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Abstract
The metal chelating functional copolymer, poly(styrene-co-divinyl benzene-co-glycidyl metharylate-iminodiacetic acid), was prepared by using slurry polymerization and used as a catalyst support for cyclohexane oxidation. The copolymer was characterized by using of Element analyzer (EA), Fourier transfer infrared spectrophotometer (FT-IR), N2 adsorption/desorption (BET), Atomic absorption spectrophotometer (AA), Thermo gravimetric analysis (TGA) and Scanning electron microscope (SEM). After metal ions (Co(II), Fe(II), Mn(II), Cu(II), Ni(II)) were chelated on copolymer, they have high catalystic activity for the oxidation of cyclohexane. Furthermore, the conversion of cyclohexane was increased from 2.14% to 8.37% as the co-catalyst, TBHP (tert-butyl hydroperoxide), was added into the oxidation system. The selectivity of cyclohexanol and cyclohexanone is 25.69% and 83.00%, respectively, after 2 hrs reaction time. The result reveals that the polymer-supported catalyst had high catalytic activities for cyclohexane oxidation with oxygen.
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