CHARACTERIZATION AND ENGINE TESTING OF PALM KERNEL OIL BIODIESEL

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ABSTRACT

Industrial grade Palm kernel oil was purchased from a local dealer, filtered and dried before transesterification using methanol as reagent and sodium hydroxide as catalyst. The biodiesel was characterized and found to have similar properties to diesel fuel. The fatty acid profile was determined using chromatographic analyzer to which is connected Flame Ionization Detector and used hydrogen as the carrier gas. The printout showed that the oil contains mainly 46% lauric acid and 23 % palmitic acids giving a 78% total saturated. The biodiesel and 20% blend with diesel and diesel were tested in a single cylinder engine coupled to a dynamometer. The torque and power developed by biodiesel are lower than those of diesel while those of the blends lied between diesel and biodiesel.

Keywords: Palm kernel oil, biodiesel, characterization, torque, power.