

Biobriquettes of Sengon Sawdust Charcoal with Banana Peel Binder: A Study of Mesh Variation. Supervisor: Prof. Dr. Ir. Bayu Rudiyanto, S.T., M.Si.

Sefia Rachmasari

*Study Program of Renewable Energy Engineering
Department of Engineering*

ABSTRACK

Renewable energy has become an urgent necessity as non-renewable energy sources continue to deplete. One potential alternative is biobriquettes made from biomass waste. This study aims to analyze the effect of mesh size variation on the characteristics of biobriquettes made from sengon wood sawdust with banana peel flour as a binder; as well as to evaluate their compliance with the SNI 01-6235-2000 standard. The independent variables include three particle size variations (60, 80, and 100 mesh) and three composition variations of raw material to binder (70%:30%, 65%:35%, and 60%:40%). The parameters tested include moisture content, ash content, density, calorific value, and burning rate. Data analysis was performed statistically using Analysis of Variance (ANOVA) through the General Linear Model (GLM) with Minitab software. The results showed that mesh size significantly affected all tested parameters. Moisture content ranged from 4.222% to 7.152%, ash content from 5.806% to 8.447%, density from 0.487 to 0.523 g/cm³, calorific value from 5,026 to 5,746 cal/g, and burning rate from 0.00181 to 0.00215 g/s. The best characteristics were obtained from the combination of 100 mesh particle size with a 70%:30% composition (A3B1), which produced the highest calorific value of 5,746 cal/g and the lowest burning rate of 0.00181 g/s. All treatment variations met the quality standards of charcoal briquettes SNI 01-6235-2000.

Kyword : *briquetts, Sengon Wood Sawdust , Banana Peel Flour.*