

SUMMARY

Sirrun Ni'am, Department of Mechanical Engineering, Faculty of Engineering, University of Brawijaya, July 2016, *The Effect Of Heating Temperature On Oil Physical Characteristics Of HDPE Plastics Pyrolysis Results*, Academic Supervisor : Widya Wijayanti and Slamet Wahyudi.

Increasing human populations also provide an increase in the amount of waste generated every day. The need for energy to sustain life that rely heavily on fossil fuels whose numbers continue to diminish, forcing a search on the new alternative energy as a substitute for fossil energy. One technology that is easy and simple to convert the waste into alternative energy sources as well as to reduce the mass and volume of waste is pyrolysis. Pyrolysis is a process of degradation of thermal plastic polymer material is heated to high temperatures in order to break down the structure of macromolecular polymers into smaller molecules (monomers) and to produce various hydrocarbons. The results are divided into fractions plastic pyrolysis gas, liquid fraction (pyrolysis oil), and the remaining solids. The material to be use in pyrolysis is plastic with the type of High Density Polyethylene (HDPE).

In this study conducted at heating temperature 500°C, 550°C, 600°C and 650°C. HDPE plastic with a size of 2 cm² x 2 cm² with a mass of 150 grams. Heating at pyrolyzer performed for 60 minutes. The variables measured in the study of pyrolysis oil is a physical characteristic that is the mass, volume and calorific value of oil. The result is a mass value increases with increasing temperature, at a temperature of 500°C obtained oil mass of 23.11 grams and continued to increase until at a temperature of 600°C at 32.86 grams. The same thing also happened in the volume, which with increasing heating temperature, the higher the volume of oil produced. At temperatures of 500°C heating oil volume produced is equal to 29 ml. It continues to increase until at a temperature of 600°C in the amount of 41.5 ml. Just as the volume and mass of oil, the heating value also increased at a temperature of 500°C to 650°C of 10095.92 kcal / kg until at 10288.58 kcal / kg.

Keywords: pyrolyzer, temperature, pyrolysis, HDPE, calorific value

