

## Nickel based Catalysts Supported on Alumina modified SiC for enhanced catalytic performance in Steam Reforming of Methane

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Steam reforming of methane (SRM) is an important process in the production of syngas (H<sub>2</sub>, CO) and hydrogen. Ni based catalysts supported by ceramic material (e.g. Al<sub>2</sub>O<sub>3</sub>) are conventionally used for the production of H<sub>2</sub> via SRM process. However, coke formation, sintering and low thermal conductivity are still considered as major issues for commercialized applications of these catalysts, so extensive researches are undergoing to upgrade the catalysts. In our research we aimed to use shaped catalysts by high thermal conductive additive (silicon carbide) which enables the catalyst with higher heat transfer along the catalytic bed. Modified Nickel based SiC-Al<sub>2</sub>O<sub>3</sub> supports with variable SiC ratio were prepared via extrusion and impregnation methods. The catalysts were characterized by TGA, XRD, TPR, N<sub>2</sub>-physisorption and thermal conductivity analysis techniques. The catalytic performance test for the SRM was carried out under the conditions of S/C ratio=3, 650~850 °C, 1 bar with GHSV of 30,000 h<sup>-1</sup>.