BRITISH STANDARD

BS EN 889:1999

Chemicals used for treatment of water intended for human consumption — Iron(II) sulfate

The European Standard EN 889:1998 has the status of a British Standard

ICS 71.100.80

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National foreword

This British Standard is the English language version of EN 889:1998.

The UK participation in its preparation was entrusted to Technical Committee CII/59, Chemicals for drinking water treatment, which has the responsibility to:

— aid enquirers to understand the text;
— present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

The United Kingdom did not support this standard at the CEN Enquiry stage and voted against its acceptance at the Formal Vote Stage. The principle UK objections were as follows.

a) The limits for manganese and insoluble matter specified in Table 1 are expressed as percentages of the iron content whereas the analytical methods described in annex B give the results as mg/kg of the product and a percentage by mass of the product, respectively. Similarly, the limits for toxic substances in Table 2 are expressed as mg/kg of iron(II) but the calculations described in **B.4.5.4**, **B.5.5.4** and **B.6.5.4** give the results as mg/kg of the product.

b) Specifying deionized water in **B.3.3.1** is inappropriate: the water should conform to grade 3 in accordance with EN ISO 3696.

c) No instructions are given in **B.4** for the preparation of the calibration curve for the determinations of arsenic, antimony and selenium. The standard additions technique, to which reference is made, is not relevant because any matrix interference is removed by conversion of the elements to gaseous hydrides.

Additional information

Article 8 of the Council of the European Community Directive 80/778/EEC relating to the quality of water intended for human consumption requires Member States to ensure that substances used in the preparation of drinking water do not cause any contravention of the maximum admissible concentrations prescribed in annex 1 to the Directive.

This requirement is given effect in England and Wales by regulation 25 of the Water Supply (Water Quality) Regulations 1989 (similar provisions apply in Scotland and Northern Ireland). Regulation 25 makes provision for attaching conditions of use to chemicals which are authorized for use in public water supplies.

Details of conditions of use are contained in the Secretary of State's List of Approved Products published by the Drinking Water Inspectorate, Floor 2/A1, Ashdown House, 123 Victoria Street, London, SW1E 6DE.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled "International Standards Correspondence Index", or by using the "Find" facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 13 and a back cover.

Amendments issued since publication

Amd. No.	Date	Text affected

This British Standard, having been prepared under the direction of the Sector Committee for Materials and Chemicals, was published under the authority of the Standards Committee and comes into effect on 15 February 1999

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

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Descriptors: potable water, water treatment, chemical compounds, iron sulfates, description, physical properties, chemical properties, impurities, toxic substances, tests, labelling, storage, utilization

English version

Chemicals used for treatment of water intended for human consumption – Iron(II) sulfate

Produits chimiques utilisés pour le traitement de l'eau destinée à la consommation humaine — Sulfate de fer (II)

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch – Eisen (II) sulfat

This European Standard was approved by CEN on 24 July 1998.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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CEN

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 February 1999, and conflicting national standards shall be withdrawn at the latest by February 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 iron(II) sulfate heptahydrate used for treatment of water intended for human consumption. It describes the characteristics of iron(II) sulfate heptahydrate and specifies the requirements and the corresponding analytical methods for iron(II) sulfate heptahydrate and gives information on its use in water treatment.

2 Normative references

This 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 3696:1998)

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 Description

3.1 Identification

3.1.1 *Chemical name*

Iron(II) sulfate heptahydrate.

3.1.2 *Synonym or common names*

Ferrous sulfate, iron vitriol, copperas, green salt.

3.1.3 *Relative molecular mass*

278,02.

3.1.4 *Empirical formula*

$FeSO_4 \cdot 7H_2O$.

3.1.5 *Chemical formula*

$FeSO_4 \cdot 7H_2O$.

3.1.6 *CAS Registry Number*[1)]

7782-63-0 ($FeSO_4 \cdot 7H_2O$).
7720-78-7 ($FeSO_4$).

3.1.7 *EINECS reference*[2)]

231-753-5 ($FeSO_4$).

3.2 Commercial forms

a) Wet crystals.
b) Free-flowing crystals.

3.3 Physical properties

3.3.1 *Appearance*

Light green crystals.

3.3.2 *Density*

1,9 g/cm^3 at 20 °C.

Bulk density:

— commercial form a) approximately 1 kg/dm^3;
— commercial form b) approximately 0,8 kg/dm^3.

3.3.3 *Solubility (in water)*

The solubility of iron(II) sulfate heptahydrate is 487 g/l at 20 °C.

3.3.4 *Vapour pressure*

Not applicable.

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

Not applicable.

3.3.6 *Melting point*

Melting starts at approximately 64 °C, leading to decomposition.

3.3.7 *Specific heat*

Not known.

3.3.8 *Viscosity (dynamic)*

Not applicable.

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1) Chemical Abstracts Service Registry Number.

2) European Inventory of Existing Commercial Chemical Substances.

3) 100 kPa = 1 bar.

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