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Edition 2.0 2016-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE

BASIC SAFETY PUBLICATION

PUBLICATION FONDAMENTALE DE SÉCURITÉ

Fire hazard testing –
Part 10-3: Abnormal heat – Mould stress relief distortion test

Essais relatifs aux risques du feu –
Partie 10-3: Chaleur anormale – Essai de déformation par réduction des contraintes de moulage

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CONTENTS

FOREWORD....3
INTRODUCTION....5
1 Scope....6
2 Normative references....6
3 Terms and definitions....7
4 General description of the test....7
5 Test apparatus....7
5.1 Heating oven....7
5.2 Temperature measuring equipment....8
6 Test specimens....8
7 Conditioning....8
8 Test procedure....8
8.1 General....8
8.2 Parts exposed to uniform maximum operating temperatures....8
8.3 Parts exposed to variations in operating temperatures....9
8.4 Test setup....9
9 Test criteria....9
10 Information to be given in the relevant product specification....9
11 Test report....10
Bibliography....11

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Document Sharing Hub
Full document details: IEC 60695-10-3 2016

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIRE HAZARD TESTING –

Part 10-3: Abnormal heat – Mould stress relief distortion test

FOREWORD

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International Standard IEC 60695-10-3 has been prepared by IEC technical committee 89: Fire hazard testing.

The text of this standard is based on the following documents:

FDIS	Report on voting
89/1328/FDIS	89/1337/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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It has the status of a basic safety publication in accordance with IEC Guide 104 and ISO/IEC Guide 51.

This second edition of IEC 60695-10-3 cancels and replaces the first edition issued in 2002. It constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) Updated references;

b) Updated equipment;

c) Added terms and definitions; and

d) Added Bibliography.

A list of all the parts in the IEC 60695 series, under the general title *Fire hazard testing*, can be found on the IEC website.

The IEC 60695-10 series, under the general title *Fire hazard testing*, consists of the following parts:

- *Part 10-2: Abnormal heat – Ball pressure test*
- *Part 10-3: Abnormal heat – Mould stress relief distortion test*

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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INTRODUCTION

In the design of any electrotechnical product, the risk of abnormal heat and the potential hazards associated with abnormal heat need to be considered. In this respect the objective of component, circuit, and product design, as well as the choice of materials, is to reduce to acceptable levels the potential risks during normal operating conditions, reasonable foreseeable abnormal use, malfunction and/or failure. The IEC has developed IEC 60695-1-10, together with its companion, IEC 60695-1-11, to provide guidance on how this is to be accomplished.

The primary aims of IEC 60695-1-10 [1][1] and IEC 60695-1-11 [2] are to provide guidance on how:

a) to prevent ignition caused by an electrically energized component part, and

b) to confine any resulting fire within the bounds of the enclosure of the electrotechnical product in the event of ignition.

Secondary aims of IEC 60695-1-10 and IEC 60695-1-11 include the minimization of any flame spread beyond the product's enclosure and the minimization of the harmful effects of fire effluents such as heat, smoke, toxicity and/or corrosivity.

Fires involving electrotechnical products can also be initiated from external non-electrical sources. Considerations of this nature should be dealt with in the overall fire hazard assessment.

This part of IEC 60695 describes a test method that simulates the effects caused by relief of the residual process-induced stress, frozen in a moulded polymeric assembly of an end product, when the end product or a part of it is exposed to conditioning at the maximum allowable operating temperature. The test method is intended to be used to evaluate whether the product after conditioning continues to meet the requirements of the relevant product specification. It is not be used to solely describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual abnormal conditions. However, results of this test may be used as elements of a fire hazard assessment which takes into account all of the factors pertinent to a particular end use.

This part of IEC 60695 may involve hazardous materials, operations, and equipment. It does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

[1] Numbers in square brackets refer to the bibliography.

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FIRE HAZARD TESTING –

Part 10-3: Abnormal heat – Mould stress relief distortion test

1 Scope

This part of IEC 60695 specifies a mould stress relief distortion test. It is applicable to electrotechnical equipment including parts made from polymeric materials.

This test method is intended to evaluate the effects caused by relief of the residual process-induced stress, set in a moulded polymeric assembly of an end product. This stress relief occurs when the sample (energized or not), is exposed to conditioning at a defined temperature for a defined period of time. The test specimen is considered to have satisfactorily withstood the test if, after conditioning to room temperature, it meets defined test criteria.

This basic safety publication is primarily 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. It is not intended for use by manufacturers or certification bodies.

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 documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 60050 (all parts), *International Electrotechnical Vocabulary* (available at: http://www.electropedia.org)

IEC 60216-4-1, *Electrical insulating materials – Thermal endurance properties – Part 4-1: Ageing ovens – Single-chamber ovens*

IEC 60695-4:2012, *Fire hazard testing – Part 4: Terminology concerning fire tests for electrotechnical products*

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 inclusion in standards*

ISO 13943:2008, *Fire safety – Vocabulary*

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