



INTERNATIONAL STANDARDS FOR WOOD CHIPS AND HOG FUEL

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EN ISO 17225 SERIES FOR SOLID BIOFUELS

The International Organisation for Standardisation (ISO) is currently preparing almost 60 standards for solid biofuels. Fuel specification and classes standards for wood chips and hog fuel are: EN ISO 17225-1 (General requirements), EN ISO 17225-4 (Graded wood chips). EN ISO 17225 series also include product standards for wood pellets and briquettes, firewood, non-woody pellets and briquettes. EN ISO 17225 series have been published in May 2014 (www.iso.org).

CLASSIFICATION OF RAW MATERIAL

Classification of woody biomass according to EN ISO 17225-1 (Table 1)

- 1.1 Forest, plantation and other virgin wood
- 1.2. By-products and residues from wood processing industry
- 1.3 Used wood
- 1.4 Blends and mixtures



Wood chips (left) are defined as following: chipped woody biomass in the form of pieces with a defined particle size produced by mechanical treatment with sharp tools such as knives. Wood chips have a sub-rectangular shape with a typical length 5 to 50 mm and a low thickness compared to other dimensions. **Hog fuel** (right) is fuelwood in the form of pieces of varying size and shape, produced by crushing with blunt tools such as rollers, hammers, or flails.

CLASSIFICATION OF WOOD CHIPS AND HOG FUEL (EN ISO 17225-1)

Normative properties (mandatory)

- Origin and source of raw material (Table 1)
- Particle size (P); P16, P16S, P31, P31S, P45, P64, P100, P200 and P300
- Fines (<3.15 mm); F05, F10, F15, F20, F25, F30, F30+
- Moisture (M, w-% on wet basis); from M10 to M55 (5 w-% intervals)
- Ash (A, w-% of dry matter); A0.5, A0.7, A1.0, A1.5, A2.0, A3.0, A5.0, A7.0, A10.0, A10.0+

Informative properties (voluntary)

- Net calorific value as received (Q, MJ/kg) or Energy density (E) kWh/m³ loose, minimum value to be stated
- Bulk density (BD), kg/m³ loose; from BD150 to BD400+, (50 kg/m³ intervals)
- Nitrogen (N), Sulphur (S) and Chlorine (Cl) are normative only for chemically treated wood e.g. glued or painted wood.

GRADED WOOD CHIPS – EN ISO 17225-4

Wood chips in EN ISO 17225-4 product standard are classified into the following classes: A1, A2, B1 and B2.

- Property classes **A1** and **A2** represent virgin woods and chemically untreated wood residues.
- **B1** extends the origin and source of class A to include other material, such as, short rotation coppice, wood from gardens and plantation etc., and chemically untreated industrial by-products and residues.
- Property class **B2** also includes chemically treated industrial by-products and residues and chemically untreated used wood.
- The threshold values for N, S, Cl and other minor elements for grades B1 and B2 are required, because they might include higher values of heavy metals and organic compounds as virgin wood.

EXAMPLE: Delimbed small-sized stem wood (1.1.3), Wood chips, classification: P45, F10, M40, A1.5, BD250, E0.8