Efficient hydrogenolysis of glycerol to 1,3-Propanediol using Platinum containing acidic catalysts

오진호, 이현주*
연세대학교
(azhyun@yonsei.ac.kr*)

Glycerol is a main byproduct in the biodiesel production formed by transesterification of vegetable oils and animal fats, and large quantities of glycerol become available due to rapid development of biodiesel process. One of the attractive outlets of glycerol is to produce 1,3-propanediol (1,3-PDO) by selective hydrogenolysis of glycerol using acidic catalysts. 1,3-PDO is a valuable chemical used in the synthesis of polymethylene terephthalates (PTT). In this study, Pt containing acidic catalysts were prepared for the hydrogenolysis of glycerol to 1,3-PDO and characterized by X-ray diffraction (XRD), NH3 temperature-programmed desorption (NH3-TPD) and NH3-IR. The activities of catalysts for the hydrogenolysis of glycerol were investigated. Yield of 1,3-PDO reaches 55.8%. In addition, we found that the catalyst is active and stable up to 3 cycles through the study of the recyclability of the catalyst.