

Perovskite Derived Nickel Based Catalyst for Hydrogen Production by Steam Reforming of Glycerol

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Nickel based perovskite catalysts were prepared by two different methods with and without templates. The catalysts were characterized by XRD, TEM, TPR, TGA and TPD ammonia techniques. XRD results revealed that, preparation method influences the nickel particle size, perovskite with organic template resulted in smaller nickel particle size when compared with catalyst without any template. Activity of the prepared catalysts were studied for steam reforming of glycerol for hydrogen production, it was found that nickel particle size playing vital role in activity and selectivity. The results were also compared with 15Ni/Al₂O₃. Spent catalysts were characterized by XRD and TGA and coke was deposited on all the catalysts, where as activity results showed that, 15Ni/Al₂O₃ undergo quick deactivation when compared to perovskite based catalysts. Under similar experimental conditions, perovskite prepared with template showed superior performance when compared to other two catalysts.