Pemanfaatan Cangkang Telur sebagai Katalis dengan Variasi Suhu Kalsinasi dalam Pembuatan Biodiesel dari Minyak Jelantah

(Application of Eggshell as a Catalyst with Variation in Calcination Temperature for Making Biodiesel from Waste Cooking Oil)

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ABSTRACT

Biodiesel is one of the environmentally friendly alternative energy substitutes for diesel fuel for diesel engines. The biodiesel used in this study is biodiesel made from waste cooking oil using a calcium oxide (CaO) catalyst from eggshells. This study uses variations in the temperature of calcined eggshell 900-1100 ^{o}C, which aims to determine the optimum temperature to get the highest levels of CaO. As well as using variations in the concentration of CaO catalysts from eggshells are 3%, 5% and 8%, which aims to get the best yield. Based on the results of the study showed the best calcination temperature to get the highest CaO levels was at 900^{o}C while the highest yield obtained was obtained from a 3% catalyst composition with a yield value of 65.86%. Based on the test results there are several parameters that meet the SNI 7182: 2015 standard, including the density value of 858.739 kg / m3, acid number of 0.2 Mg-KOH / gram, viscosity of 4.1 cSt, iodine number of 10.3 g/100g, the methyl ester content was 98.5% and the heating value was 48.3 Mj / kg.

Keywords: *biodiesel, calcination temperature, catalyst composition, eggshell*