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**Fire hazard testing -- Part 2: Test methods -- Section 4/sheet 0: Diffusion type and premixed type flame test methods (IEC 60695-2-4/0:1991)**

Fire hazard testing -- Part 2: Test methods -- Section 4/sheet 0: Diffusion type and premixed type flame test methods

Prüfungen zur Beurteilung der Brandgefahr - Teil 2: Prüfverfahren - Hauptabschnitt 4/Blatt 0: Prüfungen mit Diffusionsflammen und mit Flammen mit Gas/Luft-Gemisch

Essais relatifs aux risques du feu -- Partie 2: Méthodes d'essai -- Section 4/feuille 0: Méthodes d'essai à la flamme de type à diffusion et de type à prémélange

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**Ta slovenski standard je istoveten z: EN 60695-2-4/0:1993**

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**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 60695-2-4/0:1999****en**

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EUROPEAN STANDARD

EN 60695-2-4/0

NORME EUROPEENNE

EUROPAISCHE NORM

April 1993

UDC 621.3.049.7:620.1:614.841.2

Descriptors: Electricity, insulating material, equipment, fire hazard, flame test, pre-mixed type, diffusion type, test apparatus

## ENGLISH VERSION

Fire hazard testing  
Part 2: Test methods  
Section 4/sheet 0: Diffusion type and premixed  
type flame test methods  
(IEC 695-2-4/0:1991)

Essais relatifs aux risques  
du feu

Partie 2: Méthodes d'essai  
Section 4/feuille 0: Méthodes  
d'essai à la flamme de type à  
diffusion et de type à  
prémélange  
(CEI 695-2-4/0:1991)

Prüfungen zur Beurteilung der  
Brandgefahr

Teil 2: Prüfverfahren  
Hauptabschnitt 4/Blatt 0:  
Prüfungen mit  
Diffusionsflammen und mit  
Flammen mit Gas/Luft-Gemisch  
(IEC 695-2-4/0:1991)

This European Standard was approved by CENELEC on 1993-03-09.  
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,  
Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg,  
Netherlands, Norway, Portugal, 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

#### FOREWORD

The CENELEC questionnaire procedure, performed for finding out whether or not the International Standard IEC 695-2-4/0:1991 could be accepted without textual changes, has shown that no common modifications were necessary for the acceptance as European Standard.

The reference document was submitted to the CENELEC members for formal vote and was approved by CENELEC as EN 60695-2-4/0 on 9 March 1993.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1994-06-01
- latest date of withdrawal of conflicting national standards (dow) 1994-06-01

Annexes designated "normative" are part of the body of the standard. In this standard, annex ZA is normative.

**iTeh STANDARD PREVIEW**  
**(standards.td.ai)**

SIST EN 60695-2-4/0:1999

The text of the International Standard IEC 695-2-4/0:1991 was approved by CENELEC as a European Standard without any modification.

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## ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD  
WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

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

IEC				
<u>Publication</u>	<u>Date</u>	<u>Title</u>	<u>EN/HD</u>	<u>Date</u>
695-2-4/1	1991	Fire hazard testing - Part 2: Test methods - Section 4/sheet 1: 1 kW nominal premixed test flame and guidance	EN 60695-2-4/1	1993

## Other publication:

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ISO 4046:1978 - Paper, board, pulp and related terms - Vocabulary

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NORME  
INTERNATIONALE  
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CEI  
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695-2-4/0

Première édition  
First edition  
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**Essais relatifs aux risques du feu**

**Partie 2:**

Méthodes d'essai - Section 4/feuille 0:

Méthodes d'essai à la flamme de type à diffusion  
et de type à prémélange

**Fire hazard testing**

**Part 2:**

Test methods - Section 4/sheet 0:

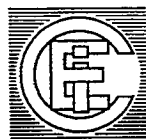
Diffusion type and premixed type flame  
test methods

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

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For price, see current catalogue

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## FIRE HAZARD TESTING

## Part 2: Test methods

Section 4/sheet 0: Diffusion type and premixed type  
flame test methods

## FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

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This section of IEC 695-2 has been prepared by IEC Technical Committee No. 89: Fire hazard testing.

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[https://standards.iteh.ai/catalog/standards/sist/bd1874bf-696c-47d7-bb11-](https://standards.iteh.ai/catalog/standards/sist/bd1874bf-696c-47d7-bb11-f12b1e0a6c7/sist-en-60695-2-4-0-1999)

[f12b1e0a6c7/sist-en-60695-2-4-0-1999](https://standards.iteh.ai/catalog/standards/sist/bd1874bf-696c-47d7-bb11-f12b1e0a6c7/sist-en-60695-2-4-0-1999)

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

DIS	Report on Voting
89(CO)2	89(CO)9

Full information on the voting for the approval of this section can be found in the Voting Report indicated in the above table.

## INTRODUCTION

Test flames and guidance, included under IEC 695-2-4, were developed in IEC for application to electrical insulating materials and electrotechnical products; however, their scope is not limited to these areas. Use in other areas could be wholly appropriate and would be welcomed.

Electrotechnical products in buildings or structures should not contribute to the risk of fire spread, smoke, etc., to a greater degree than is permitted for the building materials and structures in which they reside.

In these circumstances, the surface of the electrotechnical products need to be assessed by the use of flame tests.

The best method for testing electrotechnical products with regard to fire hazard is to duplicate exactly the conditions occurring in practice. In most instances this is not possible. Accordingly, for practical reasons, the testing of electrotechnical products with regard to fire hazard is best conducted by simulating as closely as possible the actual effects occurring in practice.

Flames may occur inside electrotechnical equipment as a result of fault conditions. Such flames should not cause a safety hazard.

Flames may also occur in the environment of electrotechnical products and may impinge upon combustible parts from outside. Such flames occurring in the early stage of a fire should not unduly affect the electrotechnical product.

Test flames, produced by the combustion of fuel gases, have been found suitable for simulating actual ignition sources, and may be of two types: diffusion type and premixed type. The major difference between these two types is in terms of flame temperature and their sensitivity to deflection by convected air movements and draughts.

Whilst the temperature of the flame in the early stages of a fire are best simulated by the use of diffusion type test flames, recourse to premixed type test flames is frequently made because of their better stability.

In the past, gas flames used to be characterized by:

- a sketch of the burner;
- the approximate nature of the gas;
- their visual characteristics;
- the overall height of the flame and blue cone (if any).

Confirmation of the correct flame characteristic was made using the time to melting of a copper wire of a specific diameter.

In order to improve the reproducibility of test flames used in technical standards, a new method of production and specification has been developed, which is based on the following principles:

- a) use of an IEC burner, defined by an engineering drawing;
- b) use of a single specific fuel gas, meeting a high standard of purity at a prescribed flow rate;
- c) use of air at a prescribed flow rate;
- d) the inclusion of a new confirmatory test method and requirement.

Test flames complying with principle d) above, produced using alternative burners complying with principle b) above, may be used but this is not recommended because it is virtually impossible to prove that the flame characteristics are sufficiently close to those of the standard test flame.

The standard test flame should be used for referee purposes.

In some specifications, test flames, produced by other burners, with free air admission and only complying with the principles b) and d) are used. In these cases, a transition period might be necessary before adoption is made of the IEC 695-2-4 test flames, which are based on all of the principles.

It is expected that by using these more precisely defined test flames fewer specimens may be needed than hitherto to achieve the same precision of the test results.