



SLOVENSKI STANDARD SIST EN 62631-3-2:2016

01-maj-2016

**Dielektrične in uporovne lastnosti trdnih izolacijskih materialov - 3-2. del:
Ugotavljanje uporovnih lastnosti (metode z enosmernim tokom) - Površinska
upornost in površinska specifična upornost (IEC 62631-3-2:2015)**

Dielectric and resistive properties of solid insulating materials - Part 3-2: Determination of resistive properties (DC Methods) - Surface resistance and surface resistivity (IEC 62631-3-2:2015)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Propriétés diélectriques et résistives des matériaux isolants solides - Partie 3-2:
Détermination des propriétés résistives (Méthodes en courant continu) - Résistance
superficielle et résistivité superficielle

Ta slovenski standard je istoveten z: EN 62631-3-2:2016

ICS:

29.035.01	Izolacijski materiali na splošno	Insulating materials in general
-----------	----------------------------------	---------------------------------

SIST EN 62631-3-2:2016

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 62631-3-2:2016

<https://standards.iteh.ai/catalog/standards/sist/4602849b-a4df-4ecc-b8f0-7984da475ff1/sist-en-62631-3-2-2016>

EUROPEAN STANDARD

EN 62631-3-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2016

ICS 17.220.99; 29.035.01

English Version

**Dielectric and resistive properties of solid insulating materials -
Part 3-2: Determination of resistive properties (DC Methods) -
Surface resistance and surface resistivity
(IEC 62631-3-2:2015)**

Propriétés diélectriques et résistives des matériaux isolants solides - Partie 3-2: Détermination des propriétés résistives (Méthodes en courant continu) - Résistance superficielle et résistivité superficielle (IEC 62631-3-2:2015)

Dielektrische und resistive Eigenschaften fester Isolierstoffe - Teil 3-2: Bestimmung von Widerstandseigenschaften (Gleichstromverfahren) - Oberflächenwiderstand und spezifischer Oberflächenwiderstand (IEC 62631-3-2:2015)

This European Standard was approved by CENELEC on 2016-01-08. 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, 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: Avenue Marnix 17, B-1000 Brussels

EN 62631-3-2:2016**European foreword**

The text of document 112/340/FDIS, future edition 1 of IEC 62631-3-2, 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 62631-3-2:2016.

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) 2016-10-08
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-01-08

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

Endorsement notice

The text of the International Standard IEC 62631-3-2:2015 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 60893-2	NOTE	Harmonized as EN 60893-2.
IEC 61212-2	NOTE	Harmonized as EN 61212-2.
IEC 62011-2	NOTE	Harmonized as EN 62011-2.
ISO 10350 (Series)	NOTE	Harmonized as EN ISO 10350 (Series).
ISO 10350-1	NOTE	Harmonized as EN ISO 10350-1.
ISO 10350-2	NOTE	Harmonized as EN ISO 10350-2.
ISO 14526 (Series)	NOTE	Harmonized as EN ISO 14526 (Series).
ISO 14527 (Series)	NOTE	Harmonized as EN ISO 14527 (Series).
ISO 14528 (Series)	NOTE	Harmonized as EN ISO 14528 (Series).
ISO 14529 (Series)	NOTE	Harmonized as EN ISO 14529 (Series).
ISO 14530 (Series)	NOTE	Harmonized as EN ISO 14530 (Series).
ISO 15252 (Series)	NOTE	Harmonized as EN ISO 15252 (Series).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When 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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60212	-	Standard conditions for use prior to and during the testing of solid electrical insulating materials	EN 60212	-
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	-	-
IEC 62631-3-3	-	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 62631-3-3	-

ITeH STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 62631-3-2:2016](https://standards.iteh.ai/catalog/standards/sist/4602849b-a4df-4ecc-b8f0-7984da475ff1/sist-en-62631-3-2-2016)

<https://standards.iteh.ai/catalog/standards/sist/4602849b-a4df-4ecc-b8f0-7984da475ff1/sist-en-62631-3-2-2016>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 62631-3-2:2016

<https://standards.iteh.ai/catalog/standards/sist/4602849b-a4df-4ecc-b8f0-7984da475ff1/sist-en-62631-3-2-2016>



IEC 62631-3-2

Edition 1.0 2015-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Dielectric and resistive properties of solid insulating materials –
Part 3-2: Determination of resistive properties (DC methods) – Surface
resistance and surface resistivity**

**Propriétés diélectriques et résistives des matériaux isolants solides –
Partie 3-2: Détermination des propriétés résistives (méthodes en courant
continu) – Résistance superficielle et résistivité superficielle**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 17.220.99; 29.035.01

ISBN 978-2-8322-3025-1

**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
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Significance	7
5 Method of test	7
5.1 General	7
5.2 Voltage	8
5.3 Equipment	8
5.3.1 General	8
5.3.2 Accuracy	8
5.3.3 Voltage source	8
5.3.4 Electrode arrangement A – Spring loaded electrodes	8
5.3.5 Electrode arrangement B – Small line electrodes	9
5.3.6 Electrode arrangement C – Annular electrodes	10
5.3.7 Electrode arrangement D – Line electrodes	11
5.3.8 Electrode arrangement E – Line electrodes for small plates	11
5.4 Test circuit	11
5.5 Calibration	12
5.6 Test specimen	12
5.6.1 Recommended dimensions of test specimen and electrode arrangements	12
5.6.2 Manufacturing of test specimen	12
5.6.3 Number of test specimen	13
5.6.4 Application of electrodes	13
5.6.5 Conditioning and pre-treatment of test specimen	13
5.7 Test procedure	13
6 Evaluation	13
6.1 For electrode arrangements A, B, D, and E	13
6.2 For electrode arrangement C	14
7 Test report	14
8 Repeatability and reproducibility	15
Annex A (informative) Specimen dimensions and electrode arrangement	16
Bibliography	17
Figure 1 – Electrode arrangement A (example)	9
Figure 2 – Collector electrode for electrode arrangement B	10
Figure 3 – Electrode arrangement C	10
Figure 4 – Connection diagram of measurement with two- and three-terminal electrode arrangements	12
Table 1 – Typical electrode dimensions for electrode arrangement C	11
Table A.1 – Recommended test specimen dimensions and electrode arrangements for specific products	16

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**DIELECTRIC AND RESISTIVE PROPERTIES
OF SOLID INSULATING MATERIALS –****Part 3-2: Determination of resistive properties (DC methods) –
Surface resistance and surface resistivity**

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 62631-3-2 has been prepared by IEC technical committee 112: Evaluation and qualification of electrical insulating materials and systems.

This first edition cancels and replaces the second edition of IEC 60093, published in 1980, and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the second edition of IEC 60093:

- a) IEC 60093 has been completely revised, both editorially and technically, and incorporated into the new IEC 62631 series;
- b) test methods have been updated to current day state of the art;
- c) volume and surface resistance and resistivity are now separated into IEC 62631-3-1 and IEC 62631-3-2, respectively.

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

FDIS	Report on voting
112/340FDIS	112/351/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.

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

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.

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.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 62631-3-2:2016](https://standards.iteh.ai/catalog/standards/sist/4602849b-a4df-4ecc-b8f0-7984da475ff1/sist-en-62631-3-2-2016)

<https://standards.iteh.ai/catalog/standards/sist/4602849b-a4df-4ecc-b8f0-7984da475ff1/sist-en-62631-3-2-2016>

DIELECTRIC AND RESISTIVE PROPERTIES OF SOLID INSULATING MATERIALS –

Part 3-2: Determination of resistive properties (DC methods) – Surface resistance and surface resistivity

1 Scope

This part of IEC 62631 covers methods of test for the determination of surface resistance and surface resistivity of electrical insulation materials by applying DC voltage.

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.

IEC 60212, *Standard conditions for use prior to and during the testing of solid electrical insulating materials*

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*¹

[SIST EN 62631-3-2:2016](https://standards.iteh.ai/catalog/standards/sist/4602849b-a4df-4ecc-b8f0-798147593/sist-en-62631-3-2-2016)

[https://standards.iteh.ai/catalog/standards/sist/4602849b-a4df-4ecc-b8f0-](https://standards.iteh.ai/catalog/standards/sist/4602849b-a4df-4ecc-b8f0-798147593/sist-en-62631-3-2-2016)

IEC 62631-3-3, *Dielectric and resistive properties of solid insulating materials – Part 3-3: Determination of resistive properties (DC Methods) – Insulation resistance*¹

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

electrode arrangement

electrical conductive bodies on the surface of a test specimen

Note 1 to entry: The arrangement of electrodes should include procedures to ascertain sufficient contact to the surface (e.g. by means of conducting paint) and/or the use of an adequate mechanical system applying the necessary contact force to the test specimen's surface.

3.1.1

spring loaded electrodes

line electrode system using two parallel lines of conducting spring tongues with sharp edges, separated by a gap

3.1.2

line electrodes

electrode arrangement provided by two parallel lines, separated by a gap, applied to the test specimen's surface using a conductive material

¹ To be published.