



SLOVENSKI STANDARD
oSIST prEN 1405:2022
01-julij-2022

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

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

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Natrium-Alginat

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

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English Version

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

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

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Natrium-Alginat

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

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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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prEN 1405:2022 (E)

European foreword

This document (prEN 1405:2022) 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 1405:2009.

In comparison with the previous edition EN 1405:2009, the following technical modifications have been made:

- a) updating in line with current legislation;
- b) modification of 8.3 on transportation regulations and labelling, adding the sentence “The user must be aware of the incompatibilities between transported products.”;
- c) modification of 8.4 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:

- 1) 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;
- 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.

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.

WARNING — The use of this document may involve hazardous substances, materials, operations and equipment. This document does not purport to address all the safety aspects associated with its use. It is the responsibility of the user of this document to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

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prEN 1405:2022 (E)**1 Scope**

This document is applicable to sodium alginate used for treatment of water intended for human consumption. It describes the characteristics of sodium alginate and specifies the requirements and the corresponding test methods for sodium alginate. It gives information on their 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 3696:1995, *Water for analytical laboratory use — Specification and test methods (ISO 3696:1987)*

ISO 3165:1976, *Sampling of chemical products for industrial use — Safety in sampling*

ISO 6206:1979, *Chemical products for industrial use — Sampling — Vocabulary*

ISO 8213:1986, *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.

4 Description**4.1 Identification****4.1.1 Chemical name(s)**

Sodium alginate.

NOTE Linear glycuronoglycan consisting mainly of (1-4) linked β -D-mannuronic acid units and (1-4) linked α -L-guluronic acid units in pyranose ring form.

4.1.2 Synonym(s) or common name(s)

Algin.

4.1.3 Relative molecular mass

Typically in the range of 10 000 to 250 000 Daltons.

4.1.4 Empirical formulae

— $-(C_6O_6H_7Na)_n-$

where

n is variable depending on the product.

4.1.5 Chemical formulae

The following formula (Figure 1) illustrates typical structures of Sodium alginate (with D-mannuronic acid units):

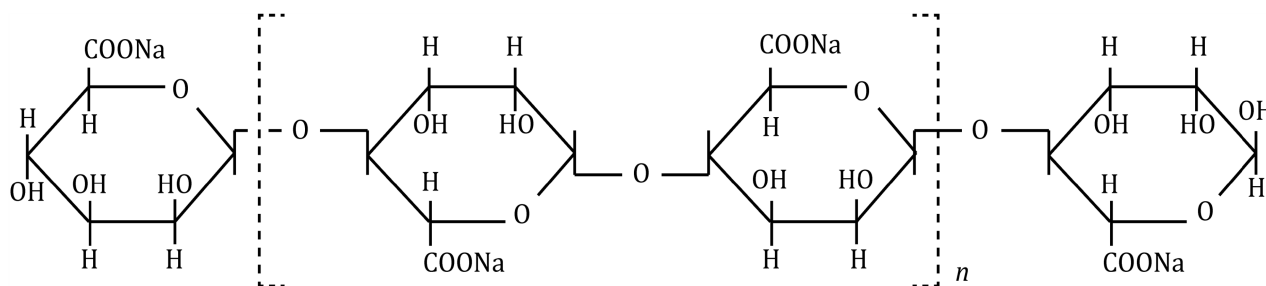


Figure 1 — Sodium alginate (with D-mannuronic acid units)

where

n is variable depending on the product.

4.1.6 CAS Registry Numbers ¹⁾

9005-38-3

4.1.7 EINECS reference ²⁾

The EINECS inventory lists alginic acid but does not apply numbers to the salts of alginic acid. The EINECS number for alginic acid is 232-68-01.

The conformity of polymers to EINECS is assessed on the basis of the monomers of which they are composed. Thus, EINECS reference numbers do not exist for polymers.

Polymers are exempt from registration according to EU Regulation 1907/2006/EC (see [3]), REACH.

Monomer substance(s) and any other substance(s) in the form of monomeric units and chemically bound substance(s) may have to be REACH registered according to Article 6 of EU Regulation 1907/2006/EC.

4.2 Commercial form

Sodium alginate as specified in this document is available as a solid containing a small amount of residual moisture.

For additional information on sodium alginate, see Annex A.

5 Physical properties

5.1 Appearance

The product is a white to pale yellowish-brown solid in the form of powder.

5.2 Bulk density

The bulk density of the product is typically in the range 0,7 g/cm³ to 1,0 g/cm³.

¹⁾ Chemical Abstracts Service Registry Number.

²⁾ European Inventory of Existing Commercial Chemical Substances.

prEN 1405:2022 (E)**5.3 Solubility**

The product is soluble in hot or cold water. Its solubility is limited only by viscosity, with a paste being formed at concentrations of approximately 50 g/l and above.

5.4 Vapour pressure

Not applicable.

5.5 Boiling point at 100 kPa ³⁾

Not applicable.

5.6 Melting point

The product will decompose typically at approximately 200 °C.

5.7 Specific heat

Not applicable.

5.8 Viscosity dynamic

Not applicable.

5.9 Critical temperature

Not applicable.

5.10 Critical pressure

Not applicable.

5.11 Physical hardness

Not applicable.

6 Chemical properties**6.1 General**

Sodium alginate is a non-hazardous material and not intrinsically reactive. However, in common with many other organic compounds, a strong exothermic reaction will occur if it is brought into contact in the dry state with a strong acid or strong oxidizing agent.

NOTE In dilute solution there can be a reaction with, or destruction by, some of the disinfection and oxidizing agents used in water treatment.

6.2 Purity criteria**6.2.1 General**

This document specifies the minimum purity requirements for sodium alginate 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.

³⁾ 100 kPa = 1 bar.

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

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 and contents of other impurities and additives used in the product not stated in the product standard.

6.2.2 Impurities and main by-products

Based on the raw materials and manufacturing process (see A.1), there are no significant concentrations of additional reactants or by products which are relevant to the application of these products in drinking water treatment.

6.3 Composition of commercial product

The product consists of sodium alginate, moisture and minor levels of inorganic salts (i.e. sodium chloride and sodium sulfate).

The following requirements shall apply to sodium alginate:

- there shall be no visible extraneous matter;
- sodium alginate content shall be minimum 80 % mass fraction calculated with reference to the dried substance;
- moisture content shall be less than 15 % mass fraction;
- ash content shall be 18 % mass fraction to 32 % mass fraction on a dry basis;
- pH shall be in the range 4,8 to 8,8 at 1 % mass fraction solution at 20 °C.

NOTE Various parameters can be checked as part of assessment of product quality (see 7.2.2).

6.4 Chemical parameters

Chemical parameters as defined above are not relevant at a reference dose of 0,5 mg/l.

NOTE Other chemical parameters and indicator parameters as listed in EU Directive 98/83/EC (see [1]) are not relevant to sodium alginate because the raw materials used in the manufacturing process are free of them and they are not by-products of the manufacturing process.

7 Test methods

7.1 Sampling

Sampling shall be in accordance with ISO 8213:1986 and the recommendations given in ISO 3165:1976 and ISO 6206:1979 shall be followed.

A representative sample of the solid product, of sufficient mass, shall be obtained immediately after manufacture or from a newly opened package(s). The sample shall be clearly labelled with product name/code, batch number, type of container(s) sampled and date sampled. Reference samples shall be retained for the storage life of the product as claimed by the manufacturer/supplier.