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Method for the determination of the proof and the comparative tracking indices of solid insulating materials

Méthode de détermination des indices de résistance et de tenue au cheminement des matériaux isolants solides

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Method for the determination of the proof and the comparative tracking indices of solid insulating materials

FOREWORD

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IEC 60112 has been prepared by IEC technical committee 112: Evaluation and qualification of electrical insulating materials and systems. It is an International Standard.

This sixth edition cancels and replaces the fifth edition published in 2020. This edition constitutes a technical revision.

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

a) In 7.3, the term "resistivity" has been replaced by "conductivity".

It has the status of a basic safety publication in accordance with IEC Guide 104.

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

Draft	Report on voting
112/679/FDIS	112/686/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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

- reconfirmed,
- withdrawn, or
- revised.

The content of the corrigendum 1 (2026-02) has been included in this copy.

1 Scope

This document specifies the method of test for the determination of the proof and comparative tracking indices of solid insulating materials on pieces taken from parts of equipment and on plaques of material using alternating voltage.

This document provides a procedure for the determination of erosion when required.

The proof tracking index is used as an acceptance criterion as well as a means for the quality control of materials and fabricated parts. The comparative tracking index is mainly used for the basic characterization and comparison of the properties of materials.

This test method evaluates the composition of the material as well as the surface of the material being evaluated. Both the composition and surface condition directly influence the results of the evaluation and are considered when using the results in material selection process.

The described test method is designed for a test voltage up to 600 V AC, because higher test voltages and DC voltage will lead to a reduced test severity.

Test results are not directly suitable for the evaluation of safe creepage distances when designing electrical apparatus.

The results of this method have been used for insulation coordination of equipment. It is important that use of these results also considers the overvoltage levels, creepage distances, and establishes the pollution degree to which the product insulation system will be expected to be subjected. This is in compliance with IEC 60664-1.

This basic safety publication focusing on a safety test method is primarily intended for use by technical committees in the preparation of safety publications in accordance with the principles laid down in IEC Guide 104 and ISO/IEC Guide 51.

One of the responsibilities of a technical committee is, wherever applicable, to make use of basic safety publications in the preparation of its publications.

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.

ISO 4287, *Geometrical Product Specification (GPS) – Surface texture: Profile method – Terms, definitions and surface texture parameters*

Bibliography

IEC Guide 104, *The preparation of safety publications and the use of basic safety publications and group safety publications*

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

IEC 60587, *Electrical insulating materials used under severe ambient conditions – Test methods for evaluating resistance to tracking and erosion*

IEC 60664-1, *Insulation coordination for equipment within low-voltage supply systems – Part 1: Principles, requirements and tests*

ISO/IEC Guide 51, *Safety aspects – Guidelines for their inclusion in standards*

ISO 293, *Plastics – Compression moulding of test specimens of thermoplastic materials*

ISO 294-1, *Plastics – Injection moulding of test specimens of thermoplastic materials – Part 1: General principles, and moulding of multipurpose and bar test specimens*

ISO 294-3, *Plastics – Injection moulding of test specimens of thermoplastic materials – Part 3: Small plates*

ISO 295, *Plastics – Compression moulding of test specimens of thermosetting materials*

ISO 304, *Surface active agents – Determination of surface tension by drawing up liquid films*

ISO 3167, *Plastics – Multipurpose test specimens*

ISO 3696, *Water for analytical laboratory use – Specification and test methods*

ISO 7888, *Water quality – Determination of electrical conductivity*

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