

Studies of Co-based SiC and Co-based SiC-Al₂O₃ Catalysts for Fischer Tropsch Synthesis

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Fischer-Tropsch Synthesis (FTS) for the production of clean synthetic fuels has been considered as a key technology in GTL (gas-to-liquid) process. In this work, Co-based modified catalysts supported on SiC and SiC-Al₂O₃ were prepared by an impregnation method. To investigate the effect of cobalt loading supported on SiC and SiC-Al₂O₃ support, the prepared catalysts were characterized by N₂ physisorption, XRD, TPR, and SEM techniques. The FTS reaction was carried out in a fixed bed reactor system with the H₂/CO ratio of 2:1, reaction temperature of 230 °C and reaction pressure of 20 bar during a 120 h operation. It was found that Co/SiC-Al₂O₃ catalysts in the FTS showed the higher conversion of CO than Co/SiC catalyst under the tested conditions.