

## Studies on Liquid fuel production over bi-functional hybrid Cobalt Based FTS 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 ecofriendly fuel production. In the GTL process, Fischer-Tropsch synthesis (FTS) reaction is known as a catalytic process which converts synthesis gas ( $\text{CO} + \text{H}_2$ ) to value-added hydrocarbon products. In this study, the zeolite and metal incorporated zeolite were synthesized by a conventional hydrothermal method, and  $\text{Co}/\gamma\text{-Al}_2\text{O}_3$  catalyst was prepared by an impregnation method. The cobalt/ $\gamma$ -alumina for producing hydrocarbons is physically mixed with zeolite which is mixed in different ratio for the selectivity of the long chain hydrocarbon. The physiochemical properties of all prepared catalysts have been characterized by XRD, BET and  $\text{NH}_3$ -TPD techniques. The catalytic performance of the physically mixed bi-functional hybrid catalyst was evaluated in a fixed bed reactor. The products were analyzed by on-line and off-line GC. The catalytic performance over bi-functional catalysts was compared with  $\text{Co}/\gamma\text{-Al}_2\text{O}_3$  catalyst.