International Standard

ISO 17831-1

Solid biofuels — Determination of mechanical durability of pellets and briquettes —

Part 1: Pellets

Biocombustibles solides — Détermination de la résistance mécanique des granulés et des briquettes —

Partie 1: Granulés

Second edition
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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 document 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 and pyrogenic biocarbon,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 335, *Solid biofuels and pyrogenic biocarbon,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 17831-1:2015), which has been technically revised.

The main changes are as follows:

— the introduction has been revised;

— a reference to ISO 21945 has been included;

— the description of the sample preparation has been revised to provide more practical guidance for the preparation of test portions;

— the description of sieving procedures has been substituted by a reference to ISO 5370.

A list of all parts in the ISO 17831 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.

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Introduction

Compressed solid biomass fuel is usually assigned either as pellets or briquettes, of which pellets usually have a diameter less or equal to 25 mm while for briquettes the diameter is higher (see ISO 17225-1). The mechanical durability is an important parameter to estimate the tendency to create new fines by abrasion of pellets or briquettes during handling.

To account for the different particle dimensions, it is necessary to specify different test apparatuses for determination of the mechanical durability of pellets and briquettes.

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Solid biofuels — Determination of mechanical durability of pellets and briquettes —

Part 1: Pellets

1 Scope

This document specifies a method for determination of the mechanical durability of pellets. The mechanical durability is a measure of the resistance of compressed fuels towards shocks and/or abrasion as a consequence of handling and transportation.

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

ISO 5370, *Solid biofuels — Determination of fines content in pellets*

ISO 14780, *Solid biofuels — Sample preparation*

ISO 16559, *Solid biofuels — Vocabulary*

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

ISO 18134-2, *Solid biofuels — Determination of moisture content — Part 2: 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/

4 Principle

A test portion is subjected to controlled shocks by collision of pellets against each other and against the walls of a specified rotating test chamber. After tumbling, the test portion is sieved to remove the resulting fines <3,15 mm. The mechanical durability is expressed as the proportion of the test portion remaining after the fines are removed.

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