

Effect of Loading and Calcination Conditions of the Granule Type Catalyst on FT Catalytic Performance

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The Fischer Tropsch (FT) synthesis is a key technology for the commercialization of GTL-FPSO process. To design reactor and scale-up reactor, it is necessary to get a reaction data over structured catalyst. The controls of mass diffusion and heat limitation are important for design of FTS catalysts. Loading amount of active metal, type of catalyst and size of catalyst effects on selectivity, which were caused by mass diffusion and heat limitation arise in FTS catalyst. In this work, the series of Co/ γ -Al₂O₃ spherical catalysts were prepared by an impregnation method. The prepared catalysts were characterized by N₂ physisorption, XRD, TPR, TEM and SEM techniques. The performance for FTS was carried out in a fixed bed reactor system with the H₂/CO ratio of 2:1, reaction temperature of 230 oC and reaction pressure of 20 bar. The results suggest that catalytic performance over cobalt based catalysts supported on spherical γ -Al₂O₃ depends on the cobalt dispersion and the reducibility, caused by decreasing interactions with spherical γ -Al₂O₃.