SLOVENSKI STANDARD
SIST EN 12910:2000

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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 a la consommation humaine- Grenat

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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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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Contents

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of an identical text or by endorsement, at the latest by February 2000, and conflicting national standards shall be withdrawn at the latest by February 2000.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

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.

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

This European Standard incorporates by dated and 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 symbols and definitions given in EN 12901 apply.

4 Description

4.1 Identification

4.1.1 Chemical name(s)

Almandite $Fe_3Al_2(SiO_4)_3$

Andradite $Ca_3Fe_2(SiO4)_3$.

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

4.2 Commercial form

Each of the two main forms of garnet is available in different particle size ranges.

5 Physical properties

5.1 Appearance

Pink or red to light or dark borwn to black coloured granular material. Cubic crystals ; the gain 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 sample taken at the point of manufacture using the method of test given in EN 12902 :

NOTE 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, which 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 Other values can be necessary for certain applications.

5.3 Density

5.3.1 General

The density of garnet varies with the mineralogical form.

NOTE Garnet with absolute density lower than 3,8 g/cm^3 should not be used in multi-media filters containing sand and garnet 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

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.

NOTE 2 After filling, washing and commissioning of a filter system producing drinking water, garnet should not increase the content of toxic substances. For the purpose of this standard, "toxic substances" are those defined in the EU Directive 80 / 778 / EEC of 15 July, 1980 (see [1]).

NOTE 3 Water extractable toxic substances, determined in accordance with the method for granular materials given in EN 12902, can be used to estimate the leaching of toxic substances.

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.

9.2 Risk and safety labelling in accordance with the EU Directives [1)]

Garnet is not listed as a dangerous substance.

NOTE Additional national regulations can apply to the labelling of this product.

9.3 Transportation regulations and labelling

Garnet is not classified as dangerous product for road, rail, sea and air for transportation.

Garnet is not listed under a UN Number [2)].

9.4 Marking

The marking shall include the following:

[1)] See [2]

[2)] United Nations Number.