

Supplementary Materials

Micron-Sized Hierarchical Beta Zeolites Templated by Mesoscale Cationic Polymers as Robust Catalysts for Acylation of Anisole with Acetic Anhydride

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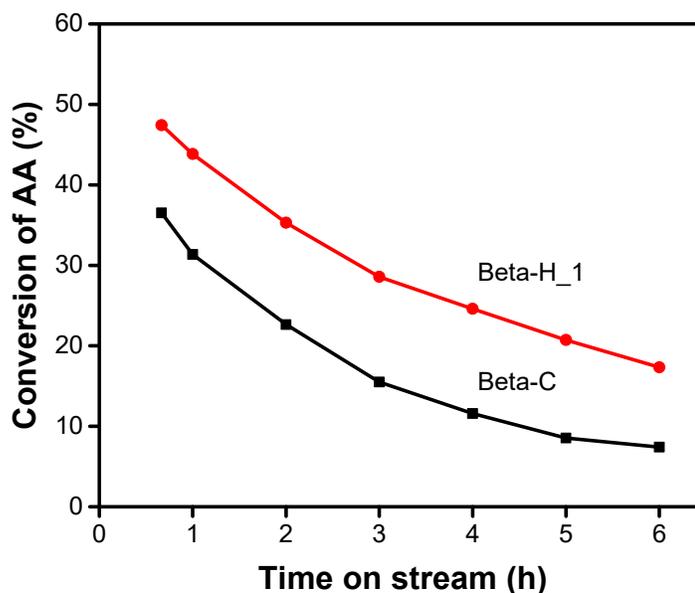


Figure S1. Conversion of AA over Beta-C and Beta-H₁ as a function of time on stream in acylation of anisole with acetic anhydride. Reaction condition: AA/AN = 1/1 (mol/mol), reactant mixture flow rate 0.08 mL/min, nitrogen flow rate 23 mL/min, temperature of 90 °C.

Table S1. Catalytic results of Friedel-Crafts acylation of AN with AA over different zeolites ^a.

Molar ratio	Catalyst	AA Conversion (%)		
		5 min	1 h	5 h
AA/AN=1/6	Beta-C	18	58	87
	Beta-H ₁	21	66	93
	Beta-H ₂	22	62	93
	Beta-H ₃	20	60	90
AA/AN=1/1	Beta-C	4	12	19
	Beta-H ₁	7	23	44
	Beta-H ₂	7	21	40
	Beta-H ₃	6	20	38

^a Reaction conditions: catalyst 200 mg; reaction temperature 80 °C; 10 mmol AA, 60 mmol AN (AA/AN=1/6) or 35.5 mmol AA, 35.5 mmol AN (AA/AN=1/1).

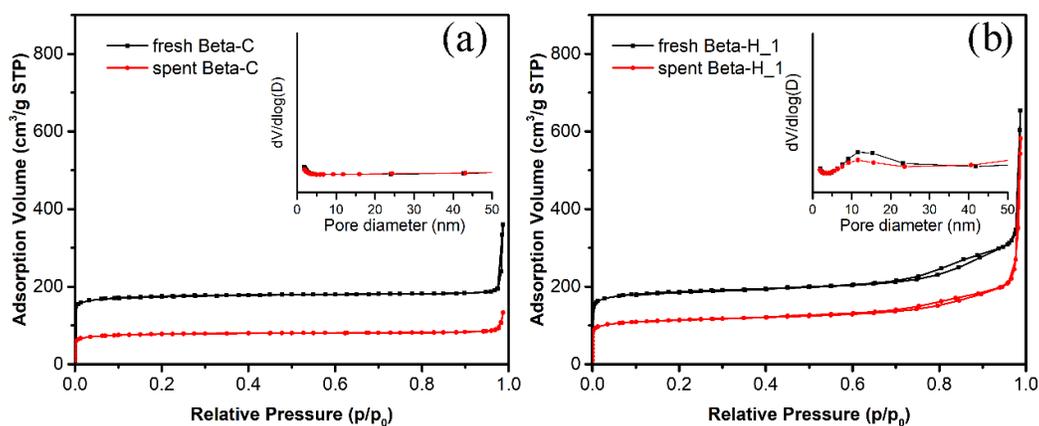


Figure S2. Comparison of nitrogen adsorption-desorption isotherms of fresh and spent (a) Beta-C and (b) Beta-H_1 zeolites. The inset is the pore size distribution curves calculated from the adsorption branch (BJH).

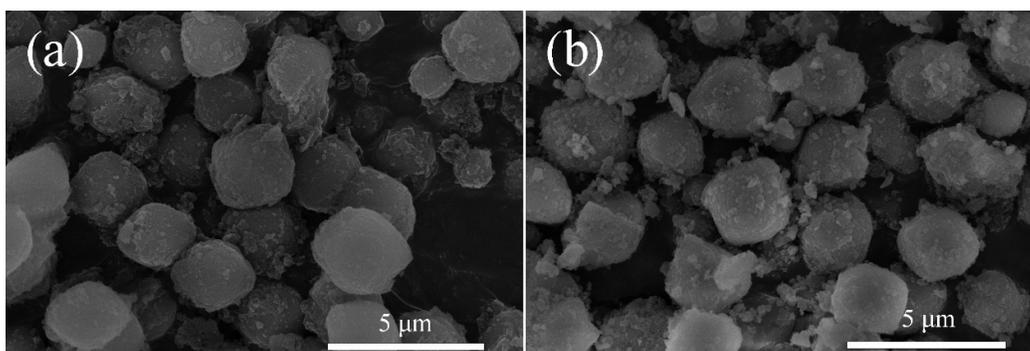


Figure S3. SEM image of (a) fresh Beta-H_1 and (b) regenerated Beta-H_1 after 4 catalytic runs.

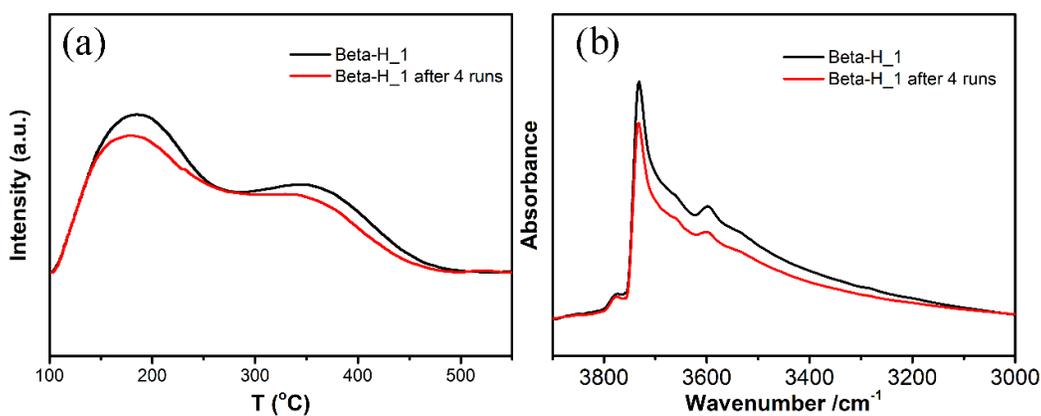


Figure S4. (a) NH₃-TPD profiles and (b) FT-IR spectra of fresh Beta-H_1 and regenerated Beta-H_1 after 4 catalytic runs.