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**Reaction-to-fire tests — Guidance on the  
choice of substrates for building and  
transport products**

*Essais de réaction au feu — Lignes directrices sur le choix de  
subjectiles pour les produits du bâtiment et du transport*

Preview

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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.

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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 14697 was prepared by Technical Committee ISO/TC 92, *Fire safety*, Subcommittee SC 1, *Fire initiation and growth*.

This first edition of ISO 14697 cancels and replaces ISO/TR 14697:1997, which has been technically revised.

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# Reaction-to-fire tests — Guidance on the choice of substrates for building and transport products

## 1 Scope

This International Standard gives guidance on the choice of substrates for building and transport products, when required, for use in reaction to fire tests.

This International Standard is applicable to those building and transport products that are produced and used in combination with other materials; for example, wall-coverings are adhered to many different substrates that vary in their thickness, density, thermal conductivity and flammability characteristics.

## 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 1716, *Reaction to fire tests for building products — Determination of the heat of combustion*

ISO 13943, *Fire safety — Vocabulary*

## 3 Terms and definitions

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

### 3.1

#### **assembly**

fabrication of materials, products and/or composites

NOTE This may include an air gap.

### 3.2

#### **coating**

product applied as a liquid or a powder to a substrate that cures or dries as an external layer on the substrate

### 3.3

#### **composite**

combination of materials, which is recognized in building and transport vehicle construction as a discrete entity

### 3.4

#### **exposed surface**

that surface of the product subjected to the heating conditions of the test or fire in end use

### 3.5

#### **end use**

method of application in an actual building or transport vehicle

**3.6  
facing**

thin, pre-produced sheet or film product that is applied to the substrate using an adhesive or the self-adhesive properties of the substrate or facing

**3.7  
material**  
single basic substance or uniformly dispersed mixture of substances

EXAMPLES Metal, stone, timber, concrete, mineral wool with dispersed binder and polymers.

**3.8  
product**  
material, composite, component or assembly about which information is required

**3.9  
spacers**  
material with PCS equal to 0 (when tested in accordance with ISO 1716) applied in the form of strips to a substrate with PCS equal to 0 (also when tested in accordance with ISO 1716) to provide an air gap (open or closed) behind a product for testing purposes

NOTE Spacers fabricated from combustible materials may be used in specific test specimens if these are appropriate to the end-use application.

**3.10  
substrate**  
product that is used (or is representative of that used) immediately beneath the product about which information is required

EXAMPLE Plasterboard beneath a wall covering.

NOTE This definition of a substrate is different from that given in ISO 2424. For textile floor coverings, the substrate is considered to be part of the floor-covering assembly below the use surface. In the context of this fire-testing International Standard, the substrate should be chosen to represent the type of floor on which the textile or non-textile floor covering is placed.

**3.11  
standard substrate**  
product that is representative of the substrate used in end-use applications

**3.12  
test specimen**  
piece of the product that is tested with or without any substrate, including any air gap or treatment

**4 Guidance on selection of substrates**

**4.1** In all cases, end-use substrates shall be used.

The term end-use substrate shall apply not only to the product immediately beneath the surface to be tested, but also to the method of attachment that shall also be end-use in terms of the type and application, where appropriate. The test method defines the required test-specimen dimensions.

If the product has both primary and secondary substrates in end-use practice, the test specimen shall be prepared to incorporate both substrates. The second substrate may be an air gap. For example, in the case of paint coating on a steel plate that has an insulation substrate beneath it (as in a sandwich panel construction), the paint layer shall be tested together with the steel and the insulation. Water or another highly conductive liquid should not be used as a secondary substrate in any test method.

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