



MICROSTAT LABORATORIES
RIVER'S EDGE TECHNICAL SERVICE

Specialists in Materials Testing and Technical Services

TEST REPORT

For Pozzetta Products
Wafer Carrier

TESTED FOR

Dynamic Headspace Outgassing

Report #: 2004-156
December 20, 2003

SUMMARY

A polypropylene wafer carrier was analyzed for outgassing by dynamic headspace – Gas Chromatography/Mass Spectrometry (GC/MS). The majority of the outgassed components were hydrocarbons. The total outgassed organics was 698.933 ng/cm². The total hydrocarbons was 670.001 ng/cm².

EXPERIMENTAL PROCEDURE:

The sample was cut into a 3 cm by 3 cm piece, weighed and then placed into an 85°C Teflon vessel. The vessel was sealed and allowed to bake for 3 hours. During the 3-hour bake the vessel was purged with nitrogen at 50 ml/min. The purge gas passed through a previously conditioned sorbent tube containing Carbotrap B/C. Outgassed compounds were then collected on the sorbent material.

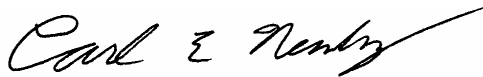
Following the 3-hour adsorption, the sorbent tubes were placed into the Automatic Thermal Desorption (ATD) system where they were desorbed and introduced to the GC/MS for analysis.

The sample was analyzed along with two 1000 ng hexadecane external standards. The average response of the two external standards was used to quantify the outgassed compounds identified in the sample.

RESULTS:

Table 1 below summarizes the data observed. The average response of the two external standards was used to quantify the individual compounds identified in the sample. The compounds seen in the hexadecane standards and/or blank, listed above the results in the table, have been *italicized*. The italicized compounds that were seen in the samples at levels less than or equal to what was seen in the standards/blank were NOT included in the totals.

The results provided in this report are accurate within the limits appropriate to each test standard. The results of this report are statistically significant only to the samples submitted for testing. MicroStat Laboratories/River's Edge Technical Service, Inc. has no controls, and assumes no responsibility for the tested product's functionality or use.



12/20/2003

Carl E Newberg

Date



12/20/2003

Michael Tosolini

Date

Table 1. Dynamic Headspace GC/MS Results

Retention Time	Raw Area	ID	Quality	Classification	Amount (ng)	Amount (ng/gram)	Amount (ng/cm ²)
2.09	13070205	Methylpentene	80	Hydrocarbon	168.227	119.415	8.246
2.71	59560497	Methylhexane	80	Hydrocarbon	766.603	544.172	37.579
2.74	24398812	Dimethylpentane	90	Hydrocarbon	314.037	222.919	15.394
2.80	95634290	Methylhexane	80	Hydrocarbon	1230.909	873.759	60.339
2.92	38072784	Hydrocarbon		Hydrocarbon	490.035	347.851	24.021
2.95	14167179	Dimethylcyclopentane	80	Hydrocarbon	182.346	129.438	8.939
2.98	21524674	Dimethylcyclopentane	80	Hydrocarbon	277.044	196.659	13.581
3.09	105296619	Heptane	90	Hydrocarbon	1355.272	962.039	66.435
3.46	133885847	Methylcyclohexane	80	Hydrocarbon	1723.244	1223.243	84.473
3.54	28073217	Dimethylhexane	80	Hydrocarbon	361.330	256.490	17.712
3.60	30763882	Ethylcyclopentane	90	Hydrocarbon	395.962	281.073	19.410
4.12	67054207	Hydrocarbon		Hydrocarbon	863.054	612.638	42.307
5.16	17788342	Dimethylheptane	80	Hydrocarbon	228.954	162.523	11.223
5.57	97838169	Dimethylheptene	80	Hydrocarbon	1259.275	893.895	61.729
7.62	17457332	Pinene	80	Hydrocarbon	224.693	159.498	11.014
8.22	8350340	Ethyltoluene/Hydrocarbon			107.477	76.293	5.268
8.63	10281770	Pinene	80	Hydrocarbon	132.337	93.939	6.487
9.24	26961468	Hydrocarbon		Hydrocarbon	347.021	246.333	17.011
9.34	34609713	Hydrocarbon		Hydrocarbon	445.461	316.210	21.836
10.27	7493049	Hydrocarbon		Hydrocarbon	96.443	68.460	4.728
10.73	37848317	Hydrocarbon		Hydrocarbon	487.146	345.800	23.880
10.83	39363898	Hydrocarbon		Hydrocarbon	506.653	359.647	24.836
14.02	11459535	Hydrocarbon		Hydrocarbon	147.496	104.700	7.230
14.14	7714250	Hydrocarbon		Hydrocarbon	99.290	70.481	4.867
15.08	33526716	Hydrocarbon		Hydrocarbon	431.522	306.316	21.153
15.24	39637722	Hydrocarbon		Hydrocarbon	510.177	362.149	25.009
15.38	26532330	Hydrocarbon		Hydrocarbon	341.498	242.412	16.740
17.90	37505136	Ditertbutylquinone	90		482.728	342.664	23.663
18.86	10681527	Hydrocarbon		Hydrocarbon	137.482	97.591	6.739
19.15	11227886	Hydrocarbon		Hydrocarbon	144.514	102.583	7.084
Total	1107779713						
					Amount (ng)	Amount (ng/gram)	Amount (ng/cm²)
		Organics Total			14258.228	10121.191	698.933
		Hydrocarbons			13668.023	9702.234	670.001
		Phenol/Alcohols			0.000	0.000	0.000
		Siloxanes			0.000	0.000	0.000
		Acrylates			0.000	0.000	0.000

Compounds in bold appear to be co-eluding