

Aqueous Phase Reforming (APR) of Glycerol over γ -Al₂O₃ Supported Ni-based Catalysts

조수현^{1,2}, 허 은^{1,3}, 이승환¹, 이관영², 문동주^{1,3,*}

¹Clean Energy Center, KIST;

²Dept. of Chemical and Biological Eng., Korea Univ.;

³Clean Energy & Chemical Engineering, UST

(djmoon@kist.re.kr*)

The APR of glycerol over Ni-based supported catalysts was investigated. Catalysts were prepared by an incipient wetness impregnation method. The APR of glycerol was carried out in a conventional fixed-bed reactor system with temperature of 225°C, pressure of 23 bar and LHSV of 4 h⁻¹.

It was found that Ni-Co/ γ -Al₂O₃ catalyst showed higher glycerol conversion (68%) and hydrogen selectivity (60%) than Ni/ γ -Al₂O₃ catalyst. The results suggest that the Ni-Co/ γ -Al₂O₃ catalyst can be applied to the hydrogen production system using APR of glycerol. The catalysts before and after the reaction were characterized by N₂ physisorption, CO chemisorptions, XRD, TPR, SEM and TEM techniques.