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**Solid biofuels — Fuel specifications  
and classes —**

**Part 1:  
General requirements**

*Biocombustibles solides — Classes et spécifications des  
combustibles —*

*Partie 1: Exigences générales*



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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](http://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](http://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 17225 consists of the following parts, under the general title *Solid biofuels — Fuel specifications and classes*:

- *Part 1: General requirements*
- *Part 2: Graded wood pellets*
- *Part 3: Graded wood briquettes*
- *Part 4: Graded wood chips*
- *Part 5: Graded firewood*
- *Part 6: Graded non-woody pellets*
- *Part 7: Graded non-woody briquettes*

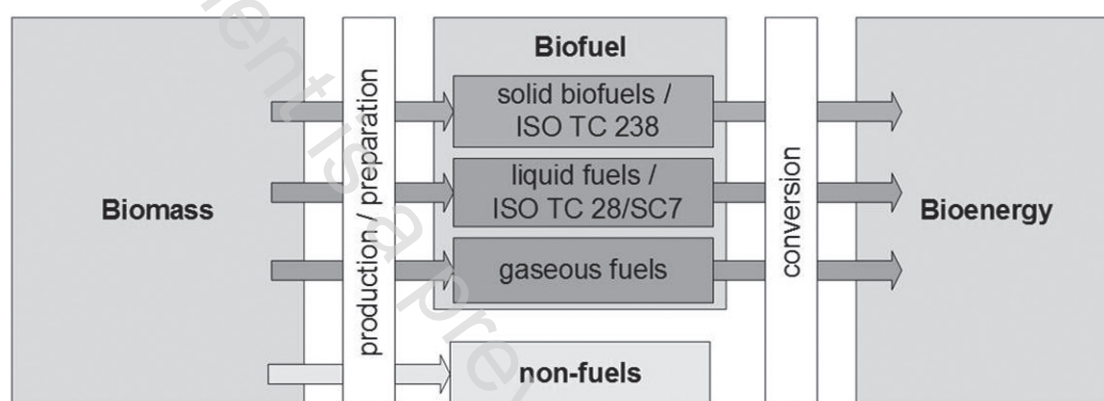
## Introduction

The objective of the ISO 17225 series is to provide unambiguous and clear classification principles for solid biofuels and to serve as a tool to enable efficient trading of biofuels and to enable good understanding between seller and buyer as well as a tool for communication with equipment manufacturers. It will also facilitate authority permission procedures and reporting.

The ISO 17225 series is made for all stakeholders.

Solid biomass covers organic, non-fossil material of biological origin which may be used as fuel for heat and electrical generation.

[Figure 1](#) describes the bioenergy utilization chain from sources of biomass, to biofuel production to final use of bioenergy. Although biomass can be used for energy generation it has many other primary uses (non-fuels) as a raw material for construction, furniture, packaging, paper products, etc.



**Figure 1 — ISO TC 238 within the biomass — Biofuel — Bioenergy field**

The classifications given in this International Standard are provided with the objective of using biomass as a solid biofuel and therefore do not deal with all other uses.

Although these product standards may be obtained separately, they require a general understanding of the standards based on and supporting ISO 17225-1. It is recommended to obtain and use ISO 17225-1 in conjunction with these standards.

In these product standards, graded means that solid biofuel is used either in commercial applications, such as in households and small commercial and public sector buildings or industrial applications, which demand the use of fuels with specified quality (properties) expressed by quality classes like A1, A2 or B.



# Solid biofuels — Fuel specifications and classes —

## Part 1: General requirements

### 1 Scope

This part of ISO 17225 determines the fuel quality classes and specifications for solid biofuels of raw and processed materials originating from

- a) forestry and arboriculture;
- b) agriculture and horticulture;
- c) aquaculture.

Chemically treated material may not include halogenated organic compounds or heavy metals at levels higher than those in typical virgin material values (see [Annex B](#)) or higher than typical values of the country of origin.

NOTE Raw and processed material includes woody, herbaceous, fruit, aquatic biomass and biodegradable waste originating from above sectors.

### 2 Normative references

The following referenced 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.

NOTE ISO standards describing methods for analysis of fuel properties listed in the Bibliography, will become normative references when they are published.

ISO 16559, *Solid biofuels — Terminology, definitions and descriptions*<sup>1)</sup>

ISO 16948, *Solid biofuels — Determination of total content of carbon, hydrogen and nitrogen*<sup>2)</sup>

ISO 16967, *Solid biofuels — Determination of major elements*<sup>3)</sup>

ISO 16968, *Solid biofuels — Determination of minor elements*<sup>4)</sup>

ISO 16993, *Solid biofuels — Conversion of analytical results from one basis to another*<sup>5)</sup>

ISO 16994, *Solid biofuels — Determination of total content of sulfur and chlorine*<sup>6)</sup>

ISO 17828, *Solid biofuels — Determination of bulk density*<sup>7)</sup>

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6) To be published.

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ISO 17829, *Solid biofuels — Determination of length and diameter for pellets*<sup>8)</sup>

ISO 17831-1, *Solid biofuels — Determination of mechanical durability of pellets and briquettes — Part 1: Pellets*<sup>9)</sup>

ISO 17831-2, *Solid biofuels — Determination of mechanical durability of pellets and briquettes — Part 2: Briquettes*<sup>10)</sup>

ISO 18122, *Solid biofuels — Determination of ash content*<sup>11)</sup>

ISO 18123, *Solid biofuels — Determination of the content of volatile matter*<sup>12)</sup>

ISO 18134-1, *Solid biofuels — Determination of moisture content — Oven dry method — Part 1: Total moisture — Reference method*<sup>13)</sup>

ISO 18134-2, *Solid biofuels — Determination of moisture content — Oven dry method — Part 2: Total moisture — Simplified method*<sup>14)</sup>

### 3 Terms and definitions

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

#### 3.1 chemical treatment

any treatment with chemicals other than air, water or heat

Note 1 to entry: Examples of chemical treatments are listed in informative [Annex C](#).

#### 3.2 commercial application

facility that utilize solid biofuel burning appliances or equipment that have similar fuel requirements as residential appliances

Note 1 to entry: Commercial applications should not be confused with industrial applications, which can utilize a much wider array of materials and have vastly different fuel requirements.

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