

Fischer-Tropsch synthesis on alumina coated Co/SiC catalysts

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Cobalt-based Fischer-Tropsch Synthesis (FTS) catalysts have been variously modified to get a high catalytic activity and to produce high molecular weight hydrocarbons. In the present study, we have studied FTS reaction on the cobalt-supported alumina-modified SiC support which was obtained by sol-gel method. The SiC support was previously modified using 1wt%TEOS through dry impregnation method, and alumina was subsequently introduced by sol-gel method using aluminum isopropoxide precursor with the weight percentage of Al₂O₃/SiC from 0 to 20%. The 15wt%Co was impregnated on the alumina-modified SiC support, and 20wt%Al₂O₃-modified Co/Al₂O₃-SiC was found to show a superior catalytic performance to other catalysts. The different catalytic performances on Co/Al₂O₃-SiC catalysts were further investigated by using BET, XRD, TPR and chemisorption analysis.