

## *Supporting Information*

### **Effect of H<sub>2</sub>S co-feeding on the performance of Fe/SiO<sub>2</sub> catalyst for isomerization and dehydrogenation of C<sub>5</sub>-monoolefin**

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Figure S-1 N<sub>2</sub> adsorption-desorption isotherms of SiO<sub>2</sub> support.

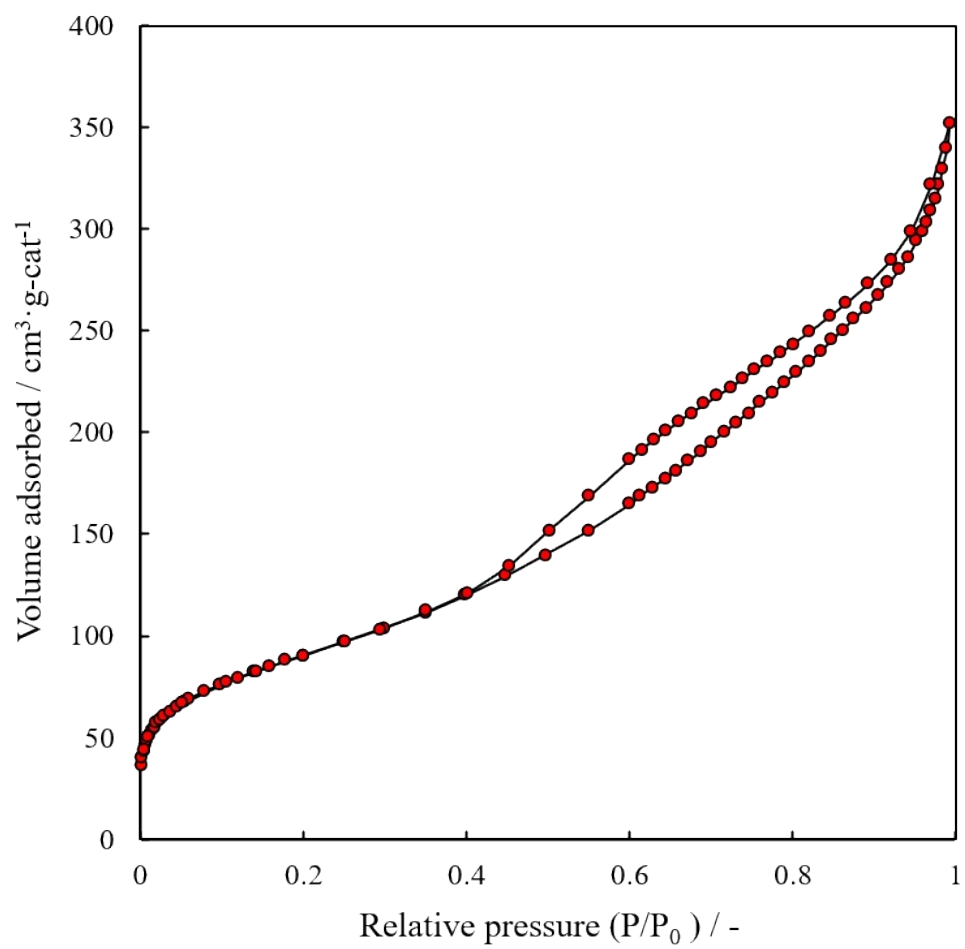


Figure S-2 STEM image and element maps of the (b) silicon (Si), (c) iron (Fe), and (d) oxygen (O) components in the as-made Fe/SiO<sub>2</sub> catalyst.

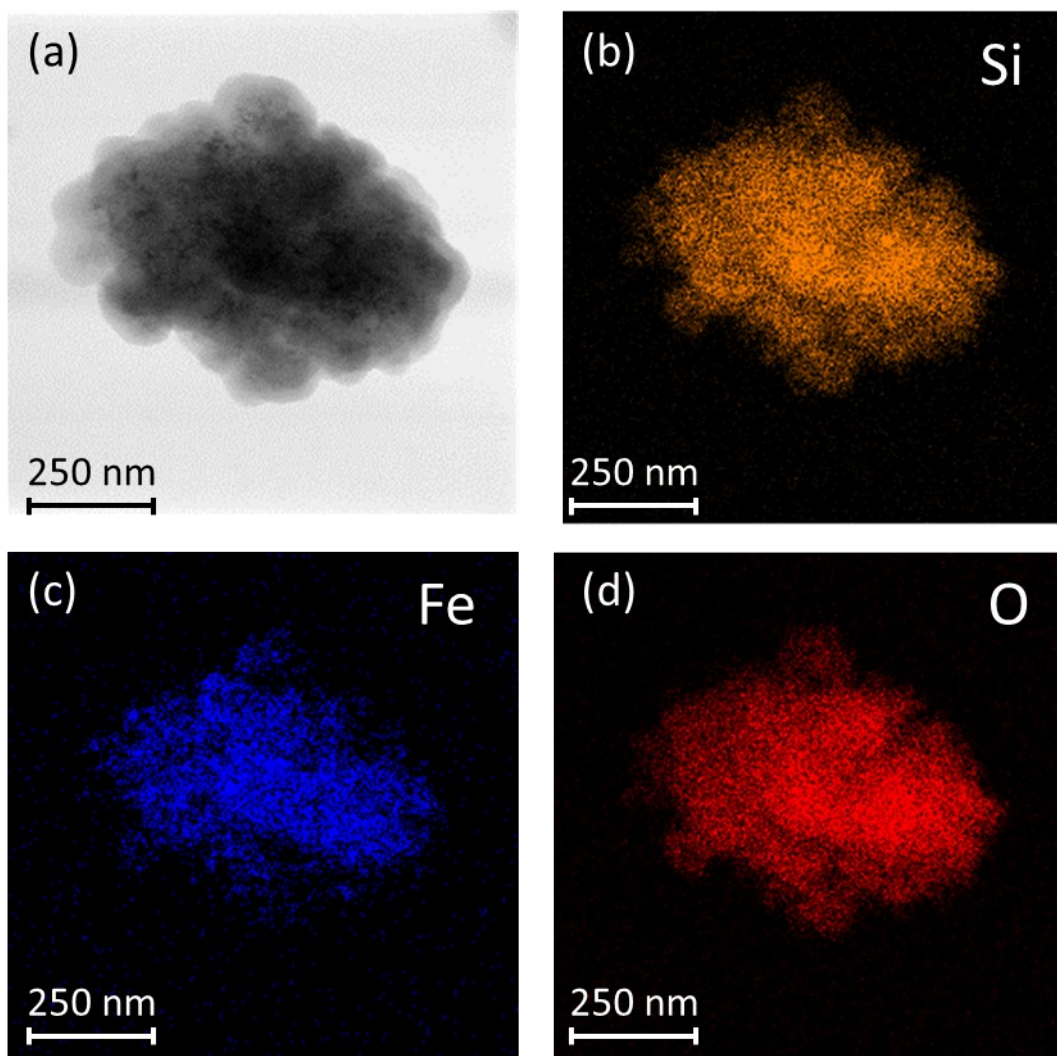


Figure S-3 STEM image and element maps of the (b) silicon (Si), (c) iron (Fe), and (d) oxygen (O) components in the used Fe/SiO<sub>2</sub> catalyst.

