

Figure S1. Overlay Al-NMR plot of parent and metal modified ZSM-5 zeolites.

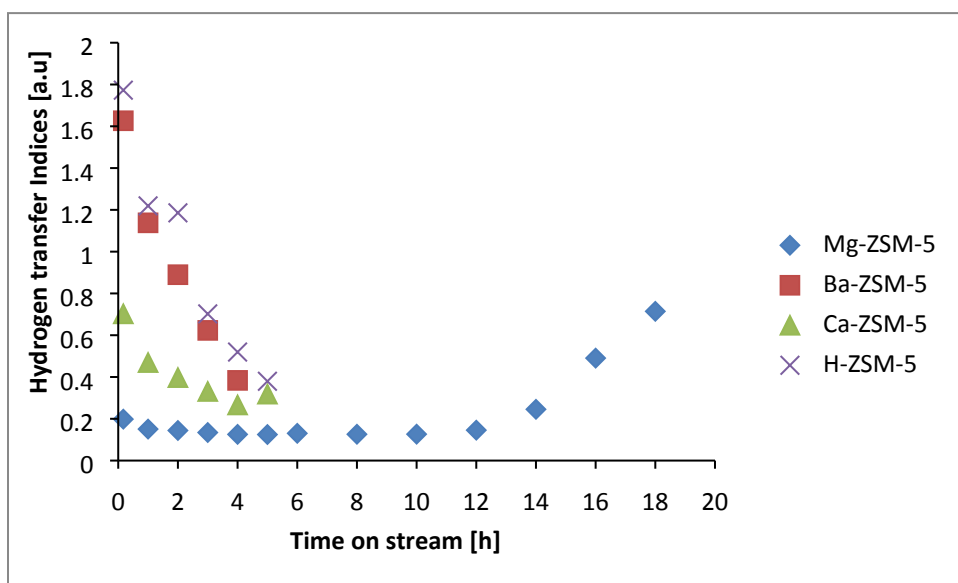


Figure S2. Plot of HTI versus catalyst TOS.

Table S1. Textural property of CTAB partially blocked and parent ZSM-5 zeolite

Sample	$S_{\text{BET}}$ [m <sup>2</sup> /g]	$S_{\text{EXT}}$ [m <sup>2</sup> /g]	$S_{\text{Micro}}$ [m <sup>2</sup> /g]	$S_{\text{Meso}}$ [m <sup>2</sup> /g]	$V_{\text{T}}$ [cm <sup>3</sup> /g]	$V_{\text{Micro}}$ [cm <sup>3</sup> /g]	$V_{\text{Meso}}$ [cm <sup>3</sup> /g]
H-ZSM-5	333	95	238	143	0.177	0.099	0.078
H-ZSM-5-CTAB	44	14	30	14	0.036	0.013	0.023

$S_{\text{BET}}$  = BET surface area;  $S_{\text{EXT}}$  = external surface area;  $S_{\text{Micro}}$  = micropore surface area;  $V_{\text{T}}$  = Total pore volume;  $S_{\text{Meso}}$  = Mesopore volume ( $S_{\text{BET}} - S_{\text{Micro}}$ );  $V_{\text{Micro}}$  = Micropore volume;  $V_{\text{Meso}}$  = Mesopore volume ( $V_{\text{T}} - V_{\text{Micro}}$ )

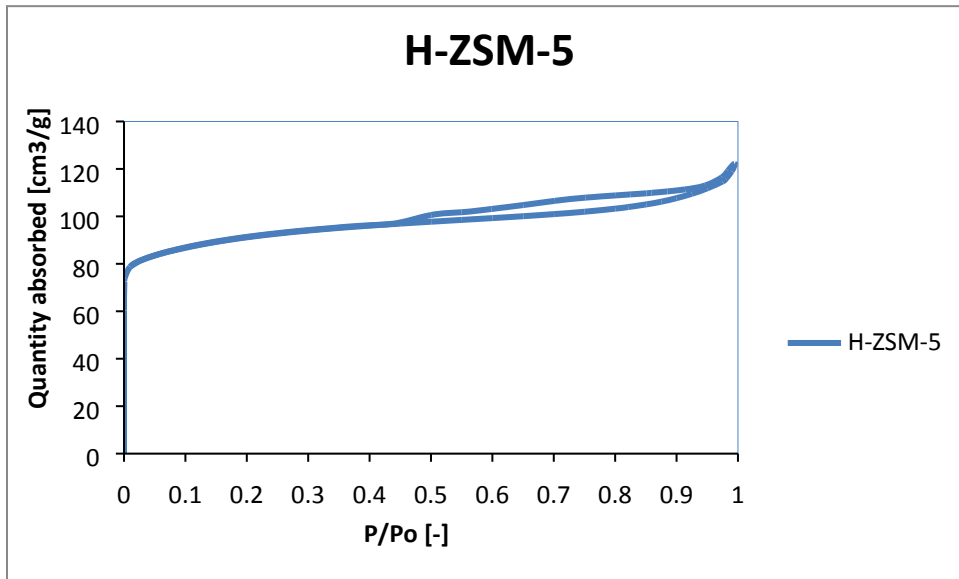


Figure S3. N<sub>2</sub> sorption isotherm of H-ZSM-5 zeolite.

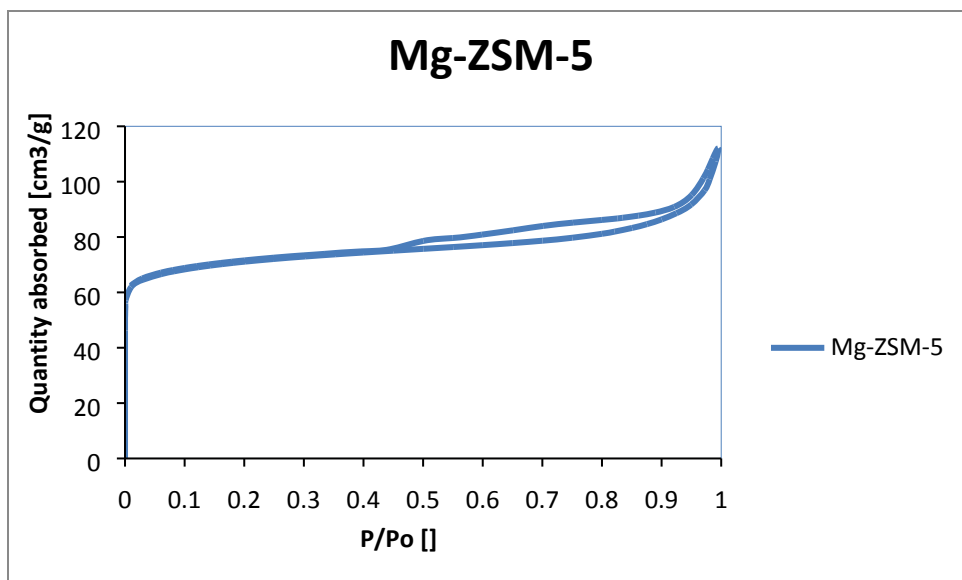


Figure S4. N<sub>2</sub> sorption isotherm of Mg-ZSM-5 zeolite.

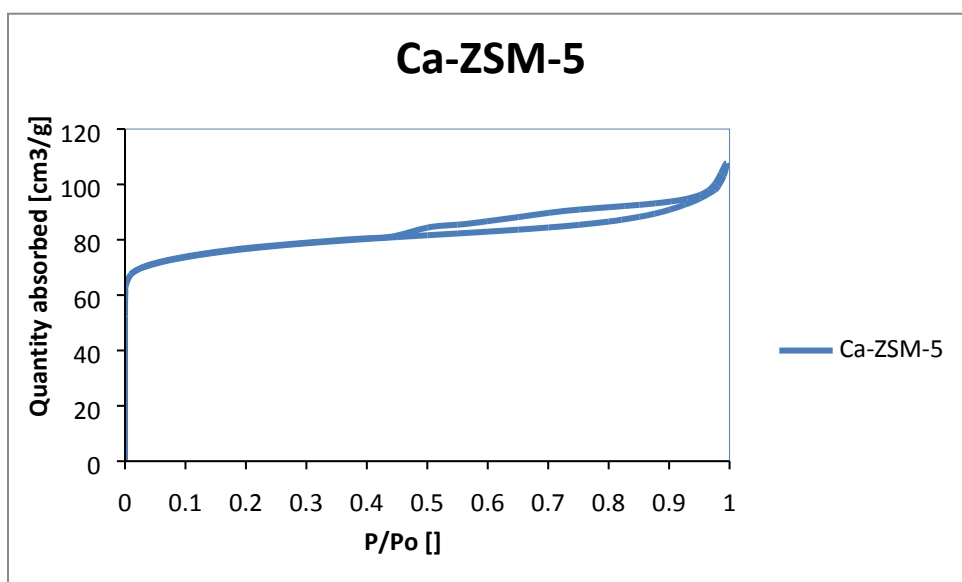


Figure S5. N<sub>2</sub> sorption isotherm of Ca-ZSM-5 zeolite.

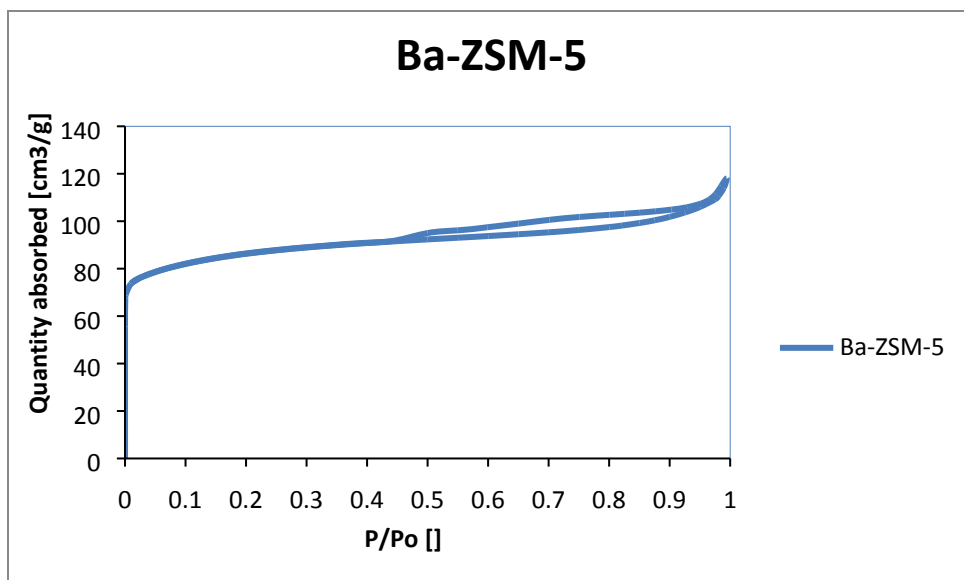


Figure S6. N<sub>2</sub> sorption isotherm of Ba-ZSM-5 zeolite.