

Supplementary material

Hierarchically porous ZSM-5/SBA-15 zeolite: Tuning pore structure and acidity for enhanced hydro-upgrading of FCC gasoline

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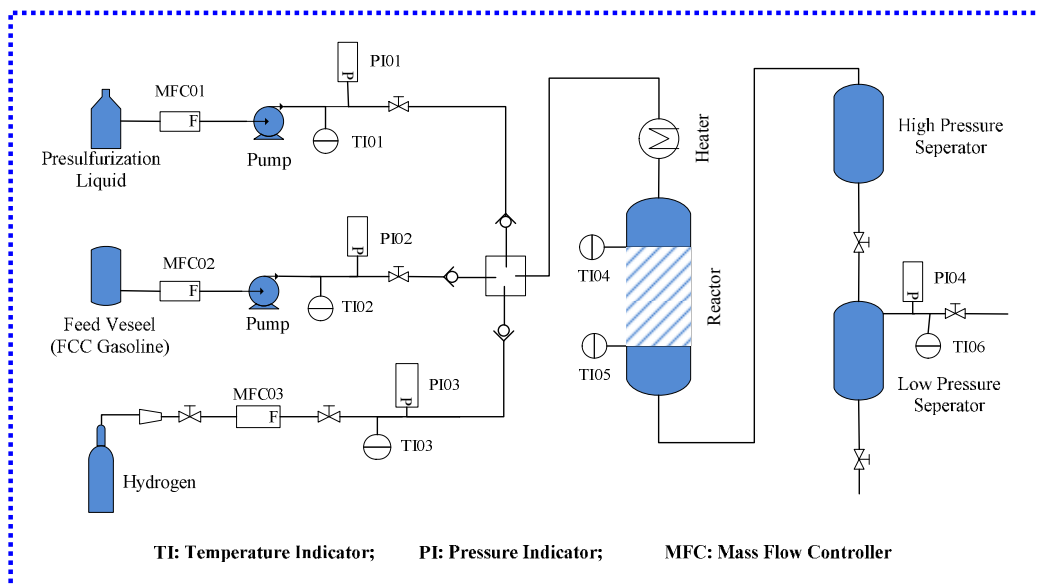
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Scheme S1. The experimental setup for the hydro-upgrading of FCC gasoline.

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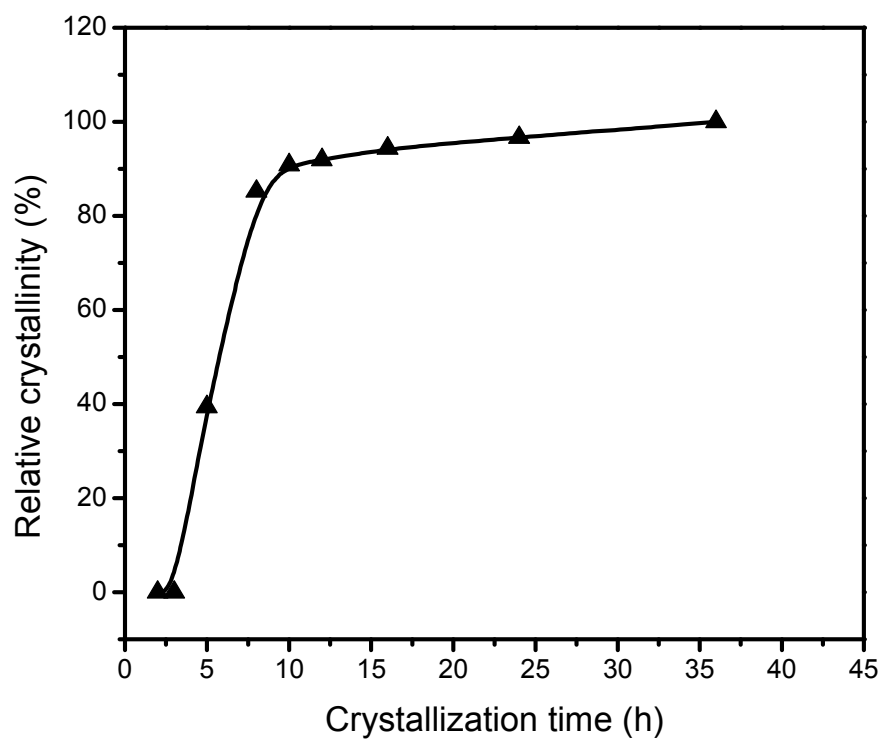


Figure S1. The relative crystallinity of ZSM-5 as a function of the crystallization time at 170 °C.

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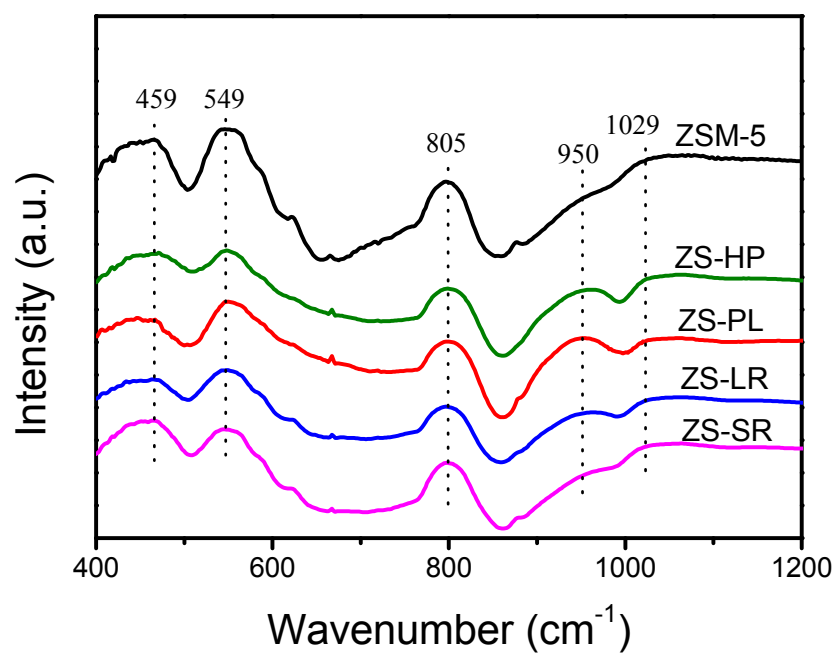


Figure S2. The FT-IR spectra of the ZSM-5/SBA-15 zeolites with short rod, hexagonal prism, platelet, and long rod.

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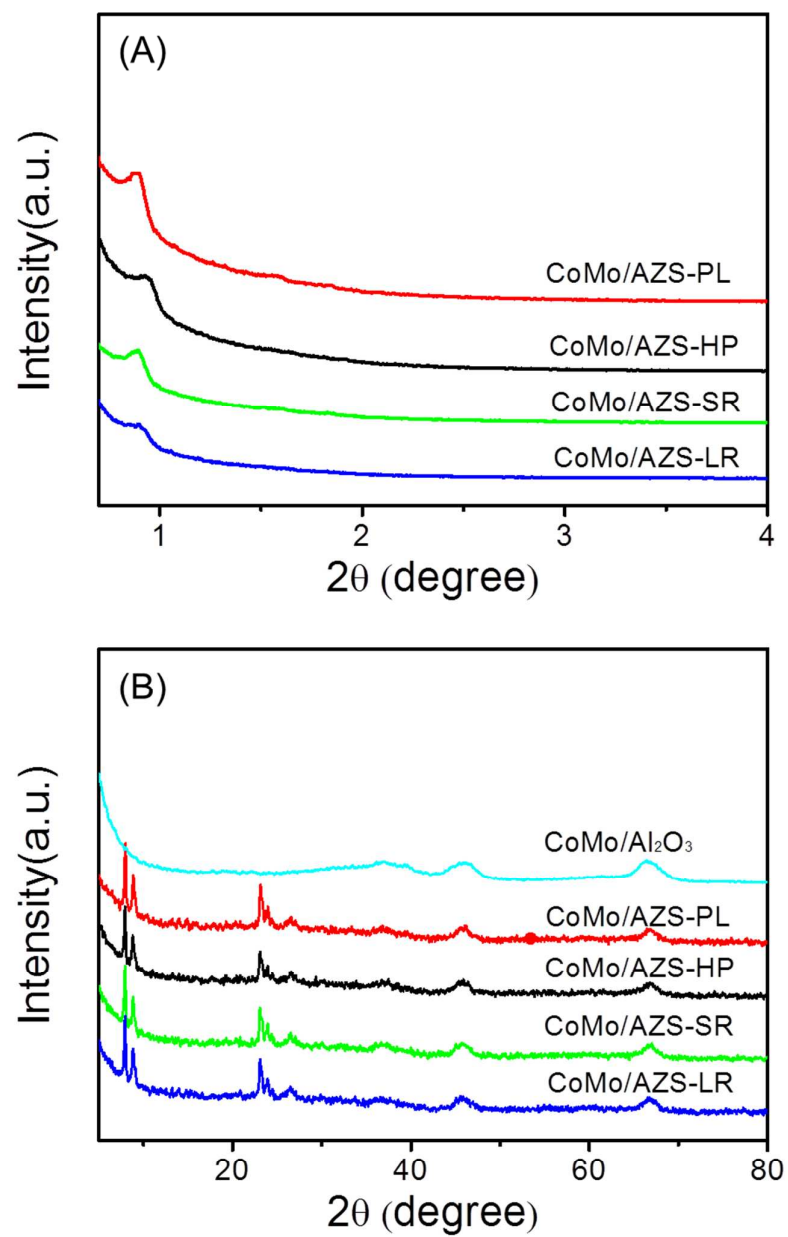


Figure S3. The XRD patterns of CoMo supported catalysts. Notes: small-angle (A) and wide-angle (B).

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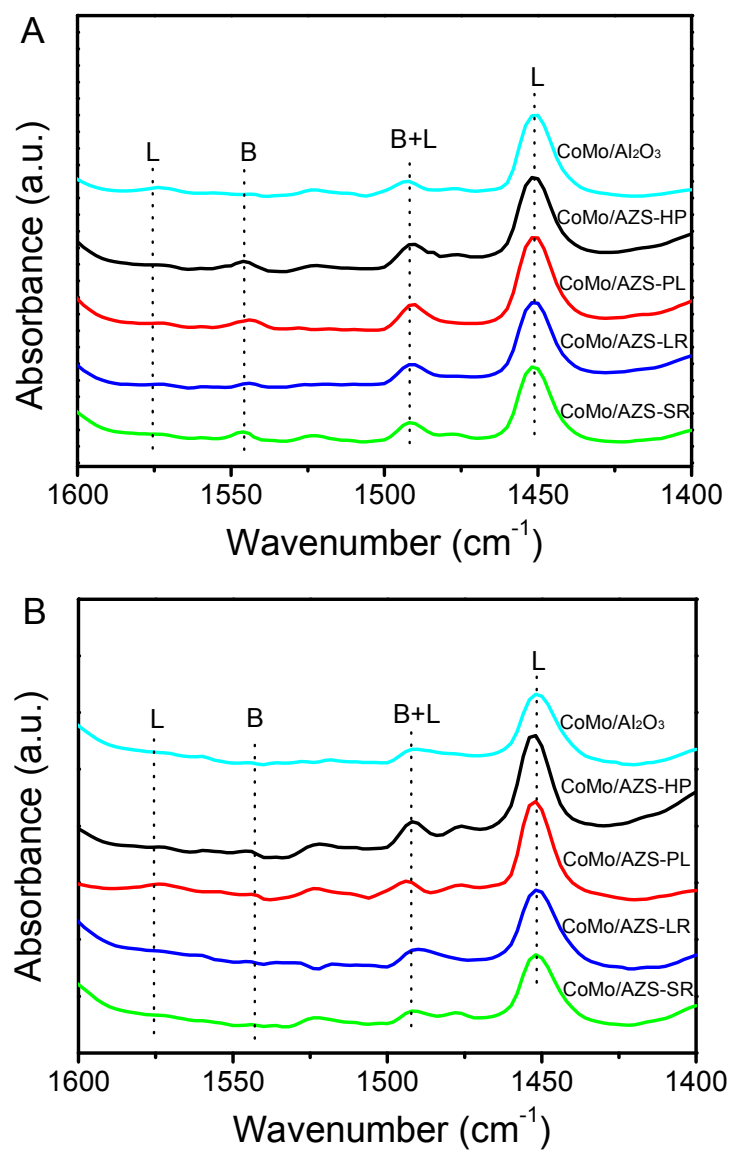


Figure S4. The Pyridine-FTIR spectra of the oxide CoMo supported catalysts after degassing at 200 °C (A) and 350 °C (B).

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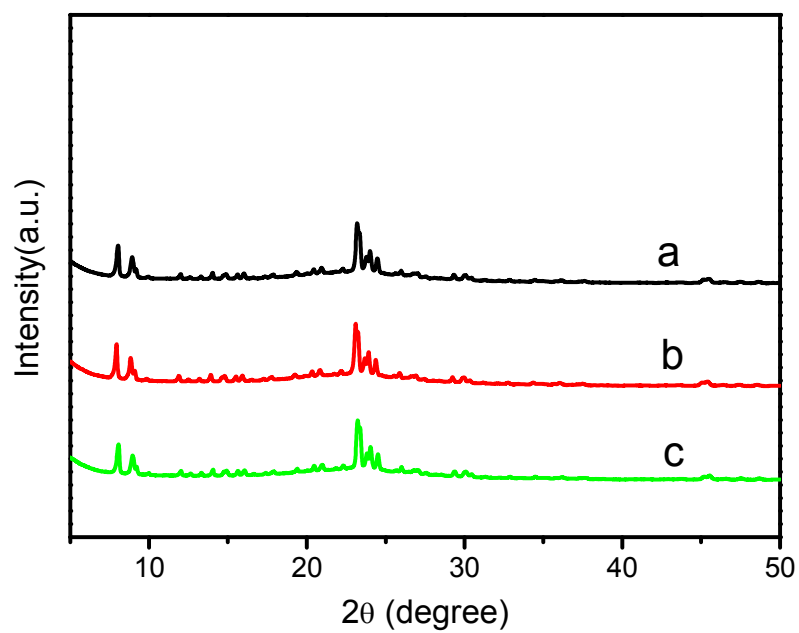


Figure S5. The wide-angle XRD patterns of ZSM-5/SBA-15 synthesized under different concentration of hydrochloric acid, (a) 2 mol/L, (b) 1.5 mol/L, (c) 1.0 mol/L.

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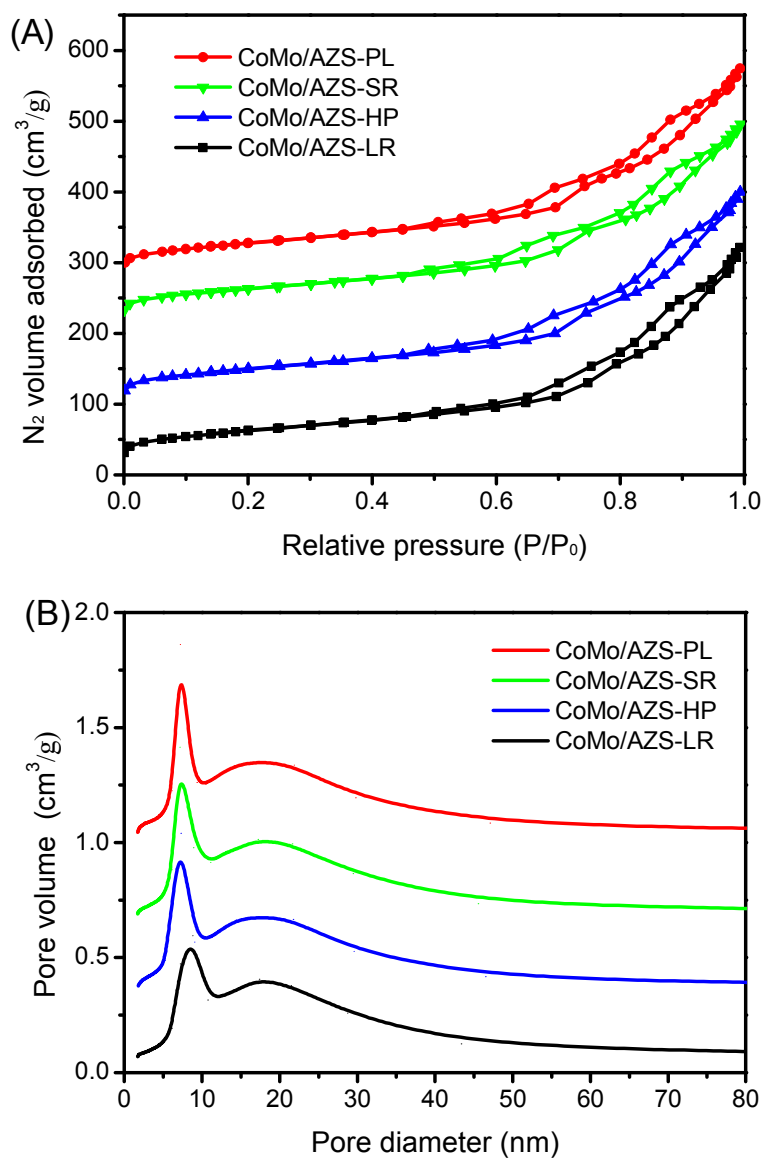


Figure S6. N_2 adsorption–desorption isotherms (A) and pore size distribution curves (B) of the supported CoMo catalysts.

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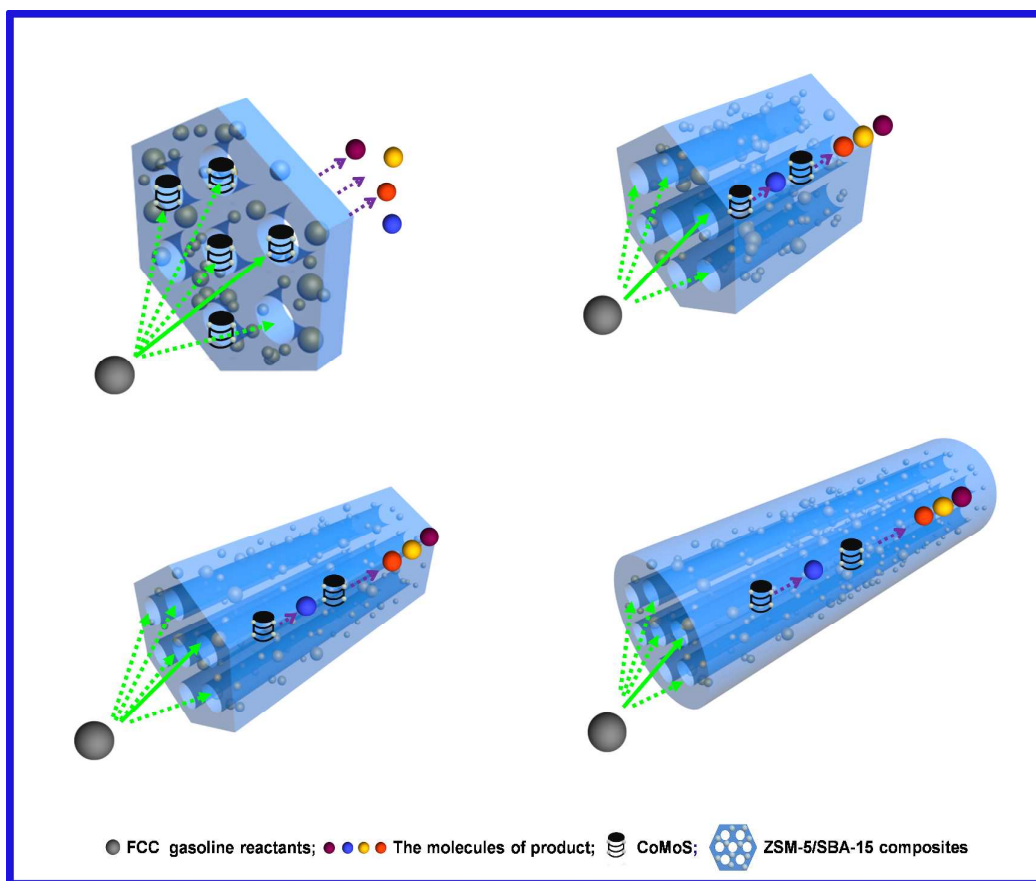


Figure S7. Schematic representation of the hydro-upgrading reaction on ZSM-5/SBA-15 supported CoMo catalysts with different morphologies.