



SLOVENSKI STANDARD
SIST EN 1209:1999

01-april-1999

Kemikalije, ki se uporabljajo za pripravo pitne vode – Natrijev silikat

Chemicals used for treatment of water intended for human consumption - Sodium silicate

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Natriumsilikat

Produits chimiques utilisés pour le traitement de l'eau destinée à la consommation humaine - Silicate de sodium

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Ta slovenski standard je istoveten z: EN 1209:1997

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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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en

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Descriptors: potable water, water treatment, chemical compounds, silicate, sodium hydroxide, description, physical properties, chemical properties, impurities, toxic substances, tests, labelling, storage, information

English version

Chemicals used for treatment of water intended for human
consumption - Sodium silicate

Produits chimiques utilisés pour le traitement de l'eau
destinée à la consommation humaine - Silicate de sodium

Produkte zur Aufbereitung von Wasser für den
menschlichen Gebrauch - Natriumsilikat

This European Standard was approved by CEN on 26 September 1997.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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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 March 1998, and conflicting national standards shall be withdrawn at the latest by March 1998.

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.

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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 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 describes the characteristics and specifies the requirements and the corresponding test methods for sodium silicate used for treatment of water intended for human consumption. It gives information on its use in water treatment.

2 Normative references

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.

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EN 26595	Water quality - Determination of total arsenic - Silver diethyldithiocarbamate spectrophotometric method (ISO 6595:1982)
EN ISO 3696	Water for analytical laboratory use - Specification and test methods (ISO 3696 : 1987)
ISO 1689	Sodium and potassium silicates for industrial use - Calculation of the ratio : silicon dioxide/sodium oxide or silicon dioxide/potassium oxide
ISO 1690	Sodium and potassium silicates for industrial use - Determination of silica content - Gravimetric method by insolubilization
ISO 1692	Sodium and potassium silicates for industrial use - Determination of total alkalinity - Titrimetric method
ISO 2997	Phosphoric acid for industrial use - Determination of sulphate content - Method by reduction and titrimetry.
ISO 3165	Sampling of chemical products for industrial use - Safety in sampling
ISO 3360	Phosphoric acid and sodium phosphates for industrial use (including foodstuffs) - Determination of fluorine content - Alizarin complexone and lanthanum nitrate photometric method

ISO 5666-1	Water quality - Determination of total mercury by flameless atomic absorption spectrometry - Part 1 : method after digestion with permanganate - peroxodisulfate.
ISO 5961	Water quality - Determination of cadmium by atomic absorption spectrometry
ISO 6206	Chemical products for industrial use - Sampling - Vocabulary.
ISO 6332	Water quality - Determination of iron - Spectrometric method using 1,10-phenanthroline - second edition.
ISO 6703-1	Water quality - Determination of cyanide - Part1 : determination of total cyanide.
ISO 8213	Chemical products for industrial use - Sampling techniques - Solid chemical products in the form of particles varying from powders to coarse lumps
ISO 8288	Water quality - Determination of heavy metals - Atomic absorption spectrometric method.
ISO 9174	Water quality - Determination of total chromium - Atomic absorption spectrometric methods.
ISO 9965	Water quality - Determination of selenium - Atomic absorption spectrometric method (hydride technique)
ISO 11885	Water quality - Determination of 33 elements by inductively coupled plasma atomic emission spectroscopy

3 Description

3.1 Identification

3.1.1 Chemical name

Sodium silicate.

3.1.2 Synonym or common names

Waterglass solution, sodium silicate solution.

3.1.3 Relative molecular mass

Dependent on molecular ratio.

3.1.4 Empirical formula

$\text{Na}_2\text{O} \cdot n \text{SiO}_2$ with n between 1,5 and 4,0.

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3.1.5 Chemical formula

$\text{Na}_2\text{O} \cdot n \text{SiO}_2$ with n between 1,5 and 4,0.

3.1.6 CAS Registry Number ¹⁾

1344-09-8.

3.1.7 EINECS reference ²⁾

215-687-4.

3.2 Commercial form

Sodium silicate is available as a clear to slightly opalescent colourless liquid, which can be mixed with water in any ratio or as powder respectively granulated material.

3.3 Physical properties

3.3.1 Appearance

- fine, white powder, respectively white granulated material.
- clear to slightly opalescent liquid;

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3.3.2 Density

Solution :

depending on the molecular ratio of SiO_2 : Na_2O and the concentration. The density at 20 °C can vary from 1,2 g/ml to 1,7 g/ml.

Powder :

depending on the grain size : 300 g/dm³ to 1000 g/dm³.

3.3.3 Solubility in water :

Solution :

miscible in any proportions.

Powder :

miscible, maximum solubility : dependent on grade.

¹⁾ Chemical Abstracts Service Registry Number

²⁾ European Inventory of Existing Commercial Chemical Substances

3.3.4 Vapour pressure

Not applicable.

3.3.5 Boiling point at 100 kPa³⁾

More than 100 °C and depending on molecular ratio SiO₂ : Na₂O.

3.3.6 Melting point

Solution :

an accurate melting point of a sodium silicate solution can not be measured. By reducing the temperature of the solution the viscosity increases. A precipitate of variable composition will form, depending on the molecular ratio and concentration of the sodium silicate.

Powder :

generally > 800 °C.

3.3.7 Specific heat

Not known.

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3.3.8 Viscosity (dynamic)

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Solution :

70 mPa. s to 90 000 mPa. s depending on molecular ratio SiO₂ : Na₂O and concentration.

Powder :

not applicable.

3.3.9 Critical temperature

Not applicable.

3.3.10 Critical pressure

Not applicable.

3.3.11 Physical hardness

Not applicable.

³⁾ 100 kPa = 1 bar