SLOVENSKI STANDARD
kSIST FprEN 15363:2014

01-januar-2014

Kemikalije, ki se uporabljajo za pripravo bazenske vode - Klor

Chemicals used for treatment of swimming pool water - Chlorine

Produkte zur Aufbereitung von Schwimm- und Badebeckenwasser - Chlor

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

Ta slovenski standard je istoveten z: **FprEN 15363**

ICS:

13.060.25	Voda za industrijsko uporabo	Water for industrial use
71.100.80	Kemikalije za čiščenje vode	Chemicals for purification of water

kSIST FprEN 15363:2014 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

FINAL DRAFT
FprEN 15363

September 2013

ICS 71.100.80

Will supersede EN 15363:2007

English Version

Chemicals used for treatment of swimming pool water - Chlorine

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

Produkte zur Aufbereitung von Schwimm- und Badebeckenwasser - Chlor

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

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Foreword

This document (FprEN 15363:2013) has been prepared by Technical Committee CEN/TC 164 “Water supply”, the secretariat of which is held by AFNOR.

This document is currently submitted to the Unique Acceptance Procedure.

This document will supersede EN 15363:2007.

The significant technical difference between this edition and EN 15363:2007 is as follows:

— updating of 6.2 in line with current legislation.

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 1 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.

NOTE 2 This product which is a biocide will comply with the relevant legislation in force. In the European Union, at the time of publication, this legislation is Directive 98/8/EC [1].

1 Scope

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

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are 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 937, *Chemicals used for the treatment of water intended for human consumption — Chlorine*

3 Description

3.1 Identification

3.1.1 Chemical name

Chlorine.

3.1.2 Synonym or common name

Liquid chlorine.

3.1.3 Relative molecular mass

70,91.

3.1.4 Empirical formula

Cl_2.

3.1.5 Chemical formula

Cl_2.

3.1.6 Registry Number[1)]

7782-50-5.

3.1.7 EINECS reference[2)]

231-959-5.

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1) Chemical Abstracts Service Registry Number.

2) European Inventory of Existing Commercial Chemical Substances.

3.1.8 Commercial form

Liquefied gas.

3.2 Physical properties

3.2.1 Appearance

Liquid chlorine is a clear, amber coloured liquid. Chlorine gas is greenish yellow, 2,5 times heavier than air. It has a suffocating and characteristic odour.

3.2.2 Density

a) Liquid: 1,409 g/ml at 20 °C.

b) Gas:

1) 3,169 kg/m^3 at 100 kPa at 0 °C;

2) 2,945 kg/m^3 at 100 kPa at 20 °C.

3.2.3 Solubility (in water)

7,26 g/l at 20 °C and 100 kPa.

3.2.4 Vapour pressure

669 kPa at 20 °C.

3.2.5 Boiling point at 100 kPa[3)]

- 34 °C.

3.2.6 Liquefaction point

- 101 °C at 100 kPa.

3.2.7 Specific heat

a) Liquid: 920 J/(kg.K) at - 34 °C.

b) Gas: 475 J/(kg.K) at 0 °C.

3.2.8 Viscosity (dynamic)

a) Gas: 1 333 x 10^{-8} Pa.s at 20 °C.

b) Liquid: 4,78 x 10^{-4} Pa.s at - 34 °C.

3.2.9 Critical temperature

144 °C.

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3) 100 kPa = 1 bar.

3.2.10 Critical pressure

7 710,83 kPa.

3.2.11 Physical hardness

Not applicable.

3.3 Chemical properties

Chlorine is a very strong oxidizing agent and can react violently with some gases such as hydrogen. Almost all metals form chlorides in the presence of chlorine. Organic compounds including mineral oils and greases react very quickly with chlorine.

Redox potential of chlorine at 25 °C:

$$Cl_2\ (gas) + 2e^- = 2\ Cl^- + 1{,}36\ V \qquad (1)$$

4 Purity criteria

4.1 General

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.

4.2 Composition of commercial product

The product shall contain at least 99,5 %(*m/m*) chlorine.

4.3 Impurities and main by-products

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

Table 1 — Impurities

Impurities	Limit in mg/kg of product
Moisture (H_20)	20
Nitrogen trichloride (NCl_3)	20

4.4 Toxic substances

NOTE For the purpose of this standard, "toxic substances" are those defined in the EU Directive 80/778/EEC of July 15, 1980 [3].

The mercury content shall not exceed the limits specified in Table 2.