Fire hazard testing - Part 1-12: Guidance for assessing the fire hazard of electrotechnical products - Fire safety engineering



EESTI STANDARDI EESSÕNA NATIONAL FOREWORD

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English Version

Fire hazard testing - Part 1-12: Guidance for assessing the fire hazard of electrotechnical products - Fire safety engineering (IEC 60695-1-12:2015)

Essais relatifs aux risques du feu - Partie 1-12: Lignes directrices pour l'évaluation des risques du feu des produits électrotechniques - Ingénierie de la sécurité incendie (IEC 60695-1-12:2015) Prüfungen zur Beurteilung der Brandgefahr - Teil 1-12: Anleitung zur Beurteilung der Brandgefahr von elektrotechnischen Erzeugnissen -Brandschutzingenieurwesen (IEC 60695-1-12:2015)

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

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European foreword

This document (EN IEC 60695-1-12:2020) consists of the text of IEC 60695-1-12:2015 prepared by IEC/TC 89 "Fire hazard testing".

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2021-05-11 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2023-05-11 document have to be withdrawn

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Endorsement notice

The text of the International Standard IEC 60695-1-12:2015 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

ISO 9239-1 NOTE Harmonized as EN ISO 9239-1

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	<u>EN/HD</u>	Year
IEC 60695-1-10	-	Fire hazard testing Part 1-10: Guidance for assessing the fire hazard of electrotechnical products - General guidelines	-	-
IEC 60695-1-11	-	Fire hazard testing - Part 1-11: Guidance for assessing the fire hazard of electrotechnical products - Fire hazard assessment	EN 60695-1-11	-
IEC 60695-4	-	Fire hazard testing - Part 4: Terminology concerning fire tests for electrotechnical products	EN 60695-4	-
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	2008	Fire safety - Vocabulary	-	-
ISO/TR 13387-2	-	Fire safety engineering – Part 2: Design fire scenarios and design fires	2	-
ISO/TR 13387-8	-	Fire safety engineering - Part 8: Life safety - Occupant behaviour, location and condition		-
ISO/TS 16733	-	Fire safety engineering - Selection of design fire scenarios and design fires	- 2	-
ISO/TR 16738	-	Fire-safety engineering - Technical information on methods for evaluating behaviour and movement of people	-	-
ISO/TR 17252	2008	Fire tests - Applicability of reaction to fire tests to fire modelling and fire safety engineering	-	S
ISO 23932	2009	Fire safety engineering - General principles	-	-

CONTENTS

FC	REWO	ORD	4
IN	INTRODUCTION		
1	Scop	pe	7
2	Norm	native References	7
3	Term	ns and Definitions	8
4	The f	fire safety engineering process	14
	4.1	General	14
	4.2	Fire safety engineering calculations	15
	4.3	Validity of methods	15
5	Bene	efits of fire safety engineering	16
6	Obie	ectives, requirements and performance	17
-	6 1	Fire safety engineering objectives	17
	611	1 General	
	612	2 Safety of life	17
	613	Conservation of property	17
	614	4 Continuity of operations	17
	615	5 Protection of the natural environment	18
	616	6 Preservation of heritage	18
	6.2	Functional requirements	18
	6.3	Performance criteria	18
	6.3.1	1 General	
	632	2 Explicit performance criteria	18
	6.3.3	3 Implicit performance criteria	19
7	Desid	ian fire scenarios and design fires	19
	7 1	Design fire scenarios	19
	7.1	Design fires	20
8	Data	a for fire safety engineering	20
a	Tosta	ts on electrotechnical products	0
9	0 4		، <u>۲</u>
	9.1	General.	۱ ∠ 21
	9.2		2 1
	9.5	Liectiotechnical product evaluations	2 1
	9.3.1	As the victim of a fire	Z I
	9.3.2	Z As the victim of a me	22
۸r	9.4	(informativo) A probabilistic fire risk assessment	24
AI		The assessment of a fire risk in accordance with the Russian national	24
	,	standard GOST 12.1.004-91 [38]	24
	A.1.1	1 Introduction	24
	A.1.2	2 Probability Q_{fc}	24
	A.1.3	3 Probability Q_{fv}	25
	A.1.4	4 Probability Q_{pf}	25
	A.1.5	5 Probability Q_{ign}	25
	A.2 Example26		
	A.2.1	1 General	26
	A.2.2	2 Test data	27

EVS-EN IEC	60695-1-12:2020
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A.2.3	Calculation	27
Bibliography		

Figure 1 – Flowchart illustrating an example of the fire safety engineering process as applied to a major project in the built environment	16
Table 1 – Examples of design fire scenarios	19
Table 2 – Common ignition phenomena encountered in electrotechnical products	23
Table A.1 – Long start-up mode: enclosure (shell) temperatures in the most heated up- point	27
Table A.2 – The enclosure temperature at the most heated point when working under abnormal conditions	28
Table A.3 – Failure data for abnormal operation	28

INTRODUCTION

Fire safety engineering

Fire safety engineering concerns the application of engineering methods based on scientific principles to the development or assessment of designs in the built environment through the analysis of specific fire scenarios or through the quantification of risk for a group of fire scenarios. This is in order to achieve fire safety engineering objectives, which typically are:

- a) to protect life safety,
- b) to protect property,
- c) to maintain the continuity of operations,
- d) to protect the natural environment, and
- e) to preserve heritage.

The analysis is based on calculations that use input data obtained principally from quantitative fire tests.

Fire safety engineering (FSE) is a discipline increasingly being used in support of performance-based national fire safety regulations in many countries and regional jurisdictions throughout the world. The eight parts of ISO/TR 13387 (see Clause 2 and [1] to [6]) and ISO 23932 outline the fundamental methodologies and uses of FSE. Further detailed aspects of FSE are covered in ISO 16730 [7], ISO/TS 16732 [8], ISO/TS 16733, ISO 16734 [9], ISO 16735 [10], ISO 16736 [11], ISO 16737 [12] and ISO/TR 16738.

In addition to purely performance-based regulations, many countries are also using FSE to supplement prescriptive regulations by applying FSE principles to specific design aspects, where reduced costs, alternative practices, improved performance and improved safety are the objectives.

The International Maritime Organization (IMO) is using FSE and the ISO standards mentioned above to develop fire safety designs for ships. These are considered to be an improvement on designs based on prescriptive fire safety requirements.

Qualitative and quantitative fire tests

Many standardised fire test methods give information on the performance of a material or end product as measured in the test, which may or may not be related to a real fire scenario or real installation practices. These qualitative fire test methods result in a "pass" or "fail" and/or a product or material ranking. They play an important role in prescriptive regulations, and the results of a qualitative test can be used indirectly in fire hazard assessment of electrotechnical products, but they are not suitable for directly supporting performance-based design.

Most standardized test methods developed by the IEC for electrotechnical products are of the qualitative type. It is agreed within ISO and the IEC that this type of fire test will continue to be maintained and, where necessary, developed. It is recognised that, even if the use of these standards is in prescriptive codes, product data from many of these standards may be potentially adaptable for fire safety engineering purposes.

In contrast, quantitative fire tests are increasingly being used and developed, and these do provide data that can be input to fire safety engineering calculations.

Various quantitative fire tests have been developed by ISO, some of which can be used to assess the performance of electrotechnical products (see 9.4).

FIRE HAZARD TESTING -

Part 1-12: Guidance for assessing the fire hazard of electrotechnical products – Fire safety engineering

1 Scope

This part of IEC 60695 is intended as a general guideline for IEC Product Committees and provides:

- an explanation of the principles and uses of fire safety engineering;
- guidance on the use of fire safety engineering in the design of electrotechnical products;
- fire safety engineering terminology, and concepts;
- an indication of properties, data and tests needed for input into fire safety engineering assessments;
- informative references.

This international standard is not intended to be a detailed technical design guide, but is intended to provide guidance for product committees on fire safety engineering methods and performance based test information needs for use in performance based designs and fire hazard assessments of electrotechnical materials, assemblies, products and systems. More detailed information on fire safety engineering is contained in the ISO/TR 13387 series of documents (see Clause 2 and [1] to [6]) and in ISO 23932.

NOTE Further detailed aspects of FSE are covered in ISO 16730 [7], ISO/TS 16732 [8], ISO/TS 16733, ISO 16734 [9], ISO 16735 [10], ISO 16736 [11], ISO 16737 [12] and ISO/TR 16738.

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 60695-1-10, Fire hazard testing – Part 1-10: Guidance for assessing the fire hazard of electrotechnical products – General guidelines

IEC 60695-1-11, Fire hazard testing – Part 1-11: Guidance for assessing the fire hazard of electrotechnical products – Fire hazard assessment

IEC 60695-4, Fire hazard testing – Part 4: Terminology concerning fire tests for electrotechnical products