



NSAI
Standards

Irish Standard
I.S. EN 62631-3-1:2016

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

I.S. EN 62631-3-1:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

I.S. EN 62631-3-1:2016 is the adopted Irish version of the European Document EN 62631-3-1:2016, Dielectric and resistive properties of solid insulating materials - Part 3-1: Determination of resistive properties (DC methods) - Volume resistance and volume resistivity - General method

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EUROPEAN STANDARD

EN 62631-3-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2016

ICS 17.220.99; 29.035.01

Supersedes HD 429 S1:1983 (partially)

English Version

**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 62631-3-1:2016)**

Propriétés diélectriques et résistives des matériaux isolants solides - Partie 3-1: Détermination des propriétés résistives (méthodes en courant continu) - Résistance transversale et résistivité transversale - Méthode générale (IEC 62631-3-1:2016)

Dielektrische und resistive Eigenschaften fester Isolierstoffe - Teil 3-1: Bestimmung resistiver Eigenschaften (Gleichspannungsverfahren) - Durchgangswiderstand und spezifischer Durchgangswiderstand, Basisverfahren (IEC 62631-3-1:2016)

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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 62631-3-1:2016

European foreword

The text of document 112/339/FDIS, future edition 1 of IEC 62631-3-1, 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 62631-3-1:2016.

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) 2017-01-27
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-04-27

This document supersedes HD 429 S1:1983 (partially).

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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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 60455	Series	Resin based reactive compounds used for electrical insulation	EN 60455	Series
IEC 60464	Series	Varnishes used for electrical insulation	EN 60464	Series
IEC 61212	Series	Insulating materials - Industrial rigid round laminated tubes and rods based on thermosetting resins for electrical purposes	EN 61212	Series
ISO 868	-	Plastics and ebonite - Determination of indentation hardness by means of a durometer (Shore hardness)	EN ISO 868	-

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IEC 62631-3-1

Edition 1.0 2016-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

**Propriétés diélectriques et résistives des matériaux isolants solides –
Partie 3-1: Détermination des propriétés résistives (méthodes en courant
continu) – Résistance transversale et résistivité transversale – Méthode générale**





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IEC 62631-3-1

Edition 1.0 2016-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

**Propriétés diélectriques et résistives des matériaux isolants solides –
Partie 3-1: Détermination des propriétés résistives (méthodes en courant
continu) – Résistance transversale et résistivité transversale – Méthode générale**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

DIELECTRIC AND RESISTIVE PROPERTIES OF SOLID INSULATING MATERIALS –

Part 3-1: Determination of resistive properties (DC methods) – Volume resistance and volume resistivity – General method

FOREWORD

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International Standard IEC 62631-3-1 has been prepared by IEC technical committee TC 112: Evaluation and qualification of electrical insulating materials and systems.

This first edition of IEC 62631-3-1 cancels and replaces the second edition of IEC 60093, published in 1980. This edition 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 to appear in this part of IEC 62631 and in IEC 62631-3-2, respectively.

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

FDIS	Report on voting
112/339/FDIS	112/350/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.

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 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 a 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 60455 (all parts), *Resin based reactive compounds used for electrical insulation*

IEC 60464 (all parts), *Varnishes used for electrical insulation*

IEC 61212 (all parts), *Industrial materials – Industrial rigid round laminated tubes and rods based on thermosetting resins for electrical purposes*

ISO 868, *Plastics and ebonite – Determination of indentation hardness by means of a durometer (Shore hardness)*

3 Terms and definitions

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

3.1

volume resistance

part of the insulation resistance which is due to conduction through the volume

Note 1 to entry: Volume resistance is expressed in the unit of Ω .

3.2

volume resistivity

volume resistance of a material related to its volume

Note 1 to entry: Volume resistivity is expressed in the unit of Ωm .

Note 2 to entry: For insulating materials, the volume resistivity is usually determined by means of measuring electrodes arranged on a sheet of the material.

Note 3 to entry: According to IEC 60050-121: Electromagnetism, “conductivity” is defined as “scalar or tensor quantity, the product of which by the electric field strength in a medium is equal to the electric current density” and “resistivity” as “the inverse of the conductivity when this inverse exists”. Measured in this way, the volume

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