BRITISH STANDARD

BS EN 12931:2000

Chemicals used for treatment of water intended for human consumption — Chemicals for emergency use — Sodium dichloroisocyanurate, anhydrous

The European Standard EN 12931:2000 has the status of a British Standard

ICS 71.100.80

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National foreword

This British Standard is the official English language version of EN 12931:2000.

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 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 and filter media that are authorized for use in public water supplies.

The conditions of use for products based on isocyanuric acid authorize emergency use only. Their use in public water supplies is effectively limited to no more than 90 days in any period of a year. Where use for a greater period of time is unavoidable, water companies are required to take independent medical advice concerning possible risk to the health of consumers. There is a further general recommendation that consumers should be exposed to drinking water containing products based on isocyanuric acid for only as long as is required to restore conventional treatment.

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 (www.dwi.detr.gov.uk/list/index/htm).

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.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 28, an inside back cover and a back cover.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 12931

April 2000

ICS 71.100.80

English version

Chemicals used for treatment of water intended for human consumption - Chemicals for emergency use - Sodium dichloroisocyanurate, anhydrous

Produits chimiques utilisés pour le traitement de l'eau destinée à la consommation humaine - Produits chimiques utilisés en cas d'urgence - Dichloroisocyanurate de sodium, anhydre

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Produkte für den Notfall - Natriumdichloroisocyanurat, wasserfrei

This European Standard was approved by CEN on 22 March 2000.

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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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 October 2000, and conflicting national standards shall be withdrawn at the latest by October 2000.

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.

Annex A is informative.

The annexes B and C are normative.

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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:

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.

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1 Scope

This European Standard is applicable to anhydrous sodium dichloroisocyanurate used for emergency treatment of water intended for human consumption. It describes the characteristics of anhydrous sodium dichloroisocyanurate and specifies the requirements and the corresponding test methods for anhydrous sodium dichloroisocyanurate. 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 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 3696:1987).*

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

EN 1483, *Water quality – Determination of mercury*.

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.*

ISO 8288, *Water quality - Determination of cobalt, nickel, copper, zinc, cadmium and lead - Flame atomic absorption spectrometric methods*.

ISO 9174, *Water quality - Determination of chromium - Atomic absorption spectrometric method*s.

3 Description

3.1 Identification

3.1.1 Chemical name

1-sodium - 3,5-dichloro - 1,3,5-triazine - 2,4,6-trione.

3.1.2 Synonym or common name

Sodium dichloroisocyanurate.

3.1.3 Relative molecular mass

219,98.

3.1.4 Empirical formula

$C_3N_3O_3Cl_2Na$.

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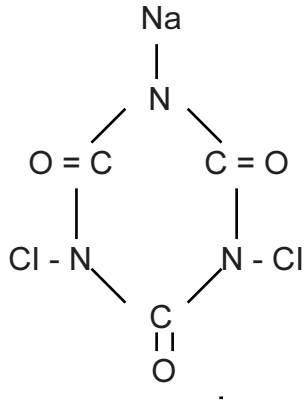
3.1.5 Chemical formula



3.1.6 CAS Registry Number[1)]

2893-78-9.

3.1.7 EINECS reference[2)]

2-207-67-7.

3.2 Commercial form

The product is available in various granular forms.

3.3 Physical properties

3.3.1 Appearance and odour

The product is a white granular solid with chlorinous odour.

3.3.2 Density

The bulk density is approximately 0,9 g/cm^3.

3.3.3 Solubility in water

The solubility in water is 250 g/l at 25 °C.

3.3.4 Vapour pressure

Not applicable.

3.3.5 Boiling point at 100 kPa[3)]

Not applicable, the product decomposes before fusion.

[1)] Chemical Abstracts Service Registry Number.

[2)] European Inventory of Existing Commercial Chemical Substances.

[3)] 100 kPa = 1 bar.

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3.3.6 Melting point

Not applicable.

3.3.7 Specific heat

(1 090 ± 40) J/kg A K at 20 °C.

3.3.8 Viscosity, (dynamic)

Not applicable.

3.3.9 Critical temperature

Not applicable.

3.3.10 Critical pressure

Not applicable.

3.3.11 Physical hardness

Not applicable.

3.4 Chemical properties

The product is a strong oxidant, it is corrosive and hygroscopic; sodium dichloroisocyanurate decomposes into hydrochloric acid and cyanuric acid. When dissolved in a excess of water it liberates chlorine by hydrolysis.

4 Purity criteria

Limits have been given for impurities and toxic substances where these are likely to be present in significant quantities from the current production process and raw materials. If a change in the production process or raw materials leads to significant quantities of other impurities or by-products being present, this shall be notified to the user.

4.1 Composition of commercial product

The product shall contain at least 62 percent by mass (% (*m/m*)) of available chlorine.

4.2 Impurities and main by-products

The water content shall be less than 3 % (*m/m*) of the product

The sodium chloride content shall be less than 0,05 % (*m/m*) of the product.

4.3 Toxic substances

NOTE For the purpose of this standard, "toxic substances" are those defined in the EU Directive 80/778/EEC of 15 July, 1980 (see [1]).

The content of toxic substances shall conform to the requirements specified in Table 1.

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Table 1 - Toxic substances

Element		Limit mg/kg of product	
		Type 1	Type 2
Arsenic (As)	max.	10	10
Cadmium (Cd)	max.	1	1
Chromium (Cr)	max.	6	10
Mercury (Hg)	max.	0,02	0,02
Nickel (Ni)	max.	3	5
Lead (Pb)	max.	4	15
Antimony (Sb)	max.	5	5
Selenium (Se)	max.	1	1
NOTE Cyanide which does not exist in a strong oxidizing medium such as sodium dichloroisocyanurate is not a relevant toxic substance. Pesticides and polycyclic aromatic hydrocarbons are not by-products of the manufacturing process.			

5 Test methods

5.1 Sampling

Observe the general recommendations of ISO 3165 and take account of ISO 6206. Prepare the laboratory sample(s) required by the relevant procedure described in ISO 8213.

5.2 Analysis

5.2.1 Determination of available chlorine (main product)

5.2.1.1 Principle

The available chlorine is determined by measuring active chlorine in the sample. The oxidizing chlorine reacts with potassium iodide releasing iodine which is then titrated with sodium thiosulfate standard volumetric solution in the presence of starch indicator solution.

5.2.1.2 Reagents

All reagents shall be of a recognized analytical grade and the water used shall conform to grade 3 in accordance with EN ISO 3696.

5.2.1.2.1 Potassium iodide crystals (KI).

5.2.1.2.2 Glacial acetic acid.

5.2.1.2.3 Sodium thiosulfate standard volumetric solution, $c(Na_2S_2O_3.5H_2O)$ = 0,1 mol/l

Dissolve 24,8 g of $Na_2S_2O_3.5H_2O$ with water. Add 0,5 ml of chloroform as preservative, dilute to volume with water in a 1 000 ml one-mark volumetric flask and mix thoroughly.

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