Bioethanol as a Premium Fuel Mix with Flash Point Testing and Viscosity and Exhaust Emissions

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ABSTRACT

Each year the number of motorized vehicles continued to increase. The increased in the number of motorized vehicles each year resulted in an increased use of fuel which was increasing. This would also had an impact on the decreased oil supply. At those time, many alternative fuels had been developed which aimed to replace or as mixed agent of fuel oil. One of the alternative fuels was bioethanol. This study aimed to determine the yield of bioethanol as a premium fuel mixture by tested flash point, viscosity and exhaust emissions. The results showed that the highest flashpoint was found in the premium fuel mixture of 70% with biethanol fuel at 30% which had a flashpoint value at 29.6 ^{o}C and the lowest flashpoint was in a premium fuel mixture of 95% with Biethanol burned at 5% which had a flashpoint value at a temperature of 33 ^{o}C. The high viscosity value was found in the 15% bioethanol mixture with a value of 0.9219cp while the low viscosity value of the 5% bioethanol mixture was with a value of 0.8285cp. The highest CO content was produced by a mixture of 10% with a concentration of 1.66% by volume, then a mixture of 5% with a level of 1.11% by volume, followed by a mixture of 15%, namely 0.72% by volume, a mixture of 20% which was 0.31% by volume, a mixture 25% i.e. 0.08% by volume. The highest level of HC was produced in a 20% bioethanol mixture with a volume of 1188ppm.

***Key words**: Bioethanol, Premium, Flash Point, Viscosity, Exhaust Emissions*