SLOVENSKI STANDARD
oSIST prEN 12125:2020

01-julij-2020

Kemikalije, ki se uporabljajo za pripravo pitne vode - Natrijev tiosulfat

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

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Natriumthiosulfat

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

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Ta slovenski standard je istoveten z: **prEN 12125**

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

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 12125

May 2020

ICS 71.100.80

Will supersede EN 12125:2012

English Version

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

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

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Natriumthiosulfat

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 164.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (prEN 12125:2020) has been prepared by Technical Committee CEN/TC 164 “Water supply”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12125:2012.

In comparison with the previous edition, the following technical modifications have been made:

a) Modification of 7.3 on transportation regulations and labelling, adding the sentence “The user must be aware of the incompatibilities between transported products.”;

b) Modification of 7.4 on marking. The requirements of marking are also applied to the accompanying documents.

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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 document:

a) this document 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 document 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 document is subject to regulation or control by National Authorities.

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1 Scope

This document is applicable to sodium thiosulfate used for treatment of water intended for human consumption. It describes the characteristics and specifies the requirements of sodium thiosulfate and refers to the corresponding analytical methods. It gives information for its use in water treatment.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 3696, *Water for analytical laboratory use — Specification and test methods (ISO 3696)*

ISO 3165, *Sampling of chemical products for industrial use — Safety in sampling*

ISO 5993, *Sodium hydroxide for industrial use — Determination of mercury content — Flameless atomic absorption spectrometric method*

ISO 6206, *Chemical products for industrial use — Sampling — Vocabulary*

ISO 6353-1, *Reagents for chemical analysis — Part 1: General test methods*

ISO 8213, *Chemical products for industrial use — Sampling techniques — Solid chemical products in the form of particles varying from powders to coarse lumps*

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ISO 10636, *Photography — Processing chemicals — Specifications for anhydrous sodium thiosulfate and sodium thiosulfate pentahydrate*

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ISO 22743, *Water quality — Determination of sulfates — Method by continuous flow analysis (CFA)*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Description

4.1 Identification

4.1.1 Chemical name

Sodium thiosulfate.

4.1.2 Synonym or commons names

Sodium thiosulfate, sodium hyposulfite.

4.1.3 Relative molecular mass

158,11 (anhydrous).

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4.1.4 Empirical formula

$Na_2S_2O_3$.

4.1.5 Chemical formula

$Na_2S_2O_3$.

4.1.6 CAS-Registry Number [1]

7772-98-7 (anhydrous); 10102-17-7 (pentahydrate).

4.1.7 EINECS reference [2]

231-867-5.

4.2 Commercial form

The product is a crystalline powder.

4.3 Physical properties

4.3.1 Appearance

The hydrated product is colourless crystal. The anhydrous product is a white powder.

4.3.2 Density

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The particle density of the hydrated product is 1,69 g/cm³ to 1,73 g/cm³ at 20 °C.

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4.3.3 Solubility in water

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The solubility of the product in water is 700 g/l at 20 °C (anhydrous); for pentahydrate : 2 910 g/l at 45 °C.

4.3.4 Vapour pressure

Not applicable.

4.3.5 Boiling point at 100 kPa [3]

Not applicable.

4.3.6 Crystallization point

The product starts to decompose at 45 °C to 50 °C.

4.3.7 Specific heat

Not known.

4.3.8 Viscosity, dynamic

Not applicable.

4.3.9 Critical temperature

Not applicable.

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[1] Chemical Abstracts Service Registry Number.
[2] European Inventory of Existing Commercial Chemical Substances.
[3] 100 kPa = 1 bar.

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4.3.10 Critical pressure

Not applicable.

4.3.11 Physical hardness

Not applicable.

4.4 Chemical properties

The pH value of a diluted aqueous solution of sodium thiosulfate is approximately neutral (6,5 to 8). Sodium thiosulfate dissolves silver halogenids and other silver salts.

At elevated temperatures (>50 °C), sulfur dioxide is generated.

Sodium thiosulfate releases sulfur dioxide when mixed with acids.

Sodium thiosulfate reacts violently with oxidising agents; e.g. with sodium hypochlorite or hydrogen peroxide. It shall not come into contact with acids, iodine, lead and silver salts. For additional information on Sodium thiosulfate, see Annex A.

5 Purity criteria

5.1 General

This document specifies the minimum purity requirements for sodium thiosulfate 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.

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The national regulations allow users to clarify whether the product is of appropriate purity for the treatment of water intended for human consumption, taking into account raw water quality, required dosage, contents of other impurities and additives used in the product and not stated in this document.

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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 leads to significant quantities of impurities, by-products or additives being present, this shall be notified to the user.

5.2 Composition of commercial product

The concentration of sodium thiosulfate anhydrous shall not be less than a mass fraction of 95 % of $Na_2S_2O_3$.

The concentration of sodium thiosulfate pentahydrate shall not be less than a mass fraction of 95 % of $Na_2S_2O_3.5\ H_2O$.

5.3 Impurities and main by-products

The content of sodium sulfate shall not exceed a mass fraction of 5 %.

5.4 Chemical parameters

The product shall conform to the requirements specified in Table 1.

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Table 1 — Chemical parameters

Parameter		Limit mg/kg of commercial product
Antimony (Sb)	max	2
Arsenic (As)	max	0,5
Cadmium (Cd)	max	0,1
Chromium (Cr)	max	5
Lead (Pb)	max	5
Mercury (Hg)	max	0,1
Nickel (Ni)	max	5
Selenium (Se)	max	2
NOTE Pesticides and polycyclic aromatic hydrocarbons and cyanides (CN) are not relevant in sodium thiosulfate because the raw materials used in the manufacturing are free of them. For parametric values of sodium thiosulfate on trace metal content in drinking water, see [1].		

6 Test methods

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6.1 Sampling

Observe the general recommendations of ISO 3165 and take account of ISO 6206. Prepare the laboratory sample(s) required by the relevant procedure described in ISO 8213.

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6.2 Analyses

6.2.1 Main product

The sodium thiosulfate content shall be determined in accordance with ISO 10636.

6.2.2 Impurities

6.2.2.1 Sulfate

The content of sodium sulfate (Na_2SO_4) shall be determined in accordance with ISO 22743.

6.2.3 Chemical parameters

6.2.3.1 General

The content of chemical parameters shall be determined using the procedures specified in Table 2: