



# SLOVENSKI STANDARD

## SIST EN 12518:2014

01-oktober-2014

Nadomešča:  
SIST EN 12518:2008

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### 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

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Ta slovenski standard je istoveten z: **EN 12518:2014**

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#### **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

EN 12518

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2014

ICS 71.100.80

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English Version

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

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

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Weißkalk

This European Standard was approved by CEN on 20 June 2014.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.

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

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## Foreword

This document (EN 12518:2014) 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 January 2015 and conflicting national standards shall be withdrawn at the latest by January 2015.

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 12518:2008.

The significant technical difference between this edition and EN 12518:2008 is the replacement of warning and safety precaution notes by labelling according to REGULATION (EC) No 1272/2008 (see [2]).

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, 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.

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## 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.

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## 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 and the corresponding test methods for high-calcium lime. It gives information on its use in water treatment. It also determines the rules relating to safe handling and use (see Annex B).

## 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 12485, *Chemicals used for treatment of water intended for human consumption - Calcium carbonate, high-calcium lime, half-burnt dolomite, magnesium oxide and calcium magnesium carbonate - Test methods*

## 3 Description

### 3.1 Identification

#### 3.1.1 General

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

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#### 3.1.2 Chemical names

a) Calcium oxide.

b) Calcium hydroxide. <https://standards.iteh.ai/catalog/standards/sist/689a8b0f-d748-43a8-ac1a-3106038d784a/sist-en-12518-2014>

#### 3.1.3 Synonym or common names

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

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

#### 3.1.4 Relative molecular mass

a) Calcium oxide: 56,08.

b) Calcium hydroxide: 74,09.

#### 3.1.5 Empirical formula

a) Calcium oxide: CaO.

b) Calcium hydroxide: Ca(OH)<sub>2</sub>.

#### 3.1.6 Chemical formula

a) Calcium oxide: CaO.

b) Calcium hydroxide: Ca(OH)<sub>2</sub>.

**EN 12518:2014 (E)****3.1.7 CAS Registry Number <sup>1)</sup>**

- a) Calcium oxide: 1305-78-8.
- b) Calcium hydroxide: 1305-62-0.

**3.1.8 EINECS reference <sup>2)</sup>**

- 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)<sub>2</sub>);
- milk of lime: aqueous suspension of calcium hydroxide (usual content of calcium hydroxide is a mass fraction between 10 % to 40 %).

**3.3 Physical properties**

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**3.3.1 Appearance**

- a) Calcium oxide: white, lumps or powder. [SIST EN 12518:2014  
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- b) Calcium hydroxide: white powder.
- c) Calcium hydroxide suspension: aqueous, milky suspension.

**3.3.2 Density**

- a) Calcium oxide: 3,35 kg/dm<sup>3</sup> at 20 °C.  
Bulk density: 800 kg/m<sup>3</sup> to 1 200 kg/m<sup>3</sup> ;
- b) Calcium hydroxide: 2,24 kg/dm<sup>3</sup> at 20 °C.  
Bulk density: 300 kg/m<sup>3</sup> to 600 kg/m<sup>3</sup>.

**3.3.3 Solubility (in water)**

Calcium oxide: not applicable.

Calcium hydroxide: 1,85 g/l at 0 °C  
1,65 g/l at 20 °C  
1,53 g/l at 30 °C

<sup>1)</sup> Chemical Abstracts Service Registry Number.

<sup>2)</sup> European Inventory of Existing Commercial Chemical Substances.



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<sup>3)</sup>

- 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: 2 570 °C.
- b) Calcium hydroxide: Decomposes at 580 °C and forms calcium oxide and water.
- c) Calcium hydroxide suspension: freezes at 0 °C.

### 3.3.7 Specific heat

Not applicable.

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### 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)<sub>2</sub>, and with acids to form calcium salts. These reactions are highly exothermic.

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<sup>3)</sup> 100 kPa = 1 bar.