

**Chemicals used for treatment of water
intended for human consumption - Calcium
hypochlorite**

Chemicals used for treatment of water intended
for human consumption - Calcium hypochlorite

EESTI STANDARDI EESSÕNA**NATIONAL FOREWORD**

<p>Käesolev Eesti standard EVS-EN 900:2008 sisaldab Euroopa standardi EN 900:2007 ingliskeelset teksti.</p>	<p>This Estonian standard EVS-EN 900:2008 consists of the English text of the European standard EN 900:2007.</p>
<p>Standard on kinnitatud Eesti Standardikeskuse 28.01.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p>	<p>This standard is ratified with the order of Estonian Centre for Standardisation dated 28.01.2008 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p>
<p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 07.11.2007.</p>	<p>Date of Availability of the European standard text 07.11.2007.</p>
<p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>The standard is available from Estonian standardisation organisation.</p>

ICS 71.100.80

Võtmesõnad: calcium hypochlorite, human consumption, water treatment

Standardite reprodutseerimis- ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

English Version

Chemicals used for treatment of water intended for human consumption - Calcium hypochlorite

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

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Calciumhypochlorit

This European Standard was approved by CEN on 23 September 2007.

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 Management Centre 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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Foreword.....	4
Introduction.....	5
1 Scope	6
2 Normative references	6
3 Description	6
3.1 Identification.....	6
3.1.1 Chemical name.....	6
3.1.2 Synonym or common name.....	6
3.1.3 Relative molecular mass	6
3.1.4 Empirical formula.....	6
3.1.5 Chemical formula.....	6
3.1.6 CAS Registry Number	7
3.1.7 EINECS reference	7
3.2 Commercial form	7
3.3 Physical properties.....	7
3.3.1 Appearance	7
3.3.2 Density	7
3.3.3 Solubility in water	7
3.3.4 Vapour pressure	7
3.3.5 Boiling point at 100 kPa	7
3.3.6 Melting point.....	7
3.3.7 Specific heat.....	7
3.3.8 Viscosity, dynamic.....	7
3.3.9 Critical temperature	7
3.3.10 Critical pressure.....	8
3.3.11 Physical hardness	8
3.4 Chemical properties	8
4 Purity criteria.....	8
4.1 General.....	8
4.2 Composition of commercial product.....	8
4.3 Impurities and main by-products	8
4.4 Chemical parameters	9
5 Test methods.....	9
5.1 Sampling.....	9
5.2 Analysis	9
5.2.1 Determination of calcium hypochlorite content (main product).....	9
5.2.2 Dissolution quality (available chlorine after 1 min).....	11
5.2.3 Impurities	13
5.2.4 Chemical parameters	15
6 Labelling - Transportation - Storage.....	17
6.1 Means of delivery.....	17
6.2 Risk and safety labelling according to the EU Directives	18
6.3 Transportation regulations and labelling.....	18
6.4 Marking	19
6.5 Storage.....	19
6.5.1 General.....	19
6.5.2 Long term stability.....	19
6.5.3 Storage incompatibilities	20
Annex A (informative) General information on calcium hypochlorite	21

A.1	Origin	21
A.1.1	Raw materials.....	21
A.1.2	Manufacturing process	21
A.2	Use	21
A.2.1	Function.....	21
A.2.2	Form in which it is used.....	21
A.2.3	Treatment dose	21
A.2.4	Means of application	21
A.2.5	Secondary effects.....	21
A.2.6	Removal of excess product.....	22
Annex B	(normative) General rules relating to safety	23
B.1	Rules for safe handling and use	23
B.2	Emergency procedures.....	23
B.2.1	First aid.....	23
B.2.2	Spillage	23
B.2.3	Fire	23
Annex C	(normative) Determination of arsenic, antimony and selenium (atomic absorption spectrometry hydride technique).....	24
C.1	General principle	24
C.2	Interferences	24
C.3	Reagents.....	24
C.4	Apparatus	26
C.4.1	General.....	26
C.4.2	Atomic absorption spectrometer	26
C.4.3	Atomizer	26
C.5	Procedure	27
C.5.1	Preparation of the apparatus.....	27
C.5.2	Preparation of calibration solutions	28
C.5.3	Preparation of test solutions and standard solutions	28
C.5.4	Determination of arsenic with sodium borohydride	28
C.5.5	Determination of selenium with sodium borohydride	28
C.5.6	Determination of antimony with sodium borohydride.....	29
C.6	Calculation	29
C.7	Repeatability limit	29
Annex D	(informative)	30
Environmental, health and safety precautions within chemical laboratory		30
Bibliography		31

Foreword

This document (EN 900:2007) 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 May 2008, and conflicting national standards shall be withdrawn at the latest by May 2008.

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 900:1999.

Significant technical differences between this edition and EN 900:1999 are as follows:

- a) deletion of the reference to EU Directive 80/778/EEC of 15 July 1980 in order to take account of the latest Directive in force (see [1]);
- b) amended values regarding the maximum water content and water soluble substance;
- c) updated references in regard to the determination of mercury;
- d) revision of warning and safety precautions notes;
- e) incorporation of Annex D (informative).

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

With respect to potential adverse effects on the quality of water intended for human consumption caused by the product covered by this European Standard:

- a) this European 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.

NOTE Conformity with this European Standard does not confer or imply acceptance or approval of the products in any of the Member States of the EU or EFTA. The use of the products covered by this European Standard is subject to regulation or control by National Authorities.

1 Scope

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

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1483, *Water quality - Determination of mercury - Method using atomic absorption spectrometry*

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 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 methods*

3 Description

3.1 Identification

3.1.1 Chemical name

Calcium hypochlorite.

3.1.2 Synonym or common name

None.

3.1.3 Relative molecular mass

142,99.

3.1.4 Empirical formula

Ca(ClO)₂.

3.1.5 Chemical formula

Ca(ClO)₂.