

Design and Costruction Biomass Stove Made From Castable Cement

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ABSTRACT

Biomass has a large potency to produce in Indonesia about 31,69 Gigawatts (GW). Biomass energy can be conversion optimized by designing the biomass stove. The energy loses can be reduce by creating the combustion chamber with a material that can isolated the heat or energy. The using of castable cement expected to increase the biomass stove energy transfer efficient with thermal conductivity 0,55824 W/mK at 350°C. Insulating materials such as castable cement can insulate the heat and resistant to high temperature. This research was conducted by design the biomass stove with castable cement and the energy transfer by burning the wood pellets from mixed wood (rosewood, pine wood and other hardwood). The biomass stove design has combustion chamber with diameter of 19 cm and height of 28 cm, reflector with an upper diameter of 15 cm and equipped with 12 hole and 1 cm diameter each hole. The insulator wall thickness of 3 cm and height of 32 cm. The highest biomass stove heat efficiency is 12,39% with three test.

Keywords : Energy, Biomass Stove, Castable Cement, Efficiency