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Solid recovered fuels — Terminology, definitions and descriptions

Combustibles solides de récupération — 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).

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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.

This document was prepared by Technical Committee ISO/TC 300, *Solid recovered fuels*.

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

The terminology, definitions and descriptions included in this document are those needed to understand the scope of ISO/TC 300, *Solid recovered fuels* and those that appear in two or more standards of ISO/TC 300.

Where a term is used in only one standard, the term will be defined in the individual standard.

Due to the development cycle of other standards of ISO/TC 300, *Solid recovered fuel*, there may be instances of the terms not following the above rule. Where possible, this document tries to follow the rules stated, however, users should check terms and the understanding of terms in other standards as well.

Following the ISO rules, this document does not include common and generic terms.

Informative Annex A provides a list of terms grouped by sub-sections to enable the user to find terms more quickly.

Where there are several synonyms that can be used the preferred one is written first.

Solid recovered fuels — Terminology, definitions and descriptions

1 Scope

This document defines terms and definitions to enable the user to understand the scope of the work. Where a term and definition are required in a single standard, the term and definition will be referenced in that standard.

Vocabulary boundaries are described in Figure 1.

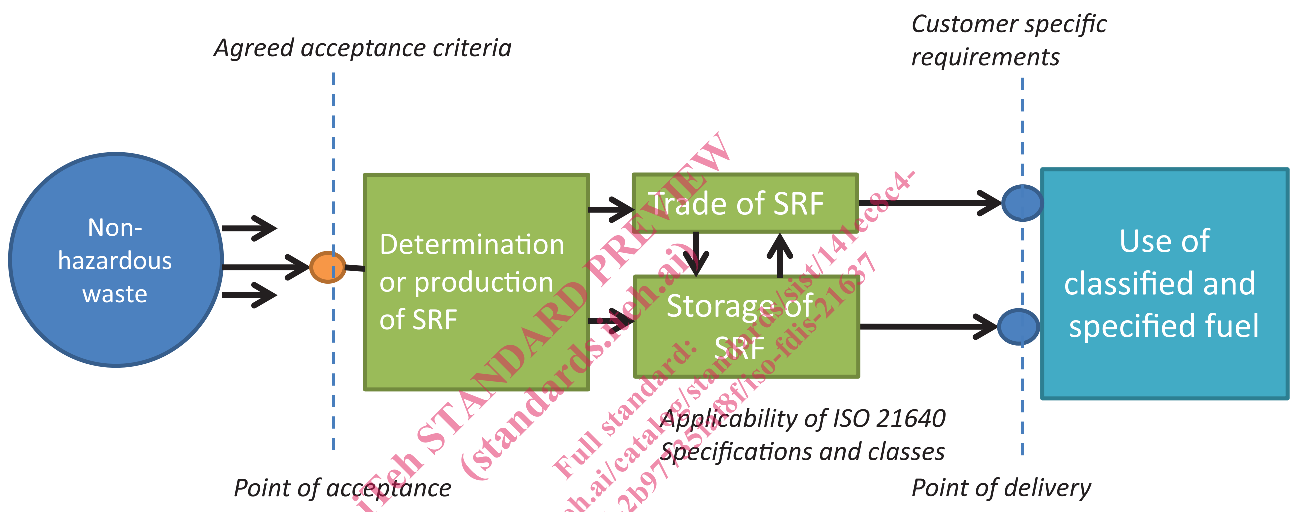

Figure 1 — Vocabulary boundaries for solid recovered fuels

NOTE Solid biofuels are covered by the scope of ISO/TC 238.

2 Normative references

There are no normative references in this document.

3 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 https://www.iso.org/obp

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

3.1
analysis sample
sample (3.63) taken specifically for the purpose of determining specified parameters

3.2
as received
ar
calculation basis for material at delivery to the end user

3.3
ash
ash content on dry basis
total ash
A
mass of inorganic residue remaining after ignition of a fuel under specified conditions, expressed as mass fraction in percent of the *dry matter* (3.22) in the fuel, also includes *removed ash contributors* (3.62)

Note 1 to entry: This is typically expressed as a percentage of the mass of dry matter in the fuel source.

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

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

[SOURCE: ISO 16559:2014, 4.13, modified — Moved the last part of the sentence from “typically…” into the new Note 1 to entry, old “Note 1 to entry” removed.]

3.4
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 oxidizing or reducing conditions.

Note 2 to entry: See also *ash sphere temperature* (3.5).

[SOURCE: ISO 16559:2014, 4.16, modified — Note 2 to entry has added number references for this standard and ‘ash shrinkage temperature’ was changed to ‘ash sphere temperature’.]

3.5
ash sphere temperature
temperature where the height of a pyramidal and truncated-cone test pieces is equal to the width of the base, or the edges of cubical or cylindrical test pieces are completely round with the height remaining unchanged

Note 1 to entry: Adapted from ISO 540:2008, 3.1 deformation temperature — DT temperature at which the first signs of rounding, due to melting, of the tip or edges of the test piece occur.

3.6
bale
material which has been compressed and bound to keep its shape and density

3.7
biomass
material of biological origin excluding material embedded in geological formations and/or fossilized

[SOURCE: ISO 16559:2014, 4.32, modified — Notes 1 and 2 to entry were removed.]

3.8
bridging
arching
tendency of particles to form a stable bridge across an opening and which restricts flow

3.9
bulk density
ρ
mass of a portion (i.e. a large quantity of particulate material) of a solid fuel divided by the volume of the container which is filled by that portion under specific conditions

[SOURCE: ISO 16559:2014, 4.40]

3.10
calorific value
heating value
quantity of heat produced by the complete combustion, at a constant pressure equal to 1 013,25 mbar, of a unit volume or mass of gas, the constituents of the combustible mixture being taken at reference conditions and the products of combustion being brought back to the same conditions

[SOURCE: EN 437: 2018, modified — Second paragraph and list were removed.]

3.11
chips
chipped material with a typical length 5 mm to 50 mm commonly in the form of pieces with a defined particle size produced by mechanical treatment with sharp tools such as knives

3.12
classification of solid recovered fuels
categorizing of *solid recovered fuels* (3.75) into classes focusing on the key properties — net calorific value, chlorine and mercury that are defined by boundary values

3.13
component
part or element of a larger whole of a *solid recovered fuel* (3.75) or a general material

3.14
composition
break down of *solid recovered fuels* (3.75) by types of *components* (3.13)

Note 1 to entry: This is typically expressed as a percentage of the mass fraction component in the fuel on an *as received* (3.2) basis (m-% ar).

Note 2 to entry: Examples of components — wood, paper, board, textiles, plastics, rubber.

3.15
crushing
mechanical reduction of particle size by exerting mainly blunt deforming forces to a material

3.16
densified solid recovered fuel
solid recovered fuel (3.75) made by mechanically compressing loose material to mould it into a specific size and shape

Note 1 to entry: Examples are pellets and briquettes.

Note 2 to entry: The process can be aided by adding heat or binders.

3.17
distribution factor
correction factor for the *particle size distribution* (3.53) of the material to be sampled

3.18
drop flow
material flow falling over an overflow point or a drop point in a transport system

3.19
drying
process of removing water from a material

Note 1 to entry: For the purpose of test sample preparation, it may be useful to remove just the amount of water that could interfere with other processes involved (e.g. during *crushing* (3.15) or *milling* (3.42)). In order to minimise the alteration of the solid fuel during test portion preparation, removing the total amount of water present is not necessarily needed.

3.20
dry
dry basis
D
calculation basis in which the material is considered free from *moisture* (3.46)

[SOURCE: ISO 16559:2014, 4.72, modified — 'Solid biofuel' was replaced with 'material' and notes were removed.]

3.21
dry ash free
dry ash free basis
daf
calculation basis in which the material is considered free from *moisture* (3.46) and *ash* (3.3)

Note 1 to entry: The abbreviation of dry ash free is daf.

[SOURCE: ISO 16559:2014, 4.71, modified — 'Solid biofuel' was replaced by 'material' and 'inorganic matter' by 'ash'.]

3.22
dry matter
material remaining after removal of *moisture* (3.46) under specific conditions

[SOURCE: ISO 16559:2014, 4.73]

3.23
duplicate sample
two *samples* (3.63) taken under comparable conditions

Note 1 to entry: This selection may be accomplished by taking units adjacent in time or space.

3.24
effective increment size
minimum sample size (3.44) divided by the number of *increments* (3.39)

3.25
effective sample size
effective increment size (3.24) multiplied by the number of *increments* (3.39)

3.26
electromagnetic separation of non-ferrous metals
separation of non-ferrous metals by inducing temporary magnetic forces

Note 1 to entry: This term is also known as eddy current separation.

3.27
energy conversion
use of the *calorific value* (3.10) of the *solid recovered fuel* (3.75) for *energy purposes* (3.29), alone or with other fuels

Note 1 to entry: Solid recovered fuels may be an intermediary energy carrier and used directly or indirectly for the energy conversion such as in multi-stage production and use of synthetic gas. Examples of energy conversion processes are incineration, co-incineration, combustion, co-combustion, gasification and pyrolysis, in which energy is used for supplying heat, cooling and/or electric power.

3.28
energy density
E
ratio of net energy content and bulk volume

Note 1 to entry: The energy density is calculated by dividing the net calorific value by the *bulk density* (3.9).