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Standards

Irish Standard  
I.S. EN 60243-1:2013

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

## I.S. EN 60243-1:2013

*Incorporating amendments/corrigenda issued since publication:*

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
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**EN 60243-1**

July 2013

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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)

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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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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

## **Endorsement notice**

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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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

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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.

**I.S. EN 60243-1:2013**

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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.

## 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*

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*

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