



Reforming of glycerol for hydrogen production over Ni based catalysts: Effect of support type

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ABSTRACT

This current work focuses on hydrogen production that is a component in syngas by glycerol dry reforming over 15% nickel (Ni) loading supported on different oxides, namely CaO, ZrO₂, and La₂O₃. The screening process was conducted in a fixed-bed reactor at 700°C under atmospheric pressure. It was found that 15% Ni/CaO showed the best performance in screening studies. The effect of temperature and the carbon to glycerol ratio (CGR) was then analyzed for this catalyst. From the analysis, it was seen that 15% Ni/CaO has its optimum condition at 800°C and CGR = 1, where it gives the highest glycerol conversion ($X_G = 37.66\%$) and hydrogen yield ($Y_H = 32.45\%$).

KEYWORDS

Dry reforming; glycerol; hydrogen; Ni; oxides