INTERNATIONAL STANDARD

ISO 5658-2

Second edition
2006-09-15

Reaction to fire tests — Spread of flame —

Part 2: Lateral spread on building and transport products in vertical configuration

Essais de réaction au feu — Propagation du feu —

Partie 2: Propagation latérale sur les produits de bâtiment et de transport en position verticale

Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 5658-2 was prepared by Technical Committee ISO/TC 92, *Fire safety*, Subcommittee SC 1, *Fire initiation and growth*.

This second edition of ISO 5658-2 cancels and replaces the first edition (ISO 5658-2:1996), which has been technically revised.

ISO 5658 consists of the following parts, under the general title *Reaction to fire tests — Spread of flame:*

— *Part 1: Guidance on flame spread* [Technical Specification]

— *Part 2: Lateral spread on building and transport products in vertical configuration*

— *Part 4: Intermediate-scale test of vertical spread of flame with vertically oriented specimen*

Introduction

This part of ISO 5658 is based on the method of the International Maritime Organization (IMO) published as IMO Resolution A.653 (16)[4], and has been developed as an International Standard in order to allow its wider use. The major differences between ISO 5658-2 and the IMO test are that ISO 5658-2 is limited in scope to testing the spread of flame over vertical specimens and does not include the stack for estimating heat release rate. The second edition of this part of ISO 5658 avoids the use of acetylene for the pilot flame and uses the propane pilot flame in an impinging mode. The current IMO flame spread procedure is still based on ISO 5658-2:1996.

ISO/TS 5658-1[2] describes the development of standard tests for flame spread and explains the theory of flame spread for various orientations. This part of ISO 5658 provides a simple method by which lateral surface spread of flame on a vertical specimen can be determined for comparative purposes. This method is particularly useful for research, development and quality control purposes.

Fire is a complex phenomenon: its behaviour and its effects depend upon a number of interrelated factors. The behaviour of materials and products depends upon the characteristics of the fire, the method of use of the materials and the environment to which they are exposed. The methodology of “reaction-to-fire” tests is explained in ISO/TR 3814[1].

A test such as is specified in this part of ISO 5658 deals only with a simple representation of a particular aspect of the potential fire situation typified by a radiant-heat source and flame; it cannot alone provide any direct guidance on behaviour or safety in fire.

Annexes A and F form integral parts of this part of ISO 5658. Annexes B to E are for information only. A precision statement based on inter-laboratory trials using this test method is given in Annex E.

This test procedure does not rely on the use of asbestos-based materials.

The attention of all users of the test is drawn to the introductory caution statement.

Reaction to fire tests — Spread of flame —

Part 2: Lateral spread on building and transport products in vertical configuration

CAUTION — So that suitable precautions can be taken to safeguard health, the attention of all concerned in fire tests is drawn to the possibility that toxic or harmful gases can be evolved during exposure of test specimens. The advice on safety given in Annex A should also be noted.

1 Scope

This part of ISO 5658 specifies a method of test for measuring the lateral spread of flame along the surface of a specimen of a product orientated in the vertical position. It provides data suitable for comparing the performance of essentially flat materials, composites or assemblies that are used primarily as the exposed surfaces of walls in buildings and transport vehicles, such as ships and trains. Some profiled products (such as pipes) can also be tested under specified mounting and fixing conditions.

This part of ISO 5658 is applicable to the measurement and description of the properties of materials, products or assemblies in response to radiative heat in the presence of a pilot flame under controlled laboratory conditions. It is not suitable to be used alone to describe or appraise the fire hazard or fire risk of materials, products or assemblies under actual fire conditions.

2 Normative references

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.

ISO 13943:2000, *Fire safety — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13943:2000 and the following apply.

3.1
assembly
fabrication of materials, products and/or composites

EXAMPLE Sandwich panels.

NOTE The assembly may include an air gap.

3.2
average heat for sustained burning
average of the values of heat for sustained burning, measured at a number of specified positions

NOTE The average heat for sustained burning is expressed in megajoules per square metre (MJ/m^2).