

Studies on the Co based Hybrid Catalyst for application in GTL-FPSO process

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The Gas to Liquid (GTL) process is one of the most promising technologies for clean fuel production. In the GTL process, Fischer-Tropsch synthesis (FTS) reaction is known as a crucial catalytic process which converts synthesis gas ($\text{CO} + \text{H}_2$) to value-added hydrocarbon products. It was reported that the zeolites supported Co based catalysts are a desirable candidate for the production of hydrocarbons in a narrow distribution, especially in the range of gasoline and the faujasite (FAU) structure is an excellent support for the cracking reaction.

In this study, the SAPO-34 was synthesized by the conventional hydrothermal method, and Co/Ru/ γ - Al_2O_3 catalyst was prepared by sequential impregnation method. The physiochemical properties of all prepared catalysts have been characterized by XRD, N_2 -physisorption, SEM, TEM, H_2 -TPR and NH_3 -TPD techniques. The catalytic performance of the physically mixed hybrid catalyst for the Fischer-Tropsch synthesis has been investigated in a fixed bed reactor. The products were analyzed by on-line and off-line GC. The catalytic performance over the prepared catalysts was compared with Co/Ru/ γ - Al_2O_3 catalyst.