SLOVENSKI STANDARD
SIST EN 15041:2014

01-junij-2014

Nadomešča:
SIST EN 15041:2006

Kemikalije, ki se uporabljajo za pripravo pitne vode - Sredstva proti apnencu za membrane - Polifosfati

Chemicals used for treatment of water intended for human consumption - Antiscalants for membranes - Polyphosphates

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Antiscalants für Membranen - Polyphosphate

Produits chimiques pour le traitement de l'eau destinée à la consommation humaine - Produits antitartre pour membranes - Polyphosphates

Ta slovenski standard je istoveten z: **EN 15041:2014**

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

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English Version

Chemicals used for treatment of water intended for human consumption - Antiscalants for membranes - Polyphosphates

Produits chimiques pour le traitement de l'eau destinée à la consommation humaine - Produits antitartre pour membranes - Polyphosphates

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Antiscalants für Membranen - Polyphosphate

This European Standard was approved by CEN on 5 January 2014.

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 15041:2014) 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of an identical text or by endorsement, at the latest by September 2014 and conflicting national standards shall be withdrawn at the latest by September 2014.

This document supersedes EN 15041:2006.

Significant technical differences between this edition and EN 15041:2006 are as follows:

- replacement of warning and safety precautions notes by labelling according to REGULATION (EC) No 1272/2008.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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

Introduction

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the products covered by this European Standard:

a) this European Standard provides no information as to whether the products 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 these products remain in force.

Conformity with this European Standard does not confer or imply acceptance or approval of the products in any of the Member States of the EU or EFTA. The use of the products covered by this European Standard is subject to regulation or control by National Authorities.

1 Scope

This European Standard is applicable to polyphosphates used as antiscalants for membranes for treatment of water intended for human consumption. It describes the characteristics and specifies the requirements and the corresponding analytical methods for polyphosphates. It gives information on their use as antiscalants for membranes in water treatment.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1212:2005, *Chemicals used for treatment of water intended for human consumption - Sodium polyphosphate*

EN 1483, *Water quality — Determination of mercury — Method using atomic absorption spectrometry*

EN ISO 3696, *Water for analytical laboratory use - Specification and test methods (ISO 3696:1987)*

EN ISO 5961, *Water quality - Determination of cadmium by atomic absorption spectrometry (ISO 5961:1994)*

EN ISO 11885, *Water quality - Determination of selected elements by inductively coupled plasma optical emission spectrometry (ICP-OES) (ISO 11885:2007)*

EN ISO 11969, *Water quality - Determination of arsenic - Atomic absorption spectrometric method (hydride technique) (ISO 11969:1996)*

ISO 6703-1, *Water quality — Determination of cyanide — Part 1: Determination of total cyanide*

ISO 8288:1986, *Water quality — Determination of cobalt, nickel, copper, zinc, cadmium and lead — Flame atomic absorption spectrometric methods*

ISO 9174, *Water quality — Determination of chromium — Atomic absorption spectrometric methods*

ISO 9965, *Water quality — Determination of selenium — Atomic absorption spectrometric method (hydride technique)*

3 Description

For the identification, the commercial form, the physical properties and the chemical properties see the relevant sub-clauses of EN 1212.

4 Purity criteria

4.1 General

This European Standard specifies the minimum purity requirements for polyphosphates used as antiscalants for membranes for the treatment of water intended for human consumption. Limits are given for impurities commonly present in the products. 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 these products 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 lead to significant quantities of impurities, by-products or additives being present, this shall be notified to the user.

4.2 Composition of commercial product

The products shall conform to the following requirements on a dry mass basis:

— phosphate content expressed as P_2O_5: mass fraction of (64 to 69) %;

— sodium content expressed as Na_2O: mass fraction of (29 to 34,5) %.

4.3 Impurities and main by-products

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

Table 1 — Impurities

Impurity		Limit mg/kg of dry product
Sulfate (SO_4^{2-})	max.	500
Fluoride (F^-)	max.	10

4.4 Chemical parameters

4.4.1 Generals

Content of various chemical parameters depends on the origin of the raw materials, most of these elements are present only as traces. The content of antimony, arsenic, cadmium, chromium, cyanides, lead, mercury, nickel and selenium shall conform to the requirements specified in Table 2 of EN 1212:2005.

When preparing the products for analysis, it is important to ensure that the chemical parameters are effectively dissolved. The concentration of the solution should be sufficient to permit adequate sensitivity in analysis of the chemical parameters and appropriate steps should be taken to compensate for any matrix interference caused by the concentration of the products.

4.4.2 Determination of antimony (Sb), arsenic (As), cadmium (Cd), chromium (Cr), cyanide (CN^-), lead (Pb), mercury (Hg), nickel (Ni) and selenium (Se)

4.4.2.1 Principle

The elements antimony, arsenic, cadmium, chromium, lead, mercury, nickel and selenium are determined by atomic absorption spectrometry. Cyanide is determined by molecular absorption spectrometry.

4.4.2.2 Reagents

4.4.2.2.1 General

All reagents shall be of a recognized analytical grade and the water used shall conform to grade 3 specified in EN ISO 3696.

4.4.2.2.2 **Hydrochloric acid,** concentrated density ρ = 1,42 g/ml.

4.4.2.3 Procedure

4.4.2.3.1 Test portion

Weigh, to the nearest 0,001 g, 2,5 g (*m*) from the laboratory sample into a 100 ml one - mark volumetric flask.

4.4.2.3.2 Test solution

Add 20 ml of water and 2 ml of the hydrochloric acid (4.4.2.2.2), dissolve and make up to the mark with water and mix.

4.4.2.3.3 Determination

Determine the content of chemical parameters in the test solution (4.4.2.3.2) in accordance with the following methods :

Ni and Pb: in accordance with ISO 8288:1986, method A;

Cd: in accordance with EN ISO 5961;

CN^-: in accordance with ISO 6703-1;

Cr: in accordance with ISO 9174;

As: in accordance with EN ISO 11969;

Se: in accordance with ISO 9965;

Sb: in accordance with EN ISO 11885;

Hg: in accordance with EN 1483.

These methods provide an interim result (*y*) expressed in mg/l, which needs to be converted to give the final concentration according to the equation in 4.4.2.3.4.

4.4.2.3.4 Expression of results

From the interim result (*y*) determined (see 4.4.2.3.3), the content, w_3, of each element in the laboratory sample, expressed in mg/kg of dry antiscalant products is given by the following equation (1).

$$w_3 = y \times \frac{V}{m} \qquad (1)$$

y is the interim result (4.4.2.3.3) ;

V is the volume, expressed in ml, of the test solution (4.4.2.3.2) (= 100 ml) ;

m is the mass, expressed in g, of the test portion.

NOTE Pesticides and polycyclic aromatic hydrocarbons are not relevant in polyphosphates since the raw material used in the manufacturing process are free of them.

5 Test methods

The sampling and the analytical methods are those described in EN 1212.