عنوان مقاله:

Mössbauer and Magnetic Studies of Iron-Zeolite and Iron-Cobalt Zeolite Catalysts Used in Synthesis Gas Conversion

محل انتشار:

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خلاصه مقاله:

Medium-pore (diameter ~ ۶A) zeolites such as ZSM-۵ and silicalite impregnated with Group VIII metals provide selective catalytic pathways for the conversion of synthesis gas to gasoline or olefins. Mössbauer and magnetic studies on these catalysts containing iron or iron plus cobalt are reported. The zeolites were impregnated with metal nitrate solutions, reduced, and carbided to yield showed Fe۳+ type spectra. The ZSM-۵ (۱۴.۷ % Fe) and Silicalite (۱۳.۶ % Fe) samples exposed to H۲ (۴۵۰˚C) showed an approximate ۸۵% reduction to the metallic state. The carbided ZSM-۵ (۱۴.۷ % Fe) revealed a spectrum of Hagg carbide (Fe۵C۲), an active component of the catalyst. The used catalysts showed mixtures of Hagg carbide (Fe۵C۲) and cementite (Fe۳C). It is suggested that the selectivity of ZSM-۵ (۵.۶ % Fe, ۴.۵ % Co) resulted from iron-cobalt alloy formation.

کلمات کلیدی:

Mössbauer Studies, Selective Catalyst, Zeolite, Carbided