Tuleohukatsetused. Osa 2-10: Hõõg- või kuumtraadil põhinevad katsetusmeetodid. Hõõgtraatseade ja tavakatseprotseduur

Fire hazard testing - Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure (IEC 60695-2-10:2013)

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 60695-2-10:2013 sisaldab Euroopa standardi EN 60695-2-10:2013 ingliskeelset teksti.	This Estonian standard EVS-EN 60695-2-10:2013 consists of the English text of the European standard EN 60695-2-10:2013.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 28.06.2013.	Date of Availability of the European standard is 28.06.2013.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 13.220.40, 29.020

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60695-2-10

June 2013

ICS 13.220.40; 29.020

Supersedes EN 60695-2-10:2001

English version

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

(IEC 60695-2-10:2013)

Essais relatifs aux risques du feu - Partie 2-10: Essais au fil incandescent/chauffant - Appareillage et méthode commune d'essai (CEI 60695-2-10:2013)

Prüfungen zur Beurteilung der Brandgefahr - Teil 2-10: Prüfverfahren mit dem Glühdraht - Glühdrahtprüfeinrichtung und allgemeines Prüfverfahren (IEC 60695-2-10:2013)

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 60695-2-10:2013 E

Foreword

The text of document 89/1154/FDIS, future edition 2 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 60695-2-10:2013.

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)	2014-02-14
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-05-14

This document supersedes EN 60695-2-10:2001.

EN 60695-2-10:2013 includes the following significant technical changes with respect to EN 60695-2-10:2001:

– A table of contents has been added.

– The introduction has been updated to align with other TC 89 documents.

– The scope has been clarified to align with other documents in the EN 60695-2 Glow-wire series.

– Terms and definitions relevant to this document have been added.

– Clause 4 has been deleted and the remaining clauses renumbered.

– The description of the power supply has been updated with additional details (see 4.1).

– The temperature measuring system (see 4.3) and the description of the specified layer has been updated (see 4.4).

– New guidance has been introduced to assist in the verification of the temperature measuring system (see 5.2 and Annex C).

– The common test produced has been clarified (see Clause 7).

– The tolerances have been changed for the dimensions of the glow-wire (see Figure 1).

– New guidance on flaming observations has been added (see Annex B).

This standard is to be used in conjunction with EN 60695-2-11, EN 60695-2-12 and EN 60695-2-13.

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

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 60695-2-10:2013 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	Harmonised as EN 60695-1-10.
IEC 60695-1-11	NOTE	Harmonised as EN 60695-1-11.

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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60584-1	-	Thermocouples - Part 1: Reference tables	EN 60584-1	-
IEC 60584-2	-	Thermocouples - Part 2: Tolerances	EN 60584-2	-
IEC 60695-2-11	-	Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products	EN 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 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 60695-2-13	-
IEC Guide 104	2010	The preparation of safety publications and the use of basic safety publications and group safety publications	-	-
ISO/IEC Guide 51	1999	Safety aspects - Guidelines for their inclusion in standards	-	-
ISO 4046-4	2002	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

CONTENTS

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. IEC 60695-1-10 was developed, 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 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).

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 standard 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 the respective standards IEC 60695-2-11, IEC 60695-2-12 and IEC 60695-2-13.

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, 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.

IEC 60584-1, *Thermocouples – Part 1: Reference tables*

IEC 60584-2, *Thermocouples – Part 2: 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*

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*

IEC Guide 104:2010, *The preparation of safety publications and the use of basic safety publications and group safety publications*

ISO/IEC Guide 51:1999, *Safety aspects – Guidelines for their inclusion in standards*

ISO 4046-4:2002, *Paper, board, pulps and related terms – Vocabulary – Part 4: Paper and board grades and converted products*

ISO 13943:2008, *Fire safety – Vocabulary*

3 Terms and definitions

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

3.1
combustible, adjective
capable of being ignited and burned

[SOURCE: ISO 13943:2008, definition 4.43]

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 × s^{-1} or 0,2 m × s^{-1} is sometimes specified.

[SOURCE: ISO 13943:2008, definition 4.70]

3.3
fire hazard
physical object or condition with a potential for an undesirable consequence from fire

[SOURCE: ISO 13943:2008, definition 4.112]

3.4
fire test
test that measures behaviour of a fire or exposes an item to the effects of a fire

Note 1 to entry: The results of a fire test can be used to quantify fire severity or determine the fire resistance or reaction to fire of the test specimen.

[SOURCE: ISO 13943:2008, definition 4.132]

3.5
flame, noun
rapid, self-sustaining, sub-sonic propagation of combustion in a gaseous medium, usually with emission of light

[SOURCE: ISO 13943:2008, definition 4.133]

3.6
flammability
ability of a material or product to burn with a flame under specified conditions