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APPENDICES

Appendix A The quantity of cages based on NaY characteristic calculation.

The crystallographic unit cell of NaY zeolite: $\text{Na}_{56}[(\text{AlO}_2)_{56}(\text{SiO}_2)_{136}]$

Molecular weight of one unit cell = 12,757 g/mole

The binder quantity is around 26.7% of the NaY adsorbent mass and the crystallographic unit cell consists of an array of eight cages.

∴ The quantity of cages

$$= \frac{(100 - 26.7)}{100} \times \frac{1 \text{ g of adsorbent}}{12,757 \frac{\text{g}}{\text{mole}}} \times (6.02 \times 10^{23} \frac{\text{molecule(or unit cell)}}{\text{mole}}) \times 8 \frac{\text{cages}}{\text{unit cell}}$$

$$= 2.77 \times 10^{20} \text{ cages/g of NaY adsorbent}$$

Appendix B The experimental data.

Table A1 Adsorption of diphenylmercury in n-heptane on plastic (HDPE) containers

Equation of standard curve for standard solution

$$y = 0.0587x - 0.0011, r^2 = 0.9989$$

Where y = Standard Hg concentration

(0.005, 0.01, 0.02, 0.05, and 0.07 mg/l)

x = Reading absorbance (ABS)

Day(s)	DPM concentration, 2.0 mg/l					DPM concentration, 5.0 mg/l				
	Reading ABS	%RSD	Tested concentration	Sample concentration	Percent Remaining	Reading ABS	%RSD	Tested concentration	Sample concentration	Percent Remaining
0	0.259	0.8	0.0141	1.8616	100.00	0.661	0.4	0.0377	4.9765	100.00
1	0.256	1.1	0.0139	1.8384	98.75	0.651	0.3	0.0371	4.8990	98.44
2	0.258	0.6	0.0140	1.8539	99.58	0.662	0.9	0.0378	4.9842	100.16
3	0.247	0.1	0.0134	1.7687	95.01	0.653	0.8	0.0372	4.9145	98.75
4	0.261	0.5	0.0142	1.8771	100.83	0.650	0.8	0.0371	4.8913	98.29
5	0.244	0.7	0.0132	1.7454	93.76	0.623	0.4	0.0355	4.6821	94.08
6	0.246	0.5	0.0133	1.7609	94.59	0.683	0.5	0.0390	5.1470	103.43
7	0.243	0.6	0.0132	1.7377	93.34	0.633	0.9	0.0361	4.7600	95.640

Table A2 Amount of diphenylmercury adsorbed on 3A zeolite as a function of time

Time (mins)	2.0 mg/l of DPM concentration						5.0 mg/l of DPM concentration					
	Weight of adsorbents, g	Reading ABS	%RSD	Tested concentration (mg/l)	Sample concentration (mg/l)	Remaining concentration (mg/l/g of adsorbent)	Weight of adsorbents, g	Reading ABS	%RSD	Tested concentration (mg/l)	Sample concentration (mg/l)	Remaining concentration (mg/l/g of adsorbent)
0	0.1000	0.170	1.00	0.01553	2.05036	20.50356	0.1000	0.529	0.60	0.03703	4.88787	48.87868
10	0.1079	0.133	0.40	0.01024	1.35219	12.53193	0.1022	0.503	1.00	0.03517	4.64179	45.41872
20	0.1079	0.123	0.60	0.00936	1.23564	11.45170	0.1022	0.495	0.70	0.03459	4.56608	44.67787
30	0.1079	0.107	0.70	0.00795	1.04915	9.72335	0.1022	0.480	0.60	0.03352	4.42411	43.28877
40	0.1079	0.115	1.00	0.00865	1.14239	10.58753	0.1022	0.492	0.80	0.03438	4.53768	44.40005
60	0.1034	0.117	0.60	0.00883	1.16571	11.27374	0.1020	0.474	0.60	0.03309	4.36733	42.81692
80	0.1034	0.105	0.90	0.00777	1.02584	9.92106	0.1020	0.491	2.00	0.03430	4.52822	44.39432
100	0.1034	0.097	0.70	0.00707	0.93259	9.01928	0.1020	0.483	0.50	0.03373	4.45251	43.65201
150	0.1034	0.103	0.30	0.00759	1.00253	9.69562	0.1020	0.438	0.10	0.03050	4.02661	39.47654
200	0.1010	0.109	0.90	0.00812	1.07246	10.61842	0.1040	0.442	0.10	0.03079	4.06446	39.08139
300	0.1010	0.097	1.10	0.00707	0.93259	9.23360	0.1040	0.424	0.20	0.02950	3.89411	37.44332
400	0.1010	0.087	0.70	0.00618	0.81604	8.07958	0.1040	0.416	0.70	0.02893	3.81839	36.71529
500	0.1010	0.068	0.20	0.00450	0.59458	5.88694	0.1040	0.378	0.70	0.02620	3.45874	33.25715
700	0.1010	0.080	0.80	0.00556	0.73445	7.27176	0.1018	0.371	1.40	0.02570	3.39249	33.32507
800	0.1010	0.052	1.00	0.00309	0.40809	4.04051	0.1018	0.377	1.00	0.02613	3.44928	33.88290
850	0.1010	0.074	0.50	0.00503	0.66451	6.57935	0.1018	0.368	0.60	0.02549	3.36410	33.04616
900	0.1010	0.066	1.00	0.00433	0.57127	5.65613	0.1018	0.306	0.90	0.02104	2.77731	27.28199

Table A3 Amount of diphenylmercury adsorbed on 4A zeolite as a function of time.

Time (mins)	2.0 mg/l of DPM concentration						5.0 mg/l of DPM concentration					
	Weight of adsorbents, g	Reading ABS	%RSD	Tested concentration (mg/l)	Sample concentration (mg/l)	Remaining concentration (mg/l/g of adsorbent)	Weight of adsorbents, g	Reading ABS	%RSD	Tested concentration (mg/l)	Sample concentration (mg/l)	Remaining concentration (mg/l/g of adsorbent)
0	0.1000	0.170	1.00	0.01553	2.05036	20.50356	0.1000	0.415	0.60	0.03469	4.57908	45.79080
10	0.1016	0.094	0.40	0.00680	0.89763	8.83491	0.1020	0.366	0.30	0.03048	4.02283	39.43953
20	0.1016	0.106	0.90	0.00786	1.03749	10.21155	0.1020	0.397	0.60	0.03314	4.37474	42.88965
30	0.1016	0.094	0.70	0.00680	0.89763	8.83491	0.1020	0.379	1.10	0.03159	4.17041	40.88635
40	0.1016	0.102	0.30	0.00751	0.99087	9.75267	0.1020	0.384	1.70	0.03202	4.22717	41.44282
60	0.1010	0.099	1.30	0.00724	0.95590	9.46440	0.1042	0.326	0.20	0.02704	3.56875	34.24906
80	0.1010	0.094	0.70	0.00680	0.89763	8.88739	0.1042	0.306	0.10	0.02532	3.34171	32.07017
100	0.1010	0.105	0.40	0.00777	1.02584	10.15681	0.1042	0.302	0.90	0.02497	3.29630	31.63440
150	0.1010	0.087	0.50	0.00618	0.81604	8.07958	0.1042	0.291	0.70	0.02403	3.17143	30.43601
200	0.1060	0.104	0.50	0.00768	1.01418	9.56776	0.1027	0.278	0.90	0.02291	3.02386	29.44358
300	0.1060	0.091	0.90	0.00654	0.86266	8.13830	0.1027	0.294	1.00	0.02428	3.20549	31.21215
400	0.1060	0.061	0.50	0.00389	0.51299	4.83954	0.1027	0.286	1.10	0.02360	3.11467	30.32787
500	0.1060	0.058	0.80	0.00362	0.47802	4.50967	0.1027	0.250	0.30	0.02050	2.70600	26.34859
700	0.1045	0.057	1.10	0.00353	0.46637	4.46286	0.1026	0.263	0.30	0.02162	2.85358	27.81263
800	0.1045	0.058	0.70	0.00362	0.47802	4.57440	0.1026	0.235	1.20	0.01921	2.53572	24.71462
850	0.1045	0.055	0.70	0.00336	0.44306	4.23979	0.1026	0.223	0.80	0.01818	2.39950	23.38690
900	0.1045	0.053	1.10	0.00318	0.41975	4.01672	0.1026	0.235	0.70	0.01921	2.53572	24.71462

Table A4 Amount of diphenylmercury adsorbed on 5A zeolite as a function of time

Time (mins)	2.0 mg/l of DPM concentration						5.0 mg/l of DPM concentration					
	Weight of adsorbents, g	Reading ABS	%RSD	Tested concentration (mg/l)	Sample concentration (mg/l)	Remaining concentration (mg/l/g of adsorbent)	Weight of adsorbents, g	Reading ABS	%RSD	Tested concentration (mg/l)	Sample concentration (mg/l)	Remaining concentration (mg/l/g of adsorbent)
0	0.1000	0.160	0.40	0.01296	1.71019	17.10192	0.1000	0.529	0.60	0.03703	4.88787	48.87868
10	0.1053	0.155	0.80	0.01252	1.65304	15.69835	0.1047	0.502	1.20	0.03509	4.63233	44.24383
20	0.1053	0.154	1.10	0.01244	1.64160	15.58979	0.1047	0.486	0.80	0.03395	4.48090	42.79750
30	0.1053	0.148	0.70	0.01192	1.57302	14.93844	0.1047	0.469	0.70	0.03273	4.32000	41.26078
40	0.1053	0.146	1.70	0.01174	1.55016	14.72132	0.1047	0.457	0.60	0.03187	4.20643	40.17603
60	0.1015	0.133	0.70	0.01062	1.40155	13.80837	0.1079	0.431	0.90	0.03000	3.96036	36.70395
80	0.1015	0.137	1.10	0.01096	1.44727	14.25886	0.1079	0.422	0.70	0.02936	3.87518	35.91452
100	0.1015	0.136	1.00	0.01088	1.43584	14.14624	0.1079	0.437	1.70	0.03043	4.01714	37.23024
150	0.1015	0.134	0.50	0.01070	1.41298	13.92099	0.1079	0.404	0.50	0.02807	3.70482	34.33566
200	0.1037	0.123	0.50	0.00975	1.28724	12.41309	0.1064	0.414	1.00	0.02878	3.79946	35.70923
300	0.1037	0.106	1.60	0.00828	1.09291	10.53912	0.1064	0.374	0.80	0.02592	3.42089	32.15118
400	0.1037	0.103	0.50	0.00802	1.05861	10.20842	0.1064	0.330	1.10	0.02276	3.00445	28.23733
500	0.1037	0.086	0.60	0.00655	0.86428	8.33446	0.1064	0.285	0.80	0.01953	2.57855	24.23453
700	0.1023	0.074	1.30	0.00551	0.72711	7.10761	0.1010	0.299	0.90	0.02054	2.71106	26.84213
800	0.1023	0.078	1.00	0.00585	0.77283	7.55458	0.1010	0.273	0.70	0.01867	2.46498	24.40575
850	0.1023	0.076	1.10	0.00568	0.74997	7.33110	0.1010	0.269	1.30	0.01839	2.42712	24.03093
900	0.1023	0.073	0.70	0.00542	0.71568	6.99587	0.1010	0.227	1.30	0.01538	2.02962	20.09524

Table A5 Amount of diphenylmercury adsorbed on NaX zeolite as a function of time

Time (mins)	2.0 mg/l of DPM concentration						5.0 mg/l of DPM concentration					
	Weight of adsorbents, g	Reading ABS	%RSD	Tested concentration (mg/l)	Sample concentration (mg/l)	Remaining concentration (mg/l/g of adsorbent)	Weight of adsorbents, g	Reading ABS	%RSD	Tested concentration (mg/l)	Sample concentration (mg/l)	Remaining concentration (mg/l/g of adsorbent)
0	0.1000	0.160	0.40	0.012956	1.710192	17.10192	0.1000	0.529	0.60	0.037029	4.887868	48.87868
10	0.1050	0.143	1.00	0.011484	1.515862	14.43678	0.1077	0.453	1.00	0.03158	4.168573	38.70542
20	0.1050	0.139	0.70	0.011137	1.470137	14.0013	0.1077	0.430	0.70	0.029931	3.950892	36.68423
30	0.1050	0.134	1.00	0.010704	1.412981	13.45696	0.1077	0.418	1.10	0.029071	3.837319	35.6297
40	0.1050	0.127	0.70	0.010098	1.332962	12.69488	0.1077	0.395	1.00	0.027422	3.619638	33.60852
60	0.1008	0.110	0.70	0.008626	1.138632	11.29595	0.1046	0.373	1.20	0.025844	3.411421	32.61397
80	0.1008	0.105	1.00	0.008193	1.081476	10.72893	0.1046	0.361	1.10	0.024984	3.297848	31.52819
100	0.1008	0.109	1.00	0.008539	1.127201	11.18255	0.1046	0.328	1.00	0.022618	2.985523	28.54229
150	0.1008	0.096	0.70	0.007414	0.978595	9.708286	0.1046	0.291	1.00	0.019965	2.63534	25.19446
200	0.1045	0.082	0.50	0.006201	0.818558	7.833095	0.1030	0.286	0.60	0.019606	2.588018	25.12639
300	0.1045	0.061	0.70	0.004383	0.578503	5.535916	0.1030	0.258	1.30	0.017599	2.323015	22.55355
400	0.1045	0.048	1.30	0.003257	0.429898	4.113853	0.1030	0.197	1.20	0.013225	1.745687	16.94842
500	0.1045	0.031	1.60	0.001785	0.235567	2.254232	0.1030	0.149	0.70	0.009783	1.291396	12.53782
700	0.1016	0.025	2.40	0.001265	0.16698	1.643504	0.1017	0.102	0.70	0.006413	0.846569	8.324177
800	0.1016	0.029	1.40	0.001611	0.212705	2.093551	0.1017	0.096	0.90	0.005983	0.789782	7.765805
850	0.1016	0.024	2.70	0.001178	0.155549	1.530992	0.1017	0.091	1.70	0.005625	0.74246	7.300496
900	0.1016	0.021	2.70	0.000919	0.121255	1.193457	0.1017	0.093	0.70	0.005768	0.761389	7.486619

Table A6 Amount of diphenylmercury adsorbed on NaY zeolite as a function of time

Time (mins)	2.0 mg/l of DPM concentration						5.0 mg/l of DPM concentration					
	Weight of adsorbents, g	Reading ABS	%RSD	Tested concentration (mg/l)	Sample concentration (mg/l)	Remaining concentration (mg/l/g of adsorbent)	Weight of adsorbents, g	Reading ABS	%RSD	Tested concentration (mg/l)	Sample concentration (mg/l)	Remaining concentration (mg/l/g of adsorbent)
0	0.1000	0.160	0.40	0.01248	1.64683	16.46832	0.1000	0.656	1.30	0.03741	4.93775	49.37750
10	0.1081	0.141	1.50	0.01089	1.43716	13.29476	0.1055	0.574	0.30	0.03259	4.30238	40.78087
20	0.1081	0.135	0.80	0.01039	1.37095	12.68226	0.1055	0.583	1.00	0.03312	4.37212	41.44187
30	0.1081	0.134	1.00	0.01030	1.35992	12.58017	0.1055	0.567	0.60	0.03218	4.24814	40.26676
40	0.1081	0.126	0.07	0.00963	1.27164	11.76351	0.1055	0.546	0.30	0.03095	4.08543	38.72442
60	0.1009	0.120	1.90	0.00913	1.20542	11.94672	0.1079	0.512	0.50	0.02895	3.82198	35.42151
80	0.1009	0.100	0.80	0.00746	0.98472	9.75937	0.1079	0.434	0.20	0.02438	3.21761	29.82026
100	0.1009	0.095	1.10	0.00704	0.92954	9.21253	0.1079	0.427	0.20	0.02396	3.16337	29.31758
150	0.1009	0.095	1.00	0.00704	0.92954	9.21253	0.1079	0.351	1.40	0.01950	2.57449	23.85995
200	0.1045	0.072	0.80	0.00512	0.67573	6.46636	0.1012	0.196	0.50	0.01041	1.37349	13.57200
300	0.1045	0.046	1.80	0.00295	0.38882	3.72076	0.1012	0.192	0.80	0.01017	1.34249	13.26574
400	0.1045	0.036	1.40	0.00211	0.27847	2.66476	0.1012	0.213	0.90	0.01140	1.50521	14.87361
500	0.1045	0.027	1.70	0.00136	0.17915	1.71436	0.1012	0.115	0.40	0.00565	0.74587	7.37022
700	0.1014	0.021	3.30	0.00086	0.11294	1.11380	0.1075	0.106	0.70	0.00512	0.67613	6.28959
800	0.1014	0.017	3.40	0.00052	0.06880	0.67849	0.1075	0.083	0.70	0.00377	0.49792	4.63179
850	0.1014	0.016	3.90	0.00044	0.05776	0.56966	0.1075	0.062	0.80	0.00254	0.33520	3.11815
900	0.1014	0.013	3.90	0.00019	0.02466	0.24317	0.1075	0.067	1.50	0.00283	0.37394	3.47854

Table A7 Amount of diphenylmercury adsorbed on activated carbon as a function of time

Time (mins)	2.0 mg/l of DPM concentration						5.0 mg/l of DPM concentration					
	Weight of adsorbents, g	Reading ABS	%RSD	Tested concentration (mg/l)	Sample concentration (mg/l)	Remaining concentration (mg/l/g of adsorbent)	Weight of adsorbents, g	Reading ABS	%RSD	Tested concentration (mg/l)	Sample concentration (mg/l)	Remaining concentration (mg/l/g of adsorbent)
0	0.1000	0.176	1.1	0.01414	1.86595	18.65952	0.1000	0.656	1.30	0.03741	4.93775	49.37750
10	0.1012	0.072	1.3	0.00517	0.68260	6.74504	0.1034	0.652	0.50	0.03717	4.90676	47.45413
20	0.1012	0.117	0.6	0.00909	1.19997	11.85743	0.1034	0.656	0.40	0.03741	4.93775	47.75387
30	0.1012	0.082	1.8	0.00604	0.79757	7.88113	0.1034	0.639	0.70	0.03641	4.80603	46.47996
40	0.1012	0.080	0.8	0.00587	0.77458	7.65391	0.1034	0.643	0.50	0.03664	4.83702	46.77970
60	0.1005	0.087	0.8	0.00648	0.85506	8.50802	0.1078	0.669	0.20	0.03817	5.03848	46.73914
80	0.1005	0.097	0.6	0.00735	0.97003	9.65202	0.1078	0.661	0.80	0.03770	4.97649	46.16412
100	0.1005	0.075	0.7	0.00543	0.71709	7.13522	0.1078	0.636	1.20	0.03623	4.78278	44.36718
150	0.1005	0.089	1.6	0.00665	0.87805	8.73682	0.1078	0.555	0.80	0.03148	4.15516	38.54510
200	0.1070	0.098	1.5	0.00744	0.98153	9.17314	0.1034	0.521	1.80	0.02948	3.89172	37.63749
300	0.1070	0.088	1.3	0.00656	0.86655	8.09863	0.1034	0.534	2.10	0.03025	3.99245	38.61166
400	0.1070	0.078	0.7	0.00569	0.75158	7.02413	0.1034	0.548	0.70	0.03107	4.10092	39.66077
500	0.1070	0.057	1.7	0.00386	0.51014	4.76767	0.1034	0.547	0.60	0.03101	4.09317	39.58583
700	0.1017	0.069	1.6	0.00491	0.64811	6.37273	0.0994	0.530	0.50	0.03001	3.96145	39.85364
800	0.1017	0.097	0.0	0.00735	0.97003	9.53814	0.0994	0.498	0.10	0.02813	3.71350	37.35919
850	0.1017	0.093	1.2	0.00700	0.92404	9.08594	0.0994	0.498	0.50	0.02813	3.71350	37.35919
900	0.1017	0.091	0.6	0.00683	0.90105	8.85983	0.0994	0.484	0.60	0.02731	3.60503	36.26786

Table A8 Adsorption isotherms of diphenylmercury on 3A and 4A zeolites

Equation of standard curve for standard solution: $y = 0.0615x - 0.0009$, $r^2 = 0.9984$

Where y = Standard Hg concentration (5, 10, 20, 50, and 70 $\mu\text{g/l}$)

x = Reading absorbance (ABS)

No.	Initial concentration of DPM (mg/l)	Zeolite 3A					Zeolite 4A				
		Weight (g)	Reading ABS	%RSD	Equilibrium concentration of DPM (mg/l)	Amount of DPM adsorbed (mg of DPM/ g of adsorbent)	Weight (g)	Reading ABS	%RSD	Equilibrium concentration of DPM (mg/l)	Amount of DPM adsorbed (mg of DPM/ g of adsorbent)
1	1.9026	0.1097	0.143	0.6	1.04207	0.11766	0.1034	0.122	0.5	0.87160	0.14956
2	2.2111	0.1060	0.172	0.4	1.27750	0.13211	0.0996	0.149	0.5	1.09078	0.16872
3	2.8605	0.1010	0.238	0.2	1.81328	0.15553	0.1031	0.179	0.3	1.33432	0.22204
4	3.3070	0.1091	0.269	0.2	2.06494	0.17077	0.1051	0.244	0.3	1.86199	0.20623
5	3.7697	0.1012	0.318	0.2	2.46272	0.19373	0.0994	0.289	0.3	2.22730	0.23276
6	4.1432	0.1029	0.362	0.2	2.81992	0.19289	0.1075	0.303	0.2	2.34095	0.25147
7	5.1823	0.0973	0.463	0.2	3.63983	0.23778	0.1080	0.368	0.2	2.86862	0.32134

Table A9 Adsorption isotherms of diphenylmercury on 5A and NaX zeolites

Equation of standard curve for standard solution: $y = 0.0615x - 0.0009$, $r^2 = 0.9984$

Where y = Standard Hg concentration (5, 10, 20, 50, and 70 $\mu\text{g/l}$)

x = Reading absorbance (ABS)

No.	Initial concentration of DPM (mg/l)	Zeolite 5A					Zeolite NaX				
		Weight (g)	Reading ABS	%RSD	Equilibrium concentration of DPM (mg/l)	Amount of DPM adsorbed (mg of DPM/ g of adsorbent)	Weight (g)	Reading ABS	%RSD	Equilibrium concentration of DPM (mg/l)	Amount of DPM adsorbed (mg of DPM/ g of adsorbent)
1	1.9026	0.1077	0.122	0.4	0.87160	0.14359	0.1096	0.051	1.3	0.29522	0.21999
2	2.2111	0.1013	0.123	0.4	0.87971	0.19714	0.1019	0.063	0.9	0.39263	0.26768
3	2.6007	0.1017	0.182	0.4	1.35868	0.18319	0.1031	0.070	0.5	0.44946	0.31299
4	3.0391	0.1066	0.184	0.4	1.37491	0.23417	0.1084	0.071	0.9	0.45758	0.35722
5	3.7697	0.0986	0.264	0.3	2.02435	0.26552	0.1119	0.104	0.5	0.72547	0.40808
6	4.1432	0.0948	0.322	0.2	2.49520	0.26075	0.1061	0.086	0.6	0.57935	0.50384
7	5.1823	0.1081	0.356	0.1	2.77121	0.33456	0.0970	0.147	0.3	1.07455	0.63521

Table A10 Adsorption isotherms of diphenylmercury on NaY zeolite and activated carbon

Equation of standard curve for standard solution: $y = 0.0615x - 0.0009$, $r^2 = 0.9984$

Where y = Standard Hg concentration (5, 10, 20, 50, and 70 $\mu\text{g/l}$)

x = Reading absorbance (ABS)

No.	Initial concentration of DPM (mg/l)	Zeolite NaY					Activated Carbon				
		Weight (g)	Reading ABS	%RSD	Equilibrium concentration of DPM (mg/l)	Amount of DPM adsorbed (mg of DPM/ g of adsorbent)	Weight (g)	Reading ABS	%RSD	Equilibrium concentration of DPM (mg/l)	Amount of DPM adsorbed (mg of DPM/ g of adsorbent)
1	1.9026	0.1020	0.050	0.8	0.28710	0.23757	0.1050	0.160	0.4	1.18008	0.10321
2	2.2111	0.1049	0.055	1.0	0.32769	0.26931	0.1020	0.171	0.5	1.26938	0.13848
3	2.6007	0.1030	0.076	1.0	0.49817	0.30620	0.0945	0.233	0.3	1.77269	0.13143
4	3.0391	0.1022	0.069	0.5	0.44134	0.38128	0.1018	0.262	0.2	2.00812	0.15191
5	3.7697	0.0968	0.103	0.9	0.71735	0.47299	0.1021	0.337	0.1	2.61697	0.16936
6	4.1432	0.0985	0.125	0.5	0.89595	0.49450	0.0980	0.387	0.3	3.02287	0.17147
7	4.8088	0.0991	0.145	0.6	1.05831	0.56769	0.1005	0.460	0.2	3.61548	0.17811

Table A11 Breakthrough curves of NaX and NaY zeolites

Operating temperature: 80°C, Operating pressure: (Optional)
 Initial DPM concentration: 2100 ppb, Feed flow rate: 60 ml/h
 Loading adsorbent: 1.5 ml

Time (mins)	Zeolite NaX		Time (mins)	Zeolite NaY	
	Outlet concentration, ppb	% Removal		Outlet concentration, ppb	% Removal
107	43.56	97.93	122	21.96	98.95
182	61.23	97.08	181	23.85	98.86
253	80.78	96.15	313	64.68	96.92
313	112.89	94.62	440	114.75	94.54
391	131.75	93.73	548	139.50	93.35
457	160.38	92.36	625	219.63	89.54
536	230.75	89.01	745	255.98	87.81
681	283.63	86.49	832	331.82	84.20
736	304.38	85.51	975	485.66	76.87
921	355.38	83.08	1096	525.20	74.99
1052	496.88	76.34	1236	749.20	64.32
1141	585.50	72.12	1345	885.25	57.85
1196	666.13	68.28	1405	1055.75	49.73
1261	760.50	63.79			
1034	848.00	59.62			
1391	985.88	53.05			

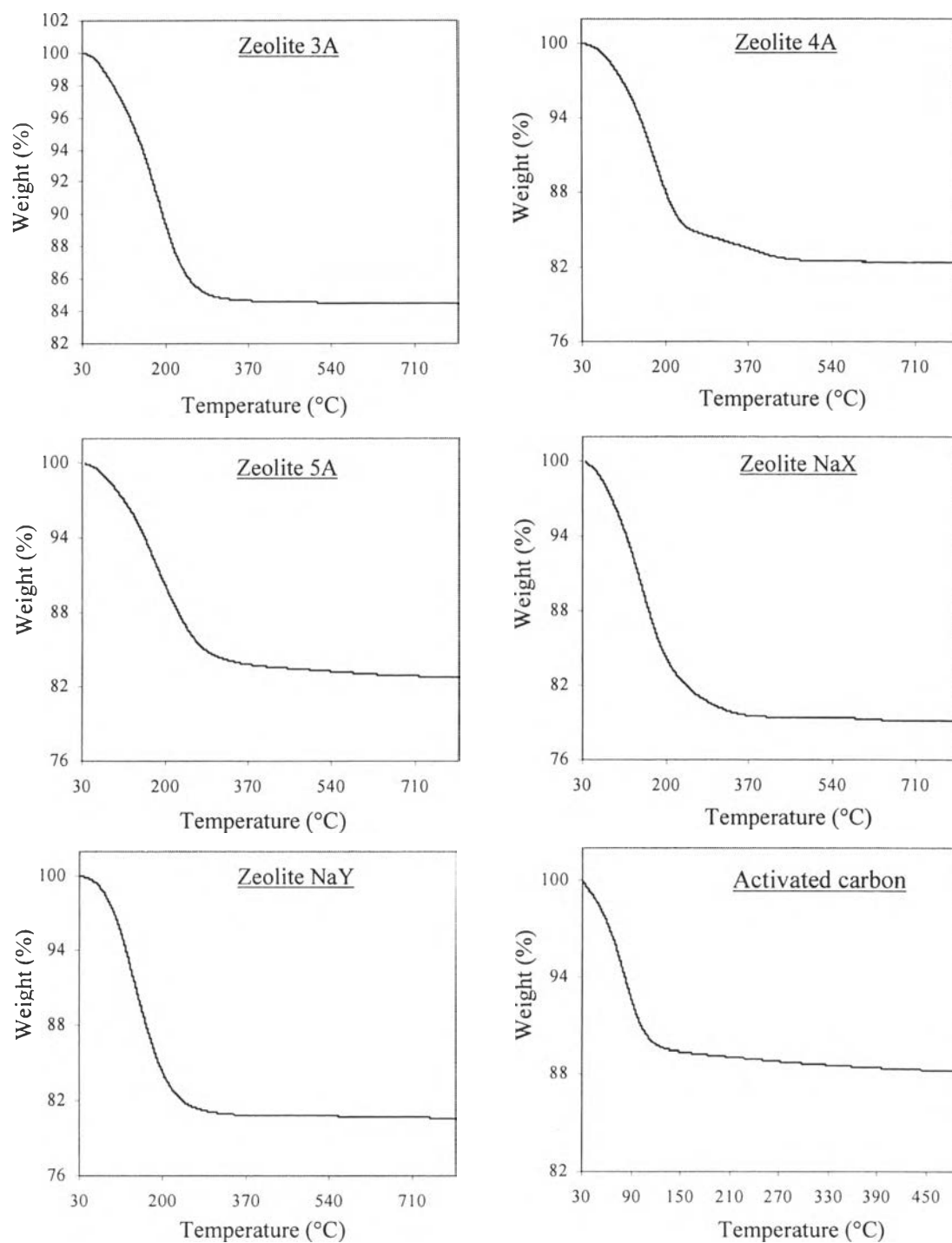


Figure A1 TGA results for all adsorbents.

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