

# **Pengaruh Variasi Mesh Briket Limbah Tongkol Jagung Dan Kotoran Kambing Di Lingkungan Politeknik Negeri Jember Sebagai Bahan Bakar Alternatif**

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## **ABSTRAK**

Penelitian ini bertujuan untuk menganalisis pengaruh variasi ukuran mesh terhadap karakteristik briket berbahan limbah tongkol jagung dan kotoran kambing dengan perekat molase, serta menentukan kualitas briket berdasarkan standar SNI 01-6235-2000. Penelitian menggunakan metode eksperimen dengan variasi ukuran mesh 40, 60, dan 80. Bahan baku yang digunakan terdiri dari tongkol jagung dan kotoran kambing dengan perbandingan 3:1 serta perekat molase. Parameter yang diuji meliputi nilai kalor, kadar air, kadar abu, densitas, volatile matter, laju pembakaran, karbon terikat, dan densitas kamba. Hasil penelitian menunjukkan bahwa variasi ukuran mesh berpengaruh terhadap karakteristik briket yang dihasilkan. Semakin tinggi nilai mesh atau semakin kecil ukuran partikel, maka kualitas briket cenderung meningkat. Mesh 80 menghasilkan karakteristik terbaik dengan nilai kalor sebesar 5.349,25 kal/g, kadar air 5,5051%, densitas 1,0184 g/cm<sup>3</sup>, laju pembakaran 0,0085 g/detik, volatile matter 6,7262%, kadar abu 6,6115%, karbon terikat 83,3888%, dan densitas kamba 0,030 g/cm<sup>3</sup>. Hasil pengujian menunjukkan bahwa briket mesh 60 dan mesh 80 telah memenuhi standar SNI 01-6235-2000, sedangkan mesh 40 belum memenuhi standar pada parameter nilai kalor. Dengan demikian, variasi ukuran mesh mempengaruhi kualitas briket, dan penggunaan mesh 80 direkomendasikan untuk menghasilkan briket dengan kualitas terbaik sebagai bahan bakar alternatif ramah lingkungan.

**Kata kunci:** briket, tongkol jagung, kotoran kambing, mesh, molase.

# **Design and Development of an Off-Grid Photovoltaic System as an Energy Source for a Rotary Dryer Heater**

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## **ABSTRACT**

*This study aimed to analyze the effect of mesh size variations on the characteristics of briquettes made from corn cob waste and goat manure using molasses as a binder, and to determine the briquette quality based on SNI 01-6235-2000 standards. The research employed an experimental method with mesh size variations of 40, 60, and 80. The raw materials consisted of corn cobs and goat manure with a ratio of 3:1 and molasses as the adhesive. The parameters tested included calorific value, moisture content, ash content, density, volatile matter, combustion rate, fixed carbon, and bulk density. The results showed that mesh size variation affected the characteristics of the produced briquettes. The higher the mesh value or the smaller the particle size, the better the briquette quality tended to be. Mesh 80 produced the best characteristics with a calorific value of 5,349.25 cal/g, moisture content of 5.5051%, density of 1.0184 g/cm<sup>3</sup>, combustion rate of 0.0085 g/s, volatile matter of 6.7262%, ash content of 6.6115%, fixed carbon of 83.3888%, and bulk density of 0.030 g/cm<sup>3</sup>. The test results indicated that briquettes with mesh sizes of 60 and 80 met the SNI 01-6235-2000 standards, while mesh 40 did not meet the calorific value standard. Therefore, mesh size variation significantly influences briquette quality, and mesh 80 is recommended to produce the best quality briquettes as an environmentally friendly alternative fuel.*

**Keywords:** *briquettes, corn cob, goat manure, mesh size, molasses.*