Utilization of Used Cooking Oil as Biodiesel Raw Material with Calcium Carbide Residue (CCR) as Heterogeneous Catalyst.

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ABSTRACT

Biodiesel is an alternative fuel from renewable sources with fatty acid compositions from vegetable oils or animal oils.The production of biodiesel from cooking oil is conducted to determine the effect of heterogeneous base catalyst utilization of carbide waste on transesterification reaction to yield and biodiesel quality. The research was designed using Completely Randomized Design (RAL) with two factors: catalyst concentration (R): (2, 4, and 6%) and stirring time (N): (60 and 90 min). The biodiesel parameters analyzed included rendement, viscosity, density, acid number, flash point, mist point and moisture content. The results showed that the highest yield of 60.5% was obtained from the treatment of catalyst concentration of 6% and the duration of stirring 60 minutes with biodiesel quality, among others: viscosity 3.04 mm2 / s, 855.8 kg / m3 density, acid number 1.57 Mg-KOH / Kg, flash point 170 oC, 19 oC fog point and 0.109% moisture content.

Keywords: Biodiesel, Heterogeneous Catalyst, Waste Carbide Waste.