



SLOVENSKI STANDARD
oSIST prEN ISO 17830:2015
01-april-2015

Trdna biogoriva - Določevanje porazdelitve velikosti delcev peletiziranih materialov (ISO/DIS 17830:2015)

Solid biofuels - Determination of particle size distribution of material within pellets (ISO/DIS 17830:2015)

Biogene Festbrennstoffe - Bestimmung der Partikelgrößenverteilung von Pellet-Ausgangsmaterial (ISO/DIS 17830:2015)

Biocombustibles solides - Détermination de la distribution granulométrique des granulés désintégrés (ISO/DIS 17830:2015)

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Solid biofuels — Determination of particle size distribution of material within pellets

Biocombustibles solides — Détermination de la distribution granulométrique des granulés désintégrés

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ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

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ISO/DIS 17830:2014(E)**Foreword**

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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. www.iso.org/directives

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The committee responsible for this document is ISO/TC 238, Solid biofuels, Working Group WG 4, Physical and Mechanical Test Methods.

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Introduction

In power plants with powder fuel burners for energy production, the operators need information about the particle size distribution of the fuel for optimising particle burnout during combustion. Fuel preparation equipment such as pulverizers are used for crushing pellets into the original particle sizes before the material was pressed into pellets. The method described in this document is intended to characterize particle size distribution of the material contained within fuel pellets and also allows for a relative comparison of pellets of different manufacturing.

This method is based on experience with pellets made from sawdust, wood shavings and milled wood as well as straw. The method may also be applicable for pellets produced from other solid biofuel materials provided they can be dissolved into its constituents in water.

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Solid biofuels — Determination of particle size distribution of material within pellets

1 Scope

This document aims to define the requirements and method used to determine particle size distribution of disintegrated pellets. It is applicable for pellets, which disintegrate in hot water.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including amendments) applies.

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

ISO/FDIS 18134-1, (14774-1), *Solid biofuels – Determination of moisture content – Oven dry method - Part 1: Total moisture - Reference procedure*

ISO/FDIS 18134-2, (14774-2), *Solid biofuels – Determination of moisture content – Oven dry method - Part 2: Total moisture - Simplified procedure*

ISO CD 18135 (14778), *Solid biofuels – Sampling*

ISO CD 14780, *Solid biofuels – Sample preparation*

ISO/DIS 17827-2, (15149-2), *Solid biofuels – Determination of particle size distribution for uncompressed fuels – Part 2 Vibrating screen using sieves for classification of samples with apertures of 3,15 mm and below.*

ISO/DIS 17225-2, (14961-2), *Solid biofuels – Fuel Specifications and classes – Part 2: Graded wood pellets*

3 Terms and definitions

3.1

Nominal top size

Aperture of the sieve where at least 95 % by mass of the material passes (see ISO 16559)

3.2

Test sample

The original sample sent to the laboratory for analysis

3.3

Test portion

The sample extracted from the test sample and used during the analysis

3.4

Sub portion

A portion extracted from the test portion

3.5

Sieve fraction

The material collected on a sieve

Note 1 to entry: For the purpose of this document, the terms and definitions given in ISO 16559 apply.

ISO/DIS 17830:2014(E)

4 Principle

The particle size distribution is determined after the sample pellets have been disintegrated in hot deionised water and dried in a drying cabinet or oven. The determination is performed by sieving the dried material in accordance with ISO/DIS 17827-2, (15149-2).

5 Reagents

Deionised water.

6 Apparatus

6.1 Disintegration container

Water-proof container made of material such as stainless steel capable of withstanding a temperature of 100°C. The container shall be able to hold at least 2000 ml of the deionised water and the entire test portion of pellets without spilling over during stirring.

A lid or a cover, e.g. aluminium foil, shall be used to cover the container during the dissolving of the pellets in water.

Note Volume of container should be about 5 L.

6.2 Electric kettle or other suitable equipment for water heating

Electric kettle capable of heating at least 2000 ml of water.

6.3 Drying cabinet or oven

Drying cabinet or oven shall be capable of maintaining a temperature of $60\pm 5^{\circ}\text{C}$ with at least 3 air exchanges per hour. The air velocity shall be such that the test sample particles are not dislodged from the drying container(s).

Note Higher air exchange rates will shorten the drying time.

6.4 Drying containers

The drying containers shall consist of non-corrodible heat-resistant material such as metal, glass or porcelain and be able to hold sufficient volume to accommodate the slurry from the disintegration container.

6.5 Balance

The balance shall be capable of reading to the nearest 0,01 g.

6.6 Sieves

The set of sieves described in ISO/DIS 17827-2, (15149-2) and listed in Table 1 shall be considered the default sieve set. However other sieve sets can be used based on the specific requirements as agreed upon by the interested parties such as listed in Table 2.

6.7 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.