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## **Fasta isolermaterial – Metod för bestämning av krypströmsindex (CTI & PTI) för fasta isolermaterial**

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

Som svensk standard gäller europastandarden EN IEC 60112:2020. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60112:2020.

### **Nationellt förord**

Europastandarden EN IEC 60112:2020

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60112, Fifth edition, 2020 - Method for the determination of the proof and the comparative tracking indices of solid insulating materials**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60112, utgåva 1, 2003 och SS-EN 60112/A1, utgåva 1, 2010 gäller ej fr o m 2023-12-02.

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Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

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English Version

Method for the determination of the proof and the comparative  
tracking indices of solid insulating materials  
(IEC 60112:2020)

Méthode de détermination des indices de résistance et de  
tenue au cheminement des matériaux isolants solides  
(IEC 60112:2020)

Verfahren zur Bestimmung der Prüfwahl und der  
Vergleichszahl der Kriechwegbildung von festen,  
isolierenden Werkstoffen  
(IEC 60112:2020)

This European Standard was approved by CENELEC on 2020-12-02. 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, 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

## European foreword

The text of document 112/479/FDIS, future edition 5 of IEC 60112, 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 60112:2020.

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) 2021-09-02
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-12-02

This document supersedes EN 60112:2003 and all of its amendments and corrigenda (if any).

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 60112:2020 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 60587	NOTE	Harmonized as EN 60587
IEC 60664-1	NOTE	Harmonized as EN IEC 60664-1
IEC 60212	NOTE	Harmonized as EN 60212
ISO 293	NOTE	Harmonized as EN ISO 293
ISO 294-1	NOTE	Harmonized as EN ISO 294-1
ISO 294-3	NOTE	Harmonized as EN ISO 294-3
ISO 295	NOTE	Harmonized as EN ISO 295
ISO 3167	NOTE	Harmonized as EN ISO 3167
ISO 3696	NOTE	Harmonized as EN ISO 3696

## 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>
ISO 4287	-	Geometrical Product Specifications (GPS) - Surface texture: Profile method - Terms, definitions and surface texture parameters	EN ISO 4287	-

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**METHOD FOR THE DETERMINATION OF THE PROOF AND THE  
COMPARATIVE TRACKING INDICES OF SOLID INSULATING 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.
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International Standard IEC 60112 has been prepared by IEC technical committee 112: Evaluation and qualification of electrical insulating materials and systems.

This fifth edition cancels and replaces the fourth edition published in 2003 and Amendment 1:2009. This edition constitutes a technical revision.

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

- Introduction of a new contaminant, solution C with a surfactant aligned with the test method of IEC 60587. The definition of the solution B was transferred to Annex B for backward reference.
- Introduction of a screening test, considering the fact that some materials can withstand high test voltages, but fail at lower test voltages.

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:

FDIS	Report on voting
112/479/FDIS	112/484/RVD

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.

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, or
- amended.



# METHOD FOR THE DETERMINATION OF THE PROOF AND THE COMPARATIVE TRACKING INDICES OF SOLID INSULATING MATERIALS

## 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.

NOTE 1 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.

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

NOTE 2 This is in compliance with IEC 60664-1, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*.

NOTE 3 This test discriminates between materials with relatively poor resistance to tracking, and those with moderate or good resistance, for use in equipment which can be used under moist conditions. More severe tests of longer duration are available for the assessment of performance of materials for outdoor use, utilizing higher voltages and larger test specimens (see the inclined plane test of IEC 60587). Other test methods such as the inclined method can rank materials in a different order from the drop test given in this document.

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 Specifications (GPS) – Surface texture: Profile method – Terms, definitions and surface texture parameters*