

ABSTRAK

Emilia Usman. 2014. "*Karakterisasi Briket Campuran Arang Tempurung Kelapa dan Serbuk Kayu Gergaji Sebagai Bahan Bakar Alternatif Ramah Lingkungan*". Suatu penelitian di Laboratorium Kimia Universitas Negeri Gorontalo. Skripsi, Jurusan Pendidikan Kimia, Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Negeri Gorontalo. Pembimbing I Prof. Dr. Ishak Isa M.Si dan pembimbing II Drs. Mardjan Papatungan, M.Si.

Limbah tempurung kelapa dan serbuk kayu gergaji memiliki potensi yang cukup besar yang dapat digunakan sebagai bahan baku briket arang. Tujuan penelitian ini adalah untuk mengkarakterisasi briket campuran arang tempurung kelapa dan arang serbuk kayu gergaji sebagai bahan bakar alternatif ramah lingkungan yang meliputi uji kadar air, kadar abu, dekomposisi senyawa volatil, kadar karbon terikat, kerapatan dan nilai kalor. Proses karbonasi dilakukan dalam tungku pembakaran, selanjutnya arang yang dihasilkan dihaluskan dan diayak dan dilanjutkan dengan pembuatan briket dengan menggunakan perekat tepung tapioka. Briket dicetak dengan 5 variasi perbandingan yaitu 100% arang tempurung kelapa, (90:10)%, (50:50)%, (10:90)% arang tempurung kelapa : serbuk kayu gergaji dan 100% arang serbuk kayu gergaji. Hasil penelitian menunjukkan kadar air, kadar abu, kadar zat menguap, kadar karbon terikat, kerapatan dan nilai kalor berturut-turut (6,45% - 8,09%), (3,91% - 7,43%), (36,39% - 68,16%), (27,94% - 56,58%), (0,48 g/cm³ - 0,88 g/cm³) dan (5748,5 cal/g - 6361 cal/g). Nilai kalor tertinggi adalah briket arang tempurung kelapa yaitu 6361 cal/g dan terendah adalah briket arang serbuk kayu gergaji yaitu 5748,5 cal/g. Hasil penelitian juga menunjukkan bahwa kualitas briket arang yang dihasilkan telah memenuhi standar mutu SNI.

Kata Kunci : *Briket arang, serbuk kayu gergaji, tempurung kelapa, karakterisasi, Nilai kalor*

ABSTRACT

Emilia Usman. 2014. "*Characterization of the Briquettes Mixture of Coconut Shell Charcoal and Sawdust as an Environmentally Friendly Alternative Fuels*". A research in Chemical Laboratory of Universitas Negeri Gorontalo. Skripsi, Department of Chemist Education, Faculty of Mathematics and Natural Sciences. Universitas Negeri Gorontalo. The principal supervisor was Prof. Dr. Ishak Isa, M.Si and the co-supervisor was Drs. Mardjan Paputungan, M.Si.

Coconut shell waste and sawdust had a high potential to be used as the basic material of charcoal briquettes. The research aimed to characterize of briquettes mixture of the coconut shell charcoal and sawdust as an environmentally friendly alternative fuels included the test of water content, dust content, decomposition of volatil compound, bounded carbon content, density and calorific value. The carbonization process was done in furnace. Next, the charcoal, that had been produced, was crushed and sieved, then continued with the proceed of the manufacture of briquettes by using tapioca starch adhesive. The briquettes was molded into 5 variations with the comparison was 100% of coconut shell charcoal, (90:10) %, (50:50)%, (10:90)% of coconut shell charcoal : sawdust charcoal, and 100% of sawdust charcoal. The result showed that the water content, dust content, levels of substance evaporates, bounded carbon content, density, and the value of calorific can be demonstrated as in a row (6.45% - 8,09%), (3.91% - 7.43%), (36.38% - 68.16%), (27,94% - 56,58%), (0.48 g/cm³ - 0.88 g/cm³) and (5748.5 cal/g - 6361 cal/g). The highest calorific value was shell coconut charcoal briquettes as 6361 cal/g and the lowest one was the sawdust saws charcoal as 5748.5 cal/g. The result also showed that the quality of charcoal briquettes, that was produced, had been fulfilled the SNI quality standard.

Keywords: *Charcoal briquettes, sawdust saws, coconut shell, characterization, calorific value.*