IEC 60695-11-2

Edition 3.0 2017-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

BASIC SAFETY PUBLICATION

PUBLICATION FONDAMENTALE DE SÉCURITÉ

Fire hazard testing –
Part 11-2: Test flames – 1 kW nominal pre-mixed flame – Apparatus, confirmatory test arrangement and guidance

Essais relatifs aux risques du feu –
Partie 11-2: Flammes d'essai – Flamme à prémélange de 1 kW nominal – Appareillage, configuration pour l'essai de vérification et préconisations

IEC 60695-11-2:2017-06(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 13.220.40

ISBN 978-2-8322-4313-8

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FIRE HAZARD TESTING –

Part 11-2: Test flames – 1 kW nominal pre-mixed flame – Apparatus, confirmatory test arrangement and guidance

FOREWORD

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International Standard IEC 60695-11-2 has been prepared by IEC technical committee 89: Fire hazard testing.

The text of this International Standard is based on the following documents:

CDV	Report on voting
89/1327/CDV	89/1354/RVC

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

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

This third edition of IEC 60695-11-2 cancels and replaces the second edition published in 2013. It constitutes a technical revision.

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

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

- addition of an alternative production of the test flame;
- deletion of Annex B.

In this standard, the following print types are used:

- **terms defined within Clause 3: in bold type**

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

Part 11 consists of the following parts:

Part 11-2: *Test flames – 1 kW nominal pre-mixed flame – Apparatus, confirmatory test arrangement and guidance*

Part 11-3: *Test flames – 500 W flames – Apparatus and confirmational test methods*

Part 11-4: *Test flames – 50 W flame – Apparatus and confirmational test method*

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

Part 11-10: *Test flames – 50 W horizontal and vertical flame test methods*

Part 11-11: *Test flames – Determination of the characteristic heat flux for ignition from a non-contacting flame source*

Part 11-20: *Test flames – 500 W flame test methods*

Part 11-30: *Test flames – History and development from 1979 to 1999*

Part 11-40: *Test flames – Confirmatory tests – Guidance*

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document 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 fire and the potential hazards associated with fire 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 of fire during normal operating conditions, reasonable foreseeable abnormal use, malfunction, and/or failure. The IEC has developed IEC 60695-1-10 [1][1], together with its companion, IEC 60695-1-11 [2], to provide guidance on how this is to be accomplished.

The primary aims of IEC 60695-1-10 and IEC 60695-1-11 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 these documents include the minimization of any flame spread beyond the product's enclosure and the minimization of 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 risk assessment.

IEC 60695-11-2 provides a description of the apparatus required to produce a 1 kW test flame, and provides a description of the principle of a confirmation procedure to check that the effective power output of the flame is as intended. Guidance on confirmatory tests for test flames is given in IEC TS 60695-11-40 [3].

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 international standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

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1 Numbers in square brackets refer to the bibliography.

FIRE HAZARD TESTING –

Part 11-2: Test flames – 1 kW nominal pre-mixed flame – Apparatus, confirmatory test arrangement and guidance

1 Scope

This part of IEC 60695 gives the requirements for the production and confirmation of a nominal 1 kW propane/air **pre-mixed flame** for use in fire hazard testing.

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 [4] and ISO/IEC Guide 51 [5].

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 60584-1, *Thermocouples - Part 1: EMF specifications and tolerances*

ISO/IEC 13943:2008, *Fire safety – Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 13943:2008, some of which are reproduced below for the user's convenience, as well as the following apply.

3.1
combustion
exothermic reaction of a substance with an oxidizing agent

Note 1 to entry **Combustion** generally emits fire effluent accompanied by **flames** and/or glowing.

[SOURCE: ISO 13943:2008, definition 4.46]

3.2
draught-free environment
space in which the results of experiments are not significantly affected by the local air speed

Note 1 to entry A qualitative example is a space in which a wax candle **flame** remains essentially undisturbed. Quantitative examples are small-scale fire tests in which a maximum air speed of 0,1 $m \times s^{-1}$ or 0,2 $m \times s^{-1}$ sometimes specified.