

Supporting Information

Surface Silanol Sites in Mesoporous MFI Zeolites for Catalytic Beckmann Rearrangement

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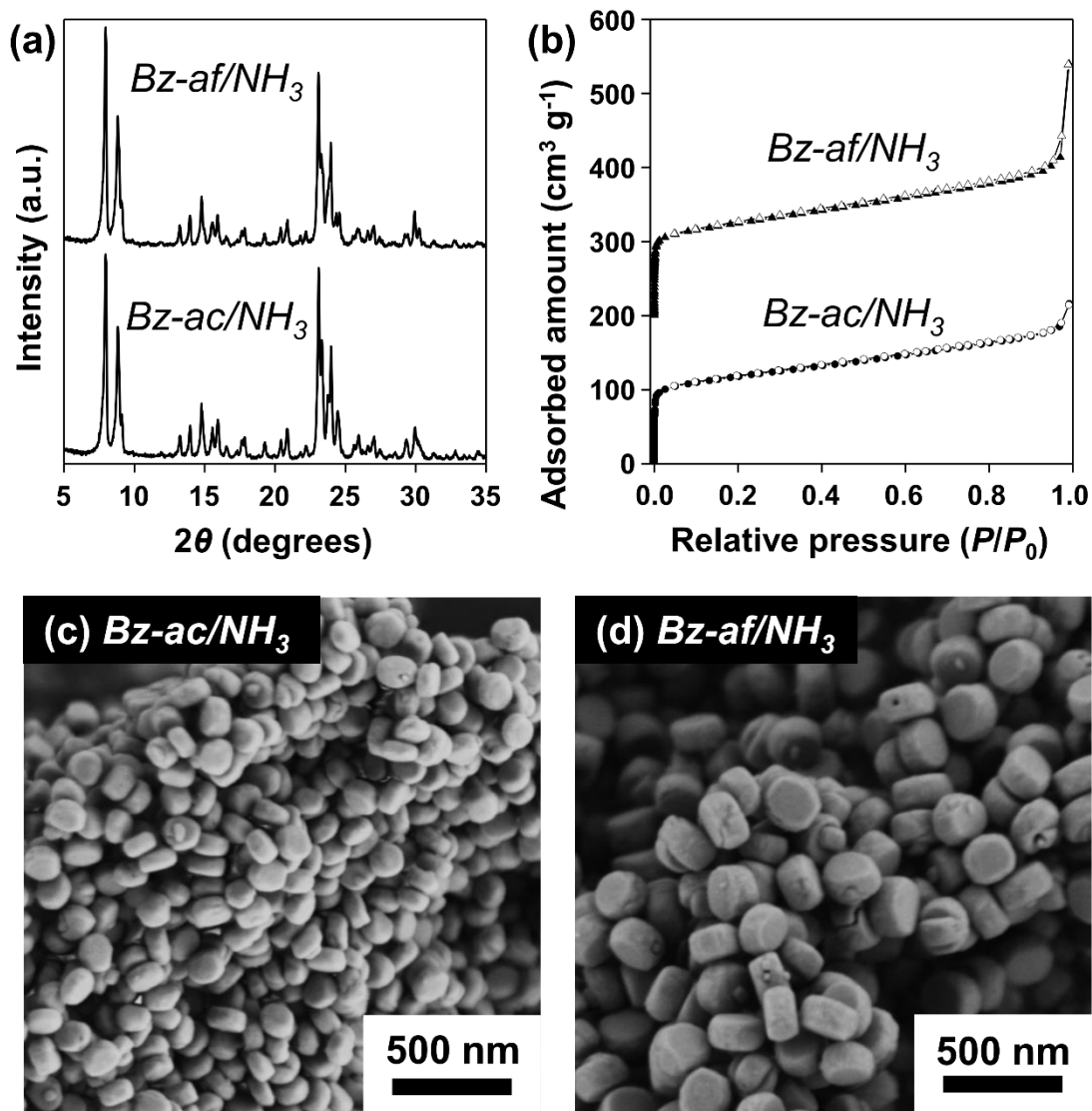


Fig. S1. Characterization of *Bz-ac/NH₃* and *Bz-af/NH₃* samples: (a) XRD patterns, (b) Ar adsorption isotherms, and SEM images of (c) *Bz-ac/NH₃* and (d) *Bz-af/NH₃*. The isotherms were offset vertically by $200 \text{ cm}^3 \text{g}^{-1}$ STP.

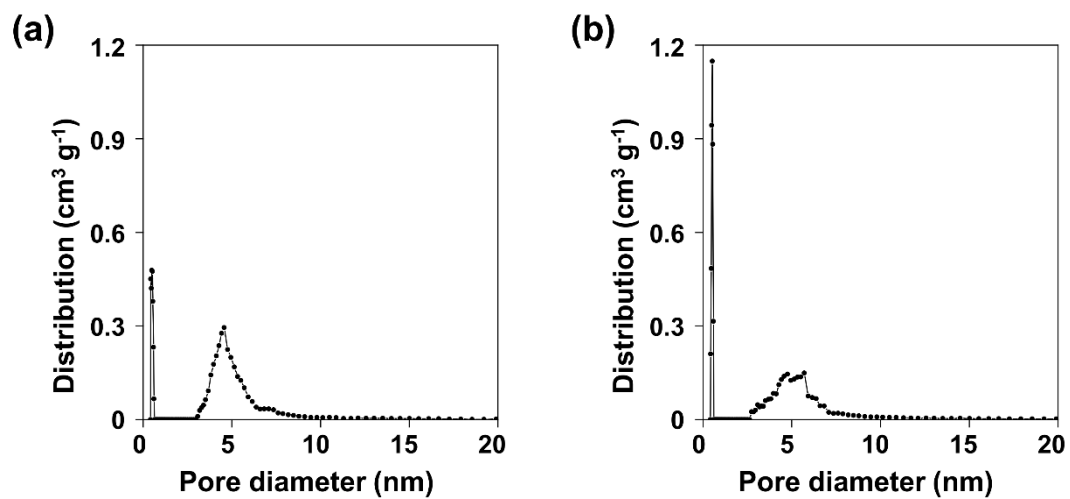


Fig. S2. Pore size distributions of (a) *Mz-ac* and (b) *Mz-af*, calculated by non-linear density functional theory method.

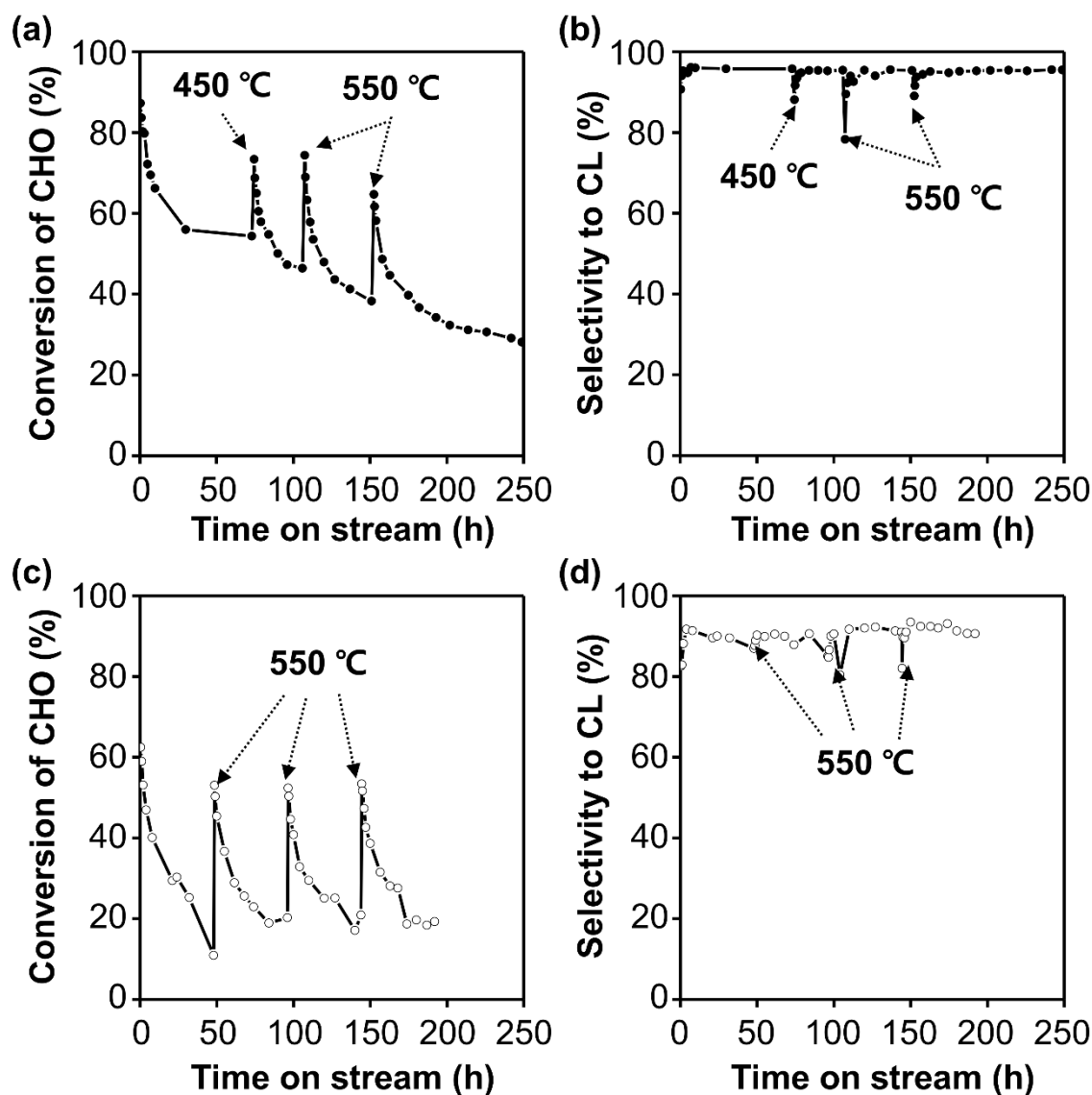


Fig. S3. Regeneration of the *Mz-af* and *Bz-af* catalysts in Beckmann rearrangement of cyclohexanone oxime (CHO). (a) Conversion of CHO and (b) selectivity to ϵ -caprolactam (CL) over *Mz-af* as a function of the time-on-stream. (c) CHO conversion and (d) CL selectivity over *Bz-af*. Reaction conditions: 0.884 M oxime in ethanol; WHSV = 3.4 h⁻¹; temp = 350 °C; N₂ flow rate = 15 cm³ min⁻¹. The catalysts were heated in an air flow (flow rate: 50 cm³ min⁻¹) for their regeneration at the denoted temperatures, and then cooled down to the reaction temperature.