

Supplementary Materials: Mesoporous ZSM-5 Zeolites in Acid Catalysis: Top-Down vs. Bottom-Up Approach

Pit Losch, Thomas C. Hoff, Joy F. Kolb, Claire Bernardon, Jean-Philippe Tessonnier and Benoît Louis

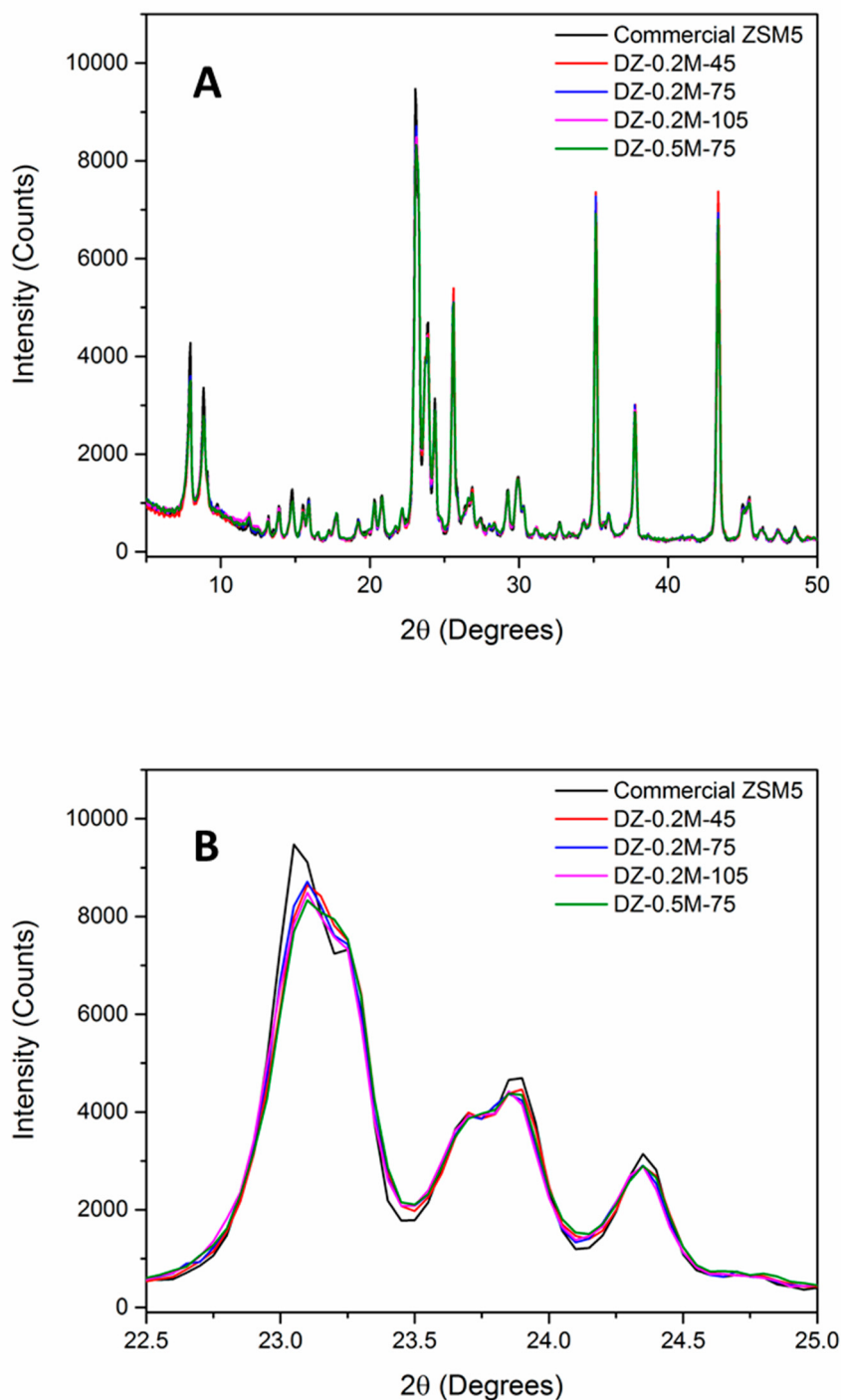


Figure S1. Powder XRD patterns obtained for (A) commercial and hierarchical zeolites (B) scaled to the most intense characteristic MFI peaks.

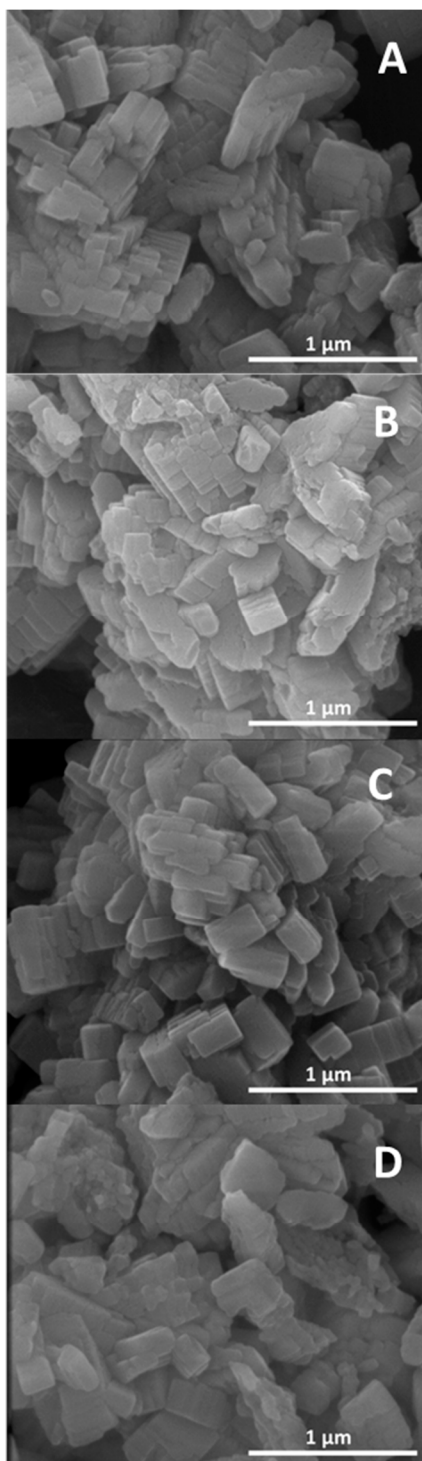


Figure S2. SEM images of NaOH desilicated ZSM-5 treated with (A) 0.2 M NaOH for 45 min, (B) 0.2 M NaOH for 75 min, (C) 0.2 M NaOH for 105 min, and (D) 0.5 M, 75 min.

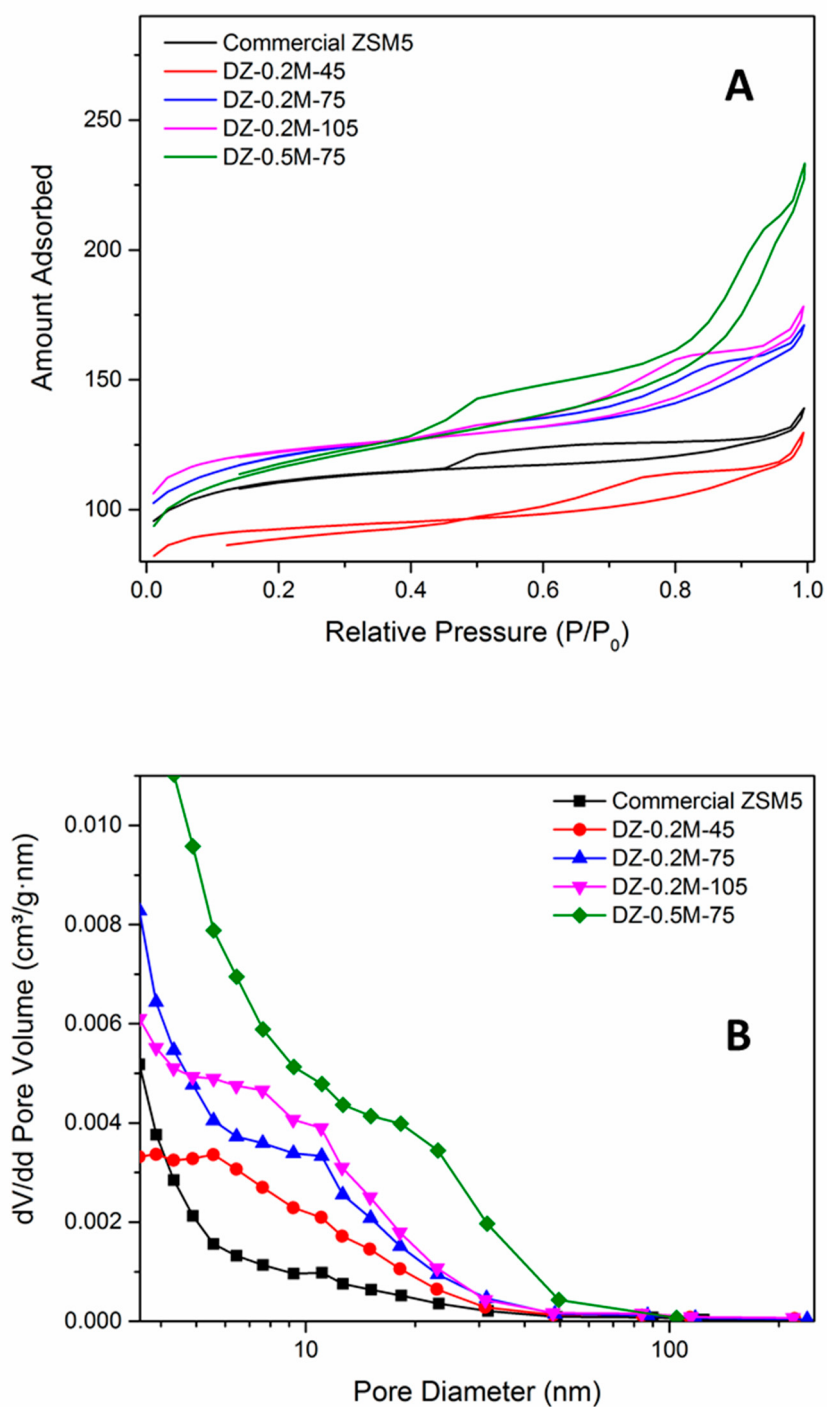


Figure S3. (A) N₂ isotherms and (B) pore size distributions for commercial and hierarchical ZSM-5 zeolites.

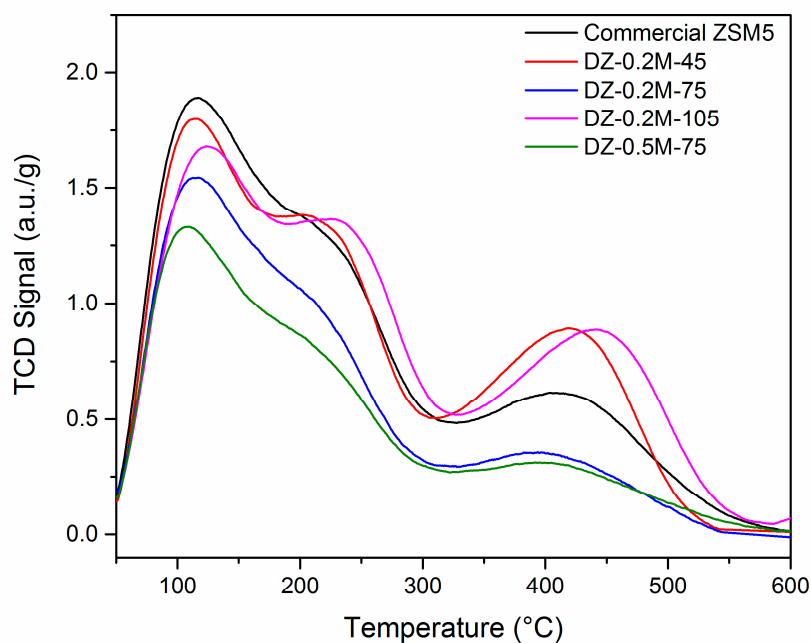


Figure S4. Ammonia temperature programmed desorption curves obtained for commercial and hierarchical ZSM-5 zeolites.

Table S1. Denomination of zeolites under investigation.

Entry	Synthesis / Treatment	Sample Code
1	Synthesized ZSM-5, Microwave Heating	SZ-MW
2	Synthesized ZSM-5, Conventional Oven	SZ-CO
3	---	Commercial ZSM5
4	Desilicated ZSM-5, 0.2 M, 45 min	DZ-0.2M-45
5	Desilicated ZSM-5, 0.2 M, 75 min	DZ-0.2M-75
6	Desilicated ZSM-5, 0.2 M, 105 min	DZ-0.2M-105
7	Desilicated ZSM-5, 0.5 M, 75 min	DZ-0.5M-75
8	Desilicated ZSM-5, 1.0 M, 75 min	DZ-1.0M-75

Table S2. Microporous and mesoporous volumes of the different zeolites.

Zeolite	Microporous Volume [cm ³ /g]	Mesoporous Volume [cm ³ /g]
CBV2314	0.128	0.074
SZ-MW	0.114	0.157
SZ-CO	0.117	0.247
DZ-0.2M-45	0.121	0.111
DZ-0.2M-75	0.128	0.123
DZ-0.2M-105	0.126	0.123
DZ-0.5M-75	0.110	0.222
DZ-1.0M-75	0.122	0.174