



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

GB/T 5169.19-2022

**Fire hazard testing for electric and electronic products - Part 19:
Abnormal heat - Mould stress relief distortion test**

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Foreword

This document is drafted in accordance with the provisions of GB/T 1.1-2020

"Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents".

This document is part 19 of "Fire hazard testing for electric and electronic products".

For the published parts of "Fire hazard testing for electric and electronic products", see Appendix NA.

This document replaces GB/T 5169.19-2006 "Fire hazard testing for electric and electronic products - Part 19: Abnormal heat - Mould stress relief distortion test".

Compared with GB/T 5169.19-2006, except for structural adjustment and editorial changes, the main technical changes are as follows:

- a) In the chapter Scope, the description of the sample passing test is supplemented (see Chapter 1; see Chapter 1 of the 2006 edition);
- b) Some terms and definitions are added (see Chapter 3);

- c) A detailed description of the test device is added (see Chapter 5);
- d) The test procedures are divided into two types: "Parts exposed to uniform maximum operating temperature" and "Parts exposed to varying operating temperatures" (see Chapter 8; see Chapter 7 of the 2006 edition);
- e) The test environment for parts exposed to uniform maximum operating temperature is changed from "in the air" to "in the oven" (see 8.2; see 7.1 of the

2006 edition);

- f) Chapter 11 has been added, which gives the contents that shall be included in the test report (see Chapter 11).

This document is identical to IEC 60695-10-3:2016 "Fire hazard test - Part 10-3: Abnormal heat - Mould stress relief distortion test".

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

--- For purpose of the consistency with the existing standard series, the name was changed to "Fire hazard testing for electric and electronic products - Part 19:

Abnormal heat - Mould stress relief distortion test";

--- The informative references including IEC 60050 (all parts), IEC Guide104, and ISO/IEC Guide 51 are moved from Chapter 2 into the References;

Fire hazard testing for electric and electronic products - Part
19: Abnormal heat - Mould stress relief distortion test

1 Scope

This document specifies a mould stress relief distortion test.

This document applies to electrotechnical equipment containing parts made of polymeric materials.

This test method is mainly used to evaluate the effect caused by the residual process stress relief of finished moulded polymer components. Stress relief occurs when the sample (energized or not) is exposed to a specified temperature for a certain period of time. If the sample meets the specified test standard after conditioning at room temperature, it is considered to have passed the test.

This document is intended for use by technical committees when preparing standards in accordance with the principles set out in IEC Guide 104 and ISO/IEC Guide 51.

One of the tasks of technical committees is to use this series of standards wherever applicable when preparing standards in this field. Unless specifically mentioned or listed in the relevant standards, the requirements, test methods, or test conditions of this document will not apply.

2 Normative references

The following documents contain the provisions which, through normative reference in this document, constitute the essential provisions of this document. For the dated referenced documents, only the versions with the indicated dates are applicable to this document; for the undated referenced documents, only the latest version (including all the amendments) is applicable to this document.

GB/T 5169.1-2015 Fire hazard testing for electric and electronic products - Part 1:

Terminology concerning fire tests (IEC 60695-4:2012, IDT)

ISO 13943:20081) Fire safety - Vocabulary

IEC 60216-4-1 Electrical insulating materials - Thermal endurance properties - Part 4-

1) Note: There is a new version ISO 13943:2017.

The oven shall be single-chamber, and its temperature difference, fluctuation, and test temperature change shall meet the requirements of IEC 60216-4-1.

In addition, after the sample is placed into the chamber and the chamber is closed, the temperature of the oven shall return to the specified temperature (± 2 °C) within 5 min, and the overshoot shall not exceed 5 °C.

5.2 Temperature measuring device

The temperature shall be measured by a device with an accuracy of $\pm 1\%$ or better. The preferred method is to measure the temperature by inserting a type K or J thermocouple into the sample holder.

6 Samples

Samples shall be determined by the relevant product specification. The preferred sample is the complete end product. Unless otherwise stated in the relevant specification, three samples shall be tested during the test.

7 Conditioning

Unless otherwise specified in the relevant product specification, the sample shall be placed in a laboratory environment with a temperature of 15 degrees C~35 degrees C and relative humidity of 75% or lower for at least 24 hours before the test.

8.1 Summary

The procedure described in 8.2 applies to parts whose end use is to be exposed to a uniform maximum operating temperature. If an enclosure or part is subject to varying temperatures at different locations of the part, or is too large to be placed into an oven, the procedure described in 8.3 may be more applicable. For example, the enclosure of a hair dryer may be hot near the heating element, but the stress relief around the power cord is near room temperature. The procedure described in 8.3 takes into account the temperature differences caused by the operation of the equipment in the oven.

8.2 Parts exposed to a uniform maximum operating temperature

Unless otherwise stated in the relevant product specification, the test shall be carried out in an oven; the product shall be placed according to the manufacturer's product instructions, and the temperature shall be set according to the requirements of a) or b):

- a) The test temperature shall be the ambient temperature plus the maximum allowable temperature rise of the part that needs to be considered as specified in the relevant product specification, or
- b) The test temperature shall be the maximum allowable operating temperature of the part that needs to be considered as specified in the relevant product specification.

Note 1: The study found that, for handheld devices, it is useful for the product to be supported by a