SLOVENSKI STANDARD

SIST EN 60695-9-1:2006

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Preskušanje požarne ogroženosti – 9-1. del: Širjenje plamena po površini – Splošno navodilo (IEC 60695-9-1:2005)

Fire hazard testing - Part 9-1: Surface spread of flame - General guidance

Prüfungen zur Beurteilung der Brandgefahr - Teil 9-1: Oberflächige Flammenausbreitung - Allgemeiner Leitfaden

Essais relatifs aux risques du feu - Partie 9-1: Propagation des flammes en surface - Lignes directrices générales

Ta slovenski standard je istoveten z: EN 60695-9-1:2005

ICS:

13.220.40

29.020

SIST EN 60695-9-1:2006 **en**

EUROPEAN STANDARD **EN 60695-9-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM November 2005

ICS 13.220.40; 29.020 Supersedes EN 60695-9-1:1999

English version

Fire hazard testing
Part 9-1: Surface spread of flame – General guidance
(IEC 60695-9-1:2005)

Essais relatifs aux risques du feu
Partie 9-1: Propagation des flammes en surface –
Lignes directrices générales
(CEI 60695-9-1:2005)

Prüfungen zur Beurteilung der Brandgefahr
Teil 9-1: Oberflächige Flammenausbreitung –
Allgemeiner Leitfaden
(IEC 60695-9-1:2005)

This European Standard was approved by CENELEC on 2005-10-01. 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, 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

Ref. No. EN 60695-9-1:2005 E

Foreword

The text of document 89/716/FDIS, future edition 2 of IEC 60695-9-1, prepared by IEC TC 89, Fire hazard testing, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60695-9-1 on 2005-10-01.

This European Standard supersedes EN 60695-9-1:1999.

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

– a revised introduction;

– the addition of a list of pertinent definitions;

– comprehensive editorial revision throughout document;

– new Clause 5 dealing with fire scenarios.

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)	2006-07-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2008-10-01

EN 60695-9-1 is to be used in conjunction with IEC/TS 60695-9-2.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60695-9-1:2005 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 60332-1-1	NOTE	Harmonized as EN 60332-1-1:2004 (not modified).
IEC 60332-1-2	NOTE	Harmonized as EN 60332-1-2:2004 (not modified).
IEC 60332-1-3	NOTE	Harmonized as EN 60332-1-3:2004 (not modified).
IEC 61197	NOTE	Harmonized as EN 61197:1994 (not modified).
ISO 2719	NOTE	Harmonized as EN ISO 2719:2002 (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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 Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60695-4	2005	Fire hazard testing Part 4: Terminology concerning fire tests for electrotechnical products	-	-
IEC Guide 104	1997	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 13943	2000	Fire safety - Vocabulary	EN ISO 13943	2000
ISO 2592	2000	Determination of flash and fire points - Cleveland open cup method	EN ISO 2592	2001

NORME INTERNATIONALE

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60695-9-1

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PUBLICATION FONDAMENTALE DE SÉCURITÉ
BASIC SAFETY PUBLICATION

Essais relatifs aux risques du feu –

Partie 9-1: Propagation des flammes en surface – Lignes directrices générales

Fire hazard testing –

Part 9-1: Surface spread of flame – General guidance

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International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIRE HAZARD TESTING –

Part 9-1: Surface spread of flame – General guidance

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60695-9-1 has been prepared by IEC technical committee 89: Fire hazard testing.

This second edition of IEC 60695-9-1 cancels and replaces the first edition of IEC 60695-9-1 published in 1998, and constitutes a technical revision.

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

- a revised introduction;
- the addition of a list of pertinent definitions;
- comprehensive editorial revision throughout document;
- new Clause 5 dealing with fire scenarios.

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
89/716/FDIS	89/726/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.

IEC 60695-9-1 is to be used in conjunction with IEC 60695-9-2.

The IEC 60695-9 series, under the general title *Fire hazard testing*, consists of the following parts:

Part 9-1:Surface spread of flame – General guidance

Part 9-2: Surface spread of flame – Summary and relevance of test methods

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

INTRODUCTION

Fires are responsible for creating hazards to life and property as a result of the generation of heat (thermal hazard), and also toxic effluent, corrosive effluent and smoke (non-thermal hazard). Fire hazard increases with the burning area leading in some cases to flash-over and a fully developed fire. This is a typical fire scenario in buildings.

The surface spread of flame beyond the area of ignition occurs as a result of the creation of a pyrolysis front on the surface of the material, ahead of the flame front, arising from the heating by the flame and external heat sources. The pyrolysis front is the boundary between pyrolysed material and unpyrolysed material on the surface of the material. Combustible vapours are generated within the region of pyrolysed material which mix with air and ignite, creating the flame front.

The surface spread of flame rate is the distance travelled by the flame front divided by the time required to travel that distance. The surface spread of flame rate depends on the heat supplied externally and/or by the flame of the burning material ahead of the burning zone and on the ease of ignition. The ease of ignition is a function of the minimum ignition temperature, thickness, density, specific heat, and thermal conductivity of the material. The heat supplied by the flame depends on the heat release rate, specimen orientation, air flow rate and air flow direction relative to the surface spread of flame direction. In general, materials show one of the following types of surface spread of flame behaviour:

a) non-propagation: there is no flame propagation beyond the area of ignition;

b) decelerating propagation: flame propagation stops before reaching the end of the surface of the material; and

c) propagation: flame propagates beyond the area of ignition and eventually affects the entire surface of the material.

Properties of the materials that are used to describe the surface spread of flame behaviour are associated with surface preheating and pyrolysis, generation of vapours, mixing of the vapours with air, ignition, combustion of the mixture and generation of heat and combustion products. Flame retardants and surface treatments are used to modify the surface spread of flame behaviour. Factors that need to be considered for the assessment of the surface spread of flame behaviour of materials are

a) the fire scenario (surface orientation, ventilation, ignition source, etc.);

b) measurement techniques (see 5.5); and

c) the use and interpretation of results obtained.