SLOVENSKI STANDARD
SIST EN 12915-2:2009

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Nadomešča:
SIST EN 12915-2:2003
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Izdelki, ki se uporabljajo za pripravo pitne vode - Aktivno oglje v zrnih - 2. del: Reaktivirano aktivno oglje v zrnih

Products used for the treatment of water intended for human consumption - Granular activated carbon - Part 2: Reactivated granular activated carbon

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Granulierte Aktivkohle - Teil 2: Reaktivierte granulierte Aktivkohle

Produits utilisés pour le traitement de l'eau destinée à la consommation humaine - Charbon actif en grains - Partie 2: Charbon actif en grains réactivé

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ICS:

13.060.20	Pitna voda	Drinking water
71.100.80	Kemikalije za čiščenje vode	Chemicals for purification of water

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EUROPEAN STANDARD

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English Version

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This European Standard was approved by CEN on 1 February 2009.

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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.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Contents

Foreword

This document (EN 12915-2:2009) 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of an identical text or by endorsement, at the latest by September 2009, and conflicting national standards shall be withdrawn at the latest by September 2009.

This document supersedes EN 12915-2:2003.

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.

Differences between this edition and EN 12915-2:2003 are editorial to harmonize the text with other standards in this series.

The note in Clause 6 concerning the purity of the product has been reworded.

This European Standard consists of two parts, Part 1 is concerned with virgin granular activated carbon and Part 2 gives requirements for reactivated granular activated carbon.

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, 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 water intended for human consumption, caused by the product covered by this European Standard:

a) this European 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;

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 European 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.

1 Scope

This part of EN 12915 is applicable to reactivated granular activated carbon used for treatment of water intended for human consumption. It describes the characteristics of reactivated granular activated carbon and specifies the requirements and the corresponding test methods for reactivated granular activated carbon. It gives information on its use in 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 12901:1999, *Products used for the treatment of water intended for human consumption - Inorganic supporting and filtering materials – Definitions*

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

EN 12915-1:2009, *Products used for the treatment of water intended for human consumption – Granular activated carbon - Part 1: Virgin granular activated carbon*

3 Terms and definitions

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

3.1
virgin activated carbon
freshly manufactured activated carbon that has not been used and has not been reactivated

[EN 12915-1:2009]

3.2
wettability
ability of granular activated carbon to be wetted when in contact with water, determined by measuring the quantity of material that sinks in water under specified conditions

[EN 12915-1:2009]

3.3
spent granular activated carbon
granular activated carbon with reduced adsorption capacity as a result of operational use

3.4
reactivation
process used to restore all or part of the adsorption capacity of spent granular activated carbon

NOTE The most common process is thermal reactivation but other methods can be used.

3.5
reactivated granular activated carbon.
spent granular activated carbon that has been subjected to reactivation

NOTE Usually, reactivated granular activated carbon is returned to the water treatment plant at which it was previously used. The delivered product can include make-up granular activated carbon and/or top-up granular activated carbon.

3.6
make-up granular activated carbon
virgin granular activated carbon, or reactivated granular activated carbon from the same water treatment plant, added to the reactivated granular activated carbon to compensate for losses during the operations of reactivation (handling, transportation and reactivation itself)

3.7
top-up granular activated carbon
virgin granular activated carbon, or reactivated granular activated carbon from the same water treatment plant, added to the reactivated granular activated carbon to compensate for losses due to operational (in-service) losses due to attrition and wash-out of granular activated carbon at the water treatment plant

4 Description

4.1 Identification

4.1.1 Chemical name(s)

Carbon.

4.1.2 Synonym or common names

Reactivated activated coal, reactivated activated charcoal, reactivated active carbon, regenerated granular activated carbon, regenerated activated coal, regenerated activated charcoal, regenerated active carbon.

4.1.3 Chemical formula

C (elementary).

4.1.4 CAS Registry Number [1]

7440-44-0.

4.1.5 EINECS reference [2]

231-153-3.

4.2 Commercial forms

Granular activated carbon is a granular product; by convention not less than a mass fraction of 90 % is retained on a 180 µm aperture test sieve (see 5.3). The product can be either shaped (moulded/extruded) or irregular (non-moulded), and is available in many grades, differing in adsorption characteristics, hardness, porosity, granulometry, shape and purity.

5 Physical properties

5.1 General

The physical properties of reactivated granular activated carbon are dependent on the quality of the spent granular activated carbon as well as on the reactivation process.

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[1] Chemical Abstracts Service Registry Number.

[2] European Inventory of Existing Commercial Chemical Substances.

5.2 Appearance

The commercial product consists of black, porous granules of irregular shape or, for moulded or extruded products, in forms such as uniform cylinders, pellets or spheres.

5.3 Particle size distribution

5.3.1 General

The particle size distribution shall be determined on samples taken at the point of reactivation. The particle size distribution shall be within the supplier's stated tolerance.

NOTE 1 Different applications can require different particle size ranges.

NOTE 2 The particle size can decrease during transportation and handling.

NOTE 3 The particle size distribution is dependent on that of the spent granular activated carbon. It can be impossible to guarantee a particular particle size distribution if the spent granular activated carbon has a substantially degraded particle size distribution.

5.3.2 Irregular product

The particle size distribution shall be described by particle size range and by mass of oversize and undersize particles according to application:

— the content of oversize plus undersize shall not exceed a mass fraction of 15 % and not more than a mass fraction of 5 % shall be undersize.

NOTE 1 Other values can be necessary for certain applications.

NOTE 2 Alternatively, particle size distribution can be described by:

— effective size: (d_{10});

— uniformity coefficient: (U);

— minimum size: (d_1).

5.3.3 Moulded/extruded product

Not more than a mass fraction of 3 % shall pass a test sieve with an aperture size as close as possible to 0,75 times the nominal particle diameter.

5.4 Wettability

The wettability shall be greater than a mass fraction of 99 %.

5.5 Bulk density packed

The bulk density packed shall be greater than or equal to 180 kg/m^3.

5.6 Mechanical strength

The ball-pan hardness shall be greater than or equal to the supplier's declared value.