SVENSK STANDARD SS-EN IEC 60695-2-11

Utgåva 3

2022-01-26

REDLINE VERSION

Provning av brandegenskaper – Del 2-11: Provningsmetoder – Provning av brännbarhet med glödtråd – Färdiga produkter (GWEPT)

Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)

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IEC 60695-2-11

Edition 3.0 2021-10
REDLINE VERSION

INTERNATIONAL STANDARD

colour inside

HORIZONTAL PUBLICATION

Fire hazard testing –
Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end products (GWEPT)

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 13.220.40; 29.020

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FIRE HAZARD TESTING –

Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end products (GWEPT)

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.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 60695-2-11:2014. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

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

This third edition cancels and replaces the second edition published in 2014. This edition constitutes a technical revision.

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

a) Numerous terms and definitions relevant to this document have been added to Clause 3.

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

FDIS	Report on voting
89/1536/FDIS	89/1544/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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

This standard is to be used in conjunction with IEC 60695-2-10.

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.

In this standard, the following print types are used:

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

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INTRODUCTION

~~The purpose of this Introduction is to provide background regarding the basic guidance that prompted the preparation of this International Standard and how it relates to the Scope.~~

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 within the design of component, circuit, and product design, as well as the choice of the materials, is to reduce to acceptable levels the potential risks of fire during normal operating conditions, reasonable foreseeable abnormal use, malfunction, and/or failure. IEC 60695-1-10 [1][1], together with its companion IEC 60695-1-11 [2], has been developed 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 to:

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

b) 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 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~~ are normally dealt with in the overall fire hazard assessment.

In electrotechnical equipment, overheated metal parts can act as ignition sources. In glow-wire tests, a glowing wire is used to simulate such an ignition source.

IEC 60695-2-10 describes a glow-wire test apparatus and common test procedure, IEC 60695-2-12 [3] describes a glow-wire flammability index (GWFI) test method for materials, and IEC 60695-2-13 [4] describes a glow-wire ignition temperature (GWIT) test method for materials.

This document is used to assess the reaction of end products to heat caused by contact with an electrically heated wire under controlled laboratory conditions. This may be useful for the evaluation of end products that may be exposed to excess thermal stress such as a fault current flowing through a wire, overloading of components, and/or ~~poor electrical~~ bad connections. It should not be used to solely describe or appraise the fire hazard or fire risk of products, or assemblies under actual fire conditions. However, results of this test ~~may~~ can be used as elements of a fire hazard assessment which takes into account all of the factors which are pertinent to a particular end use.

This document 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 document 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 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end products (GWEPT)

1 Scope

This part of IEC 60695 specifies a test method on an end product. It is intended to simulate the effects of thermal stresses produced by an electrically heated source to represent a fire hazard.

This test method is used to check that, under defined test conditions, an end product exposed to an electrically heated source has either a limited ability to ignite or, if it ignites, a limited ability to propagate flame. However, the fire hazard analysis, the flammability aspects and the flame spreading to other products are not covered by this document.

This basic safety publication focusing on safety test method(s) is primarily intended for use by technical committees in the preparation of ~~standards~~ safety publications 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 60695-2-10, *Fire hazard testing – Part 2-10: Glowing/hot-wire based test methods – Glow-wire apparatus and common test procedure*

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 13943:2017, *Fire safety – Vocabulary*

SVENSK STANDARD SS-EN IEC 60695-2-11

Fastställd	Utgåva	Sida	Ansvarig kommitté
2022-01-26	3	1 (1+18)	SEK TK 89

Provning av brandegenskaper – Del 2-11: Provningsmetoder – Provning av brännbarhet med glödtråd – Färdiga produkter (GWEPT)

Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)

Som svensk standard gäller europastandarden EN IEC 60695-2-11:2021. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60695-2-11:2021.

Nationellt förord

Europastandarden EN IEC 60695-2-11:2021

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60695-2-11, Third edition, 2021 - Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products (GWEPT)**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med SS-EN IEC 60695-2-10.

Tidigare fastställd svensk standard SS-EN 60695-2-11, utgåva 2, 2014, gäller ej fr o m 2024-12-02.

ICS 13.220.40; 29.020.00

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
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EUROPEAN STANDARD

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EN IEC 60695-2-11

December 2021

ICS 13.220.40; 29.020

Supersedes EN 60695-2-11:2014 and all of its amendments and corrigenda (if any)

English Version

Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end products (GWEPT) (IEC 60695-2-11:2021)

Essais relatifs aux risques du feu - Partie 2-11: Essais au fil incandescent/chauffant - Méthode d'essai d'inflammabilité pour produits finis (GWEPT) (IEC 60695-2-11:2021)

Prüfungen zur Beurteilung der Brandgefahr - Teil 2-11: Prüfverfahren mit dem Glühdraht - Prüfung mit dem Glühdraht zur Entflammbarkeit von Enderzeugnissen (GWEPT) (IEC 60695-2-11:2021)

This European Standard was approved by CENELEC on 2021-12-02. 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.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN IEC 60695-2-11:2021 E

European foreword

The text of document 89/1536/FDIS, future edition 3 of IEC 60695-2-11, prepared by IEC/TC 89 “Fire hazard testing” was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60695-2-11:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022–09–02
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024–12–02

This document supersedes EN 60695-2-11:2014 and all of its amendments and corrigenda (if any).

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Endorsement notice

The text of the International Standard IEC 60695-2-11:2021 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:

IEC 60695-1-10 NOTE Harmonized as EN 60695-1-10

IEC 60695-1-11 NOTE Harmonized as EN 60695-1-11

IEC 60695-2-12 NOTE Harmonized as EN 60695-2-12

IEC 60695-2-13 NOTE Harmonized as EN IEC 60695-2-13

IEC 60335-1 NOTE Harmonized as EN 60335-1

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where 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.

Publication	Year	Title	EN/HD	Year
IEC 60695-2-10	-	Fire hazard testing - Part 2–10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure	EN IEC 60695-2-10	-
IEC 60695-4	2012	Fire hazard testing - Part 4: Terminology concerning fire tests for electrotechnical products	EN 60695-4	2012
ISO 13943	2017	Fire safety - Vocabulary	EN ISO 13943	2017

IEC 60695-2-11

Edition 3.0 2021-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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HORIZONTAL PUBLICATION
PUBLICATION HORIZONTALE

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

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

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

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FIRE HAZARD TESTING –

Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end products (GWEPT)

1 Scope

This part of IEC 60695 specifies a test method on an end product. It is intended to simulate the effects of thermal stresses produced by an electrically heated source to represent a fire hazard.

This test method is used to check that, under defined test conditions, an end product exposed to an electrically heated source has either a limited ability to ignite or, if it ignites, a limited ability to propagate flame. However, the fire hazard analysis, the flammability aspects and the flame spreading to other products are not covered by this document.

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ISO 13943:2017, *Fire safety – Vocabulary*