



SLOVENSKI STANDARD
SIST EN 15030:2013+A1:2015
01-maj-2015

Nadomešča:
SIST EN 15030:2013

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+A1:2015

ICS:

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

SIST EN 15030:2013+A1:2015 **en,fr,de**

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EUROPEAN STANDARD

EN 15030:2012+A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2015

ICS 71.100.80

Supersedes EN 15030:2012

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 and includes Amendment 1 approved by CEN on 5 January 2015.

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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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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

	Page
Foreword.....	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Description	6
4 Purity criteria.....	9
5 Test methods.....	10
6 Labelling - transportation - storage	13
Annex A (informative) General information on silver salts	16
Annex B (normative) General rules relating to safety.....	18
Annex C (informative) Environmental, health and safety precautions within the chemical laboratory	19
Bibliography.....	20

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Foreword

This document (EN 15030:2012+A1:2015) 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 2015, and conflicting national standards shall be withdrawn at the latest by September 2015.

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 A1 EN 15030:2012 A1.

This document includes Amendment 1 approved by CEN on 2015-01-04.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

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 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.

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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 1 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.

NOTE 2 These products are used as biocides and comply with the relevant legislation in force. In the European Union, at the time of publication, this legislation is Regulation (EU) No 528/2012 [1].

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

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1 Scope

This European Standard is applicable to silver nitrate and silver sulfate (A1) and silver chloride (A1) 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*

[SIST EN 15030:2013+A1:2015](#)

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

[95fe7bc7c3e6/sist-en-15030-2013a1-2015](#)

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*

EN 15030:2012+A1:2015 (E)

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;

ⓘ

- c) silver chloride. ⓘ

3.1.2 Synonym or common name

ⓘ The naturally occurring mineral is called *chlorargyrite* or *cerargirite*, if weathered by air named as *horn silver*. ⓘ

3.1.3 Relative molecular mass

- a) 169,87;
- b) 311,97;

ⓘ

- c) 143,23. ⓘ

3.1.4 Empirical formula

- a) AgNO_3 ;
- b) Ag_2SO_4 ;

ⓘ

- c) AgCl . ⓘ

3.1.5 Chemical formula

- a) AgNO_3 ;
- b) Ag_2SO_4 ;

ⓘ

- c) AgCl . ⓘ

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3.1.6 CAS Registry Number ¹⁾

- a) 7761-88-8;
- b) 10294-26-5;

A1

- c) 7783-90-6. **A1**

3.1.7 **A1** EINECS number **A1** ²⁾

- a) 231-853-9;
- b) 233-653-7;

A1

- c) 232-033-3. **A1**

3.2 Commercial forms

A1 The products are solids, available as powders or pelletized. **A1**

3.3 Physical properties

3.3.1 Appearance

A1 White to slightly grey or yellowish. [SIST EN 15030:2013+A1:2015](https://standards.iteh.ai/catalog/standards/sist/74ce0c08-c144-45b7-87a6-95fe7bc7c3e6/sist-en-15030-2013a1-2015)
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NOTE Silver chloride quickly darkens on exposure to light by disintegrating into elemental chlorine and metallic silver; the latter is responsible for the colour change. **A1**

3.3.2 Density

A1

- a) 4,35 g/cm³ (crystal density);
- b) 5,45 g/cm³ (crystal density);
- c) 5,56 g/cm³ (crystal density). **A1**

3.3.3 Solubility (in water)

A1

- a) 2,16 g/l;
- b) 8 g/l;

1) Chemical Abstracts Service Registry Number.

2) European Inventory of Existing Commercial Chemical Substances.

EN 15030:2012+A1:2015 (E)

c) 1,88 mg/l at 25 °C. $\overline{A_1}$

3.3.4 Vapour pressure at 20 °C

Not applicable.

3.3.5 Boiling point at 100 kPa ³⁾

$\overline{A_1}$

- a) 444 °C (decomposition);
- b) 1 085 °C (decomposition);
- c) 1 550 °C. $\overline{A_1}$

3.3.6 Melting point

$\overline{A_1}$

- a) 212 °C;
- b) 652 °C;
- c) 455 °C. $\overline{A_1}$

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

- a) 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.

- b) silver sulfate in solution is almost neutral (the pH value of an aqueous solution at 5 g/l is approximately 5 to 6);

Ⓐ₁

- c) the saturated aqueous solution (see 3.3.3) is pH neutral. Silver chloride is insoluble in alcohol, other organic solvents, dilute acids and concentrated nitric acid, but soluble in concentrated sulphuric acid and (depending on the individual concentration) in aqueous solutions of ammonia, chlorides, bromides, thiosulfates and cyanides under complexation of the silver ion.

The standard redox potential (E^0) of Ag^+/Ag in neutral aqueous solution at 25 °C is: $E^0 = +0,80 \text{ V}$.

The standard redox potential (E^0) of AgCl/Ag in neutral solution at 25 °C is: $E^0 = +0,22 \text{ V}$. Ⓐ₁

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

Ⓐ₁ The content of silver salts shall not be less than a mass fraction of 99 %. Ⓐ₁

4.3 Impurities and main by-products

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