SLOVENSKI STANDARD
SIST EN 13753:2009

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Nadomešča:
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Izdelki, ki se uporabljajo za pripravo pitne vode - Aktivni aluminijev oksid v zrnih

Products used for treatment of water intended for human consumption - Granular activated alumina

Produkte zur Aufbereitung von Wasser für den menchlichen Gebrauch - Granuliertes aktiviertes Aluminiumoxid

Produits utilisés pour le traitement de l'eau destinée à la consommation humaine - Alumine active en grains

Ta slovenski standard je istoveten z: **EN 13753:2009**

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

Products used for treatment of water intended for human consumption - Granular activated alumina

Produits utilisés pour le traitement de l'eau destinée à la consommation humaine - Alumine active en grains

Produkte zur Aufbereitung von Wasser für den menchlichen Gebrauch - Granuliertes aktiviertes Aluminiumoxid

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

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Contents

Foreword

This document (EN 13753:2009) 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of an identical text or by endorsement, at the latest by September 2009, and conflicting national standards shall be withdrawn at the latest by September 2009.

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.

This document supersedes EN 13753:2002.

Differences between this edition and EN 13753:2002 are editorial to harmonize the text with other standards in this series.

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, 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 standard:

a) 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;

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 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 European Standard is applicable to granular activated alumina used for treatment of water intended for human consumption. It describes the characteristics of granular activated alumina and specifies the requirements and the corresponding test methods for granular activated alumina. 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 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*

ISO 9277, *Determination of the specific surface area of solids by gas adsorption using the BET method*

3 Terms, definitions and symbols

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

3.1
activated alumina
virgin alumina that has not been used and has not been regenerated

4 Description

4.1 Identification

4.1.1 Chemical name

Aluminium oxide (partially hydroxylated).

4.1.2 Synonym or common names

Transition alumina; gamma alumina; alumina; aluminium oxide; activated alumina.

4.1.3 Chemical formula

$Al_2O_{(3-x)}(OH)_{2x}$ x varies from approximately 0 to 0,80.

4.1.4 CAS Registry number [1)]

1344-28-1.

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1) Chemical Abstracts Service Registry Number.

4.1.5 EINECS reference [2)]

215-691-6.

4.2 Commercial form

Activated alumina recommended for use in drinking water treatment is a granular product consisting of irregularly shaped (non-moulded) particles; the product is available in different particle sizes.

5 Physical properties

5.1 Appearance

The product consists of white particles of irregular shape. 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 described by either:

a)

— effective size (d_{10}) with a limit deviation of ± 5 %;

— uniformity coefficient (U) less than 1,5;

— minimum size (d_1) with a limit deviation of ± 5 %;

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

b) or by particle size range and agreed mass of oversize and undersize particles; see A.2.2.1.

The proportion of oversize plus undersize particles shall not exceed a mass fraction of 15 % and not more than a mass fraction of 5 % shall be undersized.

NOTE 2 Other values can be necessary for certain applications.

5.3 Bulk density packed

The bulk density (packed) shall be greater than 600 kg/m^3.

6 Chemical properties

NOTE 1 After filling, washing and commissioning of a filter system producing drinking water, activated alumina should not increase the concentrations of chemical parameters above the regulated values (see [1]).

NOTE 2 Water extractable substances, determined in accordance with the method for granular materials given in EN 12902, can be used to estimate the leaching of the chemicals specified in EN 12902.

NOTE 3 Users of this product should check the national regulations in order to clarify whether it is of appropriate purity for treatment of water intended for human consumption, taking into account raw water quality, contents of other impurities and additives used in the products not stated in the product standard.

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2) European Inventory of Existing Commercial Chemical Substances.

7 Specific properties

The surface area shall not be less than 200 m^2/g.

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 on samples taken at the point of manufacture using the method of test given in EN 12902.

8.2.2 Bulk density packed

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

8.2.3 Surface area

The surface area shall be determined by the BET method, degassing at a maximum of 200 °C, in accordance with ISO 9277.

9 Labelling, transportation and storage

9.1 Means of delivery

Granular activated alumina shall be delivered in bulk (dry or wet product), in semi-bulk containers or in drums of cardboard, plastics or steel or suitable bags of various sizes.

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.

9.2 Risk and safety labelling according to the EU Directives [3)]

At the date of publication of this European Standard, activated alumina was not listed as a dangerous substance.

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 this 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.

9.3 Transportation regulations and labelling

At the date of publication of this European Standard, activated alumina was not classified as dangerous for transportation by road, rail, sea or air. Activated alumina is not listed under a UN number [4)].

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3) See [2].

4) United Nations number.