Comparing Heat Production between Corn Oil, Beef Lard and Plastic Based Diesel

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The purpose of this experiment is producing and characterizing in a non-lab setting corn oil and beef lard-based diesels by process of transesterification as well as plastic-based diesel by process of pyrolysis. The products of these two reactions are compared in terms of heat generation performances and energy per unit weight. The measurement system was calibrated using olive oil standard and the correction coefficient was utilized to calculate and compare experiment results of the produced diesels. The beef lard-based biodiesel performed slightly better compared to corn oil-based biodiesels in terms of heat generation and energy per unit weight. The plastic-based diesel performed significantly better compared to corn oil as well as beef lard-based biodiesel in terms of heat generation and energy per unit weight. The plastic-based diesel had higher values and the biodiesels lower values of energy per unit weight compared to petroleum-based diesel. The difference in energy per unit weight could be attributed to the reactions' byproducts and slightly different chemical composition for biodiesels and requires further investigation.

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