

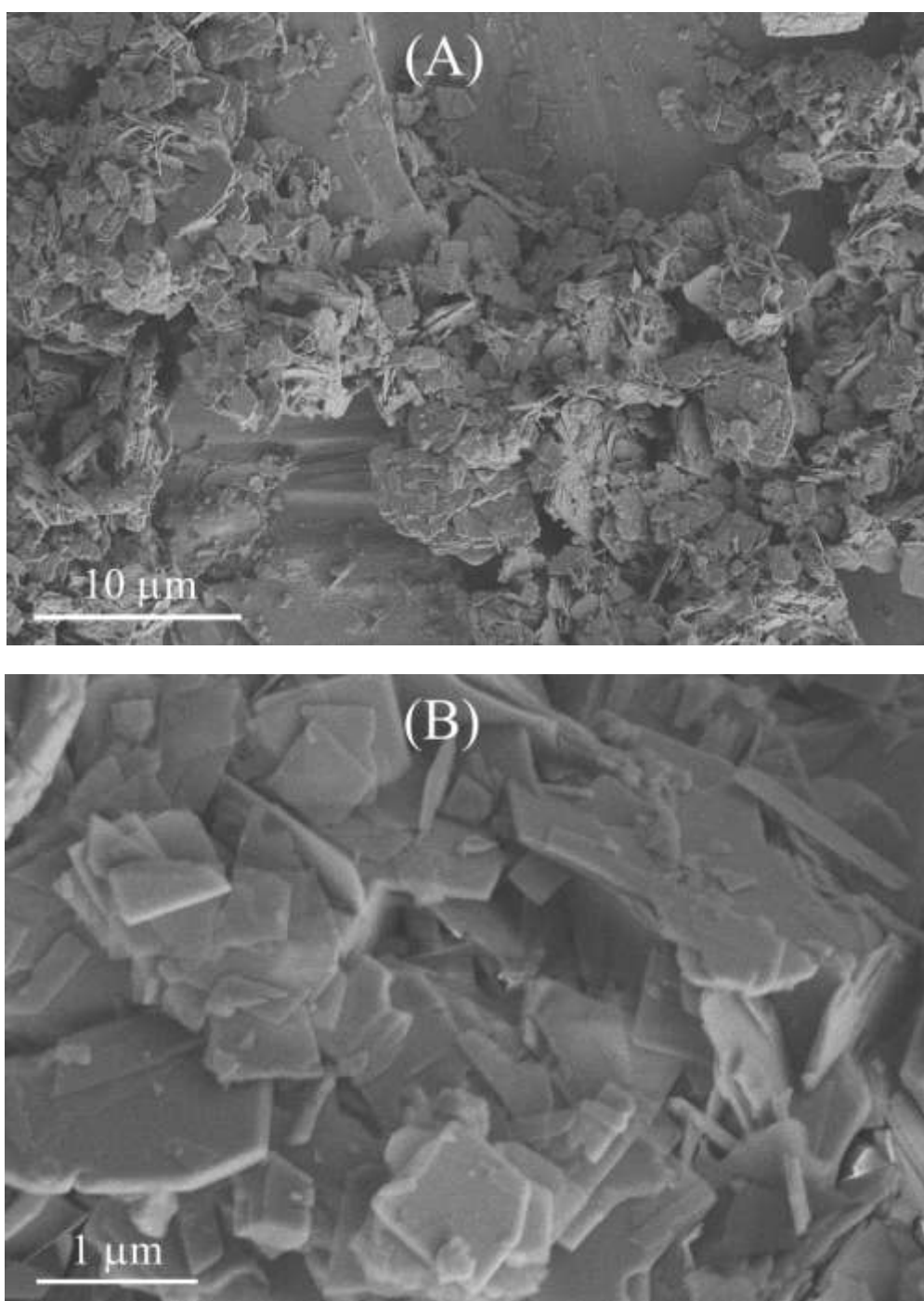
## **Unexpected selectivity of ferrierite for the conversion of isobutanol to linear butenes and water effects**

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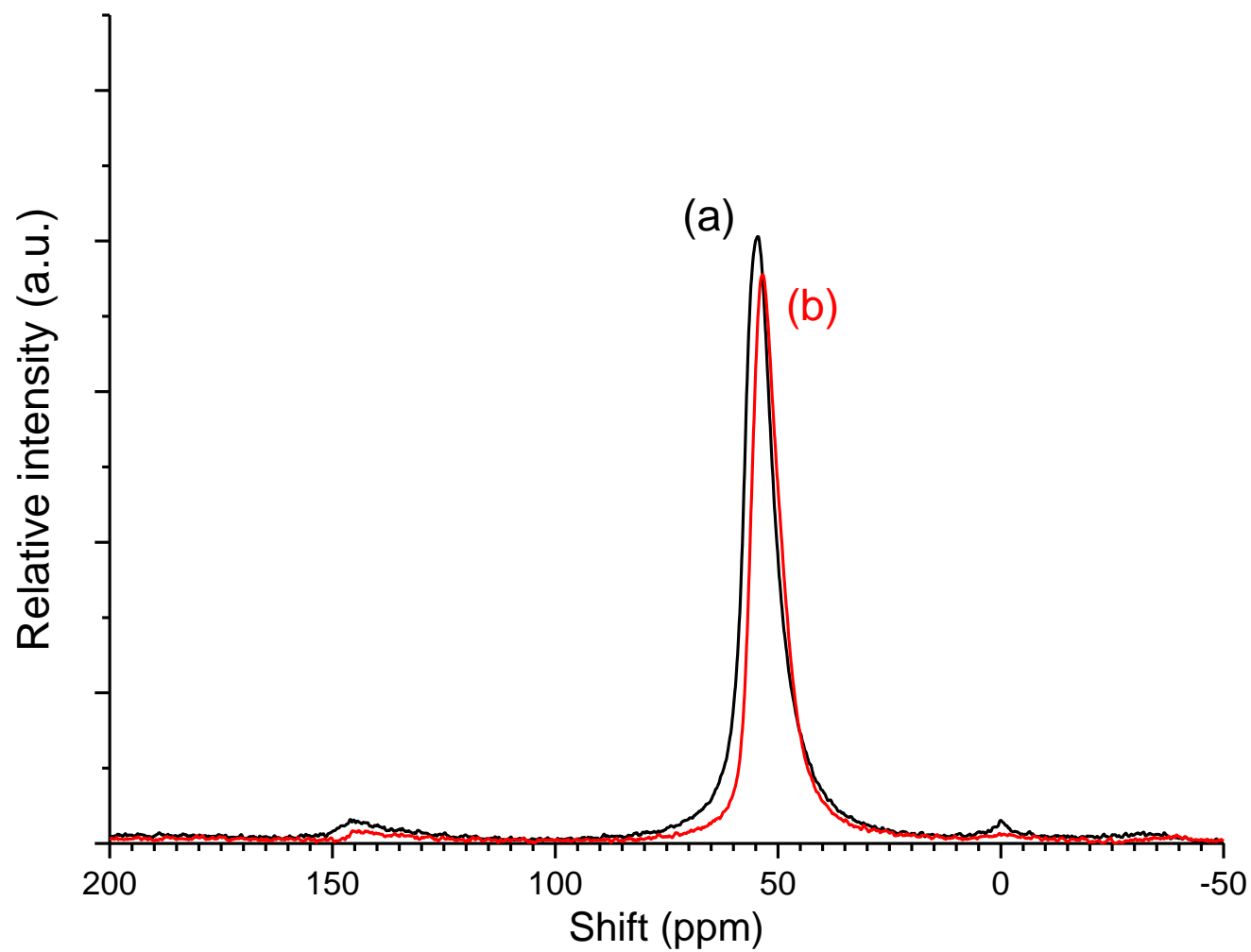
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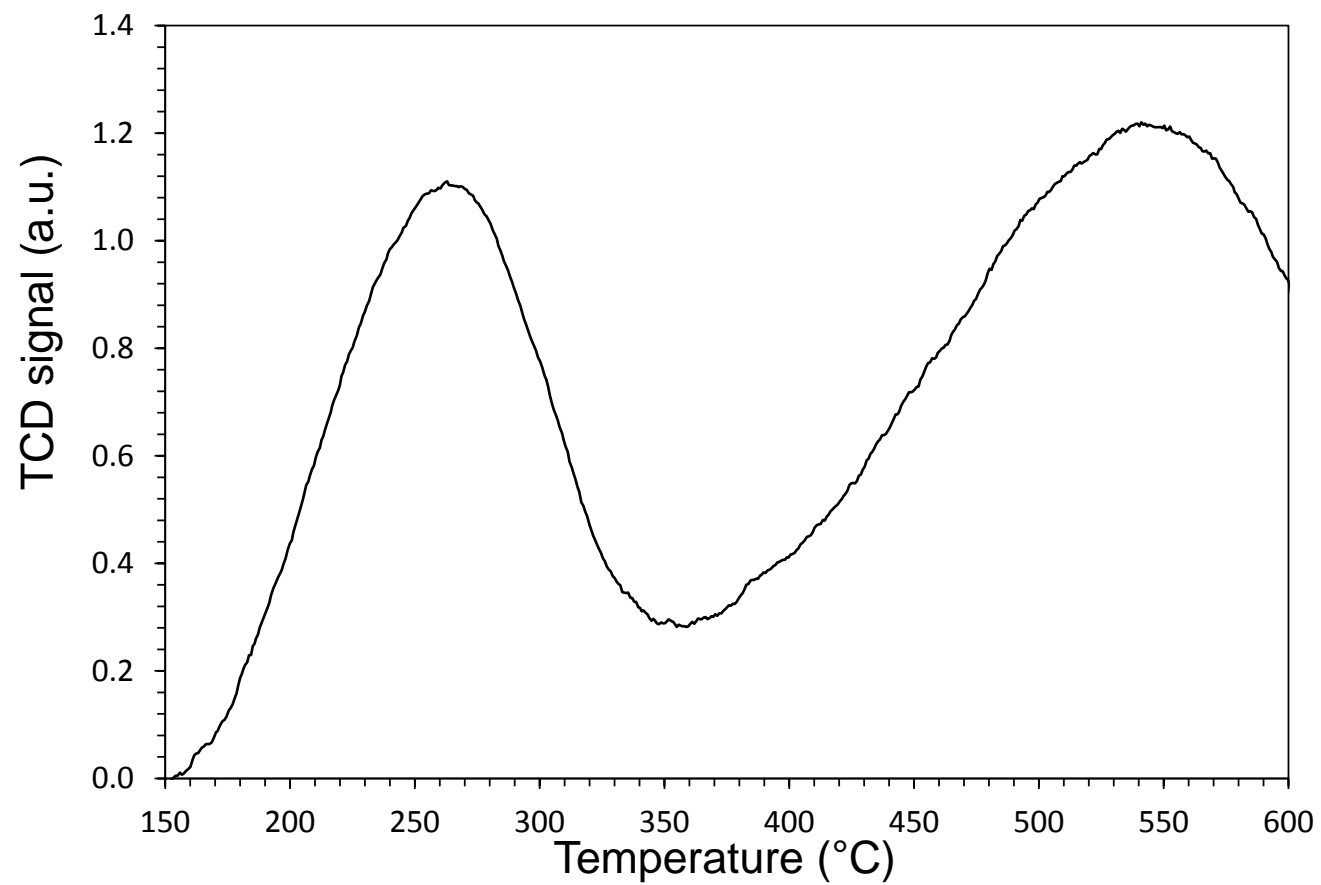


**Figure S1.** SEM images of ferrierite sample.



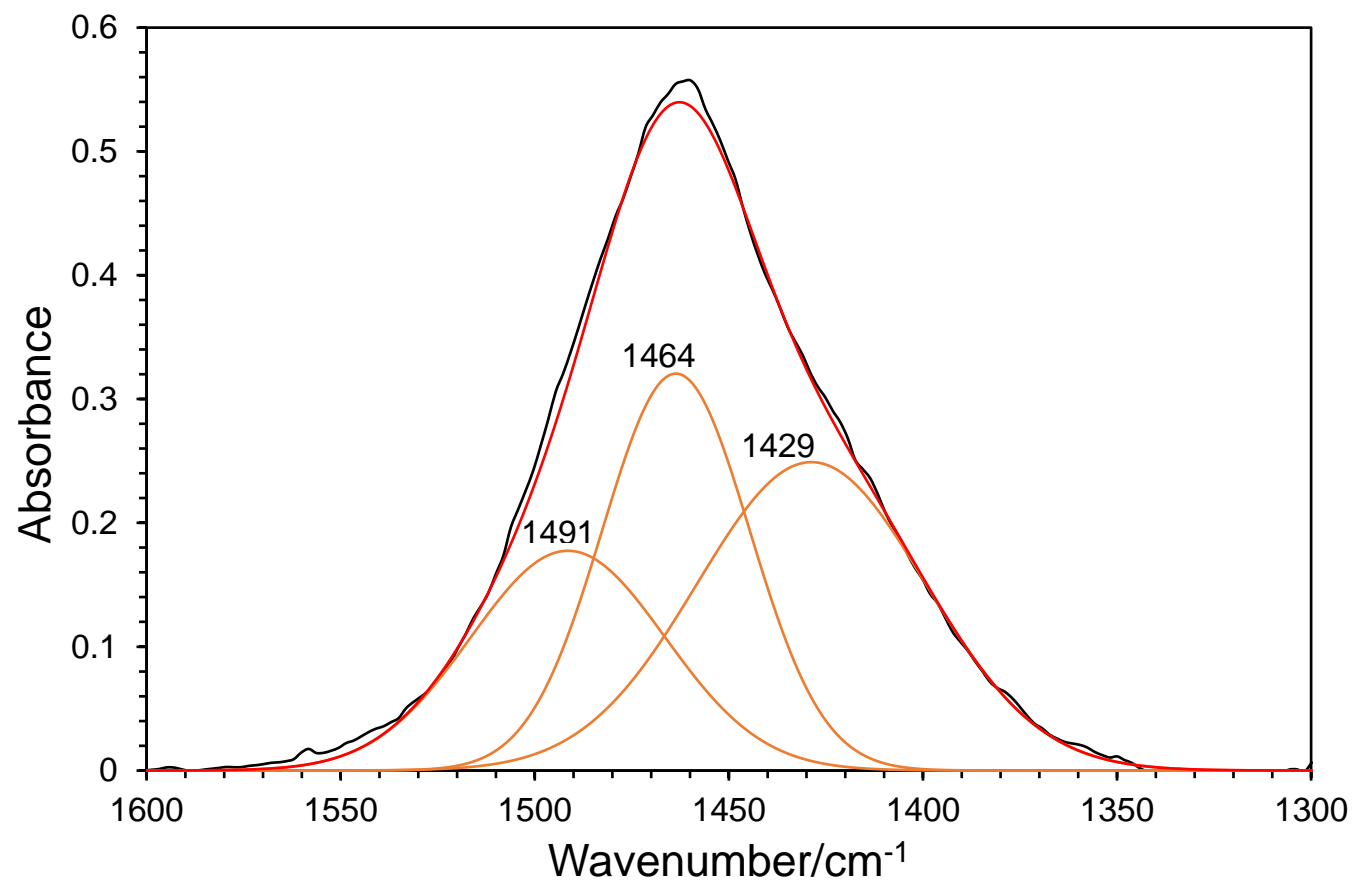
**Figure S2.**  $^{27}\text{Al}$  solid NMR spectra of ferrierite sample (a) at the fresh state and (b) after 25 h of reaction at 250 °C under  $i\text{C}_4\text{OH}/\text{inert}$ : 30/70, 1/WHSV 0.07 h.

Supporting Information

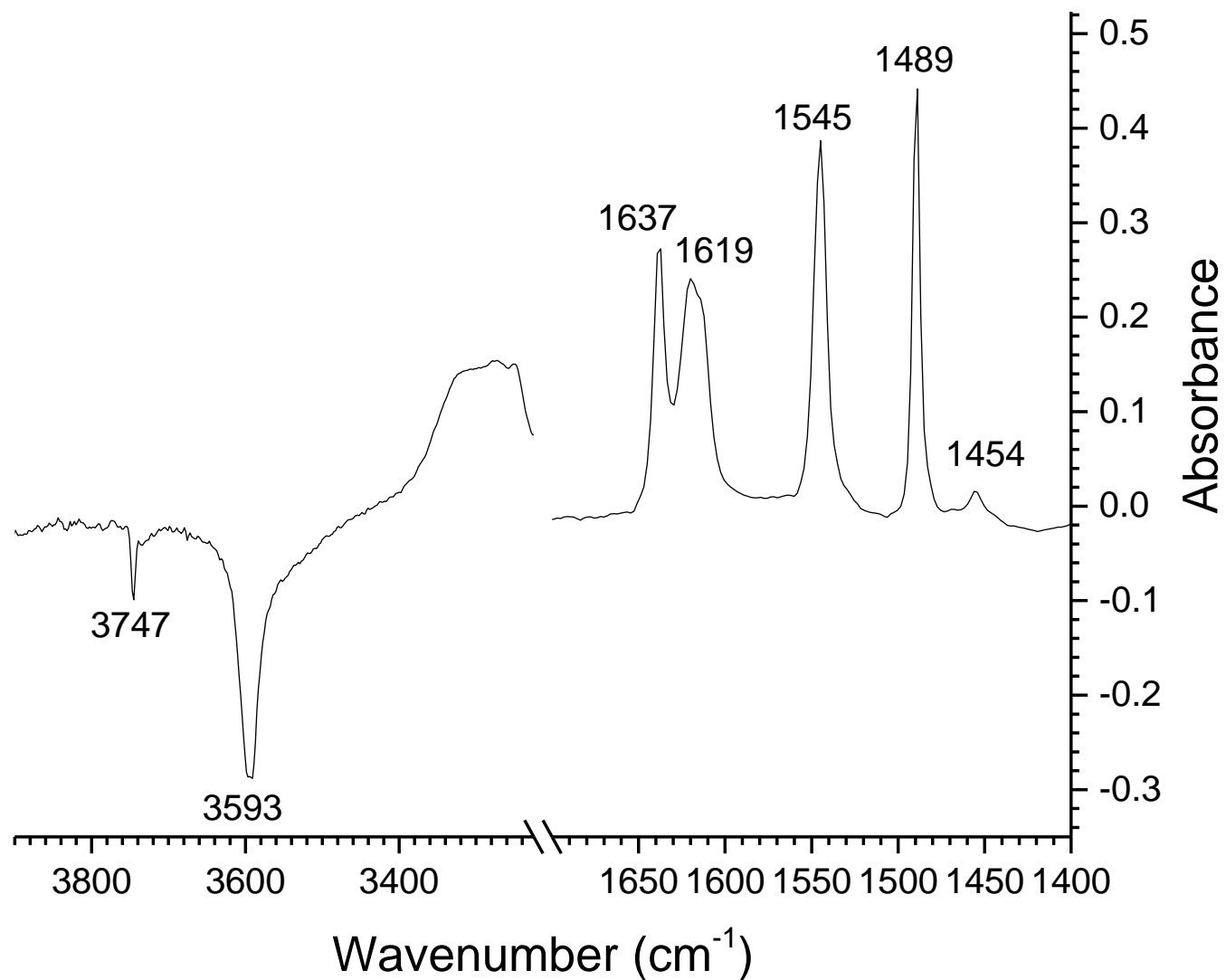


**Figure S3.** TPR curve of ferrierite sample. The peaks at 264 and 542 °C were assigned to weak sites and strong sites respectively.

Supporting Information

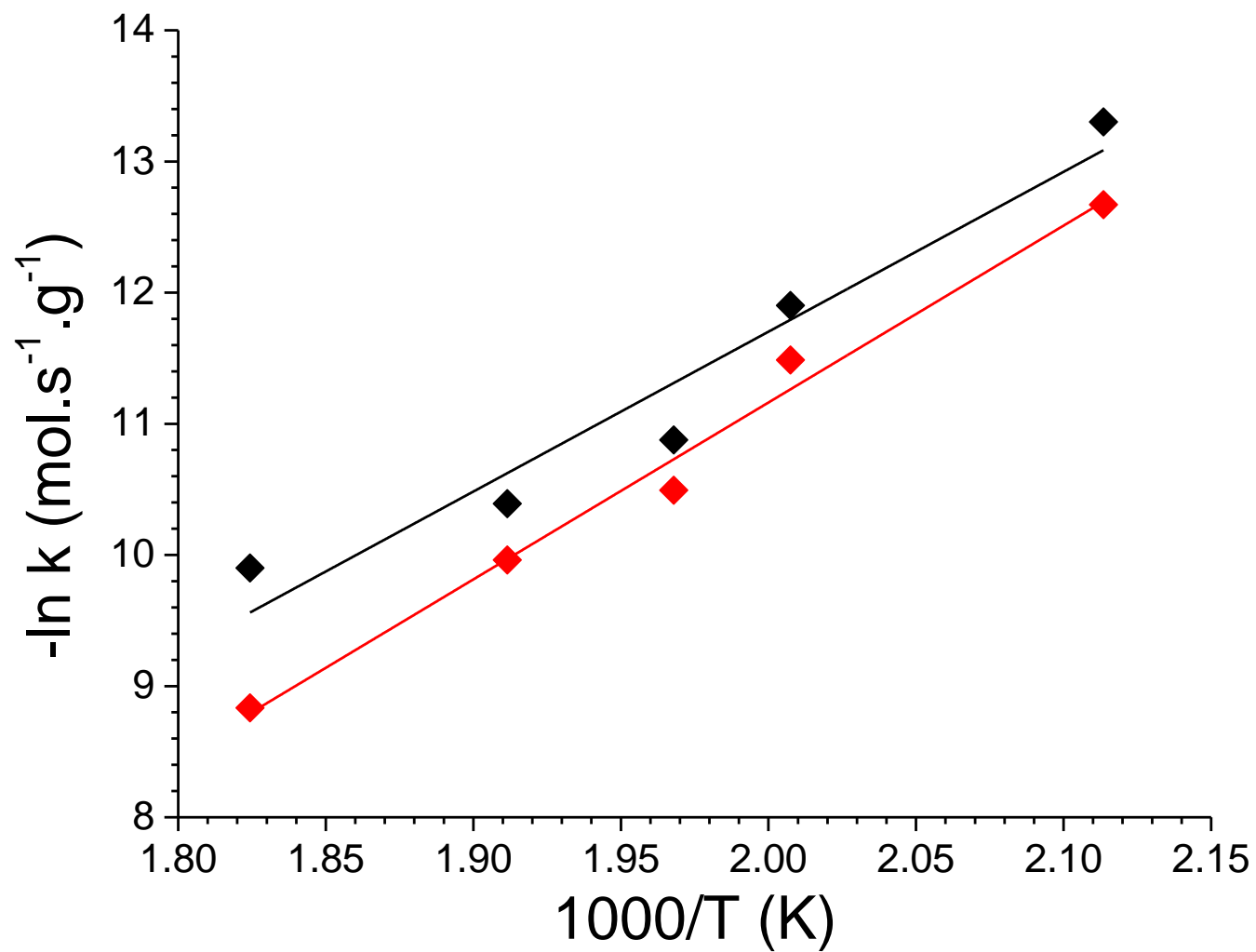


**Figure S4.** Spectral decompositions of FTIR spectra of ferrierite sample recorded at 140 °C under 0.5% NH<sub>3</sub>/He flow. The background corresponded to the spectra recorded under He flow at the same temperatures, mass of the pellet 20 mg.



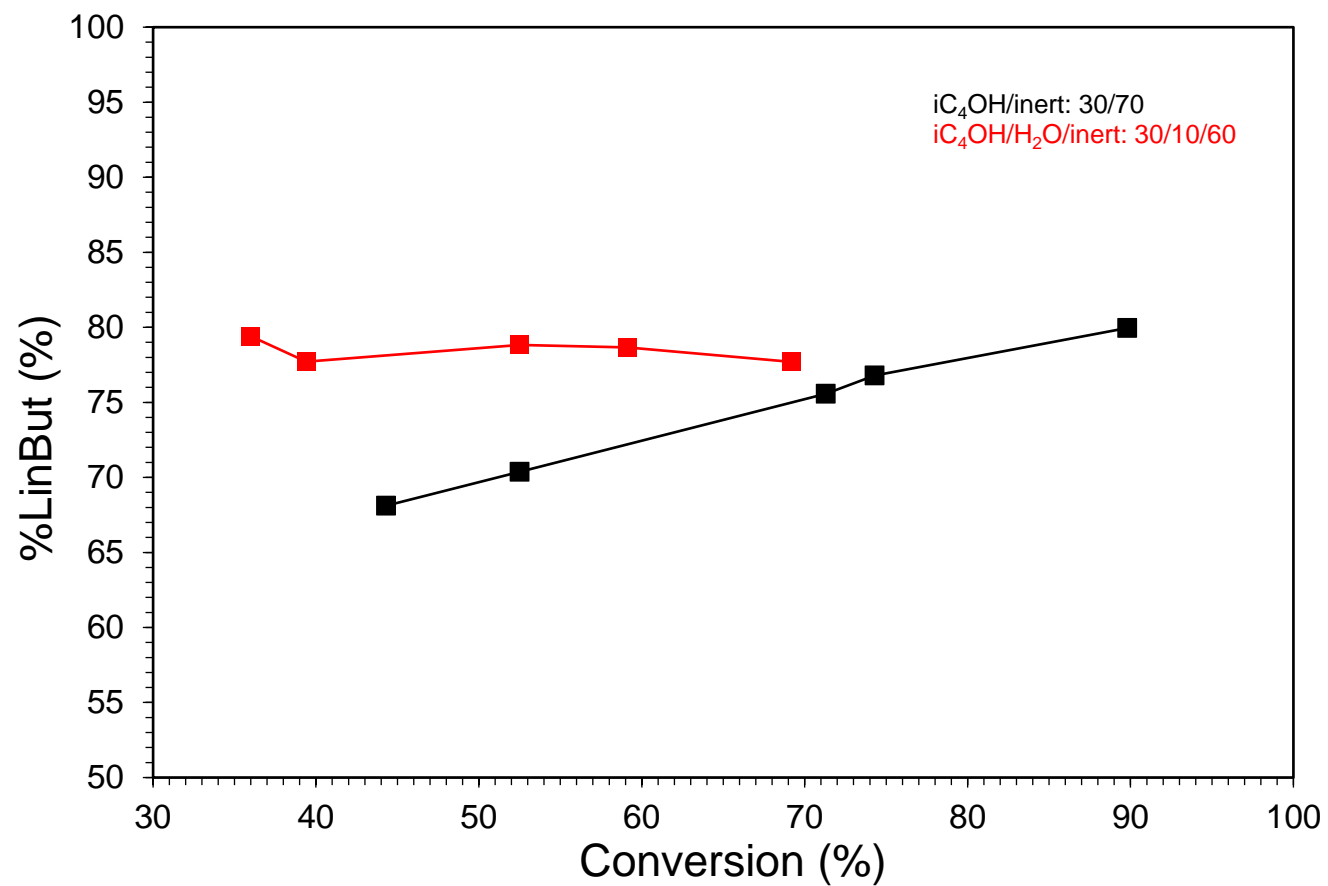
**Figure S5.** FTIR spectra of ferrierite after adsorption of pyridine at room temperature and thermodesorption at 150 °C under vacuum.

Supporting Information



**Figure S6.** Arrhenius plots of the reaction rate for ferrierite sample under  $i\text{C}_4\text{OH/inert}$ : 30/70 (black curve) and  $i\text{C}_4\text{OH/H}_2\text{O/inert}$ : 30/10/60 (red curve) at  $1/\text{WHSV}$  0.07 h.

Supporting Information



**Figure S7.** Evolution of the %LinBut parameter with the conversion of isobutanol for ferrierite under iC<sub>4</sub>OH/inert: 30/70 (black curves) or iC<sub>4</sub>OH/H<sub>2</sub>O/inert: 30/10/60 (red curves) at 250 °C.