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

GB/T 4074.6-2024

Replacing GB/T 4074.6-2008

**Test methods of winding wires - Part 6: Thermal properties
(English Translation)**

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Table of Contents

Preface
Introduction
1 Scope
2 Normative references
3 Terms and Definitions
4 Test method 9: Thermal shock (applicable to enameled wire and film wrapped wire)
4.1 Overview
4.2 Sample preparation
4.3 Test Procedure
4.4 Test results
5 Test method 10: Softening breakdown (applicable to enameled conductors with nominal diameter greater than 0.100 mm and less than or equal to 1.600 mm)
Round wire and film wrapped round wire)
5.1 Overview
5.2 Test equipment
5.3 Test Procedure
6 Test method 15: Temperature index
7 Test method 21: Weight loss (applicable to enameled round wire)
7.1 Overview
7.2 Sample preparation
7.3 Test procedure
Appendix A (Informative) High temperature failure test (applicable to enameled round wire)
A:1 Overview
A:2 Test equipment
A:3 Sample preparation
A:4 Test procedure
References

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents"

Drafting:

This document is part 6 of GB/T 4074 Winding Wire Test Methods: GB/T 4074 has been published in the following parts:

- Part 1: General provisions;
- Part 2: Dimensional measurement;
- Part 3: Mechanical properties;
- Part 4: Chemical properties;
- Part 5: Electrical properties;
- Part 6: Thermal properties;
- Part 7: Test method for determining the temperature index of enameled winding wire;
- Part 8: Test method for determination of temperature index of enameled winding wire - Rapid method;
- Part 21: High frequency pulse voltage resistance:

This document replaces GB/T 4074.6-2008 "Winding wire test methods Part 6: Thermal properties" and is consistent with GB/T 4074.6-2008:

In addition to structural adjustments and editorial changes, the main technical changes are as follows:

- Added an overview of thermal shock test (see 4.1);
- Added an overview of the softening breakdown test (see 5.1);
- Changed the test procedure in the softening breakdown test (see 5.3, see 4.2 of the:2008 edition);
- The test method of temperature index test has been changed: The "temperature index test" for all winding wires shall be carried out in accordance with IEC 60172 (see Chapter 6, Chapter 5 of the:2008 edition);
- Added an overview of weight loss test (see 7.1):

This document is equivalent to IEC 60851-6:2012 "Winding wire test methods Part 6: Thermal properties":

A new chapter "Terms and Definitions" has been added to this document:

The following minimal editorial changes were made to this document:

- In order to coordinate with the existing standards, the name of the standard is changed to "Winding Wire Test Methods Part 6: Thermal Properties":

Introduction

Winding wire is one of the main raw materials for power, motor, electrical appliances, home appliances, electronics, communications, transportation, power grid, aviation and other fields:

It has a wide range and covers many fields, and has become an important mechanical industrial product:

GB/T 4074 Winding Wire Test Methods is the only test method standard for measuring winding wire products in China: It is very important for product testing and market regulation:

It plays an important role in both market and product improvement:

GB/T 4074 aims to establish the test method standards for the performance of different types of winding wire products and is intended to consist of the following 9 parts:

--- Part 1: General provisions: The purpose is to establish the terms, definitions and general test principles for winding wire test methods:

--- Part 2: Dimensional measurement: The purpose is to establish test methods for measuring the dimensions of different products of winding wire:

--- Part 3: Mechanical properties: The purpose is to establish test methods for the mechanical properties of different types of winding wire products:

--- Part 4: Chemical properties: The purpose is to establish test methods for the chemical properties of different types of winding wire products:

--- Part 5: Electrical properties: The purpose is to establish test methods for the electrical properties of different types of winding wire products:

--- Part 6: Thermal properties: The purpose is to establish test methods for the thermal properties of different types of winding wire products:

--- Part 7: Test method for determining the temperature index of enameled winding wire: The purpose is to establish a method for determining the temperature index of enameled winding wire:

Test procedures:

--- Part 8: Test method for determining the temperature index of enameled winding wire: Rapid method: The purpose is to establish the determination of the temperature index of enameled winding wire:

Rapid test procedure for the sensitivity index:

--- Part 21: High-frequency impulse voltage resistance performance: The purpose is to

establish the test method for the high-frequency impulse voltage resistance performance of winding wires:

Winding wire test methods Part 6: Thermal properties

1 Scope

This document describes the following test methods for winding wires:

- Test method 9: Thermal shock;
- Test method 10: Softening breakdown;
- Test method 15: Temperature index;
- Test method 21: Weight loss;

For terms, definitions, general principles for test methods and a catalogue of test methods for winding wires, see IEC 60851-1:

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document:

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document:

GB/T 4074.3-2024 Winding wire test methods Part 3: Mechanical properties (IEC 60851-3:2023, IDT) Note: There is no technical difference between the referenced content of GB/T 4074.3-2024 and the referenced content of IEC 60851-3:2009:

GB/T 4074.5-2024 Winding wire test methods Part 5: Electrical properties (IEC 60851-5:2019, IDT) Note: There is no technical difference between the referenced content of GB/T 4074.5-2024 and the referenced content of IEC 60851-5:2008:

3 Terms and definitions

There are no terms or definitions that require definition in this document:

4 Test method 9: Thermal shock (applicable to enameled wire and film wrapped wire)

4.1

Overview

Thermal shock reflects the ability of a specimen to withstand temperature after being