Perancangan Dan Uji Efisiensi Tungku Tanah Liat Dengan Penambahan Abu Tongkol Jagung Dan Abu Sekam Padi (*Design and Efficiency Test of Clay Furnaces by Addition Of Corn Cob Ash And Rice Husk Ash*)

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ABSTRACT

A traditional stove was a conventional kiln which generally fuels from biomass. One of the constituent materials which used in traditional stoves was clay. The addition of ash to clay expected to increase the compressive strength value and reduce the value of thermal conductivity due to the presence of silica. This study aim to made a furnace by first testing the constituent materials then selecting the best material to be used as a furnace. The constituent material consisted of a mixture of clay and several percentages of the use of rice husk ash and corn cobs ash of 0%, 2.5%, 5% and 7.5%. The test parameters to determine the best material were tested on compressive strength, porosity, and thermal conductivity values. The results showed that the best material was 92.5% clay and 7.5% ash (corn cobs ash and rice husk ash) with a compressive strength value of 34.1 kg / cm, a porosity value of 22.7% and a conductivity value. thermal of 2.46 W / m oC. The furnace was designed and made, then tested using the Water Boiling Test (WBT) method. The results of the WBT test showed that the efficiency of the designed furnace was 21.72% and the usual traditional stove was 12.13%.

Keywords: *Traditional stoves, clay, corn cobs ash, rice husk ash*