



NSAI
Standards

Irish Standard
I.S. EN 16811-1:2016

Winter service equipment and products - De-icing agents - Part 1: Sodium chloride - Requirements and test methods

I.S. EN 16811-1:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN 16811-1:2016

Published:

2016-08-10

This document was published under the authority of the NSAI and comes into effect on:

2016-08-28

ICS number:

13.030.40

71.100.45

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN 16811-1:2016 is the adopted Irish version of the European Document EN 16811-1:2016, Winter service equipment and products - De-icing agents - Part 1: Sodium chloride - Requirements and test methods

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

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD

EN 16811-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2016

ICS 13.030.40; 71.100.45

English Version

Winter service equipment and products - De-icing agents - Part 1: Sodium chloride - Requirements and test methods

Matériels de viabilité hivernale - Fondants routiers -
Partie 1 : Chlorure de sodium - Exigences et méthodes
d'essai

Winterdienstausrüstung - Enteisungsmittel - Teil 1:
Natriumchlorid - Anforderungen und Prüfmethoden

This European Standard was approved by CEN on 15 April 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.

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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.



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

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

Contents	Page
European foreword.....	4
Introduction	5
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions	7
4 Requirements for sodium chloride.....	7
4.1 Chemical Requirements.....	7
4.2 Moisture.....	7
4.3 Sieve analysis.....	8
4.4 General requirements	8
4.5 Marking and product description	9
5 Requirements for brine	10
5.1 Chemical Requirements.....	10
5.2 General requirements	10
5.3 Marking and product description	11
6 Sampling.....	12
7 Test methods	12
7.1 General.....	12
7.2 NaCl	12
7.2.1 General.....	12
7.2.2 Direct method.....	12
7.2.3 Indirect method	12
7.3 Sulfate.....	12
7.4 Moisture.....	12
7.5 Sieve analysis.....	13
7.6 Anti-caking agent	13
7.7 Heavy metals, etc.....	13
7.8 Hydrocarbons.....	13
7.9 TOC (total organic carbon)	13
7.10 pH.....	13
7.11 Water insoluble matter.....	13
7.12 Bulk density	13
7.13 Density	13
Annex A (normative) Product descriptions.....	14
A.1 Product description for sodium chloride.....	14
A.2 Product description for brine.....	17
Annex B (normative) Sampling.....	19
B.1 Solid sodium chloride.....	19
B.1.1 Package shipments.....	19
B.1.2 Bulk shipments	19
B.2 Brine	19
B.3 Labelling and distribution of samples.....	19
B.4 Sampling report.....	19

Annex C (normative) Analytical methods	21
C.1 Determination of sodium chloride (potentiometric method)	21
C.1.1 Scope and field of application	21
C.1.2 Principle	21
C.1.3 Reagents	21
C.1.4 Apparatus	22
C.1.5 Sampling and samples	22
C.1.6 Procedure	22
C.1.7 Expression of results	23
C.2 Determination of aluminium, arsenic, cadmium, calcium, chromium, cobalt, copper, lead, magnesium, nickel, sulfate, zinc (inductively coupled plasma optical emission spectrometry (ICP/OES))	24
C.2.1 General	24
C.2.2 Principle	25
C.2.3 Reagents	25
C.2.4 Apparatus (informative)	25
C.2.5 Sampling and samples	26
C.2.6 Procedure	26
C.2.7 Expression of results	29
C.2.8 Remarks	32
C.3 Determination of total mercury (cold vapour atomic absorption spectrometry)	32
C.3.1 General	32
C.3.2 Principle	33
C.3.3 Reagents	33
C.3.4 Apparatus (informative)	34
C.3.5 Procedure	35
C.3.6 Expression of results	36
C.4 Determination of anti-caking agent (molecular absorption spectrometry)	38
C.4.1 General	38
C.4.2 Principle	39
C.4.3 Reagents	39
C.4.4 Apparatus	39
C.4.5 Sampling and samples	40
C.4.6 Procedure	40
C.4.7 Expression of results	41
Bibliography	43

EN 16811-1:2016 (E)**European foreword**

This document (EN 16811-1:2016) 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.

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 salt 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.

EN 16811-1:2016 (E)**1 Scope**

This European Standard specifies the essential requirements of sodium chloride (salt) for spreading on roads for winter maintenance and includes tests of these requirements. The requirements are specified for salt in crystallized form and for salt in solution (brine), 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 15144, *Winter maintenance equipment — Terminology — Terms for winter maintenance*

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)*

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*

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 2482, *Sodium chloride for industrial use — Determination of calcium and magnesium contents — EDTA complexometric methods*

ISO 2483, *Sodium chloride for industrial use — Determination of the loss of mass at 110 degrees C*

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*

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-