

FINAL PROJECT
**PHYSICAL AND MECHANICAL CHARACTERISTICS OF BRIQUETTE
PRODUCED FROM THE COCO PEAT DUST**

**Final project submitted in partial fulfillment of the requirements of the
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By

Qori Ahmad Solihin
NBP. 121 091 2044

Supervisor

Dr. Adjar Pratoto
NIP. 19600908 1986031 002



**MECHANICAL ENGINEERING DEPARTMENT
FACULTY OF ENGINEERING - ANDALAS UNIVERSITY
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Physical and Mechanical Characteristics of Briquettes

Produced from Cocopeat Dust

Qori Ahmad Solihin (1210912044)

ABSTRACT

Cocopeat briquette is a briquette from biomass seem to be promising, rapidly growing and high quality source of biofuel and challenge to fossil fuels. Briquettes mechanical strength, like compressive strength and drop strength, is very important parameter from the viewpoint of transportation and the other manipulations, it describes the visual appearance of briquettes, which has impact on their market price.

High moisture content consist on the cocopeat is the main problem when packaging and distributing of its products. The low mechanical properties briquettes in restraining of compression loads and impact loads when the product being distributed or transported effecting the cocopeat briquettes ease to be broke before its sold out to the costumers. This is also being a big problem on the manufacturer due to decreased their market price.

The present research is focused on make and evaluated of mechanical properties, that is compressive strength and drop strength of briquettes produced from the cocopeat dust. Briquettes were produced by using the Mechanical Thermal Expression (MTE) Methods in various treatments, like temperatures, pressures, holding times and dimensions, and there are 9 kinds of the experiment with four samples for each of them. Various temperatures used, that is room temperature, 60⁰C and 120⁰C, compacting pressures as 10,13 and 15 metric ton, holding times as 5, 10 and 15 minutes, dimensions as 4 and 6 cm diameters, with 5 cm high as a fix variable.

The results suggest that the briquetting process using the Mechanical Thermal Expression (MTE) Methods can eliminate the water as 81.44%, then average moisture content as 20.54% leave behind. Relaxation time for 7 days in open storage after the briquettes ejected from dies resulted the best quality of cocopeat briquettes with 11.55% of moisture content left behind.

Compressive strength and impact resistance were influenced by the increasing the pressure, temperature, and holding times of the cocopeat briquettes. The surface quality of briquettes after ejected from dies also affected on these mechanical characteristics.

Keywords: Cocopeat Briquette, Compressive Strength, Drop Strength, Mechanical Thermal Expressions

