



SLOVENSKI STANDARD

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Nadomešča:
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Kemikalije, ki se uporabljajo za pripravo pitne vode - Raztopina amonijaka

Chemicals used for treatment of water intended for human consumption - Ammonia solution

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Ammoniaklösung

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

Ta slovenski standard je istoveten z: **EN 12122:2024**

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71.100.80	Kemikalije za čiščenje vode	Chemicals for purification of water

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Chemicals used for treatment of water intended for human consumption - Ammonia solution

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

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This European Standard was approved by CEN on 5 August 2024.

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

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EN 12122:2024 (E)**European foreword**

This document (EN 12122:2024) 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of an identical text or by endorsement, at the latest by June 2025, and conflicting national standards shall be withdrawn at the latest by June 2025.

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

This document supersedes EN 12122:2005.

EN 12122:2024 includes the following significant technical changes with respect to EN 12122:2005:

- a) modification of 7.4: The requirements of marking are also applied to the accompanying documents;
- b) modification of 7.2: adaptation of GHS labelling for the 2 concentration ranges of the commercially available products for the commercially available products.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye 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 document:

- a) no information as to whether the product may be used without restriction is provided;
- b) national regulations concerning the use and/or the characteristics of this product might exist.

NOTE Conformity with this document does not confer or imply acceptance or approval of the product. The use of the product covered by this document could be subject to regulation or control by National Authorities.

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EN 12122:2024 (E)**1 Scope**

This document is applicable to ammonia solution used for treatment of water intended for human consumption. It describes the characteristics and specifies the requirements of ammonia solution and refers to the corresponding analytical methods. It gives information for its use in water treatment. It also provides basic information relating to safe handling and use of ammonia solution (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 ISO 3696, *Water for analytical laboratory use — Specification and test methods (ISO 3696)*

ISO 5993, *Sodium hydroxide for industrial use — Determination of mercury content — Flameless atomic absorption spectrometric method*

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

ISO 6353-1, *Reagents for chemical analysis — Part 1: General test methods*

ISO 7108, *Ammonia solution for industrial use — Determination of ammonia content — Titrimetric method*

ISO 7109, *Ammonia solution for industrial use — Determination of residue after evaporation at 105 degrees C — Gravimetric method*

3 Terms and definitions

No terms and definitions are listed in this document.

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

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

4 Description**4.1 Identification****4.1.1 Chemical name**

Ammonia solution ... %.

4.1.2 Synonym or common name

Ammonia water.

4.1.3 Relative molecular mass

17,03

4.1.4 Empirical formula

NH₃

4.1.5 Chemical formula

NH₃.

4.1.6 CAS-Registry Number ¹⁾

1336-21-6.

4.1.7 EINECS reference ²⁾

215-647-6.

4.2 Commercial form

The usual product is an aqueous solution with 25 % (m/m) ammonia (NH₃). Other concentrations are also commercially available.

4.3 Physical properties

4.3.1 Appearance and odour

The product is a colourless liquid with a pungent odour.

4.3.2 Density

15 % solution: 0,941 g/cm³ at 20 °C.

20 % solution: 0,925 g/cm³ at 20 °C.

25 % solution: 0,906 g/cm³ at 20 °C. [SIST EN 12122:2025](https://standards.iteh.ai/catalog/standards/sist/85512b39-cf8d-4889-878f-a99a728b8955/sist-en-12122-2025)

30 % solution: 0,894 g/cm³ at 20 °C.

4.3.3 Solubility

The product is miscible with water in any proportion.

4.3.4 Vapour pressure

25 % solution: 44 kPa at 21 °C

The vapour pressure rises strongly with higher ammonia concentration. The maximum ammonia concentration of technical products is 33 % to 35 %, as the partial vapour pressure of the dissolved ammonia reaches atmospheric pressure, and the solution seems to boil at ambient temperature under emission of large volumes of ammonia gas.

¹⁾ Chemical Abstracts Service Registry Number.

²⁾ European Inventory of Existing Commercial Chemical Substances.

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4.3.5 Boiling point at 100 kPa ³

A 25 % solution begins visually to boil at approximately 38 °C which relates to the release of ammonia gas (see 4.3.4 Vapour pressure).

4.3.6 Crystallization point

25 % solution: approximately - 55 °C.

4.3.7 Specific heat

25 % solution: 4,18 kJ/(kg.K).

4.3.8 Viscosity, dynamic

25 % solution: 1,12 mPa.s at 20 °C.

4.3.9 Critical temperature

25 % solution: 132,5 °C (NH₃ gas above liquid).

4.3.10 Critical pressure

25 % solution: 11 250 kPa (NH₃ gas above liquid).

4.3.11 Physical hardness

Not applicable.

4.4 Chemical properties

Ammonia solutions are highly alkaline, the pH of the commercial products is typically 12 to 13 at 20 °C.

Ammonia solution reacts with acids under heating to form ammonium salts, with carbon dioxide (e.g. from air) to form ammonium hydrogen carbonate and ammonium carbonate, and with chlorine or hypochlorites to toxic and explosive chloramines. Ammonia solution shall therefore not be stored together with chlorine cylinders and calcium or sodium hypochlorite but in separate rooms or cabinets, and shall not be mixed in concentrated forms.

Mixing with alkali like concentrated caustic lye or solid caustic may lead to the release of toxic ammonia gas in large amounts.

Air-ammonia mixtures of 15 % to 30 % (v/v) ammonia gas can be inflamed, however this requires a strong ignition source.

5 Purity criteria

5.1 General

This document specifies the minimum purity requirements for ammonia solution 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.