

Optimization of Ni-Ce_{0.6}Zr_{0.4}O₂ Catalysts for Deoxygenation of Oleic Acid

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Ni-Ce_{0.6}Zr_{0.4}O₂ catalysts were prepared by a co-precipitation method for deoxygenation of oleic acid. The Ni loading amount was fixed at 20wt%. Calcination temperature was systematically changed to optimize 20wt% Ni-Ce_{0.6}Zr_{0.4}O₂ catalysts. 20wt% Ni-Ce_{0.6}Zr_{0.4}O₂ catalyst calcined at 300 °C exhibited the highest oleic acid conversion ($X_{O.A.} = 98.3\%$) as well as high selectivity to diesel compounds ($S_{diesel} = 33.9\%$) at the reaction temperature of 300 °C. The catalyst properties were studied using various characterization techniques (TPR, BET, XRD and NH₃-TPD) and related to the activity results in deoxygenation.