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GB/T 5169.16-2017 / IEC 60695-11-10:2013

Replacing GB/T 5169.16-2008

Fire hazard testing for electric and electronic products - Part 16: Test flames - 50 W horizontal and vertical flame test methods

电工电子产品着火危险试验 第 16 部分：试验火焰

50W 水平与垂直火焰试验方法

(IEC 60695-11-10:2013, Fire hazard testing - Part 11-10: Test flames - 50 W horizontal and vertical flame test methods, IDT)

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Foreword

GB/T 5169 “Fire hazard testing for electric and electronic products” consists of the following parts:

- Part 1: Terminology concerning fire tests;
- Part 2: Guidance for assessing the fire hazard - General guidelines;
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- Part 9: Guidance for assessing the fire hazard - Preselection testing procedures - General guidelines;
- Part 10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure;
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- Part 23: Test flames - 500 W vertical flame test method for tubular polymeric materials;
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- Part 44: Guidance for assessing the fire hazard - Fire hazard assessment.

This Part is Part 16 of GB/T 5169.

This Part was drafted in accordance with the rules given in GB/T 1.1-2009.

This Part replaces GB/T 5169.16-2008 “Fire hazard testing for electric and electronic products - Part 16: Test flames - 50 W horizontal and vertical flame test methods”. Compared with GB/T 5169.16-2008, the main technical changes are as follows:

- MODIFY the clause of normative references (see Clause 2 of this Part, Clause 2 of 2008 edition);
- MODIFY part contents of terms and definitions (see Clause 3 of this Part, Clause 3 of 2008 edition);
- MODIFY the arrangement of “Test specimens” “Test method A” and “Test method B” clauses to make the structure clearer (see Clause 7, Clause 8 and Clause 9 of this Part, Clause 7, Clause 8 and Clause 9 of 2008 edition);
- ADD the criteria for “burned to the holding clamp” (see 9.2.4);
- DELETE the figure of “Burner/operator/test specimen orientation” (Figure 6 of 2008 edition);
- ADD 7 figures, i.e. “Clearance gauge”, “Flame application”, “Flame application when there are molten drops”, “HB specimen gauge (example)”, “V specimen gauge (example)”, “Flame front position not classified as ‘burned to the holding clamp’”, “Flame front position classified as ‘burned to the holding clamp’” (Figures 6, 7, 8, 9, 9, 10, 11 and 12).

This Part uses the translation method to identical to IEC 60695-11-10:2013 “Fire hazard testing - Part 11-10: Test flames - 50 W horizontal and vertical flame test methods”.

The Chinese documents that are consistent with the normatively referenced international documents in this Part are as follows:

- GB/T 5169.1-2015 Fire hazard testing for electric and electronic products - Part 1: Terminology concerning fire tests (IEC 60695-4:2012, IDT)
- GB/T 5169.22-2015 Fire hazard testing for electric and electronic products -Part 22: Test flames - 50 W flame - Apparatus and confirmational test method (IEC 60695-11-4:2011, IDT)
- GB/T 5471-2008 Plastics - Compression moulding of test specimens of thermosetting materials (ISO 295:2004, IDT)
- GB/T 9352-2008 Plastic - Compression moulding of test specimens of thermoplastic materials (ISO 293:2004, IDT)

- GB/T 12006.1-2009 Plastics - Polyamides - Part 1: Determination of viscosity number (ISO 307:2007, IDT)

- GB/T 16499-2008 The Preparation of safety publication and the use of basic safety publications and group safety publications (neq IEC guide 104:1997)

- GB/T 20002.4-2015 Drafting for special aspects in standards - Part 4: Safety aspects for their inclusion in standards (ISO/IEC guide 51:2014, MOD)

This Part has made the following editorial modifications:

- To be consistent with the existing standard series, the name of the standard is modified to “Fire hazard testing for electric and electronic products - Part 16: Test flames - 50 W horizontal and vertical flame test methods”.

This Part was proposed by China Electrical Equipment Industry Association.

This Part is under the jurisdiction of National Technical Committee on Fire Hazard Testing of Electrical and Electronic Products of Standardization Administration of China (SAC/TC 300).

Responsible drafting organization of this Part: China National Electric Apparatus Research Institute Co., Ltd.

Participating drafting organizations of this Part: Guangdong Aldex New Material Co., Ltd., Integrated Inspection and Quarantine Technology Center of Dongguan Entry-Exit Inspection and Quarantine Bureau, Beijing TIRT Technology Service Co., Ltd., Inspection and Quarantine Technology Center of Guangdong Entry-Exit Inspection and Quarantine Bureau, Wenzhou Yaohua Telecomminication Co., Ltd., Vkan Certification & Testing Co., Ltd., CHEARI (Beijing) Certification & Testing Co., Ltd., China Electronics Standardization Institute, Shenzhen Academy of Metrology & Quality Inspection, Wuxi Sunan Experimental Equipment Co., Ltd., and Zhuhai Gree Electric Appliances Co., Ltd. Co., Ltd., 5th Electronics Research Institute of Ministry of Industry and Information Technology of the People’s Republic of China, Shandong Institute of Product Quality Inspection.

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The previous released versions replaced by this Part are as follows:

- GB/T 5169.16-002, GB/T 5169.16-2008.

Fire hazard testing for electric and electronic products - Part 16: Test flames - 50 W horizontal and vertical flame test methods

1 Scope

This Part of GB/T 5169 specifies small-scale laboratory test procedures intended to compare the burning behaviour of different materials used in electrotechnical products when vertically or horizontally oriented test bar specimens are exposed to a small flame ignition source with a nominal thermal power of 50 W. These test methods determine either the linear burning rate or the self-extinguishing properties of materials.

The test methods of this Part are applicable to solid and cellular materials that have an apparent density of more than 250 kg/m^3, determined in accordance with ISO 845.

Two test methods are described in this Part. Method A is a horizontal burning test and is intended to determine the linear burning rate of materials under specific test conditions. Method B is a vertical burning test and is intended to determine whether materials self-extinguish under specific test conditions.

NOTE 1: ISO 9772 describes a test method for the determination of the burning characteristics to be used for materials with an apparent density of 250 kg/m^3 or less. ISO 9773 describes a test method for the determination of the burning behaviour to be used for materials that due to their thinness, either distort and/or are burned up to the holding clamp using Method B of this Part.

The test methods described in this Part provide classifications (see 8.4 and 9.4), which may be used for quality assurance, the pre-selection of component materials of products, or to verify the required minimum flammability classification of materials used in end products.

NOTE 2: Guidance on pre-selection is given in IEC 60695-1-30.

This basic safety publication is intended for use by technical committees in the preparation of standards in accordance with the principles laid down in IEC Guide 104 and ISO/IEC Guide 51.

One of the responsibilities of a technical committee is, wherever applicable, to

make use of basic safety publications in the preparation of its publications. The requirements, test methods or test conditions of this basic safety publication will not apply unless specifically referred to or included in the relevant publications.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 291:2008 Plastics - Standard atmospheres for conditioning and testing

ISO 293 Plastics - Compression moulding of test specimens of thermoplastic materials

ISO 294 (all parts) Plastics - Injection moulding of test specimens of thermoplastic materials

ISO 295 Plastics - Compression moulding of test specimens of thermosetting materials

ISO 307 Plastics - Polyamides - Determination of viscosity number

ISO 9773 Plastics - Determination of burning behaviour of thin flexible vertical specimens in contact with a small-flame ignition source

ISO/IEC 13943:2008, Fire Safety - Vocabulary

ISO 16012 Plastics - Determination of linear dimensions of test specimens

IEC 60695-4 Fire hazard testing - Part 4: Terminology concerning fire tests for electrotechnical products

IEC 60695-11-4 Fire hazard testing - Part 11-4: Test flames - 50 W flames - Apparatus and confirmational test method

IEC Guide 104 The preparation of safety publications and the use of basic safety publications and group safety publications

ISO/IEC Guide 51 Safety aspects - Guidelines for their inclusion in standards

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO

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