Conversion of Glycerol to Syngas via Glycerol Steam reforming over Nickel based Catalyst

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Steam reforming of glycerol to produce a syngas or hydrogen was studied over Nickel supported on Al_2O_3, CeO_2 and SiC. The catalysts are characterized by X-ray diffraction (XRD), BET, chemisorptions, TPO, TPR, TPD and TGA. Effect of reaction temperature, WGMR (water to glycerol molar ratio), FFR (feed flow rate), CFR (carrier flow rate) on H2/CO molar ratio, conversion of glycerol into gas phase (CH4,CO2, CO) and glycerol conversion were analyzed. Although Ni/SiC show the lowest conversion of glycerol among these three catalysts, it shows the highest conversion of glycerol into gas phase.