

Emulsion-mediated FER synthesis and application for a gas-phase DME carbonylation

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Zeolites are important materials in the chemical research and industry fields due to their distinguishing acidic properties and porous structures. Several zeolites with these characteristics have been known to be adequate for a gas-phase DME carbonylation. However, during the reactions, cokes are deposited on the zeolite which caused a rapid deactivation. Based on the previous researches, ferrierite (FER) zeolite has a superior activity compared to other zeolites due to their flat structures with less coke deposition natures. In the present study, novel emulsion-mediated FER was applied to a gas-phase DME carbonylation reaction. The emulsion-mediated FER was synthesized by adjusting the compositions and molar ratios of several alcohol (-OH) and cetyltrimethylammonium bromide (CTAB). The amount of various alcohol (-OH) was optimized to make a homogeneous emulsion phase which induced an enhancement of catalytic stability and activity.