SLOVENSKI STANDARD
SIST EN 15799:2022

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Kemikalije, ki se uporabljajo za pripravo bazenske vode - Aktivno oglje v prahu

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

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

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

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13.060.25	Voda za industrijsko uporabo	Water for industrial use
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EUROPEAN STANDARD

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EUROPÄISCHE NORM

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English Version

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 15799:2022) 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of an identical text or by endorsement, at the latest by December 2022, and conflicting national standards shall be withdrawn at the latest by December 2022.

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

This document supersedes EN 15799:2010.

In comparison with the previous edition, the following technical modifications have been made:

a) modification of 8.3 on transportation regulations and labelling, adding the sentence “The user must be aware of the incompatibilities between transported products.”;

b) modification of 8.4 on marking. The requirements of marking are also applied to the accompanying documents;

c) update of bibliography.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey 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.

1 Scope

This document 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 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.

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 Terms and definitions

No terms and definitions are listed in this document.

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 https://www.electropedia.org/

4 Description

For the identification, the commercial form, and the chemical properties see the relevant subclauses of EN 12903:2009.

For additional information on powdered activated carbon, see Annex A.

5 Physical properties

For the physical properties, the product shall conform to the requirements specified in the relevant subclauses of EN 12903:2009.

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 %.

6 Purity criteria

6.1 General

This document 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 The national regulations allow users to clarify whether the product is of appropriate purity for the treatment of water for swimming pools, taking into account water quality, required dosage, contents of other impurities and additives used in the product and not stated in this 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.

6.2 Impurities and main by-products

The content of ash, water and water-soluble material shall conform to the requirements specified in EN 12903:2009.

6.3 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 12903:2009.

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.

6.4 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.

7 Test methods

The methods for sampling and analysis are those specified in EN 12902 and EN 12903:2009.

8 Labelling - Transportation - Storage

8.1 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.

8.2 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.

The regulation [1], and its amendments for the purposes of its adaptation to technical and scientific progress, contains a list of substances classified by the EU. Substances not listed in this regulation can be classified on the basis of their intrinsic properties according to the criteria in the regulation by the person responsible for the marketing of the substance.

8.3 Transportation regulations and labelling

At the date of the publication of this document:

— steam activated carbon is not subject to ADR/RID regulations;

[1] See Bibliography, [1].

— 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.

The user shall be aware of the incompatibilities between transported products.

8.4 Marking

The marking and the accompanying documents 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”.

8.5 Storage

8.5.1 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.

8.5.2 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 of EN 12903:2009, Annex A.

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.