

ABSTRACT

Energy is a very necessary thing for humans. So, Renewable energy is needed as alternative energy source to overcome it. One of the alternative energy sources that can be used is briquettes. Briquette has a lot of advantages, such as cheap raw material prices and also its constant availability. The basic ingredients of making briquettes come from organic waste which consists of the dried leaves of acacia trees and manglid tree's wood powder, there is also tapioca powder as additive. The raw materials used are printed using a hydraulic press with a pressure value of 200 kg/cm^2 with a sample composition ratio in grams of 1:1:0, 0.9:0.9:0.2, 0.8:0.8:0.4, 0.7:0.7:0.6, 0.6:0.6:0.8, 0.5:0.5:1. This test is conducted to make good briquette samples from organic waste with tapioca flour additive and also to look the effect of using additive in briquettes by looking at the calorific value, moisture content, and ash content that its will produce using a bomb calorimeter, drying oven binder and furnace. from these tests, the highest calorific value was found in briquette sample with the addition of 30% additives resulting in a calorific value of 4764 cal/g, the highest water content was in sample with the addition of 30 % additives having 1% moisture content and the highest ash content was in sample with the addition of additives 10% has an ash content of 2, 57%. The calorific value, moisture content, and ash content produced in the sample experiment met the SNI standard requirements, that is calorific value for non karbonasi briquettes ($>4000 \text{ cal/g}$), briquettes moisture content ($<8\%$), and briquettes ash content ($<8\%$).

Key words: Acacia Leaves, Manglid Wood Powder, Briquettes, Additives, Bomb Calorimeter, Drying Oven Binder, Furnace.