INTERNATIONAL STANDARD

ISO 17827-1

First edition
2016-03-01

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

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

Partie 1: Méthode au tamis oscillant d'ouverture de maille égale ou supérieure à 3,15 mm

Reference number
ISO 17827-1:2016(E)

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

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 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*

NOTE ISO 17827–2 can also be used for round hole sieves with apertures of 4,0 mm and 5,6 mm.

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

1 Scope

This part of ISO 17827 specifies a method for the determination of the size distribution of particulate biofuels by the horizontally oscillating screen method. It applies to particulate uncompressed fuels with a nominal top size of 3,15 mm and above, e.g. wood chips, hog fuel, olive stones, etc. The method is intended to characterize material up to a particle size class of P63. For larger P-classes, the characterization is mainly done by hand sorting.

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

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

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

ISO 17827–2[1)], *Solid biofuels — Determination of particle size distribution for uncompressed fuels — Part 2: Vibrating screen method using sieves with apertures of 3,15 mm and below*

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*

EN 14778, *Solid biofuels — Sampling*

EN 14780, *Solid biofuels — Sample preparation*

3 Terms and definitions

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

3.1
median value of the size distribution
median value [d50] that separates a distribution into two equal parts

Note 1 to entry: Graphically, the median value is the intercept point of the cumulative size distribution curve with the 50 % horizontal line.

1) To be published.

3.2
sieve fraction
material collected on a sieve

4 Principle

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

5 Apparatus

5.1 Sieves, an appropriate number of either circular or rectangular sieves with a minimum effective sieve area of 1 200 cm^2 is required for the test.

The sieves shall have round perforated holes in metal plate in accordance with ISO 3310-2. The frame of the sieves shall have a height that will enable the sieves to contain the sample 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 in accordance with the size specification for the actual test sample material (see also ISO 17225-1).

NOTE 1 For laboratory samples with a nominal top size of less than 10 mm, an effective sieve area of less than 1 200 cm^2 is adequate.

NOTE 2 For laboratory samples such as wood chips, the following set of sieves may be selected: 3,15 mm; 8,0 mm; 16 mm; 31,5 mm; 45 mm; 63 mm. If no particles are caught by the larger sieves, these can be omitted from the set. For further size distribution determination of the fraction passing through the 3,15 mm sieve, see ISO 17827-2.

NOTE 3 Sieve sizes above 63 mm are not useful since the oscillation might not force the particles to orientate perpendicular to the plane of the sieves. Furthermore, the distance to the sieve below will have to be longer than the usual 80 mm in order to allow the long and slim particles to pass through the holes.

For checking compliance with particle size specification in ISO 17225-1, only those sieve sizes which have limit values are required.

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

5.3 Weighing containers, an adequate number of weighing containers are required.

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.

5.4 Mechanical sieving equipment

The sieving operation shall be horizontally oscillating (one or two dimensional) using an appropriate stroke-frequency depending on the type of material being analyzed. 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 the adjustable parameters are set 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 1 Be aware that oscillating at too low of a frequency can lead to incomplete particle segregation. The minimum frequency can be determined by conducting pre-tests.