ANALYSIS OF THE INFLUENCE OF A MIXTURE OF POLYPROPYLENE PLASTIC FUEL WITH CARBON CLEANER ADDITIVE ON THE CALORIFIC VALUE OF THE FUEL

Muhammad Hikwan
Study Program of Automotive Engineering, Majoring of Engineering
The State Polytechnic of Jember

ABSTRACT

Utilizing plastic waste as an alternative fuel source is one method to reduce problems caused by plastic waste such as land pollution, pollution due to burning of waste which has an impact on the surrounding air. One of them is polypropylene (PP) plastic waste which can be recycled into alternative fuel using a pyrolysis process using an incinerator by heating the plastic waste at a temperature of up to 250-350 °C until the plastic waste in the reactor starts to melt and produces steam. then it becomes droplets that come out through the condenser pipe, the steam is channeled to the condenser to produce polypropylene plastic fuel. The results of the polypropylene plastic fuel were mixed with carbon cleaner additives with varying additions of 1ml, 1.5ml, 3ml, then the calorific value was tested using a bomb calorimeter to determine the calorific value of the mixture of polypropylene plastic fuel and carbon cleaner. The heating value affects engine power, the higher the heating value, the faster the vehicle speed. In this test, the highest calorific value was obtained from a mixture of 100ml polypropylene plastic fuel + 3ml carbon cleaner, namely 10,994.6782 cal/gram or 46,023.72 KJ/Kg, the calorific value of the polypropylene plastic fuel obtained showed that it met the standard calorific value criteria. fuel according to the Director General of Oil and Gas (2008) is a minimum of 41,870 KJ/kg.

Keywords : *Polyrpopylene (PP), Pyrolysis, Incinerator, Carbon Cleaner, Calorific Value.*