

## Catalysis Science & Technology

ARTICLE

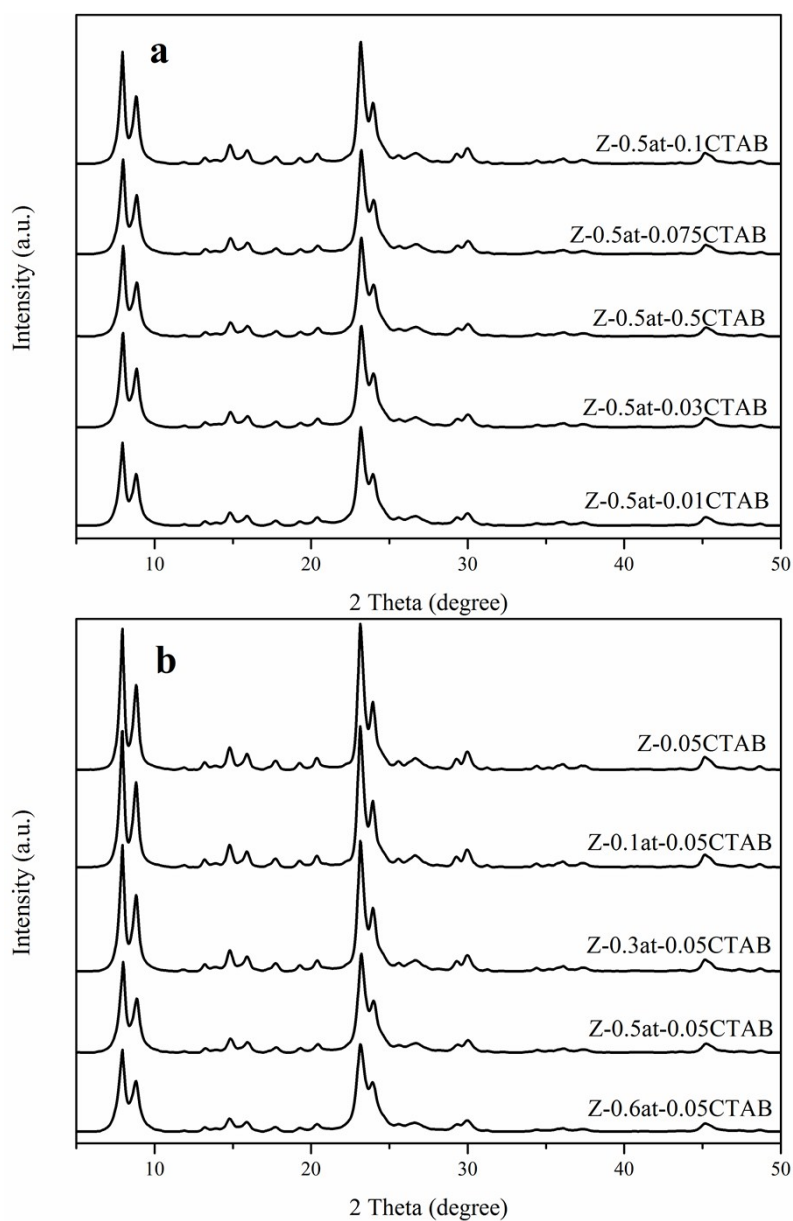
### Electronic Supplementary Information

#### **Hierarchical ZSM-11 Zeolite Prepared by Alkaline Treatment with Mixed Solution of NaOH and CTAB: Characterization and Application for Alkylation of Benzene with Dimethyl Ether**

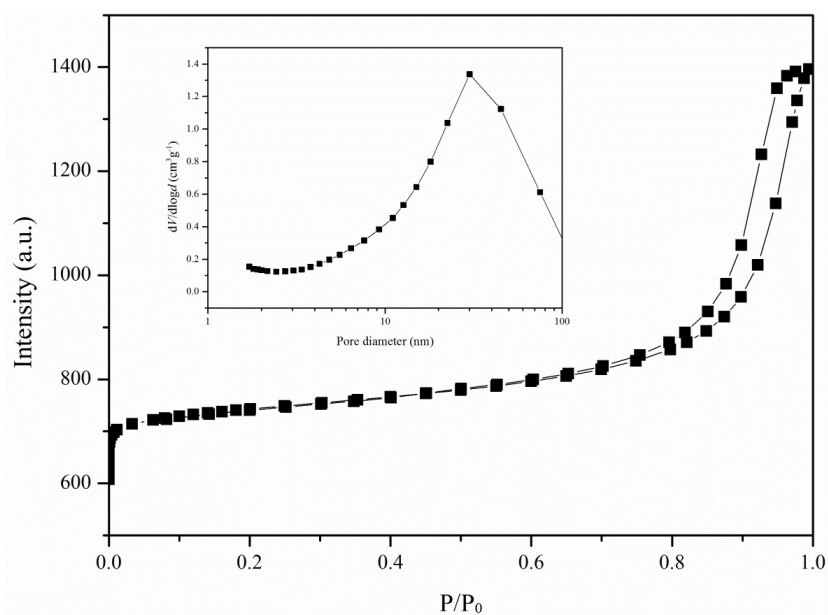
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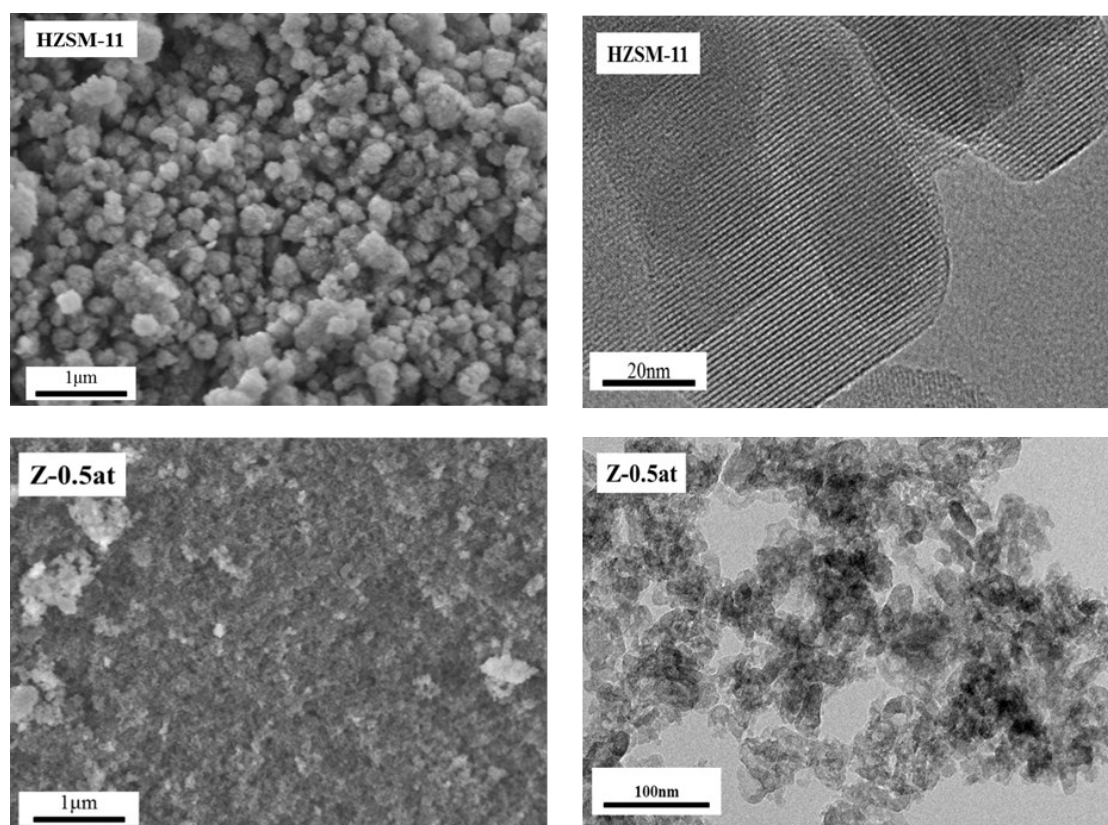
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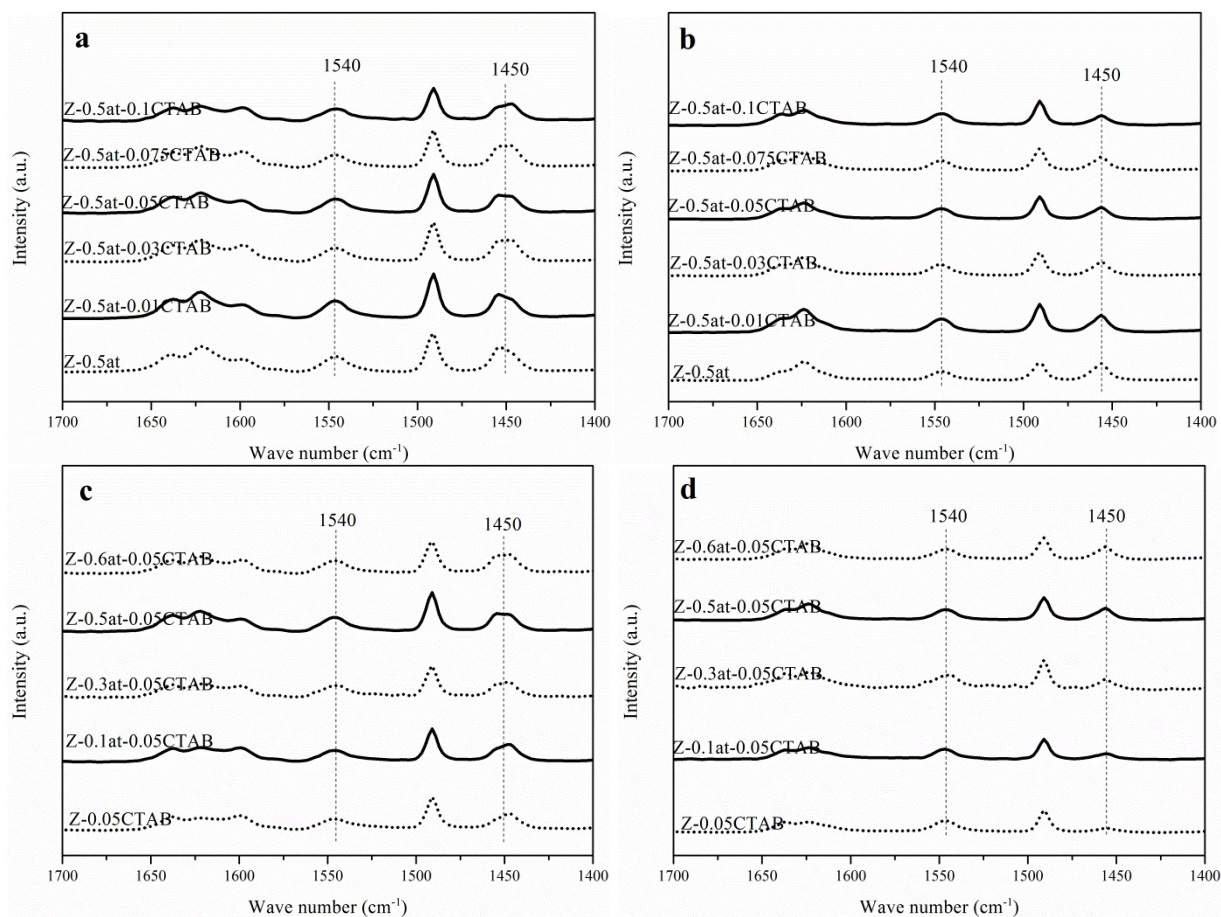
**Fig. S1** XRD patterns of Z-0.5at-yCTAB (a) and Z-xat-0.05CTAB (b) samples.



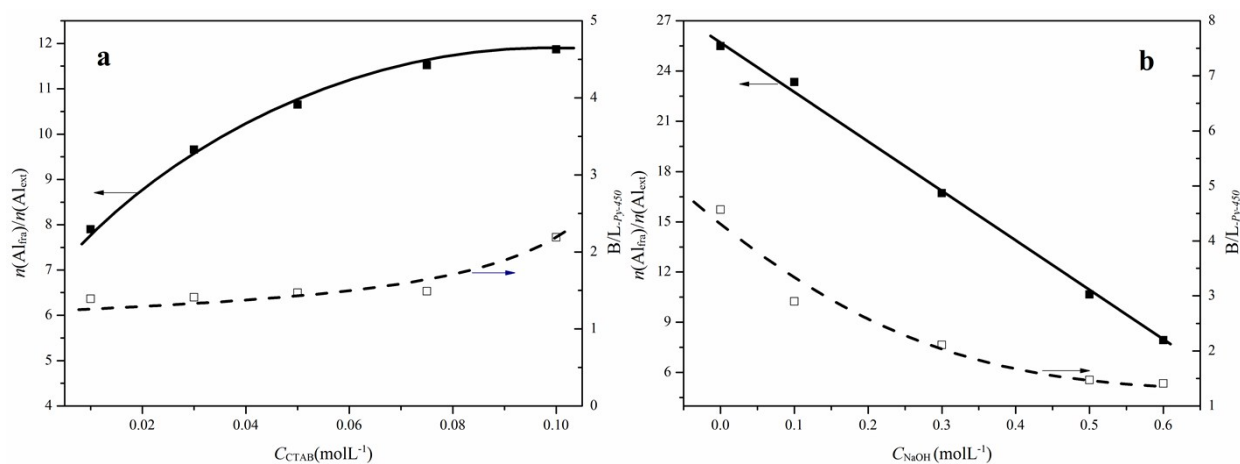
**Fig. S2** Nitrogen adsorption and desorption isotherms at  $-196\text{ }^{\circ}\text{C}$  and BJH pore size distribution plots derived from the adsorption branch for Z-0.5at.



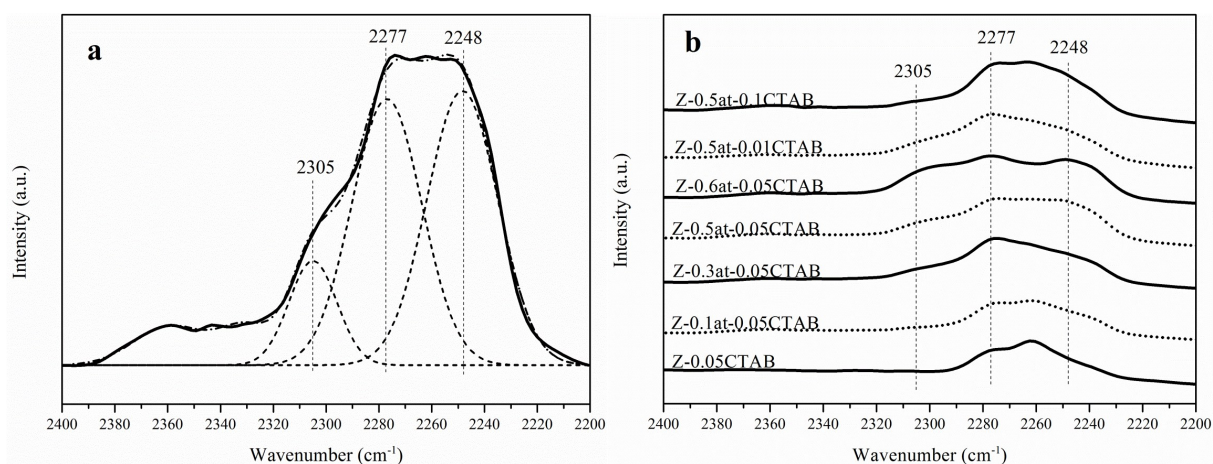
**Fig. S3** SEM and TEM images of pristine HZSM-11 and Z-0.5at zeolite.



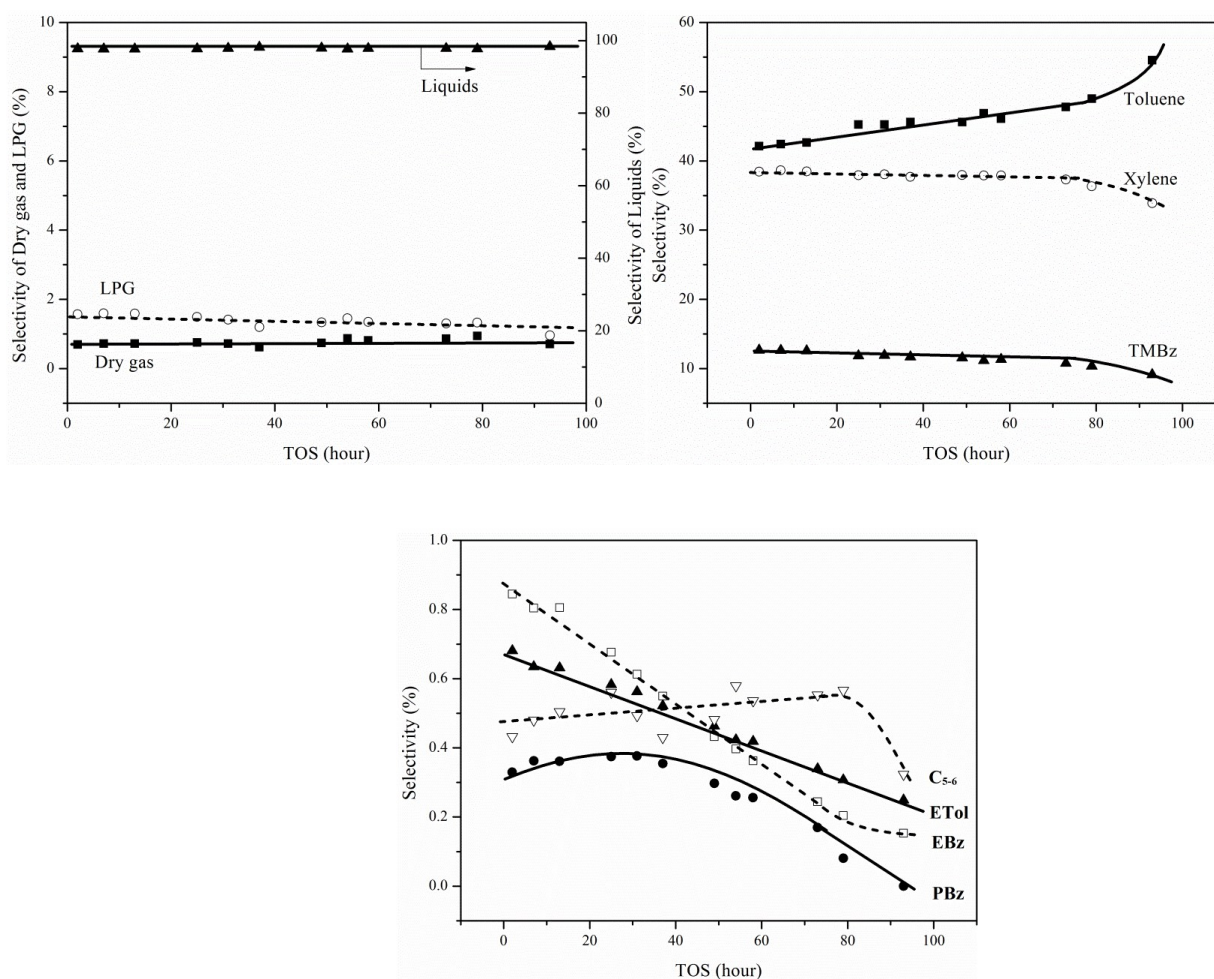
**Fig. S4** Py-IR spectra desorbed at 150 °C (**a, c**) and desorbed at 450 °C (**b, d**) recorded on Z-xat-yCTAB samples.



**Fig. S5**  $B/L_{Py-450}$  and  $n(Al_{fra})/n(Al_{ext})$  as a function of CTAB concentration for Z-0.5at-yCTAB (**a**) and that of alkaline concentration for Z-xat-0.05CTAB (**b**).



**Fig. S6** Pivalonitrile-IR spectra recorded at r. t. on Z-0.5at-0.05CTAB (a) and Z-xat-yCTAB (b) samples.



**Fig. S7** Products selectivity as a function of TOS over Z-0.5at-0.05CTAB.