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ABSTRACT

In this article, we use defect engineering approach to fine-tune the pore size of MOF-808-SO₄. A series of defective MOF-808-SO₄ with different pore size were prepared by varying the amount of isophthalic acid as the defective ligand during the synthesis. We obtained a linear correlation between the concentration of the defective ligand and the pore size via regression analysis. The pore size exerts a significant effect on the catalytic activity in the addition reaction of isobutylene with ethylene glycol. The highest conversion of ethylene glycol was found over MOF-808-20%-SO₄ (2.25 nm) with the largest pore size, whereas MOF-808-5%-SO₄ (1.46 nm) and MOF-808-10%-SO₄ (1.53 nm) exhibited higher selectivity toward ethylene glycol mono-tert-butyl ether. There is a linear correlation between the pore size and catalytic

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