

Characterization and Compaction Sugar Cane Bagasse To Use as Solid Fuel

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The production of energy from the combustion of lignocellulosic materials is an interesting way to residues recovery. What complicates the use of waste as fuel are low density and high moisture content. Compression of lignocellulosic residues can be a way of producing solid fuel of better quality. The aim of this study was to evaluate the quality of solid fuels (briquettes) produced from the compaction of sugar cane bagasse. The sugar cane bagasse used in this study was collected in a plant of sugar and ethanol in the city of Boituva / SP. The bagasse was compressed with a particle size in the range of 20 to 40 mesh and moisture content 10% dry basis. The compression was performed in a hydraulic press, without heating. The briquettes were produced in a cylindrical stainless steel mold with inner diameter of 35 mm. We used 20.0 grams of bagasse to produce each sample. The compaction pressure used was 1250 kgf.cm^{-2} and the time of application of the maximum load was 15 seconds. The characterization of the briquettes produced was performed by test of strength, density and heating values of the analysis. The briquettes produced had average density of 840 kg.m^{-3} . This represented a volume decrease of 12.2 times, compared to the bulk average density of bagasse at the plant, then dried (68.86 kg.m^{-3}). The test result diametral tensile was 0,61 MPa. The higher heating values (HHV) found for the briquettes produced was $17,38 \text{ MJ.kg}^{-1}$. The results showed that the sugar cane bagasse can be used in the production of briquettes and the production of briquettes was possible by compression without heating. The compacting process improved the quality of solid biofuel (sugar cane bagasse).

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