

## FISCHER-TROPSCH SYNTHESIS OF HYDROCARBONS USING IRON-MORDENITE CATALYSTS

M.M.Akbarnejad<sup>\*</sup>

*Research Institute of Petroleum Industry, N.I.O.C.  
Ray, Iran.*

M.Oskooie

*Department of Physics, Sharif University of Technology  
Tehran, Iran.*

M.Gharanfoli

*Department of Chemistry, Sharif University of Technology  
Tehran, Iran.*

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ABSTRACT:<sup>+</sup>

Fischer-Tropsch catalysts with high activity and selectivity for olefins were produced using mordenite type  $\text{SiO}_2/\text{Al}_2\text{O}_3 = 12, 20, 28, 62$  zeolite supported iron carbonyl compounds and were characterised by X-ray powder diffraction.

The adsorption of volatile  $\text{Fe}(\text{CO})_5$  on the support surface was carried out under vacuum at room temperature. Reduction pretreatment and the formation of active metallic iron particles were monitored by vibrating sample magnetometer (VSM). The magnetic saturation time was observed to increase with increasing the  $\text{Al}_2\text{O}_3$  content of catalyst system indicating an increasing interaction between iron and alumina.

The activity and selectivity of different iron deposited mordenite sample were investigated during Fischer-Tropsch synthesis of hydrocarbons with  $\text{H}_2/\text{CO}=3$  in the temperature range of  $400\text{--}500^\circ\text{C}$  using a microreactor system. The results correlated with the acidic properties of surface and/or with metallic state of active iron particles of the catalyst.

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\*Corresponding author

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