

Fire hazard testing - Part 7-2: Toxicity of fire effluent -
Summary and relevance of test methods

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 60695-7-2:2021 sisaldab Euroopa standardi EN IEC 60695-7-2:2021 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 60695-7-2:2021 consists of the English text of the European standard EN IEC 60695-7-2:2021.
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 and Accreditation.
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ICS 13.220.40, 29.020

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English Version

**Fire hazard testing - Part 7-2: Toxicity of fire effluent - Summary
and relevance of test methods
(IEC 60695-7-2:2021)**

Essais relatifs aux risques du feu - Partie 7-2: Toxicité des
effluents du feu - Résumé et pertinence des méthodes
d'essai
(IEC 60695-7-2:2021)

Prüfungen zur Beurteilung der Brandgefahr - Teil 7-2:
Toxizität von Rauch und/oder Brandgasen - Auswertung
und Sachdienlichkeit von Prüfverfahren
(IEC 60695-7-2:2021)

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Europäisches Komitee für Elektrotechnische Normung

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European foreword

The text of document 89/1489/CDV, future edition 2 of IEC 60695-7-2, prepared by IEC/TC 89 “Fire hazard testing” was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60695-7-2:2021.

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- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-12-02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 60695-7-2:2011 and all of its amendments and corrigenda (if any).

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The text of the International Standard IEC 60695-7-2:2021 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 60695-1-11 NOTE Harmonized as EN 60695-1-11

IEC 60695-1-12 NOTE Harmonized as EN IEC 60695-1-12

IEC 60695-4 NOTE Harmonized as EN IEC 60695-4

ISO 5659-2 NOTE Harmonized as EN ISO 5659-2

IEC 60695-6-2 NOTE Harmonized as EN IEC 60695-6-2

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 60695-1-10	-	Fire hazard testing - Part 1–10: Guidance for assessing the fire hazard of electrotechnical products - General guidelines	EN 60695-1-10	-
IEC 60695-7-1	-	Fire hazard testing - Part 7–1: Toxicity of fire effluent - General guidance	EN 60695-7-1	-
IEC 60695-7-3	-	Fire hazard testing - Part 7–3: Toxicity of fire effluent - Use and interpretation of test results	EN 60695-7-3	-
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	EN ISO 13943	2017
ISO 13344	-	Estimation of the lethal toxic potency of fire effluents	-	-
ISO 13571	2007	Life-threatening components of fire - Guidelines for the estimation of time available for escape using fire data	-	-
ISO/TR 16312-2	-	Guidance for assessing the validity of physical fire models for obtaining fire effluent toxicity data for fire hazard and risk assessment - Part 2: Evaluation of individual physical fire models	-	-
ISO 19706	-	Guidelines for assessing the fire threat to people	-	-
ISO 29903	2012	Guidance for comparison of toxic gas data between different physical fire models and scales	-	-

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d'essai**



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INTERNATIONAL STANDARD

NORME INTERNATIONALE

HORIZONTAL PUBLICATION
PUBLICATION HORIZONTALE

**Fire hazard testing –
Part 7-2: Toxicity of fire effluent – Summary and relevance of test methods**

**Essais relatifs aux risques du feu –
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d'essai**

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FIRE HAZARD TESTING –**Part 7-2: Toxicity of fire effluent –
Summary and relevance of test methods****FOREWORD**

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International Standard IEC 60695-7-2 has been prepared by IEC technical committee 89: Fire hazard testing.

This second edition cancels and replaces the first edition published in 2011. This edition constitutes a technical revision.

The main changes with respect to the previous edition are listed below:

- New text in the introduction;
- New text in the scope;
- Clause 2 has been updated;
- Many terms and definitions in Clause 3 reproduced from ISO 13943 have been deleted. Other terms and definitions have been added.
- New text in Subclauses 4.3 and 4.4;
- New text in Subclause 6.1;

- References to IEC 60695-7-50 and -51 (now withdrawn) have been removed;
- Reference to DEF STAN 07-247 has been added;
- Details of ISO/TS 19021 have been added;
- Details of EN 17084 have been added;
- New text added concerning ISO/TS 19700;
- New text added concerning the IMO FTP toxicity test;
- New Subclause 7.1 has been added;
- The Annex in Edition1 has been replaced by new Clause 8;
- The bibliography has been updated.

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

Draft	Report on voting
89/1489/CDV	89/1508/RVC

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.

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

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.

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

IEC 60695-7 consists of the following parts:

- Part 7-1: *Toxicity of fire effluent – General guidance*
- Part 7-2: *Toxicity of fire effluent – Summary and relevance of test methods*
- Part 7-3: *Toxicity of fire effluent – Use and interpretation of test results*

In this document the following print types are used:

- Words *in italics* in the text are defined in Clause 3.

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.

INTRODUCTION

In the design of an 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 equipment design, as well as the choice of materials, is to reduce the risk of fire to a tolerable level even in the event of reasonably foreseeable (mis)use, malfunction or failure.

IEC 60695-1-10, IEC 60695-1-11 [1]¹, and IEC 60695-1-12 [2] provide guidance on how this is to be accomplished.

Fires involving electrotechnical products can also be initiated from external non-electrical sources. Considerations of this nature are dealt with in an overall fire hazard assessment.

The aim of the IEC 60695 series of standards is to save lives and property by reducing the number of fires or reducing the consequences of the fire. This can be accomplished by:

- trying to prevent ignition caused by an electrically energised component part and, in the event of ignition, to confine any resulting fire within the bounds of the enclosure of the electrotechnical product;
- trying to minimise flame spread beyond the product's enclosure and to minimise the harmful effects of fire effluents including heat, smoke, and toxic or corrosive combustion products.

Electrotechnical products, primarily as the objects of a fire, may contribute to the fire hazard due to the release of toxic effluent, which may be a significant contributing factor to the overall fire hazard.

The IEC 60695-7 series provides guidance to IEC product committees on the adoption and implementation of the recommendations of ISO for the minimization of toxic hazard from fires involving electrotechnical products. This part of IEC 60695-7 describes fire effluent toxicity test methods in common use to assess electrotechnical products or materials used in electrotechnical products.

IEC product committees incorporating requirements for the assessment of toxic hazard from fire in product standards should note that *toxic potency* and other measurements of toxicity which are described in this part of IEC 60695 should not be used directly in product specifications. Data from *toxic potency* test methods should only be used as part of a toxic hazard assessment, in conjunction with other product-based reaction to fire data such as mass loss rate.

¹ Numbers in square brackets refer to the bibliography.

FIRE HAZARD TESTING –

Part 7-2: Toxicity of fire effluent – Summary and relevance of test methods

1 Scope

This part of IEC 60695-7 gives a brief summary of the test methods that are in common use in the assessment of the toxicity of fire effluent. It includes special observations on their relevance to real fire scenarios and gives recommendations on their use.

It advises which tests provide *toxic potency* data that are relevant to real fire scenarios, and which are suitable for use in fire hazard assessment and fire safety engineering.

The list of test methods is not to be considered exhaustive.

This summary cannot be used in place of published standards which are the only valid reference documents.

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

IEC 60695-7-1, *Fire hazard testing - Part 7-1: Toxicity of fire effluent - General guidance*

IEC 60695-7-3, *Fire hazard testing - Part 7-3: Toxicity of fire effluent - Use and interpretation of test results*

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*

ISO 13344, *Estimation of the lethal toxic potency of fire effluents*