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

GB/T 5169.36-2025

Replacing GB/T 5169.36-2015

**Fire hazard testing for electric and electronic products - Part 36:
Corrosion damage effects of fire effluent - Summary and
relevance of test methods**

电工电子产品着火危险试验 第36部分：燃烧烟气流的腐蚀危害 试验方法概要和
相关性

(English Translation)

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Appendix NA (Informative) Part 11 of the published "Fire Hazard Testing of Electrical and Electronic Products"

Appendix A (Informative) Test Methods for Acidity and Conductivity of Aqueous Solutions

Appendix B (Informative) Repeatability and Reproducibility Measurements of Combustion Gas-Aqueous Solution Comparison Tests

Reference

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 is Part 36 of "Fire Hazard Testing for Electrical and Electronic Products". The "Fire Hazard Testing for Electrical and Electronic Products" document has been published...

See Appendix NA for some details.

This document replaces GB/T 5169.36-2015 "Fire Hazard Testing of Electrical and Electronic Products - Part 36: Corrosion Hazards of Combustion Streams".

The main technical changes in "Summary and Relevance of Test Methods" compared to GB/T 5169.36-2015, apart from structural adjustments and editorial changes, are as follows.

as follows.

a) The terms "critical relative temperature", "combustion flue gas attenuation characteristics", "combustion flue gas transport", "ignition source", and "leakage current"

have been deleted.

(See sections 3.3, 3.5, 3.6, 3.8, and 3.9 of the 2015 edition);

b) The terms "solid ignition model" and "pyrolysis" have been added (see 3.5, 3.6);

c) ISO TR9122-1 has been changed to ISO 19706, and the contents of Table 1 have been updated accordingly (see Table 1, 2015 version).

d) The methods for measuring the acidity and conductivity of aqueous solutions of combustion gas products, as well as the selection of reference standards and sample mass, have been modified (see [reference]).

5.3 (2015 version 5.3);

e) The static test method and the mobile furnace method have been removed (see sections 5.5 and 5.6 of the 2015 edition);

f) Technical content related to leakage current and metal loss has been removed (see Chapter 6 of the 2015 edition).

This document is equivalent to IEC TS60695-5-2:2021 "Fire Hazard Testing - Part 5-2. Corrosion Hazards of Combustion Flue Gases".

The document type of "Summary and Relevance of Hazardous Test Methods" has been changed from an IEC technical specification to a Chinese national standard.

The following minimal editorial changes have been made to this document.

---To align with the existing standard series, the document name has been changed to "Fire Hazard Testing of Electrical and Electronic Products - Part 36: Combustion Flue Gases" Summary and Relevance of Corrosion Hazard Test Methods for Flow Streams;

---Move some of the informative references in Chapter 2 to the bibliography;

---Replace ISO 13943:2017 with ISO 13943:2023 (see Chapter 3), because the content referenced in ISO 13943:2023 is related to...

The content referenced in ISO 13943:2017 has no technical differences, and the latest version is used.

---Appendix NA (Informative) has been added, listing the published portions of "Fire Hazard Testing for Electrical and Electronic Products".

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 Fire Hazard Testing for Electrical and Electronic Products (SAC/TC300).

Introduction

The design of all electrical and electronic products must consider fire risks and potential fire hazards. This includes the design of components, circuits, and parts.

The purpose of material selection is to reduce the risk of fire to an acceptable level even in the event of foreseeable misuse, malfunction, or failure.

The purpose of the "Fire Hazard Testing of Electrical and Electronic Products" series of standards is to save lives by reducing the number of fires or mitigating their severity.

It can protect life and property. It can.

---Take every effort to prevent fires caused by live components. If a fire does occur, limit the fire to the casing of the electrical or electronic product.

---Minimize the spread of flame outside the product casing and minimize the combustion products, including heat, smoke, toxic or corrosive gases.

To minimize the harmful impact.

The "Fire Hazard Testing of Electrical and Electronic Products" currently consists of 40 parts, divided into three main sub-fields.

---The guidelines and terminology standards for fire hazard testing assessment, including one terminology section and six assessment guidelines, aim to provide guidance for professionals in this field.

Provides guidelines and reference procedures for fire hazard assessment;

---Ignition test standards, including 5 basic test methods for glow wire/hot wire, 8 flame test methods, and 2 tests for resistance to abnormal heat.

The test methods, including one arc ignition test method, aim to introduce methods applicable to manufacturers and testing institutions of electrical and electronic equipment.

A small-scale experimental method that uses a specific heat source to simulate the heat source that causes a fire;

---The hazard assessment criteria for combustion flue gas include 2 aspects of corrosivity, 2 aspects of smoke obscuration, 5 aspects of toxicity, 2 aspects of heat release, and 2 aspects of flame.

Surface spread is intended to provide information for measuring the toxicity, corrosiveness, smoke blurring, and thermal properties of combustion fumes from electrical and electronic products and their materials.

Guidelines on release procedures and the current technical status of testing methods.

All combustion flue gas has some degree of corrosiveness or potential corrosivity,

depending on the type of fire and the combustible materials involved.

The composition of the materials, the type of the threatened substrate, and the temperature and relative humidity at which corrosion occurs are all factors to consider. There is no evidence that flammability originates from electrical and electronic products.

The risk of corrosion from flue gas is higher than that from other products, such as furniture or building materials.

The corrosive hazards of combustion flue gas can adversely affect the performance of electrical and electronic components. Even small amounts of combustion flue gas and smoke...

Various combinations of fog particles, moisture, and temperature can cause electrical components or systems to malfunction due to breakage, overheating, or short circuits.

The assessment of potential corrosion damage is particularly important for high-value and safety-related electrical products and installations.

The product technical committee will select tests and specify the severity level.

Research on corrosion damage requires an interdisciplinary approach, involving chemistry, electricity, physics, mechanical engineering, metallurgy, and electrochemistry.

Multiple disciplines and fields.

Fire hazard test of electrical and electronic products Part 36: Corrosive Hazards of Combustion Flue Gas Summary and relevance of experimental methods

1 Scope

This document provides an overview of test methods for evaluating the corrosivity of combustion flue gas from electrical and electronic products and their materials, and briefly describes international standards.

Commonly used test methods in national, regulated, or industry standards. The content includes the correlation between these test methods and real-world fire scenarios.

Special observations were made, and recommendations for using these experimental methods were given.

One of the tasks of the Product Committee is to ensure that this series of standards is used wherever applicable when developing standards for this field. Unless otherwise specified...

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