



**NSAI**  
Standards

Irish Standard  
I.S. EN 60695-11-5:2017

# Fire hazard testing - Part 11-5: Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance

**I.S. EN 60695-11-5:2017**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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## National Foreword

I.S. EN 60695-11-5:2017 is the adopted Irish version of the European Document EN 60695-11-5:2017, Fire hazard testing - Part 11-5: Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance

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EUROPEAN STANDARD

**EN 60695-11-5**

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2017

ICS 13.220.40; 29.020

Supersedes EN 60695-11-5:2005

English Version

**Fire hazard testing - Part 11-5: Test flames - Needle-flame test  
method - Apparatus, confirmatory test arrangement  
and guidance  
(IEC 60695-11-5:2016)**

Essais relatifs aux risques du feu -  
Partie 11-5: Flammes d'essai - Méthode d'essai au brûleur-  
aiguille - Appareillage, dispositif d'essai de vérification et  
lignes directrices  
(IEC 60695-11-5:2016)

Prüfungen zur Beurteilung der Brandgefahr -  
Teil 11-5: Prüfflammen - Prüfverfahren mit der Nadelflamme  
- Versuchsaufbau, Vorkehrungen zur Bestätigungsprüfung  
und Leitfadens  
(IEC 60695-11-5:2016)

This European Standard was approved by CENELEC on 2017-01-10. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

## **EN 60695-11-5:2017**

### **European foreword**

The text of document 89/1346/FDIS, future edition 2 of IEC 60695-11-5, prepared by IEC/TC 89 "Fire hazard testing" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60695-11-5:2017.

The following dates are fixed:

- latest date by which the document has to be (dop) 2017-12-16  
implemented at national level by  
publication of an identical national  
standard or by endorsement
- latest date by which the national (dow) 2020-06-16  
standards conflicting with the  
document have to be withdrawn

This document supersedes EN 60695-11-5:2005.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

### **Endorsement notice**

The text of the International Standard IEC 60695-11-5:2016 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

ISO 9626:2016	NOTE	Harmonized as EN ISO 9626:2016 (not modified).
IEC 60384-1:2016	NOTE	Harmonized as EN 60384-1:2016 (not modified).

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60695-4	2012	Fire hazard testing - Part 4: Terminology concerning fire tests for electrotechnical products	EN 60695-4	2012
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	-	-
ISO 291	-	Plastics - Standard atmospheres for conditioning and testing	EN ISO 291	-
ISO 4046-4	2016	Paper, board, pulps and related terms - Vocabulary - Part 4: Paper and board grades and converted products	-	-
ISO 13943	2008	Fire safety - Vocabulary	EN ISO 13943	2010
ASTM B187	-	Standard Specification for Copper, Bus Bar, Rod, and Shapes and General Purpose Rod, Bar, and Shapes	-	-

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**IEC 60695-11-5**

Edition 2.0 2016-12

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

BASIC SAFETY PUBLICATION

PUBLICATION FONDAMENTALE DE SÉCURITÉ

**Fire hazard testing –**

**Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance**

**Essais relatifs aux risques du feu –**

**Partie 11-5: Flammes d'essai – Méthode d'essai au brûleur-aiguille –  
Appareillage, dispositif d'essai de vérification et lignes directrices**



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**IEC 60695-11-5**

Edition 2.0 2016-12

# **INTERNATIONAL STANDARD**

## **NORME INTERNATIONALE**

BASIC SAFETY PUBLICATION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

### **FIRE HAZARD TESTING –**

#### **Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance**

#### **FOREWORD**

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60695-11-5 has been prepared by IEC technical committee 89: Fire hazard testing.

This second edition cancels and replaces the first edition published in 2004. This edition constitutes a technical revision.

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

- a) The scope has been broadened to allow this test method to also simulate the effects of small flames from outside the equipment;
- b) Propane and butane gas are the specified fuel source with a minimum purity of 95 %;
- c) A new concept has been added which allows the burner to be moved during the test to avoid dripping material from falling onto the tip of the burner tube;
- d) The burner tube material is now a referenced source;

- e) The reference for the copper block material has changed – the ISO publication (ISO 1337) has been withdrawn with no replacement. A new callout is now used;
- f) Informative Annex C and a bibliography have been added.

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

FDIS	Report on voting
89/1346/FDIS	89/1351/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.

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

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 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.

## INTRODUCTION

The best method for testing electrotechnical products with regard to fire hazard is to duplicate exactly the conditions occurring in practice. In most instances this is not possible. Accordingly, for practical reasons, the testing of electrotechnical products with regard to fire hazard is best conducted by simulating as closely as possible the actual effects occurring in practice.

Parts of electrotechnical equipment might be exposed to excessive thermal stress due to electric effects. This can result in deterioration that might impair the safety of the equipment. Such parts should not be unduly affected by heat or by fire generated within the equipment.

Parts of insulating material or of other combustible material which are liable to propagate flames inside the equipment may be ignited by flames produced by a failing component. Under certain conditions, for example a fault current flowing over a tracking path, overloading of components or parts and bad connections, flames may also occur; such flames may impinge upon combustible parts in the vicinity.

This part of IEC 60695 is intended to be used to measure and describe the properties of materials, products or assemblies in response to heat and flame under controlled laboratory conditions and is not intended to be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions. This standard 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.



## **FIRE HAZARD TESTING –**

### **Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance**

#### **1 Scope**

This part of IEC 60695 specifies a needle-flame test to simulate the effect of a small flame which may result from fault conditions, in order to assess the fire hazard by a simulation technique. The results of this test may be used as elements of a fire hazard assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use.

It is applicable to electrotechnical equipment, its sub-assemblies and components and to solid electrical insulating materials or other combustible materials.

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 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 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 their inclusion in standards*

ISO 291, *Plastics – Standard atmospheres for conditioning and testing*

ISO 4046-4:2016, *Paper, board, pulps and related terms – Vocabulary – Part 4: Paper and board grades and converted products*

ISO 13943:2008, *Fire safety – Vocabulary*

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