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Patent Search

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Abstract:

The present invention is related to the development of briquettes using agro-wastes like wood saw dust, betel (areca nut) nut husk fiber and combustible industrial wastes like foundry carbon dust waste and transformer insulation paper waste, with enhanced calorific values with efficient combustion behavior. The uniformly shredded bio-wastes are dried under direct sun light over a period of two to three days. The shredded and dried bio-mass components with moisture content of about 10% were pelletized other conditioned combustible industrial wastes through the densification process using the temperature between 160°C and 220°C with applied pressure of about 5600 Psi. The hybrid bio-mass briquettes produced have the bulk density were ranged between 1 g/cm³ and 2 g/cm³ and that of the calorific values were ranged between 4000 Cal/g and 7000 Cal/g. The hybrid bio-mass briquettes produced have the percentage carbon content were ranged between 25% and 50% and that of the percentage moisture content were ranged between 5% and 10%. Similarly, the percentage ash content was ranged between 1% and 5%.

Complete Specification

Field of invention '

The present invention provides the production method of bio-mass briquettes using sustainable agro-wastes and combustible industrial wastes, viz., rice-husk, coir pith, ground nut shells, cashew nut shells, betel/areca-nut husk, saw-dust, transformer insulation paper waste, foundry carbon dust, etc, with the objective of alleviating problems associated towards disposal, transportation, storage and handling and direct burning of loose bio-mass, which in-turn contributes to severe environmental pollution. Briquetting of the bio-masses from agricultural and combustible industrial waste are considered to be a best route to alleviate most of the problems associated with their disposal, in addition to the production of value added products

form sustainable wastes. The present invention is related with a method of manufacturing bio-mass briquettes with combination of two or more agro-wastes/industrial wastes under appropriate densification process using specifically designed machineries in order to suit varying weight percentage combinations of bio-masses, which can be used as bio-hybrid composite fuel briquettes with enhanced calorific values. Back ground of the invention

It is generally accepted that burning of fossil fuels and deforestation are major contributors to environmental climate change. Bio-mass from plant sources can serve as an alternative renewable and carbon neutral raw material for the production of energy. The low density plant materials limit their application in energy production. Hence, the bio-based sustainable materials are densified to increase their bulk density in order to reduce the problems associated with utility, storage, loading and transportation. Due to environmentally driven government programmes, to reduce carbon-di oxide emission, it is of great commercial interest to develop a fuel briquettes preferably made from sustainable/renewable sources of bio-masses. The renewable source of bio-mass also possesses a good calorific value when combusted. Utilization of agricultural

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