

Fe-MOF with potassium promoter for FTS with CO hydrogenation and Fe-MOF with different organic linkers

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To enhance catalytic performance and product selectivity of Fe-based catalysts, promoters such as manganese, zinc, and potassium were widely used for the iron-based catalysts. Among those promoters, potassium has an ability to improve the adsorption of CO and olefin selectivity with the formation of active iron carbide surfaces. And besides promoters, there are different organic linker when making MOF catalysts. Organic linker can help the connection between metal and organic. And when they break after pyrolysis, they cover the metal and then organic covered metal can be active site for CO_x hydrogenation. In this study, with different organic linker MIL-101(Fe), NH₂-MIL-101(Fe), NO₂-MIL-101(Fe) were prepared and the Fe-based catalysts were made by pyrolysis of Fe-MOFs in order to form active iron carbide phases and the roles of Fe phases and potassium promoter were explained through various surface characterizations.

Keywords: Metal-Organic-Frameworks(MOFs); Fischer Tropsch Synthesis(FTS); Hydrogenation of CO; MIL-101(Fe); NH₂-MIL-101(Fe); NO₂-MIL-101(Fe); Potassium promoter;