
Kemikalije, ki se uporabljajo za pripravo pitne vode - Proti obraščanju membran - Sulfamska kislina

Chemicals used for treatment of water intended for human consumption - Antifouling for membranes – Sulfamic acid

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Antifouling für Membranen - Amidosulfonsäure und -salze

Produit chimique utilisé pour le traitement de l'eau destinée à la consommation humaine - Produit antitartre pour membranes - Acide sulfamique

Ta slovenski standard je istoveten z: EN 17841:2024

[SIST EN 17841:2024](https://standards.slovenski-institut.si/standards/sist/17841/2024)

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ICS:

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

SIST EN 17841:2024**en,fr,de**

EUROPEAN STANDARD

EN 17841

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2024

ICS 71.100.80

English Version

Chemical used for treatment of water intended for human consumption - Antifouling for membranes - Sulphamic acid

Produit chimique utilisé pour le traitement de l'eau destinée à la consommation humaine - Produit antitartre pour membranes - Acide sulfamique

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EN 17841:2024 (E)**European foreword**

This document (EN 17841:2024) 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of an identical text or by endorsement, at the latest by September 2024, and conflicting national standards shall be withdrawn at the latest by September 2024.

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.

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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:

- 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.

NOTE 1 This product is a precursor for a biocide and it is worth noting that national regulations concerning the use and/or the characteristics of this product might apply. In the European Union, attention is drawn to Regulation (EU) Nr. 528/2012 [1].

NOTE 2 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.

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EN 17841:2024 (E)**1 Scope**

This document is applicable to sulphamic acid used as antifoulant for membranes in the treatment of water intended for human consumption. It describes the characteristics and specifies the requirements and the corresponding analytical methods for sulphamic acid. It gives information on their use as antifoulant for membranes in water treatment in Annex A.

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)*

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 sulfate (ISO 10304-1)*

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

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*

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**

Sulphamic acid

4.1.2 Synonym or common name

Amidosulfonic acid, sulfamic acid

4.1.3 Relative molecular mass

97,09 g/mol

4.1.4 Empirical formula

NH₂SO₃H

4.1.5 Chemical formula

$\text{NH}_2\text{SO}_3\text{H}$

4.1.6 CAS Registry Number ¹⁾

5329-14-6

4.1.7 EINECS reference ²⁾

226-218-8

4.2 Commercial form

The products are supplied as:

- solids with minimum mass fraction of 99 % content;
- aqueous solutions with typical concentration between mass fraction of 5 – 15 %.

All concentrations mentioned refer to the active matter (active acid) and shall be calculated accordingly.

4.3 Physical properties

4.3.1 Appearance

Solid: the product is available as colourless or white crystals or powder.

Liquid: the product is available as colourless aqueous solutions.

4.3.2 Density

The bulk density of the solid product is approx. 2,1 kg/L to 2,2 kg/L at 25 °C.

The densities of the liquid solutions at 20 °C are as follows:

5 % approx. 1,027 g/ml

10 % approx. 1,041 g/ml

15 % approx. 1,086 g/ml

4.3.3 Solubility in water

The solubility of the solid sulfamic acid is approx. 180 g/L at 20 °C.

The liquid products are miscible with water.

Vapour pressure (at 20 °C):

The solid sulfamic acid is non-volatile. The vapour pressure is not relevant.

The vapour pressure of the liquid sulfamic acid solutions is approx. 20 hPa (similar to water).

4.3.4 Boiling point at 100 kPa ³⁾

Solids: Not applicable

¹⁾ Chemical Abstracts Service Registry Number.

²⁾ European Inventory of Existing Commercial Chemical Substances.

³⁾ 100 kPa = 1 bar.

EN 17841:2024 (E)**4.3.5 Melting point**

Solids: 205 °C (decomposition)

Liquids: Not applicable.

4.3.6 Specific heat

Not known.

4.3.7 Viscosity, dynamic

For the solid product it is not applicable.

4.3.8 Critical temperature (for gas)

Not applicable.

4.3.9 Critical pressure (for gas)

Not applicable.

4.3.10 Physical hardness

Not applicable.

4.4 Chemical properties

Sulphamic acid solutions are strongly acidic (pH approx. 1 for typical commercial forms).

5 Purity criteria**5.1 General**

This document specifies the minimum purity requirements for sulphamic acid 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.

Users of this product should 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 the product standard.

Limits have been given for impurities and chemicals 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 products shall have a mass fraction of > 99 % on a dry basis.

5.3 Impurities and main by-products

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

Table 1 — Impurities

Impurity	Limit in mg/kg related to sulphamic acid
Sulfate max.	1 000