

Kinetic Study of 1-Butene Isomerization over Hydrotalcite Catalyst

Authors : Sirada Sripinun

Abstract : This work studied the isomerization of 1-butene over hydrotalcite catalyst. The experiments were conducted at various gas hourly space velocity (GHSV), reaction temperature, and feed concentration. No catalyst deactivation was observed over the reaction time of 16 hours. Two major reaction products were trans-2-butene and cis-2-butene. The reaction temperature played an important role on the reaction selectivity. At high operating temperatures, the selectivity of trans-2-butene was higher than the selectivity of cis-2-butene while it was opposite at a lower reaction temperature. In the range of operating conditions, the maximum conversion of 1-butene was found at 74% when $T = 673$ K and $GHSV = 4$ m³/h/kg-cat with trans- and cis-2-butene selectivities of 54% and 46% respectively. Finally, the kinetic parameters of the reaction were determined.

Keywords : hydrotalcite, isomerization, kinetic, 1-butene

Conference Title : ICCET 2015 : International Conference on Chemical Engineering and Technology

Conference Location : Tokyo, Japan

Conference Dates : May 28-29, 2015