

ABSTRACT

Indonesia's petroleum resource is very limited. While, the petroleum demand is increasing with the rate of economic growth and population growth in Indonesia. Therefore efforts have been made to look for alternative fuels that have renewable and environmentally friendly properties. The purpose of this research is to know the influence of oil and palm oil composition on oil mixed properties.

In this research the raw materials used are castor oil and palm oil. The method used is variation mixed composition of castor oil and palm oil that is 100, 10/90, 20/80, 30/70, 40/60, 50/50, 60/40, 70/30, 80/20, 90/10, and 100% at 120°C for 30 minutes. Parameters tested include density, flash point, viscosity using digital rotary viscometer cone/plate 8S, and calor test using calorimeter bomb tool.

The results showed the viscosity value obtained 36,70 cSt – 164,02 cSt and flash point values obtained 344°C - 272°C but, it is still high as fuel on SNI 7182-2015 standards. The mixture of sample composition variation at density value is 893,63 kg/m³ - 976,70 kg/m³. The density value will be higher if the percentage of castor oil is higher. Likewise with viscosity values obtained 36,70 cSt – 164,02 cSt. The viscosity value will be higher if the amount of percentage of castor oil is higher. The calor value obtained is 9484,46 Cal/g – 8708,22 Cal/g and flash point value obtained 344°C - 272°C. The calor value and flash point will decrease if the percentage of castor oil is increasing.

Keywords: calor value, castor oil, density, flash point, palm oil, viscosity.