



# SLOVENSKI STANDARD

## SIST EN 12126:2000

01-november-2000

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### Kemikalije, ki se uporabljajo za pripravo pitne vode - Salmiak

Chemicals used for treatment of water intended for human consumption - Liquefied ammonia

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Ammoniak flüssig

**iTeh STANDARD PREVIEW**

Produits chimiques utilisés pour le traitement de l'eau destinée à la consommation humaine - Ammoniac liquéfié

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Ta slovenski standard je istoveten z: **EN 12126:1998**

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#### **ICS:**

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

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**en**

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EUROPEAN STANDARD

EN 12126

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September 1998

ICS 13.060.20; 71.100.20; 71.100.80

Descriptors: potable water, water treatment, chemical compounds, liquid ammonia, liquids, description, physical properties, chemical properties, impurities, toxic substances, tests, conditioning, marking, labelling, transportation, storage

English version

## Chemicals used for treatment of water intended for human consumption - Liquefied ammonia

Produits chimiques utilisés pour le traitement de l'eau destinée à la consommation humaine - Ammoniac liquéfié

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Ammoniak flüssig

This European Standard was approved by CEN on 5 September 1998.

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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 Central Secretariat 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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## Foreword

This European Standard 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 March 1999, and conflicting national standards shall be withdrawn at the latest by March 1999.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland 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 product covered by this Standard :

- 1) this 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 ;
- 2) 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.

## 1 Scope

This European standard is applicable to liquefied ammonia used for treatment of water intended for human consumption. It describes the characteristics of liquefied ammonia and specifies the requirements and the corresponding test methods for liquefied ammonia. It gives information on its use in water treatment.

## 2 Normative references

This present European standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

|             |  |
|-------------|--|
| EN ISO 3696 | Water for analytical laboratory use - Specification and test methods (ISO 3696:1987)   |
| ISO 7103    | Liquefied anhydrous ammonia for industrial use - Sampling - Taking a laboratory sample   |
| ISO 7105    | Liquefied anhydrous ammonia for industrial use - Determination of water content - Karl Fischer Method                          |
| ISO 7106    | Liquefied anhydrous ammonia for industrial use- Determination of oil content - Gravimetric and infra-red spectrometric methods |

## 3 Description

### 3.1 Identification

#### 3.1.1 Chemical name

Ammonia, liquefied, anhydrous.

**3.1.2 Synonym or common name**

Ammonia.

**3.1.3 Relative molecular mass**

17,03.

**3.1.4 Empirical formula**

NH<sub>3</sub>.

**3.1.5 Chemical formula**

NH<sub>3</sub>.

**3.1.6 CAS Registry Number<sup>1)</sup>**

7664-41-7.

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**3.1.7 EINECS reference<sup>2)</sup> (standards.iteh.ai)**

231-635-3.

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**3.2 Commercial form**

Liquefied gas.

**3.3 Physical properties****3.3.1 Appearance and odour**

The product is colourless liquid with a characteristic pungent odour.

**3.3.2 Density**

The density of the gas is 0,771 g/l at 101,3 kPa<sup>3)</sup> and 0 °C.

The density of the liquid is 0,682 g/ml at 101,3 kPa and - 34 °C, and 0,61 g/ml at 850 kPa and 20 °C.

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<sup>1)</sup> Chemical Abstracts Service Registry Number.

<sup>2)</sup> European Inventory of Existing Commercial Chemical Substances.

<sup>3)</sup> 100 kPa = 1 bar.

### 3.3.3 Solubility (in water)

The solubility of the product in water is 900 g/l at 0 °C, 520 g/l at 20 °C, and 407 g/l at 30 °C.

### 3.3.4 Vapour pressure

The vapour pressure of the product is 400 kPa at 0 °C, 850 kPa at 20 °C and 2 035 kPa at 50 °C.

### 3.3.5 Boiling point at 100 kPa<sup>3)</sup>

The boiling point of the product is -33,4 °C at 101,3 kPa.

### 3.3.6 Melting point

The melting point of the product is -77,7 °C at 101,3 kPa.

### 3.3.7 Specific heat

The specific heat of the product is 4,61 kJ/Kg.K at 0 °C and 4,86 kJ/kg.K at 40 °C.

### 3.3.8 Viscosity, dynamic

The viscosity of the product is 0,254 mPa.s at -33 °C and 101,3 kPa.

### 3.3.9 Critical temperature

132,4 °C.

### 3.3.10 Critical pressure

11 450 kPa.

### 3.3.11 Physical hardness

Not applicable.

## 3.4 Chemical properties

Ammonia reacts violently with halogens, acids, acid halides, acid anhydrides, oxidizing agents. Its reacts with zinc, copper, tin and their alloys. Mixtures of 15 % (V/V) to 30 % (V/V) of ammonia with air are explosive.



## 4 Purity criteria

Limits have been given for impurities and toxic substances where these are likely to be present in significant quantities from the current production process and raw materials. If a change in the production process or raw materials leads to significant quantities of other impurities or by-products being present, this shall be notified to the user.

### 4.1 Composition of commercial product

Liquefied ammonia shall not contain less than 99,8 % by mass (%(m/m)) NH<sub>3</sub>.

### 4.2 Impurities and main by-products

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

**Table 1 : Impurities**

| Impurity                    |      | Limit       |
|-----------------------------|------|-------------|
| Water                       | max. | 0,1 % (m/m) |
| Permanent gases and methane | max. | 0,1 % (V/V) |
| Oil                         | max. | 5 mg/kg     |

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### 4.3 Toxic substances

NOTE : For the purposes of this standard "toxic substances" are those defined in the EU Directive 80/778/EEC of 15 July 1980 (see C.1).

The inorganic "toxic substances" are not found in liquefied ammonia. Cyanides, pesticides and polycyclic aromatic hydrocarbons are not by-products of the manufacturing process.

## 5 Test methods

### 5.1 Sampling

Follow the sampling method according to ISO 7103.

### 5.2 Analyses

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

#### 5.2.1 Main product

The ammonia concentration is calculated by subtracting the contents of the main impurities from 100 % (m/m).

#### 5.2.2 Impurities