



SLOVENSKI STANDARD

SIST-TS CEN/TS 14588:2004

01-julij-2004

Trdna biogoriva - Terminologija, definicije in opisi

Solid biofuels - Terminology, definitions and descriptions

Feste Biobrennstoffe - Terminologie, Definitionen und Beschreibungen

Biocombustibles solides - Terminologie, définitions et descriptions

Ta slovenski standard je istoveten z: **CEN/TS 14588:2003**

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TECHNICAL SPECIFICATION
SPÉCIFICATION TECHNIQUE
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CEN/TS 14588

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English version

Solid biofuels – Terminology, definitions and descriptions

Biocombustibles solides – Terminologie, définitions et descriptions

Feste Biobrennstoffe – Terminologie, Definitionen und Beschreibungen

This Technical Specification (CEN/TS) was approved by CEN on 28 February 2003 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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Foreword

This document (CEN/TS 14588:2003) has been prepared by Technical Committee CEN /TC 335, "Solid biofuels", the secretariat of which is held by SIS.

Annex A is informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

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Introduction

This Technical specification has been performed in accordance with ISO 10241 [1]. Beside international standards (see References) approved national standards and manuals [2], [3], [4], [5] provided the basis of this Technical specification. Moreover some terms important within specific nations were added to the international terminology during compilation of this Draft.

Waste is defined in Article 1(a) of Council Directive 75/442/EEC [6] and some of the given terms fall within this category. However sources within the scope of this standard are excluded from the scope of Directive 2000/76/EC ("waste incineration directive") [7]. In the following standard instead of the legal definition *waste* the technical term *residue* is used for well defined side-streams from agricultural, forestry and related industrial operations. The terms and definitions are harmonised as far as possible with the current language used in management as well as in regulatory activities.

1 Scope

This European Technical specification defines terms concerned in all standardisation work within the scope of CEN/TC 335. According to CEN/TC 335 this European Technical specification is applicable to solid biofuels originating from the following sources:

- products from agriculture and forestry,
- vegetable waste from agriculture and forestry,
- vegetable waste from the food processing industry,
- wood waste, with the exception of wood waste which may contain halogenated organic compounds or heavy metals as a result of treatment with wood preservatives or coating, and which includes in particular such wood waste from construction- and demolition waste,
- cork waste,
- fibrous vegetable waste from virgin pulp production and from production of paper from pulp, if it is co-incinerated at the place of production and heat generated is recovered.

The embedding of the scope within the biomass/biofuel field is given in figure 1.

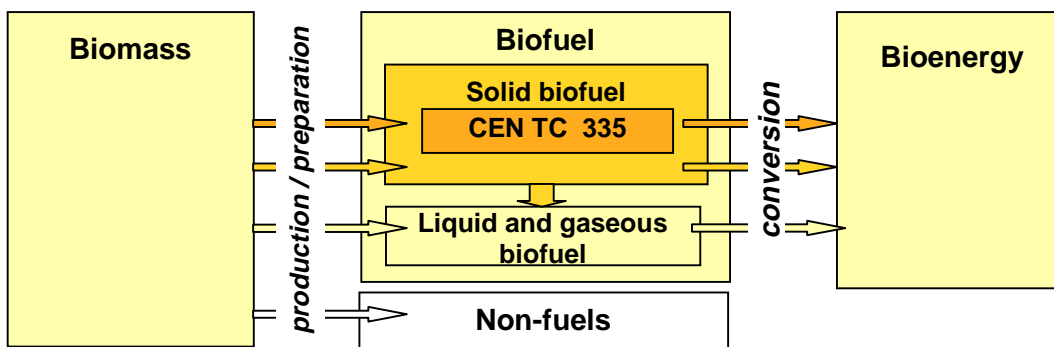


Figure 1 — CEN TC 335 within the biomass-biofuel-bioenergy field (draft).

NOTE 1 The CEN/TC 335 considers that wood waste, including wood waste originating from construction and demolition waste are included in the scope of CEN/TC 335 and of the scope of the mandate M/298 "solid biofuels", unless they contain halogenated organic compounds or heavy metals as a result of treatment with wood preservatives or coatings [8].

NOTE 2 There are more terms included within this Technical specification as covered by the mandate due to clarification and differentiation.

NOTE 3 Changes of ownership of the fibrous vegetable waste between paper and pulp company and the operator of the co-incineration plant in which the waste is used does not affect the inclusion of the waste in the scope of mandate M/298.

Other standards with a different scope than this European Technical specification can have different definitions than this standard.

2 Normative references

This European Technical Specification incorporates with by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this technical specification only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

prEN 13965-1: 2000, *Characterization of waste — Terminology — Part 1: Material related terms and definitions*

ISO 540:1995, *Solid mineral fuels — Determination of fusibility of ash — High-temperature tube method.*

ISO 1928:1995, *Solid mineral fuels — Determination of gross calorific value by the bomb calorimetric method, and calculation of net calorific value.*

ISO 1213-2:1992, *Solid mineral fuels — Vocabulary — Part 2: Terms relating to sampling, testing and analysis.*

ISO 13909: 2003, *Hard coal and coke — Mechanical sampling.*

3 Principle

Solid biofuels are produced from different sources, which are defined within the scope of CEN TC 335 "Solid Biofuels". Terms and definitions are categorised in a logical structure based on the fact that solid biofuels are produced from different sources and that the purpose of solid biofuels is the conversion into bioenergy:

- the sources of solid biofuels cover the initial location of the input material (biomass) in the economic and environmental cycles (like forest wood, energy forest trees, logging residues, landscape management residues etc.);
- the description of the solid biofuels itself as well as their handling, which covers the source and origin of the biofuel given in the same structure as the biomass sources (e.g., wood fuels, forest fuels), the different forms of biofuels produced within the preparation process (i.e. chipped biofuels, bundled biofuels), the most relevant biofuel properties (e.g., total moisture, total ash), and terms of sampling and testing as well as classification and specification;
- bioenergy as the result of biofuel conversion.

Appropriate terms for sampling and testing as well as classification and specification of properties have to be defined and described together with the category *nature/origin, type and properties of solid biofuels*. The structure of this technical specification (table 1) is based on the classification system of solid biofuels given in [9], in which the classification of solid biofuels is specified more detailed.

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Table 1 — Structure of the terms [9]

Sources of biofuels	Woody biomass
	Herbaceous biomass
	Fruit biomass
	Biomass blends and mixtures
Solid biofuels	Source/origin
	Traded forms
	Sampling and testing
	Properties
	Classification and specification
Bioenergy	

4 Terms and definitions

4.1

agricultural residues

biomass residues originating from production, harvesting, and processing in farm areas

NOTE See also *animal husbandry residues* and *crop production residues*

4.2

agrofuels

biofuels obtained as a product of *energy crops* and/or *agricultural residues*

NOTE Adapted from Draft FAO unified wood energy terminology (UWET) [10]

4.3

animal husbandry residues

agricultural residues originating from livestock keeping

NOTE 1 It includes among others solid excreta of animals.

NOTE 2 For the time being animal husbandry residues are out of the scope of the mandate. The term is included for information only.

4.4

ash

residue obtained by combustion of a *fuel*

NOTE 1 See also *total ash* and *ash fusibility*.

NOTE 2 Depending on the combustion efficiency the ash may contain combustibles.

NOTE 3 Adapted from ISO 1213-2:1992

4.5

ash deformation temperature, DT

temperature at which first signs of rounding due to melting, of the tip or edges of the test piece occur

NOTE Adapted from ISO 540:1995

4.6

ash flow temperature, FT

temperature at which the *ash* is spread out over the supporting tile in a layer, the height of which is one-third of the height of the test piece at the *ash hemisphere temperature*

NOTE Adapted from ISO 540:1995

4.7**ash fusibility ; ash melting behaviour**

characteristic physical state of the *ash* obtained by heating under specific conditions

NOTE 1 Ash fusibility is determined under either oxidizing or reducing conditions.

NOTE 2 See also *ash deformation temperature*, *ash flow temperature*, *ash hemisphere temperature*, and *ash sphere temperature*.

NOTE 3 Adapted from ISO 540:1995

4.8**ash hemisphere temperature, HT**

temperature at which the height of a test piece, prepared from *ash* by a specific procedure, is equal to half the width of the base, and its shape becomes approximately hemispherical

NOTE Adapted from ISO 540:1995

4.9**ash sphere temperature, ST**

temperature where the height of a pyramidal and truncated-cone test pieces is equal to the width of the base, or the edges of a cubical or cylindrical test pieces are completely round with the height remaining unchanged

NOTE Adapted from ISO 540:1995

4.10**baled biofuel, bale**

solid biofuel which has been compressed and bound to keep its shape and *density*

EXAMPLE Straw bales, bales of energy grass, bales of treetops and branches

4.11**bark**

organic cellular tissue which is formed by taller plants (trees, bushes) on the outside of the growth zone (cambium) as a shell for the wooden body

4.12**basic density**

ratio of the mass on *dry basis* and the *solid volume* on *green basis*

4.13**bioenergy**

energy from *biofuels*

4.14**biofuel**

fuel produced directly or indirectly from *biomass*

4.15**biofuel blend**

biofuel resulting from intentionally mixing of different *biofuels*

EXAMPLE Straw or *energy grass* with wood, dried *biosludge* with *bark*.

4.16**biofuel briquette**

densified biofuel made with or without *pressing aids* in the form of cubiform or cylindrical units, produced by compressing pulverised biomass

NOTE 1 The raw material for briquettes can be *woody biomass*, *herbaceous biomass*, *fruit biomass* and *biomass blends*, and *biomass mixtures*

NOTE 2 Biofuel briquettes are usually manufactured in a piston press. The *total moisture* of the biofuel briquette is usually less than 15 % of mass.

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4.17

biofuel mixture

biofuel resulting from natural or unintentional mixing of different *biofuels* and/or different types of *biomass*

4.18

biofuel pellet

densified biofuel made from *pulverised biomass* with or without *pressing aids* usually with a cylindrical form, random length typically 5 to 30 mm, and broken ends

NOTE The raw material for biofuel pellets can be *woody biomass*, *herbaceous biomass*, *fruit biomass*, or *biomass blends* and *mixtures*. They are usually manufactured in a die. The *total moisture* of biofuel pellets is usually less than 10 % of mass.

4.19

biomass

material of biological origin excluding material embedded in geological formations and transformed to fossil

NOTE See also *herbaceous biomass*, *fruit biomass*, and *woody biomass*.

4.20

biomass residues

biomass originating from well defined side-streams from agricultural, forestry and related industrial operations

NOTE Adapted from the proposal within the Draft CEN Report Solid Recovered Fuels [11]

4.21

biosludge

sludge formed in the aeration basin during biological waste water treatment or biological treatment process and separated by sedimentation or flotation

NOTE The sludge can be dewatered and further processed into *solid biofuel*.

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4.22

black liquor

liquor obtained from wood during the process of pulp production, in which the energy content is mainly originating from the content of lignin removed from the wood in the pulping process

NOTE For the time being black liquor is out of the scope of the mandate. The term is included for information only.

4.23

bridging ; arching

tendency of particles to form a stable arch across an opening and hindering flow

NOTE Adapted to Woodcock and Mason. Bulk Solids Handling [12]

4.24

bulk density

mass of a portion of a solid *fuel* divided by the *volume* of the container which is filled by that portion under specific conditions

NOTE Adapted from ISO 1213-2:1992

4.25

bulk volume, loose volume

volume of a material including space between the particles

4.26

bundled biofuel, bundle

solid biofuels which has been bound together and where there is a lengthwise orientation of the material

EXAMPLE Bundles of *energy forest trees* and *logging residues*, small trees, or branches and tops.

4.27**calorific value, heating value (q)**

energy amount per unit mass or volume released on complete combustion

NOTE See also *gross calorific value*, *energy density*, *net calorific value*, and *net calorific value as received*

4.28**cereal crops**

annual crops grown with the main purpose to use the seed for food production

NOTE Some cereal crops can be used as a *solid biofuel*.

EXAMPLES barley, wheat, rye, oat

4.29**char**

solid partially or non-agglomerated carbonaceous material produced by pyrolysis of *solid biofuels*

NOTE Adapted from ISO 1213-2:1992

4.30**chopped straw**

straw which has been cut into small pieces

4.31**chunkwood**

wood cut or broken with sharp cutting devices in which most of the material has a typical particle length, substantially longer and more coarse than *wood chips*

NOTE Chunkwood has a typical length of 50 to 150 mm.

4.32**combined sample**

sample consisting of all the *increments* taken from a *sub-lot*

NOTE The increments may be reduced by division before being added to the combined sample.

4.33**common sample**

sample collected for more than one intended use

NOTE Adapted from ISO 13909:2002

4.34**complete tree**

harvested tree, including limbs and root system

NOTE See also *whole tree*.

4.35**cork residues**

biomass residues from cork production

4.36**crop production residues**

agricultural residues originating from crop production, harvesting, and processing in farm areas

NOTE It includes among others wood, straw, stalks, and husks.

4.37**cross-cut ends**

short pieces of *woody biomass* which occur when the ends of logs or sawn timber are cross cut off, with or without *bark*

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4.38

cut biofuel

solid biofuel cut into pieces

NOTE See also *chunkwood*, *firewood*, *chopped straw*, and *smallwood*.

4.39

cutter chips

wood chips made as a by-product of the wood processing industry, with or without *bark*

4.40

demolition wood

used wood arising from demolition of buildings or civil engineering installation

NOTE Adapted from prEN 13965-1:2000

4.41

densified biofuel, compressed biofuel

solid biofuel made by mechanically compressing *biomass* to increase its *density* and to mould the *fuel* into a specific size and shape such as cubes, pressed logs, *biofuel pellets* or *biofuel briquettes*

NOTE See also *biofuel briquette* and *biofuel pellets*.

4.42

density

ratio of mass to *volume*

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NOTE 1 It must always be stated whether the density refers to the density of individual particles or to the bulk density of the material and whether the mass of water in the material is included.

NOTE 2 See also *basic density*, *bulk density* and *particle density*.
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4.43

dry ash free basis

condition in which the *solid biofuel* is free from *moisture* and *inorganic matter*

4.44

dry, dry basis

condition in which the *solid biofuel* is free from *moisture*

NOTE Adapted from ISO 1213-2:1992

4.45

dry matter

material after removal of *moisture* under specific conditions

4.46

dry matter content

portion of *dry matter* in the total material on mass basis

4.47

edgings

parts of *woody biomass* which occur when trimming sawn timber and which show a remainder of the original rounded surface of the tree, with or without *bark*

4.48

energy crops, fuel crops

woody or herbaceous crops grown specifically for their *fuel* value

NOTE See also *energy forest trees*, *energy grass*, *energy plantation trees*.