



SLOVENSKI STANDARD
oSIST prEN ISO 17225-8:2016
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Trdna biogoriva - Specifikacije in razredi goriv - 8. del: Sortirana termično obdelana in zgoščena goriva iz biomase (ISO/DIS 17225-8:2016)

Solid biofuels - Fuel specifications and classes - Part 8: Graded thermally treated and densified biomass fuels (ISO/DIS 17225-8:2016)

Biogene Festbrennstoffe - Brennstoffspezifikationen und -klassen - Teil 8: Klassifizierung von thermisch behandelten und gepressten Brennstoffen aus Biomasse (ISO/DIS 17225-8:2016)

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Biocombustibles solides - Classes et spécifications des combustibles - Partie 8 (ISO/DIS 17225-8:2016)

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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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DRAFT INTERNATIONAL STANDARD

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Solid biofuels — Fuel specifications and classes —

Part 8: Graded thermally treated and densified biomass fuels

Biocombustibles solides — Classes et spécifications des combustibles

ICS: 27.190; 75.160.10

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ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.



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Contents

Foreword.....	iv
Introduction.....	v
1 Scope	1
2 Normative references	1
3 Terms and definitions.....	2
4 Symbols and abbreviations.....	3
5 Specification of graded pellets produced from thermally treated biomass.....	4
6 Specification of graded briquettes produced from thermally treated biomass	9
Bibliography	14

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ISO/DIS 17225-8:2015

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. www.iso.org/directives

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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*
- *Part 8: Graded thermally treated and densified biomass fuels*

Introduction

The objective of this International Standard is to provide unambiguous and clear classification principles for solid biofuels; to serve as a tool to enable efficient trading of biofuels; 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.

This International Standard supports the use of thermally treated and densified biomass for household, small commercial, public building as well as industrial energy generation applications, which require classified quality.

Thermal treatment includes processes such as torrefaction, steam treatment (explosion pulping), hydrothermal carbonization and charring, all of which represent different exposure to heat, oxygen, steam or water. Thermally treated and densified biomass fuels should only be used in appliances with manufacturer approval.

The household, small commercial and public building applications require higher quality fuel for the following reasons:

- Small-scale equipment does not usually have advanced controls and flue gas cleaning
- Appliances are not generally managed by professional heating engineers or trained plant operators
- Appliances are often located in living and populated districts

NOTE 1 Pellets produced according to this International Standard may be used in pellet stoves, which are tested according to European Standard EN 14785^[1], pellet burners tested according to EN 15270^[2] and pellet boilers or integrated-pellet burner systems tested according to EN 303-5^[3].

NOTE 2 For individual contracts ISO 17225-1 should be used. ISO 17225-1 can be used for specification of undensified thermally treated material and charcoal.

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Solid biofuels — Fuel specifications and classes — Part 8: Graded thermally treated and densified biomass fuels

1 Scope

This International Standard determines the fuel quality classes and specifications of graded densified solid biofuels produced from thermally treated biomass for non-industrial and industrial use. This International Standard covers pellets and briquettes produced from following raw materials (see ISO 17225-1, Table 1):

- 1.1 Forest, plantation and other virgin wood
- 1.2 By-products and residues from wood processing industry
- 1.3.1 Chemically untreated wood
- 2.1 Herbaceous biomass from agriculture and horticulture
- 2.2.1 By-products and residues from food and herbaceous processing industry, chemically untreated herbaceous residues
- 3.1 Orchard and horticulture fruit
- 3.2.1 By-products and residues from food and fruit processing industry, chemically untreated fruit residues
- 4. Aquatic biomass

Subcategories of the above stated raw materials are included.

This ISO standard does not consider products, which are marketed as charcoal or as charcoal products. For these products ISO 17225-1 (Table 14) shall apply.

NOTE 1 For thermally treated powder Table 15 or Table 16 in ISO 17225-1 may be used for specification.

NOTE 2 Health, safety and environmental issues for solid biofuels are important and need special attention; however they are outside the scope of this International Standard.

2 Normative references

The following 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.

ISO 14780, *Solid biofuels — Sample preparation*¹⁾

ISO 16559, *Solid biofuels — Terminology, definition and description*

ISO 16948, *Solid biofuels — Determination of total content of carbon, hydrogen and nitrogen*

ISO 16968, *Solid biofuels — Determination of content of minor elements*

ISO 16994, *Solid biofuels — Determination of total content of sulphur and chlorine*

ISO 17225-1, *Solid biofuels — Fuel specification and classes — Part 1: General requirements*

¹⁾ To be published.

ISO/DIS 17225-8:2015

ISO 17828, *Solid biofuels — Determination of bulk density*²⁾

ISO 17829, *Solid biofuels — Determination of length and diameter of pellets*

ISO 17831-1, *Solid biofuels — Determination of mechanical durability of pellets and briquettes — Part 1: Pellets*³⁾

ISO 18122, *Solid biofuels — Determination of ash content*

ISO 18123, *Solid biofuels — Determination of the content of volatile matter*

ISO 18125, *Solid biofuels — Determination of calorific value*⁴⁾

ISO 18134-1, *Solid biofuels — Determination of moisture content — Oven dry method — Part 1: Total moisture — Reference method*⁵⁾

ISO 18134-2, *Solid biofuels — Determination of moisture content — Oven dry method — Part 2: Total moisture — Simplified procedure*⁶⁾

ISO 18135, *Solid biofuels — Sampling*⁷⁾

ISO 18846, *Solid biofuels — Determination of fines content in quantities of pellets*⁸⁾

ISO 18847, *Solid biofuels — Determination of particle density of pellets and briquettes*⁹⁾

3 Terms and definitions **STANDARD PREVIEW** (standards.iteh.ai)

3.1

thermally treated biomass

biomass whose properties have been changed through heat treatment (usually by temperatures of 200 °C to 300 °C and above)

EXAMPLE torrefied biomass, charcoal

Note 1 to entry: Drying is not considered thermal treatment in this definition.

Note 2 to entry: In this Part of ISO 17225 standard charcoal is not included.

3.2

pellets made from thermally treated biomass

densified biofuel made from thermally treated solid biomass with or without additives usually with a cylindrical form, random length typically 5 to 40 mm, diameter up to 25 mm and broken ends

3.3

briquettes made from thermally treated biomass

densified biofuel made with or without additives in form of cubiform, polyhedral, polyhydric or cylindrical units with diameter of more than 25 mm produced by compressing thermally treated solid biomass

2) To be published.

3) To be published.

4) To be published.

5) To be published.

6) To be published.

7) To be published.

8) To be published.

9) To be published

3.4 additive

material which has been intentionally introduced into the fuel feedstock to improve quality of fuel (e.g. combustion properties), to reduce emissions or to make production more efficient

Note 1 to entry: Trace amounts of e.g. grease or other lubricants that are introduced into the fuel processing stream as part of normal mill operations are not considered as additives.

3.5 chemical treatment

any treatment with chemicals other than air, water or heat

Note 1 to entry: Examples of chemical treatment are listed in ISO 17225-1.

3.6 commercial application

facility that utilizes 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 may have somewhat different fuel requirements.

[SOURCE: ISO 17225-1:2014]

4 Symbols and abbreviations

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>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 ³]
D	Designation for diameter as received, D [mm]
DE	Designation for particle density as received, DE [g/cm ³]
DU	Designation for mechanical durability as received [w-%]
F	Designation for amount of fines as received [w-%, particles less than 3,15 mm]
L	Designation for length as received, L [mm]
M	Designation for moisture content as received on wet basis, M_{ar} [w-%]
Q	Designation for net calorific value as received, $q_{p,net,ar}$ [MJ/kg or kWh/kg or MWh/t] at constant pressure
VM	Designation for content of volatile matter on dry basis [w-%]

NOTE 1 1 MJ/kg equals 0,2778 kWh/kg (1 kWh/kg equals 1 MWh/t and 1 MWh/t is 3,6 MJ/kg). 1 g/cm³ equals 1 kg/dm³. 1 mg/kg equals 0,000 1 % or 1 ppm.

NOTE 2 Designation symbols are used in combination with a number to specify property levels in Table 1 to Table 6. For designation of chemical properties, chemical symbols like S (sulfur), Cl (chlorine), N (nitrogen) are used and the property class is added at the end of the symbol.