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Selective production of Hydrogen by steam reforming of glycerin over alumina- supported Nickle catalyst**Narasimha Reddy Ravaru*, Sanjay Patel****Department of Chemical Engineering, Institute of Technology, Nirma University, Ahmedabad, Gujarat, India**

Abstract: The exhaust of fossil fuels with their ever increasing prices has paved ways for alternative fuels. Biodiesel is one of those alternative fuels which have picked up keen interest of the people due to its similar properties to diesel. However due to biodiesel being costlier than diesel in the present scenario, it has not been preferred to diesel. However if the cost of biodiesel is reduced then its effective usage can be made, either by blending with conventional diesel or by utilizing its by-product (glycerol) effectively. One way is to use glycerol to produce hydrogen. Hydrogen, being another source of renewable energy, is also seen as a clean fuel for transportation purpose. Hydrogen can be prepared through glycerol via various routes namely steam reforming, auto-thermal reforming, partial oxidation, etc. The paper focuses on the steam reforming process. This process is widely used in the industries and it would not require much change in the system if the feedstock is changed to glycerol from naphtha or natural gas. However like every process this process also has some limitations which hinder the effective production of hydrogen. The paper discusses the experimental study of the reaction using Ni based catalysts and pure glycerol, the experimental work here focuses on the understanding of activity of Ni based catalysts, based on the different base metal loading under the one reaction condition.

Keywords: Glycerol, Steam reforming, Hydrogen production, Biodiesel.

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