



SLOVENSKI STANDARD

SIST EN 14961-6:2012

01-marec-2012

Trdna biogoriva - Specifikacije goriv in razredi - 6. del: Nelesni peleti za neindustrijsko uporabo

Solid biofuels - Fuel specifications and classes - Part 6: Nonwoody pellets for non-industrial use

Feste Biobrennstoffe - Brennstoffspezifikationen und - klassen - Teil 6: Nicht-holzartige Pellets für nichtindustrielle Verwendung

Biocombustibles solides - Classes et spécifications des combustibles - Partie 6: Granulés non ligneux à usage non industriel

<https://standards.iteh.ai/catalog/standards/sist/686450e5-338c-4acc-9197-42285df8276/sist-en-14961-6-2012>

Ta slovenski standard je istoveten z: EN 14961-6:2012

ICS:

75.160.10 Trda goriva

Solid fuels

SIST EN 14961-6:2012

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 14961-6:2012

<https://standards.iteh.ai/catalog/standards/sist/686450e5-338c-4acc-9197-4228f5df8276/sist-en-14961-6-2012>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 14961-6

January 2012

ICS 75.160.10

English Version

Solid biofuels - Fuel specifications and classes - Part 6: Non-woody pellets for non-industrial use

Biocombustibles solides - Classes et spécifications des combustibles - Partie 6: Granulés non ligneux à usage non industriel

Feste Biobrennstoffe - Brennstoffspezifikationen und -klassen - Teil 6: Nicht-holzartige Pellets für nichtindustrielle Verwendung

This European Standard was approved by CEN on 27 November 2011.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

<https://standards.iteh.ai/catalog/standards/sist/686450e5-338c-4acc-9197-4228f5df8276/sist-en-14961-6-2012>



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents		Page
Foreword.....		3
Introduction		4
1 Scope		5
2 Normative references		5
3 Terms and definitions		6
4 Symbols and abbreviations		6
5 Specification of non-woody pellets for non-industrial use		7
Annex A (informative) A-deviations		11
Bibliography		14

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 14961-6:2012](https://standards.iteh.ai/catalog/standards/sist/686450e5-338c-4acc-9197-4228f5df8276/sist-en-14961-6-2012)

<https://standards.iteh.ai/catalog/standards/sist/686450e5-338c-4acc-9197-4228f5df8276/sist-en-14961-6-2012>

Foreword

This document (EN 14961-6:2012) has been prepared by 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 July 2012, and conflicting national standards shall be withdrawn at the latest by July 2012.

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 has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

The European standard series EN 14961, *Solid biofuels — Fuel specifications and classes* are provided as a general requirements and additional product standards. Additional product standards may extend this series over time.

EN 14961 consists of the following parts, under the general title *Solid biofuels — Fuel specifications and classes*:

- iTeh STANDARD PREVIEW**
(standards.iteh.ai)
- *Part 1: General requirements;*
 - *Part 2: Wood pellets for non-industrial use;*
 - *Part 3: Wood briquettes for non-industrial use;*
 - *Part 4: Wood chips for non-industrial use;*
 - *Part 5: Firewood for non-industrial use;*
 - *Part 6: Non-woody pellets for non-industrial use.*

Although these product standards may be obtained separately, they require a general understanding of the standards based on and supporting EN 14961-1. It is recommended to obtain and use EN 14961-1 in conjunction with these standards.

NOTE In these product standards, non-industrial use means - fuel intended to be used in smaller appliances, such as in households and small commercial and public sector buildings.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

Introduction

This European Standard for *Solid biofuels — Fuel specifications and classes — Part 6: Non-woody pellets for non-industrial use* has been produced by CEN/TC 335, "Solid Biofuels", Working group "Fuel specifications, classes and quality assurance".

The objective of this European Standard 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.

This European Standard is made to support the use of non-woody pellets in non-industrial situations and specifically for the domestic/householder markets and smaller commercial boiler situations, where sensitivity to the fuel quality can cause major issues. Non-woody pellets have high ash, chlorine, nitrogen and sulphur content and major element contents, so non-woody pellets are recommended to be used in appliances, which are specially designed or adjusted for this kind of pellet.

These consumers need special consideration for the following reasons:

- 1) small-scale equipment does not usually have advanced controls and flue gas cleaning;
- 2) it is not generally managed by professional heating engineers;
- 3) they are often located in residential and populated districts.

NOTE 1 Pellets produced according to this European Standard can be used in pellet burners tested according to EN 15270 and pellet boilers or integrated pellet burner systems tested according to prEN 1303-5 ($\leq 500 \text{ kW}_{\text{th}}$).

NOTE 2 When using non-woody materials for combustion special attention should be paid to the risk of corrosion in small- and medium scale boilers and flue gas system. Be aware that for different types of herbaceous or fruit biomass growth under different conditions and soil type, may influence the fuel ash composition, e.g. in soil with a high phosphorus (P) content, potassium (K), that will capture chlorine (K will form K-phosphates instead of KCl) in the ash that will result in high hydrochloric emissions.

NOTE 3 In general non-woody biomass materials have higher content of ash forming elements and lower ash melting temperature compared to most wood based materials, which may result in slagging and deposit problems inside the boiler. These problems are especially related to materials that contain high content of potassium (K) and silicate (Si) and low content of calcium (Ca).

1 Scope

This European standard determines the fuel quality classes and specifications of non-woody pellets for non-industrial use. This European standard covers only non-woody pellets produced from the following raw material (see EN 14961-1:2010, Table 1):

— 2 Herbaceous biomass.

NOTE 1 *Herbaceous biomass* is from plants that have a non-woody stem and which die back at the end of the growing season. It includes grains or seeds crops from food processing industry and their by-products such as cereal straw:

— 3 Fruit biomass;

— 4 Biomass blends and mixtures.

NOTE 2 Group 4 *Blends and mixtures* include blends and mixtures from the main origin-based solid biofuel groups woody, herbaceous biomass and fruit biomass.

Blends are intentionally mixed biofuels, whereas mixtures are unintentionally mixed biofuels. The origin of the blend and mixture should be described using EN 14961-1:2010, Table 1.

If solid biofuel blend or mixture contains chemically treated material, it should be stated.

2 Normative references

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- <https://standards.iteh.ai/catalog/standards/sist/686450e5-338c-4acc-9197-221f5189766c/sist-14961-6:2012>
- EN 14588:2010, *Solid biofuels — Terminology, definitions and descriptions*
- EN 14774-1, *Solid biofuels — Determination of moisture content — Oven dry method — Part 1: Total moisture — Reference method*
- EN 14774-2, *Solid biofuels — Determination of moisture content — Oven dry method — Part 2: Total moisture — Simplified method*
- EN 14775, *Solid biofuels — Determination of ash content*
- EN 14918, *Solid biofuels — Determination of calorific value*
- EN 14961-1:2010, *Solid biofuels — Fuel specifications and classes — Part 1: General requirements*
- EN 15103, *Solid biofuels — Determination of bulk density*
- EN 15104, *Solid biofuels — Determination of total content of carbon, hydrogen and nitrogen — Instrumental methods*
- EN 15210-1, *Solid biofuels — Determination of mechanical durability of pellets and briquettes — Part 1: Pellets*
- EN 15234-6, *Solid biofuels — Fuel quality assurance — Part 6. Non-woody pellets for non-industrial use*
- EN 15289, *Solid biofuels — Determination of total content of sulfur and chlorine*

EN 14961-6:2012 (E)

EN 15297, *Solid biofuels — Determination of minor elements — As, Cd, Co, Cr, Cu, Hg, Mn, Mo, Ni, Pb, Sb, V and Zn*

CEN/TS 15370-1, *Solid biofuels — Method for the determination of ash melting behaviour — Part 1: Characteristic temperatures method*

EN 16127, *Solid biofuels — Determination of length and diameter of pellets*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14588:2010 and the following apply.

3.1 non-woody pellet
densified non-woody biofuel made from pulverised (e.g. ground) biomass with or without additives usually with a cylindrical form diameter < 25 mm, random length and typically 3,15 mm to 40 mm with broken ends, obtain by mechanical compression

NOTE The raw material for non-woody pellets can be herbaceous biomass, fruit biomass, or biomass blends and mixtures. They are usually manufactured in a die with a total moisture content usually less than 15 % of their mass.

3.2 additive
material which improves the quality of the fuel (e.g. combustion properties), reduces emissions or makes production more efficient

3.3 chemical treatment
treatment with chemicals other than air, water or heat

NOTE Examples of chemical treatment are listed in informative Annex C of EN 14961-1:2010.

4 Symbols and abbreviations

The symbols and abbreviations used in this European Standard 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, A_d [w-%, dry basis] ¹⁾
BD	designation for bulk density as received [kg/m ³] ¹⁾
D	designation for diameter as received, D [mm] ¹⁾
DU	designation for mechanical durability as received [w-%] ¹⁾
F	designation for amount of fines as received [w-%, particles less than 3,15 mm] ¹⁾

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

- L designation for length as received, L [mm]¹⁾
- M designation for moisture content as received on wet basis, M_{ar} [w-%]¹⁾
- Q designation for net calorific value as received, $q_{p,net,ar}$ [MJ/kg or kWh/kg or MWh/t] at constant pressure¹⁾

NOTE 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/cm³ equals 1 kg/dm³.

5 Specification of non-woody pellets for non-industrial use

Specifications of the non-woody pellets from cereal straw, Miscanthus and reed canary grass are stated in accordance with Table 1. Specification of non-woody pellets produced from other herbaceous biomass, fruit biomass and blends and mixtures are stated in accordance with Table 2. The sampling and analysis of the properties shall be carried out in accordance with the methods mentioned in the normative references.

Chemical treatment before harvesting of biomass does not need to be stated. Where any operator in the fuel supply chain has reason to suspect serious contamination of land (e.g. coal slag heaps) or if planting has been used specifically for the sequestration of chemicals or biomass is fertilised by sewage sludge (issued from waste water treatment or chemical process), fuel analysis should be carried out to identify chemical impurities such as halogenated organic compounds or heavy metals. In case of raw materials belonging to 2.2.2 and 3.2.2 (chemically treated herbaceous and fruit biomass according to EN 14961-1:2010, Table 1) the actual origin of the raw material shall be closer described.



Key

D Diameter L Length

Figure 1 — Dimension of pellets

If the properties being specified are sufficiently known through information about the origin and handling (or preparation method combined with experience) then physical/chemical analysis may not be needed.

To ensure resources are used appropriately and the declaration is accurate, utilise the most appropriate measure below:

- a) using typical values, e.g. laid down in Annex B of EN 14961-1:2010, or obtained by experience;
- b) calculation of properties, e.g. by using typical values and considering documented specific values;

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