

Analysis of the Calorific Value Test of Cassava-Based Bioethanol Fuel from the Distillation Process and Pertamina Fuel Mixture

by

Daffa Andrio Faresi

Study Program of Automotive Engineering, Department of Engineering
Politeknik Negeri Jember

ABSTRACT

The supply of this fuel will continue to decrease over time, causing various countries around the world to seek alternatives. One alternative feedstock that can be used is bioethanol. Plants that have the potential to produce bioethanol are plants that contain high carbohydrates, sugar plants, and cellulosic plants such as cassava. This study aims to determine the effect of adding bioethanol to Pertamina fuel using variations of Bio 90, Bio 70, Bio 50, Bio 30, and Bio 0 on the calorific value. The method used is an experimental method. The results showed that the higher the percentage of bioethanol added, the higher the energy required to evaporate the water in the mixture. This is due to the very high water content in bioethanol, resulting in a lower calorific value. The highest calorific value was obtained in the Pertamina 90% + Bioethanol 10% variation with a calorific value of 42,773.03 kJ/kg while the lowest calorific value was obtained in pure bioethanol at 19,928.39 kJ/kg.

Keywords: *Bioethanol, Pertamina, Calorific Value*