

Cu/ZnO/Al<sub>2</sub>O<sub>3</sub> based Nanocatalysts with Core-shell Structure for MeOH Production

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The Cu/ZnO/Al<sub>2</sub>O<sub>3</sub> based catalysts have been used for production of MeOH-FPSO. The life time of catalysts and their behavior of deactivation, such as sintering, have great importance in the industry for optimal process condition.

To solve the deactivating problem, we tried to develop with nanocatalyst core-shell structure to  $\gamma$ -Al<sub>2</sub>O<sub>3</sub> nanorods. For good catalytic performance, it is important to understand the catalysts of core-shell structure both  $\gamma$ -Al<sub>2</sub>O<sub>3</sub> nanorods as a support and the Cu/ZnO as a catalyst. Since the  $\gamma$ -Al<sub>2</sub>O<sub>3</sub> nanorods have excellent thermal and chemical stability, and high surface area, the nanorods are expected to significant role in the catalysts. Also Cu/ZnO is important role to produce MeOH.

The objective of this study is the effect of core-shell  $\gamma$ -Al<sub>2</sub>O<sub>3</sub> nanorods on production of MeOH.