

Studies on the Synthesis and Characterization of MCM-41 in the Fischer-Tropsch Synthesis

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Recently, mesoporous material has been attractive attentions because of their potential applications as support for catalysis. In this study, the effects of silica supports on cobalt based FT catalysts were investigated in order to increase the concentration of middle distillate for applications in GTL-FPSO process. The cobalt based catalysts supported on silica, MCM-41 and Al-MCM-41 were prepared by wetness impregnation method. Mesoporous MCM-41 and Al-MCM-41 was prepared by hydrothermal synthesis through the liquid templating mechanism. The prepared catalysts were characterized by N₂ physisorption, XRD, TPR, SEM and TEM. It was found that nano particles of Co₃O₄ are well dispersed over mesoporous materials. It was also found that Co/Al-MCM-41 catalyst showed higher activity and liquid fuel productivity in the Fischer Tropsch Synthesis under the tested conditions.