Dimethyl carbonate synthesis by oxidative carbonylation of methanol using $CuCl_2$ catalyst

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The synthesis of dimethyl carbonate by liquid phase oxidative carbonylation of methanol was studied under batch reaction system. Reaction factors such as effect on various metals, anion containing in copper catalyst, temperature, carbon monoxide and oxygen molar ratio and copper content were investigated. In particular $CuCl_2$□$2H_2O$ showed the excellent of the methanol conversion 65.2%, DMC selectivity 96.6% reaction condition under 1.0g, 150℃, MeOH/CO/O2 = 0.2/0.215/0.05 (molar ratio). $CuCl_2$ led to corrosion of the reactor. Thus, a new catalyst system using supports was investigated to resolve these corrosion problem. Influence on various supports were examined and copper catalyst supported on Y-zeolite showed the most excellent activity on the formation of dimethyl carbonate.