



भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power



थर्मल पावर प्लांटों में बायोमास के प्रयोग पर राष्ट्रीय मिशन (समर्थ)

National Mission on use of Biomass in Thermal Power Plants

(SAMARTH- Sustainable Agrarian Mission on use of Agri-Residue in Thermal Power Plants)

**Recommended Technical Specifications of
Agro-Residue Based Biomass Pellets**
for Co-firing in Coal Based Thermal Power Stations

1. Technical Specifications:

S. No.	Technical Parameters	Unit	Specification for Non-Torrefied / Semi-Torrefied/ Torrefied Biomass pellets
1.	Base Material	N/A	@ (As stated Below)
2.	Diameter [^]	mm	Not more than 25mm
	Other Dimensions		No other dimension should exceed 35 mm
3.	Bulk Density	kg/m ³	Not less than 600
4.	Percentage of Fines (ARB) [#]	% by Wt	Fines \leq 5%
5.	Moisture (ARB)	% by Wt	Not more than 14%
6.	Gross Calorific Value (ARB)*	kcal/kg	Non-Torrefied: 2800-4000 Semi-Torrefied: 3000 to 4500 Torrefied: 3400-5000
7.	Hard Groove Grindability Index (HGI) ^{\$}	No Unit	Not less than 50
8.	Volatile Matter (V.M.)	% by Wt	Non-Torrefied: Not Applicable Semi-Torrefied: in the range of > 22% - 40% Torrefied: less than or equal to 22%

Table - 1

[^]For better quality control, GENCOs may specify the diameter of the biomass pellets within 6 mm to 25 mm as deemed suitable.; ARB-As Received Basis; [#]Particle Length<3.15mm; *GCV ranges are indicative; ^{\$} Applicable for torrefied pellets only.

@Base material defined for this specification for pellet manufacturing shall be agro residue that are leftover portion of agriculture produce (stubble / straw / stalk / husk) and not being used as animal fodder, such as paddy, soya, arhar, gwar, cotton, gram, jawar, bajara, moong, mustard, sesame, til,



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maize, sunflower, jute, coffee, etc., groundnut shell, coconut shell, castor seed shell, pine needle, elephant grass, sarkanda, Bamboo & its by-products (i.e. Bamboo Chips, Cuttings, Bamboo Dust etc.) and horticulture waste such as dry leaves and trimmings generated during the maintenance and pruning of trees and plants.

2. Mandatory Sourcing & Composition:

2.1 For supplying NCR thermal power plants (i.e. power stations within 300 km of Delhi), the base material shall comprise of **Minimum 50%** as stubble/straw/crop residues of rice paddy only. The Base material to be sourced from Punjab, Haryana and National Capital Region (NCR).

2.2 For non-NCR thermal power plants, the base material to be sourced as per the guidelines issued by respective State Government. In absence of any such guideline, some may be sourced from nearby regions (preferably within 300 km from Thermal Power Plant). Successful Bidder shall submit documentary evidence in the form of Certificate from State Authority from where the base material has been sourced or as per alternate arrangement mutually agreed upon with the Power station. Agro residue-based biomass pellets can be manufactured utilizing single or multiple base materials together.

2.3 Mixing material such as by-products of woodwork factory such as wood chips, sawdust, furniture waste, molasses, bamboo dust, or natural additives/binder such as lignin, starch, and cow dung may also be used with agro residue in limited proportion to enhance material properties and same shall be explicitly mentioned by the supplier in consignment details.

2.4 **Power plant reserves the right to exclude any base material/additive/ binder or modify their proportion if any adverse impact of the base material/ additives/binder is observed during operation of the plant.**

2.5 Substances that are prone to generate obnoxious/unpleasant odor (like Press mud & poultry waste) shall not be used for Pellet manufacturing.

2.6 Wood obtained directly from tree cutting shall not be utilized for manufacturing pellets and shall not be treated as agro residue whatsoever.

2.7 The supplier shall mention the name(s) of agro/crop residue(s) used for manufacturing torrefied / semi-torrefied / non torrefied pellets and their approximate proportion in consignment details during the dispatch of material.