

FILE

ENG.

DATE

SHEET

ANALYSIS FORM

Epidemiology Sampling Rate

Benzene Reference

		Blank	STD AREA	mg	SAMPLE AREA	mg	Concentration	Exposure		
1	A1-AD				17900	0.0847	10.135	270		30.75
2										
3	A2-AD				17440	0.0825	10.100	270		30.25
4										
5	A3-AD				16060	0.0760	10.066	270		27.96
6										
7	B1-AD				20740	0.0982	10.135	270		35.89
8										
9	B2-AD				17100	0.0849	10.095	270		29.68
10										
11	B3-AD				16160	0.0765	10.062	270		28.16
12										
13	A1-AD				43268	0.0607	5.563	270		40.41
14										
15	A2-AD				41508	0.0596	5.538	270		37.86
16										
17	A3-AD				40898	0.0573	5.514	270		38.49
18										
19	B1-AD				51898	0.0728	5.563	270		38.15
20										
21	B2-AD				43689	0.0613	5.533	270		41.03
22										
23	B3-AD				41098	0.0570	5.508	270		37.67
24										
25	STANDARDS #1		55600	2.35						
26										
27	2		526700	2.35		X		= 30.48		
28						SD		= 2.9		
29	3		509700	2.35		C/V		= 7.5%		
30										
31	# 1		1242758	1.7372						
32										
33	2		1262758	1.7372		X		= 37.60		
34						SD		= 1.40		
35	3		1248758	1.7372		C/V		= 2.77		
36										
37	C ₂ BAKK	1242								
38										
39										
40										
41										
42										
43										
44										
45										

CONFIDENTIAL MATERIAL SUBJECT
TO PROTECTIVE ORDER

3M 108970

EXTINCTION METHOD WORKSHEET

This method of calibrating the 3M Brand Organic Vapor Monitor No. 3500, 3502 depends on adding a known mass of solvent or solvent mixture to a known volume of air.

The known amount of solvent is determined by the change in weight of a syringe upon solvent injection. The known volume of air comes from readings from a positive displacement flowmeter.

The solvent(s) are diffused through one of five aluminum columns. The small bore column is #1 and increasing bore sizes are numbers 2 through 5.

<u>Position</u>	<u>Monitor</u>	<u>Mcg. found</u>	<u>Diffuser Used</u>	<u>FE</u>
1	_____	_____	<u>Date of Test</u>	<u>8-31</u>
2	_____	_____	<u>Solvent(s)</u>	<u>ECH + Benzene</u>
3	_____	_____	<u>Temperature</u>	_____
4	_____	_____	<u>Syringe Used</u>	_____
5	_____	_____	<u>Mean:</u>	_____
6	_____	_____	<u>Standard Deviation:</u>	_____
Blank	_____	_____	<u>Coefficient of Variation:</u>	_____

<u>Entry</u>	<u>Time</u>	<u>Flowmeter (ft³)(1)</u>	<u>Syringe (gr)</u>	<u>Comments</u>
1	10:10	4959.48	24.7580	ECH
2	2:40	5043.35	24.73315	
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	24.74976	Benzene
6	_____	_____	24.73612	
7	270	2452.36		

CALCULATIONS:

FLOW RATE: 9.0828 l/min

MILLIGRAMS OF SOLVENT: 24.85 ECH
13.64 Benzene

(METER)³ OF AIR: 2.452

CONCENTRATION: 10.135 ECH
5.563 Benzene

EXPOSURE TIME: 270

PPM:

PPM-HOURS:

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3M 108971

TEMP1 0 0 0
 TIME1 . 5 0
 RATE 1 0
 TEMP2 1 1 5 0
 TIME2 2 0
 OPTN # 3 0
 INJ/BTL STROKE: 1 2 0
 DELETE CHANGE RUN 0
 CHANGE RUN 0 0
 CHANGE RUN 1 0 STOP
 START ~~0.00~~ 00346
 1.15

STOP

HP RUN # 1 AUG/31/79 TIME 14:17:36
 BOTTLE 1
 AREA %

RT	AREA	AREA %
0.28	485	0.512
0.36	11360	12.003
0.46	81560	86.173
1.15	1242	1.312

DIL FACTOR: 1.0000E+ 0

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 TO PROTECTIVE ORDER

RATE 1 0 0
 TEMP1 270 80 79
 TEMP2 ~~0.27~~ 00366

1.85
 2.75

1.14

3.56

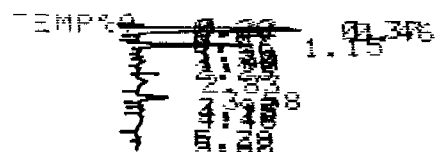
HP RUN # 2 AUG/31/79 TIME 14:38:41
 BOTTLE 2
 AREA %

RT	AREA	AREA %
----	------	--------

3M 108972

0.27	494	0.027
0.36	11510	0.621
0.46	82020	4.424
1.14	1244000	67.095
1.85	130	0.007
2.75	346	0.019
3.56	515600	27.809

DIL FACTOR: 1.0000 E+ 0



HP RUN # 3
BOTTLE 3
AREA %

AUG/31/79

TIME 14:49:19

RT	AREA	AREA %
0.22	1138	0.555
0.28	683	0.333
0.37	12690	6.193
0.46	82620	40.323
0.77	3067	1.497
0.97	1201	0.586
1.15	44510	21.723
1.39	3330	1.625
1.70	3727	1.819
1.90	4374	2.135
2.23	1026	0.501
2.83	8012	3.910
3.58	17900	8.736
3.93	2977	1.453
4.15	4382	2.139
4.46	9294	4.536
5.39	2114	1.032
5.68	1852	0.904

DIL FACTOR: 1.0000 E+ 0



HP RUN # 4
BOTTLE 4
AREA %

AUG/31/79

TIME 15:01:54

RT	AREA	AREA %
0.22	1065	0.520
0.28	668	0.326
0.37	12530	6.123
0.46	82520	40.324
0.73	3236	1.581
0.96	1507	0.736
1.14	43750	21.379
1.37	3723	1.819
1.68	4146	2.026
1.89	5015	2.451
2.22	925	0.452

CONFIDENTIAL MATERIAL SUBJECT
TO PROTECTIVE ORDER

3M 108973

3.82	9448	4.617
3.57	17440	8.522
3.93	2800	1.368
4.14	3866	1.889
4.54	8590	4.198
5.38	1633	0.798
5.67	1779	0.869

DIL FACTOR: 1.0000 E+ 0

START ~~0.28~~ ~~0.376~~ ~~1.14~~
~~1.86~~
~~2.74~~ 3.56

HP RUN # 5 AUG/31/79 TIME 15:14:28
 BOTTLE 5
 AREA %

RT	AREA	AREA %
0.28	393	0.021
0.37	11600	0.616
0.46	80640	4.279
1.14	1264000	67.079
1.86	643	0.034
2.74	367	0.019
3.56	526700	27.951

DIL FACTOR: 1.0000 E+ 0

START ~~0.28~~ ~~0.376~~ ~~1.14~~
~~1.86~~
~~2.74~~

HP RUN # 6 AUG/31/79 TIME 15:27:02
 BOTTLE 6
 AREA %

RT	AREA	AREA %
0.22	1102	0.553
0.28	678	0.340
0.37	12380	6.207
0.46	83000	41.617
0.76	4042	2.027
0.96	1671	0.838
1.14	42140	21.129
1.37	4249	2.130
1.68	4531	2.272
1.89	5215	2.615
2.22	1129	0.566
2.82	8198	4.111
3.58	16060	8.053
3.93	2406	1.206
4.14	3012	1.510
4.55	7036	3.528
5.38	1344	0.674
5.67	1246	0.625

DIL FACTOR: 1.0000 E+ 0

CONFIDENTIAL MATERIAL SUBJECT
 TO PROTECTIVE ORDER

3M 108974

START ~~0.28~~ 0.346
1.14

660

HP RUN # 7 AUG/31/79 TIME 15:39:36
BOTTLE 7
AREA %

RT	AREA	AREA %
0.22	1284	0.585
0.28	760	0.346
0.36	11750	5.350
0.46	84320	38.393
0.76	3637	1.656
0.96	1589	0.724
1.14	53140	24.196
1.37	3933	1.791
1.68	4413	2.009
1.89	5481	2.496
2.22	1079	0.491
2.81	9704	4.418
3.57	20740	9.443
3.92	2790	1.270
4.14	3622	1.649
4.54	8180	3.725
5.39	1520	0.692
5.67	1684	0.767

DIL FACTOR: 1.0000 E+ 0

START ~~0.28~~ 0.346 1.15
2.76 3.57

HP RUN # 8 AUG/31/79 TIME 15:52:11
BOTTLE 8
AREA %

RT	AREA	AREA %
0.28	494	0.027
0.37	11830	0.638
0.46	81500	4.396
1.15	1250000	67.427
2.76	346	0.019
3.57	509700	27.494

DIL FACTOR: 1.0000 E+ 0

START ~~0.28~~ 0.346 1.15
2.76 3.57

CONFIDENTIAL MATERIAL SUBJECT
TO PROTECTIVE ORDER

HP RUN # 9 AUG/31/79 TIME 16:04:44
BOTTLE 9
AREA %

3M 108975

0.22	1043	0.526
0.28	670	0.338
0.37	12600	6.351
0.46	82760	41.715
0.75	3433	1.730
0.96	1362	0.687
1.15	44930	22.647
1.37	3674	1.852
1.69	4181	2.107
1.89	5053	2.547
2.23	929	0.468
2.83	7622	3.842
3.58	17100	8.619
3.92	2074	1.045
4.14	2698	1.360
4.56	6158	3.104
5.40	1107	0.558
5.68	999	0.504

DIL FACTOR: 1.0000 E+ 0

START 01.375

1.17
1.41
1.71
1.92
2.25
2.85
3.60
3.95
4.16
4.57
5.68

HP RUN # 10
BOTTLE 10
AREA %

AUG/31/79

TIME 16:17:18

RT	AREA	AREA %
0.22	1168	0.619
0.28	680	0.360
0.37	12360	6.552
0.46	83160	44.080
0.79	2671	1.416
0.98	1324	0.702
1.17	43340	22.973
1.41	2945	1.561
1.71	3297	1.748
1.92	3743	1.984
2.25	717	0.380
2.85	6596	3.496
3.60	16160	8.566
3.95	1708	0.905
4.16	2060	1.092
4.57	4791	2.540
5.68	1937	1.027

DIL FACTOR: 1.0000 E+ 0

TEMP1 270 80 80
TIME1 0.50
RATE 10.00
TEMP2 270 115
TIME2 2.00
INJ TEMP 350 200 200
FID TEMP 350 250 250
AUX TEMP 400 115 115

CHT SPD 0.30
ZERO 10.0
ATTN 2+

CONFIDENTIAL MATERIAL SUBJECT
TO PROTECTIVE ORDER

3M 108976