

The Calcination Effect of Hydrotalcite-like Catalyst for Hydrogenolysis of Glycerol to 1,2-Propandiol

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Glycerol is obtained as a by-product in Biodiesel Synthesis and it can be converted into many value-added chemicals. One such reaction is 1,2-propanediol(1,2-PDO) obtained by hydrogenolysis of glycerol with a base catalyst. In the present work, effect of calcination is studied. The hydrotalcite-like catalysts were prepared by impregnation method and calcined at 300 °C, 500 °C, 900 °C and 1100 °C. All prepared catalysts were characterized by N₂ physisorption, XRD, SEM, TPR and TEM. Hydrogenolysis of glycerol reaction was carried out in fixed bed down flow reactor at 190 °C, 25 bar pressure. With 900 °C calcined Cu/MgAl catalyst 60 % glycerol conversion with 90 % selectivity towards 1,2-PDO was observed. The results shows that the structure and metal-support properties of hydrotalcite are governed by calcination temperature. And, it affects hydrogenolysis of glycerol reaction.