11751.98	46.54
472	51.67	47.28
472	35.83	48.18
*** Total ***		
****	358364.88	10888.80

M872289B
MATCHED GC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
270	1.15	15.27	768.52	.T.	.F.	0.000
270	1.23	15.41	627.98	.F.	.F.	0.000
270	1.15	16.17	2789.37	.T.	.F.	0.000
270	1.30	16.36	1217.66	.F.	.F.	0.000
270	0.73	17.00	2278.82	.F.	.F.	0.000
270	1.16	17.15	426.06	.T.	.F.	0.000
270	0.95	17.24	2687.28	.T.	.F.	0.000
286	1.15	16.51	484.28	.T.	.F.	0.000
304	0.61	22.13	731.04	.F.	.F.	0.891
304	0.74	22.31	8969.24	.T.	.F.	0.903
304	0.75	22.46	3989.21	.T.	.F.	0.913
304	0.69	23.06	3173.97	.T.	.F.	0.926
304	0.83	23.20	6884.45	.T.	.F.	0.936
304	0.65	23.32	6904.47	.T.	.F.	0.944
304	0.86	23.43	3353.29	.T.	.F.	0.951
304	0.82	23.54	2891.61	.T.	.F.	0.959
304	0.70	24.06	2553.21	.T.	.F.	0.967
304	0.72	24.18	12957.70	.T.	.T.	0.975
304	0.76	24.40	3390.40	.T.	.F.	0.989
304	0.73	24.54	2486.86	.T.	.F.	0.999
304	0.67	25.07	457.99	.T.	.F.	1.007
304	0.57	25.16	147.27	.F.	.F.	1.013
304	0.34	25.26	58.50	.F.	.F.	1.020
304	0.94	25.58	217.72	.F.	.F.	1.041
316	0.57	23.53	580.48	.F.	.F.	0.958
316	0.78	24.15	14531.07	.T.	.T.	0.973
320	0.81	22.40	161.31	.T.	.F.	0.909
320	0.81	22.59	3128.92	.T.	.F.	0.922
320	0.82	23.14	1871.44	.T.	.F.	0.932
320	0.69	23.49	3545.45	.T.	.F.	0.955
320	0.75	24.03	1946.67	.T.	.F.	0.965
320	0.74	24.26	914.90	.T.	.F.	0.980
320	0.79	24.50	3829.71	.T.	.F.	0.996
320	1.01	25.06	395.42	.F.	.F.	1.007
320	0.77	25.16	403.28	.T.	.F.	1.013
320	1.36	25.30	181.60	.F.	.F.	1.023
328	0.00	24.57	10919.65	.T.	.T.	1.001
332	0.81	24.45	18717.74	.T.	.T.	0.993
332	0.78	24.56	21273.84	.T.	.T.	1.000
338	0.62	27.27	5250.50	.T.	.F.	0.922
338	0.55	27.40	917.62	.T.	.F.	0.929
338	0.96	28.01	3113.57	.F.	.F.	0.941
338	0.41	28.07	3420.94	.F.	.F.	0.944
338	0.95	28.29	1848.12	.F.	.T.	0.956
338	0.57	28.40	1291.51	.T.	.F.	0.963
338	0.83	28.50	1797.89	.F.	.F.	0.968
338	0.66	29.22	2409.07	.T.	.T.	0.986
338	0.68	29.33	2998.83	.T.	.F.	0.992
338	0.79	29.57	334.01	.F.	.F.	1.006
354	0.53	27.35	4577.68	.T.	.F.	0.926

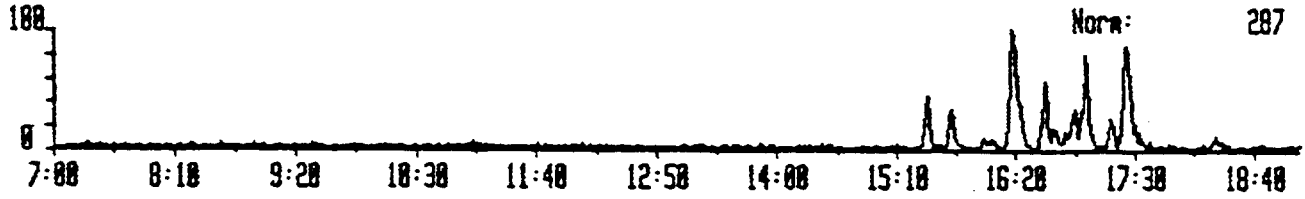
M872289B
MATCHED GC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
354	0.74	28.09	468.91	.F.	.F.	0.945
354	0.68	28.26	2572.41	.T.	.F.	0.955
354	0.50	28.37	625.30	.F.	.F.	0.961
354	0.57	28.51	1514.31	.T.	.F.	0.969
354	0.33	29.03	533.03	.F.	.F.	0.975
354	0.63	29.09	703.09	.T.	.F.	0.979
354	0.55	29.25	1024.06	.T.	.F.	0.988
354	0.90	29.34	347.60	.F.	.F.	0.993
354	0.98	29.47	639.41	.F.	.T.	1.000
354	0.72	29.58	340.54	.F.	.F.	1.006
354	1.23	30.08	36.33	.F.	.F.	1.012
354	0.50	30.25	248.21	.F.	.F.	1.021
366	0.63	29.47	6919.40	.T.	.T.	1.000
374	1.05	33.50	121.02	.T.	.F.	0.928
374	1.34	34.02	4310.28	.T.	.F.	0.934
374	0.79	34.16	464.15	.F.	.F.	0.940
374	1.58	34.27	760.05	.F.	.F.	0.945
374	1.56	34.40	392.12	.F.	.F.	0.951
374	1.30	35.13	5914.96	.T.	.T.	0.966
374	1.25	35.24	2782.24	.T.	.T.	0.971
374	1.99	35.32	683.23	.F.	.F.	0.975
374	0.93	35.51	874.44	.F.	.F.	0.984
374	1.48	36.10	3266.45	.F.	.T.	0.992
374	1.18	36.38	32.92	.T.	.F.	1.005
374	2.06	37.22	400.25	.F.	.F.	1.025
386	1.18	35.14	13977.37	.T.	.T.	0.967
390	1.27	34.33	2325.39	.T.	.F.	0.948
390	0.38	34.45	55.71	.F.	.F.	0.953
390	1.25	35.13	8563.45	.T.	.F.	0.966
390	1.27	35.32	5070.33	.T.	.F.	0.975
390	1.20	35.47	903.70	.T.	.F.	0.982
390	1.24	36.20	646.97	.T.	.T.	0.997
390	1.41	36.28	1373.86	.T.	.T.	1.000
390	0.71	36.38	49.00	.F.	.F.	1.005
390	2.22	36.55	1472.04	.F.	.T.	1.013
402	1.33	36.27	9708.80	.T.	.T.	1.000
402	1.34	36.55	19100.36	.T.	.T.	1.013
408	0.97	40.44	8637.25	.T.	.T.	0.965
408	1.17	41.06	1661.27	.T.	.F.	0.974
408	1.10	41.18	1216.25	.T.	.F.	0.979
408	1.28	42.48	513.10	.F.	.T.	1.014
408	0.69	44.05	84.00	.F.	.F.	1.045
424	0.96	41.10	7425.10	.T.	.F.	0.976
424	0.95	42.13	6454.76	.T.	.T.	1.000
436	1.08	42.12	12239.22	.T.	.T.	1.000
442	0.81	47.07	1032.42	.T.	.T.	1.005
458	0.86	46.55	5881.90	.T.	.T.	1.000
470	0.94	46.54	22849.14	.T.	.T.	1.000

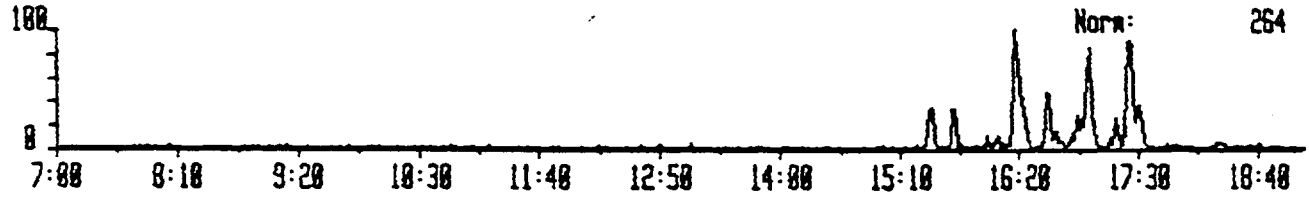
M872289B
MATCHED GC PEAKS /RATIO/ RET TIME

M_Z RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
*** Total ***					
*** 90.32	2888.2	348024.22			87.791

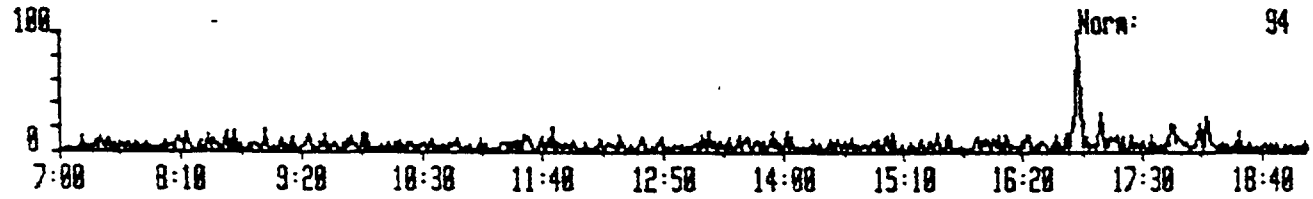
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 269.9406
Text:I2-MM5-2



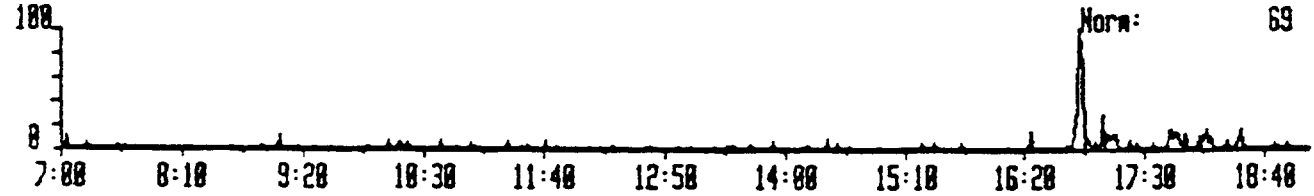
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 271.9377
Text:I2-MM5-2



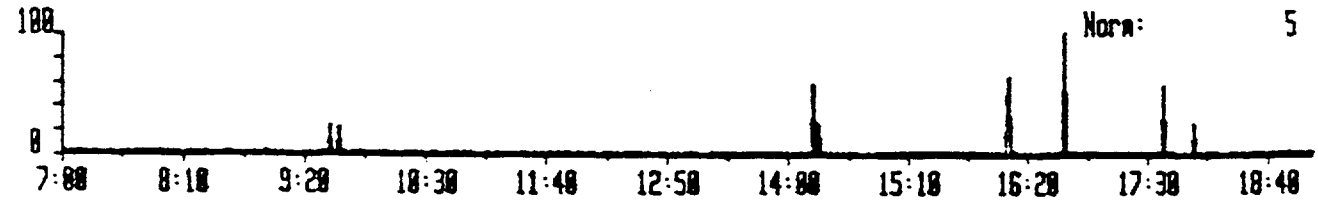
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 285.9355
Text:I2-MM5-2



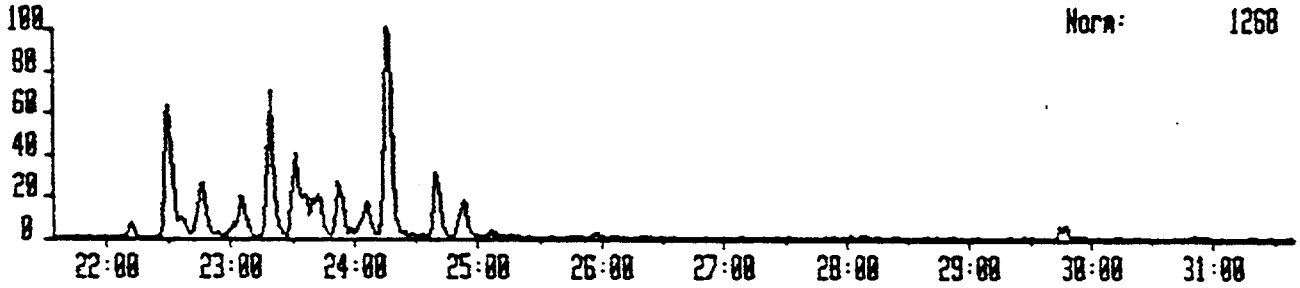
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:I2-MM5-2



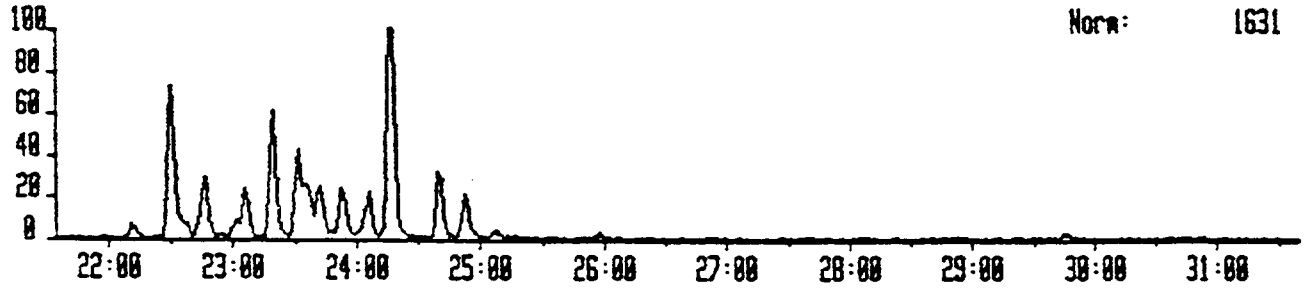
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 339.8798
Text:I2-MM5-2



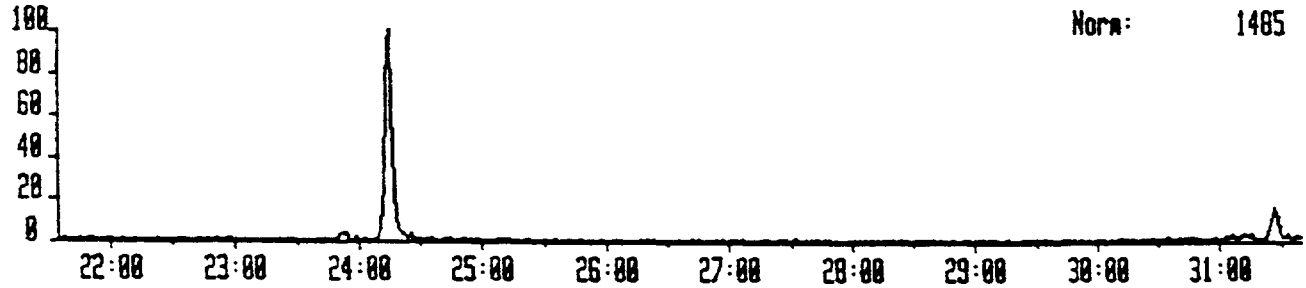
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 303.9816
Text:I2-MM5-2



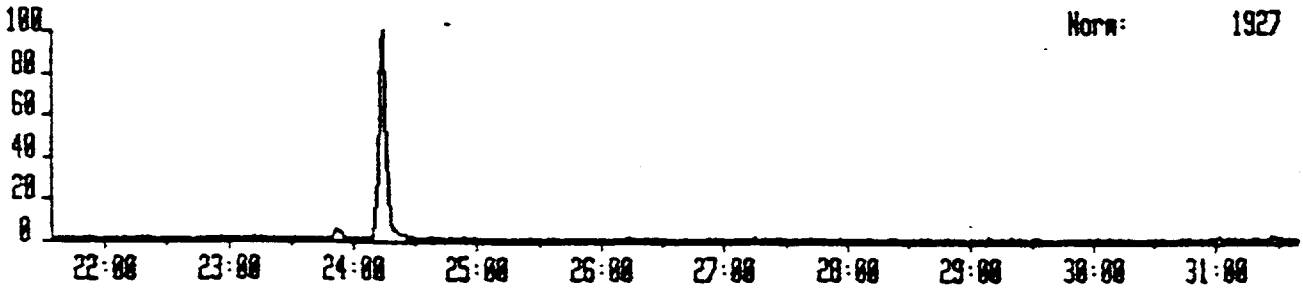
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 305.8987
Text:I2-MM5-2



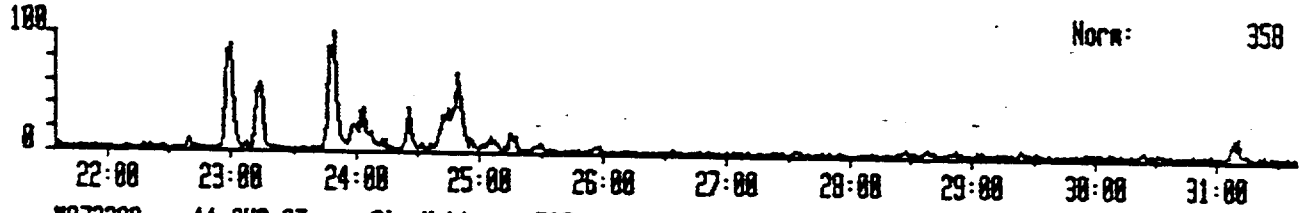
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 315.9419
Text:I2-MM5-2



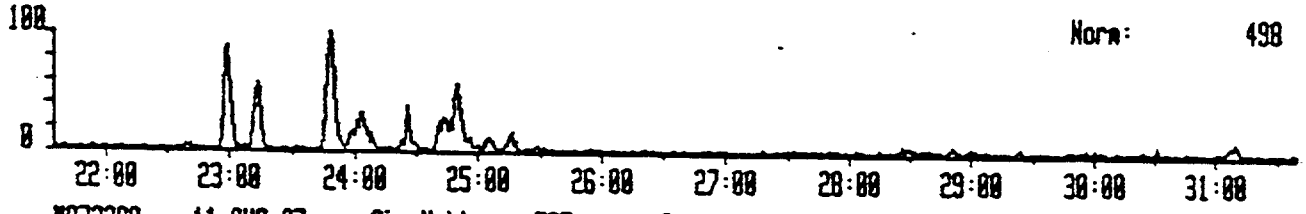
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 317.9389
Text:I2-MM5-2



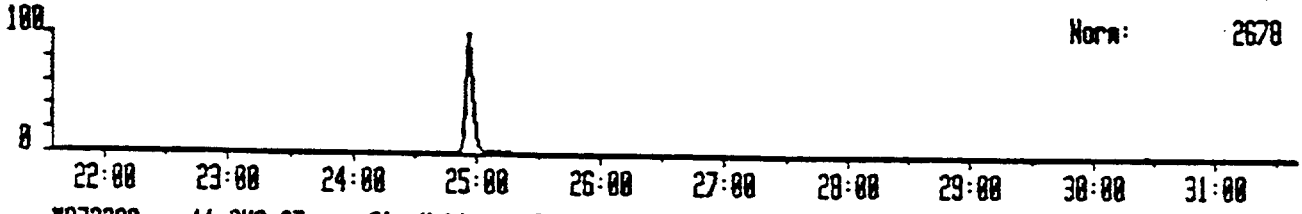
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:I2-MM5-2



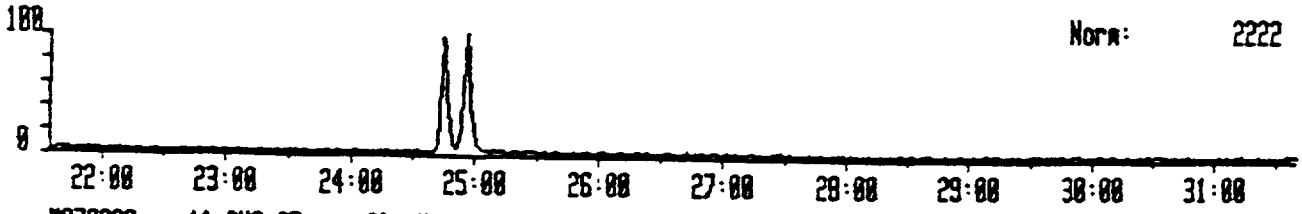
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:I2-MM5-2



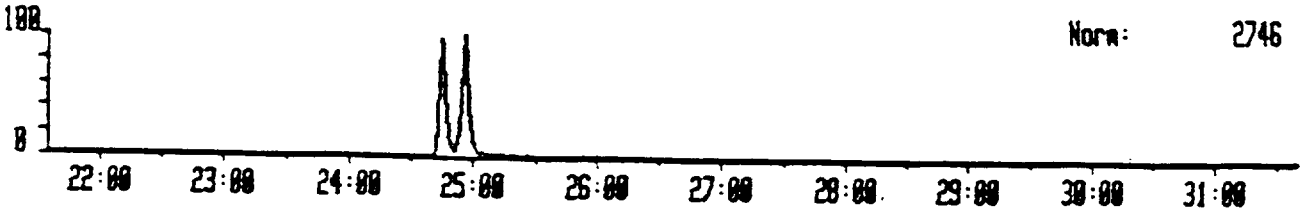
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:I2-MM5-2



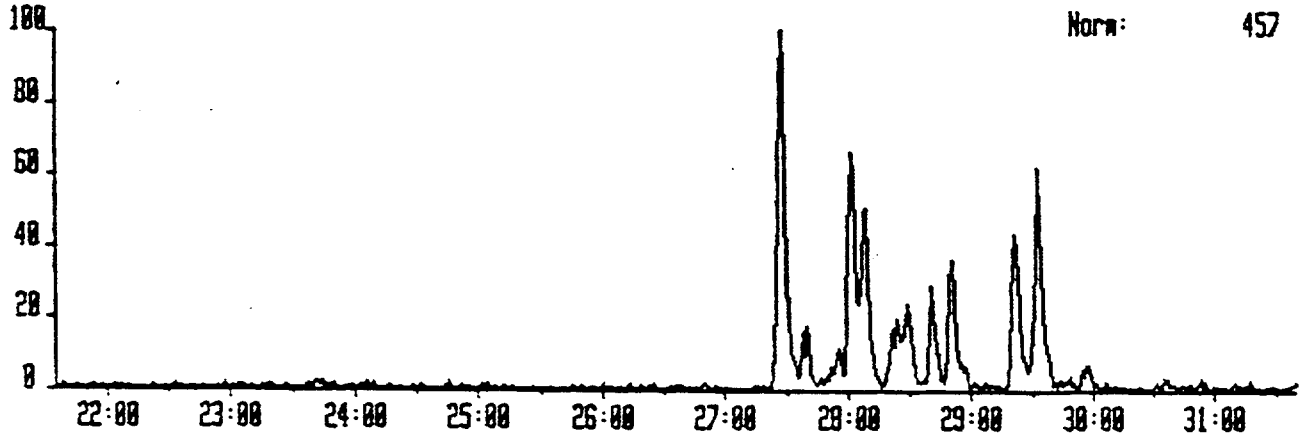
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 331.9368
Text:I2-MM5-2



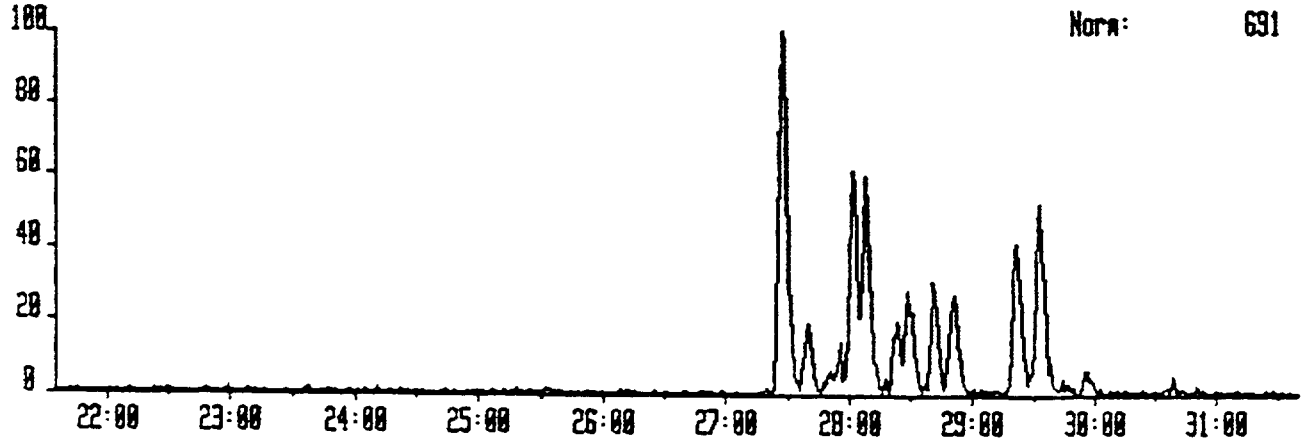
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 333.9338
Text:I2-MM5-2



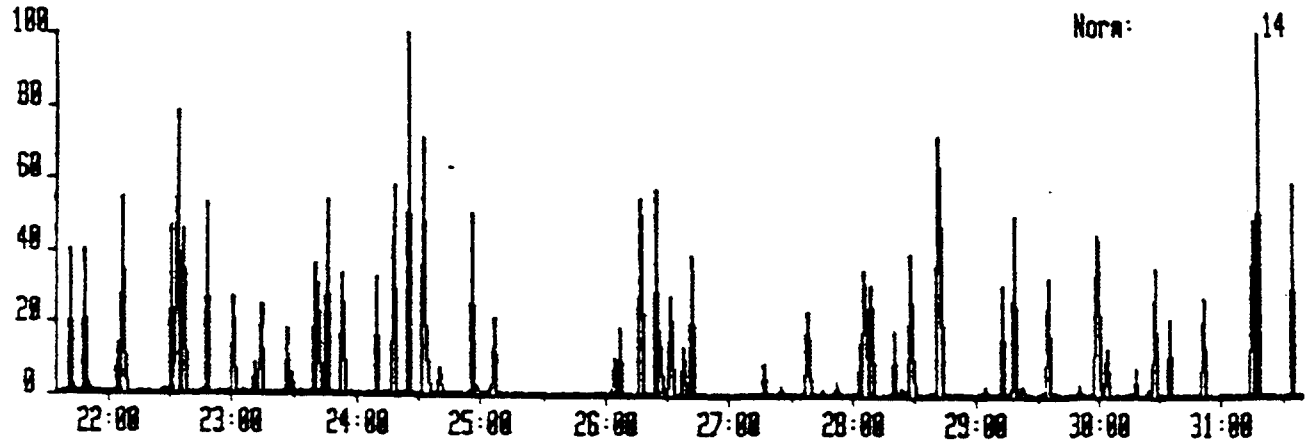
M872289 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:I2-MM5-2



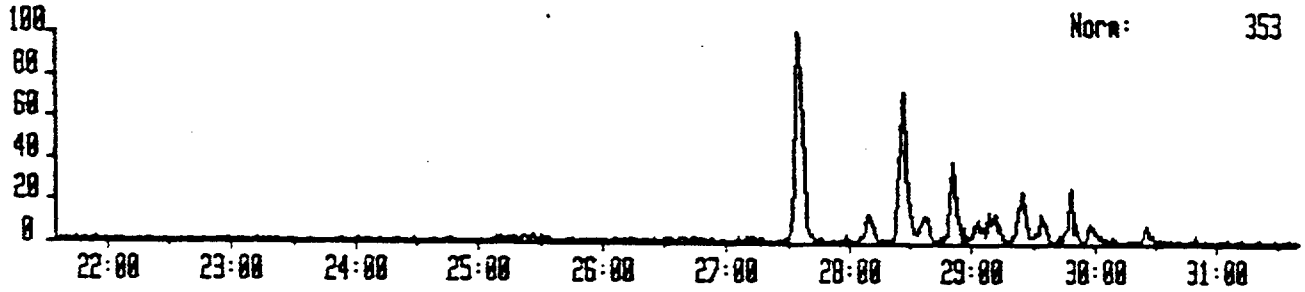
M872289 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:I2-MM5-2



M872289 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 487.8883
Text:I2-MM5-2

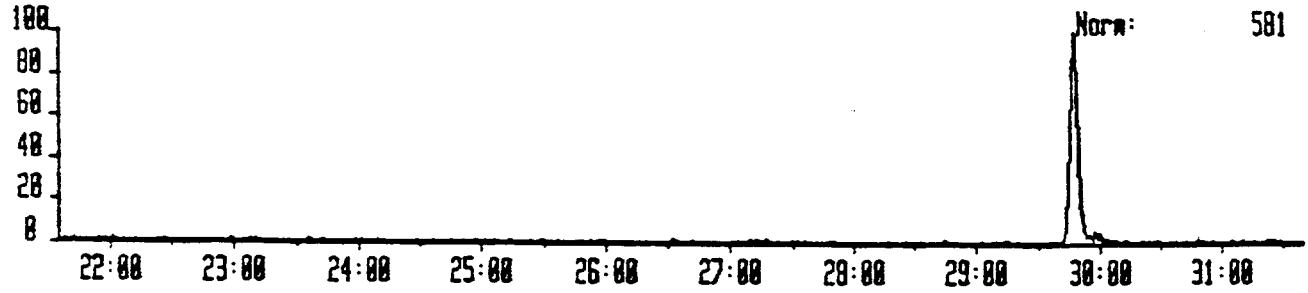


M872289 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:I2-MM5-2

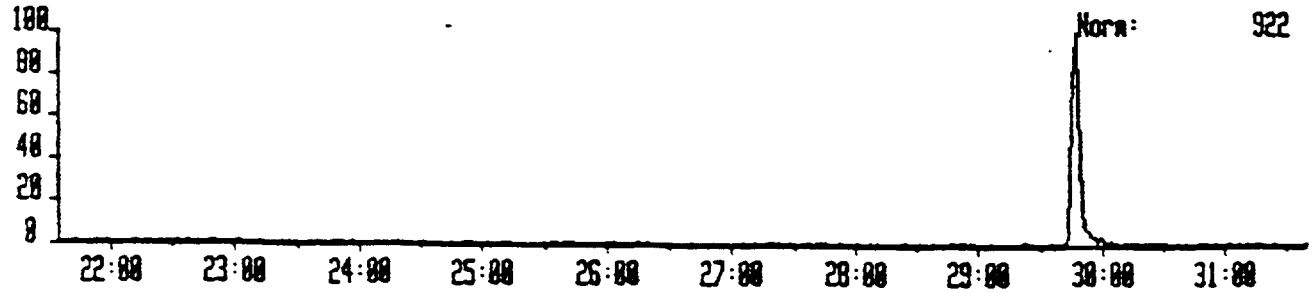


M872289 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 355.8546
Text:I2-MM5-2

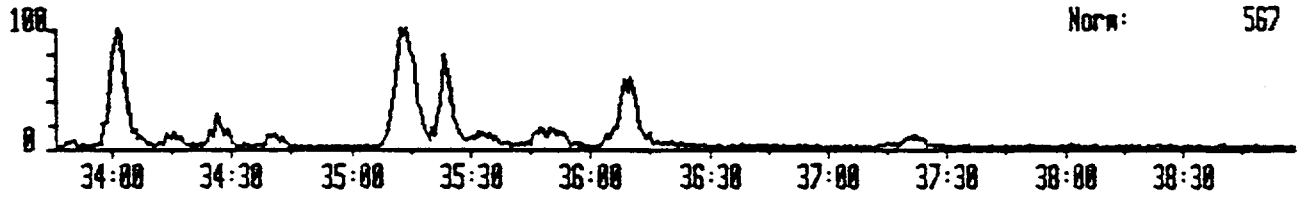
M872289 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 365.8977
Text:I2-MM5-2



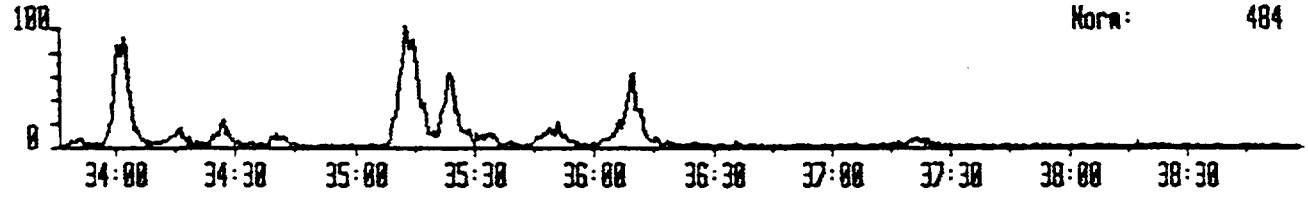
M872289 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 367.8948
Text:I2-MM5-2



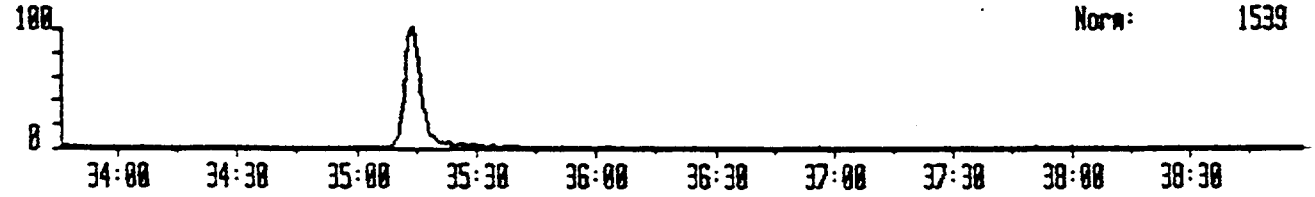
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 373.8207
Text:I2-MM5-2



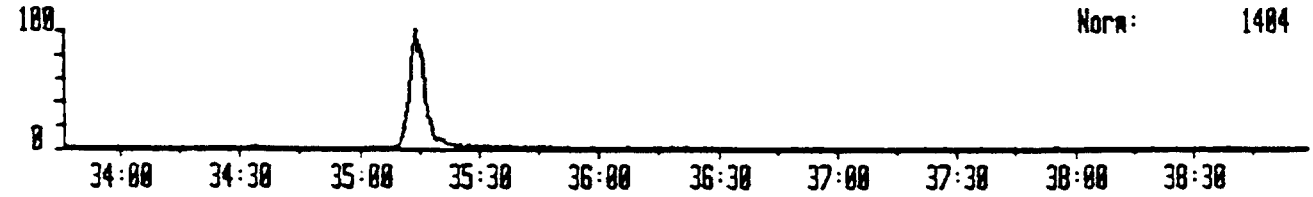
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 375.8178
Text:I2-MM5-2



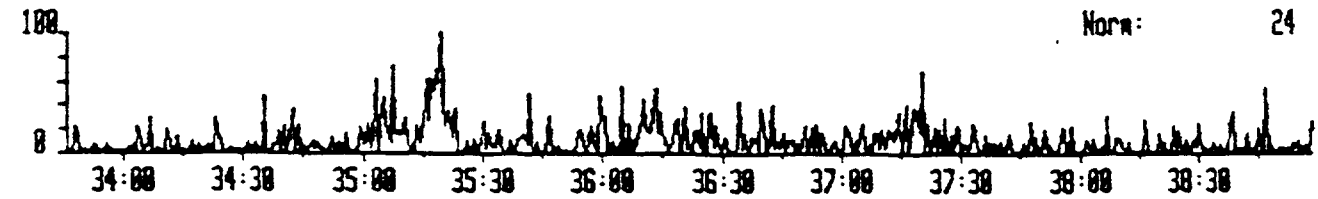
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 385.8609
Text:I2-MM5-2



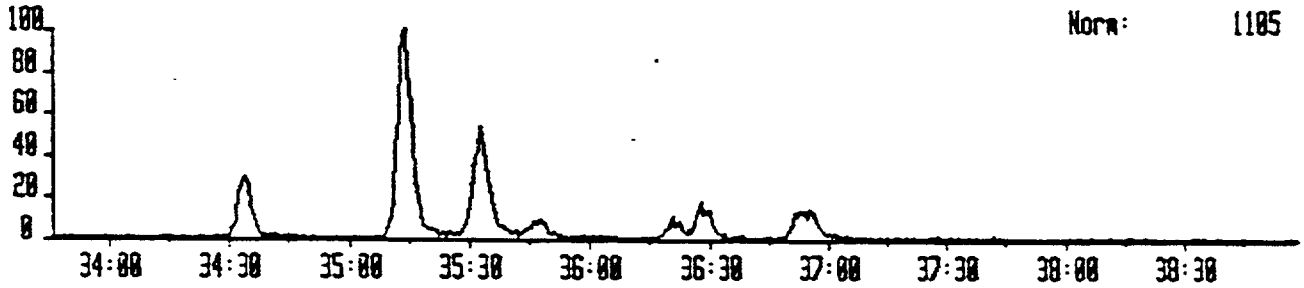
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 387.8580
Text:I2-MM5-2



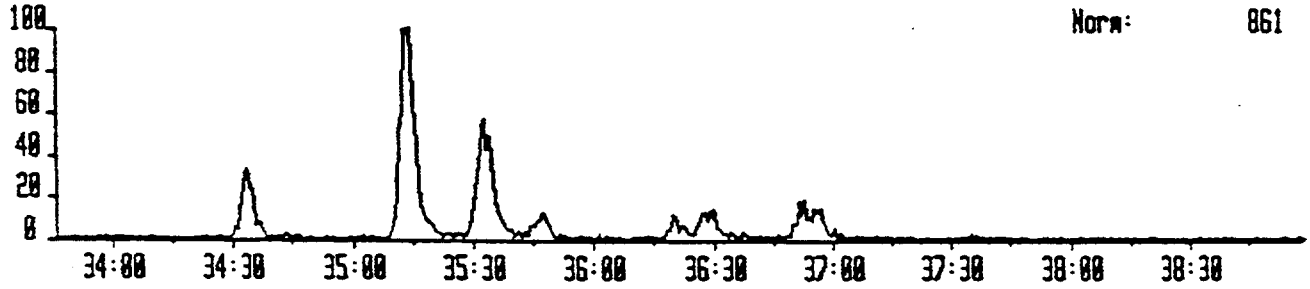
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:I2-MM5-2



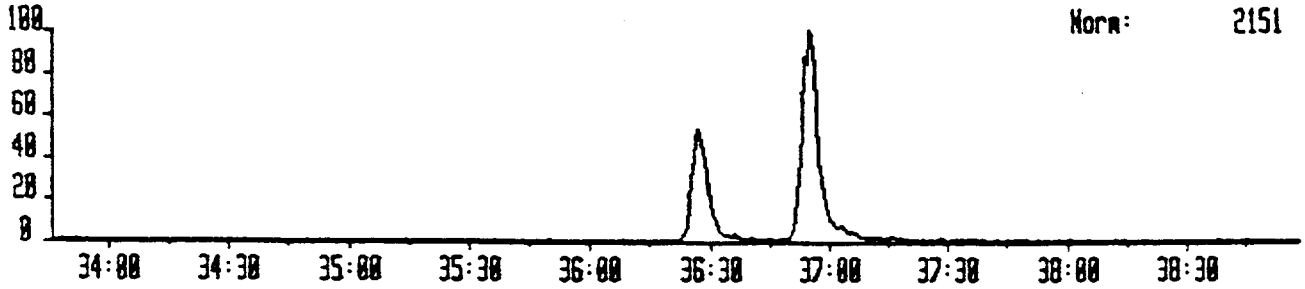
M872289 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 389.8156
Text:I2-MM5-2



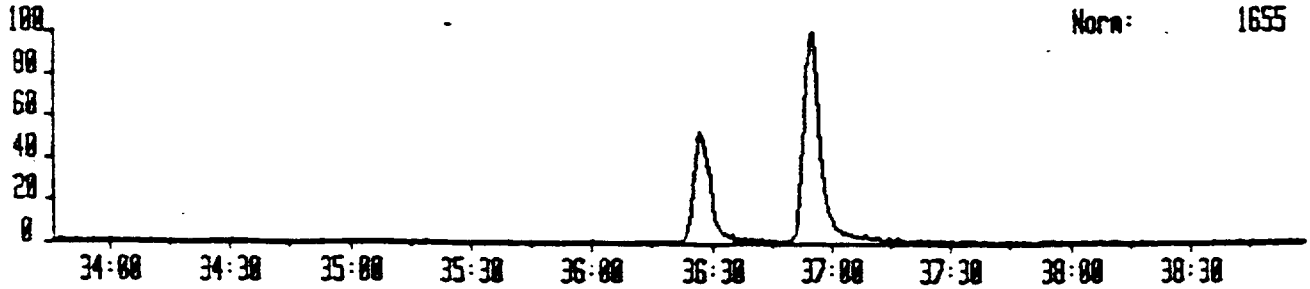
M872289 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 391.8127
Text:I2-MM5-2



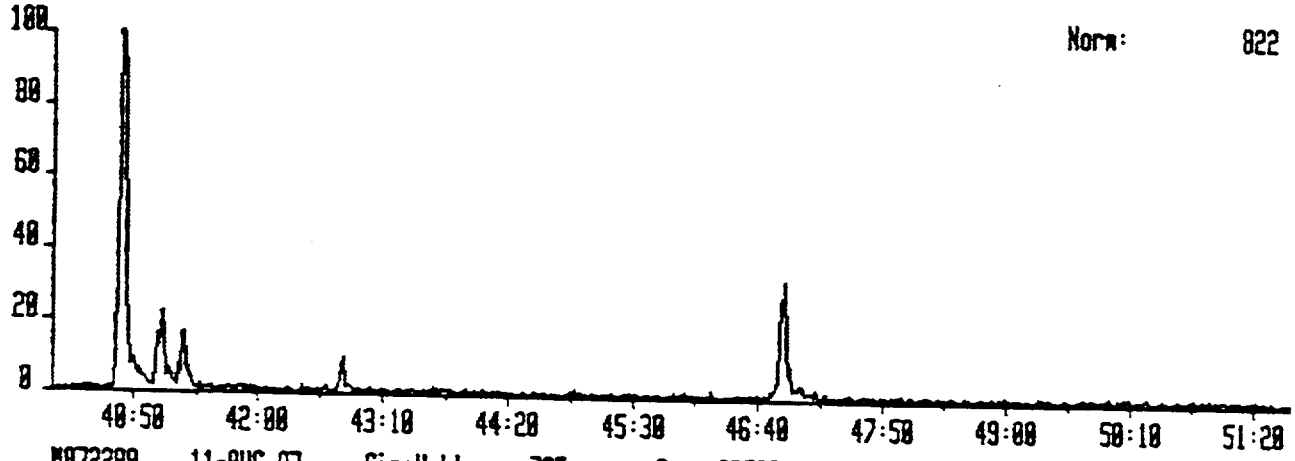
M872289 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text:I2-MM5-2



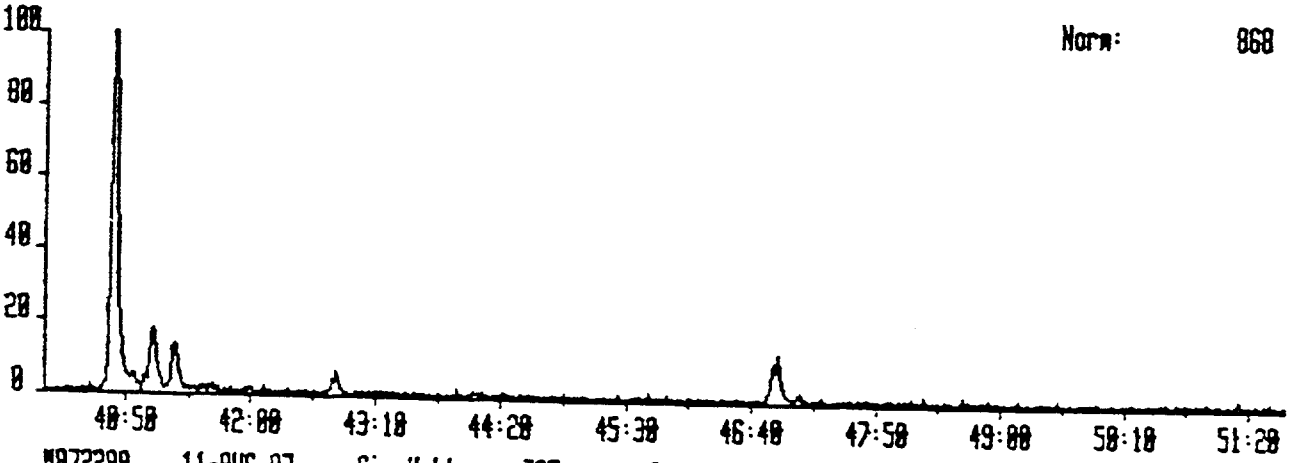
M872289 11-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 403.8529
Text:I2-MM5-2



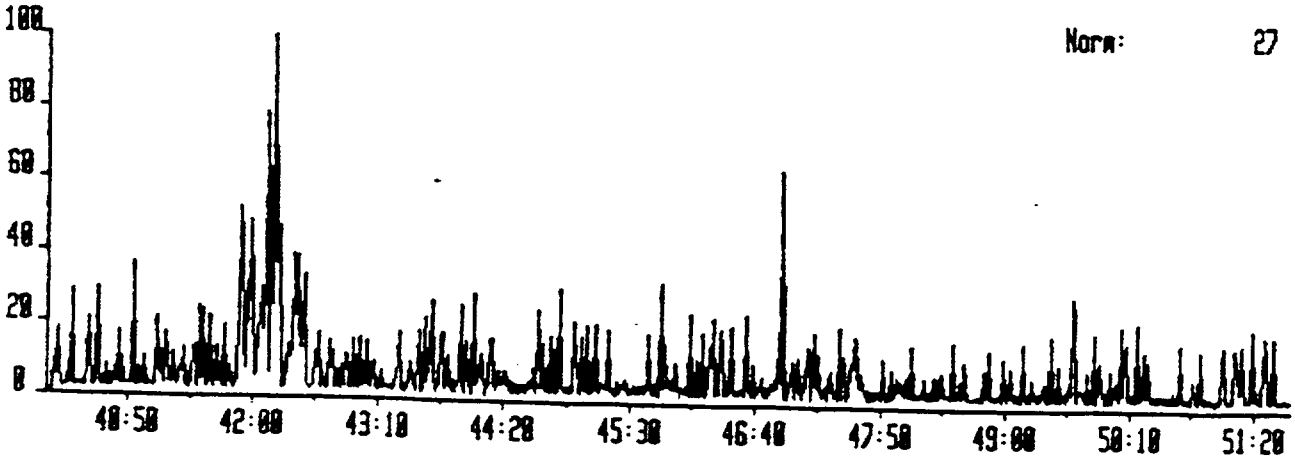
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 407.7817
Text:I2-MM5-2



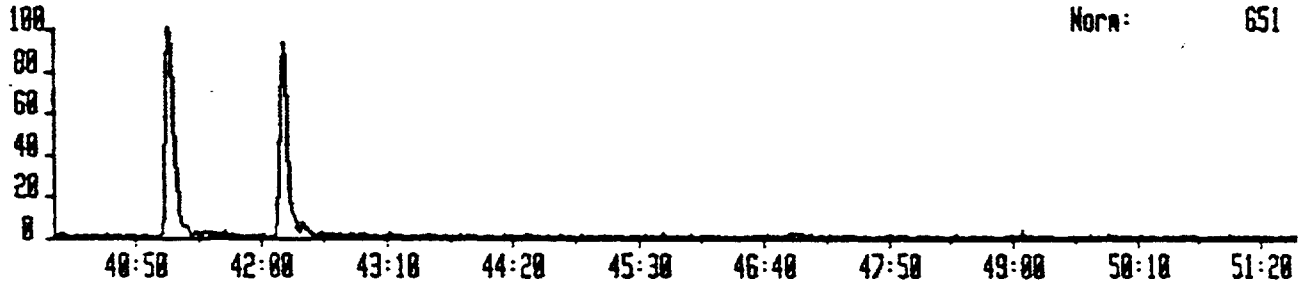
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 409.7788
Text:I2-MM5-2



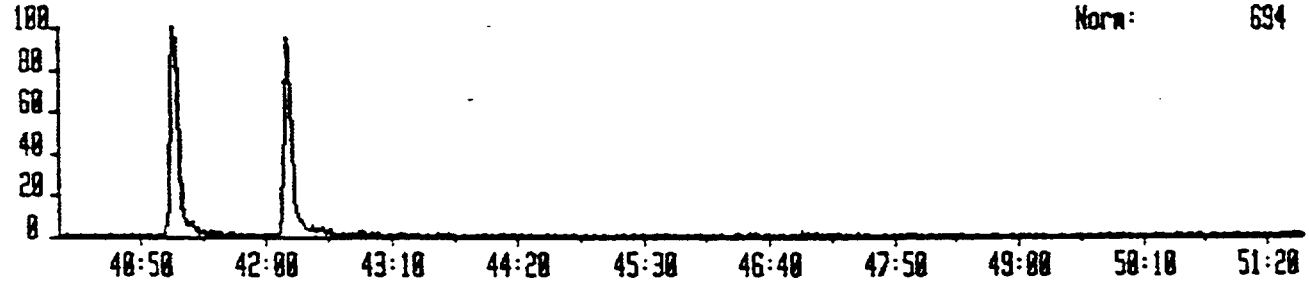
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 477.7200
Text:I2-MM5-2



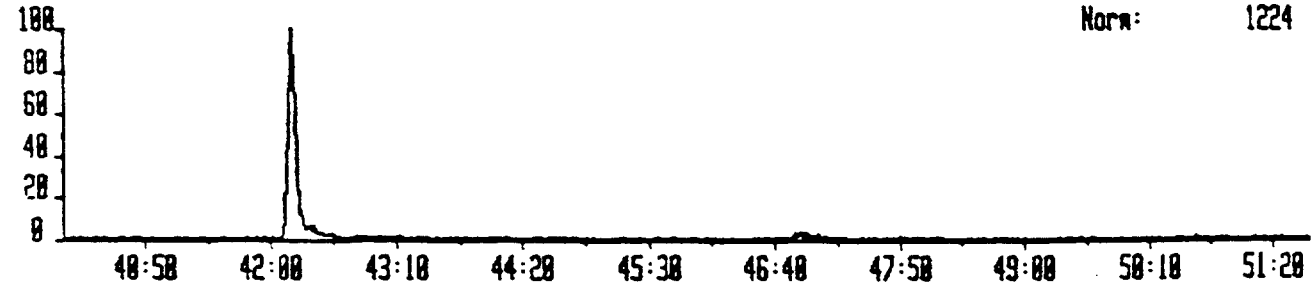
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:I2-MM5-2



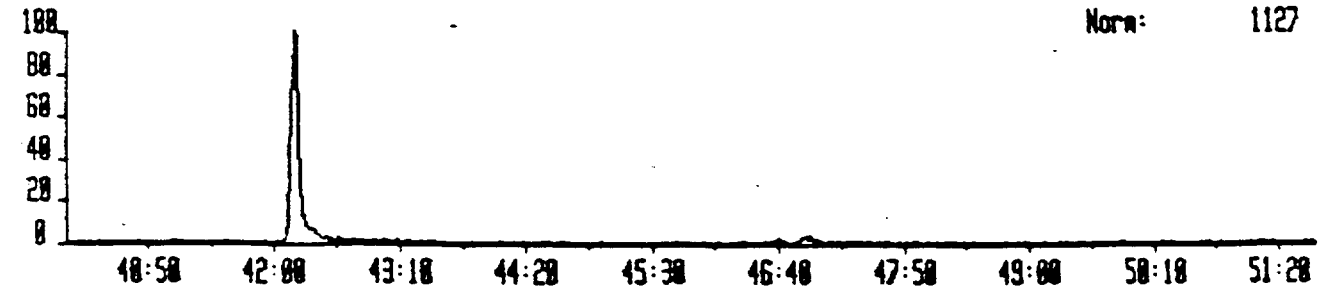
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:I2-MM5-2



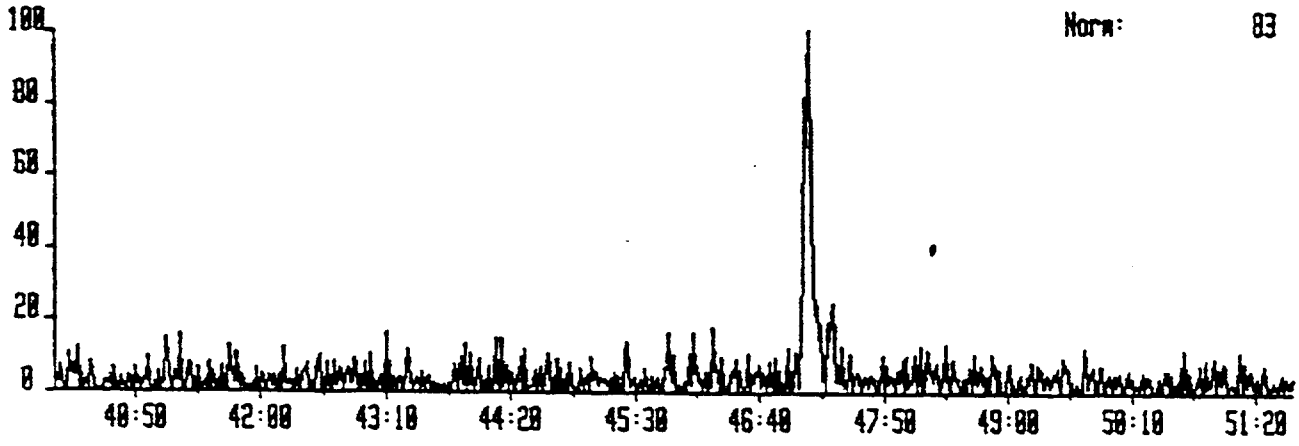
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:I2-MM5-2



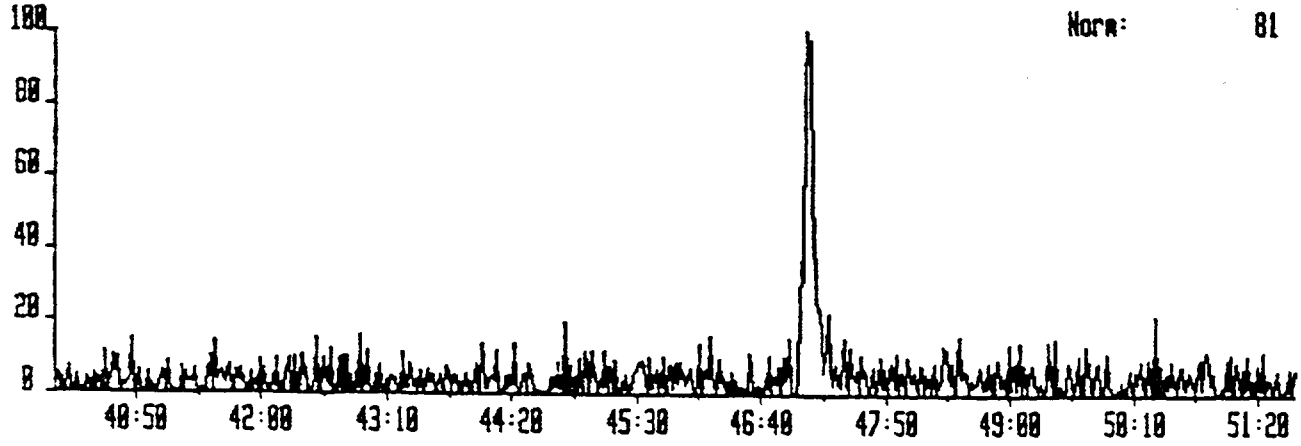
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:I2-MM5-2



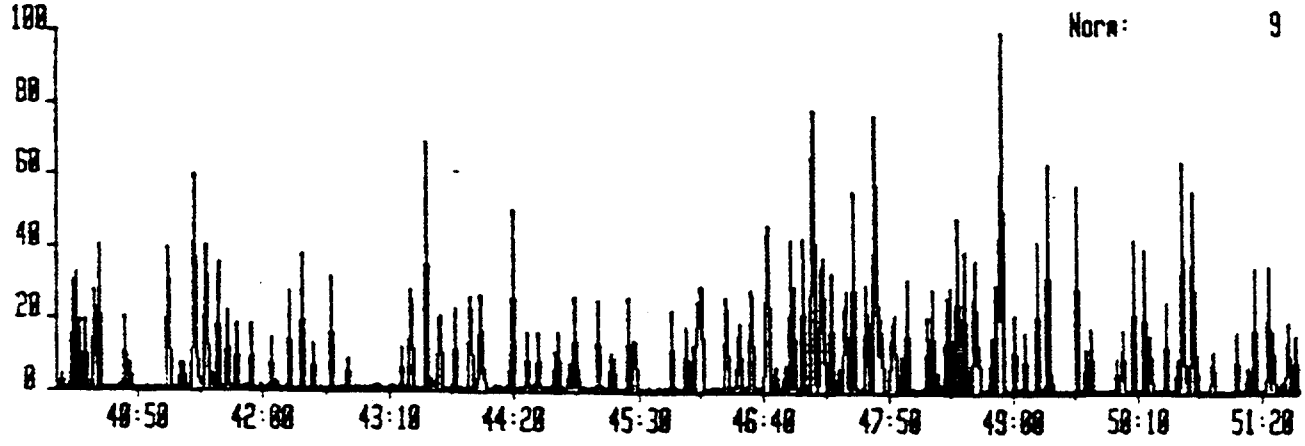
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 441.7428
Text:I2-MM5-2



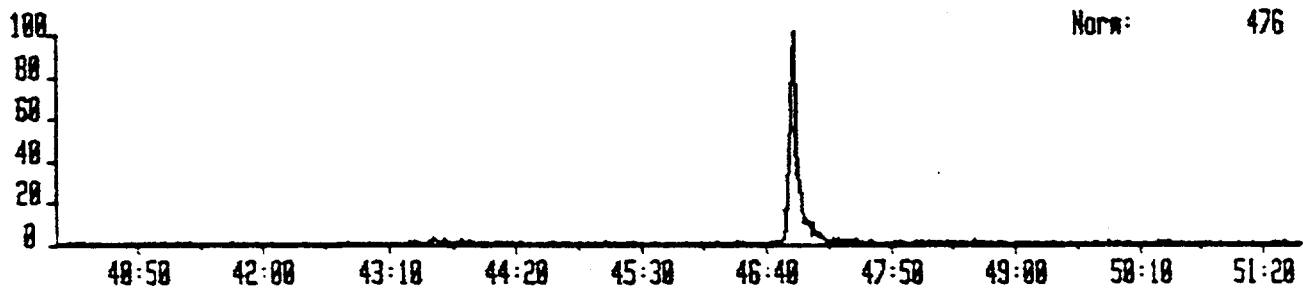
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:I2-MM5-2



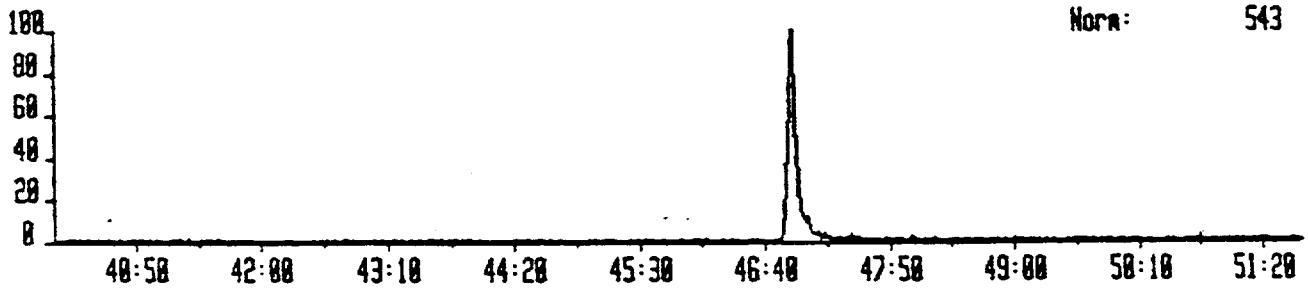
M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 511.6810
Text:I2-MM5-2



M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:I2-MM5-2



M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:I2-MM5-2



M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:I2-MM5-2

M872289 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 471.7750
Text:I2-MM5-2

TRIANGLE LABORATORIES, INC.
PCDD/PCDF ANALYSIS (D)

ANALYST: MC
DATE: 08/23/87
FILE NAME: M872291
SAMPLE ID: I2-MM5-3
CASE NO: ENTROPY
PROJ NO: 8701511
CONCAL: M872290

NAME	AMT (ng)	NUMBER	DL	EMPC	RATIO	RT
TOTAL TRICDD	ND			0.895	1.28	
2378-TCDD	ND		0.010			
TOTAL TCDD	4.060	8			0.77	
12378-PCDD	ND			0.252	0.42	
TOTAL PCDD	5.581	9			0.56	
123478-HxCDD	0.312				1.19	36.25
123678-HxCDD	0.555				1.28	36.33
123789-HxCDD	0.953				1.14	36.57
TOTAL HxCDD	8.248	6			1.24	
1234678-HpCDD	2.449				1.02	42.17
TOTAL HpCDD	5.115	2			1.06	
OCDD	4.407				0.90	46.59
TOTAL TRICDF	7.096	6			1.08	
2378-TCDF	3.063				0.73	24.21
TOTAL TCDF	12.217	11			0.76	
12378-PCDF	0.533				0.59	28.32
23478-PCDF	0.999				0.59	29.25
TOTAL PCDF	8.394	10			0.60	
123478-HxCDF	1.351				1.30	35.17
123678-HxCDF	0.694				1.29	35.36
234678-HxCDF	0.804				1.20	36.14
123789-HxCDF	ND		0.010			
TOTAL HxCDF	4.416	8			1.27	
1234678-HpCDF	1.939				0.99	40.48
1234789-HpCDF	0.126				0.93	42.51
TOTAL HpCDF	2.864	4			1.00	
OCDF	0.794				0.76	47.10

SURROGATE RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
13C12-TCDF	4.62	92.40	0.80	24.19
37CL-TCDD	4.74	94.80		25.00
13C12-HxCDF	5.06	101.20	1.23	35.18

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
2378-13C12-TCDD	9.04	90.40	0.79	24.59
13C12-PCDD	8.93	89.30	0.61	29.50
13C12-HxCDD	7.46	74.60	1.32	36.32
13C12-HpCDD	8.56	85.60	1.05	42.16
13C12-OCDD	14.62	73.10	0.90	46.58

M872291B
MATCHED EGC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
270	1.11	15.29	767.48	.T.	.F.	0.000
270	1.07	15.44	622.31	.T.	.F.	0.000
270	1.30	16.08	193.42	.F.	.F.	0.000
270	1.02	16.20	3235.08	.T.	.F.	0.000
270	0.99	16.38	1671.89	.T.	.F.	0.000
270	1.32	17.03	2805.25	.F.	.F.	0.000
270	1.16	17.18	659.78	.T.	.F.	0.000
270	1.11	17.27	3252.44	.T.	.F.	0.000
270	1.48	18.20	210.00	.F.	.F.	0.000
286	1.28	16.54	496.93	.F.	.F.	0.000
304	1.08	22.16	643.99	.F.	.F.	0.891
304	0.79	22.34	11579.92	.T.	.F.	0.903
304	0.80	22.50	4686.52	.T.	.F.	0.914
304	0.78	23.10	2959.20	.T.	.F.	0.927
304	0.71	23.23	9939.84	.T.	.F.	0.936
304	0.79	23.36	10340.24	.T.	.F.	0.945
304	0.55	23.47	3893.62	.F.	.F.	0.952
304	0.79	23.57	4352.28	.T.	.F.	0.959
304	0.75	24.11	3772.27	.T.	.F.	0.968
304	0.73	24.21	19012.43	.T.	.T.	0.975
304	0.67	24.43	4669.36	.T.	.F.	0.989
304	0.77	24.57	3961.34	.T.	.F.	0.999
304	0.76	25.11	569.12	.T.	.F.	1.008
304	0.53	25.19	195.68	.F.	.F.	1.013
304	1.17	25.33	154.24	.F.	.F.	1.023
304	0.41	26.03	336.08	.F.	.F.	1.043
316	0.67	23.56	1147.91	.T.	.F.	0.958
316	0.80	24.19	28668.55	.T.	.T.	0.973
320	0.75	22.45	122.43	.T.	.F.	0.911
320	0.79	23.03	4133.14	.T.	.F.	0.923
320	0.71	23.17	2503.55	.T.	.F.	0.932
320	0.79	23.52	5332.56	.T.	.F.	0.955
320	0.92	24.07	2975.15	.F.	.F.	0.965
320	0.85	24.30	1340.50	.T.	.F.	0.981
320	0.83	24.54	5535.84	.T.	.F.	0.997
320	0.73	25.09	629.68	.T.	.F.	1.007
320	1.01	25.20	698.51	.F.	.F.	1.014
320	2.15	25.33	251.23	.F.	.F.	1.023
320	1.29	26.01	197.32	.F.	.F.	1.041
320	0.90	26.11	79.14	.F.	.F.	1.048
320	0.55	27.40	197.66	.F.	.F.	1.107
320	0.68	27.49	53.01	.T.	.F.	1.113
328	0.00	25.00	22205.42	.T.	.T.	1.001
332	0.80	24.49	34453.45	.T.	.T.	0.993
332	0.79	24.59	44404.17	.T.	.T.	1.000
338	0.59	27.32	7417.88	.T.	.F.	0.923
338	0.54	27.43	1193.67	.T.	.F.	0.929
338	0.66	28.05	5348.19	.T.	.F.	0.941
338	0.60	28.12	4248.92	.T.	.F.	0.945
338	0.66	28.26	1601.55	.T.	.F.	0.953

M872291B
MATCHED EGC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
338	0.59	28.32	2315.04	.T.	.T.	0.956
338	0.55	28.45	1800.03	.T.	.F.	0.964
338	0.68	28.54	2894.39	.T.	.F.	0.969
338	0.59	29.25	4168.33	.T.	.T.	0.986
338	0.55	29.36	4747.65	.T.	.F.	0.992
338	0.49	30.00	502.11	.F.	.F.	1.006
338	0.41	30.39	302.82	.F.	.F.	1.027
338	1.48	30.54	111.67	.F.	.F.	1.036
354	0.56	27.39	8172.07	.T.	.F.	0.927
354	0.55	28.13	736.09	.T.	.F.	0.946
354	0.61	28.30	3623.87	.T.	.F.	0.955
354	0.58	28.40	992.93	.T.	.F.	0.961
354	0.50	28.55	2556.08	.F.	.F.	0.969
354	0.55	29.06	662.69	.T.	.F.	0.975
354	0.55	29.13	1121.56	.T.	.F.	0.979
354	0.53	29.28	1681.59	.T.	.F.	0.988
354	0.56	29.38	575.00	.T.	.F.	0.993
354	0.42	29.51	811.14	.F.	.T.	1.001
354	0.58	30.02	415.19	.T.	.F.	1.007
354	0.90	30.30	493.15	.F.	.F.	1.022
366	0.61	29.50	15070.58	.T.	.T.	1.000
374	1.18	33.54	565.66	.T.	.F.	0.928
374	1.40	34.05	6156.09	.T.	.F.	0.933
374	1.43	34.19	528.83	.F.	.F.	0.939
374	1.15	34.30	1198.01	.T.	.F.	0.944
374	1.36	34.45	662.87	.T.	.F.	0.951
374	1.30	35.17	9618.10	.T.	.T.	0.966
374	1.22	35.28	4401.60	.T.	.T.	0.971
374	1.36	35.36	1044.69	.T.	.T.	0.974
374	0.69	35.55	1121.05	.F.	.F.	0.983
374	1.20	36.14	4818.05	.T.	.T.	0.992
374	0.78	36.26	59.42	.F.	.F.	0.997
374	2.09	36.32	56.24	.F.	.F.	1.000
374	1.66	37.27	534.63	.F.	.F.	1.025
386	1.23	35.18	30859.58	.T.	.T.	0.966
390	1.32	34.37	3805.48	.T.	.F.	0.948
390	1.26	35.18	14367.08	.T.	.F.	0.966
390	1.27	35.37	8470.22	.T.	.F.	0.975
390	1.58	35.50	1416.14	.F.	.F.	0.981
390	2.30	35.58	82.39	.F.	.F.	0.984
390	1.19	36.25	1309.89	.T.	.T.	0.997
390	1.28	36.33	2428.04	.T.	.T.	1.000
390	1.14	36.57	3606.51	.T.	.T.	1.011
390	0.80	38.42	30.97	.F.	.F.	1.059
402	1.32	36.32	21756.06	.T.	.T.	1.000
402	1.34	36.59	48075.71	.T.	.T.	1.012
408	0.99	40.48	15968.58	.T.	.T.	0.965
408	1.08	41.10	2671.89	.T.	.F.	0.974
408	0.99	41.22	2459.74	.T.	.F.	0.979
408	1.08	41.46	108.44	(T) F	.F.	0.988

M872291B
MATCHED EGC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
408	0.93	42.51	900.88	.T.	.T.	1.014
408	0.31	44.56	90.29	.F.	.F.	1.063
424	1.09	41.14	13254.34	.T.	.F.	0.976
424	1.02	42.17	12179.04	.T.	.T.	1.000
436	1.14	41.13	147.62	.T.	.F.	0.975
436	1.05	42.16	33441.49	.T.	.T.	1.000
436	2.81	44.06	63.03	.F.	.F.	1.043
442	0.76	47.10	3357.91	.T.	.T.	1.004
442	0.71	47.40	90.38	.F.	.F.	1.015
458	0.90	46.59	14489.33	.T.	.T.	1.000
470	0.90	46.58	70940.81	.T.	.T.	1.000
*** Total ***						
***	104.4	3308.0	660611.20			99.235

M872291I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
270	404.23	15.29
270	321.32	15.44
270	109.31	16.08
270	1632.61	16.20
270	832.57	16.38
270	1597.42	17.03
270	354.86	17.18
270	1714.49	17.27
270	125.26	18.20
272	363.25	15.29
272	300.99	15.44
272	84.11	16.07
272	1602.47	16.20
272	839.32	16.38
272	420.89	16.56
272	1207.83	17.03
272	304.92	17.17
272	1537.95	17.27
272	84.74	18.20
272	106.77	18.29
286	279.12	16.54
286	123.46	17.12
288	217.81	16.54
304	334.99	22.16
304	5105.21	22.34
304	2080.94	22.50
304	1294.27	23.10
304	4119.32	23.23
304	4569.51	23.36
304	1386.33	23.47
304	1923.46	23.57
304	1615.89	24.11
304	7994.86	24.21
304	1873.18	24.43
304	1727.66	24.57
304	245.21	25.11
304	68.12	25.19
304	83.15	25.33
304	45.21	25.56
304	98.43	26.03
304	30.47	26.10
306	309.00	22.16
306	6474.71	22.34
306	2605.58	22.50
306	1664.93	23.10
306	5820.52	23.23
306	5770.73	23.36
306	2507.29	23.46
306	2428.82	23.57
306	2156.38	24.09

M872291I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
306	11017.57	24.21
306	2796.18	24.45
306	2233.68	24.57
306	323.91	25.11
306	127.56	25.17
306	23.15	25.27
306	71.09	25.32
306	62.24	25.52
306	237.65	26.03
306	32.18	26.30
306	21.14	26.35
306	22.85	26.40
306	38.76	26.46
306	24.53	26.58
306	43.94	27.09
306	33.05	28.04
306	48.89	28.12
306	38.92	28.56
306	71.70	29.26
306	60.62	29.37
306	353.78	29.52
306	29.94	30.02
306	18.00	30.10
306	72.22	30.55
316	460.62	23.56
316	12715.13	24.19
318	687.29	23.55
318	15953.42	24.19
318	150.12	27.33
318	162.32	27.54
318	134.92	28.02
318	122.52	30.44
320	36.80	21.53
320	40.83	22.02
320	20.21	22.20
320	52.40	22.45
320	1828.51	23.03
320	1035.95	23.17
320	2356.31	23.52
320	1427.66	24.07
320	615.18	24.30
320	2518.06	24.54
320	266.72	25.09
320	351.42	25.20
320	171.38	25.33
320	111.34	26.01
320	37.46	26.11
320	24.84	26.24
320	78.08	26.33
320	26.51	27.24

M872291I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
320	70.50	27.40
320	21.47	27.49
322	70.03	22.43
322	2304.63	23.03
322	1467.60	23.17
322	2976.25	23.53
322	1547.49	24.07
322	725.32	24.30
322	3017.78	24.54
322	362.96	25.09
322	347.09	25.20
322	79.85	25.33
322	85.98	26.00
322	41.68	26.10
322	127.16	27.41
322	31.54	27.47
322	174.93	28.34
322	130.67	28.43
322	165.23	28.56
322	22.43	29.06
322	20.23	29.14
322	50.56	29.27
322	44.97	29.35
322	65.35	29.50
322	80.22	29.59
322	23.31	30.08
322	140.23	30.27
322	104.18	30.35
322	12.06	30.46
322	30.99	30.51
322	19.74	30.59
322	386.07	31.13
322	14.17	31.23
322	12.41	31.29
328	22205.42	25.00
332	121.73	22.18
332	327.98	22.39
332	154.30	23.19
332	186.44	24.06
332	145.46	24.22
332	15274.04	24.49
332	19550.30	24.59
332	129.87	25.36
332	120.87	26.17
332	155.03	26.32
332	383.71	26.56
332	201.41	27.08
332	158.13	27.32
334	19179.41	24.49
334	24853.87	24.59

M872291I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
334	162.09	29.50
338	2742.44	27.32
338	417.60	27.43
338	2126.86	28.05
338	1586.76	28.12
338	636.33	28.26
338	860.44	28.32
338	639.85	28.45
338	1176.49	28.54
338	1551.09	29.25
338	1683.75	29.36
338	106.99	29.49
338	165.57	30.00
338	87.56	30.39
338	66.72	30.54
338	24.00	31.07
340	23.97	23.59
340	4675.44	27.32
340	776.07	27.43
340	3221.33	28.05
340	2662.16	28.12
340	965.22	28.26
340	1454.60	28.33
340	1160.18	28.45
340	1717.90	28.54
340	21.01	29.12
340	2617.24	29.25
340	3063.90	29.36
340	69.96	29.52
340	336.54	30.00
340	11.52	30.17
340	11.62	30.22
340	215.26	30.41
340	44.95	30.53
354	13.77	27.09
354	2938.97	27.39
354	261.99	28.13
354	1369.50	28.30
354	366.30	28.40
354	848.12	28.55
354	234.63	29.06
354	398.32	29.13
354	585.64	29.28
354	207.41	29.38
354	237.92	29.51
354	152.04	30.02
354	233.96	30.30
356	5233.10	27.39
356	474.10	28.13
356	2254.37	28.30

M872291I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
356	626.63	28.40
356	1707.96	28.54
356	428.06	29.06
356	723.24	29.13
356	1095.95	29.28
356	367.59	29.38
356	573.22	29.51
356	263.15	30.02
356	259.19	30.29
356	18.25	30.39
366	5707.11	29.50
368	9363.47	29.50
374	306.66	33.54
374	3592.70	34.05
374	311.09	34.19
374	639.90	34.30
374	381.81	34.45
374	16.75	35.05
374	20.32	35.09
374	5440.60	35.17
374	2418.69	35.28
374	601.90	35.36
374	15.66	35.45
374	318.95	35.52
374	457.60	35.55
374	2623.76	36.14
374	25.96	36.26
374	24.94	36.29
374	38.04	36.32
374	44.69	36.41
374	31.27	36.47
374	15.40	36.58
374	20.67	37.04
374	11.82	37.10
374	71.18	37.19
374	333.64	37.27
374	20.39	37.32
374	26.83	38.05
376	259.00	33.54
376	2563.39	34.05
376	217.74	34.19
376	558.11	34.31
376	281.06	34.45
376	15.91	34.52
376	4177.50	35.17
376	1982.91	35.28
376	442.79	35.37
376	663.45	35.55
376	2194.29	36.14
376	33.46	36.28

M872291I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
376	18.20	36.33
376	200.99	37.27
376	23.98	37.40
376	21.83	37.49
376	16.18	38.48
386	16997.67	35.18
388	13861.91	35.18
390	2166.71	34.37
390	12.08	34.59
390	8002.99	35.18
390	4740.56	35.37
390	868.05	35.50
390	57.41	35.58
390	11.20	36.14
390	712.73	36.25
390	1365.09	36.33
390	23.46	36.44
390	1924.31	36.57
390	41.25	37.07
390	10.47	37.16
390	13.76	38.42
390	14.19	38.45
392	1638.77	34.37
392	35.36	34.46
392	6364.09	35.17
392	3729.66	35.37
392	548.09	35.51
392	24.98	35.58
392	597.16	36.26
392	1062.95	36.32
392	29.67	36.49
392	1682.20	36.58
392	13.08	37.11
392	17.21	38.43
402	12379.46	36.32
402	27543.59	36.59
404	9376.60	36.32
404	20532.12	36.59
404	116.82	37.24
408	7939.99	40.48
408	1386.94	41.10
408	1221.03	41.22
408	56.37	41.46
408	54.57	42.23
408	434.52	42.51
408	19.43	44.39
408	21.33	44.56
410	44.87	40.36
410	8028.59	40.48
410	1284.95	41.10

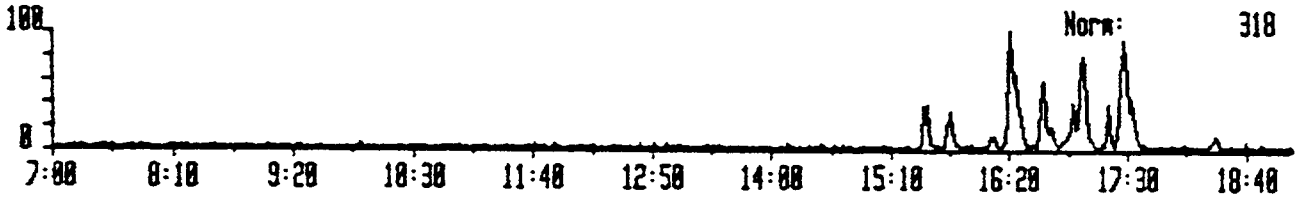
M872291I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
410	1238.71	41.23
410	125.13	41.33
410	52.07	41.45
410	21.27	42.20
410	25.52	42.28
410	466.36	42.52
410	68.96	44.55
410	2093.27	46.58
410	46.88	47.18
410	18.89	50.51
424	6919.16	41.14
424	21.87	41.47
424	6148.93	42.17
424	32.99	44.59
426	6335.18	41.14
426	32.90	42.02
426	6030.11	42.17
426	38.88	43.54
426	22.24	44.25
426	78.79	46.33
426	129.37	47.01
426	61.24	47.17
426	40.33	48.28
426	28.15	50.58
436	78.64	41.13
436	17089.28	42.16
436	57.63	43.04
436	67.33	43.21
436	29.47	43.59
436	46.48	44.06
436	16.02	45.56
438	68.98	41.13
438	16352.21	42.16
438	71.44	42.51
438	16.55	44.05
438	151.66	46.45
438	936.61	46.58
438	19.90	47.29
438	23.08	48.00
438	21.75	48.09
438	17.33	48.17
442	48.31	41.13
442	22.92	42.16
442	15.98	44.48
442	18.84	45.20
442	23.59	45.28
442	19.39	46.52
442	1445.52	47.10
442	37.66	47.40
442	33.59	49.57

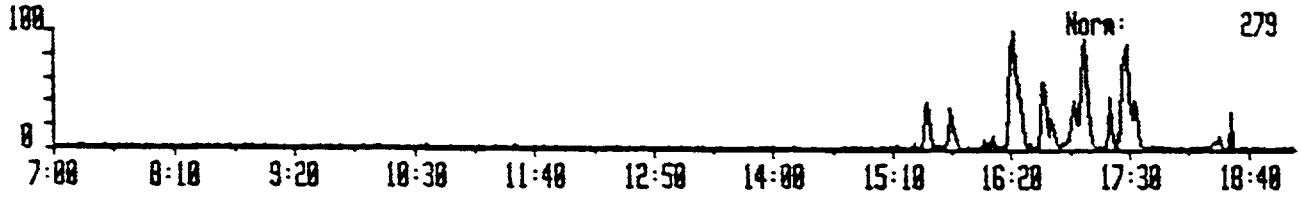
M872291I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
444	26.92	43.48
444	1912.39	47.10
444	49.42	47.31
444	52.72	47.40
458	59.21	43.39
458	6871.25	46.59
458	20.19	48.45
458	20.94	49.01
458	21.03	50.11
460	7618.08	46.58
460	158.08	47.26
460	28.32	47.46
470	33607.68	46.58
470	201.15	47.43
470	95.05	48.37
470	29.87	48.47
470	52.93	48.57
470	23.44	49.06
470	27.40	50.10
472	37333.13	46.58
472	262.24	47.55
472	85.24	48.16
472	34.84	48.27
472	26.15	49.37
472	18.69	50.50
*** Total ***		
****	673973.81	12097.26

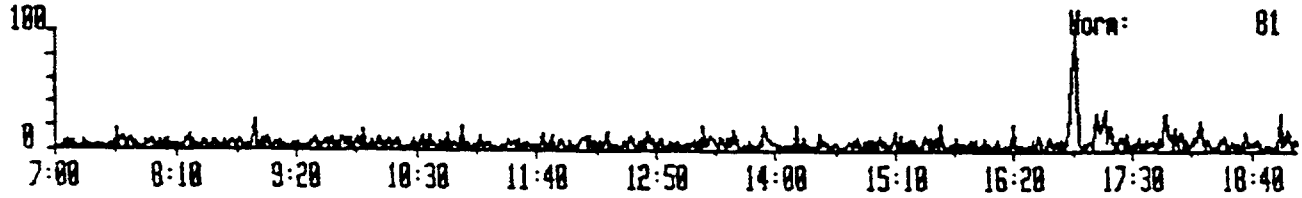
M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 269.9486
Text:ENTROPY I2-MM5-3



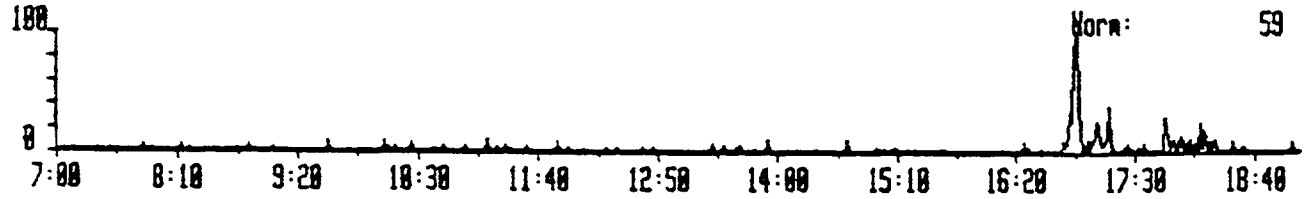
M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 271.9377
Text:ENTROPY I2-MM5-3



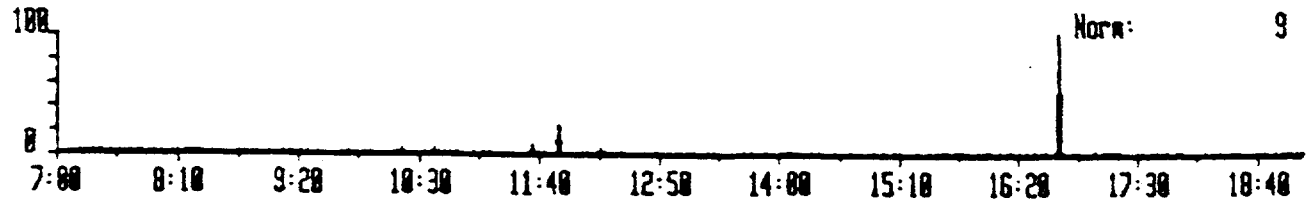
M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 285.9355
Text:ENTROPY I2-MM5-3



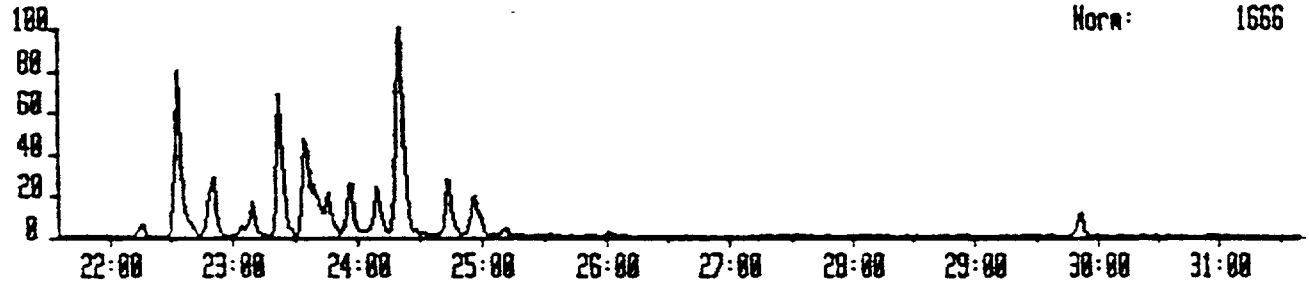
M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:ENTROPY I2-MM5-3



M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 339.8798
Text:ENTROPY I2-MM5-3

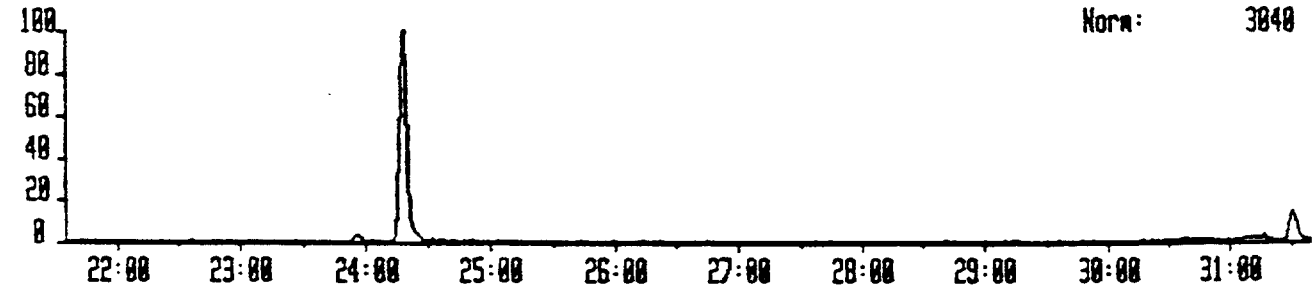


M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 303.9816
Text:ENTROPY I2-MMS-3

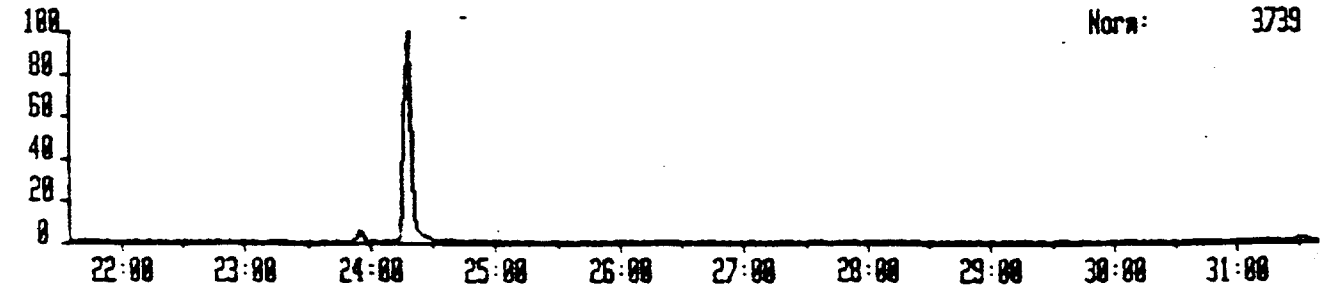


M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 305.8987
Text:ENTROPY I2-MMS-3

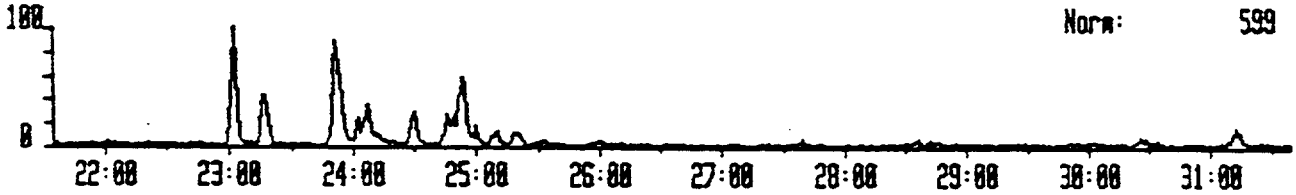
M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 315.9419
Text:ENTROPY I2-MMS-3



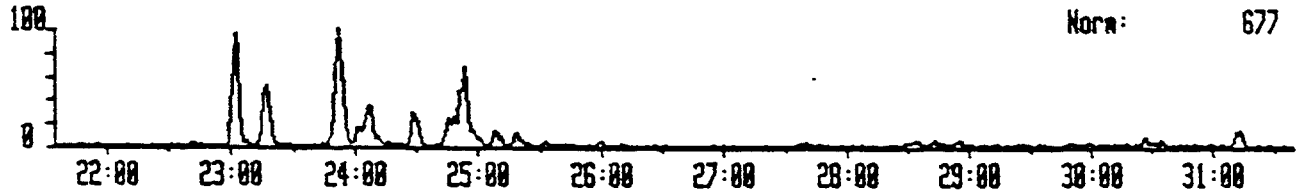
M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 317.9389
Text:ENTROPY I2-MMS-3



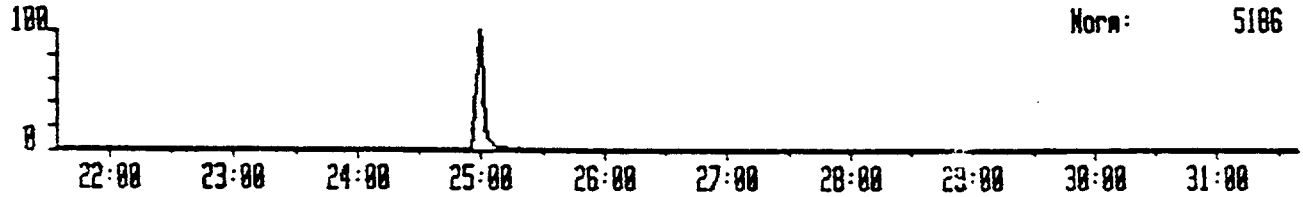
M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:ENTROPY I2-MM5-3



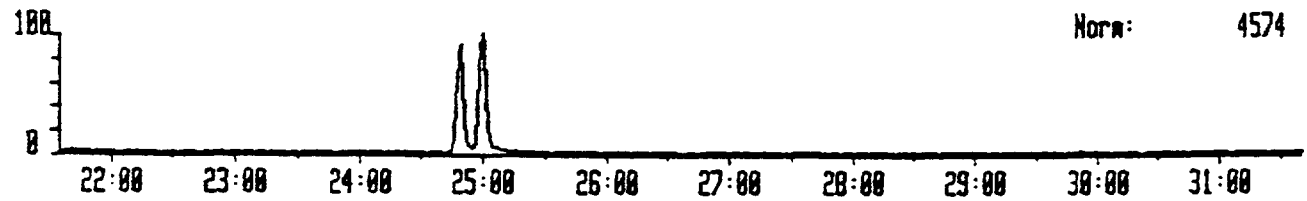
M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:ENTROPY I2-MM5-3



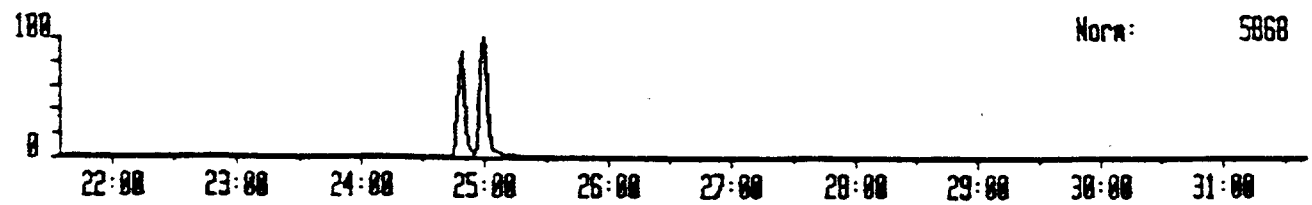
M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:ENTROPY I2-MM5-3



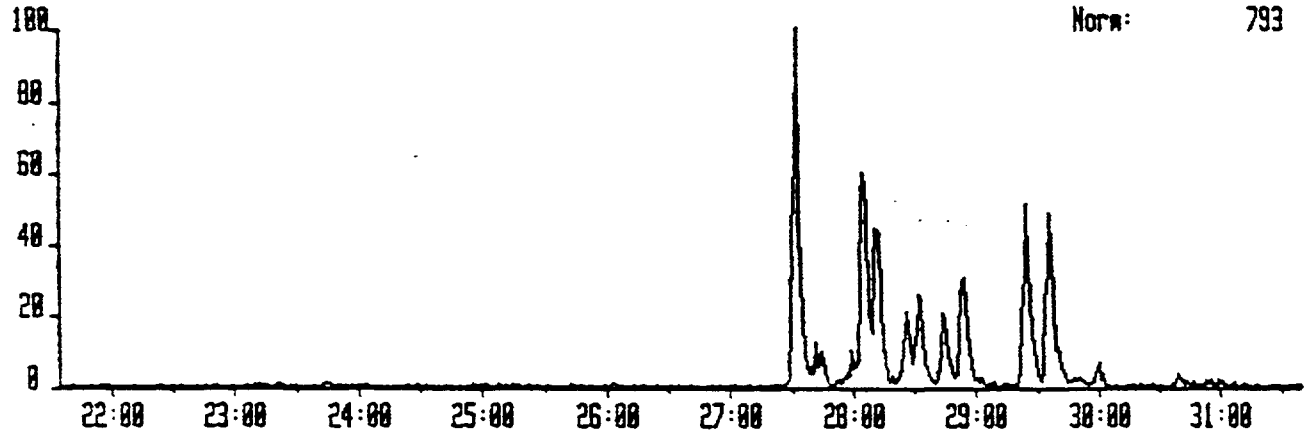
M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 331.9368
Text:ENTROPY I2-MM5-3



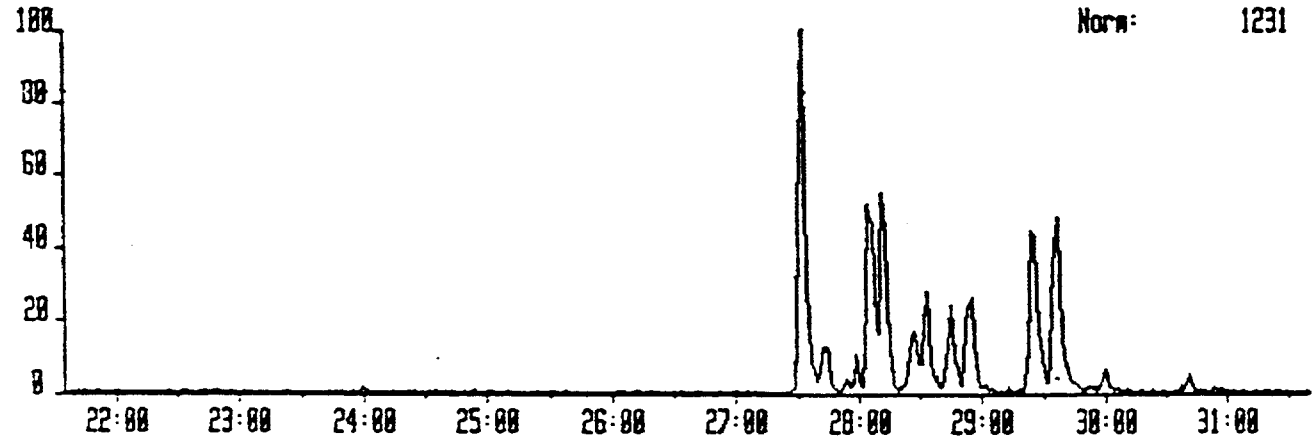
M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 333.9338
Text:ENTROPY I2-MM5-3



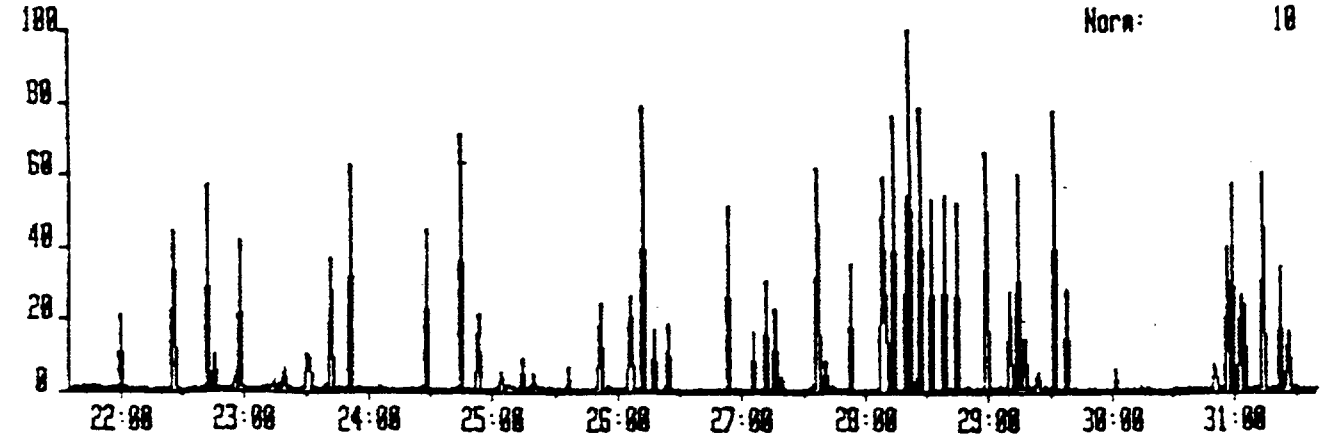
M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:ENTROPY I2-MM5-3



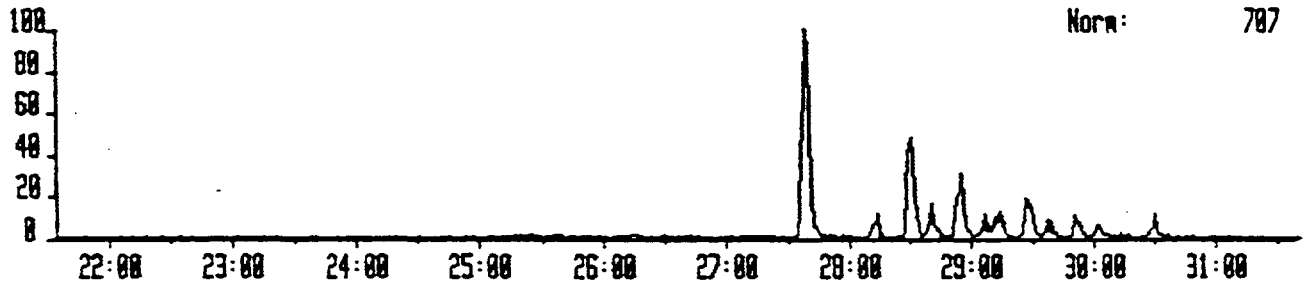
M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:ENTROPY I2-MM5-3



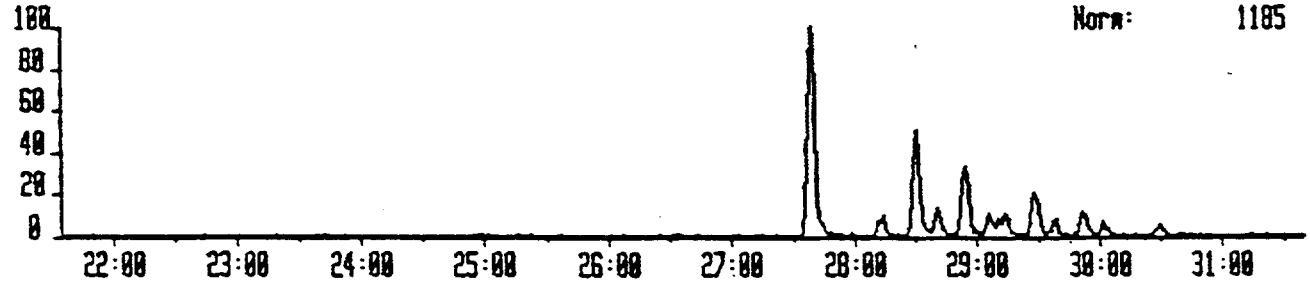
M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 407.8883
Text:ENTROPY I2-MM5-3



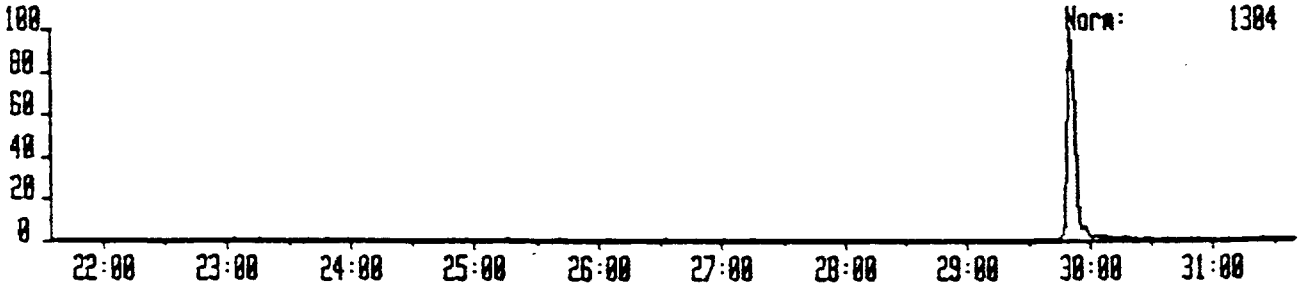
M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:ENTROPY I2-MM5-3



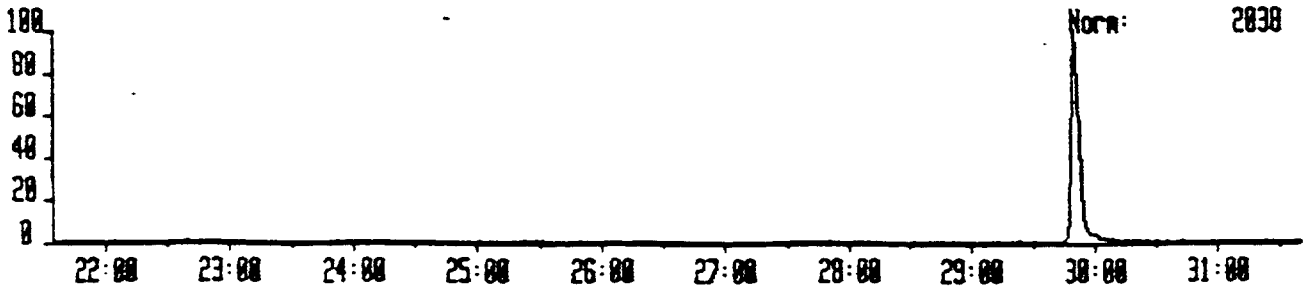
M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 355.8546
Text:ENTROPY I2-MM5-3



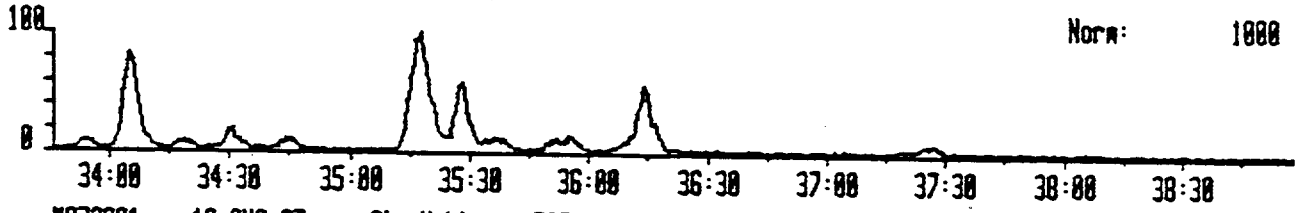
M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 365.8977
Text:ENTROPY I2-MM5-3



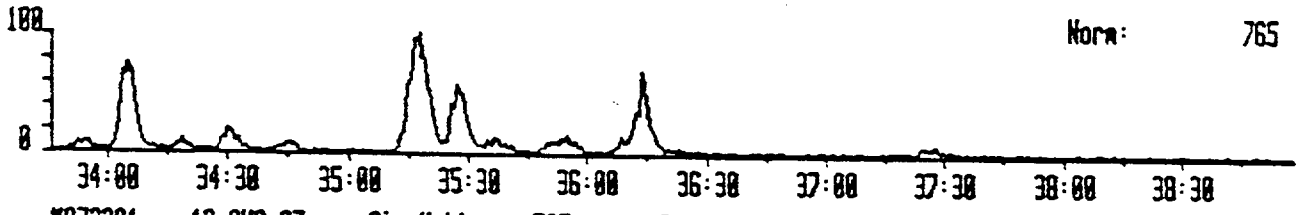
M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 367.8948
Text:ENTROPY I2-MM5-3



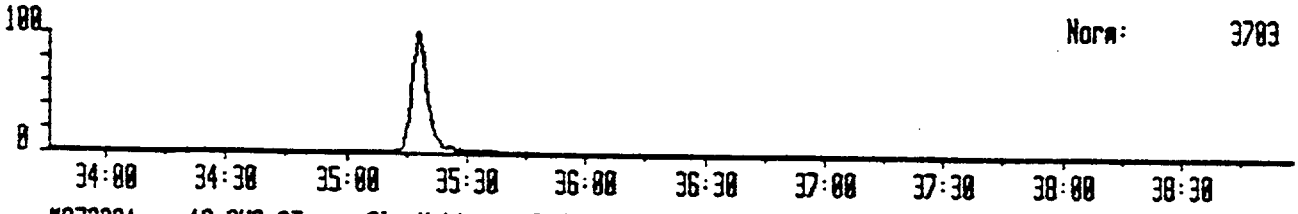
M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 373.8287
Text:ENTROPY I2-MM5-3



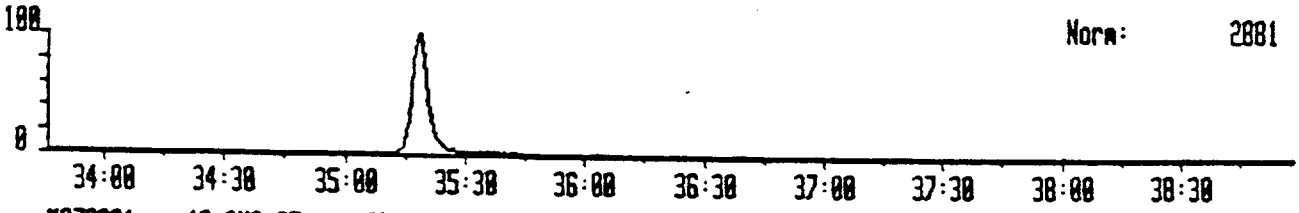
M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 375.8178
Text:ENTROPY I2-MM5-3



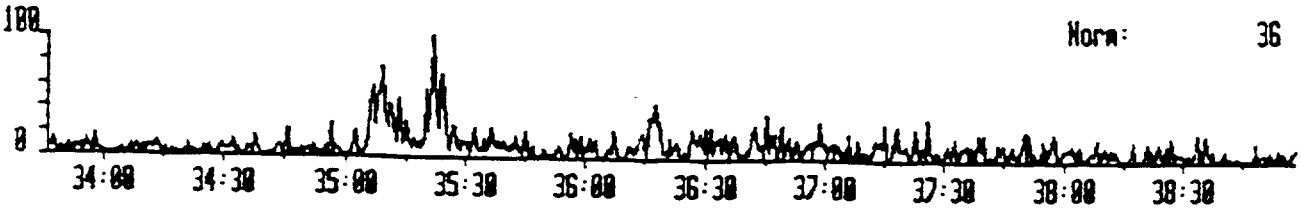
M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 385.8689
Text:ENTROPY I2-MM5-3



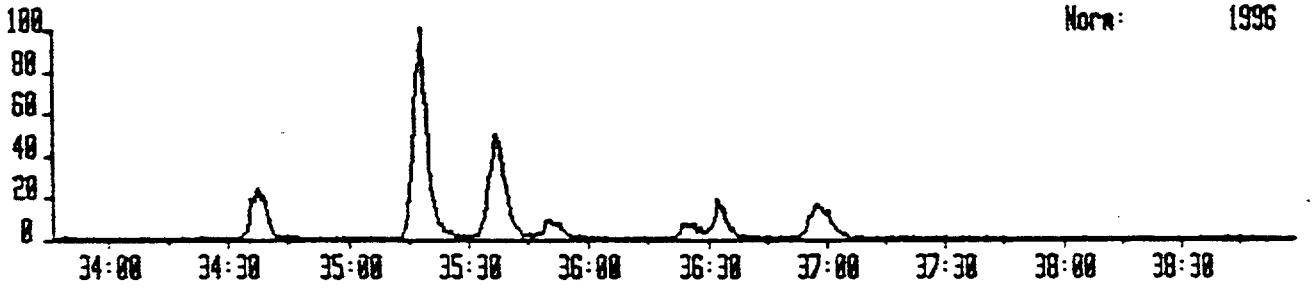
M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 387.8580
Text:ENTROPY I2-MM5-3



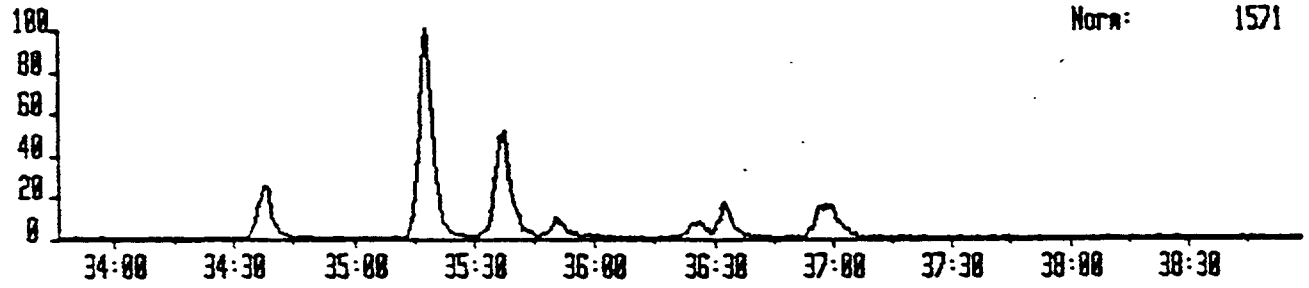
M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:ENTROPY I2-MM5-3



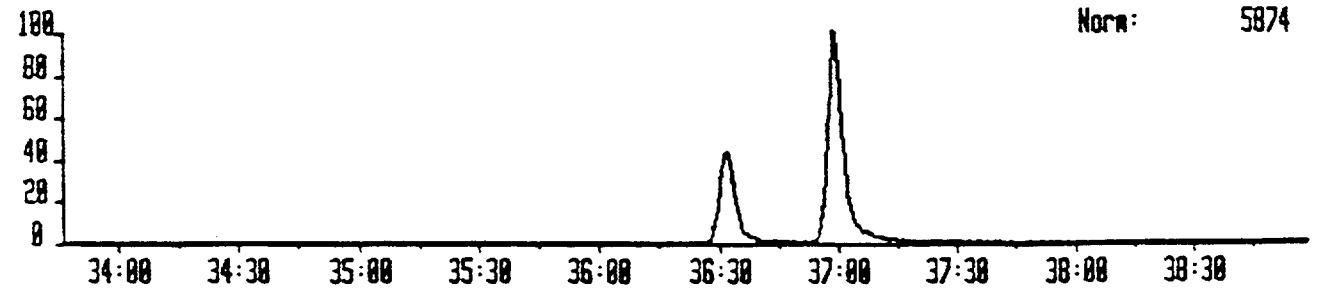
M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 389.8156
Text:ENTROPY I2-MM5-3



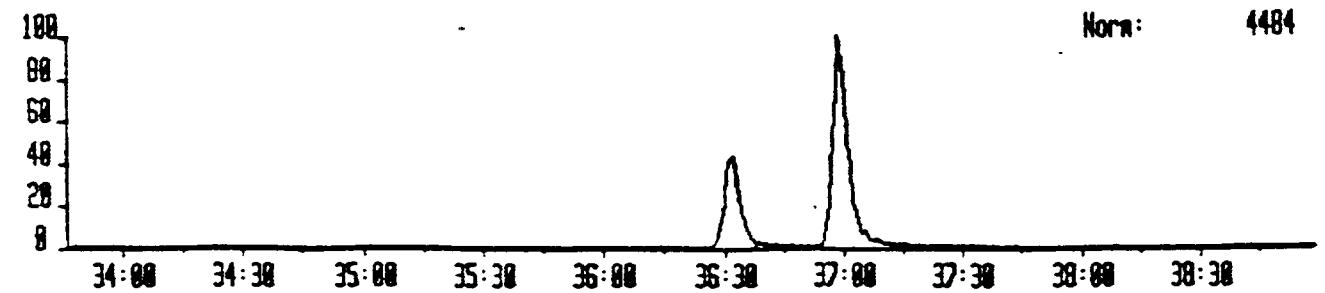
M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 391.8127
Text:ENTROPY I2-MM5-3



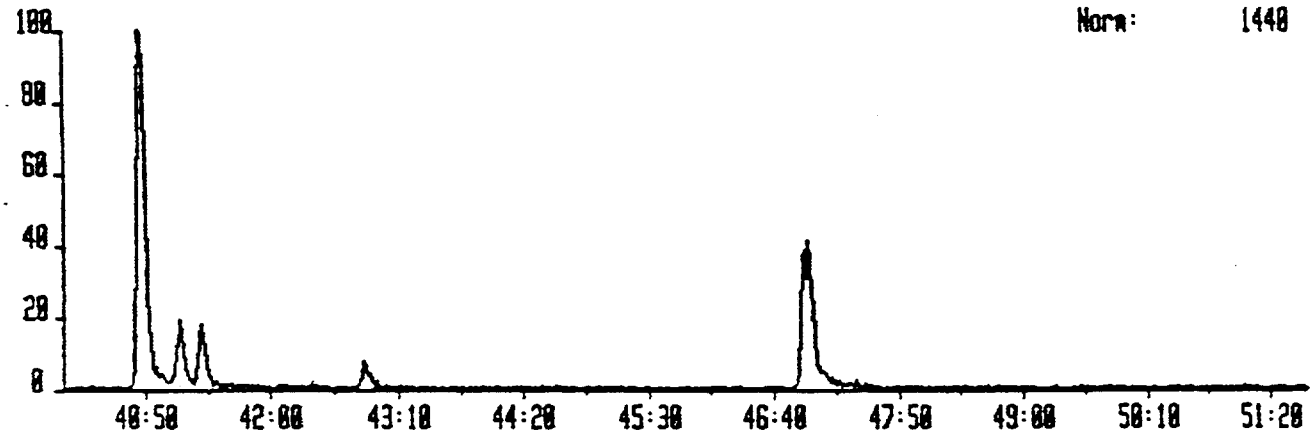
M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text:ENTROPY I2-MM5-3



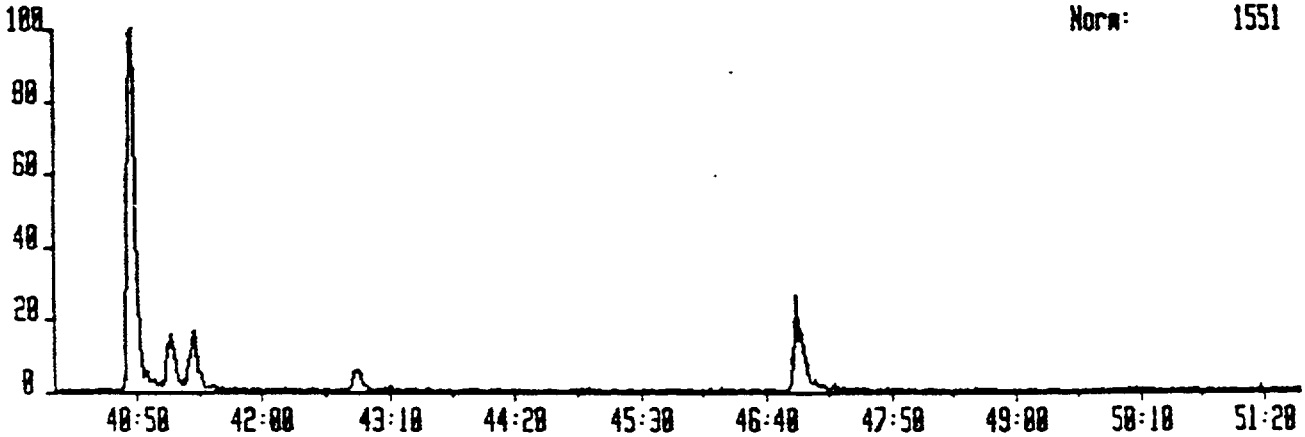
M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 403.8529
Text:ENTROPY I2-MM5-3



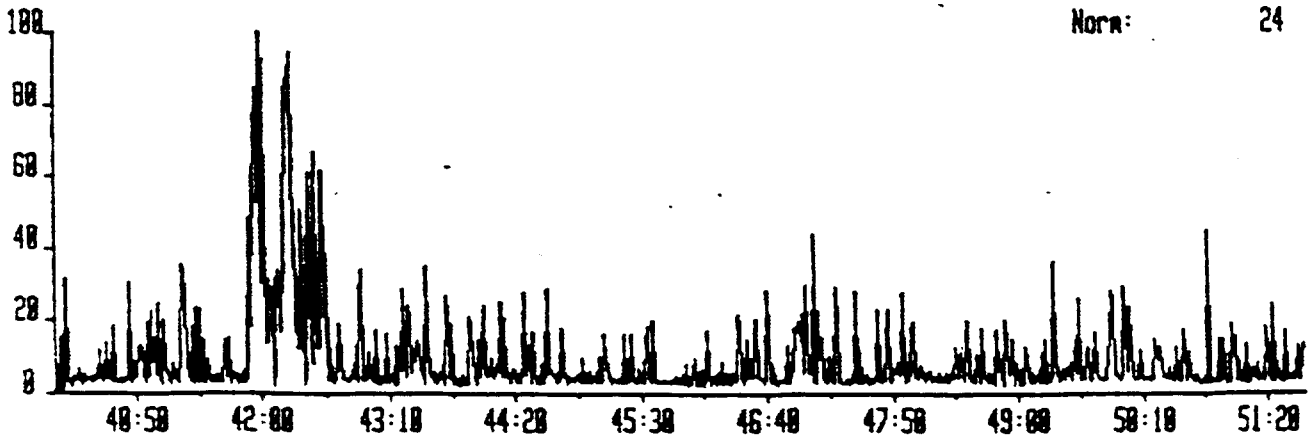
M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 487.7817
Text:ENTROPY I2-MM5-3



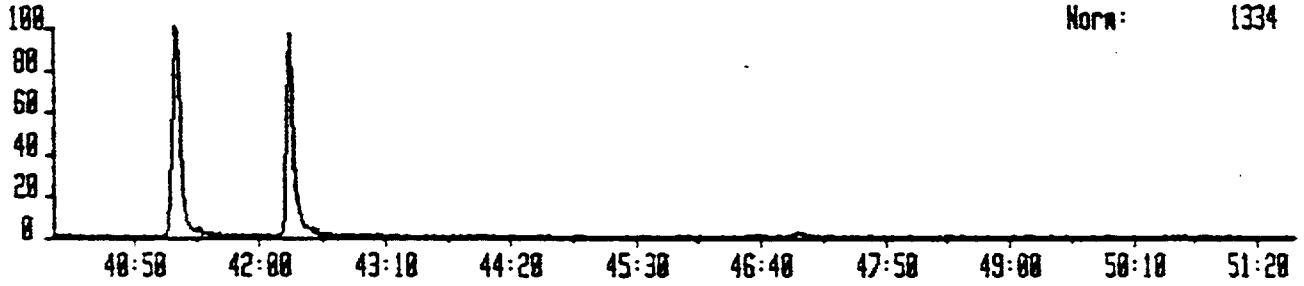
M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 489.7788
Text:ENTROPY I2-MM5-3



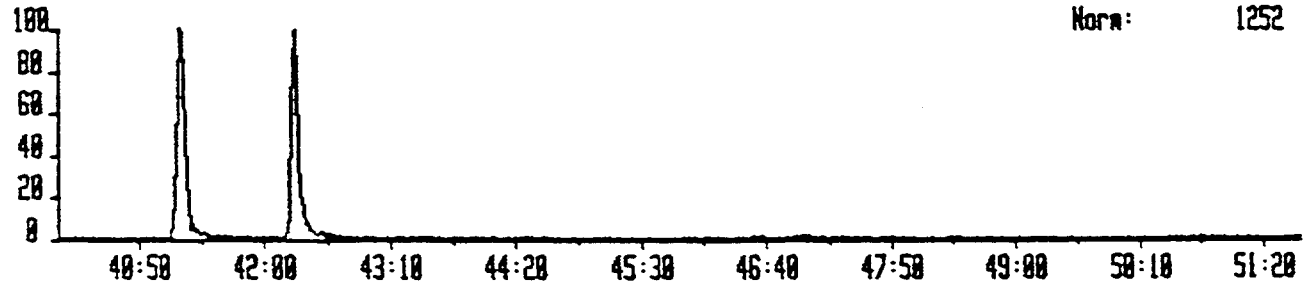
M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 477.7200
Text:ENTROPY I2-MM5-3



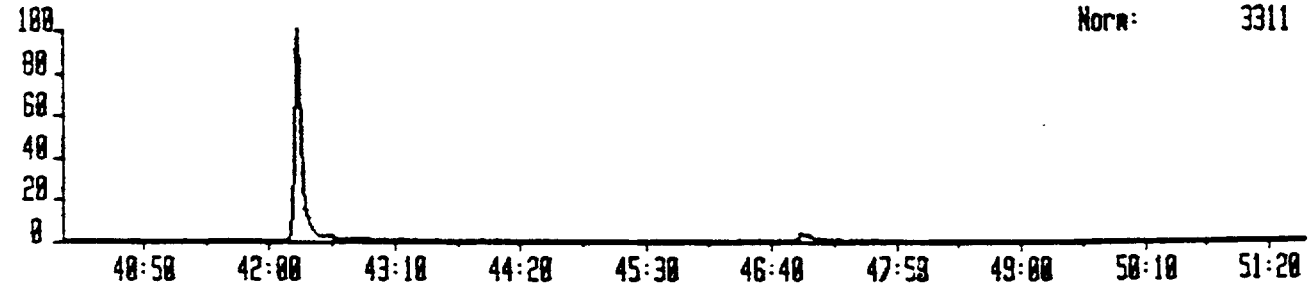
MB72291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:ENTROPY I2-MM5-3



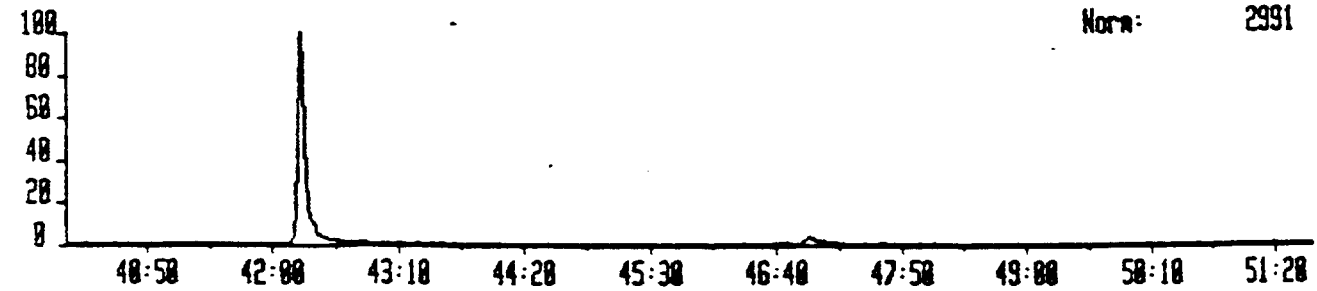
MB72291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:ENTROPY I2-MM5-3



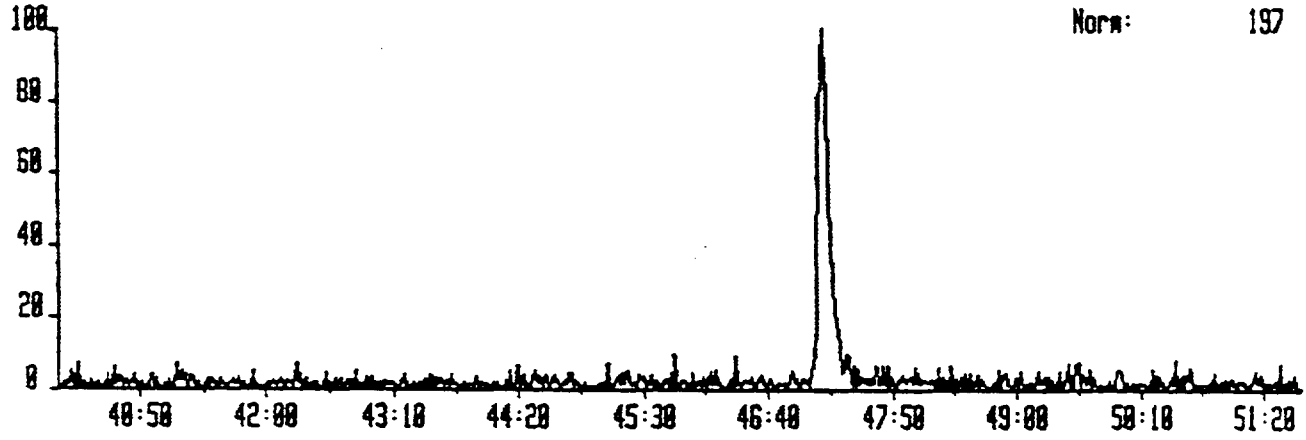
MB72291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:ENTROPY I2-MM5-3



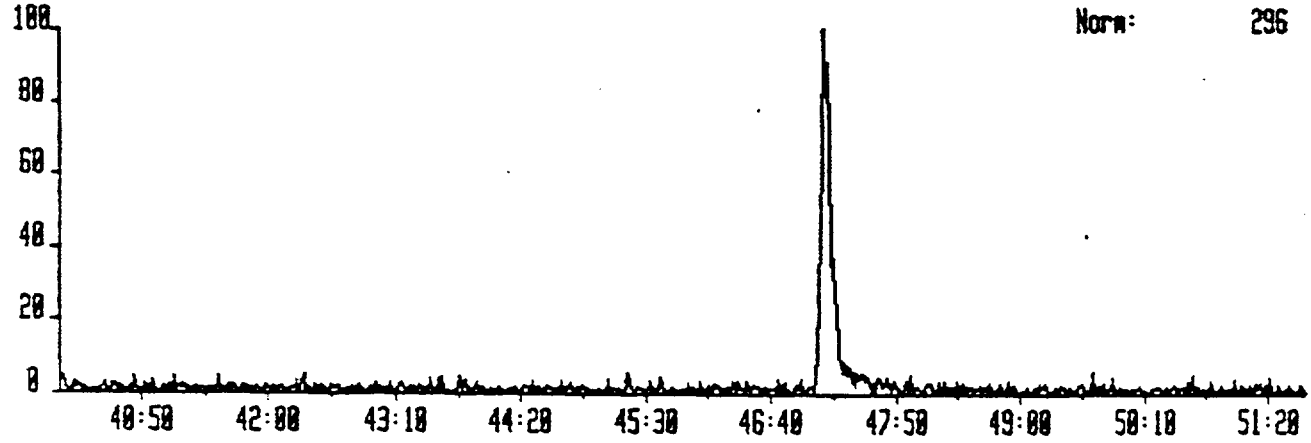
MB72291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:ENTROPY I2-MM5-3



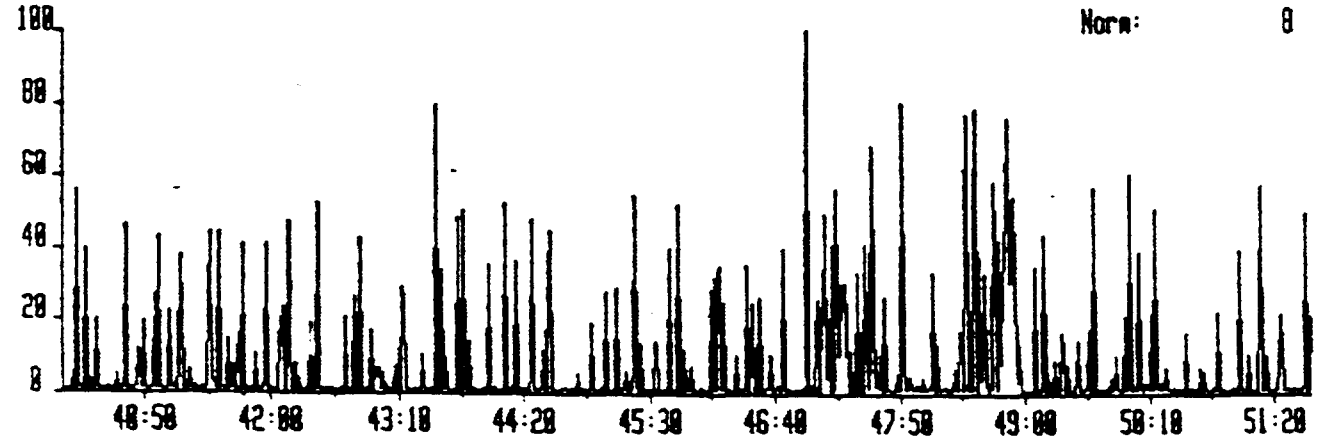
M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 441.7428
Text:ENTROPY I2-MM5-3



M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:ENTROPY I2-MM5-3

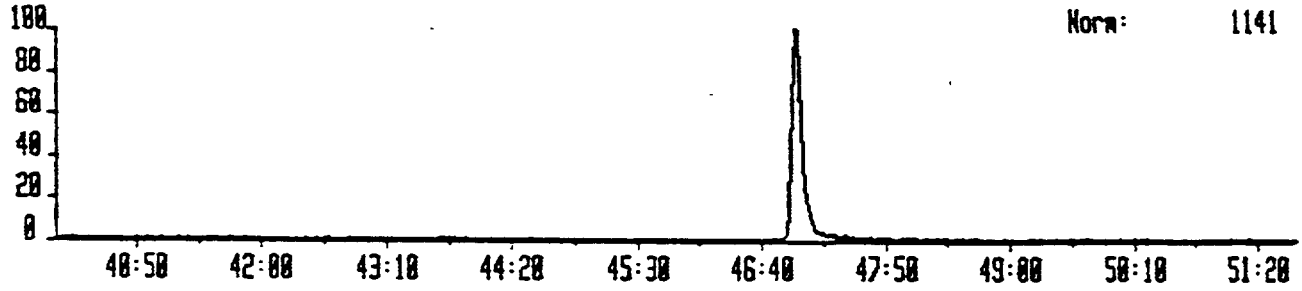


M872291 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 511.6810
Text:ENTROPY I2-MM5-3

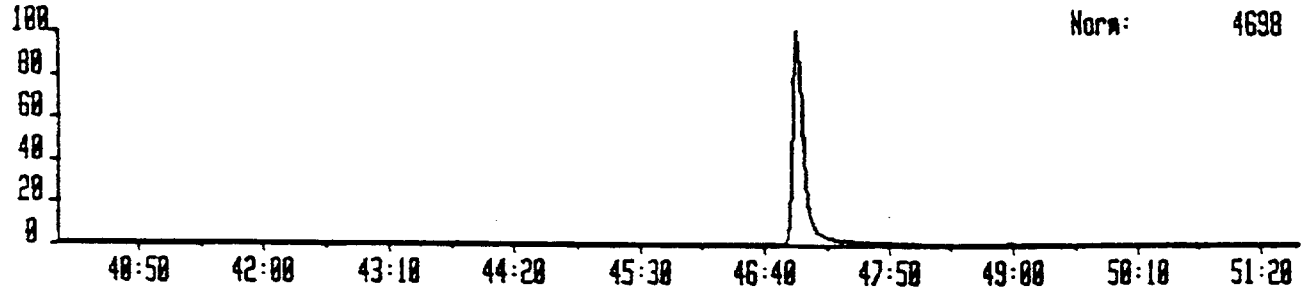


M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:ENTROPY I2-MM5-3

M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:ENTROPY I2-MM5-3



M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:ENTROPY I2-MM5-3



M872291 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 471.7758
Text:ENTROPY I2-MM5-3

TRIANGLE LABORATORIES, INC.

PCDD/PCDF ANALYSIS (D)

ANALYST: MC
DATE: 08/23/87

FILE NAME: M872292
SAMPLE ID: I2-MM5-4
CASE NO: ENTROPY
PROJ NO: 8701511

CONCAL: M872290

NAME	AMT (ng)	NUMBER	DL	EMPC	RATIO	RT
TOTAL TRICDD	0.241	1			1.16	
2378-TCDD	ND		0.010			
TOTAL TCDD	2.569	6			0.78	
12378-PCDD	ND			0.233	0.46	
TOTAL PCDD	4.755	9			0.61	
123478-HxCDD	0.220				1.07	36.25
123678-HxCDD	0.422				1.30	36.32
123789-HxCDD	0.664				1.37	36.57
TOTAL HxCDD	5.873	7			1.25	
1234678-HpCDD	1.966				0.94	42.17
TOTAL HpCDD	4.109	2			0.99	
OCDD	3.322				0.86	46.58
TOTAL TRICDF	6.376	5			1.04	
2378-TCDF	2.575				0.71	24.21
TOTAL TCDF	10.080	11			0.77	
12378-PCDF	0.445				0.60	28.32
23478-PCDF	ND			0.839	0.71	
TOTAL PCDF	6.133	9			0.64	
123478-HxCDF	0.997				1.28	35.17
123678-HxCDF	0.471				1.26	35.28
234678-HxCDF	0.667				1.19	36.14
123789-HxCDF	ND			0.015	0.74	
TOTAL HxCDF	3.588	9			1.22	
1234678-HpCDF	1.518				1.00	40.48
1234789-HpCDF	ND			0.090	0.78	
TOTAL HpCDF	1.871	2			1.04	
OCDF	0.374				0.87	47.10

SURROGATE RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
13C12-TCDF	4.76	95.20	0.79	24.19
37CL-TCDD	4.71	94.20		25.00
13C12-HxCDF	4.68	93.60	1.23	35.18

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
2378-13C12-TCDD	8.65	86.50	0.77	24.59
13C12-PCDD	8.93	89.30	0.59	29.50
13C12-HxCDD	8.48	84.80	1.31	36.31
13C12-HpCDD	8.31	83.10	1.00	42.16
13C12-OCDD	10.83	54.15	0.95	46.58

M872292I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
270	484.96	15.28
270	305.55	15.43
270	1607.02	16.19
270	891.91	16.38
270	583.05	16.55
270	1266.24	17.02
270	254.50	17.17
270	1610.92	17.26
272	375.58	15.28
272	292.62	15.43
272	103.70	16.07
272	1440.21	16.20
272	713.84	16.38
272	449.24	16.55
272	1202.46	17.02
272	282.07	17.17
272	1463.24	17.26
272	74.15	18.19
286	325.81	16.54
286	76.20	17.08
286	42.44	18.08
288	270.77	16.53
288	65.72	17.07
304	229.69	22.15
304	4450.82	22.34
304	1886.16	22.50
304	1322.52	23.10
304	3857.34	23.23
304	4281.01	23.36
304	1386.49	23.47
304	1757.03	23.57
304	1358.43	24.11
304	7018.88	24.21
304	2026.73	24.45
304	1292.12	24.57
304	163.93	25.11
304	28.23	25.19
304	107.53	25.57
304	163.89	26.02
304	10.21	26.32
306	294.50	22.15
306	5969.76	22.34
306	2541.17	22.50
306	1756.38	23.10
306	5209.34	23.23
306	5494.67	23.36
306	1927.59	23.46
306	2128.66	23.56
306	2350.54	24.11
306	9924.41	24.21

M872292I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
306	2506.88	24.45
306	2006.31	24.57
306	334.16	25.11
306	100.86	25.22
306	31.86	25.54
306	198.06	26.03
306	25.90	26.41
306	43.60	26.47
306	38.95	26.54
306	17.87	27.07
306	12.31	27.31
306	15.80	27.52
306	32.24	28.32
306	22.97	28.52
306	48.20	29.29
306	22.74	29.37
306	438.06	29.52
306	25.49	30.07
306	27.83	30.40
306	18.67	30.48
306	79.03	30.55
316	626.90	23.56
316	13763.50	24.19
318	151.70	22.47
318	645.82	23.56
318	17517.66	24.19
318	112.81	25.00
318	108.61	26.01
318	212.14	27.23
318	117.67	27.44
318	128.25	29.16
318	260.91	31.17
320	36.63	22.04
320	17.69	22.14
320	41.12	22.29
320	15.11	22.35
320	19.22	22.42
320	1702.56	23.03
320	1124.87	23.17
320	46.98	23.28
320	1902.58	23.52
320	1142.94	24.06
320	124.57	24.18
320	511.43	24.30
320	567.03	24.48
320	1450.83	24.54
320	219.49	25.09
320	269.41	25.20
320	89.31	25.59
320	15.92	26.31

M872292I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
320	12.94	26.38
320	13.60	27.08
320	21.34	27.16
320	18.06	27.21
320	36.17	27.40
320	11.93	27.46
322	87.43	22.42
322	2142.88	23.03
322	1197.22	23.17
322	22.98	23.28
322	26.28	23.34
322	2496.22	23.53
322	1547.27	24.06
322	606.81	24.29
322	2683.81	24.54
322	298.27	25.10
322	342.06	25.20
322	79.68	25.32
322	14.60	25.40
322	76.72	26.01
322	64.87	27.39
322	226.80	28.34
322	133.93	28.45
322	94.00	28.56
322	20.39	29.07
322	29.10	29.13
322	25.84	29.20
322	59.83	29.28
322	28.20	29.35
322	45.26	29.52
322	125.57	30.00
322	31.15	30.06
322	11.60	30.11
322	128.29	30.26
322	92.82	30.35
322	86.13	30.52
322	437.27	31.13
328	23062.34	25.00
328	104.63	25.25
332	144.82	23.02
332	283.22	23.25
332	154.64	23.40
332	184.99	24.19
332	16831.15	24.49
332	20440.90	24.59
332	508.85	25.50
332	280.63	26.29
332	197.89	27.48
334	21345.58	24.49
334	26631.51	24.59

M872292I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
334	114.10	29.51
338	2672.97	27.31
338	508.91	27.43
338	280.22	27.58
338	1668.10	28.05
338	1697.47	28.12
338	562.74	28.26
338	805.94	28.32
338	727.96	28.43
338	1047.57	28.54
338	31.77	29.09
338	33.41	29.14
338	1611.92	29.25
338	1779.30	29.36
338	56.40	29.49
338	163.30	29.59
338	51.85	30.39
338	23.55	30.54
338	21.36	31.05
340	4488.81	27.31
340	684.26	27.43
340	3122.87	28.05
340	2483.04	28.12
340	839.49	28.26
340	1335.31	28.32
340	1110.55	28.43
340	1652.01	28.54
340	18.86	29.10
340	2271.24	29.25
340	2553.19	29.36
340	245.72	30.00
340	23.42	30.13
340	16.11	30.23
340	143.59	30.40
340	80.87	30.55
354	49.56	27.10
354	2191.63	27.39
354	55.88	27.51
354	147.37	28.14
354	1323.37	28.30
354	331.34	28.40
354	849.00	28.54
354	256.36	29.06
354	367.73	29.13
354	629.35	29.28
354	186.74	29.38
354	263.45	29.52
354	199.91	30.02
354	33.82	30.13
354	215.01	30.29

M872292I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
356	3924.96	27.39
356	16.36	27.54
356	359.54	28.13
356	2228.71	28.30
356	591.57	28.40
356	1214.83	28.54
356	488.81	29.06
356	618.98	29.12
356	902.10	29.28
356	426.89	29.37
356	569.09	29.51
356	332.88	30.03
356	15.11	30.12
356	321.86	30.29
356	27.15	30.40
356	12.74	30.46
366	6227.11	29.50
368	10484.49	29.50
374	296.59	33.54
374	3250.92	34.05
374	393.48	34.19
374	614.81	34.31
374	193.79	34.44
374	4993.07	35.17
374	2581.85	35.28
374	494.00	35.37
374	742.62	35.54
374	2720.25	36.14
374	29.13	36.29
374	54.93	36.38
374	19.52	36.44
374	38.68	36.55
374	38.35	37.18
374	338.72	37.26
374	37.60	37.37
374	20.42	38.13
376	218.89	33.54
376	2510.62	34.05
376	326.99	34.20
376	519.78	34.31
376	198.94	34.45
376	3915.75	35.18
376	2051.78	35.28
376	407.04	35.36
376	41.50	35.45
376	702.67	35.56
376	2294.96	36.14
376	34.16	36.29
376	37.60	36.32
376	32.04	36.37

M872292I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
376	25.96	36.41
376	15.39	36.55
376	12.74	36.58
376	51.50	37.20
376	195.35	37.26
376	14.90	37.41
376	10.27	38.11
376	10.31	38.20
376	16.48	38.48
386	19801.56	35.18
388	16069.10	35.18
390	13.17	34.22
390	1855.22	34.37
390	39.24	34.47
390	36.34	34.56
390	19.31	35.00
390	7327.67	35.17
390	4110.22	35.37
390	988.51	35.51
390	21.90	36.06
390	16.12	36.12
390	599.36	36.25
390	1311.29	36.32
390	72.41	36.40
390	1821.13	36.57
390	45.26	37.09
390	66.50	37.12
390	12.49	37.21
392	1458.36	34.37
392	16.79	34.46
392	5533.76	35.17
392	3424.70	35.37
392	633.47	35.50
392	17.49	36.06
392	16.07	36.10
392	562.71	36.25
392	1005.71	36.32
392	20.63	36.41
392	1332.72	36.57
392	24.04	37.14
392	13.53	37.17
392	30.44	37.23
392	19.76	37.46
402	15487.59	36.31
402	30413.73	36.59
404	11825.77	36.31
404	22615.26	36.59
408	6710.21	40.48
408	1033.62	41.09
408	613.91	41.22

M872292I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
408	38.50	41.52
408	38.32	42.18
408	28.24	42.27
408	302.11	42.51
408	26.67	44.57
408	15.52	45.08
410	6678.98	40.48
410	968.30	41.10
410	747.67	41.23
410	30.78	42.22
410	23.39	42.44
410	386.60	42.52
410	48.86	43.02
410	16.47	43.13
410	28.32	44.40
410	23.79	44.58
410	32.83	45.41
410	1664.36	46.58
410	60.12	47.18
410	18.11	49.22
410	32.36	49.54
424	15.79	40.12
424	19.95	40.29
424	5808.08	41.14
424	40.59	41.46
424	5067.36	42.17
424	261.63	42.31
424	28.40	43.23
424	24.29	43.46
424	41.42	43.54
424	21.68	44.59
426	5601.03	41.14
426	81.56	41.43
426	5402.55	42.16
426	50.90	43.11
426	81.25	46.33
426	92.23	46.59
426	44.74	47.05
436	31.10	40.45
436	111.74	41.13
436	17921.37	42.16
436	473.20	42.43
436	59.55	43.08
436	38.18	44.10
436	36.98	44.51
436	26.66	45.29
438	113.97	41.13
438	17886.55	42.16
438	117.86	42.49
438	40.31	43.52

M872292I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
438	20.78	44.23
438	21.31	44.39
438	16.28	44.51
438	22.73	45.14
438	24.27	45.56
438	20.95	46.31
438	94.42	46.44
438	689.51	46.58
438	72.89	47.40
442	21.89	41.13
442	31.16	42.17
442	601.27	47.10
442	33.17	48.47
442	21.81	50.40
444	15.29	40.17
444	20.22	41.30
444	37.52	44.25
444	23.14	45.19
444	19.16	46.11
444	690.06	47.10
444	29.33	47.24
444	29.13	49.21
444	22.45	49.47
458	60.56	43.40
458	4133.20	46.58
460	4788.50	46.58
460	138.09	47.21
470	28253.43	46.58
470	332.33	47.41
470	133.17	47.50
470	71.98	48.02
470	73.32	48.12
470	20.99	48.37
470	49.38	49.25
472	29687.03	46.58
472	23.68	48.04
472	77.53	48.16
472	71.50	48.36
472	24.35	49.31
472	34.43	49.45
*** Total ***		
****	655296.88	12591.06

M872292B
MATCHED EGC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
270	1.29	15.28	860.54	.F.	.F.	0.000
270	1.04	15.43	598.17	.T.	.F.	0.000
270	1.12	16.19	3047.23	.T.	.F.	0.000
270	1.25	16.38	1605.75	.F.	.F.	0.000
270	1.30	16.55	1032.29	.F.	.F.	0.000
270	1.05	17.02	2468.70	.T.	.F.	0.000
270	0.90	17.17	536.57	.T.	.F.	0.000
270	1.10	17.26	3074.16	.T.	.F.	0.000
286	1.20	16.54	596.58	.F.	.F.	0.000
286	1.16	17.08	141.92	.T.	.F.	0.000
304	0.78	22.15	524.19	.T.	.F.	0.891
304	0.75	22.34	10420.58	.T.	.F.	0.903
304	0.74	22.50	4427.33	.T.	.F.	0.914
304	0.75	23.10	3078.90	.T.	.F.	0.927
304	0.74	23.23	9066.68	.T.	.F.	0.936
304	0.78	23.36	9775.68	.T.	.F.	0.945
304	0.72	23.47	3314.08	.T.	.F.	0.952
304	0.83	23.57	3885.69	.T.	.F.	0.959
304	0.58	24.11	3708.97	.F.	.F.	0.968
304	0.71	24.21	16943.29	.T.	.T.	0.975
304	0.81	24.45	4533.61	.T.	.F.	0.991
304	0.64	24.57	3298.43	.F.	.F.	0.999
304	0.49	25.11	498.09	.F.	.F.	1.008
304	0.83	26.02	361.95	.T.	.F.	1.042
316	0.97	23.56	1272.72	.F.	.F.	0.958
316	0.79	24.19	31281.16	.T.	.T.	0.973
320	0.22	22.42	106.65	.F.	.F.	0.909
320	0.79	23.03	3845.44	.T.	.F.	0.923
320	0.94	23.17	2322.09	.F.	.F.	0.932
320	2.04	23.28	69.96	.F.	.F.	0.939
320	0.76	23.52	4398.80	.T.	.F.	0.955
320	0.74	24.06	2690.21	.T.	.F.	0.965
320	0.84	24.30	1118.24	.T.	.F.	0.981
320	0.54	24.54	4134.64	.F.	.F.	0.997
320	0.74	25.09	517.76	.T.	.F.	1.007
320	0.79	25.20	611.47	.T.	.F.	1.014
320	1.16	25.59	166.03	.F.	.F.	1.040
320	0.56	27.40	101.04	.F.	.F.	1.107
328	0.00	25.00	23062.34	.T.	.T.	1.001
328	0.00	25.25	104.63	.T.	.F.	1.017
332	0.79	24.49	38176.73	.T.	.T.	0.993
332	0.77	24.59	47072.41	.T.	.T.	1.000
338	0.60	27.31	7161.78	.T.	.F.	0.922
338	0.74	27.43	1193.17	.F.	.F.	0.929
338	0.53	28.05	4790.97	.T.	.F.	0.941
338	0.68	28.12	4180.51	.T.	.F.	0.945
338	0.67	28.26	1402.23	.T.	.F.	0.953
338	0.60	28.32	2141.25	.T.	.T.	0.956
338	0.66	28.43	1838.51	.T.	.F.	0.963
338	0.63	28.54	2699.58	.T.	.F.	0.969

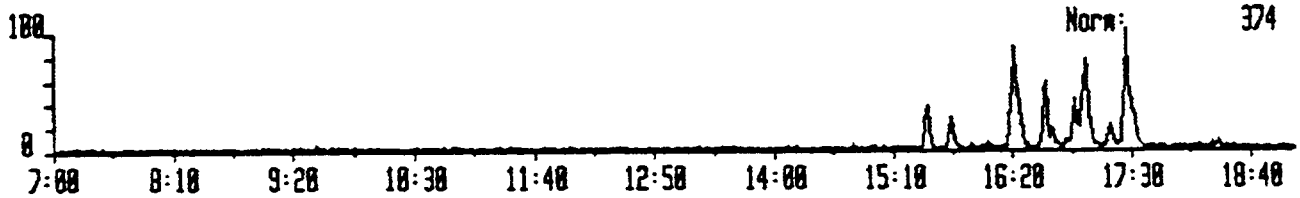
M872292B
MATCHED EGC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
338	1.68	29.09	50.63	.F.	.F.	0.977
338	0.71	29.25	3883.16	.F.	.T.	0.986
338	0.70	29.36	4332.49	.T.	.F.	0.992
338	0.66	29.59	409.02	.T.	.F.	1.005
338	0.36	30.39	195.44	.F.	.F.	1.027
338	0.29	30.54	104.42	.F.	.F.	1.036
354	0.56	27.39	6116.59	.T.	.F.	0.927
354	0.41	28.14	506.91	.F.	.F.	0.946
354	0.59	28.30	3552.08	.T.	.F.	0.955
354	0.56	28.40	922.91	.T.	.F.	0.961
354	0.70	28.54	2063.83	.T.	.F.	0.969
354	0.52	29.06	745.17	.T.	.F.	0.975
354	0.59	29.13	986.71	.T.	.F.	0.979
354	0.70	29.28	1531.45	.T.	.F.	0.988
354	0.44	29.38	613.63	.F.	.F.	0.993
354	0.46	29.52	832.54	.F.	.T.	1.001
354	0.60	30.02	532.79	.T.	.F.	1.007
354	2.24	30.13	48.93	.F.	.F.	1.013
354	0.67	30.29	536.87	.T.	.F.	1.022
366	0.59	29.50	16711.60	.T.	.T.	1.000
374	1.35	33.54	515.48	.T.	.F.	0.928
374	1.29	34.05	5761.54	.T.	.F.	0.933
374	1.20	34.19	720.47	.T.	.F.	0.940
374	1.18	34.31	1134.59	.T.	.F.	0.945
374	0.97	34.44	392.73	.F.	.F.	0.951
374	1.28	35.17	8908.82	.T.	.T.	0.966
374	1.26	35.28	4633.63	.T.	.T.	0.971
374	1.21	35.37	901.04	.T.	.F.	0.975
374	1.06	35.54	1445.29	.T.	.F.	0.983
374	1.19	36.14	5015.21	.T.	.T.	0.992
374	0.85	36.29	63.29	.F.	.F.	0.999
374	1.71	36.38	86.97	.F.	.F.	1.003
374	2.51	36.55	54.07	.F.	.F.	1.011
374	0.74	37.18	89.85	.F.	.T.	1.021
374	1.73	37.26	534.07	.F.	.F.	1.025
374	1.99	38.13	30.69	.F.	.F.	1.047
386	1.23	35.18	35870.66	.T.	.T.	0.967
390	1.27	34.37	3313.58	.T.	.F.	0.948
390	2.34	34.47	56.03	.F.	.F.	0.953
390	1.32	35.17	12861.43	.T.	.F.	0.966
390	1.20	35.37	7534.92	.T.	.F.	0.975
390	1.56	35.51	1621.98	.F.	.F.	0.982
390	1.25	36.06	39.39	.T.	.F.	0.989
390	1.00	36.12	32.19	.F.	.F.	0.991
390	1.07	36.25	1162.07	.T.	.T.	0.997
390	1.30	36.32	2317.00	.T.	.T.	1.000
390	3.51	36.40	93.04	.F.	.F.	1.004
390	1.37	36.57	3153.85	.T.	.T.	1.012
390	2.77	37.12	90.54	.F.	.F.	1.019
390	0.41	37.21	42.93	.F.	.F.	1.023

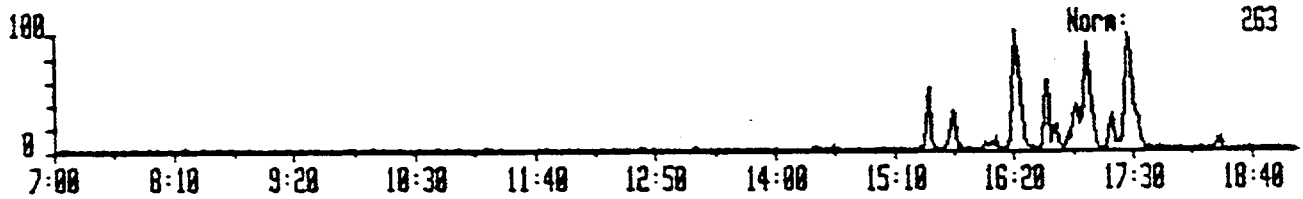
M872292B
MATCHED EGC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
402	1.31	36.31	27313.36	.T.	.T.	1.000
402	1.34	36.59	53028.99	.T.	.T.	1.013
408	1.00	40.48	13389.19	.T.	.T.	0.965
408	1.07	41.09	2001.92	.T.	.F.	0.974
408	0.82	41.22	1361.58	.F.	.F.	0.979
408	0.78	42.51	688.71	.F.	.T.	1.014
408	1.12	44.57	50.46	(T.F	.F.	1.063
424	1.04	41.14	11409.11	.T.	.F.	0.976
424	0.94	42.17	10469.91	.T.	.T.	1.000
436	0.98	41.13	225.71	.T.	.F.	0.975
436	1.00	42.16	35807.92	.T.	.T.	1.000
436	2.27	44.51	53.26	.F.	.F.	1.061
442	0.87	47.10	1291.33	.T.	.T.	1.004
458	0.86	46.58	8921.70	.T.	.T.	1.000
470	0.95	46.58	57940.46	.T.	.T.	1.000
470	3.04	48.02	95.66	.F.	.F.	1.023
470	0.29	48.37	92.49	.F.	.F.	1.035
*** Total ***						
***	116.9	3548.0	641555.98			105.06

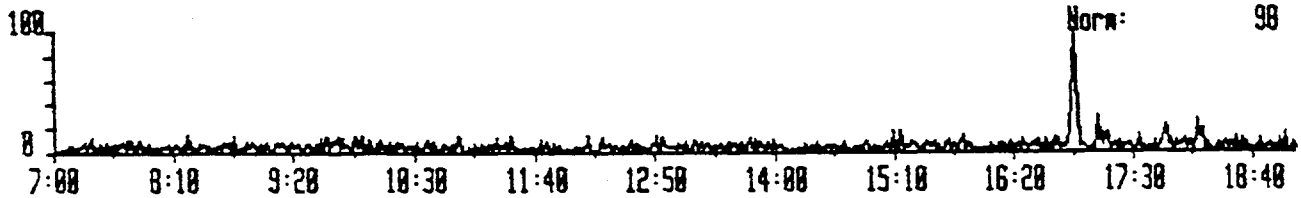
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 1 Mass 269.9406
Text:ENTROPY I2-MM5-4



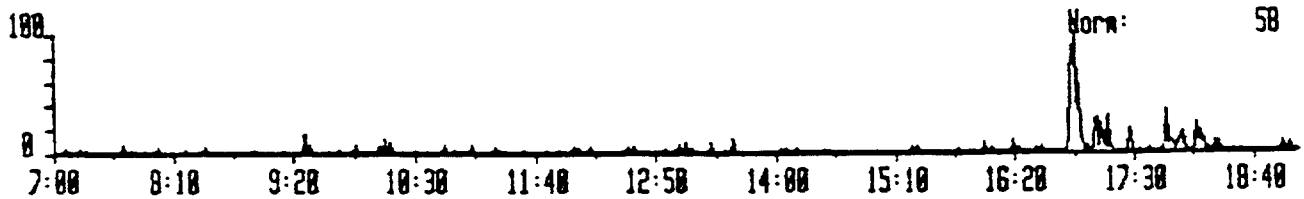
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 1 Mass 271.9377
Text:ENTROPY I2-MM5-4



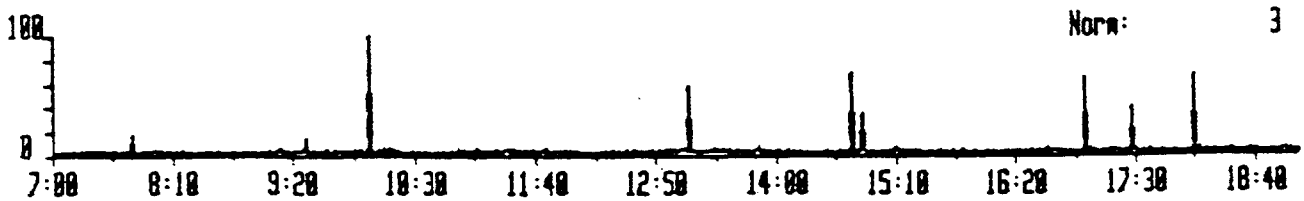
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 1 Mass 285.9355
Text:ENTROPY I2-MM5-4



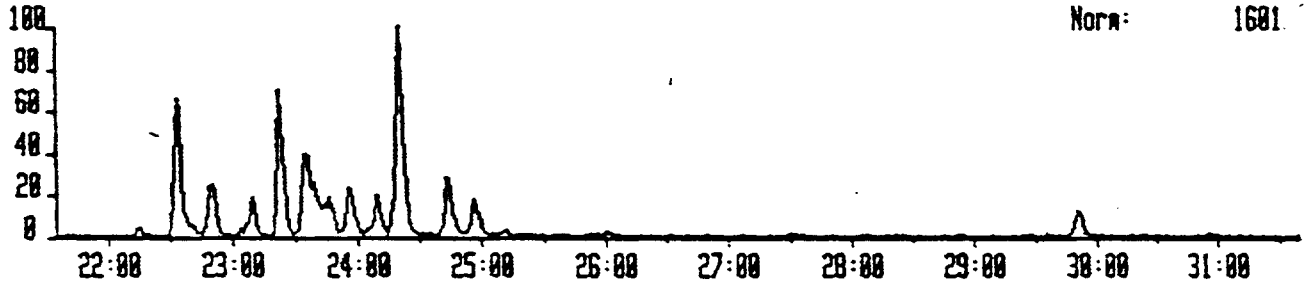
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:ENTROPY I2-MM5-4



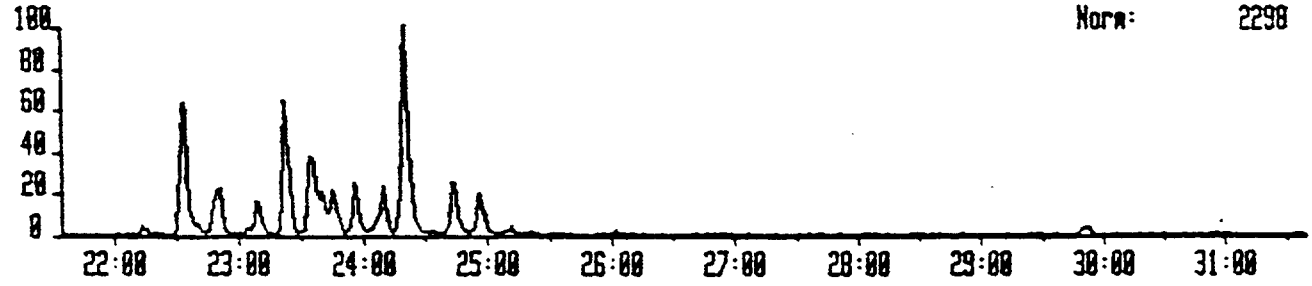
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 1 Mass 339.8798
Text:ENTROPY I2-MM5-4



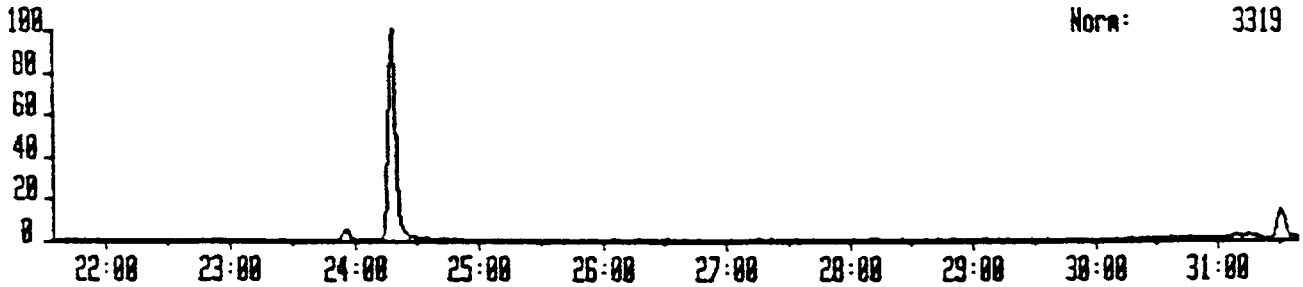
M872292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 303.9816
Text:ENTROPY I2-MM5-4



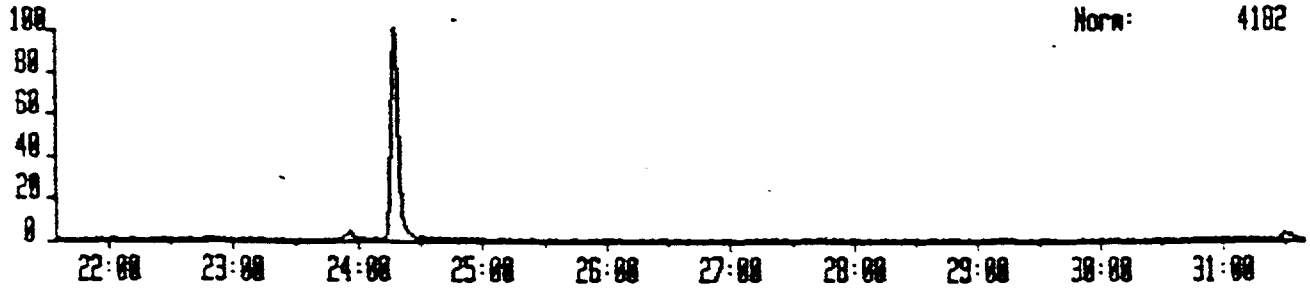
M872292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 305.8987
Text:ENTROPY I2-MM5-4



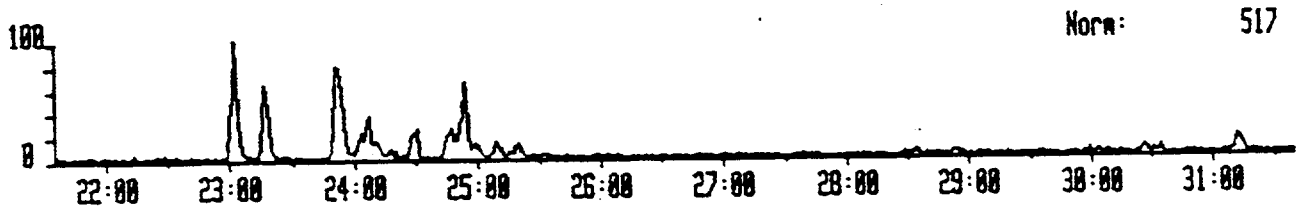
M872292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 315.9419
Text:ENTROPY I2-MM5-4



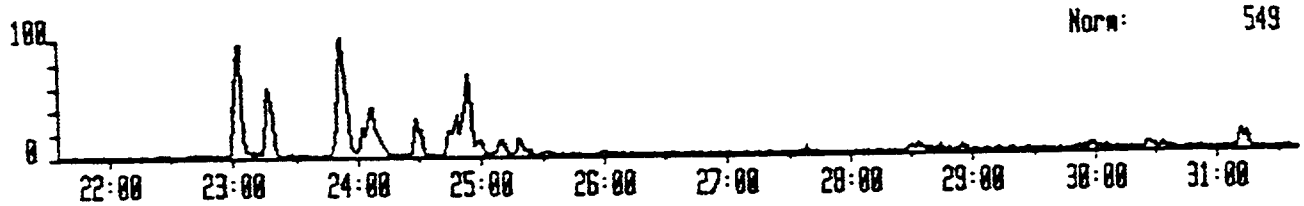
M872292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 317.9389
Text:ENTROPY I2-MM5-4



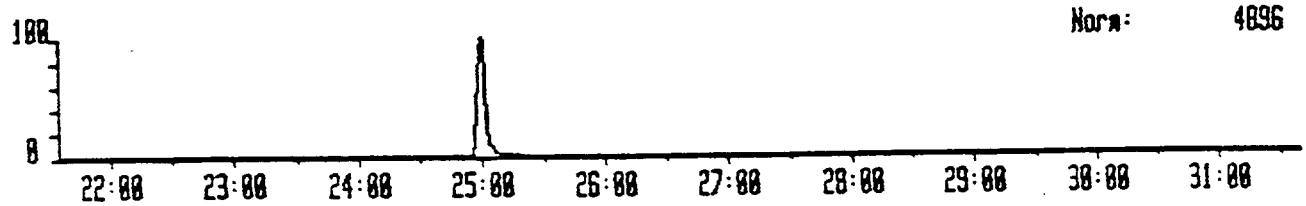
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:ENTROPY I2-MM5-4



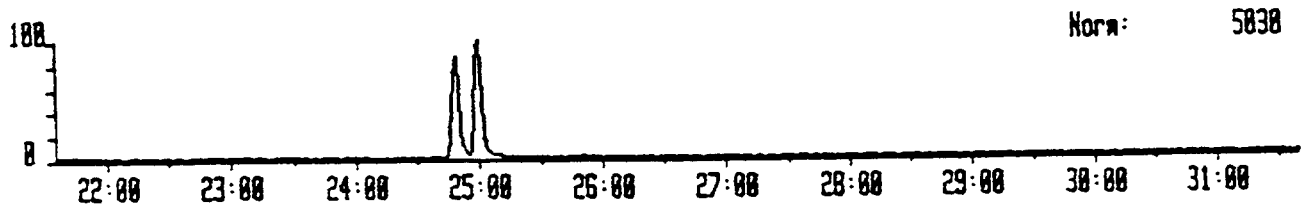
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:ENTROPY I2-MM5-4



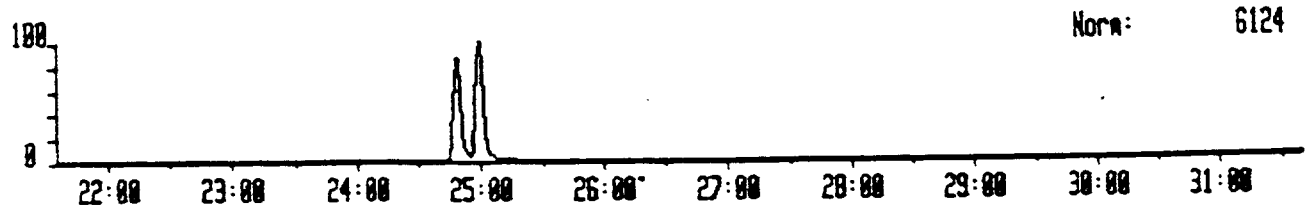
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:ENTROPY I2-MM5-4



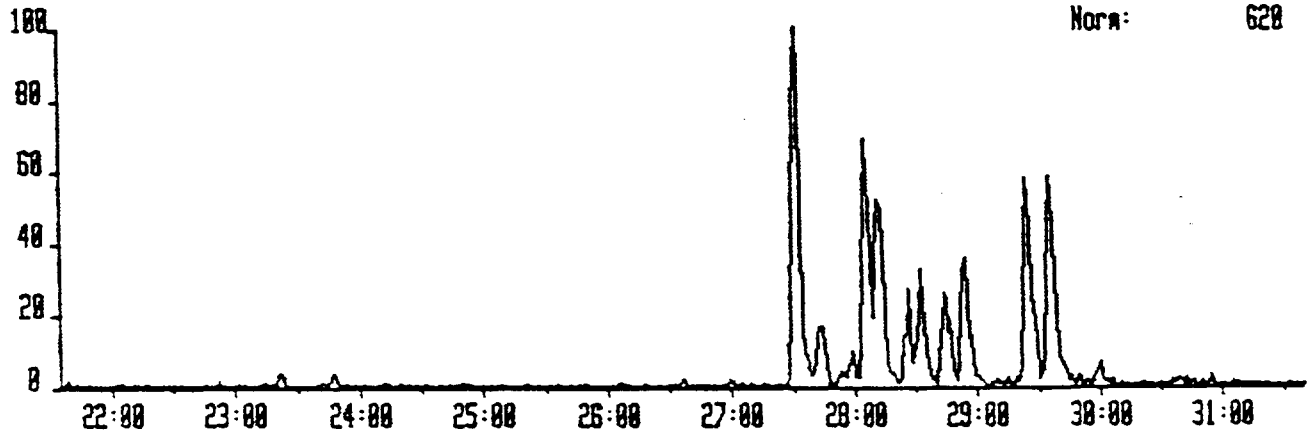
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 331.9368
Text:ENTROPY I2-MM5-4



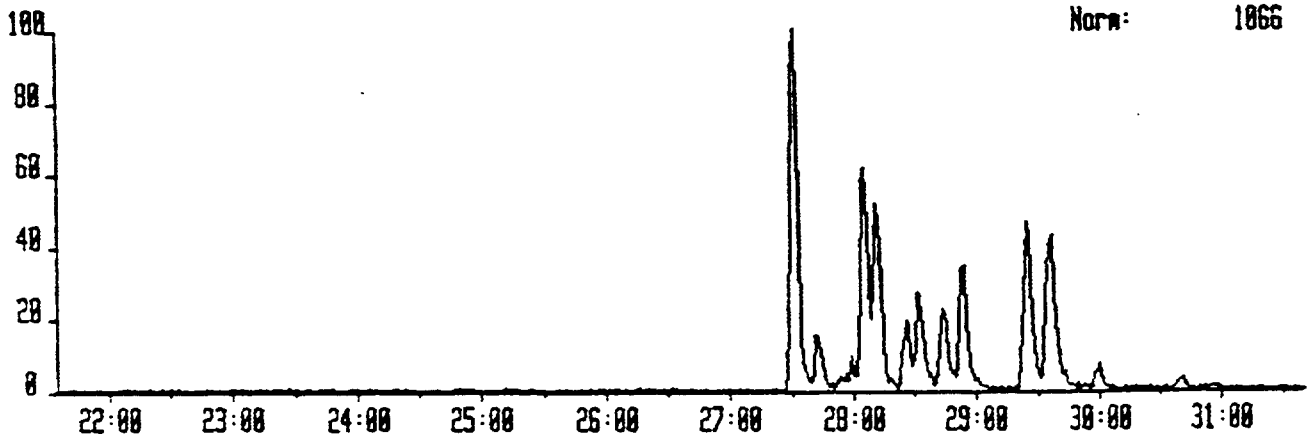
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 333.9338
Text:ENTROPY I2-MM5-4



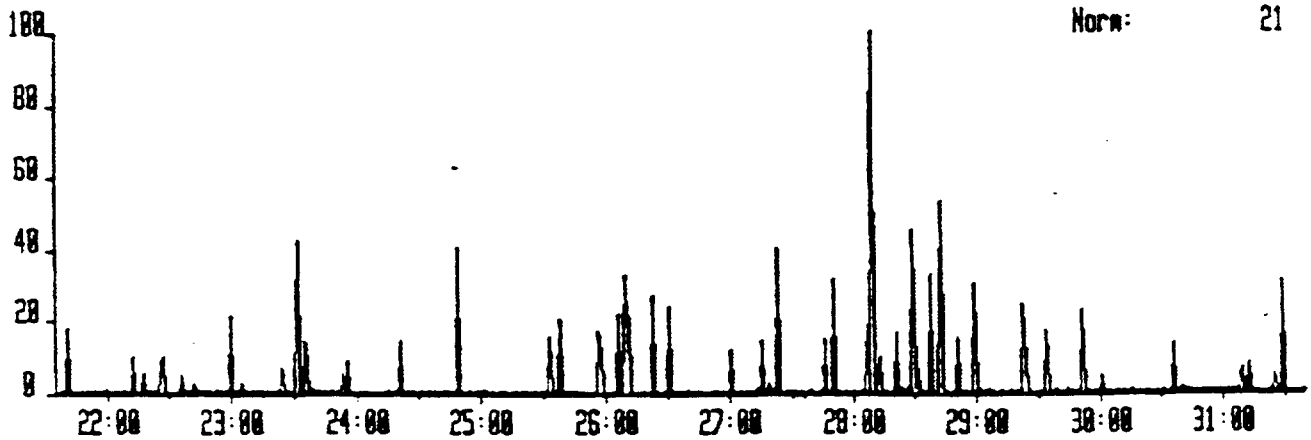
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:ENTROPY I2-MM5-4



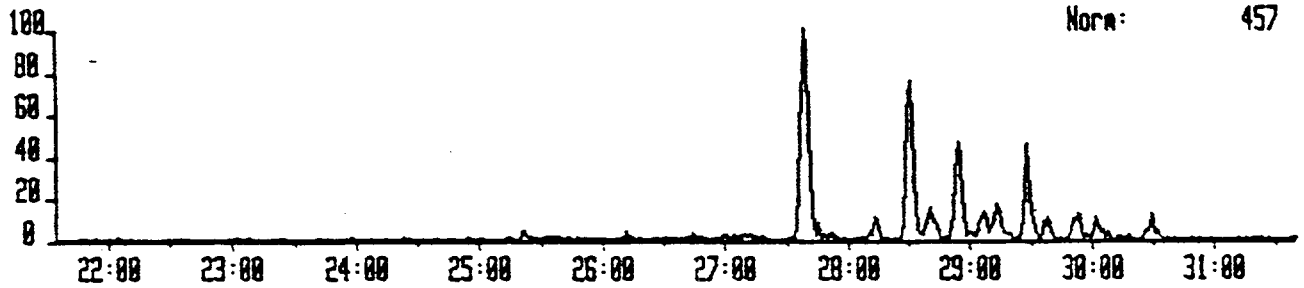
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:ENTROPY I2-MM5-4



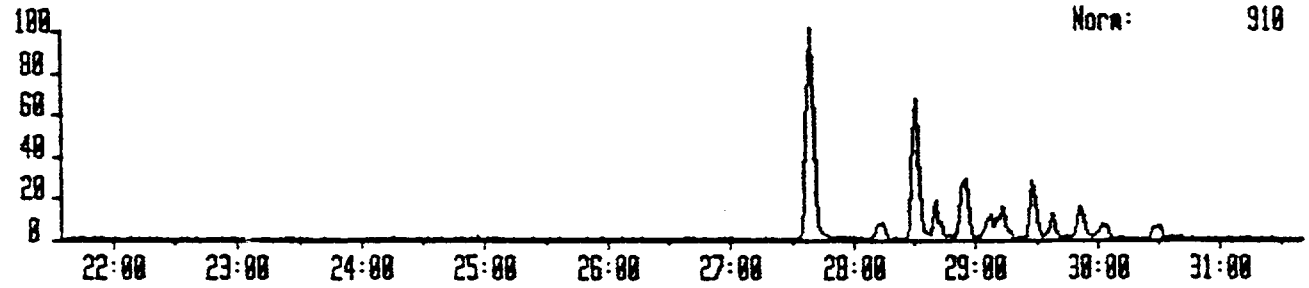
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 407.8883
Text:ENTROPY I2-MM5-4



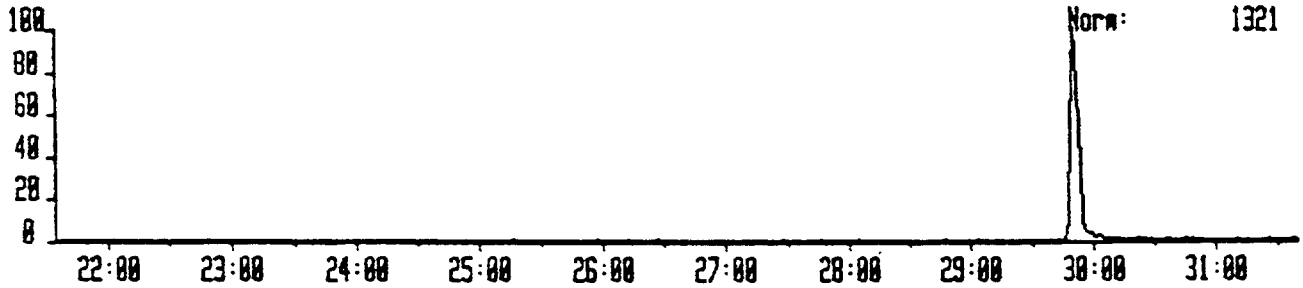
M872292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:ENTROPY I2-MM5-4



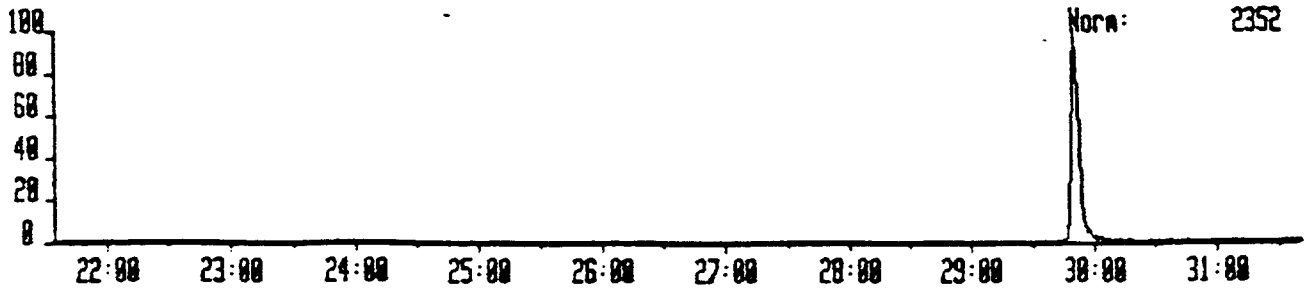
M872292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 355.8546
Text:ENTROPY I2-MM5-4



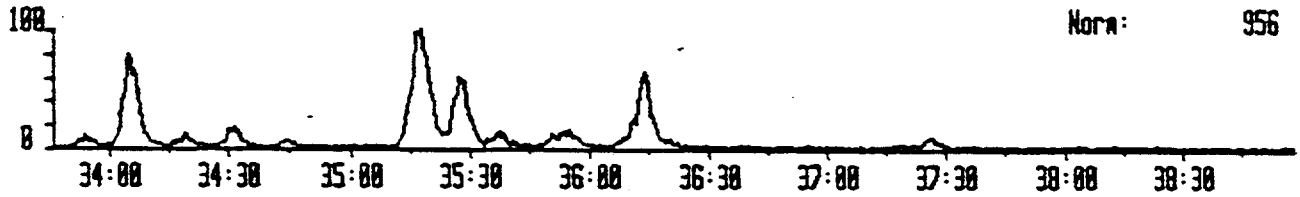
M872292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 365.8977
Text:ENTROPY I2-MM5-4



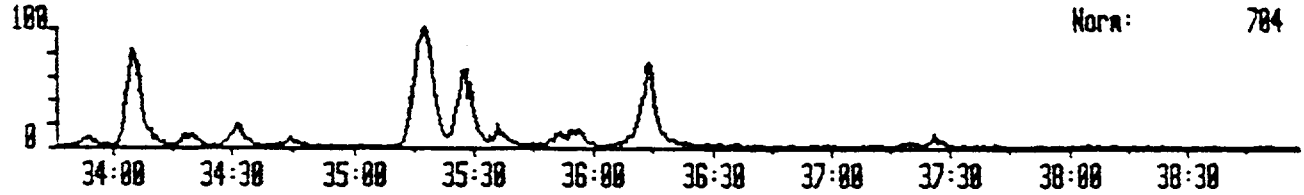
M872292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 367.8948
Text:ENTROPY I2-MM5-4



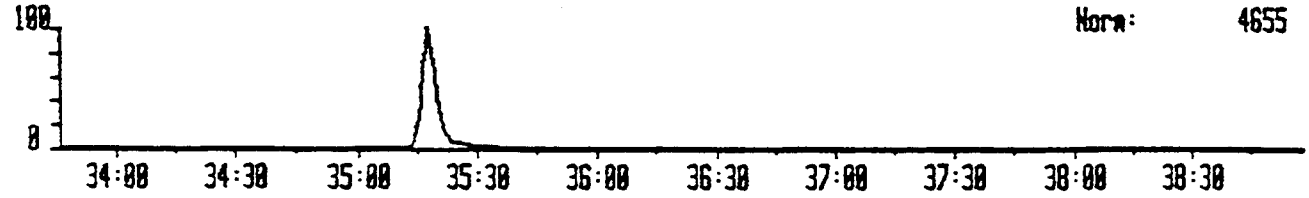
M872292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 373.8207
Text:ENTROPY I2-MM5-4



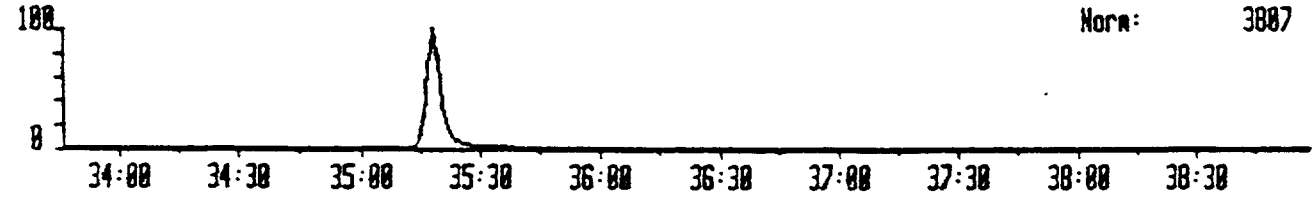
M872292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 375.8178
Text:ENTROPY I2-MM5-4



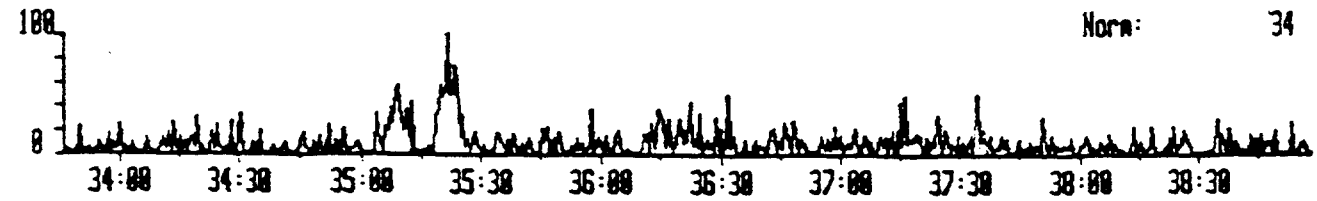
M872292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 385.8689
Text:ENTROPY I2-MM5-4



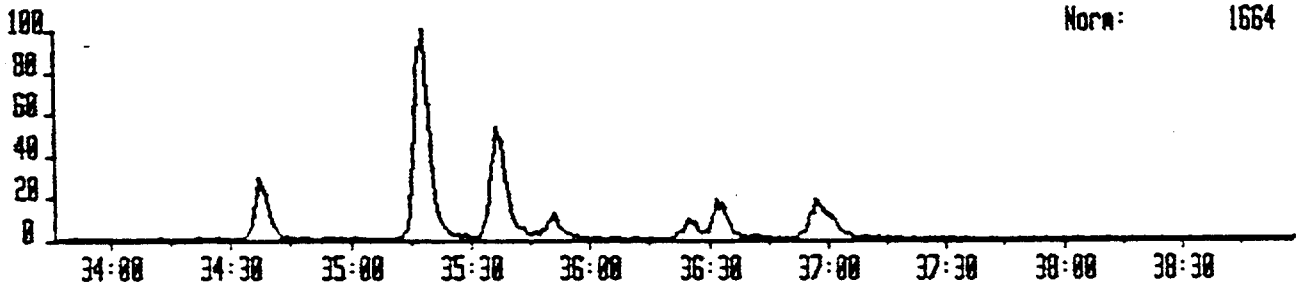
M872292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 387.8588
Text:ENTROPY I2-MM5-4



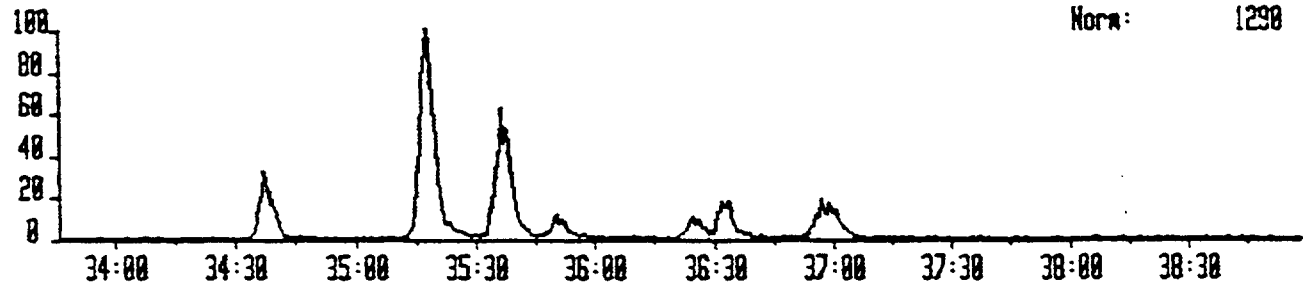
M872292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:ENTROPY I2-MM5-4



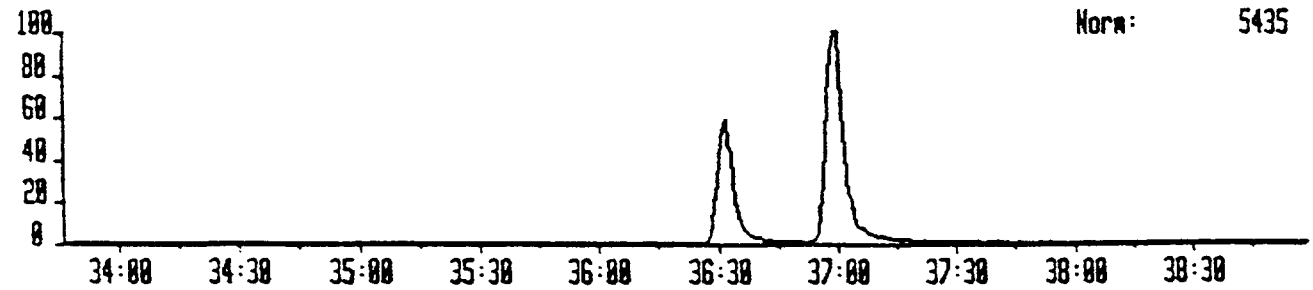
M872292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 389.8156
Text:ENTROPY I2-MMS-4



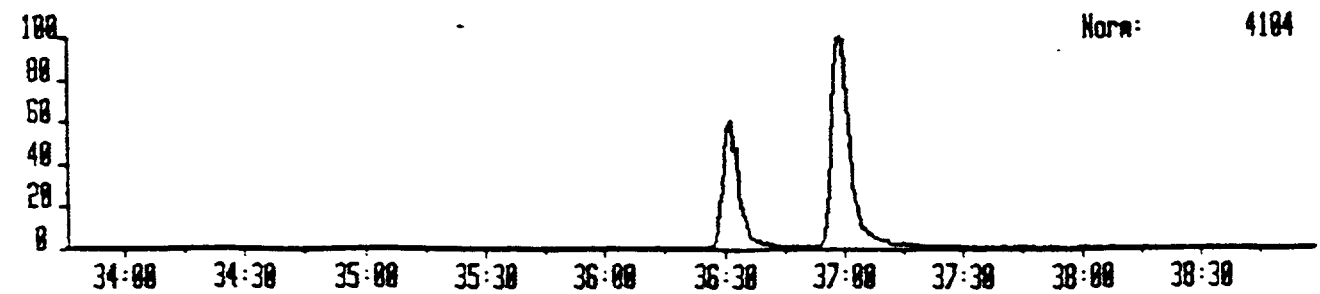
M872292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 391.8127
Text:ENTROPY I2-MMS-4



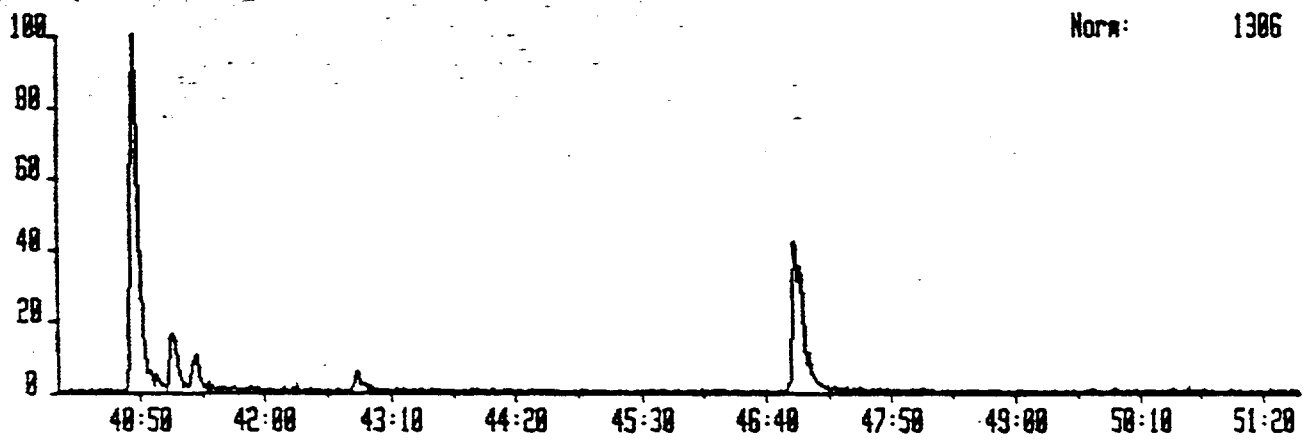
M872292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text:ENTROPY I2-MMS-4



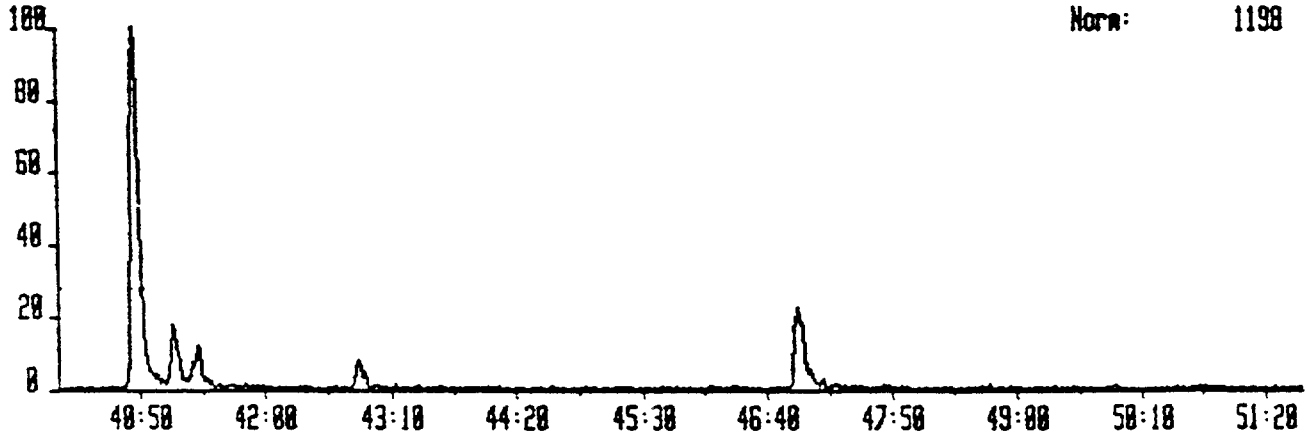
M872292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 403.8529
Text:ENTROPY I2-MMS-4



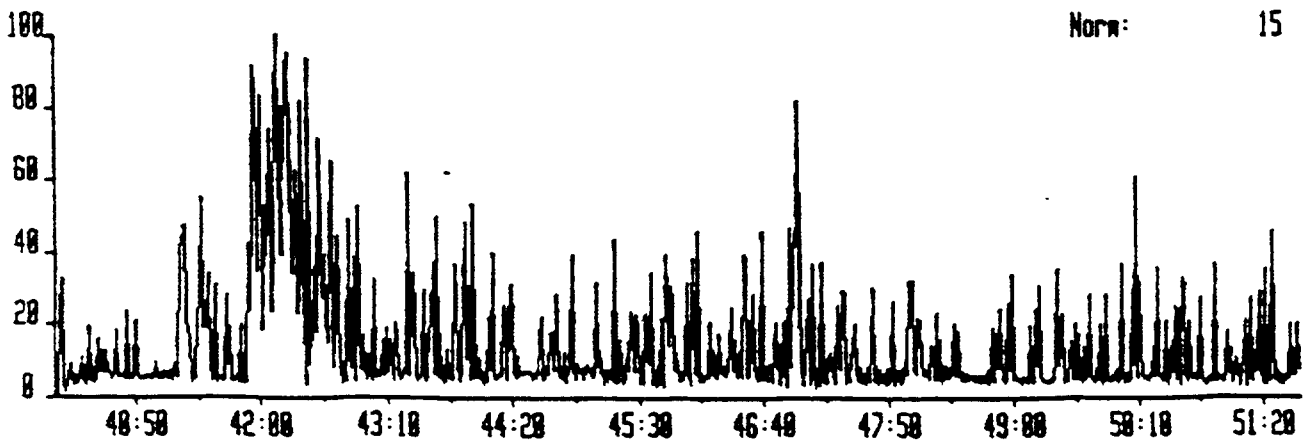
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 407.7817
Text:ENTROPY 12-MM5-4



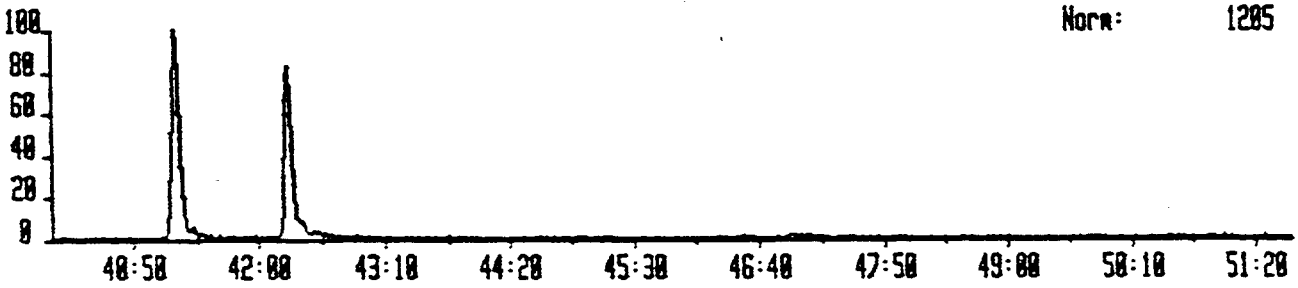
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 409.7788
Text:ENTROPY 12-MM5-4



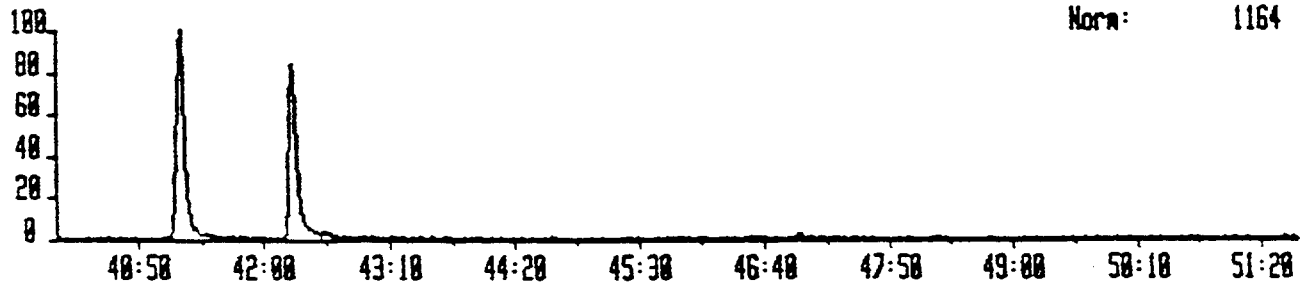
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 477.7288
Text:ENTROPY 12-MM5-4



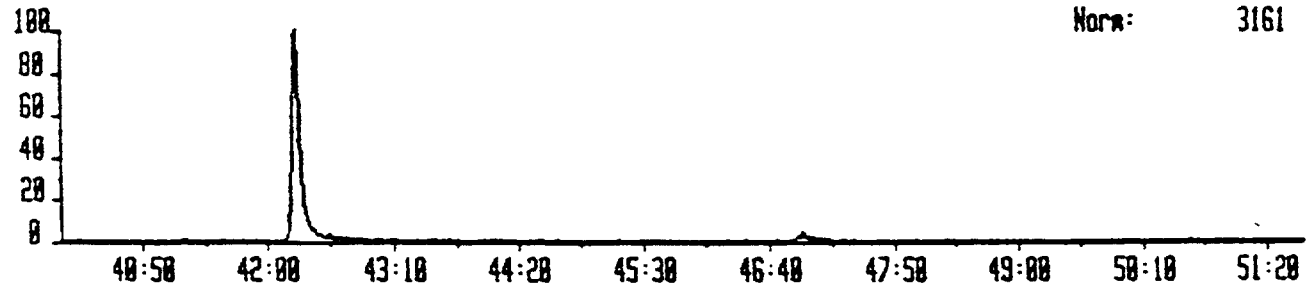
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:ENTROPY I2-MM5-4



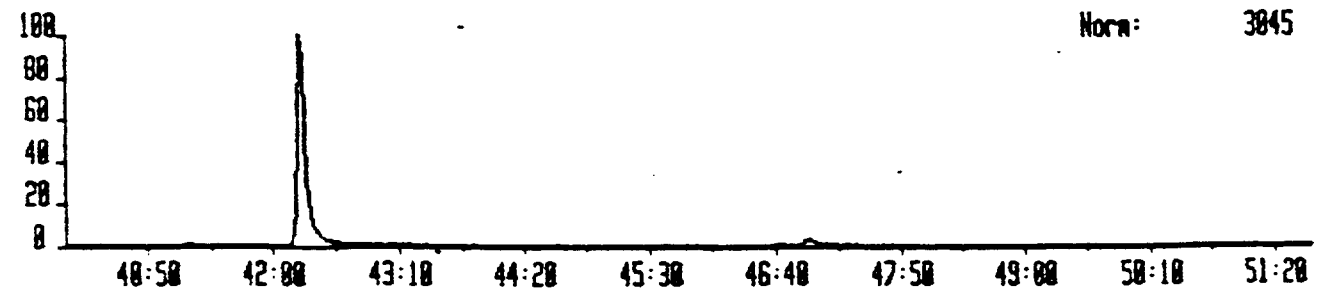
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:ENTROPY I2-MM5-4



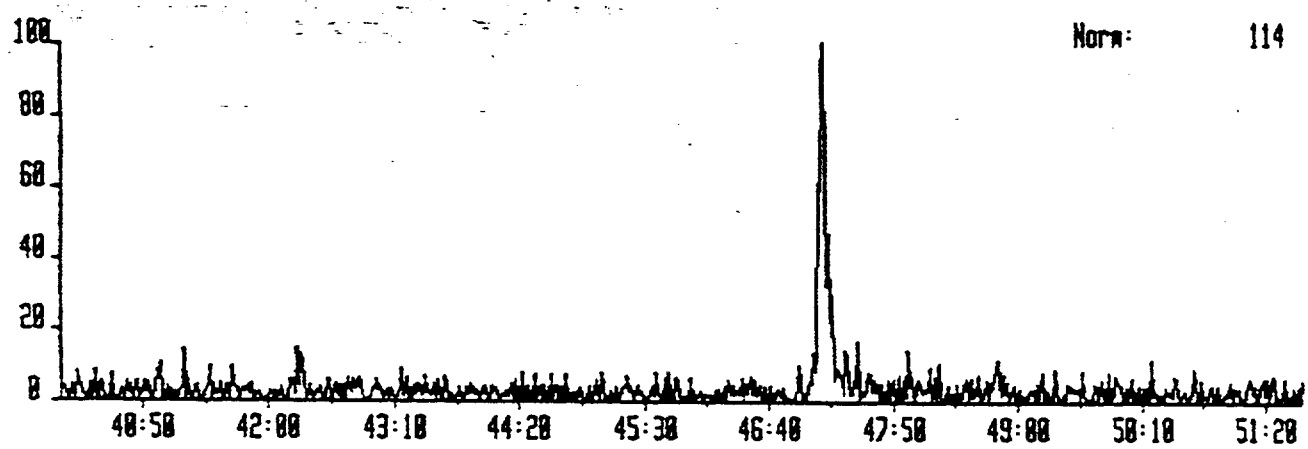
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:ENTROPY I2-MM5-4



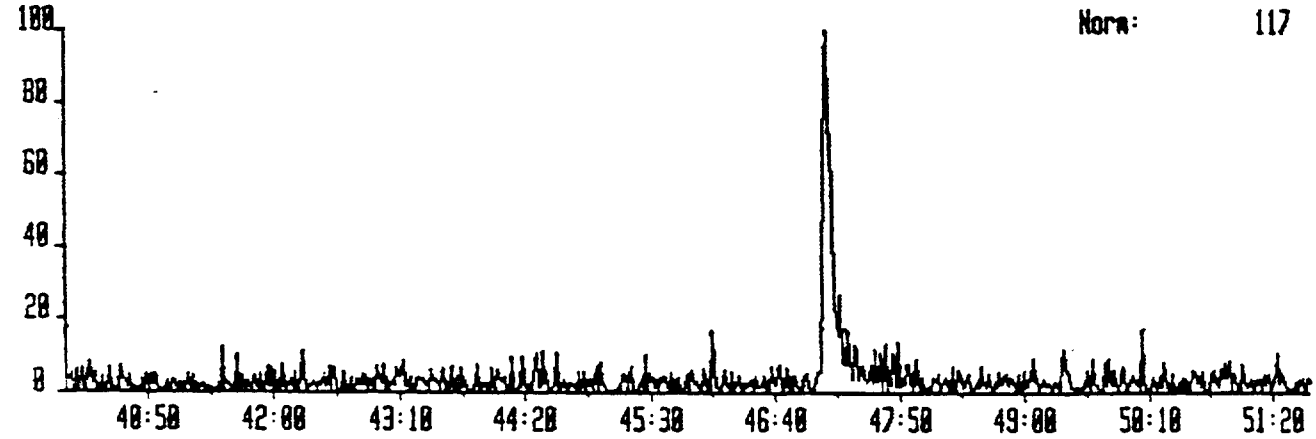
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:ENTROPY I2-MM5-4



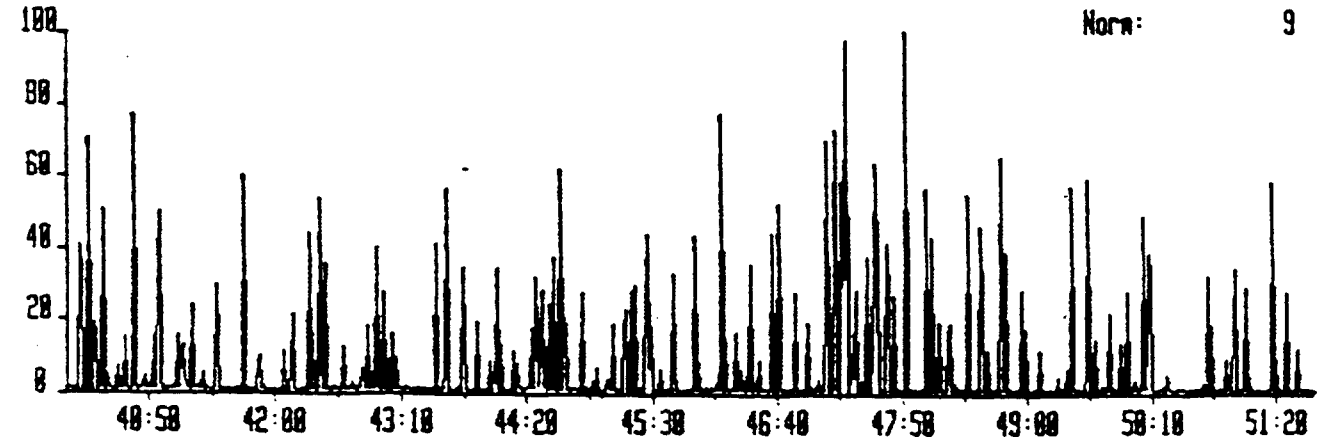
MB72292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 441.7428
Text:ENTROPY I2-MM5-4



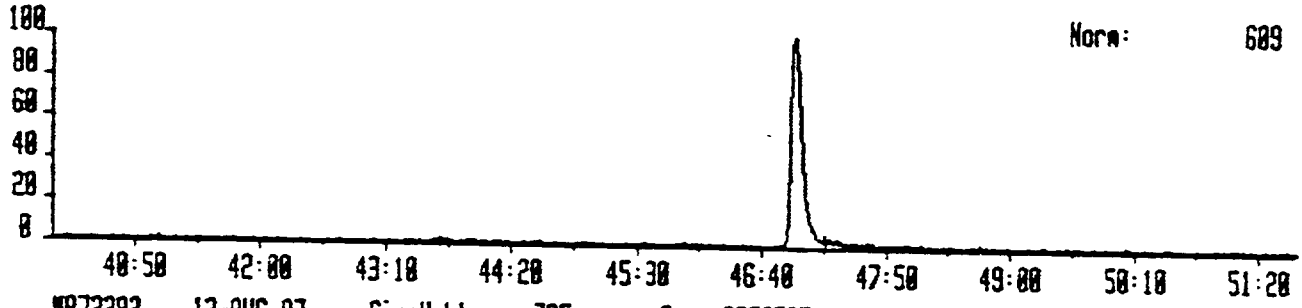
MB72292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:ENTROPY I2-MM5-4



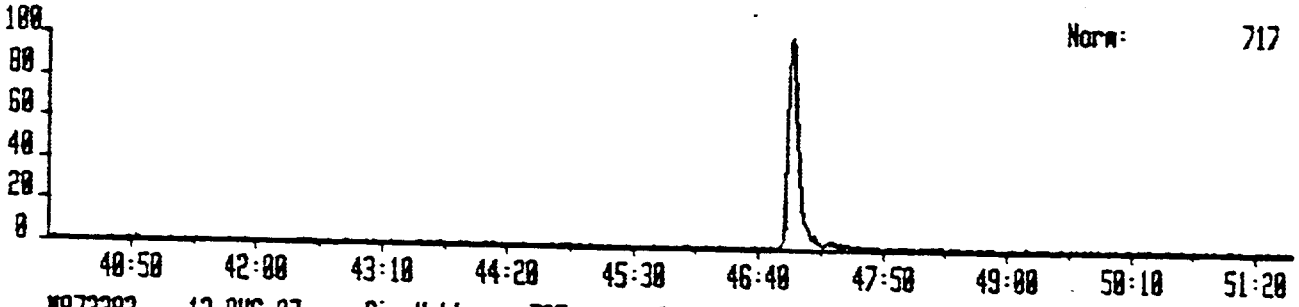
MB72292 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 511.6810
Text:ENTROPY I2-MM5-4



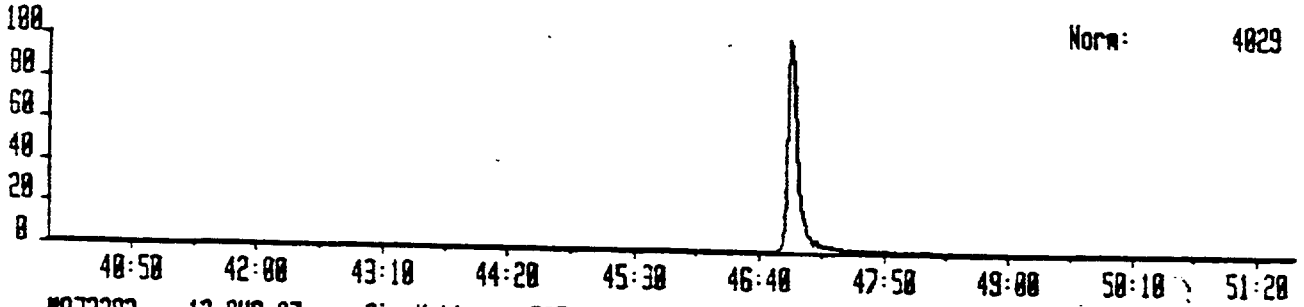
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:ENTROPY I2-MM5-4



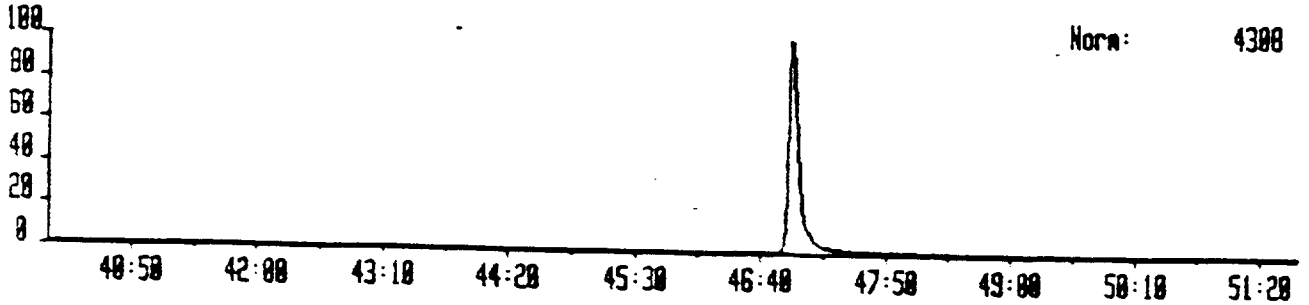
M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:ENTROPY I2-MM5-4



M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:ENTROPY I2-MM5-4



M872292 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 471.7758
Text:ENTROPY I2-MM5-4



TRIANGLE LABORATORIES, INC.
PCDD/PCDF ANALYSIS (D)

ANALYST: MC
DATE: 08/23/87
FILE NAME: M872293
SAMPLE ID: [redacted]
CASE NO: ENTROPY
PROJ NO: 8701511
CONCAL: M872290

NAME	AMT (ng)	NUMBER	DL	EMPC	RATIO	RT
TOTAL TRICDD	ND			1.051	2.04	
2378-TCDD	ND		0.043			
TOTAL TCDD	3.478	4			0.73	
12378-PCDD	0.671				0.58	29.50
TOTAL PCDD	9.979	8			0.60	
123478-HxCDD	0.434				1.16	36.23
123678-HxCDD	0.987				1.24	36.32
123789-HxCDD	1.579				1.23	36.57
TOTAL HxCDD	13.665	7			1.23	
1234678-HpCDD	5.959				1.05	42.16
TOTAL HpCDD	12.407	2			1.02	
OCDD	9.937				0.85	46.57
TOTAL TRICDF	5.769	3			1.05	
2378-TCDF	3.759				0.72	24.20
TOTAL TCDF	17.659	11			0.78	
12378-PCDF	ND			1.177	0.33	
23478-PCDF	1.957				0.67	29.24
TOTAL PCDF	12.752	6			0.65	
123478-HxCDF	2.034				1.34	35.17
123678-HxCDF	0.987				1.12	35.28
234678-HxCDF	1.384				1.28	36.14
123789-HxCDF	ND			0.026	0.57	
TOTAL HxCDF	7.789	6			1.24	
1234678-HpCDF	5.027				1.05	40.46
1234789-HpCDF	ND			0.224	0.77	
TOTAL HpCDF	6.642	3			1.05	
OCDF	1.894				0.78	47.09

SURROGATE RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
13C12-TCDF	4.53	90.60	0.73	24.18
37CL-TCDD	4.62	92.40		24.59
13C12-HxCDF	4.47	89.40	1.20	35.17

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RATIO	RT
2378-13C12-TCDD	2.24	[illegible]	0.78	24.58
13C12-PCDD	2.08	[illegible]	0.67	29.49
13C12-HxCDD	2.45	[illegible]	1.29	36.31
13C12-HpCDD	1.98	[illegible]	1.02	42.15
13C12-OCDD	2.85	[illegible]	0.92	46.56

M872293B
MATCHED EGC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
270	3.41	15.28	179.77	.F.	.F.	0.000
270	1.24	15.43	134.03	.F.	.F.	0.000
270	1.11	16.18	922.32	.T.	.F.	0.000
270	0.93	16.38	412.11	.T.	.F.	0.000
270	0.59	17.02	577.08	.F.	.F.	0.000
270	1.10	17.26	739.24	.T.	.F.	0.000
286	2.04	16.52	145.80	.F.	.F.	0.000
304	0.76	22.15	1111.89	.T.	.F.	0.891
304	0.77	22.34	4792.57	.T.	.F.	0.904
304	0.86	22.49	2253.83	.T.	.F.	0.914
304	0.76	23.09	2530.76	.T.	.F.	0.927
304	0.72	23.22	3361.31	.T.	.F.	0.936
304	0.72	23.34	3546.84	.T.	.F.	0.944
304	1.84	23.57	1840.11	.F.	.F.	0.959
304	0.87	24.09	1172.95	.T.	.F.	0.967
304	0.72	24.20	5830.26	.T.	.T.	0.975
304	0.82	24.43	1667.23	.T.	.F.	0.990
304	0.83	24.56	1050.94	.T.	.F.	0.999
304	0.71	25.10	71.60	.T.	.F.	1.008
304	1.27	25.20	88.67	.F.	.F.	1.015
304	0.96	26.01	115.75	.F.	.F.	1.042
316	0.73	24.18	7020.07	.T.	.T.	0.973
320	0.68	22.42	488.83	.T.	.F.	0.909
320	0.76	23.02	1119.32	.T.	.F.	0.923
320	0.97	23.16	810.40	.F.	.F.	0.932
320	0.70	23.52	1687.27	.T.	.F.	0.956
320	0.76	24.06	910.83	.T.	.F.	0.965
320	3.28	24.17	57.86	.F.	.F.	0.973
320	1.16	24.29	430.74	.F.	.F.	0.981
320	0.99	24.47	525.66	.F.	.F.	0.993
320	0.62	24.53	1209.90	.F.	.F.	0.997
320	0.47	25.09	182.26	.F.	.F.	1.007
328	0.00	24.59	5384.32	.T.	.T.	1.001
332	0.78	24.48	34713.86	.T.	.T.	0.993
332	0.78	24.58	11094.78	.T.	.T.	1.000
338	0.59	27.30	4850.72	.T.	.F.	0.922
338	0.64	27.42	1052.99	.T.	.F.	0.929
338	0.77	28.04	2433.23	.F.	.F.	0.941
338	0.64	28.11	1740.16	.T.	.F.	0.945
338	0.33	28.31	1201.18	.F.	.T.	0.956
338	0.73	28.43	828.30	.F.	.F.	0.963
338	0.68	28.53	1112.50	.T.	.F.	0.969
338	0.67	29.24	1919.54	.T.	.T.	0.986
338	0.65	29.35	2084.30	.T.	.F.	0.992
354	0.57	27.38	2701.86	.T.	.F.	0.927
354	0.36	28.12	282.94	.F.	.F.	0.946
354	0.58	28.29	1454.06	.T.	.F.	0.955
354	0.62	28.39	501.37	.T.	.F.	0.961
354	0.62	28.53	1089.78	.T.	.F.	0.969
354	0.67	29.05	355.54	.T.	.F.	0.975

M872293B
MATCHED EGC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
354	0.47	29.12	472.94	.F.	.F.	0.979
354	0.55	29.27	705.59	.T.	.F.	0.988
354	0.71	29.37	264.89	.F.	.F.	0.993
354	0.58	29.50	507.98	.T.	.T.	1.001
354	0.45	30.02	229.96	.F.	.F.	1.007
354	0.59	30.27	241.13	.T.	.F.	1.021
366	0.67	29.49	3542.22	.T.	.T.	1.000
374	1.43	33.53	1016.91	.F.	.F.	0.928
374	1.25	34.05	6641.84	.T.	.F.	0.933
374	1.63	34.19	462.98	.F.	.F.	0.940
374	1.99	34.30	388.29	.F.	.F.	0.945
374	2.31	34.35	52.48	.F.	.F.	0.947
374	1.30	34.43	176.16	.T.	.F.	0.951
374	1.34	35.17	5162.27	.T.	.T.	0.966
374	1.12	35.28	2759.92	.T.	.T.	0.971
374	0.93	35.36	443.43	.F.	.F.	0.975
374	1.17	35.51	204.53	.T.	.F.	0.982
374	1.71	35.54	387.98	.F.	.F.	0.983
374	1.28	36.14	2955.12	.T.	.T.	0.992
374	1.73	36.35	41.30	.F.	.F.	1.002
374	0.57	37.21	44.76	.F.	.T.	1.023
374	0.94	37.26	234.94	.F.	.F.	1.025
386	1.20	35.17	9726.96	.T.	.T.	0.966
390	1.20	34.36	2153.05	.T.	.F.	0.948
390	1.27	35.17	7593.34	.T.	.F.	0.966
390	1.26	35.36	5068.18	.T.	.F.	0.975
390	1.28	35.49	938.43	.T.	.F.	0.981
390	1.16	36.23	650.67	.T.	.T.	0.996
390	1.24	36.32	1539.32	.T.	.T.	1.000
390	1.31	36.49	25.22	(T) F	.F.	1.008
390	1.23	36.57	2130.44	.T.	.T.	1.012
402	1.29	36.31	7756.02	.T.	.T.	1.000
402	1.33	36.59	52215.60	.T.	.T.	1.013
408	1.05	40.48	10382.62	.T.	.T.	0.966
408	1.10	41.10	1295.28	.T.	.F.	0.974
408	1.01	41.23	1113.84	.T.	.F.	0.979
408	1.99	42.25	49.58	.F.	.F.	1.004
408	0.77	42.53	399.38	.F.	.T.	1.015
424	0.99	41.13	8040.59	.T.	.F.	0.976
424	1.05	42.16	7429.60	.T.	.T.	1.000
424	0.72	42.53	56.71	.F.	.F.	1.015
436	1.76	41.13	99.58	.F.	.F.	0.976
436	1.02	42.15	8384.96	.T.	.T.	1.000
436	0.90	43.17	34.53	.T.	.F.	1.024
442	0.78	47.09	1696.71	.T.	.T.	1.004
458	0.85	46.57	6923.24	.T.	.T.	1.000
458	0.48	47.28	89.33	.F.	.F.	1.011
470	0.92	46.56	15031.26	.T.	.T.	1.000
470	0.39	47.40	108.62	.F.	.F.	1.015

M872293B
MATCHED EGC PEAKS /RATIO/ RET TIME

M_Z	RATIO	RT.	AREA	MATCH_RAT	MATCH_RT	REL_RT
*** Total ***						
***	99.10	3033.4	299660.31			89.786

M872293I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
270	138.99	15.28
270	74.30	15.43
270	81.90	16.04
270	484.21	16.18
270	198.89	16.38
270	40.06	16.51
270	213.81	17.02
270	40.18	17.17
270	387.14	17.26
272	40.78	15.28
272	59.73	15.43
272	438.11	16.20
272	213.22	16.38
272	363.27	17.01
272	352.10	17.26
286	97.84	16.52
288	47.96	16.52
304	480.77	22.15
304	2092.38	22.34
304	1039.11	22.49
304	1091.81	23.09
304	1408.15	23.22
304	1480.87	23.34
304	1192.97	23.57
304	546.95	24.09
304	2438.93	24.20
304	752.68	24.43
304	475.17	24.56
304	29.66	25.10
304	49.66	25.20
304	56.65	26.01
306	16.04	22.00
306	631.12	22.14
306	2700.19	22.33
306	1214.72	22.48
306	1438.95	23.09
306	1953.16	23.22
306	2065.97	23.34
306	711.33	23.46
306	647.14	23.56
306	626.00	24.09
306	3391.33	24.20
306	13.92	24.33
306	914.55	24.43
306	575.77	24.56
306	41.94	25.12
306	39.01	25.19
306	40.28	25.32
306	59.10	26.02
306	22.23	26.48

M872293I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
306	42.13	27.00
306	10.46	27.09
306	13.06	27.19
306	64.20	27.30
306	33.75	28.06
306	57.85	28.15
306	28.18	28.33
306	44.95	28.58
306	23.17	29.08
306	29.94	29.27
306	36.93	29.33
306	49.86	29.50
306	14.04	30.01
306	19.31	30.32
306	13.31	30.47
306	20.59	31.05
316	2966.34	24.18
318	137.58	23.55
318	4053.73	24.18
318	121.31	28.28
320	198.56	22.42
320	481.95	23.02
320	398.66	23.16
320	693.40	23.52
320	393.83	24.06
320	44.34	24.17
320	231.57	24.29
320	261.75	24.47
320	462.84	24.53
320	58.22	25.09
320	91.37	25.20
322	290.27	22.42
322	637.37	23.02
322	411.74	23.17
322	11.68	23.26
322	993.87	23.52
322	517.00	24.06
322	13.52	24.19
322	199.17	24.29
322	263.91	24.47
322	747.06	24.53
322	124.04	25.08
322	120.43	25.17
322	37.32	25.32
322	11.40	25.40
322	30.41	26.59
322	33.33	27.39
322	28.81	28.30
322	54.81	28.35
322	66.65	28.42

M872293I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
322	20.48	29.28
322	11.67	29.49
322	74.97	30.01
322	16.96	30.11
322	81.79	30.29
322	51.07	30.50
322	158.64	31.12
328	5384.32	24.59
332	172.04	22.11
332	116.75	23.17
332	126.29	24.12
332	15224.67	24.48
332	4858.94	24.58
332	242.46	25.45
332	261.36	25.57
332	235.74	26.24
332	336.87	26.51
332	200.46	27.23
334	19489.19	24.48
334	6235.84	24.58
338	35.95	27.21
338	1791.58	27.30
338	409.55	27.42
338	1061.24	28.04
338	680.71	28.11
338	217.46	28.26
338	295.90	28.31
338	350.23	28.43
338	450.18	28.53
338	38.57	29.05
338	770.52	29.24
338	818.35	29.35
338	18.34	29.50
338	25.84	29.58
340	27.02	26.14
340	3059.14	27.30
340	643.44	27.42
340	1371.99	28.04
340	1059.45	28.11
340	905.28	28.31
340	478.07	28.43
340	662.32	28.53
340	1149.02	29.24
340	1265.95	29.35
354	976.12	27.38
354	74.13	28.12
354	534.34	28.29
354	192.35	28.39
354	415.17	28.53
354	142.57	29.05

M872293I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
354	151.48	29.12
354	251.78	29.27
354	109.65	29.37
354	187.06	29.50
354	71.37	30.02
354	89.01	30.27
354	11.57	30.38
356	1725.74	27.38
356	18.08	27.51
356	208.81	28.12
356	919.72	28.29
356	309.02	28.38
356	674.61	28.53
356	212.97	29.05
356	321.46	29.12
356	453.81	29.27
356	155.24	29.37
356	320.92	29.50
356	158.59	30.02
356	25.39	30.10
356	152.12	30.29
356	12.65	30.43
356	16.19	30.49
366	1418.82	29.49
368	2123.40	29.49
374	598.71	33.53
374	3688.75	34.05
374	286.96	34.19
374	258.36	34.30
374	36.62	34.35
374	99.70	34.43
374	17.96	34.50
374	16.94	34.52
374	18.29	35.05
374	2959.19	35.17
374	1458.48	35.28
374	214.25	35.36
374	110.08	35.51
374	244.57	35.54
374	84.55	36.06
374	1660.65	36.14
374	62.79	36.25
374	26.15	36.35
374	13.23	36.40
374	15.19	36.44
374	24.69	36.51
374	26.82	37.00
374	20.68	37.03
374	16.20	37.21
374	113.61	37.26

M872293I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
374	24.31	37.33
374	20.92	37.45
374	13.67	38.24
374	28.83	38.42
376	418.20	33.53
376	2953.09	34.05
376	176.02	34.19
376	129.93	34.30
376	15.86	34.37
376	76.46	34.43
376	2203.08	35.16
376	1301.44	35.27
376	229.18	35.36
376	94.45	35.49
376	143.41	35.54
376	1294.47	36.13
376	15.15	36.37
376	12.93	37.15
376	28.56	37.21
376	121.33	37.24
386	5302.92	35.17
388	4424.04	35.17
390	1173.81	34.36
390	4254.72	35.17
390	2821.01	35.36
390	526.86	35.49
390	17.48	35.58
390	11.14	36.07
390	349.90	36.23
390	851.94	36.32
390	57.14	36.40
390	12.70	36.44
390	14.29	36.49
390	1174.73	36.57
390	11.25	37.12
390	14.11	37.21
390	11.42	37.49
392	979.24	34.36
392	16.21	34.45
392	13.12	34.50
392	14.93	35.00
392	14.03	35.06
392	3338.62	35.17
392	2247.17	35.36
392	411.57	35.51
392	52.94	35.55
392	21.29	36.04
392	37.44	36.10
392	10.21	36.15
392	300.77	36.24

M872293I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
392	687.38	36.31
392	10.93	36.47
392	955.71	36.58
392	36.33	37.09
392	16.79	37.15
392	13.94	37.18
392	16.61	37.24
402	4366.19	36.31
402	29848.95	36.59
402	399.01	37.33
404	3389.83	36.31
404	22366.65	36.59
408	20.47	40.35
408	5317.91	40.48
408	678.40	41.10
408	558.66	41.23
408	32.98	42.25
408	173.47	42.53
408	26.13	43.24
408	45.24	45.10
410	5064.71	40.48
410	616.88	41.10
410	555.18	41.22
410	27.98	41.50
410	16.60	42.23
410	40.21	42.39
410	225.91	42.51
410	21.59	44.36
410	360.52	46.56
410	136.97	47.10
410	26.97	47.36
410	32.15	48.48
410	15.45	49.09
410	39.97	49.39
410	15.43	49.52
410	24.41	50.14
424	4009.55	41.13
424	66.86	41.41
424	3803.19	42.16
424	48.05	42.45
424	23.82	42.53
424	24.18	43.06
424	22.62	43.16
424	19.13	44.51
424	19.04	45.04
426	4031.04	41.13
426	29.02	41.59
426	3626.41	42.16
426	60.94	42.42
426	32.89	42.55

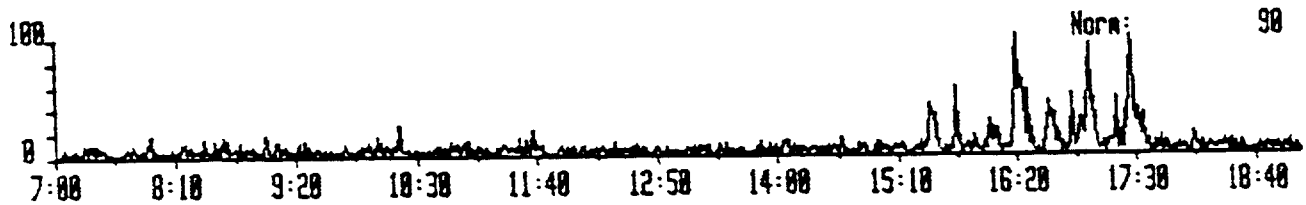
M872293I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
426	24.33	43.30
426	74.10	46.57
426	51.63	50.35
426	22.60	51.12
436	63.49	41.13
436	4230.78	42.15
436	187.74	42.36
436	37.21	43.04
436	16.33	43.17
436	16.66	44.18
438	36.09	41.13
438	4154.18	42.15
438	18.20	43.17
438	73.75	46.40
438	171.73	46.58
438	65.54	47.09
438	32.01	47.24
438	35.08	47.46
438	17.41	48.22
442	18.35	40.58
442	36.76	41.14
442	55.39	44.07
442	742.15	47.09
442	15.67	47.47
442	54.09	48.16
442	19.32	51.06
442	32.38	51.22
444	21.78	46.28
444	29.84	46.55
444	954.56	47.09
444	40.55	47.31
444	35.43	49.28
458	22.95	40.32
458	39.04	43.39
458	17.04	43.53
458	3177.01	46.57
458	73.75	47.20
458	29.11	47.28
458	20.98	49.02
460	3746.23	46.58
460	60.22	47.26
460	17.91	48.12
470	7211.97	46.56
470	140.84	47.26
470	30.45	47.40
470	19.65	49.08
472	7819.29	46.57
472	78.17	47.41

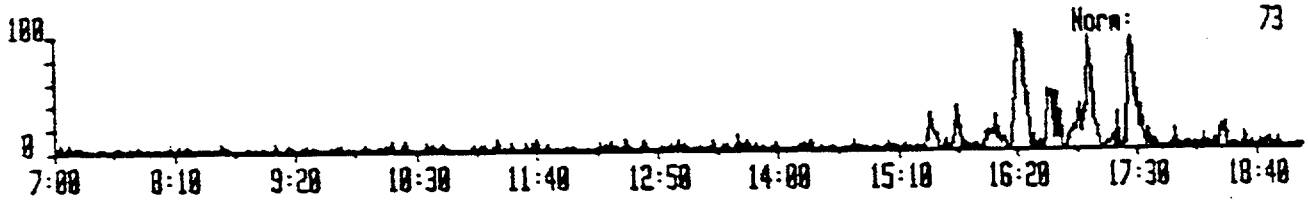
M872293I
RAW MASS AND AREA DATA

MASS	AREA	RET.TIME
*** Total ***		
****	308272.42	11466.06

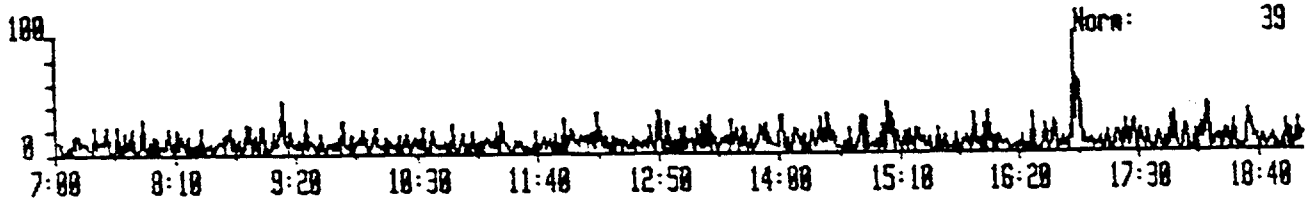
M872293 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 1 Mass 269.9486
Text:ENTROPY I2-MM5-5



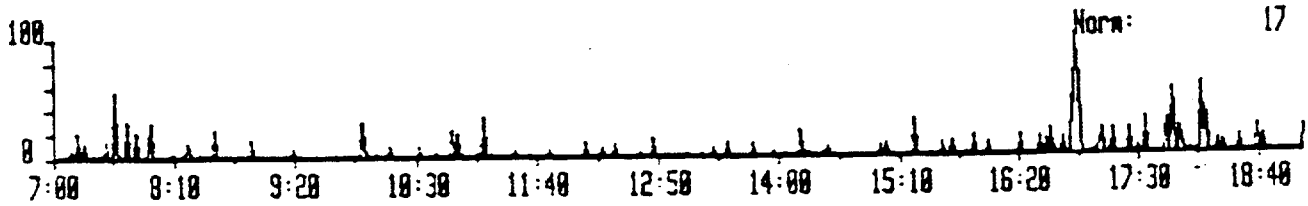
M872293 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 1 Mass 271.9377
Text:ENTROPY I2-MM5-5



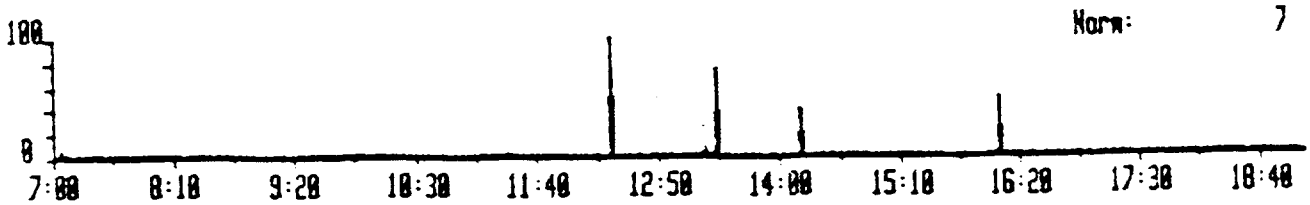
M872293 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 1 Mass 285.9355
Text:ENTROPY I2-MM5-5



M872293 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:ENTROPY I2-MM5-5

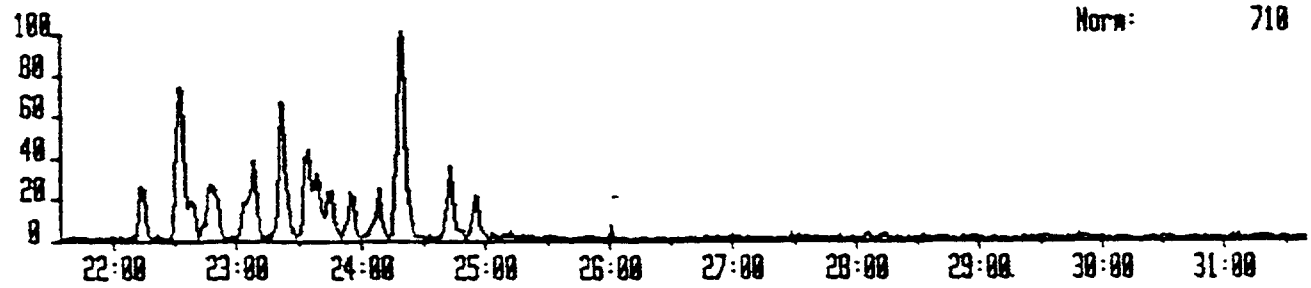


M872293 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 1 Mass 339.8790
Text:ENTROPY I2-MM5-5

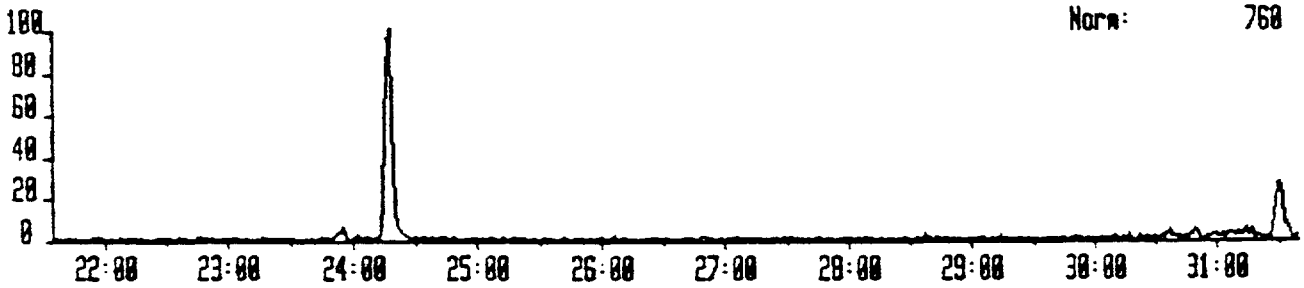


M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 303.9816
Text:ENTROPY I2-MM5-5

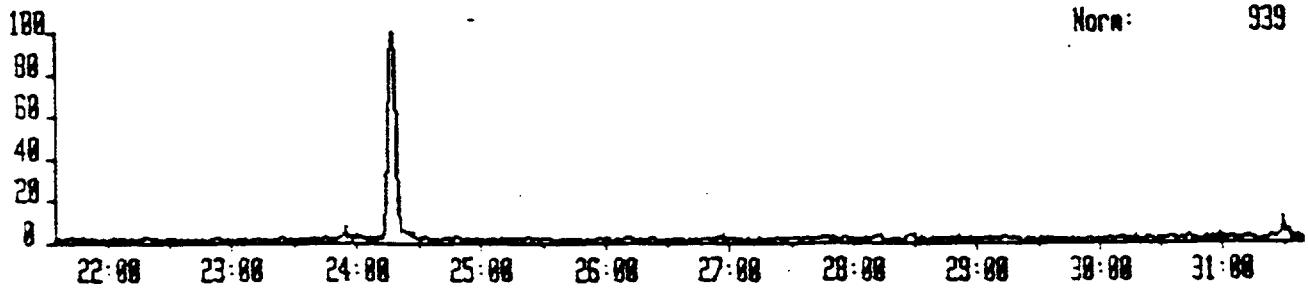
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 305.8987
Text:ENTROPY I2-MM5-5



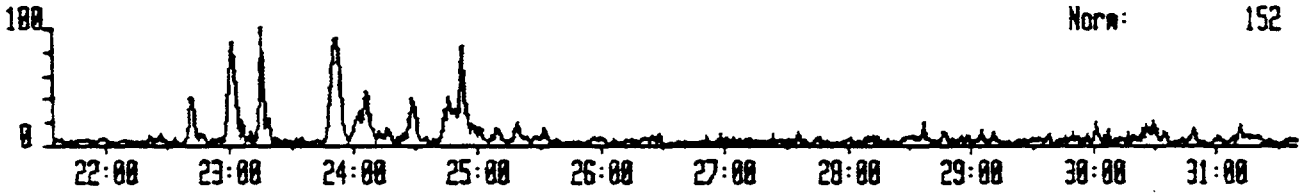
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 315.9419
Text:ENTROPY I2-MM5-5



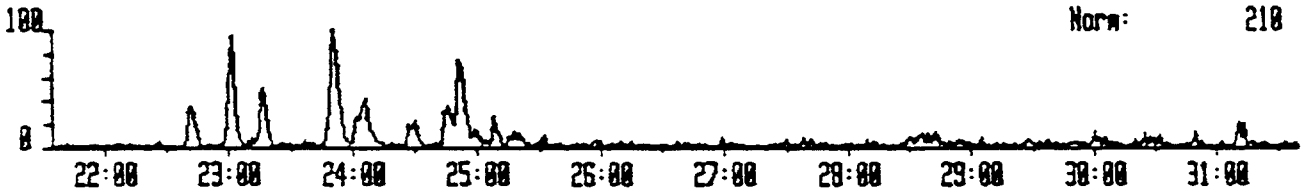
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 317.9389
Text:ENTROPY I2-MM5-5



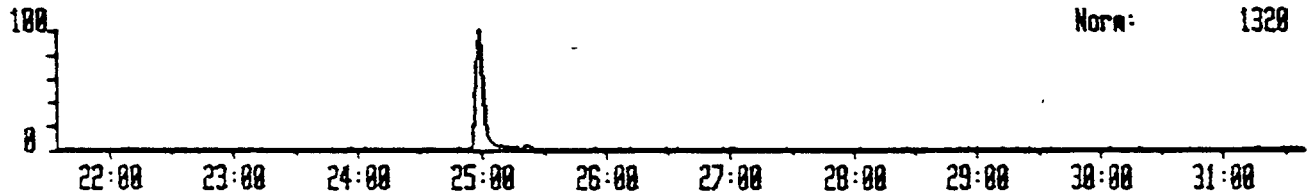
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:ENTROPY I2-MM5-5



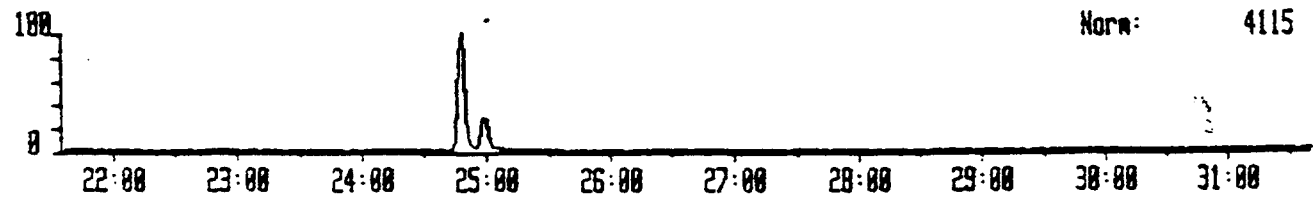
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:ENTROPY I2-MM5-5



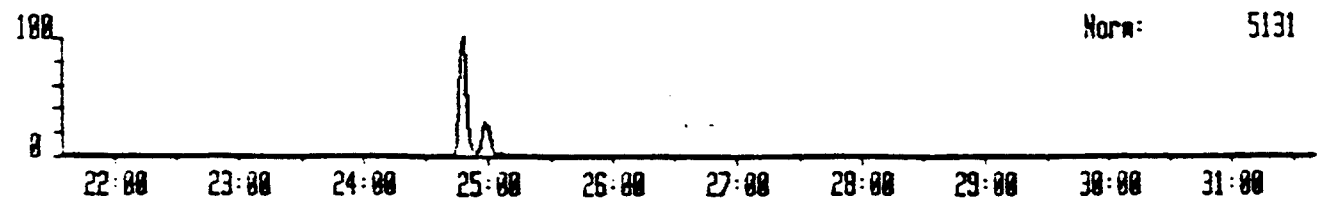
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:ENTROPY I2-MM5-5



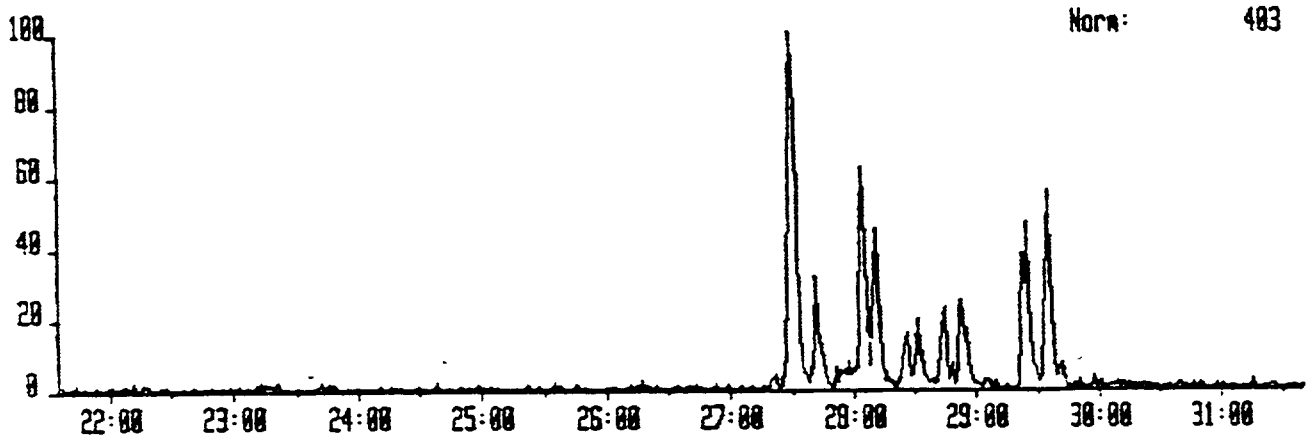
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 331.9368
Text:ENTROPY I2-MM5-5



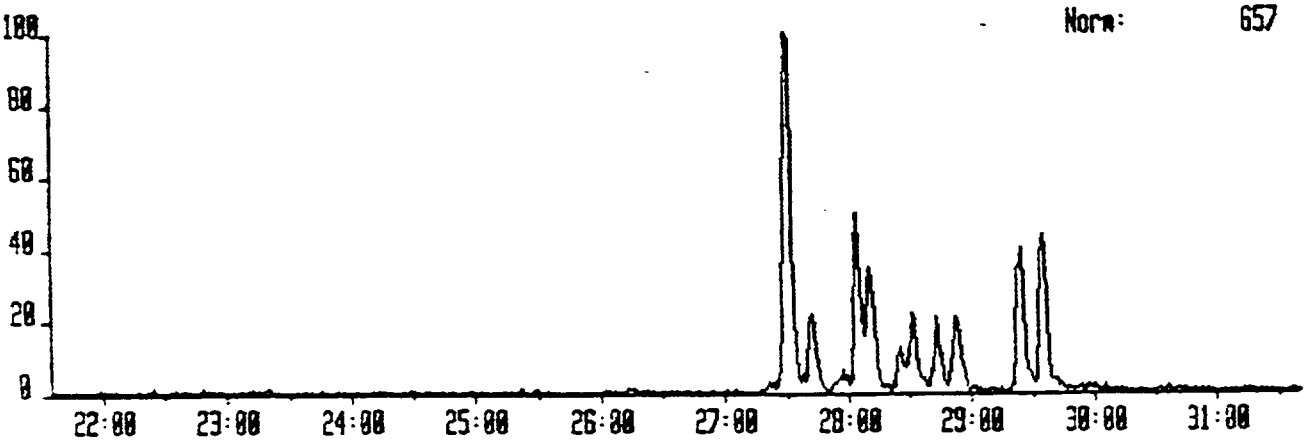
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 333.9338
Text:ENTROPY I2-MM5-5



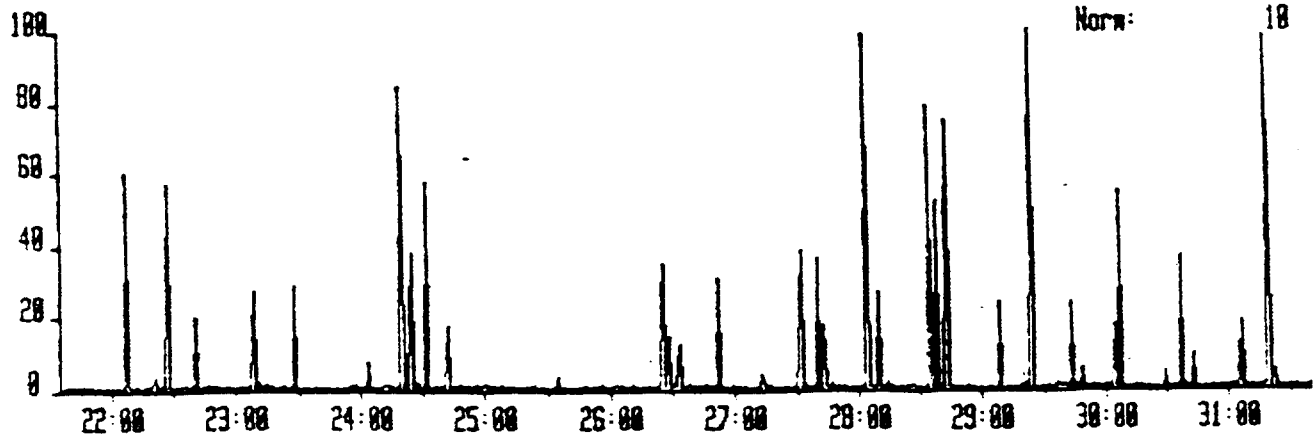
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:ENTROPY I2-MM5-5



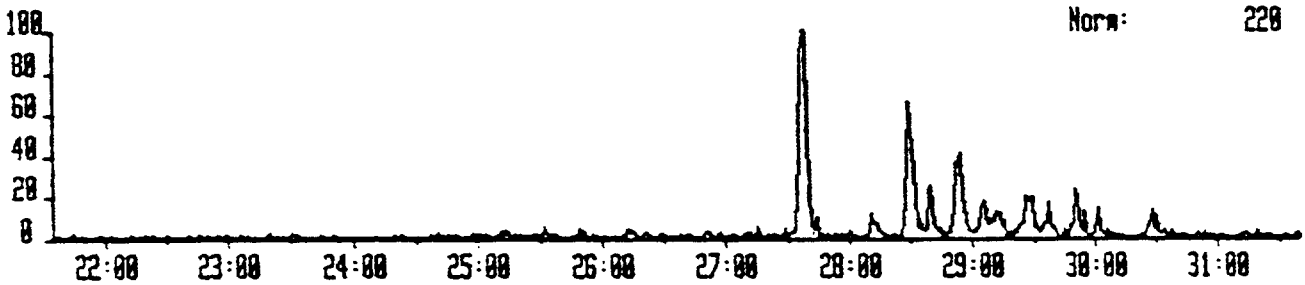
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:ENTROPY I2-MM5-5



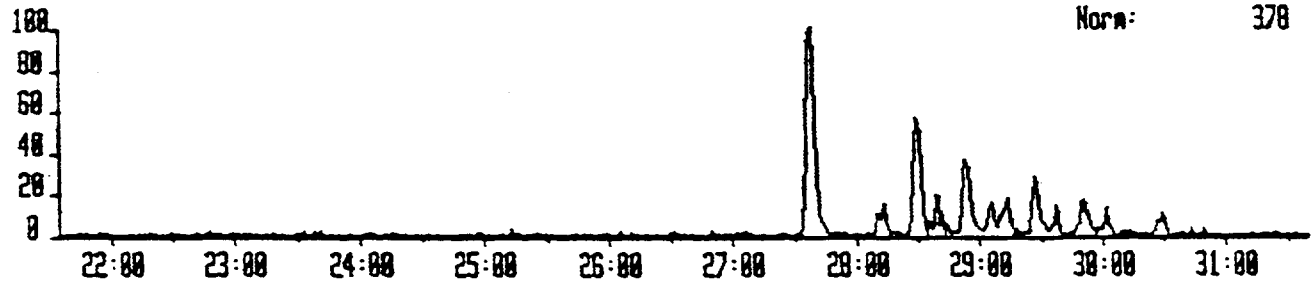
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 407.8803
Text:ENTROPY I2-MM5-5



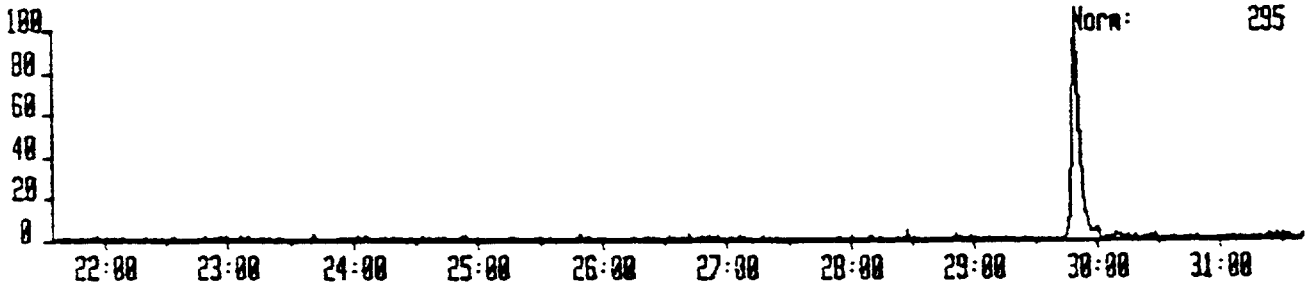
MB72293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:ENTROPY I2-MM5-5



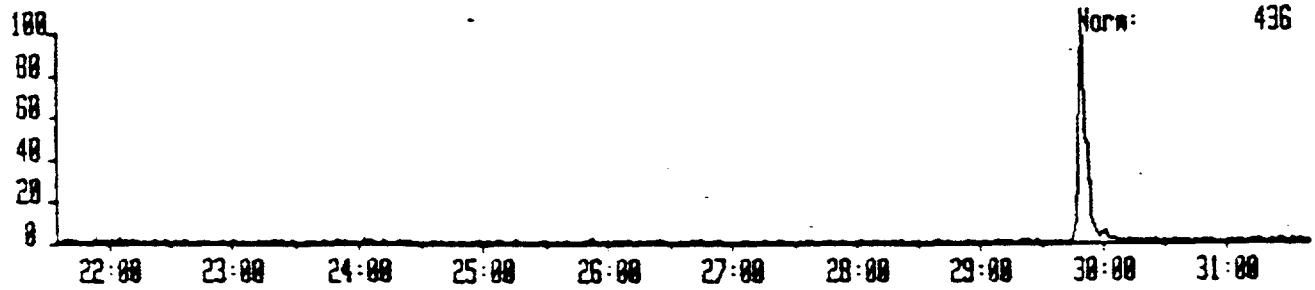
MB72293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 355.8546
Text:ENTROPY I2-MM5-5



MB72293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 365.8977
Text:ENTROPY I2-MM5-5



MB72293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 367.8948
Text:ENTROPY I2-MM5-5



M872290

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 239.97

	AREA	RETENTION TIME
1	8.484461E+02	0:13:04

M872290

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 251.97

	AREA	RETENTION TIME
1	8.630758E+02	0:07:10
2	1.331575E+03	0:09:00
3	7.429480E+02	0:10:10
4	4.244109E+03	0:13:44
5	4.532798E+02	0:17:50

M872290

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 253.97

	AREA	RETENTION TIME
1	1.632663E+02	0:10:22
2	2.753373E+03	0:13:44
3	2.006884E+02	0:16:14
4	1.364241E+02	0:17:33

M872290

M872290

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 204.02

	AREA	RETENTION TIME
1	5.129335E+03	0:09:47
2	2.273683E+02	0:14:53
3	1.767841E+02	0:17:12

M872290

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 218.01

	AREA	RETENTION TIME
1	1.191216E+04	0:10:26

M872290

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 220.01

	AREA	RETENTION TIME
1	5.645010E+03	0:10:26

M872290

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 237.98

	AREA	RETENTION TIME
1	5.206258E+03	0:13:05

M872290

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 202.02

	AREA	RETENTION TIME
1	5.089514E+02	0:08:31
2	1.422306E+04	0:09:47

M872290R
CONTINUING CALIB RF

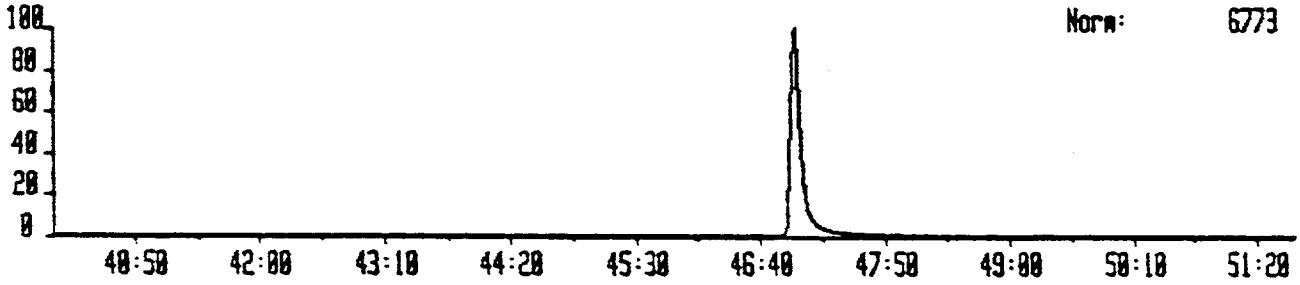
NAME	RESP FACT.	ID	INTID
TOTAL TRICDF	0.324	AN	RS1
TOTAL TRICDD	0.125	AN	RS1
2378-TCDF	1.398	AN	IS1
TOTAL TCDF	1.398	AN	IS1
13C12-TCDF	1.397	SURR	IS1
2378-TCDD	1.090	AN	IS1
TOTAL TCDD	1.090	AN	IS1
37CL-TCDD	2.398	SURR	IS1
1234-13C12-TCDD	1.000	RS1	IS1
2378-13C12-TCDD	1.425	IS1	RS1
12378-PCDF	2.880	AN	IS2
23478-PCDF	2.769	AN	IS2
TOTAL PCDF	2.825	AN	IS2
12378-PCDD	2.138	AN	IS2
TOTAL PCDD	2.138	AN	IS2
13C12-PCDD	0.490	IS2	RS1
123478-HxCDF	3.273	AN	IS3
123678-HxCDF	3.605	AN	IS3
234678-HxCDF	2.753	AN	IS3
123789-HxCDF	2.223	AN	IS3
TOTAL HxCDF	2.963	AN	IS3
13C12-HxCDF	2.803	SURR	IS3
123478-HxCDD	1.932	AN	IS3
123678-HxCDD	2.010	AN	IS3
123789-HxCDD	1.740	AN	IS3
TOTAL HxCDD	1.894	AN	IS3
13C-123789HxCDD	1.000	RS2	IS3
13C12-HxCDD	0.607	IS3	RS2
1234678-HpCDF	2.463	AN	IS4
1234789-HpCDF	2.131	AN	IS4
TOTAL HpCDF	2.297	AN	IS4
1234678-HpCDD	1.487	AN	IS4
TOTAL HpCDD	1.487	AN	IS4
13C12-HpCDD	0.813	IS4	RS2
OCDF	1.192	AN	IS5
OCDD	0.927	AN	IS5
13C12-OCDD	1.009	IS5	RS2
*** Total ***	65.494		

08/23/87

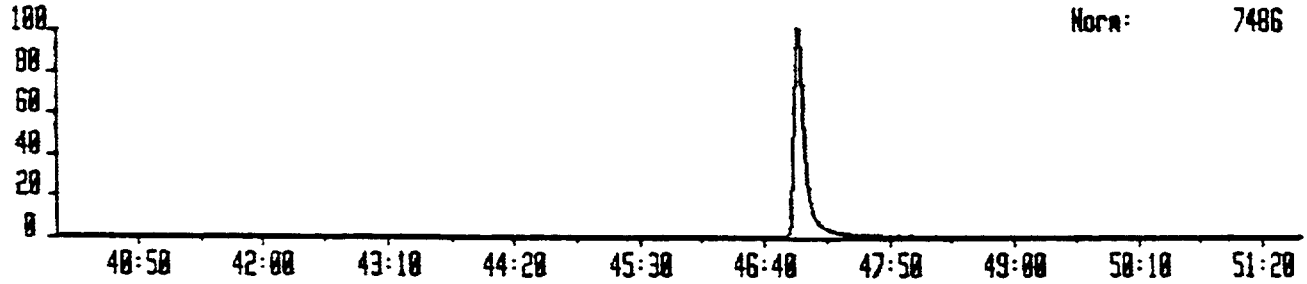
M872290
CONTINUING CALIB RT

NAME	RT	M_Z	REL_RT	ID	INTID
TOTAL TRICDF	0.00	270	0.000	AN	IS1
TOTAL TRICDD	0.00	286	0.000	AN	IS1
2378-TCDF	24.19	304	0.973	AN	IS1
13C12-TCDF	24.17	316	0.972	SURR	IS1
2378-TCDD	24.59	320	1.000	AN	IS1
37CL-TCDD	24.59	328	1.000	SURR	IS1
1234-13C12-TCDD	24.48	332	0.993	RS1	IS1
2378-13C12-TCDD	24.59	332	1.000	IS1	RS1
12378-PCDF	28.33	338	0.956	AN	IS2
23478-PCDF	29.25	338	0.985	AN	IS2
12378-PCDD	29.52	354	1.001	AN	IS2
13C12-PCDD	29.51	366	1.000	IS2	RS1
123478-HxCDF	35.18	374	0.967	AN	IS3
123678-HxCDF	35.28	374	0.972	AN	IS3
234678-HxCDF	36.13	374	0.992	AN	IS3
123789-HxCDF	37.19	374	1.022	AN	IS3
13C12-HxCDF	35.18	386	0.967	SURR	IS3
123478-HxCDD	36.24	390	0.997	AN	IS3
123678-HxCDD	36.31	390	1.000	AN	IS3
123789-HxCDD	36.59	390	1.013	AN	IS3
13C-123789HxCDD	36.59	402	1.013	RS2	IS3
13C12-HxCDD	36.30	402	1.000	IS3	RS2
1234678-HpCDF	40.48	408	0.965	AN	IS4
1234789-HpCDF	42.52	408	1.014	AN	IS4
1234678-HpCDD	42.16	424	1.000	AN	IS4
13C12-HpCDD	42.16	436	1.000	IS4	RS2
OCDF	47.11	442	1.005	AN	IS5
OCDD	47.00	458	1.001	AN	IS5
13C12-OCDD	46.58	470	1.000	IS5	RS2
*** Total ***	932.22	***	26.808		

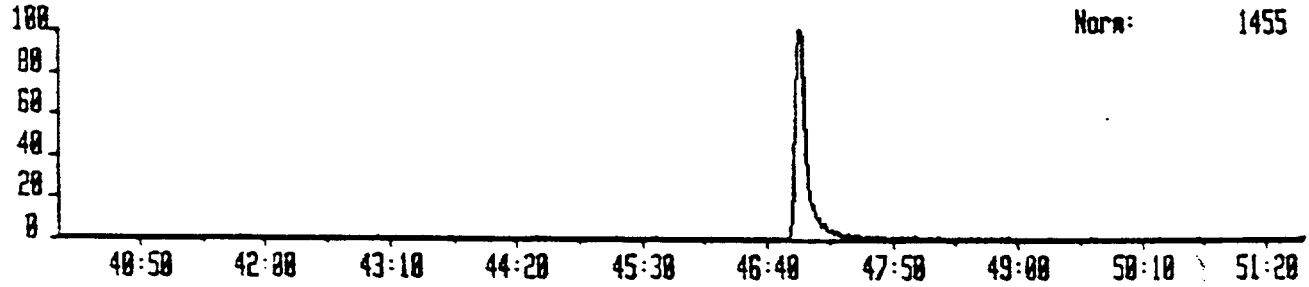
M872298 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:CONCAL 100



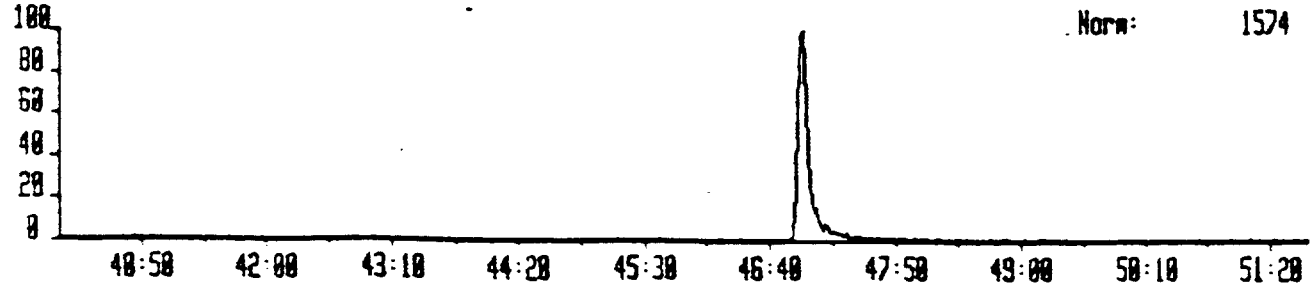
M872298 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:CONCAL 100



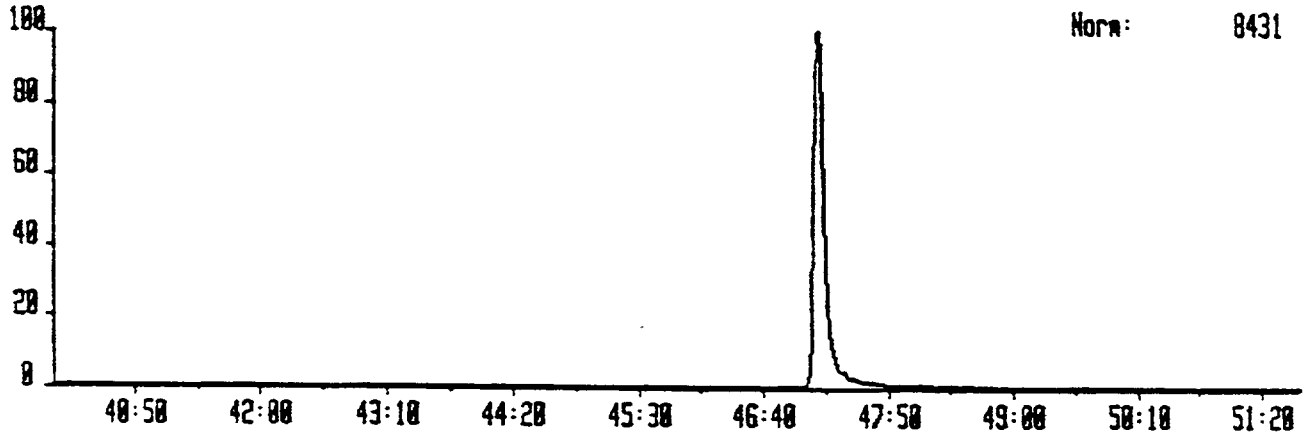
M872298 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:CONCAL 100



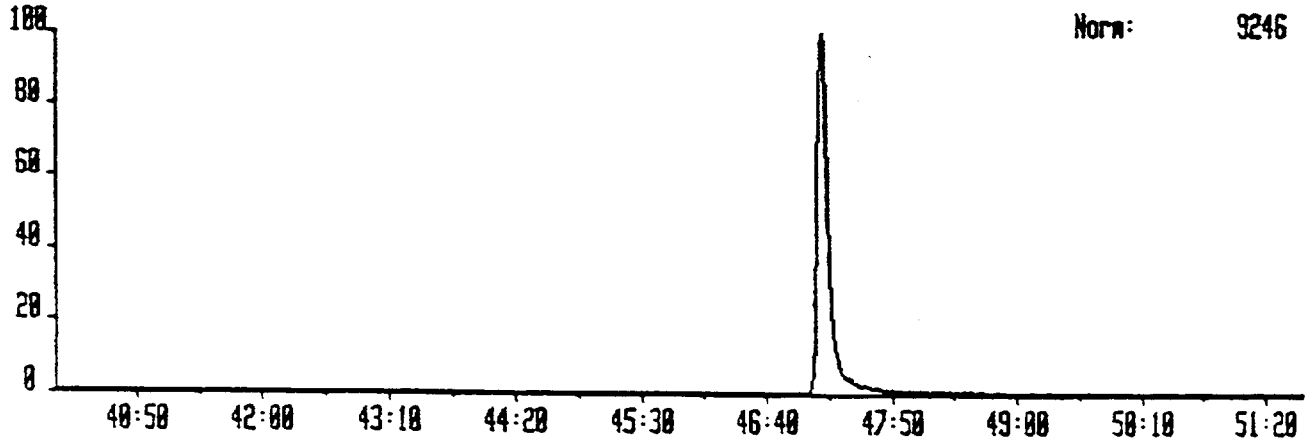
M872298 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 471.7758
Text:CONCAL 100



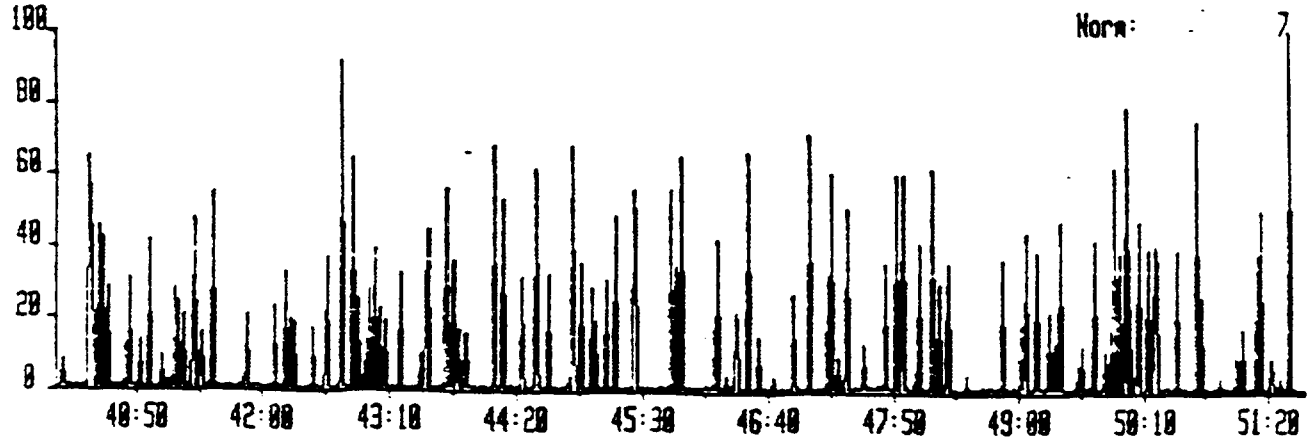
M872290 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 441.7428
Text:CONCAL 100



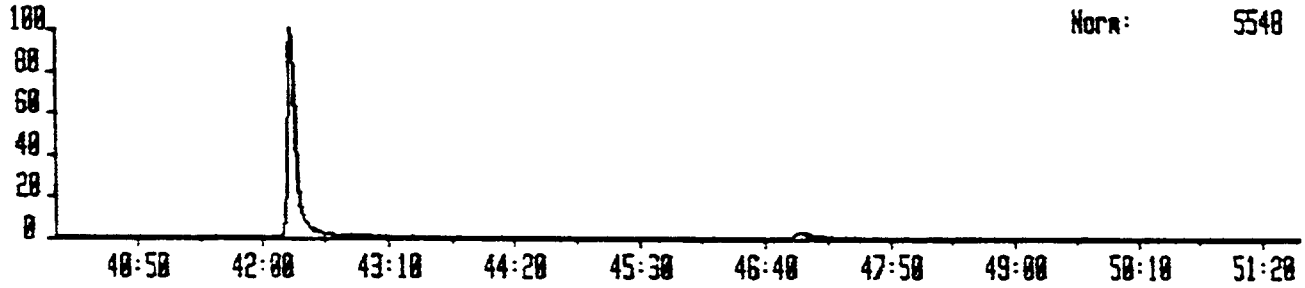
M872290 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:CONCAL 100



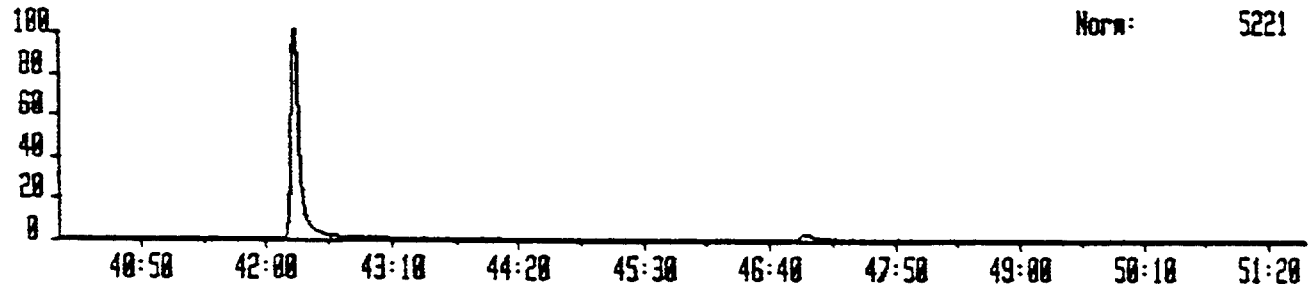
M872290 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 511.6810
Text:CONCAL 100



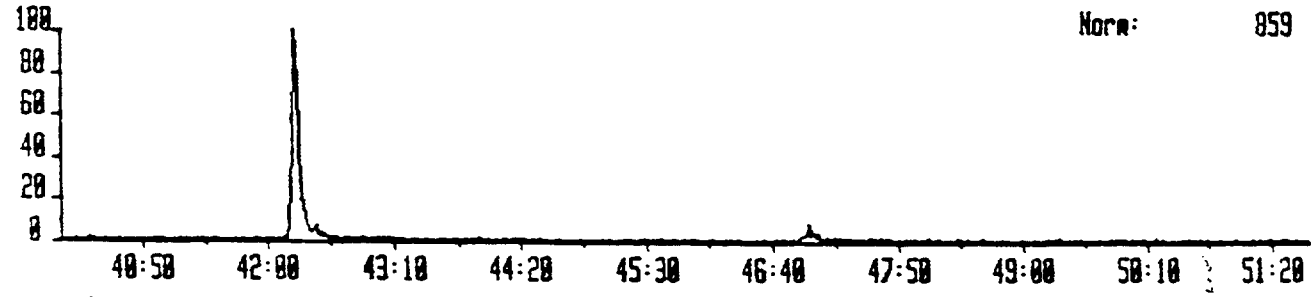
M872290 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:CONCAL 100



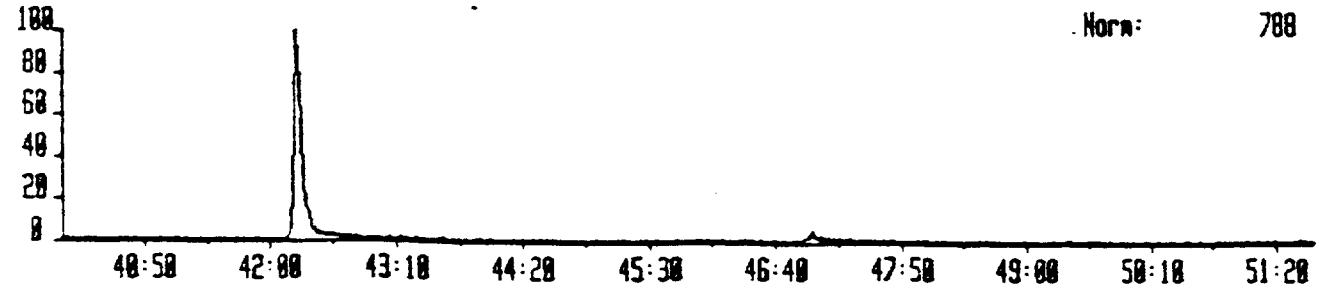
M872290 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:CONCAL 100



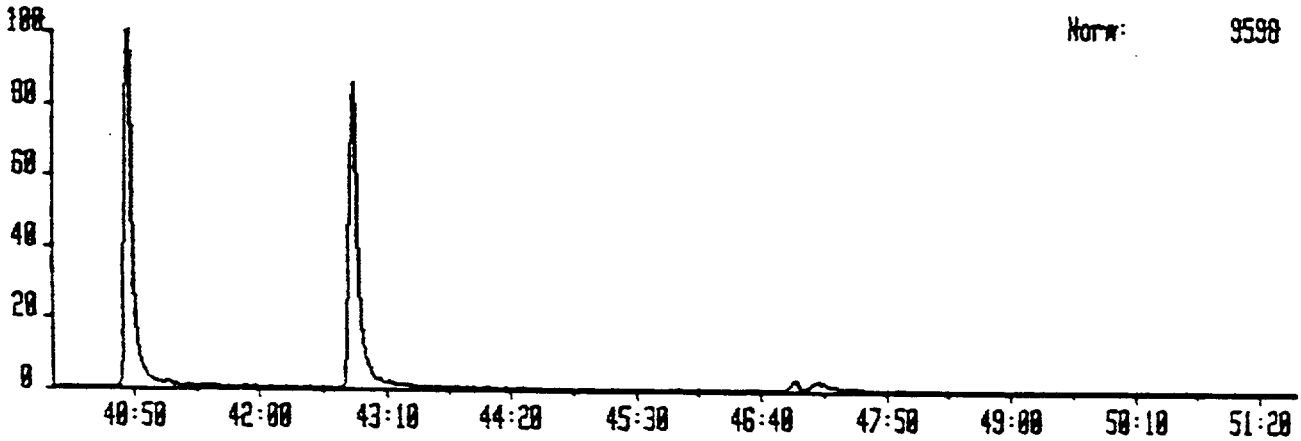
M872290 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:CONCAL 100



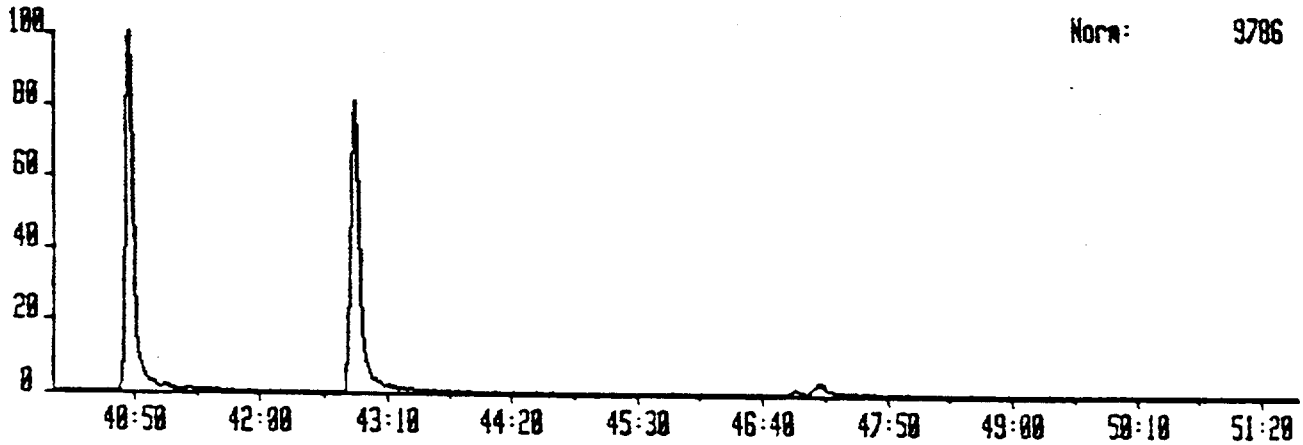
M872290 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:CONCAL 100



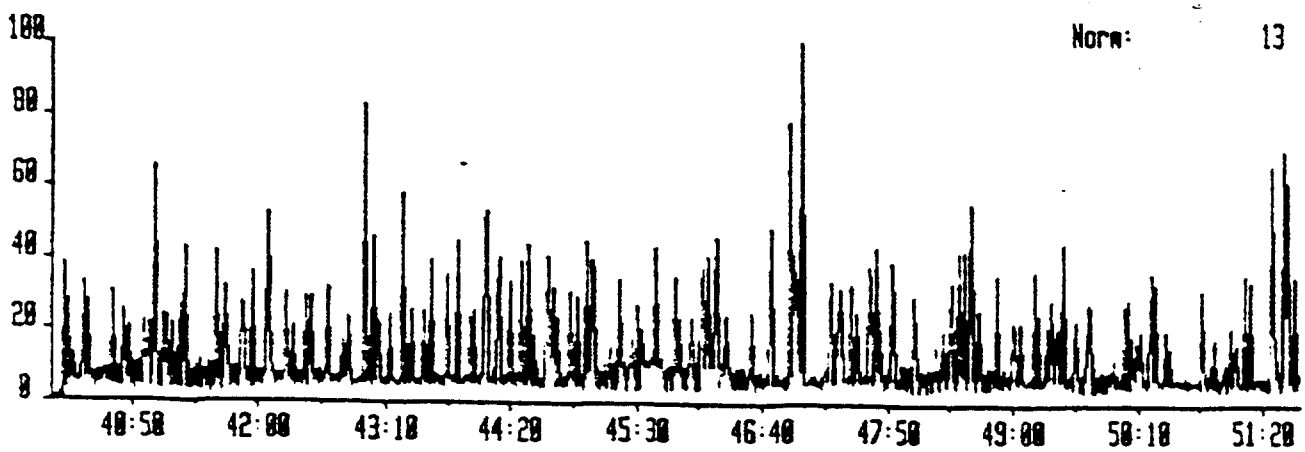
M872298 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 407.7817
Text:CONCAL 100



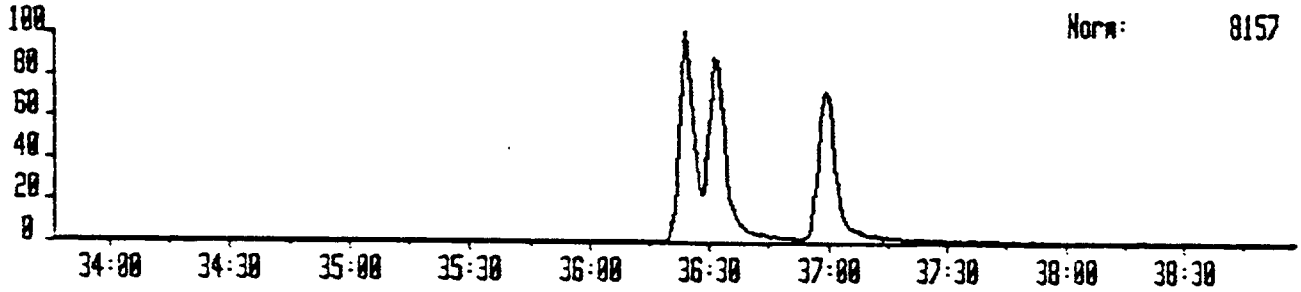
M872298 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 409.7788
Text:CONCAL 100



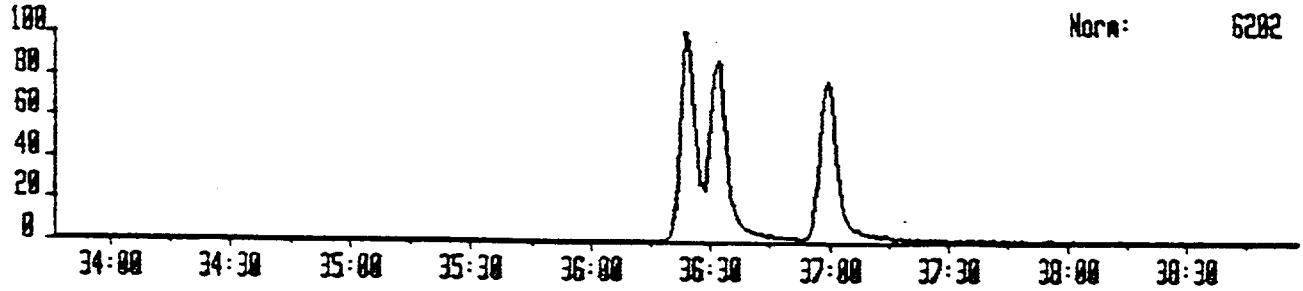
M872298 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 477.7288
Text:CONCAL 100



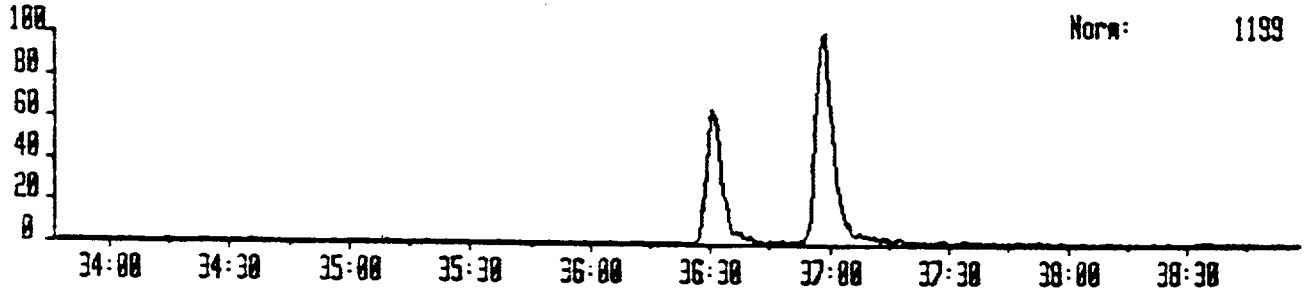
M872290 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 389.8156
Text:CONCAL 100



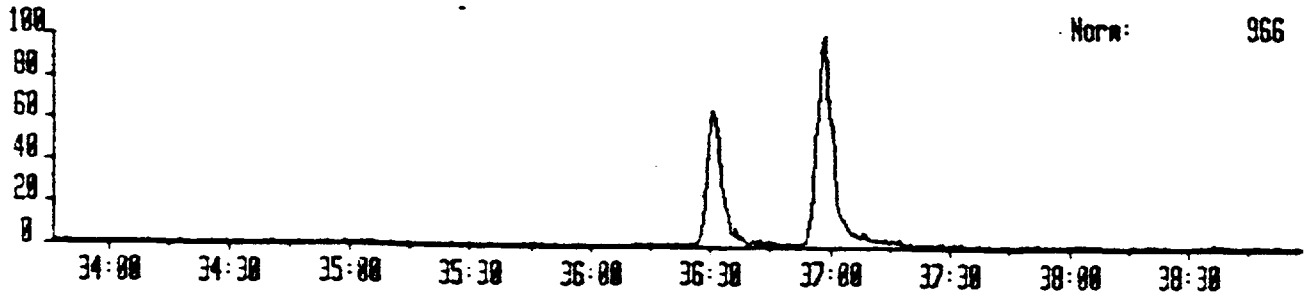
M872290 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 391.8127
Text:CONCAL 100



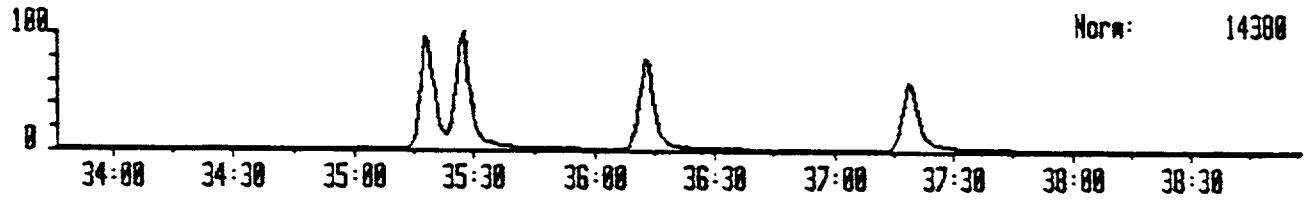
M872290 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text:CONCAL 100



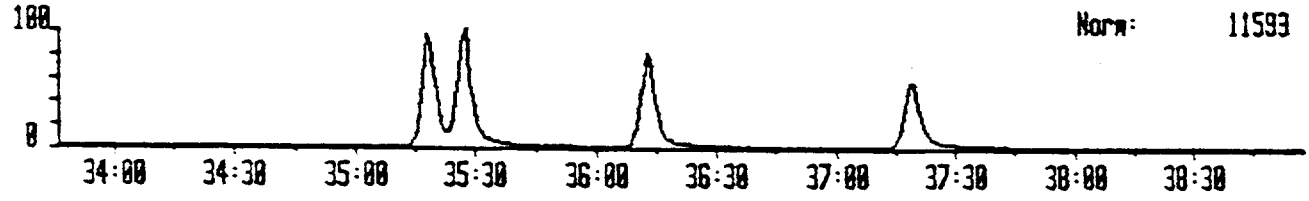
M872290 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 403.8529
Text:CONCAL 100



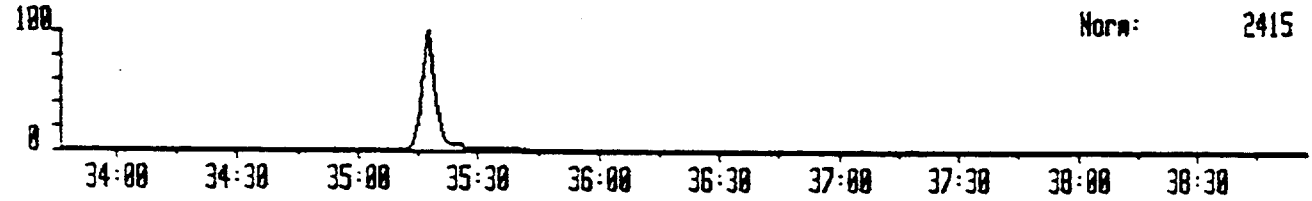
M872298 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 373.8287
Text:CONCAL 100



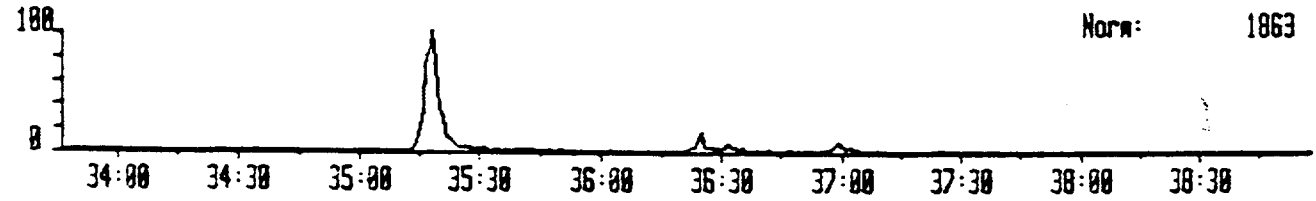
M872298 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 375.9178
Text:CONCAL 100



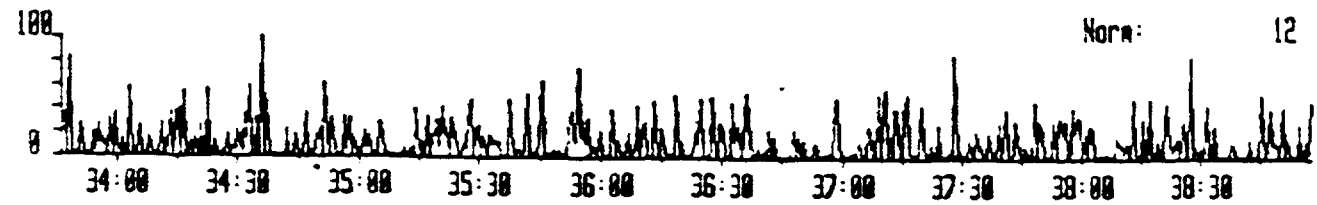
M872298 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 385.8609
Text:CONCAL 100



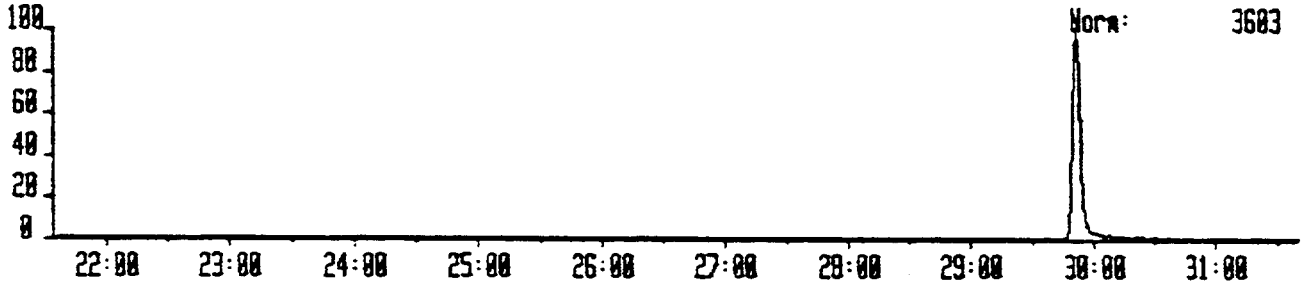
M872298 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 387.8588
Text:CONCAL 100



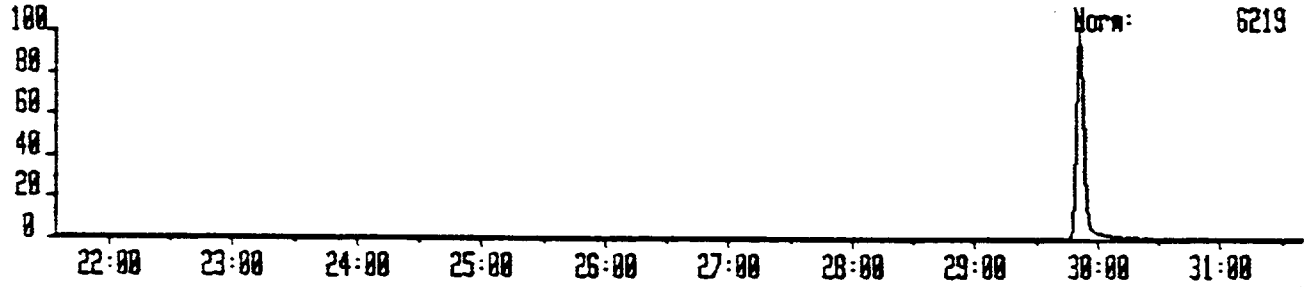
M872298 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:CONCAL 100



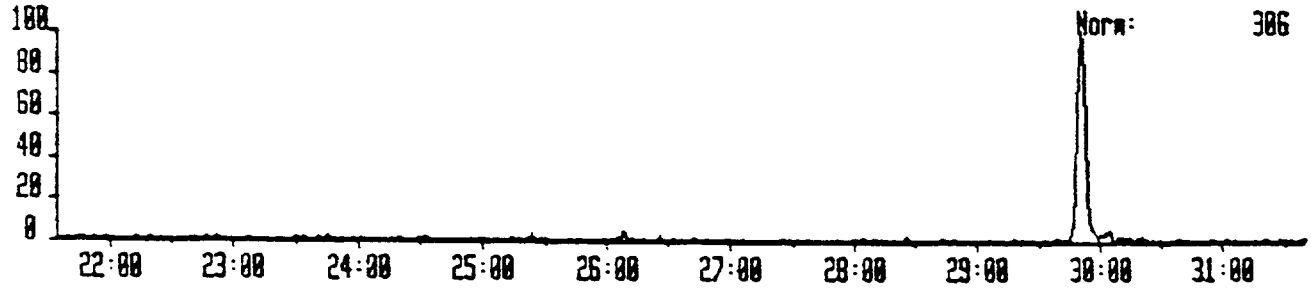
M872298 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:CONCAL 100



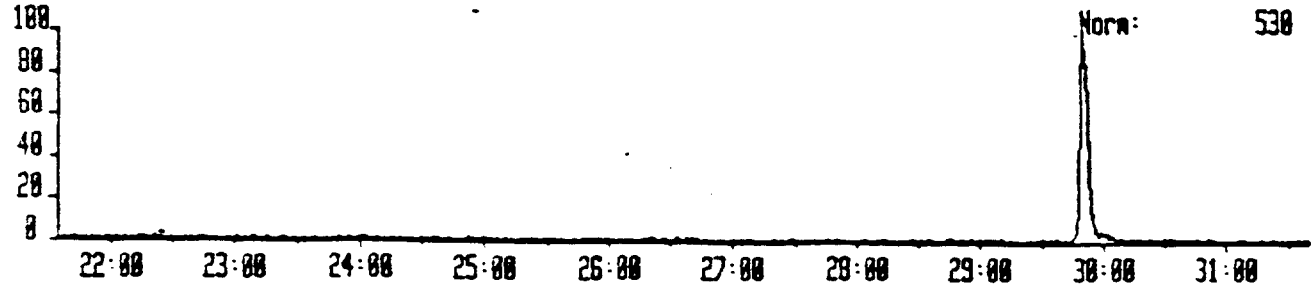
M872298 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 355.8546
Text:CONCAL 100



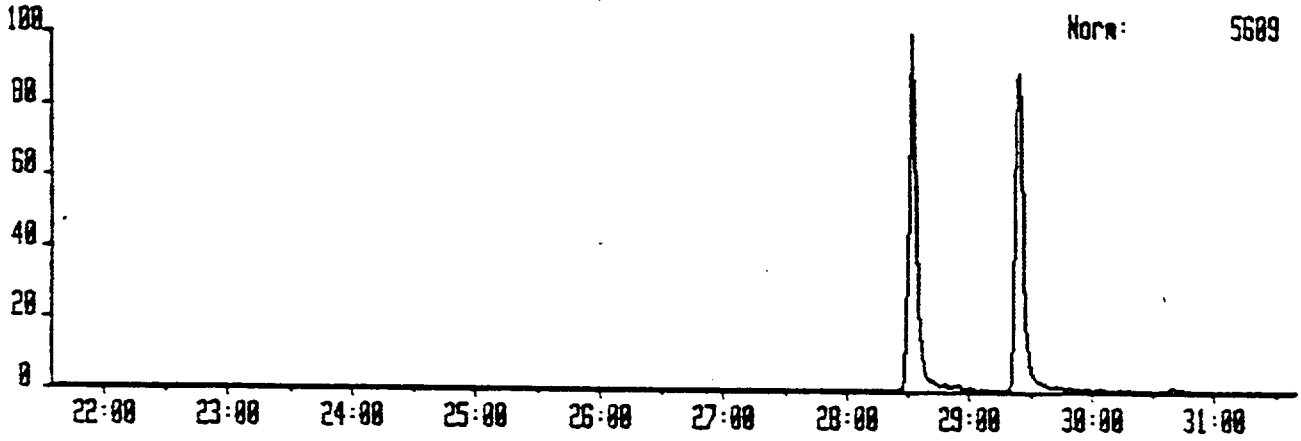
M872298 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 365.8977
Text:CONCAL 100



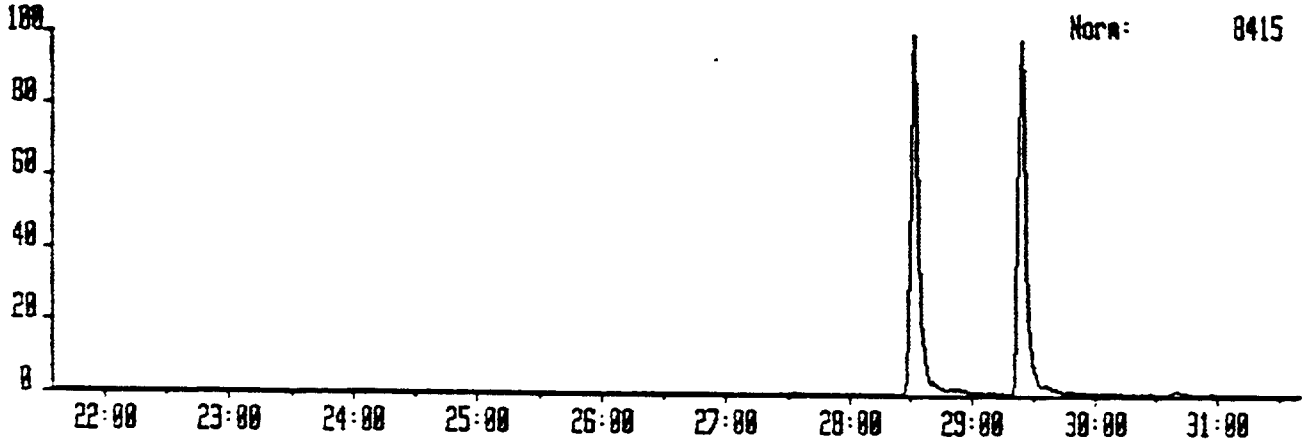
M872298 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 367.8948
Text:CONCAL 100



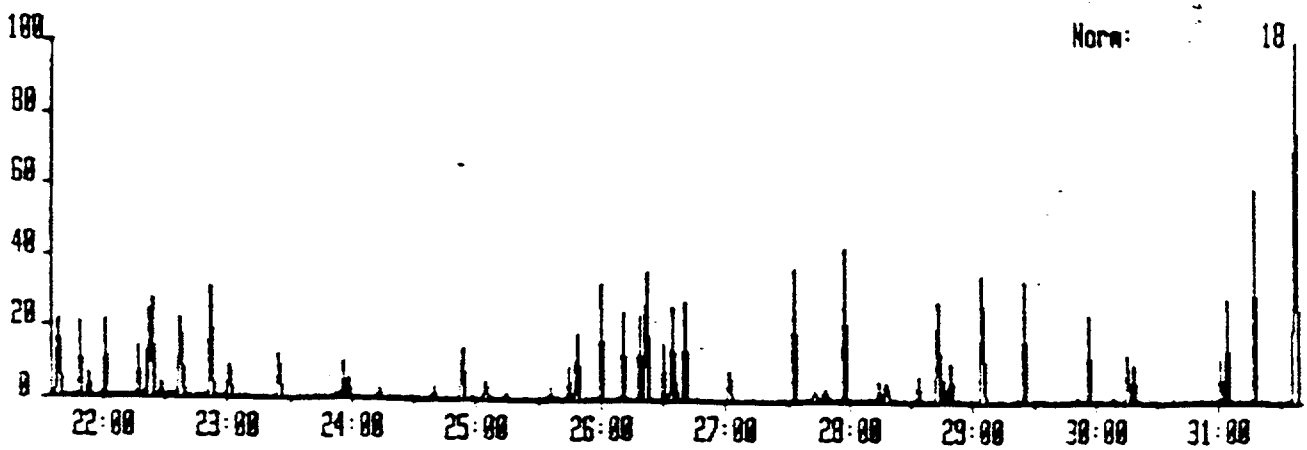
MB72298 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:CONCAL 100



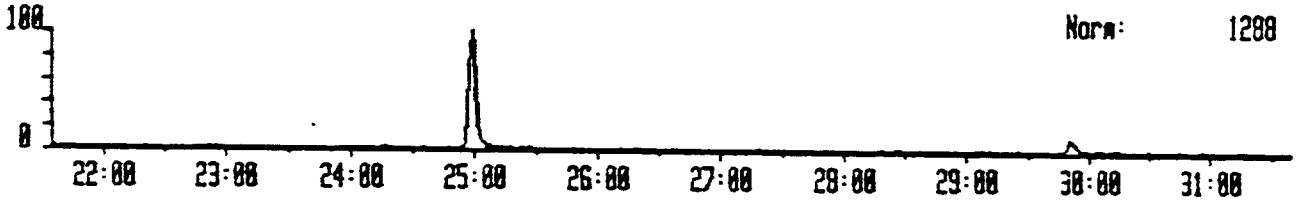
MB72298 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:CONCAL 100



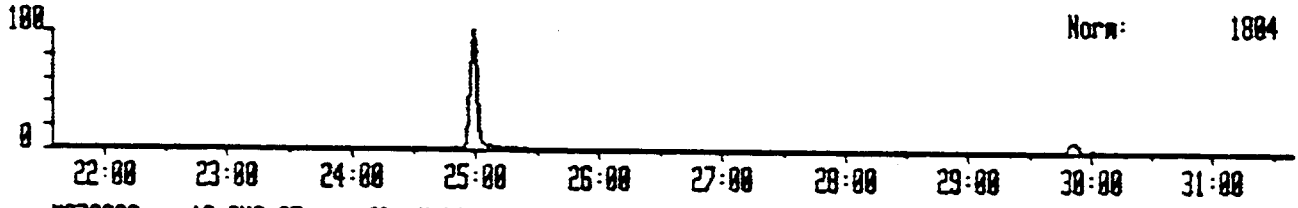
MB72298 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 407.8803
Text:CONCAL 100



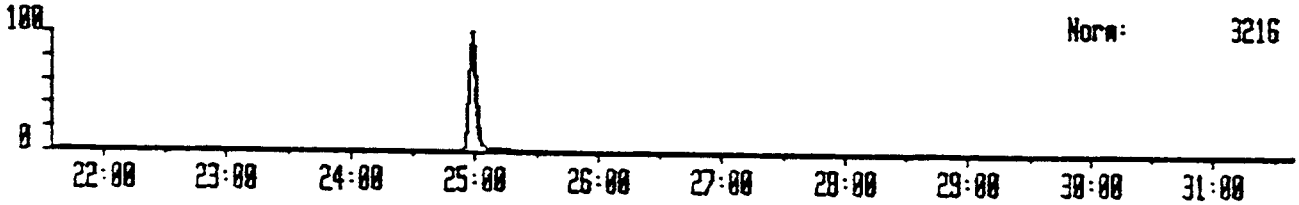
M872298 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:CONCAL 100



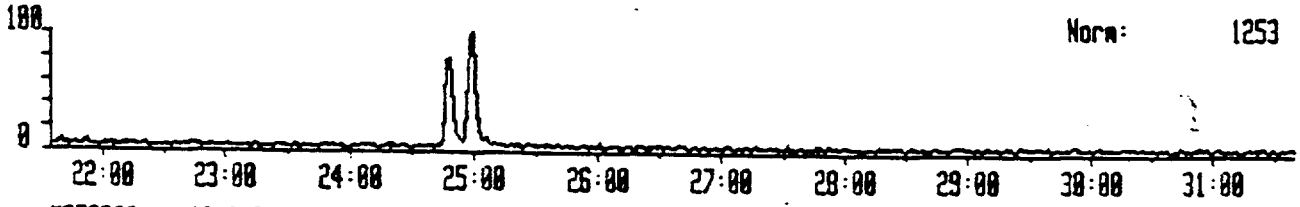
M872298 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:CONCAL 100



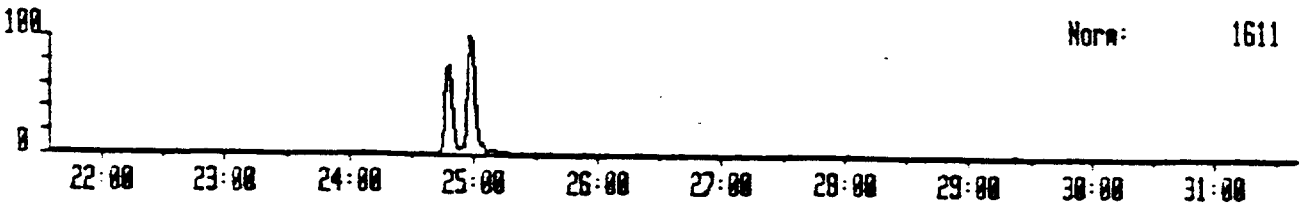
M872298 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 327.8847
Text:CONCAL 100



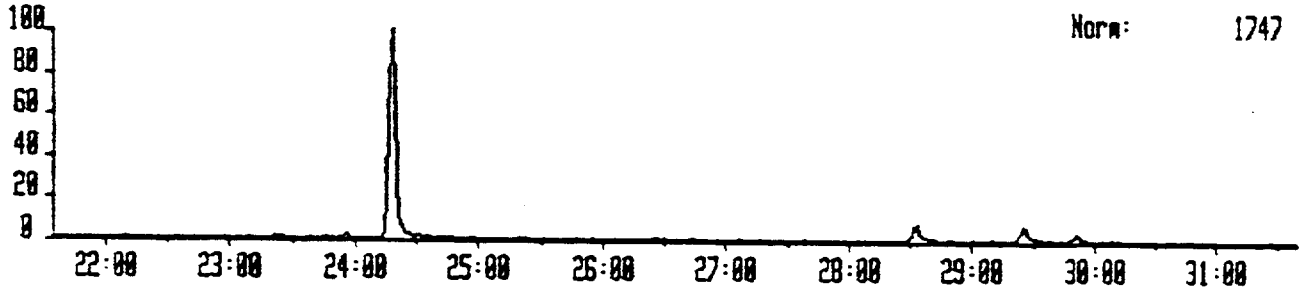
M872298 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 331.9368
Text:CONCAL 100



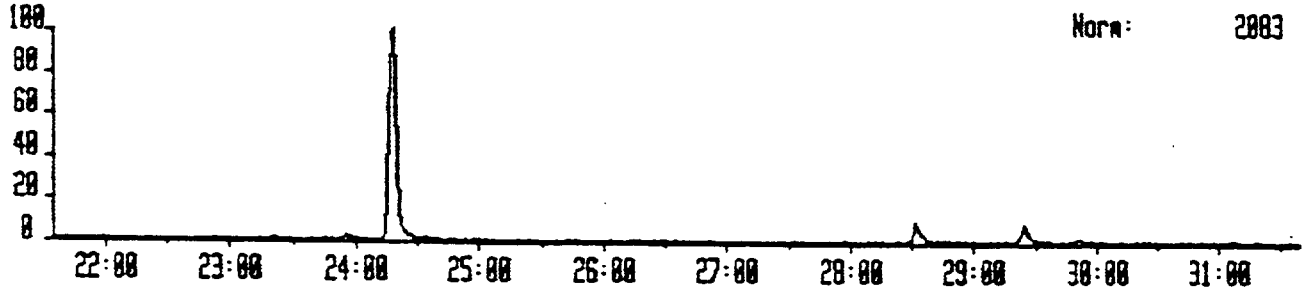
M872298 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 2 Mass 333.9338
Text:CONCAL 100



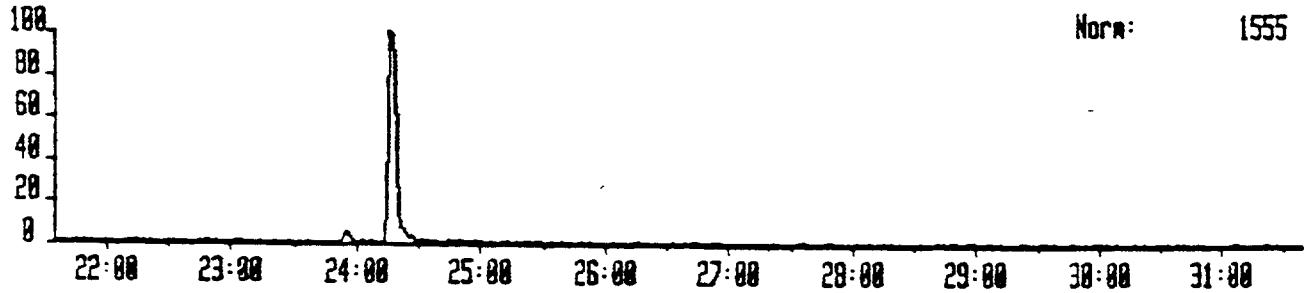
M872298 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 303.9816
Text:CONCAL 100



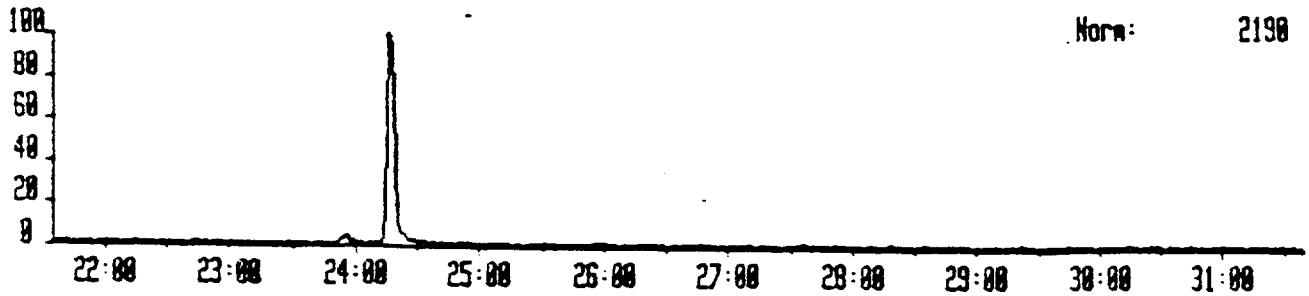
M872298 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 305.8987
Text:CONCAL 100



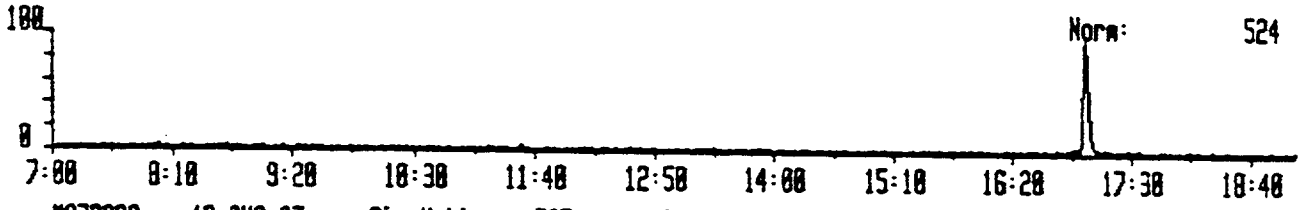
M872298 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 315.9419
Text:CONCAL 100



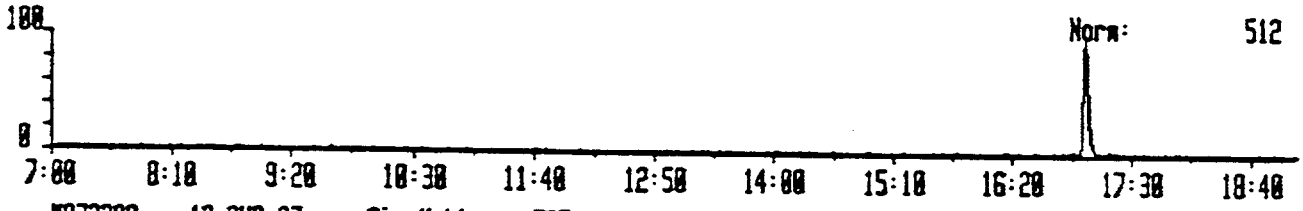
M872298 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 317.9389
Text:CONCAL 100



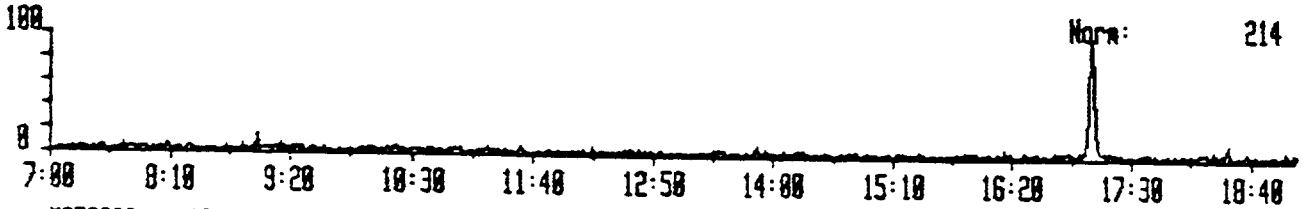
M872290 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 269.9486
Text:CONCAL 100



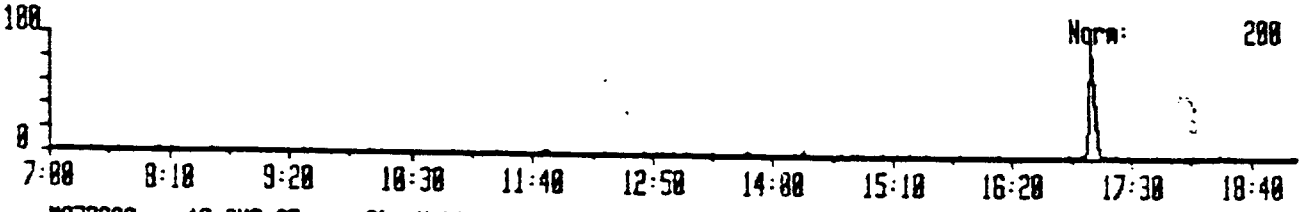
M872290 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 271.9377
Text:CONCAL 100



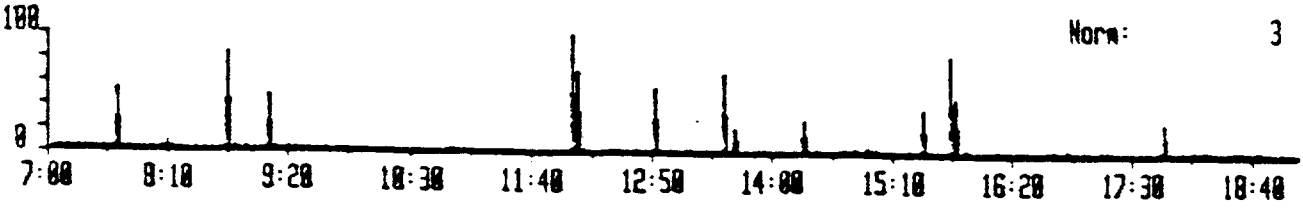
M872290 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 285.9355
Text:CONCAL 100



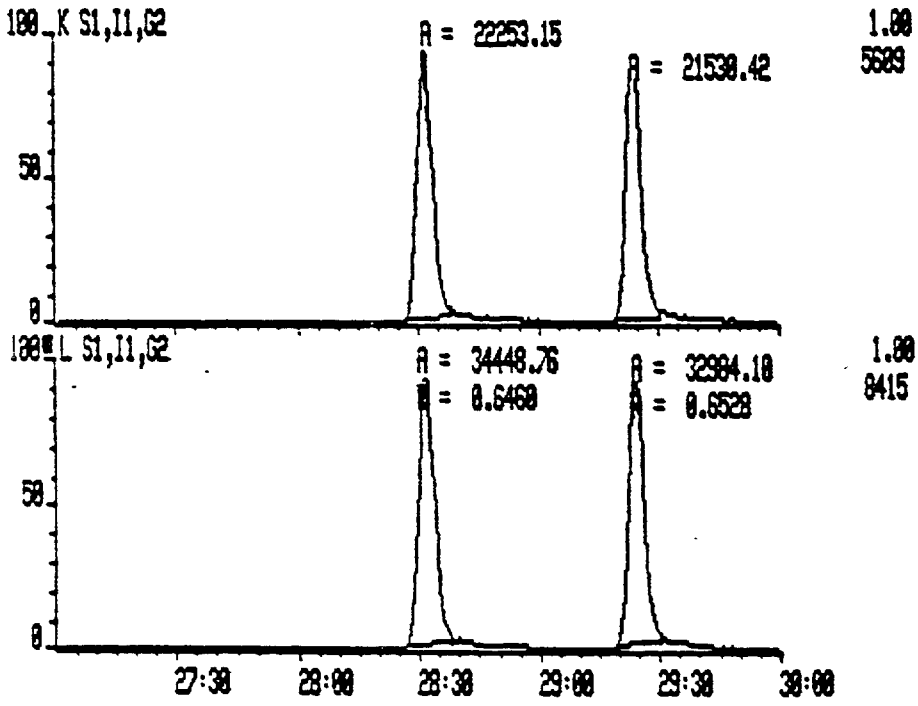
M872290 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 287.9326
Text:CONCAL 100



M872290 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 339.8798
Text:CONCAL 100



872259 12-AUG-87 01:27 70E (EI+) Sys:DBSRTST
GR 2 J: 333.9338 K: 337.8626 L: 339.8597 M: 353.8575 N: 355.8546
Text:CONCRL 100



COMPOUND	M/Z	RATIO RANGE	AREA	RETENTION TIME	NO. OF ISOMERS
13C12-PeCDD	366	(0.52-0.70)	14847	29.51	
	368		24537		
123478-HxCDF	374	(1.05-1.41)	54740	35.18	
	376		44280		
123678-HxCDF	374	(1.05-1.41)	61392	35.28	
	376		47684		
234678-HxCDF	374	(1.05-1.41)	46700	36.13	
	376		36580		
123789-HxCDF	374	(1.05-1.41)	37582	37.19	
	376		29660		
TOTAL HxCDF	374	(1.05-1.41)			
	376				
13C12HxCDF	386	(1.05-1.41)	9495	35.18	
	388		7465	OK	
123478-HxCDD	390	(1.05-1.41)	~~2299~~ 32145	36.24	
	392		26299		
123678-HxCDD	390	(1.05-1.41)	~~25688~~ 35133	36.32	
	392		25688 29131		
123789-HxCDD	390	(1.05-1.41)	~~23502~~ 37.00		
	392		23502	OK	
TOTAL HxCDD	390	(1.05-1.41)			
	392				
13C12-HxCDD	402	(1.05-1.41)	3365	36.30	
(123678)	404		2686		
HxCDD-13C	402	(1.05-1.41)	5757	36.59	
(123789)	404		4219		
PCDE	408				
PCDE	444				
1234678-HpCDF	408	(0.87-1.17)	50288	40.48	
	410		49571		
1234789-HpCDF	408	(0.87-1.17)	43664	42.52	
	410		42729		
TOTAL HpCDF	408	(0.87-1.17)			
	410				
1234678-HpCDD	424	(0.87-1.17)	30381	42.16	
	426		29906		
TOTAL HpCDD	424	(0.87-1.17)			
	426				
13C12-HpCDD	436	(0.87-1.17)	40420	42.16	
	438		40439		
PCDE	478				
OCDF	442	(0.75-1.01)	55974	47.11	
	444		63991		
OCDD	458	(0.75-1.01)	43177	47.00	
	460		50144		
13C12-OCDD	470	(0.75-1.01)	9998	46.58	
	472		10132		
PCDE	512				

TRIANGLE LABORATORIES, INC.
- DIOXIN/FURAN DATA SHEET

FILE NAME : M872290
CHEMIST : IAK
SAMPLE WT : —

TLI PROJECT # : 870 1511
DATE : 8-25-87
SAMPLE ID :
CONCAL # : Concal 10D

COMPOUND	M/Z	RATIO RANGE	AREA		RETENTION TIME	NO. OF ISOMERS
TOTAL MCDF	202	(2.61-3.53)				
	204					
TOTAL MCDD	218	(2.61-3.53)				
	220					
PCDE	272					
TOTAL DCDF	238	(5.21-7.05)				
	240					
TOTAL DCDD	252	(1.30-1.76)				
	254					
PCDE	306					
TOTAL TRICDF	270	(0.87-1.17)	1878	1.702		
	272		1829			
TOTAL TRICDD	286	(0.87-1.17)	785	1.06		
	288		641			
PCDE	340		—			
2378-TCDF	304	(0.65-0.89)	6932		24.19	
	306		9052			
TOTAL TCDF	304	(0.65-0.89)				
	306					
13C12-TCDF	316	(0.65-0.89)	6930		24.17	
	318		9051			
2378-TCDD	320	(0.65-0.89)	5316		24.59	
	322		7148			
TOTAL TCDD	320	(0.65-0.89)				
	322					
37Cl-TCDD	328		12062		24.59	
1234-13C12-TCDD	332	(0.65-0.89)	3647		24.48	
	334		4381			
2378-13C12-TCDD	332	(0.65-0.89)	5031		24.59	
	334		6406			
PCDE	374					
12378-PeCDF	338	(0.52-0.70)	22253		28.33	
	340		34499			
23478-PeCDF	338	(0.52-0.70)	21530		29.05	
	340		32984			
TOTAL PeCDF	338	(0.52-0.70)				
	340					
12378-PeCDD	354	(0.52-0.70)	15872		29.52	
	356		26213			
TOTAL PeCDD	354	(0.52-0.70)				
	356					

TRIANGLE LABORATORIES, INC.
MONO - OCTA DIOXIN CONTINUING CALIBRATION

ANALYST RVO FILE NAME M872290 ICAL DATE 7-22-87
DATE 8-11-87 STANDARD 100 QC check [X] HK 8-25-87

NAME	DAILY RF	CODE	RATIO	RT	DELTA RF	DELTA AS PERCENT
TOTAL MCDF	0.000	1	#DIV/0!		-1.96	-100%
TOTAL MCDD	0.000	1	#DIV/0!		-1.29	-100%
TOTAL DCDF	0.000	1	#DIV/0!		-0.47	-100%
TOTAL DCDD	0.000	1	#DIV/0!		-0.72	-100%
TOTAL TRICDF	0.324	1	1.027		-0.26	-45%
TOTAL TRICDD	0.125	1	1.225		-0.25	-67%
2378-TCDF	1.398	1	0.766	24.19	0.08	6%
TOTAL TCDF	1.398	1	0.766		0.08	6%
2378-TCDD	1.090	1	0.744	24.59	0.07	7%
TOTAL TCDD	1.090	1	0.744		0.07	7%
12378-PCDF	2.880	1	0.646	28.33	0.17	6%
23478-PCDF	2.769	1	0.653	29.25	0.27	11%
TOTAL PCDF	2.825	1	0.649		0.22	9%
12378-PCDD	2.138	1	0.606	29.52	0.19	10%
TOTAL PCDD	2.138	1	0.606		0.19	10%
123478-HxCDF	3.273	1	1.236	35.18	0.03	1%
123678-HxCDF	3.605	1	1.287	35.28	0.01	0%
234678-HxCDF	2.753	1	1.277	36.13	0.01	0%
123789-HxCDF	2.223	1	1.267	37.19	0.04	2%
TOTAL HxCDF	2.963	1	1.267		0.02	1%
123478-HxCDD	1.932	1	1.222	36.24	-0.09	-4%
123678-HxCDD	2.010	1	1.368	36.31	0.01	0%
123789-HxCDD	1.740	1	1.240	36.59	-0.03	-2%
TOTAL HxCDD	1.894	1	1.277		-0.04	-2%
1234678-HpCDF	2.463	1	1.014	40.48	0.21	9%
1234789-HpCDF	2.131	1	1.022	42.52	0.34	19%
TOTAL HpCDF	2.297	1	1.018		0.28	14%
1234678-HpCDD	1.487	1	1.016	42.16	0.15	11%
TOTAL HpCDD	1.487	1	1.016		0.15	11%
OCDF	1.192	1	0.875	47.11	0.10	9%
OCDD	0.927	1	0.861	47.00	0.00	0%

SURROGATE RESPONSE FACTOR SUMMARY

NAME	DAILY RF	CODE	RATIO	RT	DELTA RF	DELTA AS PERCENT
13C12-TCDF	1.397	2.00	0.766	24.17	-0.03	-2%
37Cl-TCDD	2.398	2.00		24.59	-0.01	0%
13C12-HxCDF	2.803	2.00	1.272	35.18	0.15	6%

INTERNAL STANDARDS RESPONSE FACTOR SUMMARY

NAME	DAILY RF	CODE	RATIO	RT	DELTA RF	DELTA AS PERCENT
2378-13C12-TCDD	1.425	3.00	0.785	24.59	0.06	4%
13C12-PCDD	0.490	3.00	0.605	29.51	-0.02	-3%
13C12-HxCDD	0.607	3.00	1.253	36.30	0.00	0%

M872273

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 457.74

	AREA	RETENTION TIME
1	2.098422E+04	0:47:06

M872278

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 459.73

	AREA	RETENTION TIME
1	2.534571E+04	0:47:05

M872278

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 469.78

	AREA	RETENTION TIME
1	4.975563E+03	0:47:04

M872273

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 471.77

	AREA	RETENTION TIME
1	4.942499E+03	0:47:05

	AREA	RETENTION TIME
1	2.647829E+03	0:42:21
2	1.961078E+02	0:47:08

M872278

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 437.81

	AREA	RETENTION TIME
1	2.439992E+03	0:42:20
2	3.179871E+01	0:51:08

M872278

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 441.74

	AREA	RETENTION TIME
1	2.807661E+04	0:47:17

M872278

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 443.74

	AREA	RETENTION TIME
1	2.800742E+04	0:47:17

TRIANGLE LABORATORIES, INC
2,3,7,8-TCDD/TCDF ANALYSIS

ANALYST	MDC	FILE #	M872315
DATE	8-25-87	CONCAL #	M872304
		TLI #	8701511
SAMPLE ID	I2-MM5-4		

NAME	AMT (ng)	DL	EMPC	RATIO	RT
2378-TCDF	0.36			0.698	15.34
2378-TCDD	ND		0.28	0.738	13.30

SURROGATE RESULTS SUMMARY

NAME	AMT (ng)	% RECOVERY	RATIO	RT
13C12-TCDF	4.69	93.87	0.824	15.35
37Cl-TCDD	4.63	92.54		13.29

INTERNAL STANDARDS RECOVERY RESULTS

NAME	AMT (ng)	% RECOVERY	RATIO	RT
2378-13C12-TCDD	7.64	76.38	0.769	13.28

M872278

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 391.81

	AREA	RETENTION TIME
1	1.734583E+04	0:36:29
2	1.971476E+04	0:36:36
3	1.605827E+04	0:37:05

M872278

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 401.86

	AREA	RETENTION TIME
1	2.305870E+03	0:36:36
2	3.903618E+03	0:37:04

M872278

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 403.85

	AREA	RETENTION TIME
1	1.748557E+03	0:36:36
2	2.990674E-03	0:37:04

M872278

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 407.78

	AREA	RETENTION TIME
1	2.855170E+04	0:40:33
2	2.228471E+04	0:40:58

	AREA	RETENTION TIME
1	3.352302E+04	0:35:23
2	3.795055E+04	0:35:31
3	2.679190E+04	0:36:17
4	2.023729E+04	0:37:25

M872278

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 385.86

	AREA	RETENTION TIME
1	7.273504E+03	0:35:23

M872278

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 387.86

	AREA	RETENTION TIME
1	5.999804E+03	0:35:23
2	4.103330E+02	0:36:30
3	3.556094E+02	0:36:37
4	1.891150E+02	0:37:02

M872278

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 389.82

	AREA	RETENTION TIME
1	2.217349E+04	0:36:29
2	2.489294E+04	0:36:36
3	1.988035E+04	0:37:05

M872273

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 365.90

	AREA	RETENTION TIME
1	1.432948E+03	0:29:56

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 367.89

	AREA	RETENTION TIME
1	2.547639E+03	0:29:56

M872278

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 373.82

	AREA	RETENTION TIME
1	4.010391E+04	0:35:23
2	4.812013E+04	0:35:32
3	3.379389E+04	0:36:18
4	2.479241E+04	0:37:24

M872278

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 337.86

	AREA	RETENTION TIME
1	2.612187E+04	0:28:37
2	2.383731E+04	0:29:29

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 339.86

	AREA	RETENTION TIME
1	4.167373E+04	0:28:37
2	3.750068E+04	0:29:29

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 353.96

	AREA	RETENTION TIME
1	1.533247E+04	0:29:56

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 355.35

	AREA	RETENTION TIME
1	2.541364E+04	0:29:56

	AREA	RETENTION TIME
1	8.504395E+03	0:25:03
2	1.064632E+03	0:29:57

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 327.88

	AREA	RETENTION TIME
1	1.410336E+04	0:25:03

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 331.94

	AREA	RETENTION TIME
1	5.158519E+03	0:24:52
2	6.385921E+03	0:25:03

M872279

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 333.93

	AREA	RETENTION TIME
1	5.300022E+03	0:24:51
2	7.947963E+03	0:25:04

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 315.94

	AREA	RETENTION TIME
1	4.710678E+02	0:23:59
2	9.396401E+03	0:24:22

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 317.94

	AREA	RETENTION TIME
1	6.946940E+02	0:23:59
2	1.139421E+04	0:24:21

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 319.90

	AREA	RETENTION TIME
1	6.804576E+03	0:25:03
2	7.602568E+02	0:29:58

M872278

M872273

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 285.94

	AREA	RETENTION TIME
1	6.184380E+02	0:17:10

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 287.93

	AREA	RETENTION TIME
1	5.880506E+02	0:17:10

M872278

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 303.90

	AREA	RETENTION TIME
1	2.005564E+02	0:24:01
2	8.636529E+03	0:24:23
3	1.034926E+03	0:28:37
4	9.362886E+02	0:29:30
5	2.298005E+02	0:29:55

M872273

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 305.90

	AREA	RETENTION TIME
1	1.157338E+04	0:24:23
2	1.3323875+03	0:28:36

	AREA	RETENTION TIME
1	1.437670E+03	0:07:08
2	4.231319E+03	0:13:48
3	5.577883E+02	0:18:25

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 253.97

	AREA	RETENTION TIME
1	2.619803E+03	0:13:48

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 269.94

	AREA	RETENTION TIME
1	1.807727E+03	0:17:07

M872273

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 271.94

	AREA	RETENTION TIME
1	1.735136E+03	0:17:07

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 220.01

	AREA	RETENTION TIME
1	5.030752E+03	0:10:29
2	5.201403E+03	0:11:28

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 237.98

	AREA	RETENTION TIME
1	4.314569E+03	0:13:08

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 239.97

	AREA	RETENTION TIME
1	9.845949E+02	0:13:07
2	8.492700E+02	0:17:23

M872278

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 202.02

	AREA	RETENTION TIME
1	1.409730E+04	0:09:50

M872167

M872278

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 204.02

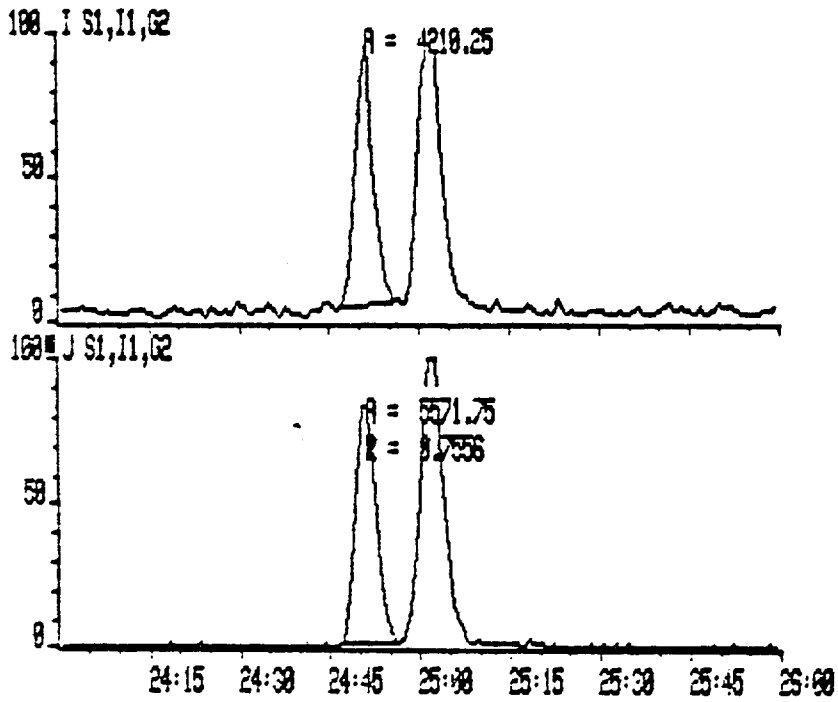
	AREA	RETENTION TIME
1	5.174558E+03	0:09:50
2	3.959208E+02	0:15:52
3	2.518680E+02	0:17:33

M872279

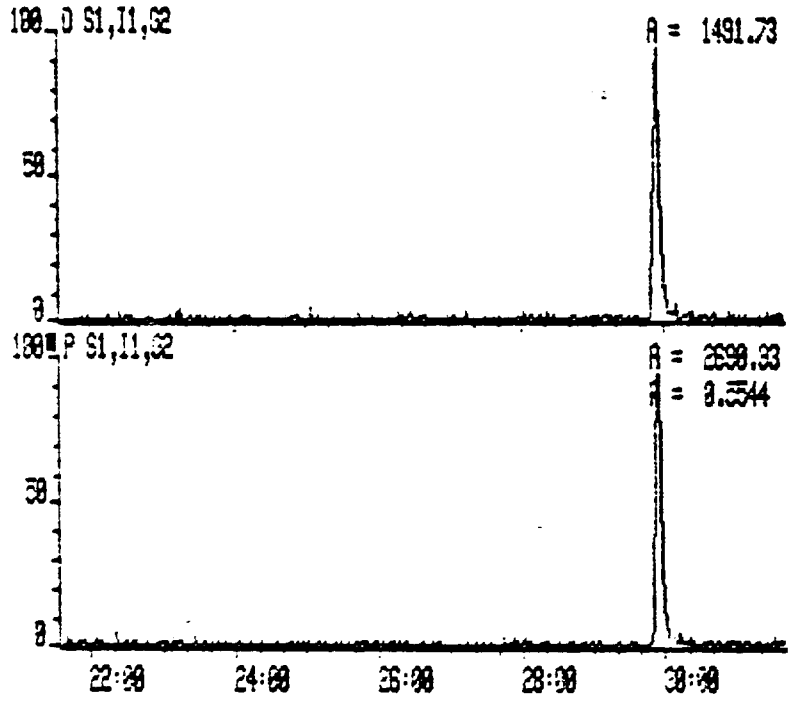
SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 218.01

	AREA	RETENTION TIME
1	1.121674E+04	0:10:29

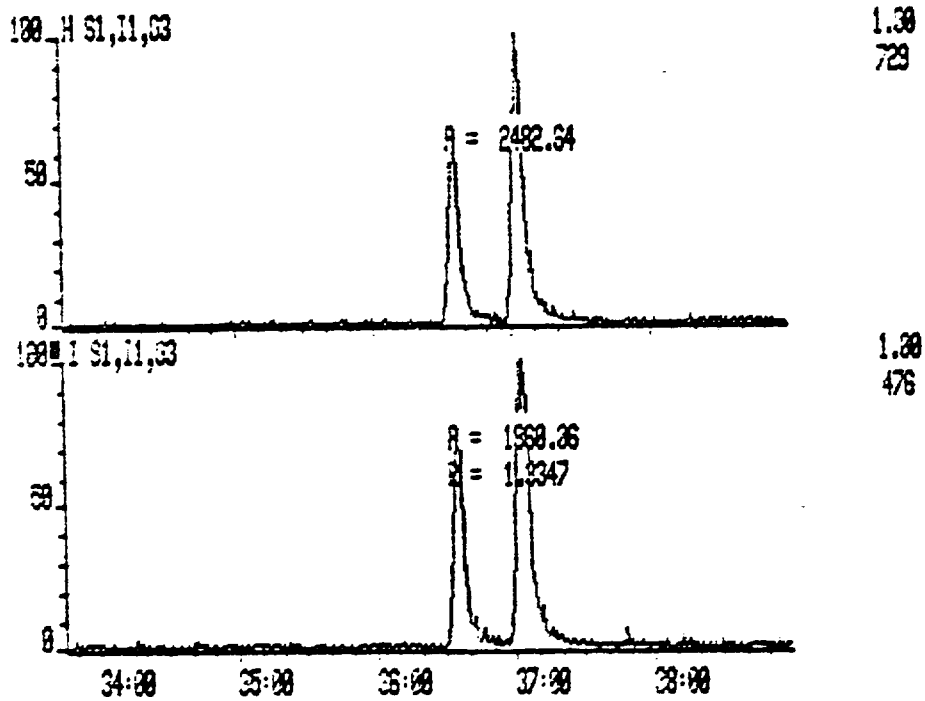
7872278 11-AUG-87 10:07 70E (EI+) Sus:DB5ATST
GR 2 G: 321.8936 H: 327.8847 I: 331.9368 J: 333.9338 K: 337.8626
Text:CONCAL



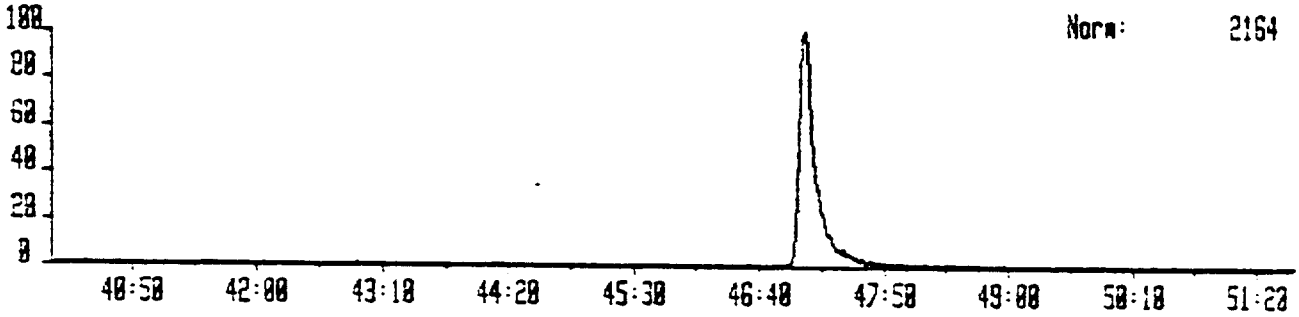
8722278 11-AUG-97 18:07 78E (EI+) Sys:DB5HTST
SR 2 A: 292.3825 B: 303.9816 C: 305.3387 D: 315.9419 E: 317.9389
Text:CONCAL



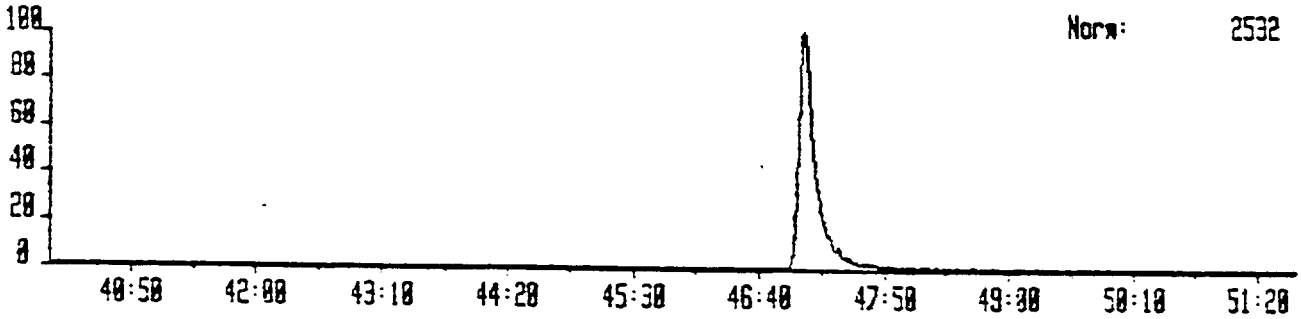
72278 11-AUG-87 10:07 70E (EI+) Sus:C25ATST
GR 3 A: 392.9791 B: 373.8297 C: 375.8178 D: 385.8609 E: 387.9590
Text:CONCAL



M872278 11-AUG-87 Sir:Voltage 78E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:CONCAL

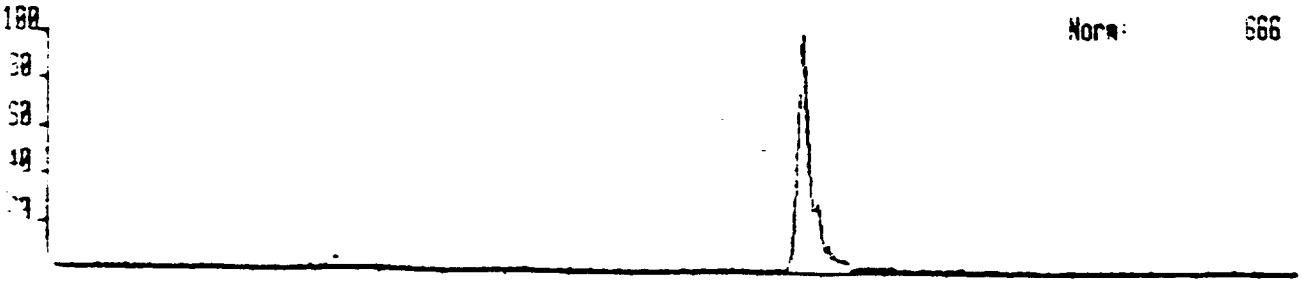


M872278 11-AUG-87 Sir:Voltage 78E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:CONCAL

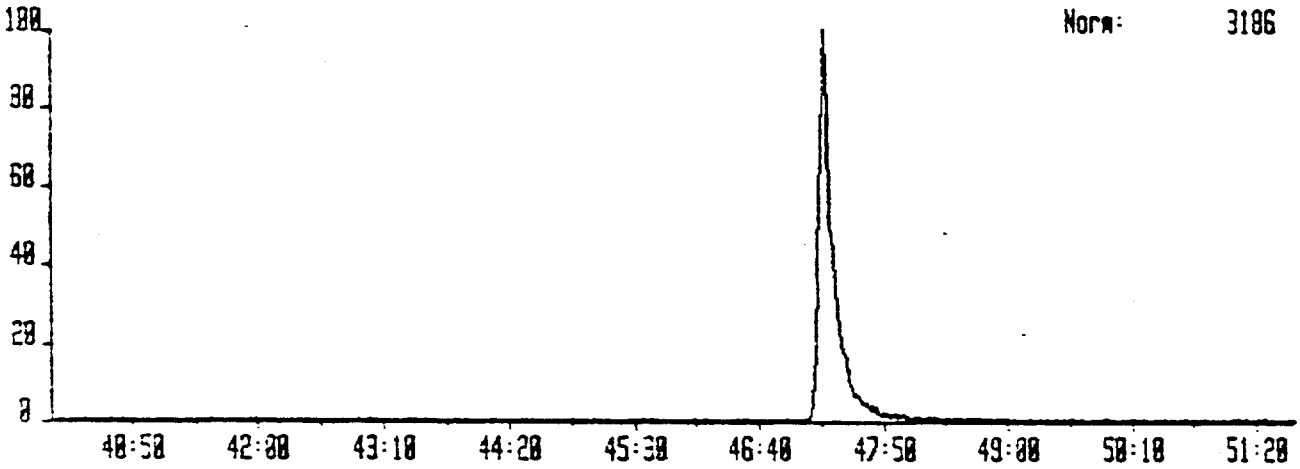


M872278 11-AUG-87 Sir:Voltage 78E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:CONCAL

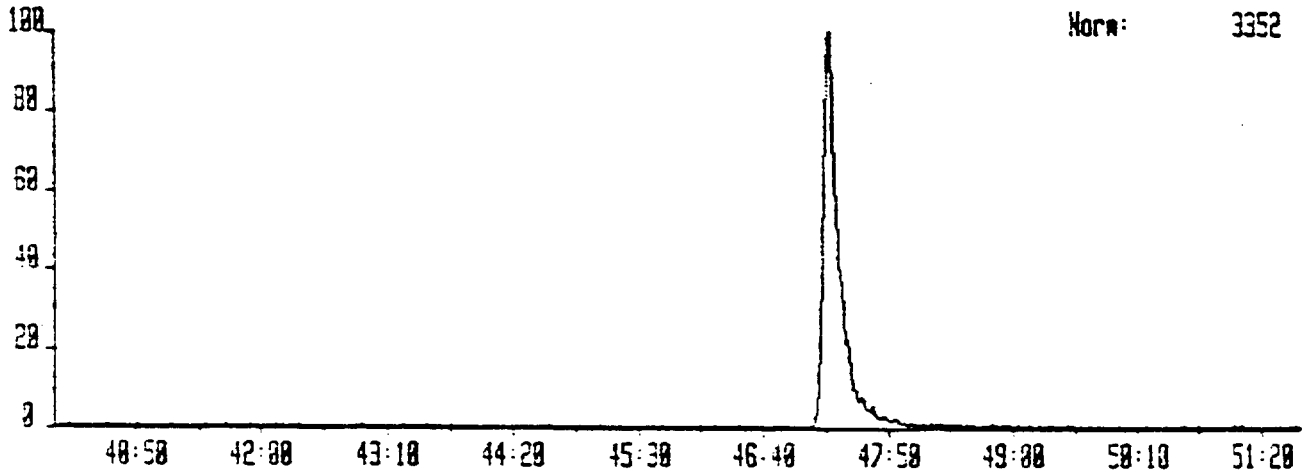
M872278 11-AUG-87 Sir:Voltage 78E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 471.7758
Text:CONCAL



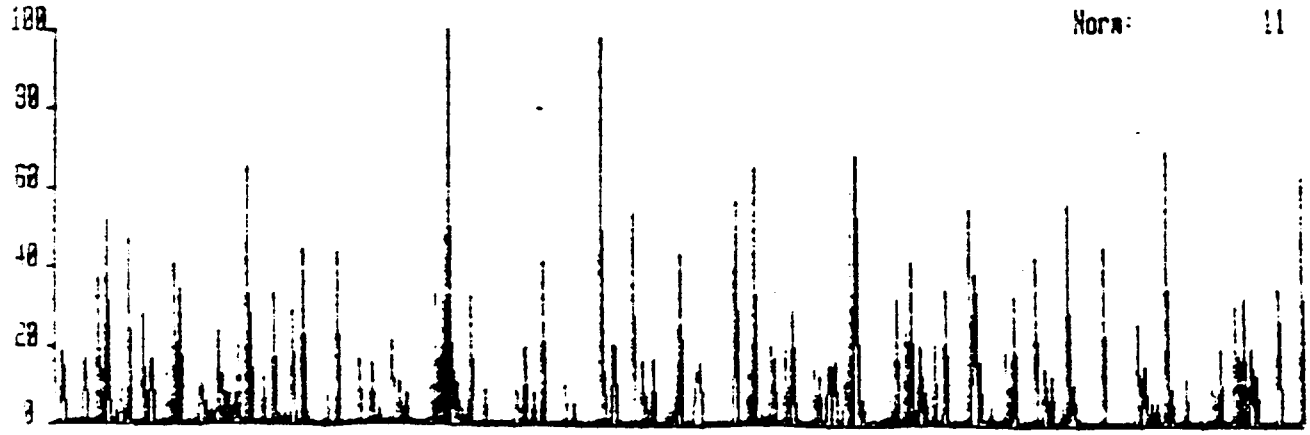
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 441.7429
Text:CONCAL



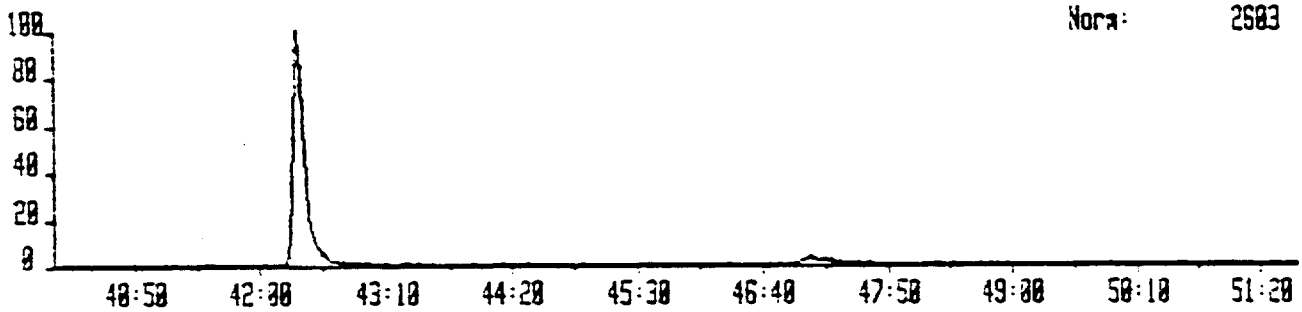
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:CONCAL



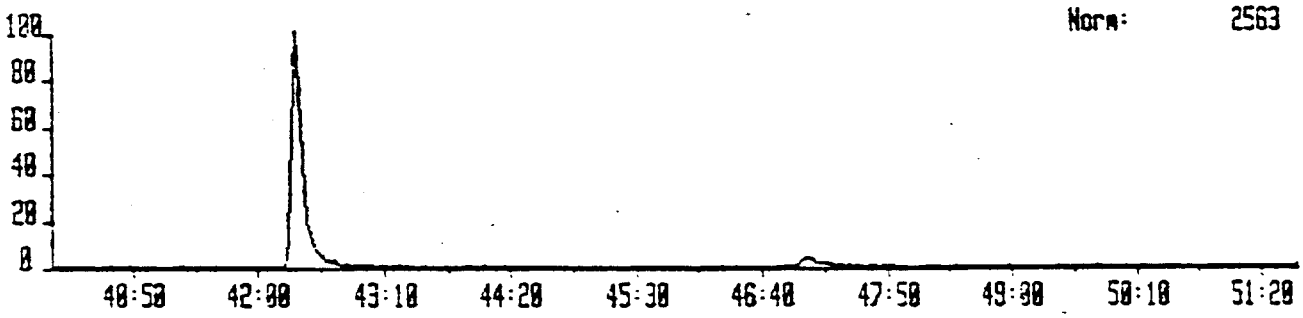
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 511.5818
Text:CONCAL



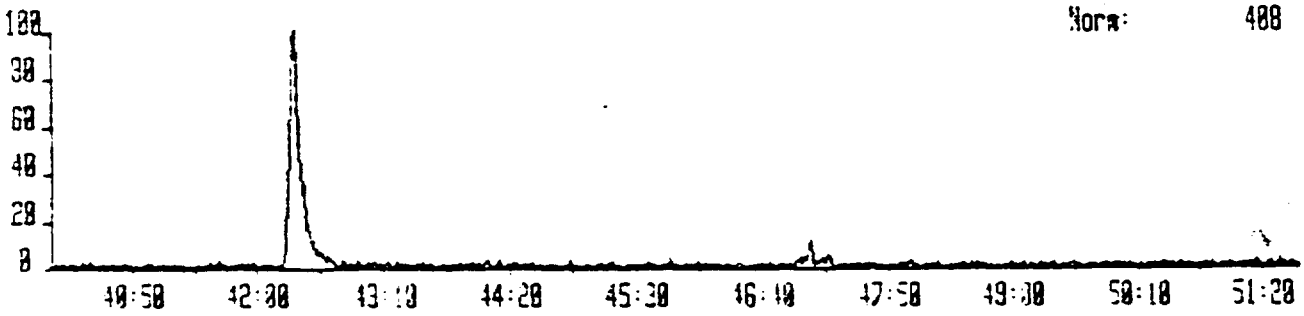
M872278 11-AUG-87 Str:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:CONCAL



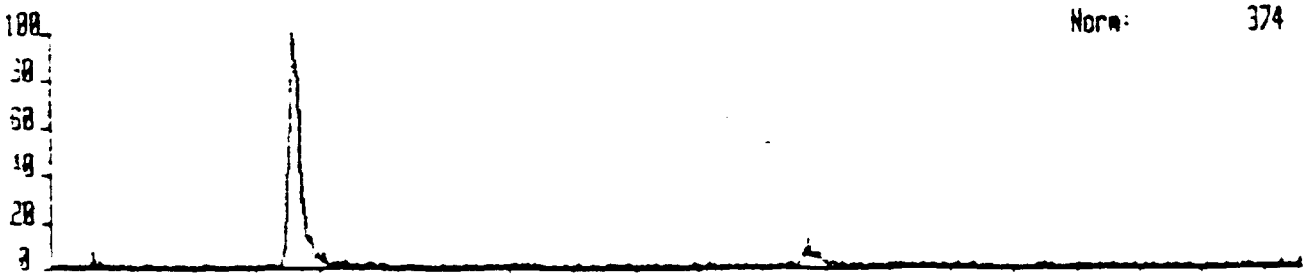
M872278 11-AUG-87 Str:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:CONCAL



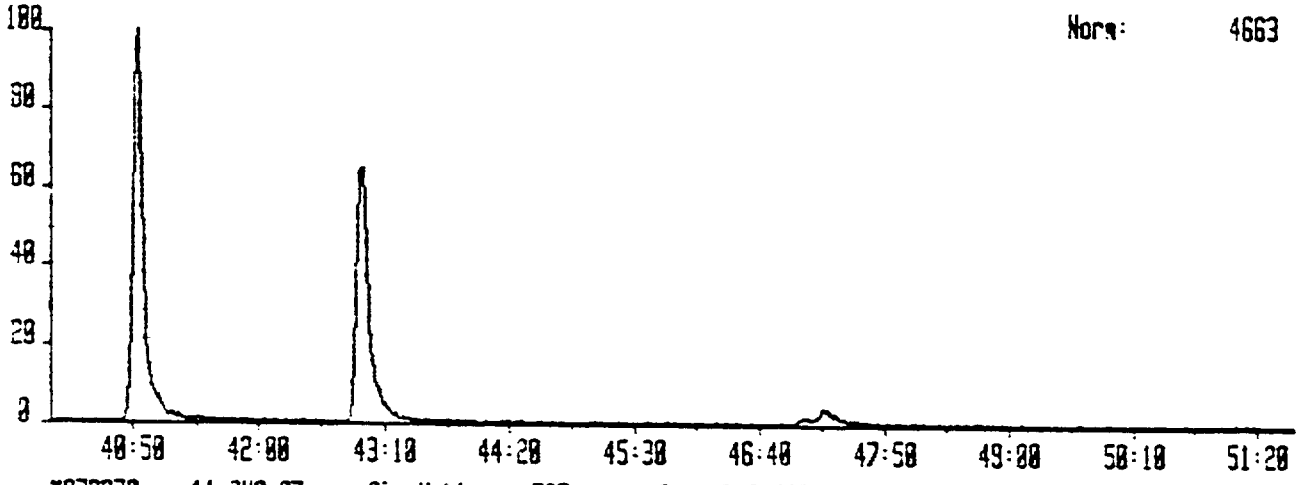
M872278 11-AUG-87 Str:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:CONCAL



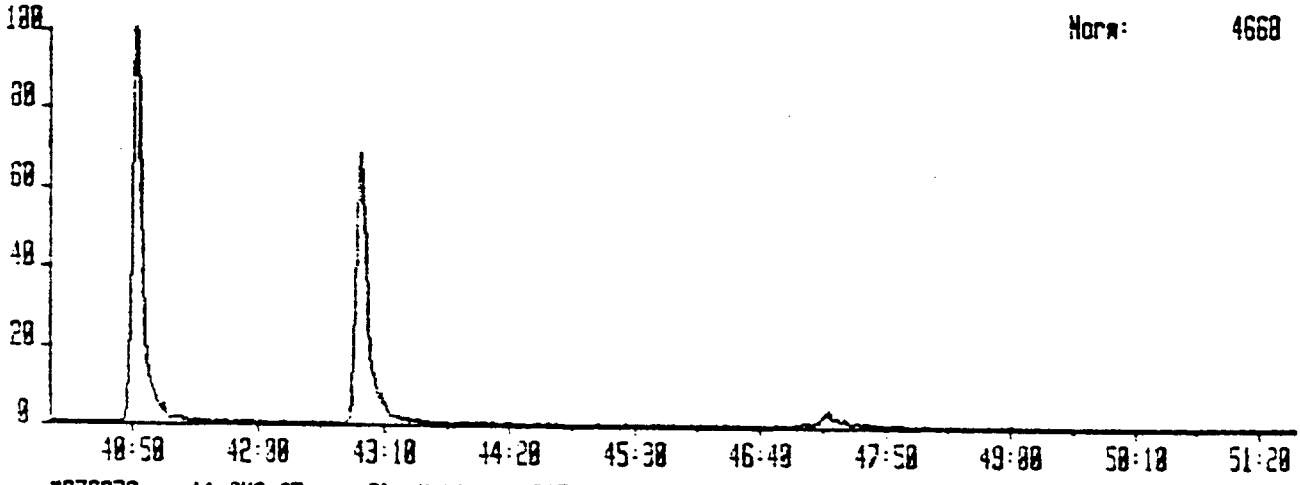
M872278 11-AUG-87 Str:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:CONCAL



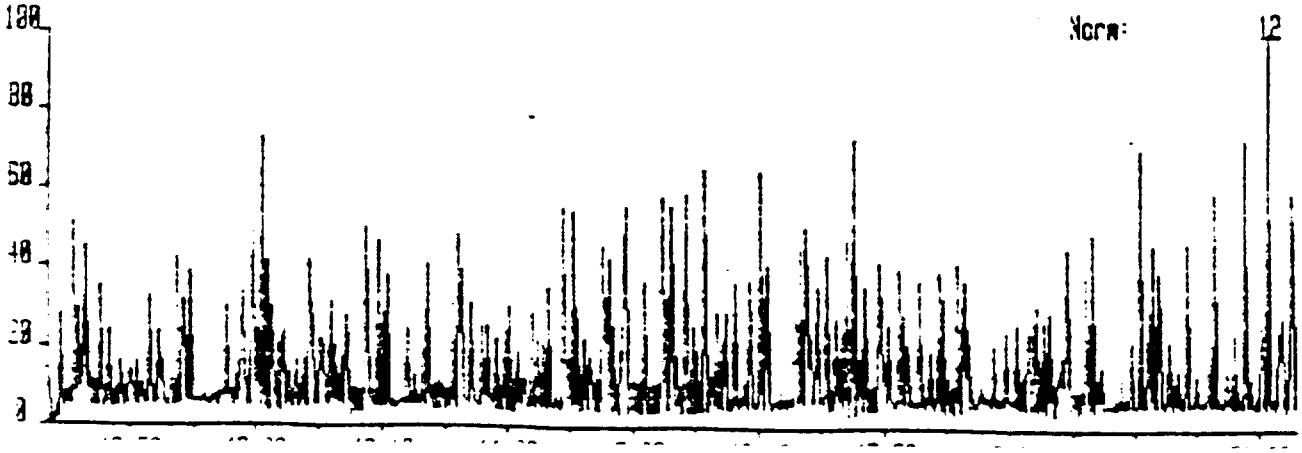
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 407.7817
Text:CONCAL



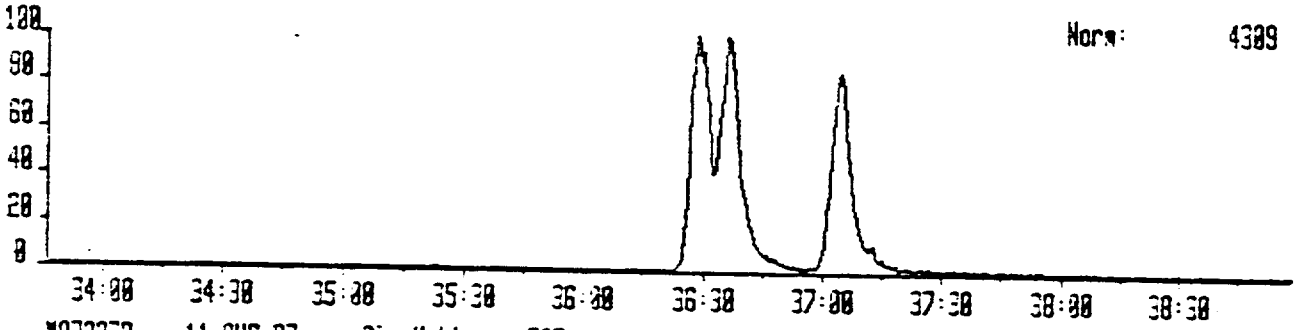
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 409.7788
Text:CONCAL



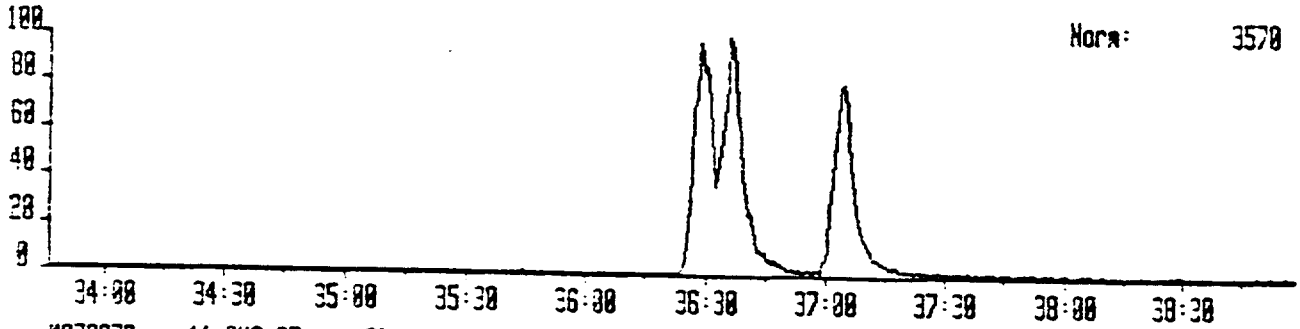
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 477.7200
Text:CONCAL



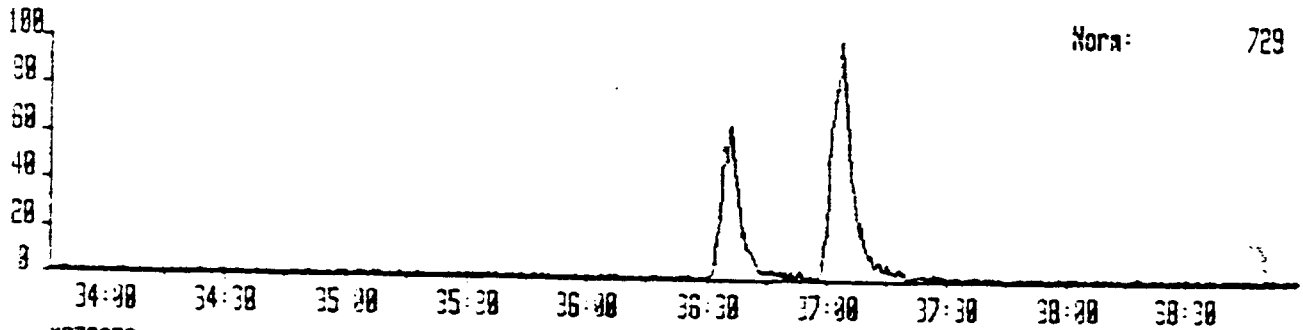
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 389.3156
Text:CONCAL



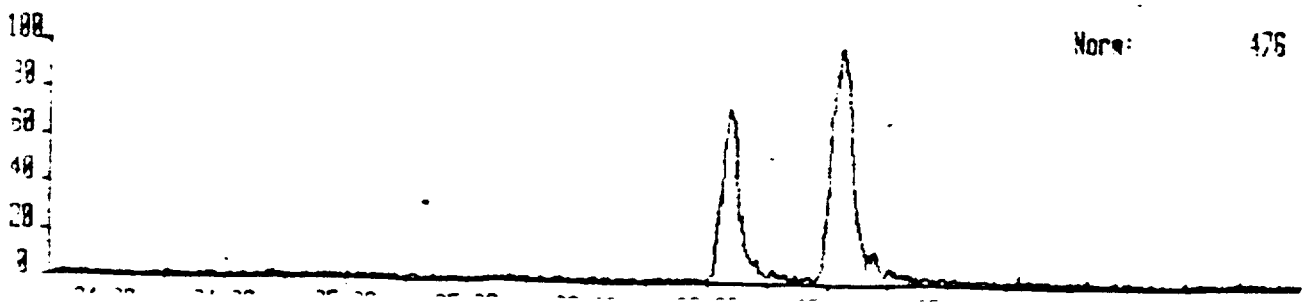
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 391.3127
Text:CONCAL



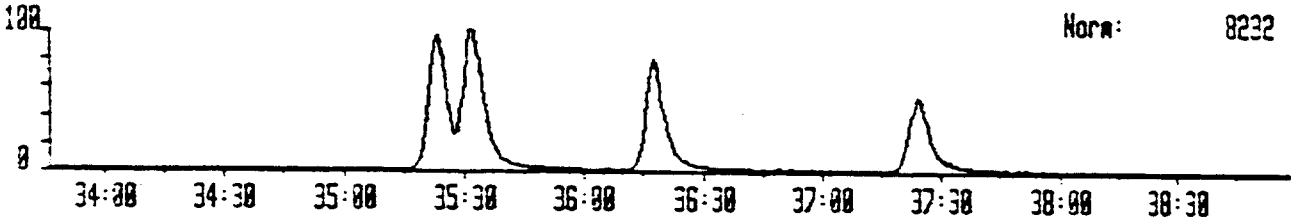
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 401.3558
Text:CONCAL



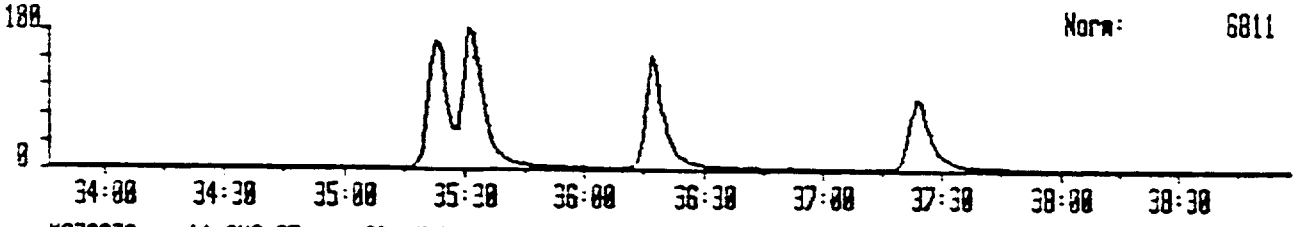
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 403.3529
Text:CONCAL



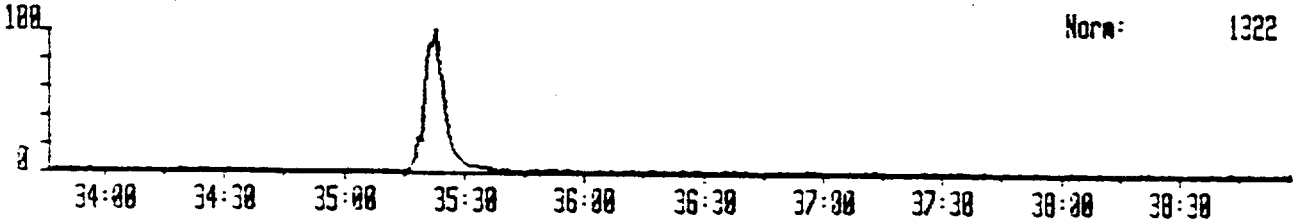
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 373.3207
Text:CONCAL



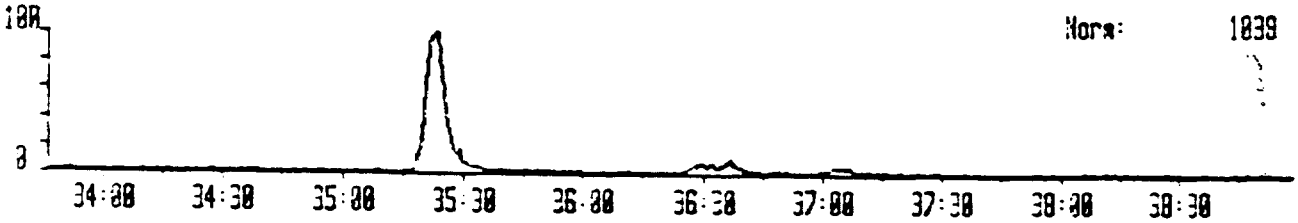
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 375.3178
Text:CONCAL



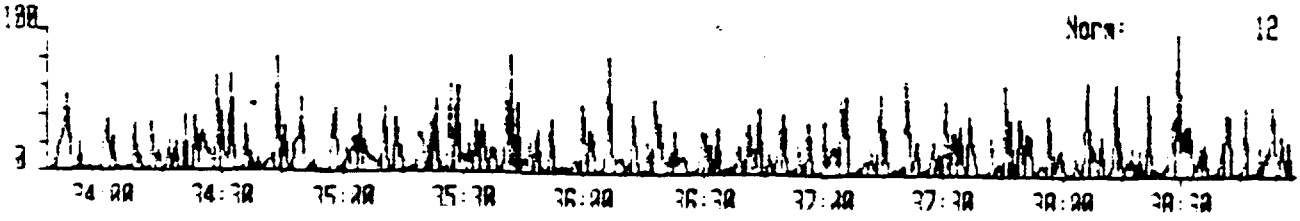
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 385.8609
Text:CONCAL



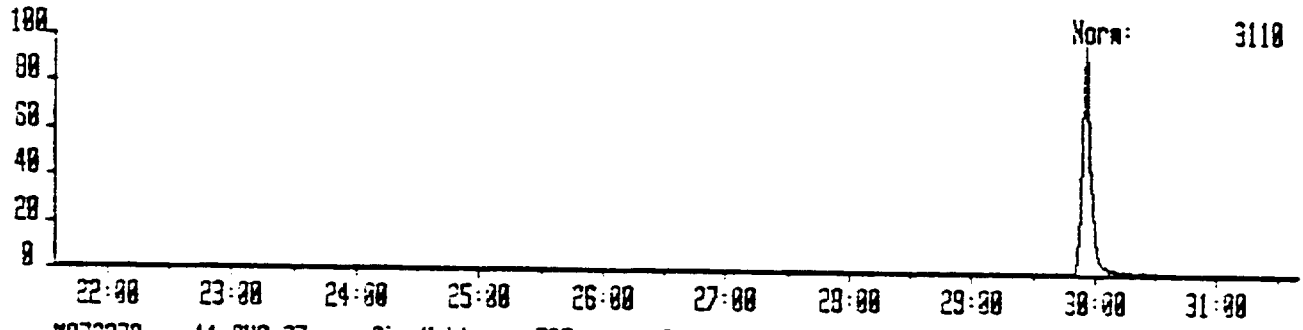
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 387.3588
Text:CONCAL



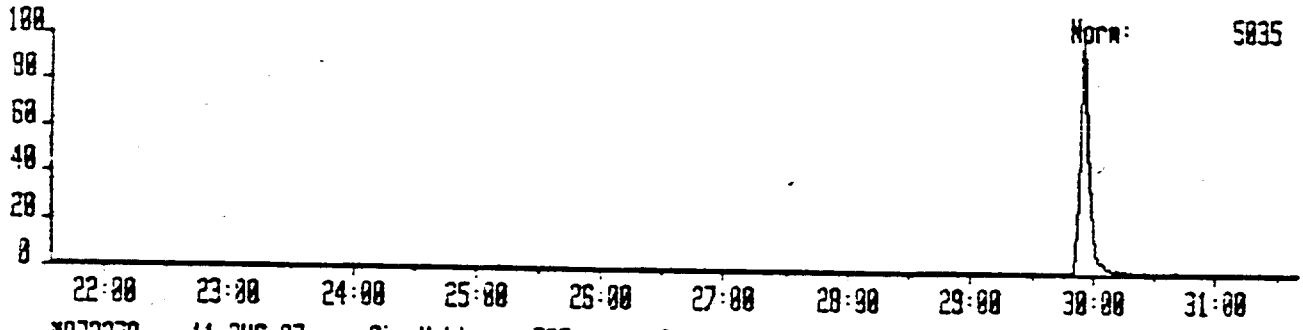
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:CONCAL



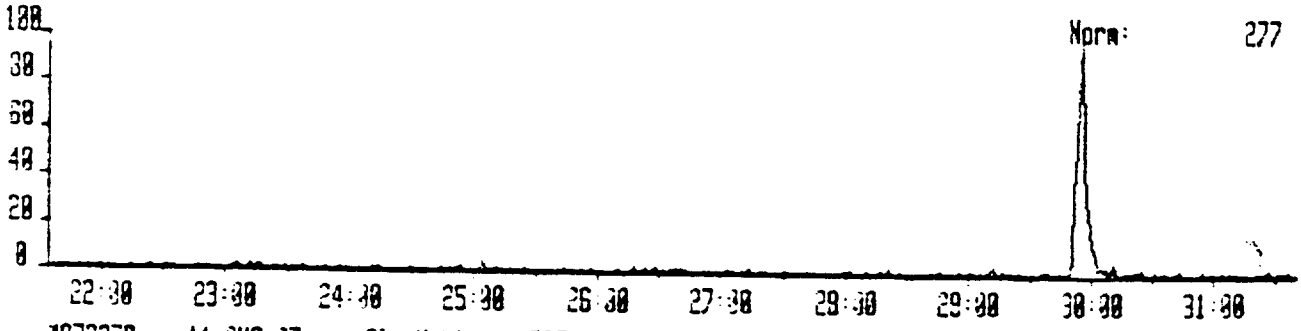
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 353.8575
Text:CONCAL



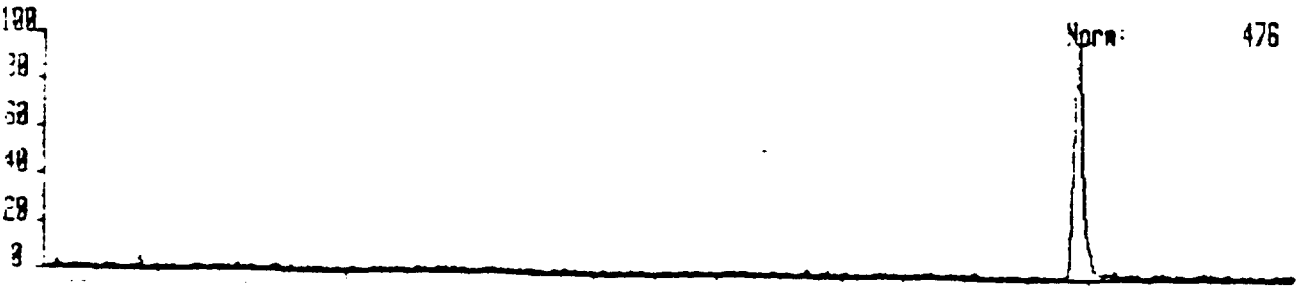
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 355.3546
Text:CONCAL



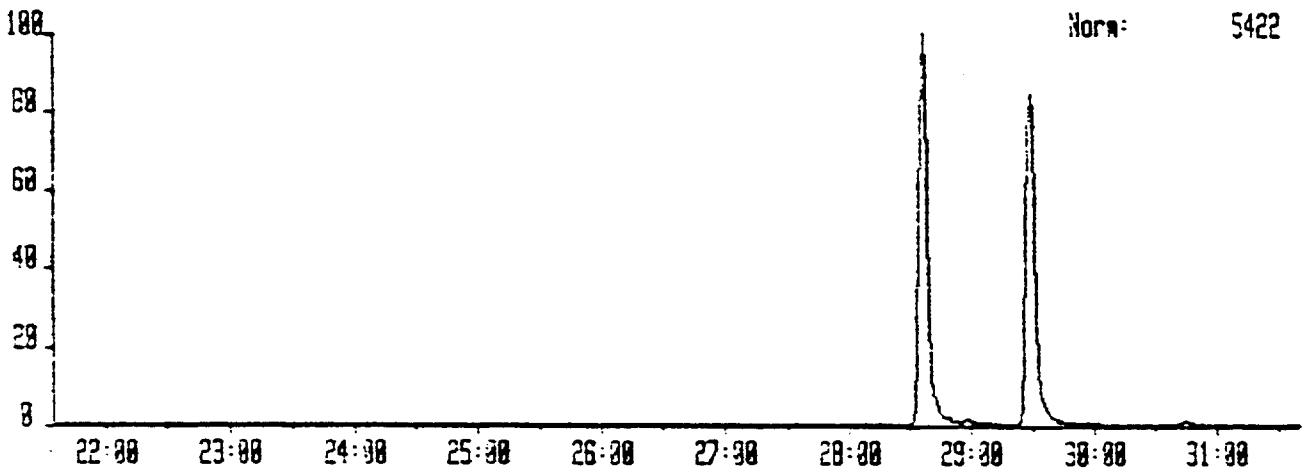
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 365.3977
Text:CONCAL



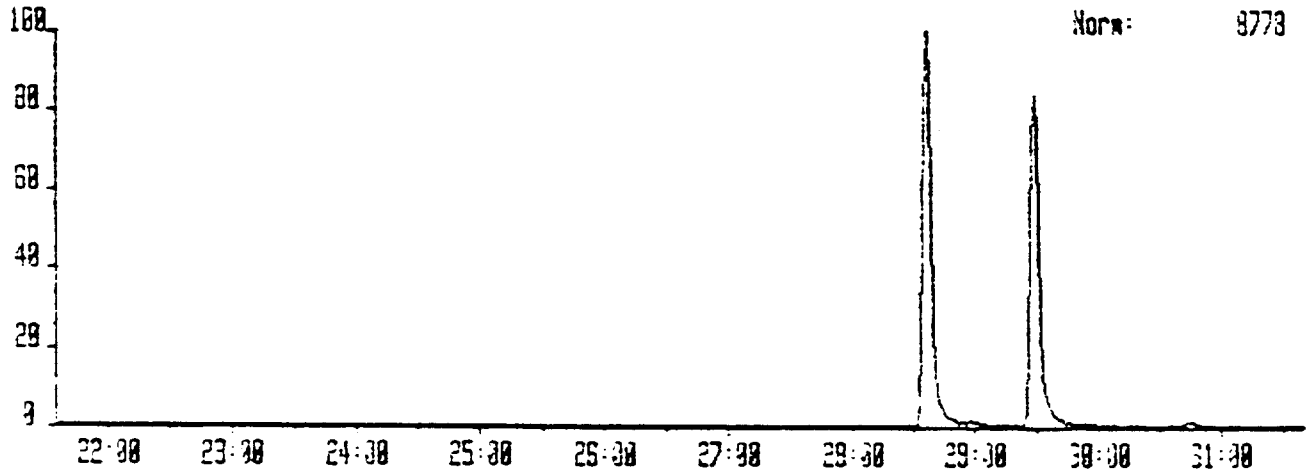
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 367.3948
Text:CONCAL



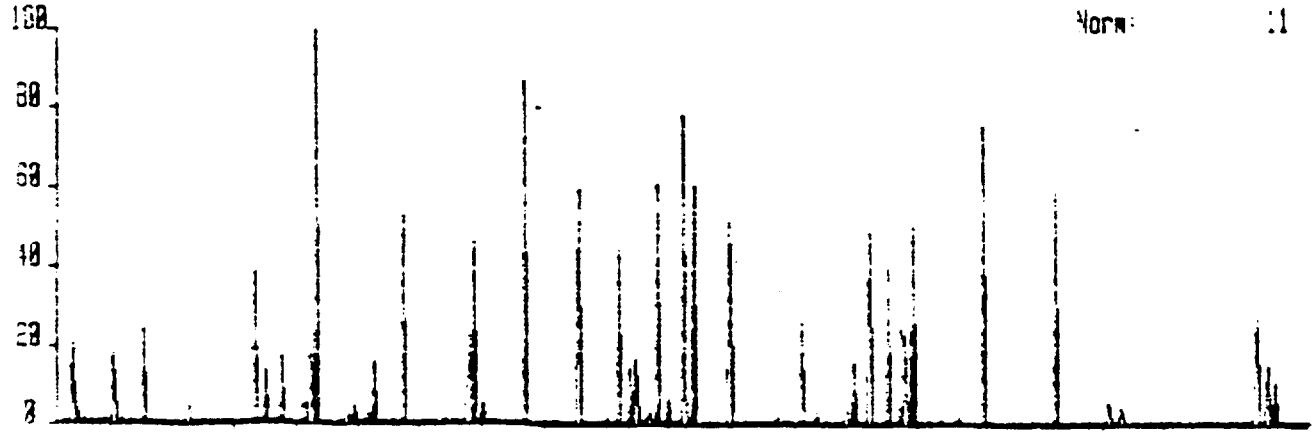
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 337.8626
Text:CONCAL



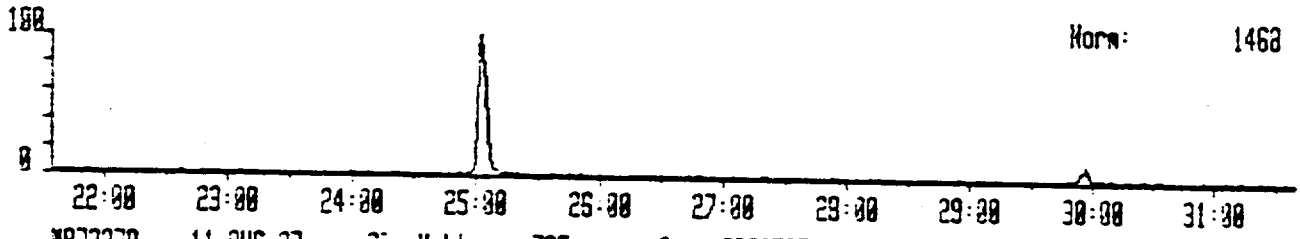
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 339.8597
Text:CONCAL



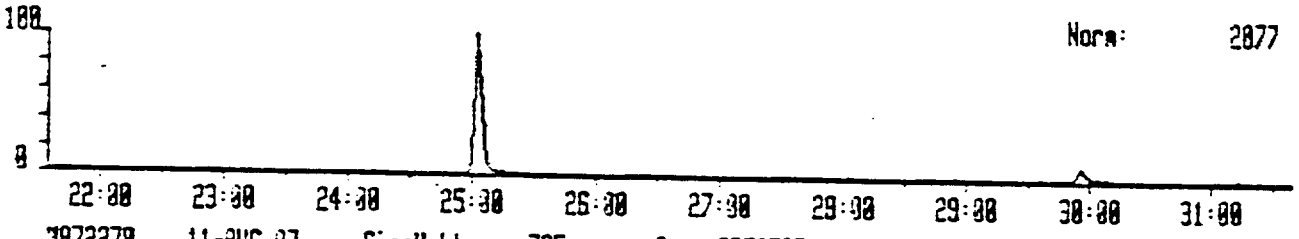
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 407.8803
Text:CONCAL



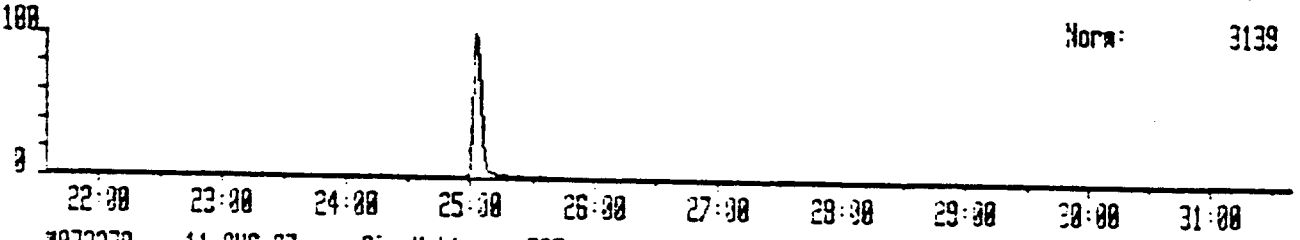
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 319.8965
Text:CONCAL



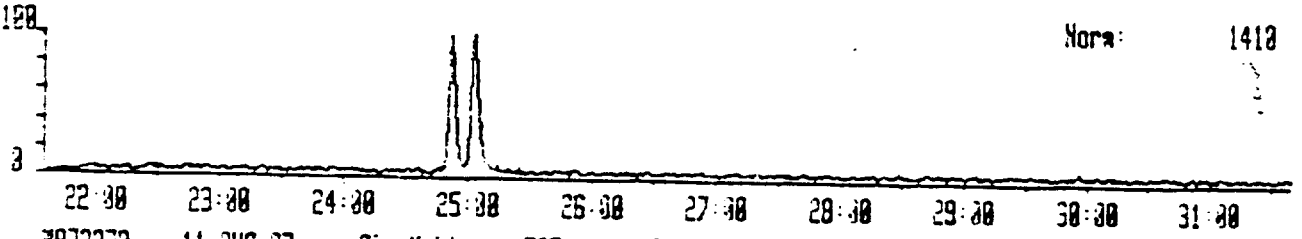
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 321.8936
Text:CONCAL



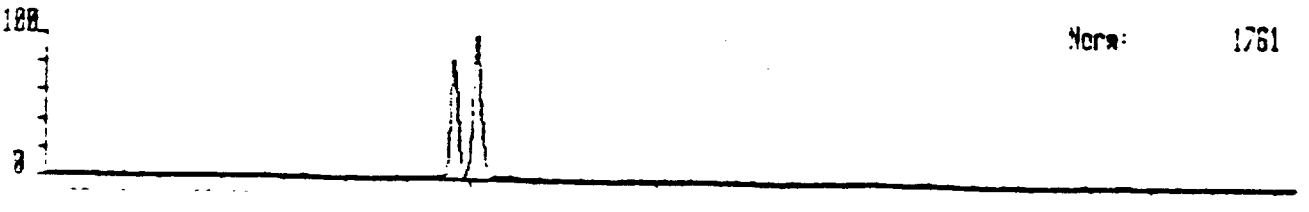
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 327.8947
Text:CONCAL



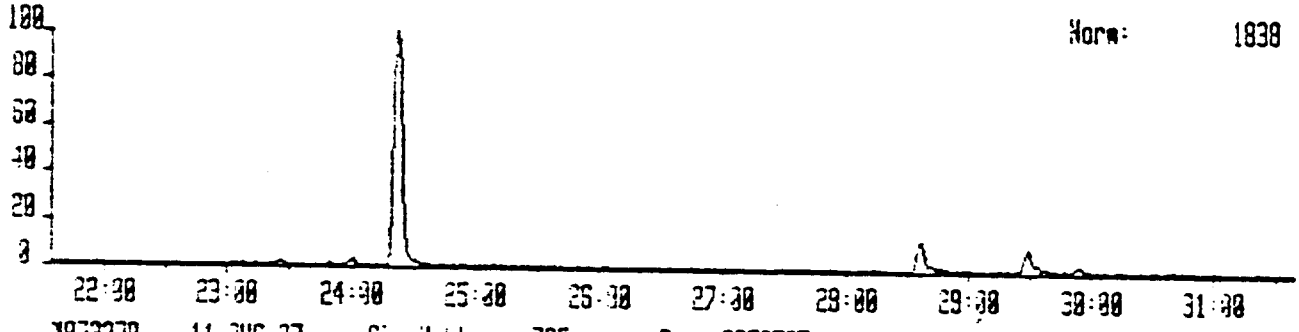
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 331.8958
Text:CONCAL



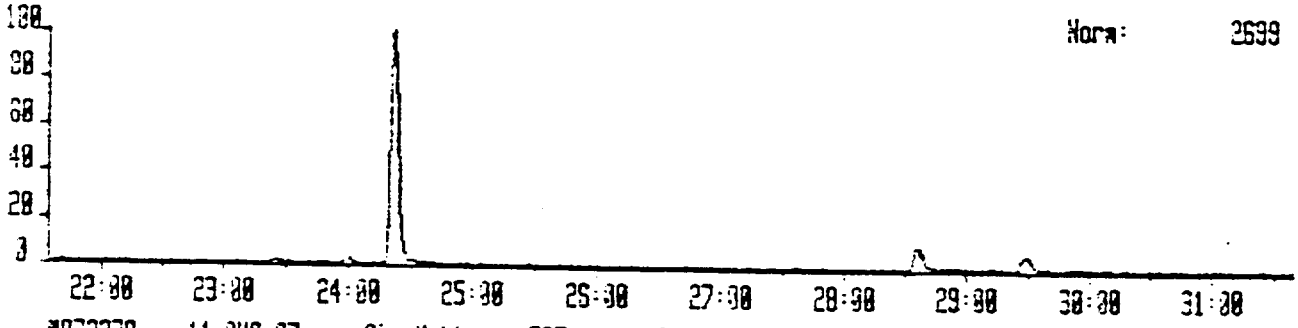
M872278 11-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 333.8938
Text:CONCAL



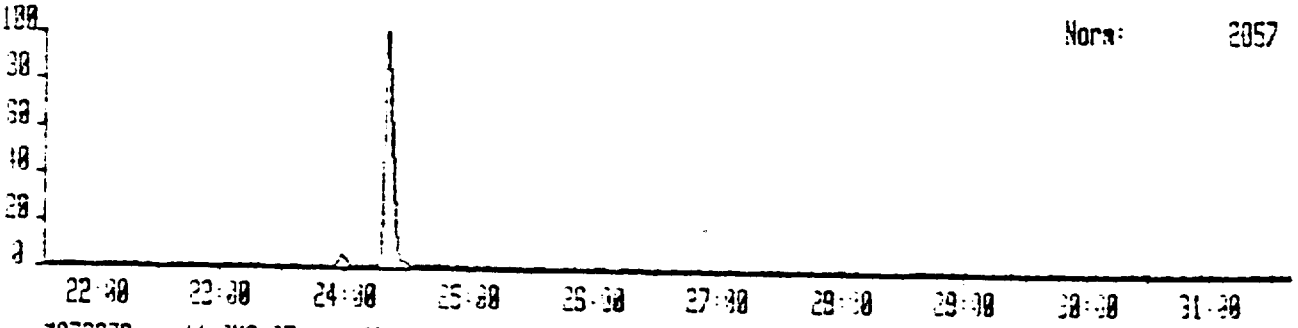
M872278 11-AUG-87 Str:Voltage 78E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 303.3816
Text:CONCAL



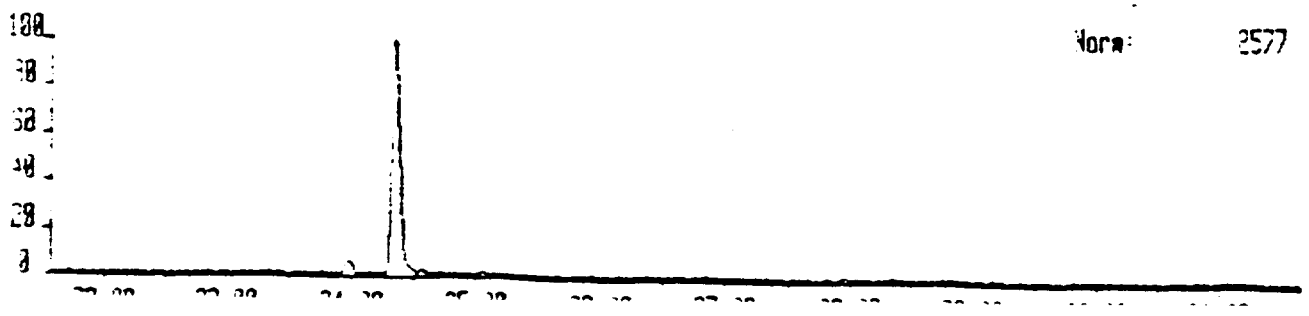
M872278 11-AUG-87 Str:Voltage 78E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 305.3397
Text:CONCAL



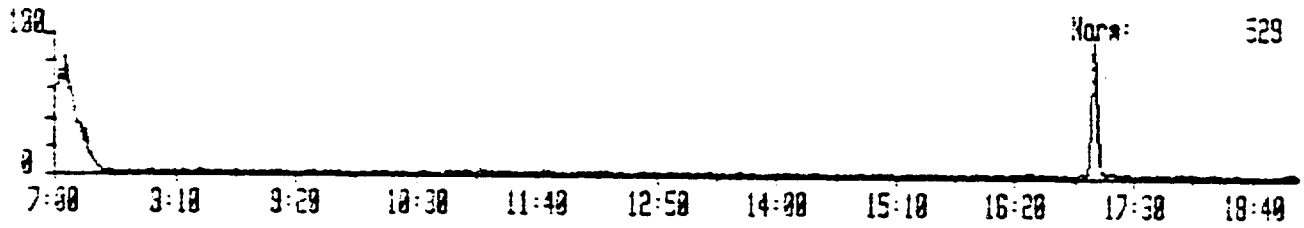
M872278 11-AUG-87 Str:Voltage 78E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 315.3419
Text:CONCAL



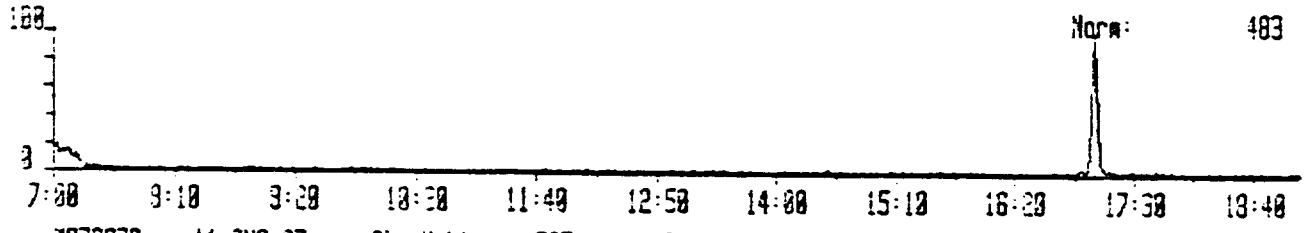
M872278 11-AUG-87 Str:Voltage 78E Sys: DBSATST
Sample 1 Injection 1 Group 2 Mass 317.3389
Text:CONCAL



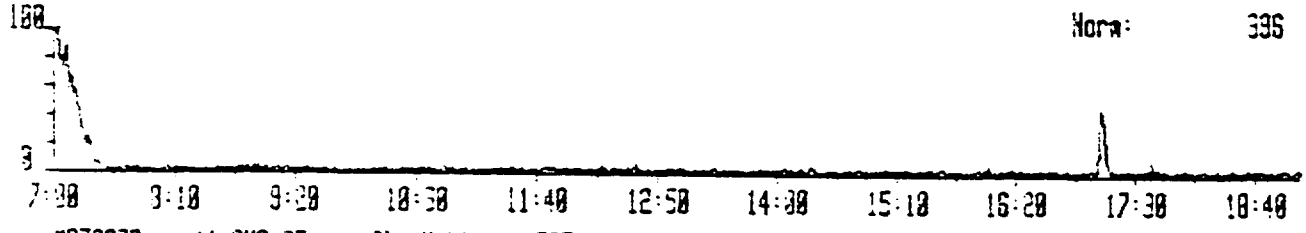
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 269.3486
Text:CONCAL



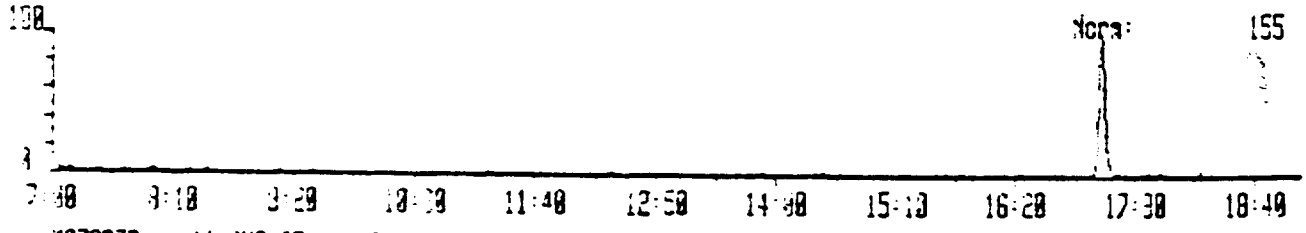
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 271.3377
Text:CONCAL



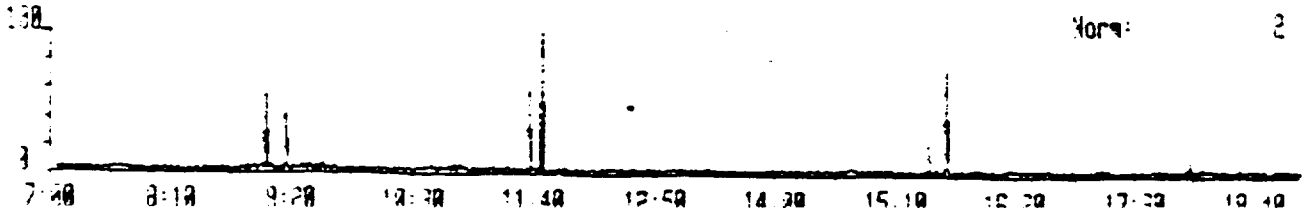
M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 285.3355
Text:CONCAL



M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 287.3326
Text:CONCAL



M872278 11-AUG-87 Str:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 1 Mass 339.3709
Text:CONCAL



872278R
CONTINUING CALIB RF

NAME	RESP FACT.	ID	INTID
2378-TCDF	0.000	AN	IS1
13C12-TCDF	0.000	SURR	IS1
2378-TCDD	0.000	AN	IS1
37CL-TCDD	0.000	SURR	IS1
1234-13C12-TCDD	0.000	RS1	IS1
2378-13C12-TCDD	0.000	IS1	RS1
12378-PCDF	0.000	AN	IS2
23478-PCDF	0.000	AN	IS2
12378-PCDD	0.000	AN	IS2
13C12-PCDD	0.000	IS2	RS1
123478-HxCDF	0.000	AN	IS3
123678-HxCDF	0.000	AN	IS3
234678-HxCDF	0.000	AN	IS3
123789-HxCDF	0.000	AN	IS3
13C12-HxCDF	0.000	SURR	IS3
123478-HxCDD	0.000	AN	IS3
123678-HxCDD	0.000	AN	IS3
123789-HxCDD	0.000	AN	IS3
13C-123789HxCDD	0.000	RS2	IS3
13C12-HxCDD	0.000	IS3	RS2
1234678-HpCDF	0.000	AN	IS4
1234789-HpCDF	0.000	AN	IS4
1234678-HpCDD	0.000	AN	IS4
13C12-HpCDD	0.000	IS4	RS2
OCDF	0.000	AN	IS5
OCDD	0.000	AN	IS5
13C12-OCDD	0.000	IS5	RS2
*** Total ***	0.000		

872273
CONTINUING CALIB RT

NAME	RT	M_Z	REL_RT	ID	INTID
2378-TCDF	24.23	304	0.973	AN	IS1
13C12-TCDF	24.22	316	0.973	SURR	IS1
2378-TCDD	25.03	320	1.000	AN	IS1
37CL-TCDD	25.03	328	1.000	SURR	IS1
1234-13C12-TCDD	24.52	332	0.993	RS1	IS1
2378-13C12-TCDD	25.03	332	1.000	IS1	RS1
12378-PCDF	28.37	338	0.956	AN	IS2
23478-PCDF	29.29	338	0.985	AN	IS2
12378-PCDD	29.56	354	1.000	AN	IS2
13C12-PCDD	29.56	366	1.000	IS2	RS1
123478-HxCDF	35.23	374	0.967	AN	IS3
123678-HxCDF	35.32	374	0.971	AN	IS3
234678-HxCDF	36.18	374	0.992	AN	IS3
123789-HxCDF	37.24	374	1.022	AN	IS3
13C12-HxCDF	35.23	386	0.967	SURR	IS3
123478-HxCDD	36.29	390	0.997	AN	IS3
123678-HxCDD	36.36	390	1.000	AN	IS3
123789-HxCDD	37.05	390	1.013	AN	IS3
13C-123789HxCDD	37.04	402	1.013	RS2	IS3
13C12-HxCDD	36.36	402	1.000	IS3	RS2
1234678-HpCDF	40.53	408	0.965	AN	IS4
1234789-HpCDF	42.58	408	1.015	AN	IS4
1234678-HpCDD	42.21	424	1.000	AN	IS4
13C12-HpCDD	42.21	436	1.000	IS4	RS2
OCDF	47.17	442	1.005	AN	IS5
OCDD	47.06	458	1.001	AN	IS5
13C12-OCDD	47.04	470	1.000	IS5	RS2
*** Total ***	935.94	***	26.808		

COMPOUND	M/Z	RATIO RANGE	AREA	RETENTION TIME	NO. OF ISOMERS
13C12-PeCDD	356	(0.52-0.70)	1492	29.56	
	368		2691		
123478-HxCDF	374	(1.05-1.41)	21034	35.23	
	376		35563		
123678-HxCDF	374	(1.05-1.41)	48120	35.32	
	376		37951		
234678-HxCDF	374	(1.05-1.41)	33784	36.19	
	376		26792		
123789-HxCDF	374	(1.05-1.41)	24752	37.24	
	376		20238		
TOTAL HxCDF	374	(1.05-1.41)			
	376				
13C12HxCDF	386	(1.05-1.41)	7274	35.23	
	388		6500		
123478-HxCDD	390	(1.05-1.41)	22114	36.29	
	392		17316		
123678-HxCDD	390	(1.05-1.41)	24393	36.36	
	392		17115		
123789-HxCDD	390	(1.05-1.41)	19490	37.05	
	392		16057		
TOTAL HxCDD	390	(1.05-1.41)			
	392				
13C12-HxCDD (123678)	402	(1.05-1.41)	2483	36.36	
	404		1850		
HxCDD-13C (123789)	402	(1.05-1.41)	3904	37.04	
	404		2991		
PCDE	408				
PCDE	444				
1234678-HpCDF	408	(0.87-1.17)	28552	40.53	
	410		21250		
1234789-HpCDF	408	(0.87-1.17)	23595	42.59	
	410		22823		
TOTAL HpCDF	408	(0.87-1.17)			
	410				
1234678-HpCDD	424	(0.87-1.17)	17552	42.21	
	426		16479		
TOTAL HpCDD	424	(0.87-1.17)			
	426				
13C12-HpCDD	436	(0.87-1.17)	2647	42.21	
	438		2440		
PCDE	478				
OCDF	442	(0.75-1.01)	28017	47.17	
	444		21507		
OCDD	458	(0.75-1.01)	30934	47.06	
	460		25316		
13C12-OCDD	470	(0.75-1.01)	4916	47.04	
	472		4902		
PCDE	512				

TRIANGLE LABORATORIES, INC.
DIOXIN/FURAN DATA SHEET

FILE NAME : 48-1278
CHEMIST : PA
SAMPLE WT : 1

TLI PROJECT # : ENTROPY
DATE : 8-20-87
SAMPLE ID : —
CONCAL # : Confirmations

COMPOUND	M/Z	RATIO RANGE	AREA	RETENTION TIME	NO. OF ISOMERS
TOTAL MCDF	202	(2.61-3.53)	14097	9.50	
	204		5174		
TOTAL MCDD	218	(2.61-3.53)	11217	10.29	
	220		5201		
PCDE	272		41		
TOTAL DCDF	238	(5.21-7.05)	4315	13.08	
	240		984		
TOTAL DCDD	252	(1.30-1.76)	11231	13.48	
	254		2620		
PCDE	306		41		
TOTAL TRICDF	270	(0.87-1.17)	1508	17.07	
	272		1125		
TOTAL TRICDD	286	(0.87-1.17)	615	17.40	
	288		582		
PCDE	340				
2378-TCDF	304	(0.65-0.89)	8636	24.03	
	306		11573		
TOTAL TCDF	304	(0.65-0.89)			
	306				
13C12-TCDF	316	(0.65-0.89)	9396	24.22	
	318		11394		
2378-TCDD	320	(0.65-0.89)	6704	25.03	
	322		8504		
TOTAL TCDD	320	(0.65-0.89)			
	322				
37C1-TCDD	328				
1234-13C12-TCDD	332	(0.65-0.89)	14103	25.03	
	334		2210	24.42	
2378-13C12-TCDD	332	(0.65-0.89)	5572		
	334		4396	25.03	
PCDE	374		7948		
12378-PeCDF	338	(0.52-0.70)			
	340		26122	28.37	
23478-PeCDF	338	(0.52-0.70)	41674		
	340		23837	29.29	
TOTAL PeCDF	338	(0.52-0.70)	37501		
	340				
12378-PeCDD	354	(0.52-0.70)			
	356		15552	29.56	
TOTAL PeCDD	354	(0.52-0.70)	25414		
	356				

TRIANGLE LABORATORIES, INC.
MONO - OCTA DIOXIN CONTINUING CALIBRATION

ANALYST RV8 FILE NAME M872278 ICAL DATE 7-22-87
DATE 8-11-87 STANDARD 100 QC check [X] JK 8-20-87

NAME	DAILY RF	CODE	RATIO	RT	DELTA RF	DELTA AS PERCENT
TOTAL MCDF	1.344	1	2.725			
TOTAL MCDD	1.145	1	2.157		-0.61	-31%
TOTAL DCDF	0.370	1	4.385		-0.15	-11%
TOTAL DCDD	0.478	1	1.615		-0.10	-22%
TOTAL TRICDF	0.246	1	1.048		-0.25	-34%
TOTAL TRICDD	0.084	1	1.051		-0.34	-58%
2378-TCDF	1.410	1	0.746	24.23	-0.29	-78%
TOTAL TCDF	1.410	1	0.746		0.09	7%
2378-TCDD	1.068	1	0.800	25.03	0.09	7%
TOTAL TCDD	1.068	1	0.800		0.05	5%
12378-PCDF	3.242	1	0.627	28.37	0.05	5%
23478-PCDF	2.933	1	0.636	29.29	0.53	20%
TOTAL PCDF	3.087	1	0.631		0.44	17%
12378-PCDD	1.948	1	0.603	29.56	0.49	19%
TOTAL PCDD	1.948	1	0.603		0.00	0%
123478-HxCDF	3.391	1	1.196	35.23	0.00	0%
123678-HxCDF	3.964	1	1.268	35.32	0.15	5%
234678-HxCDF	2.790	1	1.261	36.18	0.37	10%
123789-HxCDF	2.072	1	1.223	37.24	0.05	2%
TOTAL HxCDF	3.054	1	1.238		-0.11	-5%
123478-HxCDD	1.820	1	1.278	36.29	0.11	4%
123678-HxCDD	2.054	1	1.263	36.36	-0.20	-10%
123789-HxCDD	1.655	1	1.238	37.05	0.05	3%
TOTAL HxCDD	1.843	1	1.260		-0.12	-6%
1234678-HpCDF	2.272	1	0.976	40.53	-0.09	-5%
1234789-HpCDF	1.817	1	1.025	42.58	0.02	1%
TOTAL HpCDF	2.044	1	0.998		0.03	2%
1234678-HpCDD	1.338	1	1.065	42.21	0.02	1%
TOTAL HpCDD	1.338	1	1.065		0.00	0%
OCDF	1.151	1	0.968	47.17	0.00	0%
OCDD	0.934	1	0.828	47.06	0.06	5%
					0.01	1%

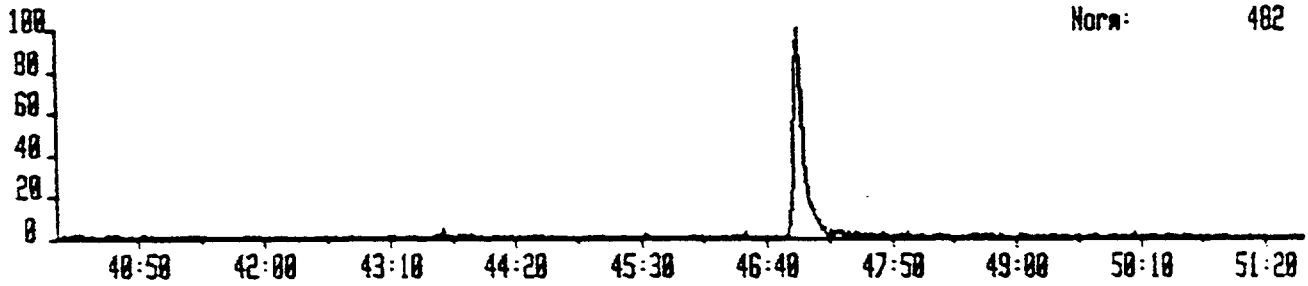
SURROGATE RESPONSE FACTOR SUMMARY

NAME	DAILY RF	CODE	RATIO	RT	DELTA RF	DELTA AS PERCENT
13C12-TCDF	1.450	2.00	0.825	24.22	0.03	2%
37Cl-TCDD	2.208	2.00		25.03	-0.20	-8%
13C12-HxCDF	3.056	2.00	1.212	35.23	0.40	15%

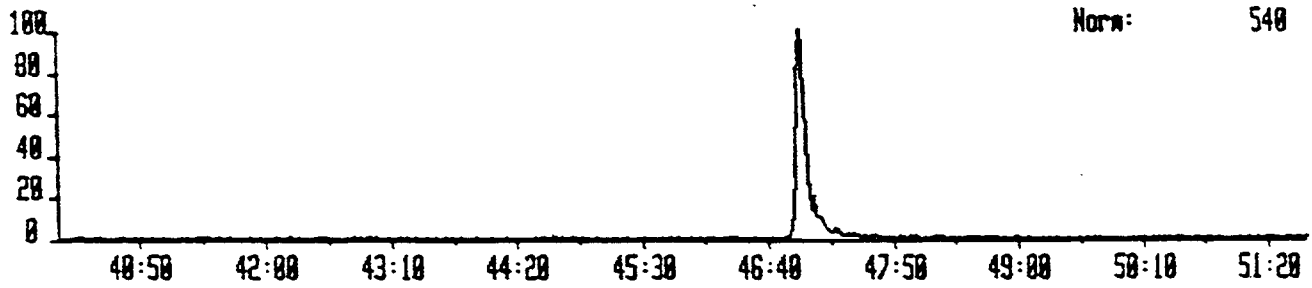
INTERNAL STANDARDS RESPONSE FACTOR SUMMARY

NAME	DAILY RF	CODE	RATIO	RT	DELTA RF	DELTA AS PERCENT
2378-13C12-TCDD	1.465	3.00	0.803	25.03	0.10	7%
13C12-PCDD	0.428	3.00	0.554	29.56	-0.08	-15%
13C12-HxCDD	0.630	3.00	1.335	36.36	0.02	4%
13C12-HpCDD	0.738	3.00	1.085	42.21	-0.09	-10%
13C12-OCDD	0.719	3.00	1.007	47.04	-0.14	-16%

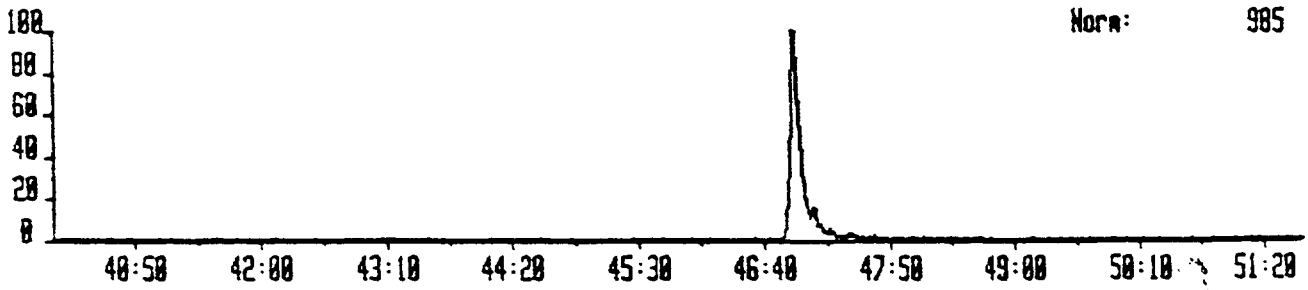
M872293 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 457.7377
Text:ENTROPY I2-MM5-5



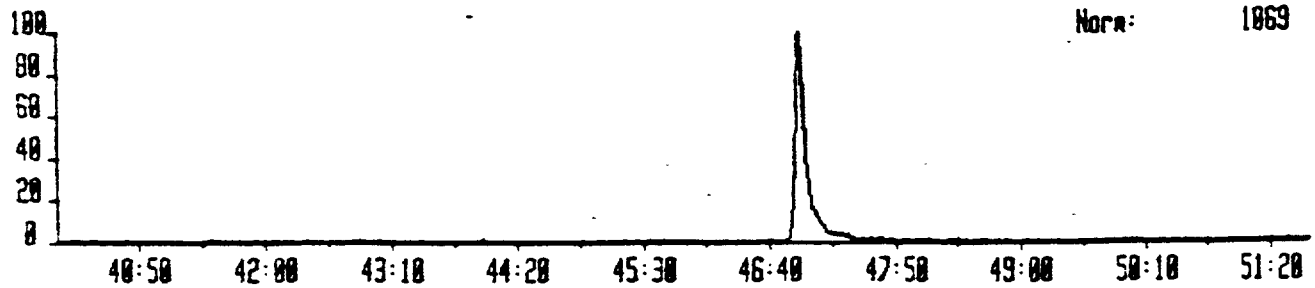
M872293 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 459.7347
Text:ENTROPY I2-MM5-5



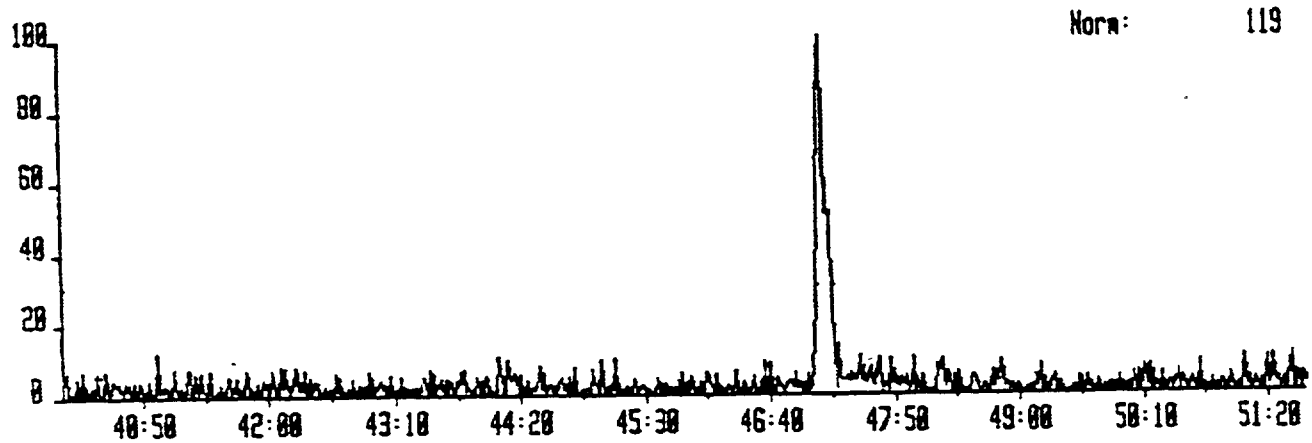
M872293 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 469.7779
Text:ENTROPY I2-MM5-5



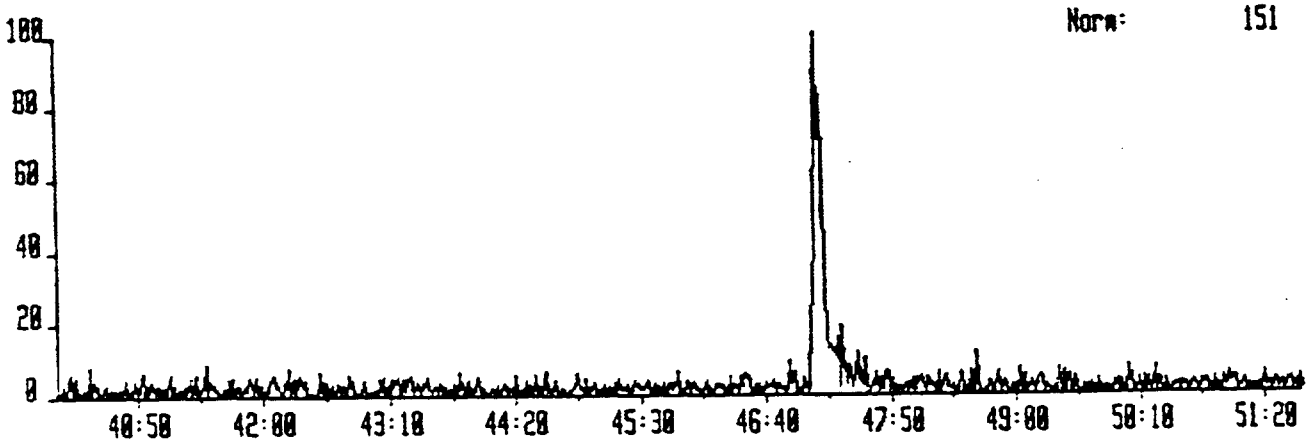
M872293 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 471.7750
Text:ENTROPY I2-MM5-5



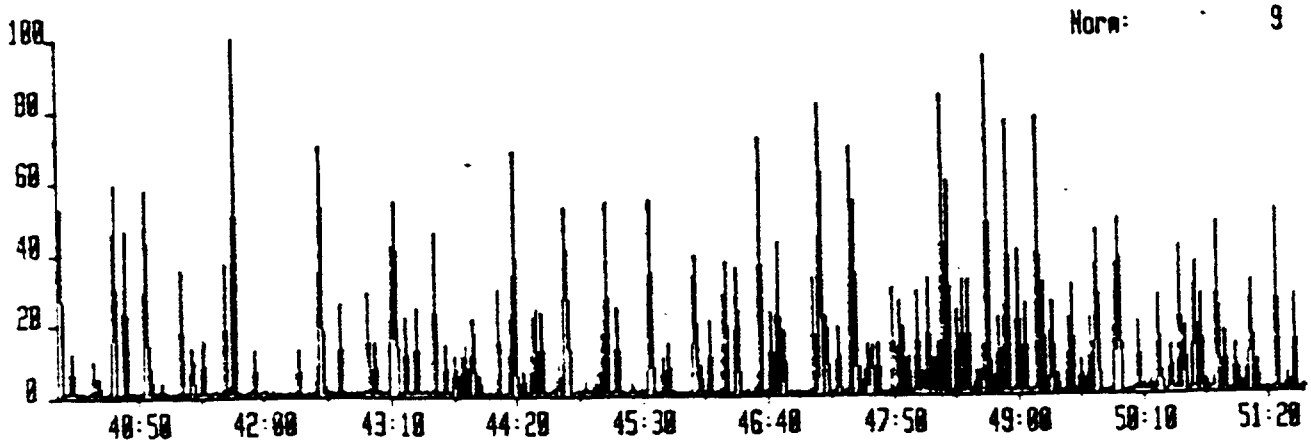
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSRTST
Sample 1 Injection 1 Group 4 Mass 441.7428
Text:ENTROPY I2-MM5-5



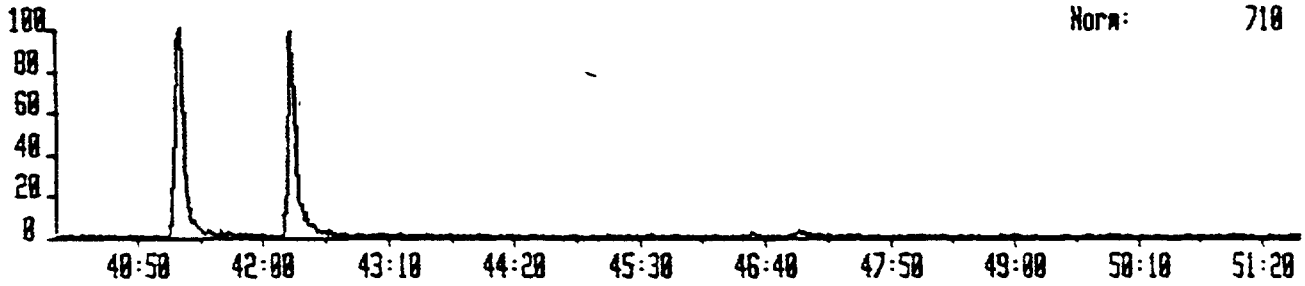
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSRTST
Sample 1 Injection 1 Group 4 Mass 443.7399
Text:ENTROPY I2-MM5-5



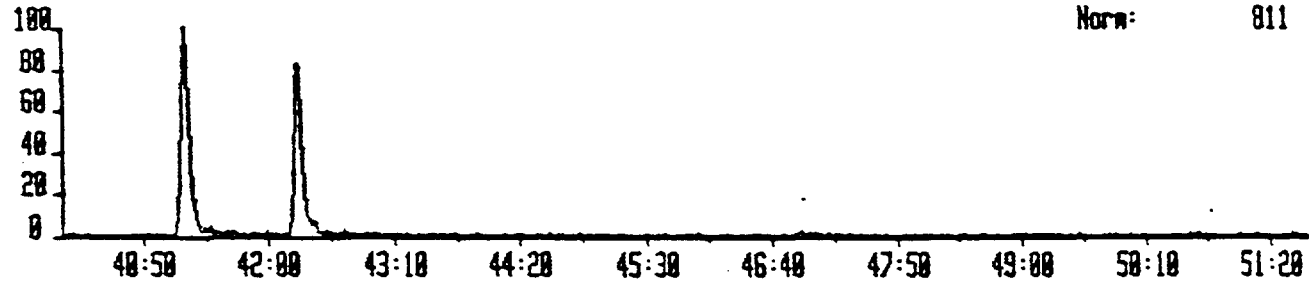
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSRTST
Sample 1 Injection 1 Group 4 Mass 511.6810
Text:ENTROPY I2-MM5-5



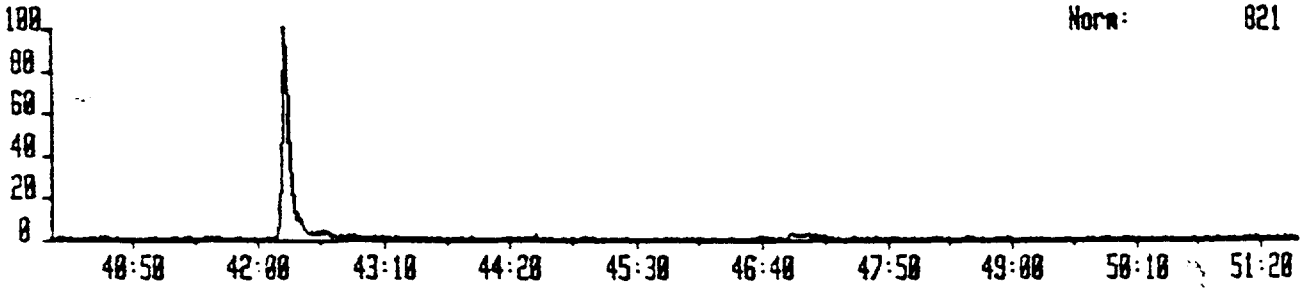
M872293 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 423.7766
Text:ENTROPY I2-MM5-5



M872293 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 425.7737
Text:ENTROPY I2-MM5-5

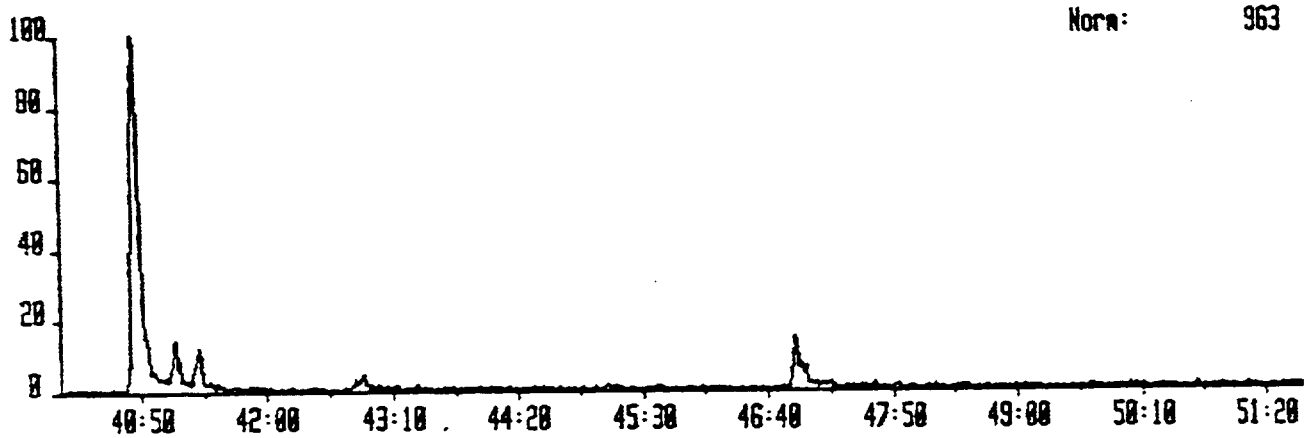


M872293 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 435.8169
Text:ENTROPY I2-MM5-5

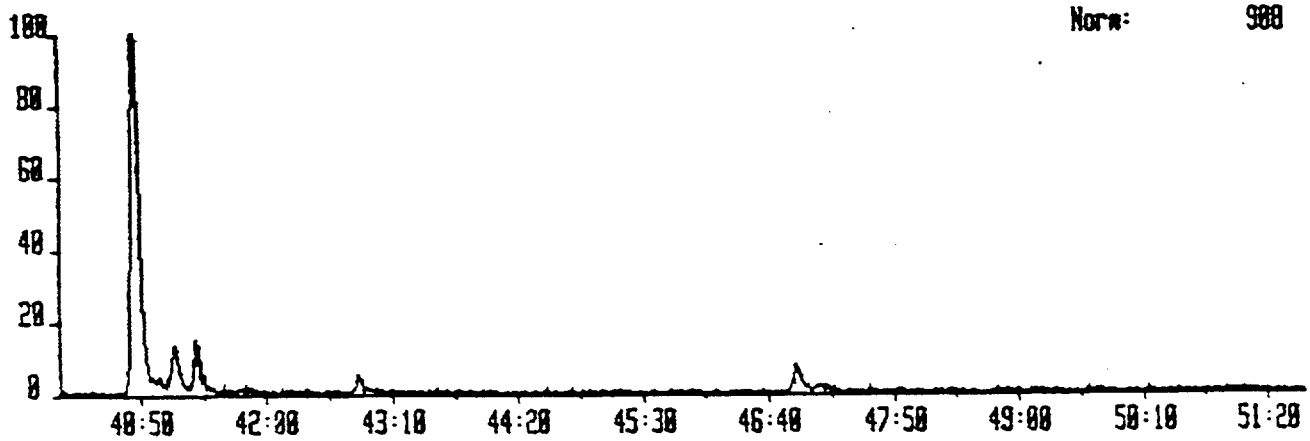


M872293 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 4 Mass 437.8139
Text:ENTROPY I2-MM5-5

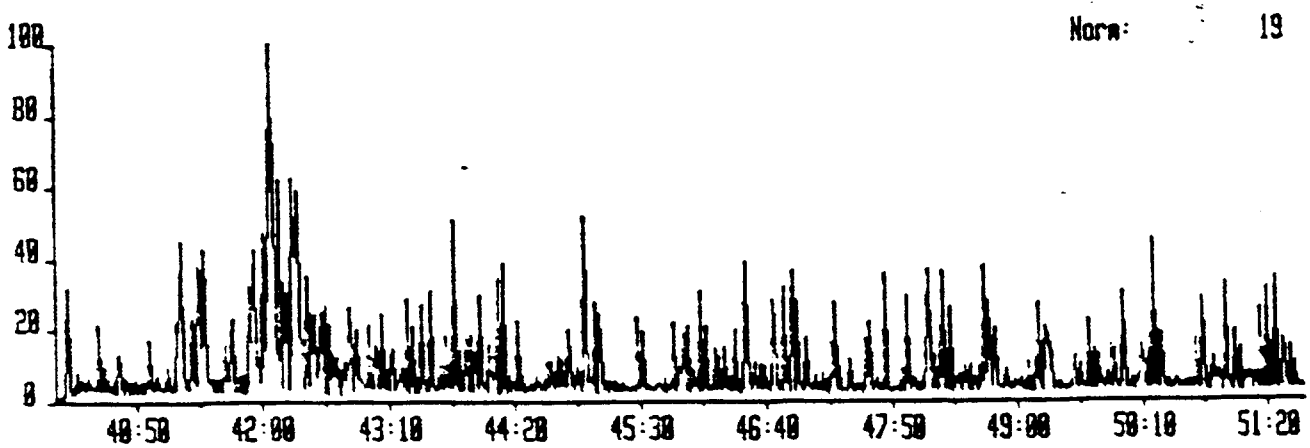
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 487.7817
Text:ENTROPY I2-MM5-5



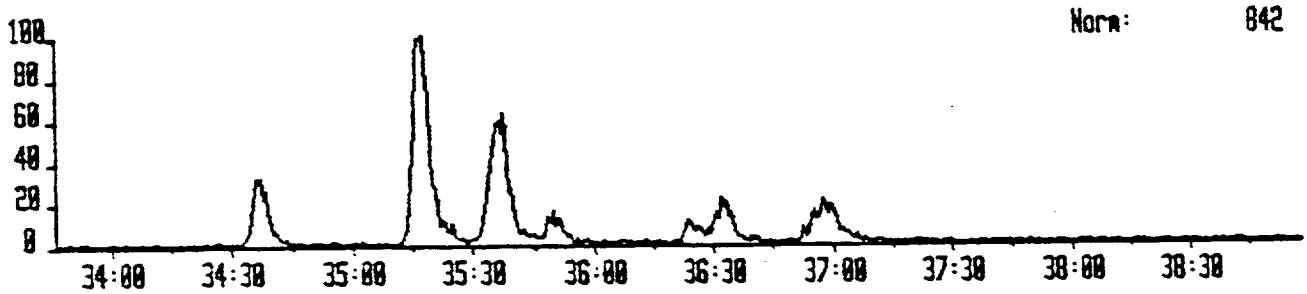
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 489.7788
Text:ENTROPY I2-MM5-5



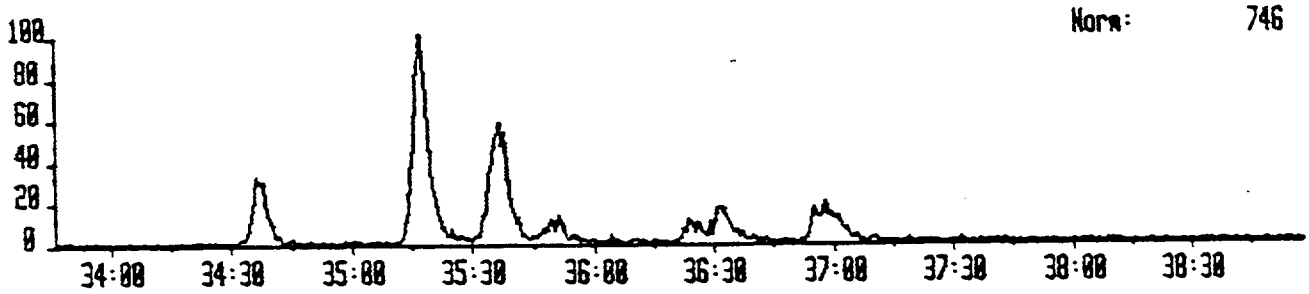
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 4 Mass 477.7288
Text:ENTROPY I2-MM5-5



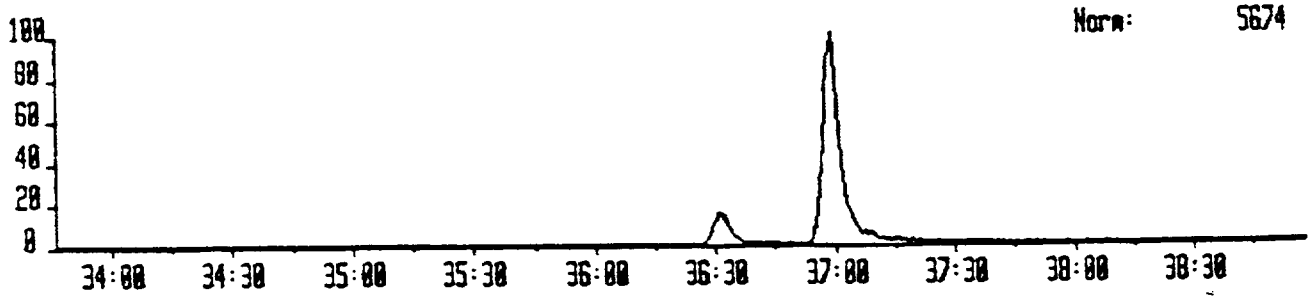
M872293 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 389.8156
Text:ENTROPY I2-MM5-5



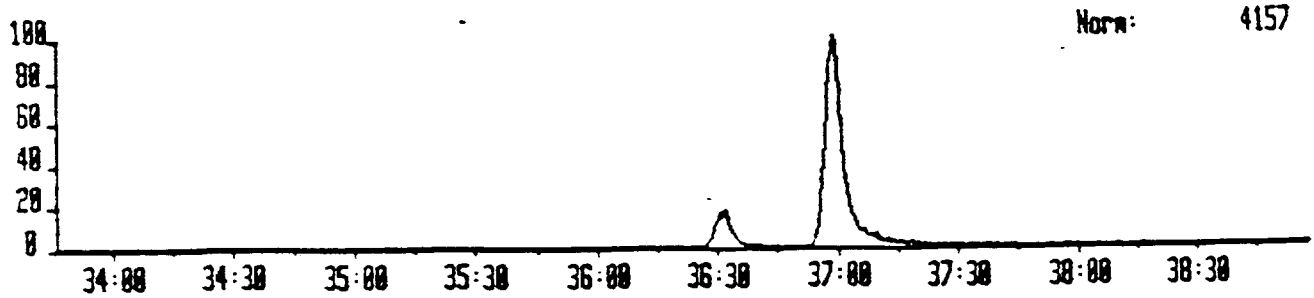
M872293 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 391.8127
Text:ENTROPY I2-MM5-5



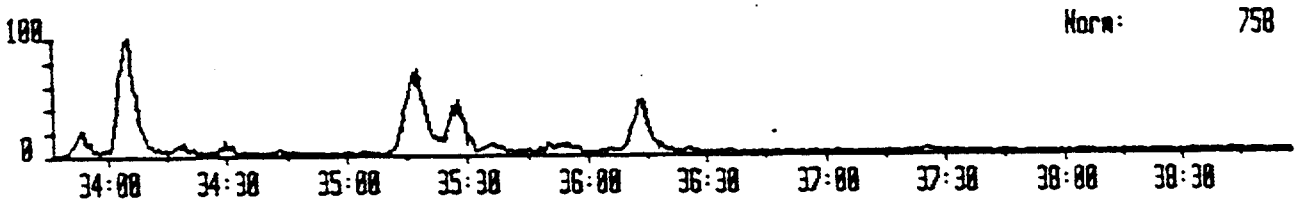
M872293 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 401.8558
Text:ENTROPY I2-MM5-5



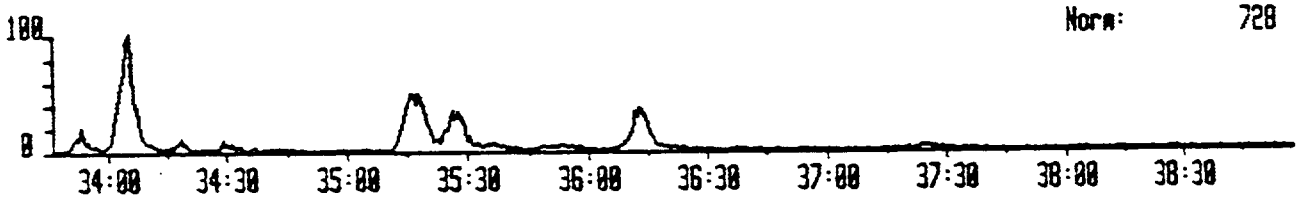
M872293 12-AUG-87 Sir:Voltage 70E Sys: DB5ATST
Sample 1 Injection 1 Group 3 Mass 403.8529
Text:ENTROPY I2-MM5-5



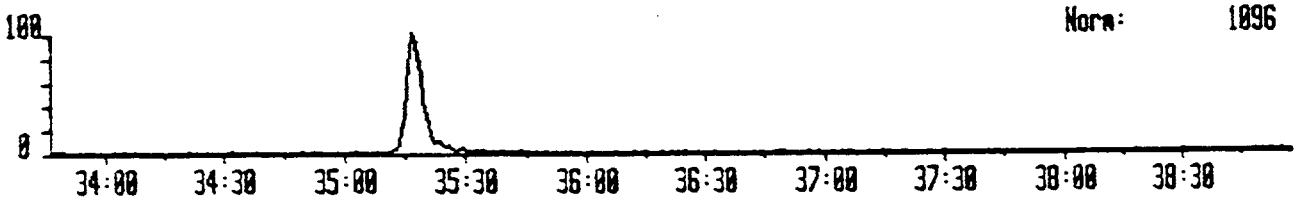
M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 373.8287
Text:ENTROPY I2-MMS-5



M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 375.8178
Text:ENTROPY I2-MMS-5

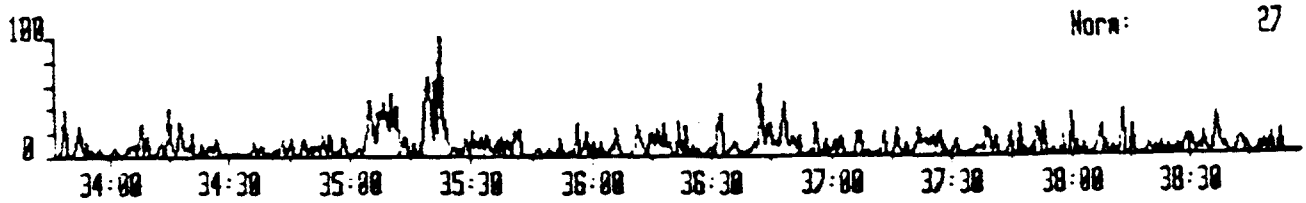


M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 385.8689
Text:ENTROPY I2-MMS-5



M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 387.8588
Text:ENTROPY I2-MMS-5

M872293 12-AUG-87 Sir:Voltage 70E Sys: DBSATST
Sample 1 Injection 1 Group 3 Mass 443.7584
Text:ENTROPY I2-MMS-5



M872304

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 331.94

	AREA	RETENTION TIME
1	2.154299E+03	0:13:20
2	1.359635E+03	0:13:31

M872304

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 333.93

	AREA	RETENTION TIME
1	2.364844E+03	0:13:20
2	2.042413E+03	0:13:31
3	2.199836E+01	0:14:39

CE 1 INJECTION 1 GROUP 1 CHANNEL 317.94

	AREA	RETENTION TIME
1	1.943572E+02	0:13:28
2	3.793560E+03	0:15:26

M872304

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 319.90

	AREA	RETENTION TIME
1	2.051419E+03	0:13:21
2	4.440483E+01	0:17:23
3	1.925167E+02	0:18:25

M872304

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 321.89

	AREA	RETENTION TIME
1	2.738348E+03	0:13:23
2	2.298511E+02	0:18:25

M872304

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 327.88

	AREA	RETENTION TIME
1	4.971370E+03	0:13:21
2	3.894549E+01	0:17:07

M872304

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 303.90

	AREA	RETENTION TIME
1	2.632828E-03	0:15:28
2	2.301952E-02	0:17:10

M872304

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 305.90

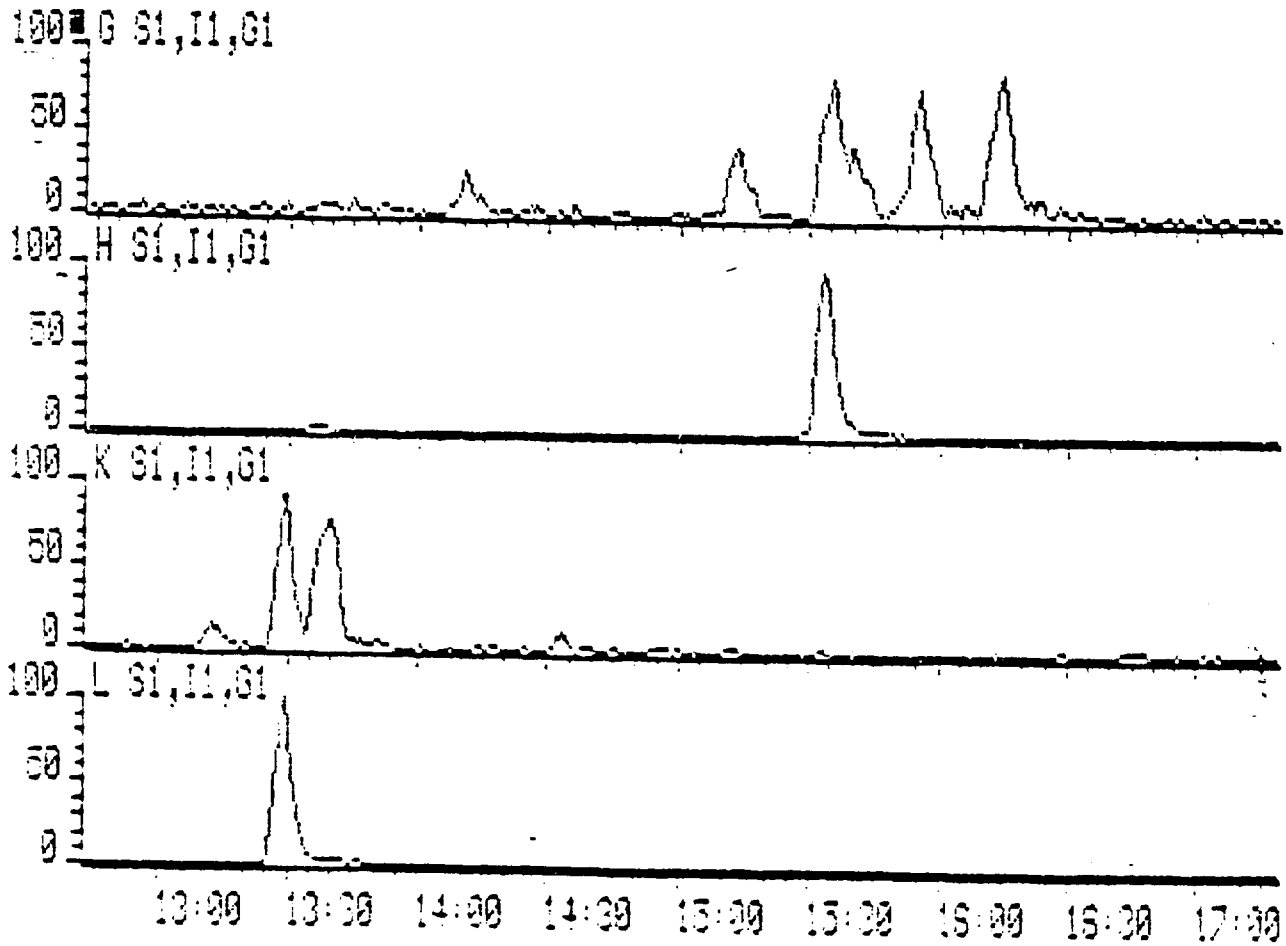
	AREA	RETENTION TIME
1	3.797039E-03	0:15:23
2	2.190505E-02	0:17:13
3	4.643688E-01	0:18:20

M872304

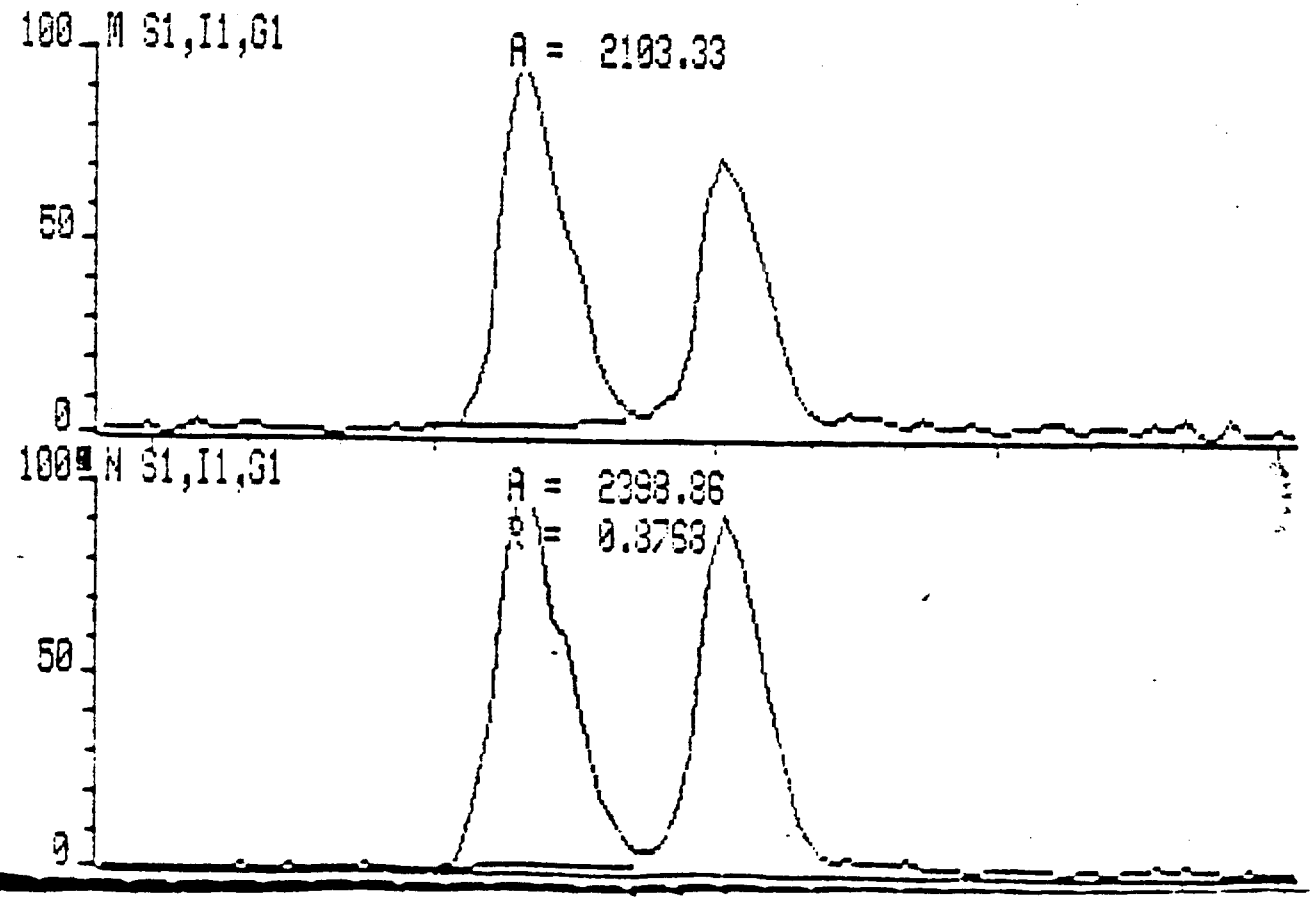
SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 315.94

	AREA	RETENTION TIME
1	1.302652E-02	0:13:28
2	2.056863E-03	0:15:25

MS72306 13-AUG-87 12:43 70E (EI+) Sus:SP2331
GR 1 G: 305.8987 H: 316.3419 I: 317.3389 J: 319.8965 K: 321.8936
Text:COLUMN PERFORMANCE



M872304 13-AUG-87 11:11 70E (EI-) Sus:SP2331
GR 1 A: 240.9379 B: 242.9349 C: 256.9328 D: 258.9298 E: 292.9825
Text:CONCAL



TRIANGLE LABORATORIES, INC.
DIOXIN/FURAN DATA SHEET

FILE NAME: M872304 TLI # 8701536

CHEMIST : AH DATE 8-17-87

SAMPLE WT: — SAMPLE ID: —

CONCAL : concal 10

COMPOUND	M/Z	AREA	RT
2378-TCDF	304	2633	15.28
	306	3757	
13C12-TCDF	316	2807	15.25
	318	3794	
2378-TCDD	320	2051	13.21
	322	2738	~~~~
2378-37C1-TCDD	328	4972	13.21
2378-13C12-TCDD	332	2103 ~~2154 1055~~	13.20
	334	2399 ~~2365 394~~	~~~~
1234-13C12-TCDD	332	1560	13.31
	334	2042	

TRIANGLE LABORATORIES, INC.
TCDD/TCDF CONTINUING CALIBRATION

DATE/TIME RUN 11:0 8/13
ANALYST MDC FILE NAME M872304 ICAL DATE 7-22-8
DATE 8-15-87 STANDARD 100 QC CHECK [X]HK

NAME	DAILY RF	CODE	RATIO	RT	DELTA RF	%DELTA RF
2378-TCDF	1.419	1	0.701	15.28	0.099	7.53%
2378-TCDD	1.064	1	0.749	13.21	0.022	2.09%

SURROGATE RESPONSE FACTOR SUMMARY

NAME	DAILY RF	CODE	RATIO	RT	DELTA RF	%DELTA RF
13C12-TCDF	1.466	2	0.740	15.25	0.103	7.57%
37Cl-TCDD	2.364	2		13.21	-0.041	-1.69%

INTERNAL STANDARDS RESPONSE FACTOR SUMMARY

NAME	DAILY RF	CODE	RATIO	RT	DELTA RF	%DELTA RF
2378-13C12-TCDD	1.250	3	0.877	13.20	-0.131	-9.50%

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 321.89

	AREA	RETENTION TIME
1	1.115303E+02	0:11:28
2	8.759173E+01	0:12:27
3	4.778320E+01	0:13:03
4	3.794954E+01	0:13:14

M872316

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 327.88

	AREA	RETENTION TIME
1	9.497665E+02	0:13:32

M872316

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 331.94

	AREA	RETENTION TIME
1	8.172845E+02	0:13:32
2	2.992393E+03	0:13:41

M872316

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 333.93

	AREA	RETENTION TIME
1	9.094515E+02	0:13:32
2	3.977473E+03	0:13:42

3	3.029473E+02	0:14:43
4	1.618074E+02	0:15:44

M872316

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 315.94

	AREA	RETENTION TIME
1	5.218841E+02	0:15:38

M872316

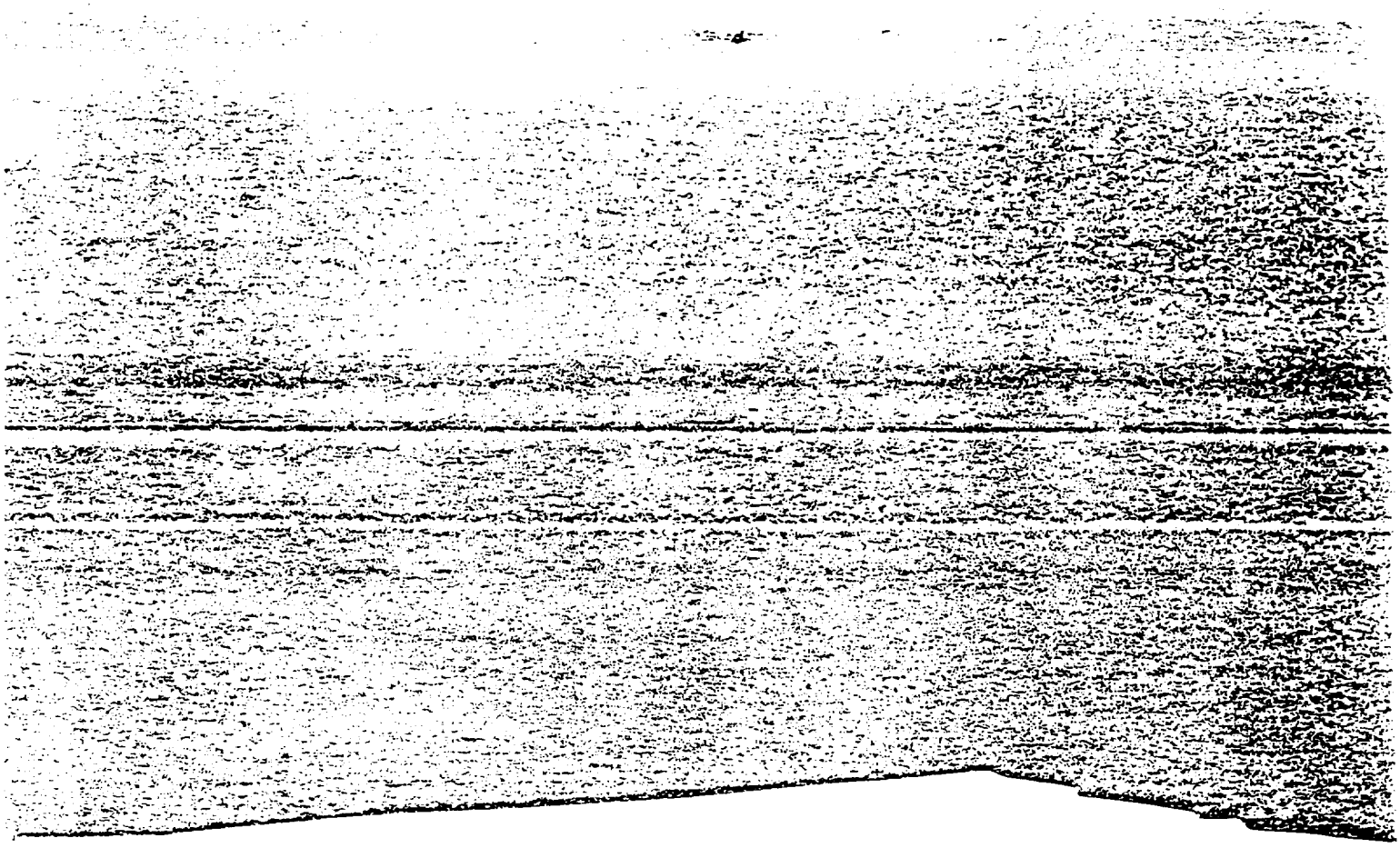
SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 317.94

	AREA	RETENTION TIME
1	6.488258E+02	0:15:37

M872316

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 319.90

	AREA	RETENTION TIME
1	9.397645E+01	0:11:29
2	6.286304E+01	0:12:13
3	1.296825E+02	0:13:44



M872316

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 303.90

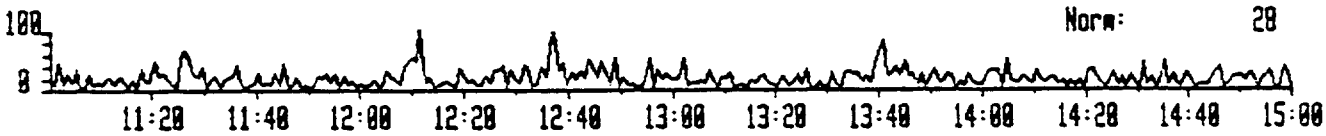
	AREA	RETENTION TIME
1	1.195457E+02	0:14:14
2	2.089072E+02	0:14:42
3	1.372800E+02	0:15:17
4	1.418398E+02	0:16:17

M872316

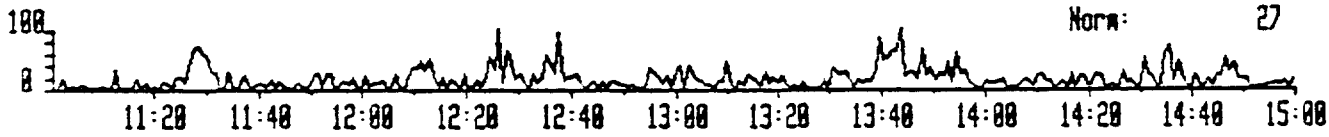
SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 305.90

	AREA	RETENTION TIME
1	1.840417E+02	0:13:41
2	2.077618E+02	0:14:04

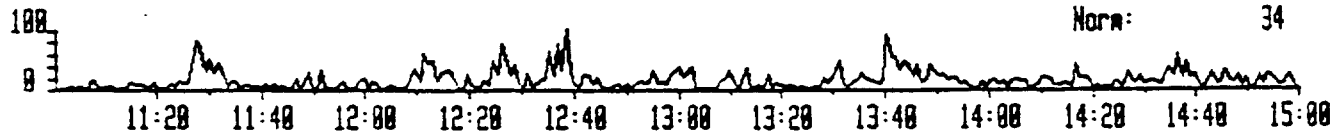
M872316 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 256.9328
Text:I2-MM5-5



M872316 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 319.8965
Text:I2-MM5-5

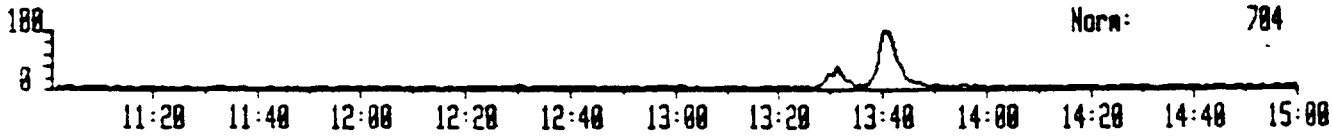


M872316 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 321.8936
Text:I2-MM5-5

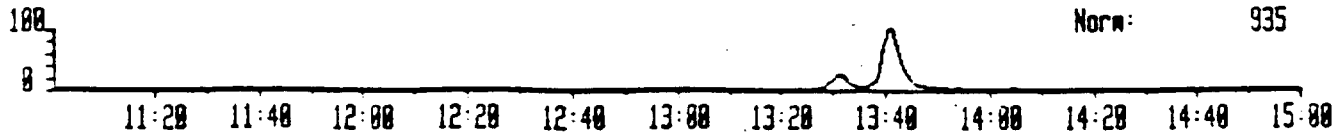


M872316 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 327.8847
Text:I2-MM5-5

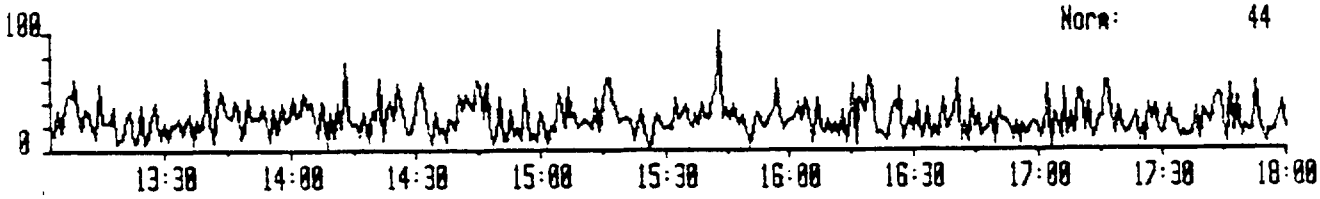
M872316 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 331.9368
Text:I2-MM5-5



M872316 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 333.9338
Text:I2-MM5-5

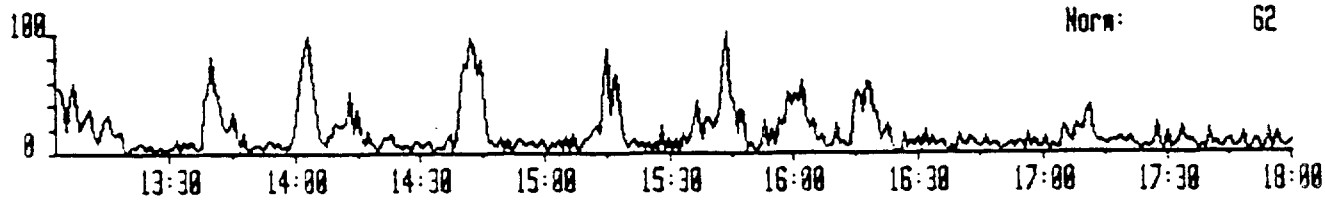


M872316 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 240.9379
Text:I2-MM5-5

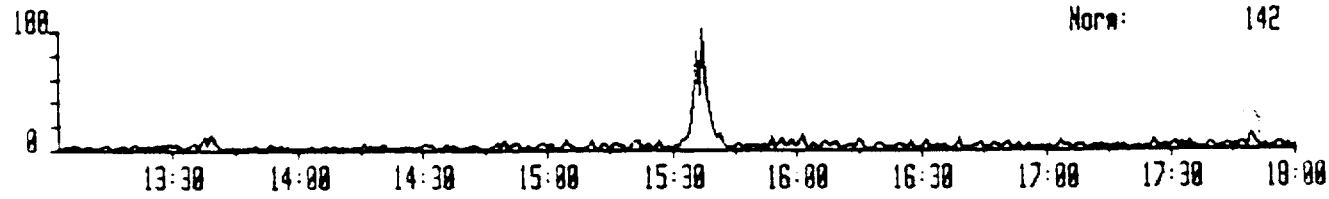


M872316 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 303.9816
Text:I2-MM5-5

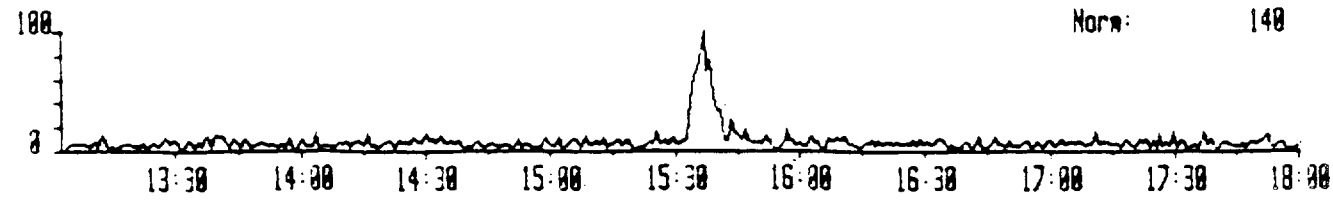
M872316 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 305.8987
Text:I2-MM5-5



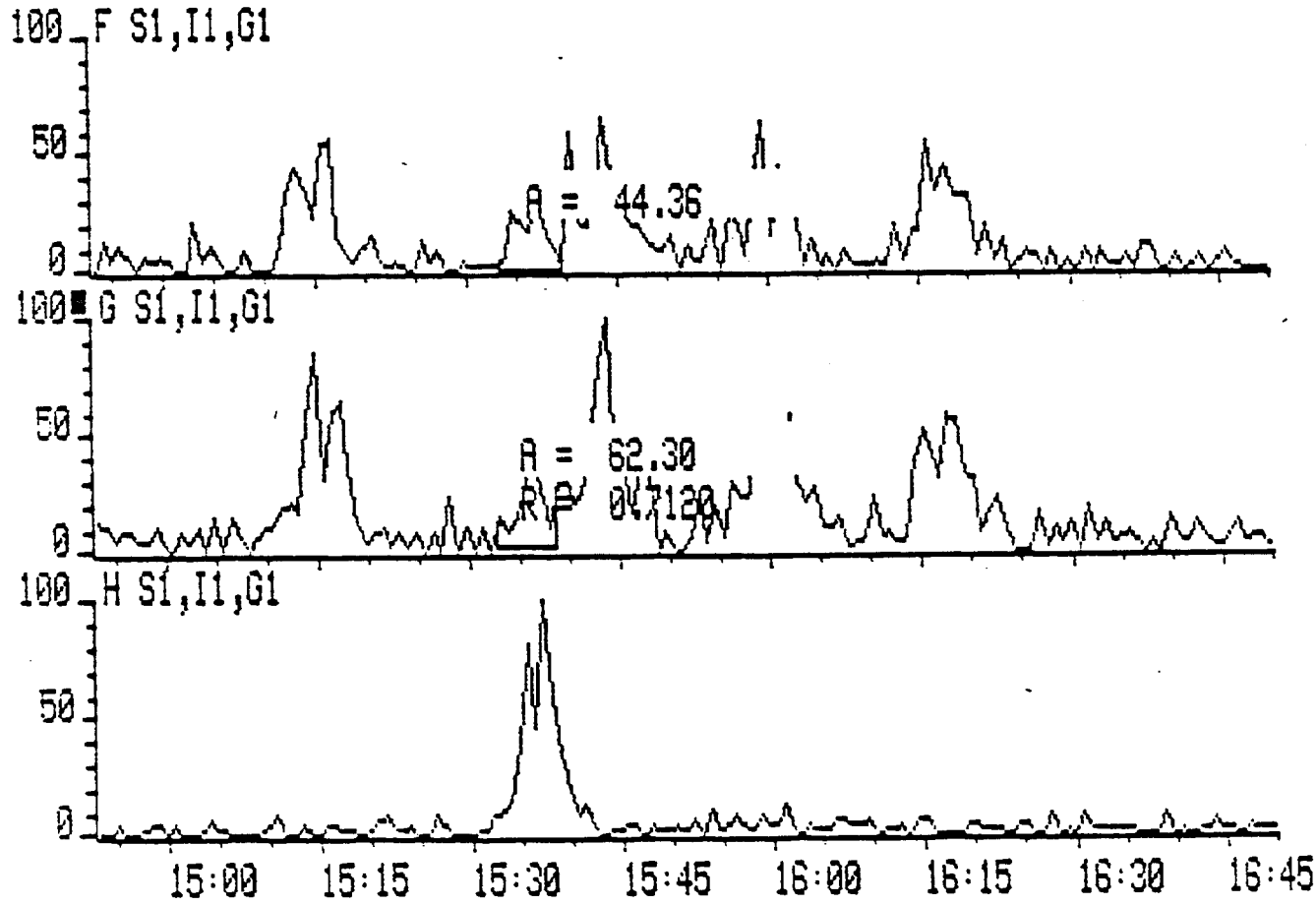
M872316 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 315.9419
Text:I2-MM5-5



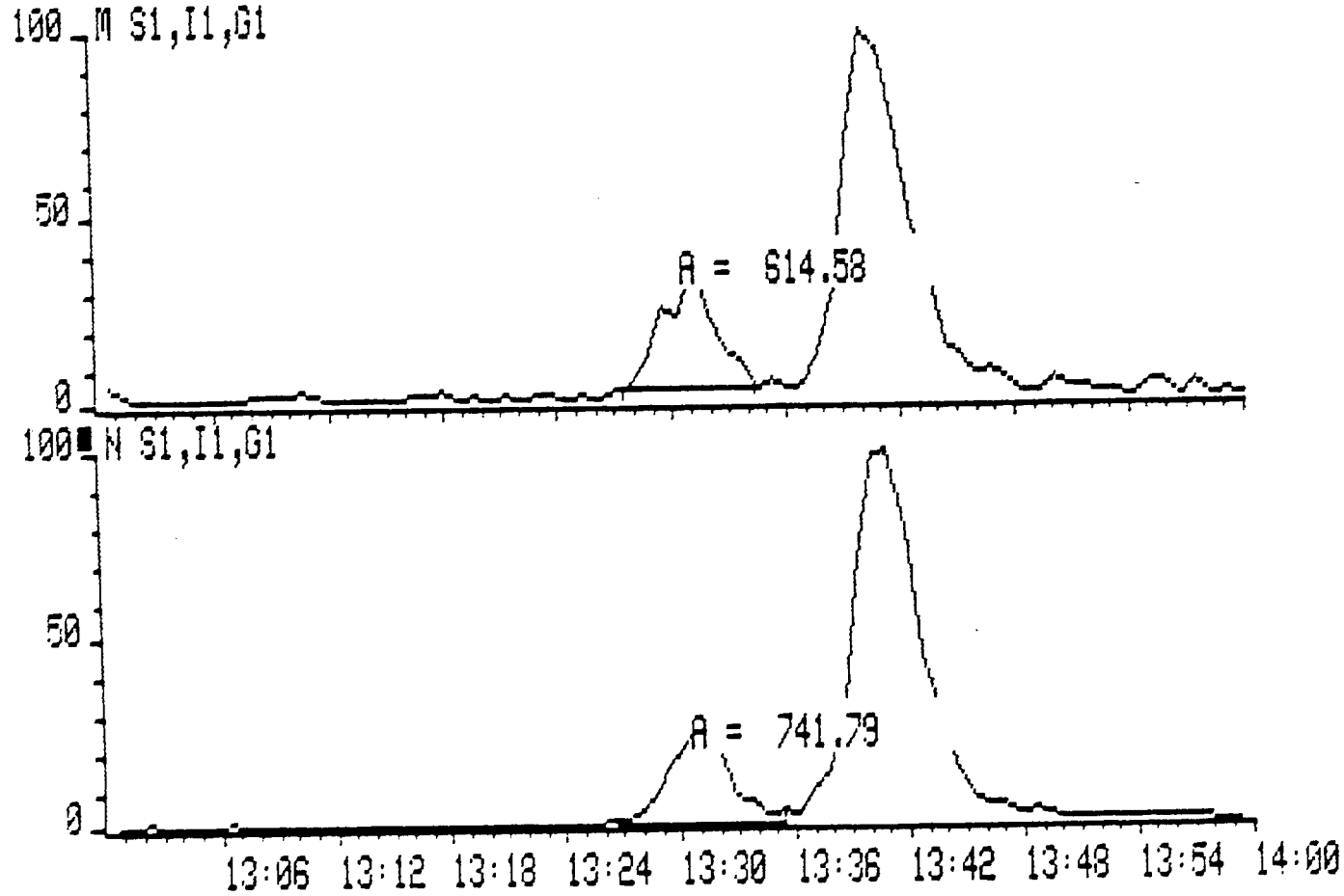
M872316 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 317.9389
Text:I2-MM5-5



M872316 13-AUG-87 17:23 70E (EI+) Sys:SP2331
GR 1 A: 240.9379 B: 242.9349 C: 256.9328 D: 258.9298 E: 292.9825
Text:I2-MM5-5



M872316 13-AUG-87 17:23 70E (EI+) Sys:SP2331
GR 1 J: 319.8965 K: 321.8936 L: 327.8847 M: 331.9368 N: 333.9338
Text:I2-MM5-5



TRIANGLE LABORATORIES, INC.
DIOXIN/FURAN DATA SHEET

FILE NAME: MB72316 TLI #_____

CHEMIST : _____ DATE _____

SAMPLE WT: _____ SAMPLE ID: _____

CONCAL : _____

COMPOUND	M/Z	AREA	RT
2378-TCDF	304	44	15-36
	306	62	
13C12-TCDF	316	522	15-37
	318	349	
2378-TCDD	320		
	322		
2378-37C1-TCDD	328	950	13-32
2378-13C12-TCDD	332	~~317~~ 616	13-32
	334	~~659~~ 747	
1234-13C12-TCDD	332	2992	1342
	334	~~3977~~	

TRIANGLE LABORATORIES, INC
2,3,7,8-TCDD/TCDF ANALYSIS

ANALYST	MDC	FILE #	M872316
DATE	8-25-87	CONCAL #	M872304
		TLI #	8701511
SAMPLE ID	I2-MM5-5		

NAME	AMT (ng)	DL	EMPC	RATIO	RT
2378-TCDF	0.55			0.710	15.36
2378-TCDD	ND	0.35		1.000	

SURROGATE RESULTS SUMMARY

NAME	AMT (ng)	% RECOVERY	RATIO	RT
13C12-TCDF	5.89	117.73	0.804	15.37
37Cl-TCDD	6.53	130.69		13.29

INTERNAL STANDARDS RECOVERY RESULTS

NAME	AMT (ng)	% RECOVERY	RATIO	RT
2378-13C12-TCDD	1.56	15.58	0.829	13.32

TRIANGLE LABORATORIES, INC
2,3,7,8-TCDD/TCDF ANALYSIS

ANALYST	MDC	FILE #	M872315
DATE	8-25-87	CONCAL #	M872304
		TLI #	8701511
SAMPLE ID	I2-MM5-4		

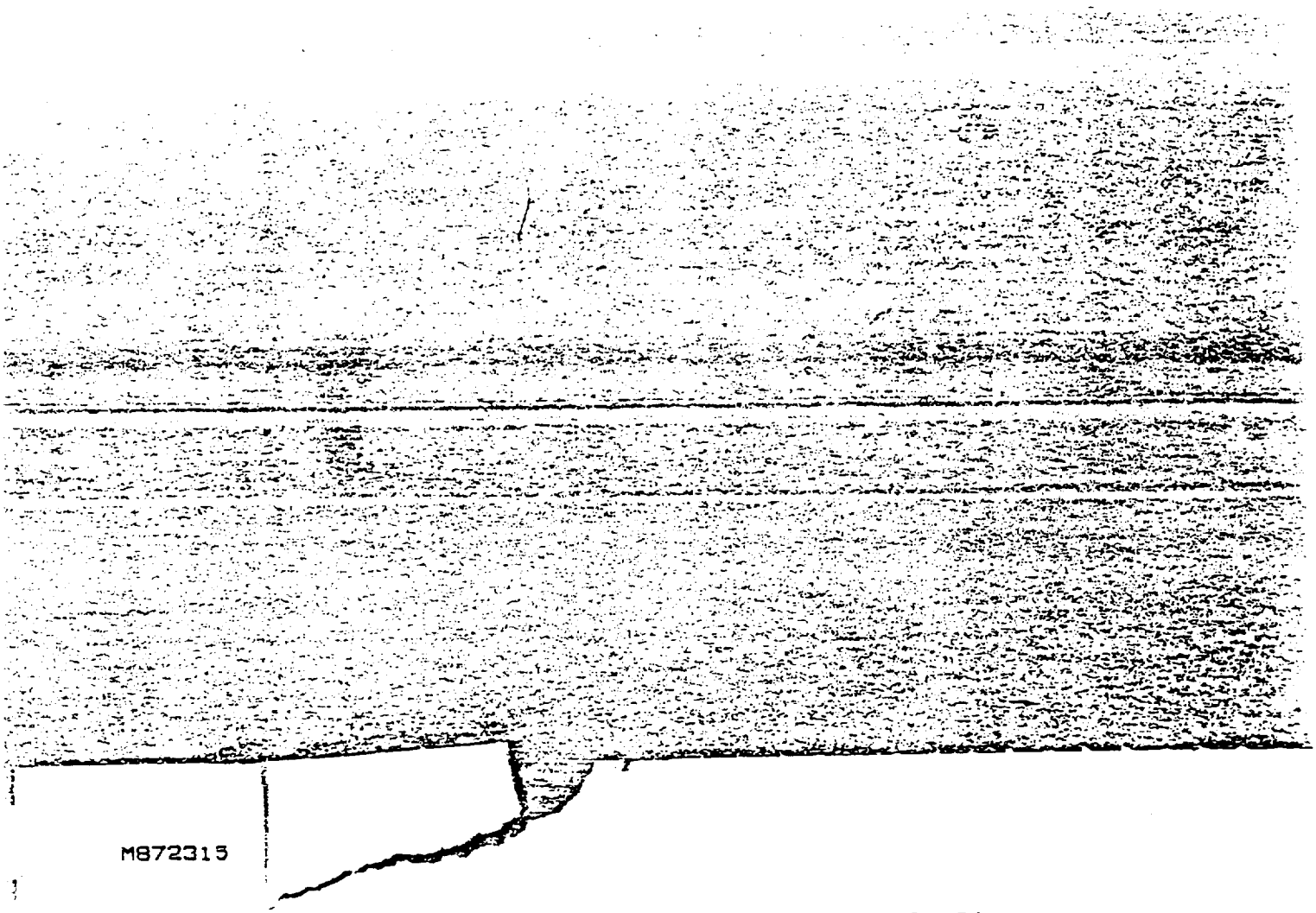
NAME	AMT (ng)	DL	EMPC	RATIO	RT
2378-TCDF	0.36			0.698	15.34
2378-TCDD	ND		0.28	0.738	13.30

SURROGATE RESULTS SUMMARY

NAME	AMT (ng)	% RECOVERY	RATIO	RT
13C12-TCDF	4.69	93.87	0.824	15.35
37Cl-TCDD	4.63	92.54		13.29

INTERNAL STANDARDS RECOVERY RESULTS

NAME	AMT (ng)	% RECOVERY	RATIO	RT
2378-13C12-TCDD	7.64	76.38	0.769	13.28



M872315

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 331.94

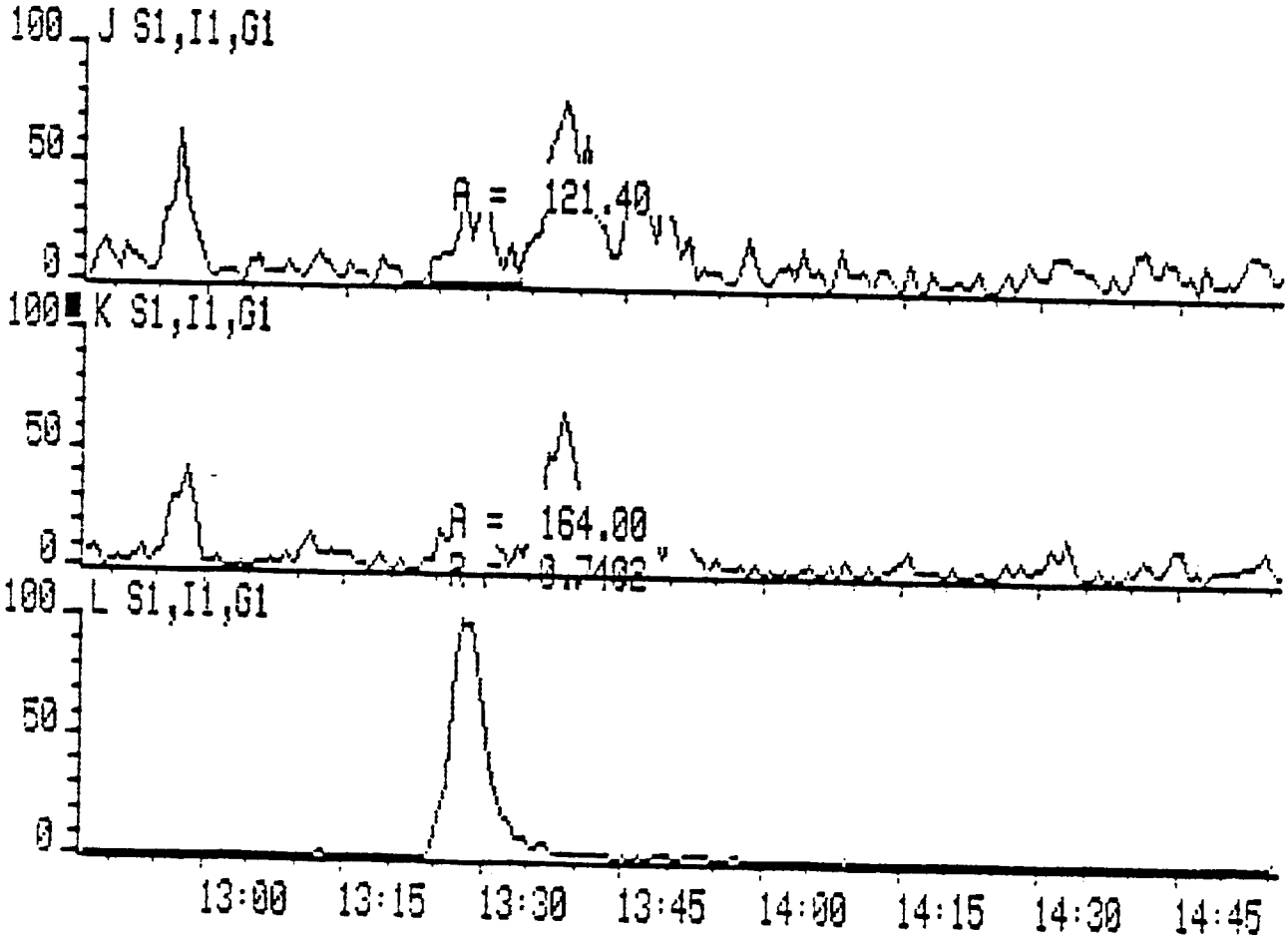
	AREA	RETENTION TIME
1	4.176486E+03	0:13:28
2	4.468839E+03	0:13:39

M872315

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 333.93

	AREA	RETENTION TIME
1	5.402465E+03	0:13:28
2	5.393864E+03	0:13:39

M872315 13-AUG-87 16:59 70E (EI+) Sus:SP2331
GR 1 A: 240.9379 B: 242.9349 C: 256.9328 D: 258.9298 E: 292.9825
Text:I2-MM5-4



TRIANGLE LABORATORIES, INC.
DIOXIN/FURAN DATA SHEET

FILE NAME: M872315 TLI #

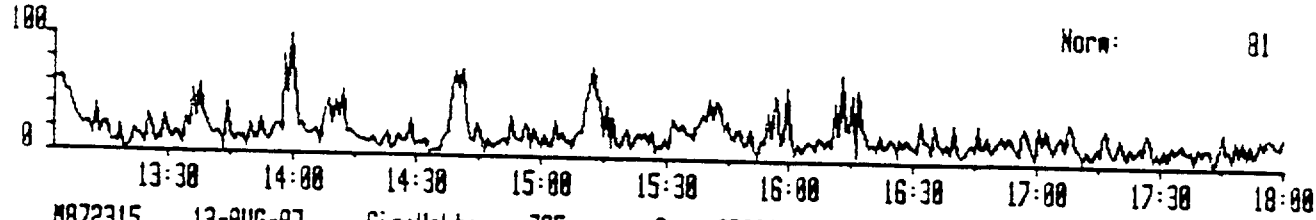
CHEMIST : DATE

SAMPLE WT: SAMPLE ID:

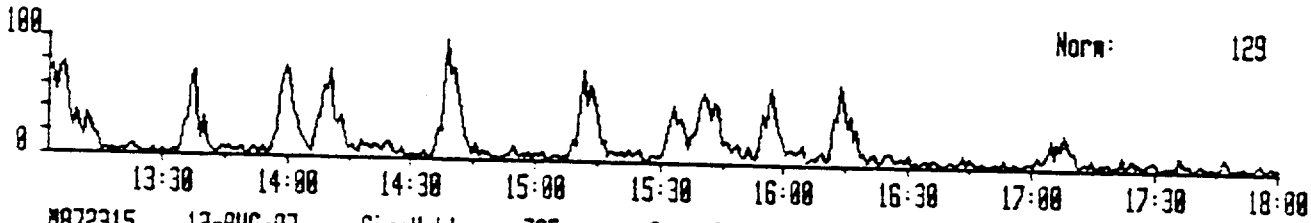
CONCAL :

COMPOUND	M/Z	AREA	RT
2378-TCDF	304	201	15-34
	306	288	
13C12-TCDF	316	2937	15-35
	318	3627	
2378-TCDD	320	121 14 no	13-30
	322	164 M 10	
2378-37C1-TCDD	328	4568	13-29
2378-13C12-TCDD	332	4176	13-28
	334	5432	
1234-13C12-TCDD	332	4469	13-39
	334	5534	

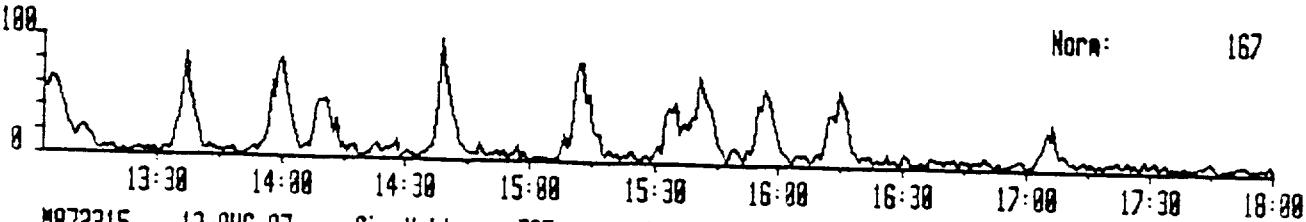
M872315 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 240.9379
Text:I2-MM5-4



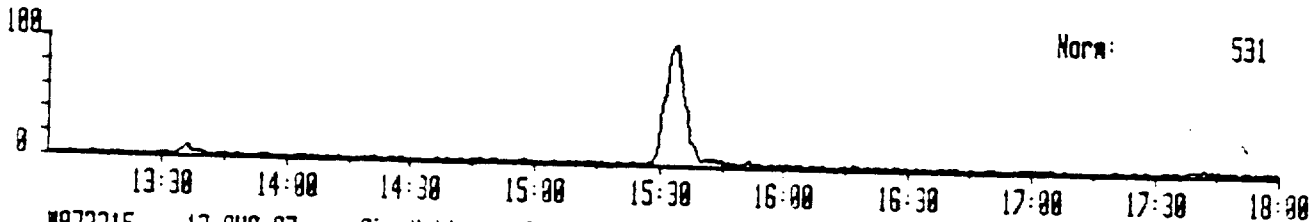
M872315 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 303.9816
Text:I2-MM5-4



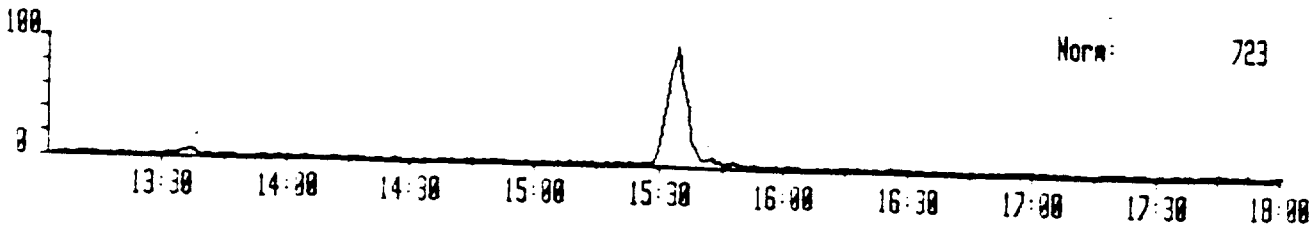
M872315 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 305.8987
Text:I2-MM5-4



M872315 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 315.9419
Text:I2-MM5-4



M872315 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 317.9389
Text:I2-MM5-4



TRIANGLE LABORATORIES, INC.
DIOXIN/FURAN DATA SHEET

FILE NAME: M872314 TLI #

CHEMIST : DATE

SAMPLE WT: SAMPLE ID:

CONCAL :

COMPOUND	M/Z	AREA	RT
2378-TCDF	304	216	15-30
	306	329	
13C12-TCDF	316	2821	15-35
	318	3542	
2378-TCDD	320	~~169~~ 136	13-32
	322	~~146~~ 170	
2378-37C1-TCDD	328	1954	13-31
2378-13C12-TCDD	332	4688	13-30
	334	5047	
1234-13C12-TCDD	332	3741	13-40
	334	4651	

TRIANGLE LABORATORIES, INC
2,3,7,8-TCDD/TCDF ANALYSIS

ANALYST	MDC	FILE #	M872314
DATE	8-25-87	CONCAL #	M872304
		TLI #	8701511
SAMPLE ID	I2-MM5-3		

NAME	AMT (ng)	DL	EMPC	RATIO	RT
2378-TCDF	0.42			0.857	15.30
2378-TCDD	0.31			0.800	13.32

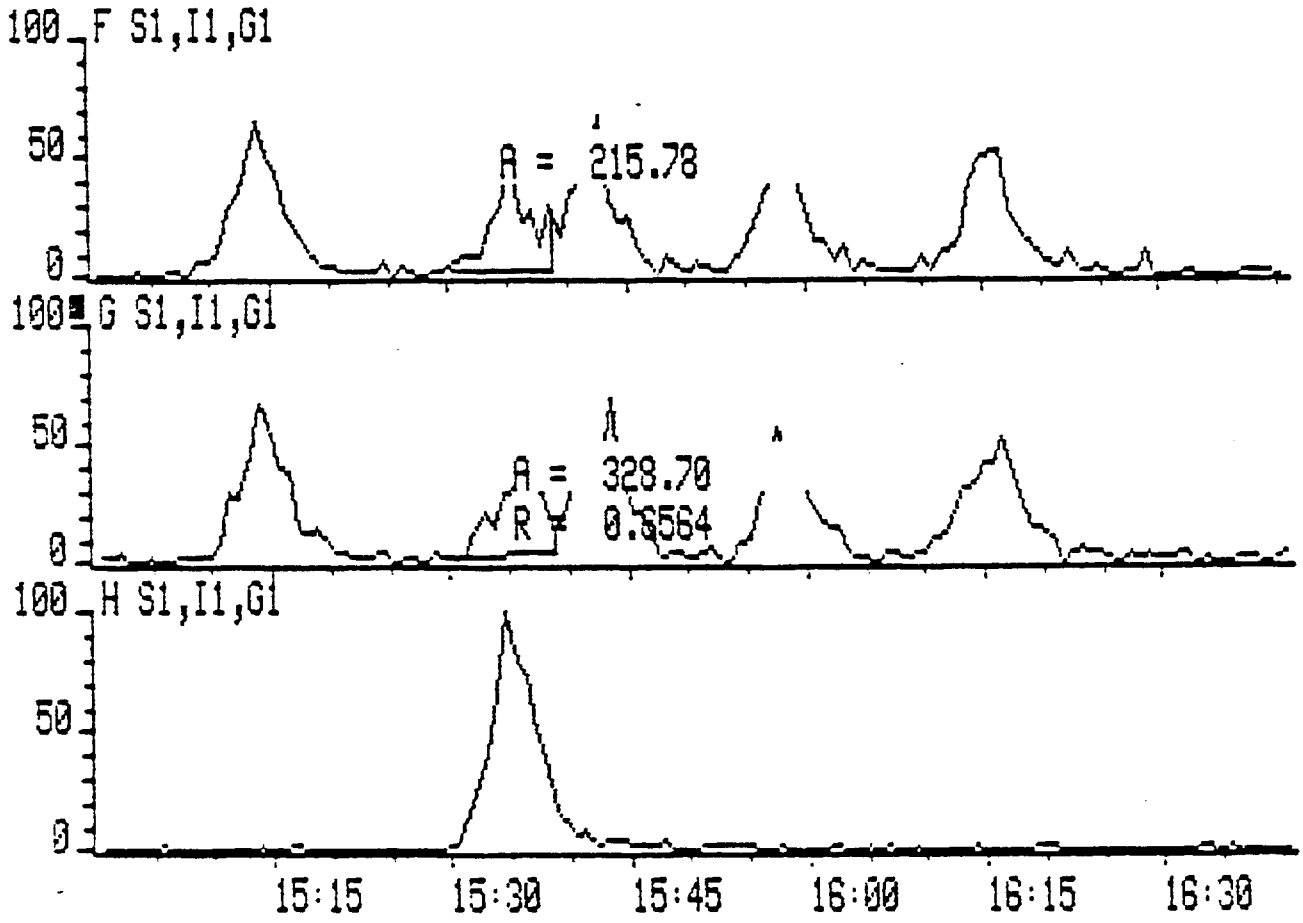
SURROGATE RESULTS SUMMARY

NAME	AMT (ng)	% RECOVERY	RATIO	RT
13C12-TCDF	4.75	95.03	0.796	15.35
37Cl-TCDD	5.07	101.49		13.31

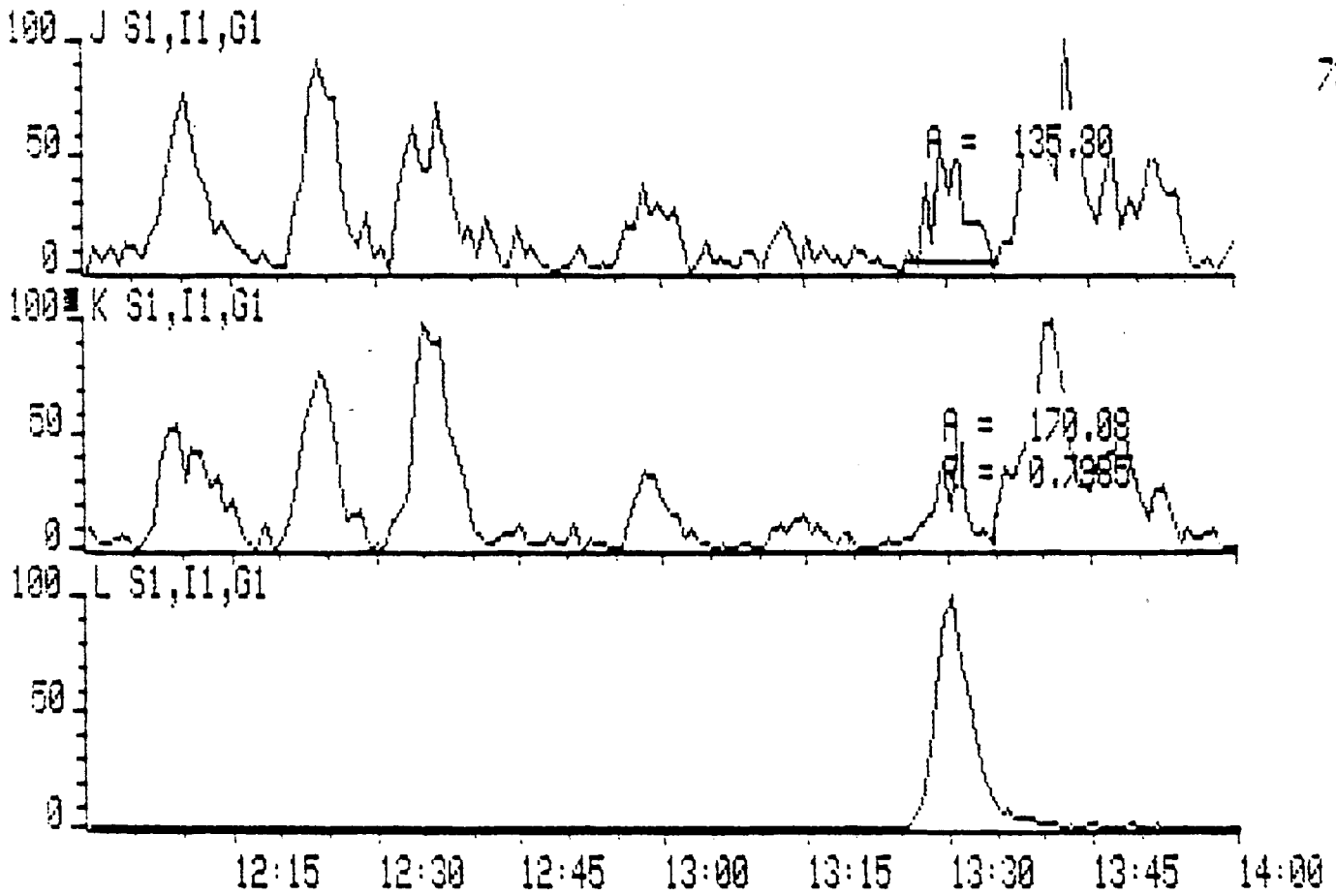
INTERNAL STANDARDS RECOVERY RESULTS

NAME	AMT (ng)	% RECOVERY	RATIO	RT
2378-13C12-TCDD	8.71	87.08	0.810	13.30

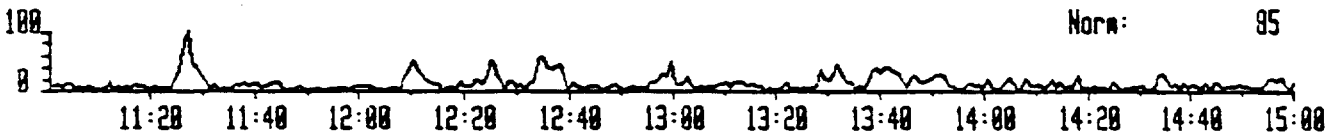
M872314 13-AUG-87 16:35 70E (EI+) Sys:SP2331
GR 1 A: 240.9379 B: 242.9349 C: 256.9328 D: 258.9298 E: 292.3825
Text:I2-MM5-3



M872314 13-AUG-87 16:35 70E (EI+) Sys:GP2331
GR 1 A: 240.9379 B: 242.9349 C: 256.9328 D: 258.9298 E: 292.9825
Text:I2-MM5-3



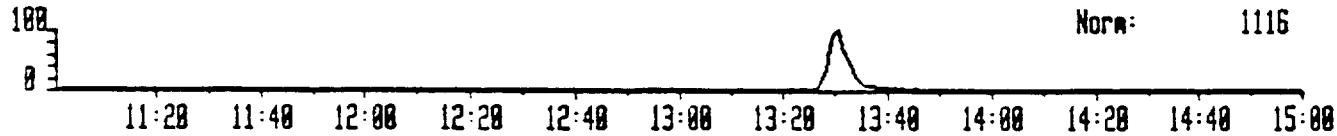
M872314 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 256.9328
Text:I2-MM5-3



M872314 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 319.8965
Text:I2-MM5-3

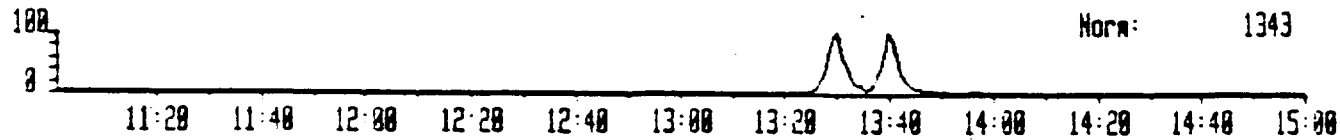
M872314 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 321.8936
Text:I2-MM5-3

M872314 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 327.8847
Text:I2-MM5-3

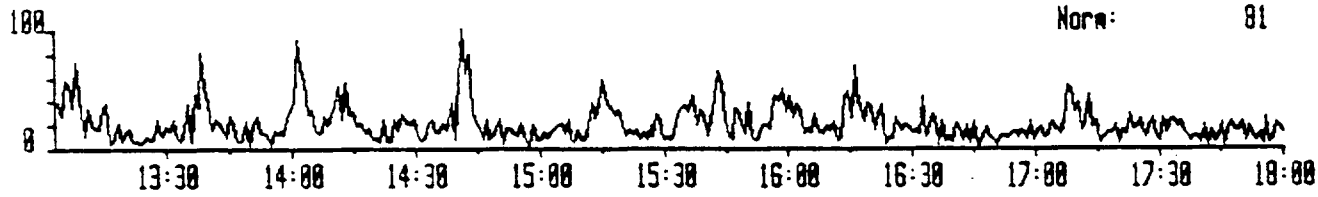


M872314 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 331.9368
Text:I2-MM5-3

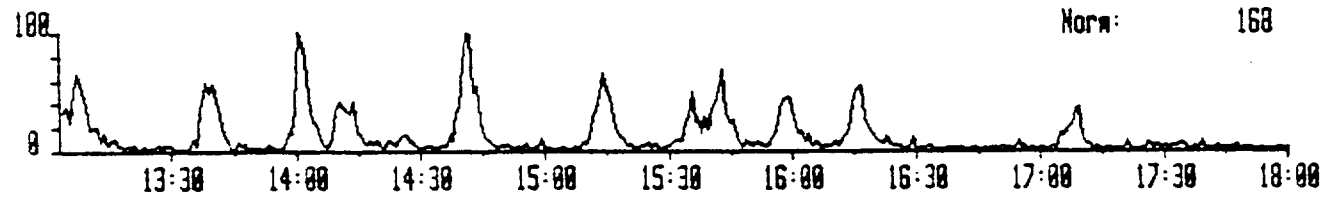
M872314 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 333.9338
Text:I2-MM5-3



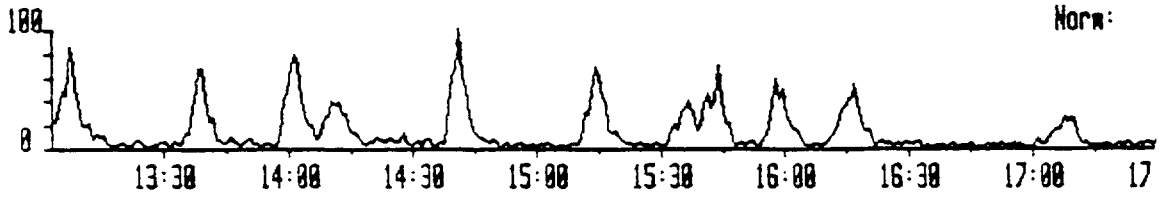
M872314 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 240.9379
Text:I2-MM5-3



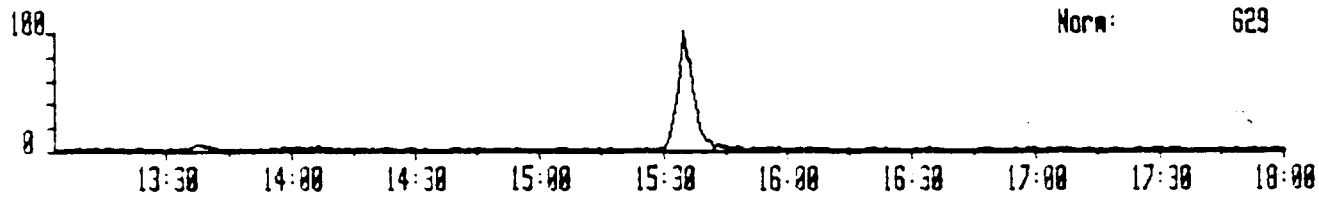
M872314 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 303.9816
Text:I2-MM5-3



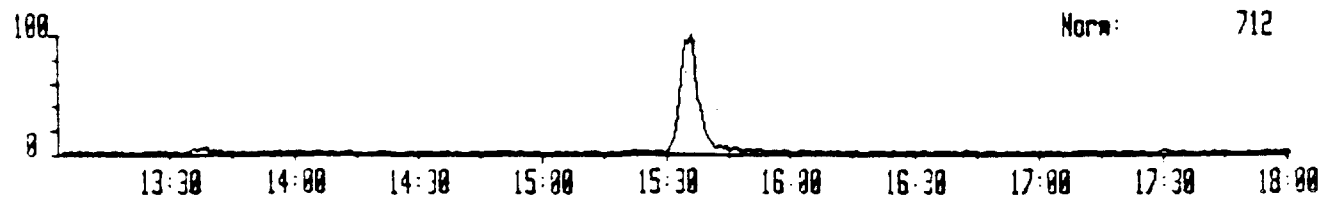
M872314 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 305.8987
Text:I2-MM5-3

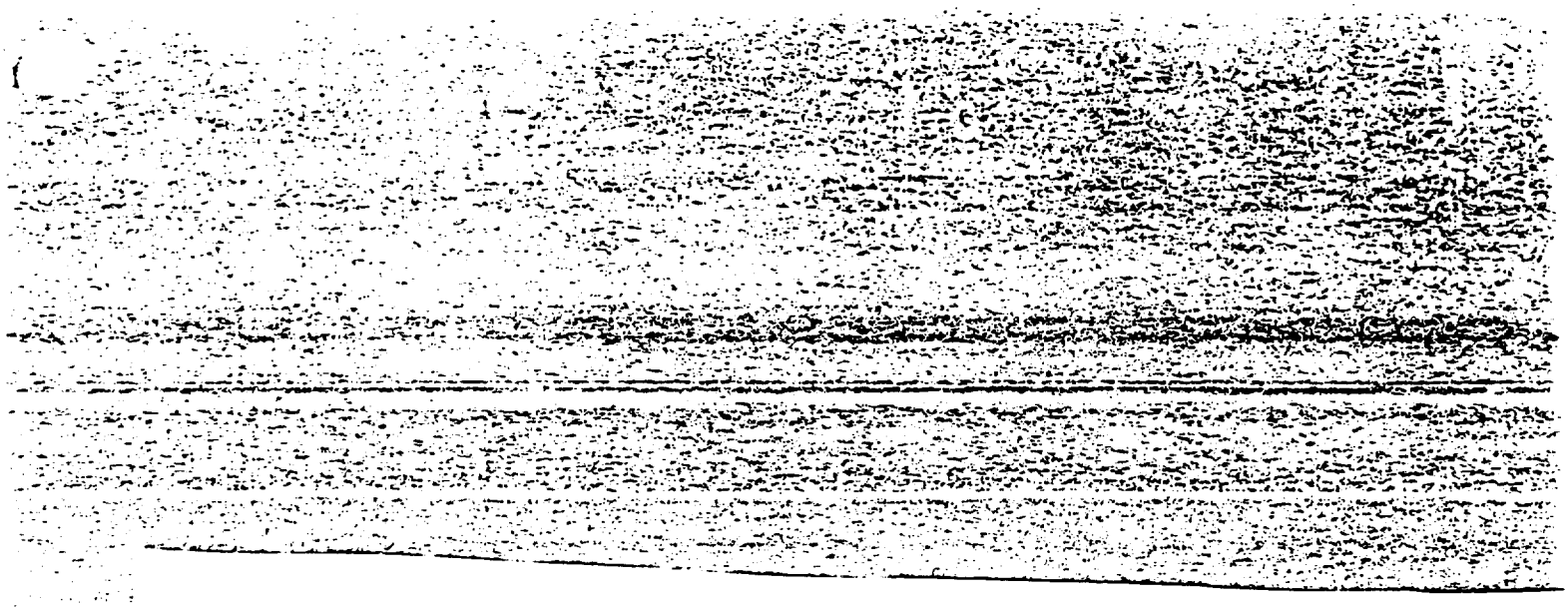


M872314 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 315.9419
Text:I2-MM5-3



M872314 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 317.9389
Text:I2-MM5-3





M872314

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 303.90

	AREA	RETENTION TIME
1	3.297911E+02	0:13:08
2	4.872235E+02	0:13:39
3	5.958007E+02	0:14:01
4	3.709680E+02	0:14:14
5	7.257005E+02	0:14:42
6	5.057338E+02	0:15:15
7	2.605348E+02	0:15:36
8	4.634001E+02	0:15:44
9	3.657718E+02	0:15:59
10	4.034730E+02	0:16:17
11	2.314041E+02	0:17:10

M872314

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 305.90

	AREA	RETENTION TIME
1	5.572927E+02	0:13:08
2	6.907134E+02	0:13:39
3	8.046603E+02	0:14:02
4	5.419471E+02	0:14:11
5	8.987175E+02	0:14:42
6	7.105499E+02	0:15:15
7	1.006351E+03	0:15:44
8	5.982086E+02	0:15:58
9	6.492032E+02	0:16:17
10	3.486895E+02	0:17:09

M872314

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 315.94

	AREA	RETENTION TIME
1	1.239071E+02	0:13:39
2	2.820530E+03	0:15:35

M872314

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 317.94

	AREA	RETENTION TIME
1	2.124072E+02	0:13:39
2	3.542497E+03	0:15:36

M872314

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 319.90

	AREA	RETENTION TIME
1	3.276627E+02	0:11:28
2	2.560562E+02	0:12:11
3	2.957117E+02	0:12:25
4	2.749114E+02	0:12:37
5	1.186043E+02	0:12:59

M872314

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 321.89

	AREA	RETENTION TIME
1	5.447750E+02	0:11:26
2	3.328076E+02	0:12:10
3	3.491728E+02	0:12:25
4	4.573184E+02	0:12:36
5	1.490423E+02	0:12:59
6	1.461688E+02	0:13:32
7	5.262142E+02	0:13:41
8	2.650609E+02	0:13:49
9	1.296480E+02	0:14:35
10	1.760046E+02	0:14:49

M872314

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 327.88

	AREA	RETENTION TIME
1	4.903914E+03	0:13:31
2	4.630175E+01	0:13:50

M872314

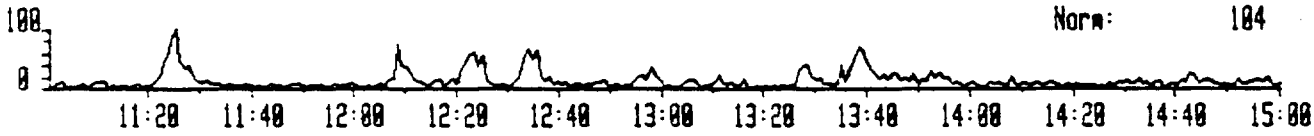
SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 331.94

	AREA	RETENTION TIME
1	4.087912E+03	0:13:30
2	3.741089E+03	0:13:40

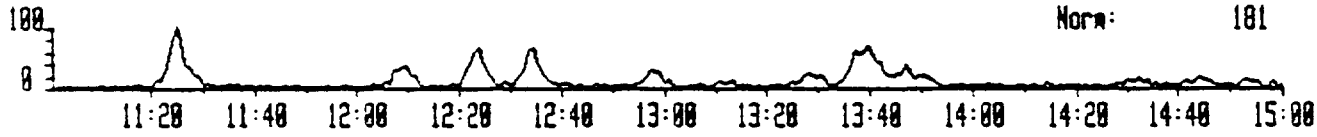
M872314

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 333.93

M872313 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 256.9328
Text:I2-MM5-2

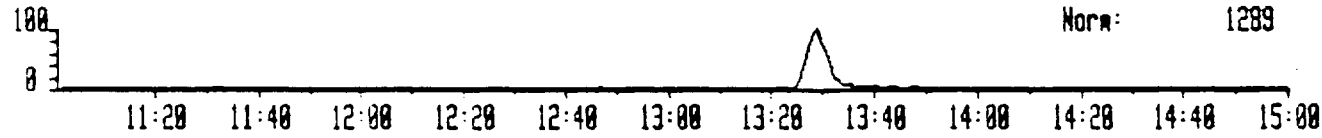


M872313 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 319.8965
Text:I2-MM5-2

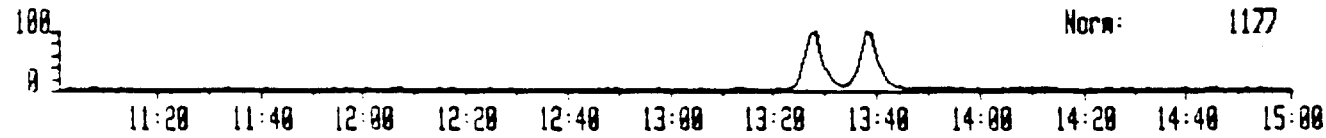


M872313 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 321.8936
Text:I2-MM5-2

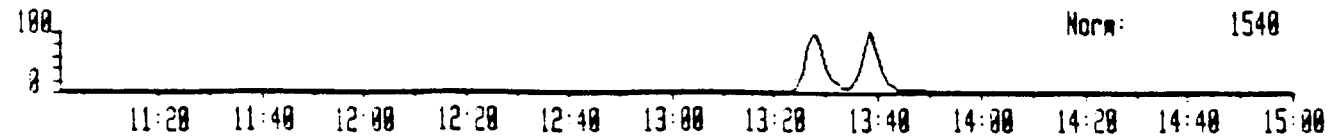
M872313 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 327.8847
Text:I2-MM5-2



M872313 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 331.9368
Text:I2-MM5-2

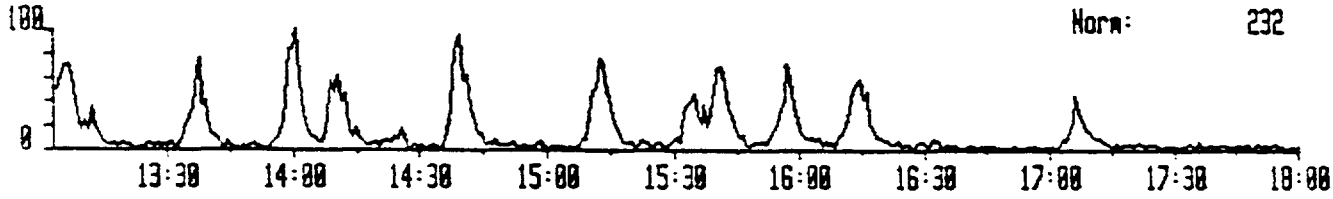


M872313 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 333.9338
Text:I2-MM5-2



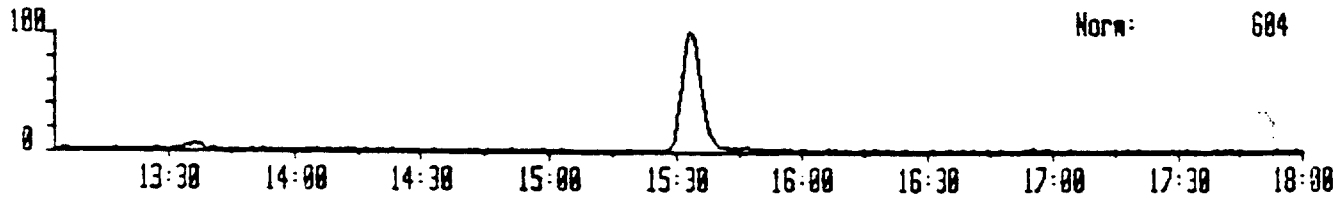
M872313 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 240.9379
Text:I2-MM5-2

M872313 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 303.9816
Text:I2-MM5-2

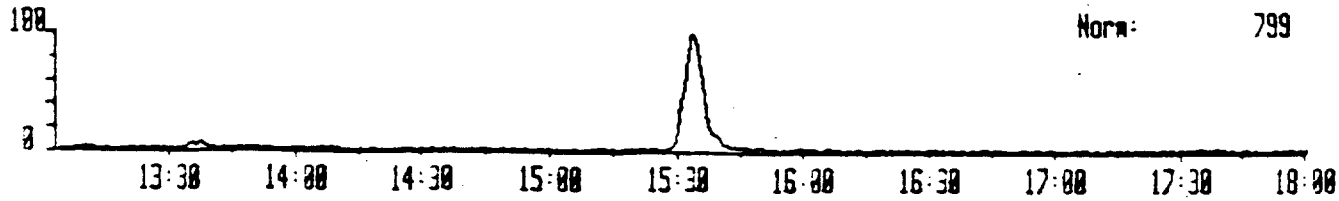


M872313 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 305.8987
Text:I2-MM5-2

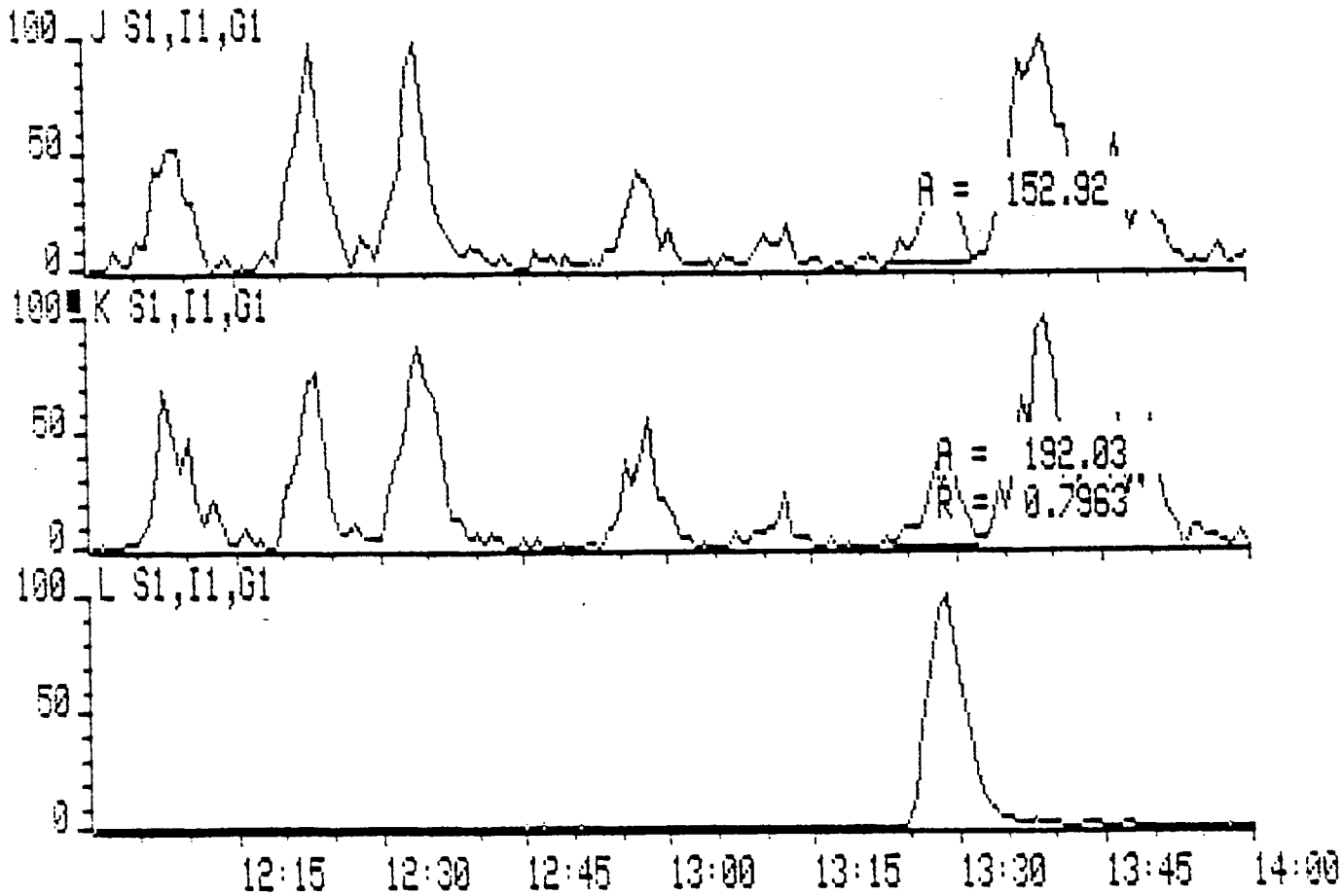
M872313 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 315.9419
Text:I2-MM5-2



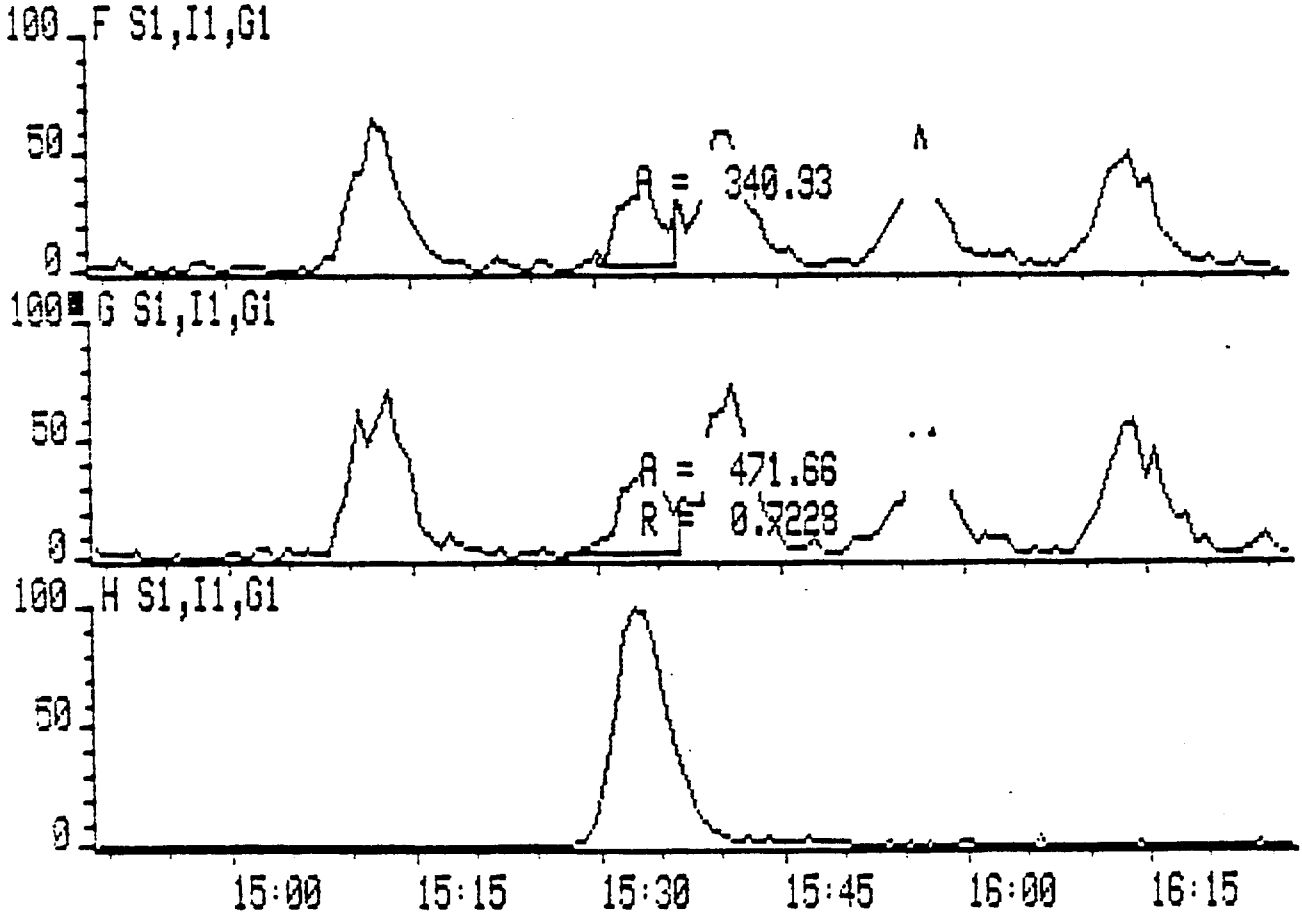
M872313 13-AUG-87 Sir:Voltage 70E Sys: SP2331
Sample 1 Injection 1 Group 1 Mass 317.9389
Text:I2-MM5-2



M872313 13-AUG-87 16:09 70E (EI+) Sys:SP2331
GR 1 A: 240.9379 B: 242.9349 C: 256.9328 D: 258.9298 E: 292.9825
Text:I2-MM5-2



1872313 13-AUG-87 16:09 70E (EI+) Sys:SP2331
GR 1 A: 240.9379 B: 242.9349 C: 256.9328 D: 258.9298 E: 292.9825
Text:I2-MM5-2



TRIANGLE LABORATORIES, INC.
DIOXIN/FURAN DATA SHEET

FILE NAME: MB72313 TLI #

CHEMIST : DATE

SAMPLE WT: SAMPLE ID:

CONCAL :

COMPOUND	M/Z	AREA	RT
2378-TCDF	304	439 341	15-35
	306	497 472	
13C12-TCDF	316	3196	15-34
	318	4149	
2378-TCDD	320	1153	13-30
	322	192	
2378-37C1-TCDD	328	5720	13-29
2378-13C12-TCDD	332	4518	13-29
	334	5013	
1234-13C12-TCDD	332	4383	13-39
	334	5436	

TRIANGLE LABORATORIES, INC
2,3,7,8-TCDD/TCDF ANALYSIS

ANALYST	MDC	FILE #	M872313
DATE	8-25-87	CONCAL #	M872304
		TLI #	8701511
SAMPLE ID	I2-MM5-2		

NAME	AMT (ng)	DL	EMPC	RATIO	RT
2378-TCDF	0.54			0.722	15.35
2378-TCDD	0.31			0.797	13.30

SURROGATE RESULTS SUMMARY

NAME	AMT (ng)	% RECOVERY	RATIO	RT
13C12-TCDF	4.76	95.15	0.770	15.34
37Cl-TCDD	5.36	107.11		13.29

INTERNAL STANDARDS RECOVERY RESULTS

NAME	AMT (ng)	% RECOVERY	RATIO	RT
2378-13C12-TCDD	8.58	85.80	0.751	13.29

M872313

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 317.94

	AREA	RETENTION TIME
1	2.094639E+02	0:13:36
2	4.148637E+03	0:15:34

M872313

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 319.90

	AREA	RETENTION TIME
1	6.768202E+02	0:11:26
2	3.003122E+02	0:12:10
3	4.338385E+02	0:12:24
4	4.883947E+02	0:12:35
5	2.105362E+02	0:12:58
6	6.835831E+02	0:13:40
7	3.071034E+02	0:13:47

M872313

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 321.89

	AREA	RETENTION TIME
1	9.870938E+02	0:11:25
2	4.117863E+02	0:12:08
3	4.130377E+02	0:12:24
4	5.862568E+02	0:12:35
5	3.186537E+02	0:12:59
6	2.158362E+02	0:13:30
7	9.543350E+02	0:13:40

M872313

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 327.88

	AREA	RETENTION TIME

M872290

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 469.78

	AREA	RETENTION TIME
1	9.998356E+03	0:46:58
2	8.608362E+01	0:48:02

M872290

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 471.77

	AREA	RETENTION TIME
1	1.013229E+04	0:46:59

	AREA	RETENTION TIME
1	5.597394E+04	0:47:11

M872290

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 443.74

	AREA	RETENTION TIME
1	6.399081E+04	0:47:11

M872290

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 457.74

	AREA	RETENTION TIME
1	4.317718E+04	0:47:00

M872290

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 459.73

	AREA	RETENTION TIME
1	5.014452E+04	0:46:59

M872290

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 425.77

	AREA	RETENTION TIME
1	2.990563E+04	0:42:17
2	1.135110E+03	0:47:00

M872290

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 435.82

	AREA	RETENTION TIME
1	4.020070E+03	0:42:16

M872290

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 437.81

	AREA	RETENTION TIME
1	4.088730E+03	0:42:16

M872290

M872290

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 403.85

	AREA	RETENTION TIME
1	2.686293E+03	0:36:30
2	4.213763E+03	0:36:59

M872290

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 407.78

	AREA	RETENTION TIME
1	5.028800E+04	0:40:48
2	4.366392E+04	0:42:52
3	1.102667E+03	0:46:59
4	1.790480E+03	0:47:12

M872290

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 409.78

	AREA	RETENTION TIME
1	4.957055E+04	0:40:48
2	4.272898E+04	0:42:53
3	2.248345E+03	0:47:13

M872290

SAMPLE 1 INJECTION 1 GROUP 4 CHANNEL 423.78

	AREA	RETENTION TIME
1	3.038087E+04	0:42:16
2	1.162662E+03	0:47:00

M872290

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 353.86

	AREA	RETENTION TIME
1	1.587168E+04	0:29:52

M872290

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 355.85

	AREA	RETENTION TIME
1	2.621260E+04	0:29:52

M872290

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 365.90

	AREA	RETENTION TIME
1	1.484228E+03	0:29:51

M872290

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 367.89

	AREA	RETENTION TIME
1	2.453373E+03	0:29:50

	AREA	RETENTION TIME
1	3.646876E+03	0:24:48
2	5.031059E+03	0:24:59

M872290

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 333.93

	AREA	RETENTION TIME
1	4.380732E+03	0:24:48
2	6.406405E+03	0:24:58

M872290

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 337.86

	AREA	RETENTION TIME
1	2.482007E+04	0:28:33
2	2.365546E+04	0:29:25

M872290

SAMPLE 1 INJECTION 1. GROUP 2 CHANNEL 339.86

	AREA	RETENTION TIME
1	3.828162E+04	0:28:33
2	3.738223E+04	0:29:25

	AREA	RETENTION TIME
1	1.878447E+03	0:17:03

M872290

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 271.94

	AREA	RETENTION TIME
1	3.327263E+01	0:16:23
2	1.828826E+03	0:17:03

M872290

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 285.94

	AREA	RETENTION TIME
1	7.849881E+02	0:17:06

M872290

SAMPLE 1 INJECTION 1 GROUP 1 CHANNEL 287.93

	AREA	RETENTION TIME
1	6.406384E+02	0:17:06

M872290

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 303.90

	AREA	RETENTION TIME
1	6.931657E+03	0:24:19
2	6.796536E+02	0:28:34
3	6.261650E+02	0:29:26
4	2.367247E+02	0:29:52

M872290

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 305.90

	AREA	RETENTION TIME
1	2.500327E+02	0:23:56
2	9.052514E+03	0:24:19
3	8.277153E+02	0:28:32
4	7.770220E+02	0:29:25

M872290

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 315.94

	AREA	RETENTION TIME
1	6.930421E+03	0:24:17

M872290

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 317.94

	AREA	RETENTION TIME
1	4.925392E+02	0:23:56
2	9.051214E+03	0:24:17

M872290

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 319.90

	AREA	RETENTION TIME
1	5.316224E+03	0:24:59
2	6.221434E+02	0:29:52

M872290

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 321.89

	AREA	RETENTION TIME
1	7.147709E+03	0:24:59
2	8.061636E+02	0:29:53

M872290

SAMPLE 1 INJECTION 1 GROUP 2 CHANNEL 327.88

	AREA	RETENTION TIME
1	1.206239E+04	0:24:59

M872290

RETENTION TIME
24:48
24:59

1 GROUP 2 CHANNEL 333.93

RETENTION TIME
0:24:48
0:24:58

1 GROUP 2 CHANNEL 337.86

RETENTION TIME
0:28:33
0:29:25

1 GROUP 2 CHANNEL 339.86

RETENTION TIME
0:28:33
0:29:25

M872290

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 373.82

	AREA	RETENTION TIME
1	5.473995E+04	0:35:18
2	6.139252E+04	0:35:28
3	4.669968E+04	0:36:13
4	3.758180E+04	0:37:19

M872290

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 375.82

	AREA	RETENTION TIME
1	4.428009E+04	0:35:18
2	4.768375E+04	0:35:28
3	3.658018E+04	0:36:13
4	2.963951E+04	0:37:19

M872290

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 385.86

	AREA	RETENTION TIME
1	9.494852E+03	0:35:18

M872290

	AREA	RETENTION TIME
1	7.465465E+03	0:35:18
2	5.550693E+02	0:36:25
3	3.984654E+02	0:36:31

M872290

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 389.82

	AREA	RETENTION TIME
1	3.214521E+04	0:36:24
2	3.513261E+04	0:36:31
3	2.913092E+04	0:36:59

M872290

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 391.81

	AREA	RETENTION TIME
1	2.629896E+04	0:36:24
2	2.568789E+04	0:36:32
3	2.350180E+04	0:37:00

M872290

SAMPLE 1 INJECTION 1 GROUP 3 CHANNEL 401.86

	AREA	RETENTION TIME
1	3.365420E+03	0:36:30
2	5.756726E+03	0:36:59