

Synthesis of Higher Alcohol over Cu based Catalysts in Low Pressure

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Higher alcohols (HA) have drawn significant research interests as potential resources for clean fuels and fuel additives in the face of environmental problems to substitute petroleum energies and MTBE (Methyl tert-butyl ether) fuel additives .

Our study focused on Cu-Zn-Al catalysts for greater yields of higher alcohols under mild conditions based on our previous study which suggested that supported Cu-Zn-Al based catalysts can be applied in commercial processes including higher alcohol synthesis.

In this work, higher alcohol synthesis reaction was carried with methanol co-feeding under a fixed-bed reaction system of 45 bar, reaction temperature at 240 °C and 340 °C, and two different H₂/CO ratios of 1:1 and 2:1 with GHSV of 4000 h⁻¹. The resulting yields of higher alcohols and CO conversion under the tested reaction conditions were investigated.