

<b>STN</b>	<b>Dielektrické a odporové vlastnosti tuhých izolačných materiálov</b> <b>Časť 3-11: Určovanie odporových vlastností (jednosmerné DC metódy)</b> <b>Vnútorný odpor a vnútorná rezistivita</b> <b>Metóda pre impregnačné a povlakové materiály</b>	<b>STN EN IEC 62631-3-11</b>  34 6460
------------	--	---

Dielectric and resistive properties of solid insulating materials - Part 3-11: Determination of resistive properties (DC methods) - Volume resistance and volume resistivity - Method for impregnation and coating materials

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 09/18

Obsahuje: EN IEC 62631-3-11:2018, IEC 62631-3-11:2018

**127067**

EUROPEAN STANDARD

**EN IEC 62631-3-11**

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2018

ICS 17.220.99; 29.035.01

English Version

**Dielectric and resistive properties of solid insulating materials -  
Part 3-11: Determination of resistive properties (DC methods) -  
Volume resistance and volume resistivity - Method for  
impregnation and coating materials  
(IEC 62631-3-11:2018)**

Propriétés diélectriques et résistives des matériaux isolants solides - Partie 3-11: Détermination des propriétés résistives (méthodes en courant continu) - Résistance volumique et résistivité volumique - Méthode pour matériaux d'imprégnation et de revêtement (IEC 62631-3-11:2018)

Dielektrische und resistive Eigenschaften fester Isolierstoffe - Teil 3-11: Bestimmung resistiver Eigenschaften (Gleichspannungsverfahren) - Durchgangswiderstand und spezifischer Durchgangswiderstand - Verfahren für Tränk- und Beschichtungsstoffe (IEC 62631-3-11:2018)

This European Standard was approved by CENELEC on 2018-02-14. CENELEC 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 CENELEC 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 CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

**EN IEC 62631-3-11:2018 (E)****European foreword**

The text of document 112/409/FDIS, future edition 1 of IEC 62631-3-11, prepared by IEC/TC 112 "Evaluation and qualification of electrical insulating materials and systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62631-3-11:2018.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2018-11-14
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-02-14

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

**Endorsement notice**

The text of the International Standard IEC 62631-3-11:2018 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60455-3-5	NOTE	Harmonized as EN 60455-3-5.
IEC 60464-3-1	NOTE	Harmonized as EN 60464-3-1.
IEC 60464-3-2	NOTE	Harmonized as EN 60464-3-2.

## **Annex ZA** (normative)

### **Normative references to international publications with their corresponding European publications**

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62631-3-1	-	Dielectric and resistive properties of solid insulating materials - Part 3-1 Determination of resistive properties (DC methods) - Volume resistance and volume resistivity, general method	EN 62631-3-1	-
ISO 1514	-		EN ISO 1514	-
ISO 2808	-	Paints and varnishes_ - Determination of film thickness	EN ISO 2808	-



IEC 62631-3-11

Edition 1.0 2018-01

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Dielectric and resistive properties of solid insulating materials –  
Part 3-11: Determination of resistive properties (DC methods) – Volume  
resistance and volume resistivity – Method for impregnation and coating  
materials**

**Propriétés diélectriques et résistives des matériaux isolants solides –  
Partie 3-11: Détermination des propriétés résistives (méthodes en courant  
continu) – Résistance volumique et résistivité volumique – Méthode pour  
matériaux d'imprégnation et de revêtement**



**THIS PUBLICATION IS COPYRIGHT PROTECTED**  
**Copyright © 2018 IEC, Geneva, Switzerland**

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office  
 3, rue de Varembe  
 CH-1211 Geneva 20  
 Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

#### About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

#### About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

#### IEC Catalogue - [webstore.iec.ch/catalogue](http://webstore.iec.ch/catalogue)

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

#### IEC publications search - [webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

#### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

#### Electropedia - [www.electropedia.org](http://www.electropedia.org)

The world's leading online dictionary of electronic and electrical terms containing 21 000 terms and definitions in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

#### IEC Glossary - [std.iec.ch/glossary](http://std.iec.ch/glossary)

67 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

#### IEC Customer Service Centre - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: [sales@iec.ch](mailto:sales@iec.ch).

#### A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

#### A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

#### Catalogue IEC - [webstore.iec.ch/catalogue](http://webstore.iec.ch/catalogue)

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

#### Recherche de publications IEC - [webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

#### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

#### Electropedia - [www.electropedia.org](http://www.electropedia.org)

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 21 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

#### Glossaire IEC - [std.iec.ch/glossary](http://std.iec.ch/glossary)

67 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

#### Service Clients - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: [sales@iec.ch](mailto:sales@iec.ch).



IEC 62631-3-11

Edition 1.0 2018-01

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Dielectric and resistive properties of solid insulating materials –  
Part 3-11: Determination of resistive properties (DC methods) – Volume  
resistance and volume resistivity – Method for impregnation and coating  
materials**

**Propriétés diélectriques et résistives des matériaux isolants solides –  
Partie 3-11: Détermination des propriétés résistives (méthodes en courant  
continu) – Résistance volumique et résistivité volumique – Méthode pour  
matériaux d'imprégnation et de revêtement**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 17.220.99; 29.035.01

ISBN 978-2-8322-5184-3

**Warning! Make sure that you obtained this publication from an authorized distributor.  
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

## CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references .....	6
3 Terms and definitions .....	6
4 Significance.....	7
5 Method of test .....	7
5.1 General.....	7
5.2 Power supply (voltage) .....	7
5.3 Equipment .....	8
5.3.1 Accuracy .....	8
5.3.2 Guarding .....	8
5.3.3 Electrodes .....	8
5.3.4 Calibration.....	8
5.3.5 Test specimen .....	8
5.4 Procedure for volume resistivity as function of temperature .....	9
5.4.1 General .....	9
5.4.2 Equipment .....	9
5.4.3 Test set-up .....	9
5.4.4 Procedure.....	9
5.4.5 Calculation .....	9
5.5 Procedure for volume resistivity after seven days of immersion in water .....	10
5.5.1 General .....	10
5.5.2 Equipment .....	10
5.5.3 Test set-up .....	10
5.5.4 Procedure.....	10
5.5.5 Calculation .....	10
6 Report .....	10
7 Repeatability and reproducibility .....	11
Bibliography.....	12



## INTERNATIONAL ELECTROTECHNICAL COMMISSION

—————

**DIELECTRIC AND RESISTIVE PROPERTIES  
OF SOLID INSULATING MATERIALS –**

**Part 3-11: Determination of resistive properties (DC methods) –  
Volume resistance and volume resistivity – Method for  
impregnation and coating materials**

## FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62631-3-11 has been prepared by IEC technical committee 112: Evaluation and qualification of electrical insulating materials and systems.

The text of this standard is based on the following documents:

FDIS	Report on voting
112/409/FDIS	112/415/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

A list of all parts in the IEC 62631 series, published under the general title *Dielectric and resistive properties of solid insulating materials*, can be found on the IEC website.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

## INTRODUCTION

Many segments of the electrotechnical industry need volume resistance and volume resistivity data of solid insulating materials. This part of IEC 62631 is focused on the method for impregnation and coating materials. Clear guidelines are important to give the user of this document a uniform approach to sample preparation and test procedures.

## **DIELECTRIC AND RESISTIVE PROPERTIES OF SOLID INSULATING MATERIALS –**

### **Part 3-11: Determination of resistive properties (DC methods) – Volume resistance and volume resistivity – Method for impregnation and coating materials**

#### **1 Scope**

This part of IEC 62631 covers a method of test for the determination of volume resistance and volume resistivity of electrical insulation materials by applying DC voltage. It covers the materials described in IEC 60455-3-5, IEC 60464-3-1, IEC 60464-3-2 and similar products.

#### **2 Normative references**

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 62631-3-1, *Dielectric and resistive properties of solid insulating materials – Part 3-1: Determination of resistive properties (DC methods) – Volume resistance and volume resistivity – General method*

ISO 1514, *Paints and varnishes – Standard panels for testing*

ISO 2808, *Paints and varnishes – Determination of film thickness*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**