

## Hydrogen Production by Steam Reforming of Methane over Nickel-Modified Al<sub>2</sub>O<sub>3</sub>-SiC Catalysts

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Steam reforming of methane is an extremely important process in the production of syngas (H<sub>2</sub>, CO) and hydrogen. Hydrogen has a long tradition as an energy carrier as well as an important feedstock in petrochemical and refinery industries. In these days, hydrogen has attracted even much attention as a transportation fuel. Steam reforming of methane at a lower temperature range is one of the promising approaches. The mild operating conditions lead to lower operation and materials costs.

In this study, Ni based catalysts supported on the alumina mixed with SiC were prepared by physical mixing and impregnation methods. The prepared catalysts were characterized by XRD, TPR SEM, TEM and N<sub>2</sub>-physorption techniques. The catalytic performance for steam reforming of methane was investigated at 650~850 °C, 1~20 bar and GHSV of 5,000~30,000 h<sup>-1</sup>. The effect of SiC contents on the catalytic performance for steam reforming of methane was investigated and compared with the catalytic performance for steam CO<sub>2</sub> reforming of methane.