

## **Effect of Different Metal Modified Dolomite Catalysts on Catalytic Glycerol Hydrogenolysis towards 1,2-Propanediol**

### **ABSTRACT**

A series of metal modified dolomite catalysts (10%Ni-20%Cu/Dol, 10%Co-20%Cu/Dol, 10%Fe-20%Cu/Dol, 10%Zn-20%Cu/DolNi) were synthesized via method of impregnation, later calcined at 500 °C and reduced by 5%H<sub>2</sub> at 600 °C. Those catalysts were formerly tested for their physico-chemical properties by BET, BJH, XRD, H<sub>2</sub>-TPR, NH<sub>3</sub>-TPD, CO<sub>2</sub>-TPD and SEM, and followed by evaluation in catalytic performance of glycerol hydrogenolysis to 1,2-propanediol (1,2-PDO). Among the examined catalysts, 10%Ni-20%Cu/Dol showed optimum hydrogenolysis activity owing to the good copper-nickel-dolomite interaction. The outcomes from the characterizations disclosed that the presence of nickel-copper species which principally enriched on dolomite surface thereby enhanced the properties of the catalyst in terms of good metal reducibility along with the presence of adequate catalyst acidity. All the good features of 10%Ni-20%Cu/Dol catalyst added to its high activity with 83.5% glycerol conversion (GC) and 75% 1,2-PDO with low methanol as side reaction product under 200 °C, 4 MPa H<sub>2</sub> and 10 h duration test, 1 g catalyst dosage and 20 wt% glycerol concentration.