

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Test procedure for thermal endurance of insulating resins and varnishes for impregnation purposes – Electric breakdown methods**

**Méthode d'essai pour l'évaluation de l'endurance thermique des résines et vernis isolants d'imprégnation – Méthodes de claquage électrique**



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**TEST PROCEDURE FOR THERMAL ENDURANCE OF INSULATING  
RESINS AND VARNISHES FOR IMPREGNATION PURPOSES –  
ELECTRIC BREAKDOWN METHODS**

## FOREWORD

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International Standard IEC 60370 has been prepared by IEC technical committee 15: Solid electrical insulating materials.

This second edition cancels and replaces the first edition published in 1971. This edition constitutes a technical revision.

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

- a) this document is now describing two methods, the existing one, following ASTM D1932 and new a method following the requirements of IEC 60455-2 and IEC 60464-2;
- b) the theoretical background and way of calculation were removed, and replaced by reference to IEC 60216;
- c) the layout and numbering system was updated;
- d) for better understanding and illustration purposes examples were added.

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

FDIS	Report on voting
15/812/FDIS	15/819/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

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## INTRODUCTION

This document describes methods for thermal endurance testing. The methods described are in line with IEC 60216 (all parts). More information about the theory of thermal endurance, calculation methods and other possible methods can be found in IEC 60216 (all parts).

# TEST PROCEDURE FOR THERMAL ENDURANCE OF INSULATING RESINS AND VARNISHES FOR IMPREGNATION PURPOSES – ELECTRIC BREAKDOWN METHODS

## 1 Scope

This International Standard covers methods of test for the determination of thermal endurance (temperature index) of electrical insulating resins and varnishes for impregnation purposes.

It is done by means of impregnating glass cloth and measuring electric strength or breakdown voltage before and after heat ageing.

It covers the materials described in IEC 60455-3-5 and IEC 60464-3-2 and similar materials.

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

IEC 60216 (all parts), *Electrical insulating materials – Thermal endurance properties*

IEC 60216-4-1, *Electrical insulating materials – Thermal endurance properties – Part 4-1: Ageing ovens – Single-chamber ovens*

IEC 60216-4-2, *Electrical insulating materials – Thermal endurance properties – Part 4-2: Ageing ovens – Precision ovens for use up to 300 °C*

IEC 60216-4-3, *Electrical insulating materials – Thermal endurance properties – Part 4-3: Ageing ovens – Multi-chamber ovens*

IEC 60243-1, *Electric strength of insulating materials – Test methods – Part 1: Tests at power frequencies*

IEC 60455-3-5, *Resin based reactive compounds used for electrical insulation – Part 3: Specifications for individual materials – Sheet 5: Unsaturated polyester based impregnating resins*

IEC 60464-3-2, *Varnishes used for electrical insulation – Part 3: Specifications for individual materials – Sheet 2: Hot curing impregnating varnishes*

IEC 60641-3-1, *Pressboard and presspaper for electrical purposes – Part 3: Specifications for individual materials – Sheet 1: Requirements for pressboard, types B.0.1, B.0.3, B.2.1, B.2.3, B.3.1, B.3.3, B.4.1, B.4.3, B.5.1, B.5.3 and B.6.1*

ISO 2078, *Textile glass – Yarns – Designation*

ISO 2113, *Reinforcement fibers – Woven fabrics – Basis for a specification*