

ABSTRACT

Energy availability at domestic level is a challenge across the world and especially in Africa. Firewood is the major source of energy for cooking for households in Kenya and there is need for a friendly sustainable environmental fuel. Carbonized biomass materials (briquettes) are considered a substitute. This study thus evaluated effect of selected briquetting techniques on briquettes' performance properties. Milled charcoal dusts mixed in a ratio of 1:1:1 (Rice husk, maize cob, and sugarcane bagasse) with molasses binder in the ratio of 6:1 was hence ready for densification and agglomeration. The Water Boiling Test was used in determination of the briquette's performance characteristics for various parameters. High (screw press); and low (drum agglomerator and hand making) pressure briquetting techniques were distinctly different in ignition time (minutes), time to boil (minutes) burning rate (g/min), specific fuel consumption (g/ml) and power output (kW) values as (4, 3, 3; 14, 12, 11; 0.8, 1.1, 1.3; 0.11, 0.13, 0.15; and 1.8, 1.4, 0.75). Diversified briquetting techniques, number and type of feedstocks are thus factors that influence performance characteristics of briquettes in converting the agricultural and or other wastes for useful energy application. This knowledge should enable users to make choices on techniques for optimum efficiency towards realization of Sustainable Development Goal Number #7 on affordable and clean energy.

Keywords

Energy, Feedstock, Carbonization, Technique, Briquettes, Performance Properties