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INTERNATIONAL STANDARD

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HORIZONTAL PUBLICATION

Fire hazard testing –
Part 4: Terminology concerning fire tests for electrotechnical products

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IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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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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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 60695-4:2012. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

International Standard IEC 60695-4 has been prepared by of IEC technical committee 89: Fire hazard testing.

This fifth edition cancels and replaces the fourth edition published in 2012. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) The terms and definitions that are not specifically electrotechnical and that are either identical or equivalent to those in ISO 13943:2017 have been deleted.
b) The terms and definitions that are specifically electrotechnical and that are in ISO 13943:2017 have been included for the convenience of the user.

The text of this International Standard is based on the following documents:

Draft	Report on voting
89/1462/CDV	89/1502/RVC

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

The language used for the development of this International Standard is English.

It has the status of a basic safety publication in accordance with IEC Guide 104 and ISO/IEC Guide 51.

A list of all the parts in the IEC 60695 series, under the general title *Fire hazard testing*, can be found on the IEC website.

The following introductory elements represent a series of publications:

Part 1: Guidance for assessing the fire hazard of electrotechnical products
Part 2: Glowing/hot-wire based test methods
Part 4: Terminology concerning fire tests for electrotechnical products
Part 5: Corrosion damage effects of fire effluent
Part 6: Smoke obscuration
Part 7: Toxicity of fire effluent
Part 8: Heat release
Part 9: Surface spread of flame
Part 10: Abnormal heat
Part 11: Test flames

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

FIRE HAZARD TESTING –

Part 4: Terminology concerning fire tests for electrotechnical products

1 Scope

The terms and definitions in this part of IEC 60695 are applicable to fire tests for electrotechnical products.

This basic safety publication ~~is~~ focusing on safety guidance is primarily intended for use by technical committees in the preparation of ~~standards~~ safety publications in accordance with the principles laid down in IEC Guide 104 and ISO/IEC Guide 51.

One of the responsibilities of a technical committee is, wherever applicable, to make use of basic safety publications in the preparation of its publications. The requirements, test methods or test conditions of this basic safety publication will not apply unless specifically referred to or included in the relevant publications.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 60050 (all parts), *International Electrotechnical vocabulary* (available at www.electropedia.org)

IEC Guide 104~~:2010~~, *The preparation of safety publications and the use of basic safety publications and group safety publications*

~~IEC 60050, *International Electrotechnical vocabulary*~~

ISO/IEC Guide 51~~:1999~~, *Safety aspects – Guidelines for their inclusion in standards*

ISO 13943:~~2008~~2017, *Fire safety – Vocabulary*

3 Terms and definitions

3.1 Use of the term "item"

For the purposes of this document, the English term "item" is used in a general meaning to represent any single object or assembly of objects, and may cover, for example, material, product, assembly, structure or building, as required in the context of any individual definition. If the "item" under consideration is a test specimen then the term "test specimen" is used.

3.2 Other terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

NOTE Terms and definitions that are specifically electrotechnical and that are in ISO 13943:~~2008~~2017 have been included below for the convenience of the user.

3.2.1
abnormal heat
<electrotechnical> heat that is additional to that resulting from use under normal conditions, up to and including that which causes a fire

[SOURCE: ISO 13943:~~2008~~2017,~~4.1~~3.1]

3.2.2
arc resistance
<electrotechnical> ability of an electrically insulating material to resist the influence of an electric arc, under specified conditions

Note 1 to entry The arc resistance is identified by the length of the arc, the absence or presence of a conducting path, and the burning or damage of the test specimen.

[SOURCE: ISO 13943:~~2008~~2017,~~4.13~~3.19]

3.2.3
arc tracking
tracking
<electrotechnical> progressive formation of conducting paths that are produced on the surface and/or within a solid insulating material, due to the combined effects of electric stress and electrolytic contamination

~~SEE: **tracking resistance** (3.2.27)~~

Note 1 to entry: Compare with the term *tracking resistance* (3.2.20).

[SOURCE: ISO 13943:~~2008~~2017,~~4.342~~3.406]

3.2.4
confirmatory test
procedure intended as a diagnostic indicator to reveal anomalous behaviour or conditions in a test flame, burner or associated hardware

~~**3.2.5**~~
~~**enclosure**~~
~~housing affording the type and degree of protection suitable for the intended application~~

~~[SOURCE: IEC 60050-195:1998, 195-02-35]~~

3.2.5
enclosure
<electrotechnical> external casing protecting the electrical and mechanical parts of apparatus

Note 1 to entry: This term excludes cables.

[SOURCE: ISO 13943:~~2008~~2017,~~4.78~~3.93]

3.2.6
end product
product that is ready for use without modification

Note 1 to entry: An end product can be a component of another end product.

3.2.7
end product fire test
fire test that is carried out on an end product and is described in a relevant specification

Note 1 to entry: End product fire tests may be small-scale, intermediate-scale, large-scale or real-scale.

3.2.8
extent of combustion
<electrotechnical> maximum length of a test specimen that has been destroyed by combustion or pyrolysis, under specified test conditions, excluding any region damaged only by deformation

[SOURCE: ISO 13943:~~2008~~2017,~~4.91~~3.109]

~~**3.2.10**~~
~~**fire hazard assessment**~~
~~evaluation of the possible causes of fire, the possibility and nature of subsequent fire growth, and the possible consequences of fire~~

~~**3.2.11**~~
~~**flame stabilizer**~~
~~assembly normally fitted to the top of a standard laboratory Bunsen or Tirrill burner intended to mitigate the destabilizing effect of the turbulent mixing of flame gases with the ambient air, by providing an intervening layer of gas having an intermediate velocity between the ambient still air and the faster flame gases~~

3.2.9
flameproof
<electrotechnical> class of methods used to prevent the ignition, caused by electrical equipment, of explosive atmospheres

~~SEE: **flameproof enclosure** (3.2.13)~~

Note 1 to entry: See also *flameproof enclosure* (3.2.10).

Note 2 to entry: The term is deprecated in other applications (see ISO 13943:2017, 3.171).

~~[SOURCE: ISO 13943:2008, definition 4.145]~~

3.2.10
flameproof enclosure
<electrotechnical> *enclosure* (3.2.5) that can withstand the pressure developed during an explosion of the atmosphere within the enclosure and can prevent the transmission of the explosion to the atmosphere surrounding the enclosure

[SOURCE: ISO 13943:~~2008~~2017,~~4.146~~3.172]

3.2.11
flashover
<electrotechnical> electrical discharge that occurs over the surface of a solid dielectric in a gaseous or liquid medium

[SOURCE: ISO 13943:~~2008~~2017,~~4.157~~3.185]

~~**3.2.15**~~
~~**incident heat flux**~~
~~heat flux received by the surface of a test specimen~~

3.2.12
insignificant mass
insufficient combustible material to constitute a fire hazard

Note 1 to entry: A default value of an insignificant mass is 2 g, but product technical committees may assign a different value appropriate to the product type and scale.

3.2.13
intrinsically safe circuit
<electrotechnical> circuit in which any spark or thermal effect is incapable of causing ignition of a mixture of flammable or combustible material in air under specified test conditions

Note 1 to entry: The specified test conditions include normal operation and specified fault conditions.

[SOURCE: ISO 13943:~~2008~~2017,~~4.201~~3.234]

3.2.14
intrinsically safe system
<electrotechnical> assembly in which all electrical circuits that can be used in hazardous (classified) locations are *intrinsically safe circuits* (3.2.13)

[SOURCE: ISO 13943:~~2008~~2017,~~4.202~~3.235]

~~**3.2.19**~~
~~**lethal toxic potency**~~
~~toxic potency where the specific toxic effect is death~~

~~SEE: **lethal concentration 50**, LC_{50} (ISO 13943:2008, 4.207)~~
~~**lethal exposure dose 50**, LCt_{50} (ISO 13943:2008, 4.208)~~

~~**3.2.20**~~
~~**minimum critical relative humidity**~~
~~⟨electrotechnical⟩ relative humidity that causes leakage current to exceed a defined level under specified test conditions~~

~~[SOURCE: ISO 13943:2008, definition 4.229]~~

3.2.15
preselection
process of assessing and choosing candidate materials, components or subassemblies for making an end product

3.2.16
qualitative fire test
fire test which is either:

a) a pass/fail test; or
b) a test which categorizes the behaviour of the test specimen by determining its position in a rank order of performance

3.2.17
quantitative fire test
fire test which takes into account the circumstances of product use in which the test conditions are based on, or are relatable to, the circumstances of use of the test specimen, and which measures a parameter or parameters, expressed in well-defined terms and using rational scientific units, which can be used in the quantitative assessment of fire risk