

Coking behavior of Pt/mesoporous alumina catalysts in propane dehydrogenation

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Dehydrogenation of propane was performed on alumina-supported platinum catalysts, catalyst deactivation by coking and deactivation rate was studied. The reaction was conducted at 600 °C, ambient atmosphere, and nitrogen: propane had a molar ratio of 4.3: 1. The method of catalyst preparation was incipient wetness impregnation, and the platinum loading on mesoporous Al₂O₃ was 0.5, 1.0, 2.0, and 3.0 wt.%. Characterization of catalyst was measured by N₂ sorption (BET) and TGA technique. Higher platinum loading leads to higher conversion, higher propylene selectivity, and higher deactivation rate.