



SLOVENSKI STANDARD
oSIST prEN ISO 17827-2:2023
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Trdna biogoriva - Določanje porazdelitve velikosti delcev za nekomprimirana goriva - 2. del: Metoda z vibracijskim sitom z odprtinami 3,15 mm in manj (ISO/DIS 17827-2:2022)

Solid biofuels - Determination of particle size distribution for uncompressed fuels - Part 2: Vibrating screen method using sieves with aperture of 3,15 mm and below (ISO/DIS 17827-2:2022)

Biogene Festbrennstoffe - Bestimmung der Partikelgrößenverteilung für unkomprimierte Brennstoffe - Teil 2: Vertikales Rüttelsiebverfahren mit Sieben mit einer Lochgröße von 3,15 mm und darunter (ISO/DIS 17827-2:2022)

Biocombustibles solides - Détermination de la distribution granulométrique des combustibles non comprimés - Partie 2: Méthode au tamis vibrant d'ouverture de maille inférieure ou égale à 3,15 mm (ISO/DIS 17827-2:2022)

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Solid biofuels — Determination of particle size distribution for uncompressed fuels —

Part 2: Vibrating screen method using sieves with aperture of 3,15 mm and below

Biocombustibles solides — Détermination de la distribution granulométrique des combustibles non comprimés —

Partie 2: Méthode au tamis vibrant d'ouverture de maille inférieure ou égale à 3,15 mm

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ISO/DIS 17827-2:2022(E)

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.

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

A list of all parts in the ISO 17827 series can be found on the ISO website.

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.

This second edition cancels and replaces the first edition (ISO 17827-2:2016), which has been technically revised. The main changes are as follows:

- a) Several sieves were removed from the set; the remaining sieves have apertures of 3,15, 2,0, 1,0, 0,5 and 0,1 mm.
- b) The table of results was modified and adapted.
- c) References were updated.
- d) An introduction was added.
- e) Editorial changes were made.

Introduction

Particle size and size distribution of uncompressed solid biofuels significantly influence the transport, handling and combustion properties of solid fuels. Depending on the type of fuel feeding and the type and size of a conversion plant, fuels of different particle sizes are suitable. Of particular interest are also the fines fraction and oversized particles. An increased content of fine particles can lead to clogging in feed systems and unsteady combustion. Oversized particles can block conveying systems or cause bridging problems in silos and can reduce the bulk density of the fuel. Very fine particles can have negative health effects and are relevant for explosion protection reasons (< 0,5 mm).

ISO 17827, describing the determination of particle size distribution, consists of the following parts under the general title Solid biofuels - Determination of particle size distribution for uncompressed fuels:

Part 1: Oscillating screen method using sieves with apertures of 3,15 mm and above

Part 2: Vibrating screen method using sieves with apertures of 3,15 mm and below

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Solid biofuels — Determination of particle size distribution for uncompressed fuels —

Part 2: Vibrating screen method using sieves with aperture of 3,15 mm and below

1 Scope

This part of ISO 17827 specifies a method for the determination of the size distribution of particulate biofuels by the vibrating screen method. The method described is meant for particulate biofuels only, namely, materials that either have been reduced in size, such as most wood fuels, or are physically in a particulate form. This part of ISO 17827 applies to particulate uncompressed fuels with a nominal top size of 3,15 mm and below (e.g. sawdust).

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 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

ISO 3310-2, *Test sieves — Technical requirements and testing — Part 2: Test sieves of perforated metal plate*

ISO 14780, *Solid biofuels — Sample preparation*

ISO 16559, *Solid biofuels — Vocabulary*

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

ISO 18134-1, *Solid biofuels — Determination of moisture content — Part 1: Reference method*

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

ISO 18135, *Solid Biofuels — Sampling*

ISO 21945, *Solid biofuels — Simplified sampling method for small scale applications*

3 Terms and definitions

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

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

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3.1 sieve fraction

mass fraction of test portion or sub portion collected on a sieve after particle separation through the sieving process.

4 Principle

A laboratory sample is subjected to sieving through vibrating sieves, sorting the particles in decreasing size classes by mechanical means.

NOTE Manual sieving is excluded due to the fact that small sieve holes could easily be clogged by particles.

5 Apparatus

5.1 Sieves

For the test, an appropriate number of either circular or rectangular sieves with a minimum effective sieve area of 250 cm² is required. For laboratory samples with a top size below 3,15 mm, the sieves shall have an aperture geometry in accordance with ISO 3310-1 (metal wire cloth) and for test materials with a top size 3,15 mm or above, the sieves shall have round perforated holes in metal plate in accordance with ISO 3310-2 (perforated metal plate). The frame of the sieves shall have a height that enables the sieves to contain the samples and allows a free movement of the sample during the sieving process.

The number of sieves and the aperture sizes of the sieves shall be chosen with the size specification for the actual laboratory sample material in accordance with the appropriate part of the ISO 17225-series. For sawdust and similar fine grade materials, the following set of sieves is recommended:

- 3,15 mm round holes;
- 2,0 mm metal wire cloth;
- 1,0 mm metal wire cloth;
- 0,5 mm metal wire cloth;
- 0,1 mm metal wire cloth.

NOTE If further classification of particles is required, other sieves can be used.

5.2 Collecting pan

For collection of material passing through the sieves, a collecting pan of adequate size is required.

5.3 Weighing containers

The weighing of the sieved particle fractions can be performed either by weighing the remaining material directly on the tarred weighed sieves or by collecting and weighing the material in weighing containers. For this purpose, an adequate number of weighing containers are required.

5.4 Brush

For cleaning the sieves, a brush is required.

5.5 Mechanical sieving equipment

The mechanical device (sieving machine) shall apply a vibration on the sieves. Some sieving machines have adjustable parameters. The results of the sieving may differ depending on how adjustable parameters are controlled. It is therefore important for comparative purposes to report how adjustable