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**Reaction to fire tests — Ignitability  
of building products subjected to direct  
impingement of flame —**

**Part 3:  
Multi-source test**

*Essais de réaction au feu — Allumabilité des produits du bâtiment soumis  
à l'incidence directe de la flamme —*

*Partie 3: Essai multi-sources*



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International Organization for Standardization  
Case postale 56 • CH-1211 Genève 20 • Switzerland  
Internet central@iso.ch  
X.400 c=ch; a=400net; p=iso; o=isocs; s=central

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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 11925-3 was prepared by Technical Committee ISO/TC 92, *Fire safety*, Subcommittee SC 1, *Reaction to fire*.

ISO 11925 consists of the following parts under the general title *Reaction to fire tests — Ignitability of building products subjected to direct impingement of flame*:

*Part 2: Single flame source test*

*Part 3: Multi-source test*

Part 1 is under preparation.

Annexes A to D of this part of ISO 11925 are for information only.

## Introduction

Fire is a complex phenomenon: its behaviour and 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 in which they are exposed. The philosophy of "reaction to fire" tests is explained in ISO/TR 3814.

With the exception of rare cases of spontaneous ignition, for any fire to start, whether smouldering or flaming, it is essential for some form of ignition source to be applied to, or in some way contact, a product in such a way that continuing combustion can take place.

The ignition source can take three forms, something which imposes heat by conduction and/or radiation and/or convection. An example of ignition by conduction is by a hot wire coil or a hot metal bar; by radiation by an electric bar heater; and by convection by a convection heater or paint stripper. Usually, ignition sources of the radiative type include some degree of convection, and a flame includes a contribution from all three.

Recourse to various material fire statistics shows that many fires start from a range of common sources which vary with intensity and severity. Frequent sources of fire have been found to be as follows:

- (i) Cooking appliances
- (ii) Space heating
- (iii) Electrical wiring and installations
- (iv) Other electrical appliances
- (v) Cigarettes and smokers materials (i.e. matches, lighters)
- (vi) Blow lamps, etc.
- (vii) Rubbish burning
- (viii) Candles

A test such as is specified in this part of ISO 11925 deals only with a simple representation of a particular aspect of a potential fire situation typified by a flame playing directly onto a material, composite or assembly. It cannot alone provide any direct guidance on behaviour or safety in fire. A test of this type may, however, be used for comparative purposes or to ensure the existence of a certain quality of performance (in this case ignitability) considered to have a bearing on fire performance generally. It would be wrong to attach any other meaning to performance in this test.

The term "ignitability" is defined in ISO/IEC Guide 52 as the capability of a material of being ignited. It is one of the first fire properties to be manifest and should almost always be taken into account in any assessment of fire hazard. It may not, however, be the main characteristic of the material which affects the subsequent development of fire in a building.

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

# Reaction to fire tests — Ignitability of building products subjected to direct impingement of flame —

## Part 3: Multi-source test

**CAUTION** — So that suitable precautions may be taken to safeguard health, the attention of all concerned in fire tests is drawn to the possibility that toxic or harmful gases may be evolved during exposure of test specimens. The advice on safety given in clause 5 should also be followed.

### 1 Scope

This part of ISO 11925 specifies a series of ignition sources which can be used for the determination of the ignitability of materials, composites and assemblies when subjected to direct impingement of flames of different size and intensity but without impressed irradiance. The sources may be used in isolation or with the test method specified.

This test method determines the ignitability of a material, composite or assembly and is not designed to assess any other fire parameter (e.g. flame spread). The possibility of the material composite or assembly causing secondary ignition of other materials is also considered by the observation of burning droplets or debris which may be formed.

**NOTE** — Secondary ignition of material in a growing fire situation can be addressed using ISO 5657 which assesses the ignitability of building products by irradiance.

### 2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 11925. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 11925 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC Guide 52:1990, *Glossary of fire terms and definitions*.

### 3 Definitions

For the purposes of this part of ISO 11925, the definitions given in ISO/IEC Guide 52 and the following apply.

**3.1 sustained ignition:** After withdrawal of the ignition source, the presence of a flame on the surface of the specimen that persists for at least 4 s.

**3.2 transient ignition:** After withdrawal of the ignition source, the appearance of flashes, or flames, which are not sustained for a continuous 4 s.