

## THE EFFECT OF THE WEIGHT OF COMPENSATED WOOD POWDER IN THE BIOSTOVE ON TEMPERATURE DISTRIBUTION

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### ABSTRACT

Solids from the remains of daily activities caused by humans or nature are one form of waste. Sawdust is one of the waste generated from the activities of the woodcraft industry. Therefore, this research makes manufacturing engineering to utilize sawdust. This study aims to determine the temperature distribution with variations in the mass of compacted sawdust used as fuel. The method used in conducting this research is Research and Development. The analysis carried out includes the spread of temperature in the combustion chamber, point L (lower), point M (middle), U (upper), Biostove temperature. Researchers took the subject material in the form of sawdust. Initial product development includes designing and manufacturing a biostove that can be used to utilize compacted wood sawdust as fuel. The field trials carried out included administering the independent variable, namely the mass of sawdust, namely mass variations of 8 kg (column height 36 cm), 10 kg (column height 40 cm), and 12 kg (column height 43 cm). The fixed variable is the pressure of a hydraulic press machine of 50 kg/cm<sup>3</sup> to compact sawdust. Dependent variables are density, column height, and temperature distribution. The duration of the test will be 120 minutes starting from 20 minutes after initial ignition by recording the temperature every minute. The results of the best temperature distribution at the combustion chamber point, L(lower), M(middle), U(upper), biostove temperature are variations in wood powder mass of 12 kg with a column height of 43 cm and 0.0002760 kg/cm<sup>3</sup> with a temperature value of 838.1°, 851.8°, 918.5°, 699.2°, 914.2°. Keywords : sawdust, biostove, gasification, temperature distribution

Kata Kunci: *Sawdust, biostove, gasification, temperature distribution*