SLOVENSKI STANDARD
SIST EN 12518:2001

01-december-2001

Kemikalije, ki se uporabljajo za pripravo pitne vode - Visoko kalcijevo apno

Chemicals used for treatment of water intended for human consumption - High-calcium lime

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Weißkalk

Produits chimiques pour le traitement de l'eau destinée à la consommation humaine - Chaux

Ta slovenski standard je istoveten z: **EN 12518:2000**

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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EN 12518

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ICS 71.100.80

English version

Chemicals used for treatment of water intended for human consumption - High-calcium lime

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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of an identical text or by endorsement, at the latest by November 2000, and conflicting national standards shall be withdrawn at the latest by November 2000.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

Annex A is informative.

Annex B is normative.

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 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 characteristics of this product remain in force.

1 Scope

This European standard is applicable to high-calcium lime used for treatment of water intended for human consumption. It describes the characteristics of high-calcium lime and specifies the requirements for high-calcium lime and gives information on its use in water treatment.

2 Normative reference

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.

prEN 12485:1996, *Chemical used for treatment of water intended for human consumption - Calcium carbonate, high-calcium lime and half-burnt dolomite - Test methods.*

3 Description

3.1 Identification

High-calcium limes are calcium oxide, calcium hydroxide and aqueous suspension of calcium hydroxide (milk of lime).

3.1.1 Chemical names

a) Calcium oxide ;

b) Calcium hydroxide.

3.1.2 Synonym or common names

a) Calcium oxide : Pulverized high-calcium lime, quicklime, lump high-calcium lime ;

b) Calcium hydroxide : Hydrated high-calcium lime, milk of lime : calcium hydroxide - aqueous suspension.

3.1.3 Relative molecular mass

a) Calcium oxide: 56,08 ;

b) Calcium hydroxide: 74,09.

3.1.4 Empirical formula

a) Calcium oxide: CaO ;

b) Calcium hydroxide: $Ca(OH)_2$.

3.1.5 Chemical formula

a) Calcium oxide: CaO ;

b) Calcium hydroxide: $Ca(OH)_2$.

3.1.6 CAS Registry Number [1)]

a) Calcium oxide: 1305-78-8 ;

b) Calcium hydroxide: 1305-62-0.

3.1.7 EINECS reference [2)]

a) Calcium oxide: 215-138-9 ;

b) Calcium hydroxide: 215-137-3.

3.2 Commercial forms

High-calcium lime is available in the following commercial forms :

— pulverized high calcium lime (quicklime) : white powder (CaO) ;

— lump high-calcium lime (quicklime) : white lump (CaO) ;

— hydrated high-calcium lime : white powder, ($Ca(OH)_2$) ;

— milk of lime: aqueous suspension of calcium hydroxide (usual content of calcium hydroxide 10 % (*m/m*) to 40 % (*m/m*).

3.3 Physical properties

3.3.1 Appearance

a) Calcium oxide: white, lumps or powder ;

b) Calcium hydroxide: white powder.

Calcium hydroxide suspension : aqueous, milky suspension.

3.3.2 Density

a) Calcium oxide : 3,35 kg/dm^3 at 20 °C.

Bulk density : 800 kg/m^3 to 1 200 kg/m^3 ;

b) Calcium hydroxide : 2,24 kg/dm^3 at 20 °C.

Bulk density : 300 kg/m^3 to 600 kg/m^3.

3.3.3 Solubility (in water)

Calcium oxide: not applicable

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1) Chemical Abstracts Service Registry Number.

2) European Inventory of Existing Commercial Chemical Substances.

Calcium hydroxide : 1,85 g/l at 0 °C
1,76 g/l at 10 °C
1,65 g/l at 20 °C
1,53 g/l at 30 °C
1,40 g/l at 40 °C
1,28 g/l at 50 °C
1,16 g/l at 60 °C
1,04 g/l at 70 °C
0,92 g/l at 80 °C
0,81 g/l at 90 °C
0,71 g/l at 100 °C.

3.3.4 Vapour pressure

Not applicable.

3.3.5 Boiling point at 100 kPa[3)]

a) Calcium oxide: 2 850 °C ;

b) Calcium hydroxide : Decomposes at 580 °C and forms calcium oxide and water.

3.3.6 Melting point

a) Calcium oxide: 2614 °C ;

b) Calcium hydroxide : Decomposes at 580 °C and forms calcium oxide and water.

Calcium hydroxide suspension freezes at 0 °C.

3.3.7 Specific heat

Not applicable.

3.3.8 Viscosity (dynamic)

For calcium hydroxide suspension depends on concentration and particle size.

3.3.9 Critical temperature

Not applicable.

3.3.10 Critical pressure

Not applicable.

3.3.11 Physical hardness

Not applicable.

3.4 Chemical properties

Aqueous suspensions are strongly alkaline. Calcium oxide (CaO) reacts with water to form calcium hydroxide $Ca(OH)_2$, and with acids to form calcium salts. These reactions are highly exothermic.

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3) 100 kPa = 1 bar.