

عنوان مقاله:

Novel inorganic precursor for Fischer-Tropsch synthesis

محل انتشار:

بیستمین سمینار شیمی معدنی ایران (سال: 1397)

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خلاصه مقاله:

The Fischer–Tropsch synthesis (FTS) is highly noteworthy for production of clean fuel from syngas [1,2]. Conversion of the hydrogen and carbon monoxide to hydrocarbons at the presence of a catalyst is a fundamental step in the FTS process. Hence, selecting a suitable catalyst plays a key role in crop distribution [3]. A novel coordination polymer formulated as $[\text{Co}_{1.68}\text{Ni}_{1.32}(\text{btc})_2(\text{H}_2\text{O})_{14}]\cdot 4\text{H}_2\text{O}$ (1) was synthesized with reaction between cobalt nitrate, nickel nitrate and 1,3,5-benzenetricarboxylic acid. The complex (1) was characterized by elemental analysis, FT-IR spectroscopy and its structure was determined by single crystal X-ray diffraction. Silica and alumina-supported Co-Ni catalysts were prepared through thermal decomposition of respective inorganic precursors and also by the impregnation method as reference catalysts. The catalytic activity of these catalysts was evaluated for Fischer–Tropsch synthesis (FTS) at a fixed bed reactor. The catalytic performance of the synthesized catalysts was superior to the catalysts produced by the impregnation procedure. The catalysts were characterized by X-ray diffraction (XRD), scanning electron microscopy (SEM), and BET specific surface area.

کلمات کلیدی:

Fischer–Tropsch synthesis, inorganic precursor, impregnation

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