

Experimental investigation on surface tension and density of biodiesels as functions of temperature

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Abstrak

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ABSTRACT

In order to respond the global issues regarding climate change and global warming in this new era of globalization, governments and environmentalists set the targets to provide an alternative, sustainable and renewable energy to decrease the pollution emerging from non-sustainable sources such as a fossil fuels or petrodiesel. The increase in the use of biodiesel fuels is expected to be a better solution to help address the environmental problems impacting on society.

Biodiesels are an alternative, environmentally friendly energy resources generated from the transesterification process of animal fats, vegetable oils and other organic resources. The transesterification process of biodiesels can be carried on by using an alkaline as the catalyst to separates the triacylglycerol into an alkyl ester and a glycerol compound. Through this separation, a friendly chemical component similar with a fossil fuel can be produced. Nevertheless, further characteristics of biodiesels need to be observed in order to maximize the performance of biodiesels on the diesel engine.

This report will focus on surface tension and density experimental investigations of four biodiesel fuels and nine fractionated methyl ester based on temperature dependency. The results are evidence of the relationship between surface tension and density. Also, the temperature change data characterizes the impact of fatty acid chain length upon density and surface tension.