
**Reaction to fire tests — Mass loss
measurement**

Essais de réaction au feu — Mesurage de la perte de masse



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Published in Switzerland

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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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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 17554 was prepared by Technical Committee ISO/TC 92, *Fire safety*, Subcommittee SC 1, *Fire initiation and growth*.

Reaction to fire tests — Mass loss measurement

1 Scope

This International Standard specifies a small-scale method for assessing the mass loss rate of essentially flat specimens exposed in the horizontal orientation to controlled levels of radiant heating with an external igniter under well-ventilated conditions. The mass loss rate is determined by measurement of the specimen mass and is derived numerically. The time to ignition (sustained flaming) is also measured in this test. Mass loss rate can be used as an indirect measure of heat release rate for many products. However some products, e.g. those with high water content, will have mass loss rates that are not so closely linked to heat release rates. Such products need to be tested in accordance with ISO 5660-1 for correct assessment of heat release.

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 554:1976, *Standard atmospheres for conditioning and/or testing — Specifications*

ISO 13943:2000, *Fire safety — Vocabulary*

ISO/TR 14697:1997, *Fire tests — Guidance on the choice of substrates for building products*

ISO 5660-1, *Reaction-to-fire tests — Heat release, smoke production and mass loss rate — Part 1: Heat release rate (cone calorimeter method)*

3 Terms and definitions

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

3.1

essentially flat surface

surface whose irregularity from a plane does not exceed ± 1 mm

3.2

flashing

existence of flame on or over the surface of the specimen for periods of less than 1 s

3.3

ignition

onset of sustained flaming as defined in 3.9

3.4

irradiance

⟨point on a surface⟩ quotient of the radiant flux incident on an infinitesimal element of surface containing the point, and the area of that element

NOTE Convective heating is negligible in the horizontal specimen orientation. For this reason, the term “irradiance” is used instead of “heat flux” throughout this International Standard, as it best indicates the essentially radiative mode of heat transfer.