

Fischer-Tropsch synthesis over Co/ γ -Al₂O₃ for GTL-FPSO Applications

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Recently, natural gas has been expected to become an increasingly important raw material for manufacturing clean fuels and chemicals. Fischer-Tropsch (FT) synthesis is a major part of gas-to-liquid (GTL) technology, which converts natural gas to liquid fuel with sulfur and aromatic free contents. Cobalt is considered the most favourable active metal for the low temperature FT synthesis.

In this work, spheric Co/Al₂O₃ catalysts with different spheric size (Φ : 1.0~3.2mm) are prepared by an incipient wetness impregnation method. The performance of the prepared catalyst were investigated at 230°C, 25 bar and H₂/CO molar ratio of 2 in a fixed-bed reactor system, and then compared with catalytic activity and product selectivity. The catalysts before and after the reaction were characterized by N₂ physisorption, CO chemisorption, X-ray diffraction, TPR, SEM and TEM techniques.