INTERNATIONAL STANDARD

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Reaction-to-fire tests — Heat release, smoke production and mass loss rate —

Part 4: Measurement of heat release for determination of low levels of combustibility

Essais de réaction au feu — Débit calorifique, taux de dégagement de fumée et taux de perte de masse —

Partie 4: Mesurage du débit calorifique pour la détermination des bas niveaux de combustibilité

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.

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ISO 5660-4 was prepared by Technical Committee ISO/TC 92, *Fire safety*, Subcommittee SC 1, *Fire initiation and growth*.

ISO 5660 consists of the following parts, under the general title *Reaction-to-fire tests — Heat release, smoke production and mass loss rate*:

— *Part 1: Heat release rate (cone calorimeter method)*

— *Part 2: Smoke production rate (dynamic measurement)*

— *Part 3: Guidance on measurement* [Technical Report]

— *Part 4: Measurement of heat release for determination of low levels of combustibility*

Reaction-to-fire tests — Heat release, smoke production and mass loss rate —

Part 4: Measurement of heat release for determination of low levels of combustibility

WARNING — The test procedures involve high temperatures and combustion processes. Therefore, hazards can exist for burns, ignition of extraneous objects or clothing, and for the inhalation of combustion products. The operator should use protective gloves for insertion and removal of test specimens. Neither the cone heater nor the associated fixtures should be touched while hot except with the use of protective gloves.

Materials containing volatile organic substances, decomposition products or large amounts of moisture can produce violent releases of combustible gases or water vapour during testing.

1 Scope

This part of ISO 5660 specifies a method for evaluating materials and products that produce low levels of heat release when exposed to high heat flux (i.e. irradiance levels) typical of fully developed fires. It differs from ISO 5660-1 [15] by prescribing items such as specific specimen size, specimen holder, specimen orientation, volumetric flow rate for O_2 analyses and irradiance levels at which testing is conducted.

This test method is intended for use on products and materials that contain only small amounts of combustible elements, e.g. test specimens that yield a total heat release of < 15 MJ m^{-2}.

NOTE The test method for specimens that yield moderate to high total heat release is described in ISO 5660-1.

The information obtained from the test method in this part of ISO 5660 can also be used for fire safety engineering purposes.

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

ISO 13943, *Fire safety — Vocabulary*

ISO 14697, *Reaction-to-fire tests — Guidance on the choice of substrates for building and transport products*

ISO 14934–2, *Fire tests — Calibration and use of heat flux meters — Part 2: Primary calibration methods*

ISO 14934-3:2006, *Fire tests — Calibration and use of heat flux meters — Part 3: Secondary calibration method*