

ABSTRAK

ANALISA PENGARUH JENIS DAN MASSA PEREKAT TERHADAP KUALITAS BIOPELET DARI TEMPURUNG KELAPA

(Misye Aprillia Yulanda, 35 Halaman, 6 Tabel, 9 Gambar, 3 Lampiran)

Peningkatan kebutuhan energi global serta keterbatasan sumber daya fosil mendorong pengembangan bahan bakar alternatif yang ramah lingkungan, salah satunya adalah biopelet. Penelitian ini bertujuan untuk mengetahui pengaruh jenis dan massa perekat terhadap kualitas biopelet yang dibuat dari tempurung kelapa, serta menentukan kombinasi terbaik berdasarkan standar SNI 8021:2014. Tiga jenis perekat alami yang digunakan adalah tapioka, sagu, dan molases, dengan variasi konsentrasi 5%, 10%, 15%, dan 20%. Analisis meliputi uji kadar air, kadar abu, zat terbang, karbon tetap, dan nilai kalor. Hasil penelitian menunjukkan bahwa molases merupakan jenis perekat terbaik dengan konsentrasi optimal sebesar 20%, menghasilkan biopelet dengan nilai kalor tertinggi sebesar 6253 kal/g, kadar air 9,76%, zat terbang 41,92%, dan karbon tetap 32,41%. Meskipun kadar abu yang dihasilkan masih melebihi ambang batas SNI ($5,90\% > 1,5\%$), secara keseluruhan biopelet dengan perekat molases memenuhi sebagian besar standar mutu dan menunjukkan potensi sebagai bahan bakar alternatif yang efisien dan ramah lingkungan.

Kata kunci: Biopelet, tempurung kelapa, molases, perekat alami, nilai kalor, SNI 8021:2014

ABSTRACT

ANALYSIS OF THE EFFECT OF BINDER TYPE AND MASS ON THE QUALITY OF COCONUT SHELL BIO-PELLETS

(Misye Aprillia Yulanda, 35 Payer, 6 Tabels, 9 Figures, 3 Attacment)

Increased global energy needs and limitations of fossil resources encourage the development of alternative fuel that is environmentally friendly, one of which is biopleet. This study aims to determine the effect of the type and mass of adhesive against biopleet quality made from coconut shell, and determine the best combination based on SNI 8021: 2014 standards. Three types of natural adhesives used are tapioca, sago, and molasses, with a variety of concentrations of 5%, 10%, 15%, and 20%. The analysis includes water content, ash content, fixed substances, fixed carbon and heat value. The results showed that the molasses were the best type of adhesive with optimal concentration of 20%, producing biopellet with the highest heat value of 6253 KAL / G, 9.76% water content, 41.92% flying substance, and fixed carbon 32.41%. Although the level of ash produced still exceeds the SNI threshold (5.90% > 1.5%), the overall biopellet with molasses adhesive meets most of the quality standards and shows the potential as an efficient and environmentally friendly alternative fuel.

Keywords: Biopellet, coconut shell, molasses, natural adhesive, heat value, SNI 8021: 2014