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

GB/Z 5169.32-2013

**Fire hazard testing for electric and electronic products -- Part
32: Heat release -- Heat release of insulating liquids
(English Translation)**

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Foreword

GB/T 5169 "Fire hazard testing for electrical and electronic products" has released or plans to release the following sections.

- Part 1. Ignition test terms;
- Part 2. Fire hazard assessment guidelines General;
- Part 3. Electronic components ignition hazard assessment technical requirements and test specifications to develop guidelines;
- Part 5. Flame needle flame test test device, to confirm the test methods and guidelines;
- Part 9. Fire hazard assessment guidelines preselected test procedures General;
- Part 10. Glow/hot wire basic test methods glow wire devices and common test methods;
- Part 11. Glow/hot wire basic test methods Glow wire flammability test methods;
- Part 12. Glow/hot wire basic test methods glow wire flammability index (GWFI) test methods;
- Part 13. Glow/hot wire basic test methods Glow wire ignition temperature (GWIT) test methods;
- Part 14. Test flame 1kW nominal premixed flame equipment to confirm the test methods and guidelines;
- Part 15. Test flame 500W flame device and confirm the test method;
- Part 16. Test flame 50W horizontal and vertical flame test method;
- Part 17. Test flame 500W flame test method;
- Part 18. Toxicity of combustion streams General;
- Part 19. Non-normal thermal compression stress relief deformation test;

- Part 20. Summary and relevance of flame surface spread test methods;
- Part 21. Non-normal hot ball pressure test;
- Part 22. Test flame 50W flame device and confirm the test method;
- Part 23. Test flame tubular polymeric materials 500W vertical flame test method;
- Part 24. Fire hazard assessment guidelines insulation liquid;
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- Part 29. General rule of heat release;
- Part 30. Heat release test method summary and relevance;
- Part 31. Flame surface spread General;
- Part 32. Heat release of heat-releasing insulating liquid;
- Part 42. Test flame confirmation test guidelines;
- Part 44. Fire hazard assessment guidelines Fire hazard assessment.

This section GB/Z 5169 Part 32.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This section uses the translation method is equivalent to using IEC/T S60695-8-3.2008 "Fire hazard test part 8-3. Heat release electrician Product insulation liquid heat release. " this section made the following editorial changes.

- In line with the existing standard series, the standard name was changed to "Fire hazard testing for electric and electronic products Part 32. Heat release Insulation liquid heat release ";
- Deleted in Chapter 1, paragraph 2, 3 informational content;
- According to the habit of drawing in our country, modified the position and size of each view in Figure 1.

This part is proposed by China Electrical Equipment Industry Association.

This part of the National Electrical and Electronic Equipment Fire Dangerous Test Standardization Technical Committee (SAC/TC300) centralized.

This section is responsible for the drafting unit. China Electric Apparatus Research Institute Limited.

Participated in the drafting of this section. Ningbo Branch IC Design Center Co., Ltd., Foshan City, measuring the quality of measurement supervision and testing center, Guangdong Inspection and Quarantine Inspection and Quarantine Technology Center, Shenzhen Institute of Metrology and Quality Inspection, Exit Inspection and Quarantine of Shenzhen City Industrial Products Testing Technology Center, Shandong Institute of Product Quality Supervision and Inspection.

Introduction

When designing any electrical and electronic product, consider the risk of fire and potential hazards. Components, Circuit and Device Design, and Material Screening the goal in this regard is to reduce the potential risk of fire accidents to an acceptable level even in the event of foreseeable abnormal use, failure and failure and other conditions as well. IEC 60695-1-10 and IEC 60695-1-11 provide guidance on how to achieve this goal.

The main purpose is to prevent the ignition caused by live parts, and to limit the scope of ignition within the housing of the electric and electronic product if ignition occurs.

The secondary purpose is to reduce the flame spread beyond the product envelope and to reduce the harmful effects of combustion products, including heat, smoke, toxic or corrosive gases influences.

Fires involving electrical and electronic products may also be caused by external non-electrical sources. The overall risk assessment should take this factor into account.

Fire heat (heat hazard), toxic and/or corrosive compounds, as well as smoke-induced visual blurring, are vital to life and property Cause harm. As the amount of heat released increases, the risk of fire increases and it may develop into a fire with a flashover phenomenon.

One of the most important measurements of fire tests is the measurement of heat release, which is an important factor in determining the danger of fire; it is also a fire safety measure One of the parameters calculated by the whole project.

Measurement and use of heat release and other ignition test data can be used to reduce the probability of fire (or impact), even though the electrotechnical Predictable non-normal product use, failure or failure of the situation as well.

When a material is heated by an external heat source, a combustion flow is generated, which, combined with the air, ignites and ignites. This process is released Some of the calories and the mixture was burned and air away, and some because of radiation loss, and some return to the solid material to make it more Many pyrolysis, so as to continue this process.

Heat may also be passed on to other nearby combustible products, releasing additional heat and burning flow.

The rate of heat release during ignition is defined as the rate of heat release. The rate of heat release affects the spread of the flame and causes a secondary fire due to this is important. Other parameters are also important, such as flammability, flame spread and fire boundary effects (see GB/T 5169 and IEC 60695 standard series).

This section is based on the use of taper calorimeters to measure the rate of heat release and also to measure other valid fire hazard parameters such as smoke output, Room and quality loss.

In IEC 60695-1-40 reference is made to the heat release data required for the combustion of insulating liquids. This section provides the measurement of such material heat release the method of release, also applies to other flammable liquids. Conical calorimeters are given in ISO 5660-3 and IEC 60695-8-2 Guidelines.

Fire hazard testing for electric and electronic products Part 32. Heat release of thermally released insulating liquid

1 Scope

GB/T 5169 provisions of this part of the insulating liquid used in electrical and electronic products are exposed to the provisions of a spark ignition heat flux, the test Quantitative insulation test method for heat release from insulating liquid combustion. And can determine the amount of smoke, light-off time and quality loss. This section is also suitable for other liquid samples.

DANGER WARNING Explosions may occur when testing volatile liquids with this unit and should therefore be checked according to the initial test procedure set out in 8.1 liquid.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 16172-2007 Test methods for heat release rate of building materials (ISO 5660-1:2002, IDT) ISO 5660-2:2002 Fire response test Heat release, smoke production and mass loss rate Part 2. Smoke production rate (dynamic measurement (Reaction-to-fire tests-Heat release, smoke production and mass loss rate-Part 2: Smoke production rate (dynamic measurement))

3 Terms and definitions

The following terms and definitions apply to this document.

Burning combustion