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

GB/T 6148-2025

Replacing GB/T 6148-2005

**Test method for temperature-resistance coefficient of precision
resistance alloys**

精密电阻合金电阻温度系数测试方法

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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 replaces GB/T 6148-2005 "Test method for temperature coefficient of resistance of precision resistance alloys" and is consistent with GB/T 6148-2005.

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

- a) The test device requirements have been changed (see Chapter 4, Chapter 5 of the 2005 edition);
- b) The sample preparation requirements have been changed (see 5.1, 4.1 of the 2005 edition);
- c) The test temperature point requirements have been changed (see 7.2, 7.2 of the 2005 edition);
- d) The test procedure has been changed (see 7.3, 7.1 of the 2005 edition).

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was proposed by the China Machinery Industry Federation.

This document is under the jurisdiction of the National Technical Committee for

Standardization of Instrument Functional Materials (SAC/TC419).

This document was drafted by: Chongqing Materials Research Institute Co., Ltd., Chongqing Chuanyi Automation Co., Ltd. Metal Functional Materials Branch, Shenzhen CGN Engineering Design Co., Ltd., Shenzhen Yezhan Electronics Co., Ltd., Chongqing University of Electronic Science and Technology, CGN Huizhou Nuclear Power Co., Ltd.

Co., Ltd., Daya Bay Nuclear Power Operation and Management Co., Ltd., Chengdu Kaitian Electronics Co., Ltd., Jiangsu Huaxin Alloy Co., Ltd., Zhejiang Taiso Technology Co., Ltd., Shandong Liqun Alloy Materials Co., Ltd., and Shaanxi Sri Copper Alloy Innovation Center Co., Ltd.

The main drafters of this document are: Wang Fangjun, He Lunying, Chen Shuzhi, Hu Ziyang, Chen Rong, Li Guangfeng, Zheng Yawen, Huang Meiliang, Chen Guoyi, Meng Gang, Li Feng, Chen Jie, Yuan Xinming, Fu Yueming, Sha Hongwei, Zhu Yahui, Lu Jiong, Zhang Liqun, Yang Hongyan, Wu Yang, Wang Yong, Jiang Dong, Si Hengyuan, Tian Guangzheng, Tang Mao, He Xiangjie.

The previous versions of this document and the documents it replaces are as follows.

- First published in 1995 as GB/T 6148-1985, first revised in 2005;
- This is the second revision.

Test method for temperature coefficient of resistance of precision resistance alloys

1 Scope

This document describes the test method for the temperature coefficient of resistance of precision resistor alloys, including the principle, test equipment, sample preparation and pretreatment, test Test environment conditions, test methods, data processing, numerical rounding and test reports.

This document is applicable to the test of the resistance temperature coefficient of precision resistance alloys within the temperature range of -65°C~250°C.

The test of the resistance temperature coefficient of the material in this temperature range is carried out for reference.

2 Normative references

GB/T 8170

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

The relative change in resistance caused by a unit temperature change.

3.2

The relative change in resistance over a given temperature range divided by the temperature difference that produces the change.

3.3

The temperature at which the resistance is maximum or minimum in the test temperature range when the resistance-temperature relationship is parabolic.

4 Principle

The temperature coefficient of resistance is a physical quantity that measures the characteristic of resistance changing with temperature, indicating the relative change in resistance value caused by a unit temperature change.

It is obtained by directly measuring the change of resistance value at different temperatures using a high-precision resistance measuring instrument.

5.1 Test device composition

Select the test device according to the resistance value of the sample, measurement accuracy and operating temperature range. The test device usually consists of a standard thermometer, an electric measuring instrument, a conversion switch, a thermostatic bath, wiring terminals and connecting wires. An automatic detection system that meets the measurement requirements can also be used.