

Making Brickets from Mixed Sengon Powder (*Albazia Chinensis*) and Cocoa Skin (*Theobroma Cacao*) using Waru Leaf (*Hibiscus Tiliaceus*) as Natural Adhesive

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ABSTRACT

Biomass is one of the alternative fuel sources or alternative energy, both directly and after going through the biomass energy conversion process. One technology that can facilitate the use of biomass is briquettes. Briquette is a solid fuel substitute for fuel oil that comes from the remnants of organic material through the compression process with high pressure and through the pyrolysis process. Briquettes have low carbon monoxide (CO) emissions compared to kerosene which is 1 kg of briquettes for 2-3 hours producing carbon monoxide (CO) emissions on average 106 ppm, while kerosene is 250-390 ppm, so briquettes can be said to be fuel friendly environment. Raw materials that can be used in making briquettes are sengon wood powder and cocoa bark, which are generally made using tapioca flour adhesives. The problem is that tapioca flour is used as an adhesive material contrary to food because tapioca flour is a food ingredient, so it needs natural adhesives such as waru leaves. The purpose of this study was to determine the effect of the natural adhesive content of hibiscus leaves on the characteristics of the sengon wood briquette briquettes and cocoa bark, where the adhesive levels used were 25%, 30%, and 35%. The results showed that all included in SNI 16235-2000. The best composition in SM3 is 35% adhesive content with 67% of sengon wood powder and cocoa shell where this treatment has a moisture content of 5.3351%, ash content of 0.1091%, combustion rate of 0.23 g / s, and heating value 5099,643 cal / gr and the commercial standard for density testing is 0.2708 g / cm³, compressive test 4.58 kg / cm².

Keywords: *Briquette, Sengon powder, Cocoa Skin, Waru leaf*