

A study on the catalytic conversion of biomass-derived glycerol into propylene glycol

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As the major byproduct of biodiesel production, glycerol is one of the promising platform molecules to produce the other chemicals. Especially, propylene glycol(1,2-propanediol) derived from glycerol is a non-toxic and important medium-value chemical, which is widely used for polyesters, resins and cosmetics. It is nowadays produced from petroleum-derived propylene via the process involving propylene selective oxidation to propylene oxide and its subsequent hydrolysis. However, this process is restricted by the supply of propylene due to rising cost of petroleum and drain on resources. There have been several studies on selective hydrogenolysis of glycerol to propylene glycol over heterogeneous catalyst to resolve this problem. In this study, copper-based catalysts showing excellent activity for cleavage of C-O bonds without attacking C-C bonds were used for high selectivity of propylene glycol. The catalytic properties of catalysts prepared by co-precipitation were investigated for the hydrogenolysis of glycerol.