



SLOVENSKI STANDARD **oSIST prEN ISO 21945:2018**

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**Trdna biogoriva - Poenostavljena metoda vzorčenja za uporabo v manjšem obsegu
(ISO/DIS 21945:2018)**

Solid biofuels - Simplified sampling method for small scale applications (ISO/DIS 21945:2018)

Biogene Festbrennstoffe - Vereinfachtes Verfahren zur Probenahme bei kleinen Anwendungen (ISO/DIS 21945:2018)

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Solid biofuels — Simplified sampling method for small scale applications

Titre manque

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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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This document was prepared by Technical Committee ISO/TC 238, *Solid biofuels*,

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 objective of this International Standard is to provide unambiguous and clear principles for sampling of solid biofuels from small scale applications and storages. It is to serve as a tool to enable efficient trading of biofuels and to enable good understanding between seller and buyer. It is also a tool for communication with equipment manufacturers. It will also facilitate the development of sampling plans and reporting.

This document is intended for all stakeholders.

Priority in ISO 21945 is to take a number of increments which is possible to handle at small applications under practical aspects. In ISO 18135 the priority is to obtain a sample with a defined precision and to calculate the minimum number of increments on basis of the corresponding precision data.

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Solid biofuels — Simplified sampling method for small scale applications

1 Scope

This document describes simplified methods for taking samples of solid biofuels in small scale applications and storages including preparation of sampling plans and reports. The main focus is on storages with a size of ≤ 100 t. This document is applicable to the following solid biofuels:

- fine (up to about 10 mm nominal top size) and regularly-shaped particulate materials that can be sampled using a scoop or pipe, e.g. sawdust, olive stones and wood pellets;
- coarse or irregularly-shaped particulate materials (up to 200 mm nominal top size) that can be sampled using a fork or shovel, e.g. wood chips, hog fuel and nut shells;
- large pieces (above 200 mm nominal top size) which are picked manually (e.g. firewood and briquettes);

This document can also be used for other solid biofuels not listed above if the procedures described in this document are applicable. This document specifies methods to be used, for example, when a sample is to be tested for moisture content, ash content, calorific value, bulk density, mechanical durability, particle size distribution, ash melting behaviour and chemical composition.

NOTE If higher precision of analytical results is needed or when in doubt if this document is applicable ISO 18135 can be used.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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*

ISO 16559, *Solid biofuels — Terminology, definitions and descriptions*

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

ISO 17225-2, *Solid biofuels — Fuel specifications and classes — Part 2: Graded wood pellets*

ISO 17225-3, *Solid biofuels — Fuel specifications and classes — Part 3: Graded wood briquettes*

ISO 17225-4, *Solid biofuels — Fuel specifications and classes — Part 4: Graded wood chips*

ISO 17225-5, *Solid biofuels — Fuel specifications and classes — Part 5: Graded firewood*

ISO 17225-6, *Solid biofuels — Fuel specifications and classes — Part 6: Graded non-woody pellets*

ISO 17225-7, *Solid biofuels — Fuel specifications and classes — Part 7: Graded non-woody briquettes*

ISO 17225-8, *Solid biofuels — Fuel specifications and classes — Part 8: Graded thermally treated and densified biomass fuels*

3 Terms and definitions

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

ISO/DIS 21945:2018(E)

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**combined sample**

sample consisting of all the increments taken from a lot or sub-lot

Note 1 to entry: The increments may be reduced by division before being added to the combined sample.

[SOURCE: ISO 16559, 4.52]

3.2**increment**

portion of fuel extracted in a single operation of the sampling device

[SOURCE: ISO 16559, 4.122]

3.3**laboratory sample**

combined sample or a sub-sample of a combined sample for use in a laboratory

[SOURCE: ISO 16559, 4.124]

3.4**lot**

defined quantity of fuel for which the quality is to be determined

[SOURCE: ISO 16559, 4.128, modified — Note 1 to entry has been removed.]

3.5**nominal top size**

aperture size of the smallest sieve through which at least 95 % by mass of the material passes during the determination of particle size distribution

Note 1 to entry: For selection of sieves types and aperture sizes see ISO 17827-1 and ISO 17827-2.

Note 2 to entry: For pellets the diameter is used.

[SOURCE: ISO 16559, 4.137, modified — Note 1 and 2 to entry have been added for additional information.]

3.6**sample**

quantity of material, representative of a larger quantity for which the quality is to be determined

[SOURCE: ISO 16559, 4.170, modified — Note 1 to entry has been removed.]

3.7**sub-lot**

part of a lot for which a test result is required

EXAMPLE Material in a transport unit or on a particular stockpile.

[SOURCE: ISO 16559, 4.197, modified — Example has been added.]

3.8**sub-sample**

portion of a sample

[SOURCE: ISO 16559, 4.198]

4 Symbols and abbreviated terms

- m is the mass of the lot or subplot [g or kg];
- $d_{95\%}$ is nominal top size biofuel [mm];
- V_{incr} is minimum volume of increment [litre];
- V_{req} is the volume required for the foreseen analyses [litre];
- W is the width of a sampling tool [mm].

5 Principle

The main principle of sampling is to obtain a representative sample(s) from the whole lot concerned. Every particle in the lot or sub-lot to be represented by the sample should have an equal probability of being included in the sample. In order to do so a sampling plan is needed. [Figure 1](#) shows the main steps of a sampling procedure.

Under certain circumstances (e.g. certain construction types of built in storages, silos or containers) representative sampling might not be possible.

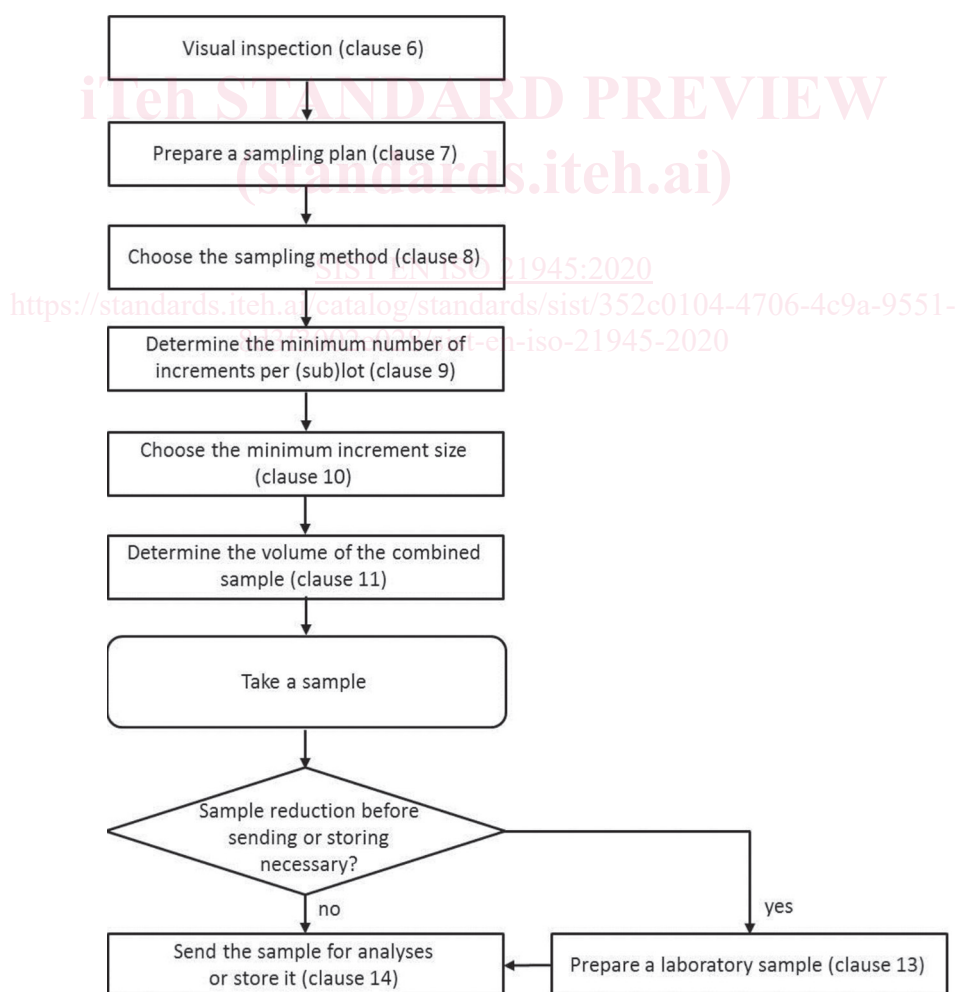


Figure 1 — Procedure for sampling