REPORT ON FINE GRID SAMPLING PLAN

(FOR TCDD AND 2,3,7,8-TCDD)

JACKSONVILLE, ARKANSAS

021113

VOLUME III
(Part 4 of 4)

ANALYTICAL DATA REPORTS FOR
SEMI-ISOMER SPECIFIC TCDD

TMS ANALYTICAL SERVICES, INC.
INDIANAPOLIS, INDIANA

SUBMITTED TO
HERCULES INCORPORATED
WILMINGTON, DELAWARE

1988

03221333

VT3.2.6.11

REPORT ON FINE GRID SAMPLING PLAN
JACKSONVILLE, ARKANSAS

VOLUME III (Part 4 of 4)

ANALTYICAL DATA REPORTS FOR SEMI-ISOMER SPECIFIC TCDD*

TAB #	FILE NAME	SAMPLES REPORTED	Pages
23	HER0805A	WH2293, WH2294, WH2295, WH2308, WH2309, WH2310, WH1423	3 1969 - 3 2026
24	HER0811A	WH2321, WH2322, WH2324, WH2325, WH2326, WH2327, WH2328, WH2329, WH2330, WH2332, WH2333, WH2334, WH2336, WH2337, WH2338, WH2339	3 2027 - 3 2095
25	HER0812A	WH2340, WH2341, WH2343, WH2344, WH2345, WH2347, WH2348, WH2349, WH2351, WH2352, WH2353, WH2354, WH2355, WH2357, WH2358, WH2359, WH2360, WH2362, WH2363, WH2365	3 2096 - 3 2167
26	HER0812B	WH2366, WH2367, WH2370, WH2371	3 2168 - 3 2221
27	HER0815A	WH2372, WH2373, WH2374, WH2375, WH2376, WH2377, WH2378, WH2379, WH2380, WH2381, WH2382	3 2222 - 3 2283
28	HER0819A	WH2286	3 2284 - 3 2458
29	HER0822A	WH2290, WH2291, WH2292	3 2459 - 3 2512
30	HER0909A	WH2383	3 2513 - 3 2565

*See Volume I, Appendix A, Tables A-1 and A-2, for description of samples.

021119

3 1989

TMS ANALYTICAL SERVICES, INC.

TANDEM MASS SPECTROMETRY

6376 Morence Trail
Indianapolis, Indiana 46268
317-291-5697

August 9, 1988

02 1 1 20

Dr. Florence K. Kinoshita
Medical Department
Hercules Incorporated
1313 N. Market Street
Wilmington, DE 19894

Dear Dr. Kinoshita:

Enclosed are analytical results for the analysis of 10 samples for 2,3,7,8-TCDD. These samples were analyzed according to the procedures outlined in the USEPA Contract Laboratory Program "Statement of Work for Rapid Turnaround Dioxin Analysis in Multi-Media", November 1986. Sample preparation and analysis procedures from the "Rapid Determination of TCDD In Soil and Sediment Samples, Using Gas Chromatography and Tandem Mass Spectrometry" were used. These samples were received as Shipment HERCULES for analysis on 08/05/88 at 09:30. The analytical results of Filename HER0805A were sent by FAX at 12:30 on August 9, 1988.

If you should have any questions regarding these data or this report, please feel free to contact me at (317)291-5697.

Very truly yours,

Dennis L. Heuring

Dennis L. Heuring, Ph.D.
President

ENCLOSURES:

03221335

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021121

TCDD FINAL DATA REPORT SHEET

FILE RECEIVED DATE:
FILE RECEIVED TIME:

SITE: HER
CASE: 0805
DATE: 08/07/88

AREA #	CLIENT SAMPLE #	ANALYSIS DATE	ANALYSIS TIME	NATIVE RATIO	SURROGATE ACC	TCDD CONC.	RERUN CODE	VALID CODE	UNITS	COMMENTS
METHBLANK	METHBLNK	08/08/88	1454	1.00*	68.75	0.300 U			NG/GM	
SOILBLANK	OCL34506	08/08/88	1506	0.59*	66.98	0.300 U			NG/GM	
SOILSPIKE	OCL35539	08/08/88	1517	1.17	77.70	0.804			NG/GM	
SOIL PE	PE-A	08/08/88	1528	1.17	66.45	0.711			NG/GM	
WH2293	WH2293	08/08/88	1538	1.16	62.84	0.387			NG/GM	
WH2294	WH2294	08/08/88	1548	1.17	63.74	0.300 U			NG/GM	
WH2295	WH2295	08/08/88	1601	1.11	66.15	0.300 U			NG/GM	
WH2308	WH2308	08/08/88	1611	1.19	63.45	0.603			NG/GM	
WH2309	WH2309	08/08/88	1622	1.07	64.11	0.300 U			NG/GM	
WH2310	WH2310	08/08/88	1634	1.22	65.02	0.894			NG/GM	
WH1423	WH1423	08/08/88	1646	0.19*	66.65	0.300 U			NG/GM	UNITS OF NG PER SAMPLE

QUALIFICATION FLAGS:

* 257/259 RATIO OUTSIDE OF ACCEPTABLE RANGE
** SURROGATE OUTSIDE OF ACCEPTABLE RANGE
*** HIGH DETECTION LIMIT

RERUN CODES:
A AUTOMATIC RERUN
R REQUESTED RERUN

021122

GC/MS/MS WORKSHEET REPORT FORM

SITE: HER
CASE: 0805
DATE: 08/07/88

SURROGATE CONC 0.06 RF NATIVE 2.109 ION RATIO: 1.009 TO 1.233
INTERNAL STD CONC 1.05 RF SURROGATE 2.083 CORRECTION FACTOR: 0.010

LAB SAMPLE #	AREA #	CLIENT SAMPLE #	ANALYSIS DATE	ANALYSIS TIME	SAMPLE AMOUNT	ION 257	ION 259	ION 263	ION 268	RATIO 257/259	SURR ACC	RAW VALUE	UNITS
AUG0812	METHBLANK	METHBLNK	08/08/88	1454	5.00	1	1	103217	360345	1.00	68.75	-0.023	NG/GM
AUG0813	SOILBLANK	OCL34506	08/08/88	1506	5.00	7380	12445	304305	1090034	0.59	66.98	0.020	NG/GM
AUG0814	SOILSPIKE	OCL35539	08/08/88	1517	5.00	173952	148698	301323	924956	1.17	77.70	0.894	NG/GM
AUG0815	SOIL PE	PE-A	08/08/88	1528	5.00	120924	103202	201746	723967	1.17	66.45	0.711	NG/GM
AUG0816	WH2293	WH2293	08/08/88	1538	5.01	76094	65813	215423	819656	1.16	62.84	0.387	NG/GM
AUG0817	WH2294	WH2294	08/08/88	1548	5.03	51984	44618	189415	711095	1.17	63.74	0.297	NG/GM
AUG0818	WH2295	WH2295	08/08/88	1601	5.10	71095	63850	345295	1250074	1.11	66.15	0.229	NG/GM
AUG0819	WH2308	WH2308	08/08/88	1611	5.07	103480	87260	189473	712503	1.19	63.45	0.603	NG/GM
AUG0820	WH2309	WH2309	08/08/88	1622	5.09	48662	45372	188219	702602	1.07	64.11	0.289	NG/GM
AUG0821	WH2310	WH2310	08/08/88	1634	5.09	69457	56817	87734	321062	1.22	65.02	0.894	NG/GM
AUG0822	WH1423	WH1423	08/08/88	1646	1.00	1395	7388	324936	1169996	0.19	66.65	-0.025	NG/GM

TABLE 3 GC/MS/MS DAILY CALIBRATION CHECK

MEAN NATIVE RF	2.109	NATIVE CONC.	0.20	SITE:	HEP
MEAN SURROGATE RF	2.083	SURROGATE CONC.	0.06	DATE:	08/07/88
ION RATIO RANGE	1.009 TO 1.233	INTERNAL STD. CONC .	1.05	CASE:	0805

ANALYSIS DATE	ANALYSIS TIME	ION 257	ION 259	ION 263	ION 268	RATIO 257/259	RF NATIVE	NATIVE RF %DIFF.	RF SURROGATE	SURROGATE RF % DIFFERENCE	COMMENTS
08/08/88	0925	75257	65360	47505	351996	1.152	2.096	0.62	2.321	11.43	

* ION RATIO MUST BE WITHIN ACCEPTABLE RANGE OF INITIAL CALIBRATION
** NATIVE % DIFFERENCE MUST BE LESS THAN 10% FROM INITIAL CALIBRATION

021124

TABLE 1 GC/MS/MS INITIAL CALIBRATION

SITE CODE: HER
CASE: 0805
DATE: 10/13/87

SOLUTION ID	ION 257	ION 259	ION 263	ION 268	NATIVE CONC	SURROGATE CONC	INT. STD CONC	RF NATIVE	RF SURROGATE	RATIO 257/259	COMMENTS
CC1-1	73881	67752	43569	345176	0.20	0.06	1.05	2.154	2.168	1.090	
CC1-2	76844	69768	45279	362015	0.20	0.06	1.05	2.126	2.149	1.101	
CC1-3	82583	73708	47294	382379	0.20	0.06	1.05	2.146	2.124	1.120	
							MEAN	2.142			
							STD DEV	0.014			
							% RSD	0.65			
CC2-1	324838	283704	77330	301890	1.00	0.11	1.05	2.117	2.334	1.145	
CC2-2	356491	321128	85961	323744	1.00	0.11	1.05	2.204	2.420	1.116	
CC2-3	334056	291974	79920	312887	1.00	0.11	1.05	2.101	2.328	1.144	
							MEAN	2.141			
							STD DEV	0.055			
							% RSD	2.57			
CC3-1	1081980	966175	92814	208328	5.00	0.20	1.05	2.065	2.044	1.120	
CC3-2	1989496	1775627	177692	387550	5.00	0.20	1.05	2.040	2.116	1.120	
CC3-3	2046320	1823272	181766	401030	5.00	0.20	1.05	2.026	2.090	1.122	
							MEAN	2.044	2.083		
							STD DEV	0.020	0.036		
							% RSD	0.97	1.73		

RF NATIVE OVERALL MEAN 2.109
STD DEV 0.056
% RSD 2.674

RF SURROGATE OVERALL MEAN 2.083
STD DEV 0.036
% RSD 1.728

OVERALL RATIO 257/259 MEAN: 1.121
RANGE: 1.009 TO 1.233

* RF NATIVE % RELATIVE STANDARD DEVIATION MUST BE LESS THAN 10%
** RATIO OF 257/259 OUTSIDE OF ACCEPTABLE RANGE

021125

TABLE 2 BLANK SUMMARY FORM

SITE: HER CASE : 0805 DATE: 05/04/87

SOLUTION ID	ION 257	ION 259	ION 268	BLANK RESPONSE	NATIVE CONC
1	355	5301	715479	0.008	0.019
2	1500	6454	766148	0.010	0.025
3	981	3057	526670	0.008	0.018
4	1303	5610	906231	0.008	0.018
5	1825	4805	727729	0.009	0.022
6	2058	5231	653736	0.011	0.026
7	707	4542	541920	0.010	0.023
8	1260	6293	667676	0.011	0.027
9	558	3819	537461	0.008	0.019
10	744	3791	619160	0.007	0.017
11	1403	6817	761787	0.011	0.026
12	1	3932	330813	0.012	0.028
13	1360	4860	609680	0.010	0.024
14	663	4014	508056	0.009	0.022
15	1307	6514	855393	0.009	0.022
16	1316	4457	591202	0.010	0.023
17	1772	7181	796307	0.011	0.027
18	2182	4927	645435	0.011	0.026
19	2257	5650	596849	0.013	0.031
20	562	3543	554208	0.007	0.018

CORRECTION FACTOR = 0.010
LIMIT OF DETECTION = 0.014

* LIMIT OF DETECTION MUST BE LESS THAN 0.3

021126

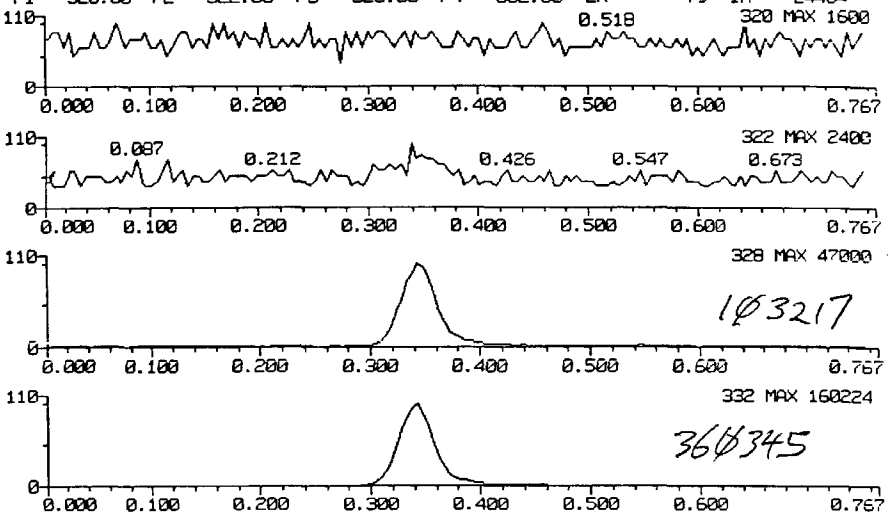
ATTACHMENT 1

SAMPLE MASS CHROMATOGRAMS

021127

AUG0812 1 MIMI METHOD BLANK IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	24404



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SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.220					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

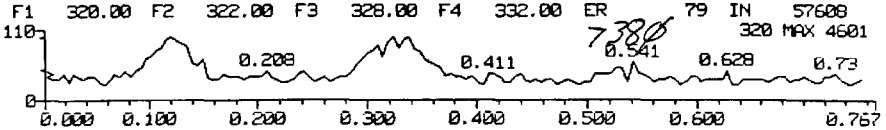
14:54:27

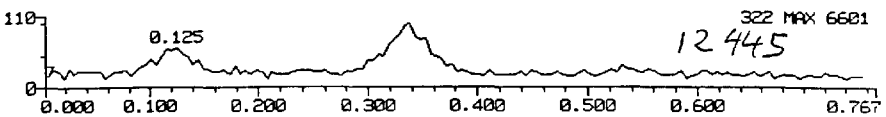
	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

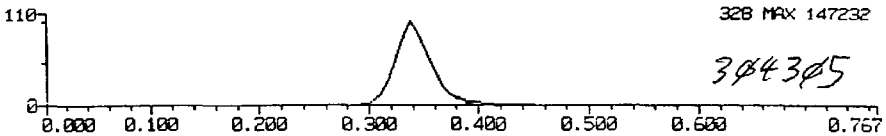
KEM

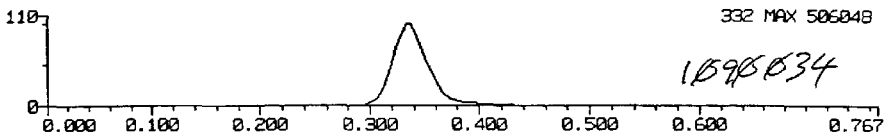
AUG0813 1 MIMI SOIL BLANK IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	57608









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SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.120					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

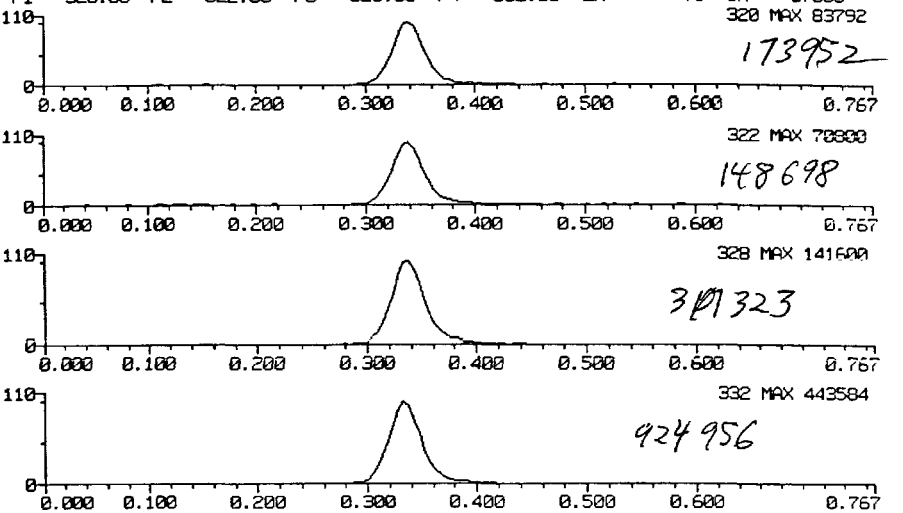
15:06:08

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021129

AUG0814 1 MIMI SOIL SPIKE IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	37000



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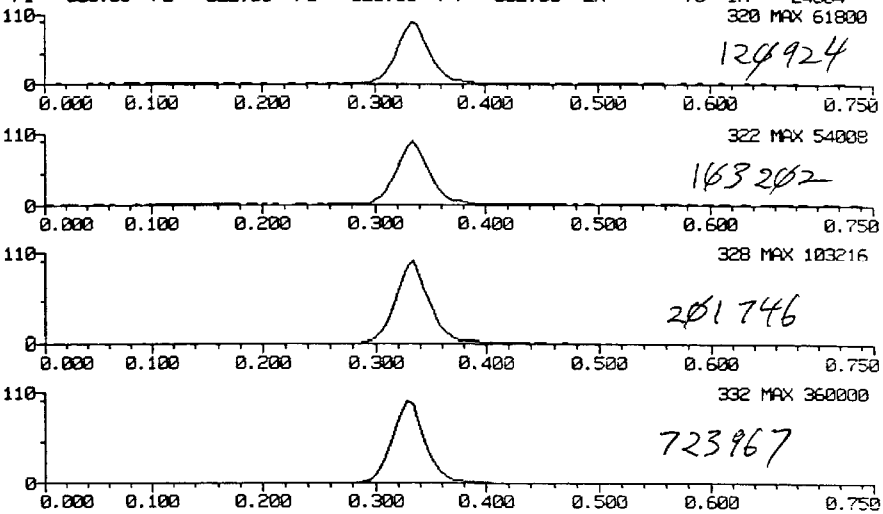
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.170					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:17:56

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG0815 1 MIMI SOIL PE IM

SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	78
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	24604



	8-AUG-88		15:28:08	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.210					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

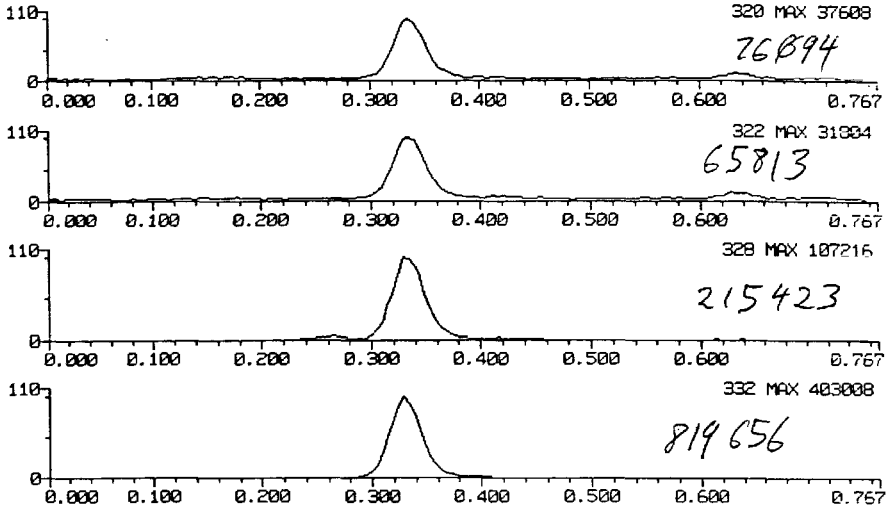
15:28:08

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021131

AUG0816 1 MIMI 2293 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	23004



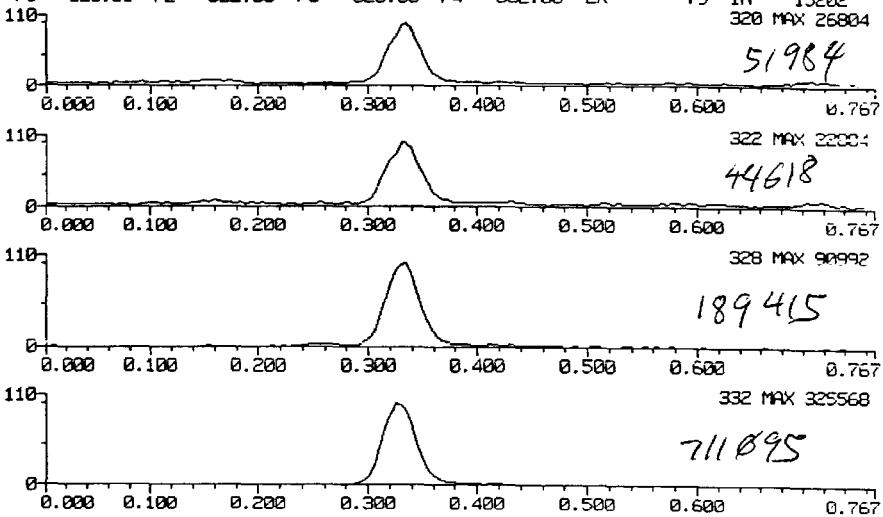
	8-AUG-88		15:38:52	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.190					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:38:52

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG0817 1 MIMI 2294 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	15202



	8-AUG-88		15:48:54	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.180					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

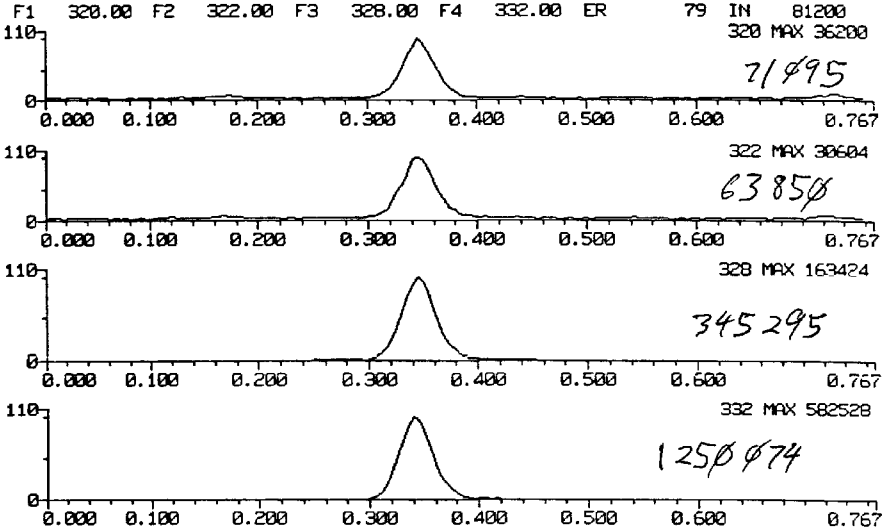
15:48:54

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021133

AUG0818 1 MIMI 2295 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	81200



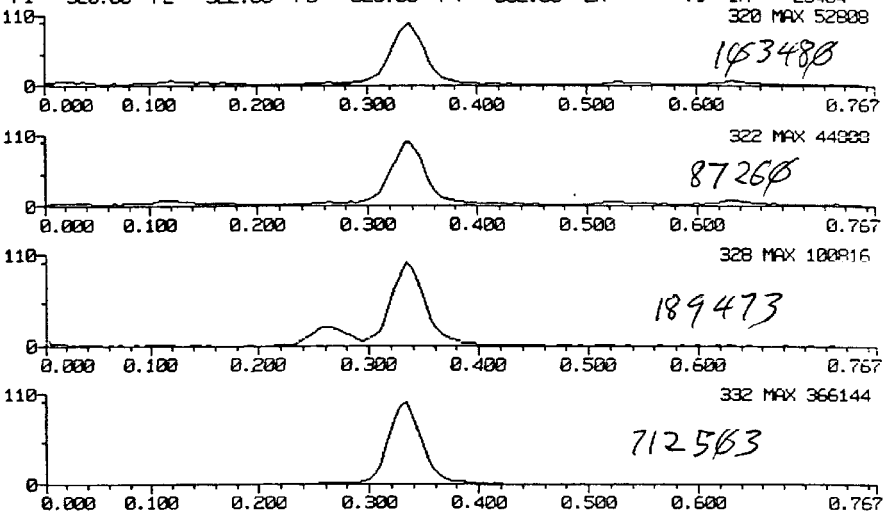
	8-AUG-88		16:01:10	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.220					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:01:10

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG0819 1 MIMI 2308 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	23404



	8-AUG-88		16:11:57	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.190					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:11:57

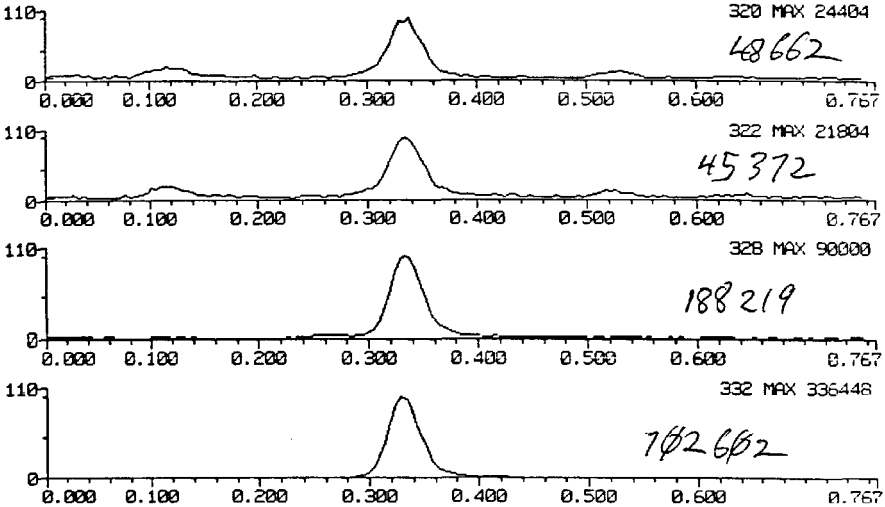
	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

KEM

0221135

AUG0820 1 MIMI 2309 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	25204

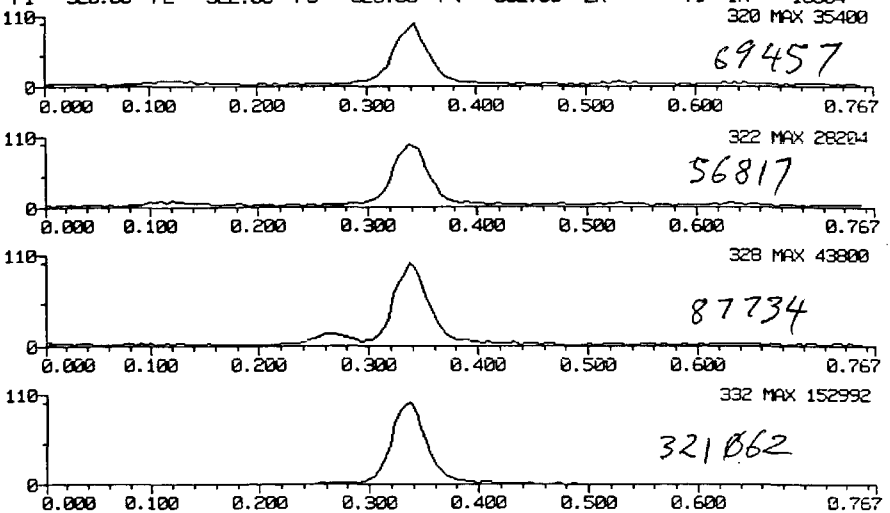


	8-AUG-88		16:22:40	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.150					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:22:40

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG0621	1	MIMI				2310					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	16604

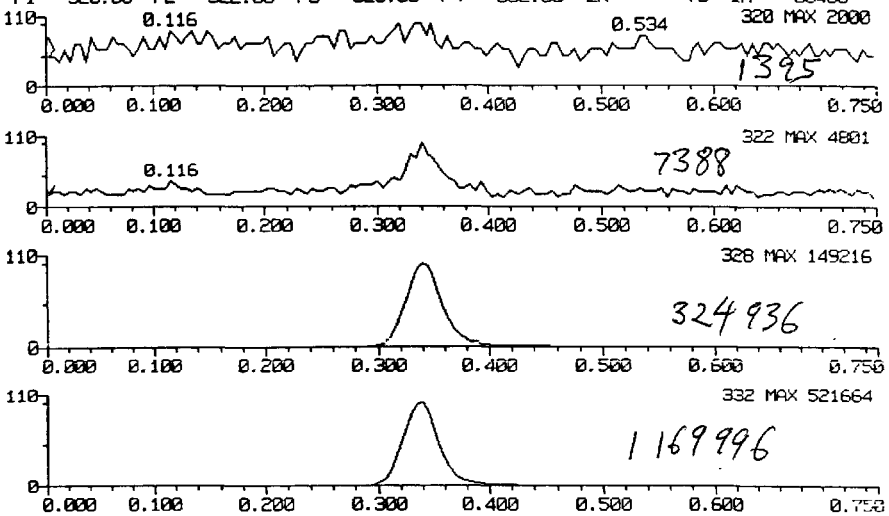


	8-AUG-88		16:34:02	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.240					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:34:02

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG0822	1	MIMI					1423						IM
SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	78
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	80400



	8-AUG-88		16:46:52	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.200					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:46:52

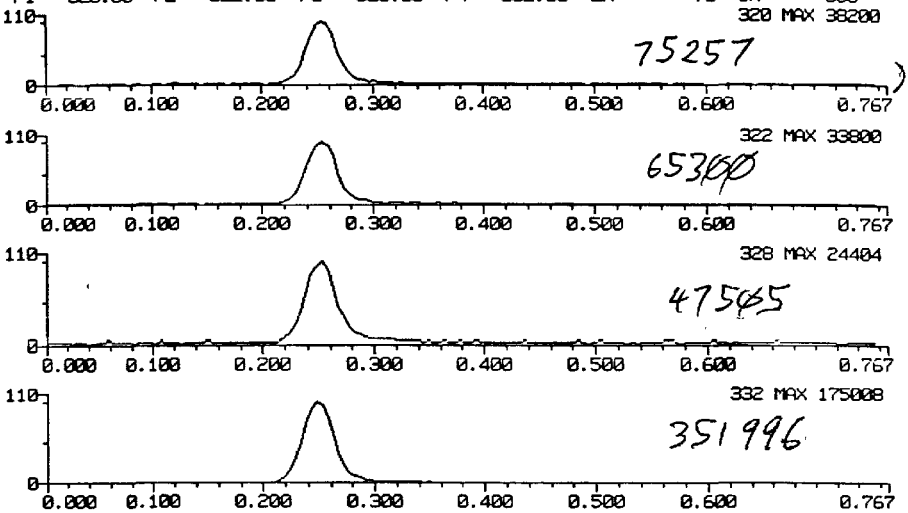
	CG*SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

ATTACHMENT 2

DAILY CALIBRATION MASS CHROMATOGRAMS

021139

AUG0802	1	MIMI				CAL 1					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	44
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	44	TI	00:00:12
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	73	IN	800



	8-AUG-88		09:25:18	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.210					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

09:25:18

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

Native RRF = 2.096
(99.4%)

021140

03221354

03221355

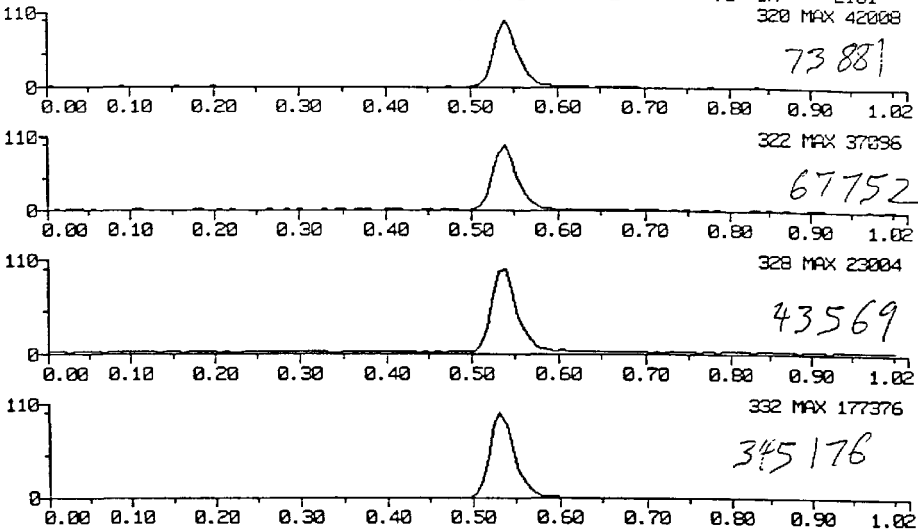
ATTACHMENT 3

INITIAL CALIBRATION MASS CHROMATOGRAMS

021141

OCT1309 1 MIMI CAL I (C-077-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	2101



Ratio 1.090

02114 2

13-OCT-87		17:11:31		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:11:31

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

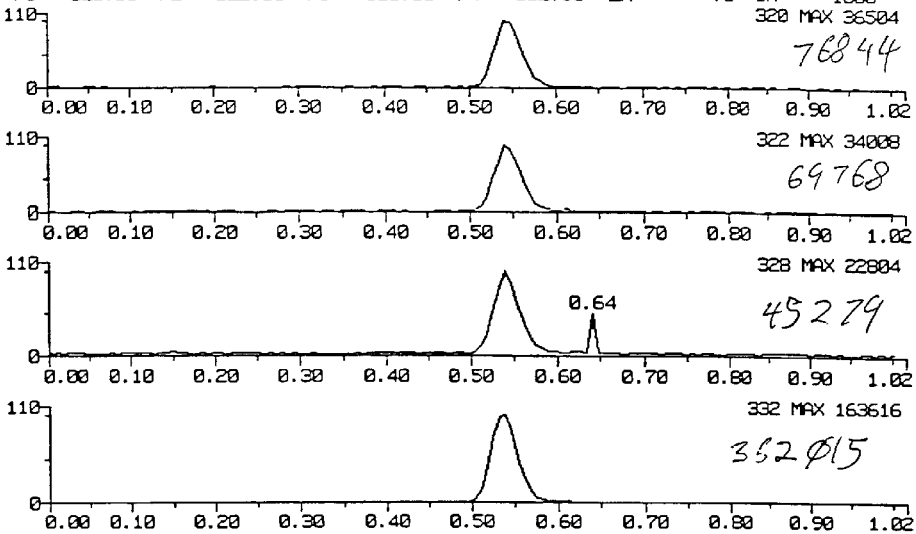
K.E.M.

$RRF_{native} = 2.154$

$RRF_{surr} = 2.168$

OCT1303 1 MIMI 1 UL CAL I IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1600



Ratio 1.1Ø1

021143

13-OCT-87		15:36:52		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:36:52

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

Native RF 2.126

Sum RRF 2.148

A.G 0.2

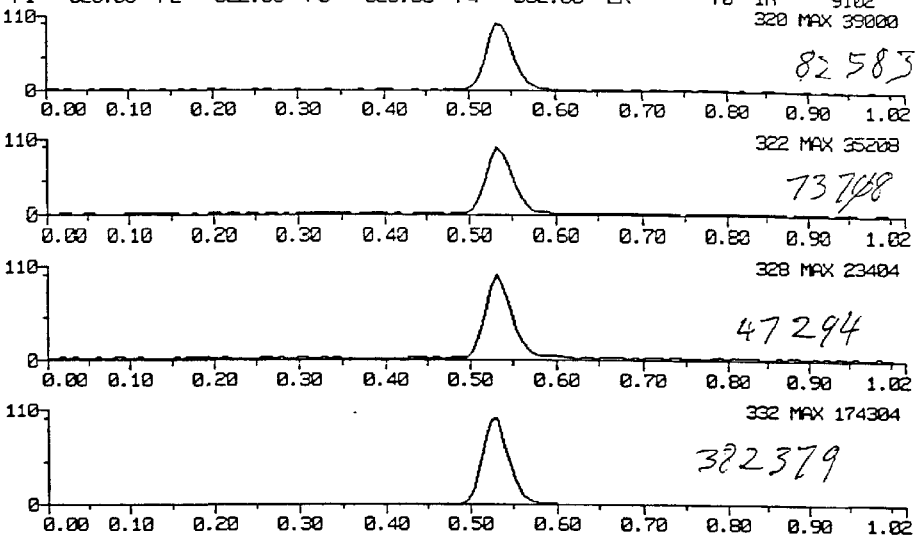
I.S. 1.05

Sum 0.00

03221358

OCT1310 1 MIMI CAL I (C-077-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	9102



Ratio 1.120

021144

13-OCT-87		17:24:01		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.018					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:24:01

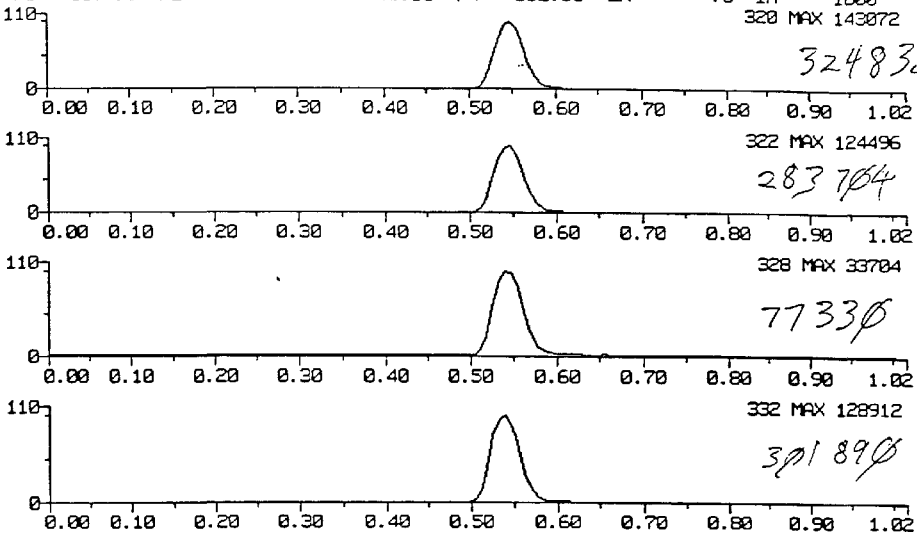
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

$RRF_{native} = 2.146$

$RRF_{surr} = 2.123$

OCT1308 1 MIMI CAL II (C-078-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1600



Ratio 1.145

021145

13-OCT-87 16:58:26

				OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.983					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:58:26

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K. E. M.

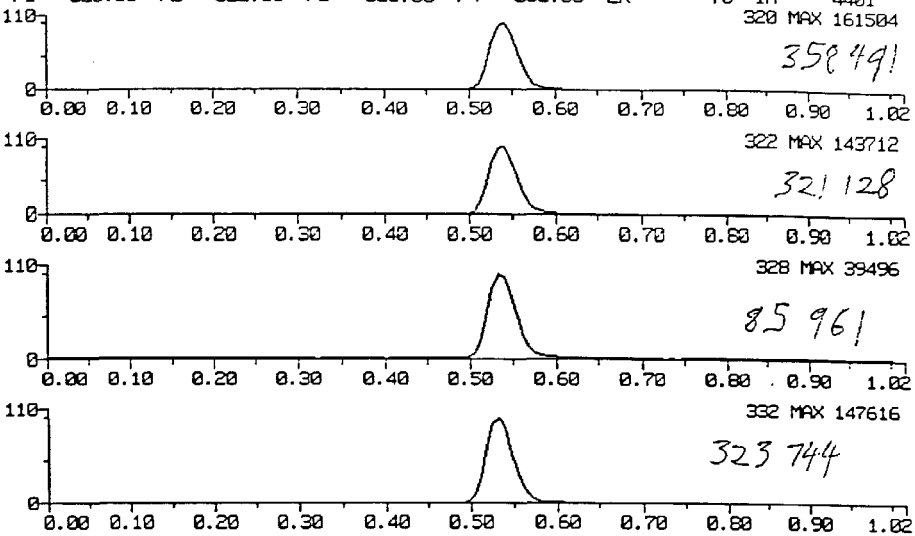
$RRF_{mat} = 2.117$

$RRF_{sum} = 2.333$

03221360

OCT1307 1 MIMI CAL II (C-078-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	4401



Ratio 1.116

021146

13-OCT-87		16:41:35		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.991					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:41:35

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

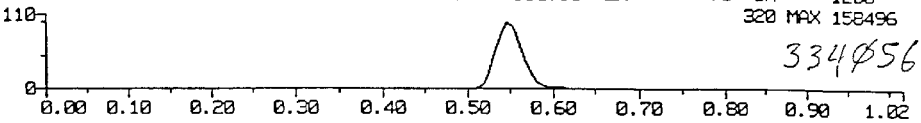
RRF native = 2.204

RRF surr = 2.419

03221361

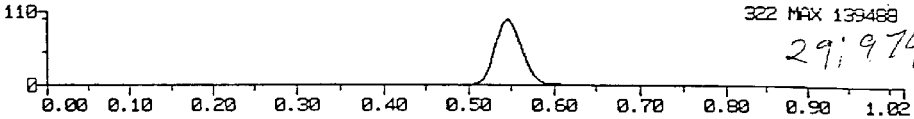
OCT1302 1 MIMI 1 UL CAL II IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1200



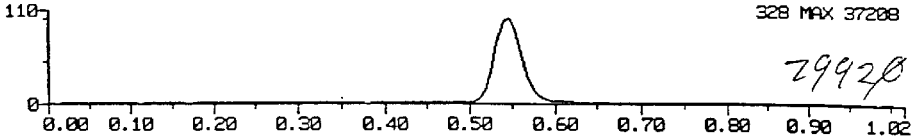
320 MAX 158496

334056 ratio 1.144



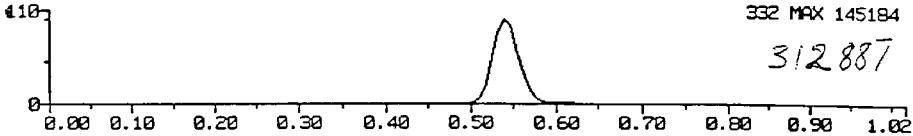
322 MAX 139488

29974



328 MAX 37208

79920



332 MAX 145184

312887

13-OCT-87		15:24:15		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.006					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:24:15

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

Native RF: 2.10!

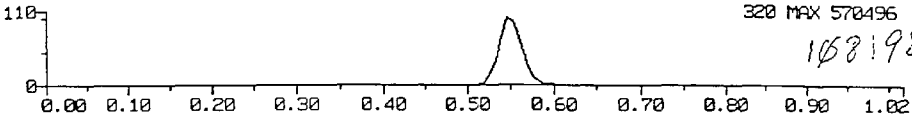
Surr RRF 2.327

021147

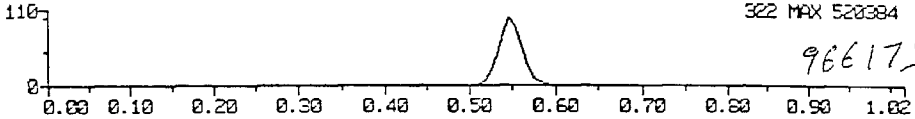
03221362

OCT1305 1 MIMI CAL III (C-079-02) IM

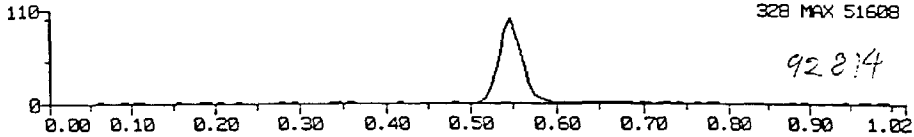
SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	800



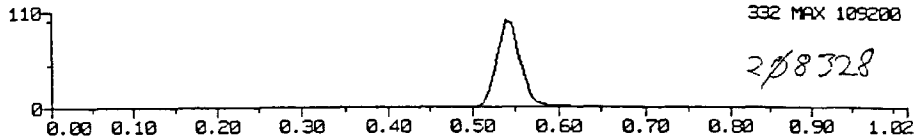
168198Ø ratio 1.120



966175



92814



208328

13-OCT-87		16:15:36		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.977					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:15:36

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

KGM

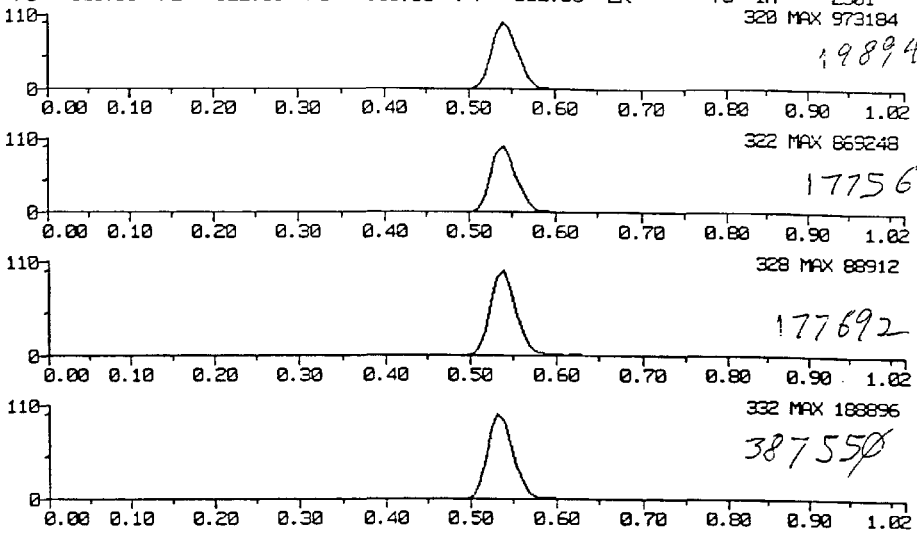
$RRF_{std} = 2.005$

$RRF_{surr} = 2.042$

0221148

OCT1306 1 MIMI CAL III (C-079-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	2301



Ratio 1.120

13-OCT-87		16:27:40		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.981					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:27:40

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

KEM.

RRF_{std} = 2.040

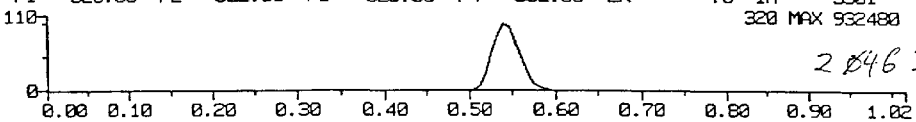
RRF_{surr} = 2.113

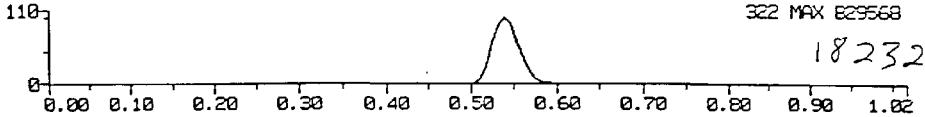
0221149

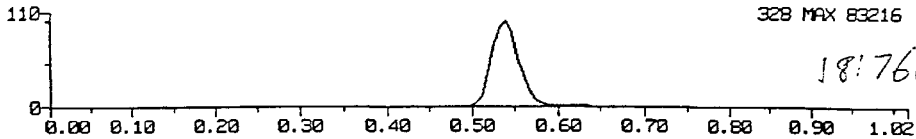
OCT1304 1 MIMI 1 UL CAL III IM

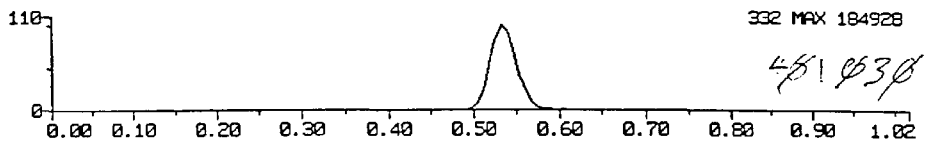
SS	1	ES	140	BO	0	TO	110	GR	UNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	3301

Ratio 1.122









0214150

13-OCT-87		15:51:02		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.000					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:51:02

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

Native RF: 2.026

RRF_{surr} = 2.083

ATTACHMENT 4

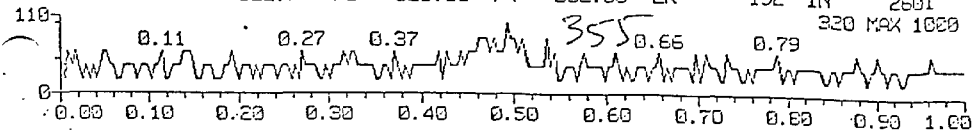
BLANK CALIBRATION MASS CHROMATOGRAMS

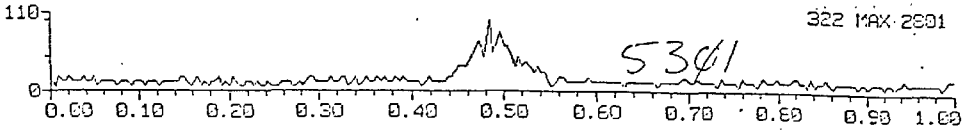
021151

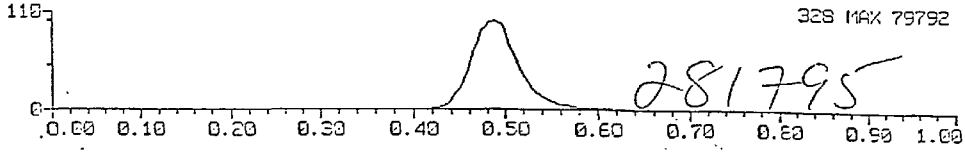
3 2601

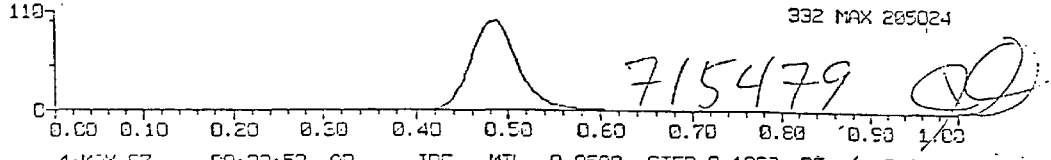
MAY0423 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2601









	4-MAY-87		09:33:58	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1200	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
2	0.000	LT	0.00	DIV	-1.010					MU	-4600.0
GE	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:33:58

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

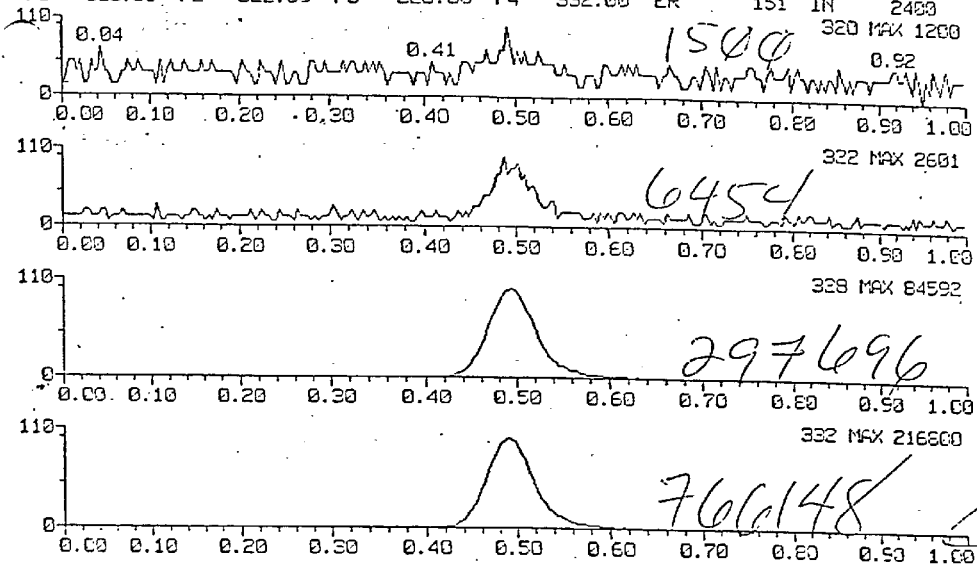
03221367

2

3 2002

MAY0422 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	151	IN	2400



	4-MAY-87		09:29:22	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
2	0.000	LT	0.00	DIV	-1.005					MU	-4500.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:29:22

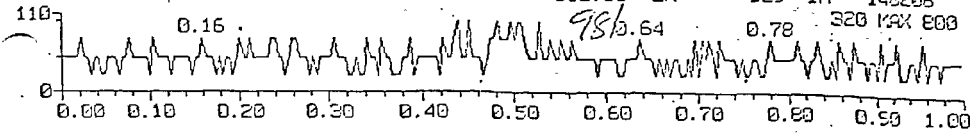
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

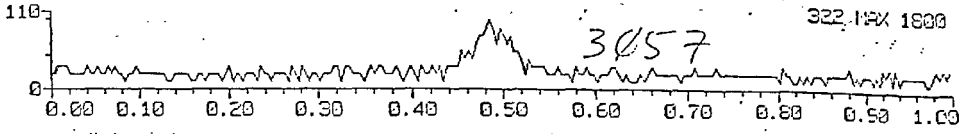
03221368

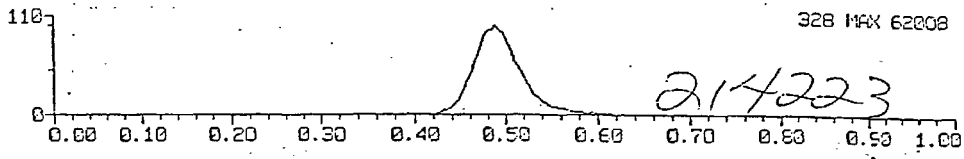
3 2003

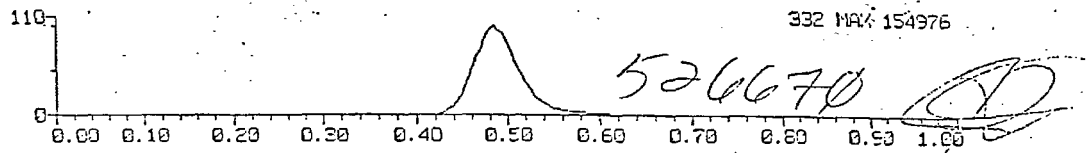
MAY0421 1 MINI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	148208









	4-MAY-87		09:23:10	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
2	0.000	LT	0.00	DIV	-0.998					MU	-4920.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SFF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:23:10

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

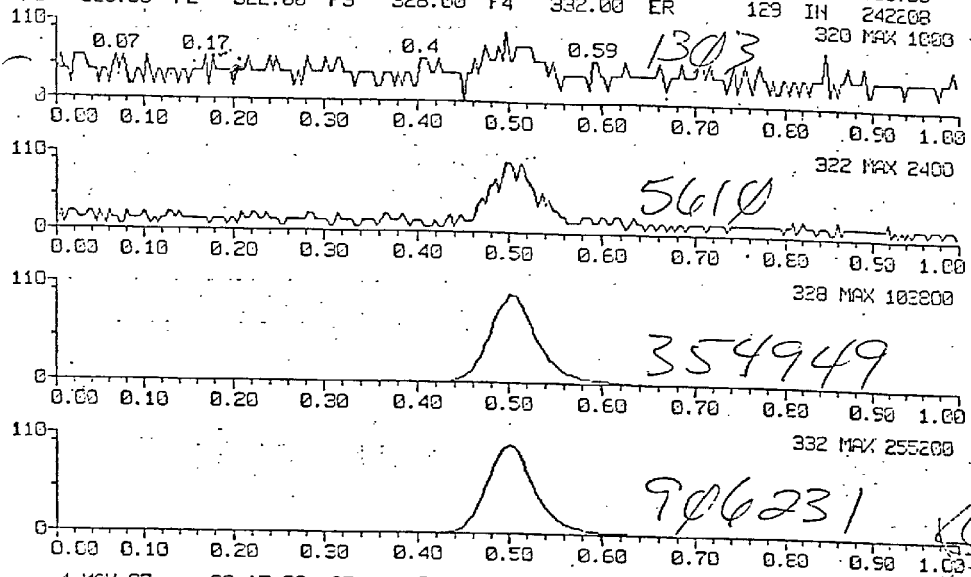
0.21 154

03221369

4
3 2004

1 MIMI SPIKE II C-096 3/85

	1	ES	258	BO	0	TO	110	GR		LNNP	SE		IM
	257.00	M2	259.00	M3	263.00	M4	268.00	SR		129	TI	00:00:30	129
1	320.00	F2	322.00	F3	328.00	F4	332.00	ER		129	IN	242208	



	4-MAY-87		09:17:38	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00		
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00		
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00		
2	0.000	LT	0.00	DIV	-1.007					MU	-4800.0		
3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000		
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00		
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00		

09:17:38

	CG-SW	
1	330	257
	322	259
	328	263
	332	268

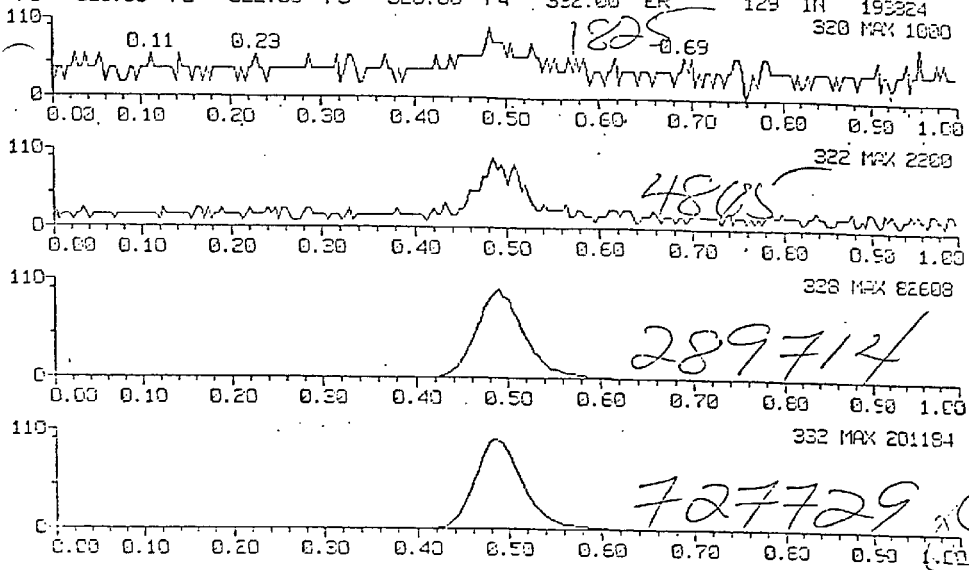
03221370

5

3 2005

MAY0419 1 MIMI SPIKE II C-096 3/65 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	193324



	4-MAY-87		09:09:56	CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SW	200	SE	0	C	10	MCL	1230	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
[illegible]	0.000	LT	0.00	DIV	-0.992					MU	-4600.0
D2	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	FE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:09:56

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

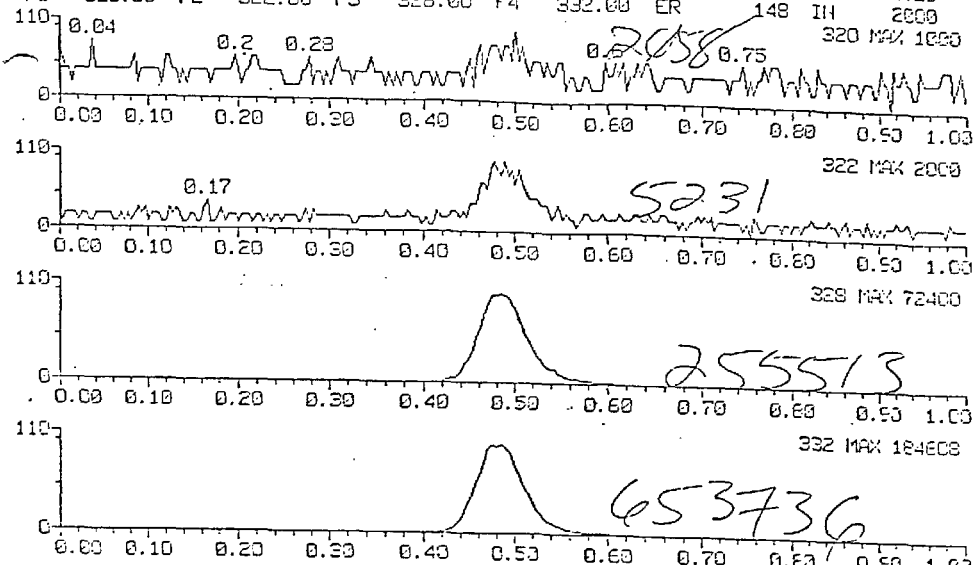
03221371

6

3 2006

MAY0418 1 NIMI SI C-096 3/85 JM

SS	1	ES	258	BO	0	PO	110	GR	LNNP	SE	109
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	148	IN	2000



	4-MAY-87		09:05:06	CP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.995					MU	-4500.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SHF	0.0	GP	0.10	CR	0.00	FE1	65.00	CG	OFF	FE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-85.00

09:05:06

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

0211157

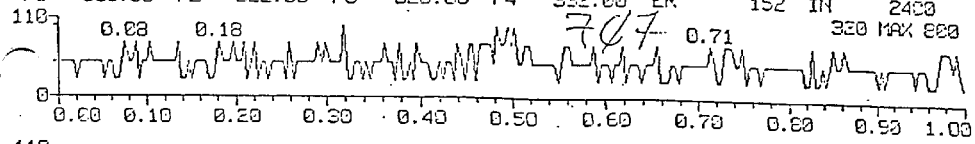
03221372

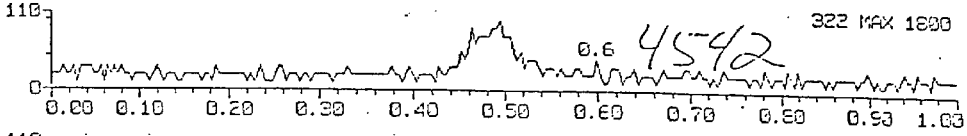
7

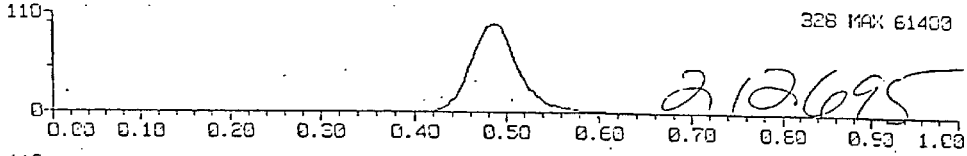
3 ~~20~~ 2007

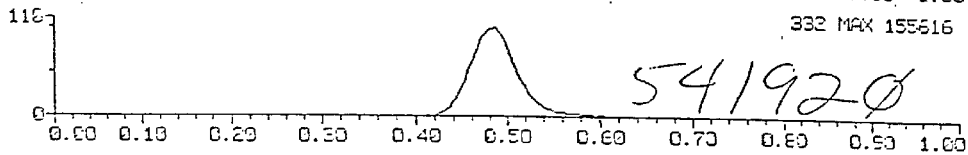
MAY0417 1 MINI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR		LNNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR		110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER		152	IN	2400









	4-MAY-87		09:00:24	CP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	220	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
2	0.000	LT	0.00	DIV	-0.991					MU	-4600.0
3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
S-F	0.0	GR	0.10	CR	0.00	PE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-30.00	R2	-55.00	R3	-65.00

09:00:24

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

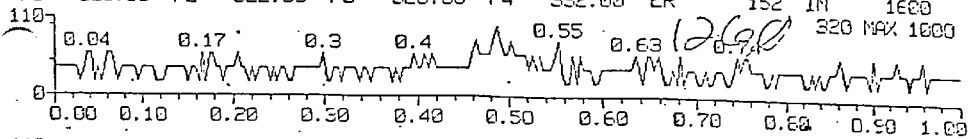
03221373

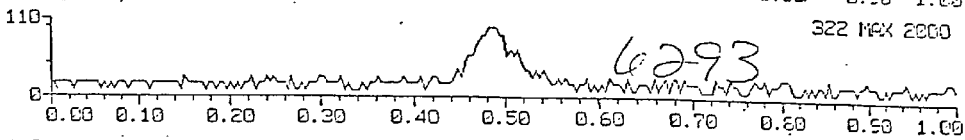
8

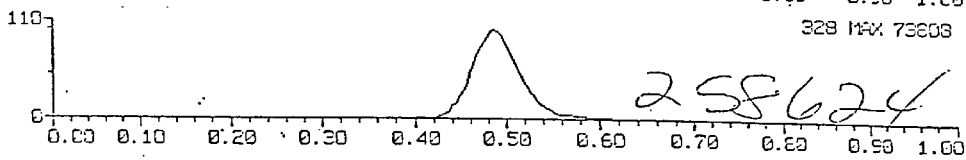
3 2008

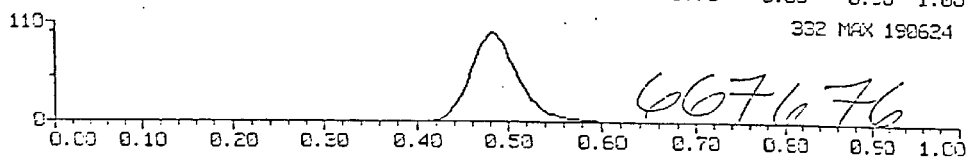
MAY0416 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LINP	SE	108
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	103	TI	00:03:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	1600









	4-MAY-87		08:55:50	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1280	TH	100	TT	1.00
1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
2	0.000	LT	0.00	DIV	-0.591					MU	-4800.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SHF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:55:50

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

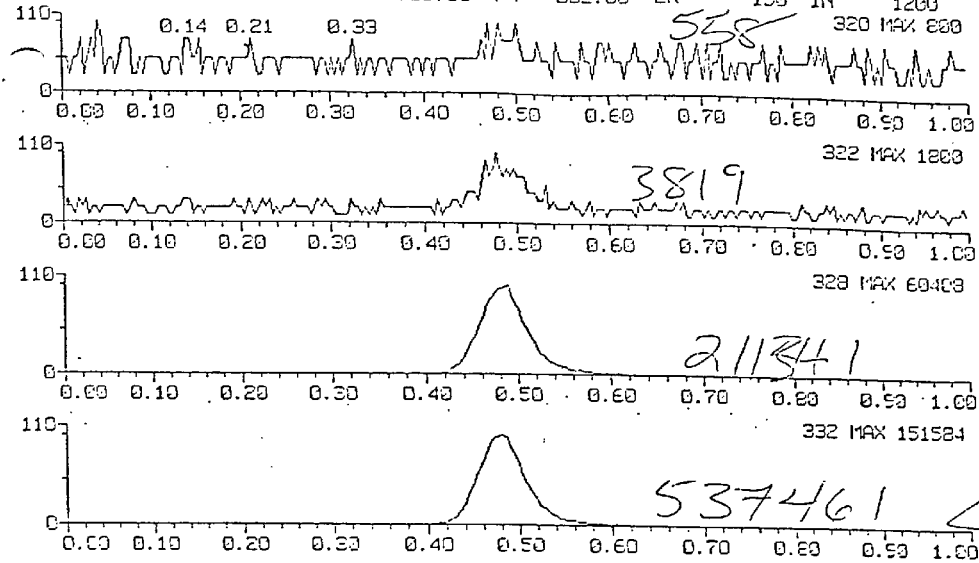
03221374

9

3 2009

MAY0415 1 MIMI SPIKE II C-095 IM

SS	1	ES	258	BO	0	TO	110	SP	LINEP	SE	107
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	107	TI	00:00:24
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	150	IN	1200



	4-MAY-97		08:51:06	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
2	0.000	LT	0.00	DIV	-0.994					MU	-4800.0
3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:51:06

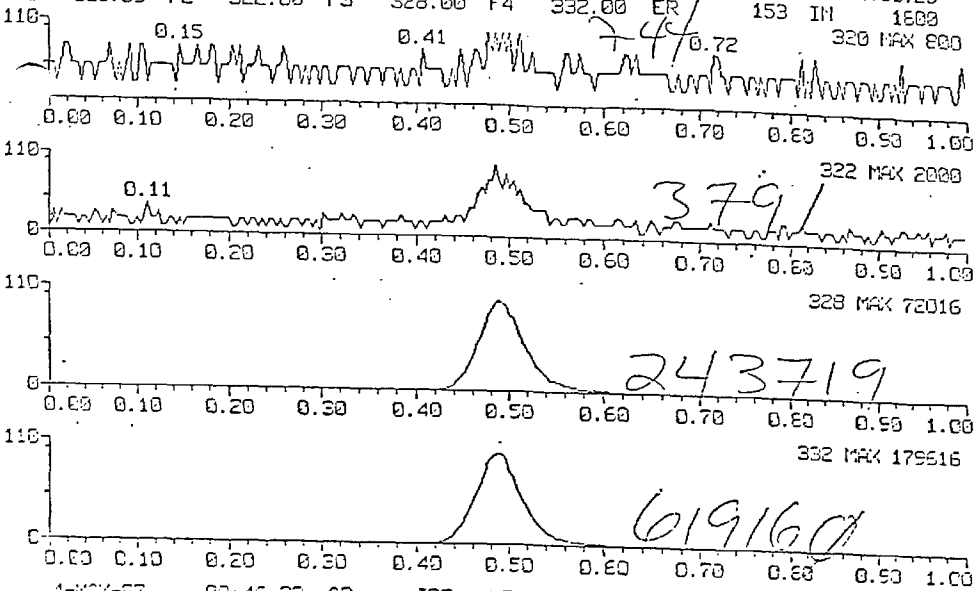
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021160

03221375

MAY0414 1 MIMI SPIKE II C-095 3/85

SS	1	ES	258	BO	0	TO	110	GR		LNNP	SE		IM 110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR		110	TI	00:00:25	
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER		153	IN	1800	



	4-MAY-87		08:46:23	CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.000	LT	0.00	DIV	-0.984					MU	-4500.0
	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
EEF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:46:23

	CG=SN	
1	320	257
	322	259
	328	263
	332	268

10

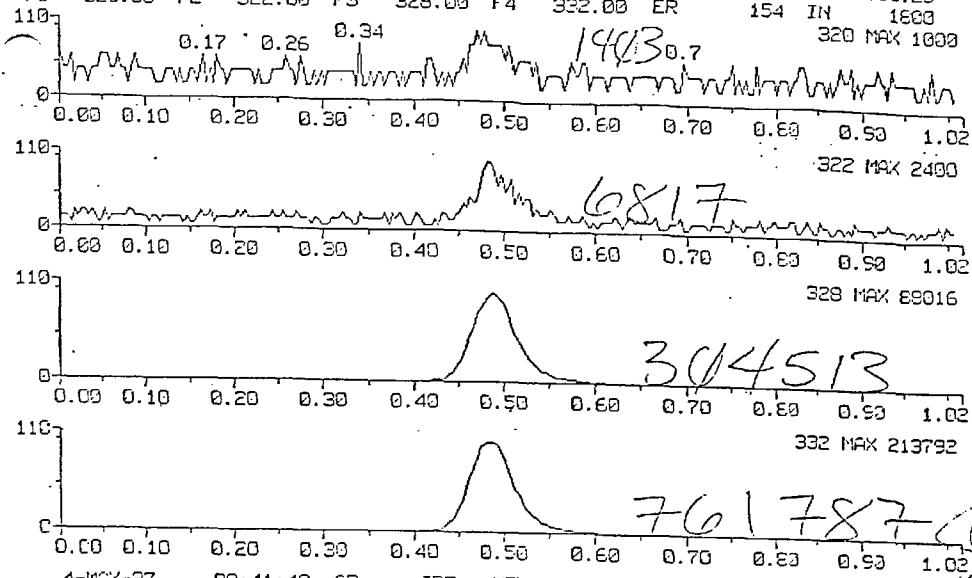
3 2010

021161

03221376

MAY0413 . 1 MIMI SPIKE II C-096 3/85

SS	1	ES	260	BO	0	TO	110	GR	LMNP	SE	109
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	154	IN	1000



	4-MAY-87		09:41:40	CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MOL	1250	TH	100	TT	1.00
1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
2	0.000	LT	0.00	DIV	-1.010					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	IM1	0.0000	CGT	0.0	IM3	0.0000
SPF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	85.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:41:40

	CG=SW	
1	330	257
	322	259
	329	263
	332	268

3 2011

02162

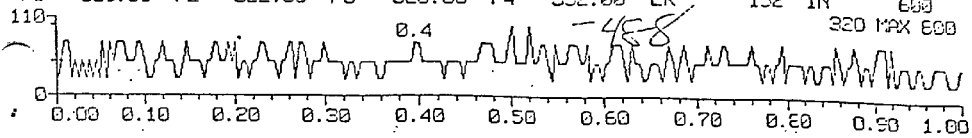
03221377

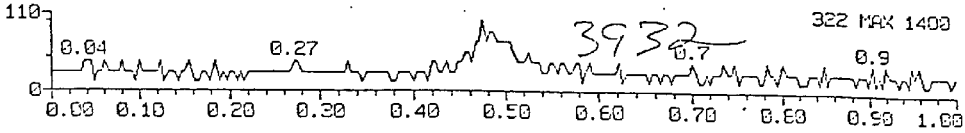
12

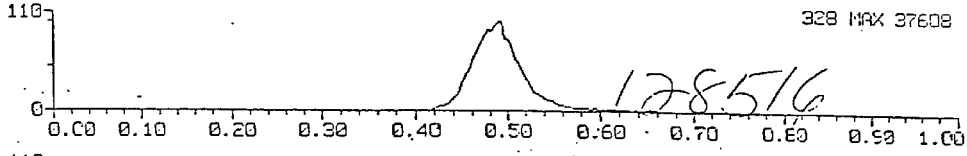
3 2012

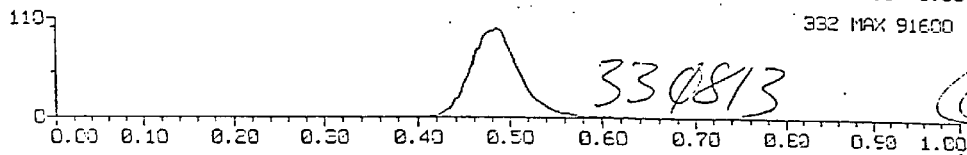
MAY0412 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	105
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	105	TI	00:00:24
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	600









	4-MAY-27		08:37:03	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
2	0.000	LT	0.00	DIV	-1.000					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	IM1	0.0000	CGT	0.0	DMG	0.0000
SAF	0.0	GR	0.10	OR	0.00	FE1	65.00	CG	OFF	RE3	165.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:37:03

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

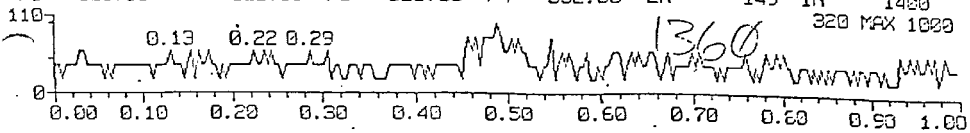
03221378

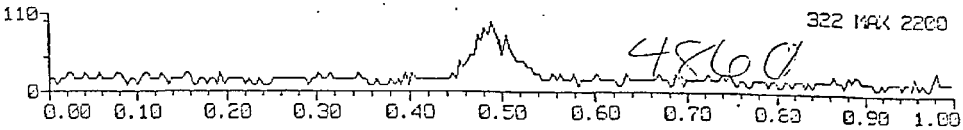
13

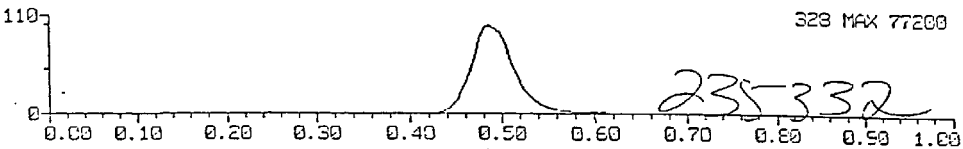
3 201

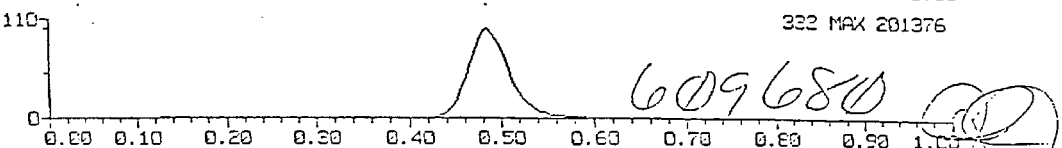
MAY0411 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	111
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	111	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	149	IN	1400









	4-MAY-87		08:32:16	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
S1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
2	0.000	LT	0.00	DIV	-0.926					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:32:16

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021164

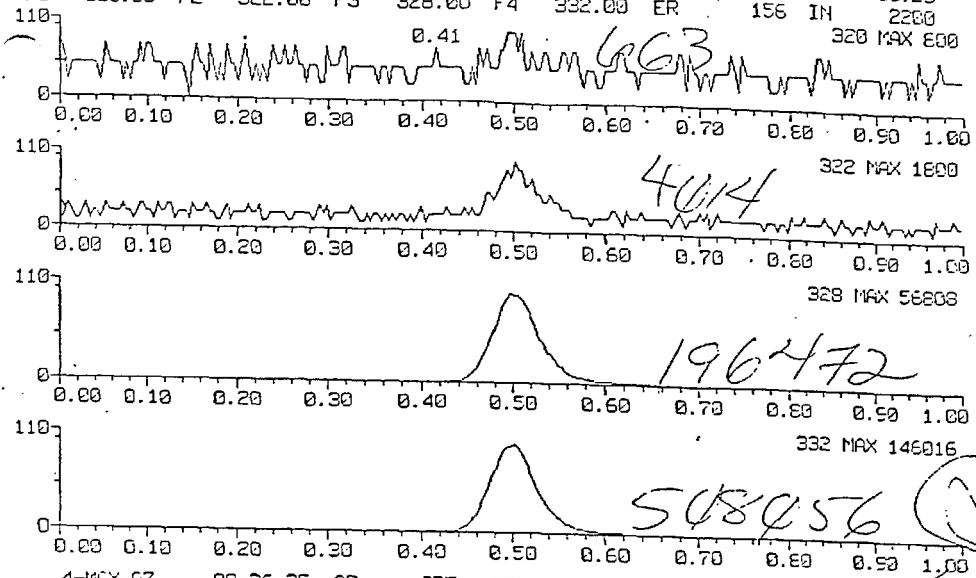
03221379

14

3 2014

MAY0410 1 MIMI SPIKE II C-096 3/85

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE		IM	
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	114	TI	00:00:26		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	156	IN	2200		



4-MAY-87		08:26:35		OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
S1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SFF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:26:35

	CG=SN	
1	320	257
	322	259
	328	263
	332	268

021465

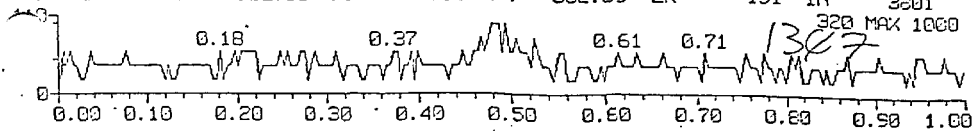
03221380

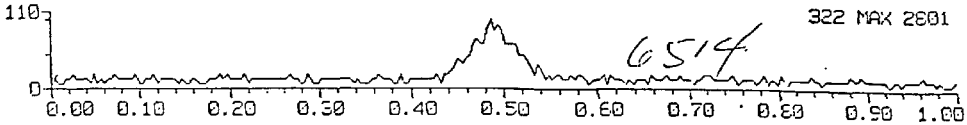
15

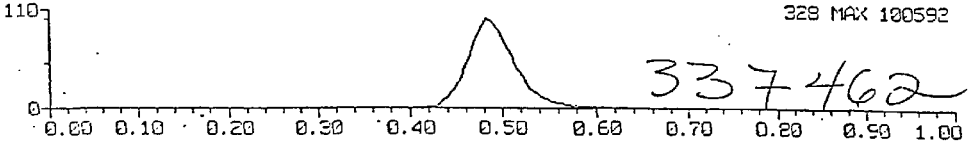
3 2015

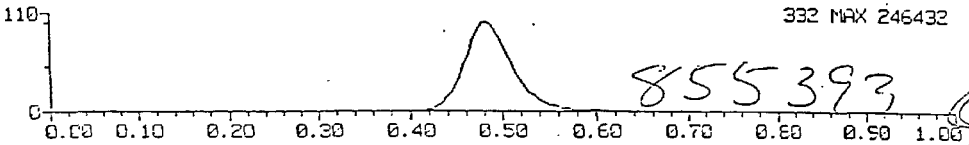
MAY0409 1 MIMI SPIKE II C-096 3/65 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	109
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	151	IN	3801









	4-MAY-67		08:21:17	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.997					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:21:17

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021166

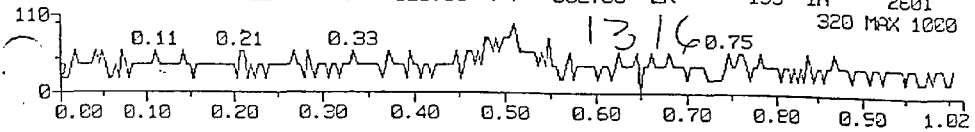
03221381

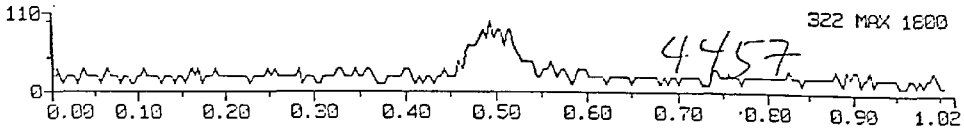
16

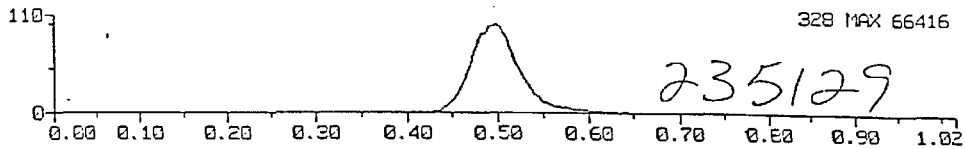
3 2016

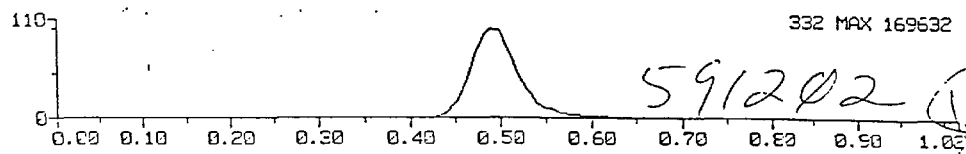
MAY0403 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	260	BO	0	TO	110	GR	LNNP	SE	112
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	112	TI	00:00:26
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	153	IN	2801









	4-MAY-87		08:16:16	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
2	0.000	LT	0.00	DIV	-0.994					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	85.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:16:16

	CG=SN	
1	320	257
	322	259
	328	263
	332	268

021167

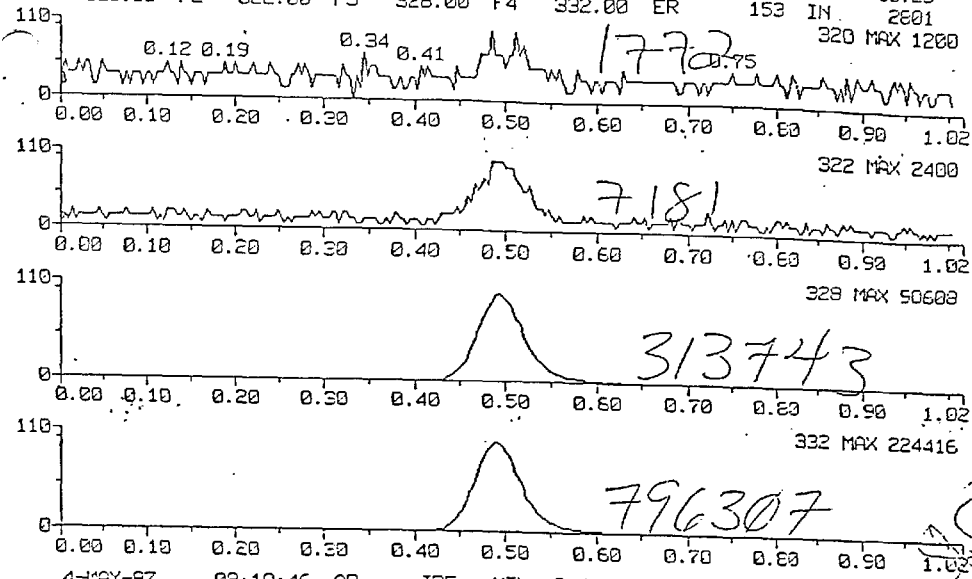
03221282

17

3 2017

MAY0407 1 MIMI SPIKE II C-095 3/85

SS	1	ES	260	BO	0	TO	110	GR	LNNP	SE	111	IM	
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	111	TI	00:00:25		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	153	IN	2801		



4-MAY-87		08:10:46	CP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00	
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.004					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:10:46

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

0221160

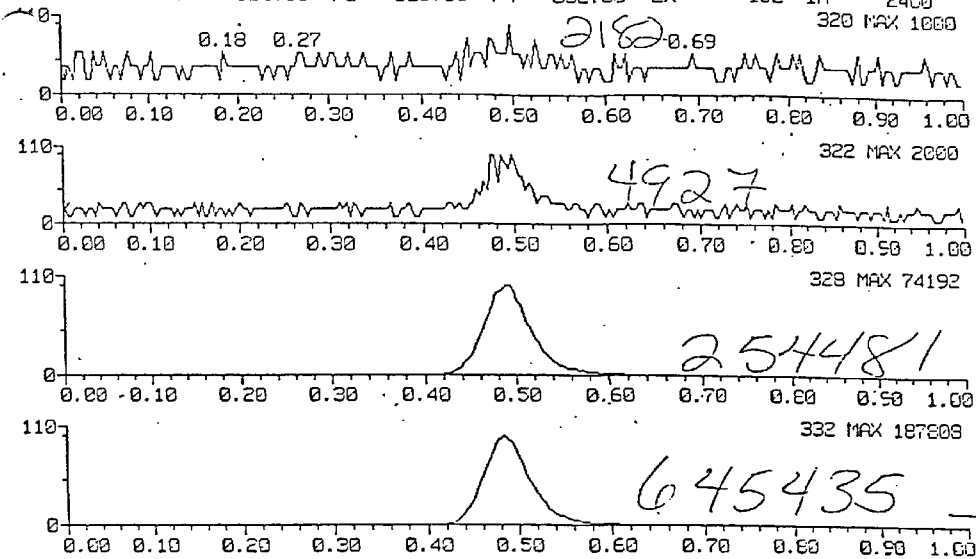
03221383

18

3 2018

MAY0406 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400



	4-MAY-87		08:06:01	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
.1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.012					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:06:01

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

02116 9

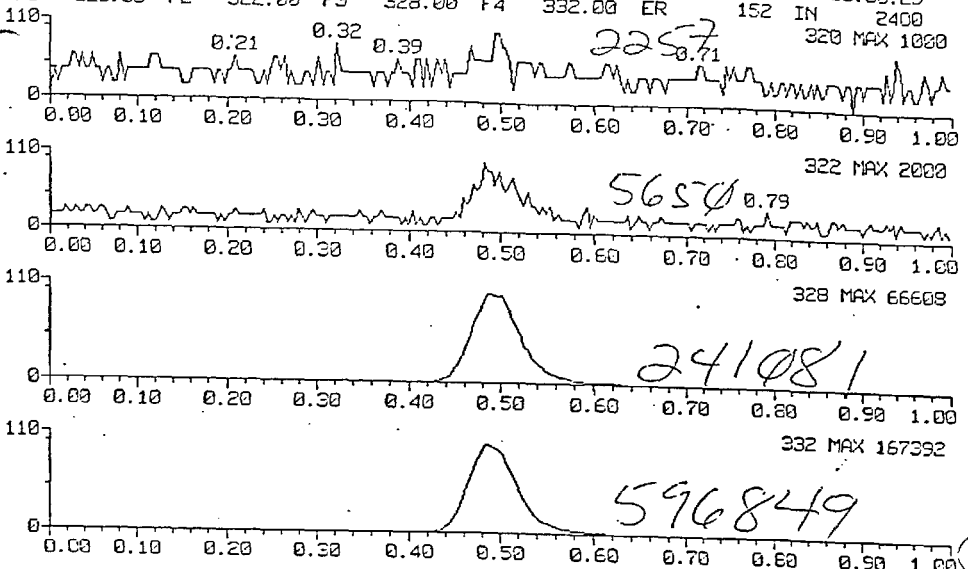
03221384

19

3 2019

MAY0405 1 MIMI SPIKE II C-096 3/85

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	111	IM	
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	111	TI	00:00:25		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400		



	4-MAY-87		08:00:47	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.995					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:00:47

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

0221170

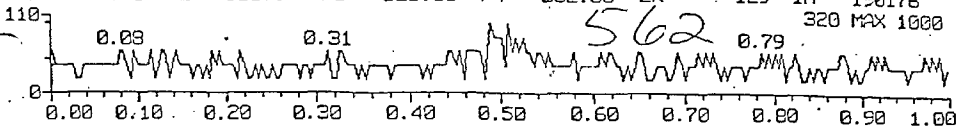
03221285

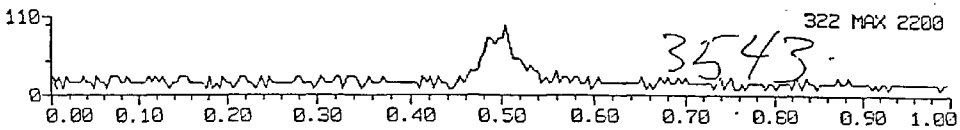
20

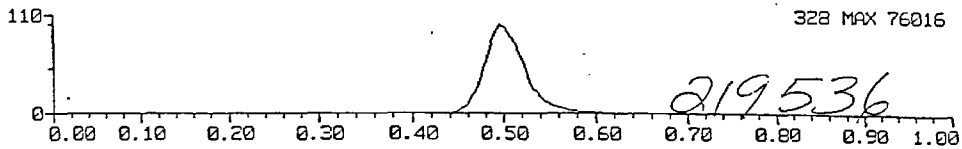
3 2021

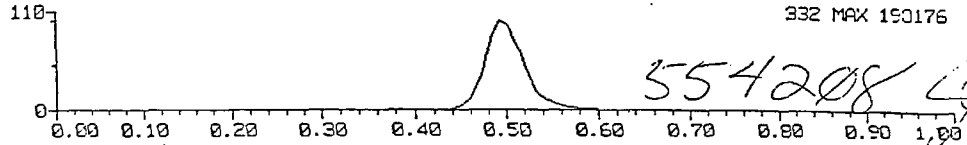
MAY0404 1 MIMI SPIKE 3/65 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	190176









	4-MAY-87		07:53:06	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.003					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

07:53:06

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021171

03221386

021172

ATTACHMENT 5

CHAIN OF CUSTODY, GC/MS/MS LOG, EXTRACTION RECORD

INTERNATIONAL TECHNOLOGY CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. 42338

C/C Control No. 47299

PROJECT NAME/NUMBER Jacksonville Offsite 480078 LAB DESTINATION TMS - Indianapolis In

SAMPLE TEAM MEMBERS D Simerly / D Perry CARRIER/WAYBILL NO. Fed Ex 9088172903

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
WH2283	Jacksonville Arkansas	07/26/88	SOIL	125cc GLASS		
WH2284		07/26/88				
WH2285		07/26/88				
WH2308		07/26/88				
WH2309		07/26/88				
WH2310		07/26/88	SOIL			
WH1423	Jacksonville Arkansas	07/04/88	LIQUID	125cc GLASS		

Special Instructions:

Possible Sample Hazards:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Doug Perry ITAS/FAN 08/04/88 • 1500hrs
   Received By: Federal Express
2. Relinquished By: Federal Express 8/5/88 0930
   Received By: Julie Noble 8/5/88 0930
3. Relinquished By:
   Received by:
4. Relinquished By:
   Received By:

03221388

021173

WHITE - To accompany samples

INTERNATIONAL TECHNOLOGY CORPORATION

REQUEST FOR ANALYSIS

R/A Control No. 42338
C/C Control No 47299

PROJECT NAME: Jacksonville Offsite
PROJECT NUMBER: 480078
PROJECT MANAGER: Dana Demerly
BILL TO: Hercules, Inc.
1313 N Market St.
Wilmington De 19894

PURCHASE ORDER NO.

DATE SAMPLES SHIPPED: 08/04/88
LAB DESTINATION: TMS ANALYTICAL
LABORATORY CONTACT: CINDY KARNS
SEND LAB REPORT TO: FLORENCE KIMOSHITA
MEDICAL DEPT
HERCULES INC
DATE REPORT REQUIRED: 48 HRS
PROJECT CONTACT: DANA SIMERLY
PROJECT CONTACT PHONE NO. 615-690-3211

Sample No	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
WH2293	SOIL	≈ 35g	None	2378-TCDD GC/MS/MS	
WH2294					
WH2295					
WH2308					
WH2309					
WH2310	SOIL	≈ 35g			
~~WH1400~~	LIQUID	≈ 25 ml	None	2378-TCDD GC/MS/MS	REPORT TOTAL NO OF CONGENERS
WH1423 –	labelled on vial				
BDS 8/5/88					

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal ____ Rush X (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard ____ Flammable ____ Skin Irritant ____ Highly Toxic ____ Other ____ (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client X Disposal by Lab ____

FOR LAB USE ONLY

Received By Julie Todd Date/Time 08/05/88 0930

WHITE - Original, to accompany samples
YELLOW - Field copy

03221389

3 2022

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE

AIRBILL NUMBER 9088172903

9088172903

Date

1 From (Your Name) Please Print

Your Phone Number (Very Important)

Company: I T CORP

Department/Floor No

Street Address: 312 DIRECTORS DRIVE

City: KNOXVILLE State: TN ZIP Required For Correct Invoicing: 37923

2 To (Recipient's Name) Please Print: SUZANNE HAMMER

Recipient's Phone Number (Very Important)

Company: T M S ANALYTICAL SERVICES

Department/Floor No.

Exact Street Address (Use of P.O. Boxes or P.O. # Zip Codes Will Delay Delivery And Result In Extra Charge.): 637 MONENCE TRAIL

City: INDIANAPOLIS State: IN ZIP Street Address Zip Required: 46260

3 YOUR BILLING REFERENCE INFORMATION (FIRST 24 CHARACTERS WILL APPEAR ON INVOICE.)

PAYMENT: Bill Sender; Bill Recipient's FedEx Acct. No; Bill 3rd Party FedEx Acct. No; Bill Credit Card; Cash

4 HOLD FOR PICK-UP AT THIS FEDERAL EXPRESS LOCATION: Street Address (See Service Guide or Call 800-238-5355)

City State

ZIP Zip Code of Street Address Required

Federal Express Use: Base Charges; Declared Value Charge; Origin Agent Charge; Other; Total Charges

Emp. No Date

Cash Received; Return Shipment; Third Party; Chg. To Del; Chg. To Hold

Street Address

City State Zip

Received By: x Julie Noble

Date/Time Received FedEx Employee Number: 08/05/88 0930 008

PART # 2041730764 REV 5/87 PRINTED U.S.A. NCR

5 SERVICES CHECK ONLY ONE BOX

1 [X] PRIORITY 1 — Overnight Delivery Using Your Packaging. When using ICAO regulations, please mark appropriate box(es). Do not mark for CFR 49
- [ ] Cargo Aircraft only
- [X] Dangerous goods as per attached Dangerous Goods Transport Document

5 [ ] STANDARD AIR — Delivery not later than second business day

SERVICE COMMITMENT

PRIORITY 1 - Delivery is scheduled early next business morning in most locations. It may take two or more business days if the destination is outside our primary service areas.

STANDARD AIR - Delivery is generally next business day or not later than second business day. It may take three or more business days if the destination is outside our primary service areas.

DELIVERY AND SPECIAL HANDLING CHECK SERVICES REQUIRED

1 [ ] HOLD FOR PICK-UP (Fill in Section H at right)
2 [X] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) [ ]
4 [X] DANGEROUS GOODS (P-1 and Standard Air Packages only. Extra charge)
5 [ ] CONSTANT SURVEILLANCE SERVICE (CSS) (Extra charge) (Do Not Complete Section 5)
6 [ ] DRY ICE _____ Lbs
7 [ ] OTHER SPECIAL SERVICE _____
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]

PACKAGES	WEIGHT	YOUR DECLARED VALUE	OVER SIZE
	LBS		
	LBS		
	LBS		
Total 1	Total 10 LBS	Total	

Received At: 1 [X] Regular Stop; 2 [ ] On-Call Stop; 3 [ ] Drop Box; 4 [ ] BSC; 5 [ ] Station

Federal Express Corp. Employee No: 3372

Date/Time For Federal Express Use: 3/4 PM

9088172903 AIRBILL NUMBER

SHIPPER'S CERTIFICATION FOR RESTRICTED ARTICLES/DANGEROUS GOODS

CHECK ONE: [X] 49 CFR [ ] ICAO (TYPE OR PRINT)

NO. OF PKGS.	DANGEROUS GOODS IDENTIFICATION: PROPER SHIPPING NAME	CLASS OR DIVISION	UN OR ID NO.	SUBSIDIARY RISK	TOTAL NET QUANTITY	PACKING INSTRUCTIONS	AUTHORIZATION
1	[illegible]	[illegible]	[illegible]		[illegible]		

ADDITIONAL DESCRIPTION REQUIREMENTS FOR RADIOACTIVE MATERIALS (SEE BACK)

RADIONUCLIDE	FORM	ACTIVITY	CATEGORY OF LABELS	TRANS. INDEX	PACKAGE IDENTIFICATION
			[ ] WHITE I [ ] YELLOW II [ ] YELLOW III [ ] NONE		

TRANSPORT DETAILS: THIS SHIPMENT IS WITHIN THE LIMITATIONS PRESCRIBED FOR ▶ PASSENGER AIRCRAFT / ~~CARGO AIRCRAFT ONLY~~ (DELETE-NONAPPLICABLE)

AIRPORT OF DEPARTURE | AIRPORT OF DESTINATION | SHIPMENT TYPE ▶ NON-RADIOACTIVE / ~~RADIOACTIVE~~ (DELETE-NONAPPLICABLE)

IF ACCEPTABLE FOR PASSENGER AIRCRAFT, THIS SHIPMENT CONTAINS RADIOACTIVE MATERIAL INTENDED FOR USE IN, OR INCIDENT TO, RESEARCH, MEDICAL DIAGNOSIS OR TREATMENT.

I HEREBY DECLARE THAT THE CONTENTS OF THIS CONSIGNMENT ARE FULLY AND ACCURATELY DESCRIBED ABOVE BY PROPER SHIPPING NAME AND ARE CLASSIFIED, PACKED, MARKED, AND LABELED, AND ARE IN ALL RESPECTS IN PROPER CONDITION FOR TRANSPORT BY AIR ACCORDING TO THE APPLICABLE INTERNATIONAL AND NATIONAL GOVERNMENT REGULATIONS.

NAME AND TITLE OF SHIPPER | PLACE AND DATE 03221390

EMERGENCY TELEPHONE NUMBER | SIGNATURE OF SHIPPER

SEE WARNING ON BACK

Project No.
Book No. 8

COPY 3 P.025

Page No.

AUG 0001	~~0925~~	CAL 1
02	0925	" "
03		DFCAL 2
04	1005	" "
05		DECCS 002
06	1115	" "
07	1136	DECCS 003
08		DFCAL 2
09		Solvent Flush/Blank
10		Method Blank
11		~~8/1~~ 8/3 Sludge
12	1454	Mth Blk
13	11506	Soil Blank
14	11517	Soil Spike (R)
15	1528	Soil PE
16	1538	2293
17	1548	2294
18	1601	2295
19	1611	2308
20	1622	2309
21	1634	2310
22	1646	1423
23	1702	Wipe Blank
24		VRW01

03221391

To Page No.

I & Understood by me, | Date 8/8/88 | Invented by K. E. Mills | Date

TE: 8-5-88 SHIPMENT NUMBER HER0805A

ITIALS JKN

3 2026

ID SAMPLE #	EPA SAMPLE #	SAMPLE WEIGHT	EXTRACTION VOLUME	OPTION A CLEANUP	OPTION D CLEANUP	SPIKING SOL'N ADDED	COMMENTS
MB	Methblank	5.00g					
SB	OCL34/506	5.00					
SS	OCL35539	5.00					
PE	PE-A	5.00					
WH 2293		5.01					soil
" 2294		5.03					
" 2295		5.10					
" 2308		5.07					
" 2309		5.09					
" 2310		5.09					
" 1423		12 ml					liquid

03221392

3 2027

TMS ANALYTICAL SERVICES, INC.

TANDEM MASS SPECTROMETRY

6376 Morenci Trail
Indianapolis, Indiana 46268
317-291-5697

August 15, 1988

021178

Dr. Florence K. Kinoshita
Medical Department
Hercules Incorporated
1313 N. Market Street
Wilmington, DE 19894

Dear Dr. Kinoshita:

Enclosed are analytical results for the analysis of 19 samples for 2,3,7,8-TCDD. These samples were analyzed according to the procedures outlined in the USEPA Contract Laboratory Program "Statement of Work for Rapid Turnaround Dioxin Analysis in Multi-Media", November 1986. Sample preparation and analysis procedures from the "Rapid Determination of TCDD In Soil and Sediment Samples, Using Gas Chromatography and Tandem Mass Spectrometry" were used. These samples were received as Shipment HERCULES for analysis on 08/11/88 at 10:30. The analytical results of Filename HER0811A were sent by FAX at 11:00 on August 12, 1988.

If you should have any questions regarding these data or this report, please feel free to contact me at (317)291-5697.

AUG 17 1988

Very truly yours,

Dennis L. Heuring, Ph.D.
President

ENCLOSURES:

03221393

03221393

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TABLE 4 BLANK CALIBRATION SUMMARY FORM

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ATTACHMENT 2 DAILY CALIBRATION MASS CHROMATOGRAMS

ATTACHMENT 3 INITIAL CALIBRATION MASS CHROMATOGRAMS

ATTACHMENT 4 BLANK CALIBRATION MASS CHROMATOGRAMS

ATTACHMENT 5 CHAIN OF CUSTODY, GC/MS/MS LOG, EXTRACTION RECORD

021179

TCDD FINAL DATA REPORT SHEET

FILE RECEIVED DATE:
FILE RECEIVED TIME:

SITE: HER
CASE: 0811
DATE: 08/10/88

AREA #	CLIENT SAMPLE #	ANALYSIS DATE	ANALYSIS TIME	NATIVE RATIO	SURROGATE ACC	TCDD CONC.	RERUN CODE	VALID CODE	UNITS	COMMENTS
METHBLANK	METHBLNK	08/11/88	1613	1.00*	87.82	0.300 U			NG/GM	
SOILBLANK	DCL34504	08/11/88	1628	0.65*	80.93	0.300 U			NG/GM	
SOILSPIKE	DCL35562	08/11/88	1642	1.13	89.52	0.788			NG/GM	
SOIL PE	PE-A	08/11/88	1653	1.15	77.50	0.741			NG/GM	
WH2321	WH2321	08/11/88	1705	1.15	73.82	1.775			NG/GM	
WH2322	WH2322	08/11/88	1716	1.16	75.84	3.682			NG/GM	
WH2324	WH2324	08/11/88	1727	1.18	77.38	2.388			NG/GM	
WH2325	WH2325	08/11/88	1738	1.17	70.93	2.654			NG/GM	
WH2326	WH2326	08/11/88	1749	1.18	71.47	10.427			NG/GM	
WH2327	WH2327	08/11/88	1759	1.17	70.86	5.985			NG/GM	
WH2328	WH2328	08/11/88	1809	1.17	73.10	11.397			NG/GM	
WH2329	WH2329	08/11/88	1820	1.16	69.91	3.465			NG/GM	
30	WH2330	08/11/88	1832	1.18	76.73	3.232			NG/GM	
[illegible]32	WH2332	08/11/88	1843	1.16	67.29	2.863			NG/GM	
WH2333	WH2333	08/11/88	1853	1.18	71.25	4.997			NG/GM	
WH2334	WH2334	08/11/88	1904	1.05	71.70	0.335			NG/GM	
WH2336	WH2336	08/11/88	1915	1.09	73.25	0.334			NG/GM	
WH2337	WH2337	08/11/88	1926	1.13	74.95	0.372			NG/GM	
WH2338	WH2338	08/11/88	1937	0.02*	74.20	0.300 U			NG/GM	UNITS OF NG PER SAMPLE
WH2339	WH2339	08/11/88	1948	0.00*	72.52	0.300 U			NG/GM	UNITS OF NG PER SAMPLE

QUALIFICATION FLAGS:

* 257/259 RATIO OUTSIDE OF ACCEPTABLE RANGE
** SURROGATE OUTSIDE OF ACCEPTABLE RANGE
*** HIGH DETECTION LIMIT

RERUN CODES:
A AUTOMATIC RERUN
R REQUESTED RERUN

021180

GC/MS/MS WORKSHEET REPORT FORM

SITE: NER
CASE: 0811
DATE: 08/10/88

SURROGATE CONC 0.06 RF NATIVE 2.109 ION RATIO: 1.009 TO 1.233
INTERNAL STD CONC 1.05 RF SURROGATE 2.083 CORRECTION FACTOR: 0.010

LAB SAMPLE #	AREA #	CLIENT SAMPLE #	ANALYSIS DATE	ANALYSIS TIME	SAMPLE AMOUNT	ION 257	ION 259	ION 263	ION 268	RATIO 257/259	SURR ACC	RAW VALUE	UNITS
AUG1104	METHBLANK	METHBLNK	08/11/88	1613	5.00	1	1	146790	401149	1.00	87.82	-0.023	NG/GM
AUG1105	SOILBLANK	OCL34504	08/11/88	1628	5.00	2121	3284	159641	473367	0.65	80.93	0.004	NG/GM
AUG1106	SOILSPIKE	OCL35562	08/11/88	1642	5.00	101159	89736	209427	558512	1.13	89.52	0.788	NG/GM
AUG1107	SOIL PE	PE-A	08/11/88	1653	5.00	97360	84626	183421	564729	1.15	77.50	0.741	NG/GM
AUG1108	WH2321	WH2321	08/11/88	1705	4.98	157465	136549	121461	389381	1.15	73.82	1.775	NG/GM
AUG1109	WH2322	WH2322	08/11/88	1716	5.14	516726	447097	195236	600205	1.16	75.84	3.682	NG/GM
AUG1110	WH2324	WH2324	08/11/88	1727	4.96	132811	112147	79744	242981	1.18	77.38	2.388	NG/GM
AUG1111	WH2325	WH2325	08/11/88	1738	4.92	600117	512077	302366	1001152	1.17	70.93	2.654	NG/GM
AUG1112	WH2326	WH2326	08/11/88	1749	4.94	2717394	2311133	373213	1154760	1.18	71.47	10.427	NG/GM
AUG1113	WH2327	WH2327	08/11/88	1759	4.89	1836783	1565514	425186	1372819	1.17	70.86	5.985	NG/GM
AUG1114	WH2328	WH2328	08/11/88	1809	5.01	2588727	2211335	330880	994600	1.17	73.10	11.397	NG/GM
AUG1115	WH2329	WH2329	08/11/88	1820	5.02	593095	511369	224238	747866	1.16	69.91	3.465	NG/GM
AUG1116	WH2330	WH2330	08/11/88	1832	4.94	423782	358993	189087	577128	1.18	76.73	3.232	NG/GM
AUG1117	WH2332	WH2332	08/11/88	1843	5.10	567191	488020	244475	850131	1.16	67.29	2.863	NG/GM
AUG1118	WH2333	WH2333	08/11/88	1853	4.99	1816872	1541033	491420	1589143	1.18	71.25	4.997	NG/GM
119	WH2334	WH2334	08/11/88	1904	5.05	83690	79671	320874	1070960	1.05	71.70	0.335	NG/GM
120	WH2336	WH2336	08/11/88	1915	4.97	57724	53025	226257	739314	1.09	73.25	0.334	NG/GM
AUG1121	WH2337	WH2337	08/11/88	1926	5.06	36442	32140	127483	406941	1.13	74.95	0.372	NG/GM
AUG1122	WH2338	WH2338	08/11/88	1937	1.00	89	4026	161263	521622	0.02	74.20	-0.021	NG/GM
AUG1123	WH2339	WH2339	08/11/88	1948	1.00	1	4846	150611	498443	0.00	72.52	0.001	NG/GM

TABLE 3 GC/MS/MS DAILY CALIBRATION CHECK

MEAN NATIVE RF	2.109	NATIVE CONC.	0.20	SITE:	HER
MEAN SURROGATE RF	2.083	SURROGATE CONC.	0.06	DATE:	08/10/88
ION RATIO RANGE	1.009 TO 1.233	INTERNAL STD. CONC .	1.05	CASE:	0811

ANALYSIS DATE	ANALYSIS TIME	ION 257	ION 259	ION 263	ION 268	RATIO 257/259	RF NATIVE	NATIVE RF %DIFF.	RF SURROGATE	SURROGATE RF % DIFFERENCE	COMMENTS
08/11/88	1257	35233	33123	26158	168307	1.064	2.132	1.09	2.680	28.66	

* ION RATIO MUST BE WITHIN ACCEPTABLE RANGE OF INITIAL CALIBRATION
** NATIVE % DIFFERENCE MUST BE LESS THAN 10% FROM INITIAL CALIBRATION

021182

TABLE 1 GC/MS/MS INITIAL CALIBRATION

SITE CODE: HEF
CASE: 0811
DATE: 10/13/87

SOLUTION ID	ION 257	ION 259	ION 263	ION 268	NATIVE CONC	SURROGATE CONC	INT. STD CONC	RF NATIVE	RF SURROGATE	RATIO 257/259	COMMENTS
CC1-1	73881	67752	43569	345176	0.20	0.06	1.05	2.154	2.168	1.090	
CC1-2	76844	69768	45279	362015	0.20	0.06	1.05	2.126	2.149	1.101	
CC1-3	82583	73708	47294	382379	0.20	0.06	1.05	2.146	2.124	1.120	
							MEAN	2.142			
							STD DEV	0.014			
							% RSD	0.65			
CC2-1	324838	283704	77330	301890	1.00	0.11	1.05	2.117	2.334	1.145	
CC2-2	358491	321128	85961	323744	1.00	0.11	1.05	2.204	2.420	1.116	
CC2-3	334056	291974	79920	312887	1.00	0.11	1.05	2.101	2.328	1.144	
							MEAN	2.141			
							STD DEV	0.055			
							% RSD	2.57			
CC3-1	1081980	966175	92814	208328	5.00	0.20	1.05	2.065	2.044	1.120	
CC3-2	1989496	1775627	177692	387550	5.00	0.20	1.05	2.040	2.116	1.120	
CC3-3	2046320	1823272	181766	401030	5.00	0.20	1.05	2.026	2.090	1.122	
							MEAN	2.044	2.083		
							STD DEV	0.020	0.036		
							% RSD	0.97	1.73		

RF NATIVE OVERALL MEAN 2.109
STD DEV 0.056
% RSD 2.674

RF SURROGATE OVERALL MEAN 2.083
STD DEV 0.036
% RSD 1.728

OVERALL RATIO 257/259 MEAN: 1.121
RANGE: 1.009 TO 1.233

* RF NATIVE % RELATIVE STANDARD DEVIATION MUST BE LESS THAN 10%
** RATIO OF 257/259 OUTSIDE OF ACCEPTABLE RANGE

021183

TABLE 2 BLANK SUMMARY FORM

SITE: HER CASE : 0811 DATE: 05/04/87

SOLUTION ID	ION 257	ION 259	ION 268	BLANK RESPONSE	NATIVE CONC
1	355	5301	715479	0.008	0.019
2	1500	6454	766148	0.010	0.025
3	981	3057	526670	0.008	0.018
4	1303	5610	906231	0.008	0.018
5	1825	4805	727729	0.009	0.022
6	2058	5231	653736	0.011	0.026
7	707	4542	541920	0.010	0.023
8	1260	6293	667676	0.011	0.027
9	558	3819	537461	0.008	0.019
10	744	3791	619160	0.007	0.017
11	1403	6817	761787	0.011	0.026
12	1	3932	330813	0.012	0.028
13	1360	4860	609680	0.010	0.024
14	663	4014	508056	0.009	0.022
15	1307	6514	855393	0.009	0.022
16	1316	4457	591202	0.010	0.023
17	1772	7181	796307	0.011	0.027
18	2182	4927	645435	0.011	0.026
19	2257	5650	596849	0.013	0.031
20	562	3543	554208	0.007	0.018

CORRECTION FACTOR = 0.010
LIMIT OF DETECTION = 0.014

* LIMIT OF DETECTION MUST BE LESS THAN 0.3

021184

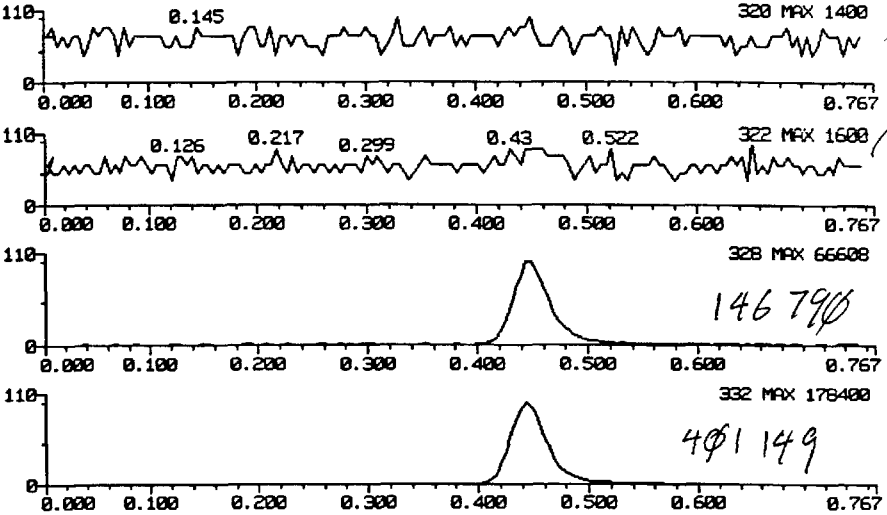
ATTACHMENT 1

SAMPLE MASS CHROMATOGRAMS

021185

AUG1104 1 MIMI METHOD BLANK IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	84
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	84	TI	00:00:24
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	111	IN	1000



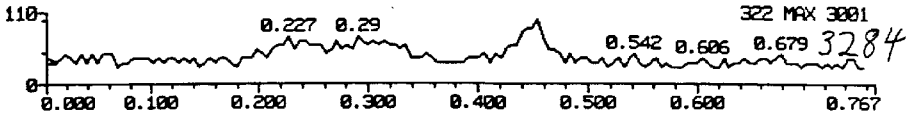
11-AUG-88		16:13:22		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.130					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

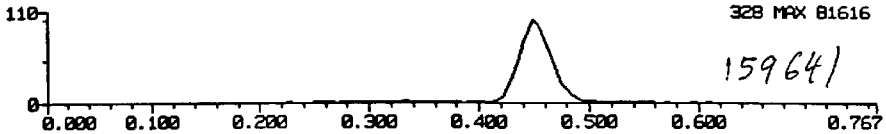
16:13:22

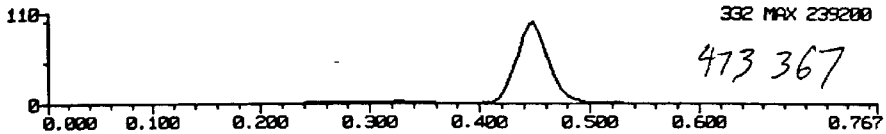
	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG1105 1 MIMI SOIL BLANK IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	3601







11-AUG-88		16:28:49		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.230					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:28:49

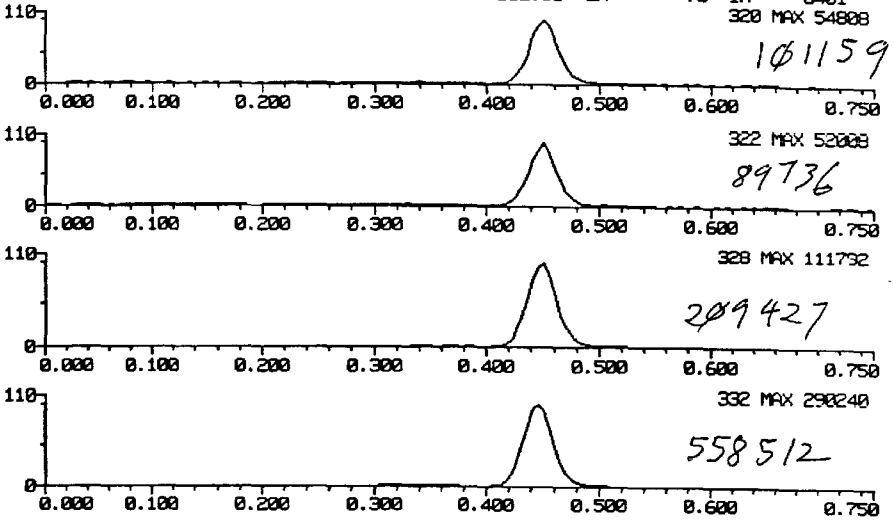
	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

KEM.

021137

AUG1106 1 MIMI SOIL SPIKE IM

SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	78
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	6401



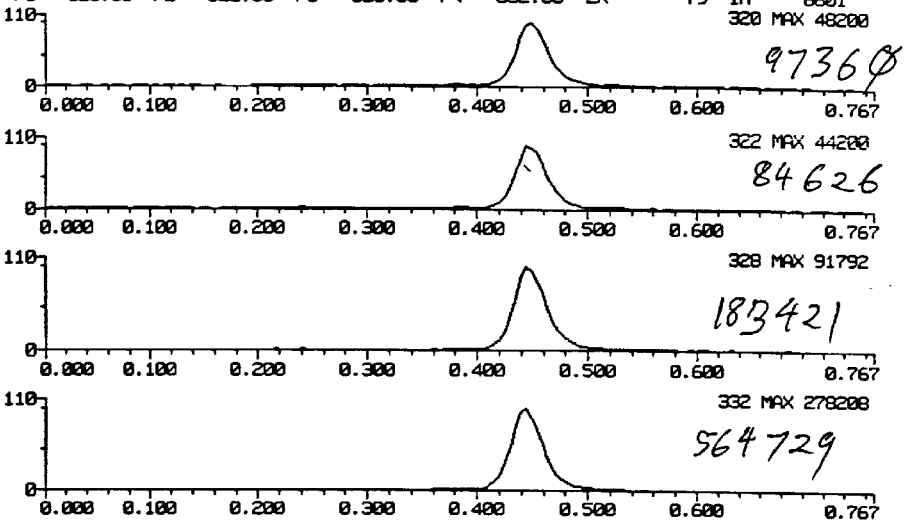
11-AUG-88		16:42:19		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.270					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:42:19

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG1107 1 MIMI SOIL PE IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	6601



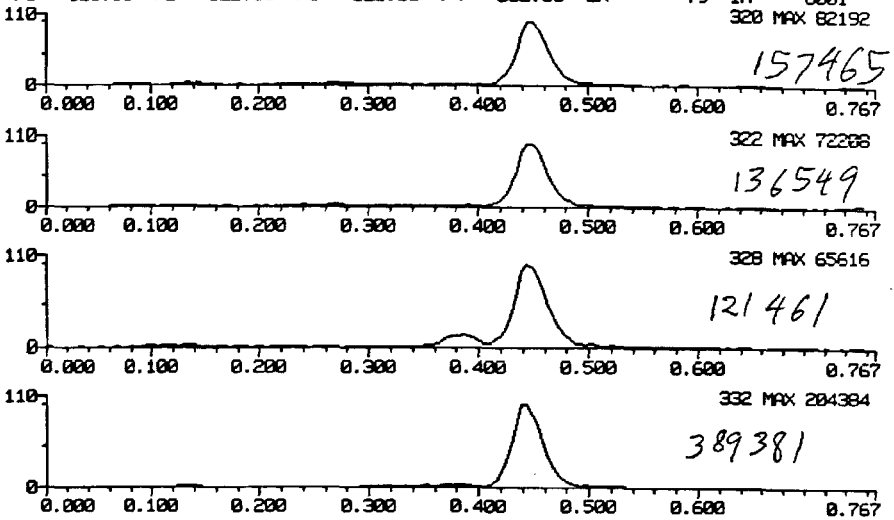
11-AUG-88		16:53:03		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.210					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:53:03

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021139

AUG1108	1	MIMI				2321					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	8001



11-AUG-88		17:05:48		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.230					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:05:48

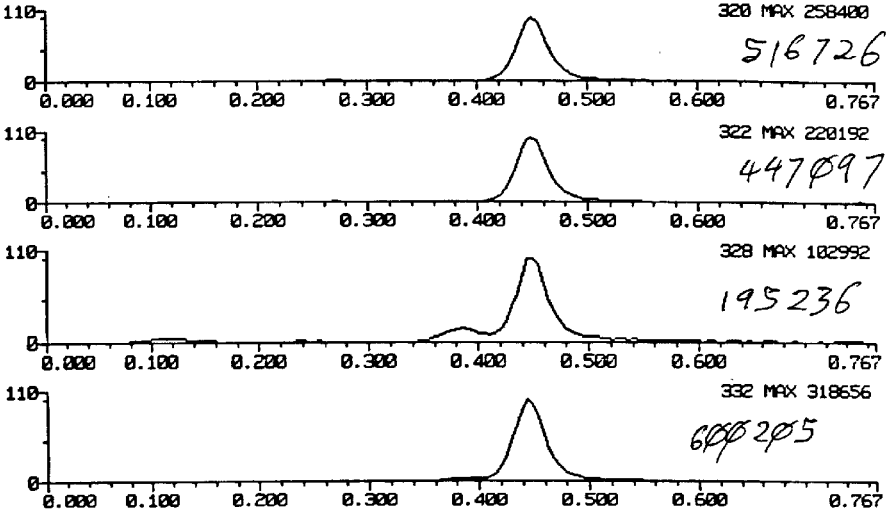
	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

KEM.

021190

AUG1109 1 MIMI 2322 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	8802



11-AUG-88		17:16:16		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.150					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:16:16

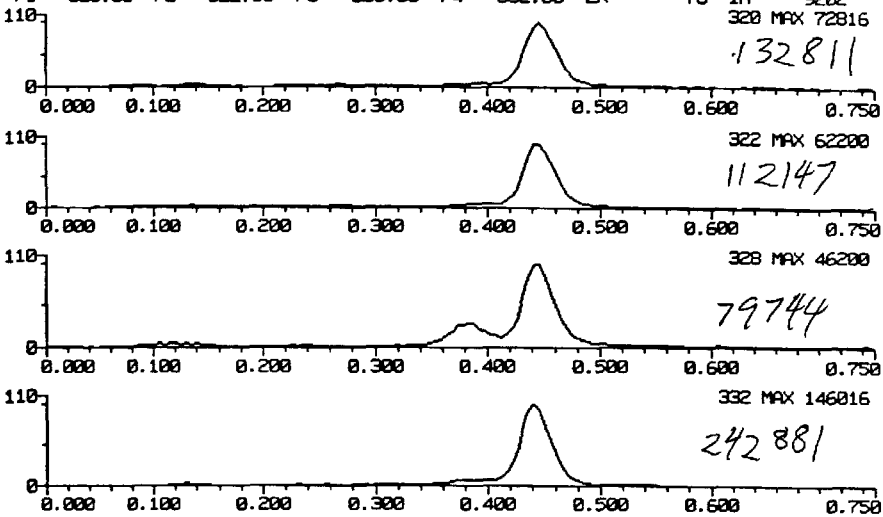
	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

KEM.

021191

AUG1110 1 MIMI 2324 IM

SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	78
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	9202



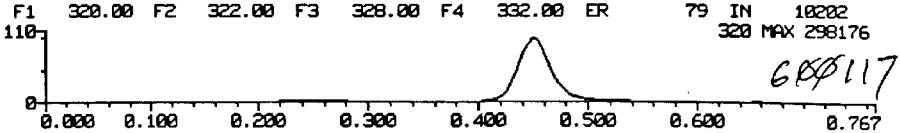
11-AUG-88		17:27:09		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.150					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

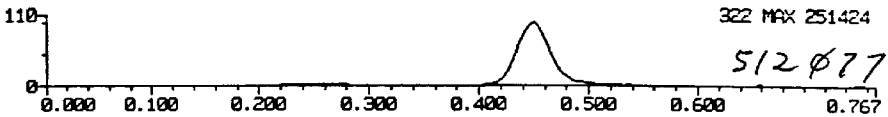
17:27:09

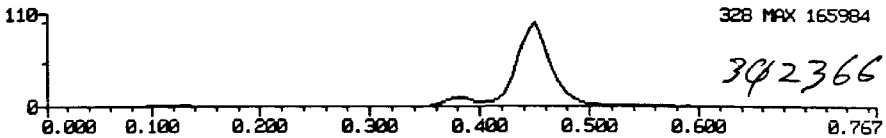
	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

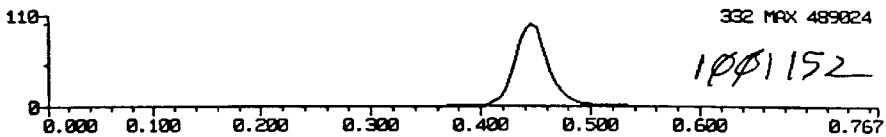
KEM

AUG1111	1	MIMI				2325					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	10202









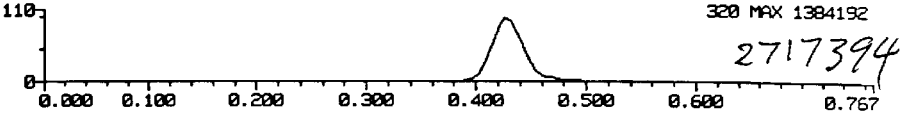
11-AUG-88		17:38:25		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.200					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

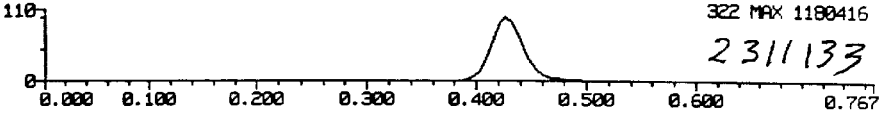
17:38:25

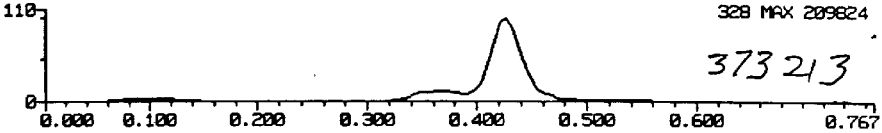
	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

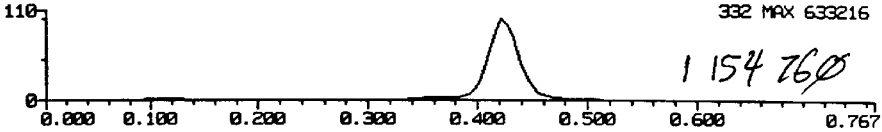
AUG1112 1 MIMI 2326 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	25604









11-AUG-88		17:49:17		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.230					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:49:17

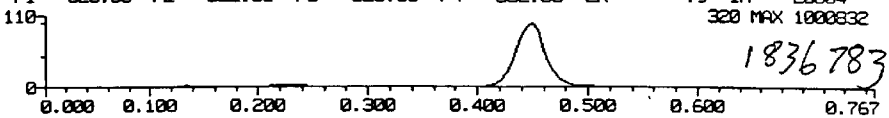
	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

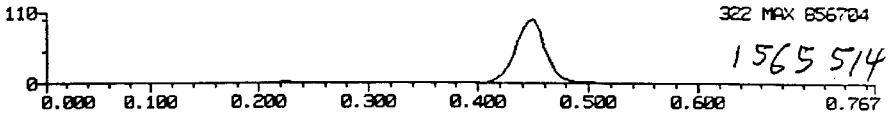
K.Ch.

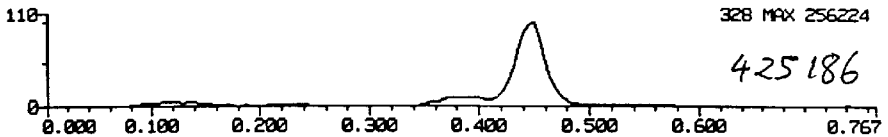
021194

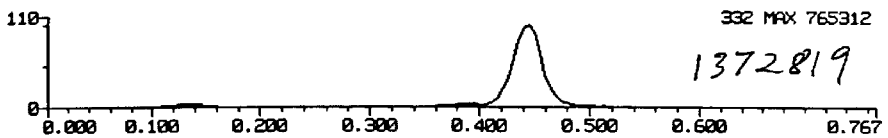
AUG1113 1 MIMI 2327 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	20804









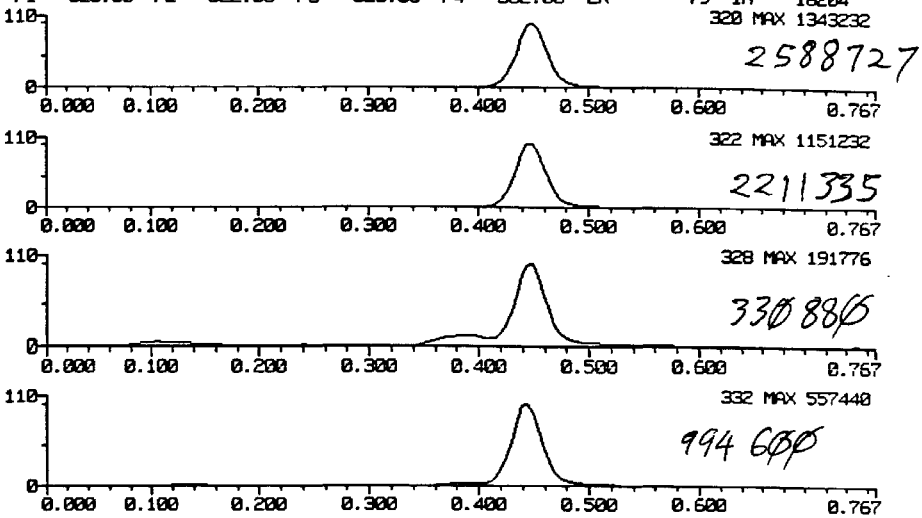
11-AUG-88		17:59:40		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.270					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:59:40

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG1114 1 MIMI 2328 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	18204



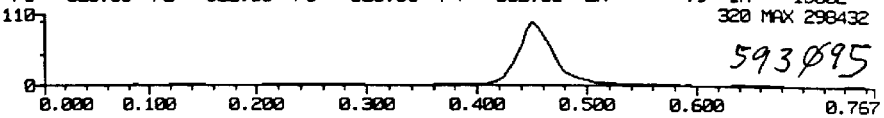
11-AUG-88		18:09:55		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.140					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

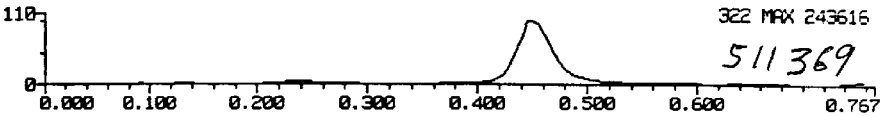
18:09:55

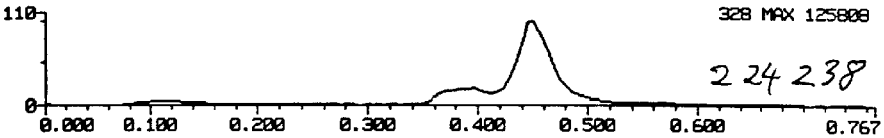
	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

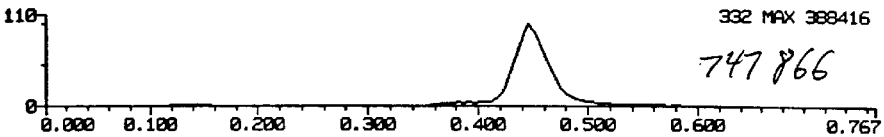
021196

AUG1115	1	MIMI				2329					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	15002









11-AUG-88		18:20:30		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.130					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

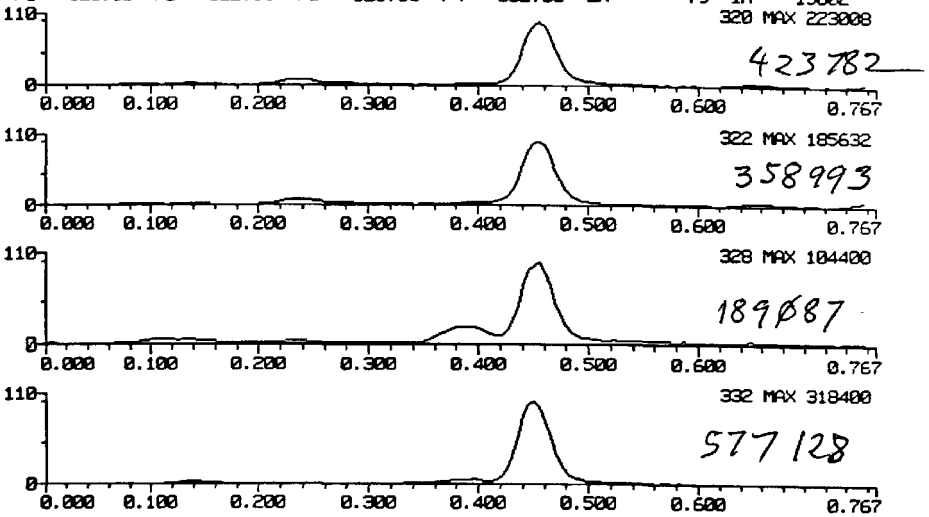
18:20:30

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021197

AUG1116 1 MIMI 2330 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	15802



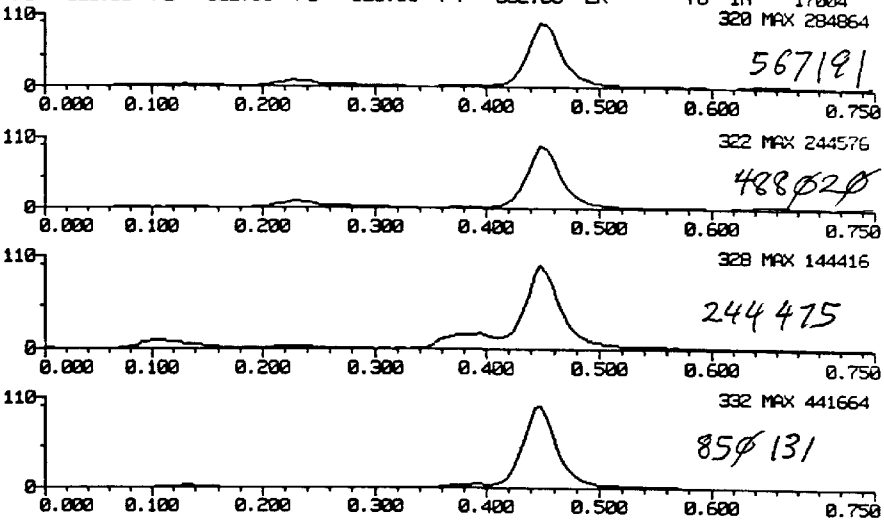
11-AUG-88		18:32:40		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.240					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

18:32:40

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG1117 1 MIMI 2332 IM

SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	78
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	17004



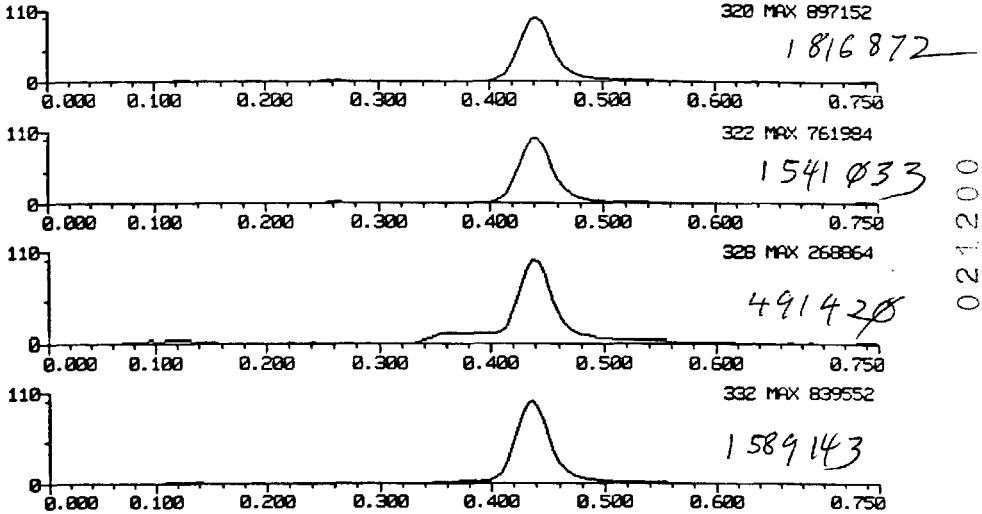
11-AUG-88		18:43:04		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.180					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

18:43:04

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021199

AUG1118	1	MIMI				2333					IM
SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	78
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	27804



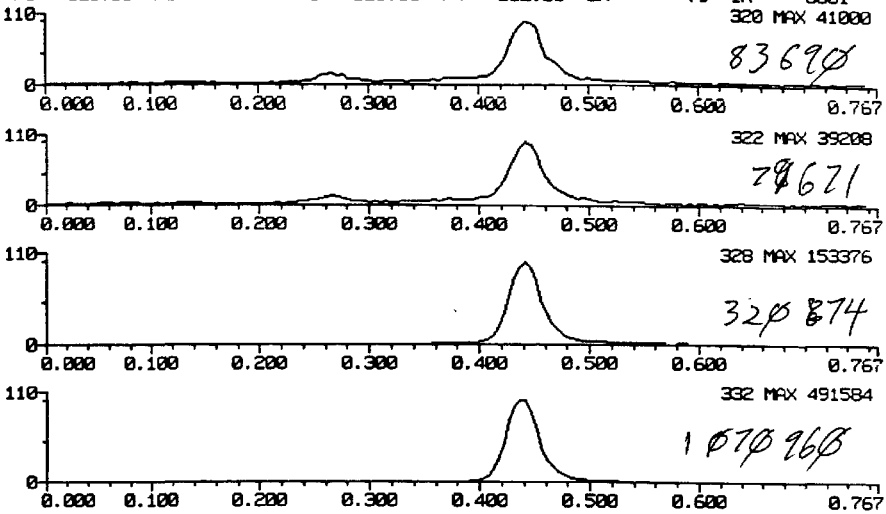
021200

11-AUG-88		18:53:55		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.250					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

18:53:55

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG1119	1	MIMI				2334					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	6801



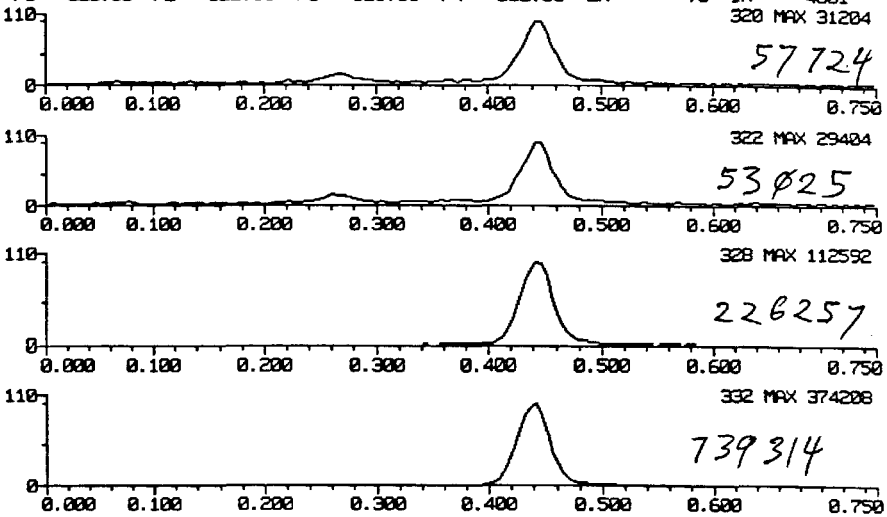
11-AUG-88		19:04:34		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.140					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

19:04:34

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021201

AUG1120	1	MIMI				2336					IM
SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	78
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	4801



11-AUG-88		19:15:40		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.220					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

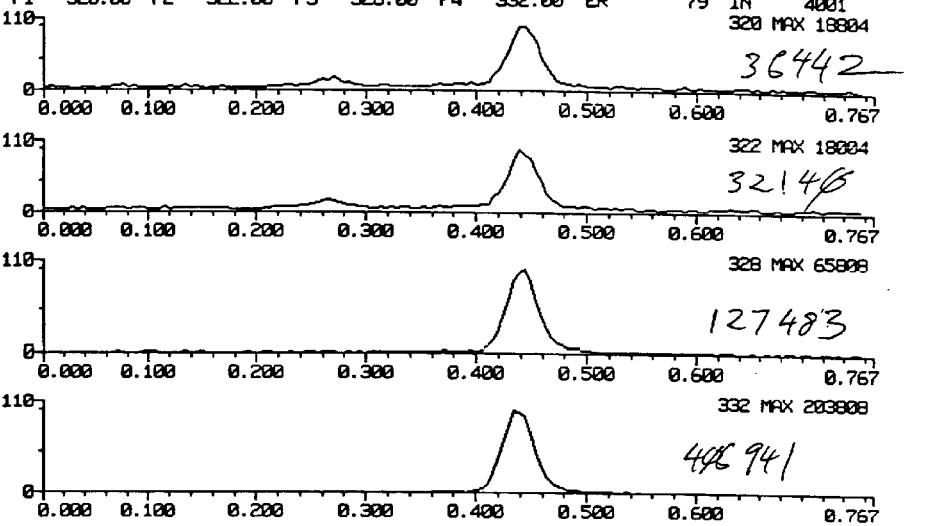
19:15:40

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021202

AUG1121 1 MIMI 2337 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	4001



11-AUG-88		19:26:26		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.190					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

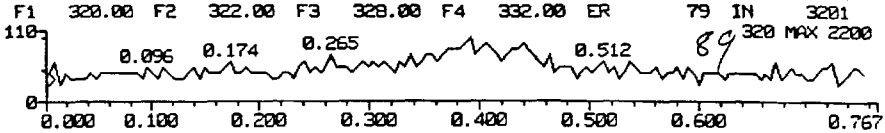
19:26:26

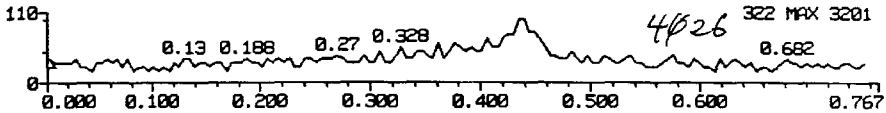
	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

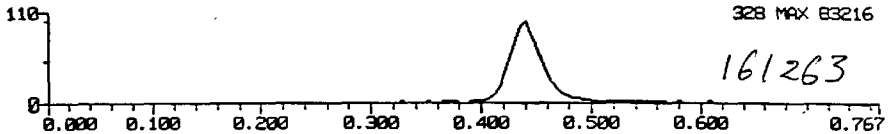
021203

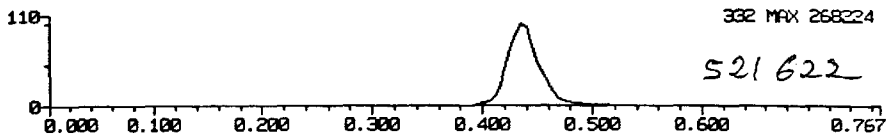
AUG1122 1 MIMI 2338 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	3201









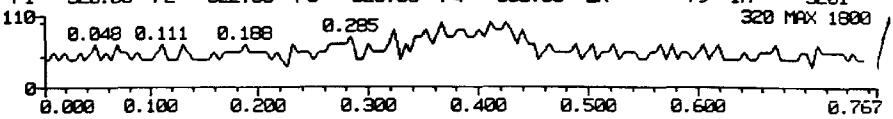
11-AUG-88		19:37:28		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.190					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

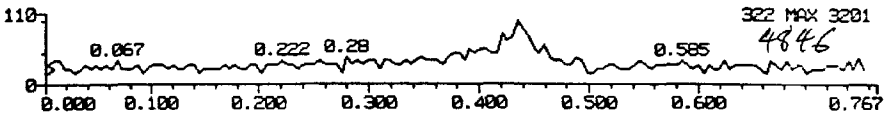
19:37:28

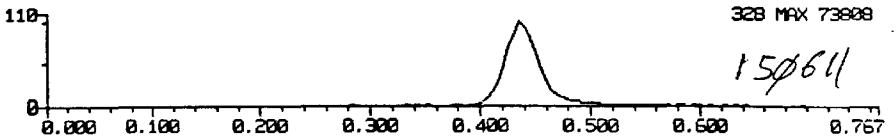
	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

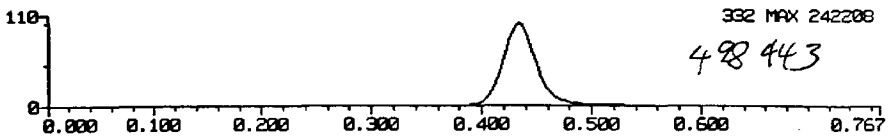
021204

AUG1123	1	MIMI				2339					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	3201









11-AUG-88		19:48:10	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.160					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

19:48:10

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021205

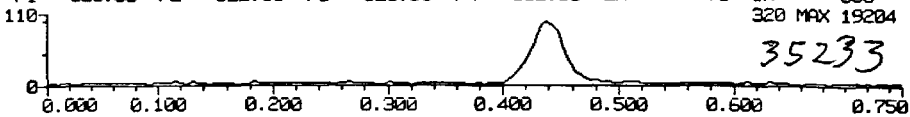
ATTACHMENT 2

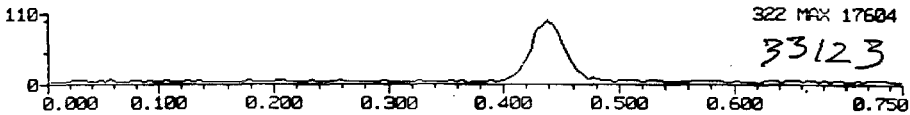
DAILY CALIBRATION MASS CHROMATOGRAMS

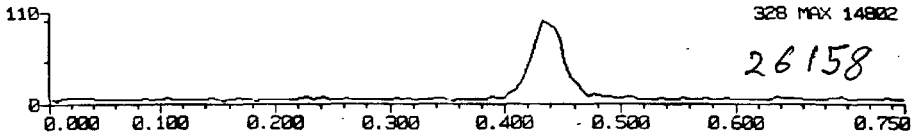
021206

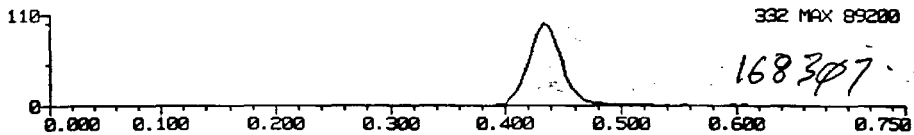
AUG1101 1 MIMI CAL 1 IM

SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	78
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	800









021207

11-AUG-88		12:57:53	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.220					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

12:57:53

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

RRF = 2.132
(101.1%)

03221422

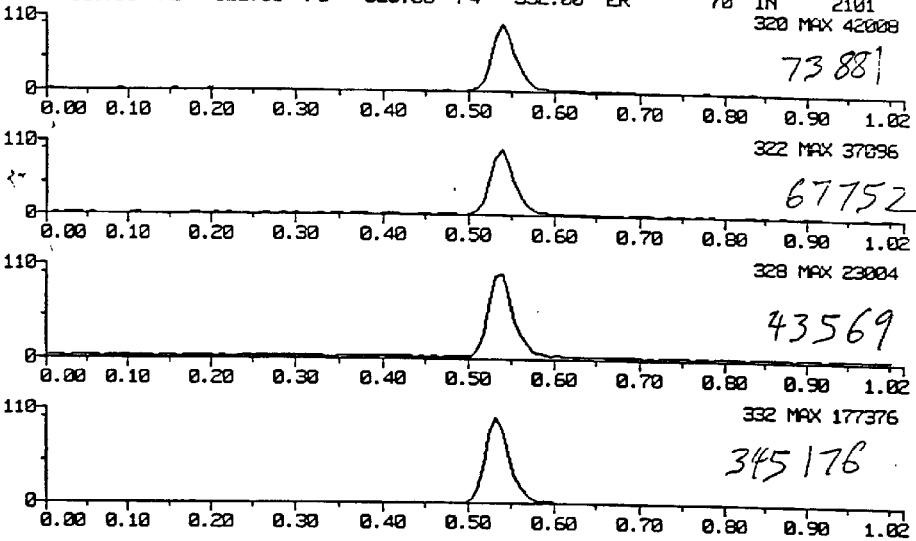
ATTACHMENT 3

INITIAL CALIBRATION MASS CHROMATOGRAMS

021208

OCT1309 1 MIMI CAL I (C-077-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	2101



Ratio 1.090

02 12 09

13-OCT-87 17:11:31

SY	200	SE	0	C	10	MTL	0.1000	STEP	0.1000	PE	0.00
G1	0.000	IT	0.00	DI	-1.000	MCL	1260	TH	200	TT	1.00
G2	0.000	LT	0.00	DIV	-0.998			MO	0.000	FP	60.00
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	MU	-4600.0
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	DM3	0.0000
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	RE3	120.00
										R3	-65.00

17:11:31

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

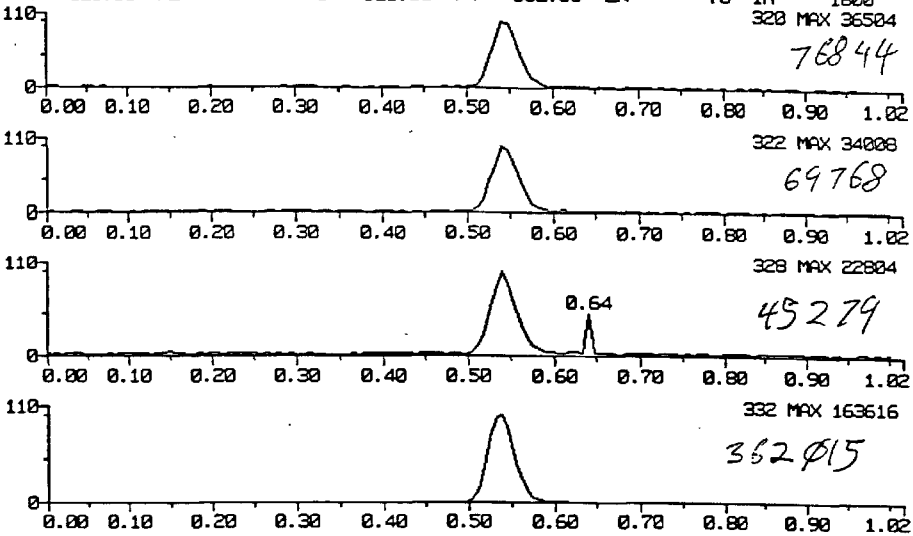
KEM.

$RRF_{native} = 2.154$

$RRF_{surr} = 2.168$

OCT1303 1 MIMI 1 UL CAL I IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1600



021210

13-OCT-87 15:36:52

SY	200	SE	0	C	10	MTL	0.1000	STEP	0.1000	PE	0.00
G1	0.000	IT	0.00	DI	-1.000	MCL	1260	TH	200	TT	1.00
G2	0.000	LT	0.00	DIV	-0.998			MO	0.000	FP	60.00
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000			MU	-4600.0
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CGT	0.0	DM3	0.0000
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	CG	OFF	RE3	120.00
								R2	-55.00	R3	-65.00

15:36:52

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

Native RF 2.126

Sum RRF 2.148

Nd 0.2

I.S. 1.05

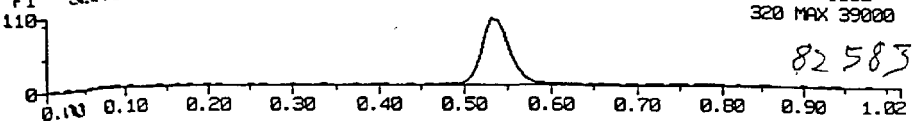
Sum 0.00

03221425

OCT1310 1 MIMI CAL I (C-077-02) IM

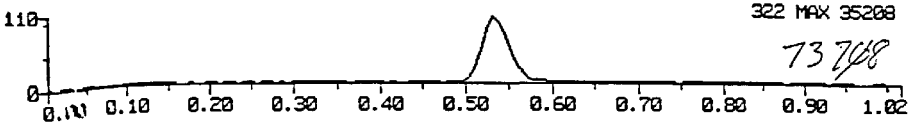
SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	9102

320 MAX 39000

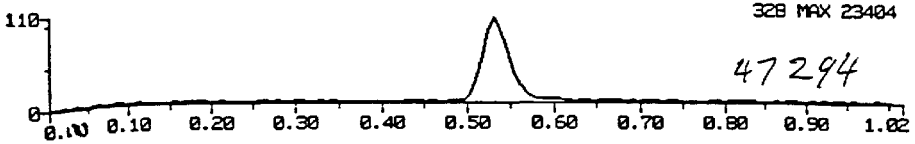


Ratio 1.120

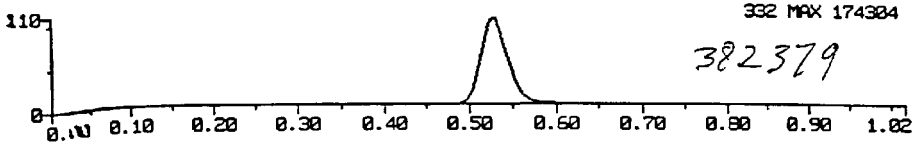
322 MAX 35208



328 MAX 23404



332 MAX 174304



13-OCT-87 17:24:01

				OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.018					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:24:01

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

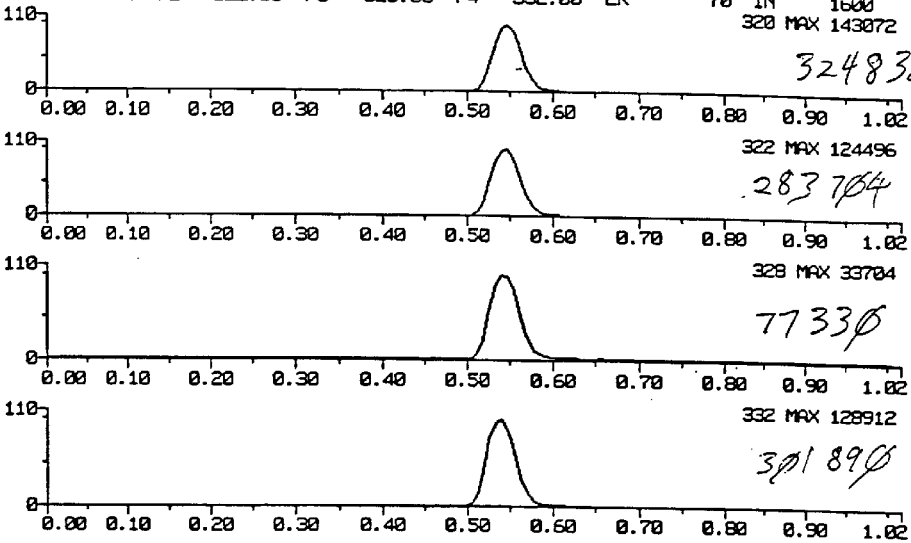
$RRF_{retine} = 2.146$

$RRF_{sum} = 2.123$

021211

OCT1308 1 MIMI CAL II (C-078-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1600



13-OCT-87		16:58:26		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.983					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:58:26

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

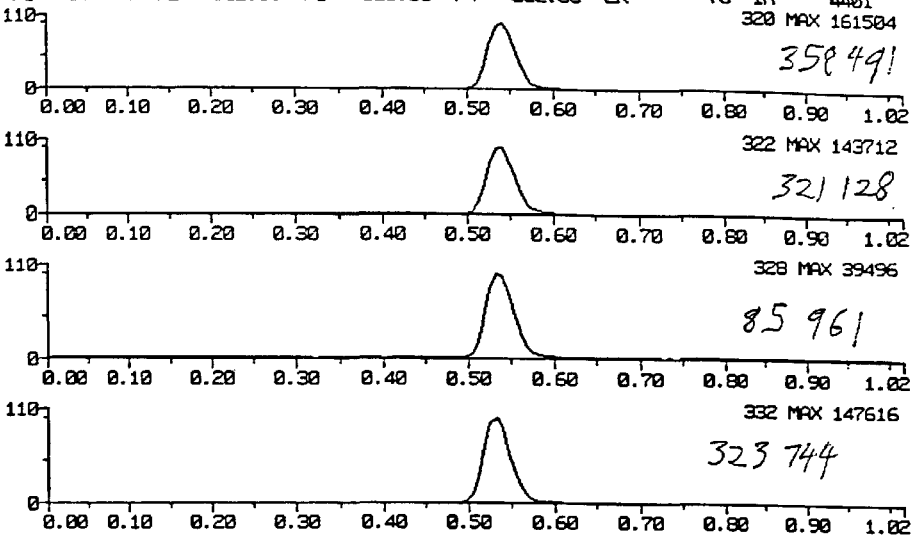
$RRF_{std} = 2.117$

$RRF_{surr} = 2.333$

021212

OCT1307 1 MIMI CAL II (C-078-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	4401



Ratio 1.116

021213

13-OCT-87		16:41:35		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.991					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:41:35

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

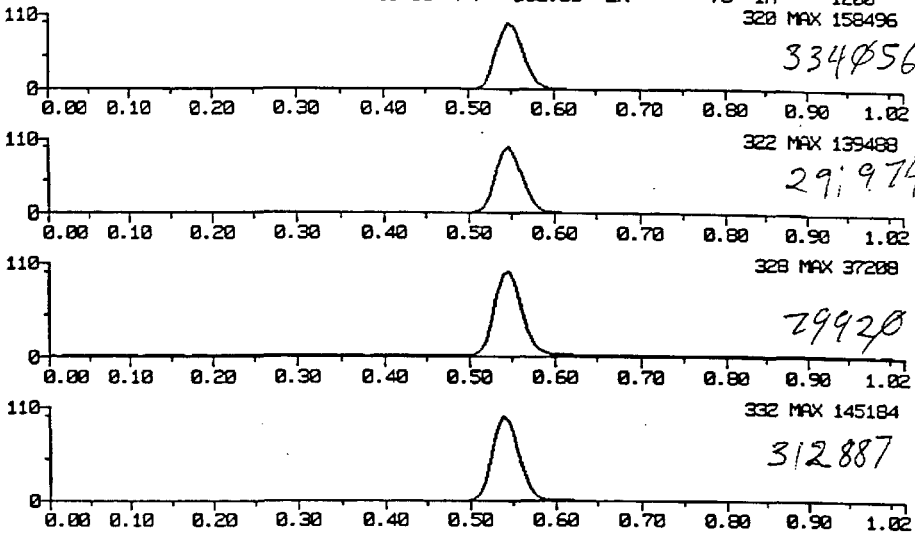
K.E.M.

RRF native = 2.204

RRF sam = 2.419

OCT1302 1 MIMI 1 UL CAL II IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1200



021214

13-OCT-87		15:24:15		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.006					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:24:15

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

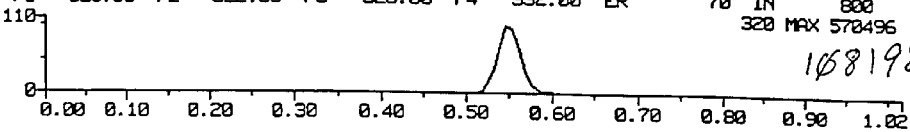
Native RF: 2.10!

Surr RRF 2.327

03221429

OCT1305 1 MIMI CAL III (C-079-02) IM

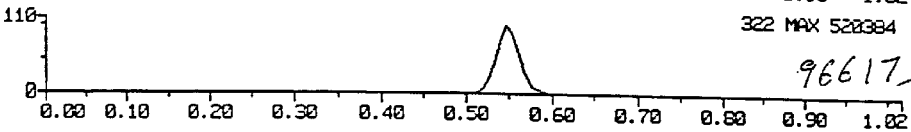
SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	800



320 MAX 570496

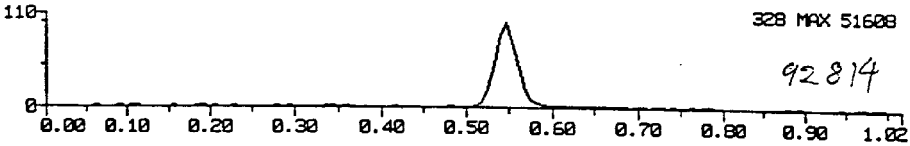
1068198

Ratio 1.120



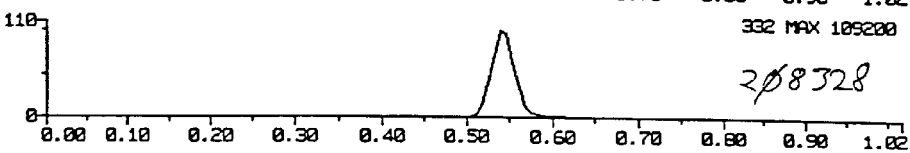
322 MAX 520384

966175



328 MAX 51608

92814



332 MAX 109200

208328

13-OCT-87		16:15:36		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.977					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:15:36

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

KGM

$RRF_{std} = 2.065$

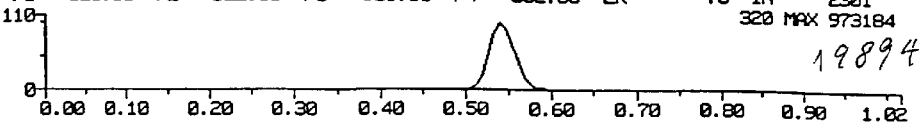
$RRF_{surr} = 2.042$

021215

OCT1306 1 MIMI CAL III (C-079-02) IM

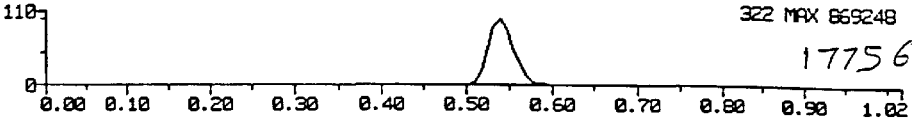
SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	2301

Ratio 1.120



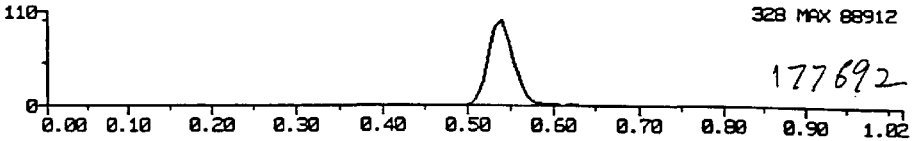
320 MAX 973184

1989496



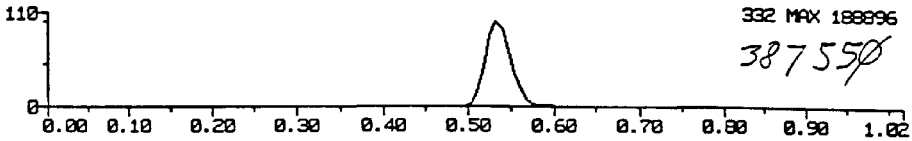
322 MAX 869248

1775627



328 MAX 88912

177692



332 MAX 188896

387550

13-OCT-87		16:27:40		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.981					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:27:40

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

KEM.

RRF_{std} = 2.040

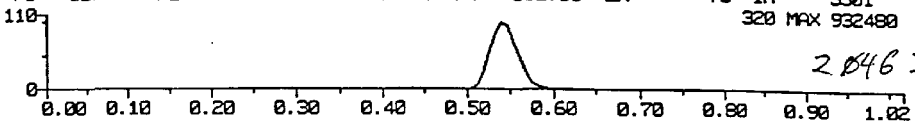
RRF_{sum} = 2.113

0212216

OCT1304 1 MIMI 1 UL CAL III IM

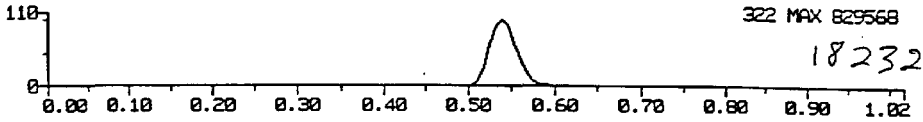
SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	3301

Ratio 1.122



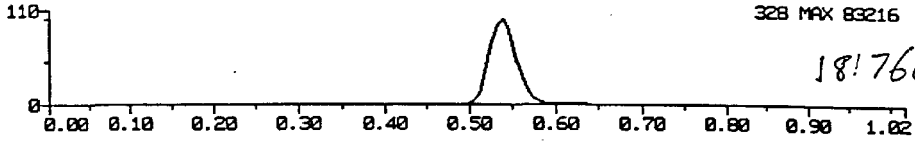
320 MAX 932480

2046320



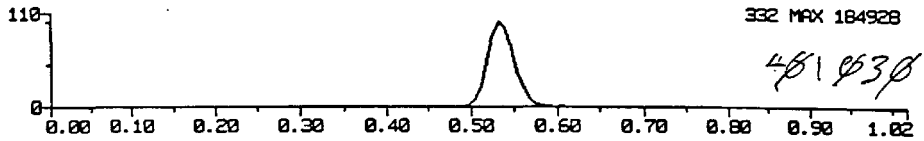
322 MAX 829568

1823272



328 MAX 83216

181766



332 MAX 184928

401030

13-OCT-87		15:51:02		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.000					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:51:02

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

Native RF: 2.026

RRF_{Surr} = 2.088

0212217

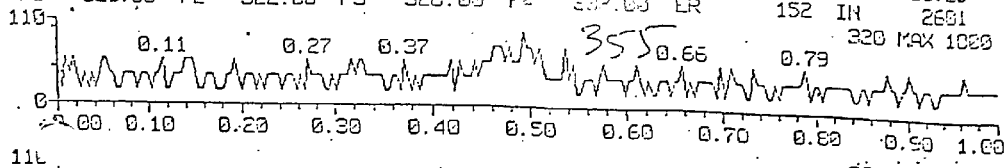
ATTACHMENT 4

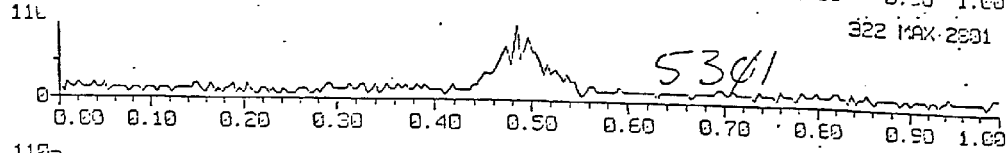
BLANK CALIBRATION MASS CHROMATOGRAMS

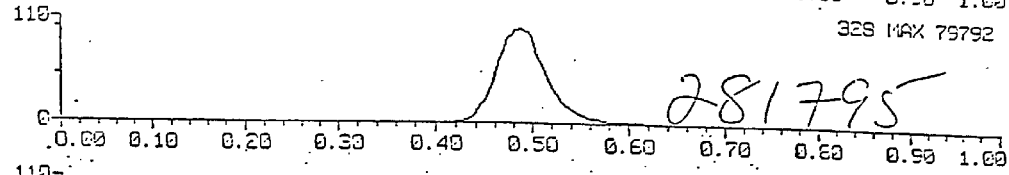
021218

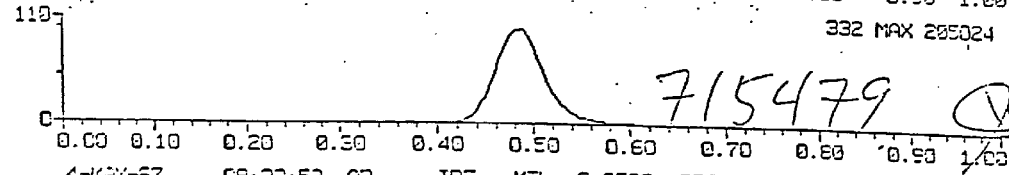
3 2068

M1 257.00 M2 259.00 M3 263.00 M4 [illegible] SR 110 TI 00:00:25
F1 320.00 F2 322.00 F3 328.00 F4 332.00 ER 152 IN 2601









4-MAY-87		09:33:53	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1230	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.010					MU	-4800.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
S	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DIV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

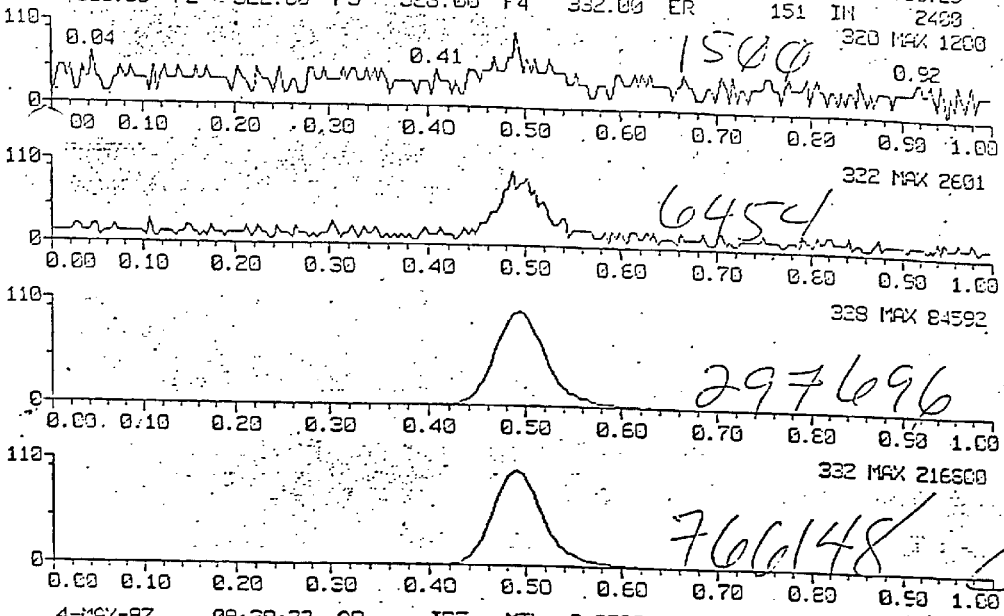
09:33:58

	CG=SN	
1	320	257
	322	259
	328	263
	332	268

03221434

3 2069

M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	LNNP	SE	110	
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	110	TI	00:00:25		
									151	IN	2400		



4-MAY-87		09:29:22		OP		JRF		MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C		10		MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI		-1.000				MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV		-1.005						MU	-4600.0
C	0.0000	DT	0.000	IN		0.00		IM1	0.0000	CGT	0.0	IM3	0.0000
S	0.0	GR	0.10	OR		0.00		RE1	65.00	CG	OFF	RE3	85.00
DTV	0.000	ST	0.00	RO		-60.00		R1	-20.00	R2	-55.00	R3	-65.00

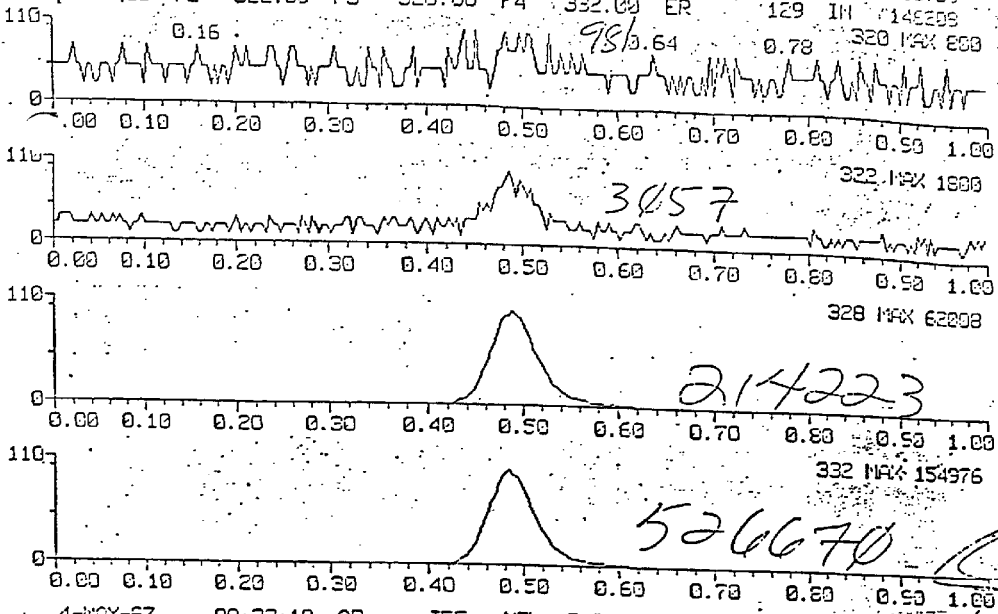
09:29:22

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

03221435

3 207

M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:35
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	149209



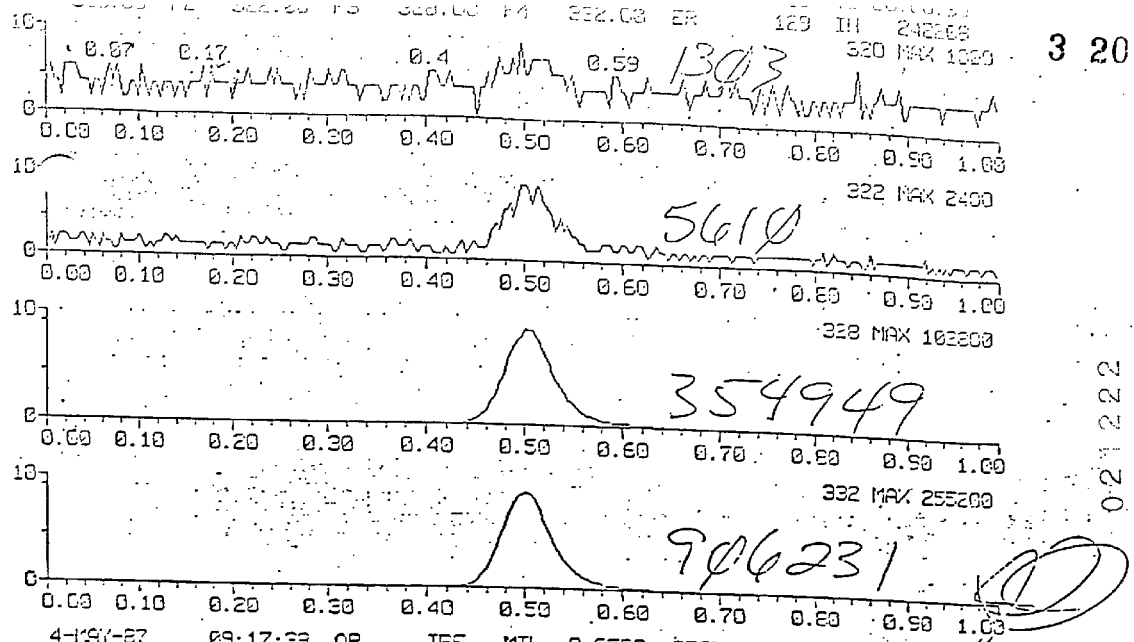
	4-MAY-67		09:23:10	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4920.0
G	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
S	0.0	GR	0.10	GR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:23:10

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021221

03221436

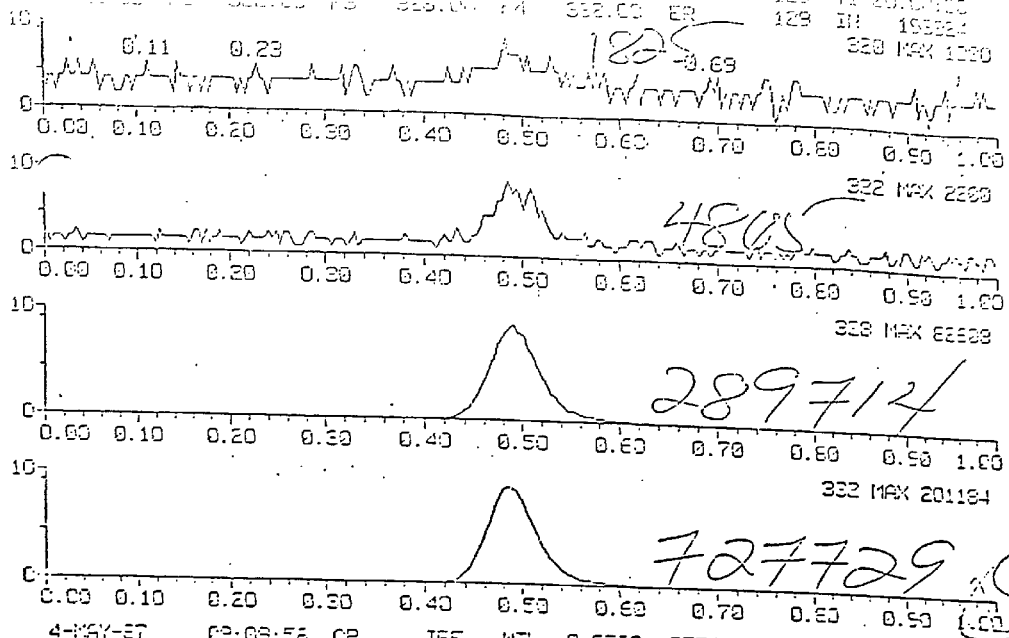


4-MAY-87		09:17:38	OP		JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.007					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SS	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DT	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:17:38

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

3 2072



	4-MAY-87		09:09:56	CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SW	200	SE	0	C	10	MCL	1200	TH	100	TT	1.00
S1	0.020	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
S2	0.000	LT	0.00	DIV	-0.992					MU	-4800.0
S3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAP	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	FE3	65.00
DTL	0.000	ST	0.00	RO	-60.00	R1	-30.00	R2	-55.00	R3	-65.00

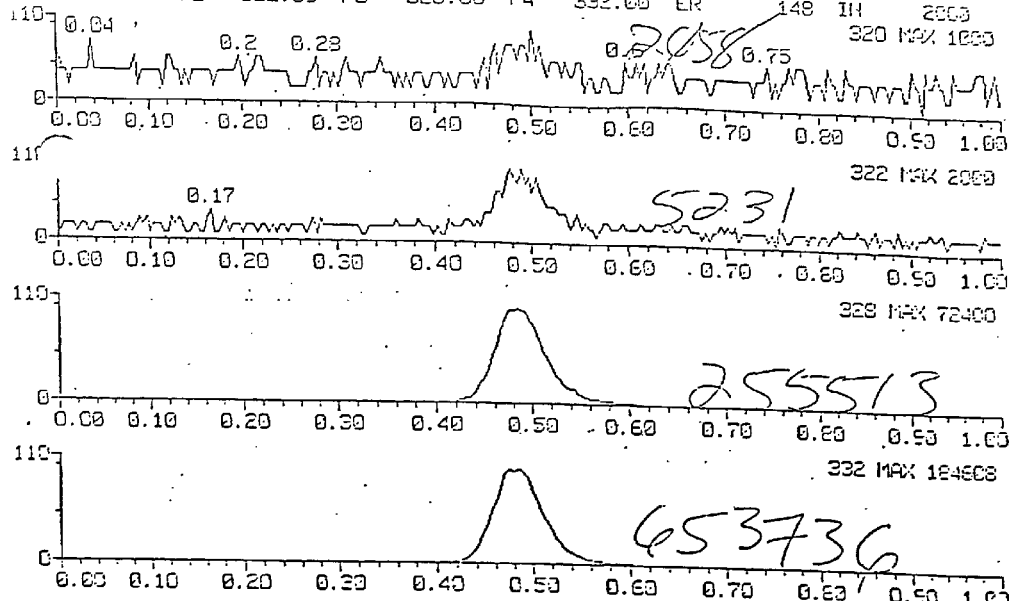
09:09:56

	CG=SW	
1	330	257
	332	259
	328	263
	332	268

03221438

3 2073

F1 320.00 F2 322.00 F3 328.00 F4 332.00 ER 148 IN 2000 TI 00:00:25

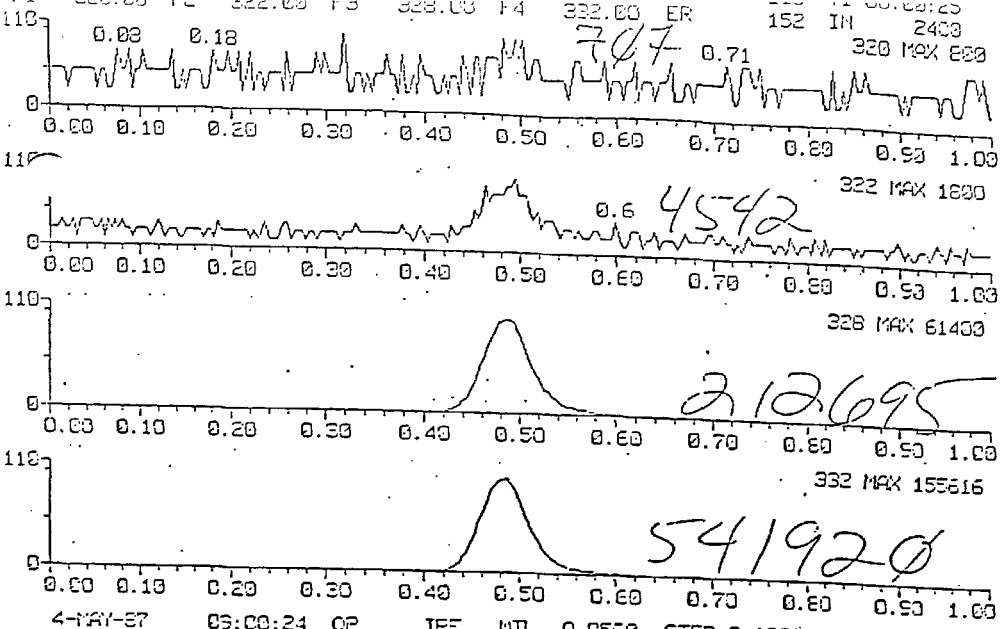


	4-MAY-87		09:05:06	CP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SW	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.995					MU	-4500.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
S	0.0	GR	0.10	CR	0.00	PE1	65.00	CG	OFF	PE3	65.00
D	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-55.00

09:05:06

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221439



3 207

021225

4-MAY-87		09:00:24	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.591					MU	-4620.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SHF	0.0	GR	0.10	CR	0.00	PE1	65.00	CG	OFF	RE3	65.00
I	0.000	ST	0.00	RO	-60.00	R1	-30.00	R2	-55.00	R3	-65.00

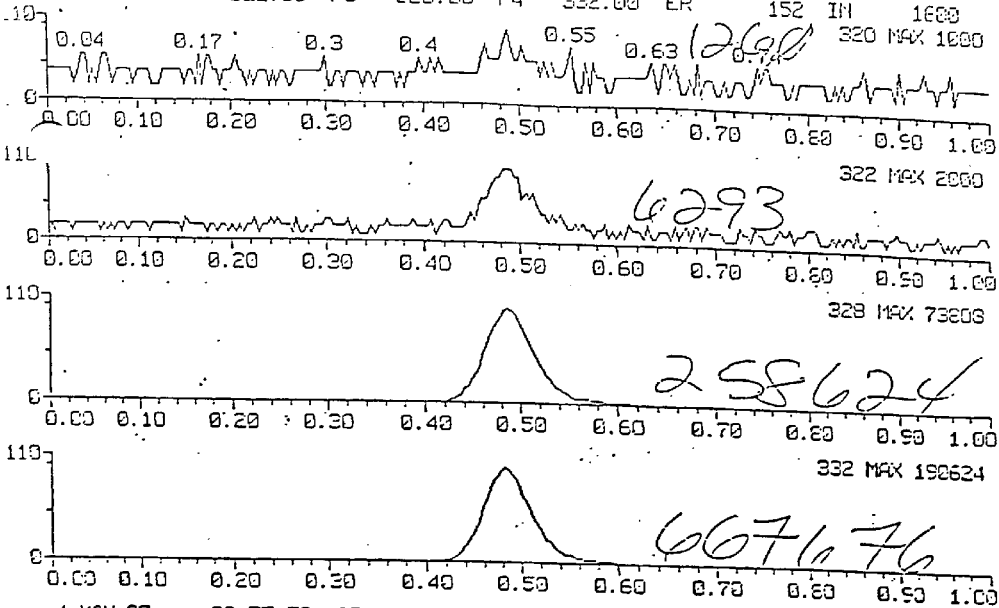
CG=SW 09:00:24

1	320	257
	322	259
	328	263
	332	258

03221440

F1 320.00 F2 322.00 F3 328.00 F4 332.00 ER 152 IN 1000

3 2075



4-MAY-87		08:55:50	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	220	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.591					MU	-4000.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
S	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DIV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

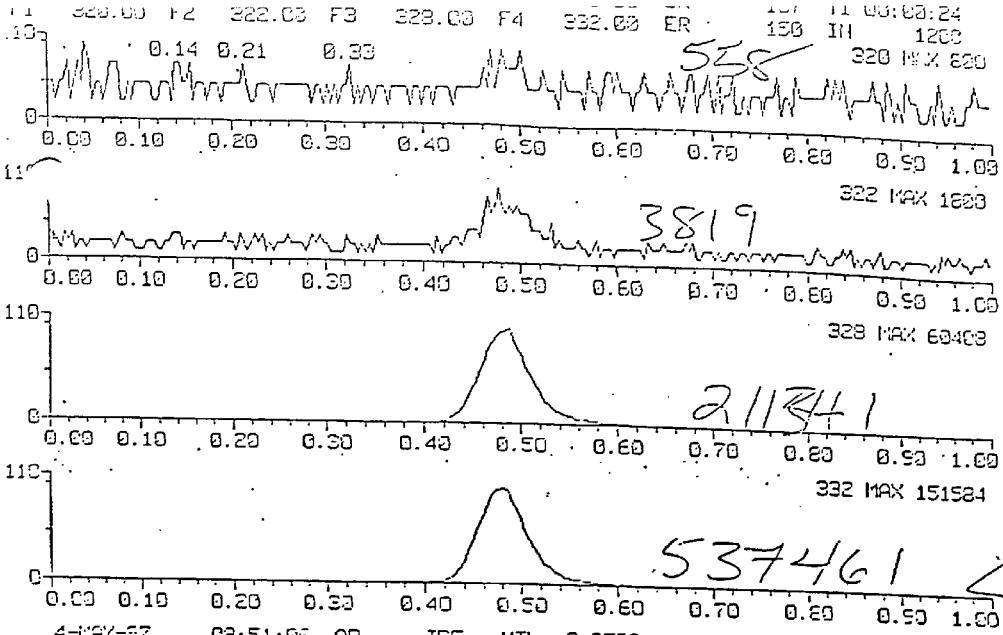
09:55:50

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

0212226

03221441

3 2076

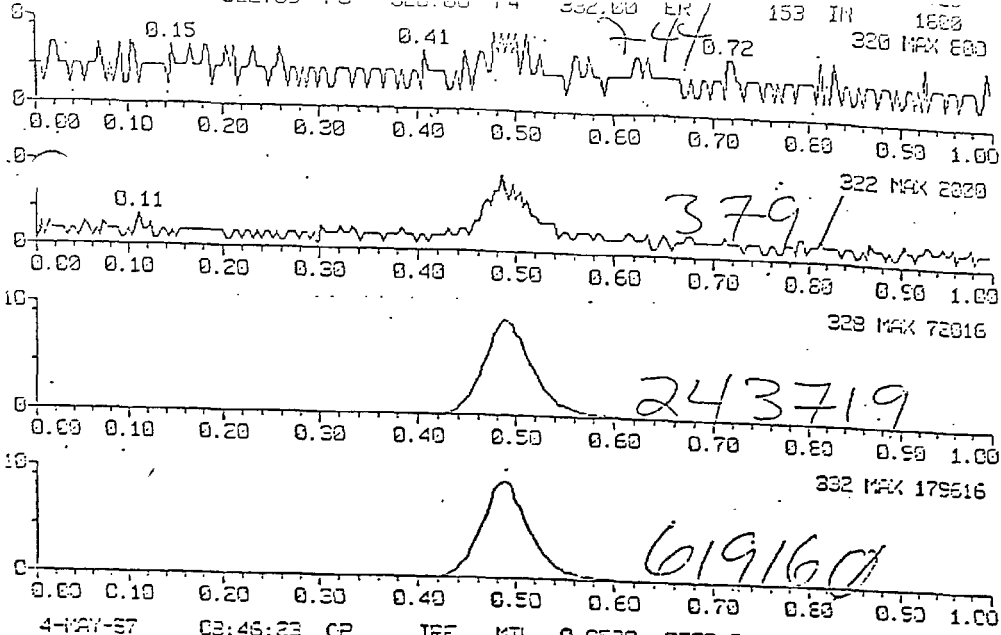


	4-MAY-87		08:51:06	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1280	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.994					MU	-4600.0
G3	0.0000	DT	0.020	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SP	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
D	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:51:06

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221442

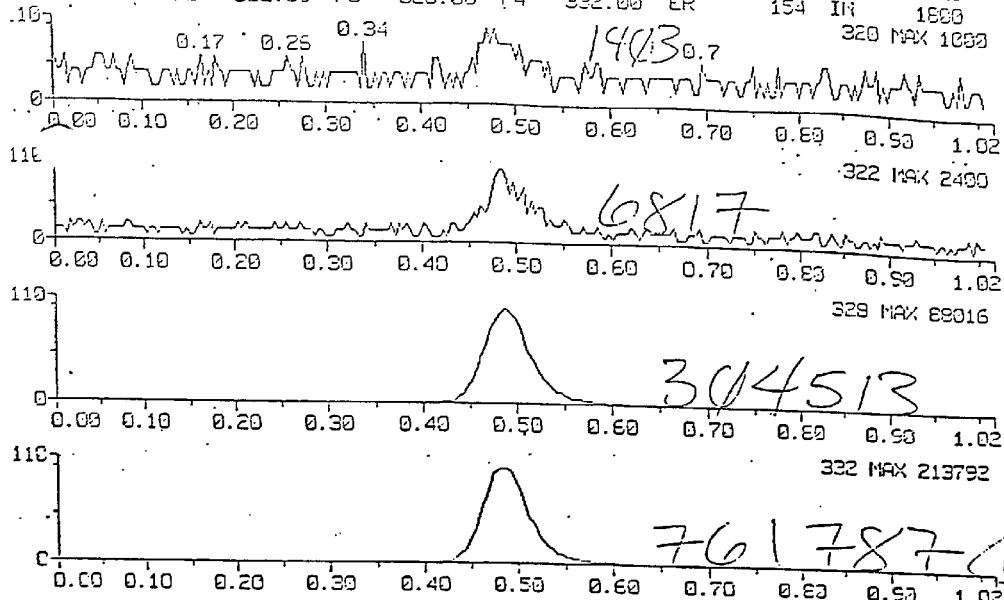


4-MAY-87		08:46:23	CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SW	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
S1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
S2	0.000	LT	0.00	DIV	-0.934					MU	-4600.0
S3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SSF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	65.00
ST	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-55.00

	CG*SW		08:46:23
1	320	257	
	322	259	
	328	263	
	332	268	

3 2078

F1	320.00	F2	322.00	F3	328.00	F4	332.00	SR	109	TI	00:00:25
								ER	154	IN	1800



021229

4-MAY-87		08:41:40		CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.010					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	IM1	0.0000	CGT	0.0	DM3	0.0000
S	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DT	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

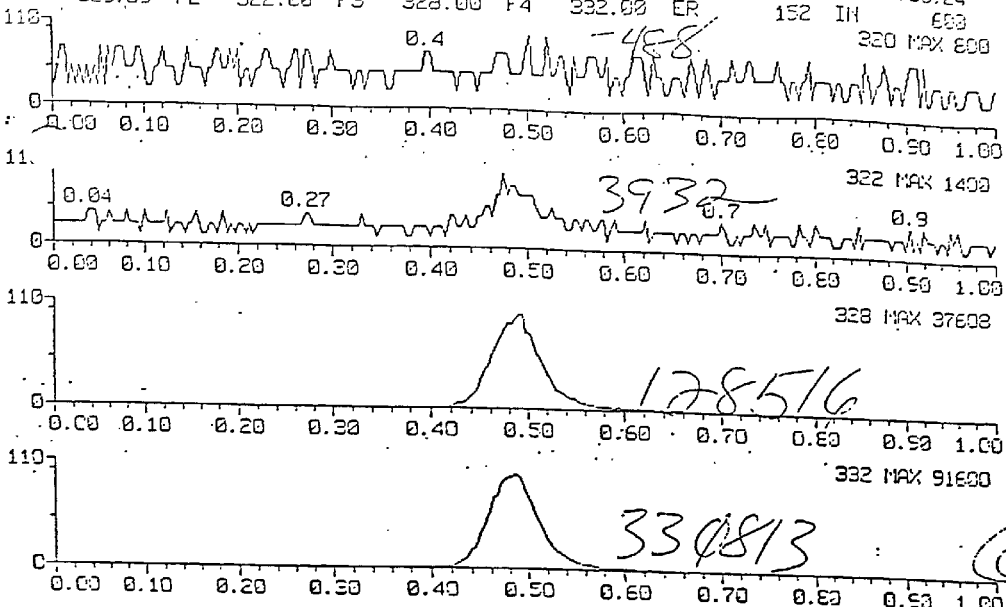
08:41:40

	CG=SN	
1	320	257
	322	259
	328	263
	332	268

03221444

F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	600

3 2079



	4-MAY-27		08:37:03	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.000					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
[illegible]	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DIV	0.000	ST	0.00	R0	-60.00	R1	-30.00	R2	-55.00	R3	-65.00

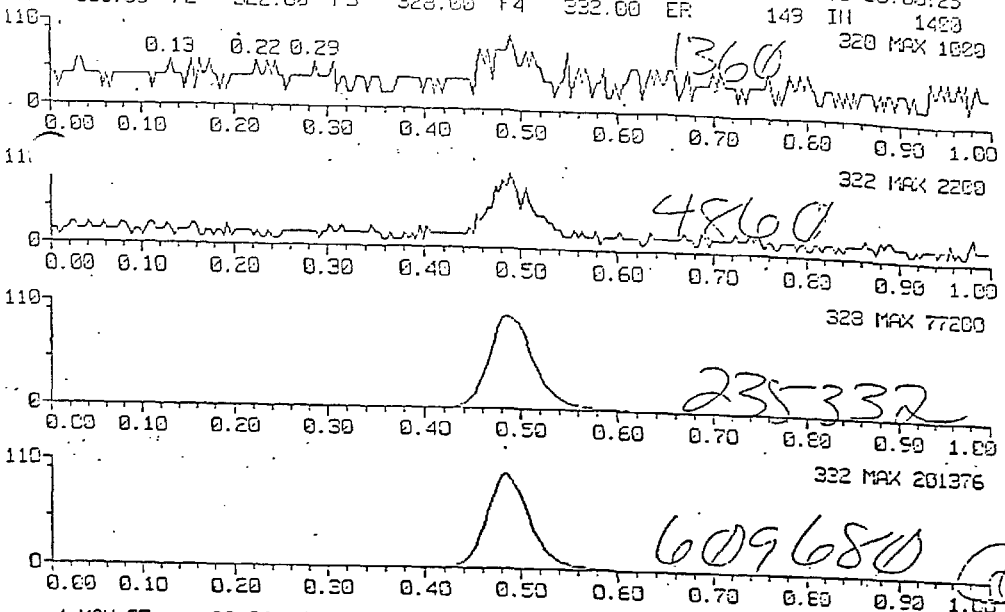
08:37:03

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221445

F1 320.00 F2 322.00 F3 328.00 F4 332.00 ER 111 149 TI 00:08:25 IN 1400

3 2080



	4-MAY-87		08:32:16	CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.986					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
S	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	65.00
D	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:32:16

CG=SW

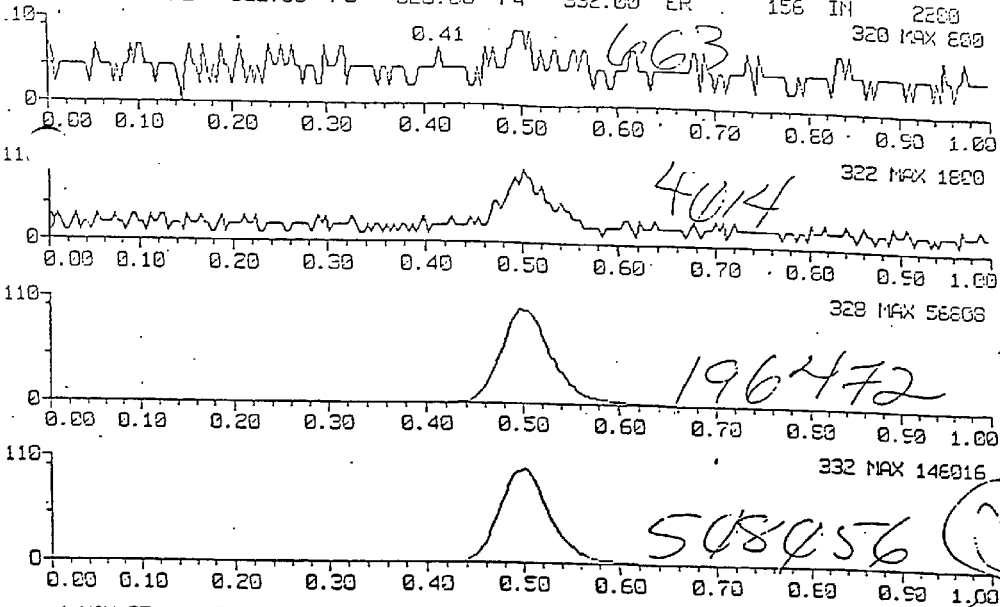
1	320	257
	322	259
	328	263
	332	258

021231

03221446

F1 320.00 F2 322.00 F3 328.00 F4 332.00 SR 114 TI 00:00:26 ER 156 IN 2200

3 2081



	4-MAY-87		08:26:35	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
S	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
D	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

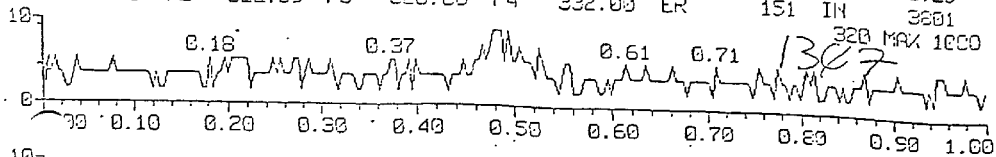
08:26:35

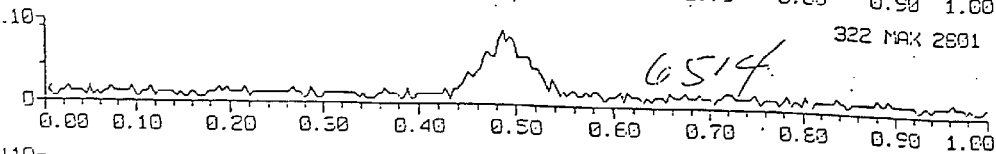
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

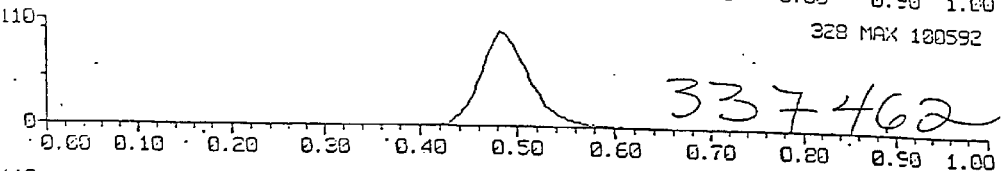
03221447

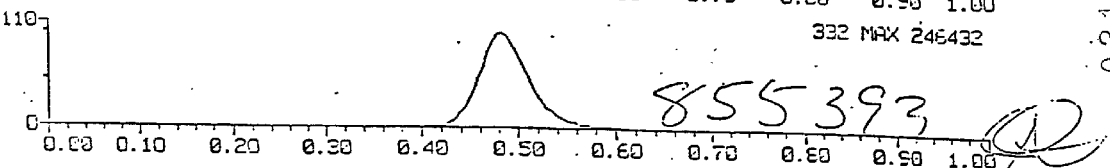
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	151	IN	3801

3 2082









	4-MAY-87		08:21:17	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.997					MU	-4600.0
G	0.0000	DT	0.000	IN	0.00	DM1	0.0200	CGT	0.0	DM3	0.0000
S	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

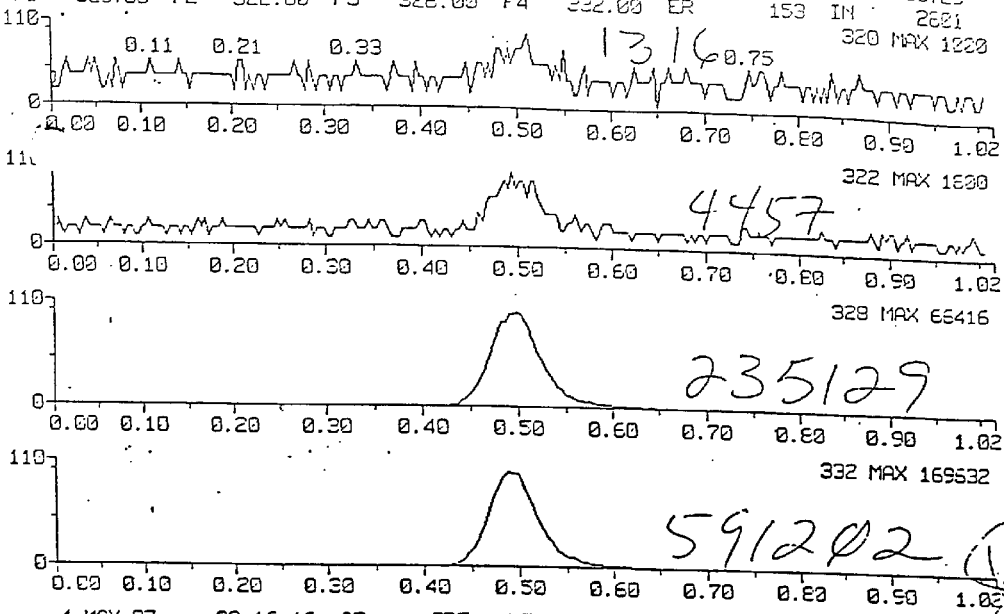
08:21:17

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221448

3 2083

F1 320.00 F2 322.00 F3 328.00 F4 332.00 ER 153 IN 2681



	4-MAY-97		08:16:16	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.994					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
S	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DIV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:16:16

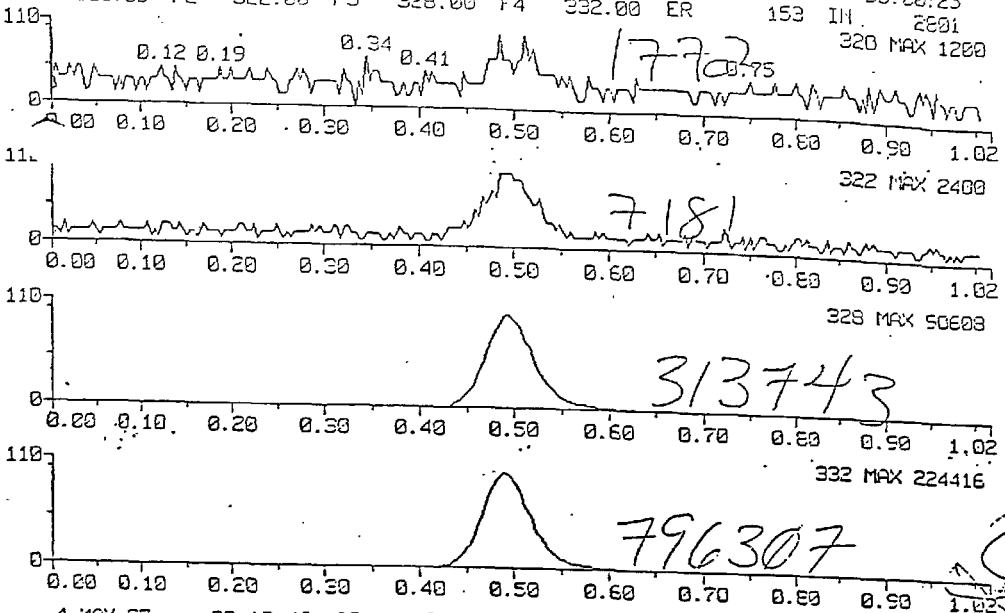
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221449

F1 320.00 F2 322.00 F3 328.00 F4 332.00 ER 153 IN 2801

TI 00:00:25

3 2084



	4-MAY-87		08:10:46	CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.004					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
S	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DIV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:10:46

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

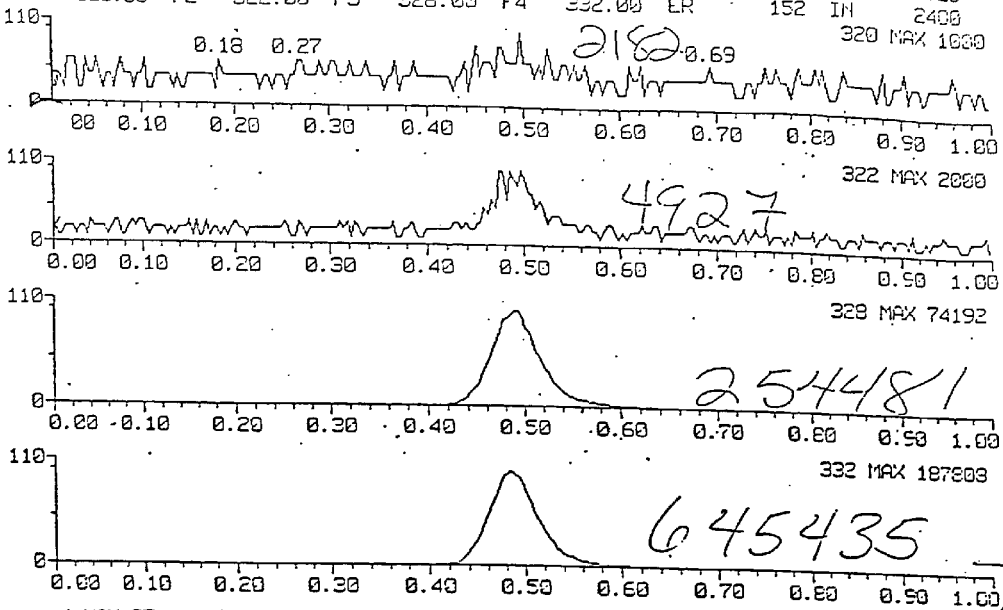
02 7235

1

03221450

	1	LS	258	BO	0	TO	110	GR		LNMP	SE	110	
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR		110	TI	00:00:25	
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER		152	IN	2400	

3 2085



0.21236

	4-MAY-87		08:05:01	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00		
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00		
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00		
G2	0.000	LT	0.00	DIV	-1.012					MU	-4600.0		
C	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000		
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00		
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00		

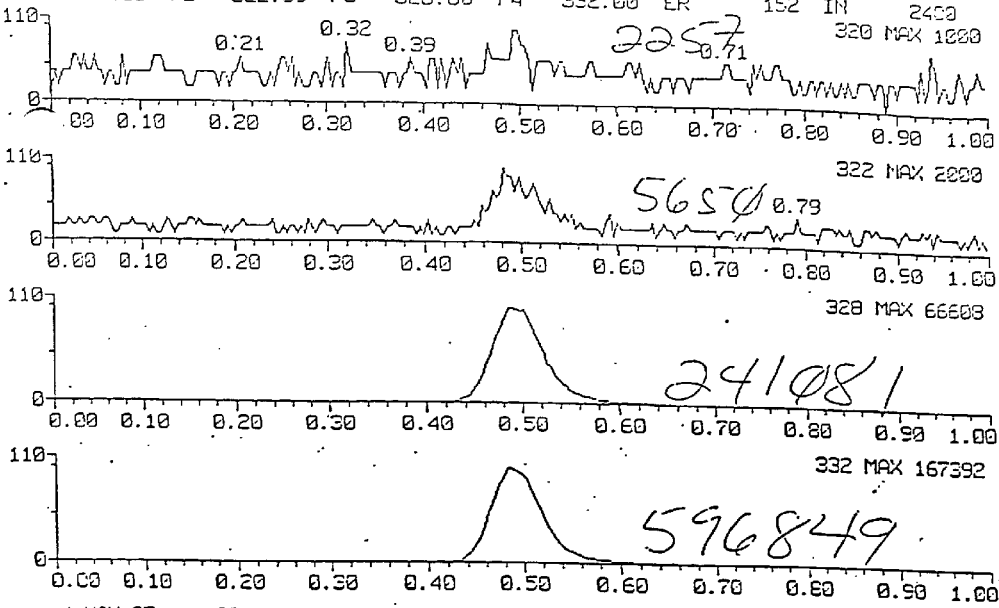
08:05:01

	CG=SN	
1	320	257
	322	259
	328	263
	332	268

03221451

3 2086

M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	111	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400



	4-MAY-87		08:00:47	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.995					MU	-4600.0
	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:00:47

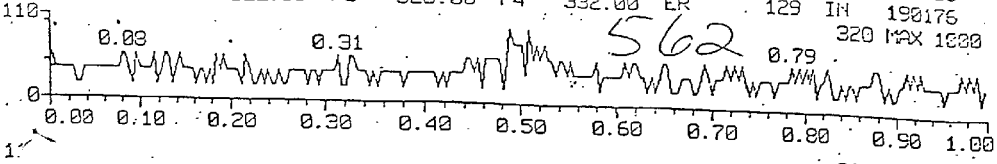
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

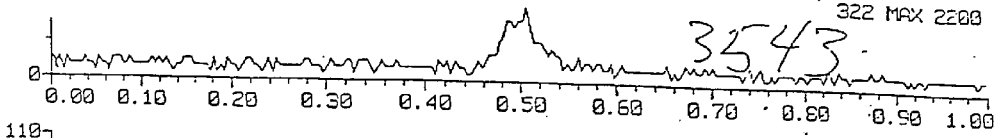
021237

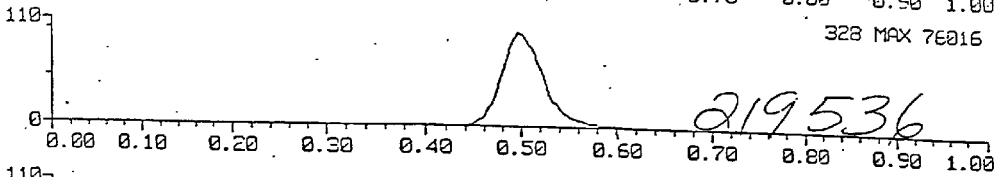
03221452

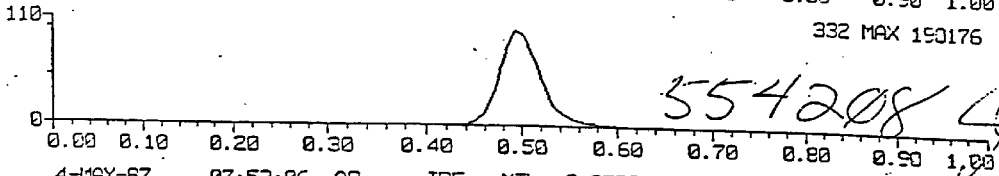
F1 320.00 F2 322.00 F3 328.00 F4 332.00 ER 129 IN 190176 TT 00:00:30

3 2087









4-MAY-67		07:53:06	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.003					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SP	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

07:53:06

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221453

ATTACHMENT 5

CHAIN OF CUSTODY, GC/MS/MS LOG, EXTRACTION RECORD

021239

INTERNATIONAL TECHNOLOGY CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. 42338

C/C Control No. 38237

PROJECT NAME/NUMBER JACKSONVILLE OFFSITE 480078

LAB DESTINATION IMS Analytical Indianapolis In

SAMPLE TEAM MEMBERS D. Simerly + D. Perry

CARRIER/WAYBILL NO. FED EXP: 9088172925

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
WH2321	Jacksonville Arkansas	08/10/88 @ 1410	SOIL	125cc GLASS		
WH2322		08/10/88 @ 1410				
WH2324		08/10/88 @ 1410				
WH2325		08/10/88 @ 1435				
WH2326		08/10/88 @ 1435				
WH2327		08/10/88 @ 1455				
WH2328		08/10/88 @ 1455				
WH2329		08/10/88 @ 1605				
WH2330		08/10/88 @ 1605				
WH2332	Jacksonville Arkansas	08/10/88 @ 1605	SOIL	125cc GLASS		

Special Instructions:

Possible Sample Hazards:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Doug Perry 08/10/88 @ 1850

   Received By: LD Settler 8-11-88 1030

2. Relinquished By:

   Received By:

3. Relinquished By:

   Received by:

4. Relinquished By:

   Received By:

03221455

3 2089

021240

WHITE - To accompany samples

INTERNATIONAL TECHNOLOGY CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. 42339

C/C Control No. 38238

PROJECT NAME/NUMBER JACKSONVILLE OFF-SITE 480078

LAB DESTINATION IMS Analytical, Indianapolis In.

SAMPLE TEAM MEMBERS D. Simerly + D Peery

CARRIER/WAYBILL NO. FED EXP 9088172925

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
WH2333	Jacksonville Arkansas	08/10/88 1644	SOIL	125CC GLASS		
WH2334		08/10/88 1644	SOIL			
WH2336		08/10/88 1710	SOIL			
WH2337		08/10/88 1710	SOIL			
WH2338		08/10/88 1715	LIQUID	125CC GLASS		
WH2339	Jacksonville Arkansas	08/10/88 1715	LIQUID	40ML VOA		

Special Instructions:

Possible Sample Hazards:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Doug Peery 08/10/88 1930
   Received By: LD Settle 8-11-88 1030
2. Relinquished By:
   Received By:
3. Relinquished By:
   Received by:
4. Relinquished By:
   Received By:

03221456

3 2090

021241

WHITE - To accompany samples

INTERNATIONAL TECHNOLOGY CORPORATION

REQUEST FOR ANALYSIS

R/A Control No. 423-0
C/C Control No. 58237

PROJECT NAME	Jacksonville Offsite	DATE SAMPLES SHIPPED	08/01/88
PROJECT NUMBER	480078.01.08.02	LAB DESTINATION	TMS Analytical Services, Inc.
PROJECT MANAGER	Dana S. Simerly	LABORATORY CONTACT	Cindy Krauss
BILL TO	Hercules, Incorporated	SEND LAB REPORT TO	Florence K. Kinoshita, Ph.D.
	1313 N. Market Street		Medical Dept.
	Wilmington, DE 19894		Hercules, Inc.
PURCHASE ORDER NO.		DATE REPORT REQUIRED	48 Hrs.
		PROJECT CONTACT	Dana S. Simerly
		PROJECT CONTACT PHONE NO.	(501) 982-1513

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions (turnaround)
WH2321	SOIL	≈ 35 g	None	2,3,7,8-TCDD GC/MS/MS	Priority
WH2322					Priority
WH2324					Normal
WH2325					Priority
WH2326					Priority
WH2327					Priority
WH2328					Priority
WH2329					Priority
WH2330					Priority
WH2332	SOIL	≈ 35 g	None	2,3,7,8-TCDD GC/MS/MS	Normal

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager)

Normal _____ Rush X (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: *(Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)*

Nonhazard _____ Flammable _____ Skin Irritant _____ Highly Toxic _____ Other PCDD/PCDF (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal)

Return to Client X Disposal by Lab _____

FOR LAB USE ONLY

Received By [signature] Date/Time 08/16/88 10:30

WHITE - Original, to accompany samples

03221457

3 2091

INTERNATIONAL TECHNOLOGY CORPORATION

REQUEST FOR ANALYSIS

R/A Control No. 2339
C/C Control No. 38238

PROJECT NAME	Jacksonville Offsite	DATE SAMPLES SHIPPED	08/10/88
PROJECT NUMBER	480078.01.08.02	LAB DESTINATION	TMS Analytical Services, Inc.
PROJECT MANAGER	Dana S. Simerly	LABORATORY CONTACT	Cindy Krauss
BILL TO	Hercules, Incorporated	SEND LAB REPORT TO	Florence K. Kinoshita, Ph.D.
	1313 N. Market Street		Medical Dept.
	Wilmington, DE 19894		Hercules, Inc.
PURCHASE ORDER NO.		DATE REPORT REQUIRED	48 Hrs.
		PROJECT CONTACT	Dana S. Simerly
		PROJECT CONTACT PHONE NO.	(501) 982-1513

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions (TURN AROUND)
WH2333	SOIL	≈35 g	None	2,3,7,8-TCDD GC/MS/MS	Priority
WH2334	SOIL	≈35 g			Priority
WH2336	SOIL	≈35 g			Priority
WH2337	SOIL	≈35 g			Priority
WH2338	LIQUID	≈50 mls			Normal
WH2339	LIQUID	≈40 mls	None	2378-TCDD GC/MS/MS	Normal

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal _____ Rush X (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard _____ Flammable _____ Skin Irritant _____ Highly Toxic _____ Other PCDD/PCDF (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client X Disposal by Lab _____

FOR LAB USE ONLY

Received By J D Little Date/Time 8-10-88 / 10:30

WHITE - Original, to accompany samples

03221458

3 2092

23 81749 [redacted] 3-2093

Date: [redacted]

From (Your Name) Please Print: [redacted]

Your Phone Number (Very Important): [redacted]

Company: I T CORP

Department/Floor No.:

Street Address: 312 DIRECTORS DRIVE

City: KNOXVILLE State: TN ZIP Required For Correct Invoicing: 37923

To (Recipient's Name) Please Print: SUZANNE HAMMER

Recipient's Phone Number (Very Important): ( )

Company: T M S ANALYTICAL SERVICES

Department/Floor No.:

Exact Street Address (Use of P.O. Boxes or P.O. • Zip Codes Will Delay Delivery And Result In Extra Charges): 637 MORENCI TRAIL

City: INDIANAPOLIS State: IN ZIP Street Address Zip Required: 46268

YOUR BILLING REFERENCE INFORMATION (FIRST 24 CHARACTERS WILL APPEAR ON INVOICE): [redacted]

HOLD FOR PICK-UP AT THIS FEDERAL EXPRESS LOCATION: Street Address (See Service Guide or Call 800-238-5355): [redacted]

City: State:

ZIP • Zip Code of Street Address Required:

PAYMENT: ☐ Bill Sender ☐ Bill Recipient's FedEx Acct. No. ☐ Bill 3rd Party FedEx Acct. No. ☐ Bill Credit Card ☐ Cash

Federal Express Use: Base Charges; Declared Value Charge; Origin Agent Charge; Other; Total Charges

SERVICES CHECK ONLY ONE BOX

1 ☐ PRIORITY 1 — Overnight Delivery Using Your Packaging. When using ICAO regulations, please mark appropriate box(es). Do not mark for CFR 49.
☐ Cargo Aircraft only
☑ Dangerous goods as per attached Dangerous Goods Transport Document

5 ☐ STANDARD AIR — Delivery not later than second business day

SERVICE COMMITMENT
PRIORITY 1 - Delivery is scheduled early next business morning in most locations. It may take two or more business days if the destination is outside our primary service areas.
STANDARD AIR - Delivery is generally next business day or not later than second business day. It may take three or more business days if the destination is outside our primary service areas.

DELIVERY AND SPECIAL HANDLING — CHECK SERVICES REQUIRED

1 ☐ HOLD FOR PICK-UP (FIB or Section 7 or right)
2 ☐ DELIVER WEEKDAY
3 ☐ DELIVER SATURDAY (Extra charge)
4 ☑ DANGEROUS GOODS (P-1 and Standard Air Packages only. Extra charge)
5 ☐ CONSTANT SURVEILLANCE SERVICE (CSS) (Extra charge) Do Not Complete Section 6
6 ☐ DRY ICE kg Use
7 ☐ OTHER SPECIAL SERVICE
8 ☐
9 ☐ SATURDAY PICK-UP (Extra charge)
10 ☐

PACKAGES	WEIGHT	YOUR DECLARED VALUE	OVER SIZE
	LBS		
	LBS		
	LBS		
	LBS		
Total	Total	Total	

Received At: 1 ☐ Regular Stop 2 ☐ On-Call Stop 3 ☐ Drop Box 4 ☐ B.S.C. Station

Federal Express Code Employee No.: [redacted]

Date/Time For Federal Express Use: 8/10/01K

Emp. No. Date: [redacted]

☐ Cash Received
☐ Return Shipment
☐ Third Party ☐ Chg. To Del. ☐ Chg. To Hold

Street Address: [redacted]

City State Zip: [redacted]

Received X: [redacted]

Date/Time Received: 8/11/89 1030 FedEx Employee Number: [redacted]

PART #2041730764 REV. 5/87 PRINTED U.S.A. NCREC

008

9088172925 AIRBILL NUMBER

SHIPPER'S CERTIFICATION FOR RESTRICTED ARTICLES/DANGEROUS GOODS

CHECK ONE ➡ ☐ 49 CFR ☐ ICAO (TYPE OR PRINT)

1	HEXANE LIMITED QUANTITY			25	

ADDITIONAL DESCRIPTION REQUIREMENTS FOR RADIOACTIVE MATERIALS (SEE BACK)

☐ WHITE I
☐ YELLOW II
☐ YELLOW III
☐ NONE

TRANSPORT DETAILS: THIS SHIPMENT IS WITHIN THE LIMITATIONS PRESCRIBED FOR ➡ PASSENGER AIRCRAFT ~~CARGO AIRCRAFT ONLY~~ (DELETE-NONAPPLICABLE)

AIRPORT OF DEPARTURE: [redacted] AIRPORT OF DESTINATION: [redacted] SHIPMENT TYPE ➡ NON-RADIOACTIVE ~~RADIOACTIVE~~ (DELETE-NONAPPLICABLE)

IF ACCEPTABLE FOR PASSENGER AIRCRAFT, THIS SHIPMENT CONTAINS RADIOACTIVE MATERIAL INTENDED FOR USE IN, OR INCIDENT TO, RESEARCH, MEDICAL DIAGNOSIS OR TREATMENT.

I HEREBY DECLARE THAT THE CONTENTS OF THIS CONSIGNMENT ARE FULLY AND ACCURATELY DESCRIBED ABOVE BY PROPER SHIPPING NAME AND ARE CLASSIFIED, PACKED, MARKED, AND LABELED, AND ARE IN ALL RESPECTS IN PROPER CONDITION FOR TRANSPORT BY AIR ACCORDING TO THE APPLICABLE INTERNATIONAL AND NATIONAL GOVERNMENT REGULATIONS.

NAME AND TITLE OF SHIPPER: [redacted] PLACE AND DATE: [redacted] 03221459

EMERGENCY TELEPHONE NUMBER: [redacted] SIGNATURE OF SHIPPER: [redacted]

SEE WARNING ON BACK

Book No.

Page No.

AUG-11Ø1	1257	CAL 1
Ø2		" "
Ø3		" "
Ø4	1613	Method Blank
Ø5	1628	Soil Blank
Ø6	1642	Soil Spike
Ø7	1653	Soil PE
Ø8	17Ø5	2321
Ø9	1716	2322
1Ø	1727	2324
11	1738	2325
12	1749	2326
13	1759	2327
14	18Ø9	2328
15	182Ø	2329
16	1832	233Ø
17	1843	2332
18	1853	2333
19	19Ø4	2334
2Ø	1915	2336
21	1926	2337 (R)
22	1937	2338 (R)
23	1948	2339 (R)

To Page No.

essed & Understood by me,

Date 8/11/88

Invented by [signature]

Recorded by

Date 03221460

: 8-1-88

IALS ADS

SHIPMENT NUMBER HER0811 A

3 2095

SAMPLE #	EPA SAMPLE #	SAMPLE WEIGHT	EXTRACTION VOLUME	OPTION A CLEANUP	OPTION D CLEANUP	SPIKING SOL'N ADDED	COMMENTS
MB	—	5.00 g	6.0 mL	✓		50 µL II	
SB	OCL34504	5.00				"	
SS	OCL35562	5.00				50 µL I	
PE	—	5.00				50 µL II	
WH2321		4.98					soil
" 2322		5.14					
" 2324		4.96					
" 2325		4.92					
" 2326		4.94					
" 2327		4.89					
" 2328		5.01					
" 2329		5.02					
" 2330		4.94					
" 2332		5.10					
" 2333		4.99					
" 2334		5.05					
" 2336		4.97					
" 2337		5.06	✓				✓
" 2338		20 mL	—				liquid
" 2339		40 mL	—	✓		✓	"

021246

03221461

3 2096

TMS ANALYTICAL SERVICES, INC.

TANDEM MASS SPECTROMETRY

6376 Morenci Trail
Indianapolis, Indiana 46268
317-291-5697

021247

August 17, 1988

Dr. Florence K. Kinoshita
Medical Department
Hercules Incorporated
1313 N. Market Street
Wilmington, DE 19894

Dear Dr. Kinoshita:

Enclosed are analytical results for the analysis of 23 samples for 2,3,7,8-TCDD. These samples were analyzed according to the procedures outlined in the USEPA Contract Laboratory Program "Statement of Work for Rapid Turnaround Dioxin Analysis in Multi-Media", November 1986. Sample preparation and analysis procedures from the "Rapid Determination of TCDD In Soil and Sediment Samples, Using Gas Chromatography and Tandem Mass Spectrometry" were used. These samples were received as Shipment HERCULES for analysis on 08/12/88 at 09:30. The analytical results of Filename HER0812A were sent by FAX at 11:30 on August 16, 1988.

If you should have any questions regarding these data or this report, please feel free to contact me at (317)291-5697.

Very truly yours,

Dennis L. Heuring, by Dah

Dennis L. Heuring, Ph.D.
President

ENCLOSURES:

03221462

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TABLE 2 DAILY CALIBRATION SUMMARY FORM

TABLE 3 INITIAL CALIBRATION SUMMARY FORM

TABLE 4 BLANK CALIBRATION SUMMARY FORM

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ATTACHMENT 2 DAILY CALIBRATION MASS CHROMATOGRAMS

ATTACHMENT 3 INITIAL CALIBRATION MASS CHROMATOGRAMS

ATTACHMENT 4 BLANK CALIBRATION MASS CHROMATOGRAMS

ATTACHMENT 5 CHAIN OF CUSTODY, GC/MS/MS LOG, EXTRACTION RECORD

021248

TCDD FINAL DATA REPORT SHEET

FILE RECEIVED DATE:
FILE RECEIVED TIME:

SITE: HER
CASE: 0812
DATE: 08/16/88

AREA #	CLIENT SAMPLE #	ANALYSIS DATE	ANALYSIS TIME	NATIVE RATIO	SURROGATE ACC	TCDD CONC.	RERUN CODE	VALID CODE	UNITS	COMMENTS
METHBLANK	METHBLNK	08/15/88	1327	1.36*	79.03	0.300 U			NG/GM	
SOILBLANK	OCL34541	08/15/88	1341	0.64*	72.16	0.300 U			NG/GM	
SOILSPIKE	OCL35553	08/15/88	1352	1.19	79.81	0.833			NG/GM	
SOIL PE	PE-B	08/15/88	1405	1.21	70.86	3.519			NG/GM	
WH2340	WH2340	08/15/88	1416	1.03	69.26	0.300 U			NG/GM	
WH2341	WH2341	08/15/88	1427	1.04	69.43	0.300 U			NG/GM	
WH2343	WH2343	08/15/88	1438	1.25*	68.40	0.300 U			NG/GM	
WH2344	WH2344	08/15/88	1451	1.07	68.90	0.300 U			NG/GM	
WH2345	WH2345	08/15/88	1503	0.62*	70.64	0.300 U			NG/GM	
WH2347	WH2347	08/15/88	1549	0.92*	71.77	0.300 U			NG/GM	
WH2348	WH2348	08/15/88	1602	0.01*	72.44	0.300 U			NG/GM	
WH2349	WH2349	08/15/88	1613	0.23*	72.64	0.300 U			NG/GM	
WH2351	WH2351	08/15/88	1625	0.32*	72.48	0.300 U			NG/GM	
WH2352	WH2352	08/15/88	1636	0.34*	66.83	0.300 U			NG/GM	
WH2353	WH2353	08/15/88	1650	1.20	67.18	6.939			NG/GM	
[illegible]54	WH2354	08/15/88	1702	1.20	64.31	6.651			NG/GM	
[illegible]55	WH2355	08/15/88	1714	1.21	69.72	11.577			NG/GM	
WH2357	WH2357	08/15/88	1726	1.21	68.97	5.128			NG/GM	
WH2358	WH2358	08/15/88	1737	1.10	69.51	0.300 U			NG/GM	
WH2359	WH2359	08/15/88	1748	0.60*	72.12	0.300 U			NG/GM	
WH2360	WH2360	08/15/88	1801	0.87*	69.54	0.300 U			NG/GM	
WH2362	WH2362	08/15/88	1816	1.15	71.35	0.300 U			NG/GM	
WH2363	WH2363	08/15/88	1827	1.01	70.13	0.300 U			NG/GM	
WH2365	WH2365	08/15/88	1840	0.88*	69.86	0.300 U			NG/GM	

QUALIFICATION FLAGS:

* 257/259 RATIO OUTSIDE OF ACCEPTABLE RANGE
** SURROGATE OUTSIDE OF ACCEPTABLE RANGE
*** HIGH DETECTION LIMIT

RERUN CODES:

A AUTOMATIC RERUN
R REQUESTED RERUN

GC/MS/MS WORKSHEET REPORT FORM

SITE: HER
CASE: 0812
DATE: 08/16/88

SURROGATE CONC 0.06 RF NATIVE 2.109 ION RATIO: 1.009 TO 1.233
INTERNAL STD CONC 1.05 RF SURROGATE 2.083 CORRECTION FACTOR: 0.010

LAB SAMPLE #	AREA #	CLIENT SAMPLE #	ANALYSIS DATE	ANALYSIS TIME	SAMPLE AMOUNT	ION 257	ION 259	ION 263	ION 268	RATIO 257/259	SURR ACC	RAW VALUE	UNITS
AUG1506	METHBLANK	METHBLNK	08/15/88	1327	5.00	1112	816	43187	131114	1.36	79.03	0.012	NG/GM
AUG1507	SOILBLANK	OCL34541	08/15/88	1341	5.00	5406	8520	216500	719843	0.64	72.16	0.023	NG/GM
AUG1508	SOILSPIKE	OCL35553	08/15/88	1352	5.00	220082	185100	375425	1121841	1.19	79.81	0.833	NG/GM
AUG1509	SOIL PE	PE-B	08/15/88	1405	5.00	683190	564661	254012	835350	1.21	70.86	3.519	NG/GM
AUG1510	WH2340	WH2340	08/15/88	1416	5.08	19816	19234	176945	612394	1.03	69.26	0.126	NG/GM
AUG1511	WH2341	WH2341	08/15/88	1427	4.86	16657	15993	207455	716536	1.04	69.43	0.088	NG/GM
AUG1512	WH2343	WH2343	08/15/88	1438	5.05	15314	12213	211121	740190	1.25	68.40	0.065	NG/GM
AUG1513	WH2344	WH2344	08/15/88	1451	4.93	18273	17109	200229	696768	1.07	68.90	0.099	NG/GM
AUG1514	WH2345	WH2345	08/15/88	1503	5.25	8015	12994	216230	734382	0.62	70.64	0.043	NG/GM
AUG1517	WH2347	WH2347	08/15/88	1549	4.86	12715	13808	172536	576497	0.92	71.77	0.089	NG/GM
AUG1518	WH2348	WH2348	08/15/88	1602	4.96	26	3673	109412	362478	0.01	72.44	0.001	NG/GM
AUG1519	WH2349	WH2349	08/15/88	1613	4.99	1519	6589	235287	777334	0.23	72.64	0.002	NG/GM
AUG1520	WH2351	WH2351	08/15/88	1625	4.91	2432	7633	301986	999868	0.32	72.48	0.001	NG/GM
31521	WH2352	WH2352	08/15/88	1636	4.94	5240	15204	500888	1798572	0.34	66.83	0.004	NG/GM
AUG1522	WH2353	WH2353	08/15/88	1650	5.13	2183807	1819419	395590	1329011	1.20	67.18	6.939	NG/GM
AUG1523	WH2354	WH2354	08/15/88	1702	5.07	907431	754784	165880	582438	1.20	64.31	6.651	NG/GM
AUG1524	WH2355	WH2355	08/15/88	1714	4.96	1052258	869391	126391	395950	1.21	69.72	11.577	NG/GM
AUG1525	WH2357	WH2357	08/15/88	1726	5.19	585647	484724	142752	474738	1.21	68.97	5.128	NG/GM
AUG1526	WH2358	WH2358	08/15/88	1737	4.96	26123	23740	165415	570148	1.10	69.51	0.186	NG/GM
AUG1527	WH2359	WH2359	08/15/88	1748	4.99	6095	10184	202782	674599	0.60	72.12	0.034	NG/GM
AUG1528	WH2360	WH2360	08/15/88	1801	4.99	11617	13385	191826	661626	0.87	69.54	0.067	NG/GM
AUG1529	WH2362	WH2362	08/15/88	1816	5.18	20395	17704	242794	815903	1.15	71.35	0.085	NG/GM
AUG1530	WH2363	WH2363	08/15/88	1827	5.02	23621	23377	308304	1054268	1.01	70.13	0.082	NG/GM
AUG1531	WH2365	WH2365	08/15/88	1840	4.99	17205	19642	213731	733645	0.88	69.86	0.096	NG/GM

TABLE 3 GC/MS/MS DAILY CALIBRATION CHECK

MEAN NATIVE RF	2.109	NATIVE CONC.	0.20	SITE:	HER
MEAN SURROGATE RF	2.083	SURROGATE CONC.	0.06	DATE:	08/16/88
ION RATIO RANGE	1.009 TO 1.233	INTERNAL STD. CONC .	1.05	CASE:	0812

ANALYSIS DATE	ANALYSIS TIME	ION 257	ION 259	ION 263	ION 268	RATIO 257/259	RF NATIVE	NATIVE RF %DIFF.	RF SURROGATE	SURROGATE RF % DIFFERENCE	COMMENTS
08/15/88	1312	33475	30896	23429	163918	1.083	2.062	2.23	2.463	18.24	

* ION RATIO MUST BE WITHIN ACCEPTABLE RANGE OF INITIAL CALIBRATION
** NATIVE % DIFFERENCE MUST BE LESS THAN 10% FROM INITIAL CALIBRATION

TABLE 1 GC/MS/MS INITIAL CALIBRATION

SITE CODE: HER
CASE: 0812
DATE: 10/13/87

SOLUTION ID	ION 257	ION 259	ION 263	ION 268	NATIVE CONC	SURROGATE CONC	INT. STD CONC	RF NATIVE	RF SURROGATE	RATIO 257/259	COMMENTS
CC1-1	73881	67752	43569	345176	0.20	0.06	1.05	2.154	2.168	1.090	
CC1-2	76844	69768	45279	362015	0.20	0.06	1.05	2.126	2.149	1.101	
CC1-3	82583	73708	47294	382379	0.20	0.06	1.05	2.146	2.124	1.120	
							MEAN	2.142			
							STD DEV	0.014			
							% RSD	0.65			
CC2-1	324838	283704	77330	301890	1.00	0.11	1.05	2.117	2.334	1.145	
CC2-2	358491	321128	85961	323744	1.00	0.11	1.05	2.204	2.420	1.116	
CC2-3	334056	291974	79920	312887	1.00	0.11	1.05	2.101	2.328	1.144	
							MEAN	2.141			
							STD DEV	0.055			
							% RSD	2.57			
CC3-1	1081980	966175	92814	208328	5.00	0.20	1.05	2.065	2.044	1.120	
CC3-2	1989496	1775627	177692	387550	5.00	0.20	1.05	2.040	2.116	1.120	
CC3-3	2046320	1823272	181766	401030	5.00	0.20	1.05	2.026	2.090	1.122	
							MEAN	2.044	2.083		
							STD DEV	0.020	0.036		
							% RSD	0.97	1.73		

RF NATIVE OVERALL MEAN 2.109
STD DEV 0.056
% RSD 2.674

RF SURROGATE OVERALL MEAN 2.083
STD DEV 0.036
% RSD 1.728

OVERALL RATIO 257/259 MEAN: 1.121
RANGE: 1.009 TO 1.233

* RF NATIVE % RELATIVE STANDARD DEVIATION MUST BE LESS THAN 10%
** RATIO OF 257/259 OUTSIDE OF ACCEPTABLE RANGE

021252

TABLE 2 BLANK SUMMARY FORM

SITE: HEF CASE : 0812 DATE: 05/04/87

SOLUTION ID	ION 257	ION 259	ION 268	BLANK RESPONSE	NATIVE CONC
1	355	5301	715479	0.008	0.019
2	1500	6454	766148	0.010	0.025
3	981	3057	526670	0.008	0.018
4	1303	5610	906231	0.008	0.018
5	1825	4805	727729	0.009	0.022
6	2058	5231	653736	0.011	0.026
7	707	4542	541920	0.010	0.023
8	1260	6293	667676	0.011	0.027
9	558	3819	537461	0.008	0.019
10	744	3791	619160	0.007	0.017
11	1403	6817	761787	0.011	0.026
12	1	3932	330813	0.012	0.028
13	1360	4860	609680	0.010	0.024
14	663	4014	508056	0.009	0.022
15	1307	6514	855393	0.009	0.022
16	1316	4457	591202	0.010	0.023
17	1772	7181	796307	0.011	0.027
18	2182	4927	645435	0.011	0.026
19	2257	5650	596849	0.013	0.031
20	562	3543	554208	0.007	0.018

CORRECTION FACTOR = 0.010
LIMIT OF DETECTION = 0.014

* LIMIT OF DETECTION MUST BE LESS THAN 0.3

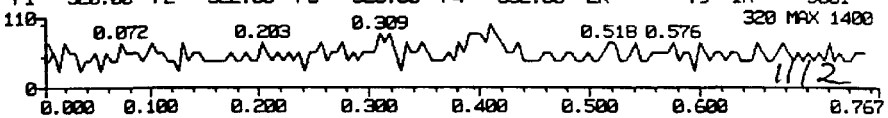
021253

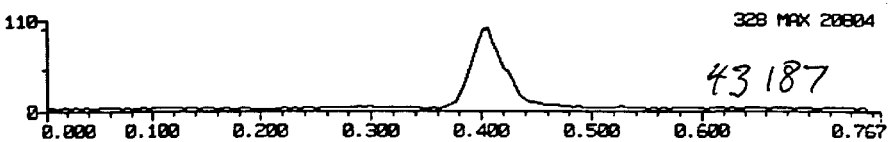
021254

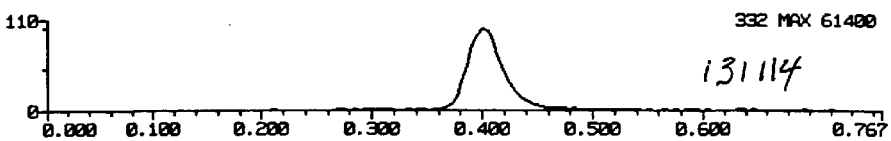
ATTACHMENT 1

SAMPLE MASS CHROMATOGRAMS

AUG1506	1	MIMI				METHOD BLANK					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	5001







15-AUG-88		13:27:39		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.200					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

13:27:39

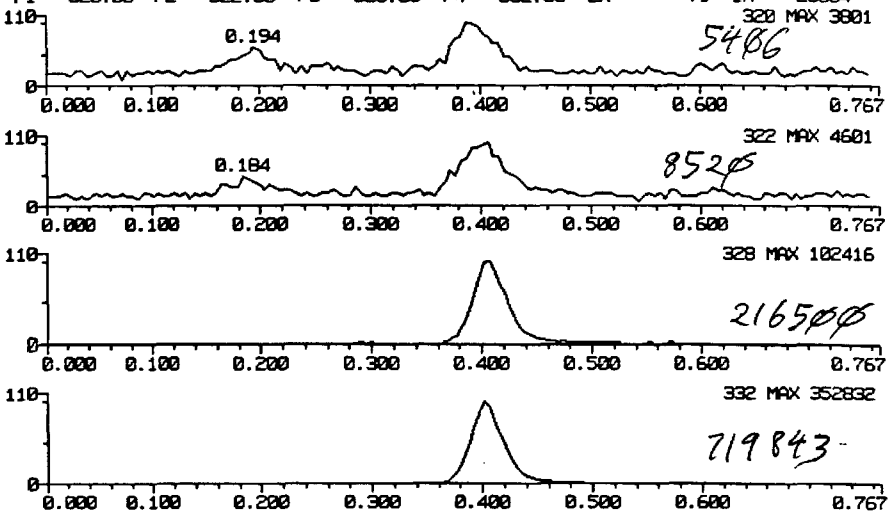
	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

KEM.

021255

03221470

AUG1507	1	MIMI				SOIL BLANK							IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79		
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	26004		



15-AUG-88		13:41:10		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.210					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

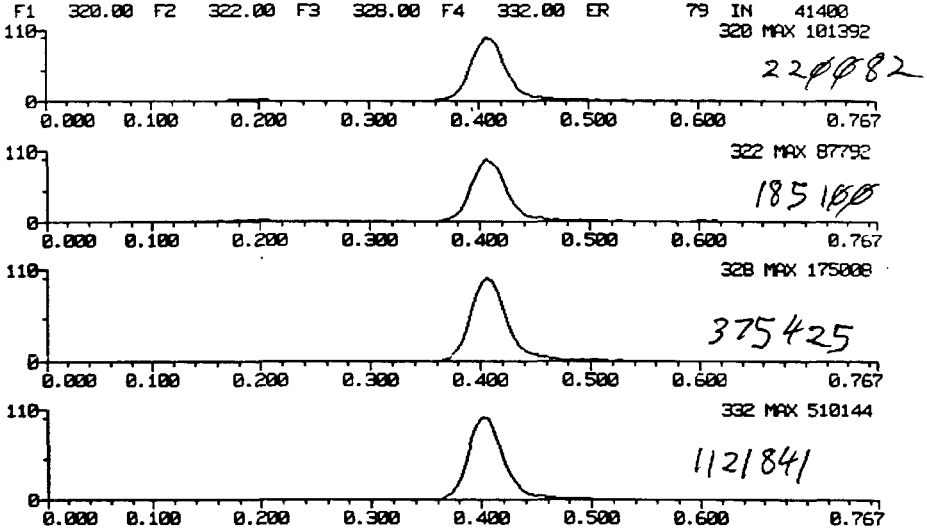
13:41:10

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

0212256

AUG1508 1 MIMI SOIL SPIKE IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	41400



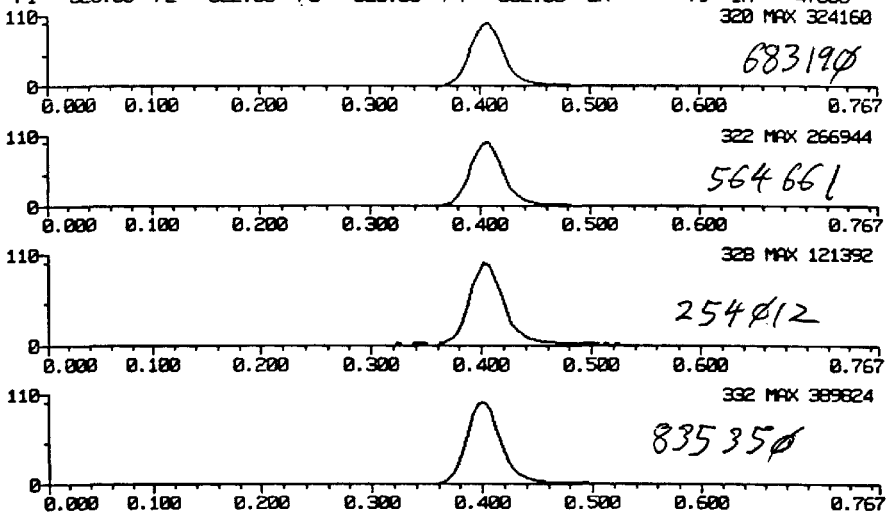
	15-AUG-88		13:52:01	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.170					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

13:52:01

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021257

AUG1509	1	MIMI					SOIL PE						IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79		
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	47608		



15-AUG-88		14:05:17	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00	
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.200					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

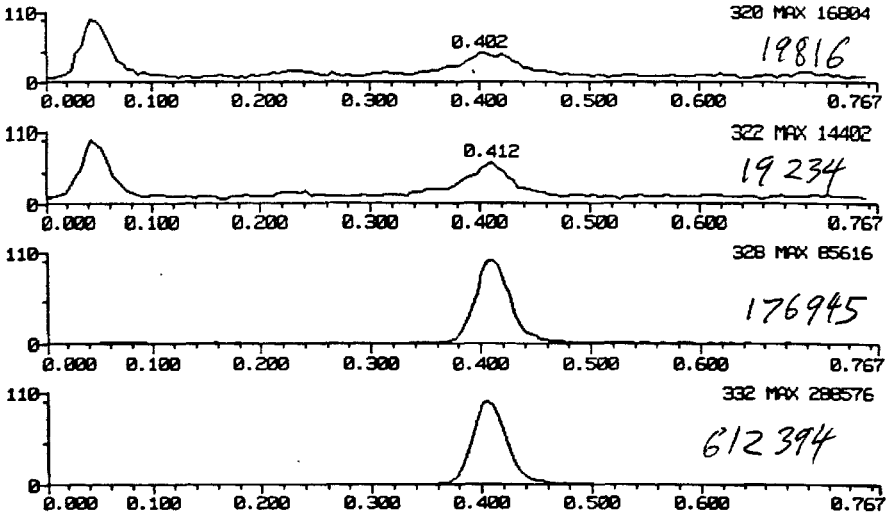
14:05:17

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

0212258

AUG1510 1 MIMI 2340 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	12202



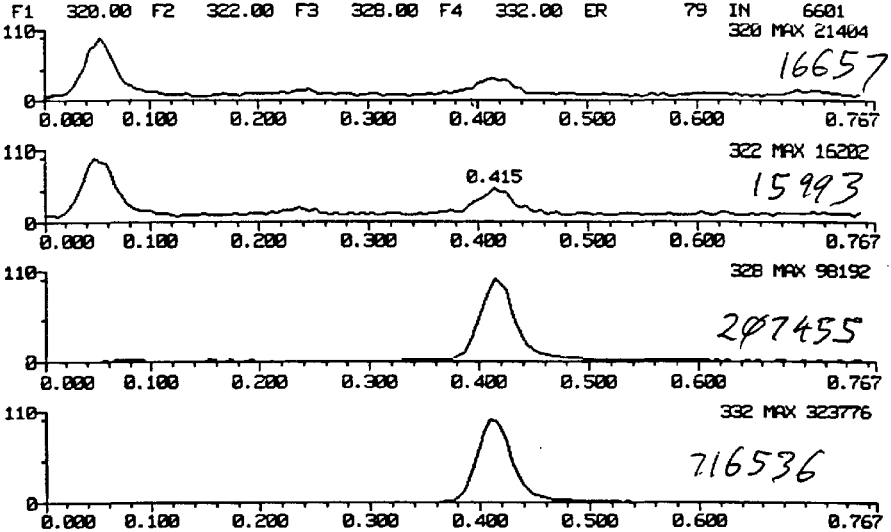
15-AUG-88		14:16:31		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.230					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

14:16:31

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021259

AUG1511	1	MIMI				2341					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	6601



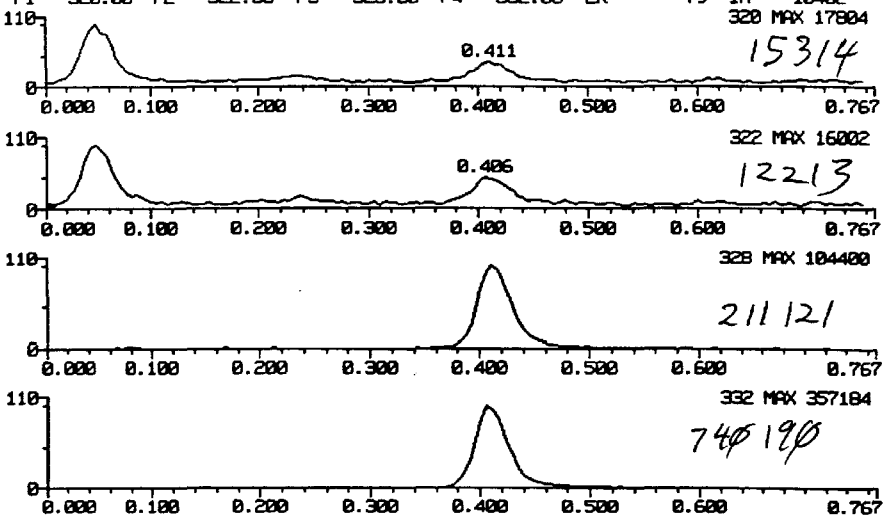
15-AUG-88		14:27:39	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.250					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

14:27:39

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021260

AUG1512	1	MIMI				2343							IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79		
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	10402		



15-AUG-88		14:38:30	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00	
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.170					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

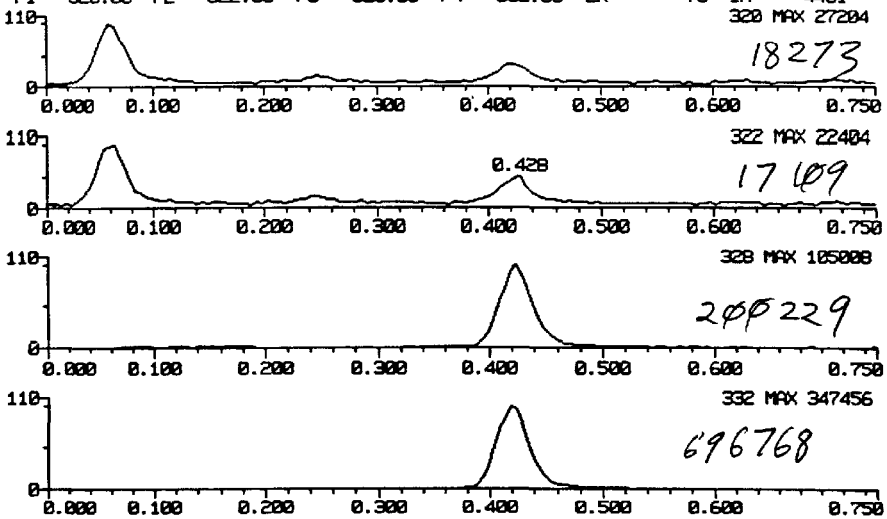
14:38:30

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021261

AUG1513 1 MIMI 2344 IM

SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	78
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	4401



15-AUG-88		14:51:09		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.210					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

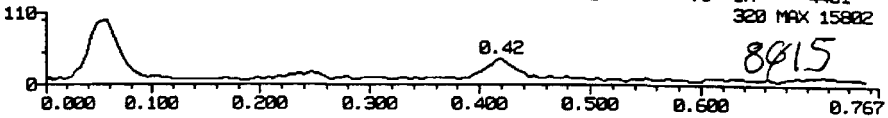
14:51:09

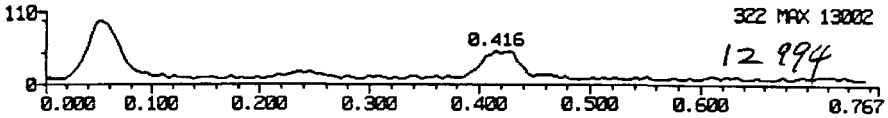
	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

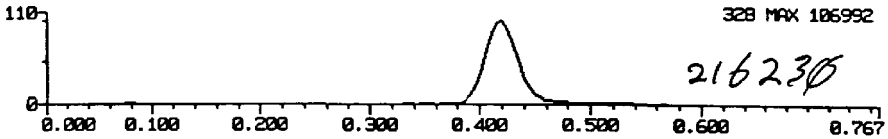
021262

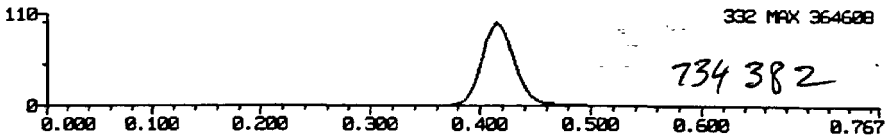
AUG1514 1 MIMI 2345 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	4401









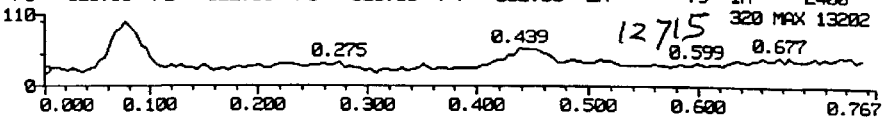
15-AUG-88		15:03:51		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.200					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

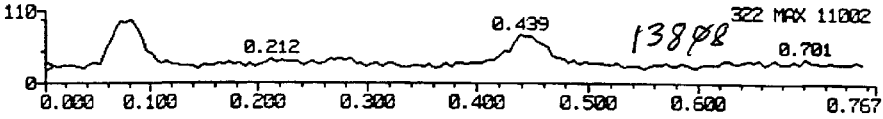
15:03:51

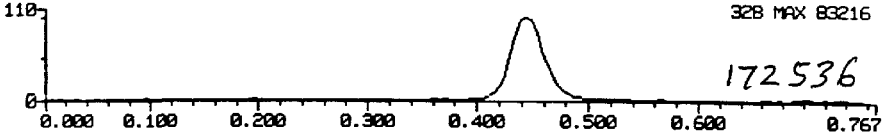
	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

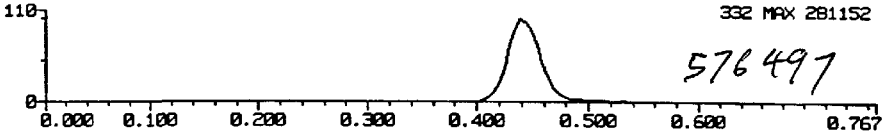
021263

AUG1517	1	MIMI				2347					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	2400









15-AUG-88		15:49:14		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.210					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

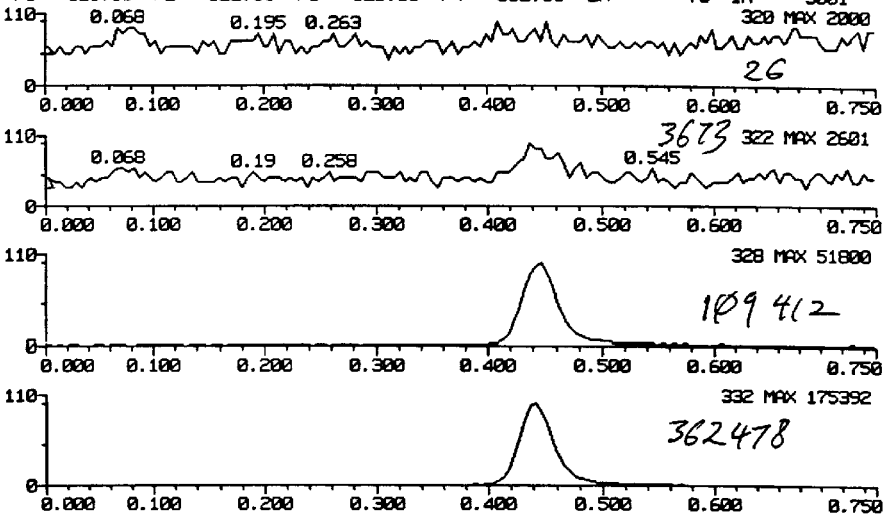
15:49:14

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021264

AUG1518 1 MIMI 2348 IM

SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	78
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	3001



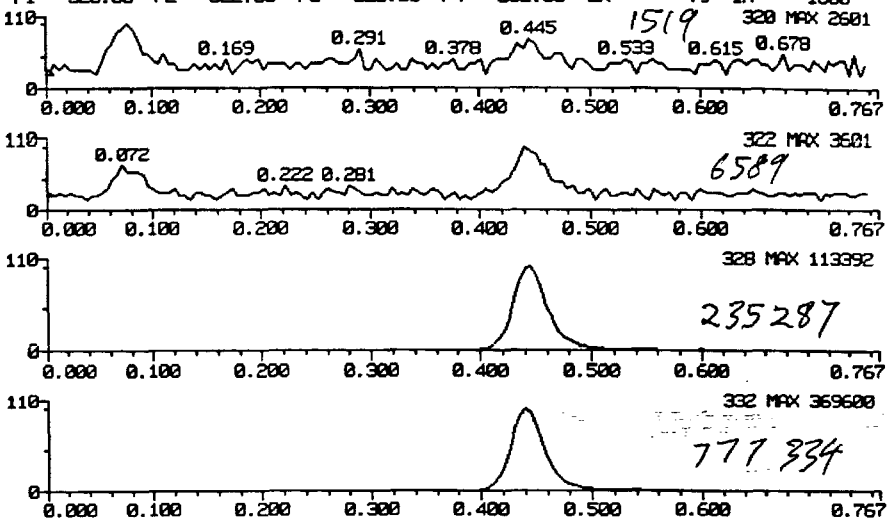
15-AUG-88		16:02:22		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.230					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:02:22

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021265

AUG1519	1	MIMI				2349					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	1600



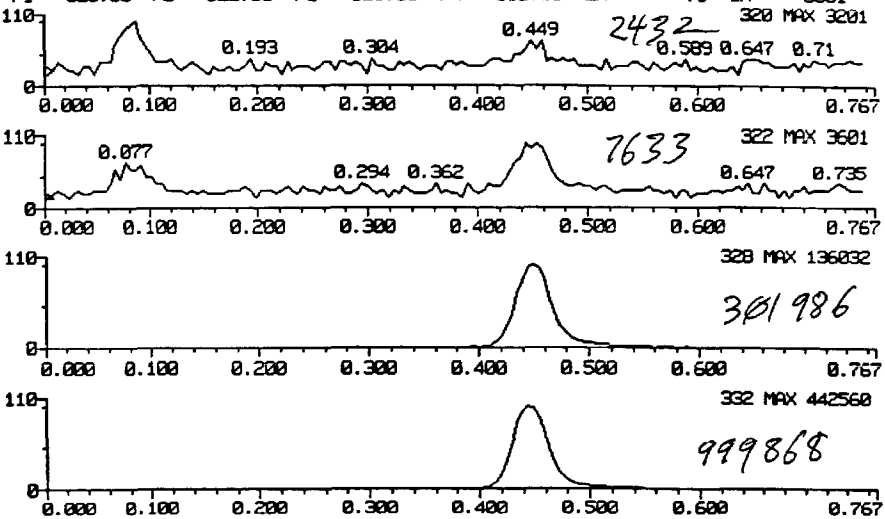
15-AUG-88		16:13:35		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.200					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:13:35

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021266

AUG1520	1	MIMI				2351					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	3001



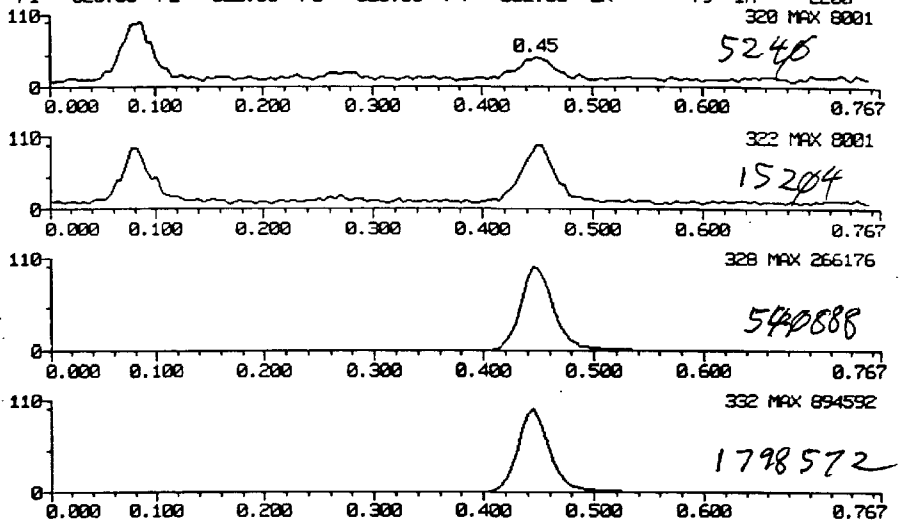
15-AUG-88		16:25:32		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.240					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:25:32

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021267

AUG1521	1	MIMI				2352					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	2200

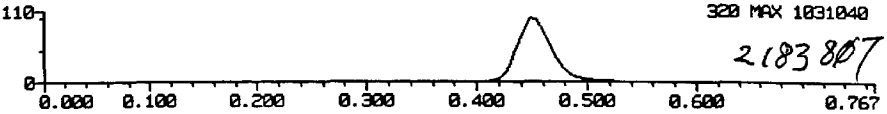


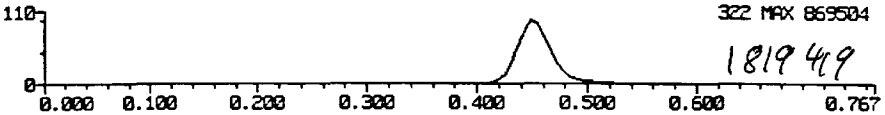
15-AUG-88		16:36:36		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.260					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

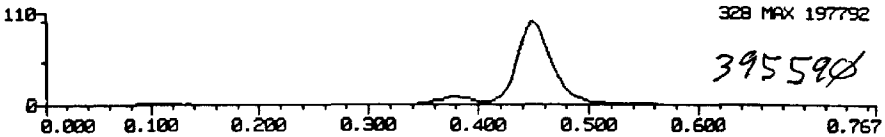
16:36:36

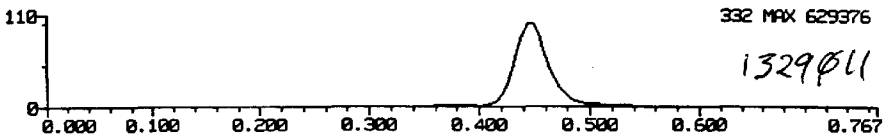
	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG1522	1	MIMI				2353					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	15802









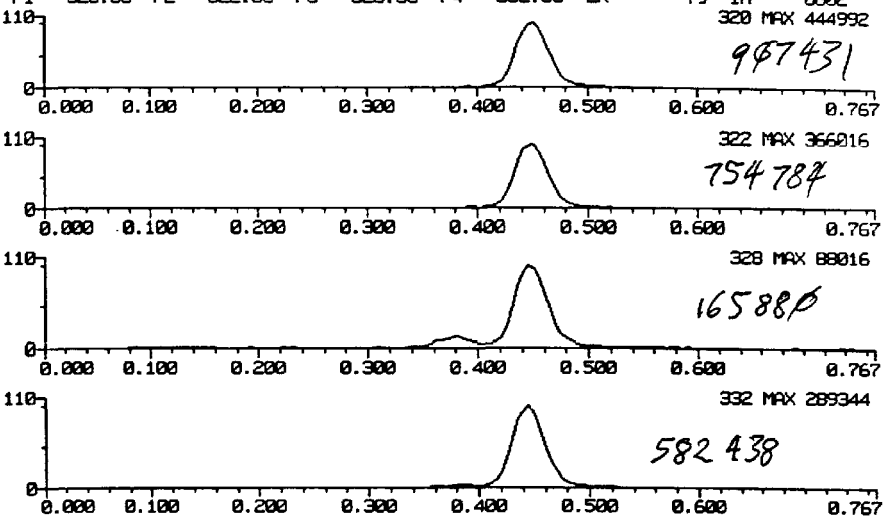
15-AUG-88		16:50:14		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.230					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:50:14

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021260

AUG1523	1	MIMI				2354					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	8602



15-AUG-88		17:02:37		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.240					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

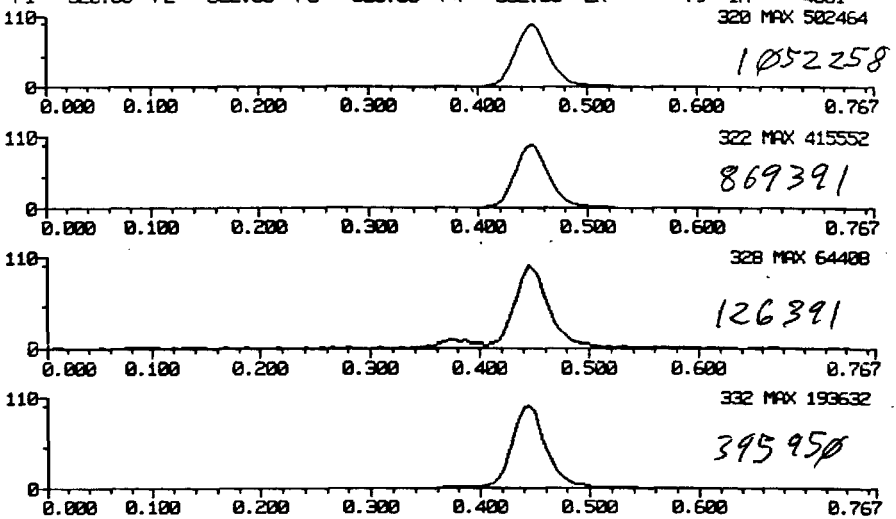
17:02:37

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021270

AUG1524 1 MIMI 2355 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	4001



15-AUG-88		17:14:43		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.170					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

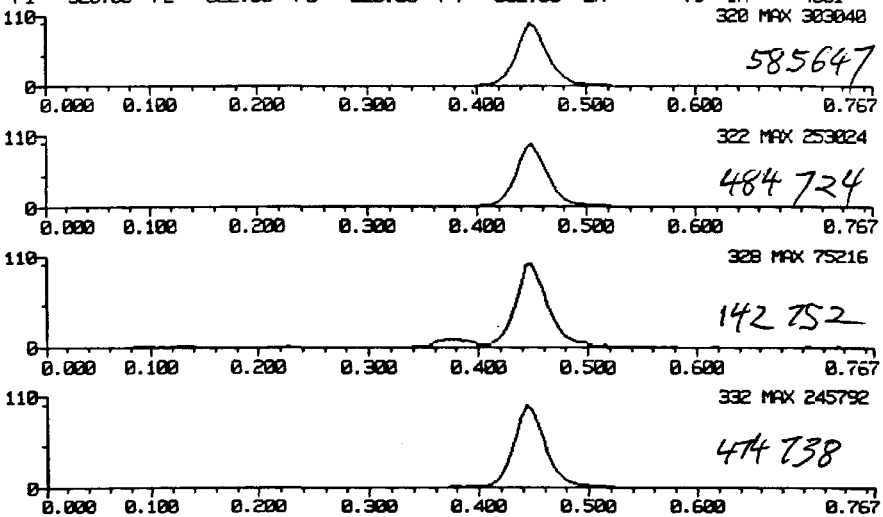
17:14:43

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021271

03221486

AUG1525	1	MIMI				2357					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	4001



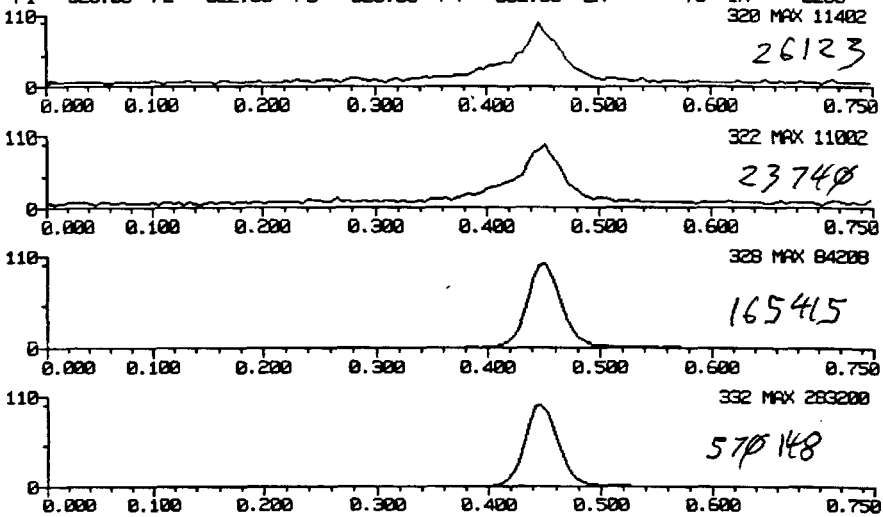
15-AUG-88		17:26:16		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.260					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:26:16

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG1526 1 MIMI 2358 IM

SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	78
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	2200



15-AUG-88		17:37:47		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.210					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

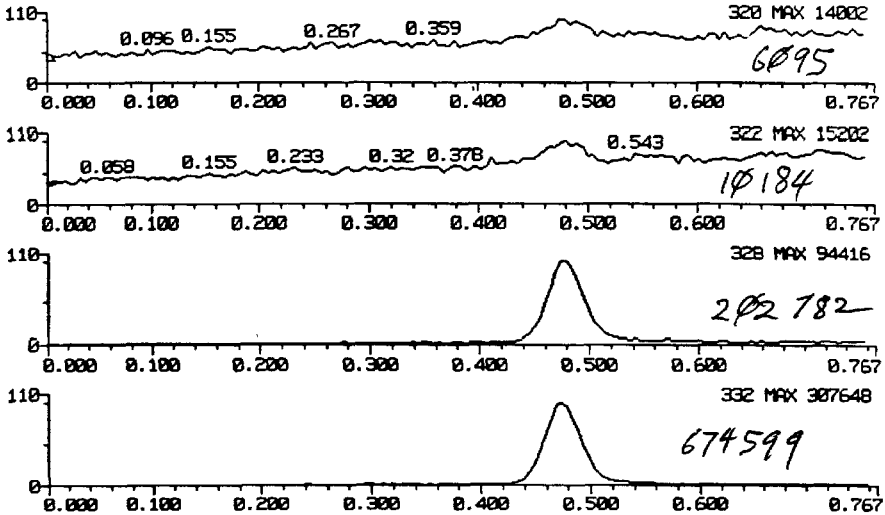
17:37:47

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021273

AUG1527 1 MIMI 2359 IM

SS	1	E5	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	6401



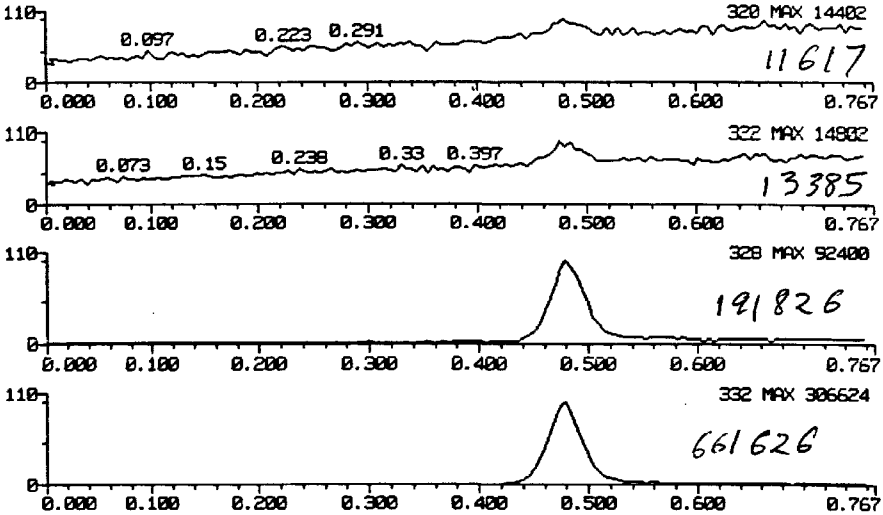
15-AUG-88		17:48:17		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.300					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:48:17

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021274

AUG1528	1 MIMI				2360						IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	4601



15-AUG-88		18:01:44		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.210					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

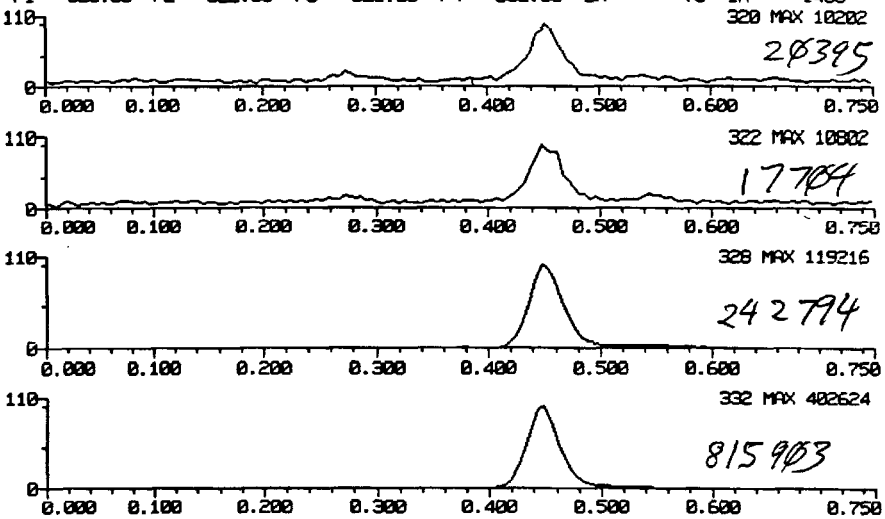
18:01:44

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021275

AUG1529 1 MIMI 2362 IM

SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	78
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	1400



15-AUG-88		18:16:33		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.150					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

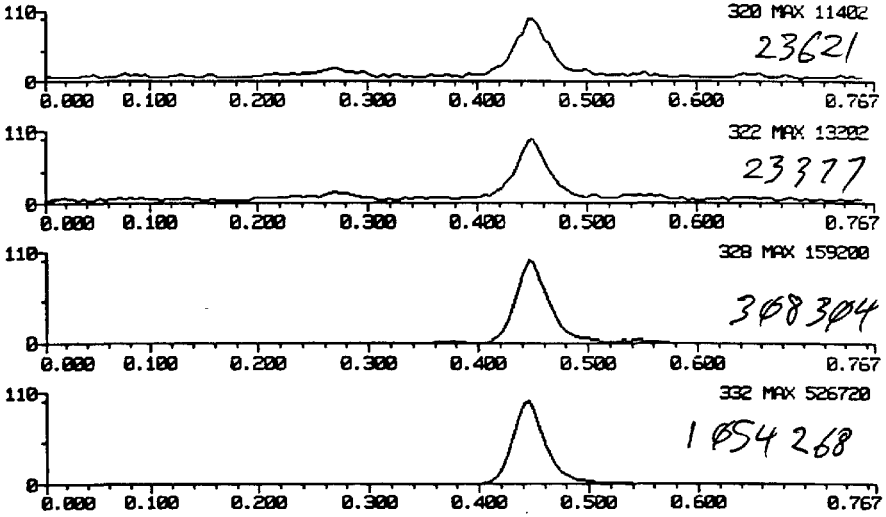
18:16:33

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021276

AUG1530 1 MIMI 2363 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	2200



15-AUG-88		18:27:45		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.260					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

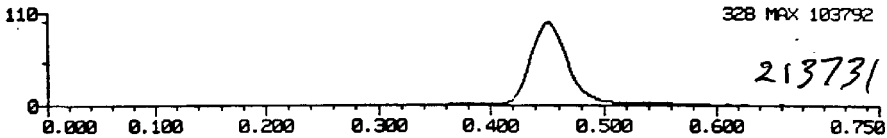
18:27:45

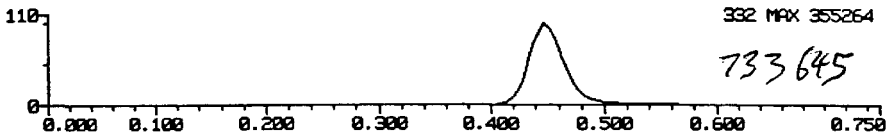
	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021277

03221492

AUG1531	1 MIMI					2365					IM
SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	78
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	2601





15-AUG-88		18:40:17		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.210					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

18:40:17

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021278

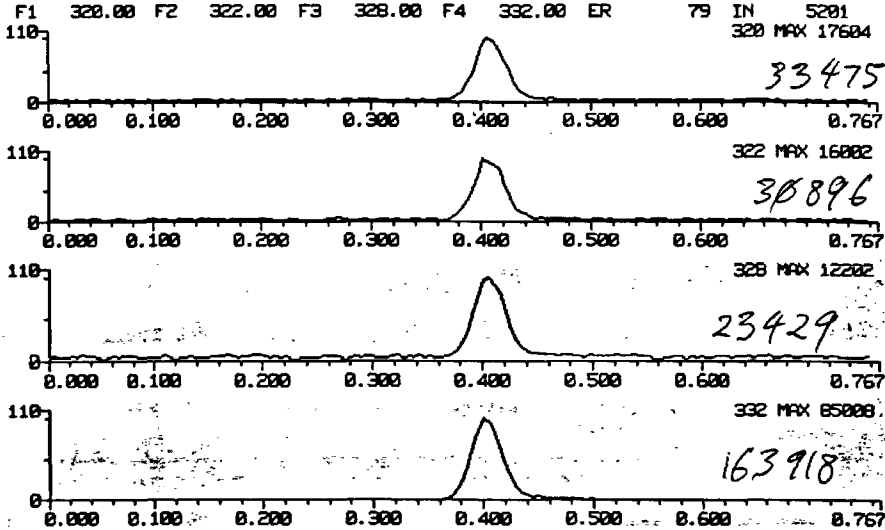
ATTACHMENT 2

DAILY CALIBRATION MASS CHROMATOGRAMS

021279

AUG1505 1 MIMI CAL 1 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	5201



15-AUG-88		13:12:40		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.140					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

13:12:40

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

Native RRF: 2.062
(97.8%)

021280

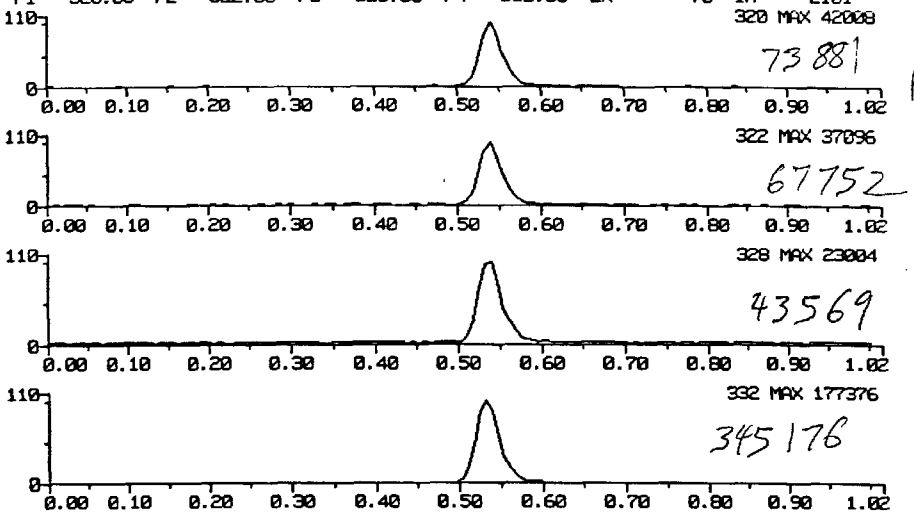
ATTACHMENT 3

INITIAL CALIBRATION MASS CHROMATOGRAMS

021281

OCT1309 1 MIMI CAL I (C-077-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	2101



Ratio 1.090

0212 2

13-OCT-87		17:11:31		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:11:31

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

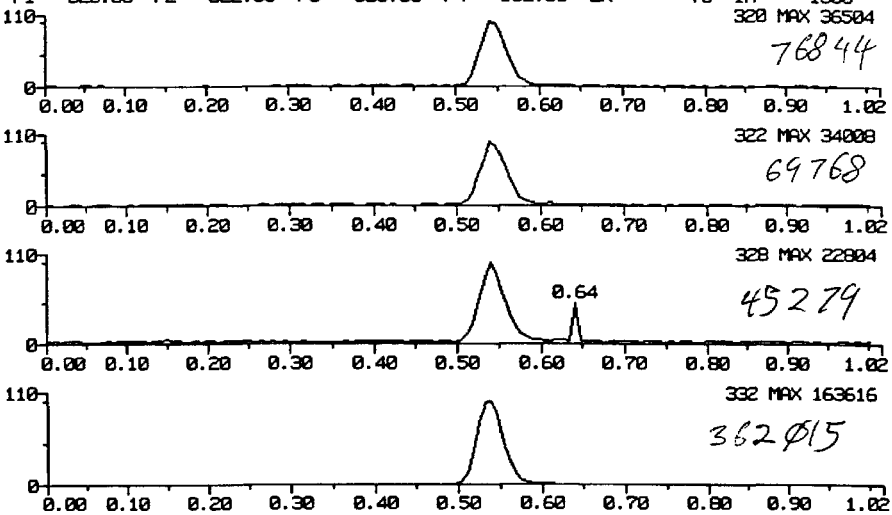
$RRF_{native} = 2.154$

$RRF_{surr} = 2.168$

03221497

OCT1303 1 MIMI 1 UL CAL I IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1600



Ratio 1.1Ø1

021283

13-OCT-87		15:36:52		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:36:52

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M

Native RF 2.126

Surr RRF 2.148

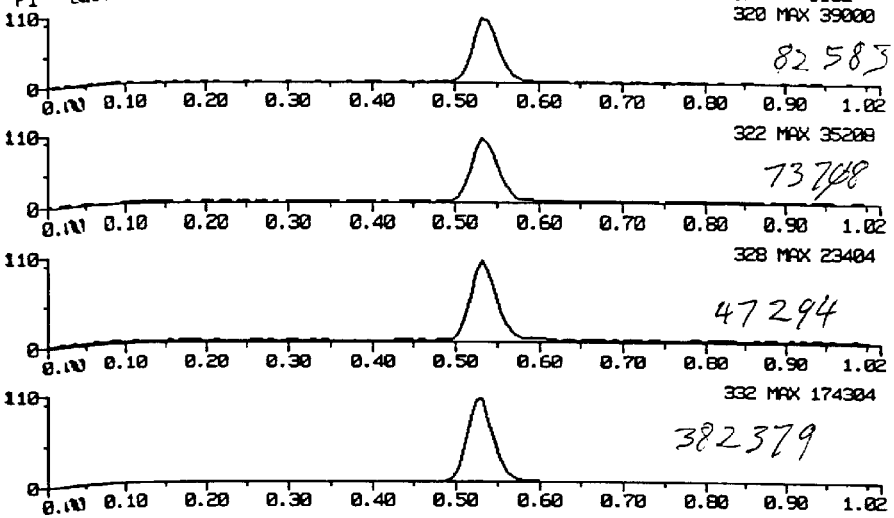
Nat 0.2

I.S. 1.05

Surr 0.00

OCT1310 1 MIMI CAL I (C-077-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	9102



Retin 1.120

13-OCT-87		17:24:01	OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.018					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:24:01

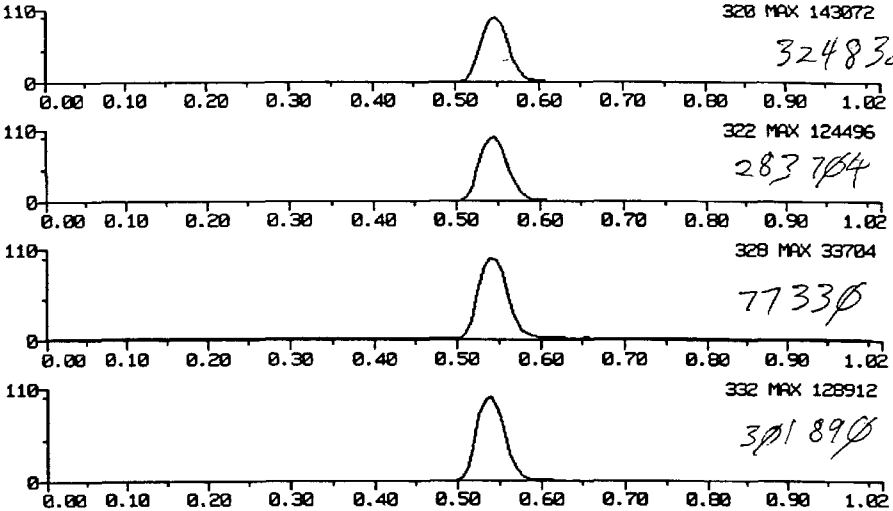
	CG-SW	
1	320	257
	322	259
	328	263
	332	268

$RRF_{retine} = 2.146$

$RRF_{sum} = 2.123$

OCT1308 1 MIMI CAL II (C-078-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1600



Ratio 1.145

02125

13-OCT-87		16:58:26		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.983					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:58:26

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

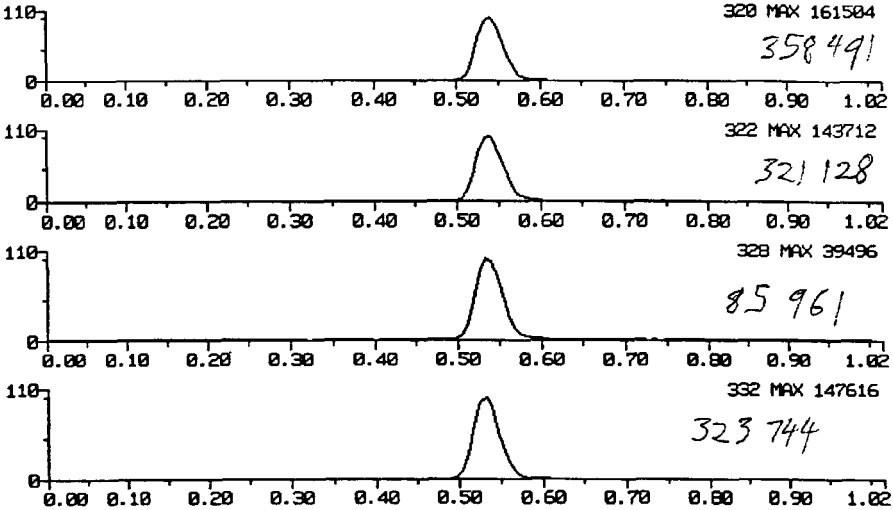
$RRF_{mt} = 2.117$

$RRF_{sur} = 2.333$

03221500

OCT1307 1 MIMI CAL II (C-078-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	4401



Ratio 1.116

13-OCT-87		16:41:35		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.991					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:41:35

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

RRF native = 2.204

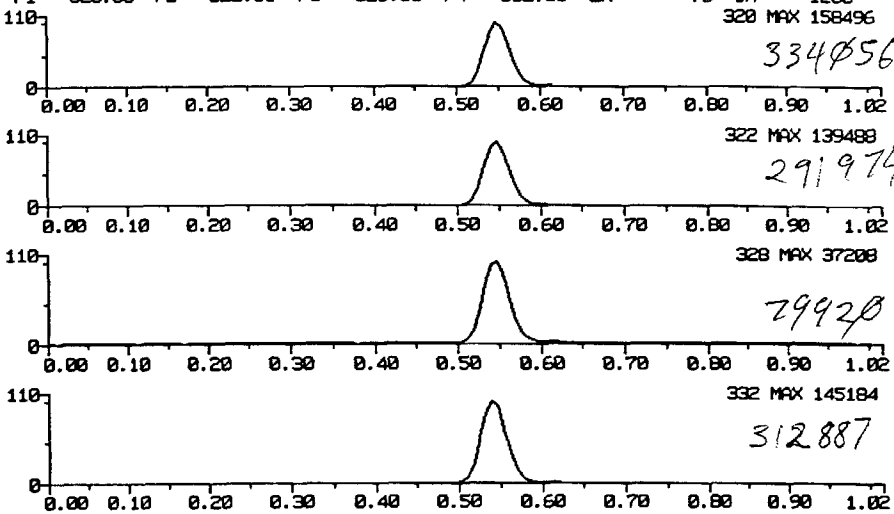
RRF sam = 2.419

021286

03221501

OCT1302 1 MIMI 1 UL CAL II IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1200



021 28

13-OCT-87		15:24:15		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.006					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:24:15

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

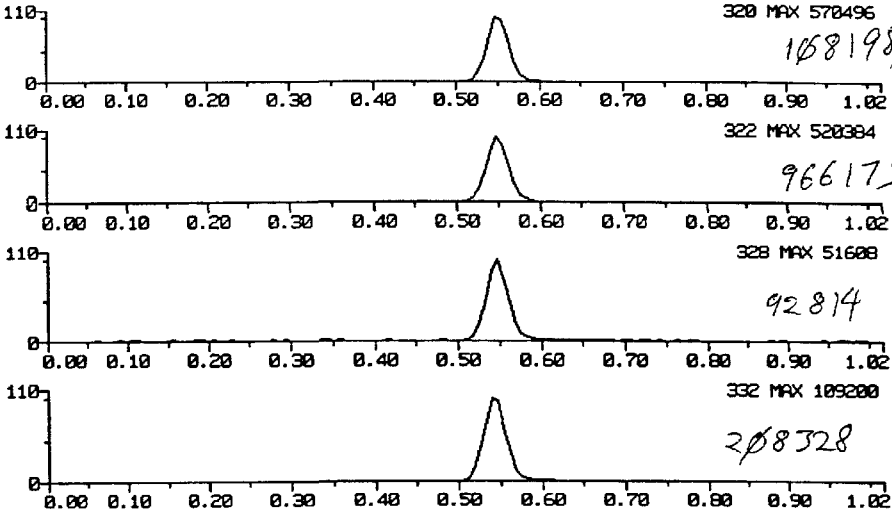
Native RF: 2.10!

Surr RRF 2.327

03221502

OCT1305 1 MIMI CAL III (C-079-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	800



Ratio 1.120

02123B

13-OCT-87		16:15:36		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.977					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:15:36

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

KLM

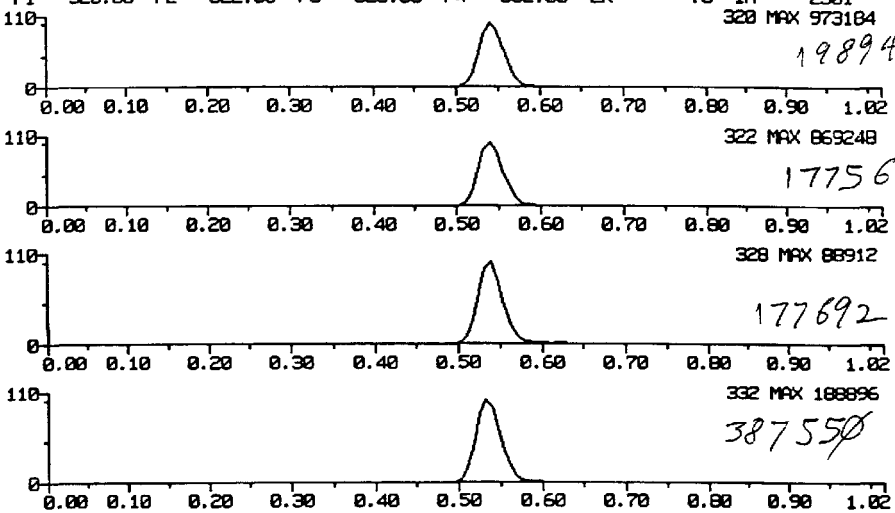
$RRF_{std} = 2.065$

$RRF_{surr} = 2.042$

03221503

OCT1306	1	MIMI				CAL III (C-079-02)					IM
SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	2301

Ratio 1.120



13-OCT-87		16:27:40		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.981					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:27:40

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

KEM.

RRF_{std} = 2.040

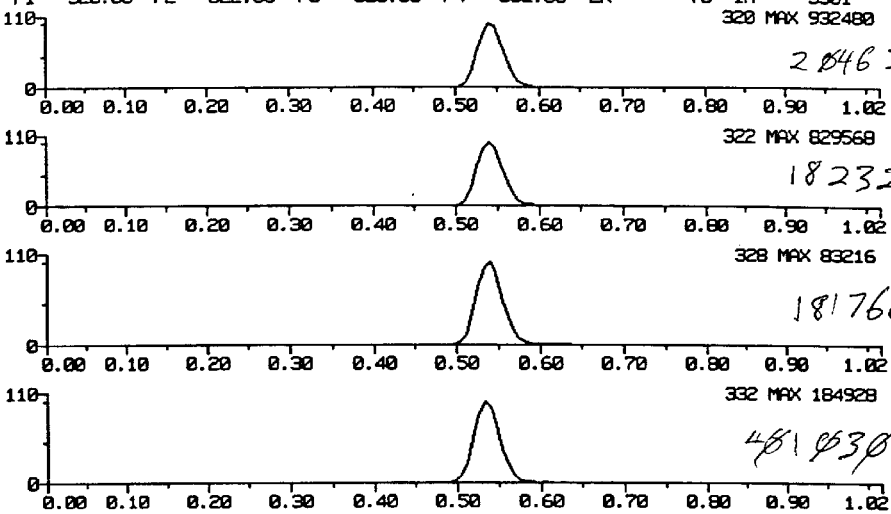
RRF_{surr} = 2.113

021280

OCT1304 1 MIMI 1 UL CAL III IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70		
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	3301		

Ratio 1.122



13-OCT-87		15:51:02		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.000					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:51:02

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

Native RF: 2.026

RRF_{surr} = 2.088

021290

03221505

ATTACHMENT 4

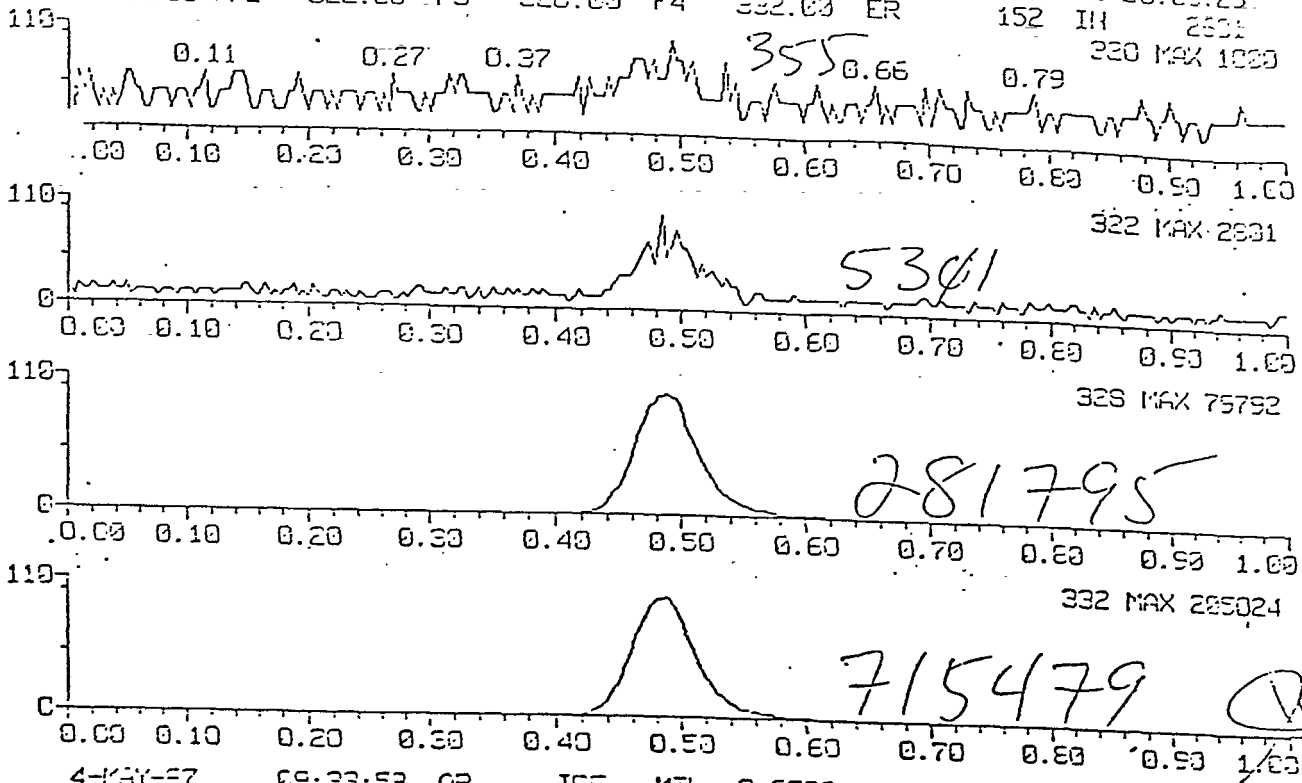
BLANK CALIBRATION MASS CHROMATOGRAMS

021291

03221506

3 2141

CS	1	ES	[illegible]	[illegible]	0	TO	110	GR	LMP	SE	110		
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:03:25		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2631		



4-MAY-87 09:33:53

S7	200	SE	0	CP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00		
G1	0.000	IT	0.00	C	10	MCL	1250	TH	100	TT	1.00		
G2	0.000	LT	0.00	DI	-1.000			MO	-1.000	FP	60.00		
	0.0200	DT	0.000	DIV	-1.010					MU	-4800.0		
S-r	0.0	GR	0.10	IN	0.00	DM1	0.0020	CGT	0.0	DM3	0.0020		
DTV	0.000	ST	0.00	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00		
				RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00		

09:33:53

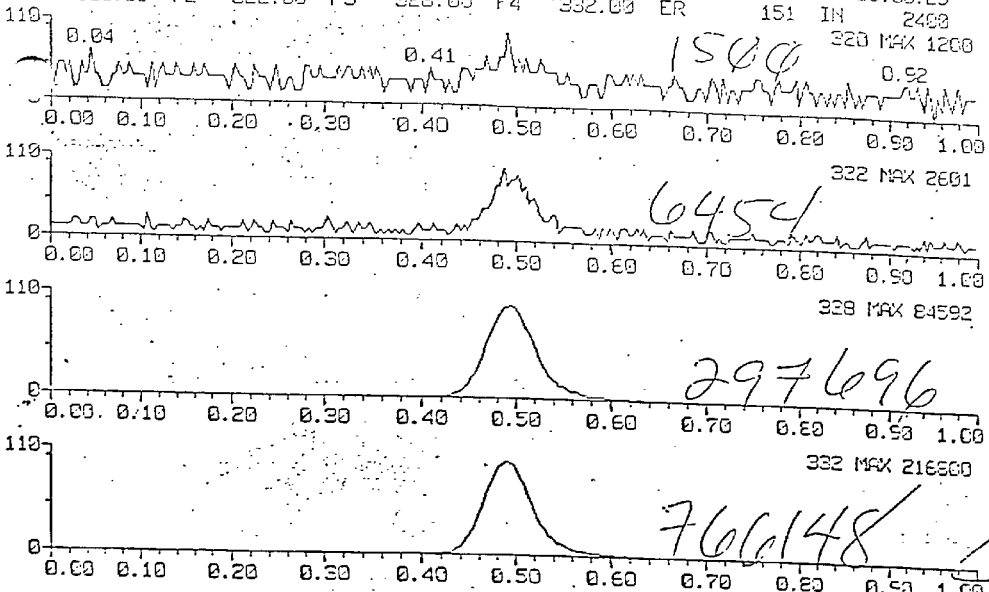
	CG=SN	
1	320	257
	322	259
	328	263
	332	268

03221507

MAY0422 1 MIMI SPIKE II C-095 3/85

SS	1	ES	258	BO	0	TO	110	GR	LINP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	151	IN	2400

3 2142



4-MAY-87		09:29:22	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.000	LT	0.00	DIV	-1.005					MU	-4600.0
GB	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

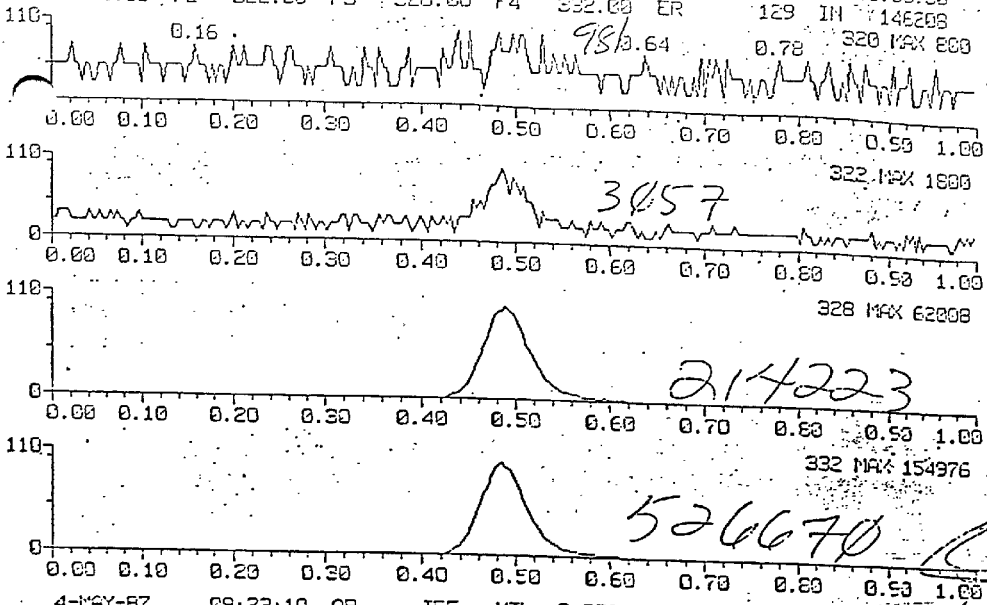
09:29:22

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221508

3 2143

SS	1	ES	258	BO	0	TO	110	GR	LIMP	SE	129		IM
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	146208		



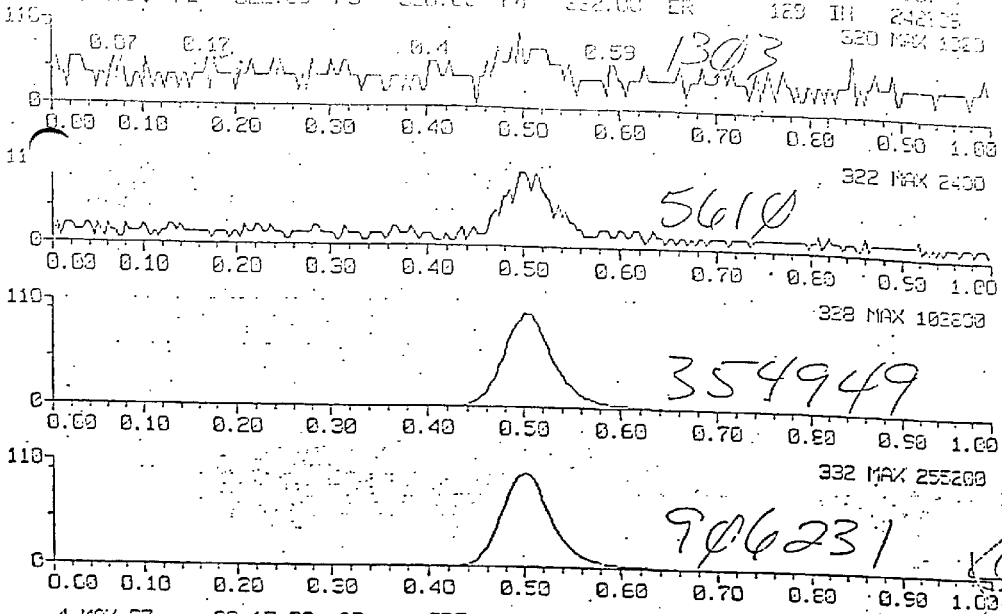
021294

	4-MAY-87		09:23:10	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00		
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00		
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00		
	0.000	LT	0.00	DIV	-0.998					MU	-4800.0		
	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000		
SPF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00		
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00		

09:23:10

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221509

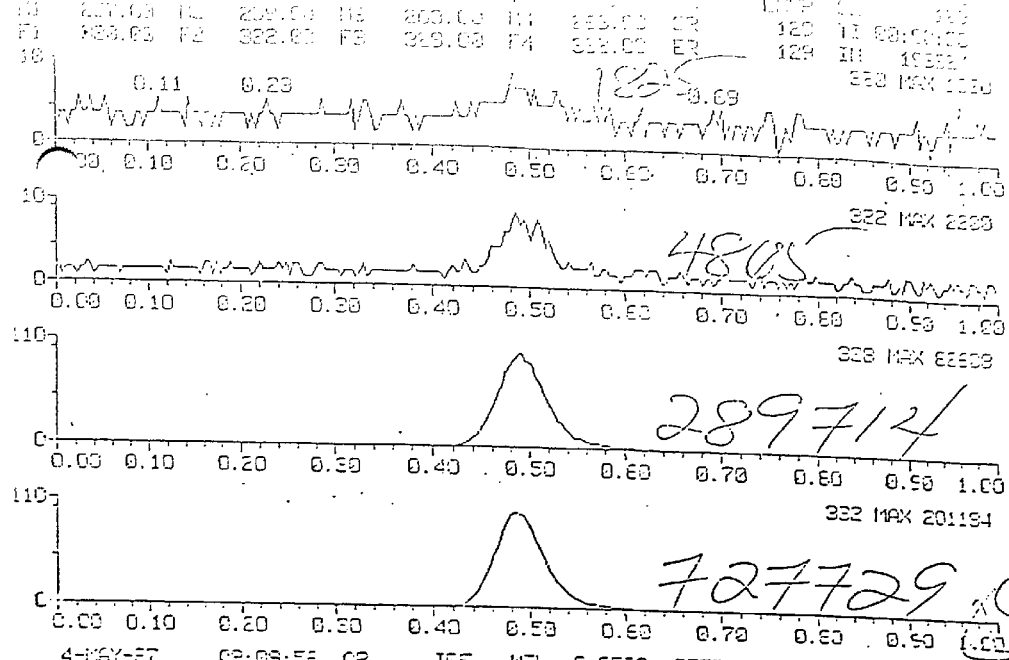


4-MAY-87		09:17:38	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.007					MU	-4000.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
S	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
D	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:17:38

	CG=SW	
1	330	257
	322	259
	328	263
	332	268

3 2145



	4-MAY-87		09:09:56	CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SW	200	SE	0	C	10	MCL	1330	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.992					MU	-4600.0
G	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
S-	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	FE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-30.00	R2	-55.00	R3	-65.00

09:09:56

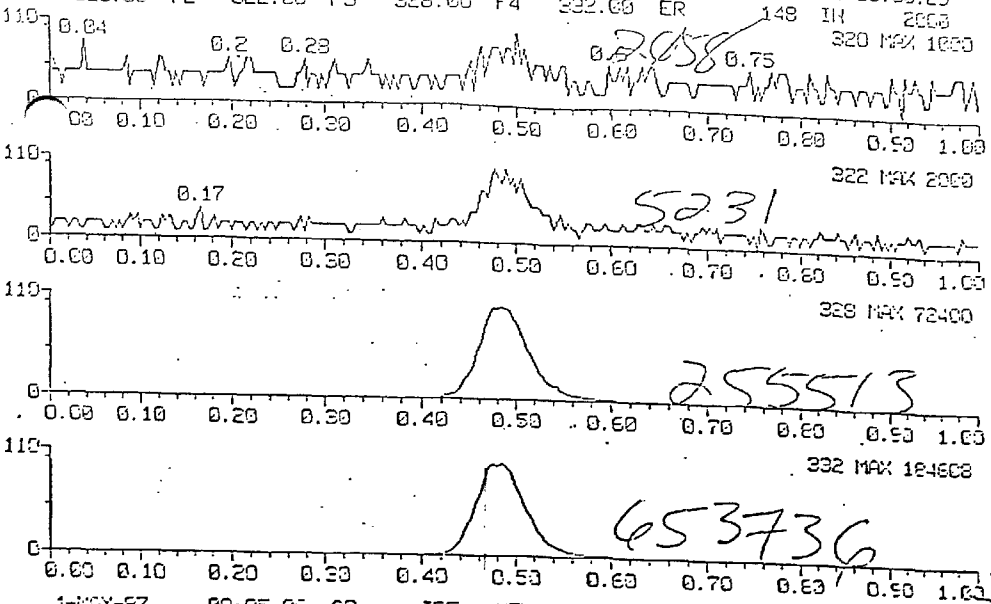
	CG=SW	
1	320	257
	322	253
	328	253
	332	258

021296

03221511

3 2146

M1	257.00	M2	259.00	M3	263.00	M4	269.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	148	IN	2000



0.21297

	4-MAY-97		09:05:06	CP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.995					MU	-4500.0
	0.0000	DT	0.000	IN	0.00	IM1	0.0000	CGT	0.0	IM3	0.0000
	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	85.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-85.00

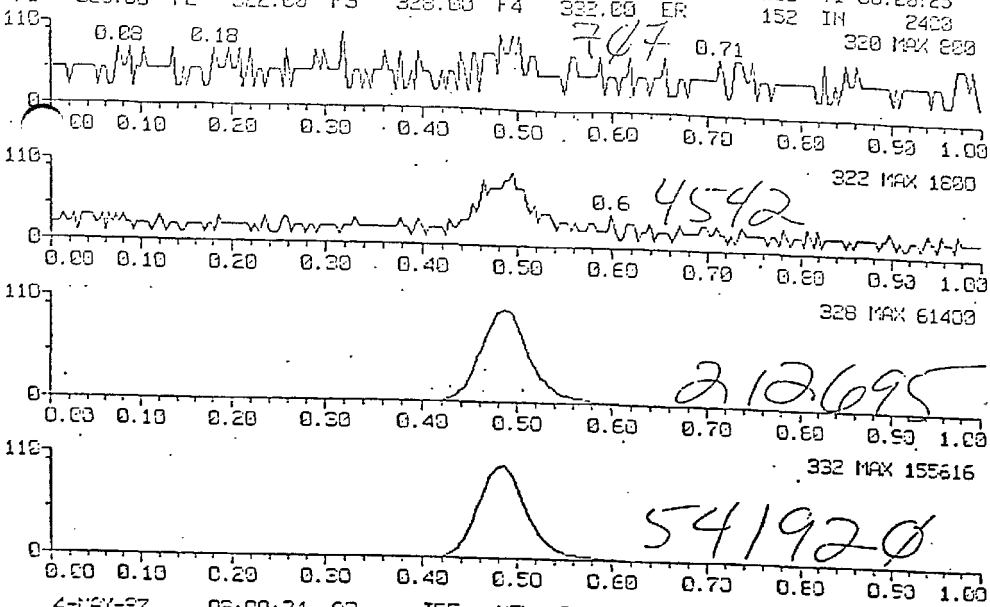
09:05:06

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221512

3 2147

M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400



4-MAY-87		09:00:24		OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.991					MU	-4620.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:00:24

CG=SW

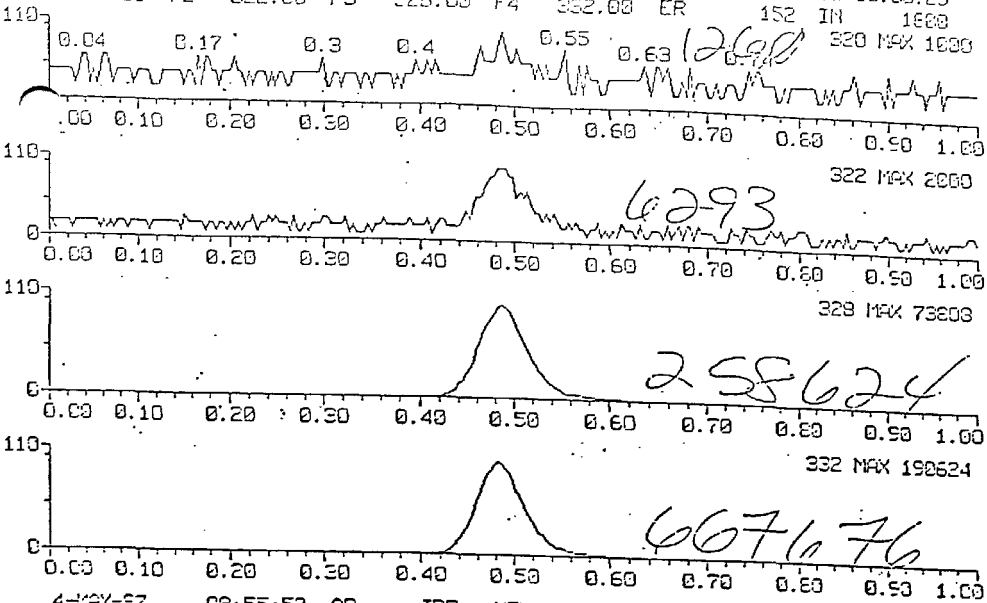
1	320	257
	322	259
	328	263
	332	268

021298

03221513

3 2148

SS	1	ES	250	BO	0	TO	110	GR			TM
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	LINP 100	SE	100
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	TI	00:00:25
										IN	1000



021299

	4-MAY-87		08:55:50	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	220	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.991					MU	-4000.0
	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
S--	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

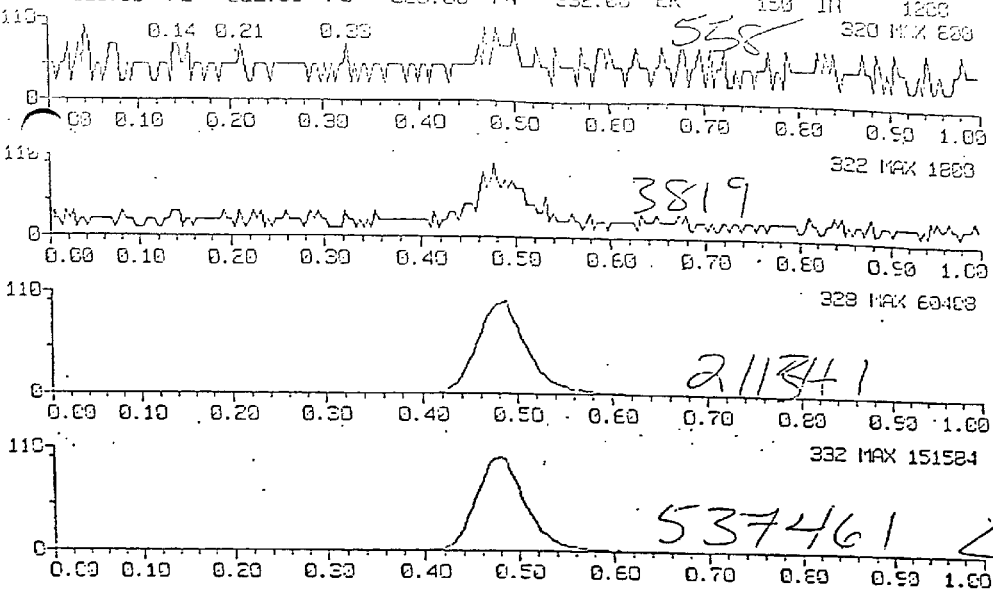
CG=SW 09:55:50

1	320	257
	322	259
	328	263
	332	268

03221514

3 2149

M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	107	SE	107
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	150	TI	00:00:24
										IN	1200



021300

	4-MAY-87		08:51:06	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.994					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DIV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

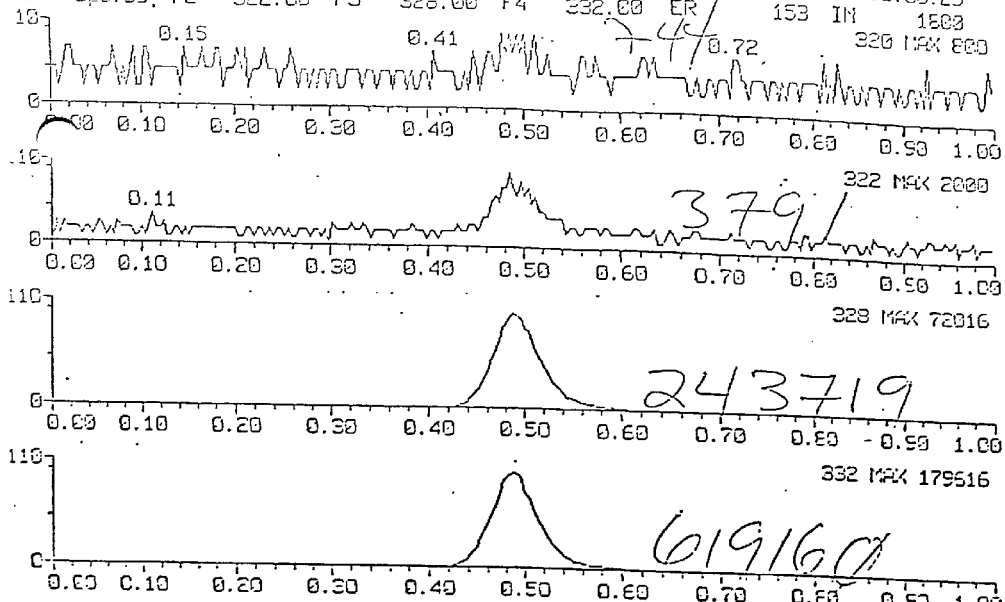
08:51:06

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221515

3 2150

M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	110 00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	153	IN	1800



	4-MAY-97		08:46:23	CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.984					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
S1	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	FE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:46:23

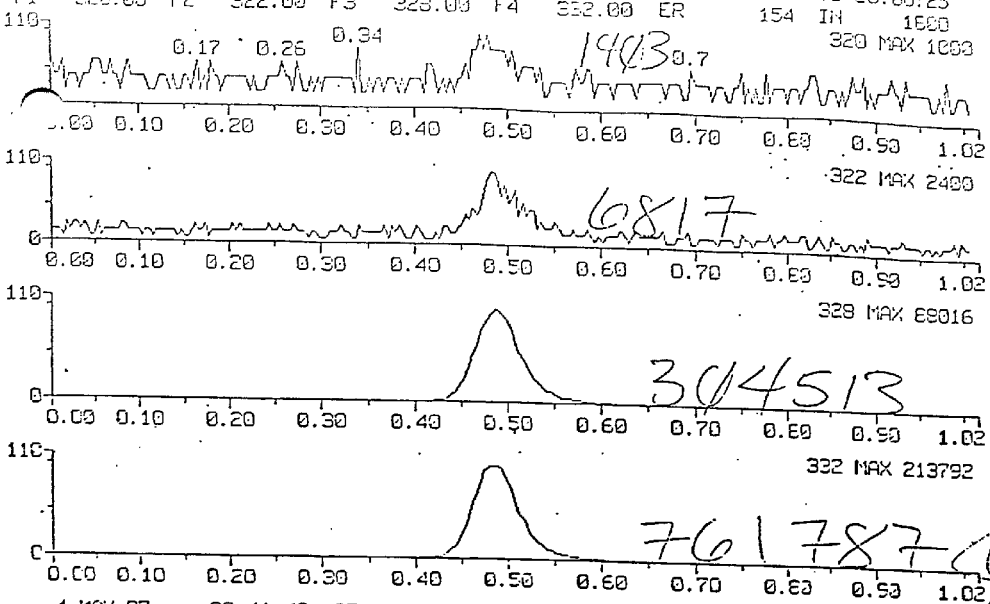
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021301

03221516

3 2151

	1	ES	200	BO	0	TO	110	GR	LIMP	SE	100
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	154	IN	1000



021302

	4-MAY-97		09:41:40	CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.010					MU	-4600.0
	0.0000	DT	0.000	IN	0.00	IM1	0.0000	CGT	0.0	IM3	0.0000
Smr	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

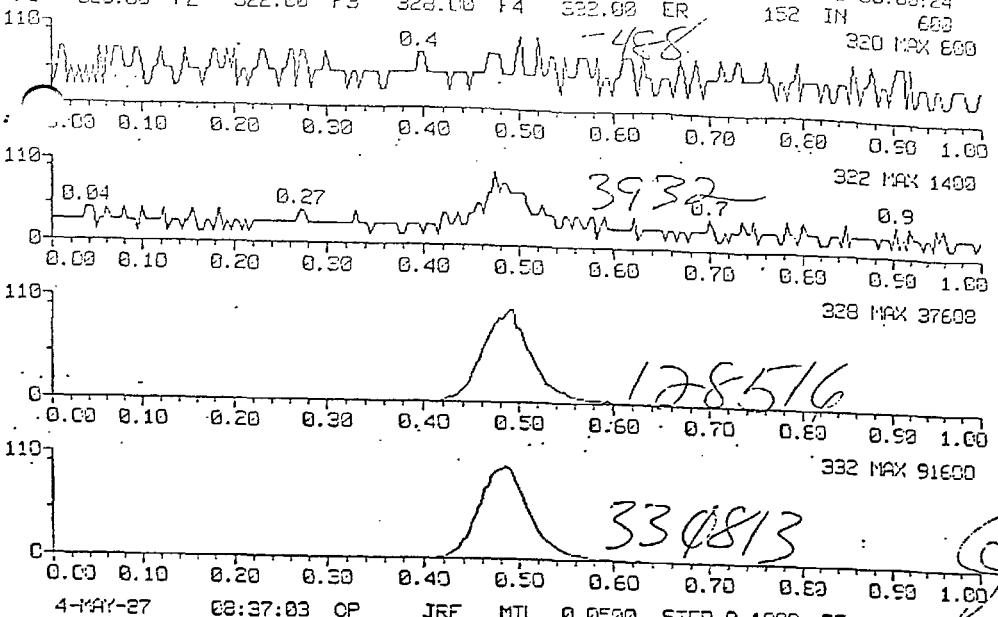
09:41:40

	CG=SN	
1	320	257
	322	259
	328	263
	332	268

03221517

3 2152

SS	1	ES	258	BO	0	TO	110	GR	LNPP	SE	105
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	105	TI	00:00:24
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	600



021303

4-MAY-27		08:37:03		OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.000	LT	0.00	DIV	-1.000					MU	-4600.0
	0.0000	DT	0.000	IN	0.00	IM1	0.0000	CGT	0.0	DM3	0.0000
S-F	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

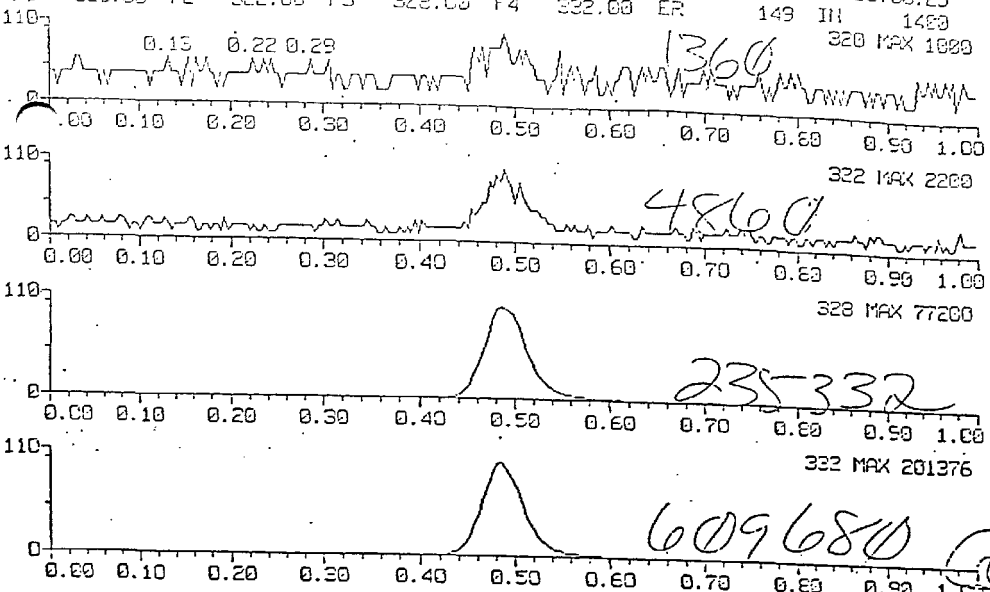
08:37:03

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221518

M1	257.00	M2	259.00	M3	263.00	M4	268.00	110	GR	LMMP	SE 111
F1	320.00	F2	322.00	F3	328.00	F4	332.00		ER	111	TI 08:08:25
										149	IN 1400

3 2153



021304

	4-MAY-87		08:32:16	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.986					MU	-4600.0
	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

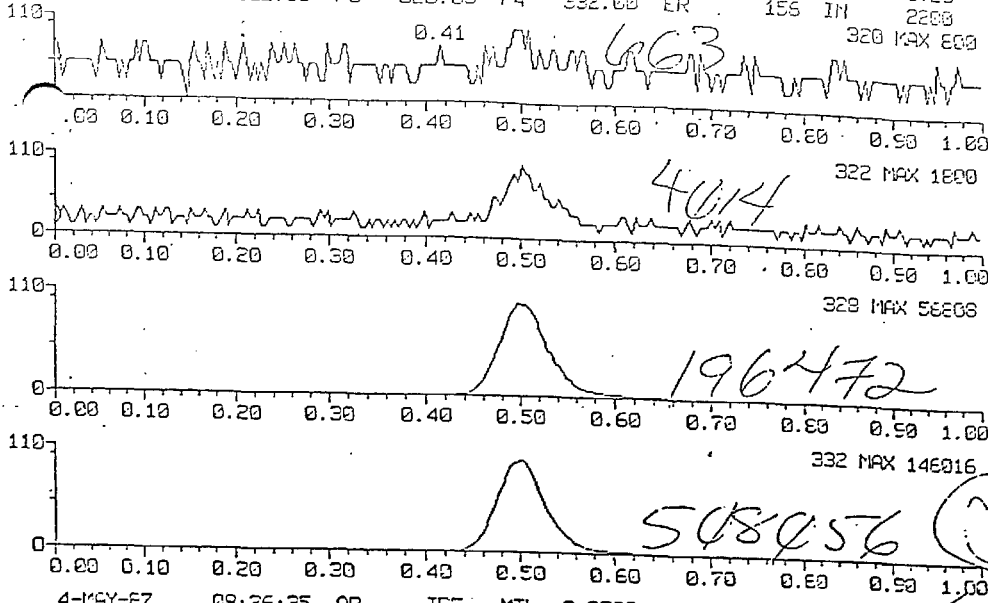
08:32:16

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221519

SS	1	ES	258	BO	0	TO	110	GR	LNMP	SE	114
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	114	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	155	IN	2200

3 2154



021305

4-MAY-87 08:26:35

SY	200	SE	0	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
G1	0.000	IT	0.00	C	10	MCL	1260	TH	100	TT	1.00
G2	0.000	LT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.0000	DT	0.000	DIV	-0.998					MU	-4600.0
SHF	0.0	GR	0.10	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
DTV	0.000	ST	0.00	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
				RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:26:35

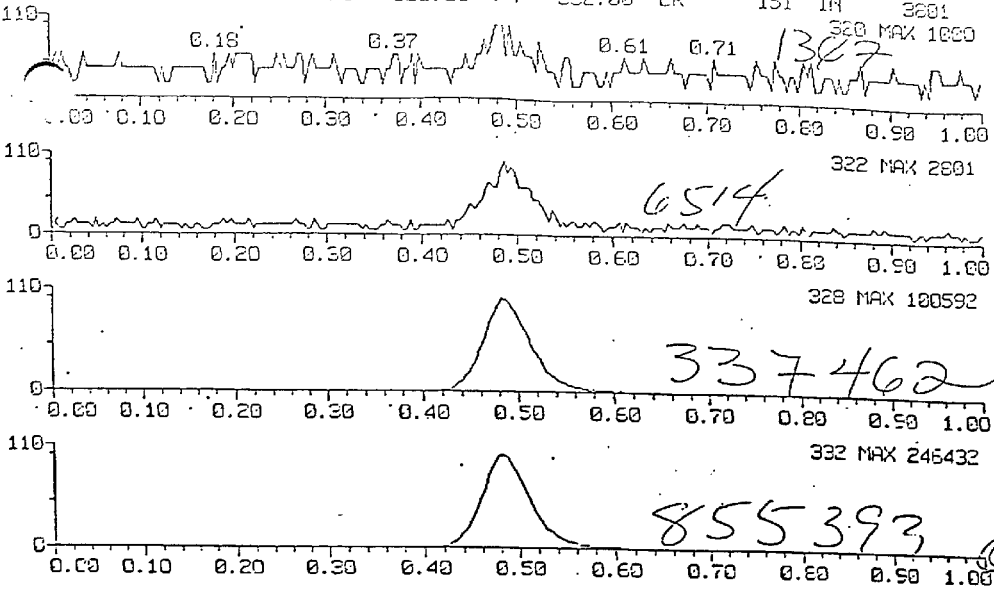
	CG=SN	
1	320	257
	322	259
	328	263
	332	268

03221520

MAY0403 1 MIMI SPIKE II C-096 3/85

SS	1	ES	250	DO	0	TO	110	GR	LNNP	SE	109
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	151	IN	3801

3 2155



021306

4-MAY-87		08:21:17		OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.000	LT	0.00	DIV	-0.997					MU	-4600.0
LS	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

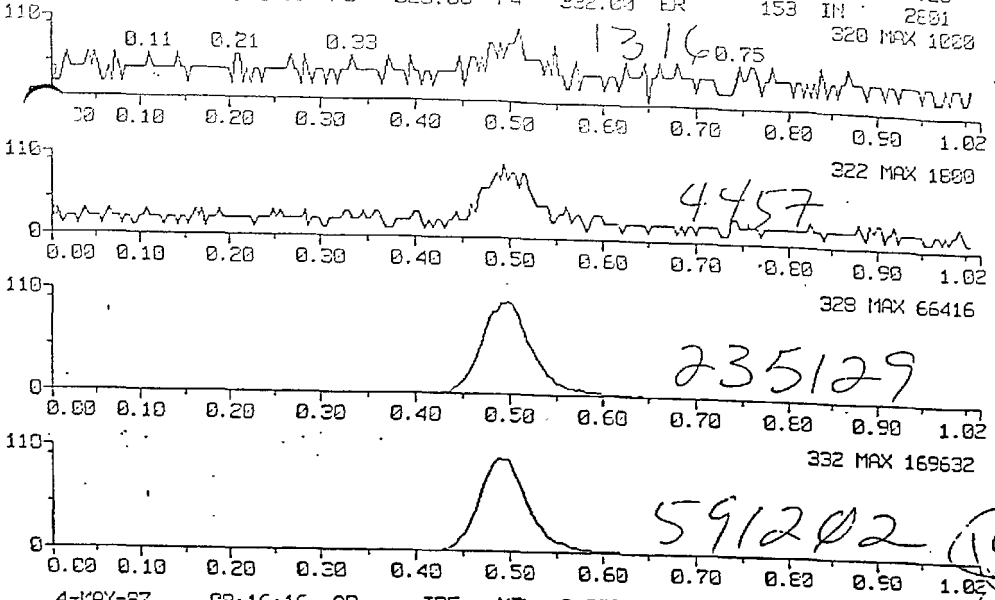
08:21:17

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221521

3 2156

SS	1	ES	260	BO	0	TO	110	GR	LINNP	SE	112
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	112	TI	00:00:26
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	153	IN	2801



021307

	4-MAY-97		08:16:16	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.994					MU	-4600.0
	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
	0.0	GR	0.10	OR	0.00	FE1	65.00	CG	OFF	RE3	85.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:16:16

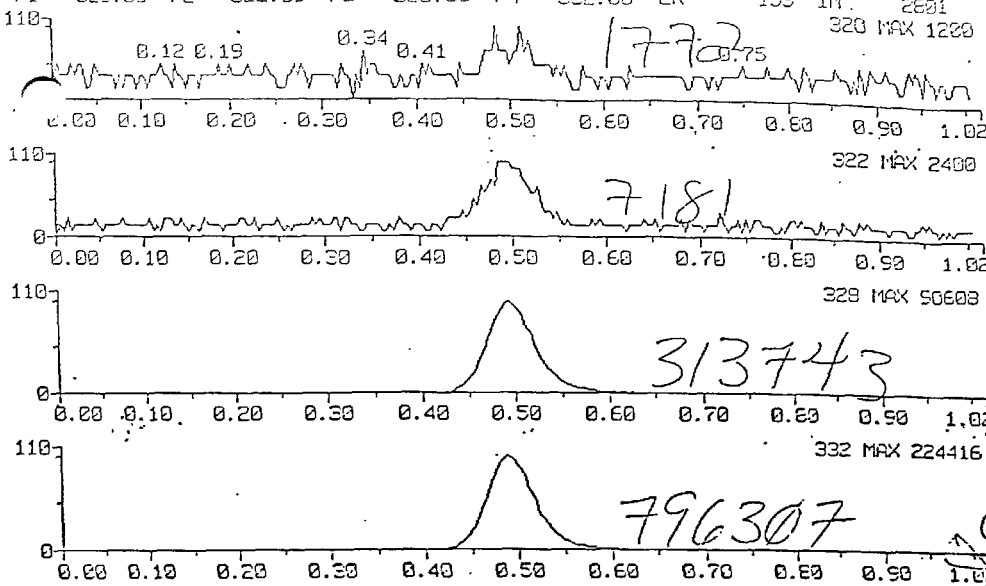
CG=SW

1	333	257
	322	259
	328	263
	332	268

03221522

3 2157

SS	1	ES	280	BO	0	TO	110	GR	LINP	SE	111		
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	111	TI	00:00:25		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	153	IN	2801		



	4-MAY-87		08:10:46	CP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.000	LT	0.00	DIV	-1.004					MU	-4800.0
	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SFF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:10:46

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

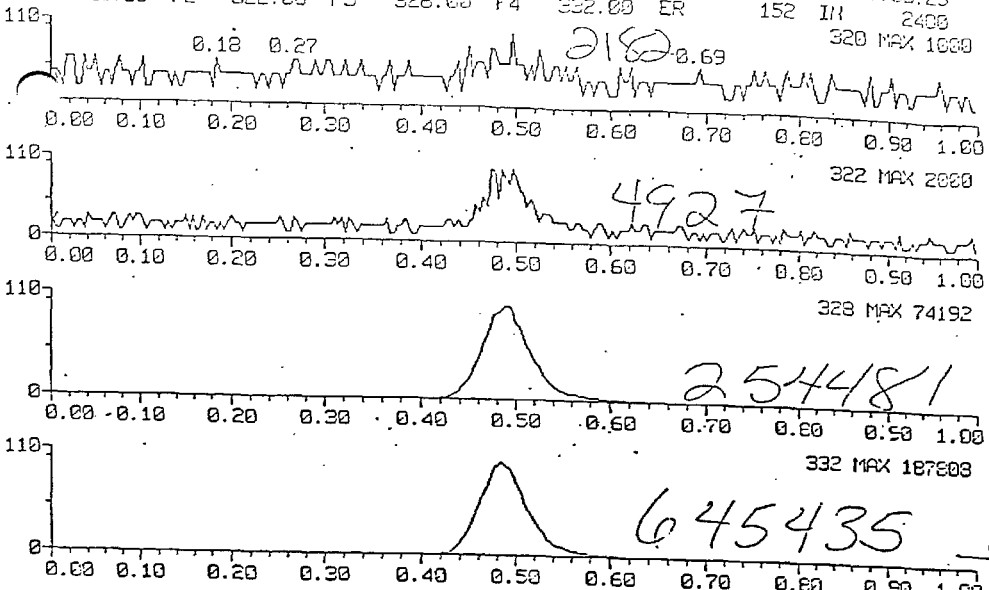
021308

03221523

SPIKE II C-096 3/85

SS	1	ES	259	BO	0	TO	110	GR	LMNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	263.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400

3 2158



021309

4-MAY-87 08:06:01

SY	200	SE	0	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
G1	0.000	IT	0.00	C	10	MCL	1260	TH	100	TT	1.00
	0.000	LT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.0000	DT	0.000	DIV	-1.012					MU	-4600.0
SAF	0.0	GR	0.10	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
DTV	0.000	ST	0.00	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
				R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:06:01

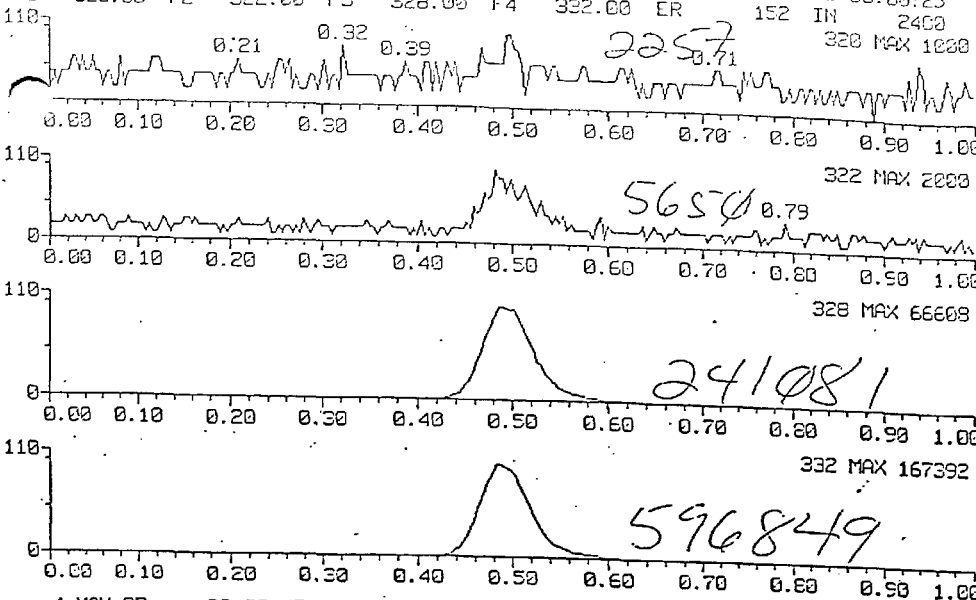
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221524

SPIK_II C-006 3/05

SS	1	ES	258	BO	0	TO	110	GR	LNMP	SE	111
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	111	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400

3 2159



021310

4-MAY-87 08:00:47

SY	200	SE	0	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
G1	0.000	IT	0.00	C	10	MCL	1260	TH	100	TT	1.00
	0.000	LT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.0000	DT	0.000	DIV	-0.995					MU	-4600.0
SAF	0.0	GR	0.10	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
DTV	0.000	ST	0.00	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
				RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

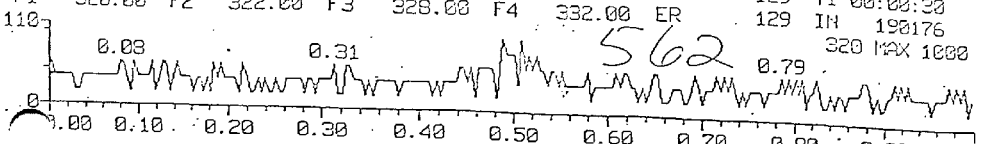
08:00:47

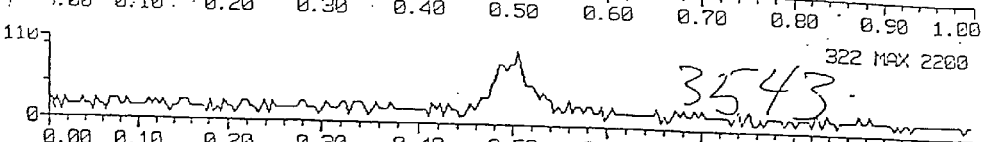
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

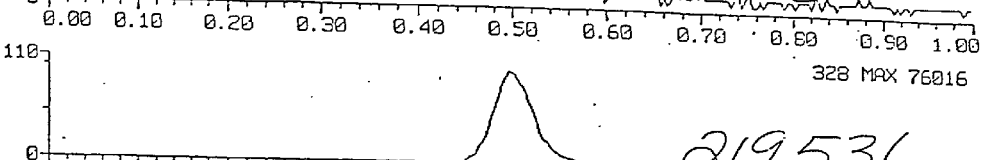
03221525

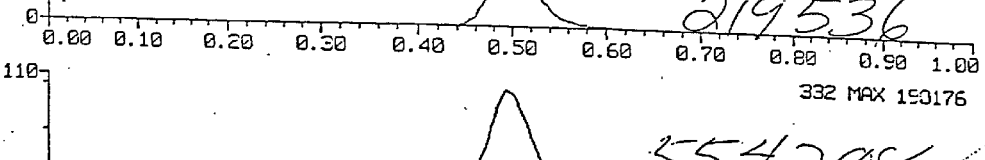
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	190176		

3 2160









021311

	4-MAY-87		07:53:06	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.003					MU	-4600.0
	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DIV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

07:53:06

	CG=SW	
1	320	257
	322	259
	329	263
	332	268

03221526

021512

ATTACHMENT 5

CHAIN OF CUSTODY, GC/MS/MS LOG, EXTRACTION RECORD

3 2162

02131 3

INTERNATIONAL TECHNOLOGY CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. 42338

C/C Control No. 47302

03221528

PROJECT NAME/NUMBER Jacksonville Offsite/480078.01.08.02

LAB DESTINATION TMS-Indianapolis, Indiana

SAMPLE TEAM MEMBERS D. Simerly & D. Peery

CARRIER/WAYBILL NO. FED EXP 908B172936

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
WH2340	Jacksonville, Arkansas	08/11/88 0848	SOIL	125CC GLASS		
WH2341		08/11/88 0848				
WH2343		08/11/88 0826				
WH2344		08/11/88 0858				
WH2345		08/11/88 0858				
WH2347		08/11/88 0858				
WH2348		08/11/88 1027				
WH2349		08/11/88 1027				
WH2350		08/11/88 1027				
WH2352	Jacksonville, Arkansas	08/11/88 1157	SOIL	125CC GLASS		

Special Instructions:

Possible Sample Hazards: Dioxin

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Doug Peery 08/11/88 1845

Received By: R D Little 8/12/88 0930

2. Relinquished By:

Received By:

3. Relinquished By:

Received by:

4. Relinquished By:

Received By:

WHITE - To accompany samples
YELLOW - Field copy

3 2163

INTERNATIONAL TECHNOLOGY CORPORATION

0213 14

CHAIN-OF-CUSTODY RECORD

R/A Control No. 42340

C/C Control No. 47301

03221529

PROJECT NAME/NUMBER: Jacksonville Offsite/480078.01.08.02

LAB DESTINATION: TNS-Indianapolis, Indiana

SAMPLE TEAM MEMBERS: D. Simerly & D. Peary

CARRIER/WAYBILL NO. FED EXP 9088172936

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
WH2353	Jacksonville, Arkansas	08/11/88 1336	SOIL	125CC GLASS		
WH2354		08/11/88 1336				
WH2355		08/11/88 1420				
WH2357		08/11/88 1420				
WH2358		08/11/88 1458				
WH2359		08/11/88 1521				
WH2360		08/11/88 1521				
WH2362		08/11/88 1556				
WH2363		08/11/88 1622				
WH2365	Jacksonville Arkansas	08/11/88 1643	SOIL	125CC GLASS		

Special Instructions:

Possible Sample Hazards: Dioxin

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: [signature] 08/11/88 1845

Received By: [signature] 8/12/88 0930

2. Relinquished By:

Received By:

3. Relinquished By:

Received by:

4. Relinquished By:

Received By:

WHITE - To accompany samples
YELLOW - Field copy

INTERNATIONAL TECHNOLOGY CORPORATION

021315

REQUEST FOR ANALYSIS

R/A Control No. 42358
C/C Control No. 47302

03221530

PROJECT NAME	Jacksonville Offsite	DATE SAMPLES SHIPPED	08/11/88
PROJECT NUMBER	480078.01.08.02	LAB DESTINATION	TMS Analytical Services, Inc.
PROJECT MANAGER	Dana S. Simerly	LABORATORY CONTACT	Cindy Krauss
BILL TO	Hercules, Incorporated	SEND LAB REPORT TO	Florence K. Kinoshita, Ph.D.
	1313 N. Market Street		Medical Dept.
	Wilmington, DE 19894		Hercules, Inc.
PURCHASE ORDER NO.		DATE REPORT REQUIRED	48 Hrs.
		PROJECT CONTACT	Dana S. Simerly
		PROJECT CONTACT PHONE NO.	(501) 982-1513

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
WH2340	SOIL	≈ 35 g	None	2,3,7,8-TCDD GC/MS/MS	
WH2341					
WH2343					
WH2344					
WH2345					
WH2347					
WH2348					
WH2349					
WH2351					
WH2352	SOIL	≈ 35 g	None	2378-TCDD GC/MS/MS	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal _____ Rush X (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard _____ Flammable _____ Skin Irritant _____ Highly Toxic _____ Other PCDD/PCDF (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client X Disposal by Lab _____

FOR LAB USE ONLY

Received By [signature] Date/Time 8/12/88 0930

WHITE - Original, to accompany samples

INTERNATIONAL TECHNOLOGY CORPORATION

0215316

REQUEST FOR ANALYSIS

R/A Control No. 42340

C/C Control No. 47301

03221531

PROJECT NAME	Jacksonville Offsite	DATE SAMPLES SHIPPED	08/11/88
PROJECT NUMBER	480078.01.08.02	LAB DESTINATION	TMS Analytical Services, Inc.
PROJECT MANAGER	Dana S. Simerly	LABORATORY CONTACT	Cindy Krauss
BILL TO	Hercules, Incorporated	SEND LAB REPORT TO	Florence K. Kinoshita, Ph.D.
	1313 N. Market Street		Medical Dept.
	Wilmington, DE 19894		Hercules, Inc.
PURCHASE ORDER NO.		DATE REPORT REQUIRED	48 Hrs.
		PROJECT CONTACT	Dana S. Simerly
		PROJECT CONTACT PHONE NO.	(501) 982-1513

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
WH2353	SOIL	≈ 35g	None	2,3,7,8-TCDD GC/MS/MS	
WH2354					
WH2355					
WH2357					
WH2358					
WH2359					
WH2360					
WH2362					
WH2363					
WH2365	SOIL	≈ 35g	None	2378-TCDD GC/MS/MS	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal _____ Rush X (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: *(Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)*

Nonhazard _____ Flammable _____ Skin Irritant _____ Highly Toxic _____ Other PCDD/PCDF (Please Specify)

SAMPLE DISPOSAL: *(Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)*

Return to Client X Disposal by Lab _____

FOR LAB USE ONLY

Received By L D Sittler Date/Time 8/12/88 0930

WHITE - Original, to accompany samples

Project No.
Book No.

COPY 3 2166 12

Page No.

AUG 15 01		DFCAL 2
02		Solvent Flush/Blank
03		Sludge Mth Blk opt D
04		Sludge (8/3) opt. D
05	1312	CAL 1
06	1327	7 mo Mth ~~Soil~~ Blank (R)
07	1341	Soil Blank (R)
08	1352	Soil Spike (R)
09	1405	Soil PE (R)
10	1416	2340
11	1427	2341
12	1438	2343
13	1451	2344
14	1503	2345
15		EOI Mth Blk
16		2R3.009
17	1549	2347
18	1602	2348
19	1613	2349
20	1625	2351
21	1636	2352
22	1650	2353
23	1702	2354
24	1714	2355
25	1726	2357
26	1737	2358
27	1748	2359
28	1801	2360
29	1816	2362
30	1827	2363
31	1840	2365

To Page No.

sed & Understood by me, | Date 2/15/88 | Invented by: K E [illegible] | Date

03221532

TE: 8-12-88

ITIALS LDS

SHIPMENT NUMBER HER0812A

3 2167

[illegible]O [illegible]PLE #	EPA SAMPLE #	SAMPLE WEIGHT	EXTRACTION VOLUME	OPTION A CLEANUP	OPTION D CLEANUP	SPIKING SOL'N ADDED	COMMENTS
MB1	—	5.00g	6.0mL	✓		50µL II	
SB1	OCL34541	5.00				"	
SS1	OCL35553	5.00				50µL I	
PE-B1	—	5.00				50µL II	
WH2340		5.08					
" 2341		4.86					
" 2343		5.05					
" 2344		4.93					
" 2345		5.25					
" 2347		4.86					
[illegible]348		4.96					
" 2349		4.99					
" 2351		4.91					
" 2352		4.94					
" 2353		5.13					
" 2354		5.07					
" 2355		4.96					
" 2357		5.19					
" 2358		4.96					
" 2359		4.99					
" 2360		4.99					
" 2362		5.18					
" 2363		5.02					
" 2365		4.99					

021318

03221533

3 21..

TMS ANALYTICAL SERVICES, INC.

TANDEM MASS SPECTROMETRY

6376 Mercer Trail
Indianapolis, Indiana 46268
317 291 5697

August 19, 1988

021319

Dr. Florence K. Kinoshita
Medical Department
Hercules Incorporated
1313 N. Market Street
Wilmington, DE 19894

Dear Dr. Kinoshita:

Enclosed are analytical results for the analysis of 7 samples for 2,3,7,8-TCDD. These samples were analyzed according to the procedures outlined in the USEPA Contract Laboratory Program "Statement of Work for Rapid Turnaround Dioxin Analysis in Multi-Media", November 1986. Sample preparation and analysis procedures from the "Rapid Determination of TCDD In Soil and Sediment Samples, Using Gas Chromatography and Tandem Mass Spectrometry" were used. These samples were received as Shipment HERCULES for analysis on 08/12/88 at 09:30. The analytical results of Filename HER0812B were sent by FAX at 10:30 on August 17, 1988.

If you should have any questions regarding these data or this report, please feel free to contact me at (317)291-5697.

Very truly yours,

Dennis L. Heuring Ph.D.

Dennis L. Heuring, Ph.D.
President

ENCLOSURES:

03221534

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ATTACHMENT 2 DAILY CALIBRATION MASS CHROMATOGRAMS

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ATTACHMENT 5 CHAIN OF CUSTODY, GC/MS/MS LOG, EXTRACTION RECORD

021520

TMS
TANDEM MASS SPECTROMETRY

TMS ANALYTICAL SERVICES, INC.

6376 Morenci Trail
Indianapolis, Indiana 46268
317-291-5697

TCDD FINAL DATA REPORT SHEET

FILE RECEIVED DATE:
FILE RECEIVED TIME:

SITE: HER
CASE: 0812
DATE: 08/17/88

AREA #	CLIENT SAMPLE #	ANALYSIS DATE	ANALYSIS TIME	NATIVE RATIO	SURROGATE ACC	TCDD CONC.	RERUN CODE	VALID CODE	UNITS	COMMENTS
METHBLANK	METHBLNK	08/16/88	1620	0.09*	76.45	0.300 U			NG/GM	
SOILBLANK	OCL34505	08/16/88	1634	0.54*	75.78	0.300 U			NG/GM	
SOILSPIKE	OCL35548	08/16/88	1646	1.14	85.13	0.794			NG/GM	
SOIL PE	PE-B	08/16/88	1701	1.17	76.73	3.718			NG/GM	
WH2366	WH2366	08/16/88	1713	1.07	74.18	0.300 U			NG/GM	
367	WH2367	08/16/88	1724	0.45*	74.47	0.300 U			NG/GM	UNITS OF NG PER SAMPLE
WH2370	WH2370	08/16/88	1735	0.00*	75.21	0.300 U			NG/GM	UNITS OF NG PER SAMPLE
WH2371	WH2371	08/16/88	1746	1.13	80.34	41.012			NG/GM	

QUALIFICATION FLAGS:

* 257/259 RATIO OUTSIDE OF ACCEPTABLE RANGE
** SURROGATE OUTSIDE OF ACCEPTABLE RANGE
*** HIGH DETECTION LIMIT

RERUN CODES:
A AUTOMATIC RERUN
R REQUESTED RERUN

GC/MS/MS WORKSHEET REPORT FORM

SITE: HER
CASE: 0812
DATE: 08/17/88

SURROGATE CONC 0.06 RF NATIVE 2.109 ION RATIO: 1.009 TO 1.233
INTERNAL STD CONC 1.05 RF SURROGATE 2.083 CORRECTION FACTOR: 0.010

LAB SAMPLE #	AREA #	CLIENT SAMPLE #	ANALYSIS DATE	ANALYSIS TIME	SAMPLE AMOUNT	ION 257	ION 259	ION 263	ION 268	RATIO 257/259	SURR ACC	RAW VALUE	UNITS
AUG1627	METHBLANK	METHBLNK	08/16/88	1620	5.00	615	6590	241156	757052	0.09	76.45	0.000	NG/GM
AUG1628	SOILBLANK	DCL34505	08/16/88	1634	5.00	2586	4833	188293	596269	0.54	75.78	0.007	NG/GM
AUG1629	SOILSPIKE	DCL33548	08/16/88	1646	5.00	166889	146251	324278	909110	1.14	85.13	0.794	NG/GM
AUG1630	SOIL PE	PE-B	08/16/88	1701	5.00	635646	541640	245425	746136	1.17	76.73	3.718	NG/GM
AUG1631	WH2366	WH2366	08/16/88	1713	4.97	48492	45476	349658	1129596	1.07	74.18	0.175	NG/GM
AUG1632	WH2367	WH2367	08/16/88	1724	1.00	3226	7157	231102	744714	0.45	74.47	0.051	NG/GM
AUG1633	WH2370	WH2370	08/16/88	1735	1.00	1	6493	333256	1063502	0.00	75.21	-0.042	NG/GM
AUG1634	WH2371	WH2371	08/16/88	1746	5.05	8619698	7656060	404806	931134	1.13	80.34	41.012	NG/GM

TABLE 3 GC/MS/MS DAILY CALIBRATION CHECK

MEAN NATIVE RF	2.109	NATIVE CONC.	0.20	SITE:	HER
MEAN SURROGATE RF	2.083	SURROGATE CONC.	0.06	DATE:	08/17/88
ION RATIO RANGE	1.009 TO 1.233	INTERNAL STD. CONC .	1.05	CASE:	0812

ANALYSIS DATE	ANALYSIS TIME	ION 257	ION 259	ION 263	ION 268	RATIO 257/259	RF NATIVE	NATIVE RF %DIFF.	RF SURROGATE	SURROGATE RF % DIFFERENCE	COMMENTS
08/16/88	1004	48449	45063	38372	226582	1.075	2.167	2.75	2.923	40.33	

* ION RATIO MUST BE WITHIN ACCEPTABLE RANGE OF INITIAL CALIBRATION
** NATIVE % DIFFERENCE MUST BE LESS THAN 10% FROM INITIAL CALIBRATION

021323

TABLE 1 GC/MS/MS INITIAL CALIBRATION

SITE CODE: HER
CASE: 0812
DATE: 10/13/87

SOLUTION ID	ION 257	ION 259	ION 263	ION 268	NATIVE CONC	SURROGATE CONC	INT. STD CONC	RF NATIVE	RF SURROGATE	RATIO 257/259	COMMENTS
CC1-1	73881	67752	43569	345176	0.20	0.06	1.05	2.154	2.168	1.090	
CC1-2	76844	69768	45279	362015	0.20	0.06	1.05	2.126	2.149	1.101	
CC1-3	82583	73708	47294	382379	0.20	0.06	1.05	2.146	2.124	1.120	
							MEAN	2.142			
							STD DEV	0.014			
							% RSD	0.65			
CC2-1	324838	283704	77330	301890	1.00	0.11	1.05	2.117	2.334	1.145	
CC2-2	358491	321128	85961	323744	1.00	0.11	1.05	2.204	2.420	1.116	
CC2-3	334056	291974	79920	312887	1.00	0.11	1.05	2.101	2.328	1.144	
							MEAN	2.141			
							STD DEV	0.055			
							% RSD	2.57			
CC3-1	1081980	966175	92814	208328	5.00	0.20	1.05	2.065	2.044	1.120	
CC3-2	1989496	1775627	177692	387550	5.00	0.20	1.05	2.040	2.116	1.120	
CC3-3	2046320	1823272	181766	401030	5.00	0.20	1.05	2.026	2.090	1.122	
							MEAN	2.044	2.083		
							STD DEV	0.020	0.036		
							% RSD	0.97	1.73		

RF NATIVE OVERALL MEAN 2.109
STD DEV 0.056
% RSD 2.674

RF SURROGATE OVERALL MEAN 2.083
STD DEV 0.036
% RSD 1.728

OVERALL RATIO 257/259 MEAN: 1.121
RANGE: 1.009 TO 1.233

* RF NATIVE % RELATIVE STANDARD DEVIATION MUST BE LESS THAN 10%
** RATIO OF 257/259 OUTSIDE OF ACCEPTABLE RANGE

021524

TABLE 2 BLANK SUMMARY FORM

SITE: HER CASE : 0812 DATE: 05/04/87

SOLUTION ID	ION 257	ION 259	ION 268	BLANK RESPONSE	NATIVE CONC
1	355	5301	715479	0.008	0.019
2	1500	6454	766148	0.010	0.025
3	981	3057	526670	0.008	0.018
4	1303	5610	906231	0.008	0.018
5	1825	4805	727729	0.009	0.022
6	2058	5231	653736	0.011	0.026
7	707	4542	541920	0.010	0.023
8	1260	6293	667676	0.011	0.027
9	558	3819	537461	0.008	0.019
10	744	3791	619160	0.007	0.017
11	1403	6817	761787	0.011	0.026
12	1	3932	330813	0.012	0.028
13	1360	4860	609680	0.010	0.024
14	663	4014	508056	0.009	0.022
15	1307	6514	855393	0.009	0.022
16	1316	4457	591202	0.010	0.023
17	1772	7181	796307	0.011	0.027
18	2182	4927	645435	0.011	0.026
19	2257	5650	596849	0.013	0.031
20	562	3543	554208	0.007	0.018

CORRECTION FACTOR = 0.010
LIMIT OF DETECTION = 0.014

* LIMIT OF DETECTION MUST BE LESS THAN 0.3

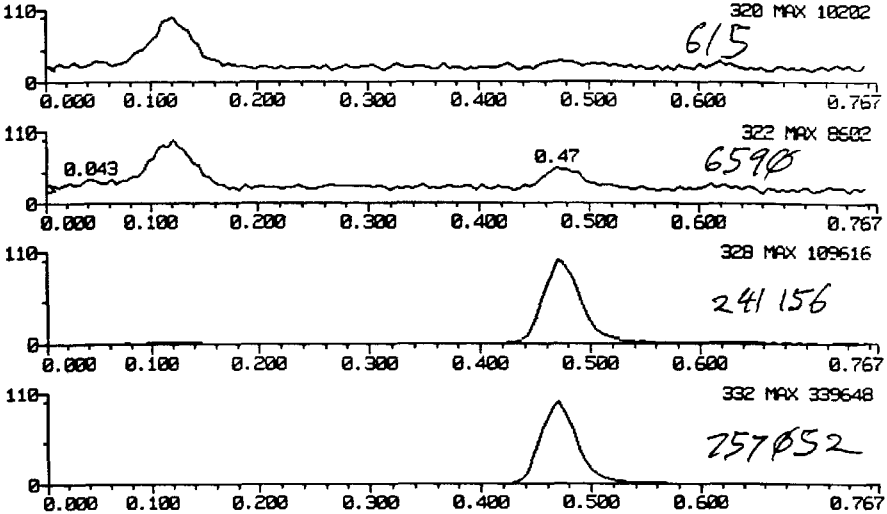
021325

ATTACHMENT 1

SAMPLE MASS CHROMATOGRAMS

021326

AUG1627	1	MIMI				METHOD BLANK					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	1600



16-AUG-88		16:20:07	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.150					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

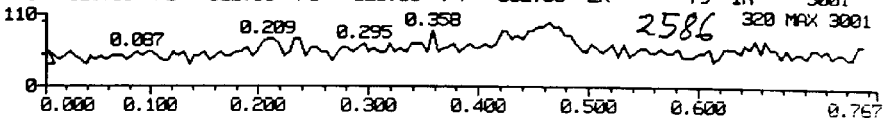
16:20:07

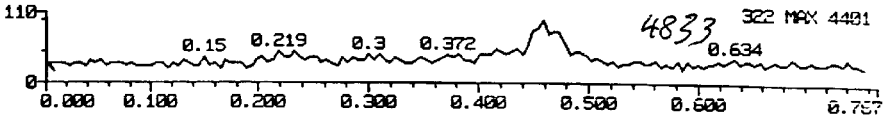
	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

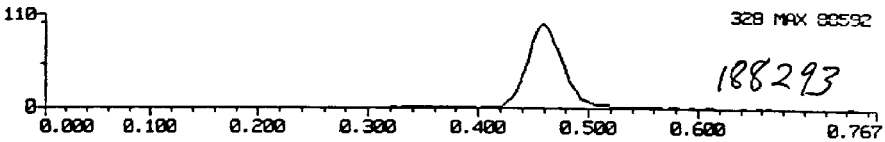
021327

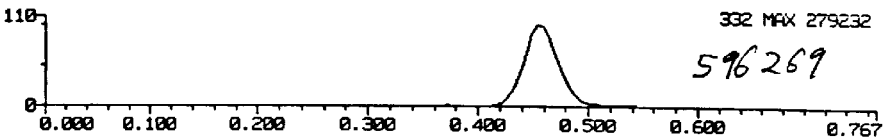
AUG1628 1 MIMI SOIL BLANK IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	5001









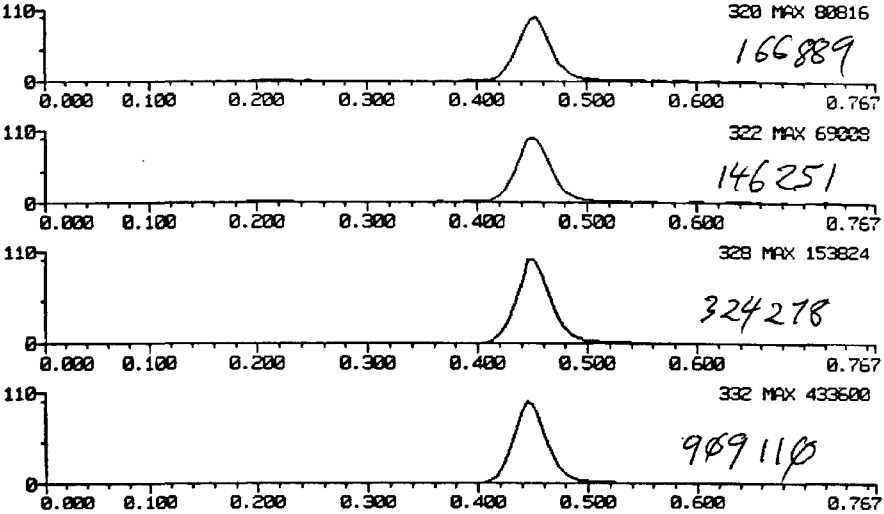
16-AUG-88		16:34:34		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.150					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:34:34

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG1629 1 MIMI SOIL SPIKE IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	86
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	86	TI	00:00:24
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	109	IN	7401

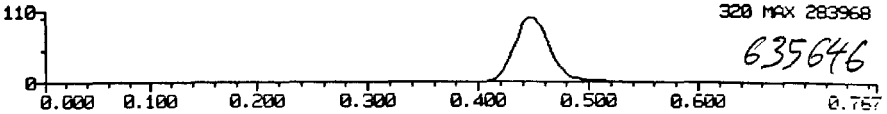


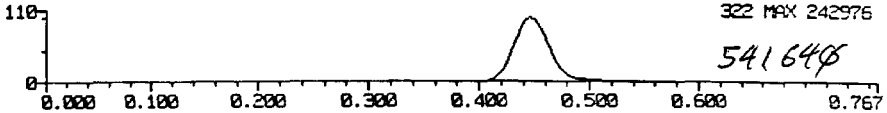
16-AUG-88		16:46:54		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.210					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

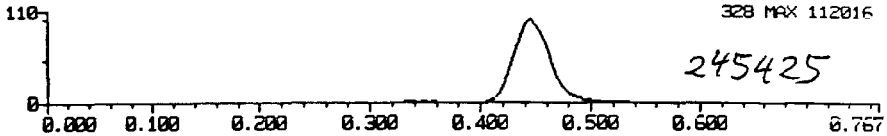
16:46:54

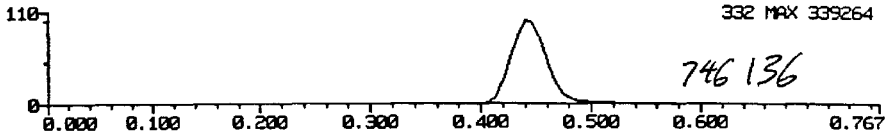
	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG1630	1	MIMI				SOIL PE					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	2400









16-AUG-88		17:01:45		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.220					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

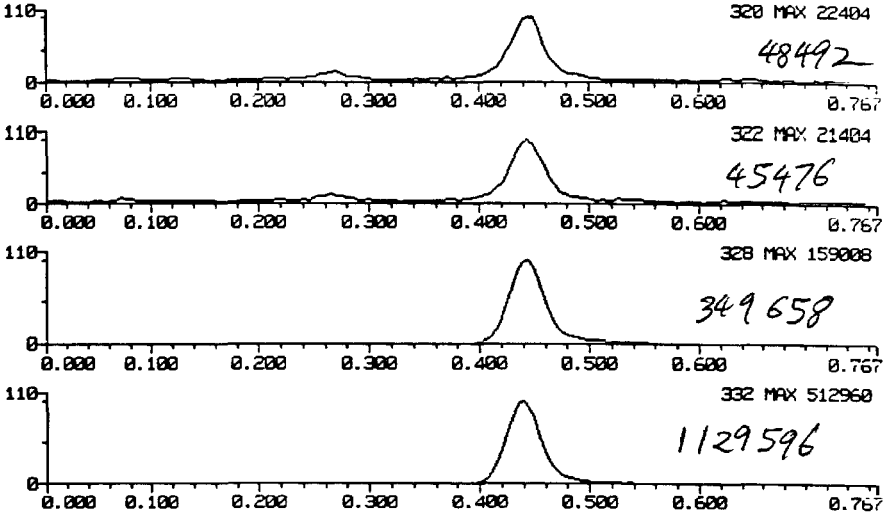
17:01:45

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021530

AUG1631 1 MIMI 2366 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	2200



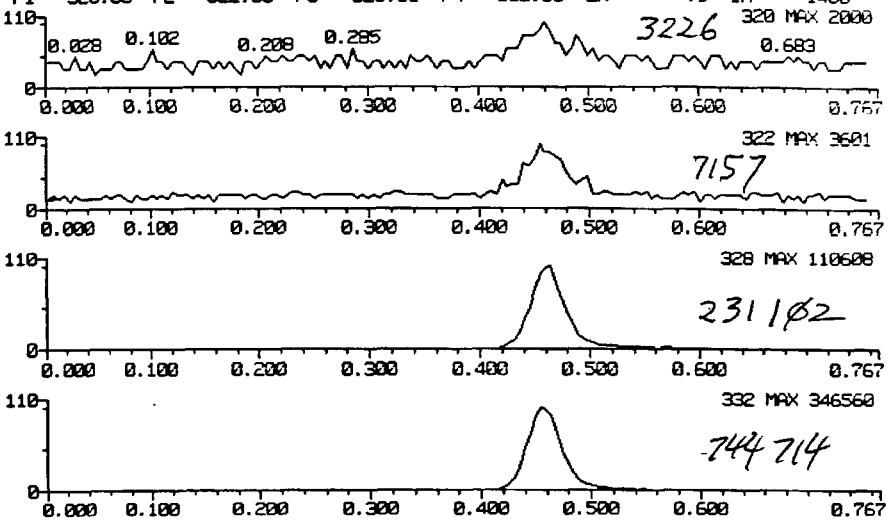
16-AUG-88		17:13:42		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.250					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:13:42

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021331

AUG1632	1	MIMI				2367					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	1400



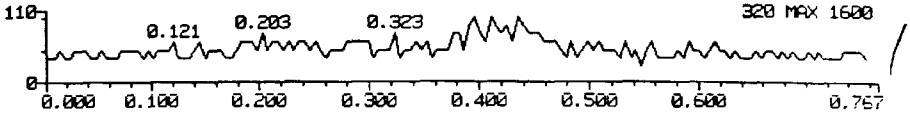
16-AUG-88		17:24:51		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.290					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

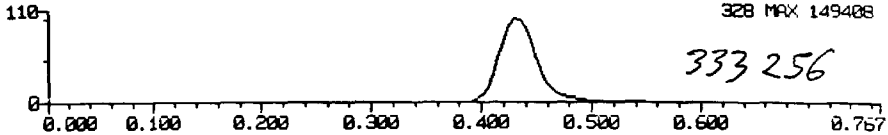
17:24:51

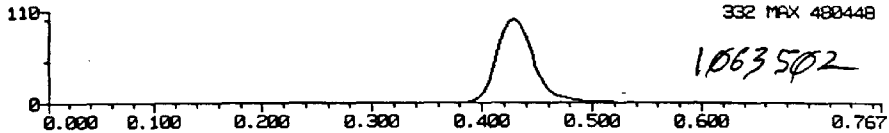
	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG1633 1 MIMI 2370 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	2000





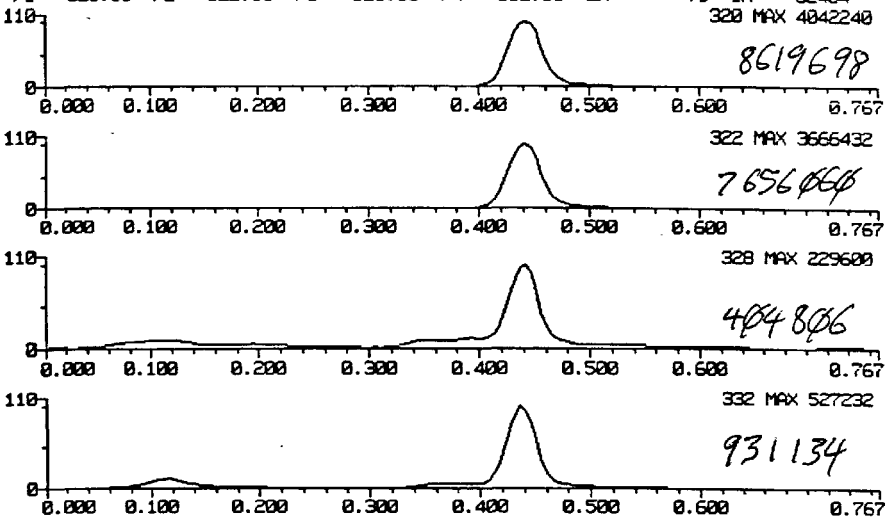


16-AUG-88		17:35:51		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.290					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:35:51

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG1634	1	MIMI				2371					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	32404



16-AUG-88		17:46:37	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.200					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:46:37

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021534

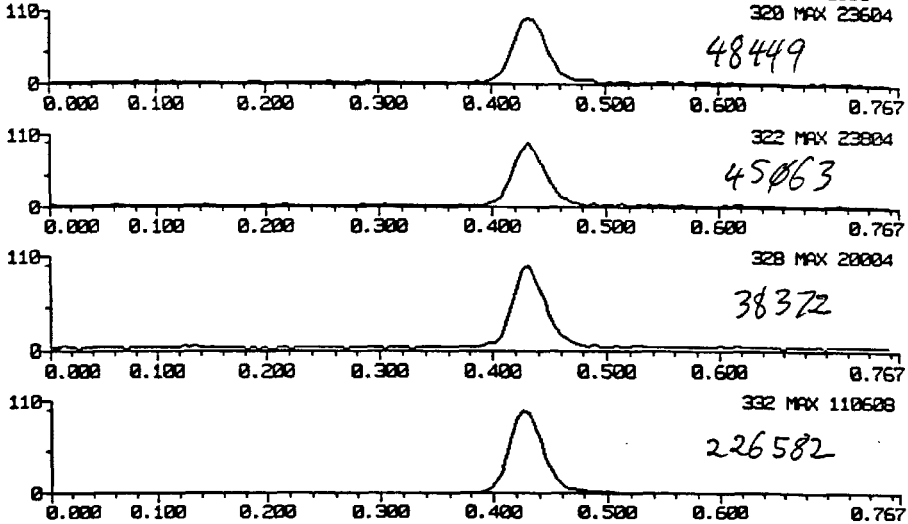
ATTACHMENT 2

DAILY CALIBRATION MASS CHROMATOGRAMS

021335

AUG1601 1 MIMI CAL 1 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	105
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	81	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	105	IN	2000



16-AUG-88		10:04:16		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.150					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

10:04:16

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

RRF 2.167
(102.7%)

0213336

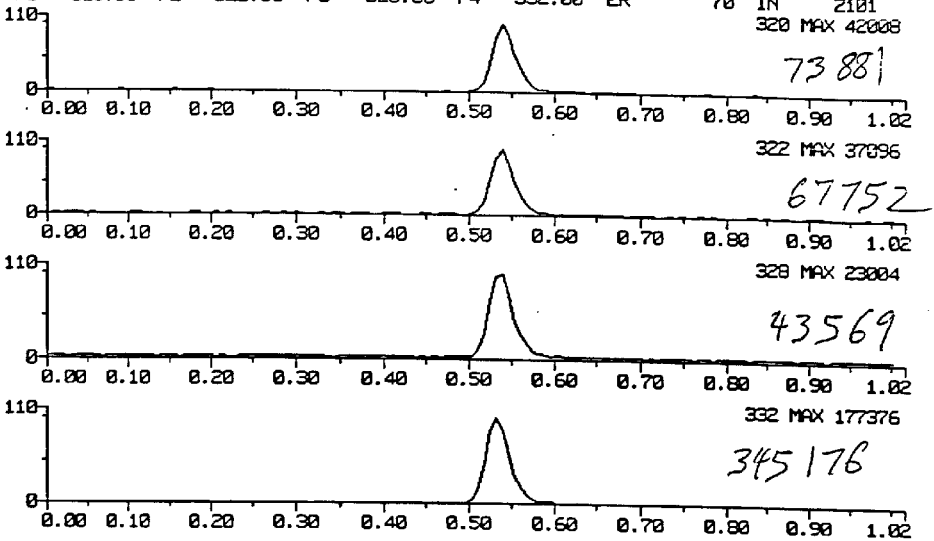
ATTACHMENT 3

INITIAL CALIBRATION MASS CHROMATOGRAMS

0221537

OCT1309 1 MIMI CAL I (C-077-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	2101



Ratio 1.090

13-OCT-87		17:11:31		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:11:31

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

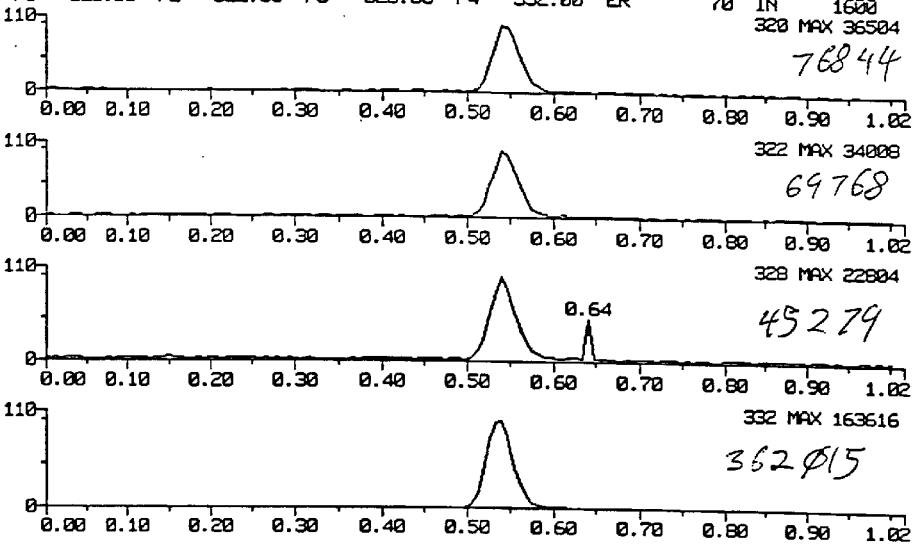
KEM.

$RRF_{native} = 2.154$

$RRF_{surr} = 2.168$

OCT1303 1 MIMI 1 UL CAL I IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1600



13-OCT-87		15:36:52	OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:36:52

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

Native RF 2.126

Surr RRF 2.148

Ad 0.2

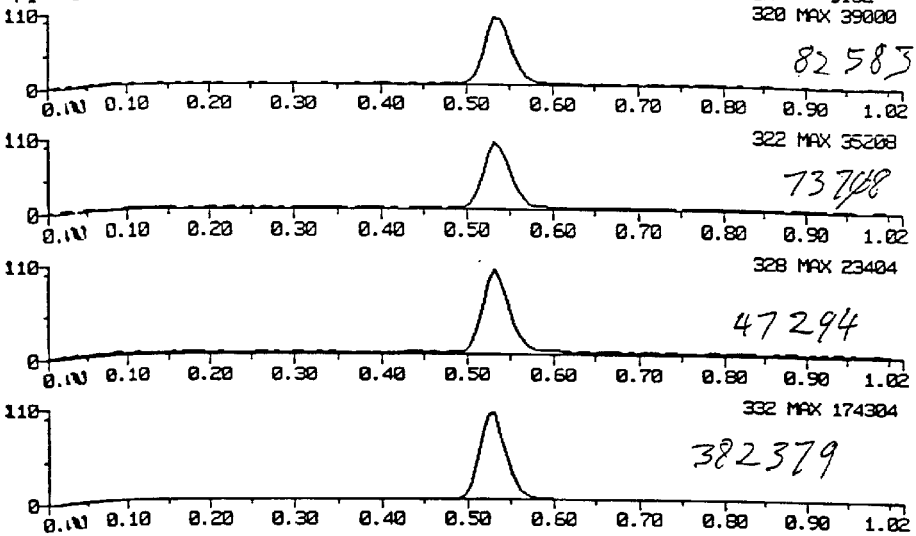
I.S. 1.05

Surr 0.06

021330

OCT1310 1 MIMI CAL I (C-077-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	9102



	13-OCT-87		17:24:01	OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.018					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:24:01

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

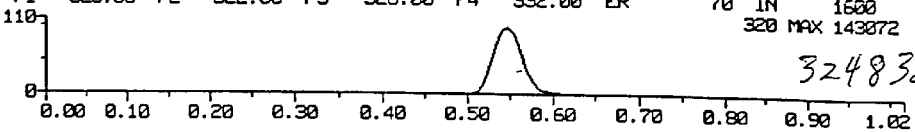
$RRF_{native} = 2.146$

$RRF_{surr} = 2.123$

0213340

OCT1308 1 MIMI CAL II (C-078-02) IM

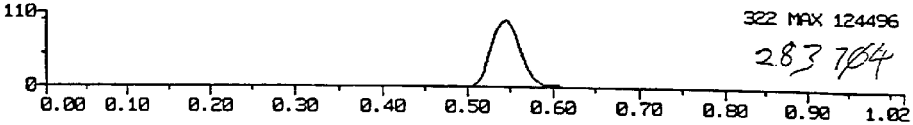
SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1600



320 MAX 143072

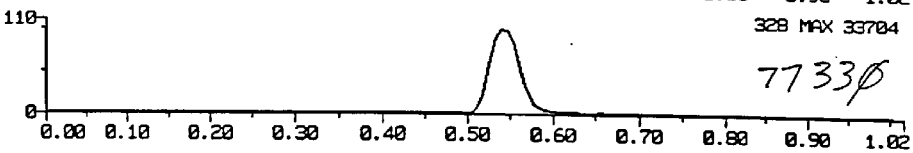
324838

Ratio 1.145



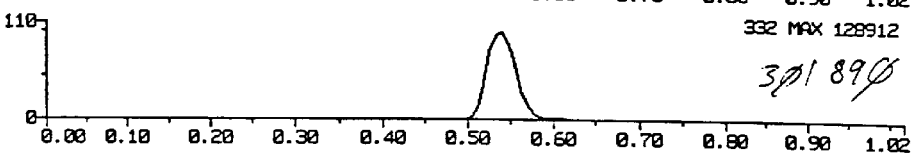
322 MAX 124496

283704



328 MAX 33704

77330



332 MAX 128912

301890

021341

13-OCT-87 16:58:26

SY	200	SE	0	OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
G1	0.000	IT	0.00	C	10	MCL	1260	TH	200	TT	1.00
G2	0.000	LT	0.00	DI	-1.000			MO	0.000	FP	60.00
G3	0.0000	DT	0.000	DIV	-0.983					MU	-4600.0
SAF	0.0	GR	0.01	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
DTV	0.000	ST	0.00	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
				R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:58:26

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

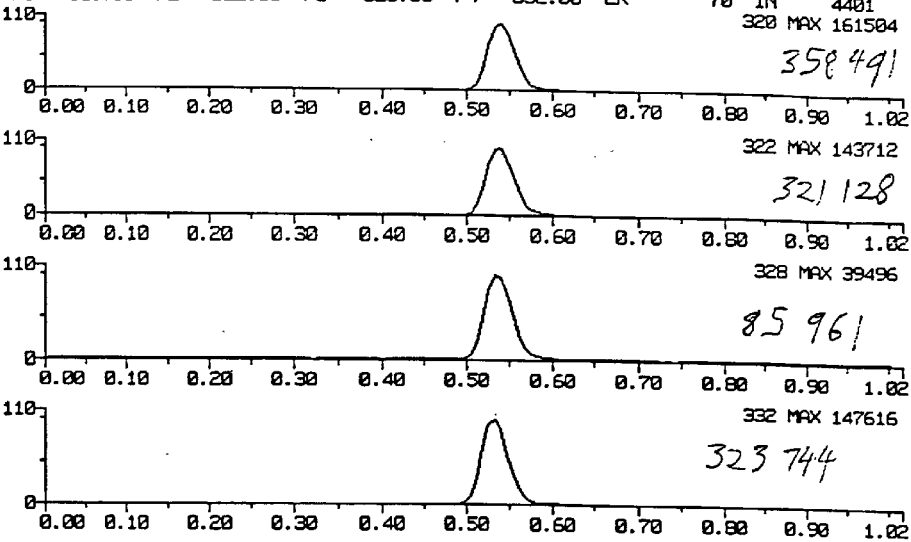
$RRF_{mat} = 2.117$

$RRF_{surr} = 2.333$

03221556

OCT1307 1 MIMI CAL II (C-078-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	4401



Ratio 1.116

021542

13-OCT-87 16:41:35

SY	200	SE	0	OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
G1	0.000	IT	0.00	C	10	MCL	1260	TH	200	TT	1.00
G2	0.000	LT	0.00	DI	-1.000			MO	0.000	FP	60.00
G3	0.0000	DT	0.000	DIV	-0.991					MU	-4600.0
SAF	0.0	GR	0.01	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
DTV	0.000	ST	0.00	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
				R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:41:35

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

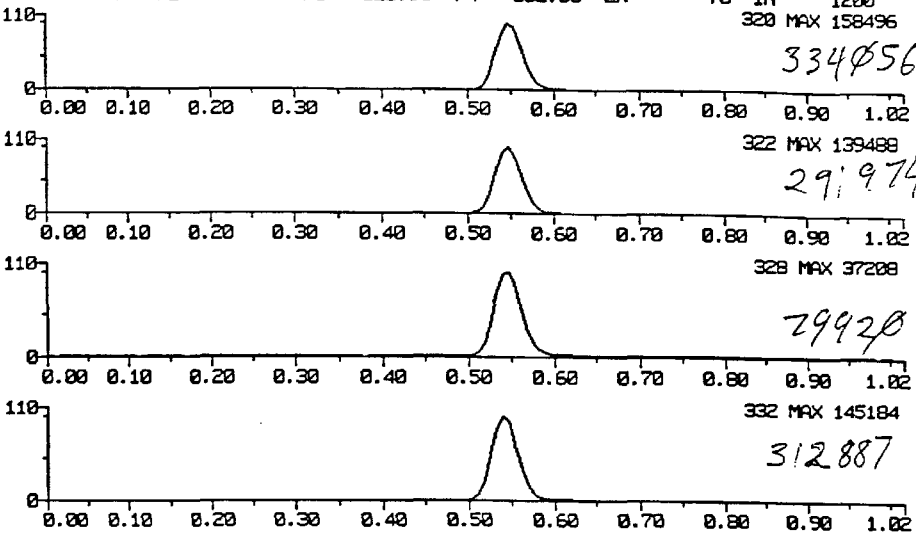
RRF native = 2.204

RRF sun = 2.419

03221557

OCT1302 1 MIMI 1 UL CAL II IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1200



13-OCT-87		15:24:15		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.006					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:24:15

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

Native RF: 2.101

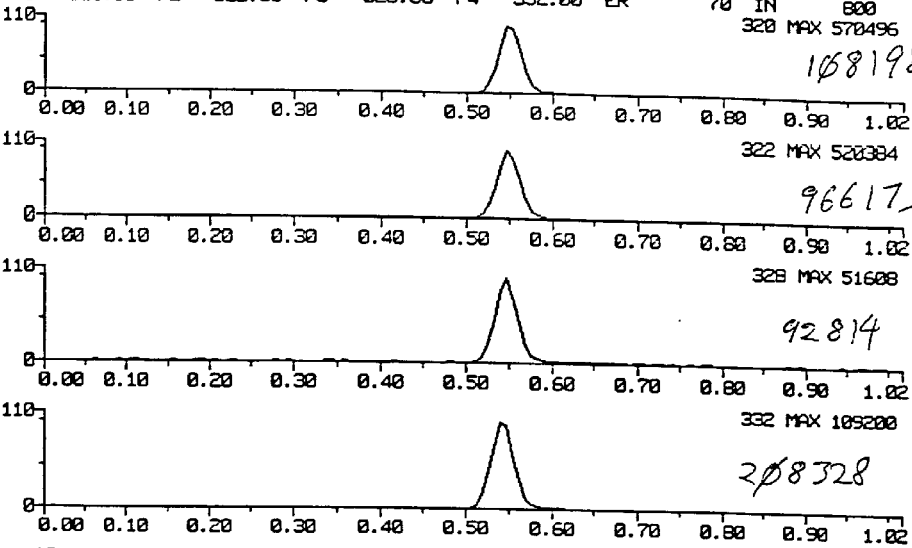
Surr RRF 2.327

0213413

03221558

OCT1305 1 MIMI CAL III (C-079-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	800



13-OCT-87		16:15:36		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.977					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:15:36

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

KLM

$RRF_{std} = 2.065$

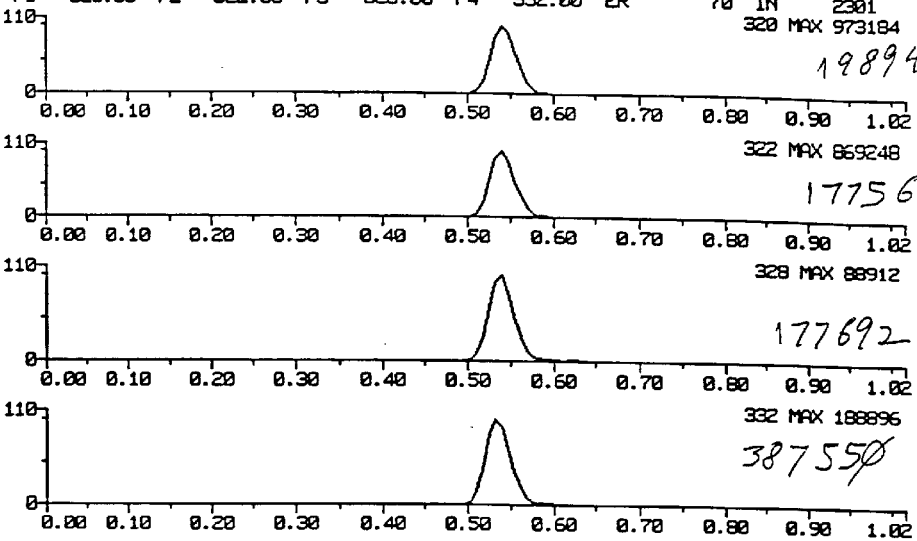
$RRF_{surr} = 2.042$

0215544

OCT1306 1 MIMI CAL III (C-079-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	2301

Ratio 1.120



021345

13-OCT-87		16:27:40		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.981					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:27:40

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

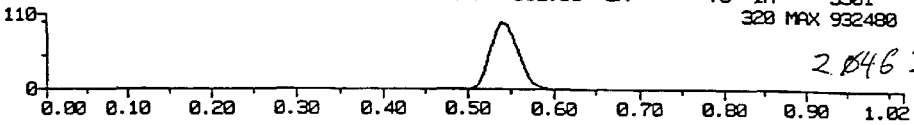
RRF_{mt} = 2.040

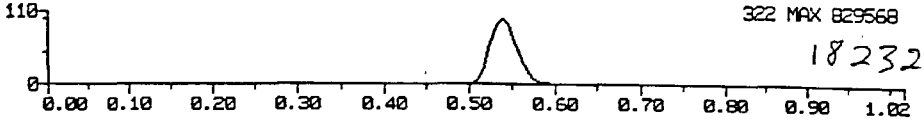
RRF_{surr} = 2.113

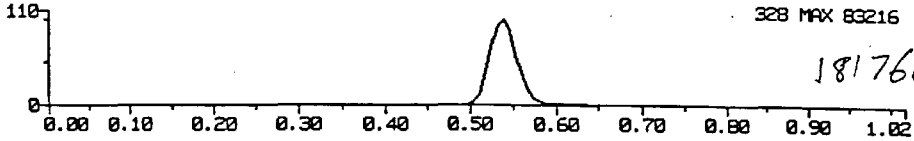
OCT1304 1 MIMI 1 UL CAL III IM

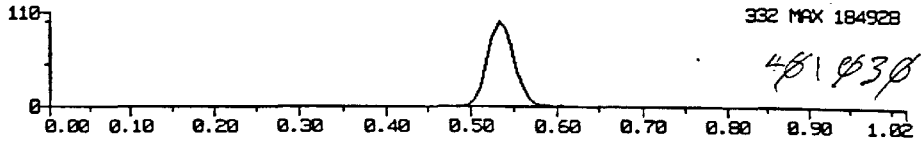
SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	3301

Ratio 1.122









13-OCT-87 15:51:02

				OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.000					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:51:02

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

Native RF: 2.026

RRF_{surr} = 2.088

021346

03221561

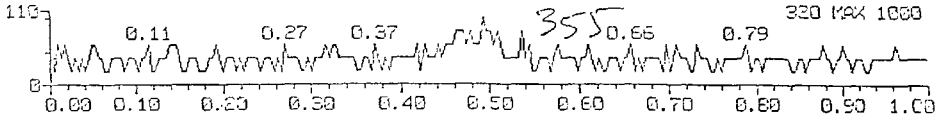
021347

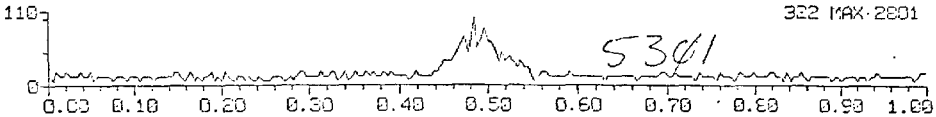
ATTACHMENT 4

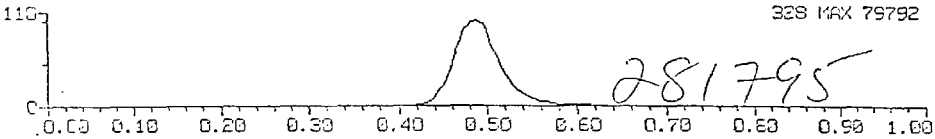
BLANK CALIBRATION MASS CHROMATOGRAMS

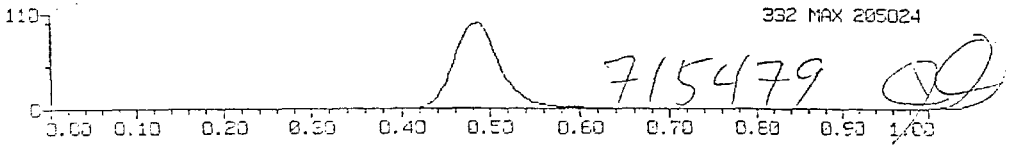
MAY0423 1 NIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	323.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2601









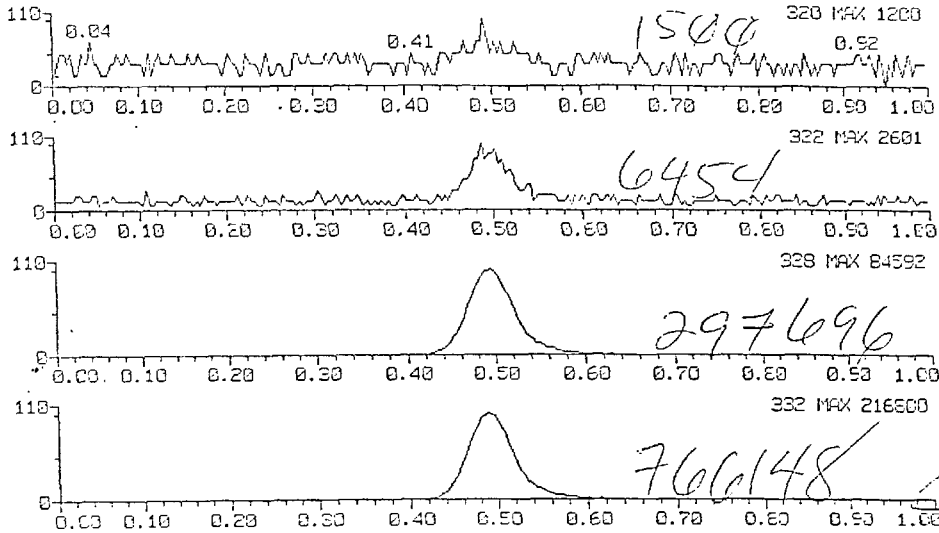
	4-MAY-87		09:33:58	CP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
S/	200	SE	0	C	10	MCL	1280	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.010					MU	-4600.0
GE	0.0000	DT	0.000	IN	0.00	DM1	0.0320	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:33:58

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

MAY0422 1 MIMI SPIKE II C-096 3/85 IN

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	151	IN	2400



	4-MAY-87		09:29:22	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1200	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.005					MJ	-4000.0
G3	0.0000	DT	0.000	IN	0.00	IM1	0.0000	CGT	0.0	IM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	FE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:29:22

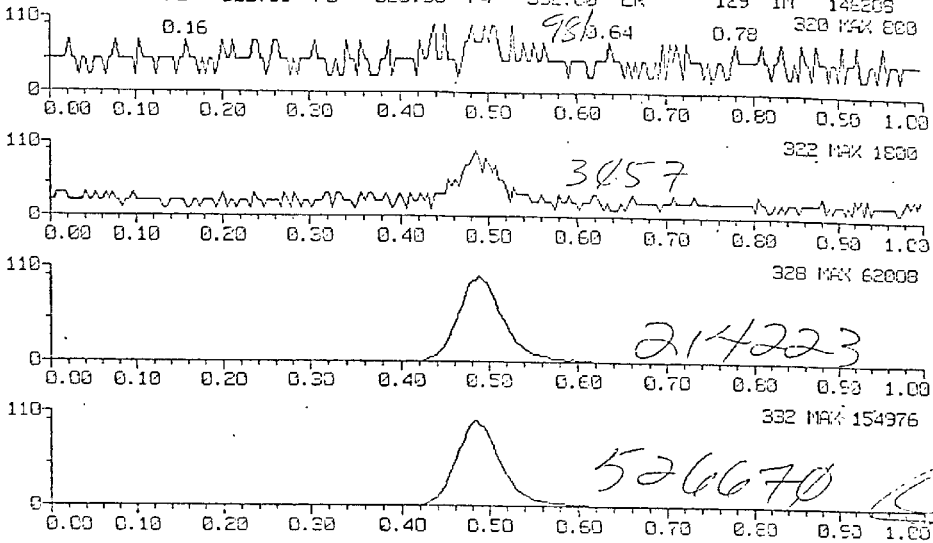
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021349

03221564

MAY0421 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	149209



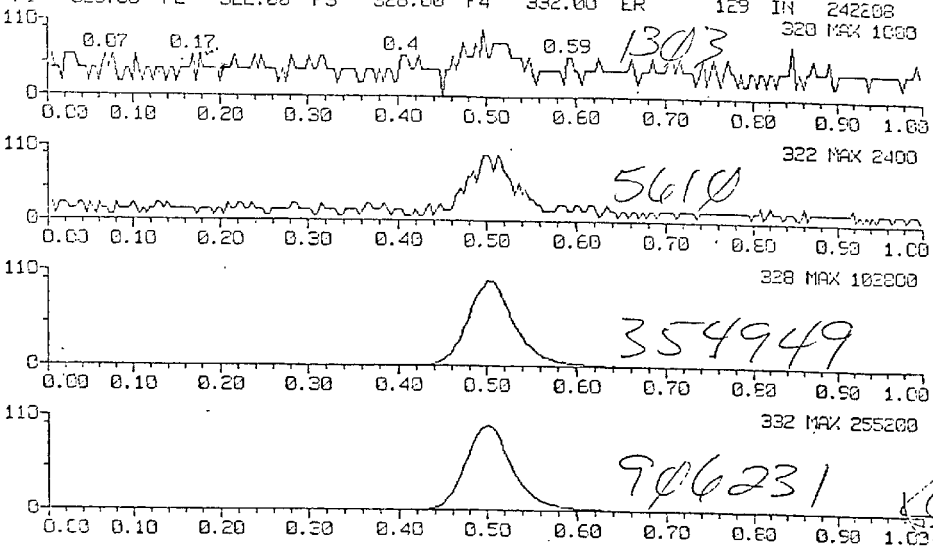
	4-MAY-87		09:23:10	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	210	SE	0	C	10	MOL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.02	DIV	-0.998					MU	-4800.0
G3	0.0000	DT	0.000	IN	0.00	IM1	0.0000	CGT	0.0	IM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:23:10

	CG=SW	
1	330	257
	322	259
	328	263
	332	268

MAY0420 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	EO	0	TO	110	GR	LNNP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30
F1	330.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	242208



4-MAY-87		09:17:38		OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.007					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SPF	0.0	GR	0.10	CR	0.00	PE1	65.00	CG	OFF	PE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:17:38

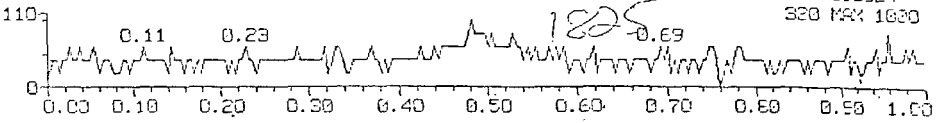
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

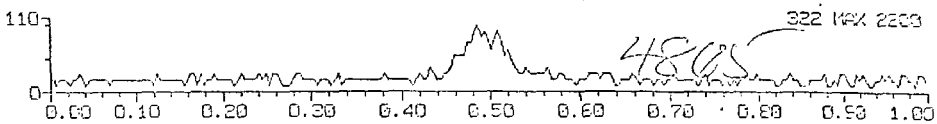
021351

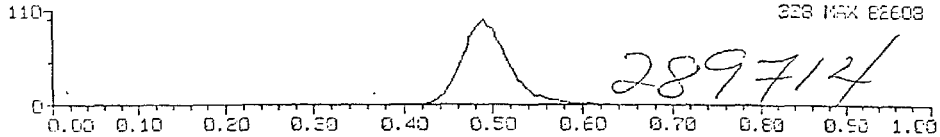
03221566

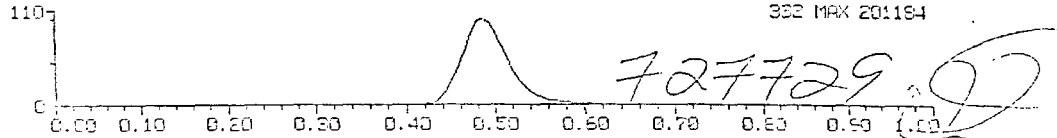
MAY0419 1 MIMI SPIKE II C-096 3/65 JM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	269.00	SR	129	TI	00:00:30
F1	320.00	F2	322.00	F3	329.00	F4	332.00	ER	129	IN	193924









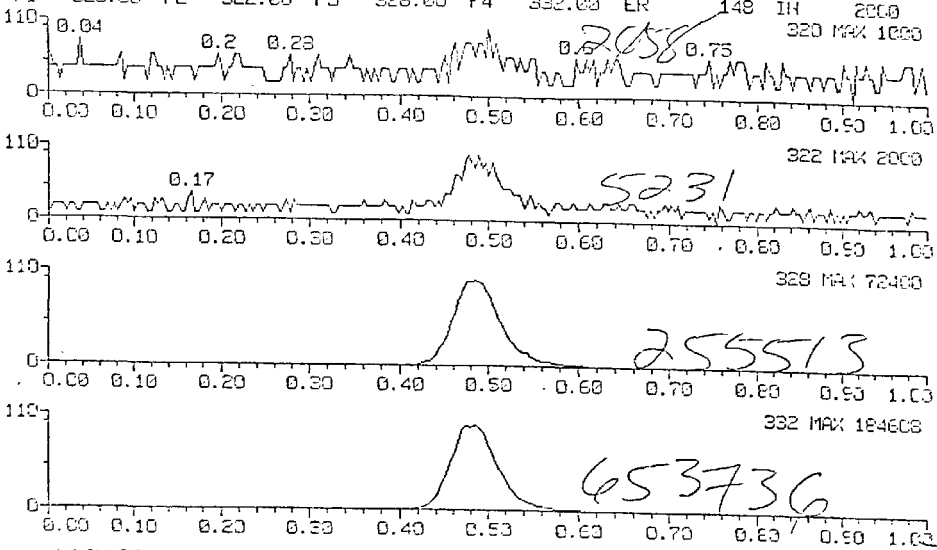
	4-MAY-87		09:09:56	CP	JRF	NTL	0.0500	STEP	0.1000	FE	0.00
SW	200	SE	0	C	10	NCL	1330	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.952					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	FE3	65.00
ITV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-55.00

09:09:56

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

MAY0418 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	109
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	148	IN	2000



	4-MAY-87		09:05:06	CP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SW	200	SE	0	C	10	MCL	1280	TH	100	TT	1.00
S1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
S2	0.000	LT	0.00	DIV	-0.995					NU	-4000.0
S3	0.0000	DT	0.000	IN	0.00	IM1	0.0000	CGT	0.0	DMB	0.0000
SHF	0.0	GP	0.10	CP	0.00	FE1	65.00	CG	OFF	FE3	65.00
DTV	0.000	ST	0.00	FO	-60.00	R1	-20.00	F2	-55.00	R3	-85.00

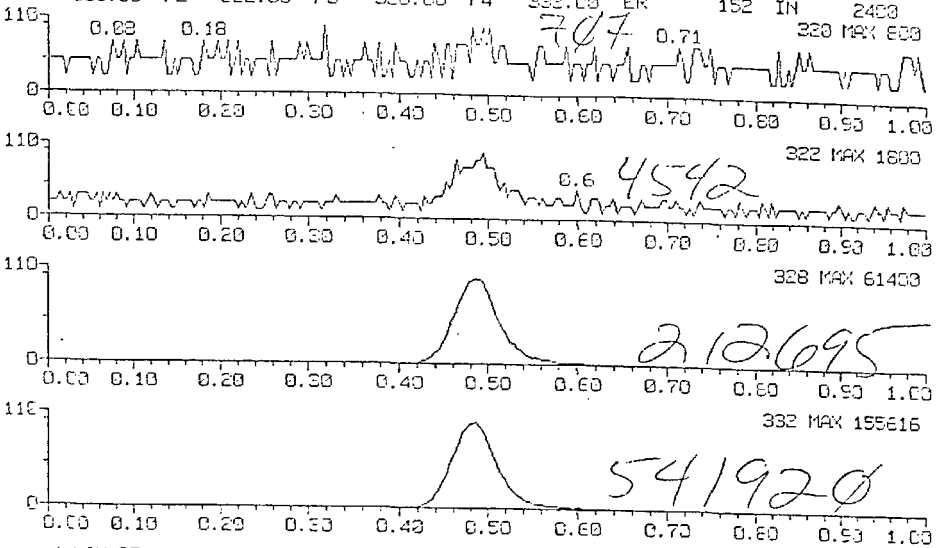
09:05:06

CG=SW

1	320	257
	322	259
	328	263
	332	268

MAY0417 1 MINI SPIKE II C-056 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LINNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400



	4-MAY-87		09:00:24	CP	JRF	MTL	0.0000	STEP	0.1000	PE	0.00
SY	200	SS	0	C	10	MOL	1200	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.991					MU	-4000.0
G3	0.0000	DT	0.000	IN	0.00	IM1	0.0000	CGT	0.0	IM3	0.0000
S-F	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-80.00	R2	-55.00	R3	-65.00

09:00:24

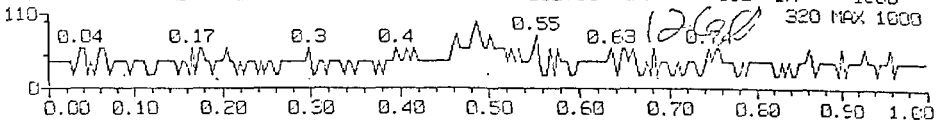
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

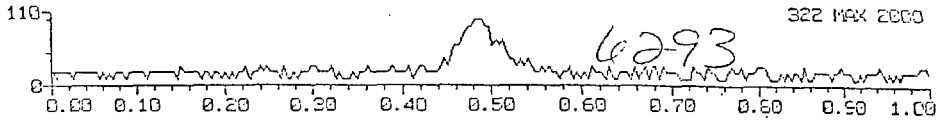
0213354

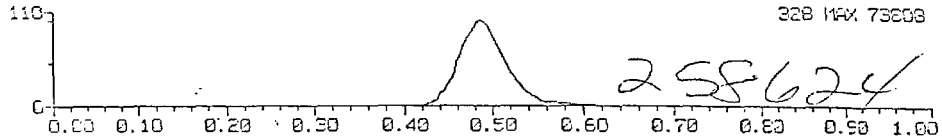
03221569

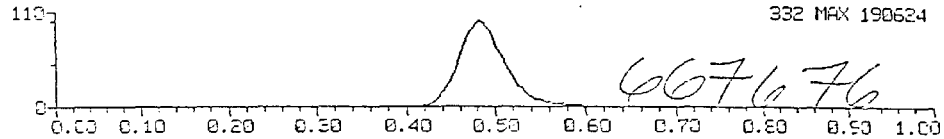
MAY0416 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LIN:P	SE	108
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	103	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	1600









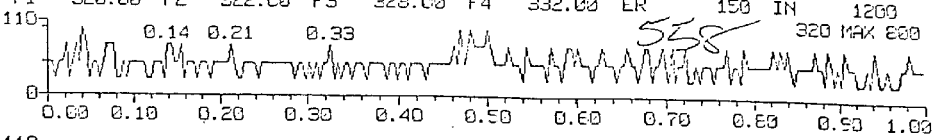
	4-MAY-87		09:55:50	CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	300	SE	0	C	10	MCL	1330	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.591					MU	-4500.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
ITV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

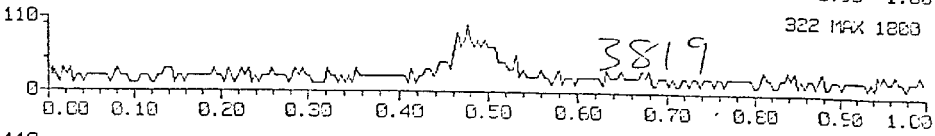
09:55:50

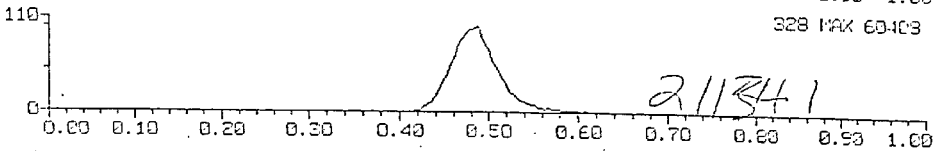
	CG=SN	
1	320	257
	322	259
	328	263
	332	268

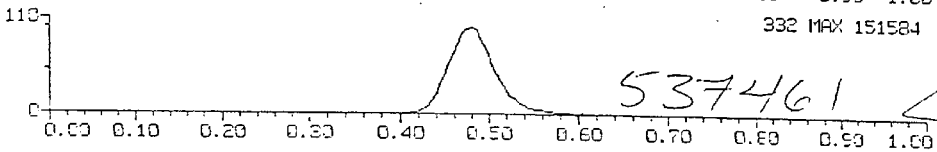
MAY0415 1 MIMI SPIKE II C-095 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LINNP	SE	107
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	107	TI	00:00:24
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	150	IN	1200









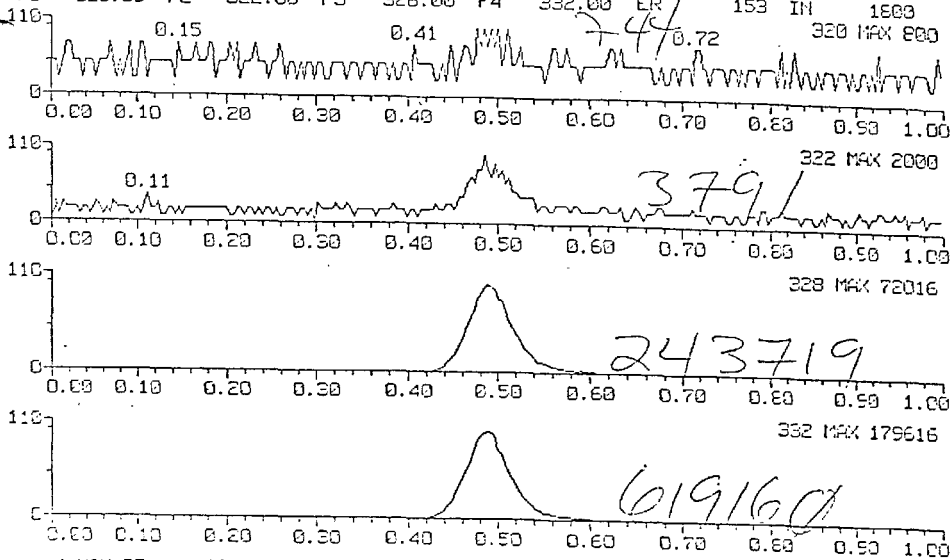
	4-MAY-87		08:51:05	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SV	200	SE	0	C	10	MCL	1200	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.984					MU	-4000.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	FE1	65.00	CG	OFF	RE3	-85.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:51:06

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

MAY0414 1 MIMI SPIKE II C-096 3/85

SS	1	ES	258	BO	0	TO	110	GR	LNMP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	153	IN	1600



4-MAY-87 09:46:23

SW	200	SE	0	C	10	MTL	0.0500	STEP	0.1000	FE	0.00
S1	0.000	IT	0.00	DI	-1.000	MCL	1250	TH	100	TT	1.00
S2	0.000	LT	0.00	DIV	-0.994			MO	-1.000	FP	60.00
S3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	MU	-4500.0
SRF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	DM3	0.0000
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	FE3	65.00
										R3	-65.00

09:46:23

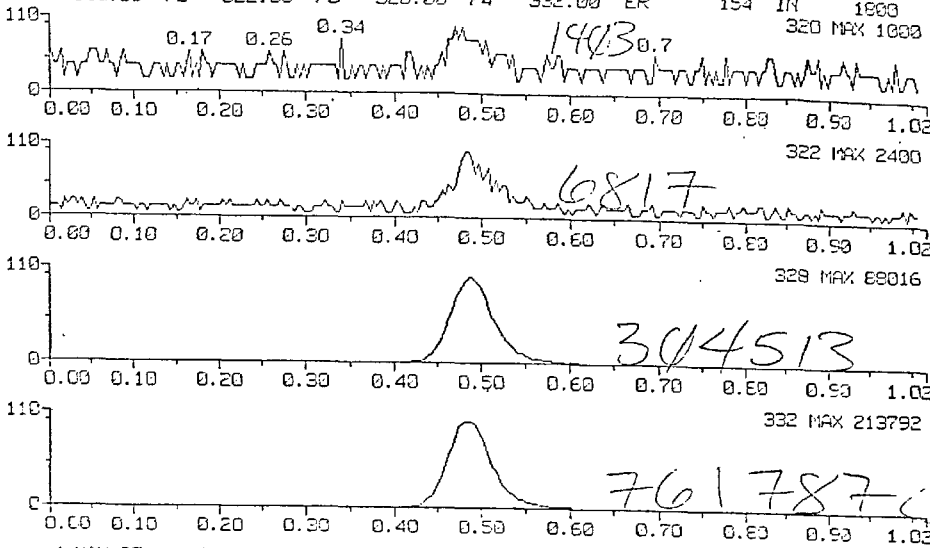
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021357

MAY0413 .1 MIMI SPIKE II C-096 3/85

SS	1	ES	260	BO	0	TO	110	GR	LINP	SE	103
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	154	IN	1000

IM



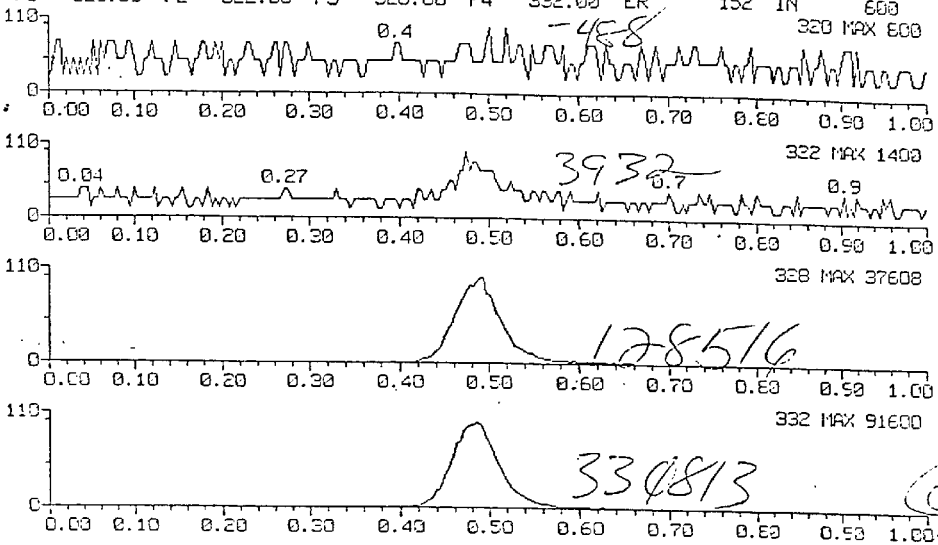
4-MAY-87		09:41:40		CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	68.00
G2	0.000	LT	0.00	DIV	-1.010					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	85.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:41:40

	CG=SN	
1	320	257
	322	259
	328	263
	332	268

MAY0412 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	106
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	105	TI	00:00:24
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	600



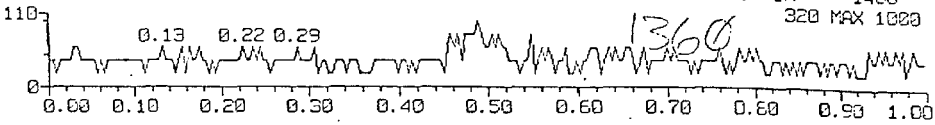
4-MAY-27		08:37:03		OP		JRF	MTL	0.0500	STEP	0.1000	FE 0.00
SY	200	SE	0	C	10		MCL	1250	TH	100	TT 1.00
G1	0.000	IT	0.00	DI	-1.000				MO	-1.000	FP 60.00
G2	0.000	LT	0.00	DIV	-1.000						MU -4600.0
G3	0.0000	DT	0.000	IN	0.00		DM1	0.0000	CGT	0.0	DM3 0.0000
SAF	0.0	GR	0.10	CR	0.00		FE1	65.00	CG	OFF	RE3 -65.00
DTV	0.000	ST	0.00	F0	-60.00		R1	-20.00	R2	-55.00	R3 -65.00

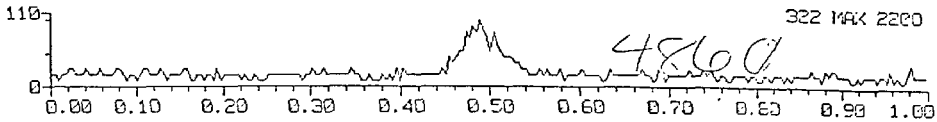
08:37:03

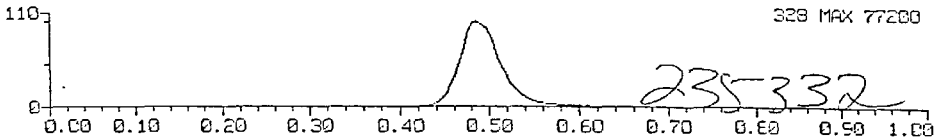
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

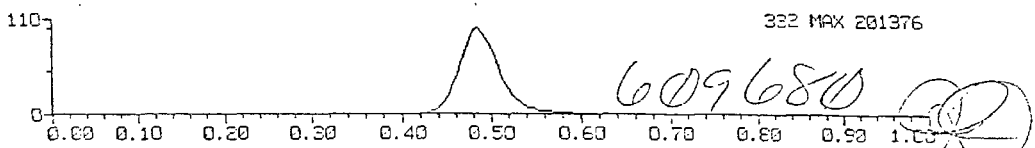
MAY0411 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	111
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	111	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	149	IN	1400









	4-MAY-87		08:32:16	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1280	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.986					MU	-4800.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0200
SAF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

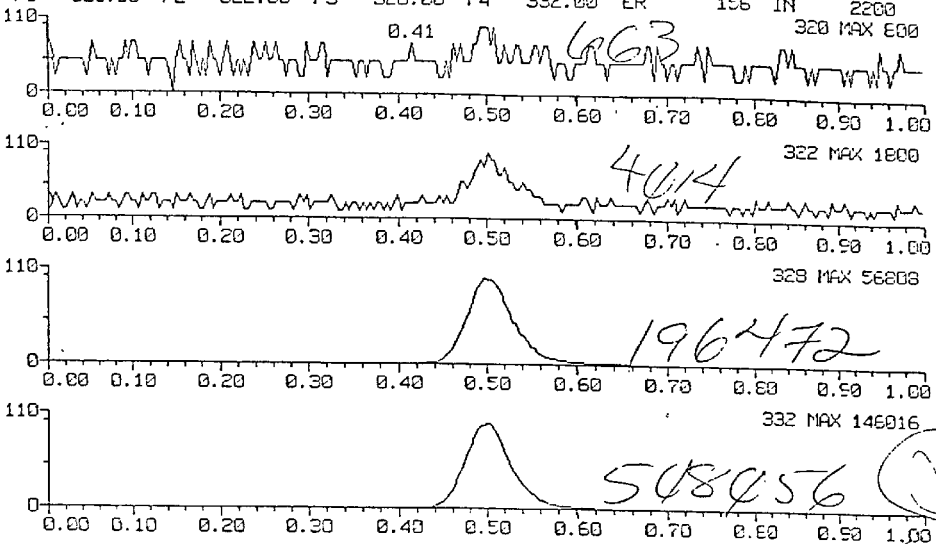
08:32:16

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021360

MAY0410 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	EO	0	TO	110	GR	LNNP	SE	114
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	114	TI	00:00:26
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	156	IN	2200



4-MAY-87		08:26:35		OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:26:35

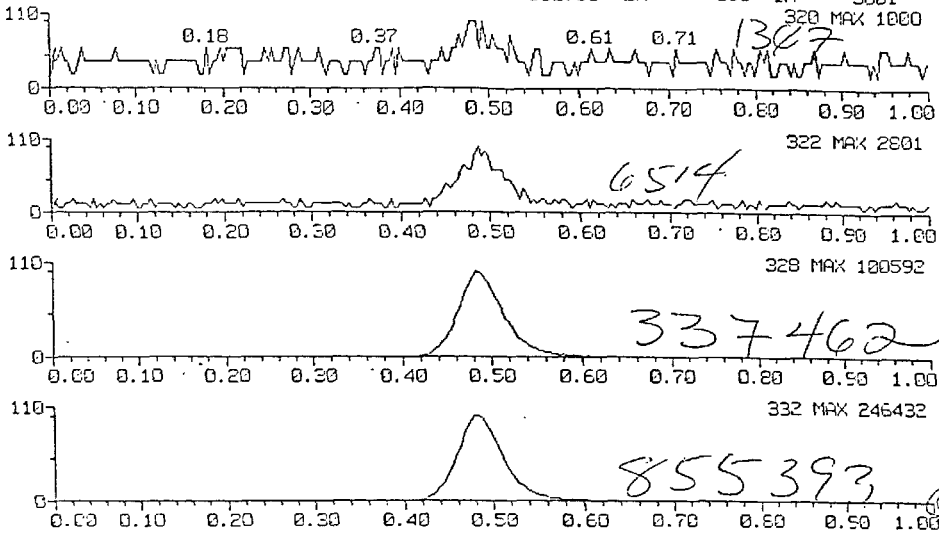
	CG=SN	
1	320	257
	322	259
	328	263
	332	268

021361

03221576

MAY0409 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	109
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	151	IN	3801



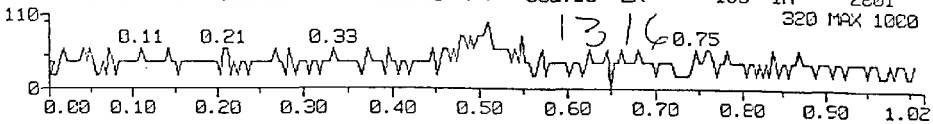
	4-MAY-87		08:21:17	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.997					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	85.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

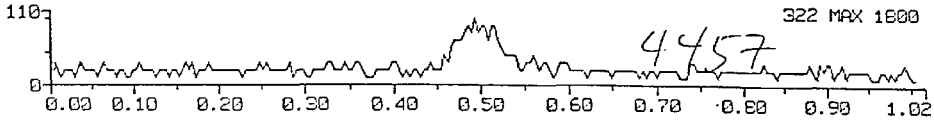
08:21:17

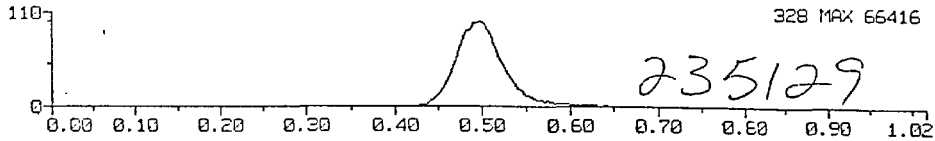
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

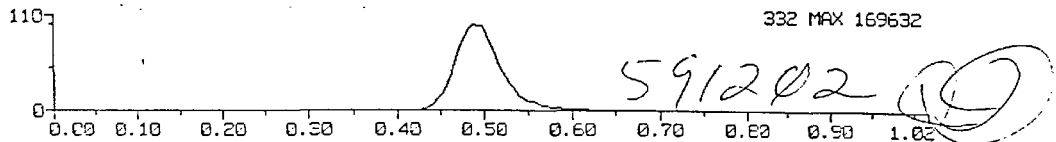
MAY0409 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	260	BO	0	TO	110	GR	LNNP	SE	112
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	112	TI	00:00:26
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	153	IN	2801









4-MAY-87		08:16:16		OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.994					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SPF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:16:16

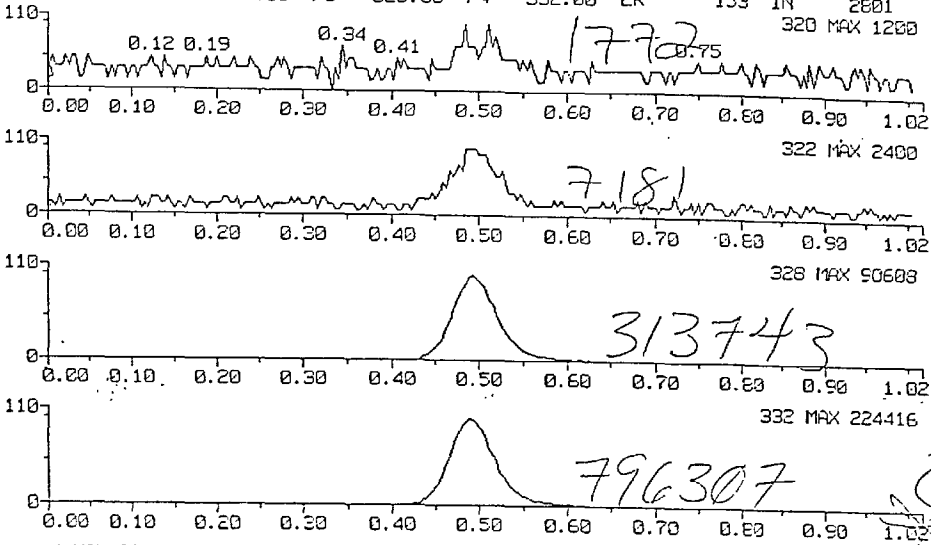
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021363

03221578

MAY0407 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	260	BO	0	TO	110	GR	LNNP	SE	111
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	111	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	153	IN	2801



4-MAY-87		08:10:46		OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	220	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.004					MU	-4600.0
G3	0.0000	DT	0.020	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:10:46

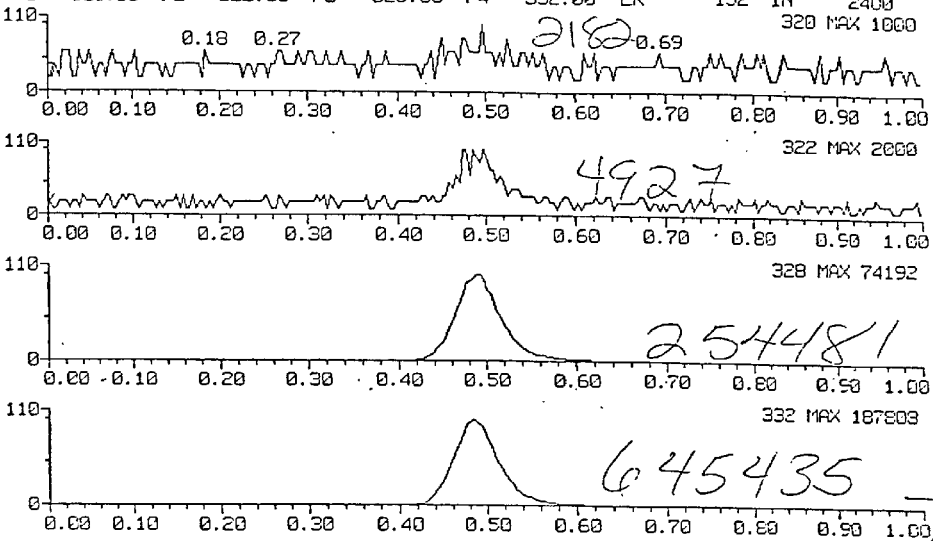
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021364

03221579

MAY0406 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400



4-MAY-87 08:06:01

				OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.012					MU	-4500.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SPF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

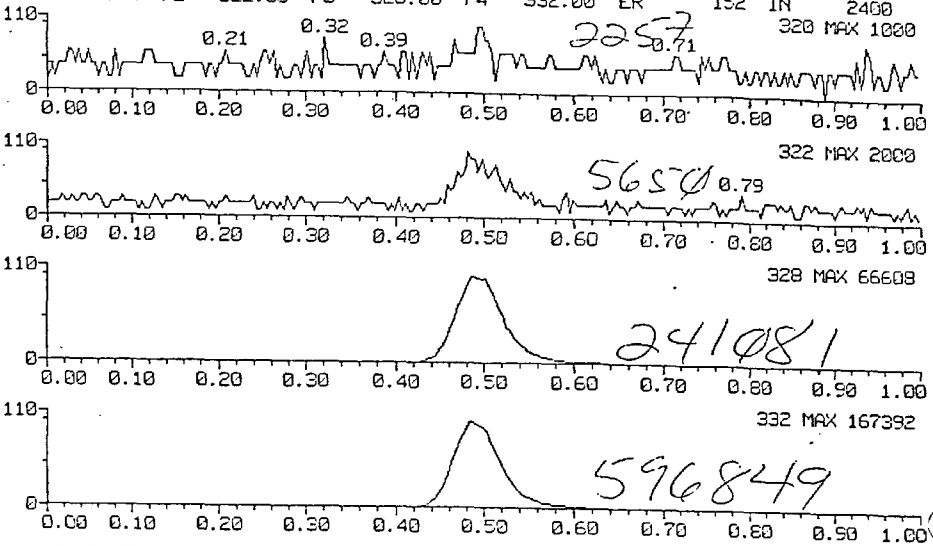
08:05:01

CG=SW

1	320	257
	322	259
	328	263
	332	268

MAY0405 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	111
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	111	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400



	4-MAY-87		08:00:47	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.995					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:00:47

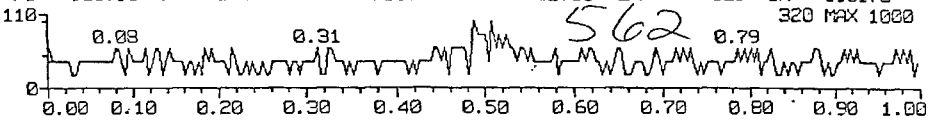
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

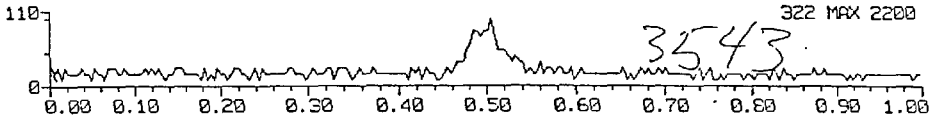
021366

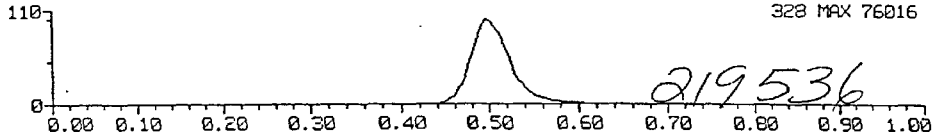
03221581

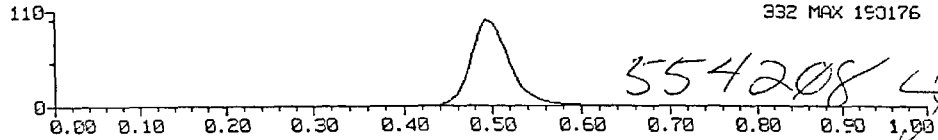
MAY0404 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	190176









	4-MAY-87		07:53:06	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.003					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

07:53:06

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021367

ATTACHMENT 5

CHAIN OF CUSTODY, GC/MS/MS LOG, EXTRACTION RECORD

021368

021369

INTERNATIONAL TECHNOLOGY CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. 52248

C/C Control No. 47300

03221584

PROJECT NAME/NUMBER Jacksonville Offsite/480078.01.08.02

LAB DESTINATION TMS-Indianapolis, Indiana

SAMPLE TEAM MEMBERS D. Simerly & D. Peery

CARRIER/WAYBILL NO. FED Exp 9088172936

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
WH2366	Jacksonville, Arkansas	08/11/88 @ 1658	SOIL	125CC GLASS		
WH2367	ADP 08/11/88	08/11/88 @ 1700	LIQUID ~~SOIL~~			
~~WH2369~~		~~08/11/88 @ 1720~~	~~LIQUID~~			
WH2370		08/11/88 1720	LIQUID	125CC GLASS		
WH2371	Jacksonville, Arkansas	08/11/88 1720	SOIL	40ML VOA		

Special Instructions:

Possible Sample Hazards: Dioxin

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Doug Peery 08/11/88 @ 1845
   Received By: [signature] 8/12/88 0930
2. Relinquished By:
   Received By:
3. Relinquished By:
   Received by:
4. Relinquished By:
   Received By:

WHITE - To accompany samples
YELLOW - Field copy

INTERNATIONAL TECHNOLOGY CORPORATION

021370

REQUEST FOR ANALYSIS

R/A Control No. 52248
C/C Control No. 47300

PROJECT NAME: Jacksonville Offsite
PROJECT NUMBER: 480078 01 08 02
PROJECT MANAGER: Dana Simerly
BILL TO: Hercules, Inc.
1313 N Market St
Wilmington, DE. 19894

PURCHASE ORDER NO.

DATE SAMPLES SHIPPED: 08/11/88
LAB DESTINATION: TMS Analytical Service
LABORATORY CONTACT: Cindy Krauss
SEND LAB REPORT TO: Florence K Iwanoshita Ph.D.
Medical Dept
Hercules Inc.
DATE REPORT REQUIRED: 48 hrs
PROJECT CONTACT: Dana Simerly
PROJECT CONTACT PHONE NO.: 501-982-1513

03221583

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
WH2366	SOIL	≈ 35 g	None	2,3,7,8-TCDD GC/MS/MS	
WH2367	LIQUID	≈ 50 mL			REPORT AS TNg
WH2370	LIQUID	≈ 40 mL			REPORT AS TNg
WH2371	SOIL	≈ 35 g	None	2,3,7,8-TCDD GC/MS/MS	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal _____ Rush X (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard _____ Flammable _____ Skin Irritant _____ Highly Toxic _____ Other PCDD/PCDF (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client _____ Disposal by Lab _____

FOR LAB USE ONLY

Received By D Littler Date/Time 8/12/88 0930

WHITE - Original, to ... mpany samples
YELLOW - Field co...

e No.__ 3 2220

AUG 1601	1004	CAL 1
02	1023	Mth Blk
03	1034	Soil Blank
04	1045	Soil Spike
05	1055	Soil PE
06	1106	V583
07	1117	V584
08	1128	V585
09	1139	V586
10	1150	V587
11	1204	V588
12	1226	V589
13	1239	V590
14	1250	V591
15	1319	V592
16	1331	V593
17	1343	V594
18	1356	V595
19	1408	V596
20	1420	V597
21	1432	V598
22	1446	V599
23	1458	V600
24	1511	V601
25	1523	V602
26	1536	V603
27	1620	Mth Blk
28	1634	Soil Blank (R)
29	1646	Soil Spike (R)
30	1701	Soil PE (R)
31	1713	2366
32	1724	2367
33	1735	2370
34	1746	2371
35	1758	CAL 1 Native Carryover
36	1813	" "

To Page No. 14

021371

ed & Understood by me: | Date 8/16/88 | Invented by K.E.M. | Date

Recorded by

03221586

TIALS HDS

3 2221

SMO SAMPLE #	EPA SAMPLE #	SAMPLE WEIGHT	EXTRACTION VOLUME	OPTION A CLEANUP	OPTION D CLEANUP	SPIKING SOL'N ADDED	COMMENTS
MB2	—	5.00g	6.0 mL	✓		50 µL II	
SB2	OCL34505	5.00				"	
SS2	OCL35548	5.00				50 µL I	
PE-B2	—	5.00				50 µL II	
VH 2366		4.97	✓				soil
" 2367		40 mL	40 mL				liquid
" 2370		9 mL	9 mL				liquid
" 2371		5.05	6.0 mL	✓		✓	soil

021372

03221587

3 2222

TMS ANALYTICAL SERVICES, INC.

TANDEM MASS SPECTROMETRY

6570 Mooney Trail
Indianapolis, Indiana 46268
317 291-5697

021373

August 19, 1988

Dr. Florence K. Kinoshita
Medical Department
Hercules Incorporated
1313 N. Market Street
Wilmington, DE 19894

Dear Dr. Kinoshita:

Enclosed are analytical results for the analysis of 14 samples for 2,3,7,8-TCDD. These samples were analyzed according to the procedures outlined in the USEPA Contract Laboratory Program "Statement of Work for Rapid Turnaround Dioxin Analysis in Multi-Media", November 1986. Sample preparation and analysis procedures from the "Rapid Determination of TCDD In Soil and Sediment Samples, Using Gas Chromatography and Tandem Mass Spectrometry" were used. These samples were received as Shipment HERCULES for analysis on 08/15/88 at 09:25. The analytical results of Filename HER0815A were sent by FAX at 10:30 on August 17, 1988.

If you should have any questions regarding these data or this report, please feel free to contact me at (317)291-5697.

Very truly yours,

Dennis L. Heuring, Ph.D.

Dennis L. Heuring, Ph.D.
President

ENCLOSURES:

03221588

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021374

TMS
TANDEM MASS SPECTROMETRY

TMS ANALYTICAL SERVICES, INC.

6376 Morenci Trail
Indianapolis, Indiana 46268
317-291-5697

021375

TCDD FINAL DATA REPORT SHEET

FILE RECEIVED DATE:
FILE RECEIVED TIME:

SITE: MEF
CASE: 0815
DATE: 08/17/88

AREA #	CLIENT SAMPLE #	ANALYSIS DATE	ANALYSIS TIME	NATIVE RATIO	SURROGATE ACC	TCDD CONC.	RERUN CODE	VALID CODE	UNITS	COMMENTS
METHBLANK	METHBLNK	08/16/88	1829	0.48*	73.18	0.300 U			NG/GM	
SOILBLANK	OCL34575	08/16/88	1841	0.77*	72.50	0.300 U			NG/GM	
SOILSPIKE	OCL35562	08/16/88	1853	1.16	84.89	0.823			NG/GM	
SOIL PE	PE-A	08/16/88	1904	1.16	72.09	0.781			NG/GM	
WH2372	WH2372	08/16/88	1916	1.05	71.94	0.300 U			NG/GM	
WH2373	WH2373	08/16/88	1930	1.10	72.44	0.300 U			NG/GM	
WH2374	WH2374	08/16/88	1942	1.09	71.46	0.300 U			NG/GM	
WH2375	WH2375	08/16/88	1953	1.16	70.28	1.239			NG/GM	
WH2376	WH2376	08/16/88	2005	1.17	70.81	1.275			NG/GM	
WH2377	WH2377	08/16/88	2016	1.17	71.78	1.334			NG/GM	
WH2378	WH2378	08/16/88	2027	1.13	71.05	0.849			NG/GM	
WH2379	WH2379	08/16/88	2038	1.15	71.85	0.890			NG/GM	
WH2380	WH2380	08/16/88	2049	1.17	70.58	0.960			NG/GM	
WH2381	WH2381	08/16/88	2100	0.62*	71.93	0.300 U			NG/GM	UNITS OF NG PER SAMPLE
WH2382	WH2382	08/16/88	2111	0.27*	72.15	0.300 U			NG/GM	UNITS OF NG PER SAMPLE

QUALIFICATION FLAGS:

* 257/259 RATIO OUTSIDE OF ACCEPTABLE RANGE
** SURROGATE OUTSIDE OF ACCEPTABLE RANGE
*** HIGH DETECTION LIMIT

RERUN CODES:
A AUTOMATIC RERUN
R REQUESTED RERUN

GC/MS/MS WORKSHEET REPORT FORM

SITE: HER
CASE: 0815
DATE: 08/17/88

SURROGATE CONC 0.06 RF NATIVE 2.109 ION RATIO: 1.009 TO 1.233
INTERNAL STD CONC 1.05 RF SURROGATE 2.083 CORRECTION FACTOR: 0.010

LAB SAMPLE #	AREA #	CLIENT SAMPLE #	ANALYSIS DATE	ANALYSIS TIME	SAMPLE AMOUNT	ION 257	ION 259	ION 263	ION 268	RATIO 257/259	SURR ACC	RAW VALUE	UNITS
AUG1637	METHBLANK	METHBLNK	08/16/88	1829	5.00	6005	12406	300051	983839	0.48	73.18	0.021	NG/GM
AUG1638	SOILBLANK	OCL34575	08/16/88	1841	5.00	7107	9229	278863	922829	0.77	72.50	0.019	NG/GM
AUG1639	SOILSPIKE	OCL35562	08/16/88	1853	5.00	278664	240842	518006	1455951	1.16	84.89	0.823	NG/GM
AUG1640	SOIL PE	PE-A	08/16/88	1904	5.00	152168	131215	252739	835892	1.16	72.09	0.781	NG/GM
AUG1641	WH2372	WH2372	08/16/88	1916	5.07	49050	46610	303555	1010936	1.05	71.94	0.199	NG/GM
AUG1642	WH2373	WH2373	08/16/88	1930	5.12	59283	53903	305338	1009433	1.10	72.44	0.237	NG/GM
AUG1643	WH2374	WH2374	08/16/88	1942	5.11	64943	59624	280627	940090	1.09	71.46	0.285	NG/GM
AUG1644	WH2375	WH2375	08/16/88	1953	5.11	324859	280430	329565	1113455	1.16	70.28	1.239	NG/GM
AUG1645	WH2376	WH2376	08/16/88	2005	5.09	309928	264067	307437	1030682	1.17	70.81	1.275	NG/GM
AUG1646	WH2377	WH2377	08/16/88	2016	5.07	370771	317231	358786	1186207	1.17	71.78	1.334	NG/GM
AUG1647	WH2378	WH2378	08/16/88	2027	5.03	229936	203605	349517	1172216	1.13	71.05	0.849	NG/GM
AUG1648	WH2379	WH2379	08/16/88	2038	5.10	244769	213496	352038	1167032	1.15	71.85	0.890	NG/GM
AUG1649	WH2380	WH2380	08/16/88	2049	5.02	182992	156015	241547	814686	1.17	70.58	0.960	NG/GM
AUG1650	WH2381	WH2381	08/16/88	2100	1.00	6019	9671	364795	1216994	0.62	71.93	0.038	NG/GM
651	WH2382	WH2382	08/16/88	2111	1.00	3089	11308	460953	1533205	0.27	72.15	-0.003	NG/GM

TABLE 3 GC/MS/MS DAILY CALIBRATION CHECK

MEAN NATIVE RF	2.109	NATIVE CONC.	0.20	SITE:	HER
MEAN SURROGATE RF	2.083	SURROGATE CONC.	0.06	DATE:	08/17/88
ION RATIO RANGE	1.009 TO 1.233	INTERNAL STD. CONC .	1.05	CASE:	0815

ANALYSIS DATE	ANALYSIS TIME	ION 257	ION 259	ION 263	ION 268	RATIO 257/259	RF NATIVE	NATIVE RF %DIFF.	RF SURROGATE	SURROGATE RF % DIFFERENCE	COMMENTS
08/16/88	1813	134315	115258	75853	623671	1.165	2.101	0.38	2.088	0.24	

* ION RATIO MUST BE WITHIN ACCEPTABLE RANGE OF INITIAL CALIBRATION
** NATIVE % DIFFERENCE MUST BE LESS THAN 10% FROM INITIAL CALIBRATION

021377

TABLE 1 GC/MS/MS INITIAL CALIBRATION

SITE CODE: HER
CASE: 0815
DATE: 10/13/87

SOLUTION ID	ION 257	ION 259	ION 263	ION 268	NATIVE CONC	SURROGATE CONC	INT. STD CONC	RF NATIVE	RF SURROGATE	RATIO 257/259	COMMENTS
CC1-1	73881	67752	43569	345176	0.20	0.06	1.05	2.154	2.168	1.090	
CC1-2	76844	69768	45279	362015	0.20	0.06	1.05	2.126	2.149	1.101	
CC1-3	82583	73708	47294	382379	0.20	0.06	1.05	2.146	2.124	1.120	
							MEAN	2.142			
							STD DEV	0.014			
							% RSD	0.65			
CC2-1	324838	283704	77330	301890	1.00	0.11	1.05	2.117	2.334	1.145	
CC2-2	358491	321128	85961	323744	1.00	0.11	1.05	2.204	2.420	1.116	
CC2-3	334056	291974	79920	312887	1.00	0.11	1.05	2.101	2.328	1.144	
							MEAN	2.141			
							STD DEV	0.055			
							% RSD	2.57			
CC3-1	1081980	966175	92814	208328	5.00	0.20	1.05	2.065	2.044	1.120	
CC3-2	1989496	1775627	177692	387550	5.00	0.20	1.05	2.040	2.116	1.120	
CC3-3	2046320	1823272	181766	401030	5.00	0.20	1.05	2.026	2.090	1.122	
							MEAN	2.044	2.083		
							STD DEV	0.020	0.036		
							% RSD	0.97	1.73		

RF NATIVE OVERALL MEAN 2.109
STD DEV 0.056
% RSD 2.674

RF SURROGATE OVERALL MEAN 2.083
STD DEV 0.036
% RSD 1.728

OVERALL RATIO 257/259 MEAN: 1.121
RANGE: 1.009 TO 1.233

* RF NATIVE % RELATIVE STANDARD DEVIATION MUST BE LESS THAN 10%
** RATIO OF 257/259 OUTSIDE OF ACCEPTABLE RANGE

021379

TABLE 2 BLANK SUMMARY FORM

SITE: HER CASE : 0815 DATE: 05/04/87

SOLUTION ID	ION 257	ION 259	ION 268	BLANK RESPONSE	NATIVE CONC
1	355	5301	715479	0.008	0.019
2	1500	6454	766148	0.010	0.025
3	981	3057	526670	0.008	0.018
4	1303	5610	906231	0.008	0.018
5	1825	4805	727729	0.009	0.022
6	2058	5231	653736	0.011	0.026
7	707	4542	541920	0.010	0.023
8	1260	6293	667676	0.011	0.027
9	558	3819	537461	0.008	0.019
10	744	3791	619160	0.007	0.017
11	1403	6817	761787	0.011	0.026
12	1	3932	330813	0.012	0.028
13	1360	4860	609680	0.010	0.024
14	663	4014	508056	0.009	0.022
15	1307	6514	855393	0.009	0.022
16	1316	4457	591202	0.010	0.023
17	1772	7181	796307	0.011	0.027
18	2182	4927	645435	0.011	0.026
19	2257	5650	596849	0.013	0.031
20	562	3543	554208	0.007	0.018

CORRECTION FACTOR = 0.010
LIMIT OF DETECTION = 0.014

* LIMIT OF DETECTION MUST BE LESS THAN 0.3

021579

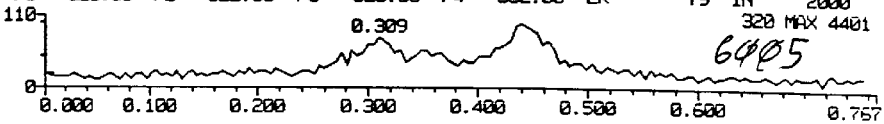
021380

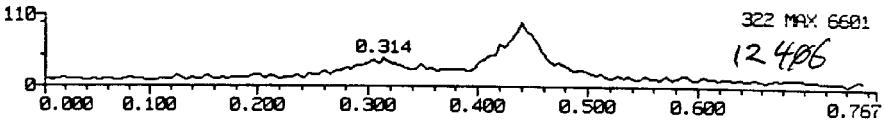
ATTACHMENT 1

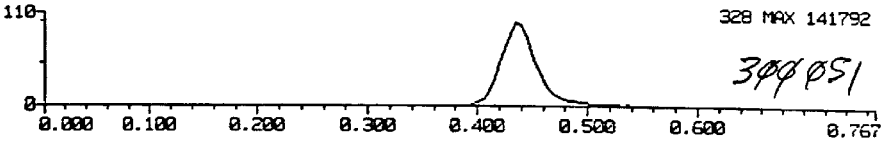
SAMPLE MASS CHROMATOGRAMS

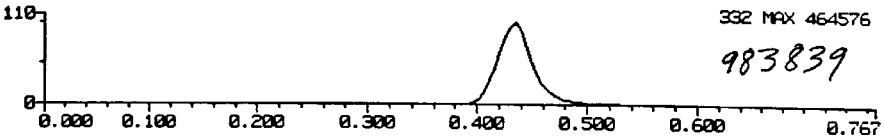
AUG1637 1 MIMI METHOD BLANK IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	2000









16-AUG-88		18:29:46		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.320					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

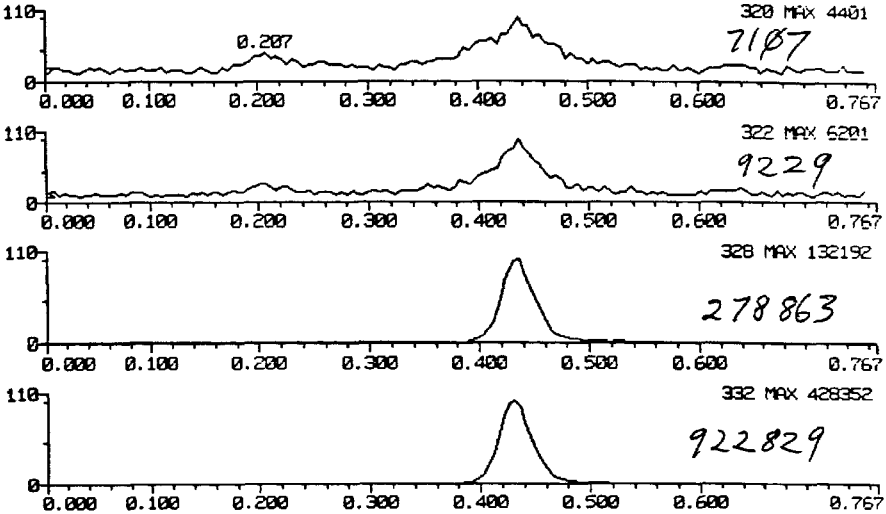
18:29:46

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

0213381

AUG1638 1 MIMI SOIL BLANK IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	3601



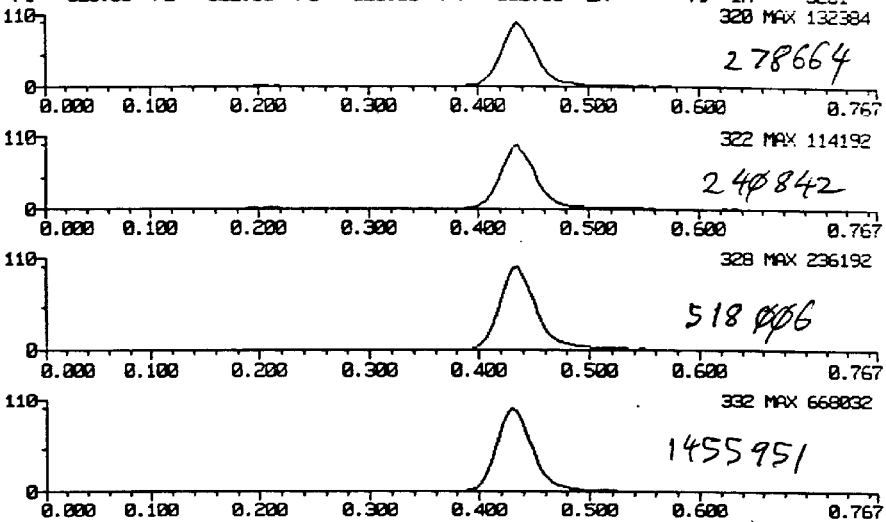
16-AUG-88		18:41:54		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.280					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

18:41:54

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG1639 1 MIMI SOIL SPIKE IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	3201



16-AUG-88		18:53:11		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.150					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

18:53:11

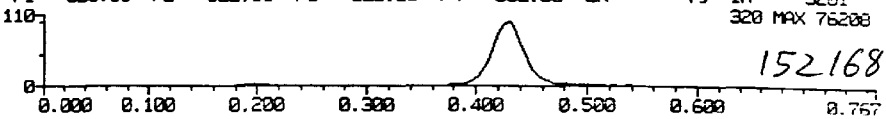
	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

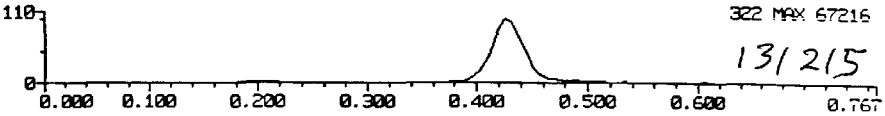
021333

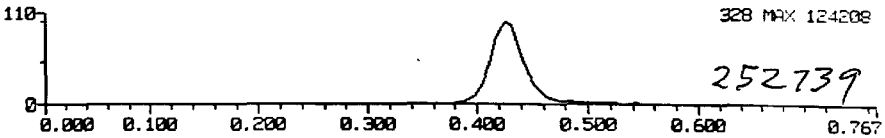
03221598

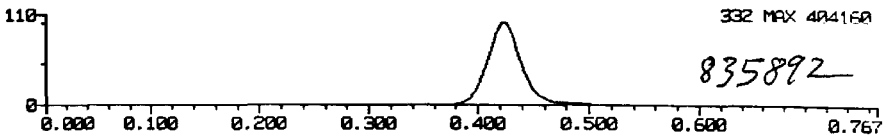
AUG1640 1 MIMI SOIL PE IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	3201









16-AUG-88 19:04:46

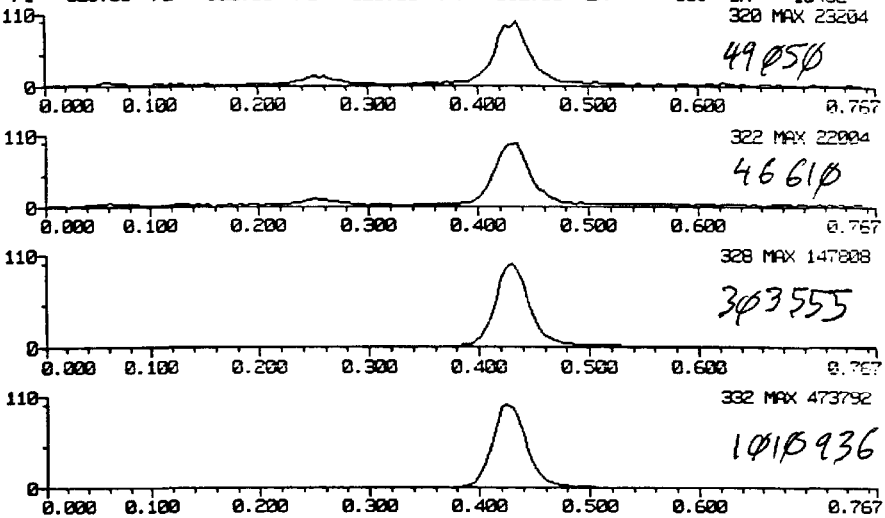
				OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.200					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

19:04:46

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

0213384

AUG1641	1	MIMI				2372					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	105
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	105	IN	10402



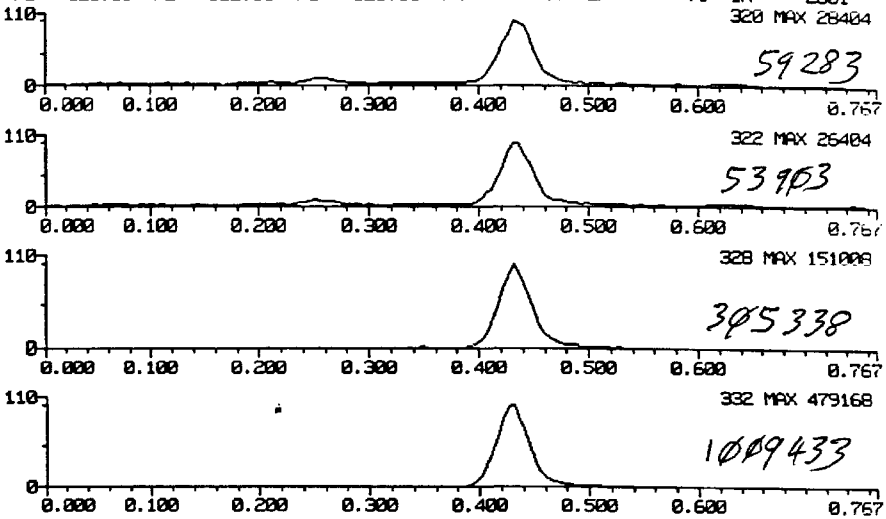
16-AUG-88		19:16:04		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.220					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

19:16:04

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG1642 1 MIMI 2373 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	2601



16-AUG-88		19:30:31		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.260					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

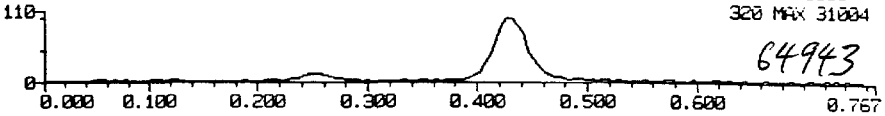
19:30:31

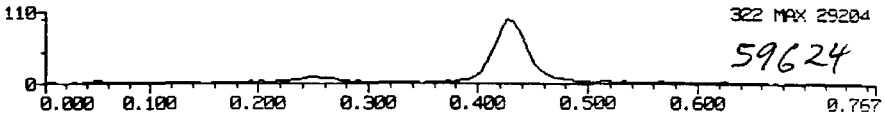
	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

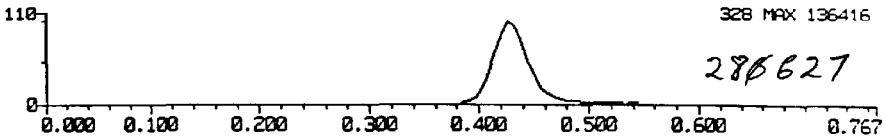
0213386

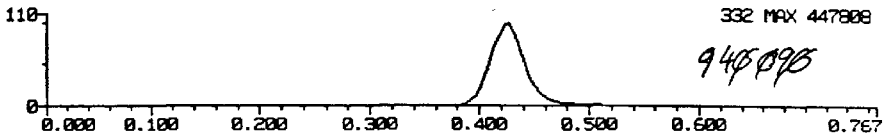
AUG1643 1 MIMI 2374 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	3001









16-AUG-88		19:42:06		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.210					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

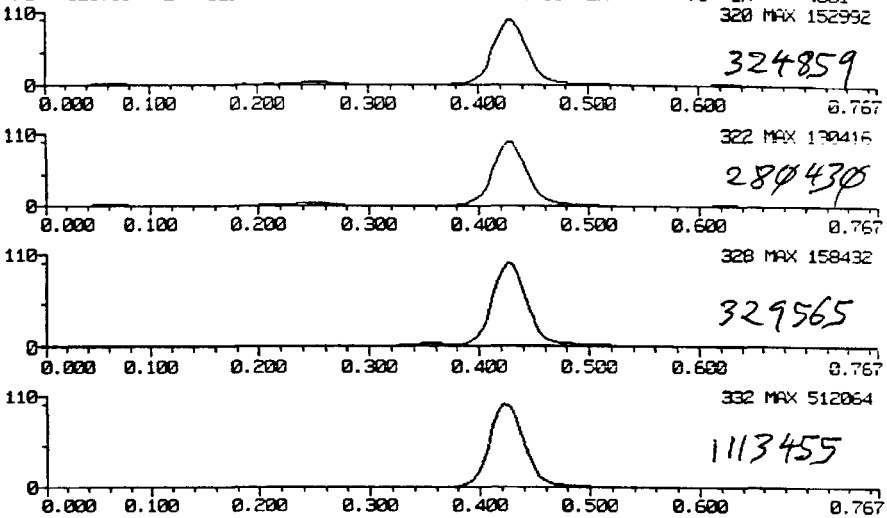
19:42:06

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021387

AUG1644 1 MIMI 2375 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	4001

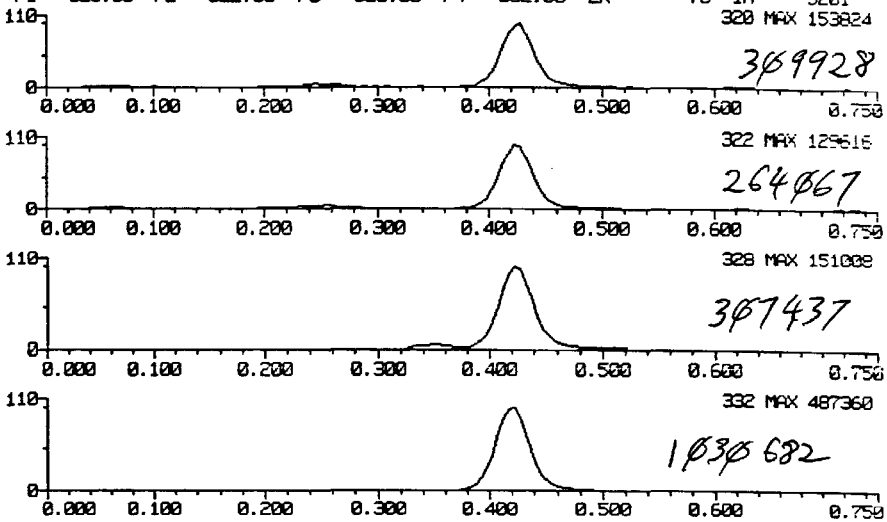


16-AUG-88		19:53:21		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.180					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

19:53:21

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG1645	1	MIMI				2376					IM
SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	5201



16-AUG-88		20:05:06		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.260					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

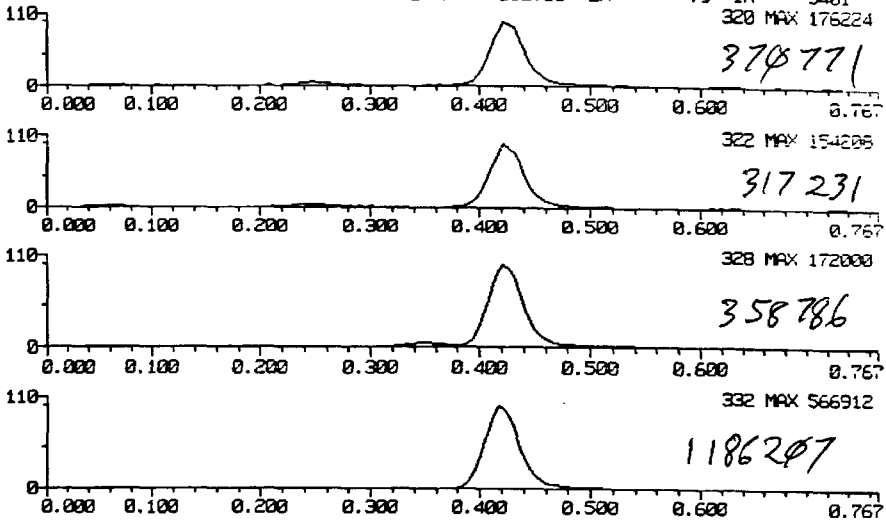
20:05:06

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

0213589

AUG1646 1 MIMI 2377 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	5401



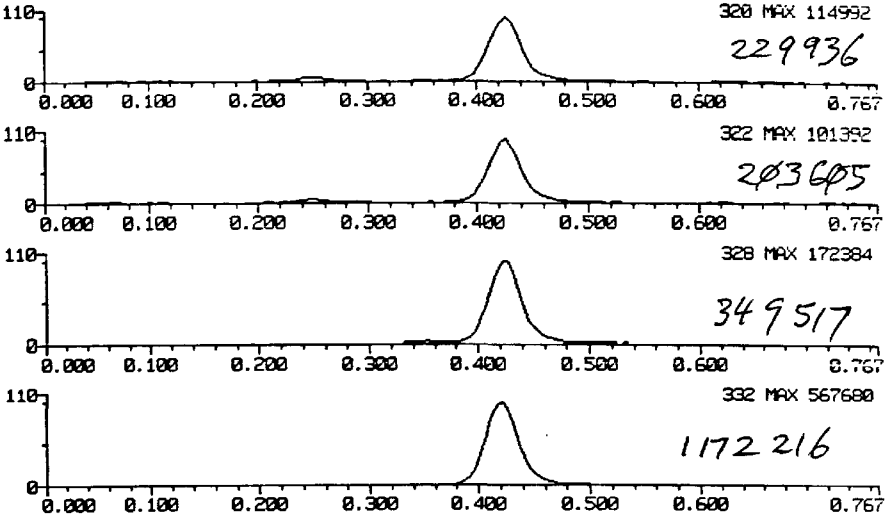
16-AUG-88		20:16:11		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.210					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

20:16:11

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

0213000

AUG1647	1	MIMI				2378					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	4601



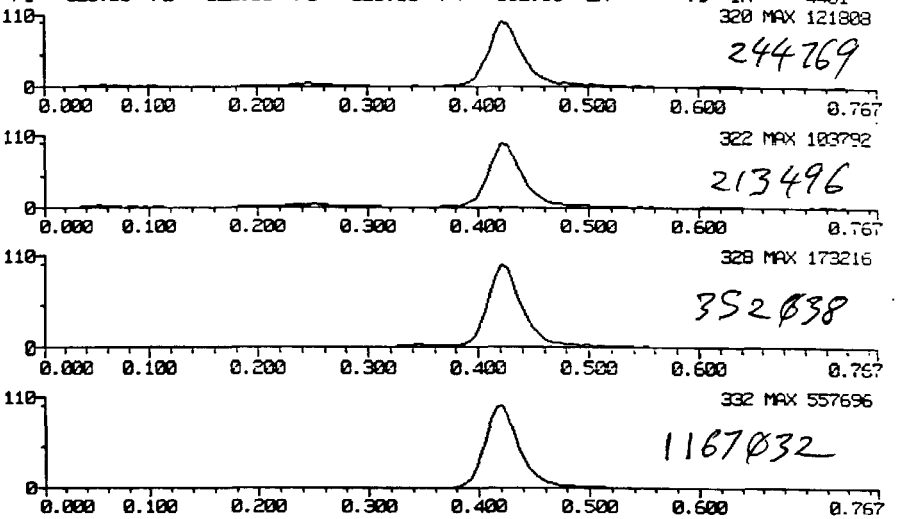
16-AUG-88		20:27:16		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.230					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

20:27:16

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021391

AUG1648	1	MIMI				2379					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	4401



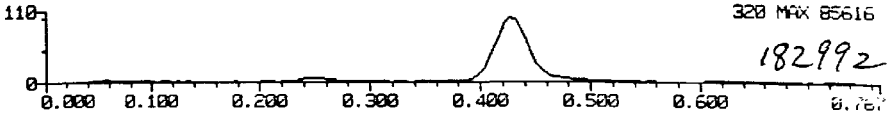
16-AUG-88		20:38:02		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.200					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

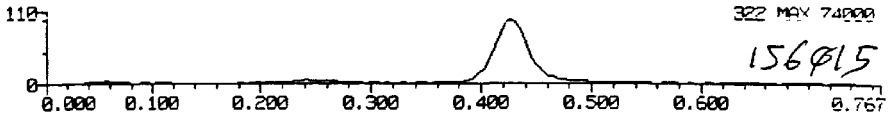
20:38:02

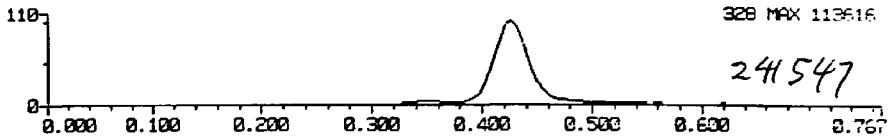
	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

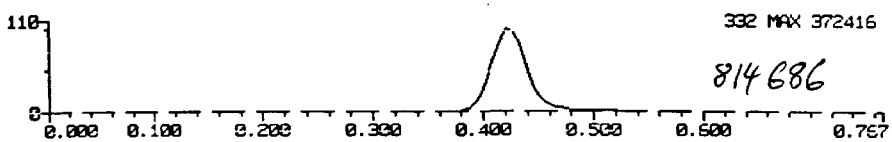
AUG1649 1 MIMI 2380 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	4201









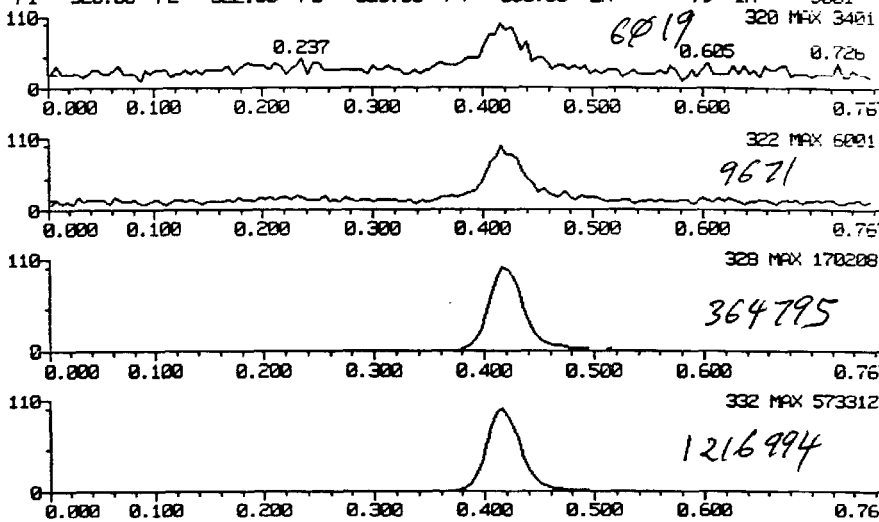
16-AUG-88 20:49:20

				OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.250					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

20:49:20

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

AUG1650	1	MIMI				2381					IM
SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	5001



16-AUG-88		21:00:10		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.270					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

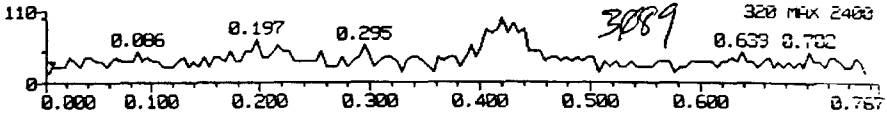
21:00:10

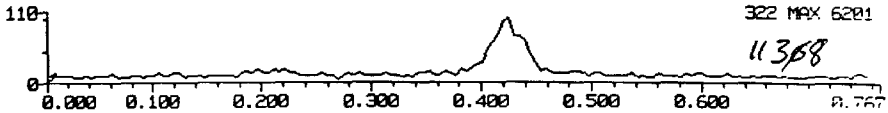
	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

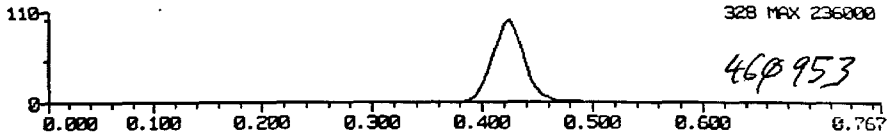
02 1 3 9 4

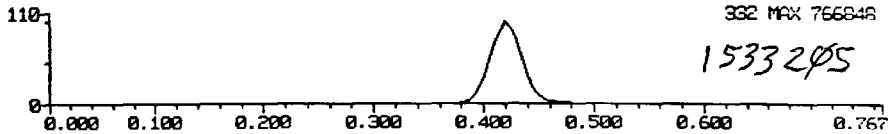
AUG1651 1 MIMI 2382 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	4001









16-AUG-88		21:11:27		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.270					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

21:11:27

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

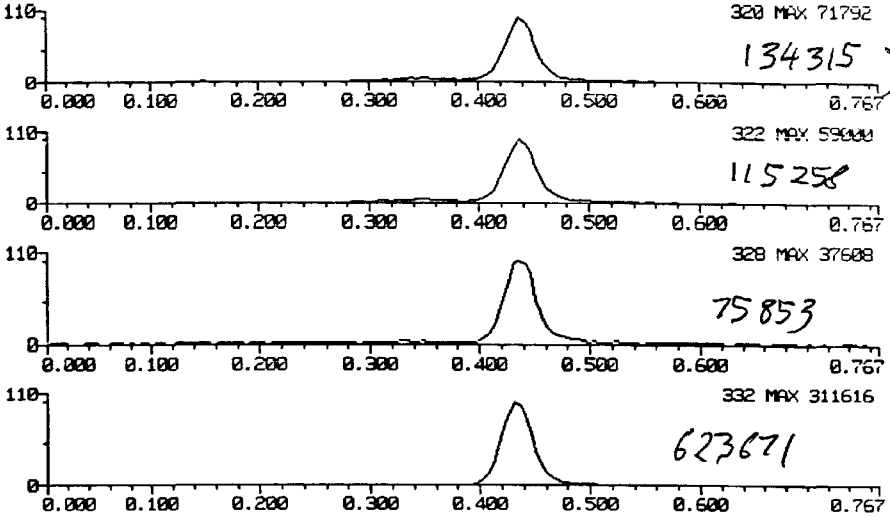
ATTACHMENT 2

DAILY CALIBRATION MASS CHROMATOGRAMS

021306

AUG1636 1 MIMI CAL 1 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	2000



16-AUG-88		18:13:05		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.230					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

18:13:05

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

RRF: 2.101
(99.6%)

021397

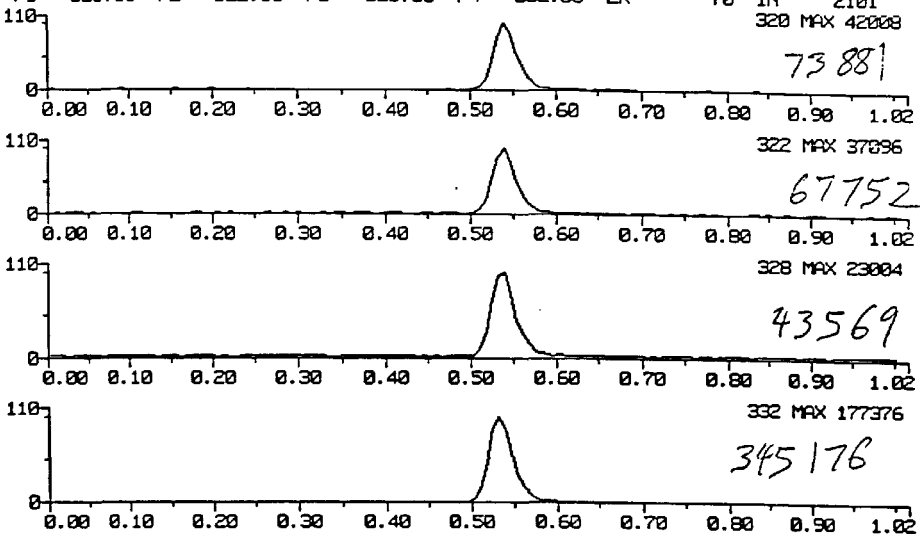
ATTACHMENT 3

INITIAL CALIBRATION MASS CHROMATOGRAMS

021308

OCT1309 1 MIMI CAL I (C-077-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	2101



Ratio 1.090

021399

13-OCT-87 17:11:31

				OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:11:31

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

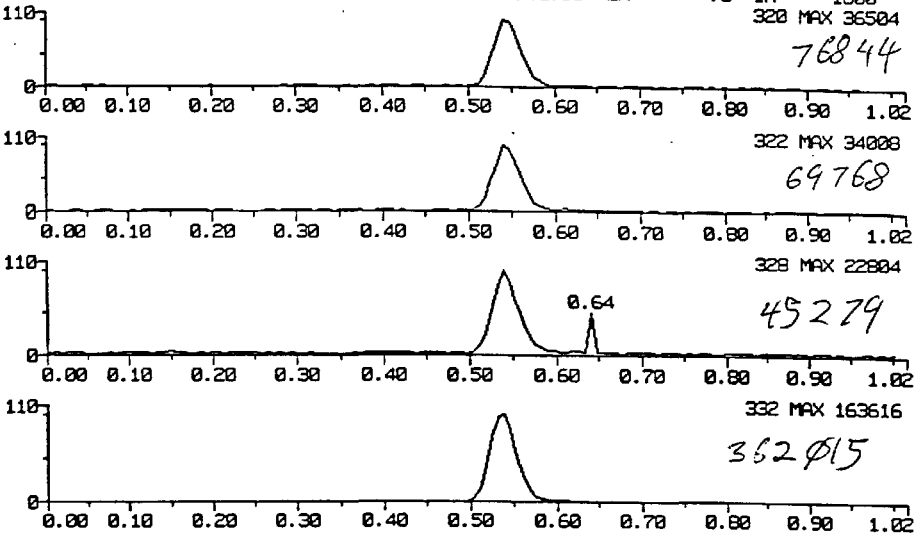
K.E.M.

$RRF_{native} = 2.154$

$RRF_{surr} = 2.168$

OCT1303 1 MIMI 1 UL CAL I IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1600



13-OCT-87		15:36:52		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:36:52

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

Native RF 2.126

Surr RRF 2.148

Ad 0.2

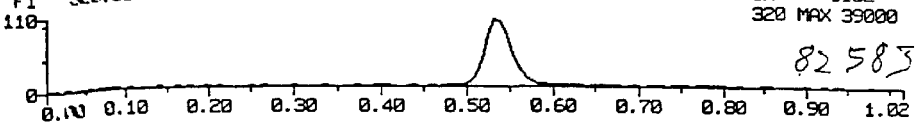
I.S. 1.05

Surr 0.00

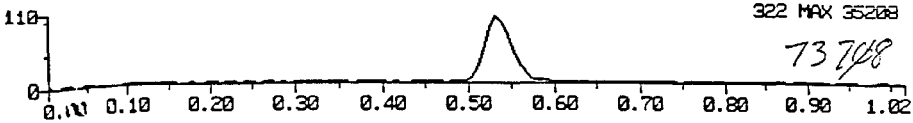
021400

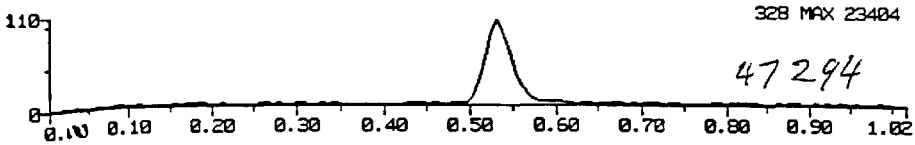
OCT1310 1 MIMI CAL I (C-077-02) IM

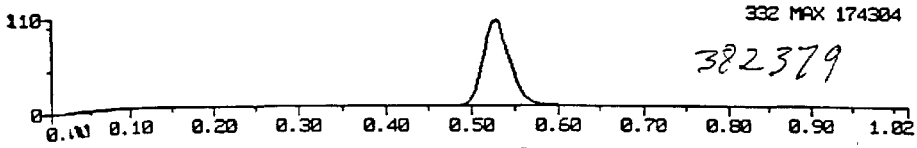
SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	300.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	9102



Ratio 1.120







13-OCT-87 17:24:01

				OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.018					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:24:01

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

$RRF_{native} = 2.146$

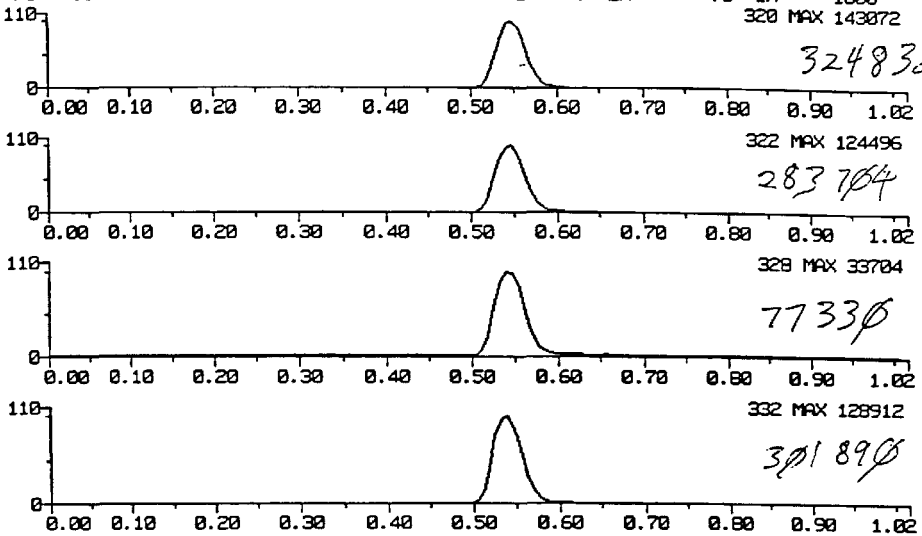
$RRF_{surr} = 2.123$

021401

03221616

OCT1308 1 MIMI CAL II (C-078-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1600



Ratio 1.145

13-OCT-87		16:58:26		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.983					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:58:26

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

$RRF_{mat} = 2.117$

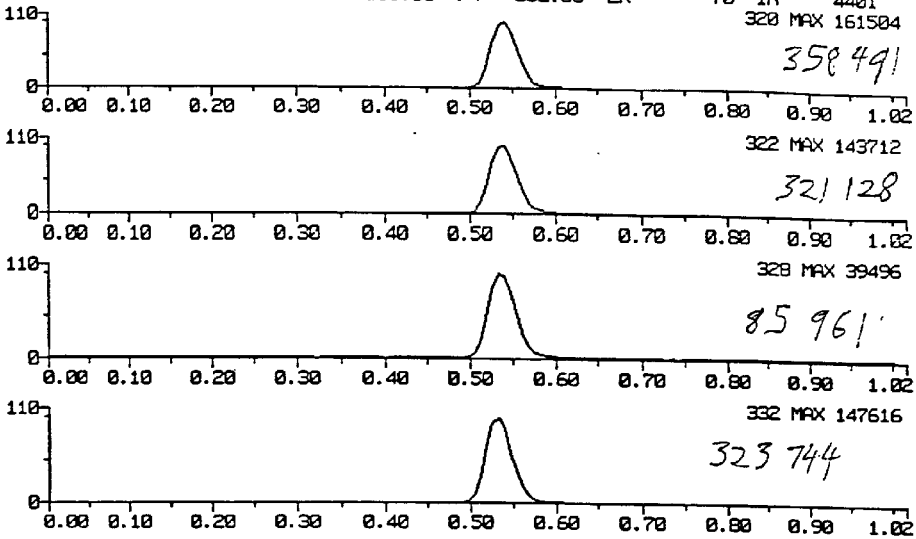
$RRF_{surr} = 2.333$

021402

03221617

OCT1307 1 MIMI CAL II (C-078-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	4401



Ratio 1.116

021403

13-OCT-87 16:41:35

				OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.991					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:41:35

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

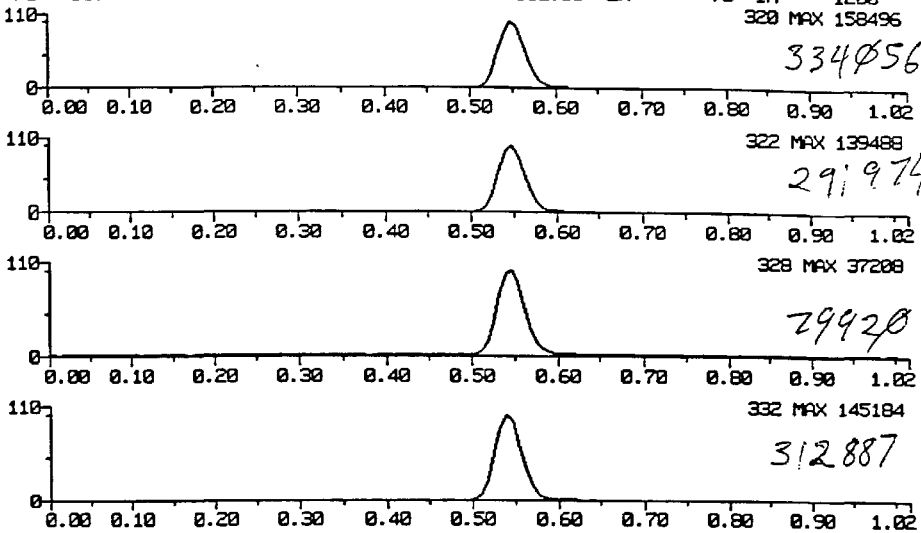
RRF native = 2.204

RRF surr = 2.419

03221618

OCT1302 1 MIMI 1 UL CAL II IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1200



021404

13-OCT-87 15:24:15

SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.006					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

OP KEM MTL 0.1000 STEP 0.1000 PE 0.00

15:24:15

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

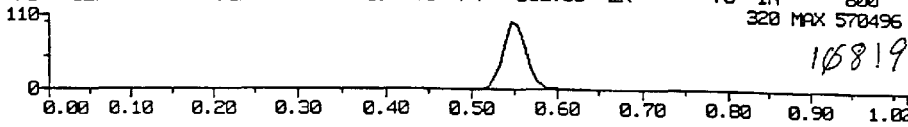
K.E.M.

Native RF: 2.101

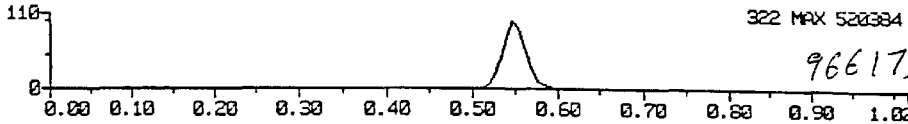
Surr RRF 2.327

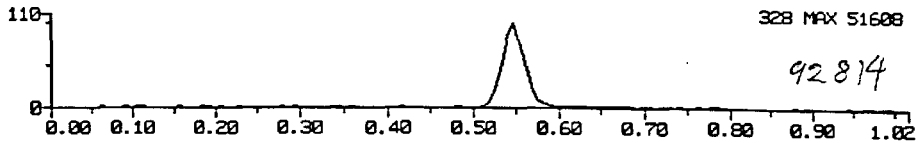
OCT1305 1 MIMI CAL III (C-079-02) IM

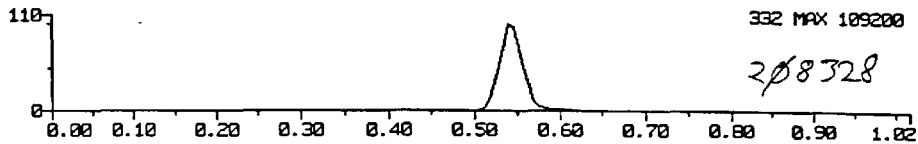
SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	800



ratio 1.120







13-OCT-87 16:15:36

SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.977					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

OP KEM MTL 0.1000 STEP 0.1000 PE 0.00

16:15:36

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

KGM

$RRF_{std} = 2.065$

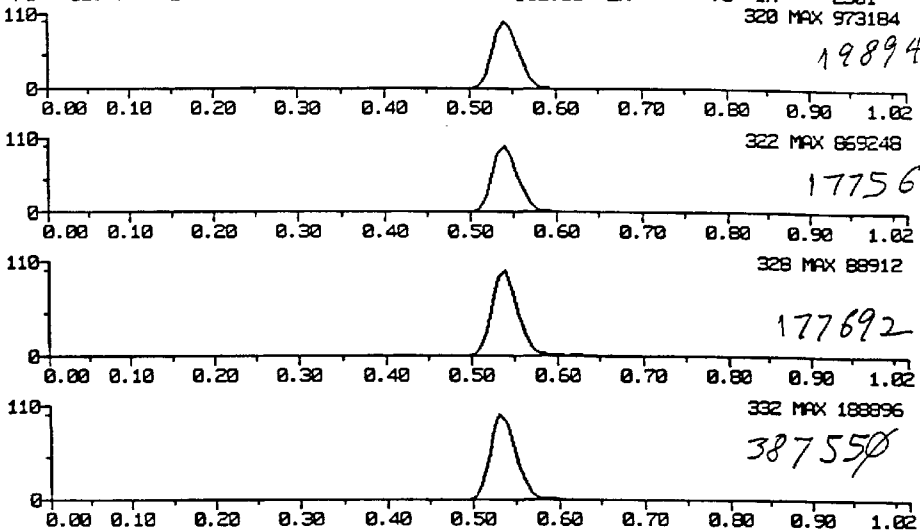
$RRF_{surr} = 2.042$

021405

OCT1306 1 MIMI CAL III (C-079-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	2301

Ratio 1.120



021406

13-OCT-87		16:27:40		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.981					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:27:40

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

KEM.

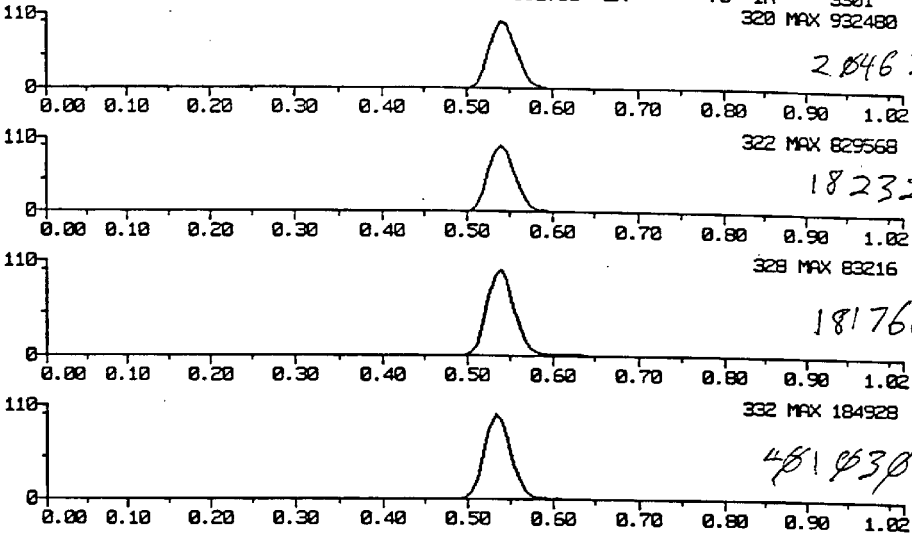
RRF_{std} = 2.040

RRF_{sum} = 2.113

OCT1304 1 MIMI 1 UL CAL III IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70		
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	3301		

Ratio 1.122



13-OCT-87		15:51:02		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.000					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:51:02

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

Native RF: 2.026

RRF_{surr} = 2.088

021407

03221622

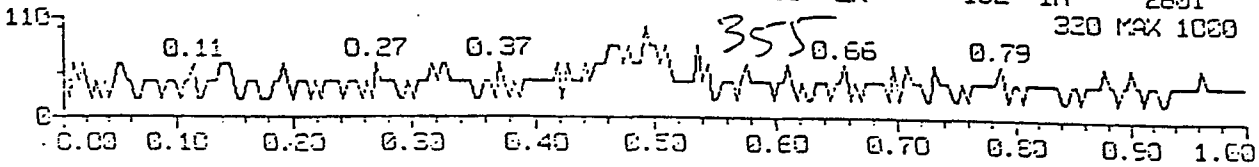
021403

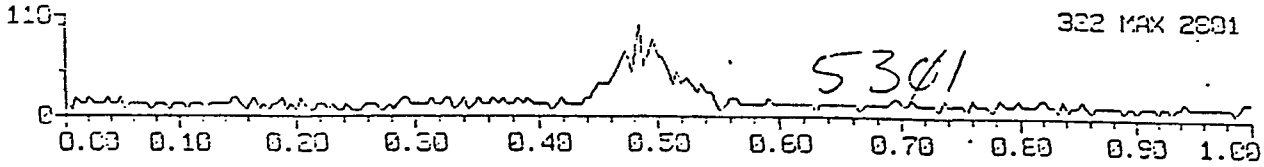
ATTACHMENT 4

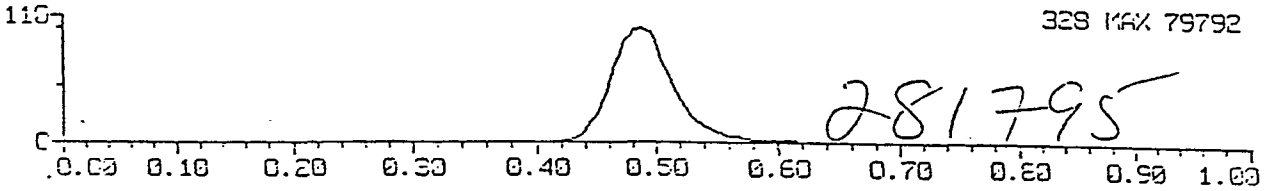
BLANK CALIBRATION MASS CHROMATOGRAMS

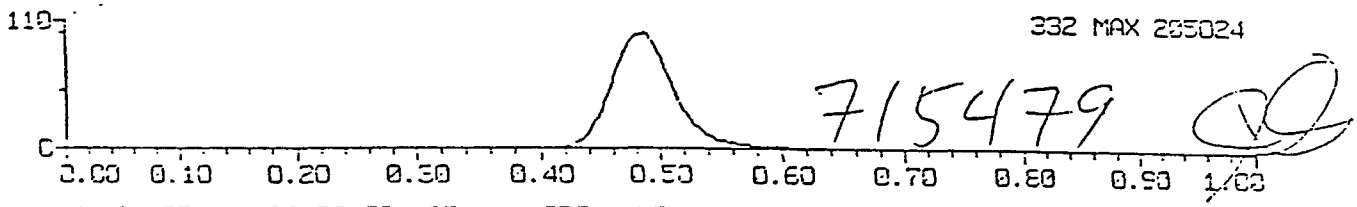
MAY0423 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	253	BO	0	TO	110	GR	LNWP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2601









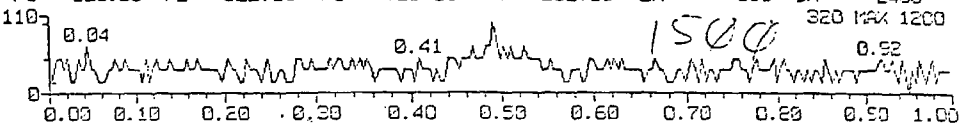
	4-MAY-87		09:33:58	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1230	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	62.00
G2	0.000	LT	0.00	DIV	-1.010					MU	-4620.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0020	CGT	0.0	DM3	0.0020
SHF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	55.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

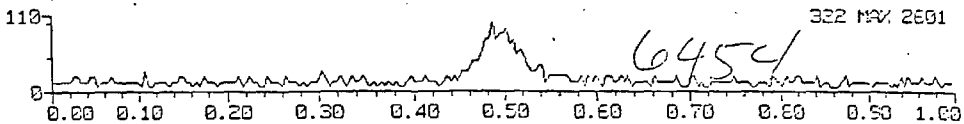
09:33:58

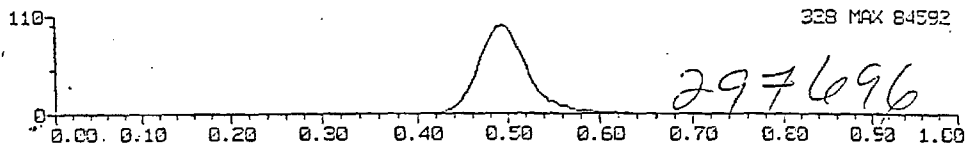
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

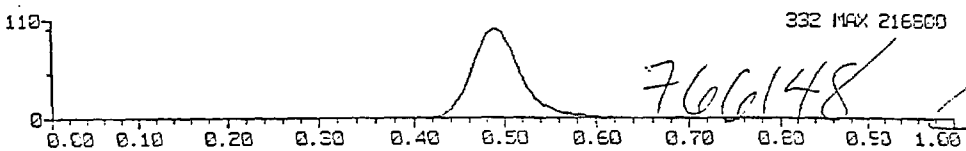
MAY0422 1 MIMI SPIKE II C-095 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	151	IN	2400









4-MAY-87 09:29:22

				OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.006					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:29:22

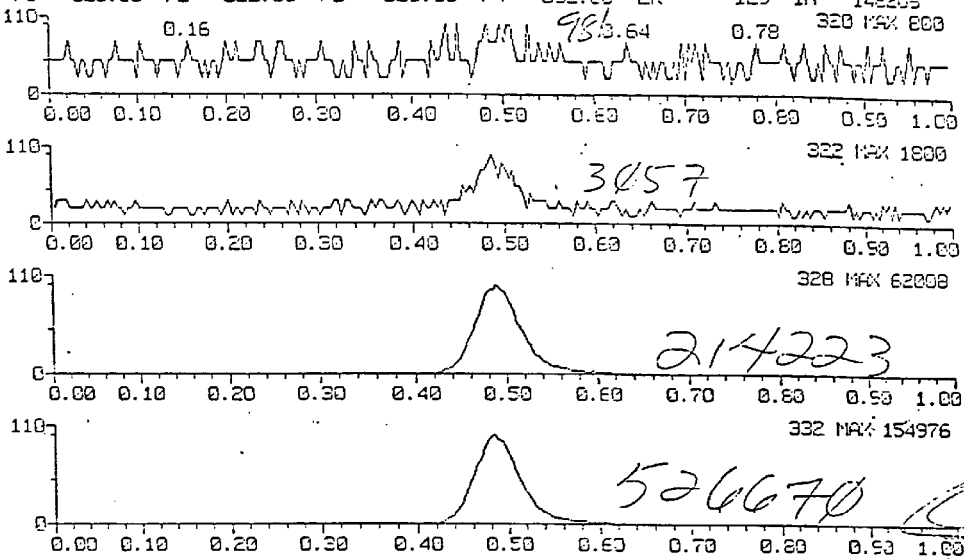
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021410

03221625

MAY0421 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LMMP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	148209



	4-MAY-87		09:23:10	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4500.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SPF	0.0	GR	0.10	OR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:23:10

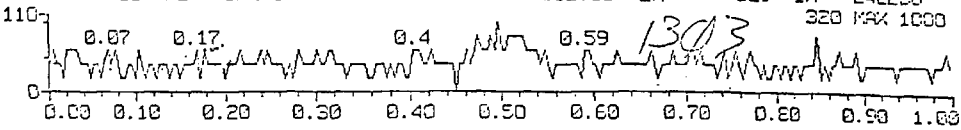
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

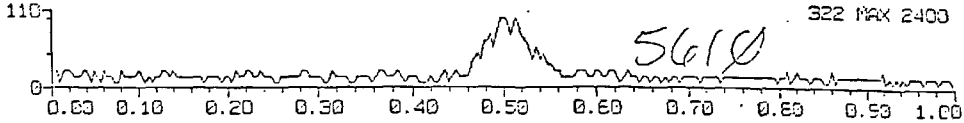
021411

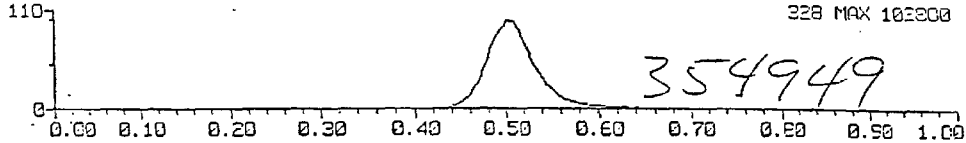
03221626

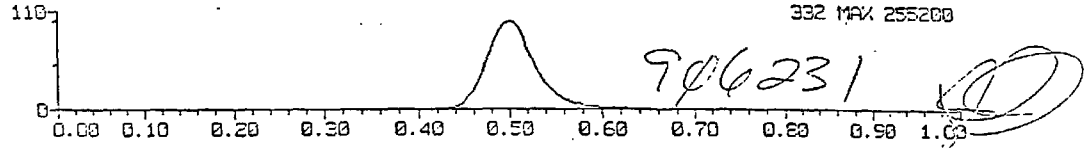
MAY0420 1 MIMI SPIKE II C-096 3/85 JM

SS	1	ES	258	BO	0	TO	110	GR	LINP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	242208









4-MAY-87		09:17:38		OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.007					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-55.00

09:17:38

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

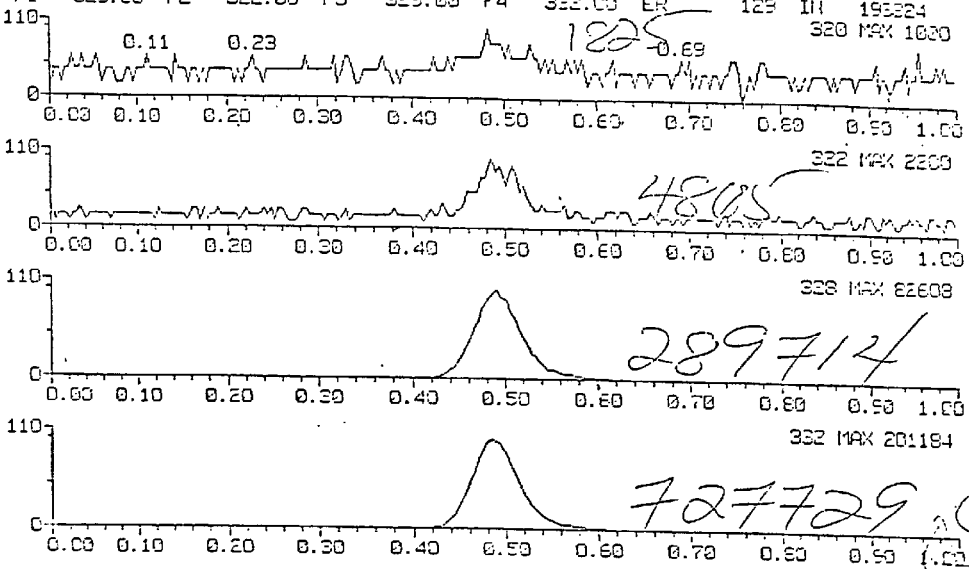
0214412

03221627

3 2262

MAY0419 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNHP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	269.00	SR	129	TI	00:00:30
F1	320.00	F2	322.00	F3	329.00	F4	332.00	ER	129	IN	193324



	4-MAY-87		09:09:56	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	NCL	1230	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.992					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	GR	0.00	PE1	65.00	CG	OFF	PE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-55.00

09:09:56

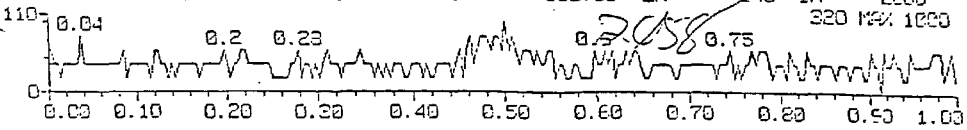
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

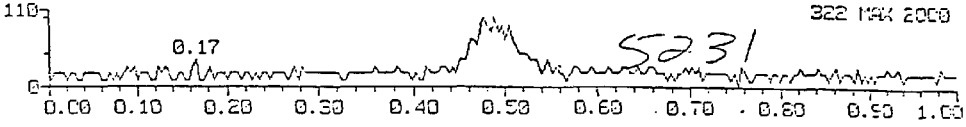
021413

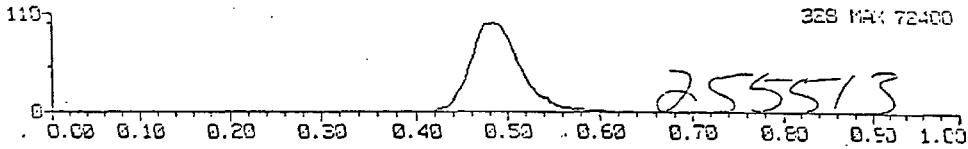
03221628

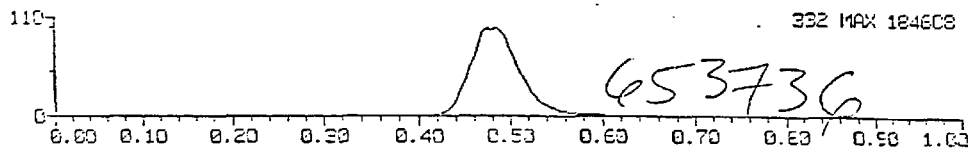
MAY0418 1 MIMI SPIKE II C-096 3/85 JM 3 2263

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	109
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	148	IN	2000









	4-MAY-87		09:05:06	CP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.995					MU	-4800.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SHF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	FE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-30.00	R2	-55.00	R3	-65.00

09:05:06

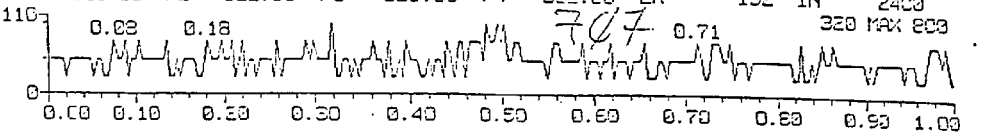
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

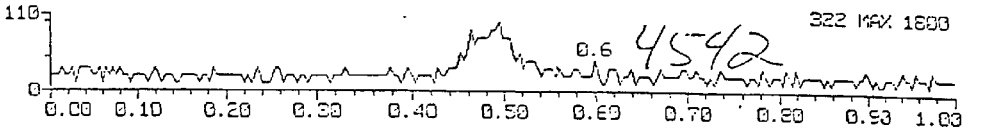
0214 14

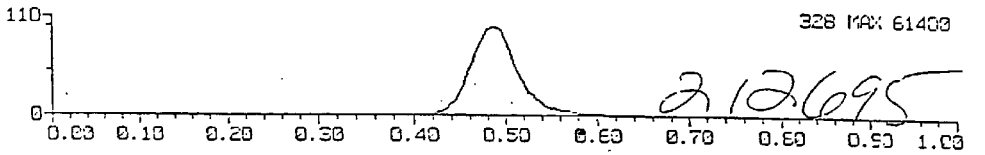
03221629

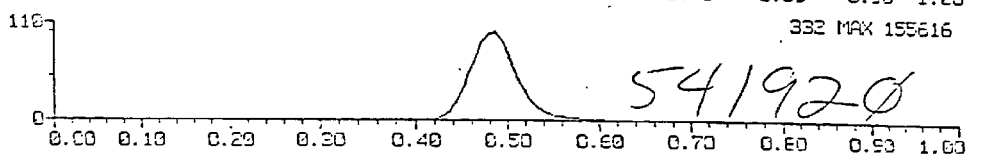
MAY0417 1 MIMI SPIKE II C-096 3/85 IM 3 2261

SS	1	ES	258	BO	0	TO	110	GR	LINNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400









	4-MAY-87		09:00:24	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MOL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.591					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:00:24

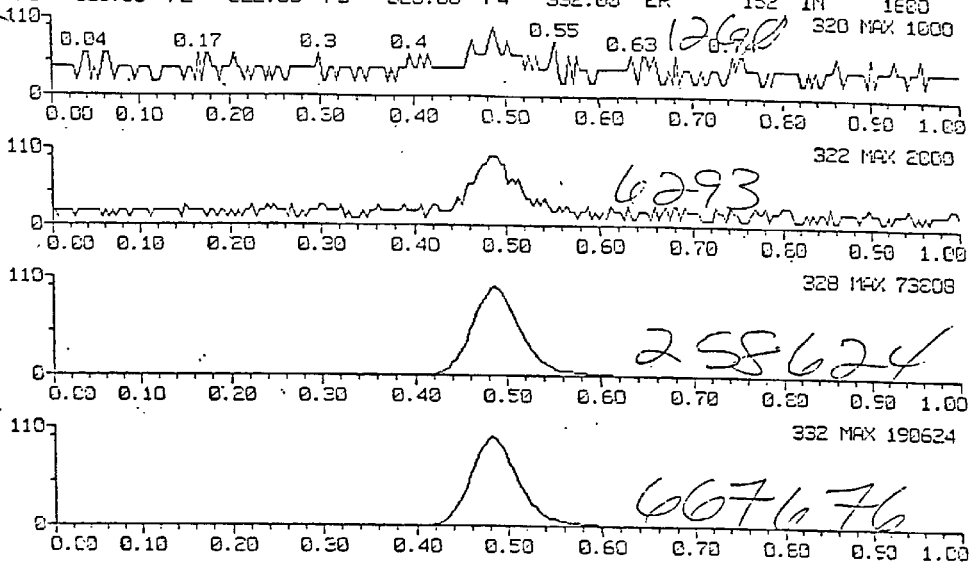
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

02145

03221630

MAY0416 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNIP	SE	108
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	108	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	1600



	4-MAY-87		09:55:50	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1200	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.991					MU	-4000.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SHF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:55:50

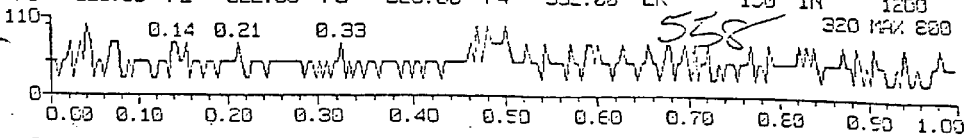
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

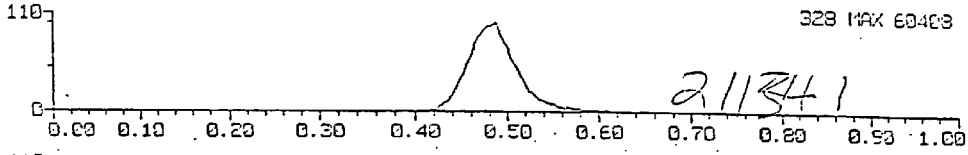
0214 16

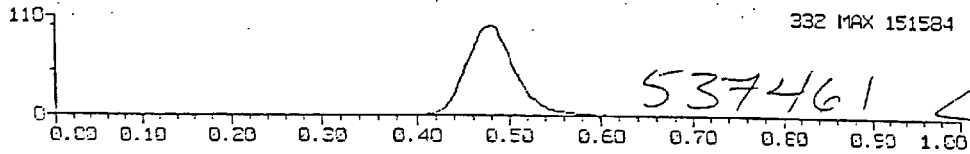
03221631

MAY0415 1 MIMI SPINE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LINNP	SE	107
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	107	TI	00:00:24
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	150	IN	1200







	4-MAY-87		08:51:06	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.994					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:51:06

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

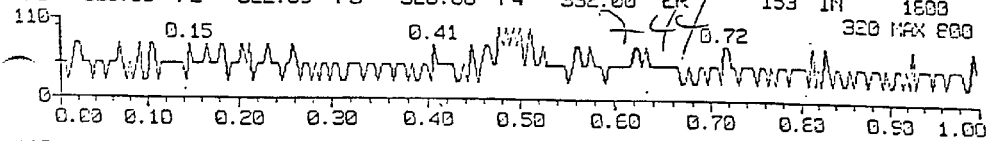
021417

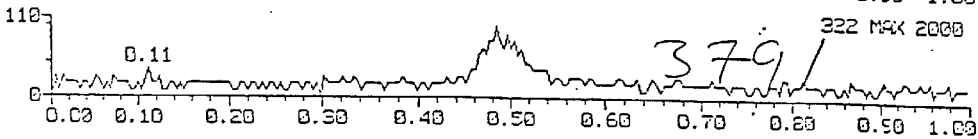
03221632

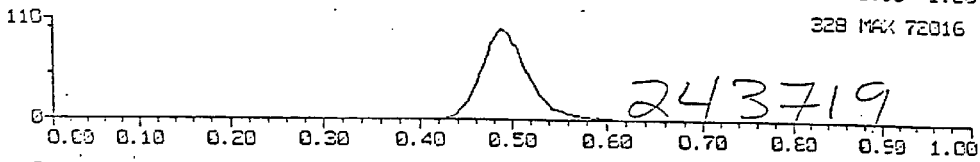
3 2267

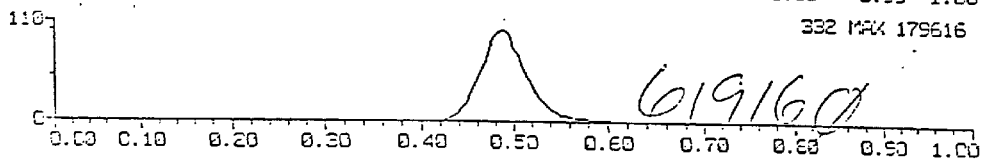
MAY0414 1 MIMI SPIKE II C-095 3/85

SS	1	ES	258	BO	0	TO	110	GR	LNIP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	153	IN	1800









	4-MAY-87		09:46:23	CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1200	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.934					MU	-4800.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SPF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:46:23

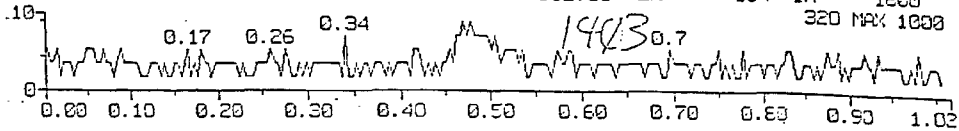
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

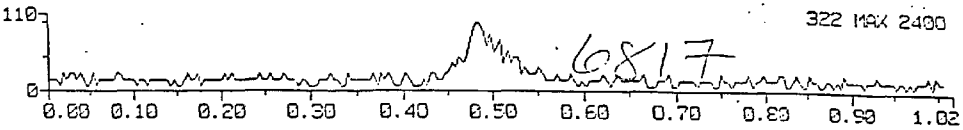
0214113

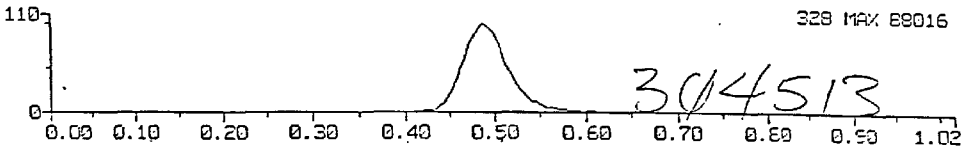
03221633

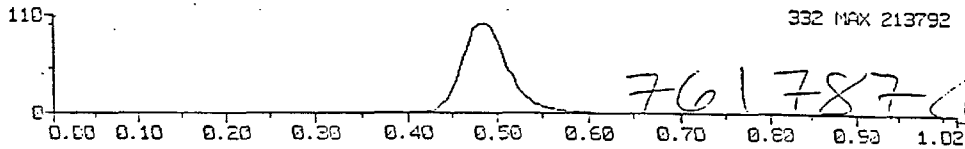
MAY0413 . 1 MIMI SPIKE II C-056 3/85 IM

SS	1	ES	260	BO	0	TO	110	GR	LNNP	SE	109
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	154	IN	1800









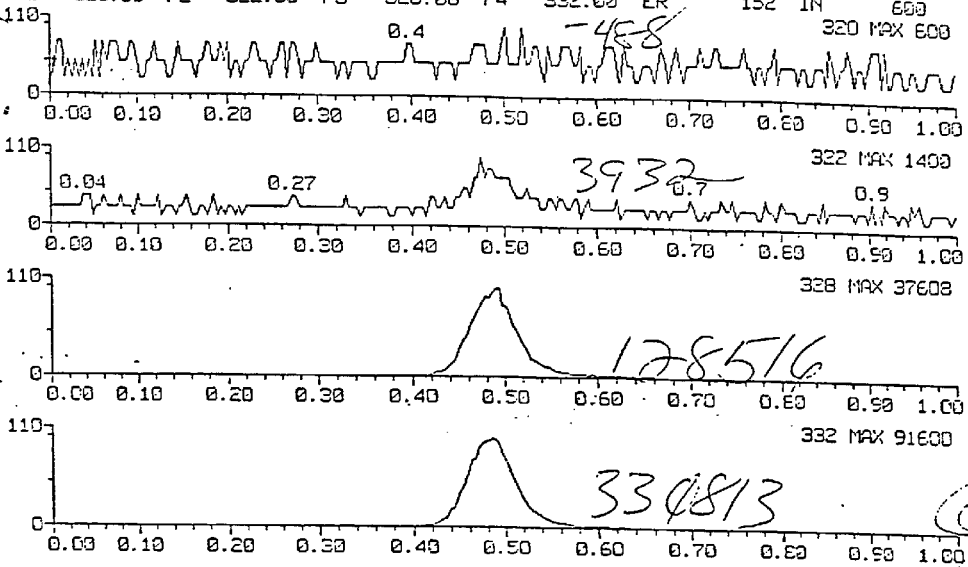
	4-MAY-87		08:41:40	CP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.010					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	85.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:41:40

	CG=SN	
1	320	257
	322	259
	328	263
	332	268

MAY0412 1 MIMI SPIKE II C-096 3/85

SS	1	ES	258	BO	0	TO	110	GR		LNNP	SE		IM 105
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR		105	TI	00:00:24	
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER		152	IN		600



4-MAY-87 08:37:03

SY	200	SE	0	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
G1	0.000	IT	0.00	C	10	MCL	1260	TH	100	TT	1.00
G2	0.000	LT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G3	0.0000	DT	0.000	DIV	-1.000					MU	-4600.0
SPF	0.0	GR	0.10	IN	0.00	IM1	0.0000	CGT	0.0	DM3	0.0000
DTV	0.000	ST	0.00	RO	0.00	FE1	65.00	CG	OFF	RE3	65.00
					-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:37:03

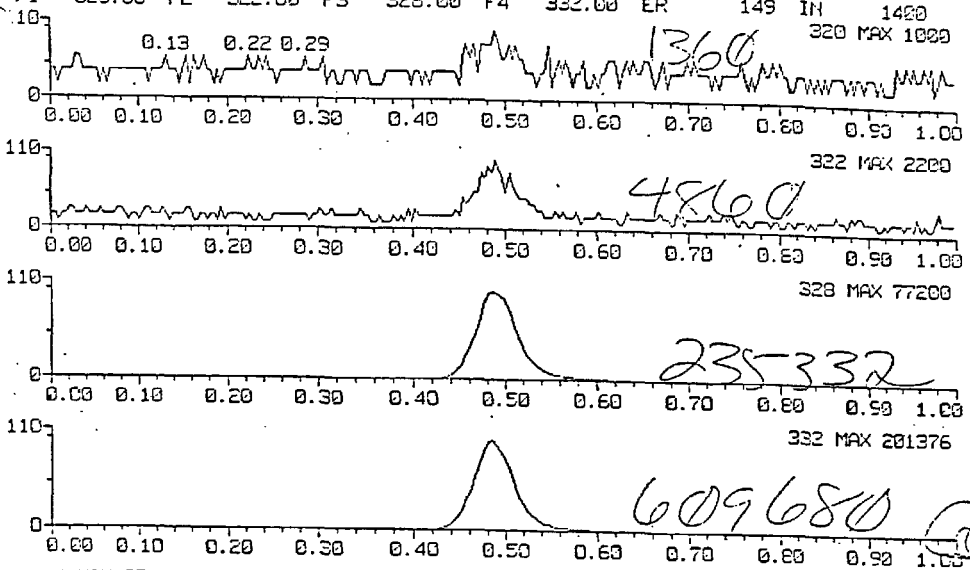
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021420

03221635

MAY0411 1 MIMI SPIKE II C-096 3/85

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	111		IM
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	111	TI	00:00:25		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	149	IN	1400		



4-MAY-87		08:32:16	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.986					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	FE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:32:16

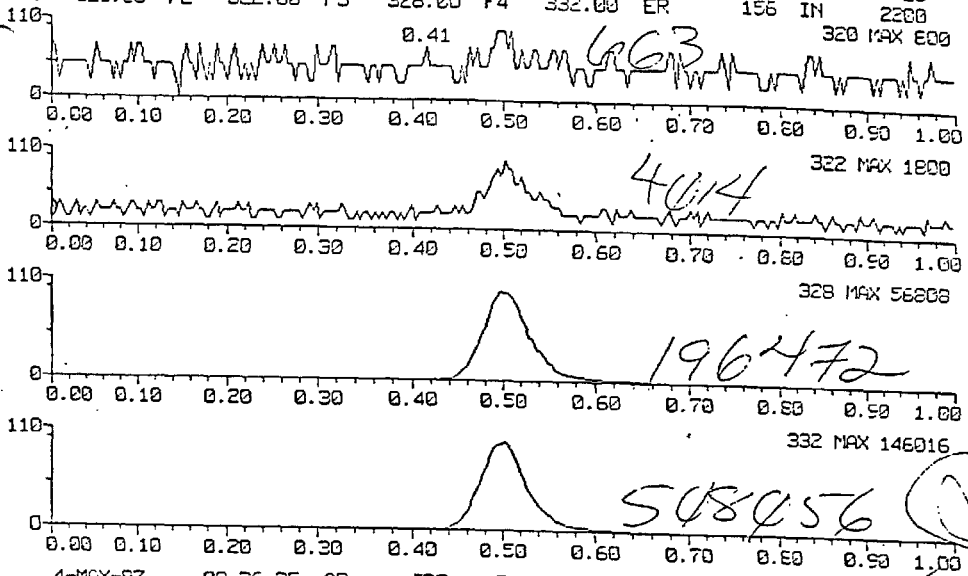
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021421

03221636

MAY0410 1 MIMI SPIKE II C-096 3/85

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	IM 114
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	114	TI	00:00:26
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	156	IN	2200



	4-MAY-87		08:26:35	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.999					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SFF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:26:35

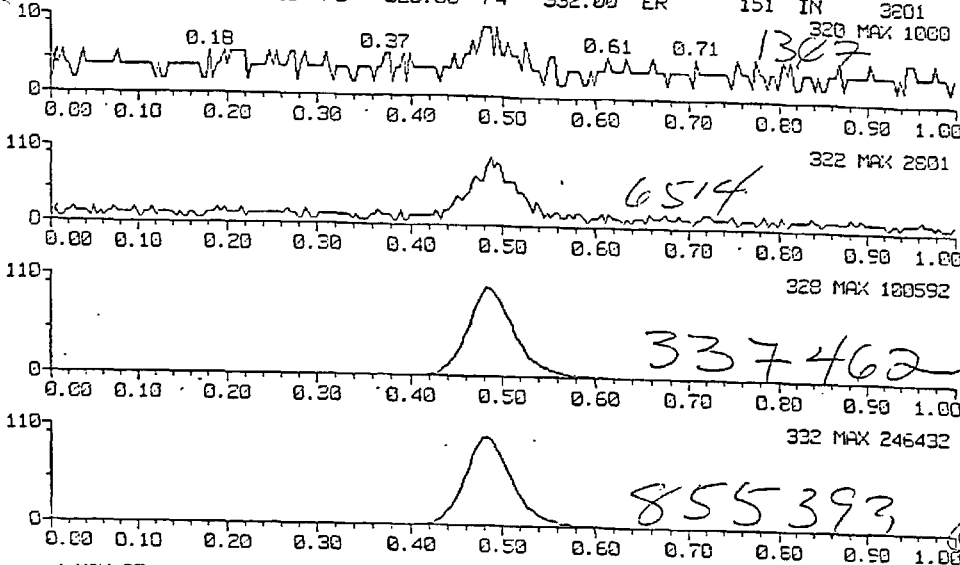
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021422

03221637

MAY0409 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	109
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	151	IN	3201



4-MAY-87		08:21:17		OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.997					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SFF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:21:17

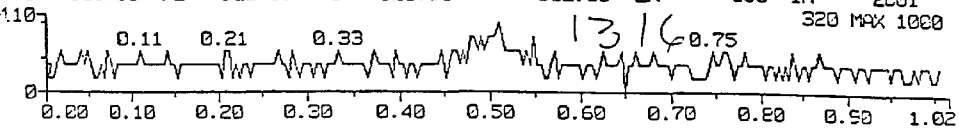
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

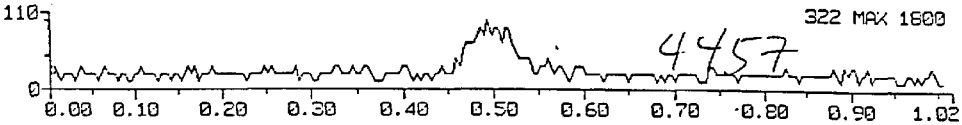
0214423

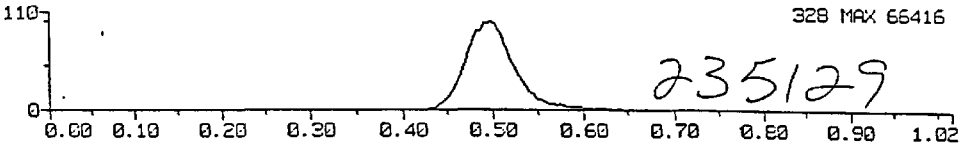
03221638

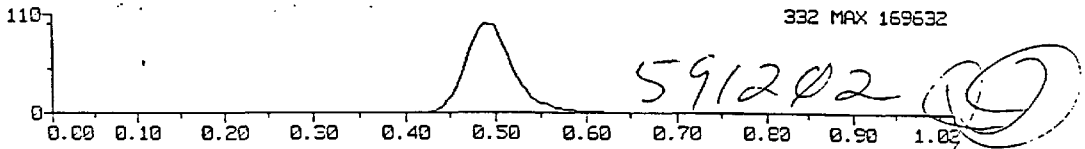
MAY0403 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	260	BO	0	TO	110	GR	LMNP	SE	112
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	112	TI	00:00:26
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	153	IN	2601









	4-MAY-87		08:16:16	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.994					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	85.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:16:16

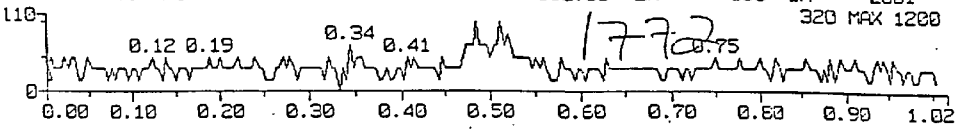
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

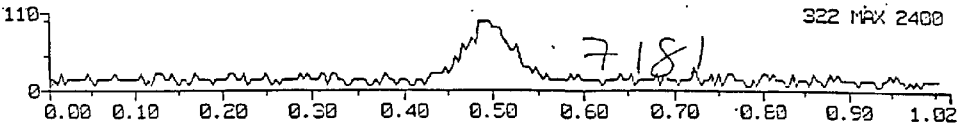
0214 24

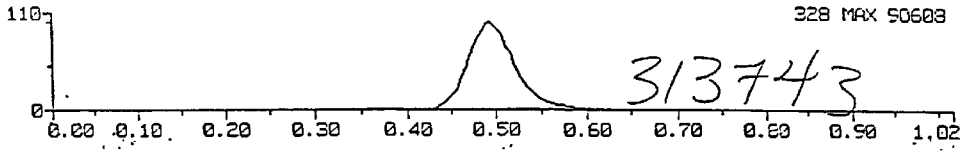
03221639

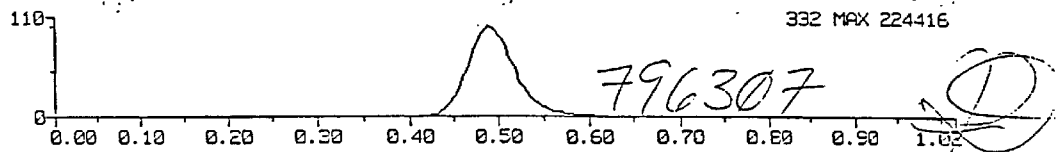
MAY0407 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	260	BO	0	TO	110	GR	LNNP	SE	111
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	111	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	153	IN	2801









	4-MAY-87		08:10:46	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.004					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SFF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

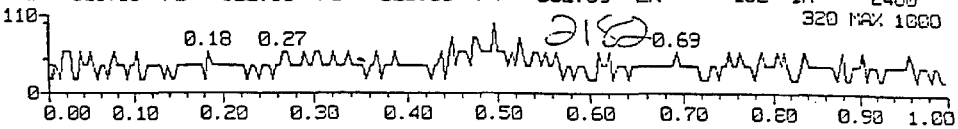
08:10:46

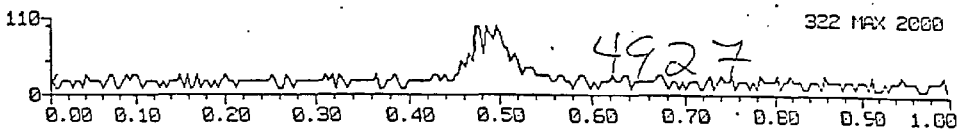
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

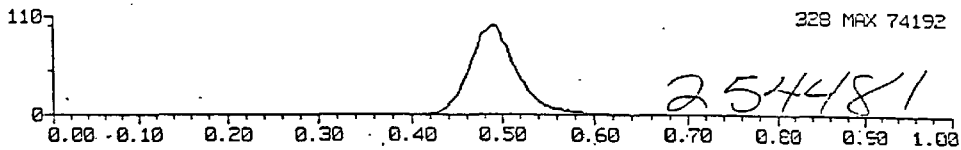
021425

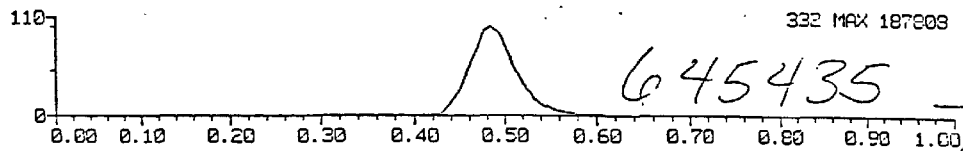
MAY0406 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400









021426

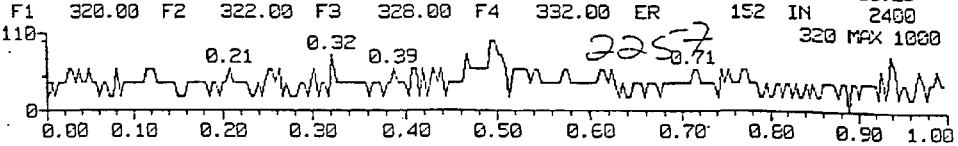
4-MAY-87		08:06:01		OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.012					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

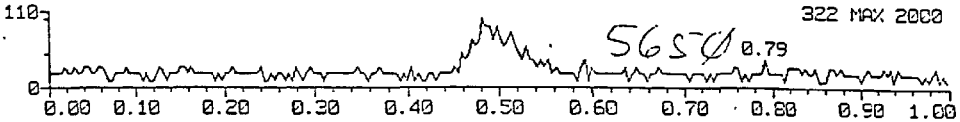
08:06:01

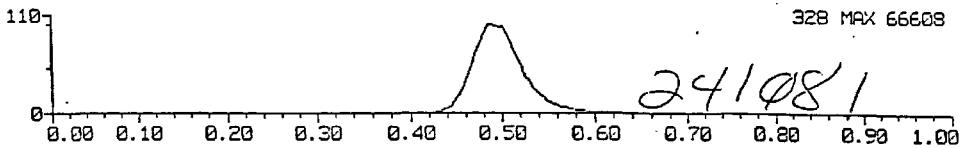
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

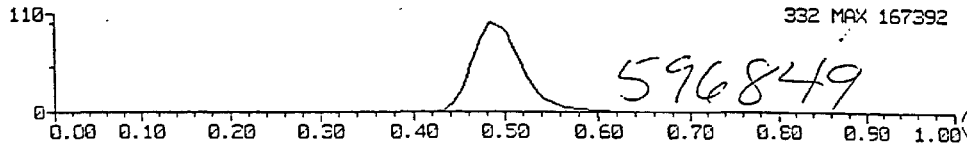
MAY0405 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	111
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	111	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400









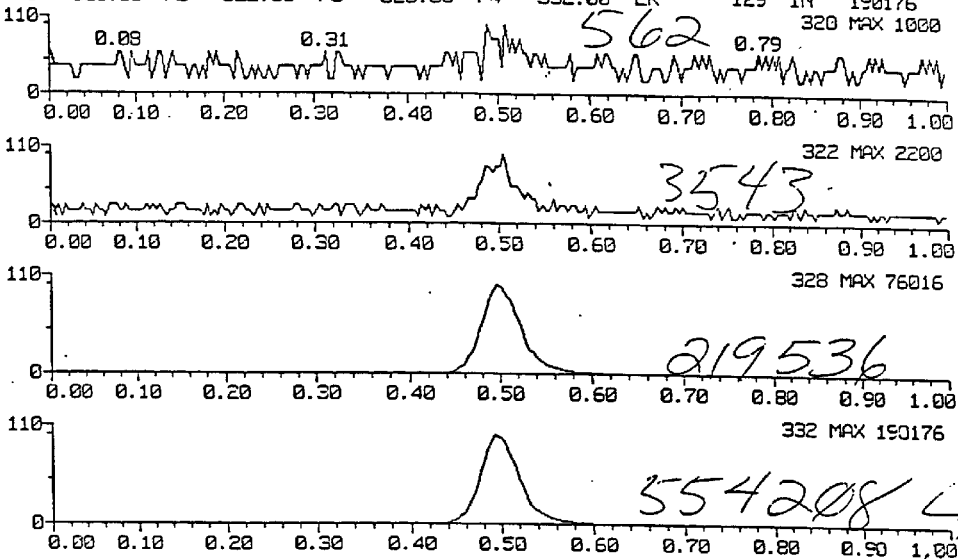
	4-MAY-87		08:00:47	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.995					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:00:47

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

MAY0404 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	190176



4-MAY-87		07:53:06		OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.003					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

07:53:06

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021429

ATTACHMENT 5

CHAIN OF CUSTODY, GC/MS/MS LOG, EXTRACTION RECORD

INTERNATIONAL TECHNOLOGY CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. 52249

C/C Control No. 47303

PROJECT NAME/NUMBER Jacksonville Offsite/480078.01.08.02

LAB DESTINATION TMS-Indianapolis, Indiana

SAMPLE TEAM MEMBERS D. Simerly & D. Peery

CARRIER/WAYBILL NO. FED EXP. 908817294 0

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
WH2372	Jacksonville, Arkansas	08/12/88 0758	soil	CLEAR GLASS		
WH2373		08/12/88 0758	soil	CLEAR GLASS		
WH2374		08/12/88 0823	soil	CLEAR GLASS		
WH2375		08/12/88 0920	soil	CLEAR GLASS		
WH2376		08/12/88 0920	soil	CLEAR GLASS		
WH2377		08/12/88 0959	soil	CLEAR GLASS		
WH2378		08/12/88 0959	soil	CLEAR GLASS		
WH2379		08/12/88 1037	soil	CLEAR GLASS		
WH2380		08/12/88 1037	soil	CLEAR GLASS		
WH2381		08/12/88 1003	LIQUID	CLEAR GLASS		
WH2382		08/12/88 0920	LIQUID	CLEAR GLASS		

Special Instructions:

Possible Sample Hazards: Dioxin

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: [signature] ITEAS 8/12/88 1700

Received By:

2. Relinquished By: Federal Express

Received By: Julie Noble 8/15/88 0925

3. Relinquished By:

Received by:

4. Relinquished By:

Received By:

03221645

3 2279

021430

WHITE - To accompany samples
YELLOW - Field copy

INTERNATIONAL TECHNOLOGY CORPORATION

REQUEST FOR ANALYSIS

R/A Control No. 52249
C/C Control No. 17303

PROJECT NAME: JACKSONVILLE OFFSITE
PROJECT NUMBER: 480078 01 08 01
PROJECT MANAGER: DANA SIMERLY
BILL TO: HERCULES INCORPORATED
1313 N. MARKET
WILMINGTON, DELAWARE

PURCHASE ORDER NO.

DATE SAMPLES SHIPPED: 08/12/88
LAB DESTINATION: TMS ANALYTICAL
LABORATORY CONTACT: CINDY CRAUSS
SEND LAB REPORT TO: FLORENCE E. KINOSHITA PH.
C/O HERCULES INC
WILMINGTON, DELAWARE
DATE REPORT REQUIRED: 48 HRS
PROJECT CONTACT: DANA SIMERLY
PROJECT CONTACT PHONE NO.: 615 690-3211

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
WH2372	soil	35g	NA	TCLP By TMS methods	
WH2373	soil	35g	N.A.	GC/MS/MS	
WH2374	soil	35g	N.A.		
WH2375	soil	35g	N.A.		
WH2376	soil	35g	N.A.		
WH2377	soil	35g	N.A.		
WH2378	soil	35g	N.A.		
WH2379	soil	35g	N.A.		
WH2380	soil	35g	N.A.		
WH2381	LIQUID-HEXANE	40 ml	N.A.		
WH2382	LIQUID-HEXANE	40 ml	N.A.		

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal _____ Rush ✓ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard _____ Flammable _____ Skin Irritant _____ Highly Toxic _____ Other PCB/PCBC (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client ✓ Disposal by Lab _____

FOR LAB USE ONLY

Received By Julie Noble 8/15/88 Date/Time 0925

021431

WHITE - Original, to accompany samples
YELLOW - Field copy

03221646

3 2280

FEDERAL EXPRESS

NUMBER [redacted]

25 B174M [redacted] 3 2281

Date 8/12/88

From (Your Name) Please Print	Your Phone Number (Very Important)	To (Recipient's Name) Please Print	Recipient's Phone Number (Very Important)
DANA S. Simerly	(615) 690-3211	SUZANNE HAMMER	(319) 291-5697
Company: I T CORP	Department/Floor No.	Company: T M S ANALYTICAL SERVICES	Department/Floor No.
Street Address: 312 DIRECTORS DRIVE		Exact Street Address (Use of P.O. Boxes or P.O. # Zip Codes Will Delay Delivery And Result In Extra Charge.): 637 MORENCI TRAIL	
City: KNOXVILLE State: TN	ZIP Required For Correct Invoicing: 37923	City: INDIANAPOLIS State: IN	ZIP Street Address Zip Required: 46206

YOUR BILLING REFERENCE INFORMATION (FIRST 24 CHARACTERS WILL APPEAR ON INVOICE.): 480078 01 0801

PAYMENT: ☒ Bill Sender ☐ Bill Recipient's FedEx Acct. No ☐ Bill 3rd Party FedEx Acct. No ☐ Bill Credit Card ☐ Cash

HOLD FOR PICK-UP AT THIS FEDERAL EXPRESS LOCATION: Street Address (See Service Guide or Call 800-238-5355)

City State

ZIP ® Zip Code of Street Address Required

Federal Express Use: Base Charges; Declared Value Charge; Origin Agent Charge; Other; Total Charges

SERVICES CHECK ONLY ONE BOX

1 ☒ PRIORITY 1 Overnight Delivery Using Your Packaging When using ICAO regulations, please mark appropriate box(es). Do not mark for CFR 49.
☐ Cargo Aircraft only
☒ Dangerous goods as per attached Dangerous Goods Transport Document

STANDARD AIR
5 ☐ Delivery not later than second business day

SERVICE COMMITMENT
PRIORITY 1 - Delivery is scheduled early next business morning in most locations. It may take two or more business days if the destination is outside our primary service areas.
STANDARD AIR - Delivery is generally next business day or not later than second business day. It may take three or more business days if the destination is outside our primary service areas.

DELIVERY AND SPECIAL HANDLING CHECK SERVICES REQUIRED

1 ☐ HOLD FOR PICK-UP (Fill in Section H at right)
2 ☒ DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) ☐
4 ☒ DANGEROUS GOODS (P-1 and Standard Air Packages only Extra charge)
5 ☐ CONSTANT SURVEILLANCE SERVICE (CSS) (Extra charge) (Do Not Complete Section 5)
6 ☐ DRY ICE _____ Lbs
7 ☐ OTHER SPECIAL SERVICE
8 ☐
9 ☐ SATURDAY PICK-UP (Extra charge)
10 ☐

PACKAGES	WEIGHT	YOUR DECLARED VALUE	OVER SIZE
1	26 LBS		
	LBS		
	LBS		
	LBS		
Total 1	Total 26	Total	

Received At: 1 ☐ Regular Stop 2 ☐ On-Call Stop 3 ☐ Drop Box 4 ☐ B.S.C. 5 ☐ Station

Federal Express Corp. Employee No.: 57722

Date/Time For Federal Express Use: 8/12 1646

Emp. No. Date
☐ Cash Received
☐ Return Shipment
☐ Third Party ☐ Chg. To Del. ☐ Chg. To Hold
Street Address
City State Zip
Received By: X Julie Noble
Date/Time Received FedEx Employee Number: 8/15/88 - 0925

PART #2041730764 REV. 5/87 PRINTED U.S.A. NCREC

008

9088172940 AIRBILL NUMBER

SHIPPER'S CERTIFICATION FOR RESTRICTED ARTICLES/DANGEROUS GOODS

CHECK ONE ☐ 49 CFR ☐ ICAO (TYPE OR PRINT)

DANGEROUS GOODS IDENTIFICATION

	PROPER SHIPPING NAME	CLASS OR DIVISION	UNIT OR CODE	SUBSIDIARY			AUTHORIZATION
1	HEXANE LIMITED QUANTITY	FLAMMABLE LIQUID	UN 1208		2 ounces		

ADDITIONAL DESCRIPTION REQUIREMENTS FOR RADIOACTIVE MATERIALS (SEE BACK)

RADIONUCLIDE			CATEGORY OF LABEL		
			☐ WHITE I ☐ YELLOW II ☐ YELLOW III ☐ NONE		

TRANSPORT DETAILS: THIS SHIPMENT IS WITHIN THE LIMITATIONS PRESCRIBED FOR ▶ PASSENGER AIRCRAFT ~~CARGO AIRCRAFT ONLY~~ (DELETE-NONAPPLICABLE)

AIRPORT OF DEPARTURE | AIRPORT OF DESTINATION | SHIPMENT TYPE ▶ NON-RADIOACTIVE ~~RADIOACTIVE~~ (DELETE-NONAPPLICABLE)

IF ACCEPTABLE FOR PASSENGER AIRCRAFT, THIS SHIPMENT CONTAINS RADIOACTIVE MATERIAL INTENDED FOR USE IN, OR INCIDENT TO, RESEARCH, MEDICAL DIAGNOSIS OR TREATMENT.

I HEREBY DECLARE THAT THE CONTENTS OF THIS CONSIGNMENT ARE FULLY AND ACCURATELY DESCRIBED ABOVE BY PROPER SHIPPING NAME AND ARE CLASSIFIED, PACKED, MARKED, AND LABELED, AND ARE IN ALL RESPECTS IN PROPER CONDITION FOR TRANSPORT BY AIR ACCORDING TO THE APPLICABLE INTERNATIONAL AND NATIONAL GOVERNMENT REGULATIONS.

NAME AND TITLE OF SHIPPER: DANA S. Simerly Senior Engineer | PLACE AND DATE: 1 Th Rock 8/12/88 03221647

EMERGENCY TELEPHONE NUMBER: 615 690-3211 | SIGNATURE OF SHIPPER: [signature]

SEE

Page No.

3 2282

AUG-1637	1829	Method Blank
38	1841	Soil Blank
39	1853	Soil Spike
40	1904	Soil PE
41	1916	2372
42	1930	2373
43	1942	2374
44	1953	2375
45	2005	2376
46	2016	2377
47	2027	2378
48	2038	2379
49	2049	2380
50	2100	2381
51	2111	2382

021433

03221648

To Page No.

essed & Understood by me. | Date 8/16/88 | Invented by KE [illegible] | Date

Recorded by

DATE: 8-15-88 SHIPMENT NUMBER HER081SA

INITIALS JKW

SMO SAMPLE #	EPA SAMPLE #	SAMPLE WEIGHT	EXTRACTION VOLUME	OPTION A CLEANUP	OPTION D CLEANUP	SPIKING SOL'N ADDED	COMMENTS
MB	—	5.00g	60ml	✓		25ng II	
SB	OCL34/575	5.00				↓	
SS	OCL35562	5.00				25ng I	
PE-A	—	5.00				25ng II	
wH 2372		5.07					soil
" 2373		5.12					
" 2374		5.11					
" 2375		5.11					
" 2376		5.09					
" 2377		5.07					
2378		5.03					
" 2379		5.10					
" 2380		5.02					
" 2381		25ml	25ml				liquid
" 2382		40ml	40ml				"

02142134

03221649

3 2284

TMS
TANDEM MASS SPECTROMETRY

TMS Analytical Services Inc.

6376 MORENCI TRAIL • TEL. (317) 291-5697 • INDIANAPOLIS, INDIANA 46268

021435

August 22, 1988

Dr. Florence K. Kinoshita
Medical Department
Hercules Incorporated
1313 N. Market Street
Wilmington, DE 19894

Dear Dr. Kinoshita:

Enclosed are analytical results for the analysis of 1 sample for 2,3,7,8-TCDD. This sample was analyzed according to the procedures outlined in the USEPA Contract Laboratory Program "Statement of Work for Rapid Turnaround Dioxin Analysis in Multi-Media", November 1986. Sample preparation and analysis procedures from the "Rapid Determination of TCDD In Soil and Sediment Samples, Using Gas Chromatography and Tandem Mass Spectrometry" were used. This sample was received as Shipment HERCULES for analysis on 07/28/88 at 09:30. The analytical results of Filename HER0819A were sent by FAX at 15:15 on August 23, 1988.

If you should have any questions regarding these data or this report, please feel free to contact me at (317)291-5697.

Very truly yours,

Dennis L. Heuring by Dah

Dennis L. Heuring, Ph.D.
President

HERCULES INC.
RECEIVED
AUG 30 1988
MEDICAL DEPT.

ENCLOSURES:

03221650

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021436

TCDD FINAL DATA REPORT SHEET

FILE RECEIVED DATE:
FILE RECEIVED TIME:

SITE: HER
CASE: 0819
DATE: 08/21/88

AREA #	CLIENT SAMPLE #	ANALYSIS DATE	ANALYSIS TIME	NATIVE RATIO	SURROGATE ACC	TCDD CONC.	RERUN CODE	VALID CODE	UNITS	COMMENTS
WH2286	WH2286	08/18/88	1428	1.12	77.23	1.621			NG/GM	

QUALIFICATION FLAGS:

* 257/259 RATIO OUTSIDE OF ACCEPTABLE RANGE
** SURROGATE OUTSIDE OF ACCEPTABLE RANGE
*** HIGH DETECTION LIMIT

RERUN CODES:
A AUTOMATIC RERUN
R REQUESTED RERUN

021437

GC/MS/MS WORKSHEET REPORT FORM

SITE: HER
CASE: 0819
DATE: 08/21/88

SURROGATE CONC 0.06 RF NATIVE 2.109 ION RATIO: 1.009 TO 1.233
INTERNAL STD CONC 1.05 RF SURROGATE 2.083 CORRECTION FACTOR: 0.010

LAB SAMPLE #	AREA #	CLIENT SAMPLE #	ANALYSIS DATE	TIME	SAMPLE AMOUNT	ION 257	ION 259	ION 263	ION 268	RATIO 257/259	SURR ACC	RAW VALUE	UNITS
AUG1811	WH22B6	WH22B6	08/18/88	1428	5.08	15238	13658	13371	41041	1.12	77.23	1.621	NG/GM

TABLE 3 GC/MS/MS DAILY CALIBRATION CHECK

MEAN NATIVE RF	2.109	NATIVE CONC.	0.20	SITE:	HER
MEAN SURROGATE RF	2.083	SURROGATE CONC.	0.06	DATE:	08/21/88
ION RATIO RANGE	1.009 TO 1.233	INTERNAL STD. CONC .	1.05	CASE:	0819

ANALYSIS DATE	ANALYSIS TIME	ION 257	ION 259	ION 263	ION 268	RATIO 257/259	RF NATIVE	NATIVE RF %DIFF.	RF SURROGATE	SURROGATE RF % DIFFERENCE	COMMENTS
08/18/88	1347	29955	28206	20761	147580	1.062	2.069	1.90	2.423	16.32	

* ION RATIO MUST BE WITHIN ACCEPTABLE RANGE OF INITIAL CALIBRATION
** NATIVE % DIFFERENCE MUST BE LESS THAN 10% FROM INITIAL CALIBRATION

021439

TABLE 1 GC/MS/MS INITIAL CALIBRATION

SITE CODE: HER
CASE: 0819
DATE: 10/13/87

SOLUTION ID	ION 257	ION 259	ION 263	ION 268	NATIVE CONC	SURROGATE CONC	INT. STD CONC	RF NATIVE	RF SURROGATE	RATIO 257/259	COMMENTS
CC1-1	73881	67752	43569	345176	0.20	0.06	1.05	2.154	2.168	1.090	
CC1-2	76844	69768	45279	362015	0.20	0.06	1.05	2.126	2.149	1.101	
CC1-3	82583	73708	47294	382379	0.20	0.06	1.05	2.146	2.124	1.120	
							MEAN	2.142			
							STD DEV	0.014			
							% RSD	0.65			
CC2-1	324838	283704	77330	301890	1.00	0.11	1.05	2.117	2.334	1.145	
CC2-2	358491	321128	85961	323744	1.00	0.11	1.05	2.204	2.420	1.116	
CC2-3	334056	291974	79920	312887	1.00	0.11	1.05	2.101	2.328	1.144	
							MEAN	2.141			
							STD DEV	0.055			
							% RSD	2.57			
CC3-1	1081980	966175	92814	208328	5.00	0.20	1.05	2.065	2.044	1.120	
CC3-2	1989496	1775627	177692	387550	5.00	0.20	1.05	2.040	2.116	1.120	
CC3-3	2046320	1823272	181766	401030	5.00	0.20	1.05	2.026	2.090	1.122	
							MEAN	2.044	2.083		
							STD DEV	0.020	0.036		
							% RSD	0.97	1.73		

RF NATIVE OVERALL MEAN 2.109
STD DEV 0.056
% RSD 2.674

RF SURROGATE OVERALL MEAN 2.083
STD DEV 0.036
% RSD 1.728

OVERALL RATIO 257/259 MEAN: 1.121
RANGE: 1.009 TO 1.233

* RF NATIVE % RELATIVE STANDARD DEVIATION MUST BE LESS THAN 10%
** RATIO OF 257/259 OUTSIDE OF ACCEPTABLE RANGE

021440

TABLE 2 BLANK SUMMARY FORM

SITE: HER CASE : 0819 DATE: 05/04/87

SOLUTION ID	ION 257	ION 259	ION 268	BLANK RESPONSE	NATIVE CONC
1	355	5301	715479	0.008	0.019
2	1500	6454	766148	0.010	0.025
3	981	3057	526670	0.008	0.018
4	1303	5610	906231	0.008	0.018
5	1825	4805	727729	0.009	0.022
6	2058	5231	653736	0.011	0.026
7	707	4542	541920	0.010	0.023
8	1260	6293	667676	0.011	0.027
9	558	3819	537461	0.008	0.019
10	744	3791	619160	0.007	0.017
11	1403	6817	761787	0.011	0.026
12	1	3932	330813	0.012	0.028
13	1360	4860	609680	0.010	0.024
14	663	4014	508056	0.009	0.022
15	1307	6514	855393	0.009	0.022
16	1316	4457	591202	0.010	0.023
17	1772	7181	796307	0.011	0.027
18	2182	4927	645435	0.011	0.026
19	2257	5650	596849	0.013	0.031
20	562	3543	554208	0.007	0.018

CORRECTION FACTOR = 0.010
LIMIT OF DETECTION = 0.014

* LIMIT OF DETECTION MUST BE LESS THAN 0.3

021441

ATTACHMENT 1

SAMPLE MASS CHROMATOGRAMS

021442

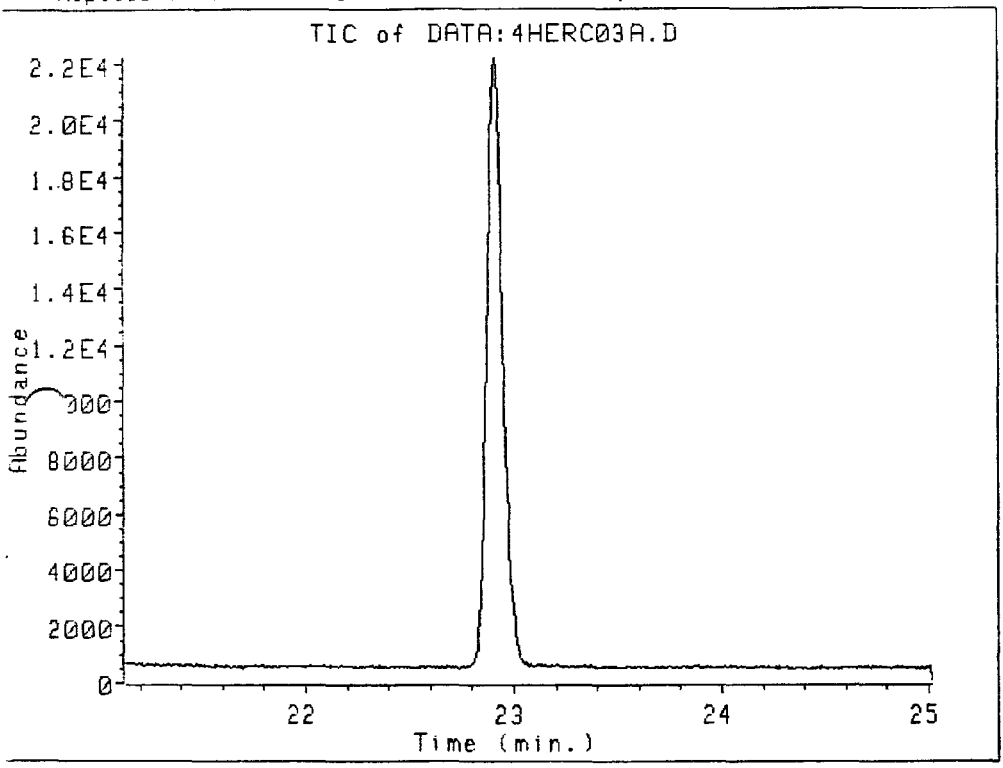
Data file: DATA:4HERC03A.D
File type: GC / MS DATA FILE

3 2292

Name Info: METHOD BLANK1
Misc Info:
Operator : TMS

Date : 1 Aug 88 9:12 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 3
Replicate num : 1



021443

03221658

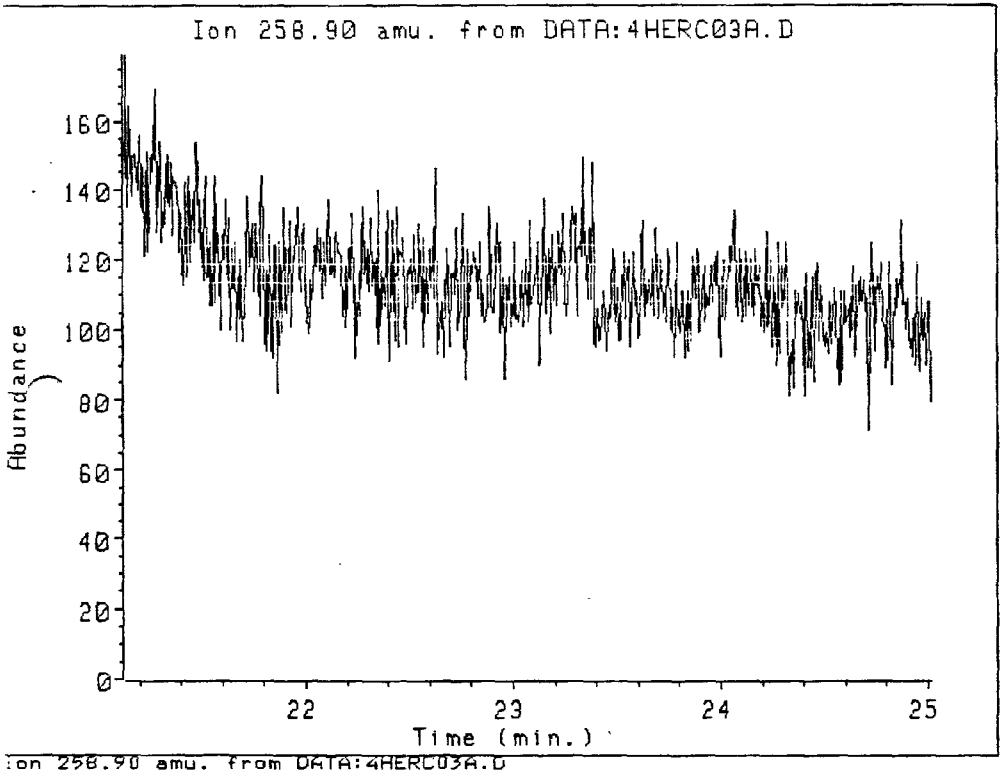
Data file: DATA:4HERC03A.D
File type: GC / MS DATA FILE

3 2293

Name Info: METHOD BLANK1
Misc Info:
Operator : TMS

Date : 1 Aug 88 9:12 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 3
Replicate num : 1



Ion 258.90 amu. from DATA:4HERC03A.D
METHOD BLANK1

No peaks detected

0214444

03221659

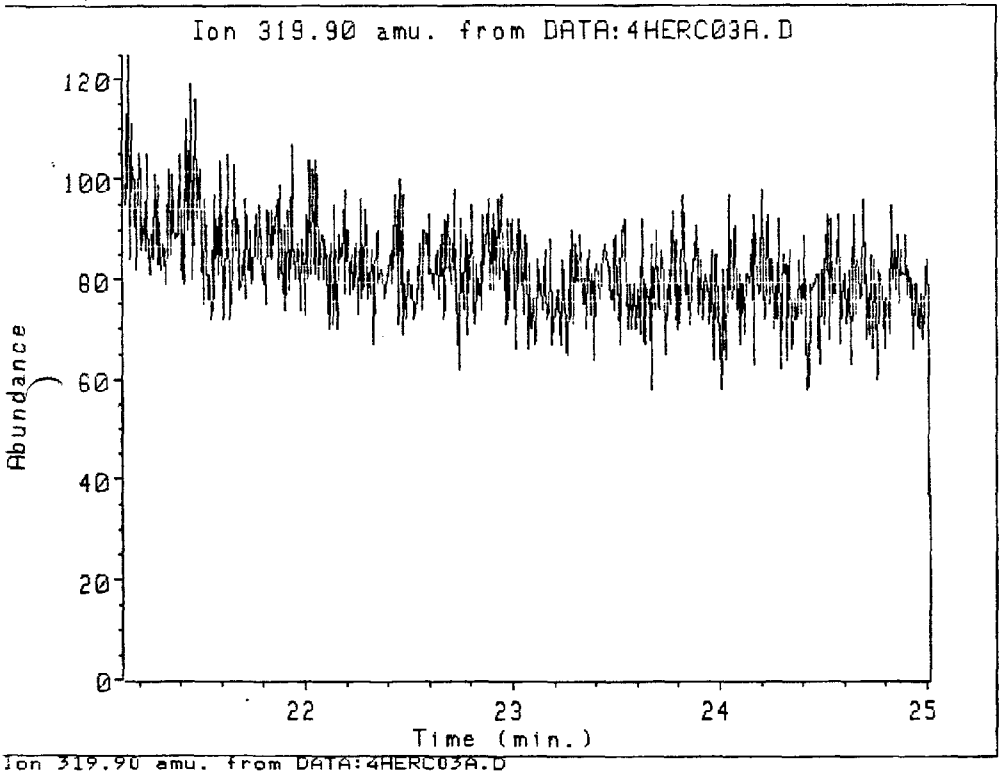
Data file: DATA:4HERC03A.D
File type: GC / MS DATA FILE

3 2294

Name Info: METHOD BLANK1
Misc Info:
Operator : TMS

Date : 1 Aug 88 9:12 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 3
Replicate num : 1



Ion 319.90 amu. from DATA:4HERC03A.D
METHOD BLANK1

No peaks detected

021445

03221660

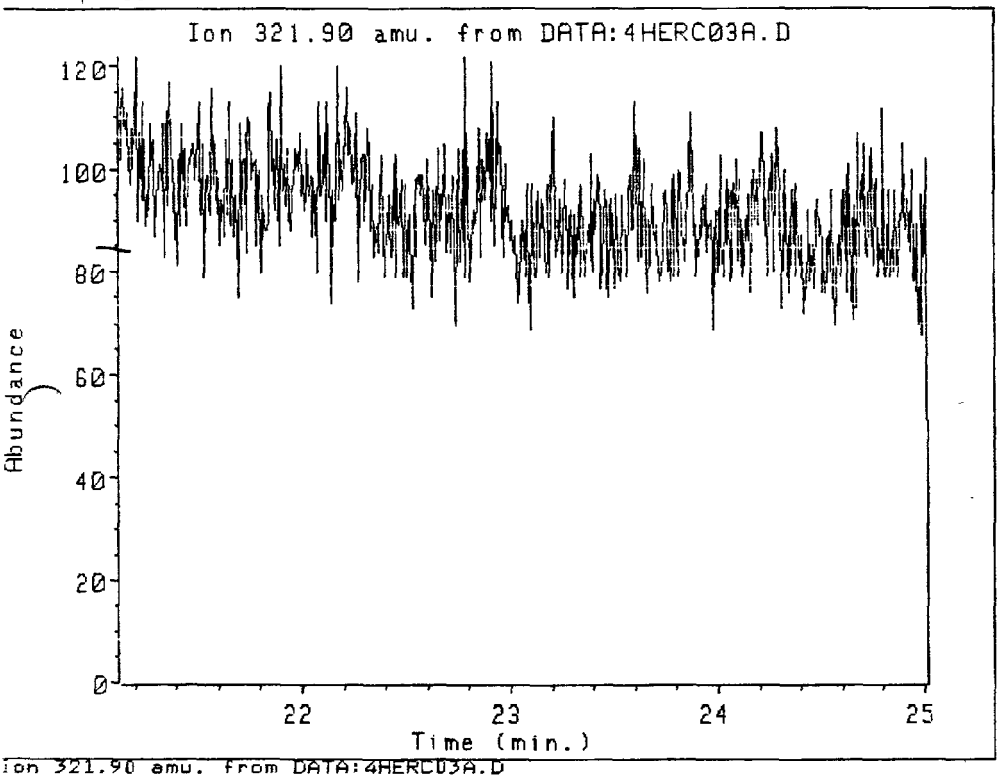
Data file: DATA:4HERC03A.D
File type: GC / MS DATA FILE

3 2295

Name Info: METHOD BLANK1
Misc Info:
Operator : TMS

Date : 1 Aug 88 9:12 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 3
Replicate num : 1



Ion 321.90 amu. from DATA:4HERC03A.D
METHOD BLANK1

No peaks detected

0214446

03221661

Data file: DATA:4HERC03A.D
File type: GC / MS DATA FILE

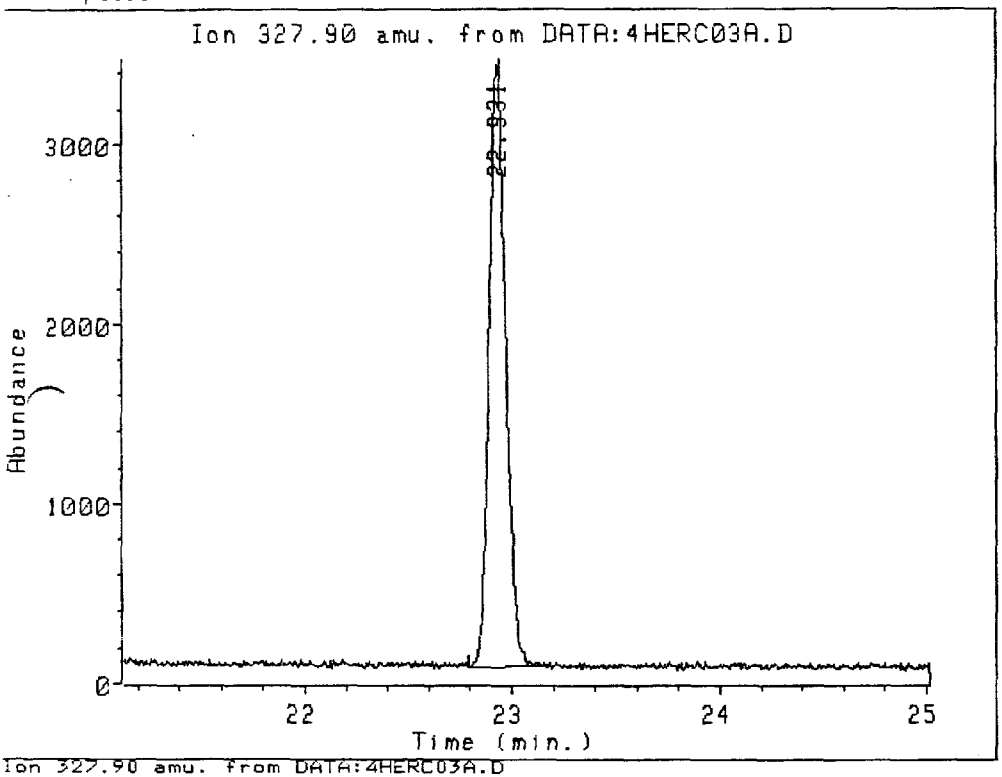
3 2296

Name Info: METHOD BLANK1
Misc Info:
Operator : TMS

Date : 1 Aug 88 9:12 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 3
Replicate num : 1

021447



Ion 327.90 amu. from DATA:4HERC03A.D
METHOD BLANK1

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	22.931	BB	0.083	189170	22.791	23.142

03221662

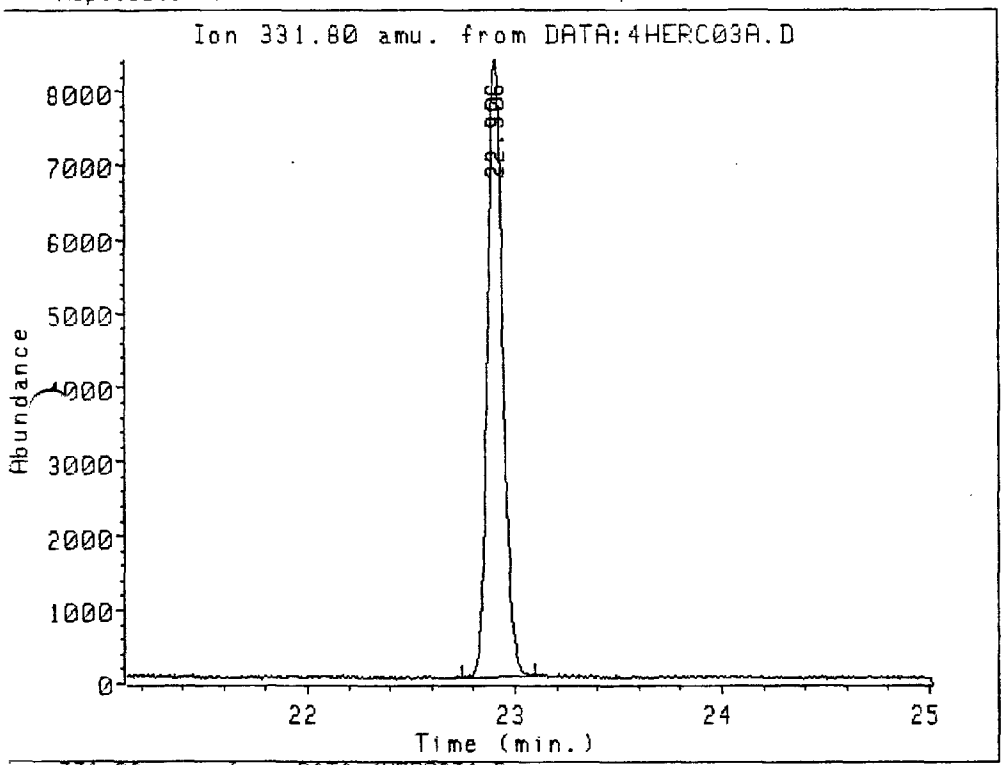
Data file: DATA:4HERC03A.D
File type: GC / MS DATA FILE

3 2297

Name Info: METHOD BLANK1
Misc Info:
Operator : TMS

Date : 1 Aug 88 9:12 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 3
Replicate num : 1



Ion 331.80 amu. from DATA:4HERC03A.D
METHOD BLANK1

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	22.906	BB	0.078	434847	22.743	23.099

021448

03221663

Data file: DATA:4HERC03A.D
File type: GC / MS DATA FILE

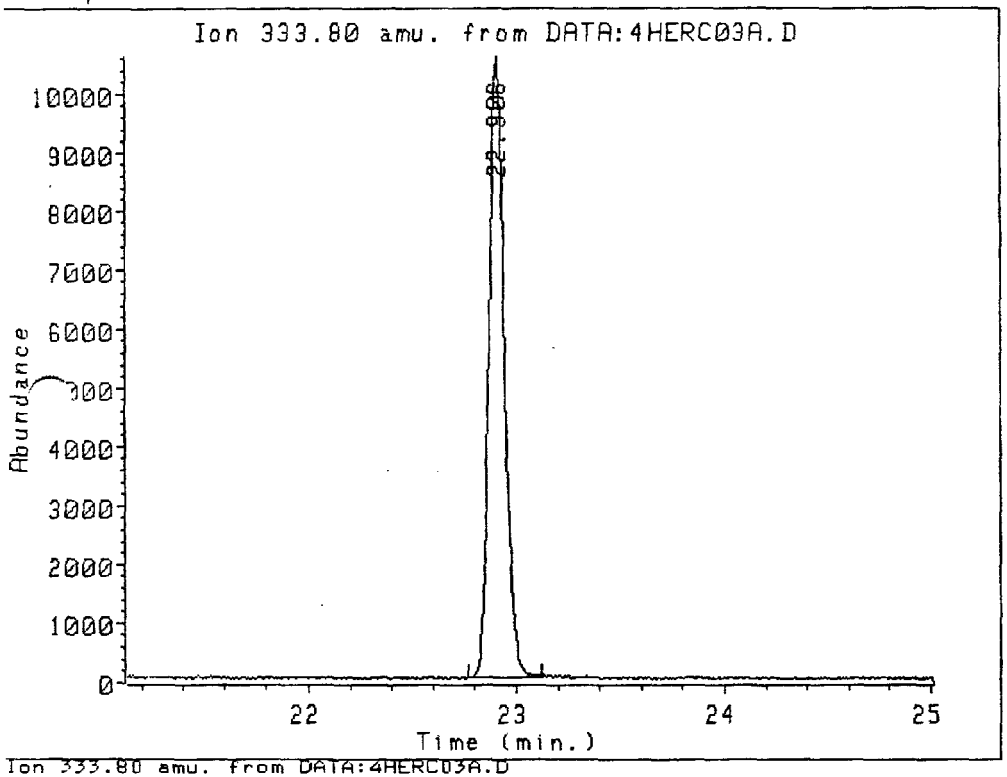
3 2298

Name Info: METHOD BLANK1
Misc Info:
Operator : TMS

Date : 1 Aug 88 9:12 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 3
Replicate num : 1

021449



Ion 333.80 amu. from DATA:4HERC03A.D
METHOD BLANK1

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	22.906	BB	0.082	548437	22.764	23.123

03221664

Data file: DATA:4HERC04A.D
File type: GC / MS DATA FILE

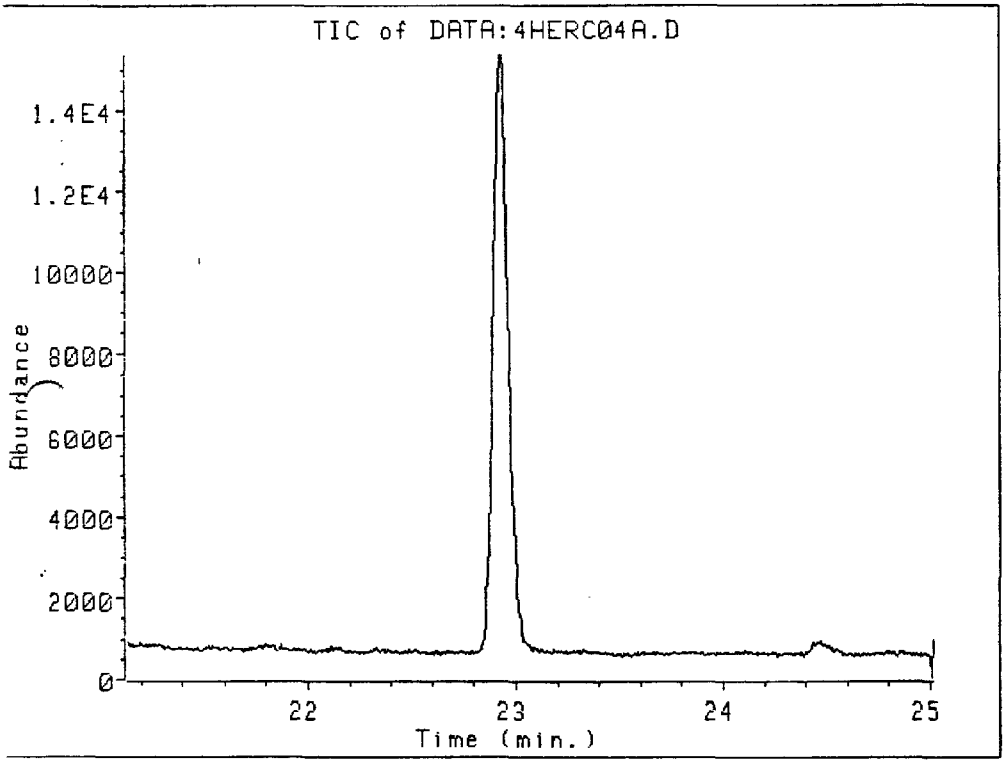
3 2299

Name Info: SOIL BLANK 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 9:46 pm
Instrument: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 4
Replicate num : 1

021450



03221665

Data file: DATA:4HERC04A.D
File type: GC / MS DATA FILE

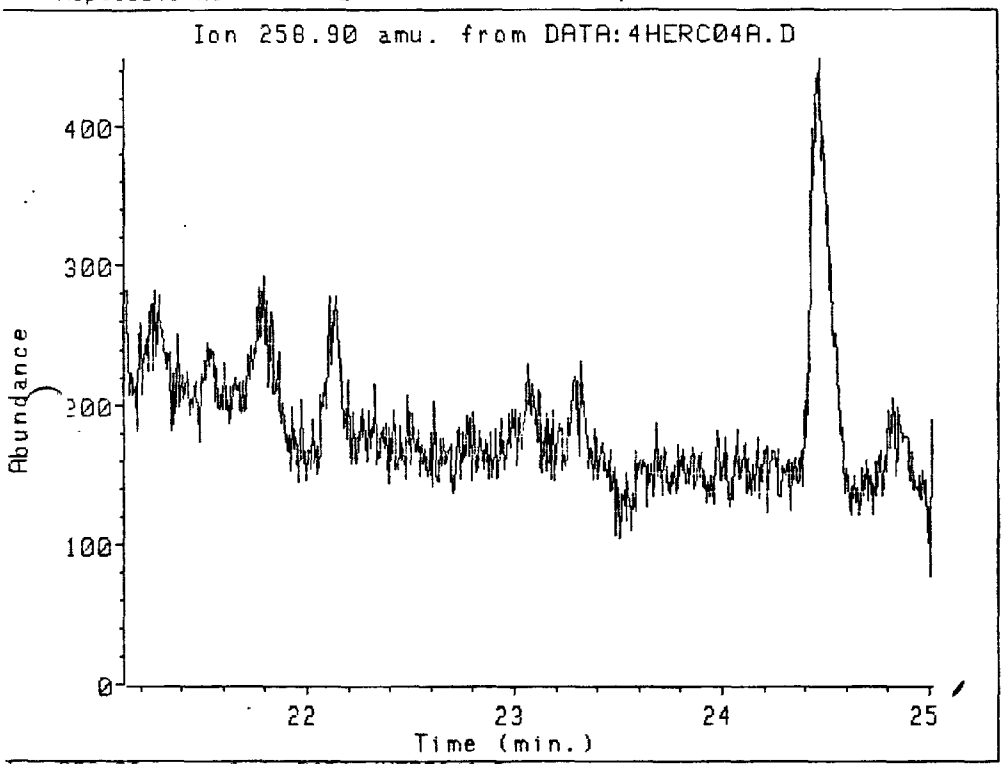
3 2300

Name Info: SOIL BLANK 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 9:46 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 4
Replicate num : 1

021451



Ion 258.90 amu. from DATA:4HERC04A.D
SOIL BLANK 1

No peaks detected

03221666

Data file: DATA:4HERC04A.D
File type: GC / MS DATA FILE

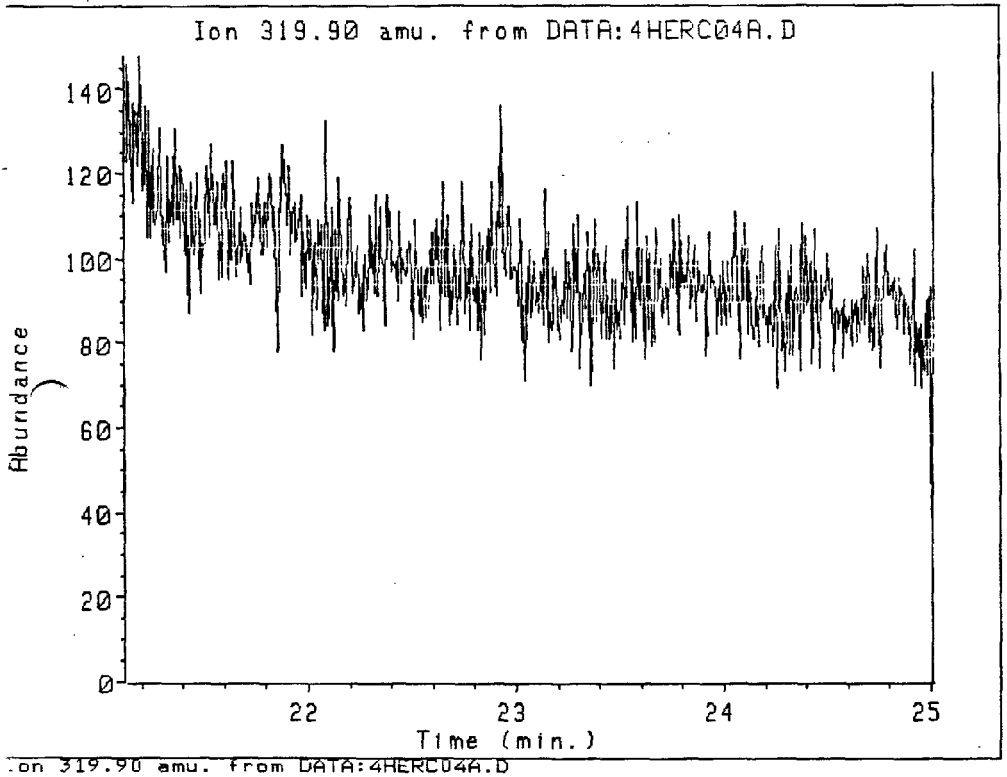
3 2301

Name Info: SOIL BLANK 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 9:46 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 4
Replicate num : 1

021452



Ion 319.90 amu. from DATA:4HERC04A.D
SOIL BLANK 1

No peaks detected

03221667

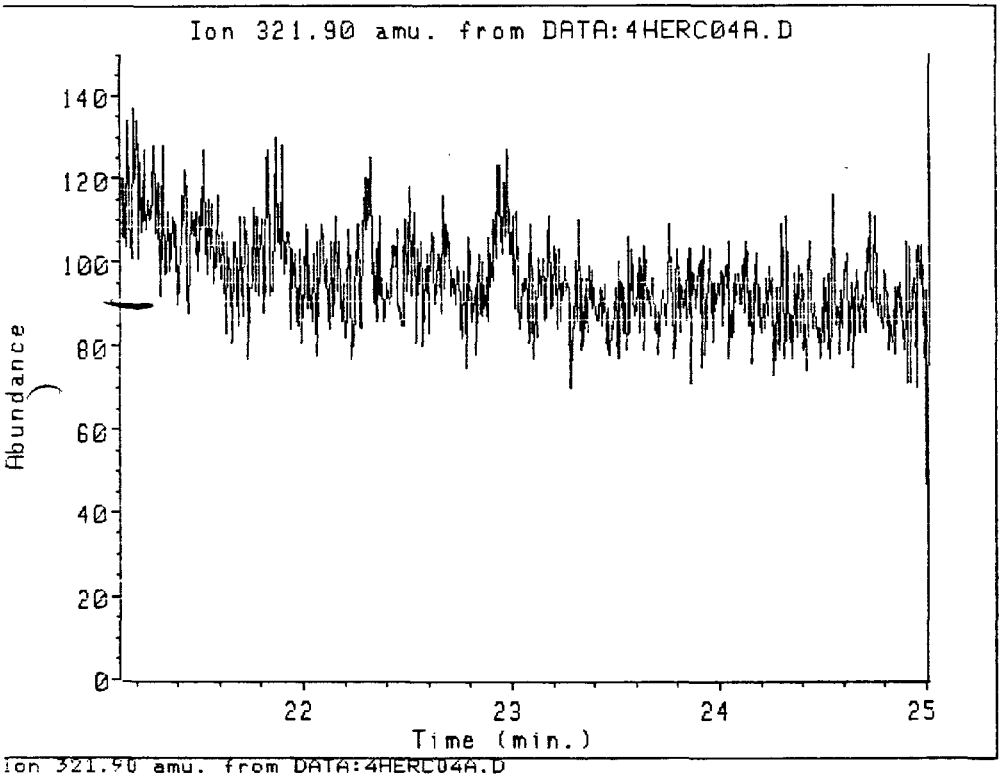
Data file: DATA:4HERC04A.D
File type: GC / MS DATA FILE

3 2302

Name Info: SOIL BLANK 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 9:46 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 4
Replicate num : 1



Ion 321.90 amu. from DATA:4HERC04A.D
SOIL BLANK 1

No peaks detected

0214453

03221668

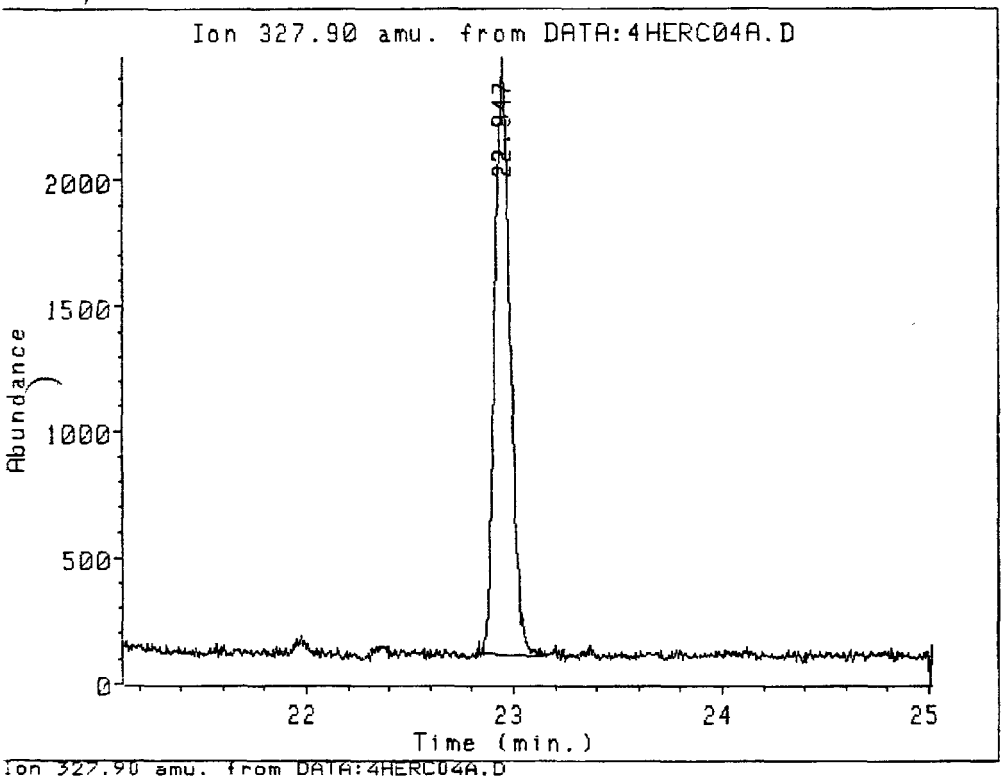
Data file: DATA:4HERC04A.D
File type: GC / MS DATA FILE

3 2303

Name Info: SOIL BLANK 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 9:46 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 4
Replicate num : 1



Ion 327.90 amu. from DATA:4HERC04A.D
SOIL BLANK 1

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	22.947	BB	0.077	122332	22.837	23.142

021454

03221669

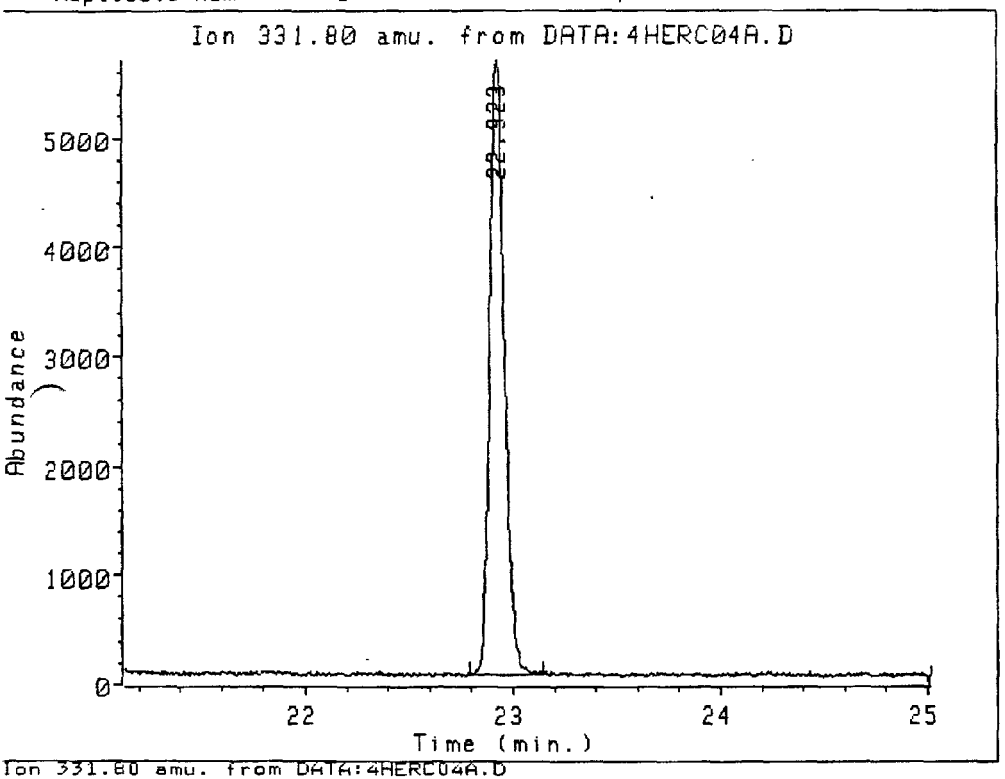
3 2304

Data file: DATA:4HERC04A.D
File type: GC / MS DATA FILE

Name Info: SOIL BLANK 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 9:46 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 4
Replicate num : 1



Ion 331.80 amu. from DATA:4HERC04A.D
SOIL BLANK 1

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	22.923	BB	0.077	280007	22.791	23.145

021455

03221670

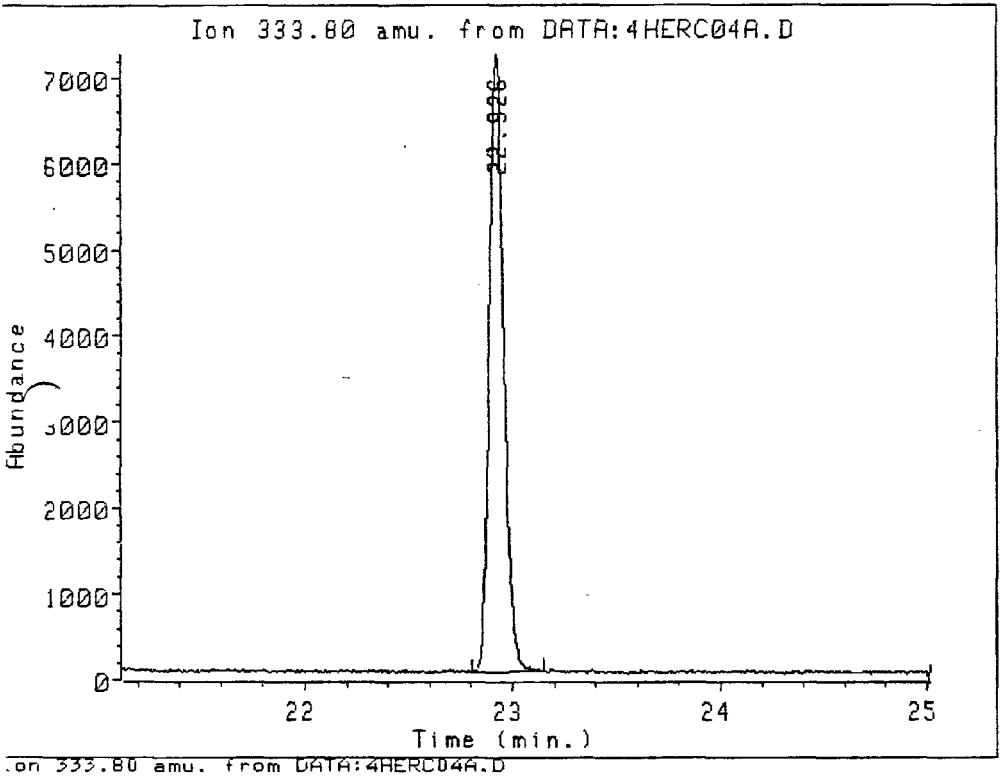
Data file: DATA:4HERC04A.D
File type: GC / MS DATA FILE

3 2305

Name Info: SOIL BLANK 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 9:46 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 4
Replicate num : 1



021456

Ion 333.80 amu. from DATA:4HERC04A.D
SOIL BLANK 1

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	22.926	BB	0.076	352568	22.801	23.154

03221671

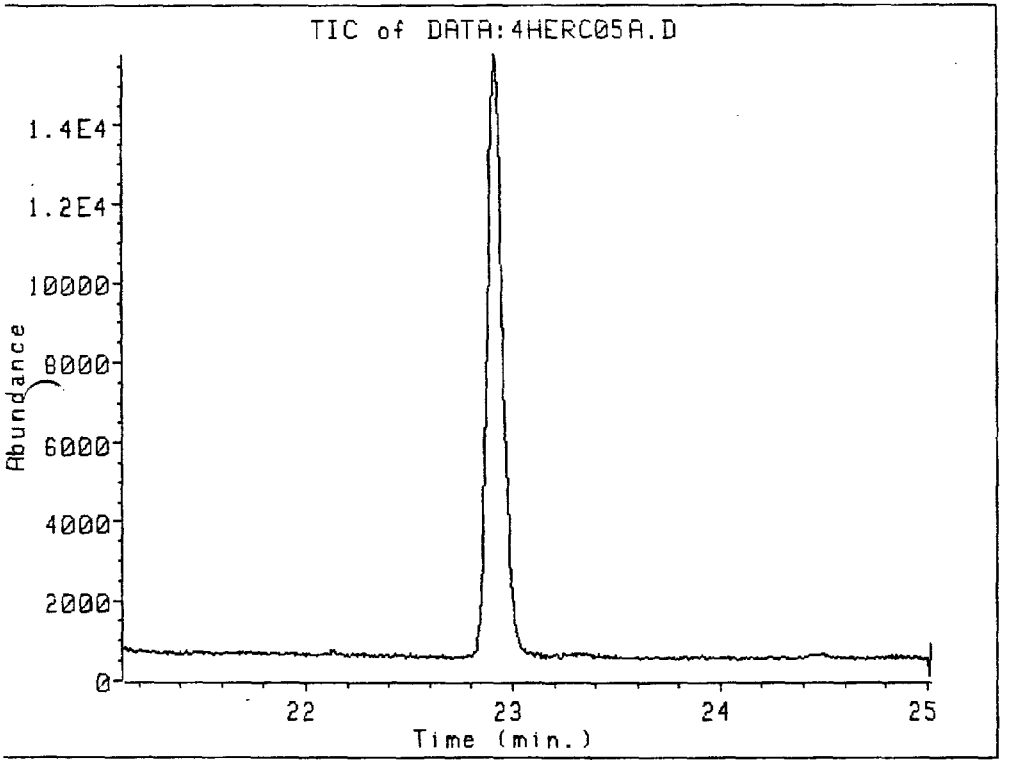
Data file: DATA:4HERC05A.D
File type: GC / MS DATA FILE

3 2306

Name Info: SOIL SPIKE 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 10:19 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 5
Replicate num : 1



021457

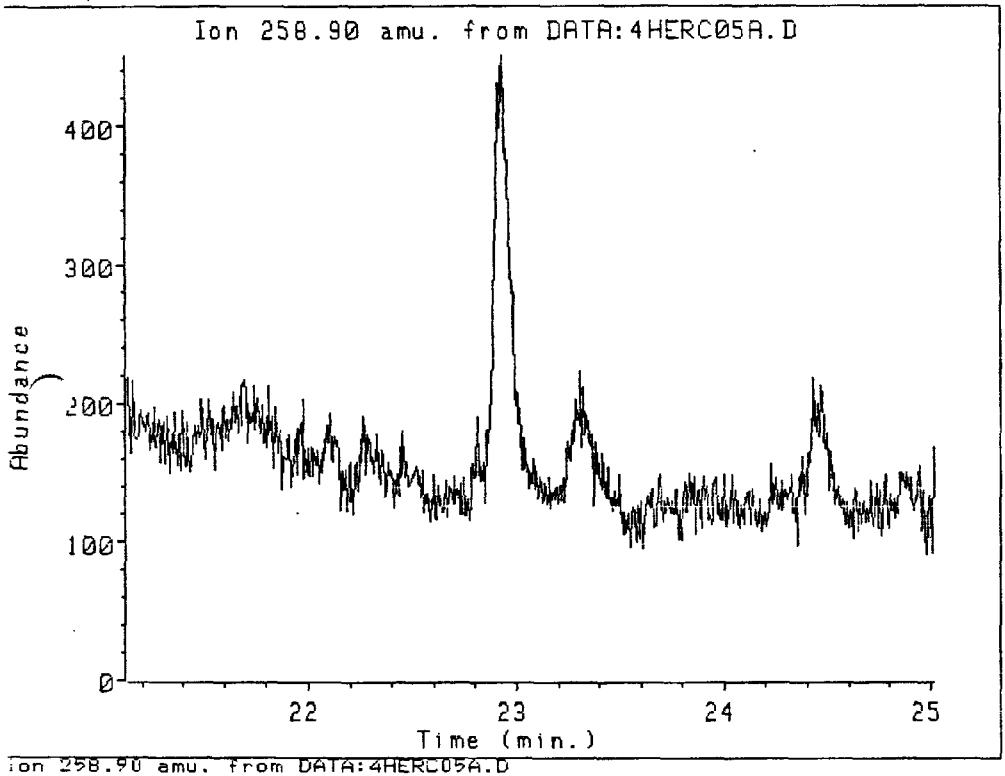
03221672

Data file: DATA:4HERC05A.D
File type: GC / MS DATA FILE

Name Info: SOIL SPIKE 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 10:19 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 5
Replicate num : 1



Ion 258.90 amu. from DATA:4HERC05A.D
SOIL SPIKE 1

No peaks detected

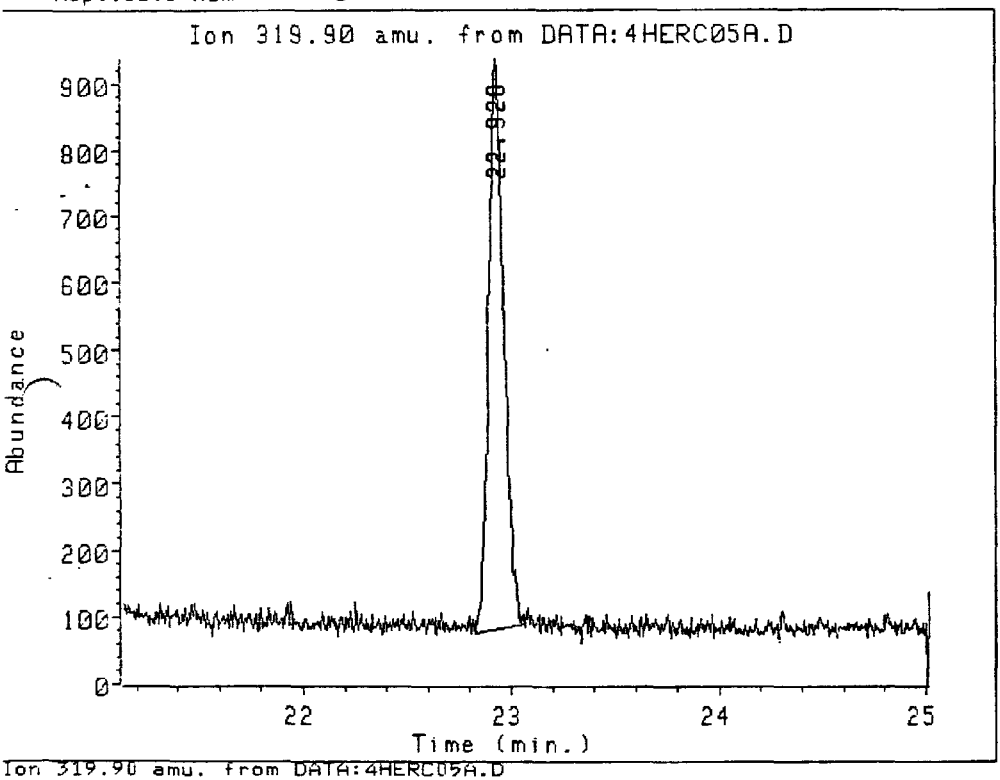
021458

Data file: DATA:4HERC05A.D
File type: GC / MS DATA FILE

Name Info: SOIL SPIKE 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 10:19 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 5
Replicate num : 1



Ion 319.90 amu. from DATA:4HERC05A.D
SOIL SPIKE 1

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	22.926	BB	0.072	44433	22.825	23.069

021459

03221674

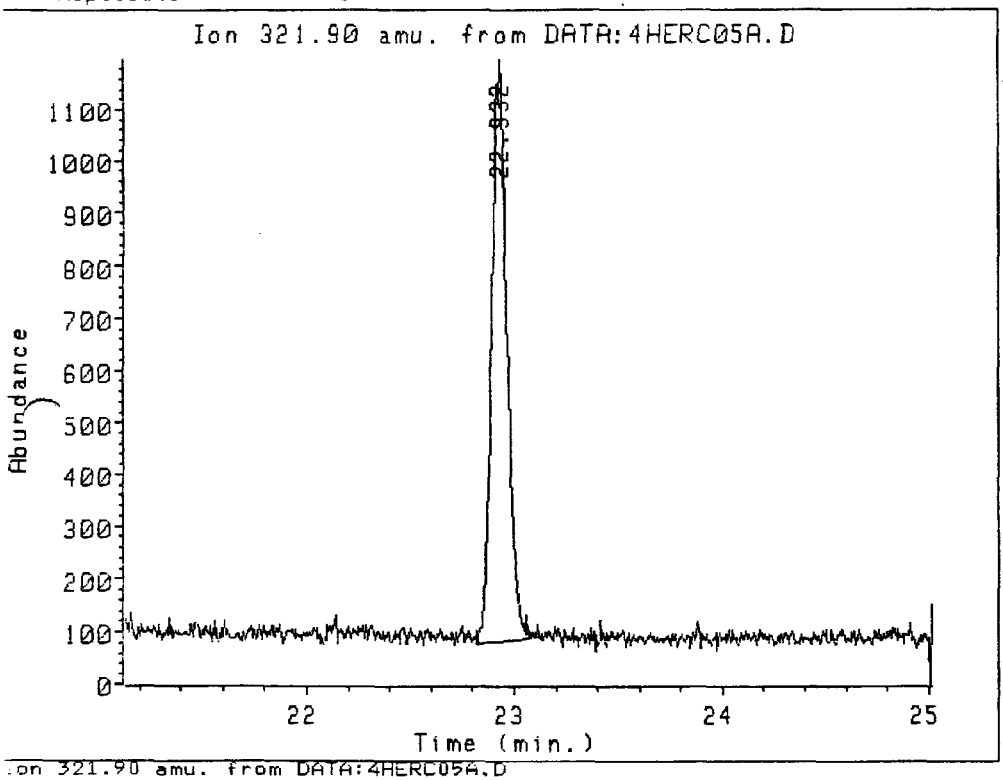
Data file: DATA:4HERC05A.D
File type: GC / MS DATA FILE

3 2309

Name Info: SOIL SPIKE 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 10:19 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 5
Replicate num : 1



021460

Ion 321.90 amu. from DATA:4HERC05A.D
SOIL SPIKE 1

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	22.932	BB	0.078	57233	22.822	23.081

03221675

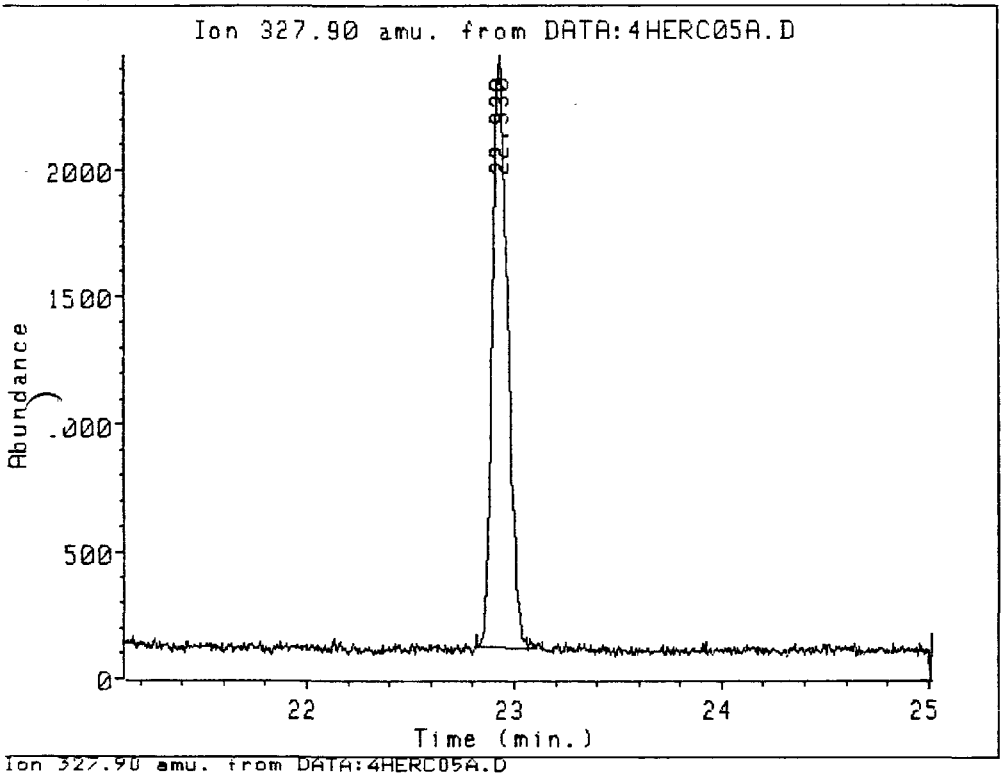
Data file: DATA:4HERC05A.D
File type: GC / MS DATA FILE

3 2310

Name Info: SOIL SPIKE 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 10:19 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 5
Replicate num : 1



021461

Ion 327.90 amu. from DATA:4HERC05A.D
SOIL SPIKE 1

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	22.930	BB	0.084	120905	22.822	23.109

03221676

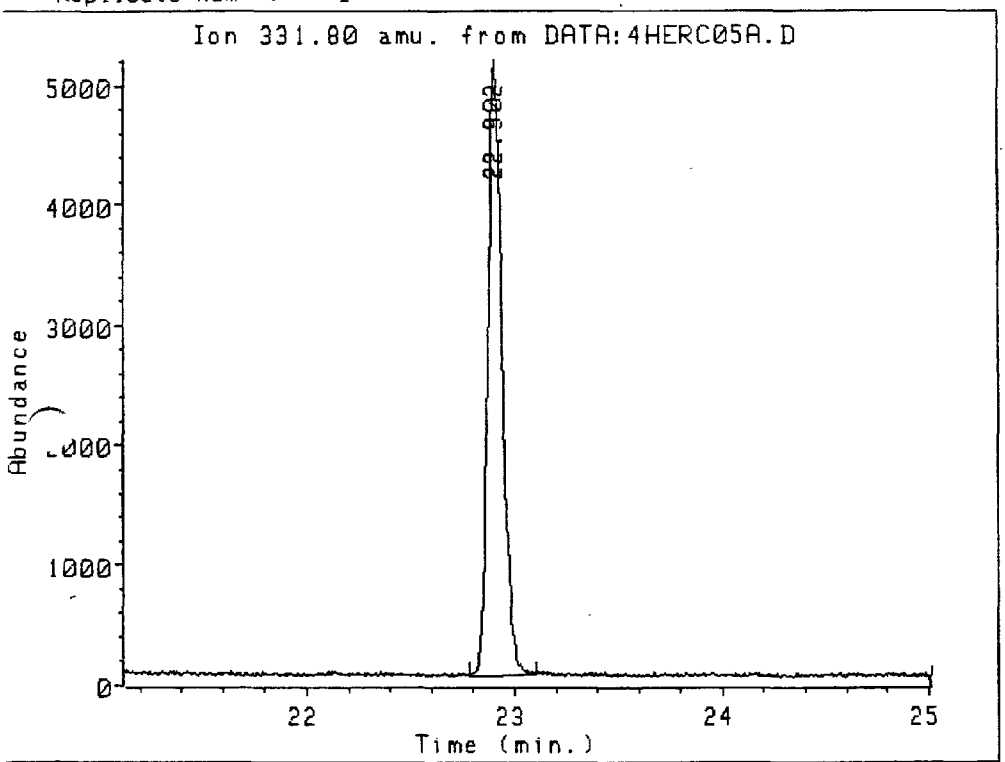
Data file: DATA:4HERC05A.D
File type: GC / MS DATA FILE

3 2311

Name Info: SOIL SPIKE 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 10:19 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 5
Replicate num : 1



021462

Ion 331.80 amu. from DATA:4HERC05A.D
SOIL SPIKE 1

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	22.902	BB	0.073	247544	22.780	23.109

03221677

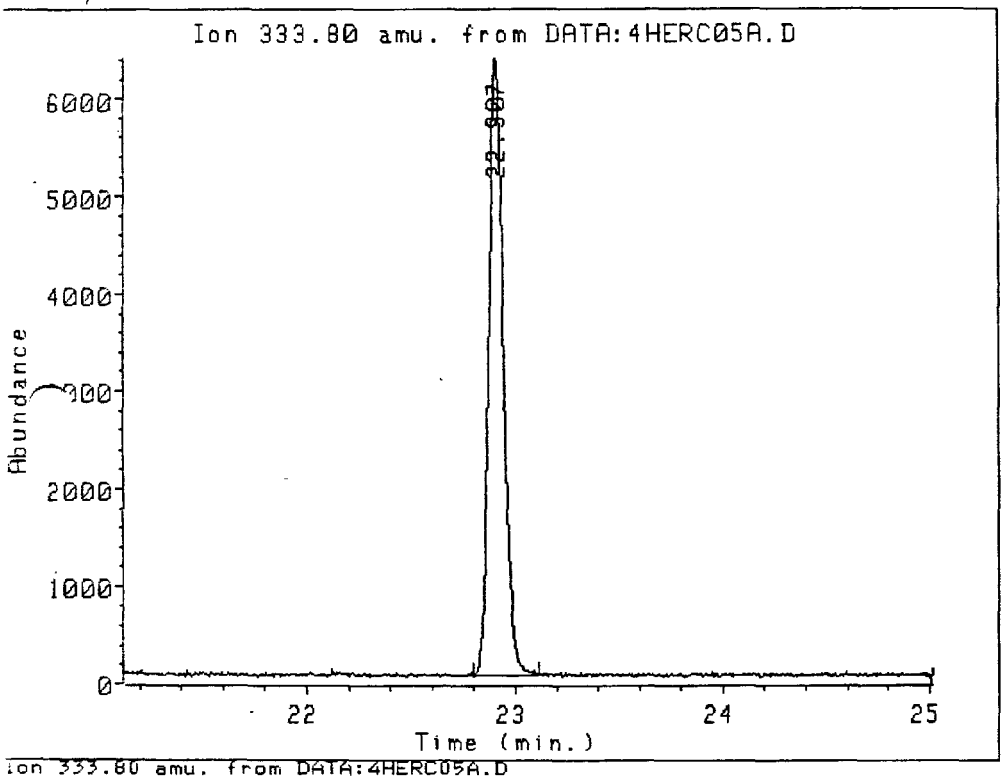
Data file: DATA:4HERC05A.D
File type: GC / MS DATA FILE

3 2312

Name Info: SOIL SPIKE 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 10:19 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 5
Replicate num : 1



021463

Ion 333.80 amu. from DATA:4HERC05A.D
SOIL SPIKE 1

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	22.907	BB	0.076	311963	22.798	23.115

03221678

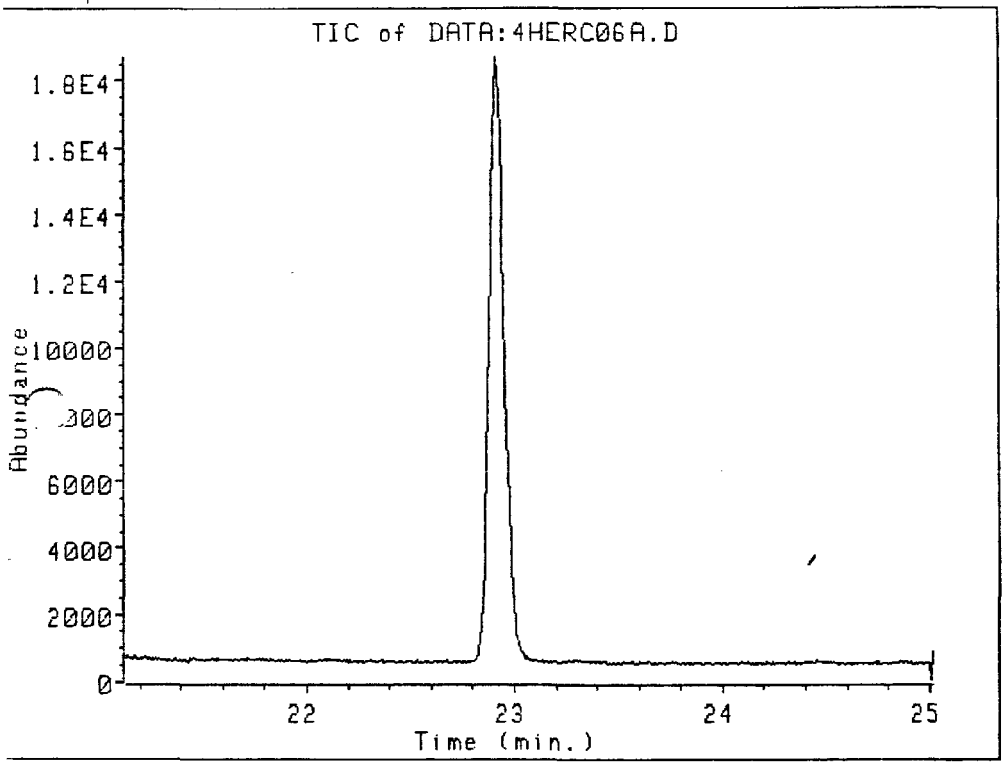
Data file: DATA:4HERC06A.D
File type: GC / MS DATA FILE

3 2313

Name Info: PE 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 10:53 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 6
Replicate num : 1



021464

03221679

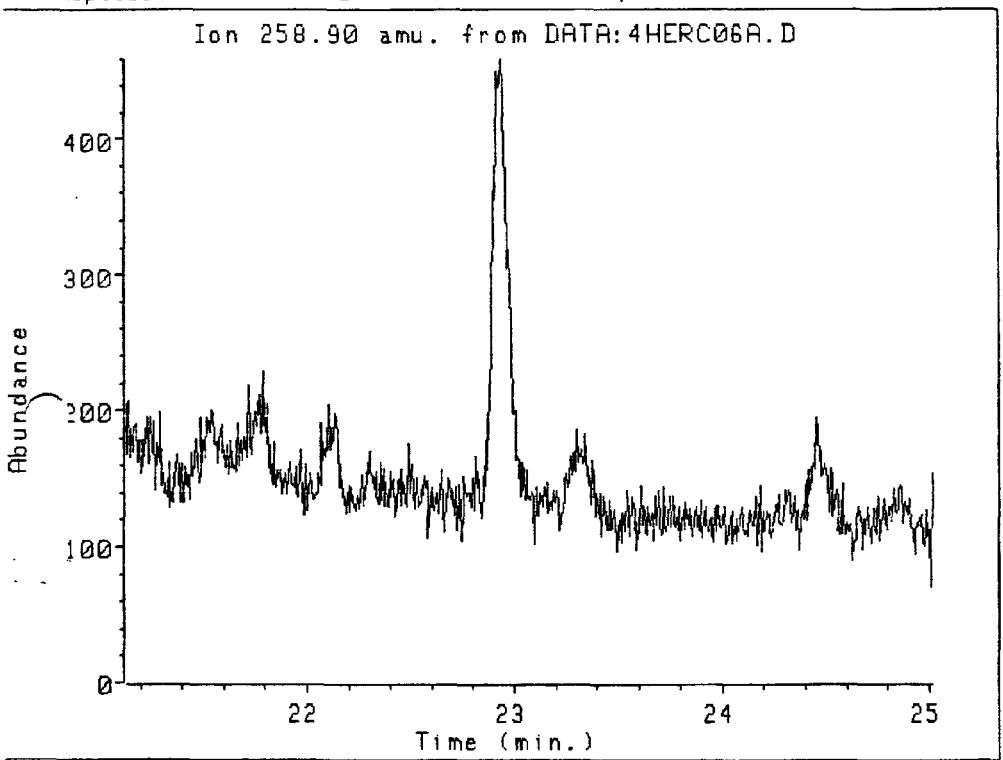
Data file: DATA:4HERC06A.D
File type: GC / MS DATA FILE

3 2314

Name Info: PE 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 10:53 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 6
Replicate num : 1



Ion 258.90 amu. from DATA:4HERC06A.D
PE 1

No peaks detected

021465

03221680

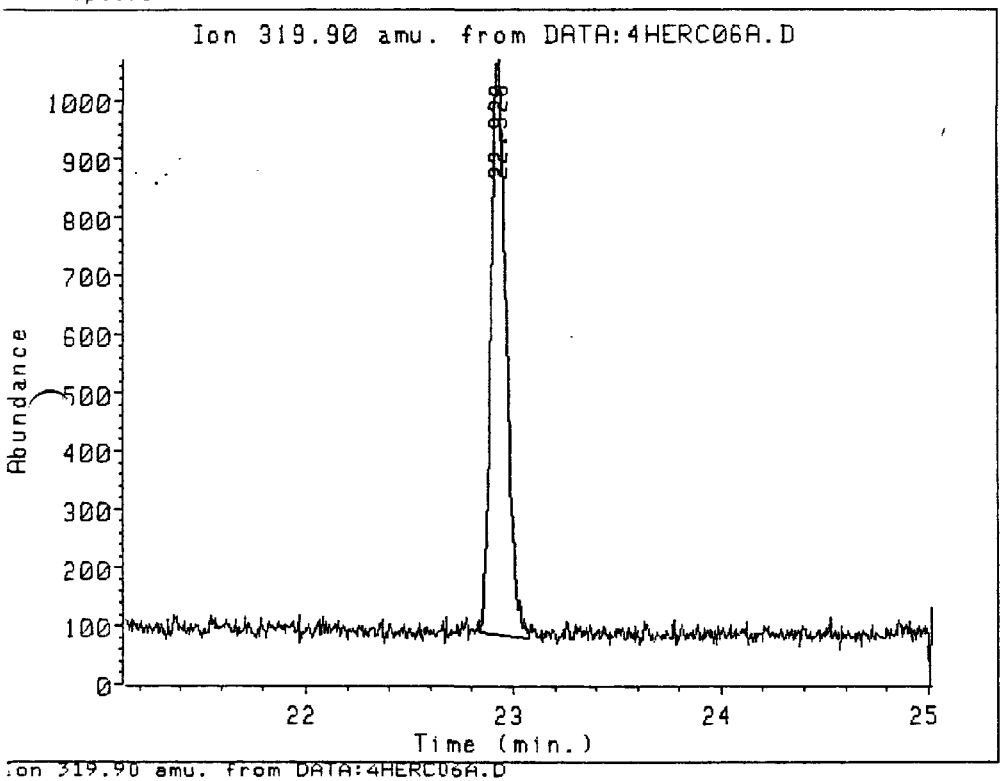
Data file: DATA:4HERC06A.D
File type: GC / MS DATA FILE

3 2315

Name Info: PE 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 10:53 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 6
Replicate num : 1



Ion 319.90 amu. from DATA:4HERC06A.D
PE 1

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	22.926	BB	0.075	50350	22.838	23.075

021466

03221681

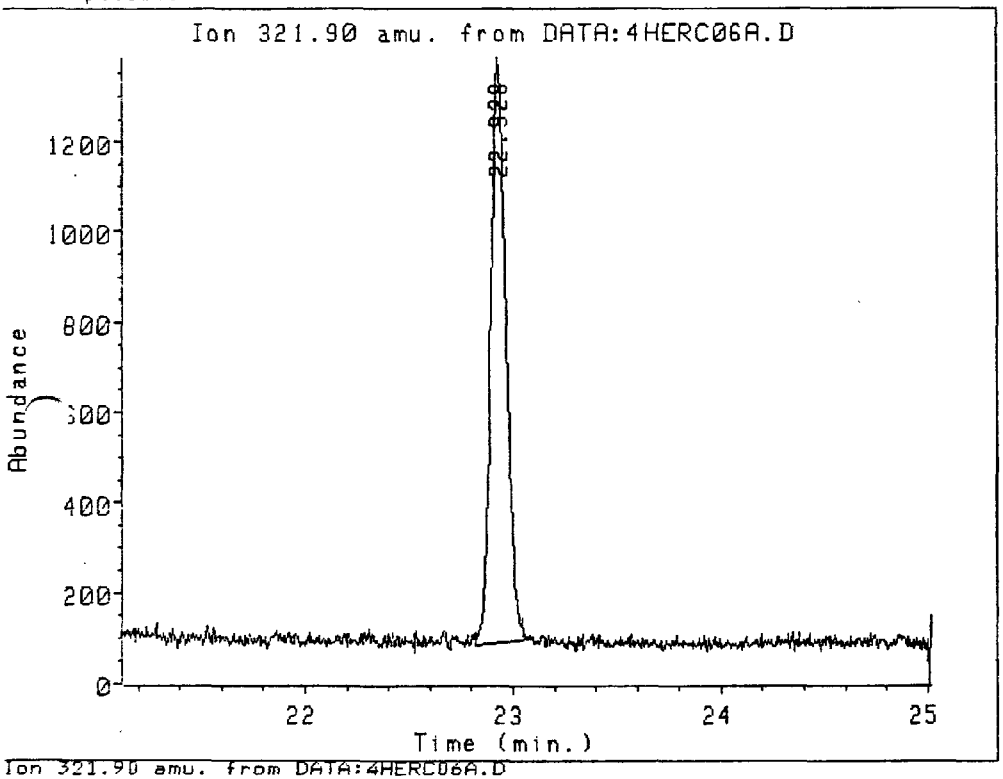
Data file: DATA:4HERC06A.D
File type: GC / MS DATA FILE

3 2316

Name Info: PE 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 10:53 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 6
Replicate num : 1



021467

Ion 321.90 amu. from DATA:4HERC06A.D
PE 1

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	22.928	BB	0.077	66734	22.819	23.088

03221682

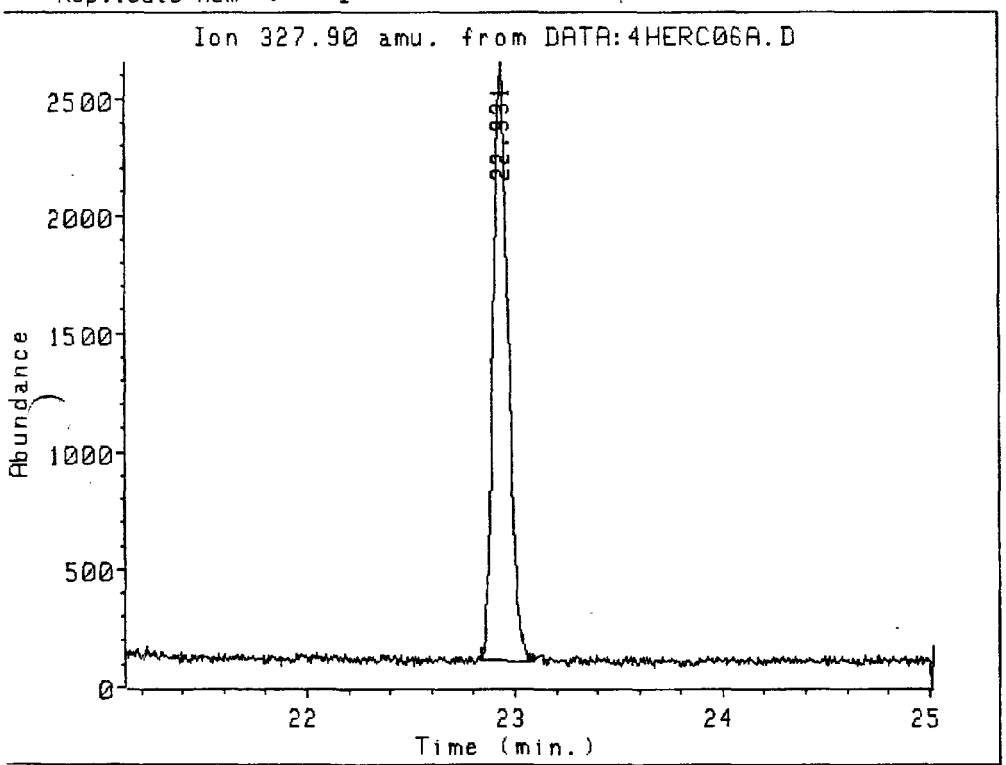
Data file: DATA:4HERC06A.D
File type: GC / MS DATA FILE

3 2317

Name Info: PE 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 10:53 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 6
Replicate num : 1



Ion 327.90 amu. from DATA:4HERC06A.D
PE 1

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	22.931	BB	0.078	128558	22.832	23.088

021463

03221683

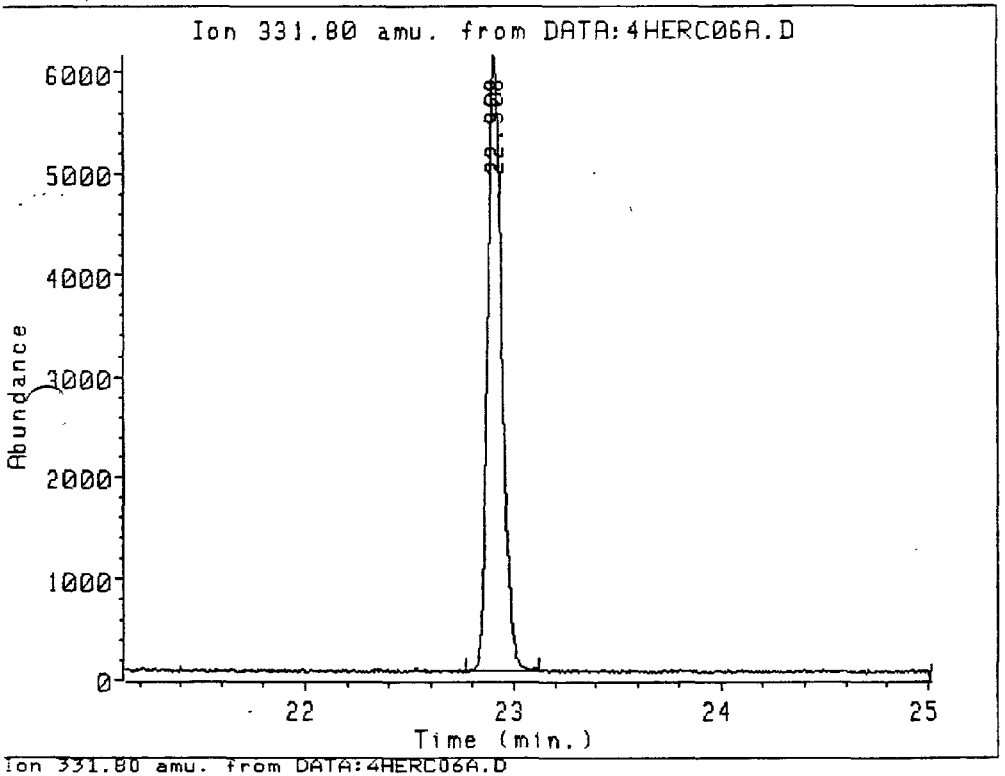
Data file: DATA:4HERC06A.D
File type: GC / MS DATA FILE

3 2318

Name Info: PE 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 10:53 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 6
Replicate num : 1



021469

Ion 331.80 amu. from DATA:4HERC06A.D
PE 1

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	22.908	BB	0.077	295546	22.771	23.124

03221684

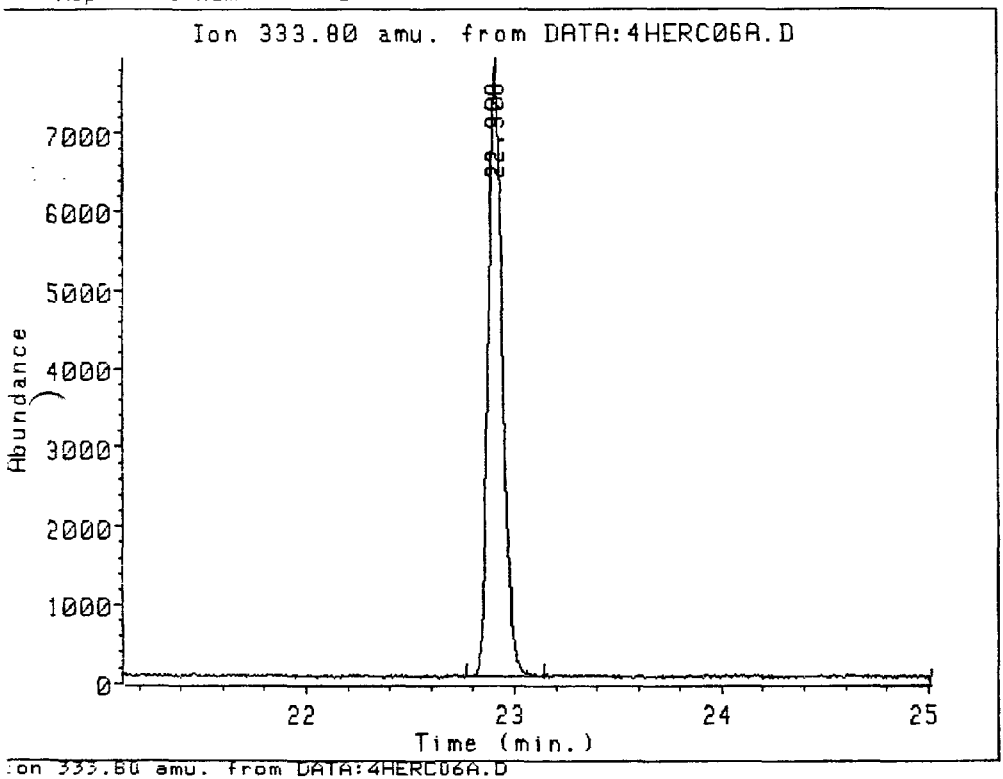
Data file: DATA:4HERC06A.D
File type: GC / MS DATA FILE

3 2319

Name Info: PE 1
Misc Info:
Operator : TMS

Date : 1 Aug 88 10:53 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 3
Als bottle num : 6
Replicate num : 1



Ion 333.80 amu. from DATA:4HERC06A.D
PE 1

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	22.908	BB	0.074	375909	22.765	23.143

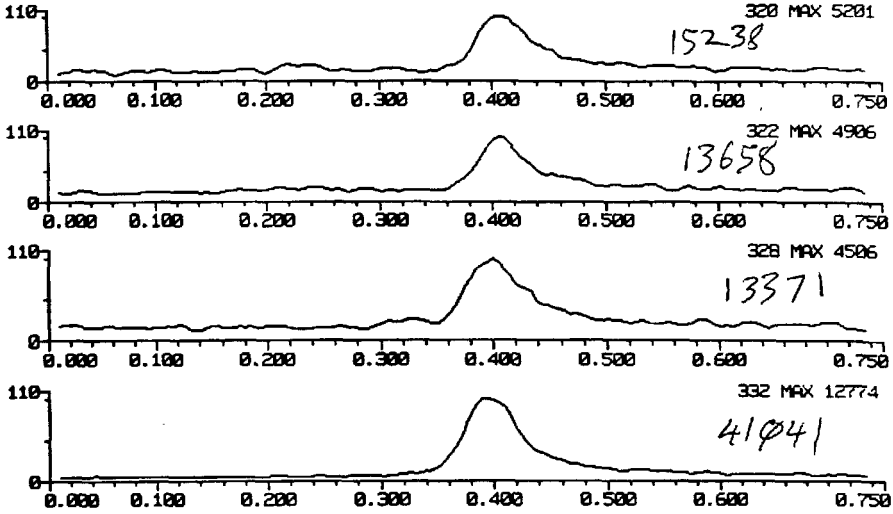
021470

03221685

2286 SW 8/18/88

AUG1811 1 MIMI ~~2386~~ IM

SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	78
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	6962



	18-AUG-88		14:28:17	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.140					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

14:28:17

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

K. SM.

021471

03221686

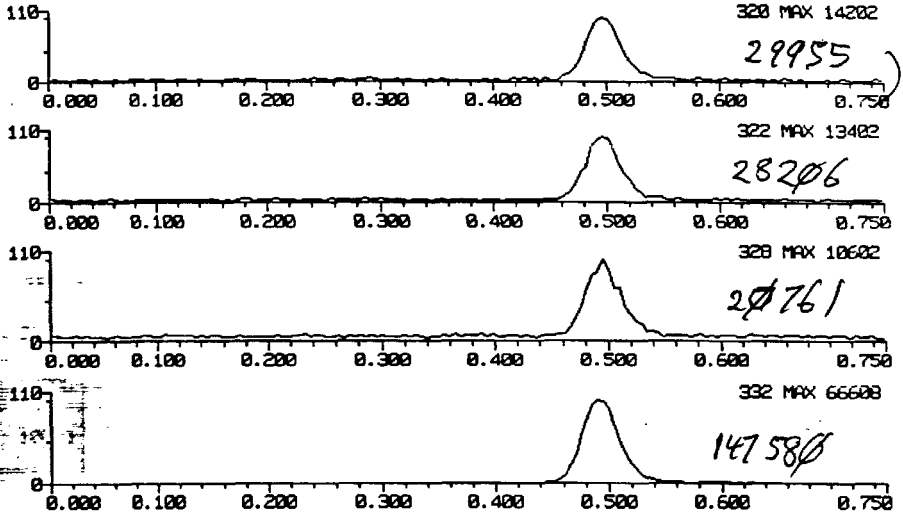
021472

ATTACHMENT 2

DAILY CALIBRATION MASS CHROMATOGRAMS

AUG1888 1 MIMI CAL 1 IM

SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	78
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	600



18-AUG-88		13:47:39		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.210					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

13:47:39

CG-SW 1 SCA

1	320	257
	322	259
	328	263
	332	268
	312	249

Native RRF:
2.069
(98.1%)

0214173

03221688

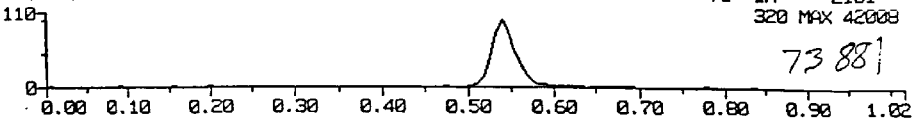
021474

ATTACHMENT 3

INITIAL CALIBRATION MASS CHROMATOGRAMS

OCT1309 1 MIMI CAL I (C-077-02) IM

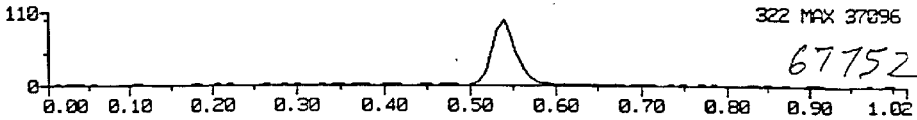
SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	2101



320 MAX 42008

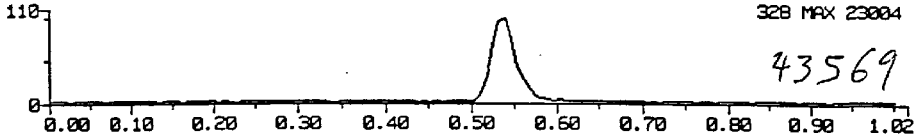
73881

Ratio 1.090



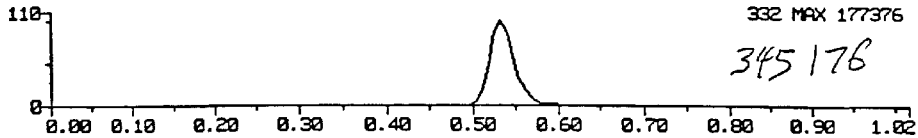
322 MAX 37096

67752



328 MAX 23004

43569



332 MAX 177376

345176

0214 75

13-OCT-87		17:11:31		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:11:31

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

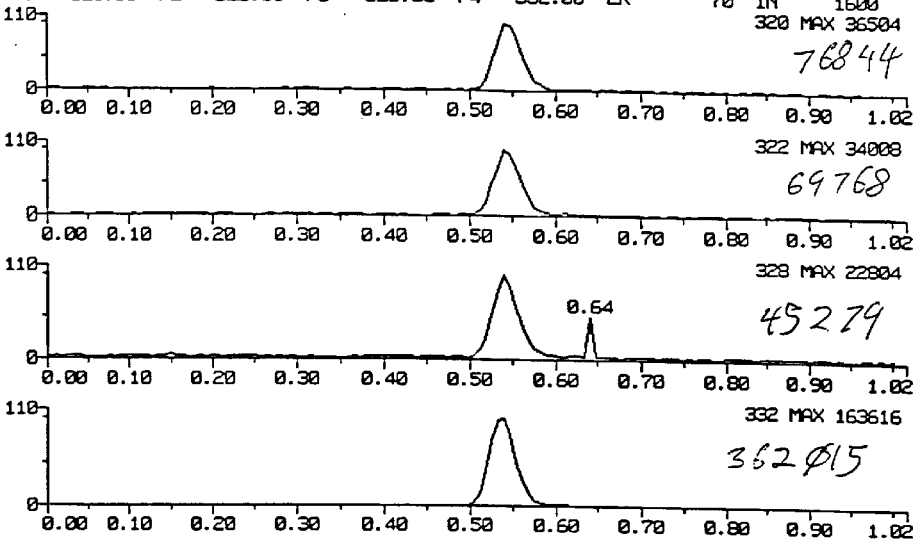
K.E.M.

$RRF_{native} = 2.154$

$RRF_{surr} = 2.168$

OCT1303 1 MIMI 1 UL CAL I IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1600



021476

13-OCT-87 15:36:52

				OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:36:52

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M

Native RF 2.126

Sum RRF 2.148

Not 0.2

I.S. 1.05

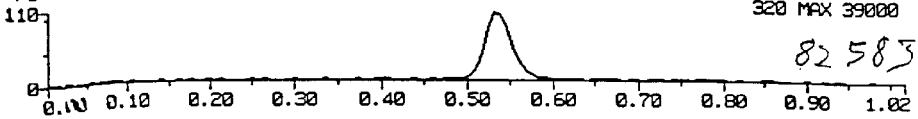
Sum 0.00

03221691

OCT1310 1 MIMI CAL I (C-077-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	9102

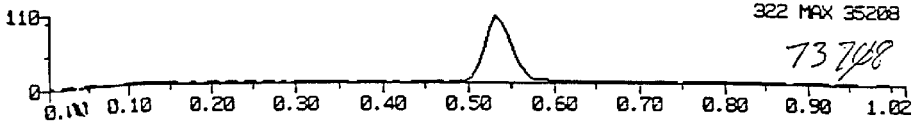
320 MAX 39000



82583

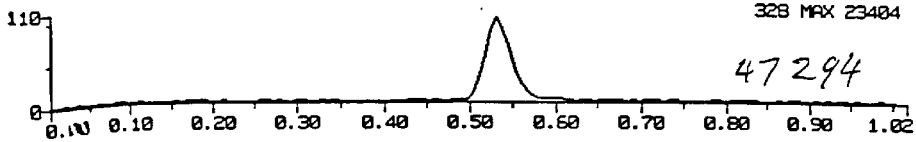
Ratio 1.120

322 MAX 35208



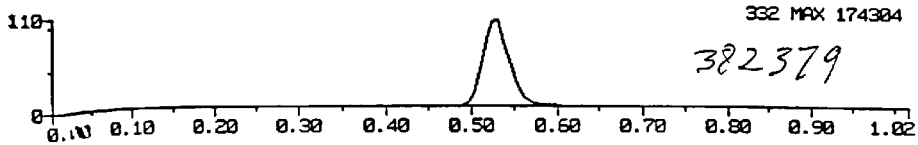
73708

328 MAX 23404



47294

332 MAX 174304



382379

13-OCT-87 17:24:01

				OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.018					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:24:01

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

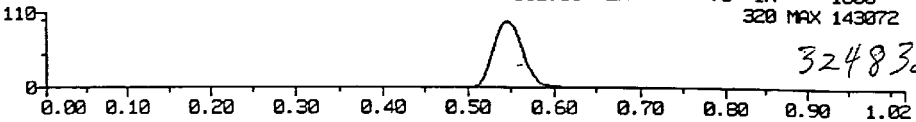
$RRF_{native} = 2.146$

$RRF_{surr} = 2.123$

0214777

OCT1308 1 MIMI CAL II (C-078-02) IM

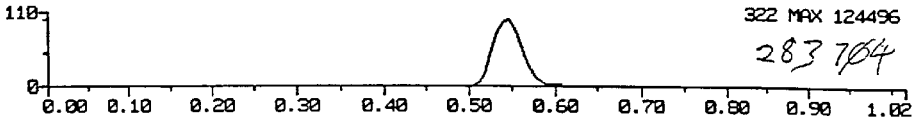
SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1600



320 MAX 143072

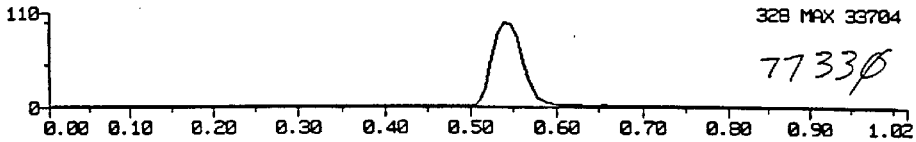
324838

Ratio 1.145



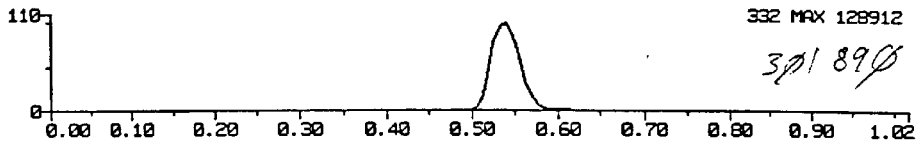
322 MAX 124496

283704



328 MAX 33704

77330



332 MAX 128912

301890

13-OCT-87		16:58:26		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.983					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:58:26

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.D.

$RRF_{mat} = 2.117$

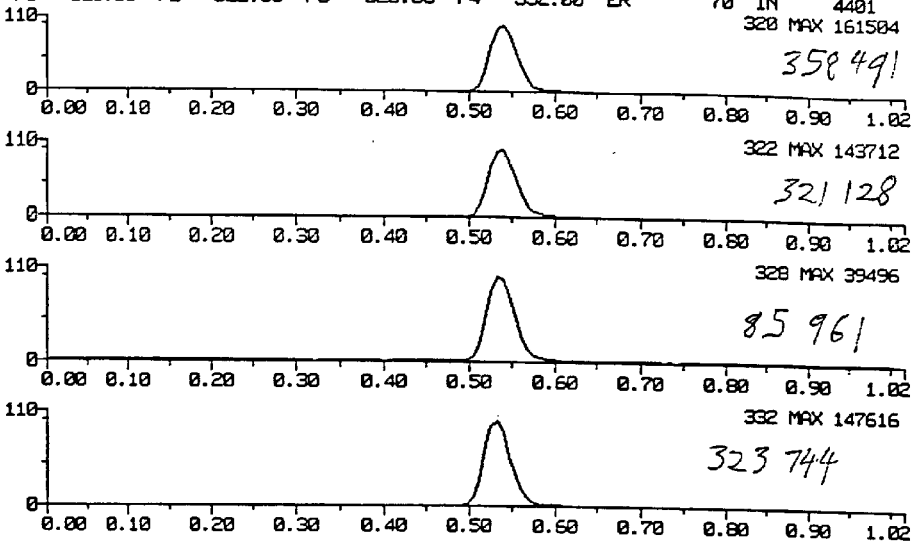
$RRF_{surr} = 2.333$

021478

03221693

OCT1307 1 MIMI CAL II (C-078-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	4401



Ratio 1.116

021479

13-OCT-87		16:41:35		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.991					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:41:35

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

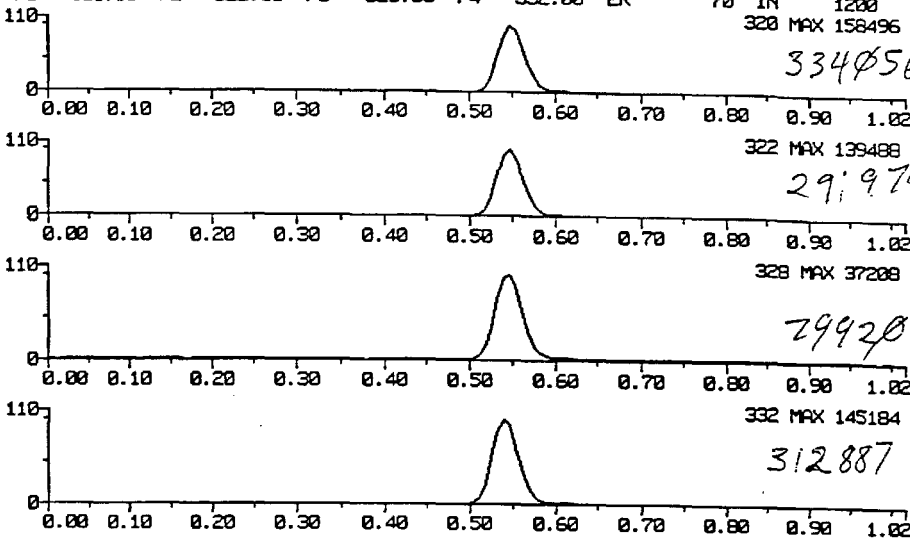
RRF native = 2.204

RRF sum = 2.419

03221694

OCT1302 1 MIMI 1 UL CAL II IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1200



021480

13-OCT-87 15:24:15

SY	200	SE	0	C	10	MTL	0.1000	STEP	0.1000	PE	0.00
G1	0.000	IT	0.00	DI	-1.000	MCL	1250	TH	200	TT	1.00
G2	0.000	LT	0.00	DIV	-1.006			MO	0.000	FP	60.00
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000			MU	-4600.0
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CGT	0.0	DM3	0.0000
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	CG	OFF	RE3	120.00
								R2	-55.00	R3	-65.00

15:24:15

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

Native RF: 2.10!

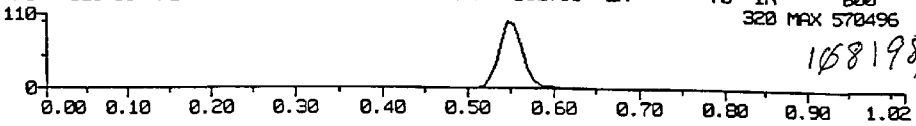
Surr RRF 2.327

03221695

3 2330

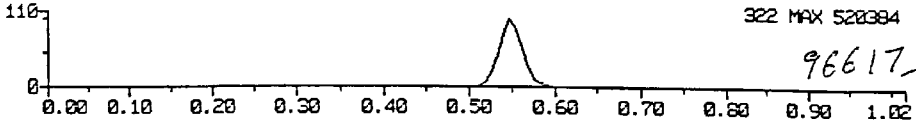
OCT1305 1 MIMI CAL III (C-079-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	800

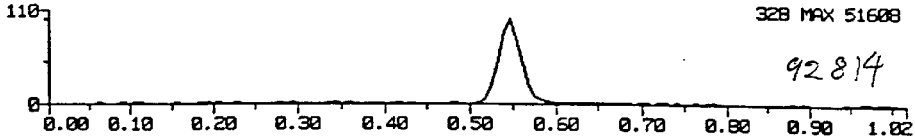


168198Ø

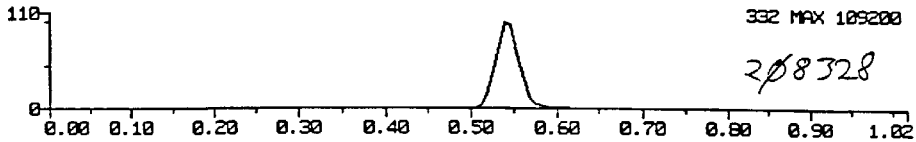
Ratio 1.120



966175



92814



208328

021481

13-OCT-87		16:15:36		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.977					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:15:36

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

KGM

$RRF_{std} = 2.065$

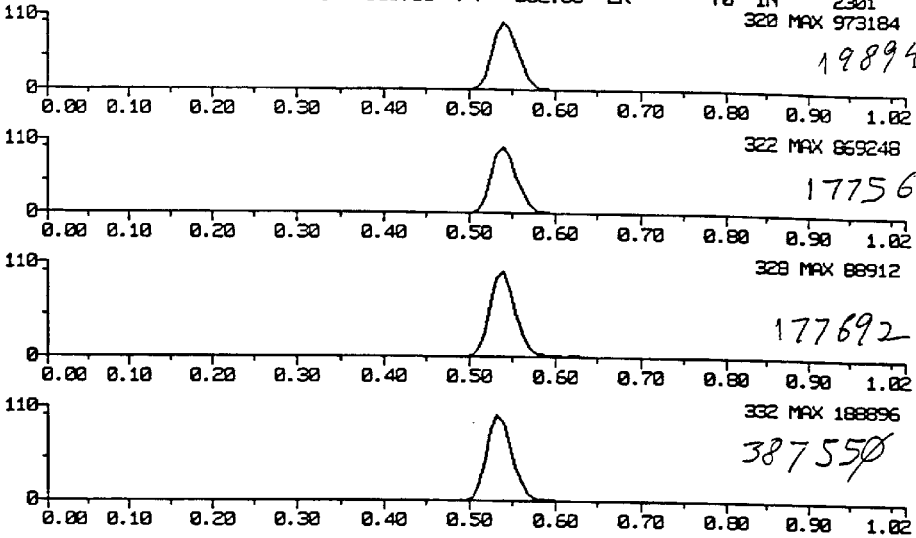
$RRF_{surr} = 2.042$

03221696

OCT1306 1 MIMI CAL III (C-079-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	2301

Ratio 1.120



13-OCT-87		16:27:40		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.981					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:27:40

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

KEM.

RRF_{std} = 2.040

RRF_{surr} = 2.113

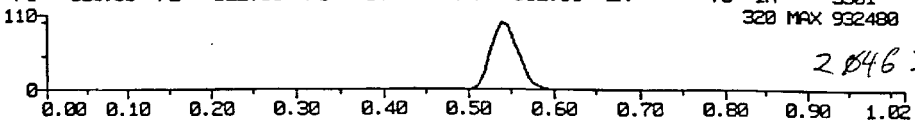
021482

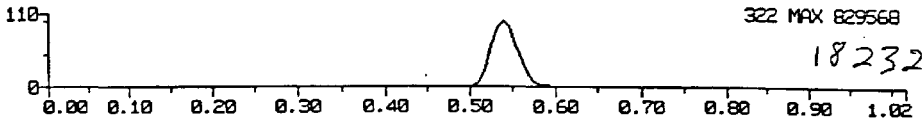
03221697

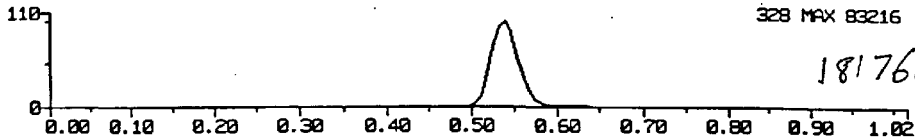
OCT1304 1 MIMI 1 UL CAL III IM

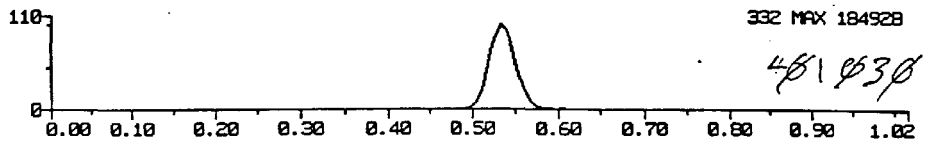
SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	3301

Ratio 1.122









13-OCT-87		15:51:02		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.000					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:51:02

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

Native RF: 2.026

RRF_{Surr} = 2.088

021483

03221698

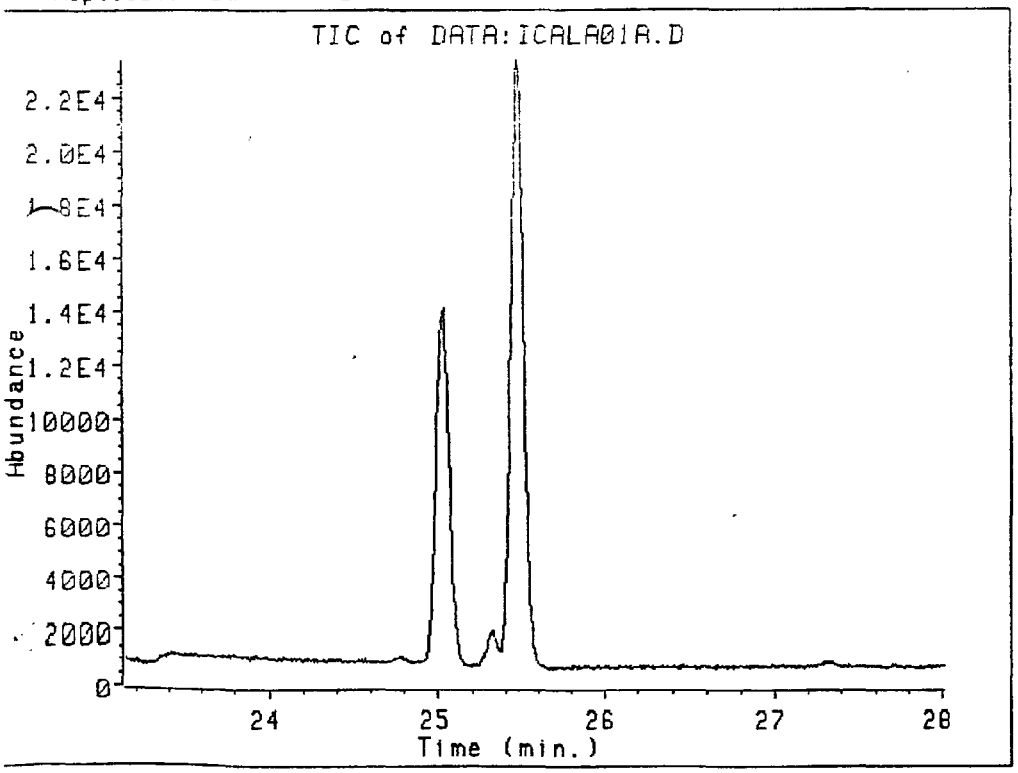
Data file: DATA:ICALA01A.D
File type: GC / MS DATA FILE

Name Info: COLUMN PERFORMANCE MIX
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 11:07 am
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 1
Replicate num : 1

021484



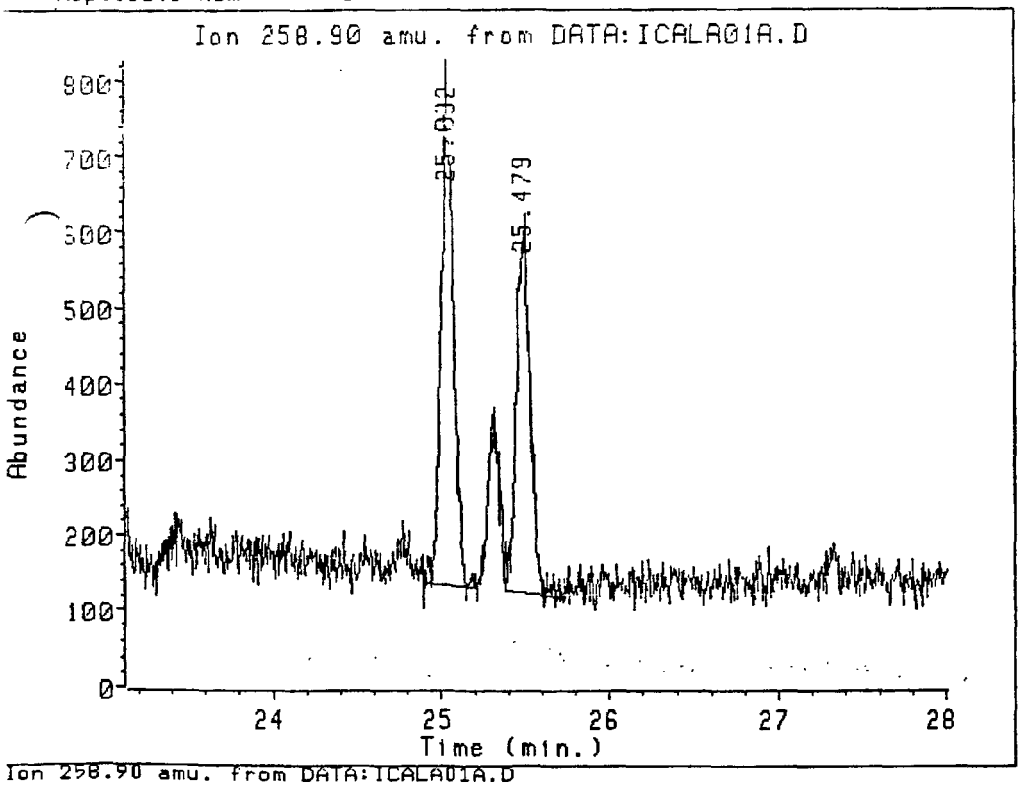
Data file: DATA:ICALA01A.D
File type: GC / MS DATA FILE

Name Info: COLUMN PERFORMANCE MIX
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 11:07 am
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 1
Replicate num : 1

021485



Ion 258.90 amu. from DATA:ICALA01A.D
COLUMN PERFORMANCE MIX

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	25.032	VV	0.091	33237	24.902	25.210
2	25.479	VB	0.099	27499	25.380	25.708

3

3 2335

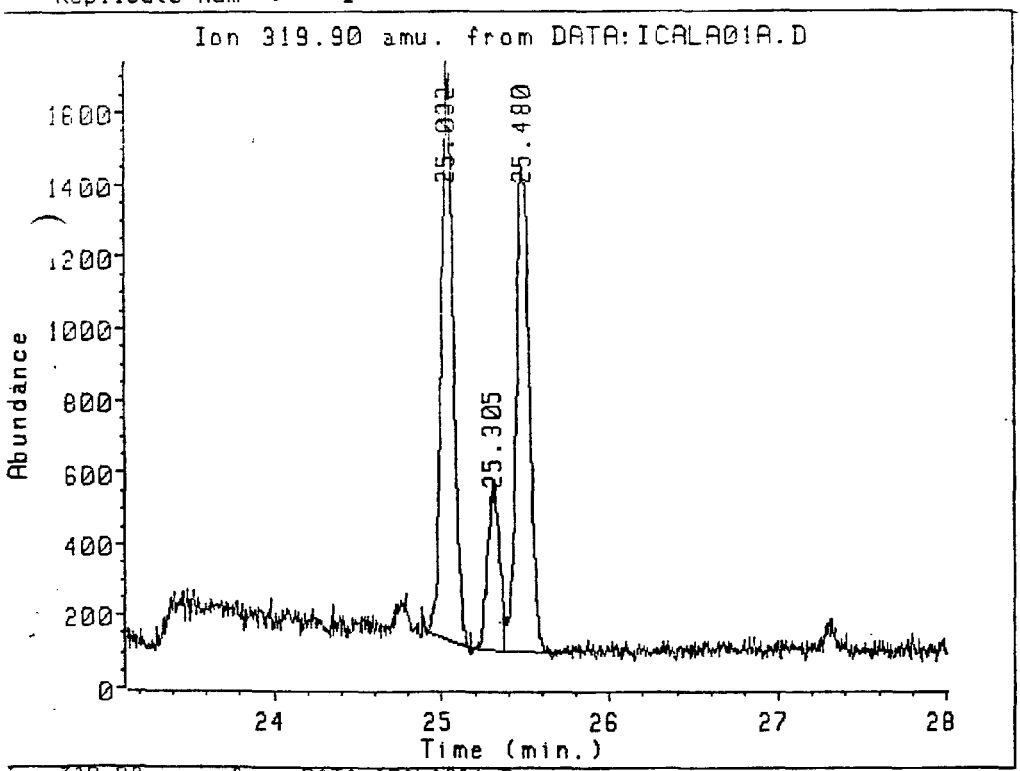
Data file: DATA:ICALA01A.D
File type: GC / MS DATA FILE

Name Info: COLUMN PERFORMANCE MIX
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 11:07 am
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 1
Replicate num : 1

0214486



Ion 319.90 amu. from DATA:ICALA01A.D
COLUMN PERFORMANCE MIX

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	25.032	BV	0.085	78063	24.902	25.180
2	25.305	PV	0.083	22626	25.180	25.379
3	25.480	VB	0.088	73270	25.379	25.755

03221701

4

3 2336

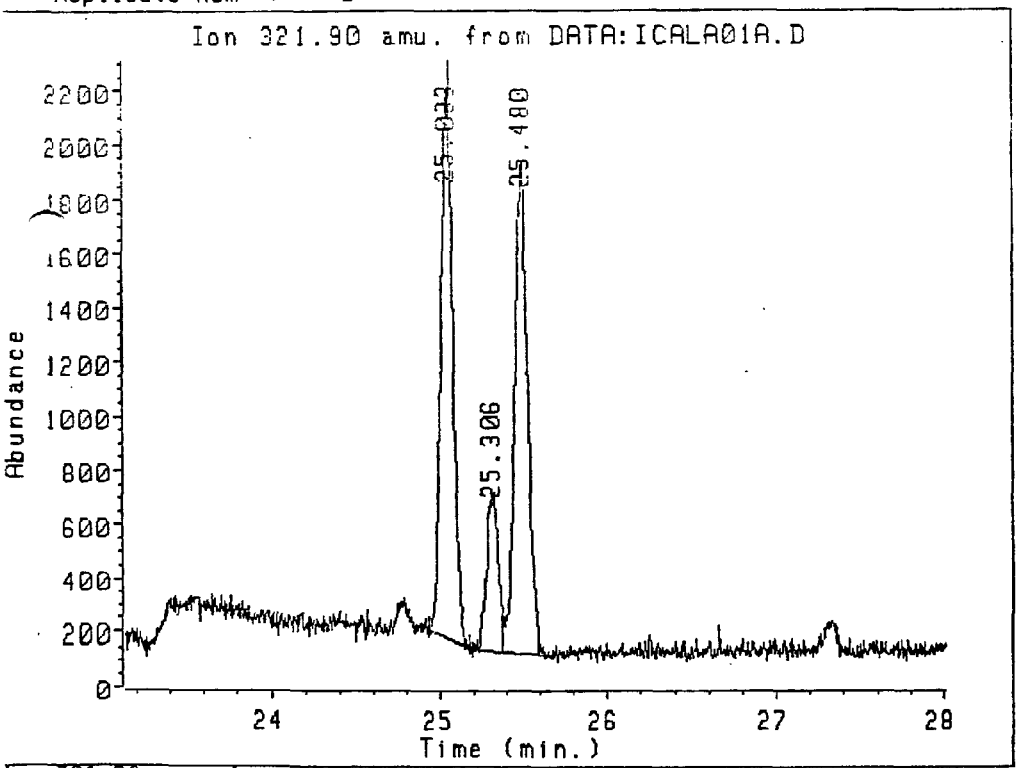
Data file: DATA:ICALA01A.D
File type: GC / MS DATA FILE

Name Info: COLUMN PERFORMANCE MIX
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 11:07 am
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 1
Replicate num : 1

0214487



Ion 321.90 amu. from DATA:ICALA01A.D
COLUMN PERFORMANCE MIX

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	25.033	BV	0.086	102390	24.926	25.179
2	25.306	PV	0.084	28766	25.179	25.378
3	25.480	VB	0.091	95712	25.378	25.665

03221702

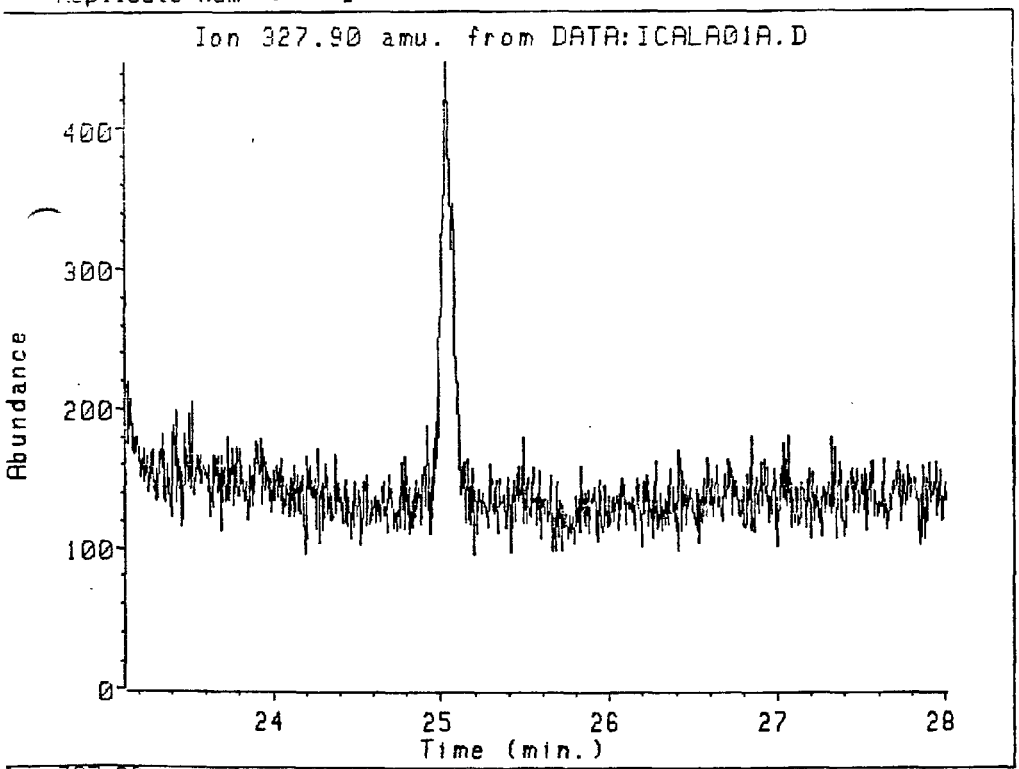
Data file: DATA:ICALA01A.D
File type: GC / MS DATA FILE

Name Info: COLUMN PERFORMANCE MIX
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 11:07 am
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 1
Replicate num : 1

021488



Ion 327.90 amu. from DATA:ICALA01A.D
COLUMN PERFORMANCE MIX

No peaks detected

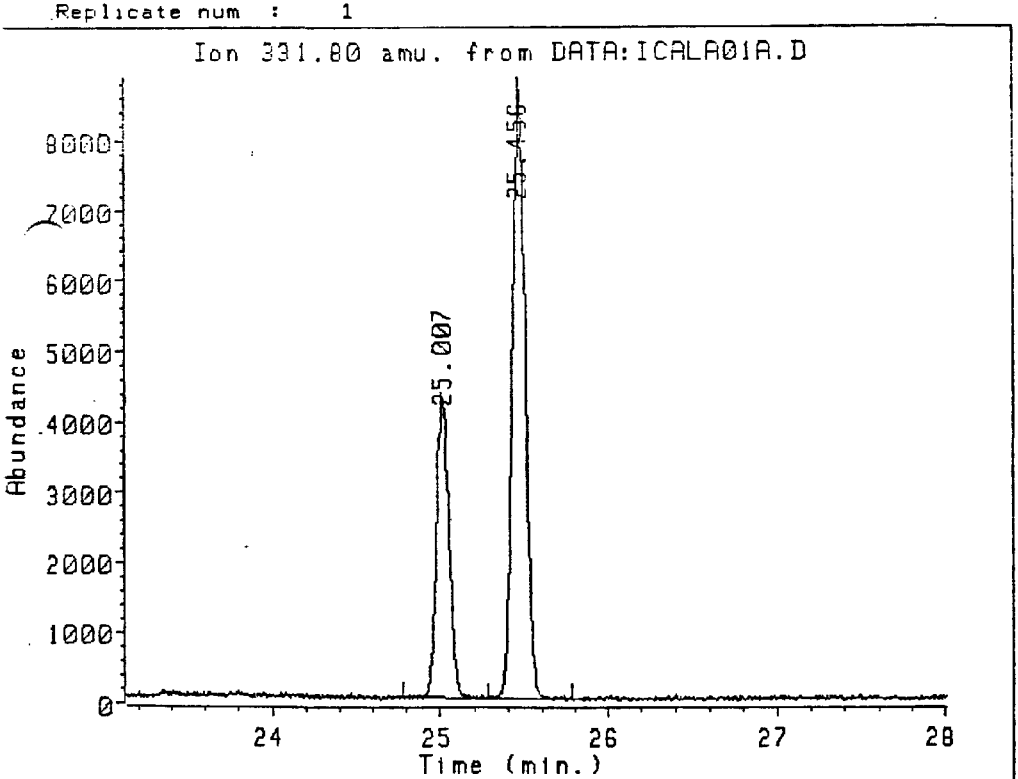
Data file: DATA:ICALA01A.D
File type: GC / MS DATA FILE

Name Info: COLUMN PERFORMANCE MIX
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 11:07 am
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 1
Replicate num : 1

021439



Ion 331.80 amu. from DATA:ICALA01A.D
COLUMN PERFORMANCE MIX

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	25.007	BV	0.087	218250	24.784	25.281
2	25.456	VB	0.090	455837	25.281	25.779

7

3 2339

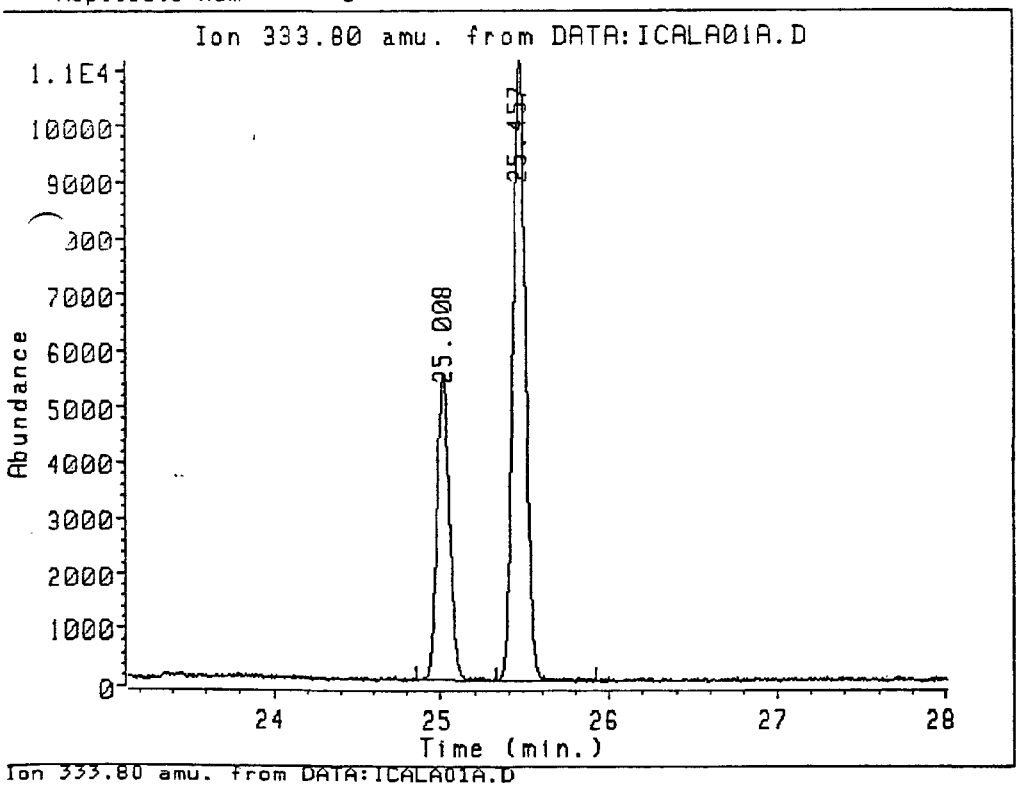
Data file: DATA:ICALA01A.D
File type: GC / MS DATA FILE

Name Info: COLUMN PERFORMANCE MIX
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 11:07 am
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 1
Replicate num : 1

021490



Ion 333.80 amu. from DATA:ICALA01A.D
COLUMN PERFORMANCE MIX

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	25.008	BV	0.087	279885	24.855	25.329
2	25.457	PB	0.086	573510	25.329	25.921

03221705

8

3 2340

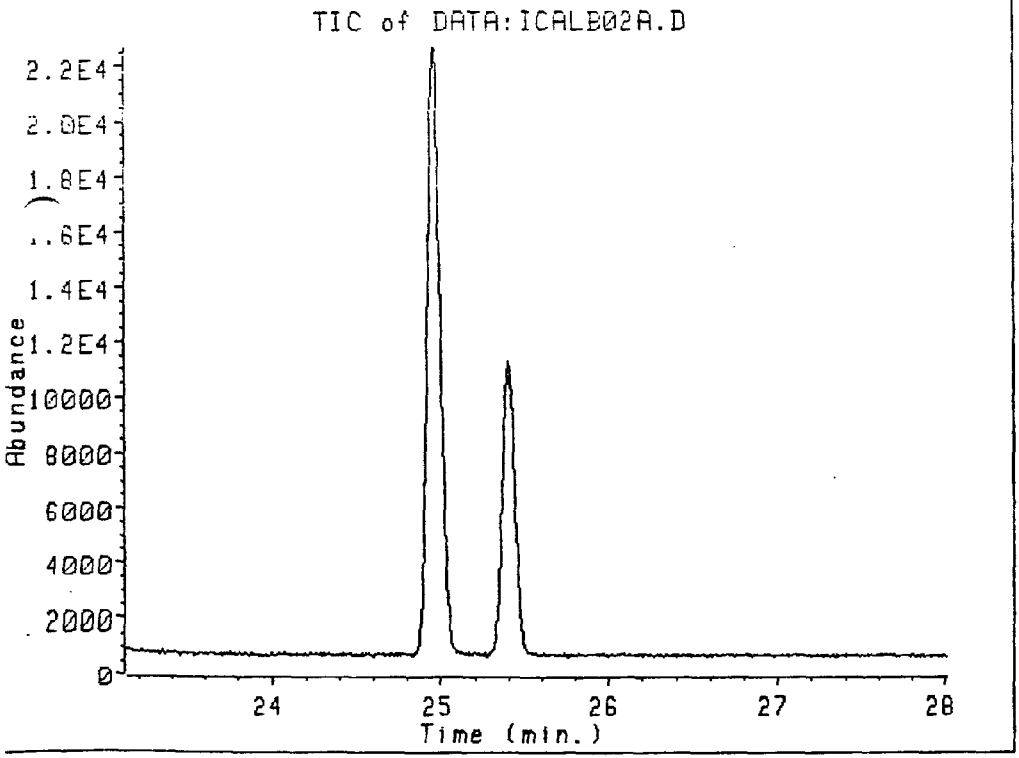
Data file: DATA:ICALB02A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 11:39 am
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 1

021491



03221706

9

3 2341

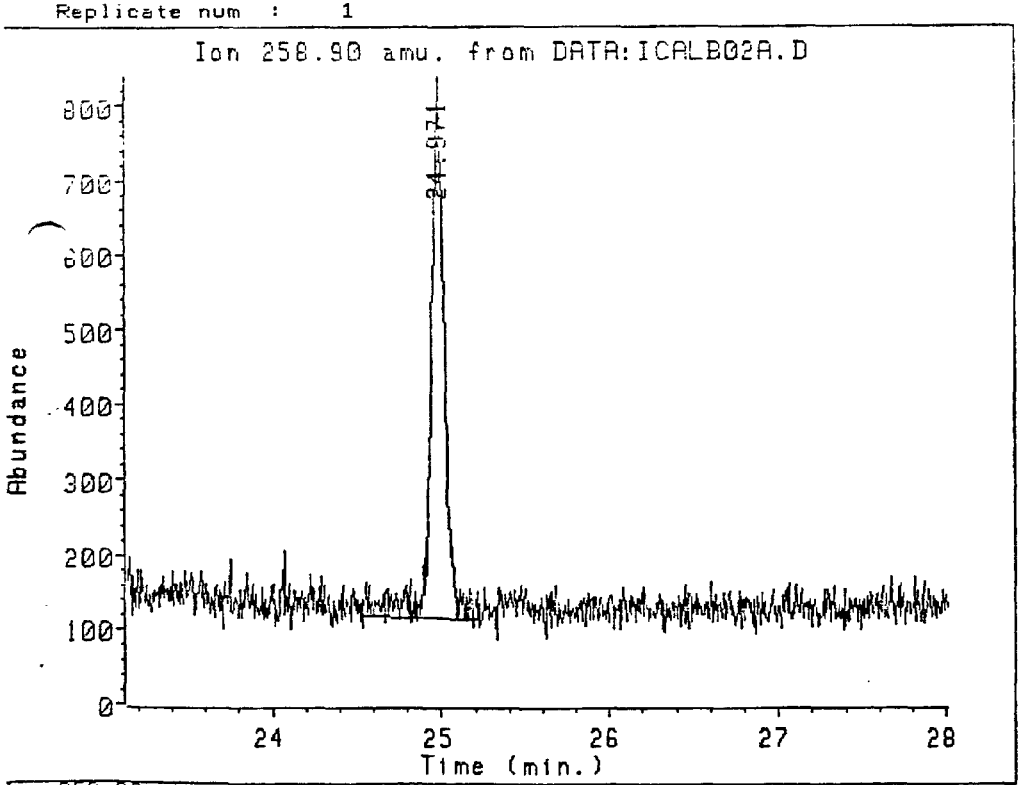
Data file: DATA:ICALB02A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 11:39 am
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 1

021492



Ion 258.90 amu. from DATA:ICALB02A.D
CLP CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.971	BV	0.140	41228	24.525	25.218

03221707

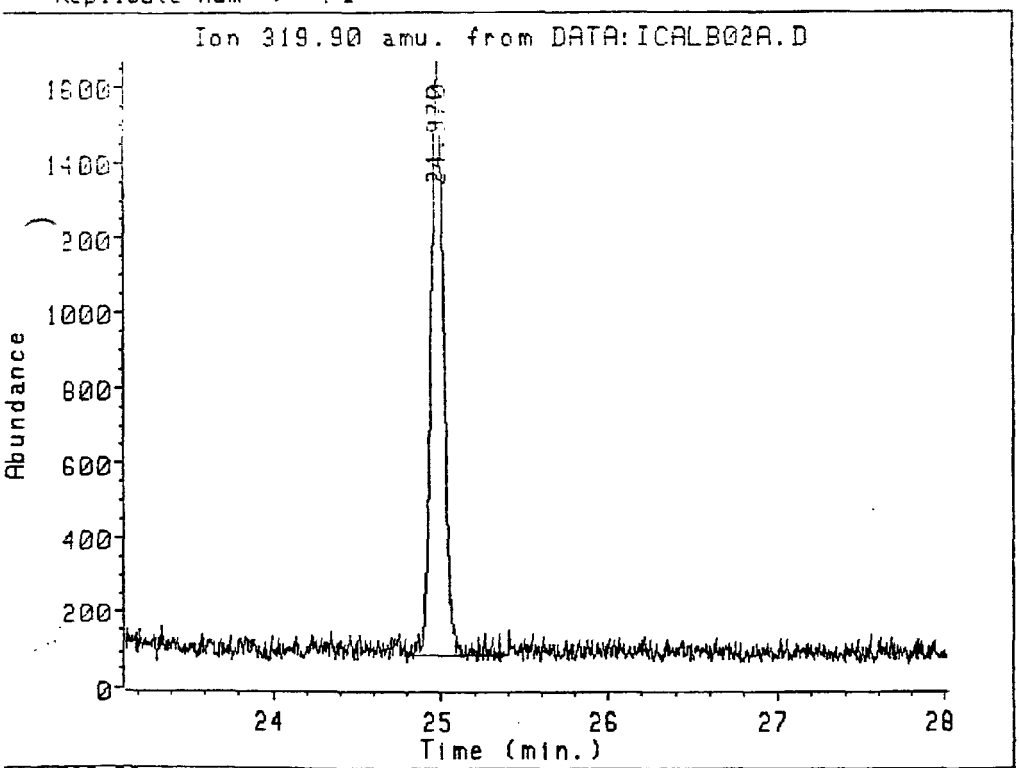
Data file: DATA:ICALB02A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 11:39 am
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 1

021493



Ion 319.90 amu. from DATA:ICALB02A.D
CLP CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.970	BB	0.132	81667	24.784	25.315

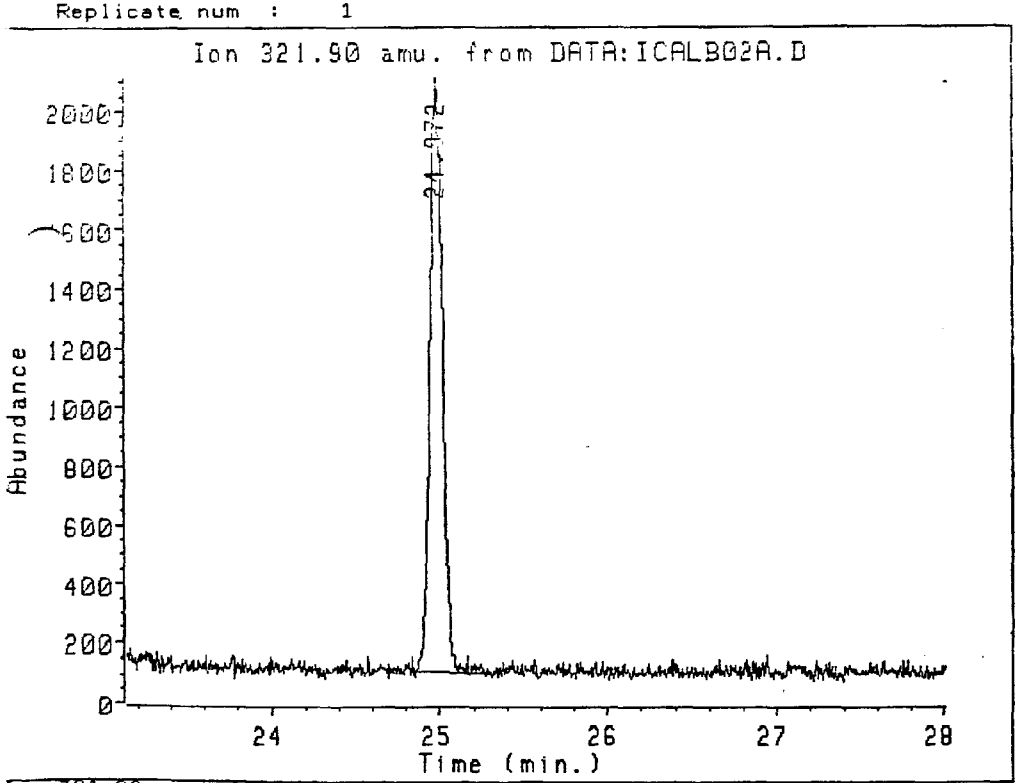
Data file: DATA:ICALB02A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 11:39 am
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 1

021494



Ion 321.90 amu. from DATA:ICALB02A.D
CLP CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.972	BB	0.127	103594	24.832	25.291

12

3 2344

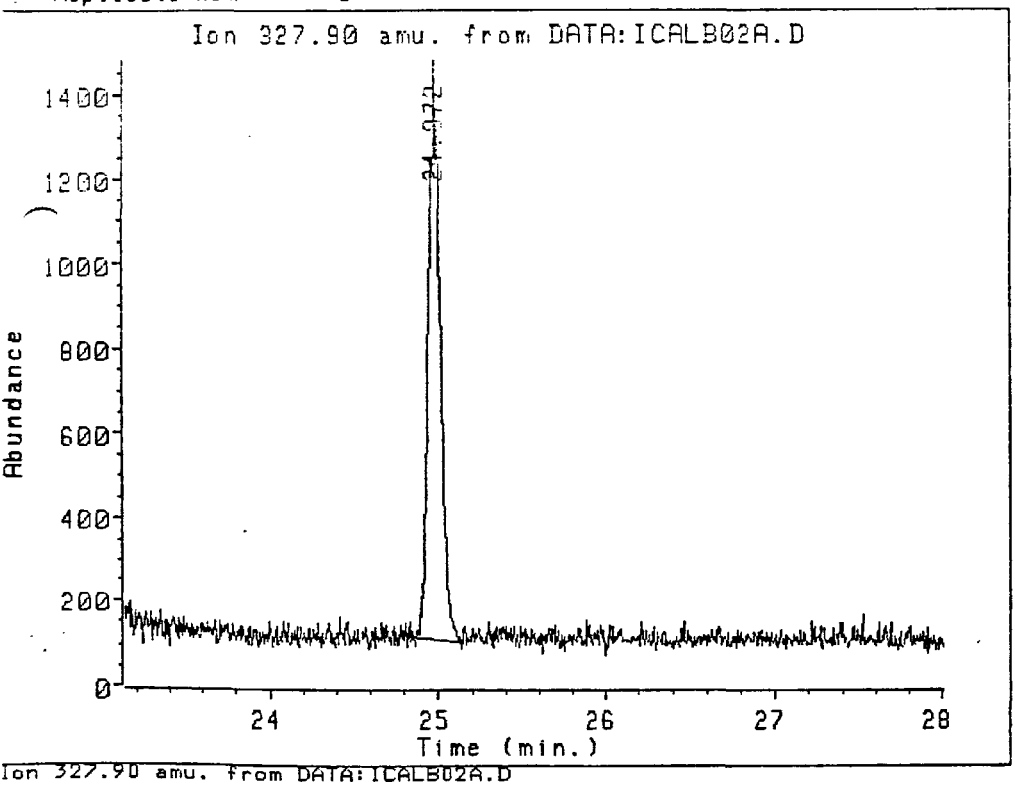
Data file: DATA:ICALB02A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 11:39 am
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 1

021495



Ion 327.90 amu. from DATA:ICALB02A.D
CLP CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.972	BB	0.123	64544	24.832	25.122

03221710

13

3 2345

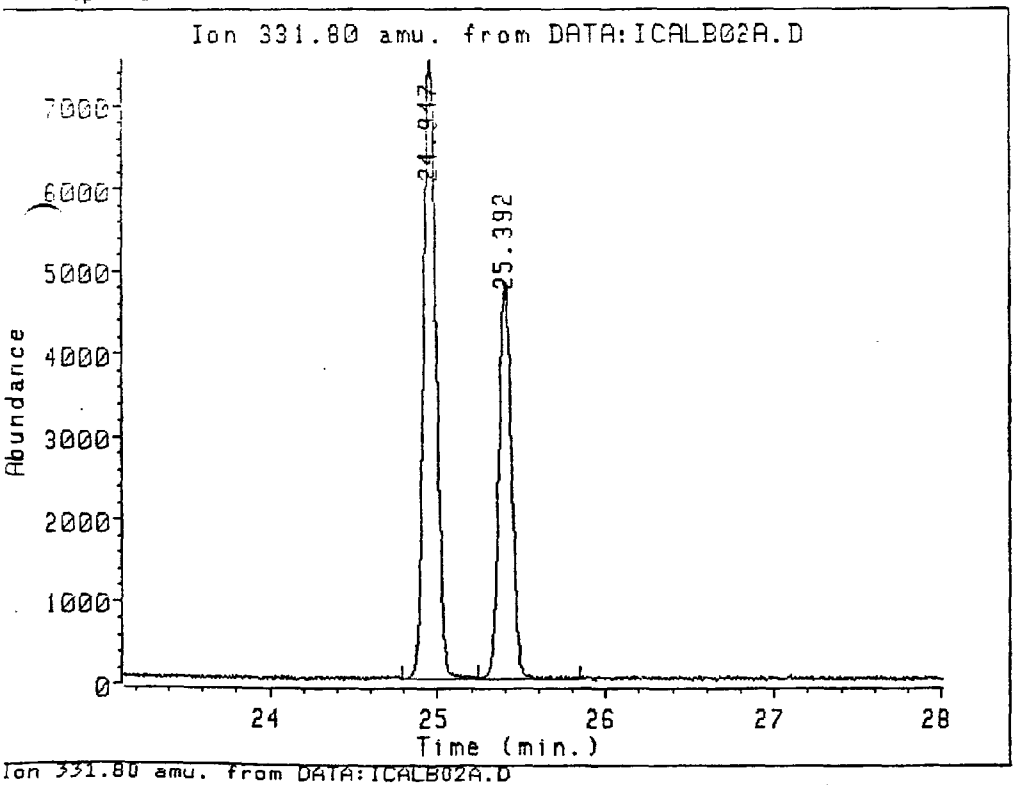
Data file: DATA:ICALB02A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 11:39 am
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 1

021496



Ion 331.80 amu. from DATA:ICALB02A.D
CLP CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.947	BV	0.148	388540	24.784	25.242
2	25.392	VB	0.136	246363	25.242	25.845

03221711

14

3 2346

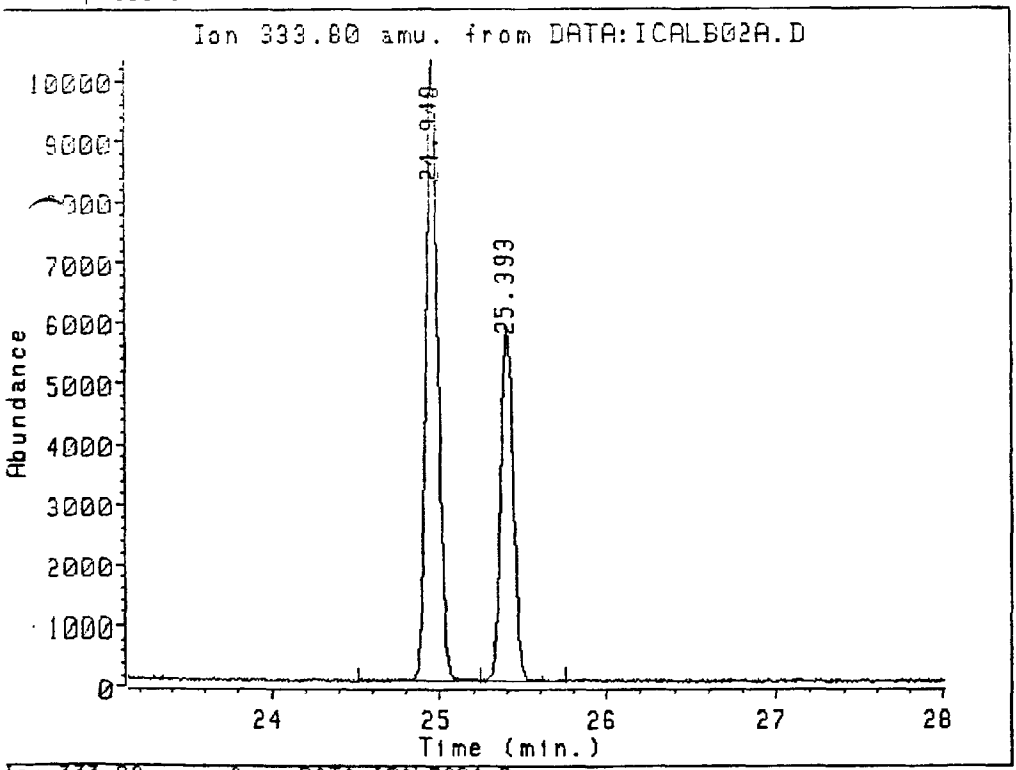
Data file: DATA:ICALB02A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 11:39 am
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 1

0214497



Ion 333.80 amu. from DATA:ICALB02A.D
CLP CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.948	BV	0.139	508121	24.512	25.242
2	25.393	VB	0.130	303039	25.242	25.749

03221712

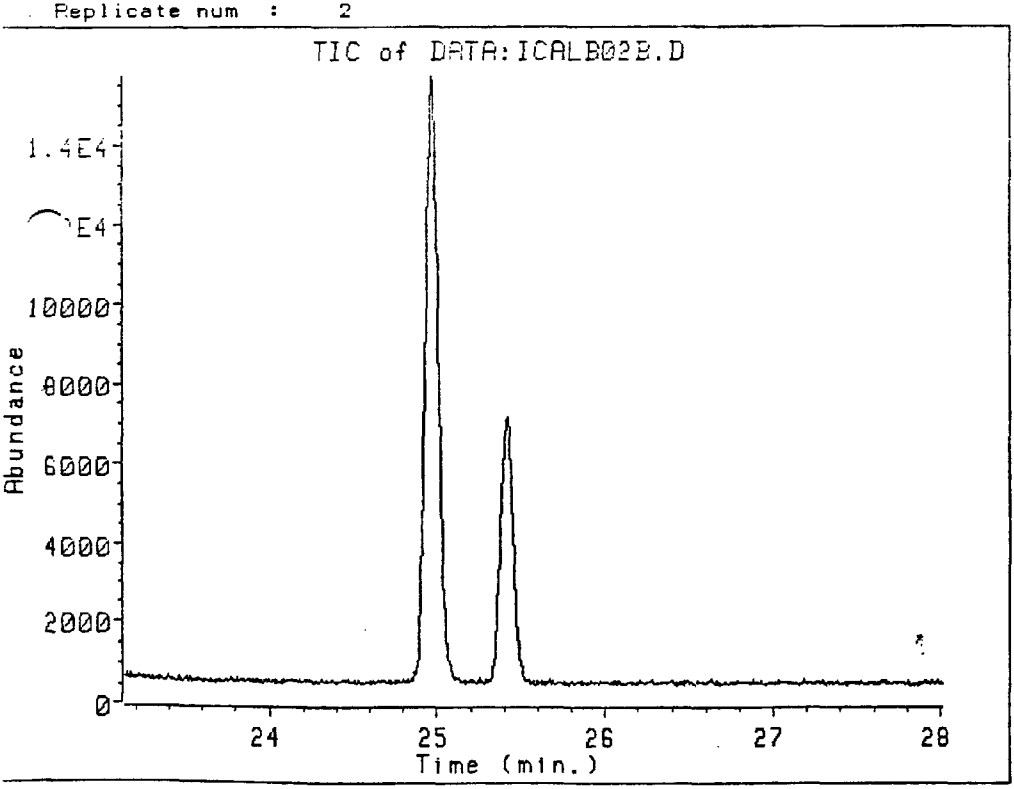
Data file: DATA:ICALB02B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 12:11 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 2

021498



16

3 2348

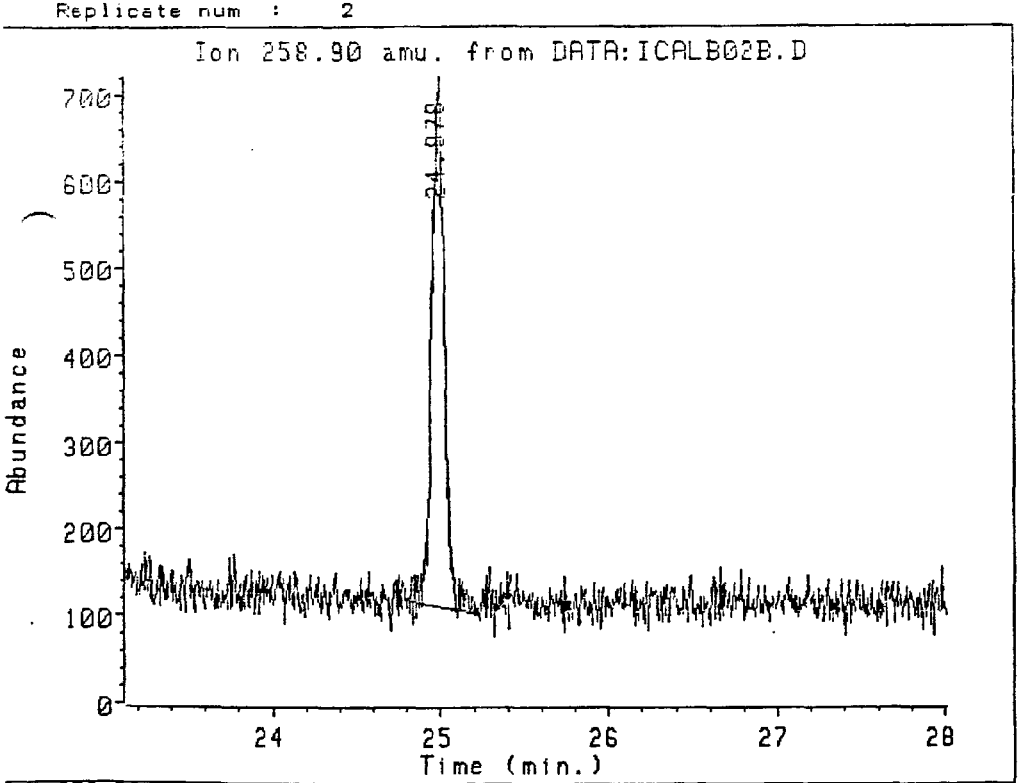
Data file: DATA:ICALB02B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 12:11 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 2

021499



Ion 258.90 amu. from DATA:ICALB02B.D
CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.978	BB	0.119	31638	24.784	25.218

03221714

17

3 2349

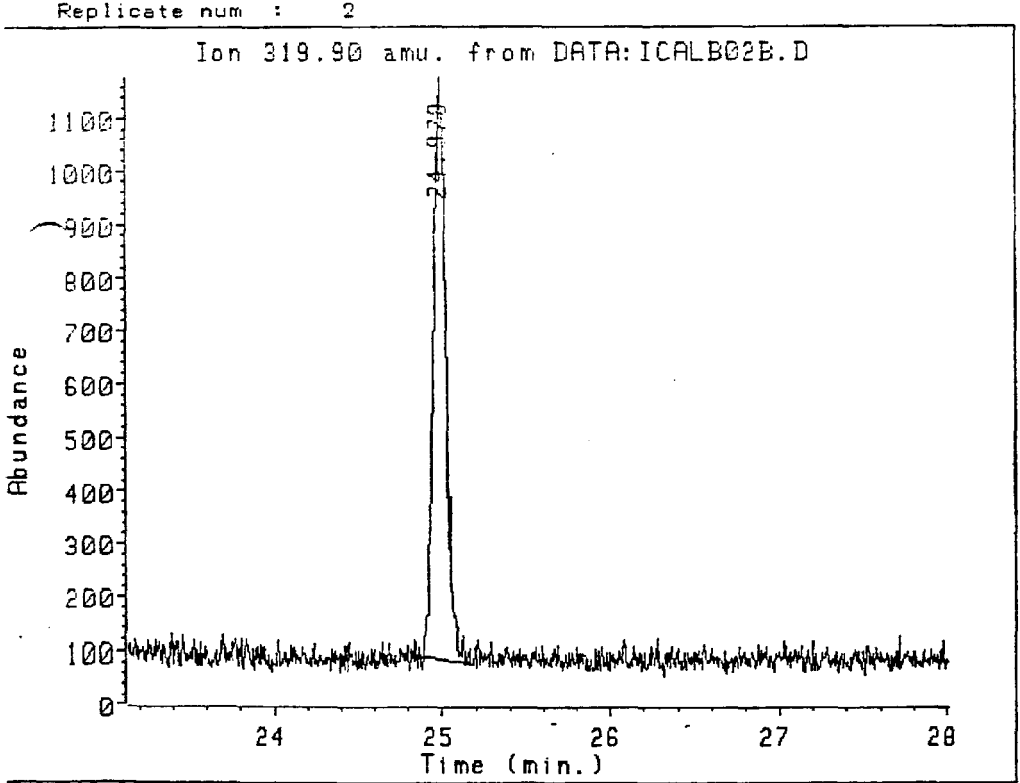
Data file: DATA:ICALB02B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 12:11 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 2

021500



Ion 319.90 amu. from DATA:ICALB02B.D
CL CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.978	BB	0.136	55207	24.832	25.168

03221715

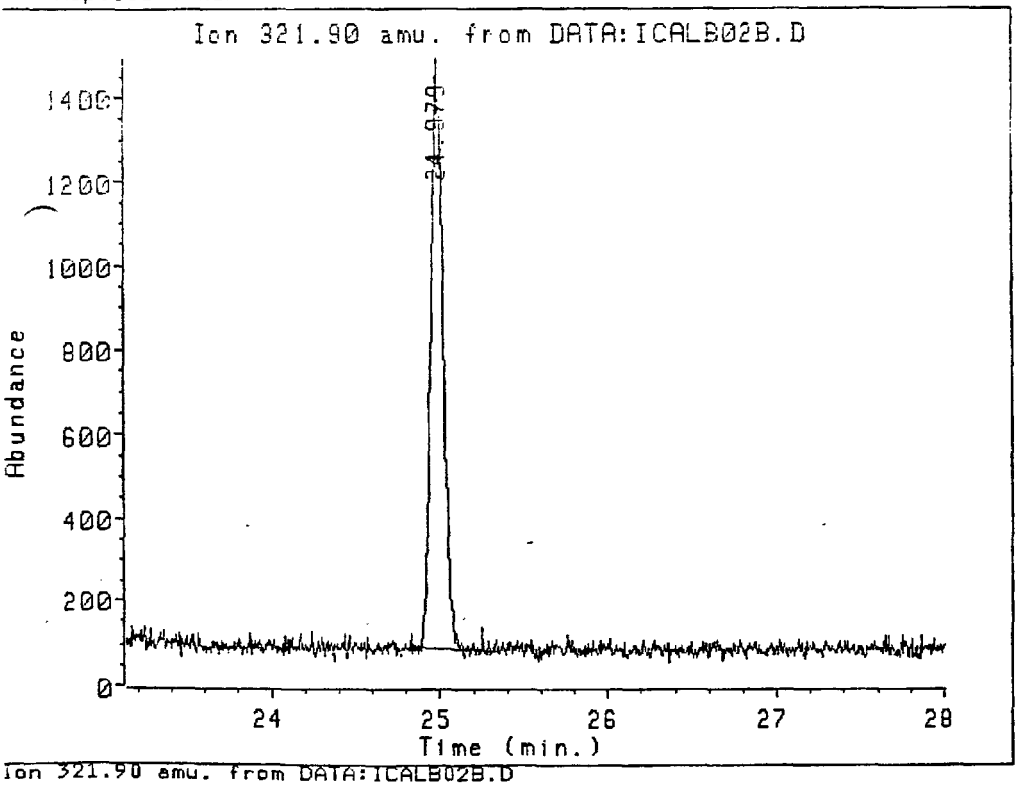
Data file: DATA:ICALB02B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 12:11 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 2

021501



Ion 321.90 amu. from DATA:ICALB02B.D
CLP CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.979	BB	0.135	69533	24.832	25.339

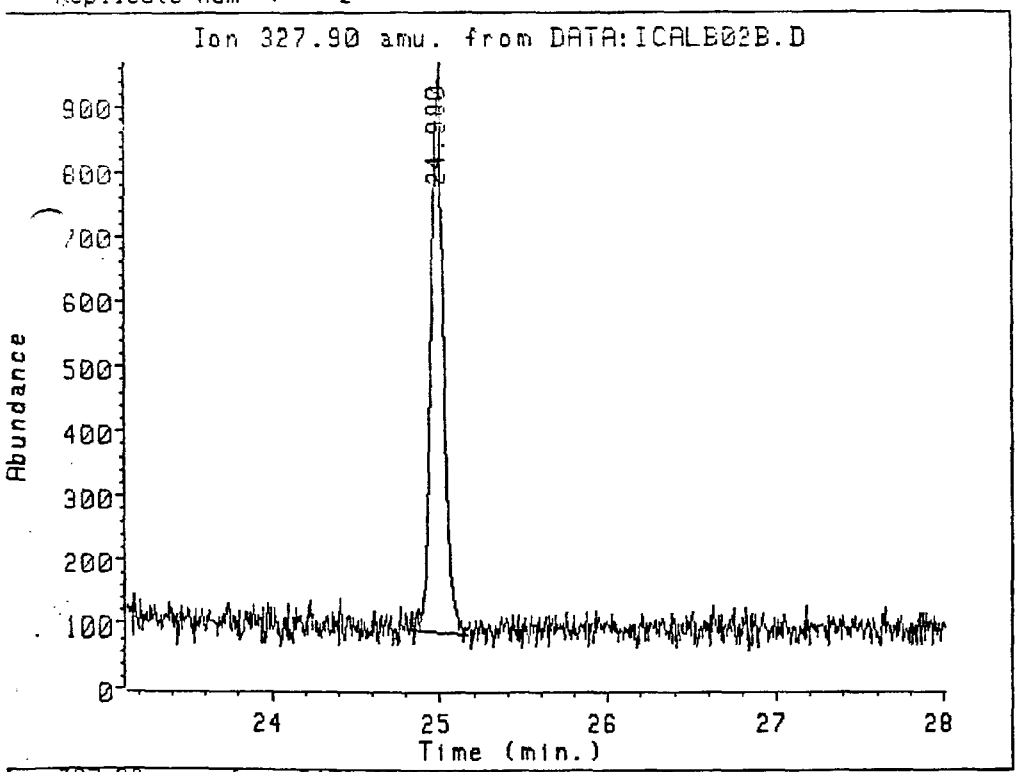
Data file: DATA:ICALB02B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 12:11 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 2

021502



Ion 327.90 amu. from DATA:ICALB02B.D
CLP CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.980	BB	0.142	44177	24.808	25.170

19

3 2352

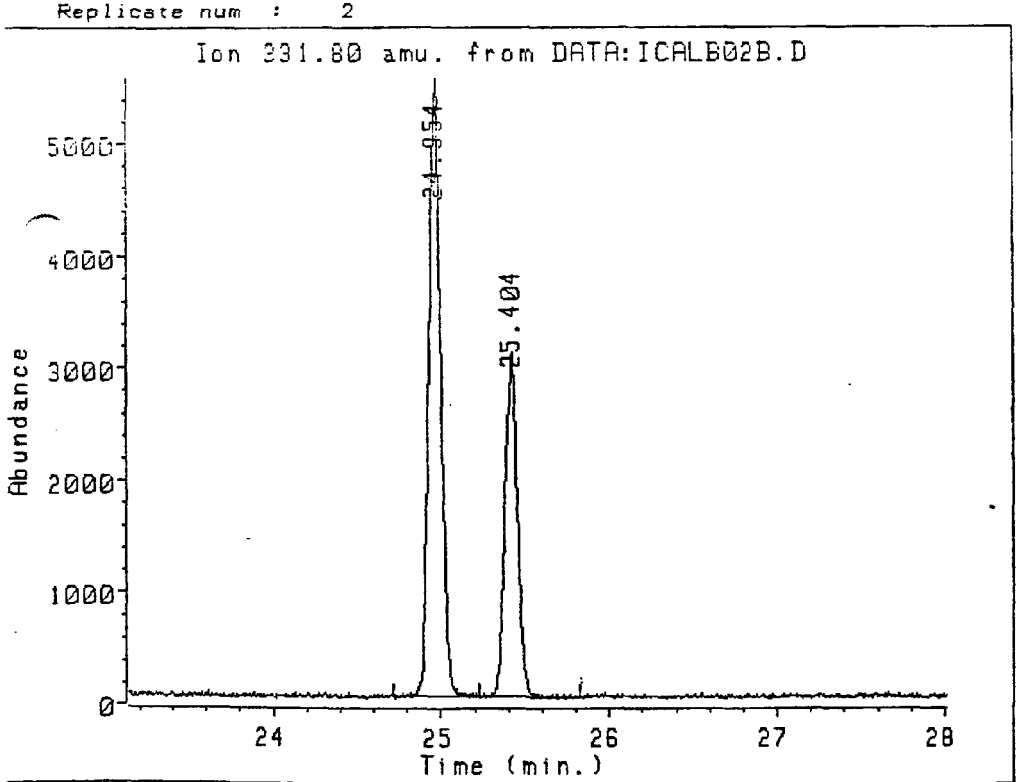
Data file: DATA:ICALB02B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 12:11 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 2

021503



Ion 331.80 amu. from DATA:ICALB02B.D
CLP CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.954	BV	0.084	270067	24.712	25.218
2	25.404	VB	0.147	155714	25.218	25.822

03221718

20

3 2353

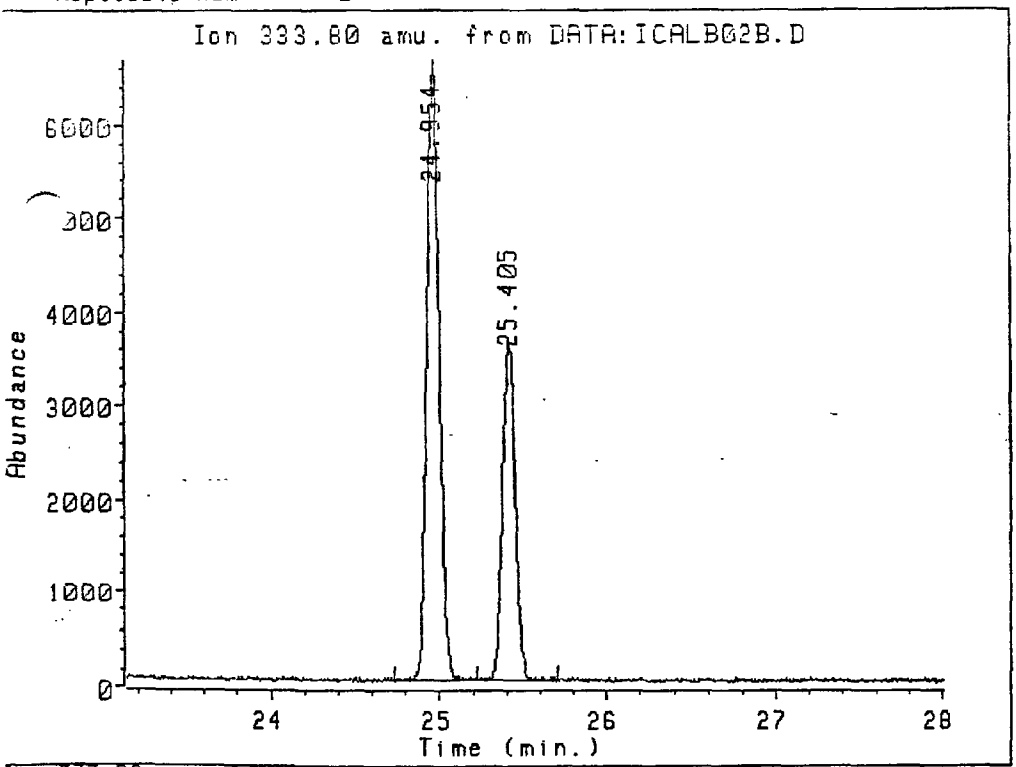
Data file: DATA:ICALB02B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 12:11 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 2

021504



Ion 333.80 amu. from DATA:ICALB02B.D
CI CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.954	BV	0.138	334764	24.736	25.218
2	25.405	VB	0.137	190294	25.218	25.701

03221719

21

3 2351

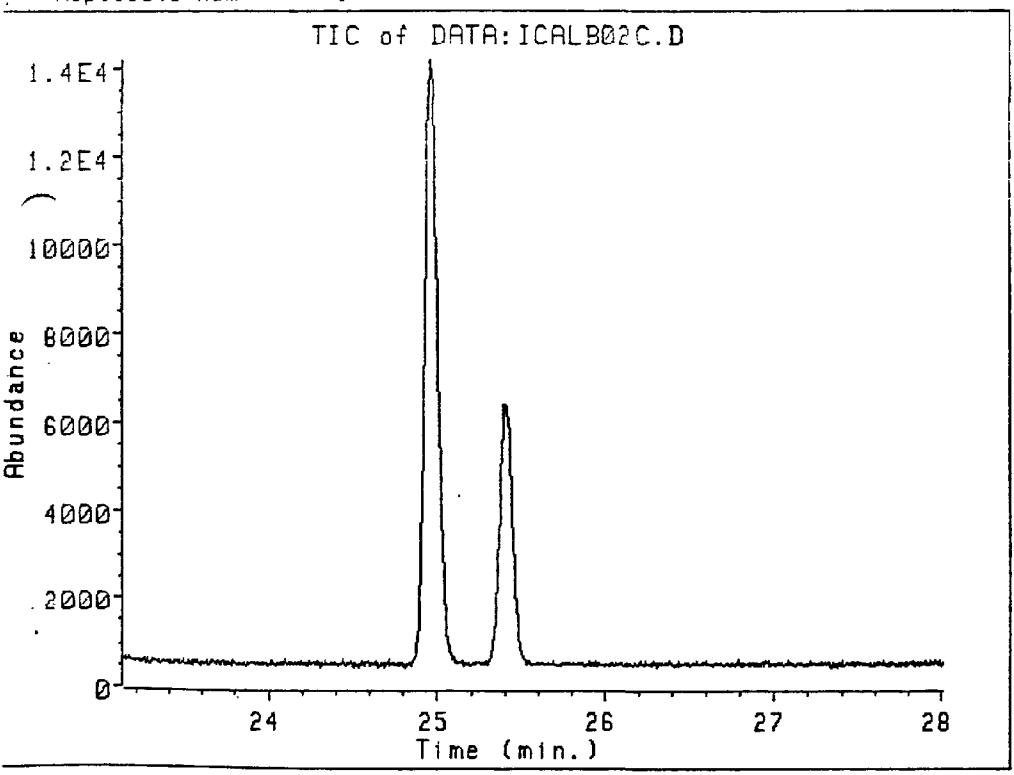
Data file: DATA:ICALB02C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 12:43 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 3

021505



03221720

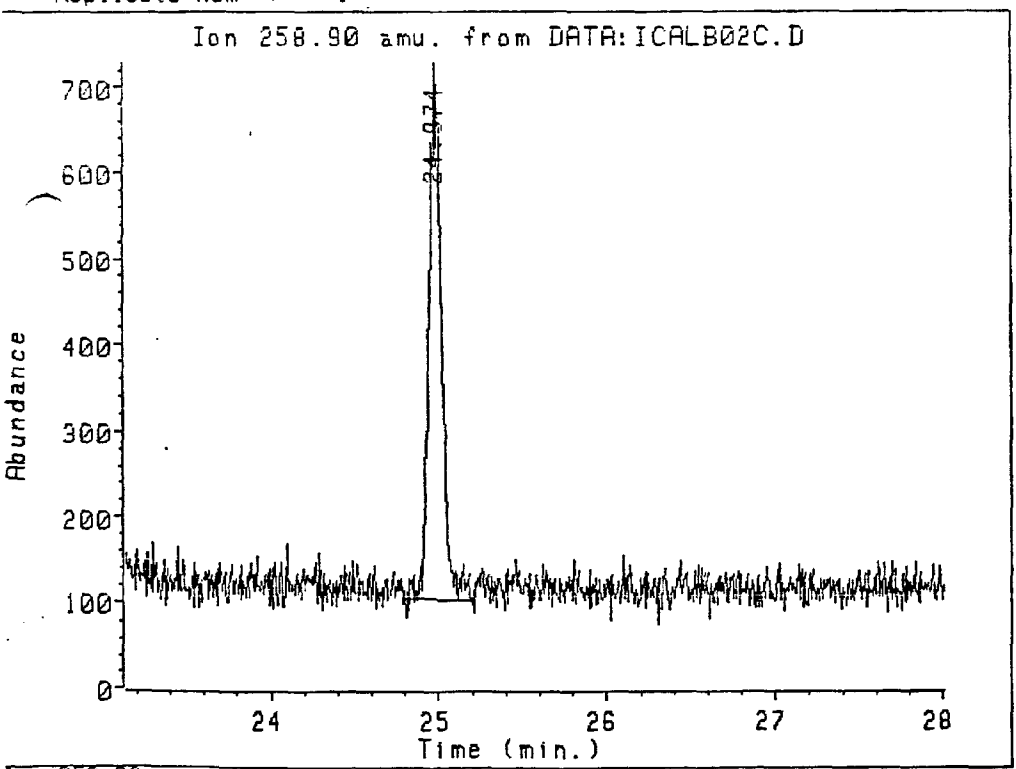
Data file: DATA:ICALB02C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 12:43 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 3

021506



Ion 258.90 amu. from DATA:ICALB02C.D
CLP CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.974	BB	0.124	32393	24.784	25.194

23

3 2356

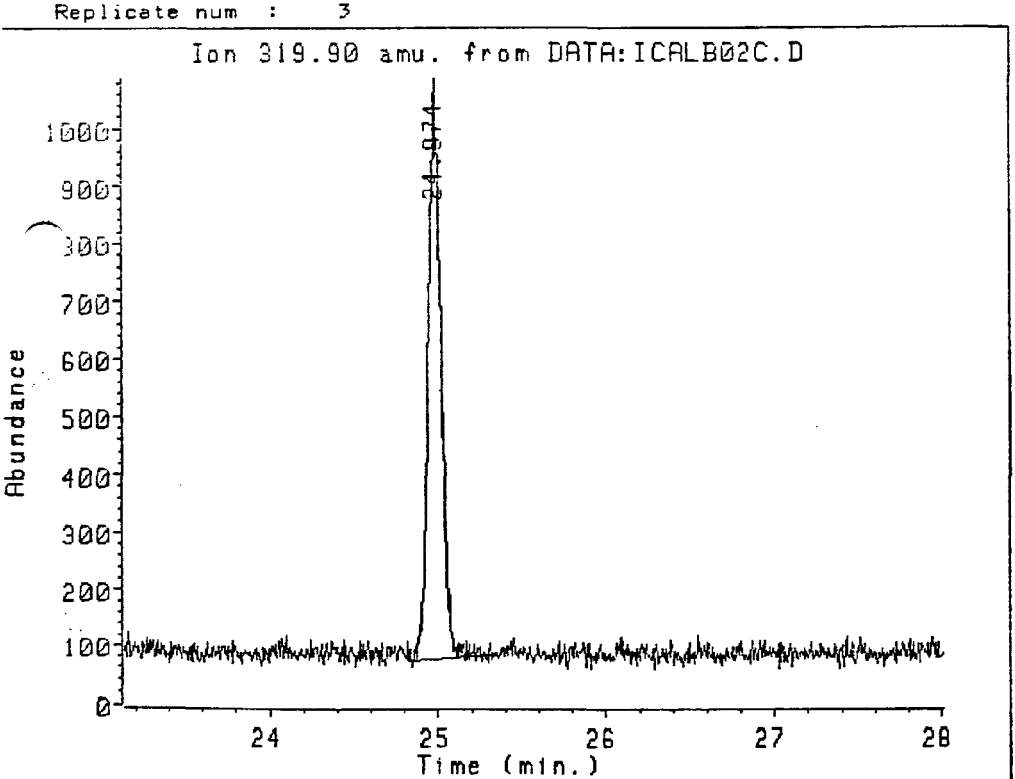
Data file: DATA:ICALB02C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 12:43 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 3

021507



Ion 319.90 amu. from DATA:ICALB02C.D
CLP CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.974	BV	0.135	52633	24.832	25.314

03221722

29

3 2357

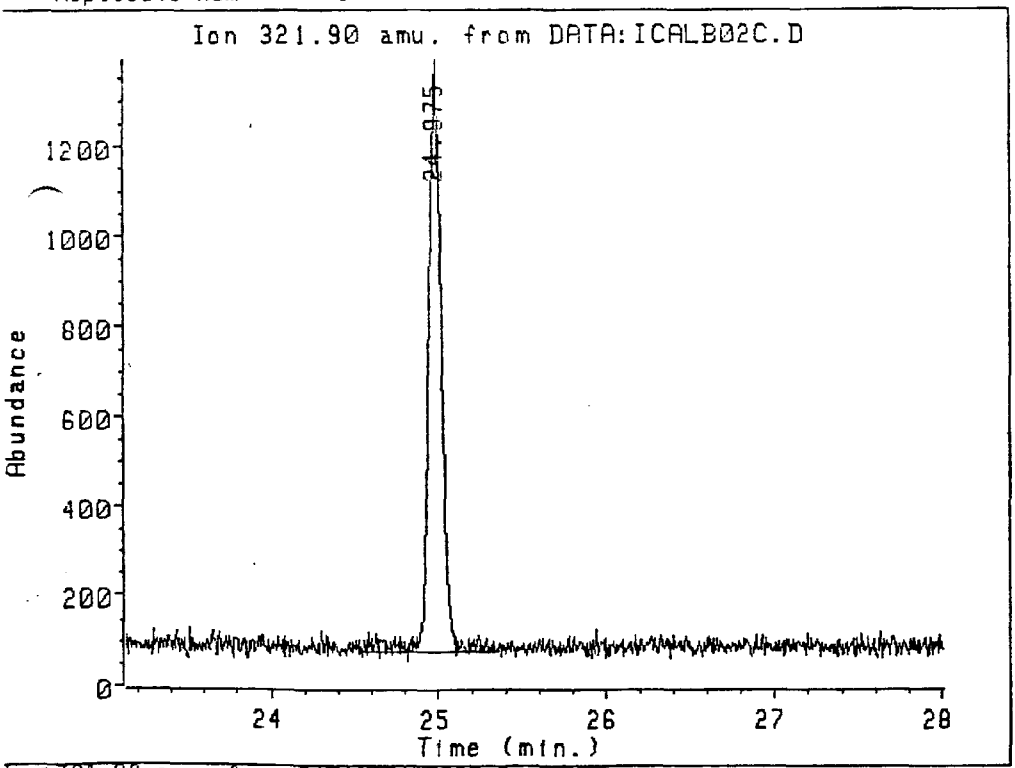
Data file: DATA:ICALB02C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 12:43 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 3

021508



Ion 321.90 amu. from DATA:ICALB02C.D
CL CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.975	BB	0.141	70447	24.524	25.338

03221723

25

3 2358

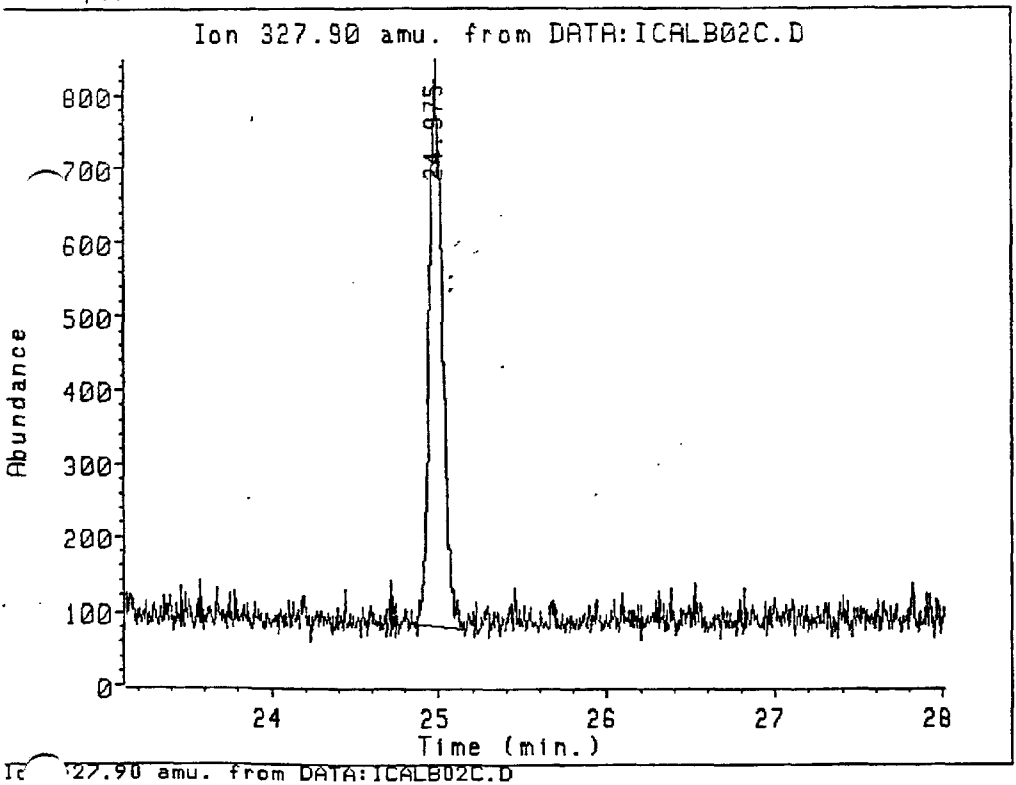
Data file: DATA:ICALB02C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 12:43 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 3

021509



Ic 327.90 amu. from DATA:ICALB02C.D
CLP CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.975	BB	0.136	40204	24.832	25.150

03221724

26

3 2359

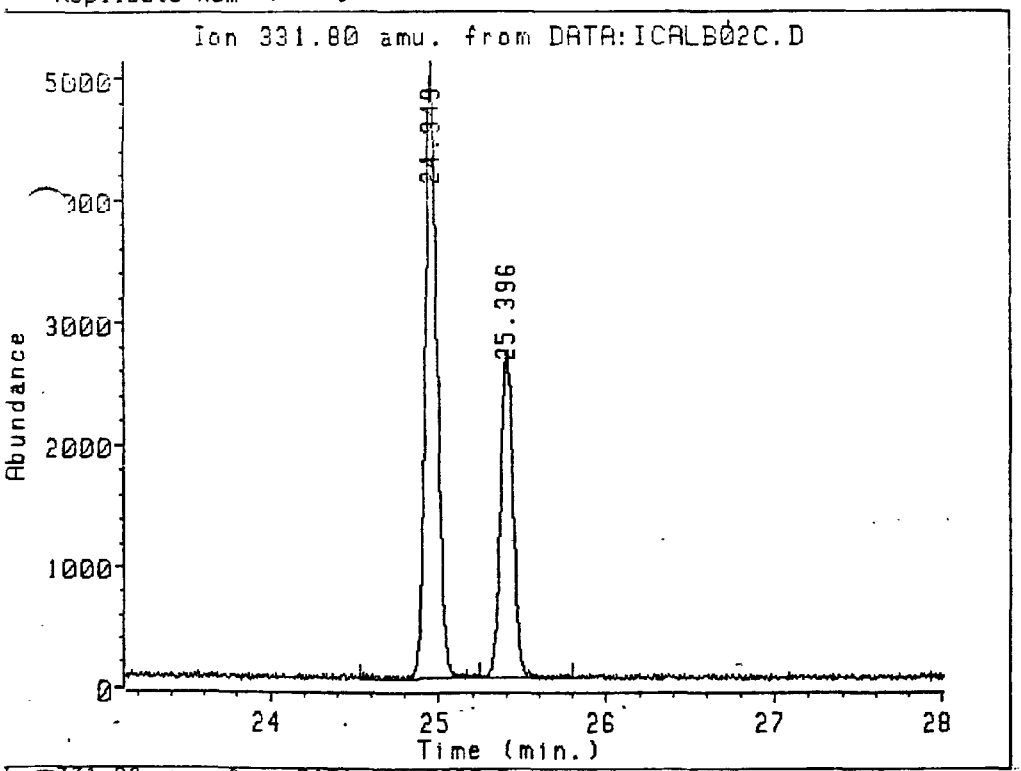
Data file: DATA:ICALB02C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 12:43 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 3

021510



Ion 331.80 amu. from DATA:ICALB02C.D
CL CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.949	BV	0.127	245540	24.530	25.242
2	25.396	VB	0.087	140270	25.242	25.797

03221725

27

3 2360

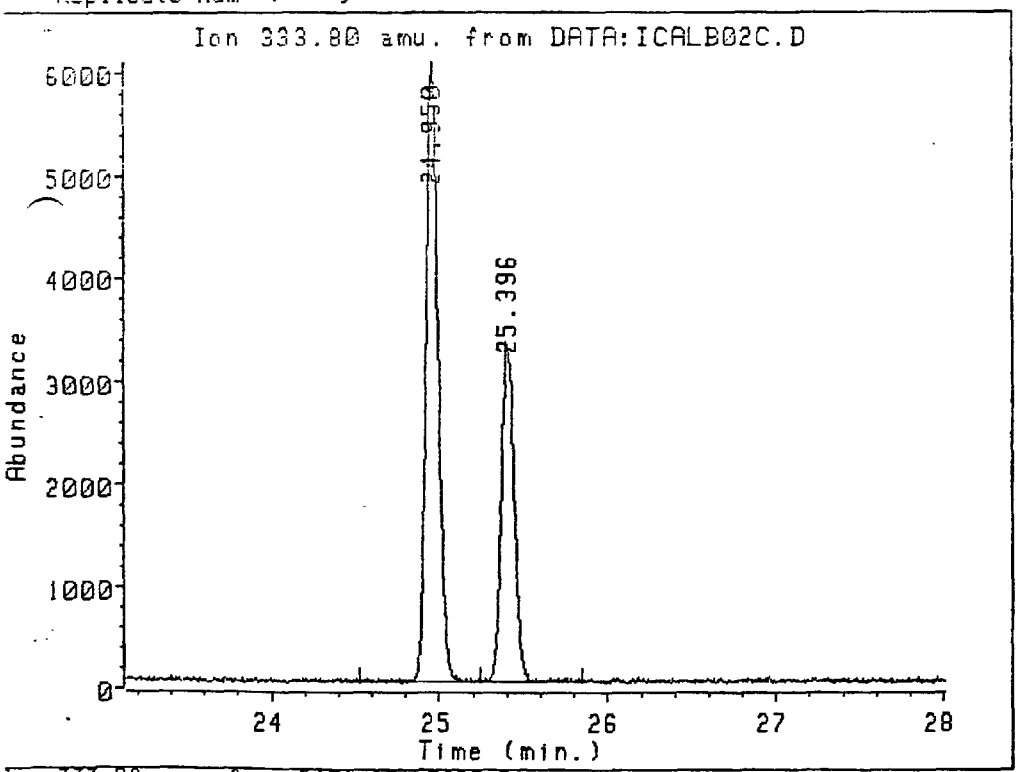
Data file: DATA:ICALB02C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN I
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 12:43 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 2
Replicate num : 3

021511



Ion 333.80 amu. from DATA:ICALB02C.D
CL CALIBRATION SOLN I

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.950	BV	0.141	304190	24.524	25.242
2	25.396	VB	0.089	172777	25.242	25.845

03221726

28

3 2361

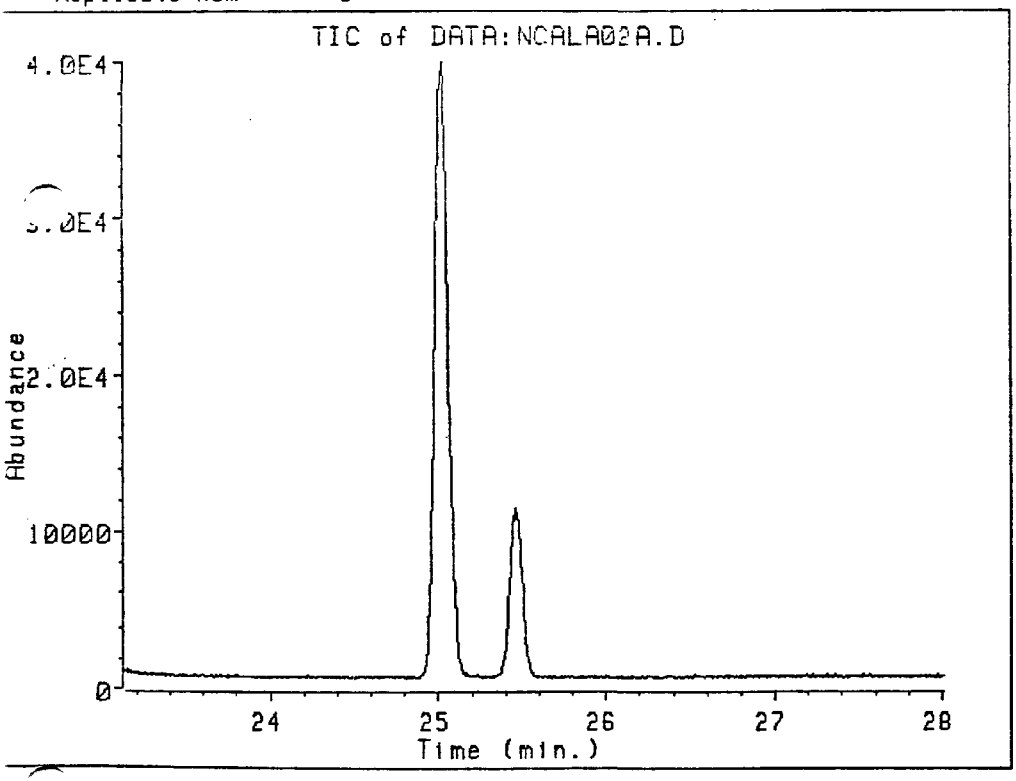
Data file: DATA:NCALA02A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 1:45 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 1

021512



03221727

29

3 2362

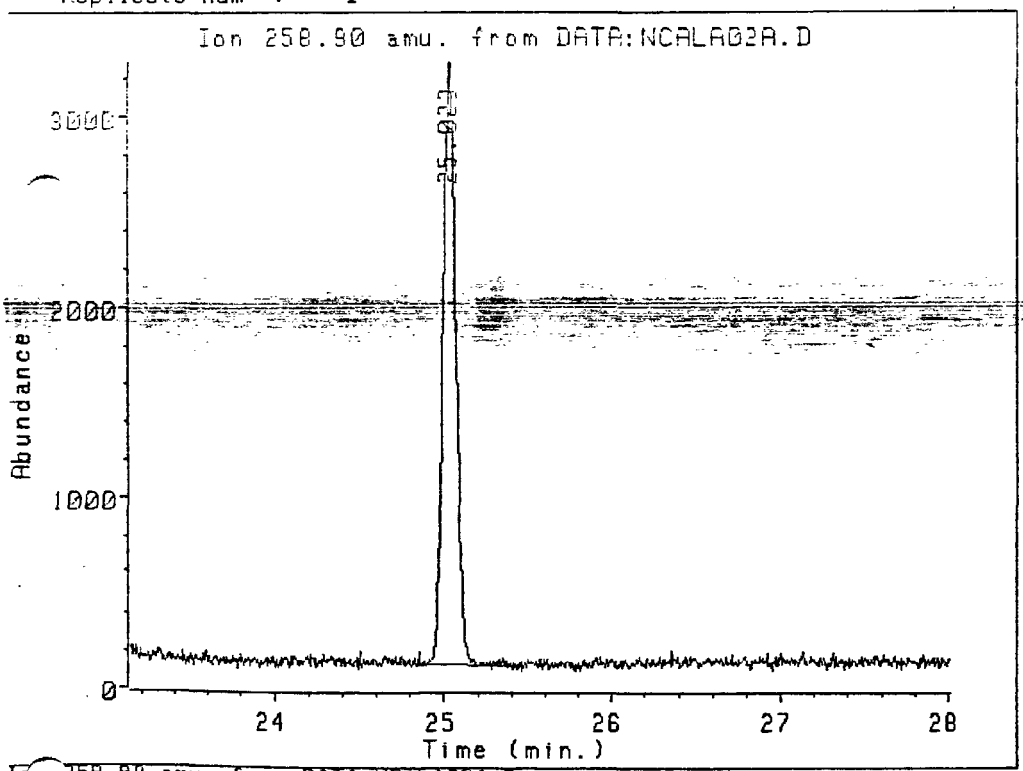
Data file: DATA:NCALA02A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 1:45 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 1

0215513



Ic 258.90 amu. from DATA:NCALA02A.D
CL CALIBRATION SOLN II

03221728

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	25.023	BB	0.133	167049	24.856	25.436

3 2363

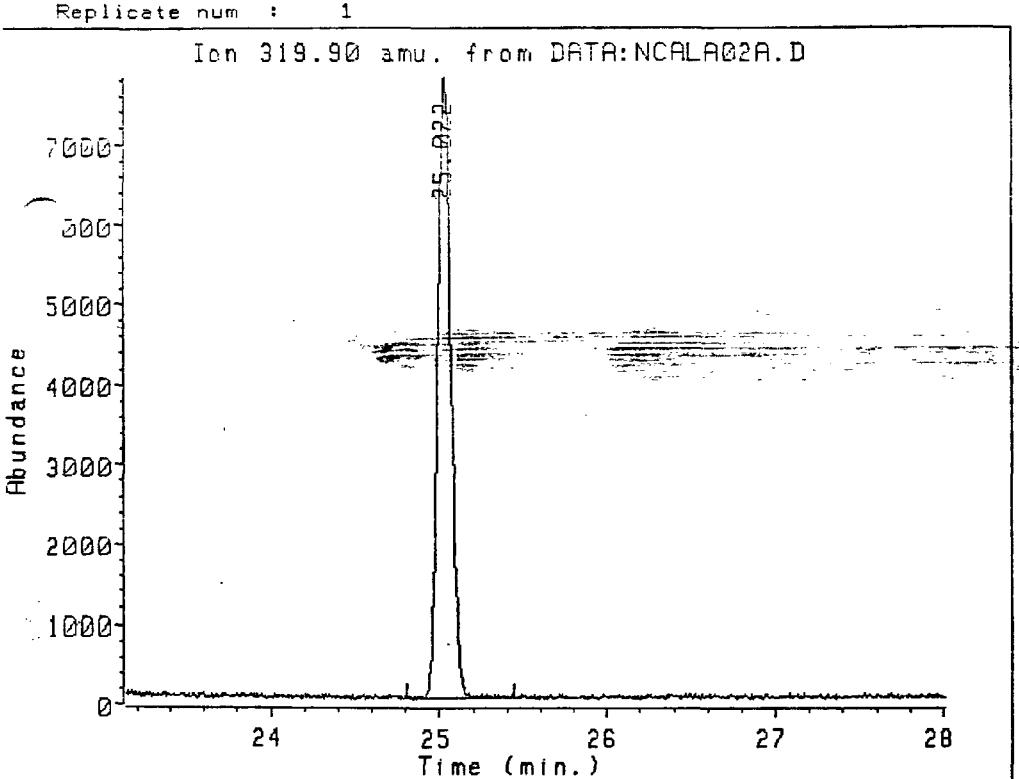
Data file: DATA:NCALA02A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 1:45 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 1

021514



Ic 319.90 amu. from DATA:NCALA02A.D
CL. CALIBRATION SOLN II

03221729

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	25.022	BB	0.142	421706	24.808	25.436

57

3 2364

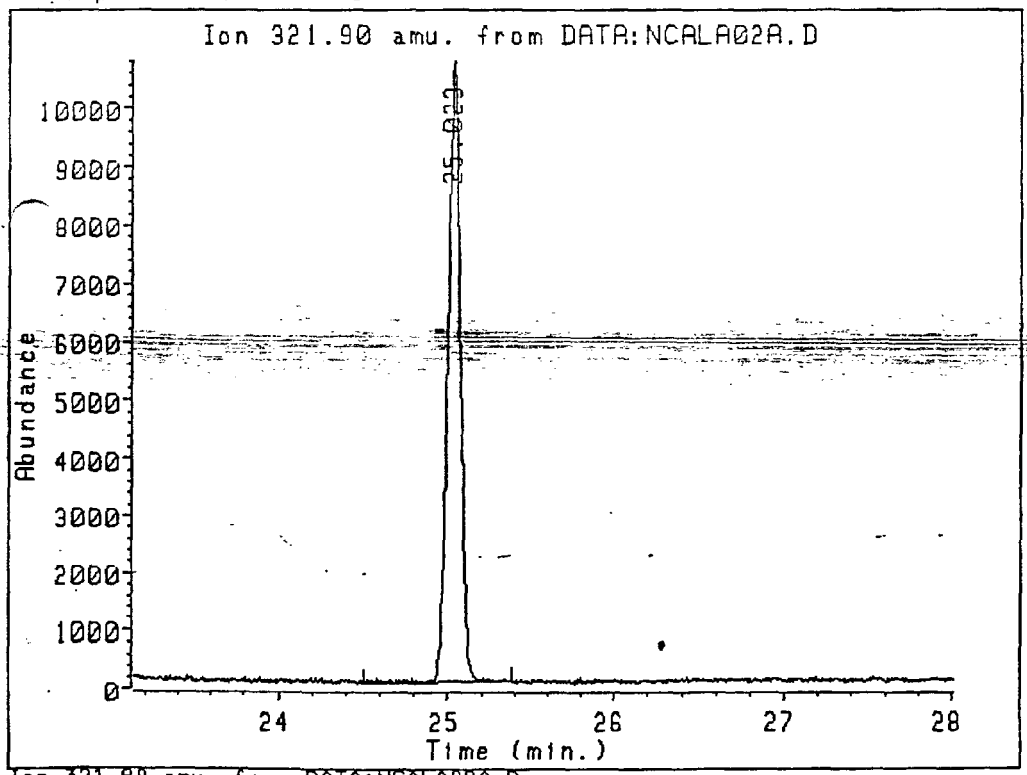
Data file: DATA:NCALA02A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 1:45 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 1

021515



Ion 321.90 amu. from DATA:NCALA02A.D
CALIBRATION SOLN II

03221730

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	25.023	BB	0.132	555954	24.501	25.387

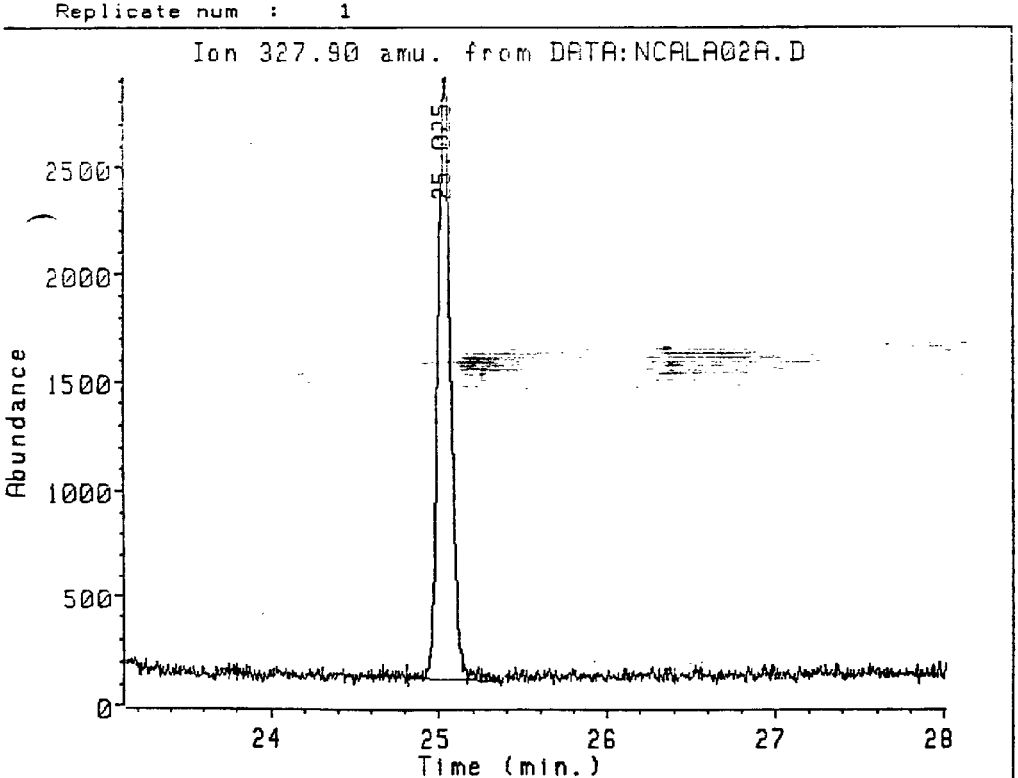
Data file: DATA:NCALA02A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 1:45 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 1

021516



Ion 327.90 amu. from DATA:NCALA02A.D
CLP CALIBRATION SOLN II

03221731

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	25.025	BV	0.128	147075	24.808	25.363

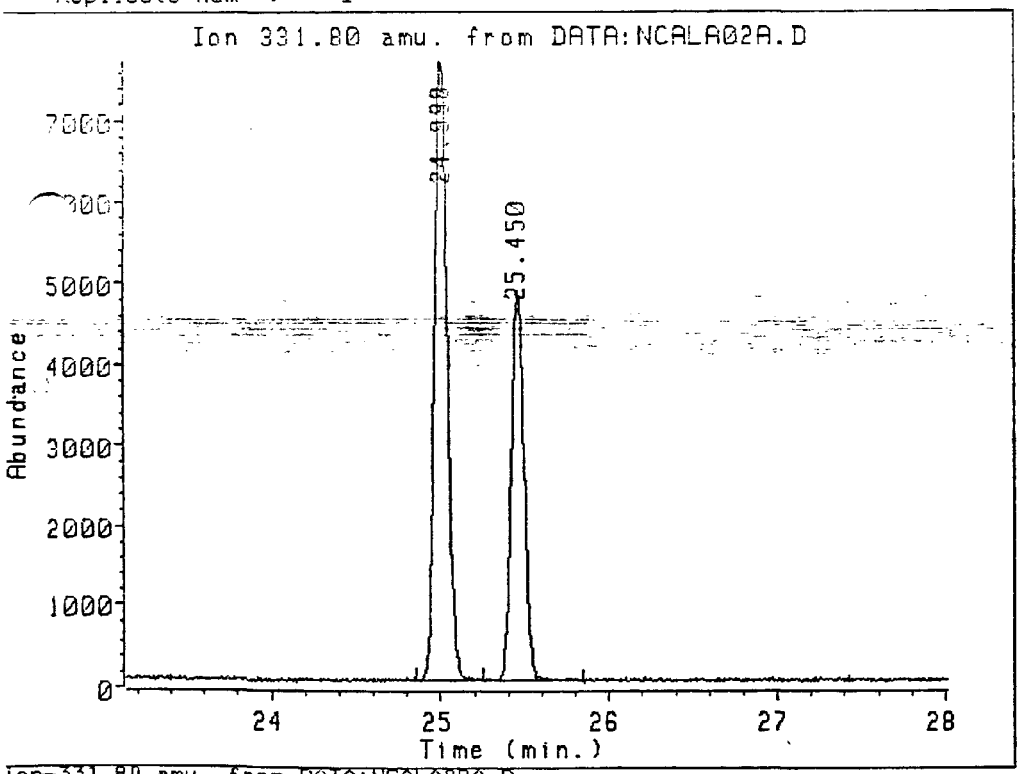
Data file: DATA:NCALA02A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 1:45 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 1

021517



Ion 331.80 amu. from DATA:NCALA02A.D
CL ALIBRATION SOLN II

03221732

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.998	BV	0.132	401101	24.856	25.247
2	25.450	PB	0.140	253790	25.247	25.846

34

3 2367

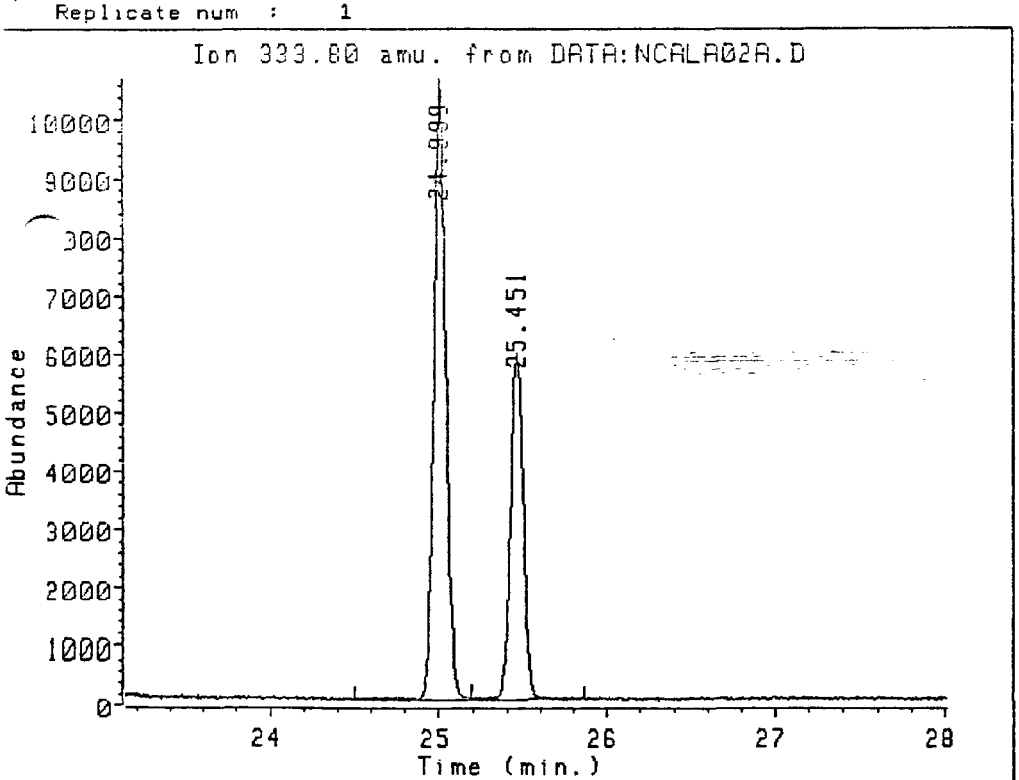
Data file: DATA:NCALA02A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 1:45 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 1

021518



Ion 333.80 amu. from DATA:NCALA02A.D
CL CALIBRATION SOLN II

03221733

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.999	BV	0.135	515970	24.501	25.194
2	25.451	VB	0.130	311433	25.194	25.870

35

3 2368

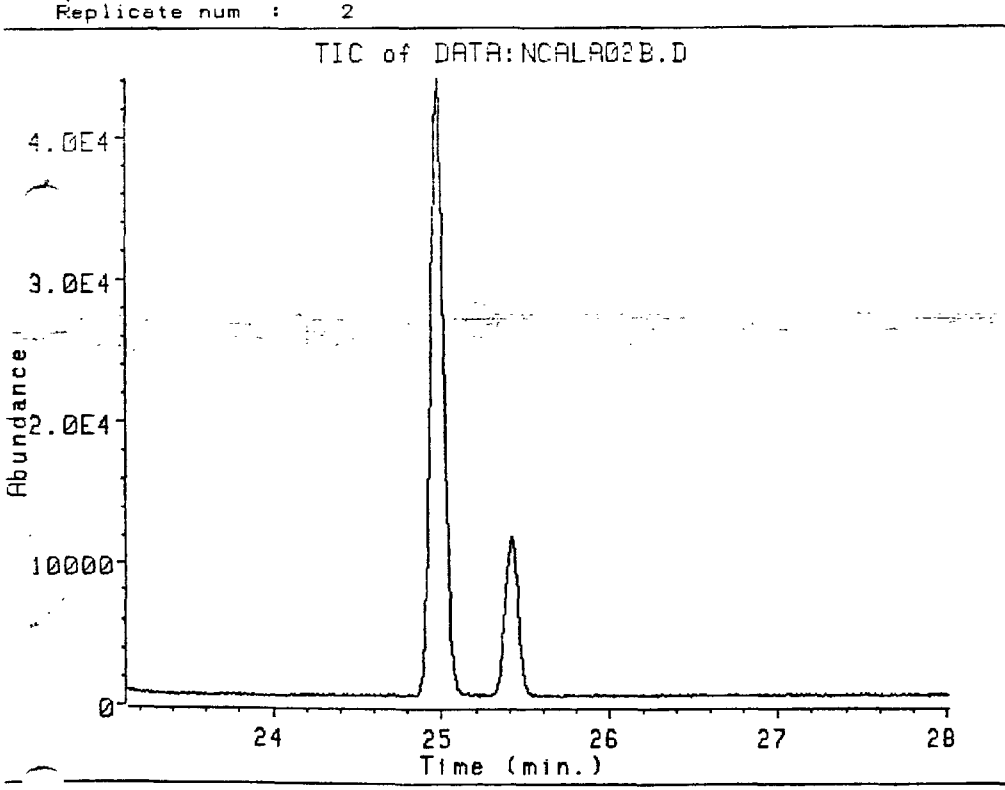
Data file: DATA:NCALA02B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 2:17 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 2

021519



03221734

56

3 2369

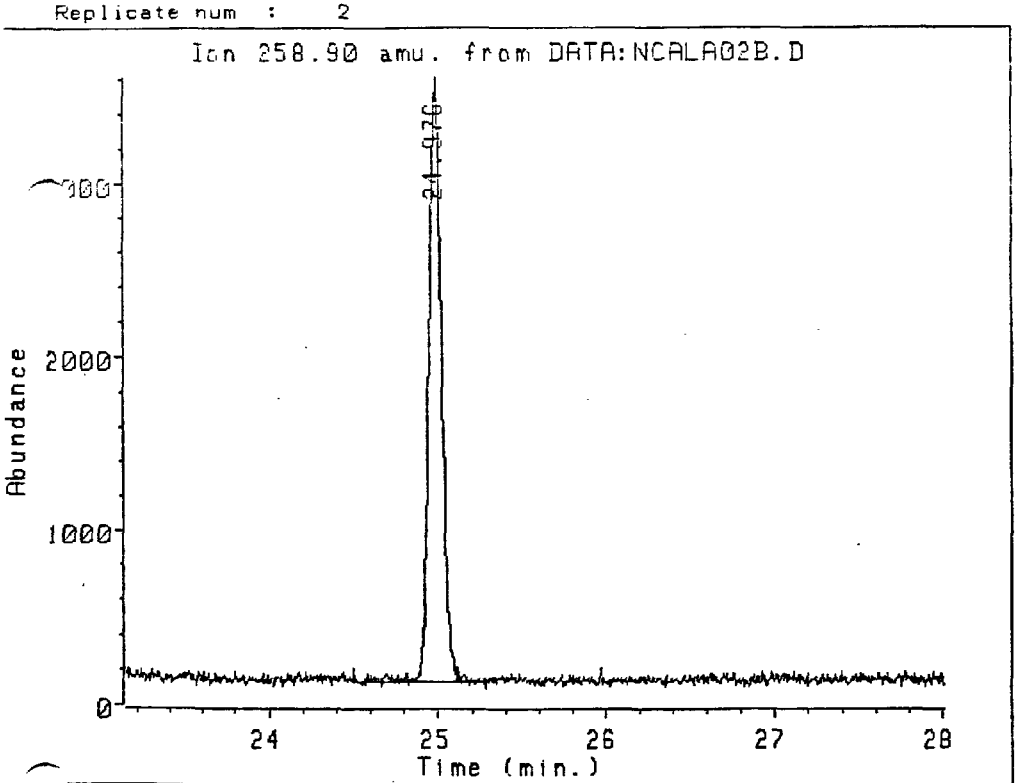
Data file: DATA:NCALA02B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 2:17 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 2

021520



Ic 258.90 amu. from DATA:NCALA02B.D
CLP CALIBRATION SOLN II

03221735

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.976	BB	0.123	178879	24.497	25.266

57

3 2370

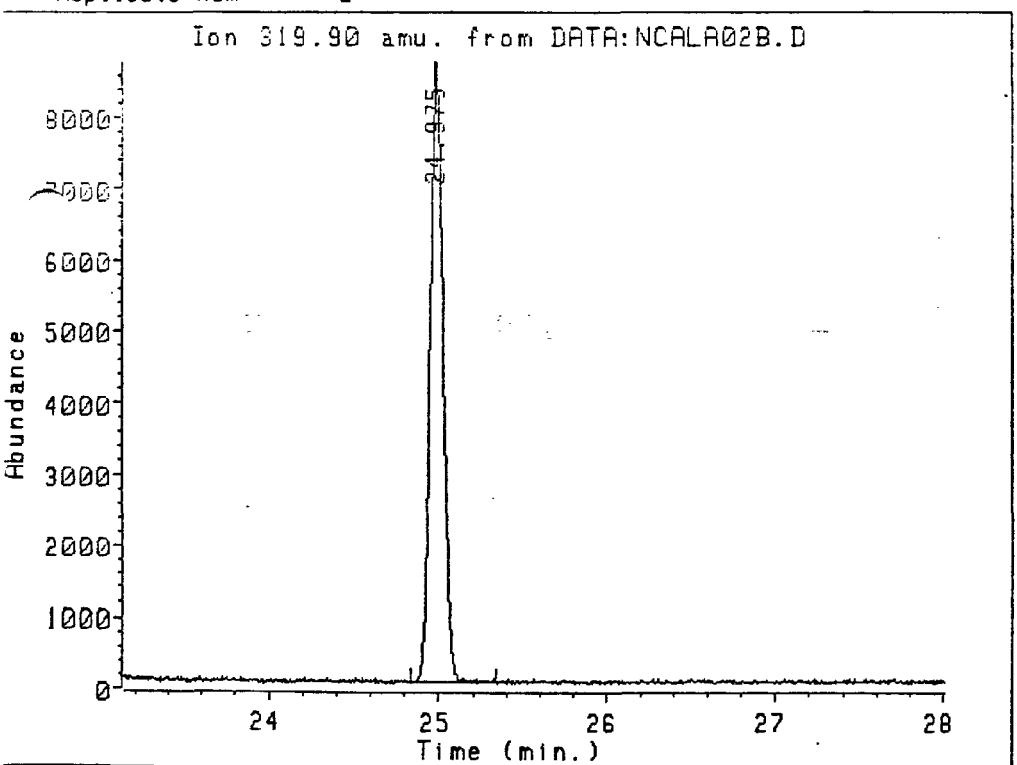
Data file: DATA:NCALA02B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 2:17 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 2

02 1521



Ion 319.90 amu. from DATA:NCALA02B.D
CL. ALIBRATION SOLN II

03221736

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.975	BB	0.150	446509	24.832	25.339

38

3 2371

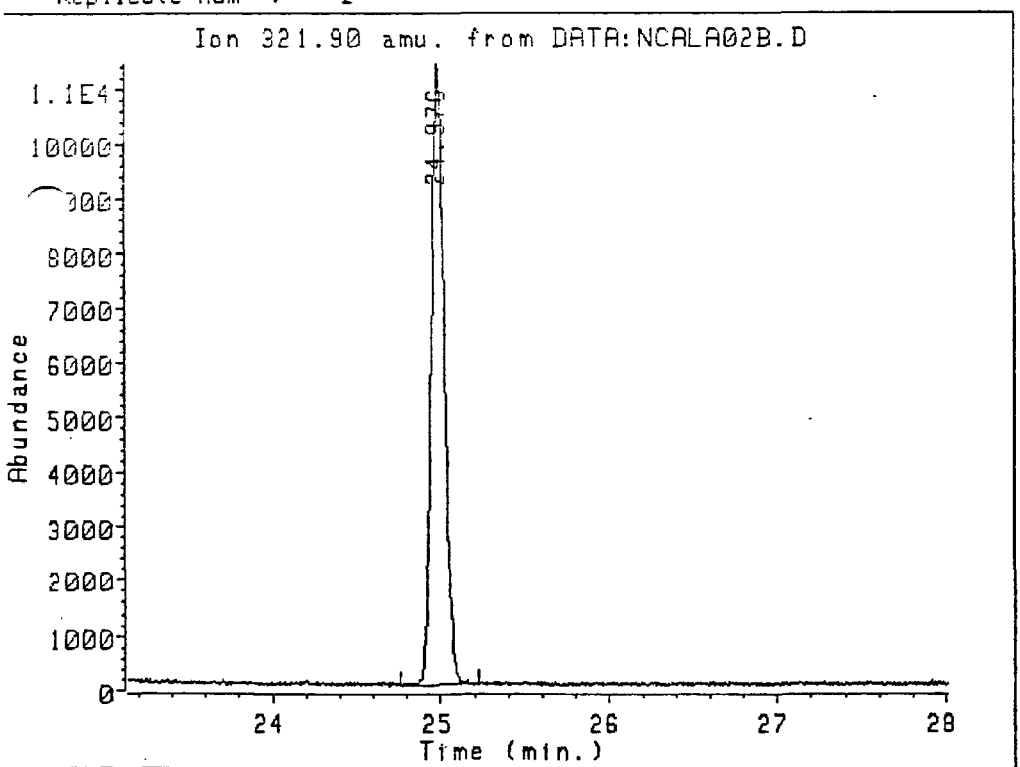
Data file: DATA:NCALA02B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 2:17 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 2

021522



Ion 321.90 amu. from DATA:NCALA02B.D
CLP CALIBRATION SOLN II

03221737

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.976	BB	0.150	583866	24.760	25.218

39

3 2372

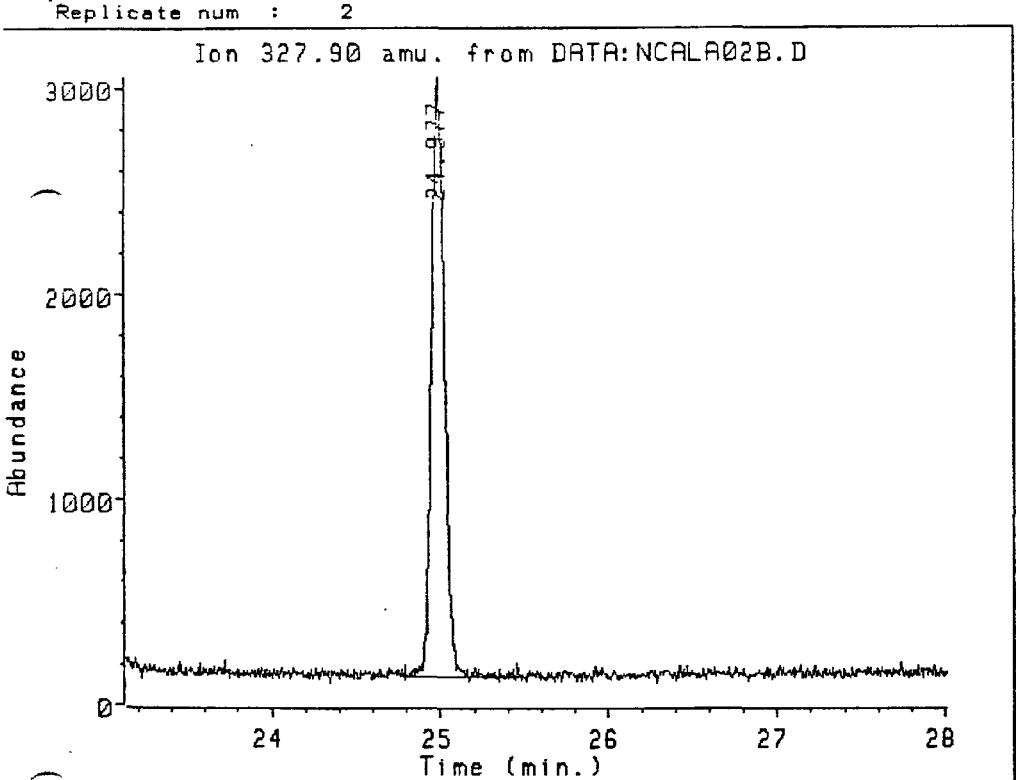
Data file: DATA:NCALA02B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 2:17 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 2

0215525



Ion 327.90 amu. from DATA:NCALA02B.D
CLP CALIBRATION SOLN II

03221738

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.977	BB	0.138	154612	24.784	25.483

4/6

3 2373

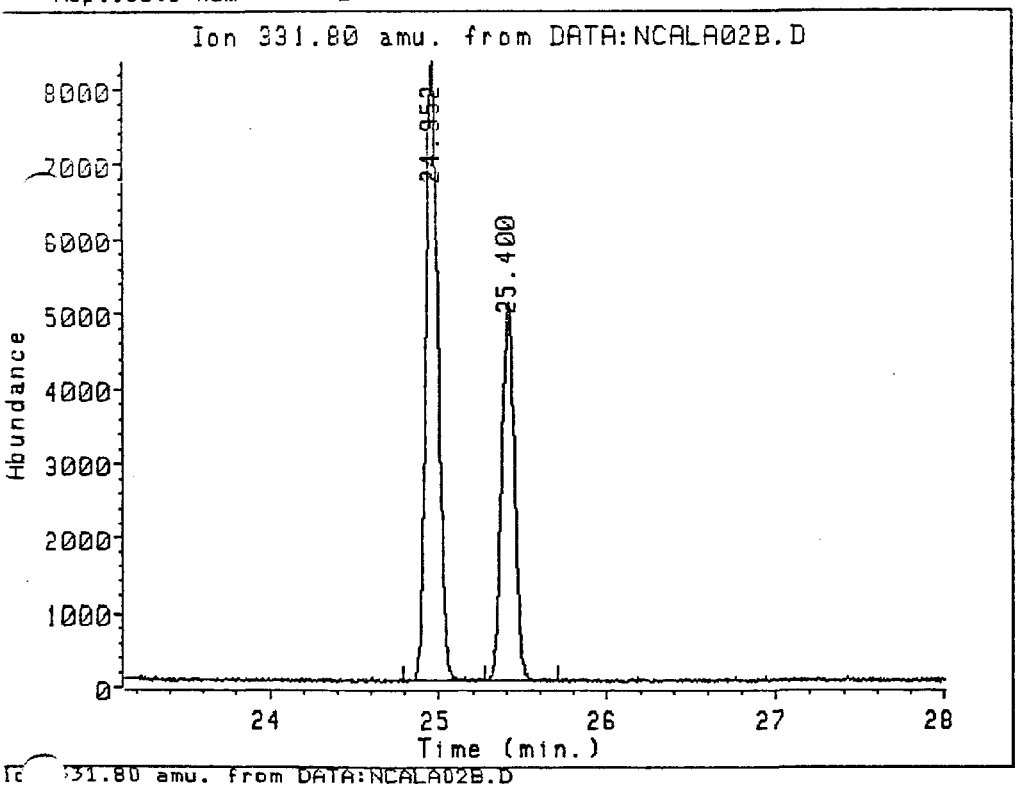
Data file: DATA:NCALA02B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 2:17 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 2

021524



Ic 331.80 amu. from DATA:NCALA02B.D
CLP CALIBRATION SOLN II

03221739

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.952	BV	0.141	415810	24.784	25.266
2	25.400	VB	0.132	258862	25.266	25.700

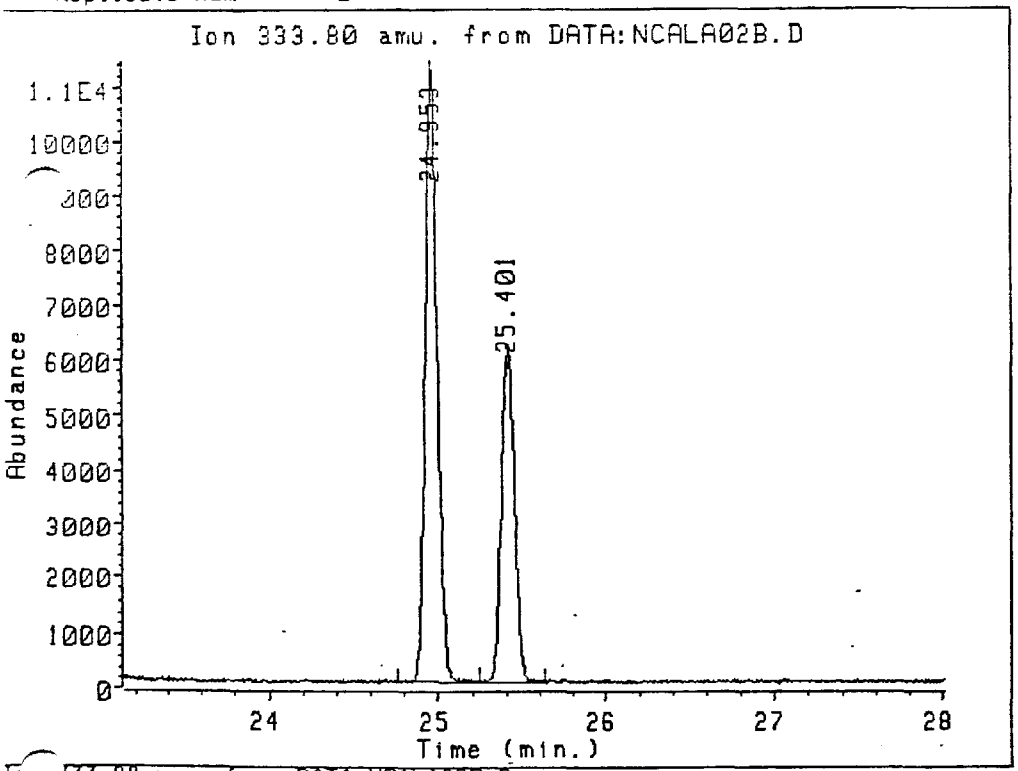
Data file: DATA:NCALA02B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 2:17 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 2

021525



Ic 333.80 amu. from DATA:NCALA02B.D
CLP CALIBRATION SOLN II

03221740

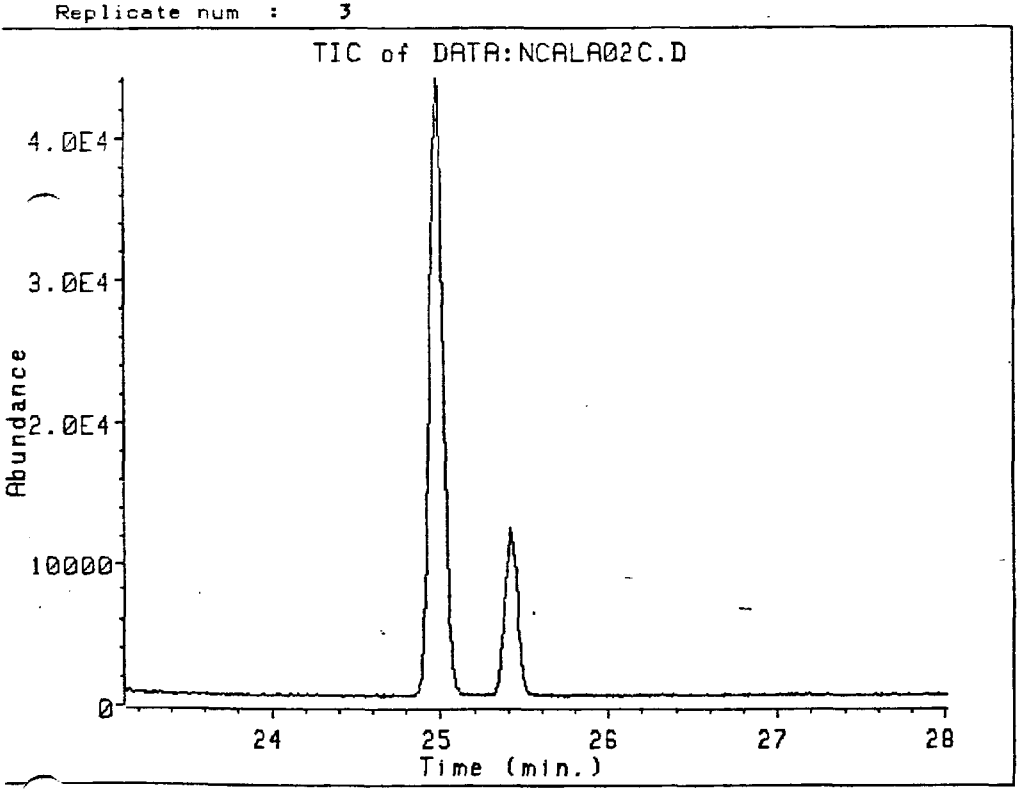
Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.953	BV	0.128	542426	24.760	25.242
2	25.401	VB	0.136	322356	25.242	25.628

Data file: DATA:NCALA02C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 2:50 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 3



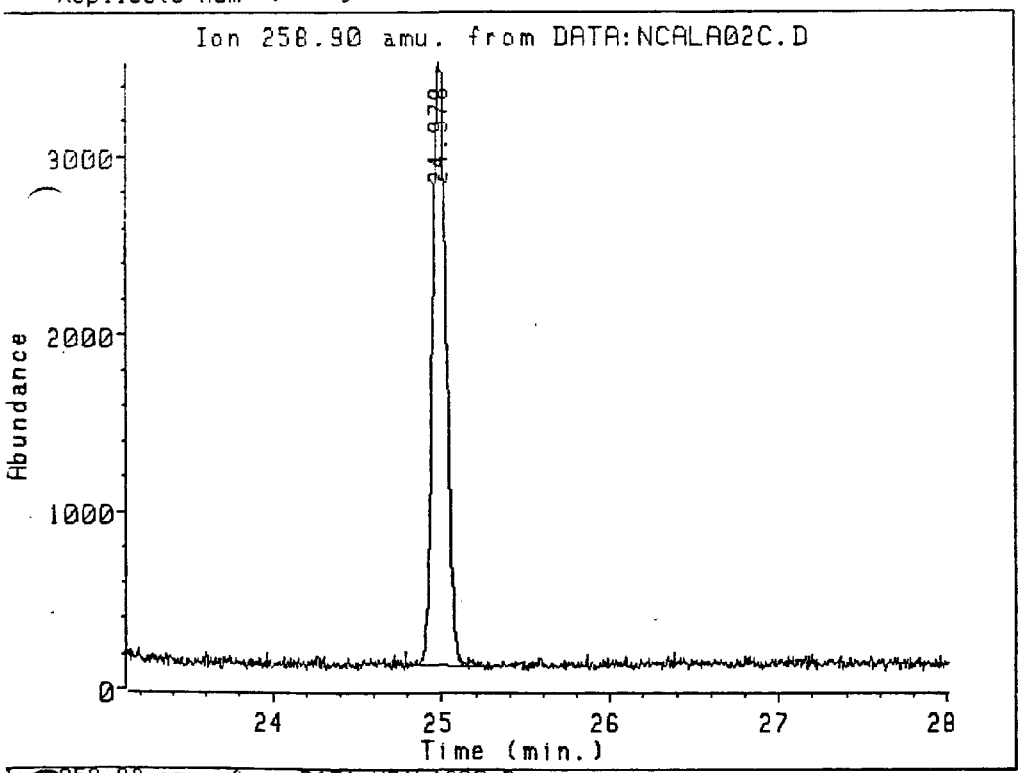
Data file: DATA:NCALA02C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 2:50 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 3

021527



Io 258.90 amu. from DATA:NCALA02C.D
CL CALIBRATION SOLN II

03221742

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.978	BB	0.130	184844	24.784	25.290

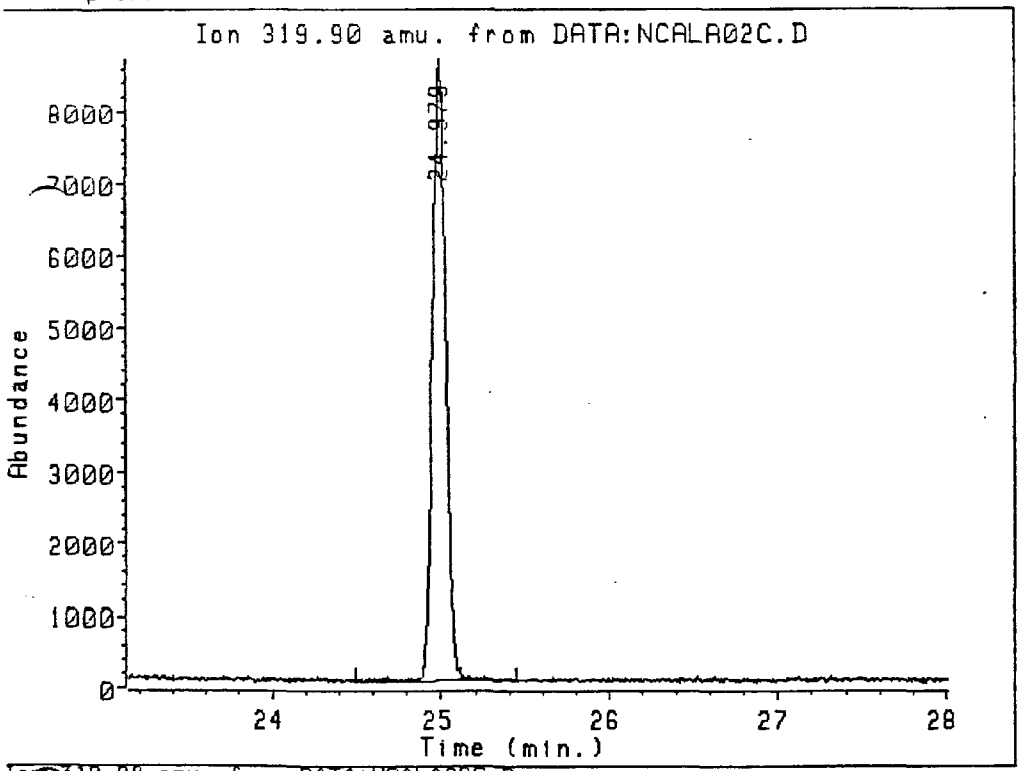
Data file: DATA:NCALA02C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 2:50 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 3

021528



Ion 319.90 amu. from DATA:NCALA02C.D
CL CALIBRATION SOLN II

03221743

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.979	BB	0.149	465248	24.497	25.435

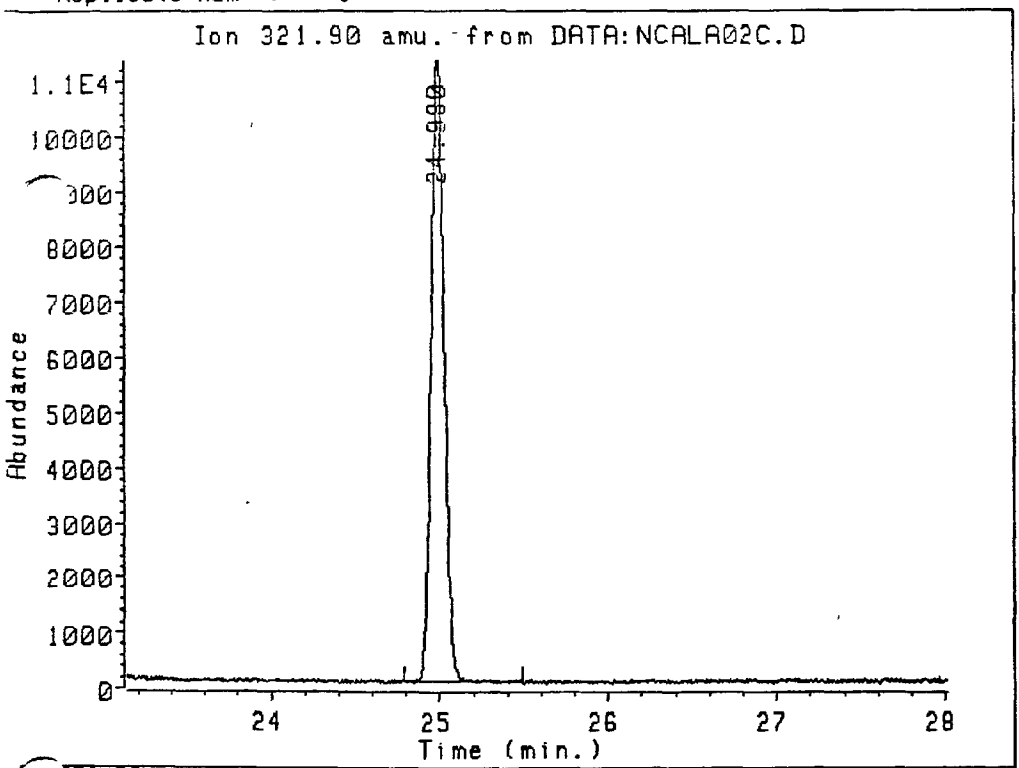
Data file: DATA:NCALA02C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 2:50 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 3

021529



321.90 amu. from DATA:NCALA02C.D
CALIBRATION SOLN II

03221744

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.980	BB	0.149	597732	24.784	25.483

1/6

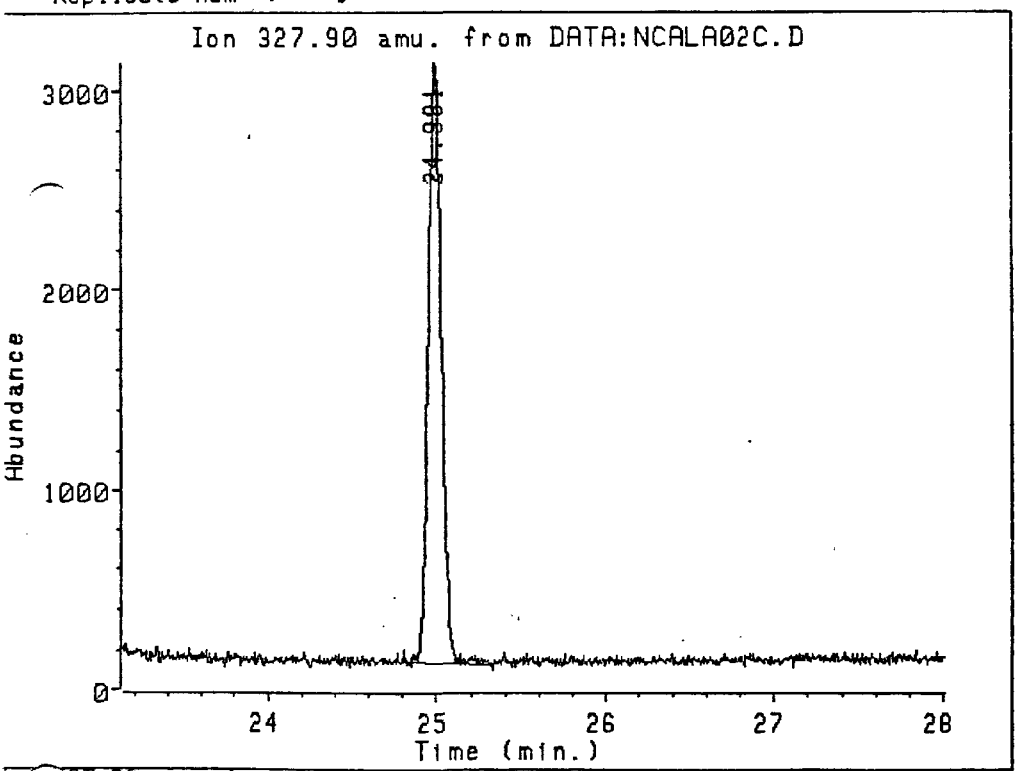
Data file: DATA:NCALA02C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 2:50 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 3

021530



Io 27.90 amu. from DATA:NCALA02C.D
CL CALIBRATION SOLN II

03221745

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.981	BV	0.135	158244	24.808	25.314

47

3 2380

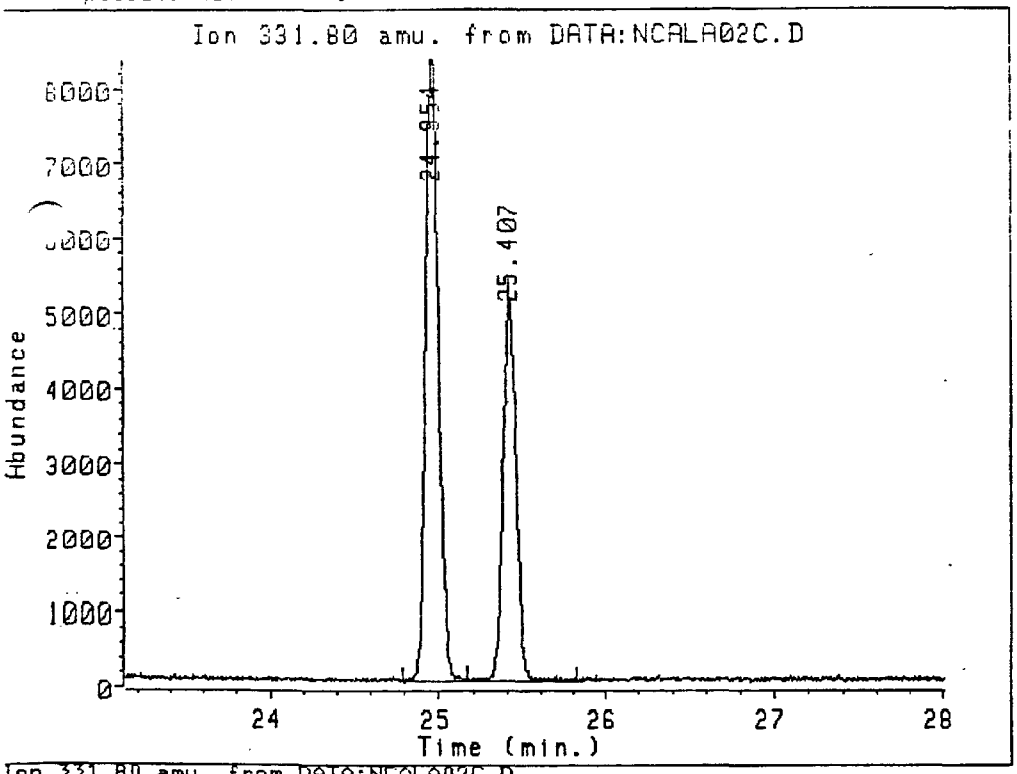
Data file: DATA:NCALA02C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 2:50 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 3

021531



Ion 331.80 amu. from DATA:NCALA02C.D
CLP CALIBRATION SOLN II

03221746

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.954	BV	0.144	436747	24.784	25.170
2	25.407	VB	0.152	270270	25.170	25.821

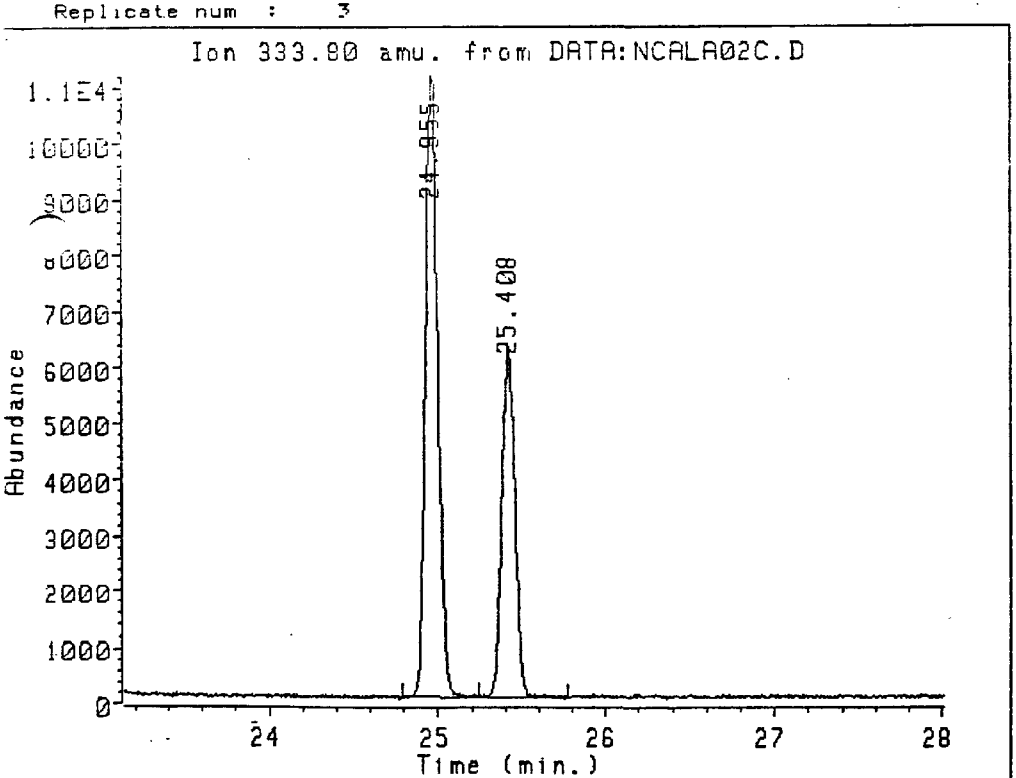
Data file: DATA:NCALA02C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN II
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 2:50 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 2
Replicate num : 3

021532



Ion 333.80 amu. from DATA:NCALA02C.D
CL ALIBRATION SOLN II

03221747

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.955	BV	0.145	557568	24.784	25.242
2	25.408	VB	0.137	328103	25.242	25.773

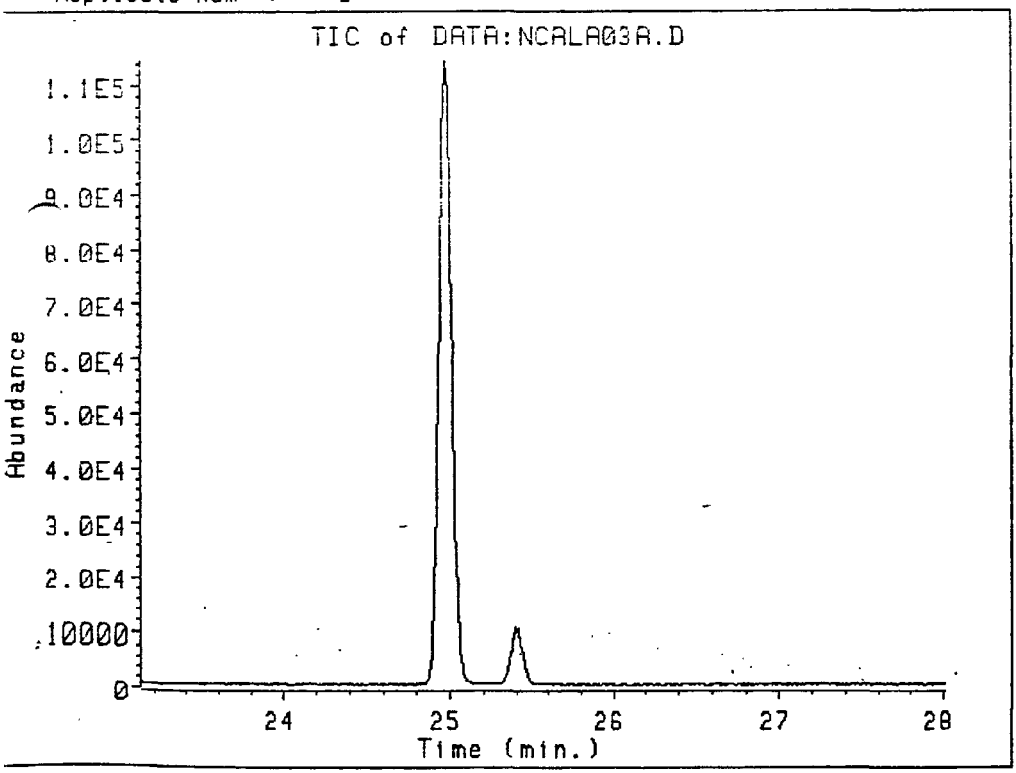
Data file: DATA:NCALA03A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 3:22 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 1

021533



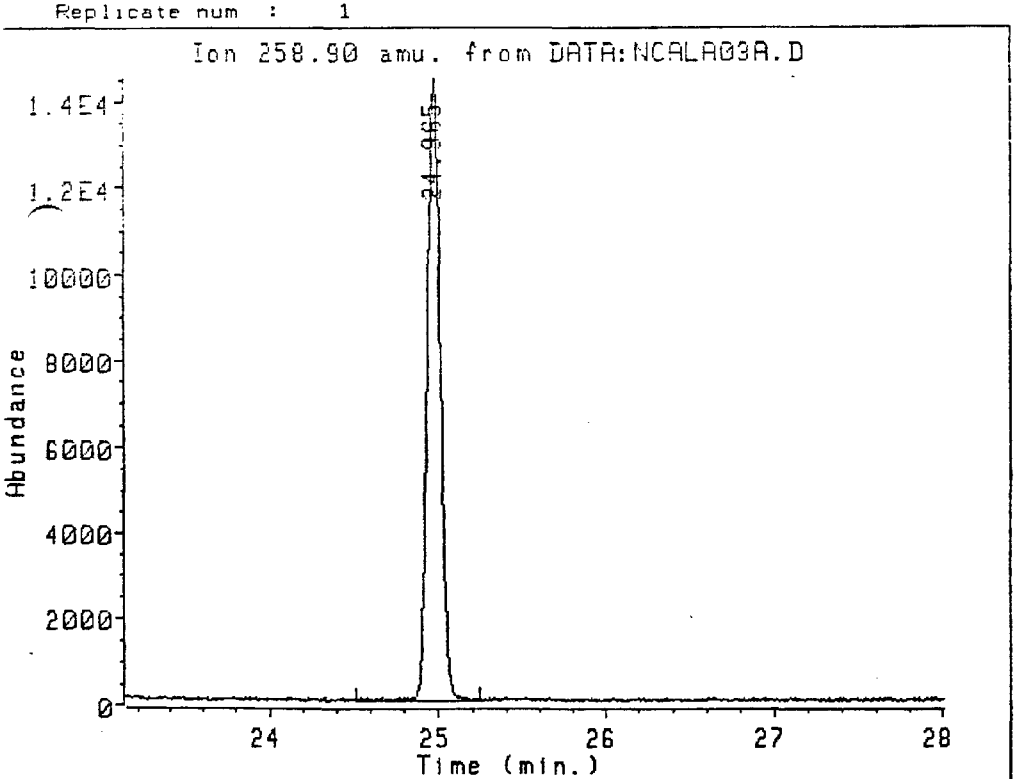
Data file: DATA:NCALA03A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 3:22 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 1

021534



Ion 258.90 amu. from DATA:NCALA03A.D
CL CALIBRATION SOLN III

03221749

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.965	BV	0.090	761126	24.519	25.242

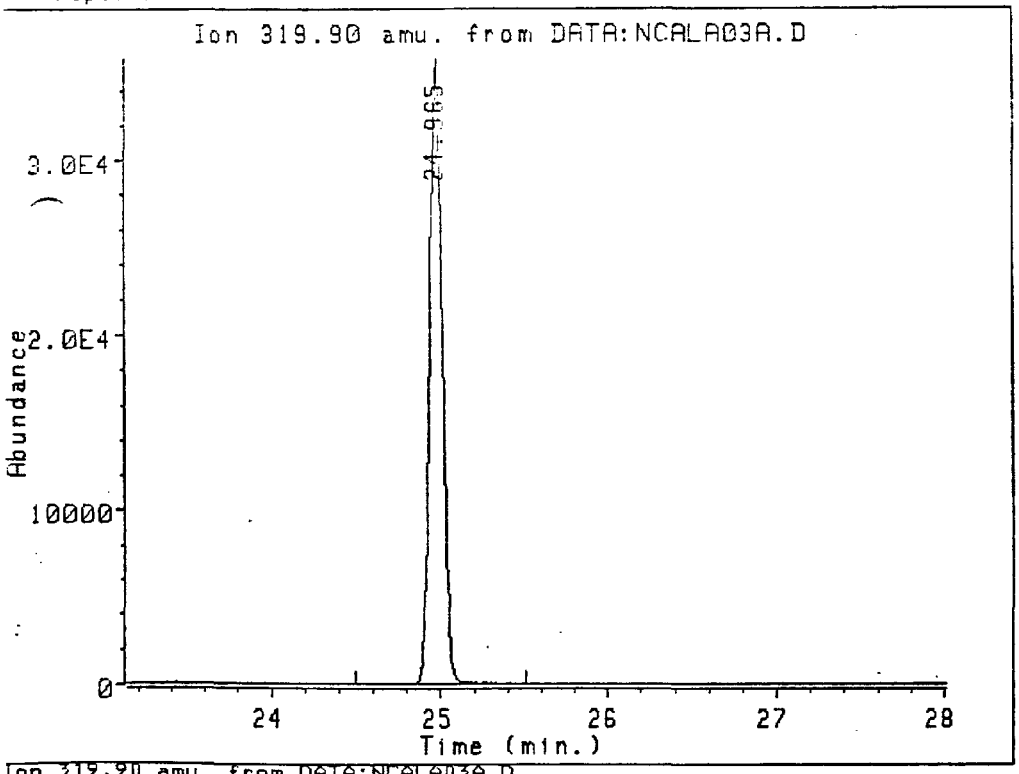
Data file: DATA:NCALA03A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 3:22 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 1

021535



Ion 319.90 amu. from DATA:NCALA03A.D
CL ALIBRATION SOLN III

03221750

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.965	BB	0.090	1874520	24.497	25.508

3 2385

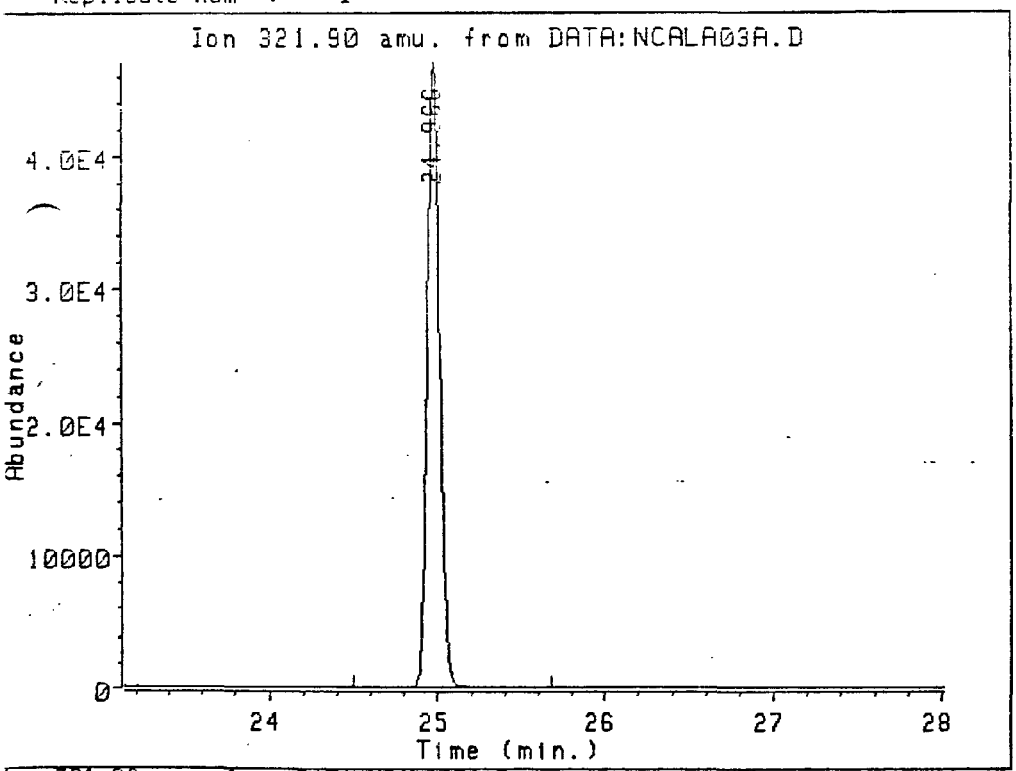
Data file: DATA:NCALA03A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 3:22 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 1

0215536



Ion 321.90 amu. from DATA:NCALA03A.D
CLP CALIBRATION SOLN III

03221751

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.966	BB	0.154	2435132	24.497	25.677

53

3 2386

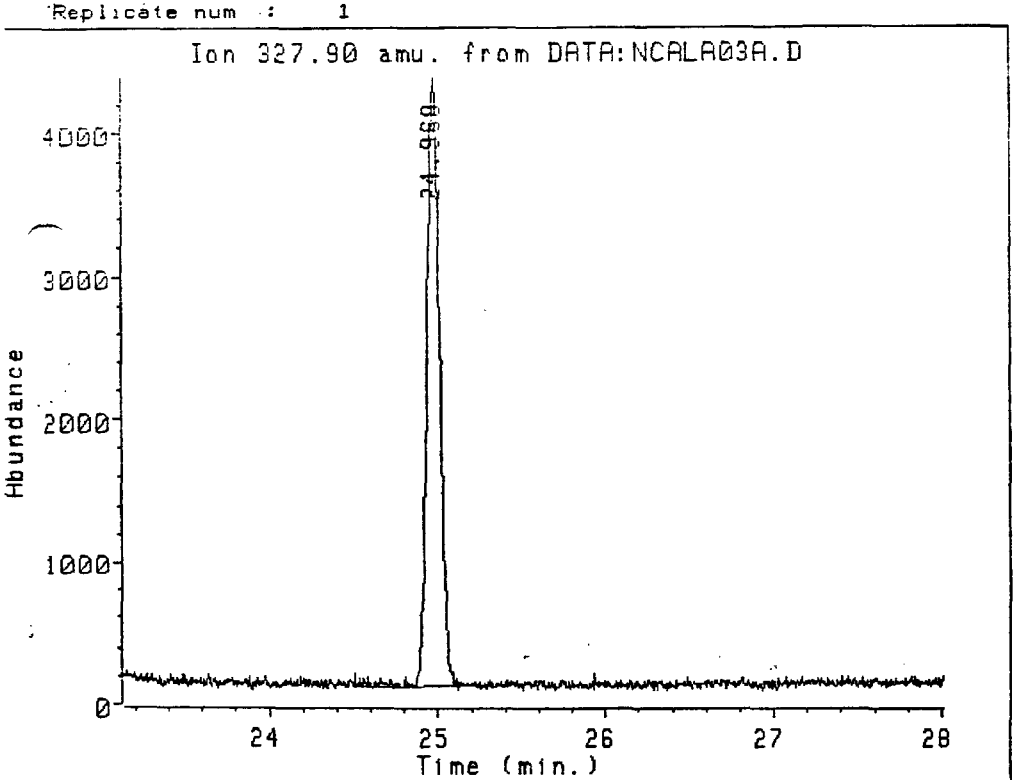
Data file: DATA:NCALA03A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 3:22 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 1

021537



Ion 327.90 amu. from DATA:NCALA03A.D
CLP CALIBRATION SOLN III

03221752

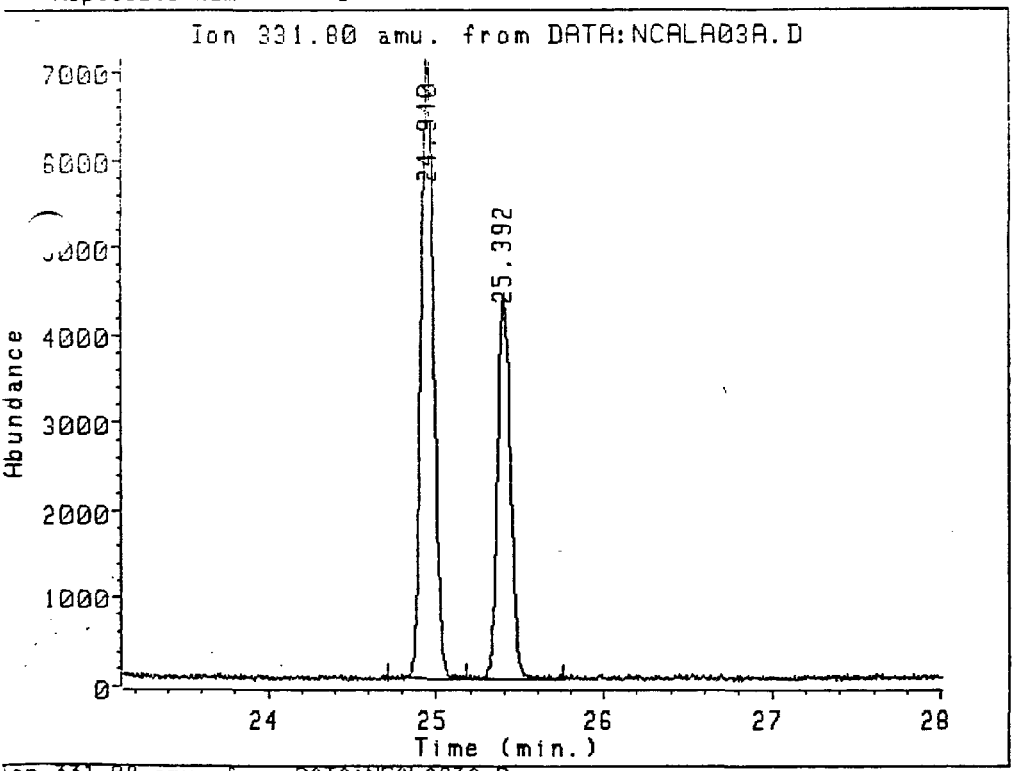
Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.968	BB	0.140	225524	24.507	25.315

Data file: DATA:NCALA03A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 3:22 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 1



Ion 331.80 amu. from DATA:NCALA03A.D
CLP CALIBRATION SOLN III

03221753

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.940	BV	0.087	365137	24.712	25.177
2	25.392	VB	0.128	228821	25.177	25.749

55

3 2388

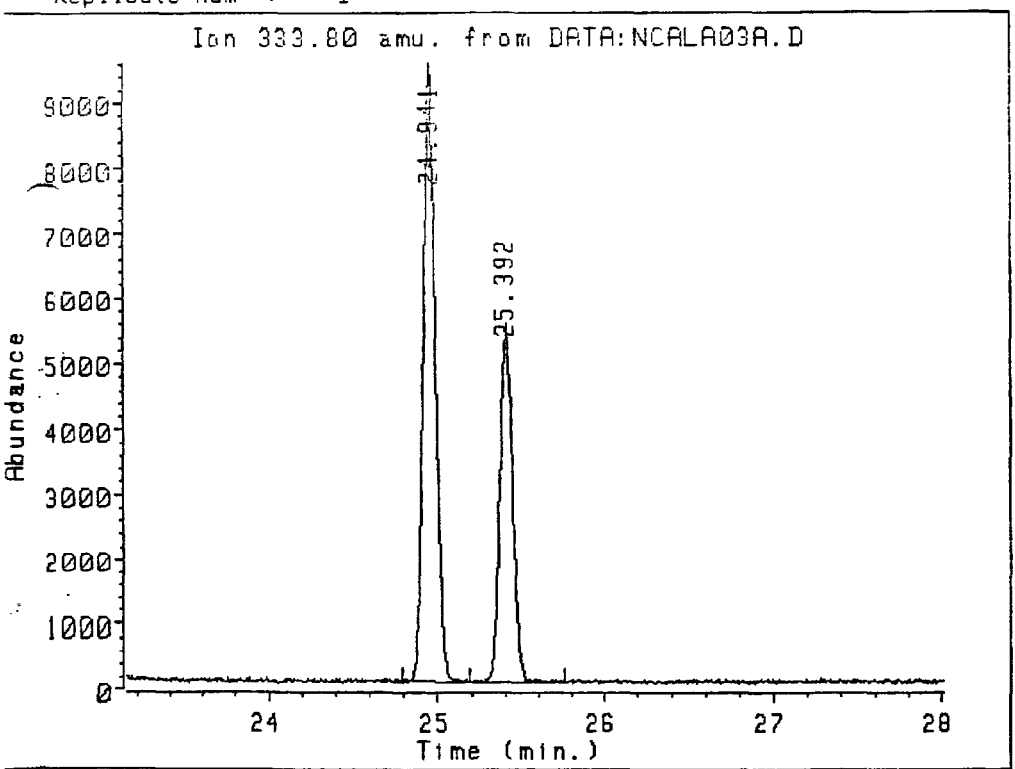
Data file: DATA:NCALA03A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 3:22 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 1

021530



Ic 333.80 amu. from DATA:NCALA03A.D
CL CALIBRATION SOLN III

03221754

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.941	BV	0.155	460954	24.784	25.185
2	25.392	PB	0.131	280484	25.185	25.749

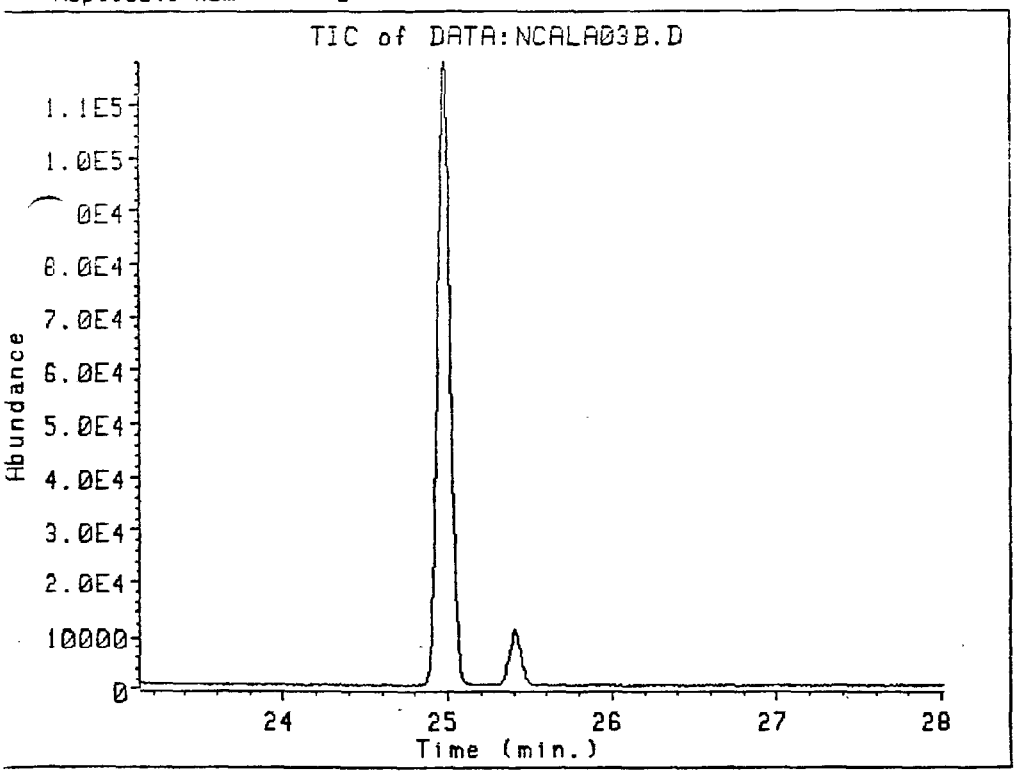
Data file: DATA:NCALA03B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 3:54 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 2

021540



57

3 2390

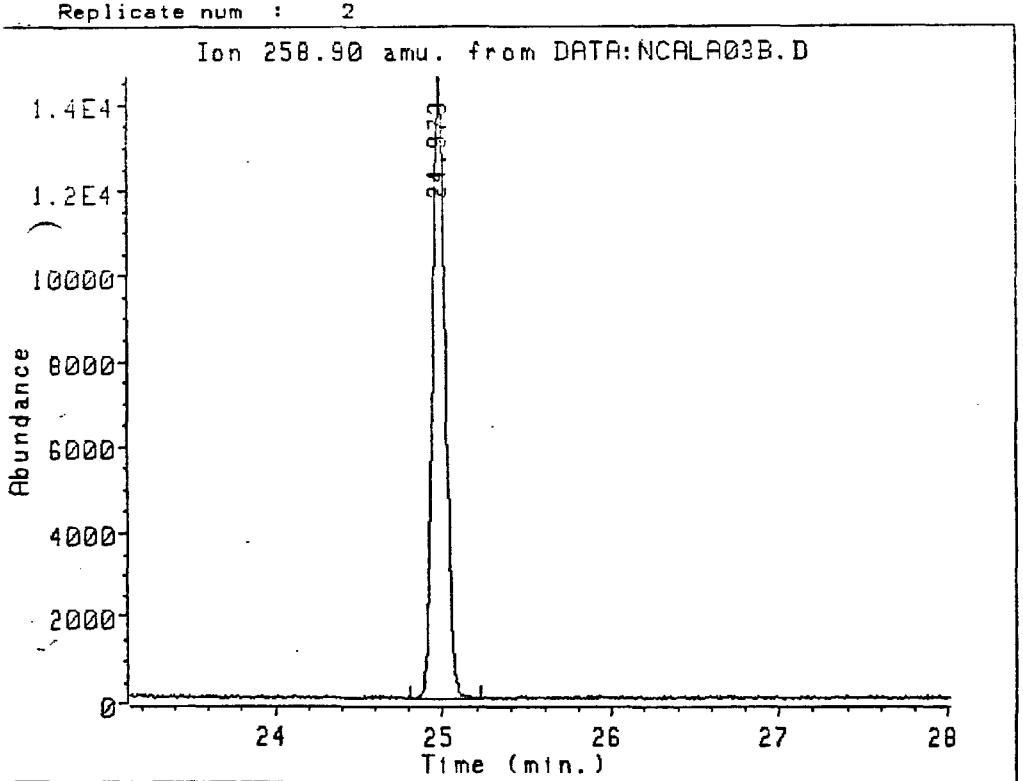
Data file: DATA:NCALA03B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 3:54 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 2

021541



Ion 258.90 amu. from DATA:NCALA03B.D
CL CALIBRATION SOLN III

03221756

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.973	BB	0.157	767960	24.808	25.225

58

3 2391

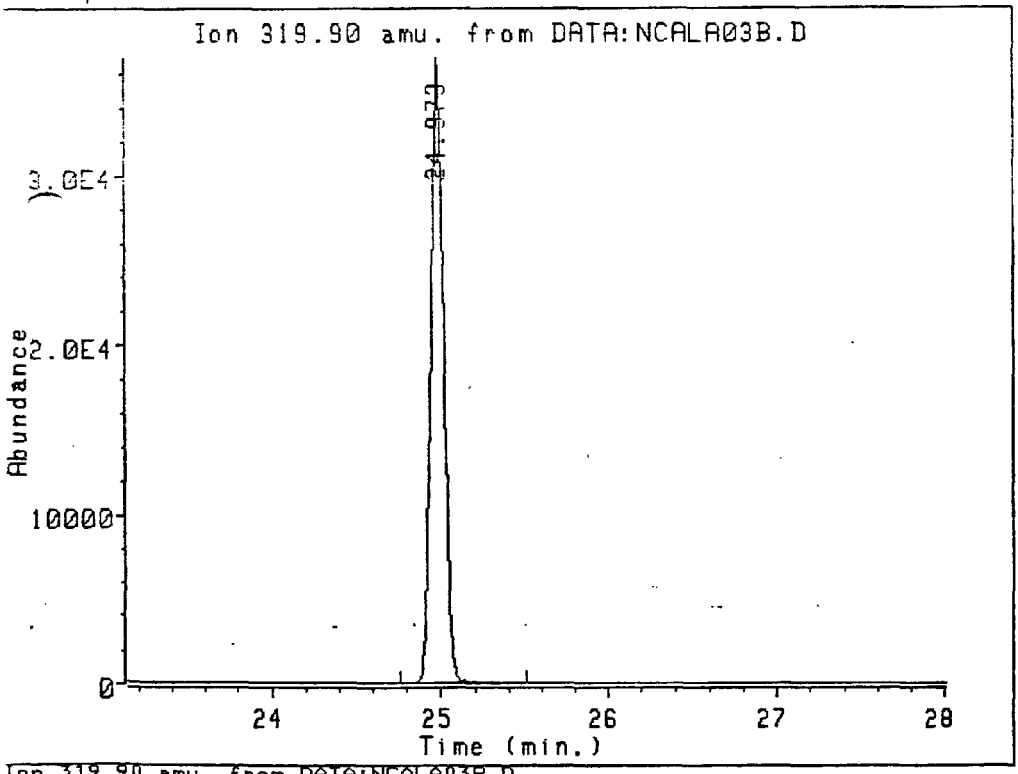
Data file: DATA:NCALA03B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 3:54 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 2

021542



Ion 319.90 amu. from DATA:NCALA03B.D
CL :ALIBRATION SOLN III

03221757

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.973	BB	0.141	1930166	24.760	25.508

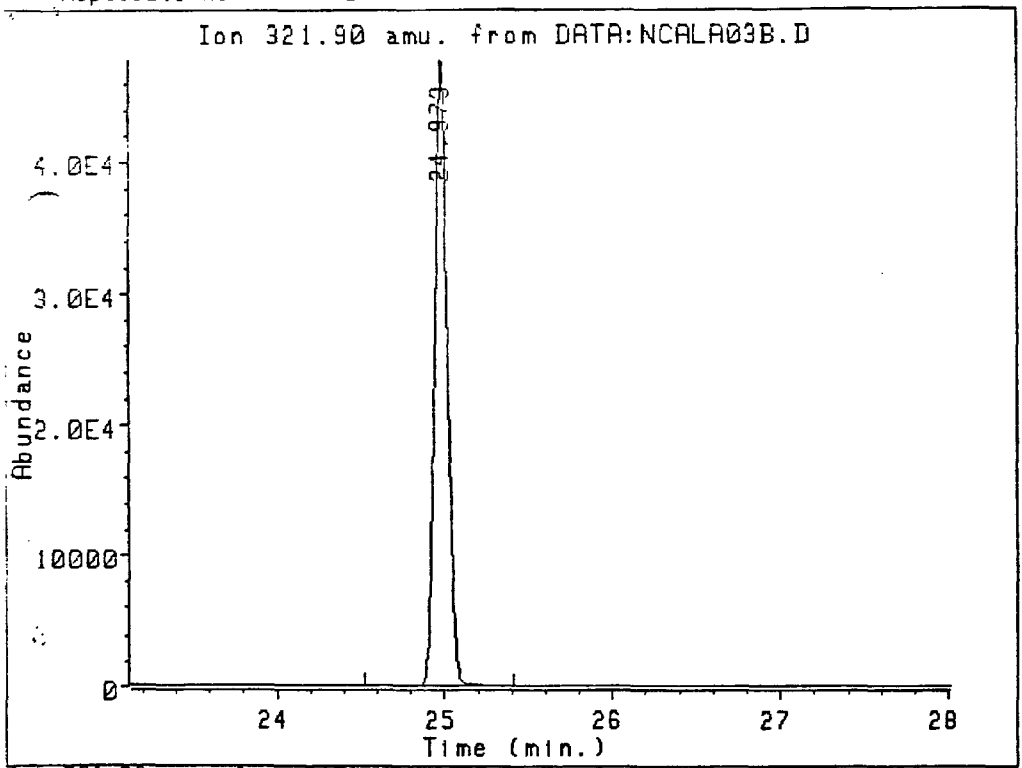
Data file: DATA:NCALA03B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 3:54 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 2

021543



Ion 321.90 amu. from DATA:NCALA03B.D
CI CALIBRATION SOLN III

03221758

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.973	BB	0.143	2487902	24.524	25.411

6c

3 2393

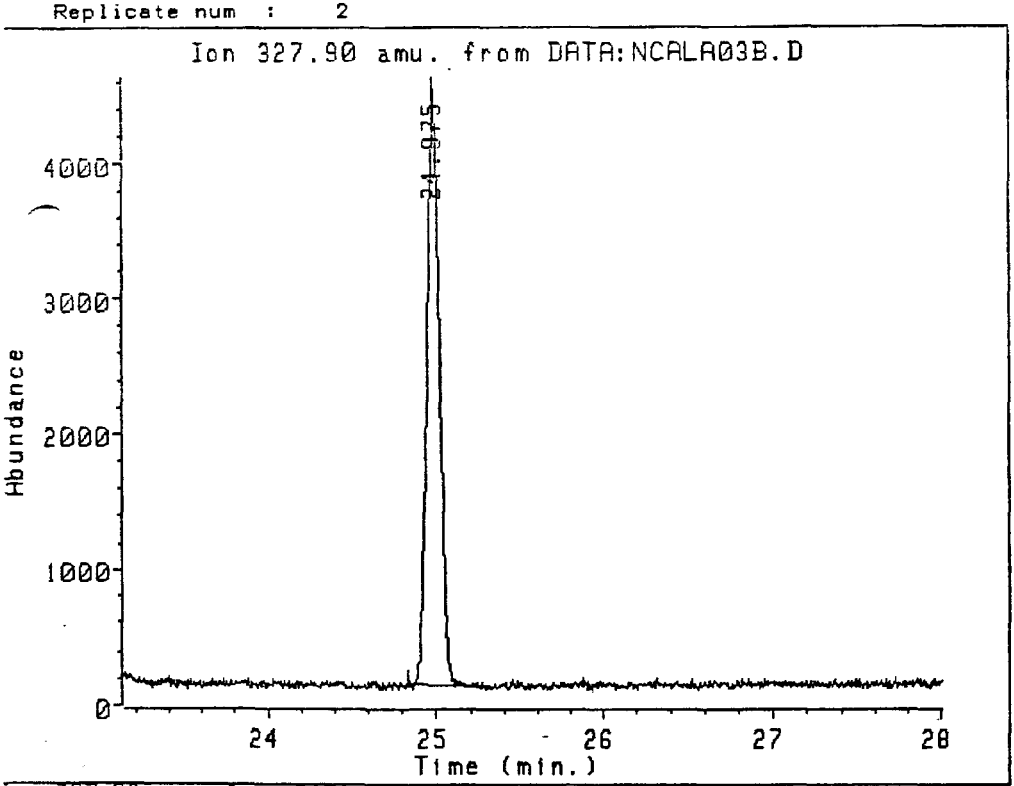
Data file: DATA:NCALA03B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 3:54 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 2

021544



Ion 327.90 amu. from DATA:NCALA03B.D
CL CALIBRATION SOLN III

03221759

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.975	BB	0.143	225238	24.832	25.315

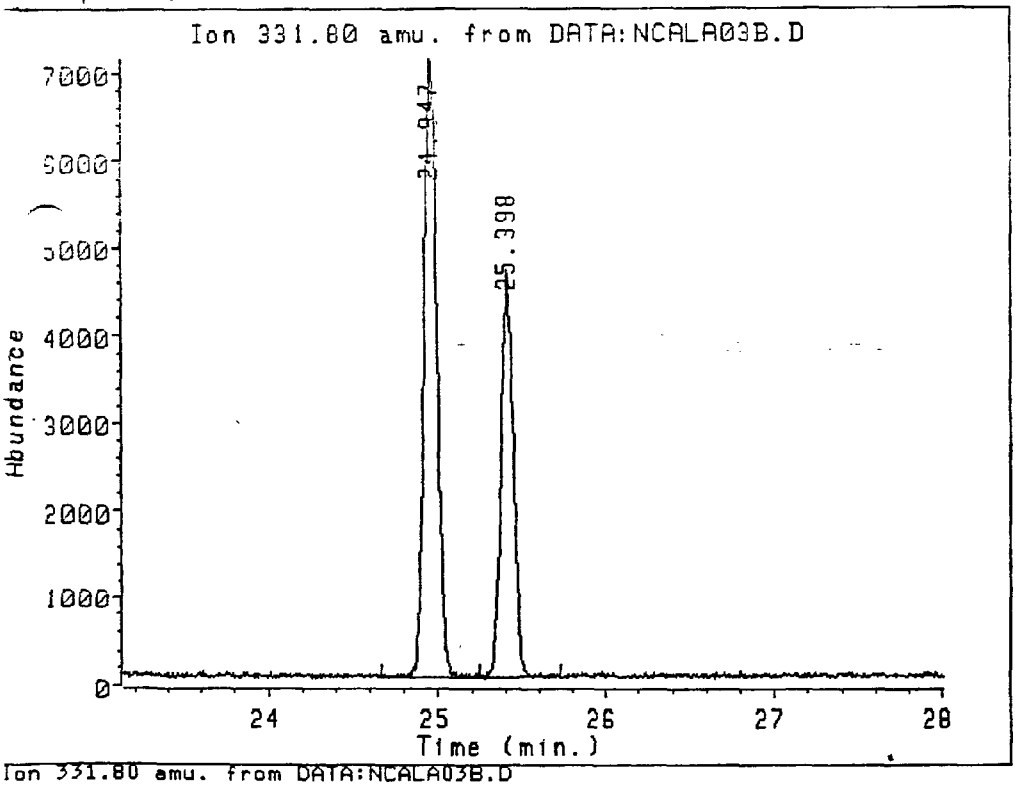
Data file: DATA:NCALA03B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 3:54 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 2

021545



Ion 331.80 amu. from DATA:NCALA03B.D
CLP CALIBRATION SOLN III

03221760

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.947	BV	0.147	377126	24.663	25.242
2	25.398	VB	0.086	230121	25.242	25.725

62

3 2395

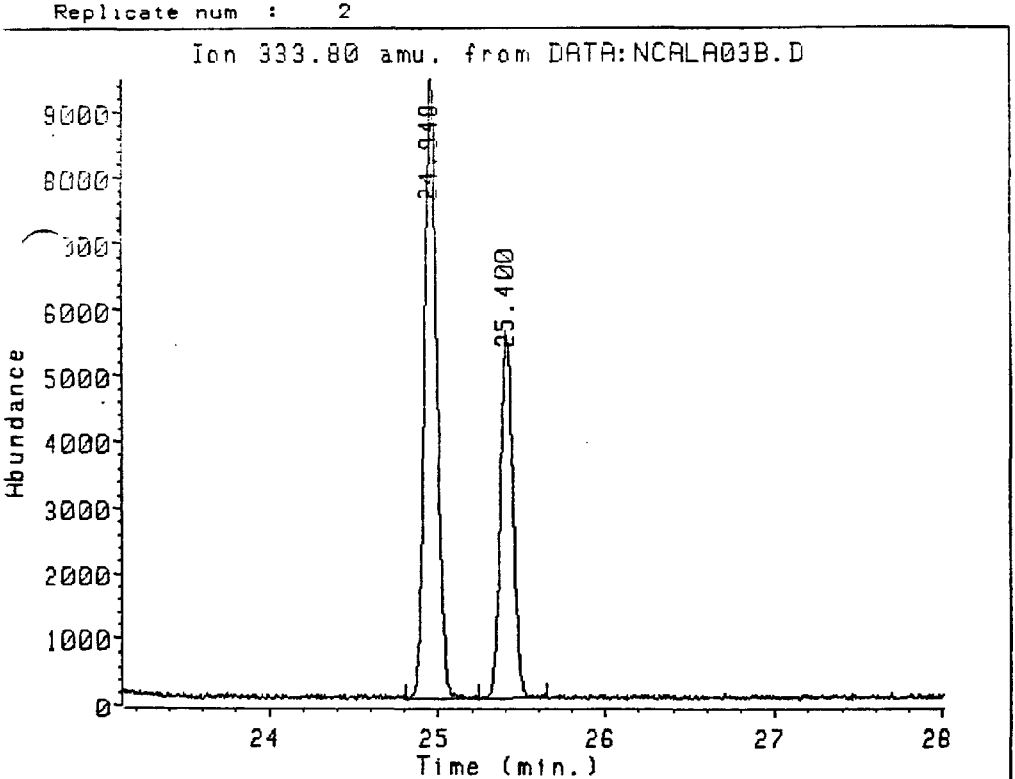
Data file: DATA:NCALA03B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 3:54 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 2

021546



Ion 333.80 amu. from DATA:NCALA03B.D
CLP CALIBRATION SOLN III

03221761

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.948	BV	0.147	477220	24.808	25.242
2	25.400	PB	0.137	283684	25.242	25.652

03

3 2396

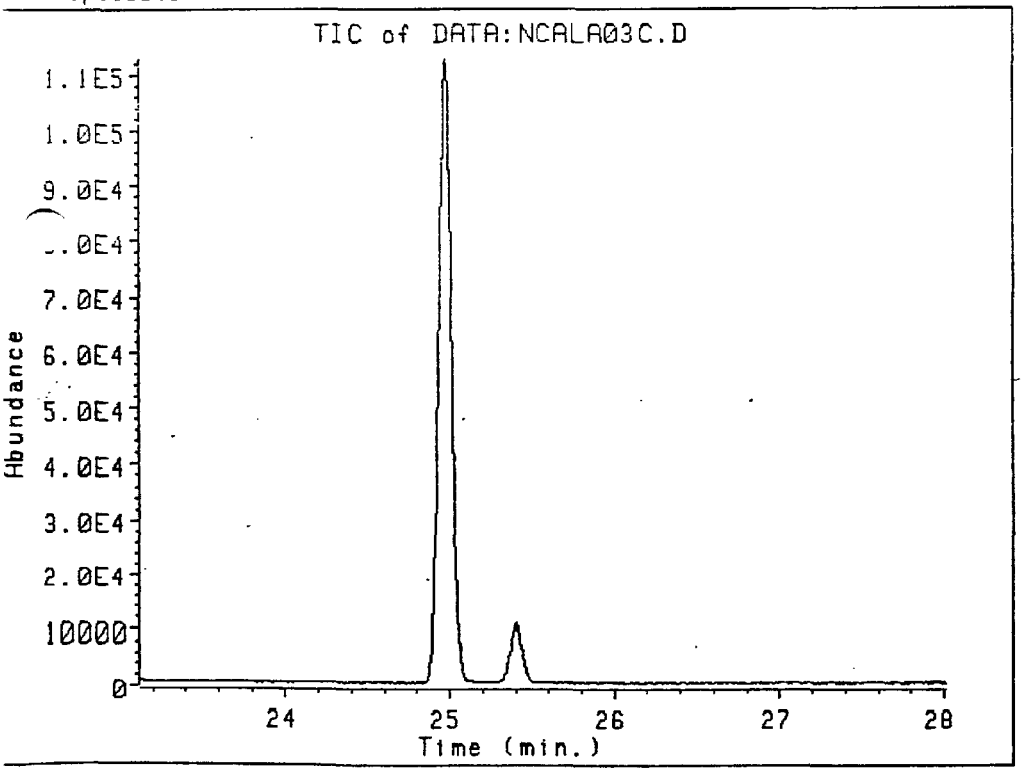
Data file: DATA:NCALA03C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 4:26 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 3

021547



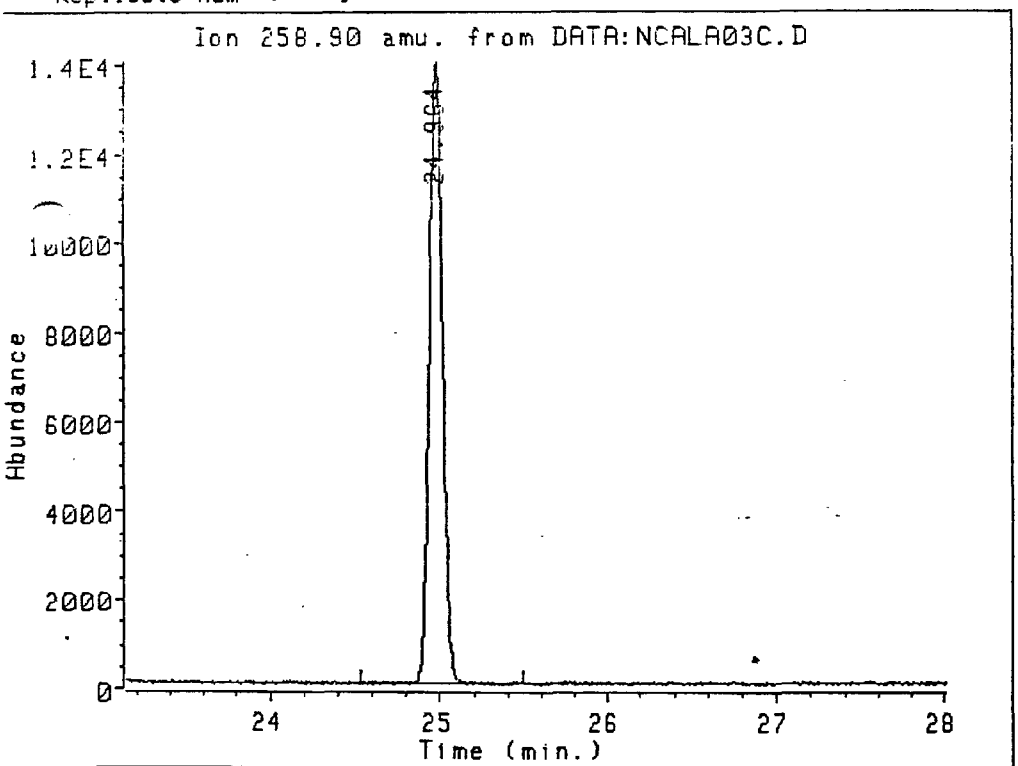
03221762

Data file: DATA:NCALA03C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 4:26 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 3



Ion 258.90 amu. from DATA:NCALA03C.D
CLP CALIBRATION SOLN III

03221763

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.964	BB	0.090	748534	24.531	25.484

021548

65

3 2398

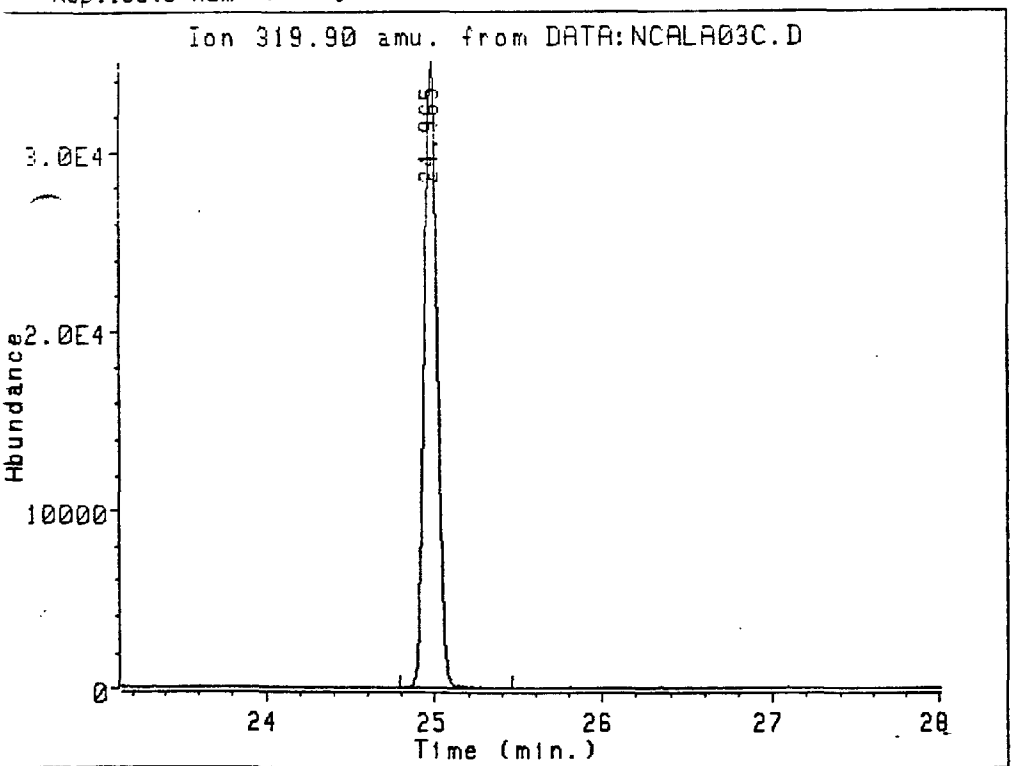
Data file: DATA:NCALA03C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 4:26 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 3

021549



Ion 319.90 amu. from DATA:NCALA03C.D
CL ALIBRATION SOLN III

03221764

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.965	BB	0.091	1860633	24.784	25.460

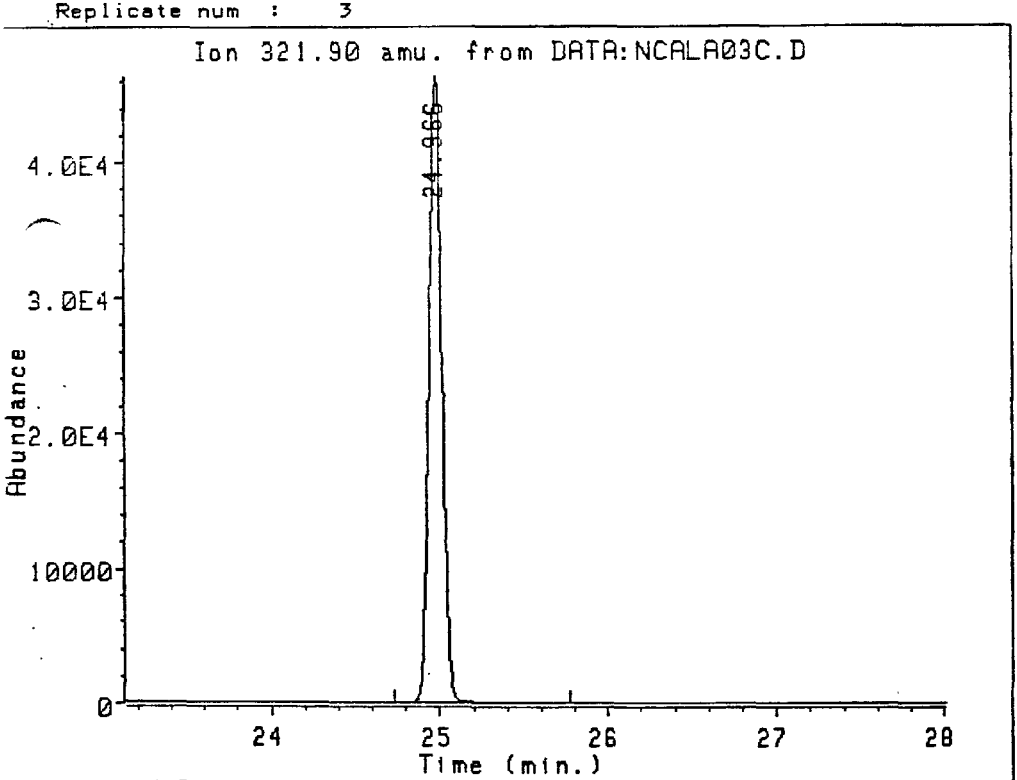
Data file: DATA:NCALA03C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 4:26 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 3

021550



Ion 321.90 amu. from DATA:NCALA03C.D
CLP CALIBRATION SOLN III

03221765

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.966	BB	0.141	2416488	24.736	25.773

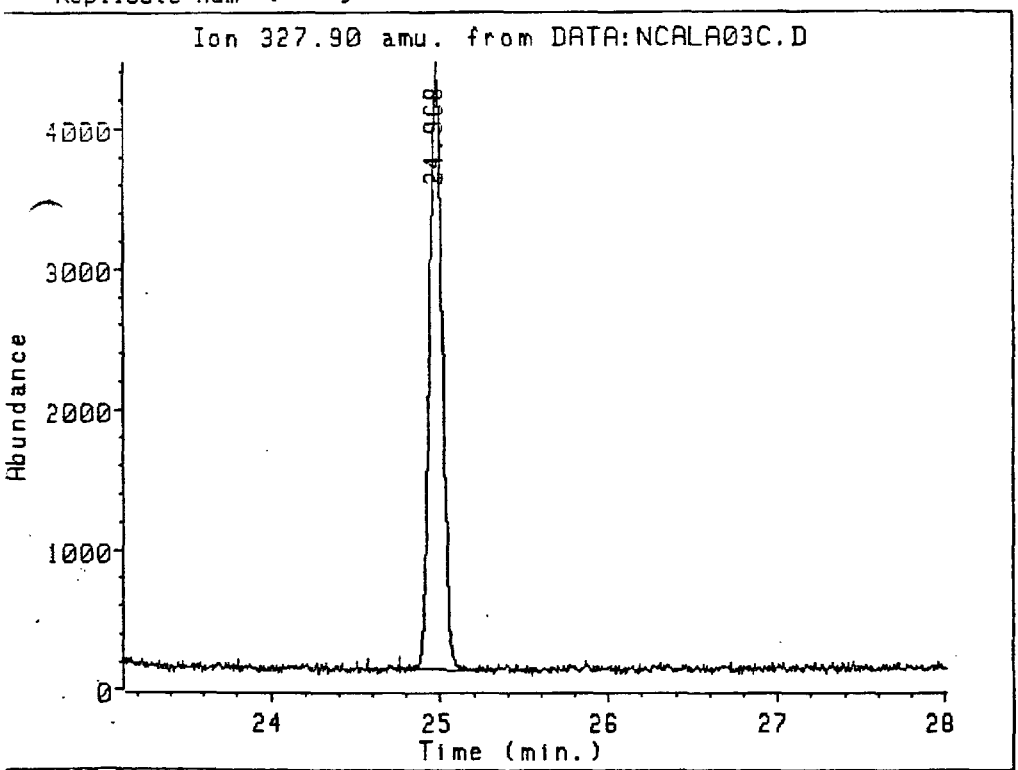
Data file: DATA:NCALA03C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 4:26 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 3

021551



Ion 327.90 amu. from DATA:NCALA03C.D
CL ALIBRATION SOLN III

03221766

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.968	BB	0.152	221614	24.760	25.315

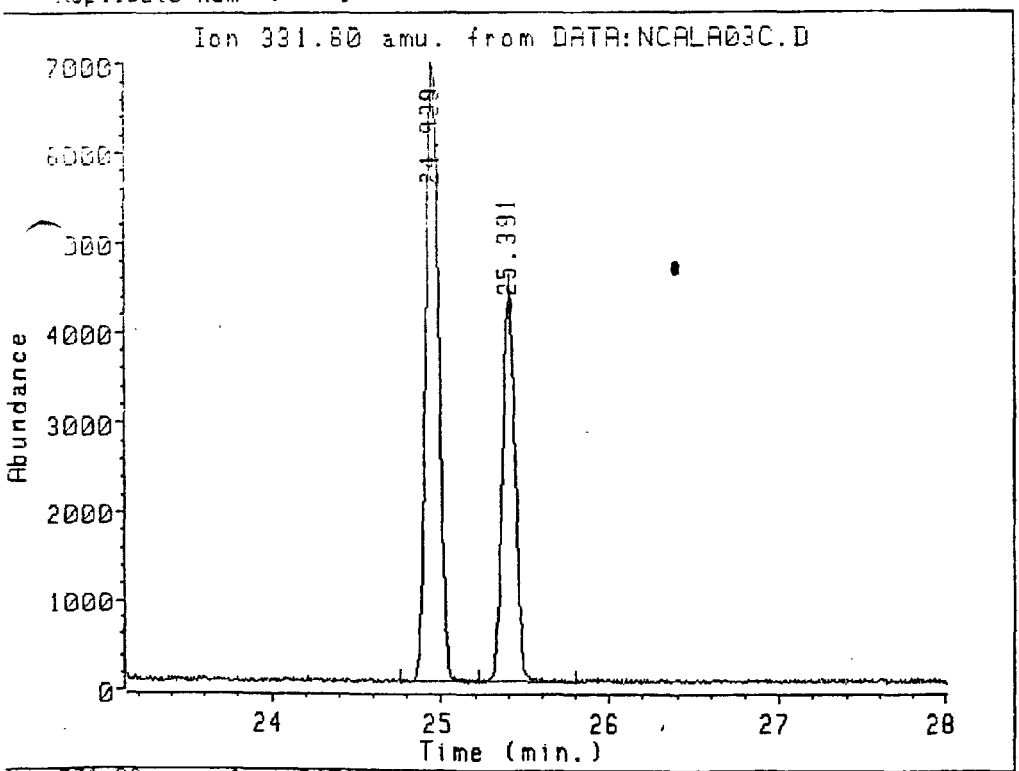
Data file: DATA:NCALA03C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 4:26 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 3

021552



Ion 331.80 amu. from DATA:NCALA03C.D
CLP CALIBRATION SOLN III

03221767

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.939	BV	0.087	362437	24.760	25.218
2	25.391	VB	0.126	226614	25.218	25.797

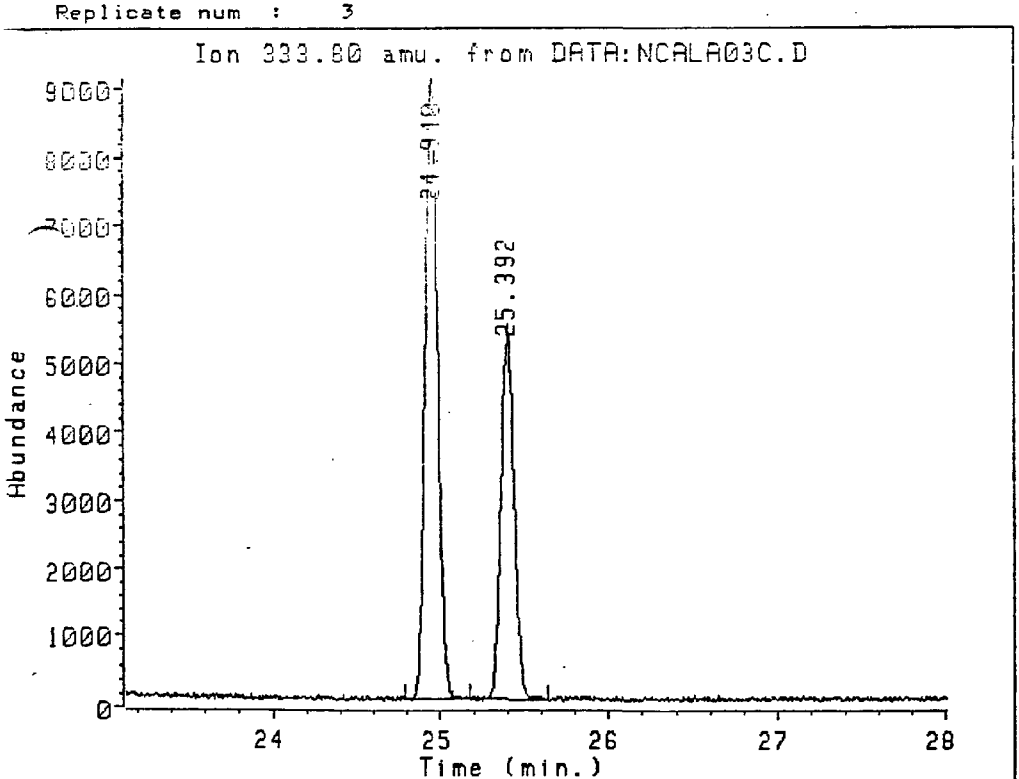
Data file: DATA:NCALA03C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN III
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 4:26 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 3
Replicate num : 3

021553



Ion 333.80 amu. from DATA:NCALA03C.D
CLP CALIBRATION SOLN III

03221768

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.940	BV	0.087	455495	24.784	25.179
2	25.392	PB	0.124	279459	25.179	25.638

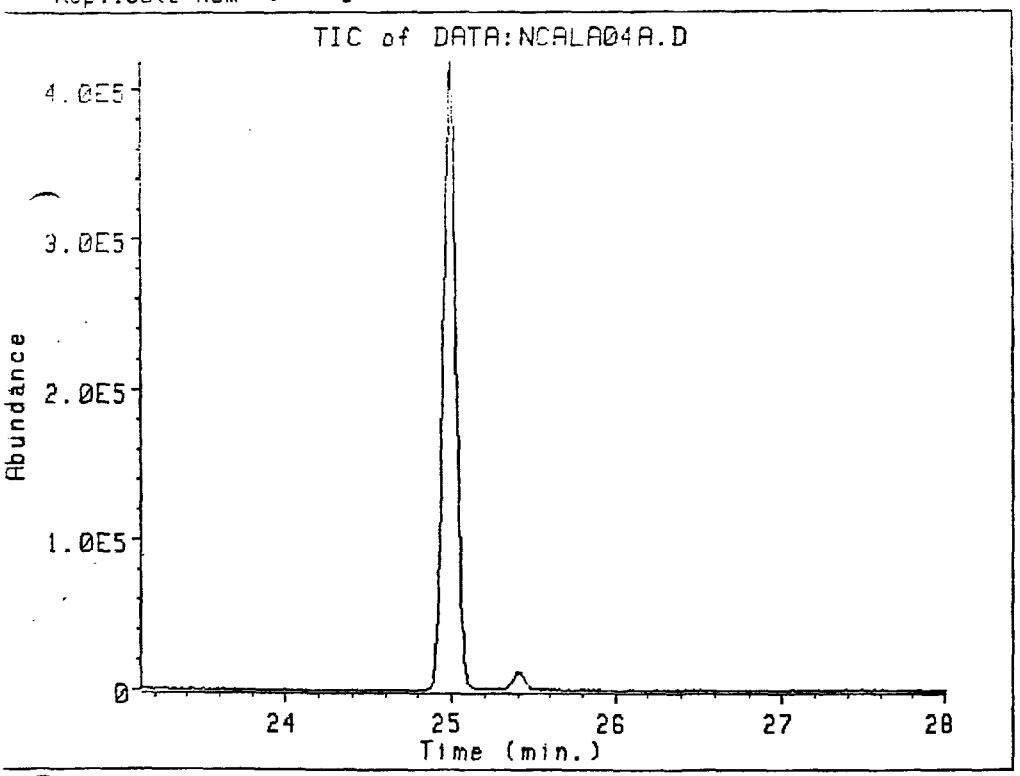
Data file: DATA:NCALA04A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 4:58 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 1

021554



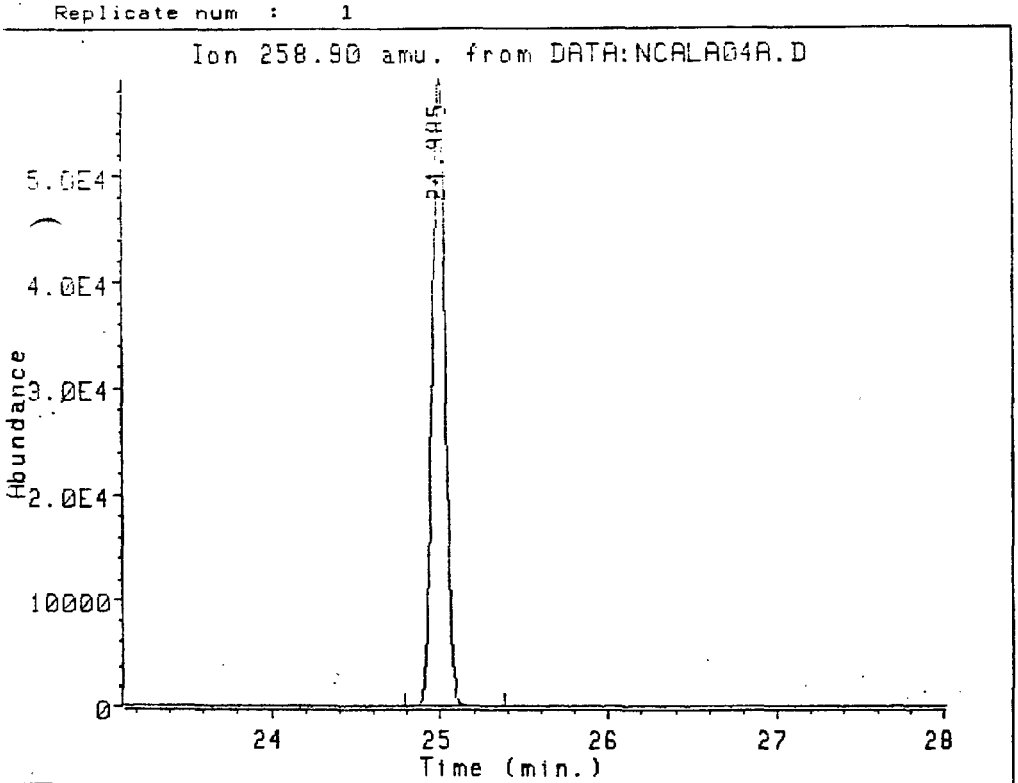
Data file: DATA:NCALA04A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 4:58 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 1

021555



Ion 258.90 amu. from DATA:NCALA04A.D
CL ALIBRATION SOLN IV

03221770

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.985	BB	0.090	3186158	24.784	25.387

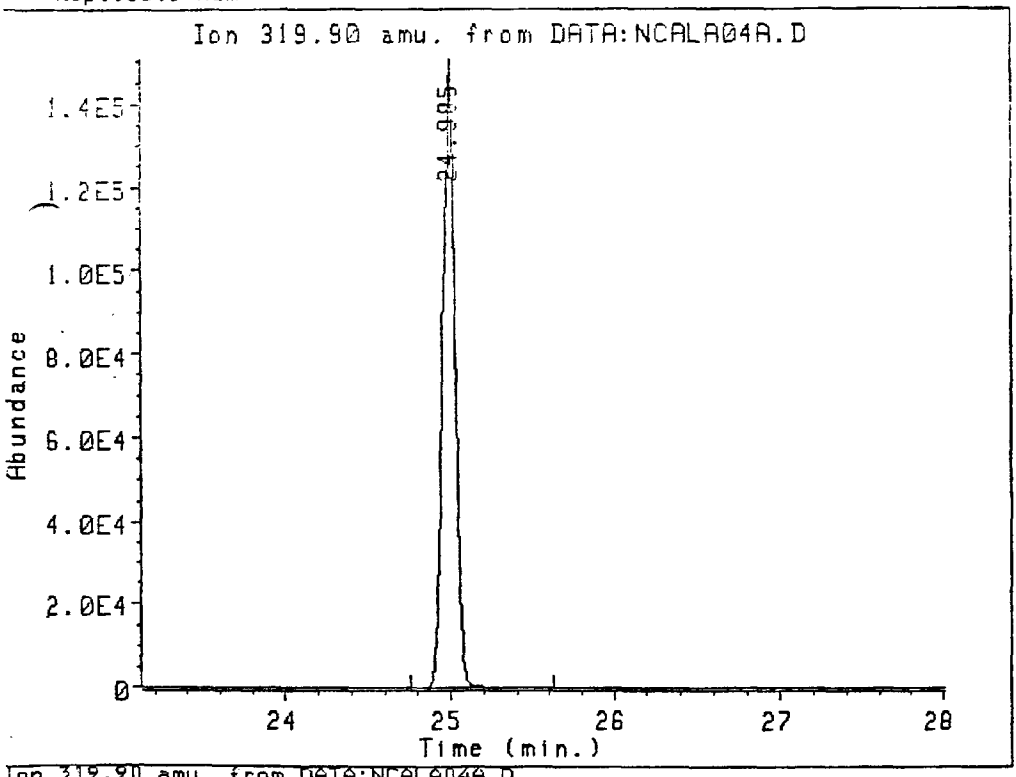
Data file: DATA:NCALA04A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 4:58 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 1

021556



Ion 319.90 amu. from DATA:NCALA04A.D
CLP CALIBRATION SOLN IV

03221771

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.985	BB	0.092	7761312	24.760	25.628

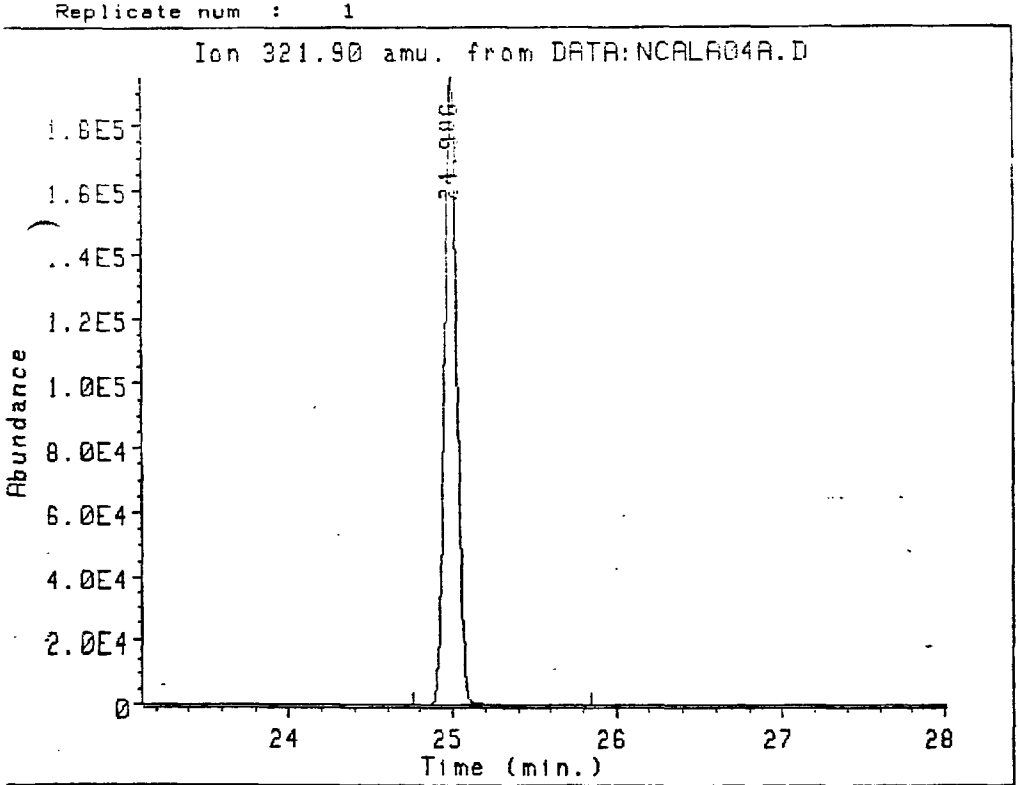
Data file: DATA:NCALA04A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 4:58 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 1

021557



Ion 321.90 amu. from DATA:NCALA04A.D
CLP CALIBRATION SOLN IV

03221772

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.986	BB	0.087	10280454	24.760	25.846

24

3 2407

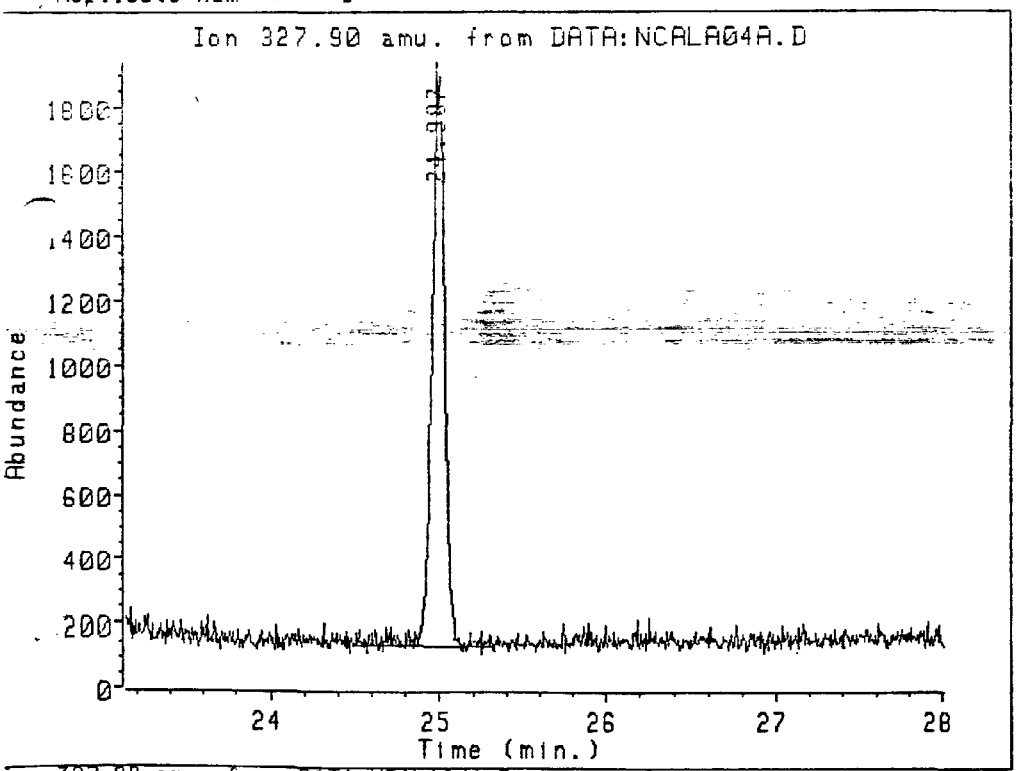
Data file: DATA:NCALA04A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 4:58 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 1

021556



Ion 327.90 amu. from DATA:NCALA04A.D
CL CALIBRATION SOLN IV

03221773

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.987	BB	0.091	96269	24.500	25.315

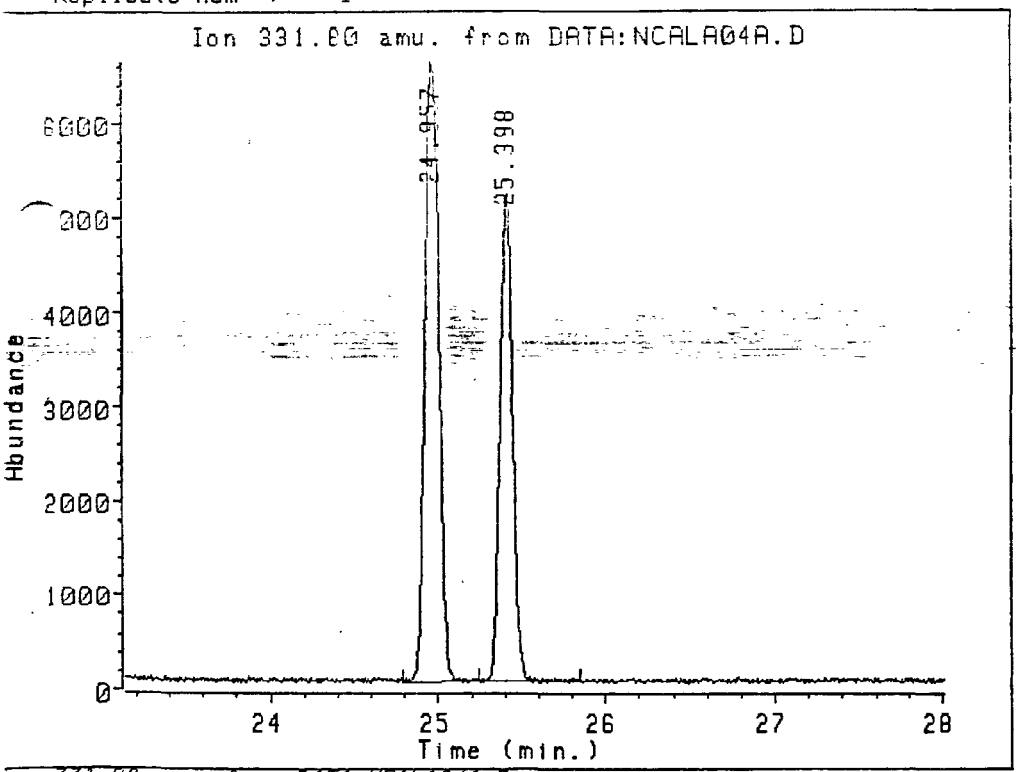
Data file: DATA:NCALA04A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 4:58 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 1

021559



Ion 331.80 amu. from DATA:NCALA04A.D
CLP CALIBRATION SOLN IV

03221774

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.957	BV	0.096	381115	24.784	25.239
2	25.398	VB	0.087	266939	25.239	25.846

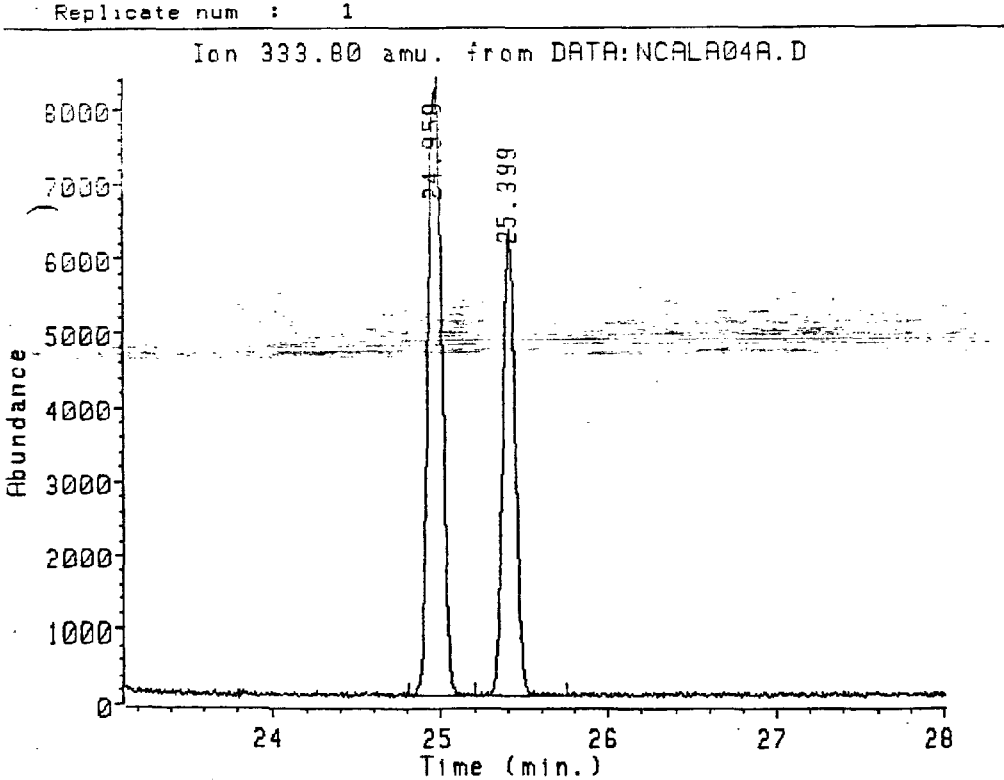
Data file: DATA:NCALA04A.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 4:58 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 1

021560



Ion 333.80 amu. from DATA:NCALA04A.D
CL CALIBRATION SOLN IV

03221775

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.958	BV	0.096	473276	24.808	25.208
2	25.399	PB	0.087	322534	25.208	25.749

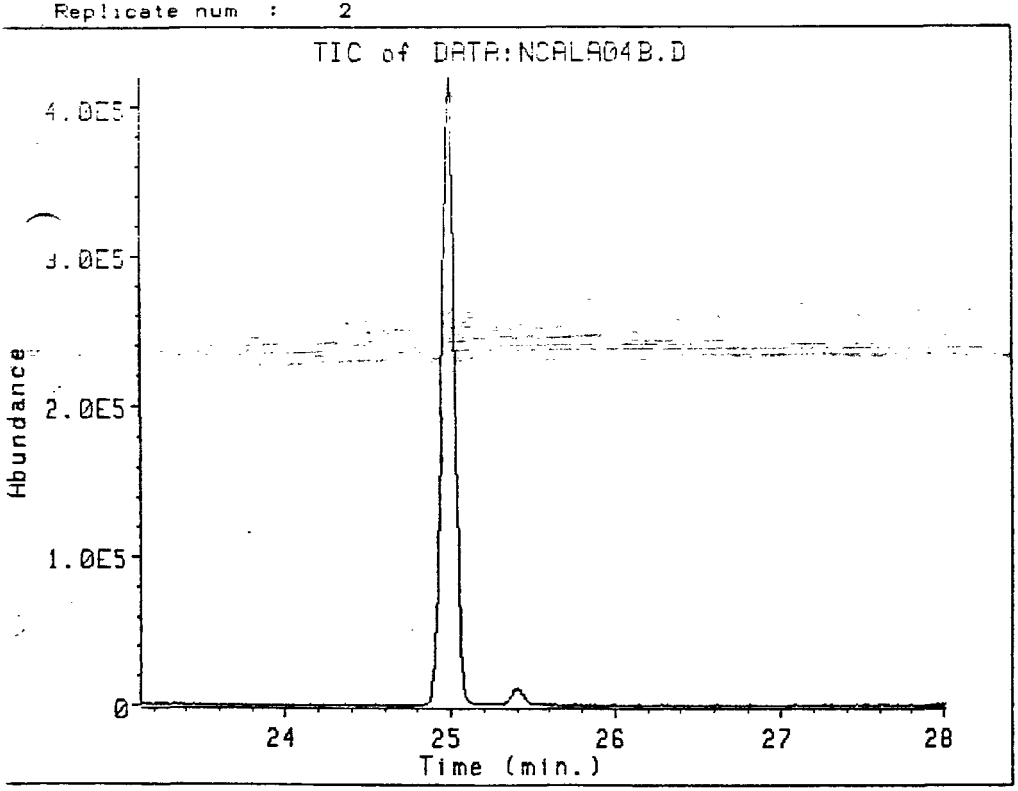
Data file: DATA:NCALA04B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 5:30 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 2

021561



78

3 2411

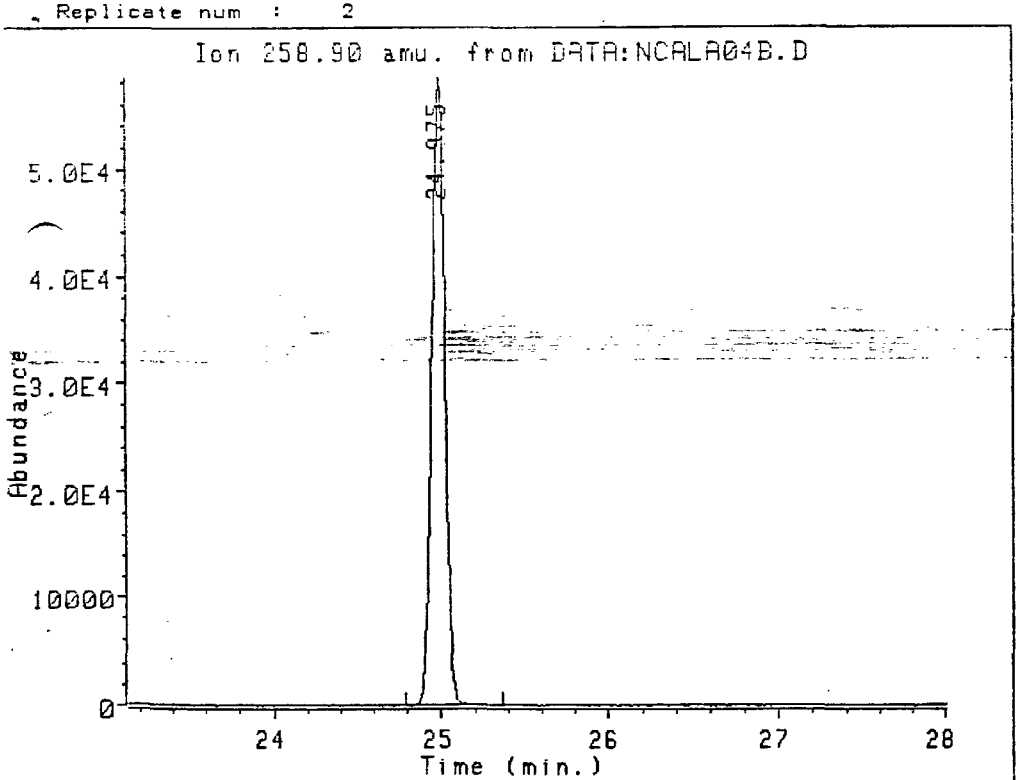
Data file: DATA:NCALA04B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 5:30 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 2

021562



Ion 258.90 amu. from DATA:NCALA04B.D
CLP CALIBRATION SOLN IV

03221777

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.975	BB	0.174	3159515	24.784	25.363

79

3 2412

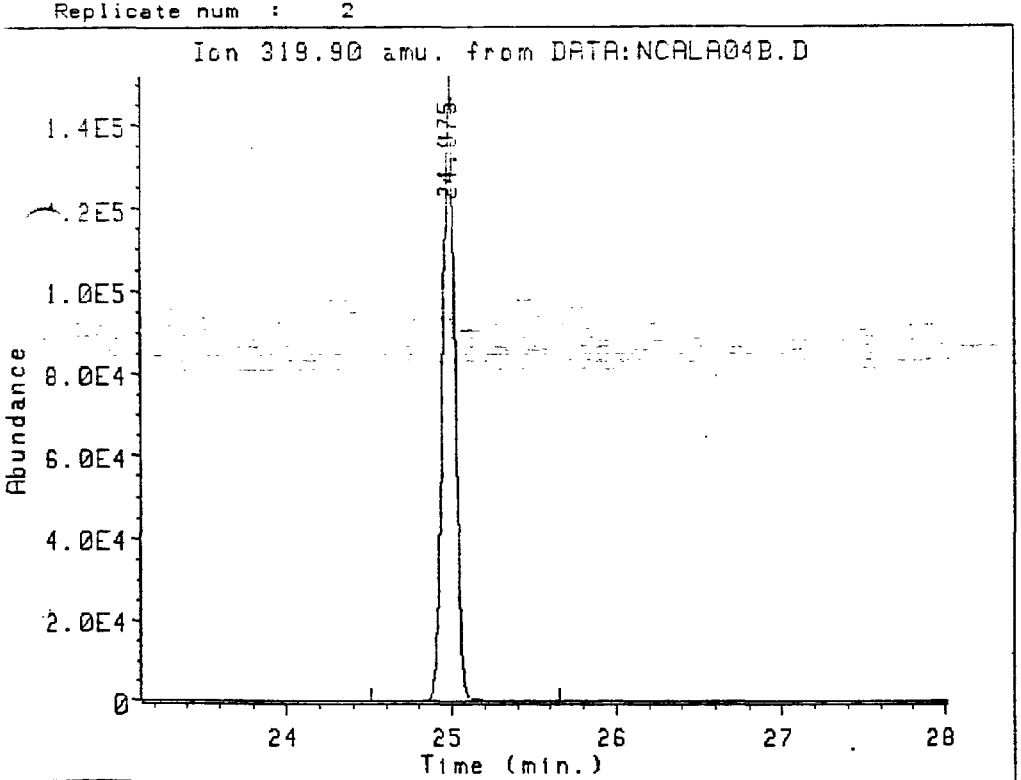
Date file: DATA:NCALA04B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 5:30 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 2

021563



Ion 319.90 amu. from DATA:NCALA04B.D
CL CALIBRATION SOLN IV

03221778

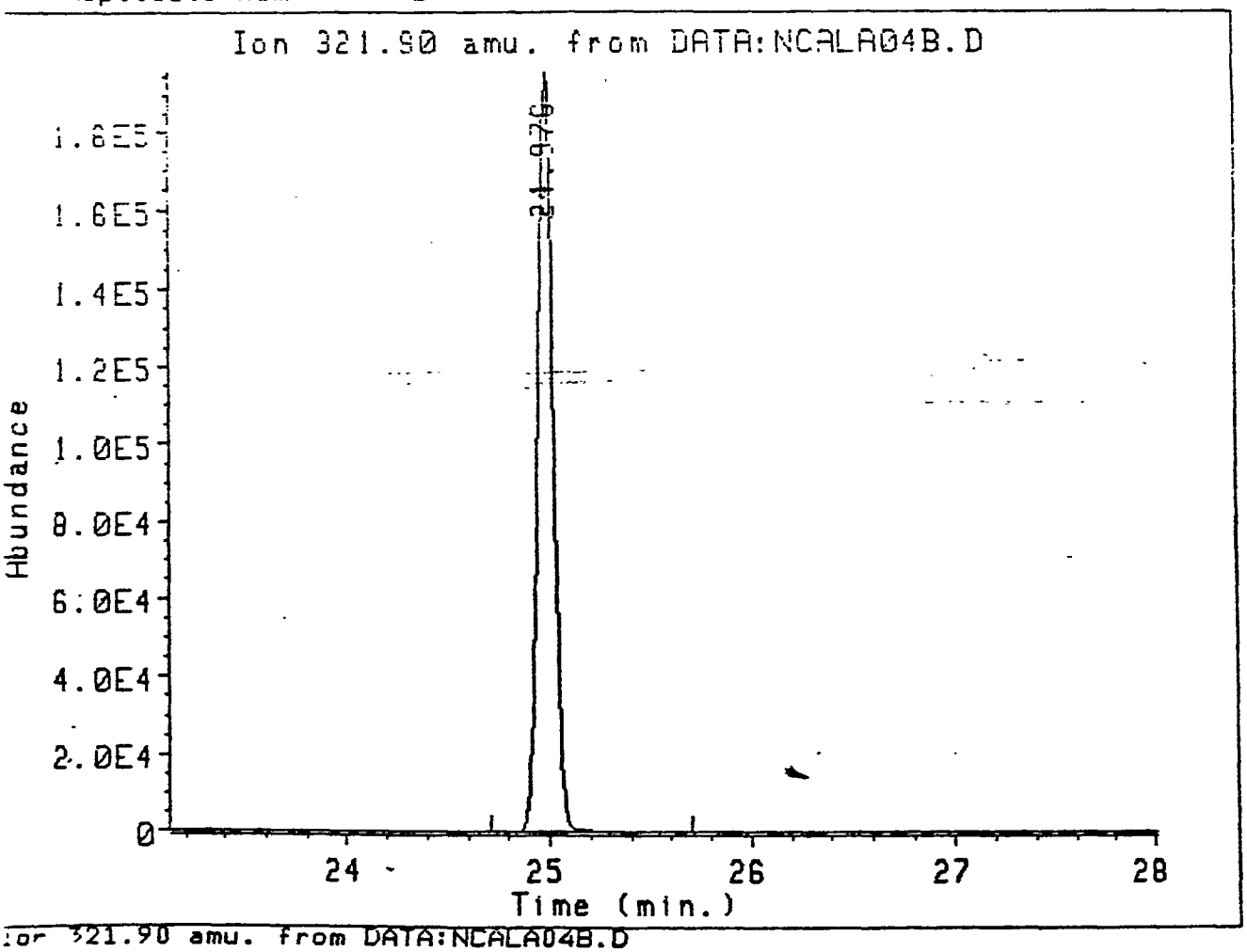
Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.975	BB	0.152	7858218	24.506	25.652

Data file: DATA:NCALA04B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 5:30 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 2



Ion 321.90 amu. from DATA:NCALA04B.D
CLP CALIBRATION SOLN IV

03221779

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.976	BB	0.161	10355753	24.711	25.700

3 2414

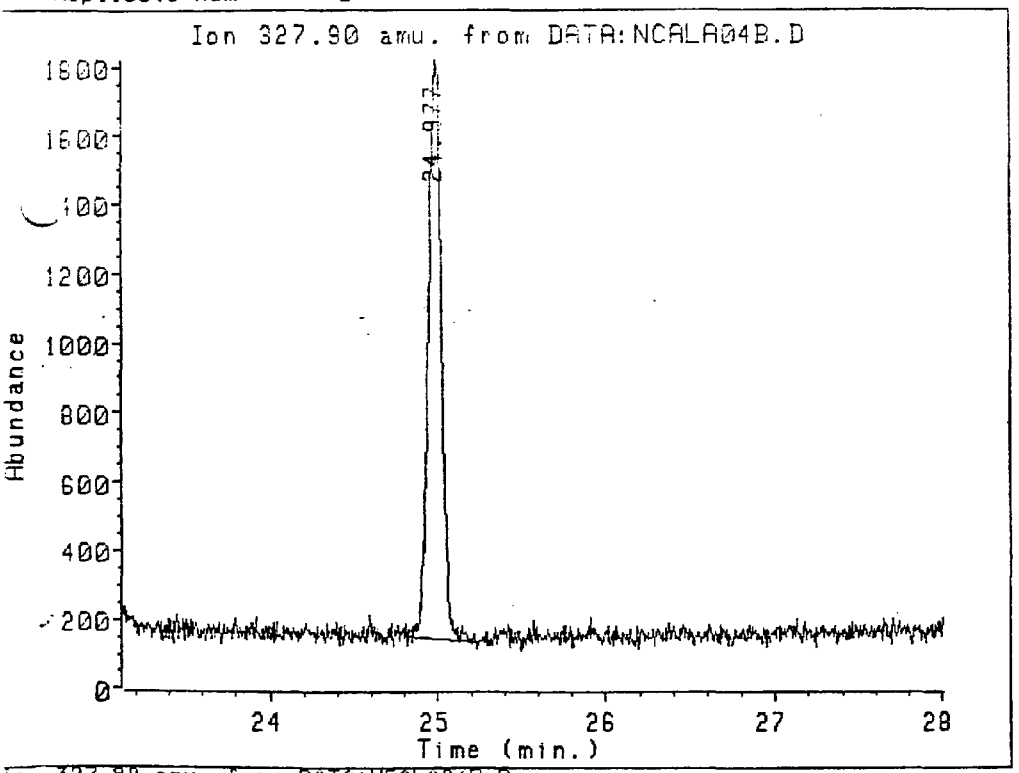
Data file: DATA:NCALA04B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 5:30 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 2

021565



Ic 327.90 amu. from DATA:NCALA04B.D
CLP CALIBRATION SOLN IV

03221760

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.977	BB	0.124	91642	24.808	25.228

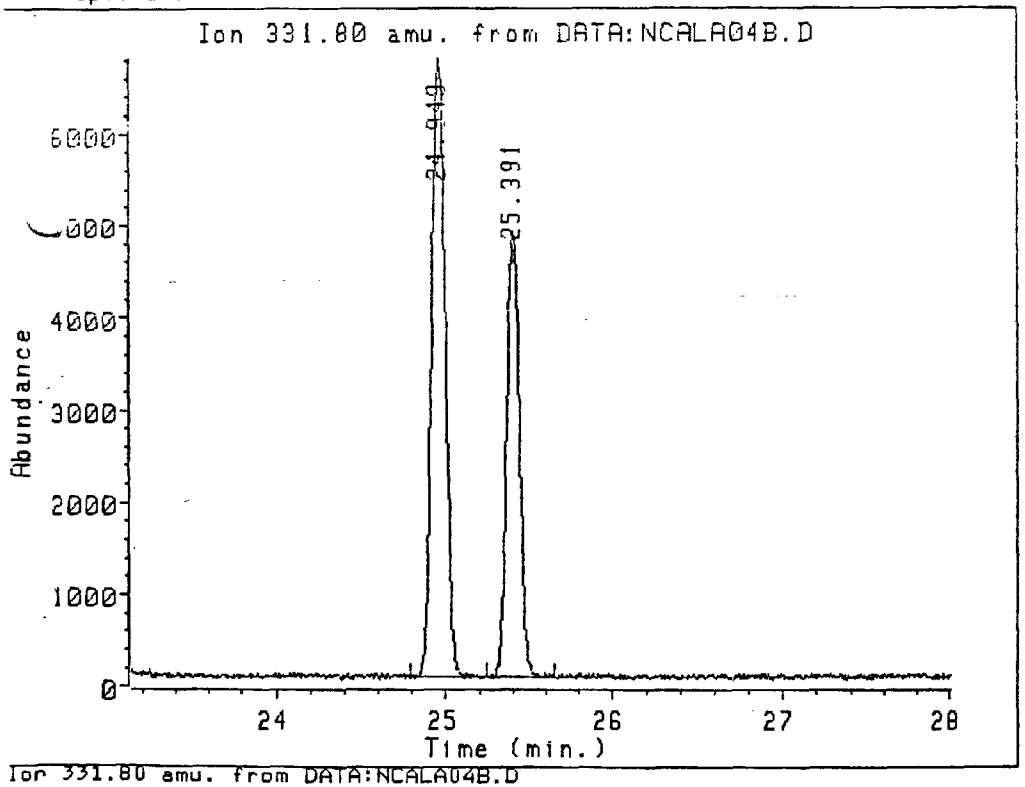
Data file: DATA:NCALA04B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 5:30 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 2

021566



Ion 331.80 amu. from DATA:NCALA04B.D
CLP CALIBRATION SOLN IV

03221781

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.949	BV	0.137	379549	24.784	25.242
2	25.391	PB	0.131	255513	25.242	25.652

83

3 2416

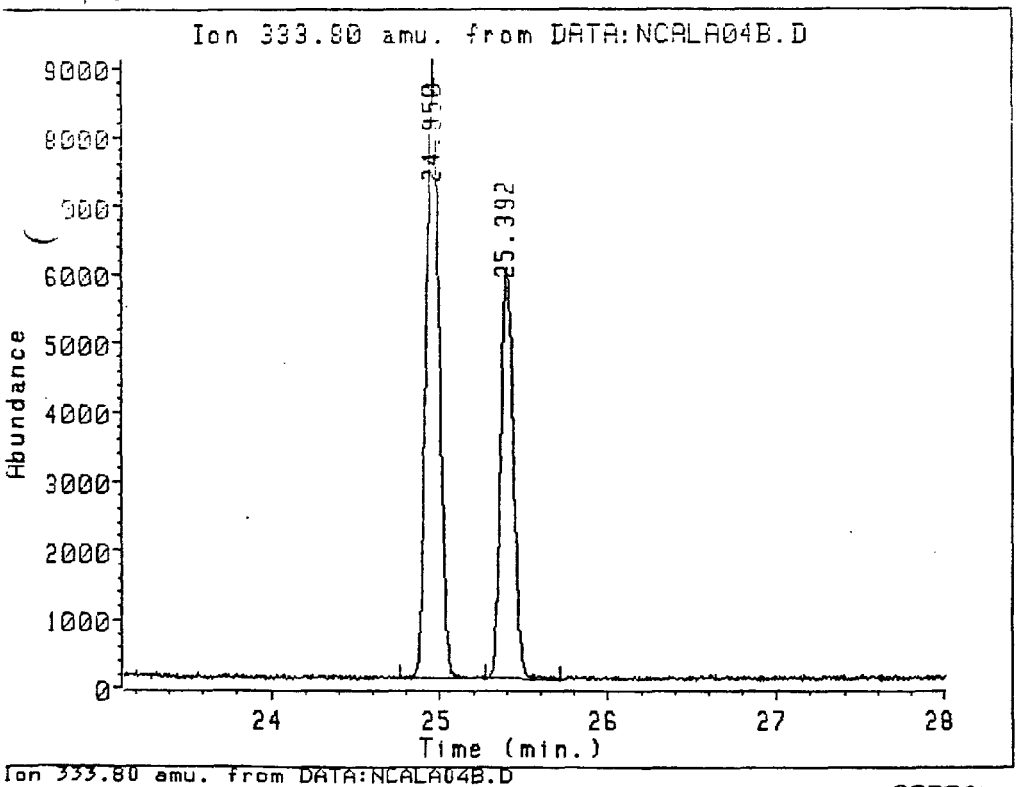
Data file: DATA:NCALA04B.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 5:30 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 2

021567



Ion 333.80 amu. from DATA:NCALA04B.D
CL CALIBRATION SOLN IV

03221782

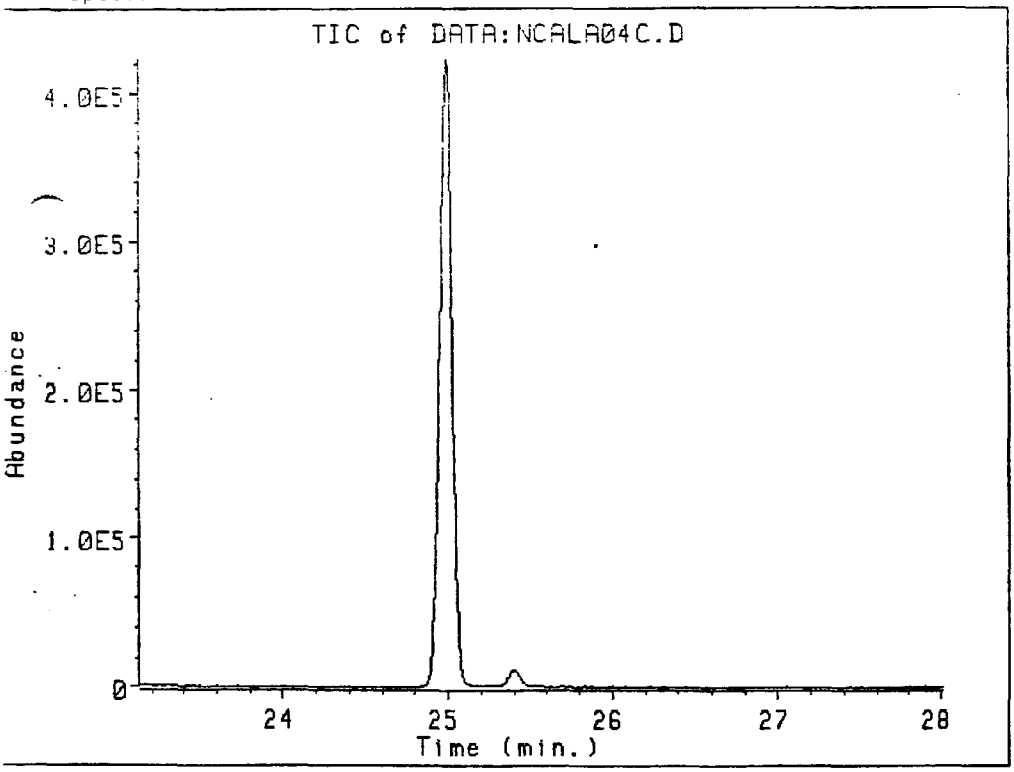
Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.950	BV	0.150	478280	24.760	25.266
2	25.392	PB	0.127	309835	25.266	25.712

Data file: DATA:NCALA04C.D
File type: GC / MS DATA FILE

Name info: CLP CALIBRATION SOLN IV
Misc info:
Operator : MS OPERATOR

Date : 10 Dec 87 6:02 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 3



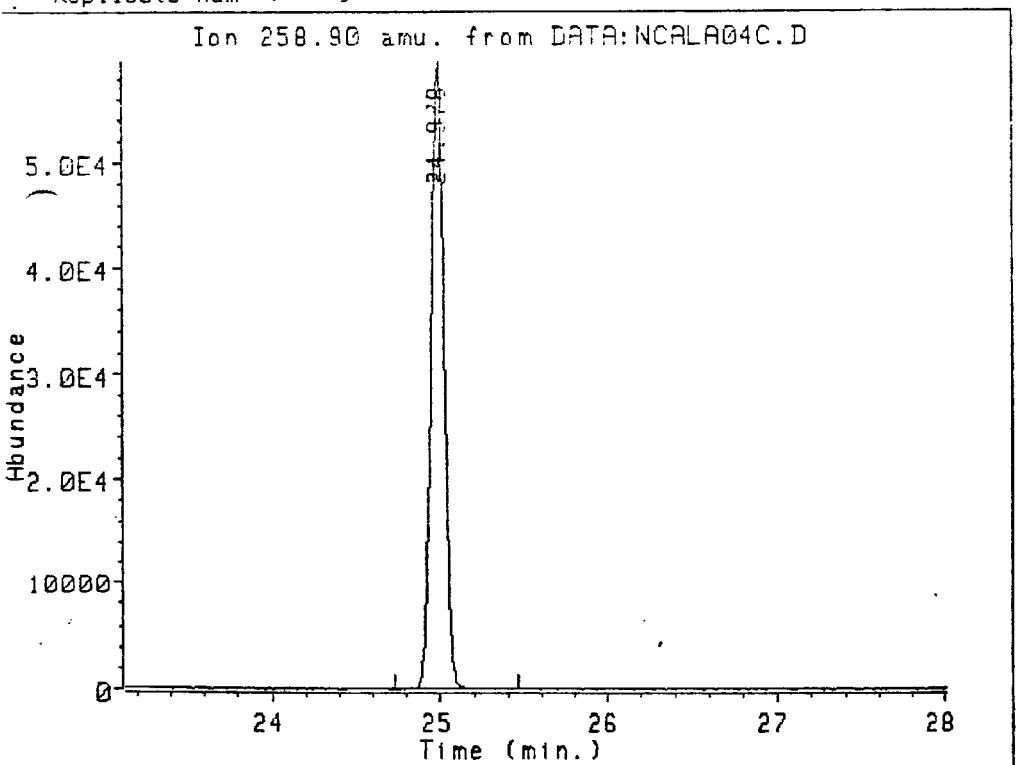
Data file: DATA:NCALA04C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 6:02 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 3

021569



Ion 258.90 amu. from DATA:NCALA04C.D
CL CALIBRATION SOLN IV

03221784

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.978	BB	0.151	3178940	24.735	25.459

86

3 2419

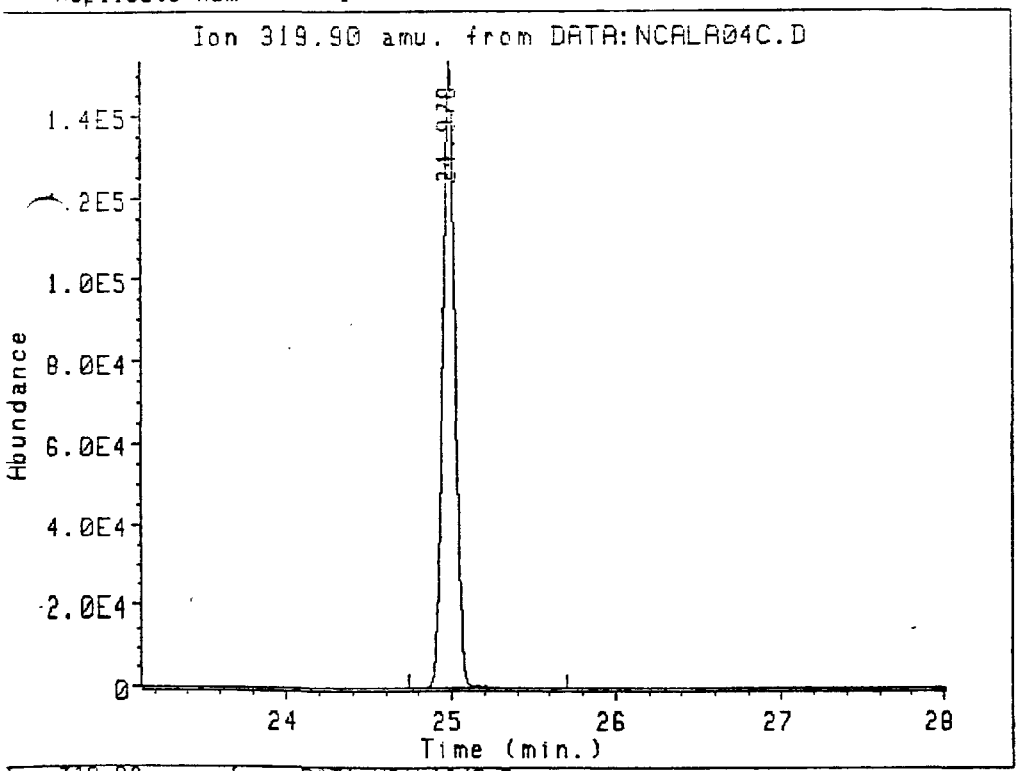
Data file: DATA:NCALA04C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 6:02 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 3

021570



Ion 319.90 amu. from DATA:NCALA04C.D
CL CALIBRATION SOLN IV

03221785

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.978	BB	0.171	7911157	24.735	25.700

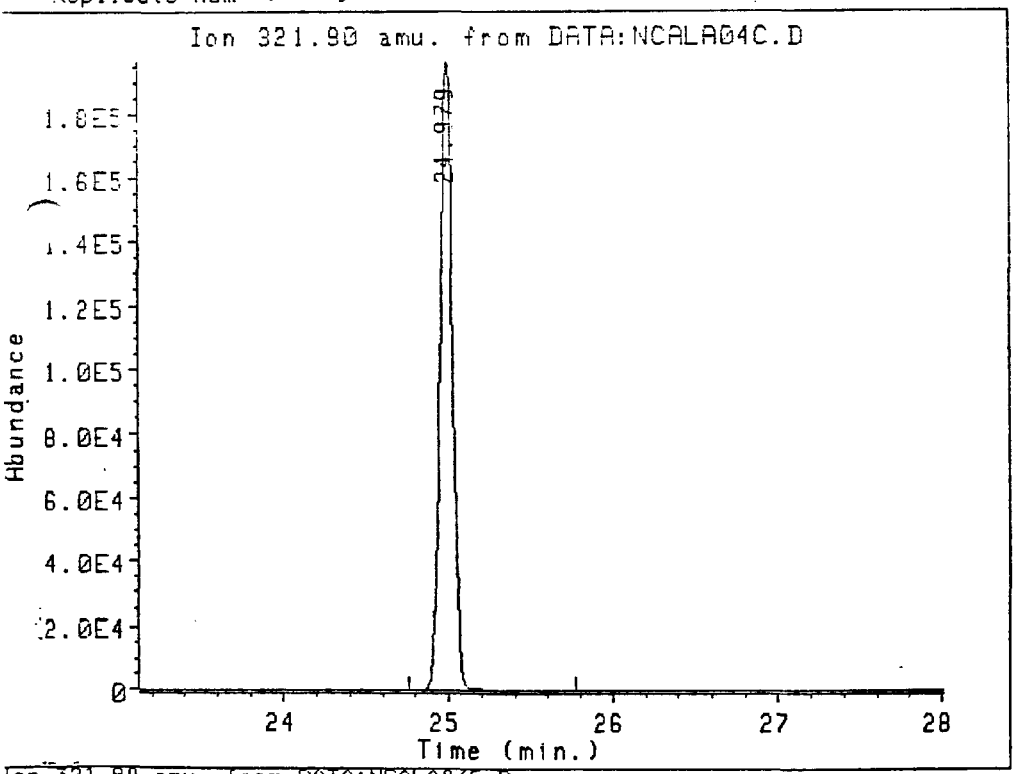
Data file: DATA:NCALA04C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 6:02 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 3

021571



Ion 321.90 amu. from DATA:NCALA04C.D
CLP CALIBRATION SOLN IV

03221786

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.979	BB	0.178	10384749	24.760	25.773

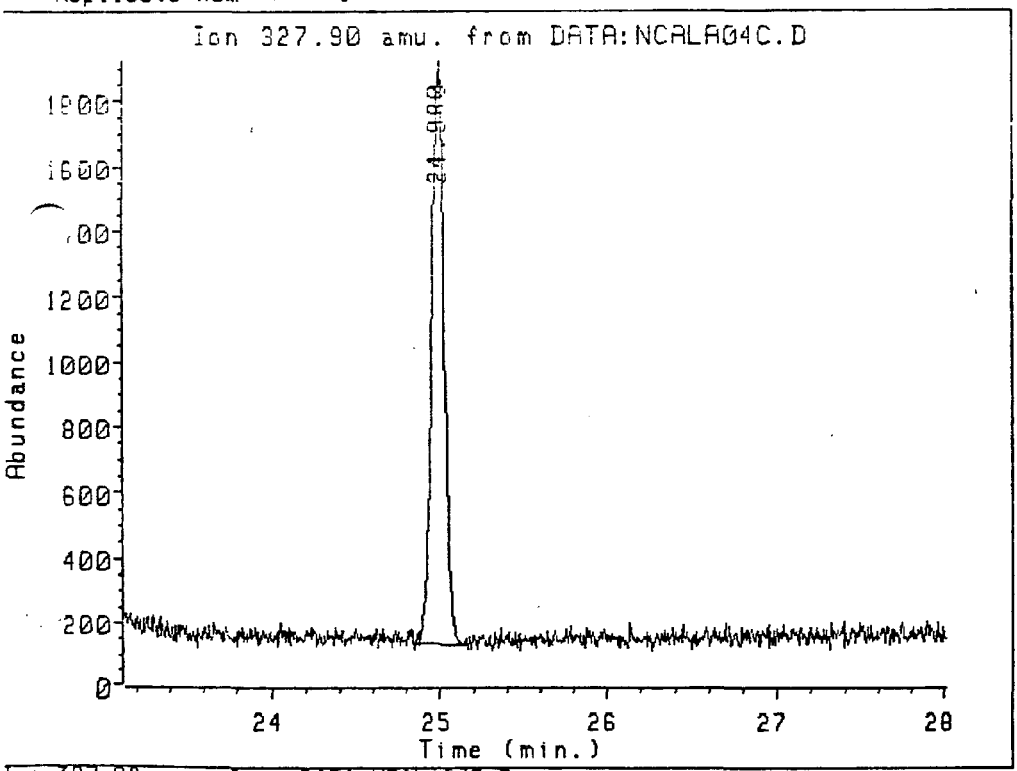
Data file: DATA:NCALA04C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 6:02 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 3

021572



Ion 327.90 amu. from DATA:NCALA04C.D
CL ALIBRATION SOLN IV

03221787

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.980	BB	0.137	94122	24.832	25.170

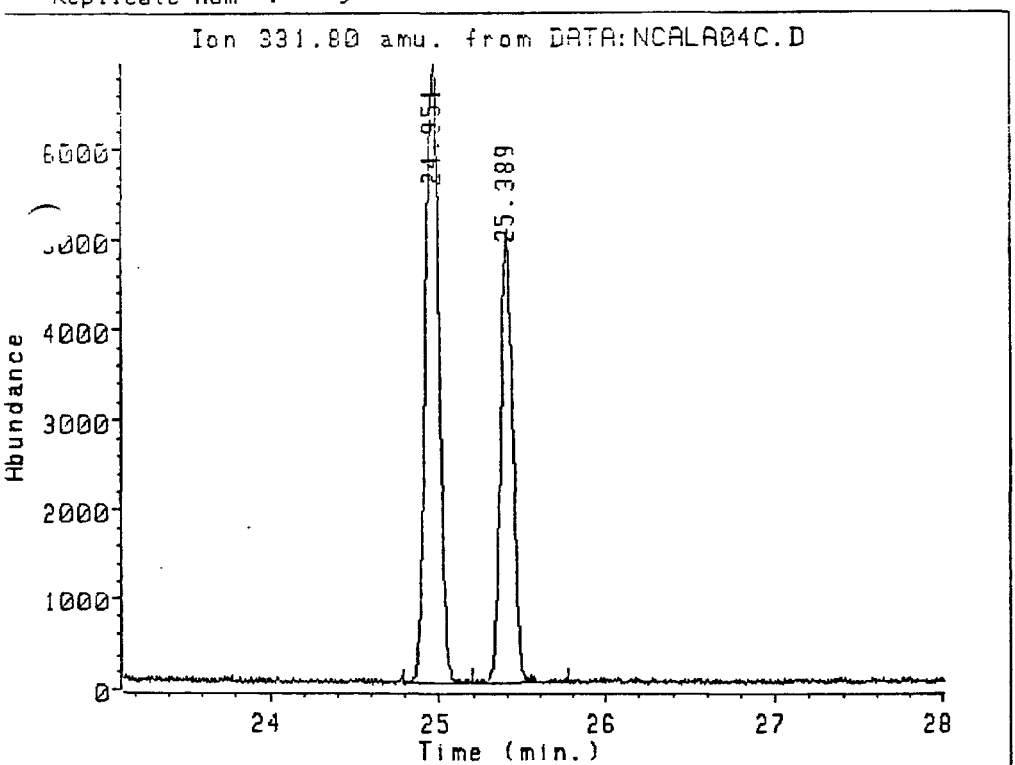
Data file: DATA:NCALA04C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 6:02 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 3

021573



Ion 331.80 amu. from DATA:NCALA04C.D
CLP CALIBRATION SOLN IV

03221788

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.951	BV	0.134	380354	24.784	25.194
2	25.389	VB	0.121	253568	25.194	25.773

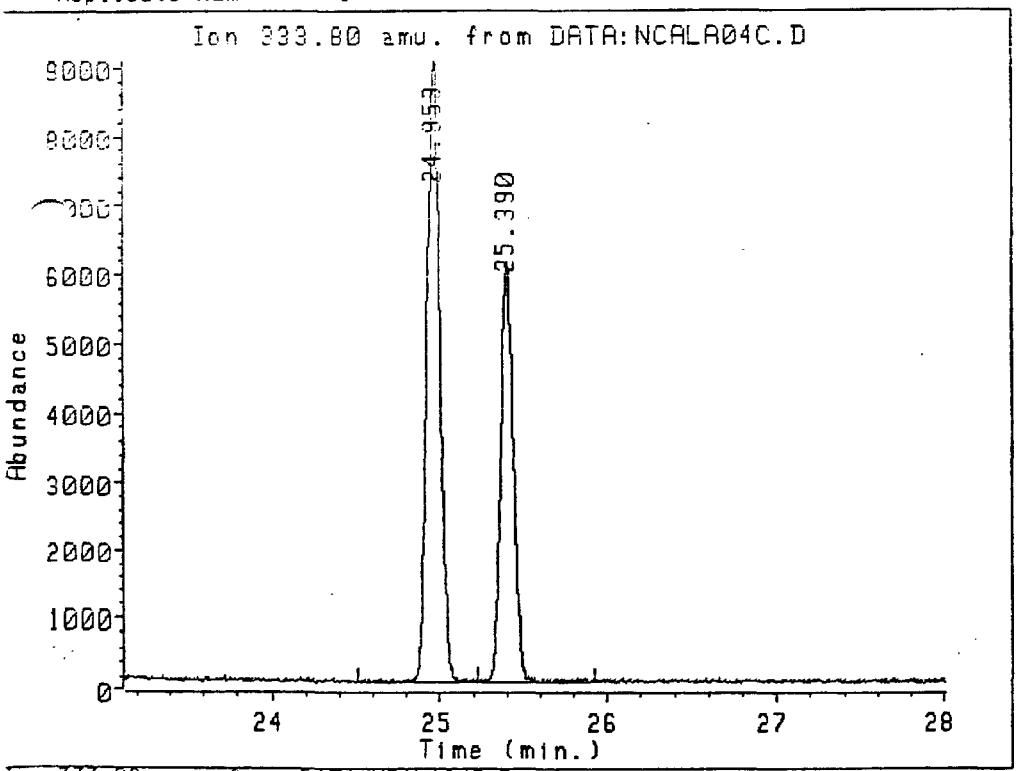
Data file: DATA:NCALA04C.D
File type: GC / MS DATA FILE

Name Info: CLP CALIBRATION SOLN IV
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 6:02 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 1
Als bottle num : 4
Replicate num : 3

021574



Ion 333.80 amu. from DATA:NCALA04C.D
CL CALIBRATION SOLN IV

03221789

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.953	BV	0.091	486909	24.506	25.218
2	25.390	VB	0.136	315334	25.218	25.918

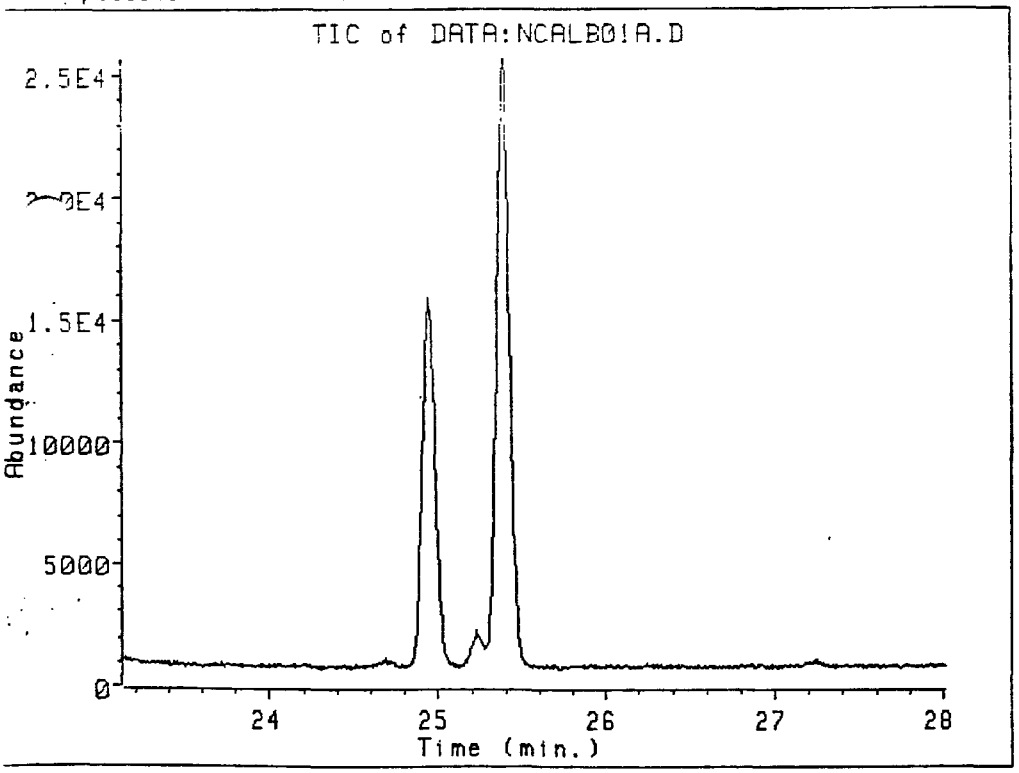
Data file: DATA:NCALB01A.D
File type: GC / MS DATA FILE

Name Info: COLUMN PERFORMANCE MIX
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 6:34 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 1
Replicate num : 1

021575



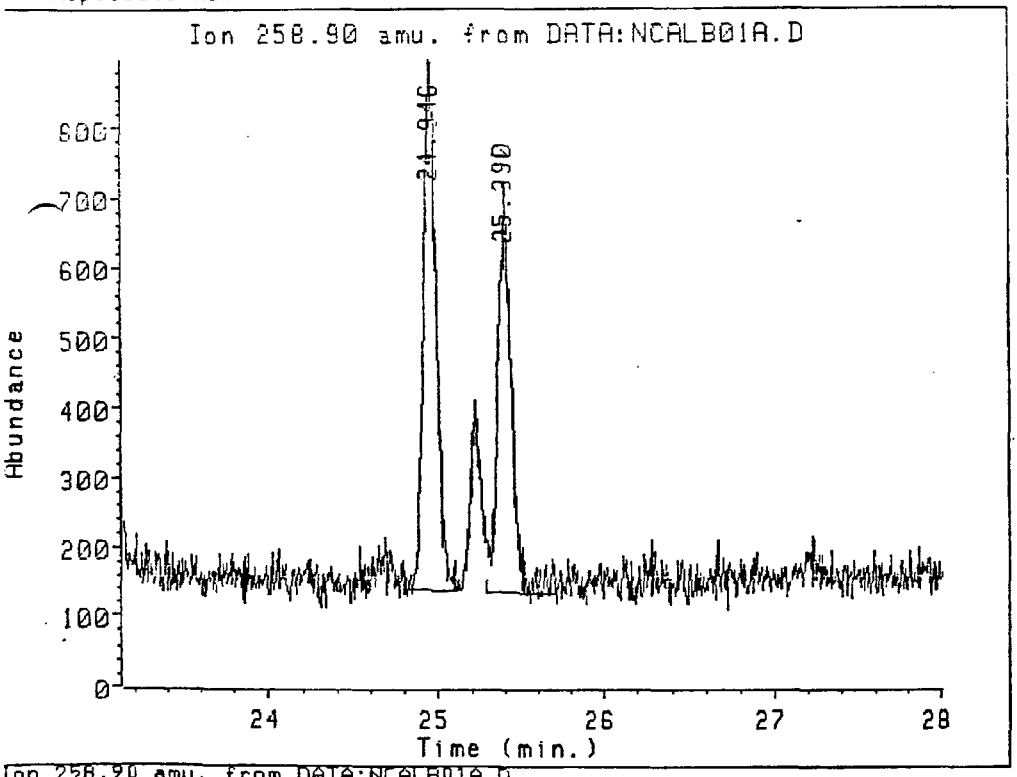
Data file: DATA:NCALB01A.D
File type: GC / MS DATA FILE

Name Info: COLUMN PERFORMANCE MIX
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 6:34 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 1
Replicate num : 1

021576



Ion 258.90 amu. from DATA:NCALB01A.D
COLUMN PERFORMANCE MIX

03221791

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.946	BV	0.091	39870	24.809	25.122
2	25.390	VB	0.101	31957	25.291	25.702

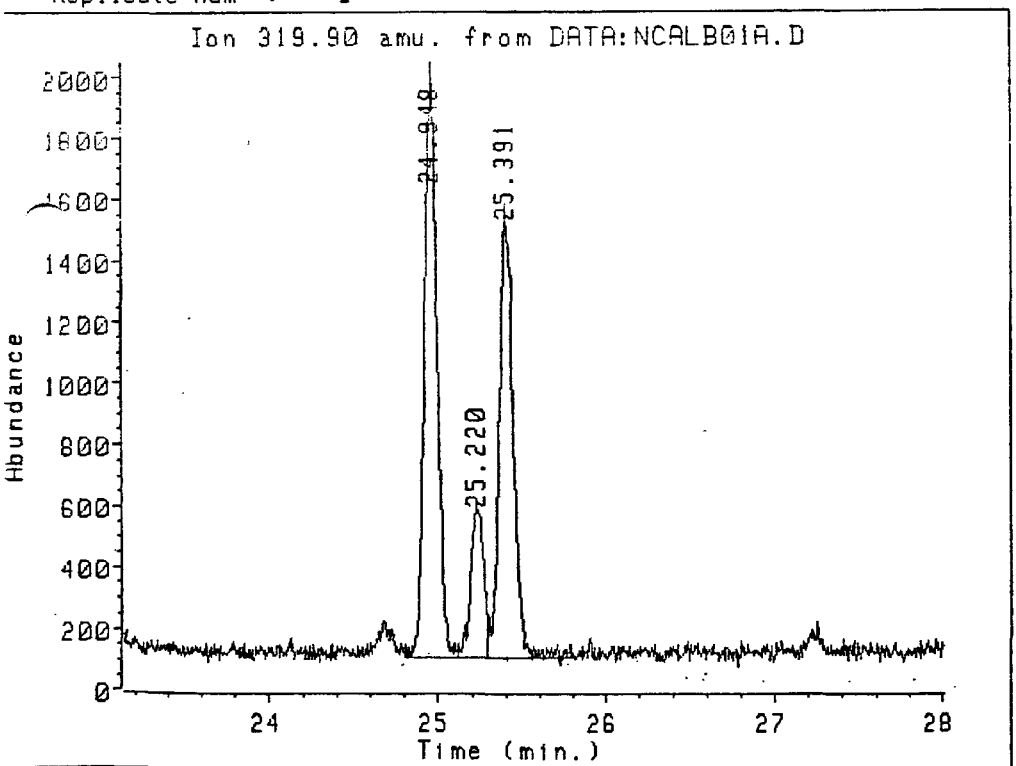
Date file: DATA:NCALB01A.D
File type: GC / MS DATA FILE

Name Info: COLUMN PERFORMANCE MIX
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 6:34 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 1
Replicate num : 1

021577



Ion 319.90 amu. from DATA:NCALB01A.D
COLUMN PERFORMANCE MIX

03221792

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.948	VV	0.089	98901	24.803	25.122
2	25.220	VV	0.087	25754	25.122	25.290
3	25.391	VB	0.147	81636	25.290	25.798

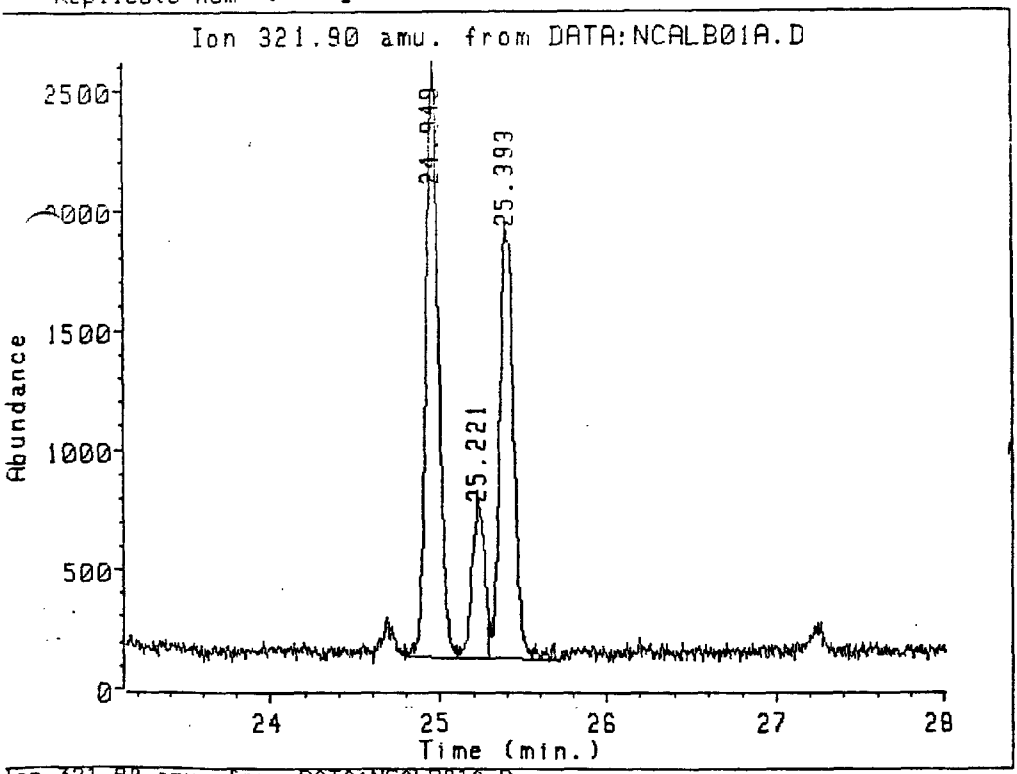
Data file: DATA:NCALB01A.D
File type: GC / MS DATA FILE

Name Info: COLUMN PERFORMANCE MIX
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 6:34 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 1
Replicate num : 1

021578



Ion 321.90 amu. from DATA:NCALB01A.D
COLUMN PERFORMANCE MIX

03221793

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.949	VV	0.088	128555	24.788	25.102
2	25.221	VV	0.086	34074	25.102	25.291
3	25.393	VV	0.150	105301	25.291	25.702

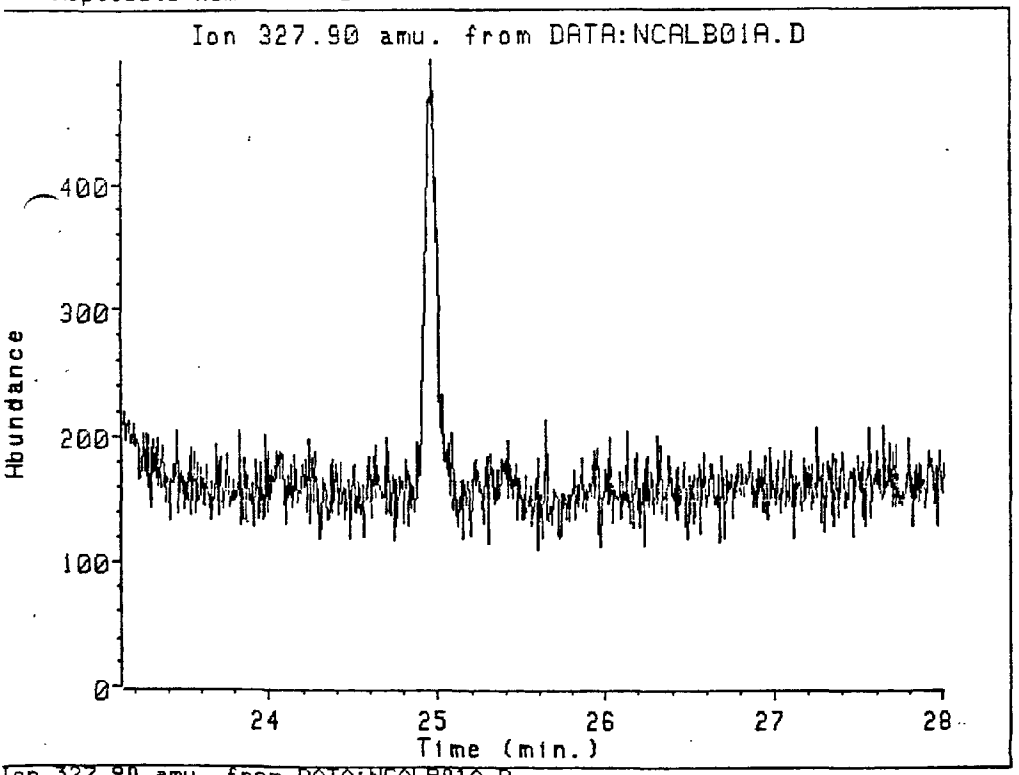
Data file: DATA:NCALB01A.D
File type: GC / MS DATA FILE

Name Info: COLUMN PERFORMANCE MIX
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 6:34 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 1
Replicate num : 1

021579



Ion 327.90 amu. from DATA:NCALB01A.D
COLUMN PERFORMANCE MIX

No peaks detected

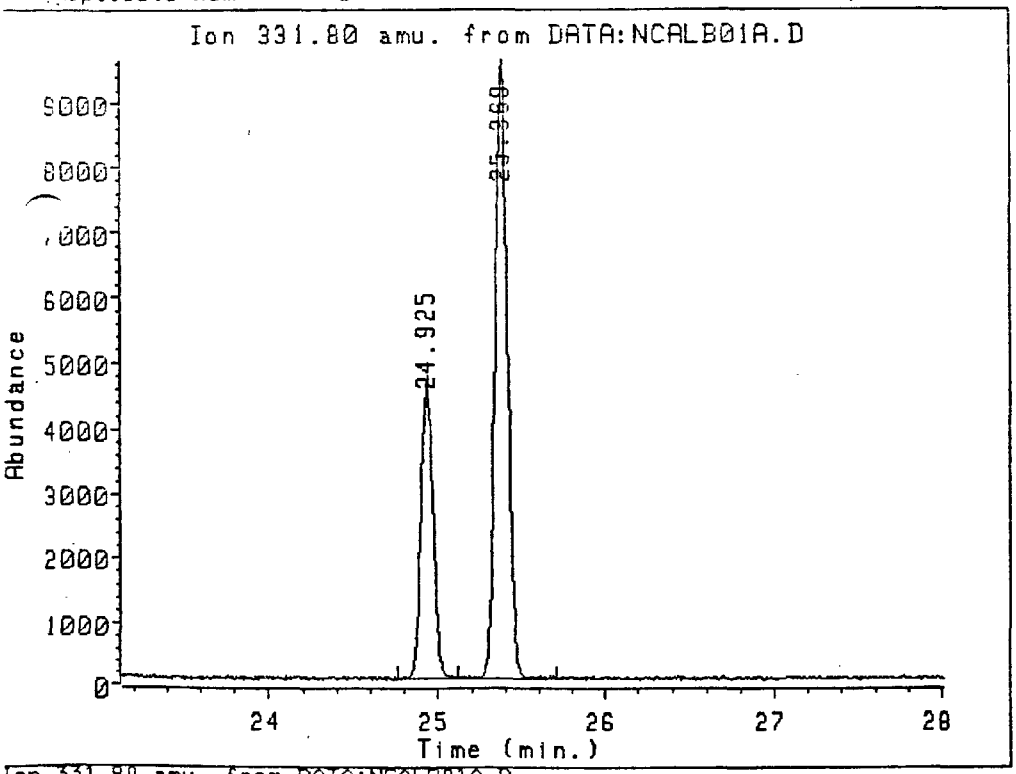
Data file: DATA:NCALB01A.D
File type: GC / MS DATA FILE

Name Info: COLUMN PERFORMANCE MIX
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 6:34 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 1
Replicate num : 1

021580



Ion 331.80 amu. from DATA:NCALB01A.D
COLUMN PERFORMANCE MIX

03221795

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.925	BV	0.139	233907	24.760	25.122
2	25.369	VB	0.130	492927	25.122	25.702

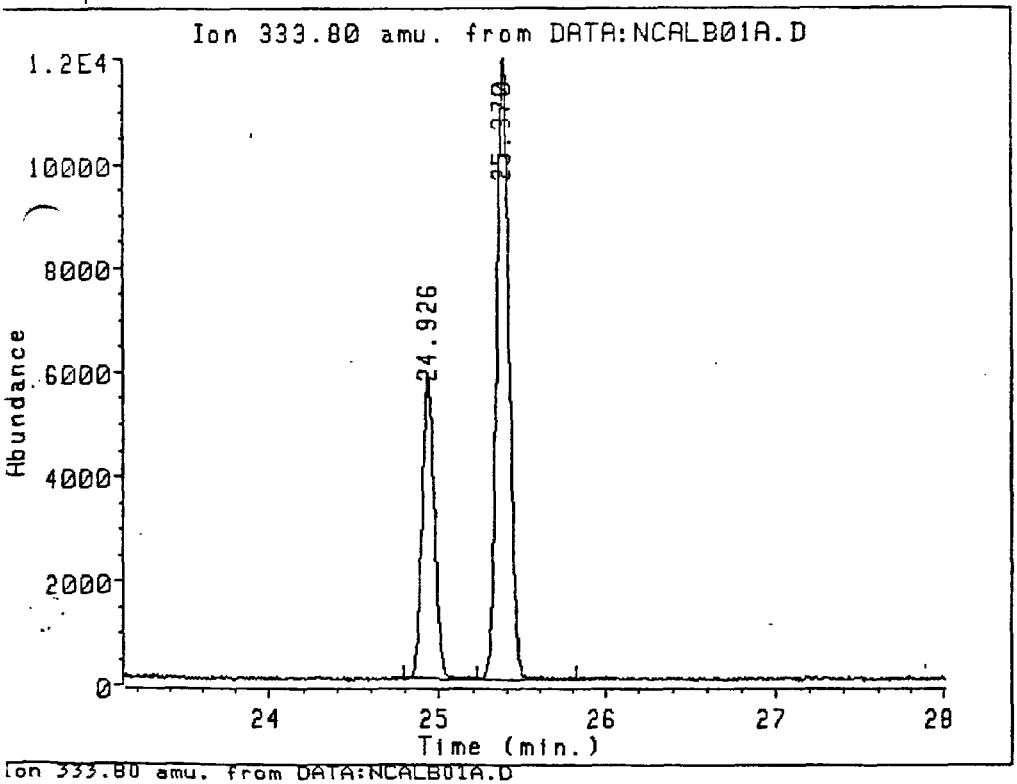
Data file: DATA:NCALB01A.D
File type: GC / MS DATA FILE

Name Info: COLUMN PERFORMANCE MIX
Misc Info:
Operator : MS OPERATOR

Date : 10 Dec 87 6:34 pm
Instrment: MS_5970
Inlet : GC

Sequence index : 2
Als bottle num : 1
Replicate num : 1

021581



Ion 333.80 amu. from DATA:NCALB01A.D
COLUMN PERFORMANCE MIX

03221796

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.926	BV	0.139	289994	24.784	25.219
2	25.370	PB	0.140	611865	25.219	25.822

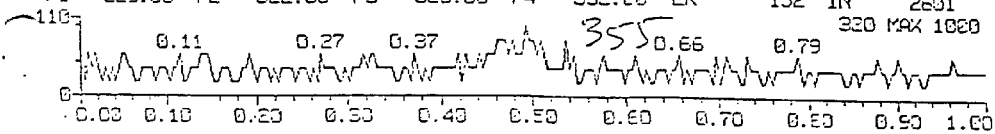
ATTACHMENT 4

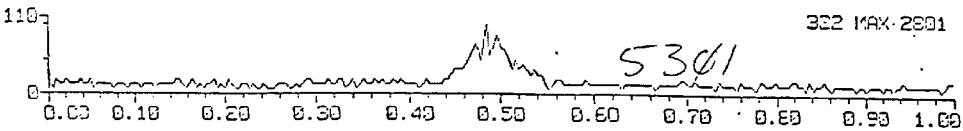
BLANK CALIBRATION MASS CHROMATOGRAMS

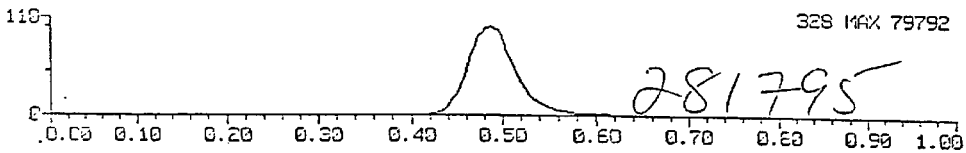
0215 32

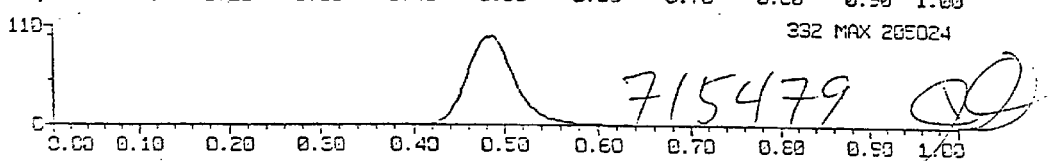
MAY0423 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNIP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	269.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2601









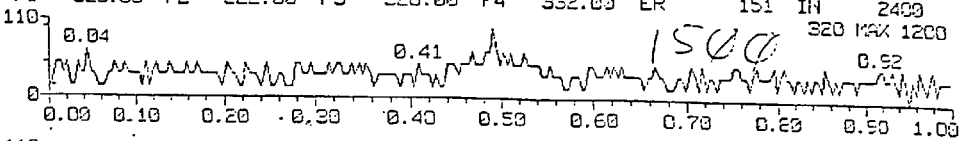
	4-MAY-87		09:33:58	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1280	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.010					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0020	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	55.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

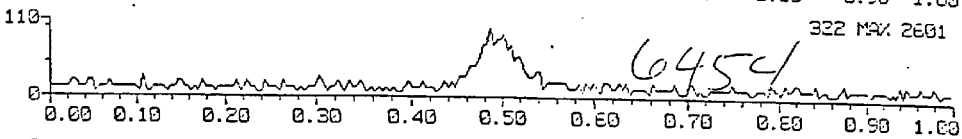
09:33:58

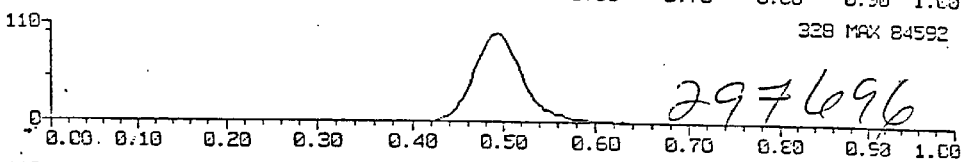
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

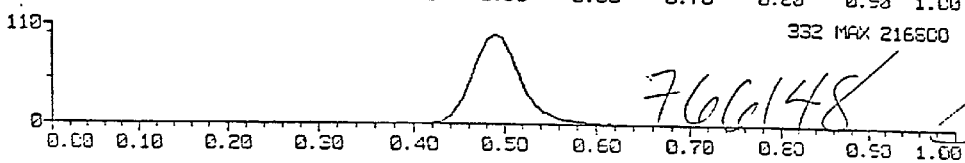
MAY0422 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	151	IN	2400









021584

4-MAY-87 09:29:22

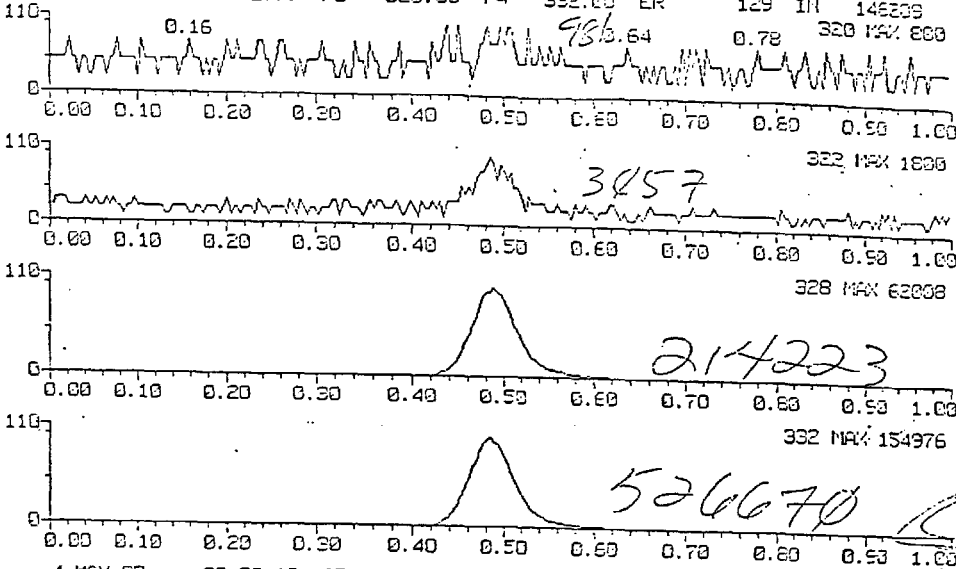
				OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.006					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	IM1	0.0000	CGT	0.0	IM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:29:22

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

MAY0421 1 MIMI SPIKE II C-096 3/85

SS	1	ES	258	BO	0	TO	110	GR	LMNP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	145209



	4-MAY-87		09:23:10	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	IM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	85.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:23:10

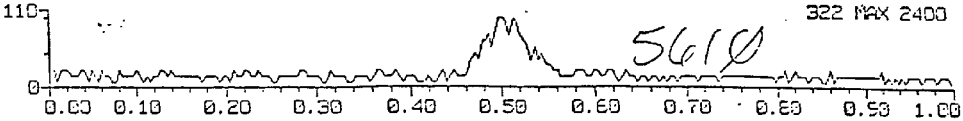
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

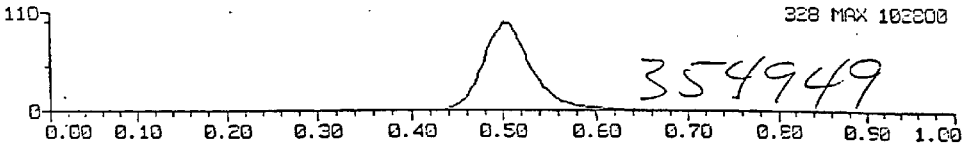
0215035

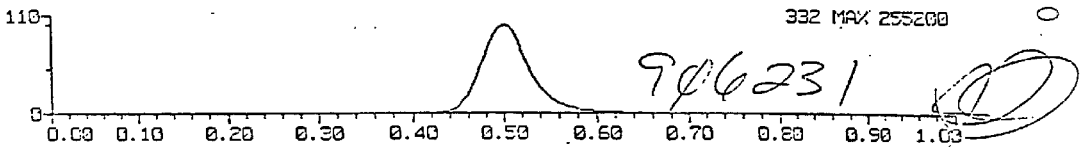
03221800

MAY0420 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LINP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30
F1	330.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	242208







	4-MAY-87		09:17:38	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.007					MU	-4800.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:17:38

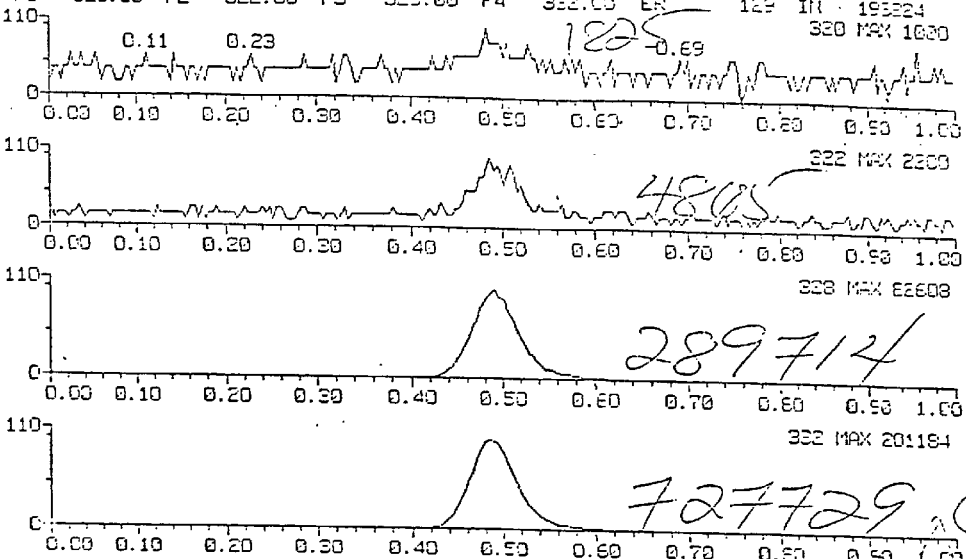
	CG=SW	
1	330	257
	322	259
	328	263
	332	268

0215336

03221801

MAY0419 1 MIMI SPIKE II C-095 3/85

SS	1	ES	258	BO	0	TO	110	GR		LNHP	SE		IM 129
M1	257.00	M2	259.00	M3	263.00	M4	269.00	SR		129	TI	00:00:30	
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER		129	IN	193324	



	4-MAY-87		09:09:56	CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.992					MU	-4800.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SPF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	FE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:09:56

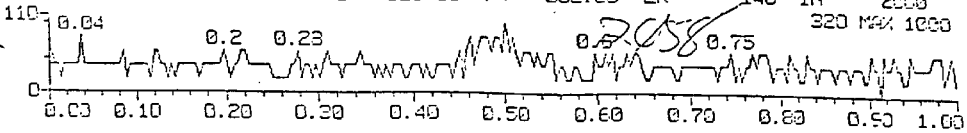
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

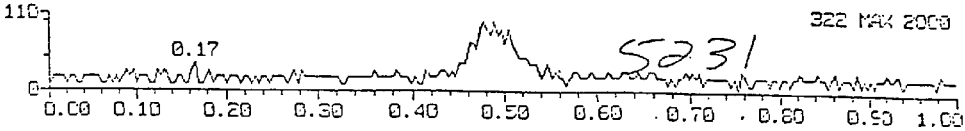
021597

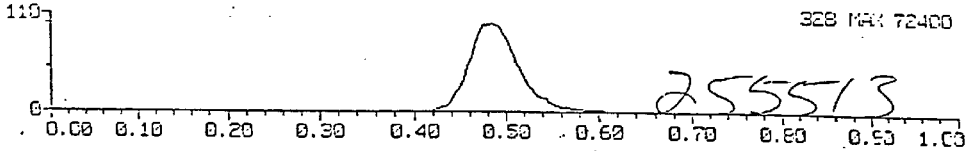
03221802

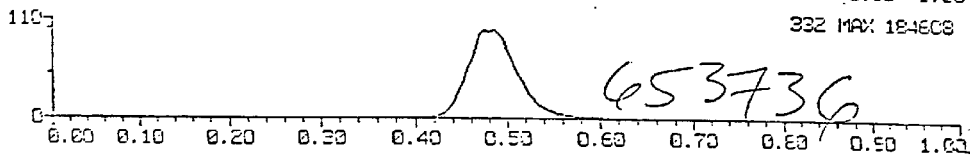
MAN0418 1 MIMI SPIKE II C-096 3/85 JM

SS	1	ES	259	BO	0	TO	110	GR	LNNP	SE	109
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	148	IN	2000









	4-MAY-87		09:05:06	CP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SW	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.020			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.995					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	IM1	0.0000	CGT	0.0	IM3	0.0000
G4F	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	FE3	65.00
DT7	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:05:06

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

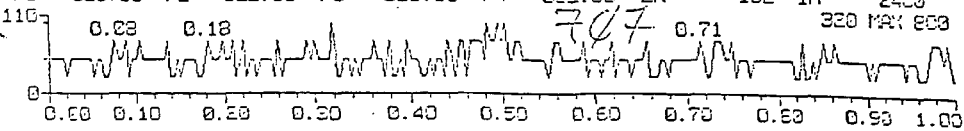
0215886

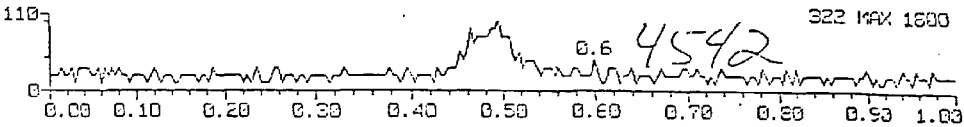
03221803

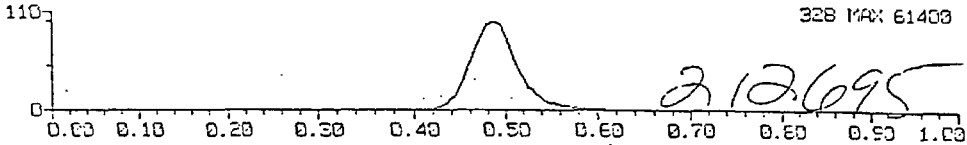
3 243c

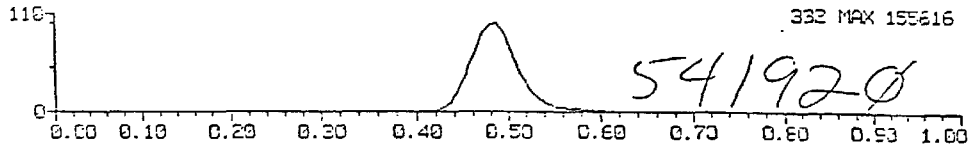
MAY0417 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400









	4-MAY-87		09:00:24	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.991					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
S-F	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	-65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-30.00	R2	-55.00	R3	-65.00

09:00:24

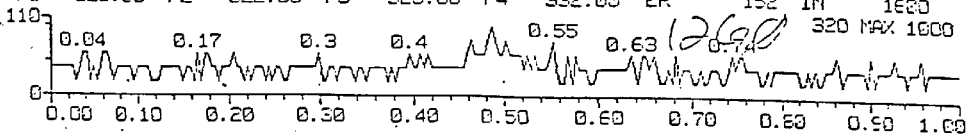
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

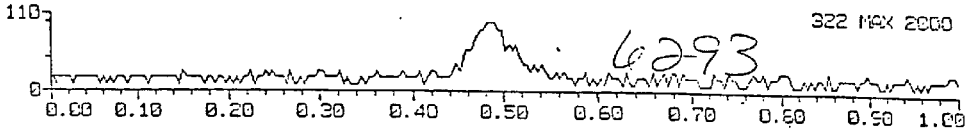
0215 80

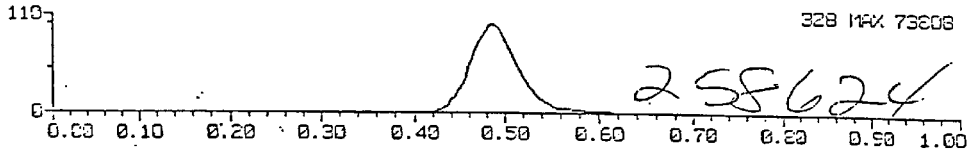
03221804

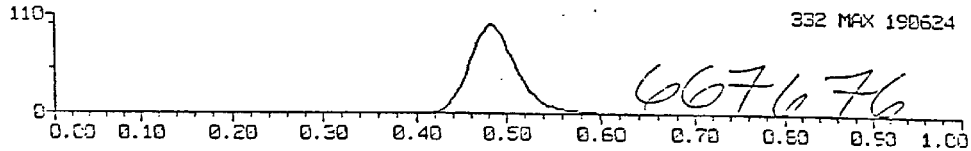
MAY0416 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LN#P	SE	108		
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	103	TI	00:00:25		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	1600		









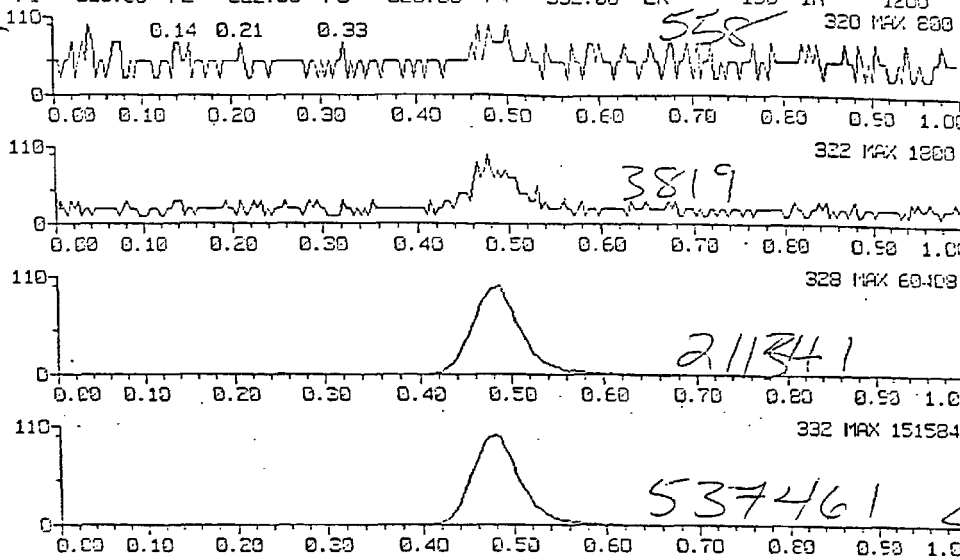
4-MAY-87		09:55:50		OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.991					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SHF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:55:50

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

MAY0415 1 MIMI SPIKE II C-095 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	107
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	107	TI	00:00:24
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	150	IN	1200



	4-MAY-87		08:51:06	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1200	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.994					MU	-4000.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:51:06

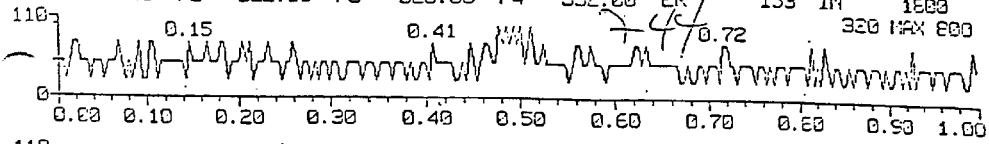
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

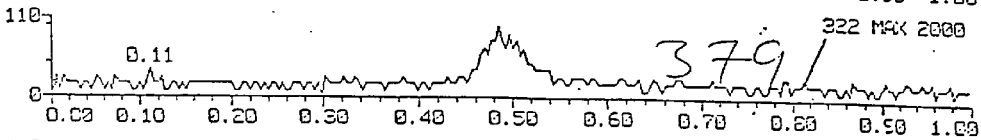
021591

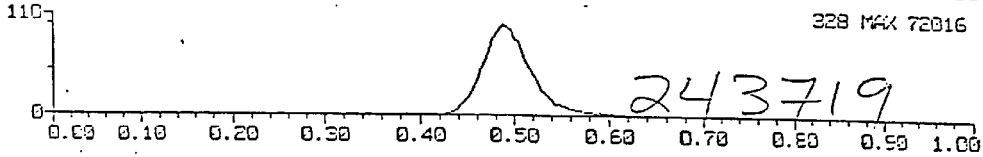
03221806

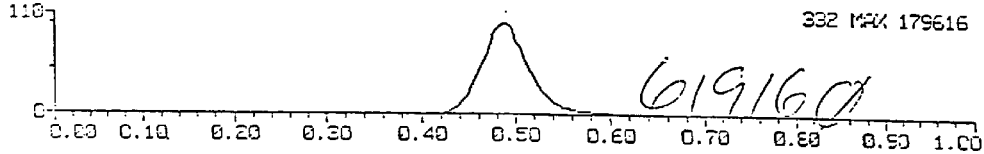
MAY0414 1 MIMI SPIKE II C-095 3/85 IM3 2441

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	153	IN	1000









	4-MAY-87		08:46:23	CP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SV	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
2	0.000	LT	0.00	DIV	-0.934					MU	-4500.0
3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:46:23

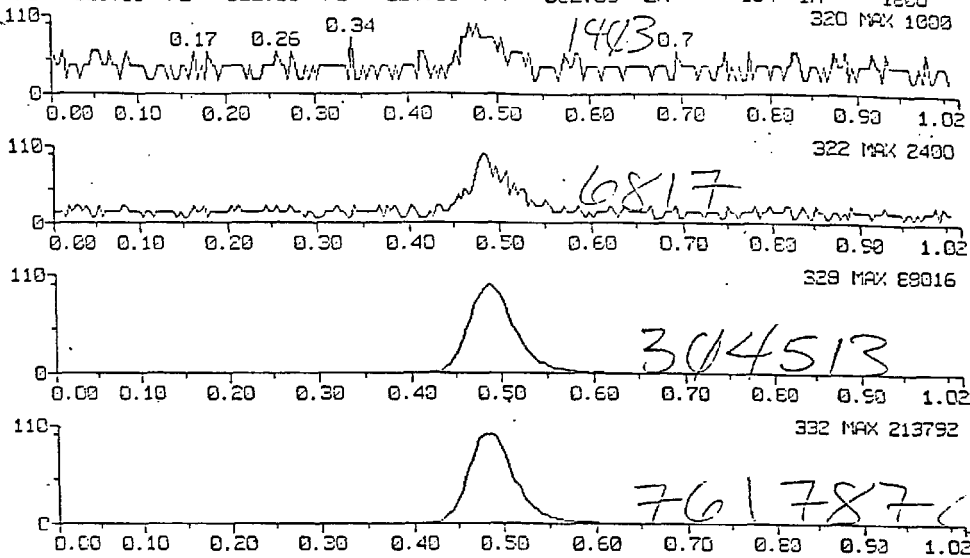
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

0215 02

03221807

MAY0413 . 1 MIMI SPIKE II C-055 3/85 IM

SS	1	ES	260	BO	0	TO	110	GR	LINP	SE	109
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	154	IN	1000



	4-MAY-87		09:41:40	CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1200	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.010					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	IM1	0.0000	CGT	0.0	IM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:41:40

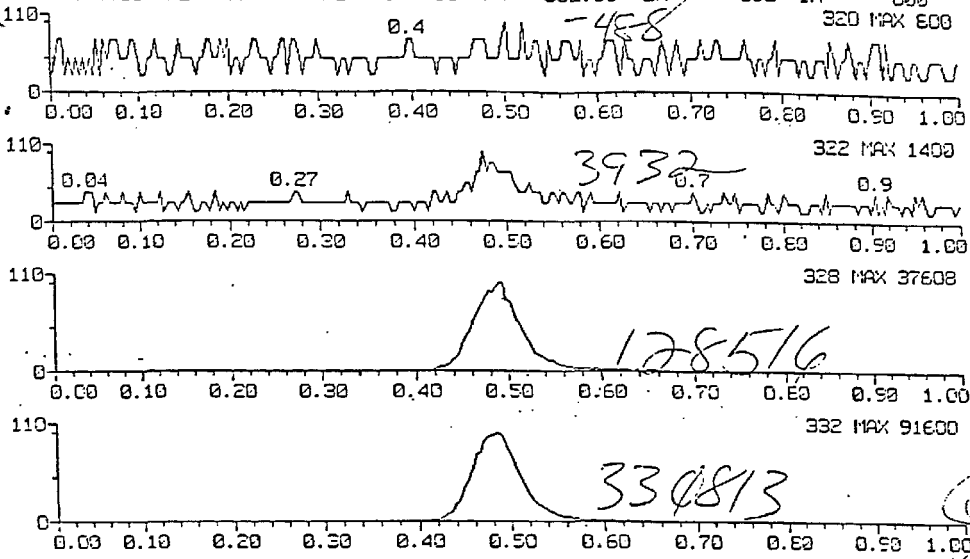
	CG=SN	
1	320	257
	322	259
	328	263
	332	268

021593

03221808

MAY0412 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	105
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	105	TI	00:00:24
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	600



	4-MAY-27		08:37:03	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.000					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SPF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:37:03

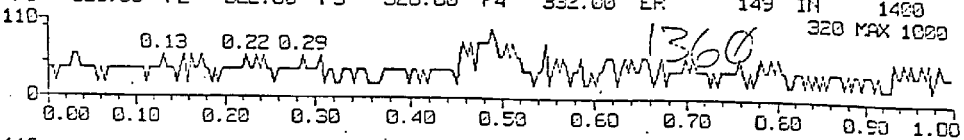
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

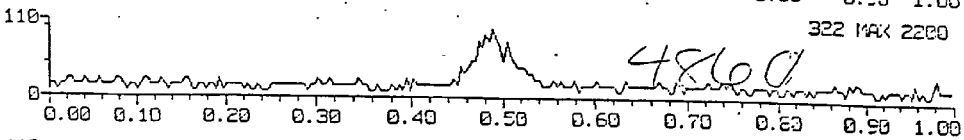
0215 94

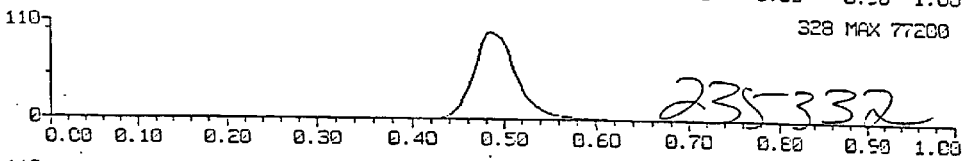
03221809

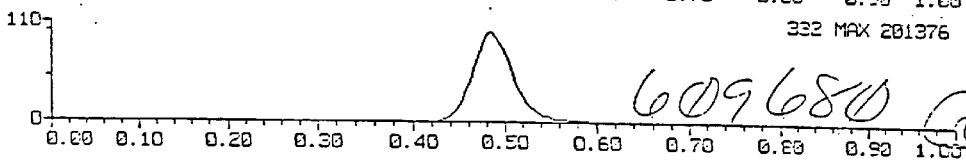
MAY0411 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	111
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	111	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	149	IN	1400









	4-MAY-87		08:32:16	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.986					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	FE1	65.00	CG	OFF	FE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:32:16

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

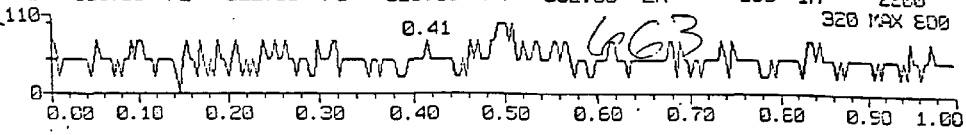
0215 95

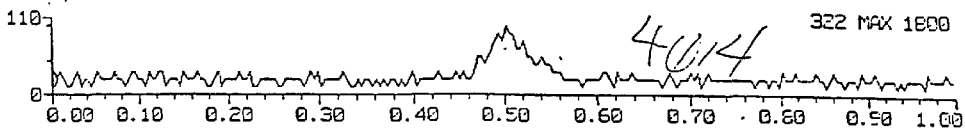
03221810

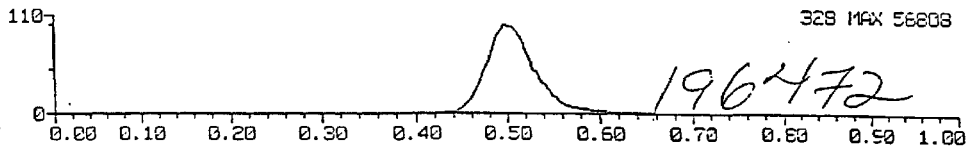
3 2445

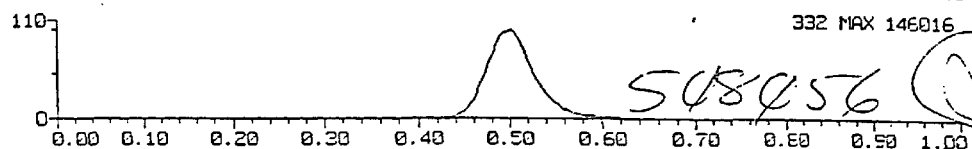
MAY0410 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	114
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	114	TI	00:00:26
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	156	IN	2200









	4-MAY-87		08:26:35	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	80.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:26:35

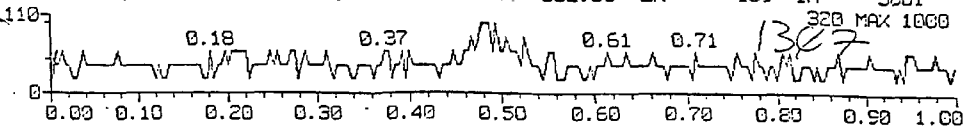
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

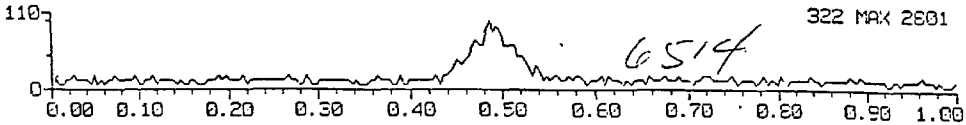
03221811

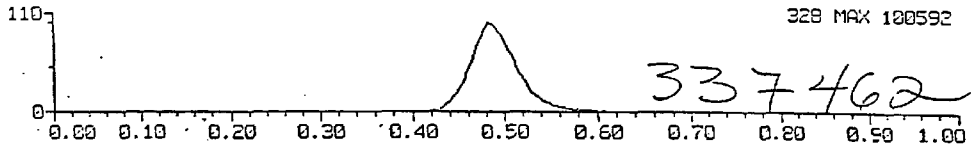
3 2446

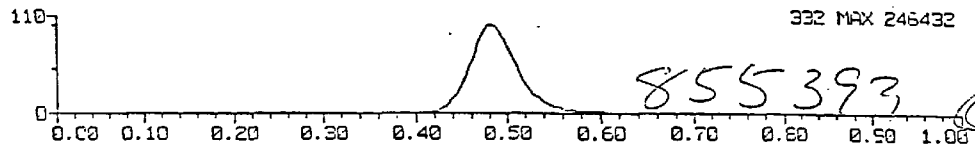
MAY0409 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	109
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	151	IN	3201









	4-MAY-87		08:21:17	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.997					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:21:17

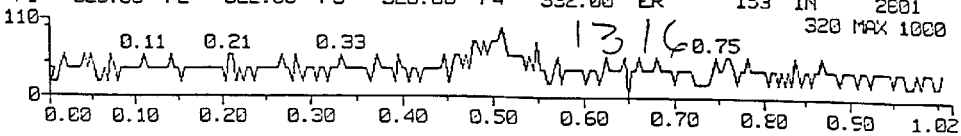
	CG*SW	
1	320	257
	322	259
	328	263
	332	268

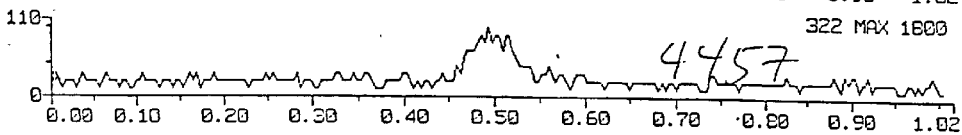
0215 97

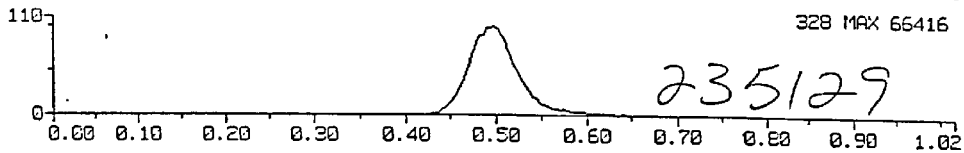
03221812

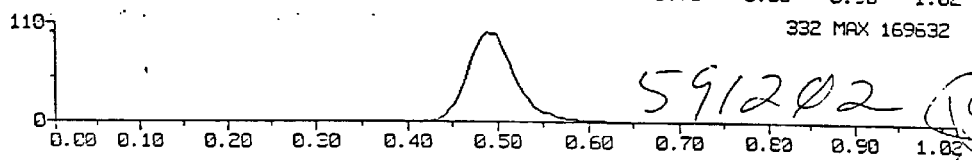
MAY0403 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	260	BO	0	TO	110	GR	LNNP	SE	112
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	112	TI	00:00:26
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	153	IN	2801









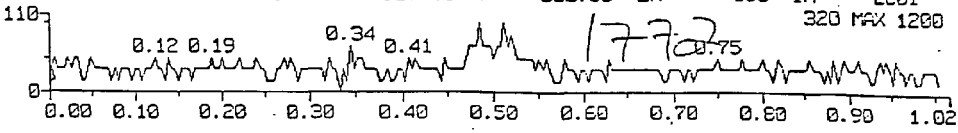
	4-MAY-87		08:16:16	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.994					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	85.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

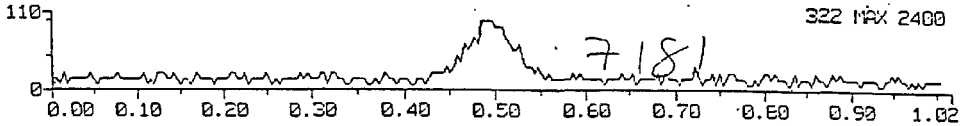
08:16:16

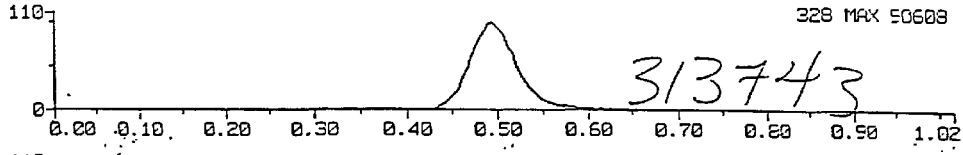
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

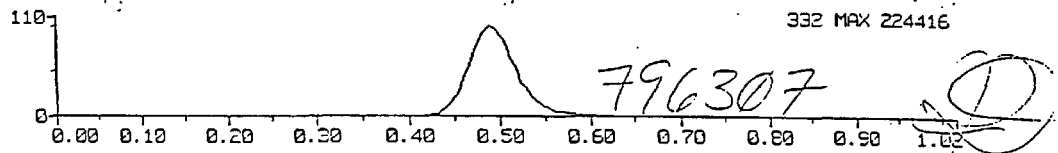
MAY0407 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	260	BO	0	TO	110	GR	LNNP	SE	111
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	111	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	153	IN	2801









	4-MAY-87		08:10:46	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.004					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SFF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:10:46

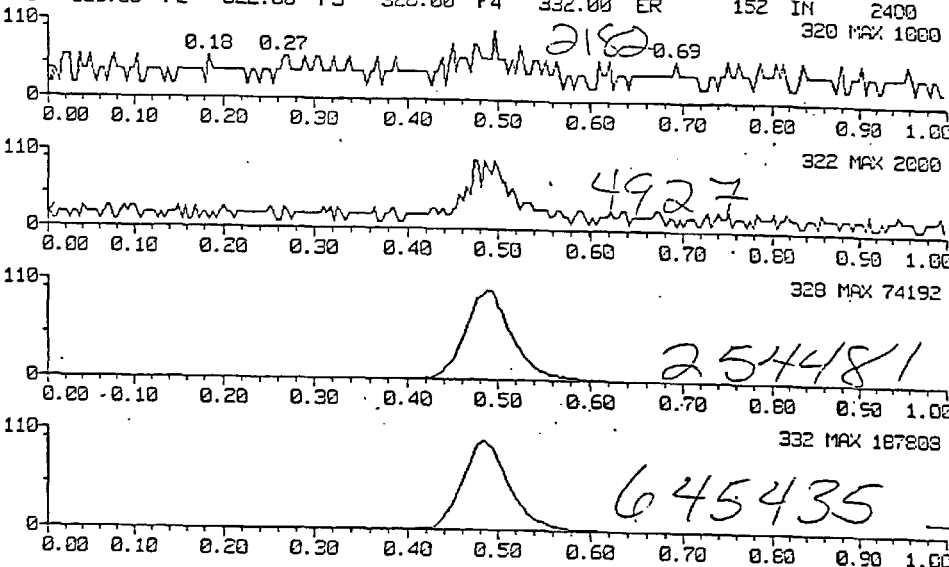
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021599

03221814

MAY0406 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400



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SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.012					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

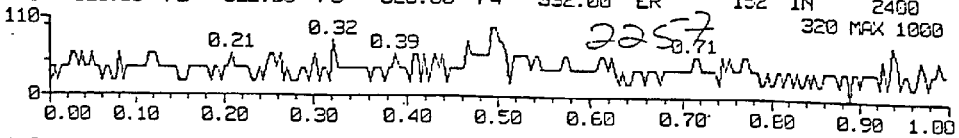
08:05:01

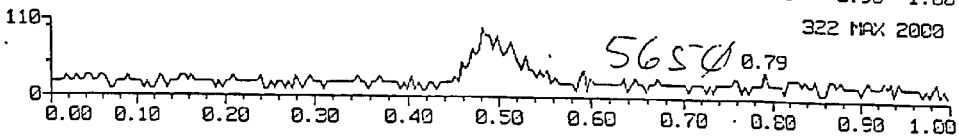
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

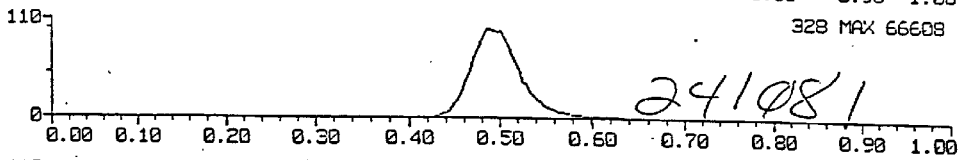
021600

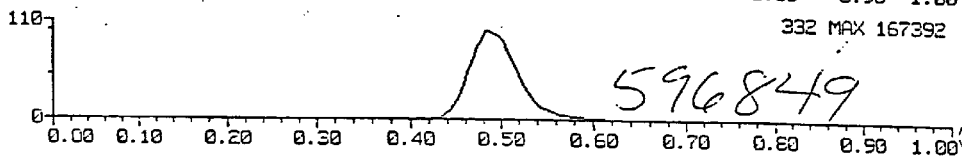
MAY0405 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	111
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	111	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400









	4-MAY-87		08:00:47	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
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G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.995					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

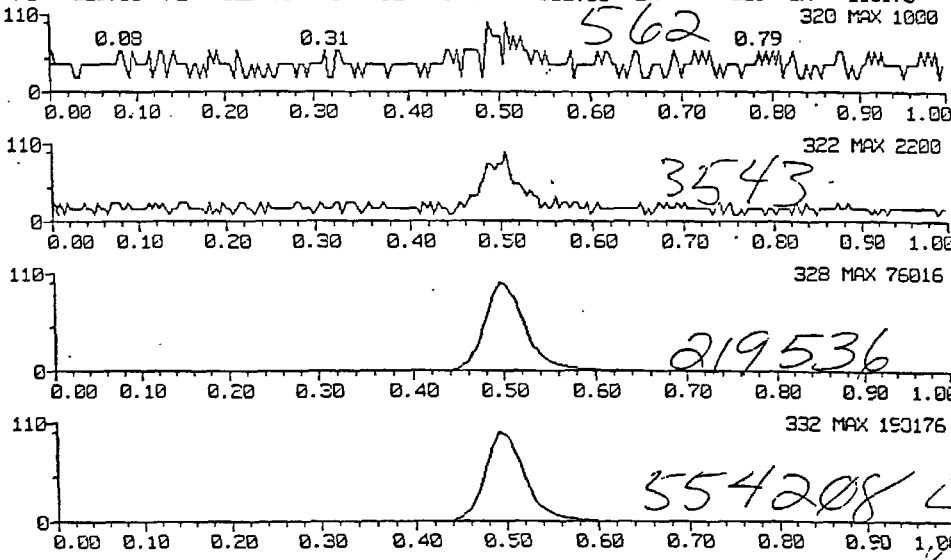
08:00:47

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021601

MAY0404 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	190176



	4-MAY-87		07:53:06	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.003					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

07:53:06

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021602

021603

ATTACHMENT 5

CHAIN OF CUSTODY, GC/MS/MS LOG, EXTRACTION RECORD

3 2453

INTERNATIONAL TECHNOLOGY CORPORATION

021604

CHAIN-OF-CUSTODY RECORD

R/A Control No. 52245

C/C Control No. 47149

03221819

PROJECT NAME/NUMBER Jacksonville Offsite/480078.01.08.02

LAB DESTINATION TMS-Indianapolis, Indiana

SAMPLE TEAM MEMBERS D. Simerly + D. Peay

CARRIER/WAYBILL NO. FED X 908817 2914

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
WH2110	Jacksonville, Arkansas	07/15/88 —	Soil	GLASS		
WH2108		07/13/88 • 1528				
WH2061		07/15/88 —				
WH2128		07/16/88 —				
WH2126		07/16/88 —				
WH2127		07/16/88 —				
WH2060		07/13/88 • 1320				
WH2109		07/15/88 • —				
WH2286		07/26/88 • 0832				
WH2287		07/26/88 • 0832	Soil	GLASS		

Special Instructions:

Possible Sample Hazards: Dioxin

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Doug Peay 07/27/88 • 1030

   Received By:

2. Relinquished By: Federal Express

   Received By: Cynthia Krauss 07/28/88 0930

3. Relinquished By:

   Received by:

4. Relinquished By:

   Received By:

WHITE - To accompany samples

INTERNATIONAL TECHNOLOGY CORPORATION

REQUEST FOR ANALYSIS

R/A Control No. 52245
C/C Control No. 47149

021605

03221820

PROJECT NAME: Jacksonville Offsite
PROJECT NUMBER: 480028-01-08-02
PROJECT MANAGER: Dena Simply
BILL TO: Hercules Inc
1313 N Market St
Wilmington De

PURCHASE ORDER NO.:

DATE SAMPLES SHIPPED: 07/27/88
LAB DESTINATION: TMS Analytical
LABORATORY CONTACT: Cindy Krause
SEND LAB REPORT TO: Florence Kinoshita
Medical Dept
Hercules Inc

DATE REPORT REQUIRED: 48 hrs
PROJECT CONTACT: Dena Simply
PROJECT CONTACT PHONE NO.: ~~680-321~~ 615-690-3211
POP 07/27

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
WH2110	Soil	≈ 35g	None	2378-TCDD GC/MS/MS	
WH2108					
WH2061					
WH2128					
WH2126					
WH2127					
WH2062					
WH2109					
WH2286					
WH2287	Soil	≈ 35g	None	2378-TCDD GC/MS/MS	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal _____ Rush ✓ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard _____ Flammable _____ Skin Irritant _____ Highly Toxic _____ Other _____ (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client X Disposal by Lab _____

FOR LAB USE ONLY

Received By Cynthia Krause Date/Time 07/28/88 0930

WHITE - Origin(accompany samples
YELLOW - Field

Page No.

AUG17Ø1	1418	CAL #1
Ø2	1433	Wipe Blank
Ø3	1446	VNPN-Ø5
AUG18Ø1	—	DFCAL 2
Ø2	0953	" "
Ø3	1043	" "
Ø4	—	Solvent Flush / Blank
Ø5	1108	Liquid Method Blank
Ø6	1123	3228-Ø1
Ø7	—	CAL 1
Ø8	1347	" "
Ø9	1401	2240
1Ø	—	2386
11	1428	" "

To Page No.

Read & Understood by me, Date 8/18/88 Invented by K.E. [illegible] Date

Recorded by

03221821

SEQUENCE TABLE _____ DATA:4HER.R

	method file name	range	dup		method file name	range	dup
A	DATA:TMSD10.M	1:	1	1	M	:	
B	DATA:FLUSH.M	2:	2	1	N	:	
C	DATA:TMSD10.M	3:	20	1	O	:	
D	DATA:TMSD10.M	1:	1	1	P	:	
E	DATA:FLUSH.M	2:	2	1	Q	:	
F	DATA:TMSD10.M	21:	34	1	R	:	
G		:			S	:	
H		:			T	:	
I		:			U	:	
J		:			V	:	
K		:			W	:	
L		:			X	:	

[redacted] [redacted] [redacted] [redacted] [redacted] [redacted] [redacted] EXIT

021607

SAMPLE TABLE _____ DATA:4HER.S

Index Sample Identification

1....CALIBRATION SOLN 1
2....ISOOCTANE
3....METHOD BLANK1
4....SOIL BLANK 1
5....SOIL SPIKE 1
6....PE 1
7....2060
8....2061
9....2108
10....2109
11....2110
12....2126
13....2127
14....2128
15....2286
16....2287

[redacted] [redacted] [redacted] [redacted] [redacted] [redacted] [redacted] [redacted]

SAMPLE TABLE _____ DATA:4HER.S

Index Sample Identification

17....2289
18....2305
19....2306
20....2307
21....2311
22....2312

03221822

26....MB2
27....SB2
28....SS2
29....PER2
30....2317
31....2318
32....2319

3 2457

Next Page | Previous Page | More Info | Exit

SAMPLE TABLE DATA:4HER.S

Index	Sample Identification
33	2320
34	2063
....	
....	
....	
....	
....	
....	
....	
....	
....	
....	
....	
....	
....	

Next Page | Previous Page | More Info | Exit

021603

03221823

DATE: 7-28-88 SHIPMENT NUMBER HER0728A

INITIALS JKN/LDS

3 2458

SMO SAMPLE #	EPA SAMPLE #	SAMPLE WEIGHT	EXTRACTION VOLUME	OPTION A CLEANUP	OPTION D CLEANUP	SPIKING SOL'N ADDED	COMMENTS
MB1	Methblank	5.00 g	6.0 mL	✓		25 ng II	
SB1	OCL34506	5.00				"	
SS1	OCL35569	5.00				25 ng I	
PE1	PE-A	5.00				25 ng II	
WH2060		5.06					soil
" 2061		5.07					
" 2108		5.04					
" 2109		5.21					
" 2110		5.04					
" 2126		5.20					
" 2127		5.07					
" 2128		5.00					
" 2286		5.08					
" 2287		5.06					
" 2289		5.03					
" 2305		5.04					
" 2306		5.19					
" 2307		5.03	↓	↓		↓	↓

03221824

3 2459

TMS
TANDEM MASS SPECTROMETRY

TMS Analytical Services Inc.

6376 MORENCI TRAIL • TEL (317) 291-5697 • INDIANAPOLIS, INDIANA 46268

August 25, 1988

021610

Dr. Florence K. Kinoshita
Medical Department
Hercules Incorporated
1313 N. Market Street
Wilmington, DE 19894

Dear Dr. Kinoshita:

Enclosed are analytical results for the analysis of 6 samples for 2,3,7,8-TCDD. These samples were analyzed according to the procedures outlined in the USEPA Contract Laboratory Program "Statement of Work for Rapid Turnaround Dioxin Analysis in Multi-Media", November 1986. Sample preparation and analysis procedures from the "Rapid Determination of TCDD In Soil and Sediment Samples, Using Gas Chromatography and Tandem Mass Spectrometry" were used. These samples were received as Shipment HERCULES for analysis on 08/22/88 at 10:30. The analytical results of Filename HER0822A were sent by FAX at 11:20 on August 23, 1988.

If you should have any questions regarding these data or this report, please feel free to contact me at (317)291-5697.

Very truly yours,

Dennis L. Heuring by Dah

Dennis L. Heuring, Ph.D.
President

ENCLOSURES:

HERCULES INC.
RECEIVED
AUG 30 1988
MEDICAL DEPARTMENT

03221825

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TABLE 2 DAILY CALIBRATION SUMMARY FORM

TABLE 3 INITIAL CALIBRATION SUMMARY FORM

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ATTACHMENT 2 DAILY CALIBRATION MASS CHROMATOGRAMS

ATTACHMENT 3 INITIAL CALIBRATION MASS CHROMATOGRAMS

ATTACHMENT 4 BLANK CALIBRATION MASS CHROMATOGRAMS

ATTACHMENT 5 CHAIN OF CUSTODY, GC/MS/MS LOG, EXTRACTION RECORD

021611

TCDD FINAL DATA REPORT SHEET

FILE RECEIVED DATE:
FILE RECEIVED TIME:

SITE: HER
CASE: 0822
DATE: 08/21/88

AREA #	CLIENT SAMPLE #	ANALYSIS DATE	ANALYSIS TIME	NATIVE RATIO	SURROGATE ACC	TCDD CONC.	RERUN CODE	VALID CODE	UNITS	COMMENTS
METHBLANK	METHBLNK	08/22/88	1410	0.00*	76.97	0.300 U			NG/GM	
SOILBLANK	OCL34541	08/22/88	1423	0.12*	75.71	0.300 U			NG/GM	
SOILSPIKE	OCL35548	08/22/88	1443	1.13	84.59	0.808			NG/GM	
SOIL PE	PE-A	08/22/88	1455	1.18	73.31	0.761			NG/GM	
WH2290	WH2290	08/22/88	1508	0.92*	73.31	0.300 U			NG/GM	
WH2291	WH2291	08/22/88	1519	1.00*	73.91	0.300 U			NG/GM	
WH2292	WH2292	08/22/88	1532	0.93*	73.63	0.300 U			NG/GM	

QUALIFICATION FLAGS:

* 257/259 RATIO OUTSIDE OF ACCEPTABLE RANGE
** SURROGATE OUTSIDE OF ACCEPTABLE RANGE
*** HIGH DETECTION LIMIT

RERUN CODES:
A AUTOMATIC RERUN
R REQUESTED RERUN

0216 12

GC/MS/MS WORKSHEET REPORT FORM

SITE: HER
CASE: 0822
DATE: 08/21/88

SURROGATE CONC 0.06 RF NATIVE 2.109 ION RATIO: 1.009 TO 1.233
INTERNAL STD CONC 1.05 RF SURROGATE 2.083 CORRECTION FACTOR: 0.010

LAB SAMPLE #	AREA #	CLIENT SAMPLE #	ANALYSIS DATE	ANALYSIS TIME	SAMPLE AMOUNT	ION 257	ION 259	ION 263	ION 268	RATIO 257/259	SURR ACC	RAW VALUE	UNITS
AUG2206	METHBLANK	METHBLNK	08/22/88	1410	5.00	1	2216	107562	335373	0.00	76.97	-0.007	NG/GM
AUG2207	SOILBLANK	OCL34541	08/22/88	1423	5.00	608	4879	162135	513943	0.12	75.71	0.002	NG/GM
AUG2208	SOILSPIKE	OCL35548	08/22/88	1443	5.00	101053	89265	192526	543148	1.13	84.59	0.808	NG/GM
AUG2209	SOIL PE	PE-A	08/22/88	1455	5.00	156255	132734	268815	874467	1.18	73.31	0.761	NG/GM
AUG2210	WH2290	WH2290	08/22/88	1508	5.03	14911	16129	197611	646436	0.92	73.31	0.090	NG/GM
AUG2211	WH2291	WH2291	08/22/88	1519	5.09	18339	18327	218468	708746	1.00	73.91	0.098	NG/GM
AUG2212	WH2292	WH2292	08/22/88	1532	5.07	40206	43304	438085	1426466	0.93	73.63	0.114	NG/GM

TABLE 3 GC/MS/MS DAILY CALIBRATION CHECK

MEAN NATIVE RF	2.109	NATIVE CONC.	0.20	SITE:	HER
MEAN SURROGATE RF	2.083	SURROGATE CONC.	0.06	DATE:	08/21/88
ION RATIO RANGE	1.009 TO 1.233	INTERNAL STD. CONC .	1.05	CASE:	0822

ANALYSIS DATE	ANALYSIS TIME	ION 257	ION 259	ION 263	ION 268	RATIO 257/259	RF NATIVE	NATIVE RF %DIFF.	RF SURROGATE	SURROGATE RF % DIFFERENCE	COMMENTS
08/22/88	1356	72303	65108	44286	346734	1.111	2.081	1.33	2.196	5.42	

* ION RATIO MUST BE WITHIN ACCEPTABLE RANGE OF INITIAL CALIBRATION
** NATIVE % DIFFERENCE MUST BE LESS THAN 10% FROM INITIAL CALIBRATION

021614

TABLE 1 GC/MS/MS INITIAL CALIBRATION

SITE CODE: HER
CASE: 0822
DATE: 10/13/87

SOLUTION ID	ION 257	ION 259	ION 263	ION 268	NATIVE CONC	SURROGATE CONC	INT. STD CONC	RF NATIVE	RF SURROGATE	RATIO 257/259	COMMENTS
CC1-1	73881	67752	43569	345176	0.20	0.06	1.05	2.154	2.168	1.090	
CC1-2	76844	69768	45279	362015	0.20	0.06	1.05	2.126	2.149	1.101	
CC1-3	82583	73708	47294	382379	0.20	0.06	1.05	2.146	2.124	1.120	
							MEAN	2.142			
							STD DEV	0.014			
							% RSD	0.65			
CC2-1	324838	283704	77330	301890	1.00	0.11	1.05	2.117	2.334	1.145	
CC2-2	358491	321128	85961	323744	1.00	0.11	1.05	2.204	2.420	1.116	
CC2-3	334056	291974	79920	312887	1.00	0.11	1.05	2.101	2.328	1.144	
							MEAN	2.141			
							STD DEV	0.055			
							% RSD	2.57			
CC3-1	1081980	966175	92814	208328	5.00	0.20	1.05	2.065	2.044	1.120	
CC3-2	1989496	1775627	177692	387550	5.00	0.20	1.05	2.040	2.116	1.120	
CC3-3	2046320	1823272	181766	401030	5.00	0.20	1.05	2.026	2.090	1.122	
							MEAN	2.044	2.083		
							STD DEV	0.020	0.036		
							% RSD	0.97	1.73		

RF NATIVE OVERALL MEAN 2.109
STD DEV 0.056
% RSD 2.674

RF SURROGATE OVERALL MEAN 2.083
STD DEV 0.036
% RSD 1.728

OVERALL RATIO 257/259 MEAN: 1.121
RANGE: 1.009 TO 1.233

* RF NATIVE % RELATIVE STANDARD DEVIATION MUST BE LESS THAN 10%

** RATIO OF 257/259 OUTSIDE OF ACCEPTABLE RANGE

021615

TABLE 2 BLANK SUMMARY FORM

SITE: HER CASE : 0822 DATE: 05/04/87

SOLUTION ID	ION 257	ION 259	ION 268	BLANK RESPONSE	NATIVE CONC
1	355	5301	715479	0.008	0.019
2	1500	6454	766148	0.010	0.025
3	981	3057	526670	0.008	0.018
4	1303	5610	906231	0.008	0.018
5	1825	4805	727729	0.009	0.022
6	2058	5231	653736	0.011	0.026
7	707	4542	541920	0.010	0.023
8	1260	6293	667676	0.011	0.027
9	558	3819	537461	0.008	0.019
10	744	3791	619160	0.007	0.017
11	1403	6817	761787	0.011	0.026
12	1	3932	330813	0.012	0.028
13	1360	4860	609680	0.010	0.024
14	663	4014	508056	0.009	0.022
15	1307	6514	855393	0.009	0.022
16	1316	4457	591202	0.010	0.023
17	1772	7181	796307	0.011	0.027
18	2182	4927	645435	0.011	0.026
19	2257	5650	596849	0.013	0.031
20	562	3543	554208	0.007	0.018

CORRECTION FACTOR = 0.010
LIMIT OF DETECTION = 0.014

* LIMIT OF DETECTION MUST BE LESS THAN 0.3

021616

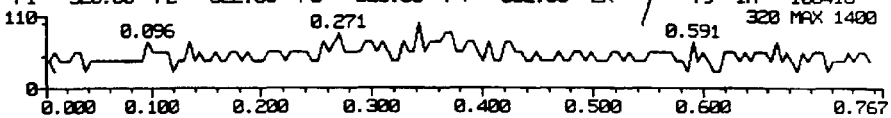
ATTACHMENT 1

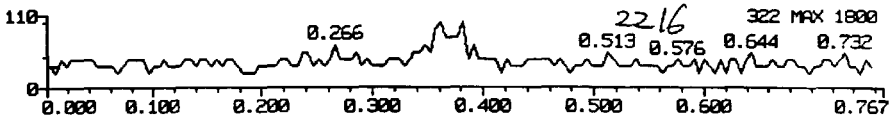
SAMPLE MASS CHROMATOGRAMS

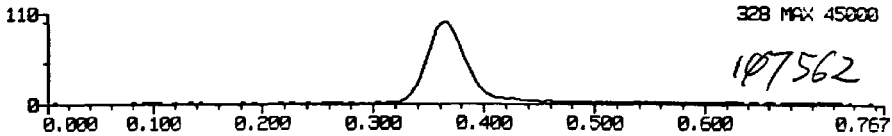
021617

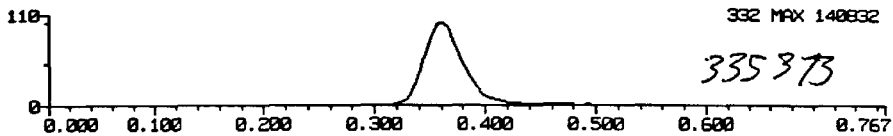
AUG2206 1 MIMI METHOD BLANK IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	106416









22-AUG-88		14:10:23	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.220					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

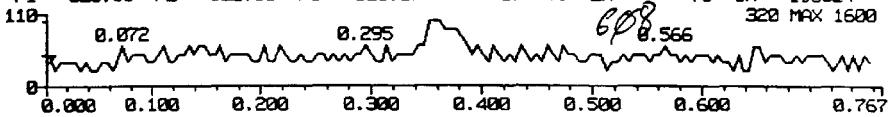
14:10:23

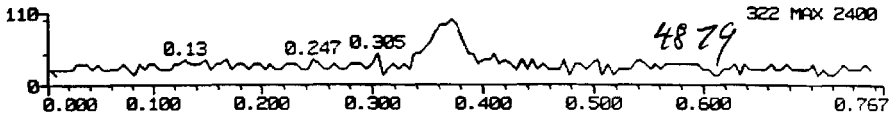
	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

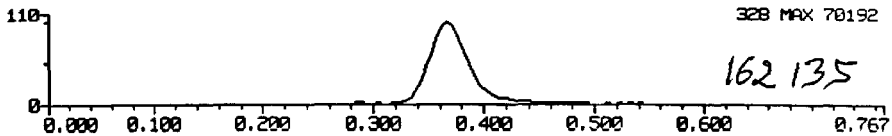
0216118

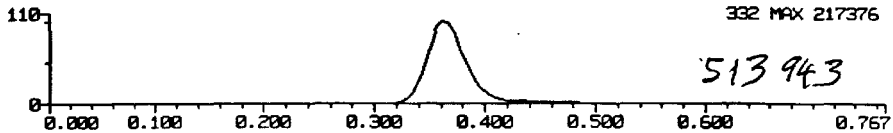
AUG2207 1 MIMI SOIL BLANK IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	190624









22-AUG-88		14:23:07	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.150					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

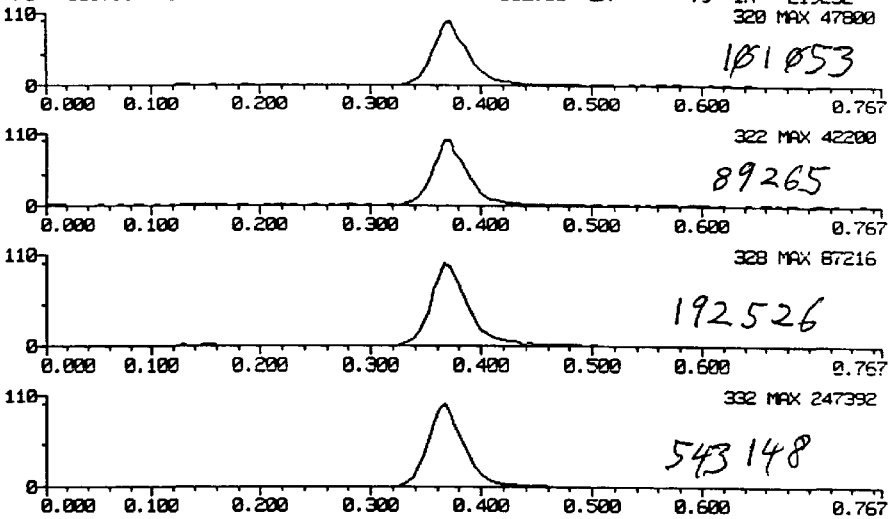
14:23:07

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021619

AUG2208 1 MIMI SOIL SPIKE IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	219232



	22-AUG-88		14:43:37	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.140					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

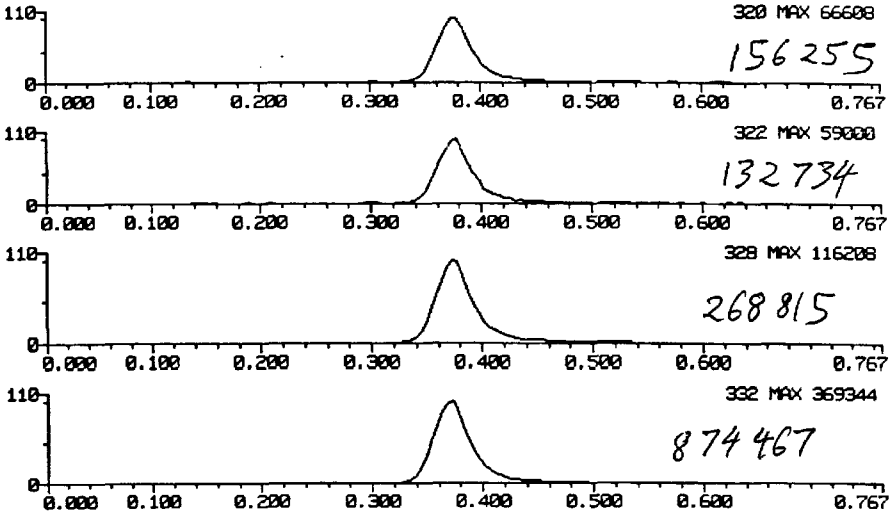
14:43:37

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021620

AUG2209 1 MIMI SOIL PE IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	369344



	22-AUG-88		14:55:45	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.190					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

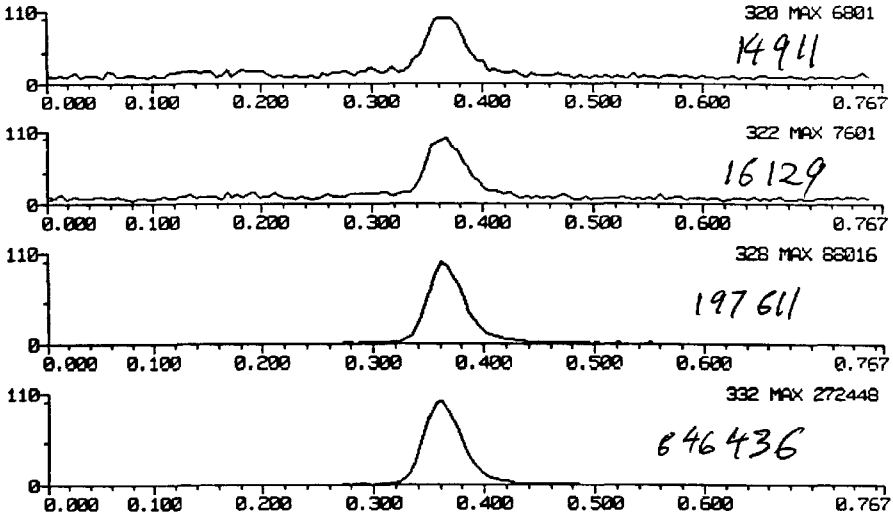
14:55:45

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021621

AUG2210 1 MIMI 2290 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	213600



22-AUG-88		15:08:02		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.220					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:08:02

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

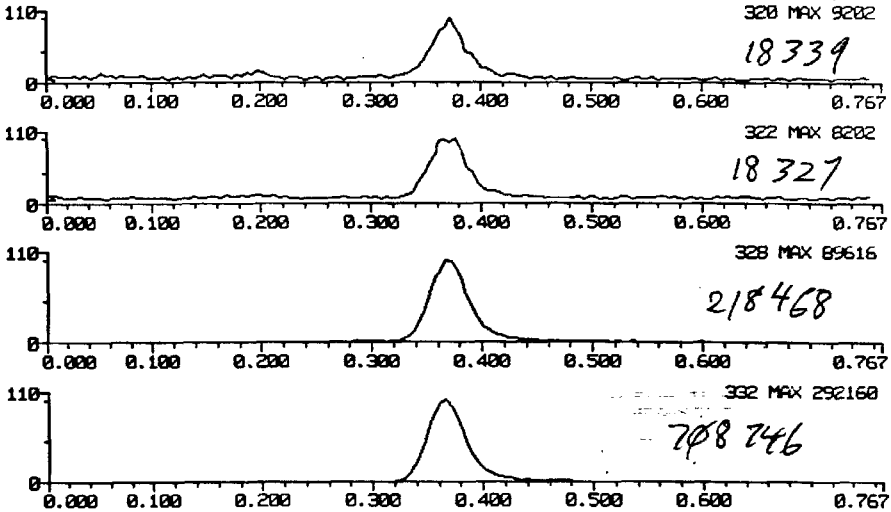
KEM

021622

03221837

AUG2211 1 MIMI 2291 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	266816



22-AUG-88		15:19:58		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.200					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:19:58

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

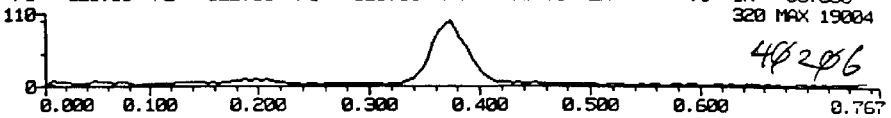
KEM

021623

03221838

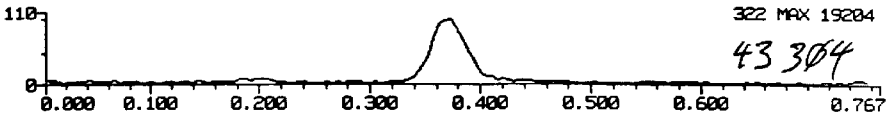
AUG2212 1 MIMI 2292 IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	567680



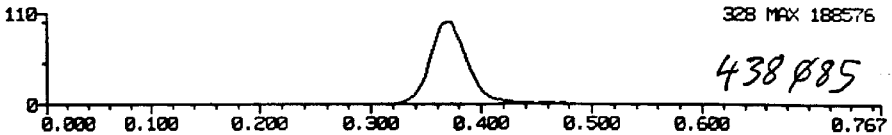
320 MAX 19004

402Ø6



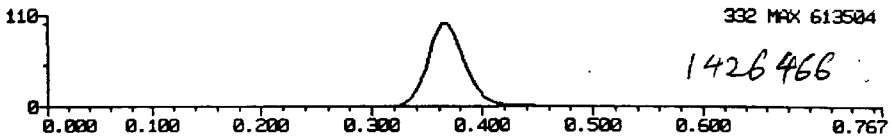
322 MAX 19204

43 3Ø4



328 MAX 188576

438 Ø85



332 MAX 613504

1426466

22-AUG-88 15:32:36

SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.230					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

OP KEM MTL 0.0500 STEP 0.1000 PE 0.00

15:32:36

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

K.E.M.

021624

03221839

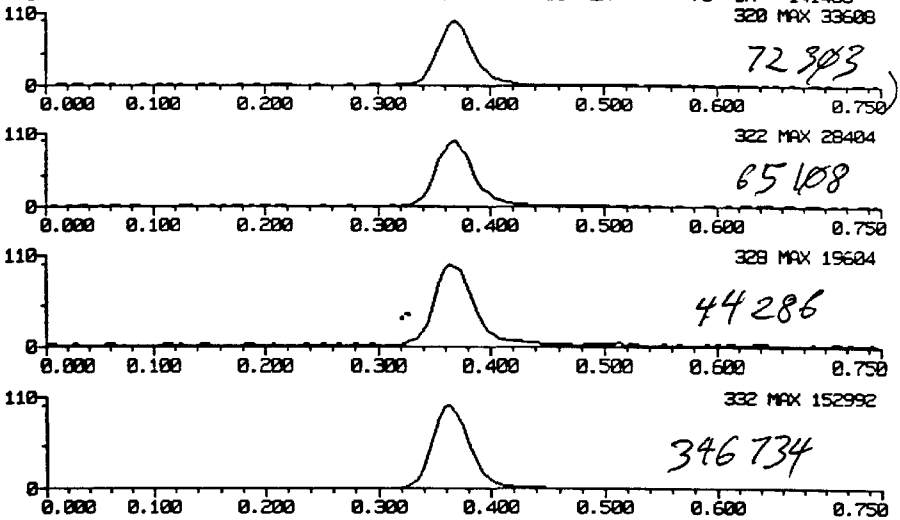
ATTACHMENT 2

DAILY CALIBRATION MASS CHROMATOGRAMS

021625

AUG2205 1 MIMI CAL 1 IM

SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	78
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	141408



1.111 ✓

021626

22-AUG-88		13:56:20		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.160					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

13:56:20

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

Native RRF: 2.081
(98.7%)

KEM

03221841

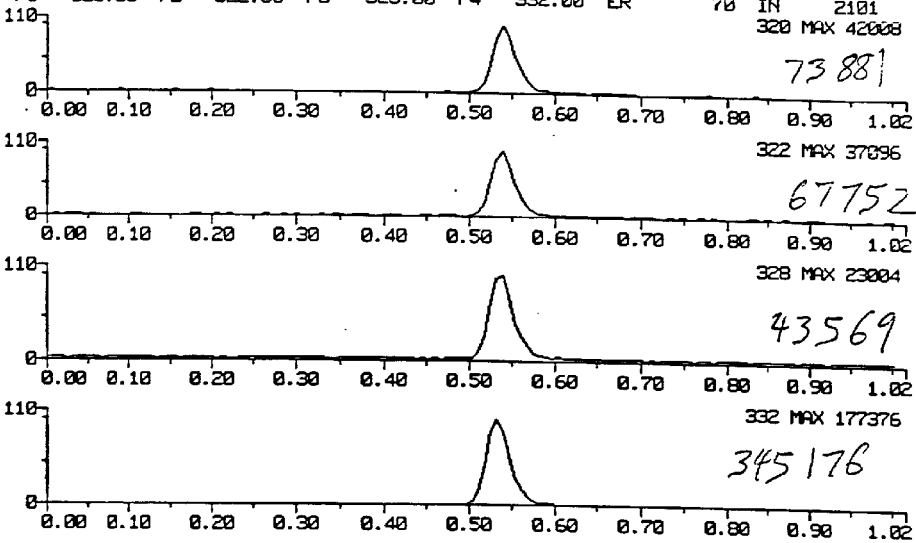
ATTACHMENT 3

INITIAL CALIBRATION MASS CHROMATOGRAMS

021627

OCT1309 1 MIMI CAL I (C-077-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	2101



Ratio 1.090

021628

13-OCT-87		17:11:31		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:11:31

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

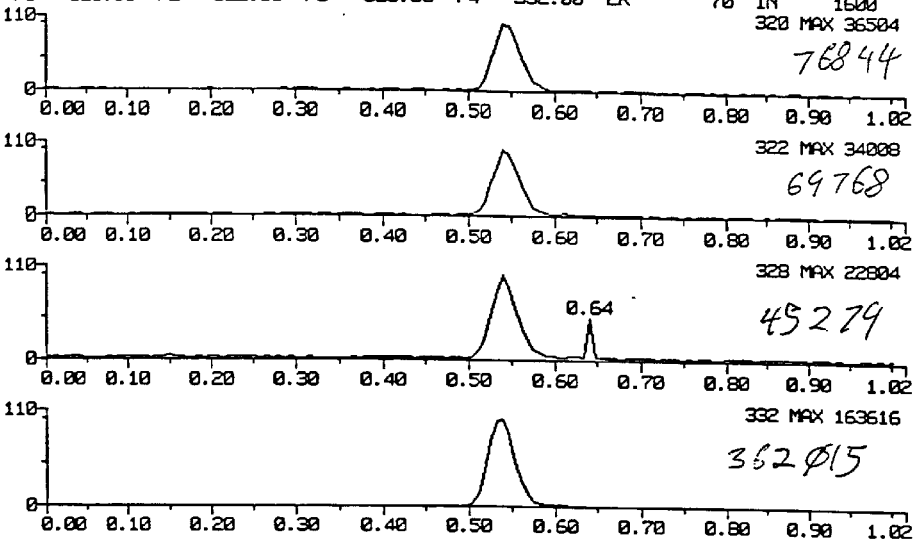
K.E.M.

$RRF_{native} = 2.154$

$RRF_{surr} = 2.168$

OCT1303 1 MIMI 1 UL CAL I IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1600



13-OCT-87		15:36:52		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:36:52

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

Native RF 2.126

Surr RRF 2.148

Nd 0.2

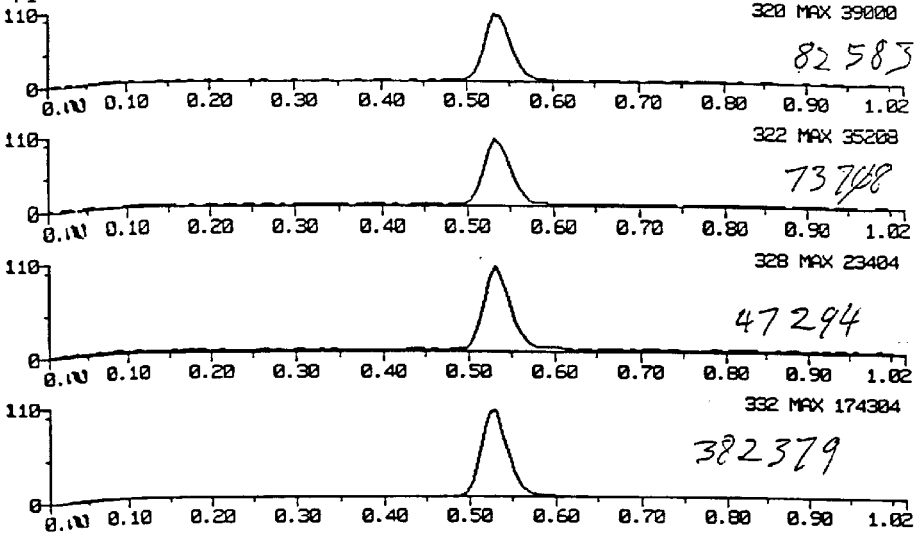
I.S. 1.05

Surr 0.00

021629

OCT1310 1 MIMI CAL I (C-077-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	9102



13-OCT-87 17:24:01

				OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.018					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:24:01

CG=SW

1	320	257
	322	259
	328	263
	332	268

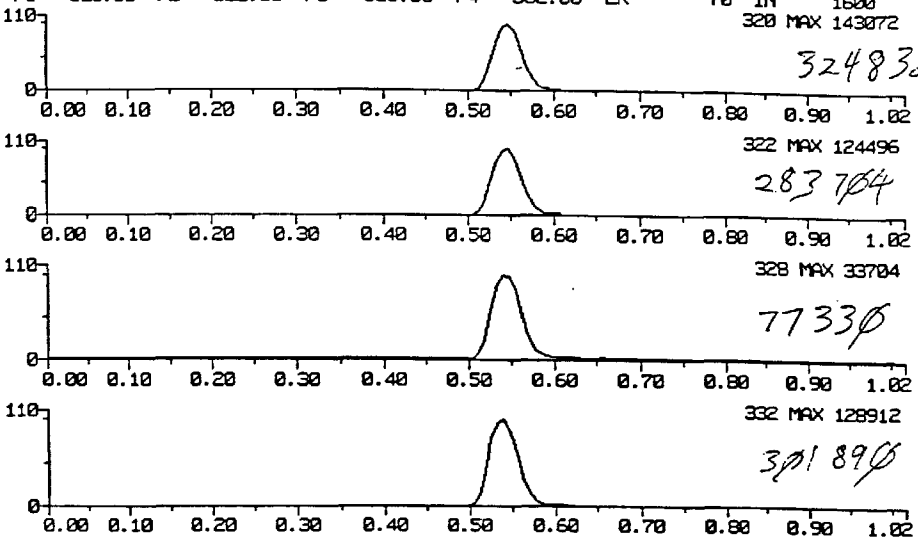
RRF_{native} = 2.146

RRF_{sum} = 2.123

0216300

OCT1308 1 MIMI CAL II (C-078-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1600



13-OCT-87		16:58:26		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.983					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:58:26

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

R.E.D.

$RRF_{std} = 2.117$

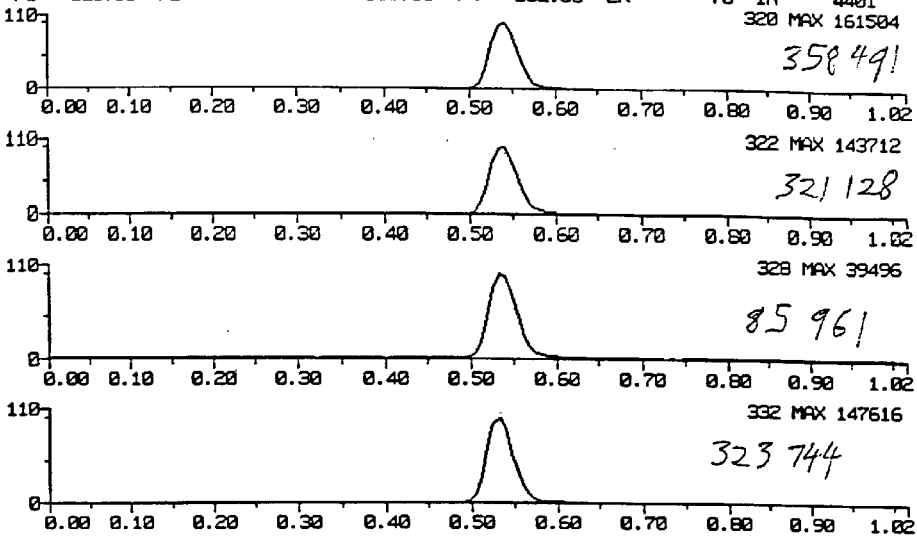
$RRF_{surr} = 2.333$

021631

03221846

OCT1307 1 MIMI CAL II (C-078-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	4401



Ratio 1.116

13-OCT-87		16:41:35		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.991					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:41:35

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

RRF native = 2.204

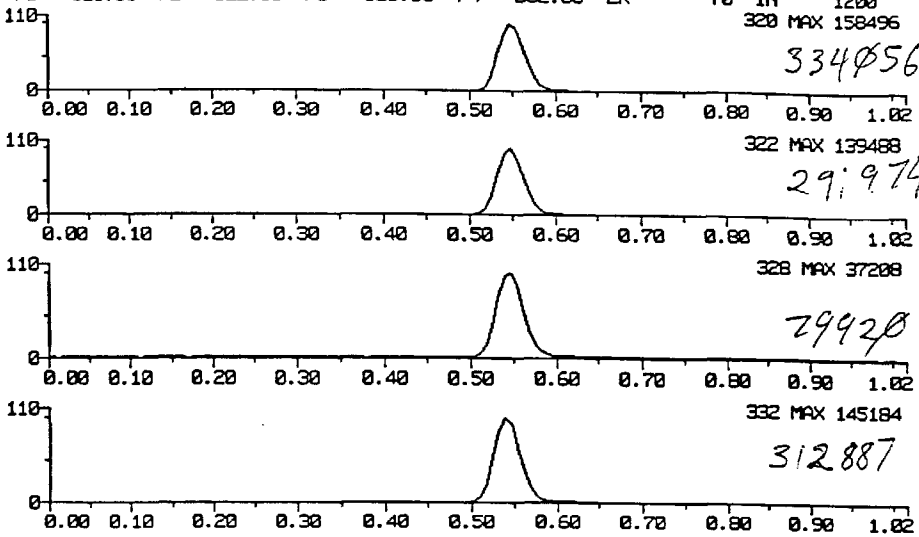
RRF sum = 2.419

0216632

03221847

OCT1302 1 MIMI 1 UL CAL II IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70		
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1200		



ratio 1.144

021633

13-OCT-87		15:24:15		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.006					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:24:15

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

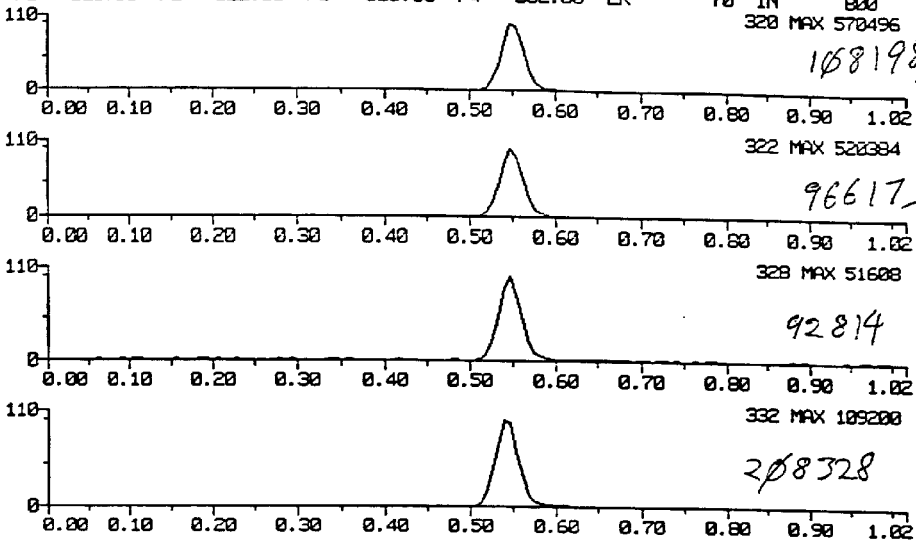
K.E.M.

Native RF: 2.10!

Surr RRF 2.327

OCT1305 1 MIMI CAL III (C-079-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	800



Ratio 1.120

021634

13-OCT-87		16:15:36		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.977					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:15:36

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

KLM

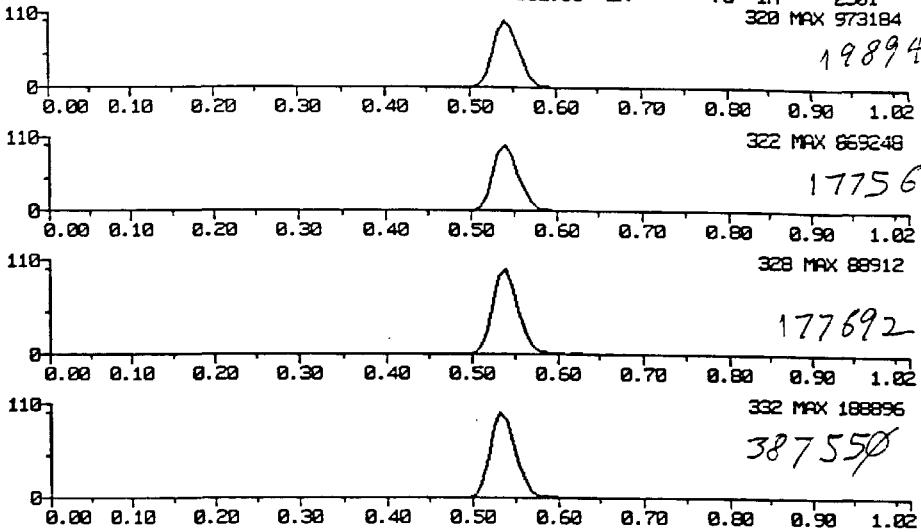
$RRF_{std} = 2.065$

$RRF_{surr} = 2.042$

OCT1306 1 MIMI CAL III (C-079-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	2301

Ratio 1.120



13-OCT-87		16:27:40		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.981					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:27:40

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

KEM.

RRF_{std} = 2.040

RRF_{sum} = 2.113

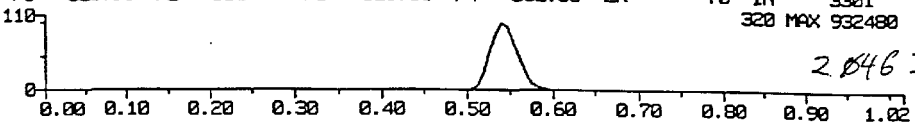
021635

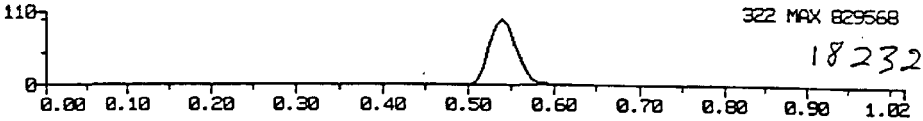
03221850

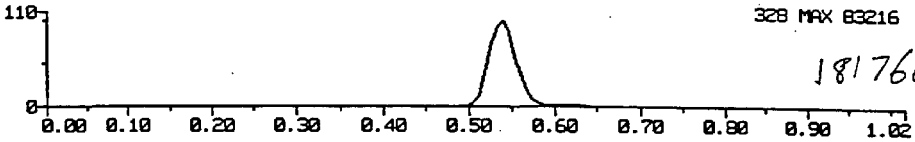
OCT1304 1 MIMI 1 UL CAL III IM

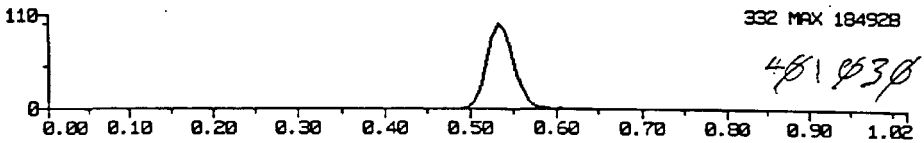
SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	3301

Ratio 1.122









13-OCT-87		15:51:02		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.000					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:51:02

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

Native RF: 2.026

RRF_{surr} = 2.088

021636

03221851

ATTACHMENT 4

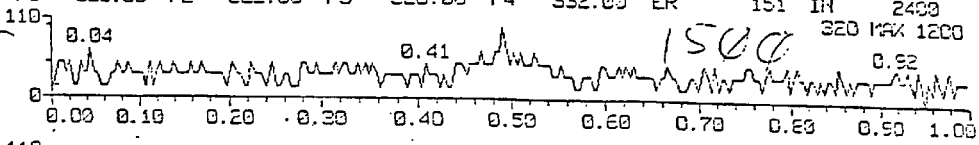
BLANK CALIBRATION MASS CHROMATOGRAMS

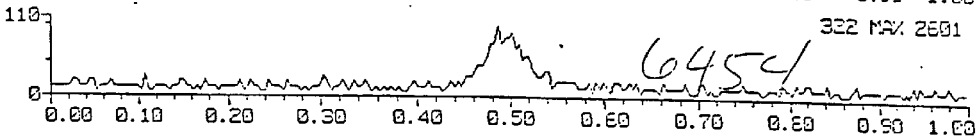
021637

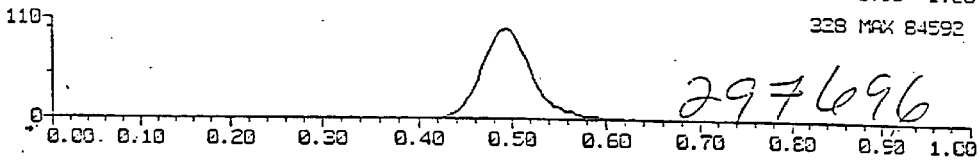
03221852

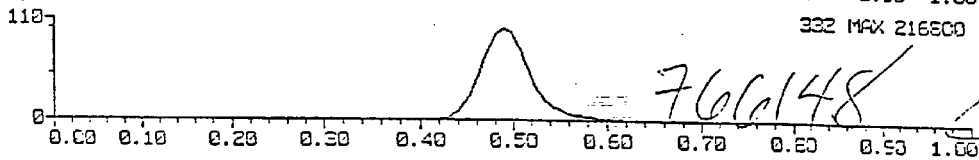
MAY0422 1 MIMI SPIKE II C-095 3/85 IN

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	151	IN	2400









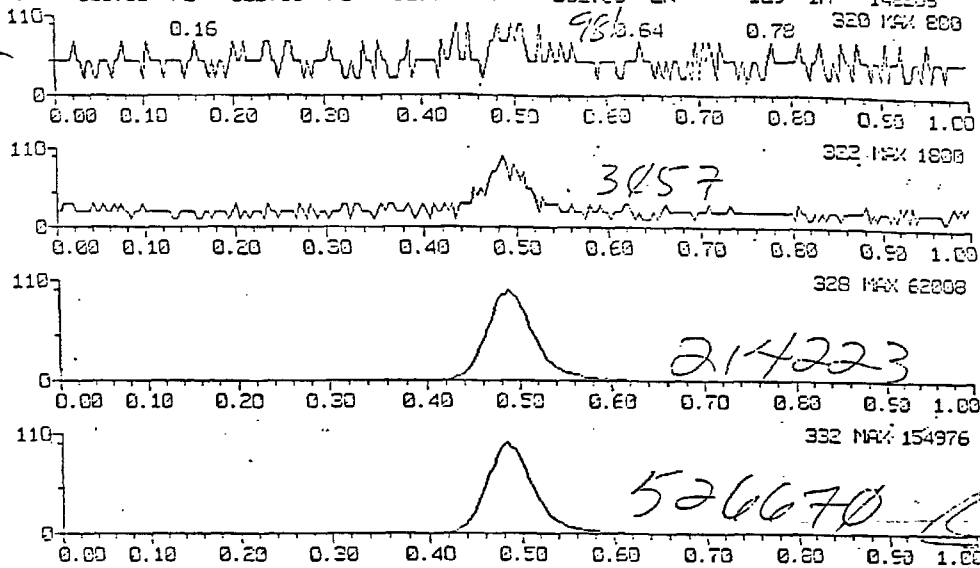
	4-MAY-87		09:29:22	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1200	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.006					MU	-4000.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SPF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:29:22

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

MAY0421 1 MIMI SPIKE II C-095 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LINNP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	148208



	4-MAY-87		09:23:10	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4603.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SHF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	85.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:23:10

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

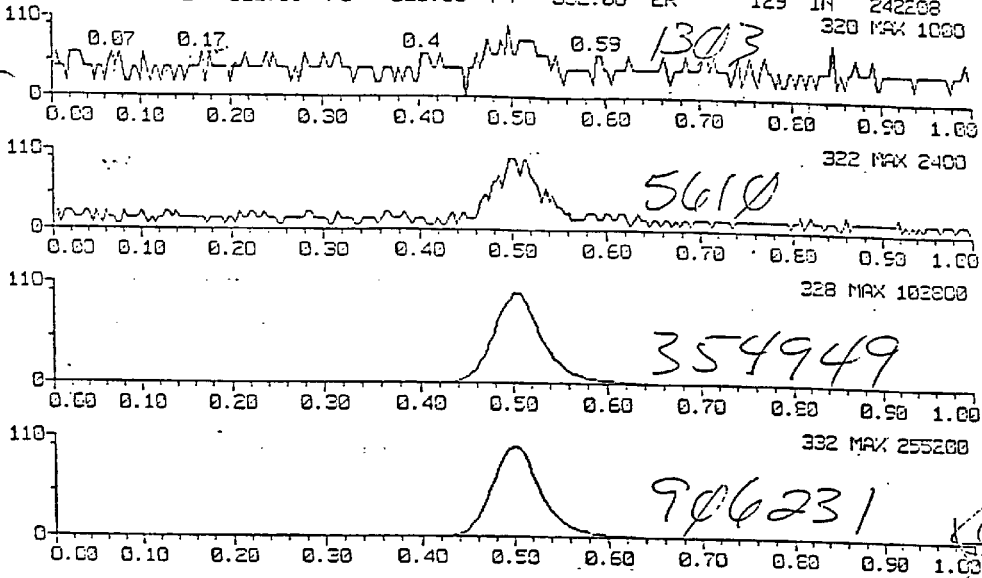
021640

03221855

MAY0420 1 MIMI SPIKE II C-096 3/85 IM

3 2490

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	242208



	4-MAY-87		09:17:38	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1200	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.007					MU	-4000.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SPF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:17:39

CG=SW

1	320	257
	332	259
	328	263
	332	268

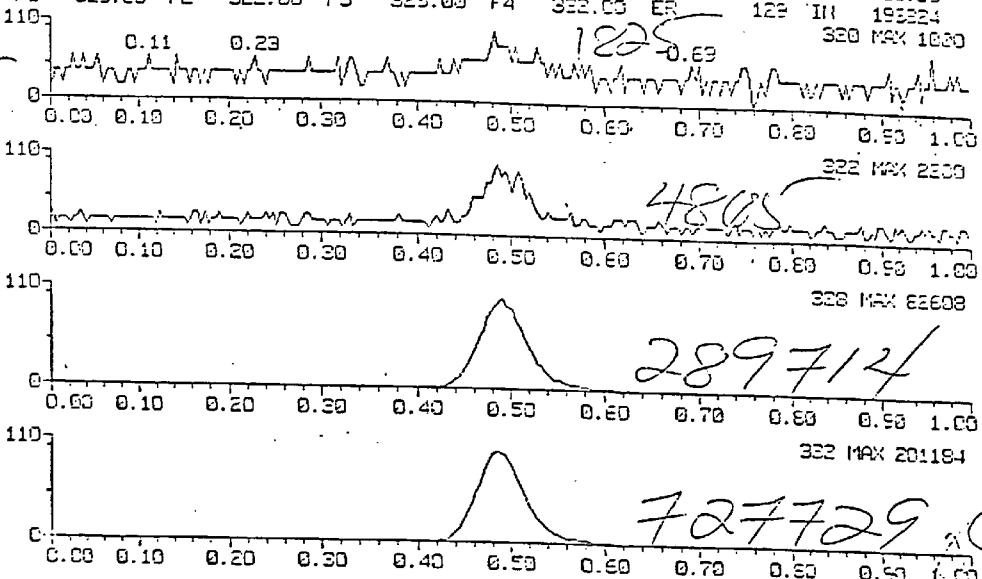
021641

03221856

3 2491

MAY0419 1 MIMI SPIKE II C-095 3/65

SS	1	ES	258	BO	0	TO	110	GR		LNKP	SE 129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR		129	TI 00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER		129	IN 193324



	4-MAY-87		09:09:56	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1280	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
2	0.000	LT	0.00	DIV	-0.992					MU	-4800.0
3	0.0200	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

CG=SM 09:09:56

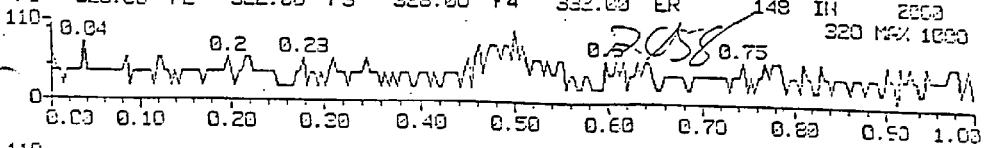
1	320	257
	322	259
	328	263
	332	268

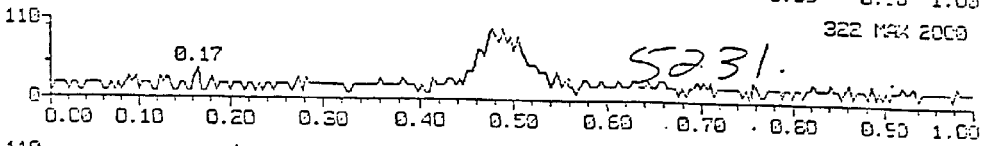
02164 2

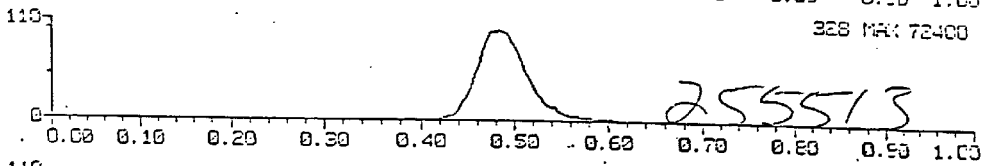
03221857

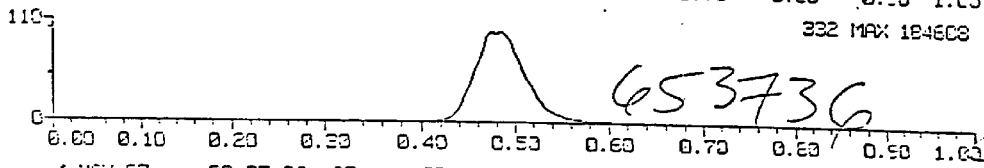
MAY0418 1 MIMI SPIKE II C-096 3/85 TM

SS	1	ES	258	BO	0	TO	110	GR	LNMP	SE	109
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	148	IN	2000









4-MAY-87 09:05:06

SY	200	SE	0	CP	10	MTL	0.0500	STEP	0.1000	PE	0.00
G1	0.000	IT	0.00	DI	-1.020	MCL	1250	TH	100	TT	1.00
G2	0.000	LT	0.00	DIV	-0.995			MO	-1.000	FP	60.00
G3	0.0000	DT	0.000	IN	0.00					MU	-4500.0
G4F	0.0	GR	0.10	CR	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
DT7	0.000	ST	0.00	RO	-60.00	RE1	65.00	CG	OFF	RE3	65.00
						R1	-20.00	R2	-55.00	R3	-55.00

09:05:06

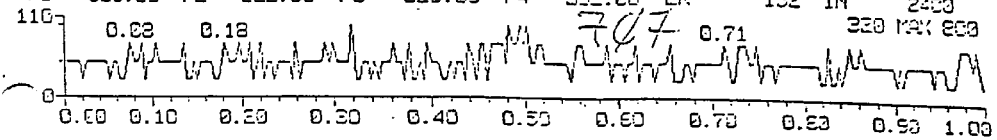
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

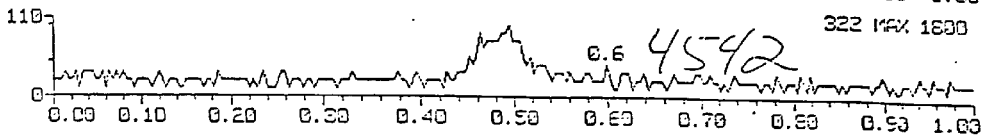
.021643

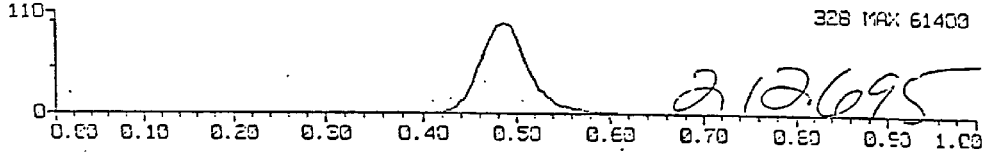
03221858

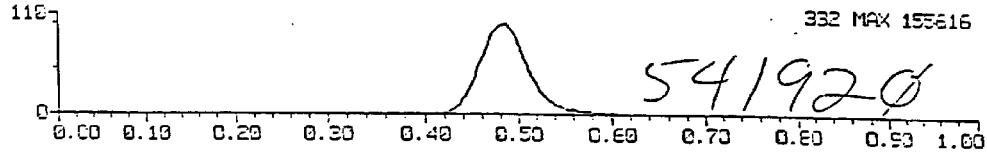
3 2493

SS	1	ES	258	BO	0	TO	110	GR	LINEAR	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400









	4-MAY-87		09:00:24	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MOL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.991					MU	-4800.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
DF	0.0	GR	0.10	GR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:00:24

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

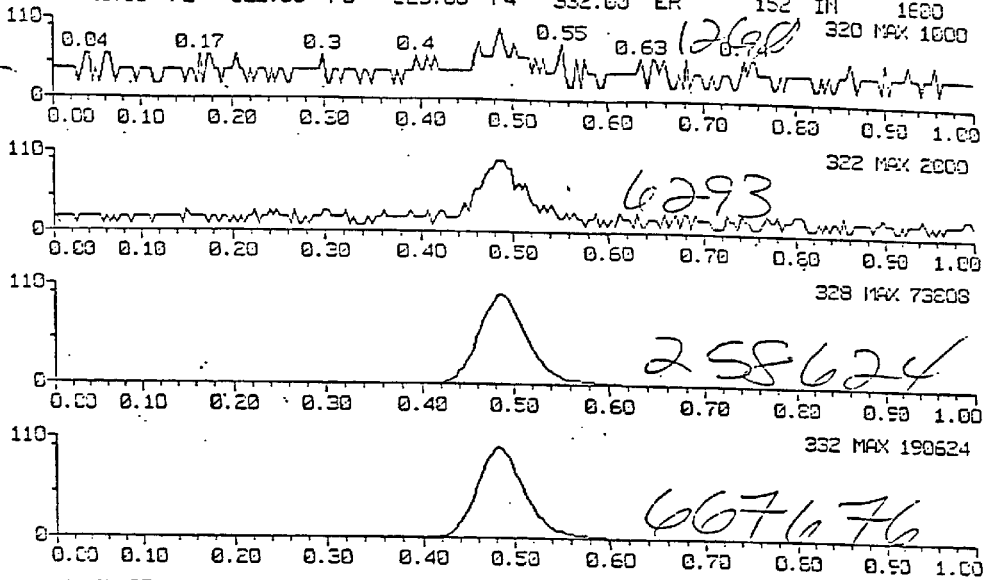
021644

03221859

MAY0416 1 MIMI SPIKE II C-096 3/85 IM

3 249.

SS	1	ES	258	BO	0	TO	110	GR	LN#P	SE	108
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	103	TI	00:00:25
F1	320.00	F2	322.00	F3	323.00	F4	332.00	ER	152	IN	1600



4-MAY-87		08:55:50	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1200	TH	100	TT	1.00
G1	0.200	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.591					MU	-4800.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	FE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:55:50

	CG=SW	
1	320	257
	322	259
	323	263
	332	268

0 2 1 6 4 5

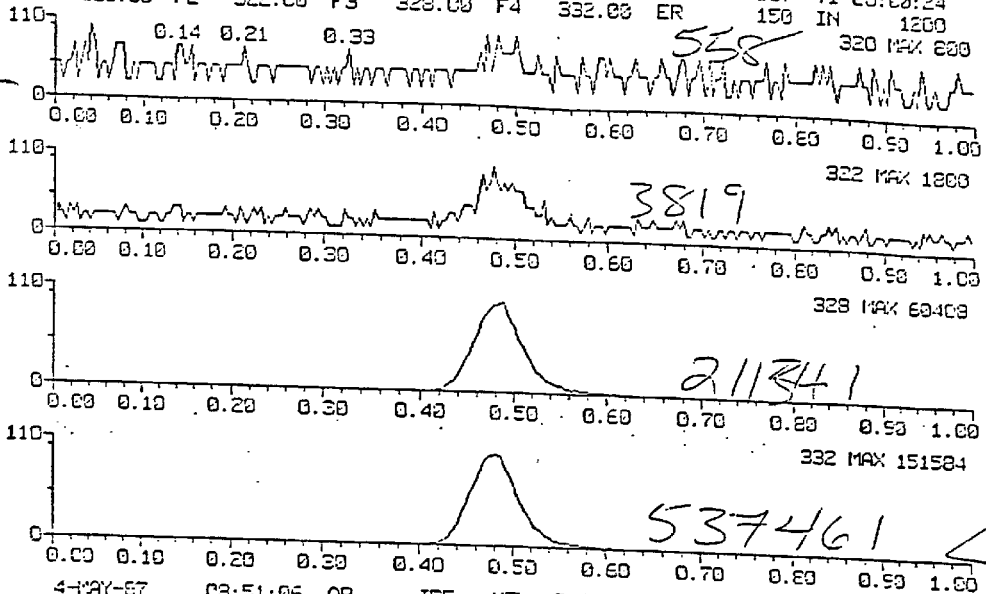
03221860

SPIKE II C-095 3/85

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	107	IM	
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	107	TI	00:00:24		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	150	IN	1200		

3 249

2495



0216646

	4-MAY-87		08:51:06	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.994					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-60.00	R2	-55.00	R3	-65.00

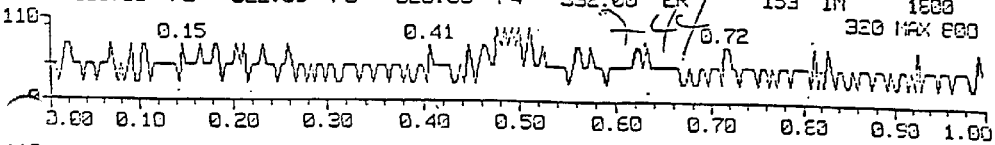
CG=SW 08:51:06

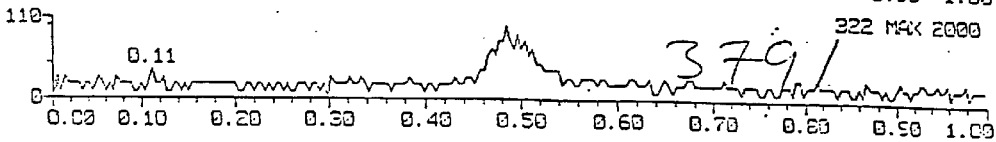
1	320	257
	322	259
	328	263
	332	268

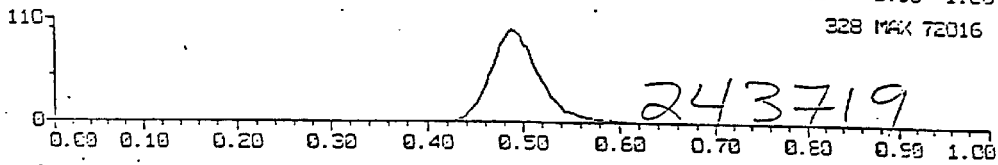
03221861

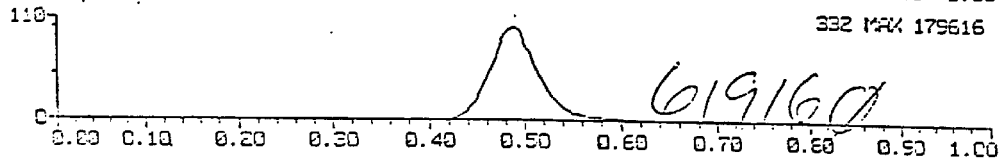
3 249

SS	1	ES	258	BO	0	TO	110	GR	LNIP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	153	IN	1000









	4-MAY-97		09:46:23	CP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SV	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.994					MU	-4600.0
	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
F	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:46:23

	CG=SN	
1	320	257
	322	259
	328	263
	332	268

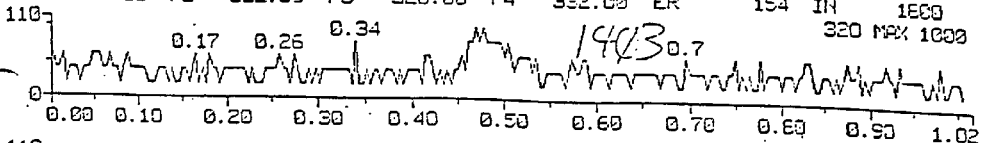
021647

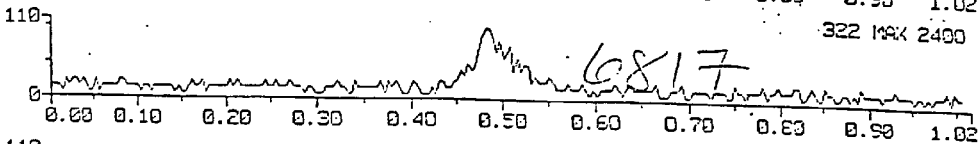
03221862

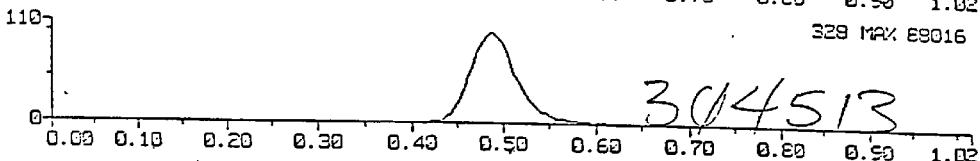
MAY0413 . 1 MIMI SPIKE II C-056 3/85

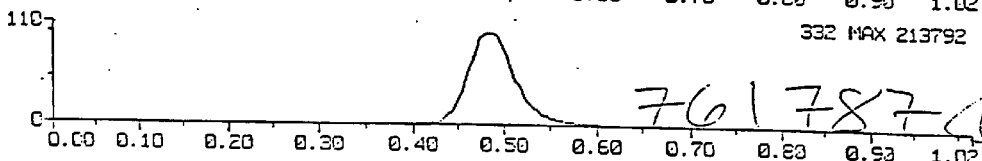
3 249

SS,	. 1	ES	260	BO	0	TO	110	GR		LINP	SE	IM 109
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR		109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER		154	IN	1600









021648

	4-MAY-87		09:41:40	CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.010					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	85.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:41:40

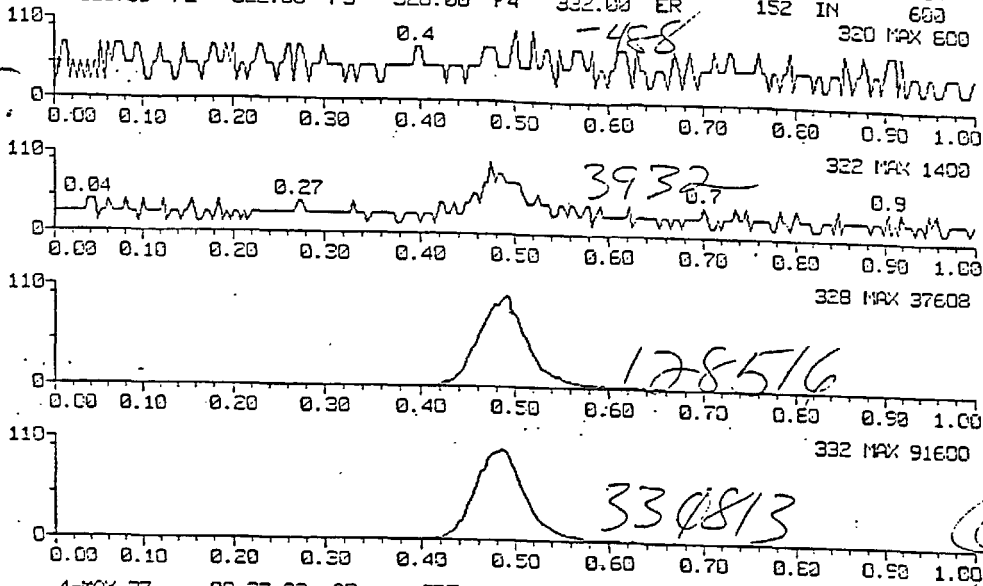
	CG=SN	
1	320	257
	322	259
	328	263
	332	268

03221863

MAY0412 1 MIMI SPIKE II C-096 3/85

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	105	IM	
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	105	TI	00:00:24		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	600		

3 249



4-MAY-87		08:37:03	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00	
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.000					MU	-4800.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SHF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:37:03

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

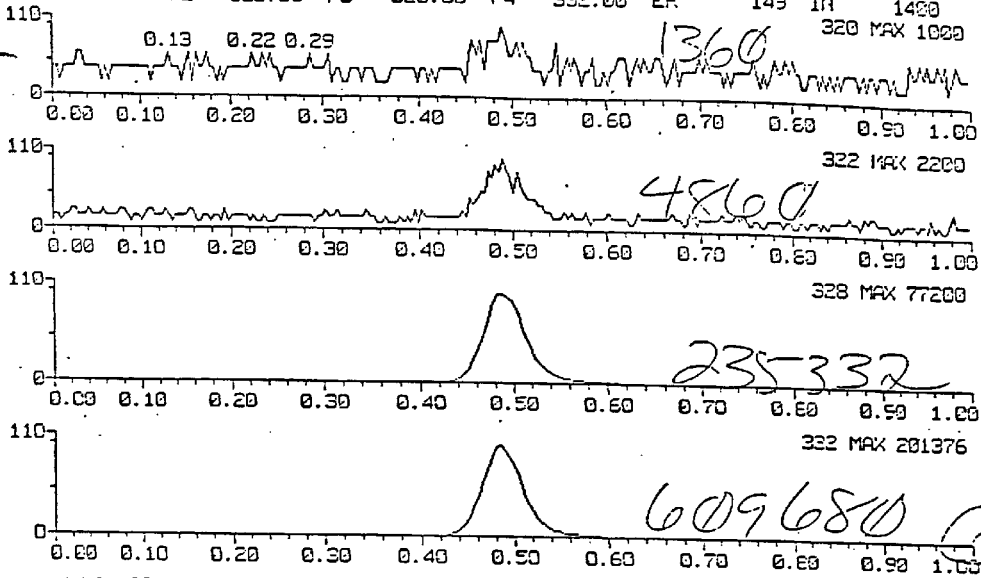
021649

03221864

MAY0411 1 MIMI SPIKE II C-096 3/85

S3	1	ES	258	BO	0	TO	110	GR	LNNP	SE	111
M1	257.00	M2	259.00	M3	263.00	M4	269.00	SR	111	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	149	IN	1400

IM 3 2499



	4-MAY-87		08:32:16	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.986					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SPF	0.0	GR	0.10	OR	0.00	FE1	65.00	CG	OFF	FE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:32:16

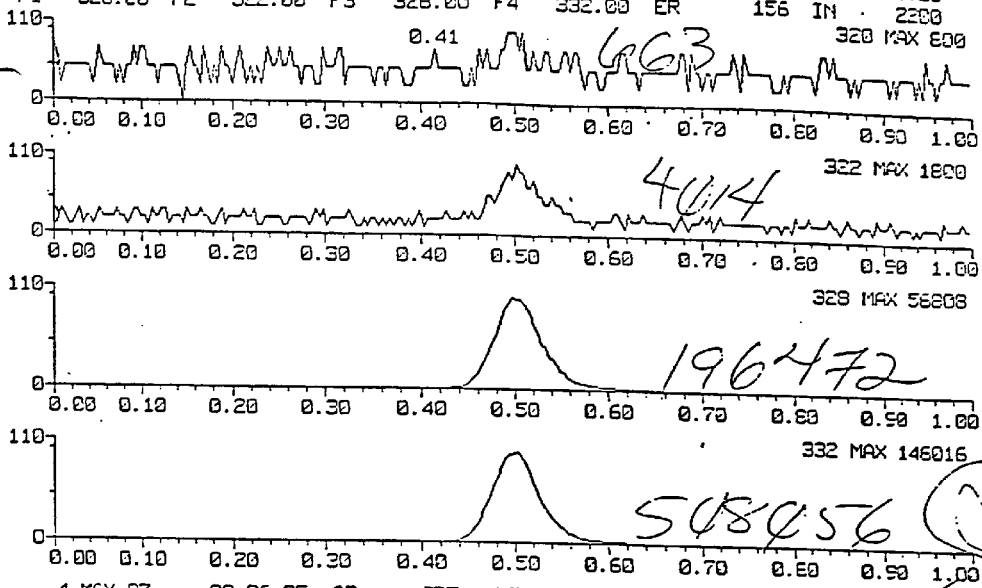
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021650

03221865

MAY0410 1 MIMI SPIKE II C-096 3/85

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	114	IM	3 2500
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	114	TI	00:00:26		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	156	IN	2200		



0216651

	4-MAY-87		08:26:35	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:26:35

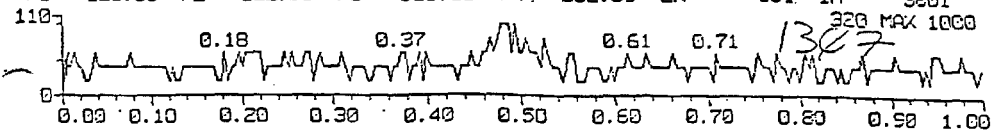
	CG=SN	
1	320	257
	322	259
	328	263
	332	268

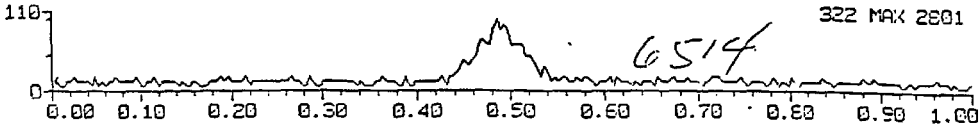
03221866

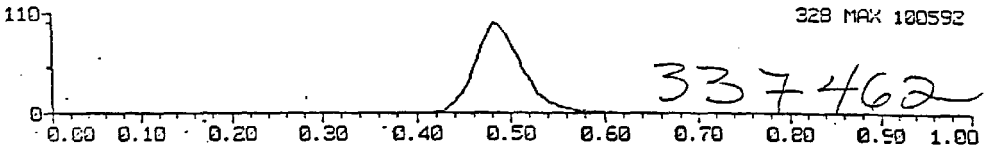
MAY0409 1 MIMI SPIKE II C-095 3/85 IM

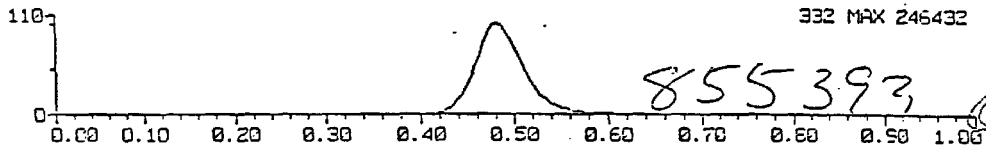
SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	109
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	151	IN	3801

3 2501









021652

	4-MAY-87		08:21:17	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.997					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SPF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	85.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:21:17

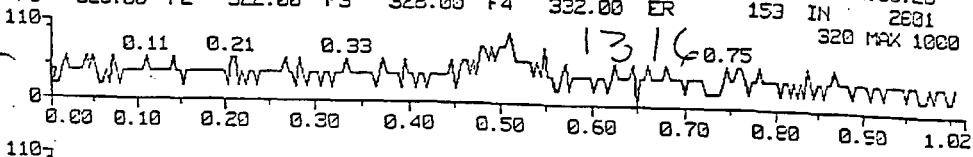
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

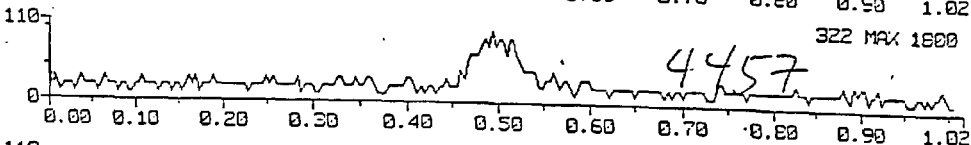
03221867

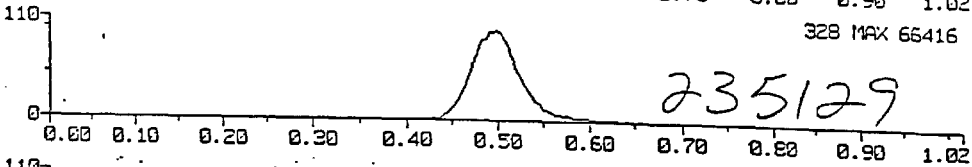
MAY0408 1 MIMI SPIKE II C-096 3/85 IM

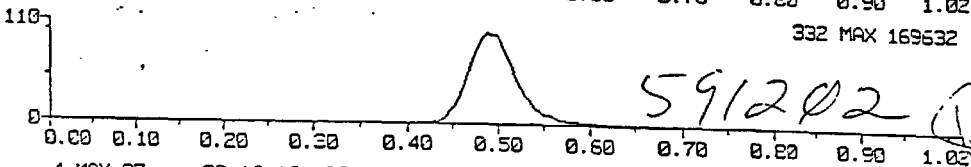
3 2502

SS	1	ES	260	BO	0	TO	110	GR	LNNP	SE	112
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	112	TI	00:00:26
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	153	IN	2601









4-MAY-97 08:16:16

SY	200	SE	0	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
G1	0.020	IT	0.00	C	10	MCL	1260	TH	100	TT	1.00
G2	0.000	LT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G3	0.0000	DT	0.000	DIV	-0.994					MU	-4600.0
SAF	0.0	GR	0.10	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
DTV	0.000	ST	0.00	OR	0.00	RE1	65.00	CG	OFF	RE3	85.00
				RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:16:16

	CG=SW	
1	330	257
	322	259
	328	263
	332	268

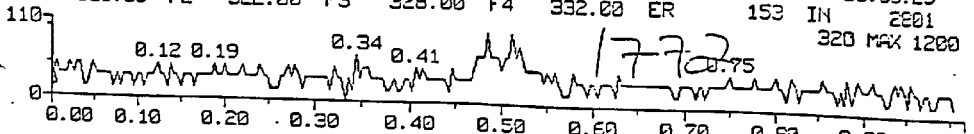
021653

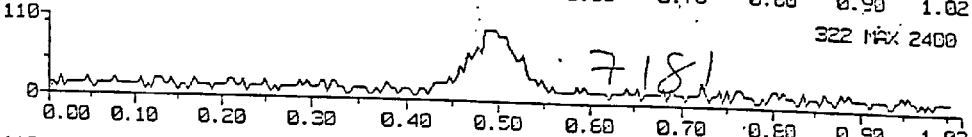
03221868

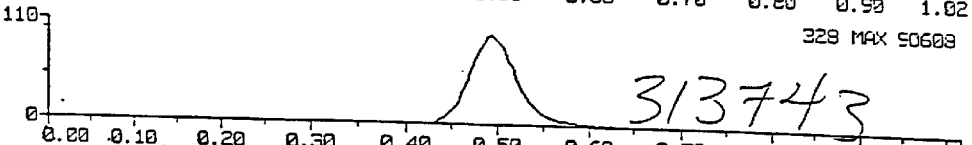
MAY0407 1 MIMI SPIKE II C-095 3/65

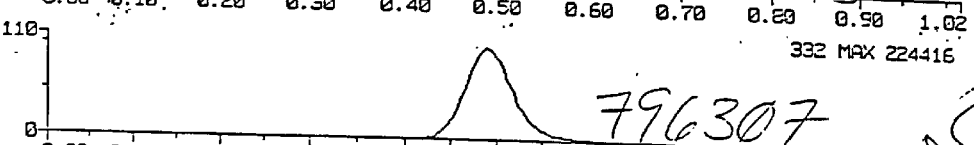
SS	1	ES	260	BO	0	TO	110	GR		LNNP		SE	111
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR		111		TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER		153		IN	2801

3 2503









1

4-MAY-87		08:10:46	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.004					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

CG=SW 08:10:46

1	320	257
	322	259
	328	263
	332	268

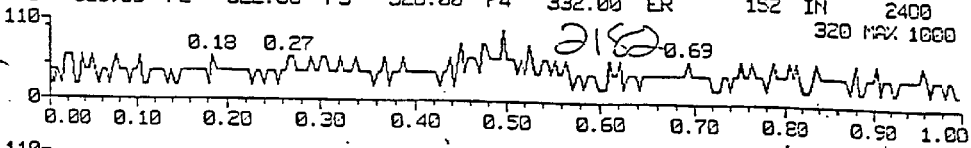
021654

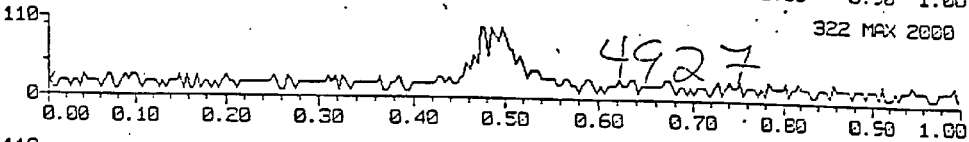
03221869

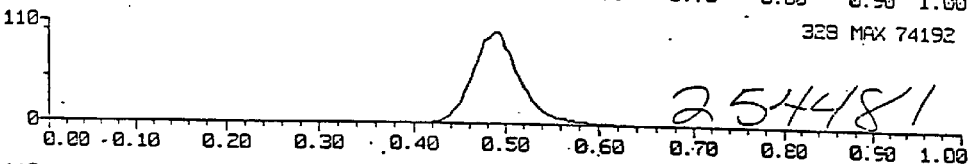
MAY0405 1 MIMI SPIKE II C-096 3/85 IM

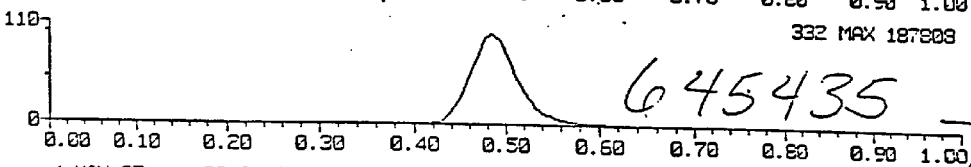
3 2504

SS	1	ES	258	BO	0	TO	110	GR		LNNP	SE	110	
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR		110	TI	00:00:25	
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER		152	IN	2400	









4-MAY-87 08:06:01

SY	200	SE	0	C	10	MTL	0.0500	STEP	0.1000	FE	0.00		
G1	0.000	IT	0.00	DI	-1.000	MCL	1260	TH	100	TT	1.00		
G2	0.000	LT	0.00	DIV	-1.012			MO	-1.000	FP	60.00		
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	MU	-4600.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	DM3	0.00	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00		

08:05:01

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

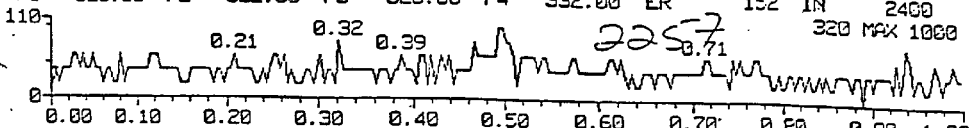
02165 5

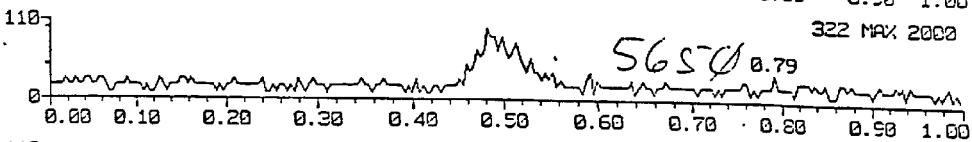
03221870

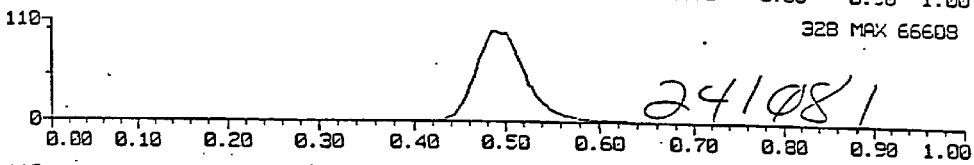
MAY0405 1 MIMI SPIKE II C-096 3/SS IM

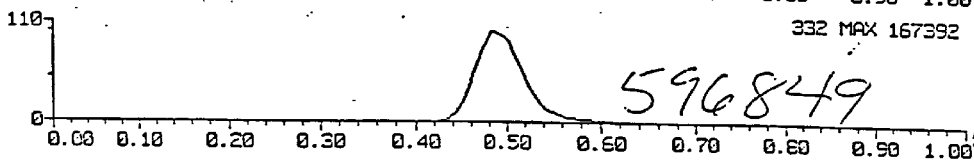
3 2501

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	111
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	111	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400









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SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.995					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:00:47

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

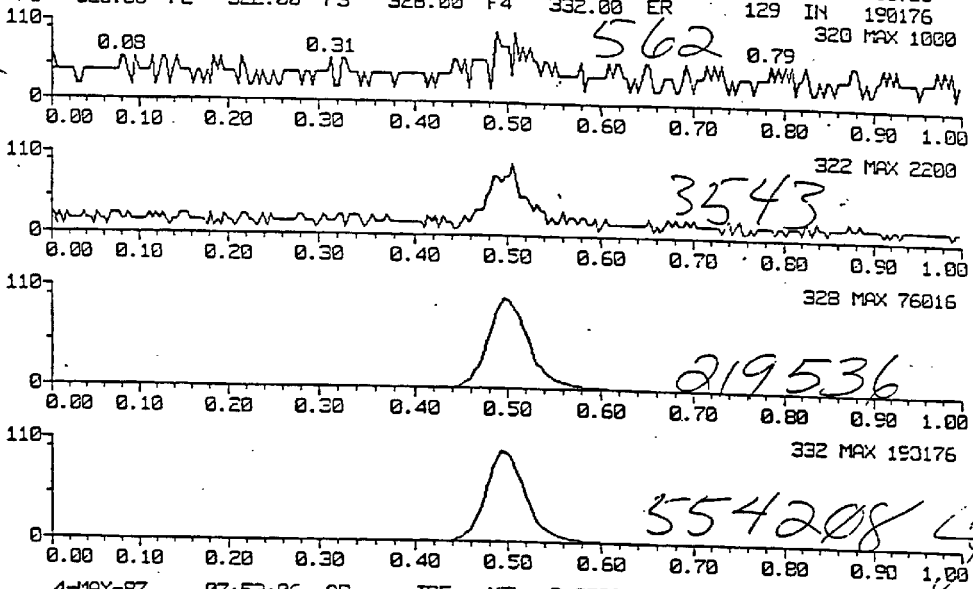
0216556

03221871

MAY0404 1 MIMI SPIKE II C-096 3/85 IM

3 250

SS	1	ES	258	BO	0	TO	110	GR		LNNP	SE	129	
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR		129	TI	00:00:30	
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER		129	IN	190176	



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G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00		
G2	0.000	LT	0.00	DIV	-1.003					MU	-4800.0		
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000		
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00		
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00		

07:53:06

	CG=SW	
1	320	257
	322	259
	329	263
	332	268

0216 57

03221872

ATTACHMENT 5

CHAIN OF CUSTODY, GC/MS/MS LOG, EXTRACTION RECORD

021658

INTERNATIONAL TECHNOLOGY CORPORATION

021659

CHAIN-OF-CUSTODY RECORD

R/A Control No. 37410

C/C Control No. 55798

03221874

OJECT NAME/NUMBER Jacksonville Offsite/480078010802

LAB DESTINATION TMS - Indianapolis, IN

MPLE TEAM MEMBERS D. Simerly, D. Peery

CARRIER/WAYBILL NO. FED. EXP

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
42290	Jacksonville, Arkansas	07/26/88 0852	soil	clear glass		
42291	Jacksonville, AR.	07/26/88 0923	soil	clear glass		
42292	Jacksonville, AR.	07/26/88 0923	soil	clear glass		

cial Instructions:

sible Sample Hazards: PCDD/PCDF

NATURES: (Name, Company, Date and Time)

elinquished By: [signature] ITFAS 8/19/88 1700

3. Relinquished By:

eceived By: [signature] 8/22/88 1030

Received by:

elinquished By:

4. Relinquished By:

eceived By:

Received By:

E - To accompany sampl
OW - Field copy

INTERNATIONAL TECHNOLOGY CORPORATION

021660

REQUEST FOR ANALYSIS

R/A Control No. 37410

C/C Control No. 55798

03221875

PROJECT NAME: JACKSONVILLE OFFSITE

PROJECT NUMBER: 480078 01 08 02

PROJECT MANAGER: DANA SIMERLY

BILL TO: HERCULES INCORPORATED
1313 N. MARKET
WILMINGTON, DELAWARE

PURCHASE ORDER NO.:

DATE SAMPLES SHIPPED: 8/19/88

LAB DESTINATION: TMS

LABORATORY CONTACT: Cindy KRAUSS

SEND LAB REPORT TO: FLORENCE K. KINOSHITA PhD.
C/O HERCULES INC

DATE REPORT REQUIRED: 24 HRS

PROJECT CONTACT: DANA SIMERLY

PROJECT CONTACT PHONE NO.: 615 690-3211

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
WH2290	Soil	35g	NA	TCAD - GC/MS/MS	
WH2291	Soil	35g	NA		
WH2292	Soil	35g	NA		

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal _____ Rush ✓ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard _____ Flammable _____ Skin Irritant _____ Highly Toxic _____ Other PCB/PCDF (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client ✓ Disposal by Lab _____

FOR LAB USE ONLY

Received By [signature] Date/Time 8/22/88 1030

WHITE - Original, to accompany samples

3 2510

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL NUMBER 3105003203

Date 8/22/88

From (Your Name) Please Print: [illegible]

Your Phone Number (Very Important): [illegible]

Company: [illegible] CORP

Department/Floor No:

Street Address: 312 [illegible] DRIVE

City: [illegible] State: TN

ZIP Required For Correct Invoicing: 37923

To (Recipient's Name) Please Print: [illegible]

Recipient's Phone Number (Very Important): [illegible]

Company: [illegible]

Department/Floor No:

Exact Street Address (Use of P.O. Boxes or P.O. # Zip Codes Will Delay Delivery And Result in Extra Charge.): 6376 [illegible]

City: [illegible] State:

ZIP Street Address Zip Required:

YOUR BILLING REFERENCE INFORMATION (FIRST 24 CHARACTERS WILL APPEAR ON INVOICE.): [illegible]

PAYMENT: ☐ Bill Sender ☐ Bill Recipient's FedEx Acct. No. ☐ Bill 3rd Party FedEx Acct. No. ☐ Bill Credit Card ☐ Cash

HOLD FOR PICK-UP AT THIS FEDERAL EXPRESS LOCATION: Street Address (See Service Guide or Call 800-238-5355)

City: State:

ZIP Zip Code of Street Address Required:

Emp. No. Date

☐ Cash Received ☐ Return Shipment ☐ Third Party ☐ Chg. To Del. ☐ Chg. To Hold

Street Address:

City State Zip

Received By: [illegible]

Date/Time Received: 8/22/88 1030 FedEx Employee Number:

Federal Express Use: Base Charges; Declared Value Charge; Origin Agent Charge; Other; Total Charges

PART # 106001, REV. 5/87 PRINTED U.S.A. GBFE

007

SERVICES — CHECK ONLY ONE BOX

1 ☐ PRIORITY 1 Overnight Delivery Using Your Packaging ☐ OVERNIGHT LETTER* (Our Packaging 9¾" x 12¾")

OVERNIGHT DELIVERY USING OUR PACKAGING

2 ☐ Courier-Pak Overnight Envelope* 12" x 15½"

3 ☐ Overnight Box 12½" x 17½" x 3" A ☐

☐ Overnight Tube 38" x 6" x 6" B ☐

*Declared Value Limit $100

5 ☐ STANDARD AIR Delivery not later than second business day

SERVICE COMMITMENT

PRIORITY 1: Delivery is scheduled early next business morning in most locations. It may take two or more business days in the Government Priority category service areas.

STANDARD AIR: Delivery is scheduled for the second business day. It may take three or more business days in some remote locations. Air Freight and Freight Forwarding service areas are not part of our primary service areas.

DELIVERY AND SPECIAL HANDLING — CHECK SERVICES REQUIRED

1 ☐ HOLD FOR PICK-UP (FE Location is at right)

2 ☐ DELIVER WEEKDAY

3 ☐ DELIVER SATURDAY (Extra charge)

4 ☐ DANGEROUS GOODS (P-1 and Standard Air Packages only. Extra charge)

5 ☐ CONSTANT SURVEILLANCE SERVICE (CSS) (Extra charge) (Do Not Complete Section 5)

6 ☐ DRY ICE ____ Lbs.

7 ☐ OTHER SPECIAL SERVICE ____

8 ☐

9 ☐ SATURDAY PICK-UP (Extra charge)

10 ☐

PACKAGES	WEIGHT	TOWN DECLARED VALUE	OVER SIZE
	LBS		
	LBS		
	LBS		
	LBS		
Total	Total	Total	

15

Received At: 1 ☐ Regular Stop 2 ☐ On-Call Stop 3 ☐ Drop Box 4 ☐ B.S.C. 5 ☐ Station

FedEx Express Corp. Employee No.: 35720

Date/Time For Federal Express Use: 811 9 1805

5 Signature of Shipper authorizes Federal Express to deliver this shipment without obtaining a delivery signature and shall indemnify and hold harmless Federal Express from any claims resulting therefrom.

Release Signature:

03221876

Book No.

Page No.

AUG ~~JUL~~ 2 = Ø1 DTCAL 2 3 2511

Ø2

Ø3

Ø4

Ø5	13:56	CAL 1
Ø6	14 10	Mth Blk
Ø7	14 23	Soil Blank
Ø8	14 43	Soil Spike
Ø9	14 55	Soil PE
10	15 08	2290
11	15 19	2291
12		2292

021662

To Page No.

essed & Understood by me. Date 6/22/88 Invented by K E Mills Date

Recorded by

03221877

DATE: 8-22-88 SHIPMENT NUMBER HER0822A 3 2512

INITIALS JKN

SMC SAMPLE #	EPA SAMPLE #	SAMPLE WEIGHT	EXTRACTION VOLUME	OPTION A CLEANUP	OPTION D CLEANUP	SPIKING SOL'N ADDED	COMMENTS
MB	—	5.00g	6.0 mL	✓		50 µL II	
SB	OCL34541	5.00				"	
SS	OCL35548	5.00				50 µL I	
PE-A	—	5.00				50 µL I	
WH 2290		5.03					soil
" 2291		5.09					"
" 2292		5.07	↓	↓		↓	"

02163

03221878

3 2513

TMS
TANDEM MASS SPECTROMETRY

TMS Analytical Services Inc.

6376 MORENCI TRAIL • TEL (317) 291-5697 • INDIANAPOLIS, INDIANA 46268

021664

September 12, 1988

Dr. Florence K. Kinoshita
Medical Department
Hercules Incorporated
1313 N. Market Street
Wilmington, DE 19894

Dear Dr. Kinoshita:

Enclosed are analytical results for the analysis of 1 sample for 2,3,7,8-TCDD. This sample was analyzed according to the procedures outlined in the USEPA Contract Laboratory Program "Statement of Work for Rapid Turnaround Dioxin Analysis in Multi-Media", November 1986. Sample preparation and analysis procedures from the "Rapid Determination of TCDD In Soil and Sediment Samples, Using Gas Chromatography and Tandem Mass Spectrometry" were used. This sample was received as Shipment HERCULES for analysis on 09/09/88 at 09:30. The analytical results of Filename HER0909A were sent by FAX at 10:25 on September 12, 1988.

If you should have any questions regarding these data or this report, please feel free to contact me at (317)291-5697.

Very truly yours,

Dennis L. Heuring by Dah

Dennis L. Heuring, Ph.D.
President

HERCULES INC.
RECEIVED
SEP 19 1988
MEDICAL DEPARTMENT

ENCLOSURES:

03221879

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TABLE 3 INITIAL CALIBRATION SUMMARY FORM

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ATTACHMENT 2 DAILY CALIBRATION MASS CHROMATOGRAMS

ATTACHMENT 3 INITIAL CALIBRATION MASS CHROMATOGRAMS

ATTACHMENT 4 BLANK CALIBRATION MASS CHROMATOGRAMS

ATTACHMENT 5 CHAIN OF CUSTODY, GC/MS/MS LOG, EXTRACTION RECORD

021665

TCDD FINAL DATA REPORT SHEET

RECEIVED DATE:
FILE RECEIVED TIME:

SITE: HEP
CASE: 0909
DATE: 09/09/89

AREA #	CLIENT SAMPLE #	ANALYSIS DATE	ANALYSIS TIME	NATIVE RATIO	SURROGATE ACC	TCDD CONC.	REPUN CODE	VALID CODE	UNITS	COMMENTS
METHBLANK	METHBLNK	09/09/88	1513	0.92*	76.96	0.300 U			NG/GM	
SOILBLANK	OCL34541	09/09/88	1527	0.76*	77.71	0.300 U			NG/GM	
SOILSPIKE	OCL3552B	09/09/88	1540	1.11	84.44	0.845			NG/GM	
SOIL PE	PE-A	09/09/88	1552	1.10	77.11	0.768			NG/GM	
WH2383	WH2383	09/09/88	1606	0.95*	77.93	0.300 U			NG/GM	

QUALIFICATION FLAGS:

* 257/259 RATIO OUTSIDE OF ACCEPTABLE RANGE
** SURROGATE OUTSIDE OF ACCEPTABLE RANGE
*** HIGH DETECTION LIMIT

RERUN CODES:
A AUTOMATIC RERUN
B REQUESTED RERUN

021666

03221881

GC/MS/MS WORKSHEET REPORT FORM

SITE: HER
CASE: 0909
DATE: 09/09/88

SURROGATE CONC 0.06 RF NATIVE 2.109 ION RATIO: 1.009 TO 1.233
INTERNAL STD CONC 1.05 RF SURROGATE 2.083 CORRECTION FACTOR: 0.010

LAB SAMPLE #	AREA #	CLIENT SAMPLE #	ANALYSIS DATE	ANALYSIS TIME	SAMPLE AMOUNT	ION 257	ION 259	ION 263	ION 268	RATIO 257/259	SURR ACC	RAW VALUE	UNITS
SEP0903	METHBLANK	METHBLNK	09/09/88	1513	5.00	28740	31370	279565	870873	0.92	76.96	0.141	NG/GM
SEP0904	SOILBLANK	OCL34541	09/09/88	1527	5.00	7372	9680	203058	626863	0.76	77.71	0.042	NG/GM
SEP0905	SOILSPIKE	OCL35528	09/09/88	1540	5.00	122969	111076	226190	639151	1.11	84.44	0.845	NG/GM
SEP0906	SOIL PE	PE-A	09/09/88	1552	5.00	50776	46004	93768	290125	1.10	77.11	0.768	NG/GM
SEP0907	WH2383	WH2383	09/09/88	1606	5.02	5670	5986	104564	321822	0.95	77.93	0.063	NG/GM

TABLE 3 GC/MS/MS DAILY CALIBRATION CHECK

MEAN NATIVE RF	2.109	NATIVE CONC.	0.20	SITE:	HEP
MEAN SURROGATE RF	2.083	SURROGATE CONC.	0.06	DATE:	09/09/88
ION RATIO RANGE	1.009 TO 1.233	INTERNAL STD. CONC .	1.05	CASE:	0909

ANALYSIS DATE	ANALYSIS TIME	ION 257	ION 259	ION 263	ION 268	RATIO 257/259	RF NATIVE	NATIVE RF %DIFF.	RF SURROGATE	SURROGATE RF % DIFFERENCE	COMMENTS
09/09/88	1456	197310	187044	130568	921875	1.055	2.189	3.79	2.438	17.04	

* ION RATIO MUST BE WITHIN ACCEPTABLE RANGE OF INITIAL CALIBRATION
** NATIVE % DIFFERENCE MUST BE LESS THAN 10% FROM INITIAL CALIBRATION

021668

TABLE 1 GC/MS/MS INITIAL CALIBRATION

SITE CODE: HEE
CASE: 0909
DATE: 10/13/87

SOLUTION ID	ION 257	ION 259	ION 253	ION 268	NATIVE CONC	SURROGATE CONC	INT. STD CONC	RF NATIVE	RF SURROGATE	RATIO 257/259	COMMENTS
CC1-1	73881	67752	43569	345176	0.20	0.06	1.05	2.154	2.168	1.090	
CC1-2	76844	69768	45279	362015	0.20	0.06	1.05	2.126	2.149	1.101	
CC1-3	82583	73708	47294	382379	0.20	0.06	1.05	2.146	2.124	1.120	
							MEAN	2.142			
							STD DEV	0.014			
							% RSD	0.65			
CC2-1	324838	283704	77330	301890	1.00	0.11	1.05	2.117	2.334	1.145	
CC2-2	358491	321128	85961	323744	1.00	0.11	1.05	2.204	2.420	1.116	
CC2-3	334056	291974	79920	312887	1.00	0.11	1.05	2.101	2.328	1.144	
							MEAN	2.141			
							STD DEV	0.055			
							% RSD	2.57			
CC3-1	1081980	966175	92814	208328	5.00	0.20	1.05	2.065	2.044	1.120	
CC3-2	1989496	1775627	177692	387550	5.00	0.20	1.05	2.040	2.116	1.120	
CC3-3	2046320	1823272	181766	401030	5.00	0.20	1.05	2.026	2.090	1.122	
							MEAN	2.044	2.083		
							STD DEV	0.020	0.036		
							% RSD	0.97	1.73		

RF NATIVE OVERALL MEAN 2.109
STD DEV 0.056
% RSD 2.674

RF SURROGATE OVERALL MEAN 2.083
STD DEV 0.036
% RSD 1.728

OVERALL RATIO 257/259 MEAN: 1.121
RANGE: 1.009 TO 1.233

* RF NATIVE % RELATIVE STANDARD DEVIATION MUST BE LESS THAN 10%
** RATIO OF 257/259 OUTSIDE OF ACCEPTABLE RANGE

021660

TABLE 2 BLANK SUMMARY FORM

SITE: HER CASE : 0909 DATE: 05/04/87

SOLUTION ID	ION 257	ION 259	ION 268	BLANK RESPONSE	NATIVE CONC
1	355	5301	715479	0.008	0.019
2	1500	6454	766148	0.010	0.025
3	981	3057	526670	0.008	0.018
4	1303	5610	906231	0.008	0.018
5	1825	4805	727729	0.009	0.022
6	2058	5231	653736	0.011	0.026
7	707	4542	541920	0.010	0.023
8	1260	6293	667676	0.011	0.027
9	558	3819	537461	0.008	0.019
10	744	3791	619160	0.007	0.017
11	1403	6817	761787	0.011	0.026
12	1	3932	330813	0.012	0.028
13	1360	4860	609680	0.010	0.024
14	663	4014	508056	0.009	0.022
15	1307	6514	855393	0.009	0.022
16	1316	4457	591202	0.010	0.023
17	1772	7181	796307	0.011	0.027
18	2182	4927	645435	0.011	0.026
19	2257	5650	596849	0.013	0.031
20	562	3543	554208	0.007	0.018

CORRECTION FACTOR = 0.010
LIMIT OF DETECTION = 0.014

* LIMIT OF DETECTION MUST BE LESS THAN 0.3

021670

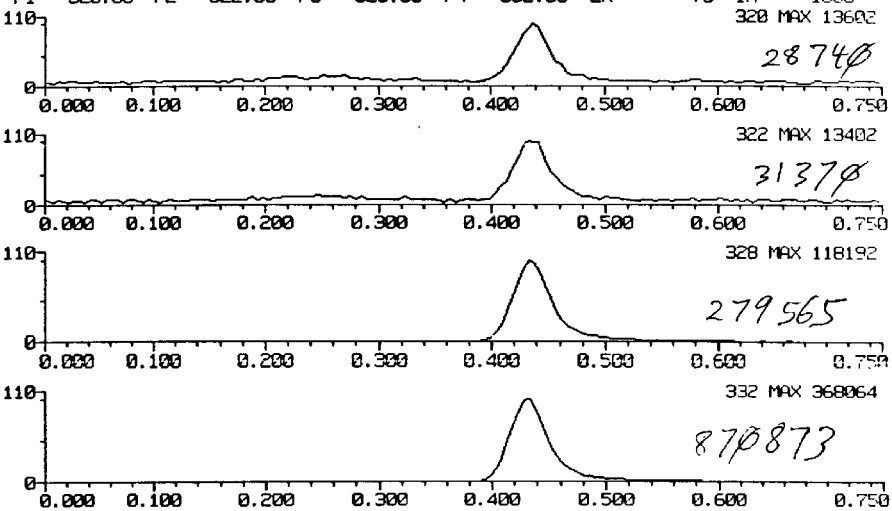
ATTACHMENT 1

SAMPLE MASS CHROMATOGRAMS

021671

SEP0903 1 MIMI METHOD BLANK III

SS	1	ES	156	BO	0	TO	110	GR	LNNP	SE	78
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	78	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	78	IN	1800



	9-SEP-88		15:13:57	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.200					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

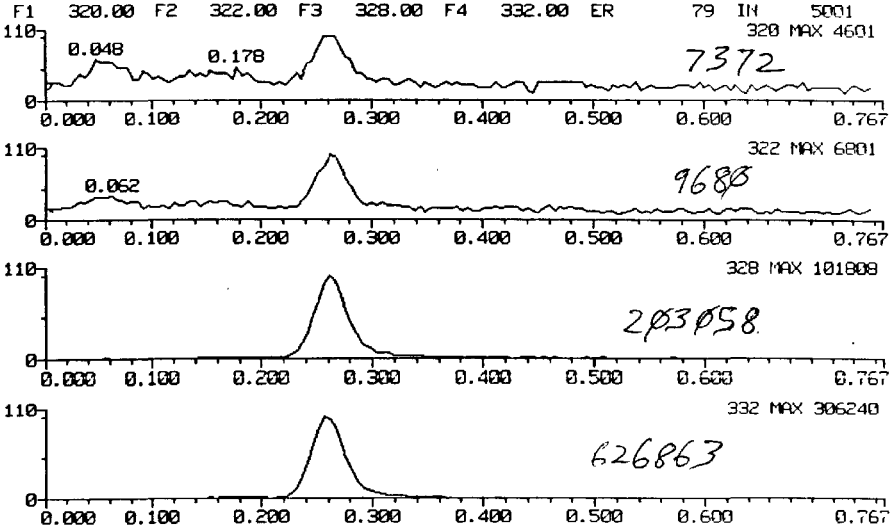
15:13:57

	CG-SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021672

SEP0904 1 MIMI SOIL BLANK III

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	5001



9-SEP-88		15:27:09		OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.260					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

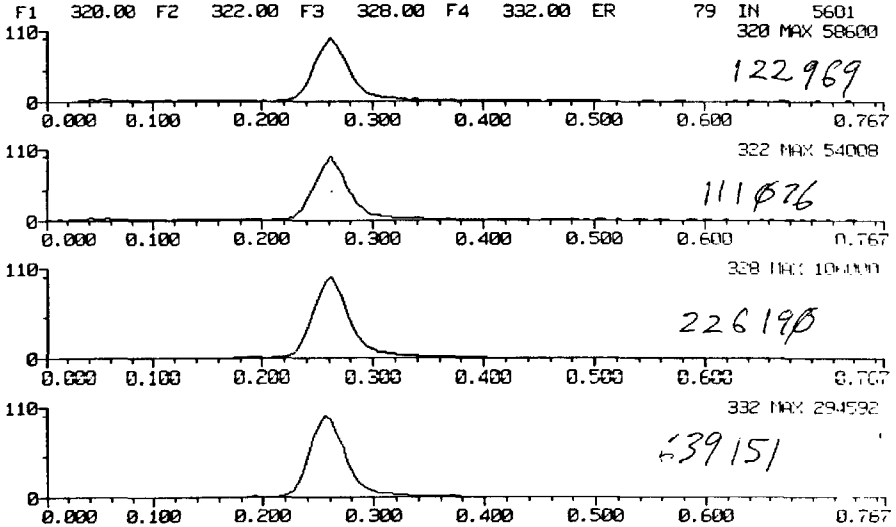
15:27:09

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021673

SEP0905 1 MIMI SOIL SPIKE IM

SS	1	ES	158	BO	0	TO	110	GR	LNNP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	5601



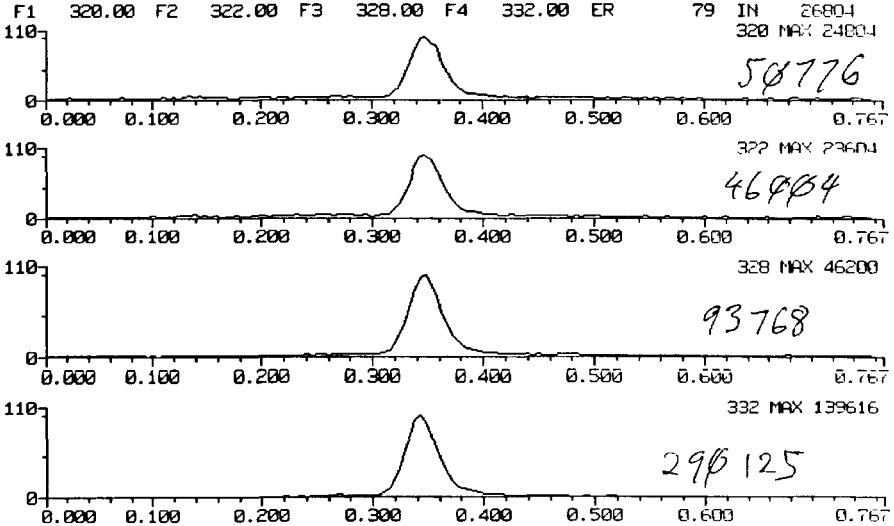
	9-SEP-88		15:40:04	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.300					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:40:04

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021674

SEP0906	1	MIMI				SOIL PE					III
SS	1	ES	158	BO	0	TO	110	GR	LINP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	26804



	9-SEP-88		15:52:55	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.130					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

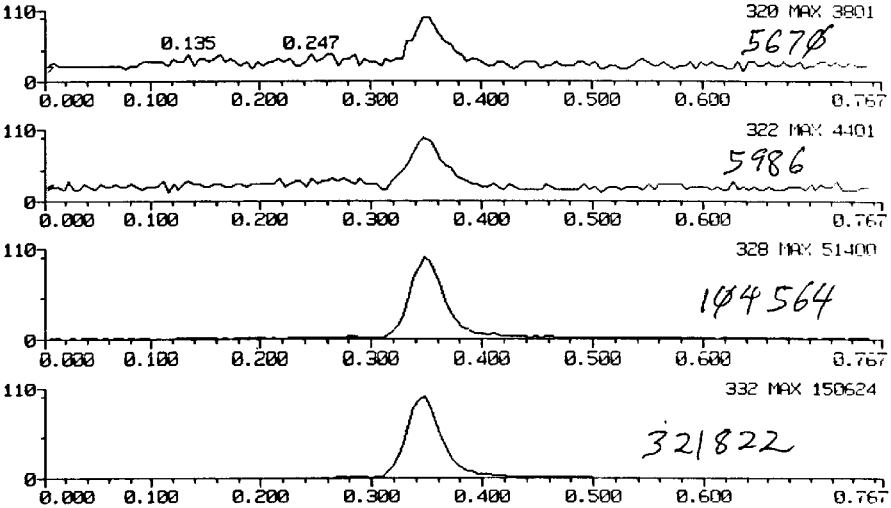
15:52:55

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021675

SEP0907 1 MIMI 2383 III

SS	1	ES	158	BO	0	TO	110	GR	LINP	SE	79
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	79	TI	00:00:22
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	79	IN	38008



	9-SEP-88		16:06:24	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	0.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.240					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:06:24

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

021676

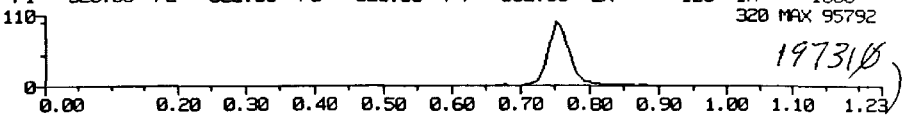
ATTACHMENT 2

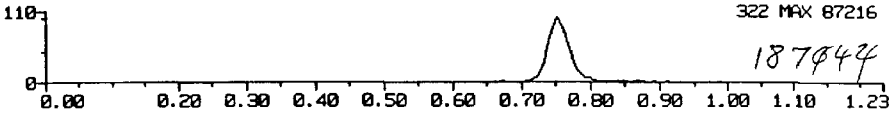
DAILY CALIBRATION MASS CHROMATOGRAMS

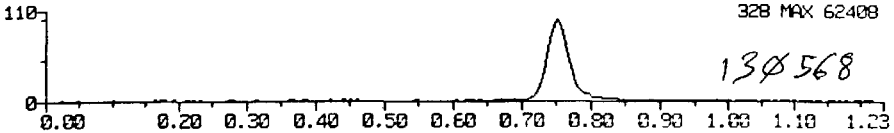
021677

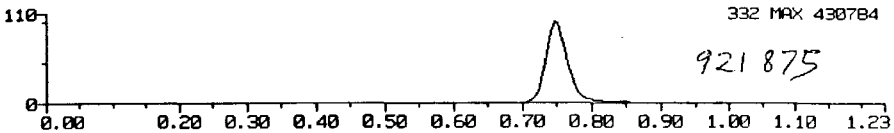
SEP0902 1 MIMI CAL 1 IN

SS	1	ES	256	BO	0	TO	110	GR	LNNP	SE	128
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	128	TI	00:00:37
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	128	IN	1600









	9-SEP-88		14:56:17	OP	KEM	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.75
G1	0.000	IT	0.00	DI	-1.000			MO	-0.500	FP	60.00
G2	0.000	LT	0.00	DIV	7.140					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.4000
SAF	0.0	GR	0.00	OR	0.00	RE1	105.00	CG	OFF	RE3	105.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

14:56:17

	CG=SW	
1	320	257
	322	259
	328	263
	332	268
	312	249

Native RRF: 2.189
(103.8%)

Surrogate RRF: 2.479

021678

03221893

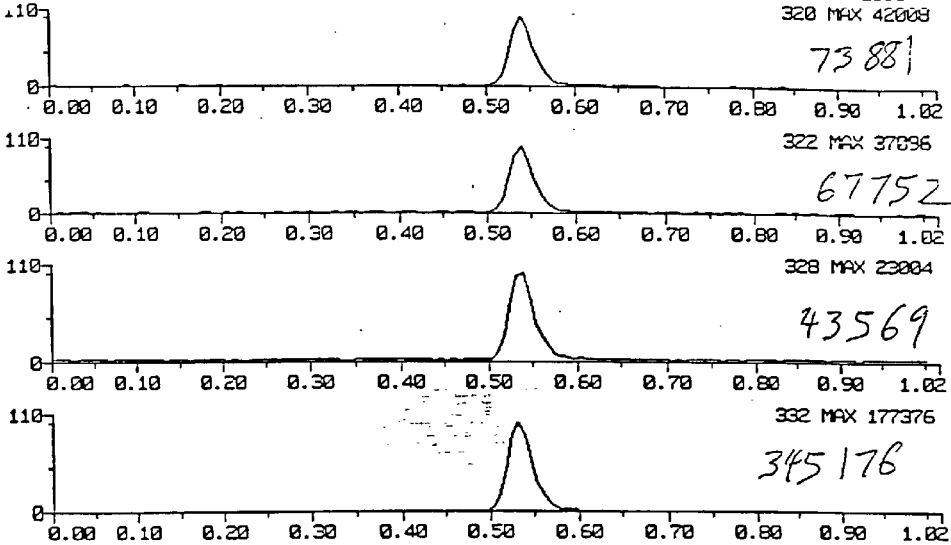
021679

ATTACHMENT 3

INITIAL CALIBRATION MASS CHROMATOGRAMS

OCT1309 1 MIMI CAL I (C-077-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	2101



Ratio 1.090

021680

13-OCT-87		17:11:31		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:11:31

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

$RRF_{native} = 2.154$

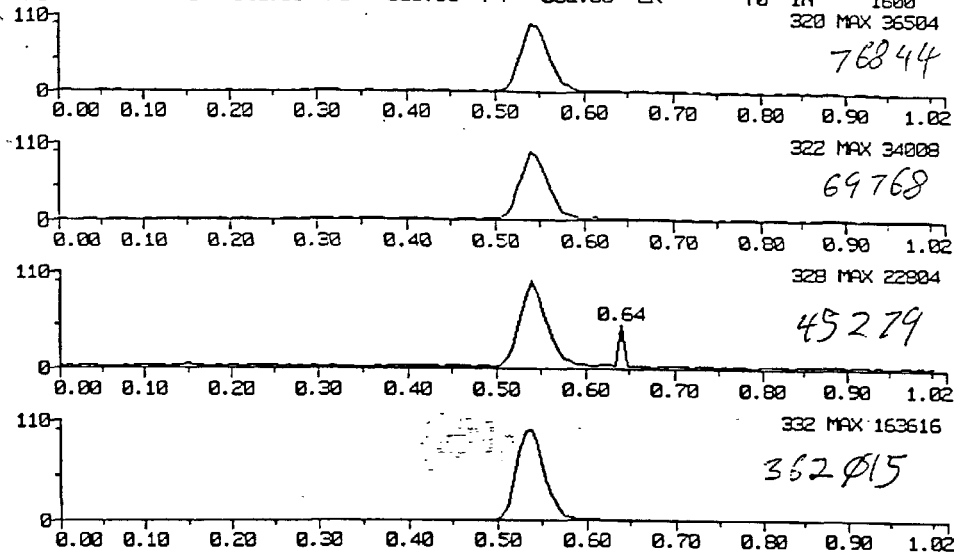
$RRF_{surr} = 2.168$

03221895

3 2530

OCT1303 1 MIMI 1 UL CAL I IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1600



13-OCT-87		15:36:52		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:36:52

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

Native RF 2.126

Surr RRF 2.148

Int 0.2

I.S. 1.05

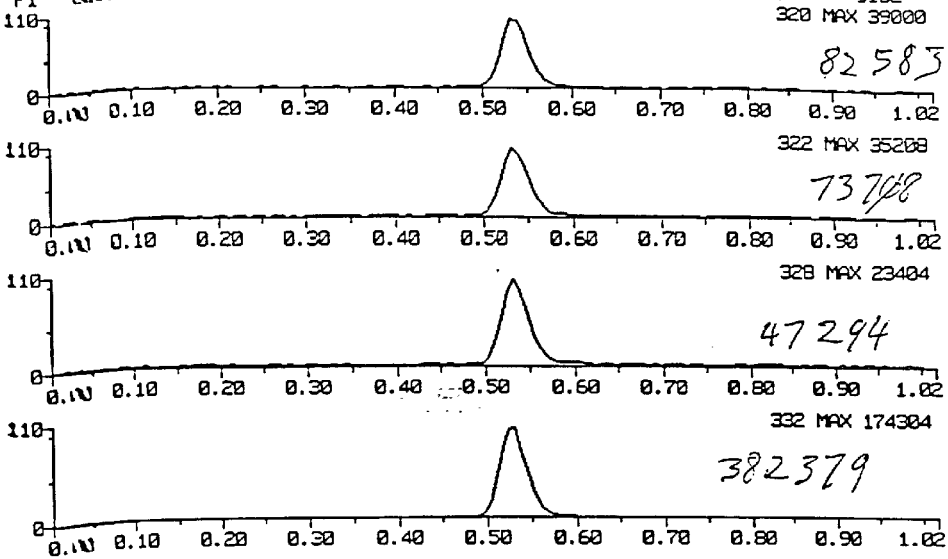
Surr 0.06

021681

03221896

OCT13W 1 MIMI CAL I (C-077-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	9102



Ratio 1.120

021682

	13-OCT-87		17:24:01	OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.018					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

17:24:01

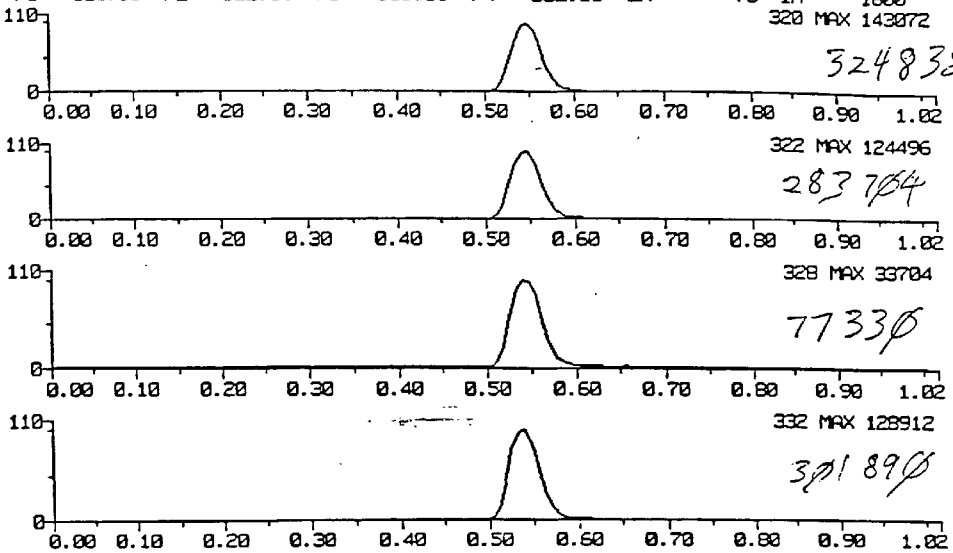
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

$RRF_{native} = 2.146$

$RRF_{surr} = 2.123$

OCT1308 1 MIMI CAL II (C-078-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1600



Ratio 1.145

021683

13-OCT-87 16:58:26

SY	200	SE	0	C	10	MTL	0.1000	STEP	0.1000	PE	0.00
G1	0.000	IT	0.00	DI	-1.000	MCL	1260	TH	200	TT	1.00
G2	0.000	LT	0.00	DIV	-0.983			MO	0.000	FP	60.00
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	MU	-4600.0
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	DM3	0.0000
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	RE3	120.00
										R3	-65.00

16:58:26

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

$RRF_{mut} = 2.117$

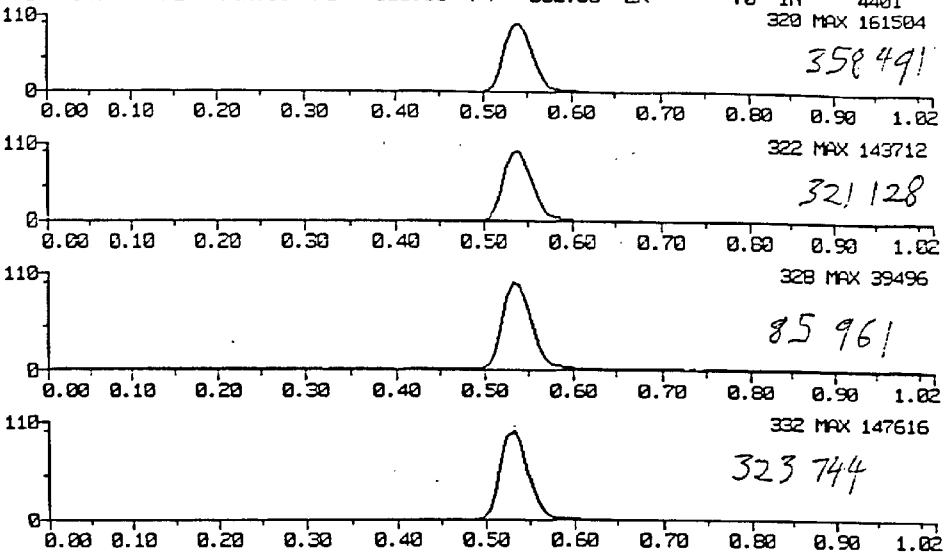
$RRF_{Surr} = 2.333$

03221898

3 2533

OCT1307 1 MIMI CAL II (C-078-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	4401



Ratio 1.116

021684

13-OCT-87		16:41:35		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.991					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:41:35

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

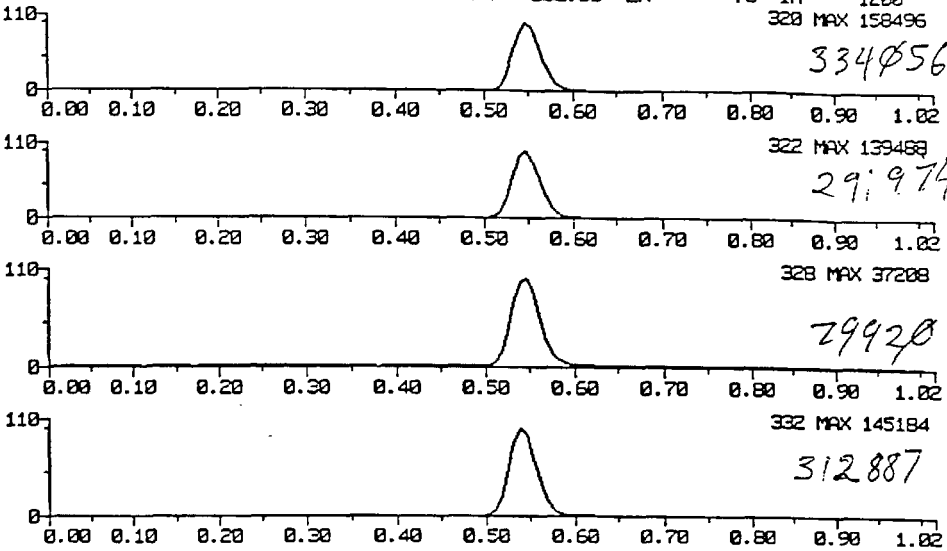
RRF native = 2.204

RRF sum = 2.419

03221899

OCT1302 1 MIMI 1 UL CAL II IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	1200



13-OCT-87		15:24:15		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.006					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:24:15

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

K.E.M.

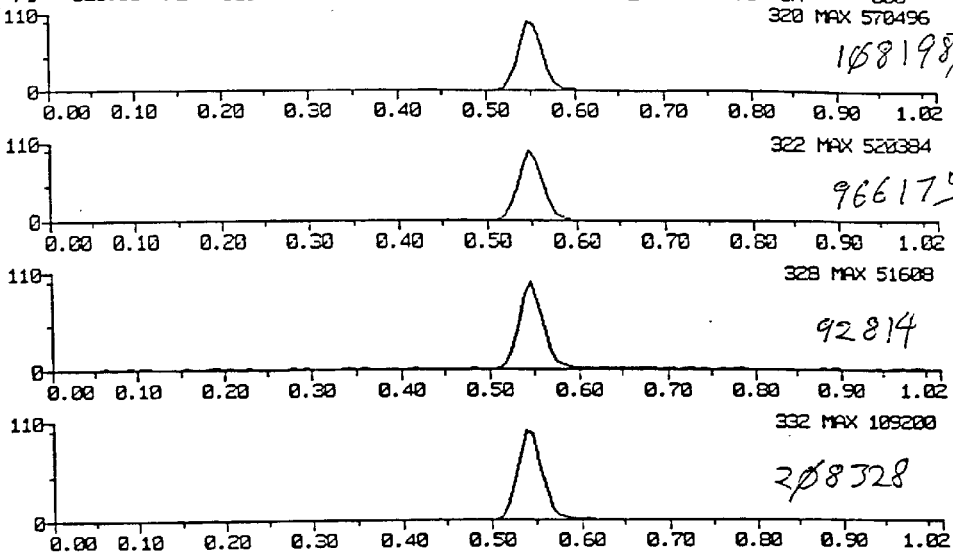
Native RF: 2.10!

Sum RRF 2.327

0216885

OCT1305 1 MIMI CAL III (C-079-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	800



021686

13-OCT-87		16:15:36		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.977					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:15:36

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

KGM

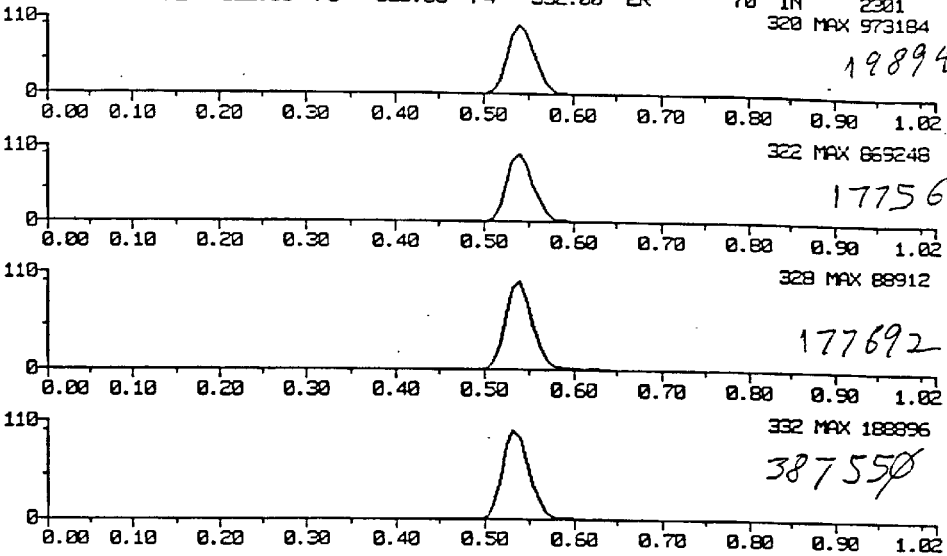
$RRF_{std} = 2.065$

$RRF_{surr} = 2.042$

03221901

OCT1306 1 MIMI CAL III (C-079-02) IM

SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	2301



.120

13-OCT-87		16:27:40		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.981					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

16:27:40

	CG-SW	
1	320	257
	322	259
	328	263
	332	268

KEM.

RRF_{std} = 2.040

RRF_{surr} = 2.113

021687

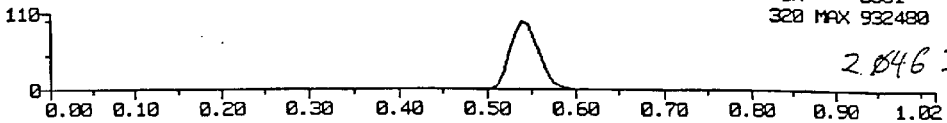
03221902

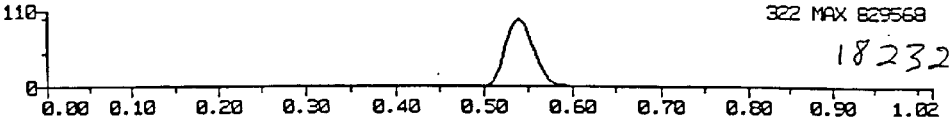
3 2537

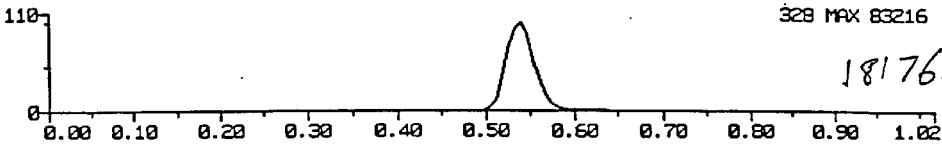
OCT1304 1 MIMI 1 UL CAL III IM

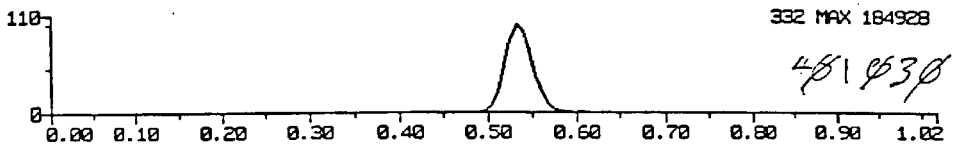
SS	1	ES	140	BO	0	TO	110	GR	LNNP	SE	70
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	70	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	70	IN	3301

Ratio 1.122









021688

13-OCT-87		15:51:02		OP	KEM	MTL	0.1000	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	200	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	0.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.000					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.01	OR	0.00	RE1	120.00	CG	OFF	RE3	120.00
DTV	0.000	ST	0.00	R0	-30.00	R1	-20.00	R2	-55.00	R3	-65.00

15:51:02

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

Native RF: 2.026

RRF_{surr} = 2.083

03221903

021689

ATTACHMENT 4

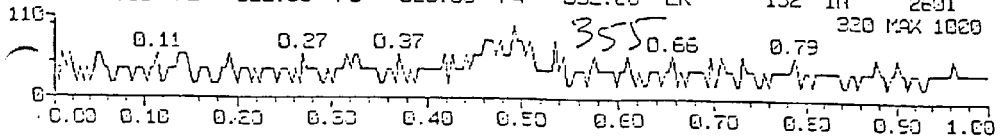
BLANK CALIBRATION MASS CHROMATOGRAMS

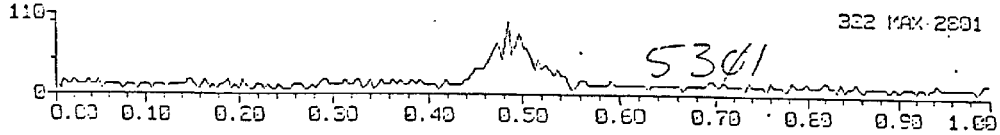
3 2539

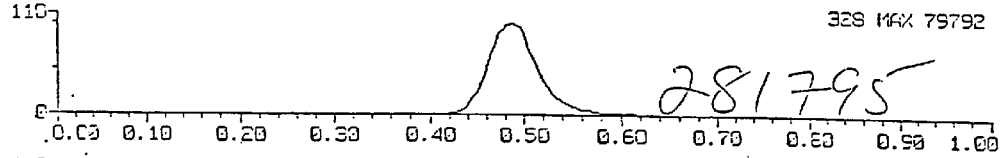
MAYD420. 1 MIMI SPIKE II C-096 3/85

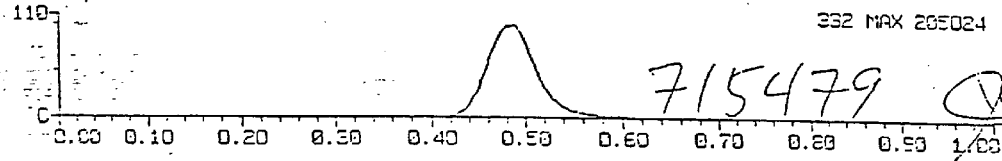
SS	1	ES	258	BO	0	TO	110	GR	LMIP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	269.00	SR	110	TI	00:00:25
F1	330.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2601

IM









	4-MAY-87		09:33:58	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1280	TH	100	TT	1.00
	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.000	LT	0.00	DIV	-1.010					MU	-4600.0
GE	0.0000	DT	0.000	IN	0.00	DM1	0.0020	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.03	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:33:58

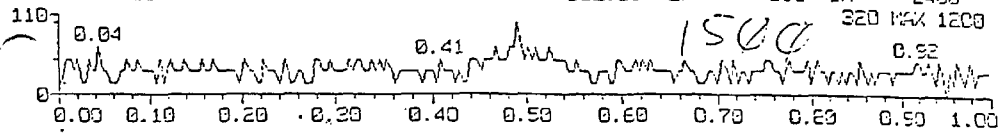
	CG=SW	
1	330	257
	322	259
	328	263
	332	268

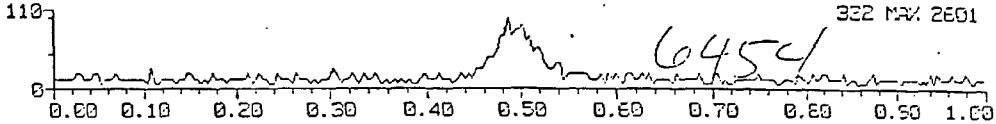
021600

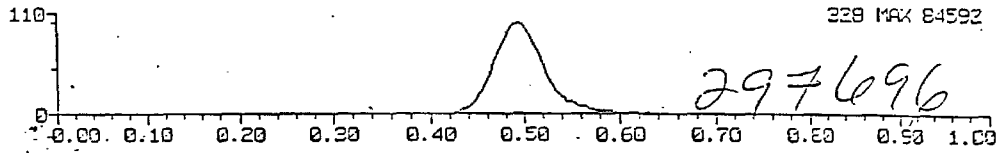
03221905

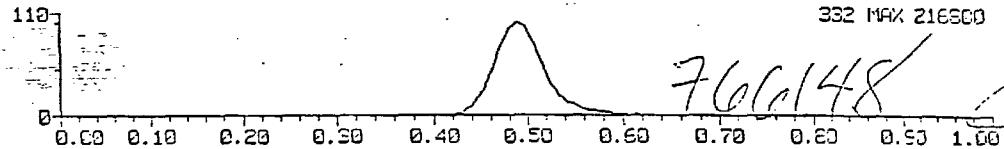
MAY0422· 1 MIMI SPIKE II C-056 3/85 IN

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	151	IN	2400









	4-MAY-87		09:29:22	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.006					MU	-4500.0
G3	0.0000	DT	0.000	IN	0.00	IM1	0.0000	CGT	0.0	IM3	0.0000
SPF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:29:22

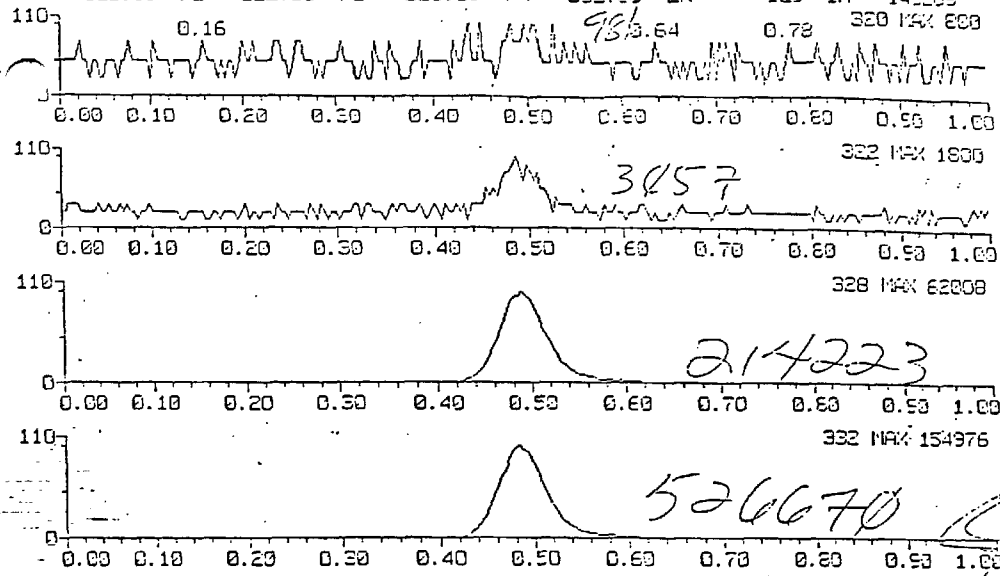
	CG=SW	
1	320	257
	322	259
	329	263
	332	268

0216691

03221906

MAY0421 1 MINI SPIKE II C-095 3/85 IM 3 2541

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:03:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	145339



	4-MAY-87		09:23:10	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
[illegible]	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SPF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:23:10

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

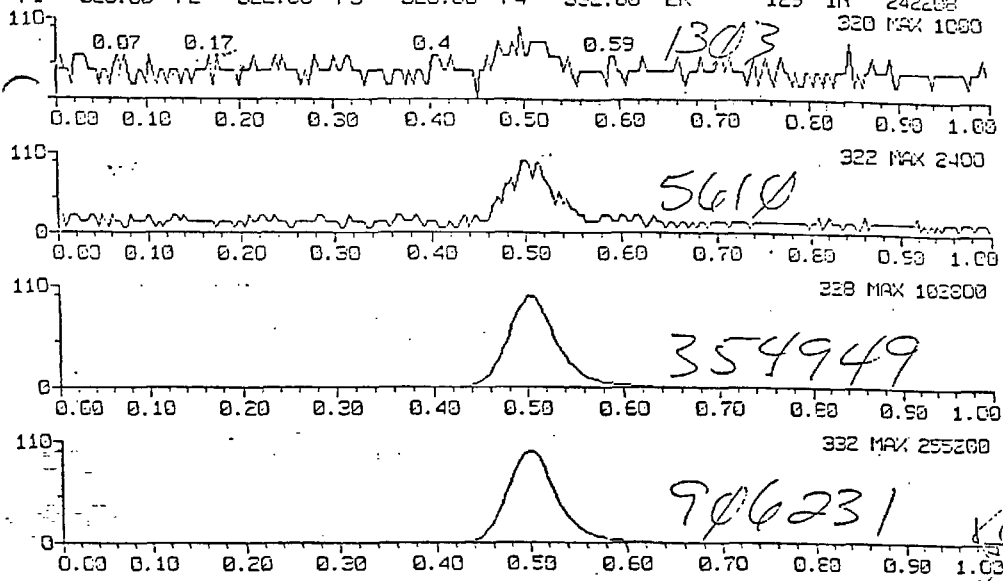
0216002

03221907

MAY0420 1 MIMI SPIKE II C-096 3/85 IM

3 2542

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	242208



	4-MAY-87		09:17:38	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1280	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.000	LT	0.00	DIV	-1.007					NU	-4800.0
	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SPF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:17:38

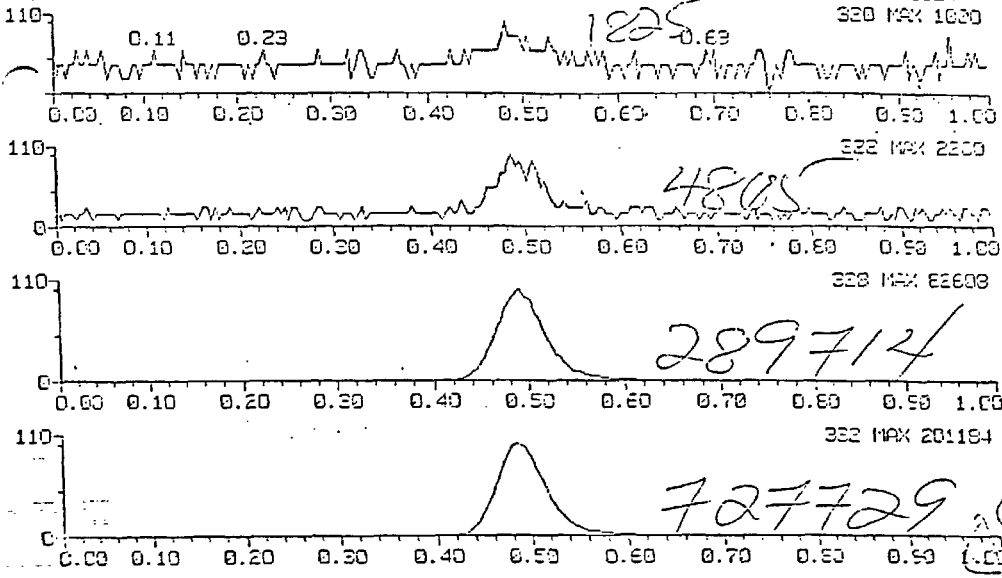
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021625

03221908

MAY0419 1 MIMI SPIKE II C-095 3/85 IM 3 2543

SS	1	ES	258	BO	0	TO	110	GR	LNHP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	195324



	4-MAY-87		09:09:56	CP	JRF	NTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1230	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.000	LT	0.00	DIV	-0.992					MU	-4800.0
	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	GR	0.00	FE1	65.00	CG	OFF	FE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:09:56

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

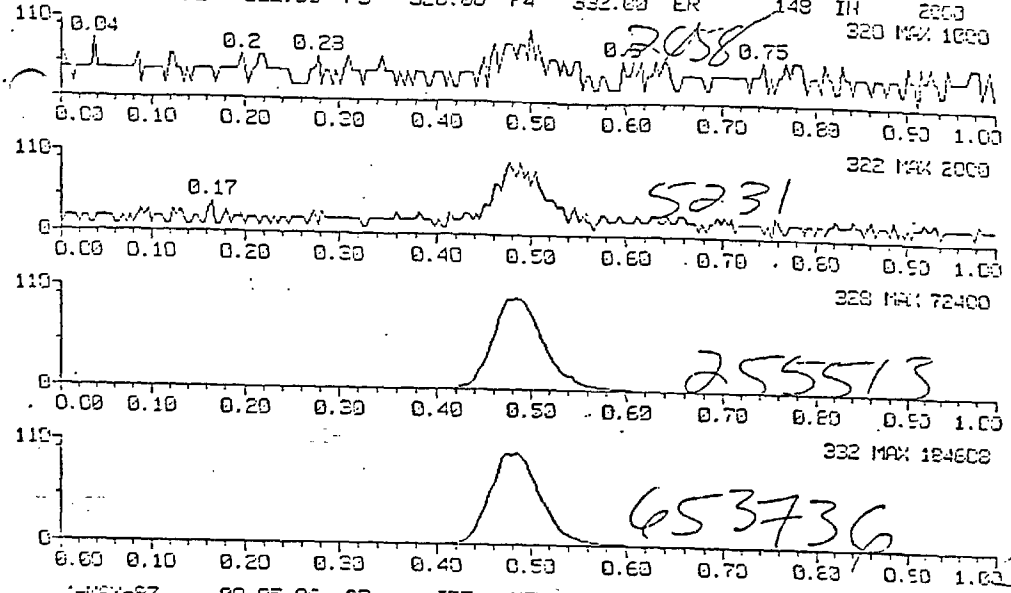
021694

03221909

LAB#18 1 MIMI SPIKE II C-096 3/85 TM

3 2544

SS.	1	ES	258	BO	0	TO	110	GR	LNMP	SE	109
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	148	IN	2000



021695

4-MAY-87 09:05:06

SY	200	SE	0	CP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
G1	0.000	IT	0.00	C	10	MCL	1260	TH	100	TT	1.00
[illegible]	0.000	LT	0.00	DI	-1.000			MO	-1.000	FP	60.00
[illegible]	0.0000	DT	0.000	DIV	-0.995					MU	-4600.0
SAF	0.0	GR	0.10	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
DTV	0.000	ST	0.00	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
				RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

09:05:06

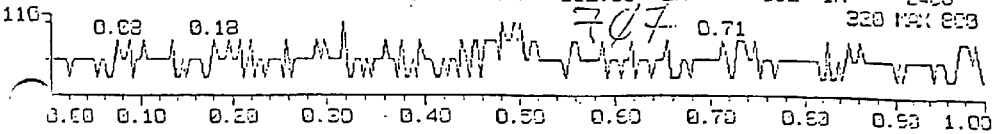
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

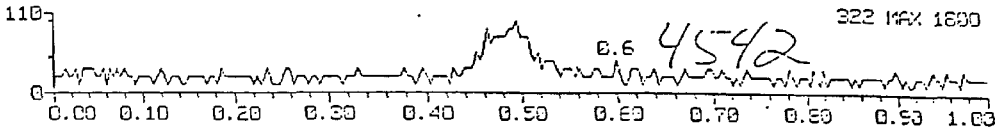
03221910

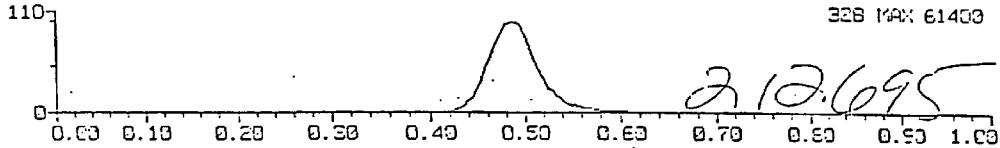
SPIKE II C-056 3/85 IM

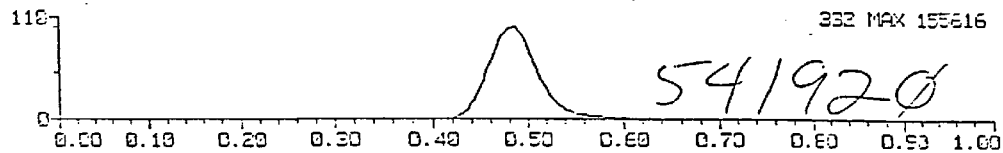
SS	1	ES	258	BO	0	TO	110	GR	LINP	SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:03:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400

3 2545









	4-MAY-87		09:00:24	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-0.991					MU	-4600.0
	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
LHF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-30.00	R2	-55.00	R3	-65.00

09:00:24

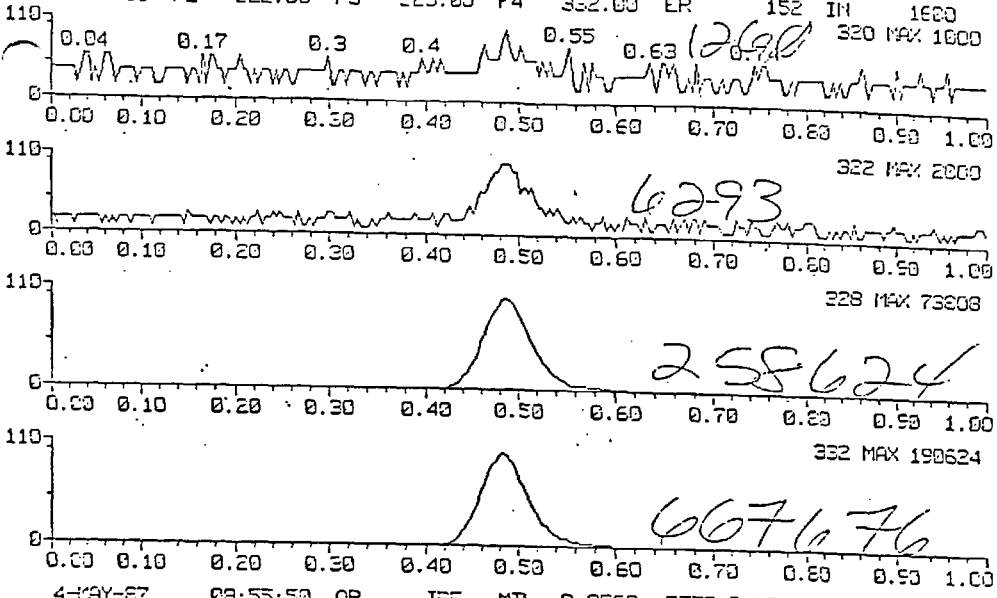
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021696

03221911

MAY0416 · 1 MIMI SPIKE II C-096 3/85

SS	1	ES	258	BO	0	TO	110	GR	LNMP	SE	108
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	108	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	1600



	4-MAY-87		08:55:50	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1200	TH	100	TT	1.00
	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.000	LT	0.00	DIV	-0.591					MU	-4600.0
GS	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SHF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:55:50

CG=SW

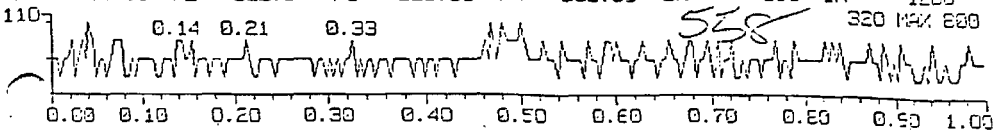
1	320	257
	322	259
	328	263
	332	268

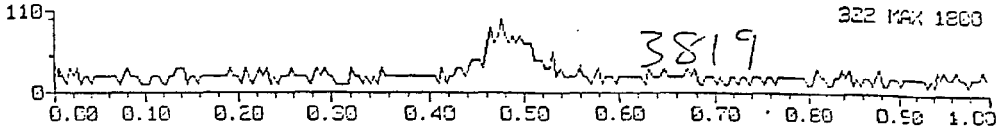
021697

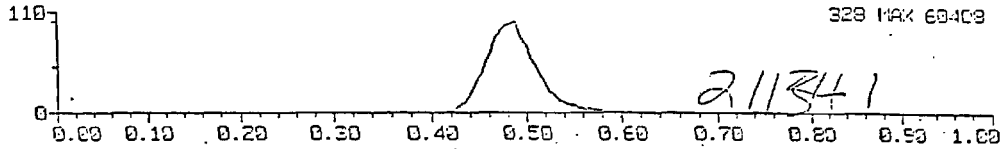
03221912

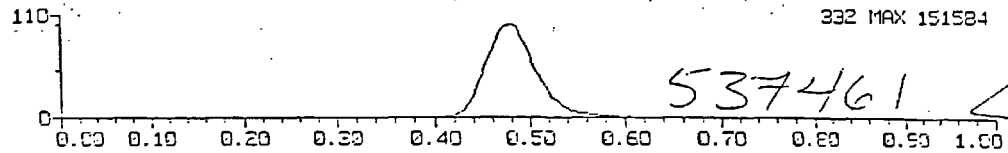
MAY0415 1 MIMI SPIKE II C-095 3/85 IM 3 2547

SS	1	ES	258	BO	0	TO	110	GR	LNMP	SE	107
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	107	TI	00:00:24
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	150	IN	1200









021698

4-MAY-87		08:51:06		OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
GR	0.000	LT	0.00	DIV	-0.994					MU	-4600.0
	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	FE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

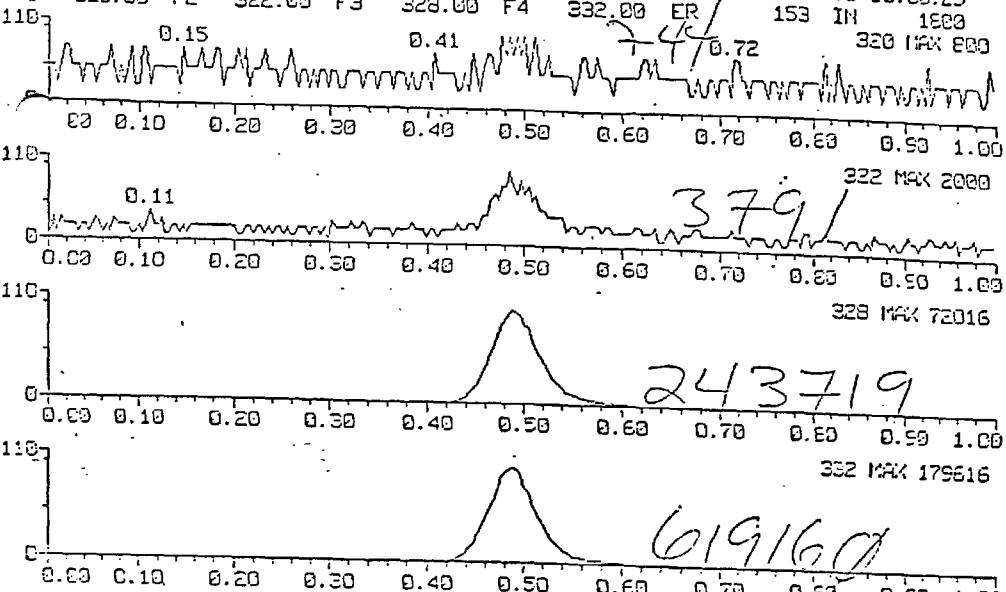
08:51:06

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221913

3 2548

SS	1	ES	258	BO	0	TO	110	GR		LNWP		SE	110
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR		110		TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER		153		IN	1800



	4-MAY-87		09:46:23	CP		JRF	MTL	0.0500	STEP	0.1000	FE		0.00
SY	200	SE	0	C		10	MCL	1200	TH	100	TT		1.00
S1	0.000	IT	0.00	DI		-1.000			MO	-1.000	FP		60.00
[illegible]	0.000	LT	0.00	DIV		-0.934					MU		-4000.0
	0.0000	DT	0.000	IN		0.00	DM1	0.0000	CGT	0.0	DM3		0.0000
[illegible]	0.0	GR	0.10	CR		0.00	FE1	65.00	CG	OFF	RE3		65.00
DTV	0.000	ST	0.00	RO		-60.00	R1	-20.00	R2	-55.00	R3		-55.00

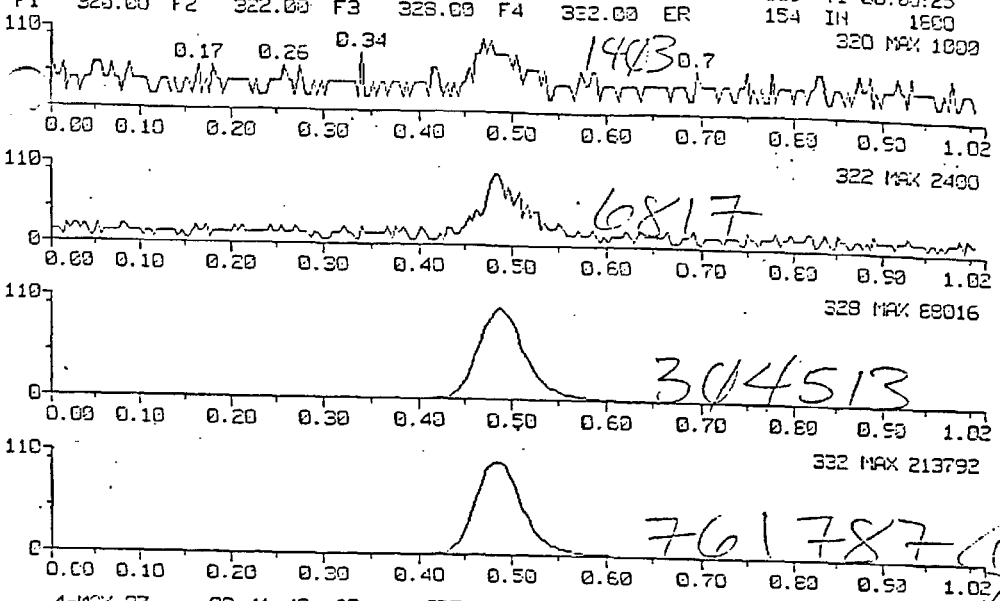
CG=SN 09:46:23

1	330	257
	332	259
	328	263
	332	268

03221914

MAY0413 . 1 MIMI SPIKE II C-055 3/85 IM 3 2549

SS	1	ES	260	BO	0	TO	110	GR	LINP	SE	109		
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	154	IN	1800		



021700

	4-MAY-87		08:41:40	CP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.000	LT	0.00	DIV	-1.010					MU	-4600.0
	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	FE1	65.00	CG	OFF	RE2	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

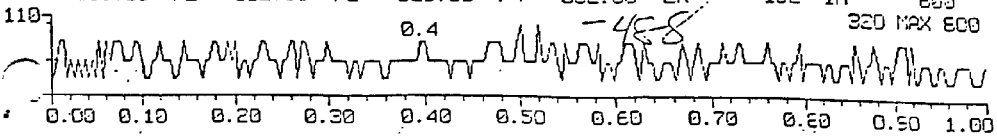
08:41:40

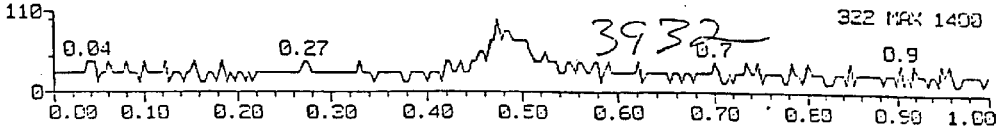
	CG=SN	
1	320	257
	322	259
	328	263
	332	268

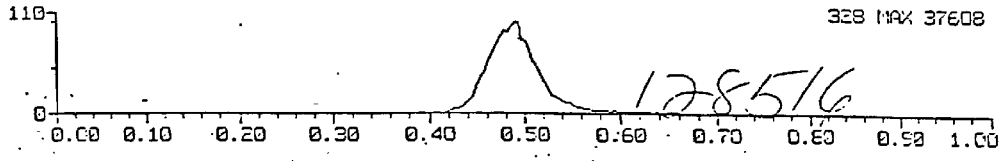
03221915

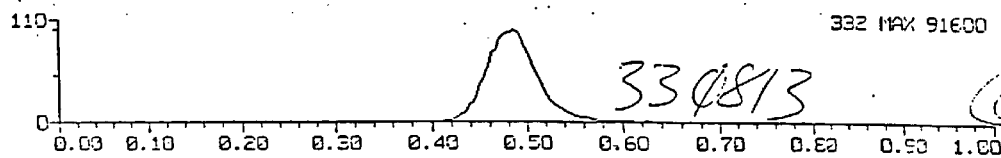
MAY0412 1 MIMI SPIKE II C-096 3/85 IM 3 2559

SS	1	ES	259	BO	0	TO	110	GR	LNNP	SE	105
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	105	TI	00:00:24
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	600









	4-MAY-87		08:37:03	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.000	LT	0.00	DIV	-1.000					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	FE1	65.00	CG	OFF	RE3	165.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:37:03

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

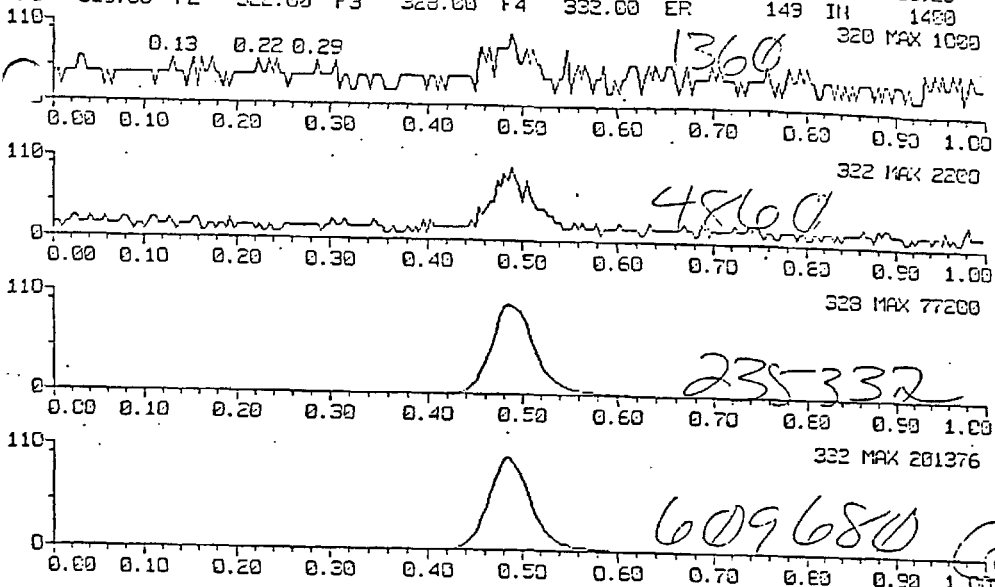
021701

03221916

MAY0411 1 MIMI SPIKE II C-096 3/85 IM

3 2551

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	111
M1	257.00	M2	259.00	M3	263.00	M4	269.00	SR	111	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	149	IN	1400



021702

	4-MAY-87		08:32:16	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
R1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.000	LT	0.00	DIV	-0.986					MU	-4600.0
CG	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

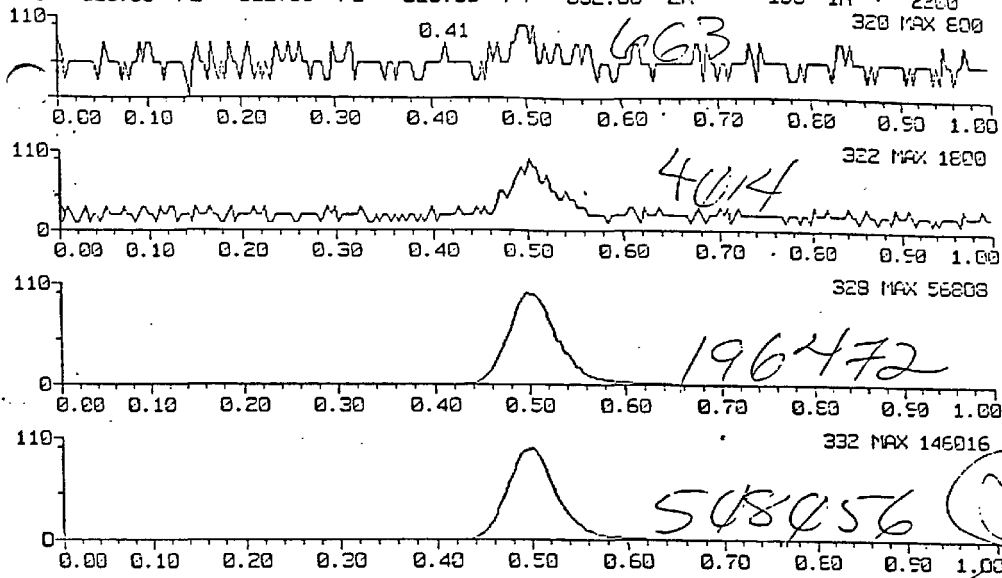
08:32:16

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221917

MAY0410 1 MIMI SPIKE II C-096 3/85 IM

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	114
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	114	TI	00:00:26
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	156	IN	2200



	4-MAY-87		08:26:35	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.000	LT	0.00	DIV	-0.998					MU	-4600.0
	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

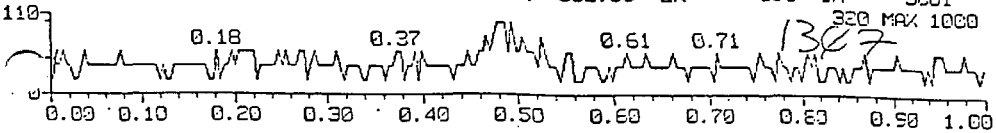
08:26:35

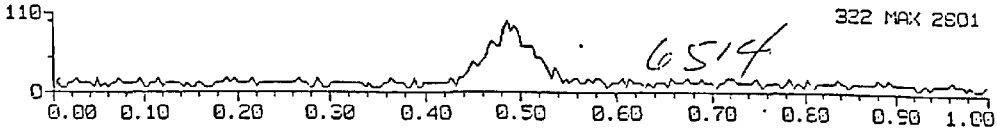
	CG=SN	
1	320	257
	322	259
	328	263
	332	268

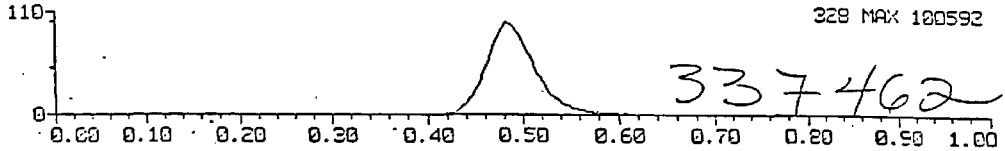
03221918

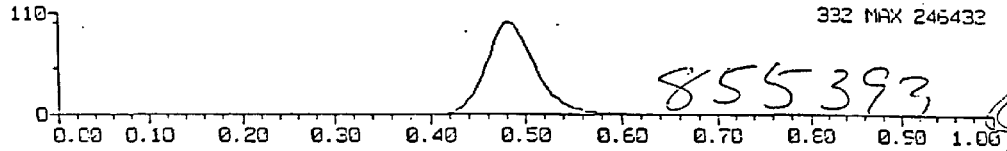
MAY0409 , 1 MIMI SPIKE II C-095 3/85 IM 3 2553

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	109
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	109	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	151	IN	3601









	4-MAY-87		08:21:17	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.000	LT	0.00	DIV	-0.997					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:21:17

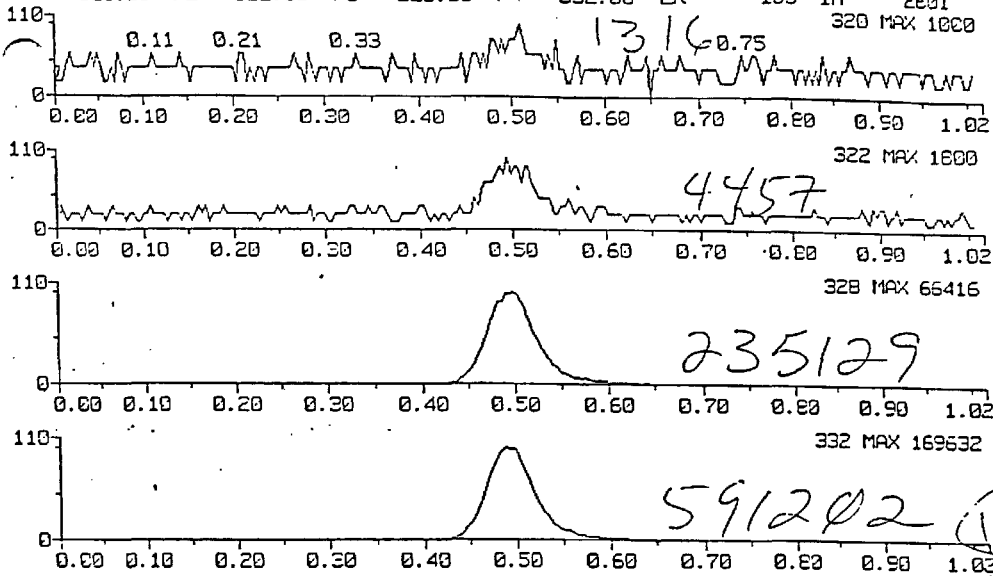
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021704

03221919

MAY0403 1 MIMI SPIKE II C-096 3/85 IM 3 2554

SS	1	ES	260	BO	0	TO	110	GR	LNNP	SE	112
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	112	TI	00:00:26
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	153	IN	2601



021705

	4-MAY-87		08:16:16	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
[illegible]	0.000	LT	0.00	DIV	-0.994					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	FE1	65.00	CG	OFF	FE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

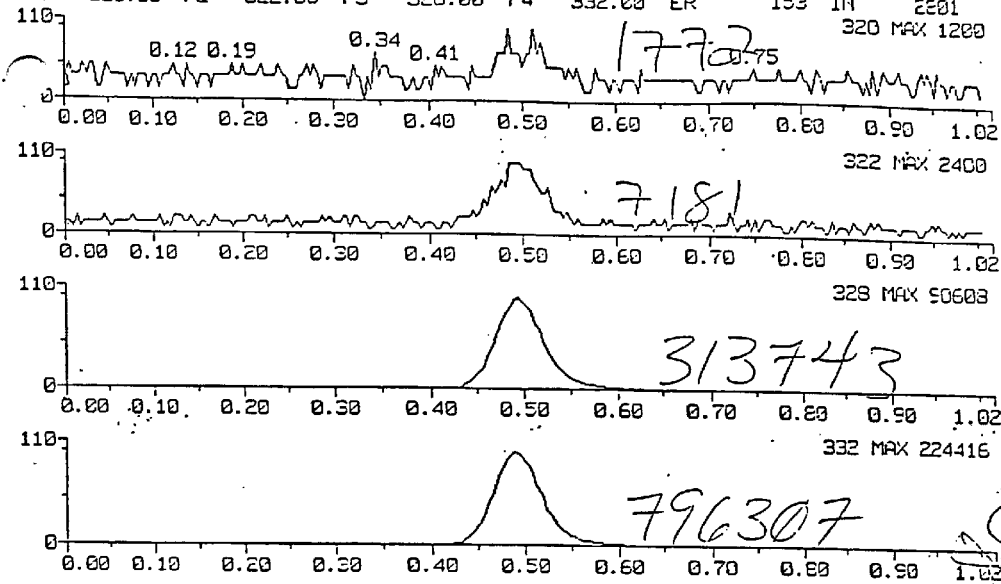
08:16:16

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221920

MAY0407 1 MIMI SPIKE II C-095 3/85 IM 2555

SS	1	ES	260	BO	0	TO	110	GR		LNNP	SE	111	
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR		111	TI	00:00:25	
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER		153	IN	2201	



	4-MAY-87		08:10:46	OP	JRF	MTL	0.0500	STEP	0.1000	FE	0.00
SY	200	SE	0	C	10	MCL	1250	TH	100	TT	1.00
A1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
	0.000	LT	0.00	DIV	-1.004					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SFF	0.0	GR	0.10	CR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:10:46

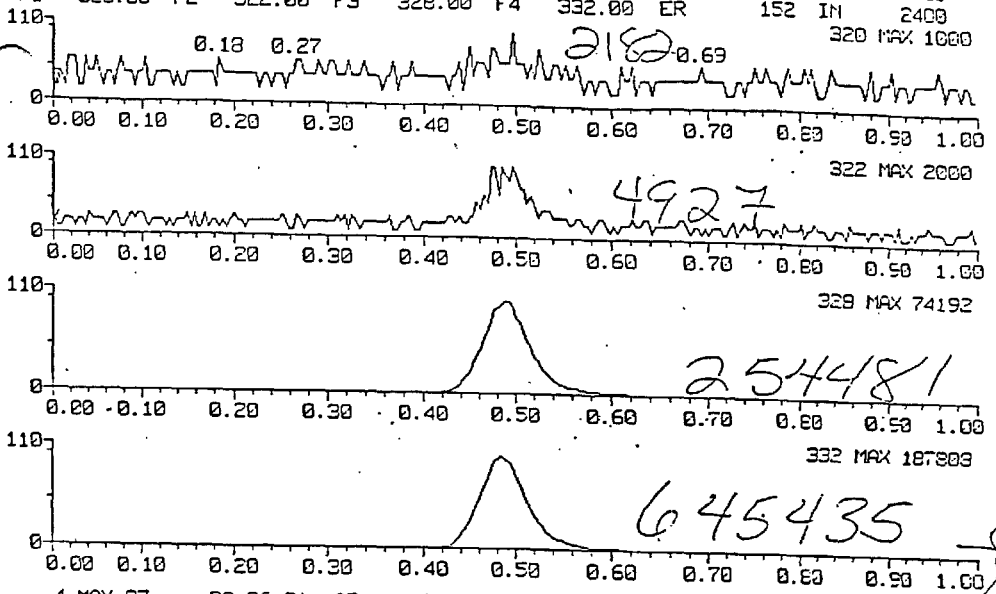
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

021706

03221921

MAY0406 1 MIMI SPIKE II C-096 3/85

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	110	IM	
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	110	TI	00:00:25		
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400		



	4-MAY-87		08:06:01	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
2	0.000	LT	0.00	DIV	-1.012					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SFF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:05:01

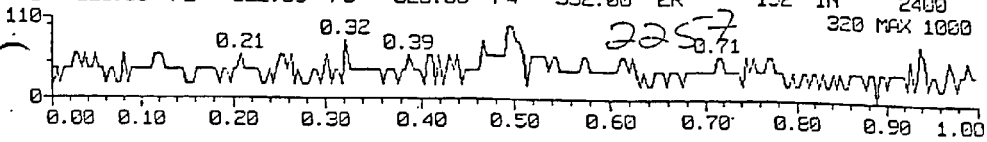
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

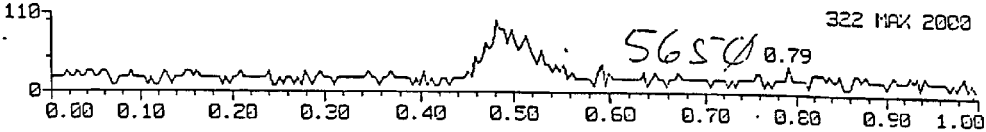
021707

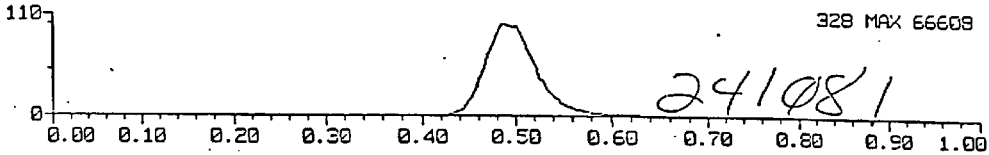
03221922

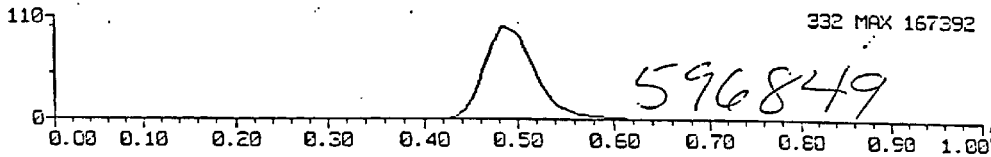
MAY0405 1 MIMI SPIKE II C-096 3/85 3 2557

SS	1	ES	258	BO	0	TO	110	GR	LNNP	SE	111
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	111	TI	00:00:25
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	152	IN	2400









0217.08

	4-MAY-87		08:00:47	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
2	0.000	LT	0.00	DIV	-0.995					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	RO	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

08:00:47

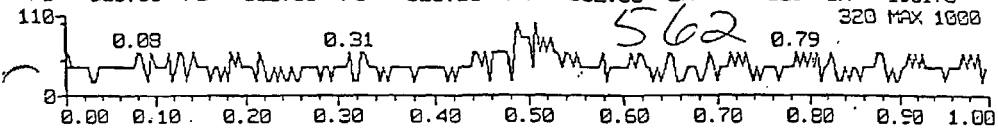
	CG=SW	
1	320	257
	322	259
	328	263
	332	268

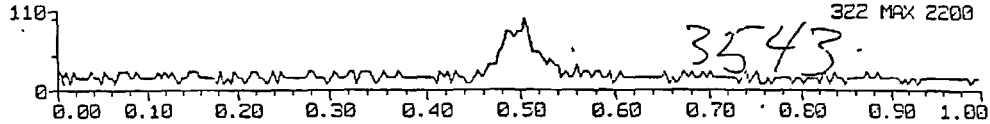
03221923

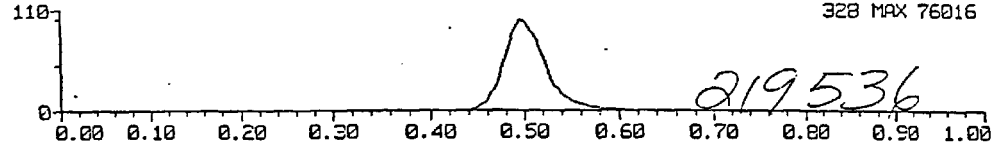
3 2558

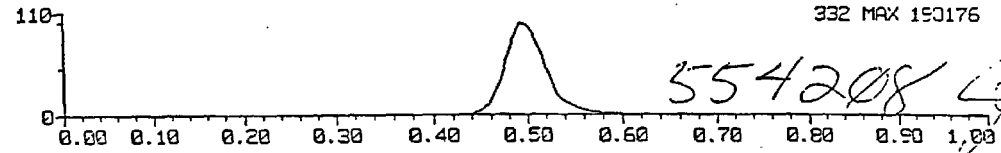
MAY0404 1 MIMI SPIKE II C-096 3/85 IM

S6	1	ES	258	BO	0	TO	110	GR	LNNP	SE	129
M1	257.00	M2	259.00	M3	263.00	M4	268.00	SR	129	TI	00:00:30
F1	320.00	F2	322.00	F3	328.00	F4	332.00	ER	129	IN	190176









021709

	4-MAY-87		07:53:06	OP	JRF	MTL	0.0500	STEP	0.1000	PE	0.00
SY	200	SE	0	C	10	MCL	1260	TH	100	TT	1.00
G1	0.000	IT	0.00	DI	-1.000			MO	-1.000	FP	60.00
G2	0.000	LT	0.00	DIV	-1.003					MU	-4600.0
G3	0.0000	DT	0.000	IN	0.00	DM1	0.0000	CGT	0.0	DM3	0.0000
SAF	0.0	GR	0.10	OR	0.00	RE1	65.00	CG	OFF	RE3	65.00
DTV	0.000	ST	0.00	R0	-60.00	R1	-20.00	R2	-55.00	R3	-65.00

07:53:06

	CG=SW	
1	320	257
	322	259
	328	263
	332	268

03221924

ATTACHMENT 5

CHAIN OF CUSTODY, GC/MS/MS LOG, EXTRACTION RECORD

021710

021711

2560

INTERNATIONAL TECHNOLOGY CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. 41597

C/C Control No. 48823

03221926

PROJECT NAME/NUMBER Jacksonville Offsite/48007801080/ LAB DESTINATION TMS - Indianapolis

SAMPLE TEAM MEMBERS M. Falco CARRIER/WAYBILL NO. Fed. Exp. #6179963731

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
WH2383	Jacksonville, Arkansas	9/7/88, 17:30	Soil	Amber Glass		

Special Instructions:

Possible Sample Hazards: PCDD/PCDF

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Michael Falco, Hercules Inc., 9/8/88, 7:30
   Received By:
2. Relinquished By: Federal Express
   Received By: Cynthia Reams 0930 09/09/88
3. Relinquished By:
   Received by:
4. Relinquished By:
   Received By:

WHITE - To accompany samples

3 2561

INTERNATIONAL TECHNOLOGY CORPORATION

021712

41597

REQUEST FOR ANALYSIS

R/A Control No.

C/C Control No. 48823

PROJECT NAME: JACKSONVILLE OFFSITE

PROJECT NUMBER: 480078010801

PROJECT MANAGER: DANA SIMERLY

BILL TO: HERCULES INCORPORATED
1313 N. MARKET
WILMINGTON, DELAWARE

PURCHASE ORDER NO.

DATE SAMPLES SHIPPED: 9/8/88

LAB DESTINATION: TMS ANALYTICAL SERVICES

LABORATORY CONTACT: CINDY KRAUSS

SEND LAB REPORT TO: DR. FLORENCE K. KINOSHITA
HERCULES INCORPORATED
WILMINGTON, DELAWARE

DATE REPORT REQUIRED: 48 HRS.

PROJECT CONTACT: DANA SIMERLY

PROJECT CONTACT PHONE NO.: 615 690-3211

0321927

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
WH2383	SO:1	~ 35 GRAMS	NA	TOTAL TCDD USING	
				TMS METHOD (GC/MS/MS)	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal _____ Rush ✓ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard _____ Flammable _____ Skin Irritant _____ Highly Toxic _____ Other PCDD/PCDF (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client ✓ Disposal by Lab _____

FOR LAB USE ONLY

Received By Cynthia Krauss

Date/Time 09/09/88 0930

WHITE - Original to accompany samples

SAMPLE COLLECTION LOG

3 2562

PROJECT NAME: JACKSONVILLE OFFSITE
LOCATION: JACKSONVILLE ARKANSAS
PROJECT # 4800780108 01

DATE:	0	9	0	7	8	8
TIME:	1	5	3	0		

(17:30)

2383 SAMPLE # WH 2383

Sample Location Description: Soil, Garden pit Rear home 2113 Braden

GC Purpose: PR = Predecon DE = Decon R1 = 1st Resample R2 = 2nd Resample FI = Final
VF = Verification EC = Equipment Check RM = Routine Monitoring
GC = General Characterization WI = Well Installation

SO Sample Type: AI = Air BU = Bulk CH = Chip CO = Core LI = Liquid OI = Oil (Liquid)
SE = Sediment SO = Soil WI = Wipe WA = Water

Y Composite? Y/N Comp. description 6 Grabs Composited W/ Spoon

02 Sample Attitude: 01 = Horizontal 02 = Vertical 03 = Both

0 Elevation

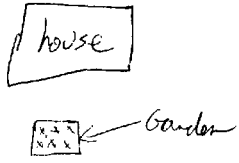
0-3" Depth of Take

NA X-Axis

NA Y-Axis

.35 SRAM
Area or Volume Sampled

Sketch/Comments



NA Floor/Area

NA Room

C Zone

NA Equipment

Floor/Area Code	Equipment Code	
00 = Basement	01 = Wall	07 = Cabinet/Desk
01 = First	02 = Ceiling	08 = Exterior Pipes, Beams, Duct
02 =	03 = Floor	
03 =	04 = Equipment	09 = Door
04 =	05 = Vent System	10 =
05 =	06 = Ambient Air	11 =
		12 =

QA/QC CODE

— QA/QC Code
— QA/QC Partner

QBL = Blank QRE = Rewipe
QGS = Spike QDU = Duplicate
QRI = Equipment Rinse ORIG = Original of QA/QC sample

TM Lab: AU = Austin CE = Cerritos DI = Directors ED = Edison FM = FAS Mobile
MK = Middlebrook PI = Pittsburgh SC = Santa Clara TM = TMS Indianapolis

03 Analysis Request: 01 = PCB 02 = PCDD/PCDF 03 = TCDD 04 =

01 Analysis Status: 01 = Priority 02 = Analyze 03 = Hold

Film Roll No._____ Frame No._____

Sample Team MF FA (Initials) Prepared By M Falco

03221928

LST-30

FORM #D84625-F8, REV 2 (10/87)

EXPRESS

NUMBER 6177963731

6023M 6179963731

Date 9/9/98

1 From (Your Name) Please Print

Your Phone Number (Very Important)

Department/Floor No

Company: I T CORP

Street Address: 1010 Marshall

City: Jacksonville State: FL

ZIP Required For Correct Invoicing

2 To (Recipient's Name) Please Print

Recipient's Phone Number (Very Important)

Company: TOS PRINTED SERVICES INC

Department/Floor No

Exact Street Address (Use of P.O. Boxes or P.O. # Zip Codes Will Delay Delivery And Result In Extra Charges.): 6376 MEARNS TRAIL

City: INDIANAPOLIS State: IN

ZIP Street Address Zip Required

3 YOUR BILLING REFERENCE INFORMATION (FIRST 24 CHARACTERS WILL APPEAR ON INVOICE.)

PAYMENT: Sender; Bill Recipient's FedEx Acct No.; Bill 3rd Party FedEx Acct. No; Bill Credit Card; Cash

4 SERVICES CHECK ONLY ONE BOX

1 PRIORITY 1 Overnight Delivery Using Your Packaging

6 OVERNIGHT LETTER* (For Packaging, Pk*1 15%)

OVERNIGHT DELIVERY USING OUR PACKAGING

2 Courier-Pak Overnight Envelope* 12"x 15½"

3 Overnight Box 12½"x 17½"x 3"

4 Overnight Tube 6" x 6" x 6"

*Declared Value Limit $100

5 STANDARD AIR Delivery not later than second business day

SERVICE COMMITMENT

PRIORITY 1 - Delivery is scheduled early morning or morning in most locations. It may take two or more business days if the destination is outside our primary service areas.

STANDARD AIR - Delivery is generally next business day or later than second business day. It may take three or more business days if the destination is outside our primary service areas.

DELIVERY AND SPECIAL HANDLING CHECK SERVICES REQUIRED

1 HOLD FOR PICK-UP (FB in Section H at right)

2 DELIVER WEEKDAY

3 DELIVER SATURDAY (Extra charge)

4 DANGEROUS GOODS (P-1 and Standard Air Packages only. Extra charge)

5 CONSTANT SURVEILLANCE SERVICE (CSS)

6 DRY ICE ____ Lbs.

7 OTHER SPECIAL SERVICE

8

9 SATURDAY PICK-UP (Extra charge)

10

PACKAGES	WEIGHT	TYPE DECLARED VALUE	OVER SIZE
1	LBS		
	LBS		
	LBS		
Total 1	Total	Total	

Received At: 1 Regular Stop; 2 On-Call Stop; 3 Drop Box; 4 B.S.C.; 5 Station

Federal Express Corp Employee No. 917

Date/Time For Federal Express Use: 9/7 14:54

H HOLD FOR PICK-UP AT THIS FEDERAL EXPRESS LOCATION: Street Address (See Service Guide or Call 800-238-5355)

City: State:

ZIP Zip Code of Street Address Required

Trip No. Date

Cash Received

Return Shipment: Third Party; Chg. To Det.; Chg. To Hold

Street Address

City State Zip

Received By: X Cynthia Ramos

Date/Time Received: 09/09/98 0930 FedEx Employee Number

Federal Express Use

Base Charges

Declared Value Charge

Origin Agent Charge

Other

Total Charges

PART #106001 REV 5/87 PRINTED U.S.A. SRCE

007

5 Release Signature: Sender authorizes Federal Express to deliver this shipment without obtaining a delivery signature and hold harmless Federal Express from any claims resulting therefrom.

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TLE: Project No. Book No. COPY 2

om Page No.

SEP Ø9 Ø1	—	CAL 1
Ø2	1456	CAL 1
Ø3	15:13	Method Blank
Ø4	15:27	Soil Blank
Ø5	15:40	Soil Spike
Ø6	15:52	Soil PE
Ø7	16Ø6	2383

02171 5

03221930

To Page No.

Witnessed & Understood by me,	Date 9/9/88	Invented by	Date
		Recorded by W C Willis	

DATE: 9-9-88 SHIPMENT NUMBER HER0909A 3 2565

INITIALS JKW

SMO SAMPLE #	EPA SAMPLE #	SAMPLE WEIGHT	EXTRACTION VOLUME	OPTION A CLEANUP	OPTION D CLEANUP	SPIKING SOL'N ADDED	COMMENTS
MB	—	5.00g	6ml	✓		25ng II	
SB	OL34541	5.00	↓	↓		↓	
SS	OL35528	5.00				25ng I	
PEA	—	5.00				25ng II	
WH2383		5.02				↓	soil

02171 6

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0217717

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