

ABSTRAK

Briket adalah bahan bakar padat yang diperoleh dari bahan limbah pertanian maupun limbah-limbah lainnya. Pembuatan biobriket dari bahan baku arang dari campuran tongkol jagung dan residu tempurung kelapa merupakan salah satu solusi untuk memanfaatkan energi biomassa tersebut. Pembuatan briket dimulai dengan proses karbonisasi selama 150 menit, kemudian digiling dan dihaluskan dengan ukuran saringan 35 mesh. Pencampuran bahan baku dan perekat dengan variasi 25:75:5, 50:50:5, 75:25:5, 25:75:10, 50:50:10, 75:25:10 dan dicetak dengan penekanan pengpresan 5 ton setelah itu dioven pada suhu 100°C selama 2 jam dan dipanaskan dibawah sinar matahari selama 11 jam. Penelitian ini menggunakan metode Anova 2 arah. Kualitas briket yang dicari meliputi nilai kalor, kadar abu dan *shatter index*. Dari hasil penelitian ini didapatkan nilai kalor terbaik pada komposisi tongkol jagung, residu tempurung kelapa dan tapioka 75:25:5 yaitu sebesar 6073,5 kal/gr, nilai rata-rata terendah pada komposisi 25:75:10 sebesar 5336,98 kal/gr. Nilai rata-rata kadar abu tertinggi pada komposisi 25:75:5 sebesar 22,31%, nilai rata-rata terendah pada komposisi 75:25:10 sebesar 10,53%. Nilai rata-rata *shatter index* tertinggi pada komposisi 25:75:5 sebesar 0,79%, nilai rata-rata terendah pada komposisi 75:25:10 sebesar 0,14%.

Kata kunci : briket, nilai kalor, kadar abu, shatter index

ABSTRACT

Briquettes are solid fuels derived from agricultural waste materials and various other residues. The production of biobriquettes from charcoal raw materials, obtained through a mixture of corn cobs and coconut shell residues, presents itself as a viable solution for harnessing biomass energy. The briquette production process commences with a 150-minute carbonization process, followed by grinding and refinement to achieve a mesh size of 35. The raw materials and binding agent are mixed in varying ratios of 25:75:5, 50:50:5, 75:25:5, 25:75:10, 50:50:10, and 75:25:10, and subsequently pressed using a pressure of 5 tons. Afterward, the briquettes are subjected to an oven-drying process at 100°C for 2 hours, followed by exposure to sunlight for 11 hours. The study employs a two-way Anova method to analyze the data. The sought-after qualities of the briquettes encompass calorific value, ash content, and shatter index. The research findings reveal that the most optimal calorific value was achieved with a composition of 75% corn cobs, 25% coconut shell residues, and 5% tapioca, yielding a value of 6073,5 cal/g. Conversely, the lowest average value was observed in the composition of 25% corn cobs, 75% coconut shell residues, and 10% tapioca, amounting to 5336,98 cal/g. The highest average ash content was recorded in the composition of 25% corn cobs, 75% coconut shell residues, and 5% tapioca, reaching 22.31%. In contrast, the lowest average value was found in the composition of 75% corn cobs, 25% coconut shell residues, and 10% tapioca, registering at 10.53%. In terms of the shatter index, the highest average value was achieved in the composition of 25% corn cobs, 75% coconut shell residues, and 5% tapioca, measuring at 0.79%. Conversely, the lowest average value was noted in the composition of 75% corn cobs, 25% coconut shell residues, and 10% tapioca, with a value of 0.14%.

Keywords: briquettes, calorific value, ash content, shatter index.