SLOVENSKI STANDARD
oSIST prEN 1421:2020

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Kemikalije, ki se uporabljajo za pripravo pitne vode - Amonijev klorid

Chemicals used for treatment of water intended for human consumption - Ammonium chloride

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Ammoniumchlorid

Produits chimiques utilisés pour le traitement de l'eau destinée à la consommation humaine - Chlorure d'ammonium

Ta slovenski standard je istoveten z: **prEN 1421**

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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EUROPÄISCHE NORM

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ICS 71.100.80

Will supersede EN 1421:2012

English Version

Chemicals used for treatment of water intended for human consumption - Ammonium chloride

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Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Ammoniumchlorid

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

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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Contents

Page

European foreword

This document (prEN 1421:2020) 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 1421:2012.

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

a) modification of 7.3 on transportation regulations and labelling, adding the sentence “The user shall be aware of the incompatibilities between transported products.”;

b) modification of 7.4 on marking. The requirements of marking are also applied to the accompanying documents.

Introduction

In respect of potential adverse effects on the quality of water intended for human consumption caused by the product covered by this document:

a) 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;

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 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.

1 Scope

This document is applicable to ammonium chloride used for treatment of water intended for human consumption. It describes the characteristics and specifies the requirements of ammonium chloride and refers to the corresponding analytical methods. It gives information for its use in water treatment. It also determines the rules relating to safe handling and use of ammonium chloride (see Annex B).

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

ISO 17378-2, *Water quality — Determination of arsenic and antimony — Part 2: Method using hydride generation atomic absorption spectrometry (HG-AAS)*

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

ISO 2762, *Hydrochloric acid for industrial use — Determination of soluble sulphates — Turbidimetric method*

ISO 3332, *Ammonium sulphate for industrial use — Determination of ammoniacal nitrogen content — Titrimetric method after distillation*

ISO 6332, *Water quality — Determination of iron — Spectrometric method using 1,10-phenanthroline*

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/TS 17379-2, *Water quality — Determination of selenium — Part 2: Method using hydride generation atomic absorption spectrometry (HG-AAS)*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at https://www.iso.org/obp/ui
- IEC Electropedia: available at http://www.electropedia.org/

4 Description

4.1 Identification

4.1.1 Chemical name

Ammonium chloride.

4.1.2 Synonym or common name

Sal-ammoniac.

4.1.3 Relative molecular mass

53,5.

4.1.4 Empirical formula

NH_4Cl.

4.1.5 Chemical formula

NH_4Cl.

4.1.6 CAS Registry Number [1]

12125-02-9.

4.1.7 EINECS reference [2]

235-186-4.

4.2 Commercial form

Ammonium chloride is available as a powder.

4.3 Physical properties

4.3.1 Appearance and odour

The product is a white powder or white crystals, without any odour.

4.3.2 Density

The density of the product is 1,53 g/cm^3 at 20 °C.

The bulk density is 0,6 g/cm^3 to 1 g/cm^3 depending on particle size.

[1] Chemical Abstracts Service Registry Number.
[2] European Inventory of Existing Commercial Chemical Substances.

4.3.3 Solubility in water

The solubility of the product in water at 20 °C is 374 g/l.

The solubility of the product in water at 50 °C is 504 g/l.

NOTE Dissolution of NH_4Cl in water is a strongly endothermic reaction and the resulting decrease in temperature can lead to crystallization.

4.3.4 Vapour pressure

100 Pa at 160 °C.

4.3.5 Boiling point at 100 kPa [3]

Not applicable.

4.3.6 Melting point

Sublimation at 338 °C.

4.3.7 Specific heat

Not known.

4.3.8 Viscosity

Not applicable.

4.3.9 Critical temperature

Not applicable.

4.3.10 Critical pressure

Not applicable.

4.3.11 Physical hardness

Not applicable.

4.4 Chemical properties

The pH value of an aqueous solution of mass fraction of 5 % is 4 to 6.

Ammonium chloride attacks metals, e.g. iron, copper, nickel, zinc.

Reaction with strong acids can generate hydrochloric acid gas; reaction with strong alkalis can generate ammonia gas.

5 Purity criteria

5.1 General

This document specifies the minimum purity requirements for ammonium chloride 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 can be present and, if so, this shall be notified to the user and, when necessary, to relevant authorities.

[3] 100 kPa = 1 bar.

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, contents of other impurities and additives used in the product 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 leads to significant quantities of impurities, by-products or additives being present, this shall be notified to the user.

5.2 Composition of commercial product

The content of ammonium chloride (NH_4Cl) shall not be less than a mass fraction of 99 %.

5.3 Impurities and main by-products

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

Table 1 — Impurities

Impurity		Limit (mg/kg) of the product
Sulfate (SO_4^{2-})	max	100
Iron (Fe)	max	5

5.4 Chemical parameters

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

Table 2 — Chemical parameters

Parameter		Limit (mg/kg) of the product
Antimony (Sb)	max	1
Arsenic (As)	max	5
Cadmium (Cd)	max	0,5
Chromium (Cr)	max	5
Lead (Pb)	max	5
Mercury (Hg)	max	0,1
Nickel (Ni)	max	5
Selenium (Se)	max	1
NOTE Pesticides and polycyclic aromatic hydrocarbons and cyanides (CN) are not relevant in ammonium chloride because the raw materials used in the manufacturing process are free of them. For parametric values of ammonium chloride on trace metal content in drinking water, see [1].		