

ICS 13.220.40; 29.020  
CCS K 04



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

**GB/T 5169.33-2023**

Replacing GB/Z 5169.33-2014

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**Fire hazard testing for electric and electronic products - Part 33:  
Guidance for assessing the fire hazard - Ignitability - General  
guidance**

**Issued on: September 7, 2023**

**Implemented on: April 1, 2024**

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**Issued by: State Administration for Market Regulation, China National  
Standardization Administration**

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## 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 33 of "Fire Hazard Test of Electrical and Electronic Products". "Fire Hazard Test of Electrical and Electronic Products" has been released

See Appendix NA for some.

This document replaces GB /Z 5169.33-2014 "Fire Hazard Test of Electrical and Electronic Products - Part 33. Guidelines for Fire Hazard Assessment"

"General Principles of Ignitability", compared with GB /Z 5169.33-2014, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) The standard attribute is changed from a guidance document to a recommended standard;
- b) Added three terms and definitions. "spontaneous combustion", "pyrolysis" and "short circuit" (see 3.1, 3.25 and 3.26);
- c) The terms and definitions of "fire" and "ignition" have been changed (see 3.5, 3.20, 3.3, 3.17 of the 2014 edition).

This document is equivalent to IEC 60695-1-20:2016 "Fire Hazard Test Part 1-20. Guidelines for Fire Hazard Assessment of Electrical Products"

"General Principles of Ignitability".

This document has made the following minimal editorial changes.

---In order to be consistent with the existing series of standards, the name of this document is changed to "Fire Hazard Test of Electrical and Electronic Products - Part 33.Fire Hazard

"General Principles of Ignitability in Risk Assessment Guidelines";

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

--- Add an informative appendix NA to list the published parts of the "Fire Hazard Test of Electrical and Electronic Products".

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents.

## Introduction

The design of all electrical and electronic products needs to take into account fire risks and potential fire hazards. Design of components, circuits and components

and materials are screened to reduce the potential risk of fire to a tolerable level even in the event of foreseeable misuse, malfunction and failure.

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

lives and protect property. It can be passed.

---Prevent ignition caused by live parts as much as possible. If ignition occurs, limit the ignition range to the housing of electrical and electronic products;

--- Minimize the spread of flames outside the product shell and the harmful effects of combustion products including heat, smoke, toxic or corrosive gases

Harmful effects are minimized.

"Fire Hazard Test of Electrical and Electronic Products" now consists of 38 parts, divided into three major sub-fields.

---Fire hazard test assessment guidelines and terminology standards, including 1 terminology and 8 assessment guidelines, are intended to provide guidance in this professional field

Provides guidance and reference procedures for fire hazard assessment;

---Small-scale fire test standards, including 4 basic glow wire/hot wire test methods, 9 flame test methods, 2 abnormal resistance

The purpose of the thermal capacity test method is to introduce specific heat source models suitable for use by electrical and electronic equipment manufacturers and testing institutions.

Methods for small-scale testing of heat sources intended to cause fires;

---Hazard assessment standards for combustion streams, including 2 corrosiveness, 2 smoke, 5 toxicity, 3 heat release, and 2 flame surface

Spread, the purpose is to provide measurement of combustion flow toxicity, corrosiveness, smoke blur and heat release of electrical and electronic products and their materials.

guidelines and the technical status of current test methods.

This document gives an overview of the ignitability of electrical and electronic products and their relevance to fire hazards.

Fires can cause harm to life and property by producing heat (thermal hazards) and toxic combustion streams, corrosive combustion streams, and smoke (non-thermal hazards).

create a threat. Fires begin with ignition and in some cases may progress to flashover and complete ignition. Therefore, ignition resistance plays an important role in the evaluation of fire hazard.

Defining aspects are considered one of the most important properties of materials. If there is no ignition, there is no fire.

For most materials (except metals and some other elements), ignition occurs in the gaseous state. Combustible when mixed with air

Ignition begins when the vapor temperature is so high that the exothermic oxidation reaction spreads rapidly. The ease of ignition depends on the chemical properties of the vapor, the ignition

Material/air ratio and temperature are closely related.

For liquids, flammable vapors result from the evaporation of the liquid, and the evaporation process depends on the temperature and chemical composition of the liquid.

For solids, flammable vapors result from pyrolysis when the temperature of the solid is high enough. The evaporation process depends on the temperature and chemical composition of the solid, also

Depends on the thickness, density, specific heat capacity and thermal conductivity of the solid.

The ease with which a specimen ignites depends on many variables. Factors to consider when assessing ignition properties include.

a) The geometry of the specimen, including thickness, and the presence of edges, corners

or joints;

b) any anisotropy;

c) surface orientation;

d) Air flow speed and direction;

e) The nature and location of the ignition source;

f) The magnitude and location of external heat flux;

g) Whether the combustible material is a liquid or a solid.

This revision is conducive to keeping the technology in this field consistent with international standards, thereby improving the quality of my country's electrical and electronic products and promoting

Trade, exchange and technical cooperation.

Fire hazard test for electrical and electronic products

Part 33.Guidelines for fire hazard assessment

General principles of ignition

## 1 Scope

This document provides guidelines for assessing the ignitability of electrical and electronic products and their materials. Includes the following aspects.

a) Principle of ignitability;

b) Selection of appropriate test methods;

c) Use and explanation of test results.

This document is applicable to the assessment of the ignitability of electrical and electronic products and the materials used in them and their correlation with fire hazards.

This document is intended to be used by technical committees when preparing standards based on the principles set out in IEC Guide104 and ISO /IEC Guide51

use.

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

Standards are specifically mentioned or listed, otherwise the requirements, test methods or test conditions of this document will not apply.