

Chemicals used for treatment of water intended for human consumption — Hexafluorosilicic acid

The European Standard EN 12175:2001 has the status of a
British Standard

ICS 71.100.80; 13.060.20

National foreword

This British Standard is the official English language version of EN 12175:2001.
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.

Additional information

Article 10 of the Council of the European Community Directive 98/83/EC on the quality of water intended for human consumption requires Member States to ensure that substances and materials (including associated impurities) used in the preparation of drinking water do not remain in treated water at concentrations that are higher than necessary or that would reduce the protection of public health provided for in 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 and filter media that are authorized for use in public water supplies.

Details of conditions of use are contained in the *List of Products and Processes Approved Under Regulations 25 and 26 For Use In Connection With The Supply of Water For Drinking, Washing, Cooking and Food Production Purposes* published by the Drinking Water Inspectorate, Floor 2/A1, Ashdown House, 123 Victoria Street, London SW1E 6DE (www.dwi.gov.uk).

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.

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This British Standard, having been prepared under the direction of the Sector Policy and Strategy Committee for Materials and Chemicals, was published under the authority of the Standards Policy and Strategy Committee on 05 November 2001

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 20, an inside back cover and a back cover.

The BSI copyright date displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments

© BSI 05 November 2001

ISBN 0 580 38208 7

English version

Chemicals used for treatment of water intended for human consumption - Hexafluorosilicic acid

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

Produkte zur Aufbereitung von Wasser für den
menschlichen Gebrauch - Hexafluorokieselsäure

This European Standard was approved by CEN on 23 June 2001.

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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 Management Centre has the same status as the official versions.

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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 2002, and conflicting national standards shall be withdrawn at the latest by February 2002.

Annex A is informative.

Annex B is normative.

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.

Introduction

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the product covered by this standard :

- a) 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 ;
- 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.

1 Scope

This European Standard is applicable to hexafluorosilicic acid used for treatment of water intended for human consumption. It describes the characteristics of hexafluorosilicic acid and specifies the requirements and the corresponding test methods for hexafluorosilicic acid. It 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 (including amendments).

EN ISO 3696, *Water for analytical laboratory use - Specification and test methods (ISO 3696:1987)*.

ISO 3165, *Sampling of chemical products for industrial use - Safety in sampling*.

ISO 5440, *Sodium hexafluorosilicate for industrial use - Determination of phosphate content - Molybdovanadate spectrophotometric method*.

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

ISO 6206, *Chemical products for industrial use - Sampling – Vocabulary*.

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

3 Description

3.1 Identification

3.1.1 Chemical name

Hexafluorosilicic acid.

3.1.2 Synonym or commons names

Hydrofluosilicic acid.

Silicate -hexafluoro -dihydrogen.

Fluorosilicic acid,

HFSA.

3.1.3 Relative molecular mass

144,09.

3.1.4 Empirical formula

H_2SiF_6 .

3.1.5 Chemical formula

H_2SiF_6 .

3.1.6 CAS-Registry Number¹⁾

16961-83-4.

3.1.7 EINECS reference²⁾

241-034-8.

3.2 Commercial form

Hexafluorosilicic acid is an aqueous solution.

3.3 Physical properties

3.3.1 Appearance and odour

Hexafluorosilicic acid is a clear, colourless liquid with a pungent odour.

3.3.2 Density

The density of a 35 % (*m/m*) solution at 25 °C is 1,35 g/ml.

The density of a 20 % (*m/m*) solution at 25 °C is 1,18 g/ml.

3.3.3 Solubility (in water)

The product is miscible in any proportion.

3.3.4 Vapour pressure

The vapour pressure at 20 °C is approximately 3 kPa³⁾.

3.3.5 Boiling point at 100 kPa³⁾

The product boils and decomposes at 110 °C.

3.3.6 Crystallisation point

A 35 % (*m/m*) solution crystallizes at -30 °C, a 20 % (*m/m*) solution crystallizes at -11,6 °C.

3.3.7 Specific heat

Not known.

3.3.8 Viscosity dynamic

A 20 % (*m/m*) solution has a dynamic viscosity of 1,4 MPa·s at 25 °C.

3.3.9 Critical temperature

Not applicable.

¹⁾ Chemical Abstracts Service Registry Number.

²⁾ European Inventory of Existing Commercial Chemical Substances.

³⁾ 100 kPa = 1 bar.