SLOVENSKI STANDARD
SIST EN 15030:2013

01-maj-2013

Nadomešča:
SIST EN 15030:2006
SIST EN 15030:2006/AC:2010

Kemikalije, ki se uporabljajo za pripravo pitne vode - Srebrove soli za uporabo z občasnimi prekinitvami

Chemicals used for treatment of water intended for human consumption - Silver salts for intermittent use

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Silbersalze für den nicht systematischen Gebrauch

Produits chimiques utilisés pour le traitement de l'eau destinée à la consommation humaine - Sels d'argent pour usage intermittent

Ta slovenski standard je istoveten z: **EN 15030:2012**

ICS:

13.060.20	Pitna voda	Drinking water
71.100.80	Kemikalije za čiščenje vode	Chemicals for purification of water

SIST EN 15030:2013 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 15030

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ICS 71.100.80

Supersedes EN 15030:2006

English Version

Chemicals used for treatment of water intended for human consumption - Silver salts for intermittent use

Produits chimiques utilisés pour le traitement de l'eau destinée à la consommation humaine - Sels d'argent pour usage intermittent

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Silbersalze für den nicht systematischen Gebrauch

This European Standard was approved by CEN on 23 September 2012.

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This European Standard exists 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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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 15030:2012) 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of an identical text or by endorsement, at the latest by May 2013, and conflicting national standards shall be withdrawn at the latest by May 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15030:2006.

The significant technical differences between this edition and EN 15030:2006 are as follows:

— Modification of 6.2 on labelling, deletion of the reference to EU Directive 80/778/EEC of 15 July 1980 in order to take account of the latest Directive in force.

According to the CEN/CENELEC Internal Regulations, the national standards organisations 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.

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.

NOTE 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.

Water which is to be preserved with silver should fulfil the relevant legal requirements before the silver salt is added, in particular microbiological requirements.

1 Scope

This European Standard is applicable to silver nitrate and silver sulfate for the preservation of water intended for human consumption in intermittent applications in:

— water supply plants, including their pipeline networks (small-size plants);

— water for the preparation of foodstuffs;

— water which is stored in packaged form or kept in enclosed systems (for example, water supply systems in land, water and airborne vehicles).

The purpose of adding silver salts is to prevent the detrimental proliferation of microorganisms in water during storage or in enclosed supply systems.

This European Standard describes the characteristics of silver salts, specifies the requirements for silver salts and gives reference to the analytical methods. It gives information on their use in water treatment. It also determines the rules relating to safe handling and use of silver salts (see Annex B).

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 1233, *Water quality — Determination of chromium — Atomic absorption spectrometric methods*

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

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

EN ISO 10304-1, *Water quality — Determination of dissolved anions by liquid chromatography of ions — Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulphate (ISO 10304-1)*

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

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

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

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*

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

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

3 Description

3.1 Identification

3.1.1 Chemical name

a) Silver nitrate;

b) Silver sulfate.

3.1.2 Synonym or common name

None.

3.1.3 Relative molecular mass

a) 169,87;

b) 311,97.

3.1.4 Empirical formula

a) $AgNO_3$;

b) Ag_2SO_4.

3.1.5 Chemical formula

a) $AgNO_3$;

b) Ag_2SO_4.

3.1.6 CAS Registry Number [1)]

a) 7761-88-8;

b) 10294-26-5.

3.1.7 EINECS reference [2)]

a) 231-853-9;

b) 233-653-7.

3.2 Commercial forms

The products are available in solid forms.

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1) Chemical Abstracts Service Registry Number.

2) European Inventory of Existing Commercial Chemical Substances.

3.3 Physical properties

3.3.1 Appearance

The products are a powder.

3.3.2 Density

The density of silver nitrate is 4,35 g/cm^3 and the density of silver sulfate is 5,45 g/cm^3.

3.3.3 Solubility (in water)

The solubility of silver nitrate is 2,16 g/l and the solubility of silver sulfate is 8 g/l.

3.3.4 Vapour pressure at 20 °C

Not applicable.

3.3.5 Boiling point at 100 kPa [3)]

For silver nitrate at 444 °C (decomposition).

For silver sulfate at 1 085 °C (decomposition).

3.3.6 Melting point

The meting point of silver nitrate is 212 °C and the melting point of silver sulfate is 652 °C.

3.3.7 Specific heat

Not known.

3.3.8 Viscosity (dynamic)

Not applicable.

3.3.9 Critical temperature

Not applicable.

3.3.10 Critical pressure

Not applicable.

3.3.11 Physical hardness

Not applicable.

3.4 Chemical properties

Silver nitrate in solution is almost neutral (the pH value of an aqueous solution at 100 g/l is approximately 6).

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3) 100 kPa = 1 bar.

Silver sulfate in solution is almost neutral (the pH value of an aqueous solution at 5 g/l is approximately 5 to 6).

4 Purity criteria

4.1 General

This European Standard specifies the minimum purity requirements for silvers salts used for the preservation 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 the products should check the national regulations in order to clarify whether it is of appropriate purity for the preservation of water intended for human consumption, taking into account 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 products

The content of silver nitrate shall not be less than a mass fraction of 99,9 %.

The content of silver sulfate shall not be less than a mass fraction of 99,9 %.

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 product	
		Silver nitrate	Silver sulfate
Chloride (Cl^-)	max	< 1	N.A.
Copper (Cu)	max	0,056	< 100
Gold (Au)	max	0,000 2	N.A.
Iridium (Ir)	max	< 0,000 4	N.A.
Iron (Fe)	max	0,255	< 50
Nitrite (NO_2^-)	max	0,5	N.A.
Palladium (Pd)	max	< 0,000 1	N.A.
Platinum (Pt)	max	0,002 9	N.A.
Rhodium (Rh)	max	< 0,000 1	N.A.
Ruthenium (Ru)	max	0,000 7	N.A.
Sulfate	max	< 5	N.A.
NOTE N.A.: Not applicable.			

4.4 Chemical parameters

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

Table 2 — Chemical parameters

Parameter		Limit mg/kg of product	
		Silver nitrate	Silver sulfate
Arsenic (As)	max	5	5
Cadmium (Cd)	max	10	10
Chromium (Cr)	max	10	10
Mercury (Hg)	max	1	1
Nickel (Ni)	max	10	10
Lead (Pb)	max	10	10
Antimony (Sb)	max	10	10
Selenium (Se)	max	10	10
NOTE Cyanide is not relevant, since the materials used in the production process are free from it. Pesticides and polycyclic aromatic hydrocarbons are not by-products of the production process. For parametric values of silver salts on trace metal content in drinking water, see [1].			