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Provning av brandegenskaper – Del 2-10: Provningsmetoder – Glödtrådsapparat och allmänna provningsmetoder

*Fire hazard testing –
Part 2-10: Glowing/hot-wire based test methods –
Glow-wire apparatus and common test procedure*

Som svensk standard gäller europastandarden EN IEC 60695-2-10:2021. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60695-2-10:2021.

Nationellt förord

Europastandarden EN IEC 60695-2-10:2021

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60695-2-10, Third edition, 2021 - Fire hazard testing - Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med SS-EN IEC 60695-2-11, SS-EN IEC 60695-2-12 och SS-EN IEC 60695-2-13.

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English Version

**Fire hazard testing - Part 2-10: Glowing/hot-wire based test
methods - Glow-wire apparatus and common test procedure
(IEC 60695-2-10:2021)**

Essais relatifs aux risques du feu - Partie 2-10: Essais au fil
incandescent/chauffant - Appareillage et méthode
commune d'essai
(IEC 60695-2-10:2021)

Prüfungen zur Beurteilung der Brandgefahr - Teil 2-10:
Prüfverfahren mit dem Glühdraht - Glühdrahtprüfeinrichtung
und allgemeines Prüfverfahren
(IEC 60695-2-10:2021)

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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

European foreword

The text of document 89/1535/FDIS, future edition 3 of IEC 60695-2-10, prepared by IEC/TC 89 “Fire hazard testing” was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60695-2-10:2021.

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 60695-2-10:2013 and all of its amendments and corrigenda (if any).

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.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60695-2-10:2021 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

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60584-1	-	Thermocouples - Part 1: EMF specifications and tolerances	EN 60584-1	-
IEC 60695-2-11	-	Fire hazard testing - Part 2–11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end products (GWEPT)	EN IEC 60695-2-11 -	
IEC 60695-2-12	-	Fire hazard testing - Part 2–12: Glowing/hot-wire based test methods - Glow-wire flammability index (GWFI) test method for materials	EN IEC 60695-2-12 -	
IEC 60695-2-13	-	Fire hazard testing - Part 2–13: Glowing/hot-wire based test methods - Glow-wire ignition temperature (GWIT) test method for materials	EN IEC 60695-2-13 -	
ISO 4046-4	2016	Paper, board, pulps and related terms - Vocabulary - Part 4: Paper and board grades and converted products	-	-
ISO 13943	2017	Fire safety - Vocabulary	EN ISO 13943	2017

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**Fire hazard testing –
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CONTENTS

FOREWORD	4
INTRODUCTION	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	8
4 Description of the test apparatus	10
4.1 Glow-wire	10
4.2 Electrical circuit of the glow-wire apparatus	11
4.3 Temperature measuring system	12
4.4 Specified layer	13
4.5 Test chamber	14
4.6 Timing device	14
5 Verification of the apparatus	15
5.1 Verification of the glow-wire tip	15
5.2 Verification of the temperature measuring system	15
6 Conditioning	15
7 Common test procedure	15
7.1 Test specimen support	15
7.2 Glow-wire temperature	16
7.3 Application of the glow-wire	16
8 General test observations and evaluations of test results	16
Annex A (normative) Requirements for "ignition" and "flaming" observations	17
A.1 General	17
A.2 Examples of ignition and non-ignition	17
Annex B (informative) Guidance on the verification procedure of the glow-wire temperature measuring system by the heating current	19
B.1 Objective	19
B.2 Preparation	19
B.3 Verification procedure	19
B.3.1 Observation and measurement	19
B.3.2 Correlation chart	19
B.3.3 Frequency of revising the correlation chart	20
Annex C (informative) Supplement – Times and durations, and examples of evaluations	21
C.1 Times and durations (in accordance with Clause 3)	21
C.2 Examples of evaluations	21
Bibliography	23
Figure 1 – Glow-wire and position of thermocouple	11
Figure 2 – Electrical circuit of the glow-wire apparatus	12
Figure 3 – Test apparatus examples	14
Figure A.1 – Example of a brightly shining flame	17
Figure A.2 – Example of a blue corona at the glow-wire tip	18
Figure A.3 – Example of ionized gases in the form of a tail near the glow wire tip	18

Figure B.1 – Correlation curve between the heating current and the glow-wire temperature (example).....	20
Figure C.1 – Times and durations (Example: ignition occurs at 5 s and extinguishing occurs at 50 s).....	21
Figure C.2 – Evaluation scheme with examples	22

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIRE HAZARD TESTING –

**Part 2-10: Glowing/hot-wire based test methods –
Glow-wire apparatus and common test procedure**

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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IEC 60695-2-10 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 2013. This edition constitutes a technical revision.

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

- a) New terms and definitions with regards to times and durations have been added to Clause 3.
- b) Previous Annex A of Equipment manufacturers and suppliers has been deleted.
- c) Annex A (previous Annex B) for ignition and flaming observations has been changed from informative to normative.
- d) New Annex C has been added, which visualizes times and durations, and gives examples for the behaviour of specimens, and how to evaluate them.

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

FDIS	Report on voting
89/1535/FDIS	89/1547/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 60695-2-11, IEC 60695-2-12, and IEC 60695-2-13.

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

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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, reasonably foreseeable abnormal use, malfunction, and/or failure. IEC 60695-1-10 [1]¹ was developed, 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.

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.

This part of IEC 60695 gives recommendations with regard to the glow-wire test apparatus and describes a common test procedure for tests applicable to end products and materials to be used with IEC 60695-2-11 which describes a glow-wire flammability test for end products (GWEPT), IEC 60695-2-12 which describes a glow-wire flammability index test for materials (GWFI), and IEC 60695-2-13 which describes a glow-wire ignition temperature test method for materials (GWIT).

¹ Numbers in square brackets refer to the Bibliography.

FIRE HAZARD TESTING –

Part 2-10: Glowing/hot-wire based test methods – Glow-wire apparatus and common test procedure

1 Scope

This part of IEC 60695 specifies the glow-wire apparatus and common test procedure to simulate the effects of thermal stresses which may be produced by heat sources such as glowing elements or overloaded resistors, for short periods, in order to assess the fire hazard by a simulation technique.

The test procedure described in this document is a common test procedure intended for the small-scale tests in which a standardized electrically heated wire is used as a source of ignition.

It is a common part of the test procedures applied to end products and to solid electrical insulating materials or other solid combustible materials.

A detailed description of each particular test procedure is given in IEC 60695-2-11, IEC 60695-2-12 and IEC 60695-2-13.

This basic safety publication focusing on safety test method(s) is primarily intended for use by technical committees in the preparation of 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.

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*

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

IEC 60695-2-12, *Fire hazard testing – Part 2-12: Glowing/hot-wire based test methods – Glow-wire flammability index (GWFI) test method for materials*

IEC 60695-2-13, *Fire hazard testing – Part 2-13: Glowing/hot-wire based test methods – Glow-wire ignition temperature (GWIT) test method for materials*

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

ISO 13943:2017, *Fire safety – Vocabulary*