ABSTRAK

PENGARUH KADAR PEREKAT DAN TIPE TUNGKU PIROLISIS TERHADAP KARAKTERISTIK BRIKET ARANG LIMBAH KAYU KARET (*Hevea brasiliensis* Muell. Arg)

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Biomassa limbah kayu karet (*Hevea brasiliensis* Muell. Arg) memiliki potensi yang besar di Indonesia. Limbah ini dapat ditingkatkan nilai tambahnya menjadi energi alternatif seperti briket arang, melalui teknologi pirolisis dan pembriketan. Penelitian ini bertujuan untuk mengetahui pengaruh kadar perekat dan tipe tungku pirolisis terhadap karakteristik fisik dan energi briket arang limbah kayu karet. Briket dibuat dengan mencampurkan dua bahan utama, yaitu serbuk arang dan perekat tapioka. Arang kayu karet diproduksi menggunakan tungku pirolisis *double drum retort kiln* dan tungku kubah. Kadar perekat yang digunakan sebesar 5%, 10%, dan 15%. Campuran briket dicetak menggunakan alat pres hidrolik dengan target kerapatan 0,8 g/cm^3. Briket biomassa (kontrol) juga diproduksi sebagai pembanding dengan mencampurkan serbuk kayu karet dan kadar perekat yang sama. Hasil penelitian menunjukkan bahwa kadar perekat dan tipe tungku pirolisis mempengaruhi karakteristik briket. Karakteristik briket arang lebih baik dibanding briket biomassa. Kualitas briket meningkat seiring dengan rendahnya kadar perekat. Briket arang produksi *double drum retort kiln* berperekat 5% memiliki karakteristik lebih baik. Briket tersebut memiliki rata-rata kerapatan 0,54 g/cm^3, daya serap air 0,223%, kandungan C 84,41%, kandungan H 3,28%, kandungan N 0,74%, dan nilai kalor 32,86 MJ/kg serta memiliki gugus fungsi C≡H,C=C, dan C=O.

Kata kunci*:* Limbah kayu karet, kadar perekat, pirolisis, tepung tapioka, briket arang.

ABSTRACT

THE EFFECT OF TAPIOCA ADHESIVE CONTENT AND TYPES OF PYROLYSIS KILN ON THE CHARACTERISTICS OF RUBBER WOOD (*Hevea brasiliensi* Muell. Arg) CHARCOAL BRIQUETTES

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Rubber wood *(Hevea brasiliensi* Muell. Arg) waste biomass has a big potential in Indonesia. The biomass waste could be utlized as the source for alternative energy to increase its added value such as by converting into charcoal briquette. This study aimed to determine the effect of adhesive content and type of pyrolysis kiln on physical and energy characteristics of rubber wood waste charcoal briquettes. Briquettes were produced by mixing two main ingredients, that is charcoal powder and tapioca adhesive. Rubber wood charcoal was produced using pyrolysis kiln double drum retort kiln and dome kiln. The adhesive content used are 5%, 10%, and 15%. The charcoal-adhesive mix was pressed using a hydraulic press machine with a target density of 0,8g/cm^3. Biomass briquettes (control) were also produced as a comparison by mixing rubber wood powder and the same adhesive content. The results indicated that adhesive content and type of kiln affects the properties of charcoal briquettes. Characteristics of charcoal briquettes were better than biomass briquettes. The quality of the briquettes increases with the lower the adhesive content. Charcoal briquettes produced by double drum retort kiln with 5% adhesive have better characteristics. The briquette has an average density of 0,54 g/cm^3, moisture adsorption of 0,223%, fraction C 84,41%, fraction H 3,28%, fraction N 0,74%, and has functional group C≡H,C=C, and C=O.

Keywords: Rubber wood waste, adhesive content, pyrolysis, tapioca a strach, charcoal briquette.