



National Renewable Energy Centre CENER

- **The National Renewable Energy Centre (CENER)** is a state-of-the-art technological centre dedicated to the research, development and promotion of renewable energies within Spain and beyond.

CENER offers a wide range of services and applied research, adapted to the needs of the business community, public bodies and institutions. It specialises in research and its direct applications, Research and Development and Innovation (R&D&I), with the aim of providing a high added value to its customers.

- **CENER operates in six areas:** Wind power, photovoltaic and solar thermal energy, biomass, bioclimatic architecture and renewable energies grid integration. CENER can provide laboratories and facilities which are equipped with the most innovative systems making it a centre of reference for all Europe.

CENER participates in key lines of R&D, offers energy audits and studies, draws up regulatory standards, carries out technological transfers and leads training and educational programmes. It is also member of several Standardization Committees.



Biomass Department

The BIOMASS Department at CENER carries out research activities regarding biomass applications for energy purposes and provides services to those stakeholders involved in the sector: associations, public administration, users, producers, financial entities, etc.

Their aim is to contribute in the improvement of the techno-economic exploitation conditions of this type of energy.

■ THE BIOMASS DEPARTMENT:

- This Department is authorized by AENOR as the Spanish representative in the standardization process in CEN (task force no. CEN/TF/143).
- Participation in CTN: AEN/CTN-51 Petroleum Products (SC 3 Fuels), AEN-CNT-164 Solid Biofuels and AEN/CTN-303 "Sustainably produced biomass".

Forms part of a group of experts on bioenergy collaborating with the IES-JRC (Institute for Environment Sustainability of the Joint Research Centre of the EU-Ispra).



■ ACTIVITIES:

- Resources evaluation and energy crops.
- Biofuels.
- Thermal and electric applications.

Biomass Processing Centre CTB

The CTB is a research and development centre able to process biomass of different origins for solid biofuels production. In this centre, the behaviour of raw materials during the production processes are studied and characterization of the end product obtained is carried out.

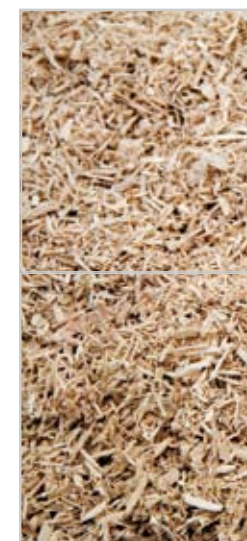
Combining densification and torrefaction processes, solid biofuels that are superior in quality to conventional pellets are produced.

■ FACILITIES:

- Physical processing line:
 - Biomass size reduction: Chipping, crushing and milling.
 - Thermal drying.
 - Densification: Pelletization.
- Thermochemical processing line:
 - Torrefaction unit.
- Biomass and solid biofuels characterization laboratory.

■ CHARACTERISTICS AND APPLICATIONS:

- Processing of different origins biomasses (wood, herbaceous and granular) such as:
 - Cereal straw.
 - Forest residues.
 - Energy crops.
 - Residues from the timber industry.
- Production capacity of 500 Kg per hour with industrial equipments.
- All the equipments of the plant can operate at the same time as a production chain.
- Each equipment of the plant can operate independently.
- Control of process parameters.



- **CTB SERVICES:**
The CTB aims to offer its services to companies in the sector, through:

- Techno-economical studies of torrefacted solid biofuels and/or different pelletized biomasses production.
- Development of torrefaction process conditions for different biomasses.
- Controlling the characteristics of raw materials and their influence on the end product.
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- Calculation of Energy and Mass Balances in solid biofuels production process.
- Study of raw material mixtures to meet the final quality requirements of solid biofuels, depending on their intended use.
- Energy characterization of biomasses and solid biofuels in accordance with CEN-UNE standards:
 - Proximate analysis.
 - Ultimate analysis.
 - Heating value.
 - Particle size distribution.
 - Pellet durability.



CTB is funded by:



cener
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BIOMASS PROCESSING CENTRE - CTB



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