Fischer -Tropsch Synthesis on Fe-Cu-K/ZSM5 : effect of metal composition

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The catalytic activity in Fischer-Tropsch synthesis was investigated on the bifunctional Fe-Cu-K/zeolite catalyst with a different Fe concentration from 5 to 40wt% and a fixed weight ratio of active metal (Fe/Cu=10 and Fe/K=5). The catalysts prepared by co-impregnation method and tested in a tubular fixed bed reactor under the following reaction conditions of T = 300°C, SV = 2000L/Kg cat/h and P = 1.0MPa. The catalyst was further characterized to elucidate the different activity on the bifunctional catalyst by BET, NH_3-TPD, XPS, and XRD. The 30Fe-3Cu-6K/ZSM-5 (Si/Al=25) revealed the highest CO conversion and olefin selectivity in C_2-C_4 hydrocarbons.