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NUMERICAL ANALYSIS OF Cu AND Ni BASED CATALYSTS IN THE HYDROGENATION PROCESS OF GLYCEROL

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Abstract

The paper describes a numerical analysis concerning the behaviour of Cu and Ni based catalysts having different mole ratios of Ni to Cu in the process of glycerol hydrogenolysis. The impregnation technique was used to prepare the copper and nickel based catalysts. Our study revealed that their performances are different and depends on the Ni/Cu ratio. The catalysts were tested using various reaction conditions, such as time and temperature, and their performances analysed based on the Table Curve software. A characteristic equation describing the dependency of the reaction time and of the temperature on each performance criterion was derived from our numerical analysis. The numerical analysis showed that the catalyst with the best performances in the hydrogenation of glycerol is the one having a low Ni/Cu ratio and hence with the lowest Ni content.

Key words: bio-diesel, Cu and Ni catalysts, catalytic process, hydrogenation, mathematical model

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