

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Dielectric and resistive properties of solid insulating materials –
Part 3-4: Determination of resistive properties (DC methods) – Volume
resistance and volume resistivity at elevated temperatures**

**Propriétés diélectriques et résistives des matériaux isolants solides –
Partie 3-4: Détermination des propriétés résistives (méthodes en courant
continu) – Résistance transversale et résistivité transversale aux températures
élevées**



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

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**DIELECTRIC AND RESISTIVE PROPERTIES OF SOLID
INSULATING MATERIALS –****Part 3-4: Determination of resistive properties (DC methods) –
Volume resistance and volume resistivity at elevated temperatures**

FOREWORD

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International standard IEC 62631-3-4 has been prepared by IEC technical committee 112: Evaluation and qualification of electrical insulating materials and systems.

This edition of IEC 62631-3-4 cancels and replaces IEC 60345 "Method of test for electrical resistance and resistivity of insulating materials at elevated temperatures", published in 1971. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC 60345:

- a) The revised standard becomes part of the series IEC 62631-3-x. Title of the standard is changed and adapted to the series as Part 3-4.
- b) Clauses 2 "Normative references", 3 "Terms and definitions", and 4 "Significance" are added.

- c) Subclauses 5.2 "Power supply, Voltage", 5.3.1.2 "Number of test specimens" and 5.3.1.3 "Conditioning and pre-treatment of test specimens" are added.
- d) In 5.3.5 "Special precautions during measurements", errors analysis in the measurement of current are modified, and aligned with IEC 62631-3-1.
- e) In 6.2 "Increasing the temperature by steps (method B)", the method for more than one specimen is removed.
- f) The standard atmospheric conditions for testing and conditioning, especially the temperature, are replaced according to IEC 60212.
- g) The circuit diagram of test apparatus is modified, and the structure diagram and pictures of test apparatus are added in Annex A.
- h) The orders of part clauses are adjusted.

The text of this International Standard is based on the following documents:

CDV	Report on voting
112/406/CDV	112/445/RVC

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

This document 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 document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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

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DIELECTRIC AND RESISTIVE PROPERTIES OF SOLID INSULATING MATERIALS –

Part 3-4: Determination of resistive properties (DC methods) – Volume resistance and volume resistivity at elevated temperatures

1 Scope

This part of IEC 62631 covers procedures for the determination of insulation resistance and volume resistivity of insulating materials by applying DC-voltage and temperatures up to 800 °C. The typical application materials include high temperature mica plate and alumina ceramics.

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 60212:2010, *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*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia, available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

heating chamber

device which is used for supplying an elevated temperature to the specimen

3.2

volume resistance

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

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

3.3

volume resistivity

volume resistance of a material related to its volume

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