Characterization of Blended Biodiesel Fuel Properties With Small Portion of Butanol as a Fuel Additive

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ABSTRACT

The increasing energy demand challenge, in addition to the crises of mineral oils depletion that becoming a very serious topic. As the main fuel used in energy production for all scopes of life now is the fossil fuels, there is an urgent need to find out an alternative fuel to fulfill the energy demand of the world. The feasibility of biodiesel production from palm oil was investigated with respect to its fuel properties and blending characteristics with petroleum diesel. Though biodiesel can replace diesel satisfactorily, problems related to fuel properties persist. In this study an oxygenated additive butanol (BU) was added to palm oil biodiesel (POME)-diesel blend B50 (50% POME + 50% diesel) in the ratios of 1%, 3%, 5% and 7% and tested for their properties improvement. The results showed slight improvement in acid value, significant viscosity and density. Maximum decrease in pour point by 6 °C at 5% butanol, on the other hand maximum decrease in energy contenent about 11% at 7% butanol compare to blended fuel B50.

KEYWORDS : Blending; Butanol; Diesel; Fuel properties; Palm oil biodiesel

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