BRITISH STANDARD

BS EN 15799:2010

Products used for treatment of swimming pool water — Powdered activated carbon

ICS 13.060.25; 71.100.80

BSI
British Standards

National foreword

This British Standard is the UK implementation of EN 15799:2010.

The UK participation in its preparation was entrusted to Technical Committee CII/59, Chemicals for drinking water treatment.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 April 2010

ISBN 978 0 580 61785 0

Amendments/corrigenda issued since publication

Date	Comments

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 15799

January 2010

ICS 71.100.80

English Version

Products used for treatment of swimming pool water - Powdered activated carbon

Produits utilisés pour le traitement de l'eau des piscines - Charbon actif en poudre

Produkte zur Aufbereitung von Schwimm-und Badebeckenwasser - Pulver-Aktivkohle

This European Standard was approved by CEN on 4 December 2009.

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 CEN Management Centre 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 CEN Management Centre has the same status as the official versions.

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

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 15799:2010: E

Contents

Page

Foreword

This document (EN 15799:2010) 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 July 2010, and conflicting national standards shall be withdrawn at the latest by July 2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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

Introduction

In respect of potential adverse effects on the quality of swimming pool water, caused by the product covered by this document:

a) this document provides no information as to whether the product may be used without restriction in any of the Member States of the EU or EFTA;

b) 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 this document 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 document is subject to regulation or control by National Authorities.

Licensed copy: Lee Shau Kee Library, HKUST, Version correct as of 03/01/2015, (c) The British Standards Institution 2013

1 Scope

This European Standard is applicable to powdered activated carbon used for treatment of swimming pool water. It describes the characteristics of powdered activated carbon and specifies the requirements and the corresponding test methods for powdered activated carbon. It gives information on its use in swimming pool water treatment.

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 any amendments) applies.

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

EN 12903:2009, *Products used for the treatment of water intended for human consumption – Powdered activated carbon*

3 Description

For the identification, the commercial form, and the chemical properties see the relevant subclauses of EN 12903.

4 Physical properties

For the physical properties, the product shall conform to the requirements specified in the relevant subclauses of EN 12903.

NOTE For very small particle size (1 µm), powdered activated carbon used in conjunction with ultra-filtration, the contents of oversize and undersize particles should not exceed a mass fraction of 5 %.

5 Purity criteria

5.1 General

This standard specifies the minimum purity requirements for powdered activated carbon used for the treatment of swimming pool water. Limits are given for impurities commonly present in the product. Depending on the raw material and the manufacturing process other impurities may be present and, if so, this shall be notified to the user and when necessary to relevant authorities.

NOTE Users of the product should check national regulations in order to clarify whether it is of appropriate purity for treatment of swimming pool water, taking into account water quality, required dosage, and contents of other impurities and additives used in the product not stated in the product document.

Limits have been given for impurities and chemical parameters where these are likely to be present in significant quantities from the current production process and raw materials. If the production process or raw materials lead to significant quantities of other impurities, by-products or additives being present, this shall be notified to the user.

Licensed copy: Lee Shau Kee Library, HKUST, Version correct as of 03/01/2015, (c) The British Standards Institution 2013

5.2 Impurities and main by-products

The content of ash, water and water-soluble material shall conform to the requirements specified in EN 12903.

5.3 Water-extractable substances

The content of arsenic, cadmium, chromium, mercury, nickel, lead, antimony, selenium, cyanide and PAH shall conform to the requirements specified in EN 12903.

NOTE Polycyclic Aromatic Hydrocarbons (PAH): the sum of the detected concentrations of fluoranthene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, benzo(ghi)perylene, indeno(1,2,3-cd)pyrene.

5.4 Specific properties

The iodine number of the powdered activated carbon shall be not less than 600 mg/g.

NOTE In certain applications lower values are acceptable.

6 Test methods

The methods for sampling and analysis are those specified in EN 12902 and EN 12903.

7 Labelling - Transportation - Storage

7.1 Means of delivery

Powdered activated carbon shall be delivered in paper sacks (10 kg to 25 kg), semi-bulk containers (polypropylene bags, metal or cardboard drums, or corrugated boxes containing 200 kg to 800 kg), or in bulk (up to 50 m^3).

In order that the purity of the product is not affected, the means of delivery shall not have been used previously for any different product or it shall have been specially cleaned and prepared before use.

7.2 Risk and safety labelling according to the EU Directives[1)]

Powdered activated carbon is not subject to labelling regulations at the date of the publication of this document.

NOTE Annex I of the Directive 67/548/EEC on Classification, packaging and labelling of dangerous substances and its amendments and adaptations in the European Union contains a list of substances classified by the EU. Substances not in that Annex I should be classified on the basis of their intrinsic properties according to the criteria in the Directive by the person responsible for the marketing of the substance.

1) See Bibliography, [1].

7.3 Transportation regulations and labelling

At the date of the publication of this document:

— steam activated carbon is not classified as a dangerous substance;

— chemically activated carbon is listed as UN Number[2)] 1362.

RID[3)] ADR[4)]: class 4.2, classification code S2, packing group III.

IMDG[5)]: class 4.2.

IATA[6)]: Prohibited.

7.4 Marking

The marking shall include the following:

— the name "powdered activated carbon", trade name and grade;

— the net mass;

— the name and address of supplier and/or manufacturer;

— the statement "This product conforms to EN 15799".

7.5 Storage

7.5.1 Long term stability

The product is stable but hygroscopic. It can be stored for an unlimited time if kept dry and away from volatile materials.

7.5.2 Storage incompatibilities

The product shall be kept away from oxidants (e.g. hydrogen peroxide, potassium permanganate, chlorates, nitrates), volatile solvents and moisture.

NOTE Local regulations could apply to bulk storage (e.g. in silos).

2) United Nations Number.

3) Regulations concerning International carriage of Dangerous goods by rail.

4) European Agreement concerning the international carriage of Dangerous goods by Road.

5) International Maritime transport of Dangerous Goods.

6) International Air Transport Association.

Annex A
(informative)

General information on powdered activated carbon

A.1 Origin

A.1.1 Raw materials

Powdered activated carbon can be produced from virtually any carbonaceous material, e.g. coal, lignite, peat, coconut shell and wood.

A.1.2 Manufacturing process

The carbonaceous material is subjected to controlled oxidation during which a highly porous structure is developed.

The raw material is activated, thermally (most commonly) or chemically. Thermal activation involves heating to between 800 °C and 1 100 °C in the presence of an oxidizing gas (usually steam) under carefully controlled conditions for several hours. Chemical activation involves heating to between 400 °C and 700 °C in the presence of a dehydrating agent (e.g. phosphoric acid). After activation the material is cooled, then prepared, e.g. by pulverizing and sieving to extract the desired particle size, and packaged.

A.2 Properties

For the particle size range, the density, the chemical composition and the adsorption properties, see the relevant subclauses in Annex A of EN 12903:2009.

A.3 Use

A.3.1 Function

Powdered activated carbon is used as an adsorbent for the removal of trace organic contaminants (e.g. pesticides, chlorinated solvents, oils), taste- and odour-producing compounds and trihalomethane precursors. It may be used in preference to granular activated carbon particularly to deal with seasonal or intermittent problems.

A.3.2 Form in which the product is used

It is used as delivered.

A.3.3 Treatment dose

The treatment dose is typically in the range 5 mg/l to 50 mg/l (normally less than 20 mg/l) dependent on pool water quality, treatment objectives and type of filtration (conventional filtration or ultrafiltration).

A.3.4 Means of application

Powdered activated carbon is dosed as a slurry into the water and removed by subsequent treatment processes (coagulation/flocculation, sedimentation, filtration or ultrafiltration).

Dosing equipment should be selected so as to avoid the possibility of overdosing.

A.4 Rules for safe handling and use

It is recommended to handle the product so as to avoid dust formation.

Powdered activated carbon preferentially removes oxygen from air. In closed or partially closed containers and vessels, oxygen depletion can reach hazardous levels. If workers are to enter a vessel containing carbon, appropriate sampling and work procedures for potentially low-oxygen areas should be followed.

Certain types of chemically activated carbon might have special requirements for transport and storage in bulk; advice should be sought from the manufacturer.

Local regulations can require transfer equipment to be electrically grounded to avoid ignition/explosion of dust by discharge of static electricity.

A.5 Emergency procedures

A.5.1 First aid

In case of skin contact, it is recommended to wash with soap and water.

In case of eye contact, it is recommended to flush with plenty of water for 15 min.

In case of inhalation, it is recommended to move to fresh air.

A.5.2 Spillage

It is recommended to sweep or to vacuum unused carbon and to discard in a refuse container or repackage.

A.5.3 Fire

Any extinguishing media can be used; it is recommended to use foam extinguishers.

Self-contained breathing apparatus should be worn because carbon dioxide and carbon monoxide can be produced during combustion.

Licensed copy: Lee Shau Kee Library, HKUST, Version correct as of 03/01/2015, (c) The British Standards Institution 2013

Bibliography

[1] 67/548/EEC: Council Directive of 27 June 1967 on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances and its amendments and adaptations

This page has been intentionally left blank

BSI - British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: +44 (0)20 8996 9000. Fax: +44 (0)20 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: +44 (0)20 8996 9001. Fax: +44 (0)20 8996 7001 Email: orders@bsigroup.com You may also buy directly using a debit/credit card from the BSI Shop on the Website http://www.bsigroup.com/shop

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact Information Centre. Tel: +44 (0)20 8996 7111 Fax: +44 (0)20 8996 7048 Email: info@bsigroup.com

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: +44 (0)20 8996 7002 Fax: +44 (0)20 8996 7001 Email: membership@bsigroup.com

Information regarding online access to British Standards via British Standards Online can be found at http://www.bsigroup.com/BSOL

Further information about BSI is available on the BSI website at http://www.bsigroup.com.

Copyright

BSI Group
Headquarters 389
Chiswick High Road,
London, W4 4AL, UK
Tel +44 (0)20 8996 9001
Fax +44 (0)20 8996 7001
www.bsigroup.com/
standards

Licensed copy: Lee Shau Kee Library, HKUST, Version correct as of 03/01/2015, (c) The British Standards Institution 2013