

Kinetics of methyl tert-butyl ether synthesis catalyzed by ion-exchange resin.

Al-Jarallah, Adnan M.¹; Siddiqui, Mohammed A. B.²; Lee, A. K. K.²

1. Department of Chemical Engineering, College of Engineering Science, King Fahd University of Petroleum and Minerals, Dhahran 31261, Saudi Arabia

2. Research Institute, King Fahd Univ. Pet. Miner., Dhahran, Saudi Arabia.

Canadian Journal of Chemical Engineering (1988), 66(5), 802-7.

Abstract

The kinetics of liq.-phase reaction between MeOH and isobutene, catalyzed by an acidic ion-exchange resin, to form MeOH tert-BuOMe were studied in a 1-L Parr batch reactor. Expts. were carried out at 70, 80, 90, and 100 and at pressures sufficient to maintain liq. phase at those temps. Initial MeOH-isobutene mole ratios of 1.0 and 2.0 were used. The catalyst amt. was also varied. These kinetic data were used to model the reaction kinetics by a non-linear least squares regression technique. The reaction was followed Rideal-Eley kinetics. The values of the rate consts. were reported.