



SLOVENSKI STANDARD

oSIST prEN 1410:2022

01-julij-2022

Kemikalije, ki se uporabljajo za pripravo pitne vode - Kationski poliakrilamidi

Chemicals used for treatment of water intended for human consumption - Cationic polyacrylamides

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Kationische Polyacrylamide

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

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71.100.80	Kemikalije za čiščenje vode	Chemicals for purification of water

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Chemicals used for treatment of water intended for human consumption - Cationic polyacrylamides

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

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Kationische Polyacrylamide

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 1410:2022 (E)

European foreword

This document (prEN 1410:2022) 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 1410:2008.

In comparison with the previous edition EN 1410:2008, 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.

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prEN 1410:2022 (E)**1 Scope**

This document is applicable to cationic polyacrylamides used for treatment of water intended for human consumption. It describes the characteristics of cationic polyacrylamides and specifies the requirements and the corresponding test methods for cationic polyacrylamides. 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)**

Copolymer of acrylamide and amine ester or amide.

4.1.2 Synonym(s) or common name(s)

Cationic polyacrylamide.

NOTE The more general terms: “cationic polymer”, “cationic polyelectrolyte” and “cationic flocculant” are used but can also cover other chemicals referred to in other European standards.

4.1.3 Relative molecular mass

Typically in the range of 1 million to 20 million Daltons.

4.1.4 Empirical formula

— $-(C_3H_5NO)_x - (C_aH_bO_dA)_y -$

where

A is a negative ion;

a, b, c and d are variable depending on the cationic monomer;

x is variable depending on the product;

y is variable depending on the product.

4.1.5 Chemical formulae

The following formula illustrates typical structures of cationic polyacrylamide:

— copolymer of acrylamide and amine ester (Figure 1)

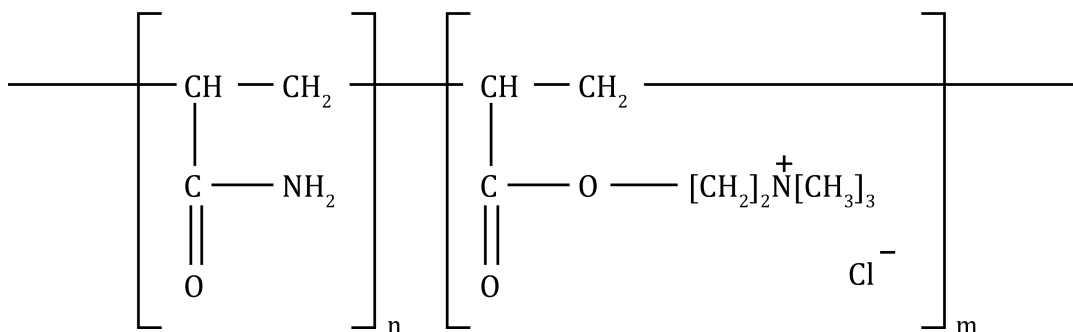


Figure 1 — Copolymer of acrylamide and amine ester

— copolymer of acrylamide and amine amide (Figure 2)

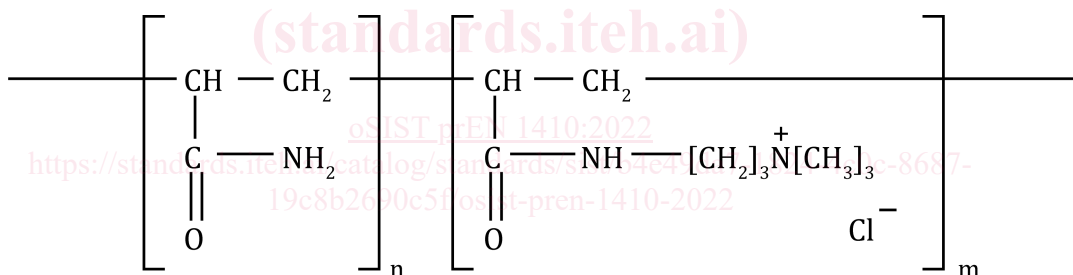


Figure 2 — Copolymer of acrylamide and amine amide

where

m is variable depending on the product;

n is variable depending on the product.

4.1.6 CAS Registry Numbers ¹⁾

The following is an exemplary list of CAS Registry Numbers for typical cationic polyacrylamides:

— 69418-26-4

¹⁾ Chemical Abstracts Service Registry Number.

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- 35429-19-7
- 52285-95-7
- 26006-22-4
- 60162-07-4
- 68227-15-6
- 55216-72-3
- 26796-75-8
- 74153-51-8
- 75150-29-7
- 26427-01-0
- 58627-30-8
- 68039-13-4

4.1.7 EINECS reference ²⁾

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

Cationic polyacrylamides as specified in this document are available as solids containing a small amount of residual moisture.

For additional information on cationic polyacrylamides, see Annex A.

5 Physical properties**5.1 Appearance**

The product is a white or off-white solid in the form of granule, flake or powder.

5.2 Bulk density

The bulk density of the product is typically in the range 0,5 g/cm³ to 0,9 g/cm³.

5.3 Solubility

The product is soluble in cold water. Its solubility is limited only by viscosity, with a gel being formed at concentrations of approximately 20 g/l and above.

²⁾ European Inventory of Existing Commercial Chemical Substances.

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 temperature above 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

Cationic polyacrylamides are non-hazardous materials and not intrinsically reactive. However, in common with many other organic compounds, a strong exothermic reaction will occur if they are 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 cationic polyacrylamides 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.

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.

³⁾ 100 kPa = 1 bar.