



# SLOVENSKI STANDARD SIST EN ISO 17225-1:2014

01-julij-2014

Nadomešča:  
SIST EN 14961-1:2010

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**Trdna biogoriva - Specifikacije goriv in razredi - 1. del: Splošne zahteve (ISO 17225-1:2014)**

Solid biofuels - Fuel specifications and classes - Part 1: General requirements (ISO 17225-1:2014)

Feste Biobrennstoffe - Brennstoffspezifikationen und -klassen - Teil 1: Allgemeine Anforderungen (ISO 17225-1:2014)

Biocombustibles solides - Classes et spécifications des combustibles - Partie 1: Exigences générales (ISO 17225-1:2014)

**Ta slovenski standard je istoveten z: EN ISO 17225-1:2014**

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**ICS:**

27.190	Biološki viri in drugi alternativni viri energije	Biological sources and alternative sources of energy
75.160.10	Trda goriva	Solid fuels

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## Solid biofuels - Fuel specifications and classes - Part 1: General requirements (ISO 17225-1:2014)

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## Foreword

This document (EN ISO 17225-1:2014) has been prepared by Technical Committee ISO/TC 238 “Solid biofuels” in collaboration with Technical Committee CEN/TC 335 “Solid biofuels” the secretariat of which is held by SIS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2014, and conflicting national standards shall be withdrawn at the latest by November 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 14961-1:2010.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

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ISO  
17225-1

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2014-05-01

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**Solid biofuels — Fuel specifications  
and classes —**

**Part 1:  
General requirements**

*Biocombustibles solides — Classes et spécifications des  
combustibles —*

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## ISO 17225-1:2014(E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 238, *Solid biofuels*.

ISO 17225 consists of the following parts, under the general title *Solid biofuels — Fuel specifications and classes*:

- *Part 1: General requirements*
- *Part 2: Graded wood pellets*
- *Part 3: Graded wood briquettes*
- *Part 4: Graded wood chips*
- *Part 5: Graded firewood*
- *Part 6: Graded non-woody pellets*
- *Part 7: Graded non-woody briquettes*

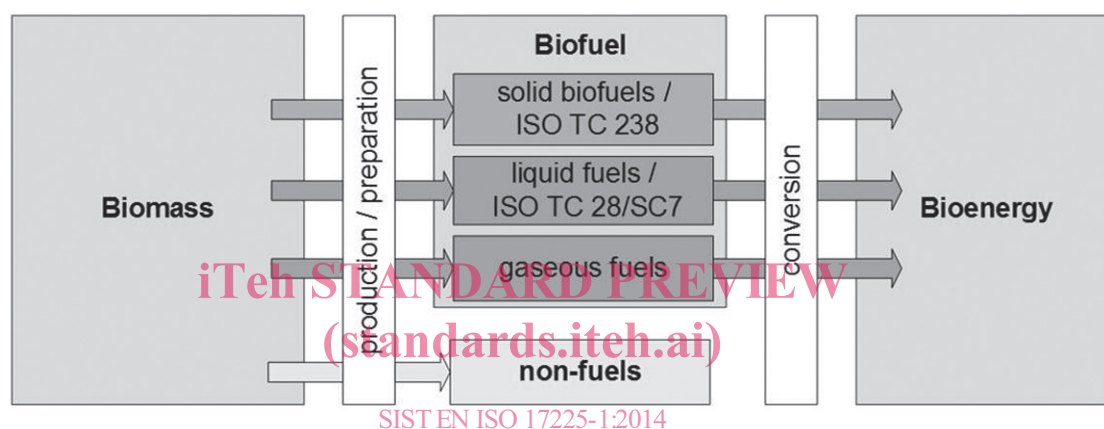
## Introduction

The objective of the ISO 17225 series is to provide unambiguous and clear classification principles for solid biofuels and to serve as a tool to enable efficient trading of biofuels and to enable good understanding between seller and buyer as well as a tool for communication with equipment manufacturers. It will also facilitate authority permission procedures and reporting.

The ISO 17225 series is made for all stakeholders.

Solid biomass covers organic, non-fossil material of biological origin which may be used as fuel for heat and electrical generation.

[Figure 1](#) describes the bioenergy utilization chain from sources of biomass, to biofuel production to final use of bioenergy. Although biomass can be used for energy generation it has many other primary uses (non-fuels) as a raw material for construction, furniture, packaging, paper products, etc.



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**Figure 1 — ISO TC 238 within the biomass — Biofuel — Bioenergy field**

The classifications given in this International Standard are provided with the objective of using biomass as a solid biofuel and therefore do not deal with all other uses.

Although these product standards may be obtained separately, they require a general understanding of the standards based on and supporting ISO 17225-1. It is recommended to obtain and use ISO 17225-1 in conjunction with these standards.

In these product standards, graded means that solid biofuel is used either in commercial applications, such as in households and small commercial and public sector buildings or industrial applications, which demand the use of fuels with specified quality (properties) expressed by quality classes like A1, A2 or B.

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# Solid biofuels — Fuel specifications and classes —

## Part 1: General requirements

### 1 Scope

This part of ISO 17225 determines the fuel quality classes and specifications for solid biofuels of raw and processed materials originating from

- a) forestry and arboriculture;
- b) agriculture and horticulture;
- c) aquaculture.

Chemically treated material may not include halogenated organic compounds or heavy metals at levels higher than those in typical virgin material values (see [Annex B](#)) or higher than typical values of the country of origin.

NOTE Raw and processed material includes woody, herbaceous, fruit, aquatic biomass and biodegradable waste originating from above sectors.

### 2 Normative references

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The following referenced documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE ISO standards describing methods for analysis of fuel properties listed in the Bibliography, will become normative references when they are published.

ISO 16559, *Solid biofuels — Terminology, definitions and descriptions*<sup>1)</sup>

ISO 16948, *Solid biofuels — Determination of total content of carbon, hydrogen and nitrogen*<sup>2)</sup>

ISO 16967, *Solid biofuels — Determination of major elements*<sup>3)</sup>

ISO 16968, *Solid biofuels — Determination of minor elements*<sup>4)</sup>

ISO 16993, *Solid biofuels — Conversion of analytical results from one basis to another*<sup>5)</sup>

ISO 16994, *Solid biofuels — Determination of total content of sulfur and chlorine*<sup>6)</sup>

ISO 17828, *Solid biofuels — Determination of bulk density*<sup>7)</sup>

- 1) To be published.
- 2) To be published.
- 3) To be published.
- 4) To be published.
- 5) To be published.
- 6) To be published.
- 7) To be published.

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ISO 17829, *Solid biofuels — Determination of length and diameter for pellets*<sup>8)</sup>

ISO 17831-1, *Solid biofuels — Determination of mechanical durability of pellets and briquettes — Part 1: Pellets*<sup>9)</sup>

ISO 17831-2, *Solid biofuels — Determination of mechanical durability of pellets and briquettes — Part 2: Briquettes*<sup>10)</sup>

ISO 18122, *Solid biofuels — Determination of ash content*<sup>11)</sup>

ISO 18123, *Solid biofuels — Determination of the content of volatile matter*<sup>12)</sup>

ISO 18134-1, *Solid biofuels — Determination of moisture content — Oven dry method — Part 1: Total moisture — Reference method*<sup>13)</sup>

ISO 18134-2, *Solid biofuels — Determination of moisture content — Oven dry method — Part 2: Total moisture — Simplified method*<sup>14)</sup>

**3 Terms and definitions**

For the purposes of this document, the terms and definitions given in ISO 16559 and the following apply.

**3.1****chemical treatment**

any treatment with chemicals other than air, water or heat

Note 1 to entry: Examples of chemical treatments are listed in informative [Annex C](#).

**3.2****commercial application**

facility that utilize solid biofuel burning appliances or equipment that have similar fuel requirements as residential appliances

Note 1 to entry: Commercial applications should not be confused with industrial applications, which can utilize a much wider array of materials and have vastly different fuel requirements.

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## 4 Symbols and abbreviated terms

The symbols and abbreviated terms used in this part of ISO 17225 comply with the SI system of units as far as possible.

<i>d</i>	dry (dry basis)
<i>daf</i>	dry, ash-free
<i>ar</i>	as received
w-%	weight-percentage
A	Designation for ash content on dry basis $A_d$ [w-%]
BD	Designation for bulk density as received [kg/m <sup>3</sup> ]
C	Designation for fixed carbon on dry basis $C_f$ [w-%]
D	Designation for diameter as received, $D$ [mm]
DE	Designation for particle density as received [g/cm <sup>3</sup> ]
DU	Designation for mechanical durability as received [w-%]
E	Designation for energy density as received, $E_{ar}$ [MJ/m <sup>3</sup> or kWh/m <sup>3</sup> loose or stacked volume] (amount of energy/volume unit)
F	Designation for amount of fines as received [w-%]
L	Designation for length as received $L$ [mm]
M	Designation for moisture content as received on wet basis, $M_{ar}$ [w-%]
P	Designation for particle size distribution on analysis moisture basis
$q_{V,gr,d}$	Gross calorific value at constant volume on dry basis [MJ/kg or kWh/kg]
$q_{p,net,d}$	Net calorific value at constant pressure on dry basis [MJ/kg or kWh/kg]
Q	Designation for net calorific value as received, $q_{p,net,ar}$ [MJ/kg or kWh/kg or MWh/t] at constant pressure
U	Designation for moisture content as received on dry basis $U_{ar}$ [w-%]
VM	Designation for volatile matter on dry basis [w-%]

NOTE 1 Fixed carbon (%) is calculated by the following: 100 - [moisture (w-%) + ash (w-%)+volatile matter (w-%)]. All percentages are on the same moisture base.

NOTE 2 1 MJ/kg equals 0,277 8 kWh/kg (1 kWh/kg equals 1 MWh/t and 1 MWh/t is 3,6 MJ/kg). 1 g/cm<sup>3</sup> equals 1 kg/dm<sup>3</sup>. 1 mg/kg equals 0,000 1 % or 1 ppm.

NOTE 3 Designation symbols are used in combination with a number to specify property levels in Tables 3 to 16. For designation of chemical properties, chemical symbols such as S (sulfur), Cl (chlorine), and N (nitrogen) are used and the property class is added at the end of the symbol.

## 5 Principle

Solid biofuels are specified by:

- a) origin and source, [Clause 6](#);