SLOVENSKI STANDARD
SIST EN 12910:2013

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Nadomešča:
SIST EN 12910:2006

Proizvodi, ki se uporabljajo za pripravo pitne vode - Granat

Products used for treatment of water intended for human consumption - Garnet

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Granatsand

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

Ta slovenski standard je istoveten z: EN 12910:2012

ICS:

13.060.20	Pitna voda	Drinking water
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Products used for treatment of water intended for human consumption - Garnet

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This European Standard was approved by CEN on 9 September 2012.

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

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Foreword

This document (EN 12910:2012) 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of an identical text or by endorsement, at the latest by May 2013, and conflicting national standards shall be withdrawn at the latest by May 2013.

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 12910:2005.

The significant technical difference between this edition and EN 12910:2005 is as follows:

— Updating 9.2 in line with current legislation.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey 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 European Standard is applicable to garnet used for treatment of water intended for human consumption. It describes the characteristics of garnet and specifies the requirements and the corresponding test methods for garnet. It gives information on its use in water treatment.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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*

3 Terms, definitions and symbols

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

4 Description

4.1 Identification

4.1.1 Chemical name(s)

Almandite $Fe_3Al_2(SiO_4)_3$.

Andradite $Ca_3Fe_2(SiO_4)_3$.

NOTE Both forms can have other metals in partial substitution for the major constituents.

4.2 Commercial form

Each of the two main types of garnet is available in different particle size grades.

5 Physical properties

5.1 Appearance

The product is a pink, red or brown to black coloured granular material. Cubic crystals; the particle shape can be angular to sub-angular to rounded depending on origin.

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 maximum deviation of ± 5 %;

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

minimum size : (d_1) with a maximum deviation of ± 5 %;

or

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

The maximum contents of oversize and undersize shall be a mass fraction of 5 % for application of the product as a filtration layer in multi media filters and a mass fraction of 10 % for use in single media filters. For use as a support layer, maximum mass fractions of oversize and undersize of 15 % 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 General

The density of garnet varies with the mineralogical form.

Garnet with absolute density lower than 3,8 g/cm^3 should not be used in multi media sand - garnet filters to prevent intermixing of media.

5.3.2 Bulk density loose

Almandite: The bulk density loose shall be in the range of 2 150 kg/m^3 to 2 250 kg/m^3.

Andradite: The bulk density loose shall be in the range of 1 850 kg/m^3 to 2 000 kg/m^3.

5.3.3 Bulk density packed

Almandite: The bulk density packed shall be in the range of 2 350 kg/m^3 to 2 400 kg/m^3.

Andradite: The bulk density packed shall be in the range of 1 950 kg/m^3 to 2 250 kg/m^3.

6 Chemical properties

This European Standard specifies the minimum purity requirements for garnet 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.

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 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 chemical composition varies with the mineralogical form. Typical data are given in Table A.1.

NOTE 1 Because of the nature of the occurrence and production of garnet, a small proportion of other minerals, in particular silica sand and ilmenite, can be present in the commercial product.

After filling, washing and commissioning of a filter system producing drinking water, garnet should not increase the concentrations of chemical parameters (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.

7 Specific properties

Garnet is a non-reactive high density filtration and support medium. It is used specifically because of its high density.

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.

8.2.3 Bulk density packed

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

9 Labelling, transportation and storage

9.1 Means of delivery

Garnet shall be delivered in bags, semi-bulk containers, or bulk.

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.