BLENDING BIODIESEL-DIESEL FROM SOYBEAN OIL

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ABSTRACT

BLENDING BIODIESEL-DIESEL FROM SOYBEAN OIL

Biodiesel is a substitute with is a toxic-free with small outflow profile, biodegradable and does not commit to environmental pollution. Biodiesel is characterized as a fuel that comprises of mono-alkyl esters of long-chain unsaturated fats acquired from sustainable sources which pursues the determinations as per American Standard Testing Material D6751 before it is assigned as B100 or unadulterated biodiesel. Generation of biodiesel usually utilized base-catalyzed transesterification process. The response temperature is steady at 60 ºC all through the procedure. The most efficiency condition which delivered the best return of 85.8 % FAME substance was 9:1 methanol to oil proportion with catalyst loading of 1.5 wt.% and response time of 60 min. A progression of diesel-biodiesel mixes of B5, B7, B10, B15 and B20 is then arranged by blending the biodiesel arranged with unadulterated diesel. Each mix is then tested to decide its acidity, peroxide value, density, viscosity, moisture content and flash point. As for the acidity test, the B20 has the highest value of 0.31 mgKOH/g and as the biodiesel content increase in each blend, the acid value also increase accordingly. Peroxide value test also points out that B20 has the highest value of 8.60 meq/kg and the peroxide cost increase as the biodiesel content material in each blend increase. As for moisture content, flash point, viscosity and density, B20 have the best possible value of 0.07%, 90 ºC, 2.5758 m2/s, and 0.8497 g/cm3 respectively. B5, B7, B10, B15, and B20 indicates increment in the value of each blend as the biodiesel content increase. The correlation coefficient of the relationship between acid value, peroxide value, moisture content, density and viscosity are 0.9325, 0.9046, 0.9613, 0.6462 and 0.6401 respectively. The pure diesel shows a lower value in acidity, peroxide value, density and viscosity in contrast to other blending biodiesel-diesel.