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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 27749-2026

Replacing GB/T 27749-2011

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

浸渍用绝缘树脂和漆耐热性试验规程 电气击穿法

(English Translation)

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Table of Contents

- Preface
- Introduction
- 1 Scope
- 2 Normative References
- 3 Terms and Definitions
- 4 Test Methods
- 5 Reports

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document supersedes GB/T 27749-2011 "Test Procedure for Heat Resistance of Insulating Varnishes - Electrical Strength Method" and is consistent with GB/T 27749-2011.

Compared to previous versions, aside from structural adjustments and editorial changes, the main technical changes are as follows.

- The scope of the document has been changed (see Chapter 1, Chapter 1 of the 2011 edition);
- Added the terms and definitions for "resin" and "lacquer" (see 3.1, 3.2);
- Added endpoint determination criteria for heat resistance aging tests (see 4.1);
- A resin impregnation process has been added (see 4.2.2.3, 4.3.2.3);
- Added provisions for using a micrometer or similar instrument to measure sample thickness (see 4.2.5.1, 4.3.5.1);
- The temperature difference between each aging temperature point has been changed to 10K~20K (see 4.2.4, 4.3.4, Chapter 6 of the 2011 edition);
- The aging termination has been changed to until the average electrical strength reaches less than 8kV/mm (based on the original average thickness) or the thermal aging time. Reaching 10,000 hours (see 4.2.5.3, 7.3 in the 2011 version);
- Added sample preparation and testing procedures for the ball-plate electrode system

(see 4.3.1 and 4.3.5);

Figure 5).

This document adopts IEC 60370:2017 "Test procedure for heat resistance of impregnating insulating resins and varnishes - Electrical breakdown method".

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Electrical Equipment Industry Association.

This document is under the jurisdiction of the National Technical Committee on Standardization of Electrical Insulation Materials and Insulation Systems (SAC/TC301).

Introduction

The heat resistance test methods described in this document conform to IEC 60216 (all parts). Regarding heat resistance theory, calculation methods, and other relevant information...

More information on the method can be found in IEC 60216 (all parts).

Electrical breakdown method

1 Scope

This document describes a test method for determining the heat resistance (temperature index) of electrical insulating resins and varnishes used for impregnation. This method involves measuring the temperature index of the resins and varnishes used for impregnation.

The heat resistance of insulating resin and varnish impregnated with fiberglass cloth is determined by the electrical strength or breakdown voltage before and after thermal aging.

This document applies to unsaturated polyester-based impregnating resins for electrical insulation as specified in IEC 60455-3-5 and IEC 60464-3-2.

Thermosetting impregnating varnishes and similar materials for electrical insulation.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

ISO 2078 Textileglass Yarn Designation Note. GB/T 10580-2015 Standard conditions for solid insulating materials before and during testing (IEC 60212:2010, IDT) anceproperties) Note. GB/T 11026 (all parts) Heat resistance of electrical insulating materials [IEC 60216 (all parts)] IEC 60216-4-1 Electrical insulation materials - Heat resistance - Part 4-1.Aging ovens - Single-chamber ovens Note. GB/T 11026.4-2012 Electrical insulation materials - Heat resistance - Part 4: Aging ovens - Single-chamber ovens (IEC 60216-4-1:2006, IDT) IEC 60216-4-2 Electrical insulation materials - Heat resistance - Part 4-2.Precision ovens with aging oven temperatures up to 300°C (Elec-(for use up to 300°C) Note. GB/T 11026.5-2010 Electrical insulation materials - Heat resistance - Part 5: Precision ovens with aging oven temperatures up to 300°C (IEC 60216-4-2) IEC 60216-4-3 Electrical insulation materials - Heat resistance - Part 4-3.Aging ovens - Multi-chamber ovens Note. GB/T 11026.6-2010 Electrical insulation materials heat resistance - Part 6: Aging ovens - Multi-chamber ovens (IEC 60216-4-3:2000, IDT).

Note: GB/T 1408.1-2016 Electrical strength test methods for insulating materials - Part 1: Power frequency test (IEC 60243-1:2013, IDT) IEC 60641-3-1 Electrically usable corrugated and thin paperboard - Part 3: Individual material specifications - Section 1: B.0.1, B.0.3 Requirements for type 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 pressboards