



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

GB/T 5169.13-2024

**Fire hazard testing for electric and electronic products - Part 13:
Glowing/hot-wire based test methods - Glowing-wire ignition
temperature (GWIT) test method for materials
(English Translation)**

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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 is required.

This document is Part 13 of "Fire Hazard Tests for Electrical and Electronic Products".

See Appendix NA for part.

This document replaces GB/T 5169.13-2013 "Fire hazard tests for electric and electronic products - Part 13: Glowing wire/hot wire basic test Glow Wire Ignition Temperature (GWIT) Test Method for Test Method Materials" is compared with GB/T 5169.13-2013, except for structural adjustment and editing.

In addition to the changes in performance, the main technical changes are as follows.

- a) Added a description of GWIT in the scope chapter (see Chapter 1);
- b) Added the term "flame phenomenon" (see 3.3);

c) The relative humidity of the test conditions is changed from "45% to 75%" to "less than or equal to 75%" (see 7.2, 7.2 of the 2013 edition);

d) Added the record of ignition time t_I , flameout time t_E and t_T , and deleted the record of "whether the glow wire penetrates the sample" (see 9.2 of the 2013 edition, 9.3 of the 2013 edition).

This document is equivalent to IEC 60695-2-13:2021 "Fire hazard tests - Part 2-13. Basic test procedures for glowing wire/hot wire" Glow Wire Ignition Temperature (GWIT) Test Method for Materials.

The following minimal editorial changes were made to this document.

--- To be consistent with the existing series of standards, the name of this document is changed to "Fire hazard tests for electric and electronic products Part 13: Hot Wire/hot wire basic test method Glow wire ignition temperature (GWIT) test method for materials";

--- Add a note in 9.2 to supplement the definition guidance of ignition time t_I , extinction time t_E and total flame phenomenon time t_T ;

--- Add informative Appendix NA to list the components of "Fire hazard test for electric and electronic products".

Introduction

The design of all electrical and electronic products needs to consider the risk of fire and potential fire hazards. The design of components, circuits and parts the purpose of material selection is to reduce the potential fire risk to an acceptable level even if foreseeable misuse, malfunction or failure occurs.

The purpose of the Fire Hazard Test for Electrical and Electronic Products is to save lives by reducing the number of fires or the severity of fires.

life and property. It can be achieved through.

--- Prevent ignition of live parts as much as possible. If ignition occurs, limit the scope of the fire to the casing of the electrical and electronic products;

--- Minimize the spread of flames to the product enclosure as much as possible, and reduce the risk of combustion including heat, smoke, toxic or corrosive gases.

The harmful effects of the product are minimized.

The Fire Hazard Test for Electrical and Electronic Products now consists of 40 parts, divided into three major areas.

--- Fire hazard test assessment guidelines and terminology standards, including 1 terminology and 8 assessment guidelines, the purpose is to provide a professional field Provide guidance and reference procedures for fire hazard assessment;

---Fire test standards, including 5 basic glow wire/hot wire test methods, 9 flame test methods, and 2 abnormal heat resistance Test methods, 1 arc ignition test method, the purpose is to introduce suitable for electrical and electronic equipment manufacturers and testing institutions to use A small-scale test method using a specific heat source to simulate the heat source that causes a fire;

---Hazard assessment criteria for combustion flow, including 2 items of corrosiveness, 2 items of smoke blurring, 5 items of toxicity, 3 items of heat release, and 2 items of flame surface the purpose is to provide measurement of combustion toxicity, corrosiveness, smoke haze and heat release of electrical and electronic products and their materials.

Guidelines and current technical status of test methods.

In electrical and electronic equipment, overheated metal parts can act as ignition sources. In the glow-wire test, a hot glow-wire is used to simulate this ignition source.

Source of combustion.

IEC 60695-2-10 describes the glow-wire test apparatus and general test methods, and IEC 60695-2-11[5] describes the glow-wire test of finished products.

For flammability test, IEC 60695-2-12[6] describes the glow-wire flammability index test method for materials.

This document describes the glow-wire ignition temperature test method for materials. It is used to measure, describe and classify the ignition temperature of materials under controlled laboratory conditions.

The properties of the material that is exposed to the heating wire. This is convenient for the exposure to excessive thermal stress (such as fault current through the wire, overload of the component).

This document alone cannot be used to describe or evaluate the performance of materials, products or components in actual use.

However, the results of this test can be used as a basis for the assessment of the fire risk taking into account all factors.

The fire risk assessment takes into account all factors relevant to the fire hazard assessment for a specific end use.

This document may refer to hazardous materials, procedures, and equipment. It is not intended to address all safety concerns associated with them.

Before using this standard, it is necessary for the user of this document to establish appropriate safety and health practices and determine its applicability and limitations.

Fire hazard test for electrical and electronic products Part 13: Basic test methods for glow-wire/hot-wire Glow Wire Ignition Temperature (GWIT) Test Method for Materials

1 Scope

This document specifies the glow-wire test procedure for ignition tests on specimens of solid electrical insulating material or other solid materials.

The purpose of this method is to determine the glow-wire ignition temperature (GWIT).

GWIT is a temperature 25°C¹⁾ (or 30°C) higher than the highest temperature measured in this standardized test procedure.

The material does not ignite, or any flame phenomenon lasts for no more than 5 seconds, and the sample will not be completely burned.

1) The original IEC unit is K, which is unified as °C here.

This test method is a material test performed on a series of standard specimens. The data obtained are combined with the data obtained from IEC 60695-2-12 material the data obtained by the Glow Wire Flammability Index (GWFI) test method are used together with the IEC 60695-1-30 [4] pre-selection procedure to assess whether the material is Meets the requirements of IEC 60695-2-11.

NOTE As a result of the fire hazard assessment, a series of appropriate flammability and ignition pre-selection tests can reduce the number of product tests.

This document is intended for use by product committees when writing standards in accordance with the principles set out in IEC Guide 104 and ISO/IEC Guide 51.

use.

One of the tasks of the product committee is to use this series of standards wherever applicable when writing standards in this field.

Unless otherwise specifically mentioned or listed in the standard, the requirements, test methods or test conditions of this document shall not apply.

2 Normative references

The contents of the following documents constitute 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 2918-2018 Standard environment for conditioning and testing of plastic specimens (ISO 291:2008, MOD) Note. There is no technical difference between the referenced content of GB/T 2918-2018 and the referenced content of ISO 291:2008.