

Fire hazard testing - Part 8-1: Heat release - General  
guidance

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 60695-8-1:2017 sisaldab Euroopa standardi EN 60695-8-1:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 60695-8-1:2017 consists of the English text of the European standard EN 60695-8-1:2017.
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.
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English Version

**Fire hazard testing - Part 8-1: Heat release - General guidance  
(IEC 60695-8-1:2016)**

Essais relatifs aux risques du feu - Partie 8-1: Dégagement  
de chaleur - Guide général  
(IEC 60695-8-1:2016)

Prüfungen zur Beurteilung der Brandgefahr - Teil 8-1:  
Wärmefreisetzung - Allgemeiner Leitfaden  
(IEC 60695-8-1:2016)

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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

## European foreword

The text of document 89/1342/FDIS, future edition 3 of IEC 60695-8-1, prepared by IEC/TC 89 "Fire hazard testing" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60695-8-1:2017.

The following dates are fixed:

- latest date by which the document has to be (dop) 2017-09-20  
implemented at national level by  
publication of an identical national  
standard or by endorsement
- latest date by which the national (dow) 2019-12-20  
standards conflicting with the  
document have to be withdrawn

This document supersedes EN 60695-8-1:2008.

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## Endorsement notice

The text of the International Standard IEC 60695-8-1:2016 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 60695-1-12	NOTE	Harmonized as EN 60695-1-12.
ISO 1716	NOTE	Harmonized as EN ISO 1716.
IEC 60836:2015	NOTE	Harmonized as EN 60836:2015.
IEC 61099:2010	NOTE	Harmonized as EN 61099:2010.
IEC 60867:1993	NOTE	Harmonized as EN 60867:1994.
IEC 60296:2012	NOTE	Harmonized as EN 60296:2012.
ISO 13927	NOTE	Harmonized as EN ISO 13927.

## 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 1 When 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](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60695-4	2012	Fire hazard testing -- Part 4: Terminology concerning fire tests for electrotechnical products	EN 60695-4	2012
IEC 60695-8-2	-	Fire hazard testing -- Part 8-2: Heat release - Summary and relevance of test methods	FprEN 60695-8-2	-
IEC Guide 104	-	The preparation of safety publications and the use of basic safety publications and group safety publications	-	-
ISO 13943	2008	Fire safety - Vocabulary	EN ISO 13943	2010
ISO/IEC Guide 51	-	Safety aspects - Guidelines for their inclusion in standards	-	-

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## 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 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 [1]<sup>1</sup> provides guidance on how this is to be accomplished.

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

Fires are responsible for creating hazards to life and property as a result of the generation of heat (thermal hazard), toxic and/or corrosive compounds and obscuration of vision due to smoke. Fire risk increases as the heat released increases, possibly leading to a flash-over fire.

One of the most important measurements in fire testing is the measurement of heat release, and it is used as an important factor in the determination of fire hazard; it is also used as one of the parameters in fire safety engineering calculations.

The measurement and use of heat release data, together with other fire test data, can be used to reduce the likelihood of (or the effects of) fire, even in the event of reasonably foreseeable (mis)use, malfunction or failure of electrotechnical products.

When a material is heated by some external source, fire effluent can be generated and can form a mixture with air, which can ignite and initiate a fire. The heat released in the process is carried away by the fire effluent-air mixture, radiatively lost or transferred back to the solid material, to generate further pyrolysis products, thus continuing the process.

Heat may also be transferred to other nearby products, which may burn, and then release additional heat and fire effluent.

The rate at which thermal energy is released in a fire is defined as the heat release rate. Heat release rate is important because of its influence on flame spread and on the initiation of secondary fires. Other characteristics are also important, such as ignitability, flame spread and the side-effects of the fire (see the IEC 60695 series of standards).

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<sup>1</sup> Numbers in square brackets refer to the Bibliography.