

ICS 13.220.40; 29.020
CCS K 04



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

GB/T 5169.1-2025

Replacing GB/T 5169.1-2015

**Fire hazard testing for electric and electronic products - Part 1:
Terminology concerning fire tests
(English Translation)**

Issued on: August 29, 2025

Implemented on: March 1, 2026

Issued by: State Administration for Market Regulation

Table of Contents

Preface

Introduction

1 Scope

2 Normative References

3 Terms and Definitions

3.1 General Fire Hazard Assessment

3.2 General fire test method

3.3 Combustion flue gas flow is universal

Appendix A (Informative) Component of the National Standard "Fire Hazard Testing of Electrical and Electronic Products"

Reference

Index

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 1 of GB/T (Z) 5169 "Fire Hazard Testing of Electrical and Electronic Products". GB/T (Z) 5169 has been published.

See Appendix A for some details.

This document replaces GB/T 5169.1-2015 "Fire Hazard Testing of Electrical and Electronic Products - Part 1: Fire Test Terminology", and is consistent with...

Compared with GB/T 5169.1-2015, apart from structural adjustments and editorial changes, the main technical changes are as follows.

---Added "Ignition", "Fire", "Small-scale Ignition Test", "Medium-scale Ignition Test", "Large-scale Ignition Test", and "Actual-scale Ignition" "Experiment", "Physical fire model", "Fire scenario", "Set fire", "Set fire scenario", "Fire decay (period)", "Fire development (Period)" "Complete Ignition" "Ignition Environment" "Ignition Reaction" "Ignition Hazard" "Ignition Risk" "Ignition Risk Assessment" "Fire Safety Design" "Design", "Fire Safety Engineering", "Unventilated Environment", "Sample", "Ignition", "Ignition Source", "Flammability", "Ignition Time", "Auto-ignition", "Auto-ignition Temperature" "Degree", "Minimum ignition temperature", "Combustible material", "Non-combustible material",

"Flammability", "Upper limit of flammability", "Lower limit of flammability", "Combustion", "Combustion products" "Material", "Complete Combustion", "Afterflame", "Afterflame Time", "Diffusion Flame", "Premixed Flame", "Glow", "Glow Combustion", "Afterburn", "Afterburn Time" "Time", "Fire resistance", "Flame retardancy", "Burning area", "Burning length", "Carbonization length", "Damaged area", "Damaged length", "Molten droplets", "Electricity" "Arc", "combustion flue gas flow", "smoke", "smoke blurring", "heat release", "heat release rate", "thermal conductivity", "thermal inertia", "pyrolysis", "pyrolysis front" "Flame," "Flame Front," "Flame Spread," "Flame Surface Spread," "Flame Spread Rate," "Linear Combustion Rate," "Flammable Combustion" Terms and definitions such as "ignition point," "flash point," "flashover," "heat flux," "radiative heat flux," "self-extinguishing," and "smoldering" (see 3.1.3~3.1.5) 3.1.9~3.1.22, 3.1.24~3.1.27, 3.2.1, 3.2.2, 3.2.8~3.2.21, 3.2.23~3.2.36, 3.2.38~3.2.41 3.2.43, 3.3.1~3.3.20, 3.3.21~3.3.24);

---The following terms have been removed. "flame stabilizer", "explosion-proof", "explosion-proof enclosure", "flashover", "intrinsically safe circuit", "intrinsically safe system", "lethal toxicity", and "minimum criticality".

The terms and definitions for "relative humidity," "self-heating," and "electric spark" (see sections 3.2.11, 3.2.12, 3.2.13, 3.2.14, and 3.2.17 of the 2015 edition) are as follows.

3.2.18, 3.2.19, 3.2.20, 3.2.24, 3.2.26).

This document was drafted with reference to IEC 60695-4:2021 "Fire hazard testing - Part 4: Terminology for fire testing of electrical products", and its consistency is high.

This is not equivalent.

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 potential fire risk to an acceptable level even in the event of foreseeable misuse, malfunction, or failure.

Within the scope of [specific regulations/standards]. The purpose of the "Fire Hazard Testing of Electrical and Electronic Products" is to save [products/services] by reducing the number of fires or mitigating their severity.

Life and protection of property. It can be achieved through.

---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 to the product casing as much as possible, and minimize the combustion of heat, smoke, toxic or corrosive gases.

The harmful effects of the product are minimized.

GB/T (Z)5169 "Fire Hazard Testing of Electrical and Electronic Products" now consists of 40 parts, divided into three major sub-fields.

---The guidelines and terminology standards for fire hazard testing assessment, including 1 terminology section and 8 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, 9 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 streams include 2 aspects of corrosivity, 2 aspects of smoke obscuration, 5 aspects of toxicity, 3 aspects of heat release, and 2 aspects of flame surface hazard assessment.

The purpose of this study is to provide information on the combustion flow toxicity, corrosiveness, smoke fumes, and heat release of electrical and electronic products and their materials.

The guidelines and current test method technical overview.

Fire hazard test of electrical and electronic products Part 1: Fire Test Terminology

1 Scope

This document defines the general terms and definitions related to the series of standards for fire hazard testing of electrical and electronic products.

This document is intended for use when writing and reading the series of standards and technical documents for fire hazard testing of electrical and electronic products.

2 Normative references

This document has no normative references.

3.1 General Fire Hazard Assessment

3.1.1

Confirmatory test

A program used to determine whether a test flame, burner, or related hardware is functioning properly.

3.1.2

preselection

The process of evaluating and selecting the materials, components, or assemblies to be used in the manufacture of a finished product.

3.1.3

fire

Combustion is a process characterized by the emission of heat and combustion flow, typically accompanied by smoke, flame, incandescence, or a combination thereof.

[Source. ISO 13943:2023, 3.138, modified] 3.1.4 fire (Controlled) Intentionally provides effective self-supporting combustion, the degree of combustion of which is controlled in time and space.

[Source. ISO 13943:2023, 3.139] 3.1.5 fire (Uncontrolled) unintentionally provides effective self-supporting combustion, and its degree of combustion is uncontrolled in time and space.

[Source. ISO 13943:2023, 3.140] 3.1.6 firetest Tests that measure ignition performance or expose a sample to the influence of ignition.

Note: The results of the ignition test can be used to quantify the severity of the ignition of a sample or to determine its fire resistance or ignition reaction.

[Source. ISO 13943:2023, 3.180]