# SLOVENSKI STANDARD
# SIST EN 1421:2013

**01-maj-2013**

**Nadomešča:**
**SIST EN 1421:2005**

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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:** **EN 1421:2012**

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**ICS:**

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

**SIST EN 1421:2013** **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN 1421

November 2012

ICS 71.100.80

Supersedes EN 1421:2005

English Version

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

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

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Ammoniumchlorid

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

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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.



CEN members are the national standards bodies of 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 United Kingdom.



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

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## Foreword

This document (EN 1421:2012) 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 1421:2005.

The significant technical differences between this edition and EN 1421:2005 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 product covered by this European Standard:

a) this European Standard 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 European Standard 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 European Standard is subject to regulation or control by National Authorities.

# 1 Scope

This European Standard 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, 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 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 2762,*Hydrochloric acid for industrial use — Determination of soluble sulfates — Turbidimetric method*



ISO 3165, *Sampling of chemical products for industrial use — Safety in sampling*

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

ISO 6206, *Chemical products for industrial use — Sampling — Vocabulary*

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

# 3 Description

## 3.1 Identification

### 3.1.1 Chemical name

Ammonium chloride.

### 3.1.2 Synonym or common name

Sal-ammoniac.

### 3.1.3 Relative molecular mass

53,5.

### 3.1.4 Empirical formula

$NH_4Cl$.

### 3.1.5 Chemical formula

$NH_4Cl$.

### 3.1.6 CAS Registry Number [1)]

12125-02-9.

### 3.1.7 EINECS reference [2)]

235-186-4.



## 3.2 Commercial form

Ammonium chloride is available as a powder.



## 3.3 Physical properties

### 3.3.1 Appearance and odour

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

### 3.3.2 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.

### 3.3.3 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 crystallisation.

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1) Chemical Abstracts Service Registry Number.

2) European Inventory of Existing Commercial Chemical Substances.

#### 3.3.4 Vapour pressure

100 Pa at 160 °C.

#### 3.3.5 Boiling point at 100 kPa [3)]

Not applicable.

#### 3.3.6 Melting point

Sublimation at 338 °C.

#### 3.3.7 Specific heat

Not known.

#### 3.3.8 Viscosity

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

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.

## 4 Purity criteria

### 4.1 General

This European Standard 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 may be present and, if so, this shall be notified to the user and when necessary, to relevant authorities.

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3) 100 kPa = 1 bar.