



SLOVENSKI STANDARD
SIST EN 14664:2023

01-september-2023

Nadomešča:
SIST EN 14664:2005

Kemikalije, ki se uporabljajo za pripravo pitne vode - Železov (III) sulfat, v trdnem stanju

Chemicals used for treatment of water intended for human consumption - Iron (III) sulfate, solid

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Eisen(III)sulfat, fest

Produits chimiques utilisés pour le traitement de l'eau destinée à la consommation humaine - Sulfate de fer (III), solide

Ta slovenski standard je istoveten z: EN 14664:2023

ICS:

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

SIST EN 14664:2023 **en,fr,de**

EUROPEAN STANDARD

EN 14664

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2023

ICS 71.100.80

Supersedes EN 14664:2004

English Version

Chemicals used for treatment of water intended for human consumption - Iron (III) sulfate, solid

Produits chimiques utilisés pour le traitement de l'eau destinée à la consommation humaine - Sulfate de fer (III), solide

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Eisen(III)sulfat, fest

This European Standard was approved by CEN on 2 January 2023.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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EN 14664:2023 (E)**European foreword**

This document (EN 14664:2023) 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of an identical text or by endorsement, at the latest by December 2023, and conflicting national standards shall be withdrawn at the latest by December 2023.

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 14664:2004.

The main changes compared to the previous edition are listed below:

- removal of the analytical methods from this document and addition of reference to EN 17215 as analytical method standard;
- update of the information on risk and safety labelling of the product to comply with the new regulations (see 7.2 and [2]);
- update of the information related to the Drinking Water Directive.

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.

Introduction

With respect to 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 or 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.

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EN 14664:2023 (E)**1 Scope**

This document is applicable to iron (III) sulfate solid used for treatment of water intended for human consumption. It describes the characteristics of iron (III) sulfate solid and specifies the requirements and the corresponding analytical methods for iron (III) sulfate solid and gives information on its use in water treatment. It also determines the rules relating to safe handling and use of iron (III) sulfate solid.

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 17215, *Chemicals used for treatment of water intended for human consumption - Iron-based coagulants - Analytical methods*

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**

Iron (III) sulfate, solid.

4.1.2 Synonym or common names

Ferric sulfate, solid.

4.1.3 Relative molecular mass

499,0 g/mol.

4.1.4 Empirical formula

$\text{Fe}_2(\text{SO}_4)_3 \cdot x \text{H}_2\text{O}$ where x is approximately 5,5.

4.1.5 Chemical formula

$\text{Fe}_2(\text{SO}_4)_3 \cdot x \text{H}_2\text{O}$ where x is approximately 5,5.

4.1.6 CAS Registry Number®¹

10028-22-5.

4.1.7 EINECS reference²

233-072-9.

4.2 Commercial forms

Iron (III) sulfate solid is available as free flowing granules or powder in different particle size ranges.

4.3 Physical properties

4.3.1 Appearance

The iron (III) sulfate solid consists of greyish or yellowish granules.

4.3.2 Density

The bulk density is approximately equal to 1 300 kg/m³ for granules and 1 000 kg/m³ for powders at 20 °C.

4.3.3 Solubility (in water)

Iron (III) sulfate solid dissolves rapidly in water. The solubility is approximately 550 g/dm³, corresponding to approximately mass fraction 12,3 % of Fe at 20 °C (see A.3.2).

4.3.4 Vapour pressure

Not known.

4.3.5 Boiling point at 100 kPa³

Not applicable.

4.3.6 Melting point

Iron (III) sulfate solid decomposes when heated.

4.3.7 Specific heat

Not known.

4.3.8 Viscosity (dynamic)

Not applicable.

4.3.9 Critical temperature

Not applicable.

¹ Chemical Abstract Service Registry Number. CAS Registry Number® is a trademark of CAS corporation. This information is given for the convenience of users of this document and does not constitute an endorsement by CEN of the product named. Equivalent products may be used if they can be shown to lead to the same results.

² European Inventory of Existing Commercial Chemical Substances.

³ 100 kPa = 1 bar.

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4.3.10 Critical pressure

Not applicable.

4.3.11 Physical hardness

The granule strength is higher than 50 N/mm².

4.4 Chemical properties

Iron (III) sulfate solid is slightly hygroscopic at relative humidity higher than 50 %.

Iron (III) sulfate solutions are acidic.

5 Purity criteria

5.1 General

This document specifies the minimum purity requirements for iron (III) sulfate solid 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.

NOTE Users of this product can 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 document.

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 lead 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 product typically contains not less than mass fraction of 64 % of Fe₂(SO₄)₃ or not less than a mass fraction of 18 % of Fe and shall be within ± 3 % of the manufacturer's declared values.

5.3 The grade of the product

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

The concentration limits refer to Fe (III).