Abstract

In this final project, we have done the research about the organic raw material briquettes from PPLH Seloliman include proximate test, experimental, and simulation by Computational Fluid Dynamics (CFD). This research was conducted to obtain the best characteristics of the seven variations of leaves and twigs with a ratio of 1:1 (D1R1), 1:2 (D1R2), 1:3 (D1R3), 1:4 (D1R4), 2:3 (D2R3) 3:1 (D3R1), and 3:2 (D3R2). Results of the proximate test is the lowest water content at the briquette D2R3 5.63% and the biggest at D1R4 10.99%, the smallest ash content at the briquette D1R3 3.69% and the largest at D3R1 13.9%, and the smallest calorific value at the briquette D3R1 3351.55 kcals / kg and the biggest at D2R3 4184.78 kcals / kg. While for the experimental combustion rate is obtained which is the largest at D3R2 0.000027 kg / s and the smallest at D2R3 0.000006 kg / s. The relationship between the composition with the characteristics of the briquettes is by adding leaves then approached a linear rate of mass reduction, the rate of combustion and temperature are high. While for the best composition that meets the standards of Indonesia and Japan are D2R3 briquettes with water content 5.63%, ash content 6.5% and calorific value of 4184.78 kcals / kg. The results of this study prove that the waste leaves and twigs can be processed into alternative fuels that have a heat and substantial economic efficiencies.

Keyword: Organic Briquettes, Proximate Test, and Software CFD