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Winter service equipment and products - De-icing agents - Part 2: Calcium chloride and Magnesium chloride - Requirements and test methods

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See Eesti standard EVS-EN 16811-2:2016 sisaldab Euroopa standardi EN 16811-2:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 16811-2:2016 consists of the English text of the European standard EN 16811-2:2016.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 10.08.2016.	Date of Availability of the European standard is 10.08.2016.
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ICS 13.030.40, 71.100.45

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16811-2

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ICS 13.030.40; 71.100.45

English Version

Winter service equipment and products - De-icing agents - Part 2: Calcium chloride and Magnesium chloride - Requirements and test methods

Matériels de viabilité hivernale - Fondants routiers - Partie 2 : Chlorure de calcium et chlorure de magnésium - Exigences et méthodes d'essai

Winterdienstausrüstung - Enteisungsmittel - Teil 2: Calcium- und Magnesiumchlorid - Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 15 April 2016.

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European foreword

This document (EN 16811-2:2016) has been prepared by Technical Committee CEN/TC 337 "Road operation equipment and products", 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of an identical text or by endorsement, at the latest by February 2017, and conflicting national standards shall be withdrawn at the latest by February 2017.

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.

EN 16811, *Winter service equipment and products — De-icing agents*, is currently composed with the following parts:

— *Part 1: Sodium chloride — Requirements and test methods*;

— *Part 2: Calcium chloride and Magnesium chloride — Requirements and test methods*;

— *Part 3: Other solid and liquid de-icing agents — Requirements and test methods* [CEN/TS].

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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.

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Introduction

De-icing agents are important for the winter maintenance of roads. They can prevent and, in addition to it, eliminate slippery conditions.

The standard describes the requirements for de-icing agents and their testing methods. The requirements are different for using, storage and type of distribution (spreading and spraying). These need different properties.

The aim of this standard is an easy description of the product specifications for tenders and other purchasing procedures.

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1 Scope

This European Standard specifies the essential requirements of calcium chloride and magnesium chloride for spreading on roads for winter maintenance and includes tests of these requirements. The requirements are specified for calcium chloride and magnesium chloride in solid form and in water solution, which is delivered to the customer.

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 932-1, *Tests for general properties of aggregates — Part 1: Methods for sampling*

EN 1235, *Solid fertilizers — Test sieving (ISO 8397:1988 modified)*

EN 1236, *Fertilizers — Determination of bulk density (loose) (ISO 3944:1992 modified)*

EN 1484, *Water analysis — Guidelines for the determination of total organic carbon (TOC) and dissolved organic carbon (DOC)*

EN 14016-2, *Binders for magnesite screeds — Caustic magnesia and magnesium chloride — Part 2: Test methods*

EN 15144, *Winter maintenance equipment — Terminology — Terms for winter maintenance*

EN 16198, *Fertilizers — Determination of magnesium by complexometry*

EN 16811-1, *Winter service equipment and products — De-icing agents — Part 1: Sodium chloride — Requirements and test methods*

EN ISO 3696, *Water for analytical laboratory use — Specification and test methods (ISO 3696)*

EN ISO 9377-2, *Water quality — Determination of hydrocarbon oil index — Part 2: Method using solvent extraction and gas chromatography (ISO 9377-2)*

EN ISO 10523, *Water quality — Determination of pH (ISO 10523)*

EN ISO 11885, *Water quality — Determination of selected elements by inductively coupled plasma optical emission spectrometry (ICP-OES) (ISO 11885)*

EN ISO 12846, *Water quality — Determination of mercury — Method using atomic absorption spectrometry (AAS) with and without enrichment (ISO 12846)*

ISO 565, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*

ISO 649-2, *Laboratory glassware — Density hydrometers for general purposes — Part 2: Test methods and use*

ISO 758, *Liquid chemical products for industrial use — Determination of density at 20 degrees C*

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ISO 2479, *Sodium chloride for industrial use — Determination of matter insoluble in water or in acid and preparation of principal solutions for other determinations*

ISO 2480, *Sodium chloride for industrial use — Determination of sulphate content — Barium sulphate gravimetric method*

ISO 2591-1, *Test sieving — Part 1: Methods using test sieves of woven wire cloth and perforated metal plate*

ISO 6227, *Chemical products for industrial use — General method for determination of chloride ions — Potentiometric method*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 15144 and the following apply.

3.1
calcium chloride
$CaCl_2$
substance which is produced from calcium carbonate and hydrochloric acid, as by-product of the synthetic soda ash process, and as by-product of magnesium oxide production

Note 1 to entry: It can also result from flue gas cleaning (e.g. waste incinerators). It is available in varying concentrations, as flakes with crystal water (calcium chloride dihydrate), and as anhydrous solid like pellets, prills or granules. For the application in winter maintenance the calcium chloride is also used as water solutions in varying concentrations.

3.2
magnesium chloride
$MgCl_2$
substance which is produced from natural underground deposits, from salt lakes, from natural brines, from sea water and as by-product of potassium chloride and potassium sulphate production

Note 1 to entry: It is available as flakes, prills, or pellets with crystal water (magnesium chloride hexahydrate). For the application in winter maintenance the magnesium chloride is also used as water solutions in varying concentrations.

3.3
multi-chloride blends
solid or liquid blends, respectively multi-chloride brines of calcium chloride and magnesium chloride with sodium and/or potassium chloride

Note 1 to entry: Such blends are produced by mixing or as by-product from potash production.

4 Requirements for calcium chloride and magnesium chloride

4.1 Chemical requirements

4.1.1 Calcium chloride

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

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