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Processkemikalier för beredning av dricksvatten – Klordioxid

Chemicals used for treatment of water intended for human consumption – Chlorine dioxide generated in situ

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Denna standard ersätter SS-EN 12671:2009, utgåva 2.

The European Standard EN 12671:2016 has the status of a Swedish Standard. This document contains the official English version of EN 12671:2016.

This standard supersedes the Swedish Standard SS-EN 12671:2009, edition 2.

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EUROPEAN STANDARD

EN 12671

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2016

ICS 71.100.80

Supersedes EN 12671:2009

English Version

Chemicals used for treatment of water intended for human consumption - Chlorine dioxide generated in situ

Produits chimiques utilisés pour le traitement de l'eau destinée à la consommation humaine - Dioxyde de chlore généré in situ

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Vor Ort erzeugtes Chlordioxid

This European Standard was approved by CEN on 18 March 2016.

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 CEN-CENELEC Management Centre or to any CEN member.

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

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

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European foreword

This document (EN 12671:2016) 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of an identical text or by endorsement, at the latest by November 2016, and conflicting national standards shall be withdrawn at the latest by November 2016.

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 12671:2009.

Significant technical differences between this edition and EN 12671:2009 are as follows:

- a) deletion of reference to EU Directive 67/548/EEC of June 27, 1967 in order to take into account the latest Regulation in force (see [3]);
- b) Subclause 6.2 – updating of risk and safety labelling according to EU Regulation [3] and its latest Adaptations to Technical Progress).

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

- 1) 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;
- 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.

NOTE 1 Conformity with this standard 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 is a biocide and needs to comply with the relevant legislation in force. In the European Union, at the time of publication, this legislation is REGULATION (EU) No 528/2012 [2].

1 Scope

This European Standard is applicable to chlorine dioxide generated on site for treatment of water intended for human consumption. It describes the characteristics for chlorine dioxide and specifies the composition and the corresponding test methods for chlorine dioxide. It gives information on its use in water treatment. It also determines the rules relating to safe handling and use of chlorine dioxide generated on site (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 ISO 3696, *Water for analytical laboratory use — Specification and test methods (ISO 3696)*

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

ISO 6206, *Chemical products for industrial use — Sampling — Vocabulary*

3 Description

3.1 Identification

3.1.1 Chemical name

Chlorine dioxide.

3.1.2 Synonym or common name

None.

3.1.3 Relative molecular mass

67,46.

3.1.4 Empirical formula

ClO₂.

3.1.5 Chemical formula

$\text{O}=\ddot{\text{Cl}}=\ddot{\text{O}}$ (resonance structure).

3.1.6 CAS Registry Number ¹⁾

10049-04-4.

3.1.7 EINECS reference ²⁾

233-162-8.

1) Chemical Abstracts Service Registry Number.

2) European Inventory of Existing Commercial Chemical Substances.

3.2 Presentation form

For water treatment, chlorine dioxide is generated *in situ* as an aqueous solution on or near the site of use and transferred to the site of use.

3.3 Physical properties

3.3.1 Appearance

The pure product is an orange gas or liquid, which forms a yellow solution in water.

NOTE If the solution becomes red-brown, it is a sign of decomposition.

3.3.2 Density

Gas: 3,09 g/l, (2,4 g/l relative, air = 1) at 273 K and 101,3 kPa ³⁾.

Liquid: 1,64 g/ml at 20 °C.

3.3.3 Solubility in water

In Table 1 the solubility values (S) for chlorine dioxide are given in grams per cubic meter (g/m³) water at a pressure of 101,3 kPa for different temperatures:

Table 1 — Solubility values

Temperature of water °C	S ($\frac{\text{g/m}^3\text{H}_2\text{O}}{\text{g/m}^3\text{gas}}$)
0	70 ± 0,7
5	(60,3)
10	(53,7)
15	45
20	(42,7)
25	(33)
30	(30,1)
35	26,5 ± 0,8

NOTE 1 S is a ratio, not an absolute value of concentration.
NOTE 2 The S values are directly measured values except those in brackets which are extrapolated data.

3.3.4 Vapour pressure

The vapour pressure of pure chlorine dioxide as a function of temperature is given in Table 2.

3) 100 kPa = 1 bar.