INFLUENCE OF SAWDUST PARTICLE SIZE AND COMPACTNESS OF ALBASIA WOOD WASTE ON PYROLYSIS TEMPERATURE

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ABSTRAK

The need for environmentally friendly energy has increased in recent years. Biomass is a type of renewable energy and is a solution in reducing the country's dependence on fossil resources while reducing pollution. This study used 3 variations of compactness of albasia sawdust wood waste. A pre-eliminary study has been carried out by designing a biomass furnace and testing shows that the density and height of the column affect the speed of heating water using the water boiling test method. However, the formulation of the effect of compactness on temperature distribution is not known with certainty because there is no simulation and accurate measurement of biostove performance. This study aims to determine the effect of pressure on the circulation temperature of compacted sawdust. The biomass used for this research is albasia sawdust obtained from wood processing waste in Yogakarta, Indonesia. The pressure variations used are 60, 70 and 80 bar. There are 5 sensors placed at a distance of 10 mm each apart from each other. The experimental results show that the greater the pressure, the greater the maximum temperature produced. The largest maximum temperature is obtained at sensor 1, the lowest maximum temperature occurs at sensor 5, this occurs in all pressure variations (60, 70 and 80 bar). The maximum temperature that can be achieved is at a pressure of 80 bar on sensor 1 which is 265o C, while the lowest maximum temperature occurs at a pressure of 60 bar with a maximum temperature of 80o C.

Kata kunci: sawdust, compactnest, pyrolisis temperature