

BRITISH STANDARD

**BS EN
60707:1999
IEC
60707:1999**

Flammability of solid non-metallic materials when exposed to flame sources — List of test methods

The European Standard EN 60707:1999 has the status of a
British Standard

ICS 13.220.40; 29.035.01

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The UK participation in its preparation was entrusted to Technical Committee GEL/89, Fire hazard testing, which has the responsibility to:

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 9 and a back cover.

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EN 60707

April 1999

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Supersedes HD 441 S1:1983

English version

Flammability of solid non-metallic materials when exposed to flame sources
List of test methods
(IEC 60707:1999)

Inflammabilité des matériaux solides non
 métalliques soumis à des sources
 d'allumage à flamme
 Liste des méthodes d'essai
 (CEI 60707:1999)

Entflammbarkeit fester,
 nichtmetallischer Materialien bei
 Einwirkung von Zündquellen
 Liste der Prüfverfahren
 (IEC 60707:1999)

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

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Foreword

The text of document 89/320/FDIS, future edition 2 of IEC 60707, prepared by IEC TC 89, Fire hazard testing, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60707 on 1999-04-01.

This European Standard supersedes HD 441 S1:1983.

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) 2000-01-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2002-04-01

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 60707:1999 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 60695-1-1 NOTE: Harmonized as EN 60695-1-1:1995 (not modified).
 - IEC 60695-4 NOTE: Harmonized as EN 60695-4:1995 (not modified).
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INTRODUCTION

The aim of the work of technical committee 89, which was initiated by ACOS, is to make available an appropriate (minimum) series of standardized test flames, covering a range of powers and test methods for the use of all committees needing test flames. Wherever possible, these test flames have been based on existing types and methods, but with improved specifications. Therefore, the methods FH and FV flammability tests described in the first edition of IEC 60707 are specified in IEC 60695-11-10 as the horizontal and vertical burning tests respectively. The method LF flammability test described in the first edition of IEC 60707 is specified in IEC 60695-11-20. The method BH incandescent bar flammability test described in the first edition of IEC 60707 has been withdrawn.

FLAMMABILITY OF SOLID NON-METALLIC MATERIALS WHEN EXPOSED TO FLAME SOURCES – LIST OF TEST METHODS

1 Scope

This International Standard lists test methods applicable to solid non-metallic materials having an apparent density of not less than 250 kg/m³, determined in accordance with ISO 845, and intended to serve as a preliminary indication of the behaviour of these materials when exposed to a flame ignition source. The results make it possible to check the constancy of the characteristics of a material and provide an indication of the progress in the development of materials and a relative comparison and classification of various materials.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60695-11-3, — *Fire hazard testing – Part 11-3: Test flames – 500 W flames: Apparatus and confirmational test methods* ¹⁾

IEC 60695-11-4, — *Fire hazard testing – Part 11-4: Test flames – 50 W flames: Apparatus and confirmational test methods* ¹⁾

IEC 60695-11-10:1999, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*

IEC 60695-11-20:1999, *Fire hazard testing – Part 11-20: Test flames – 500 W flame test methods*

IEC Guide 104:1997, *The preparation of safety publications and the use of basic safety publications and group publications*

ISO 845:1988, *Cellular plastics and rubbers – Determination of apparent (bulk) density*

ISO 9772:1994, *Cellular plastics – Determination of horizontal burning characteristics of small specimens subjected to a small flame*

ISO 9773:1990, *Plastics – Determination of burning behaviour of flexible vertical specimens in contact with a small-flame ignition source*

¹⁾ To be published.

3 Definitions, symbols and abbreviations

For the purpose of this International Standard, the following definitions apply:

3.1

standardized 50 W nominal test flame
flame that conforms with IEC 60695-11-4

3.2

standardized 500 W nominal test flame
flame that conforms with IEC 60695-11-3

3.3

HB
horizontal burning test specified in IEC 60695-11-10, using the standardized 50 W nominal test flame

3.4

V
vertical burning test specified in IEC 60695-11-10, using the standardized 50 W nominal test flame

3.5

5V
burning test specified in IEC 60695-11-20, using the standardized 500 W nominal test flame

3.6

VTM
vertical burning test for flexible specimens specified in ISO 9773

3.7

FH
horizontal burning test for cellular plastics according to ISO 9772

4 Test methods

The material shall be tested in accordance with the procedures specified in IEC 60695-11-10 for the HB or V burning tests using the standardized 50 W nominal test flame.

The material shall be tested in accordance with the procedures specified in IEC 60695-11-20 for the 5V burning test using the standardized 500 W nominal test flame.

The material shall be tested in accordance with the procedure specified in ISO 9773 for the vertical burning test for flexible specimens.

Materials having an apparent density of less than 250 kg/m³ shall be tested in accordance with the procedures specified in ISO 9772 for the horizontal burning test for cellular plastics.

5 Requirements and classification

The material may be classified as indicated in table 1 in accordance with the criteria indicated in the referenced ISO and IEC standards.

Table 1 – Flammability classifications

Test method	Standard	Flammability classifications
50 W horizontal burning test	IEC 60695-11-10	HB40, HB75
50 W vertical burning test	IEC 60695-11-10	V-0, V-1, V-2
500 W burning test	IEC 60695-11-20	5VA, 5VB
50 W vertical burning test for flexible specimens	ISO 9773	VTM-0, VTM-1, VTM-2
Horizontal burning test on cellular plastics	ISO 9772	FH-1, FH-2, FH-3

Bibliography

IEC 60695-1-1:1995, *Fire hazard testing – Part 1-1: Guidance for assessing fire hazard of electrotechnical products – General guidance*

IEC 60695-1-3:1986, *Fire hazard testing – Part 1-3: Guidance for the preparation of requirements and test specifications for assessing fire hazard of electrotechnical products – Guidance for use of preselection procedures*

IEC 60695-4:1993, *Fire hazard testing – Part 4: Terminology concerning fire tests*

ISO/IEC Guide 51:1990, *Guidelines for the inclusion of safety aspects in standards*

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 60695-11-3	- ¹⁾	Fire hazard testing Part 11-3: Test flames - 500 W flames: Apparatus and confirmational test methods	-	-
IEC 60695-11-4	- ¹⁾	Part 11-4: Test flames - 50 W flames: Apparatus and confirmational test methods	-	-
IEC 60695-11-10	1999	Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	-	-
IEC 60695-11-20	1999	Part 11-20: Test flames - 500 W flame test methods	-	-
IEC Guide 104	1997	The preparation of safety publications and the use of basic safety publications and group safety publications	-	-
ISO 845	1988	Cellular plastics and rubbers - Determination of apparent (bulk) density	-	-
ISO 9772	1994	Cellular plastics - Determination of horizontal burning characteristics of small specimens subjected to a small flame	-	-
ISO 9773	1990	Plastics - Determination of burning behaviour of flexible vertical specimens in contact with a small-flame ignition source	-	-

1) To be published.

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