Rancang Bangun Kompor Biomassa dengan Penambahan *Fiber Ceramic Blanket* pada Ruang Pembakaran

Zeni Ulma, SST., M.Eng sebagai Dosen Pembimbing

Vicky Aris Hardiyanto
Program Studi Teknik Energi Terbarukan
Jurusan Teknik

ABSTRACT

Biomass is organic material produced through the process of photosynthesis, either in the form of products or residual products, one of which is agricultural waste. These biomass products can usually be burned directly or indirectly with the help of a tool, namely a biomass stove. The use of biomass stoves is still found some weaknesses that can reduce the level of efficiency in cooking. Therefore, it is necessary to design a biomass stove by redesigning the addition of fiber ceramic blanket in the combustion chamber. The results of the design of making a biomass stove with the addition of fiber ceramic blanket in the combustion chamber obtained a combustion chamber volume of 3250 cm^3, with a height of 29 cm, and a diameter of 12 cm. The efficiency value obtained in testing biomass stoves using fiber ceramic blankets with coconut shell charcoal fuel is 16.94, while when using coconut shell fuel the efficiency value obtained is 10.41%, and while the efficiency value without using fiber ceramic blankets with coconut shell fuel is 9.87%. The effect of adding fiber ceramic blanket in the combustion chamber on combustion temperature when using the same fuel, namely coconut shell, the change in fire temperature that occurs is 584 °C, while in the test without using fiber ceramic blanket is 564 °C. Fiber ceramic blanket in the combustion chamber also affects the temperature on the outer wall of the combustion where when using fiber ceramic blanket the outer wall temperature is 36 °C, and while testing without fiber ceramic blanket the outer wall temperature reaches 241 °C. This affects fuel consumption where when using fiber ceramic blanket the fuel used is 0.205 kg, while testing without fiber ceramic blanket the fuel used is 0.256 kg.

Keywords: *Stove, Biomass, Fiber Ceramic Blanket.*