SLOVENSKI STANDARD
oSIST prEN ISO 16559:2020

01-junij-2020

Trdna biogoriva - Terminologija, definicije in opisi (ISO/DIS 16559:2020)

Solid biofuels - Terminology, definitions and descriptions (ISO/DIS 16559:2020)

Biogene Festbrennstoffe - Terminologie, Definitionen und Beschreibungen (ISO/DIS 16559:2020)

Biocombustibles solides - Terminologie, définitions et descriptions (ISO/DIS 16559:2020)

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Solid biofuels — Terminology, definitions and descriptions

Biocombustibles solides — Terminologie, définitions et descriptions

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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).

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).

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

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

ISO 16559 was prepared by ISO Technical Committee TC 238, *Solid biofuels*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 335, *Solid biofuels*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 16559:2014), which has been technically revised.

The main changes compared to the previous edition are as follows:

— Terms an definitions updated in the whole document and

— Annex A "Scheme of sample hierarchy "added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This International Standard has been written in accordance with ISO 10241. This International Standard is based on European standard EN 14588:2010 as well as on approved national standards and manuals. Some of the terms included in this International Standard are only used in particular countries.

In this International Standard instead of the legal definition waste the technical terms residue, and by-product are used to describe co-products from forestry and arboriculture, agriculture and horticulture, and aquaculture as well as related industries. The terms and definitions are harmonized as far as possible with the current language used in management as well as in regulatory activities.

Solid biofuels — Terminology, definitions and descriptions

1 Scope

This international standard determines the terminology and definitions for solid biofuels. According to the scope of the ISO/TC 238 this standard only includes raw and processed material originating from

— forestry and arboriculture,

— agriculture and horticulture,

— aquaculture.

NOTE 1 Raw and processed material includes woody, herbaceous, fruit and aquatic biomass from the sectors mentioned above.

NOTE 2 Chemically treated material does not include halogenated organic compounds or heavy metals at levels higher than those in typical virgin material values or higher than typical values of the country of origin.

Materials originating from different recycling processes of end-of-life-products are not within the scope but relevant terms are included for information. Areas covered by ISO/TC 28/SC 7 “Liquid biofuels”, ISO/TC 193 “Natural gas” and ISO/TC 300 “Solid recovered fuels” are excluded.

Other standards with a different scope than this International Standard may have different definitions than this standard.

2 Normative references

There are no normative references in this document.

3 Principle

This International Standard only contains terms used to describe solid biofuels within the scope of ISO/TC 238, see Figure 1.

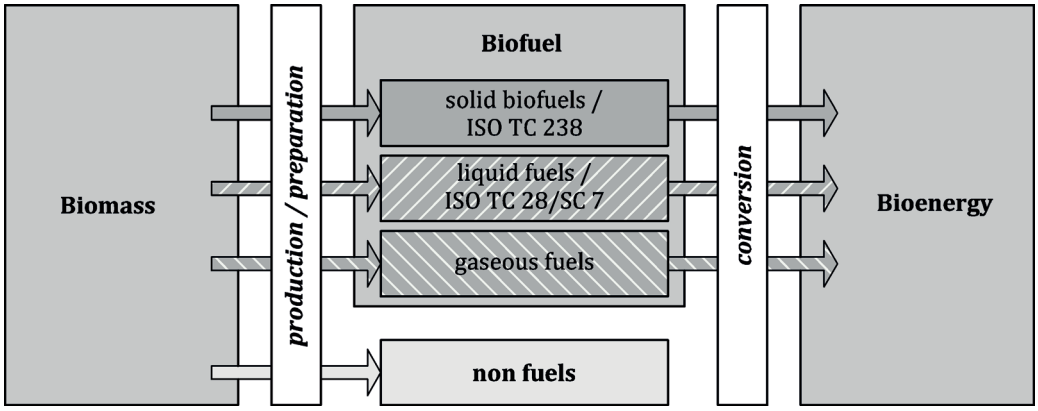

Figure 1 — ISO/TC 238 within the biomass-biofuel-bioenergy field

Solid biofuels are produced from different sources, which are defined within the scope of ISO/TC 238 “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 solid biofuels are used to produce bioenergy:

— origin and source of solid biofuels in the overall supply chain;

— the different traded forms as well as the different forms of biofuels produced within the preparation processes;

— the most relevant solid biofuel properties and terms of sampling and testing as well as classification and specification;

— the description of the solid biofuels itself as well as their handling and processing given in the same structure as the biomass sources;

— bioenergy as the result of solid 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 *source/origin, type and properties of solid biofuels.* The necessity of terms defined in this International Technical Standard is in many cases based on the classification system of solid biofuels given in ISO 17225-1, in which the classification of solid biofuels is specified in more detail.

4 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4.1
absorption
phenomenon whereby atoms, ions, or molecules from a gas, liquid, or dissolved solid permeates or is dissolved by a liquid or solid (the absorbent)

Note 1 to entry: *Adsorption* is a surface-based process while *absorption* involves the whole *volume* of the material.

[SOURCE: ISO 18757:2003, normative text summarised as term and definition]

4.2
adsorption
phenomenon whereby atoms, ions, or molecules from a gas, liquid, or dissolved solid adheres to a surface whereby the process creates a film of the adsorbate on the surface of the adsorbent

[SOURCE: ISO 18757:2003, 3.1]

4.3
additive
material which has been intentionally introduced into the *fuel feedstock* to improve *quality* of *fuel* (e.g. combustion properties or durability), 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*.

[SOURCE: ISO 17225-2:2014, 3.2]

4.4
agrofuels
biofuels obtained from *energy crops* and/or agricultural by-products (agricultural residues)

[SOURCE: FAO unified *bioenergy* terminology (UBET)]

4.5
air dried
condition in which the *solid biofuel* has been dried in air to equilibrium *moisture content*

[SOURCE: ISO 1213-2:1992 3.5, modified – with regard to solid biofuels]

4.6
angle of repose
critical angle of repose
steepest angle of descent of a stock pile measured in degrees of the slope of material relative to the horizontal plane when granular material on the slope face is on the verge of sliding

Note 1 to entry: The angle of repose is normally a few degrees lower than the angle of drain.

[SOURCE: ISO 4324:1977, 3]

4.7
angle of drain
steepest angle of descent within a silo or a hopper when material is withdrawn from the bottom measured in degrees of the slope of material relative to the horizontal plane when granular material on the slope face is on the verge of sliding

Note 1 to entry: The *angle of drain* is normally a few degrees higher than the *angle of repose*.

4.8
animal biomass
biomass obtained from livestock

4.9
animal by-products
animal residues
agricultural by-products (or agricultural residues) obtained from livestock operations

Note 1 to entry: It includes among others solid excreta of animals.

4.10
aquatic biomass
biomass from hydrophytic plants or hydrophytes, which are plants that have adapted to living in or on aquatic environments

[SOURCE: ISO 17225-1:2014, normative text summarised as term and definition]

4.11
as determined
as analysed
ad
reference *moisture content* of the material at the moment of analysis/determination

Note 1 to entry: The abbreviation of "as determined" is "ad". It is used as a subscript (e.g. A_{ad} is equivalent to *ash content* at the *moisture content* at the time of determination).

[SOURCE: ISO 1213-2:1992, text summarised as term and definition with regard to solid biofuels]

4.12
as received
as delivered
ar
calculation basis for a material in the delivery state

Note 1 to entry: The abbreviation of “as received” is “ar”.

[SOURCE: ISO 15357:2011, 3.1, modified – "at delivery" changed to " in the delivery state"]

4.13
ash
ash content
total ash
A
mass of inorganic residue remaining after complete combustion of a *fuel* under specified conditions, typically expressed as a percentage of the mass of *dry matter* in *fue*l

Note 1 to entry: See also *ash fusibility, natural ash, extraneous ash*.

Note 2 to entry: Depending on the combustion efficiency the ash may contain combustibles.

Note 3 to entry: If a complete combustion is realised ash contains only inorganic, non-combustible components.

[SOURCE: ISO 1213-2:1992, modified – text summarised as term and definition with regard to solid biofuels]

4.14
ash deformation temperature
DT
temperature at which first signs of rounding due to melting of the edges of the *ash* test piece occur

4.15
ash flow temperature
FT
temperature at which the *ash* is spread out over the supporting tile in a layer, the height of which is half of the height of the test piece at the *ash hemisphere temperature*

4.16
ash fusibility
ash melting behaviour
characteristic physical state of the *ash* obtained by heating under specific conditions

Note 1 to entry: *Ash fusibility* is determined under either oxidising or reducing conditions.

Note 2 to entry: See also *ash deformation temperature, ash flow temperature, ash hemisphere temperature* and *ash shrinkage starting temperature*.

4.17
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

4.18
ash shrinkage starting temperature
SST
temperature at which shrinking of the test piece occurs

Note 1 to entry: This temperature is defined as when the area of the test piece falls below 95 % of the original test piece area at 550 °C.