
Proizvodi, ki se uporabljajo za pripravo pitne vode - Pirolizirani ogljikov material

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

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

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

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EUROPEAN STANDARD
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English version

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

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

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

This European Standard was approved by CEN on 16 July 1999.

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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This European Standard 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of an identical text or by endorsement, at the latest by February 2000, and conflicting national standards shall be withdrawn at the latest by February 2000.

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, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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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.

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1 Scope

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

EN 12901, *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 Definitions and symbols

For the purpose of this standard, the definitions and symbols given in EN 12901 apply.

4 Description

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4.1 Identification

4.1.1 Chemical name

Carbon (C).

4.1.2 Synonym or common names

None.

4.2 Commercial forms

Pyrolysed 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

Brown to black coloured dull granular material.

Spherical or angular shape, porous structure, 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 using the method of test given in EN 12902.

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 $\pm 5\%$;
 uniformity coefficient, U , which shall be less than 1,5 ;
 minimum size, d_1 , with a permitted tolerance of $\pm 5\%$; 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/m³ to 560 kg/m³.

5.3.2 Bulk density packed

The bulk density packed shall be in the range of 460 kg/m³ to 580 kg/m³.

6 Chemical properties

6.1 Composition of commercial products

The composition of the commercial products shall conform to Table 1.

Table 1 - Composition of commercial products

Parameter		% (m/m) content of the 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 pyrolysed coal material.

NOTE 2 Other potential components are given in A.2.1.

6.2 Toxic substances

NOTE After filling, washing and commissioning of a filter system producing drinking water pyrolysed coal material should not increase the content of toxic substances.

For the purpose of this standard, "toxic substances" are those defined in the EEC Directive 80/778/EEC of July 15, 1980 (see [1]).

The content of water-extractable toxic substances shall conform to the requirements specified in Table 2.

Table 2 - Water extractable toxic substances

Parameter		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

Pyrolysed 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.

8 Test methods

8.1 Sampling

Prepare the laboratory sample(s) required by the relevant procedures described in EN 12902.

8.2 Analysis

8.2.1 Particle size distribution

The particle size distribution shall be determined in accordance with EN 12902.

8.2.2 Bulk density loose

The bulk density loose shall be determined in accordance with EN 12902.