

### Glycerol Steam Reforming over Spherical Ni-Modified Catalysts; Effect of Alkali Promoter

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Nowadays biodiesel has become one of the more promising carbon neutral biofuels. During the synthesis of biodiesel from biomass such as vegetable oil and palm oil, about 10% of glycerol will be formed as a main by-product. Increasing biomass-derived fuel production has resulted in over-production of glycerol. Therefore there is considerable research interest in converting glycerol to hydrogen or value added chemicals. Steam reforming is one of the common processes to produce synthesis gas or hydrogen from hydrocarbons, alcohols and liquid-phase carbohydrates. However one of the major challenges in nickel steam reforming catalysts is deactivation due to carbon formation. In this work, the effect of alkali promoter on the hydrogen yield and carbon formation on spherical Ni-based supported catalysts was investigated in the production of hydrogen by steam reforming of glycerol. It was found that the addition of alkali promoter on Ni/ $\gamma$ -Al<sub>2</sub>O<sub>3</sub> inhibited carbon formation in the SR of glycerol under the tested conditions.