

ABSTRACT

The problem of fuel oil and the increasing volume of plastic waste are still unresolved problems in Indonesia. This research provides a solution to the issue of fossil fuel oil crisis and increasing plastic waste by using a chemical recycling method, pyrolysis, to convert plastic waste, especially High-Density Polyethylene (HDPE), into alternative fuel oil or Biofuel. This research aims to reduce the problem of increasing plastic waste and contribute to solving the fossil fuel crisis by producing an alternative fuel source.

This research uses a simple pyrolysis reactor, utilizing HDPE plastic bags as raw material. The pyrolysis process involved heating the plastic waste to 300°C for two hours, producing 79 mL of HDPE pyrolysis oil. The density of the oil obtained was calculated at 0.8 g/mL, and the percentage yield of HDPE alternative fuel was 25.28%. HDPE alternative fuel oil is a solution to the plastic waste problem and contributes to the resolution of the fossil fuel crisis by producing alternative fuel sources from easily available plastic waste.

Keywords: Pyrolysis, HDPE, Density