

Oxidative Desulfurization(ODS) of Refractory Sulfur Compounds over Ti-SBA-15 Catalysts

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Ultra-deep desulfurization of fuels is a matter of major interest because of increasing environmental concern and legal requirements. The oxidative desulfurization(ODS) is considered to be one of the promising new methods for ultra deep desulfurization of fuel oil. Compared with conventional catalytic hydrodesulfurization(HDS), ODS can be carried out under very mild conditions: at low temperature (< 373 K) and under atmospheric pressure. Oxidative desulfurization(ODS) of refractory sulfur compounds such as Dibenzothiophene (DBT), 4,6-dimethyldibenzothiophene(4,6-DMDBT) over Ti catalyst was studied in a batch reactor with tert-butyl hydroperoxide(TBHP) as oxidant. Effects of catalyst synthesis condition and types of catalyst support and oxidant on ODS activity were investigated. Compared with common TS-1, mesoporous Ti-SBA-15 catalysts prepared by the grafting method showed better ODS activity and selectivity for the refractory sulfur compounds.