SLOVENSKI STANDARD
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Izdelki, ki se uporabljajo za pripravo pitne vode – Pirolizirani premog

Products used for treatment of water intended for human consumption - Pyrolyzed coal material

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Thermisch behandelte Kohleprodukte

Produits utilisés pour le traitement de l'eau destinée a la consommation humaine - Charbon pyrolisé

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This European Standard was approved by CEN on 20 February 2003.

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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 Management Centre has the same status as the official versions.

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

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Foreword

This document (EN 12907:2003) 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of an identical text or by endorsement, at the latest by October 2003, and conflicting national standards shall be withdrawn at the latest by October 2003.

This document supersedes EN 12907:1999.

NOTE Conformity with this 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.

Significant technical differences between this edition and EN 12907:1999 are as follows:

a) deletion of reference to EU Directive 80/778/EEC of 15 July 1980;

b) addition in A.2.1 of an explanation of the difference between metals concentrations found in the test and those that occur in practice.

Annex A is informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, 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.

1 Scope

This European Standard is applicable to pyrolyzed coal material used for treatment of water intended for human consumption. It describes the characteristics of pyrolyzed coal material and specifies the requirements and the corresponding test methods for pyrolyzed coal material. 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.*

3 Terms and definitions

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

4 Description

4.1 Identification

4.1.1 Chemical name

Carbon (C).

4.1.2 Synonym or common names

None.

4.2 Commercial forms

Pyrolyzed coal material according to this standard is a thermally treated coal and is available in different particle size ranges.

5 Physical properties

5.1 Appearance

The product is a brown to black coloured dull granular material with spherical or angular shape, porous structure, and smooth texture.

The product shall be generally homogeneous and shall be visibly free of extraneous matter.

5.2 Particle size distribution

The particle size distribution shall be determined on samples taken at the point of manufacture.

NOTE 1 The particle size can decrease during transportation and handling.

The particle size distribution shall be described by either:

a) effective size: (d_{10}) with a permitted tolerance of ± 5 %;

uniformity coefficient: (U) shall be less than 1,5;

minimum size: (d_1) with a permitted tolerance of ± 5 %;

or:

b) by particle size range and by mass of oversize and undersize particles according to application:

— The maximum permitted contents of oversize and undersize are 5 % (m/m) for application of the product as a filtration layer in multi-media filters and 10 % (m/m) for use in single media filters. For use as a support layer, maximum contents of oversize and undersize of 15 % (m/m) are acceptable. See A.2.3 for examples of available particle sizes that are used.

NOTE 2 Other values can be necessary for certain applications.

5.3 Density

5.3.1 Bulk density loose

The bulk density loose shall be in the range of 450 kg/m^3 to 560 kg/m^3.

5.3.2 Bulk density packed

The bulk density packed shall be in the range of 460 kg/m^3 to 580 kg/m^3.

6 Chemical properties

6.1 Composition of commercial product

The composition of the commercial product shall conform to the requirements specified in Table 1.

Table 1 — Composition of commercial product

Parameter		% (m/m) **content of the commercial product**
C (water and ash free basis)	Min.	85
Ash	Max.	15
Volatile matter	Max.	5

NOTE 1 Values of these parameters do not influence filtration properties but give information about the source of pyrolyzed coal material.

NOTE 2 Further information is given in A.2.1.

6.2 Purity criteria

6.2.1 General

This European Standard specifies the minimum purity requirements for pyrolyzed coal material used for the treatment of water intended for human consumption. 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 this product should satisfy themselves that it is of appropriate purity for treatment of water intended for human consumption, taking into account raw water quality, required dosage, contents of other impurities and additives used in the products not stated in the product standard, and other relevant factors.

Limits have been given for water-extractable substances 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 impurities, by-products or additives being present, this shall be notified to the user.

6.2.2 Water-extractable substances

The product shall conform to the requirements specified in Table 2.

Table 2 — Water-extractable substances

Substance		Limit in µg/l in the extraction water
Arsenic (As)	max.	10
Cadmium (Cd)	max.	0,5
Chromium (Cr)	max.	5
Mercury (Hg)	max.	0,3
Nickel (Ni)	max.	5
Lead (Pb)	max.	5
Antimony (Sb)	max.	3
Selenium (Se)	max.	3
Cyanide (CN)	max.	5
PAH [a]	max.	0,02

[a] Polycyclic Aromatic Hydrocarbons: 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.

7 Specific properties

Pyrolyzed coal material is not an activated carbon but does show adsorption properties. Under defined conditions it removes chlorine and ozone as well as organic matter.