

ABSTRACT

Fuel consumption from non-renewable sources of energy is increasingly impacting the decrease of the quantity of petroleum resources. Increased energy consumption is followed by environmental pollution related problems caused by waste plastic waste continues to increase because there is no proper handling. Converting plastic waste by pyrolysis method to liquid fuel can be used as an alternative energy source. Nevertheless, this plastic waste pyrolysis oil has not been able to be applied on a commercial scale because of the quality of oil products that have not met the fuel standards. Therefore, research on the effect of pyrolysis oil on the performance of gasoline motor.

This study was first performed by converting LDPE (Low Density Polyethylene) plastic by pyrolysis process then pyrolysis oil was mixed with Pertalite percentage volume 0% vol., 5% vol., 10% vol., 20% vol., 30 % vol. and tested performance on a gasoline motor to get torque, power, and fuel consumption.

The results showed that the maximum torque value of each variation of fuel 0% vol., 5% vol., 10 vol%, 20% vol., 30% vol. are 25.56 Nm, 20.99 Nm, 21.37 Nm, 15.49 Nm, 24.19 Nm, and the maximum power value of each variation of fuel are 7.9 Hp, 8.1 Hp, 8 Hp, 7.8 Hp, 8 Hp. The most efficient fuel consumption is found in a 30% vol. with 38.46 km / liter and pure pertalite being the most extravagant with 20 km / liter.

Keywords: Pyrolysis, Low Density Polyethylene, Torque, Power, Fuel Consumption, Gasoline Motor.