CuMgCrAl oxides 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 an acid or base catalyst. In the present work, effect of ratio of Cr/Al was studied respectively 0.2, 0.5 1, 1.5, and 1.8. The hydrotalcite-like catalysts were prepared by coprecipitation method and calcined at 900 ℃. All prepared catalysts were characterized by N_2 physisorption, XRD, SEM, TPR and TPD. Hydrogenolysis of glycerol reaction was carried out in the fixed bed down flow reactor at 190 ℃, 25 bar pressure. With Cr/Al ratio = 1, CuCr-1 catalyst 60 % glycerol conversion with 95 % selectivity towards 1,2-PDO was observed. The results shows that the structure and acidity-basicity of hydrotalcite are governed by ratio of Cr/Al. And it affects hydrogenolysis of glycerol reaction.