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The sol-gel derived Co-Mn/TiO_2 catalysts for light olefins production

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摘要 In this research work, two 30%(Co-Mn)/TiO_2 catalysts were prepared using sol-gel (catalyst A) and co-precipitation (catalyst B) methods. The activity and selectivity to $C_{2\sim4}$ light olefins in Fischer-Tropsch synthesis (FTS) has been studied in a fixed-bed reactor under different operational conditions. These operational conditions were: temperature 220~280 ℃, and total pressure from 0.1~0.6 MPa. The optimum operating conditions were investigated after steady state. As the results shown, the catalyst A was more selective to $C_{2\sim4}$ olefins (58.7% in 260 ℃) and catalyst B was more selective to C_{5+} hydrocarbons. Characterization of both catalysts was carried out by using X-ray diffraction (XRD), scanning electron microscopy (SEM) and N_2 adsorption-desorption measurements methods.

关键词： Fischer-Tropsch synthesis　light olefins　characterization

Abstract： In this research work, two 30%(Co-Mn)/TiO_2 catalysts were prepared using sol-gel (catalyst A) and co-precipitation (catalyst B) methods. The activity and selectivity to $C_{2\sim4}$ light olefins in Fischer-Tropsch synthesis (FTS) has been studied in a fixed-bed reactor under different operational conditions. These operational conditions were: temperature 220~280 ℃, and total pressure from 0.1~0.6 MPa. The optimum operating conditions were investigated after steady state. As the results shown, the catalyst A was more selective to $C_{2\sim4}$ olefins (58.7% in 260 ℃) and catalyst B was more selective to C_{5+} hydrocarbons. Characterization of both catalysts was carried out by using X-ray diffraction (XRD), scanning electron microscopy (SEM) and N_2 adsorption-desorption measurements methods.

Key words： Fischer-Tropsch synthesis　light olefins　characterization

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