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APPENDICES

Appendix A Kinetic of Adsorption Data (Batch)

Table A1 Amount of diphenylmercury (2 ppm in n-heptane) adsorbed on Zeolite Omega as a function of time

2.0 ppm of DPM							
Temperature 30 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1000	21.00	2.10	0.000	0.00%	0.00	0.00%
0.5	0.1000	6.43	0.64	0.219	69.37%	1.10	1.59%
1	0.1000	6.07	0.61	0.224	71.11%	1.45	2.05%
2	0.1000	5.83	0.58	0.228	72.22%	2.15	2.97%
4	0.1000	5.60	0.56	0.231	73.33%	0.48	0.65%
6	0.1000	5.17	0.52	0.238	75.40%	1.37	1.82%
8	0.1000	5.07	0.51	0.239	75.87%	0.55	0.72%
10	0.1000	4.77	0.48	0.244	77.30%	1.80	2.33%
15	0.1000	4.03	0.40	0.255	80.79%	1.20	1.48%
20	0.1000	3.83	0.38	0.258	81.75%	0.27	0.34%
30	0.1000	3.37	0.34	0.265	83.97%	3.38	4.02%
Temperature 40 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1000	20.30	2.03	0.000	0.00%	0.00	0.00%
0.5	0.1000	6.53	0.65	0.207	67.82%	1.99	2.94%
1	0.1000	6.13	0.61	0.213	69.79%	2.84	4.08%
2	0.1000	6.13	0.61	0.213	69.79%	1.14	1.63%
4	0.1000	5.67	0.57	0.220	72.09%	1.14	1.58%
6	0.1000	5.43	0.54	0.223	73.23%	1.42	1.94%
8	0.1000	5.53	0.55	0.222	72.74%	1.42	1.95%
10	0.1000	5.27	0.53	0.226	74.06%	0.28	0.38%
15	0.1000	4.80	0.48	0.233	76.35%	1.71	2.23%
20	0.1000	5.07	0.51	0.229	75.04%	2.84	3.79%
30	0.1000	4.07	0.41	0.244	79.97%	1.14	1.42%
Temperature 50 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1000	20.07	2.01	0.000	0.00%	0.00	0.00%
0.5	0.1000	7.27	0.73	0.192	63.79%	2.68	4.19%
1	0.1000	7.00	0.70	0.196	65.12%	1.17	1.80%
2	0.1000	6.90	0.69	0.198	65.61%	0.68	1.03%
4	0.1000	6.70	0.67	0.201	66.61%	0.79	1.18%
6	0.1000	6.57	0.66	0.203	67.28%	0.69	1.02%
8	0.1000	6.53	0.65	0.203	67.44%	1.08	1.61%
10	0.1000	6.13	0.61	0.209	69.44%	1.69	2.43%
15	0.1000	5.97	0.60	0.212	70.27%	0.75	1.07%
20	0.1000	5.53	0.55	0.218	72.43%	1.19	1.64%
30	0.1000	5.40	0.54	0.220	73.09%	1.66	2.27%

Table A2 Amount of diphenylmercury (5 ppm in n-heptane) adsorbed on Zeolite Omega as a function of time

5.0 ppm of DPM							
Temperature 30 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1000	24.90	4.98	0.000	0.00%	0.00	0.00%
0.5	0.1000	12.07	2.41	0.385	51.54%	2.31	4.49%
1	0.1000	12.07	2.41	0.385	51.54%	2.40	4.65%
2	0.1000	11.43	2.29	0.404	54.08%	2.47	4.57%
4	0.1000	11.00	2.20	0.417	55.82%	2.17	3.89%
6	0.1000	10.40	2.08	0.435	58.23%	1.33	2.28%
8	0.1000	9.67	1.93	0.457	61.18%	2.95	4.82%
10	0.1000	9.17	1.83	0.472	63.19%	3.17	5.02%
15	0.1000	8.07	1.61	0.505	67.61%	5.74	8.48%
20	0.1000	7.47	1.49	0.523	70.02%	5.88	8.40%
30	0.1000	6.57	1.31	0.550	73.63%	5.26	7.15%
Temperature 40 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1000	25.27	5.05	0.000	0.00%	0.00	0.00%
0.5	0.1000	13.43	2.69	0.355	46.83%	4.89	10.45%
1	0.1000	12.27	2.45	0.390	51.45%	6.35	12.34%
2	0.1000	11.83	2.37	0.403	53.17%	5.55	10.44%
4	0.1000	11.57	2.31	0.411	54.22%	4.03	7.43%
6	0.1000	10.33	2.07	0.448	59.10%	4.29	7.26%
8	0.1000	10.10	2.02	0.455	60.03%	3.98	6.62%
10	0.1000	10.07	2.01	0.456	60.16%	4.18	6.96%
15	0.1000	9.43	1.89	0.475	62.66%	3.57	5.70%
20	0.1000	9.03	1.81	0.487	64.25%	4.31	6.71%
30	0.1000	8.83	1.77	0.493	65.04%	5.69	8.75%
Temperature 50 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1000	25.80	5.16	0.000	0.00%	0.00	0.00%
0.5	0.1000	15.10	3.02	0.321	41.47%	1.78	4.28%
1	0.1000	13.90	2.78	0.357	46.13%	1.78	3.85%
2	0.1000	13.47	2.69	0.370	47.80%	1.25	2.61%
4	0.1000	12.60	2.52	0.396	51.17%	2.16	4.22%
6	0.1000	12.47	2.49	0.400	51.68%	1.75	3.38%
8	0.1000	12.00	2.40	0.414	53.49%	0.78	1.45%
10	0.1000	11.33	2.27	0.434	56.07%	0.59	1.06%
15	0.1000	10.67	2.13	0.454	58.65%	3.01	5.13%
20	0.1000	10.13	2.03	0.470	60.72%	2.13	3.52%
30	0.1000	9.43	1.89	0.491	63.43%	3.47	5.48%

Table A3 Amount of diphenylmercury (2 ppm in n-heptane) adsorbed on Zeolite Beta in as a function of time

2.0 ppm of DPM							
Temperature 30 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1007	21.60	2.16	0.000	0.00%	0.00	0.00%
1	0.1007	8.23	0.82	0.199	61.86%	4.99	8.07%
2	0.1007	6.63	0.66	0.223	69.27%	5.52	7.97%
4	0.1007	4.53	0.45	0.254	79.01%	3.51	4.44%
8	0.1007	3.37	0.34	0.272	84.39%	5.48	6.50%
15	0.1007	2.67	0.27	0.282	87.65%	3.35	3.82%
30	0.1007	2.57	0.26	0.284	88.13%	2.09	2.37%
60	0.1007	2.20	0.22	0.289	89.80%	3.67	4.09%
120	0.1007	1.83	0.18	0.294	91.51%	0.71	0.77%
180	0.1007	1.80	0.18	0.295	91.67%	0.46	0.51%
Temperature 40 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1003	21.60	2.16	0.000	0.00%	0.00	0.00%
1	0.1003	5.87	0.59	0.235	72.84%	0.53	0.73%
2	0.1003	6.47	0.65	0.226	70.08%	8.57	12.22%
4	0.1003	5.53	0.55	0.240	74.40%	8.60	11.56%
8	0.1003	4.70	0.47	0.253	78.26%	9.26	11.83%
15	0.1003	4.93	0.49	0.249	77.18%	11.47	14.87%
30	0.1003	3.53	0.35	0.270	83.65%	6.59	7.87%
60	0.1003	3.37	0.34	0.273	84.42%	3.08	3.65%
120	0.1003	2.93	0.29	0.279	86.43%	4.15	4.80%
180	0.1003	2.77	0.28	0.282	87.19%	2.63	3.02%
Temperature 50 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1010	21.60	2.16	0.000	0.00%	0.00	0.00%
1	0.1010	8.50	0.85	0.195	60.72%	14.26	23.49%
2	0.1010	7.30	0.73	0.213	66.27%	12.04	18.16%
4	0.1010	6.40	0.64	0.226	70.43%	11.97	17.00%
8	0.1010	5.37	0.54	0.241	75.20%	14.00	18.62%
15	0.1010	4.87	0.49	0.249	77.48%	13.75	17.75%
30	0.1010	4.33	0.43	0.256	79.95%	8.76	10.96%
60	0.1010	3.70	0.37	0.266	82.88%	6.02	7.26%
120	0.1010	3.60	0.36	0.267	83.34%	4.42	5.30%
180	0.1010	3.57	0.36	0.268	83.50%	3.74	4.48%

Table A4 Amount of diphenylmercury (5 ppm in n-heptane) adsorbed on Zeolite Beta as a function of time

5.0 ppm of DPM							
Temperature 30 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1010	24.97	4.99	0.000	0.00%	0.00	0.00%
1	0.1010	3.93	0.79	0.625	84.26%	3.09	3.67%
2	0.1010	3.30	0.66	0.644	86.81%	3.76	4.33%
4	0.1010	2.97	0.59	0.653	88.14%	2.92	3.31%
8	0.1010	2.27	0.45	0.674	90.94%	2.10	2.31%
15	0.1010	1.77	0.35	0.689	92.94%	1.76	1.90%
30	0.1010	1.33	0.27	0.702	94.67%	1.02	1.08%
60	0.1010	1.13	0.23	0.708	95.48%	1.69	1.77%
120	0.1010	0.87	0.17	0.716	96.55%	1.40	1.45%
180	0.1010	0.80	0.16	0.718	96.81%	1.53	1.58%
Temperature 40 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1016	25.10	5.02	0.000	0.00%	0.00	0.00%
1	0.1016	3.60	0.72	0.635	85.66%	1.74	2.04%
2	0.1016	3.33	0.67	0.642	86.71%	2.54	2.93%
4	0.1016	2.93	0.59	0.654	88.32%	1.89	2.14%
8	0.1016	2.50	0.50	0.667	90.06%	0.69	0.77%
15	0.1016	2.20	0.44	0.676	91.26%	0.69	0.76%
30	0.1016	2.10	0.42	0.679	91.66%	0.69	0.76%
60	0.1016	2.03	0.41	0.681	91.95%	1.01	1.09%
120	0.1016	1.87	0.37	0.686	92.59%	0.46	0.50%
180	0.1016	1.60	0.32	0.694	93.66%	0.40	0.43%
Temperature 50 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1009	24.70	4.94	0.000	0.00%	0.00	0.00%
1	0.1009	6.17	1.23	0.551	75.02%	3.76	5.01%
2	0.1009	5.87	1.17	0.560	76.22%	5.16	6.77%
4	0.1009	4.83	0.97	0.590	80.41%	4.37	5.43%
8	0.1009	3.97	0.79	0.616	83.92%	4.73	5.63%
15	0.1009	3.53	0.71	0.629	85.67%	4.06	4.73%
30	0.1009	3.50	0.70	0.630	85.82%	3.06	3.56%
60	0.1009	3.30	0.66	0.636	86.62%	3.71	4.28%
120	0.1009	3.37	0.67	0.634	86.36%	1.91	2.22%
180	0.1009	3.03	0.61	0.644	87.72%	0.62	0.70%

Table A5 Amount of diphenylmercury (2 ppm in n-heptane) adsorbed on Zeolite L as a function of time

2.0 ppm of DPM							
Temperature 30 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.0999	20.50	2.05	0.000	0.00%	0.00	0.00%
1	0.0999	12.90	1.29	0.114	37.08%	2.24	6.03%
2	0.0999	12.27	1.23	0.124	40.17%	4.89	12.16%
4	0.0999	11.83	1.18	0.130	42.28%	4.43	10.47%
8	0.0999	11.07	1.11	0.142	46.02%	1.85	4.01%
15	0.0999	10.00	1.00	0.158	51.22%	2.58	5.04%
30	0.0999	9.07	0.91	0.172	55.77%	1.97	3.53%
60	0.0999	7.97	0.80	0.188	61.13%	3.25	5.31%
90	0.0999	7.33	0.73	0.198	64.23%	2.03	3.16%
120	0.0999	7.23	0.72	0.199	64.71%	2.25	3.48%
180	0.0999	7.87	0.79	0.190	61.63%	3.25	5.27%
Temperature 40 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1003	20.80	2.08	0.000	0.00%	0.00	0.00%
1	0.1003	13.17	1.32	0.114	36.71%	6.11	16.64%
2	0.1003	12.57	1.26	0.123	39.59%	4.57	11.54%
4	0.1003	12.27	1.23	0.128	41.03%	4.67	11.38%
8	0.1003	11.47	1.15	0.140	44.88%	4.54	10.13%
15	0.1003	11.03	1.10	0.146	46.96%	3.54	7.55%
30	0.1003	10.40	1.04	0.156	50.00%	3.00	6.00%
60	0.1003	9.93	0.99	0.163	52.25%	5.27	10.09%
90	0.1003	9.73	0.97	0.166	53.21%	5.14	9.66%
120	0.1003	10.30	1.03	0.157	50.49%	6.66	13.19%
180	0.1003	9.50	0.95	0.169	54.33%	2.88	5.31%
Temperature 50 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.0999	20.60	2.06	0.000	0.00%	0.00	0.00%
1	0.0999	14.30	1.43	0.095	30.58%	4.52	14.79%
2	0.0999	13.93	1.39	0.100	32.36%	3.78	11.69%
4	0.0999	13.90	1.39	0.101	32.53%	3.13	9.62%
8	0.0999	13.30	1.33	0.110	35.44%	2.20	6.20%
15	0.0999	13.20	1.32	0.111	35.92%	2.31	6.43%
30	0.0999	12.83	1.28	0.117	37.70%	1.48	3.93%
60	0.0999	12.53	1.25	0.121	39.16%	2.43	6.20%
90	0.0999	12.23	1.22	0.126	40.62%	2.43	5.99%
120	0.0999	12.20	1.22	0.126	40.78%	1.98	4.86%
180	0.0999	11.97	1.20	0.130	41.91%	1.95	4.66%

Table A6 Amount of diphenylmercury (2 ppm in n-heptane) adsorbed on Zeolite L as a function of time

5.0 ppm of DPM							
Temperature 30 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1002	25.40	5.08	0.000	0.00%	0.00	0.00%
1	0.1002	19.27	3.85	0.184	24.15%	3.88	16.08%
2	0.1002	18.17	3.63	0.217	28.48%	1.49	5.23%
4	0.1002	17.97	3.59	0.223	29.27%	2.50	8.54%
8	0.1002	16.50	3.30	0.267	35.04%	3.43	9.79%
15	0.1002	14.83	2.97	0.316	41.61%	3.35	8.05%
30	0.1002	13.17	2.63	0.366	48.18%	6.41	13.31%
60	0.1002	10.73	2.15	0.439	57.76%	5.53	9.58%
90	0.1002	9.77	1.95	0.468	61.56%	6.25	10.16%
120	0.1002	9.47	1.89	0.477	62.74%	5.08	8.09%
180	0.1002	9.70	1.94	0.470	61.81%	3.61	5.84%
Temperature 40 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.0999	25.10	5.02	0.000	0.00%	0.00	0.00%
1	0.0999	19.97	3.99	0.154	20.45%	4.87	23.81%
2	0.0999	19.27	3.85	0.175	23.24%	1.80	7.73%
4	0.0999	19.07	3.81	0.181	24.04%	1.51	6.28%
8	0.0999	17.73	3.55	0.221	29.35%	2.19	7.48%
15	0.0999	16.23	3.25	0.266	35.33%	1.15	3.26%
30	0.0999	13.23	2.65	0.356	47.28%	7.02	14.84%
60	0.0999	11.70	2.34	0.402	53.39%	5.90	11.04%
90	0.0999	11.00	2.20	0.423	56.18%	1.44	2.56%
120	0.0999	10.23	2.05	0.446	59.23%	1.66	2.80%
180	0.0999	10.23	2.05	0.446	59.23%	1.00	1.69%
Temperature 50 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1001	25.30	5.06	0.000	0.00%	0.00	0.00%
1	0.1001	20.57	4.11	0.142	18.71%	6.69	35.74%
2	0.1001	18.80	3.76	0.195	25.69%	4.28	16.64%
4	0.1001	18.17	3.63	0.214	28.20%	4.00	14.18%
8	0.1001	17.07	3.41	0.247	32.54%	6.44	19.78%
15	0.1001	16.23	3.25	0.272	35.84%	3.56	9.95%
30	0.1001	15.00	3.00	0.309	40.71%	1.58	3.88%
60	0.1001	13.57	2.71	0.352	46.38%	2.86	6.17%
90	0.1001	12.20	2.44	0.393	51.79%	7.99	15.44%
120	0.1001	11.17	2.23	0.423	55.86%	3.88	6.94%
180	0.1001	11.90	2.38	0.401	52.96%	1.37	2.59%

Table A7 Amount of diphenylmercury (2 ppm in n-heptane) adsorbed on CMG273 as a function of time

2.0 ppm of DPM							
Temperature 30 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1005	20.50	2.05	0.000	0.00%	0.00	0.00%
5	0.1005	19.80	1.98	0.010	3.41%	2.13	62.30%
10	0.1005	18.43	1.84	0.031	10.10%	3.66	36.27%
15	0.1005	17.53	1.75	0.044	14.48%	3.66	25.29%
30	0.1005	13.80	1.38	0.100	32.69%	9.41	28.78%
45	0.1005	11.87	1.19	0.129	42.12%	1.23	2.91%
60	0.1005	10.23	1.02	0.153	50.07%	2.98	5.95%
90	0.1005	8.30	0.83	0.182	59.52%	3.90	6.56%
120	0.1005	6.93	0.69	0.202	66.19%	4.74	7.16%
180	0.1005	4.63	0.46	0.237	77.41%	10.12	13.07%
240	0.1005	3.77	0.38	0.250	81.63%	4.09	5.01%
Temperature 40 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1004	20.90	2.09	0.000	0.00%	0.00	0.00%
5	0.1004	18.40	1.84	0.037	11.96%	1.91	16.01%
10	0.1004	17.43	1.74	0.052	16.59%	0.73	4.41%
15	0.1004	15.73	1.57	0.077	24.72%	3.19	12.89%
30	0.1004	13.20	1.32	0.115	36.84%	1.44	3.90%
45	0.1004	9.50	0.95	0.170	54.54%	1.44	2.63%
60	0.1004	8.57	0.86	0.184	59.02%	1.38	2.34%
90	0.1004	6.37	0.64	0.217	69.54%	1.46	2.10%
120	0.1004	4.63	0.46	0.243	77.83%	1.54	1.98%
180	0.1004	2.60	0.26	0.273	87.56%	0.48	0.55%
240	0.1004	1.80	0.18	0.285	91.38%	2.91	3.18%
Temperature 50 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1003	19.80	1.98	0.000	0.00%	0.00	0.00%
5	0.1003	17.50	1.75	0.034	11.62%	0.87	7.53%
10	0.1003	15.67	1.57	0.062	20.89%	2.78	13.32%
15	0.1003	14.43	1.44	0.080	27.11%	2.10	7.75%
30	0.1003	10.20	1.02	0.144	48.50%	3.31	6.83%
45	0.1003	7.73	0.77	0.180	60.96%	3.44	5.64%
60	0.1003	5.97	0.60	0.207	69.88%	2.78	3.98%
90	0.1003	3.93	0.39	0.237	80.15%	4.53	5.65%
120	0.1003	2.53	0.25	0.258	87.22%	3.04	3.49%
180	0.1003	1.30	0.13	0.277	93.46%	4.37	4.68%
240	0.1003	0.93	0.09	0.282	95.30%	2.28	2.39%

Table A8 Amount of diphenylmercury (2 ppm in n-heptane) adsorbed on CMG273 as a function of time

5.0 ppm of DPM							
Temperature 30 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1010	25.50	5.10	0.000	0.00%	0.00	0.00%
5	0.1010	24.17	4.83	0.040	5.23%	1.58	30.28%
10	0.1010	23.03	4.61	0.073	9.68%	0.60	6.19%
15	0.1010	20.77	4.15	0.141	18.57%	0.82	4.40%
30	0.1010	17.90	3.58	0.226	29.81%	1.04	3.48%
45	0.1010	15.57	3.11	0.295	38.96%	0.23	0.58%
60	0.1010	12.95	2.59	0.373	49.29%	0.60	1.22%
90	0.1010	10.00	2.00	0.460	60.80%	1.04	1.71%
120	0.1010	7.50	1.50	0.535	70.60%	0.78	1.11%
180	0.1010	4.27	0.85	0.631	83.28%	0.82	0.98%
240	0.1010	3.10	0.62	0.665	87.84%	1.57	1.79%
Temperature 40 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1016	25.40	5.08	0.000	0.00%	0.00	0.00%
5	0.1016	23.63	4.73	0.052	6.95%	0.60	8.65%
10	0.1016	21.57	4.31	0.113	15.09%	2.62	17.37%
15	0.1016	20.60	4.12	0.142	18.88%	1.42	7.52%
30	0.1016	17.53	3.51	0.232	30.98%	0.60	1.94%
45	0.1016	14.80	2.96	0.313	41.72%	1.80	4.32%
60	0.1016	13.17	2.63	0.361	48.18%	0.60	1.25%
90	0.1016	8.93	1.79	0.486	64.85%	3.96	6.11%
120	0.1016	7.70	1.54	0.523	69.70%	0.39	0.56%
180	0.1016	4.77	0.95	0.609	81.26%	0.60	0.74%
240	0.1016	3.33	0.67	0.652	86.90%	0.99	1.14%
Temperature 50 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorption (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.1009	25.40	5.08	0.000	0.00%	0.00	0.00%
5	0.1009	20.73	4.15	0.139	18.37%	1.27	6.89%
10	0.1009	19.67	3.93	0.170	22.58%	0.60	2.66%
15	0.1009	17.80	3.56	0.226	29.94%	2.05	6.83%
30	0.1009	13.23	2.65	0.362	47.91%	2.31	4.81%
45	0.1009	12.30	2.46	0.390	51.60%	3.72	6.25%
60	0.1009	11.10	2.22	0.425	56.31%	2.08	3.70%
90	0.1009	7.27	1.45	0.539	71.42%	2.95	4.14%
120	0.1009	5.57	1.11	0.590	78.10%	2.31	2.95%
180	0.1009	2.93	0.59	0.668	88.47%	1.98	2.24%
240	0.1009	1.90	0.38	0.699	92.53%	0.79	0.85%

Table A9 Amount of diphenylmercury (2 ppm in heavy naphtha) adsorbed on Beta as a function of time

2 ppm of DPM							
Temperature 30 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorbtion (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.0503	20.20	2.72	0.000	0.00%	0.00	0.00%
10	0.0503	7.07	0.71	0.183	65.00%	3.75	5.77%
30	0.0503	6.17	0.62	0.195	69.48%	0.76	1.09%
60	0.0503	5.30	0.53	0.207	73.84%	9.01	12.20%
90	0.0503	4.67	0.47	0.216	76.92%	2.23	2.90%
120	0.0503	3.17	0.32	0.237	84.34%	1.51	1.79%
180	0.0503	3.33	0.33	0.235	83.52%	2.00	2.40%
240	0.0503	2.70	0.27	0.243	86.64%	1.49	1.71%

Table A10 Amount of diphenylmercury (2 ppm in heavy naphtha) adsorbed on Omega as a function of time

2 ppm of DPM							
Temperature 30 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorbtion (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.0501	20.20	2.02	0.000	0.00%	0.00	0.00%
10	0.0501	13.00	1.30	0.101	35.65%	2.62	7.35%
30	0.0501	12.57	1.26	0.107	37.80%	3.97	10.51%
60	0.0501	11.87	1.19	0.116	41.26%	3.75	9.09%
90	0.0501	9.87	0.99	0.144	51.17%	5.29	10.35%
120	0.0501	9.30	0.93	0.152	53.97%	5.71	10.58%
180	0.0501	8.47	0.85	0.164	58.10%	6.27	10.79%
240	0.0501	7.23	0.72	0.181	64.21%	8.30	12.93%

Table A11 Amount of mercury (800 ppb of natural occurring mercury in heavy naphtha) adsorbed on Beta as a function of time

800 ppb of DPM							
Temperature 30 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorbtion (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.0501	8.00	0.80	0.000	0.00%	0.00	0.00%
10	0.0501	6.43	0.64	0.022	19.60%	5.05	25.77%
30	0.0501	6.20	0.62	0.025	22.51%	1.25	5.55%
60	0.0501	5.47	0.55	0.035	31.65%	4.39	13.87%
90	0.0501	5.60	0.56	0.034	29.98%	6.50	21.67%
120	0.0501	5.13	0.51	0.040	35.82%	2.89	8.06%
180	0.0501	4.97	0.50	0.042	37.90%	5.91	15.59%
240	0.0501	4.63	0.46	0.047	42.07%	2.89	6.86%

Table A12 Amount of mercury (800 ppb of natural occurring mercury in heavy naphtha) adsorbed on Omega as a function of time

800 ppb of DPM							
Temperature 30 °C							
Time (min)	Weight of adsorbents (g)	Reading (ppb)	Remaining (mg/l)	Adsorbtion (mg/g adsorbent)	%Adsorption	STDEV	%STDEV
0	0.0509	8.00	0.80	0.000	0.00%	0.00	0.00%
10	0.0509	6.87	0.69	0.016	14.16%	1.44	10.19%
30	0.0509	6.57	0.66	0.020	17.91%	1.44	8.06%
60	0.0509	6.47	0.65	0.021	19.16%	2.89	15.06%
90	0.0509	6.10	0.61	0.026	23.72%	6.50	27.38%
120	0.0509	5.80	0.58	0.030	27.48%	4.51	16.40%
180	0.0509	5.63	0.56	0.033	29.59%	0.72	2.44%
240	0.0509	5.43	0.54	0.035	32.09%	1.44	4.50%

Appendix B Adsorption Isotherm Data (Batch)

Table B1 Adsorption isotherms of diphenylmercury in n-heptane on Zeolite Omega at 30°C, 40°C, 50°C

Temperature 30 °C					
Initial concentration (mg/l)	Remaining Conc.(mg/l)	Weight of adsorbent (g)	Amount of absorbed (mg THg / g ad)	STDEV	% STDEV
1.840	0.493	0.0031	0.645	0.014	2.17%
2.240	0.580	0.0031	0.794	0.035	4.37%
2.800	0.933	0.0033	0.850	0.038	4.53%
3.200	1.007	0.0032	1.037	0.170	16.37%
3.760	1.287	0.0032	1.162	0.117	10.09%
4.373	1.533	0.0032	1.333	0.108	8.10%
4.840	2.140	0.0031	1.307	0.071	5.41%
Temperature 40 °C					
Initial concentration (mg/l)	Remaining Conc.(mg/l)	Weight of adsorbent (g)	Amount of absorbed (mg THg / g ad)	STDEV	% STDEV
1.780	0.313	0.0034	0.649	0.047	7.30%
2.360	0.527	0.0033	0.836	0.128	15.27%
2.960	0.573	0.0035	1.016	0.093	9.17%
3.440	0.960	0.0036	1.044	0.114	10.93%
3.940	1.233	0.0033	1.245	0.292	23.42%
4.300	1.120	0.0033	1.447	0.076	5.28%
4.780	1.580	0.0033	1.459	0.112	7.69%
Temperature 50 °C					
Initial concentration (mg/l)	Remaining Conc.(mg/l)	Weight of adsorbent (g)	Amount of absorbed (mg THg / g ad)	STDEV	% STDEV
1.780	0.280	0.0034	0.661	0.022	3.39%
2.360	0.427	0.0034	0.854	0.040	4.64%
2.960	0.653	0.0033	1.049	0.042	4.00%
3.440	0.727	0.0034	1.200	0.075	6.25%
3.940	1.347	0.0032	1.205	0.059	4.90%
4.300	1.273	0.0036	1.263	0.055	4.36%
4.840	1.773	0.0034	1.341	0.115	8.58%

Table B2 Adsorption isotherms of diphenylmercury in n-heptane on Zeolite Beta at 30°C, 40°C, 50°C

Temperature 30 °C					
Initial concentration (mg/l)	Remaining Conc.(mg/l)	Weight of adsorbent (g)	Amount of absorbed (mg THg / g ad)	STDEV	% STDEV
1.780	0.113	0.0027	0.918	0.069	7.50%
2.360	0.140	0.0024	1.389	0.058	4.17%
2.960	0.160	0.0025	1.661	0.090	5.42%
3.440	0.213	0.0025	1.938	0.070	3.61%
3.940	0.247	0.0023	2.416	0.149	6.18%
4.300	0.273	0.0023	2.629	0.098	3.72%
4.780	0.533	0.0023	2.770	0.049	1.78%
Temperature 40 °C					
Initial concentration (mg/l)	Remaining Conc.(mg/l)	Weight of adsorbent (g)	Amount of absorbed (mg THg / g ad)	STDEV	% STDEV
1.780	0.140	0.0022	1.139	0.082	7.22%
2.360	0.153	0.0020	1.629	0.037	2.28%
2.960	0.180	0.0021	2.019	0.059	2.93%
3.440	0.220	0.0021	2.314	0.216	9.33%
3.940	0.273	0.0021	2.623	0.141	5.38%
4.320	0.340	0.0021	2.890	0.073	2.51%
4.900	0.680	0.0019	3.337	0.184	5.52%
Temperature 50 °C					
Initial concentration (mg/l)	Remaining Conc.(mg/l)	Weight of adsorbent (g)	Amount of absorbed (mg THg / g ad)	STDEV	% STDEV
1.780	0.153	0.0021	1.162	0.022	1.88%
2.360	0.153	0.0020	1.684	0.061	3.63%
2.960	0.167	0.0023	1.854	0.111	6.01%
3.440	0.220	0.0022	2.195	0.024	1.08%
3.940	0.233	0.0022	2.530	0.101	4.01%
4.300	0.280	0.0024	2.549	0.055	2.17%
4.780	0.513	0.0021	3.122	0.382	12.25%

Table B3 Adsorption isotherms of diphenylmercury in n-heptane on Zeolite L at 30°C, 40°C, 50°C

Temperature 30 °C					
Initial concentration (mg/l)	Remaining Conc.(mg/l)	Weight of adsorbent (g)	Amount of absorbed (mg THg / g ad)	STDEV	% STDEV
1.700	0.453	0.0057	0.326	0.019	5.87%
2.220	0.613	0.0051	0.474	0.056	11.83%
2.740	0.793	0.0052	0.565	0.035	6.19%
3.320	1.333	0.0048	0.622	0.062	9.93%
3.760	1.600	0.0051	0.641	0.083	13.00%
4.320	1.940	0.0051	0.698	0.176	25.20%
4.740	2.707	0.0050	0.610	0.180	29.45%
Temperature 40 °C					
Initial concentration (mg/l)	Remaining Conc.(mg/l)	Weight of adsorbent (g)	Amount of absorbed (mg THg / g ad)	STDEV	% STDEV
1.700	0.567	0.0052	0.325	0.019	5.69%
2.220	0.980	0.0049	0.382	0.051	13.36%
2.740	1.433	0.0050	0.394	0.099	25.16%
3.320	1.833	0.0049	0.449	0.077	17.20%
3.760	2.107	0.0052	0.475	0.067	14.09%
4.320	2.653	0.0051	0.490	0.017	3.47%
4.740	3.213	0.0050	0.456	0.067	14.64%
Temperature 50 °C					
Initial concentration (mg/l)	Remaining Conc.(mg/l)	Weight of adsorbent (g)	Amount of absorbed (mg THg / g ad)	STDEV	% STDEV
1.700	0.967	0.0052	0.212	0.049	23.20%
2.220	1.167	0.0051	0.311	0.039	12.45%
2.740	1.713	0.0052	0.294	0.046	15.68%
3.320	2.233	0.0050	0.321	0.076	23.77%
3.760	2.587	0.0050	0.350	0.054	15.32%
4.320	3.193	0.0051	0.331	0.039	11.81%
4.740	3.567	0.0052	0.336	0.092	27.44%

Table B4 Adsorption isotherms of diphenylmercury in n-heptane on CMG273 at 30°C, 40°C, 50°C

Temperature 30 °C					
Initial concentration (mg/l)	Remaining Conc.(mg/l)	Weight of adsorbent (g)	Amount of absorbed (mg THg / g ad)	STDEV	% STDEV
1.840	0.853	0.0056	0.263	0.013	5.05%
2.240	1.033	0.0054	0.336	0.017	5.11%
2.800	1.387	0.0057	0.371	0.028	7.56%
3.280	1.780	0.0053	0.428	0.017	4.01%
3.760	1.940	0.0050	0.546	0.064	11.80%
4.280	2.200	0.0055	0.570	0.116	20.30%
4.740	2.553	0.0055	0.602	0.146	24.18%
Temperature 40 °C					
Initial concentration (mg/l)	Remaining Conc.(mg/l)	Weight of adsorbent (g)	Amount of absorbed (mg THg / g ad)	STDEV	% STDEV
1.480	0.587	0.0052	0.259	0.063	24.37%
1.980	0.873	0.0048	0.345	0.043	12.51%
2.400	0.967	0.0052	0.411	0.054	13.21%
2.820	1.140	0.0054	0.470	0.043	9.25%
3.200	1.407	0.0051	0.531	0.051	9.61%
3.580	1.660	0.0051	0.565	0.007	1.25%
4.100	1.913	0.0052	0.636	0.048	7.47%
Temperature 50 °C					
Initial concentration (mg/l)	Remaining Conc.(mg/l)	Weight of adsorbent (g)	Amount of absorbed (mg THg / g ad)	STDEV	% STDEV
1.780	0.760	0.0052	0.297	0.026	8.70%
2.360	0.827	0.0053	0.437	0.010	2.30%
2.960	1.247	0.0050	0.511	0.016	3.18%
3.440	1.313	0.0054	0.591	0.018	3.03%
3.940	1.727	0.0052	0.643	0.026	3.99%
4.300	1.853	0.0052	0.703	0.066	9.35%
4.780	2.427	0.0048	0.731	0.023	3.09%

Table B5 Adsorption isotherms of diphenylmercury in heavy naphtha on Zeolite Beta at 30°C

Temperature 30 °C					
Initial concentration (mg/l)	Remaining Conc.(mg/l)	Weight of adsorbent (g)	Amount of absorbed (mg THg / g ad)	STDEV	% STDEV
2.120	0.307	0.0023	1.202	0.065	5.44%
3.060	0.420	0.0022	1.830	0.063	3.47%
3.560	0.573	0.0022	2.039	0.094	4.62%
4.100	0.747	0.0022	2.261	0.168	7.41%
4.400	1.020	0.0022	2.319	0.184	7.94%
4.940	1.187	0.0022	2.597	0.085	3.28%

Table B6 Adsorption isotherms of diphenylmercury in heavy naphtha on Zeolite Omega at 30°C

Temperature 30 °C					
Initial concentration (mg/l)	Remaining Conc.(mg/l)	Weight of adsorbent (g)	Amount of absorbed (mg THg / g ad)	STDEV	% STDEV
2.120	1.240	0.0031	0.428	0.074	17.37%
3.060	1.807	0.0033	0.577	0.105	18.20%
3.560	1.947	0.0034	0.712	0.057	8.00%
4.100	2.650	0.0031	0.704	0.094	13.31%
4.400	2.947	0.0031	0.696	0.013	1.84%
4.940	3.293	0.0032	0.778	0.166	21.36%

Table B7 Adsorption isotherms of mercury (natural occurring) in heavy naphtha on Zeolite Beta at 30°C

Temperature 30 °C					
Initial concentration (mg/l)	Remaining Conc.(mg/l)	Weight of adsorbent (g)	Amount of absorbed (mg THg / g ad)	STDEV	% STDEV
0.210	0.155	0.0035	0.024	0.002	6.73%
0.450	0.353	0.0035	0.043	0.020	47.62%
0.590	0.487	0.0034	0.045	0.007	16.03%
0.750	0.640	0.0031	0.053	0.004	8.32%
0.930	0.780	0.0033	0.069	0.020	28.79%
1.180	1.023	0.0035	0.068	0.016	23.03%

Table B8 Adsorption isotherms of mercury (natural occurring) in heavy naphtha on Zeolite Omega at 30°C

Temperature 30 °C					
Initial concentration (mg/l)	Remaining Conc.(mg/l)	Weight of adsorbent (g)	Amount of absorbed (mg THg / g ad)	STDEV	% STDEV
0.210	0.180	0.0055	0.008	0.000	1.30%
0.450	0.400	0.0055	0.014*	0.000	2.57%
0.590	0.497	0.0055	0.025	0.005	20.74%
0.750	0.670	0.0055	0.022	0.009	43.11%
0.930	0.817	0.0055	0.031	0.004	12.15%
1.180	1.060	0.0056	0.032	0.003	9.27%

Appendix C Continuous System

Table C1 Adsorption and desorption of 2ppm Diphenylmercury in heavy naphtha on SiC (blank test)

Adsorption Phase

Feed stock : ATC heavy naphtha (110 SN 7) spiked with DPM (2 ppm)

Temperature : 30 degree C

Pressure : 7 bar

Feed flow : 1.5 ml/min

Duration time : 90 mins

ADSORPTION			
Time (mins)	Feed Weight (g)	Sample weight (g)	THg outlet (µg/l)
0	20	14.4	1580
30	-	45.7	1952
60	-	29.5	1892
90	148	30.5	1900

Desorption Phase

Feed stock : n-Heptane (Hg free)

Temperature : 30 degree C

Pressure : 7 bar

Feed flow : 1.5 ml/min

Duration time : 120 mins

DESORPTION			
Time (mins)	Feed Weight (g)	Sample weight (g)	THg outlet ($\mu\text{g/l}$)
0	23	5	1196
60	-	44.55	156
90	-	41.31	80
120	170	40.25	48

From Table C2 mass balance in Adsorption and desorption of 2ppm Diphenylmercury in heavy naphtha on SiC (blank test) were calculated as shows below.

Heavy naphtha (SG=0.76) balance (ml)

Inlet	168.51
Outlet	158.11
Retain	13.87

(Gram of feed x SG = ml inlet)

(Summation of weight of sample x SG = ml outlet)

Note : No feed stock in waste tank

Hg Balance (micro g)

Adsorption phase	
Inlet	318.82
Outlet	297.16
Retain	21.66

(THg ($\mu\text{g/l}$) x ℓ inlet = Hg inlet)

(THg ($\mu\text{g/l}$) of sample n x ℓ of sample n + ... = Hg outlet)

Desorption phase	
Inlet	0.00
Outlet	26.72

(THg ($\mu\text{g/l}$) of sample n x ℓ of sample n + ... = Hg outlet)

Table C2 Adsorption and desorption of 2ppm Diphenylmercury in heavy naphtha on Zeolite Beta (blank test)

Adsorption Phase

Feed stock : ATC heavy naphtha (110 SN 7) spiked with DPM (2020 ppb)

Adsorbent : Zeolite Beta (Ø 1-2 mm) 1,78 g

Temperature : 30 degree C

Pressure : 7 bar

Feed flow : 1.5 ml/min

Duration time : 25 hrs

ADSORPTION			
Time (hr)	Feed Weight (g)	Sample weight (g)	THg outlet (µg/l)
0	0	-	2020.55
1	73	42.50	224.51
2	170	40.00	235.92
3	226	41.00	262.56
5	348	40.40	300.61
7	475	44.30	353.88
9	611	45.20	407.15
11	746	45.70	449.01
13	883	44.90	487.06
16	"1090"(0)"	46.50	570.78
19	201	44.00	658.30
22	384	44.50	726.79
24	520	44.30	810.50
25	588	44.30	867.58

Desorption Phase

Feed stock : n-Heptane (Hg free)

Temperature : 30 degree C

Pressure : 7 bar

Feed flow : 1.5 ml/min

Duration time : 10 hrs

DESORPTION			
Time (mins)	Feed Weight (g)	Sample weight (g)	THg outlet (µg/l)
0	0	-	0.00
1	63	42.10	388.13
2	137	42.02	68.49
3	222	43.50	41.86
4	326	37.40	38.05
6	485	40.40	41.86
8	597	41.40	41.86
10	718	40.20	38.05

Feed concentration : 2020 ppb

Waste tank adsorption : 490 ppb

From Table C2 mass balance in Adsorption and desorption of 2ppm Diphenylmercury in heavy naphtha on Zeolite Beta were calculated as shows below.

□ Heavy naphtha balance (g)

Inlet	1678.00
Outlet	1639.00
Retain	39.00

□ Hg Balance (micro g)

Adsorption phase	
Inlet	4560.00
Outlet	1051.00
Retain	3509.00

(THg ($\mu\text{g}/\ell$) x ℓ inlet = Hg inlet)

(THg ($\mu\text{g}/\ell$) of sample n x ℓ of sample n + ... = Hg outlet)

Desorption phase	
Inlet	0.00
Outlet	124.52

(THg ($\mu\text{g}/\ell$) of sample n x ℓ of sample n + ... = Hg outlet)

INPUT - OUTPUT = ACCUMULATION

(4560) - (1051+124) = 3385 micro-g (Accumulation in Adsorbent) (2 mg/g Adsorbent)

Table C3 Adsorption and desorption of 2ppm Diphenylmercury in heavy naphtha on CMG273

Adsorption Phase

Feed stock : ATC heavy naphtha (110 SN 7) spiked with DPM (2090 ppb)

Adsorbent : CMG 273 2.4 g

Temperature : 30 degree C

Pressure : 7 bar

Feed flow : 1.5 ml/min

Duration time : 26 hrs

ADSORPTION			
Time (hr)	Feed Weight (g)	Sample weight (g)	THg outlet (µg/l)
0	0	-	2089.04
1	102	43.23	190.26
2	180	44.72	209.28
3	219	42.64	186.45
4	323	44.69	254.95
5	380(0)	44.45	262.56
7	57	45.74	369.10
9	194	44.23	395.74
11	316	44.16	429.98
14	466	42.33	471.84
17	643	44.43	479.45
20	837	41.48	544.14
23	1046(0)	44.66	639.27
26	164	46.34	703.96

Desorption Phase

Feed stock : n-Heptane (Hg free)

Temperature : 30 degree C

Pressure : 7 bar

Feed flow : 1.5 ml/min

Duration time : 12 hrs

DESORPTION			
Time (mins)	Feed Weight (g)	Sample weight (g)	THg outlet (µg/l)
0	0	-	0.00
1	62	44.73	429.98
2	141	42.01	136.99
3	221	34.04	72.30
7	463	41.29	64.69
9	554	41.71	76.10
10	672	41.50	79.91

Feed concentration : 2090 ppb
 Waste tank adsorption : 494 ppb
 Waste tank desorption : 150 ppb

From Table C3 mass balance in Adsorption and desorption of 2ppm Diphenylmercury in heavy naphtha on CMG273 were calculated as shows below.

□ Heavy naphtha balance (g)

Inlet	1590.00
Outlet	1580.00
Retain	10.00

□ Hg Balance (micro g)

Adsorption phase	
Inlet	4372.00
Outlet	948.00
Retain	3424.00

(THg ($\mu\text{g}/\ell$) x ℓ inlet = Hg inlet)

(THg ($\mu\text{g}/\ell$) of sample n x ℓ of sample n + ... = Hg outlet)

Desorption phase	
Inlet	0.00
Outlet	174.00

(THg ($\mu\text{g}/\ell$) of sample n x ℓ of sample n + ... = Hg outlet)

INPUT - OUTPUT = ACCUMULATION

(4372) - (948+174) = 3250 micro-g (Accumulation in Adsorbent) (1.35 mg/g Adsorbent)

Table C4 Adsorption and desorption of 2ppm Diphenylmercury in heavy naphtha on alumina

Adsorption Phase

Feed stock : ATC heavy naphtha (110 SN 7) spiked with DPM (2040 ppb)

Adsorbent : Alumina ball 2.0 g

Temperature : 30 degree C

Pressure : 7 bar

Feed flow : 1.5 ml/min

Duration time : 25 hrs

ADSORPTION			
Time (hr)	Feed Weight (g)	Sample weight (g)	THg outlet (µg/l)
0	0	-	2039.57
1	98	43.00	586.00
2	-	42.46	605.02
3	234	40.32	677.32
6	424	39.70	825.72
9	617	43.21	1240.49
13	886	43.80	1232.88
16	1065(1120=0)	41.58	1453.58
18.5	76	44.16	1506.85
21	242	44.51	1674.28
24	448	44.18	1651.45
25	486	42.00	1773.21

Desorption Phase

Feed stock : n-Heptane (Hg free)

Temperature : 30 degree C

Pressure : 7 bar

Feed flow : 1.5 ml/min

Duration time : 15 hrs

DESORPTION			
Time (mins)	Feed Weight (g)	Sample weight (g)	THg outlet (µg/l)
0	0	-	0.00
1	68	43.53	761.04
2	-	44.59	53.27
3	238	35.04	57.08
6	412	38.84	41.86
9	554	40.07	41.86
12	747	36.90	38.05
15	924	41.65	41.86

Feed concentration : 2040 ppb

Waste tank adsorption : 1300 ppb

Waste tank desorption : 53 ppb

From Table C4 mass balance in Adsorption and desorption of 2ppm Diphenylmercury in heavy naphtha on alumina were calculated as shows below.

□ Heavy naphtha balance (g)

Inlet	1607.00
Outlet	1571.00
Retain	36.00

□ Hg Balance (micro g)

Adsorption phase	
Inlet	4313.00
Outlet	2633.00
Retain	1680.00

(THg ($\mu\text{g}/\ell$) x ℓ inlet = Hg inlet)

(THg ($\mu\text{g}/\ell$) of sample n x ℓ of sample n = Hg outlet)

Desorption phase	
Inlet	0.00
Outlet	96.64

(THg ($\mu\text{g}/\ell$) of sample n x ℓ of sample n + ... = Hg outlet)

INPUT - OUTPUT = ACCUMULATION

(4313) - (2633+96.64) = 1583 micro-g (Accumulation in Adsorbent) (0.79 mg/g Adsorbent)

