BS EN 15362:2014

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Chemicals used for treatment of swimming pool water — Sodium carbonate

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National foreword

This British Standard is the UK implementation of EN 15362:2014. It supersedes BS EN 15362:2007 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee CII/59, Chemicals for drinking water treatment.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

ISBN 978 0 580 83801 9

ICS 13.060.20; 71.100.80

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 May 2014.

Amendments issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 15362

May 2014

ICS 71.100.80

Supersedes EN 15362:2007

English Version

Chemicals used for treatment of swimming pool water - Sodium carbonate

Produits chimiques utilisés pour le traitement de l'eau des piscines - Carbonate de sodium

Produkte zur Aufbereitung von Schwimm- und Badebeckenwasser - Natriumcarbonat

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 15362:2014) 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of an identical text or by endorsement, at the latest by November 2014 and conflicting national standards shall be withdrawn at the latest by November 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15362:2007.

The significant technical difference between this edition and EN 15362:2007 is as follows:

— updating of 6.2 in line with current legislation.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

In respect of the potential adverse effects on the quality of swimming pool water 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 of 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.

1 Scope

This European Standard is applicable to sodium carbonate used directly, or for the production of formulations, for the treatment of water for swimming pools. It describes the characteristics of sodium carbonate and specifies the requirements and the corresponding test methods for sodium carbonate. It provides information on its use in swimming pool water treatment. It also determines the rules relating to safe handling and use of sodium carbonate (see Annex B).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and care indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 897, *Chemicals used for treatment of water intended for human consumption - Sodium carbonate*

3 Description

3.1 Identification

3.1.1 Chemical name

Sodium carbonate.

3.1.2 Synonym or common name

Soda ash, anhydrous sodium carbonate, light soda ash, heavy soda ash.

3.1.3 Relative molecular mass

105,99.

3.1.4 Empirical formula

Na_2CO_3.

3.1.5 Chemical formula

Na_2CO_3.

3.1.6 CAS Registry Number[1)]

497-19-8.

1) Chemical Abstracts Service Registry Number.

3.1.7 EINECS reference[2)]

207-838-8.

3.2 Commercial forms

The product is available as dry powder or fine granules and is described as light soda or heavy soda according to bulk density (see 3.3.2).

3.3 Physical properties

3.3.1 Appearance

The product is a white powder or crystals, slightly hygroscopic.

3.3.2 Density

The density of this product is 2,53 g/cm^3.

The bulk density is:

— ranging from 0,5 kg/dm^3 to 0,65 kg/dm^3 (light soda ash);

— ranging from 0,8 kg/dm^3 to 1,2 kg/dm^3 (heavy soda ash).

3.3.3 Solubility in water

The product is soluble at 212 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

851 °C.

3.3.7 Specific heat

1,043 J/(kg. K).

3.3.8 Viscosity (dynamic)

Not applicable.

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2) European Inventory of Existing Commercial Chemical Substances.

3) 100 kPa = 1 bar.

3.3.9 Critical temperature

Not applicable.

3.3.10 Critical pressure

Not applicable.

3.3.11 Physical hardness

The hardness of solid sodium carbonate is given as 1 to 2 on the Mohs' scale of hardness.

3.4 Chemical properties

Sodium carbonate reacts exothermically with acids with the formation of carbon dioxide.

Sodium carbonate is slightly hygroscopic and dissolution in water is an exothermic reaction.

4 Purity criteria

4.1 General

This European Standard specifies the minimum purity requirements for sodium carbonate used for the treatment of swimming pool water. 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 check the national regulations in order to clarify whether it is of appropriate purity for treatment of swimming pool water, taking into account raw water quality, required dosage, contents of other impurities and additives used in the products not stated in this product standard.

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 leads to significant quantities of impurities, by-products or additives being present, this shall be notified to the user.

4.2 Composition of commercial product

The product shall contain not less than a mass fraction of 99 % of Na_2CO_3.

4.3 Impurities and main by-products

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

The concentration limits refer to pure Na_2CO_3.

Table 1 — Impurities

Impurity		Limit in mg/kg of Na_2CO_3
Iron (II) [a]	max.	20
Insoluble matter [b]	max.	200
[a] Iron(II) can cause organoleptic problems.		
[b] Indicates the presence of foreign matter.		

4.4 Chemical parameters

The product shall conform to the requirements specified in Table 2.

Table 2 — Chemical parameters

Parameter		Limit in mg/kg of Na_2CO_3
Arsenic (As)	max.	2
Cadmium (Cd)	max.	2
Chromium (Cr)	max.	2
Mercury (Hg)	max.	0,1
Nickel (Ni)	max.	2
Lead (Pb)	max.	2
NOTE Antimony, selenium, cyanides, pesticides and polycyclic aromatic hydrocarbons are not relevant in sodium carbonate. For parametric values of sodium carbonate on trace metal content in drinking water, see [1].		

5 Test methods

The methods for sampling and analysis are those specified in EN 897.

6 Labelling – Transportation – Storage

6.1 Means of delivery

Sodium carbonate can be delivered in bulk, bulk bags or in bags.

To ensure that the purity of the products is not affected, the means of delivery shall not have been previously used for any different product or it shall have been specially cleaned and prepared before use.

6.2 Labelling according to the EU legislation[4)]

The following labelling requirements apply to sodium carbonate at the date of the publication of this document.

4) See [2].

GHS07

Figure 1 — Hazard Pictogram

- Signal word :

Warning.

- Hazard statement:

H 319 Causes serious eye irritation.

The legislation [2], and its amendments for the purposes of its adaptation to technical and scientific progress, contains a list of substances classified by the EU.

Substances not listed in this regulation should be classified on the basis of their intrinsic properties according to the criteria in the regulation by the person responsible for the marketing of the substance.

6.3 Transportation regulations and labelling

Sodium carbonate is not listed under a UN Number[5)]. Sodium carbonate is not classified as a dangerous product for road, rail, sea and air transportation.

6.4 Marking

The marking shall include the following:

— the name "sodium carbonate" and trade name;

— the net mass;

— the name and address of supplier and/or manufacturer;

— the statement: "This product conforms to EN 15362."

6.5 Storage

6.5.1 General

For more details about use, see Annex A.

6.5.2 Long term stability

Sodium carbonate is stable in dry conditions.

6.5.3 Storage incompatibilities

Keep bags tightly closed and dry. Keep away from acids.

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5) United Nations Number.

Annex A
(informative)

General information on sodium carbonate

A.1 Origin

A.1.1 Raw materials

Sodium chloride, limestone.

A.1.2 Manufacturing process

Ammonia-soda-process (SOLVAY process).

A.2 Use

A.2.1 Function

Sodium carbonate is mainly used for increase of pH value and buffering capacity.

A.2.2 Form in which the product is used

Sodium carbonate is mainly used as a solution, at concentration up to about a mass fraction of 10 %.

A.2.3 Treatment dose

The treatment dose depends on the application or the initial pH value and the buffer capacity of the water and the type of water treatment.

A.2.4 Means of application

The product is dosed directly into the pool or as a solution.

For private swimming pools, manual addition of the product directly into the pool or after a previous dissolution.

A.2.5 Secondary effects

Overdosing can cause an increase of turbity.

A.2.6 Removal of excess product

The excess product is removed by neutralisation.

Annex B
(normative)

General rules relating to safety

B.1 Rules for safe handling and use

The supplier shall provide current safety instructions.

B.2 Emergency procedures

B.2.1 First aid

WARNING — In case of contact of aqueous solutions with eyes and with skin, eyes should be treated first.

In case of inhalation and with a significant nasal irritation, move the patient to fresh air. Rinse mouth and nose with water or isotonic solution. Seek medical advice.

In case of contact with eyes rinse with running water for at least 15 min, with the eyelids wide open. In case of persistent symptoms seek medical advice.

In case of contact with skin take off the contaminated clothes and shoes, wash the skin with water. In case of persistent symptoms seek medical advice.

In case of ingestion make patient drink water or milk and make them vomit. In any case seek medical advice.

B.2.2 Spillage

Collect the product then rinse with plenty of water.

B.2.3 Fire

Sodium carbonate is not combustible.

Bibliography

[1] 98/83/EC, *Council Directive of 3 November 1998 on the Quality of Water intended for Human Consumption*

[2] Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (REACH)

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