

**Kinetics of methyl tertiary butyl ether synthesis catalyzed by sulfuric acid.**

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Chemical Engineering Journal (Amsterdam, Netherlands) (1988), 39(3), 169-74.

**Abstract**

The results of an exptl. study of the kinetics of the liq.-phase reaction between MeOH and isobutene, catalyzed by H<sub>2</sub>SO<sub>4</sub>, for MTBE manif. are presented. A 1L batch reactor was used for this purpose. Expts. were carried out at 70, 80, 90 and 100 °C and pressures sufficient to maintain the liq. phase at those temps. Initial MeOH/isobutene molar ratios of 0.751, 1.01, 1.51 and 2.01 were used. The catalyst concn. was also varied. These kinetic data were fitted to a power-law kinetic model, using a nonlinear least-squares regression technique. The reaction was found to follow 1st-order kinetics in the forward as well as in the reverse direction. The reaction order in H<sub>2</sub>SO<sub>4</sub> was 1.5. Reaction rate consts. and activation energies are reported.