INTERNATIONAL STANDARD

ISO 17827-2

First edition
2016-05-15

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

Reference number
ISO 17827-2:2016(E)

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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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 238, *Solid biofuels*.

ISO 17827 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*

Part 2 can also be used for round hole sieves with apertures of 4,0 and 5,6 mm.

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, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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[1)], *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 18134-1, *Solid biofuels — Determination of moisture content — Oven dry method — Part 1: Total moisture — Reference method*

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

ISO 18135[1)], *Solid biofuels — Sampling*

3 Terms and definitions

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

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.

1) To be published.

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 cm^2 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 ISO 17225-1. For sawdust and similar fine grade materials, the following set of sieves is recommended:

— 3,15 mm round holes;

— 2,8 mm metal wire cloth;

— 2,0 mm metal wire cloth;

— 1,4 mm metal wire cloth;

— 1,0 mm metal wire cloth;

— 0,5 mm metal wire cloth;

— 0,25 mm metal wire cloth.

NOTE If further classification of larger particles is required, sieves with round holes with an aperture of 4,0 mm and 5,6 mm can be applied.

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 parameters have been used in terms of frequency, amplitude, duration, etc. If machines have adjustable, dimensionless settings, an estimate of the adjustable degree shall be recorded to the best of the ability of the operator.

For a principle drawing of the sieving operation, see Figure 1.

NOTE Be aware that vibrating at an amplitude that is too low might lead to incomplete particle segregation. The minimum amplitude can be determined by pre-tests.

