

SLOVENSKI STANDARD
SIST EN 60695-5-1:2003

01-julij-2003

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SIST EN 60695-5-1:2001

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Fire hazard testing -- Part 5-1: Corrosion damage effects of fire effluent - General guidance

Prüfungen zur Beurteilung der Brandgefahr -- Teil 5-1: Korrosionsschädigung durch Rauch und/oder Brandgase - Allgemeiner Leitfaden

Essais relatifs aux risques du feu -- Partie 5-1: Effets des dommages de corrosion des effluents du feu - Guide général

Ta slovenski standard je istoveten z: EN 60695-5-1:2003

ICS:

13.220.40	Sposobnost vžiga in obnašanje materialov in proizvodov pri gorenju	Ignitability and burning behaviour of materials and products
29.020	Elektrotehnika na splošno	Electrical engineering in general

SIST EN 60695-5-1:2003**en**

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EUROPEAN STANDARD

EN 60695-5-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2003

ICS 29.020

Supersedes EN 60695-5-1:1993

English version

Fire hazard testing
Part 5-1: Corrosion damage effects of fire effluent -
General guidance
(IEC 60695-5-1:2002)

Essais relatifs aux risques du feu
Partie 5-1: Effets des dommages
de corrosion des effluents du feu -
Guide général
(CEI 60695-5-1:2002)

Prüfungen zur Beurteilung
der Brandgefahr
Teil 5-1: Korrosionsschädigung
durch Rauch und/oder Brandgase -
Allgemeiner Leitfadens
(IEC 60695-5-1:2002)

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This European Standard was approved by CENELEC on 2003-02-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

EN 60695-5-1:2003

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Foreword

The text of document 89/556/FDIS, future edition 2 of IEC 60695-5-1, prepared by IEC TC 89, Fire hazard testing, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60695-5-1 on 2003-02-01.

This European Standard supersedes EN 60695-5-1:1993

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2003-11-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2006-02-01

This European Standard should be read in conjunction with IEC 60695-5-2 and IEC 60695-5-3.

Annexes designated "normative" are part of the body of the standard.

In this standard, annex ZA is normative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60695-5-1:2002 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 7384

NOTE

Harmonized as EN ISO 7384:1995 (not modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60695-1-1 + corr. January	1999 2000	Fire hazard testing Part 1-1: Guidance for assessing the fire hazard of electrotechnical products - General guidelines	EN 60695-1-1	2000
IEC/TS 60695-5-2	2002	Part 5-2: Corrosion damage effects of fire effluent - Summary and relevance of test methods	-	-
IEC/TS 60695-5-3	- 1)	Part 5-3: Corrosion damage effects of fire effluent - Leakage current and metal loss test method	-	-
IEC 60754-1	1994	Test on gases evolved during combustion of materials from cables Part 1: Determination of the amount of halogen acid gas	- 2)	-
IEC 60754-2 (mod)	1991	Test on gases evolved during combustion of materials from cables - Determination of degree of acidity (corrosivity) of gases by measuring pH and conductivity	HD 602 S1 ³⁾	1992
A1	1997		-	-
ISO/TR 9122-1	1989	Toxicity testing of fire effluents Part 1: General	-	-
ISO 11907-2	1995	Plastics - Smoke generation - Determination of the corrosivity of fire effluents Part 2: Static method	-	-

1) To be published.

2) EN 50267-1:1998 and EN 50265-2-1:1998, which are related to IEC 60754-1:1994, apply.

3) HD 602 S1 is superseded by EN 50267-1:1998 and EN 50267-2-3:1998.

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<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 11907-3	1998	Part 3: Dynamic decomposition method using a travelling furnace	-	-
ISO 11907-4	1998	Part 4: Dynamic decomposition method using a conical radiant heater	-	-
ISO/IEC 13943	2000	Fire safety - Vocabulary	EN ISO 13943	2000
ASTM D 2671-00	-	Standard Test Methods for Heat-Shrinkable Tubing for Electrical Use	-	-

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NORME
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CEI
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60695-5-1

Deuxième édition
Second edition
2002-11

PUBLICATION FONDAMENTALE DE SÉCURITÉ
BASIC SAFETY PUBLICATION

Essais relatifs aux risques du feu –

Partie 5-1:

**Effets des dommages de corrosion
des effluents du feu – Guide général**

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Fire hazard testing –
(standards.iTeh.ai)

Part 5-1: [SIST EN 60695-5-1:2003](https://standards.iTeh.ai/catalog/standards/sist/5-1-3811-7-62a2-416b-b5888a76dic92f5/sist-en-60695-5-1-2003)

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**Corrosion damage effects of fire effluent –
General guidance**

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE

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Pour prix, voir catalogue en vigueur
For price, see current catalogue

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIRE HAZARD TESTING –

Part 5-1: Corrosion damage effects of fire effluent –
General guidance

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60695-5-1 has been prepared by IEC technical committee 89: Fire hazard testing.

This second edition cancels and replaces the first edition, published in 1993, and constitutes a technical revision.

The structure of this International standard remains essentially the same with some major new changes added:

- Information on fire scenarios and fire models has been added along with an update on the latest advances in the analysis of the fire effluent.
- The general classification of fires from ISO TR 9122-1 has been added.
- A new clause on the general aspects of the corrosivity of fire effluent which describes the types of corrosion damage effects and the factors affecting corrosivity.
- A new clause on the principles of corrosion damage measurement has been added describing the assessment of the corrosive potential and the consideration of the corrosivity test methods.
- A new table describing a summary of corrosion test methods.
- A new flowchart detailing the evaluation and consideration of corrosion damage test methods.
- The bibliography has been expanded.

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

The text of this standard is based on the following documents:

FDIS	Report on voting
89/556/FDIS	89/566/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This standard should be read in conjunction with IEC 60695-5-2 and IEC 60695-5-3.

This standard forms part 5-1 of IEC 60695, which is published under the general heading *Fire hazard testing*. Part 5 consists of the following parts:

Part 5-1: Corrosion damage effects of fire effluent – General guidance

Part 5-2: Corrosion damage effects of fire effluent – Summary and relevance of test methods

Part 5-3: Corrosion damage effects of fire effluent – Leakage current and metal loss test method

The committee has decided that the contents of this publication will remain unchanged until 2008. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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INTRODUCTION

The risk of fire should be considered in any electrical circuit. With regard to this risk, the circuit and equipment design, the selection of components and the choice of materials should contribute towards reducing the likelihood of fire even in the event of foreseeable abnormal use, malfunction or failure. The practical aim should be to prevent ignition caused by electrical malfunction but, if ignition and fire occur, to control the fire preferably within the bounds of the enclosure of the electrotechnical product.

All fire effluent is corrosive to some degree and the level of potential to corrode depends on the nature of the fire, the combination of combustible materials involved in the fire, the nature of the substrate under attack, and the temperature and relative humidity of the environment in which the corrosion damage is taking place. There is no evidence that fire effluent from electrotechnical products offers greater risk of corrosion damage than the fire effluent from other products such as furnishings, building materials, etc.

The performance of electrical and electronic components can be adversely affected by corrosion damage when subjected to fire effluent. A wide variety of combinations of small quantities of effluent gases, smoke particles, moisture and temperature may provide conditions for electrical component or system failures from breakage, overheating or shorting.

Evaluation of potential corrosion damage is particularly important for high value and safety-related electrotechnical products and installations.

Technical committees responsible for the products will choose the test(s) and specify the level of severity.

The study of corrosion damage requires an interdisciplinary approach involving chemistry, electricity, physics, mechanical engineering, metallurgy and electrochemistry. In the preparation of this part of IEC 60695-5, all of the above have been considered.

IEC 60695-5-1 defines the scope of the guidance and indicates the field of application.

IEC 60695-5-2 provides a summary of test methods including relevance and usefulness.

IEC 60695-5-3 provides details of a small-scale test method for the measurement of leakage current and metal loss caused by fire effluent.