Supporting Information

Adsorption Properties of N_2O on Zeolite 5A, 13X, activated carbon, ZSM-5 and silica gel

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Table S1. Adsorption data of N_2O on five adsorbents at 298 K

13X		5A		AC		SG		ZSM-5	
P(MPa)	q(mmol/g)	P(MPa)	q(mmol/g)	P(MPa)	q(mmol/g)	P(MPa)	q(mmol/g)	P(MPa)	q(mmol/g)
0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.0000
0.003	1.4799	0.002	1.6102	0.002	0.2067	0.003	0.0593	0.002	0.2315
0.009	2.1801	0.004	2.0489	0.008	0.5553	0.011	0.1479	0.006	0.4067
0.022	2.9130	0.008	2.5547	0.020	0.9608	0.025	0.2760	0.014	0.6083
0.049	3.5462	0.020	3.0509	0.039	1.4174	0.044	0.4291	0.027	0.8249
0.073	3.8036	0.045	3.4206	0.066	1.9154	0.069	0.6063	0.044	1.0199
0.082	3.8840	0.076	3.6150	0.101	2.3973	0.101	0.7922	0.065	1.1790
0.092	3.9573	0.090	3.6796	0.140	2.8321	0.141	1.0003	0.087	1.2739
0.109	4.0556	0.100	3.7183	0.187	3.2385	0.186	1.2044	0.104	1.3490
0.134	4.1692	0.115	3.7670	0.235	3.5816	0.236	1.4069	0.125	1.4122
0.167	4.2800	0.143	3.8303	0.290	3.9061	0.290	1.6087	0.153	1.4748
0.201	4.3888	0.177	3.8923	0.345	4.1771	0.346	1.7994	0.188	1.5416
0.255	4.5024	0.219	3.9448	0.397	4.4033	0.405	1.9877	0.223	1.5845
0.328	4.6107	0.262	3.9956	0.446	4.5888	0.474	2.1872	0.259	1.6256
0.379	4.6801	0.304	4.0482	0.493	4.7443	0.556	2.3969	0.304	1.6697
0.430	4.7299	0.352	4.0854	0.561	4.9465	0.641	2.5991	0.346	1.7048
0.477	4.7721	0.394	4.1097	0.648	5.1613	0.734	2.8033	0.391	1.7346
0.541	4.8171	0.428	4.1294	0.757	5.3923	0.835	3.0079	0.435	1.7565
0.627	4.8680	0.471	4.1566	0.863	5.5827	0.911	3.1512	0.483	1.7857
0.719	4.9133	0.530	4.1790	0.966	5.7447			0.547	1.8150
0.818	4.9507	0.624	4.2123					0.623	1.8468
0.941	4.9937	0.725	4.2355					0.697	1.8726
		0.813	4.2582					0.799	1.9010
		0.938	4.2812					0.888	1.9239
								0.970	1.9401

Table S2. Adsorption data of N_2O on five adsorbents at 318 K

13X		5A		AC		SG		ZSM-5	
P(MPa)	q(mmol/g)	P(MPa)	q(mmol/g)	P(MPa)	q(mmol/g)	P(MPa)	q(mmol/g)	P(MPa)	q(mmol/g)
0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.0000
0.004	0.7565	0.002	1.0152	0.002	0.1629	0.004	0.0393	0.002	0.1225
0.010	1.3112	0.005	1.4511	0.012	0.4647	0.015	0.1045	0.008	0.2788
0.020	1.9406	0.010	1.9984	0.032	0.8681	0.032	0.1920	0.017	0.4391
0.036	2.4866	0.019	2.4508	0.061	1.3050	0.054	0.3025	0.029	0.5853
0.062	2.9852	0.034	2.8359	0.109	1.8154	0.082	0.4263	0.042	0.7164
0.099	3.3525	0.047	3.0524	0.164	2.2659	0.114	0.5516	0.057	0.8261
0.131	3.5693	0.067	3.2352	0.219	2.6354	0.154	0.6910	0.072	0.9178
0.158	3.6890	0.080	3.3282	0.274	2.9395	0.199	0.8356	0.089	0.9927
0.178	3.7732	0.092	3.3920	0.321	3.1777	0.247	0.9757	0.106	1.0675
0.205	3.8590	0.117	3.5004	0.369	3.3761	0.301	1.1181	0.133	1.1571
0.244	3.9616	0.150	3.5955	0.417	3.5513	0.355	1.2494	0.166	1.2411
0.288	4.0597	0.173	3.6543	0.461	3.7051	0.409	1.3807	0.203	1.3184
0.330	4.1374	0.195	3.6926	0.511	3.8698	0.465	1.5038	0.244	1.3867
0.371	4.1976	0.220	3.7305	0.586	4.0764	0.543	1.6618	0.280	1.4342
0.409	4.2439	0.259	3.7803	0.673	4.2854	0.634	1.8369	0.328	1.4795
0.450	4.2977	0.302	3.8279	0.771	4.4905	0.732	2.0045	0.374	1.5192
0.502	4.3465	0.350	3.8716	0.878	4.6867	0.839	2.1833	0.413	1.5526
0.576	4.4089	0.404	3.9141	0.983	4.8588	0.920	2.3102	0.462	1.5828
0.660	4.4773	0.465	3.9538					0.510	1.6101
0.750	4.5297	0.533	3.9819					0.600	1.6524
0.849	4.5739	0.618	4.0200					0.671	1.6906
0.948	4.6138	0.706	4.0559					0.759	1.7272
		0.810	4.0837					0.860	1.7600
		0.947	4.1162					0.978	1.7867

Table S3. Adsorption data of N_2O on five adsorbents at 338 K

13X		5A		AC		SG		ZSM-5	
P(MPa)	q(mmol/g)	P(MPa)	q(mmol/g)	P(MPa)	q(mmol/g)	P(MPa)	q(mmol/g)	P(MPa)	q(mmol/g)
0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.0000
0.003	0.4815	0.002	0.5610	0.002	0.0735	0.005	0.0237	0.002	0.0814
0.008	0.8126	0.009	1.1724	0.011	0.2646	0.016	0.0642	0.010	0.1915
0.016	1.2346	0.020	1.7899	0.027	0.5189	0.032	0.1179	0.021	0.3137
0.029	1.6852	0.040	2.3352	0.052	0.8120	0.054	0.1884	0.034	0.4328
0.045	2.0579	0.064	2.6959	0.077	1.0544	0.081	0.2637	0.049	0.5424
0.058	2.2902	0.074	2.7964	0.107	1.2975	0.113	0.3481	0.067	0.6493
0.072	2.4889	0.085	2.8829	0.142	1.5375	0.149	0.4381	0.090	0.7526
0.100	2.7681	0.099	2.9772	0.190	1.8183	0.188	0.5261	0.115	0.8485
0.137	3.0408	0.117	3.0694	0.253	2.1265	0.233	0.6265	0.145	0.9407
0.185	3.2764	0.144	3.1806	0.326	2.4250	0.294	0.7466	0.179	1.0224

0.235	3.4494	0.175	3.2815	0.385	2.6405	0.367	0.8827	0.212	1.0887
0.292	3.5967	0.215	3.3807	0.438	2.8132	0.451	1.0292	0.246	1.1450
0.343	3.7133	0.266	3.4628	0.491	2.9678	0.546	1.1786	0.283	1.1987
0.387	3.7875	0.316	3.5339	0.568	3.1759	0.638	1.3112	0.316	1.2396
0.439	3.8615	0.367	3.5870	0.664	3.3968	0.730	1.4355	0.353	1.2827
0.489	3.9208	0.419	3.6342	0.774	3.6174	0.828	1.5661	0.389	1.3189
0.559	4.0001	0.482	3.6809	0.878	3.8060	0.930	1.6876	0.430	1.3557
0.650	4.0796	0.551	3.7265	0.945	3.9167			0.478	1.3899
0.750	4.1527	0.638	3.7689					0.547	1.4290
0.854	4.2188	0.733	3.8112					0.625	1.4707
0.957	4.2685	0.835	3.8425					0.705	1.5052
		0.952	3.8794					0.787	1.5406
								0.872	1.5714
								0.962	1.5963

Table S4. adsorption data of N_2O on five adsorbents at 358 K

13X		5A		AC		SG		ZSM-5	
P(MPa)	q(mmol/g)	P(MPa)	q(mmol/g)	P(MPa)	q(mmol/g)	P(MPa)	q(mmol/g)	P(MPa)	q(mmol/g)
0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.0000
0.003	0.2485	0.003	0.2384	0.004	0.0532	0.012	0.0059	0.003	0.0494
0.010	0.5892	0.009	0.6056	0.015	0.1900	0.028	0.0191	0.010	0.1189
0.023	0.9868	0.016	0.9634	0.032	0.3639	0.046	0.0468	0.021	0.1983
0.038	1.3489	0.027	1.3271	0.055	0.5610	0.062	0.0719	0.034	0.2868
0.044	1.4550	0.045	1.7431	0.084	0.7609	0.090	0.1186	0.049	0.3683
0.054	1.6234	0.067	2.1258	0.116	0.9605	0.121	0.1753	0.065	0.4483
0.069	1.8266	0.075	2.2197	0.150	1.1473	0.159	0.2373	0.085	0.5250
0.090	2.0672	0.088	2.3533	0.186	1.3214	0.202	0.3018	0.106	0.5996
0.112	2.2654	0.107	2.5015	0.222	1.4715	0.256	0.3849	0.129	0.6684
0.142	2.4600	0.134	2.6614	0.262	1.6303	0.314	0.4653	0.156	0.7400
0.181	2.6920	0.163	2.8026	0.303	1.7844	0.364	0.5391	0.188	0.8088
0.232	2.9052	0.202	2.9409	0.345	1.9236	0.432	0.6268	0.217	0.8607
0.287	3.0819	0.248	3.0688	0.392	2.0668	0.492	0.7098	0.254	0.9201
0.341	3.2215	0.297	3.1669	0.444	2.2140	0.549	0.7770	0.292	0.9745
0.399	3.3353	0.345	3.2475	0.516	2.4149	0.609	0.8443	0.334	1.0277
0.458	3.4367	0.391	3.3042	0.609	2.6273	0.660	0.9056	0.376	1.0749
0.510	3.5152	0.437	3.3577	0.713	2.8328	0.729	0.9867	0.425	1.1217
0.586	3.6061	0.493	3.4121	0.814	3.0180	0.785	1.0526	0.482	1.1605
0.681	3.6961	0.557	3.4665	0.920	3.1628	0.856	1.1106	0.546	1.2049
0.777	3.7780	0.646	3.5231			0.909	1.1607	0.623	1.2498
0.884	3.8527	0.743	3.5718			0.989	1.2386	0.705	1.2993
0.977	3.9202	0.843	3.6142					0.779	1.3327
		0.949	3.6516					0.860	1.3717
								0.956	1.4083

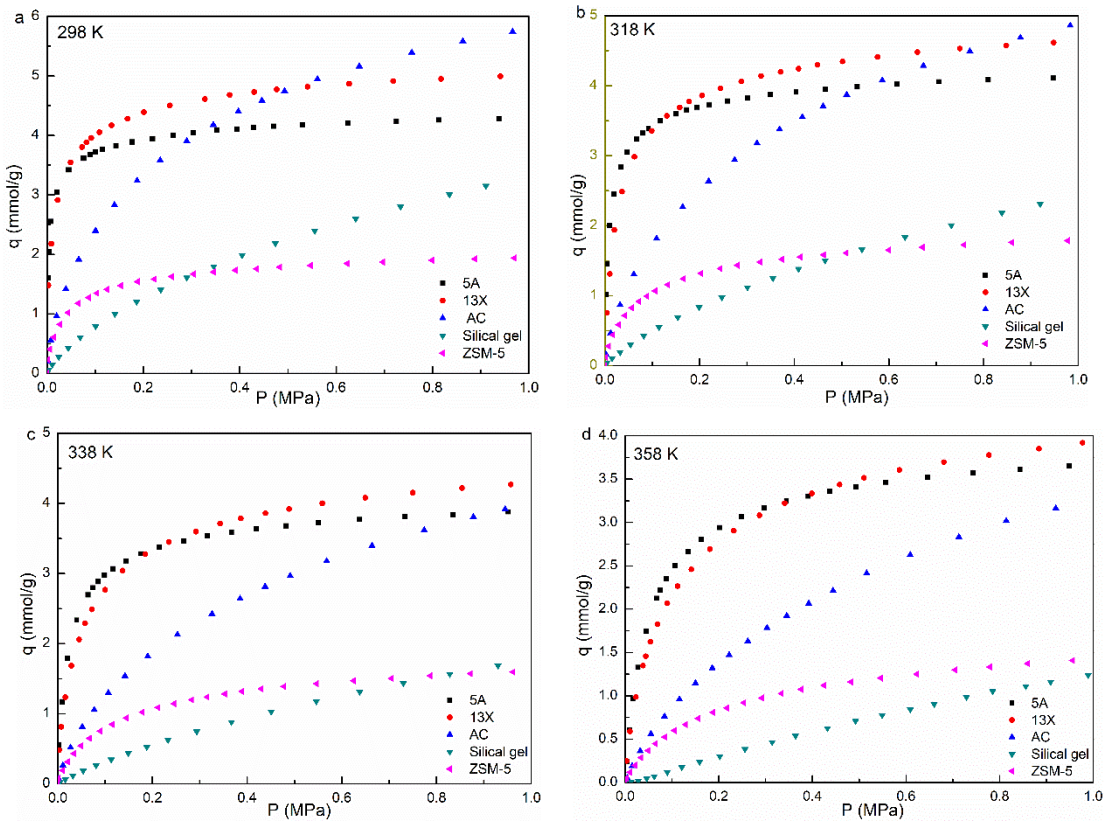
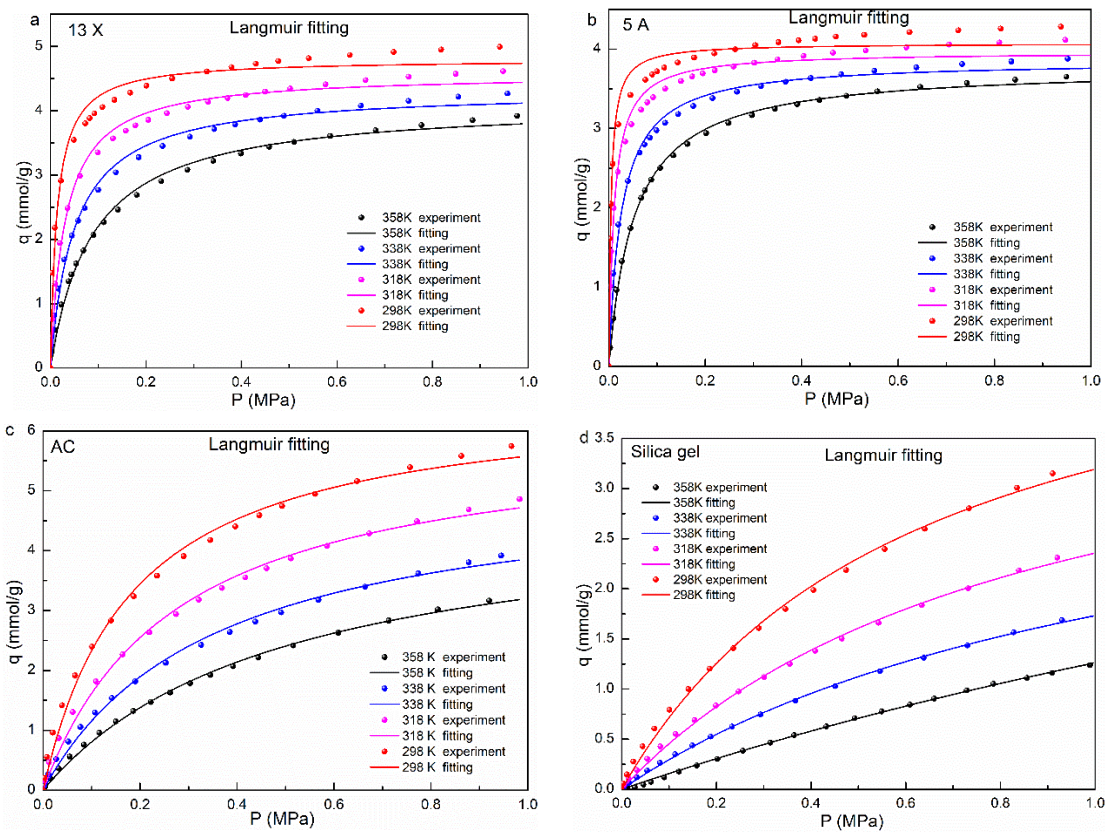


Figure S1. Adsorption isotherms of N_2O on five adsorbents at 298 K (a), 318 K (b), 338 K (c), and 358 K (d).



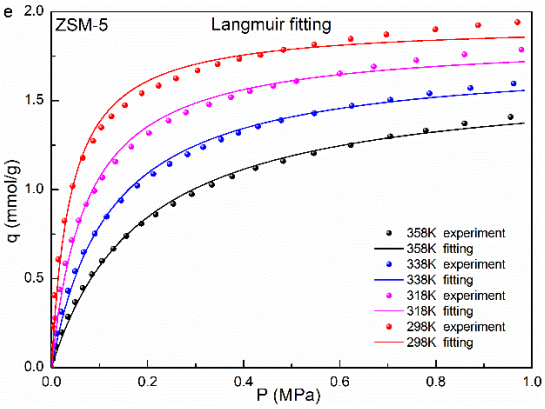


Figure S2. Adsorption isotherms of N_2O on 13X (a), 5A (b), AC (c), Silica gel (d) and ZSM-5 (e) at different temperatures fitted by Langmuir model

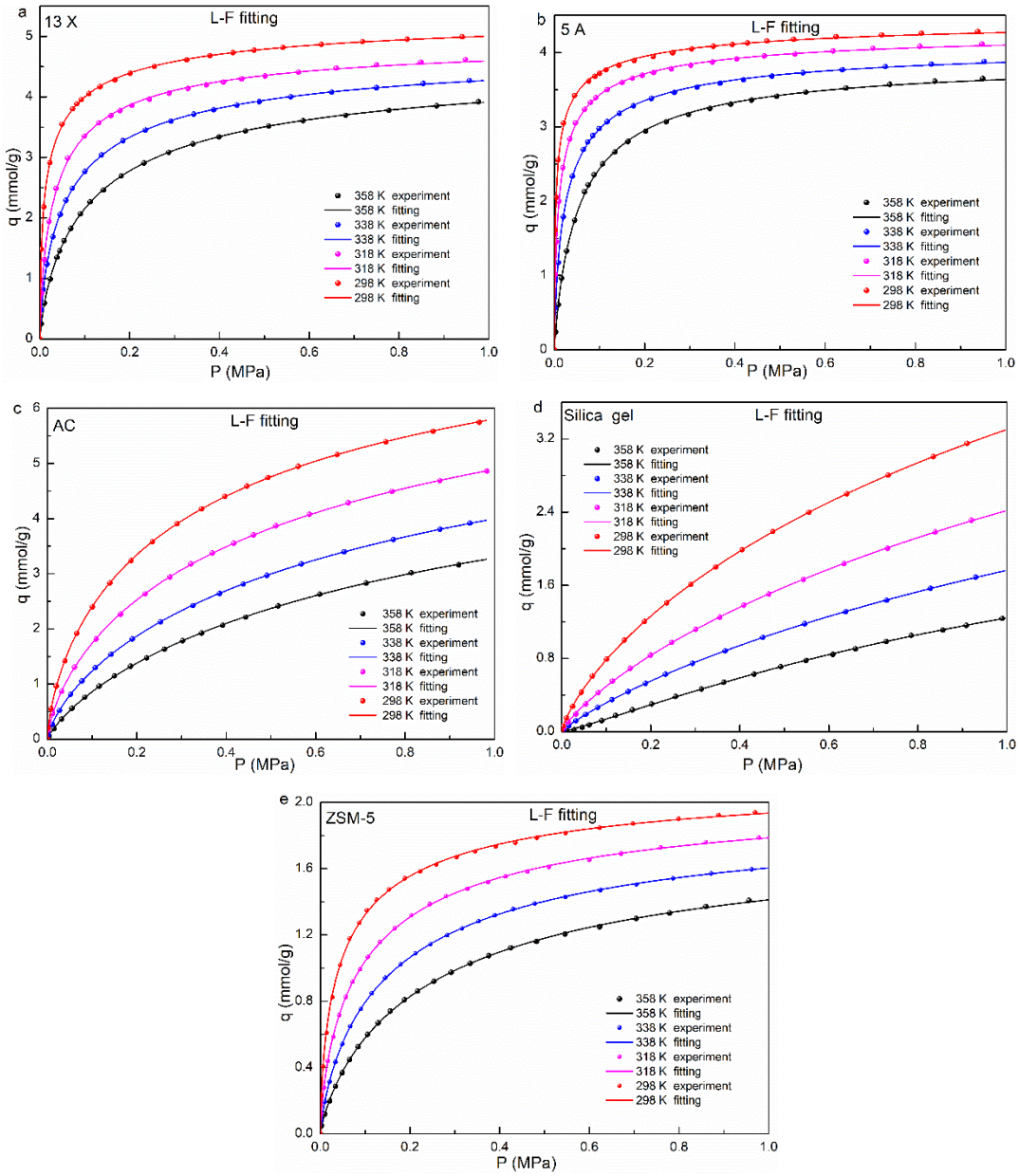


Figure S3. Adsorption isotherms of N_2O on13X (a), 5A (b), AC (c), Silica gel (d) and ZSM-5 (e) at different temperatures fitted by Langmuir–Freundlich model

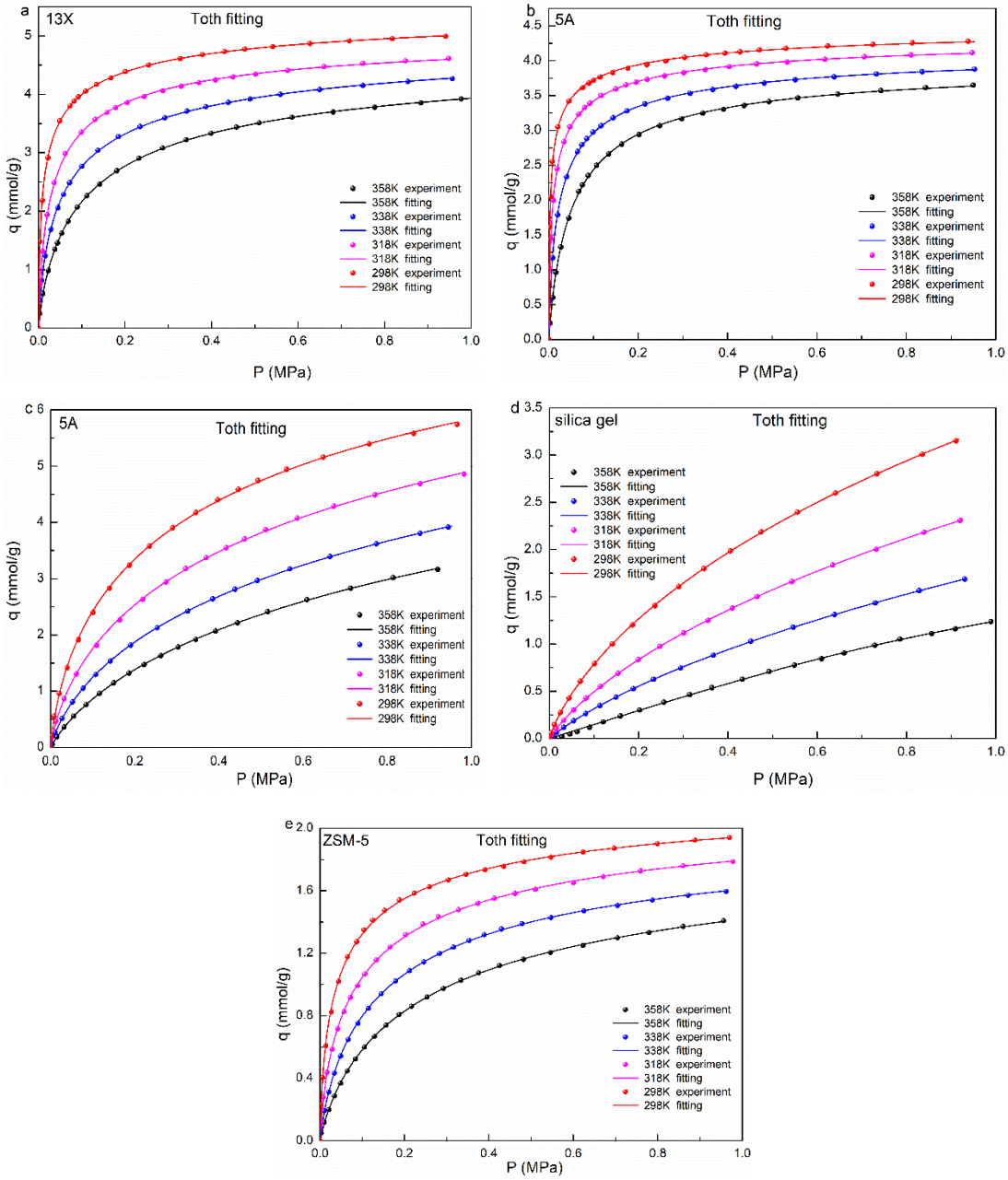


Figure S4. Adsorption isotherms of N_2O 13X (a), 5A (b), AC (c), Silica gel (d) and ZSM-5 (e) at different temperatures fitted by Toth model