

## Steam Reforming of Liquid Hydrocarbon Fuels over Ca Modified Ni-based Catalysts

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Steam reforming of n-hexadecane, a main constituent of diesel, was carried out at 900°C with feed molar ratio of H<sub>2</sub>O/C = 3.0, space velocity of 10,000 h<sup>-1</sup> and at atmospheric pressure over Ca modified Ni-based hydrotalcite catalyst. To minimize the formation of carbon, the feed was passed through the preheater, kept at 500°C before passing into the reactor. The catalysts were prepared by a co-precipitation method. The characteristics of the fresh and used catalysts were analyzed by N<sub>2</sub> Physisorption, CO Chemisorption, TPR, XRD, SEM and TEM techniques. The Ca modified Ni-based hydrotalcite catalyst displayed higher BET surface area than Ni-based catalyst prepared by conventional method. It was found that the Ca modified Ni-based catalysts showed high resistance to the formation of carbon compared to Ni-based catalysts. Activity of Ni/MgCaAl was constant during the SR of n-hexadecane and addition of Ca metal to the Ni/MgAl catalyst inhibit the Ni metal sintering for the SR reaction of n-hexadecane at high temperature.