

## Combined Steam CO<sub>2</sub> Reforming of methane over Calcium Aluminate Modified Nickel based Catalysts

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Combined Steam CO<sub>2</sub> reforming of methane (CSCRM) was investigated to produce the syngas for applications in GTL-FPSO process. In our research we aimed to develop structured catalysts modified with high thermal conductivity, which enables the catalyst with higher heat transfer along the catalytic bed, affording high performance with a flattened radial temperature gradient.

SiC modified Ni/Calcium aluminate catalyst was prepared by extrusion and impregnation method. The catalysts were characterized by TEM, SEM, XPS, XRD, TPR, and N<sub>2</sub>-physisorption techniques. The catalytic performance in the CSCRM was investigated at 800~850 °C, 1 bar with GHSV of 35,000 h<sup>-1</sup>. It was found that the SiC modified Ni-based calcium aluminate catalyst showed high conversions of methane and CO<sub>2</sub> compared to none modified catalyst. Also, the catalytic stability was studied under sever reaction conditions.