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## Bamboo charcoal —

### Part 1: Generalities

*Charbon de bambou —  
Partie 1: Généralités*

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# Contents

	Page
Foreword .....	iv
Introduction .....	v
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Classification</b> .....	<b>2</b>
<b>5 Requirements</b> .....	<b>3</b>
5.1 Sensory inspection .....	3
5.2 Methods of measuring bamboo charcoal particle size .....	3
5.3 Requirements of physical and chemical properties for bamboo charcoal .....	3
<b>6 Sampling</b> .....	<b>4</b>
<b>7 Analytical methods</b> .....	<b>4</b>
7.1 Visual inspection procedure .....	4
7.2 Determination of moisture content .....	4
7.3 Determination of ash content .....	4
7.4 Determination of fixed carbon .....	4
<b>8 Marking and labelling</b> .....	<b>5</b>
<b>9 Packaging, transport and storage</b> .....	<b>5</b>
<b>Annex A (informative) Packaging, transport and storage</b> .....	<b>6</b>
<b>Bibliography</b> .....	<b>7</b>

## 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. [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. [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](#)

This document is prepared by Technical Committee ISO/TC 296, *Bamboo and Rattan*.

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](http://www.iso.org/members.html).

## Introduction

The use of bamboo for charcoal provides an effective means of improving the utilization of bamboo. Bamboo charcoal can be produced by a wide variety of traditional methods and modern technology. With the increase in the use of charcoal for household and industrial purposes, the need has arisen for specifications that establish a standard for classification and testing.

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# Bamboo charcoal —

## Part 1: Generalities

### 1 Scope

This document specifies the requirements and test methods for bamboo charcoal. It is applicable to the bamboo charcoal briquette.

### 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 1953, *Hard coal — Size analysis by sieving*

ISO 18122, *Solid biofuels — Determination of ash content*

ISO 18123, *Solid biofuels — Determination of the content of volatile matter*

ISO 18134-3, *Solid biofuels — Determination of moisture content — Oven dry method — Part 3: Moisture in general analysis sample*

ISO 18135, *Solid Biofuels — Sampling*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <http://www.electropedia.org/>

#### 3.1

##### **bamboo charcoal**

##### **BC**

black solid porous product made of carbonized bamboo

#### 3.2

##### **bamboo charcoal briquette**

##### **BCB**

shaped, solid product of carbonized bamboo particles or charcoal made by compression or extrusion with or without a binder

#### 3.3

##### **tubular bamboo charcoal**

##### **TBC**

*bamboo charcoal* (3.1) made of carbonized bamboo culm

**3.4  
bamboo charcoal flakes**

**BCF**

flat, thin pieces of *bamboo charcoal* (3.1)

**3.5  
bamboo charcoal granules**

**BCG**

minute quantity or fragment of *bamboo charcoal* (3.1)

**3.6  
bamboo charcoal powder**

**BCP**

milled or pulverized charcoal with a typical particle size less than 1 mm

**3.7  
moisture content**

**MC**

water in the fuel removable under specific conditions

**3.8  
ash content**

**AC**

mass of inorganic residue remaining after combustion of *bamboo charcoal* (3.1) under specified conditions, typically expressed as a percentage of the mass of dry matter in fuel

**3.9  
fixed carbon**

**FC**

remaining carbon after removal of water, ash and volatile matter

## 4 Classification

Bamboo charcoal could be classified into traditional bamboo charcoal and bamboo charcoal briquette, and the latter can be further subdivided into carbonized bamboo powder briquette (CBPB) and compressed bamboo charcoal powder briquette (BCPB), respectively, according to the production process.

NOTE 1 Bamboo charcoal briquettes can be produced through processes:

- a) Carbonization of bamboo powder briquettes, and
- b) Compression of bamboo charcoal powders.

NOTE 2 The raw material for process a) can be compressed bamboo powder with or without other biomass powder blends and mixtures.

NOTE 3 The raw material for process b) can be bamboo charcoal powder with or without other fuel blends and mixtures.



**Table 1 — Bamboo charcoal classification according to shape and size**

C(s1)	TBC	BCF <sup>a</sup>	BCG <sup>b</sup>			BCP <sup>b</sup>
			I	II	III	
C(s2) mm	$L > D$	(30 to 50) <sup>b</sup> (50 to 100)	1 to 3	3 to 10	10 to 20	≤1

**Key**  
C(s1) = Classification according to shape  
C(s2) = Classification according to Size  
TBC = Tubular bamboo charcoal  
L = Length  
D = Diameter  
BCF = Bamboo charcoal flakes  
BCG = Bamboo charcoal granules  
BCP = Bamboo charcoal powder

NOTE This table illustrates the classification of bamboo charcoal.

<sup>a</sup> Size (width × length) of (30 to 50) × (50 to 100) is mostly applied in current international trade. Size of bamboo charcoal flakes can also be provided in other specification upon request by supplier and purchaser.

<sup>b</sup> Size distribution of granules and powders should be minimum 80 % of which shall be fall in the range, i.e. minimum 80 % of bamboo charcoal granules with the size of 2 mm to 4 mm can be regarded as Grade II, otherwise, re-grading or reprocessing is required to reach the corresponding grade. See ISO 1953.

## 5 Requirements

### 5.1 Sensory inspection

The product shall appear black with no peculiar smell, contaminant and foreign matter.

### 5.2 Methods of measuring bamboo charcoal particle size

The bamboo charcoal particle size shall be measured in accordance with ISO 1953.

### 5.3 Requirements of physical and chemical properties for bamboo charcoal

**Table 2 — Requirements for physical and chemical properties of bamboo charcoal**

Item	Requirements					
	Bamboo Charcoal			Bamboo Charcoal Briquette		
Grading	I	II	III	I	II	III
MC %	≤9,00	≤12,00	≤12,00	≤9,00	≤12,00	≤12,00

**Key**  
BC = Bamboo Charcoal  
BCB = Bamboo Charcoal Briquette  
MC = Moisture content  
AC = Ash content  
FC = Fixed carbon

NOTE The physical and chemical properties of bamboo charcoal can be tested to comply with all the requirements specified in this table.