SLOVENSKI STANDARD
oSIST prEN 897:2020

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

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

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Natriumcarbonat

Produits chimiques utilisés pour le traitement de leau destinée à la consommation humaine - Carbonate de sodium

Ta slovenski standard je istoveten z: **prEN 897**

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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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EUROPÄISCHE NORM

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ICS 71.100.80

Will supersede EN 897:2012

English Version

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

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

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Natriumcarbonat

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.

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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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (prEN 897:2020) 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 897:2012.

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

a) Modification of 6.3 on transportation regulations and labelling, adding the sentence “The user must be aware of the incompatibilities between transported products.”;

b) Modification of 6.4 on marking. The requirements of marking are also applied to the accompanying documents.

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.

1 Scope

This document is applicable to sodium carbonate used for treatment of water intended for human consumption. It describes the characteristics and specifies the requirements and the corresponding test methods for sodium carbonate. It gives information on its use in water treatment. It also determines the rules relating to safe handling and use (see Annex C).

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 3696:1987)*

EN ISO 12846:2012, *Water quality - Determination of mercury - Method using atomic absorption spectrometry (AAS) with and without enrichment (ISO 12846:2012)*

ISO 740, *Sodium carbonate for industrial use — Determination of total soluble alkalinity — Titrimetric method*

ISO 746, *Sodium carbonate for industrial use — Determination of matter insoluble in water at 50 degrees C*

ISO 2460, *Sodium hydrogen carbonate for industrial use — Determination of iron content — 1,10-Phenanthroline photometric method*

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

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

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

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:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

4 Description

4.1 Identification

4.1.1 Chemical name

Sodium carbonate.

4.1.2 Synonym or common name

Soda ash, anhydrous sodium carbonate, light soda ash, heavy soda ash.

4.1.3 Relative molecular mass

105,99.

4.1.4 Empirical formula

Na_2CO_3.

4.1.5 Chemical formula

Na_2CO_3.

4.1.6 CAS Registry Number[1)]

497-19-8.

4.1.7 EINECS reference[2)]

207-838-8.

4.2 Commercial forms

The product is available as dry powder or fine granules and is described as light soda ash or heavy soda ash according to bulk density (see 4.3.2).

4.3 Physical properties

4.3.1 Appearance

The product is a white powder or crystals, slightly hygroscopic.

4.3.2 Density

The density of this product is 2,53 g/cm^3.

The bulk density is:

ranging from 0,5 kg/dm^3 to 0,65 kg/dm^3 (light soda ash);

ranging from 0,8 kg/dm^3 to 1,2 kg/dm^3 (heavy soda ash).

4.3.3 Solubility in water

The product is soluble at 212 g/l at 20 °C.

4.3.4 Vapour pressure

Not applicable.

4.3.5 Boiling point at 100 kPa[3)]

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.

4.3.6 Melting point

851 °C.

4.3.7 Specific heat

1,043 J/(kg K).

4.3.8 Viscosity (dynamic)

Not applicable.

4.3.9 Critical temperature

Not applicable.

4.3.10 Critical pressure

Not applicable.

4.3.11 Physical hardness

The hardness of solid sodium carbonate is given as 1 to 2 on the Mohs' scale of hardness.

4.4 Chemical properties

Sodium carbonate reacts exothermically with acids with the formation of carbon dioxide.

Sodium carbonate is slightly hygroscopic and dissolution in water is an exothermic reaction.

5 Purity criteria

5.1 General

This document specifies the minimum purity requirements for sodium carbonate 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.

Users of this product should check the national regulations in order to clarify whether it is of appropriate purity for treatment of water intended for human consumption, taking into account raw water quality, required dosage, contents of other impurities and additives used in the products not stated in this product standard.

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 product shall contain not less than a mass fraction of 99 % of Na_2CO_3.

5.3 Impurities and main by-products

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

The concentration limits refer to pure Na_2CO_3.

Table 1 — Impurities

Impurity	Limit in mg/kg of Na_2CO_3
Iron(II) 1) max.	20
Insoluble matters 2) max.	200
1) Iron(II) can cause organoleptic problems. 2) Indicate the presence of foreign matter.	

5.4 Chemical parameters

The product shall conform to the requirements specified in Table 2.

Table 2 — Chemical parameters

Parameter	Limit in mg/kg of Na_2CO_3
Arsenic (As) max.	2
Cadmium (Cd) max.	2
Chromium (Cr) max.	2
Mercury (Hg) max.	0,1
Nickel (Ni) max.	2
Lead (Pb) max.	2
NOTE Antimony, selenium, cyanides, pesticides and polycyclic aromatic hydrocarbons are not relevant in sodium carbonate. For parametric values of sodium carbonate on trace metal content in drinking water, see [1].	

6 Test methods

6.1 Sampling

Prepare the laboratory sample (s) required by the relevant procedure described in ISO 8213, observe the recommendations of ISO 3165 and also take into account ISO 6206.

6.2 Analyses

6.2.1 Main product

The mass fraction in % of Na_2CO_3 shall be determined by titration of the total alkalinity with a standard volumetric acid solution in accordance with ISO 740.