



SLOVENSKI STANDARD

SIST EN 60243-1:2013

01-september-2013

Nadomešča:
SIST EN 60243-1:2001

Električna prebojna trdnost izolacijskih materialov - 1. del: Preskušanje pri omrežnih frekvencah

Electrical strength of insulating materials - Test methods - Part 1: Tests at power frequencies

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Rigidité diélectrique des matériaux isolants - Méthodes d'essai - Partie 1: Essais aux fréquences industrielles

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Ta slovenski standard je istoveten z: EN 60243-1:2013

ICS:

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| 17.220.99 | Drugi standardi v zvezi z elektriko in magnetizmom | Other standards related to electricity and magnetism |
| 29.035.01 | Izolacijski materiali na splošno | Insulating materials in general |

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60243-1

July 2013

ICS 17.220.99; 29.035.01

Supersedes EN 60243-1:1998

English version

**Electric strength of insulating materials -
Test methods -
Part 1: Tests at power frequencies
(IEC 60243-1:2013)**

Rigidité diélectrique des matériaux
isolants - Méthodes d'essai -
Partie 1: Essais aux fréquences
industrielles
(CEI 60243-1:2013)

Elektrische Durchschlagfestigkeit von
isolierenden Werkstoffen -
Prüfverfahren -
Teil 1: Prüfungen bei technischen
Frequenzen
(IEC 60243-1:2013)

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This European Standard was approved by CENELEC on 2013-04-30. 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.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 112/237/FDIS, future edition 3 of IEC 60243-1, 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 60243-1:2013.

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) 2014-01-30
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-04-30

This document supersedes EN 60243-1:1998.

EN 60243-1:2013 includes the following significant technical changes with respect to EN 60243-1:1998:

The significant technical change with respect to the previous edition is that the current version now includes an option for testing elastomeric materials.

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The text of the International Standard IEC 60243-1:2013 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated :

IEC 60674-2 NOTE Harmonised as EN 60674-2.

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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

| <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 60296 | - | Fluids for electrotechnical applications - Unused mineral insulating oils for transformers and switchgear | EN 60296 | - |
| IEC 60455-2 | - | Resin based reactive compounds used for electrical insulation - Part 2: Methods of test | EN 60455-2 | - |
| IEC 60464-2 | - | Varnishes used for electrical insulation - Part 2: Methods of test | EN 60464-2 | - |
| IEC 60684-2 | - | Flexible insulating sleeving - Part 2: Methods of test | EN 60684-2 | - |
| IEC 60836 | - | Specifications for unused silicone insulating liquids for electrotechnical purposes | EN 60836 | - |
| IEC 61099 | - | Insulating liquids - Specifications for unused synthetic organic esters for electrical purposes | EN 61099 | - |
| ISO 293 | - | Plastics - Compression moulding of test specimens of thermoplastic materials | EN ISO 293 | - |
| ISO 294-1 | - | Plastics - Injection moulding of test specimens of thermoplastic materials - Part 1: General principles, and moulding of multipurpose and bar test specimens | EN ISO 294-1 | - |
| ISO 294-3 | - | Plastics - Injection moulding of test specimens of thermoplastic materials - Part 3: Small plates | EN ISO 294-3 | - |
| ISO 295 | - | Plastics - Compression moulding of test specimens of thermosetting materials | EN ISO 295 | - |
| ISO 10724 | Series | Plastics - Injection moulding of test specimens of thermosetting powder moulding compounds (PMCs) | EN ISO 10724 | Series |

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IEC 60243-1

Edition 3.0 2013-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Electric strength of insulating materials – Test methods –
Part 1: Tests at power frequencies**

**Rigidité diélectrique des matériaux isolants – Méthodes d'essai –
Partie 1: Essais aux fréquences industrielles**

INTERNATIONAL
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COMMISSION

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ELECTROTECHNIQUE
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRIC STRENGTH OF INSULATING MATERIALS –
TEST METHODS –**
Part 1: Tests at power frequencies

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 60243-1 has been prepared by technical committee 112: Evaluation and qualification of electrical insulating materials and systems.

This third edition cancels and replaces the second edition, published in 1998, and constitutes a technical revision.

The significant technical change with respect to the previous edition is that the current version now includes an option for testing elastomeric materials.

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

| FDIS | Report on voting |
|--------------|------------------|
| 112/237/FDIS | 112/248/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 the parts in the IEC 60243 series, published under the general title *Electric strength of insulating materials – Test methods*, 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 web site 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.

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ELECTRIC STRENGTH OF INSULATING MATERIALS – TEST METHODS –

Part 1: Tests at power frequencies

1 Scope

This part of IEC 60243 provides test methods for the determination of short-time electric strength of solid insulating materials at power frequencies between 48 Hz and 62 Hz.

This standard does not cover the testing of liquids and gases, although these are specified and used as impregnates or surrounding media for the solid insulating materials being tested.

NOTE Methods for the determination of breakdown voltages along the surfaces of solid insulating materials are included.

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*

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IEC 60296, *Fluids for electrotechnical applications – Unused mineral insulating oils for transformers and switchgear*

IEC 60455-2, *Specification for solventless polymerizable resinous compounds used for electrical insulation – Part 2: Methods of test*

IEC 60464-2, *Varnishes used for electrical insulation – Part 2: Methods of test*

IEC 60684-2, *Flexible insulating sleeving – Part 2: Methods of test*

IEC 60836, *Specifications for unused silicone insulating liquids for electrotechnical purposes*

IEC 61099, *Insulating liquids – Specifications for unused synthetic organic esters for electrical purposes*

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*