



**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN 14456:2004](#)

<https://standards.iteh.ai/catalog/standards/sist/4875eea9-1429-42d7-bddf-91636ecebcee/sist-en-14456-2004>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 14456**

June 2004

ICS 71.100.80

English version

## Products used for treatment of water intended for human consumption - Bone charcoal

Produits utilisés pour le traitement de l'eau destinée à la consommation humaine - Charbon animal

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Tierkohle

This European Standard was approved by CEN on 16 April 2004.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

[SIST EN 14456:2004](https://standards.iteh.ai/catalog/standards/sist/4875eea9-1429-42d7-bddf-91636ecebcee/sist-en-14456-2004)

<https://standards.iteh.ai/catalog/standards/sist/4875eea9-1429-42d7-bddf-91636ecebcee/sist-en-14456-2004>



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

## Contents

Foreword.....	4
1 Scope .....	6
2 Normative references .....	6
3 Terms and definitions .....	6
4 Description .....	6
4.1 Identification.....	6
4.1.1 Chemical name(s).....	6
4.1.2 Synonym or common names.....	6
4.1.3 Chemical formula.....	6
4.1.4 CAS Registry Number .....	6
4.1.5 EINECS Reference .....	7
4.2 Commercial form .....	7
4.3 Appearance .....	7
5 Physical properties.....	7
5.1 Particle size distribution .....	7
5.2 Density .....	7
6 Chemical properties .....	7
6.1 General.....	7
6.2 Purity criteria.....	8
6.2.1 General.....	8
6.2.2 Main impurities and by-products .....	8
6.2.3 Water-extractable polycyclic aromatic hydrocarbons (PAH).....	8
7 Specific properties.....	8
8 Test methods.....	8
8.1 Sampling.....	8
8.2 Analysis .....	8
8.2.1 Particle size distribution .....	8
8.2.2 Bulk density loose .....	9
8.2.3 Water content .....	9
8.2.4 Carbon and acid-insoluble ash determination .....	9
8.2.5 Water-extractable polycyclic aromatic hydrocarbons .....	10
9 Labelling, transportation and storage .....	11
9.1 Means of delivery.....	11
9.2 Risk and safety labelling according to EU Directives.....	11
9.3 Transportation regulations and labelling .....	12
9.4 Marking .....	12
9.5 Storage.....	12
9.5.1 Long term chemical stability .....	12
9.5.2 Storage incompatibilities .....	12
Annex A (informative) General information on bone charcoal .....	13
A.1 Origin .....	13
A.1.1 Raw materials.....	13
A.1.2 Manufacturing process .....	13
A.2 Typical properties .....	13
A.2.1 Chemical composition .....	13
A.2.2 Physical properties.....	13
A.3 Hydraulic characteristics .....	14
A.3.1 Headloss during filtration .....	14
A.3.2 Expansion during up-flow washing .....	14

A.4	Use .....	14
A.4.1	Function.....	14
A.4.2	Means of application .....	14
A.5	Rules for safe handling and use .....	14
A.6	Emergency procedures.....	14
A.6.1	First aid .....	14
A.6.2	Spillage .....	14
A.6.3	Fire .....	14
	Bibliography .....	15

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 14456:2004

<https://standards.iteh.ai/catalog/standards/sist/4875eea9-1429-42d7-bddf-91636ecebcee/sist-en-14456-2004>

EN 14456:2004 (E)

## Foreword

This document (EN 14456:2004) has been prepared by Technical Committee CEN/TC 164 "Water supply", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2004, and conflicting national standards shall be withdrawn at the latest by December 2004.

Annex A is informative.

This document includes a Bibliography.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 14456:2004

<https://standards.iteh.ai/catalog/standards/sist/4875eea9-1429-42d7-bddf-91636ecebcee/sist-en-14456-2004>

## Introduction

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the product covered by this standard :

- 1) this standard provides no information as to whether the product may be used without restriction in any of the Member States of the EU or EFTA ;
- 2) it should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

NOTE Conformity with the standard does not confer or imply acceptance or approval of the product in any of the Member States of the EU or EFTA. The use of the product covered by this European Standard is subject to regulation or control by National Authorities.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 14456:2004](https://standards.iteh.ai/catalog/standards/sist/4875eea9-1429-42d7-bddf-91636ecebcee/sist-en-14456-2004)

<https://standards.iteh.ai/catalog/standards/sist/4875eea9-1429-42d7-bddf-91636ecebcee/sist-en-14456-2004>

**EN 14456:2004 (E)****1 Scope**

This European Standard is applicable to bone charcoal used for the treatment of water intended for human consumption. It describes the characteristics of bone charcoal and specifies the requirements and the corresponding test methods for bone charcoal. It gives information on its use in water treatment.

**2 Normative references**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 12901:1999, *Products used for treatment of water intended for human consumption – Inorganic supporting and filtering materials – Definitions.*

EN 12902, *Products used for treatment of water intended for human consumption – Inorganic supporting and filtering materials – Methods of test.*

EN ISO 3696, *Water for analytical laboratory use - Specifications and test methods (ISO 3696:1987).*

ISO 4793, *Laboratory sintered (fritted) filters - Porosity grading, classification and designation.*

**3 Terms and definitions**

For the purposes of this European Standard, the terms and definitions given in EN 12901:1999 apply.

<https://standards.iteh.ai/catalog/standards/sist/4875eea9-1429-42d7-bddf-91636ecebcee/sist-en-14456-2004>

**4 Description****4.1 Identification****4.1.1 Chemical name(s)**

Bone charcoal.

**4.1.2 Synonym or common names**

Animal charcoal, bone black.

**4.1.3 Chemical formula**

$C + Ca_{10}(PO_4)_6(OH)_2$ .

**4.1.4 CAS Registry Number<sup>1)</sup>**

8021-99-6.

---

1) Chemical Abstracts Service Registry Number.



#### 4.1.5 EINECS Reference<sup>2)</sup>

232-421-2.

#### 4.2 Commercial form

Bone charcoal is available in various size ranges.

#### 4.3 Appearance

The product consists of black granules of irregular shape.

### 5 Physical properties

#### 5.1 Particle size distribution

The particle size distribution shall be described by either :

- a) effective size  $d_{50}$   
 uniformity coefficient  $U$   
 minimum size  $d_1$

or

- b) particle size range and mass fraction of oversize and undersize particles.

The proportion of oversize and undersize particles shall be within the manufacturer's declared values.

STANDARD PREVIEW  
(standards.iteh.ai)

SIST EN 14456:2004

<https://standards.iteh.ai/catalog/standards/sist/14456-2004/14456-2004>  
91636ecebce/sist-en-14456-2004

#### 5.2 Density

The bulk density (loose) shall be within  $\pm 10\%$  of the value specified by the manufacturer or supplier.

NOTE The bulk density (loose) should be in the range of  $600 \text{ kg/m}^3$  to  $670 \text{ kg/m}^3$ .

### 6 Chemical properties

#### 6.1 General

Bone charcoal is a carbonaceous adsorbent, manufactured by controlled carbonisation in a reducing atmosphere, from selected grades of cattle-bone.

The product consists of a carbon component (about mass fraction 10 %) contained within a hydroxyapatite ( $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$ ) structure.

---

<sup>2)</sup> European Inventory of Existing Commercial Chemical Substances.