

THE EFFECT OF MESH SIZE ON THE PRODUCTION OF COCONUT SHELL AND COW MANURE BRIQUETTES WITHOUT ADHESIVE

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ABSTRACT

The utilization of coconut shell waste for the production of briquettes can reduce negative environmental impacts and make use of available natural resources. The use of cow manure can also serve as the main binder in briquette production, containing cellulose compounds. The aim of this study is to determine the quality impact of mesh size on the production of coconut shell and cow manure briquettes without adhesive. The research method used is an experimental method with the following stages: the coconut shells are carbonized, ground, and sieved using 40, 60, and 100 mesh sieves with a raw material composition of 50% coconut shell and 50% cow manure without additional adhesive. The results showed that variations in mesh size (40, 60, and 100) met national standards for various parameters such as moisture content, density, ash content, volatile matter, fixed carbon, and calorific value. The best moisture content was found in the 100 mesh composition at 5.036%, the best density was in the 100 mesh composition at 1.111 g/cm³, the best ash content was in the 40 mesh composition at 4.1615%, the best volatile matter was in the 40 mesh composition at 4.117%, the best fixed carbon was in the 100 mesh composition at 86.593%, and the best calorific value was in the 100 mesh composition at 6530 cal/g. From this data, it can be concluded that the best quality briquettes are obtained using 100 mesh. Briquettes with 100 mesh size have optimal characteristics, such as low moisture content (5.036%), high density (1.111 g/cm³), high fixed carbon content (86.593%), and high calorific value (6530 cal/g).

Keywords: Briquettes, Coconut Shell Charcoal, and Cow Manure