

研究论文

MCM-41-HY复合分子筛的合成及其在深度加氢脱硫中的应用

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摘要 在水热条件下合成了包覆型MCM-41-HY复合分子筛. 采用XRD、N₂气吸附和SEM等方法对其进行了表征. 结果表明, MCM-41-HY复合分子筛和MCM-41与H型Y沸石(HY)的机械混合物明显不同, 在复合分子筛MCM-41-HY中, 中孔相MCM-41附晶生长在HY沸石上, 将HY包覆起来. 以二苯并噻吩为模型化合物, 考察了该材料负载NiMo催化剂的加氢脱硫活性. 结果表明, MCM-41-HY复合分子筛与MCM-41和HY的机械混合物负载NiMo催化剂的加氢脱硫(HDS)活性相当, 但MCM-41-HY复合分子筛负载NiMo催化剂的裂化活性较低. 其裂化活性不同的原因在于其载体孔道结构和酸性位的分布不同.

关键词 [复合分子筛](#) [MCM-41](#) [合成](#) [加氢脱硫](#) [HY沸石](#)

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Synthesis of MCM-41-HY Composite Molecular Sieves and Their Application to Deep Hydrodesulfurization

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Abstract MCM-41-HY composite molecular sieves were synthesized hydrothermally, and characterized by means of XRD, N₂ adsorption and SEM. A comparison was made between the mechanical mixture of MCM-41 and HY, and the synthesized MCM-41-HY composite molecular sieves as the hydrodesulfurization(HDS) catalyst support. Both exhibit excellent activities in the HDS hydrodesulfurization of dibenzothiophene, but, the composite shows a much lower hydrocracking activity than the mechanical mixture. It is proposed that the lower hydrocracking activity of MCM-41-HY composite molecular sieves may be attributed to the bimodal structure in which HY zeolite is wrapped by the mesoporous MCM-41.

Key words [Composite molecular sieves](#); [MCM-41](#); [Synthesis](#); [Hydrodesulfurization](#); [HY zeolite](#)

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