

Fischer-Tropsch synthesis of the promoted Co/ZSM-5 hybrid catalysts for the production of gasoline range hydrocarbons

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Fischer-Tropsch synthesis (FTS) reaction for the direct production of gasoline range hydrocarbons (C5-C9) from syngas was investigated on cobalt-based catalyst supported on the ZSM-5 (Si/Al=25) with different promoters such as Ru, Pt, and La. The FTS catalysts were prepared by impregnation method using cobalt nitrate precursor in a slurry of ZSM-5. The promoted Co/ZSM-5 hybrid catalysts was found to be superior to the unpromoted Co/ZSM-5 catalyst in terms of better C5-C9 selectivity. It also exhibited the highest catalytic activity because of the small cobalt particle size.