SLOVENSKI STANDARD
SIST EN 12911:2006

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Proizvodi, ki se uporabljajo za pripravo pitne vode – Glavkonit

Products used for treatment of water intended for human consumption - Manganese greensand

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Mangangrünsand

Produits utilisés pour le traitement de l'eau destinée à la consommation humaine - Sable vert manganisé

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13.060.20	Pitna voda	Drinking water
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This European Standard was approved by CEN on 28 April 2006.

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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 Central Secretariat has the same status as the official versions.

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Foreword

This European Standard (EN 12911:2006) 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of an identical text or by endorsement, at the latest by December 2006, and conflicting national standards shall be withdrawn at the latest by December 2006.

This European Standard supersedes EN 12911:1999.

Significant technical difference between this edition and EN 12911:1999 is as follows:

— a) replacement of the reference to EU Directive 80/778/EEC of 15 July 1980 with the latest Directive in force see [1]).

— b) the requirement for bulk density packed has been deleted.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, 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 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 the 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 European Standard is applicable to manganese greensand used for treatment of water intended for human consumption. It describes the characteristics of manganese greensand and specifies the requirements and the corresponding test methods for manganese greensand. It gives information on its use in water treatment.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. 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*

EN ISO 3696, *Water for analytical laboratory use — Specification and test methods (ISO 3696:1987)*

ISO 6333, *Water quality — Determination of manganese — Formaldoxime spectrometric method*

ISO 9682-1:1991, *Iron ores — Determination of manganese content — Part 1: Flame atomic absorption spectrometric method*

3 Terms, definitions and symbols

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

4 Description

4.1 Identification

4.1.1 Chemical name(s)

Manganese oxide coated zeolite (Glauconite).

NOTE The product is a preparation.

4.1.2 Synonym or common names

Manganese greensand, manganese zeolite, ferro-sand, greensand.

4.1.3 Chemical formula

Not applicable.

4.1.4 CAS Registry number [1)]

Glauconite: 90387-66-9

[1)] Chemical Abstracts Service Registry Number.

Manganese oxide: 1313-13-9

4.1.5 EINECS reference [2)]

Glauconite: 291-341-6

Manganese oxide: 215-202-6

4.2 Commercial form

Manganese greensand is a granular product available in only one particle size range.

5 Physical properties

5.1 Appearance

The product comprises dry, sand-like, free flowing black granules. The particles are coated with a black manganese dioxide coating. The product has a granular shape, dense crystalline structure, rough 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}) 0,30 mm to 0,35 mm with a maximum deviation of ± 0,03 mm;

— uniformity coefficient: (U) shall be less than 1,6;

— minimum size: (d_1) shall be at least 0,25 mm;

— maximum size: shall not exceed 1,25 mm;

or

— b) by particle size range and by mass fraction of oversize and undersize particles.

The maximum permitted mass fractions of oversize and undersize are 5 %.

NOTE 2 Other values can be necessary for certain applications.

5.3 Density (bulk density loose)

The bulk density loose shall be at least 1 300 kg/m^3.

[2)] European Inventory of Existing Commercial Chemical Substances.

6 Chemical properties

This European Standard specifies the minimum purity requirements for manganese greensand 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 1 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 product not stated in this product standard.

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 impurities, by-products or additives being present, this shall be notified to the user.

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

Table 1 — Composition of commercial product

Parameters		Limit in mass fraction %
Manganese oxides (as Mn) [a]		0,2 to 0,8
Mass loss at 150 °C	max.	6
Ignition loss at 650 °C	max.	8

[a] The manganese in the product is present as a mixture of different oxides.

NOTE 2 Acid-soluble material is not a relevant parameter for this product which is not stable to acids and which will react with hydrochloric acid releasing chlorine gas.

NOTE 3 After filling, washing and commissioning of a filter system producing drinking water, manganese greensand should not increase the concentrations of chemical parameters (see [1]).

NOTE 4 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.

7 Specific properties

The oxidation capacity of manganese greensand (regenerated form), expressed as grams of Mn per litre of packed product, shall be at least 0,7 g/l.

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.