

## Steam Reforming of Propane over Ni-based Catalyst

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Steam reforming of propane over Ni-based oxide catalysts for hydrogen station and fuel processor applications was investigated. The nickel-based catalysts (12 wt% Ni/S, S=Al<sub>2</sub>O<sub>3</sub>, MgO) were prepared by an impregnation method. The prepared catalyst was characterized by N<sub>2</sub> physisorption, CO chemisorption, TPR, XRD, and SEM. It was found that BET surface area of Ni/Al<sub>2</sub>O<sub>3</sub> catalyst was higher than that of the other catalyst. In the TPR profiles, the peak was observed over Ni/Al<sub>2</sub>O<sub>3</sub> at around 800°C, but no peak was indicated over Ni/MgO even at 1000°C. In the steam reforming reaction of propane, Ni/MgO catalyst showed higher H<sub>2</sub> yield and catalytic stability than Ni/Al<sub>2</sub>O<sub>3</sub> in the entire reaction range. The results suggested that Ni/MgO catalyst is a promising candidate for the production of hydrogen by the steam reforming of propane.