

Studies on the Fischer-Tropsch Synthesis over Co/SiC Catalysts

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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-liquids) process. In this work, Co-based modified catalysts supported on SiC were prepared by an impregnation method. Silicon carbide (SiC) is excellent resistance to oxidation and corrosion, low coefficient of thermal expansion and high heat conductivity. To investigate the effect of cobalt loading supported on SiC 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 120 h. Co/SiC Catalysts show the high C₅₊ selectivity under a similar severe reaction conditions. And controlling the catalysts surface temperature could be easy in the FTS reaction.