

Article

Energetic Characterization of Faujasite Zeolites Using a Sensor Gas Calorimeter

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Table S1:

Adsorption isotherms of methane on NaX and NaY (measuring data)

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Heats of Adsorption of methane on CaNaX (measuring data)

Table S1: Adsorption isotherms of methane on NaX and NaY (measuring data)**Table S1.** Adsorption isotherms of methane on NaX and NaY (measuring data).

Na88X.				Na55Y			
Pressure [kPa]	Loading [cm ³ /g]	Loading* [Mole./UC]	Exp. Error Loading [Mole./UC]	Pressure [kPa]	Loading [cm ³ /g]	Loading* [Mole./UC]	Exp. Error Loading [Mole./UC]
7.1092	1.3355	1.0601	0.0552	9.8400	0.9081	0.6912	0.0538
16.1115	2.9494	2.3411	0.1104	21.7919	1.9322	1.4706	0.1075
25.1621	4.5591	3.6188	0.1656	33.7466	2.9543	2.2486	0.1613
34.2324	6.1478	4.8799	0.2208	45.7304	3.9568	3.0116	0.2150
43.3475	7.7158	6.1245	0.2760	57.8175	4.9608	3.7758	0.2688
52.4899	9.2706	7.3586	0.3312	69.8708	5.9569	4.5340	0.3226
61.6632	10.8002	8.5728	0.3864	81.9387	6.9453	5.2863	0.3763
70.9756	12.3247	9.7829	0.4416	94.0109	7.9038	6.0158	0.4301
80.2159	13.8076	10.9600	0.4968	104.4708	8.7264	6.6419	0.4839
89.7338	15.3019	12.1460	0.5520				
99.1857	16.7662	13.3083	0.6072				
103.9023	17.4812	13.8759	0.6623				

* Loading [Molecules/UC].

Table S2: Heats of Adsorption of methane on NaX and NaY (measuring data)**Table S2.** Heats of Adsorption of methane on NaX and NaY (measuring data).

Na88X			Na55Y		
Loading* [Mole./UC]	Heat [kJ/mol]	Exp. Error Heat [kJ/mol]	Loading* [Mole./UC]	Heat [kJ/mol]	Exp. Error Heat [kJ/mol]
1.0601	18.6167	1.1151	0.6912	14.2574	0.9119
2.3411	18.6324	1.0637	1.4706	14.3745	0.8852
3.6188	18.4338	0.9030	2.2486	14.5841	0.8093
4.8799	18.5316	0.9445	3.0116	14.4555	1.4030
6.1245	18.5487	0.9377	3.7758	14.5846	1.0984
7.3586	18.5599	0.9206	4.5340	14.5764	1.0191
8.5728	18.8143	1.0824	5.2863	14.3060	0.9683
9.7829	18.5275	1.0606	6.0158	14.2187	0.9002
10.9600	18.7960	1.1455	6.6419	14.4288	1.2338
12.1460	18.7388	1.4136			
13.3083	18.4343	1.0483			
13.8759	18.3171	1.8766			

* Loading [Molecules/UC].

Table S3: Adsorption isotherms of methane on CaNaX (measuring data)**Table S3.** Adsorption isotherms of methane on CaNaX (measuring data).

Ca10Na68X				Ca16Na56X			
Pressure [kPa]	Loading [cm ³ /g]	Loading* [Mole./UC]	Exp. Error Loading [Mole./UC]	Pressure [kPa]	Loading [cm ³ /g]	Loading* [Mole./UC]	Exp. Error Loading [Mole./UC]
7.2771	1.1391	0.9012	0.0546	7.3095	1.2377	0.9771	0.0553
16.4211	2.5507	2.0180	0.1093	16.4688	2.7551	2.1750	0.1106
25.5876	3.9491	3.1243	0.1639	25.6626	4.2531	3.3576	0.1659
34.7890	5.3249	4.2128	0.2186	34.9096	5.7344	4.5271	0.2212
44.0127	6.6885	5.2916	0.2732	44.1874	7.1877	5.6744	0.2765
53.2636	8.0360	6.3577	0.3279	53.4914	8.6419	6.8224	0.3318
62.5388	9.3610	7.4059	0.3825	62.8365	10.0577	7.9401	0.3871
71.8291	10.6672	8.4393	0.4372	72.2167	11.4627	9.0494	0.4424
81.1508	11.9584	9.4609	0.4918	81.6186	12.8444	10.1402	0.4977
90.5111	13.2527	10.4849	0.5465	91.0467	14.1669	11.1842	0.5531
99.8978	14.5231	11.4899	0.6011	100.5350	15.5496	12.2758	0.6084
104.6060	15.1679	12.0001	0.6558	105.2653	16.1952	12.7855	0.6636

* Loading [Molecules/UC].

Table S3. Adsorption isotherms of methane on CaNaX (measuring data).

Ca23Na42X.				Ca29Na30X			
Pressure [kPa]	Loading [cm ³ /g]	Loading* [Mole./UC]	Exp. Error Loading [Mole./UC]	Pressure [kPa]	Loading [cm ³ /g]	Loading* [Mole./UC]	Exp. Error Loading [Mole./UC]
6.5059	1.7012	1.3399	0.0545	5.3193	2.4823	1.9510	0.0544
14.8963	3.6805	2.8988	0.1091	12.5561	5.2253	4.1068	0.1088
23.5558	5.5734	4.3897	0.1636	20.2738	7.6654	6.0246	0.1632
32.2963	7.3420	5.7827	0.2181	28.3625	9.8728	7.7596	0.2177
41.4128	9.0914	7.1606	0.2727	36.7401	11.9105	9.3611	0.2721
50.3980	10.7388	8.4580	0.3272	45.3528	13.8040	10.8493	0.3265
59.4559	12.3234	9.7061	0.3817	54.1570	15.5957	12.2575	0.3809
68.7005	13.8730	10.9265	0.4363	63.1202	17.2884	13.5879	0.4354
77.9724	15.3607	12.0983	0.4908	72.2063	18.8893	14.8461	0.4898
87.2539	16.7994	13.2314	0.5454	81.4096	20.4247	16.0529	0.5442
96.5907	18.1967	14.3320	0.5999	90.7174	21.8826	17.1987	0.5986
105.4640	19.5212	15.3752	0.6544	100.1047	23.3059	18.3173	0.6531
				104.8286	23.9946	18.8587	0.7075

* Loading [Molecules/UC].

Table S3. Adsorption isotherms of methane on CaNaX (measuring data).

Ca36Na16X				Ca38Na12X			
Pressure [kPa]	Loading [cm ³ /g]	Loading* [Mole./UC]	Exp. Error Loading [Mole./UC]	Pressure [kPa]	Loading [cm ³ /g]	Loading* [Mole./UC]	Exp. Error Loading [Mole./UC]
3.9683	3.5162	2.7579	0.0544	3.4780	3.8158	2.9902	0.0540
9.8351	7.3188	5.7404	0.1088	8.8070	7.9451	6.2260	0.1079
16.5472	10.5650	8.2866	0.1632	15.1148	11.4453	8.9688	0.1619
23.9426	13.3654	10.4830	0.2176	22.3124	14.4323	11.3096	0.2158
31.8879	15.8193	12.4077	0.2720	30.1039	16.9588	13.2894	0.2698
40.3204	18.0170	14.1314	0.3264	38.3851	19.1577	15.0125	0.3238
49.0121	19.9743	15.6666	0.3808	47.0589	21.0999	16.5345	0.3777
57.9623	21.7529	17.0616	0.4352	56.0400	22.8437	17.9010	0.4317
67.1143	23.3952	18.3497	0.4896	65.2535	24.4353	19.1482	0.4857
76.4374	24.9376	19.5595	0.5441	74.6576	25.9006	20.2964	0.5396
85.9770	26.3883	20.6973	0.5985	84.2321	27.2630	21.3640	0.5936
95.5849	27.7590	21.7724	0.6529	93.8987	28.5399	22.3646	0.6476
105.1021	29.0326	22.7714	0.7073	103.6605	29.7463	23.3100	0.7016
				108.5692	30.3573	23.7888	0.7555

* Loading [Molecules/UC].

Table S4:Heats of Adsorption of methane on CaNaX (measuring data)**Table S4.** Heats of Adsorption of methane on CaNaX (measuring data).

Ca10Na68X			Ca16Na56X		
Loading* [Mole./UC]	Heat [kJ/mol]	Exp. Error Heat [kJ/mol]	Loading* [Mole./UC]	Heat [kJ/mol]	Exp. Error Heat [kJ/mol]
0.9012	17.5213	1.1053	0.9771	17.8572	0.9275
2.0180	17.5266	1.0622	2.1750	18.0367	1.0009
3.1243	17.7401	0.9107	3.3576	17.9588	1.3032
4.2128	17.7055	0.6430	4.5271	18.0972	1.0069
5.2916	17.7374	0.9763	5.6744	18.0879	1.2727
6.3577	17.7458	0.9446	6.8224	18.0555	0.9635
7.4059			7.9401	17.8962	1.1685
8.4393	17.6652	1.1649	9.0494	18.0484	0.9676
9.4609	17.5654	0.8346	10.1402	17.8946	1.2281
10.4849	17.4778	0.9318	11.1842	18.2637	1.3340
11.4899	17.7824	0.9075	12.2758	18.1415	1.6963
12.0001	17.7679	1.5283	12.7855	18.3239	0.9275

* Loading [Molecules/UC].

Table S4. Heats of Adsorption of methane on CaNaX (measuring data).

Ca23Na42X			Ca29Na30X		
Loading* [Mole./UC]	Heat [kJ/mol]	Exp. Error Heat [kJ/mol]	Loading* [Mole./UC]	Heat [kJ/mol]	Exp. Error Heat [kJ/mol]
1.3399	24.9068	1.1756	1.9510	29.8275	1.0378
2.8988	24.9522	1.2922	4.1068	29.8489	1.2509
4.3897	24.8436	1.4250	6.0246	29.7217	1.1504
5.7827	24.9176	0.9892	7.7596	27.3285	0.9835
7.1606	23.8174	1.0869	9.3611	25.1637	0.9246
8.4580	22.5479	1.0520	10.8493	25.0437	0.9885
9.7061	21.3679	0.9151	12.2575	25.0296	1.3681
10.9265	19.9739	1.1297	13.5879	24.7640	1.4146
12.0983	18.8780	1.0726	14.8461	24.7493	1.2192
13.2314	18.8532	0.9658	16.0529	22.9709	1.0194
14.3320	18.9772	1.1757	17.1987	20.5808	1.0351
15.3752	18.7320	1.2922	18.3173	18.7449	1.1732
			18.8587	18.8936	1.4397

* Loading [Molecules/UC].

Table S4. Heats of Adsorption of methane on CaNaX (measuring data).

Ca36Na16X			Ca38Na12X		
Loading* [Mole./UC]	Heat [kJ/mol]	Exp. Error Heat [kJ/mol]	Loading* [Mole./UC]	Heat [kJ/mol]	Exp. Error Heat [kJ/mol]
2.7579	34.2432	1.6422	2.9902	34.9188	1.2731
5.7404	34.3355	1.8691	6.2260	34.7100	2.0139
8.2866	29.5711	0.7462	8.9688	29.6476	0.7901
10.4830	29.0822	0.8189	11.3096	29.6807	0.6763
12.4077	26.4800	0.8126	13.2894	29.6955	0.8383
14.1314	24.6041	0.8535	15.0125	29.4752	1.1099
15.6666	24.6589	1.3157	16.5345	24.8663	1.1787
17.0616	24.7846	1.2672	17.9010	24.1593	0.9913
18.3497	24.6367	1.2387	19.1482	24.6492	1.1530
19.5595	21.2571	1.4524	20.2964	23.6898	1.3067
20.6973	19.2885	1.2486	21.3640	21.5410	1.3390
21.7724	18.6322	1.1487	22.3646	19.5492	1.1449
22.7714	18.7938	1.3097	23.3100	18.6808	1.2844
			23.7888	18.6095	2.5849

* Loading [Molecules/UC].