

钾和钴对微波法制备钼基催化剂的改性作用

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Mo-based catalyst prepared by microwave-assisted impregnation modified with K and Co as promoters for higher alcohols synthesis

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摘要 在微波辐射下制备了Co_x-MoS₃-K_y/γ-Al₂O₃催化剂,考察了催化剂中K和Co的含量对其催化CO加氢合成低碳醇性能的影响。结果表明,添加适量的K和Co可以形成K-Mo-S相和Co-Mo-S相,改善催化剂性能的同时还可以避免活性组分的集聚及载体孔道的堵塞;K/Mo物质的量比为1.0,Co/Mo物质的量比为0.2时,有利于生成低碳混合醇,尤其是C₂₊醇。CO转化率为38.4%,总醇的收率为5.65%,C₂₊OH的选择性为80.5%。

关键词: 微波 Mo基催化剂 助剂K 助剂Co 低碳醇

Abstract: Co_x-MoS₃-K_y/γ-Al₂O₃ catalyst was prepared by microwave-assisted impregnation and used for higher alcohols synthesis from CO hydrogenation; the effect of K or Co content on its catalytic performance was investigated. The results showed that appropriate amounts of K and Co can promote the formation of K-Mo-S and Co-Mo-S phases, which enhances the catalytic activity of CO hydrogenation and prevents active components from agglomeration and blocking the support pores. The optimal mol ratios of K/Mo and Co/Mo that are beneficial for the formation of higher alcohols are 1.0 and 0.2, respectively.

Key words: microwave Mo-based catalyst promoter K promoter Co C₂₊ alcohols

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