

Hydrogen Production from Steam Reforming of Glycerol over Ni based Hydrotalcite Catalysts

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Steam reforming (SR) of over Ni based catalysts prepared by solid phase crystallization (spc) method under different conditions were investigated. The SR of glycerol was carried out in a fixed bed reactor with a temperature range of 600~800°C, an atmospheric pressure, a space velocity (GHSV) of 5,000~15,000 h⁻¹ and feed molar ratio of H₂O/C=1.3~3.0. The catalysts before and after the Glycerol SR were characterized by N₂ physisorption, CO chemisorption, TPR, XRD, SEM, and TEM techniques. It was found that the Ni based hydrotalcite catalysts showed higher catalytic activity and stability than Ni/γ-Al₂O₃ catalysts. There is no formation of NiC during the reaction. However, it was slowly deactivated due to the carbon formation. The results suggested that the spc-Ni/MgAl catalysts was expected to improve catalytic stability because of the inhibition of coke formation during the SR of glycerol.