

The Effect of Promoters of Ni Based Catalysts Supported on Zeolite Y in the Steam Reforming of Propane

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The steam reforming of hydrocarbon is a promising technology for the production of clean fuels and hydrogen. Propane, dominant component of liquefied petroleum gas (LPG), has the advantage of high hydrogen content and being able to operate in conjunction with a hydrogen station using existing LPG facilities. Accordingly it is expected to reduce the cost and time required for the transition to a hydrogen economy. In this study, propane steam reforming reaction was investigated on Ni/Zeolite Y catalysts with various promoters (Mg, Cs, La and Ce). All catalysts were synthesized by an impregnation method and characterized by XRD, XRF, N<sub>2</sub>-physorption, H<sub>2</sub>-TPR, NH<sub>3</sub>-TPD, C<sub>3</sub>H<sub>8</sub>-TPD and TGA. The results revealed that the dispersion of Ni particles of catalysts and acidity of the zeolite support play an important role improving the selectivity and coke resistance of the prepared catalyst.